

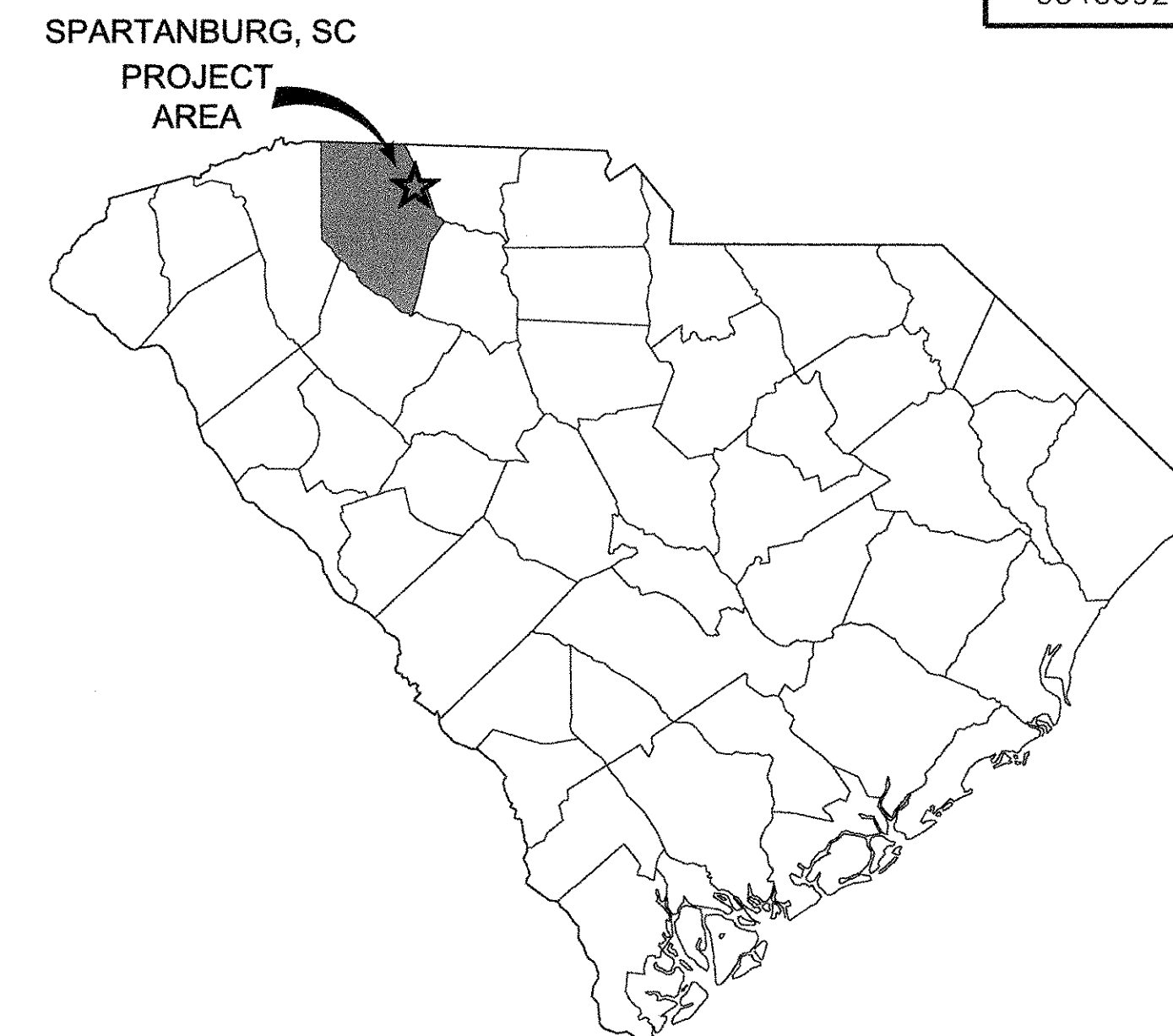
REVISION 1 - 6/20/16

DRAWING NO.	SHEET DESCRIPTION
S-01	SUMMARY OF QUANTITIES
S-02	GENERAL NOTES
S-04	GENERAL PLAN AND ELEVATION
S-42	BEARINGS DETAILS
S-49	WALL 3 DETAILS 1 OF 2
S-50	WALL 3 DETAILS 2 OF 2
S-58	WALL 6 DETAILS 2 OF 3
T-09	PLAN SHEET STA. 1307+00 TO STA. 1321+00
T-10	PLAN SHEET STA. 1321+00 TO STA. 1336+00

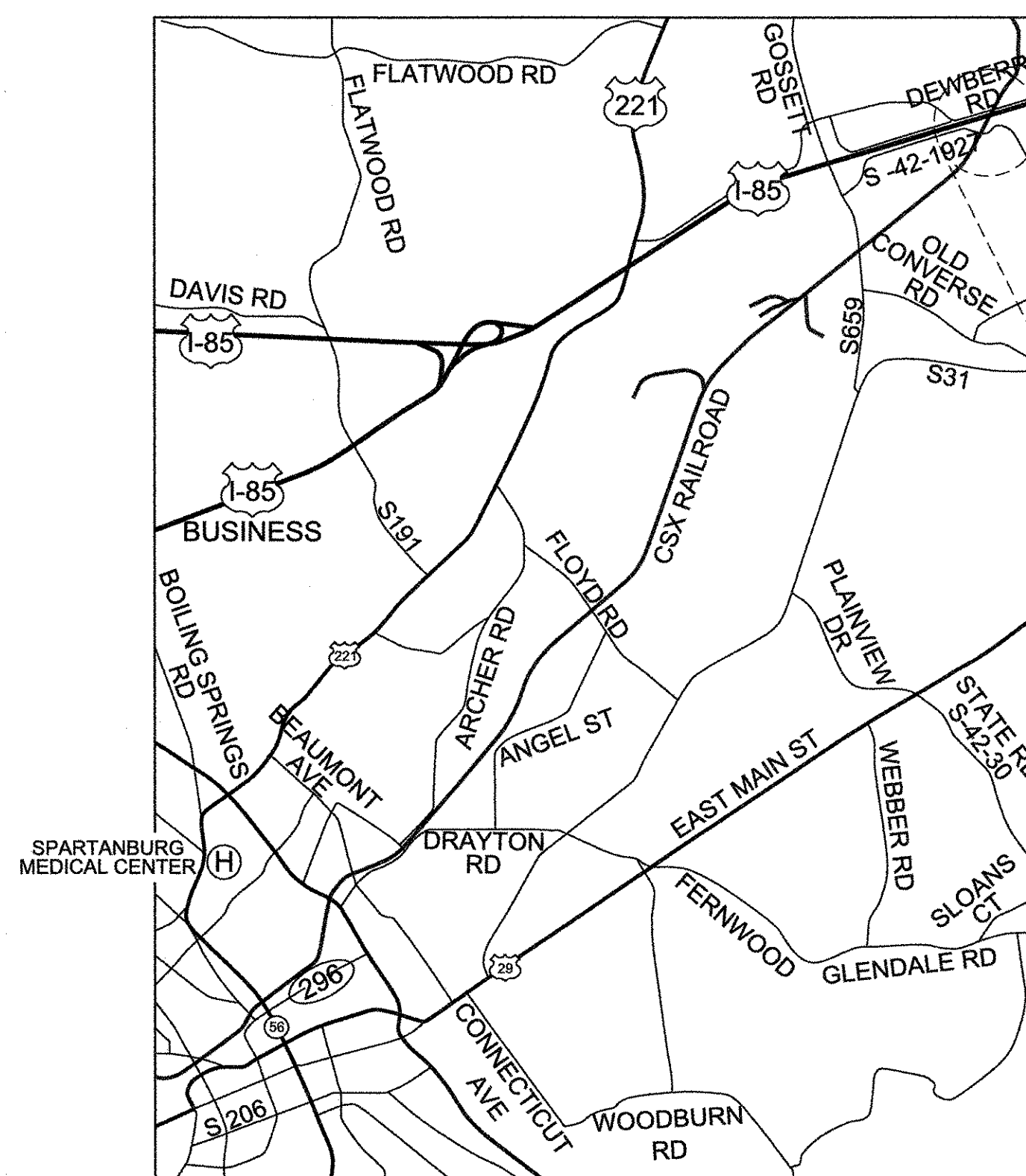


South Carolina Department of Transportation

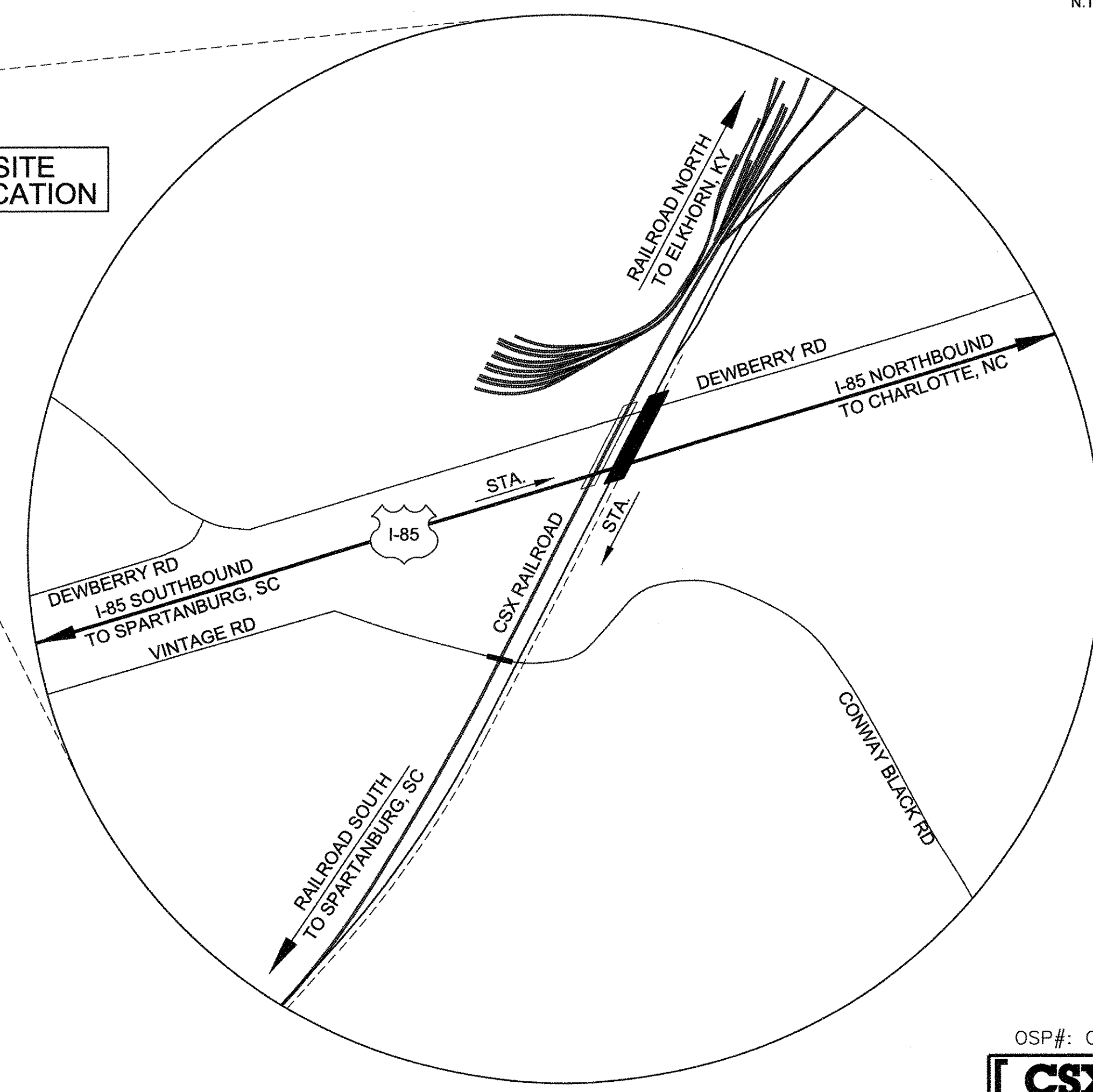
PROPOSED PLANS FOR SPARTANBURG COUNTY, SC PROJECT ID 0040692 REPLACE CSX BRIDGE Z270.19 OVER I-85



LOCATION MAP
N.T.S.



SITE LOCATION



Submit Shop Plans to:

SCDOT
Design-Build Engineer
955 Park Street - Room 421
Columbia, SC 29201

Approximate Location of Bridge is
Latitude 35° 01' - 50.9" N
Longitude 81° 51' - 33.0" W

3 DAYS BEFORE DIGGING IN
SOUTH CAROLINA
CALL 811
SOUTH CAROLINA 811 (SC811)
WWW.SC811.COM
ALL UTILITIES MAY NOT BE A MEMBER OF SC811

ASSET ID SCDOT NO. 3496
CSX BRIDGE NO. Z270.19

CONSULTING ENGINEERING FIRM

TRANSYSTEMS
4390 BELL OAKS DRIVE
SUITE 220
NORTH CHARLESTON, SC 29405
TELEPHONE: 843.266.9300

ENGINEER OF RECORD

FOR CONSTRUCTION: *Derek C. Station* 6/20/16
DATE

	BRIDGE OVER I-85
NET LENGTH OF ROADWAY	0.000
NET LENGTH OF BRIDGES	0.070
NET LENGTH OF PROJECT	0.000
LENGTH OF EXCEPTIONS	0.000
GROSS LENGTH OF PROJECT	0.000

NOTE: EXCEPT AS MAY OTHERWISE BE SPECIFIED ON THE PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIALS AND WORKMANSHIP ON THIS PROJECT SHALL CONFORM TO THE SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2007 EDITION), THE STANDARD DRAWINGS FOR ROAD CONSTRUCTION AND THE CURRENT EDITION OF THE AMERICAN RAILWAYS ENGINEERING AND MAINTENANCE-OF-WAY ASSOCIATION (AREMA) MANUAL FOR RAILWAY ENGINEERING IN EFFECT AT THE TIME OF THE RELEASE OF THE FINAL RFP.

OSP#: OPSC0290

ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

BRIDGE NO Z270.19 AT M.P. 270.19
COVER SHEET

SPARTANBURG SC

DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE

SCALE: AS SHOWN
DATE: 6/20/2016
DESIGN: LSS
DRAWN: LSS
CHK'D: AJG

VAL. SEC. 655 SC
DRAWING NO. G-01
1 OF 139

PROJECT NO. P301140022 FILE:

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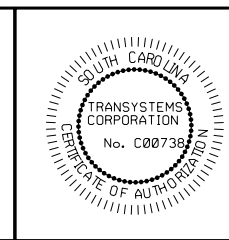
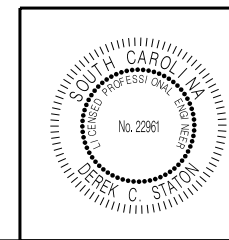
INDEX OF SHEETS

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OSP#: OPSC0290



REVISIONS	BRIDGE NO Z270.19 AT M.P. 270.19
	INDEX OF SHEETS
	SPARTANBURG SC
	DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE
SCALE: AS SHOWN DATE: 5/24/2016 DESIGN: LSS DRAWN: LSS CHK'D: AJG	VAL. SEC. 655 SC
	DRAWING NO. G-02 2 OF 139

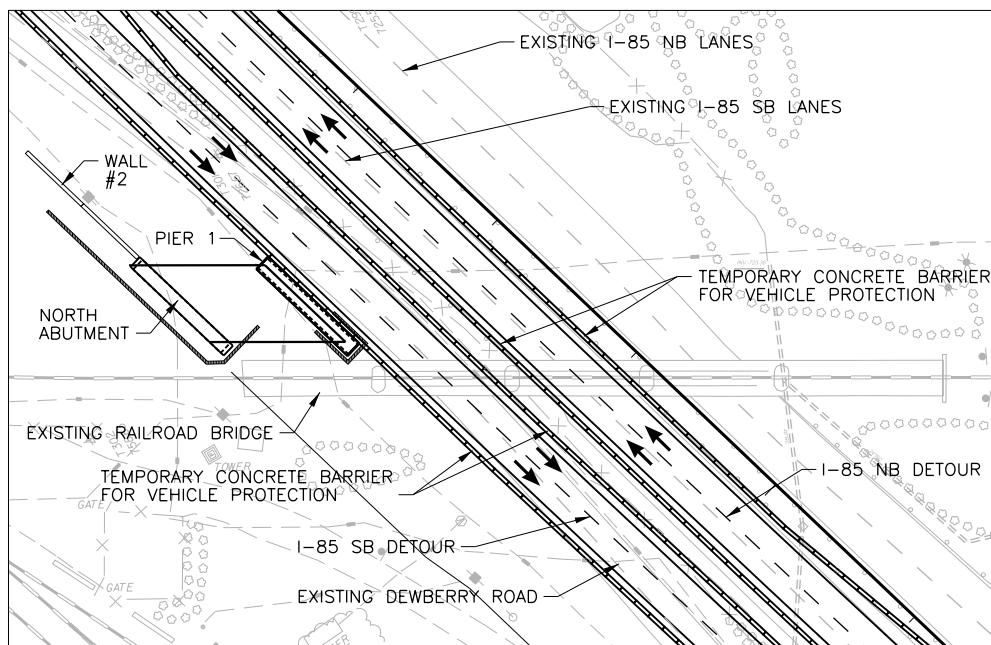


PROJECT NO. P301140022 FILE:

NOTE
1. SHEETS LABELED N.I.C. ARE NOT IN CONTRACT AND PROVIDED FOR INFORMATION ONLY.

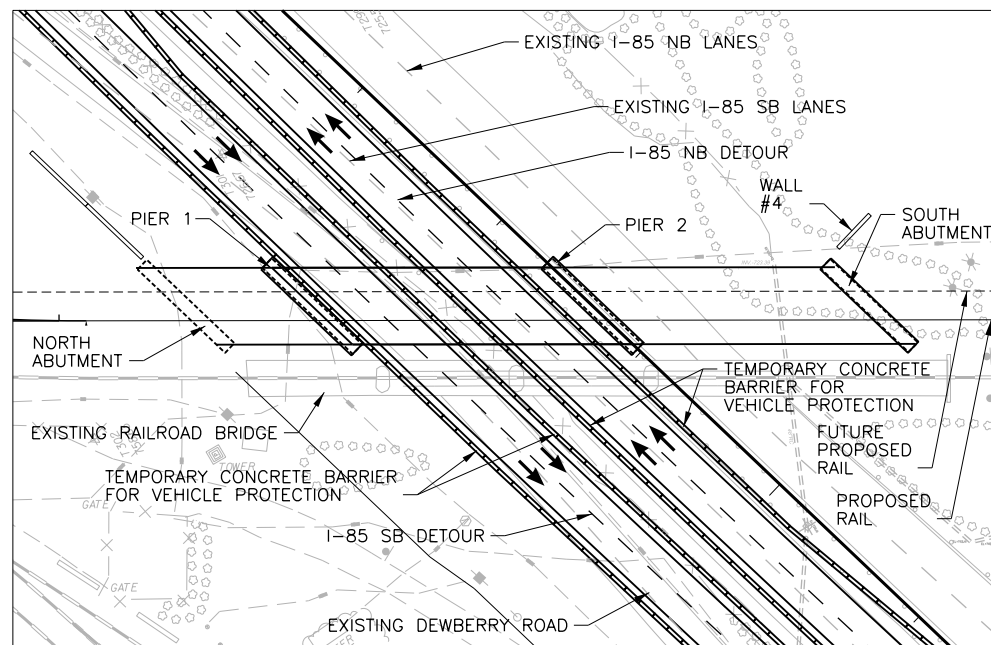
PHASE 1

1. CLOSE DEWBERRY ROAD.
2. BARRICADE AT LAST DRIVEWAY EACH SIDE OF RAILROAD BRIDGE.
3. CONSTRUCT PROPOSED NORTH ABUTMENT, WALL #2 AND PIER 1 OF RAILROAD BRIDGE.
4. CONSTRUCT SPAN 1 SUPERSTRUCTURE.
5. CONSTRUCT I-85 SB LANES DETOUR (70 MPH WITH NORMAL CROWN)
6. INSTALL TRAFFIC BARRIER PROTECTION AND DETOUR SB TRAFFIC.
7. CONSTRUCT I-85 NB LANES DETOUR (70 MPH WITH NORMAL CROWN)
8. INSTALL TRAFFIC BARRIER PROTECTION AND DETOUR NB TRAFFIC.



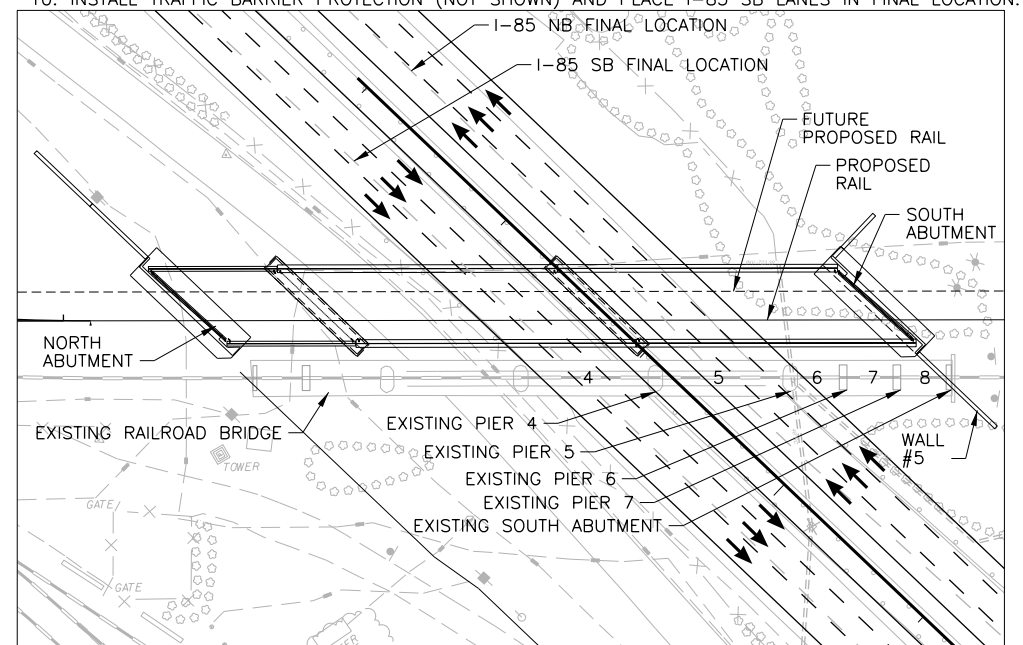
PHASE 2

1. CONSTRUCT PROPOSED PIER 2.
2. CONSTRUCT PROPOSED SOUTH ABUTMENT AND WALL #4.
3. CONSTRUCT SPAN 2 AND 3 SUPERSTRUCTURE.
4. CONSTRUCT PROPOSED TRACK. WILL REQUIRE MINOR TRACK CLOSURE FOR CUT AND THROW CONSTRUCTION.
5. PLACE RAIL ONTO PROPOSED ALIGNMENT.



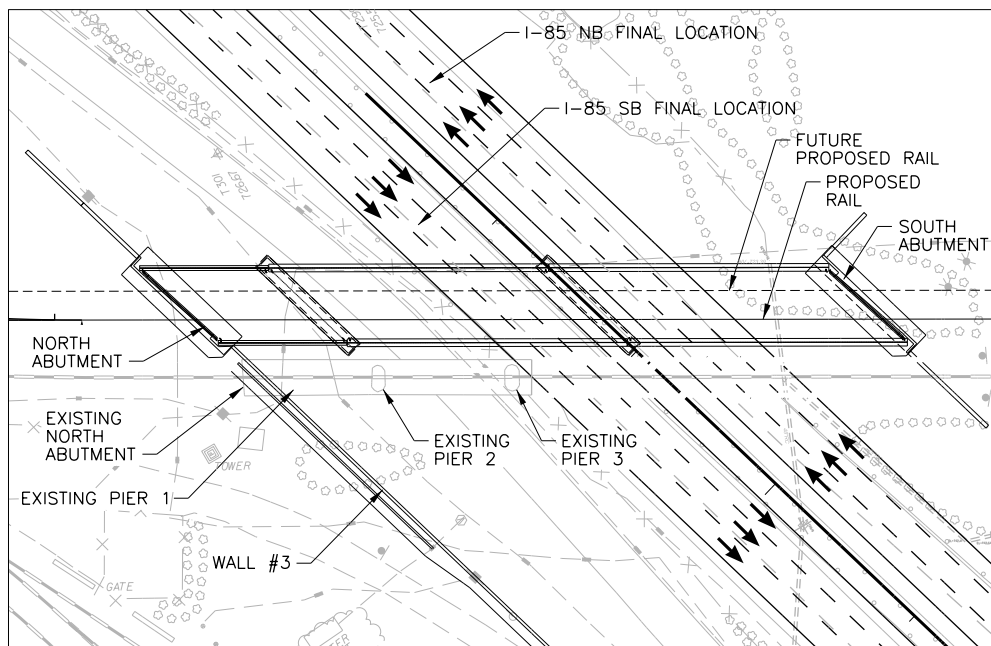
PHASE 3

1. DEMOLISH EXISTING SUPERSTRUCTURE SPANS 5, 6, 7, AND 8.
2. DEMOLISH EXISTING PIER 5, 6, 7 AND SOUTH ABUTMENT.
3. CONSTRUCT WALL #5
4. CONSTRUCT I-85 NB WIDENING.
5. INSTALL TRAFFIC BARRIER PROTECTION (NOT SHOWN) AND PLACE I-85 NB LANES IN FINAL LOCATION.
6. DEMOLISH EXISTING SPAN 4.
7. DEMOLISH EXISTING PIER 4.
8. INSTALL CONCRETE MEDIAN BARRIER AT PIER 2 (NOT SHOWN).
9. CONSTRUCT I-85 SB WIDENING.
10. INSTALL TRAFFIC BARRIER PROTECTION (NOT SHOWN) AND PLACE I-85 SB LANES IN FINAL LOCATION.



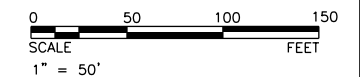
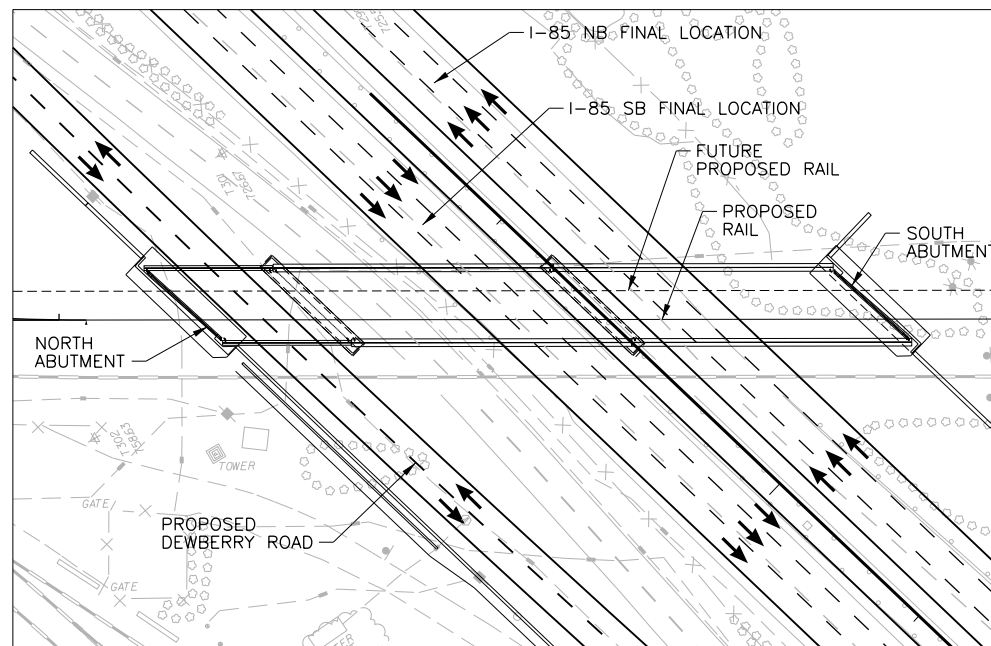
PHASE 4

1. DEMOLISH EXISTING SUPERSTRUCTURE SPANS 1, 2 AND 3.
2. DEMOLISH EXISTING PIERS 1, 2, 3 AND NORTH ABUTMENT.
3. CONSTRUCT WALL #3.



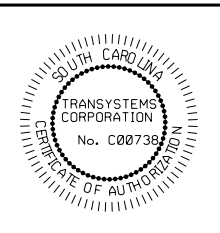
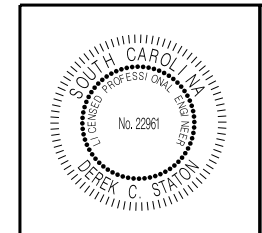
PHASE 5

1. CONSTRUCT DEWBERRY ROAD IN PERMANENT LOCATION.
2. REMOVE BARRIERS CLOSING DEWBERRY ROAD.



OSP#: OPSC0290

CSX How tomorrow moves.		ENGINEERING DEPARTMENT MAINTENANCE OF WAY BRIDGE MAINTENANCE AND DESIGN	
REVISIONS		BRIDGE NO Z270.19 AT M.P. 270.19	
		SUGGESTED SEQUENCE OF CONSTRUCTION	
		SPARTANBURG SC	
DIVISION: HUNTINGTON		SUBDIVISION: BLUE RIDGE	
SCALE: AS SHOWN	VAL. SEC.	DRAWING NO.	
DATE: 5/24/2016	655	G-03	
DESIGN: LSS	SC	3 OF 139	
DRAWN: LSS			
CHK'D: AJG			

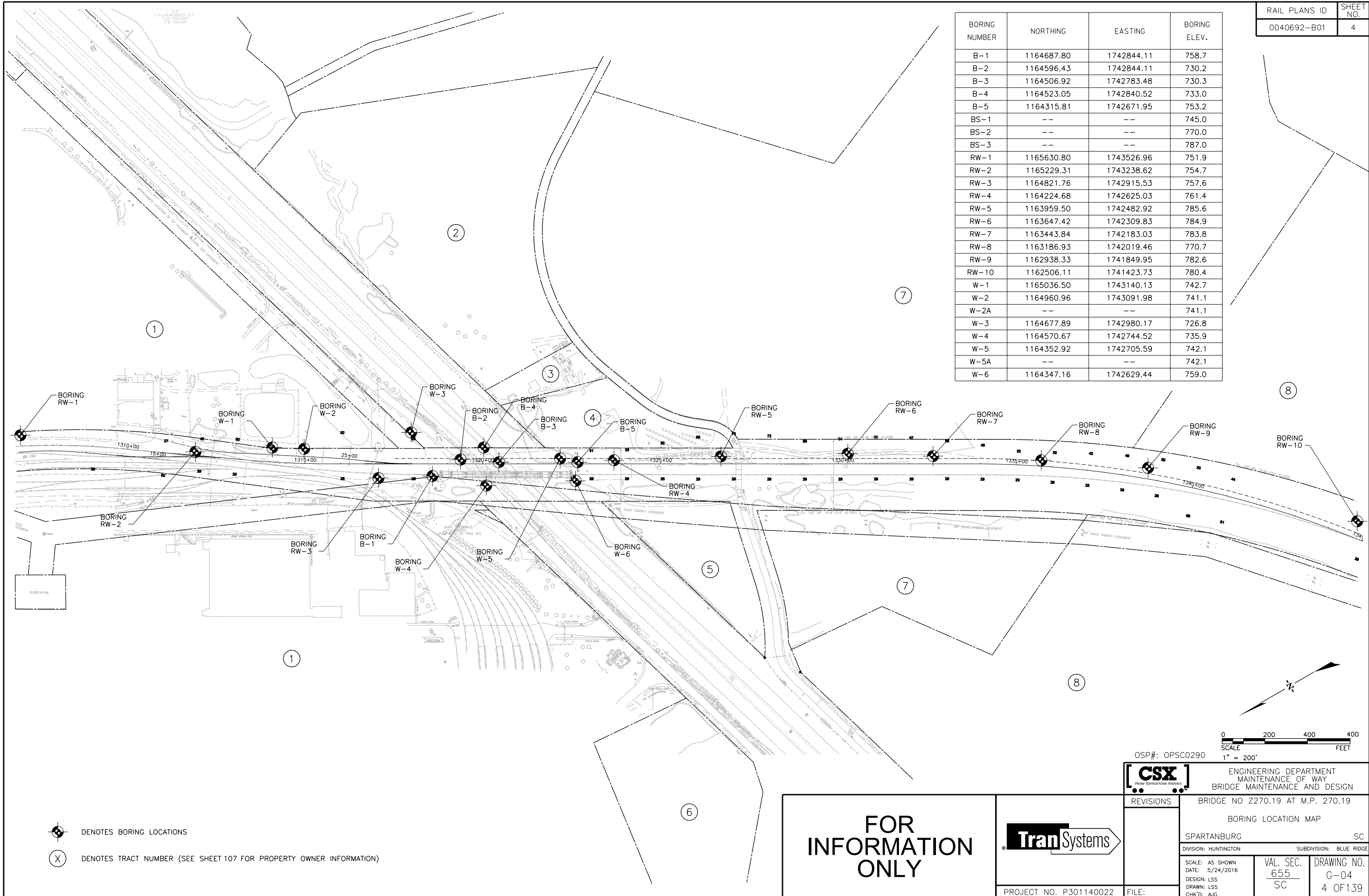


PROJECT NO. P301140022

FILE:

SUSERS & together - "dwgpcseint"%gatestrg - "dwgname", Plotted:\$(etime, 0, MON DD " YY - HMMm/pm)

BORING NUMBER	NORTHING	EASTING	BORING ELEV.
B-1	1164687.80	1742844.11	758.7
B-2	1164596.43	1742844.11	730.2
B-3	1164506.92	1742783.48	730.3
B-4	1164523.05	1742840.52	733.0
B-5	1164315.81	1742671.95	753.2
BS-1	--	--	745.0
BS-2	--	--	770.0
BS-3	--	--	787.0
RW-1	1165630.80	1743526.96	751.9
RW-2	1165229.31	1743238.62	754.7
RW-3	1164821.76	1742915.53	757.6
RW-4	1164224.68	1742625.03	761.4
RW-5	1163959.50	1742482.92	785.6
RW-6	1163647.42	1742309.83	784.9
RW-7	1163443.84	1742183.03	783.8
RW-8	1163186.93	1742019.46	770.7
RW-9	1162938.33	1741849.95	782.6
RW-10	1162506.11	1741423.73	780.4
W-1	1165036.50	1743140.13	742.7
W-2	1164960.96	1743091.98	741.1
W-2A	--	--	741.1
W-3	1164677.89	1742980.17	726.8
W-4	1164570.67	1742744.52	735.9
W-5	1164352.92	1742705.59	742.1
W-5A	--	--	742.1
W-6	1164347.16	1742629.44	759.0



- DENOTES BORING LOCATIONS
- DENOTES TRACT NUMBER (SEE SHEET 107 FOR PROPERTY OWNER INFORMATION)

FOR
INFORMATION
ONLY



OSP#: OPSC0290

CSX ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

BRIDGE NO Z270.19 AT M.P. 270.19

BORING LOCATION MAP

SPARTANBURG SC

DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE

SCALE: AS SHOWN	VAL. SEC.	DRAWING NO.
DATE: 5/24/2016	655	G-04
DESIGN: LSS	SC	4 OF 139
DRAWN: LSS		
CHK'D: AJG		

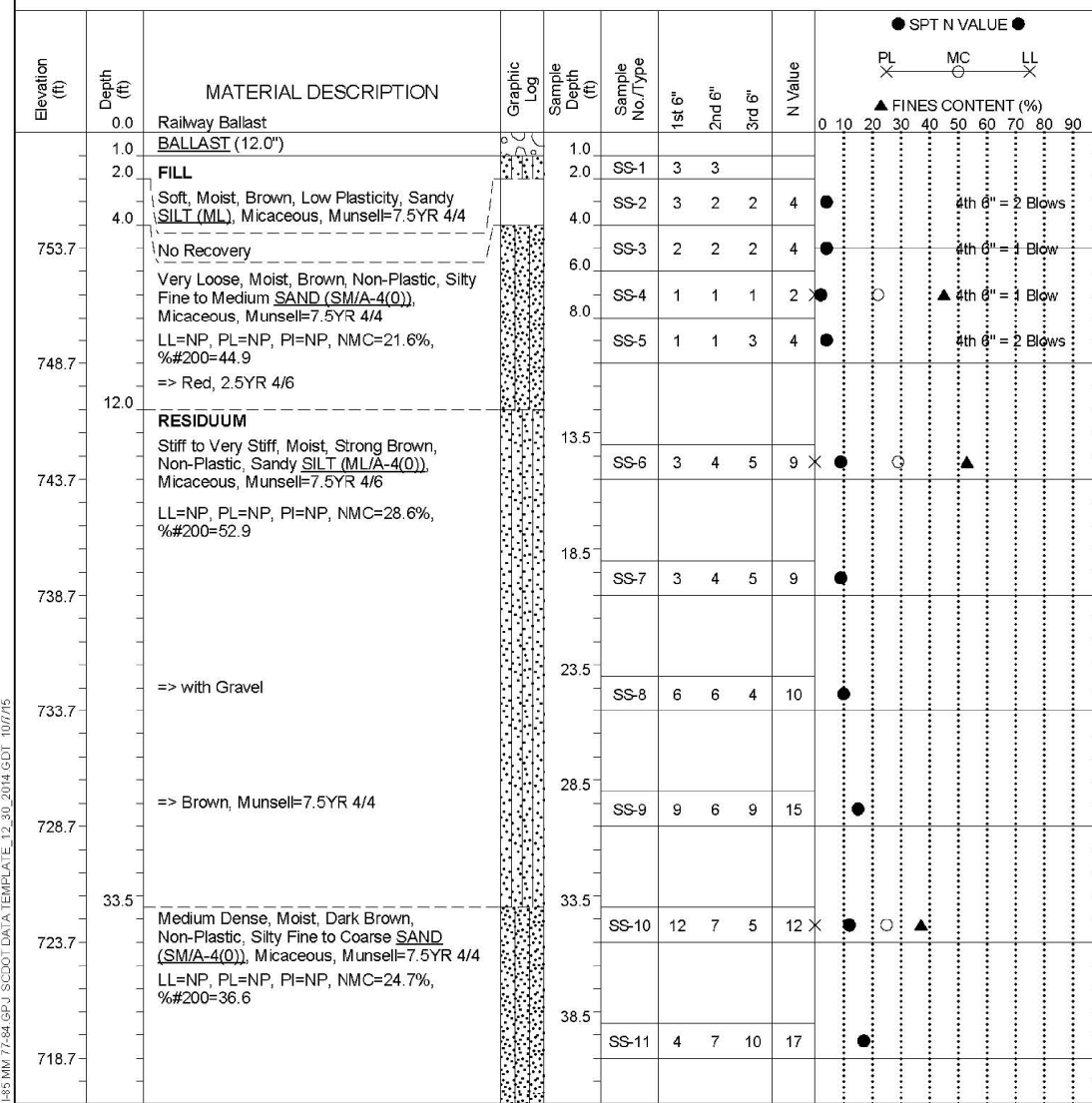
PROJECT NO. P301140022 FILE:

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BORING LOG

SCDOT Soil Test Log

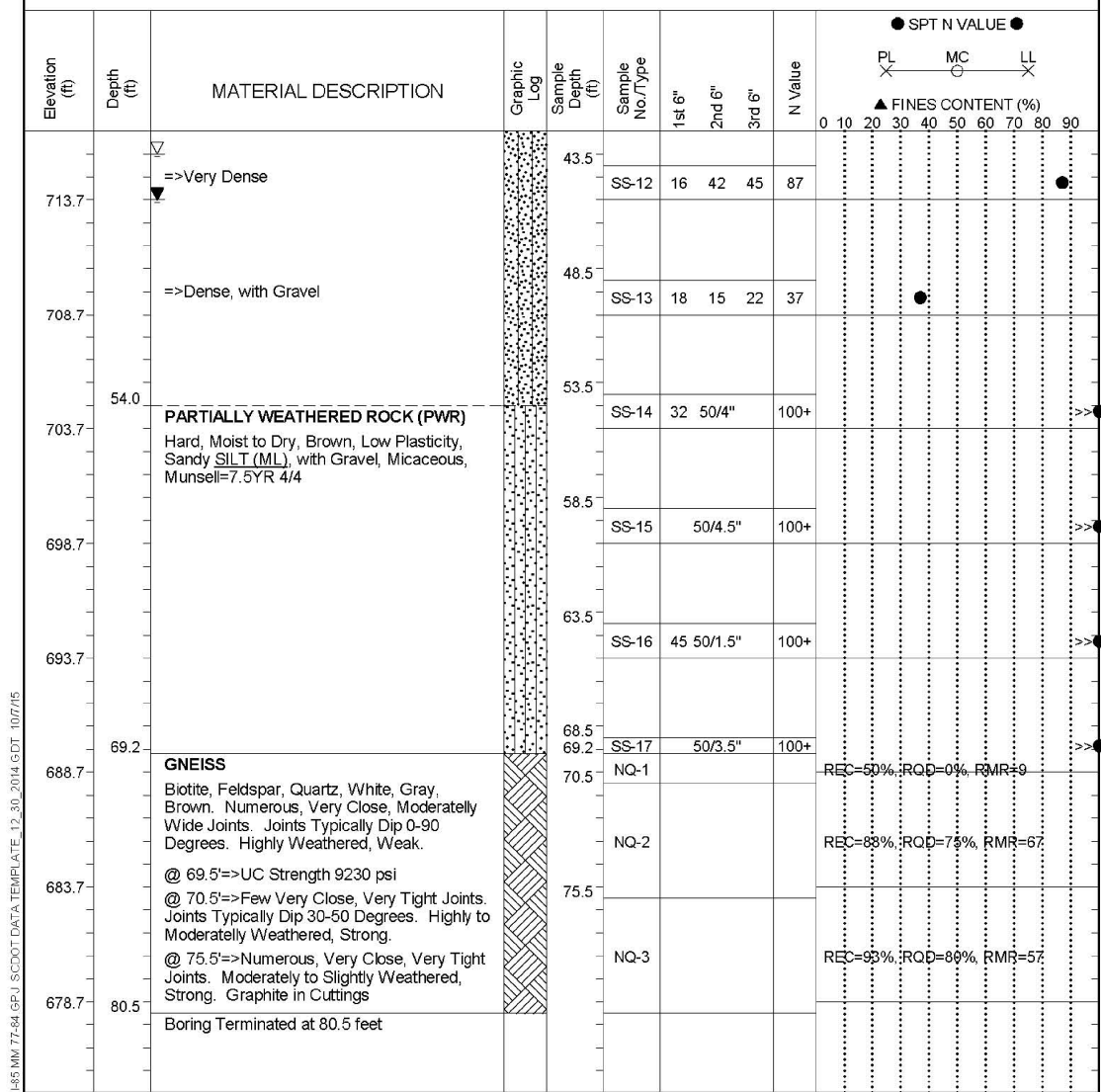
Project ID:	0040692	County:	Spartanburg	Boring No.:	B-1
Site Description:	I-85 Rehabilitation Mile Marker 77 to 84			Route:	CSX Mainline
Eng./Geo.:	R. Wessinger	Boring Location:	1318+64	Offset:	43.9 R
Elev.:	758.7 ft	Latitude:	35.031316	Longitude:	81.8589212
Date Started:	8/26/2015				
Total Depth:	80.5 ft	Soil Depth:	69.2 ft	Core Depth:	11.3 ft
Date Completed:	8/27/2015				
Bore Hole Diameter (in):	6.0	Sampler Configuration:		Liner Required:	Y (N)
Liner Used:	Y (N)				
Drill Machine:	CME 550	Drill Method:	HSA/RC	Hammer Type:	Automatic
Energy Ratio:	74%				
Core Size:	NQ	Driller:	D. Harris	Groundwater:	TOB 43 ft
24HR:	45 ft				



SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SCDOT Soil Test Log

Project ID:	0040692	County:	Spartanburg	Boring No.:	B-1
Site Description:	I-85 Rehabilitation Mile Marker 77 to 84			Route:	CSX Mainline
Eng./Geo.:	R. Wessinger	Boring Location:	1318+64	Offset:	43.9 R
Elev.:	758.7 ft	Latitude:	35.031316	Longitude:	81.8589212
Date Started:	8/26/2015				
Total Depth:	80.5 ft	Soil Depth:	69.2 ft	Core Depth:	11.3 ft
Date Completed:	8/27/2015				
Bore Hole Diameter (in):	6.0	Sampler Configuration:		Liner Required:	Y (N)
Liner Used:	Y (N)				
Drill Machine:	CME 550	Drill Method:	HSA/RC	Hammer Type:	Automatic
Energy Ratio:	74%				
Core Size:	NQ	Driller:	D. Harris	Groundwater:	TOB 43 ft
24HR:	45 ft				



SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SUSERS & together - "dwgdate(m)"&partname - "dwgname", Plotted:\$(etime), 0, MON DD "YY - H:MMam/pm)

SC.DOT.G5439-185.MM.77-84.GPJ.SCDOT.DATA.TEMPLATE.12.30.2014.GDT.10/7/15

SC.DOT.G5439-185.MM.77-84.GPJ.SCDOT.DATA.TEMPLATE.12.30.2014.GDT.10/7/15

OSP#: OPSC0290

CSX ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

BRIDGE NO Z270.19 AT M.P. 270.19
BORING LOG SHEET (B-1)

SPARTANBURG SC
DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE

SCALE: AS SHOWN
DATE: 5/24/2016
DESIGN: LSS
DRAWN: LSS
CHK'D: AJG

VAL. SEC. 655 SC
DRAWING NO. G-05
5 OF 139

FOR INFORMATION ONLY

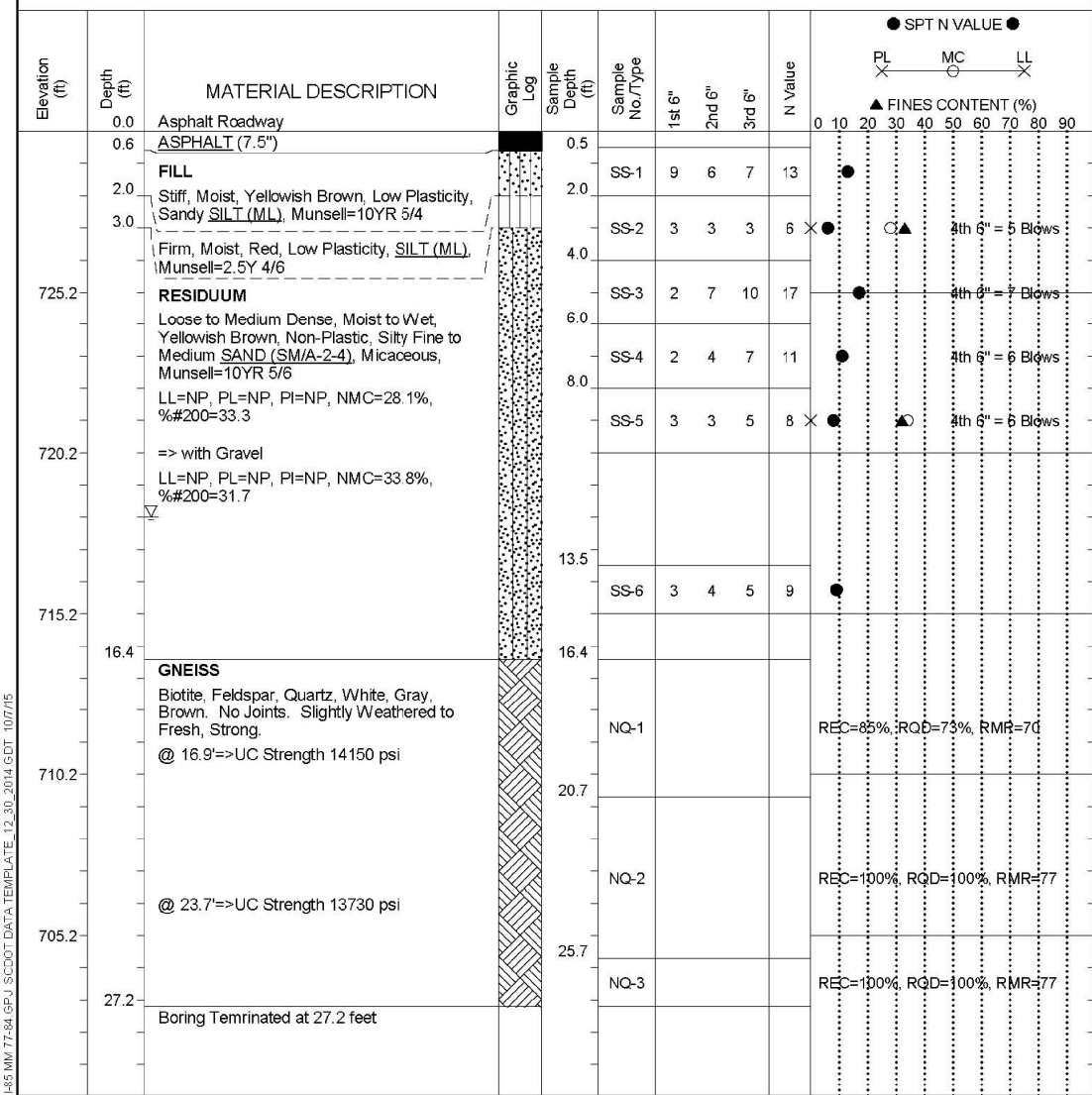
PROJECT NO. P301140022



BORING LOG



Project ID: 0040692	County: Spartanburg	Boring No.: B-2
Site Description: I-85 Rehabilitation Mile Marker 77 to 84		Route: CSX Mainline
Eng./Geo.: R. Wessinger	Boring Location: 1319+38	Offset: 11.9 L
Elev.: 730.2 ft	Latitude: 35.0309921	Longitude: 81.859213
Date Started: 8/28/2015	Alignment: Centerline	
Total Depth: 27.2 ft	Soil Depth: 16.4 ft	Core Depth: 10.8 ft
Date Completed: 8/8/2015		
Bore Hole Diameter (in): 6.0	Sampler Configuration:	Liner Required: Y (N)
Drill Machine: CME 550	Drill Method: HSA/RC	Liner Used: Y (N)
Core Size: NQ	Driller: D. Harris	Hammer Type: Automatic
	Groundwater: TOB	Energy Ratio: 74%
		24HR: NR



SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

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**FOR
INFORMATION
ONLY**

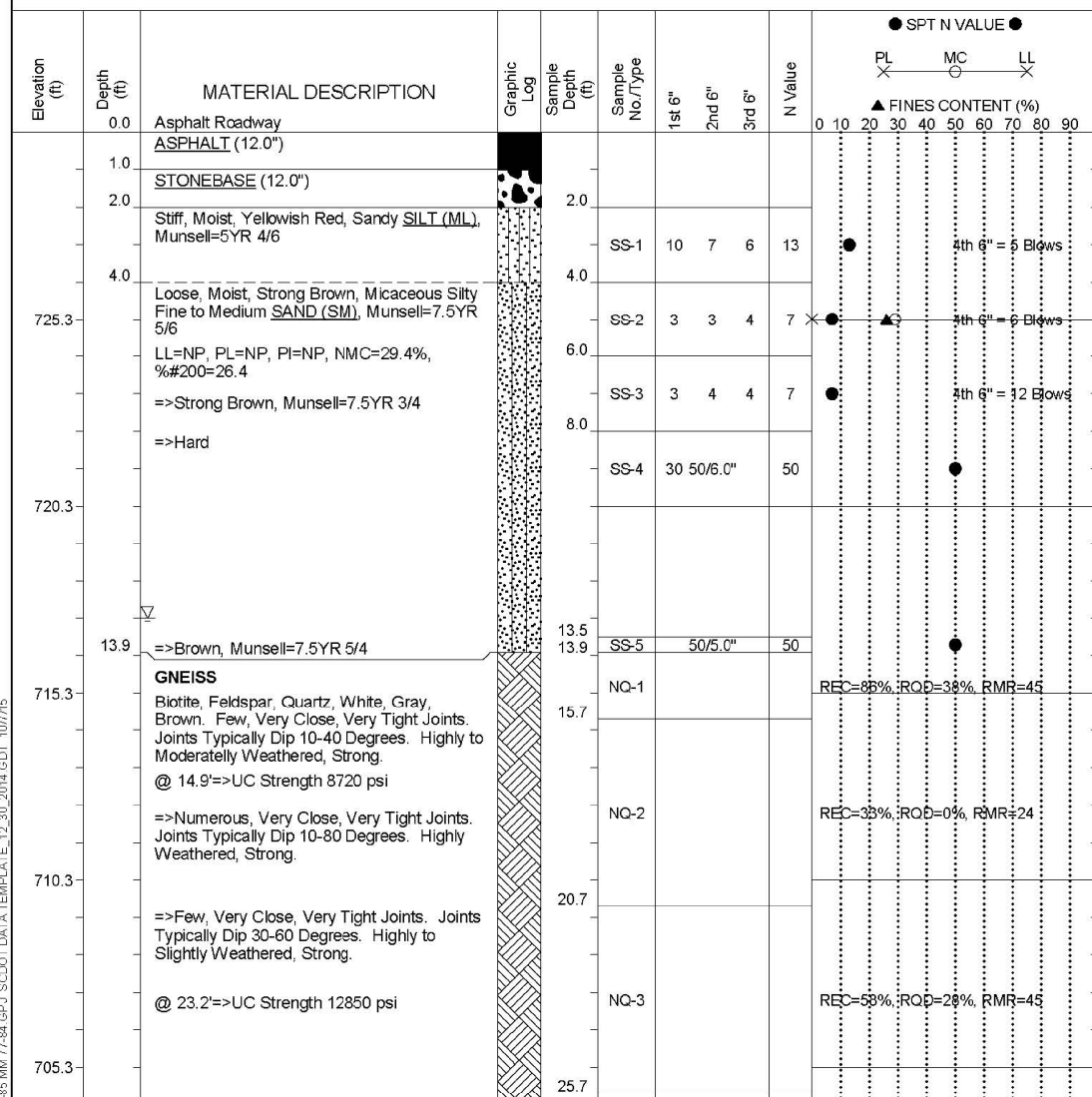


OSP#: OPSC0290	
CSX <small>How tomorrow moves</small>	ENGINEERING DEPARTMENT MAINTENANCE OF WAY BRIDGE MAINTENANCE AND DESIGN
BRIDGE NO Z270.19 AT M.P. 270.19	
BORING LOG SHEET (B-2)	
SPARTANBURG	SC
DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
SCALE: AS SHOWN DATE: 5/24/2016 DESIGN: LSS DRAWN: LSS CHK'D: AJG	VAL. SEC. 655 SC
PROJECT NO. P301140022	DRAWING NO. G-06 6 OF 139

BORING LOG

SCDOT Soil Test Log

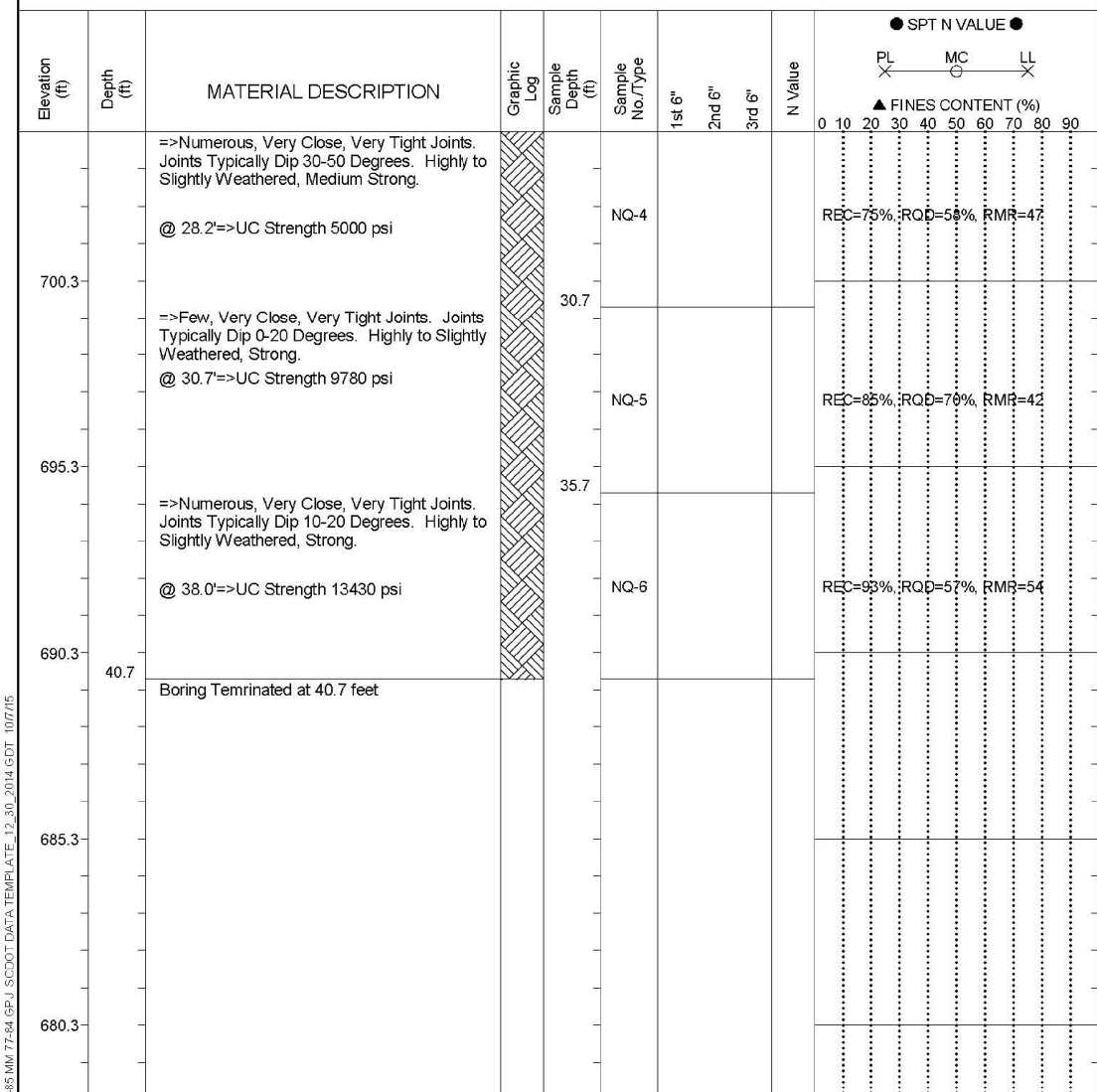
Project ID: 0040692	County: Spartanburg	Boring No.: B-3
Site Description: I-85 Rehabilitation Mile Marker 77 to 84	Route: CSX Mainline	
Eng./Geo.: R. Wessinger	Boring Location: 1320+48	Offset: 7.9 L
Elev.: 730.3 ft	Latitude: 35.0308516	Longitude: 81.8588872
Total Depth: 40.7 ft	Soil Depth: 13.9 ft	Date Completed: 9/9/2015
Bore Hole Diameter (in): 6.0	Sampler Configuration:	Liner Required: Y (N)
Drill Machine: CME 550	Drill Method: HSA/RC	Hammer Type: Automatic
Core Size: NQ	Driller: D. Harris	Groundwater: TOB 13 ft



SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SCDOT Soil Test Log

Project ID: 0040692	County: Spartanburg	Boring No.: B-3
Site Description: I-85 Rehabilitation Mile Marker 77 to 84	Route: CSX Mainline	
Eng./Geo.: R. Wessinger	Boring Location: 1320+48	Offset: 7.9 L
Elev.: 730.3 ft	Latitude: 35.0308516	Longitude: 81.8588872
Total Depth: 40.7 ft	Soil Depth: 13.9 ft	Date Completed: 9/9/2015
Bore Hole Diameter (in): 6.0	Sampler Configuration:	Liner Required: Y (N)
Drill Machine: CME 550	Drill Method: HSA/RC	Hammer Type: Automatic
Core Size: NQ	Driller: D. Harris	Groundwater: TOB 13 ft



SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

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OSP#: OPSC0290



ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

FOR INFORMATION ONLY

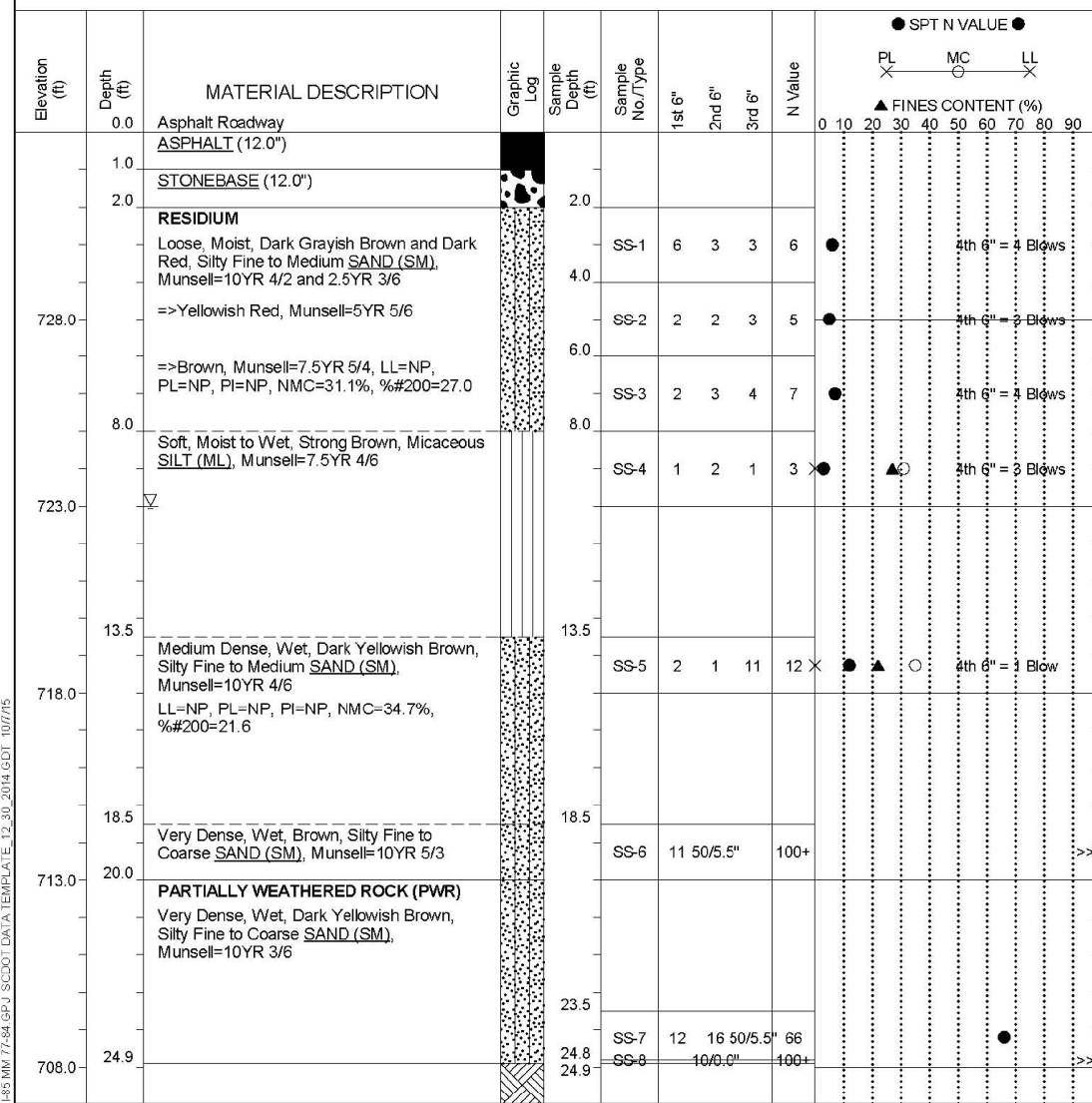


REVISIONS		BRIDGE NO Z270.19 AT M.P. 270.19	
		BORING LOG SHEET (B-3)	
SPARTANBURG		SC	
DIVISION: HUNTINGTON		SUBDIVISION: BLUE RIDGE	
SCALE: AS SHOWN	VAL. SEC.	DRAWING NO.	
DATE: 5/24/2016	655	G-07	
DESIGN: LSS	SC	7 OF 139	
DRAWN: LSS			
CHK'D: AJG			

BORING LOG

SCDOT Soil Test Log

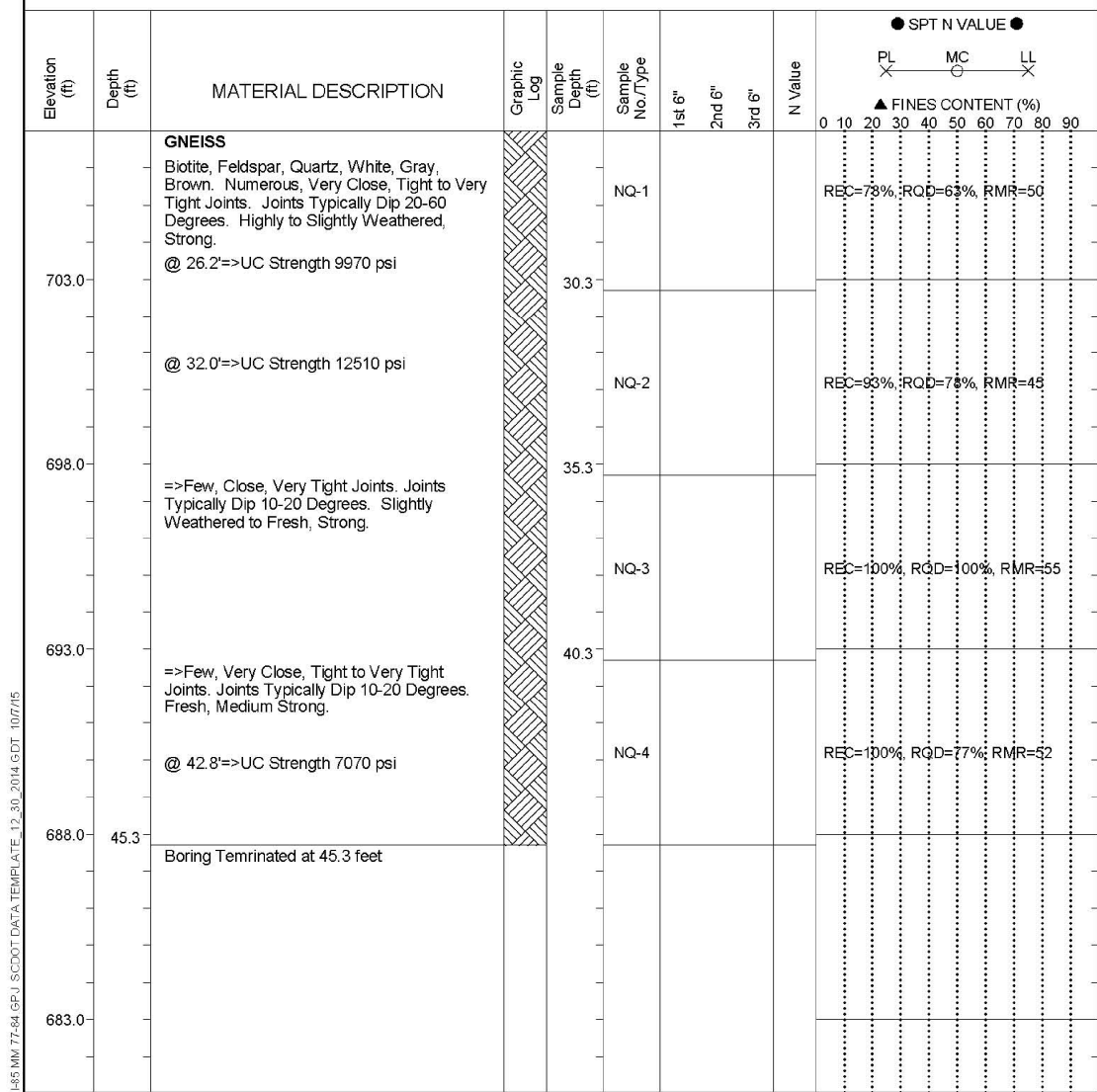
Project ID:	0040692	County:	Spartanburg	Boring No.:	B-4
Site Description:	I-85 Rehabilitation Mile Marker 77 to 84		Route:	CSX Mainline	
Eng./Geo.:	R. Wessinger	Boring Location:	1320+06	Offset:	49.0 L
Elev.:	733.0 ft	Latitude:	35.0308061	Longitude:	81.8590768
Total Depth:	45.3 ft	Soil Depth:	24.9 ft	Date Completed:	9/9/2015
Bore Hole Diameter (in):	6.0	Sampler Configuration:		Liner Required:	Y (N)
Drill Machine:	CME 550	Drill Method:	HSA/RC	Hammer Type:	Automatic
Core Size:	NQ	Driller:	D. Harris	Groundwater:	TOB 10 ft



LEGEND		Continued Next Page	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SCDOT Soil Test Log

Project ID:	0040692	County:	Spartanburg	Boring No.:	B-4
Site Description:	I-85 Rehabilitation Mile Marker 77 to 84		Route:	CSX Mainline	
Eng./Geo.:	R. Wessinger	Boring Location:	1320+06	Offset:	49.0 L
Elev.:	733.0 ft	Latitude:	35.0308061	Longitude:	81.8590768
Total Depth:	45.3 ft	Soil Depth:	24.9 ft	Date Completed:	9/9/2015
Bore Hole Diameter (in):	6.0	Sampler Configuration:		Liner Required:	Y (N)
Drill Machine:	CME 550	Drill Method:	HSA/RC	Hammer Type:	Automatic
Core Size:	NQ	Driller:	D. Harris	Groundwater:	TOB 10 ft



LEGEND		Continued Next Page	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

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OSP#: OPSC0290

CSX ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

BRIDGE NO Z270.19 AT M.P. 270.19
BORING LOG SHEET (B-4)

SPARTANBURG SC
DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE

SCALE: AS SHOWN
DATE: 5/24/2016
DESIGN: LSS
DRAWN: LSS
CHK'D: AJG

VAL. SEC. 655
DRAWING NO. G-08
8 OF 139

FOR INFORMATION ONLY

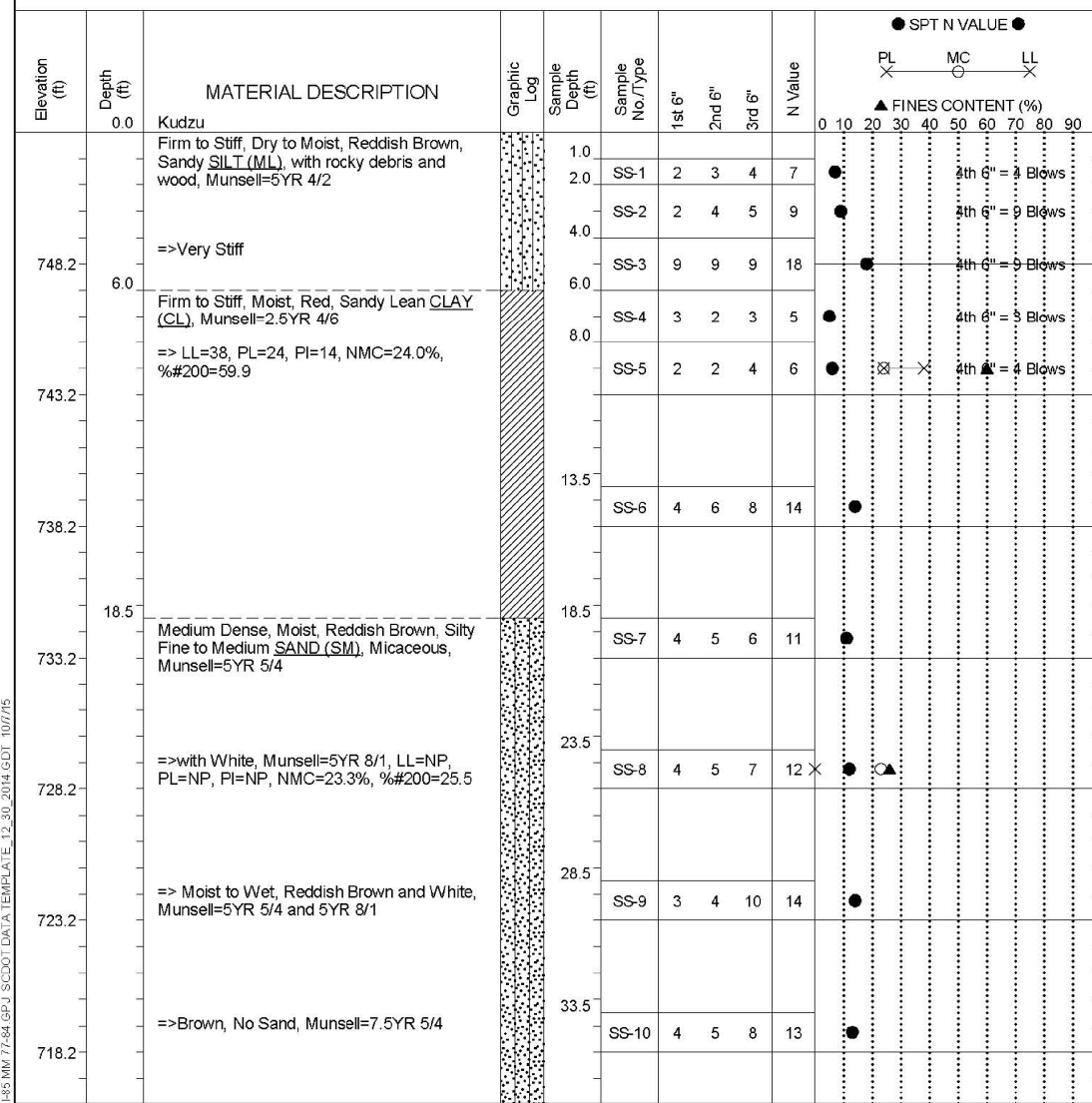
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PROJECT NO. P301140022 FILE:

BORING LOG

SCDOT Soil Test Log

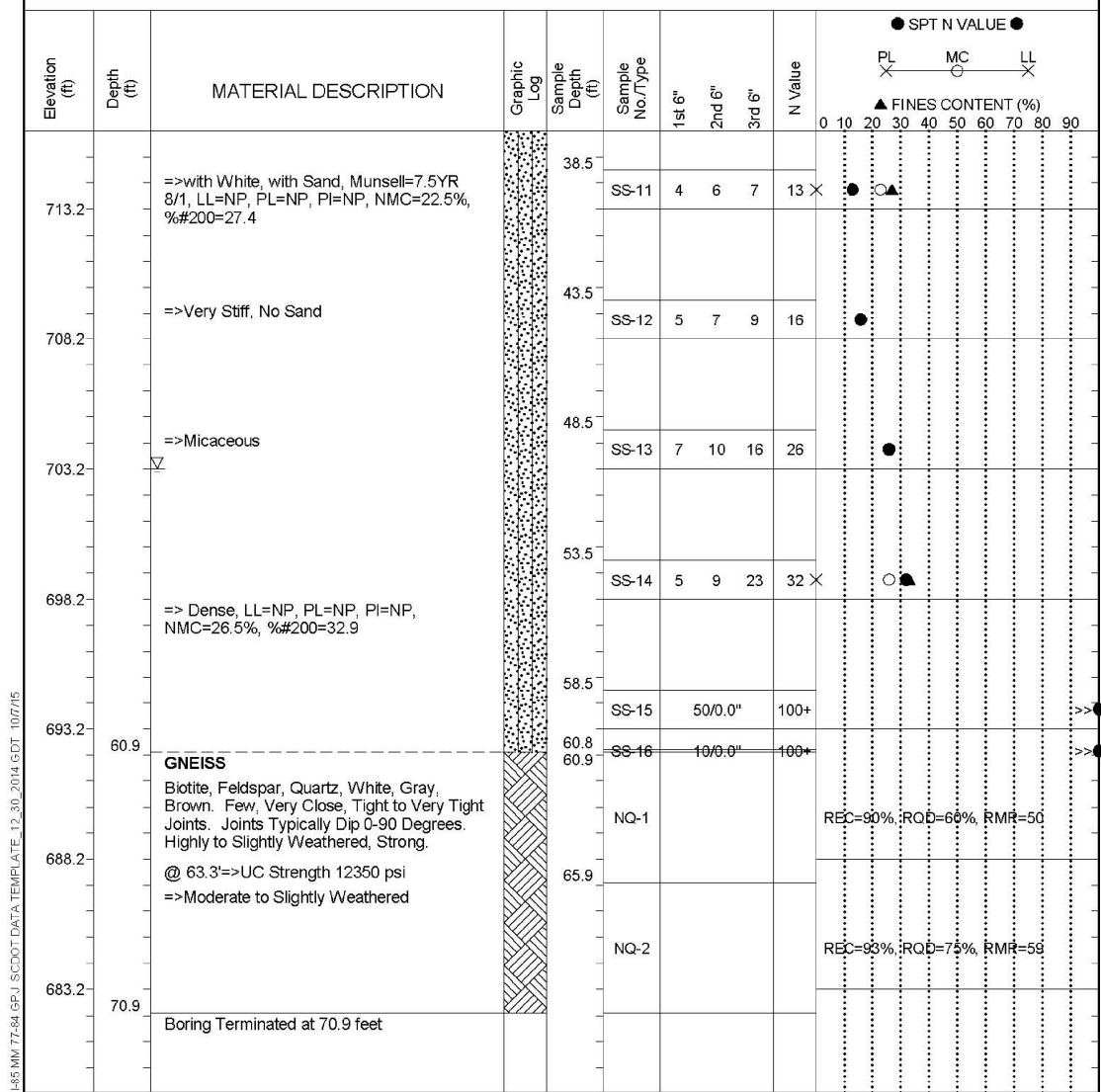
Project ID:	0040692	County:	Spartanburg	Boring No.:	B-5
Site Description:	I-85 Rehabilitation Mile Marker 77 to 84		Route:	CSX Mainline	
Eng./Geo.:	R. Wessinger	Boring Location:	1322+67	Offset:	5.0 L
Elev.:	753.2 ft	Latitude:	35.0302896	Longitude:	81.8594473
Date Started:	9/4/2015				
Total Depth:	70.9 ft	Soil Depth:	60.9 ft	Core Depth:	10.0 ft
Date Completed:	9/4/2015				
Bore Hole Diameter (in):	6.0	Sampler Configuration:		Liner Required:	Y (N)
Liner Used:	Y (N)				
Drill Machine:	CME 550	Drill Method:	HSA/RC	Hammer Type:	Automatic
Energy Ratio:	74%				
Core Size:	NQ	Driller:	D. Harris	Groundwater:	TOB 50 ft
24HR:	NR				



LEGEND		Continued Next Page	
SAMPLER TYPE SS - Split Spoon UD - Undisturbed Sample AWG - Rock Core, 1-1/8"		DRILLING METHOD NQ - Rock Core, 1-7/8" CU - Cuttings CT - Continuous Tube HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	

SCDOT Soil Test Log

Project ID:	0040692	County:	Spartanburg	Boring No.:	B-5
Site Description:	I-85 Rehabilitation Mile Marker 77 to 84		Route:	CSX Mainline	
Eng./Geo.:	R. Wessinger	Boring Location:	1322+67	Offset:	5.0 L
Elev.:	753.2 ft	Latitude:	35.0302896	Longitude:	81.8594473
Date Started:	9/4/2015				
Total Depth:	70.9 ft	Soil Depth:	60.9 ft	Core Depth:	10.0 ft
Date Completed:	9/4/2015				
Bore Hole Diameter (in):	6.0	Sampler Configuration:		Liner Required:	Y (N)
Liner Used:	Y (N)				
Drill Machine:	CME 550	Drill Method:	HSA/RC	Hammer Type:	Automatic
Energy Ratio:	74%				
Core Size:	NQ	Driller:	D. Harris	Groundwater:	TOB 50 ft
24HR:	NR				



LEGEND		Continued Next Page	
SAMPLER TYPE SS - Split Spoon UD - Undisturbed Sample AWG - Rock Core, 1-1/8"		DRILLING METHOD NQ - Rock Core, 1-7/8" CU - Cuttings CT - Continuous Tube HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	

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OSP#: OPSC0290

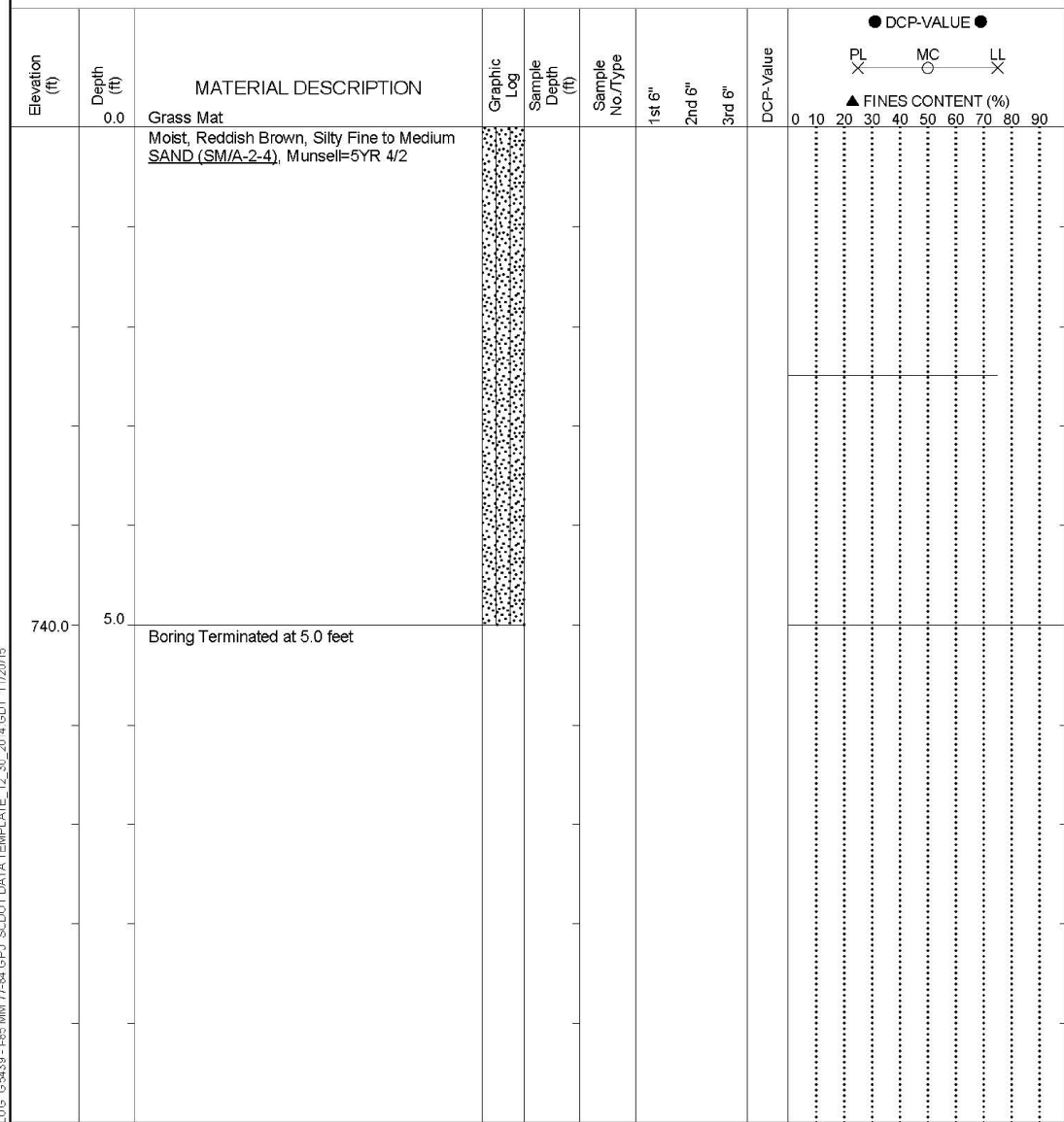


<p>FOR INFORMATION ONLY</p>	<p>BRIDGE NO Z270.19 AT M.P. 270.19</p> <p>BORING LOG SHEET (B-5)</p> <p>SPARTANBURG SC</p> <p>DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE</p>
	<p>SCALE: AS SHOWN</p> <p>DATE: 5/24/2016</p> <p>DESIGN: LSS</p> <p>DRAWN: LSS</p> <p>CHK'D: AJG</p>
	<p>VAL. SEC. 655 SC</p> <p>DRAWING NO. G-09 9 OF 139</p>

BORING LOG

SCDOT Manual Auger Log

Project ID: 0040692	County: Spartanburg	Boring No.: BS-1
Site Description: I-85 Rehabilitation Mile Marker 77 to 84	Route: CSX Mainline	
Driller: M. Touchberry	Boring Location: 1314+50	Offset: 25.0 L
Elev.: 745.0 ft	Latitude:	Longitude:
Total Depth: 5 ft	Groundwater: TOB NR	24 hr NR
Dynamic Cone Penetrometer Test Procedure:		Date Started: 9/11/2015
		Date Completed: 9/11/2015



SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	DCP - Dynamic Cone Penetrometer	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

MANUAL AUGER LOG: G54339 - I85 MM 77-84.GPJ SCDOT DATA TEMPLATE 12_30_2014.GDT 11/29/15

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OSP#: OPSC0290

CSX <small>How tomorrow moves</small>		ENGINEERING DEPARTMENT MAINTENANCE OF WAY BRIDGE MAINTENANCE AND DESIGN
BRIDGE NO Z270.19 AT M.P. 270.19		
BORING LOG SHEET (BS-1)		
SPARTANBURG		SC
DIVISION: HUNTINGTON		SUBDIVISION: BLUE RIDGE
SCALE: AS SHOWN DATE: 5/24/2016 DESIGN: LSS DRAWN: LSS CHK'D: AJG	VAL. SEC. 655 SC	DRAWING NO. G-10 10 OF 139

FOR INFORMATION ONLY

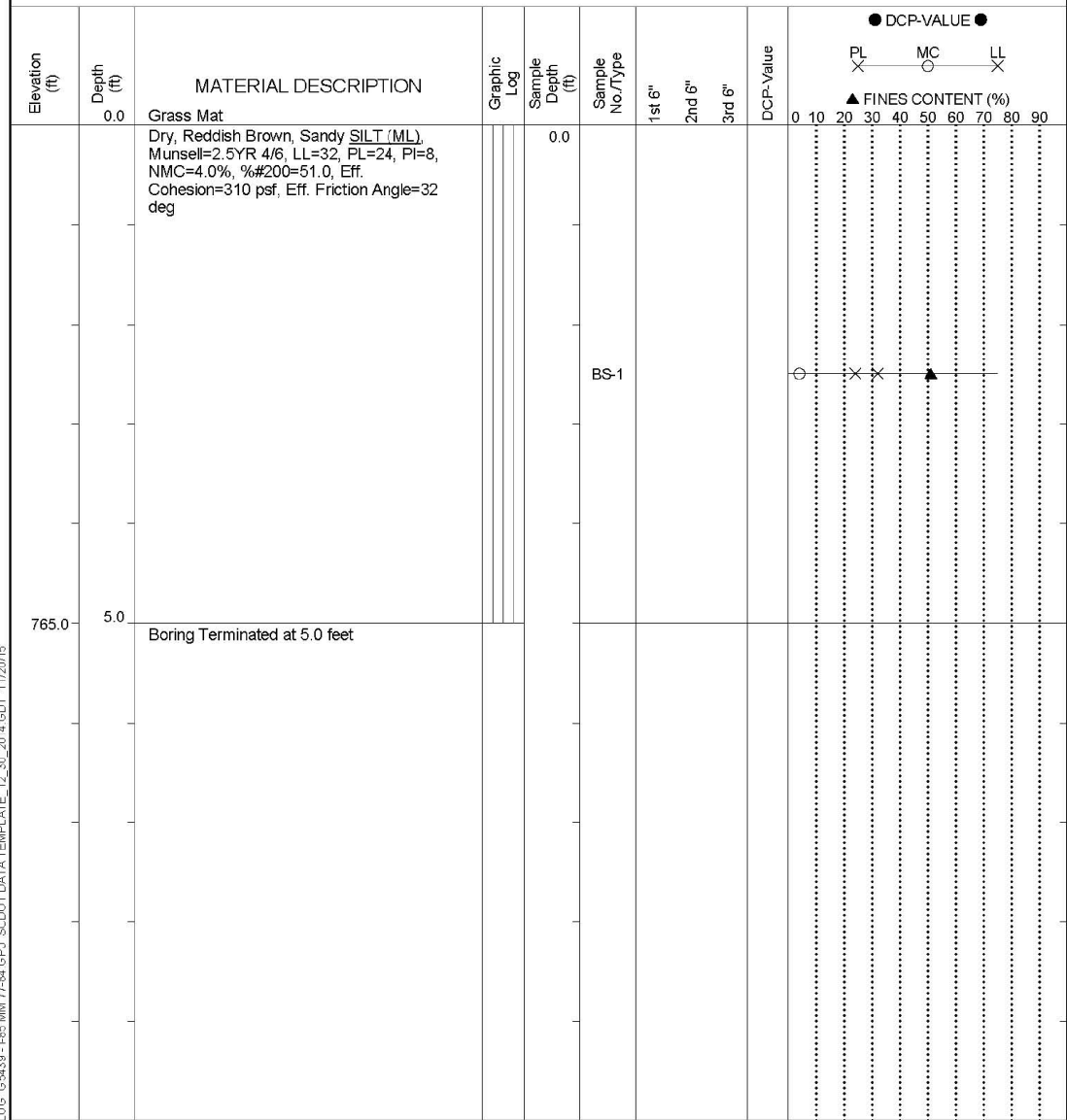


PROJECT NO. P301140022 FILE:

BORING LOG

SCDOT Manual Auger Log

Project ID: 0040692	County: Spartanburg	Boring No.: BS-2
Site Description: I-85 Rehabilitation Mile Marker 77 to 84	Route: CSX Mainline	
Driller: M. Touchberry	Boring Location: 1326+50	Offset: 20.0 L
Elev.: 770.0 ft	Latitude:	Longitude:
Total Depth: 5 ft	Groundwater: TOB NR	24 hr NR
Date Started: 9/11/2015		Date Completed: 9/11/2015



SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	DCP - Dynamic Cone Penetrometer	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

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OSP#: OPSC0290

CSX <small>How tomorrow moves.</small>	ENGINEERING DEPARTMENT MAINTENANCE OF WAY BRIDGE MAINTENANCE AND DESIGN
REVISIONS	BRIDGE NO Z270.19 AT M.P. 270.19 BORING LOG SHEET (BS-2)
	SPARTANBURG SC
	DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE
SCALE: AS SHOWN DATE: 5/24/2016 DESIGN: LSS DRAWN: LSS CHK'D: AJG	VAL. SEC. DRAWING NO. 655 G-11 SC 11 OF 139

FOR INFORMATION ONLY

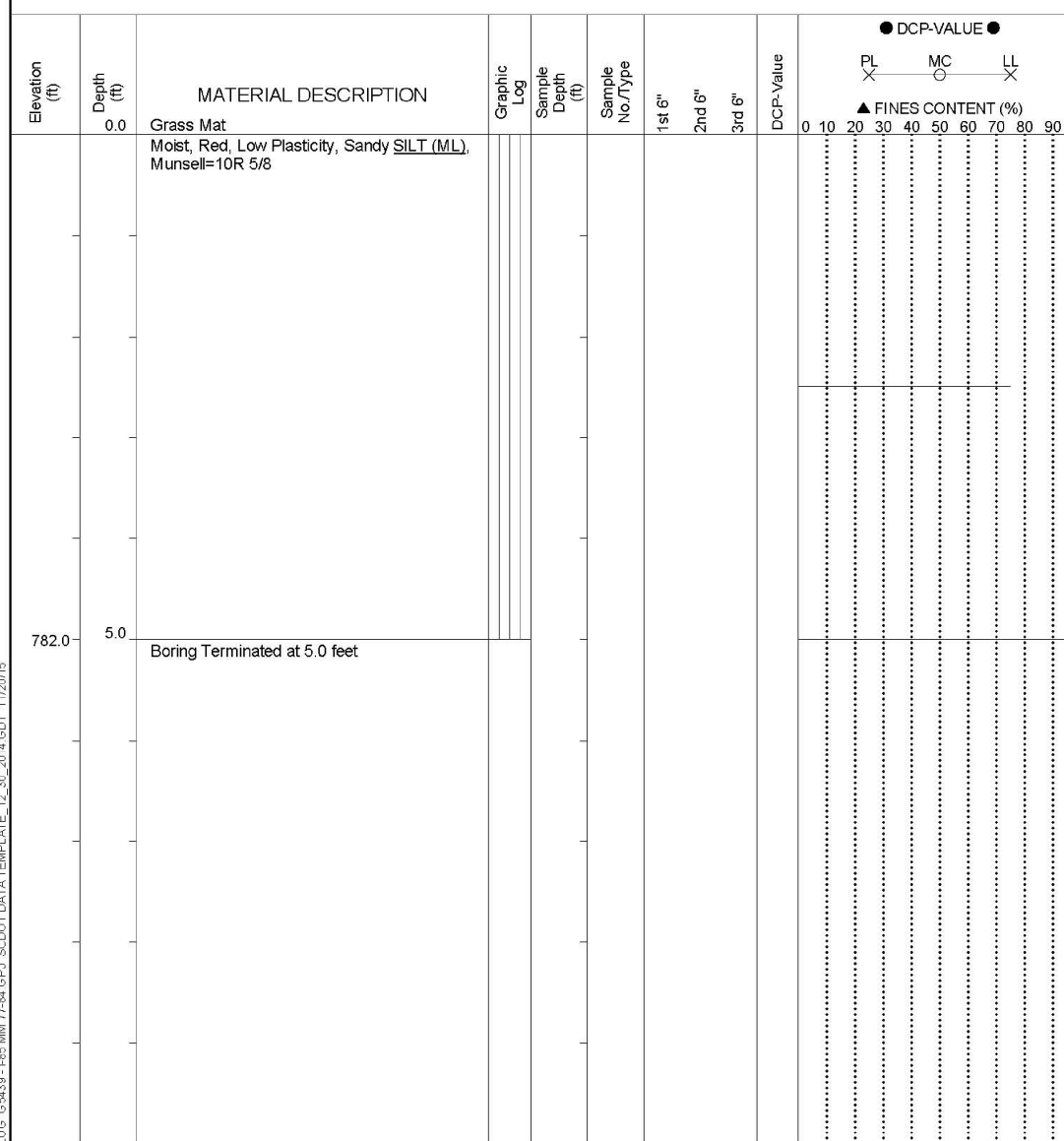


PROJECT NO. P301140022 FILE:

BORING LOG

SCDOT Manual Auger Log

Project ID: 0040692	County: Spartanburg	Boring No.: BS-3
Site Description: I-85 Rehabilitation Mile Marker 77 to 84	Route: CSX Mainline	
Driller: M. Touchberry	Boring Location: 1332+50	Offset: 20.0 L
Elev.: 787.0 ft	Latitude:	Longitude:
Total Depth: 5 ft	Groundwater: TOB	Date Started: 9/11/2015
Date Completed: 9/11/2015	24 hr NR	



SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	DCP Dynamic Cone Penetrometer	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

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OSP#: OPSC0290

	ENGINEERING DEPARTMENT MAINTENANCE OF WAY BRIDGE MAINTENANCE AND DESIGN	
	BRIDGE NO Z270.19 AT M.P. 270.19	
REVISIONS	BORING LOG SHEET (BS-3)	
	SPARTANBURG	SC
	DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
SCALE: AS SHOWN	VAL. SEC.	DRAWING NO.
DATE: 5/24/2016	655	G-12
DESIGN: LSS	SC	12 OF 139
DRAWN: LSS		
CHK'D: AJG		

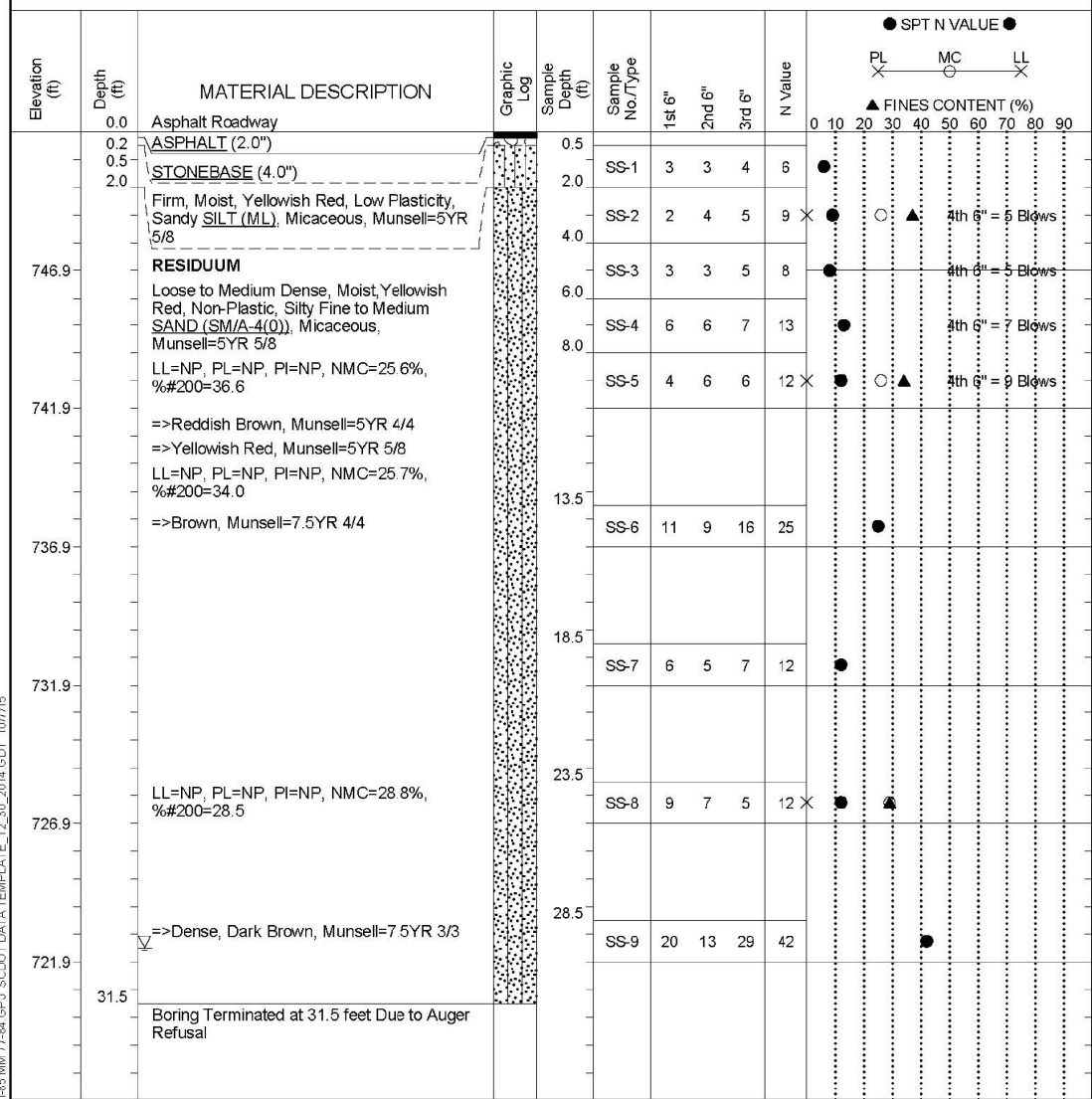
FOR INFORMATION ONLY



PROJECT NO. P301140022 FILE:

SCDOT Soil Test Log

Project ID: 0040692	County: Spartanburg	Boring No.: RW-1
Site Description: I-85 Rehabilitation Mile Marker 77 to 84	Route: CSX Mainline	
Eng./Geo.: R. Wessinger	Boring Location: 1306+99	Offset: 30.9 L
Elev.: 751.9 ft	Latitude: 35.0339223	Longitude: 81.8566291
Date Started: 8/24/2015	Alignment: Centerline	
Total Depth: 31.5 ft	Soil Depth: 31.5 ft	Core Depth: 0 ft
Date Completed: 8/24/2015		
Bore Hole Diameter (in): 6.0	Sampler Configuration:	Liner Required: Y (N)
Liner Used: Y (N)		
Drill Machine: CME 550	Drill Method: HSA	Hammer Type: Automatic
Energy Ratio: 74%		
Core Size: N/A	Driller: D. Harris	Groundwater: TOB 29.5 ft
		24HR: N/A



SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SCDOT G5439 - I-85 MM 77-84 GRU SCDOT DATA TEMPLATE 12_30_2014.GDT 10/7/15

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OSP#: OPSC0290

	ENGINEERING DEPARTMENT MAINTENANCE OF WAY BRIDGE MAINTENANCE AND DESIGN	
	BRIDGE NO Z270.19 AT M.P. 270.19 BORING LOG SHEET (RW-1)	
SPARTANBURG		SC
DIVISION: HUNTINGTON		SUBDIVISION: BLUE RIDGE
SCALE: AS SHOWN DATE: 5/24/2016 DESIGN: LSS DRAWN: LSS CHK'D: AJG	VAL. SEC. 655 SC	DRAWING NO. G-13 13 OF 139

FOR
INFORMATION
ONLY

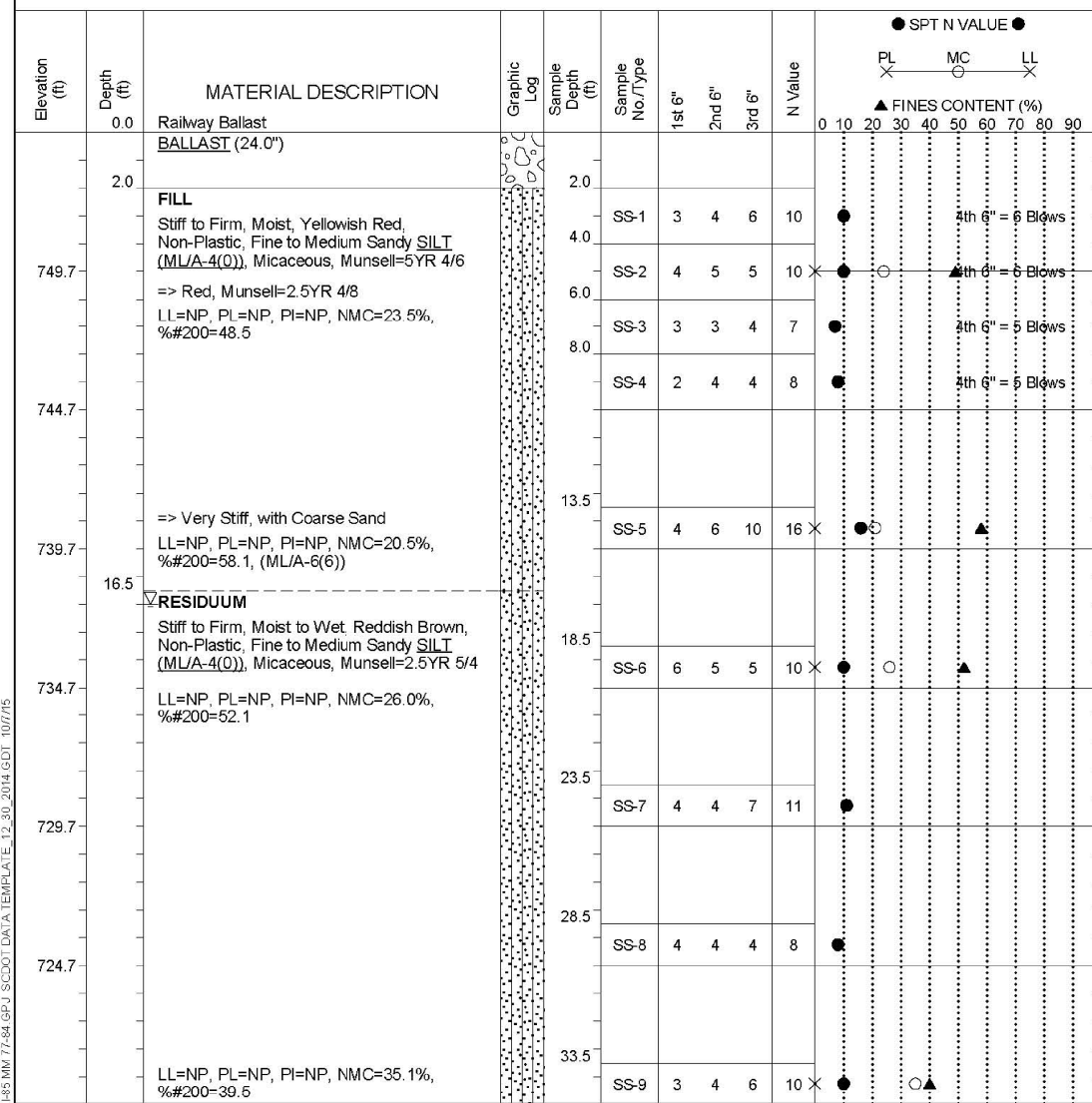


PROJECT NO. P301140022

BORING LOG

SCDOT Soil Test Log

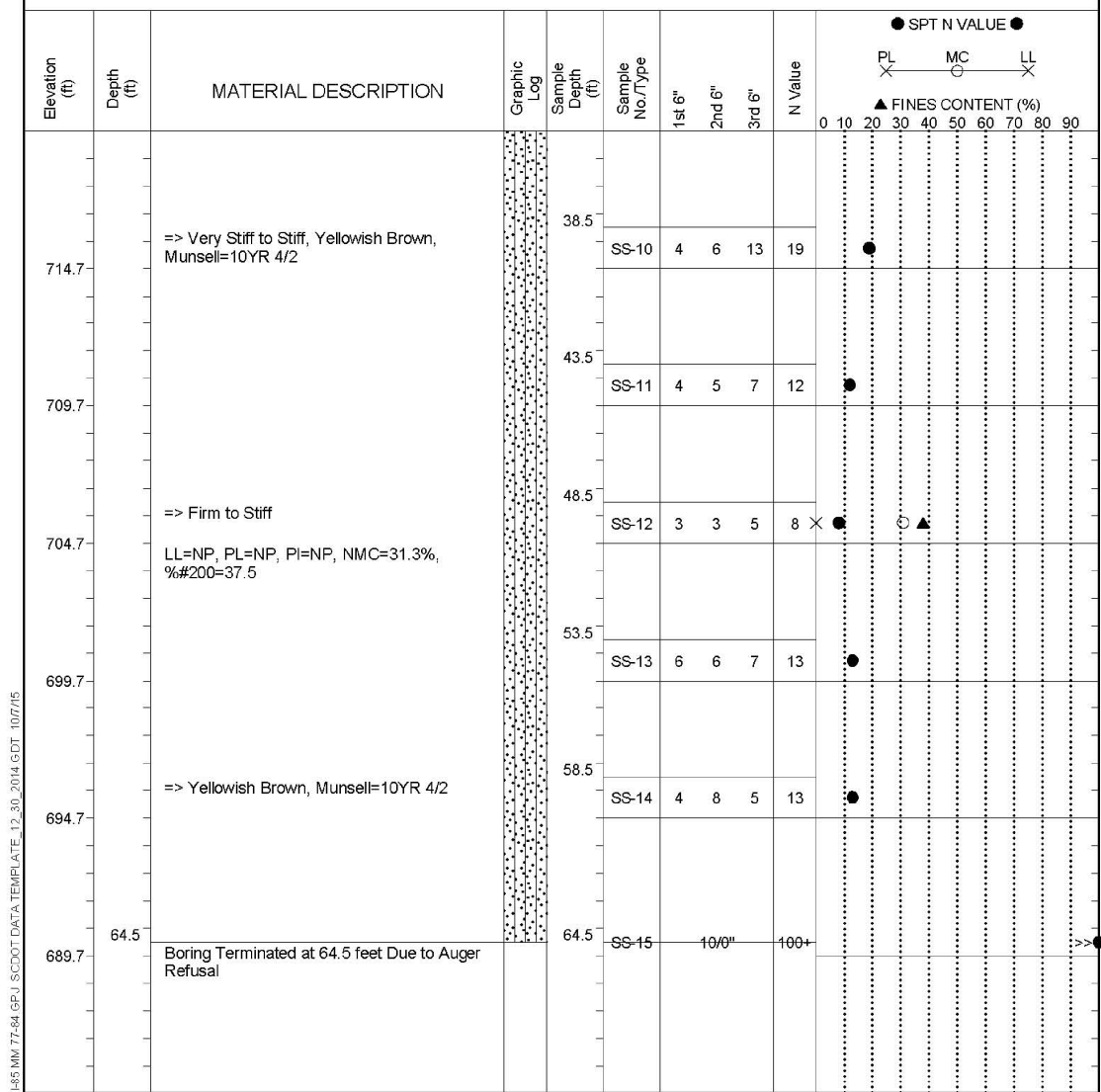
Project ID:	0040692	County:	Spartanburg	Boring No.:	RW-2
Site Description:	I-85 Rehabilitation Mile Marker 77 to 84			Route:	CSX Mainline
Eng./Geo.:	R. Wessinger	Boring Location:	1311+90	Offset:	12.8 L
Elev.:	754.7 ft	Latitude:	35.0328128	Longitude:	81.857581
Total Depth:	64.5 ft	Soil Depth:	64.5 ft	Core Depth:	0 ft
Bore Hole Diameter (in):	6.0	Sampler Configuration:		Liner Required:	Y (N)
Drill Machine:	CME 550	Drill Method:	HSA	Hammer Type:	Automatic
Core Size:	N/A	Driller:	D. Harris	Groundwater:	TOB 17 ft



SCDOT.G5439-185.MM.77-84.GPJ.SCDOT.DATA.TEMPLATE.12.30.2014.GDT.10/7/15

SCDOT Soil Test Log

Project ID:	0040692	County:	Spartanburg	Boring No.:	RW-2
Site Description:	I-85 Rehabilitation Mile Marker 77 to 84			Route:	CSX Mainline
Eng./Geo.:	R. Wessinger	Boring Location:	1311+90	Offset:	12.8 L
Elev.:	754.7 ft	Latitude:	35.0328128	Longitude:	81.857581
Total Depth:	64.5 ft	Soil Depth:	64.5 ft	Core Depth:	0 ft
Bore Hole Diameter (in):	6.0	Sampler Configuration:		Liner Required:	Y (N)
Drill Machine:	CME 550	Drill Method:	HSA	Hammer Type:	Automatic
Core Size:	N/A	Driller:	D. Harris	Groundwater:	TOB 17 ft



SCDOT.G5439-185.MM.77-84.GPJ.SCDOT.DATA.TEMPLATE.12.30.2014.GDT.10/7/15

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OSP#: OPSC0290



ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

FOR INFORMATION ONLY

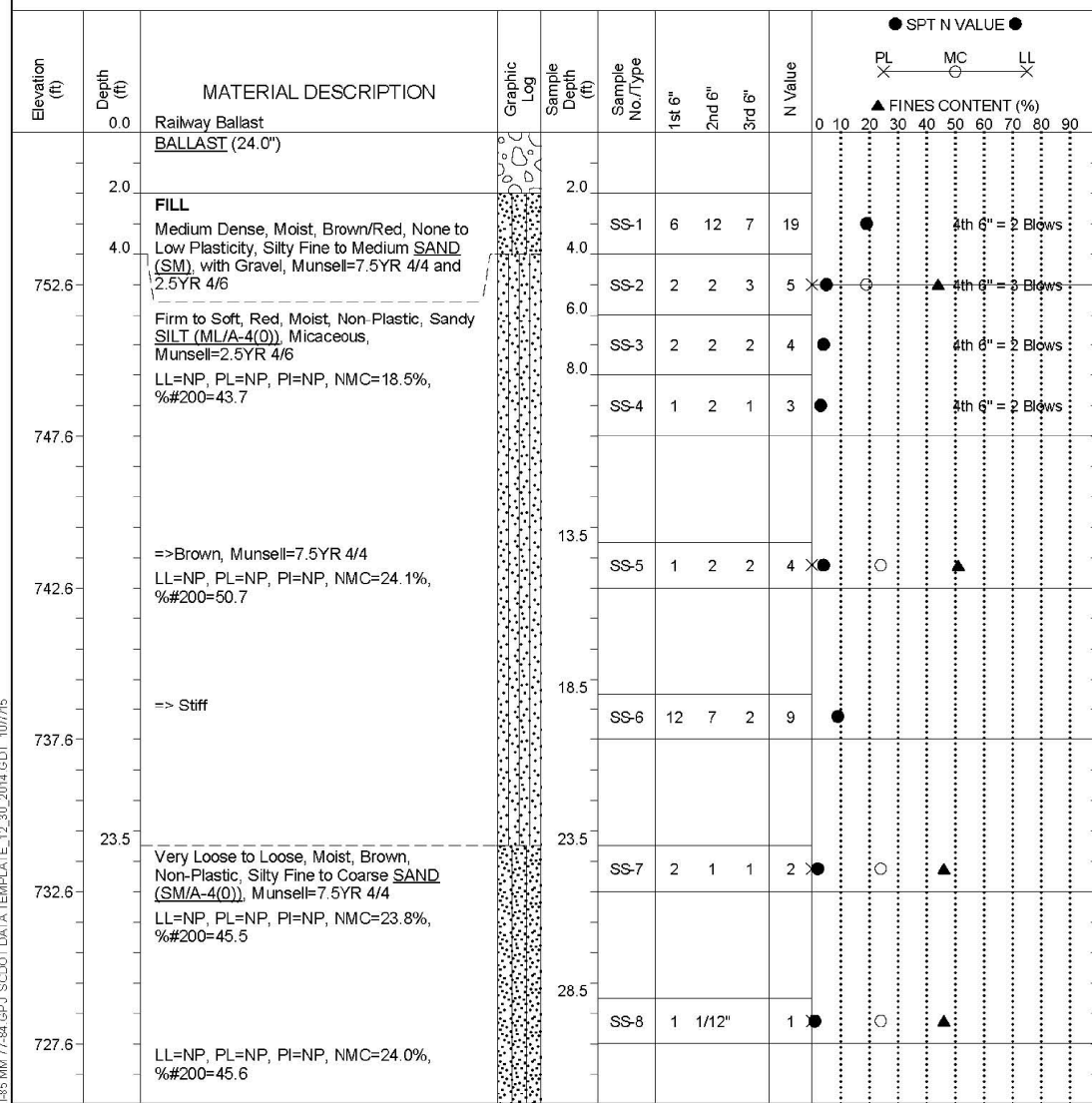


BRIDGE NO	Z270.19 AT M.P. 270.19
BORING LOG SHEET (RW-2)	
SPARTANBURG	SC
DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
SCALE: AS SHOWN	VAL. SEC. 655
DATE: 5/24/2016	SC
DESIGN: LSS	DRAWING NO. G-14
DRAWN: LSS	14 OF 139
CHK'D: AJG	

BORING LOG

SCDOT Soil Test Log

Project ID:	0040692	County:	Spartanburg	Boring No.:	RW-3
Site Description:	I-85 Rehabilitation Mile Marker 77 to 84		Route:	CSX Mainline	
Eng./Geo.:	R. Wessinger	Boring Location:	1317+07	Offset:	40.0 R
Elev.:	757.6 ft	Latitude:	35.0316859	Longitude:	81.8586488
Date Started:	8/26/2015				
Total Depth:	62.6 ft	Soil Depth:	62.6 ft	Core Depth:	0 ft
Date Completed:	8/26/2015				
Bore Hole Diameter (in):	6.0	Sampler Configuration		Liner Required:	Y (N)
Liner Used:	Y (N)				
Drill Machine:	CME 550	Drill Method:	HSA	Hammer Type:	Automatic
Energy Ratio:	74%				
Core Size:	N/A	Driller:	D. Harris	Groundwater:	TOB 35 ft
24HR:	NR				

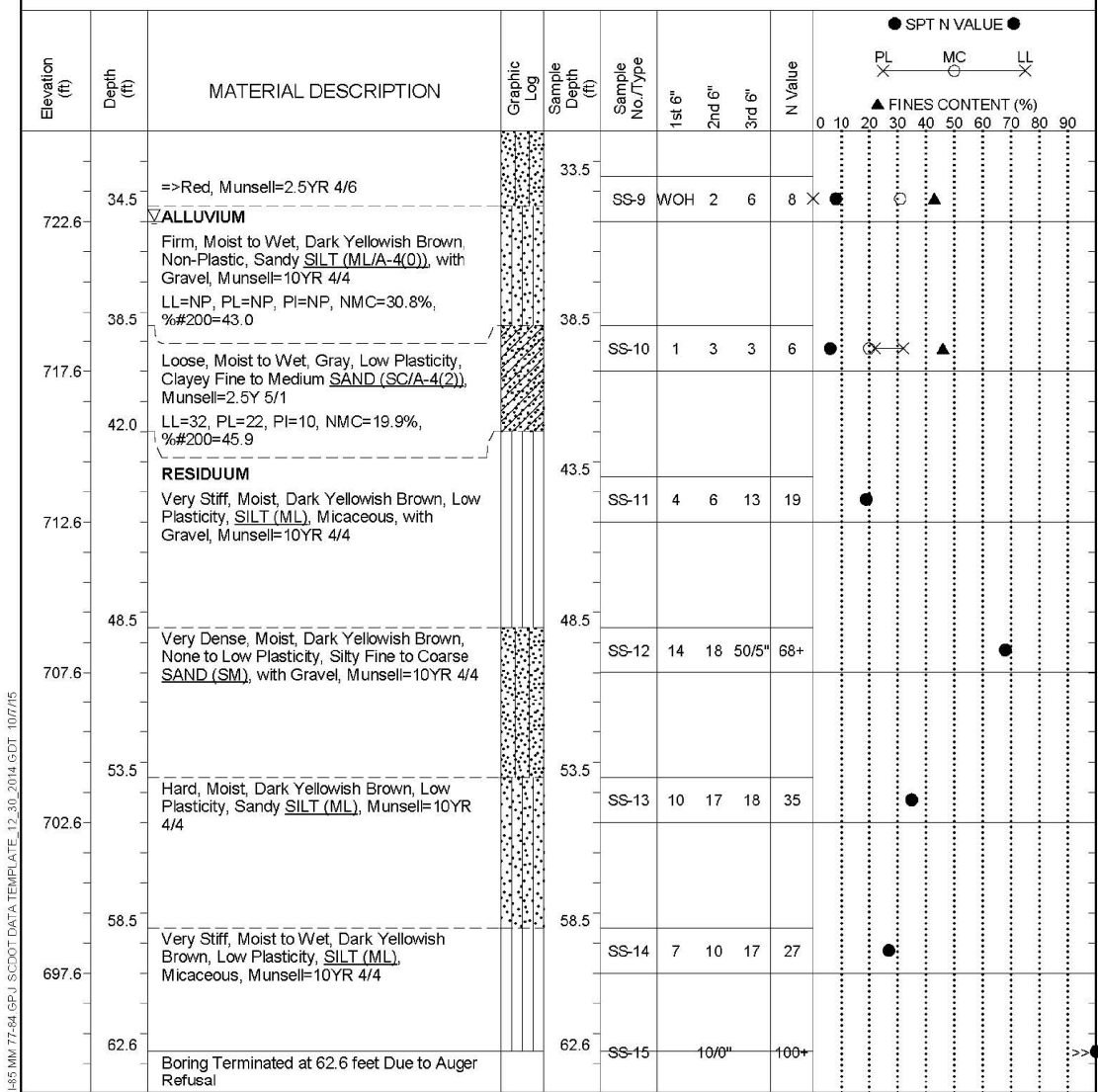


LEGEND

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SCDOT Soil Test Log

Project ID:	0040692	County:	Spartanburg	Boring No.:	RW-3
Site Description:	I-85 Rehabilitation Mile Marker 77 to 84		Route:	CSX Mainline	
Eng./Geo.:	R. Wessinger	Boring Location:	1317+07	Offset:	40.0 R
Elev.:	757.6 ft	Latitude:	35.0316859	Longitude:	81.8586488
Date Started:	8/26/2015				
Total Depth:	62.6 ft	Soil Depth:	62.6 ft	Core Depth:	0 ft
Date Completed:	8/26/2015				
Bore Hole Diameter (in):	6.0	Sampler Configuration		Liner Required:	Y (N)
Liner Used:	Y (N)				
Drill Machine:	CME 550	Drill Method:	HSA	Hammer Type:	Automatic
Energy Ratio:	74%				
Core Size:	N/A	Driller:	D. Harris	Groundwater:	TOB 35 ft
24HR:	NR				



LEGEND

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SUSERS
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Plotted: 5/24/2016 10:07:15
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Plotted: 5/24/2016 10:07:15
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OSP#: OPSC0290

	ENGINEERING DEPARTMENT MAINTENANCE OF WAY BRIDGE MAINTENANCE AND DESIGN	
	BRIDGE NO Z270.19 AT M.P. 270.19	
	BORING LOG SHEET (RW-3)	
	SPARTANBURG	SC
DIVISION: HUNTINGTON		SUBDIVISION: BLUE RIDGE
SCALE: AS SHOWN	VAL. SEC.	DRAWING NO.
DATE: 5/24/2016	655	G-15
DESIGN: LSS	SC	15 OF 139
DRAWN: LSS		
CHK'D: AJG		

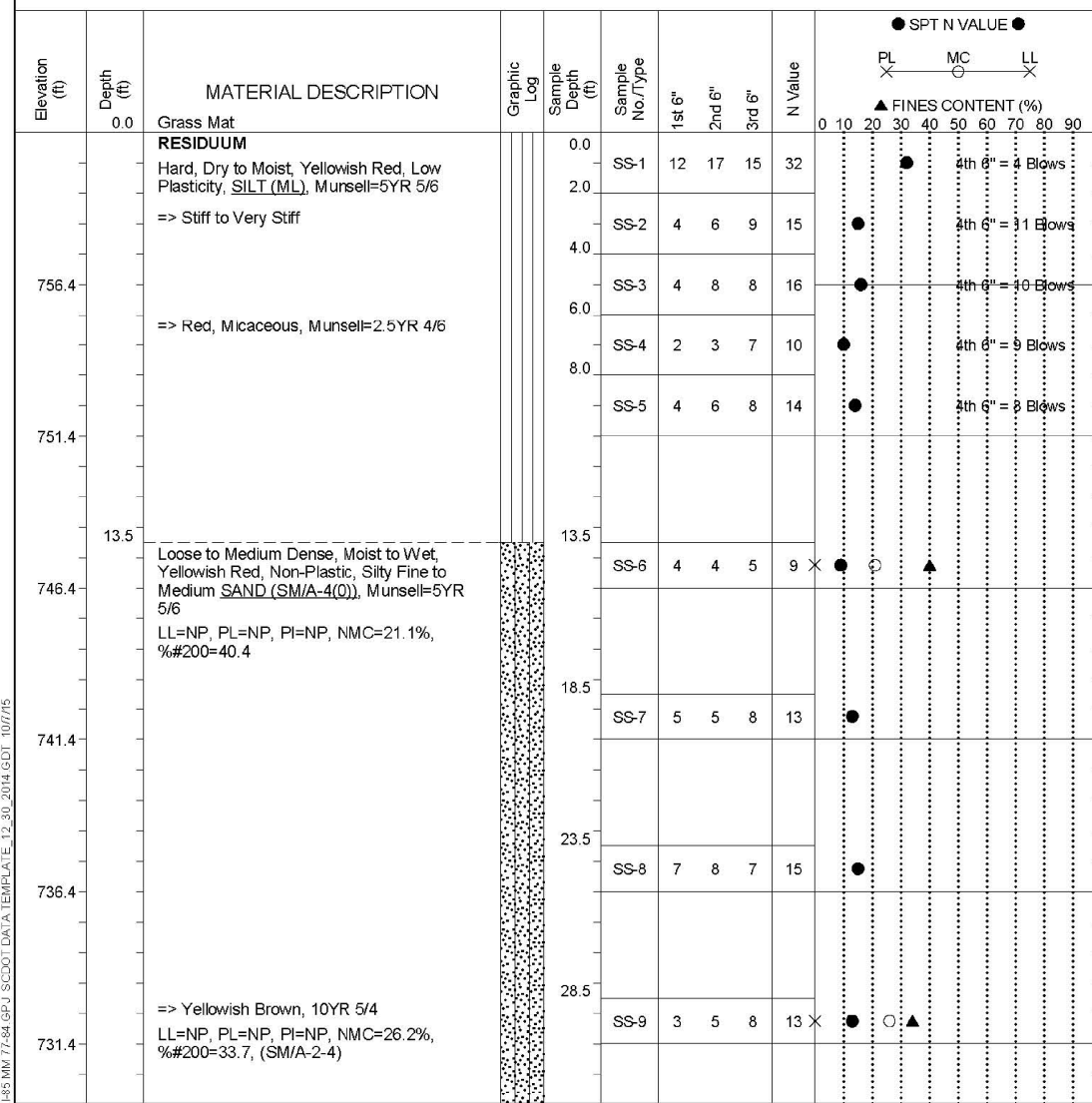
FOR INFORMATION ONLY

PROJECT NO. P301140022

BORING LOG

SCDOT Soil Test Log

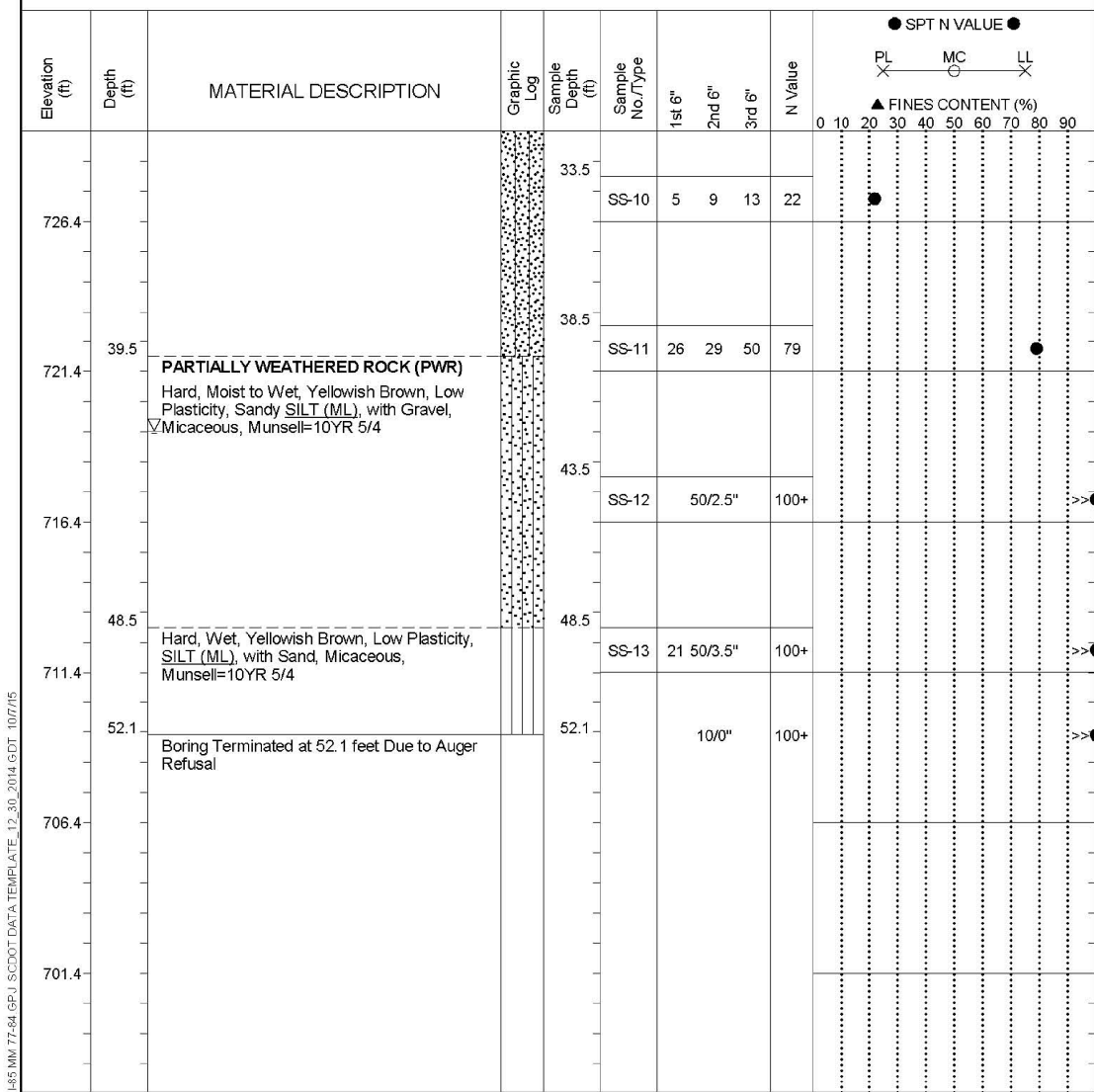
Project ID:	0040692	County:	Spartanburg	Boring No.:	RW-4
Site Description:	I-85 Rehabilitation Mile Marker 77 to 84			Route:	CSX Mainline
Eng./Geo.:	R. Wessinger	Boring Location:	1323+69	Offset:	9.9 L
Elev.:	761.4 ft	Latitude:	35.030039	Longitude:	81.8596026
Date Started:	09/03/2015				
Total Depth:	52.1 ft	Soil Depth:	52.1 ft	Core Depth:	0 ft
Date Completed:	9/3/2015				
Bore Hole Diameter (in):	6.0	Sampler Configuration:		Liner Required:	Y (N)
Liner Used:	Y (N)				
Drill Machine:	CME 550	Drill Method:	HSA	Hammer Type:	Automatic
Energy Ratio:	74%				
Core Size:	N/A	Driller:	D. Harris	Groundwater:	TOB 42 ft
24HR:	NR				



SC.DOT.G5439-185.MM.77-84.GPJ.SCDOT.DATA.TEMPLATE.12.30.2014.GDT.10/7/15

SCDOT Soil Test Log

Project ID:	0040692	County:	Spartanburg	Boring No.:	RW-4
Site Description:	I-85 Rehabilitation Mile Marker 77 to 84			Route:	CSX Mainline
Eng./Geo.:	R. Wessinger	Boring Location:	1323+69	Offset:	9.9 L
Elev.:	761.4 ft	Latitude:	35.030039	Longitude:	81.8596026
Date Started:	09/03/2015				
Total Depth:	52.1 ft	Soil Depth:	52.1 ft	Core Depth:	0 ft
Date Completed:	9/3/2015				
Bore Hole Diameter (in):	6.0	Sampler Configuration:		Liner Required:	Y (N)
Liner Used:	Y (N)				
Drill Machine:	CME 550	Drill Method:	HSA	Hammer Type:	Automatic
Energy Ratio:	74%				
Core Size:	N/A	Driller:	D. Harris	Groundwater:	TOB 42 ft
24HR:	NR				



SC.DOT.G5439-185.MM.77-84.GPJ.SCDOT.DATA.TEMPLATE.12.30.2014.GDT.10/7/15

SUSERS: "agpcc@hntb.com"; Plotted: "edtime, 0, MON DD", "YYYY - H:MMam/pm"

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

OSP#: OPSC0290



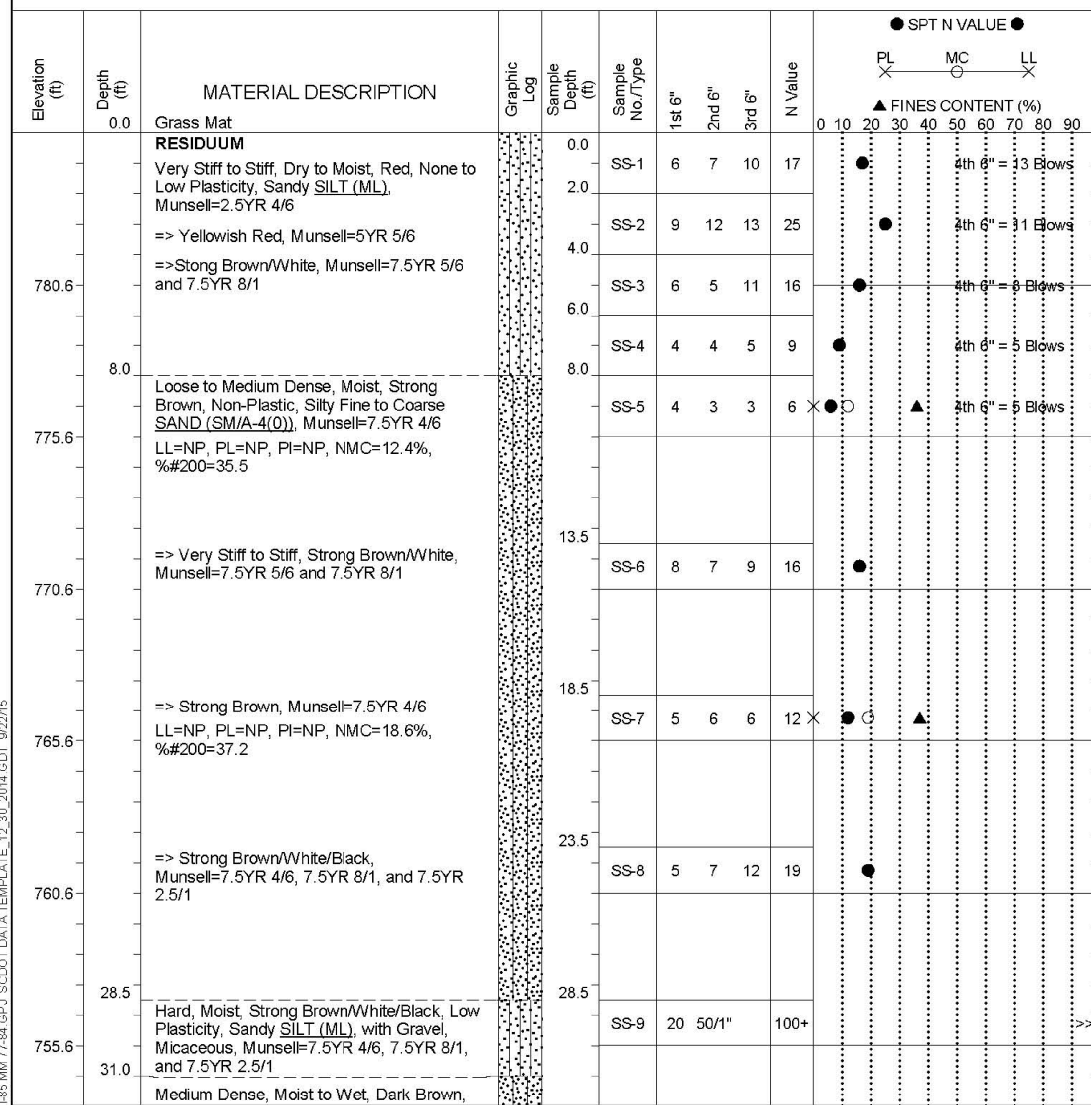
ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

<p>FOR INFORMATION ONLY</p>	<p>BRIDGE NO Z270.19 AT M.P. 270.19</p> <p>BORING LOG SHEET (RW-4)</p>
	<p>SPARTANBURG SC</p> <p>DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE</p>
	<p>SCALE: AS SHOWN</p> <p>DATE: 5/24/2016</p> <p>DESIGN: LSS</p> <p>DRAWN: LSS</p> <p>CHK'D: AJG</p>
	<p>VAL. SEC. 655 SC</p> <p>DRAWING NO. G-16 16 OF 139</p>

BORING LOG

SCDOT Soil Test Log

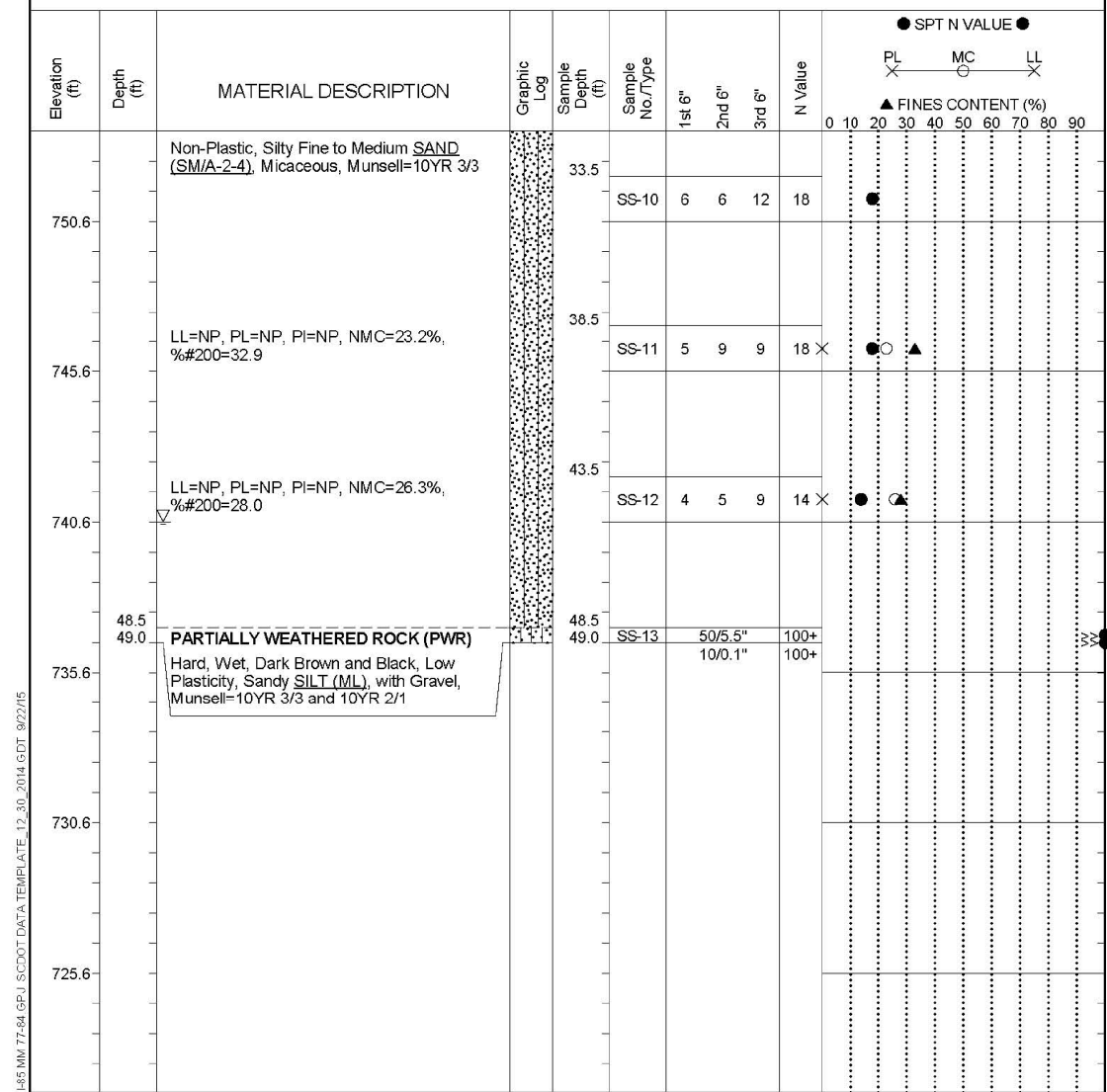
Project ID:		County:	Spartanburg	Boring No.:	RW-5
Site Description:	I-85 Rehabilitation Mile Marker 77 to 84			Route:	CSX Mainline
Eng./Geo.:	R. Wessinger	Boring Location:	1326+70	Offset:	20.9 L
Elev.:	785.6 ft	Latitude:	35.0293073	Longitude:	81.8600697
Date Started:	09/03/2015				
Total Depth:	49 ft	Soil Depth:	49 ft	Core Depth:	0 ft
Date Completed:	9/3/2015				
Bore Hole Diameter (in):	6.0	Sampler Configuration		Liner Required:	Y (N)
Liner Used:	Y (N)				
Drill Machine:	CME 550	Drill Method:	HSA	Hammer Type:	Automatic
Energy Ratio:	74%				
Core Size:	N/A	Driller:	D. Harris	Groundwater:	TOB 45 ft
24HR:	NR				



SAMPLER TYPE SS - Split Spoon UD - Undisturbed Sample AWG - Rock Core, 1-1/8"		DRILLING METHOD NQ - Rock Core, 1-7/8" CU - Cuttings CT - Continuous Tube		DRILLING METHOD HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing		DRILLING METHOD RW - Rotary Wash RC - Rock Core	
---	--	---	--	--	--	--	--

SCDOT Soil Test Log

Project ID:		County:	Spartanburg	Boring No.:	RW-5
Site Description:	I-85 Rehabilitation Mile Marker 77 to 84			Route:	CSX Mainline
Eng./Geo.:	R. Wessinger	Boring Location:	1326+70	Offset:	20.9 L
Elev.:	785.6 ft	Latitude:	35.0293073	Longitude:	81.8600697
Date Started:	09/03/2015				
Total Depth:	49 ft	Soil Depth:	49 ft	Core Depth:	0 ft
Date Completed:	9/3/2015				
Bore Hole Diameter (in):	6.0	Sampler Configuration		Liner Required:	Y (N)
Liner Used:	Y (N)				
Drill Machine:	CME 550	Drill Method:	HSA	Hammer Type:	Automatic
Energy Ratio:	74%				
Core Size:	N/A	Driller:	D. Harris	Groundwater:	TOB 45 ft
24HR:	NR				



SAMPLER TYPE SS - Split Spoon UD - Undisturbed Sample AWG - Rock Core, 1-1/8"		DRILLING METHOD NQ - Rock Core, 1-7/8" CU - Cuttings CT - Continuous Tube		DRILLING METHOD HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing		DRILLING METHOD RW - Rotary Wash RC - Rock Core	
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FOR INFORMATION ONLY



OSP#: OPSC0290

CSX ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

BRIDGE NO Z270.19 AT M.P. 270.19
BORING LOG SHEET (RW-5)

SPARTANBURG SC

DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE

SCALE: AS SHOWN
DATE: 5/24/2016
DESIGN: LSS
DRAWN: LSS
CHK'D: AJG

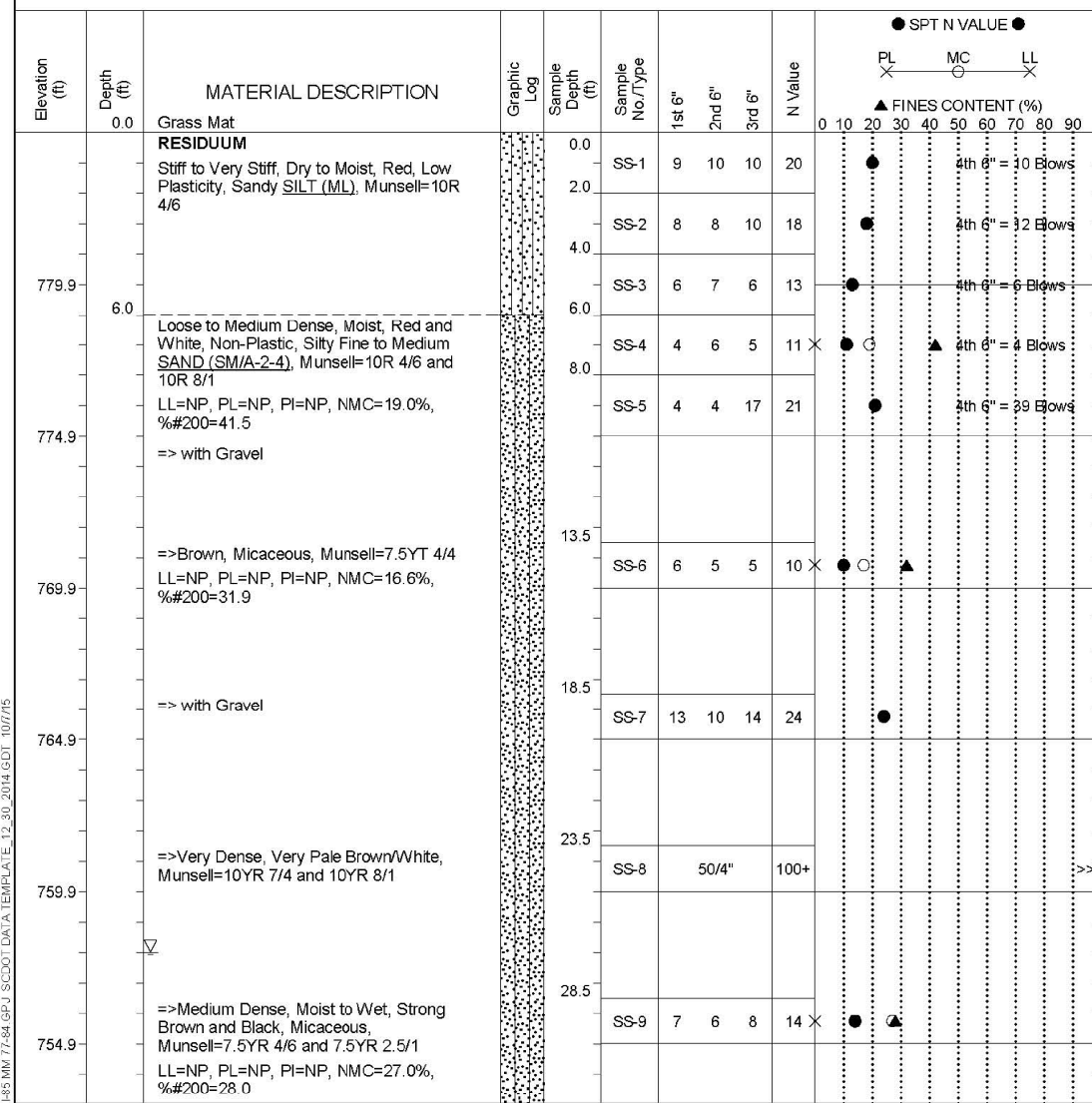
VAL. SEC. 655 SC
DRAWING NO. G-17
17 OF 139

PROJECT NO. P301140022 FILE:

BORING LOG

SCDOT Soil Test Log

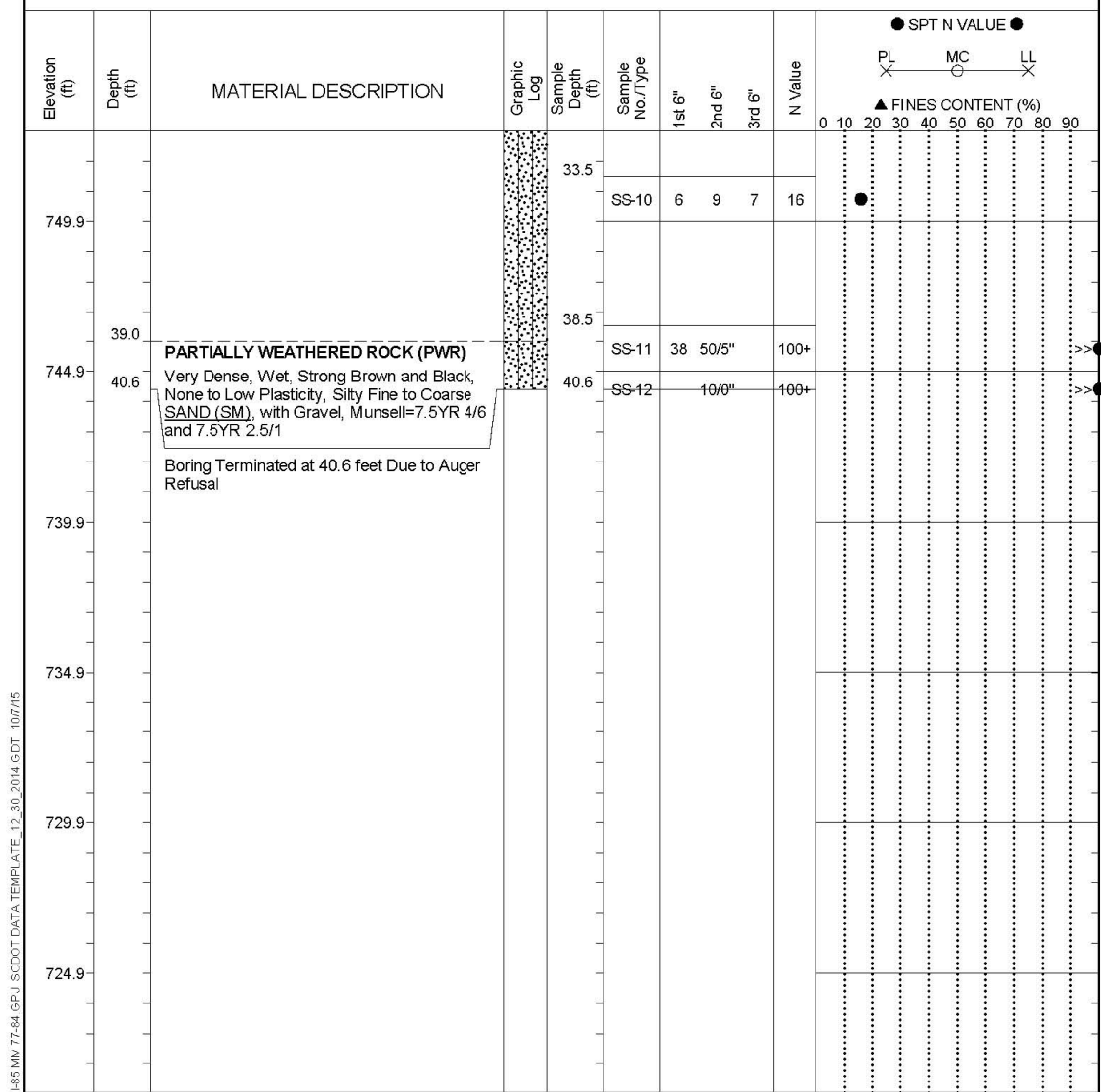
Project ID:	0040692	County:	Spartanburg	Boring No.:	RW-6
Site Description:	I-85 Rehabilitation Mile Marker 77 to 84			Route:	CSX Mainline
Eng./Geo.:	R. Wessinger	Boring Location:	1330+26	Offset:	28.7 L
Elev.:	784.9 ft	Latitude:	35.028446	Longitude:	81.860639
Total Depth:	40.6 ft	Soil Depth:	40.6 ft	Core Depth:	0 ft
Bore Hole Diameter (in):	6.0	Sampler Configuration:		Liner Required:	Y (N)
Drill Machine:	CME 550	Drill Method:	HSA	Hammer Type:	Automatic
Core Size:	N/A	Driller:	D. Harris	Groundwater:	TOB 27 ft



LEGEND		Continued Next Page	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SCDOT Soil Test Log

Project ID:	0040692	County:	Spartanburg	Boring No.:	RW-6
Site Description:	I-85 Rehabilitation Mile Marker 77 to 84			Route:	CSX Mainline
Eng./Geo.:	R. Wessinger	Boring Location:	1330+26	Offset:	28.7 L
Elev.:	784.9 ft	Latitude:	35.028446	Longitude:	81.860639
Total Depth:	40.6 ft	Soil Depth:	40.6 ft	Core Depth:	0 ft
Bore Hole Diameter (in):	6.0	Sampler Configuration:		Liner Required:	Y (N)
Drill Machine:	CME 550	Drill Method:	HSA	Hammer Type:	Automatic
Core Size:	N/A	Driller:	D. Harris	Groundwater:	TOB 27 ft



LEGEND		Continued Next Page	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SUSERS & together - "agapre(hi)"\$gapslgr - "wgnome", Plotted:\$edtime, 0, MON DD "YY - HMMm/pm

SC.DOT.G5439-185.MM.77-84.GPJ.SCDOT.DATA.TEMPLATE.12.30.2014.GDT.10/7/15

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OSP#: OPSC0290

CSX ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

BRIDGE NO Z270.19 AT M.P. 270.19
BORING LOG SHEET (RW-6)

SPARTANBURG SC
DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE

SCALE: AS SHOWN
DATE: 5/24/2016
DESIGN: LSS
DRAWN: LSS
CHK'D: AJG

VAL. SEC. 655
DRAWING NO. G-18
18 OF 139

FOR INFORMATION ONLY

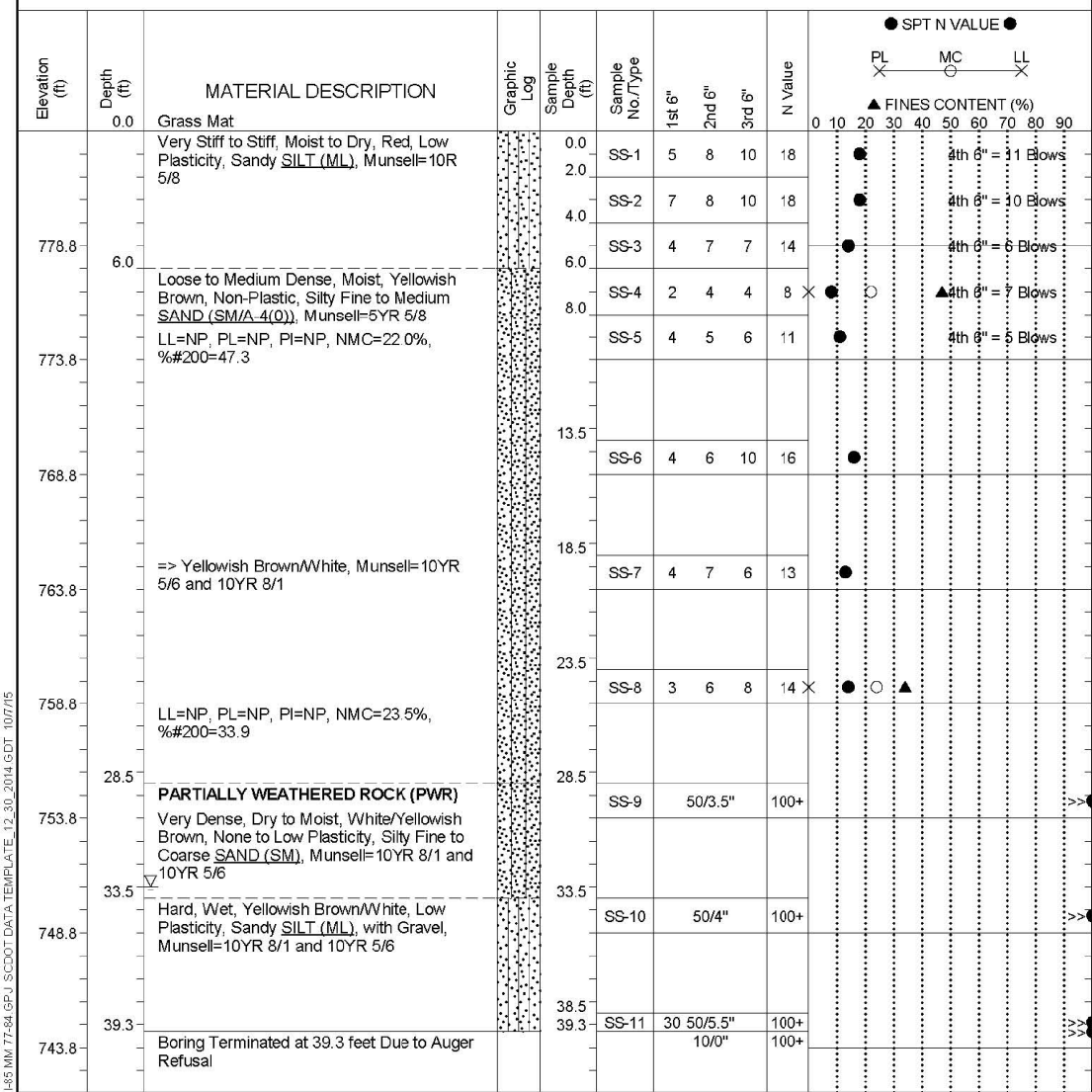


PROJECT NO. P301140022 FILE:

BORING LOG

SCDOT Soil Test Log

Project ID: 0040692	County: Spartanburg	Boring No.: RW-7
Site Description: I-85 Rehabilitation Mile Marker 77 to 84		Route: CSX Mainline
Eng./Geo.: R. Wessinger	Boring Location: 1332+66	Offset: 21.7 L
Elev.: 783.8 ft	Latitude: 35.0278839	Longitude: 81.8610569
Date Started: 09/02/2015	Alignment: Centerline	
Total Depth: 39.3 ft	Soil Depth: 39.3 ft	Core Depth: 0 ft
Date Completed: 9/2/2015		
Bore Hole Diameter (in): 6.0	Sampler Configuration:	Liner Required: Y (N)
Drill Machine: CME 550	Drill Method: HSA	Liner Used: Y (N)
Hammer Type: Automatic	Energy Ratio: 74%	
Core Size: N/A	Driller: D. Harris	Groundwater: TOB 33 ft
		24HR: NR



LEGEND

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SUSERS & together - "agapose(hat)"\$gapsbgr - "dwgname", Plotted:\$edtime, 0, MON DD "YY, YYYY - HMMmm/pm)

OSP#: OPSC0290

CSX <small>How tomorrow moves</small>		ENGINEERING DEPARTMENT MAINTENANCE OF WAY BRIDGE MAINTENANCE AND DESIGN	
BRIDGE NO Z270.19 AT M.P. 270.19		BORING LOG SHEET (RW-7)	
SPARTANBURG		SC	
DIVISION: HUNTINGTON		SUBDIVISION: BLUE RIDGE	
SCALE: AS SHOWN	VAL. SEC.	DRAWING NO.	
DATE: 5/24/2016	655	G-19	
DESIGN: LSS	SC	19 OF 139	
DRAWN: LSS			
CHK'D: AJG			

FOR INFORMATION ONLY

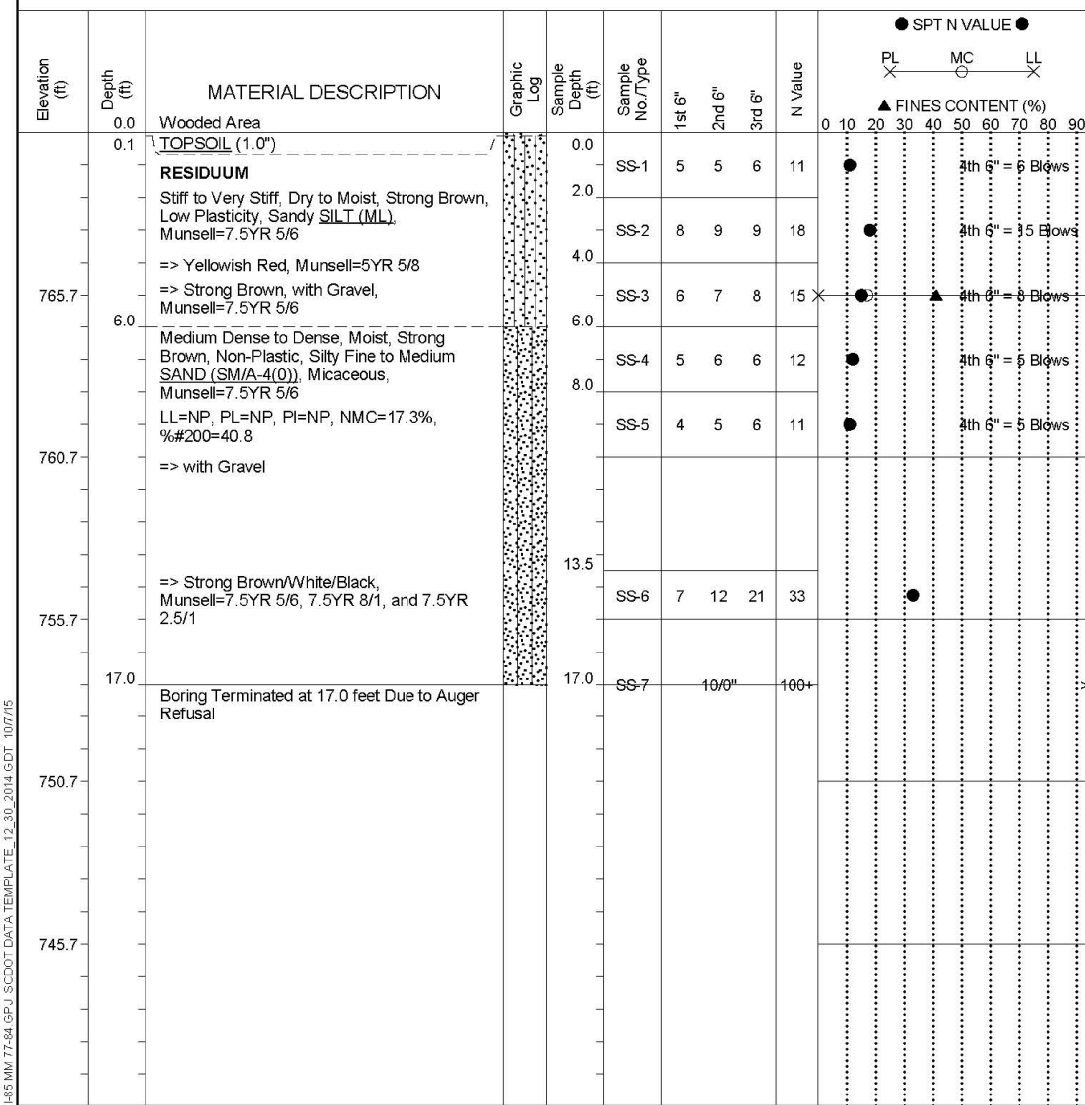


PROJECT NO. P301140022

BORING LOG



Project ID: 0040692	County: Spartanburg	Boring No.: RW-8
Site Description: I-85 Rehabilitation Mile Marker 77 to 84	Route: CSX Mainline	
Eng./Geo.: R. Wessinger	Boring Location: 1335+70	Offset: 16.1 L
Elev.: 770.7 ft	Latitude: 35.0271743	Longitude: 81.861596
Total Depth: 17 ft	Soil Depth: 17 ft	Core Depth: 0 ft
Bore Hole Diameter (in): 6.0	Sampler Configuration:	Liner Required: Y (N)
Drill Machine: CME 550	Drill Method: HSA	Hammer Type: Automatic
Core Size: N/A	Driller: D. Harris	Groundwater: TOB
		Energy Ratio: 74%
		24HR: NR



SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

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FOR
INFORMATION
ONLY



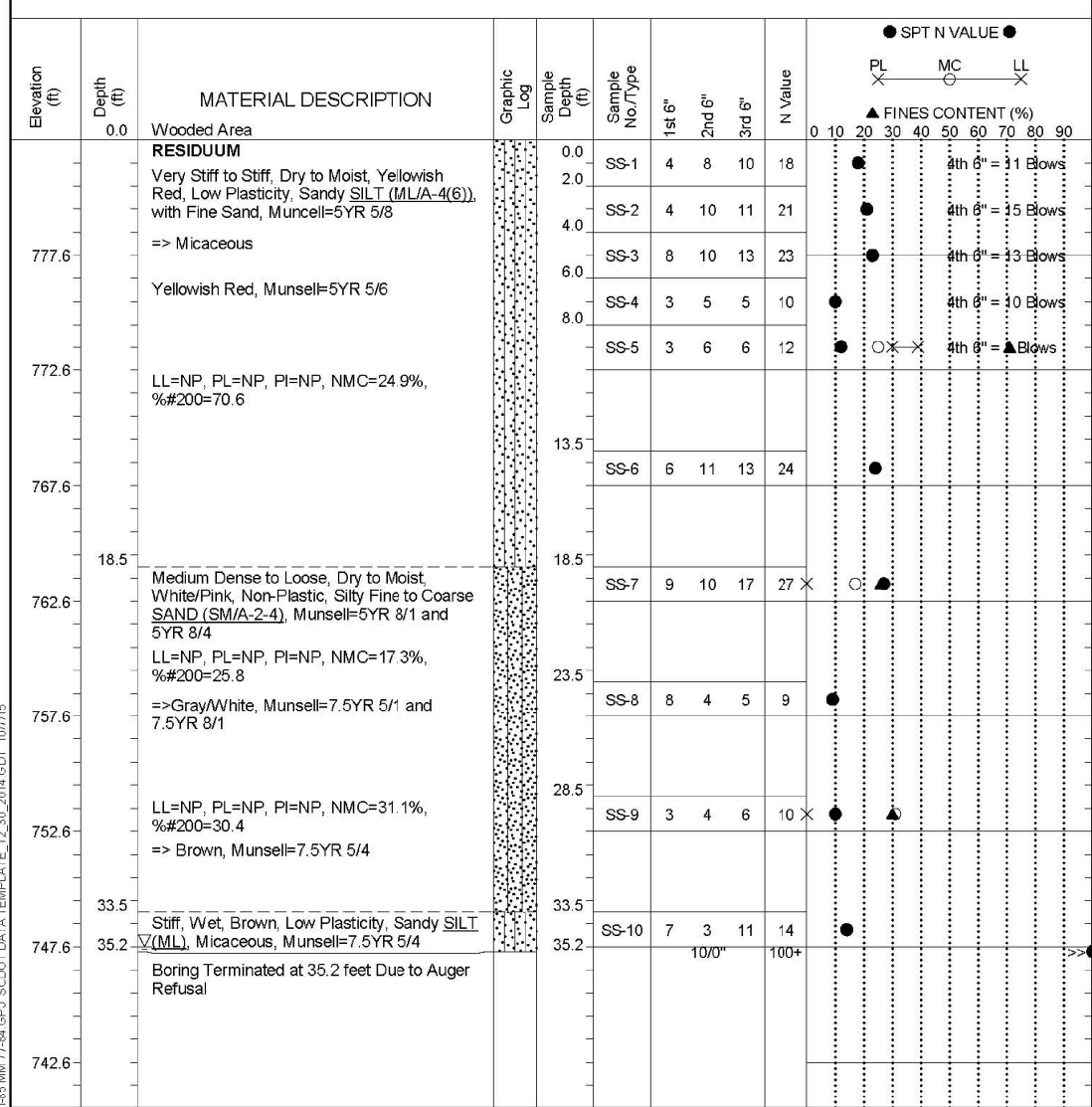
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	ENGINEERING DEPARTMENT MAINTENANCE OF WAY BRIDGE MAINTENANCE AND DESIGN
REVISIONS	BRIDGE NO Z270.19 AT M.P. 270.19 BORING LOG SHEET (RW-8)
	SPARTANBURG SC
	DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE
SCALE: AS SHOWN DATE: 5/24/2016 DESIGN: LSS DRAWN: LSS CHK'D: AJG	VAL. SEC. 655 SC
	DRAWING NO. G-20 20 OF 139
PROJECT NO. P301140022	FILE:

BORING LOG

SCDOT Soil Test Log

Project ID: 0040692	County: Spartanburg	Boring No.: RW-9
Site Description: I-85 Rehabilitation Mile Marker 77 to 84		Route: CSX Mainline
Eng./Geo.: R. Wessinger	Boring Location: 1338+68	Offset: 30.8 L
Elev.: 782.6 ft	Latitude: 35.0264875	Longitude: 81.8621551
Date Started: 09/02/2015	Alignment: Centerline	
Total Depth: 35.2 ft	Soil Depth: 35.2 ft	Core Depth: 0 ft
Date Completed: 9/2/2015		
Bore Hole Diameter (in): 6.0	Sampler Configuration:	Liner Required: Y (N)
		Liner Used: Y (N)
Drill Machine: CME 550	Drill Method: HSA	Hammer Type: Automatic
		Energy Ratio: 74%
Core Size: N/A	Driller: D. Harris	Groundwater: TOB 35 ft
		24HR: NR



SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

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OSP#: OPSC0290

ENGINEERING DEPARTMENT MAINTENANCE OF WAY BRIDGE MAINTENANCE AND DESIGN	
BRIDGE NO Z270.19 AT M.P. 270.19 BORING LOG SHEET (RW-9)	
SPARTANBURG SC	
DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE	
SCALE: AS SHOWN DATE: 5/24/2016 DESIGN: LSS DRAWN: LSS CHK'D: AJG	VAL. SEC. 655 SC
DRAWING NO. G-21 21 OF 139	PROJECT NO. P301140022 FILE:

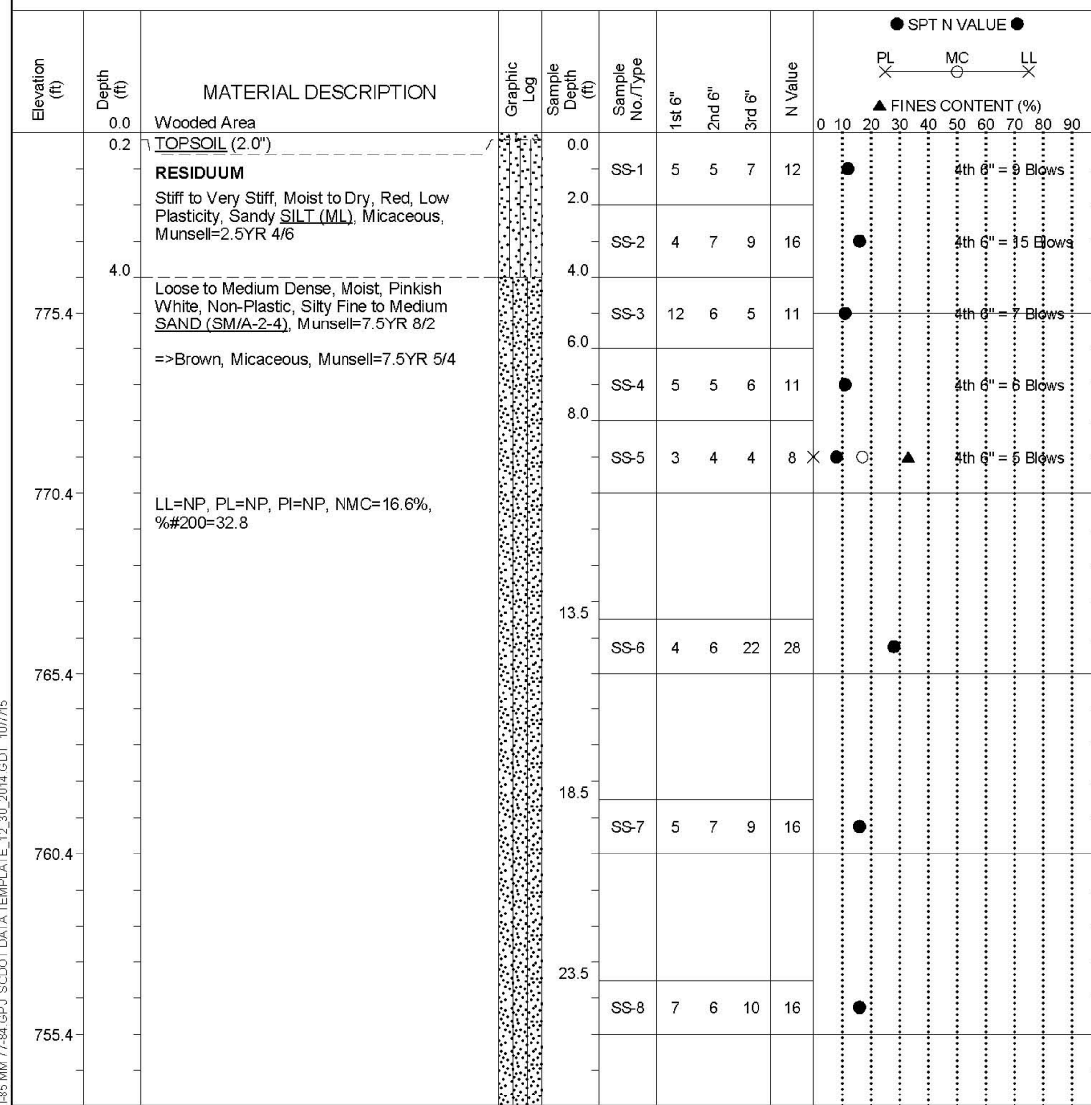
FOR
INFORMATION
ONLY



BORING LOG

SCDOT Soil Test Log

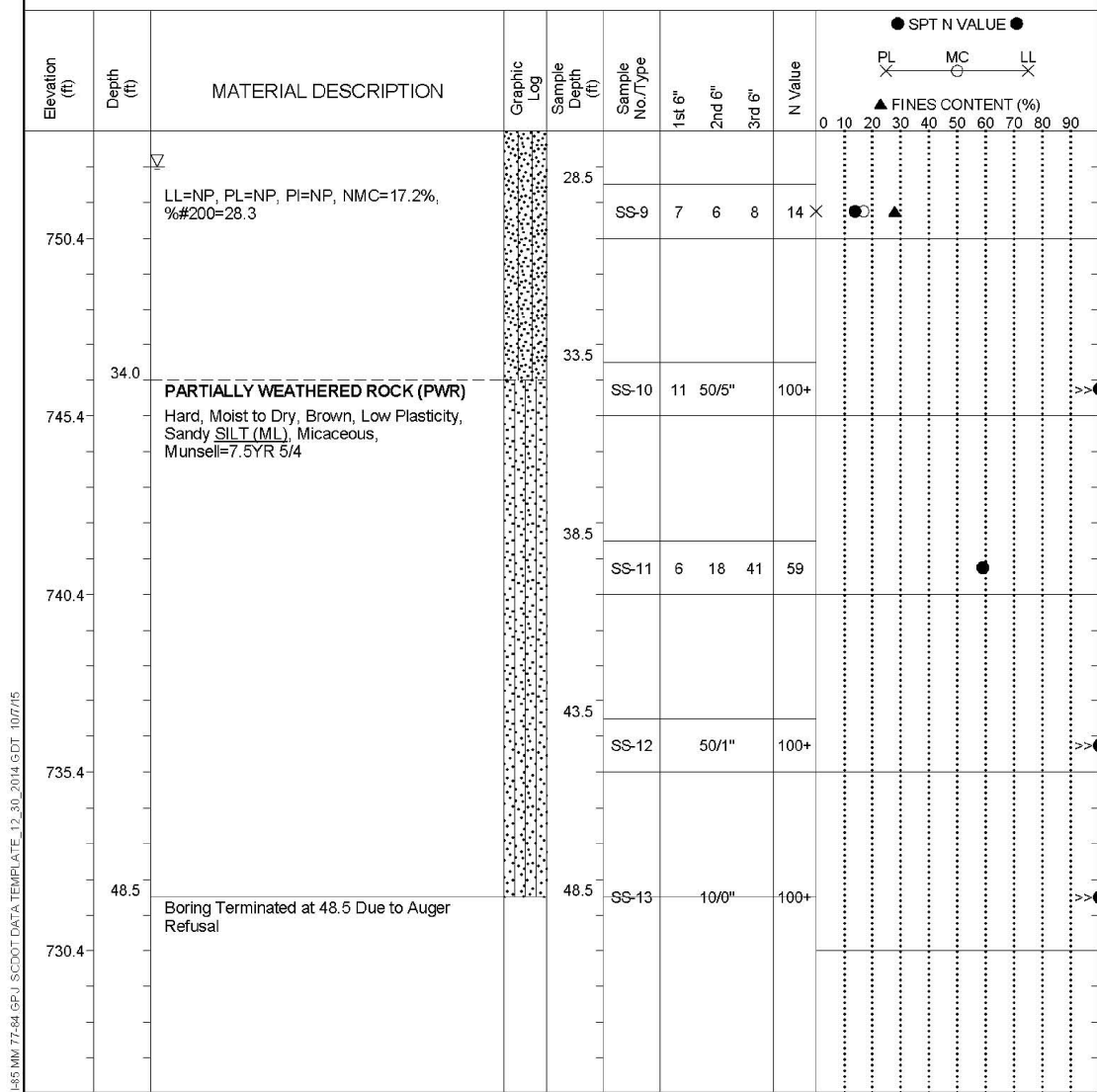
Project ID:	0040692	County:	Spartanburg	Boring No.:	RW-10
Site Description:	I-85 Rehabilitation Mile Marker 77 to 84			Route:	CSX Mainline
Eng./Geo.:	R. Wessinger	Boring Location:	1344+68	Offset:	46.1 L
Elev.:	780.4 ft	Latitude:	35.0252904	Longitude:	81.8635665
Total Depth:	48.5 ft	Soil Depth:	48.5 ft	Core Depth:	0 ft
Bore Hole Diameter (in):	6.0	Sampler Configuration:		Liner Required:	Y (N)
Drill Machine:	CME 550	Drill Method:	HSA	Hammer Type:	Automatic
Core Size:	N/A	Driller:	D. Harris	Groundwater:	TOB 28 ft



LEGEND		Continued Next Page	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SCDOT Soil Test Log

Project ID:	0040692	County:	Spartanburg	Boring No.:	RW-10
Site Description:	I-85 Rehabilitation Mile Marker 77 to 84			Route:	CSX Mainline
Eng./Geo.:	R. Wessinger	Boring Location:	1344+68	Offset:	46.1 L
Elev.:	780.4 ft	Latitude:	35.0252904	Longitude:	81.8635665
Total Depth:	48.5 ft	Soil Depth:	48.5 ft	Core Depth:	0 ft
Bore Hole Diameter (in):	6.0	Sampler Configuration:		Liner Required:	Y (N)
Drill Machine:	CME 550	Drill Method:	HSA	Hammer Type:	Automatic
Core Size:	N/A	Driller:	D. Harris	Groundwater:	TOB 28 ft



LEGEND		Continued Next Page	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

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Plotted: 5/24/2016 10:07:15
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OSP#: OPSC0290

CSX ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

BRIDGE NO Z270.19 AT M.P. 270.19
BORING LOG SHEET (RW-10)

SPARTANBURG SC
DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE

SCALE: AS SHOWN
DATE: 5/24/2016
DESIGN: LSS
DRAWN: LSS
CHK'D: AJG

VAL. SEC. 655 SC
DRAWING NO. G-22
22 OF 139

FOR INFORMATION ONLY

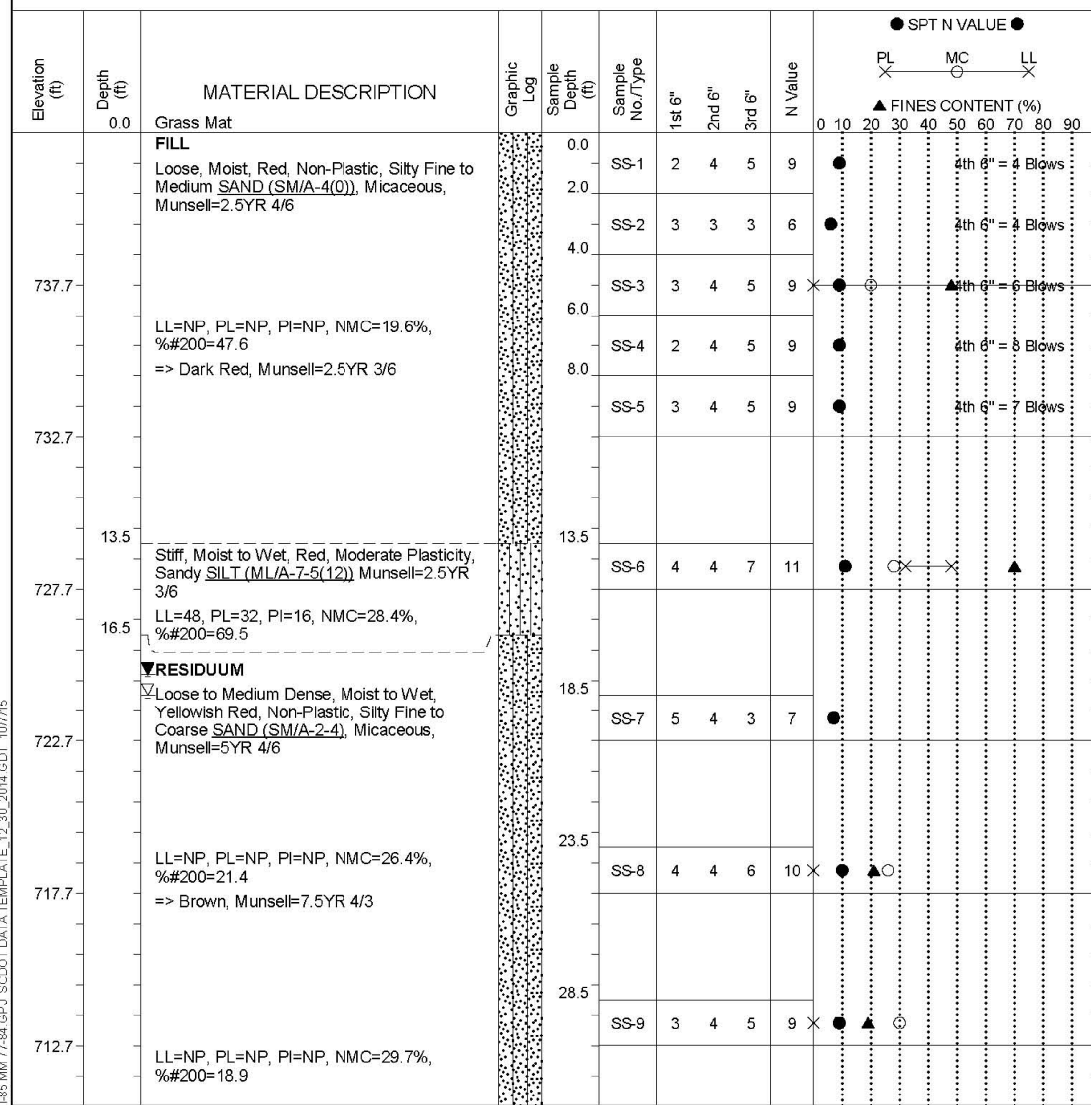
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PROJECT NO. P301140022 FILE:

BORING LOG

SCDOT Soil Test Log

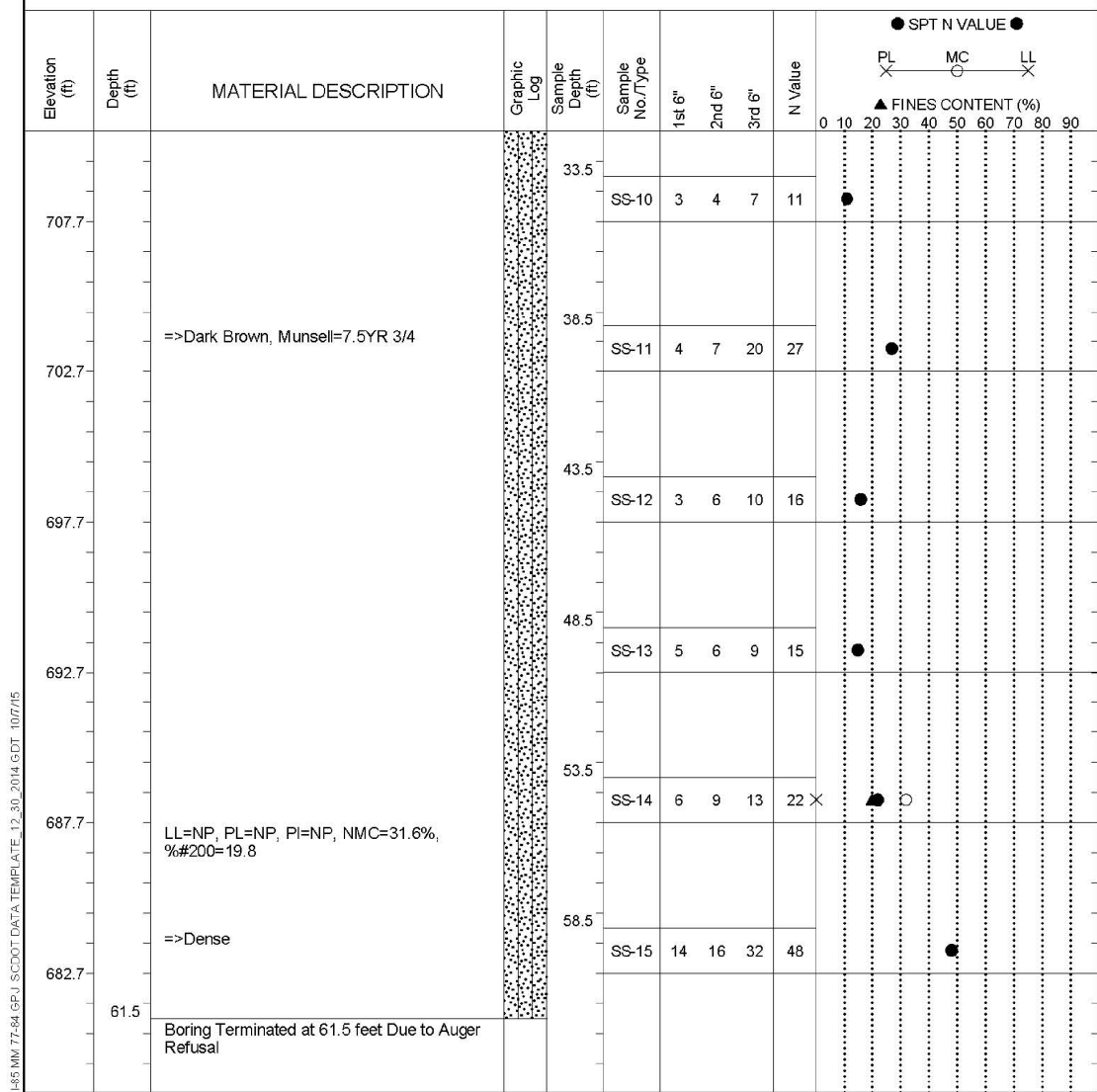
Project ID:	0040692	County:	Spartanburg	Boring No.:	W-1
Site Description:	I-85 Rehabilitation Mile Marker 77 to 84			Route:	CSX Mainline
Eng./Geo.:	R. Wessinger	Boring Location:	1314+06	Offset:	44.9 L
Elev.:	742.7 ft	Latitude:	35.0322809	Longitude:	81.8579046
Total Depth:	61.5 ft	Soil Depth:	61.5 ft	Core Depth:	0 ft
Bore Hole Diameter (in):	6.0	Sampler Configuration:		Liner Required:	Y (N)
Drill Machine:	CME 550	Drill Method:	HSA	Hammer Type:	Automatic
Core Size:	N/A	Driller:	D. Harris	Groundwater:	TOB 18.5 ft



LEGEND		Continued Next Page	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SCDOT Soil Test Log

Project ID:	0040692	County:	Spartanburg	Boring No.:	W-1
Site Description:	I-85 Rehabilitation Mile Marker 77 to 84			Route:	CSX Mainline
Eng./Geo.:	R. Wessinger	Boring Location:	1314+06	Offset:	44.9 L
Elev.:	742.7 ft	Latitude:	35.0322809	Longitude:	81.8579046
Total Depth:	61.5 ft	Soil Depth:	61.5 ft	Core Depth:	0 ft
Bore Hole Diameter (in):	6.0	Sampler Configuration:		Liner Required:	Y (N)
Drill Machine:	CME 550	Drill Method:	HSA	Hammer Type:	Automatic
Core Size:	N/A	Driller:	D. Harris	Groundwater:	TOB 18.5 ft



LEGEND		Continued Next Page	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SUSERS
S:\gopher - "agapace\m\j\gaitler - "dwgname", Plotted:\$(etime), 0, MON DD " YY - HMMm/pm

SC.DOT.G5439-185.MM.77-84.GPJ.SCDOT.DATA.TEMPLATE.12.30.2014.GDT.10/7/15

SC.DOT.G5439-185.MM.77-84.GPJ.SCDOT.DATA.TEMPLATE.12.30.2014.GDT.10/7/15

OSP#: OPSC0290

CSX ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

BRIDGE NO Z270.19 AT M.P. 270.19
BORING LOG SHEET (W-1)

SPARTANBURG SC

DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE

SCALE: AS SHOWN
DATE: 5/24/2016
DESIGN: LSS
DRAWN: LSS
CHK'D: AJG

VAL. SEC. 655
SC

DRAWING NO. G-23
23 OF 139

FOR INFORMATION ONLY

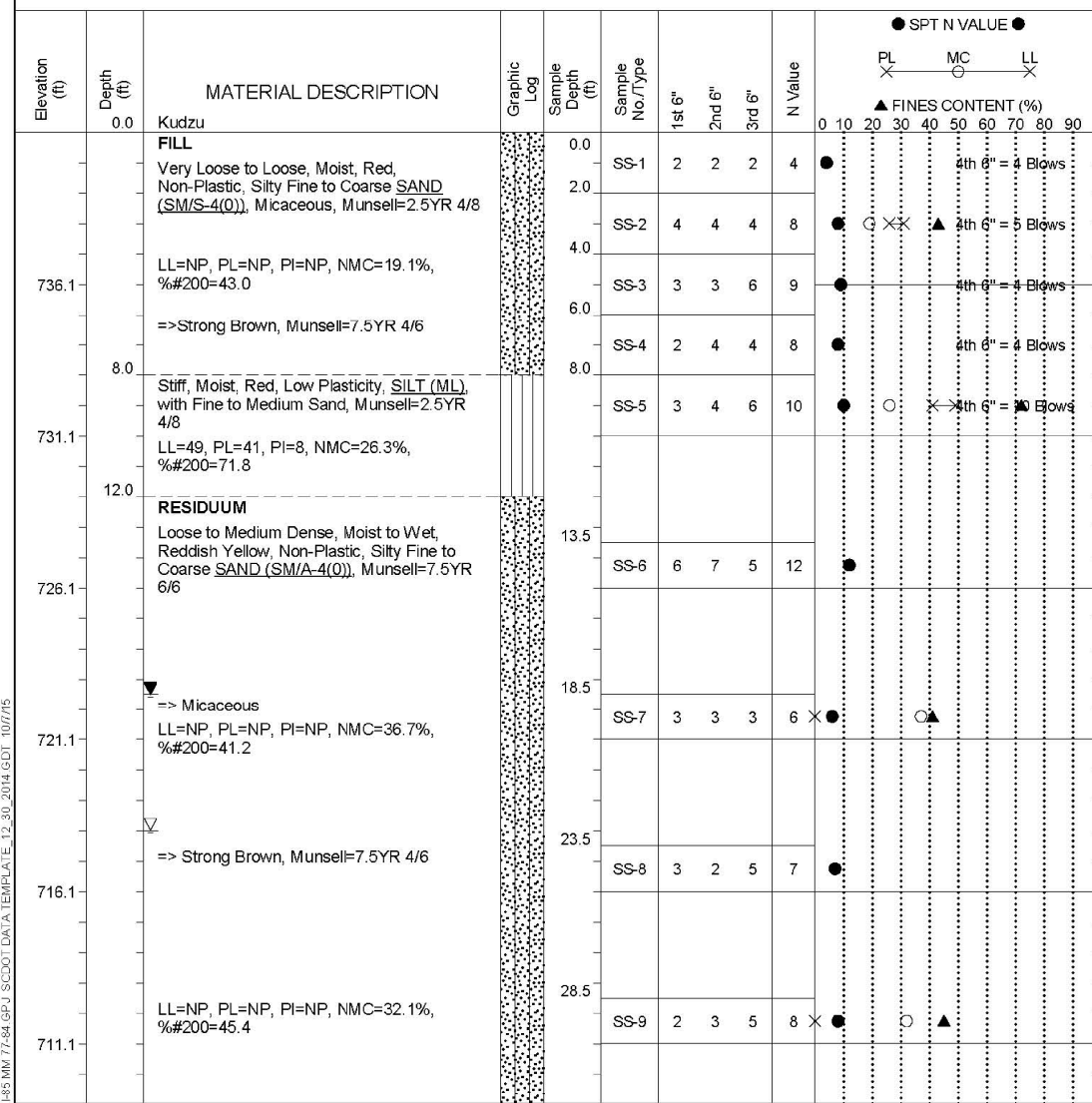
TranSystems

PROJECT NO. P301140022 FILE:

BORING LOG

SCDOT Soil Test Log

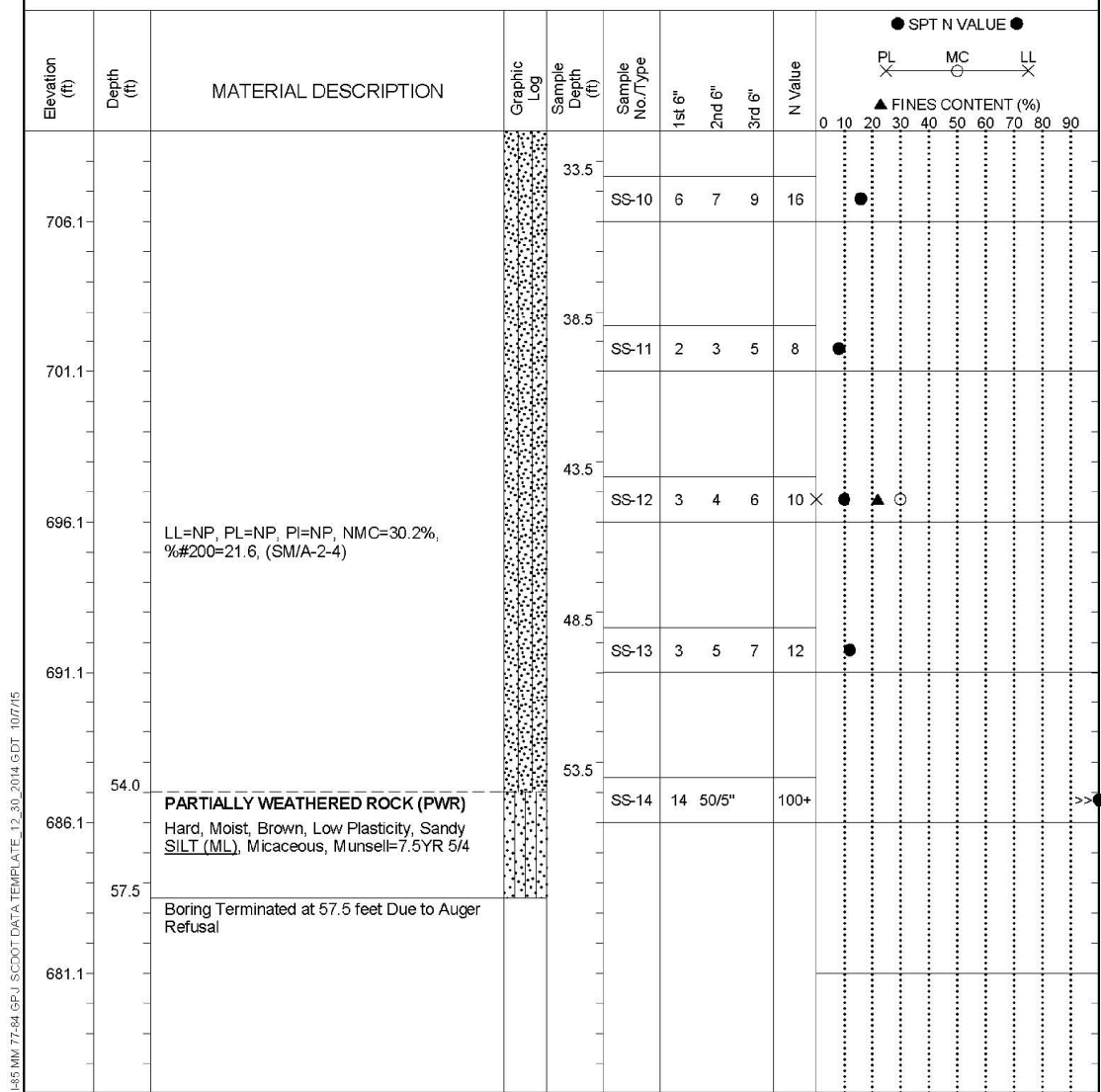
Project ID:	0040692	County:	Spartanburg	Boring No.:	W-2
Site Description:	I-85 Rehabilitation Mile Marker 77 to 84			Route:	CSX Mainline
Eng./Geo.:	R. Wessinger	Boring Location:	1314+98	Offset:	42.3 L
Elev.:	741.1 ft	Latitude:	35.0320723	Longitude:	81.8580634
Total Depth:	57.5 ft	Soil Depth:	57.5 ft	Core Depth:	0 ft
Bore Hole Diameter (in):	6.0	Sampler Configuration:		Liner Required:	Y (N)
Drill Machine:	CME 550	Drill Method:	HSA	Hammer Type:	Automatic
Core Size:	N/A	Driller:	D. Harris	Groundwater:	TOB 23 ft



LEGEND		Continued Next Page	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SCDOT Soil Test Log

Project ID:	0040692	County:	Spartanburg	Boring No.:	W-2
Site Description:	I-85 Rehabilitation Mile Marker 77 to 84			Route:	CSX Mainline
Eng./Geo.:	R. Wessinger	Boring Location:	1314+98	Offset:	42.3 L
Elev.:	741.1 ft	Latitude:	35.0320723	Longitude:	81.8580634
Total Depth:	57.5 ft	Soil Depth:	57.5 ft	Core Depth:	0 ft
Bore Hole Diameter (in):	6.0	Sampler Configuration:		Liner Required:	Y (N)
Drill Machine:	CME 550	Drill Method:	HSA	Hammer Type:	Automatic
Core Size:	N/A	Driller:	D. Harris	Groundwater:	TOB 23 ft



LEGEND		Continued Next Page	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SUSERS & together - "agapose(hm)"\$gapsbgr - "awgnome", Plotted:\$edtime, 0, MON DD "YY - HMMm/pm)

SC.DOT.G5439-185.MM.77-84.GPJ.SCDOT.DATA.TEMPLATE.12.30.2014.GDT.10/7/15

SC.DOT.G5439-185.MM.77-84.GPJ.SCDOT.DATA.TEMPLATE.12.30.2014.GDT.10/7/15

OSP#: OPSC0290

CSX ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

BRIDGE NO Z270.19 AT M.P. 270.19
BORING LOG SHEET (W-2)

SPARTANBURG SC
DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE

SCALE: AS SHOWN
DATE: 5/24/2016
DESIGN: LSS
DRAWN: LSS
CHK'D: AJG

VAL. SEC. 655 SC
DRAWING NO. G-24
24 OF 139

FOR INFORMATION ONLY

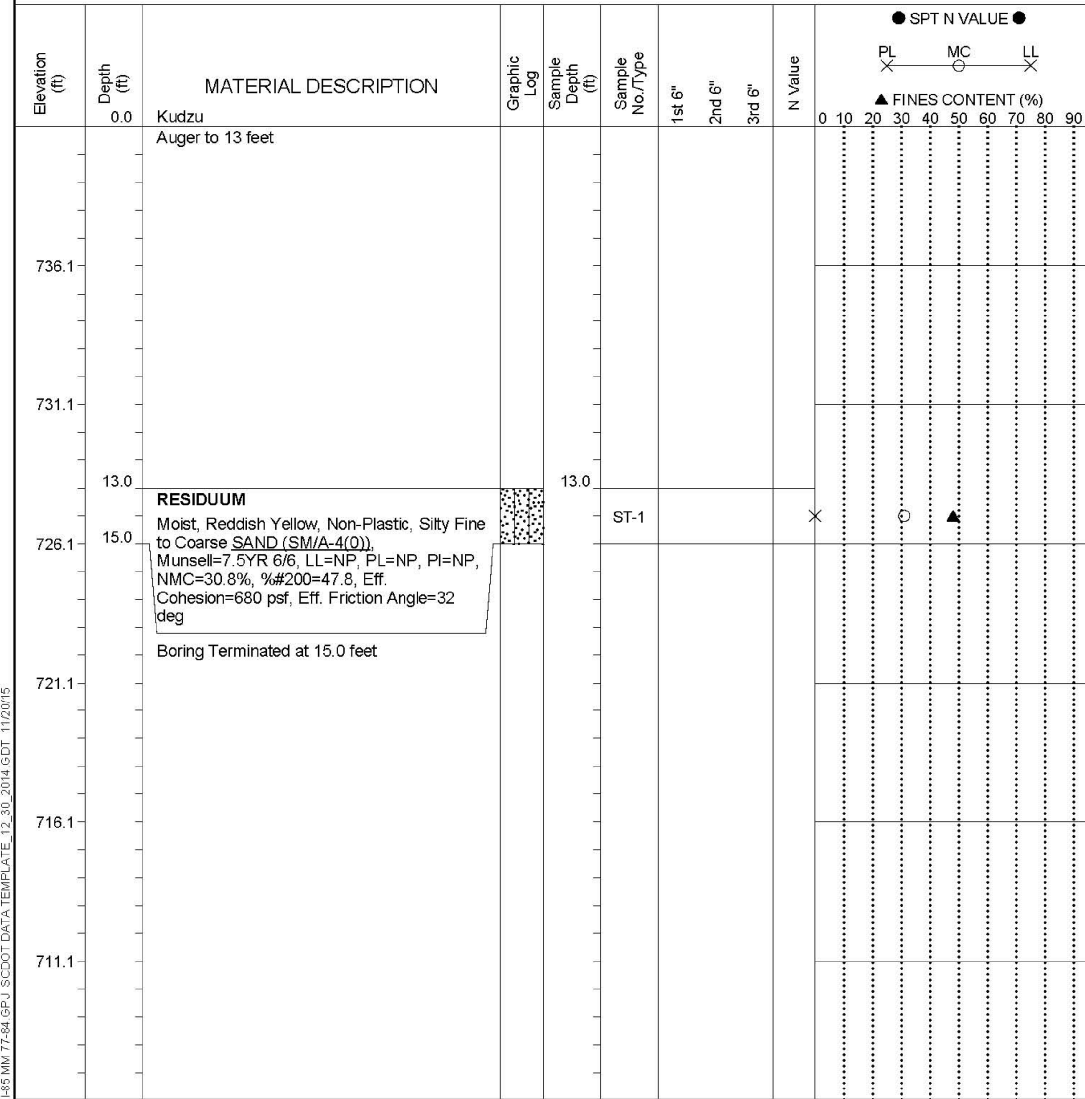


PROJECT NO. P301140022 FILE:

BORING LOG

SCDOT Soil Test Log

Project ID: 0040692	County: Spartanburg	Boring No.: W-2A
Site Description: I-85 Rehabilitation Mile Marker 77 to 84		
Eng./Geo.: R. Wessinger	Boring Location: 1314+98	Route: CSX Mainline
Elev.: 741.1 ft	Latitude: 35.0320723	Longitude: 81.8580634
Offset: 42.3 L	Alignment: Proposed	Date Started: 9/11/2015
Total Depth: 15 ft	Soil Depth: 15 ft	Core Depth: 0 ft
Date Completed: 9/11/2015		
Bore Hole Diameter (in): 6.0	Sampler Configuration:	Liner Required: Y (N)
		Liner Used: Y (N)
Drill Machine: CME 550	Drill Method: HSA	Hammer Type: Automatic
		Energy Ratio: 74%
Core Size: N/A	Driller: D. Harris	Groundwater: TOB NR
		24HR: NR



SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC-DOT 65439 - I-85 MM 77-84 GRU SCDOT DATA TEMPLATE 12_30_2014.GDT 11/2015

SUSERS 8/26/2016 10:54:39 AM: "d:\project\1314+98\borings\1314+98\borings.dwg" - H:\Mam/pm

OSP#: OPSC0290



ENGINEERING DEPARTMENT
 MAINTENANCE OF WAY
 BRIDGE MAINTENANCE AND DESIGN

FOR
 INFORMATION
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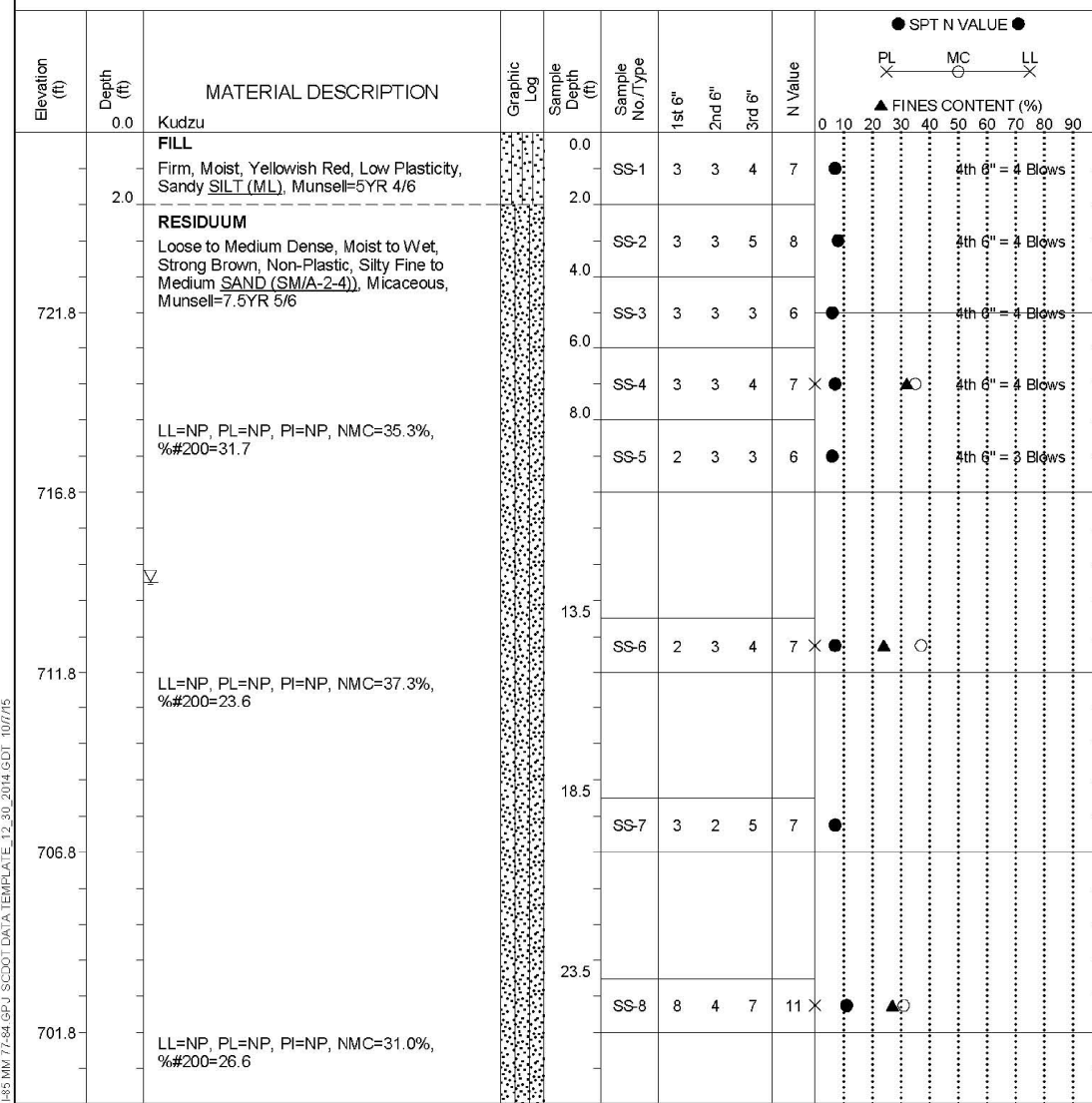


REVISIONS		BRIDGE NO Z270.19 AT M.P. 270.19 BORING LOG SHEET (W-2A)
		SPARTANBURG SC
		DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE
		SCALE: AS SHOWN DATE: 5/24/2016 DESIGN: LSS DRAWN: LSS CHK'D: AJG
	VAL. SEC. 655 SC	DRAWING NO. G-25 25 OF 139
	PROJECT NO. P301140022	FILE:

BORING LOG

SCDOT Soil Test Log

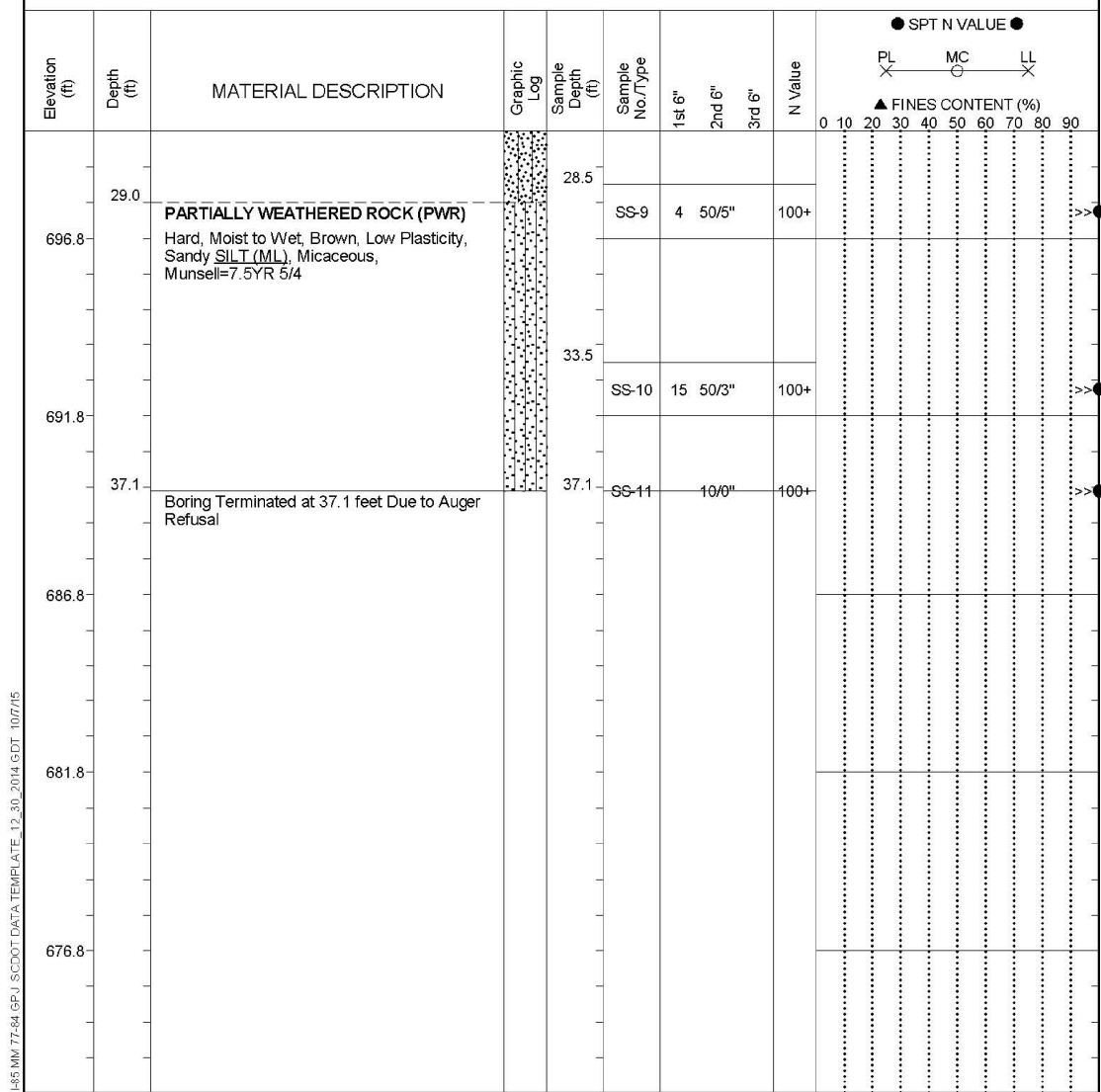
Project ID:	0040692	County:	Spartanburg	Boring No.:	W-3
Site Description:	I-85 Rehabilitation Mile Marker 77 to 84			Route:	CSX Mainline
Eng./Geo.:	R. Wessinger	Boring Location:	1317+99	Offset:	88.4 L
Elev.:	726.8 ft	Latitude:	35.0312921	Longitude:	81.8584289
Total Depth:	37.1 ft	Soil Depth:	37.1 ft	Core Depth:	0 ft
Bore Hole Diameter (in):	6.0	Sampler Configuration:		Liner Required:	Y (N)
Drill Machine:	CME 550	Drill Method:	HSA	Hammer Type:	Automatic
Core Size:	N/A	Driller:	D. Harris	Groundwater:	TOB 12.5 ft



SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SCDOT Soil Test Log

Project ID:	0040692	County:	Spartanburg	Boring No.:	W-3
Site Description:	I-85 Rehabilitation Mile Marker 77 to 84			Route:	CSX Mainline
Eng./Geo.:	R. Wessinger	Boring Location:	1317+99	Offset:	88.4 L
Elev.:	726.8 ft	Latitude:	35.0312921	Longitude:	81.8584289
Total Depth:	37.1 ft	Soil Depth:	37.1 ft	Core Depth:	0 ft
Bore Hole Diameter (in):	6.0	Sampler Configuration:		Liner Required:	Y (N)
Drill Machine:	CME 550	Drill Method:	HSA	Hammer Type:	Automatic
Core Size:	N/A	Driller:	D. Harris	Groundwater:	TOB 12.5 ft



SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SUSERS
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Plotted: 5/24/2016 10:07:15
H:\Mam\pm

SCDOT.G5439-185.MM.77-84.GPJ.SCDOT.DAT.TEMPLATE.12.30.2014.GDT.10/7/15

FOR
INFORMATION
ONLY

OSP#: OPSC0290

CSX
How tomorrow moves

ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

BRIDGE NO Z270.19 AT M.P. 270.19

BORING LOG SHEET (W-3)

SPARTANBURG SC

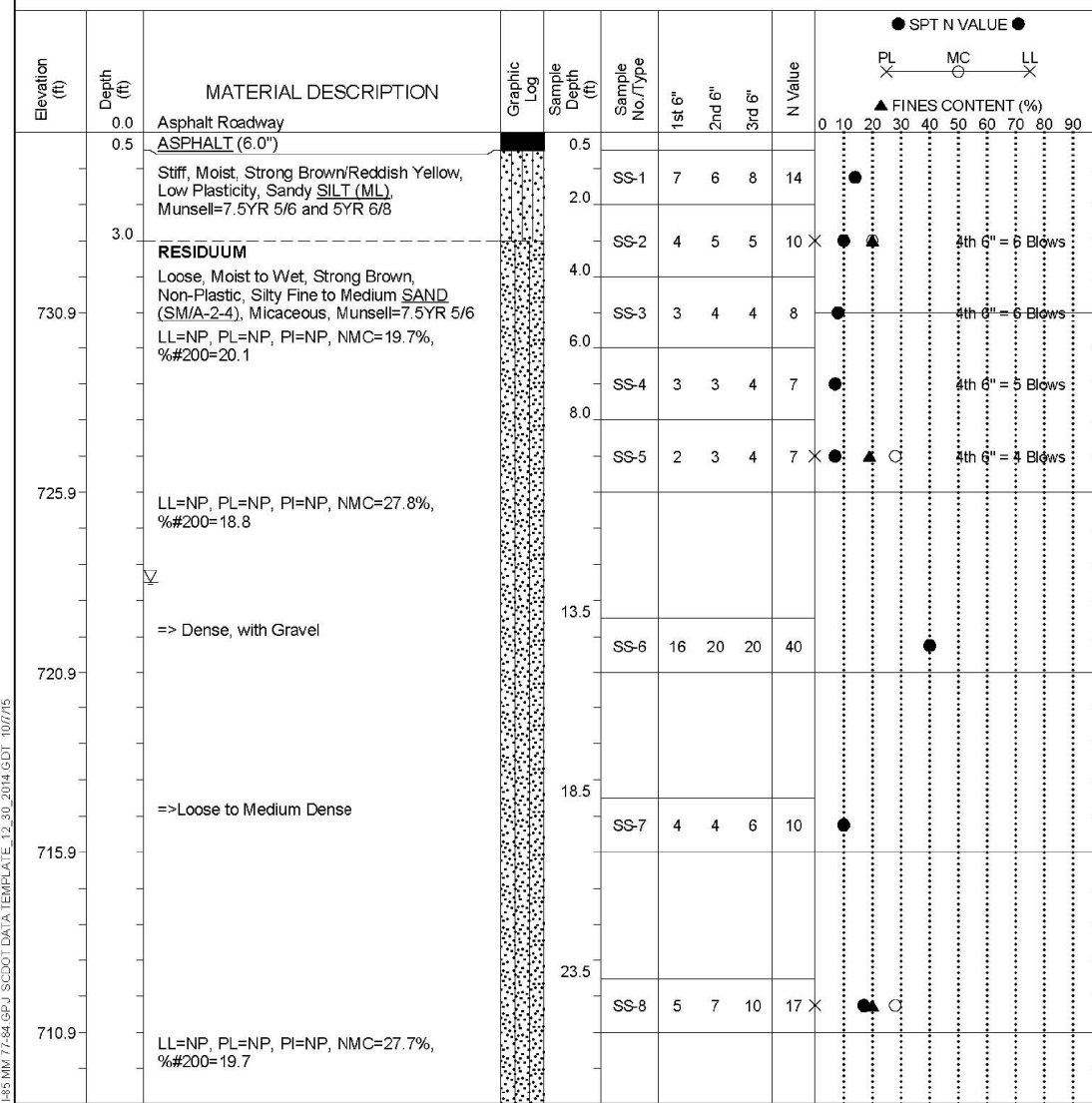
DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE

SCALE: AS SHOWN	VAL. SEC.	DRAWING NO.
DATE: 5/24/2016	655	G-26
DESIGN: LSS	SC	26 OF 139
DRAWN: LSS		
CHK'D: AJG		

BORING LOG

SCDOT Soil Test Log

Project ID:	0040692	County:	Spartanburg	Boring No.:	W-4
Site Description:	I-85 Rehabilitation Mile Marker 77 to 84			Route:	CSX Mainline
Eng./Geo.:	R. Wessinger	Boring Location:	1320+10	Offset:	61.2 R
Elev.:	735.9 ft	Latitude:	35.0309922	Longitude:	81.859213
Date Started:	8/28/2015				
Total Depth:	50 ft	Soil Depth:	50 ft	Core Depth:	0 ft
Date Completed:	8/28/2015				
Bore Hole Diameter (in):	6.0	Sampler Configuration:		Liner Required:	Y (N)
Liner Used:	Y (N)				
Drill Machine:	CME 550	Drill Method:	HSA	Hammer Type:	Automatic
Energy Ratio:	74%				
Core Size:	N/A	Driller:	D. Harris	Groundwater:	TOB 12.5 ft
24HR:	NR				

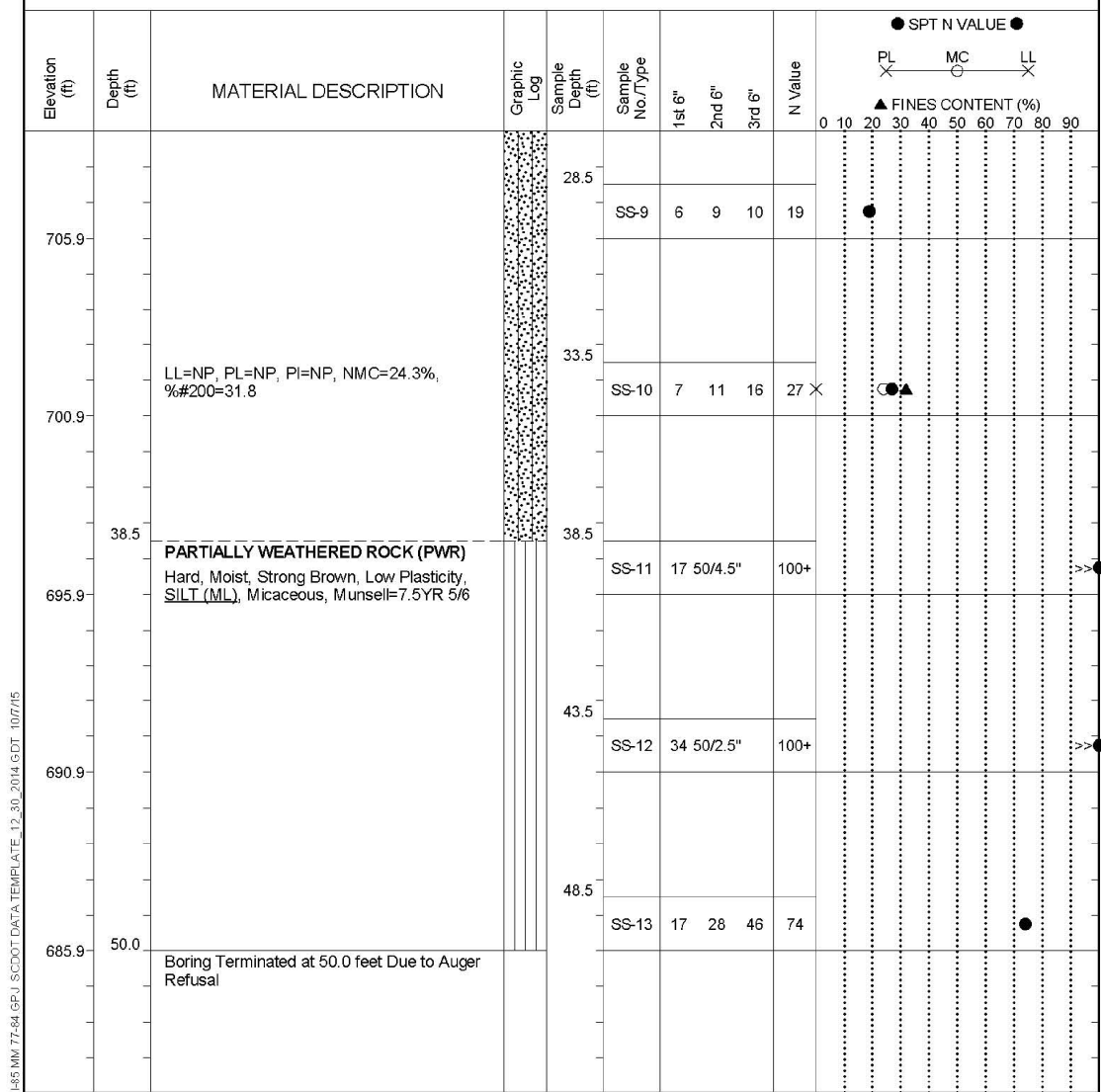


SC.DOT.G5439-185.MM.77-84.GPJ.SCDOT.DATA.TEMPLATE.12.30.2014.GDT.10/7/15

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SCDOT Soil Test Log

Project ID:	0040692	County:	Spartanburg	Boring No.:	W-4
Site Description:	I-85 Rehabilitation Mile Marker 77 to 84			Route:	CSX Mainline
Eng./Geo.:	R. Wessinger	Boring Location:	1320+10	Offset:	61.2 R
Elev.:	735.9 ft	Latitude:	35.0309922	Longitude:	81.859213
Date Started:	8/28/2015				
Total Depth:	50 ft	Soil Depth:	50 ft	Core Depth:	0 ft
Date Completed:	8/28/2015				
Bore Hole Diameter (in):	6.0	Sampler Configuration:		Liner Required:	Y (N)
Liner Used:	Y (N)				
Drill Machine:	CME 550	Drill Method:	HSA	Hammer Type:	Automatic
Energy Ratio:	74%				
Core Size:	N/A	Driller:	D. Harris	Groundwater:	TOB 12.5 ft
24HR:	NR				



SC.DOT.G5439-185.MM.77-84.GPJ.SCDOT.DATA.TEMPLATE.12.30.2014.GDT.10/7/15

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SUSERS & together - :agapocent)\$(gaps)sr - "awgnome", Plotted:\$edtime, 0, MON DD " YY - HMMm/pm)

OSP#: OPSC0290

		ENGINEERING DEPARTMENT MAINTENANCE OF WAY BRIDGE MAINTENANCE AND DESIGN	
		BRIDGE NO Z270.19 AT M.P. 270.19 BORING LOG SHEET (W-4)	
SPARTANBURG		SC	
DIVISION: HUNTINGTON		SUBDIVISION: BLUE RIDGE	
SCALE: AS SHOWN	VAL. SEC.	DRAWING NO.	
DATE: 5/24/2016	655	G-27	
DESIGN: LSS	SC	27 OF 139	
DRAWN: LSS			
CHK'D: AJG			

FOR INFORMATION ONLY

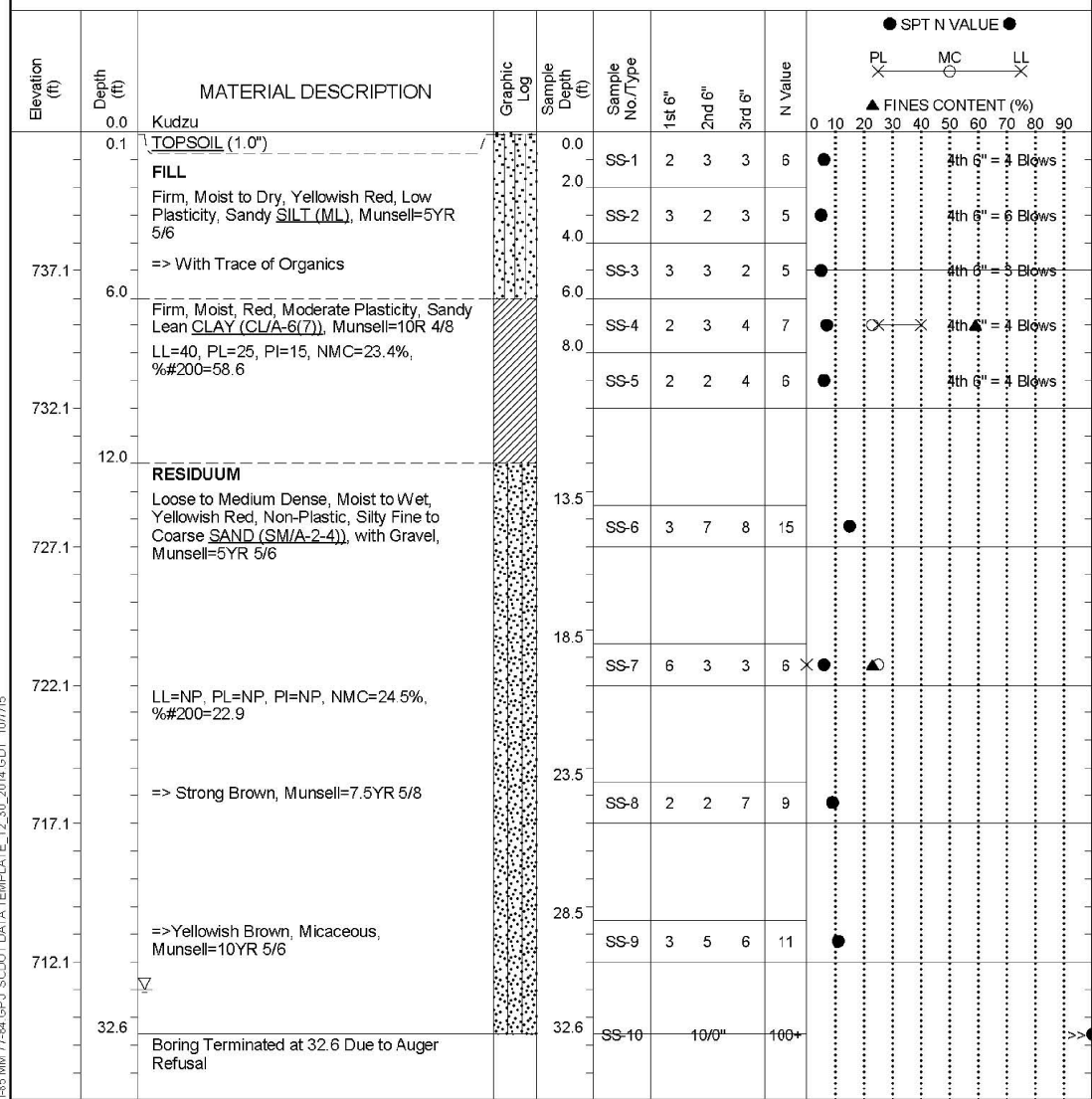


PROJECT NO. P301140022 FILE:

BORING LOG

SCDOT Soil Test Log

Project ID:	0040692	County:	Spartanburg	Boring No.:	W-5
Site Description:	I-85 Rehabilitation Mile Marker 77 to 84	Route:	CSX Mainline		
Eng./Geo.:	R. Wessinger	Boring Location:	1322+18	Offset:	15.0 L
Elev.:	742.1 ft	Latitude:	35.0303931	Longitude:	81.8593369
Date Started:	09/03/2015				
Total Depth:	32.6 ft	Soil Depth:	32.6 ft	Core Depth:	0 ft
Date Completed:	9/3/2015				
Bore Hole Diameter (in):	6.0	Sampler Configuration:		Liner Required:	Y (N)
Liner Used:	Y (N)				
Drill Machine:	CME 550	Drill Method:	HSA	Hammer Type:	Automatic
Energy Ratio:	74%				
Core Size:	N/A	Driller:	D. Harris	Groundwater:	TOB 31 ft
24HR:	NR				



SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SUSERS & together - "agapace(hat)"\$gprtsgr - "dwgnome", Plotted:\$(etime, 0, MON DD " YY - H:MMam/pm)

OSP #: OPSC0290

	ENGINEERING DEPARTMENT MAINTENANCE OF WAY BRIDGE MAINTENANCE AND DESIGN	
	BRIDGE NO Z270.19 AT M.P. 270.19 BORING LOG SHEET (W-5)	
REVISIONS	SPARTANBURG SC	
	DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE	
	SCALE: AS SHOWN DATE: 5/24/2016 DESIGN: LSS DRAWN: LSS CHK'D: AJG	VAL. SEC. 655 SC
	DRAWING NO. G-28 28 OF 139	

FOR
INFORMATION
ONLY

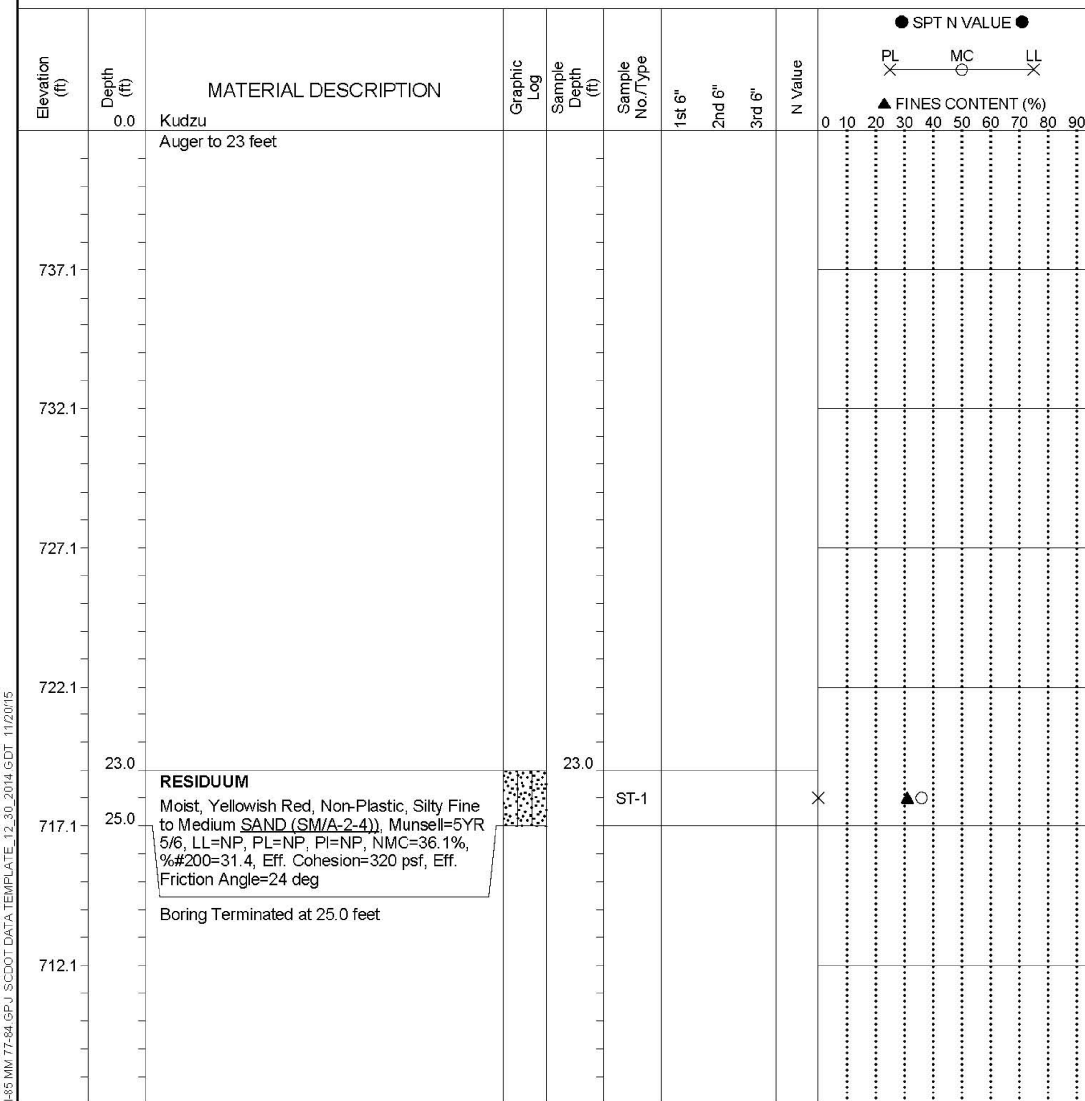


PROJECT NO. P301140022

BORING LOG



Project ID:	0040692	County:	Spartanburg	Boring No.:	W-5A
Site Description:	I-85 Rehabilitation Mile Marker 77 to 84			Route:	CSX Mainline
Eng./Geo.:	R. Wessinger	Boring Location:	1322+18	Offset:	15.0 L
Elev.:	742.1 ft	Latitude:	35.0303931	Longitude:	81.8593369
Total Depth:	25 ft	Soil Depth:	25 ft	Core Depth:	0 ft
Date Started:	9/11/2015				
Date Completed:	9/11/2015				
Bore Hole Diameter (in):	6.0	Sampler Configuration:		Liner Required:	Y (N)
Liner Used:	Y (N)				
Drill Machine:	CME 550	Drill Method:	HSA	Hammer Type:	Automatic
Energy Ratio:	74%				
Core Size:	N/A	Driller:	D. Harris	Groundwater:	TOB NR
24HR:	NR				



S:\DOT_G5439-485 MM 77-84 GRU SCDOT DATA TEMPLATE_12_30_2014.GDT_11/2015

SUSERS
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FOR
INFORMATION
ONLY

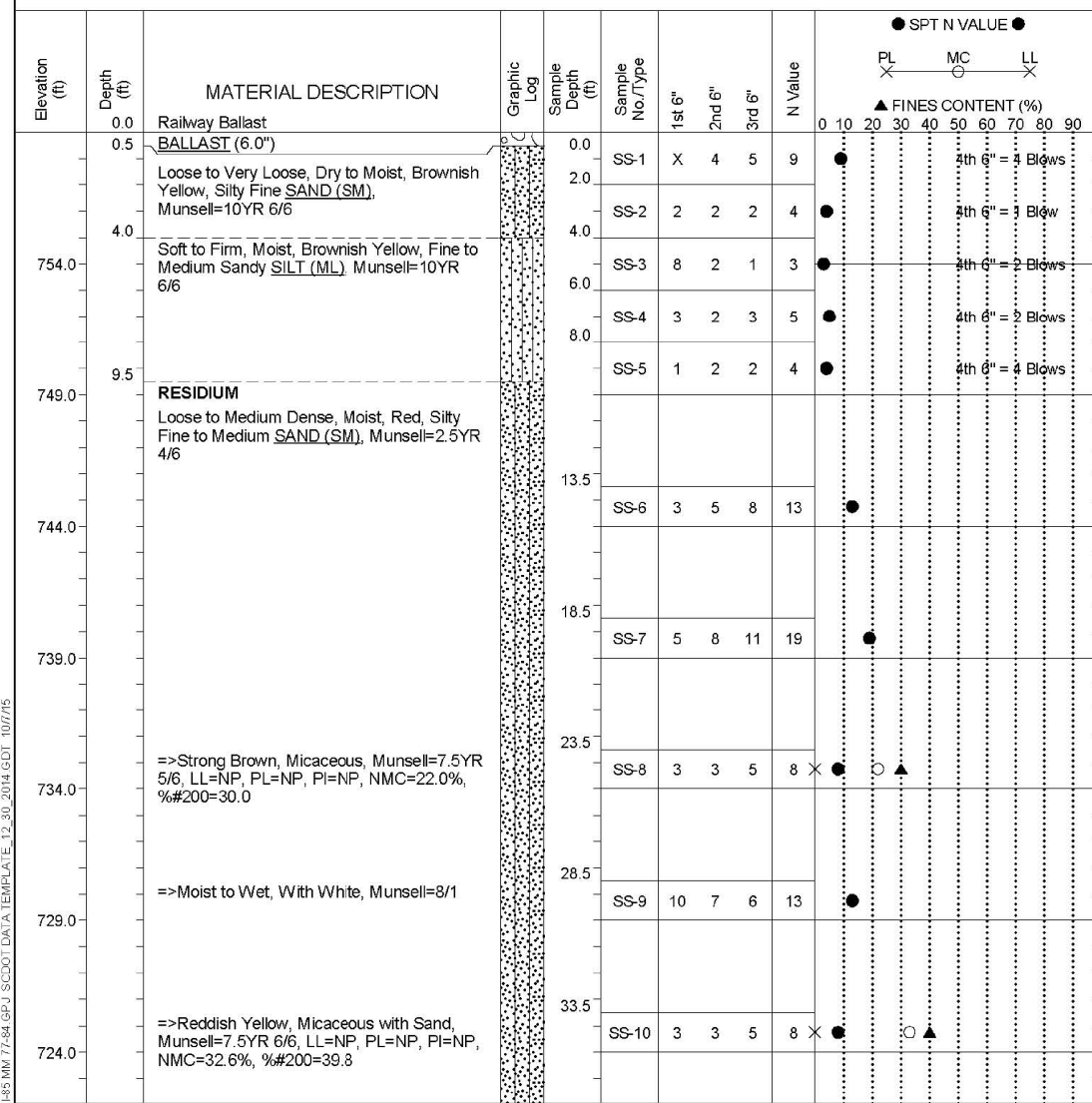


OSP#: OPSC0290	
CSX How tomorrow moves.	
ENGINEERING DEPARTMENT MAINTENANCE OF WAY BRIDGE MAINTENANCE AND DESIGN	
REVISIONS	BRIDGE NO Z270.19 AT M.P. 270.19 BORING LOG SHEET (W-5A)
	SPARTANBURG SC
	DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE
SCALE: AS SHOWN DATE: 5/24/2016 DESIGN: LSS DRAWN: LSS CHK'D: AJG	VAL. SEC. 655 SC
PROJECT NO. P301140022	DRAWING NO. G-29 29 OF 139
FILE:	

BORING LOG

SCDOT Soil Test Log

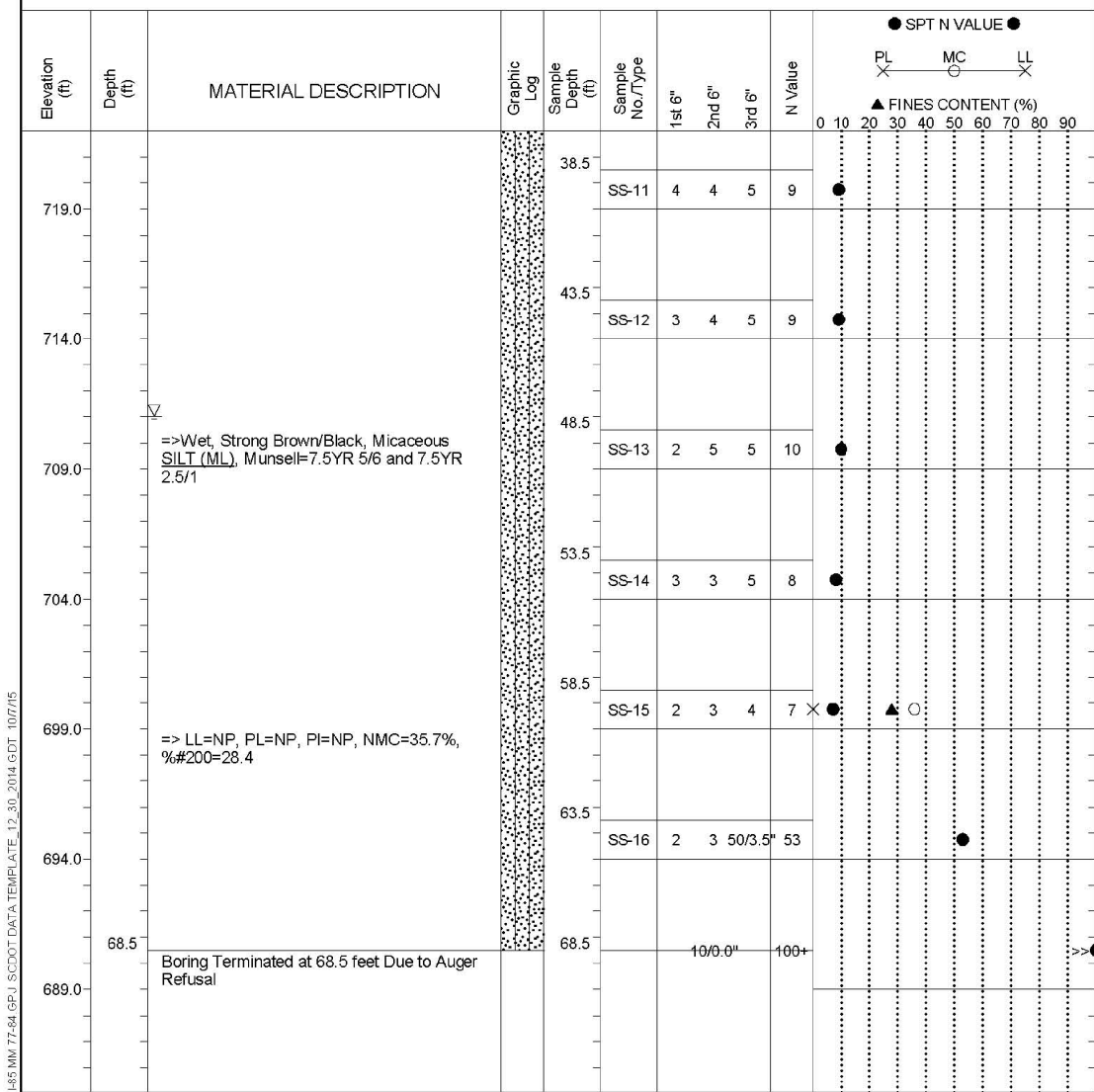
Project ID:	0040692	County:	Spartanburg	Boring No.:	W-6
Site Description:	I-85 Rehabilitation Mile Marker 77 to 84			Route:	CSX Mainline
Eng./Geo.:	R. Wessinger	Boring Location:	1323+02	Offset:	83.3 R
Elev.:	759.0 ft	Latitude:	35.0303271	Longitude:	81.8597609
Date Started:	9/8/2015				
Total Depth:	68.5 ft	Soil Depth:	68.5 ft	Core Depth:	0 ft
Date Completed:	9/8/2015				
Bore Hole Diameter (in):	6.0	Sampler Configuration:		Liner Required:	Y (N)
Liner Used:	Y (N)				
Drill Machine:	CME 550	Drill Method:	HSA	Hammer Type:	Automatic
Energy Ratio:	74%				
Core Size:	N/A	Driller:	D. Harris	Groundwater:	TOB 48 ft
24HR:	NR				



SC.DOT.G5439-185.MM.77-84.GPJ.SCDOT.DATA.TEMPLATE.12.30.2014.GDT.10/7/15

SCDOT Soil Test Log

Project ID:	0040692	County:	Spartanburg	Boring No.:	W-6
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SC.DOT.G5439-185.MM.77-84.GPJ.SCDOT.DATA.TEMPLATE.12.30.2014.GDT.10/7/15

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

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SUSERS & together - "agapace(hm)"\$gaitlsgr - "awgnome", Plotted:\$edtime, 0, MON DD "YY - HMMm/pm)

OSP#: OPSC0290



ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

FOR INFORMATION ONLY



REVISIONS	BRIDGE NO Z270.19 AT M.P. 270.19
	BORING LOG SHEET (W-6)
	SPARTANBURG SC
DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
SCALE: AS SHOWN	VAL. SEC. 655
DATE: 5/24/2016	SC
DESIGN: LSS	DRAWING NO. G-30
DRAWN: LSS	30 OF 139
CHK'D: AJG	

PROJECT NO. P301140022 FILE:

TABULATION OF ESTIMATED QUANTITIES - SUBSTRUCTURE

SPECIFICATION ITEM NUMBER	000140 2043500	000130 000130	000135 000135	000230 7120002	000235 7120001	000225 7120006	000245 7270010	000210 7110010	000240 7120005	000215 7111505	000220 7112001	000255 8141000	000115 2047000
BID ITEM	WET & DRY EXCAVATION (BRIDGES) CY	CAST-IN-PLACE CONCRETE CLASS 4000 CY	CONCRETE REINFORCING BARS STRUCTURES (BRIDGE) LBS.	DRILLED SHAFT WITH ROCK EXCAVATION-84" DIA. LF	DRILLED SHAFT WITH WET & DRY EXCAVATION-90" DIA. LF	DRILLED SHAFT SET-UP EA	CROSSHOLE SONIC LOGGING SET-UP EA	PILE DRIVING SET-UP EA	CONSTRUCTION CASING-90" DIA. LF	REINFORCED PILE TIPS (HP 14X89) EA	STEEL H-PILE (HP 14x89) LF	WATERPROOFING SY	TEMPORARY SHORING EA
SUBSTRUCTURE													
NORTH ABUTMENT	1,491	730	130,734					89		89	1,875	6	1
PIER 1	134	523	179,743	44	64	4	4		64				1
PIER 2	201	557	185,391	60	35	4	4		35				1
SOUTH ABUTMENT	1,322	715	130,207					89		89	2,425	6	1
TOTALS	3,148	2,525	626,075	104	99	8	8	178	99	178	4,300	12	4

TABULATION OF ESTIMATED QUANTITIES - WALLS

SPECIFICATION ITEM NUMBER	000140 2043500	000130 000130	000135 000135	000210 7110010	000215 7111505	000220 7112001	000205 000205	000255 8141000	000155 000155	000161 8051100	000161 8052210
BID ITEM	WET & DRY EXCAVATION (WALLS) CY	CAST-IN-PLACE CONCRETE CLASS 4000 (RET. WALL) CY	CONCRETE REINFORCING BARS STRUCTURES (RET. WALL) LBS.	PILE DRIVING SET-UP EA	REINFORCED PILE TIPS EA	STEEL H-PILE (HP 14x89) LF	HANDRAIL LF	WATERPROOFING SY	WALL 3 LS	STEEL BEAM GUARDRAIL LF	END ANCHOR TYPE B EA
WALLS											
WALL 1	630	460	60,900	64	64	3,712	200	12			
WALL 2	378	382	42,575	60	60	1,860	80	9			
WALL 3									1	310	2
WALL 4	87	174	20,150	21	21	441	24	5			
WALL 5	987	330	36,500	42	42	1,554	56	6			
WALL 6		119	9,115				50				
TOTALS	2,082	1,465	169,240	187	187	7,567	410	32	1	310	2

TABULATION OF ESTIMATED QUANTITIES - SUPERSTRUCTURE

SPECIFICATION ITEM NUMBER	000190 000190	000195 000195	000195 000195	000195 000195	000200 7094000	000265 7092351
BID ITEM	STRUCTURAL STEEL LB	DISC BEARING (FIXED) EA	DISC BEARING (MULTIDIRECTIONAL) EA	DISC BEARING (UNIDIRECTIONAL) EA	STRUCTURE DRAINAGE SYSTEM LS	FLAT PLATE EXPANSION JOINT LF
SUPERSTRUCTURE						
SPAN 1	454,634	2	4	2		48.75
SPAN 2	1,424,458	2	4	2		97.5
SPAN 3	1,423,543	2	4	2		48.75
TOTALS	3,302,635	6	12	6	1	195

TABULATION OF ESTIMATED QUANTITIES - MISCELLANEOUS

SPECIFICATION ITEM NUMBER	000120 2028101	000270 2041010
BID ITEM	REMOVAL AND DISPOSAL OF BRIDGE LS	DEWATERING LS
REMOVE EXISTING BRIDGE - CSX OVER I-85	1	
DEWATERING		1
TOTALS	1	1

SUMMARY OF ESTIMATED QUANTITIES

PROJECT NO.	SCDOT PAY ITEM	PROJECT PAY ITEM	DESCRIPTION	UNIT	QTY.
000105	1031000	1031000	MOBILIZATION	LS	1
000115	2047000	2047000	TEMPORARY SHORING WALL	EA	4
000120	2028101	2028101	REMOVAL AND DISPOSAL OF BRIDGE (CSX BRIDGE)	LS	1
000130	N/A	000130	CAST-IN-PLACE CONCRETE	CY	3,990
000135	N/A	000135	CONCRETE REINFORCING BARS	LBS	795,315
000140	2043500	2043500	WET AND DRY EXCAVATION	CY	5,230
000155	N/A	000155	WALL 3	LS	1
000161	8051100	8051100	STEEL BEAM GUARDRAIL W-BEAM SYSTEMS	LF	310
000161	8052210	8052210	END ANCHOR-TYPE B	EA	2
000190	N/A	000190	STRUCTURAL STEEL	LBS	3,302,635
000195	N/A	000195	DISC BEARING (FIXED)	EA	6
000195	N/A	000195	DISC BEARING (MULTIDIRECTIONAL)	EA	12
000195	N/A	000195	DISC BEARING (UNIDIRECTIONAL)	EA	6
000200	7094000	7094000	STRUCTURE DRAINAGE SYSTEM	LS	1
000205	N/A	000205	HANDRAIL	LF	410
000210	7110010	7110010	PILE DRIVING SET-UP	EA	365
000215	7111505	7111505	REINFORCED PILE TIPS	EA	365
000220	7112001	7112001	STEEL H-PILE (HP14x89)	LF	11,867
000225	7120006	7120006	DRILLED SHAFT SET-UP	EA	8
000230	7120002	7120002	DRILLED SHAFT WITH ROCK EXCAVATION-84" DIAMETER	LF	104
000235	7120001	7120001	DRILLED SHAFT WET AND DRY EXCAVATION-90" DIAMETER	LF	99
000240	7120005	7120005	CONSTRUCTION CASING-90" DIAMETER	LF	99
000245	7270010	7270010	CROSSHOLE SONIC LOGGING SET-UP	EA	8
000265	7092351	7092351	FLAT PLATE EXPANSION JOINT	LF	195
000255	8141000	8141000	WATERPROOFING	SY	44
000270	2041010	2041010	DEWATERING	LS	1

OSP#: OPSC0290



ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

REVISIONS

BRIDGE NO Z270.19 AT M.P. 270.19

SUMMARY OF QUANTITIES

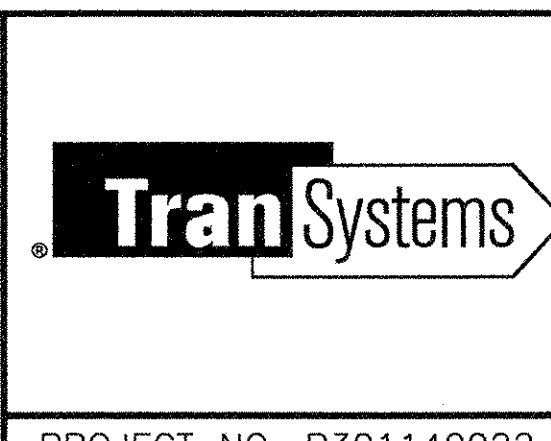
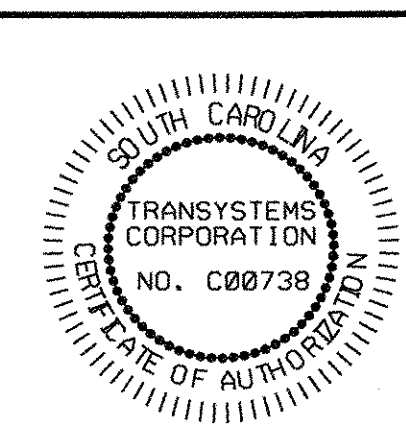
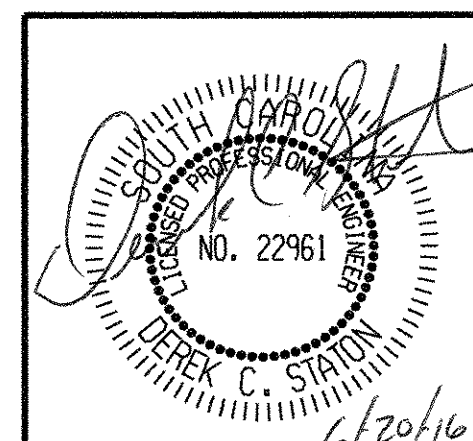
SPARTANBURG SC

DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE

SCALE: NOT TO SCALE VAL. SEC. 655 SC DRAWING NO. S-01

DATE: 6/20/2016 DESIGN: KWW DRAWN: KWW CHK'D: EWN

PROJECT NO. P301140022 FILE: 31 OF 139



GENERAL NOTES - BRIDGE

ALL MATERIALS AND WORKMANSHIP REQUIREMENTS ON THESE DRAWINGS SHALL BE ACCOMPLISHED AS SPECIFIED IN THE CSXT STANDARD SPECIFICATIONS AND THE CURRENT EDITION OF THE AMERICAN RAILWAY ENGINEERING AND MAINTENANCE-OF-WAY ASSOCIATION (AREMA) MANUAL FOR RAILWAY ENGINEERING AND SCDOT SPECIFICATIONS. IN THE EVENT OF CONFLICTS THE MOST RESTRICTIVE SHALL APPLY.

1. DESIGN SPECIFICATIONS AND CRITERIA

1.1 DESIGN CRITERIA

- 1.1.1 AXIAL LOAD PILE FOUNDATIONS - STRENGTH DESIGN METHOD (LFD)
- 1.1.2 REINFORCED CONCRETE PIER CAPS - STRENGTH DESIGN METHOD (LFD)
- 1.1.3 STRUCTURAL STEEL SUPERSTRUCTURE - SERVICE LOAD DESIGN METHOD (ASD)
- 1.1.4 SEISMIC DESIGN IS IN ACCORDANCE WITH AREMA 2014 - CHAPTER 9

IMMEDIATE SAFETY			4
OCCUPANY FACTOR	1	- FREIGHT SERVICE ONLY	
HAZARDOUS MATERIALS FACTOR	3	- OVER INTERSTATE HIGHWAY	
COMMUNITY LIFELINES FACTOR	3	- OVER INTERSTATE HIGHWAY	
IMMEDIATE VALUE			1
RAILROAD UTILIZATION FACTOR	2	- BETWEEN 10 MILLION AND 50 MILLION GROSS TONS	
DETOUR AVAILABILITY FACTOR	0.5	- INCONVENIENT DETOUR ROUTE	
REPLACEMENT VALUE			4
SPAN LENGTH FACTOR	3	- SPAN LENGTH BETWEEN 125 FEET AND 250 FEET	
BRIDGE LENGTH FACTOR	1.5	- BRIDGE LENGTH BETWEEN 100 FEET AND 1,000 FEET	
BRIDGE HEIGHT FACTOR	1	- BRIDGE HEIGHT BETWEEN 20 FEET AND 40 FEET	
SERVICEABILITY	RETURN PERIOD = 93 YEARS		
ULTIMATE	RETURN PERIOD = 310 YEARS		
SURVIVABILITY	RETURN PERIOD = 2254 YEARS		

DESIGN ACCELERATION COEFFICIENTS:

100 YEAR RETURN PERIOD		
PGA	0.01 g	
0.2 SEC	0.03 g	
1.0 SEC	0.01 g	
475 YEAR RETURN PERIOD		
PGA	0.05 g	
0.2 SEC	0.12 g	
1.0 SEC	0.04 g	
2475 YEAR RETURN PERIOD		
PGA	0.15 g	
0.2 SEC	0.28 g	
1.0 SEC	0.10 g	

- 1.1.5 DRAWINGS - CSX MANUAL OF GUIDELINES FOR BRIDGE DESIGN AND CADD, DATED OCT. 1, 1999

- 1.1.6 CSX BALLAST BRIDGE CRITERIA, DATED OCT. 1, 1999

- 1.1.7 TEMPORARY SHORING - ALL TEMPORARY SHORING SHALL BE DESIGNED AND DETAILED BY THE CONTRACTOR. SEE TEMPORARY SHORING IN THE TECHNICAL SPECIFICATIONS.

- 1.2 LIVE LOAD: COOPER E90 (OR ALTERNATE LIVE LOAD) WITH DIESEL IMPACT.

- 1.3 DEAD LOAD: AN EXTRA DEAD LOAD OF 60 POUNDS PER CUBIC FOOT IS INCORPORATED INTO THE DESIGN OF THIS STRUCTURE AS AN ALLOWANCE FOR 6 INCHES OF FUTURE BALLAST.

- 1.4 ALL MATERIAL AND WORKMANSHIP SHALL CONFORM TO CSX TRANSPORTATION STANDARD SPECIFICATIONS.

- 1.5 AMERICAN RAILWAY ENGINEERING AND MAINTENANCE-OF-WAY ASSOCIATION (AREMA) MANUAL FOR RAILWAY ENGINEERING, DATED 2014, CHAPTER 8 - CONCRETE STRUCTURES AND FOUNDATIONS, CHAPTER 9 - SEISMIC DESIGN FOR RAILWAY STRUCTURES, CHAPTER 15 - STEEL STRUCTURES

2. MATERIALS

2.1 CONCRETE

- 2.1.1 ALL CONCRETE SHALL CONFORM TO THE PROJECT SPECIFICATION, 000130, CAST-IN-PLACE CONCRETE. USE OF FLY ASH IS PROHIBITED. CONCRETE ADMIXTURES, OTHER THAN AIR ENTRAINMENT, MUST BE APPROVED BY THE CSXT ASSISTANT CHIEF ENGINEER - STRUCTURES.
- 2.1.2 CONCRETE REINFORCEMENT BARS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ASTM A706, GRADE 60. FABRICATION SHALL BE IN ACCORDANCE WITH CURRENT ACI 315 MANUAL OF STANDARD PRACTICE.
- 2.1.3 AGGREGATES SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ASTM C33.
- 2.1.4 CEMENTS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ASTM C150, TYPE I, OR TYPE IA PORTLAND CEMENT.
- 2.1.5 CAST-IN-PLACE CONCRETE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4,000 PSI.

2.2 STEEL

- 2.2.1 ALL BOLTED CONNECTIONS SHALL BE MADE WITH 7/8" DIA. ASTM A490 TYPE 1 BOLTS UNLESS NOTED OTHERWISE. ALL 7/8" DIA. BOLTS SHALL BE TIGHTENED TO A MINIMUM TENSION PER BOLT OF 49,000 LBS UTILIZING TURN OF THE NUT METHOD. ANY BOLTS THAT REQUIRE REMOVAL, AFTER BEING TIGHTENED TO THEIR PROOF LOAD SHALL BE DISCARDED AND A NEW BOLT INSTALLED.
- 2.2.2 SWEDGED BOLTS SHALL CONFORM TO ASTM F1554 GRADE 105, MEETING SUPPLEMENTARY REQUIREMENT S1. SWEDGED BOLTS SHALL NOT BE PAINTED.
- 2.2.3 STRUCTURAL STEEL MEMBERS AND DECK PLATE STEEL SHALL CONFORM TO ASTM DESIGNATION A709, GRADE 50. STEEL MEMBERS LABELED IN THE PLANS AS FCM SHALL MEET THE F2 TOUGHNESS REQUIREMENTS FOR FRACTURE CRITICAL MEMBERS. ALL OTHER NON-FRACTURE CRITICAL MEMBERS MUST MEET T2 TOUGHNESS REQUIREMENTS. STEEL MATERIAL SHALL BE STRAIGHT AND FREE FROM SHARP KINKS AND BENDS. ANY STEEL MATERIAL EXHIBITING SUCH DEFICIENCIES SHALL BE CAUSE FOR THE REJECTION OF THE MATERIAL. STRAIGHTENING OF THE MATERIAL SHALL NOT BE ACCEPTABLE.

2.3 OTHER

- 2.3.1 WATERPROOFING MATERIALS: COLD LIQUID-APPLIED ELASTOMERIC MEMBRANE: AREMA CHAPTER 8, PART 29.9.10

3. FABRICATION

3.1 CONCRETE (PRECAST AND CAST-IN-PLACE)

- 3.1.1 ALL EXPOSED CORNERS SHALL BE CHAMFERED 3/4" UNLESS NOTED OTHERWISE.
- 3.1.2 CONCRETE SHALL BE COMPACTED IN FORMS WITH HIGH FREQUENCY VIBRATORS AND HAVE A MAXIMUM SLUMP OF 3".
- 3.1.3 PLACEMENT OF CONCRETE WITH A MINIMUM DIMENSION GREATER THAN OR EQUAL TO 5'-0" OR FOR DRILLED SHAFTS WITH 7'-0" DIAMETER OR GREATER SHALL INCLUDE TEMPERATURE CONTROL REQUIREMENTS AND REQUIREMENTS FOR APPROVAL OF A SPECIFIC MASS CONCRETE MIX DESIGN. DRILLED SHAFT CONCRETE SHALL FOLLOW PROJECT SPECIFICATION NUMBER 000131 FOR PLACEMENT AND BE A MODIFIED CLASS 4000DS CONCRETE.
- 3.1.4 CONCRETE FORMWORK AND FALSE WORK SHALL NOT BE REMOVED PRIOR TO THE CONCRETE STRENGTH REACHING A MINIMUM OF 60% OF THE DESIGN STRENGTH AND HAVING CURED FOR A MINIMUM OF 3 DAYS. HORIZONTAL ADJACENT CONCRETE POURS ARE PERMITTED ONCE FORMWORK AND FALSE WORK HAVE BEEN REMOVED FROM THE FIRST CONCRETE POUR. VERTICAL ADJACENT POURS SHALL NOT BE PERMITTED UNTIL THE BELOW CONCRETE STRENGTH HAS REACHED A MINIMUM 80% OF THE DESIGN STRENGTH AND HAVING CURED FOR A MINIMUM OF 7 DAYS.
- 3.1.5 ABUTMENTS AND WALLS 2, 3, 4 AND 5 SHALL RECEIVE ANTI GRAFFITI COATING IN ACCORDANCE WITH EXHIBIT 5 OF THE SPECIAL PROVISIONS. COST OF COATING IS INCIDENTAL FOR EACH OF THE PAY ITEMS.

3.2 STEEL:

- 3.2.1 FABRICATION OF ALL STEEL MEMBERS SHALL BE ACCORDING TO THE AREMA MANUAL FOR RAILWAY ENGINEERING, CURRENT EDITION.
- 3.2.2 ALL BOLT HOLES SHALL BE SUB-DRILLED AND REAMED OR DRILLED FROM THE SOLID. AT NO TIME ARE HOLES TO BE SUB-PUNCHED AND REAMED OR PUNCHED FULL SIZE. ALL HOLES SHALL BE 1/16" LARGER THAN THE SPECIFIED BOLT UNLESS NOTED OTHERWISE.
- 3.2.3 ALL STEEL MATERIAL THAT REQUIRES CUTTING SHALL BE CUT WITH EITHER A MECHANICALLY GUIDED BURNER OR A CUT-OFF SAW. AT NO TIME WILL FREEHAND FLAME CUTTING OR FREEHAND SAWING WITH A HAND HELD SAW OR MECHANICALLY OPERATED HAND HELD SAW BE ALLOWED. THE SURFACES SHALL NOT BE ROUGHER THAN ANSI B46.1 SURFACE TEXTURE OF 1000.
- 3.2.4 ALL BEAMS SHALL BE FABRICATED WITH THE NATURAL CAMBER "UP". SHOP ASSEMBLY OF ALL STRUCTURAL STEEL IS REQUIRED TO ENSURE PROPER FIT AND ALIGNMENT OF THE STEEL MEMBERS. ALL MEMBERS SHALL BE MATCH MARKED WITH THE USE OF STEEL PUNCHES.
- 3.2.5 THE CSXT PROJECT ENGINEER SHALL BE CONTACTED SO THAT AN INSPECTION OF THE FULLY ASSEMBLED FABRICATED BEAMS CAN BE PERFORMED.

3.3 WELDING

- 3.3.1 WELDING SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF THE BRIDGE WELDING CODE, AWS D1.5, AS MODIFIED OR SUPPLEMENTED BY THE AREMA MANUAL FOR RAILWAY ENGINEERING.
- 3.3.2 ALL WELDS SHALL BE MADE WITH E7018 ELECTRODES. ALL WELDS SHALL BE MADE BY SHIELDED METAL ARC WELDING (SMAW) OR SUBMERGED ARC WELDING (SAW) PROCESS.
- 3.3.3 UNLESS NOTED OTHERWISE, ALL WELDS ARE TO BE SHOP WELDS. WELD SIZES SHALL BE AS SHOWN ON THE PLANS.
- 3.3.4 THERE SHALL BE THOROUGH FUSION BETWEEN WELD METAL AND BASE METAL AND BETWEEN SUCCESSIVE PASSES OF THE WELD. ALL CRATERS SHALL BE FILLED TO THE FULL CROSS SECTION OF THE WELD.
- 3.3.5 PRIOR TO WELDING, EACH WELDER SHALL HAVE BEEN CERTIFIED IN ACCORDANCE WITH AWS REQUIREMENTS DURING A PERIOD OF ONE (1) YEAR PRIOR TO WORK ON THE BRIDGE. THE FABRICATOR SHALL FURNISH THE CSXT PROJECT ENGINEER WITH AN AWS CERTIFICATE FOR EACH WELDER, COVERING THEIR ABILITY TO MAKE A COMPLETE AND SATISFACTORY WELD OF EACH KIND TO BE USED ON THE PROJECT.
- 3.3.6 SURFACES AND EDGES TO BE WELDED SHALL BE SMOOTH, UNIFORM AND FREE FROM FINS, TEARS, CRACKS, OR OTHER DEFICIENCIES WHICH WOULD ADVERSELY AFFECT THE QUALITY OR STRENGTH OF THE WELD. SURFACES TO BE WELDED AND SURFACES ADJACENT TO A WELD SHALL ALSO BE MATERIAL THAT WILL NOT INHIBIT PROPER WELDING.

3.4 SHOP PAINT

- 3.4.1 ALL STRUCTURAL STEEL WITH THE EXCEPTION OF THE SWEDGED ANCHOR BOLTS AND MACHINE FINISHED SURFACES SHALL BE PAINTED ACCORDING TO CSX TRANSPORTATION SPECIFICATIONS FOR PAINTING SHOP FABRICATED BRIDGE STEEL.

4. CONSTRUCTION

4.1 MAINTENANCE OF RAILROAD TRAFFIC

- 4.1.1 THE BUILDER SHALL PROVIDE FOR CONTINUOUS RAIL TRAFFIC ACROSS THE EXISTING STRUCTURE THROUGHOUT THE CONSTRUCTION PERIOD. POTENTIAL TRACK OUTAGE PERIODS ARE ANTICIPATED DURING CERTAIN CONSTRUCTION OPERATIONS. ALL WORK INCLUDING REQUIRED TEMPORARY TRACK OUTAGES SHALL BE CLOSELY COORDINATED WITH CSXT BEFORE CONSTRUCTION.
- 4.1.2 FOR THE PURPOSES OF MONITORING VIBRATIONS AND SETTLEMENT OF CSX TRACK AND STRUCTURES THE BUILDER SHALL ESTABLISH MONUMENTS PRIOR TO CONSTRUCTION, MAINTAIN MONUMENTS THROUGHOUT CONSTRUCTION, AND COLLECT MEASUREMENTS AT REGULAR INTERVALS. THE REPORTING PROCEDURE AND INTERVALS WILL BE ESTABLISHED PRIOR TO CONSTRUCTION AND SHALL NOT EXCEED DAILY MEASUREMENTS AND WEEKLY REPORTING. ANY AND ALL EXCESSIVE SETTLEMENT AND VIBRATIONS DETECTED SHALL BE REPORTED TO CSXT REPRESENTATIVES IMMEDIATELY.

- 4.1.3 CONTRACTOR SHALL MAINTAIN CONTINUOUS ACCESS TO PRIVATE DRIVE @ STATION 18+50 ON DEWBERRY RD. FOR CSX ACCESS.

4.2 FIELD PAINT

- 4.3.1 ANY STRUCTURAL STEEL PAINTED SURFACES MARRED DURING SHIPPING AND/OR HANDLING SHALL BE TOUCHED UP ACCORDING TO SSPC - PA1: SECTION 5.2 AND 7.2. PAINTING SHALL BE AS SPECIFIED IN CSX TRANSPORTATION SPECIFICATIONS FOR PAINTING SHOP FABRICATED BRIDGE STEEL.

4.4 HAND RAIL

- 4.4.1 HAND RAIL POSTS SHALL BE ERECTED PLUMB AND IN LINE.

4.5 RAILROAD TRACKWORK

- 4.5.1 CSX TRANSPORTATION WILL BE RESPONSIBLE FOR ALL PROJECT TRACKWORK INCLUDING BALLAST.

4.6 UTILITIES

- 4.6.1 THE BUILDER IS RESPONSIBLE FOR LOCATING EXISTING UTILITIES AND FOR MAINTAINING THE UTILITIES THROUGHOUT THE DURATION OF THE PROJECT.

4.7 CRANE CAPACITY

- 4.7.1 CSX TRANSPORTATION REQUIRES CRANE CAPACITY OF 150% OF THE PICK WEIGHT. THIS FACTOR OF SAFETY IS IN ADDITION TO ANY FACTOR INCLUDED WITHIN THE CRANE CHART.

OSP#: OPSC0290



ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

REVISIONS

BRIDGE NO Z270.19 AT M.P. 270.19

GENERAL NOTES

SPARTANBURG SC

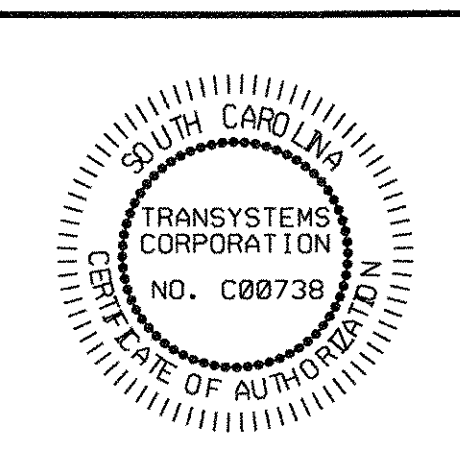
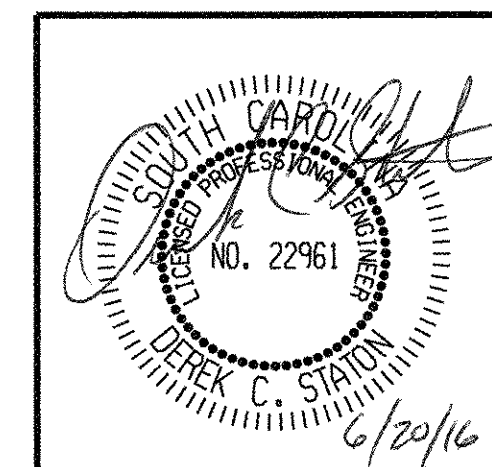
DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE

SCALE: N/A VAL. SEC. DRAWING NO.

DATE: 6/20/2016 655 SC S-02

DESIGN: KWW DRAWN: JWG 32 OF 139

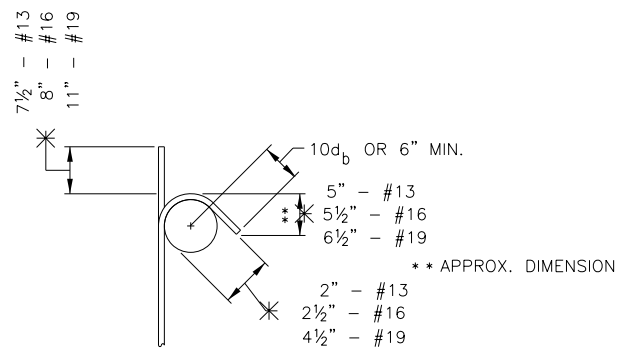
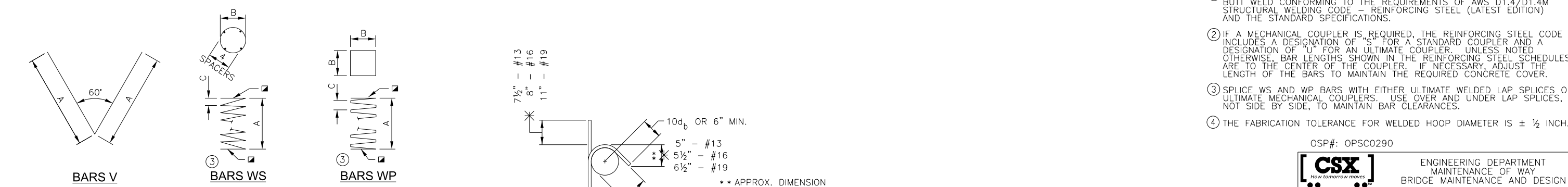
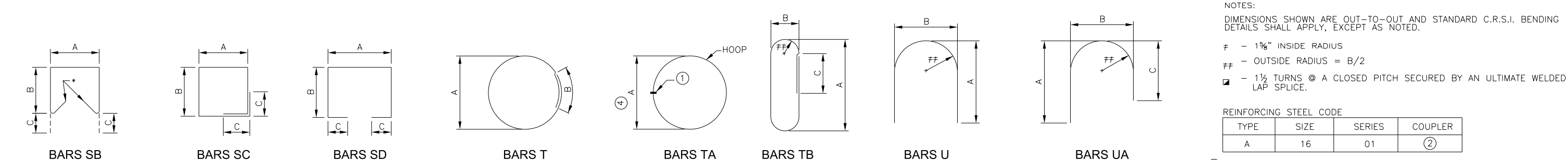
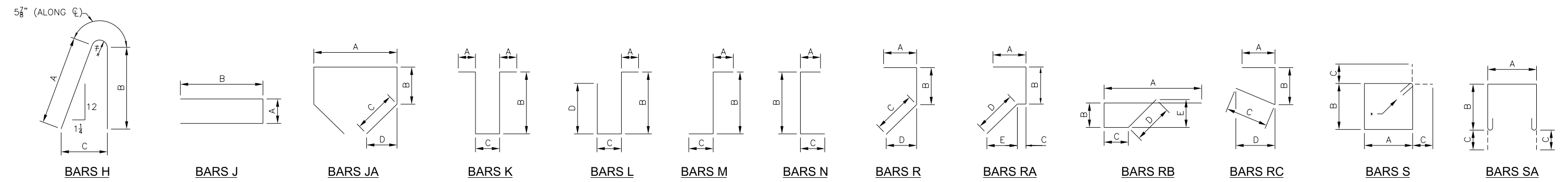
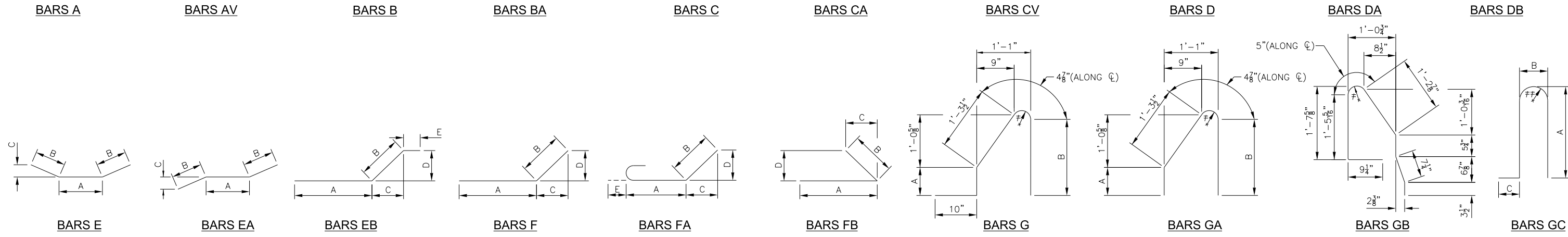
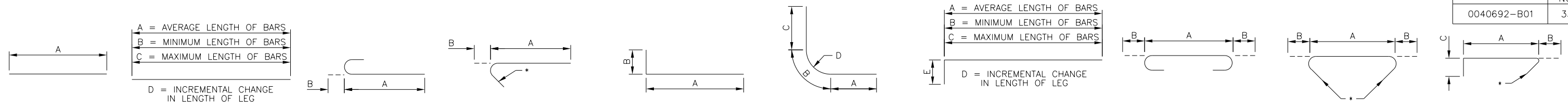
CHK'D: EWN



PROJECT NO. P301140022

FILE:

SUBSERS 6/20/2016 9:57:33 AM - \$FILES



NOTES:
 DIMENSIONS SHOWN ARE OUT-TO-OUT AND STANDARD C.R.S.I. BENDING DETAILS SHALL APPLY, EXCEPT AS NOTED.
 # - 1 1/8" INSIDE RADIUS
 ## - OUTSIDE RADIUS = B/2
 ▣ - 1 1/2 TURNS @ A CLOSED PITCH SECURED BY AN ULTIMATE WELDED LAP SPlice.

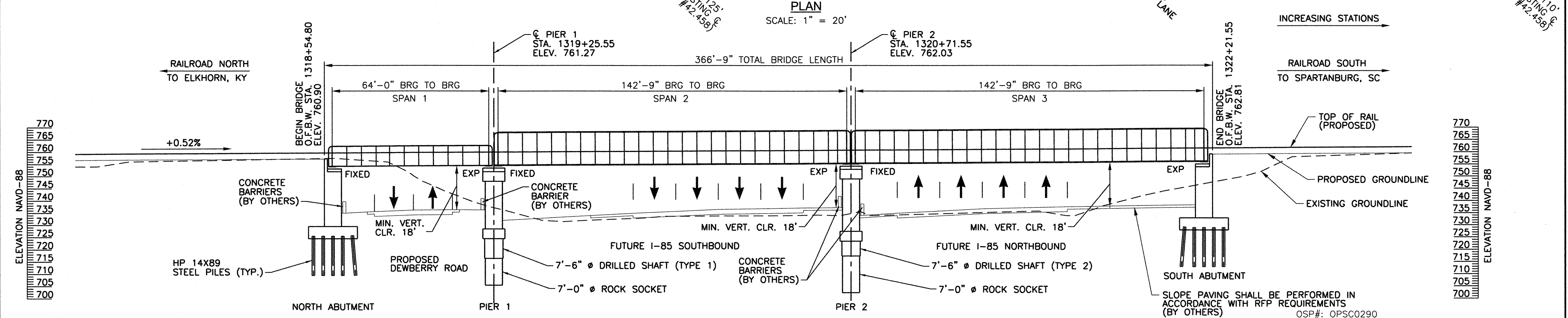
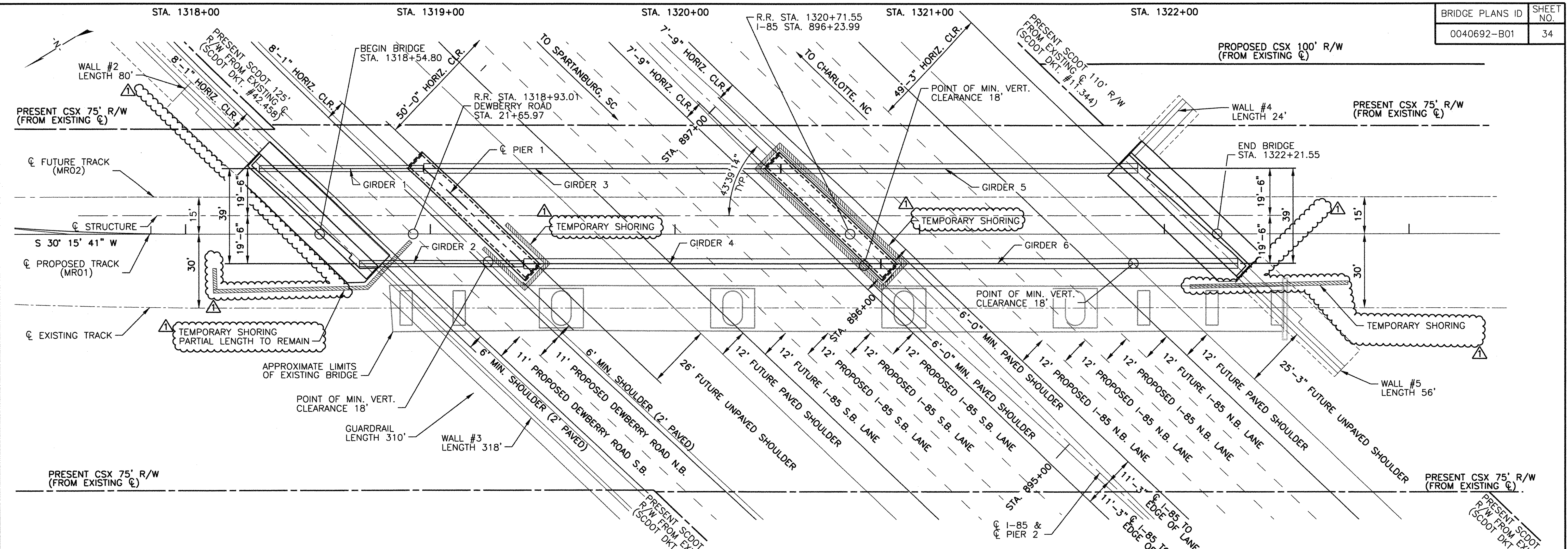
REINFORCING STEEL CODE

TYPE	SIZE	SERIES	COUPLER
A	16	01	②

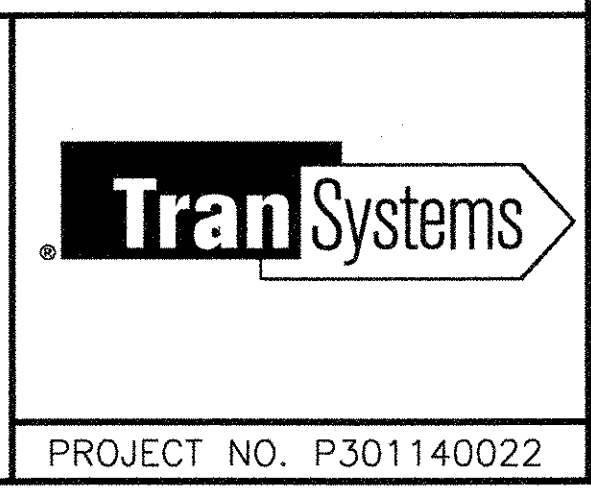
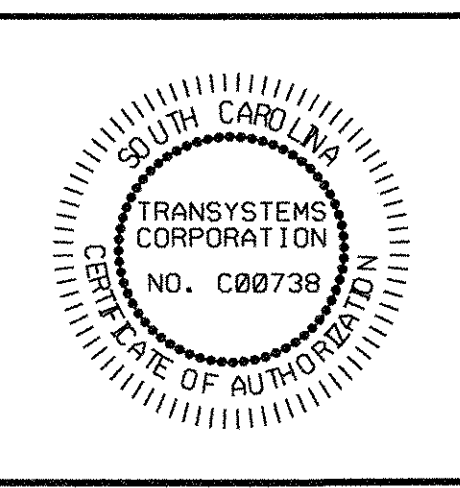
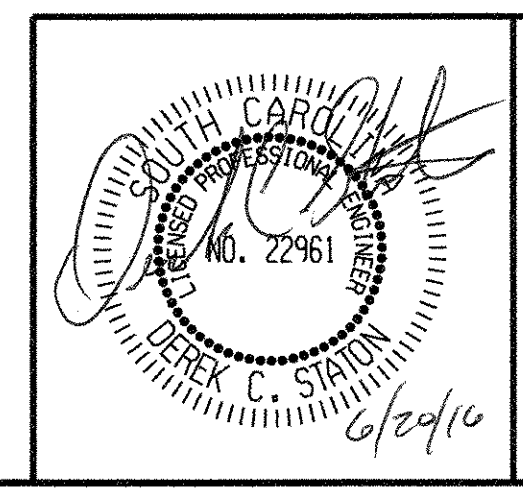
- ① ULTIMATE BUTT-WELDED SPlice - USE COMPLETE JOINT PENETRATION BUTT WELD CONFORMING TO THE REQUIREMENTS OF AWS D1.4/D1.4M STRUCTURAL WELDING CODE - REINFORCING STEEL (LATEST EDITION) AND THE STANDARD SPECIFICATIONS.
- ② IF A MECHANICAL COUPLER IS REQUIRED, THE REINFORCING STEEL CODE INCLUDES A DESIGNATION OF "S" FOR A STANDARD COUPLER AND A DESIGNATION OF "U" FOR AN ULTIMATE COUPLER. UNLESS NOTED OTHERWISE, BAR LENGTHS SHOWN IN THE REINFORCING STEEL SCHEDULES ARE TO THE CENTER OF THE COUPLER. IF NECESSARY, ADJUST THE LENGTH OF THE BARS TO MAINTAIN THE REQUIRED CONCRETE COVER.
- ③ SPlice WS AND WP BARS WITH EITHER ULTIMATE WELDED LAP SPlices OR ULTIMATE MECHANICAL COUPLERS. USE OVER AND UNDER LAP SPlices, NOT SIDE BY SIDE, TO MAINTAIN BAR CLEARANCES.
- ④ THE FABRICATION TOLERANCE FOR WELDED HOOP DIAMETER IS ± 1/2 INCH.

OSP#: OPSC0290
 ENGINEERING DEPARTMENT
 MAINTENANCE OF WAY
 BRIDGE MAINTENANCE AND DESIGN

			REVISIONS	BRIDGE NO Z270.19 AT M.P. 270.19	
			REINFORCING BENDING DETAILS SPARTANBURG SC DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE		
PROJECT NO. P301140022		FILE:	SCALE: 1" = 1'-0" DATE: 5/24/2016 DESIGN: M.B.M. DRAWN: D.W.H. CHK'D: A.L.C.	VAL. SEC. 655 SC	DRAWING NO. S-03 33 OF 139

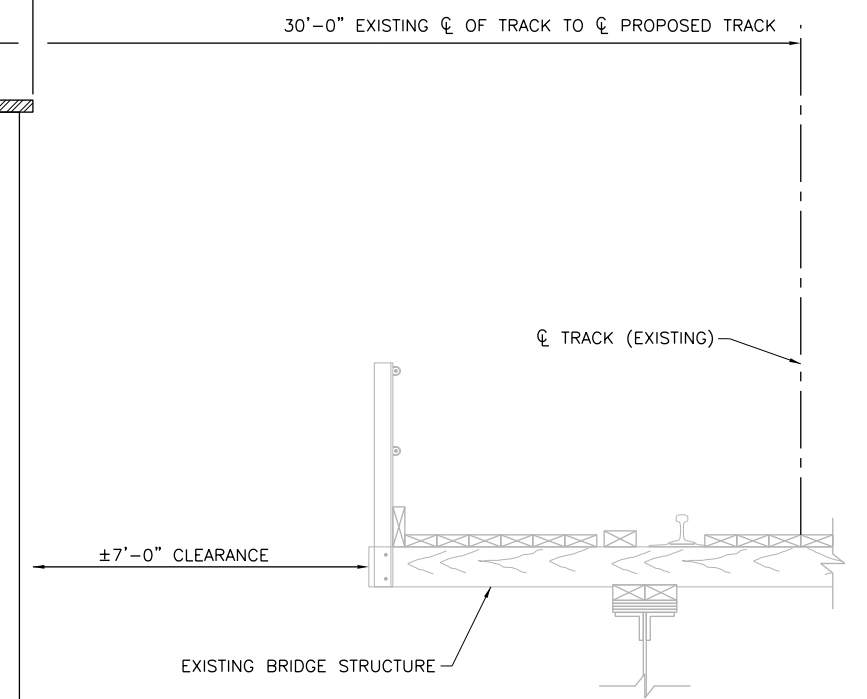
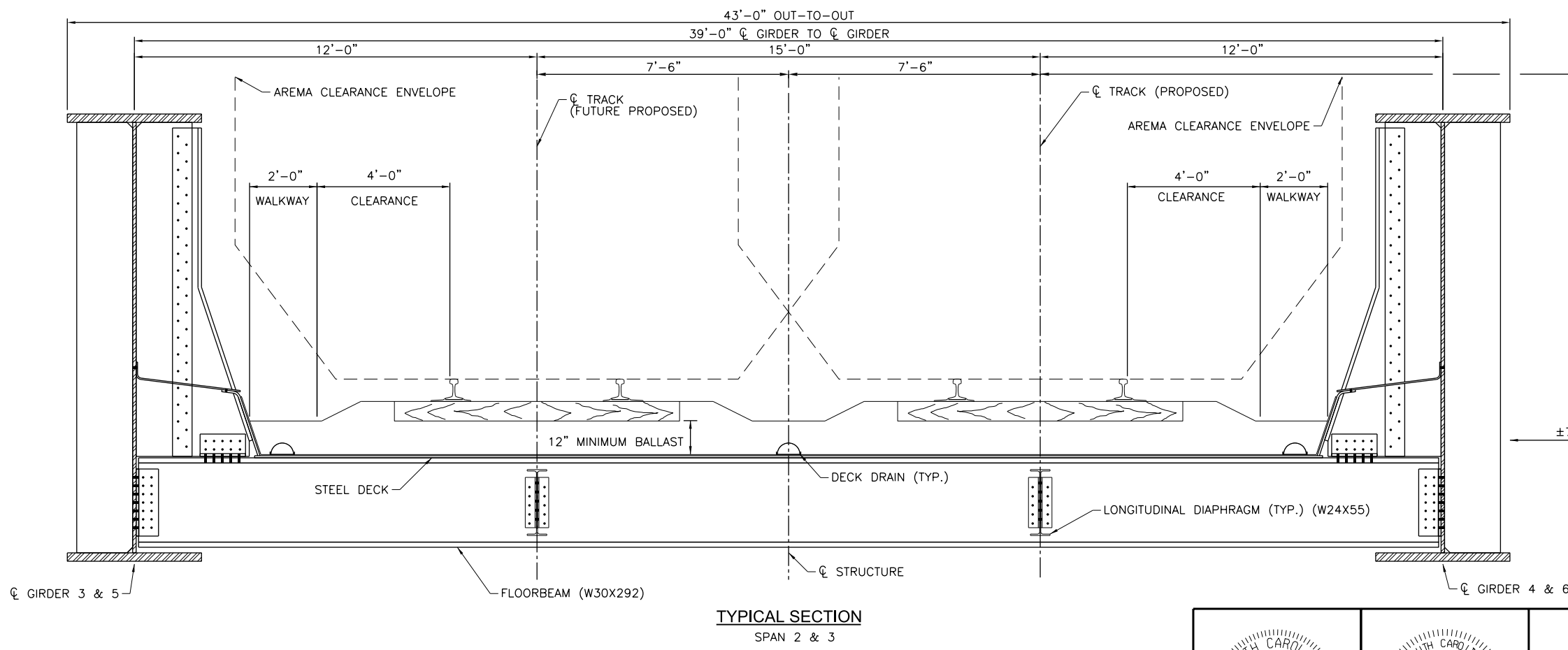
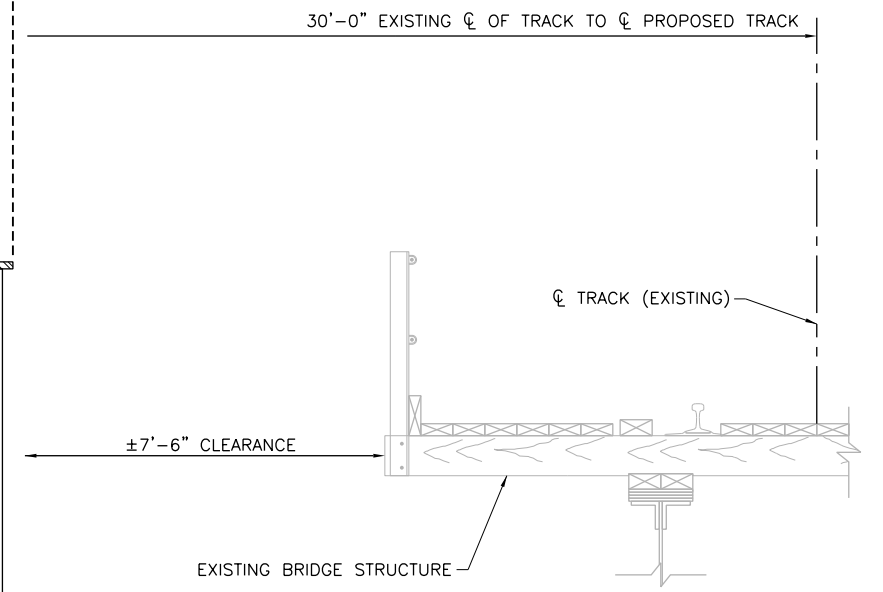
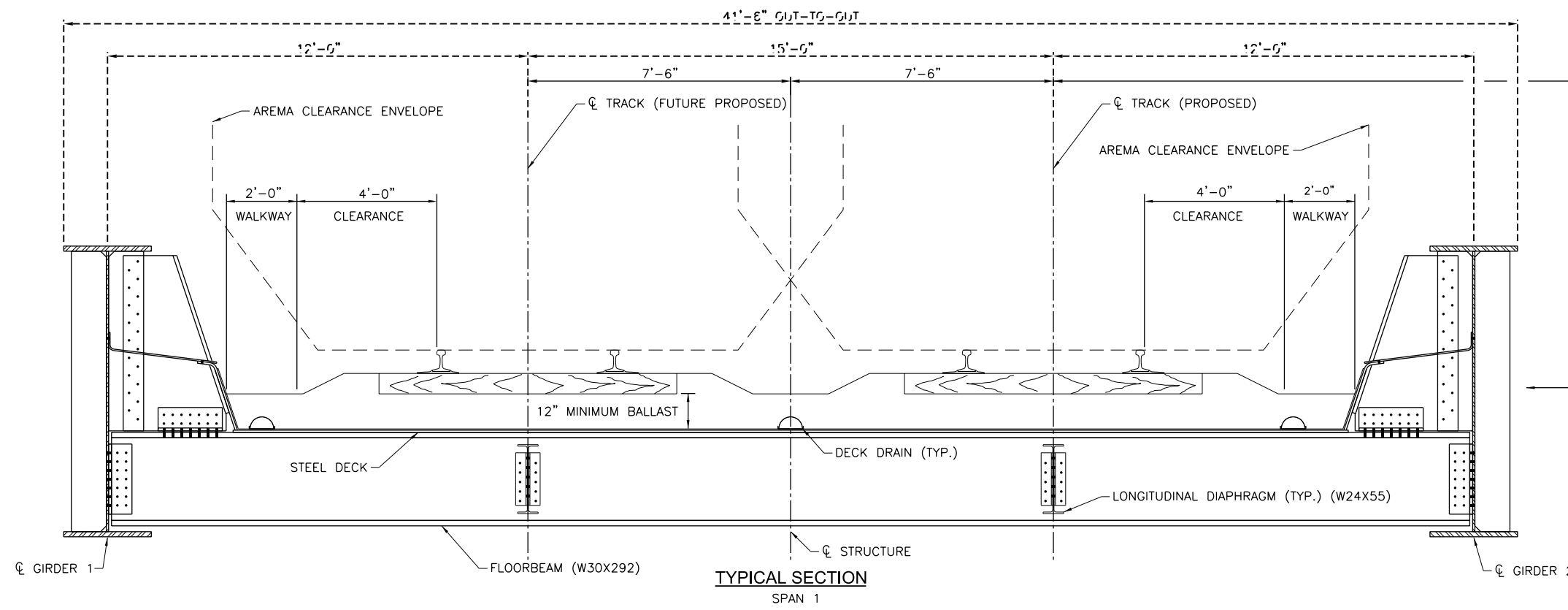


- NOTES**
- ELEVATION SHOWN ALONG C OF PROPOSED TRACK.
 - END VIEW OF SUBSTRUCTURE UNITS SHOWN.
 - O.F.B.W. = OUTSIDE FACE OF BACKWALL
 - CLOSED DRAINAGE SYSTEM REQUIRED.
 - FOR BRIDGE LAYOUT STATIONING AND TOP OF RAIL ELEVATIONS, SEE DRAWING NO. S-06
 - FOR BENCH MARKS, SEE DRAWING NO. T-05
 - FOR ADDITIONAL RIGHT-OF-WAY DATA, SEE DRAWING NO. T-06



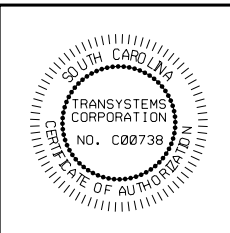
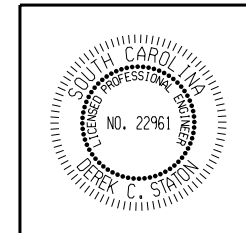
ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

BRIDGE NO Z270.19 AT M.P. 270.19	
GENERAL PLAN AND ELEVATION	
SPARTANBURG	SC
DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
SCALE: 1"=20'-0"	VAL. SEC. 655
DATE: 6/20/2016	SC
DESIGN: KWW	DRAWING NO. S-04
DRAWN: JWG	34 OF 139
CHK'D: EWN	



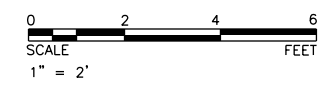
OSP#: OPSC0290

CSX <small>How tomorrow moves.</small>	ENGINEERING DEPARTMENT MAINTENANCE OF WAY BRIDGE MAINTENANCE AND DESIGN	
	BRIDGE NO Z270.19 AT M.P. 270.19	
	TYPICAL SECTIONS	
	SPARTANBURG	SC
DIVISION: HUNTINGTON		SUBDIVISION: BLUE RIDGE
SCALE: 1"=2'-0"	VAL. SEC.	DRAWING NO.
DATE: 5/24/2016	655	S-05
DESIGN: KWW	SC	35 OF 139
DRAWN: JDA		
CHK'D: EWN		

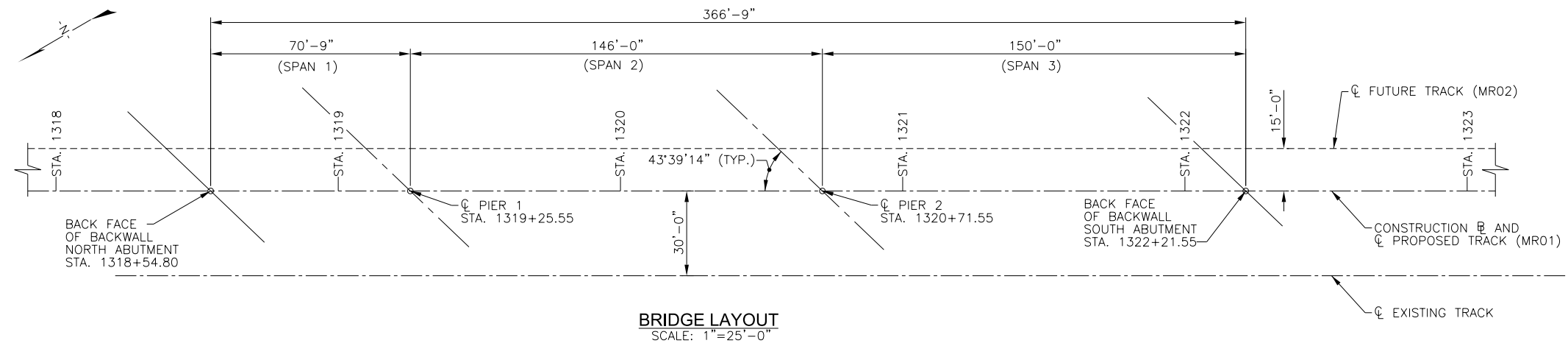


PROJECT NO. P301140022

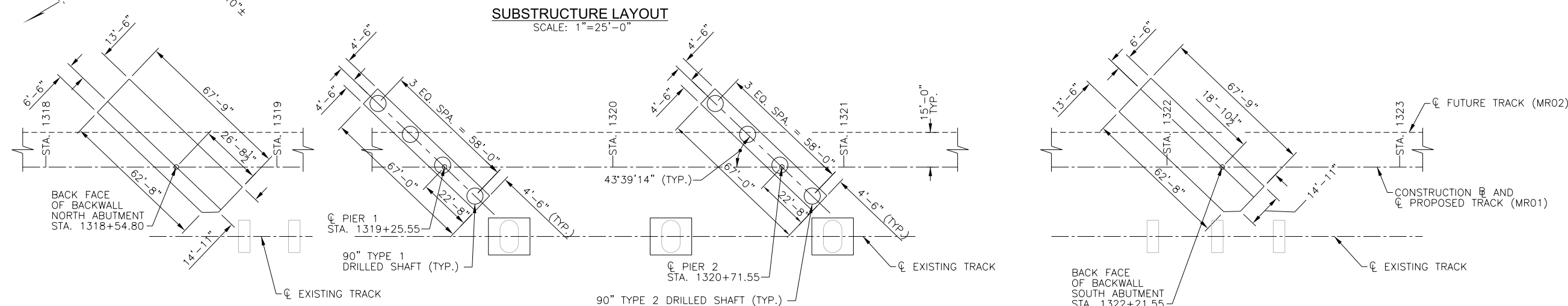
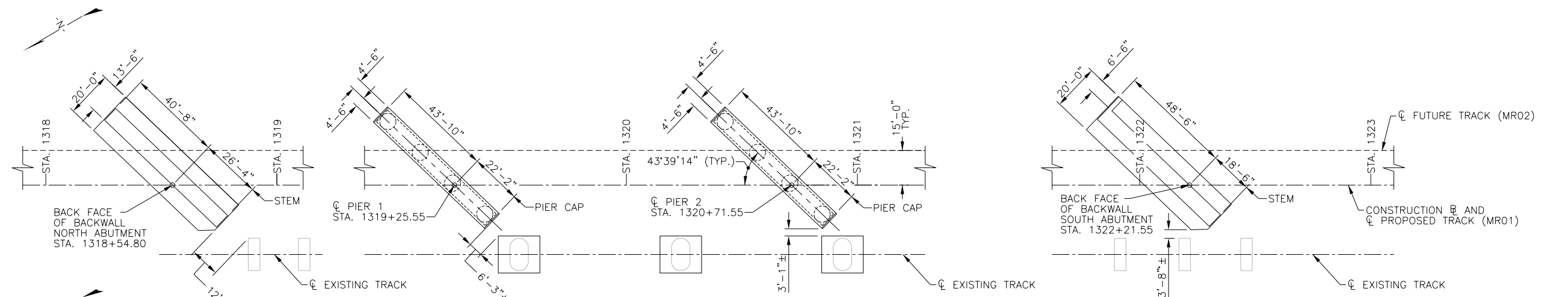
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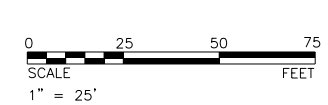
SUSERS 5/24/2016 4:35:33 PM - SFILES



TOP OF RAIL ELEVATIONS	
LOCATION	ELEVATIONS (FT.)
NORTH ABUTMENT	760.90
PIER 1	761.27
PIER 2	762.03
SOUTH ABUTMENT	762.81



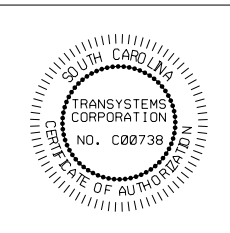
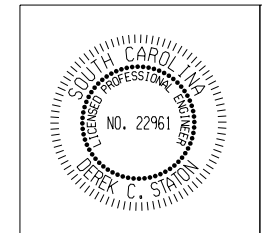
- NOTES:
- PILES NOT SHOWN FOR CLARITY.
 - FOR NORTH ABUTMENT AND SOUTH ABUTMENT PILES SEE DRAWING NO. S-07
 - FOR TOP OF RAIL PROFILE DATA SEE DRAWING NO. T-11
 - TEMPORARY SHORING NOT SHOWN FOR CLARITY.



OSP#: OPSC0290

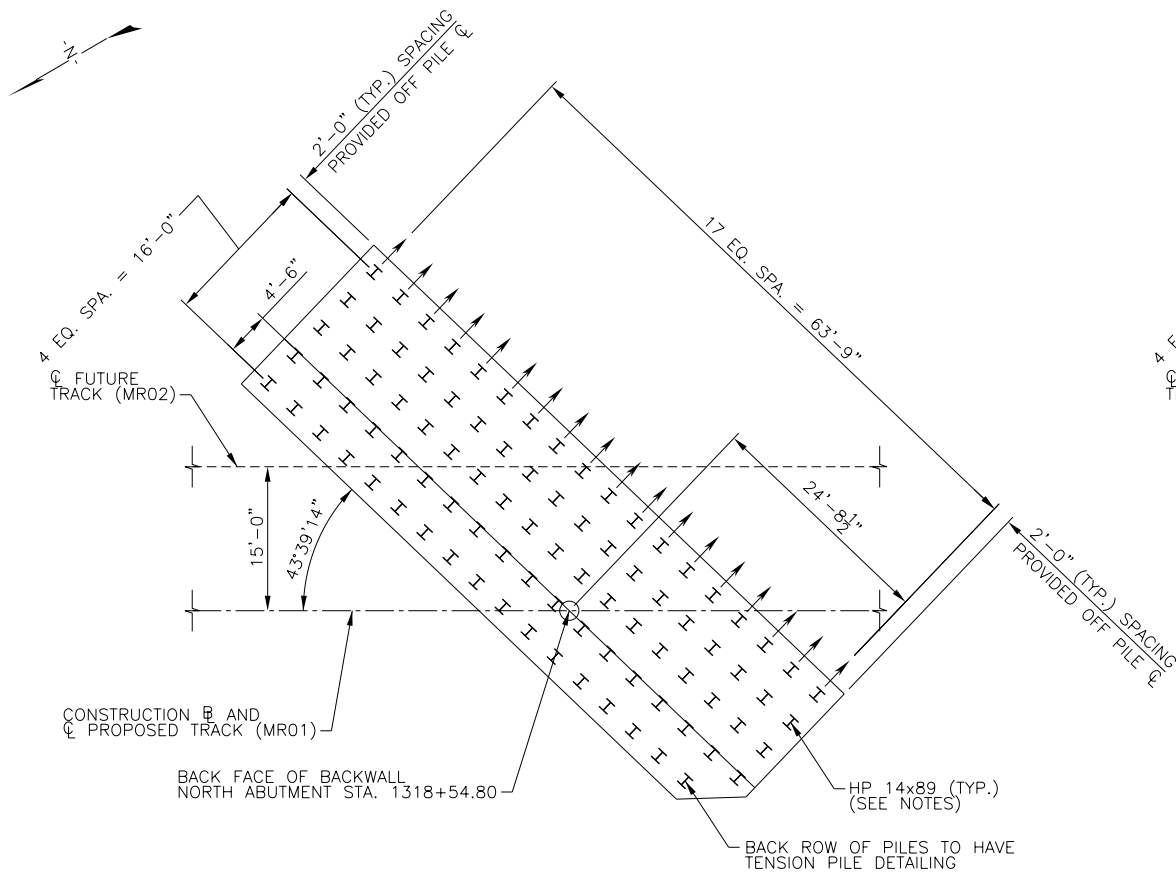


ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

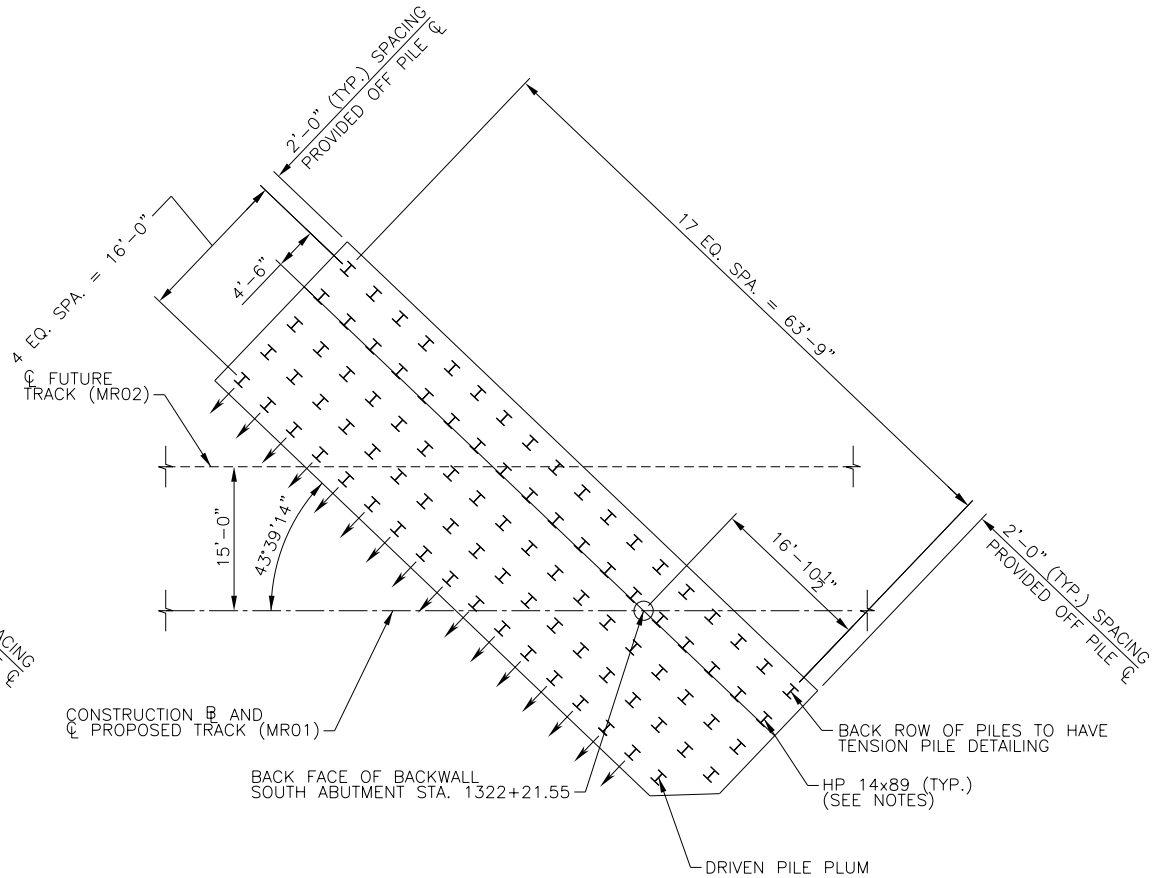


BRIDGE NO Z270.19 AT M.P. 270.19	
BRIDGE, SUBSTRUCTURE & FOUNDATION LAYOUTS (1 OF 2)	
SPARTANBURG	SC
DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
SCALE: 1"=25'-0"	VAL. SEC. 655
DATE: 5/24/2016	SC
DESIGN: M.B.M.	DRAWING NO. S-06
DRAWN: D.W.H.	36 OF 139
CHK'D: A.L.C.	

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NORTH ABUTMENT FOOTING
SCALE: 1" = 10'-0"



SOUTH ABUTMENT FOOTING
SCALE: 1" = 10'-0"

NORTH AND SOUTH ABUTMENT PILE NOTES:
BATTER FRONT ROW OF ABUTMENT PILES AT 3H:12V EXCEPT AS NOTED. ALL OTHER PILES TO BE DRIVEN PLUM.
TENSION PILE DETAIL SHOWN ON H-PILE DETAIL DRAWING NO. S-20

BENT I.D.	NORTH ABUTMENT	SOUTH ABUTMENT
NO. PILES PER ABUTMENT	89	89
SERVICE DESIGN LOAD PER PILE	86.6 Tons	82.9 Tons
GEOTECHNICAL FACTOR OF SAFETY	2.50	2.50
DOWNDRAG	0 Tons	0 Tons
REQUIRED ULTIMATE BEARING PER PILE	216.5 Tons	207.3 Tons

METHOD OF CONTROLLING INSTALLATION OF PILES AND VERIFYING THEIR CAPACITY: PILE INSTALLATION CHART FROM WAVE EQUATION WITHOUT STRESS MEASUREMENTS DURING DRIVING.
REINFORCED PILE TIPS WITH TEETH ARE REQUIRED TO MITIGATE HARD DRIVING CONDITIONS AT THE ABUTMENTS. INSTALL THE REINFORCED PILE TIPS IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION RECOMMENDATIONS.

FOR THE STEEL PILES AT THE ABUTMENTS, THE REQUIRED MINIMUM PILE TIP ELEVATION TO ACHIEVE LATERAL STABILITY AND THE ESTIMATED PILE TIP ELEVATION TO ACHIEVE THE REQUIRED AXIAL CAPACITY ARE PROVIDED IN THE FOLLOWING TABLE:

BENT I.D.	MINIMUM PILE TIP ELEVATION (FT-NAVD88)	ANTICIPATED PILE TIP ELEVATION (FT-NAVD88)
NORTH ABUTMENT	708	705
SOUTH ABUTMENT	714	702

END BENT PILES SHALL BE DRIVEN TO A PRACTICAL REFUSAL CONDITION. PRACTICAL REFUSAL IS DEFINED AS 20 BLOWS PER INCH OR EQUIVALENT FRACTIONS, THEREOF.

EACH PILE IS TO BE INSTALLED IN ONE CONTINUOUS OPERATION. INCLUDE DETAILS OF ANY ANTICIPATED TEMPORARY DRIVING DISCONTINUITIES INCLUDING ANTICIPATED TIME INTERVALS IN THE PILE INSTALLATION PLAN.

REFERENCE THE 2007 STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION FOR DRIVEN PILE FOUNDATIONS, SECTION 711. NOTES INCLUDED IN THESE PLANS ARE IN ADDITION TO THE REQUIREMENTS OF THE SCDOT STANDARD SPECIFICATIONS AND THE AREMA/CSX SPECIFICATIONS

RETAINING WALL PILE NOTES:

BENT I.D.	WALL 1	WALL 2	WALL 4	WALL 5
NO. PILES PER WALL	70	60	18	42
SERVICE DESIGN LOAD PER PILE	78.4 TONS	80.8 TONS	74.6 TONS	83.7 TONS
GEOTECHNICAL FACTOR OF SAFETY	2.50	2.50	2.50	2.50
DOWNDRAG	0 TONS	0 TONS	0 TONS	0 TONS
REQUIRED ULTIMATE BEARING PER PILE	196.0 TONS	202.0 TONS	186.5 TONS	209.3 TONS

METHOD OF CONTROLLING INSTALLATION OF PILES AND VERIFYING THEIR CAPACITY: PILE INSTALLATION CHART FROM WAVE EQUATION WITHOUT STRESS MEASUREMENTS DURING DRIVING.

REINFORCED PILE TIPS ARE REQUIRED AT THE RETAINING WALLS. INSTALL THE REINFORCED PILE TIPS IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION RECOMMENDATIONS.

FOR STEEL PILES AT THE RETAINING WALLS, THE REQUIRED MINIMUM PILE TIP ELEVATION TO ACHIEVE LATERAL STABILITY AND THE ESTIMATED PILE TIP ELEVATION TO ACHIEVE THE REQUIRED AXIAL CAPACITY ARE PROVIDED IN THE FOLLOWING TABLE:

BENT I.D.	MINIMUM PILE TIP ELEVATION (FT-NAVD88)	ANTICIPATED PILE TIP ELEVATION (FT-NAVD88)
WALL 1	723	681
WALL 2	716	697
WALL 4	720	710
WALL 5	720	694

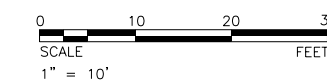
RETAINING WALL PILES SHALL BE DRIVEN TO A PRACTICAL REFUSAL CONDITION. PRACTICAL REFUSAL IS DEFINED AS 20 BLOWS PER INCH OR EQUIVALENT FRACTIONS, THEREOF.

EACH PILE IS TO BE INSTALLED IN ONE CONTINUOUS OPERATION. INCLUDE DETAILS OF ANY ANTICIPATED TEMPORARY DRIVING DISCONTINUITIES INCLUDING ANTICIPATED TIME INTERVALS IN THE PILE INSTALLATION PLAN.

REFERENCE THE 2007 STANDARD SPECIFICATION FOR HIGHWAY CONSTRUCTION FOR DRIVEN PILE FOUNDATIONS, SECTION 711. NOTES INCLUDED IN THESE PLANS ARE IN ADDITION TO THE REQUIREMENTS OF THE SCDOT STANDARD SPECIFICATIONS AND THE AREMA/CSX SPECIFICATIONS.

LEGEND:

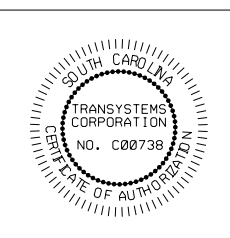
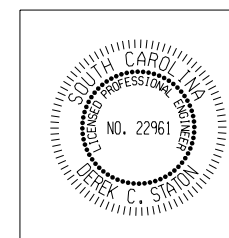
→ BATTERED PILES 3H:12V



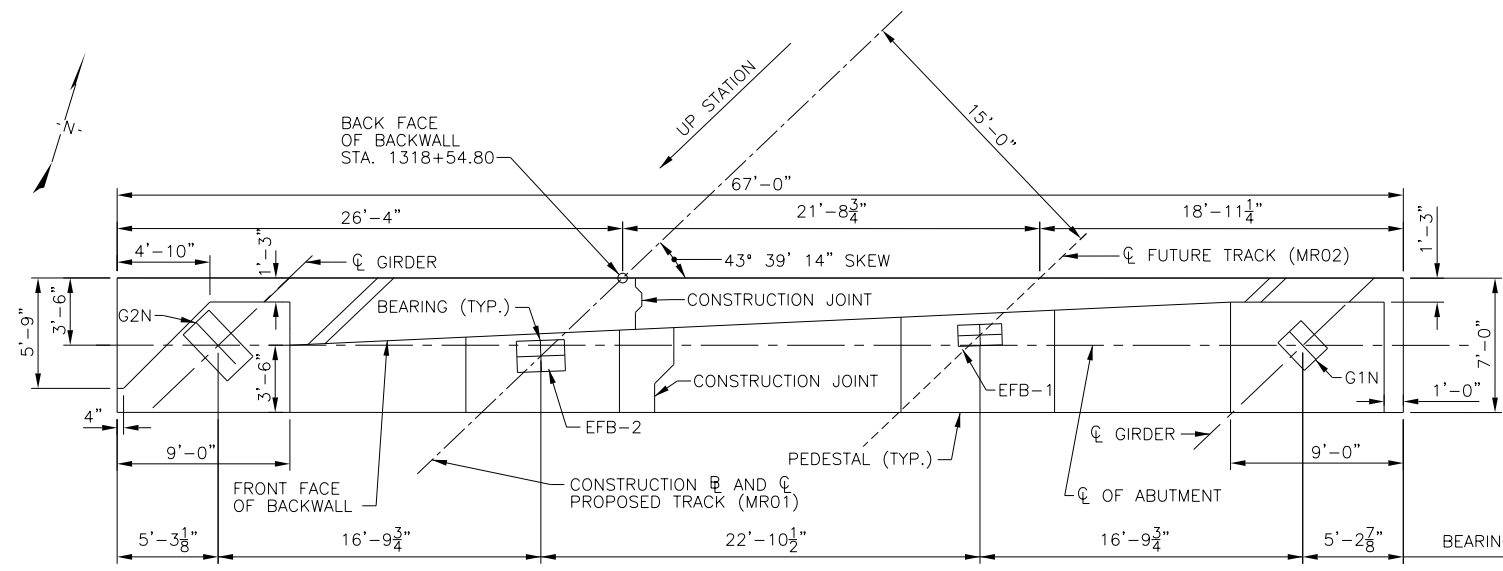
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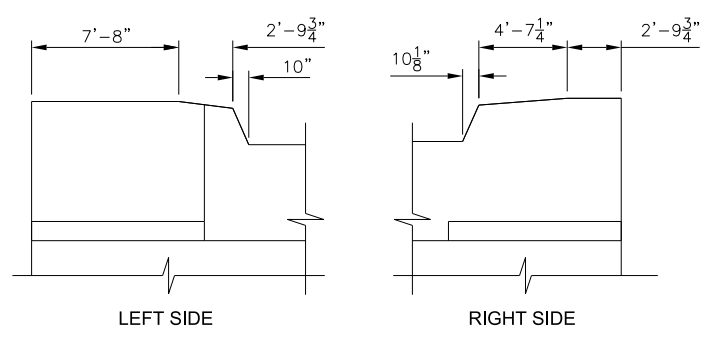
ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN



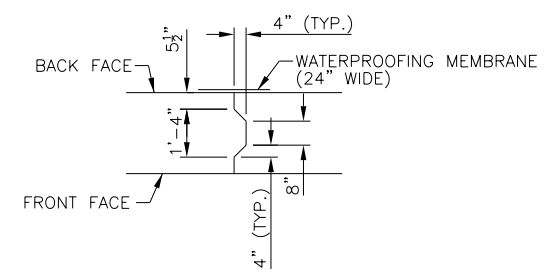
BRIDGE NO Z270.19 AT M.P. 270.19 BRIDGE, SUBSTRUCTURE & FOUNDATION LAYOUTS (2 OF 2)	SPARTANBURG SC
DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
SCALE: 1" = 10'-0" DATE: 5/24/2016 DESIGN: M.B.M. DRAWN: D.W.H. CHK'D: A.L.C.	VAL. SEC. 655 SC
PROJECT NO. P301140022	DRAWING NO. S-07 37 OF 139



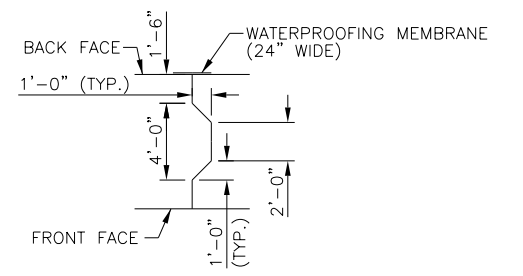
PLAN
SCALE: 1"=5'-0"
(FOOTING EXCLUDED FOR CLARITY)



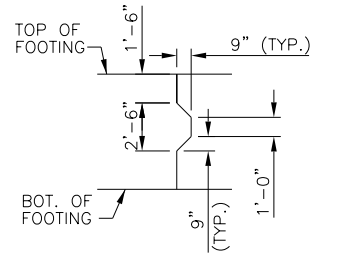
BACKWALL DETAILS
SCALE: 1"=5'-0"
(DIMENSIONING ALONG FRONT FACE AT BACKWALL)



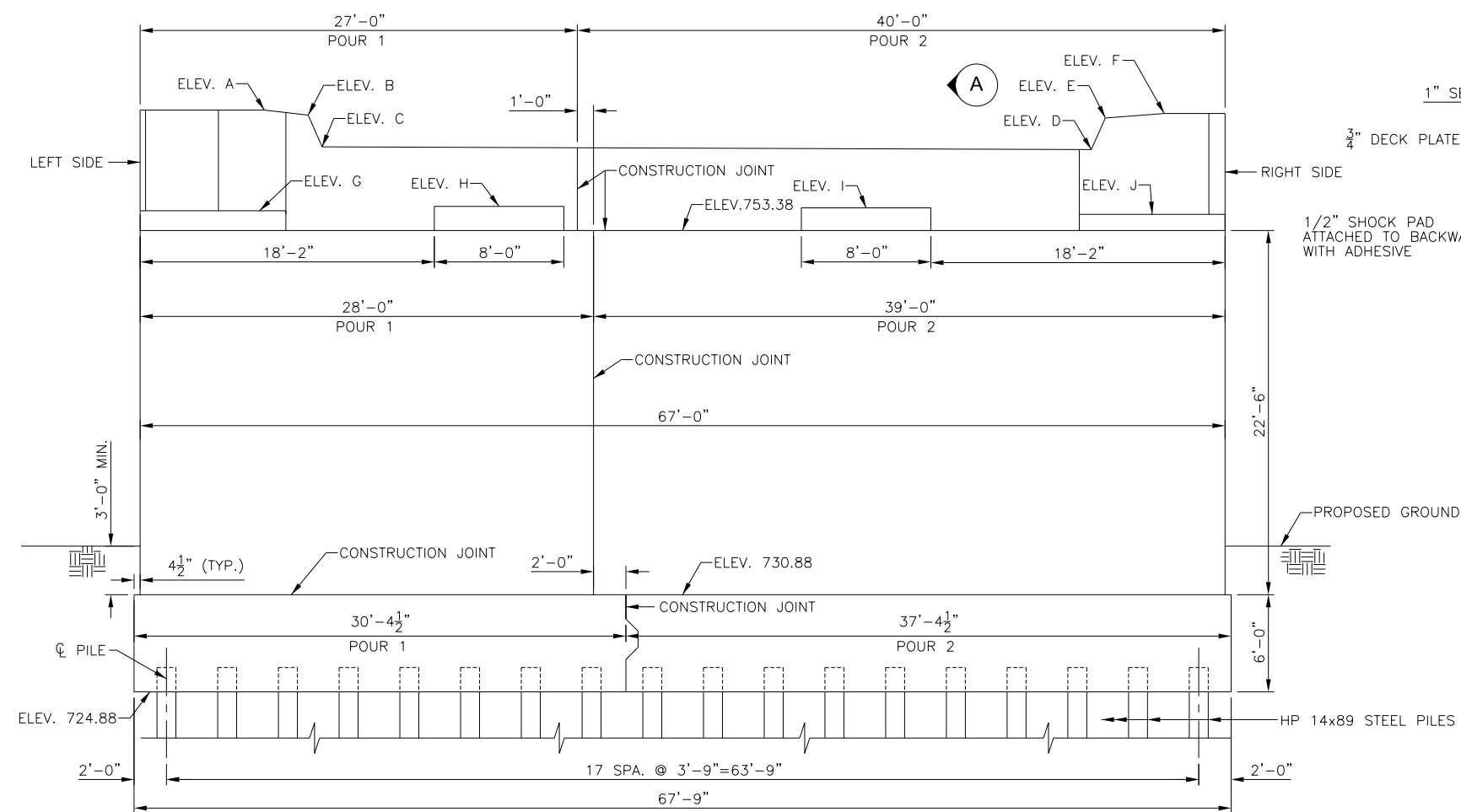
CONSTRUCTION JOINT BACKWALL
SCALE: 3/8"=1'-0"



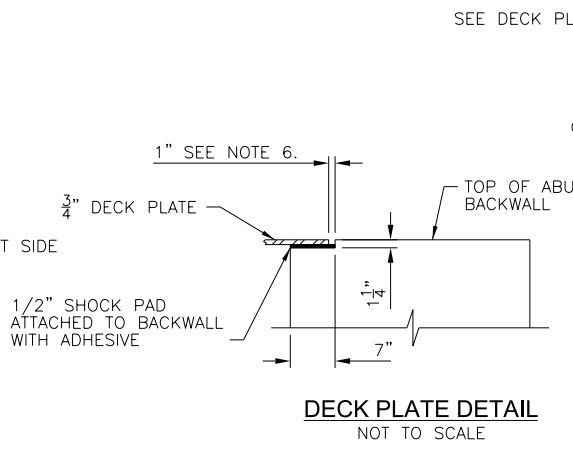
CONSTRUCTION JOINT STEM
SCALE: 1"=5'-0"



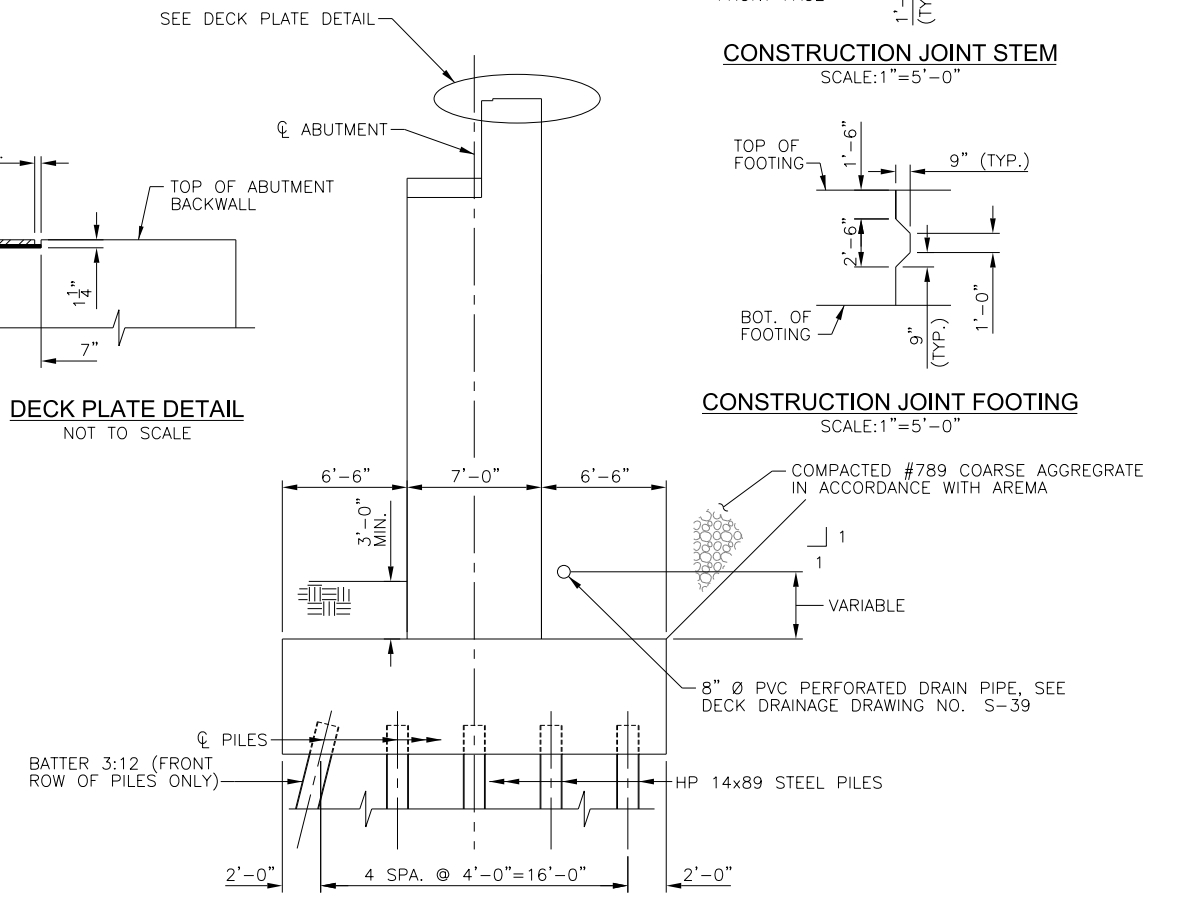
CONSTRUCTION JOINT FOOTING
SCALE: 1"=5'-0"



ELEVATION
SCALE: 1"=5'-0"



DECK PLATE DETAIL
NOT TO SCALE



SECTION A-A
SCALE: 1"=5'-0"

- NOTES:
- FOR BEARING OFFSET DISTANCE AND ANCHOR BOLT LAYOUT, SEE DRAWING NO. S-18
 - FOR BEARING DETAILS, SEE DRAWING NO. S-42
 - FOR REINFORCING LAYOUTS, SEE DRAWING NO. S-09
 - FOR PILE DETAILS, SEE DRAWING NO. S-07
 - PROVIDED PEDESTAL ELEVATION FROM PRELIMINARY BEARING DESIGN. PEDESTAL ELEVATIONS COULD VARY BASED ON FINAL BEARING DESIGN.
 - 1" CLEAR SPACE FOR DECK PLATE IS FOR PLACEMENT AT AN AMBIENT TEMPERATURE AT 70°. FOR EVERY 10' OVER 70° SUBTRACT 1/10" AND FOR EVERY 10' UNDER 70° ADD 1/10" TO PLACEMENT CLEAR DISTANCE.

ELEVATION TABLE (FT)

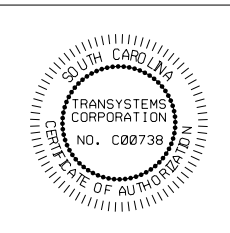
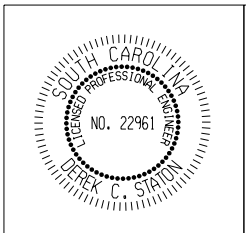
ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F	ELEV. G	ELEV. H	ELEV. I	ELEV. J
760.82	760.51	758.55	758.38	760.33	760.61	754.87	755.29	755.20	754.64



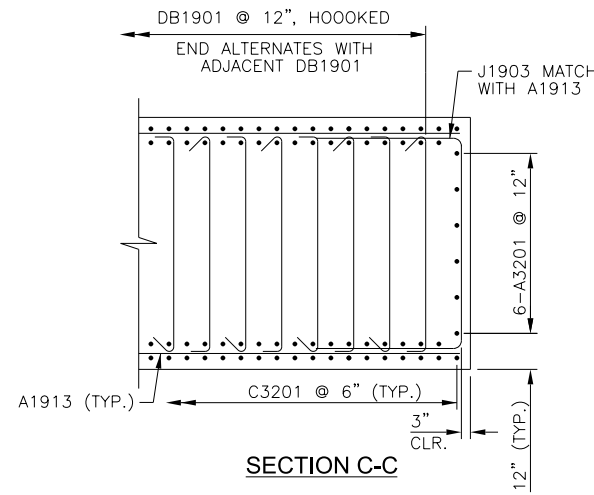
OSP#: OPSC0290



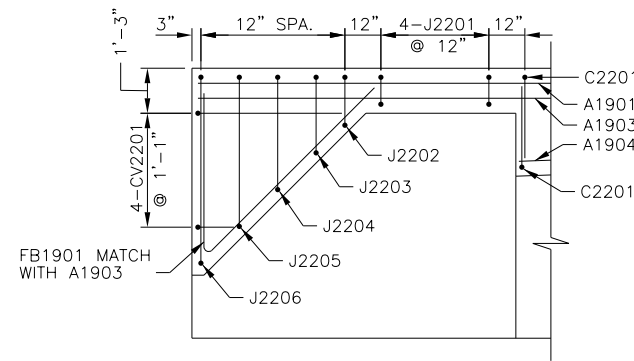
ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN



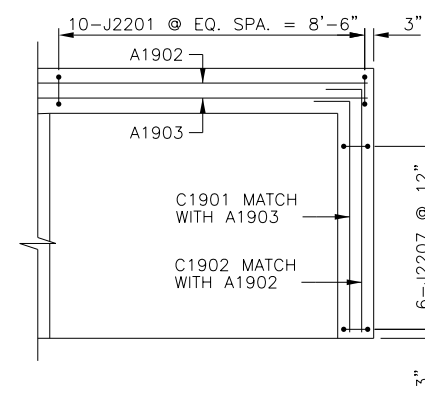
REVISIONS		BRIDGE NO Z270.19 AT M.P. 270.19 NORTH ABUTMENT PLAN AND ELEVATION	
		SPARTANBURG	SC
		DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
SCALE: 1"=5'-0"	DATE: 5/24/2016	VAL. SEC. 655	DRAWING NO. S-08
DESIGN: M.B.M.	DRAWN: D.W.H.	SC	38 OF 139
CHK'D: A.L.C.			



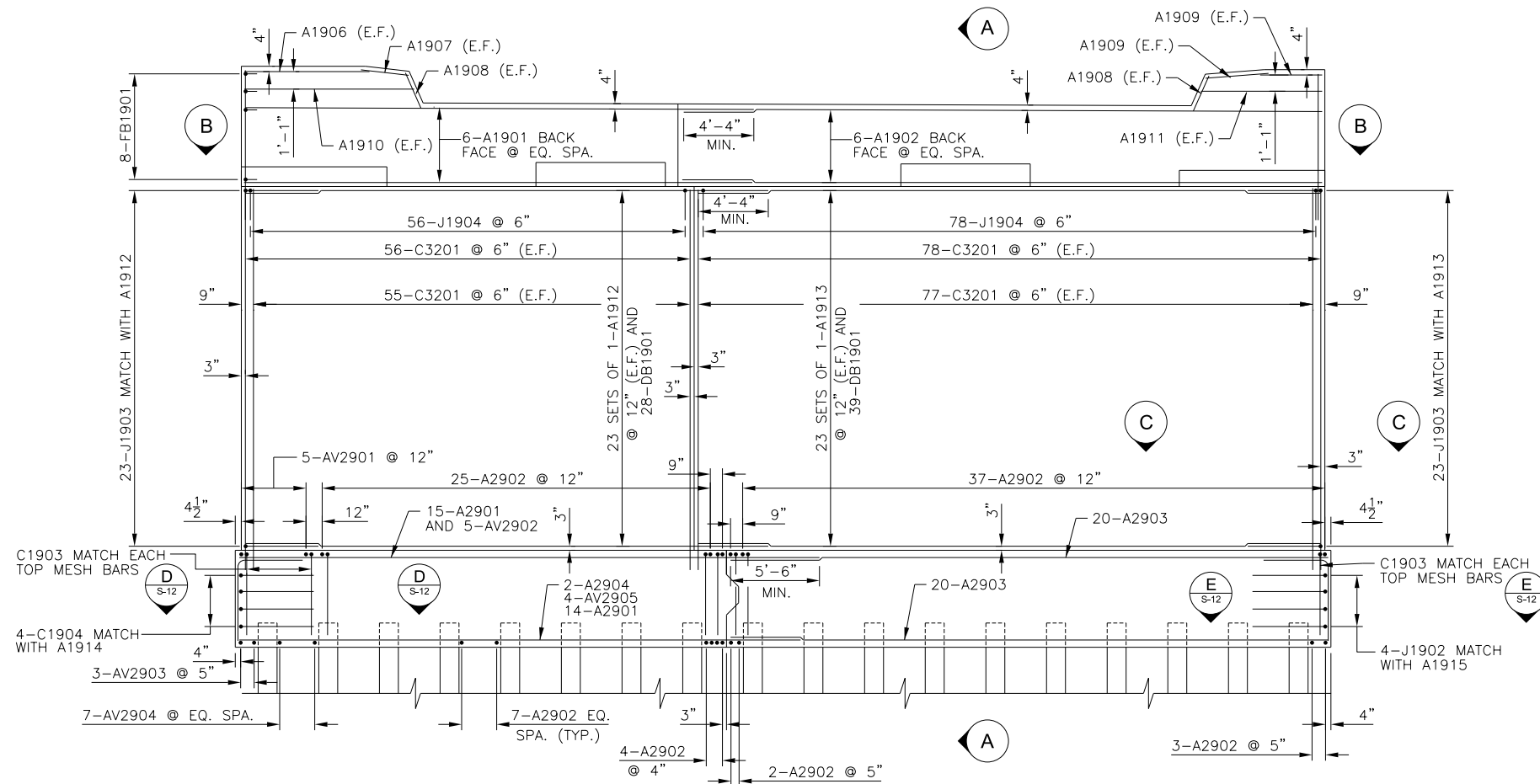
SECTION C-C



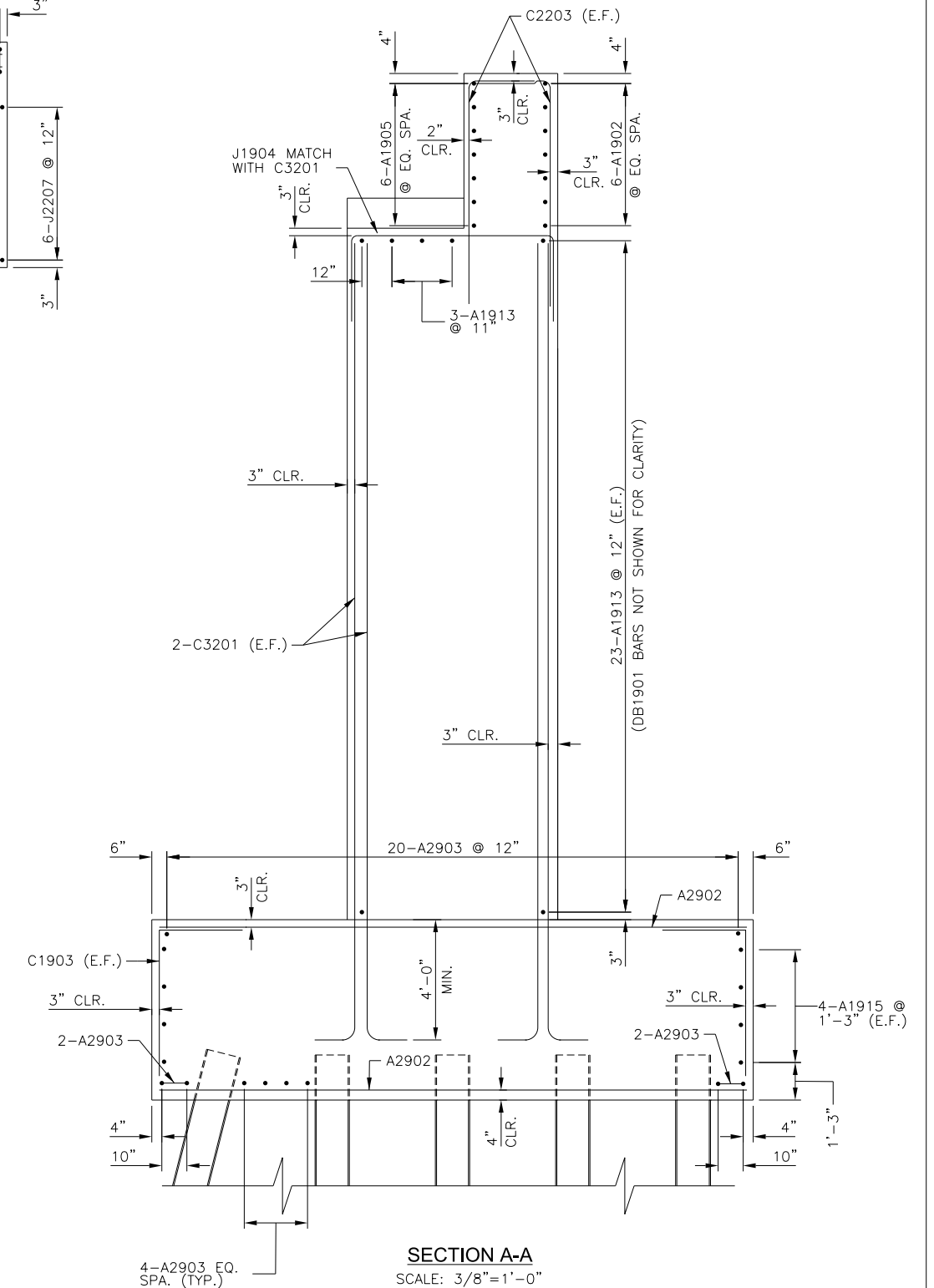
DETAIL A



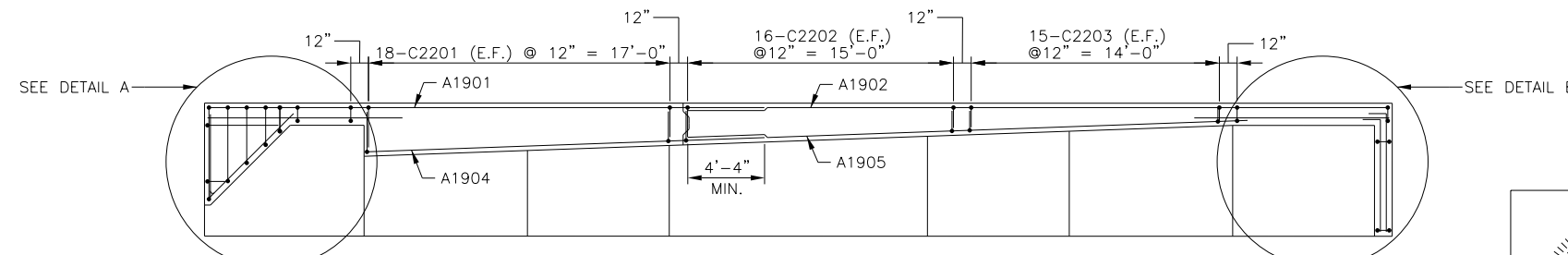
DETAIL B



ELEVATION
SCALE: 1"=5'-0"

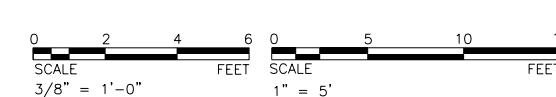


SECTION A-A
SCALE: 3/8"=1'-0"



SECTION B-B
SCALE: 1"=5'-0"

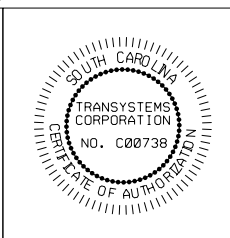
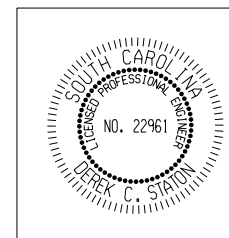
- NOTES
1. FOR BEARING PEDESTAL REINFORCEMENT DETAILS, SEE DRAWING NO. S-12
 2. FOR ANCHORAGE DETAIL FOR STEEL H-PILES, SEE DRAWING NO. S-20
 3. SECTION CUT D-D AND E-E ARE LOCATED ON DRAWING NO. S-12



OSP#: OPSC0290



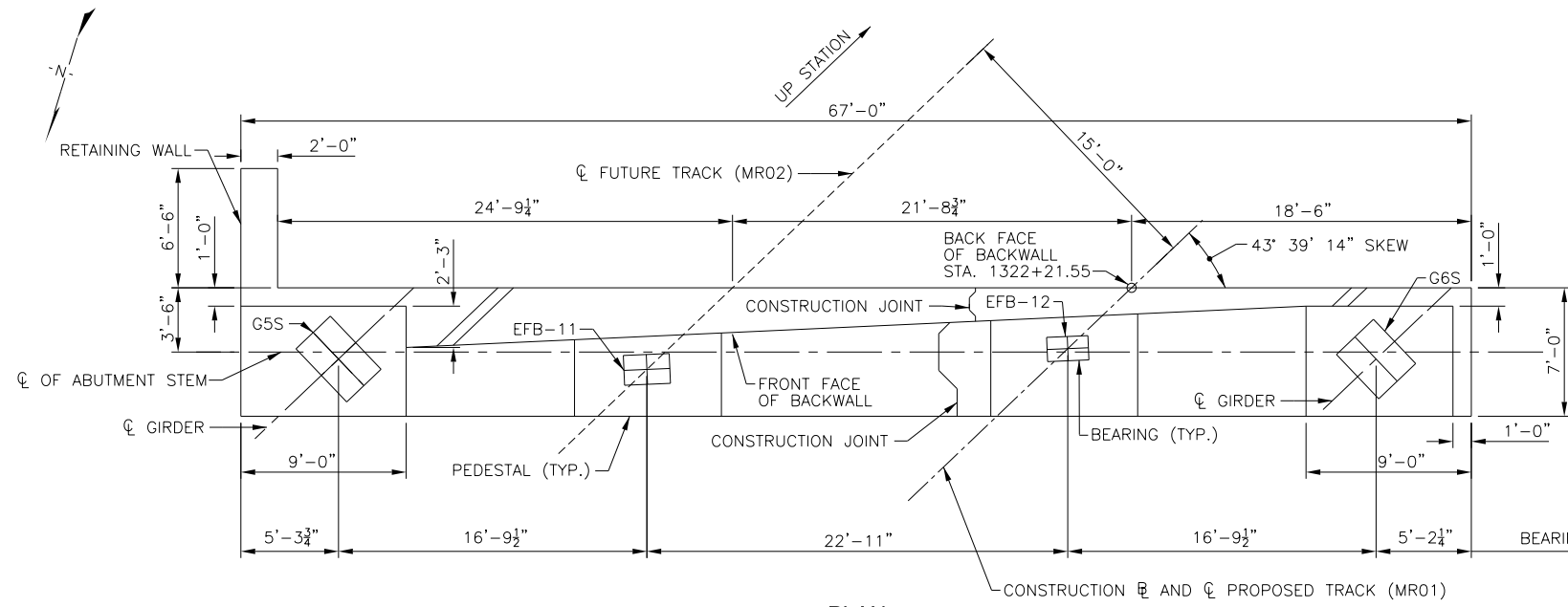
ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN



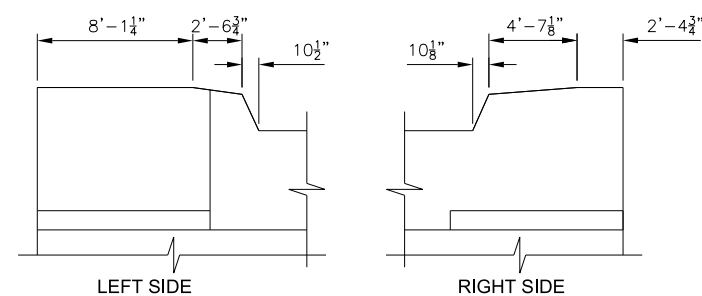
REVISIONS		BRIDGE NO Z270.19 AT M.P. 270.19 NORTH ABUTMENT REINFORCING DETAILS	
SPARTANBURG		SC	
DIVISION: HUNTINGTON		SUBDIVISION: BLUE RIDGE	
SCALE: 1"=5'-0"	VAL. SEC.	DRAWING NO.	
DATE: 5/24/2016	655	S-09	
DESIGN: M.B.M.	SC	39 OF 139	
DRAWN: D.W.H.			
CHK'D: A.L.C.			

PROJECT NO. P301140022

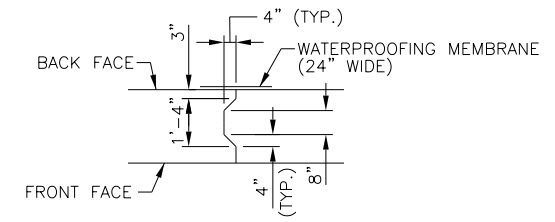
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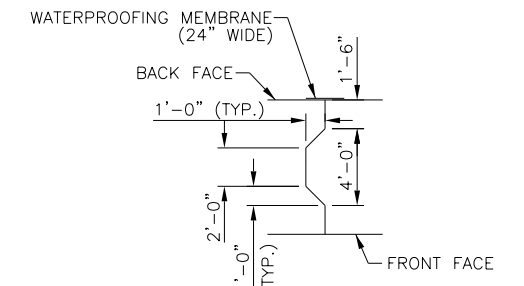
PLAN
SCALE: 1"=5'-0"
(FOOTING EXCLUDED FOR CLARITY)



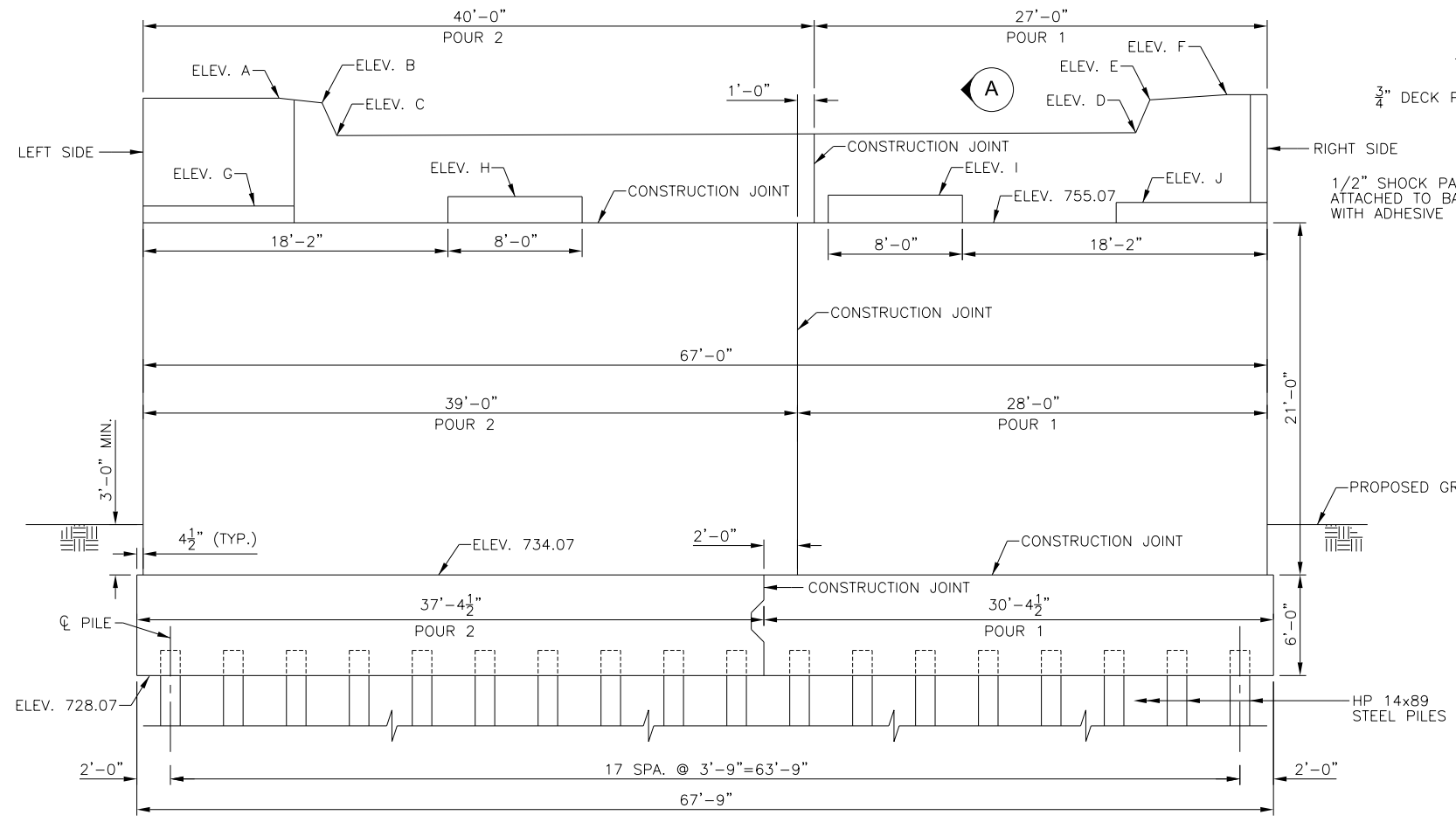
BACKWALL END DETAILS
SCALE: 1"=5'-0"
(DIMENSIONING ALONG FRONT FACE AT BACKWALL)



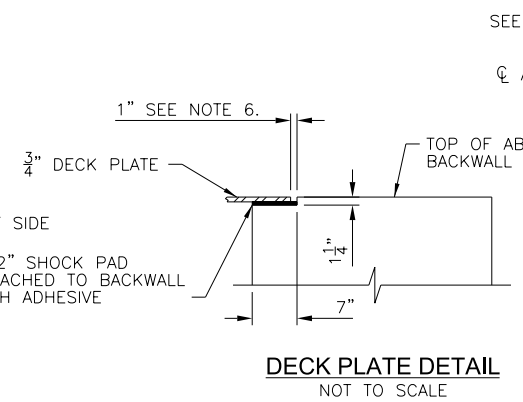
CONSTRUCTION JOINT BACKWALL
SCALE: 3/8"=1'-0"



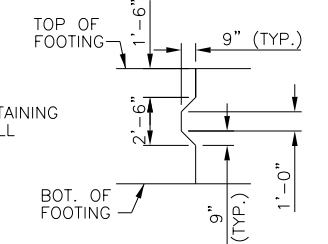
CONSTRUCTION JOINT STEM
SCALE: 1"=5'-0"



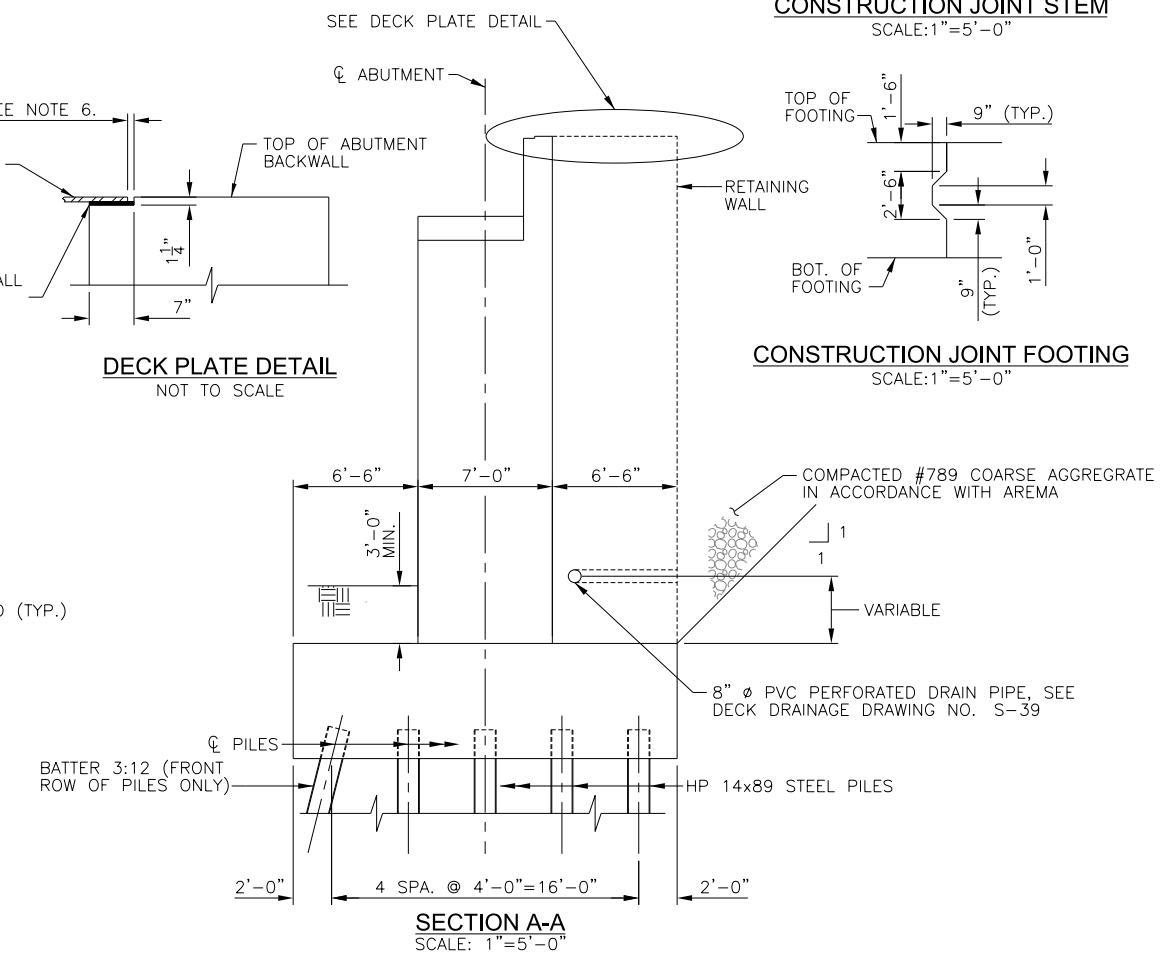
ELEVATION
SCALE: 1"=5'-0"



DECK PLATE DETAIL
NOT TO SCALE



CONSTRUCTION JOINT FOOTING
SCALE: 1"=5'-0"



SECTION A-A
SCALE: 1"=5'-0"

- NOTES:
- FOR BEARING OFFSET DISTANCE AND ANCHOR BOLT LAYOUT, SEE DRAWING NO. S-18
 - FOR BEARING DETAILS, SEE DRAWING NO. S-42
 - FOR REINFORCING LAYOUT, SEE DRAWING NO. S-11
 - FOR PILE DETAILS, SEE DRAWING NO. S-07
 - PROVIDED PEDESTAL ELEVATION FROM PRELIMINARY BEARING DESIGN. PEDESTAL ELEVATIONS COULD VARY BASED ON FINAL BEARING DESIGN.
 - 1" CLEAR SPACE FOR DECK PLATE IS FOR PLACEMENT AT AN AMBIENT TEMPERATURE AT 70°. FOR EVERY 10' OVER 70° SUBTRACT 1/10" AND FOR EVERY 10' UNDER 70° ADD 1/10" TO PLACEMENT CLEAR DISTANCE.

ELEVATION TABLE (FT)

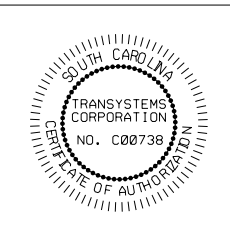
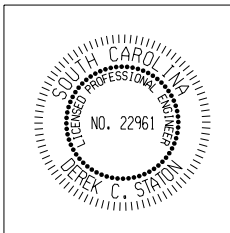
ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F	ELEV. G	ELEV. H	ELEV. I	ELEV. J
762.50	762.22	760.27	760.44	762.40	762.71	755.96	757.06	757.14	756.24



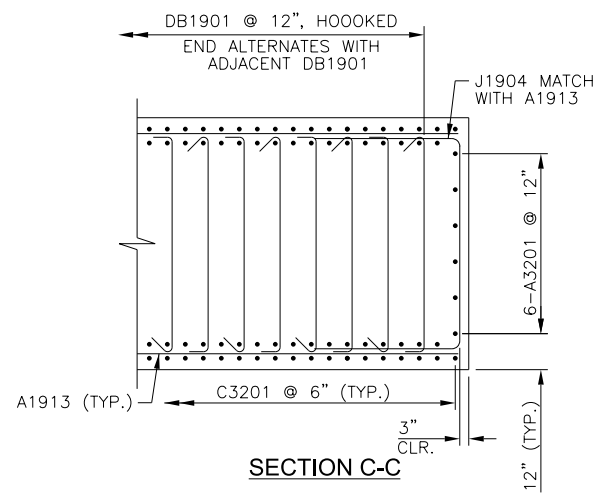
OSP#: OPSC0290



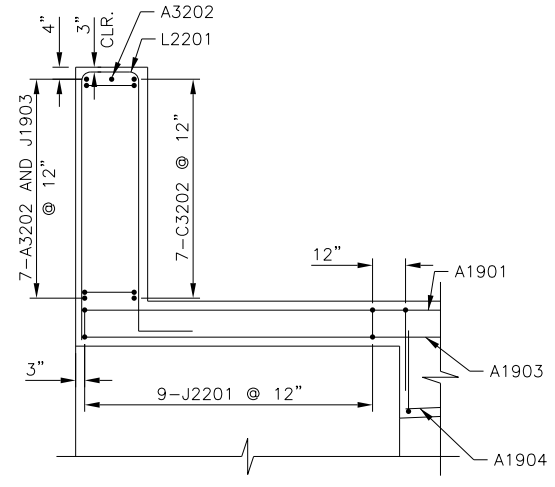
ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN



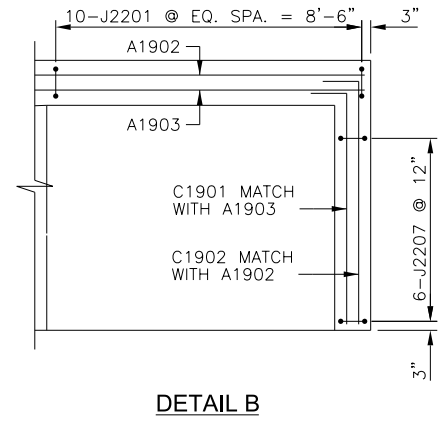
REVISIONS		BRIDGE NO. Z270.19 AT M.P. 270.19 SOUTH ABUTMENT PLAN AND ELEVATION	
		SPARTANBURG	SC
		DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
		SCALE: 1"=5'-0" DATE: 5/24/2016 DESIGN: M.B.M. DRAWN: D.W.H. CHK'D: A.L.C.	VAL. SEC. 655 SC
		PROJECT NO. P301140022	DRAWING NO. S-10 40 OF 139



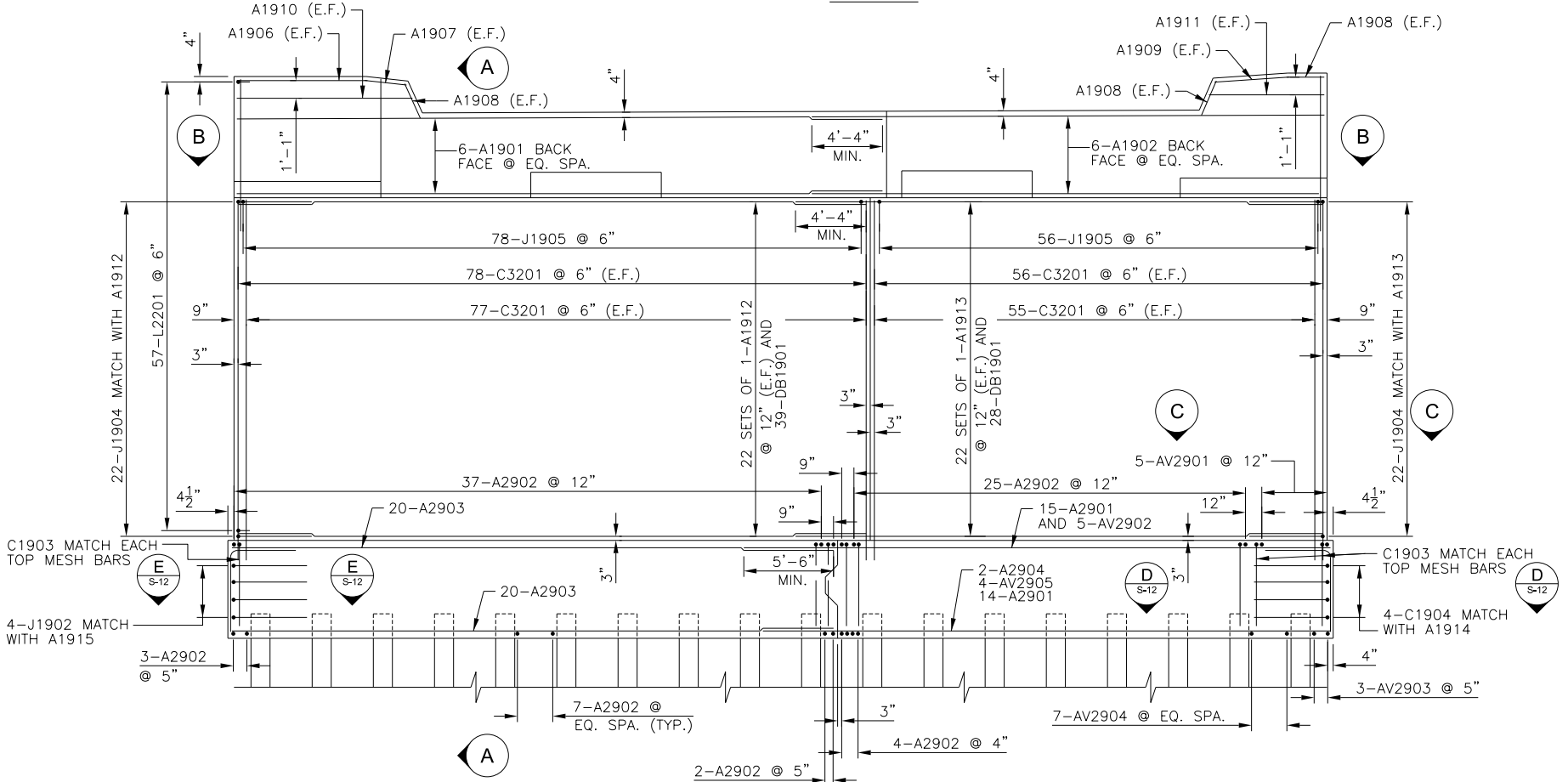
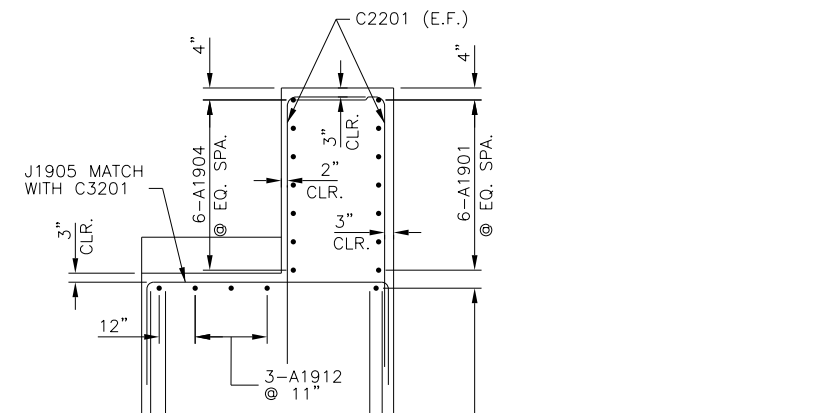
SECTION C-C



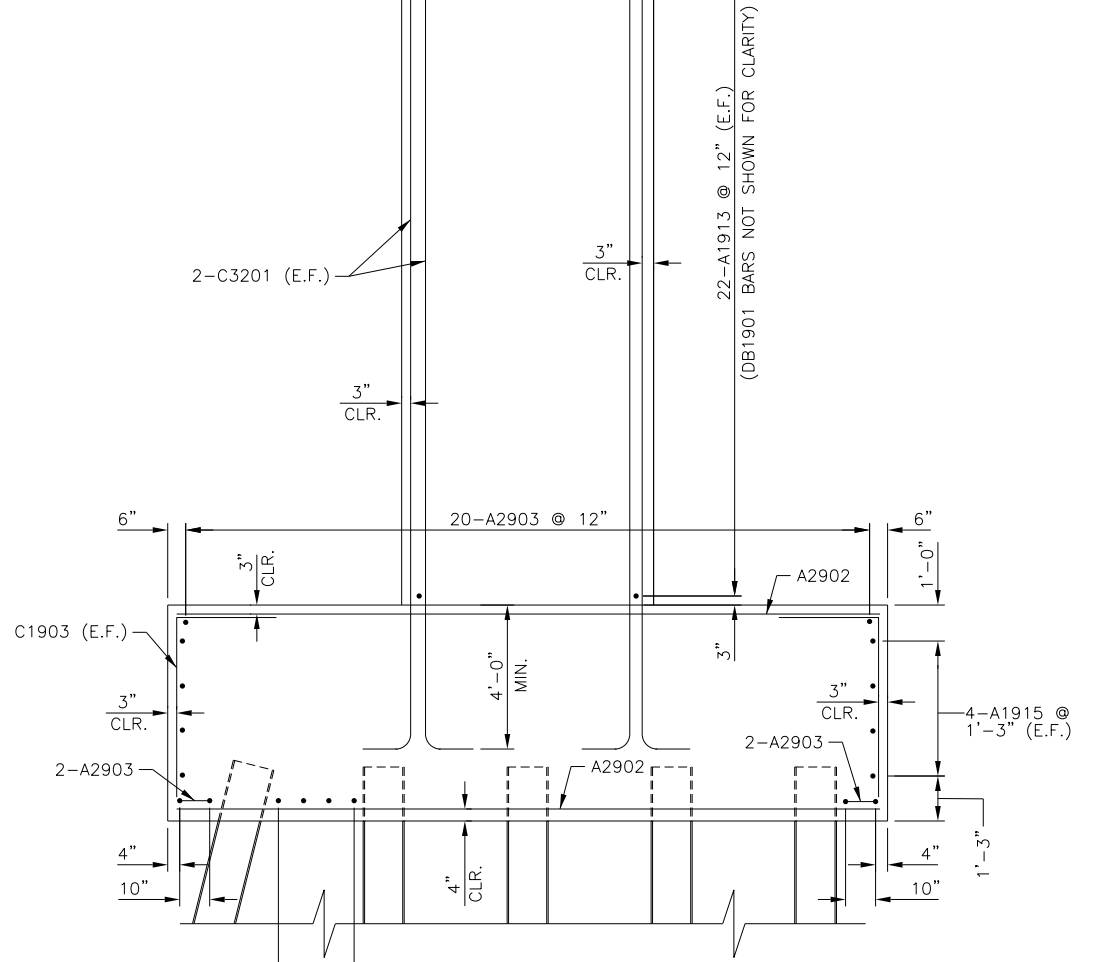
DETAIL A



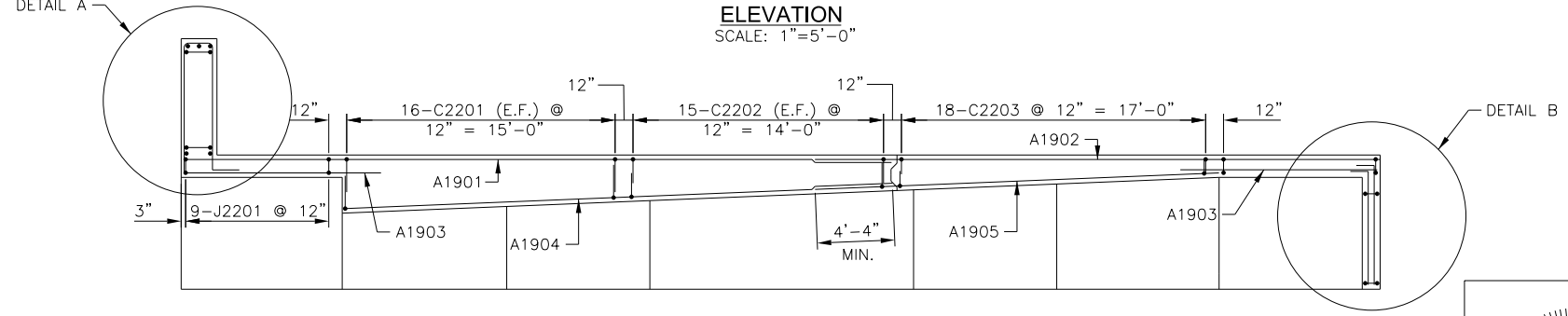
DETAIL B



ELEVATION
SCALE: 1"=5'-0"

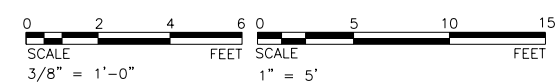


SECTION A-A
SCALE: 3/8"=1'-0"



SECTION B-B
SCALE: 1"=5'-0"

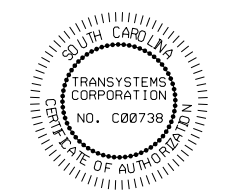
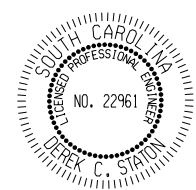
- NOTES
1. FOR BEARING PEDESTAL REINFORCEMENT DETAILS, SEE DRAWING NO. S-12
 2. FOR ANCHORAGE DETAIL FOR STEEL H-PILES, SEE DRAWING NO. S-20
 3. SECTION CUT D-D AND E-E ARE LOCATED ON DRAWING NO. S-12



OSP#: OPSC0290



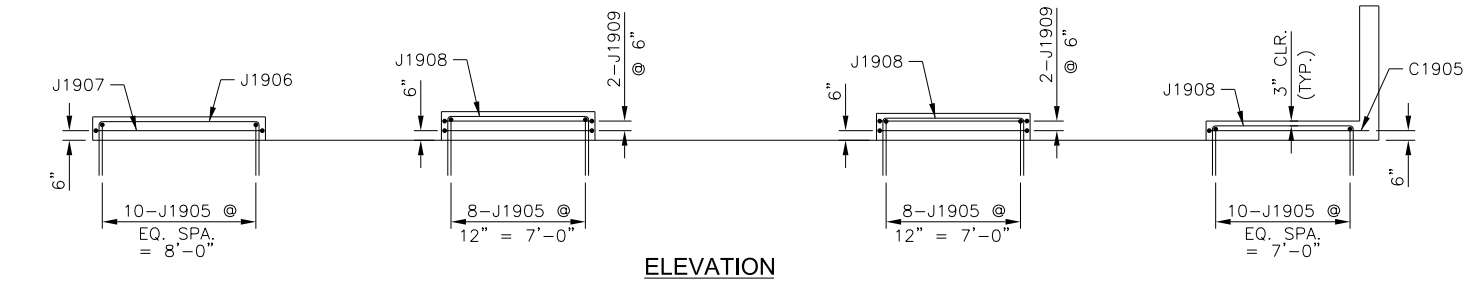
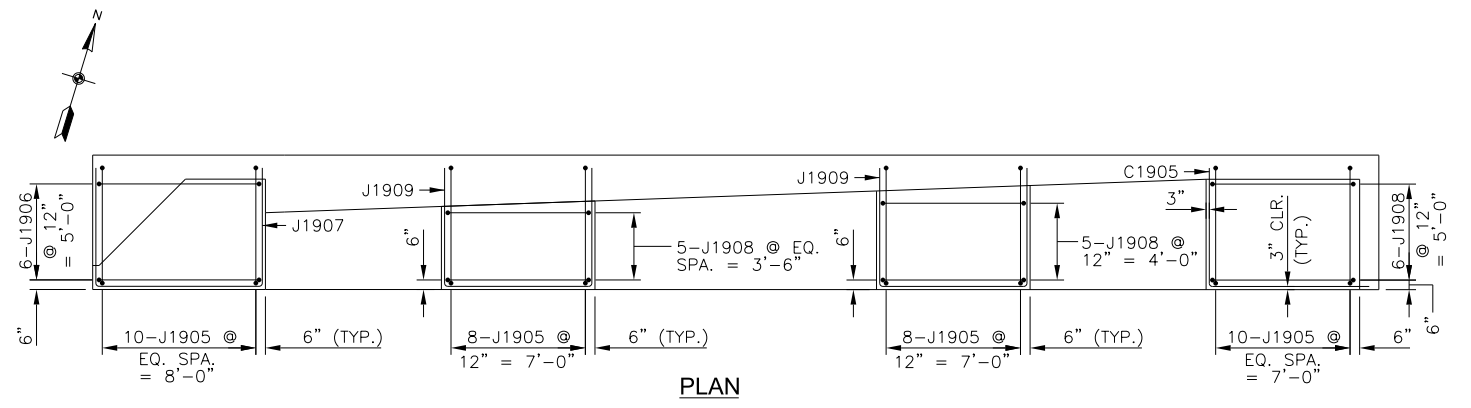
ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN



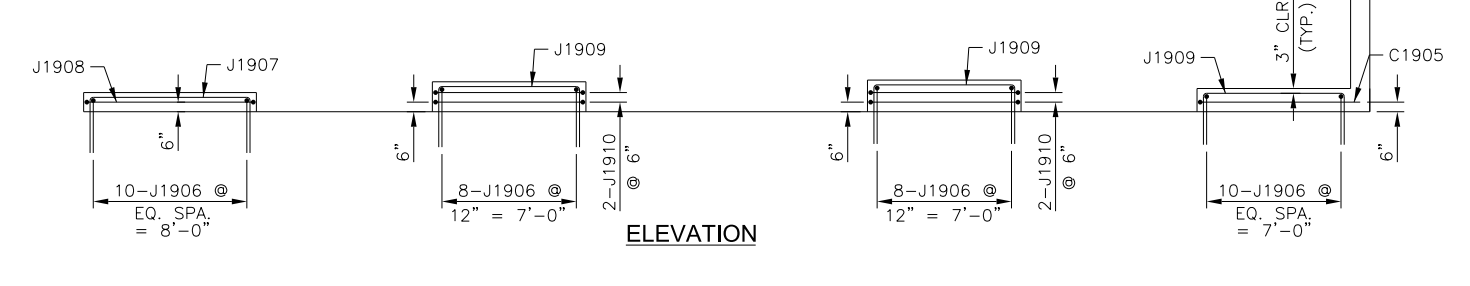
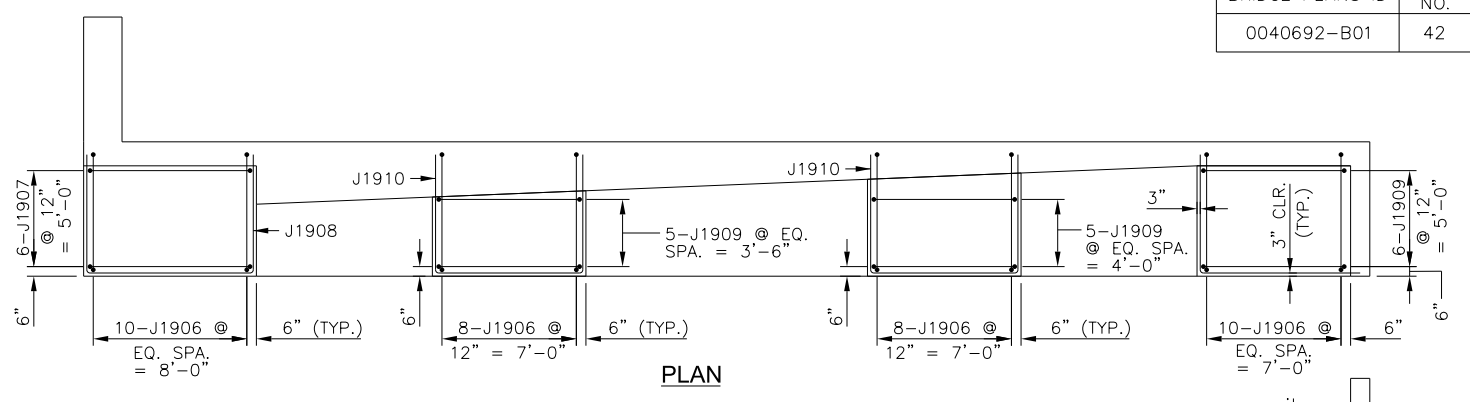
REVISIONS		BRIDGE NO Z270.19 AT M.P. 270.19 SOUTH ABUTMENT REINFORCING DETAILS	
SPARTANBURG		SC	
DIVISION: HUNTINGTON		SUBDIVISION: BLUE RIDGE	
SCALE: 1"=5'-0"	VAL. SEC.	DRAWING NO.	
DATE: 5/24/2016	655	S-11	
DESIGN: M.B.M.	SC	41 OF 139	
DRAWN: D.W.H.			
CHK'D: A.L.C.			

PROJECT NO. P301140022

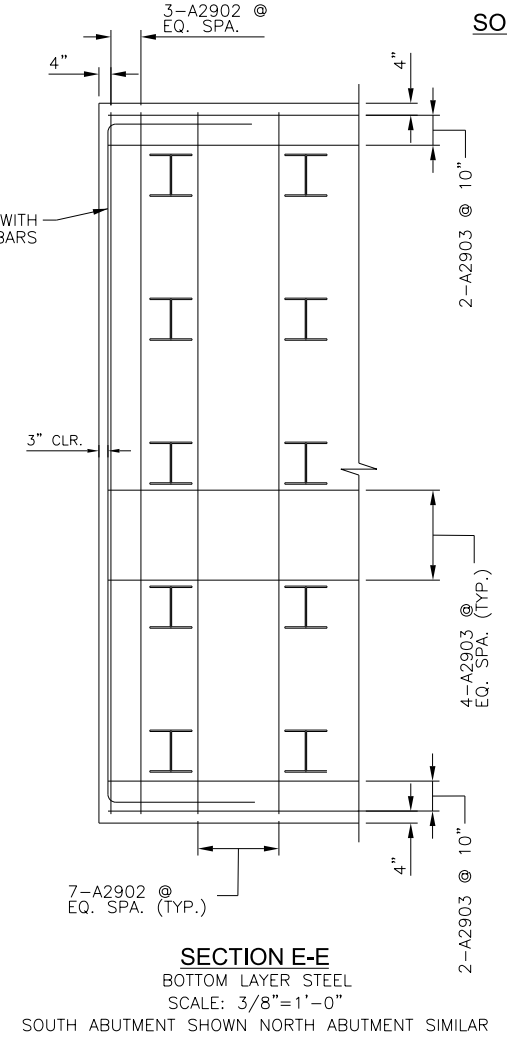
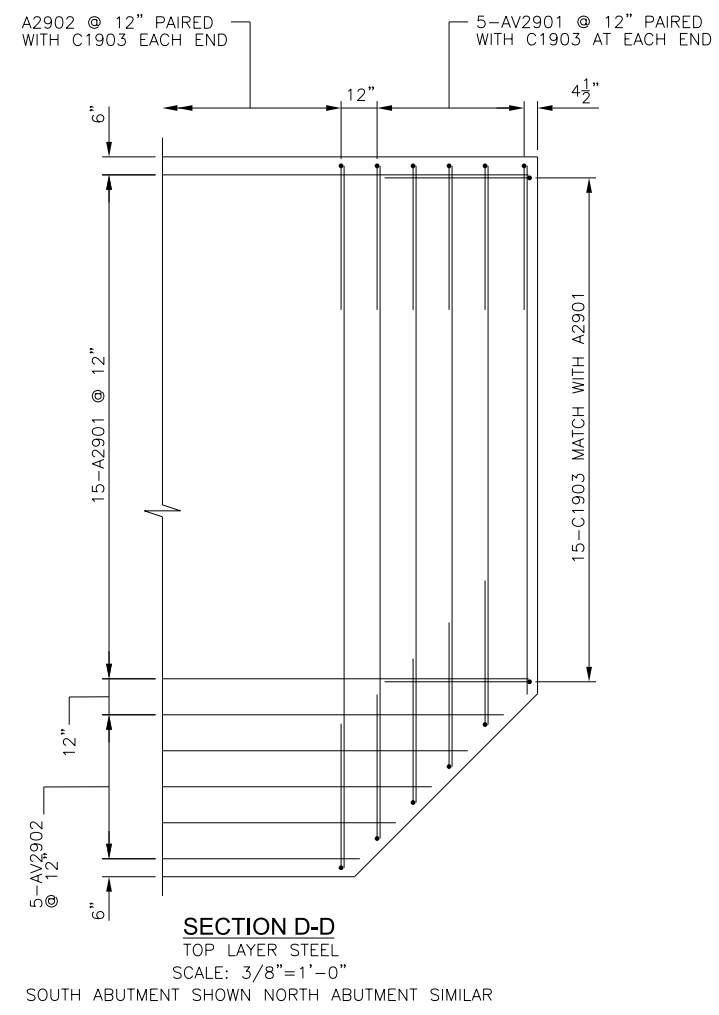
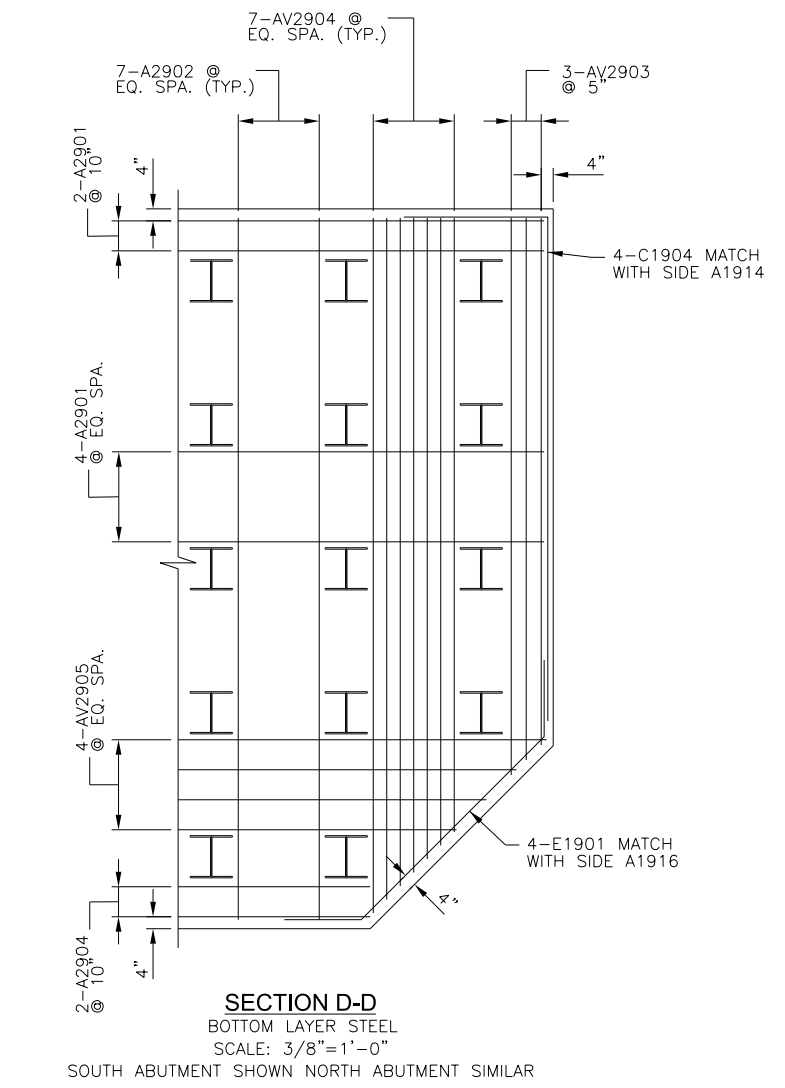
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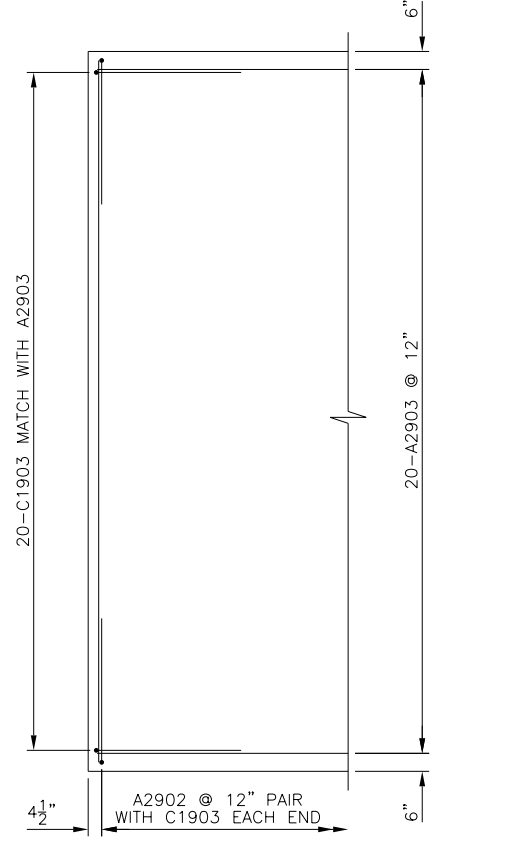
NORTH ABUTMENT PEDESTALS
 SCALE: 1"=5'-0"



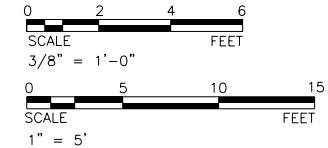
SOUTH ABUTMENT PEDESTALS
 SCALE: 1"=5'-0"



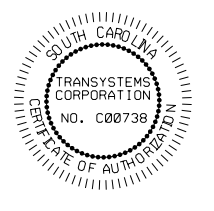
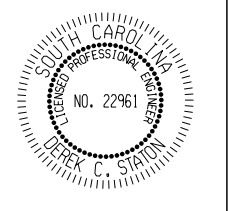
SECTION E-E
 BOTTOM LAYER STEEL
 SCALE: 3/8"=1'-0"
 SOUTH ABUTMENT SHOWN NORTH ABUTMENT SIMILAR



SECTION E-E
 TOP LAYER STEEL
 SCALE: 3/8"=1'-0"
 SOUTH ABUTMENT SHOWN NORTH ABUTMENT SIMILAR
 OSP#: OPSC0290

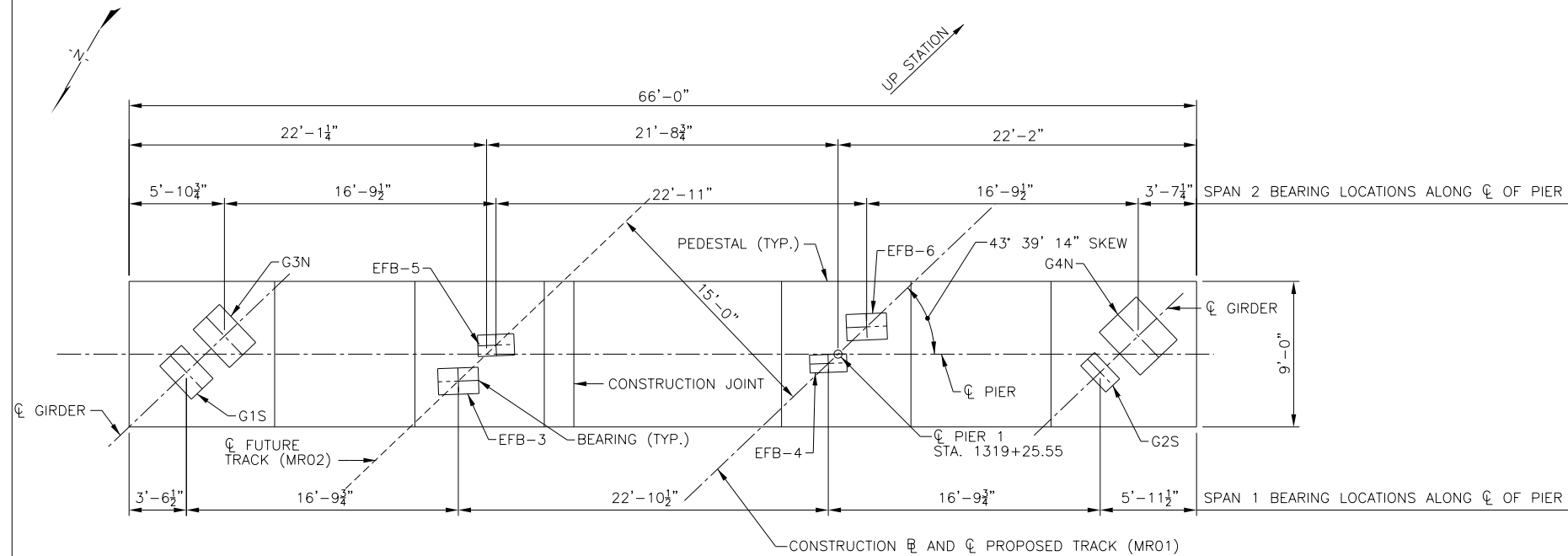


ENGINEERING DEPARTMENT
 MAINTENANCE OF WAY
 BRIDGE MAINTENANCE AND DESIGN

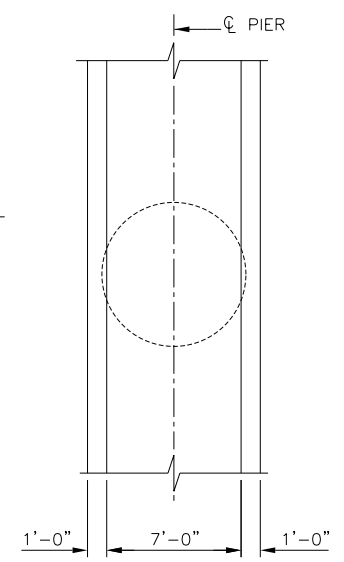


BRIDGE NO Z270.19 AT M.P. 270.19 NORTH AND SOUTH ABUTMENT DETAILS	
SPARTANBURG	SC
DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
SCALE: 1"=5'-0" DATE: 5/24/2016 DESIGN: M.B.M. DRAWN: D.W.H. CHK'D: A.L.C.	VAL. SEC. 655 SC DRAWING NO. S-12 42 OF 139

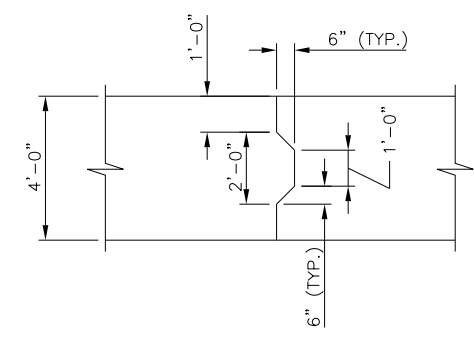
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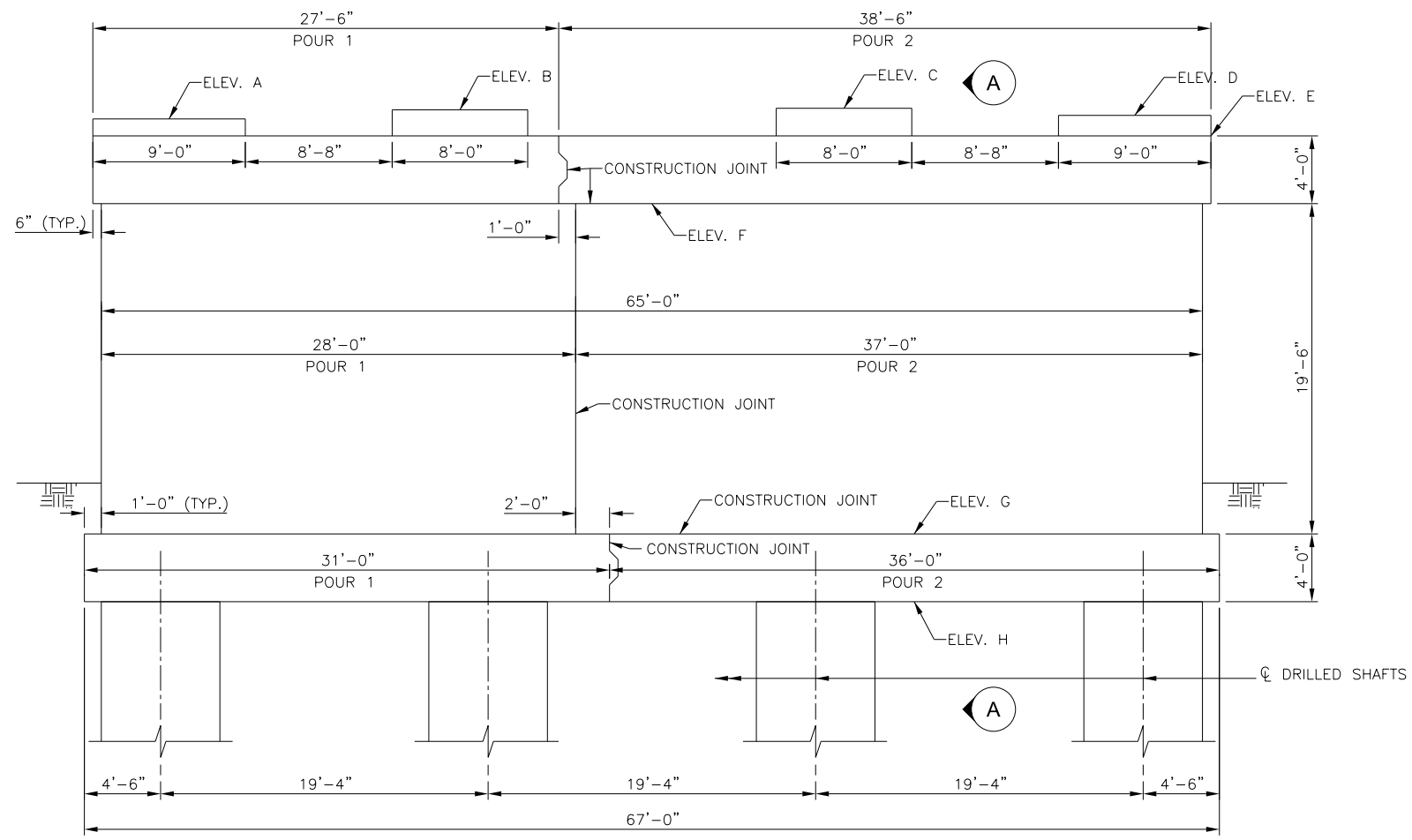
PLAN
SCALE: 1"=5'-0"



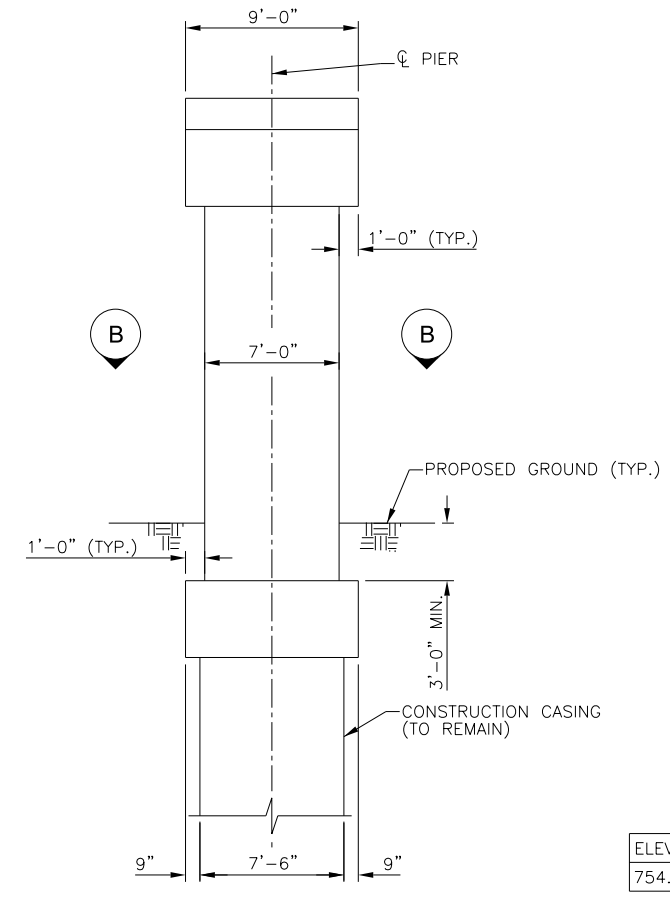
SECTION B-B
SCALE: 1"=5'-0"



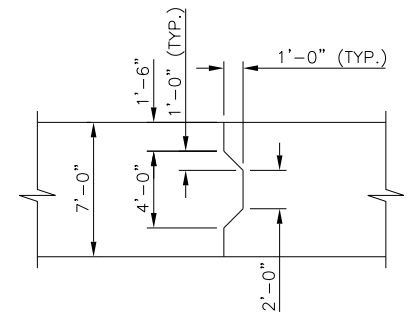
CONSTRUCTION JOINT CAP AND FOOTING
SCALE: 3/8"=5'-0"



ELEVATION
SCALE: 1"=5'-0"



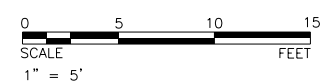
SECTION A-A
SCALE: 1"=5'-0"



CONSTRUCTION JOINT WALL
SCALE: 1"=5'-0"

ELEVATION TABLE (FT)

ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F	ELEV. G	ELEV. H
754.46	755.54	755.62	754.73	753.57	749.57	730.07	726.07

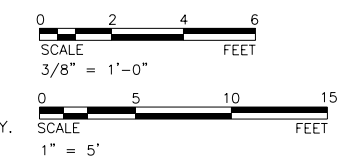
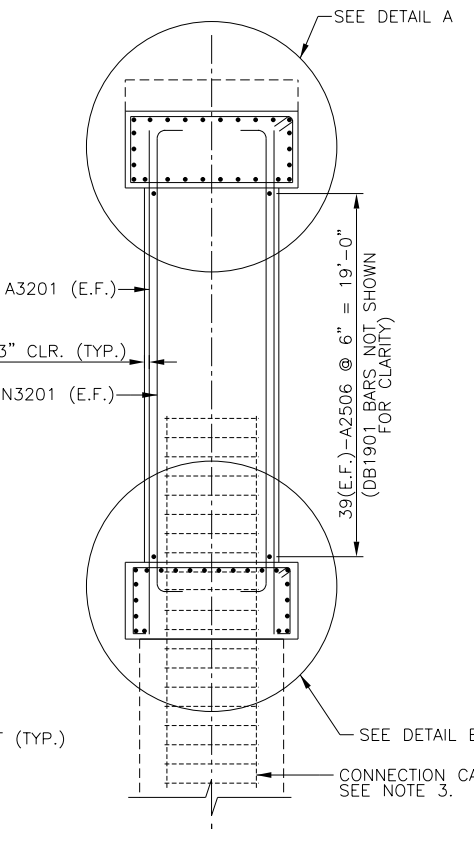
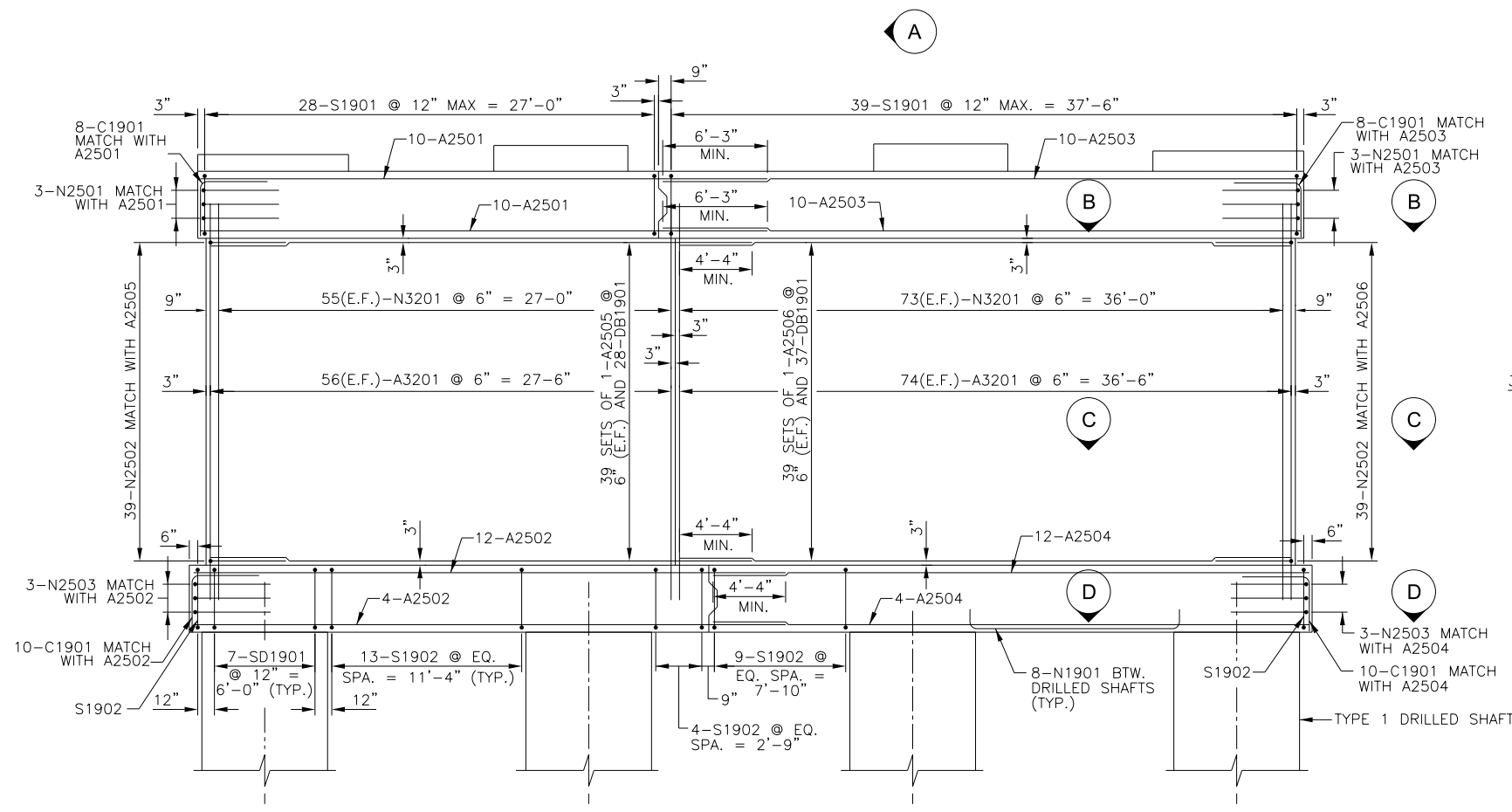
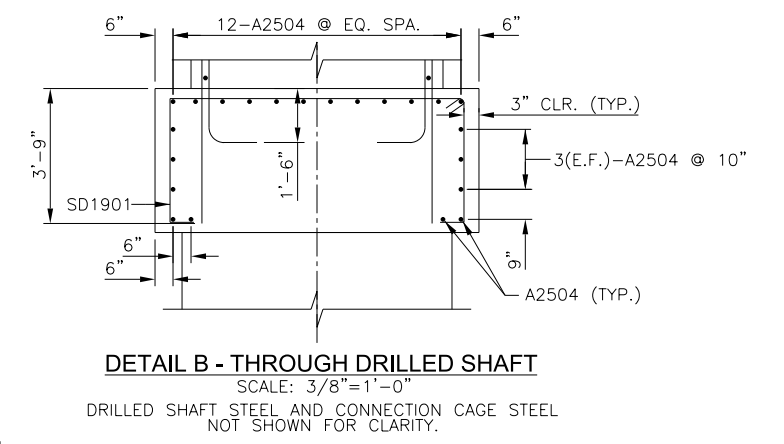
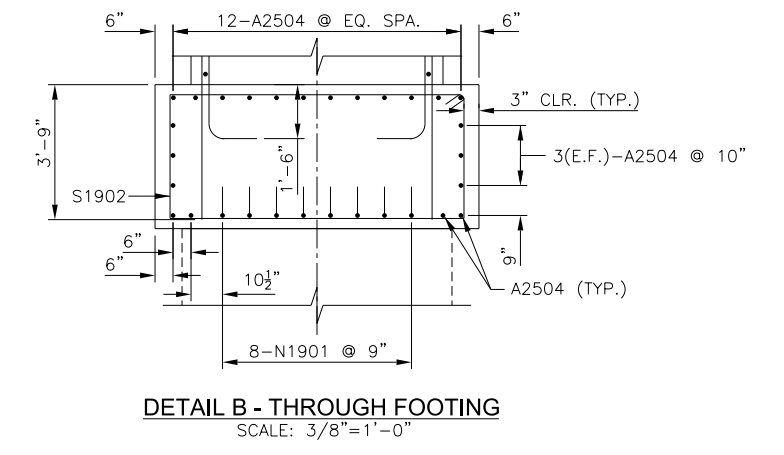
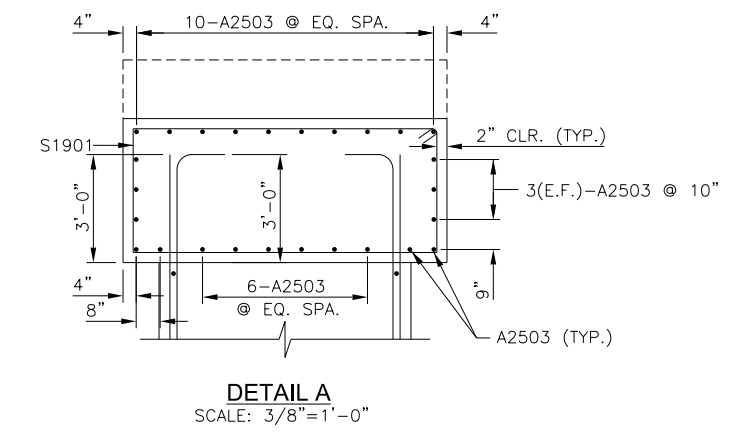
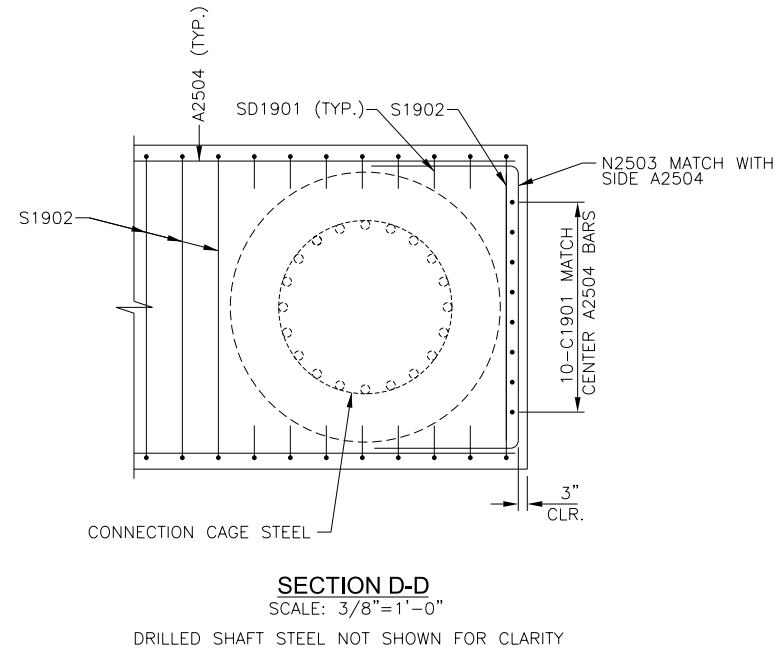
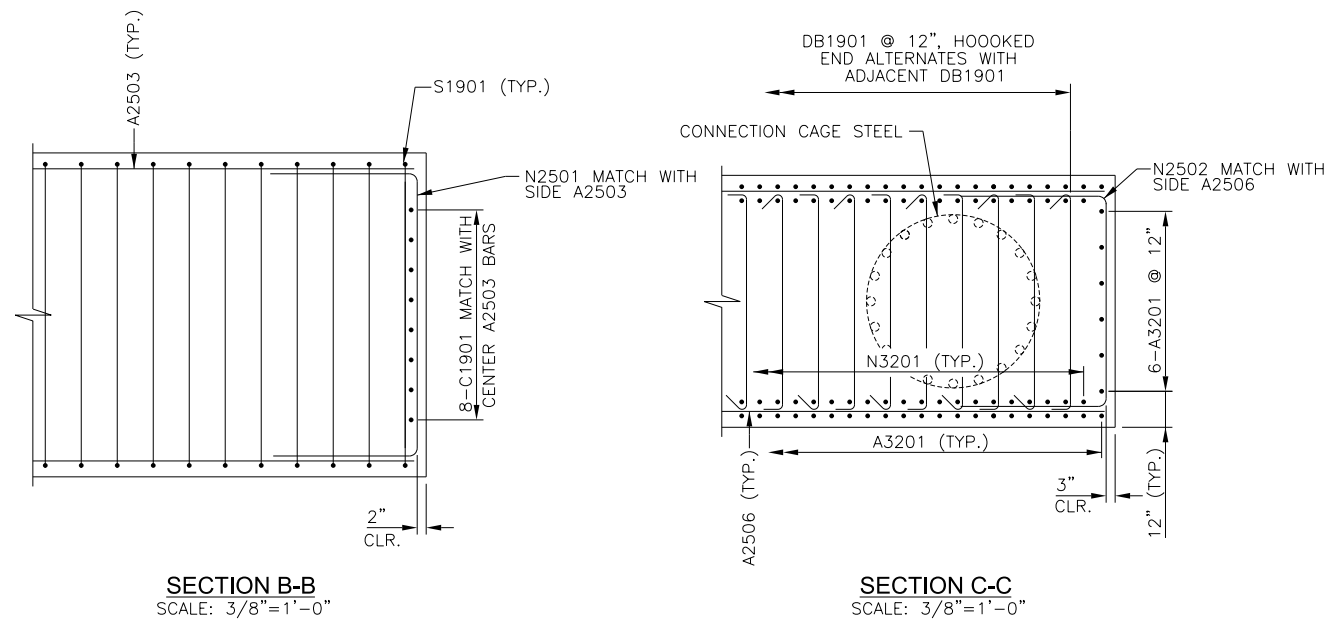


OSP#: OPSC0290

- NOTES:**
1. FOR BEARING OFFSET DISTANCE AND ANCHOR BOLT LAYOUT, SEE DRAWING NO. S-19
 2. FOR BEARING DETAILS, SEE DRAWING NO. S-42
 3. FOR DRILLED SHAFTS DETAILS, SEE DRAWING NO. S-21
 4. PROVIDED PEDESTAL ELEVATION FROM PRELIMINARY BEARING DESIGN. PEDESTAL ELEVATIONS COULD VARY BASED ON FINAL BEARING DESIGN.

REVISIONS	BRIDGE NO Z270.19 AT M.P. 270.19 PIER 1 PLAN AND ELEVATION
	SPARTANBURG SC
	DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE
SCALE: 1"=5'-0" DATE: 5/24/2016 DESIGN: M.B.M. DRAWN: D.W.H. CHKD: A.L.C.	VAL. SEC. 655 SC
PROJECT NO. P301140022	DRAWING NO. S-13 43 OF 139

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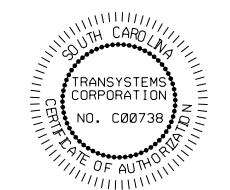
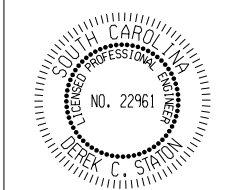
SIDE BARS IN CAP, CONNECTION CAGE STEEL AND FOOTING NOT SHOWN FOR CLARITY SEE DETAIL A AND B FOR DETAILS.

- NOTES:
1. PEDESTAL STEEL NOT SHOWN FOR CLARITY, SEE DRAWING NO. S-17
 2. DRILLED SHAFT NOT SHOWN FOR CLARITY, SEE DRAWING NO. S-21
 3. FOR CONNECTION CAGE STEEL DETAILS, SEE DRAWING NO. S-21

OSP#: OPSC0290

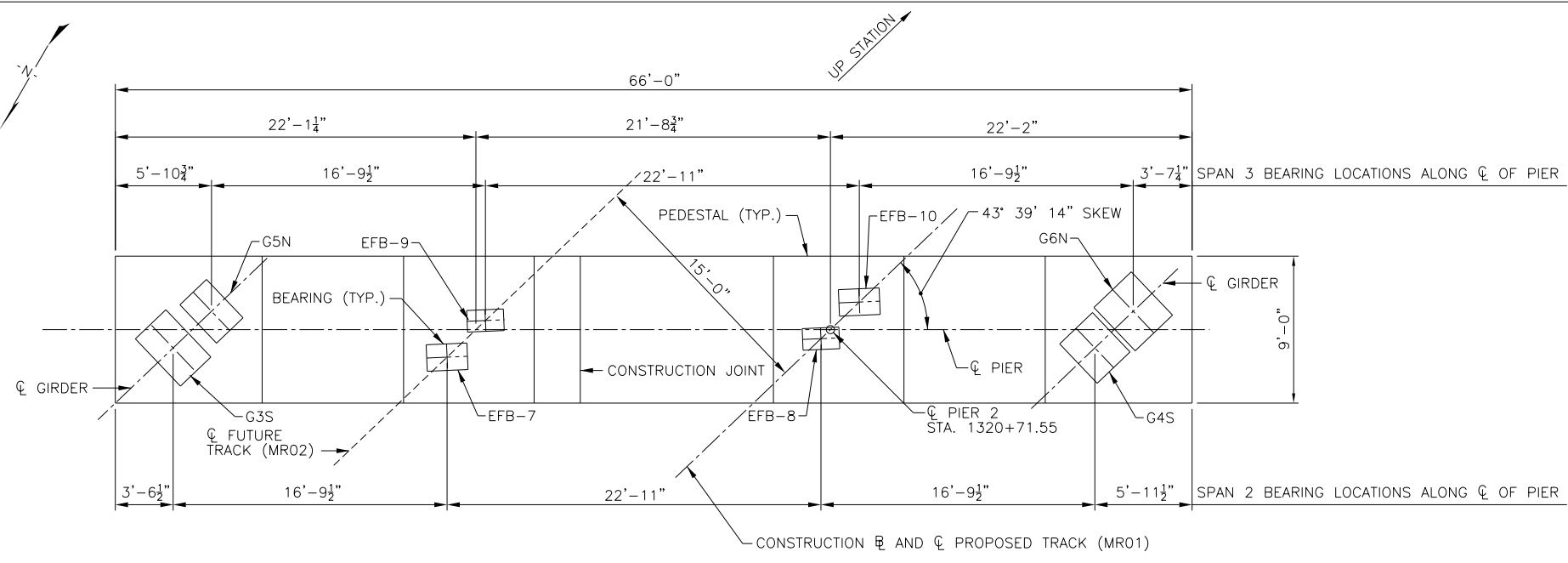
ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

BRIDGE NO Z270.19 AT M.P. 270.19	SC
PIER 1 REINFORCING DETAILS	
SPARTANBURG	SC
DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
SCALE: 1"=5'-0"	VAL. SEC. 655
DATE: 5/24/2016	SC
DESIGN: M.B.M.	DRAWING NO. S-14
DRAWN: D.W.H.	44 OF 139
CHK'D: A.L.C.	

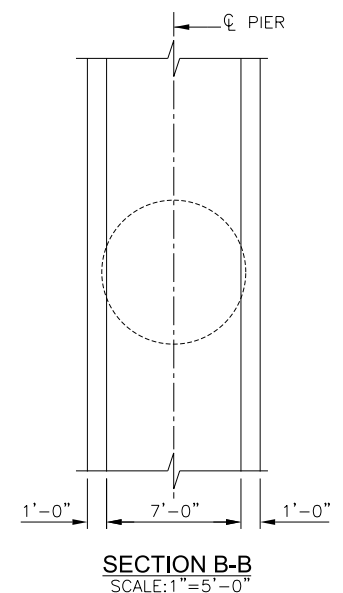


PROJECT NO. P301140022

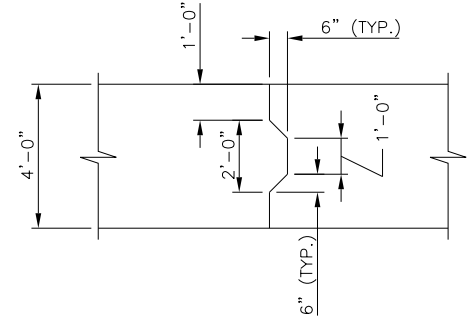
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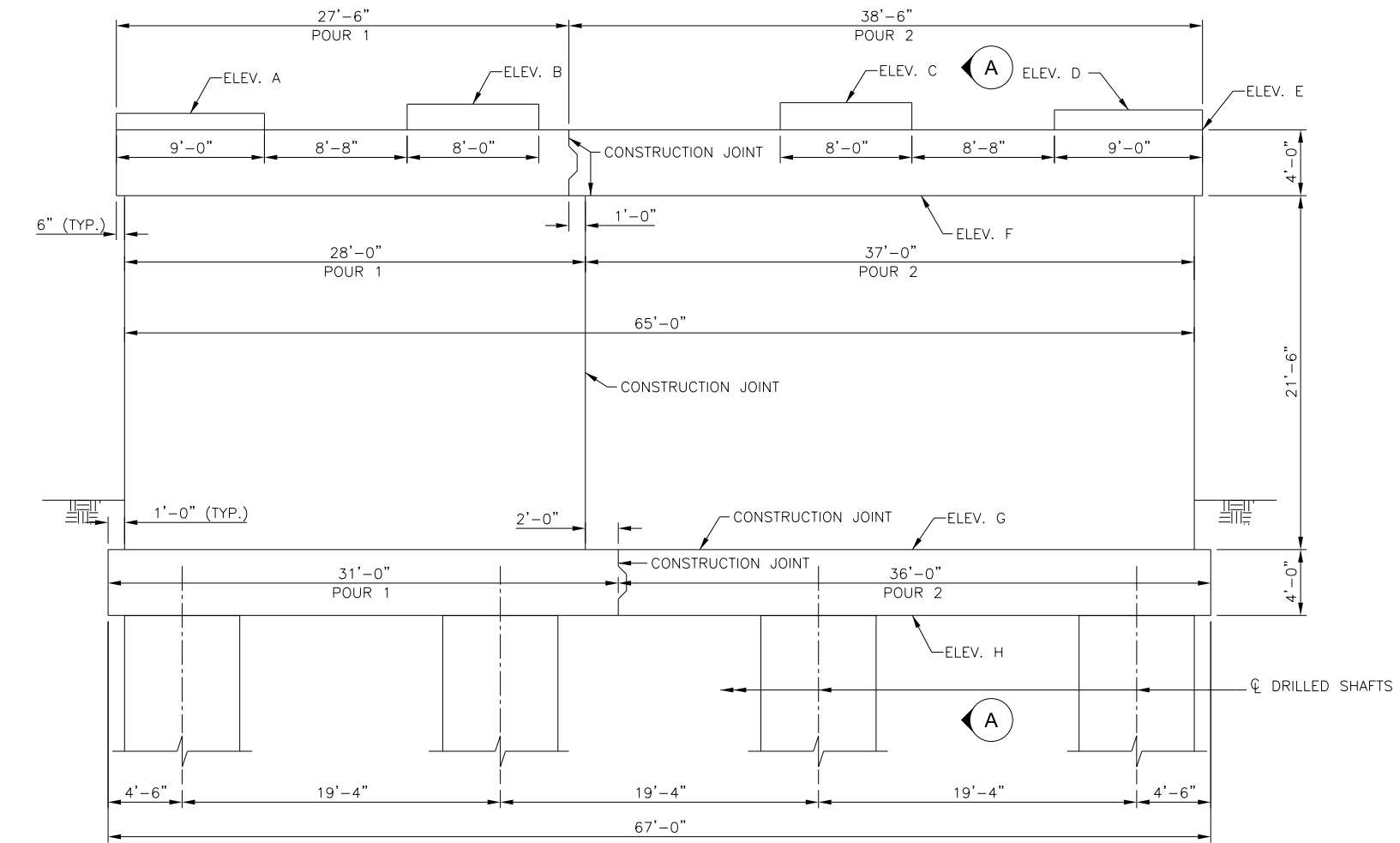
PLAN
SCALE: 1"=5'-0"



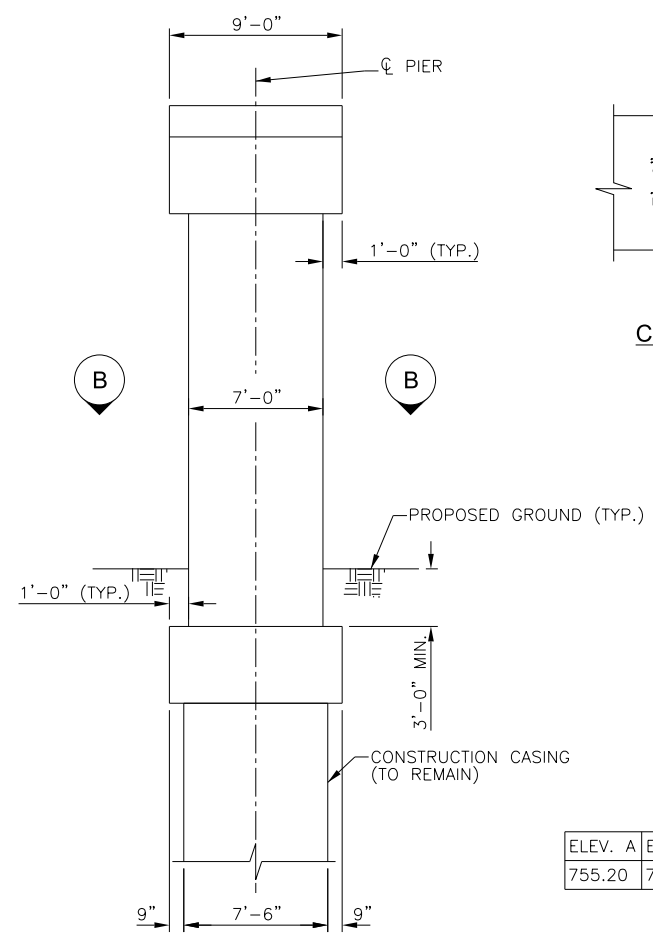
SECTION B-B
SCALE: 1"=5'-0"



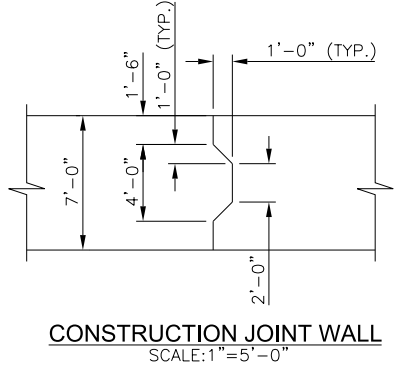
CONSTRUCTION JOINT CAP AND FOOTING
SCALE: 3/8"=5'-0"



ELEVATION
SCALE: 1"=5'-0"



SECTION A-A
SCALE: 1"=5'-0"

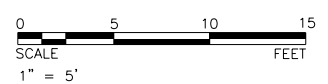


CONSTRUCTION JOINT WALL
SCALE: 1"=5'-0"

ELEVATION TABLE (FT)

ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F	ELEV. G	ELEV. H
755.20	756.30	756.38	755.48	754.31	750.31	728.81	724.81

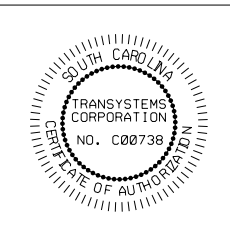
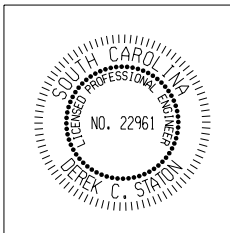
- NOTES:
- FOR BEARING OFFSET DISTANCE AND ANCHOR BOLT LAYOUT, SEE DRAWING NO. S-19
 - FOR BEARING DETAILS, SEE DRAWING NO. S-42
 - FOR DRILLED SHAFT DETAILS, SEE DRAWING NO. S-21
 - PROVIDED PEDESTAL ELEVATION FROM PRELIMINARY BEARING DESIGN. PEDESTAL ELEVATIONS COULD VARY BASED ON FINAL BEARING DESIGN.



OSP#: OPSC0290

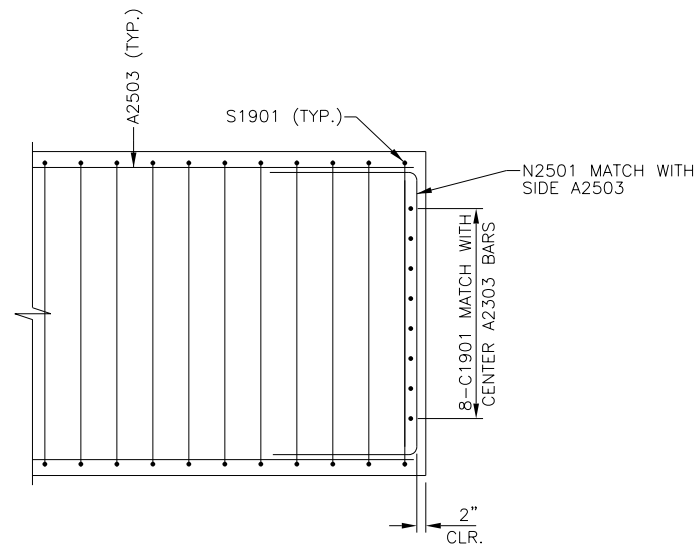


ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

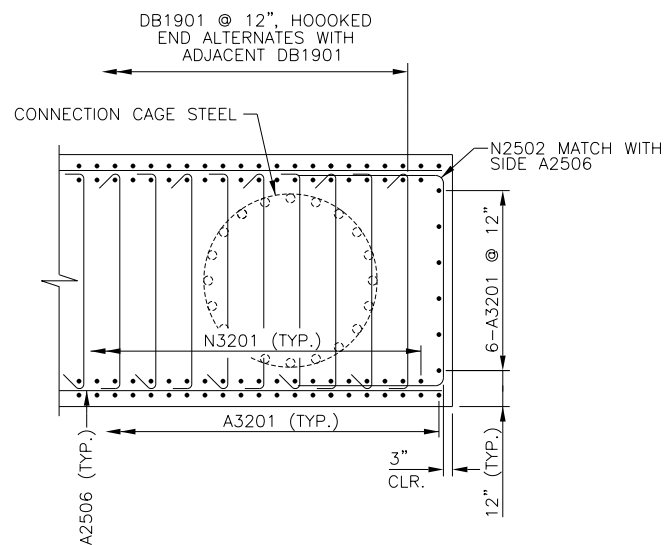


BRIDGE NO Z270.19 AT M.P. 270.19	
PIER 2 PLAN AND ELEVATION	
SPARTANBURG	SC
DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
SCALE: 1"=5'-0"	VAL. SEC. 655 SC
DATE: 5/24/2016	DRAWING NO. S-15
DESIGN: M.B.M.	45 OF 139
DRAWN: D.W.H.	
CHK'D: A.L.C.	

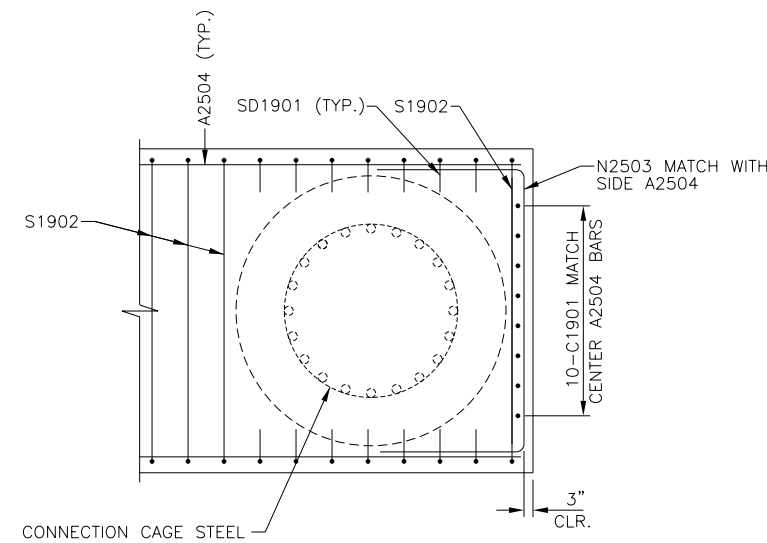
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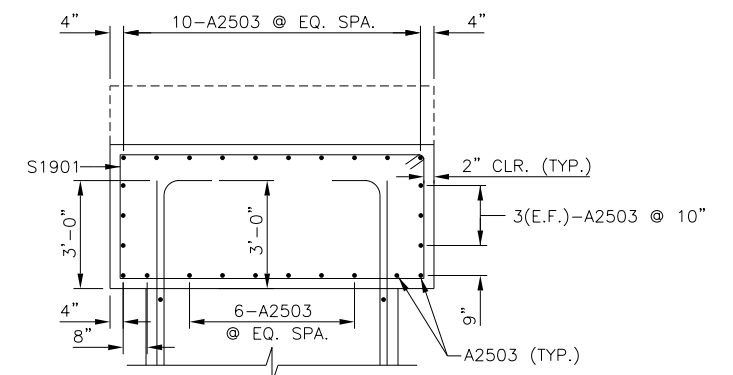
SECTION B-B
SCALE: 3/8"=1'-0"



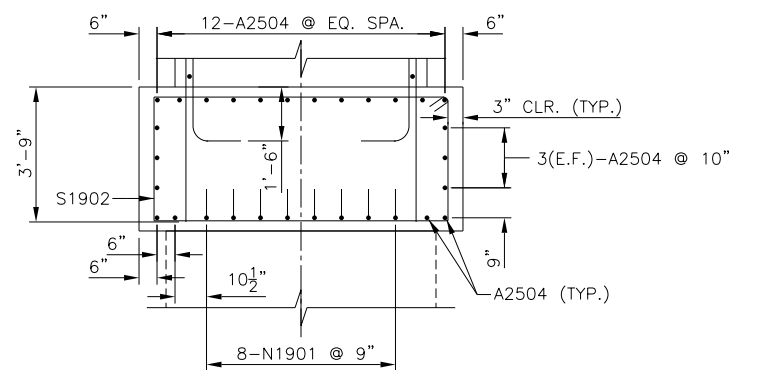
SECTION C-C
SCALE: 3/8"=1'-0"



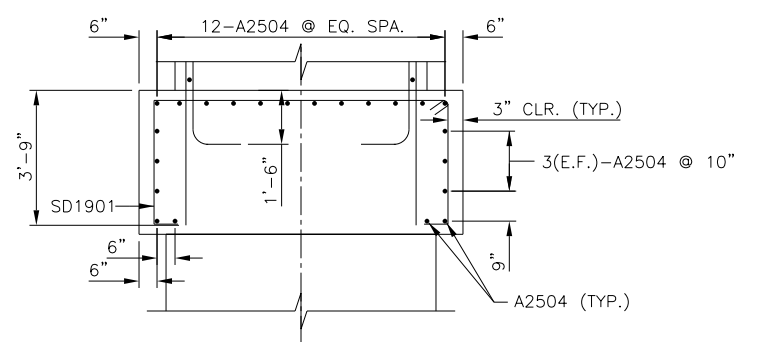
SECTION D-D
SCALE: 3/8"=1'-0"
DRILLED SHAFT STEEL NOT SHOWN FOR CLARITY



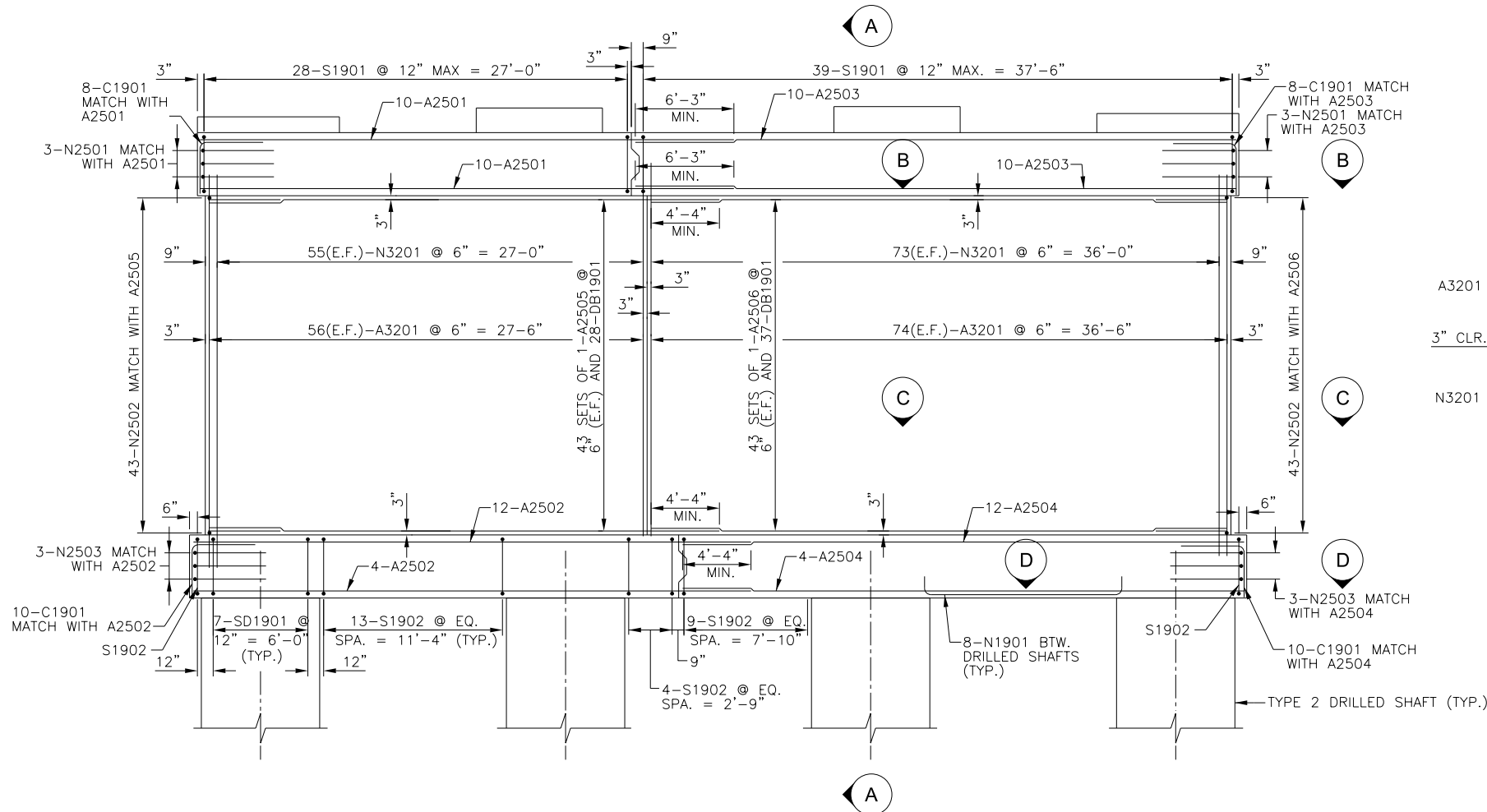
DETAIL A
SCALE: 3/8"=1'-0"



DETAIL B - THROUGH FOOTING
SCALE: 3/8"=1'-0"

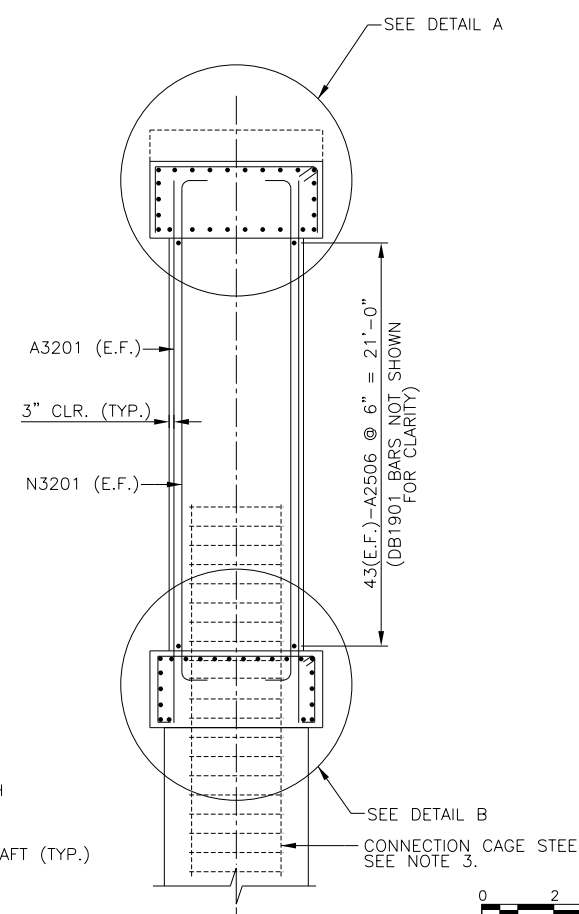


DETAIL B - THROUGH DRILLED SHAFT
SCALE: 3/8"=1'-0"
DRILLED SHAFT STEEL AND CONNECTION CAGE STEEL NOT SHOWN FOR CLARITY.



ELEVATION
SCALE: 1"=5'-0"

SIDE BARS IN CAP, CONNECTION CAGE STEEL AND FOOTING NOT SHOWN FOR CLARITY SEE DETAIL A AND B FOR DETAILS.



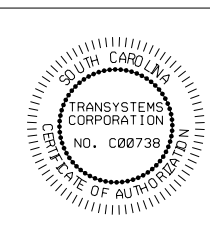
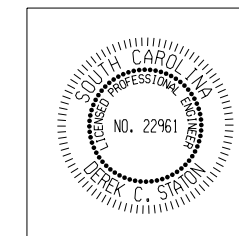
SECTION A-A

SCALE 3/8" = 1'-0"
0 2 4 6 FEET

SCALE 1" = 5'
0 5 10 15 FEET

NOTES:

1. PEDESTAL STEEL NOT SHOWN FOR CLARITY, SEE DRAWING NO. S-17
2. DRILLED SHAFT NOT SHOWN FOR CLARITY, SEE DRAWING NO. S-21
3. FOR CONNECTION CAGE STEEL DETAILS, SEE DRAWING NO. S-21



OSP#: OPSC0290

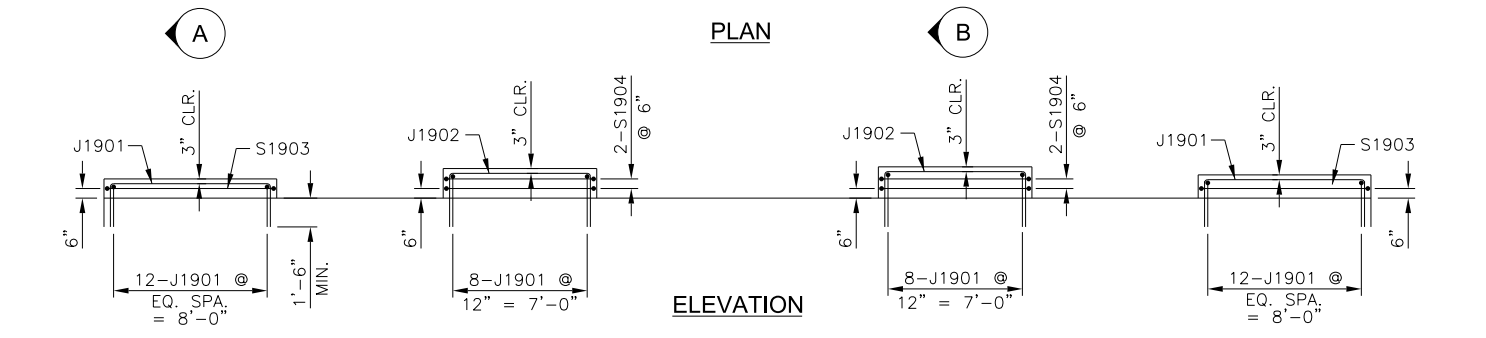
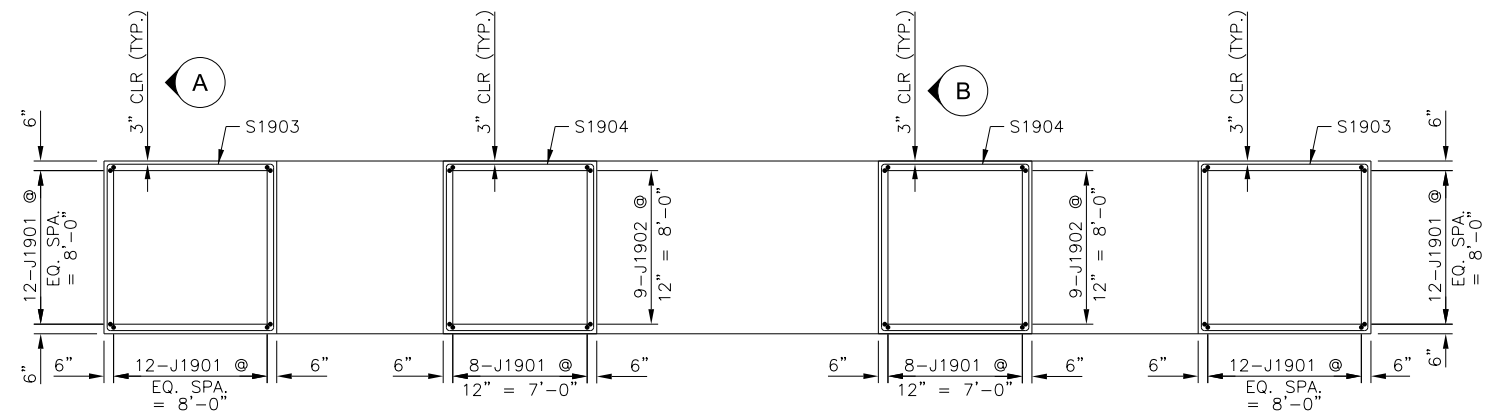


ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

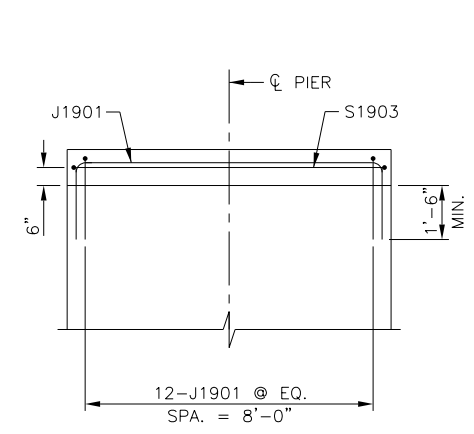
BRIDGE NO Z270.19 AT M.P. 270.19		SC	
PIER 2		SUBDIVISION: BLUE RIDGE	
REINFORCING DETAILS		SPARTANBURG	
DIVISION: HUNTINGTON		SCALE: 1"=5'-0"	
VAL. SEC. 655		DRAWING NO. S-16	
DESIGN: M.B.M.		DRAWING NO. 46 OF 139	
DRAWN: D.W.H.		CHK'D: A.L.C.	

PROJECT NO. P301140022

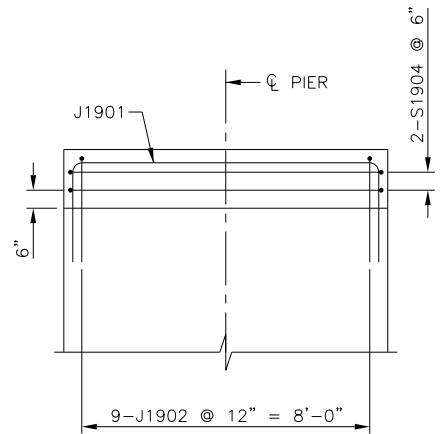
FILE:



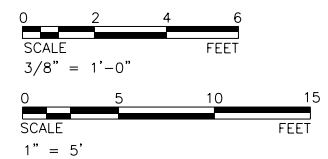
PIER PEDESTALS
SCALE: 1" = 5'-0"



SECTION A-A
SCALE: 3/8" = 1'-0"



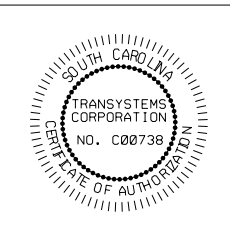
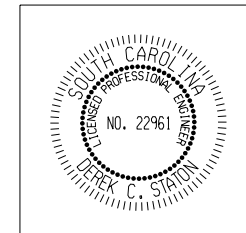
SECTION B-B
SCALE: 3/8" = 1'-0"



OSP#: OPSC0290

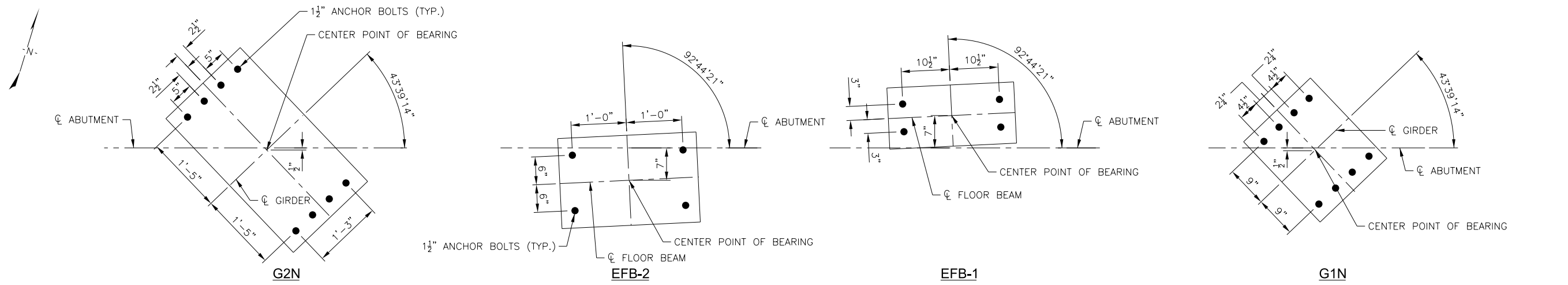


ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

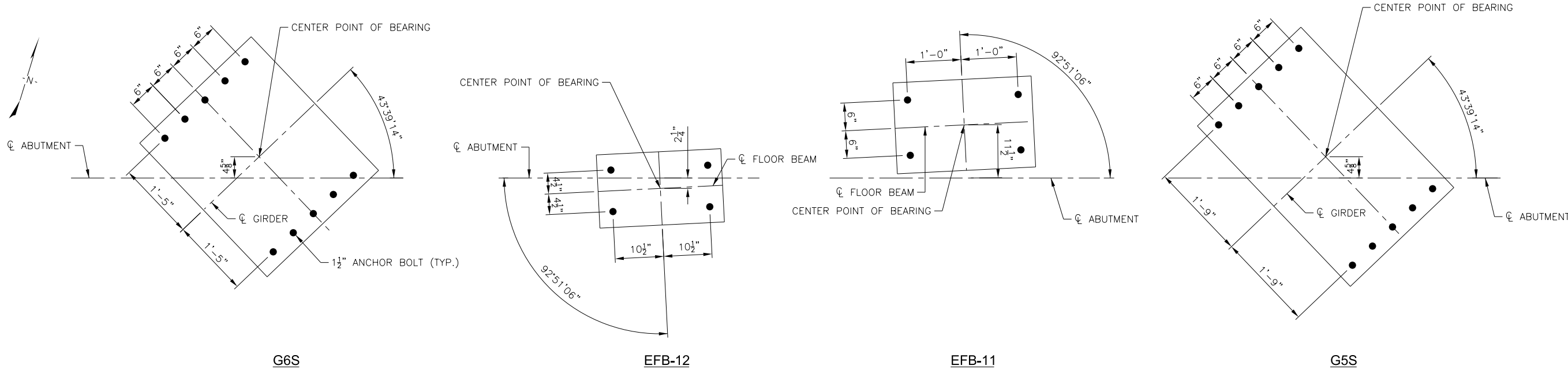


BRIDGE NO Z270.19 AT M.P. 270.19	
PIER 1 & PIER 2 DETAILS	
SPARTANBURG	SC
DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
SCALE: 1"=5'-0"	VAL. SEC. 655
DATE: 5/24/2016	SC
DESIGN: M.B.M.	DRAWING NO. S-17
DRAWN: D.W.H.	47 OF 139
CHK'D: A.L.C.	

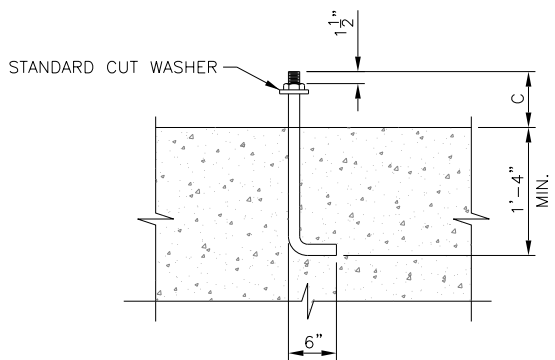
SUSERS 5/24/2016 4:30:16 PM - SFILES



NORTH ABUTMENT - ANCHOR BOLT SPACING
SCALE: 1" = 1'-0"



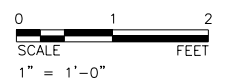
SOUTH ABUTMENT - ANCHOR BOLT SPACING
SCALE: 1" = 1'-0"



ANCHOR BOLT DETAIL

	G1N	EFB-1	EFB-2	G2N	G1S	EFB-3	EFB-4	G2S	G3N	EFB-5	EFB-6	G4N	G3S	EFB-7	EFB-8	G4S	G5N	EFB-9	EFB-10	G6N	G5S	EFB-11	EFB-12	G6S
DIMENSION "C"	4 7/8"	4 8/8"	4 8/8"	4 8/8"	4 8/8"	4 8/8"	4 8/8"	4 8/8"	6 8/8"	4 8/8"	4 8/8"	6 8/8"	6 8/8"	4 8/8"	4 8/8"	6 8/8"	6 8/8"	4 8/8"	4 8/8"	6 8/8"	6 8/8"	4 8/8"	4 8/8"	6 8/8"

NOTES:
THE ANCHOR BOLT DETAILS SHOWN HERE ARE FOR INFORMATION ONLY.
THE ANCHOR BOLTS SHALL BE DESIGNED AND DETAILED BY THE CONTRACTOR IN CONJUNCTION WITH THE BEARING DESIGN.



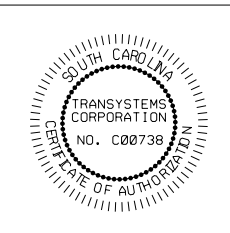
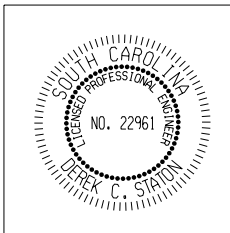
OSP#: OPSC0290



ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

REVISIONS

BRIDGE NO Z270.19 AT M.P. 270.19
ANCHOR BOLT LAYOUT
(1 OF 2)

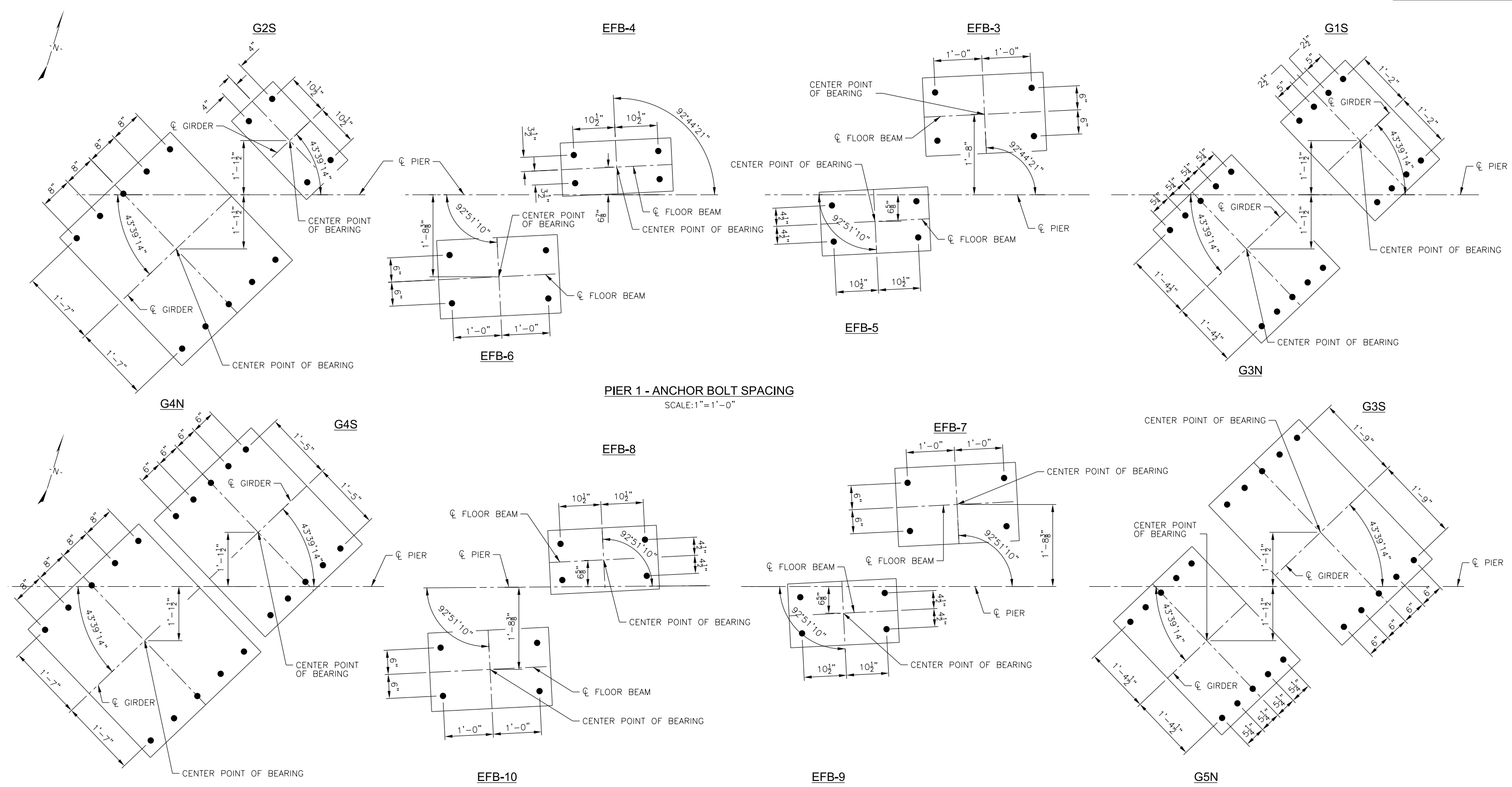


SPARTANBURG		SC
DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE	
SCALE: 1" = 1'-0"	VAL. SEC.	DRAWING NO.
DATE: 5/24/2016	655	S-18
DESIGN: M.B.M.	SC	48 OF 139
DRAWN: D.W.H.		
CHK'D: A.L.C.		

PROJECT NO. P301140022

FILE:

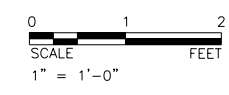
SUSERS 5/24/2016 4:30:19 PM - SFILES



PIER 1 - ANCHOR BOLT SPACING
SCALE: 1" = 1'-0"

PIER 2 - ANCHOR BOLT SPACING
SCALE: 1" = 1'-0"

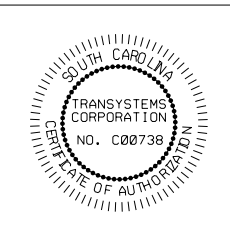
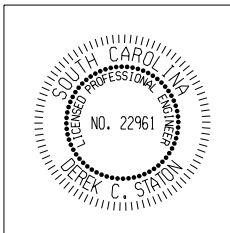
- NOTES:
1. THE ANCHOR BOLT DETAILS SHOWN HERE ARE FOR INFORMATION ONLY. THE ANCHOR BOLTS SHALL BE DESIGNED AND DETAILED BY THE CONTRACTOR IN CONJUNCTION WITH THE BEARING DESIGN.
 2. FOR ADDITIONAL ANCHOR BOLT DETAILS, SEE DRAWING NO. S-18



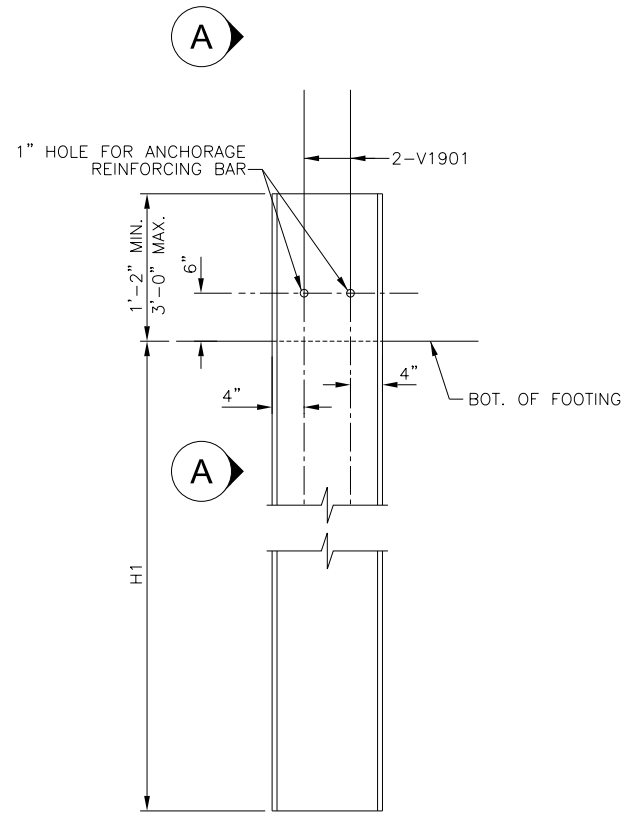
OSP#: OPSC0290



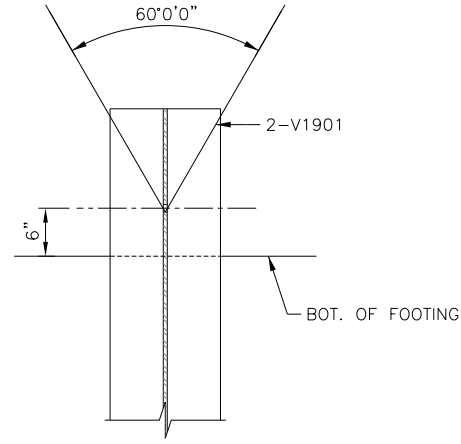
ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN



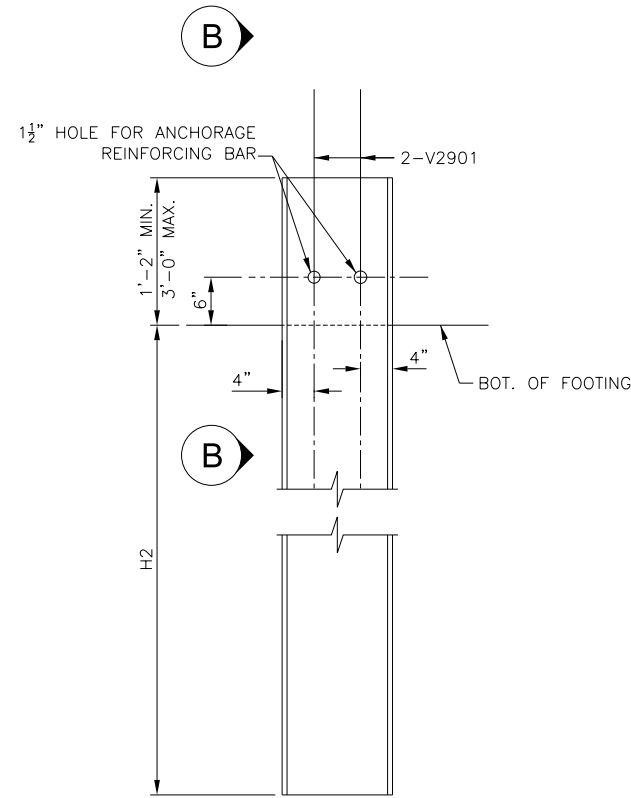
BRIDGE NO Z270.19 AT M.P. 270.19 ANCHOR BOLT LAYOUT (2 OF 2)							
SPARTANBURG	SC						
DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE						
SCALE: 1" = 1'-0" DATE: 5/24/2016 DESIGN: M.B.M. DRAWN: D.W.H. CHK'D: A.L.C.	<table border="1"> <tr> <td>VAL. SEC.</td> <td>DRAWING NO.</td> </tr> <tr> <td>655</td> <td>S-19</td> </tr> <tr> <td>SC</td> <td>49 OF 139</td> </tr> </table>	VAL. SEC.	DRAWING NO.	655	S-19	SC	49 OF 139
VAL. SEC.	DRAWING NO.						
655	S-19						
SC	49 OF 139						
PROJECT NO. P301140022	FILE:						



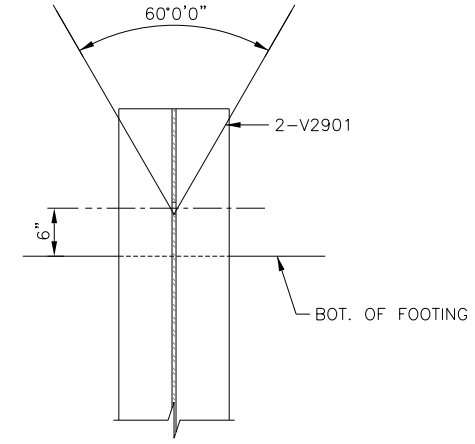
TYPICAL PILE ANCHOR DETAIL
SCALE: 1" = 1'-0"



SECTION A-A
SCALE: 1" = 1'-0"



TENSION PILE ANCHOR DETAIL
SCALE: 1" = 1'-0"

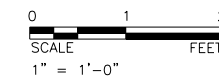


SECTION B-B
SCALE: 1" = 1'-0"

PILE LENGTH *		
PILES	H1	H2
N. ABUTMENT	21'-1"	21'-10"
S. ABUTMENT	27'-3"	28'-2"

NOTES:

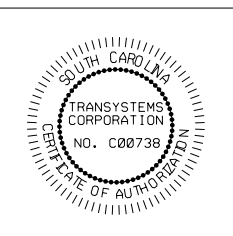
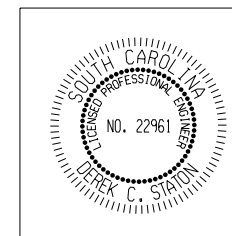
* LENGTHS OF PILE BASED ON ESTIMATED SOIL AND ROCK ELEVATIONS PROVIDED ON DRAWING NO. S-07



OSP#: OPSC0290



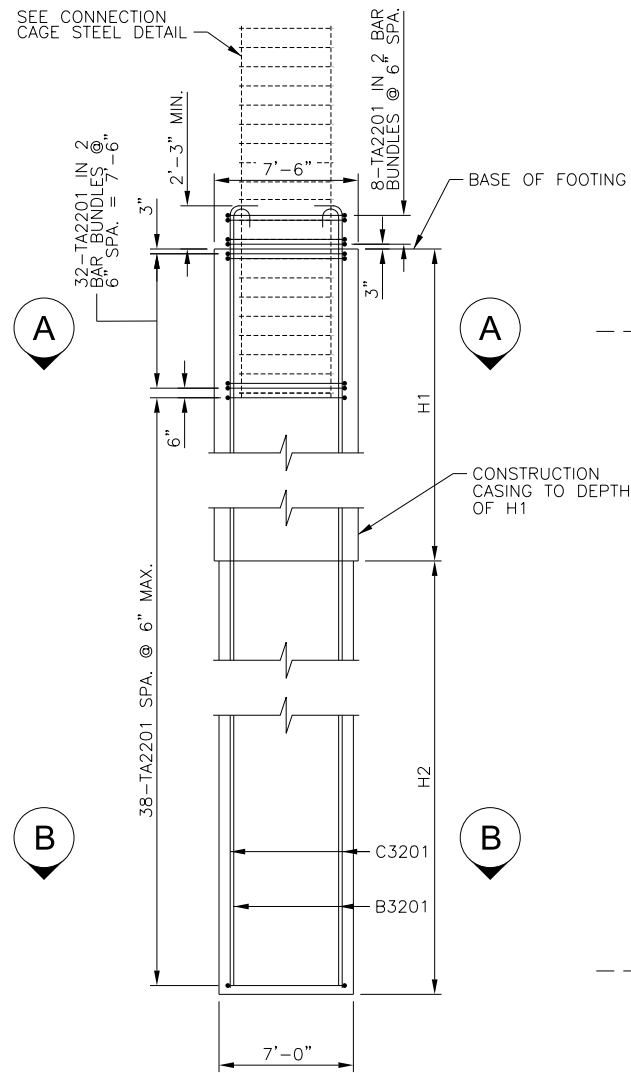
ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN



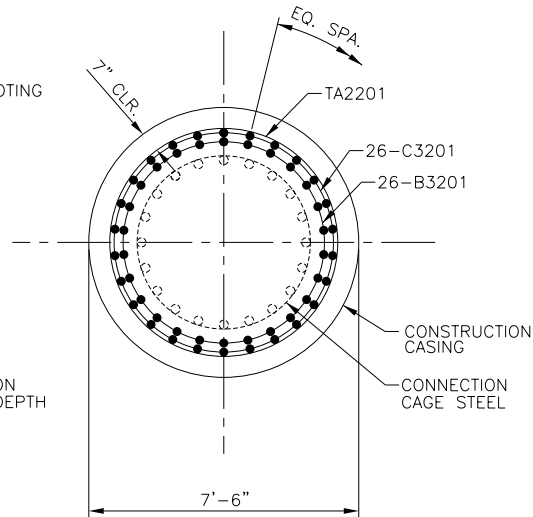
REVISIONS	BRIDGE NO Z270.19 AT M.P. 270.19	
	H-PILE DETAILS	
	SPARTANBURG	SC
	DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
	SCALE: 1" = 1'-0"	VAL. SEC. 655
	DATE: 5/24/2016	DRAWING NO. S-20
	DESIGN: M.B.M.	50 OF 139
	DRAWN: D.W.H.	
	CHK'D: A.L.C.	

PROJECT NO. P301140022

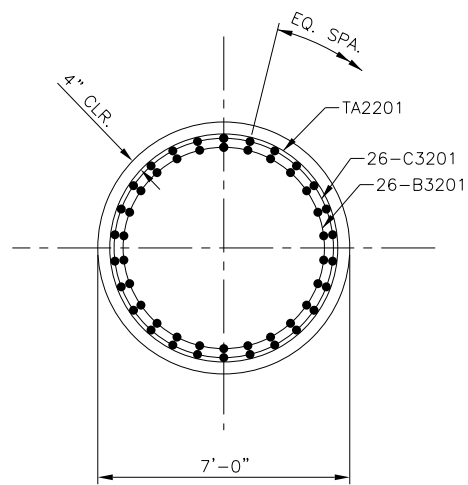
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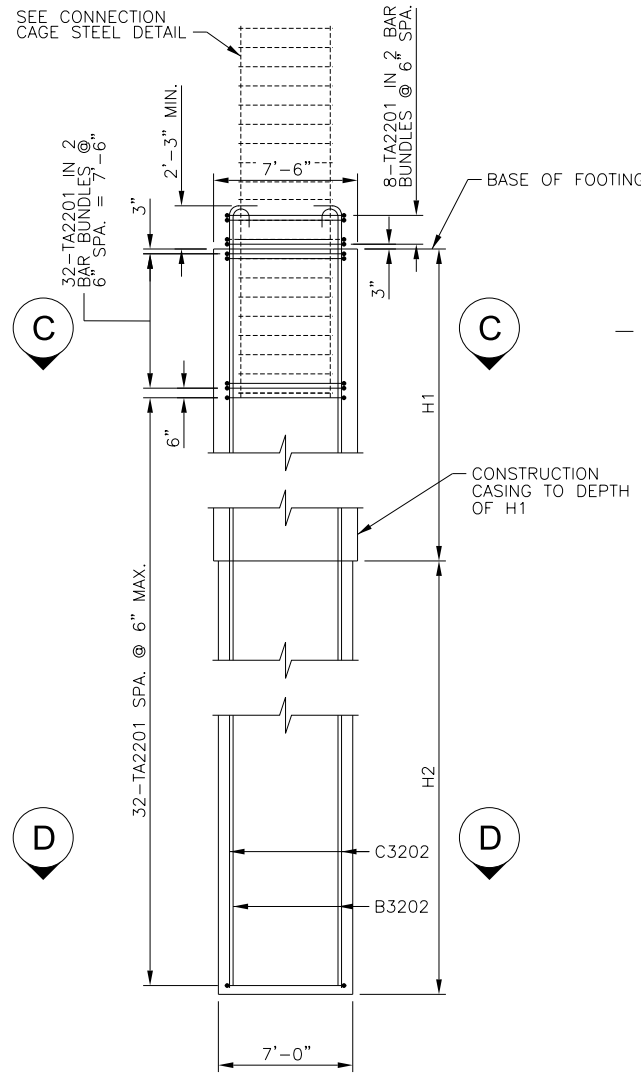
DRILLED SHAFT PIER 1 - TYPE 1
SCALE: 1"=5'-0"



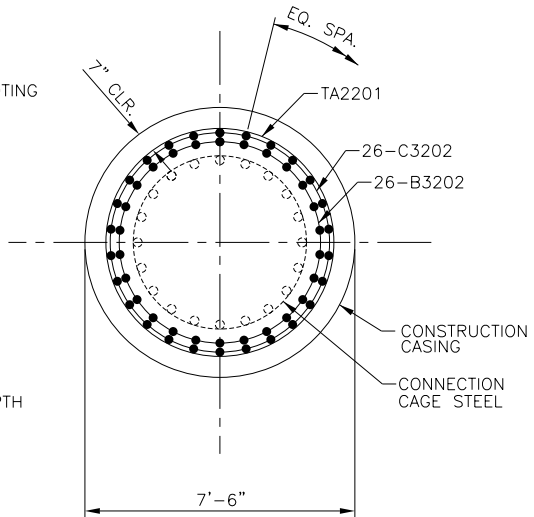
SECTION A-A
SCALE: 3/8"=1'-0"



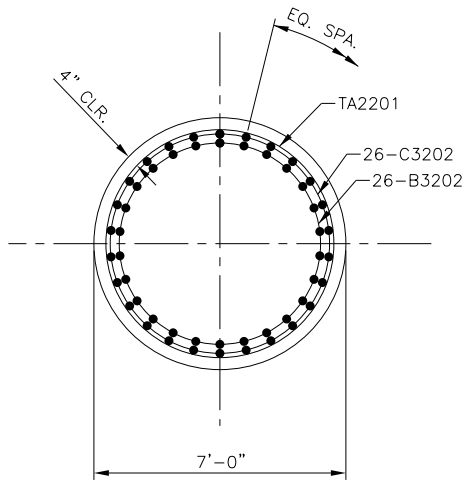
SECTION B-B
SCALE: 3/8"=1'-0"



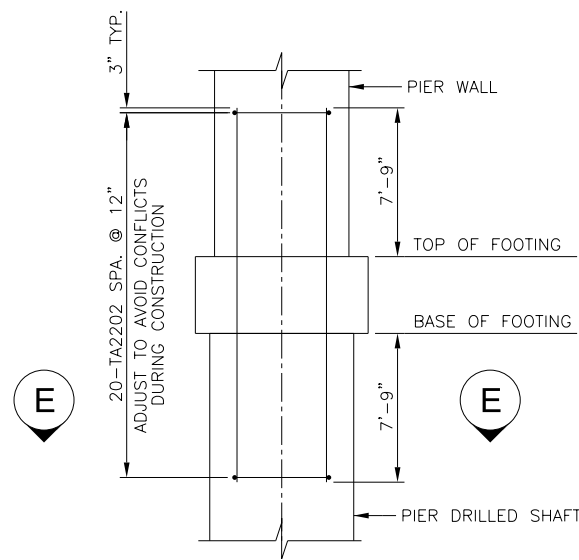
DRILLED SHAFT PIER 2 - TYPE 2
SCALE: 1"=5'-0"



SECTION C-C
SCALE: 3/8"=1'-0"

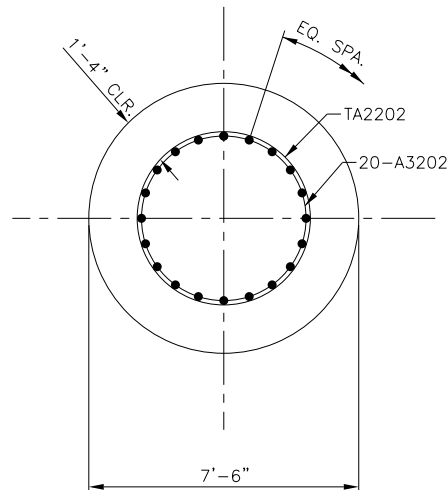


SECTION D-D
SCALE: 3/8"=1'-0"



CONNECTION CAGE STEEL
SCALE: 1"=5'-0"

ONLY CONNECTION CAGE STEEL SHOWN FOR CLARITY



SECTION E-E
SCALE: 3/8"=1'-0"

PIER 1 - TYPE 1 *

SHAFTS	H1	H2
1	16'-1"	11'-0"
2	16'-1"	11'-0"
3	16'-1"	11'-0"
4	16'-1"	11'-0"

PIER 2 - TYPE 2 *

SHAFTS	H1	H2
1	8'-10"	15'-0"
2	8'-10"	15'-0"
3	8'-10"	15'-0"
4	8'-10"	15'-0"

NOTES:
* HEIGHT AND BAR LENGTHS BASED ON ESTIMATED SOIL AND ROCK ELEVATIONS. LENGTH OF C3201, B3201, C3202 AND B3202 BARS SHOULD BE CHANGED IF ROCK ELEVATIONS ARE DIFFERENT THAN THOSE PROVIDED.

TABLE 3. DRILLED SHAFT BEARING

BENT ID	PIER 1	PIER 2
NO. SHAFTS PER PIER	4	4
SERVICE DESIGN LOAD (TONS)	1064.7 TONS	1153.6 TONS
GEOTECHNICAL FACTOR OF SAFETY	2.50	2.50
TOTAL NOMINAL RESISTANCE (TONS)	2661.8 TONS	2884.0 TONS

THE ESTIMATED BOTTOM OF CONSTRUCTION CASING ELEVATION AND THE ESTIMATED ROCK SOCKET TIP ELEVATIONS ARE INDICATED IN THE TABLE BELOW. THE DIAMETER FOR THE DRILLED SHAFTS IS 90 INCHES, AND THE DIAMETER FOR THE ROCK SOCKETS IS 84 INCHES. SUPPORT THE TOP OF CASING TO MAINTAIN CONSTRUCTION TOLERANCES DURING CONSTRUCTION.

TABLE 4. DRILLED SHAFT ELEVATIONS

BENT ID	ESTIMATED BOTTOM OF CONSTRUCTION CASING ELEVATION (FT-NAVD 88)	ROCK EXCAVATION PER SHAFT (FT-NAVD 88)	ESTIMATED TIP ELEVATION (FT-NAVD 88)
PIER 1	710.0	11.0	699.0
PIER 2	716.0	15.0	701.0

ESTIMATED BOTTOM OF CASING ELEVATION CORRESPONDS TO TOP OF ROCK ELEVATIONS.

EITHER THE WET METHOD OR THE DRY METHOD OF DRILLED SHAFT CONSTRUCTION IS ALLOWED. IF THE WET METHOD OF CONSTRUCTION IS SELECTED, POTABLE WATER OR MINERAL SLURRY IS ALLOWED DURING EXCAVATION OF THE SHAFTS. POLYMER SLURRY IS NOT ALLOWED. IF A MINERAL SLURRY IS USED, THE TOLERANCES FOR TESTING (INCLUDING TIME INTERVALS) AND MAINTAINING THE MINERAL SLURRIES ARE INDICATED IN THE SCDOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, SECTION 712. REFERENCE THE SPECIAL PROVISIONS REGARDING HANDLING AND DISPOSAL OF POTENTIAL HAZARDOUS MATERIALS DURING DRILLED SHAFT CONSTRUCTION.

DURING DRILLED SHAFT CONSTRUCTION, THE BOTTOM ELEVATION OF THE SHAFT MAY VARY, AND ROCK MAY BE ENCOUNTERED AT A DIFFERENT ELEVATION THAN SHOWN ON THE PLANS. IF ROCK IS ENCOUNTERED AT AN ELEVATION LESS THAN 2 FEET HIGHER THAN THAT SHOWN, EXTEND THE SOCKET TO THE TIP ELEVATION INDICATED ON THE PLANS. IF ROCK IS ENCOUNTERED AT AN ELEVATION LESS THAN 2 FEET LOWER THAN THAT SHOWN, LOWER THE TIP ELEVATION AS NEEDED TO MAINTAIN THE REQUIRED MINIMUM DEPTH OF ROCK PENETRATION. IF ROCK IS ENCOUNTERED AT AN ELEVATION MORE THAN 2 FEET HIGHER OR LOWER THAN THAT SHOWN, IMMEDIATELY NOTIFY THE GEOTECHNICAL ENGINEER OF RECORD.

PROVIDE EQUIPMENT CAPABLE OF DRILLING THROUGH ROCK AT THE SITE THAT MAY BE TWENTY-FIVE PERCENT (25%) GREATER THAN THE STRENGTH INDICATED IN THE TABLE BELOW.

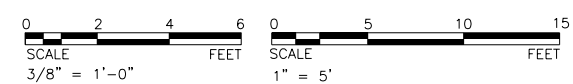
REFERENCE THE SCDOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION FOR DRILLED SHAFTS (SECTION 712) AND FOR CROSSHOLE SONIC LOGGING OF DRILLED SHAFTS (SECTION 727). NOTES INCLUDED IN THESE PLANS ARE IN ADDITION TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS.

TABLE 5. ROCK CORE COMPRESSION TESTING SUMMARY TABLE

BORING NO.	RECOVERY %	RQD %	CORE NUMBER	DEPTH1	COMPRESSIVE STRENGTH (FT)
B-1	88	75	NQ-2	70.2-70.5	9,230
B-2	85	73	NQ-1	16.9-17.2	14,150
	100	100	NQ-2	23.7-24.0	13,730
B-3	86	38	NQ-1	14.9-15.2	8,720
	58	28	NQ-3	23.2-23.5	12,850
	75	58	NQ-4	28.2-28.5	5,000
	85	70	NQ-5	30.7-31.0	9,780
B-4	93	57	NQ-6	38.0-38.3	13,430
	78	63	NQ-1	26.2-26.5	9,970
	93	78	NQ-2	32.1-32.4	12,510
B-5	100	77	NQ-4	42.8-43.1	7,070
	90	60	NQ-1	63.3-63.6	12,350

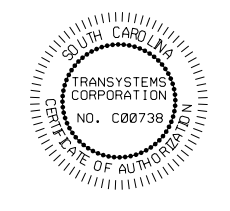
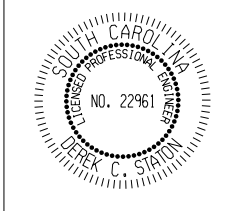
DEPTHS ARE REFERENCED FROM THE TOP OF THE INDICATED SOIL TEST BORING.

REFERENCE THE CONTRACT DOCUMENTS FOR HANDLING AND DISPOSAL OF SOIL, GROUNDWATER, AND DRILLING SLURRY COLLECTED DURING INTRUSIVE CONSTRUCTION ACTIVITIES OR OTHER CONSTRUCTION ACTIVITIES THAT REQUIRE REMOVAL OF SOIL, GROUNDWATER, OR DRILLING SLURRY.



OSP#: OPSC0290
 ENGINEERING DEPARTMENT
 MAINTENANCE OF WAY
 BRIDGE MAINTENANCE AND DESIGN

REVISIONS
 BRIDGE NO Z270.19 AT M.P. 270.19
 DRILLED SHAFT DETAILS
 SPARTANBURG SC
 DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE
 SCALE: 1"=5'-0" VAL. SEC. 655 DRAWING NO. S-21
 DATE: 5/24/2016
 DESIGN: M.B.M. DRAWN: D.W.H. CHK'D: A.L.C. 51 OF 139
 PROJECT NO. P301140022 FILE:



PIER 1								
MARK	US SIZE	NO. REQUIRED		BENDING DIMENSIONS				LENGTH
		STAGE 1	STAGE 2	A	B	C	D	
A2501	8	26		33'-9"				33'-9"
A2502	8	22		35'-10"				35'-10"
A2503	8		26	38'-0"				38'-0"
A2504	8		22	35'-6"				35'-6"
A2505	8	78		32'-6"				32'-6"
A2506	8		78	36'-8"				36'-8"
A3201	10	118	154	26'-3"				26'-3"
C1901	6	18	18	3'-2"	3'-2"			6'-4"
DB1901	6	1092	1443	6'-3"	0'-11"	1'-0"		8'-2"
J1901	6	32	32	8'-4"	4'-0"			16'-4"
J1902	6	9	9	7'-4"	4'-0"			15'-4"
N1901	6	16	8	1'-2"	12'-6"	1'-2"		14'-10"
N2501	8	3	3	4'-6"	8'-4"	4'-6"		17'-4"
N2502	8	39	39	4'-6"	6'-2"	4'-6"		15'-2"
N2503	8	3	3	4'-6"	8'-1"	4'-6"		17'-1"
N3201	10	110	146	2'-4"	24'-0"	2'-4"		28'-8"
S1901	6	28	39	8'-8"	3'-8"	0'-11"		26'-6"
S1902	6	18	23	8'-6"	3'-6"	0'-11"		25'-10"
S1903	6	1	1	8'-6"	8'-6"	0'-11"		35'-10"
S1904	6	2	2	7'-6"	8'-6"	0'-11"		33'-10"
SD1901	6	14	14	8'-6"	3'-6"	0'-10"		17'-2"

PIER 2								
MARK	US SIZE	NO. REQUIRED		BENDING DIMENSIONS				LENGTH
		STAGE 1	STAGE 2	A	B	C	D	
A2501	8	26		33'-9"				33'-9"
A2502	8	22		35'-10"				35'-10"
A2503	8		26	38'-0"				38'-0"
A2504	8		22	35'-6"				35'-6"
A2505	8	86		32'-6"				32'-6"
A2506	8		86	36'-8"				36'-8"
A3201	10	118	154	28'-3"				28'-3"
C1901	6	18	18	3'-2"	3'-2"			6'-4"
DB1901	6	1204	1591	6'-3"	0'-11"	1'-0"		8'-2"
J1901	6	32	32	8'-4"	4'-0"			16'-4"
J1902	6	9	9	7'-4"	4'-0"			15'-4"
N1901	6	16	8	1'-2"	12'-6"	1'-2"		14'-10"
N2501	8	3	3	4'-6"	8'-4"	4'-6"		17'-4"
N2502	8	43	43	4'-6"	6'-2"	4'-6"		15'-2"
N2503	8	3	3	4'-6"	8'-1"	4'-6"		17'-1"
N3201	10	110	146	2'-4"	26'-0"	2'-4"		30'-8"
S1901	6	28	39	8'-8"	3'-8"	0'-11"		26'-6"
S1902	6	18	23	8'-6"	3'-6"	0'-11"		25'-10"
S1903	6	1	1	8'-6"	8'-6"	0'-11"		35'-10"
S1904	6	2	2	7'-6"	8'-6"	0'-11"		33'-10"
SD1901	6	14	14	8'-6"	3'-6"	0'-10"		17'-2"

PIER 1 - DRILLED SHAFTS								
MARK	US SIZE	NO. REQUIRED		BENDING DIMENSIONS				LENGTH
		STAGE 1	STAGE 2	A	B	C	D	
A3202	10	40	40	19'-6"				19'-6"
B3201	10	52	52	29'-2"	4'-0"			33'-2"
C3201	10	52	52	29'-2"	2'-6"			31'-8"
TA2201	7	156	156	6'-4"				19'-11"
TA2202	7	40	40	4'-10"				15'-2"

PIER 2 - DRILLED SHAFTS								
MARK	US SIZE	NO. REQUIRED		BENDING DIMENSIONS				LENGTH
		STAGE 1	STAGE 2	A	B	C	D	
A3202	10	40	40	19'-6"				19'-6"
B3202	10	52	52	25'-11"	4'-0"			29'-11"
C3202	10	52	52	25'-11"	2'-6"			28'-5"
TA2201	7	144	144	6'-4"				19'-11"
TA2202	7	40	40	4'-10"				15'-2"

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IF THIS DRAWING IS LESS THAN 22" X 34" IT IS A REDUCED SIZE DRAWING

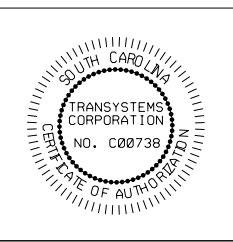
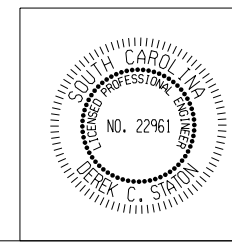
OSP#: OPSC0290



ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

REVISIONS

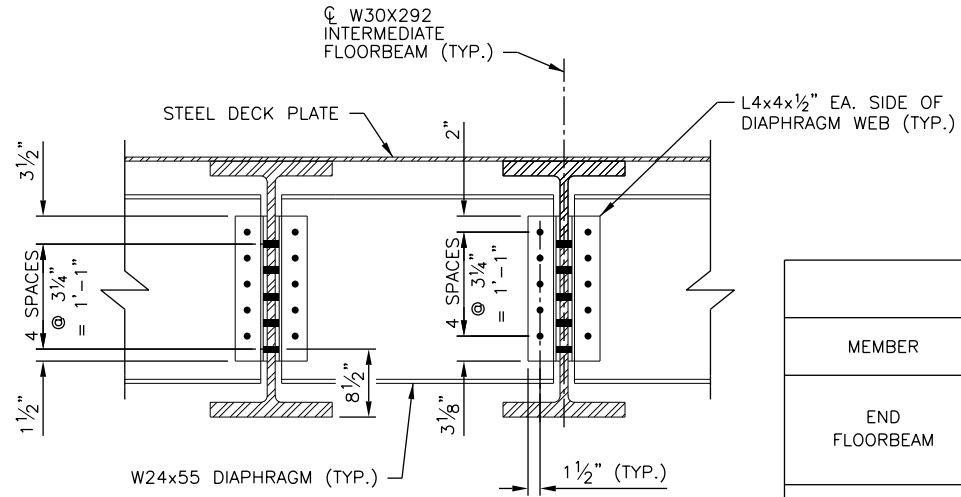
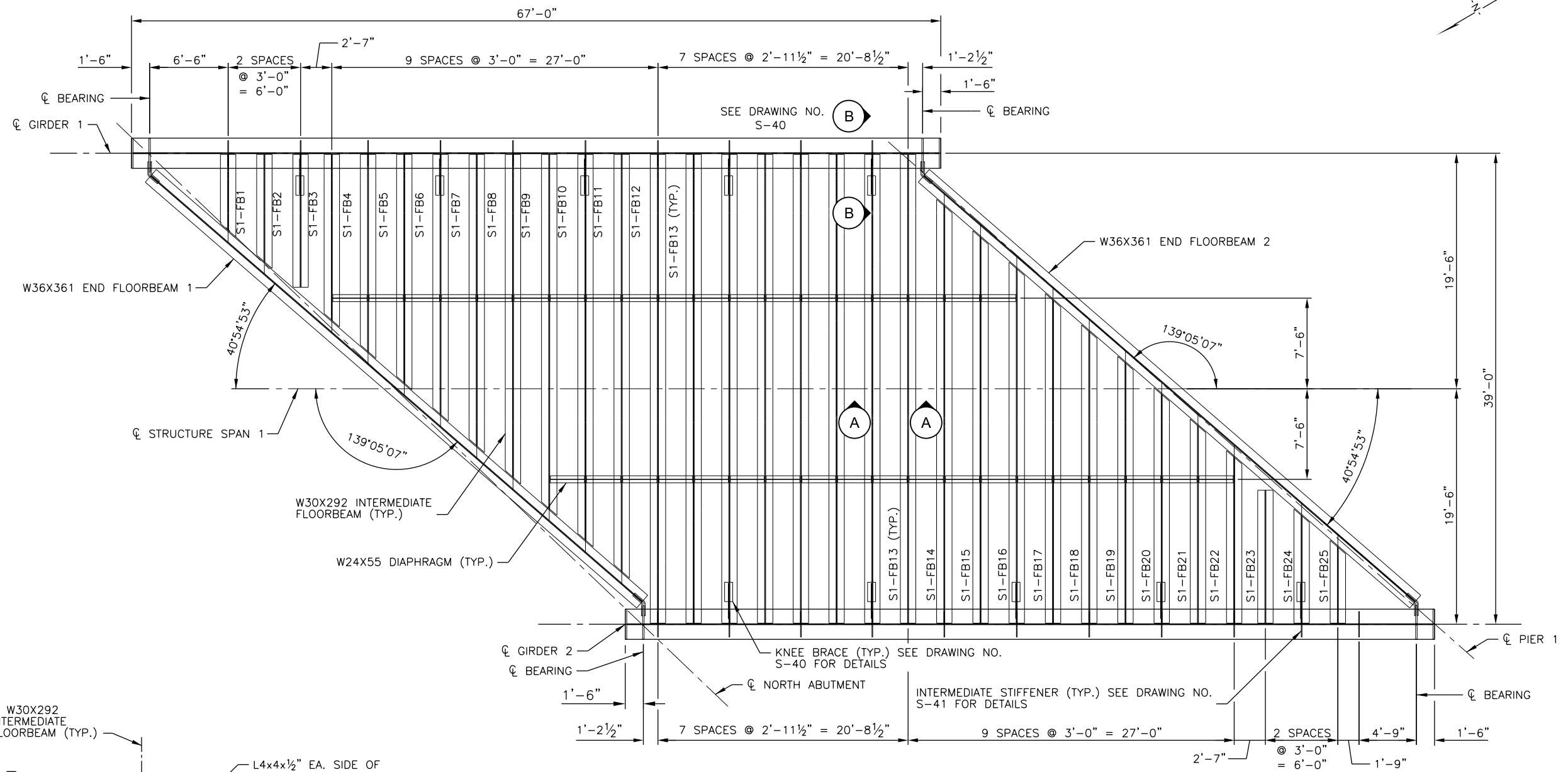
BRIDGE NO Z270.19 AT M.P. 270.19 REINFORCING SCHEDULE (2 OF 2)	
SPARTANBURG	SC
DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
SCALE: 1" = 1'-0" DATE: 5/24/2016 DESIGN: M.B.M DRAWN: D.W.H. CHK'D: A.L.C.	VAL. SEC. 655 SC
	DRAWING NO. S-23 53 OF 139



PROJECT NO. P301140022

FILE:

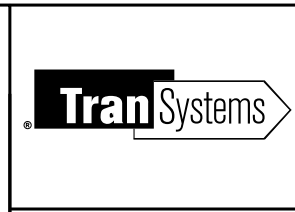
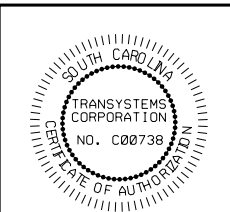
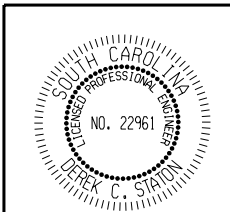
- NOTE:
 1. SKEW ANGLE BETWEEN
 CL NORTH ABUTMENT AND
 CL STRUCTURE = 43° 39' 14"
 2. SKEW ANGLE BETWEEN
 CL PIER 1 AND CL STRUCTURE =
 43° 39' 14".



TYPICAL DIAPHRAGM CONNECTION DETAIL
 SECTION A-A
 SCALE: 1" = 1'

TABLE OF MEMBERS AND LOADING			
MEMBER	MOMENT (KIP-FT)	SHEAR (KIPS)	SECTION
END FLOORBEAM	DL = 167.9	DL = 54.0	W36x361
	LL = 886.4	LL = 301.5	
	I = 489.3	I = 166.5	
	TOTAL 1543.6	TOTAL 522.0	
INTERMEDIATE FLOORBEAM	DL = 227.0	DL = 23.3	W30x292
	LL = 828.0	LL = 69.0	
	I = 294.1	I = 24.9	
	TOTAL 1349.1	TOTAL 117.2	
GIRDER	DL = 3882.0	DL = 242.6	SEE DRAWING NO. S-26 FOR GIRDER ELEVATION
	LL = 6549.7	LL = 461.5	
	I = 2056.3	I = 144.9	
	TOTAL 12488.0	TOTAL 849.0	

FRAMING PLAN SPAN 1
 SCALE: 1" = 5'



OSP#: OPSC0290

CSX How tomorrow moves

ENGINEERING DEPARTMENT
 MAINTENANCE OF WAY
 BRIDGE MAINTENANCE AND DESIGN

BRIDGE NO Z270.19 AT M.P. 270.19
 FRAMING PLAN SPAN 1

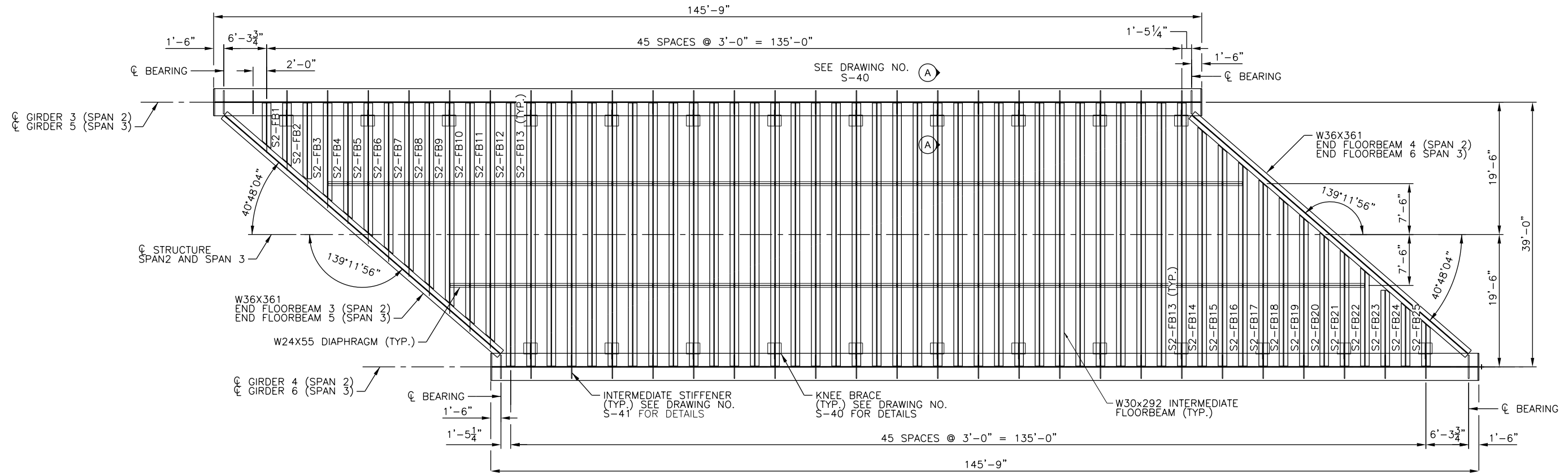
SPARTANBURG SC
 DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE

SCALE: 1"=5'-0"
 DATE: 5/24/2016
 DESIGN: KWW
 DRAWN: JDA
 CHK'D: EWN

VAL. SEC. 655 SC
 DRAWING NO. S-24
 54 OF 139

PROJECT NO. P301140022 FILE:

- NOTE:
 1. MINIMUM SKEW ANGLE BETWEEN ϕ PIER 1 AND ϕ STRUCTURE = 43° 39' 14"
 2. MINIMUM SKEW ANGLE BETWEEN ϕ PIER 2 AND ϕ STRUCTURE = 43° 39' 14"
 3. MINIMUM SKEW ANGLE BETWEEN ϕ SOUTH ABUTMENT AND ϕ STRUCTURE = 43° 39' 14"



FRAMING PLAN SPAN 2 AND SPAN 3
SCALE 1/8" = 1'

TABLE OF MEMBERS AND LOADING			
MEMBER	MOMENT (KIP-FT)	SHEAR (KIPS)	SECTION
END FLOORBEAM	DL = 183.8	DL = 51.4	W36x361
	LL = 987.3	LL = 295.0	
	I = 544.2	I = 162.6	
	TOTAL 1715.3	TOTAL 509.0	
INTERMEDIATE FLOORBEAM	DL = 227.0	DL = 23.3	W30x292
	LL = 828.0	LL = 69.0	
	I = 294.1	I = 24.9	
	TOTAL 1349.1	TOTAL 117.2	
GIRDER	DL = 21601.1	DL = 604.2	SEE DRAWING NO. S-27 AND S-28 FOR GIRDER ELEVATION
	LL = 29016.6	LL = 898.3	
	I = 6234.6	I = 193.0	
	TOTAL 56852.3	TOTAL 1695.5	



OSP#: OPSC0290



ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

REVISIONS

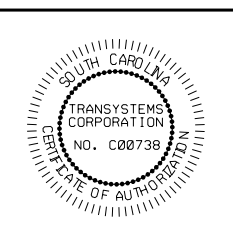
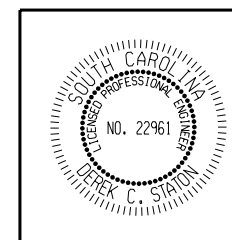
BRIDGE NO Z270.19 AT M.P. 270.19
FRAMING PLAN
SPAN 2 AND SPAN 3

SPARTANBURG SC

DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE

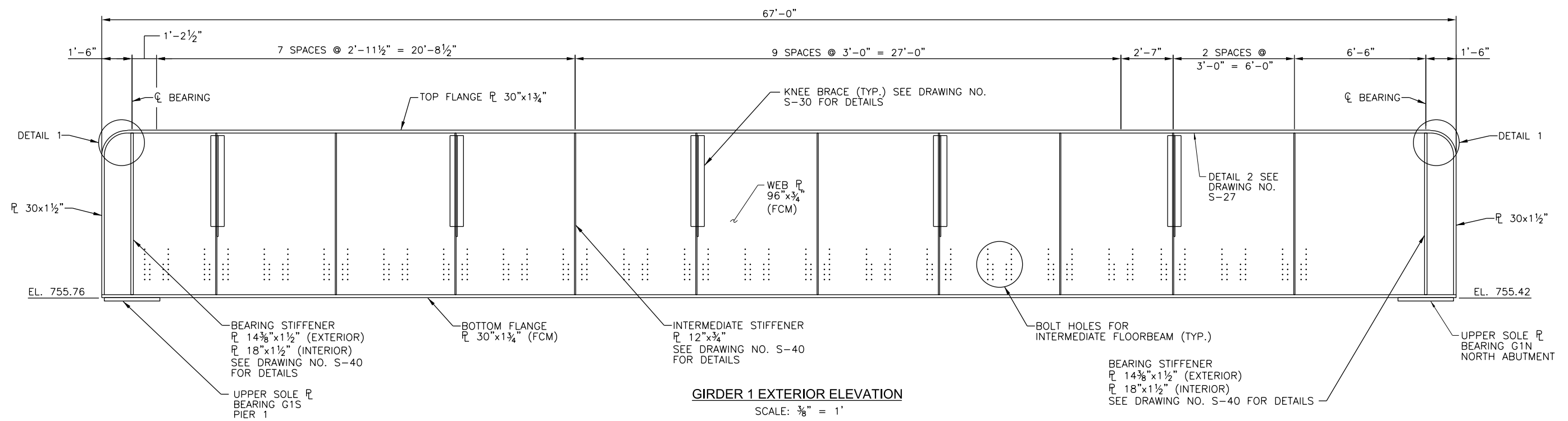
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DATE: 5/24/2016
DESIGN:KWW
DRAWN:JDA
CHK'D: EWN

VAL. SEC. 655 SC
DRAWING NO. S-25
55 OF 139

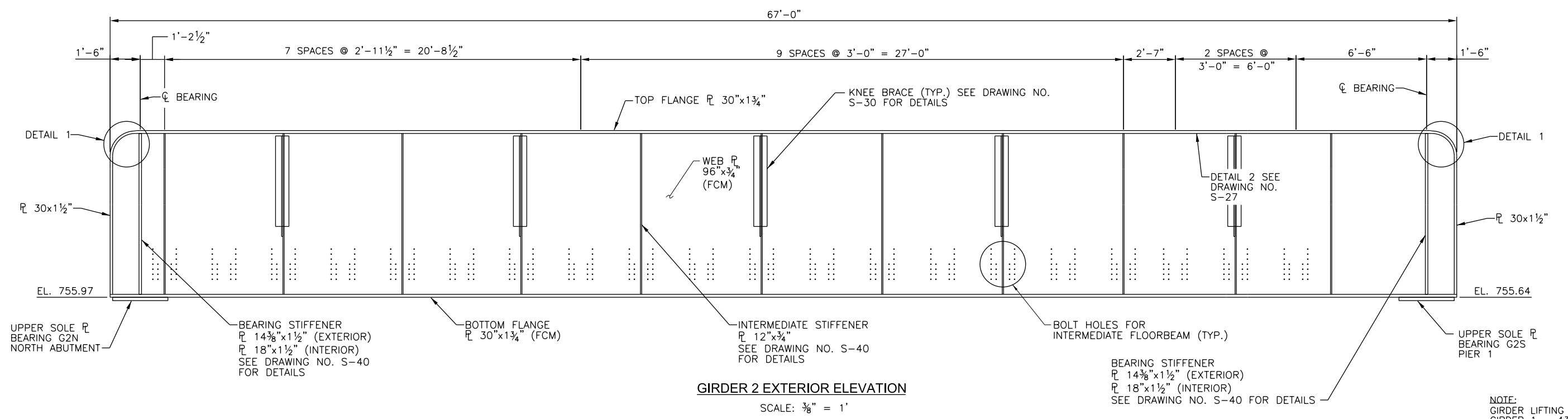


PROJECT NO. P301140022

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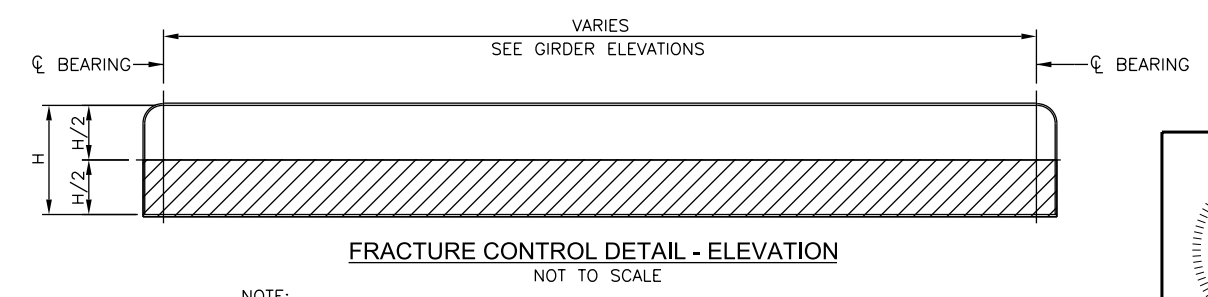
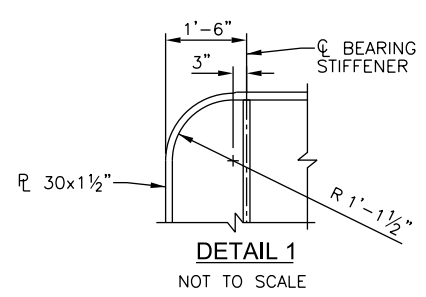


GIRDER 1 EXTERIOR ELEVATION
SCALE: 3/8" = 1'

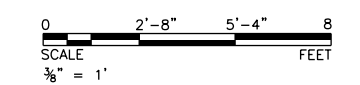


GIRDER 2 EXTERIOR ELEVATION
SCALE: 3/8" = 1'

NOTE:
GIRDER LIFTING WEIGHT:
GIRDER 1 = 43,200 LBS
GIRDER 2 = 43,600 LBS



NOTE:
HATCHED AREA INDICATES ELEMENTS OF GIRDER SUBJECT TO THE REQUIREMENTS OF THE FRACTURE CONTROL PLAN AS SPECIFIED IN AREMA CHAP. 15, SECTION 1.14 FOR ZONE 2.

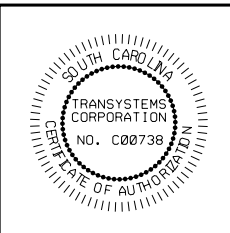
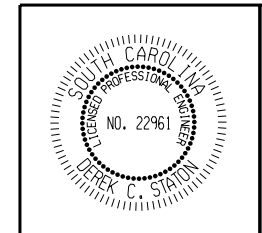


OSP#: OPSC0290



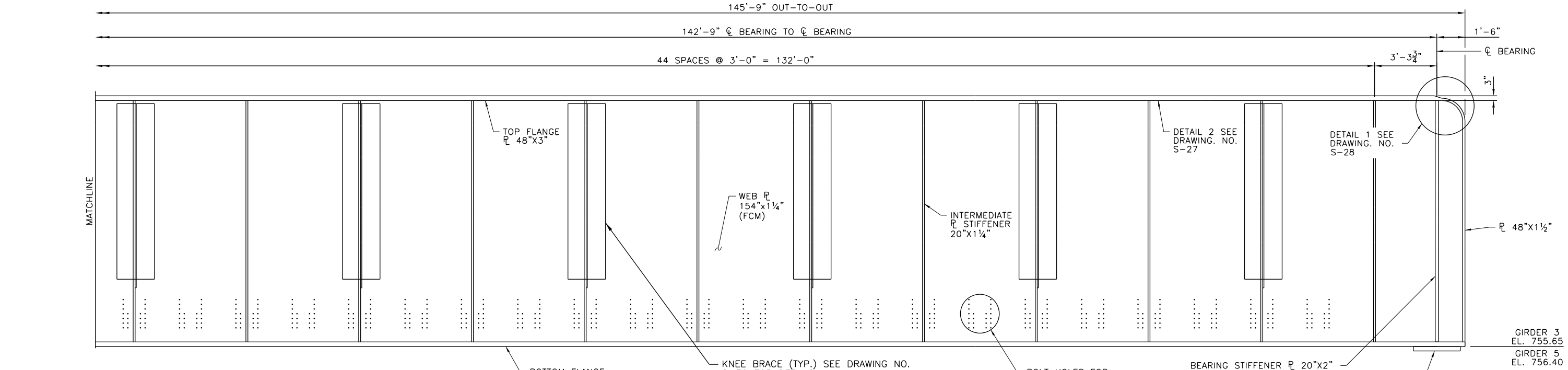
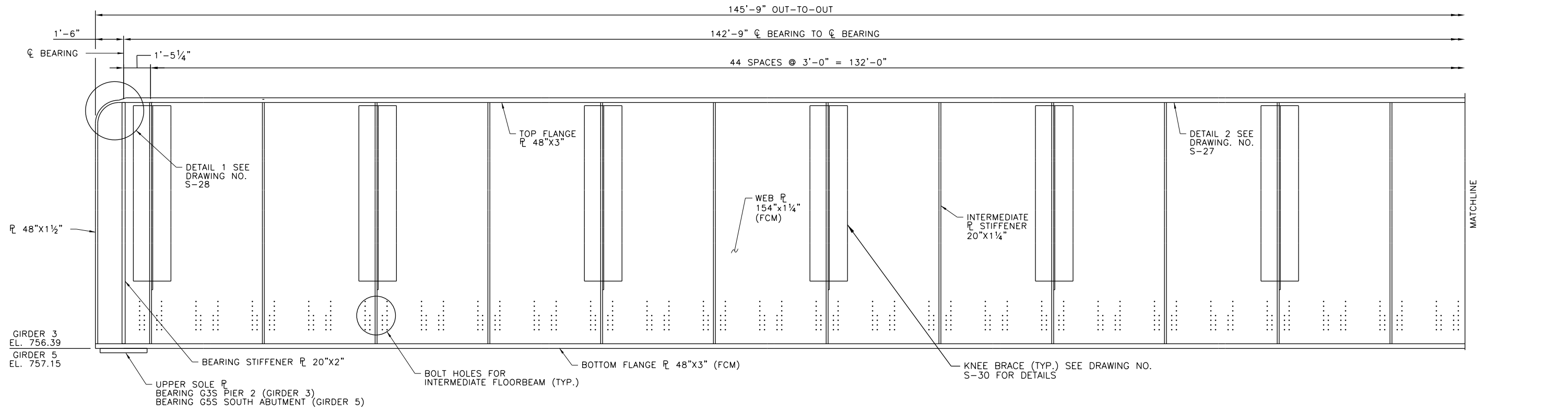
ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

BRIDGE NO Z270.19 AT M.P. 270.19	
GIRDER 1 & 2 ELEVATION	
SPARTANBURG	SC
DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
SCALE: 3/8" = 1'	VAL. SEC. 655 SC
DATE: 5/24/2016	DRAWING NO. S-26
DESIGN: KWW	56 OF 139
DRAWN: JDA	
CHK'D: EWN	



PROJECT NO. P301140022

FILE:



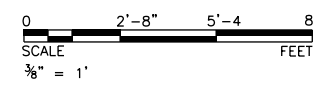
WELDED SHOP SPLICES

STEEL FABRICATOR MAY PROVIDE OPTIONAL COMPLETE PENETRATION DOUBLE V-GROOVE WELD, SHOP SPLICES IN ACCORDANCE WITH THE FOLLOWING:

- 1) FLANGE WELDED SHOP SPLICES SHALL NOT BE LOCATED WITHIN 5'-0" OF WEB WELDED SHOP SPLICES. ADDITIONALLY, THE FLANGE AND WEB SHOP SPLICES SHALL NOT BE LOCATED IN THE SAME PANEL BETWEEN ADJACENT INTERMEDIATE STIFFENERS.
- 2) SPLICES SHALL BE LOCATED 0'-9" MIN. CLEAR FROM ALL BOLTED AND WELDED ATTACHMENTS TO THE GIRDERS.
- 3) SPLICES SHALL BE LOCATED A MINIMUM OF 20'-0" FROM MIDSPAN OF THE GIRDER.
- 4) SPLICES SHALL BE LOCATED A MINIMUM OF 20'-0" FROM END OF THE GIRDER.
- 5) PLATES FOR WEBS SHALL BE PROVIDED IN MAXIMUM LENGTHS AS PRACTICAL TO MINIMIZE THE NUMBER OF SPLICES REQUIRED.

GIRDER 3 & 5 EXTERIOR ELEVATION

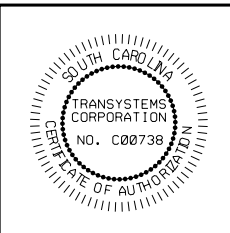
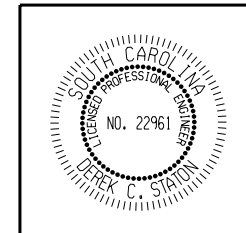
SCALE: 3/8" = 1'



OSP#: OPSC0290

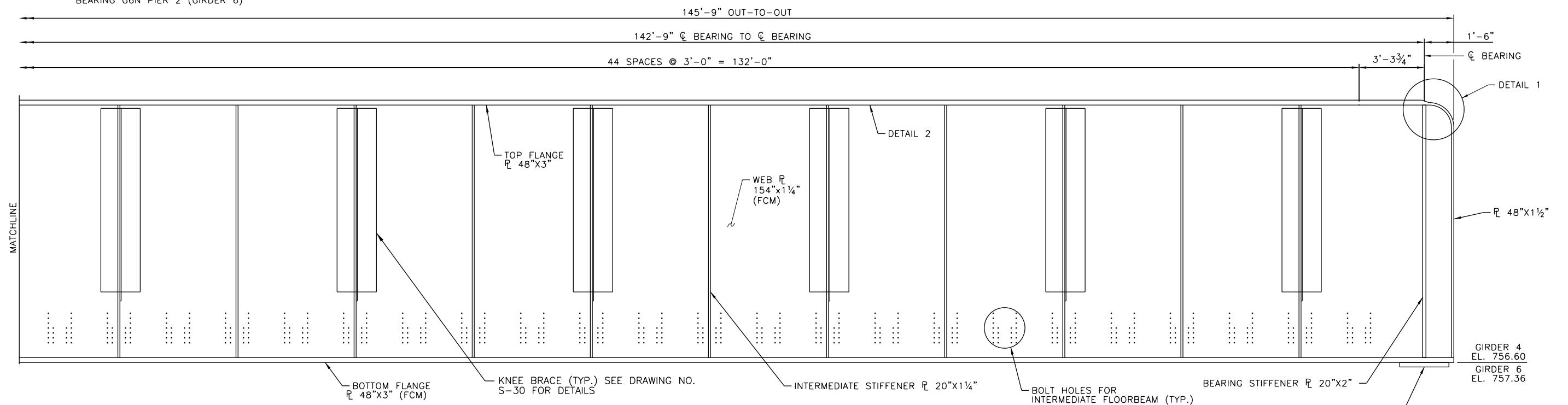
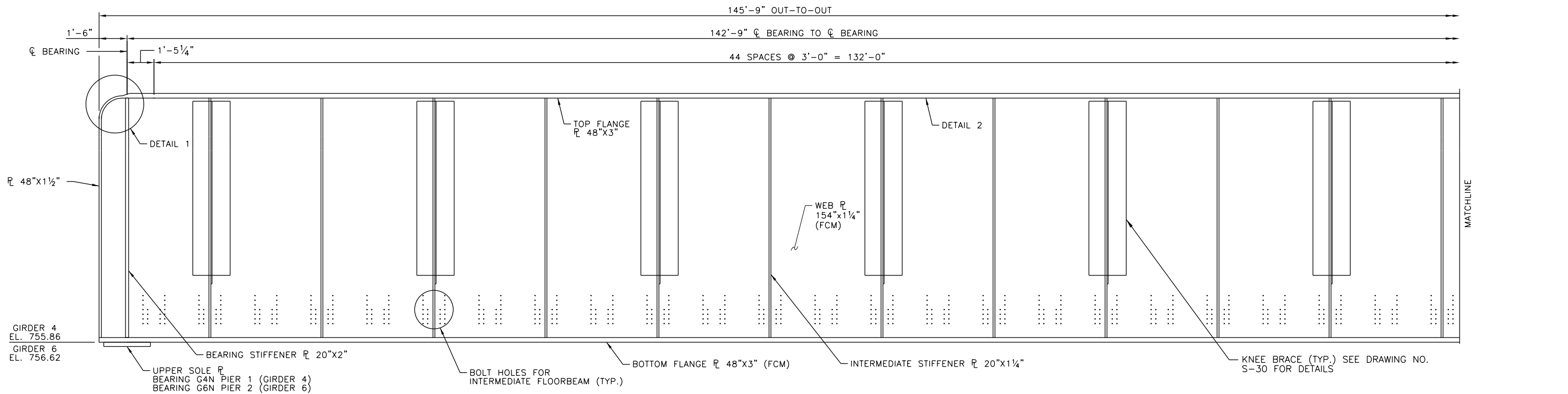


ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN



BRIDGE NO Z270.19 AT M.P. 270.19	
GIRDER 3 & 5 ELEVATION	
SPARTANBURG	SC
DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
SCALE: 3/8" = 1'	VAL. SEC. 655 SC
DATE: 5/24/2016	DRAWING NO. S-27
DESIGN: KWW	57 OF 139
DRAWN: JDA	
CHK'D: EWN	

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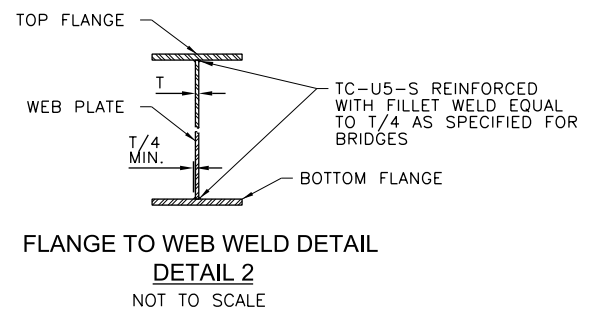
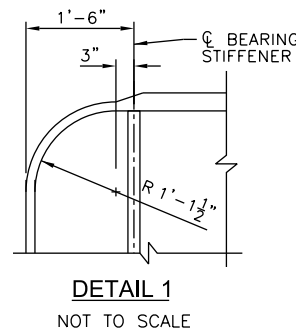
GIRDER 4 & 6 EXTERIOR ELEVATION

SCALE: 3/8" = 1'

WELDED SHOP SPLICES

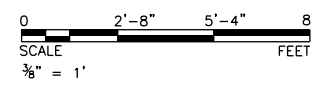
STEEL FABRICATOR MAY PROVIDE OPTIONAL COMPLETE PENETRATION DOUBLE V-GROOVE WELD, SHOP SPLICES IN ACCORDANCE WITH THE FOLLOWING:

- 1) FLANGE WELDED SHOP SPLICES SHALL NOT BE LOCATED WITHIN 5'-0" OF WEB WELDED SHOP SPLICES. ADDITIONALLY, THE FLANGE AND WEB SHOP SPLICES SHALL NOT BE LOCATED IN THE SAME PANEL BETWEEN ADJACENT INTERMEDIATE STIFFENERS.
- 2) SPLICES SHALL BE LOCATED 0'-9" MIN. CLEAR FROM ALL BOLTED AND WELDED ATTACHMENTS TO THE GIRDERS.
- 3) SPLICES SHALL BE LOCATED A MINIMUM OF 20'-0" FROM MIDSPAN OF THE GIRDER.
- 4) SPLICES SHALL BE LOCATED A MINIMUM OF 20'-0" FROM END OF GIRDER.
- 5) PLATES FOR WEBS SHALL BE PROVIDED IN MAXIMUM LENGTHS AS PRACTICAL TO MINIMIZE THE NUMBER OF SPLICES REQUIRED.



UPPER SOLE PLATE BEARING G4S PIER 2 (GIRDER 4) BEARING G6S SOUTH ABUTMENT (GIRDER 6)

NOTE: GIRDER LIFTING WEIGHT: GIRDER 4 = 326,800 LBS GIRDER 6 = 326,800 LBS



OSP#: OPSC0290

CSX How tomorrow moves

ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

BRIDGE NO Z270.19 AT M.P. 270.19

GIRDER 4 & 6 ELEVATION

SPARTANBURG SC

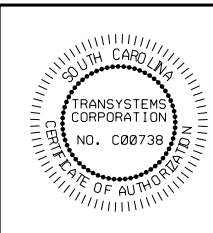
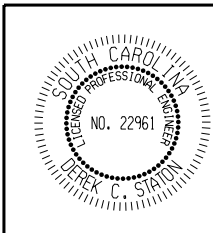
DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE

SCALE: 3/8" = 1' VAL. SEC. 655 SC DRAWING NO. S-28 58 OF 139

DATE: 5/24/2016 DESIGN: KWW DRAWN: JDA CHK'D: EWN

REVISIONS

PROJECT NO. P301140022 FILE:



DEAD LOAD DEFLECTION TABLE												
GIRDER 1 & 2	TENTH POINTS	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
	DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.010	0.019	0.026	0.031	0.032	0.031	0.026	0.019	0.010	0.000
	DEFLECTION DUE TO ADDITIONAL STRUCTURAL STEEL	0.000	0.026	0.048	0.066	0.078	0.081	0.078	0.066	0.048	0.026	0.000
	DEFLECTION DUE TO WEIGHT OF BALLAST AND TRACK	0.000	0.046	0.087	0.119	0.139	0.146	0.139	0.119	0.087	0.046	0.000
	TOTAL DEAD LOAD DEFLECTION	0.000	0.082	0.154	0.211	0.248	0.259	0.248	0.211	0.154	0.082	0.000
REQUIRED SHOP CAMBER	0	1/16	1/8	3/16	1/4	1/4	1/4	3/16	1/8	1/16	0	

DEAD LOAD DEFLECTION TABLE												
GIRDER 3, 4, 5&6	TENTH POINTS	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
	DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.086	0.163	0.223	0.261	0.328	0.261	0.223	0.163	0.086	0.000
	DEFLECTION DUE TO ADDITIONAL STRUCTURAL STEEL	0.000	0.108	0.205	0.280	0.328	0.345	0.328	0.280	0.205	0.108	0.000
	DEFLECTION DUE TO WEIGHT OF BALLAST AND TRACK	0.000	0.194	0.367	0.502	0.588	0.618	0.588	0.502	0.367	0.194	0.000
	TOTAL DEAD LOAD DEFLECTION	0.000	0.388	0.735	1.005	1.177	1.291	1.177	1.005	0.735	0.388	0.000
REQUIRED SHOP CAMBER	0	3/8	3/4	1	1 3/16	1 1/4	1 3/16	1	3/4	3/8	0	

DEAD LOAD TABLE			
	SPAN 1	SPAN 2	SPAN 3
ITEM	KIPS/FT	KIPS/FT	KIPS/FT
GIRDERS	1.634	3.288	3.288
ADDITIONAL STRUCTURAL STEEL	4.76	4.76	4.76
BALLAST AND TRACK	8.526	8.526	8.526
TOTAL	14.92	16.574	16.574

NOTES:

- CAMBERED GIRDER LENGTHS SHALL BE ADJUSTED AND BEARINGS ARE TO BE PLACED ON THE CAMBERED GIRDER SO AS TO BE ALIGNED WITH THE ANCHORS AFTER THE DEAD LOAD DEFLECTION HAS OCCURED. SHOP PLANS SHALL BE PREPARED ACCORDINGLY.
- VALUES ARE SHOWN IN INCHES (DECIMAL FORM). ALL VALUES ARE POSITIVE UNLESS OTHERWISE NOTED.
(+) CAMBER UPWARDS
(-) CAMBER DOWNWARDS
- A DETAILED CAMBER DIAGRAM AND BLOCKING COORDINATES SHALL BE INCLUDED WITH THE STRUCTURAL STEEL SHOP DRAWING SUBMITTAL.
- THE INFORMATION ON THIS SHEET IS FOR USE IN THE FABRICATION OF THE BEAMS. THE CAMBERS SHOWN ARE BASED ON EACH BEAM DEFLECTING INDEPENDANTLY.

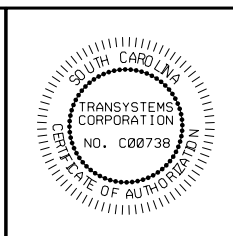
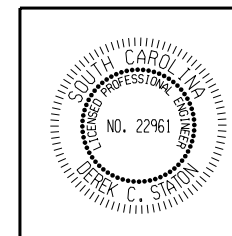
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ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

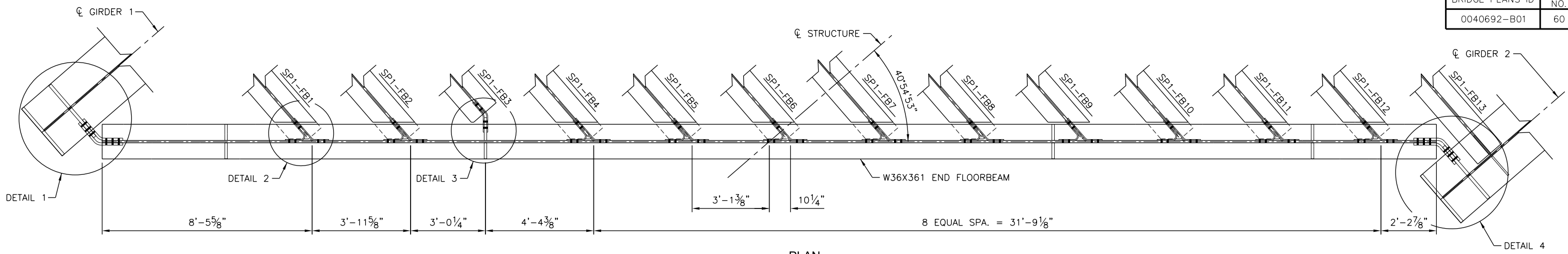
REVISIONS	
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BRIDGE NO Z270.19 AT M.P. 270.19	
CAMBER DIAGRAM	
SPARTANBURG	SC
DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
SCALE: NOT TO SCALE	VAL. SEC. 655
DATE: 5/24/2016	SC
DESIGN: KWW	DRAWING NO. S-29
DRAWN: KWW	59 OF 139
CHK'D: EWN	

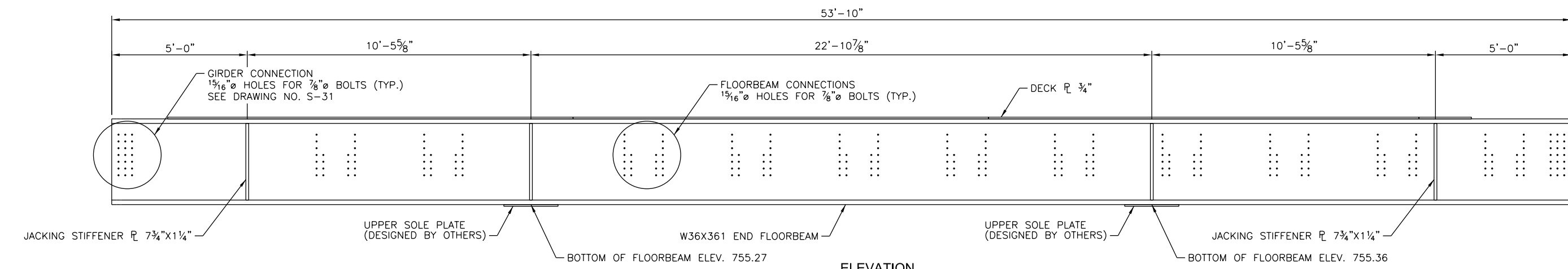


PROJECT NO. P301140022

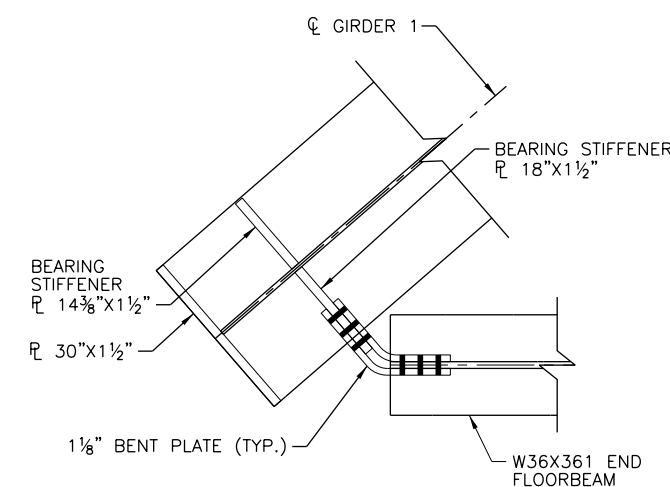
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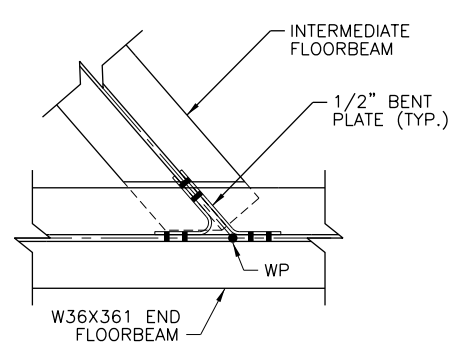
PLAN
SCALE: 1" = 2'



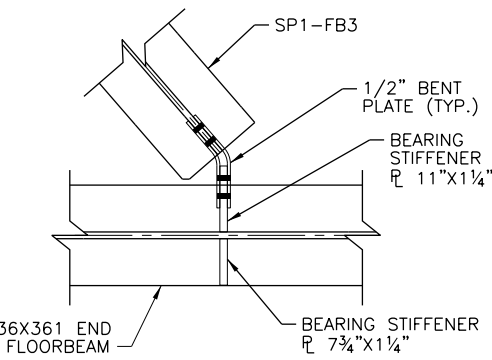
ELEVATION
SCALE: 1" = 2'



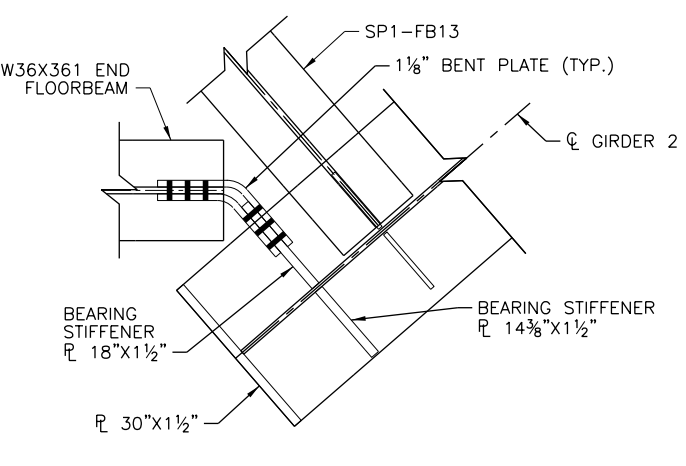
DETAIL 1
SCALE: 3/4" = 1'



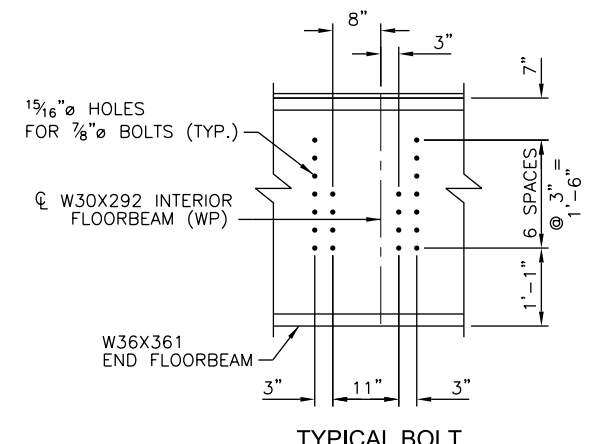
DETAIL 2
SCALE: 3/4" = 1'



DETAIL 3
SCALE: 3/4" = 1'

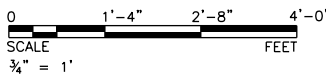
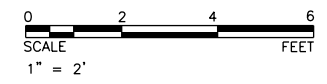


DETAIL 4
SCALE: 3/4" = 1'



TYPICAL BOLT HOLE DETAIL
SCALE: 3/4" = 1'

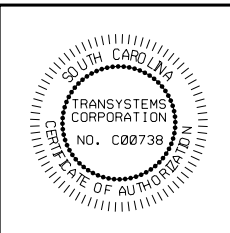
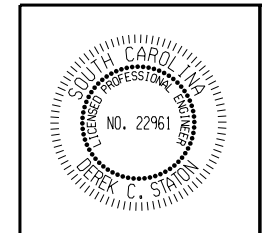
NOTE:
LIFTING WEIGHT = 21,250 LBS



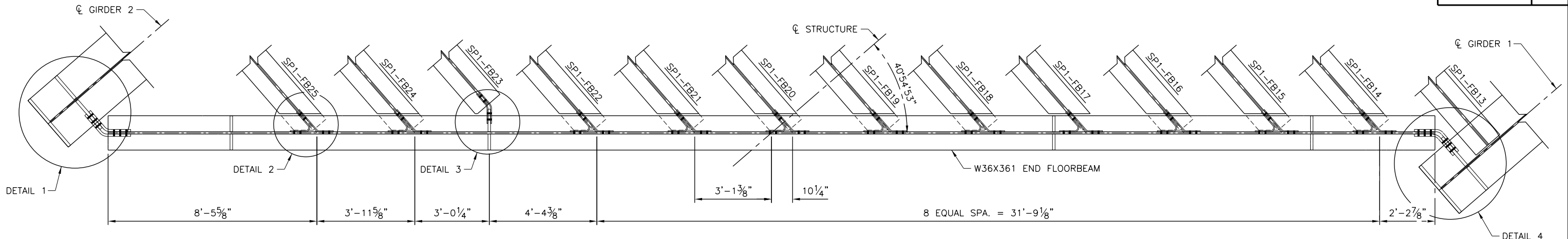
OSP#: OPSC0290



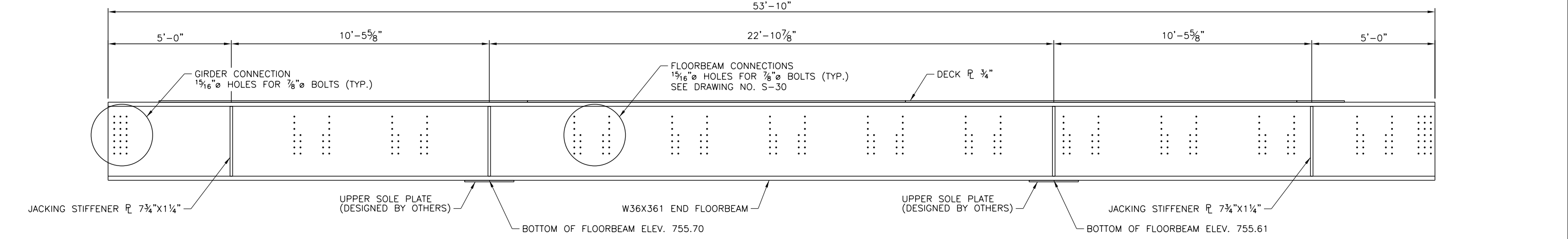
ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN



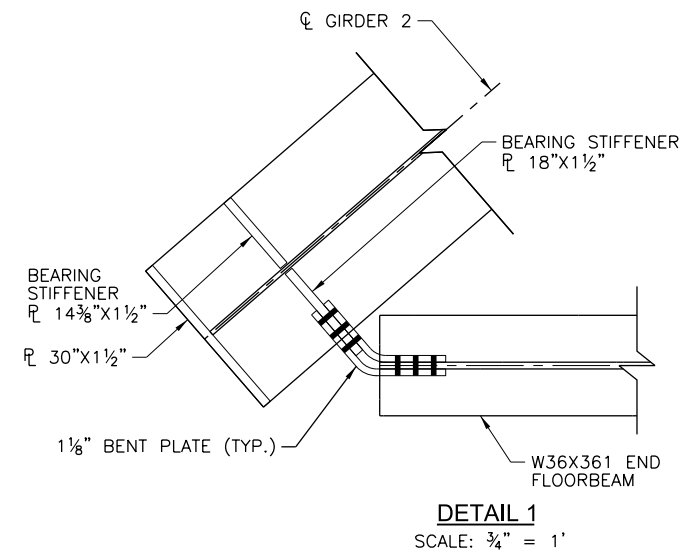
REVISIONS		BRIDGE NO Z270.19 AT M.P. 270.19	
		END FLOORBEAM 1	
		PLAN AND ELEVATION	
SPARTANBURG		SC	
DIVISION: HUNTINGTON		SUBDIVISION: BLUE RIDGE	
SCALE: 1"=2'-0"	VAL. SEC.	DRAWING NO.	
DATE: 5/24/2016	655	S-30	
DESIGN: KWW	SC	60 OF 139	
DRAWN: JDA			
CHK'D: EWN			



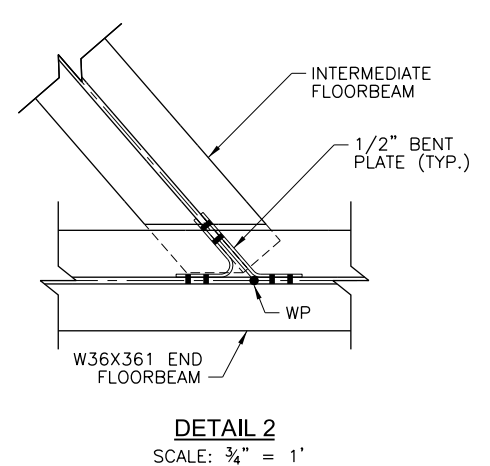
PLAN
SCALE: 1" = 2'



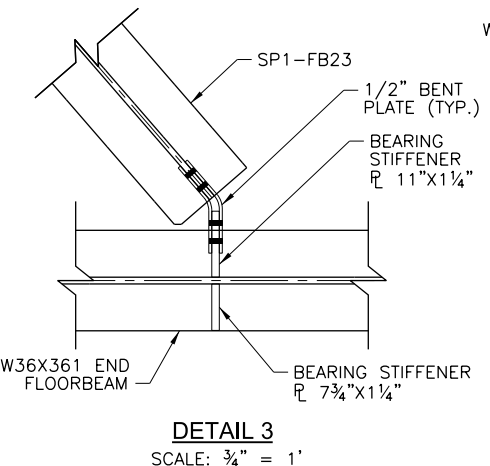
ELEVATION
SCALE: 1" = 2'



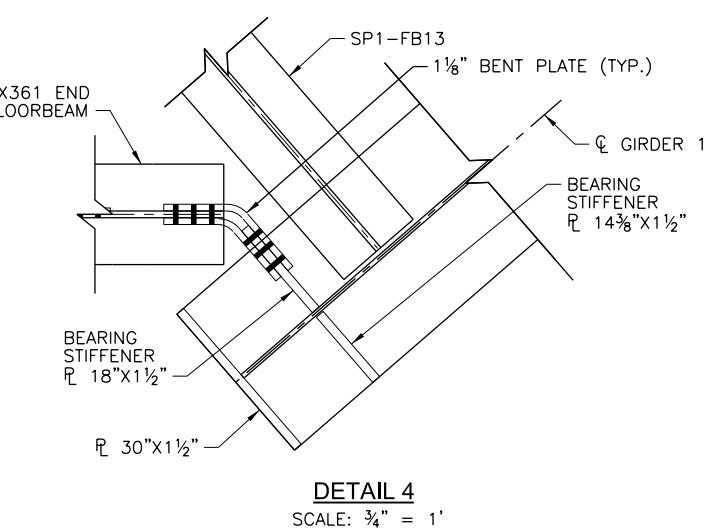
DETAIL 1
SCALE: 3/4" = 1'



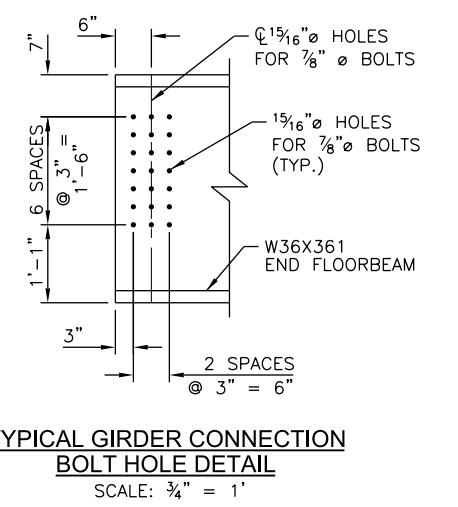
DETAIL 2
SCALE: 3/4" = 1'



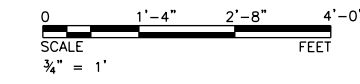
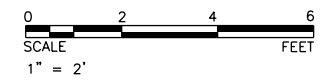
DETAIL 3
SCALE: 3/4" = 1'



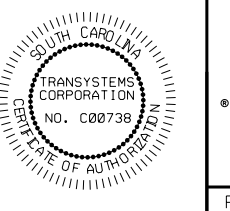
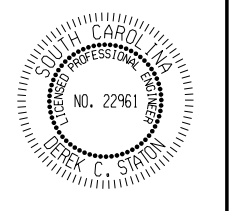
DETAIL 4
SCALE: 3/4" = 1'



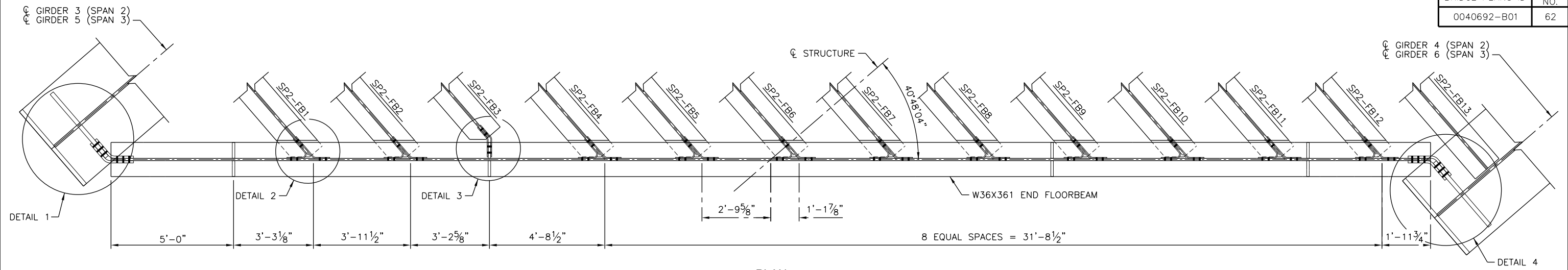
TYPICAL GIRDER CONNECTION BOLT HOLE DETAIL
SCALE: 3/4" = 1'



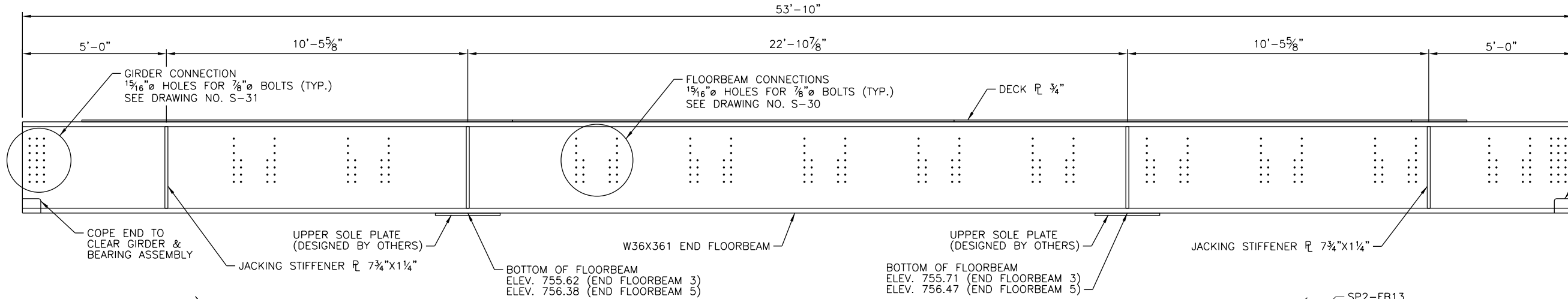
NOTE:
LIFTING WEIGHT = 21,250 LBS



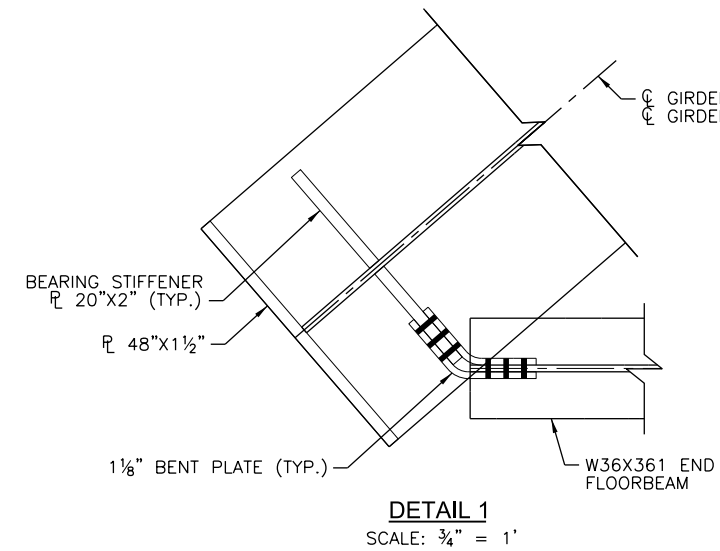
OSP#: OPSC0290					
ENGINEERING DEPARTMENT MAINTENANCE OF WAY BRIDGE MAINTENANCE AND DESIGN					
BRIDGE NO Z270.19 AT M.P. 270.19 END FLOORBEAM 2 PLAN AND ELEVATION					
SPARTANBURG	SC				
DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE				
SCALE: 1"=2'-0" DATE: 5/24/2016 DESIGN: KWW DRAWN: JDA CHK'D: EWN	<table border="1"> <tr> <td>VAL. SEC.</td> <td>DRAWING NO.</td> </tr> <tr> <td>655 SC</td> <td>S-31 61 OF 139</td> </tr> </table>	VAL. SEC.	DRAWING NO.	655 SC	S-31 61 OF 139
VAL. SEC.	DRAWING NO.				
655 SC	S-31 61 OF 139				
PROJECT NO. P301140022	FILE:				



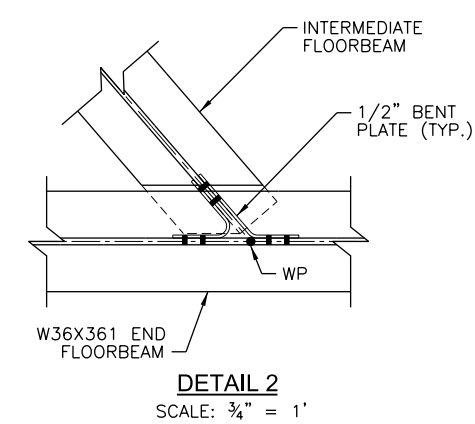
PLAN
SCALE: 1" = 2'



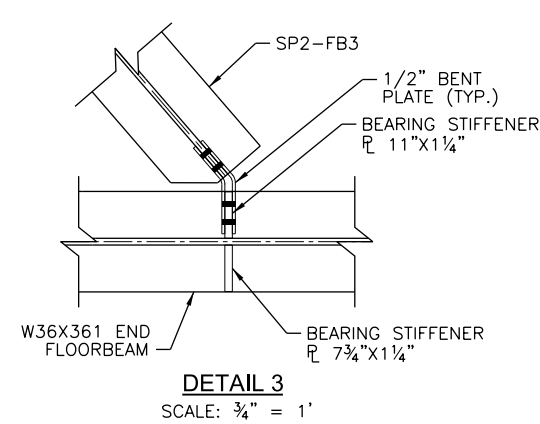
ELEVATION
SCALE: 1" = 2'



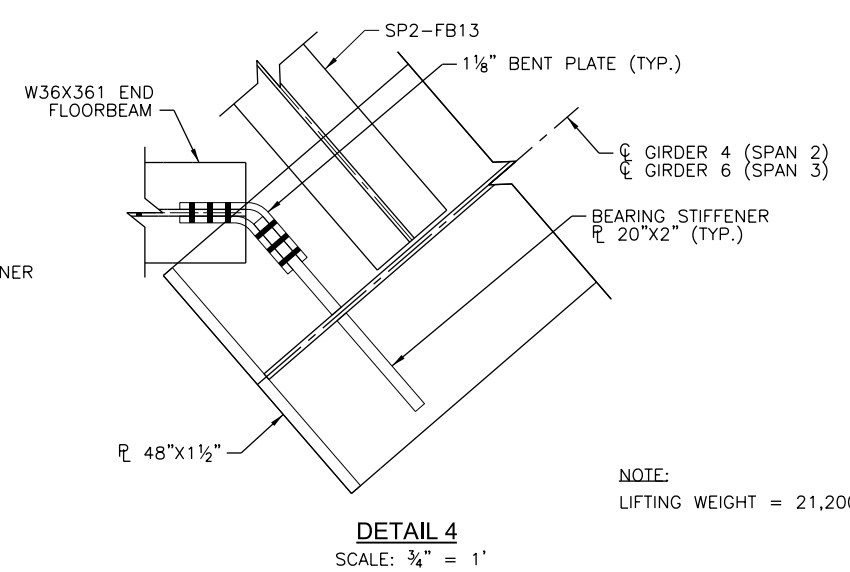
DETAIL 1
SCALE: 3/4" = 1'



DETAIL 2
SCALE: 3/4" = 1'

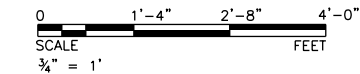
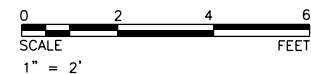


DETAIL 3
SCALE: 3/4" = 1'



DETAIL 4
SCALE: 3/4" = 1'

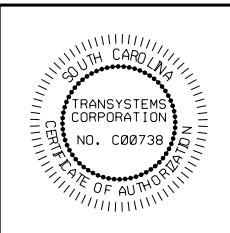
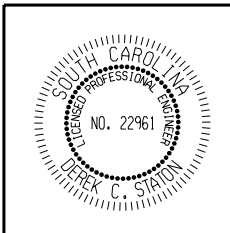
NOTE:
LIFTING WEIGHT = 21,200 LBS



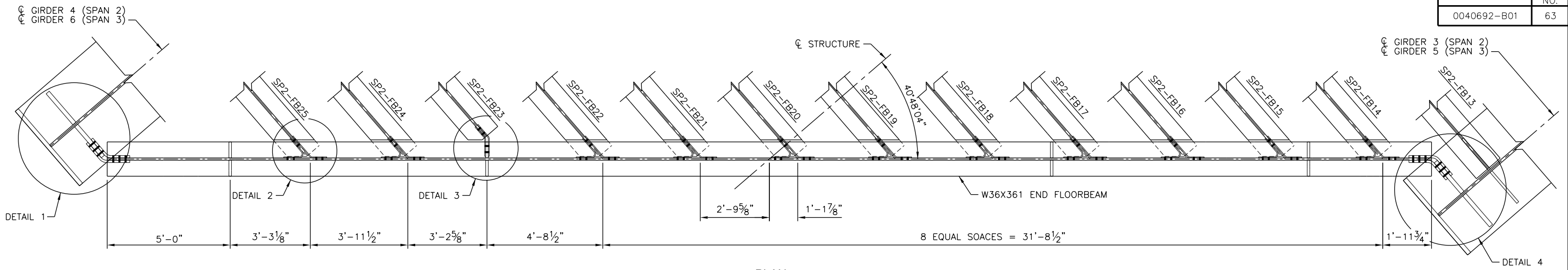
OSP#: OPSC0290



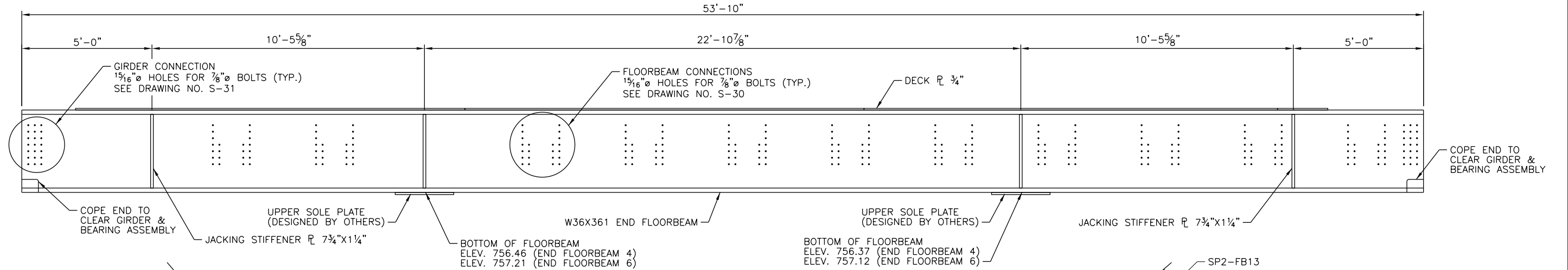
ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN



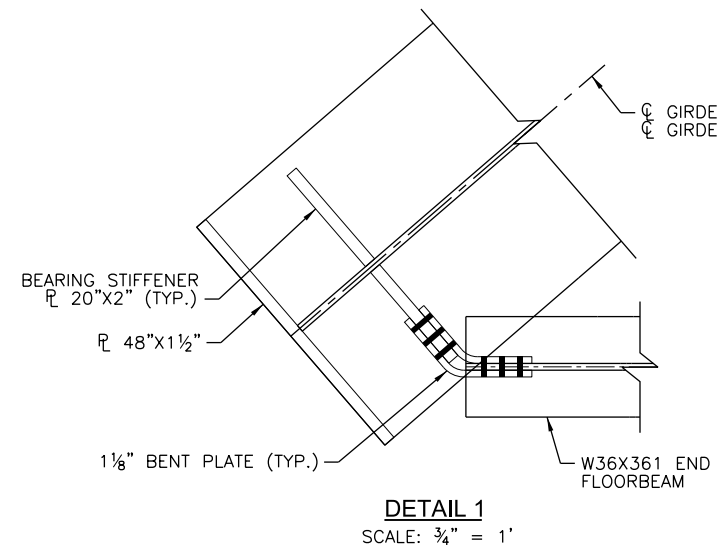
BRIDGE NO Z270.19 AT M.P. 270.19	
END FLOOR BEAMS 3 & 5	
PLAN AND ELEVATION	
SPARTANBURG	SC
DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
SCALE: 1"=2'-0"	VAL. SEC. 655
DATE: 5/24/2016	SC
DESIGN: KWW	DRAWING NO. S-32
DRAWN: JDA	62 OF 139
CHK'D: XXX	



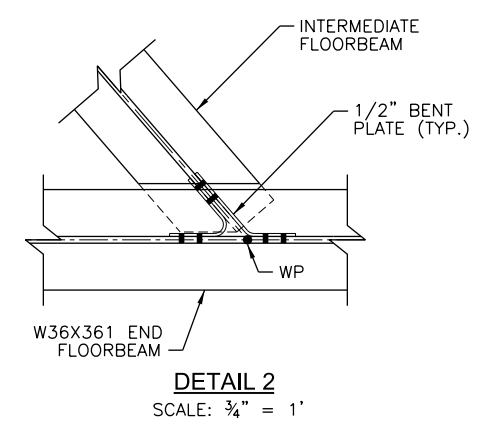
PLAN
SCALE: 1" = 2'



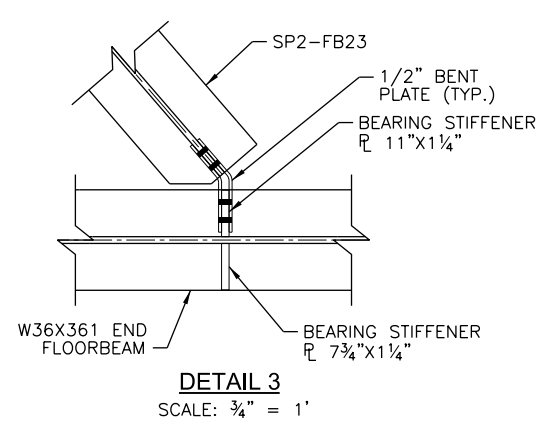
ELEVATION
SCALE: 1" = 2'



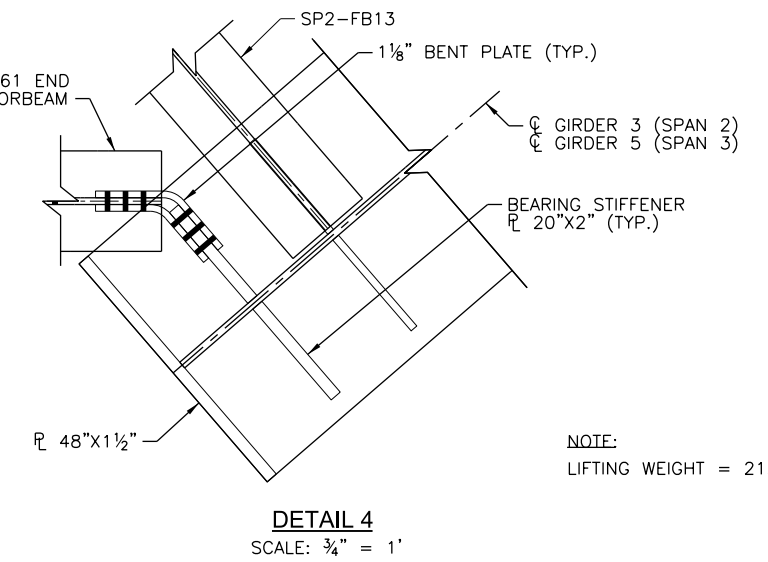
DETAIL 1
SCALE: 3/4" = 1'



DETAIL 2
SCALE: 3/4" = 1'

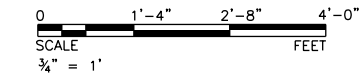
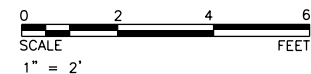


DETAIL 3
SCALE: 3/4" = 1'



DETAIL 4
SCALE: 3/4" = 1'

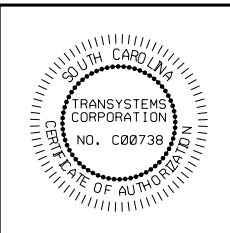
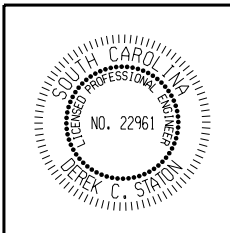
NOTE:
LIFTING WEIGHT = 21,200 LBS



OSP#: OPSC0290



ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

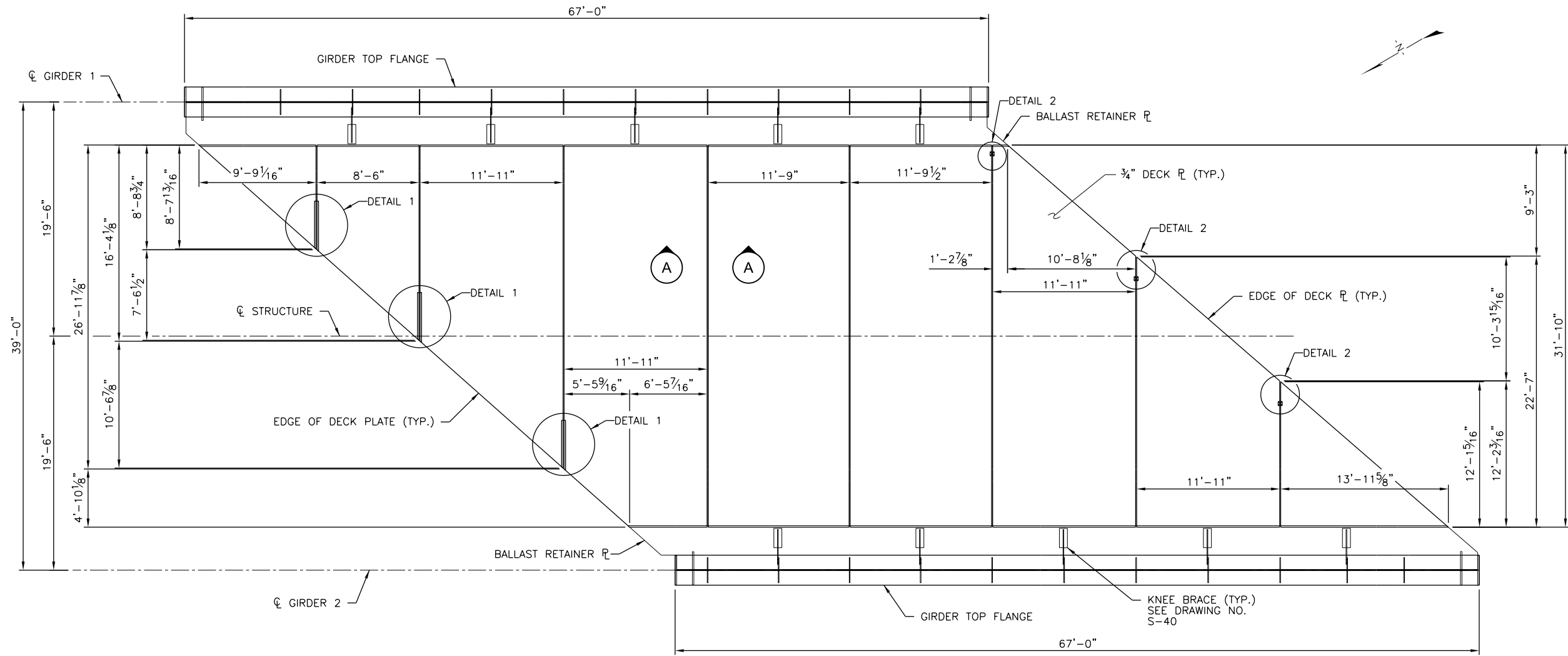


REVISIONS

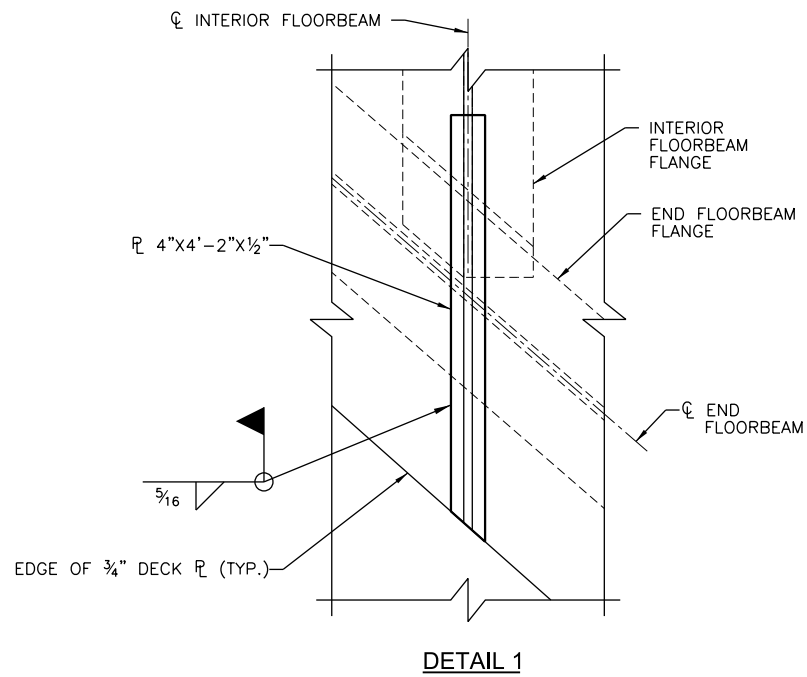
BRIDGE NO Z270.19 AT M.P. 270.19	
END FLOORBEAMS 4 & 6	
PLAN AND ELEVATION	
SPARTANBURG	SC
DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
SCALE: 1"=2'-0"	VAL. SEC. 655
DATE: 5/24/2016	SC
DESIGN: KWW	DRAWING NO. S-33
DRAWN: JDA	63 OF 139
CHK'D: EWN	

PROJECT NO. P301140022

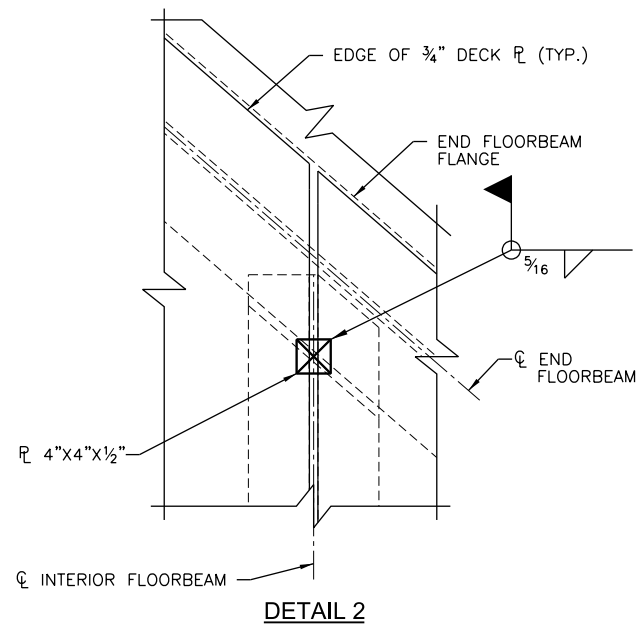
FILE:



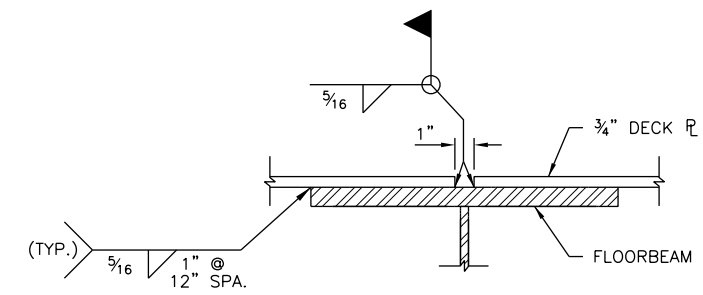
PLAN - SPAN 1



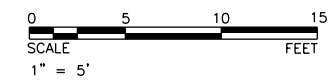
DETAIL 1



DETAIL 2



SECTION A-A



OSP#: OPSC0290



ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

REVISIONS

BRIDGE NO Z270.19 AT M.P. 270.19

DECK PLAN SPAN 1

SPARTANBURG SC

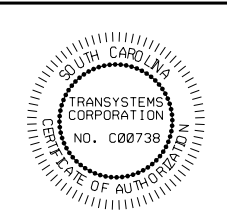
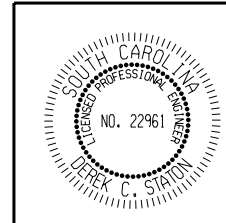
DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE

SCALE: 1"=5'-0" VAL. SEC. DRAWING NO.

DATE: 5/24/2016 655 SC S-34

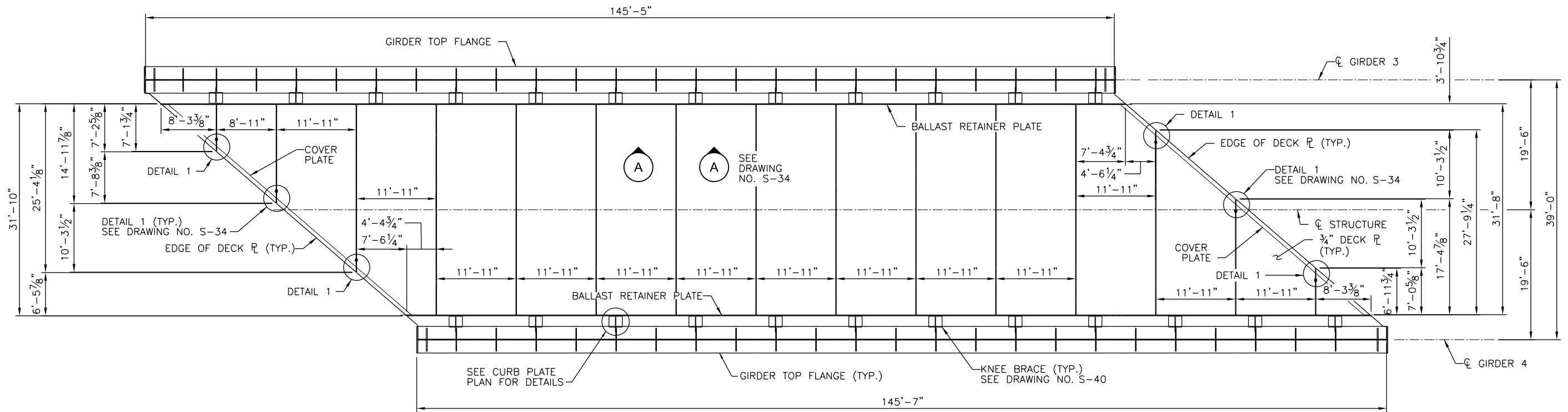
DESIGN: KWW DRAWN: JDA

CHK'D: EWN 64 OF 139

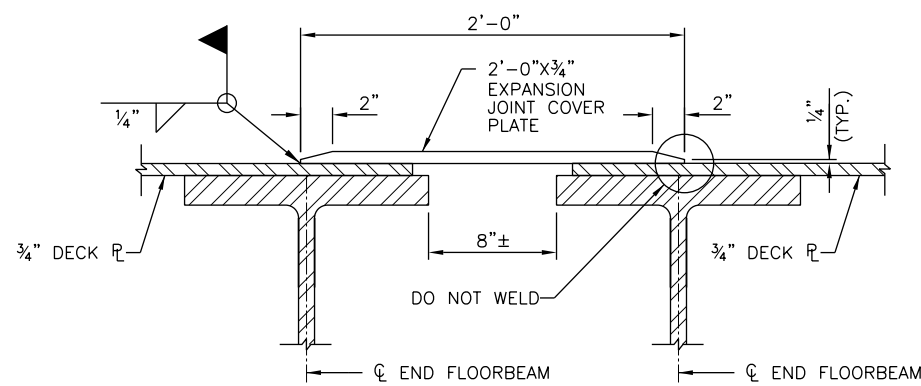


PROJECT NO. P301140022

FILE:



DECK PLAN - SPAN 2



COVER PLATE DETAIL
NOT TO SCALE



OSP#: OPSC0290



ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

REVISIONS

BRIDGE NO Z270.19 AT M.P. 270.19
DECK PLAN
SPAN 2

SPARTANBURG SC

DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE

SCALE: 1"=8'-0"

DATE: 5/24/2016

DESIGN: KWW

DRAWN: JDA

CHK'D: EWN

VAL. SEC. 655 SC

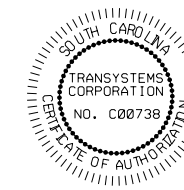
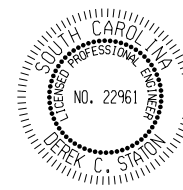
DRAWING NO. S-35

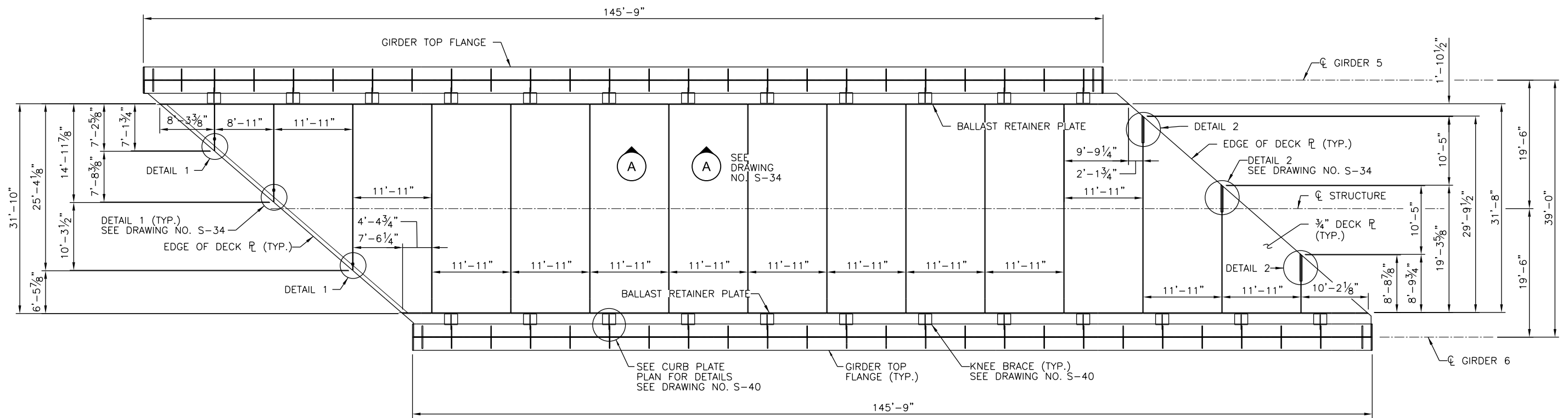
65 OF 139



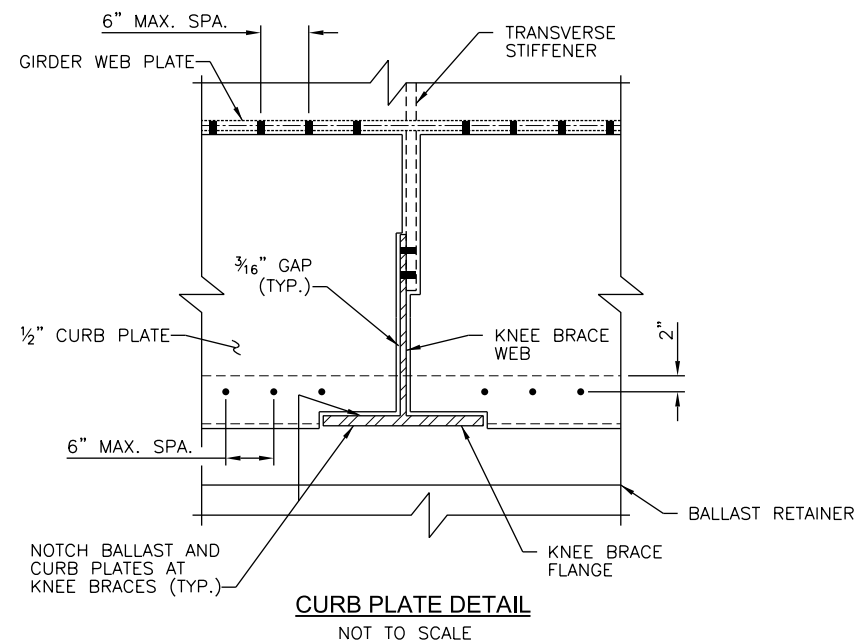
PROJECT NO. P301140022

FILE:





DECK PLAN - SPAN 3



CURB PLATE DETAIL
NOT TO SCALE



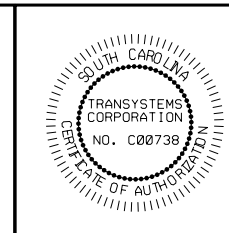
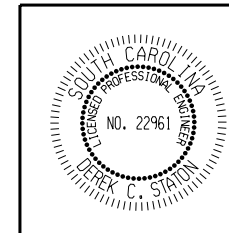
OSP#: OPSC0290



ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

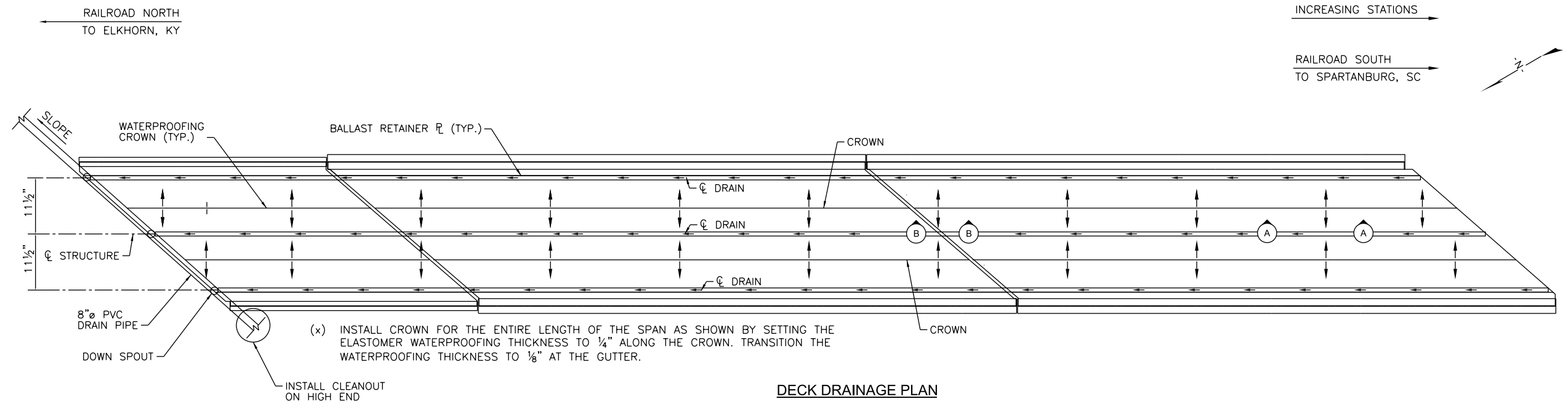
REVISIONS

BRIDGE NO Z270.19 AT M.P. 270.19	
DECK PLAN SPAN 3	
SPARTANBURG	SC
DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
SCALE: 1"=8'-0"	VAL. SEC. 655 SC
DATE: 5/24/2016	DRAWING NO. S-36
DESIGN: KWW	66 OF 139
DRAWN: JDA	
CHK'D: EWN	

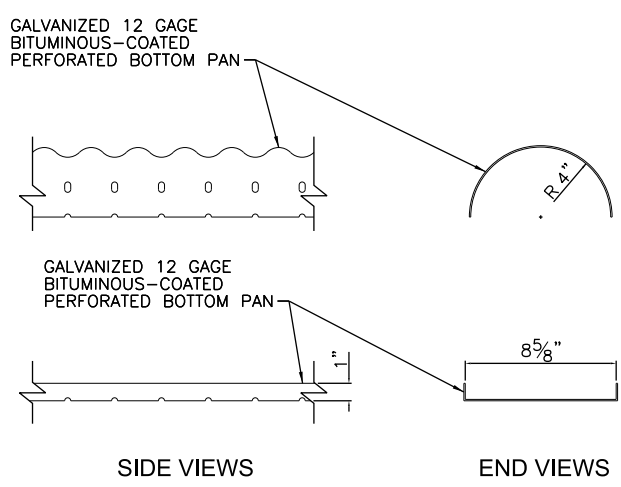


PROJECT NO. P301140022

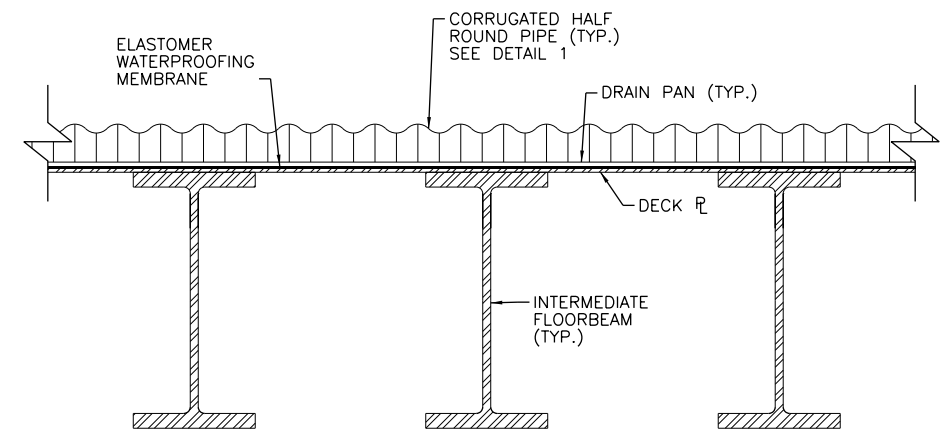
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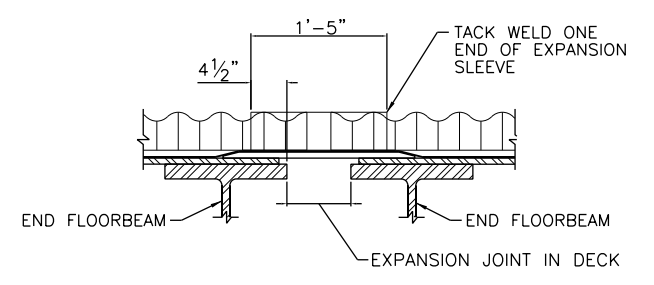
DECK DRAINAGE PLAN



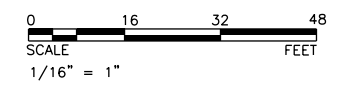
DETAIL 1 - DRAINAGE PLAN
NOT TO SCALE



VIEW A-A ALONG DRAINAGE PLAN
NOT TO SCALE



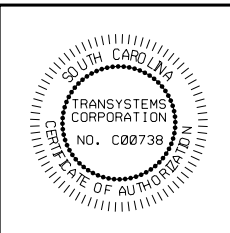
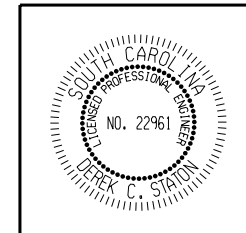
VIEW B-B AT EXPANSION JOINT
NOT TO SCALE



OSP#: OPSC0290

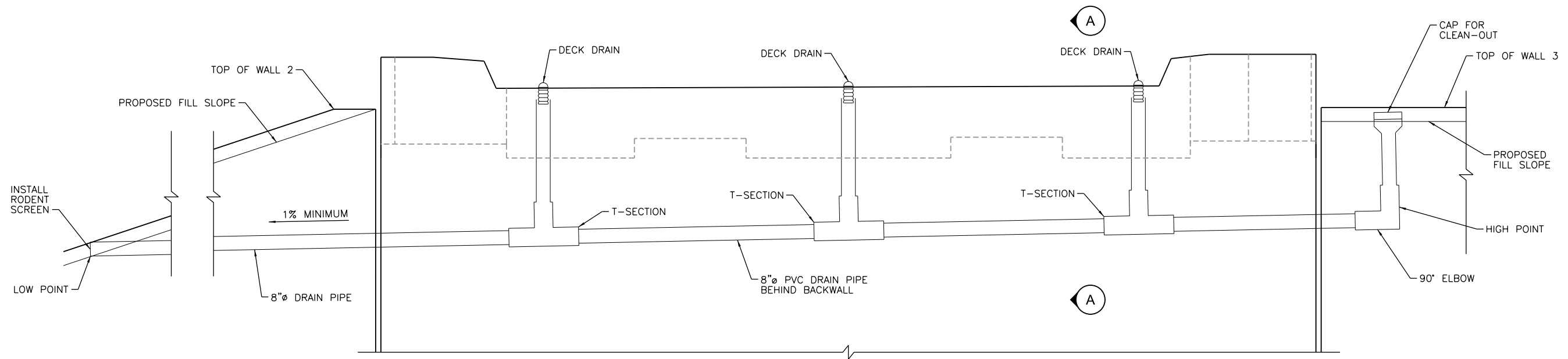


ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

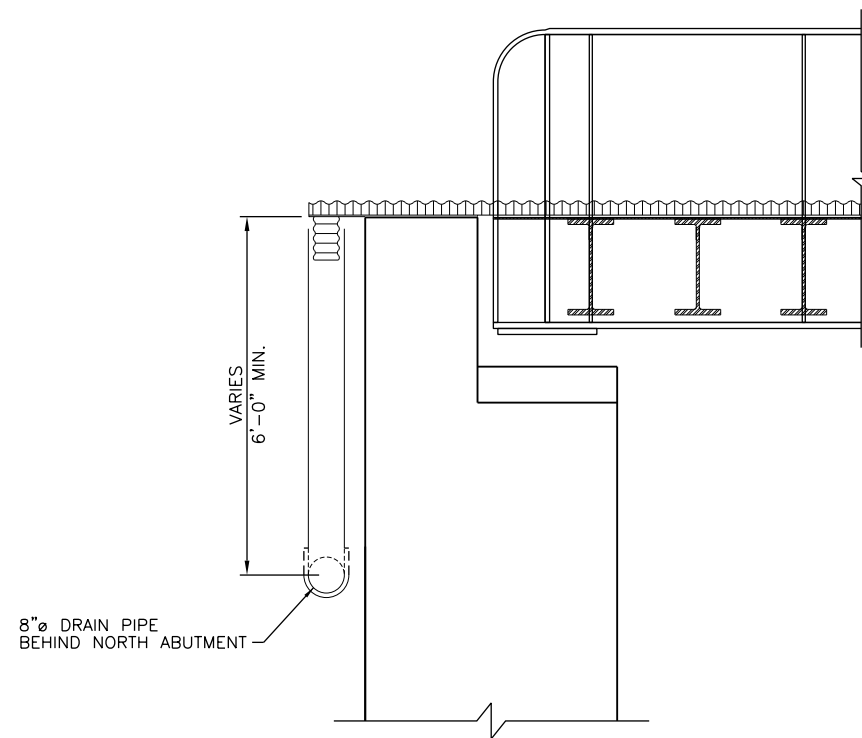


BRIDGE NO Z270.19 AT M.P. 270.19 DRAINAGE DETAILS 1 OF 3	SPARTANBURG SC
DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
SCALE: 1/16"=1" DATE: 5/24/2016 DESIGN: KWW DRAWN: JDA CHK'D: EWN	VAL. SEC. 655 SC
PROJECT NO. P301140022	DRAWING NO. S-37 67 OF 139

SUSERS 5/24/2016 4:37:39 PM - SFILES



NORTH ABUTMENT PARTIAL ELEVATION
NOT TO SCALE



VIEW A-A - END BENT DRAIN
NOT TO SCALE

OSP#: OPSC0290



ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

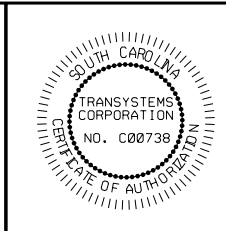
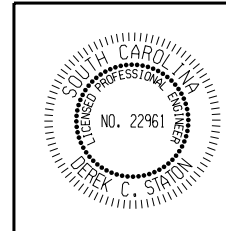
REVISIONS

BRIDGE NO Z270.19 AT M.P. 270.19
DRAINAGE DETAILS 2 OF 3

SPARTANBURG SC

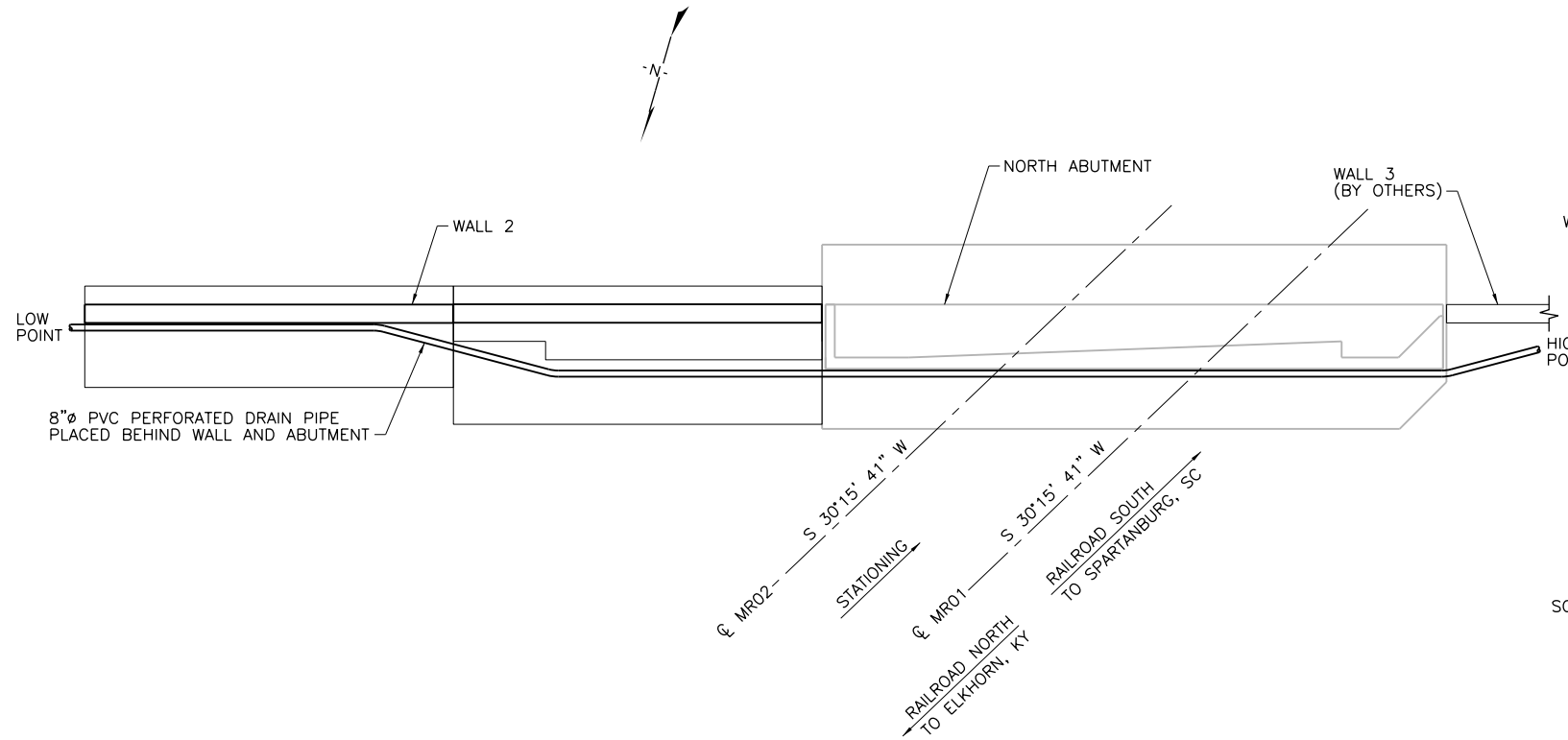
DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE

SCALE: NOT TO SCALE	VAL. SEC.	DRAWING NO.
DATE: 5/24/2016	655	S-38
DESIGN: KWW	SC	68 OF 139
DRAWN: JDA		
CHK'D: EWN		

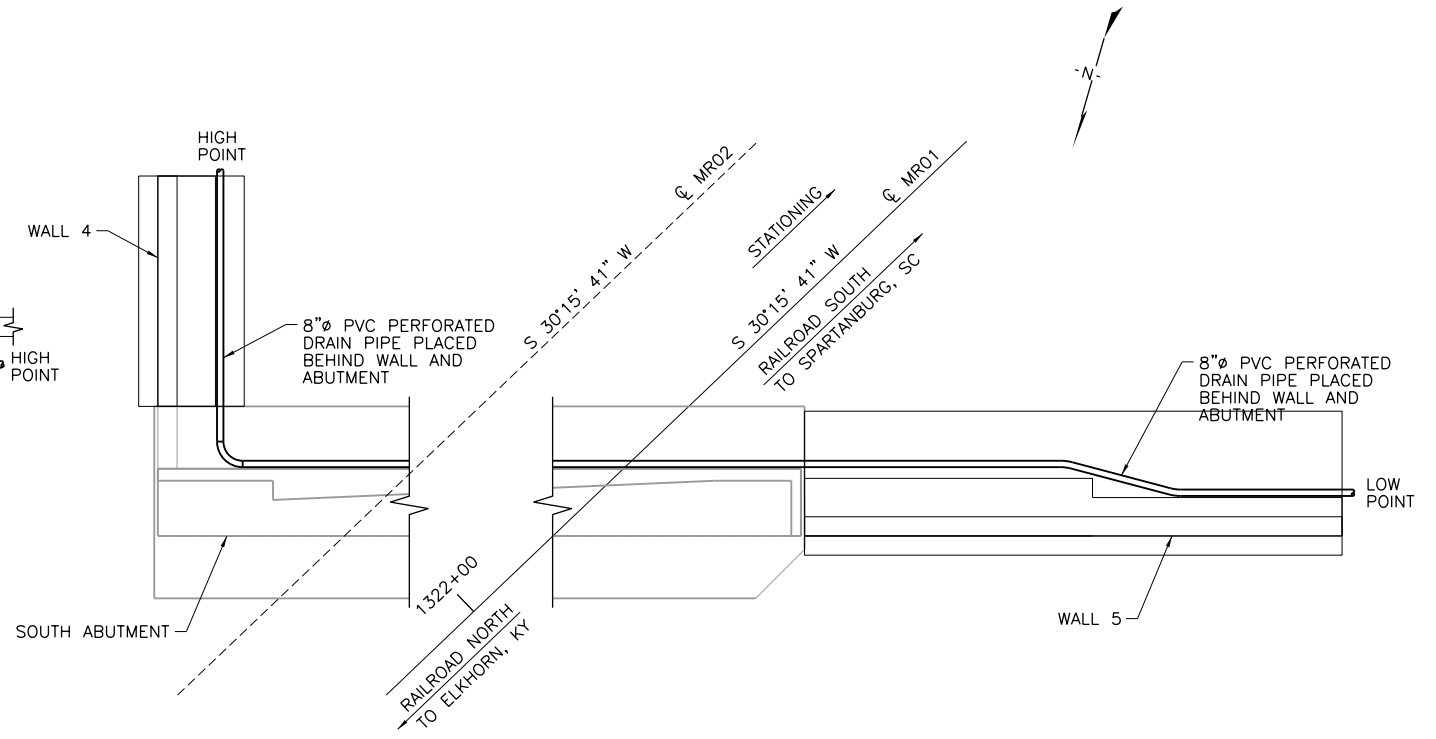


PROJECT NO. P301140022

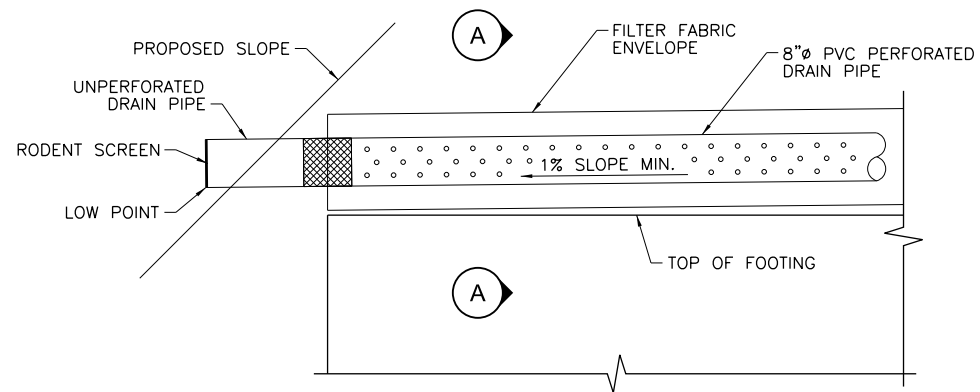
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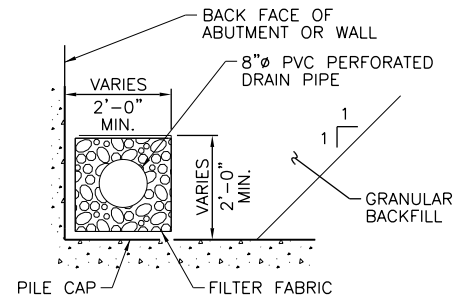
PLAN - NORTH ABUTMENT
SCALE 1" = 10'



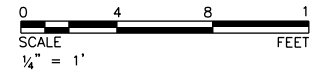
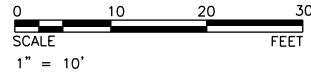
PLAN - SOUTH ABUTMENT
SCALE 1" = 10'



PARTIAL ELEVATION
NOT TO SCALE



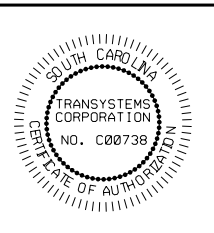
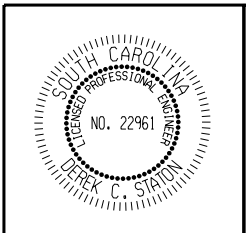
SECTION A-A
NOT TO SCALE



OSP#: OPSC0290



ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

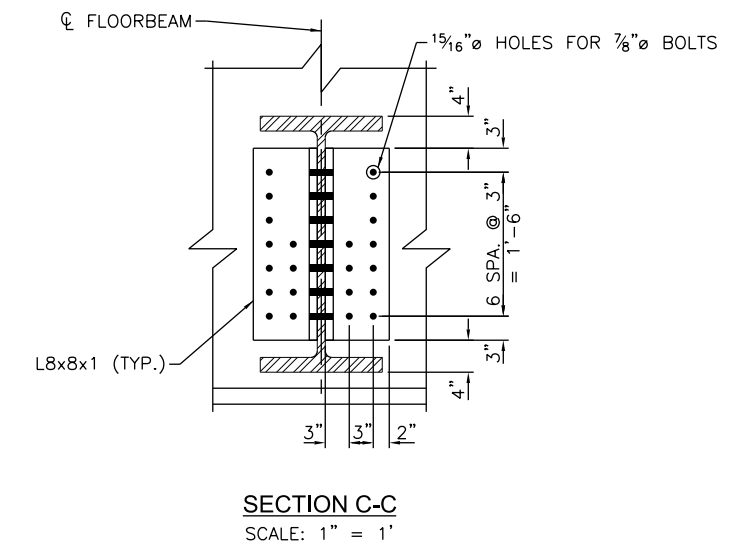
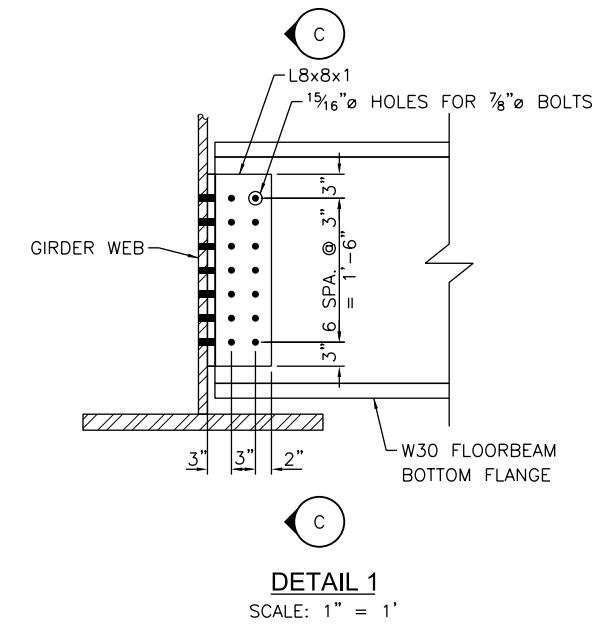
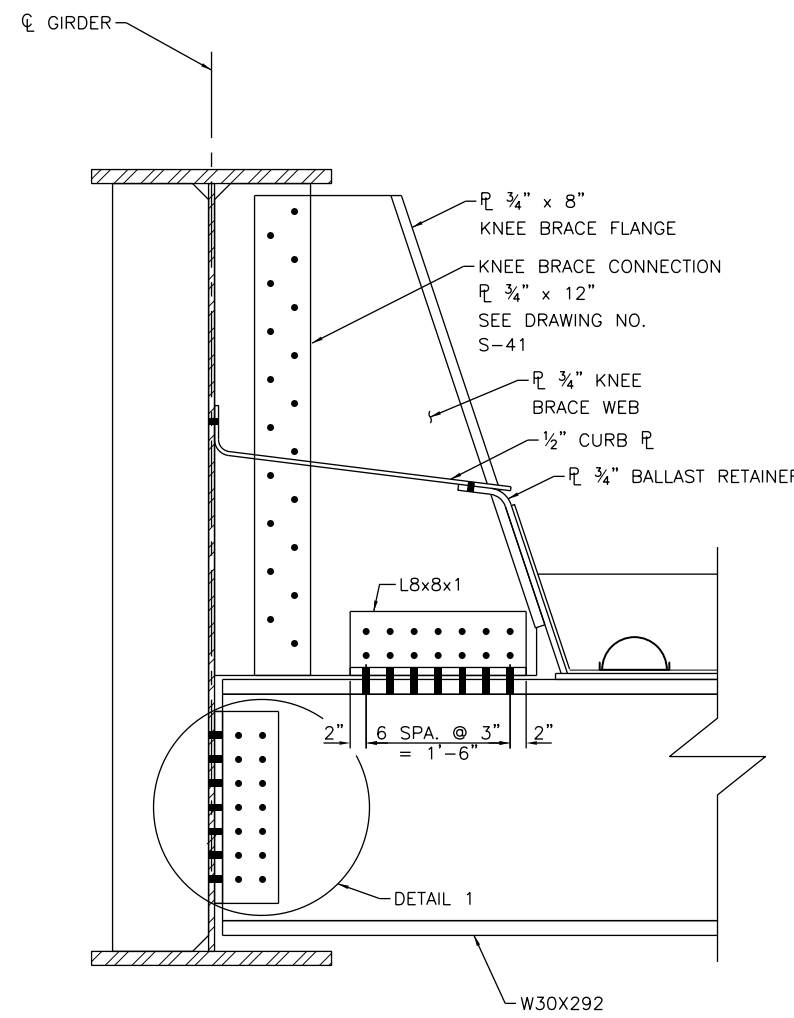
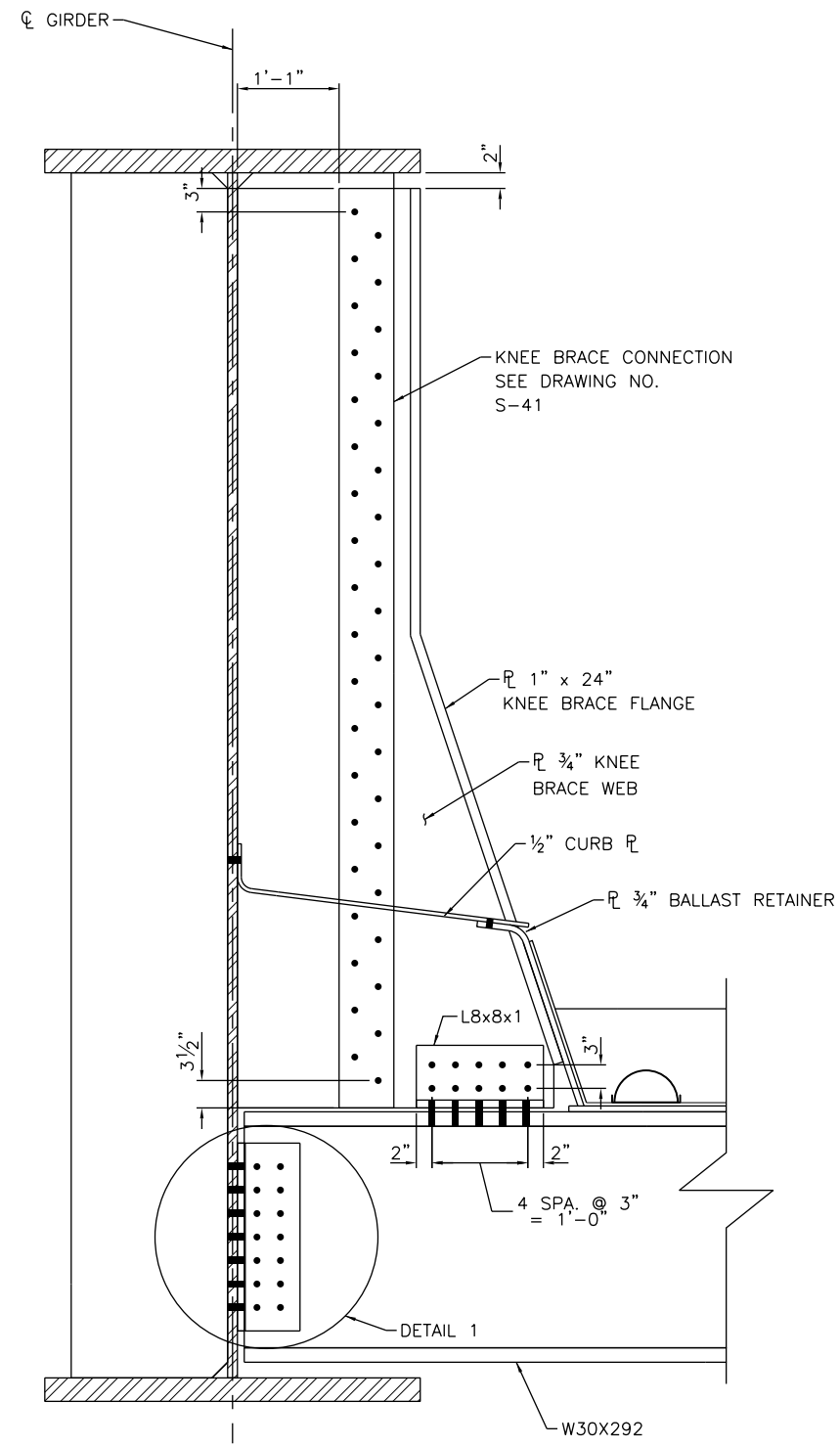


BRIDGE NO Z270.19 AT M.P. 270.19	
DRAINAGE DETAILS 3 OF 3	
SPARTANBURG	SC
DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
SCALE: AS NOTED	VAL. SEC. 655
DATE: 5/24/2016	SC
DESIGN: KWW	DRAWING NO. S-39
DRAWN: KWW	69 OF 139
CHK'D: EWN	

PROJECT NO. P301140022

FILE:

SUSERS 5/24/2016 4:37:46 PM - \$FILES



OSP#: OPSC0290



ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

REVISIONS

BRIDGE NO Z270.19 AT M.P. 270.19
STRUCTURAL STEEL DETAILS 1 OF 2

SPARTANBURG SC

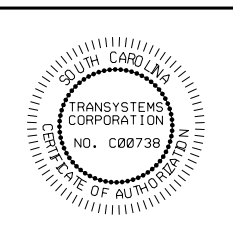
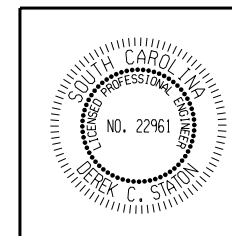
DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE

SCALE: 1" = 1' VAL. SEC. DRAWING NO.

DATE: 5/24/2016 655 S-40

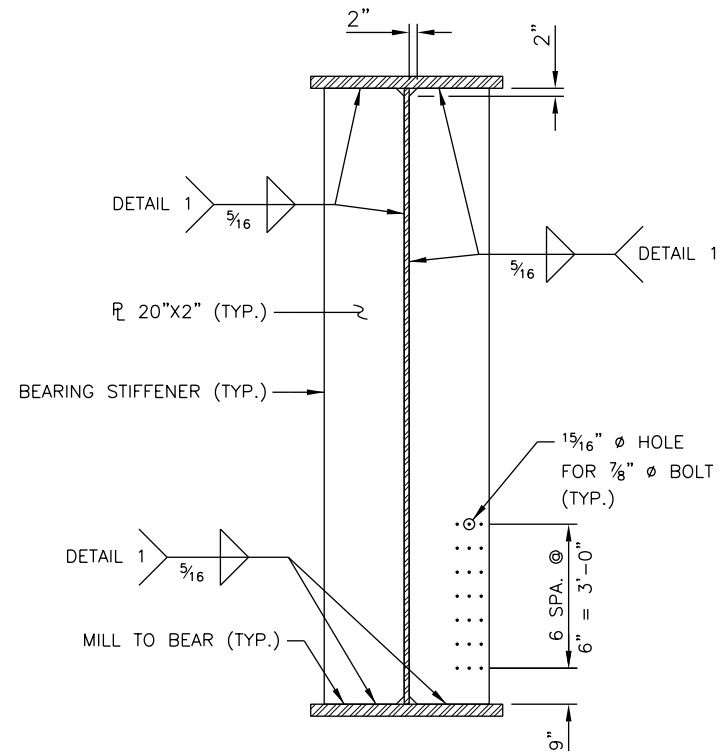
DESIGN: KWW SC 70 OF 139

DRAWN: JDA
CHK'D: EWN

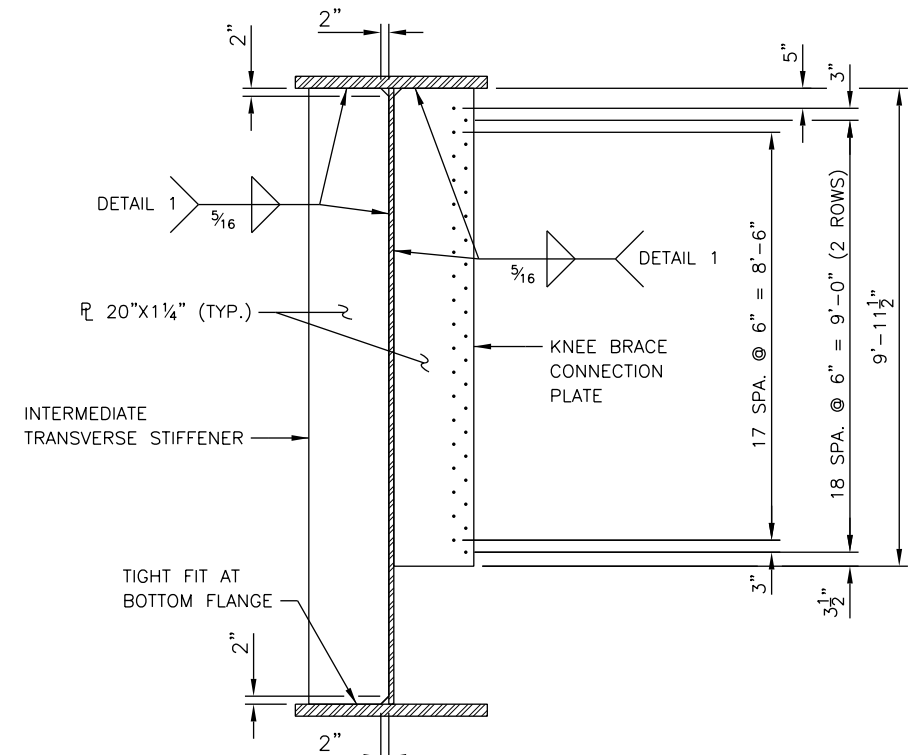


PROJECT NO. P301140022

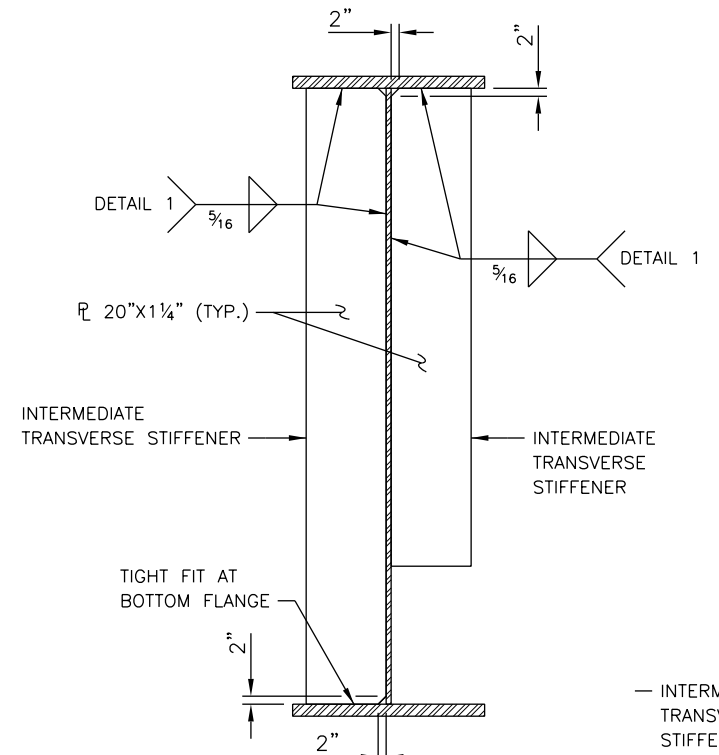
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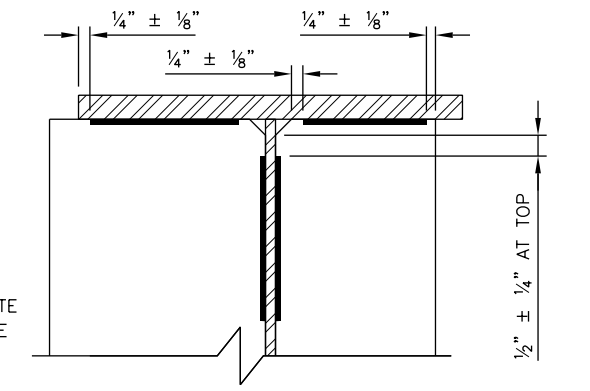
SPAN 2 & 3 BEARING STIFFENERS
NOT TO SCALE



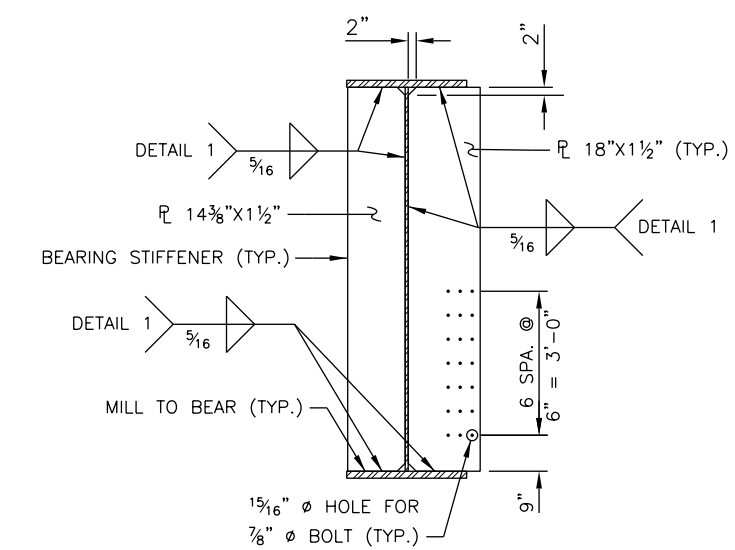
SPAN 2 & 3 INTERMEDIATE TRANSVERSE STIFFENERS AT KNEE BRACE
NOT TO SCALE



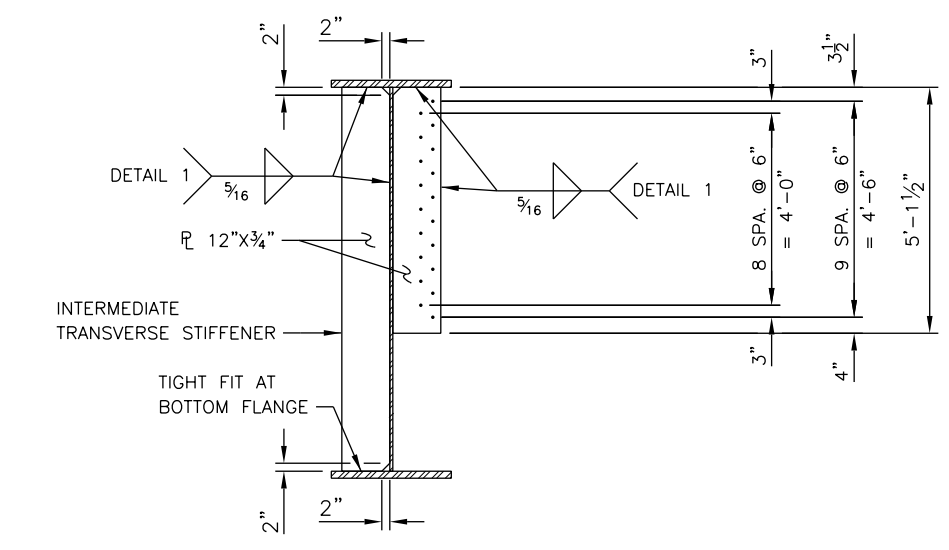
SPAN 2 & 3 INTERMEDIATE TRANSVERSE STIFFENER
NOT TO SCALE



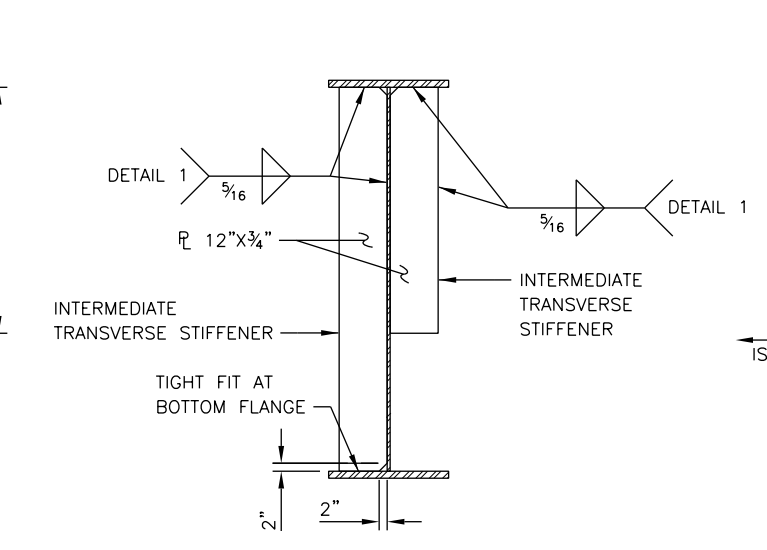
INTERMEDIATE TRANSVERSE STIFFENER



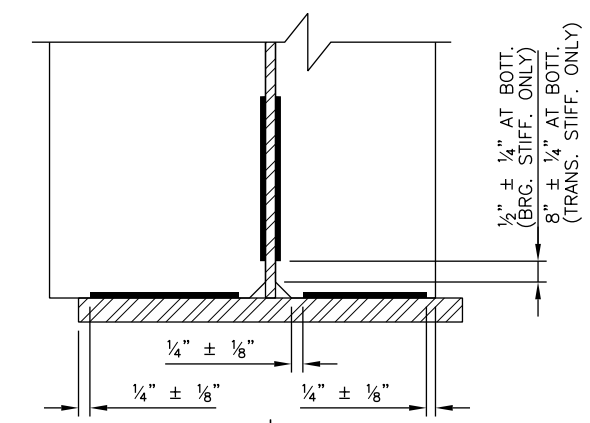
SPAN 1 BEARING STIFFENERS
NOT TO SCALE



SPAN 1 INTERMEDIATE TRANSVERSE STIFFENERS AT KNEE BRACE
NOT TO SCALE



SPAN 1 INTERMEDIATE TRANSVERSE STIFFENER
NOT TO SCALE



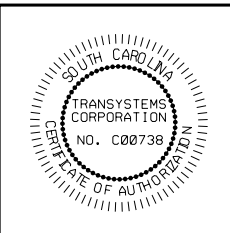
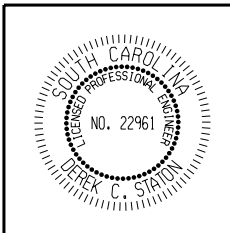
TYPICAL WHEN STIFFENER IS WIDER THAN THE FLANGE
TYPICAL WHEN STIFFENER IS NARROWER THAN THE FLANGE

DETAIL 1
NOT TO SCALE

OSP#: OPSC0290

CSX ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

REVISIONS	BRIDGE NO Z270.19 AT M.P. 270.19 STRUCTURAL STEEL DETAILS 2 OF 2	
	SPARTANBURG	SC
	DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
SCALE: NOT TO SCALE	VAL. SEC. 655	DRAWING NO. S-41
DATE: 5/24/2016	SC	71 OF 139
DESIGN: KWW		
DRAWN: JDA		
CHK'D: EWN		

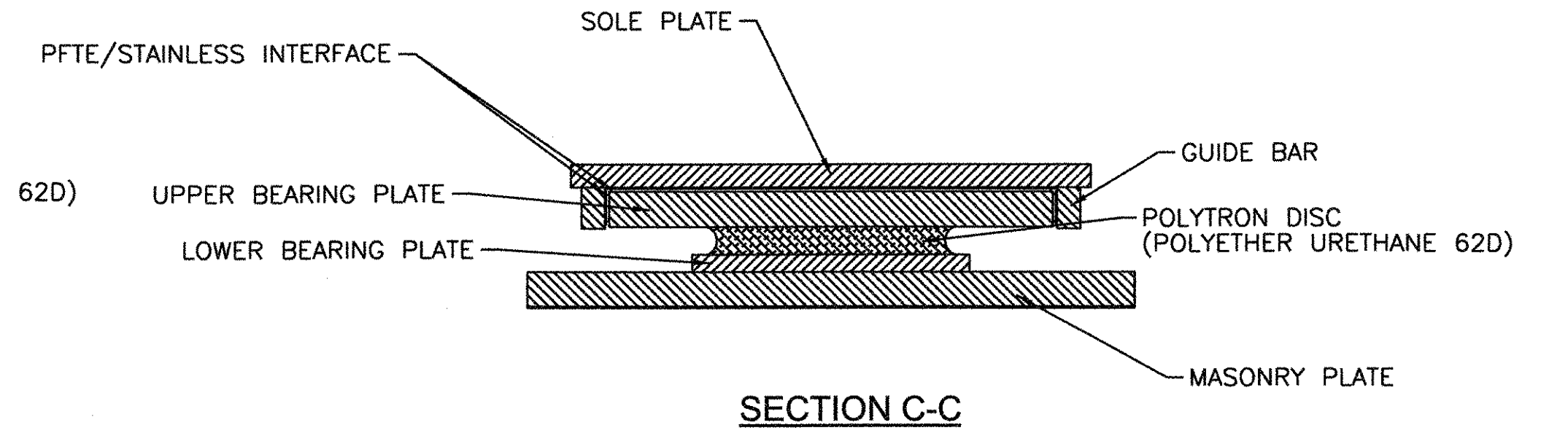
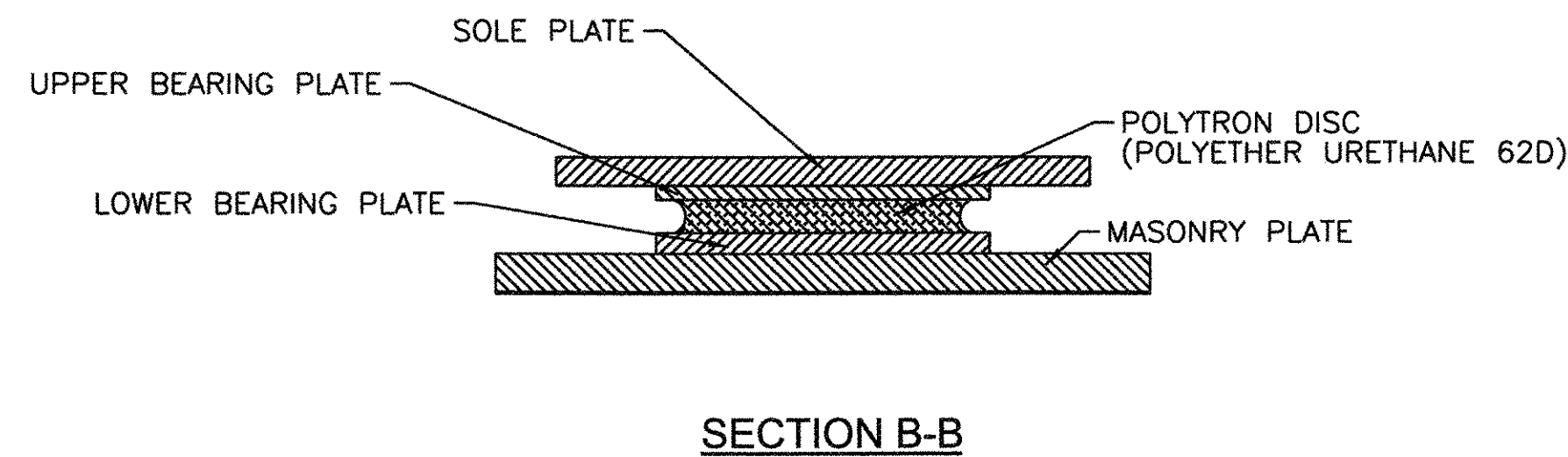
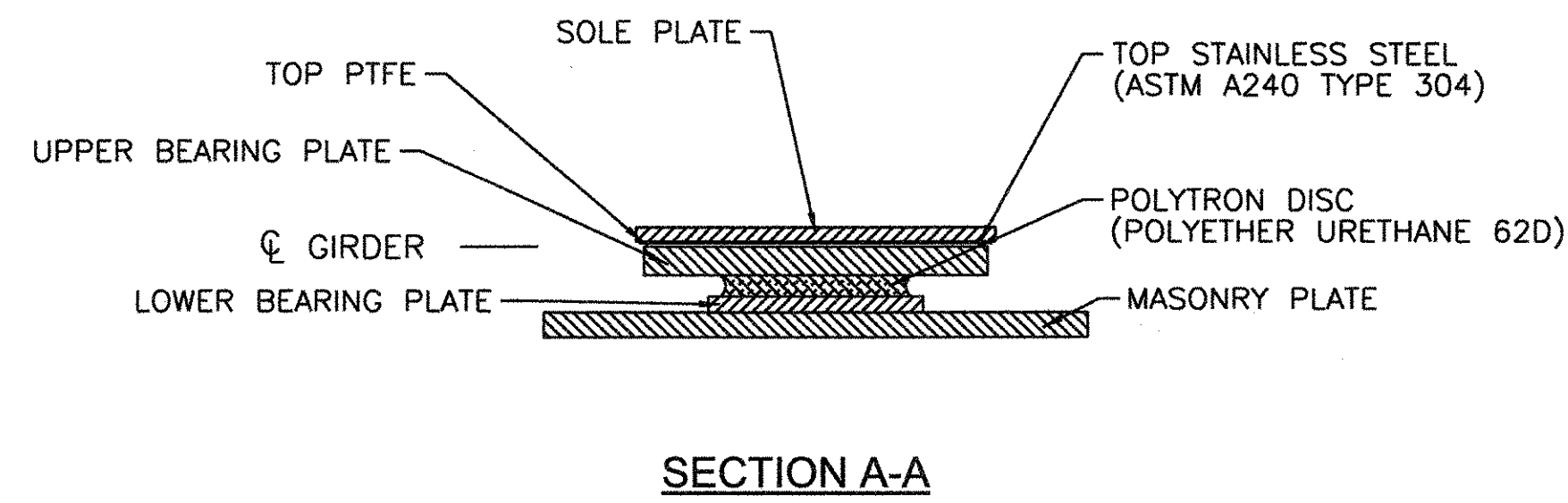
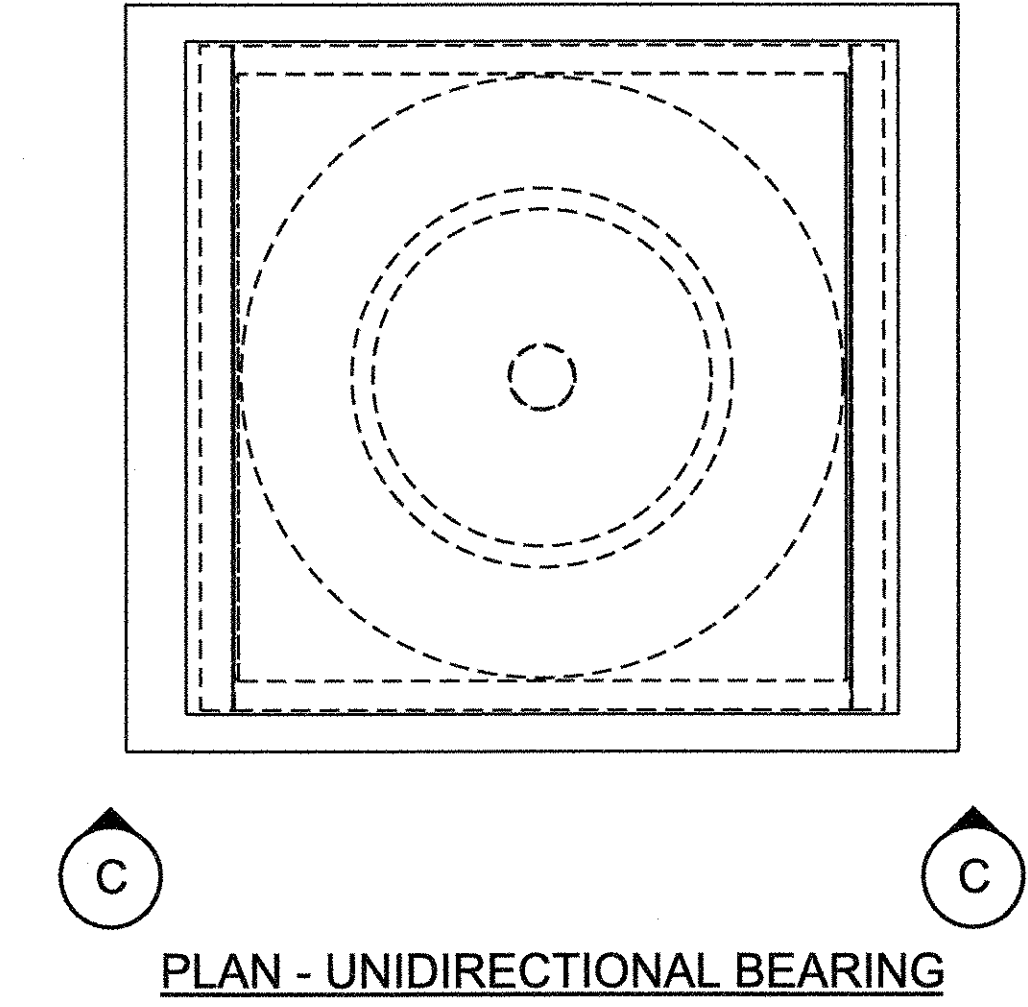
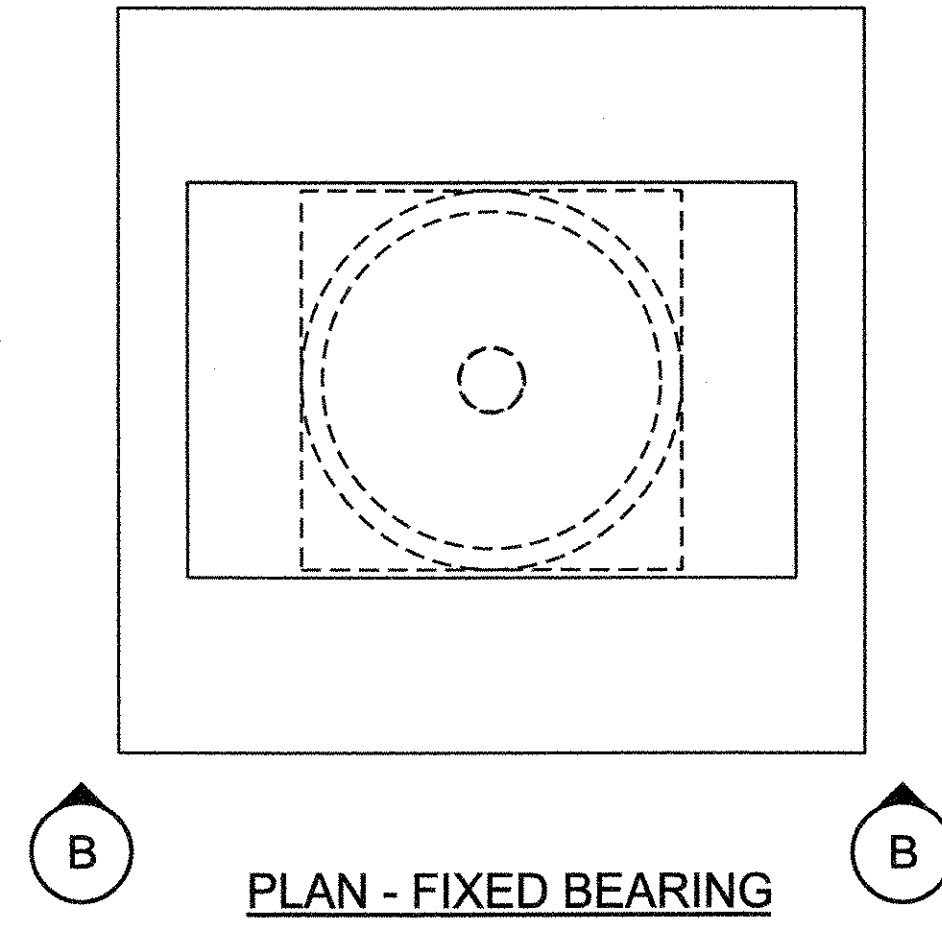
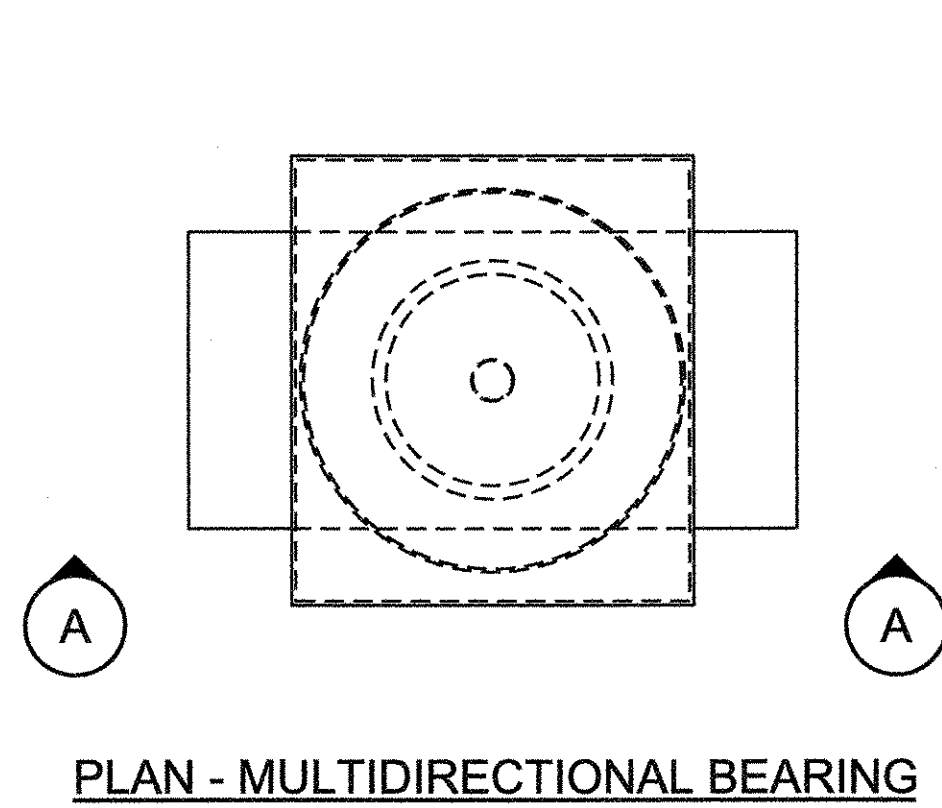


PROJECT NO. P301140022

FILE:

NOTES:

- THE BEARING DETAILS SHOWN HERE ARE FOR INFORMATION ONLY. THE BEARINGS SHALL BE ASTM A709 GRADE 50 STEEL DISC BEARINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGNS AND DETAILING OF THE BEARINGS BASED ON THE GIVEN LOADS AND GEOMETRIES OF THE EXISTING AND PROPOSED STRUCTURE. THIS WILL INCLUDE THE DESIGN AND DETAILING OF THE BEARING ANCHOR BOLTS, BEARING RAISERS, AND GRILLAGES.
- PROVIDE 31 PLY, PREFORMED ELASTOMERIC SHOCK PADS (MIL-C-882C SPECIFICATIONS) BETWEEN MASONRY PLATE AND CONCRETED BRIDGE SEAT.
- COATINGS FOR BEARINGS WILL BE DETAILED BY MANUFACTURER AND IS SUBJECT TO APPROVAL BY CSX.



BEARING LOCATION	TYPE	VERTICAL			HORIZONTAL		ROTATION [4]
		DEAD KIP	LIVE [1] KIP	TOTAL KIP	LONGITUDINAL [2] KIP	TRANSVERSE [3] KIP	
G1N	FIXED	129.0	218.3	347.3	230.4	10.8	0.0035
G1S	UNIDIRECTIONAL	239.0	539.1	778.1	0.0	10.8	0.0035
G2N	FIXED	239.8	540.6	780.4	230.4	10.8	0.0035
G2S	UNIDIRECTIONAL	129.2	218.8	348.0	0.0	10.8	0.0035
G3N, G5N	FIXED	475.5	706.4	1181.9	354.6	36.6	0.0060
G3S, G5S	UNIDIRECTIONAL	622.2	1026.9	1658.1	0.0	36.6	0.0060
G4N, G6N	FIXED	620.9	1056.6	1677.5	354.6	36.6	0.0060
G4S, G6S	UNIDIRECTIONAL	477.8	705.7	1183.5	0.0	36.6	0.0060
EFB-1 THRU EFB-12	MULTIDIRECTIONAL	120.5	547.9	668.4	0.0	0.0	0.0060

- [1] INCLUDES IMPACT
 - [2] INCLUDES WIND AND LONGITUDINAL FORCE
 - [3] INCLUDES WIND
 - [4] CORRESPONDS TO LOAD COMBINATION: DL + L + I + LF + 0.5W
- DL = DEAD LOAD; L = LIVE LOAD; I = IMPACT; LF = LONGITUDINAL FORCE; W = WIND



OSP#: OPSC0290



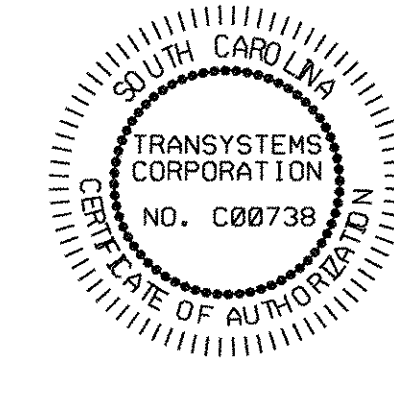
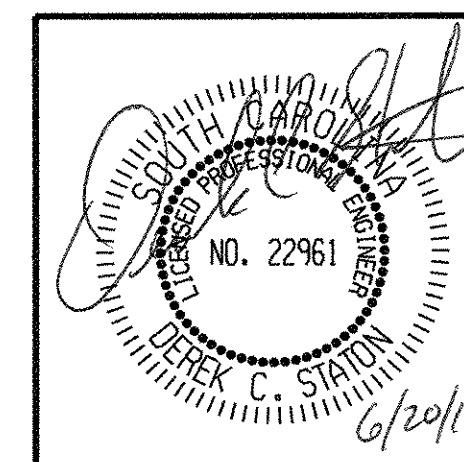
ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

BRIDGE NO Z270.19 AT M.P. 270.19
BEARINGS DETAILS

SPARTANBURG SC

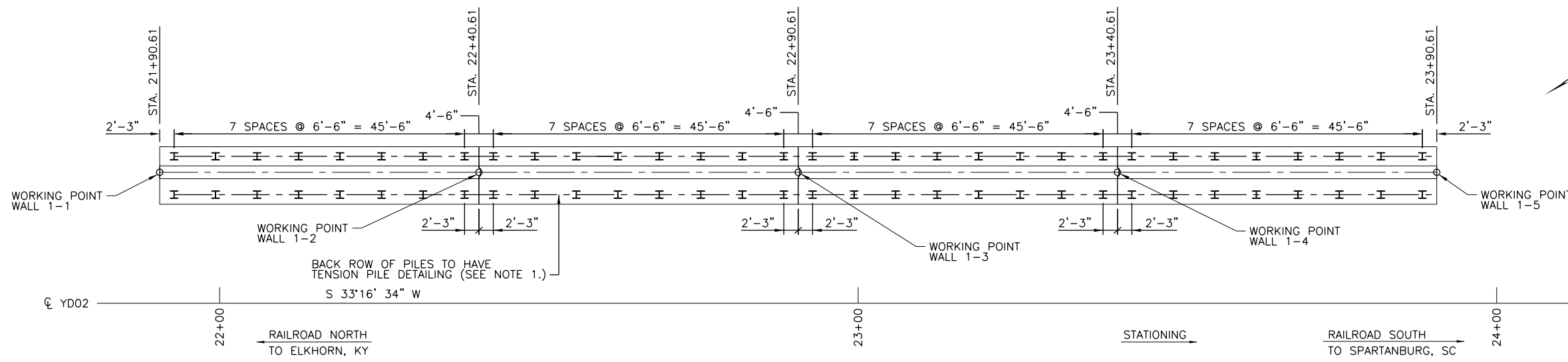
DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE

SCALE: 1"=1'-0"	VAL. SEC. 655	DRAWING NO. S-42
DATE: 6/20/2016	SC	72 OF 139
DESIGN: KWW		
DRAWN: JDA		
CHK'D: EWN		



PROJECT NO. P301140022

FILE:



- NOTES:
- FOR ANCHORAGE DETAIL FOR STEEL H-PILES, SEE DRAWING NO. S-20.
 - FOR STEEL H-PILE GENERAL NOTES, SEE DRAWING NO. S-07.
 - FOR HANDRAIL DETAILS FOR WALL 1, SEE DRAWING NO. S-45.
 - FOR KEY JOINT DETAILS, SEE DRAWING NO. S-44.
 - FOR EXPANSION/CONTRACTION JOINT, PLACE 1/2" JOINT FILLER MATERIAL ALONG HEIGHT OF EXPANSION JOINT, PLACE WATERPROOFING MEMBRANE (24" WIDE) ALONG BACK FACE OF JOINT.

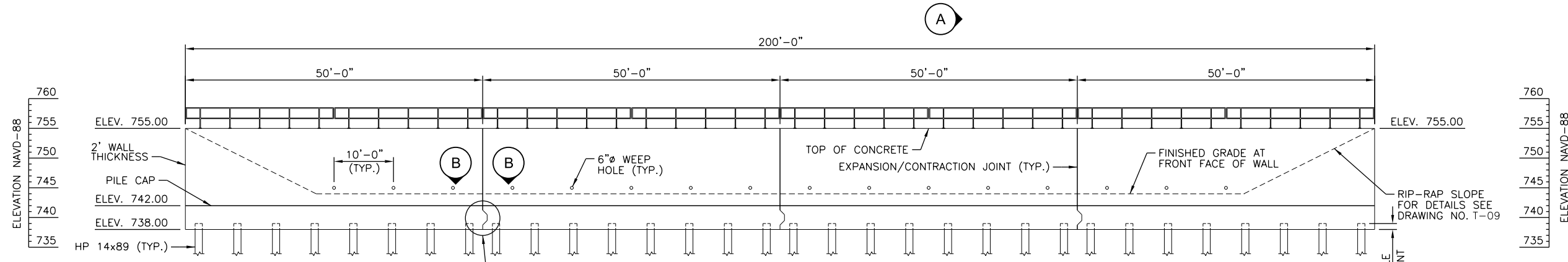


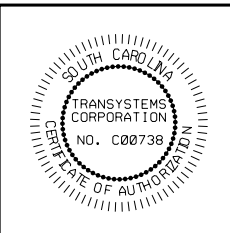
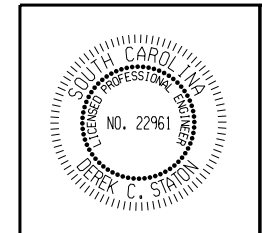
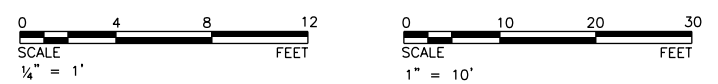
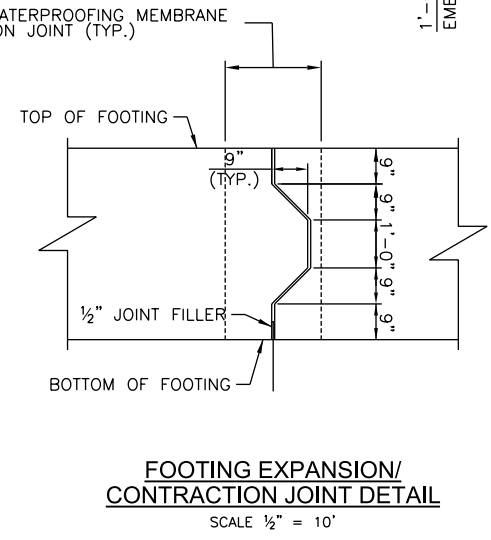
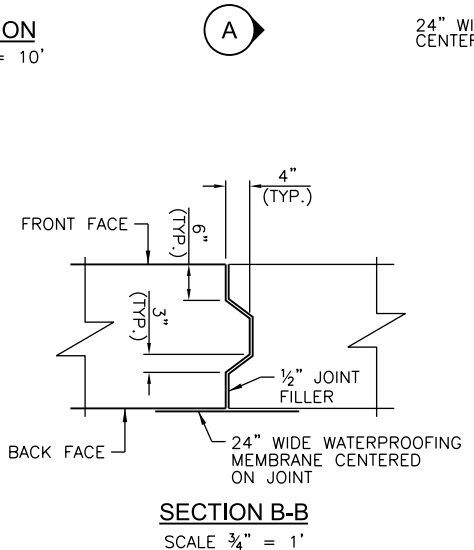
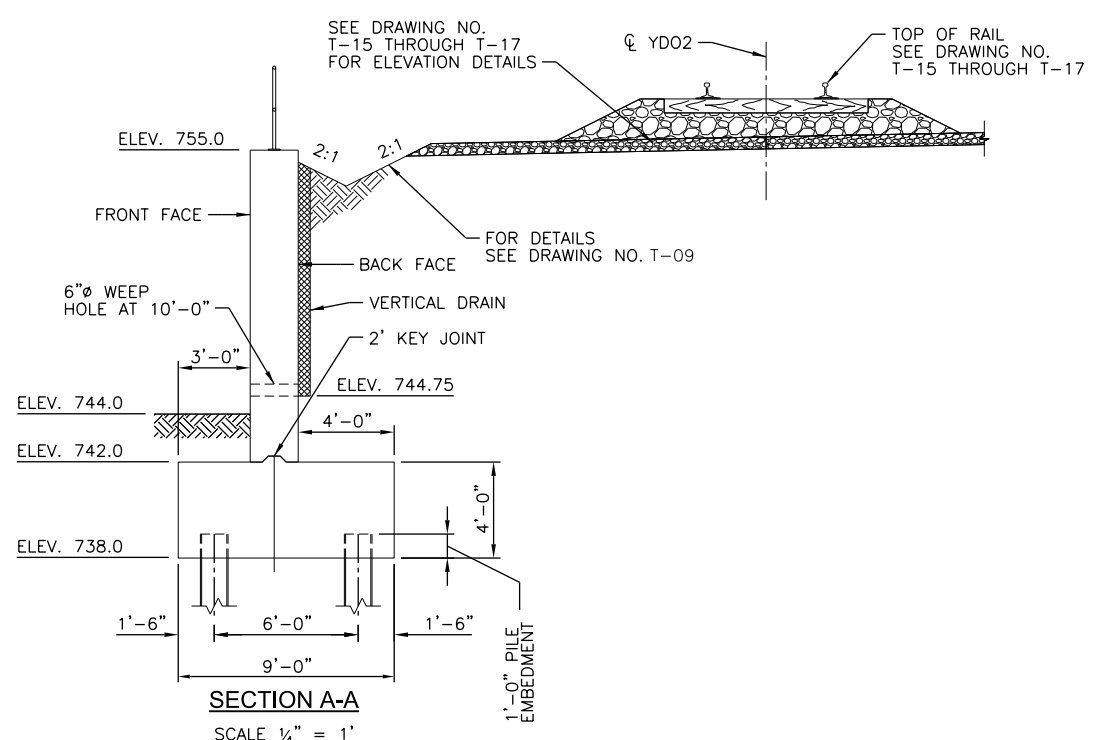
TABLE 1. PILE BEARINGS

NO. OF PILES	64
SERVICE DESIGN LOAD PER PILE	78.4 TONS
GEOTECHNICAL FACTOR OF SAFETY	2.50
DOWNDRAW	0 TONS
REQUIRED ULTIMATE BEARING PER PILE	196.0 TONS

TABLE 2. PILE TIP ELEVATION TABLE

MINIMUM PILE TIP ELEVATION (FT NAVD-88)	715.0
ESTIMATED PILE TIP ELEVATION (FT NAVD-88)	681.0

WORKING POINT	MR-01 STA.	OFFSET
WALL 1 - 1	21+90.61	20.50' LEFT
WALL 1 - 2	22+40.61	20.50' LEFT
WALL 1 - 3	22+90.61	20.50' LEFT
WALL 1 - 4	23+40.61	20.50' LEFT
WALL 1 - 5	23+90.61	20.50' LEFT



OSP#: OPSC0290

CSX ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

BRIDGE NO Z270.19 AT M.P. 270.19
WALL 1 DETAILS 1 OF 3

SPARTANBURG SC

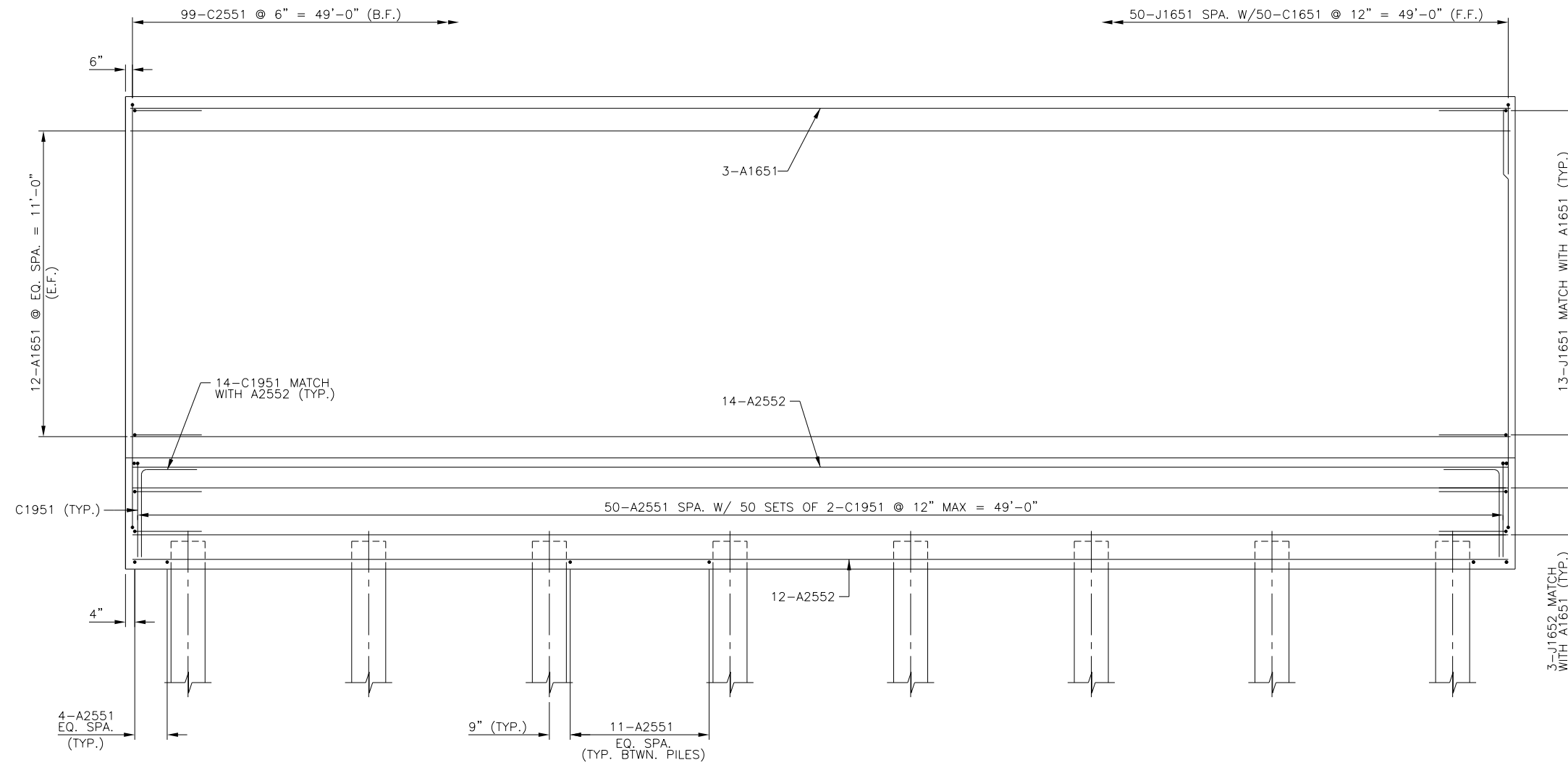
DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE

SCALE: AS NOTED
DATE: 5/24/2016
DESIGN: CKW
DRAWN: DWH
CHK'D: MBM

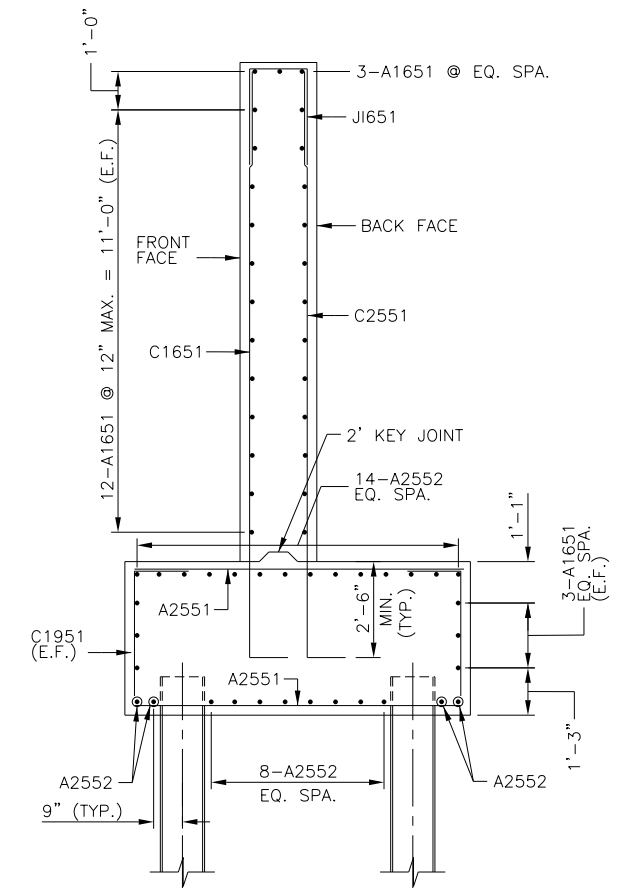
VAL. SEC. 655 SC
DRAWING NO. S-43
73 OF 139

PROJECT NO. P301140022 FILE:

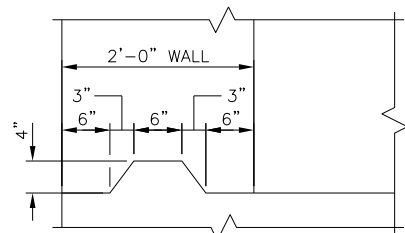
- NOTES:
1. PROVIDE 3" MIN. CLEAR CONCRETE COVER FOR REINFORCING STEEL.
 2. SEE DRAWING NO. S-43 FOR PILE EMBEDMENT DETAILS.
 3. SEE DRAWING NO. S-61 FOR REINFORCING STEEL SCHEDULE.



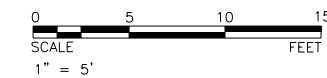
TYPICAL 50' WALL ELEVATION



TYPICAL WALL SECTION



2' KEY JOINT DETAIL



OSP#: OPSC0290



ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

REVISIONS

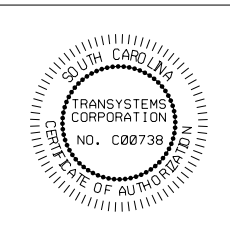
BRIDGE NO Z270.19 AT M.P. 270.19

WALL 1 DETAILS 2 OF 3

SPARTANBURG SC

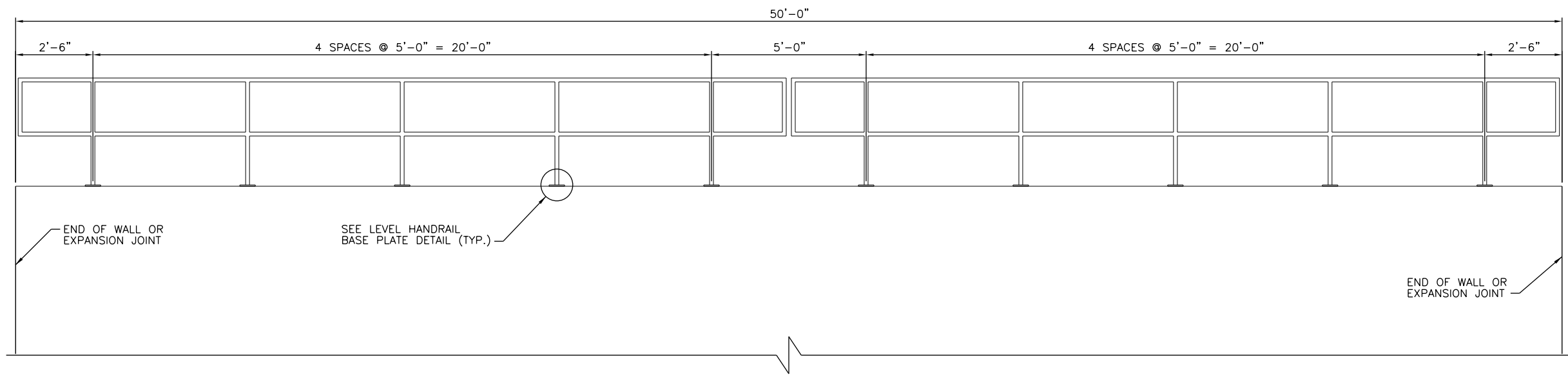
DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE

SCALE: AS NOTED	VAL. SEC.	DRAWING NO.
DATE: 5/24/2016	655	S-44
DESIGN: CKW	SC	74 OF 139
DRAWN: DWH		
CHK'D: MBM		

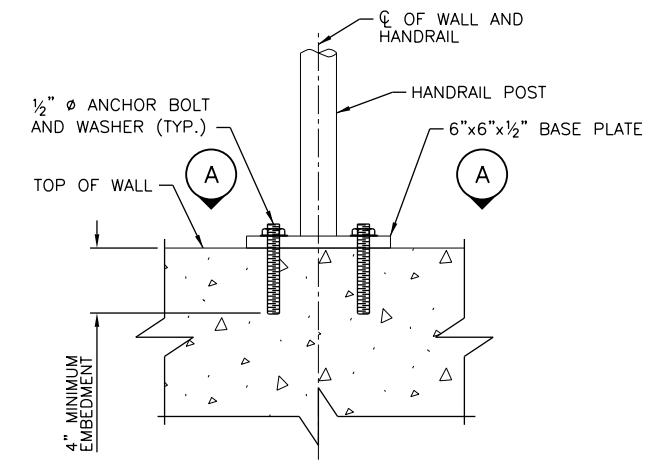


PROJECT NO. P301140022

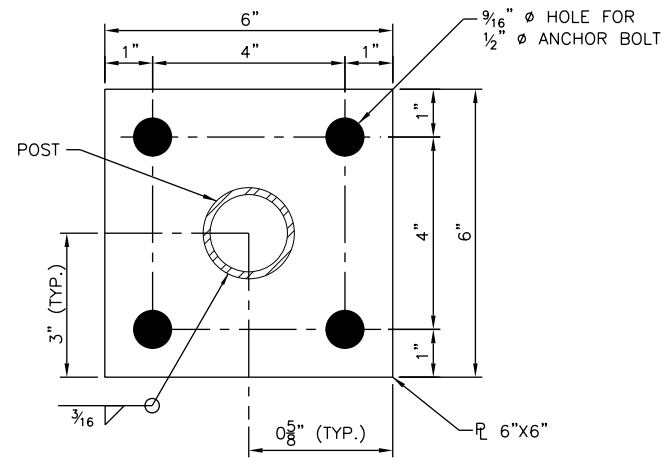
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ELEVATION WALL 1
SCALE 1/2" = 1'



ELEVATION
SCALE: 3"=1'-0"



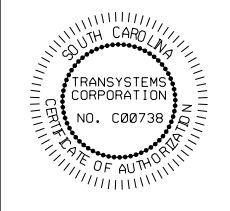
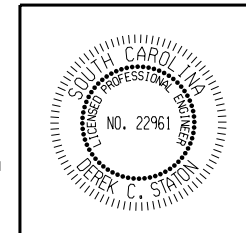
VIEW A-A
SCALE: 6"=1'-0"

SLOPED HANDRAIL BASE PLATE DETAIL

- NOTES:
1. EACH 1/2" ANCHOR BOLTS SHALL HAVE A MINIMUM CONCRETE EMBEDMENT OF 4 INCHES AND A MINIMUM TENSILE CAPACITY OF 4000 POUNDS.
 2. HANDBRAIL SHALL CONFORM TO PROJECT SPECIFICATION 000205.
 3. ALL HORIZONTAL DIMENSIONS ARE MEASURED TO C POSTS.

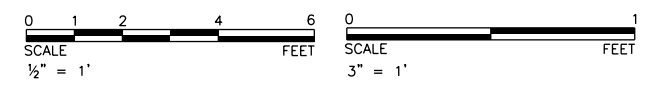
OSP#: OPSC0290

	ENGINEERING DEPARTMENT MAINTENANCE OF WAY BRIDGE MAINTENANCE AND DESIGN	
	BRIDGE NO Z270.19 AT M.P. 270.19	
WALL 1 DETAILS 3 OF 3		
SPARTANBURG	SC	
DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE	
SCALE: AS NOTED	VAL. SEC.	DRAWING NO.
DATE: 5/24/2016	655	S-45
DESIGN: CKW	SC	75 OF 139
DRAWN: DWH		
CHK'D: MBM		



PROJECT NO. P301140022

FILE:



IF THIS DRAWING IS LESS THAN 22" X 34" IT IS A REDUCED SIZE DRAWING

- NOTES:
- FOR ANCHORAGE DETAIL FOR STEEL H-PILES, SEE DRAWING NO. S-20.
 - FOR STEEL H-PILE GENERAL NOTES, SEE DRAWING NO. S-07.
 - FOR HANDRAIL DETAILS FOR WALL 2, SEE DRAWING NO. S-48.
 - FOR DRAINAGE BEHIND THE WALL, SEE DRAWING NO. S-39.
 - FOR KEY JOINT DETAILS, SEE DRAWING NO. S-47.
 - PLACE 1/2" JOINT FILLER ALONG WALL 2 / NORTH ABUTMENT INTERFACE WITH 24" WIDE WATERPROOFING MEMBRANE CENTERED ON INTERFACE (BACK FACE).

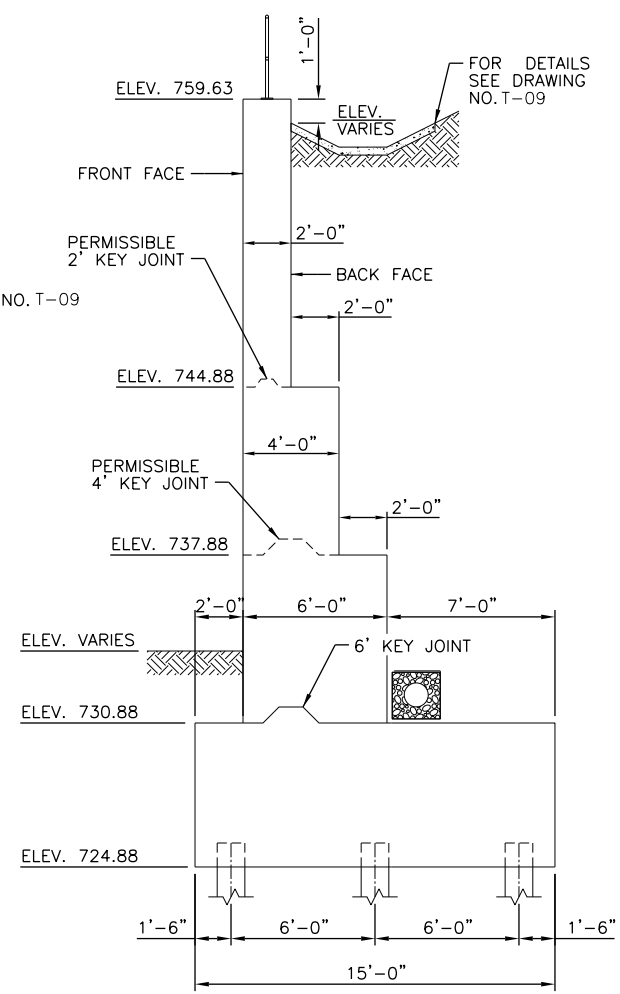
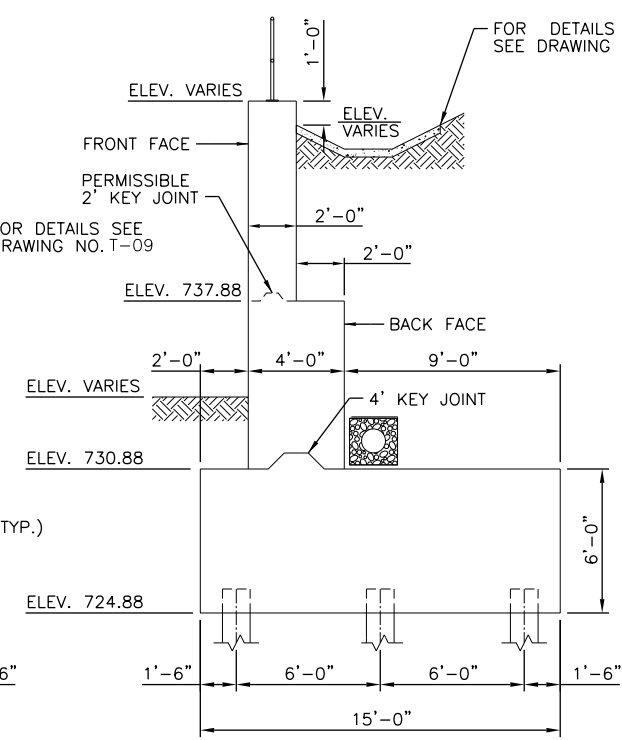
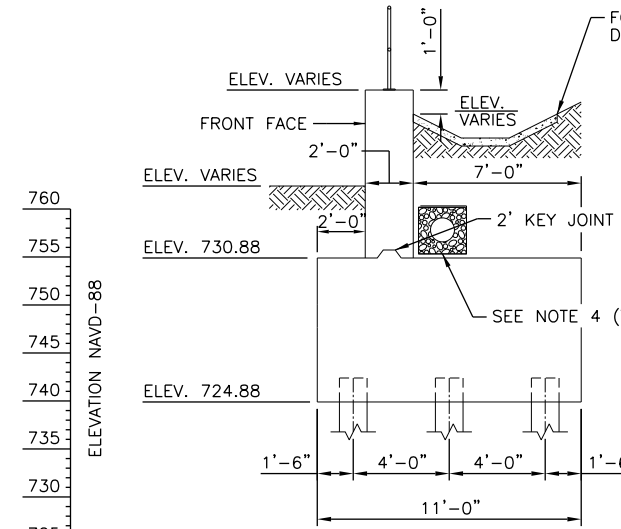
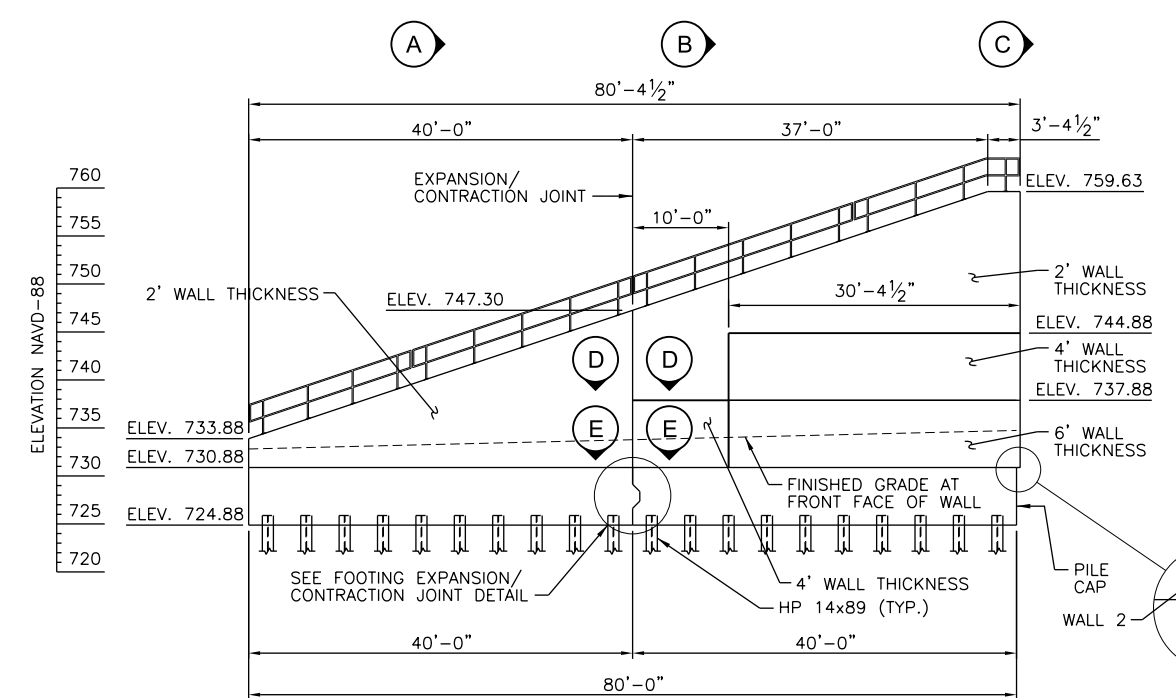
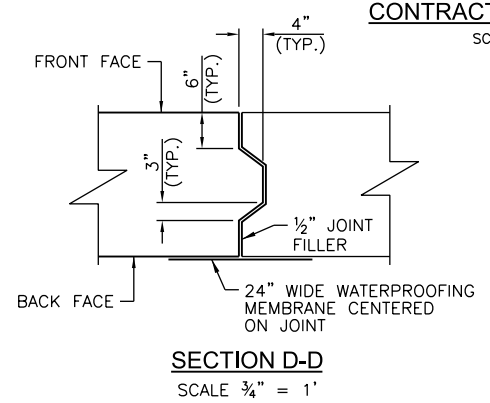
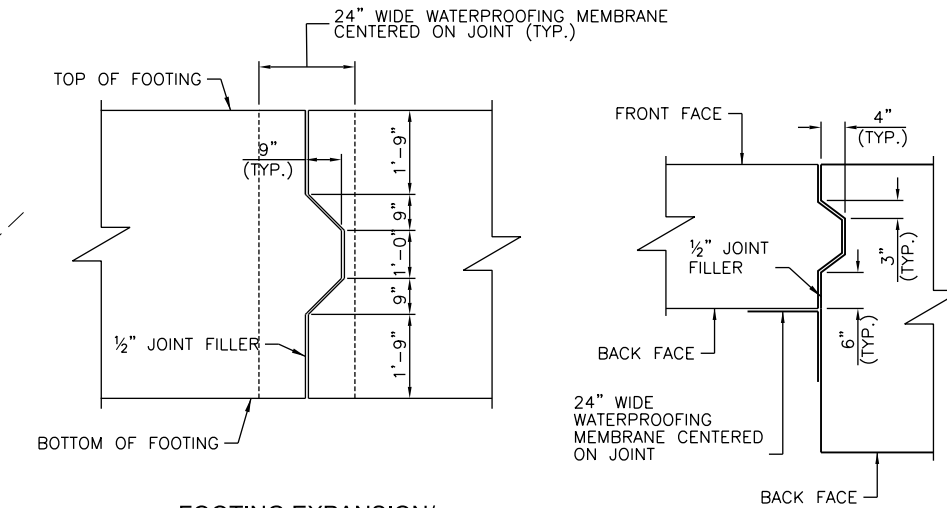
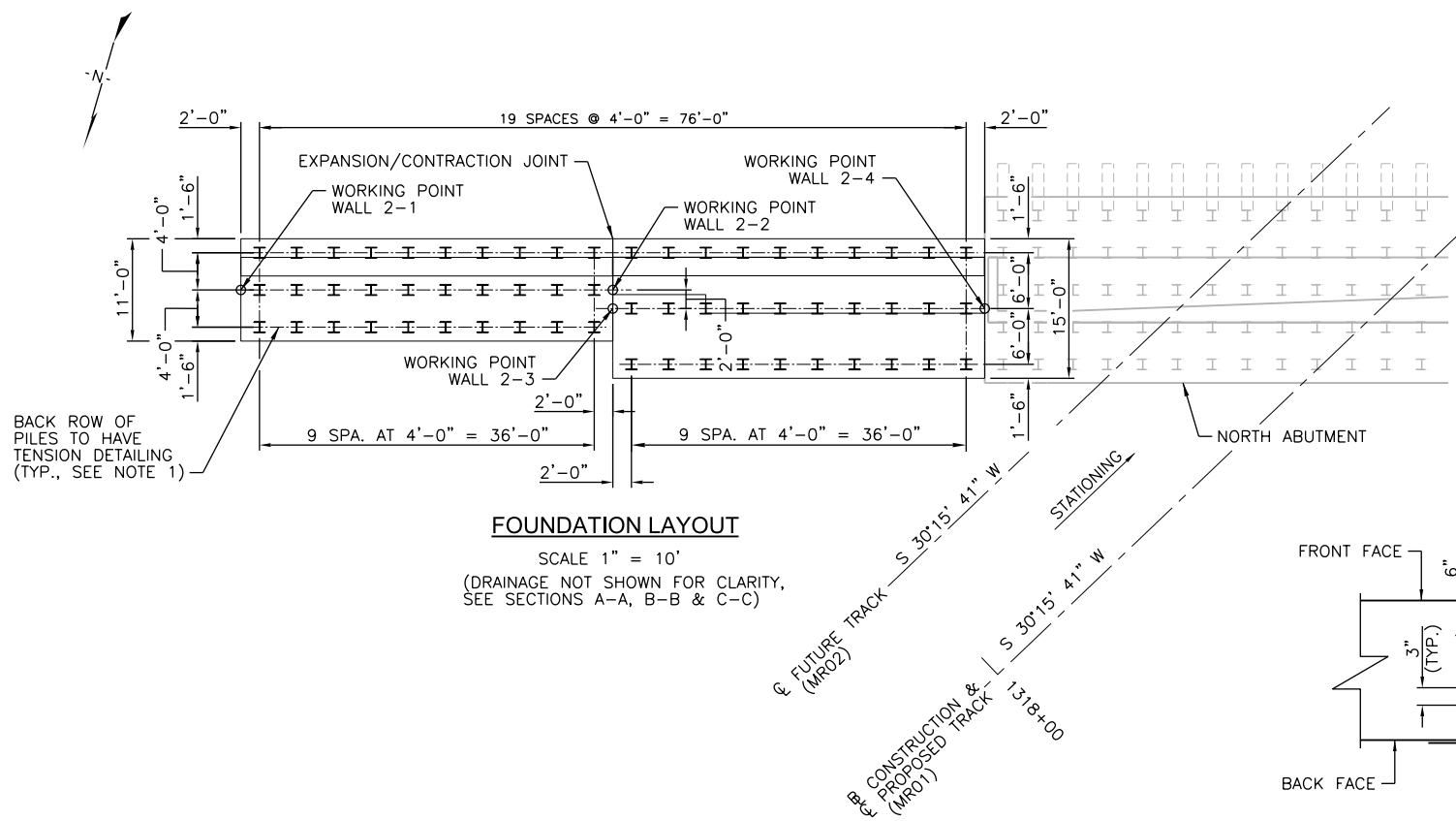
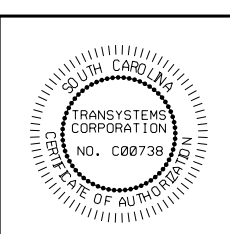
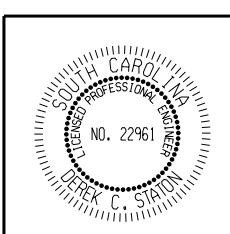


TABLE 1. PILE BEARINGS

NO. OF PILES	60
SERVICE DESIGN LOAD PER PILE	80.8 TONS
GEOTECHNICAL FACTOR OF SAFETY	2.50
DOWNDRAG	0 TONS
REQUIRED ULTIMATE BEARING PER PILE	202.0 TONS

TABLE 2. PILE TIP ELEVATION TABLE

MINIMUM PILE TIP ELEVATION (FT NAVD-88)	716.0
ESTIMATED PILE TIP ELEVATION (FT NAVD-88)	697.0



OSP#: OPSC0290

CSX ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

BRIDGE NO Z270.19 AT M.P. 270.19
WALL 2 DETAILS 1 OF 3

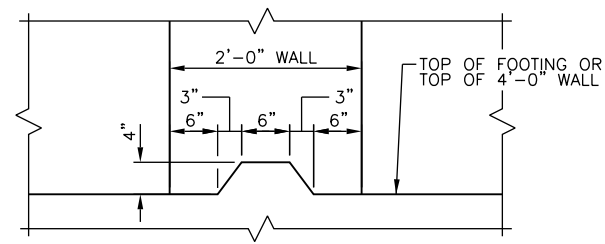
SPARTANBURG SC
DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE

SCALE: AS NOTED
DATE: 5/24/2016
DESIGN: MWR
DRAWN: JPH
CHK'D: MBM

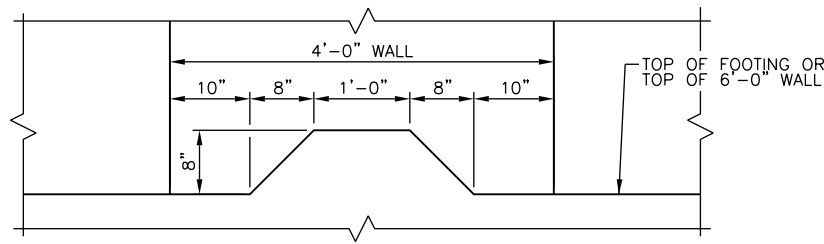
VAL. SEC. 655 SC
DRAWING NO. S-46
76 OF 139

PROJECT NO. P301140022 FILE:

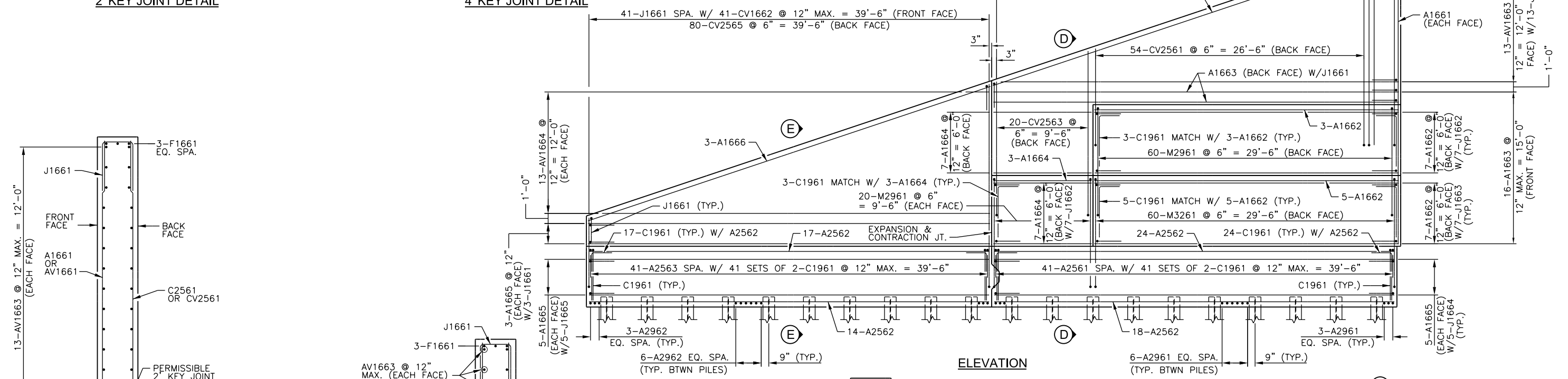
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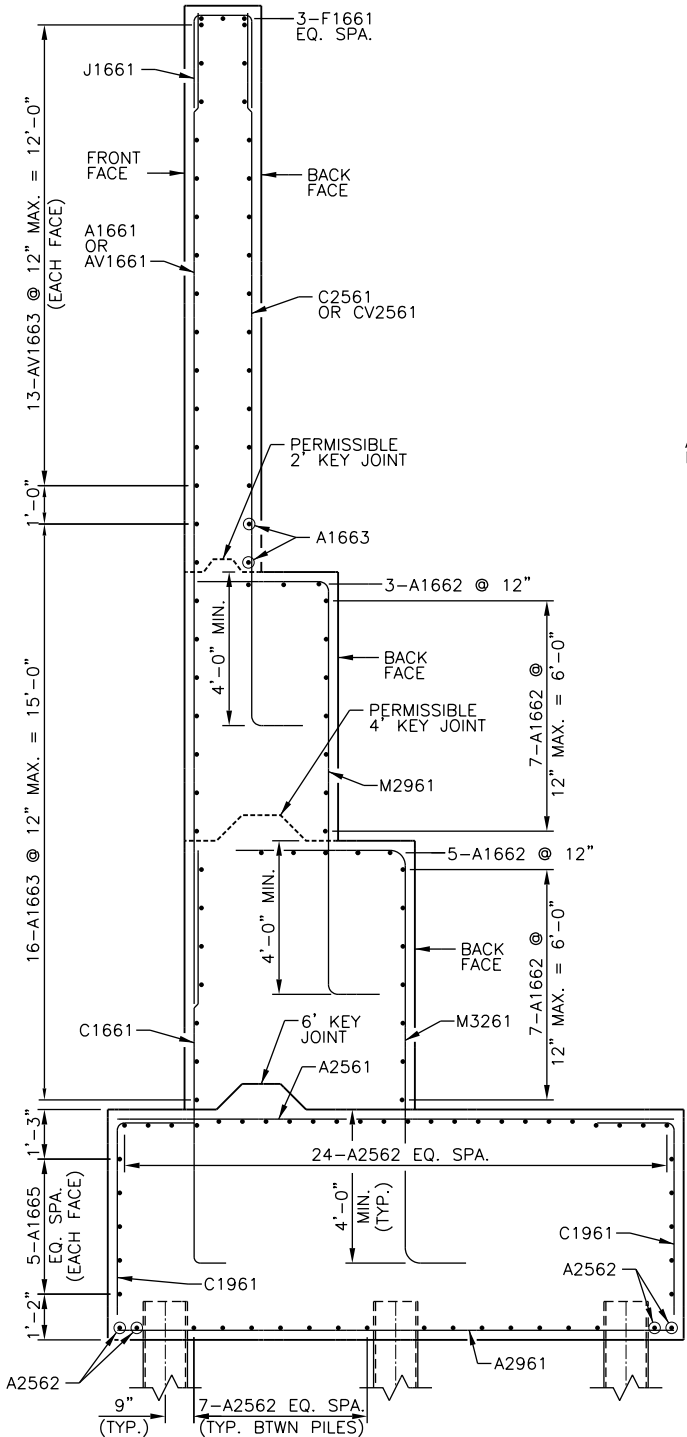
2' KEY JOINT DETAIL



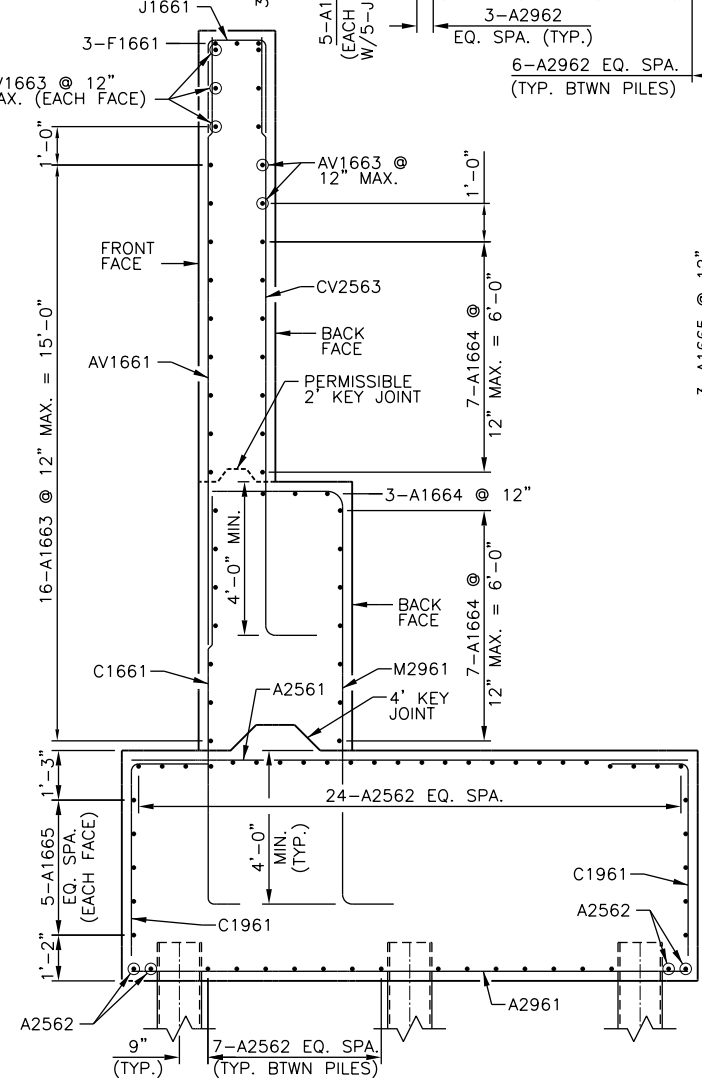
4' KEY JOINT DETAIL



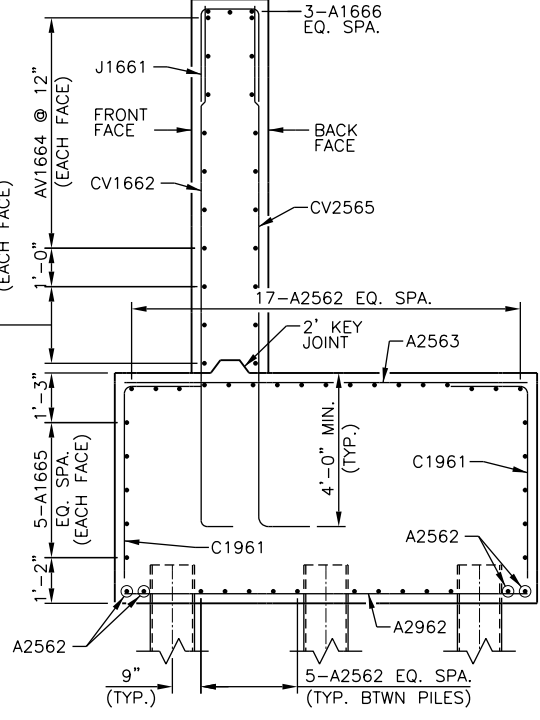
ELEVATION



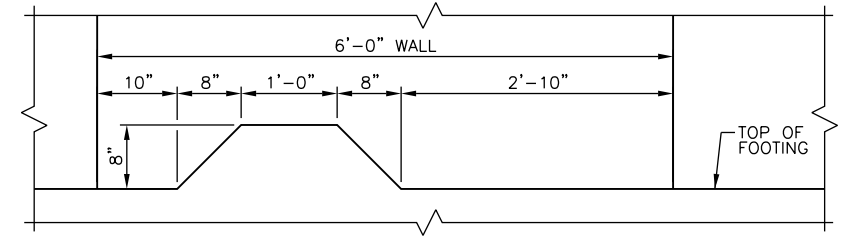
SECTION C-C



SECTION D-D



SECTION E-E



6' KEY JOINT DETAIL

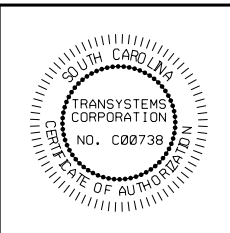
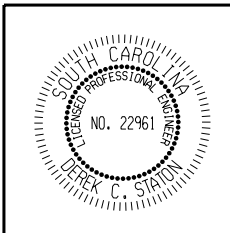
- NOTE:
1. PROVIDE 3" CLEAR CONCRETE COVER FOR REINFORCING STEEL UNLESS NOTED OTHERWISE.
 2. SEE DRAWING NO. S-43 FOR PILE EMBEDMENT DETAILS
 3. SEE DRAWING NO. S-61 FOR REINFORCING STEEL SCHEDULE.

OSP#: OPSC0290



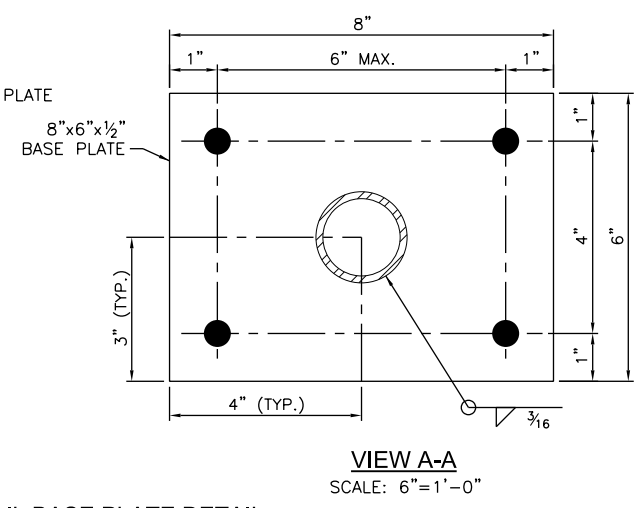
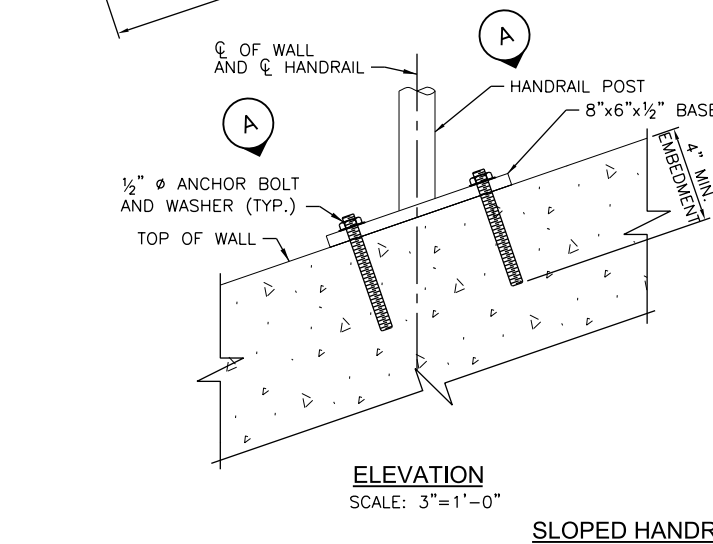
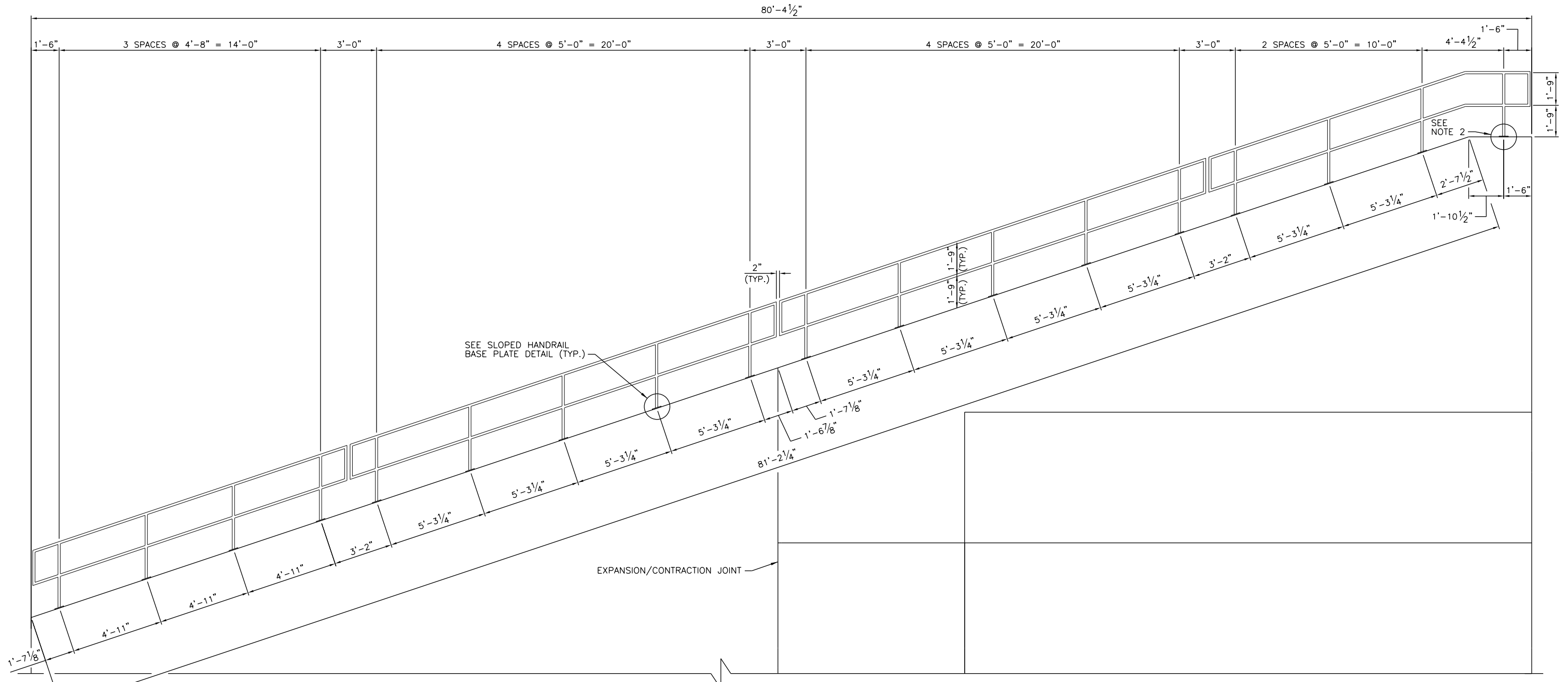
ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

REVISIONS	BRIDGE NO Z270.19 AT M.P. 270.19	
	WALL 2 DETAILS 2 OF 3	
	SPARTANBURG	SC
	DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
SCALE: AS NOTED	VAL. SEC.	DRAWING NO.
DATE: 5/24/2016	655	S-47
DESIGN: MWR	SC	77 OF 139
DRAWN: DRA		
CHK'D: MBM		



PROJECT NO. P301140022

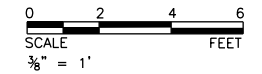
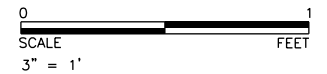
FILE:



ELEVATION WALL 2
SCALE: 3/8" = 1'

NOTE:

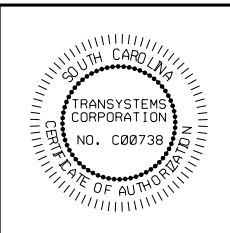
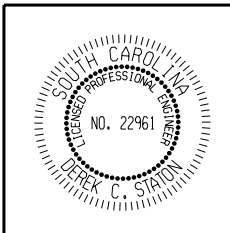
- HANDRAIL SHALL CONFORM TO PROJECT SPECIFICATION 000205.
- FOR LEVEL HANDRAIL BASE PLATE AND ANCHOR BOLT DETAILS, SEE DRAWING NO. S-45
- EACH 1/2" Ø ANCHOR BOLTS SHALL HAVE A MINIMUM CONCRETE EMBEDMENT OF 4 INCHES AND A MINIMUM TENSILE CAPACITY OF 4000 POUNDS.
- HANDRAIL SHALL CONFORM TO PROJECT SPECIFICATION 000205.
- ALL HORIZONTAL DIMENSIONS ARE MEASURED TO C. POSTS.
- ALL SLOPED DIMENSIONS ARE MEASURED TO C. OF BASE PLATES.



OSP#: OPSC0290

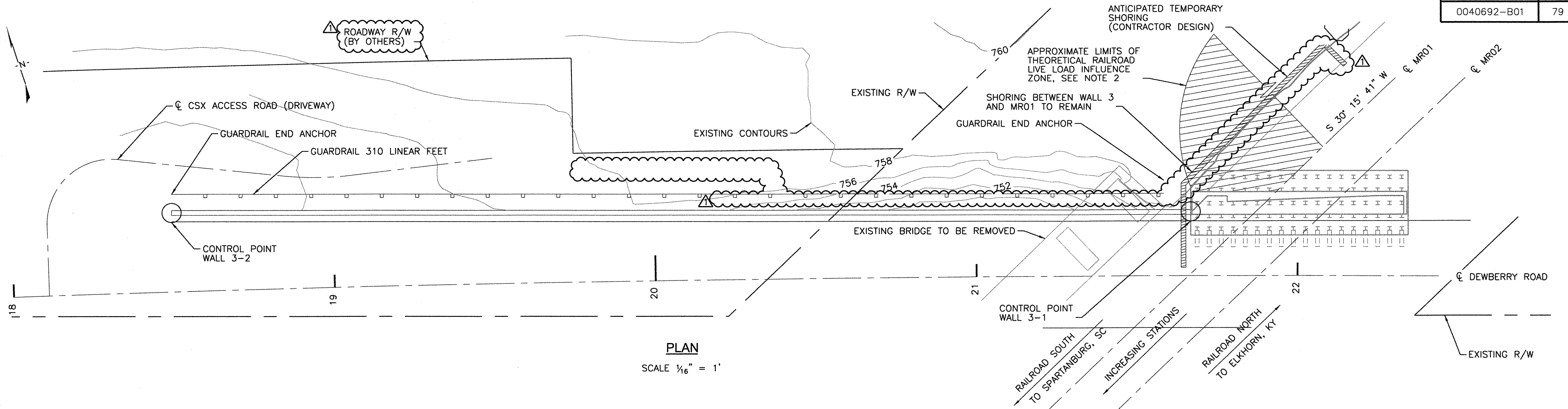


ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

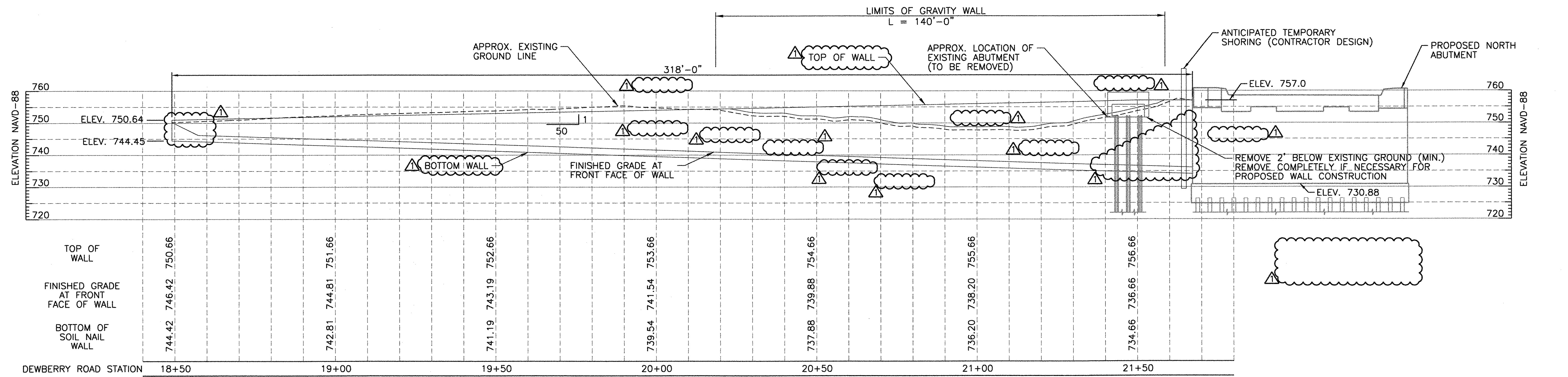


BRIDGE NO Z270.19 AT M.P. 270.19	
WALL 2 DETAILS 3 OF 3	
SPARTANBURG	SC
DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
SCALE: AS NOTED	VAL. SEC. 655
DATE: 5/24/2016	SC
DESIGN: MWR	DRAWING NO. S-48
DRAWN: DRA	78 OF 139
CHK'D: MBM	

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PLAN
SCALE 1/16" = 1'

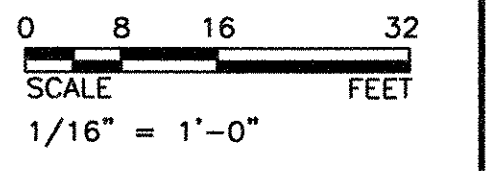


ELEVATION
SCALE 1/16" = 1'

- NOTE:
- RETAINING WALL DESIGN INCLUDING WALL TYPE SELECTION SHALL BE PERFORMED BY CONTRACTOR. SOIL NAIL WALL AND MSE WALL SHOWN FOR CONVENIENCE.
 - IN NO CASE SHALL MECHANICAL ELEMENTS OF THE WALL (I.E. RODS, ANCHORS, OR STRAPS) PROJECT INTO OR PASS THROUGH THE THEORETICAL RAILROAD LIVE LOAD INFLUENCE ZONE. THE THEORETICAL RAILROAD LIVE LOAD INFLUENCE ZONE IS DEFINED IN PART 1, ARTICLE 14 OF THE CSXT PUBLIC PROJECT MANUAL AS A 1 1/2 HORIZONTAL TO 1 VERTICAL THRORETICAL SLOPE LINE STARTING 1'-6" BELOW THE TOP OF RAIL ELEVATION AND 12'-0" FROM THE CENTERLINE OF THE NEAREST TRACK.
 - WALL DESIGN SHALL CONSIDER ALL APPLICABLE LOADS AND LOAD COMBINATIONS INCLUDING COOPER E90 RAILROAD LIVE LOAD AND HS20 HIGHWAY DESIGN SURCHARGE AS APPROPRIATE.
 - THE CONTRACTOR SHALL CONSIDER ALL SITE CONDITIONS, INCLUDING BUT NOT LIMITED TO UTILITIES, SOIL CONDITIONS, CONSTRUCTION SEQUENCE, AS PART OF DESIGN AND CONSTRUCTION.
 - TOP OF WALL FOOTING/LEVELING PAD SHALL BE A MINIMUM OF TWO (2) FEET BELOW PROPOSED GRADE AT FACE OF WALL.

- FOR TEMPORARY SHORING AND MONITORING OF STRUCTURES, SEE TECHNICAL SPECIFICATIONS.
- WALL 3 GEOMETRY MAY BE ADJUSTED BY CONTRACTOR.

CONTROL POINT	MR-01 STA.	OFFSET	DEWBERRY RD STA.	OFFSET
CONTROL POINT WALL 3-1	1318+78.17	13.66	21+67.10	20.0
CONTROL POINT WALL 3-2	1321+08.20	233.12	18+49.16	20.0



OSP#: OPSC0290

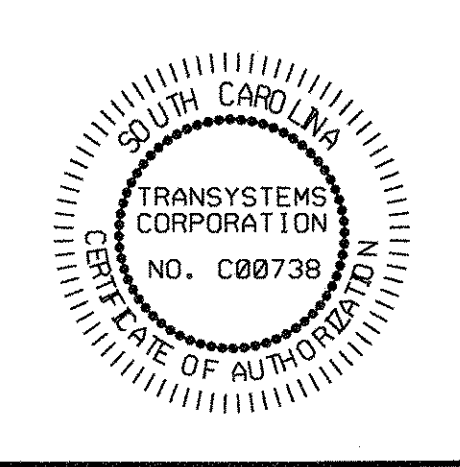
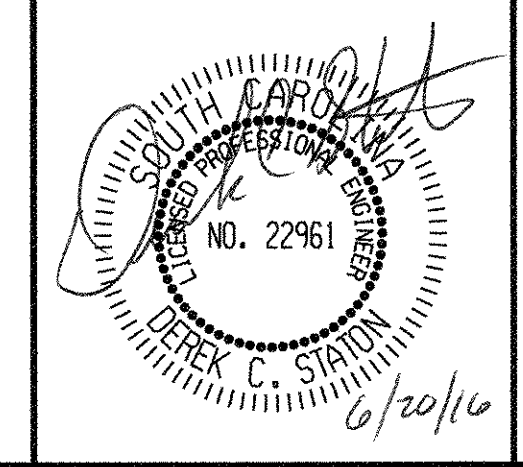
CSX ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

BRIDGE NO Z270.19 AT M.P. 270.19
WALL 3 DETAILS 1 OF 2

SPARTANBURG SC
DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE

SCALE: 1/16"=1'-0"
DATE: 6/20/2016
DESIGN: KWW
DRAWN: JPH
CHK'D: EWN

VAL. SEC. 655 SC
DRAWING NO. S-49
79 OF 139



PROJECT NO. P301140022

FILE:

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GENERAL NOTES:

ALL WORKMANSHIP AND MATERIAL ARE TO CONFORM WITH THE LATEST EDITION OF THE SCDOT STANDARD SPECIFICATIONS OF HIGHWAY CONSTRUCTION. ANY PROVIDED SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS AND THE LATEST EDITION OF THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES.

ALL DIMENSIONS ARE SUBJECT TO EXISTING FIELD CONDITIONS AND SHALL BE VERIFIED BY THE CONTRACTOR.

THE CONTRACTOR IS TO USE DUE CARE IN PROTECTION OF ALL UTILITIES IN PLACE AND SERVICE SHALL NOT BE INTERRUPTED.

CONTRACTOR SHALL DESIGN AND CONSTRUCT A NEW PERMANENT WALL WITH CONCRETE VENEER IN THE LOCATION INDICATED IN THESE PLANS. THE CONTRACTOR SHALL DESIGN THE CONCRETE VENEER AND THE CONNECTION DETAILS BETWEEN THE CONCRETE VENEER AND WALL. THE DESIGN AND DETAILS SHALL BE APPROVED BY THE RCE PRIOR TO CONSTRUCTION.

REQUIREMENTS FOR THE DESIGN AND CONSTRUCTION OF THE WALL ARE PROVIDED UNDER THE PROJECT SPECIAL PROVISIONS.

ALL ROADWAY DRAINAGE IN FRONT OF THE WALL SHALL BE INSTALLED AND PROPERLY BACKFILLED PRIOR TO CONSTRUCTION OF ARCHITECTURAL FACING.

VERTICAL DRAIN FOR WALL 3 SHALL CONFORM TO GEOCOMPOSITE WALL DRAIN. SEE SPECIAL PROVISION IN EXHIBIT 5.

CARE SHALL BE TAKEN TO AVOID SOIL NAILS AND MSE WALL STRAPS WHEN INSTALLING GUARDRAIL POSTS.

SOIL NAIL WALL NOTES:

THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF THE SOIL NAIL WALL. REFER TO THE SPECIAL PROVISIONS ENTITLED "PERMANENT SOIL NAILED RETAINING STRUCTURE" FOR THE DESIGN OF THE INTERNAL STABILITY OF THE SOIL NAIL WALL. REFER TO THE SPECIAL PROVISIONS ENTITLED "SUBSURFACE INVESTIGATION" TO VERIFY SOIL CONDITIONS LOCATED AT THE SOIL NAIL WALL.

SOIL DESIGN PARAMETERS:

- UNIT WEIGHT (PCF): 125
- INTERNAL FRICTION ANGLE (DEGREES): 30
- SEISMIC DESIGN COEFFICIENT FOR SEE = 0.14, FEE = 0.06
- BACKSLOPE (DEGREES): VARIES
- MINIMUM BATTER ON WALL AT COMPLETION OF CONSTRUCTION (DEGREES) 0
- SURCHARGE LOAD (PSF): 250
- MAXIMUM ALLOWABLE WALL DEFORMATION FOR SOIL NAIL WALL HEIGHTS UP TO 10 FEET (INCHES): 0.5
- MAXIMUM ALLOWABLE WALL DEFORMATION FOR SOIL NAIL WALL HEIGHTS GREATER THAN 10 FEET (INCHES): 1

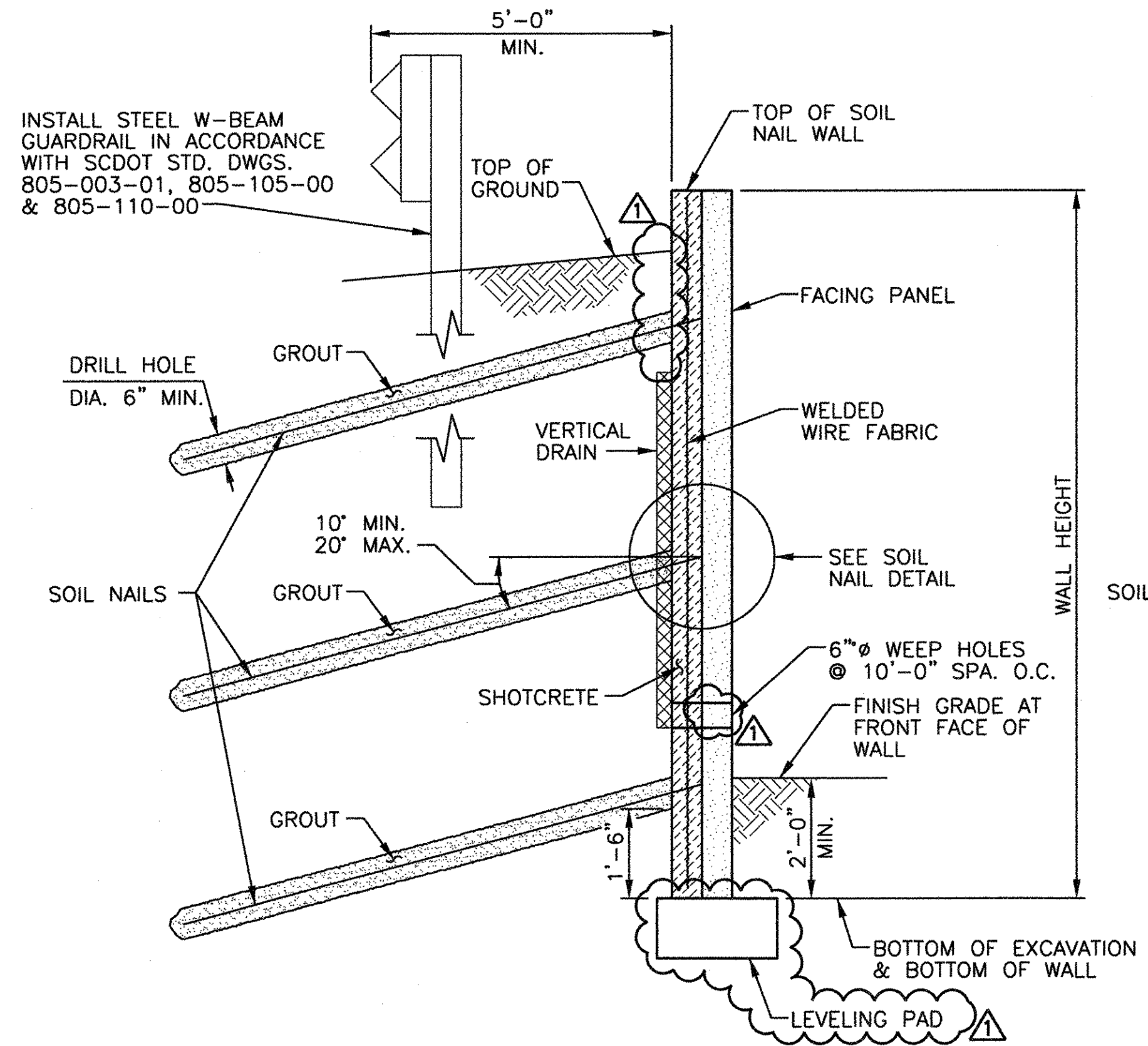
EXPANSION JOINTS:

EXPANSION JOINTS SHALL BE PLACED AT A MAXIMUM INTERVAL OF 90 FEET FOR THE ENTIRE LENGTH OF THE WALL. EXPANSION JOINTS SHOULD ALSO BE PLACED NEAR CORNERS AND NEAR HEIGHT STEPS IN THE WALL.

EXPANSION JOINTS SHALL BE CONSTRUCTED OF AN APPROVED SEALANT, WHICH IS HELD IN PLACE BY A BACKER ROD. EXPANSION JOINTS SHALL BE A MINIMUM OF 1/2" IN THICKNESS.

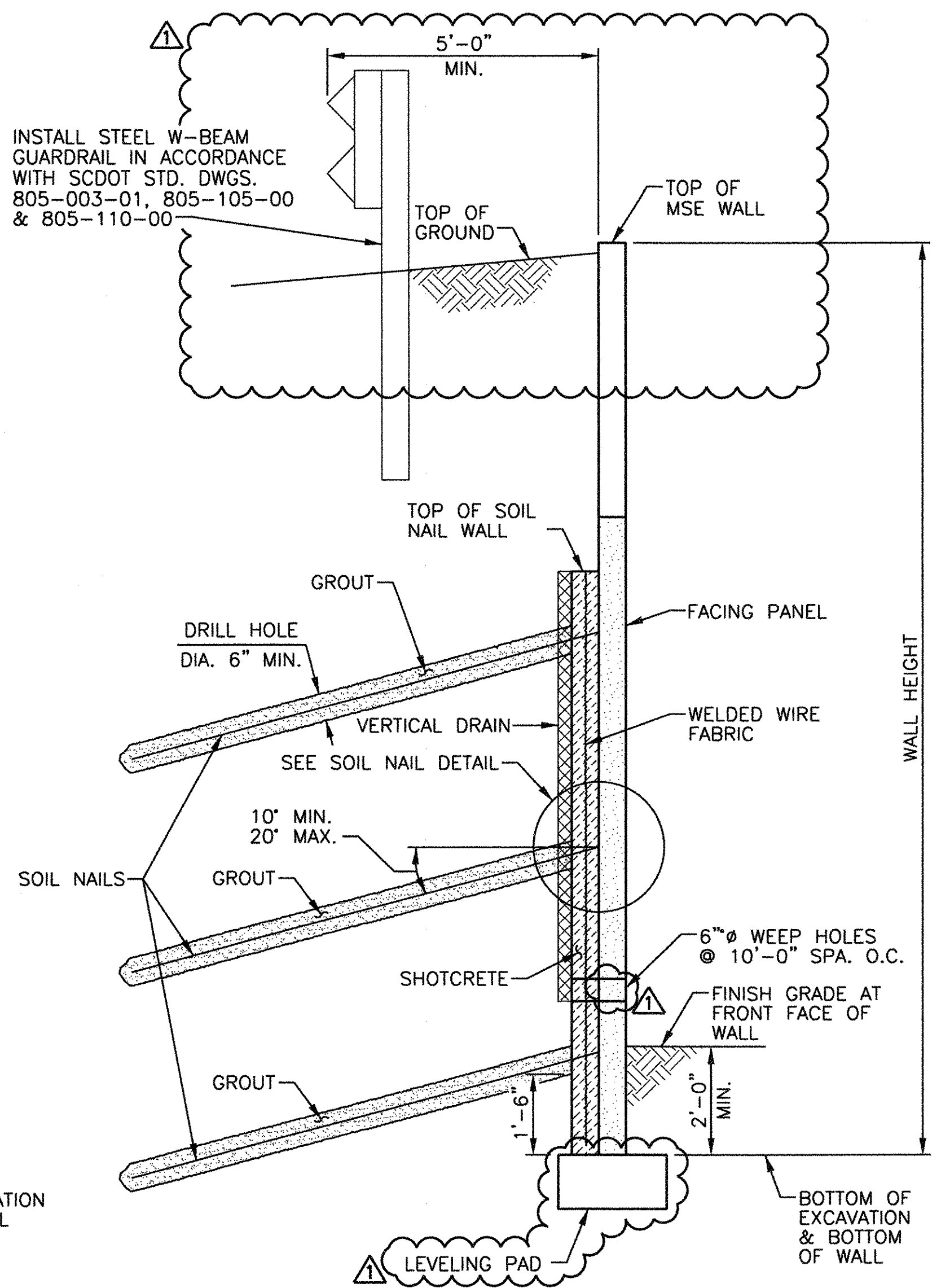
SUBSURFACE INVESTIGATION:

SOIL TEST BORINGS SHALL BE PERFORMED IN ACCORDANCE WITH SCDOT GDM AND FHWA PUBLICATION NO. FHWA-NHI-14-007 SOIL NAIL WALLS REFERENCE MANUAL.



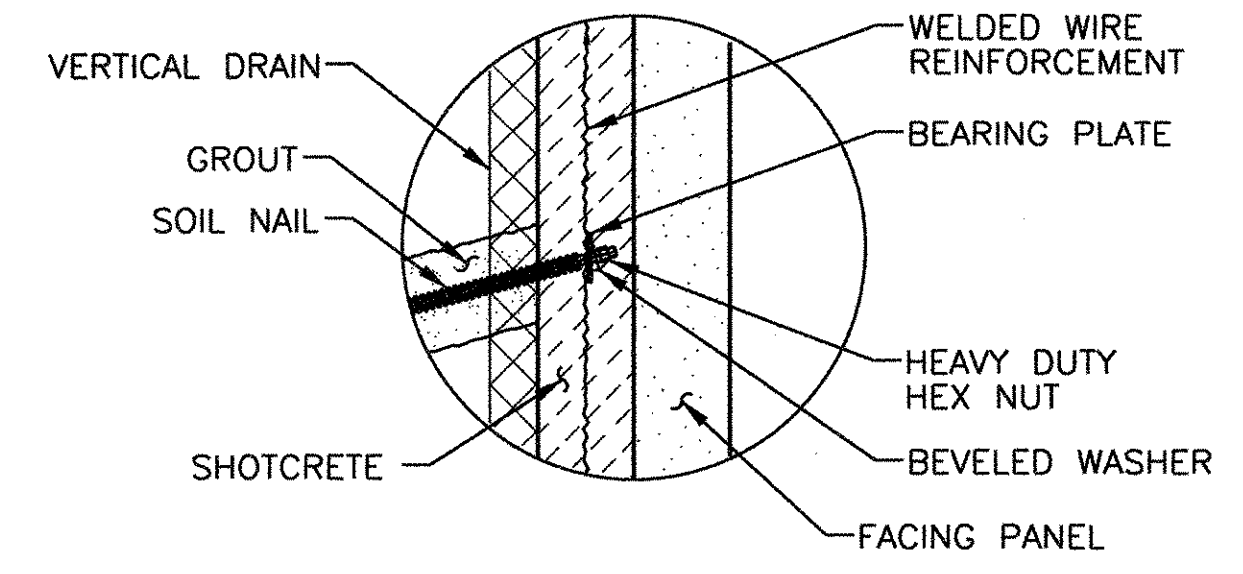
TYPICAL SECTION THROUGH SOIL NAIL ONLY

SCALE: 1/2" = 1'
FOR INFORMATION ONLY



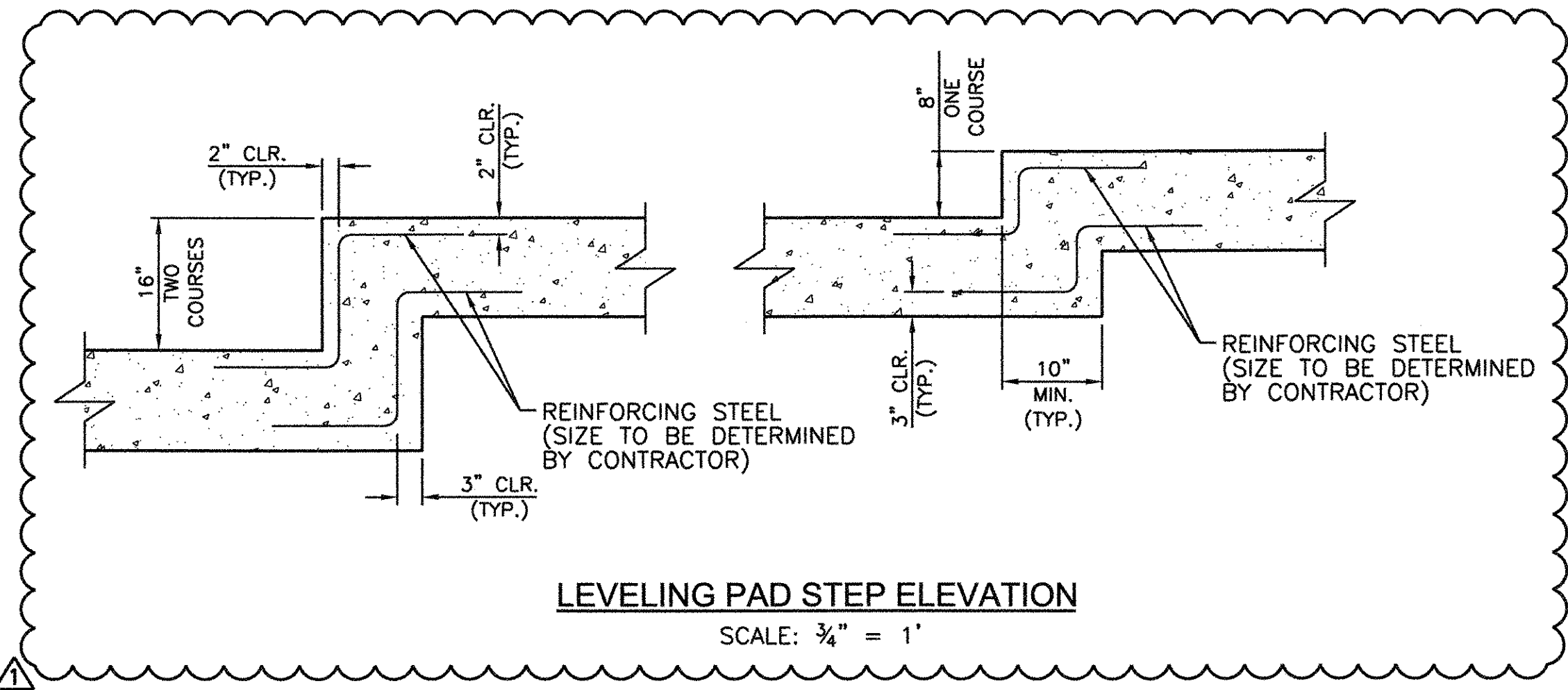
TYPICAL SECTION THROUGH SOIL NAIL AND MSE WALL

SCALE: 1/2" = 1'
FOR INFORMATION ONLY



SOIL NAIL DETAIL

SCALE: 1" = 1'
FOR INFORMATION ONLY

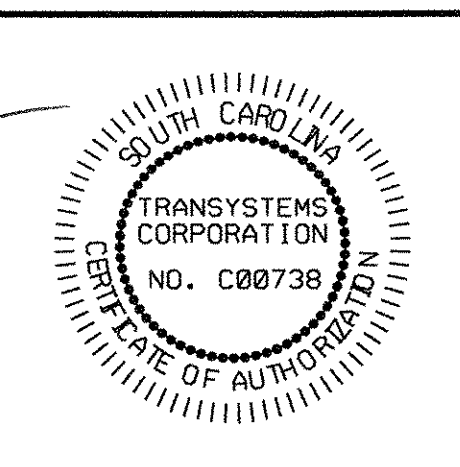
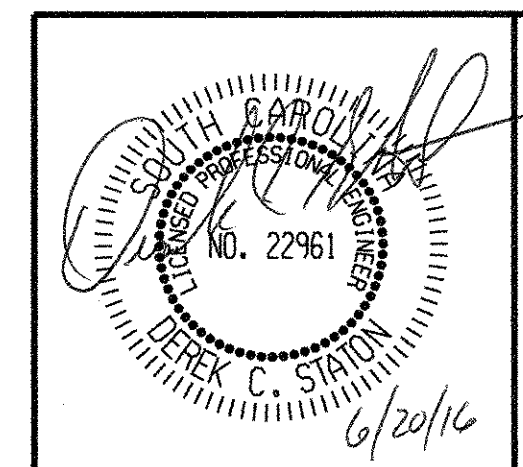


LEVELING PAD STEP ELEVATION

SCALE: 3/4" = 1'

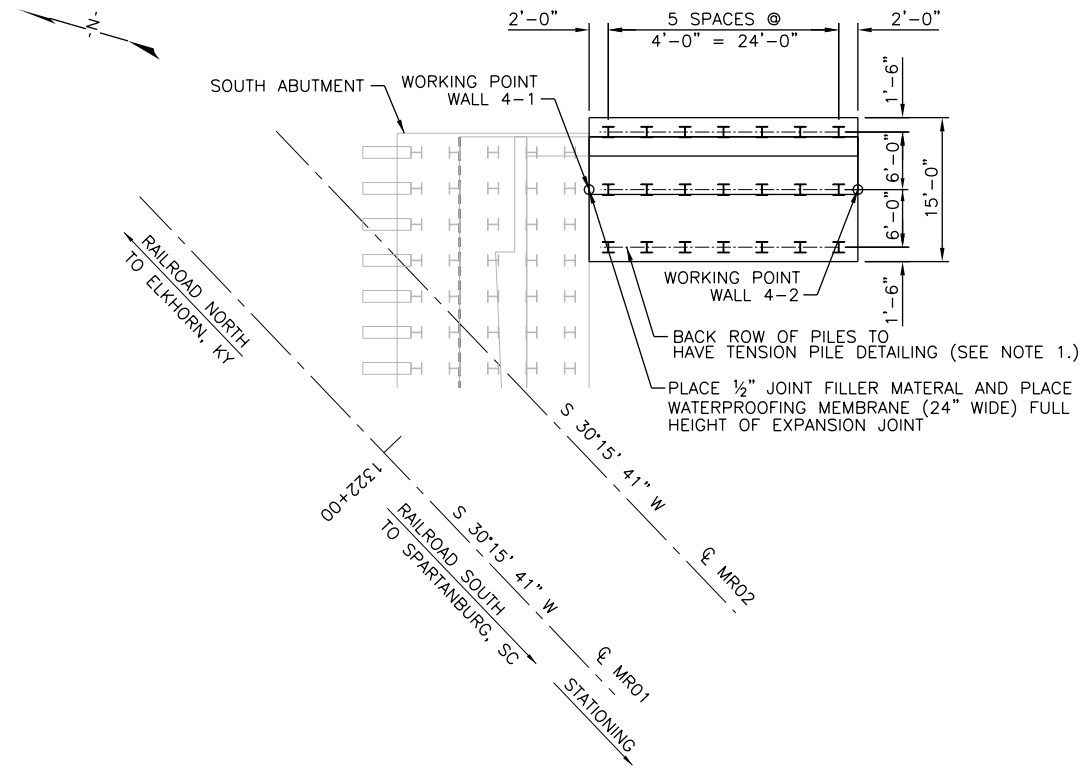
OSP#: OPSC0290

	ENGINEERING DEPARTMENT MAINTENANCE OF WAY BRIDGE MAINTENANCE AND DESIGN	
	BRIDGE NO Z270.19 AT M.P. 270.19	
WALL 3 DETAILS 2 OF 2		SC
SPARTANBURG		SC
DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE	
SCALE: AS NOTED	VAL. SEC. 655	DRAWING NO. S-50
DATE: 6/20/2016	SC	80 OF 139
DESIGN: KWW		
DRAWN: JPH		
CHK'D: EWN		

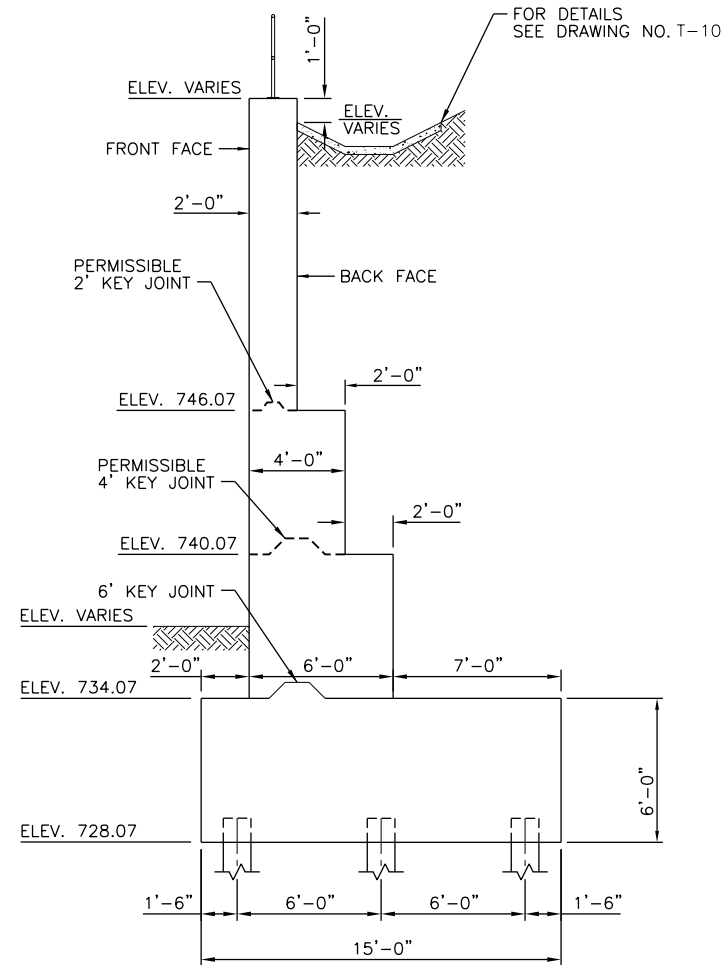


PROJECT NO. P301140022

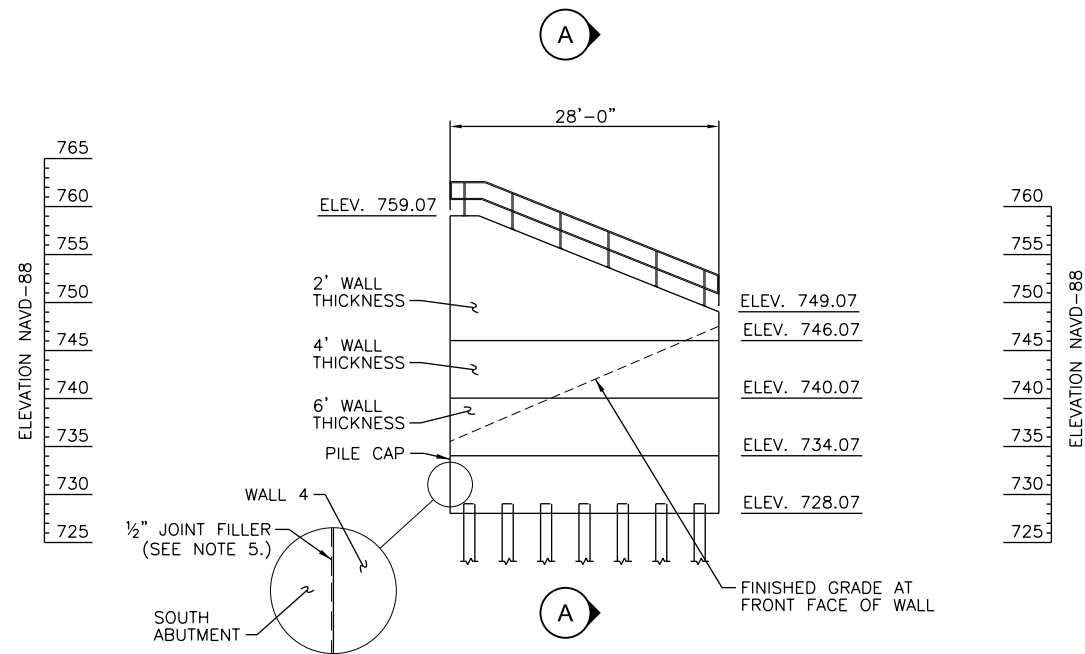
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FOUNDATION LAYOUT
SCALE 1" = 10'



SECTION A-A
SCALE 1/4" = 1'



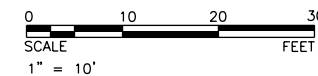
ELEVATION
SCALE 1" = 10'

WORKING POINT	MR-01 STA.	OFFSET
WALL 4 - 1	1321+94.93	34.39' LEFT
WALL 4 - 2	1322+14.26	54.64' LEFT

TABLE 2. PILE TIP ELEVATION TABLE	
MINIMUM PILE TIP ELEVATION (FT NAVD-88)	720.0
ESTIMATED PILE TIP ELEVATION (FT NAVD-88)	710.0

TABLE 1. PILE BEARINGS	
NO. OF PILES	21
SERVICE DESIGN LOAD PER PILE	74.6 TONS
GEOTECHNICAL FACTOR OF SAFETY	2.50
DOWNDRAG	0 TONS
REQUIRED ULTIMATE BEARING PER PILE	186.5 TONS

- NOTES:
- FOR ANCHORAGE DETAIL FOR STEEL H-PILES, SEE DRAWING NO. S-20.
 - FOR STEEL H-PILE GENERAL NOTES, SEE DRAWING NO. S-07.
 - FOR HANDRAIL DETAILS FOR WALL 4, SEE DRAWING NO. S-53.
 - FOR KEY JOINT DETAILS, SEE DRAWING NO. S-52.
 - PLACE 1/2" JOINT FILLER ALONG WALL 4/ SOUTH ABUTMENT INTERFACE WITH 24" WIDE WATERPROOFING MEMBRANE CENTERED ON INTERFACE (BACK FACE).



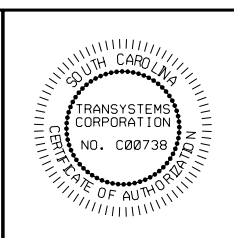
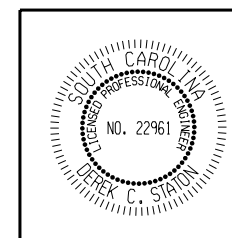
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ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

REVISIONS

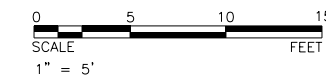
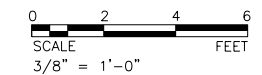
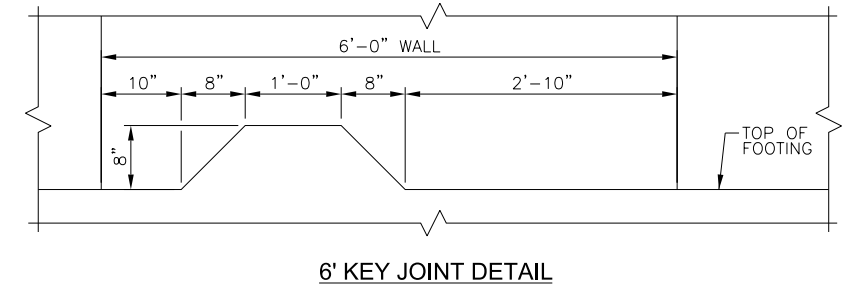
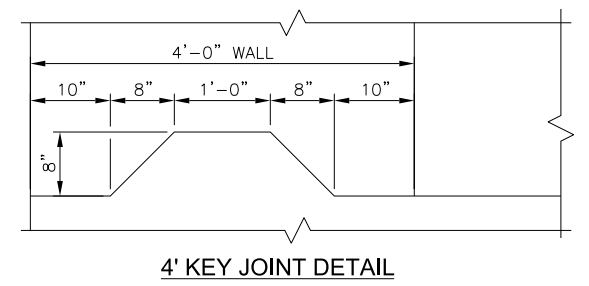
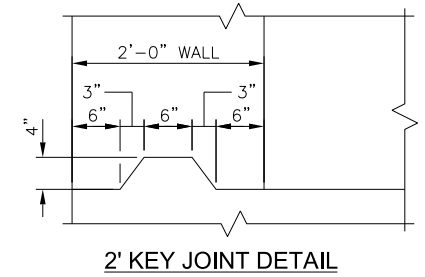
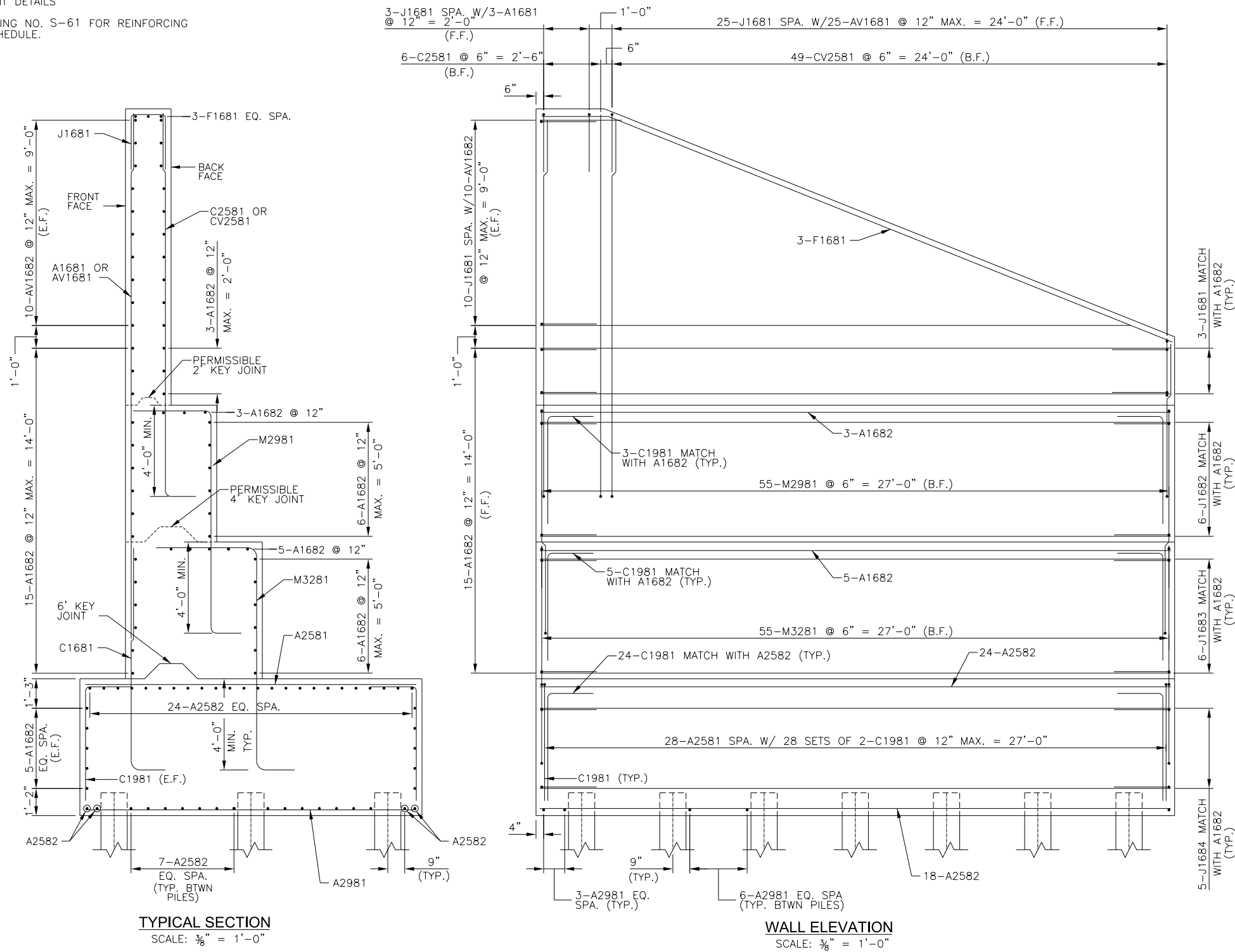
BRIDGE NO Z270.19 AT M.P. 270.19	
WALL 4 DETAILS 1 OF 3	
SPARTANBURG	SC
DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
SCALE: AS NOTED	VAL. SEC. 655
DATE: 5/24/2016	SC
DESIGN: CKW	DRAWING NO. S-51
DRAWN: DWH	81 OF 139
CHK'D: MBM	



PROJECT NO. P301140022

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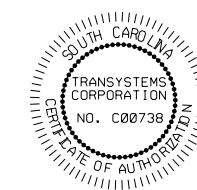
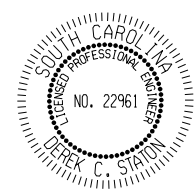
- NOTE:
1. PROVIDE 3" MIN. CLEAR CONCRETE COVER FOR REINFORCING STEEL.
 2. SEE DRAWING NO. S-43 FOR PILE EMBEDMENT DETAILS
 3. SEE DRAWING NO. S-61 FOR REINFORCING STEEL SCHEDULE.



OSP#: OPSC0290



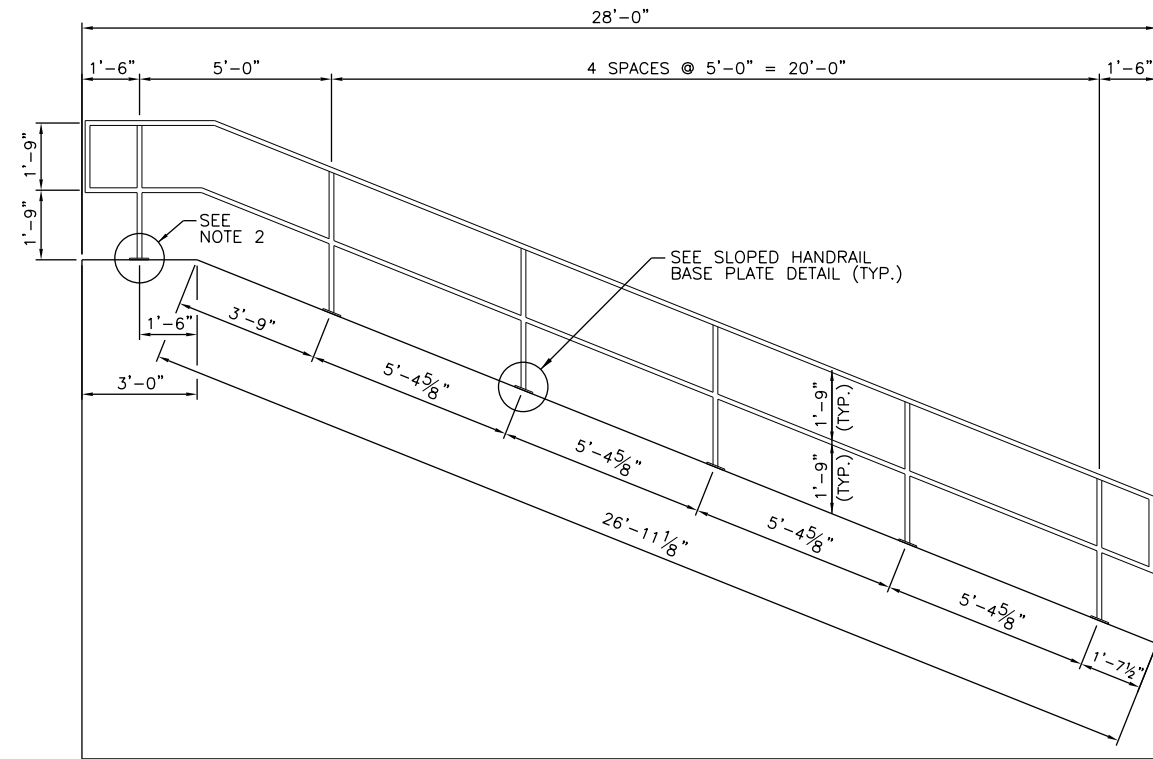
ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN



BRIDGE NO Z270.19 AT M.P. 270.19	
WALL 4 DETAILS 2 OF 3	
SPARTANBURG	SC
DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
SCALE: AS NOTED	VAL. SEC. 655
DATE: 5/24/2016	SC
DESIGN: CKW	DRAWING NO. S-52
DRAWN: DWH	82 OF 139
CHK'D: MBM	

PROJECT NO. P301140022

FILE:



ELEVATION WALL 4
SCALE: 3" = 1'

NOTE:

- HANDRAIL SHALL CONFORM TO PROJECT SPECIFICATION 000205.
- FOR LEVEL HANDRAIL BASE PLATE AND ANCHOR BOLT DETAILS, SEE DRAWING NO. S-45
- FOR SLOPED HANDRAIL AND ANCHOR BOLT DETAILS, SEE DRAWING NO. S-48.
- EACH 1/2" Ø ANCHOR BOLTS SHALL HAVE A MINIMUM CONCRETE EMBEDMENT OF 4 INCHES AND A MINIMUM TENSILE CAPACITY OF 4000 POUNDS.
- HANDRAIL SHALL CONFORM TO PROJECT SPECIFICATION 000205.
- ALL HORIZONTAL DIMENSIONS ARE MEASURED TO C OF POSTS.
- ALL SLOPED DIMENSIONS ARE MEASURED TO C OF BASE PLATES.



OSP#: OPSC0290



ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

REVISIONS

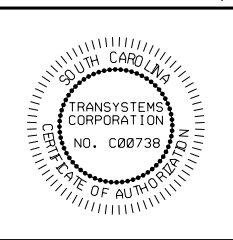
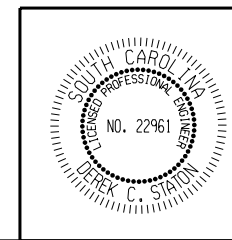
BRIDGE NO Z270.19 AT M.P. 270.19

WALL 4 DETAILS 3 OF 3

SPARTANBURG SC

DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE

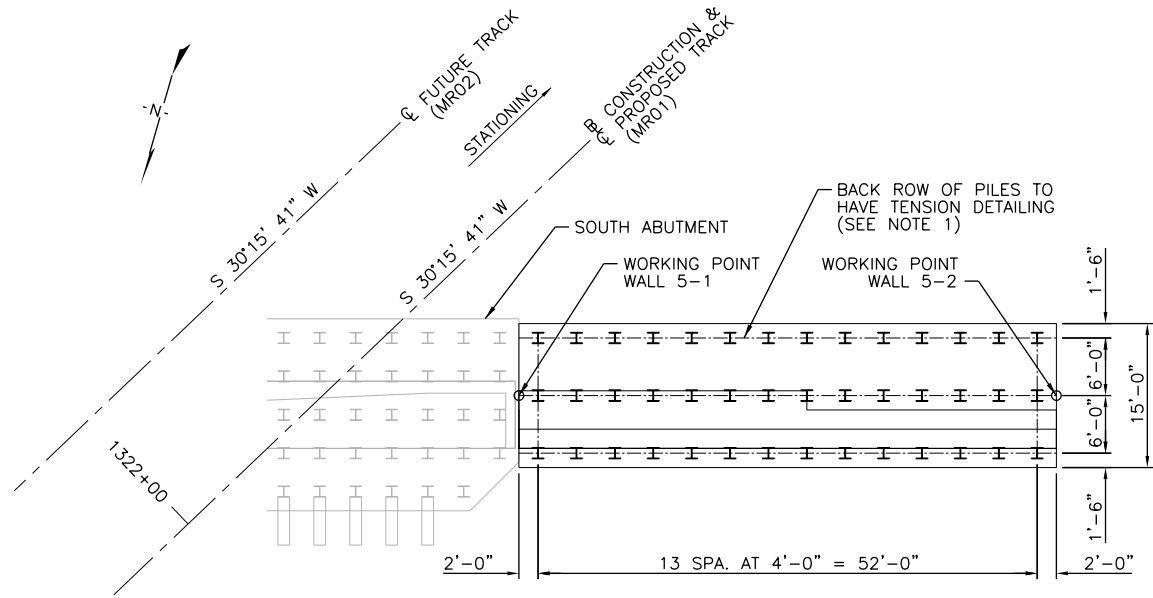
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DATE: 5/24/2016	655	S-53
DESIGN: CKW	SC	83 OF 139
DRAWN: DWH		
CHK'D: MBM		



PROJECT NO. P301140022

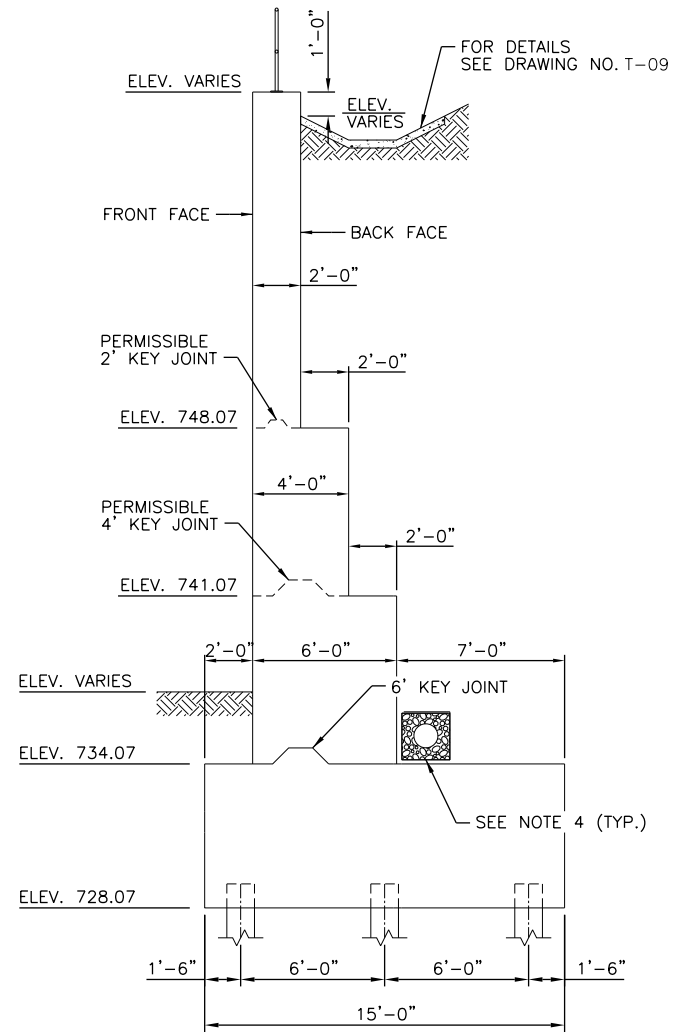
FILE:

- NOTES:
- FOR ANCHORAGE DETAIL FOR STEEL H-PILES, SEE DRAWING NO. S-20.
 - FOR STEEL H-PILE GENERAL NOTES, SEE DRAWING NO. S-07.
 - FOR HANDRAIL DETAILS FOR WALL 5, SEE DRAWING NO. S-56.
 - FOR DRAINAGE BEHIND THE WALL, SEE DRAWING NO. S-39.
 - FOR KEY JOINT DETAILS, SEE DRAWING NO. S-55.
 - PLACE 1/2" JOINT FILLER ALONG WALL 5/ SOUTH ABUTMENT INTERFACE WITH 24" WIDE WATERPROOFING MEMBRANE CENTERED ON INTERFACE (BACK FACE).



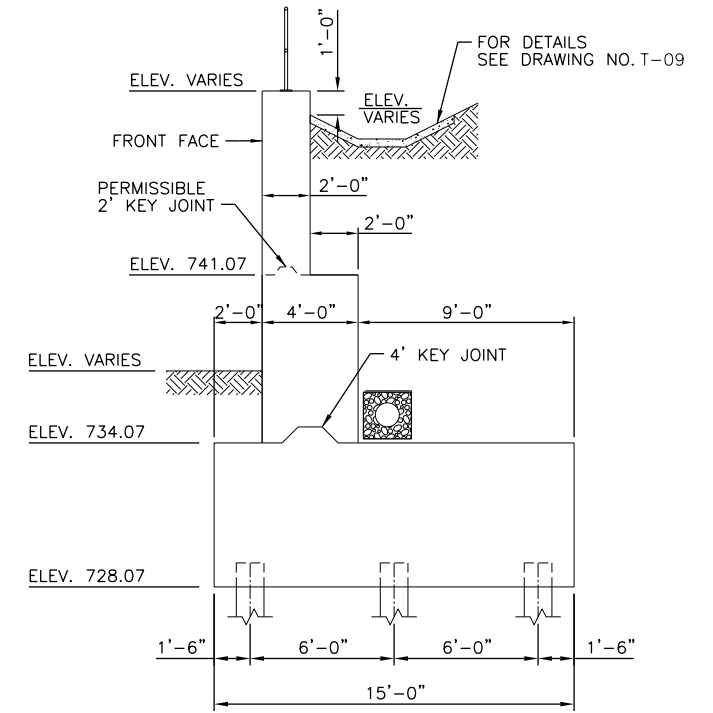
FOUNDATION LAYOUT

SCALE 1" = 10'
(DRAINAGE NOT SHOWN FOR CLARITY, SEE SECTIONS A-A & B-B)



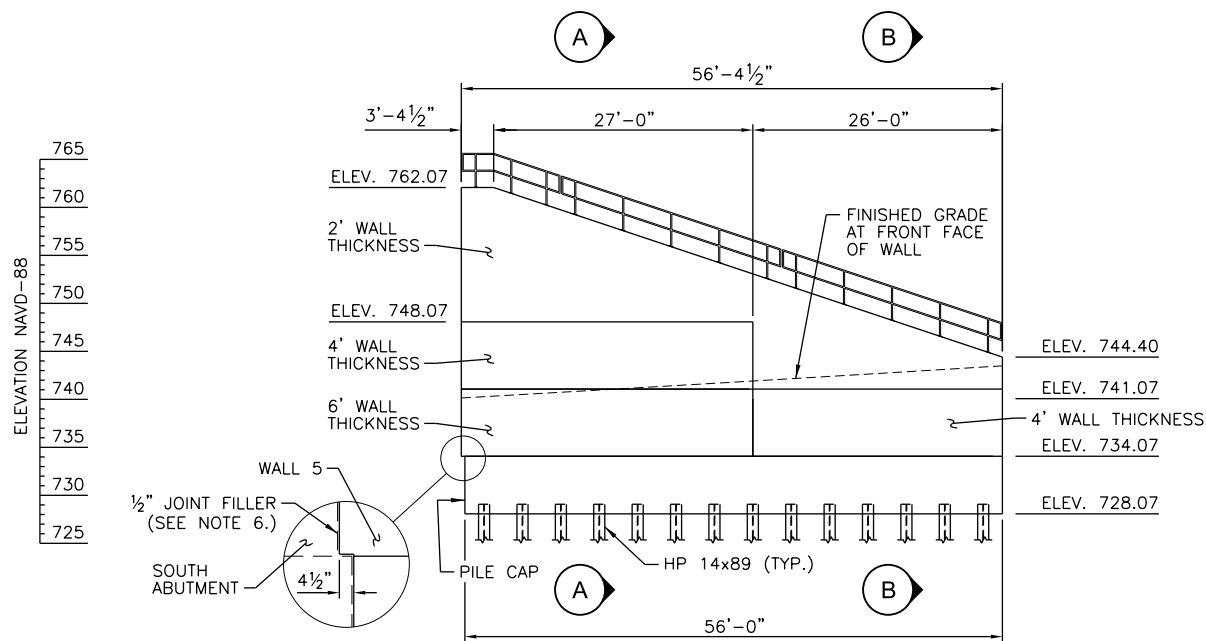
SECTION A-A

SCALE 1/4" = 1'



SECTION B-B

SCALE 1/4" = 1'



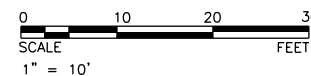
ELEVATION

SCALE 1" = 10'

WORKING POINT	MR-01 STA.	OFFSET
WALL 5 - 1	1322+34.17	14.11' RIGHT
WALL 5 - 2	1322+74.69	52.77' RIGHT

TABLE 2. PILE TIP ELEVATION TABLE	
MINIMUM PILE TIP ELEVATION (FT NAVD-88)	720.0
ESTIMATED PILE TIP ELEVATION (FT NAVD-88)	694.0

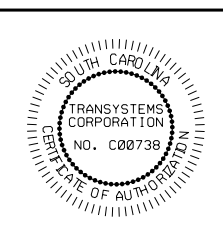
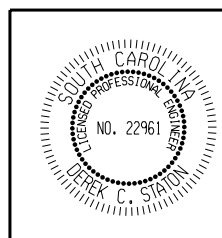
TABLE 1. PILE BEARINGS	
NO. OF PILES	42
SERVICE DESIGN LOAD PER PILE	83.7 TONS
GEOTECHNICAL FACTOR OF SAFETY	2.50
DOWNDRAW	0 TONS
REQUIRED ULTIMATE BEARING PER PILE	209.3 TONS



OSP#: OPSC0290



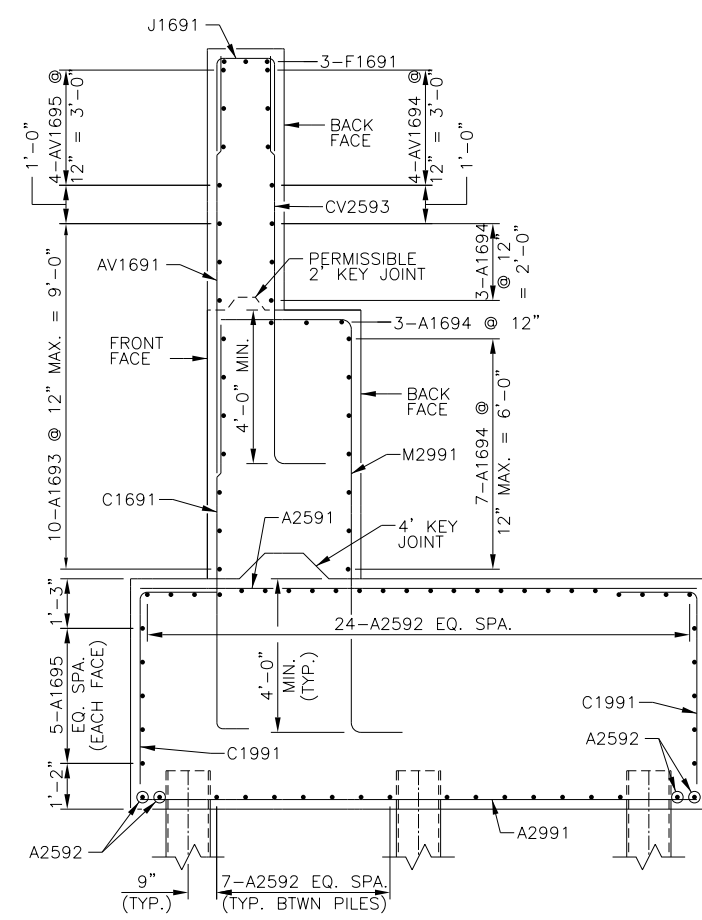
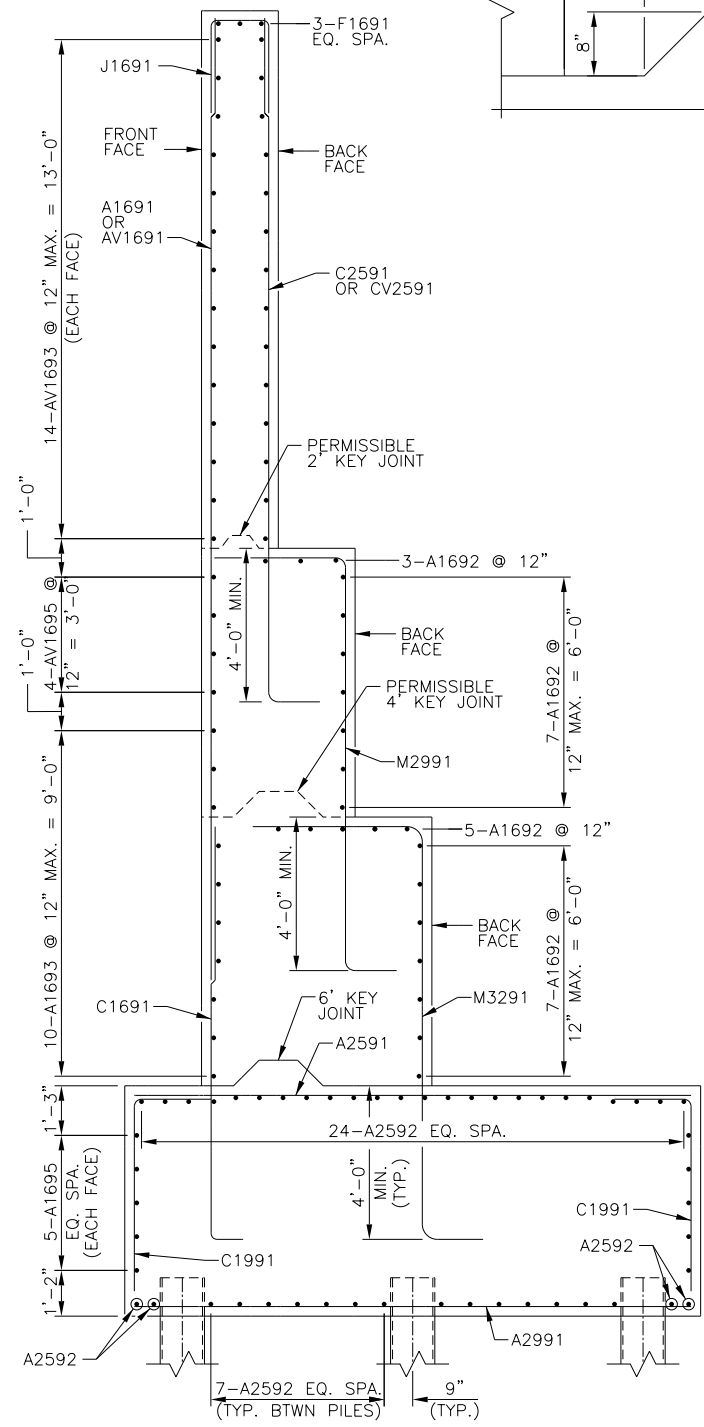
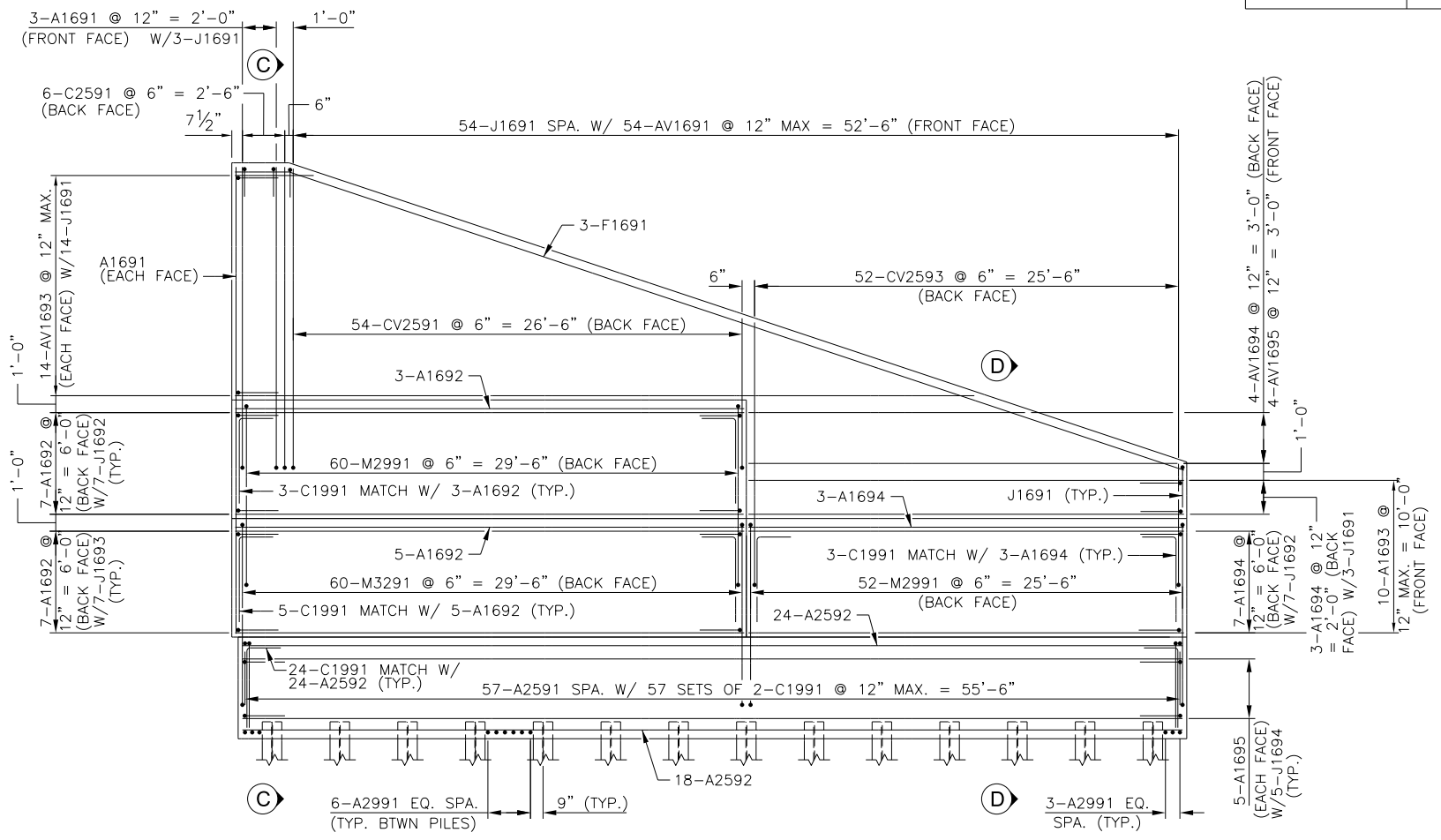
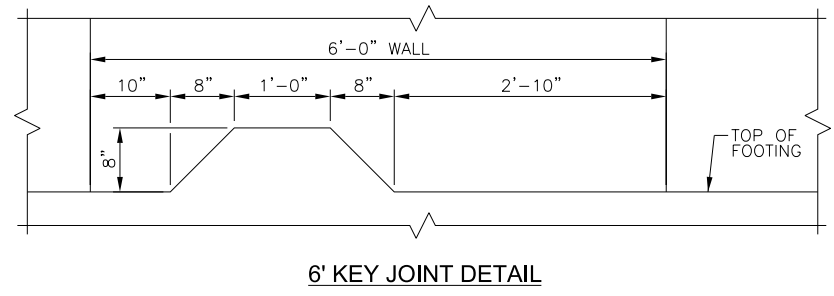
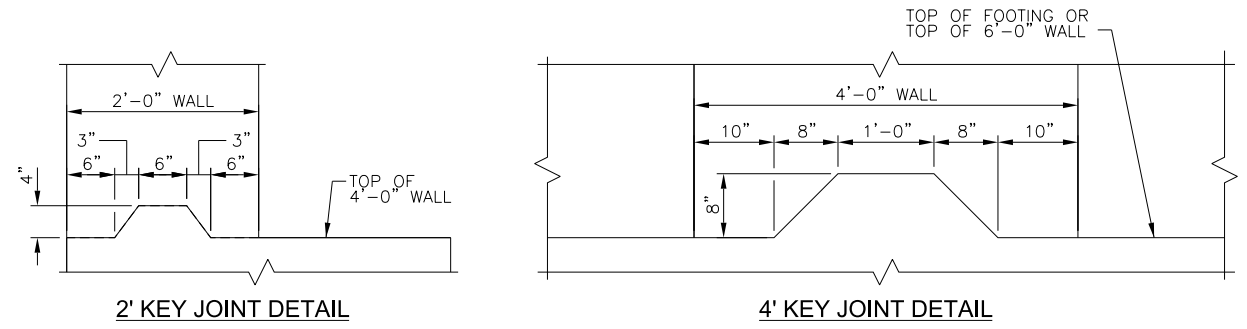
ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN



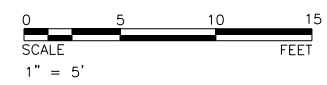
REVISIONS		BRIDGE NO Z270.19 AT M.P. 270.19	
		WALL 5 DETAILS 1 OF 3	
		SPARTANBURG SC	
		DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE	
SCALE: AS NOTED	VAL. SEC.	DRAWING NO.	
DATE: 5/24/2016	655	S-54	
DESIGN: MWR	SC	84 OF 139	
DRAWN: JPH			
CHK'D: MBM			

PROJECT NO. P301140022

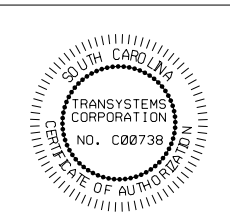
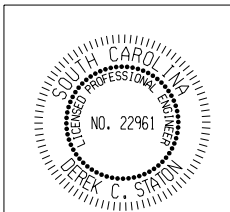
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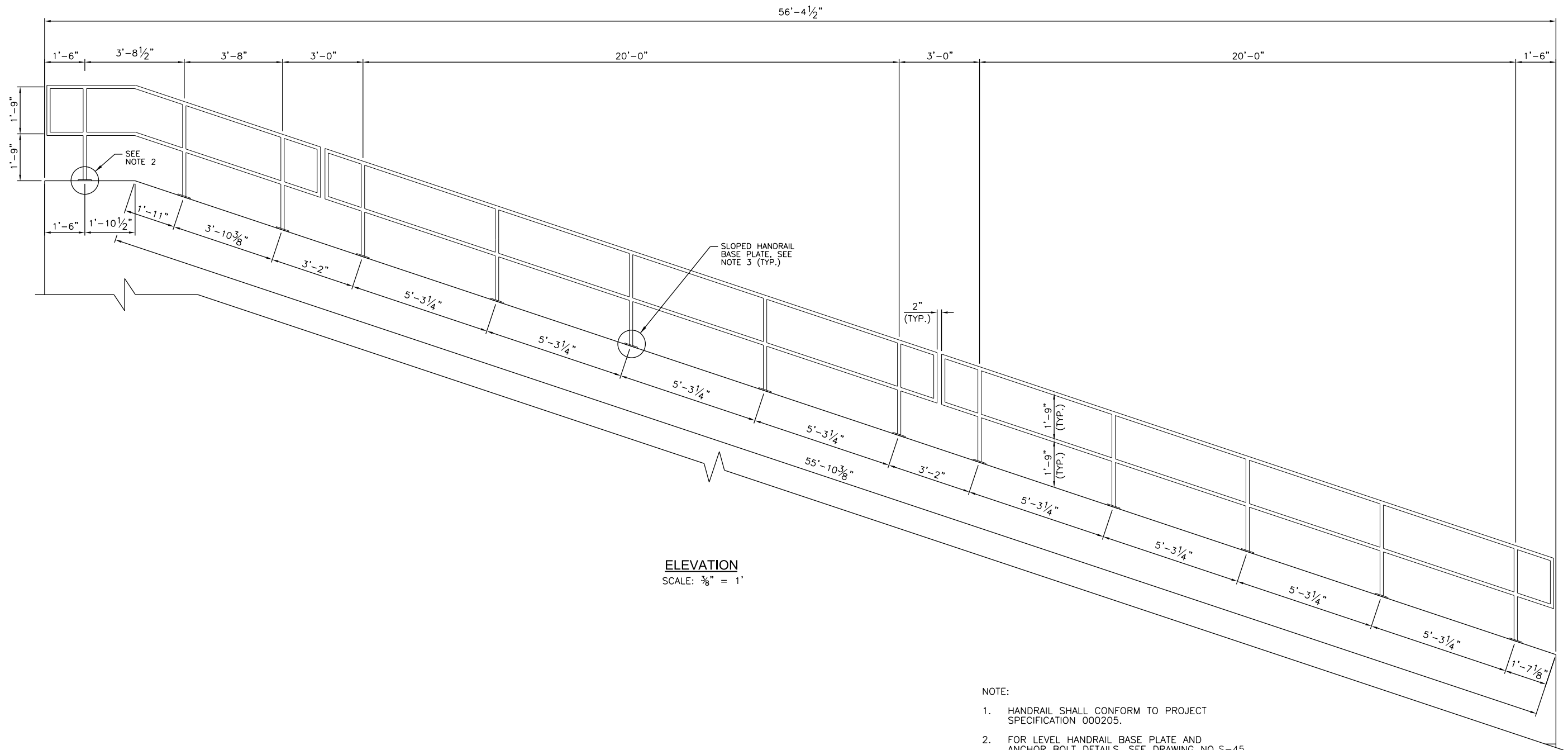


- NOTE:
1. PROVIDE 3" CONCRETE CLEAR COVER FOR REINFORCING STEEL UNLESS NOTED OTHERWISE.
 2. SEE DRAWING NO. S-43 FOR PILE EMBEDMENT DETAILS
 3. SEE DRAWING NO. S-61 FOR REINFORCING STEEL SCHEDULE.



OSP#: OPSC0290	
CSX <small>How tomorrow moves.</small>	
ENGINEERING DEPARTMENT MAINTENANCE OF WAY BRIDGE MAINTENANCE AND DESIGN	
BRIDGE NO Z270.19 AT M.P. 270.19	
WALL 5 DETAILS 2 OF 3	
SPARTANBURG SC	
DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
SCALE: AS NOTED DATE: 5/24/2016 DESIGN: MWR DRAWN: DRA CHK'D: MBM	VAL. SEC. 655 SC
PROJECT NO. P301140022	DRAWING NO. S-55 85 OF 139





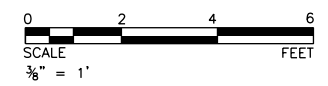
ELEVATION
SCALE: 3/8" = 1'

- NOTE:
- HANDRAIL SHALL CONFORM TO PROJECT SPECIFICATION 000205.
 - FOR LEVEL HANDRAIL BASE PLATE AND ANCHOR BOLT DETAILS, SEE DRAWING NO.S-45
 - FOR SLOPED HANDRAIL BASE PLATE AND ANCHOR BOLT DETAILS, SEE DRAWING NO.S-48
 - ALL HORIZONTAL DIMENSIONS ARE MEASURED TO ϕ POSTS.
 - ALL SLOPED DIMENSIONS ARE MEASURED TO ϕ OF BASE PLATES.

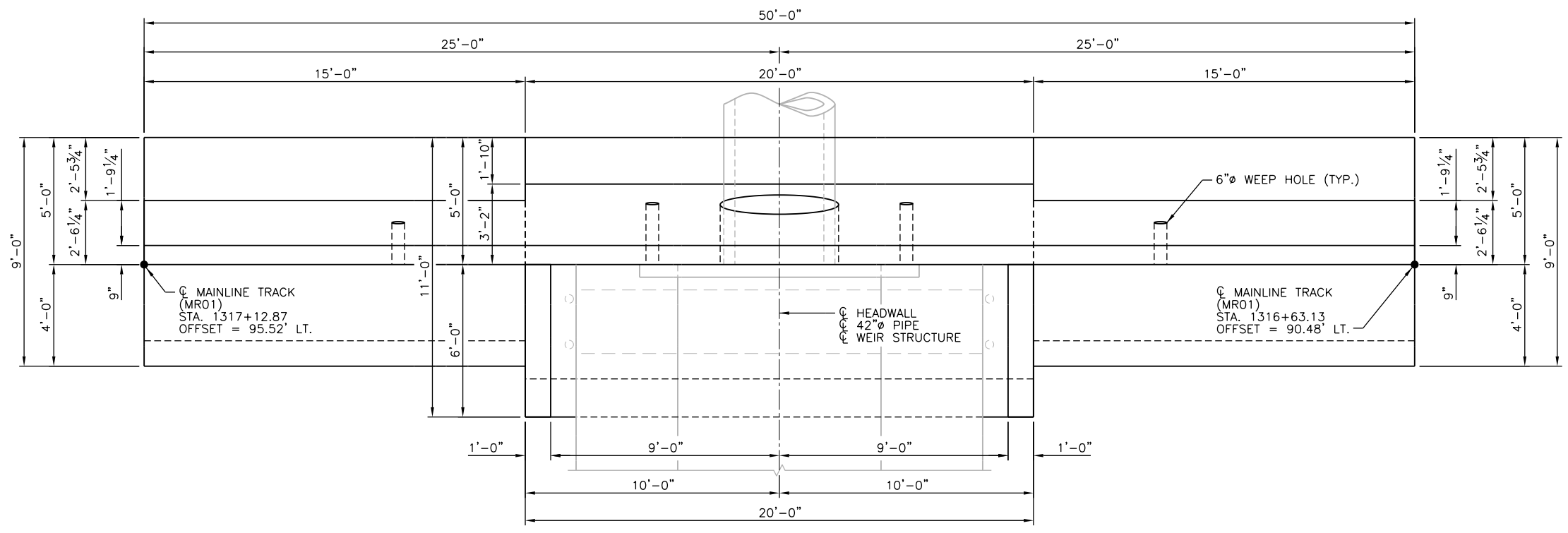
OSP#: OPSC0290

	ENGINEERING DEPARTMENT MAINTENANCE OF WAY BRIDGE MAINTENANCE AND DESIGN	
	BRIDGE NO Z270.19 AT M.P. 270.19	
WALL 5 DETAILS 3 OF 3		
SPARTANBURG		SC
DIVISION: HUNTINGTON		SUBDIVISION: BLUE RIDGE
SCALE: AS NOTED	VAL. SEC.	DRAWING NO.
DATE: 5/24/2016	655	S-56
DESIGN: MWR	SC	86 OF 139
DRAWN: DRA		
CHK'D: MBM		

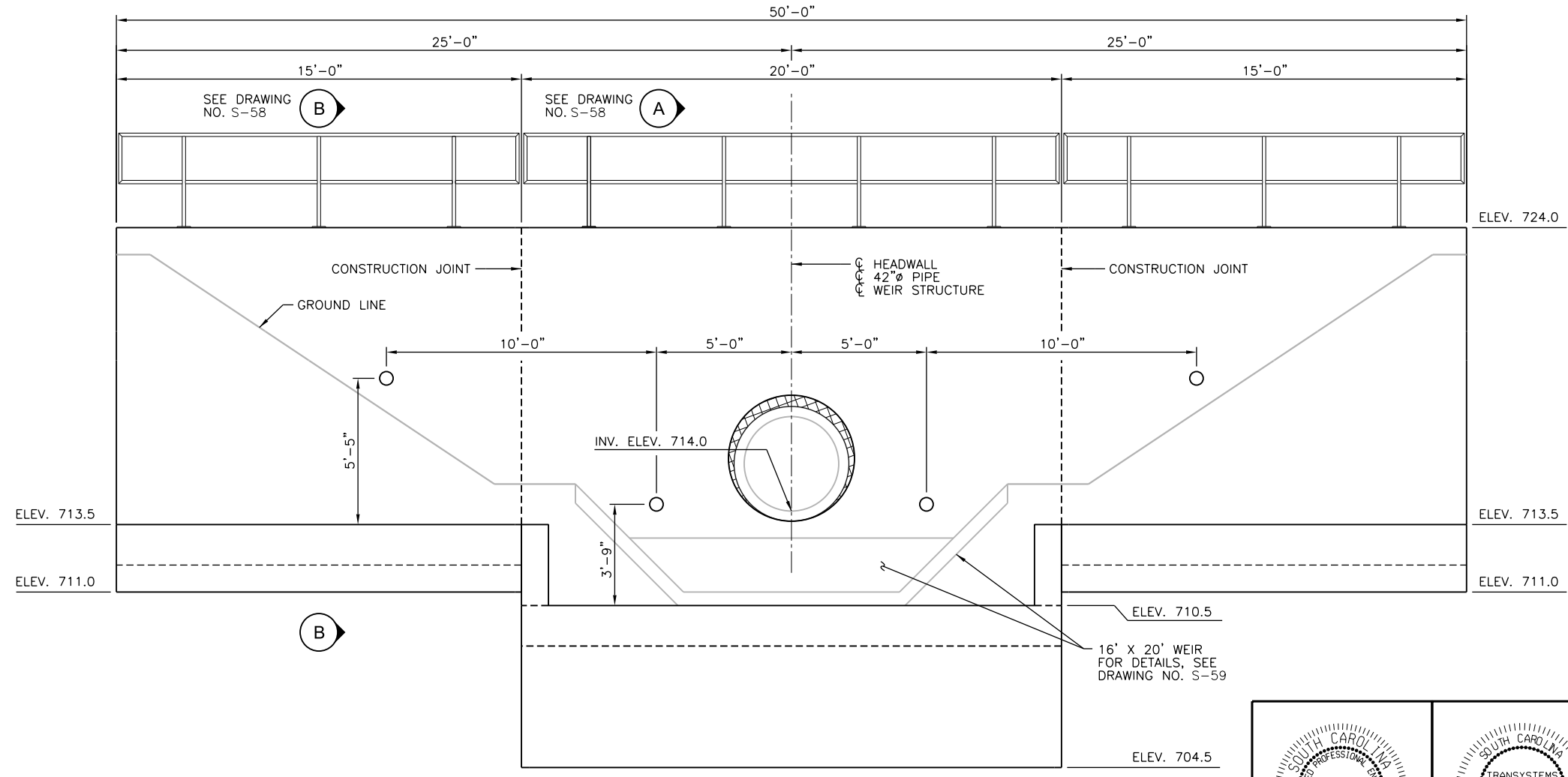
PROJECT NO. P301140022		FILE:



SUSERS 5/24/2016 4:38:47 PM - SFILES



PLAN
SCALE 3/8" = 1'-0"



ELEVATION
SCALE 3/8" = 1'-0"

NOTES:

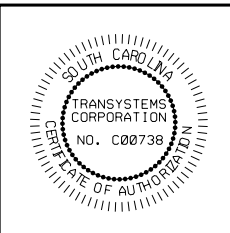
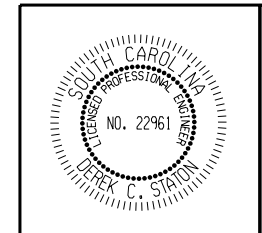
- FOR BUILT IN PLACE CONSTRUCTION OF THE STRAIGHT CONCRETE HEADWALL CLASS 4000 CONCRETE SHALL BE USED.
- REINFORCING STEEL SHALL BE ASTM A-706, LOW ALLOY STEEL DEFORMED BARS FOR CONCRETE REINFORCEMENT, GRADE 60.
- GROUT SHALL BE TYPE M MORTAR MATERIAL IN ACCORDANCE WITH SECTION 718 OF THE SCDOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (LATEST EDITION).
- IN THE EVENT THE HEADWALL IS SKEWED TO THE PIPE, THE PORTION OF PIPE THAT PROTRUDES BEYOND THE EXPOSED FACE OF THE HEADWALL SHALL BE CUT FLUSH AND GROUTED SMOOTH WITH THE EXPOSED FACE OF THE HEADWALL.
- PIPES SHALL BE BRICKED AND GROUTED IN PLACE.
- PIPES AND HEADWALL SHALL BE BACKFILLED AND COMPACTED AS REQUIRED BY SCDOT STANDARD SPECIFICATIONS.
- BRICK AND MORTAR SHALL BE USED TO ADJUST ELEVATIONS OF THROAT WALLS AS REQUIRED TO MEET ELEVATION AND CROSS SLOPES.
- THE CONTRACT UNIT PRICE FOR STRAIGHT HEADWALL FOR CIRCULAR PIPE SHALL INCLUDE THE COST OF FURNISHING ALL MATERIALS AND WORK INCIDENTAL TO THE CONSTRUCTION OF THE STRUCTURE COMPLETE IN PLACE AS SHOWN (INCLUDING CLASS B RIP-RAP) IN ACCORDANCE WITH THE SCDOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (LATEST EDITION).
- HANDRAIL SHALL CONFORM TO PROJECT SPECIFICATION 000205.
- FOR HANDRAIL BASE PLATE AND ANCHOR BOLT DETAILS, REFER TO DRAWING NO. S-45



OSP#: OPSC0290

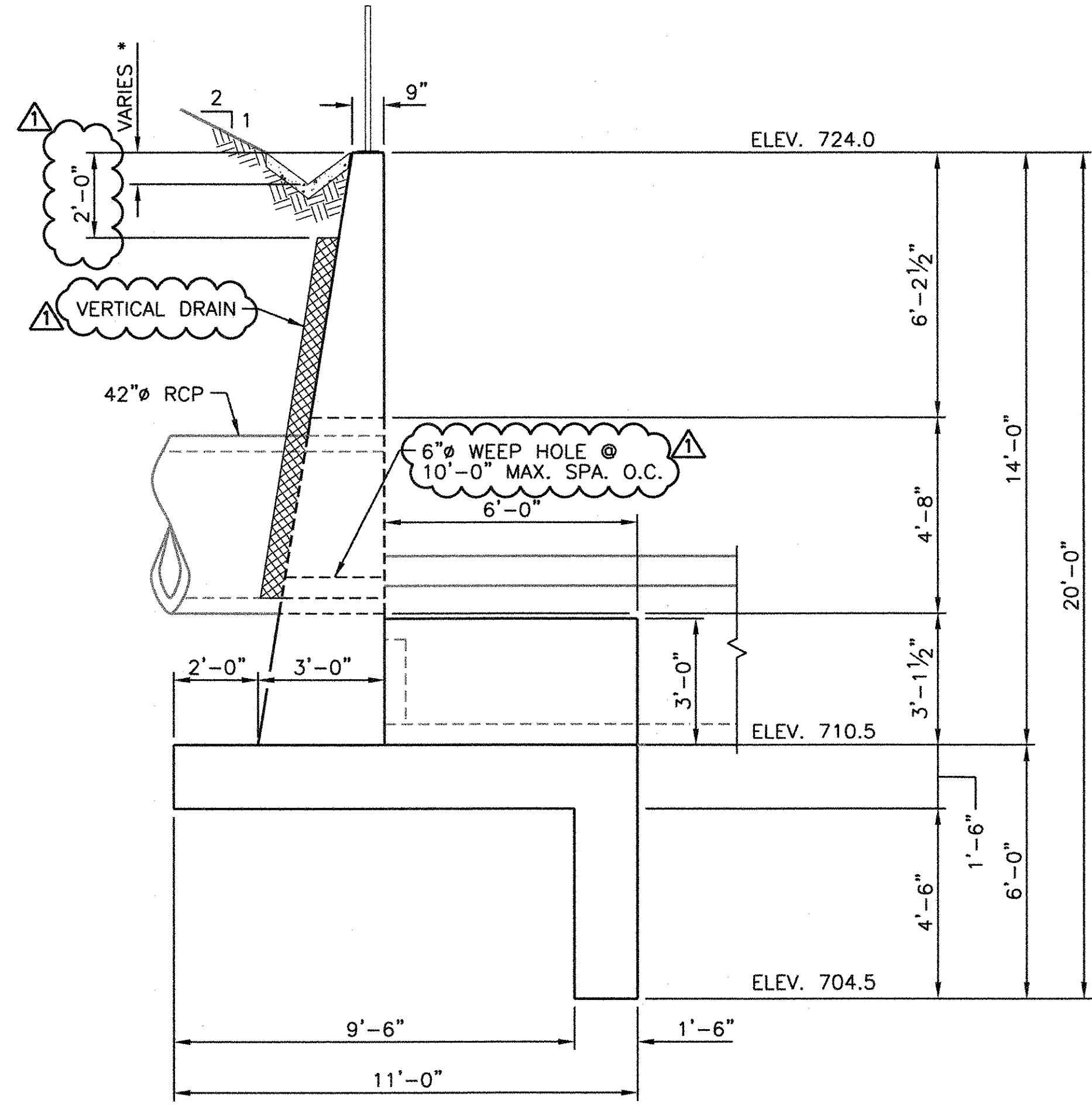


ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

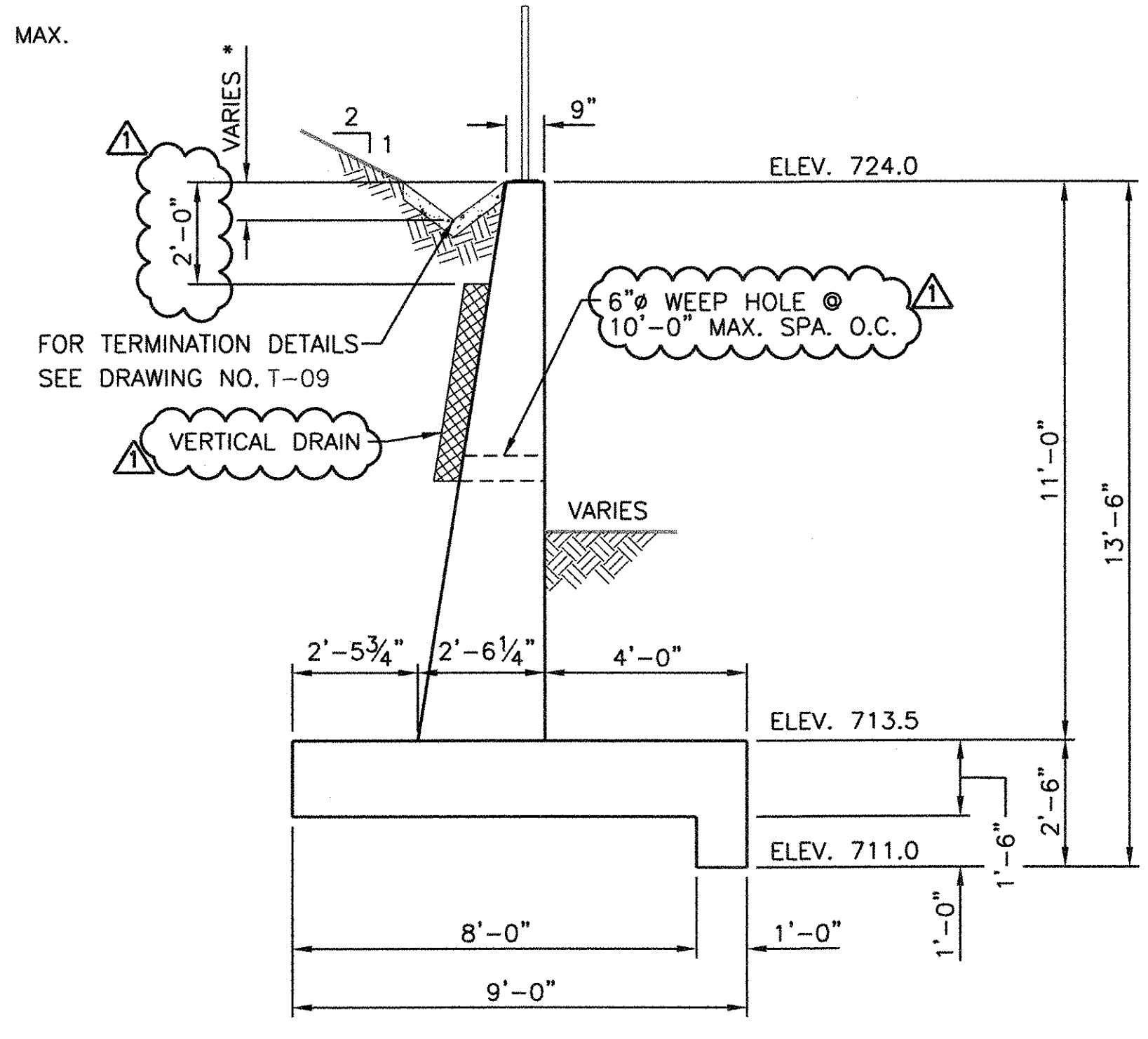


BRIDGE NO Z270.19 AT M.P. 270.19	
WALL 6 DETAILS 1 OF 3	
SPARTANBURG	SC
DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
SCALE: AS NOTED	VAL. SEC. 655
DATE: 5/24/2016	SC
DESIGN: KWW	DRAWING NO. S-57
DRAWN: DRA	87 OF 139
CHK'D: EWN	

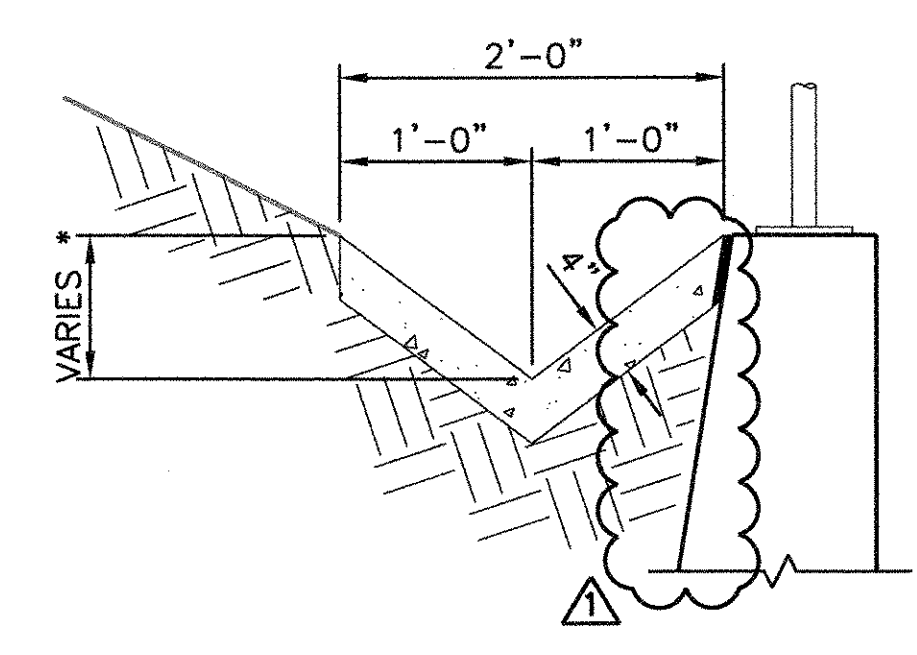
* VARIES = 6" MIN. TO 1'-0" MAX.



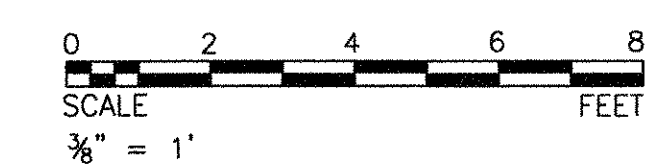
SECTION A-A
SCALE 3/8" = 1'-0"



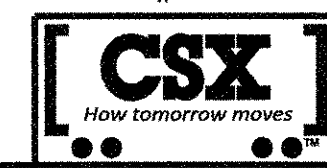
SECTION B-B
SCALE 3/8" = 1'-0"



PAVED DITCH DETAIL
SCALE 1" = 1'-0"



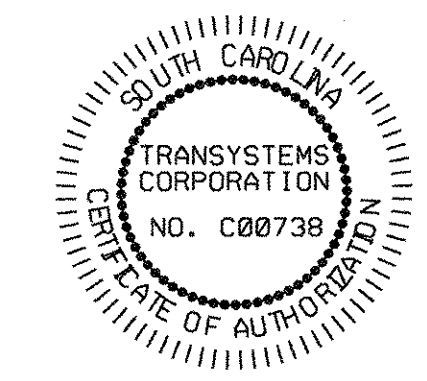
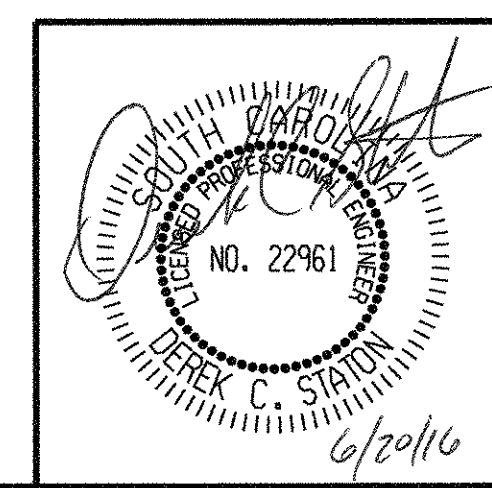
OSP#: OPSC0290



ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

REVISIONS

BRIDGE NO Z270.19 AT M.P. 270.19	
WALL 6 DETAILS 2 OF 3	
SPARTANBURG	SC
DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
SCALE: AS NOTED	VAL. SEC.
DATE: 6/20/2016	655
DESIGN: KWW	SC
DRAWN: DRA	DRAWING NO. S-58
CHK'D: EWN	88 OF 139

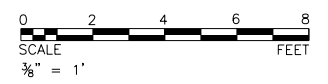
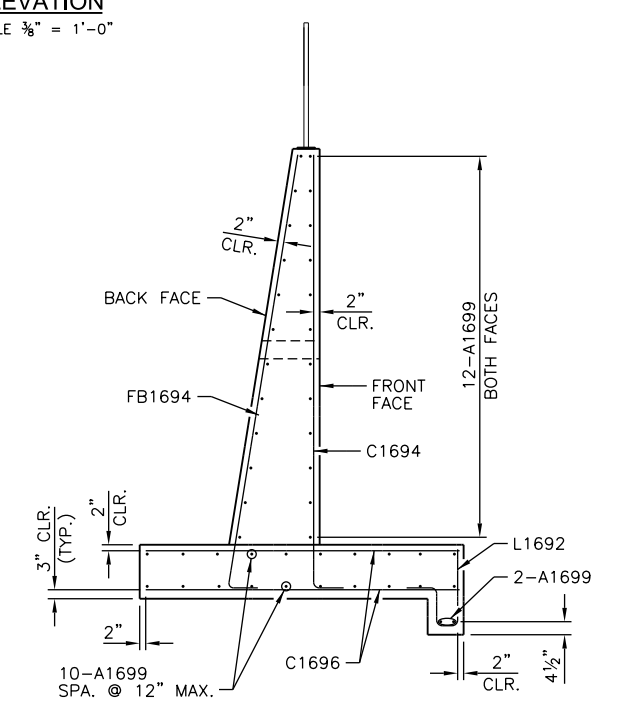
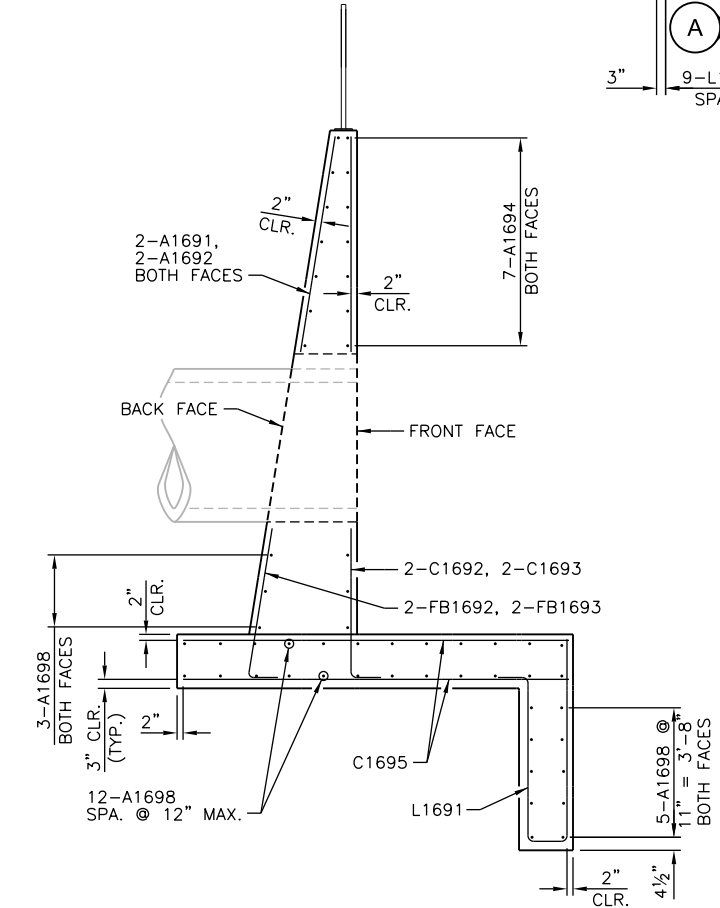
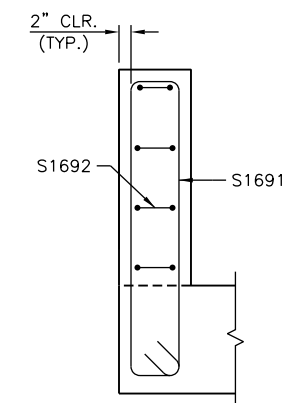
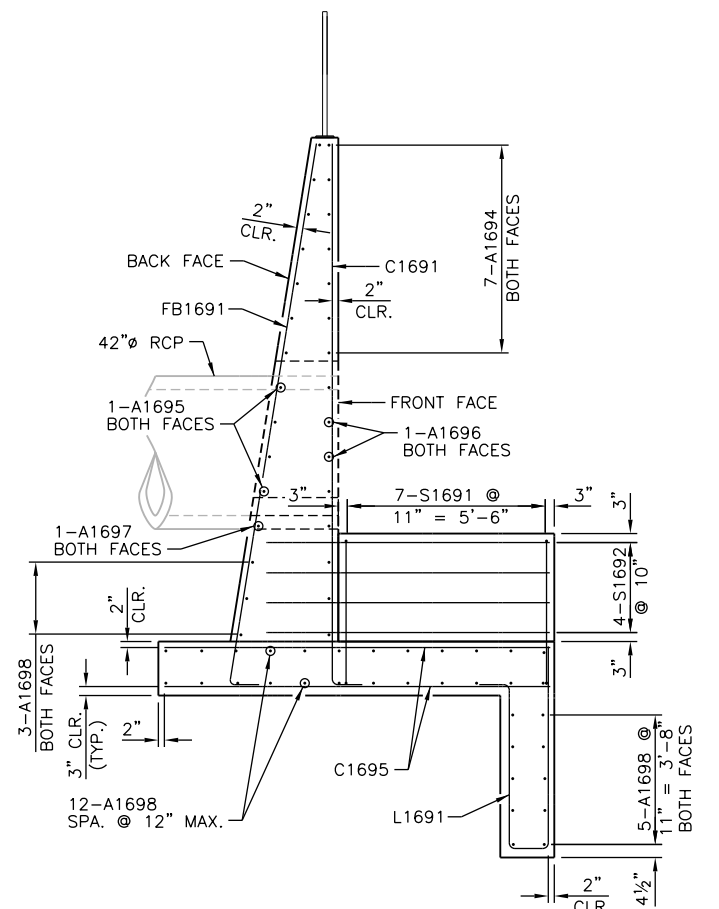
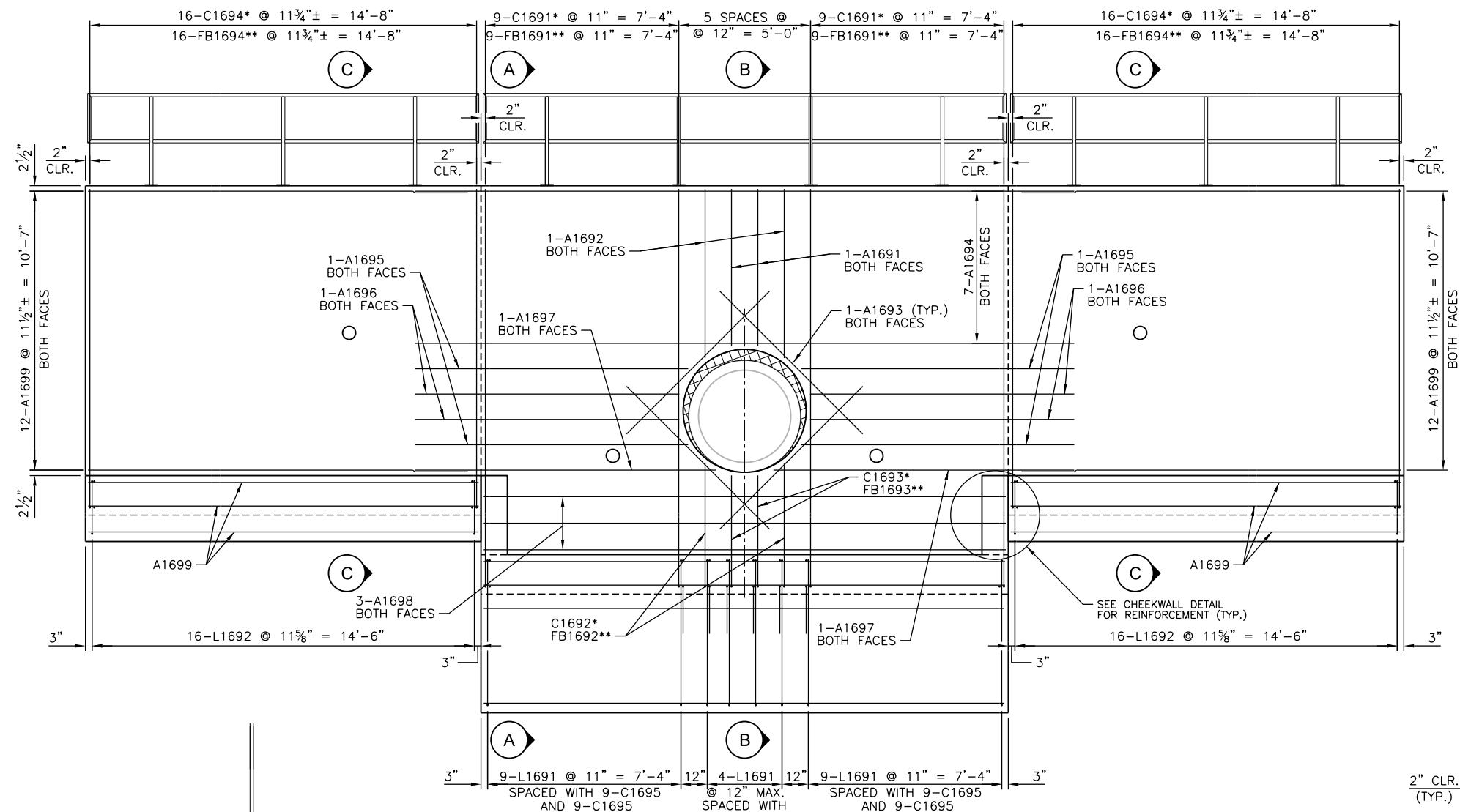


PROJECT NO. P301140022

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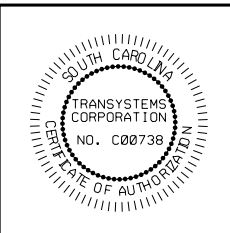
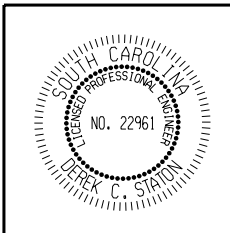
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- NOTES:
 1. * = FRONT FACE
 2. ** = BACK FACE



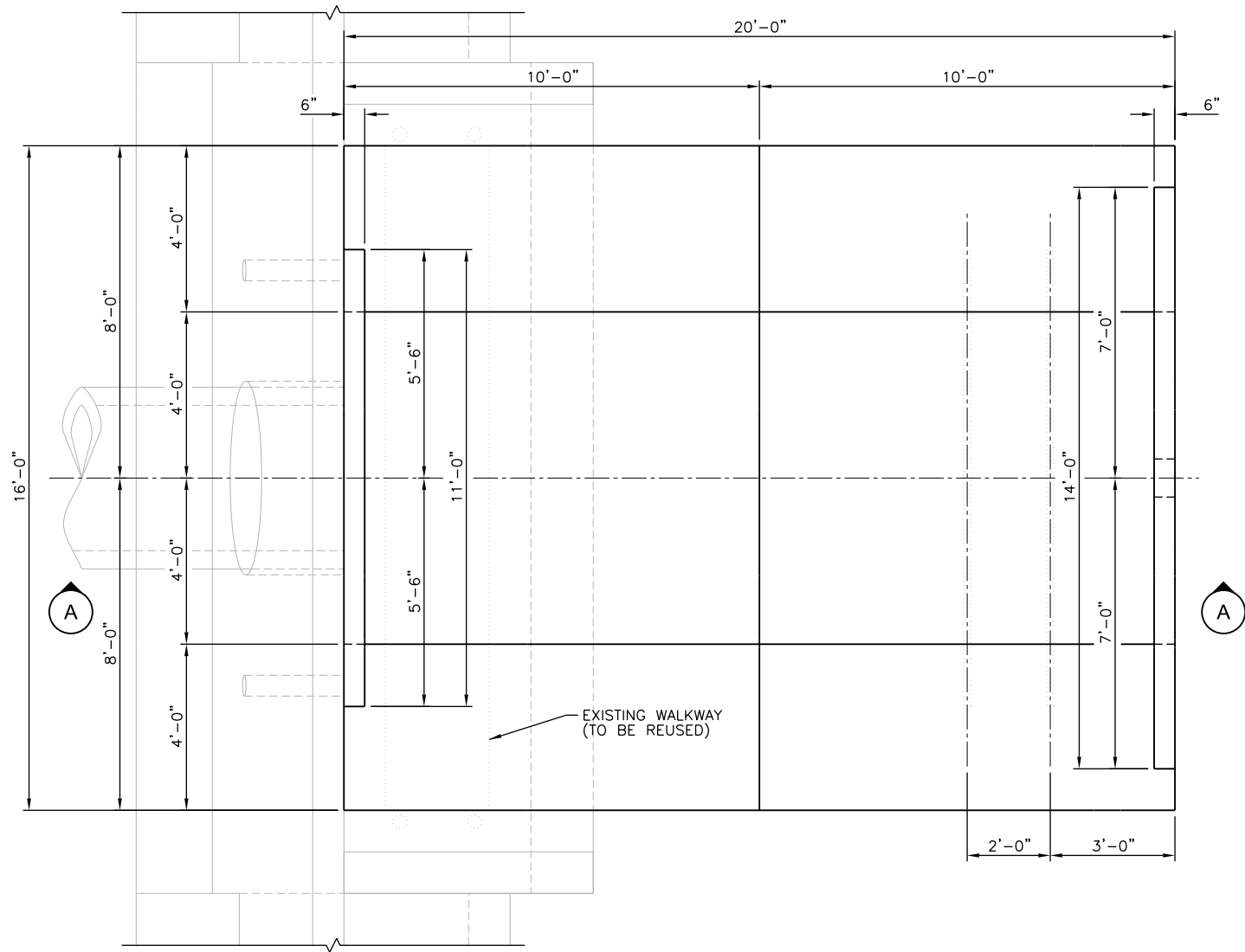
OSP#: OPSC0290

CSX How tomorrow moves.		ENGINEERING DEPARTMENT MAINTENANCE OF WAY BRIDGE MAINTENANCE AND DESIGN	
BRIDGE NO Z270.19 AT M.P. 270.19		WALL 6 DETAILS 3 OF 3	
SPARTANBURG SC		DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE	
SCALE: AS NOTED	VAL. SEC. 655	DRAWING NO. S-59	
DATE: 5/24/2016	SC	89 OF 139	
DESIGN: KWW			
DRAWN: DRA			
CHK'D: EWN			

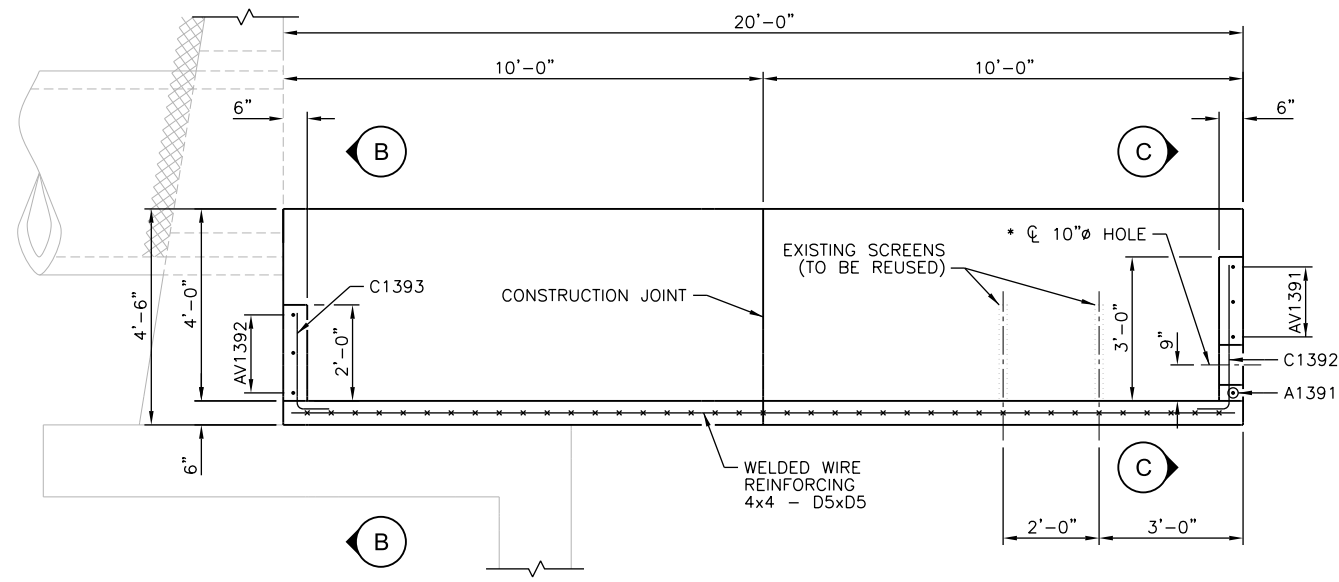


PROJECT NO. P301140022

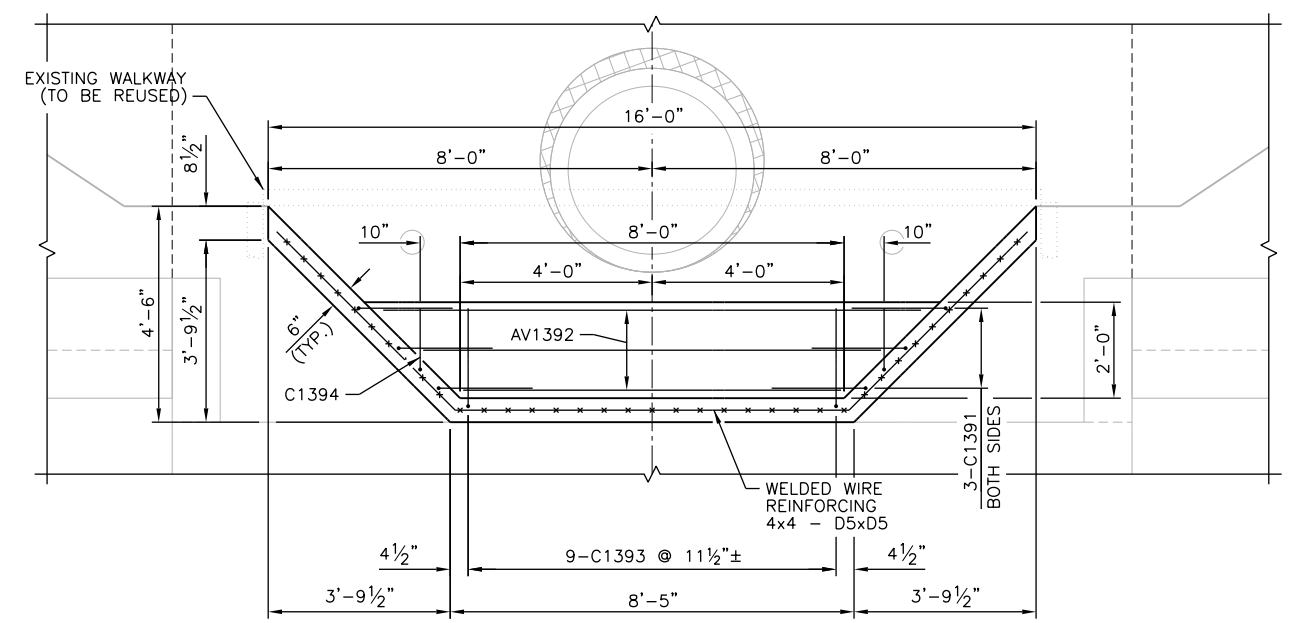
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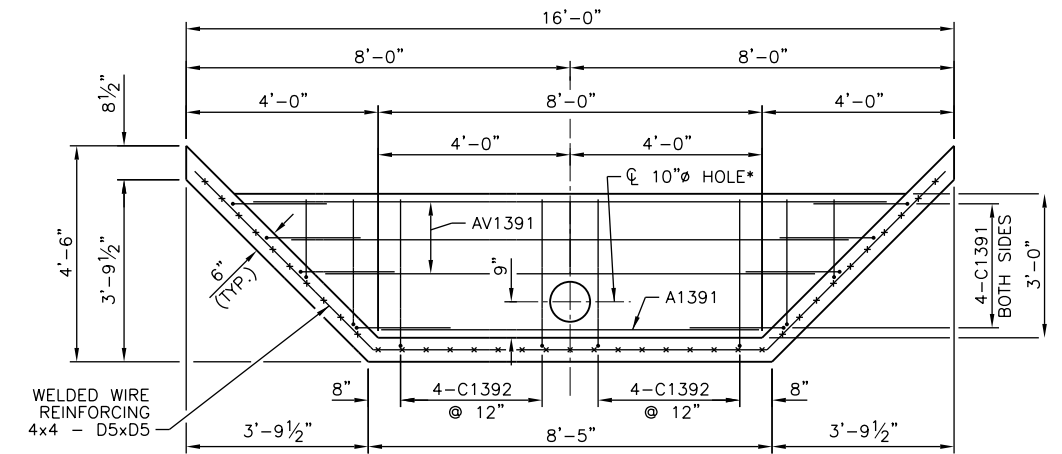
PLAN
SCALE 1/2" = 1'-0"



SECTION A-A
SCALE 1/2" = 1'-0"



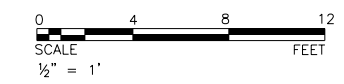
SECTION B-B
SCALE 1/2" = 1'-0"



SECTION C-C
SCALE 1/2" = 1'-0"

NOTES:

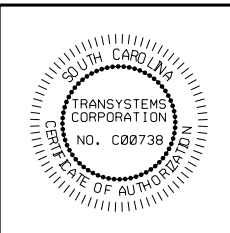
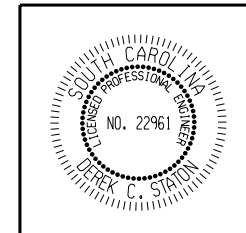
1. WELDED WIRE REINFORCEMENT SHALL BE DEFORMED WIRE AND CONFORM TO THE REQUIREMENTS OF THE CURRENT ASTM A1064.
2. DIMENSIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL VERIFY AND MATCH EXISTING WEIR DIMENSIONS.
3. CONTRACTOR SHALL REMOVE, CLEAN AND REUSE THE OUTLET PIPE WITH SHUTOFF VALVE, SCREENS AND WALKWAY.



OSP#: OPSC0290



ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN



BRIDGE NO Z270.19 AT M.P. 270.19	
WEIR DETAILS	
SPARTANBURG	SC
DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
SCALE: AS NOTED	VAL. SEC. 655
DATE: 5/24/2016	SC
DESIGN: KWW	DRAWING NO. S-60
DRAWN: DRA	90 OF 139
CHK'D: EWN	

INDEX OF SHEETS

- SHEET NO. 1. TITLE SHEET
- 2. TRAFFIC BARRICADE STANDARD
- 3. STANDARD NOTES
- 4. FRONTAGE ROAD PLAN AND PROFILE
- 5. R.R. BRIDGE PLAN AND PROFILE
- 6. NEW PIER 3 DETAILS
- 7. NEW 70' SPAN SUPERSTRUCTURE DETAILS
- 8. NEW 41'-9" SPAN SUPERSTRUCTURE DETAILS
- 9. NEW FLOORING PLAN
- 10. DETAILS OF TIES AND RAISING PIECES
- 11-21. PLANS OF EXISTING R.R. BRIDGE
- 22. FALSEWORK PLANS

**SOUTH CAROLINA
STATE HIGHWAY DEPARTMENT
COLUMBIA**

**PLAN AND PROFILE OF PROPOSED
STATE HIGHWAY**

STATE PROJ. NO. I-623

FILE NO. 42.623

ROUTE I-85

SPARTANBURG CO.

**SECOND ALTERATION TO UNDERPASS UNDER CLINCHFIELD RAILROAD
NEAR ENOLA**

PROJ. NO.	DATE	REVISION	FILE NO.	C. C. NO.	NO. OF SHEETS	TOTAL SHEETS
I-623	5-24-1965	1-1	42.623	1-623	1-1	22

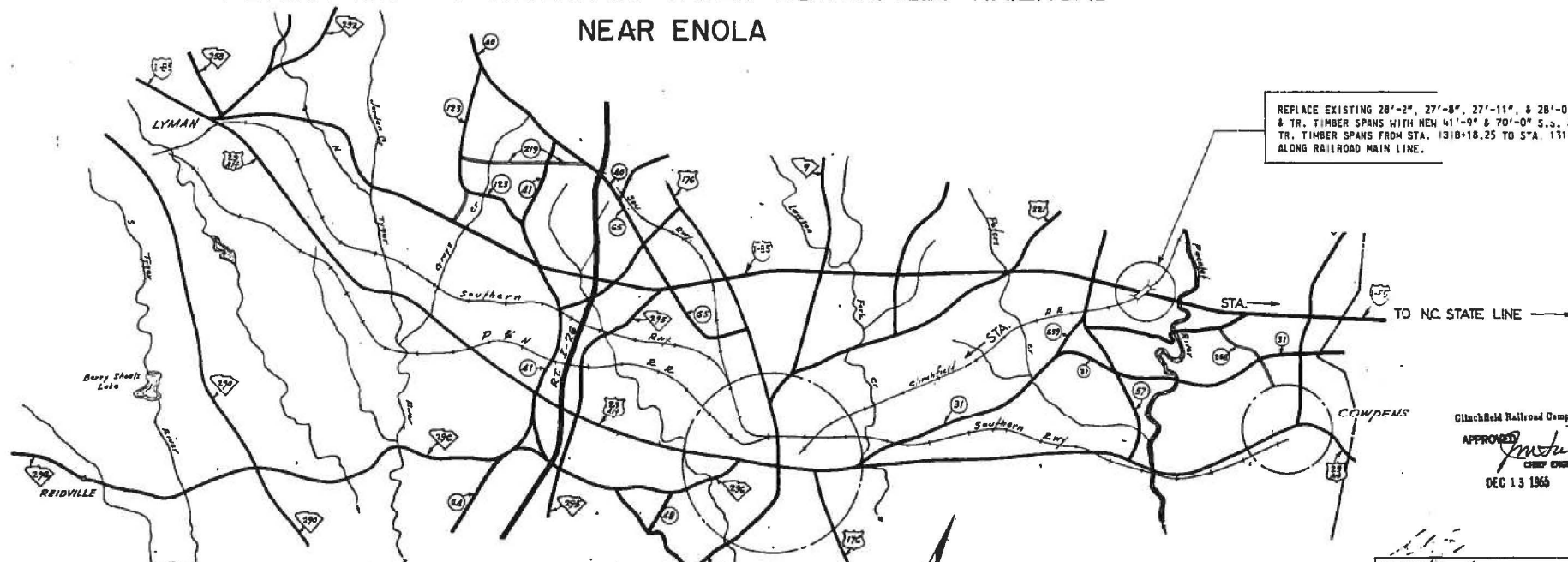
SUMMARY OF ESTIMATED QUANTITIES

WET AND DRY EXCAVATION	165	C.Y.
CLASS "A" CONCRETE	130.0	C.Y.
REINFORCING STEEL	6,252	LBS.
TREATED STRUCTURAL TIMBER	10,421	M.B.M.
HARDWARE	2,502	LBS.
NEW STEEL SUPERSTRUCTURES	⓪ NECESSARY	LBS.

REMOVAL & DISPOSAL OF PORTIONS OF EXISTING STRUCTURE NECESSARY L.S.

NOTE: STRUCTURAL STEEL SHALL COMPLY WITH THE LATEST A.S.T.M. SPECIFICATIONS FOR EITHER A7 OR A36 STEEL.

⓪ APPROX. 124,600 LBS.



REPLACE EXISTING 28'-2", 27'-8", 27'-11", & 28'-0" R.C., S.S. & TR. TIMBER SPANS WITH NEW 41'-9" & 70'-0" S.S. & TR. TIMBER SPANS FROM STA. 1318+18.25 TO STA. 1319+30.00 ALONG RAILROAD MAIN LINE.

Clinchfield Railroad Company.
APPROVED: *[Signature]*
CHIEF ENGINEER
DEC 13 1965

APPROVED: *[Signature]* 4/28/65
STATE HIGHWAY ENGINEER DATE

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS
APPROVED: _____
DISTRICT ENGINEER DATE

CONVENTIONAL SIGNS

State Line	Trolley Poles	Power Poles
County Line	Telephone or Telegraph Poles	Marsh
City or Town Limits	Trees	Brush
Property Line	Stumps	Buildings
Fence	Concrete Box Culvert	Pipe Culvert
Retaining Wall	Drain Inlet and Culvert	Hub on Center Line
Existing Road		
Proposed Road		
Level of Embankment		
Guard Rail		
Point of Intersection (P.I.)		

LEGEND
PROPOSED PROJECT
OTHER ROADS

Net Length of Roadway	0.000 Miles
Net Length of Bridges	0.000 Miles
Net Length of Project	0.000 Miles
Length of Exceptions	0.000 Miles
Gross Length of Project	0.000 Miles

Note: All workmanship and material on this project to conform with South Carolina State Highway Department Standard Specifications for Highway Construction Edition of 1964.

34 1/2 X 21 1/2 80656428
B 95B SHEET 1

OSP#: OPSC0290

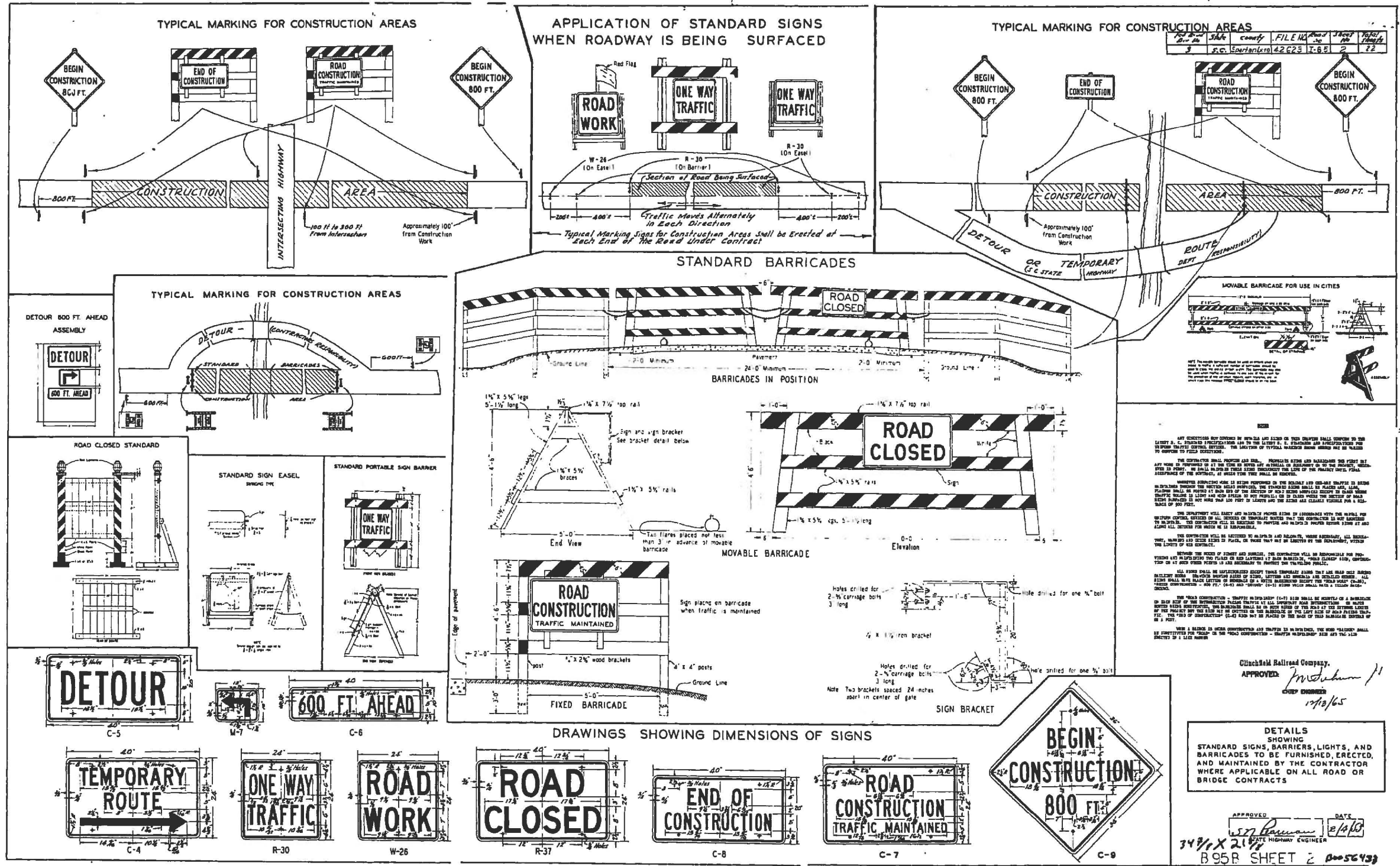
CSX ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

**FOR
INFORMATION
ONLY**



REVISIONS	BRIDGE NO Z270.19 AT M.P. 270.19
	EXISTING BRIDGE PLANS 1 OF 10
	SPARTANBURG SC
	DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE
SCALE: N.T.S.	VAL. SEC. 655 SC
DATE: 5/24/2016	DRAWING NO. S-62
DESIGN: KWW	92 OF 139
DRAWN: JDA	
CHK'D: DRR	

PROJECT NO. P301140022 FILE:



OSP#: OPSC0290

CSX How tomorrow moves		ENGINEERING DEPARTMENT MAINTENANCE OF WAY BRIDGE MAINTENANCE AND DESIGN	
REVISIONS		BRIDGE NO Z270.19 AT M.P. 270.19	
		EXISTING BRIDGE PLANS 2 OF 10	
		SPARTANBURG SC	
		DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE	
SCALE: N.T.S.	VAL. SEC. 655 SC	DRAWING NO. S-63	93 OF 139
DATE: 5/24/2016	DESIGN: KWW	CHK'D: DRR	
PROJECT NO. P301140022	FILE:		

FOR INFORMATION ONLY

TranSystems

ALTERING EXISTING CONCRETE STRUCTURES

Existing structure is indicated on the plans by light lines, new structure by heavy lines. All dimensions of new construction are subject to existing conditions.

Disconnecting surfaces of the old concrete shall be thoroughly roughened, cleaned of loose material, wetted and flushed with 1:2 cement mortar immediately before pouring new concrete, except as noted on other sheets of these plans.

Where existing reinforcing steel is exposed after removing portions of existing structure, the old reinforcing shall be cut off 1/2" below the exposed concrete surface and the hole patched with dry 1:3 mortar to the satisfaction of the Engineer.

The Contractor shall repair or replace at his own expense, and in a manner satisfactory to the Engineer, any portion of the existing structure damaged as a result of his carelessness or negligence.

The entire cost of the above work including all drilling and chipping and removing and disposing of portions of old structure necessary to construct new structure, shall be included in the unit price bid for "Removal and Disposal of Portions of Existing Structure". They shall be similar and equal to New's Multi-Calk Anchor or American Esa Bolt and shall be installed in accordance with the manufacturer's directions.

Expansion anchor bolts will be paid for at unit price bid for reinforcing steel.

Unless otherwise specified in these plans or Special Provisions the Contractor shall provide necessary temporary supports for utilities attached to the bridge to maintain service during construction.

The owner will make all necessary changes in alignment and elevation of the utility and furnish permanent supports which shall be placed in the concrete by the Contractor.

All costs of the work to be performed by the Contractor shall be included in the unit price bid for Class "A" Concrete.

Any necessary repairs to the existing structure, in the opinion of the Engineer, are to be paid for as extra work.

SPECIAL NOTE

Generally, in case of discrepancy, this standard sheet of notes shall govern over the Specifications, but the remainder of the plans shall govern over notes herein, and Special Provisions shall govern over all. See Standard Specifications paragraph 504.

EXCAVATION FOR PILE TYPE END BENT

All cost of excavation necessary to construct end bents and to remove material under superstructure to an elevation 1'-0" below tops of end bent caps shall be included in the unit price bid for Class "A" Concrete.

EXCAVATION FOR CONCRETE FTG. END BENT

If a concrete footing is used for the end bent, the excavation below that included for the cap and bent in the above paragraph will be paid for at the unit price bid for excavation. Excavation above this shall be included in the unit price bid for Class "A" Concrete.

DRIVING PILES THROUGH FILL

Where piles occur in fill exceeding 10 ft in height, the fill shall be in place before piles are driven.

HAMMER FOR STEEL PILES

Steel piles where required bearing exceeds 30 tons shall be driven with a diesel steam or air hammer having a minimum energy of 14,000 FT-LBS.

HAMMER FOR CONCRETE PILES

Concrete Piles shall be driven with steam, or air single acting hammer or Diesel Hammer of suitable size. The drop hammer allowed in Paragraph 10.05 of the Standard Specifications may not be used.

ALLOWANCE FOR DEAD LOAD DEFLECTION AND SETTLEMENT

Bridges shall be built on the grade shown on plans. Handrail, walkway & Tops of Ties shall conform to the grade.

BRONZE EXPANSION PLATES

Bronze PLS to be self-lubricating Epa PLS manufactured from rolled bronze alloy complying with A.S.T.M. B100 - Alloy, or A.S.T.M. B22 - Gc B casting, and to have special inserts consisting of graphite and metallic substances with a lubricating binder in top face only. Installation of PLS to be in accord with manufacturer's directions. The Coefficient of friction shall not exceed 0.1. The Bronze PLS shall be similar to those manufactured by Merriman Bros., Inc., 183 Arroyo St., Boston 30, Mass., or Whiteley Bearing Corporation Chicago, Ill., or an approved equal.

STRUCTURAL STEEL

Beams and Girders shall be Cambered for dead load deflection either in mill or shop.

All Stiffeners shall have Pits, Sole plates and masonry plates to be Rolled Steel.

All rivets shall be 7/8" unless noted.

All high-tensile strength bolts shall be 7/8" unless noted.

All holes shall be 5/8" unless noted.

Holes in all main member splices shall be sub-punched. The connecting members shall be assembled in their proper positions, and the holes reamed to full size while assembled.

Nuts on anchor bolts of expansion end of new approach spans and connecting girder flange sole plate and cast bearing of expansion end to be tightened to "allow 1/4" clear for movement.

Shims shall be provided between beam flange and fender plate and shall be adjusted to bring top beam to theoretical grade.

Splicing plates rocker plates to be rolled steel.

Nuts on anchor bolts of expansion end to be tightened to allow 1/4" clear for movement.

Anchor bolt assemblies will be paid for as reinforcing steel and are included in the bent quantities unless specifically stated elsewhere as included in the structural steel quantities.

Mill and shop inspection of the structural steel will be performed by Froehling & Robertson, Inc., 814 West Cary St., Richmond Virginia. The Contractor shall notify that company of the name and address of the fabricator of the structural steel as soon as the fabricator has been given the contract to fabricate so that the inspection procedure can be set up. The contractor shall also stipulate in his order to the fabricator that Froehling & Robertson, Inc., will perform the mill and shop inspection of the structural steel.

A 5 day interval shall be allowed between time of pouring slab and sidewalk.

Tops of beam flanges shall not be painted.

All equipment materials and workmanship for electric arc welded stud/shear connectors shall be in accordance with the recommendations of the manufacturer and Special Provisions.

Alternate for welded studs: an approved alternate method of securing composite action between beams and slab may be used, at no additional cost to the Dept. Details must be submitted for approval in advance of making the change.

7/8" studs may be substituted for 3/4" studs. The 7/8" studs shall be placed with the same number in each transverse row as the 3/4" studs. The pitch of the 7/8" studs shall be equal to 1.35 times the pitch of the 3/4" studs. The 7/8" studs must be welded within the recommended area of an approved or stabilizer cart.

COMPOSITE BEAMS

All concrete shall be Class "A" unless noted below or on other sheets of these plans.

Build-ups on bent caps shall be cast monolithic with cap unless shown or noted elsewhere on these plans.

Top of each build-up shall be level.

Payment for concrete in slab will be based on theoretical plan quantity.

Any necessary adjustment for Camber shall be at the Contractor's expense.

All exposed edges shall be chamfered 3/8" unless otherwise noted.

For simple spans over 70 ft in length, the center portion (approximately 1/3 of the length) of the slab shall be poured first and allowed to cure for not less than 4 days before the remaining end sections are poured. However, when the temperature permits (in the opinion of the engineer) the entire slab may be poured provided a suitable retarding agent is used in such amounts that the slab concrete shall not have had its initial set prior to the completion of the casting of the slab concrete.

CONCRETE

All concrete shall be Class "A" unless noted below or on other sheets of these plans.

Build-ups on bent caps shall be cast monolithic with cap unless shown or noted elsewhere on these plans.

Top of each build-up shall be level.

Payment for concrete in slab will be based on theoretical plan quantity.

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BEARINGS

For concrete beams bearing on concrete the top of caps, or tops of build-ups, under bearing areas of beams shall receive a steel trowel finish to insure a smooth and level bearing surface. See Standard Specifications paragraph 710.14.

PRESTRESSED BEAMS

Tops of beams shall be rough floated. At the approximate time of initial set, entire top of beam shall be scrubbed with a coarse wire brush to remove oil balance, and to produce a roughened surface for bonding slab.

Membrane curing compound shall not be used on tops or ends of beams.

Concrete in prestressed beams shall be class "X" as described in the Special Provisions.

The prestressing strands, wire or bars, must be thoroughly cleaned of any loose rust, dirt, grease, farm lubricant or other deleterious substances, to the satisfaction of the Engineer, before the concrete is placed.

Beams shall not be transported to the bridge site until concrete has cured for at least 8 days.

Beam lengths given are based on horizontal span only. These lengths shall be increased to correct for concrete shrinkage, concrete shortening when the strands are cut, and for beams being on a grade.

CONCRETE

All concrete shall be Class "A" unless noted below or on other sheets of these plans.

Build-ups on bent caps shall be cast monolithic with cap unless shown or noted elsewhere on these plans.

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Payment for concrete in slab will be based on theoretical plan quantity.

Any necessary adjustment for Camber shall be at the Contractor's expense.

All exposed edges shall be chamfered 3/8" unless otherwise noted.

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FED. RD. DIST. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	Spartanburg	42-623	T-ES	3	22

DESIGN DATA

SPECIFICATIONS: AREA 1964 -- 41-9 SPAN
AREA 1950 -- 7C SPAN

LIVE LOAD: COOPER'S E-70

UNIT STRESSES

STRUCTURAL STEEL & REINFORCED CONCRETE:	
f_c (struct)	= 18,000 psi
f_c (crack)	= 20,000 psi
CLASS "X" CONCRETE:	
f_c	= 2,000 psi; $n = 10$; $v = 225$ psi; $u = 300$ psi
CLASS "C" CONCRETE:	
f_c	= 2,000 psi; $n = 8$; $v = 325$ psi; $u = 350$ psi
PRESTRESSED CONCRETE:	
f'_c	= 5,000 psi; f_{ci} = 4,000 psi; f_c = 2,000 psi
PRESTRESSING STEEL:	
f_s	= 250,000 psi; f_{si} = 175,000 psi

MATERIAL AND WORKMANSHIP

Except as may otherwise be specified on plans or in the Special Provisions, all material and workmanship shall be in accordance with the South Carolina Highway Department Standard Specifications for Highway Construction, Edition of 1964.

Glitchfield Railroad Company.
APPROVED: *[Signature]*
12/13/65
CHIEF ENGINEER

REV		FILE NO.	COUNTY	ROUTE NO.	DATE
REV		42-623	SPARTANBURG	T-ES	5-2-6
REV		APPROVED BY: <i>[Signature]</i> APPROVED BY: <i>[Signature]</i>			
REV					
REV		BY: CHIEF ENGINEER			
REV		BY: CHIEF ENGINEER			

334 X 21

26 117 B B95B SHEET 3 0040692-B01

OSP#: OPSC0290

CSX
How tomorrow moves

ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

BRIDGE NO Z270.19 AT M.P. 270.19
EXISTING BRIDGE PLANS 3 OF 10

SPARTANBURG SC
DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE

SCALE: N.T.S.
DATE: 5/24/2016
DESIGN: KWW
DRAWN: JDA
CHK'D: DRR

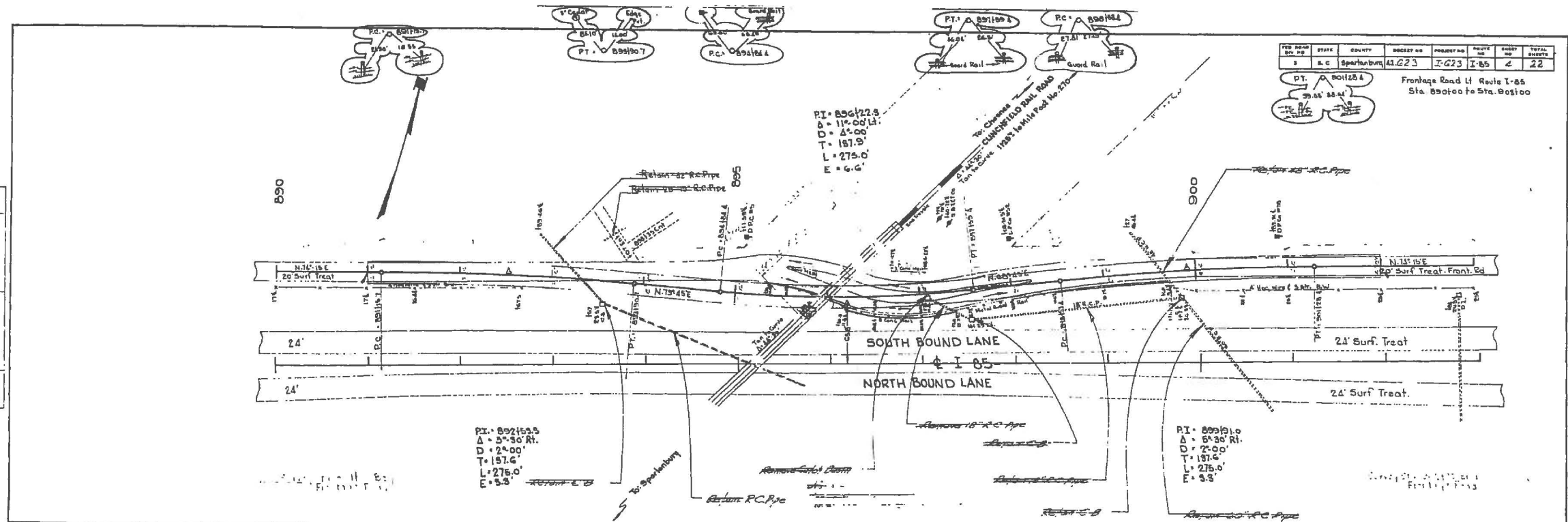
VAL. SEC. 655 SC
DRAWING NO. S-64
94 OF 139

REVISIONS

PROJECT NO. P301140022 FILE:

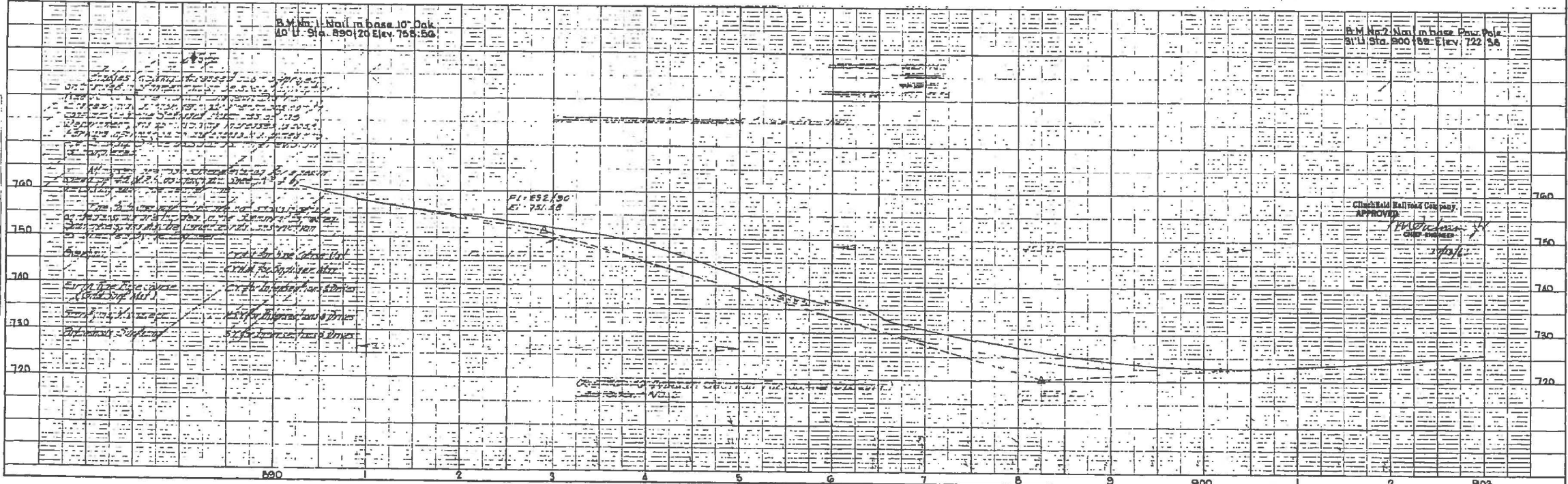
FOR INFORMATION ONLY





FED. ROAD DIST. NO.	STATE	COUNTY	PROJECT NO.	PROJECT NO.	PROJECT NO.	TOTAL SHEETS
5	S.C.	Spartanburg	41-223	2-223	I-85	22

PT. 801/25.4
29.5' 34.4'



PLAN
NOTE NUMBER

PROFILE
NOTE NUMBER

K-E PLATE I, SPARTANBURG
CLUMP 334721/4 B95B SHEET 4 0058473

OSP#: OPSC0290

CSX How tomorrow moves

ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

BRIDGE NO Z270.19 AT M.P. 270.19
EXISTING BRIDGE PLANS 4 OF 10

SPARTANBURG SC
DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE

REVISIONS

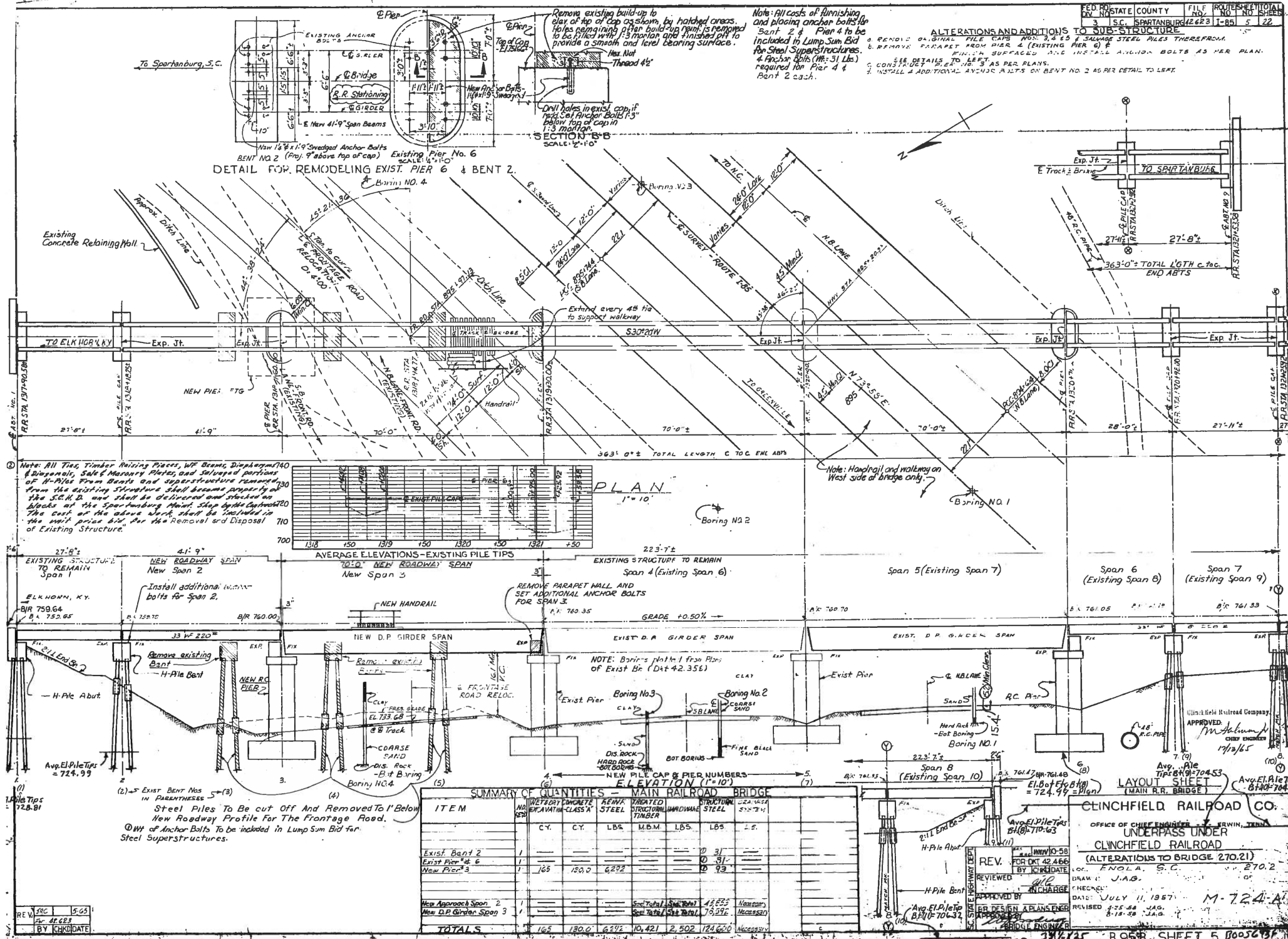
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DATE: 5/24/2016
DESIGN: KWW
DRAWN: JDA
CHK'D: DRR

VAL. SEC. 655 SC
DRAWING NO. S-65 95 OF 139

PROJECT NO. P301140022 FILE:

FOR INFORMATION ONLY





OSP#: OPSC0290

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How tomorrow moves

ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

BRIDGE NO Z270.19 AT M.P. 270.19
EXISTING BRIDGE PLANS 5 OF 10

SPARTANBURG SC

DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE

SCALE: N.T.S.
DATE: 5/24/2016
DESIGN: KWW
DRAWN: JDA
CHK'D: DRR

VAL. SEC. 655 SC
DRAWING NO. S-66
96 OF 139

REVISIONS

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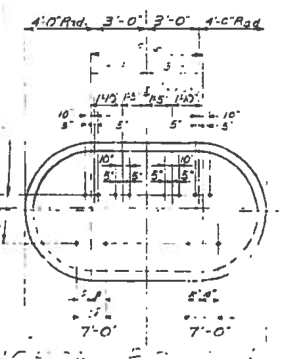
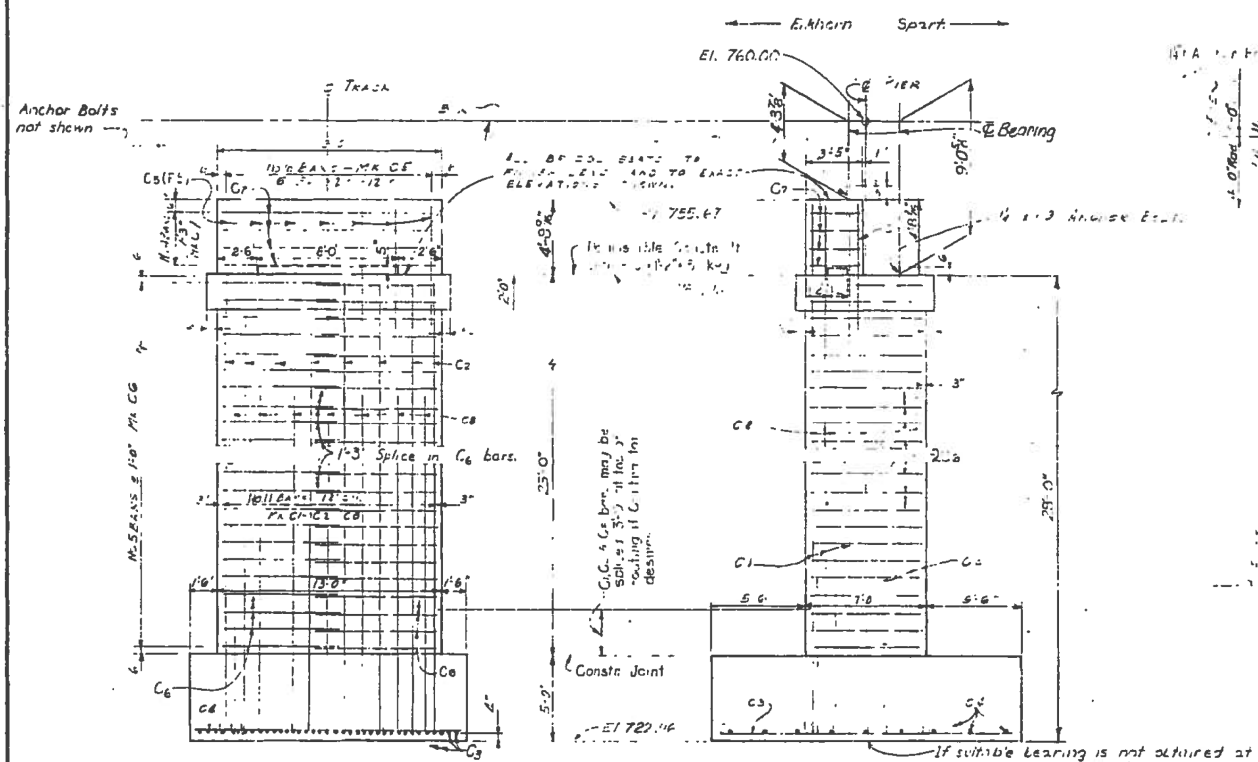
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FD. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	SPARTANBURG	42.623	I-85	6	22

REINFORCING STEEL SCHEDULE-PIER 3					BENDING DETAILS	
MARK	SIZE	D	NO. REQ'D	LENGTH		
C1	11	8	8	33'-2"		
C2	11	8	8	28'-6"		
C3	5	18	37	18'-8"		
C4	4	15	9	15'-4"		
C5	6	15	7	72'-6"		
C6	5	18	16	17'-9"		
C7	4	18	4	29'-6"		
C8	11	8	7	21'-9"		

NOTE:
For details of alterations to Bent Cap #2 & Pier #4 see SA No. 3.



HOOK DETAILS FOR STEEL REINFORCING BARS

$1\frac{1}{2} \times 23'$ For No. 4 and smaller add 6 per bar.
 $2 \times 3'$ For No. 5 & 6. No. 6 add 6 per bar.
 $3 \times 4'$ For No. 7 & larger add 12 per bar.

*ESTIMATED SUBSTRUCTURE QUANTITIES

	WET & DRY EXCAVATION C.Y.	CLASS 'A' CONCRETE C.Y.	REINF. STEEL Lbs.	STRUCT. STEEL (MAJOR BARS) Lbs.
Exist. Pile Cap 2				31
Exist. Pier 6 (New Pier 4)				31
New Pier 3	165	130.0	6292	93
Totals	165	130.0	6292	155

*Includes quantities for alterations to cap for Exist. Pile Cap 2 and Pier 4.

SUB-STRUCTURE
CLINCHFIELD RAILROAD

2nd ALTERATION TO U.P. UNDER CLINCHFIELD RAILROAD

REV. 5/24/16
File #42.623

APPROVED
1/13/16

CLINCHFIELD RAILROAD COMPANY

FRONT ELEVATION

END ELEVATION

PIER DETAILS FOR NEW PIER 3

FOR INFORMATION ONLY



OSP#: OPSC0290

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ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

BRIDGE NO Z270.19 AT M.P. 270.19
EXISTING BRIDGE PLANS 6 OF 10

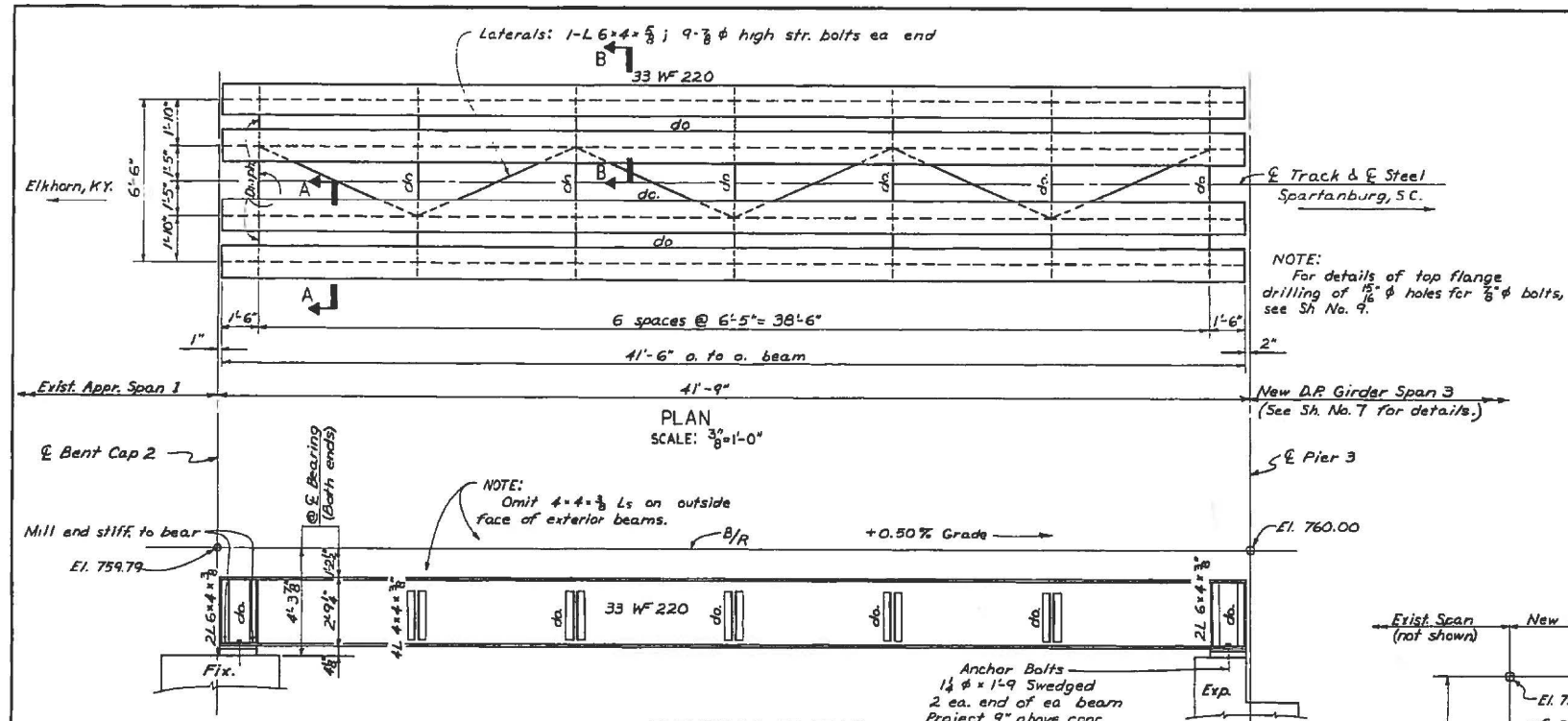
SPARTANBURG SC
DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE

SCALE: N.T.S.
DATE: 5/24/2016
DESIGN: KWW
DRAWN: JDA
CHK'D: DRR

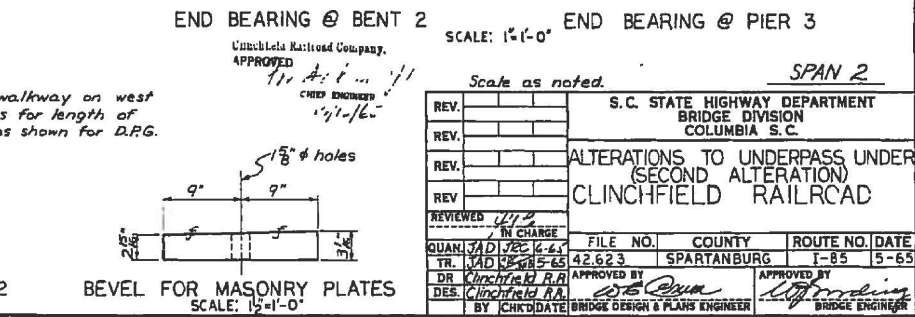
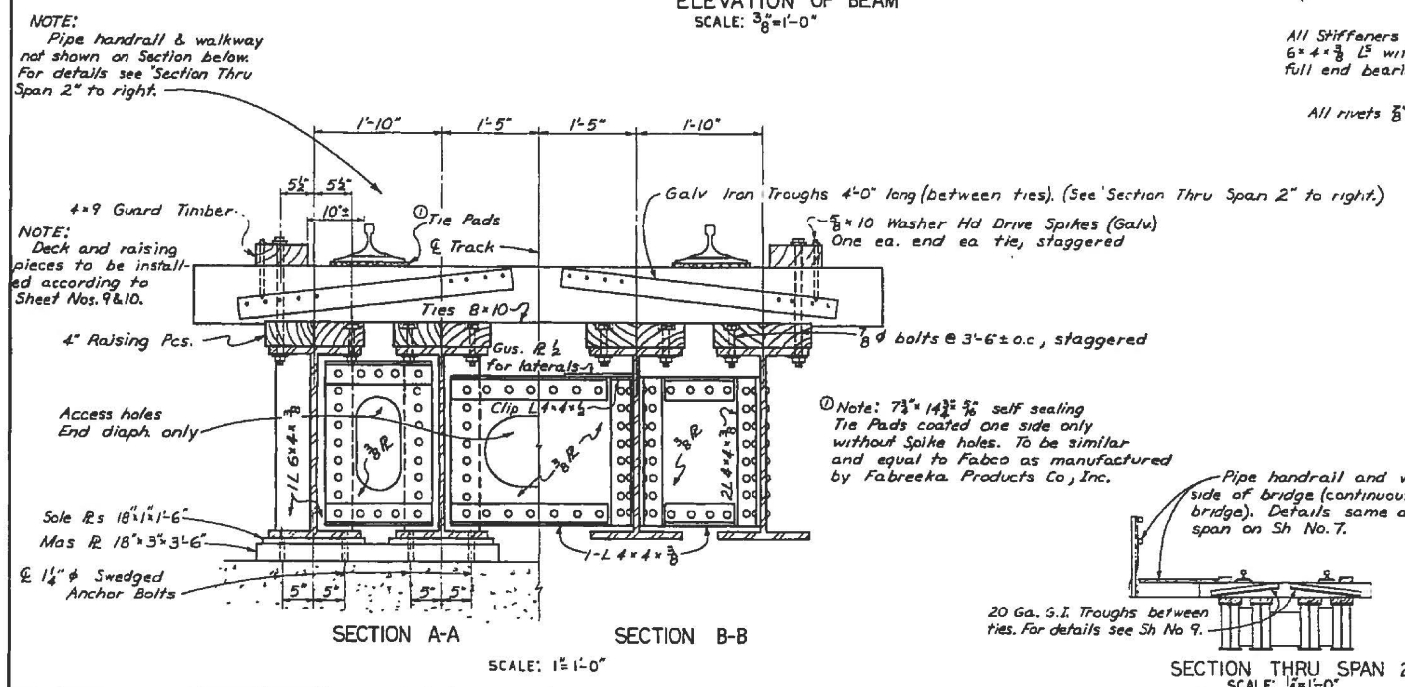
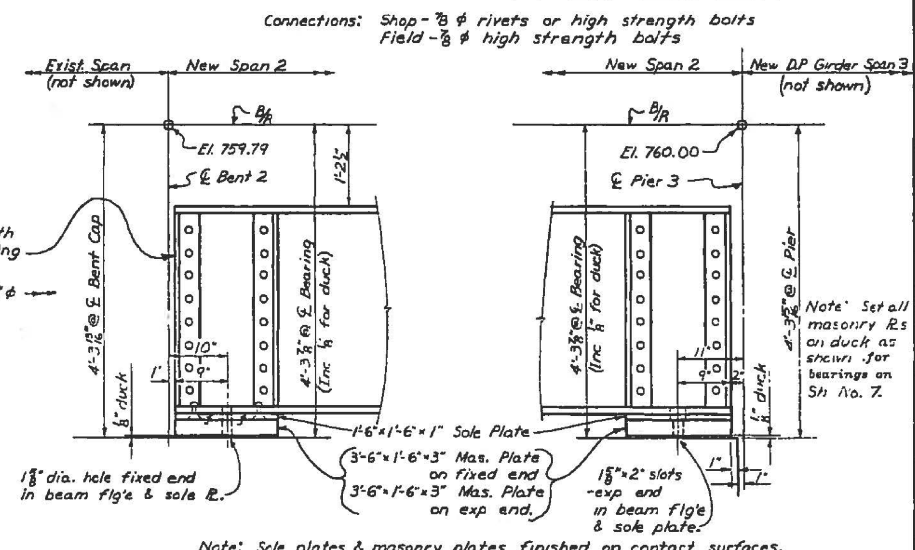
VAL. SEC. 655 SC
DRAWING NO. S-67
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PROJECT NO. P301140022 FILE:

FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	SPARTANBURG	42.623	I-65	8	22



Specs: AREA 1964
 Loading: Dead Load = 130C plf
 Live Load = Cooper E 70
 Impact: Rolling Eff = 20% x 4.96 = 21.2% of Wheel Load
 Vert. Eff = 60 - 40 / 500 = 56.8% of Wheel Load
 Total = 78.0% of Wheel Load
 Steel: ASTM A7 or A36
 Moments: M_{DL} = 181 ¹/₂ r₂₁
 M_{LL} = 1147
 M_I = 895
 M = 2223 ¹/₂ r₂₁
 Allowable f_b = 18,000 - 5 ¹/₂ = 17,900 psi
 S for 2-33 W F 220 = 2 * 740.6 = 1481.2 in²
 F = 2223 * 12 + 1481.2 = 18.0 ksi (ok)
 Shears: V_{DL} = 18 ¹/₂ r₂₁
 V_{LL} = 132
 V_I = 103
 V = 253 ¹/₂ r₂₁
 Allowable f_v = 11,000 psi.
 A_w for 2-33 W F 220 = 2 * 0.775 * 33 = 51 in²
 f_v = 253 ¹/₂ + 51 = 5.0 ksi (ok)
 Use 2-33 W F 220 per rail



REV.	DESCRIPTION	DATE

Scale as noted.

QUANTITY	DATE	FILE NO.	COUNTY	ROUTE NO.	DATE
		42.623	SPARTANBURG	I-65	5-65

APPROVED BY: [Signature]
 DESIGNED BY: [Signature]
 CHECKED BY: [Signature]

clu 118b 33.500x21 B 95B SHEET 8 60056439

OSP#: OPSC0290

CSX ENGINEERING DEPARTMENT
 MAINTENANCE OF WAY
 BRIDGE MAINTENANCE AND DESIGN

BRIDGE NO Z270.19 AT M.P. 270.19
 EXISTING BRIDGE PLANS 8 OF 10
 SPARTANBURG SC
 DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE

SCALE: N.T.S.
 DATE: 5/24/2016
 DESIGN: KWW
 DRAWN: JDA
 CHK'D: DRR

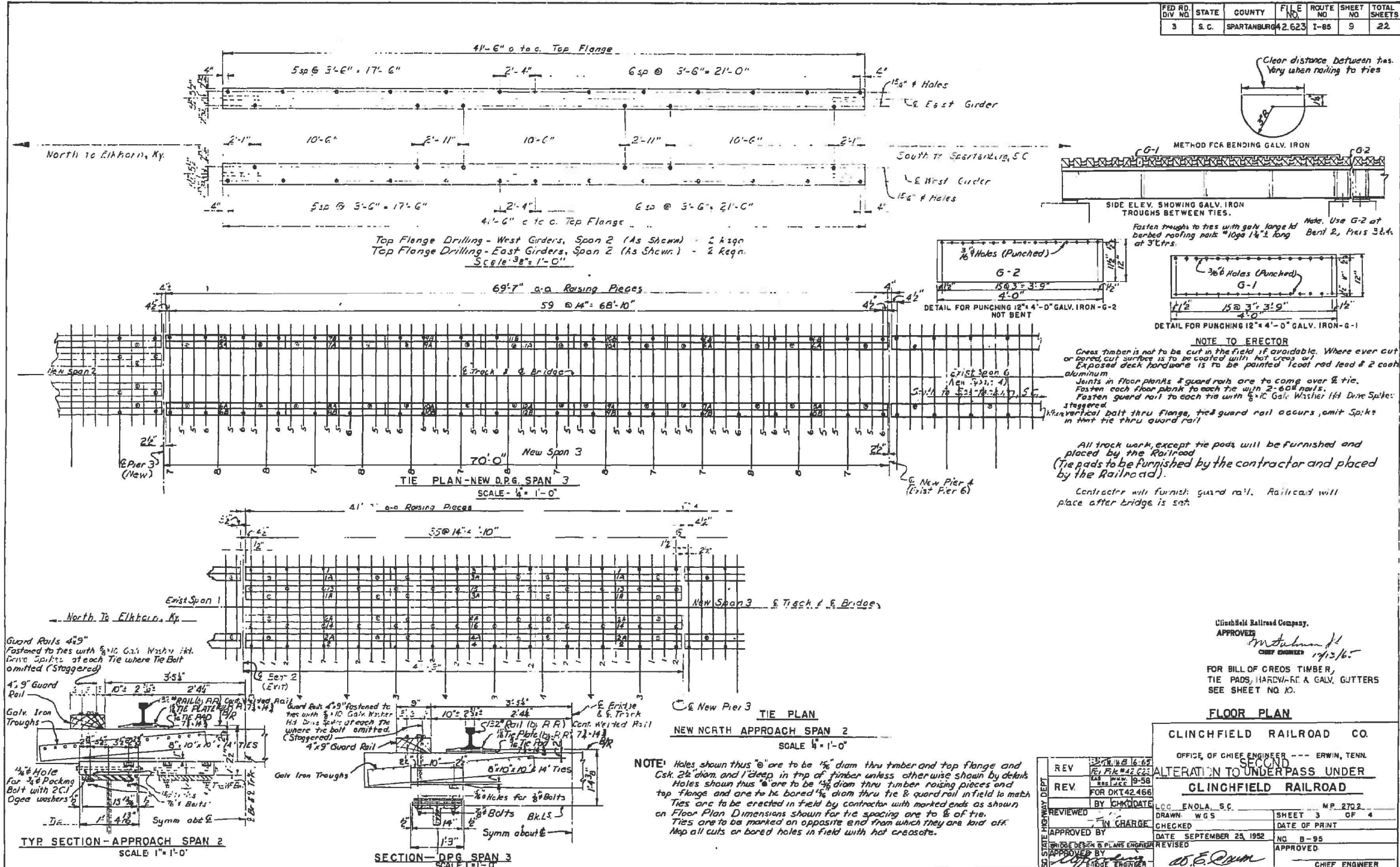
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 DRAWING NO. S-69 99 OF 139

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PROJECT NO. P301140022 FILE:

FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S. C.	SPARTANBURG	42.623	1-85	9	22



CLU 118B 33.250X21 B95B SHEET 9 B0056440

OSP#: OPSC0290

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How tomorrow moves

ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

BRIDGE NO Z270.19 AT M.P. 270.19
EXISTING BRIDGE PLANS 9 OF 10

SPARTANBURG SC
DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE

SCALE: N.T.S.
DATE: 5/24/2016
DESIGN: KWW
DRAWN: JDA
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VAL. SEC. 655 SC
DRAWING NO. S-70 1000F139

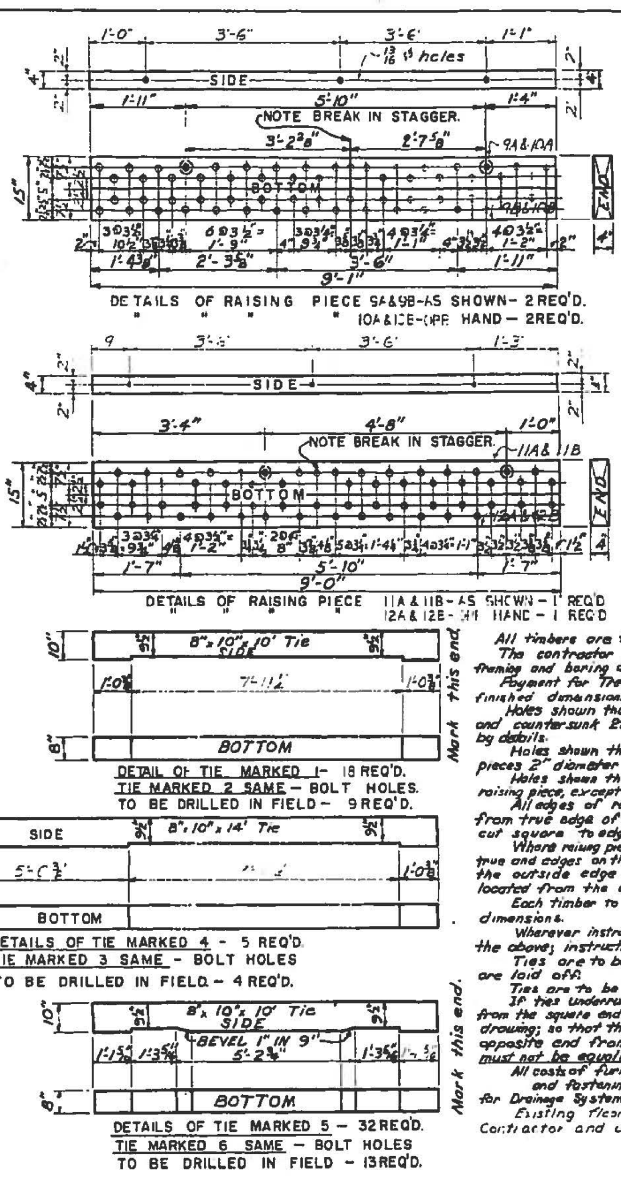
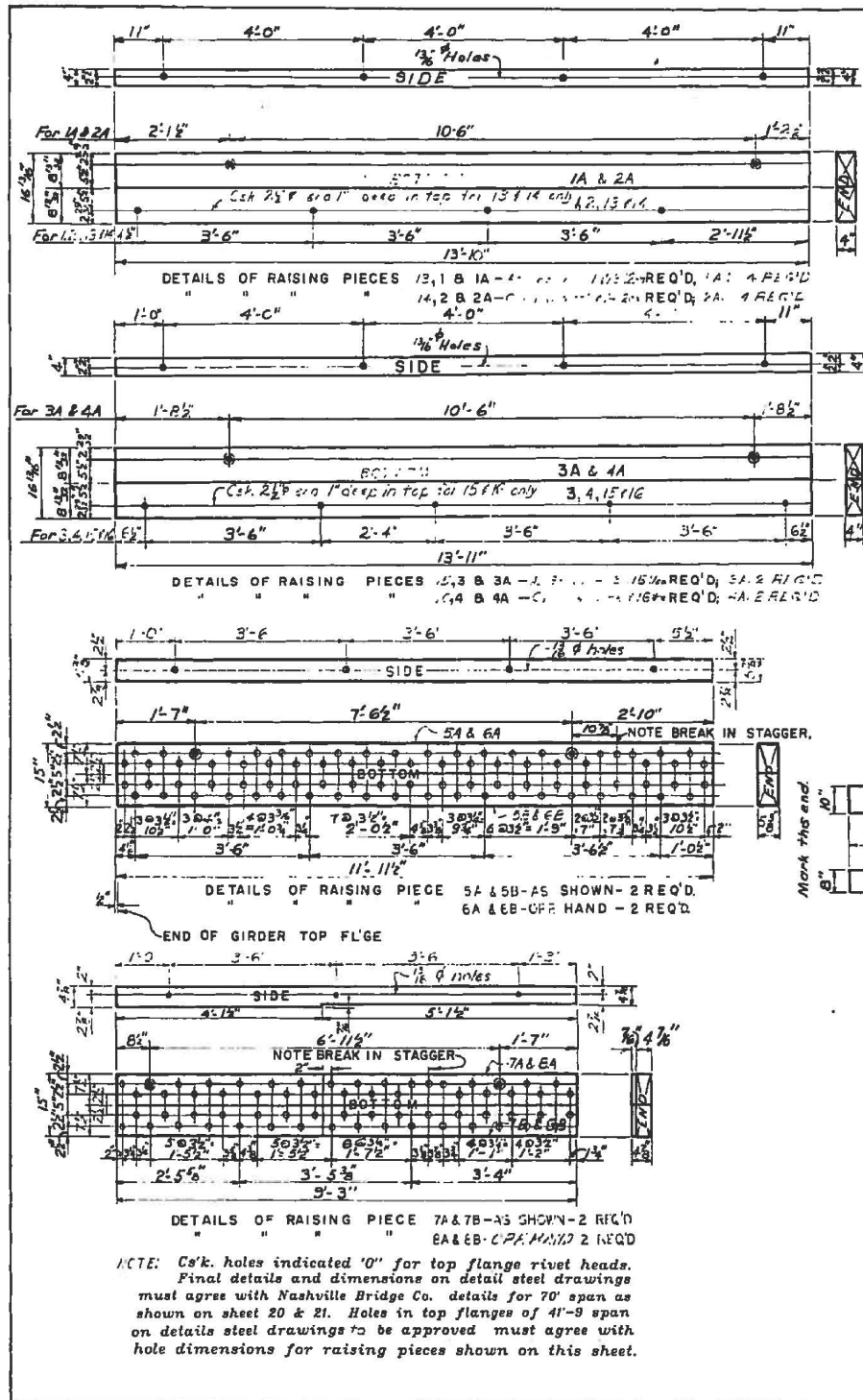
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PROJECT NO. P301140022 FILE:

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TranSystems

FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	SC	SPARTANBURG	42,623	I-85	10	22



DETAIL OF TIE MARKED 8 - REQ'D.
TIE MARKED 7 SAME - BOLT HOLES TO BE DRILLED IN FIELD - 7 REQ'D.

Mark	Qty	From	Length	Remarks
5A & 5B	4	MM 5A - 2 pcs. 5 1/2 x 7 1/2	11'-11 1/2"	Reared
		MM 5B - 2 pcs. 5 1/2 x 7 1/2	11'-11 1/2"	
6A & 6E	4	MM 6A - 2 pcs. 5 1/2 x 7 1/2	11'-11 1/2"	
		MM 6E - 2 pcs. 5 1/2 x 7 1/2	11'-11 1/2"	
7A & 7E	4	MM 7A - 2 pcs. 4 3/4 x 7 1/2	9'-3"	
		MM 7E - 2 pcs. 4 3/4 x 7 1/2	9'-3"	
8A & 8E	4	MM 8A - 2 pcs. 4 3/4 x 7 1/2	9'-3"	
		MM 8E - 2 pcs. 4 3/4 x 7 1/2	9'-3"	
9A & 9E	4	MM 9A - 2 pcs. 4 x 7 1/2	9'-1"	
		MM 9E - 2 pcs. 4 x 7 1/2	9'-1"	
10A & 10E	4	MM 10A - 2 pcs. 4 x 7 1/2	9'-1"	
		MM 10E - 2 pcs. 4 x 7 1/2	9'-1"	
11A & 11E	2	MM 11A - 1 pc. 4 x 7 1/2	9'-0"	
		MM 11E - 1 pc. 4 x 7 1/2	9'-0"	
12A & 12E	2	MM 12A - 1 pc. 4 x 7 1/2	9'-0"	
		MM 12E - 1 pc. 4 x 7 1/2	9'-0"	

Bill of Treated Ties - D45

16	pcs	8'x10'x10'-0"	Marked 1
4	pcs	8'x10'x10'-0"	Marked 2
4	pcs	8'x10'x14'-0"	Marked 3
5	pcs	8'x10'x14'-0"	Marked 4
32	pcs	8'x10'x10'-0"	Marked 5
13	pcs	8'x10'x10'-0"	Marked 6
7	pcs	8'x10'x10'-0"	Marked 7
8	pcs	8'x10'x14'-0"	Marked 8

Bill of Treated Raising Pieces - D45

6	pcs	4'x8'x13'-10"	MM 1A & 1B
5	pcs	4'x8'x13'-10"	MM 2A & 11A
4	pcs	4'x8'x13'-11"	MM 3A, 11B
4	pcs	4'x8'x13'-11"	MM 4A & 11G

NOTES:

All timbers are to be framed and bored before treatment. The contractor shall submit a bill of material showing complete framing and boring details for approval before timber is ordered. Payment for Treated Structural Timber will be based on the finished dimensions shown on this sheet. Holes shown thus \emptyset are to be $\frac{1}{8}$ " diameter through timber and countersunk $2\frac{1}{2}$ " dia and 1" deep in top unless otherwise shown by details. Holes shown thus \circ are to be countersunk in bottom of raising pieces 2" diameter $\frac{1}{4}$ " deep. Holes shown thus \bullet are to be $\frac{1}{2}$ " diameter and through the raising piece, except where shown $\frac{1}{4}$ " diameter. All edges of raising pieces must be true. Holes must be located from true edge of raising piece. Ends of raising pieces are to be cut square to edge. Where raising pieces are shown assembled the wide edges must be true and edges on the center line must be true and parallel to the outside edge of the assembled pieces and all holes are to be located from the edge on center line. Each timber to be framed as shown by details to exact dimensions. Whenever instructions on detail drawing are different from the above, instructions on the detail drawing should be followed. Ties are to be marked on end opposite from which they are laid off. Ties are to be laid off from the square end of ties. If ties under-run or over-run in length, such ties should be laid off from the square end of the ties and according to dimensions given on drawing; so that the over-run or under-run will always be on the opposite end from that used to lay off. Under-run or over-run must not be equalized between the ties ends. All costs of furnishing and placing drain troughs and fastenings shall be included in the Lump Sum Price Bid for Drainage System, which are not split or damaged. Existing flooring boards for walkway to be salvaged by contractor and used on new spans. Such new boards as C.A.R. 166 ties pads to be self sealing coated one expense. 13' long. side only without spike holes and to be similar and equal to Fabco as manufactured by Fabreka Products Co., Inc. All costs of furnishing the pads to be included in unit price bid for Treated Structural Timber.

QUANTITIES

BRIDGE TIES	7040 LBS
RAISING PIECES	1750 LBS
GUARD RAIL	273 LBS
WALKWAY BOARDS	2776 LBS
TOTAL TREATED STRUCT. TIMBER	12,835 LBS
TOTAL HARDWARE	2,022 LBS

including Galk Gutters!

Bills of Material and Quantities listed on this sheet represent total new Treated Structural Timber, Hardware and Galk Gutters required for new spans 2 & 3.

CLINCHFIELD RAILROAD CO.
OFFICE OF C. ENGINEER --- ERWIN, TENN.
2nd ALTERATION T. UNDERPASS UNDER
CLINCHFIELD RAILROAD

LOG ENCL. S C MP 270.2
DRAWN: WGS SHEET 4 OF 4
CHECKED: DATE OF PRINT
DATE: SEPT 25, 1952 NO. 8-95
REVISED: JUNE 15, 1933 WGS. APPROVED: CHIEF ENGINEER

Clinchfield Railroad Company.
APPROVED: [Signature]
1/12/52

REV. 1/12/52 WGS-65
For File # 42,623

REV. 1/12/52 WGS-58
FOR DMT 42,466

BY CHK/D/DATE
IN CHARGE

APPROVED BY [Signature]
BRIDGE DESIGNER AND ENGINEER

APPROVED BY [Signature]
BRIDGE ENGINEER

CLINCHFIELD RAILROAD CO. B95B SHFET 10 B056441

OSP#: OPSC0290

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ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

BRIDGE NO Z270.19 AT M.P. 270.19
EXISTING BRIDGE PLANS 10 OF 10

SPARTANBURG SC
DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE

SCALE: N.T.S.
DATE: 5/24/2016
DESIGN: KWW
DRAWN: JDA
CHK'D: DRR

VAL. SEC. 655 SC
DRAWING NO. S-71 1010F139

FOR INFORMATION ONLY

TranSystems

PROJECT NO. P301140022 FILE:

SUMMARY OF ESTIMATED QUANTITIES						
	PROJECT NO.	SCDOT PAY ITEM	PROJECT PAY ITEM	DESCRIPTION	UNIT	QTY.
SCDOT CONTRACT	000110	N/A	000110	EROSION CONTROL	LS	1
	000145	2031000	2031000	UNCLASSIFIED EXCAVATION	CY	56,017
	000150	2033000	2033000	BORROW EXCAVATION	CY	24,600
	000250	N/A	000250	SUBBALLAST	SY	24,000
	000160	7141196	7141196	42" RC PIPE CUL.-CL. V-AASHTO M315 JOINT	LF	60
	000165	7192105	7192105	MANHOLE	EA	1
	000170	7193015	7193015	PRECAST CONCRETE RISER - 72" DIA.	LF	28
	000175	7193115	7193115	PRECAST CONCRETE DRAINAGE BASE-72" DIA.	EA	1
	000180	7193151	7193151	PRE. CONC. TRANS. SEC.-FLT SLB(72" TO 48")	EA	1
	FORCE ACCOUNT		N/A		TRACK REMOVAL	TF
		N/A		TRACK SHIFT	TF	1,205
		N/A		BALLAST	TON	4,035
		N/A		TRACK	TF	3,630
		N/A		SPECIAL TRACKWORK (NO. 10 TURNOUTS)	EA	3

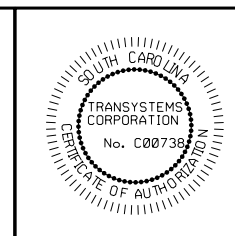
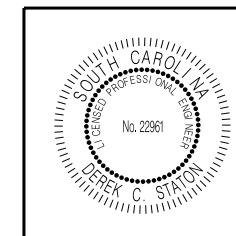
OSP#: OPSC0290



ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

REVISIONS	
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BRIDGE NO Z270.19 AT M.P. 270.19	
SUMMARY OF QUANTITIES	
SPARTANBURG	SC
DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
SCALE: AS SHOWN	VAL. SEC.
DATE: 5/24/2016	655
DESIGN: LSS	SC
DRAWN: LSS	DRAWING NO.
CHK'D: AJG	T-01
	1020F139



PROJECT NO. P301140022

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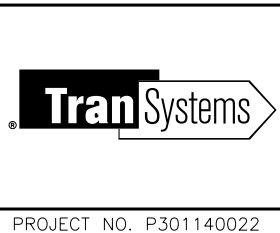
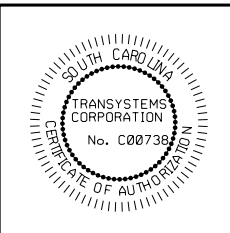
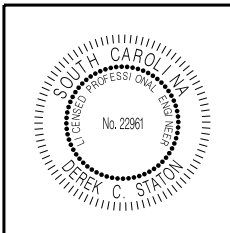
ABBREVIATIONS

<p>A AMPERE AASHTO AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS ABV ABOVE ABUT ABUTMENT AC ACRE ADJ ADJUST AFF ABOVE FINISHED FLOOR AFG ABOVE FINISHED GRADE AGG AGGREGATE AH AHEAD AOC AREA OF CONCERN APPROX APPROXIMATE AREMA AMERICAN RAILWAY ENGINEERING AND MAINTENANCE-OF-WAY ASSOCIATION AS AERIAL SURVEY ASPH ASPHALT ASTM AMERICAN SOCIETY FOR TESTING AND MATERIALS ATS AUTOMATIC TRANSFER SWITCH AVE AVENUE BARR BARRICADE B&B BRIDGE & BUILDING B-B BACK TO BACK BBOX BUFFALO BOX B/C BACK OF CURB BCCMP BITUMINOUS COATED CORRUGATED METAL PIPE BGN BEGIN BIND BINDER BIT BITUMINOUS BK BACK B.L. BASE LINE BLDG. BUILDING BLVD BOULEVARD BM BENCHMARK BPH BRIDGE PLATE HOLDER BRK BRICK BTM BOTTOM BVC BEGIN VERTICAL CURVE BW BACKWALL B/W BASE OF WALL C TRACK CURVE NUMBER (C-4) CA COARSE AGGREGATE CALC CALCULATION CB CATCH BASIN C-C CENTER-CENTER CDT CONDUIT CEM CEMETERY CERT CERTIFIED CFS CUBIC FEET PER SECOND C&G CURB & GUTTER CHSLD CHISELED CIP CAST IRON PIPE C.I.P. CAST IN PLACE C.J. CONTROL JOINT OR CONSTRUCTION JOINT CL CENTERLINE CL-E CENTERLINE TO EDGE CL-F CENTERLINE TO FACE CLID CLOSED LID CL PT CLEARANCE POINT CLR CLEARANCE CLSD CLOSED CMP CORRUGATED METAL PIPE CNC CITY OF NORTH CHARLESTON CNTY COUNTY CO CLEANOUT COMB COMBINATION COMP COMPRESSOR CONC CONCRETE CONST CONSTRUCT CONT CONTINUOUS CONTD CONTINUED COR CORNER CORPS CORPS OF ENGINEERS (ARMY) CORR CORRUGATED CP CONTROL POINT CPT CONTROL POWER TRANSFORMER CS CURVE TO SPIRAL CSX CSX CORPORATION CTS CENTERS CULV CULVERT CU YD CUBIC YARD CWR CONTINUOUS WELDED RAIL C-(X) CURVE DESIGNATION (C-4) Dc DEGREE OF CURVE D/S DOWNSTREAM DBL DOUBLE DC DEPRESSED CURB DEPT DEPARTMENT DET DETECTOR DG DIESEL GENERATOR DIA DIAMETER DIST DISTRICT DIVN DIVISION DOM DOMESTIC DR DRAINAGE DRV DRIVEWAY DSEL DOWNSTREAM ELEVATION DSFL DOWNSTREAM FLOWLINE DWG DRAWING</p>	<p>E EAST Ec EXTERNAL DISTANCE OF HORIZONTAL CURVE Eo ACTUAL SUPERELEVATION Ee EQUILIBRIUM ELEVATION Eu UNBALANCED SUPERELEVATION EA EACH EB EASTBOUND EC EMPTY CONDUIT E-CL EDGE TO CENTERLINE E-E EDGE TO EDGE EL ELEVATION ENTR ENTRANCE EOP EDGE OF PAVEMENT EO EQUAL EQPT EQUIPMENT Es EXTERNAL DISTANCE OF HORIZONTAL CURVE OR SPIRAL EST ESTIMATE ETR EXISTING TO REMAIN ETM ELAPSED TIME METER EVC END VERTICAL CURVE EX EXISTING EXC EXCAVATION fc' COMPRESSIVE STRESS IN CONCRETE fy YIELD STRENGTH F&G FRAME & GRATE F-F FACE TO FACE FDN FOUNDATION FDS FIRE HYDRANT FH FAILURE DETECTION SYSTEM FHP FRACTIONAL HORSEPOWER FHWA FEDERAL HIGHWAY ADMINISTRATION FED FEDERAL FES FLARED END SECTION FL FLOW LINE FP FENCE POST FR FRAME FT FOOT OR FEET FTG FOOTING GA GAUGE GAL GALLON GALV GALVANIZED GFCI GROUND FAULT CIRCUIT INTERRUPTER GM GAS METER GND GROUND GR GRATE GRAN GRANULAR GRVL GRAVEL GUT GUTTER GV GAS VALVE ha HECTARE HAB HOT AIR BLOWER HD HEAD HDUTY HEAVY DUTY HDW HEADWALL HF HEEL OF FROG HH HANDHOLE HID HIGH INTENSITY DISCHARGE HML HIGH MAST LIGHT HORIZ HORIZONTAL HSE HOUSE HWE HIGH WATER ELEVATION HWL HIGH WATER LEVEL HPS HIGH PRESSURE SODIUM I TOTAL CENTRAL ANGLE OF CIRCULAR CURVE AND SPIRALS IMF INTERMODAL FACILITY IMP IMPROVEMENT IN INCH INL INLET INS JNT INSULATED JOINT INST INSTALL INT INTERNAL INTLK INTERLOCK INV. INVERT IP IRON PIPE IR IRON ROD J-BOX JUNCTION BOX JT JOINT K ABSCISSA OF THE SHIFTED PC REFERRED TO THE TS kg KILOGRAM K' Si 1000 POUNDS PER SQUARE INCH KVA KILO-VOLT-AMPERES KW KILO-WATTS Lc LENGTH OF CURVE Ls LENGTH OF SPIRAL LBS POUNDS LC LONG CHORD LF LINEAR FEET LGT LIGHTING LGTH LENGTH LH LEFT HAND LN LANE LNG LONGITUDINAL LP LIGHT POLE L SUM LUMP SUM LT LEFT LUC LAND USE CONTROL</p>	<p>m METER m SQUARE METER m CUBIC METER mm MILLIMETER M MID-ORDINATE MACH MACHINE MATL MATERIAL MAX MAXIMUM MB MAIL BOX MBH MOBILE HOME MCB MAIN CIRCUIT BREAKER METH METHOD MFT MOTOR FUEL TAX MH MANHOLE MIN MINIMUM MISC MISCELLANEOUS MIX MIXTURE MLO MAIN LUGS ONLY MOD MODIFIED MOW MAINTENANCE-OF-WAY MPH MILES PER HOUR MSG MAIN SWITCH GEAR MTCE MAINTENANCE MTD MOUNTED MW MONITORING WELL N NORTH N & BC NAIL & BOTTLE CAP N & C NAIL & CAP N & W NAIL & WASHER NAT NATURAL NB NORTHBOUND NBIF NAVY BASE INTERMODAL FACILITY NC NORMAL CROWN NE NORTHEAST N.I.C. NOT IN CONTRACT NOAA NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NO. ADMINISTRATION NUMBER NOI NOTICE OF INTENT NOT NOTICE OF TERMINATION NPDES NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM NTS NOT TO SCALE N.T.S. NOT TO SCALE NW NORTHWEST NWL NORMAL WATER LEVEL OD OUTSIDE DIAMETER OFBW OUTSIDE FACE OF BACKWALL OFCI OWNER FURNISHED, CONTRACTOR INSTALLED OLID OPEN LID OSHA OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION OWS OIL WATER SEPARATOR P OFFSET FROM THE INITIAL TANGENT TO THE PC OF THE SHIFTED CIRCLE Px POINT LOCATION (P4) PAT PATTERN PC POINT OF CURVATURE P.C. PROPERTY CORNER PCC PORTLAND CEMENT CONCRETE PED PEDESTAL/PEDESTRIAN PERF. PERFORATED PF POINT OF FROG PGL PROPOSED GRADE LINE PI POINT OF INTERSECTION OF HORIZONTAL CURVATURE PITO POINT OF INTERSECTION-TURNOUT PJF PREFORMED JOINT FILLER PL PROPERTY LINE PM PAVEMENT MARKING PMS PAD MOUNTED SWITCH PNT POINT PP POWER POLE PROP PROPOSED PR PAIR PRC PRECAST REINFORCED CONCRETE PRC FES PRECAST FLARED END SECTION PROF PROFILE PROJ PROJECT PS POINT OF SWITCH PSF POUND PER SQUARE FOOT PSI POUND PER SQUARE INCH PT POINT OF TANGENCY PVC POLYVINYL CHLORIDE PIPE PVD PAVED PVI POINT OF VERTICAL INTERSECTION PVMT PAVEMENT PWR POWER QTY QUANTITY R RADIUS RCP REINFORCED CONCRETE PIPE RD ROAD RDWY ROADWAY REINF REINFORCED REM REMOVAL REP REPLACEMENT RESURF RESURFACING RET RETAINING RH RIGHT HAND ROW RIGHT-OF-WAY RR RAILROAD RT RIGHT RW RETAINING WALL</p>	<p>S SOUTH SAN SANITARY SANS SANITARY SEWER SB SOUTHBOUND SC SPIRAL TO CURVE SCPR SOUTH CAROLINA PUBLIC RAILWAYS SDR STANDARD DIMENSION RATIO SE SOUTHEAST S.E. SUPERELEVATION ACTUAL SEC SECTION SEED SEEDING SF SQUARE FOOT SH SECOND HAND SHT SHEET SHAP SHAPING SHLD SHOULDER SIG SIGNAL SM SOLID MEDIAN SOD SODDING SP SPIRAL SPBGR STEEL PLATE BEAM GUARDRAIL SPCY SEISMIC PERFORMANCE CATEGORY SPL SPECIAL SQ SQUARE SQ FT SQUARE FEET SQ YD SQUARE YARD SR STATE ROUTE SS STORM SEWER ST SPIRAL TO TANGENT/STREET STA. STATION STB STABILIZED STD STANDARD STR STRUCTURE SURF SURFACE SW SWITCH T TANGENT T.C. TOP OF CASTING T/ TOP OF TB TELEPHONE BOX TBD TO BE DETERMINED TCE TERRACE TDPU TIME DELAY PICKUP TEL TELEPHONE TEMP TEMPORARY TF TRACK FEET TMR TIME DELAY RELAY T.O. TURNOUT TP TELEPHONE POLE T/P TOP OF PIPE T/R TOP OF RAIL TRF TRANSFORMER TRK TRACK TRVL TRAVEL TRVS TRANSVERSE TS TANGENT TO SPIRAL TVSS TRANSIENT VOLTAGE SURGE SUPPRESSOR T/W TOP OF WALL TYPE TY TYPE TYP TYPICAL UPS UNINTERRUPTED POWER SUPPLY U/S UPSTREAM USGS U.S. GEOLOGICAL SURVEY UTIL UTILITY V VELOCITY V:H VERTICAL:HORIZONTAL VAR VARIANCE VBOX VALVE BOX VCL VERTICAL CURVE LENGTH VEH VEHICLE VERT VERTICAL VLT VAULT VPC VERTICAL POINT OF CURVATURE VP VENT PIPE VPT VERTICAL POINT OF TANGENCY W WEST W/ WITH WB WESTBOUND WETL WETLANDS WM WATER MAIN W/O WITHOUT WV WELDED WIRE FABRIC X-ING CROSSING X-OVER CROSSOVER</p>
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OSP#: OPSC0290



ENGINEERING DEPARTMENT MAINTENANCE OF WAY BRIDGE MAINTENANCE AND DESIGN	
BRIDGE NO Z270.19 AT M.P. 270.19	
ABBREVIATIONS	
SPARTANBURG	SC
DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
SCALE: AS SHOWN DATE: 5/24/2016 DESIGN: LSS DRAWN: LSS CHK'D: AJG	VAL. SEC. 655 SC
PROJECT NO. P301140022	DRAWING NO. T-02 1030F139



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LEGEND AND SYMBOLS

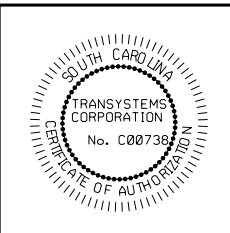
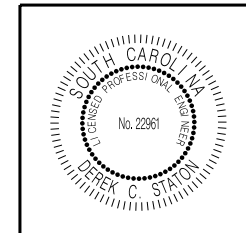
EXISTING	PROPOSED	
		MAJOR CONTOUR
		MINOR CONTOUR
		BREAK LINE
		TOE OF SLOPE
		TOP OF SLOPE
		FLOW LINE
		LIMITS OF GRADING
		BOTTOM OF DITCH
		TOP OF DITCH
		TOP OF POND
		BOTTOM OF POND
		WETLAND
		TREE LINE
		TREE LINE
		SILT FENCE
		RIPRAP PROTECTION
		ROCK CHECK DAM
		CULVERT PROTECTION
		FENCE/BARBED WIRE
		WIRE FENCE
		CHAIN LINK FENCE
		DECORATIVE FENCE
		GUARDRAIL
		ANTENNA
		SIGN
		BOLLARD
		CENTERLINE OF TRACK
		POINT OF SWITCH - T.O. SIZE
		PIPE
		RAIL CENTERLINE
		RAIL REMOVAL

EXISTING	PROPOSED	
		RIGHT OF WAY LINE
		PROPERTY LINE
		EASEMENT
		IRON PIPE
		IRON ROD
		PK NAIL
		MONUMENT
		PROPERTY MARKER
		BENCH MARK
		CONTROL POINT
		PIN
		FLOW
		BORING
		TREE
		ANTENNA
		SIGN
		BOLLARD
		ELECTRIC
		GAS
		TELECOM
		WATER

SUSERS "dwgname", Plotted: \$etime, 0, MON DD", YYYY - HMMm/pm)

OSP#: OPSC0290

	ENGINEERING DEPARTMENT MAINTENANCE OF WAY BRIDGE MAINTENANCE AND DESIGN	
	BRIDGE NO Z270.19 AT M.P. 270.19	
LEGEND SHEET		SPARTANBURG SC
DIVISION: HUNTINGTON		SUBDIVISION: BLUE RIDGE
SCALE: AS SHOWN DATE: 5/24/2016 DESIGN: LSS DRAWN: LSS CHK'D: AJG	VAL. SEC. 655 SC	DRAWING NO. T-03 1040F139



PROJECT NO. P301140022

FILE:

GENERAL NOTES

- IN PERFORMING THE WORK UNDER THIS AGREEMENT, THE CONTRACTOR SHALL BECOME THOROUGHLY FAMILIAR WITH ALL FEDERAL, STATE AND LOCAL STATUTES, ORDINANCES AND DIRECTIVES WITH RESPECT TO THE ELIMINATION OF EXCESSIVE NOISE AND POLLUTION OF AIR AND WATER DUE TO THEIR CONSTRUCTION EQUIPMENT AND OTHER OPERATIONS. ATTENTION SHALL BE GIVEN TO REDUCE THE NOISE OF HEAVY CONSTRUCTION EQUIPMENT AND THE CONTROL OF DUST, SMOKE AND FUMES FROM CONSTRUCTION EQUIPMENT AND OTHER OPERATIONS ON THE WORK SITE, AND THE DIRT AND NOISE CREATED BY HEAVY TRUCK OPERATION AREAS AND ADJACENT EXISTING PAVED AREAS. THESE AREAS SHALL BE KEPT FREE FROM DEBRIS AT ALL TIMES. THE DISCHARGE OF OILY, GREASY OR CHEMICAL WASTES INTO WATERWAYS AND TRIBUTARY SEWERS WILL NOT BE PERMITTED.
- THIS AGREEMENT IS MADE UP OF SEVERAL PARTS. TO ESTABLISH AN ORDER OF PRECEDENCE, THE AGREEMENT WITH THE CONTRACTOR WILL HOLD OVER ALL OTHER PARTS OF THE CONSTRUCTION DOCUMENTS, NOT WITHSTANDING PERMITTING REQUIREMENTS AND GOVERNMENTAL AGENCY REGULATIONS. THE PLAN NOTES AND DETAILS WILL HOLD OVER PLAN DRAWING INFORMATION AND THE PLANS WILL HOLD OVER THE PROJECT SPECIFICATIONS, THE CSX STANDARD SPECIFICATIONS AND THE SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2007 EDITION). OTHER FEDERAL, STATE AND LOCAL REGULATIONS AND REQUIREMENTS ARE TO BE INCORPORATED IN THE CONSTRUCTION, WHEN IN CONFLICT WITH THE PLANS OR SPECIFICATIONS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN.
- THE OWNER REQUIRES THAT ALL CONTRACTORS BE QUALIFIED FOR THE WORK THEY ARE PERFORMING. IT IS PRESUMED THAT CONTRACTORS PERFORMING WORK ARE EXPERIENCED AND KNOWLEDGEABLE ABOUT THE WORK (INCLUDING GOVERNMENTAL REGULATIONS), AND THAT QUALITY PRODUCTS, APPROPRIATE FOR THE APPLICATION, WILL BE USED AND THAT ALL WORK WILL BE INSTALLED IN A PROFESSIONAL WORKMAN-LIKE MANNER. THE PLANS SHOW LOCATIONS, RELATIONSHIPS, MAGNITUDE AND GENERAL SPECIFICATIONS OF THE WORK REQUIRED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ASSURE THAT ALL COMPONENTS INSTALLED FUNCTION PROPERLY AND THAT ALL HARDWARE, FITTINGS, CABLING, CONNECTIONS, SUPPLY LINES, ETC. ARE SUPPLIED AND PROPERLY FITTED, WHETHER DETAILED ON THE PLANS OR NOT. THE CONTRACTOR SHALL ASSURE THAT ALL COMPONENTS AND WORK ARE INSTALLED, COMPLETED IN PLACE, AND OPERATIONAL TO THE SATISFACTION OF THE OWNER.
- ALL WORKERS ON THE SITE SHALL BE REQUIRED TO HAVE RWT TRAINING, BE SAFETY TRAINED IN ACCORDANCE WITH THE OWNER'S REGULATIONS, AND SHALL HAVE COMPLETED THE SITE SPECIAL SAFETY COURSE. THE ONLY EXCEPTIONS SHALL BE MATERIAL DELIVERY, TRUCK DRIVERS, AND VISITORS, BUT ONLY WHEN THEY ARE DIRECTED IN AND OUT OF THE SITE BY A TRAINED WORKER.
- THE CONTRACTOR SHALL PROVIDE FULL TIME SUPERVISION OF ITS WORK WITH EXPERIENCED PERSONNEL. EACH CONTRACTOR IS SOLELY RESPONSIBLE FOR THE MEANS, METHODS AND SAFETY OF ITS CONSTRUCTION OPERATIONS.
- THE CONTRACTOR SHALL SWEEP AND WASH DOWN ALL HAUL ROUTES OVER CITY/STATE/COUNTY ROADS TO/FROM THE CONSTRUCTION AREA, IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND ANY PERMITS REQUIRED FOR THE WORK. THE CONTRACTOR SHALL PROVIDE WHATEVER MEANS NECESSARY TO ALLEVIATE OR PREVENT DUST NUISANCE AT ALL TIMES. A SWEEPER SHALL BE PROVIDED AS NECESSARY TO KEEP STREETS CLEAN. THE COST OF THIS ITEM IS INCIDENTAL TO THE PROJECT.
- ALL MAINTENANCE OF TRAFFIC REQUIRED SHALL CONFORM TO SOUTH CAROLINA HIGHWAY AND CITY OF SPARTANBURG STANDARDS AND BE COORDINATED WITH THE OWNER'S REPRESENTATIVE.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL DIMENSIONS AND CONDITIONS EXISTING IN THE FIELD PRIOR TO ORDERING MATERIALS AND BEGINNING CONSTRUCTION.
- THE CONTRACTOR SHALL INSPECT THE SITE OF THE PROJECT AND FAMILIARIZE HIMSELF WITH ALL EXISTING CONDITIONS, TRAFFIC, OTHER ITEMS THAT AFFECT THE CONTRACT AND THE DETAILED REQUIREMENTS OF CONSTRUCTION.
- ALL CATCH BASINS, MANHOLES, POLLUTION CONTROL BASINS, AND SIMILAR STRUCTURES NEWLY CONSTRUCTED, ADJUSTED OR RECONSTRUCTED UNDER THE CONTRACT SHALL BE CLEANED OF ANY ACCUMULATION OF SILT, DEBRIS OR ANY FOREIGN MATTER OF ANY KIND AND SHALL BE FREE OF SUCH ACCUMULATION AT THE TIME OF FINAL INSPECTION. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THIS CONTRACT.
- LOCATION OF CONSTRUCTION STAGING AREA SHALL BE COORDINATED WITH THE OWNER'S REPRESENTATIVE PRIOR TO BEGINNING CONSTRUCTION. THE CONTRACTOR SHALL SUBMIT A DETAILED PLAN OF PROPOSED STAGING AREAS AND ANTICIPATED SEQUENCE OF CONSTRUCTION FOR REVIEW AND APPROVAL BY THE OWNER.
- ALL CONSTRUCTION TRAFFIC SHALL ENTER AND EXIT WORK AREAS FROM A LOCATION DESIGNATED BY THE OWNER'S REPRESENTATIVE OR AS SHOWN ON THE PLANS.
- "CONTRACTOR" SHALL MEAN THE CONTRACTOR BIDDING SPECIFIC TRADE WORK.
- THE CONTRACTOR SHALL PROTECT CSXT TRACK AND RIGHT OF WAY DURING DEMOLITION OF THE CONWAY BLACK ROAD BRIDGE. ALL EXISTING FOUNDATIONS SHALL BE REMOVED TO A DEPTH OF AT LEAST 3 FEET BELOW PROPOSED BOTTOM OF THE ELEVATION.

GEOMETRIC CONTROL AND EXISTING CONDITIONS

- EXISTING CONDITIONS WERE TAKEN FROM GROUND AND/OR AERIAL SURVEYS. INFORMATION SHOWN CONCERNING FEATURES AND UTILITIES ARE NOT GUARANTEED, ALL INCLUSIVE OR CORRECT. THE LOCATION, MATERIAL AND DIMENSIONS OF EXISTING FACILITIES AND OBSTRUCTIONS ARE BASED UPON AVAILABLE RECORDS AND ARE SHOWN ON THE PLANS STRICTLY AS AN AID TO THE CONTRACTOR, BUT MUST NOT BE CONSTRUED AS BEING ACCURATE, CORRECT OR COMPLETE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH AND FAMILIARIZE THEMSELVES WITH ALL EXISTING CONDITIONS WHETHER SHOWN ON THE PLANS OR NOT.

SITE ACCESS AND MAINTENANCE OF EXISTING ROADWAYS

- THE CONTRACTOR MUST SUBMIT TO THE OWNER AND THE APPROPRIATE LOCAL AGENCIES A PLAN THAT SHOWS THE PROPOSED HAUL ROUTES FOR THE CONSTRUCTION OF THE FACILITY, AND OBTAIN ANY NECESSARY APPROVALS OR PERMITS FROM THE LOCAL ENTITY WITH JURISDICTION OVER THE ROADS PROPOSED TO BE USED. AT ALL TIMES THE CONTRACTOR SHALL RESPECT POSTED LOAD LIMITS AND SPEED LIMITS OF ALL PUBLIC ROADWAYS.


STANDARD SPECIFICATIONS

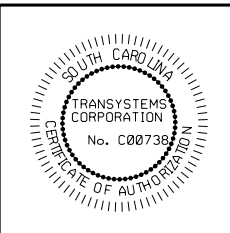
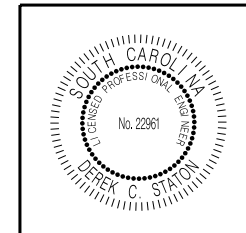
- THE FOLLOWING REQUIREMENTS, INCLUDING ALL SUPPLEMENTS THERETO, SHALL GOVERN ALL MATERIALS AND WORKMANSHIP INVOLVED IN THE IMPROVEMENTS SHOWN ON THESE PLANS, UNLESS OTHERWISE NOTED: CONSTRUCTION SPECIFICATIONS, SPECIAL PROVISIONS AND APPENDICES.

GENERAL UTILITIES

- EXISTING CONDITIONS WERE TAKEN FROM THE BEST MAPPING/DRAWING READILY AVAILABLE. INFORMATION SHOWN CONCERNING FEATURES AND UTILITIES IS NOT GUARANTEED, ALL INCLUSIVE OR CORRECT. THE CONTRACTOR SHALL VERIFY THE FEATURES PRIOR TO CONSTRUCTION. EXISTING UTILITIES SHALL BE MAINTAINED IN SERVICE AT ALL TIMES, UNLESS NOTED OTHERWISE ON THE PLANS. THE LOCATION, MATERIAL AND DIMENSIONS OF EXISTING FACILITIES AND OBSTRUCTIONS ARE BASED UPON AVAILABLE RECORDS AND ARE SHOWN ON THE PLANS STRICTLY AS AN AID TO THE CONTRACTOR, BUT MUST NOT BE CONSTRUED AS BEING ACCURATE, CORRECT OR COMPLETE. ALL STRUCTURES ABOVE OR BELOW GROUND THAT ARE ENCOUNTERED DURING CONSTRUCTION SHALL BE PROPERLY SUPPORTED AND MAINTAINED. THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS WITH THE UTILITY OWNER'S REPRESENTATIVE FOR THE PROTECTION, RELOCATION, RECONSTRUCTION OR ADJUSTMENT OF SUCH STRUCTURES AS REQUIRED IN FIELD. IF DAMAGED DURING CONSTRUCTION, THE CONTRACTOR SHALL MAKE REPAIRS OR PAY FOR REPAIRS TO THE STRUCTURE TO THE SATISFACTION OF THE UTILITY OWNER'S REPRESENTATIVE AND AT THE EXPENSE OF THE CONTRACTOR.
- THE CONTRACTOR SHALL OBTAIN ALL NECESSARY CONSTRUCTION PERMITS AND PERMISSIONS PRIOR TO START OF WORK.
- THE CONTRACTOR SHALL GIVE 2 TO 3-WORKING DAYS NOTICE TO SOUTH CAROLINA 811 BY CALLING (888) 721-7877. 2 TO 3-WORKING DAYS NOTICE SHALL ALSO BE GIVEN TO THE OWNERS OF UNDERGROUND UTILITIES SHOWN ON THE PLANS WHO ARE NOT MEMBERS OF A REGISTERED UNDERGROUND PROTECTION SERVICE.
- ALL UNSUITABLE MATERIALS RESULTING FROM DEMOLITION SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF OFF THE SITE AND COMPLY WITH THE CSX REQUIREMENTS FOR DISPOSAL OF DEMOLITION MATERIALS. TEMPORARY STOCKPILING OF THESE MATERIALS MAY BE ALLOWED ON THE PROPERTY OR WITHIN THE PROJECT AREA. IN THE EVENT THAT UNEXPECTED REGULATED SUBSTANCES ARE ENCOUNTERED DURING EXCAVATION, THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL STATUTES, ORDINANCES AND DIRECTIVES WITH RESPECT TO HANDLING AND DISPOSAL OF SUCH SUBSTANCES, AND SHALL PROVIDE A MATERIAL MANIFEST TO THE OWNER.
- ALL EXISTING ACTIVE UTILITIES THAT MUST REMAIN SHALL REMAIN IN CONTINUOUS OPERATION DURING THE EXECUTION OF THE WORK, UNLESS OTHERWISE NOTED ON THE PLANS. THESE UTILITIES INCLUDE, BUT ARE NOT LIMITED TO WATER, COMMUNICATIONS, GAS AND POWER. THE CONTRACTOR SHALL CONTACT THE OWNERS OF ALL UTILITIES PRIOR TO THE START OF THE WORK SO THAT THE OWNERS MAY LOCATE AND STAKE THEIR UTILITIES. THE CONTRACTOR SHALL NOTIFY THE UTILITY OWNER'S REPRESENTATIVE, IN WRITING, 48 HOURS PRIOR TO UTILITY OWNER LOCATING THE UTILITY.
- ALL EXCAVATION NEAR EXISTING CABLES OR OTHER EXISTING UTILITY LINES SHALL BE PERFORMED BY HAND. ANY CABLE OR OTHER EXISTING UTILITY LINE THAT IS DAMAGED DURING THE PERFORMANCE OF THIS CONTRACT SHALL BE REPAIRED IMMEDIATELY, UNDER THE UTILITY OWNER'S DIRECTION AND AT THE CONTRACTOR'S EXPENSE. DURING THE PERIOD OF TIME THAT THE ABOVE TYPES OF CABLES OR UTILITIES ARE OUT OF SERVICE, DUE TO THE CONTRACTOR'S OPERATIONS, ALL CONTRACT WORK SHALL BE SUSPENDED UNLESS OTHERWISE DIRECTED BY THE OWNER'S REPRESENTATIVE. THE CONTRACTOR WILL NOT BE ALLOWED TO MAKE CLAIMS FOR EXTRA COSTS OR TIME EXTENSIONS DUE TO SUCH STOPPAGES OF WORK.
- THE CONTRACTOR SHALL PREPARE AND SUBMIT SHOP AND CONSTRUCTION DRAWINGS, CERTIFIED BY A STRUCTURAL ENGINEER LICENSED BY THE STATE OF SOUTH CAROLINA, TO THE OWNER'S REPRESENTATIVE WHICH CLEARLY AND ACCURATELY DEPICT THE METHODS AND MEANS BY WHICH THE CONTRACTOR INTENDS TO PROTECT, SHORE, SUPPORT, BRACE, ETC., EXISTING UTILITIES WHEN THE WORK AFFECTS A CABLE, STORM SEWER OR OTHER UTILITY WITHIN THE CONTRACT LIMIT LINES. THIS PROCESS IS ALSO APPLICABLE FOR THE INSTALLATION OF NEW STORM SEWERS AND UTILITIES WITHIN THE CONTRACT LIMIT LINES THAT REQUIRE SHORING AND BRACING.
- RELOCATION OF ACTIVE UTILITIES SHALL BE THE RESPONSIBILITY OF THE UTILITY OWNER UNLESS OTHERWISE NOTED ON THE PLANS, IN THE GENERAL NOTES AND IN THE SPECIFICATIONS. THE CONTRACTOR IS TO NOTIFY THE UTILITY OWNER SUFFICIENTLY IN ADVANCE OF THE SCHEDULE FOR SUCH REMOVALS AND RELOCATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREMIUM COSTS WHICH BECOME NECESSARY AS A RESULT OF THE CONTRACTOR'S FAILURE TO NOTIFY THE UTILITY OWNER. ALL OTHER UTILITIES NOTED ON THE PLANS TO BE RELOCATED SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- ALL ITEMS PROPOSED FOR GROUT FILL, ABANDONMENT, RELOCATION OR DEMOLITION SHALL BE MARKED BY THE CONTRACTOR FOR REVIEW BY THE UTILITY OWNER'S REPRESENTATIVE. NO ITEM SHALL BE ABANDONED, RELOCATED OR DEMOLISHED UNTIL APPROVED BY THE UTILITY OWNER'S REPRESENTATIVE AND THE OWNER'S REPRESENTATIVE.
- THE CONTRACTOR SHALL NOT START ANY WORK WHICH MAY AFFECT EXISTING UTILITIES UNTIL THE OWNER'S REPRESENTATIVE HAS REVIEWED AND APPROVED THE SHOP DRAWINGS AND PROCEDURES FOR PROTECTION OR DEMOLITION OF THE UTILITY.
- IN THE EVENT OF THE CONTRACTOR ENCOUNTERING EXISTING SUBSURFACE DRAINAGE SYSTEMS THAT WERE NOT SHOWN ON PLANS, THE CONTRACTOR SHALL MAINTAIN AND PRESERVE THE SUBSURFACE DRAINAGE SYSTEMS OR CONNECT THE SYSTEMS TO THE NEAREST DRAINAGE SYSTEMS OR REMOVE AT THE CONTRACT'S UNIT COST AS DIRECTED BY THE ENGINEER.
- ALL STORM SEWERS TO BE ABANDONED IN PLACE SHALL BE BULKHEADED AT BOTH ENDS AND FILLED WITH GROUT AS DIRECTED BY THE OWNER'S REPRESENTATIVE UNLESS OTHERWISE NOTED ON THE PLANS.
- WHEREVER ANY ABANDONED CONDUITS OR PIPES ARE CUT OR BROKEN BY CONSTRUCTION, SUITABLE BULKHEADS, AS DETERMINED BY THE OWNER'S REPRESENTATIVE, SHALL BE INSTALLED SO THAT NO LOSS OF BACKFILL MATERIAL SHALL OCCUR. ALL COSTS TO PERFORM SUCH WORK SHALL BE INCIDENTAL TO THE CONTRACT.
- THE CONTRACTOR MUST CONNECT ALL EXISTING LIVE DRAINS TO STORM SEWERS WHETHER SHOWN ON THE PLANS OR NOT, UNLESS DIRECTED OTHERWISE BY THE OWNER'S REPRESENTATIVE.
- THE CONTRACTOR SHALL AT ALL TIMES DURING CONSTRUCTION PROVIDE AND MAINTAIN AMPLE MEANS AND DEVICES FOR THE TEMPORARY DIVERSION OF FLOW IN EXISTING SEWERS AND DRAINS AND THE PROMPT REMOVAL AND PROPER DISPOSAL OF ALL WATER OR SEWAGE ENTERING THE TRENCHES OR OTHER PARTS OF THE WORK, AND SHALL KEEP SAID EXCAVATIONS AS DRY AS PRACTICABLE UNTIL THE STRUCTURES TO BE BUILT THEREIN ARE COMPLETED. THIS WORK SHALL BE INCIDENTAL TO THE CONTRACT.
- THE LOCATIONS AND ELEVATIONS OF EXISTING STORM SEWERS AND STRUCTURES SHOWN ON THE PLANS AND PROFILES HAVE BEEN OBTAINED FROM AERIAL/GROUND SURVEY AND THE INFORMATION IS NOT GUARANTEED. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING AND PROTECTING ALL STORM SEWERS AND STRUCTURES.
- IN LOCATIONS WHERE EXISTING STORM DRAINAGE FACILITIES ARE TO REMAIN AND ARE DISTURBED OR DAMAGED DURING CONSTRUCTION BY THE CONTRACTOR, IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO RESTORE AND REPLACE THE DAMAGED FACILITIES AT HIS EXPENSE TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE. FULL FLOW MUST BE MAINTAINED AT ALL TIMES.

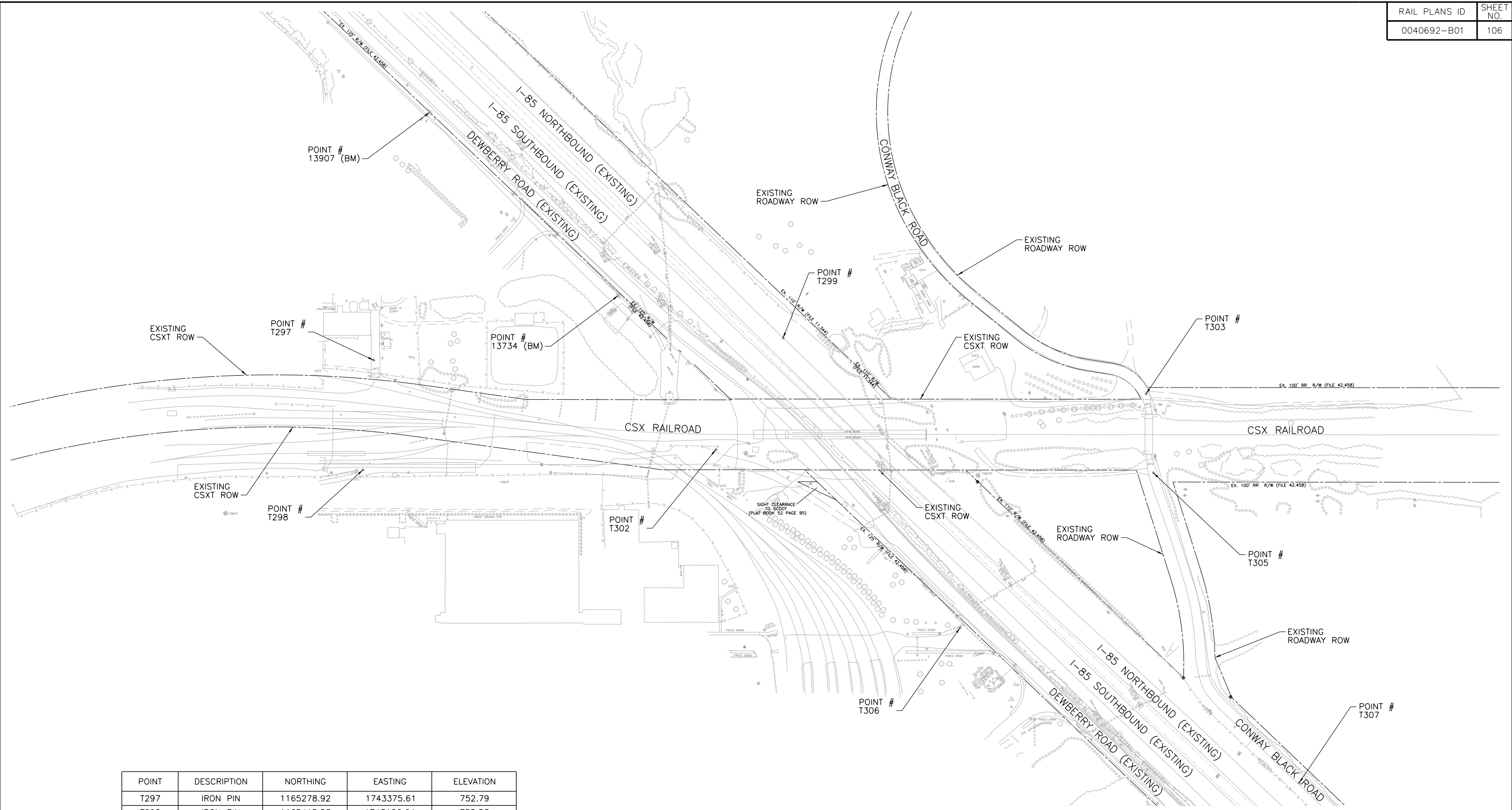
OSP#: OPSC0290

		ENGINEERING DEPARTMENT MAINTENANCE OF WAY BRIDGE MAINTENANCE AND DESIGN	
		BRIDGE NO Z270.19 AT M.P. 270.19	
REVISIONS		GENERAL NOTES	
		SPARTANBURG SC	
		DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE	
SCALE: AS SHOWN		VAL. SEC.	DRAWING NO.
DATE: 5/24/2016		655	T-04
DESIGN: LSS		SC	1050F139
DRAWN: LSS			
CHK'D: AJG			

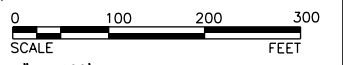


PROJECT NO. P301140022 FILE:

SUSERS & together - "designing it" together. "dwgname". Plotted: \$(etime), 0, MON DD "YY, YYYY - HMMmm/pm



POINT	DESCRIPTION	NORTHING	EASTING	ELEVATION
T297	IRON PIN	1165278.92	1743375.61	752.79
T298	IRON PIN	1165415.53	1743186.64	755.53
BM 13734	IRON PIN	1164763.27	1743233.06	724.00
BM 13907	IRON PIN	1164912.03	1743769.14	737.00
T302	IRON PIN	1164748.82	1742847.66	758.74
T299	IRON PIN	1164507.55	1742979.55	725.65
T306	IRON PIN	1164492.72	1742261.63	760.66
T303	IRON PIN	1163903.58	1742490.71	788.76
T305	IRON PIN	1163974.48	1742338.63	786.27
T307	IRON PIN	1164038.86	1741616.47	803.86



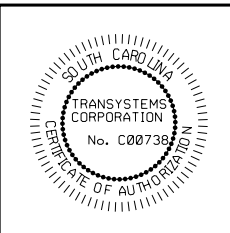
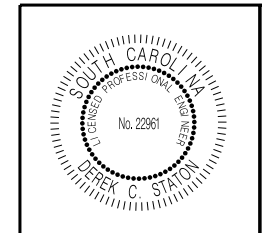
OSP#: OPSC0290



ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

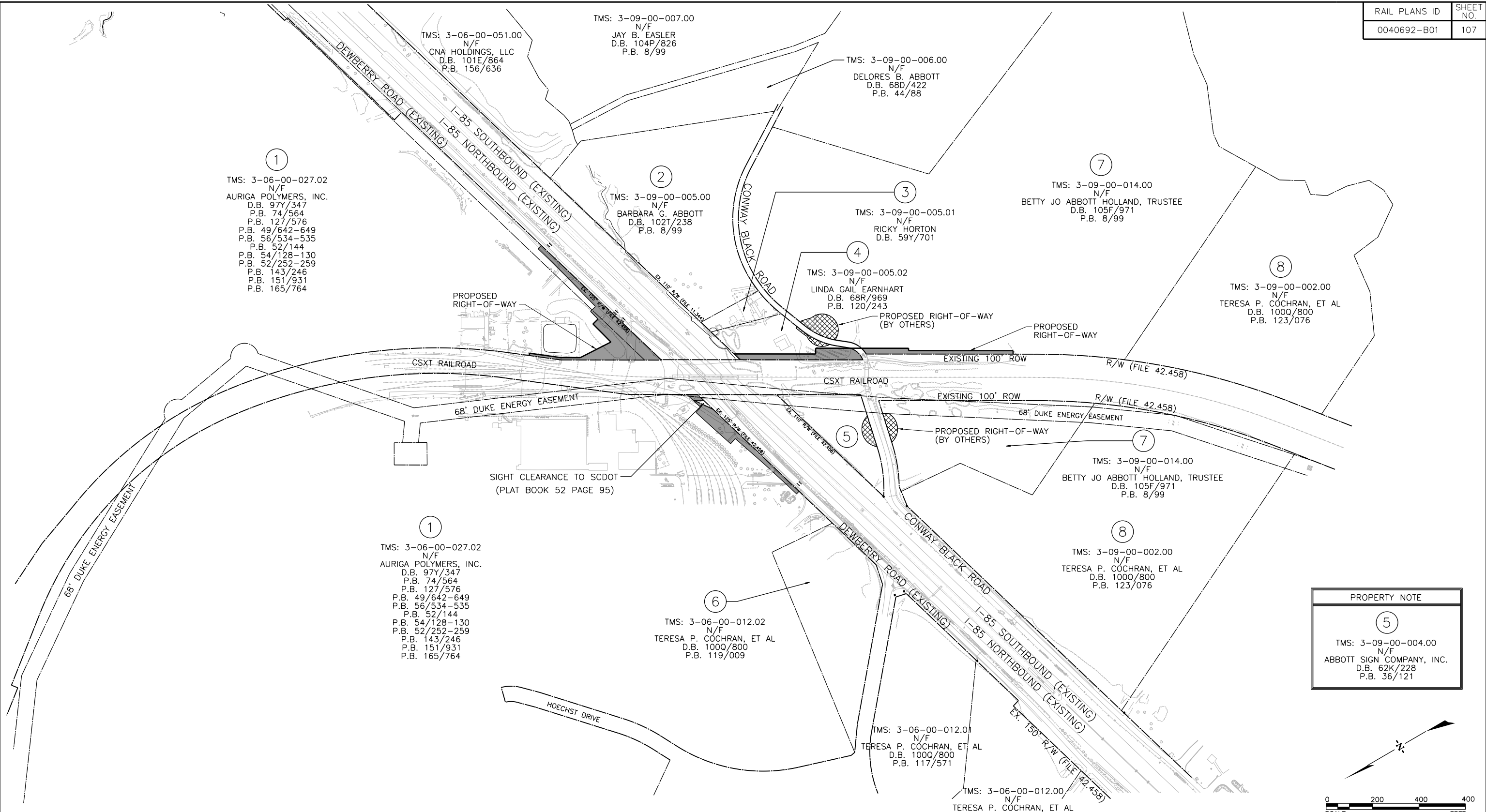
REVISIONS

BRIDGE NO Z270.19 AT M.P. 270.19	
SURVEY CONTROL SHEET	
SPARTANBURG	SC
DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
SCALE: AS SHOWN	VAL. SEC. 655
DATE: 5/24/2016	SC
DESIGN: LSS	DRAWING NO. T-05
DRAWN: LSS	106OF139
CHK'D: AJG	



PROJECT NO. P301140022

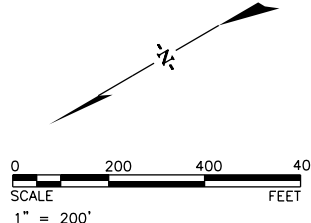
FILE:



PROPERTY NOTE

5

TMS: 3-09-00-004.00
N/F
ABBOTT SIGN COMPANY, INC.
D.B. 62K/228
P.B. 36/121



TRACT NO.	PROPERTY OWNER	TAX MAP	OBTAIN ACRES (SF)	OUTFALL DITCH PERMISSION (YES)	SLOPE PERMISSION (YES)	DRAINAGE STRUCTURE PERMISSION (YES)	EROSION CONTROL PERMISSION (YES)	ENTRANCE CONSTRUCTION PERMISSION (YES)
1	AURIGA POLYMERS, INC.	3-06-00-027.02	1.54 (67,055.60)	--	--	--	--	--
2	BARBARA G. ABBOTT	3-09-00-005.00	--	--	--	--	--	--
3	RICKY HORTON	3-09-00-005.01	--	--	--	--	--	--
4	LINDA GAIL EARNHART	3-09-00-005.02	0.41 (17,661.07)	YES	--	--	YES	--
5	ABBOTT SIGN COMPANY, INC.	3-09-00-004.00	--	--	--	--	--	--
6	TERESA P. COCHRAN, ET AL	3-06-00-012.02	--	--	--	--	--	--
7	BETTY JO ABBOTT HOLLAND, TRUSTEE	3-09-00-014.00	0.27 (11,541.99)	--	--	--	--	--
8	TERESA P. COCHRAN, ET AL	3-09-00-002.00	--	--	--	--	--	--

OSP#: OPSC0290

CSX ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

BRIDGE NO Z270.19 AT M.P. 270.19

RIGHT OF WAY DATA SHEET

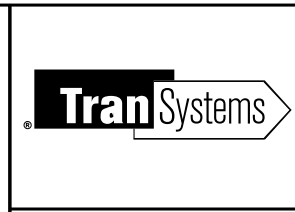
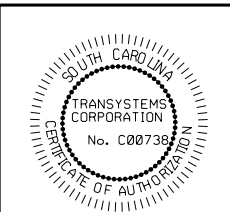
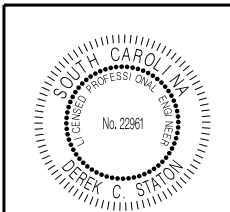
SPARTANBURG SC

DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE

SCALE: AS SHOWN DATE: 5/24/2016 DESIGN: LSS DRAWN: LSS CHK'D: AJG

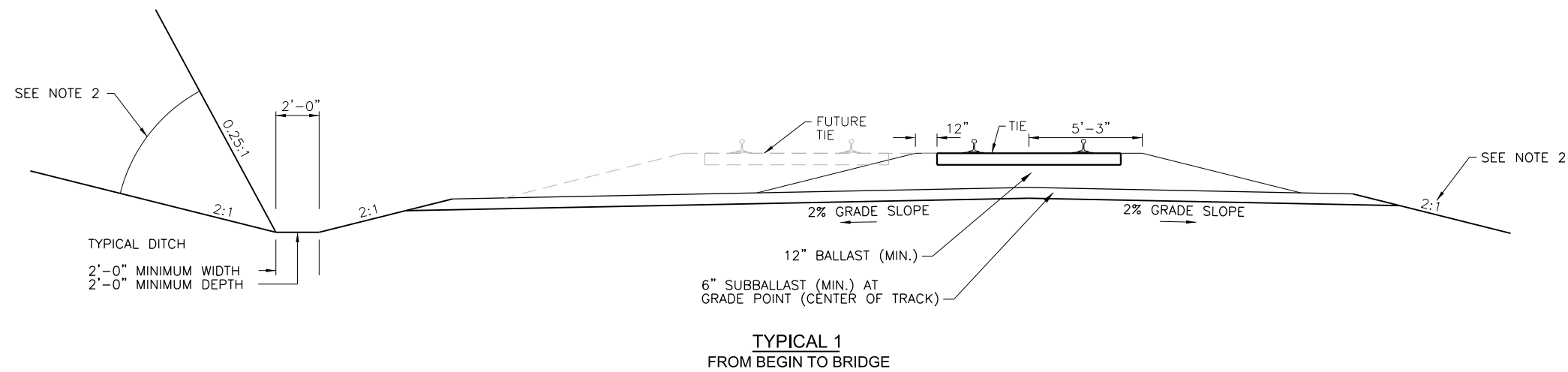
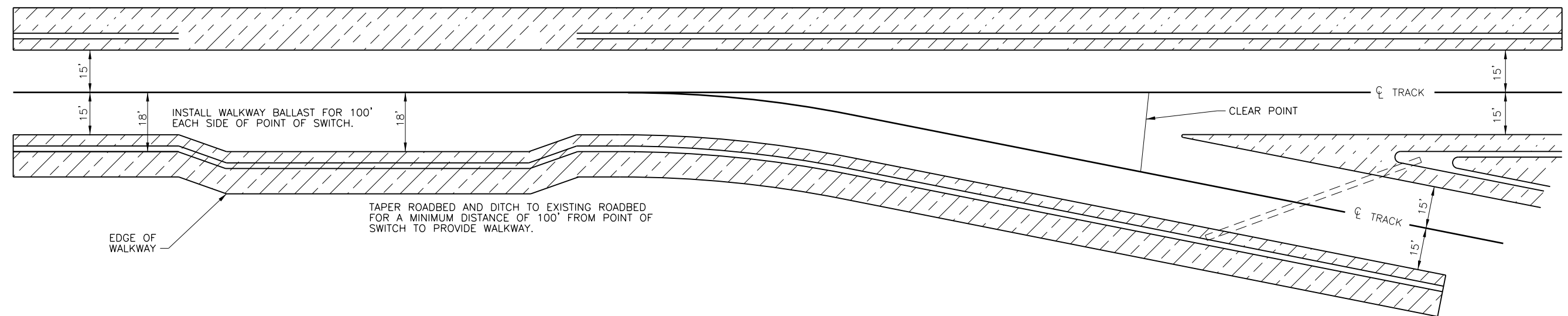
VAL. SEC. 655 SC

DRAWING NO. T-06 107OF139

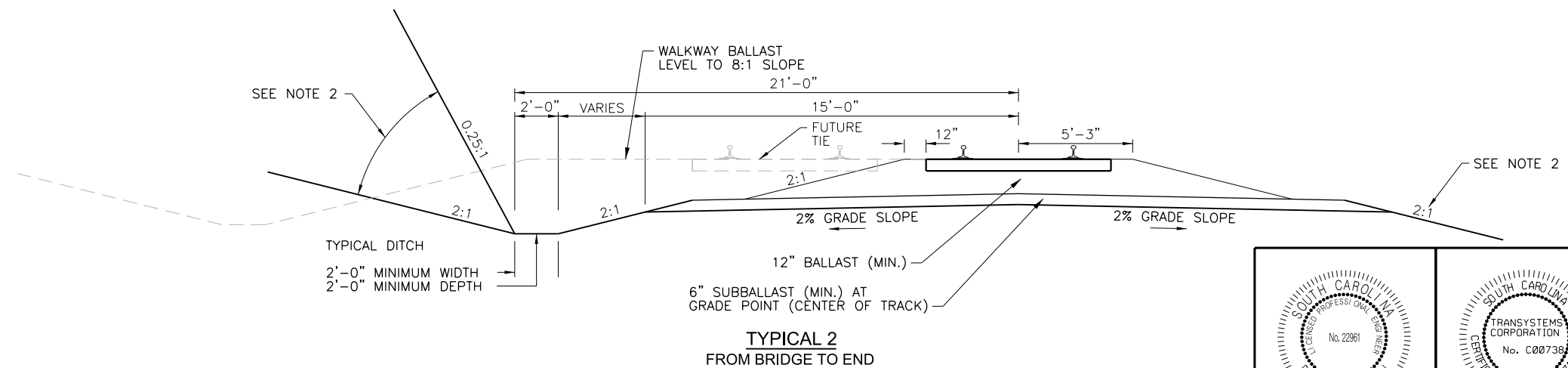


PROJECT NO. P301140022 FILE:

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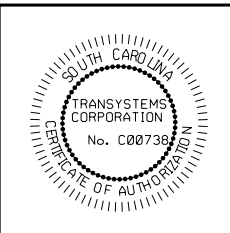
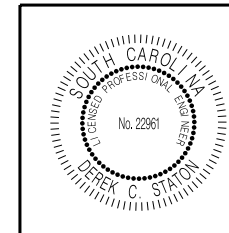


- NOTES:
1. MINIMUM WIDTH OF CUT SECTION AND DITCH WIDTH SHOWN. TRACK AND DITCH RADIANTS MAY INCREASE DITCH SIZE AND DISTANCE FROM CENTERLINE OF TRACK.
 2. SLOPE CAN VARY AS NEEDED FOR STABILITY FROM 2:1 IN SAND TO 0.25:1 IN SOLID ROCK.
 3. SLOPES AS REQUIRED BY FILL MATERIAL (1.5:1 MAXIMUM).
 4. GEOTEXTILES, IF USED, SHALL BE PLACED BETWEEN THE TOP OF THE EXISTING GROUND AND THE BOTTOM OF THE SUBBALLAST.



OSP#: OPSC0290

CSX How tomorrow moves		ENGINEERING DEPARTMENT MAINTENANCE OF WAY BRIDGE MAINTENANCE AND DESIGN	
REVISIONS		BRIDGE NO Z270.19 AT M.P. 270.19	
		TYPICAL SECTION SHEET	
SPARTANBURG		SC	
DIVISION: HUNTINGTON		SUBDIVISION: BLUE RIDGE	
SCALE: AS SHOWN	VAL. SEC.	DRAWING NO.	
DATE: 5/24/2016	655	T-07	
DESIGN: LSS	SC	1080F139	
DRAWN: LSS			
CHK'D: AJG			



PROJECT NO. P301140022

FILE:

SUSERS: "dwgname", Plotted: \$etime, 0, MON DD", YYYY - HMMmm/pm

TURNOUT	SIZE	HAND	POINT OF SWITCH	P.I. TO TURNOUT
A	10	LT-HT	N 1165413.88	N 1165387.05
			E 1743332.96	E 1743313.93
B	10	LT-HT	N 1165189.29	N 1165216.11
			E 1743197.74	E 1743216.76
C	10	RT-HT	N 1164733.43	N 1164761.84
			E 1742910.28	E 1742926.85

C-MR01-1
P.I. STA. = 1307+88.08
P.C. STA. = 1305+80.00
P.T. STA. = 1309+94.37
Δ = 13° 01' 19" (RT)
D = 3' 08" 33"
R = 1,823.19'
T = 208.08'
L = 414.37'
E = 11.84'
SE = 1'
V = 40 MPH
Ls = 62.00'

C-MR01-2
P.I. STA. = 1310+20.06
P.C. STA. = 1309+94.37
P.T. STA. = 1310+45.75
Δ = 1° 09' 22" (LT)
D = 2' 15" 00"
R = 2,546.64'
T = 25.69'
L = 51.38'
E = 0.13'
SE = 1'
V = 40 MPH
Ls = 62.00'

C-MR01-3
P.I. STA. = 1314+56.10
P.C. STA. = 1313+43.12
P.T. STA. = 1315+68.94
Δ = 5° 04' 50" (LT)
D = 2' 15" 00"
R = 2,546.64'
T = 112.98'
L = 225.82'
E = 2.51'
SE = 1'
V = 40 MPH
Ls = 62.00'

C-YD02-1
P.I. STA. = 21+13.46
P.C. STA. = 20+55.30
P.T. STA. = 21+71.29
Δ = 10° 25' 43" (LT)
D = 9' 00" 00"
R = 637.27'
T = 58.16'
L = 115.99'
E = 2.65'
SE = NONE

C-YD02-2
P.I. STA. = 24+78.39
P.C. STA. = 24+63.31
P.T. STA. = 24+93.47
Δ = 2° 42' 43" (RT)
D = 9' 00" 00"
R = 637.27'
T = 15.08'
L = 30.16'
E = 0.18'
SE = NONE

C-YD01-1
P.I. STA. = 11+91.80
P.C. STA. = 11+01.24
P.T. STA. = 12+81.83
Δ = 10° 49' 50" (RT)
D = 5' 59" 50"
R = 955.37'
T = 90.57'
L = 180.59'
E = 4.28'
SE = NONE

TURNOUT A
PS-LLT STA. 15+16.83 (YD01)
PS-LLT STA. 1311+29.74 (MR01)

TURNOUT B
PS-LLT STA. 1312+46.54 (MR01)

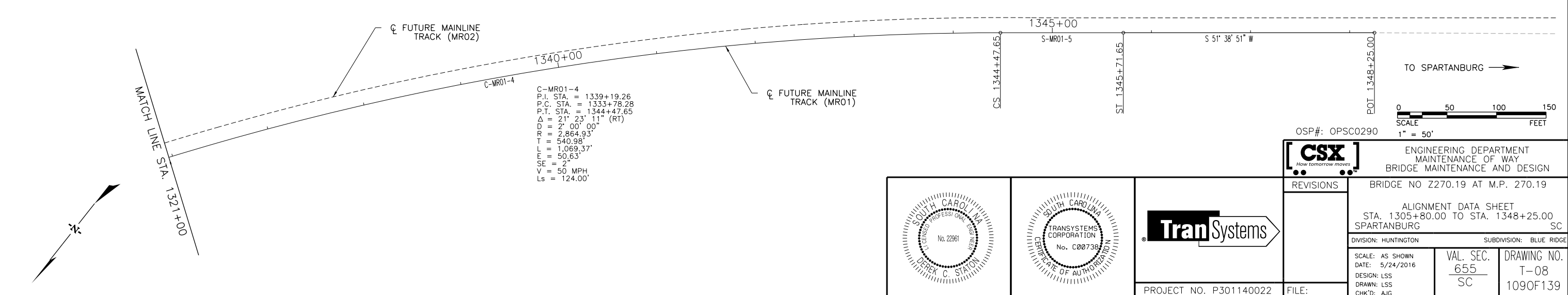
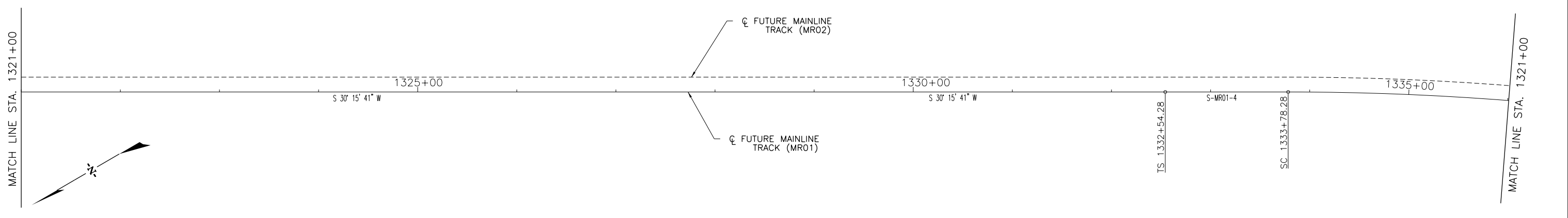
TURNOUT C
PS-LLT STA. 1316+68.98 (MR01)

TURNOUT C
PS-LLT STA. 1317+85.82 (MR01)

ABBREVIATIONS:

- PWR = POWER
- HT = HAND THROW
- RH = RIGHT HAND
- LH = LEFT HAND
- PT = POINT
- PI = POINT OF INTERSECTION
- T.O. = TURNOUT
- PC = POINT OF CURVATURE
- PT = POINT OF TANGENCY

TO ELKHORN, KY

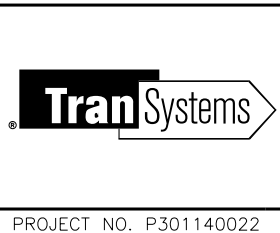
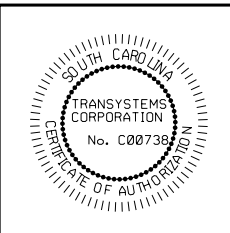
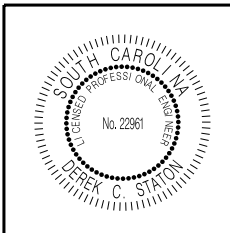


C-MR01-4
P.I. STA. = 1339+19.26
P.C. STA. = 1333+78.28
P.T. STA. = 1344+47.65
Δ = 21° 23' 11" (RT)
D = 2' 00" 00"
R = 2,864.93'
T = 540.98'
L = 1,069.37'
E = 50.63'
SE = 2'
V = 50 MPH
Ls = 124.00'

OSP#: OPSC0290
SCALE: 1" = 50'

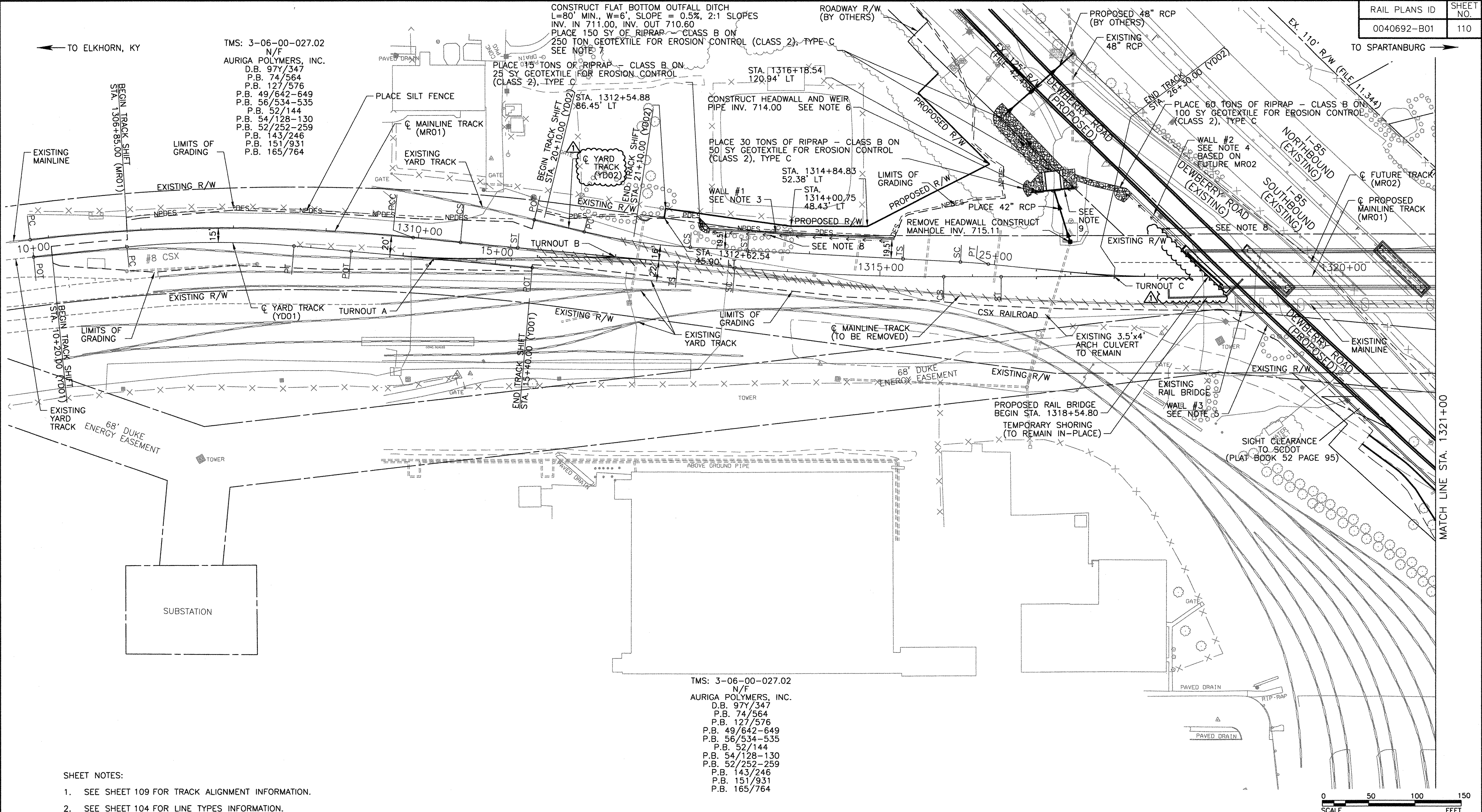
CSX
ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

REVISIONS	BRIDGE NO Z270.19 AT M.P. 270.19
	ALIGNMENT DATA SHEET STA. 1305+80.00 TO STA. 1348+25.00 SPARTANBURG SC
SCALE: AS SHOWN	VAL. SEC. DRAWING NO.
DATE: 5/24/2016	655 T-08
DESIGN: LSS	1090F139
DRAWN: LSS	
CHK'D: AJG	



PROJECT NO. P301140022

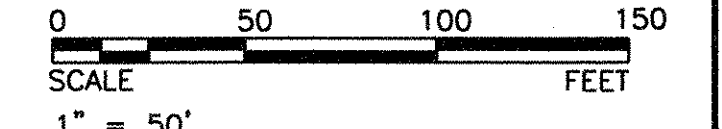
FILE:



TMS: 3-06-00-027.02
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 AURIGA POLYMERS, INC.
 D.B. 97Y/347
 P.B. 74/564
 P.B. 127/576
 P.B. 49/642-649
 P.B. 56/534-535
 P.B. 52/144
 P.B. 54/128-130
 P.B. 52/252-259
 P.B. 143/246
 P.B. 151/931
 P.B. 165/764

TMS: 3-06-00-027.02
 N/F
 AURIGA POLYMERS, INC.
 D.B. 97Y/347
 P.B. 74/564
 P.B. 127/576
 P.B. 49/642-649
 P.B. 56/534-535
 P.B. 52/144
 P.B. 54/128-130
 P.B. 52/252-259
 P.B. 143/246
 P.B. 151/931
 P.B. 165/764

- SHEET NOTES:
- SEE SHEET 109 FOR TRACK ALIGNMENT INFORMATION.
 - SEE SHEET 104 FOR LINE TYPES INFORMATION.
 - SEE SHEETS 73 - 75 FOR WALL 1 INFORMATION AND DETAILS.
 - SEE SHEETS 76 - 78 FOR WALL 2 INFORMATION AND DETAILS.
 - SEE SHEETS 79 - 80 FOR WALL 3 INFORMATION AND DETAILS.
 - SEE SHEETS 87 - 91 FOR HEADWALL INFORMATION AND DETAILS.
 - OUTFALL AND MINIMUM CHANNEL LENGTH ARE SET BY AURIGA POLYMERS AND ARE NOT SUBJECT TO REDUCTIONS.
 - ALL SWALES ALONG THE WALLS SHALL HAVE NO LESS THAN A 0.5% SLOPE TO THE END OF THE WALL WITH A MIN. DEPTH OF 1 FT AND A MAX. DEPTH OF 2 FT.



OSP#: OPSCO290

CSX How tomorrow moves

ENGINEERING DEPARTMENT
 MAINTENANCE OF WAY
 BRIDGE MAINTENANCE AND DESIGN

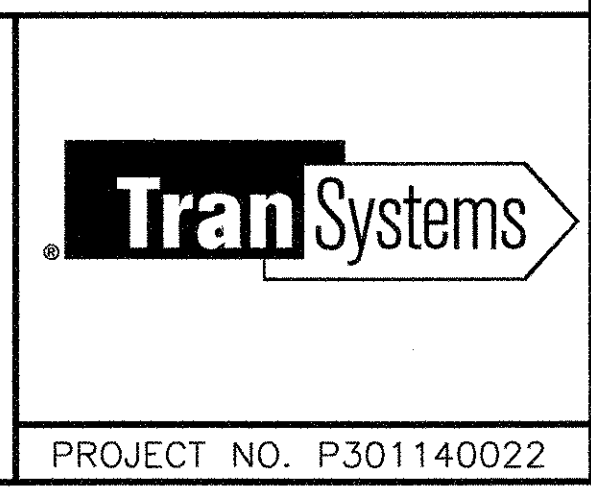
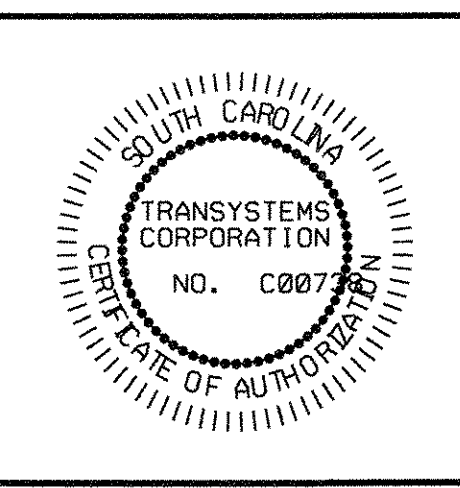
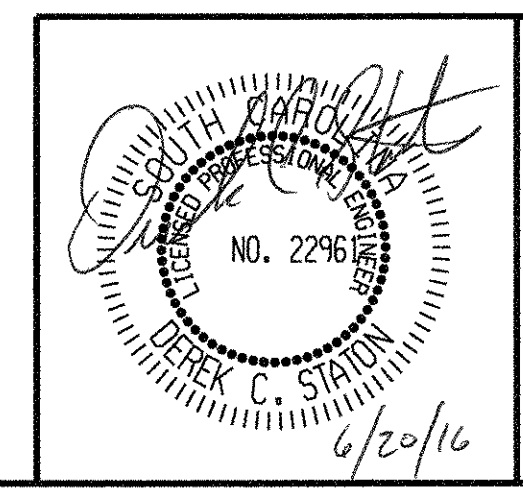
BRIDGE NO 2270.19 AT M.P. 270.19

PLAN SHEET
 STA. 1307+00 TO STA. 1321+00 SC

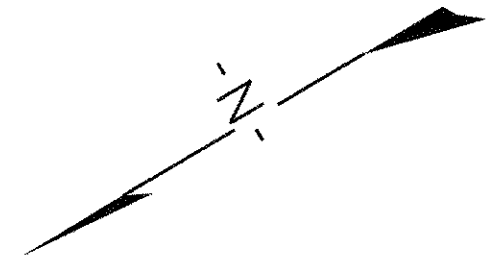
DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE

SCALE: AS SHOWN
 DATE: 6/20/2016
 DESIGN: LSS
 DRAWN: LSS
 CHK'D: AJG

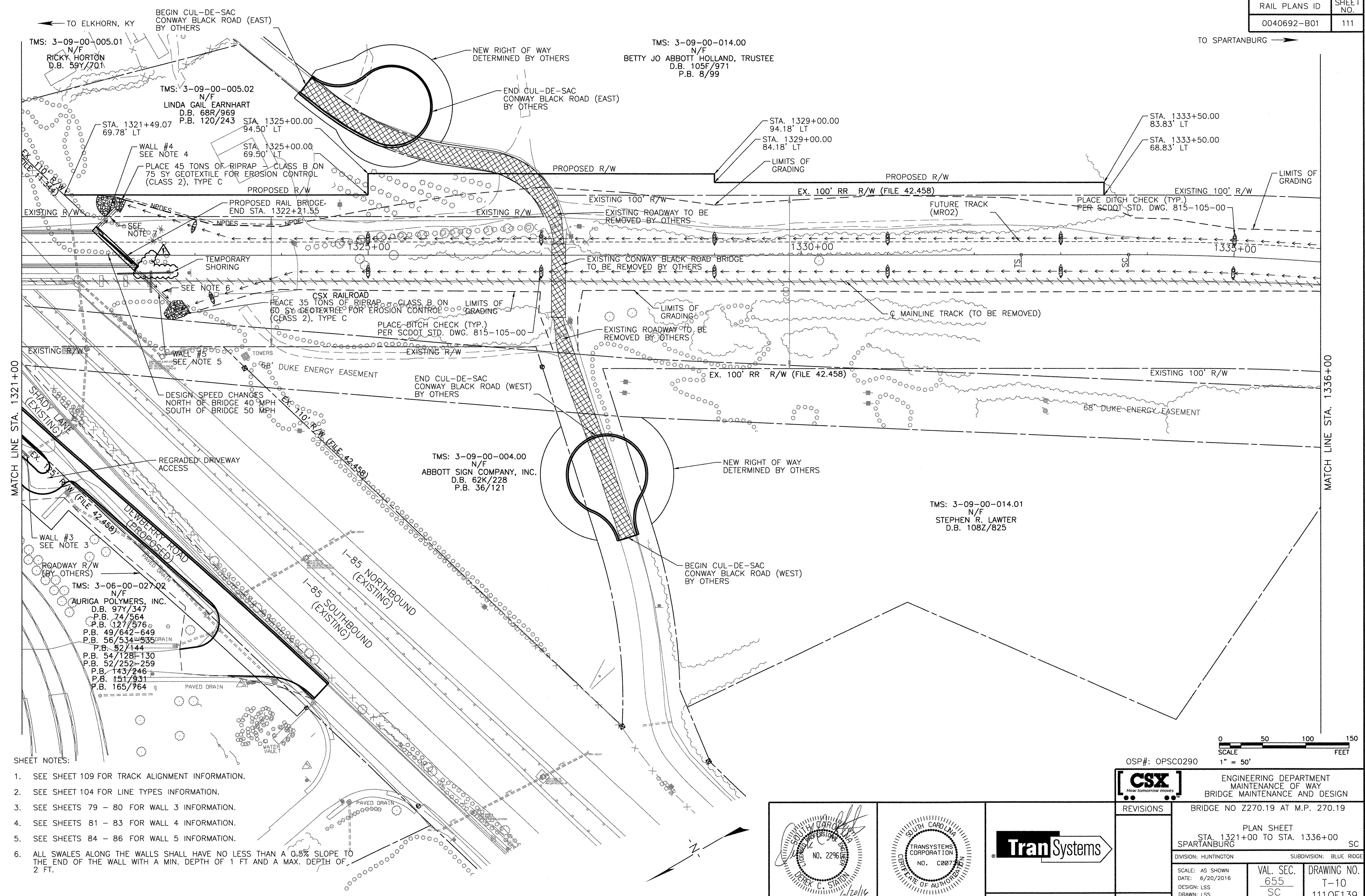
VAL.	SEC.	DRAWING NO.
655	SC	T-09
		110 OF 139



PROJECT NO. P301140022 FILE:



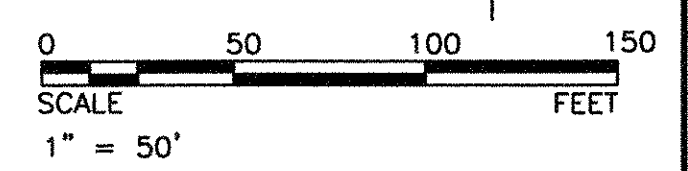
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MATCH LINE STA. 1321+00

MATCH LINE STA. 1336+00

- SHEET NOTES:
- SEE SHEET 109 FOR TRACK ALIGNMENT INFORMATION.
 - SEE SHEET 104 FOR LINE TYPES INFORMATION.
 - SEE SHEETS 79 - 80 FOR WALL 3 INFORMATION.
 - SEE SHEETS 81 - 83 FOR WALL 4 INFORMATION.
 - SEE SHEETS 84 - 86 FOR WALL 5 INFORMATION.
 - ALL SWALES ALONG THE WALLS SHALL HAVE NO LESS THAN A 0.5% SLOPE TO THE END OF THE WALL WITH A MIN. DEPTH OF 1 FT AND A MAX. DEPTH OF 2 FT.



OSP#: OPSC0290



ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

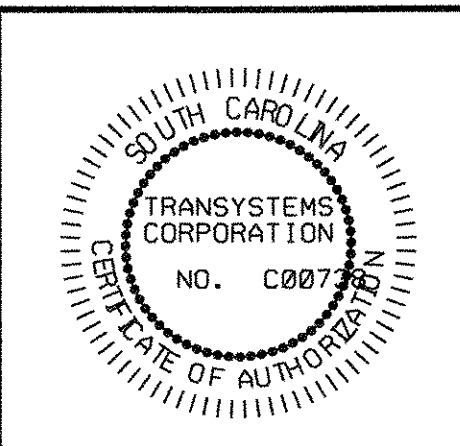
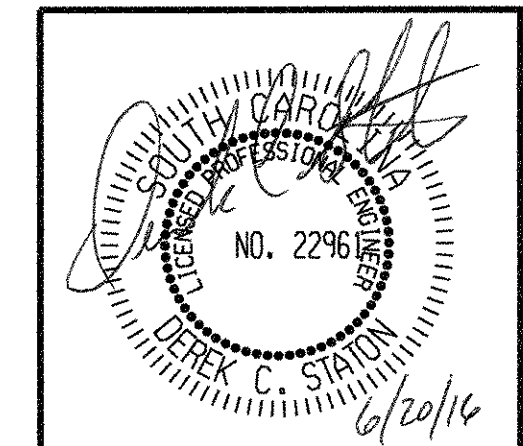
REVISIONS

BRIDGE NO Z270.19 AT M.P. 270.19

PLAN SHEET
STA. 1321+00 TO STA. 1336+00 SC
SPARTANBURG

DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE

SCALE: AS SHOWN DATE: 6/20/2016 DESIGN: LSS DRAWN: LSS CHK'D: AJG	VAL. SEC. 655 SC	DRAWING NO. T-10 1110F139
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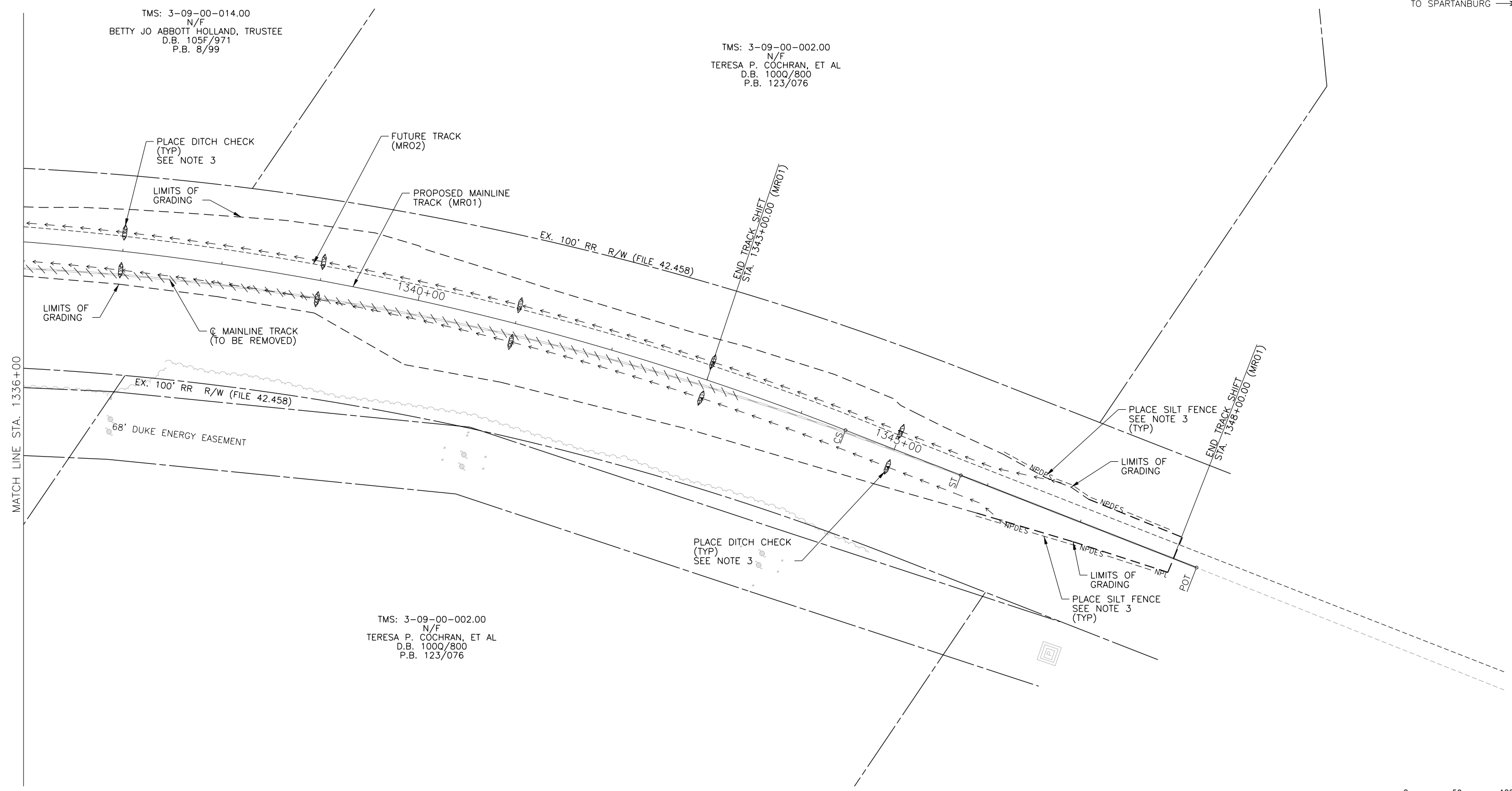
PROJECT NO. P301140022

FILE:

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← TO ELKHORN, KY

TO SPARTANBURG →

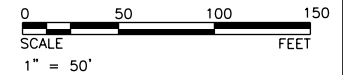


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BETTY JO ABBOTT HOLLAND, TRUSTEE
D.B. 105F/971
P.B. 8/99

TMS: 3-09-00-002.00
N/F
TERESA P. COCHRAN, ET AL
D.B. 1000/800
P.B. 123/076

TMS: 3-09-00-002.00
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D.B. 1000/800
P.B. 123/076

MATCH LINE STA. 1336+00



OSP#: OPSC0290

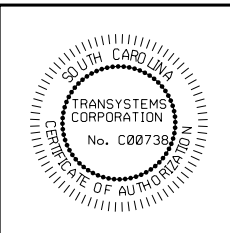
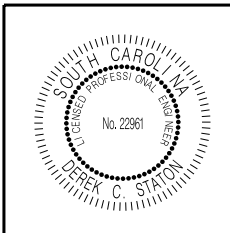


ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

REVISIONS	BRIDGE NO Z270.19 AT M.P. 270.19	
	PLAN SHEET	
	STA. 1336+00 TO STA. 1348+00	
	SPARTANBURG SC	
	DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
	SCALE: AS SHOWN	VAL. SEC. 655
	DATE: 5/24/2016	SC
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	DRAWN: LSS	112 OF 139
	CHK'D: AJG	

SHEET NOTES:

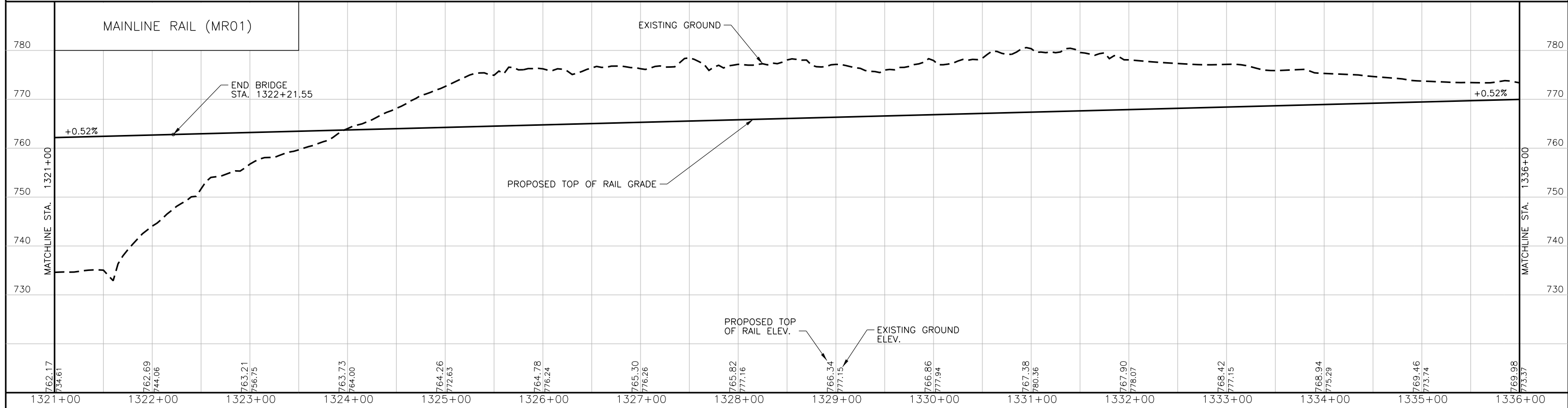
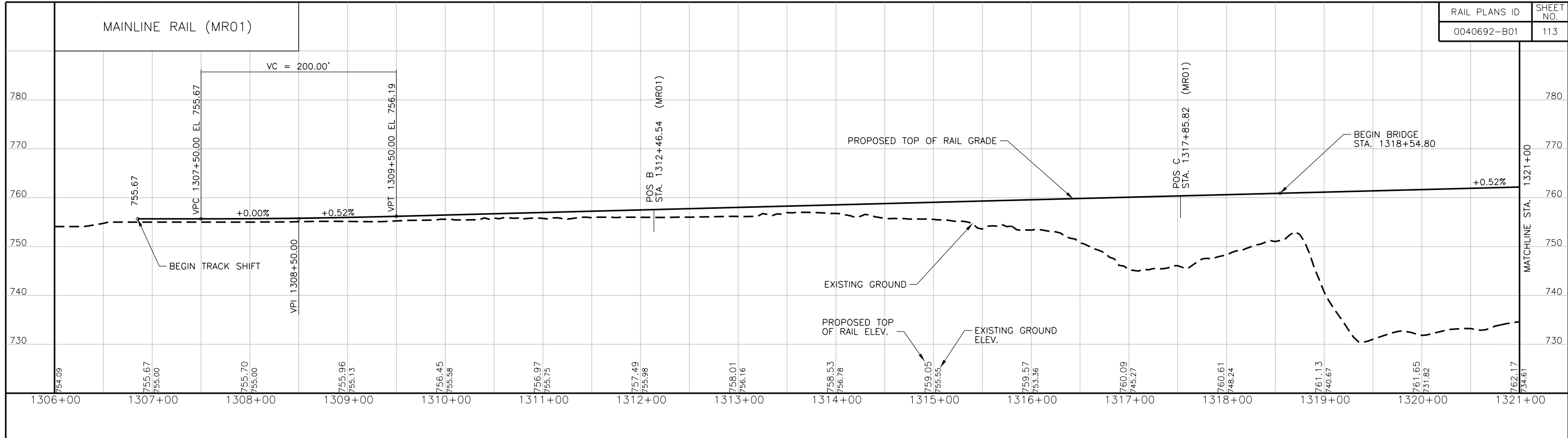
1. SEE SHEET 109 FOR TRACK ALIGNMENT INFORMATION.
2. SEE SHEET 104 FOR LINE TYPES INFORMATION.
3. CONTRACTOR TO DESIGN AND SUBMIT FOR APPROVAL EROSION AND SEDIMENT CONTROL PLAN AND STRUCTURES IN ACCORDANCE WITH THE SPECIFICATIONS.



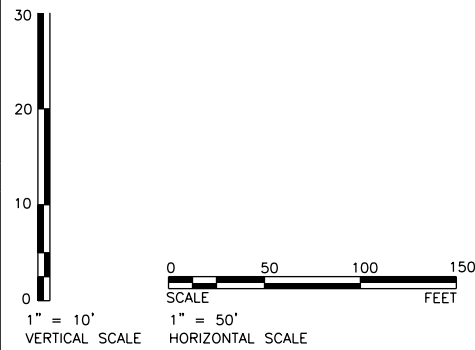
PROJECT NO. P301140022

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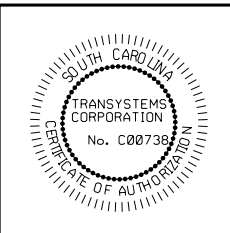
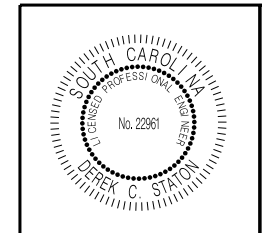
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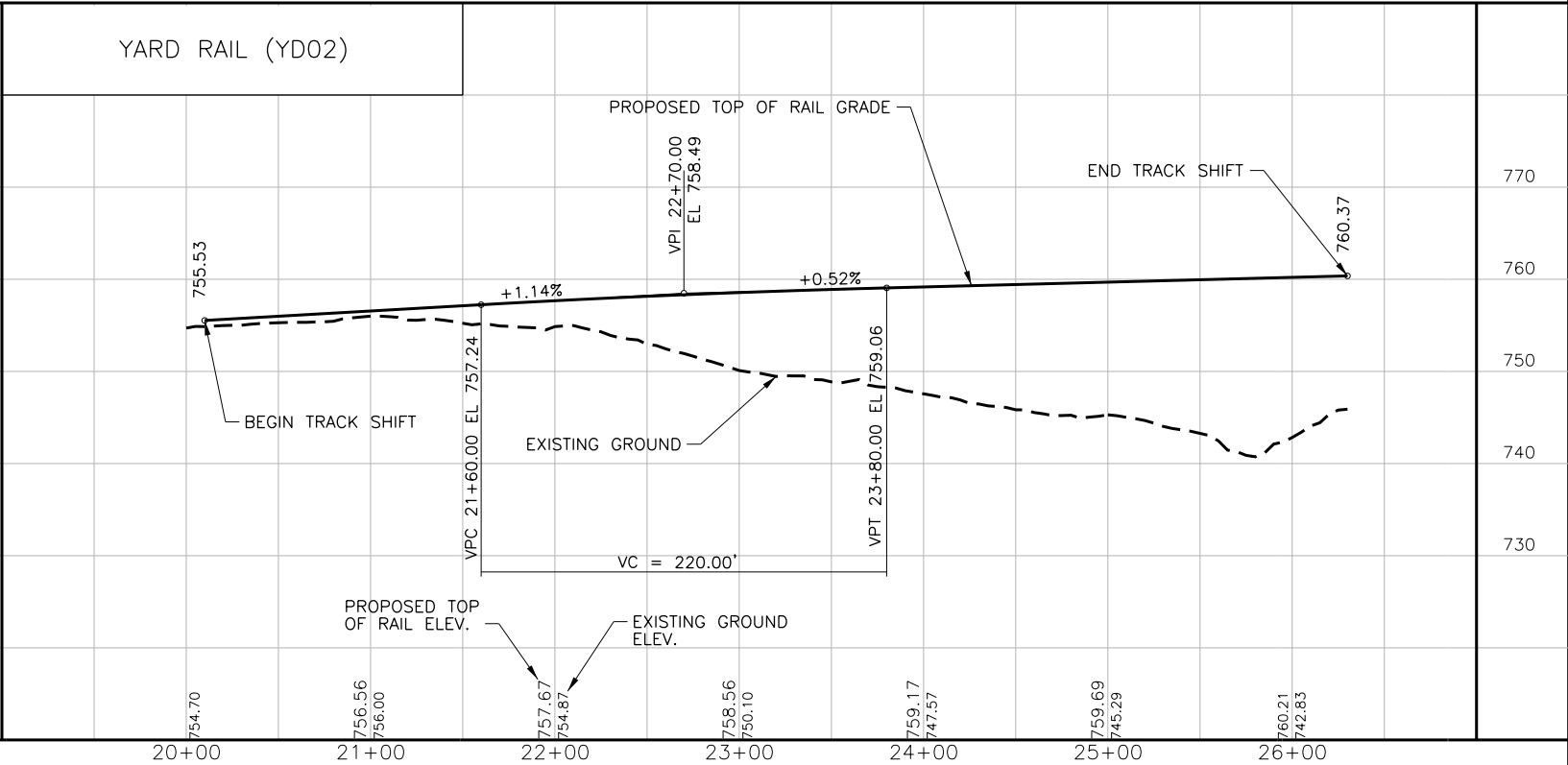
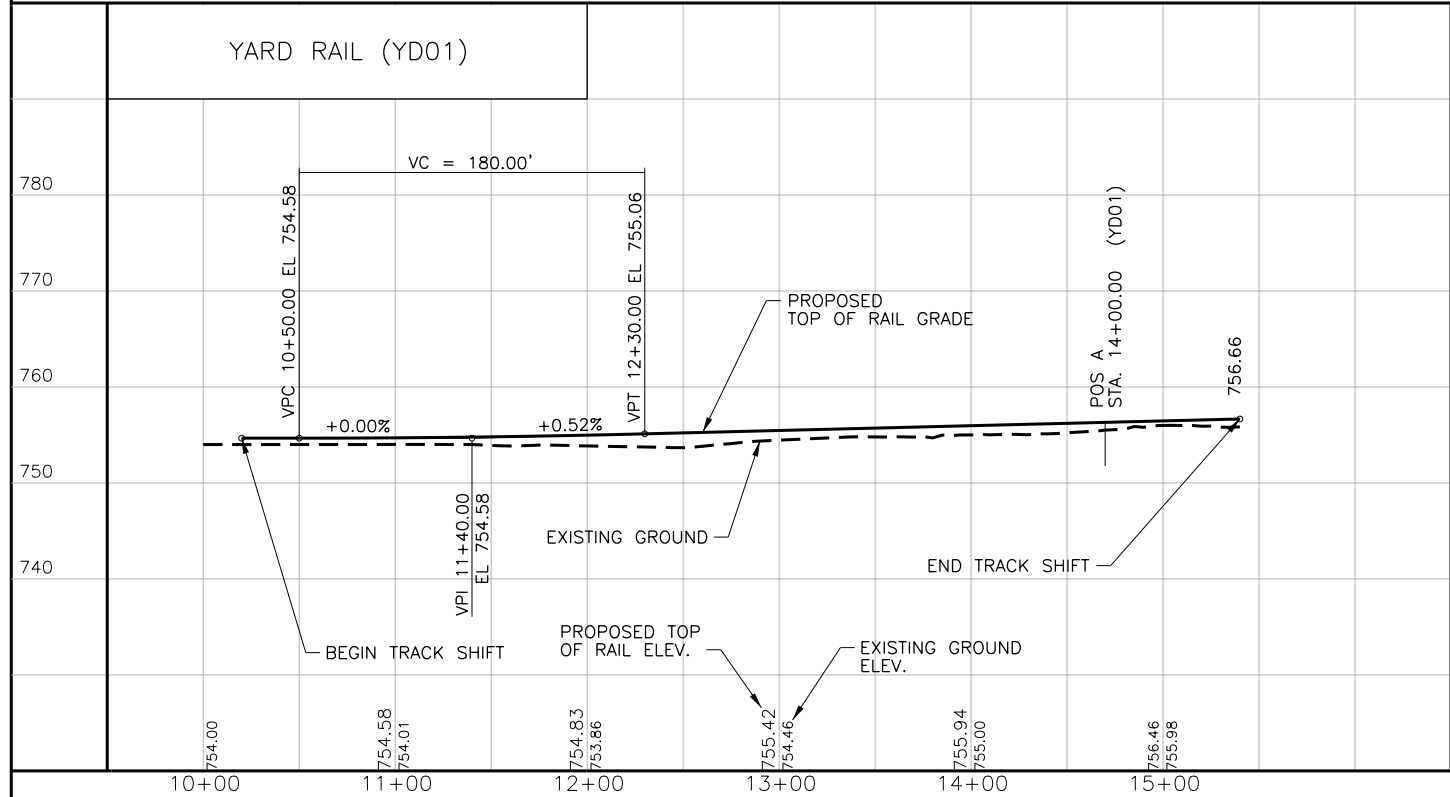
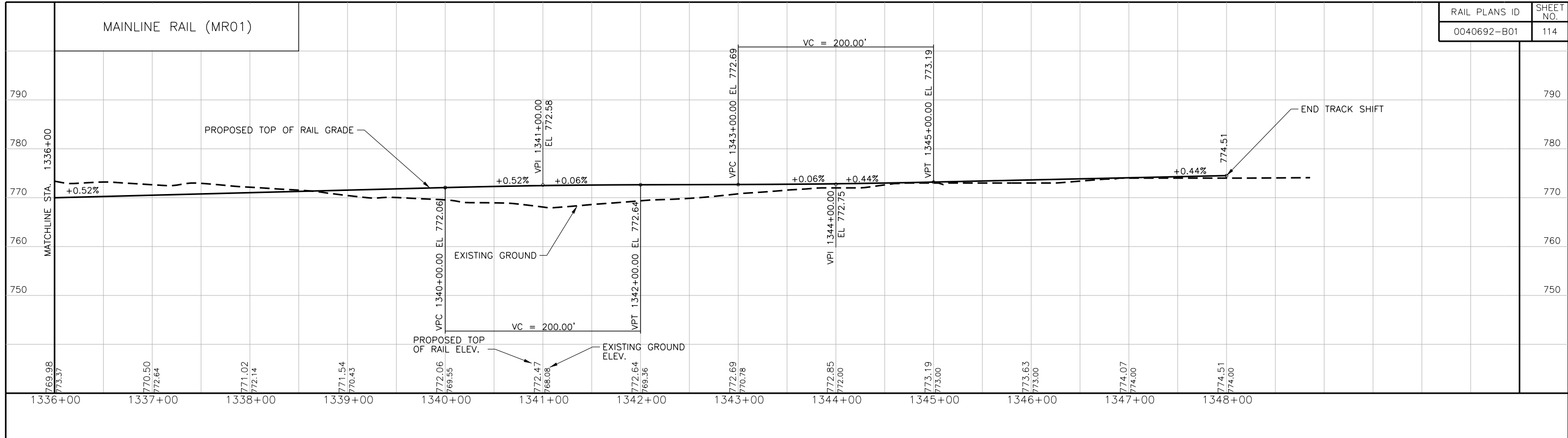
CSX ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

REVISIONS	BRIDGE NO Z270.19 AT M.P. 270.19	
	PROFILE SHEET STA. 1307+00 TO STA. 1336+00	
	SPARTANBURG SC	
	DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
SCALE: AS SHOWN	VAL. SEC. 655	DRAWING NO. T-12
DATE: 5/24/2016	SC	1130F139
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DRAWN: LSS		
CHK'D: AJG		

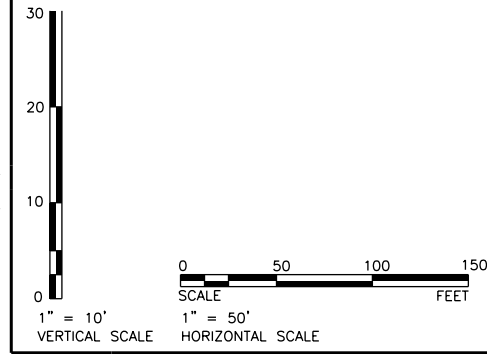


PROJECT NO. P301140022

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OSP#: OPSC0290



ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

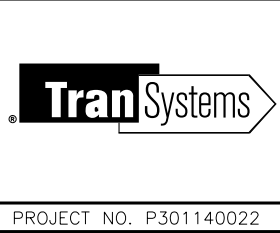
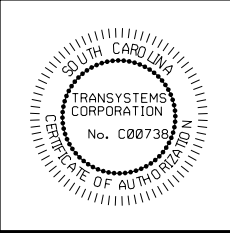
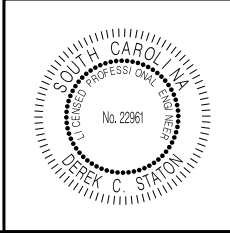
REVISIONS

BRIDGE NO Z270.19 AT M.P. 270.19

PROFILE SHEET
STA. 1336+00 TO STA. 1348+00

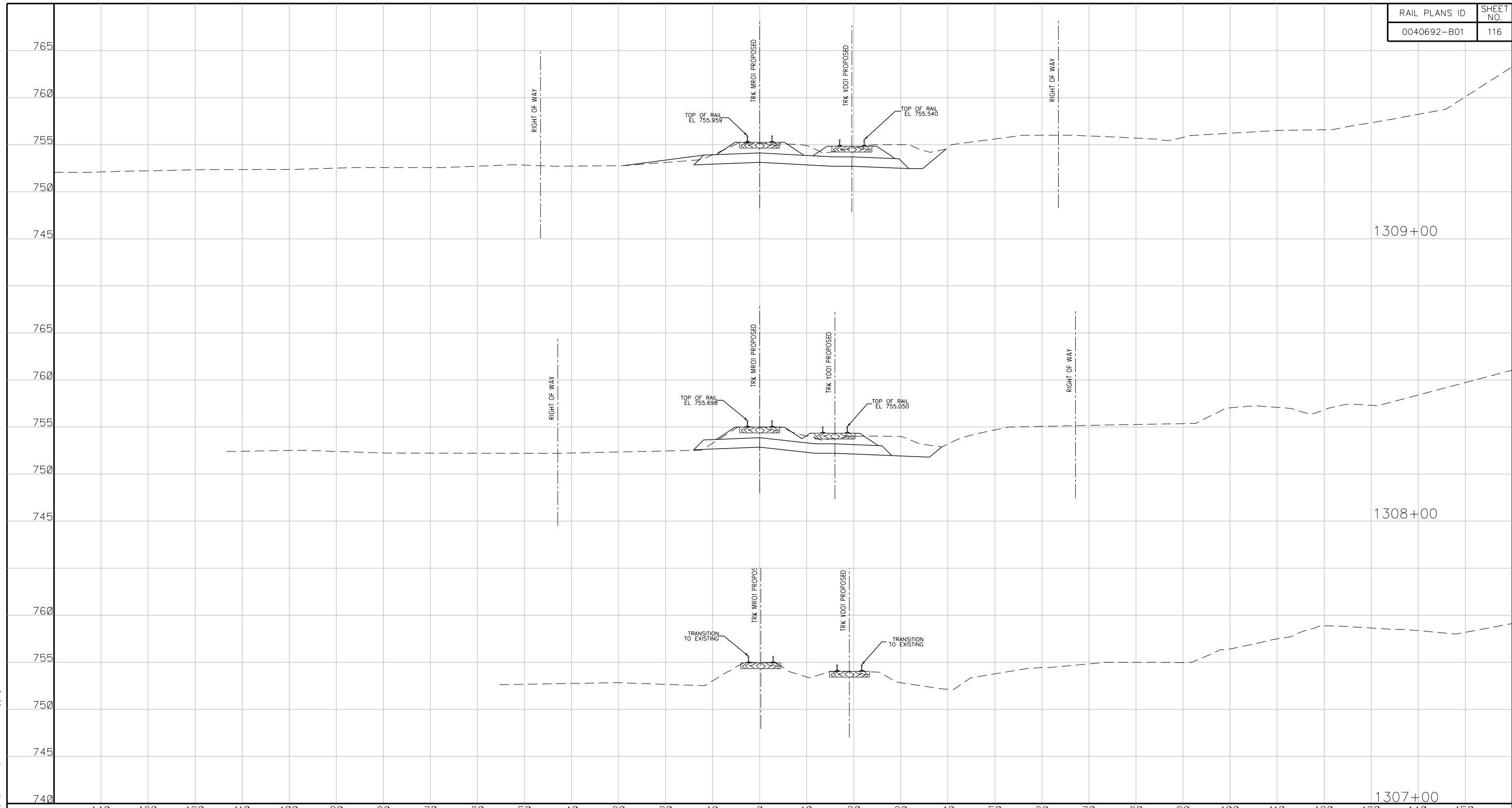
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SCALE: AS SHOWN DATE: 5/24/2016 DESIGN: LSS DRAWN: LSS CHK'D: AJG	VAL. SEC. 655 SC	DRAWING NO. T-13 114 OF 139
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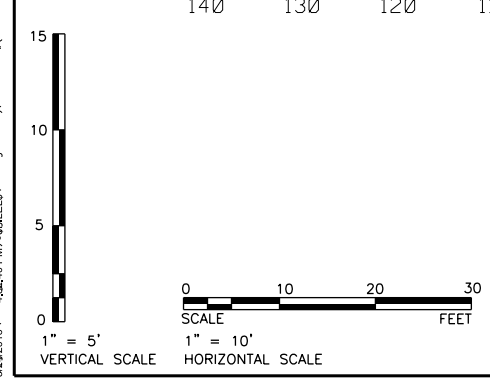


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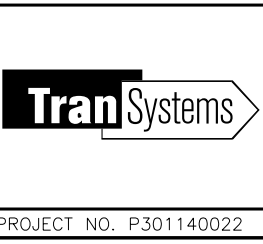
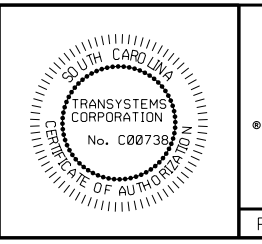
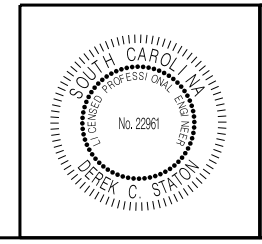
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ENGINEERING DEPARTMENT
 MAINTENANCE OF WAY
 BRIDGE MAINTENANCE AND DESIGN

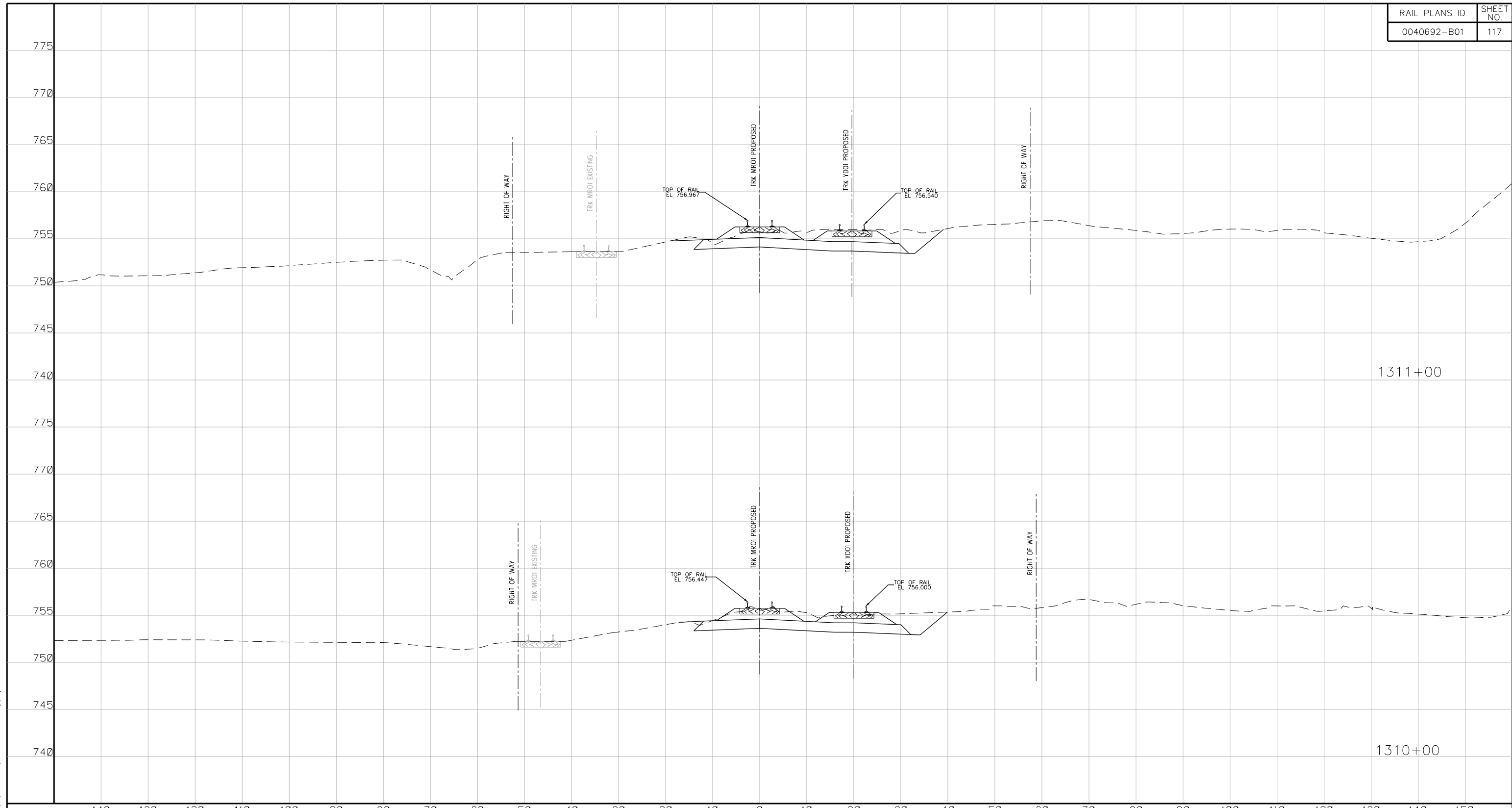
REVISIONS

BRIDGE NO Z270.19 AT M.P. 270.19	
CROSS SECTIONS	
SPARTANBURG	SC
DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
SCALE: AS SHOWN	VAL. SEC. 655
DATE: 5/24/2016	SC
DESIGN: LSS	DRAWING NO. 116 OF 139
DRAWN: LSS	
CHK'D: AJG	



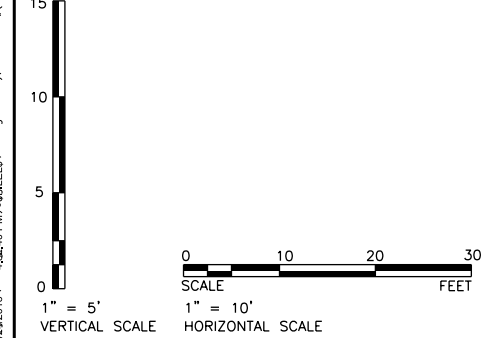
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CSX ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

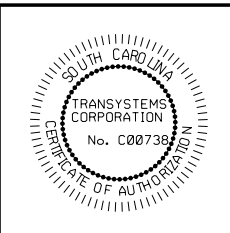
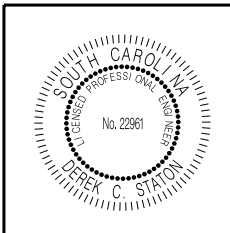
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CROSS SECTIONS

SPARTANBURG SC

DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE

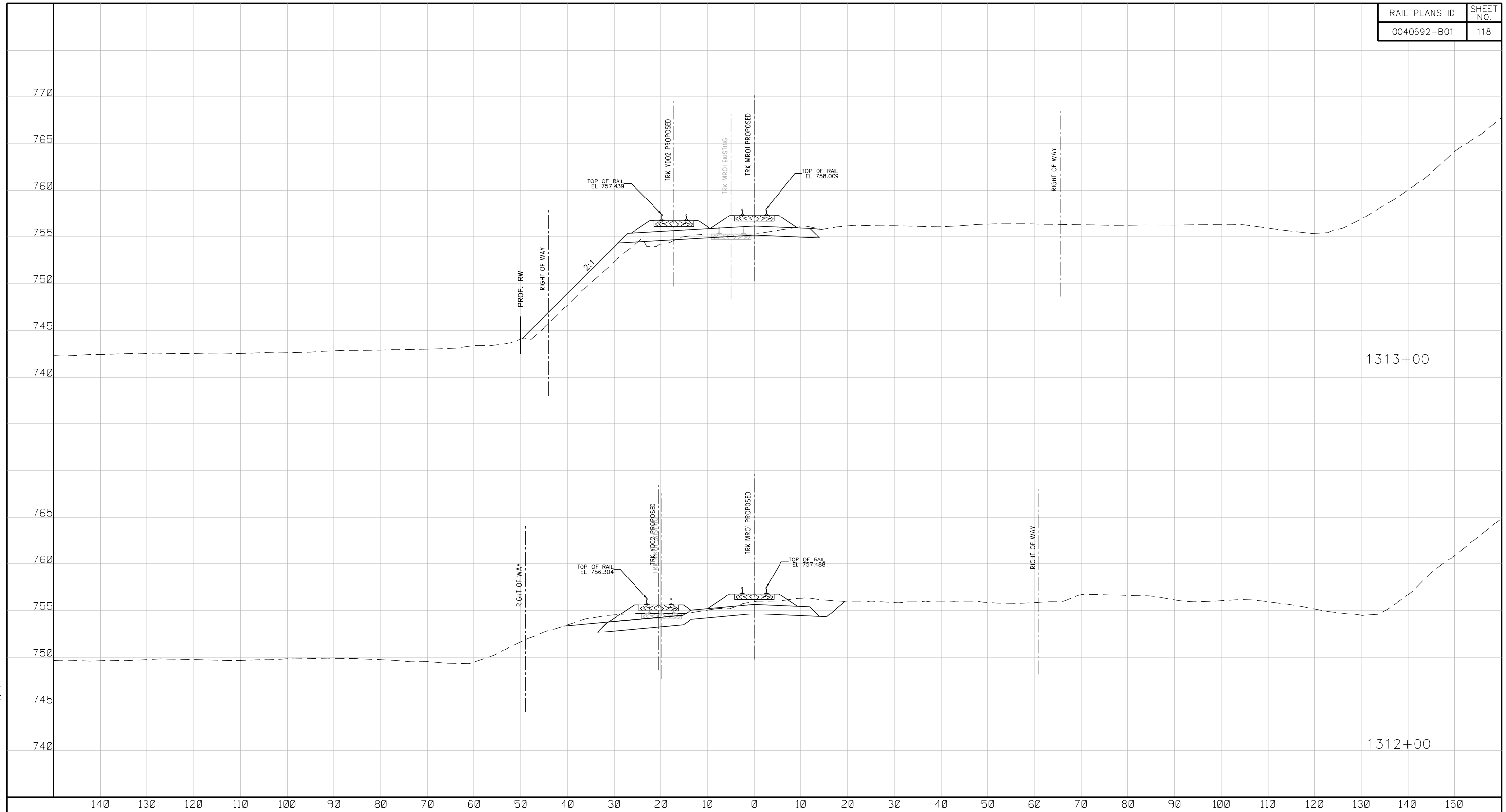
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VAL. SEC. 655 SC
DRAWING NO. T-16
117 OF 139

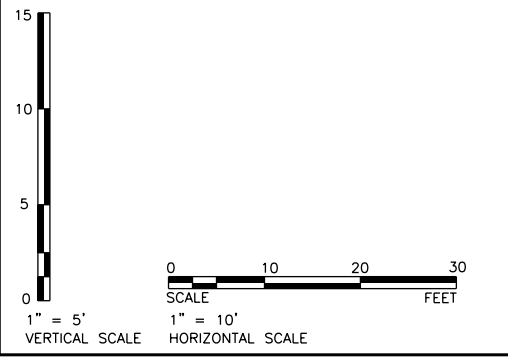


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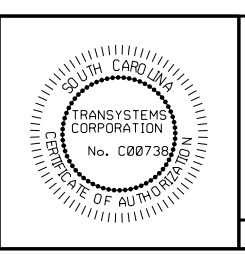
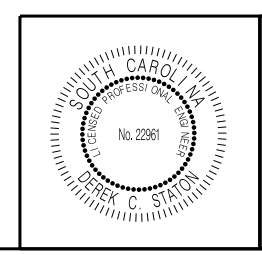
CSX
How tomorrow moves

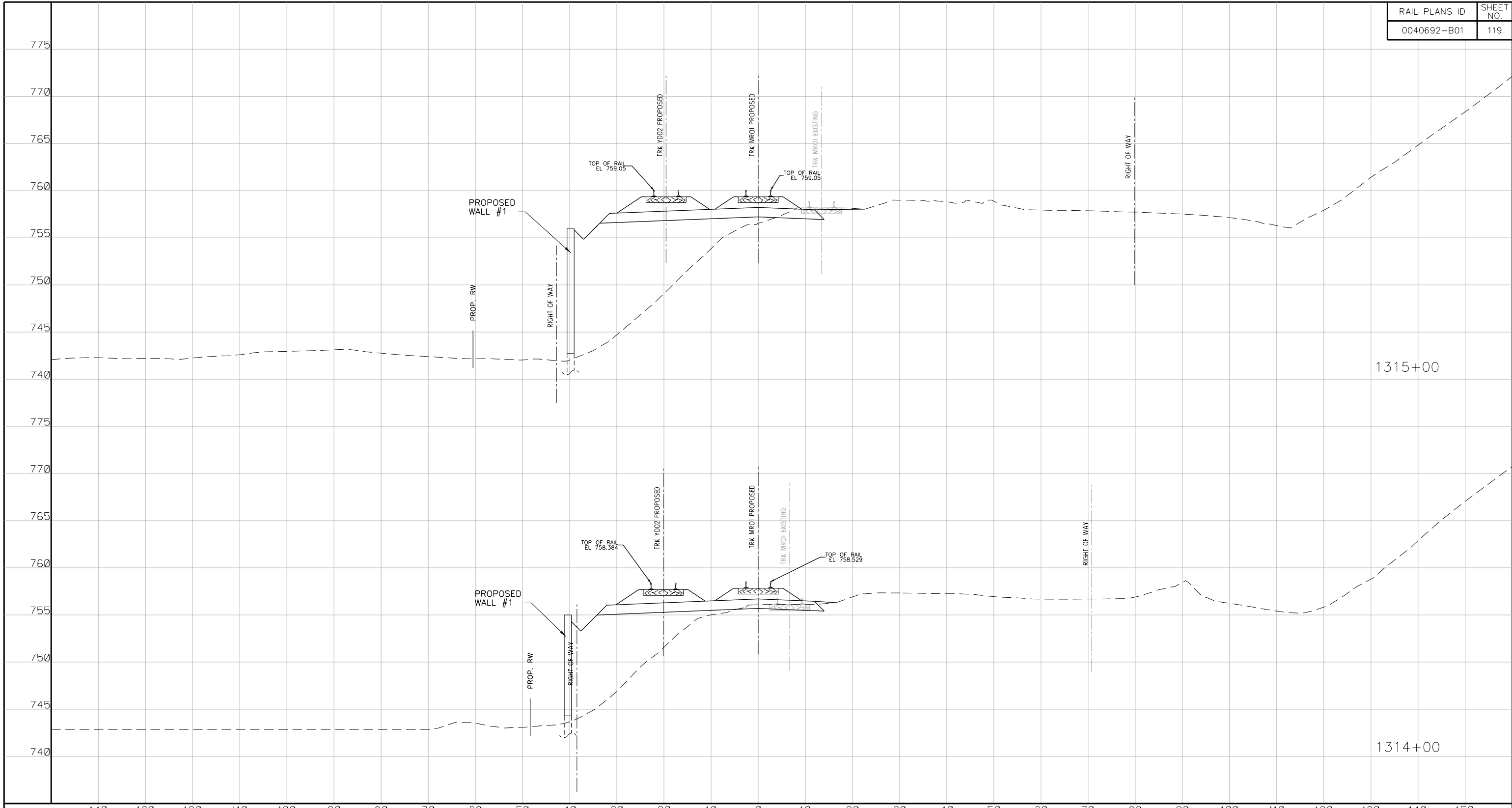
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MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

BRIDGE NO Z270.19 AT M.P. 270.19

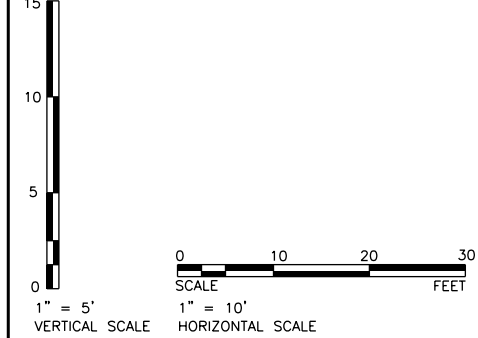
CROSS SECTIONS

SPARTANBURG	SC
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SCALE: AS SHOWN DATE: 5/24/2016 DESIGN: LSS DRAWN: LSS CHK'D: AJG	VAL. SEC. 655 SC
PROJECT NO. P301140022	DRAWING NO. T-17 118 OF 139





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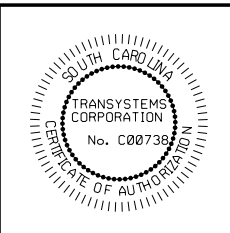
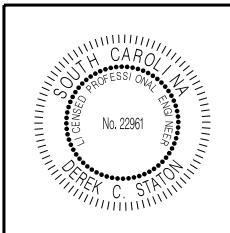
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CSX ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

REVISIONS
BRIDGE NO Z270.19 AT M.P. 270.19
CROSS SECTIONS

SPARTANBURG SC
DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE

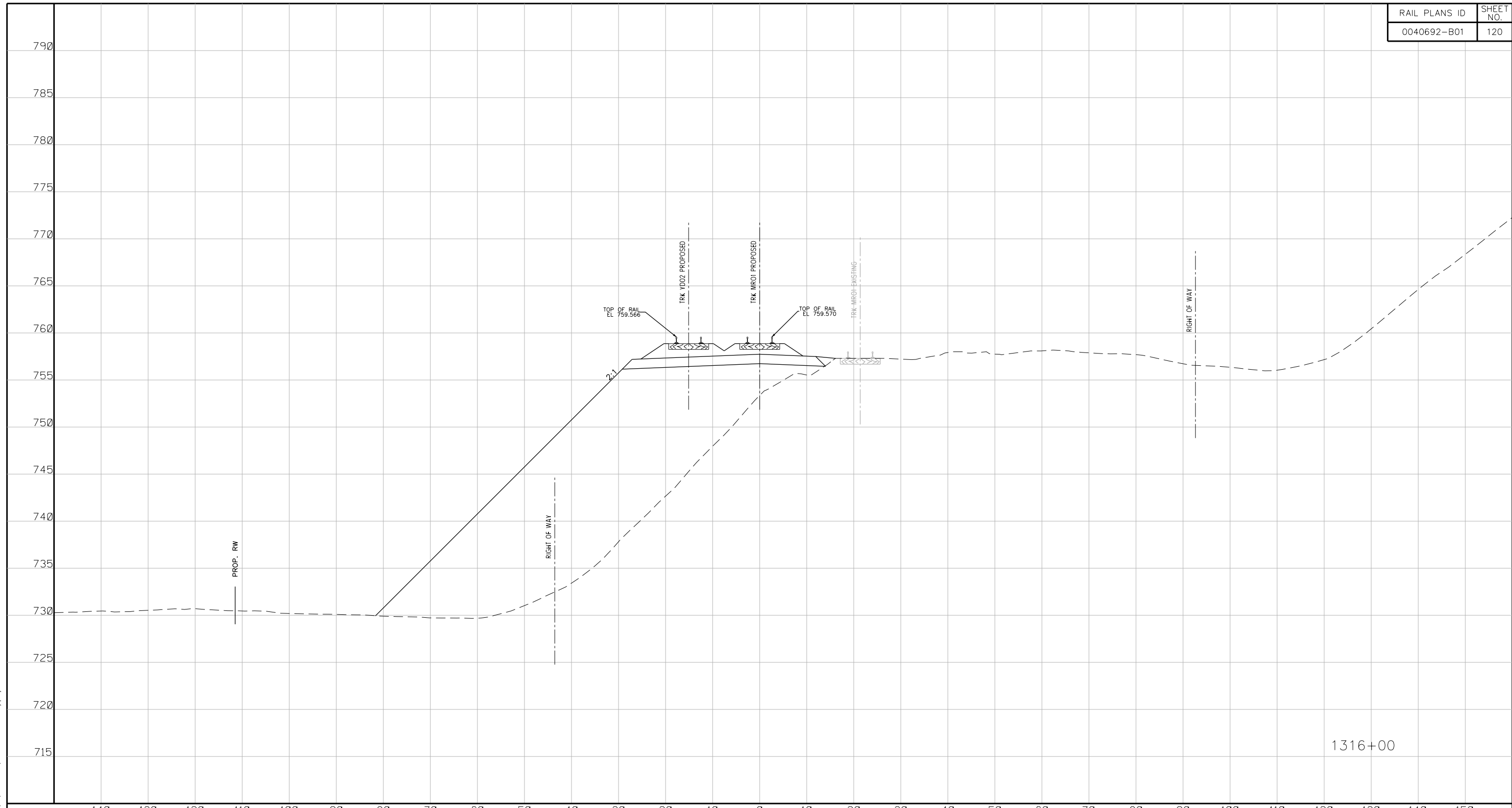
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PROJECT NO. P301140022

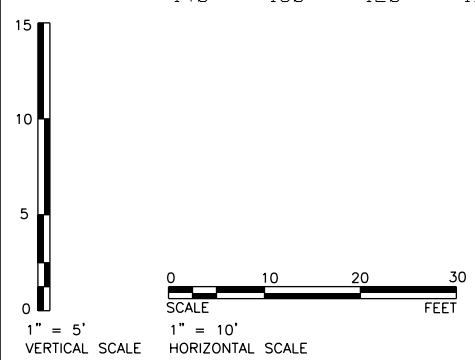
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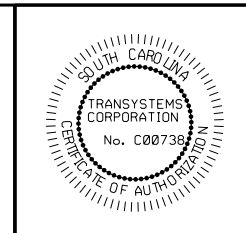
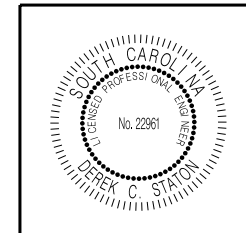
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ENGINEERING DEPARTMENT
 MAINTENANCE OF WAY
 BRIDGE MAINTENANCE AND DESIGN

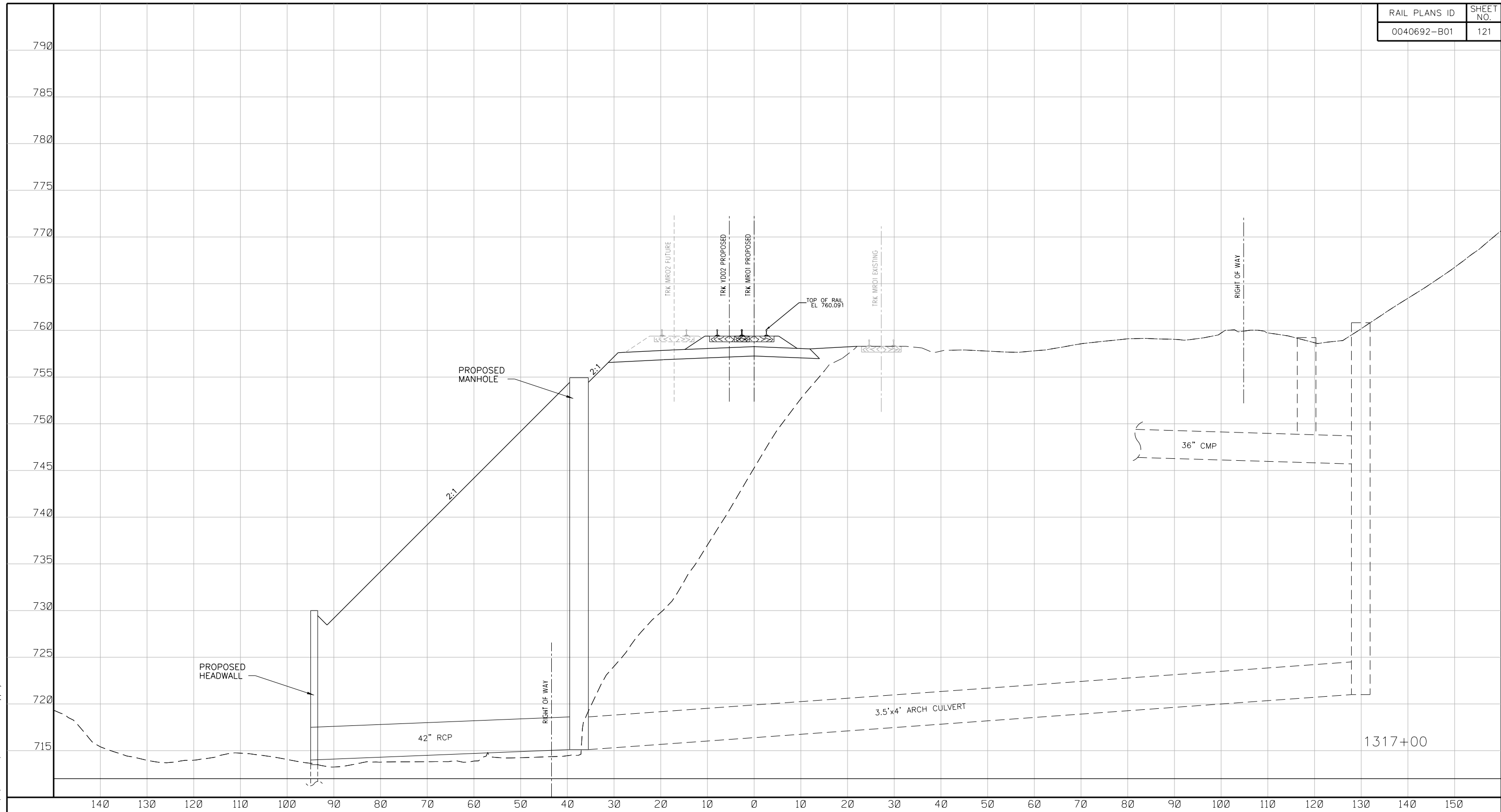
REVISIONS

BRIDGE NO Z270.19 AT M.P. 270.19	
CROSS SECTIONS	
SPARTANBURG	SC
DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
SCALE: AS SHOWN	VAL. SEC. 655 SC
DATE: 5/24/2016	DRAWING NO. T-19
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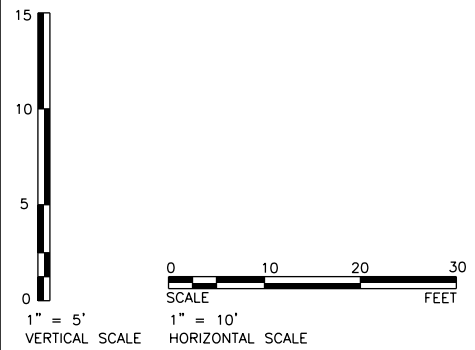


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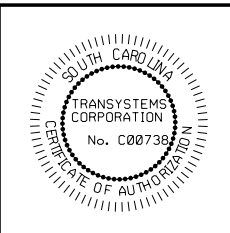
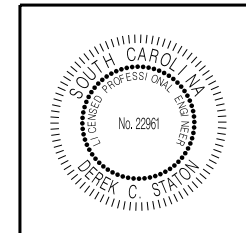


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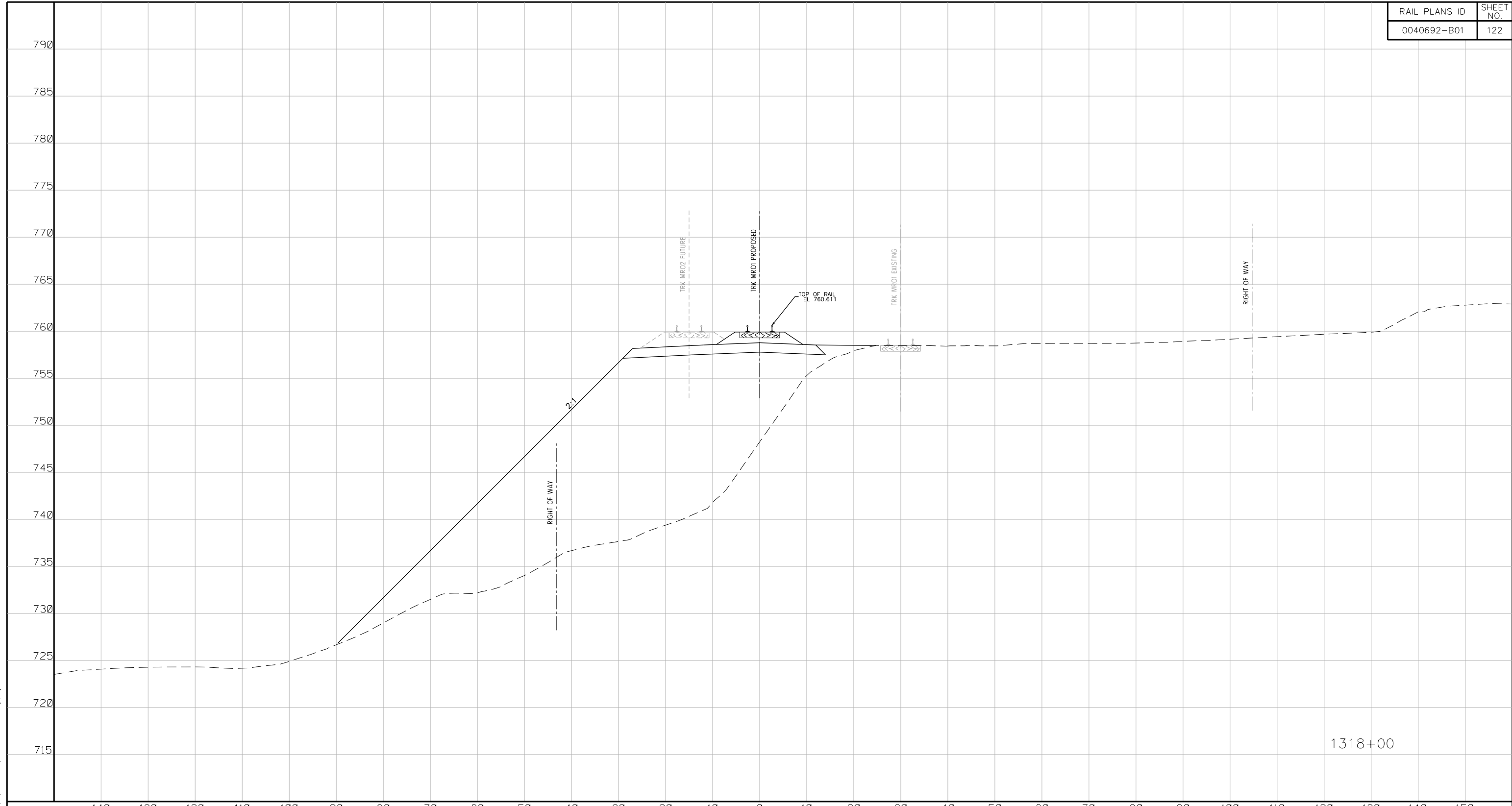
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		BRIDGE NO Z270.19 AT M.P. 270.19	
REVISIONS		CROSS SECTIONS	
		SPARTANBURG	SC
		DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
SCALE: AS SHOWN		VAL. SEC.	DRAWING NO.
DATE: 5/24/2016		655	T-20
DESIGN: LSS		SC	121 OF 139
DRAWN: LSS			
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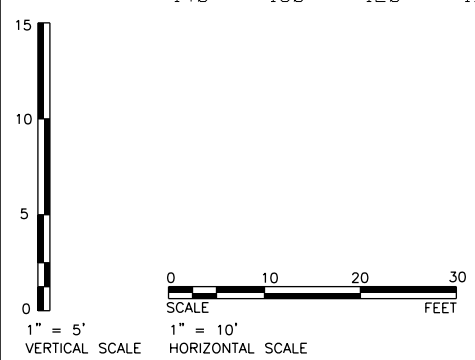
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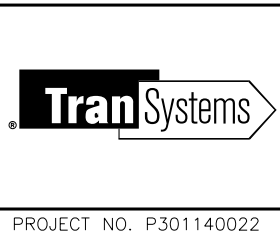
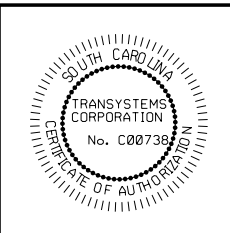
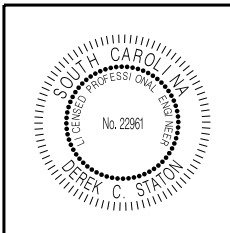
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ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

REVISIONS

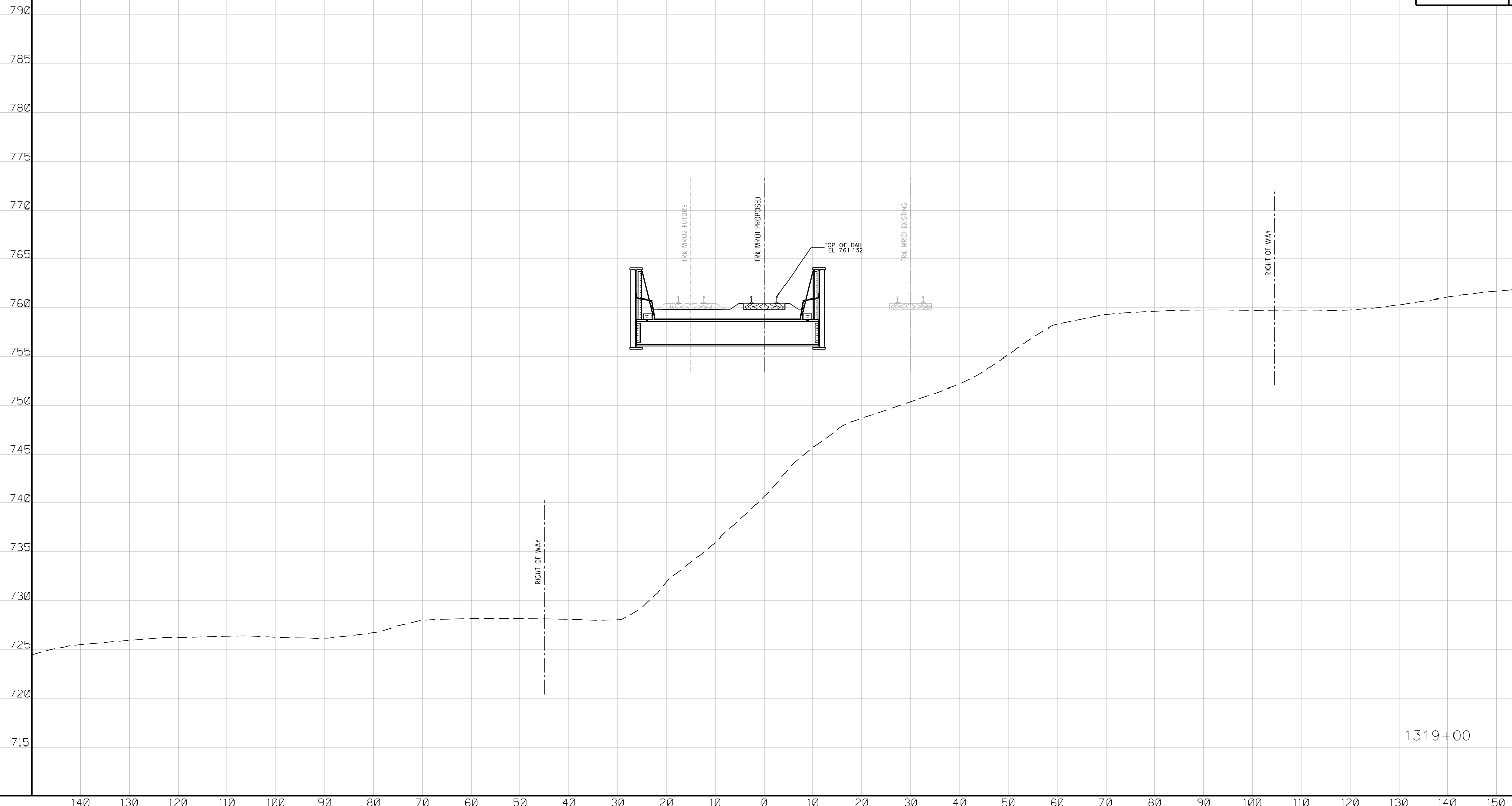
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CROSS SECTIONS
SPARTANBURG SC
DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE
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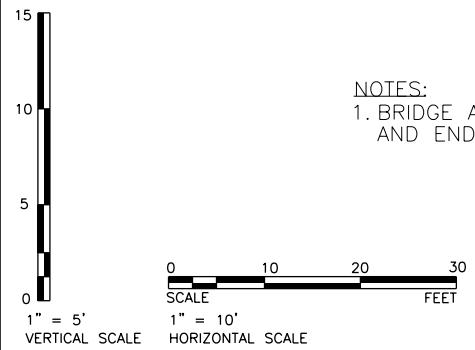
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VAL. SEC.	DRAWING NO.
655 SC	T-21 122 OF 139



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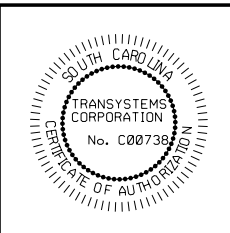
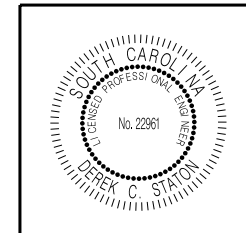
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AND ENDS AT STA 1322+21.60

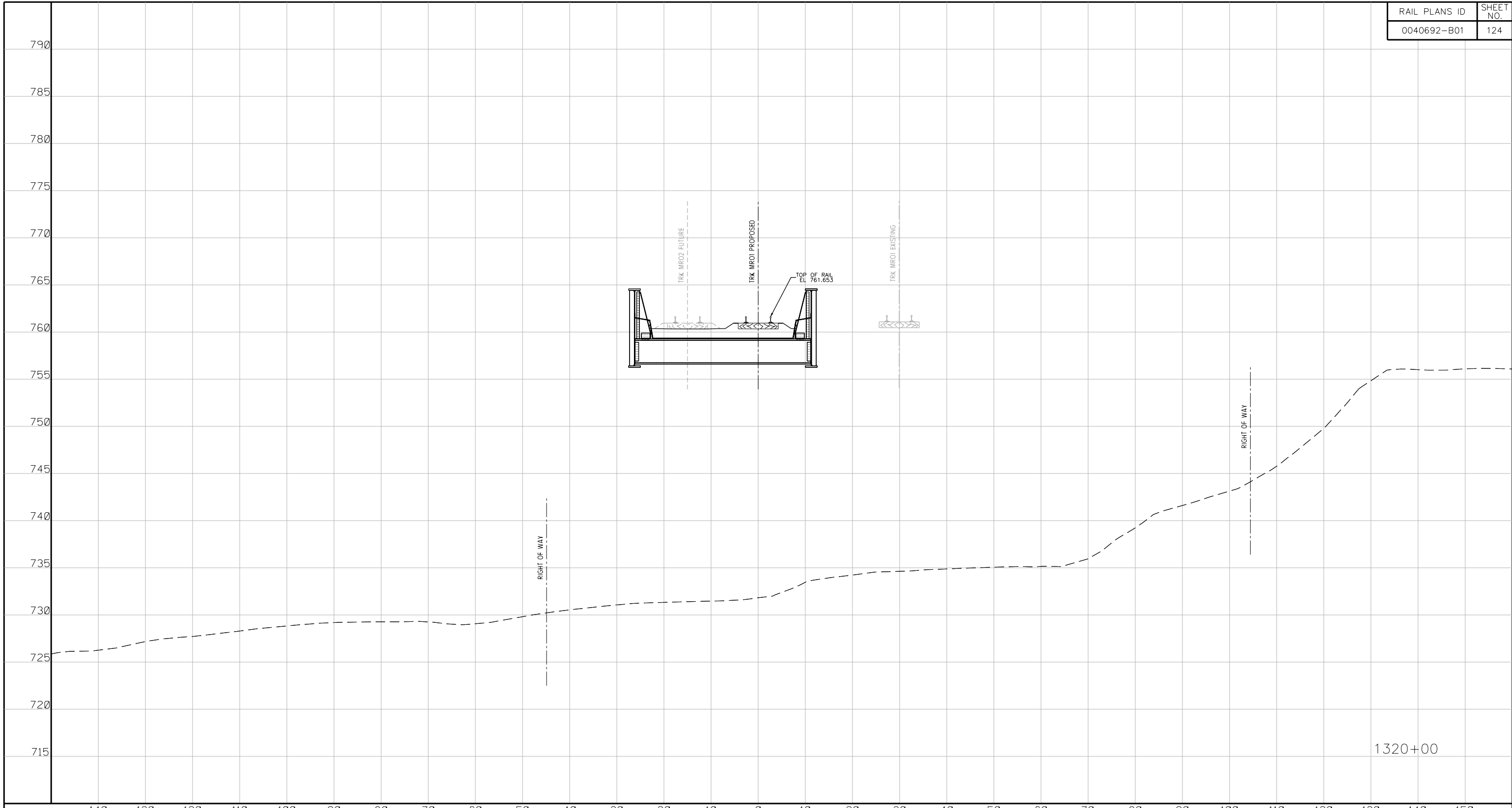
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		BRIDGE NO Z270.19 AT M.P. 270.19 CROSS SECTIONS	
SPARTANBURG		SC	
DIVISION: HUNTINGTON		SUBDIVISION: BLUE RIDGE	
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PROJECT NO. P301140022

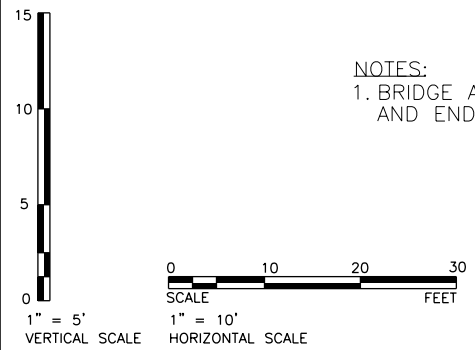
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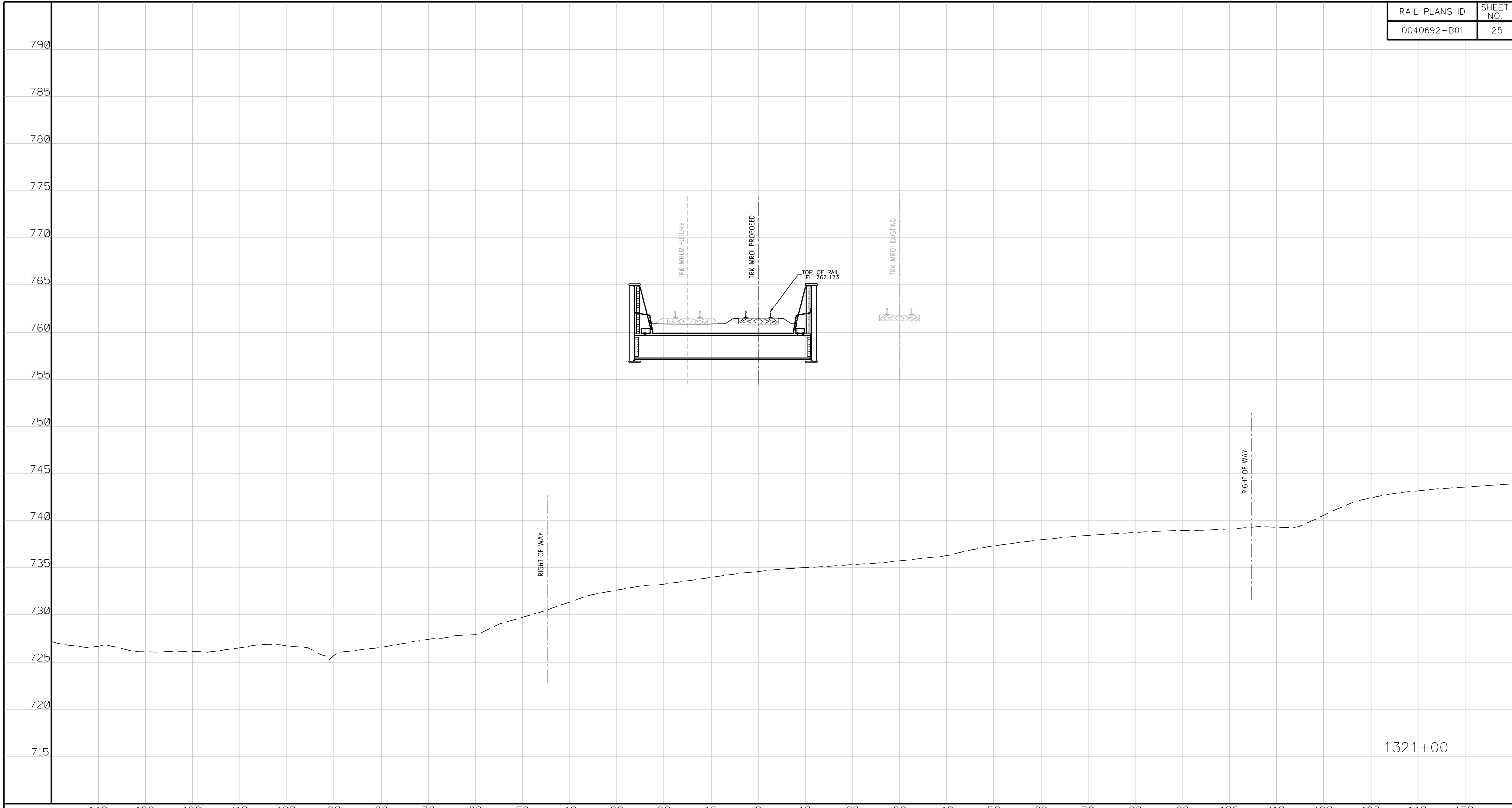
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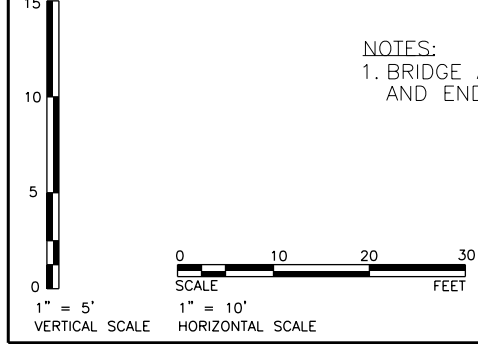
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 MAINTENANCE OF WAY
 BRIDGE MAINTENANCE AND DESIGN

			REVISIONS	BRIDGE NO Z270.19 AT M.P. 270.19
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SPARTANBURG		SC	SUBDIVISION: BLUE RIDGE	
DIVISION: HUNTINGTON		SCALE: AS SHOWN	VAL. SEC.	DRAWING NO.
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NOTES:
 1. BRIDGE ABUTMENT BEGINS AT STA 1318+54.73
 AND ENDS AT STA 1322+21.60

OSP#: OPSC0290

CSX How tomorrow moves

ENGINEERING DEPARTMENT
 MAINTENANCE OF WAY
 BRIDGE MAINTENANCE AND DESIGN

BRIDGE NO Z270.19 AT M.P. 270.19

CROSS SECTIONS

SPARTANBURG SC

DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE

SCALE: AS SHOWN
 DATE: 5/24/2016
 DESIGN: LSS
 DRAWN: LSS
 CHK'D: AJG

VAL. SEC. 655 SC
 DRAWING NO. T-24 125 OF 139

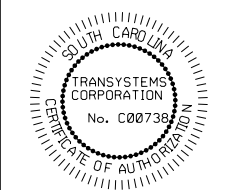
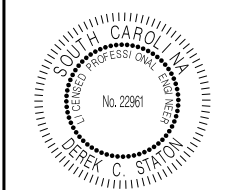
REVISIONS

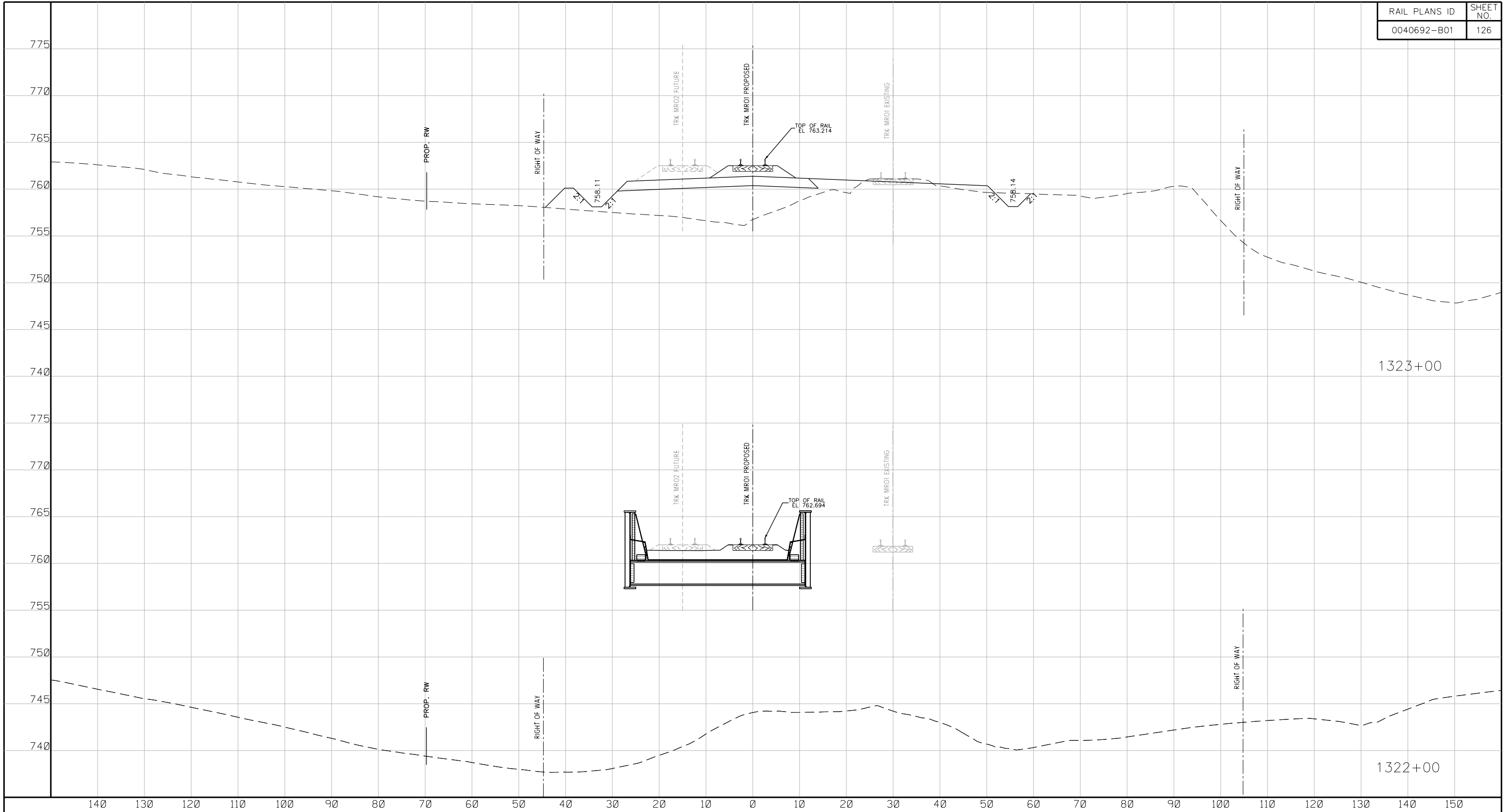
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PROJECT NO. P301140022

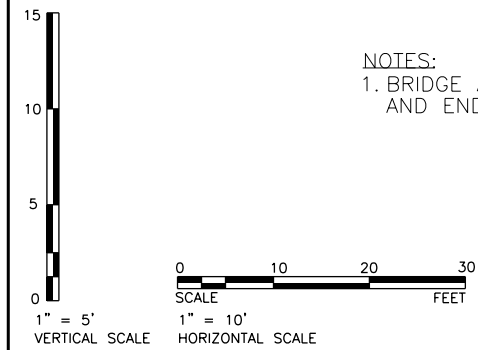
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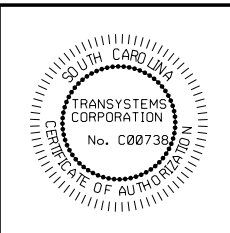
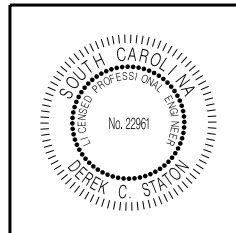


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NOTES:
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 AND ENDS AT STA 1322+21.60

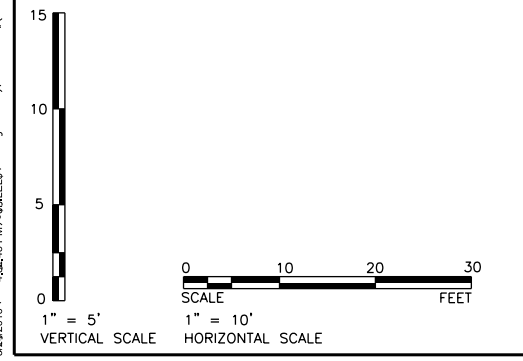
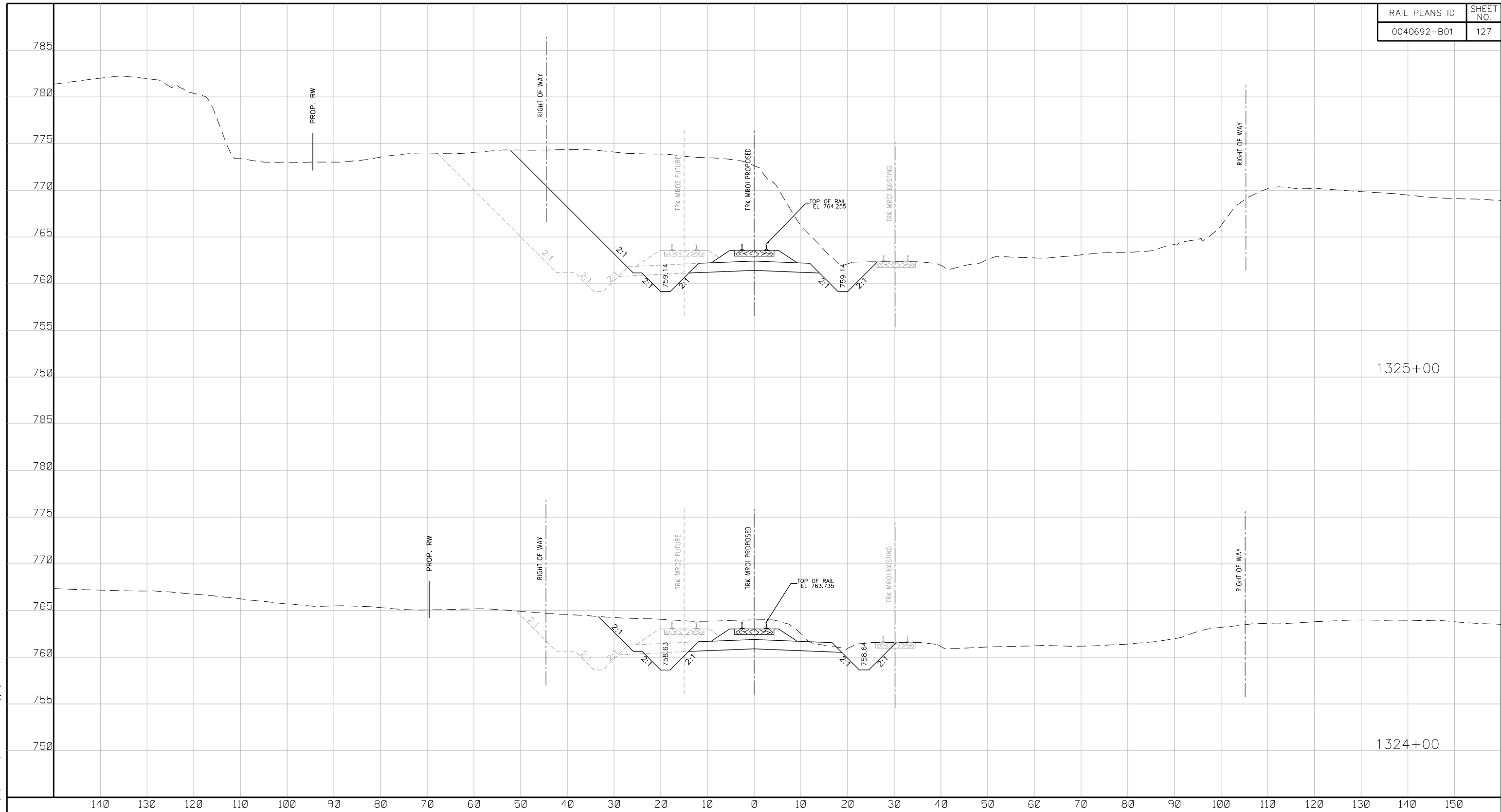


OSP#: OPSC0290	
CSX How tomorrow moves	
ENGINEERING DEPARTMENT MAINTENANCE OF WAY BRIDGE MAINTENANCE AND DESIGN	
BRIDGE NO Z270.19 AT M.P. 270.19	
CROSS SECTIONS	
SPARTANBURG	SC
DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
SCALE: AS SHOWN	VAL. SEC. 655
DATE: 5/24/2016	SC
DESIGN: LSS	DRAWING NO. T-25
DRAWN: LSS	126 OF 139
CHK'D: AJG	



PROJECT NO. P301140022

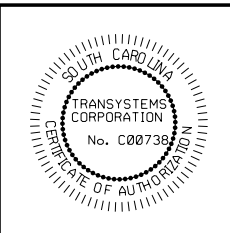
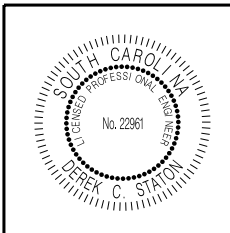
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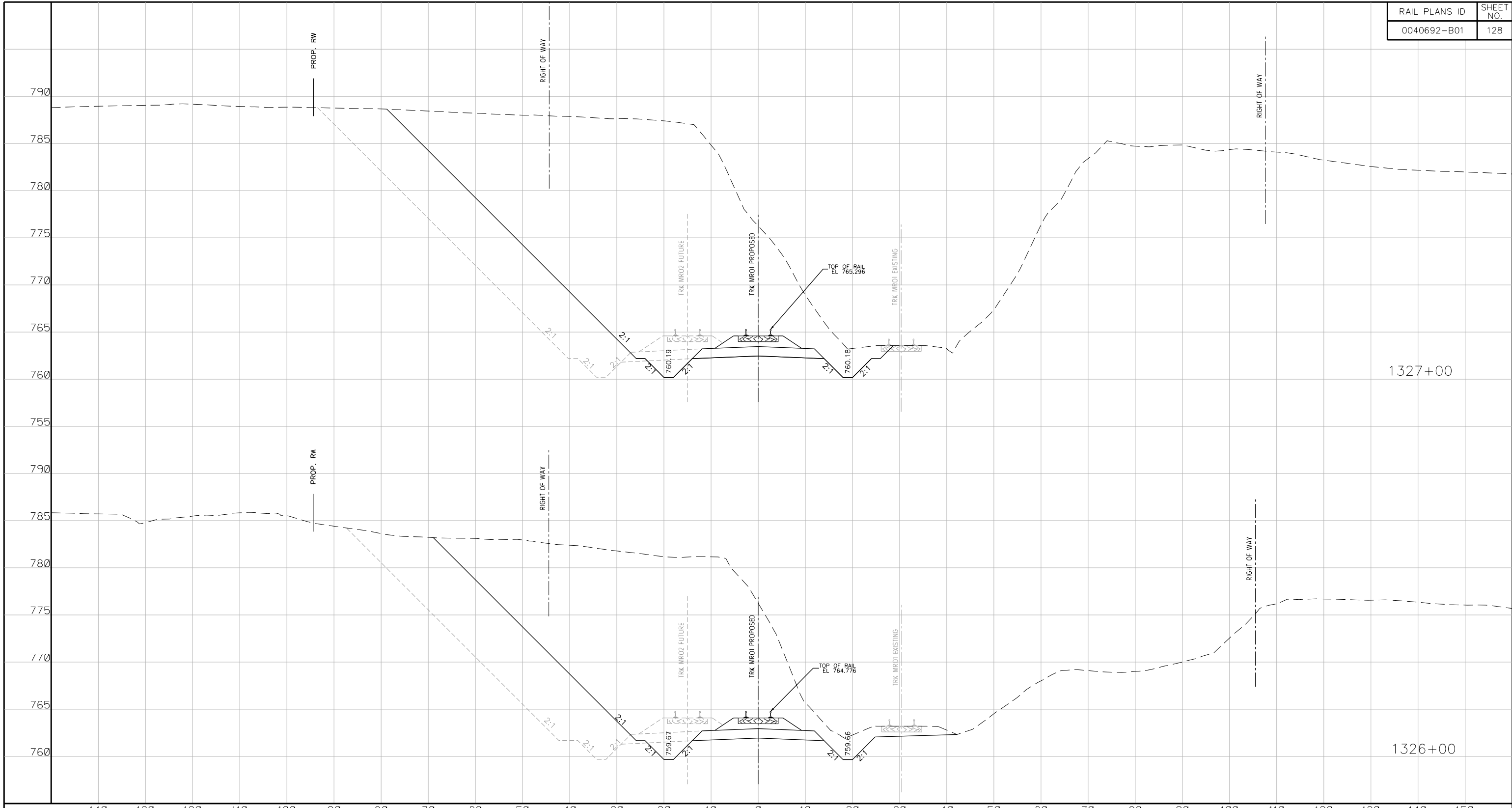
ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN



BRIDGE NO Z270.19 AT M.P. 270.19
CROSS SECTIONS
SPARTANBURG SC
DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE
SCALE: AS SHOWN
DATE: 5/24/2016
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CHK'D: AJG
VAL. SEC. 655 SC
DRAWING NO. T-26 127 OF 139

PROJECT NO. P301140022

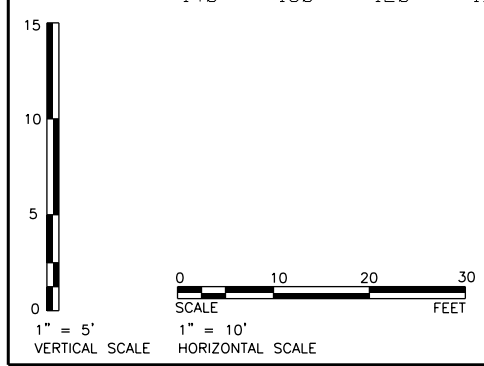
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1326+00

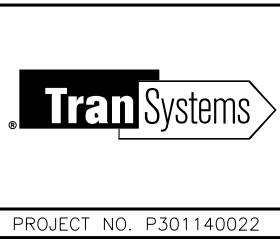
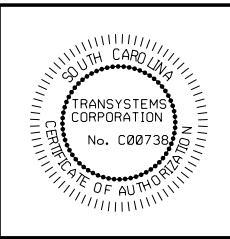
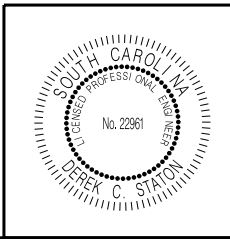
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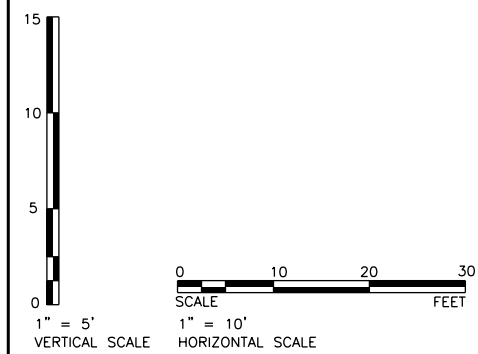
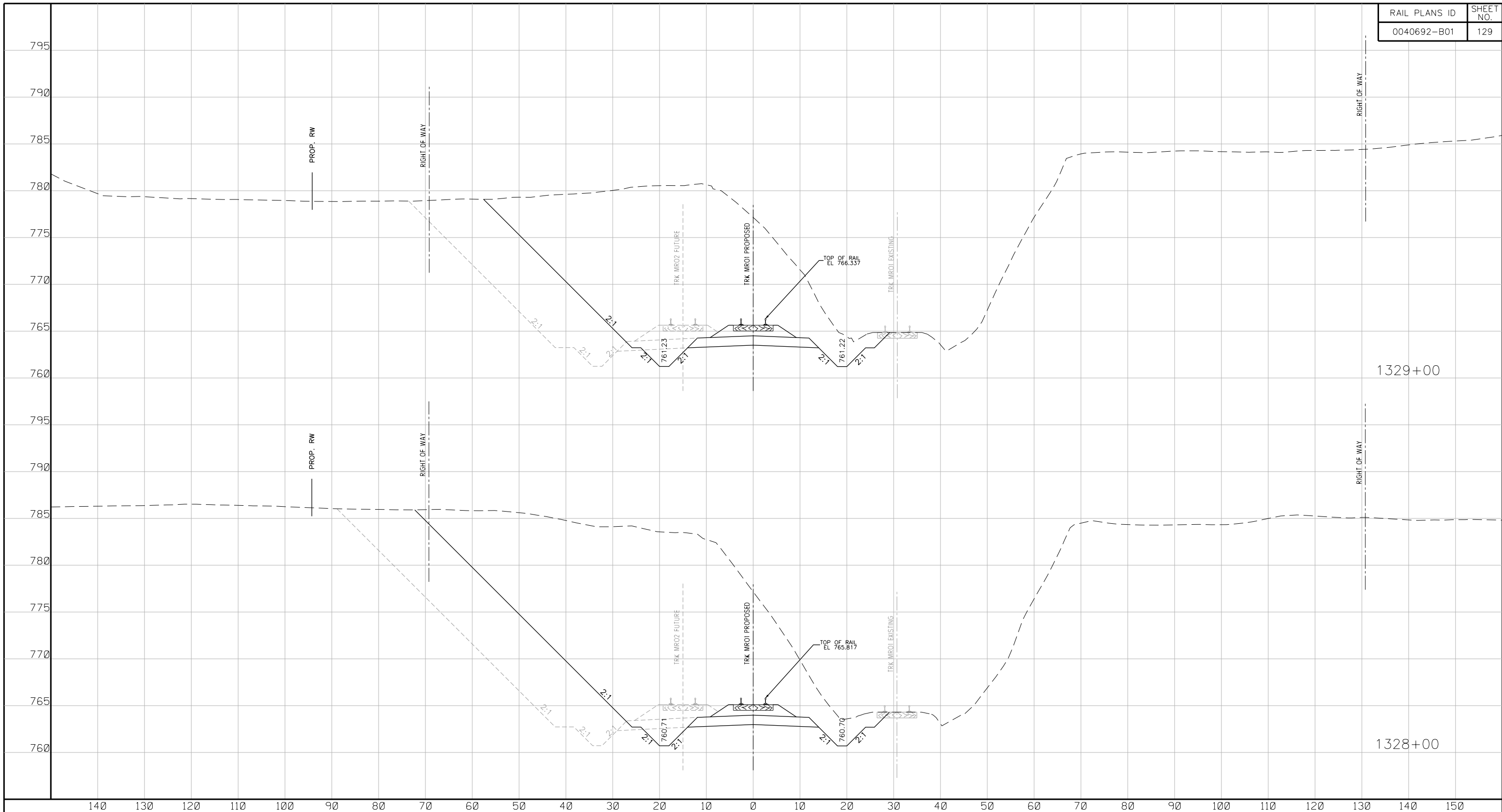
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MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

REVISIONS	BRIDGE NO Z270.19 AT M.P. 270.19	
	CROSS SECTIONS	
	SPARTANBURG	SC
	DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
SCALE: AS SHOWN	VAL. SEC.	DRAWING NO.
DATE: 5/24/2016	655	T-27
DESIGN: LSS	SC	128 OF 139
DRAWN: LSS		
CHK'D: AJG		



PROJECT NO. P301140022

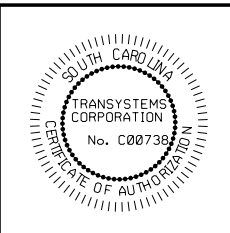
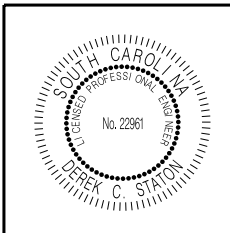
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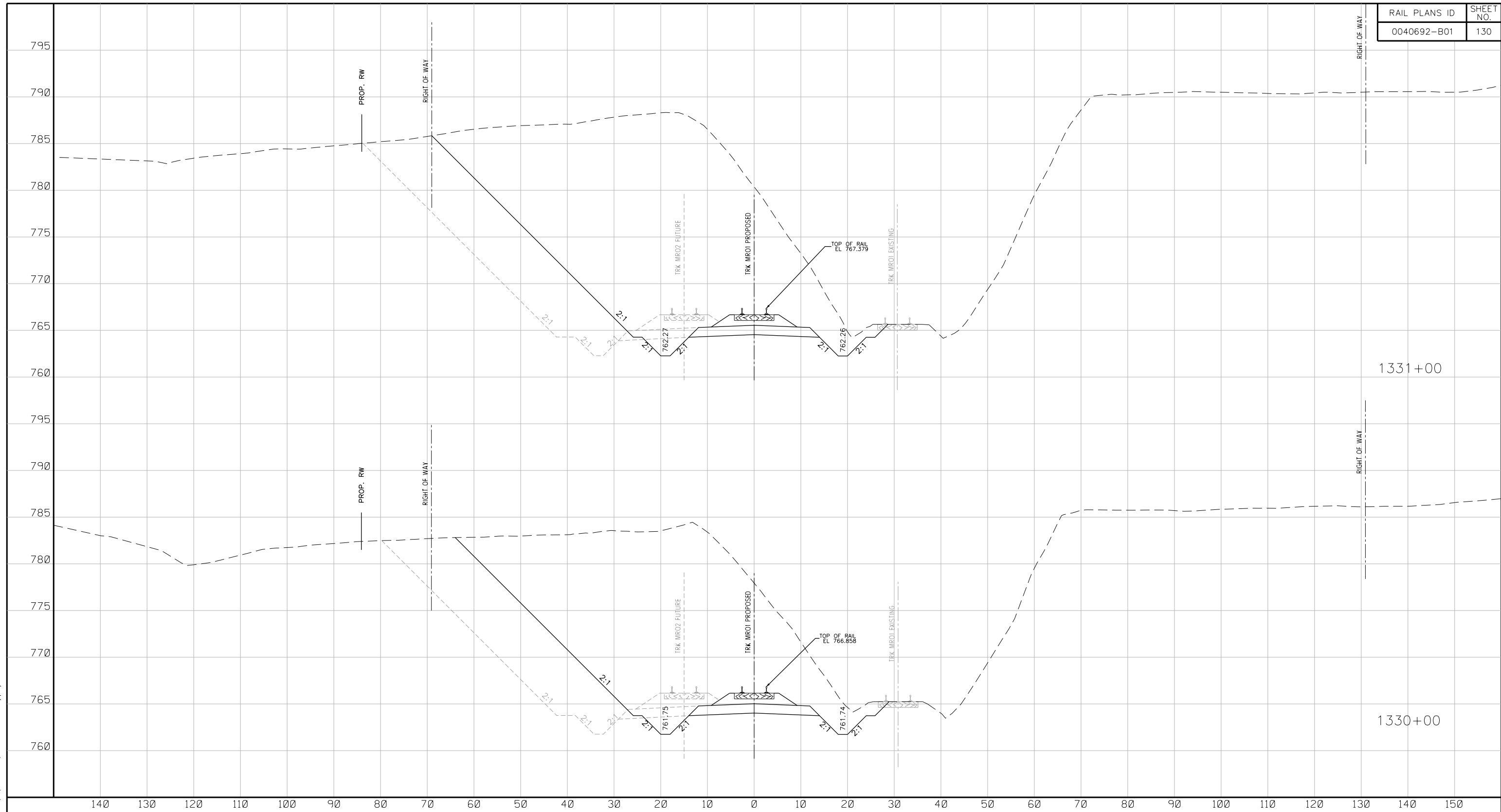
CSX
 How tomorrow moves.
 ENGINEERING DEPARTMENT
 MAINTENANCE OF WAY
 BRIDGE MAINTENANCE AND DESIGN

REVISIONS	BRIDGE NO Z270.19 AT M.P. 270.19	
	CROSS SECTIONS	
	SPARTANBURG	SC
	DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
SCALE: AS SHOWN	VAL. SEC.	DRAWING NO.
DATE: 5/24/2016	655	T-28
DESIGN: LSS	SC	129 OF 139
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CHK'D: AJG		

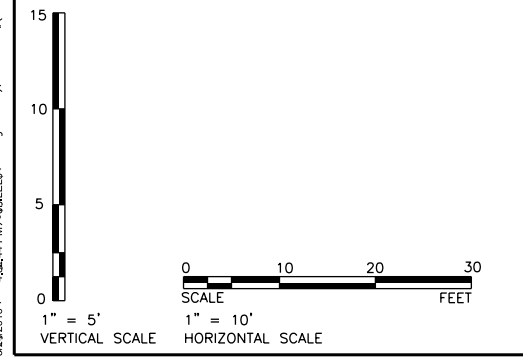


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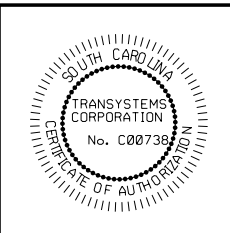
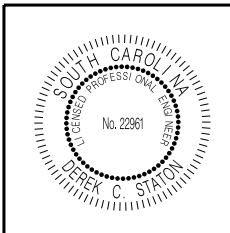
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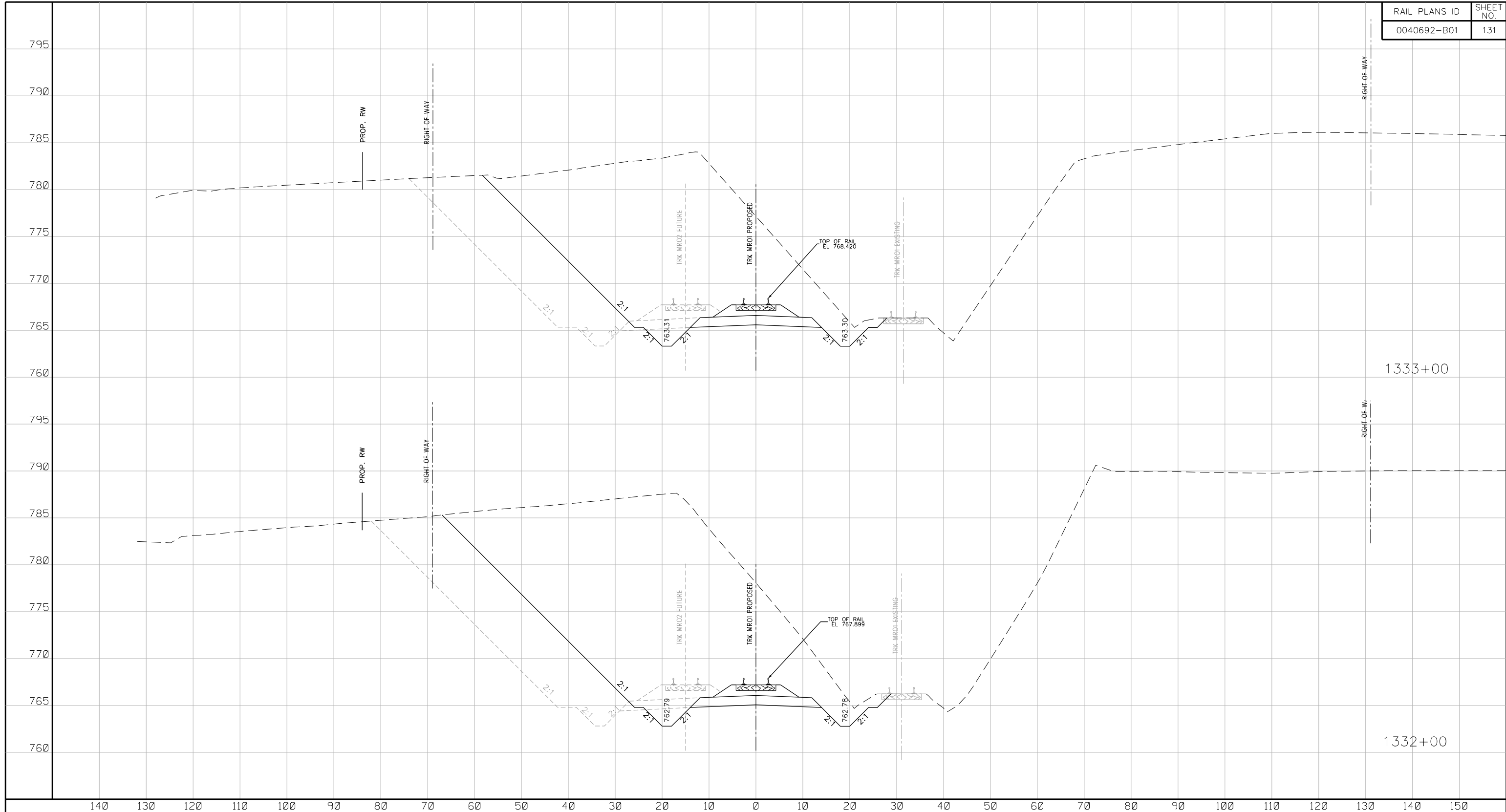


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CSX How tomorrow moves	
ENGINEERING DEPARTMENT MAINTENANCE OF WAY BRIDGE MAINTENANCE AND DESIGN	
REVISIONS	BRIDGE NO Z270.19 AT M.P. 270.19
	CROSS SECTIONS
	SPARTANBURG SC
	DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE
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	DRAWING NO. T-29 130 OF 139

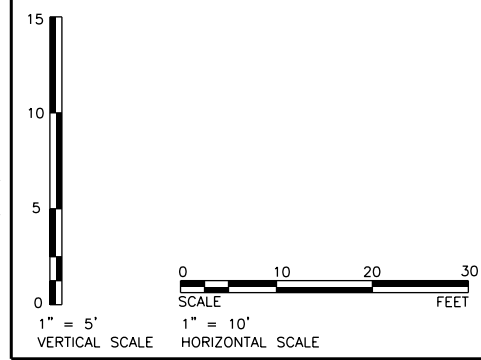


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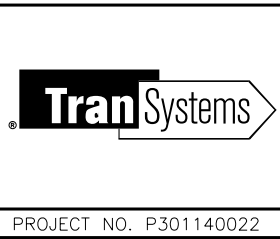
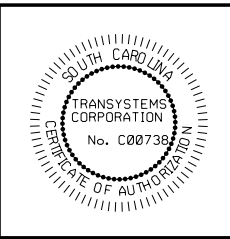
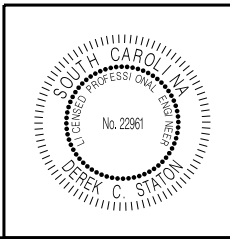


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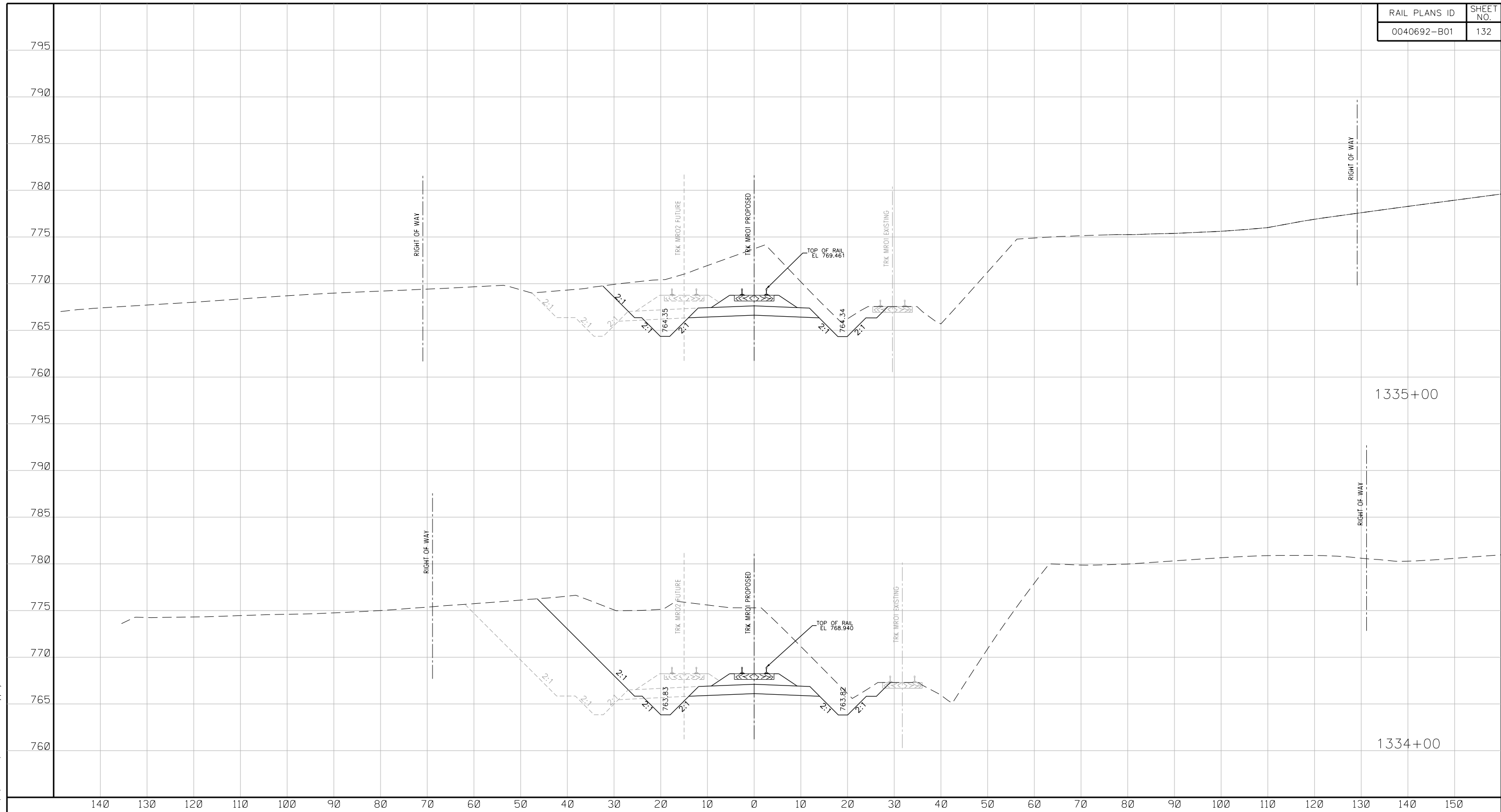
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	BRIDGE NO Z270.19 AT M.P. 270.19	
	CROSS SECTIONS	
	SPARTANBURG	SC
DIVISION: HUNTINGTON		SUBDIVISION: BLUE RIDGE
SCALE: AS SHOWN	VAL. SEC.	DRAWING NO.
DATE: 5/24/2016	655	T-30
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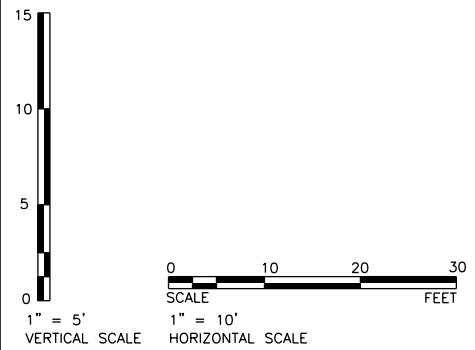


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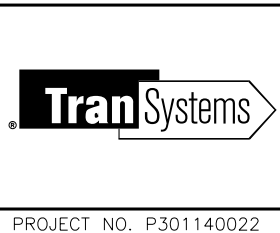
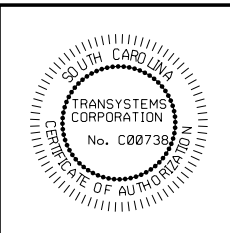
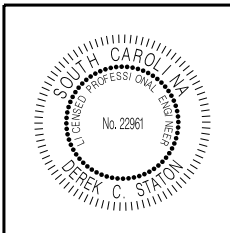
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ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

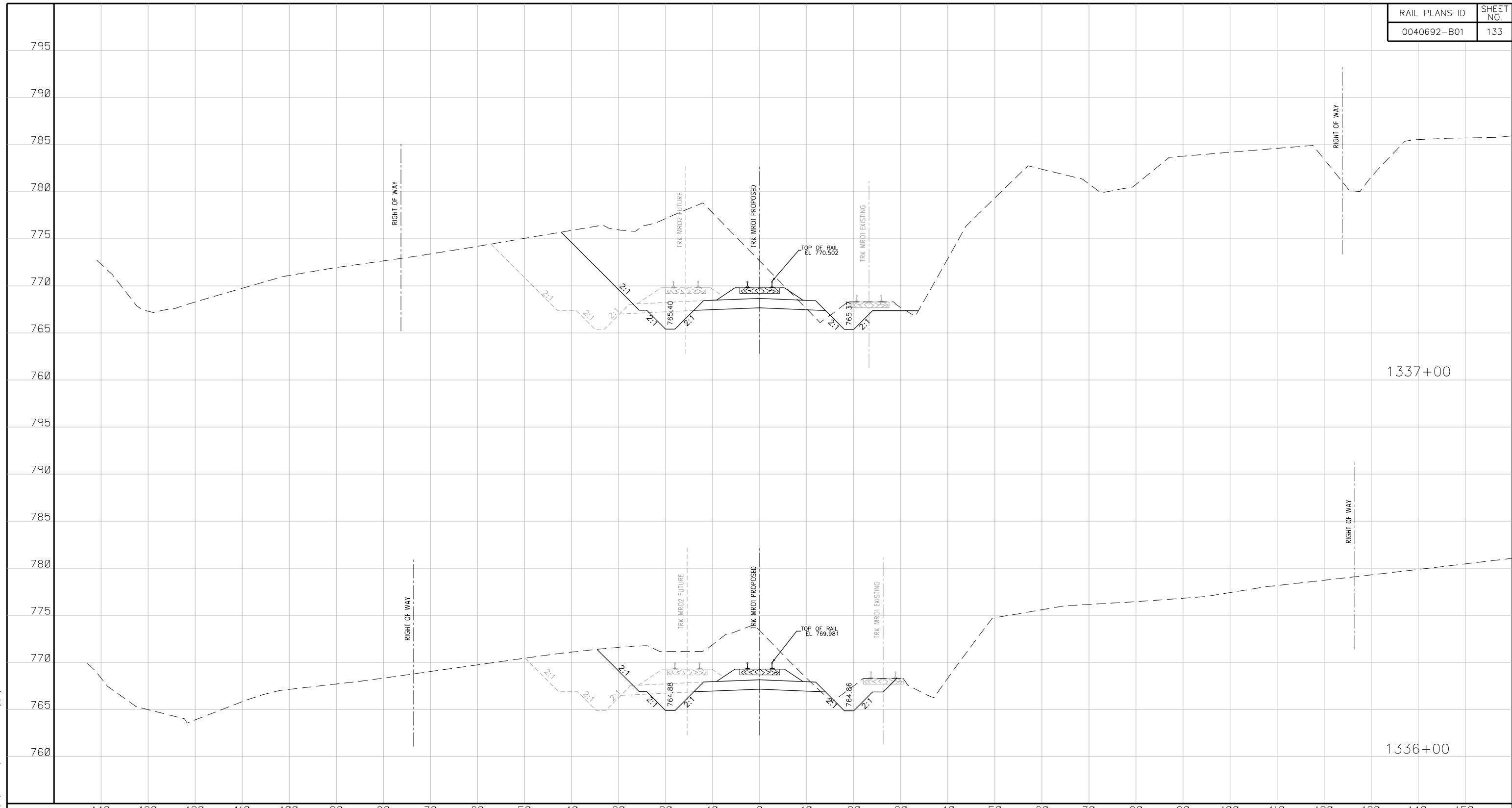
REVISIONS

BRIDGE NO Z270.19 AT M.P. 270.19	
CROSS SECTIONS	
SPARTANBURG	SC
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SCALE: AS SHOWN	VAL. SEC. 655
DATE: 5/24/2016	SC
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DRAWN: LSS	132 OF 139
CHK'D: AJG	



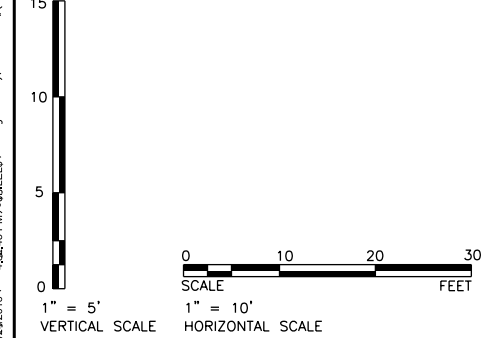
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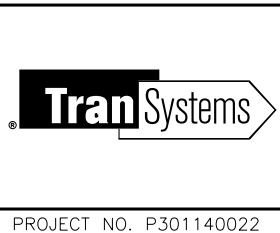
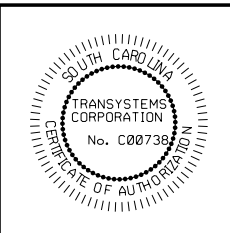
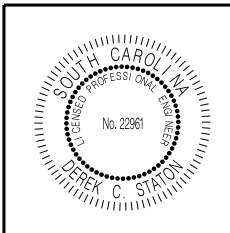
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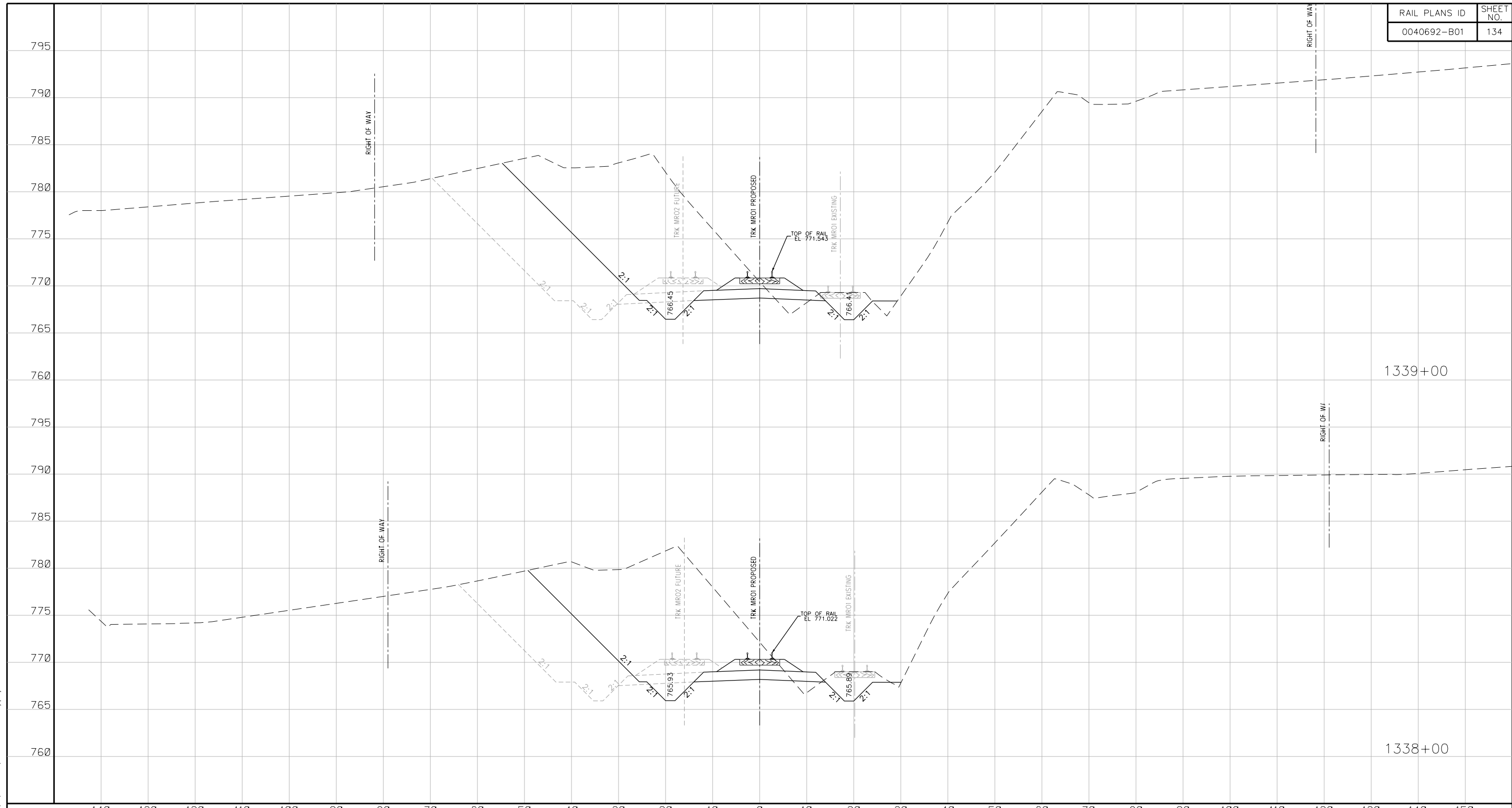
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MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

REVISIONS	BRIDGE NO Z270.19 AT M.P. 270.19	
	CROSS SECTIONS	
	SPARTANBURG	SC
	DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
	SCALE: AS SHOWN	VAL. SEC. 655
	DATE: 5/24/2016	DRAWING NO. T-32
	DESIGN: LSS	133 OF 139
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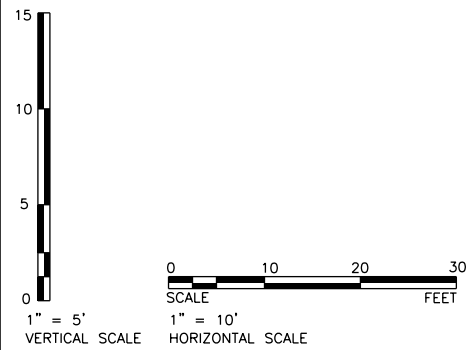


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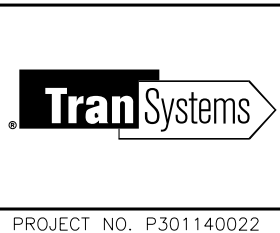
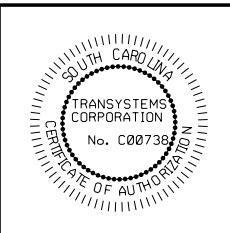
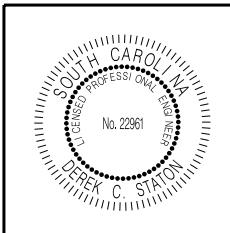


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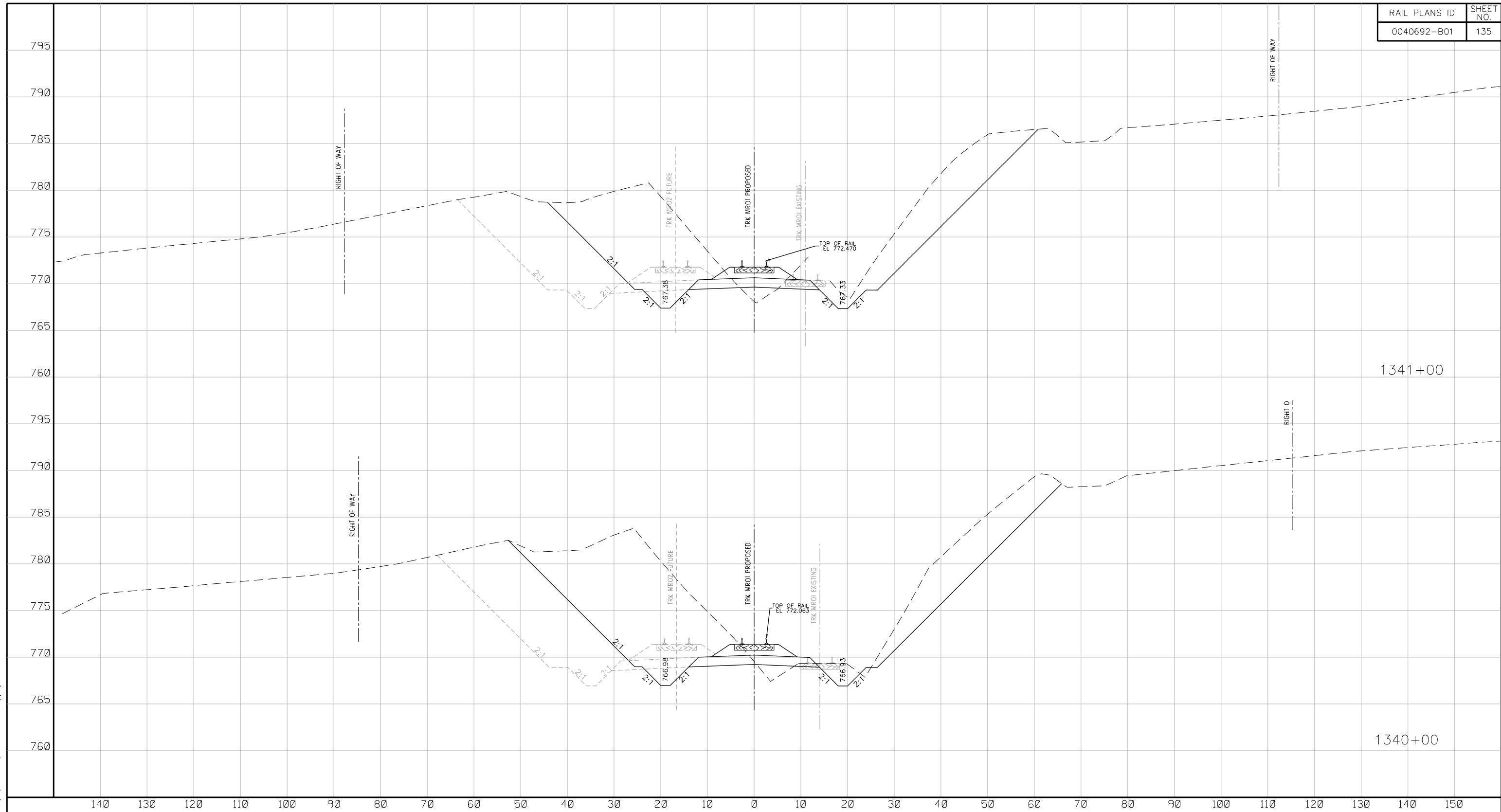
ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

REVISIONS	BRIDGE NO Z270.19 AT M.P. 270.19	
	CROSS SECTIONS	
	SPARTANBURG	SC
	DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
	SCALE: AS SHOWN	VAL. SEC. 655
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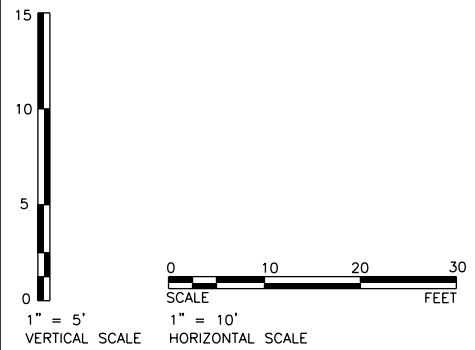


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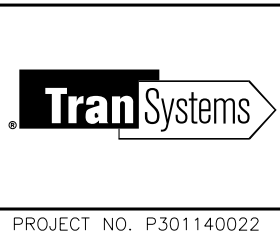
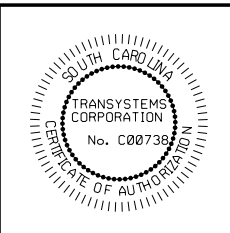
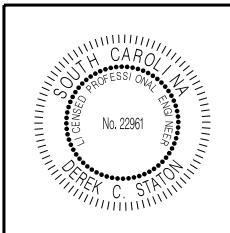
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ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

REVISIONS

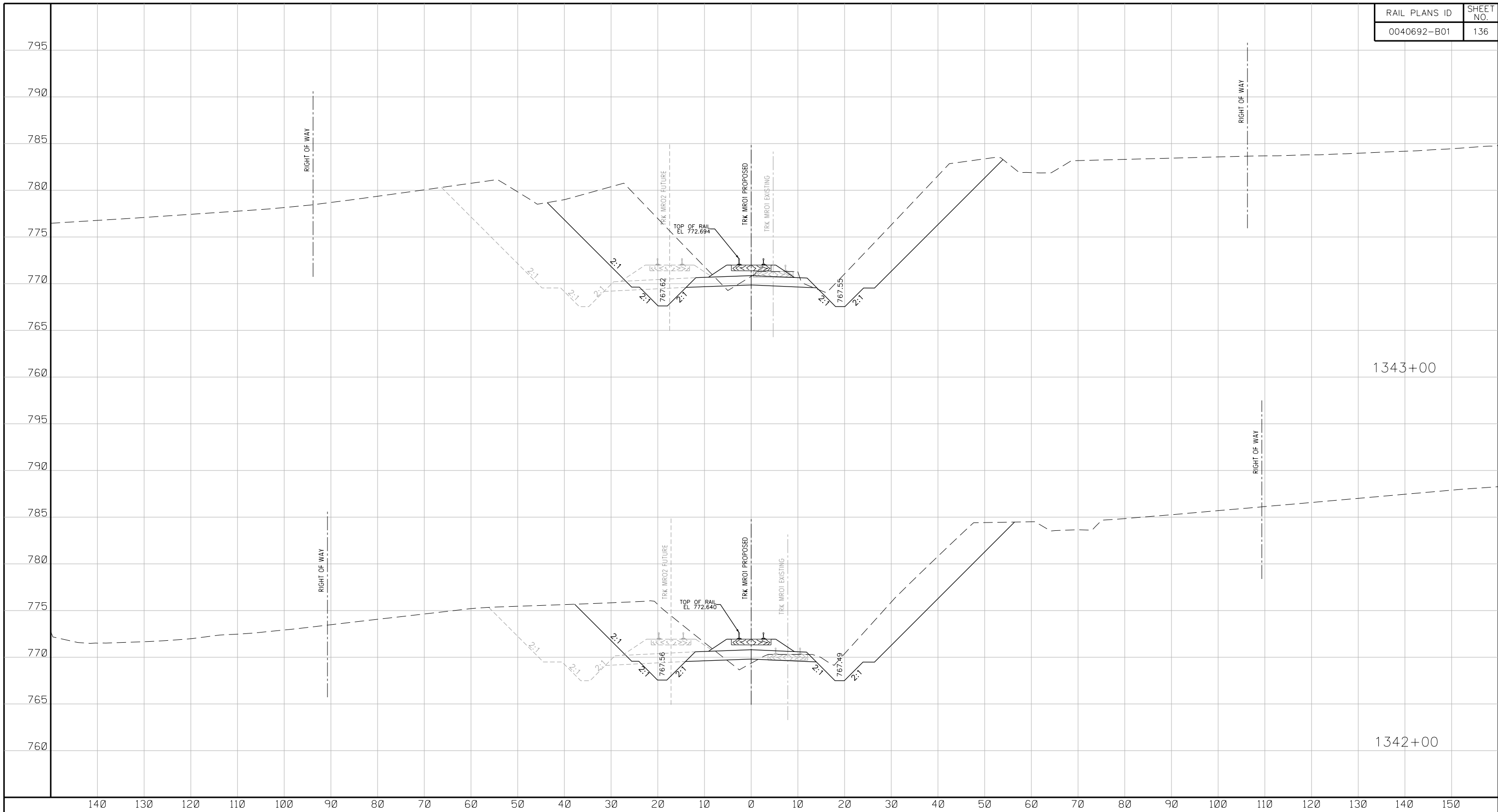
BRIDGE NO Z270.19 AT M.P. 270.19
CROSS SECTIONS
SPARTANBURG SC
DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE
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CHK'D: AJG



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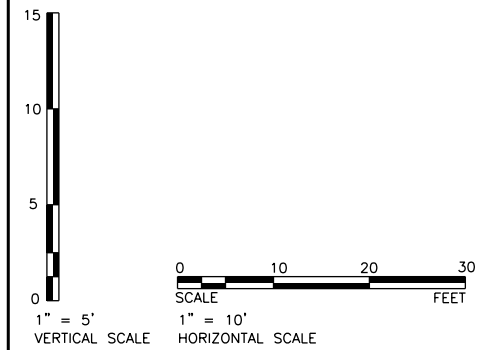
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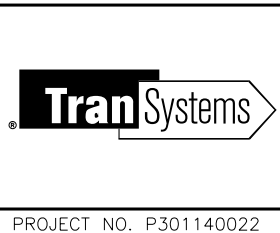
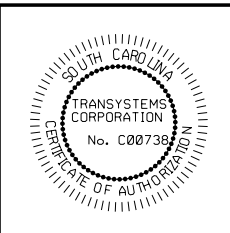
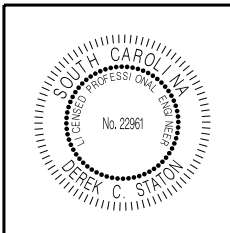


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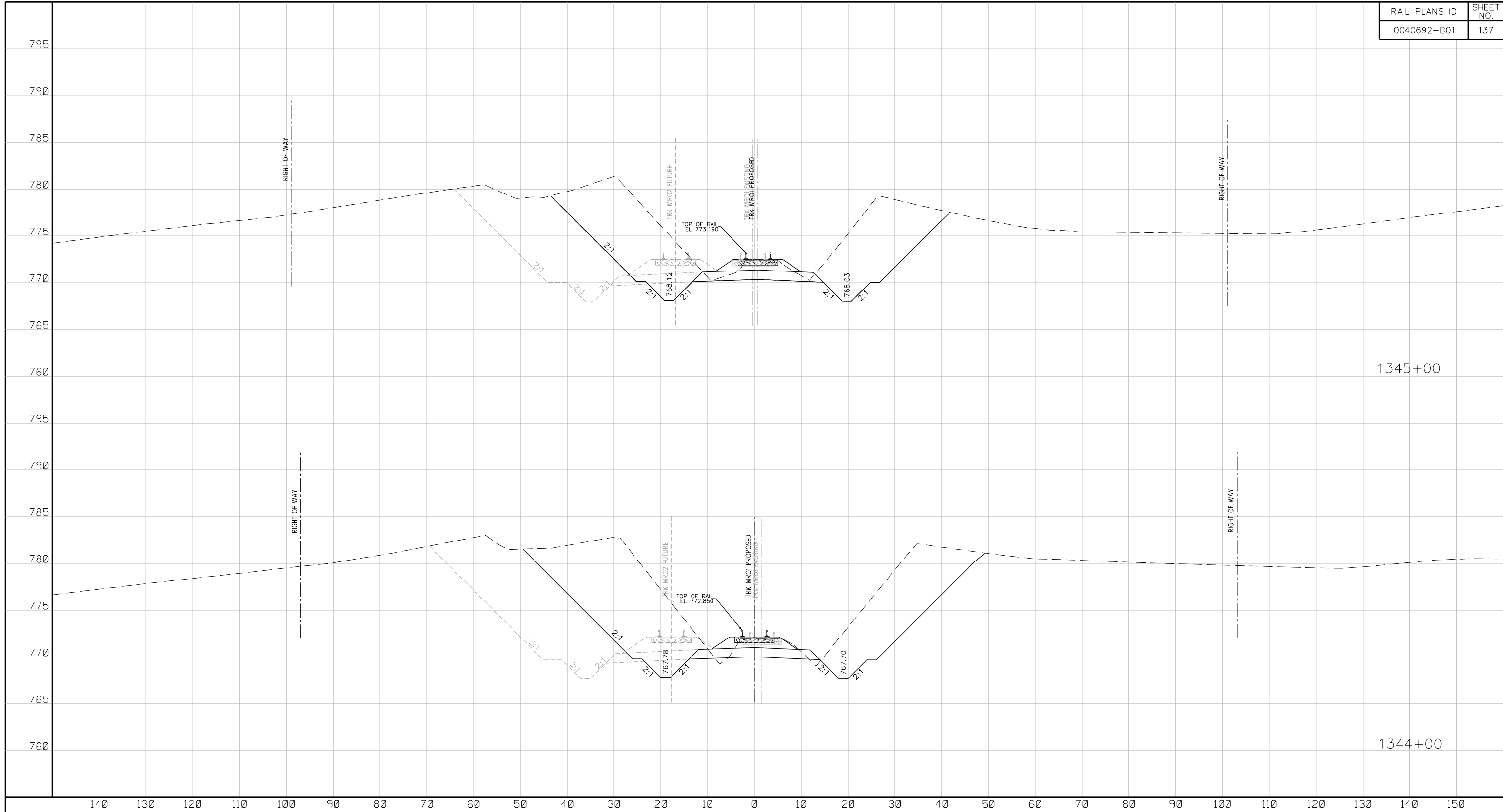
ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

REVISIONS	BRIDGE NO Z270.19 AT M.P. 270.19	
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	DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
SCALE: AS SHOWN	VAL. SEC.	DRAWING NO.
DATE: 5/24/2016	655	T-35
DESIGN: LSS	SC	136 OF 139
DRAWN: LSS		
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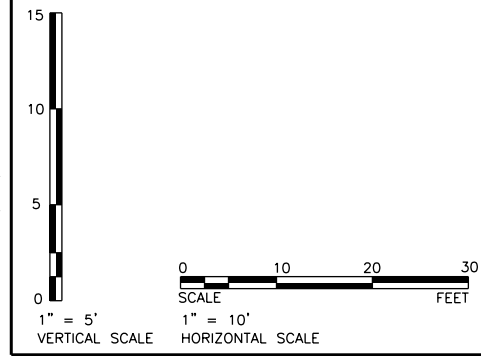


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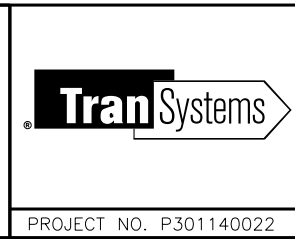
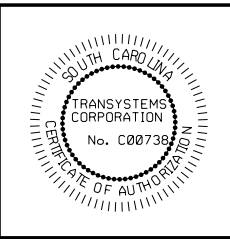
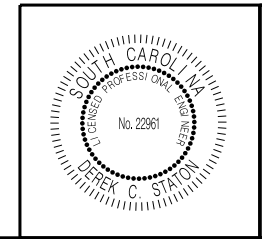
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ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

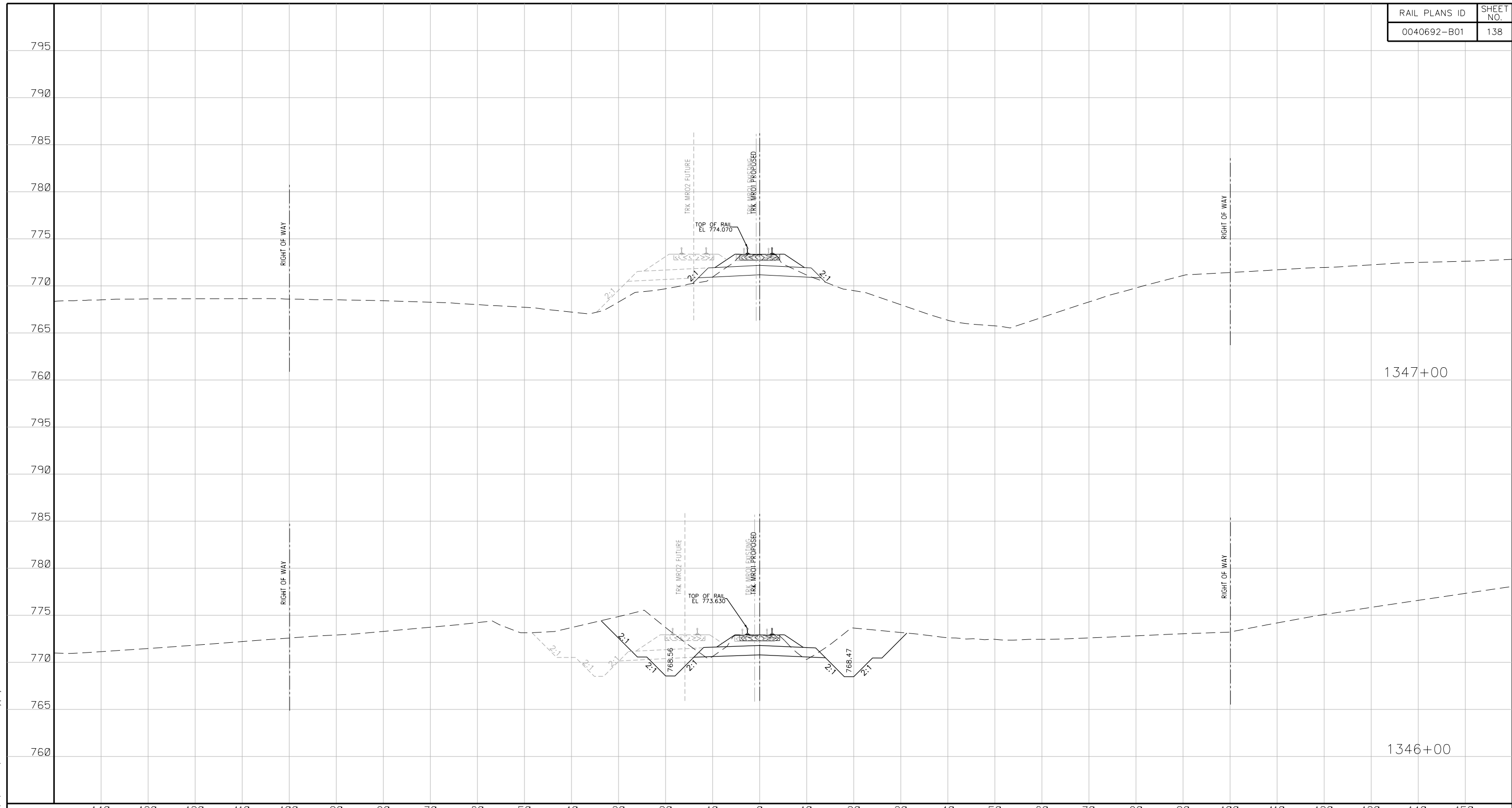
REVISIONS

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CROSS SECTIONS	
SPARTANBURG	SC
DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
SCALE: AS SHOWN	VAL. SEC.
DATE: 5/24/2016	655
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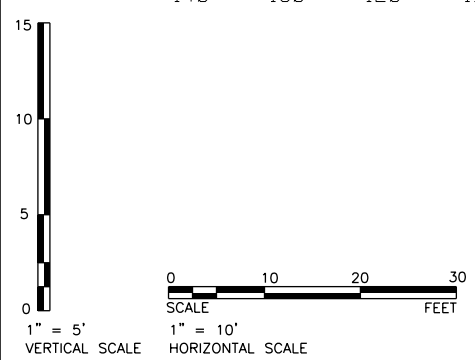
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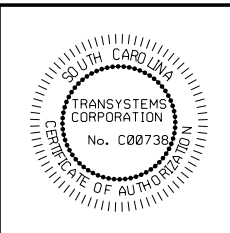
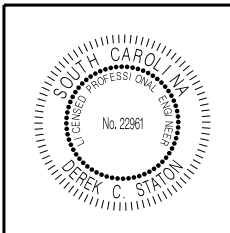
OSP#: OPSC0290



ENGINEERING DEPARTMENT
MAINTENANCE OF WAY
BRIDGE MAINTENANCE AND DESIGN

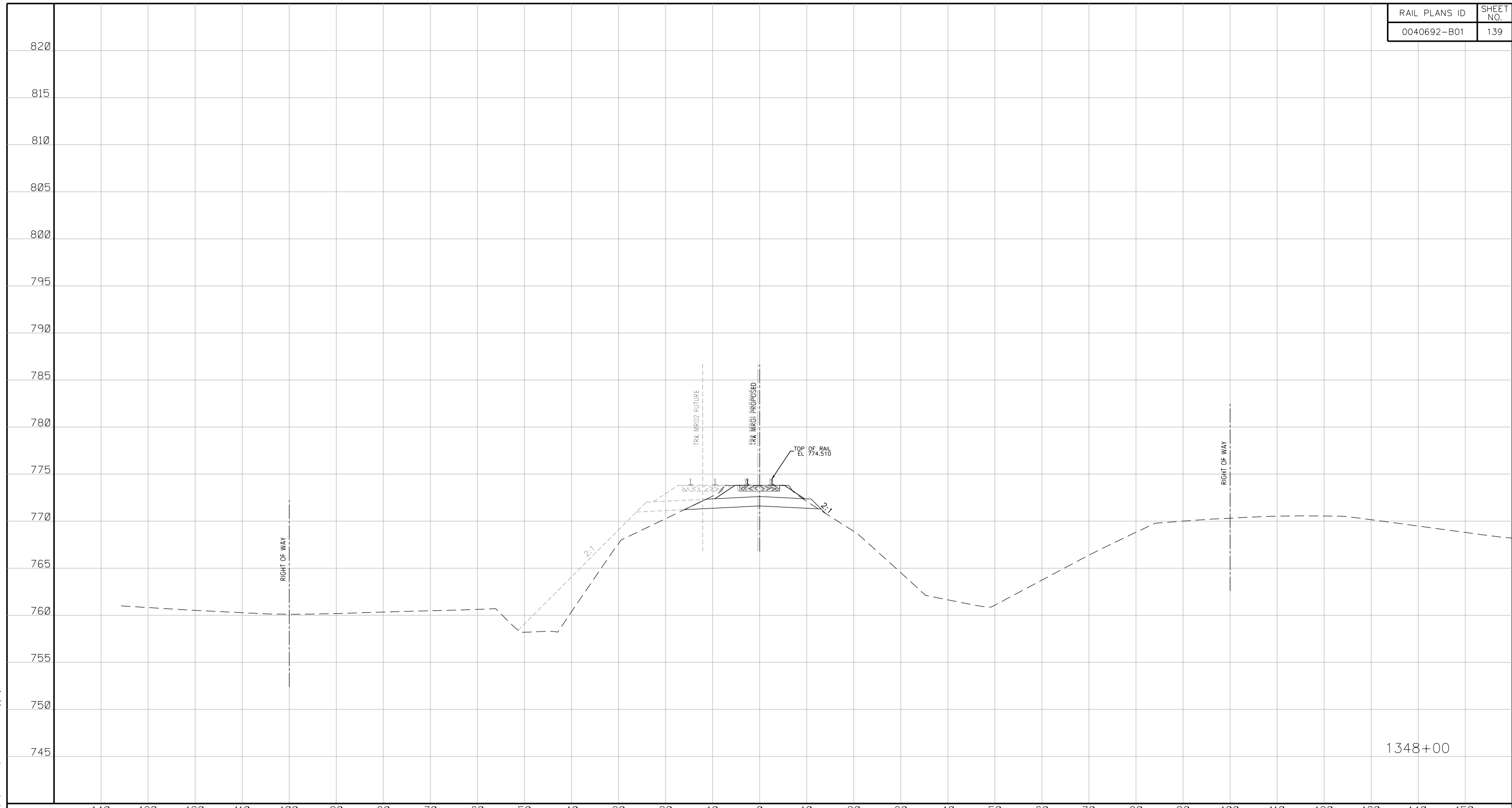
REVISIONS

BRIDGE NO Z270.19 AT M.P. 270.19	
CROSS SECTIONS	
SPARTANBURG	SC
DIVISION: HUNTINGTON	SUBDIVISION: BLUE RIDGE
SCALE: AS SHOWN	VAL. SEC. 655
DATE: 5/24/2016	SC
DESIGN: LSS	DRAWING NO. T-37
DRAWN: LSS	138 OF 139
CHK'D: AJG	

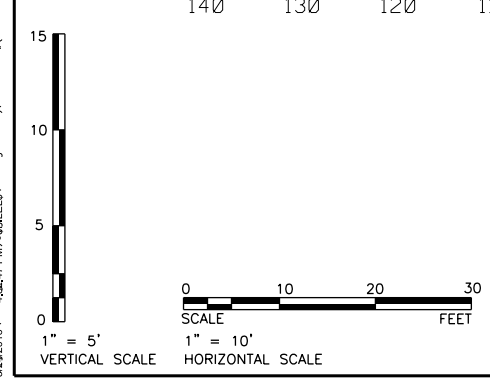


PROJECT NO. P301140022

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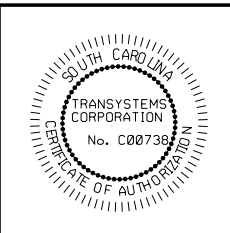
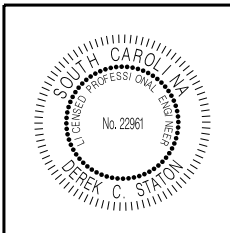


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OSP#: OPSC0290

	ENGINEERING DEPARTMENT MAINTENANCE OF WAY BRIDGE MAINTENANCE AND DESIGN	
	BRIDGE NO Z270.19 AT M.P. 270.19 CROSS SECTIONS	
	SPARTANBURG SC	DIVISION: HUNTINGTON SUBDIVISION: BLUE RIDGE
	SCALE: AS SHOWN DATE: 5/24/2016 DESIGN: LSS DRAWN: LSS CHK'D: AJG	VAL. SEC. 655 SC



PROJECT NO. P301140022

FILE:

DRAWING NO.
 T-38
 139 OF 139