



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

November 7, 2014

Addendum No. 1

RE: Contract ID C203358

WBS # 35609.3.S2

State Funded

Mitchell, Yancey Counties (R-2519B)

US-19E From NC-80 In Yancey County To Multilane Section
West Of Spruce Pines In Mitchell County

November 21, 2014 Letting

To Whom It May Concern:

Reference is made to the plans and proposal form furnished to you on this project.

The following revisions have been made to the Structure plans:

Sheet No.	Revisions
S-8, S-12, S-35, S-39, S-69 thru S-71, S-75, S-107 thru S-109 And S-113	Revised to reflect an update in our method for predicting Prestressed Concrete Girder cambers. Modified the deflection tables and made minor revisions to the stirrup bars on the corresponding girder sheets.

Please void the above listed sheets in your plans and staple the revised sheets thereto.

The following revisions have been made to the proposal:

Page No.	Revisions
Proposal Cover	Note added that reads "Includes Addendum No. 1 Dated 11-7-14"
Table of Contents	The first page of the Table of Contents has been revised to include the below mentioned provision being added on Pg. G-37 and new Page No. G-38
G-5 and G-6	Updated list of "Delays In Right Of Entry"
G-7	Updated base index price for diesel fuel within the project special provision entitled "Fuel Price Adjustment"

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
CONTRACT STANDARDS AND DEVELOPMENT UNIT
1591 MAIL SERVICE CENTER
RALEIGH NC 27699-1591

TELEPHONE: 919-707-6900
FAX: 919-250-4119

WEBSITE: www.ncdot.gov

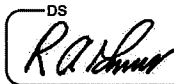
LOCATION:
CENTURY CENTER COMPLEX
ENTRANCE B-2
1020 BIRCH RIDGE DRIVE
RALEIGH NC 27610

Page No.	Revisions
G-37 and G-38	Added the project special provision entitled "Subletting Of Contract"
R-10	Updated base price index for asphalt binder within the project special provision entitled "Price Adjustment-Asphalt Binder For Plant Mix"
P-266 thru P-270	New pages to add the TVA permits to the contract

Please void the above listed pages in your proposal and replace with the attached revised pages. Staple new pages after the previous existing page.

The contract will be prepared accordingly.

Sincerely,



R. A. Garris, PE
Contract Officer

RAG/jag
Attachments

cc: Mr. Ron Hancock, PE
Mr. S. P. Ivy, PE
Ms. D. M. Barbour, PE
Mr. Rodger Rochelle, PE
Mr. R.E. Davenport, PE
Mr. G. R. Perfetti, PE
Project File (2)

Mr. Ray Arnold, PE
Ms. Natalie Roskam, PE
Mr. Ronnie Higgins
Mr. Mike Gwyn
Ms. Marsha Sample
Ms. Lori Strickland
Ms. Jaci Kincaid

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH, N.C.

PROPOSAL

INCLUDES ADDENDUM No.1 DATED 11-7-14

DATE AND TIME OF BID OPENING: **NOVEMBER 18, 2014 AT 2:00 PM**

CONTRACT ID C203358
WBS 35609.3.S2

FEDERAL-AID NO. STATE FUNDED
COUNTY MITCHELL, YANCEY
T.I.P. NO. R-2519B
MILES 7.852
ROUTE NO. US 19
LOCATION US-19E FROM NC-80 IN YANCEY COUNTY TO MULTILANE SECTION
WEST OF SPRUCE PINES IN MITCHELL COUNTY.
TYPE OF WORK GRADING, DRAINAGE, PAVING AND STRUCTURES.

NOTICE:

ALL BIDDERS SHALL COMPLY WITH ALL APPLICABLE LAWS REGULATING THE PRACTICE OF GENERAL CONTRACTING AS CONTAINED IN CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA WHICH REQUIRES THE BIDDER TO BE LICENSED BY THE N.C. LICENSING BOARD FOR CONTRACTORS WHEN BIDDING ON ANY NON-FEDERAL AID PROJECT WHERE THE BID IS \$30,000 OR MORE, EXCEPT FOR CERTAIN SPECIALTY WORK AS DETERMINED BY THE LICENSING BOARD. BIDDERS SHALL ALSO COMPLY WITH ALL OTHER APPLICABLE LAWS REGULATING THE PRACTICES OF ELECTRICAL, PLUMBING, HEATING AND AIR CONDITIONING AND REFRIGERATION CONTRACTING AS CONTAINED IN CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA. NOTWITHSTANDING THESE LIMITATIONS ON BIDDING, THE BIDDER WHO IS AWARDED ANY FEDERAL - AID FUNDED PROJECT SHALL COMPLY WITH CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA FOR LICENSING REQUIREMENTS WITHIN 60 CALENDAR DAYS OF BID OPENING.

BIDS WILL BE RECEIVED AS SHOWN BELOW:

THIS IS A ROADWAY & STRUCTURE PROPOSAL

5% BID BOND OR BID DEPOSIT REQUIRED

TABLE OF CONTENTS

COVER SHEET
PROPOSAL SHEET

PROJECT SPECIAL PROVISIONS

CONTRACT TIME AND LIQUIDATED DAMAGES: G-1
 INTERMEDIATE CONTRACT TIME NUMBER 1 AND LIQUIDATED DAMAGES: G-1
 INTERMEDIATE CONTRACT TIME NUMBER 2 AND LIQUIDATED DAMAGES: G-2
 PERMANENT VEGETATION ESTABLISHMENT:..... G-3
 PROSECUTION OF WORK FOR PERMIT REQUIREMENTS: G-4
 CONSTRUCTION MORATORIA: G-5
 DELAY IN RIGHT OF ENTRY: G-5
 MAJOR CONTRACT ITEMS: G-7
 SPECIALTY ITEMS: G-7
 FUEL PRICE ADJUSTMENT: G-7
 PAYOUT SCHEDULE: G-8
 SCHEDULE OF ESTIMATED COMPLETION PROGRESS:..... G-8
 MINORITY BUSINESS ENTERPRISE AND WOMEN BUSINESS ENTERPRISE: G-9
 SUBSURFACE INFORMATION:..... G-23
 LOCATING EXISTING UNDERGROUND UTILITIES:..... G-23
 RESOURCE CONSERVATION: G-23
 DOMESTIC STEEL: G-23
 PORTABLE CONCRETE BARRIER - (Partial Payments for Materials):..... G-24
 REMOVABLE PAVEMENT MARKINGS - (Partial Payments for Materials):..... G-24
 MAINTENANCE OF THE PROJECT: G-24
 COOPERATION BETWEEN CONTRACTORS:..... G-25
 BID DOCUMENTATION: G-25
 TWELVE MONTH GUARANTEE: G-28
 OUTSOURCING OUTSIDE THE USA: G-29
 GIFTS FROM VENDORS AND CONTRACTORS: G-29
 LIABILITY INSURANCE: G-30
 EROSION AND SEDIMENT CONTROL/STORMWATER CERTIFICATION:..... G-30
 PROCEDURE FOR MONITORING BORROW PIT DISCHARGE:..... G-35
 EMPLOYMENT:..... G-37
 STATE HIGHWAY ADMINISTRATOR TITLE CHANGE:..... G-37
 NOTE TO CONTRACTOR: G-37
 SUBLETTING OF CONTRACT: G-37

 ROADWAY..... R-1

STANDARD SPECIAL PROVISIONS

AVAILABILITY FUNDS – TERMINATION OF CONTRACTS SSP-1
 NCDOT GENERAL SEED SPECIFICATION FOR SEED QUALITY SSP-2
 ERRATA..... SSP-5
 PLANT AND PEST QUARANTINES SSP-7
 MINIMUM WAGES SSP-8
 ON-THE-JOB TRAINING..... SSP-9

CONSTRUCTION MORATORIUM:

(7-9-14) (Revised 8-22-14)

1. No in water work or land disturbance within the 25 foot wide buffer zone will be allowed from October 15 through April 15 of any year. This trout moratorium applies to the following:
 - Big Crabtree Creek and unnamed tributaries to Big Crabtree Creek

2. No in water work or land disturbance within the 25 foot wide buffer zone will be allowed from January 1 to April 15 of any year. This trout moratorium applies to the following:
 - Brushy Creek and unnamed tributaries to Brushy Creek
 - Long Branch Creek and unnamed tributaries to Long Branch Creek
 - Little Crabtree Creek and unnamed tributaries to Little Crabtree Creek

3. Conduct all tree cutting during the winter tree cutting period between August 15 and April 15 of any year as an avoidance measure for the Northern Long-eared Bat. Any felled trees that are not part of an active work area during this time shall be left in place until clearing, grubbing and seeding can commence after April 15. Any winter tree cutting conducted in a trout buffer will be cut by hand only and the felled trees shall be left in place until the trout moratorium has ended (after April 15 of any year). Within the trout buffer area dropping trees into the stream must be avoided whenever possible.

DELAY IN RIGHT OF ENTRY:

(7-1-95) (Rev. 7-15-14)

108

SP1 G22

The Contractor will not be allowed right of entry to the following parcel(s) prior to the listed date(s) unless otherwise permitted by the Engineer.

<u>Parcel No.</u>	<u>Property Owner</u>	<u>Date</u>
001A	ANTHONY R. ROBINSON	12/01/2014
009	MESSIAH OF THE MOUNTAIN CHURCH	12/01/2014
011	JANET W. WYATT	12/01/2014
029B	HOY BOONE	12/01/2014
036A	DALE ROBINSON	12/01/2014
041	TERRY LEDFORD	12/01/2014
044	PATTI PETERSON	12/01/2014
049A	WOODROW HOWELL	12/01/2014
053	GREG ROBINSON	12/01/2014
068	ANITA FORTNER	12/01/2014
073	BILLY DELLINGER	12/01/2014
074A	PHILLIP DAVENPORT	12/01/2014
075	JUANITA PRESNELL	12/01/2014
075A	CLARENCE DEYTON	12/01/2014
075C	GREGORY STYLES	12/01/2014

103	CHEVER METCALF	12/01/2014
115	ZURICH, NA	12/01/2014
115A	FRANK BRASWELL	12/01/2014
125	TRAVIS L. ROBINSON	12/01/2014
125A	CAROLYN CARPENTER	12/01/2014
127	RALPH SPARKS, JR.	12/01/2014
130	CLAYTON CASTEEL	12/01/2014
134	NORMAN HOLLAND	12/01/2014
135	VERA PRESNELL	12/01/2014
136	MARIE SPARKS	12/01/2014
140	TIM BURLESON	12/01/2014
140A	CAROLYN B. ADKINS	12/01/2014
142	WILLIAM GOFF	12/01/2014
148	HUENDO MELCHOR	12/01/2014
152	ROBERT V. HOUSTON, JR.	12/01/2014
153	APRIL PITTMAN SPARKS	12/01/2014
156	GEORGE L. BUCHANAN	12/01/2014
157	JERRY WILLIS	12/01/2014
159	GREGG W. JOHNSON	12/01/2014
159A	JOHN E. KEEN	12/01/2014
162	NATALIE SPARKS	12/01/2014
163	RALPH SPARKS, JR.	12/01/2014
164	MARIE SPARKS	12/01/2014
164C	JAMES A. MILLER	12/01/2014
165	KENNETH HENLINE	12/01/2014
166	DONALD BOONE	12/01/2014
167	MARY BELL SPARKS	12/01/2014
173	LISA BUTNER	12/01/2014
174	ANDREA HINSON	12/01/2014
175	JIMMY L. COOKE	12/01/2014
176	DENNIS WOODY	12/01/2014
179	NATALIE SPARKS	12/01/2014
180	GAY O. HOLCOMBE	12/01/2014
181	LITTLETON FAMILY LIMITED	12/01/2014
182A	TERMINEX SERVICES, INC.	12/01/2014
182B	THOMAS LITTLETON	12/01/2014
183	THOMAS LITTLETON	12/01/2014
185	POTEAT PROPERTY, LLC	12/01/2014
188	COMMUNITIES OF PENLAND, LLC	12/01/2014
189	JERRY SMITH	12/01/2014

190	MFSL LAND HOLDINGS	12/01/2014
194B	RODNEY M. WESFALL	12/01/2014
195	ROSETTA M. THOMPSON	12/01/2014
196	CARLOS L. YELTON	12/01/2014
197	BRP OF U.S.	12/01/2014

MAJOR CONTRACT ITEMS:

(2-19-02)

104

SP1 G28

The following listed items are the major contract items for this contract (see Article 104-5 of the *2012 Standard Specifications*):

Line #	Description
90	– Asphalt Concrete Intermediate Course, Type I19.0C
239 or 245	– Unclassified Excavation

SPECIALTY ITEMS:

(7-1-95)(Rev. 1-17-12)

108-6

SP1 G37

Items listed below will be the specialty items for this contract (see Article 108-6 of the *2012 Standard Specifications*).

Line #	Description
135 thru 148	Guardrail
149 thru 154	Fencing
162 thru 167	Signing
184 thru 185	Long-Life Pavement Markings
and	
192 thru 193	
186	Removable Tape
197	Permanent Pavement Markers
198 thru 232	Erosion Control
and	
235 thru 238	
233 thru 234	Reforestation
278 thru 284	Drilled Piers

FUEL PRICE ADJUSTMENT:

(11-15-05) (Rev. 2-18-14)

109-8

SP1 G43

Revise the *2012 Standard Specifications* as follows:

Page 1-83, Article 109-8, Fuel Price Adjustments, add the following:

The base index price for DIESEL #2 FUEL is **\$2.7552** per gallon. Where any of the following are included as pay items in the contract, they will be eligible for fuel price adjustment.

EMPLOYMENT:

(11-15-11) (Rev. 1-17-12)

108, 102

SP1 G184

Revise the *2012 Standard Specifications* as follows:

Page 1-20, Subarticle 102-15(O), delete and replace with the following:

(O) Failure to restrict a former Department employee as prohibited by Article 108-5.

Page 1-65, Article 108-5 Character of Workmen, Methods, and Equipment, line 32, delete all of line 32, the first sentence of the second paragraph and the first word of the second sentence of the second paragraph.

STATE HIGHWAY ADMINISTRATOR TITLE CHANGE:

(9-18-12)

SP1 G185

Revise the *2012 Standard Specifications* as follows:

Replace all references to “State Highway Administrator” with “Chief Engineer”.

NOTE TO CONTRACTOR:

The Contractor’s attention is directed to the Special Provisions entitled “Contractor Requirements for Stream Relocations, Restorations and Enhancements”, located in the Erosion Control Project Special Provisions. This requirement is only for the stream relocations at Permit Site 6 (Station 125+95 to 127+17 Lt -L-), Permit Site 8 (Station 152+50 to 155+00 Rt. -L- and Station 155+98 to 157+80 Lt. -L-) and Permit Site 30 (Station 323+00 Lt. -L-).

Per the Environmental Permit Conditions, all channel relocations shall be constructed in a dry work area, shall be completed and stabilized, and must be approved on-site by an environmental regulatory agency representative prior to diverting water into the new channel. Whenever possible, channel relocations shall be allowed to stabilize for an entire growing season (May 2 to October 8 for Yancey County and April 19 to October 15 for Mitchell County), unless approved by the Environmental Regulatory Agencies.

Construction Surveying for Mitigation, Diversion Pumping for Mitigation and Grading for Mitigation only applies to Permit Site 6 (Station 125+95 to 127+17 Lt -L-), Permit Site 8 (Station 152+50 to 155+00 Rt. -L- and Station 155+98 to 157+80 Lt. -L-) and Permit Site 30 (Station 323+00 Lt. -L-).

SUBLETTING OF CONTRACT:

(11-18-2014)

108-6

SP1 G186

Revise the *2012 Standard Specifications* as follows:

Page 1-66, Article 108-6 Subletting of Contract, line 37, add the following as the second sentence of the first paragraph:

All requests to sublet work shall be submitted within 30 days of the date of availability or prior to expiration of 20% of the contract time, whichever date is later, unless otherwise approved by the Engineer.

Page 1-67, Article 108-6 Subletting of Contract, line 7, add the following as the second sentence of the fourth paragraph:

Purchasing materials for subcontractors is not included in the percentage of work required to be performed by the Contractor. If the Contractor sublets items of work but elects to purchase material for the subcontractor, the value of the material purchased will be included in the total dollar amount considered to have been sublet.

PRICE ADJUSTMENT - ASPHALT BINDER FOR PLANT MIX:

(11-21-00)

620

SP6 R25

Price adjustments for asphalt binder for plant mix will be made in accordance with Section 620 of the *2012 Standard Specifications*.

The base price index for asphalt binder for plant mix is **\$624.23** per ton.

This base price index represents an average of F.O.B. selling prices of asphalt binder at supplier's terminals on **October 1, 2014**.

SLUICE GATE:

(7-1-95) (Rev. 3-17-09)

838

SP8 R20

Description

This work consists of the construction of a sluice gate on an endwall in accordance with the details in the plans, the applicable requirements of Section 838 of the *2012 Standard Specifications*, in accordance with the manufacturer's recommendations and as directed by the Engineer.

Materials

Sluice gates shall meet the manufacturer's recommendations for the corresponding pipe size. Due to variations in individual manufacturer's products, a slight variation from the size specified may be allowed. Submit the proposed catalog cut to the Engineer for approval prior to use.

Construction Methods

Provide a gate that forms a watertight seal when closed.

Measurement and Payment

_____ " *Sluice Gate* will be measured and paid as each for the actual number of sluice gates incorporated into the completed and accepted work. Such prices and payment will be full compensation for all materials, labor, tools, equipment and incidentals necessary to complete the work.

The endwall will be measured and paid in accordance with Article 838-4 of the *2012 Standard Specifications*.

Payment will be made under:

Pay Item

_____ " Sluice Gate

Pay Unit

Each



P-266

Tennessee Valley Authority

Section 26a Approval

Permit # 235194	Reservoir Gray-Morristown - Off	Category 3
DOT Project # R-2519 B - SR 1186 Micaville West of Spruce Pine - Yancey/Mitchell Counties		

Name	Company	Address	Phone/Email
	NCDOT- North Carolina Department of Transportation	Structure Design 1581 Mall Service Center Raleigh NC 27699	919-250-4037

Tract(s)

Subdivision/Lot(s)	Stream	Mile	Bank	Map Sheet(s)
Subdivision: N/A	Crabtree Cr			209 Quad Sheet NW
	Little Crabtree Cr			
	South Toe R			
	Unnamed Tributary			

The facilities and/or activities listed below are APPROVED subject to the plans and general and special conditions attached.

1. Bridge - Vehicular	Length (ft., in.): 40'; Width (ft., in.): 185'
2. Culvert - Roadway	Length (ft., in.): 10'; Width (ft., in.): 12'
3. Culvert - Roadway	Length (ft., in.): 10'; Width (ft., in.): 12'
4. Culvert - Roadway	Length (ft., in.): 10'; Width (ft., in.): 12'
5. Culvert - Roadway	Length (ft., in.): 10'; Width (ft., in.): 12'
6. Culvert - Roadway	Length (ft., in.): 6'; Width (ft., in.): 6'
7. Culvert - Roadway	Length (ft., in.): 6'; Width (ft., in.): 6'
8. Culvert - Roadway	Length (ft., in.): 5'; Width (ft., in.): 7'
9. Culvert - Roadway	Length (ft., in.): 6'; Width (ft., in.): 8'
10. Culvert - Roadway	Length (ft., in.): 12'; Width (ft., in.): 8'
11. Culvert - Roadway	Length (ft., in.): 12'; Width (ft., in.): 8'
12. Culvert - Roadway	Length (ft., in.): 12'; Width (ft., in.): 8'
13. Culvert - Roadway	Length (ft., in.): 8'; Width (ft., in.): 8'
14. Culvert - Roadway	Length (ft., in.): 8'; Width (ft., in.): 8'
15. Culvert - Roadway	Length (ft., in.): 7'; Width (ft., in.): 7'

GENERAL AND STANDARD CONDITIONS

Section 26a

General Conditions

- 1) You agree to make every reasonable effort to construct and operate the facility authorized herein in a manner so as to minimize any adverse impact on water quality, aquatic life, wildlife, vegetation, and natural environmental values.
- 2) This permit may be revoked by TVA by written notice if:
 - a) the structure is not completed in accordance with approved plans;
 - b) if in TVA's judgment the structure is not maintained in a good state of repair and in good, safe, and substantial condition;
 - c) the structure is abandoned;
 - d) the structure or work must be altered or removed to meet the requirements of future reservoir or land management operations of the United States or TVA;
 - e) TVA finds that the structure has an adverse effect upon navigation, flood control, or public lands or reservations;
 - f) all invoices related to this permit are not timely paid;
 - g) you no longer have sufficient property rights to maintain a structure at this location; or
 - h) a land use agreement (e.g., license, easement, lease) for use of TVA land at this location related to this permit expires, is terminated or cancelled, or otherwise ceases to be effective.
- 3) If this permit for this structure is revoked, you agree to remove the structure, at your expense, upon written notice from TVA. In the event you do not remove the structure within 30 days of written notice to do so, TVA shall have the right to remove or cause to have removed, the structure or any part thereof. You agree to reimburse TVA for all costs incurred in connection with removal.
- 4) In issuing this Approval of Plans, TVA makes no representations that the structures or work authorized or property used temporarily or permanently in connection therewith will not be subject to damage due to future operations undertaken by the United States and/or TVA for the conservation or improvement of navigation, for the control of floods, or for other purposes, or due to fluctuations in elevations of the water surface of the river or reservoir, and no claim or right to compensation shall accrue from any such damage. By the acceptance of this approval, applicant covenants and agrees to make no claim against TVA or the United States by reason of any such damage, and to indemnify and save harmless TVA and the United States from any and all claims by other persons arising out of any such damage.
- 5) In issuing this Approval of Plans, TVA assumes no liability and undertakes no obligation or duty (in tort, contract, strict liability or otherwise) to the applicant or to any third party for any damages to property (real or personal) or personal injuries (including death) arising out of or in any way connected with applicant's construction, operation, or maintenance of the facility which is the subject of this Approval of Plans.
- 6) This approval shall not be construed to be a substitute for the requirements of any federal, state, or local statute, regulation, ordinance, or code, including, but not limited to, applicable building codes, now in effect or hereafter enacted. State 401 water quality certification may apply.
- 7) The facility will not be altered, or modified, unless TVA's written approval has been obtained prior to commencing work.
- 8) You understand that covered second stories are prohibited by Section 1304.204 of the Section 26a Regulations.
- 9) You agree to notify TVA of any transfer of ownership of the approved structure to a third party. Third party is required to make application to TVA for permitting of the structure in their name (1304.10). Any permit which is not transferred within 60 days is subject to revocation.
- 10) You agree to stabilize all disturbed areas within 30 days of completion of the work authorized. All land-disturbing activities shall be conducted in accordance with Best Management Practices as defined by Section 208 of the Clean Water Act to control erosion and sedimentation to prevent adverse water quality and related aquatic impacts. Such practices shall be consistent with sound engineering and construction principles; applicable federal, state, and local statutes, regulations, or ordinances; and proven techniques for controlling erosion and sedimentation, including any required conditions under Section 6 of the Standard Conditions.
- 11) You agree not to use or permit the use of the premises, facilities, or structures for any purposes that will result in draining or dumping into the reservoir of any refuse, sewage, or other material in violation of applicable standards or requirements relating to pollution control of any kind now in effect or hereinafter established.

- 12) The Native American Graves Protection and Repatriation Act and the Archaeological Resources Protection Act apply to archaeological resources located on the premises of land connected to any application made unto TVA. If LESSEE {or licensee or grantee (for easement) or applicant (for 26a permit)} discovers human remains, funerary objects, sacred objects, objects of cultural patrimony, or any other archaeological resources on or under the premises, LESSEE {or licensee, grantee, or applicant} shall immediately stop activity in the area of the discovery, make a reasonable effort to protect the items, and notify TVA by telephone (865-228-1374). Work may not be resumed in the area of the discovery until approved by TVA.
- 13) You should contact your local government official(s) to ensure that this facility complies with all applicable local floodplain regulations.
- 14) You agree to abide by the conditions of the vegetation management plan. Unless otherwise stated on this permit, vegetation removal is prohibited on TVA land.
- 15) You agree to securely anchor all floating facilities to prevent them from floating free during major floods.
- 16) You are responsible for accurately locating your facility, and this authorization is valid and effective only if your facility is located as shown on your application or as otherwise approved by TVA in this permit. The facility must be located on land owned or leased by you, or on TVA land at a location approved by TVA.
- 17) You agree to allow TVA employees access to your water use facilities to ensure compliance with any TVA issued approvals.
- 18) It is understood that you own adequate property rights at this location. If at any time it is determined that you do not own sufficient property rights, or that you have only partial ownership rights in the land at this location, this permit may be revoked. TVA may require the applicant to provide appropriate verification of ownership.
- 19) In accordance with 18 CFR Part 1304.9, Approval for construction covered by this permit expires 18 months after the date of issuance unless construction has been initiated.

Standard Conditions (Only items that pertain to this request have been listed.)

2) Ownership Rights

- b) You are advised that TVA retains the right to flood this area and that TVA will not be liable for damages resulting from flooding.
- e) You recognize and understand that this authorization conveys no property rights, grants no exclusive license, and in no way restricts the general public's privilege of using shoreland owned by or subject to public access rights owned by TVA. It is also subject to any existing rights of third parties. Nothing contained in this approval shall be construed to detract or deviate from the rights of the United States and TVA held over this land under the Grant of Flowage Easement. This Approval of Plans does not give any property rights in real estate or material and does not authorize any injury to private property or invasion of private or public rights. It merely constitutes a finding that the facility, if constructed at the location specified in the plans submitted and in accordance with said plans, would not at this time constitute an obstruction unduly affecting navigation, flood control, or public lands or reservations.

3) Shoreline Modification and Stabilization

- a) For purposes of shoreline bank stabilization, all portions will be constructed or placed, on average, no more than two feet from the existing shoreline at normal summer pool elevation.
- c) Bank, shoreline, and floodplain stabilization will be permanently maintained in order to prevent erosion, protect water quality, and preserve aquatic habitat.

5) Bridges and Culverts

- a) You agree to design/construct any instream piers in such a manner as to discourage river scouring or sediment deposition.
- b) Applicant agrees to construct culvert in phases, employing adequate streambank protection measures, such that the diverted streamflow is handled without creating streambank or streambed erosion/sedimentation and without preventing fish passage.
- c) Concrete box culverts and pipe culverts (and their extensions) must create/maintain velocities and flow patterns which offer refuge for fish and other aquatic life, and allow passage of indigenous fish species, under all flow conditions. Culvert floor slabs and pipe bottoms must be buried below streambed elevation, and filled with naturally occurring streambed materials. If geologic conditions do not allow burying the floor, it must be otherwise designed to allow passage of indigenous fish species under all flow conditions.
- d) All natural stream values (including equivalent energy dissipation, elevations, and velocities; riparian vegetation; riffle/pool sequencing; habitat suitable for fish and other aquatic life) must be provided at all stream modification sites. This must be accomplished using a combination of rock and bioengineering, and is not accomplished using solid, homogeneous riprap from bank to bank.

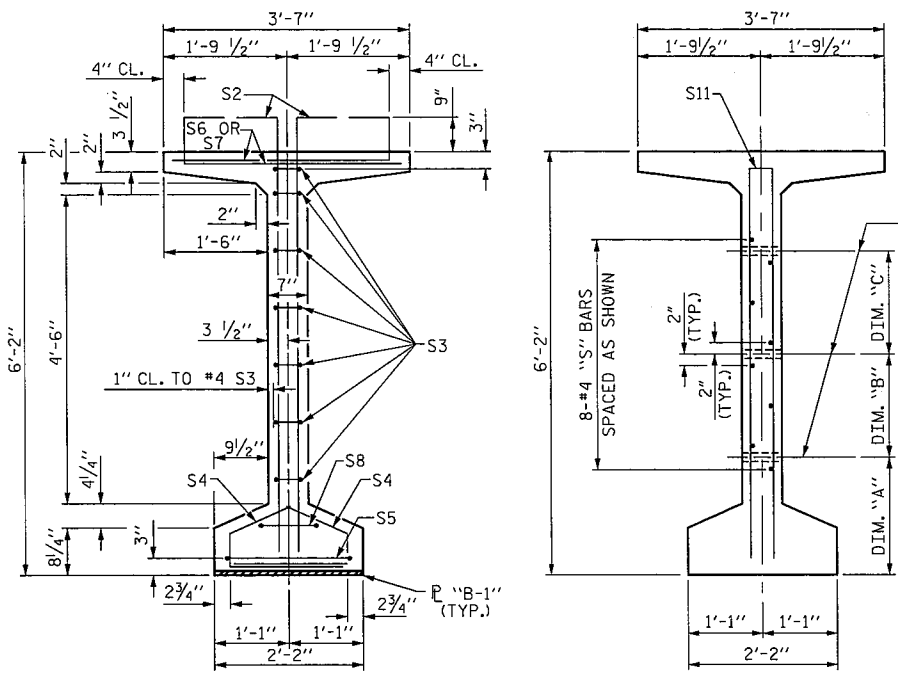
- e) You agree to remove demolition and construction by-products from the site for recycling if practicable, or proper disposal--outside of the 100-year floodplain. Appropriate BMPs will be used during the removal of any abandoned roadway or structures.

6) Best Management Practices

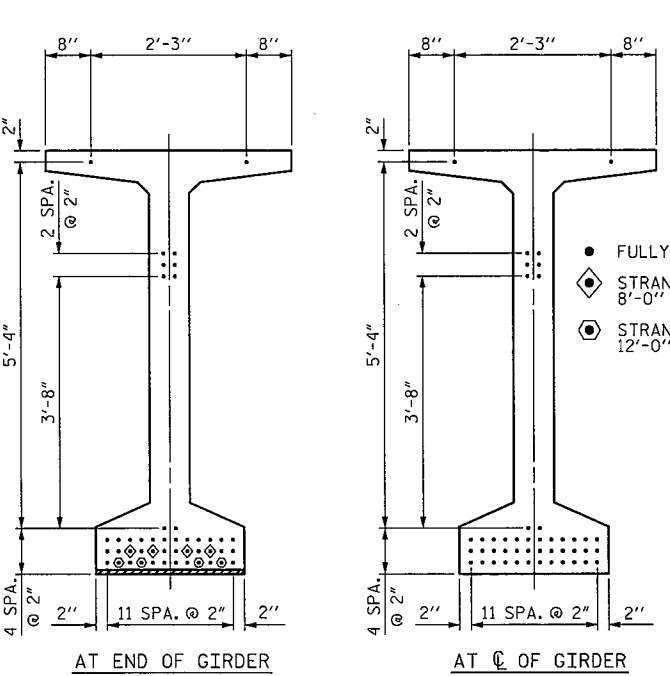
- a) You agree that removal of vegetation will be minimized, particularly any woody vegetation providing shoreline/streambank stabilization.
- b) You agree to installation of cofferdams and/or silt control structures between construction areas and surface waters prior to any soil-disturbing construction activity, and clarification of all water that accumulates behind these devices to meet state water quality criteria at the stream mile where activity occurs before it is returned to the unaffected portion of the stream. Cofferdams must be used wherever construction activity is at or below water elevation.
- c) A floating silt screen extending from the surface to the bottom is to be in place during excavation or dredging to prevent sedimentation in surrounding areas. It is to be left in place until disturbed sediments are visibly settled.
- d) You agree to keep equipment out of the reservoir or stream and off reservoir or stream banks, to the extent practicable (i.e., performing work "in the dry").
- e) You agree to avoid contact of wet concrete with the stream or reservoir, and avoid disposing of concrete washings, or other substances or materials, in those waters.
- f) You agree to use erosion control structures around any material stockpile areas.
- g) You agree to apply clean/shaken riprap or shot rock (where needed at water/bank interface) over a water permeable/soil impermeable fabric or geotextile and in such a manner as to avoid stream sedimentation or disturbance, or that any rock used for cover and stabilization shall be large enough to prevent washout and provide good aquatic habitat.
- h) You agree to remove, redistribute, and stabilize (with vegetation) all sediment which accumulates behind cofferdams or silt control structures.
- i) You agree to use vegetation (versus riprap) wherever practicable and sustainable to stabilize streambanks, shorelines, and adjacent areas. These areas will be stabilized as soon as practicable, using either an appropriate seed mixture that includes an annual (quick cover) as well as one or two perennial legumes and one or two perennial grasses, or sod. In winter or summer, this will require initial planting of a quick cover annual only, to be followed by subsequent establishment of the perennials. Seed and soil will be protected as appropriate with erosion control netting and/or mulch and provided adequate moisture. Streambank and shoreline areas will also be permanently stabilized with native woody plants, to include trees wherever practicable and sustainable (this vegetative prescription may be altered if dictated by geologic conditions or landowner requirements). You also agree to install or perform additional erosion control structures/techniques deemed necessary by TVA.

Additional Conditions

Consistent with TVA's Finding of No Significant Impact, you agree to adhere to and implement all conditions, measures and commitments identified in the USACE Environmental Assessment and Memorandum of Agreement regarding historic resources. The USACE Project Commitment List and MOA are attached to this permit for reference.



1/2" Ø FORMED HOLE. SEE ELEVATION FOR LOCATION FOR DIM. "A", "B" & "C". SEE "INTERMEDIATE STEEL DIAPHRAGMS" SHEET.

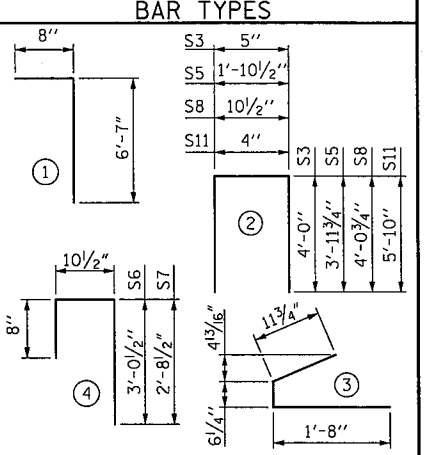


- FULLY BONDED STRANDS
- ◊ STRANDS DEBONDED FOR 8'-0" FROM END OF GIRDER
- ⊙ STRANDS DEBONDED FOR 12'-0" FROM END OF GIRDER

INTERIOR	S11	16	#5	2	12'-0"	200
EXTERIOR	S11	8	#5	2	12'-0"	100
EXTERIOR	S12	16	#4	STR	8'-0"	86
INTERIOR	S13	16	#4	STR	13'-1"	140

0.6" Ø L. R. GRADE 270 STRANDS		
AREA (SQ. INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

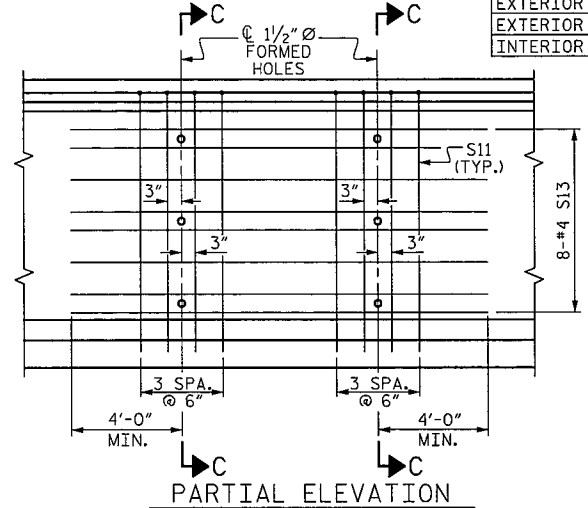
REINFORCING STEEL FOR ONE GDR						
BAR NUMBER	SIZE	TYPE	LENGTH	WEIGHT		
S1	174	#4	1	7'-3"	843	
S2	24	#5	1	7'-3"	181	
S3	14	#4	2	8'-5"	79	
S4	88	#4	3	3'-2"	186	
S5	2	#5	2	9'-10"	21	
S6	194	#5	4	4'-7"	927	
S7	4	#5	4	4'-3"	18	
S8	2	#5	2	9'-0"	19	
S9	54	#5	STR	3'-3"	183	
S10	2	#3	STR	1'-10"	1	
S11	16	#5	2	12'-0"	200	
S11	8	#5	2	12'-0"	100	
S12	16	#4	STR	8'-0"	86	
S13	16	#4	STR	13'-1"	140	



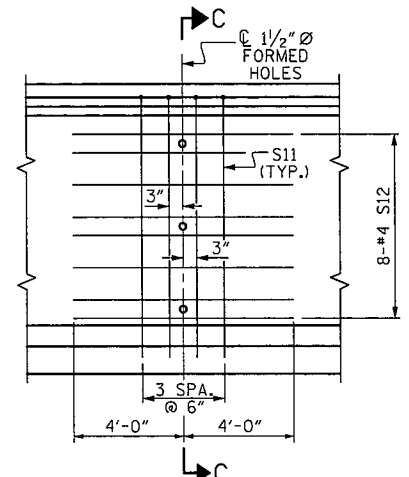
ALL BAR DIMENSIONS ARE OUT-TO-OUT

QUANTITIES FOR ONE GIRDER			
SPAN A	REINFORCING STEEL	8500 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	No.
INT. GIRDER	2798	29.40	46
EXT. GIRDER	2644	29.40	46

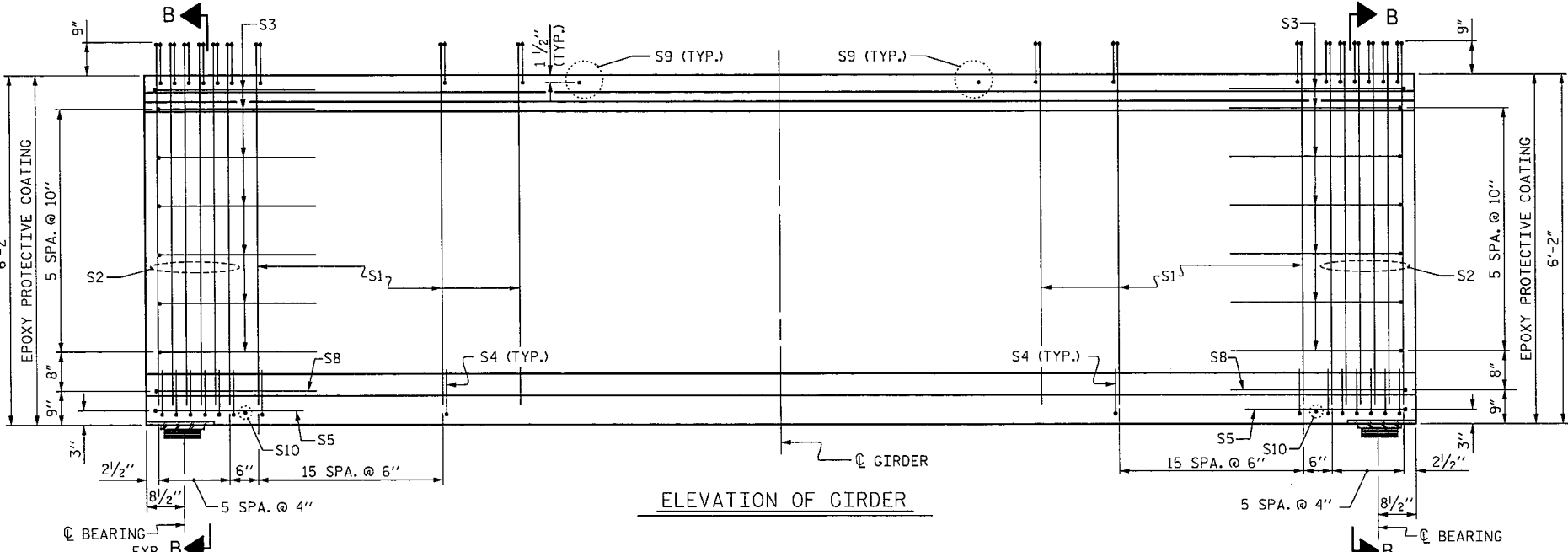
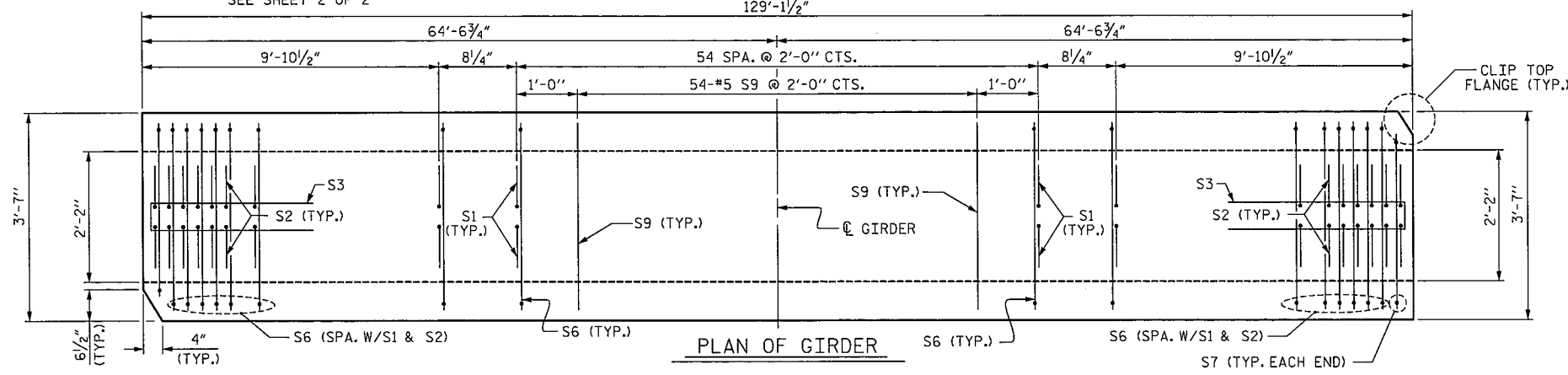
GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
5	129'-1 1/2"	645.53'



SHOWING INTERMEDIATE STEEL DIAPHRAGM REINFORCING STEEL FOR GIRDER Nos. 2-4 (FOR INTERIOR GDRS. WITH SKEW < 70°)



SHOWING INTERMEDIATE STEEL DIAPHRAGM REINFORCING STEEL FOR GIRDER Nos. 1 & 5 (FOR ALL EXTERIOR GIRDERS AND INTERIOR GIRDERS WITH 70° < SKEW < 110°)



DRAWN BY: K.H. COMPTON DATE: 10/9/14
 CHECKED BY: M.K. TOM DATE: 10/9/14
 DESIGNED BY: J.C. HALL DATE: 10/17/12



PROJECT NO. R-2519B
 YANCEY/MITCHELL COUNTY
 STATION: 24+11.31 -L-

SHEET 1 OF 2
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 74" PRESTRESSED CONCRETE
 MODIFIED BULB TEE
 (LEFT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS 194
2			4			

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" Ø LOW RELAXATION		GIRDERS A1 & A5																				
TWENTIETH POINTS		0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	0
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.038	0.076	0.111	0.144	0.173	0.197	0.216	0.230	0.239	0.242	0.239	0.230	0.216	0.197	0.173	0.144	0.111	0.076	0.038	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.031	0.059	0.090	0.114	0.139	0.158	0.175	0.186	0.193	0.195	0.193	0.186	0.175	0.158	0.139	0.114	0.090	0.059	0.031	0.000
FINAL CAMBER	↑	0	1/16	3/16	1/4	5/16	3/8	7/16	1/2	1/2	9/16	5/8	1/2	1/2	7/16	3/8	1/4	3/16	1/8	1/16	0	

* INCLUDES FUTURE WEARING SURFACE
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "FINAL CAMBER", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" Ø LOW RELAXATION		GIRDERS A2, A3, & A4																				
TWENTIETH POINTS		0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	0
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.038	0.076	0.111	0.144	0.173	0.197	0.216	0.230	0.239	0.242	0.239	0.230	0.216	0.197	0.173	0.144	0.111	0.076	0.038	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.033	0.062	0.094	0.120	0.146	0.166	0.183	0.195	0.203	0.205	0.203	0.195	0.183	0.166	0.146	0.120	0.094	0.062	0.033	0.000
FINAL CAMBER	↑	0	1/16	3/16	3/16	5/16	5/16	3/8	3/8	7/16	7/16	7/16	7/16	7/16	3/8	3/8	5/16	5/16	3/16	3/16	1/16	0

* INCLUDES FUTURE WEARING SURFACE
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "FINAL CAMBER", WHICH IS GIVEN IN INCHES (FRACTION FORM).

PROJECT NO. R-2519B
YANCEY/MITCHELL COUNTY
STATION: 24+11.31 -L-

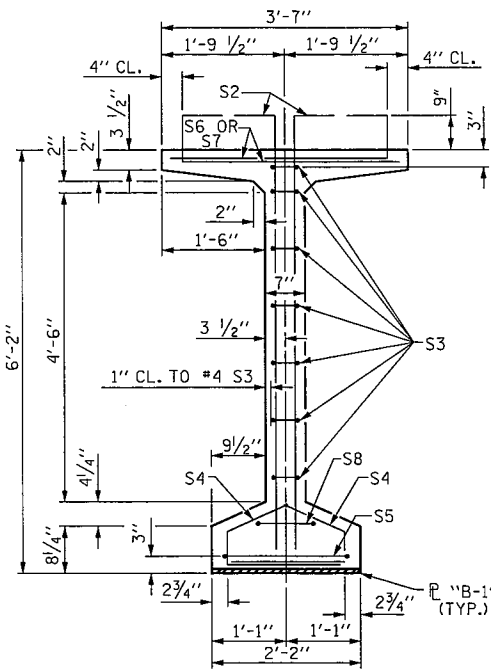


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

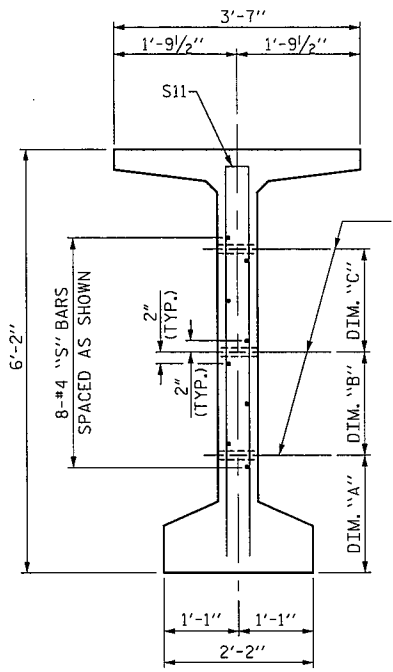
SUPERSTRUCTURE
DEAD LOAD DEFLECTIONS
SPAN A
(LEFT LANE)

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12	
1			3			TOTAL SHEETS 194	
2			4				

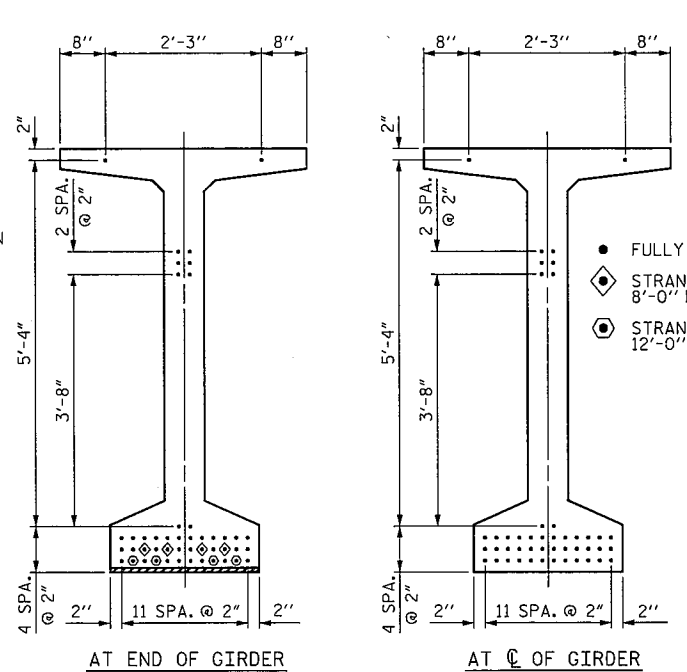
DRAWN BY : K.H. COMPTON DATE : 10/8/14
CHECKED BY : M.K. TOM DATE : 10/8/14
DESIGNED BY : K.H. COMPTON DATE : 10/8/14



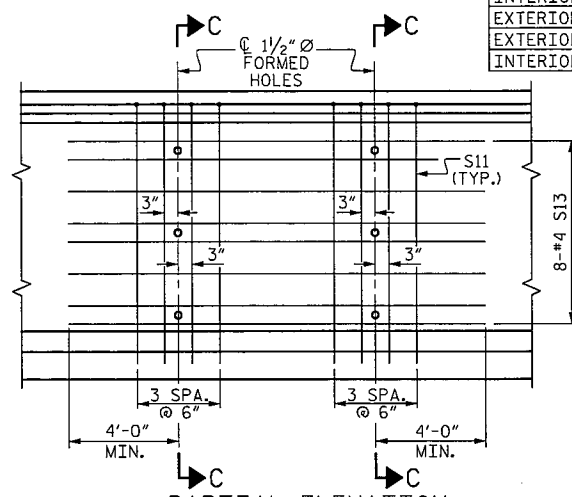
SECTION B-B
FOR EMBEDDED P "B-1" DETAILS
SEE SHEET 2 OF 2



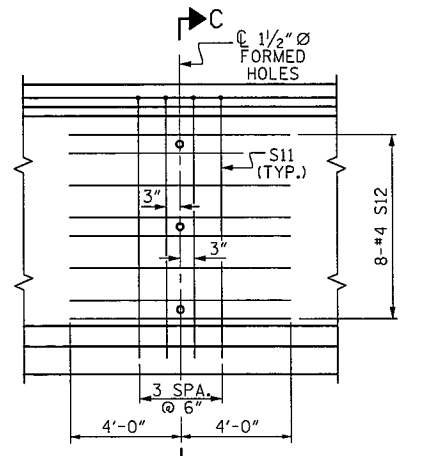
SECTION C-C
(S1, S6 AND S9 BARS NOT SHOWN)
129'-1 1/2"



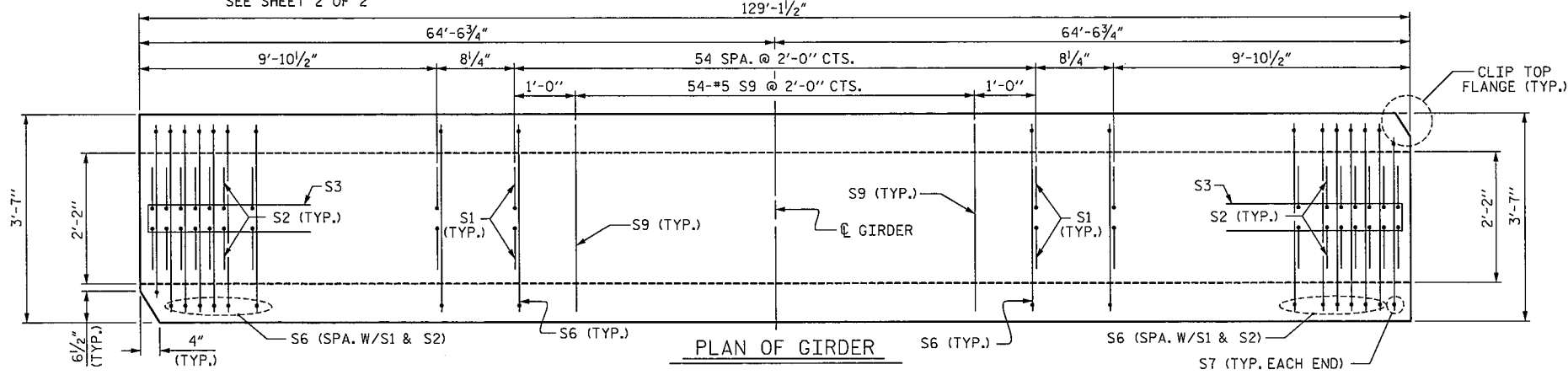
AT END OF GIRDER
AT C OF GIRDER
0.6" Ø LOW RELAXATION STRAND LAYOUT



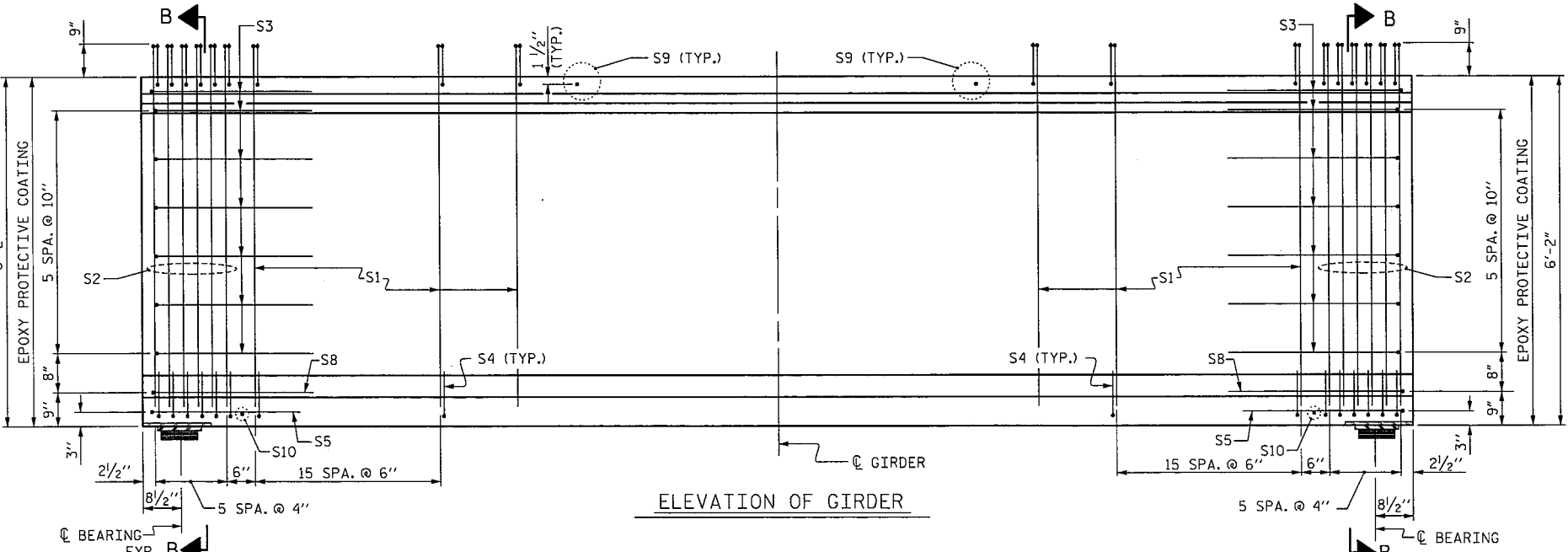
PARTIAL ELEVATION
SHOWING INTERMEDIATE STEEL DIAPHRAGM
REINFORCING STEEL FOR GIRDER NOS. 2-4
(FOR INTERIOR GDRS. WITH SKEW < 70°)



PARTIAL ELEVATION
SHOWING INTERMEDIATE STEEL DIAPHRAGM
REINFORCING STEEL FOR GIRDER NOS. 1 & 5
(FOR ALL EXTERIOR GIRDERS AND
INTERIOR GIRDERS WITH 70° < SKEW < 110°)



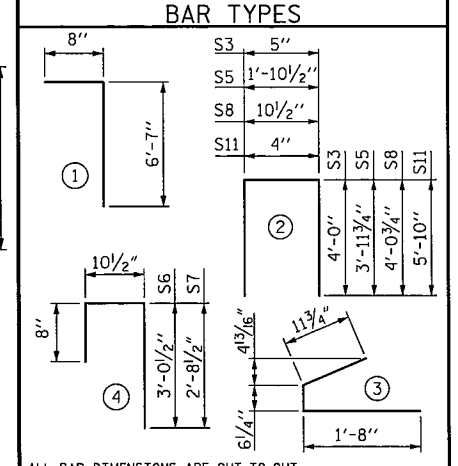
PLAN OF GIRDER



ELEVATION OF GIRDER

0.6" Ø L. R. GRADE 270 STRANDS		
AREA (SQ. INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

REINFORCING STEEL FOR ONE GDR					
BAR NUMBER	SIZE	TYPE	LENGTH	WEIGHT	
S1	174	#4	1	7'-3"	843
S2	24	#5	1	7'-3"	181
S3	14	#4	2	8'-5"	79
S4	88	#4	3	3'-2"	186
S5	2	#5	2	9'-10"	21
S6	194	#5	4	4'-7"	927
S7	4	#5	4	4'-3"	18
S8	2	#5	2	9'-0"	19
S9	54	#5	STR	3'-3"	183
S10	2	#3	STR	1'-10"	1
S11	16	#5	2	12'-0"	200
S11	8	#5	2	12'-0"	100
S12	16	#4	STR	8'-0"	86
S13	16	#4	STR	13'-1"	140



ALL BAR DIMENSIONS ARE OUT-TO-OUT

QUANTITIES FOR ONE GIRDER			
SPAN A	REINFORCING STEEL	8500 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	No.
INT. GIRDER	2798	29.40	46
EXT. GIRDER	2644	29.40	46

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
5	129'-1 1/2"	645.63'

PROJECT NO. R-2519B
YANCEY/MITCHELL COUNTY
STATION: 24+11.31 -L-
SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
74" PRESTRESSED CONCRETE
MODIFIED BULB TEE
(RIGHT LANE)

DRAWN BY: K.H. COMPTON DATE: 10/9/14
CHECKED BY: M.K. TOM DATE: 10/9/14
DESIGNED BY: J.C. HALL DATE: 10/17/12



REVISIONS						SHEET NO. S-35
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			2			TOTAL SHEETS 194
2			4			

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" Ø LOW RELAXATION		GIRDERS A1 & A5																				
TWENTIETH POINTS		0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	0
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.038	0.076	0.111	0.144	0.173	0.197	0.216	0.230	0.239	0.242	0.239	0.230	0.216	0.197	0.173	0.144	0.111	0.076	0.038	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.031	0.059	0.090	0.114	0.139	0.158	0.175	0.186	0.193	0.195	0.193	0.186	0.175	0.158	0.139	0.114	0.090	0.059	0.031	0.000
FINAL CAMBER	↑	0	1/16	3/16	1/4	5/8	7/16	7/16	1/2	1/2	9/16	9/16	9/16	1/2	1/2	7/16	7/16	3/8	1/4	3/16	1/16	0

* INCLUDES FUTURE WEARING SURFACE
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "FINAL CAMBER", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" Ø LOW RELAXATION		GIRDERS A2, A3, & A4																				
TWENTIETH POINTS		0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	0
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.038	0.076	0.111	0.144	0.173	0.197	0.216	0.230	0.239	0.242	0.239	0.230	0.216	0.197	0.173	0.144	0.111	0.076	0.038	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.033	0.062	0.094	0.120	0.146	0.166	0.183	0.195	0.203	0.205	0.203	0.195	0.183	0.166	0.146	0.120	0.094	0.062	0.033	0.000
FINAL CAMBER	↑	0	1/16	3/16	3/16	5/16	5/16	3/8	3/8	7/16	7/16	7/16	7/16	7/16	3/8	3/8	5/16	5/16	3/16	3/16	1/16	0

* INCLUDES FUTURE WEARING SURFACE
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "FINAL CAMBER", WHICH IS GIVEN IN INCHES (FRACTION FORM).

PROJECT NO. R-2519B
YANCEY/MITCHELL COUNTY
STATION: 24+11.31 -L-

DRAWN BY : K.H. COMPTON DATE : 10/8/14
CHECKED BY : M.K. TOM DATE : 10/8/14
DESIGNED BY : K.H. COMPTON DATE : 10/8/14

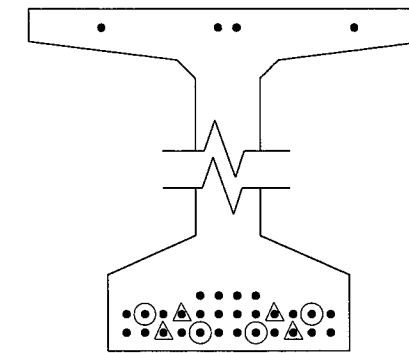
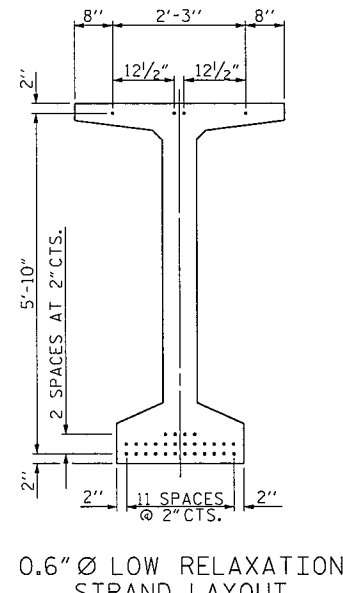
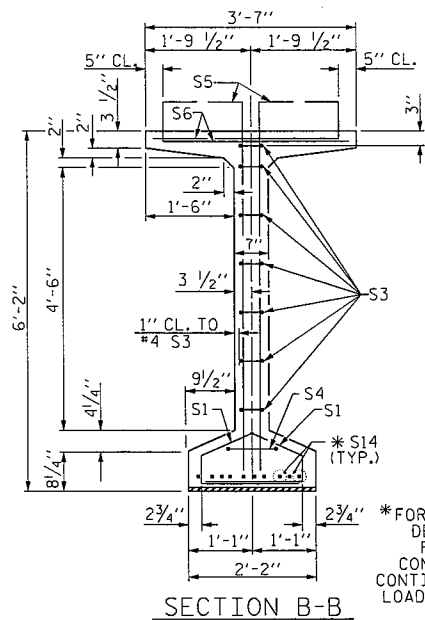
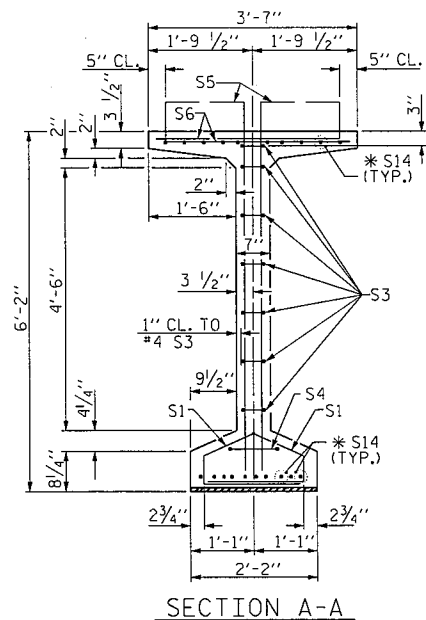
10/13/2014
P:\Jobs\1\2519B\Structures\Electronic Signed Plans\Str 2\402_023_S02_R2519B_DL.dgn
kyle_compton



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
DEAD LOAD DEFLECTIONS
SPAN A
(RIGHT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-39
1			3			TOTAL SHEETS 194
2			4			

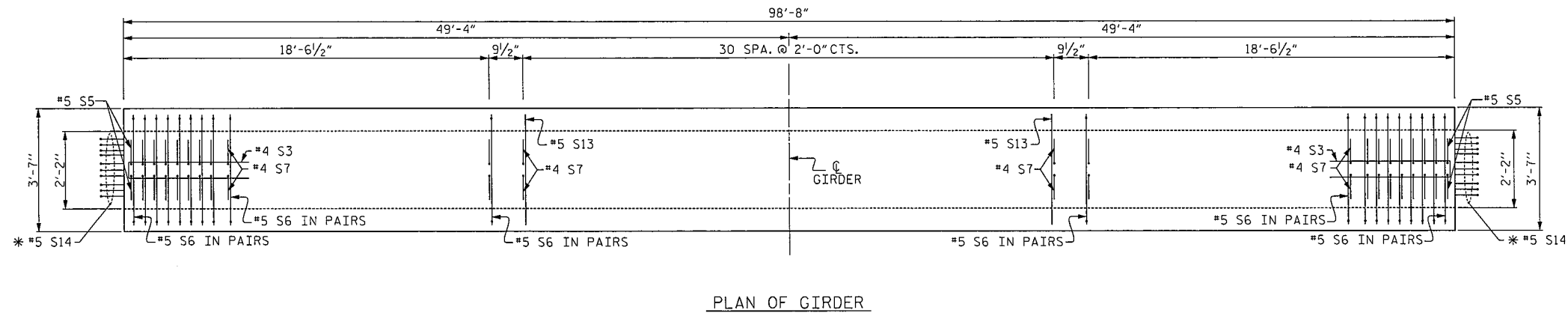


DEBONDING LEGEND

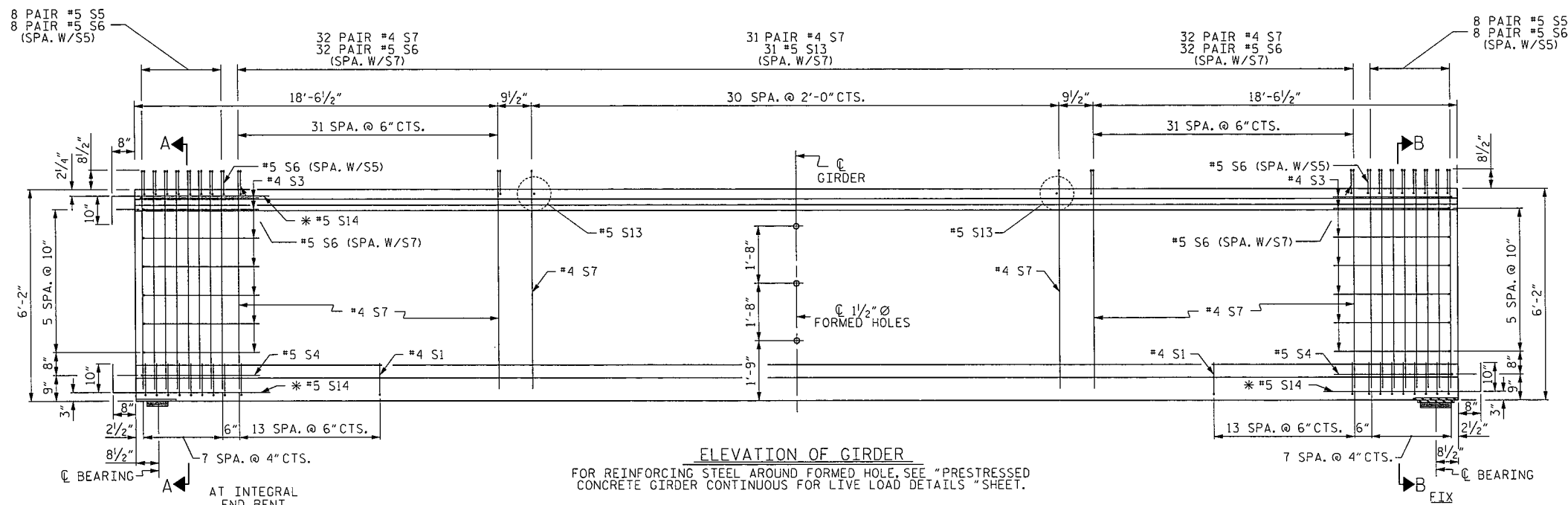
- FULLY BONDED STRANDS
- ▲ STRANDS DEBONDED FOR 6'-0" FROM END OF GIRDER
- STRANDS DEBONDED FOR 8'-0" FROM END OF GIRDER

*FOR S14 BARS, SEE
DETAIL "C" OF
PRESTRESSED
CONCRETE GIRDER
CONTINUOUS FOR LIVE
LOAD DETAILS SHEET

**0.6" Ø LOW RELAXATION
STRAND LAYOUT**



PLAN OF GIRDER



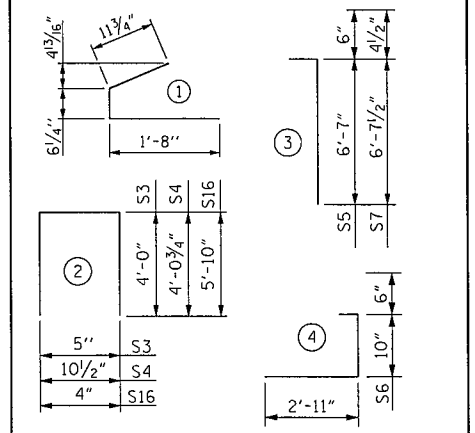
ELEVATION OF GIRDER

FOR REINFORCING STEEL AROUND FORMED HOLE, SEE "PRESTRESSED
CONCRETE GIRDER CONTINUOUS FOR LIVE LOAD DETAILS" SHEET.

0.6" Ø L. R. GRADE 270 STRANDS					
AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)			
0.217	58,600	43,950			
REINFORCING STEEL FOR ONE GIRDER					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	88	#4	1	3'-2"	186
S3	14	#4	2	8'-5"	79
S4	2	#5	2	9'-0"	19
S5	32	#5	3	7'-1"	236
S6	160	#5	4	4'-3"	709
S7	190	#4	3	7'-0"	888
S13	31	#5	STR	3'-3"	105
*S14	30	#5	STR	3'-8"	115
S15	8	#5	STR	8'-0"	67
S16	4	#5	2	12'-0"	50

* NOTE: S14 BAR SHALL BE BENT BEFORE SHIPMENT, HEAT BENDING SHALL NOT BE ALLOWED.

BAR TYPES
ALL BAR DIMENSIONS ARE OUT-TO-OUT



QUANTITIES FOR ONE GIRDER

REINFORCING STEEL	10000 PSI CONCRETE	0.6" Ø L. R. STRANDS
LB.	C.Y.	No.
2454	22.5	32

GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
4	98'-8"	394'-8"

PROJECT NO. R-2519B
YANCEY/MITCHELL COUNTY
STATION: 122+22.50 -L-
SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
74" MODIFIED PRESTRESSED
CONCRETE GIRDER
SPAN A
LEFT LANE

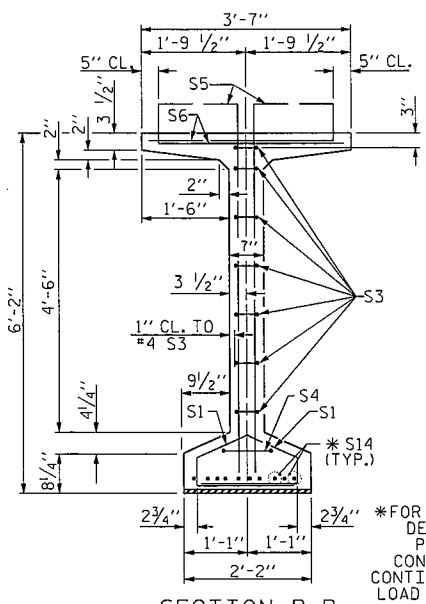
SEAL 18442
LEON BOLLINGER
ENGINEER
Digitally signed by Leon BOLLINGER
Date: 2014.10.03 15:48:40 -04'00'

RS&H
IMPROVING YOUR WORLD
RS&H Architects-Engineers-Planners, Inc.
8801 Six Forks Road, Suite 250
Raleigh, NC 27615
919-845-6711 FAX 919-845-0680
www.rsandh.com
North Carolina License No. 58971 F401-C21

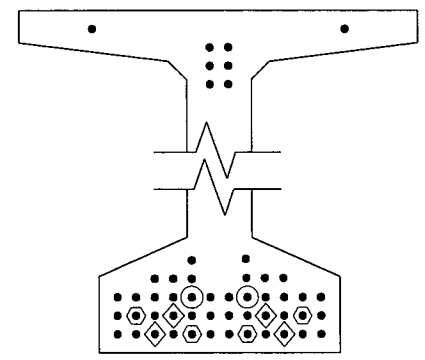
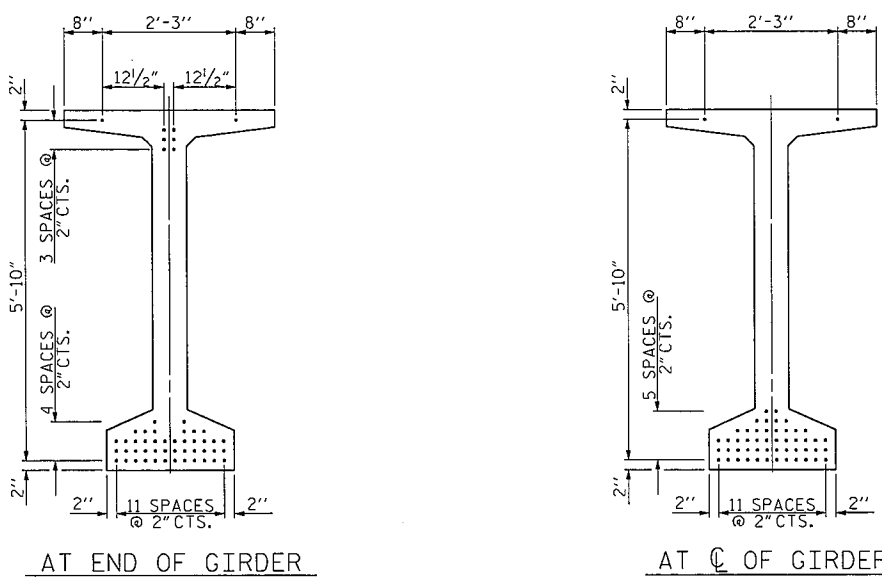
DRAWN BY: JML DATE: 4/2013
CHECKED BY: JMR DATE: 4/2013
DESIGN ENGINEER OF RECORD: JMR DATE: 7/2013

DWG. No. 015

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-69
1			3			TOTAL SHEETS
2			4			194



*FOR S14 BARS, SEE
DETAIL "C" OF
PRESTRESSED
CONCRETE GIRDER
CONTINUOUS FOR LIVE
LOAD DETAILS SHEET



- DEBONDING LEGEND**
- FULLY BONDED STRANDS
 - STRANDS DEBONDED FOR 8'-0" FROM END OF GIRDER
 - ◇ STRANDS DEBONDED FOR 10'-0" FROM END OF GIRDER
 - ◉ STRANDS DEBONDED FOR 12'-0" FROM END OF GIRDER

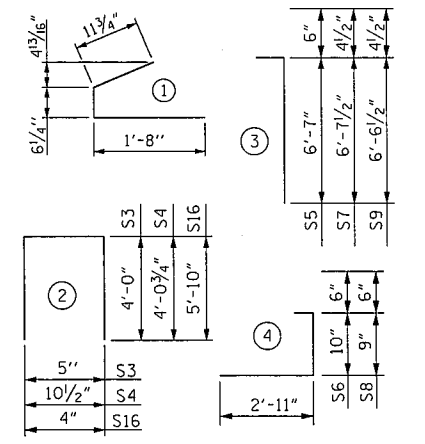
0.6" Ø L. R. GRADE 270 STRANDS		
AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

REINFORCING STEEL FOR ONE GIRDER					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	116	#4	1	3'-2"	245
S3	14	#4	2	8'-5"	79
S4	2	#5	2	9'-0"	19
S5	40	#5	3	7'-1"	296
S6	176	#5	4	4'-3"	780
S7	136	#4	3	7'-0"	636
S8	32	#5	4	4'-2"	139
S9	100	#4	3	6'-11"	462
S13	34	#5	STR	3'-3"	115
*S14	20	#5	STR	3'-8"	76
S15	16	#5	STR	8'-0"	134
S16	8	#5	2	12'-0"	100

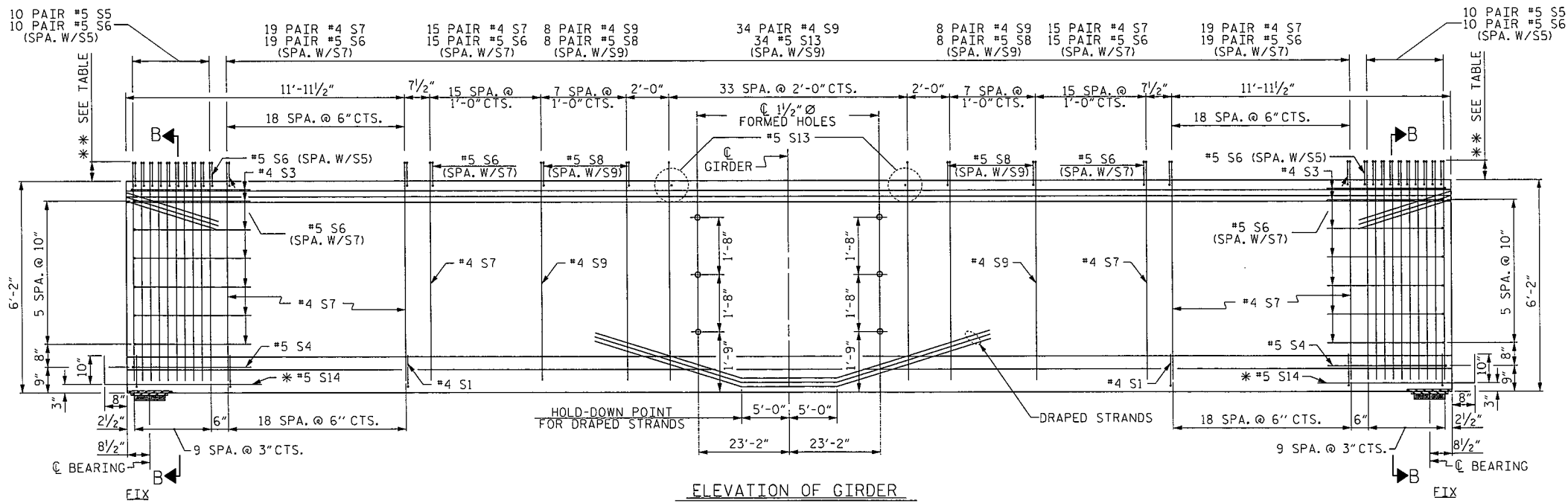
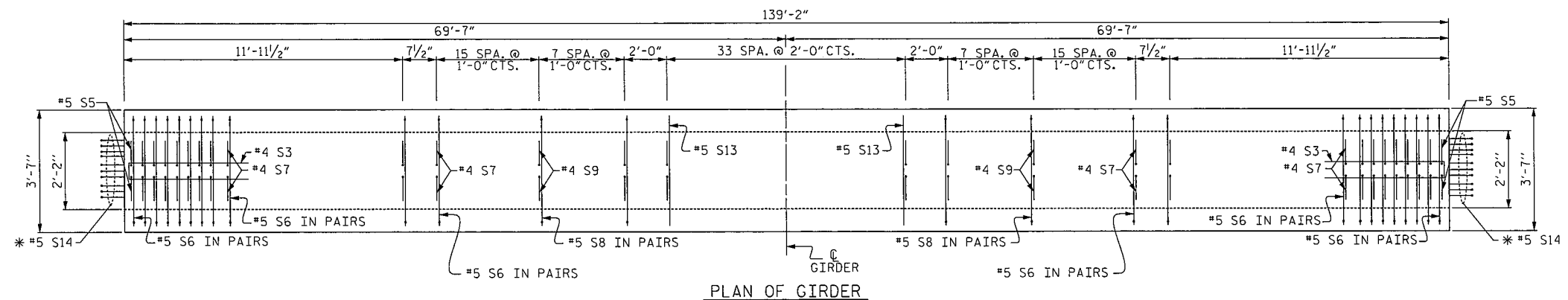
* NOTE: S14 BAR SHALL BE BENT BEFORE SHIPMENT, HEAT BENDING SHALL NOT BE ALLOWED.

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT



0.6" Ø LOW RELAXATION STRAND LAYOUT
THE UPLIFT FORCE DUE TO DRAPED STRANDS IS 19.7 KIPS



BAR TYPE	**
S5 & S6	8 1/2"
S7 & S8	8 1/2"
S9 & S8	8"

QUANTITIES FOR ONE GIRDER

REINFORCING STEEL	10000 PSI CONCRETE		0.6" Ø L. R. STRANDS
	LB.	C.Y.	
	3081	31.7	52

GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
4	139'-2"	556'-8"

PROJECT NO. R-2519B
YANCEY/MITCHELL COUNTY
STATION: 122+22.50 -L-
SHEET 2 OF 3

Digitally signed by Richard L. Bollinger
 Date: 2014.10.03 15:50:05 -0400'
RS&H
 IMPROVING YOUR WORLD
 RS&H Architects-Engineers-Planners, Inc.
 8601 Six Forks Road, Suite 280
 Raleigh, NC 27615
 919-445-6761 FAX 919-446-0046
 www.rsandh.com
 North Carolina License No. 50177-F401-C28

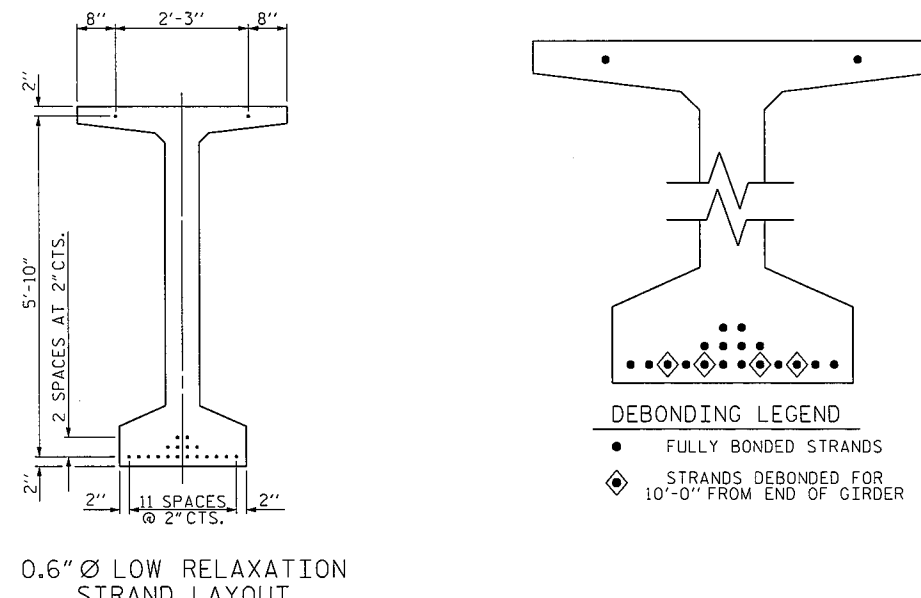
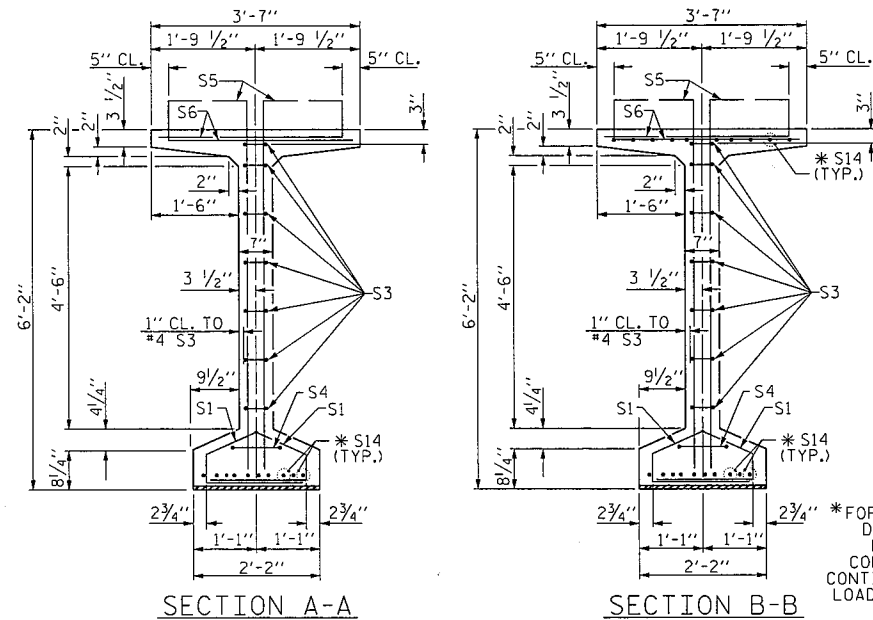
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 74" MODIFIED PRESTRESSED
 CONCRETE GIRDER
 SPAN B
 LEFT LANE

REVISIONS						SHEET NO. S-70
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 194
2			4			

DRAWN BY : JML DATE : 4/2013
 CHECKED BY : JMR DATE : 4/2013
 DESIGN ENGINEER OF RECORD : JMR DATE : 7/2013

DWG. No. 016

FOR REINFORCING STEEL AROUND FORMED HOLE, SEE "PRESTRESSED CONCRETE GIRDER CONTINUOUS FOR LIVE LOAD DETAILS" SHEET.

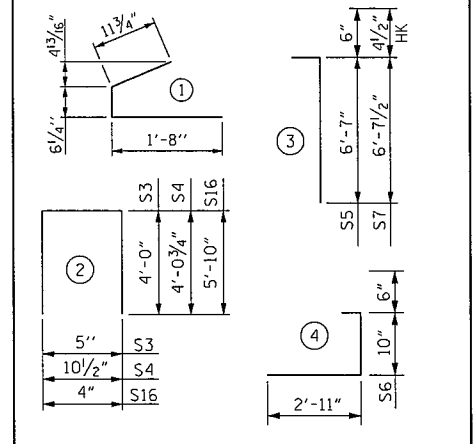


0.6" Ø L. R. GRADE 270 STRANDS		
AREA (SQ. INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

REINFORCING STEEL FOR ONE GIRDER						
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	
S1	92	#4	1	3'-2"	195	
S3	14	#4	2	8'-5"	79	
S4	2	#5	2	9'-0"	19	
S5	32	#5	3	7'-1"	239	
S6	112	#5	4	4'-3"	496	
S7	122	#4	3	7'-0"	570	
S13	21	#5	STR	3'-3"	71	
*S14	30	#5	STR	3'-8"	115	
S15	8	#5	STR	8'-0"	67	
S16	4	#5	2	12'-0"	50	

* NOTE: S14 BAR SHALL BE BENT BEFORE SHIPMENT, HEAT BENDING SHALL NOT BE ALLOWED.

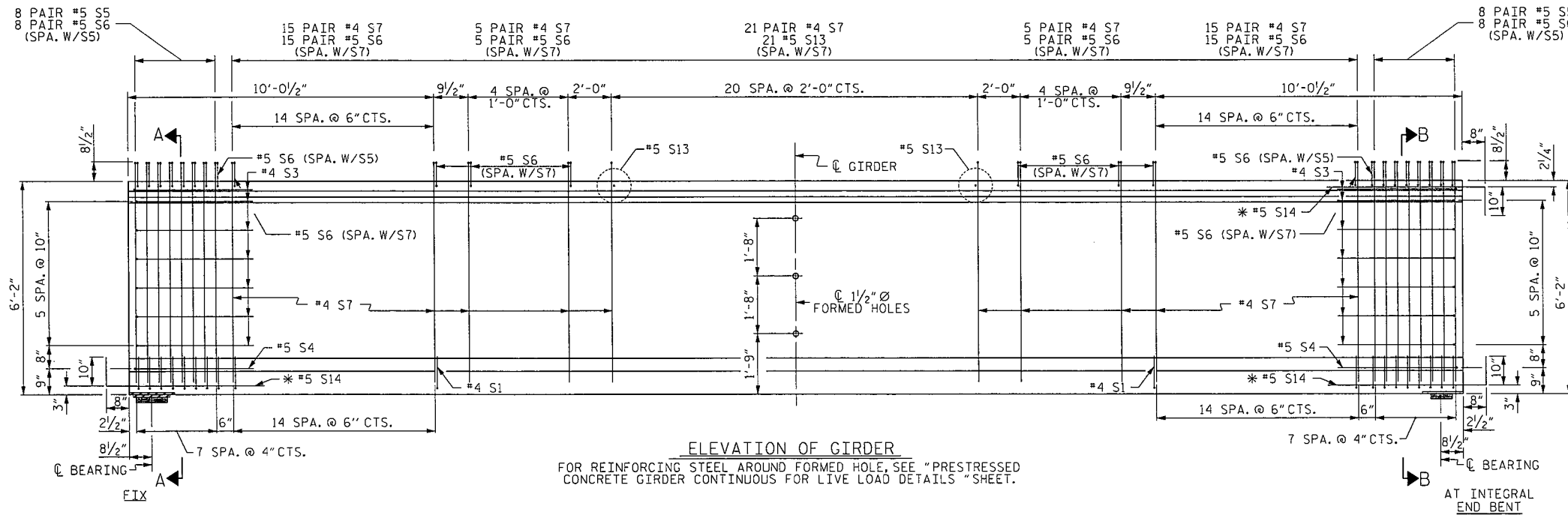
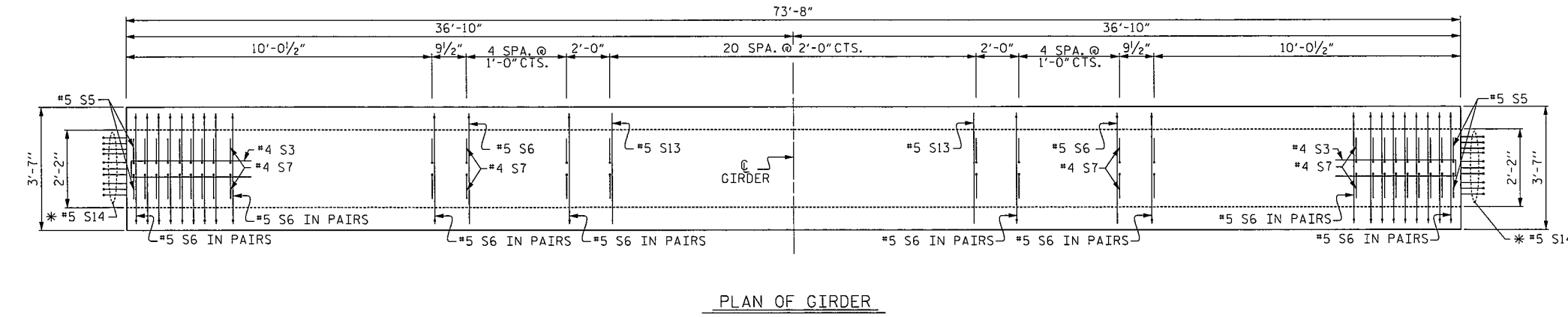
BAR TYPES
ALL BAR DIMENSIONS ARE OUT-TO-OUT



QUANTITIES FOR ONE GIRDER			
REINFORCING STEEL	10000 PSI CONCRETE	0.6" Ø L.R. STRANDS	
LB.	C.Y.	No.	
1901	16.8	20	

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
4	73'-8"	294'-8"

PROJECT NO. R-2519B
 YANCEY/MITCHELL COUNTY
 STATION: 122+22.50 -L-
 SHEET 3 OF 3



DRAWN BY: JML DATE: 4/2013
 CHECKED BY: JMR DATE: 4/2013
 DESIGN ENGINEER OF RECORD: JMR DATE: 7/2013



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 74" MODIFIED PRESTRESSED CONCRETE GIRDER
 SPAN C
 LEFT LANE

REVISIONS						TOTAL SHEETS
NO.	BY:	DATE:	NO.	BY:	DATE:	194
1			3			
2			4			

DWG. No. 017

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																								
0.6" Ø LOW RELAXATION		SPAN A																						
		GIRDER 1 (EXTERIOR)										GIRDER 2 (INTERIOR)												
TENTH POINTS		0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	
CAMBER (GIRDER ALONE IN PLACE)		↑	0.000	0.039	0.074	0.101	0.118	0.124	0.118	0.101	0.074	0.039	0.000	0.000	0.039	0.074	0.101	0.118	0.124	0.118	0.101	0.074	0.039	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.		↓	0.000	0.024	0.045	0.062	0.072	0.076	0.072	0.062	0.045	0.024	0.000	0.000	0.025	0.047	0.065	0.076	0.080	0.076	0.065	0.047	0.025	0.000
FINAL CAMBER		↑	0	3/16	5/16	7/16	9/16	9/16	7/16	5/16	3/16	0	0	3/16	5/16	7/16	1/2	1/2	1/2	7/16	5/16	3/16	0	

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																							
0.6" Ø LOW RELAXATION		SPAN B																					
		GIRDER 1 (EXTERIOR)																					
TWENTIETH POINTS		0	.05	.1	.15	.2	.25	.3	.35	.4	.45	.5	.55	.6	.65	.7	.75	.8	.85	.9	.95	0	
CAMBER (GIRDER ALONE IN PLACE)		↑	0.000	0.059	0.116	0.170	0.219	0.263	0.300	0.330	0.351	0.364	0.369	0.364	0.351	0.330	0.300	0.263	0.219	0.170	0.116	0.059	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.		↓	0.000	0.046	0.090	0.132	0.171	0.205	0.234	0.257	0.274	0.284	0.288	0.284	0.274	0.257	0.234	0.205	0.171	0.132	0.090	0.046	0.000
FINAL CAMBER		↑	0	1/8	5/16	7/16	9/16	11/16	13/16	7/8	15/16	15/16	1	15/16	15/16	7/8	13/16	11/16	9/16	7/16	5/16	1/8	0

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																							
0.6" Ø LOW RELAXATION		SPAN B																					
		GIRDER 2 (INTERIOR)																					
TWENTIETH POINTS		0	.05	.1	.15	.2	.25	.3	.35	.4	.45	.5	.55	.6	.65	.7	.75	.8	.85	.9	.95	0	
CAMBER (GIRDER ALONE IN PLACE)		↑	0.000	0.059	0.116	0.170	0.219	0.263	0.300	0.330	0.351	0.364	0.369	0.364	0.351	0.330	0.300	0.263	0.219	0.170	0.116	0.059	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.		↓	0.000	0.049	0.096	0.141	0.182	0.218	0.249	0.273	0.291	0.302	0.306	0.302	0.291	0.273	0.249	0.218	0.182	0.141	0.096	0.049	0.000
FINAL CAMBER		↑	0	1/8	1/4	3/8	7/16	9/16	5/8	11/16	3/4	3/4	3/4	3/4	11/16	5/8	9/16	7/16	3/8	1/4	1/8	0	

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																							
0.6" Ø LOW RELAXATION		SPAN B																					
		GIRDER 3 (INTERIOR)																					
TWENTIETH POINTS		0	.05	.1	.15	.2	.25	.3	.35	.4	.45	.5	.55	.6	.65	.7	.75	.8	.85	.9	.95	0	
CAMBER (GIRDER ALONE IN PLACE)		↑	0.000	0.059	0.116	0.170	0.219	0.263	0.300	0.330	0.351	0.364	0.369	0.364	0.351	0.330	0.300	0.263	0.219	0.170	0.116	0.059	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.		↓	0.000	0.049	0.096	0.141	0.182	0.218	0.249	0.273	0.291	0.302	0.306	0.302	0.291	0.273	0.249	0.218	0.182	0.141	0.096	0.049	0.000
FINAL CAMBER		↑	0	1/8	1/4	3/8	7/16	9/16	5/8	11/16	3/4	3/4	3/4	3/4	11/16	5/8	9/16	7/16	3/8	1/4	1/8	0	

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																							
0.6" Ø LOW RELAXATION		SPAN B																					
		GIRDER 4 (EXTERIOR)																					
TWENTIETH POINTS		0	.05	.1	.15	.2	.25	.3	.35	.4	.45	.5	.55	.6	.65	.7	.75	.8	.85	.9	.95	0	
CAMBER (GIRDER ALONE IN PLACE)		↑	0.000	0.059	0.116	0.170	0.219	0.263	0.300	0.330	0.351	0.364	0.369	0.364	0.351	0.330	0.300	0.263	0.219	0.170	0.116	0.059	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.		↓	0.000	0.046	0.090	0.132	0.171	0.205	0.234	0.257	0.274	0.284	0.288	0.284	0.274	0.257	0.234	0.205	0.171	0.132	0.090	0.046	0.000
FINAL CAMBER		↑	0	1/8	5/16	7/16	9/16	11/16	13/16	7/8	15/16	15/16	1	15/16	15/16	7/8	13/16	11/16	9/16	7/16	5/16	1/8	0

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																								
0.6" Ø LOW RELAXATION		SPAN C																						
		GIRDER 1 (EXTERIOR)										GIRDER 2 (INTERIOR)												
TENTH POINTS		0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	
CAMBER (GIRDER ALONE IN PLACE)		↑	0.000	0.017	0.032	0.043	0.051	0.053	0.051	0.043	0.032	0.017	0.000	0.000	0.017	0.032	0.043	0.051	0.053	0.051	0.043	0.032	0.017	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.		↓	0.000	0.007	0.014	0.019	0.022	0.024	0.022	0.019	0.014	0.007	0.000	0.000	0.008	0.015	0.020	0.023	0.025	0.023	0.020	0.015	0.008	0.000
FINAL CAMBER		↑	0	1/8	3/16	5/16	5/16	3/8	5/16	5/16	3/16	1/8	0	0	1/8	3/16	1/4	5/16	5/16	5/16	1/4	3/16	1/8	0

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																								
0.6" Ø LOW RELAXATION		SPAN C																						
		GIRDER 4 (EXTERIOR)										GIRDER 3 (INTERIOR)												
TENTH POINTS		0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	
CAMBER (GIRDER ALONE IN PLACE)		↑	0.000	0.017	0.032	0.043	0.051	0.053	0.051	0.043	0.032	0.017	0.000	0.000	0.017	0.032	0.043	0.051	0.053	0.051	0.043	0.032	0.017	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.		↓	0.000	0.007	0.014	0.019	0.022	0.024	0.022	0.019	0.014	0.007	0.000	0.000	0.008	0.015	0.020	0.023	0.025	0.023	0.020	0.015	0.008	0.000
FINAL CAMBER		↑	0	1/8	3/16	5/16	5/16	3/8	5/16	5/16	3/16	1/8	0	0	1/8	3/16	1/4	5/16	5/16	5/16	1/4	3/16	1/8	0

* INCLUDES FUTURE WEARING SURFACE
 ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT
 FINAL CAMBER, WHICH IS GIVEN IN INCHES (FRACTION FORM).

PROJECT NO. R-2519B
YANCEY/MITCHELL COUNTY
 STATION: 122+22.50 -L-
 SHEET 1 OF 1

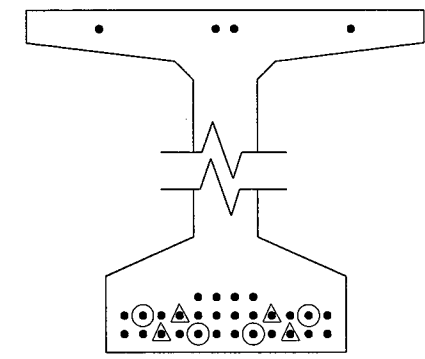
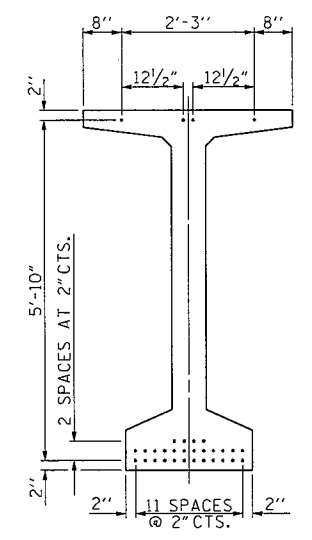
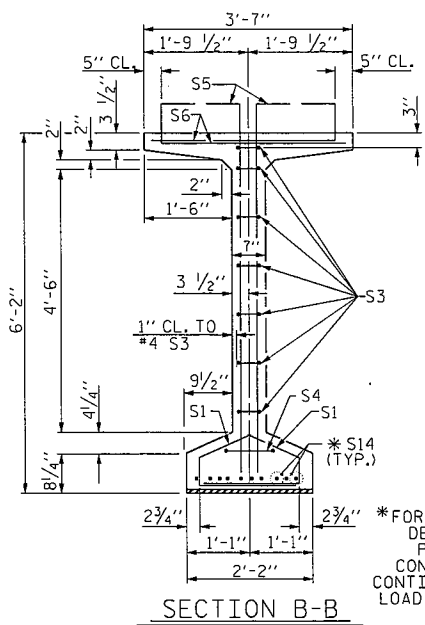
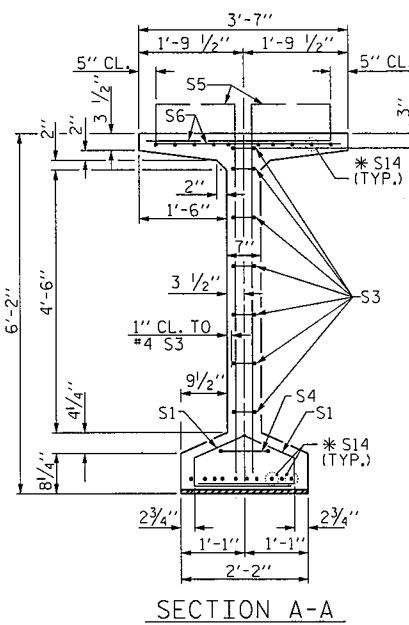


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 DEAD LOAD
 DEFLECTIONS
 (SPANS A-C)
 LEFT LANE

REVISIONS						TOTAL SHEETS
NO.	BY:	DATE:	NO.	BY:	DATE:	194
1			3			
2			4			

DRAWN BY : JML DATE : 09/2014
 CHECKED BY : JMR DATE : 09/2014
 DESIGN ENGINEER OF RECORD : JMR DATE : 09/2014

DWG. No. 021



DEBONDING LEGEND

- FULLY BONDED STRANDS
- ▲ STRANDS DEBONDED FOR 6'-0" FROM END OF GIRDER
- STRANDS DEBONDED FOR 8'-0" FROM END OF GIRDER

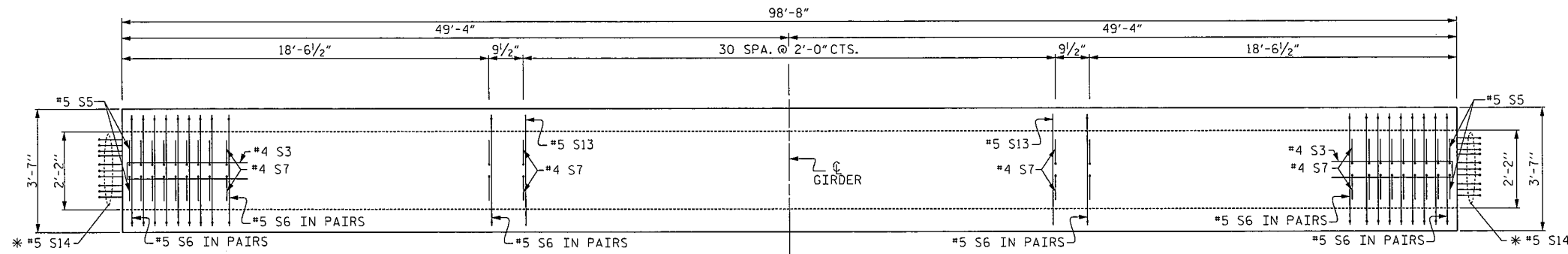
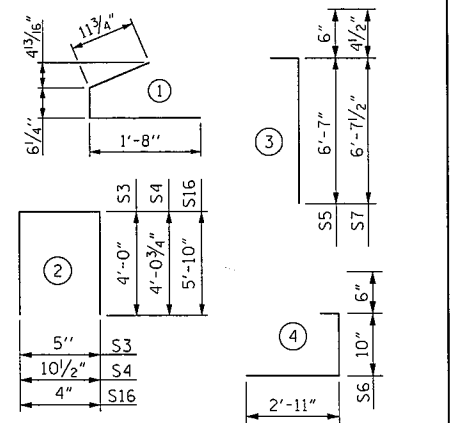
* FOR S14 BARS. SEE DETAIL "C" OF PRESTRESSED CONCRETE GIRDER CONTINUOUS FOR LIVE LOAD DETAILS SHEET

0.6" Ø L. R. GRADE 270 STRANDS		
AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

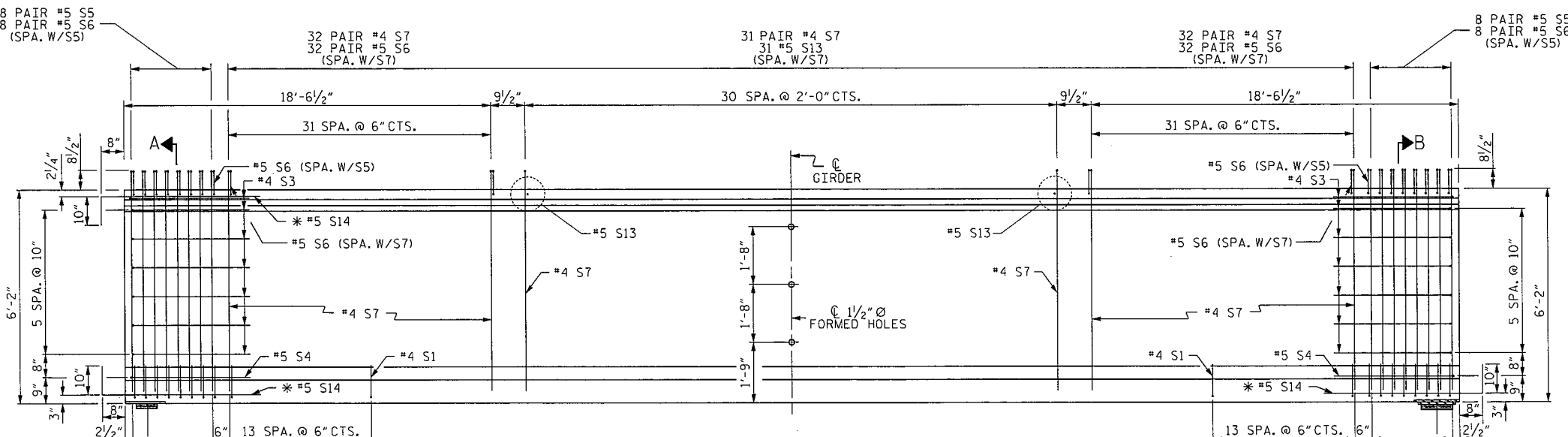
REINFORCING STEEL FOR ONE GIRDER					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	88	#4	1	3'-2"	186
S3	14	#4	2	8'-5"	79
S4	2	#5	2	9'-0"	19
S5	32	#5	3	7'-1"	236
S6	160	#5	4	4'-3"	709
S7	190	#4	3	7'-0"	888
S13	31	#5	STR	3'-3"	105
*S14	30	#5	STR	3'-8"	115
S15	8	#5	STR	8'-0"	67
S16	4	#5	2	12'-0"	50

* NOTE: S14 BAR SHALL BE BENT BEFORE SHIPMENT, HEAT BENDING SHALL NOT BE ALLOWED.

BAR TYPES
ALL BAR DIMENSIONS ARE OUT-TO-OUT



PLAN OF GIRDER



ELEVATION OF GIRDER

FOR REINFORCING STEEL AROUND FORMED HOLE, SEE "PRESTRESSED CONCRETE GIRDER CONTINUOUS FOR LIVE LOAD DETAILS" SHEET.

QUANTITIES FOR ONE GIRDER

REINFORCING STEEL	10000 PSI CONCRETE	0.6" Ø L.R. STRANDS
LB.	C.Y.	No.
2454	22.5	32

GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
4	98'-8"	394'-8"

PROJECT NO. R-2519B
YANCEY/MITCHELL COUNTY
STATION: 122+22.50 -L-
SHEET 1 OF 3

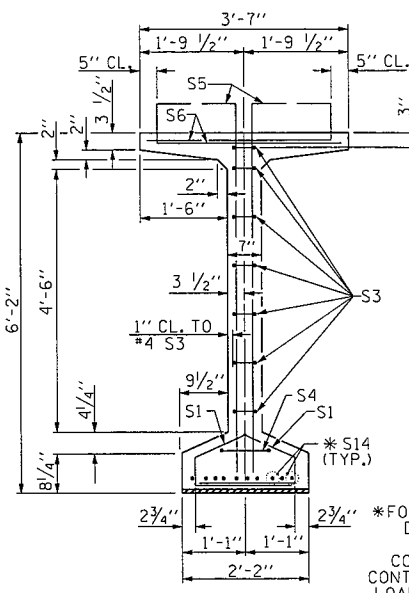


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
74" MODIFIED PRESTRESSED CONCRETE GIRDER
SPAN A
RIGHT LANE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-107
1			2			TOTAL SHEETS
2			4			194

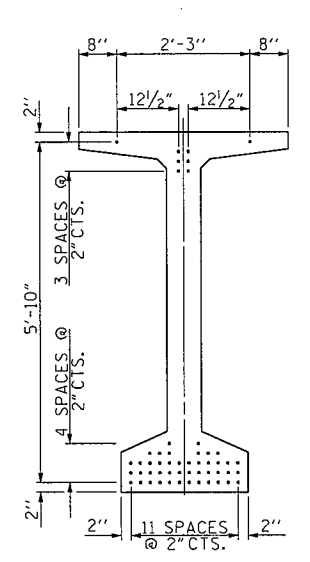
DRAWN BY: JML DATE: 4/2013
CHECKED BY: JMR DATE: 4/2013
DESIGN ENGINEER OF RECORD: JMR DATE: 7/2013

DWG. No. 053

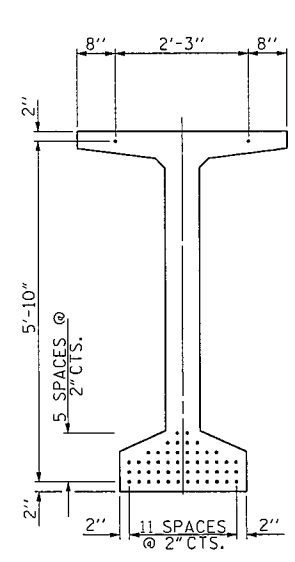


SECTION B-B

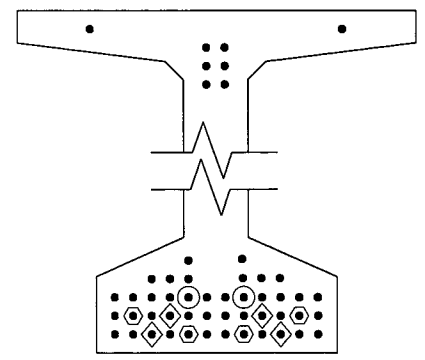
*FOR S14 BARS, SEE
DETAIL "C" OF
PRESTRESSED
CONCRETE GIRDER
CONTINUOUS FOR LIVE
LOAD DETAILS SHEET



AT END OF GIRDER



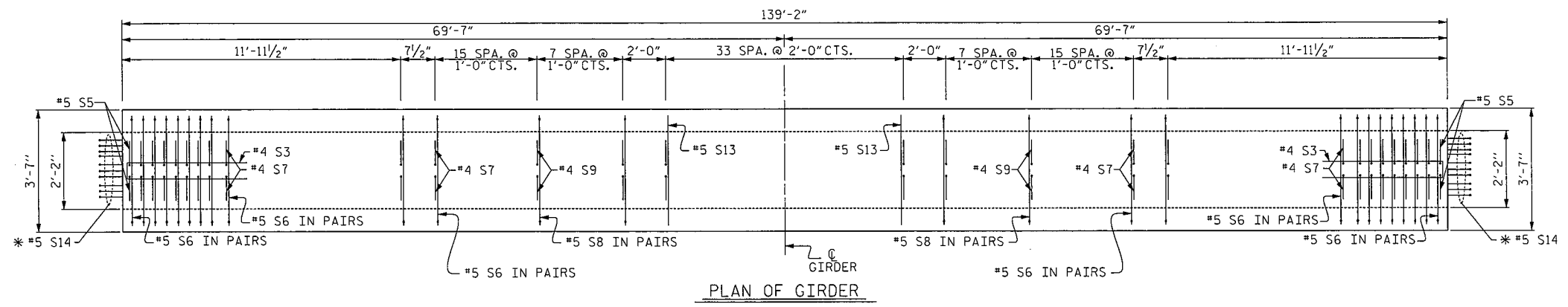
AT C OF GIRDER



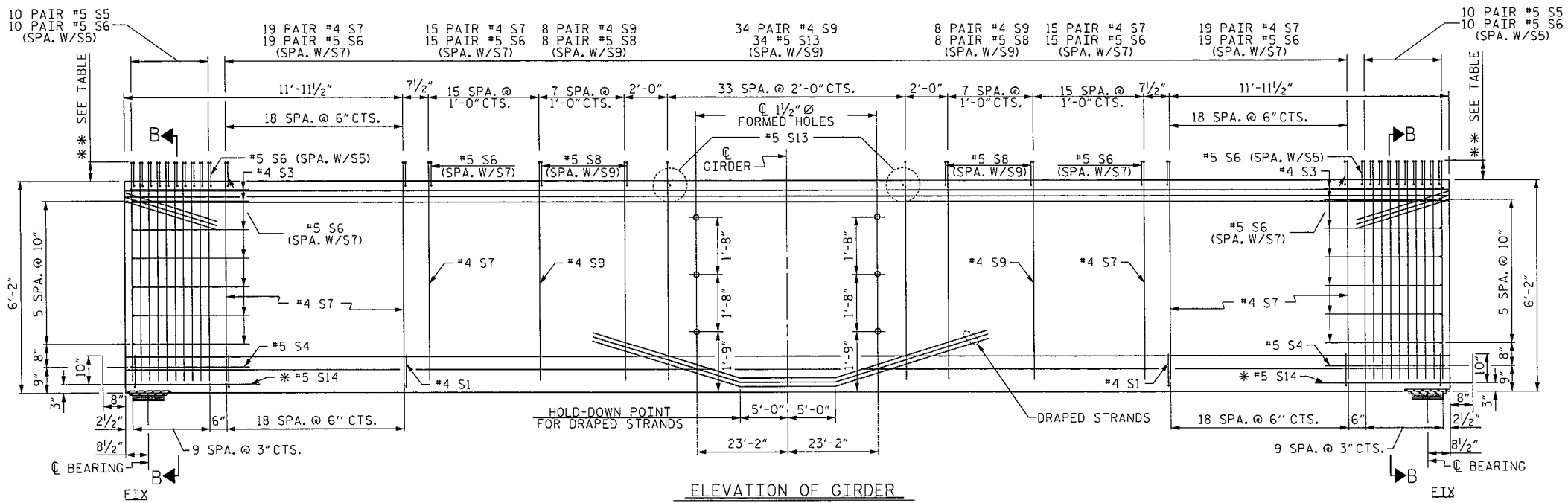
DEBONDING LEGEND

- FULLY BONDED STRANDS
- STRANDS DEBONDED FOR 8'-0" FROM END OF GIRDER
- ◇ STRANDS DEBONDED FOR 10'-0" FROM END OF GIRDER
- ◐ STRANDS DEBONDED FOR 12'-0" FROM END OF GIRDER

0.6" Ø LOW RELAXATION STRAND LAYOUT
THE UPLIFT FORCE DUE TO DRAPED STRANDS IS 19.7 KIPS



PLAN OF GIRDER



ELEVATION OF GIRDER

FOR REINFORCING STEEL AROUND FORMED HOLE, SEE "PRESTRESSED CONCRETE GIRDER CONTINUOUS FOR LIVE LOAD DETAILS" SHEET.

0.6" Ø L. R. GRADE 270 STRANDS		
AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

REINFORCING STEEL FOR ONE GIRDER					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	116	#4	1	3'-2"	245
S3	14	#4	2	8'-5"	79
S4	2	#5	2	9'-0"	19
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S6	176	#5	4	4'-3"	780
S7	136	#4	3	7'-0"	636
S8	32	#5	4	4'-2"	139
S9	100	#4	3	6'-11"	462
S13	34	#5	STR	3'-3"	115
*S14	20	#5	STR	3'-8"	76
S15	16	#5	STR	8'-0"	134
S16	8	#5	2	12'-0"	100

* NOTE: S14 BAR SHALL BE BENT BEFORE SHIPMENT, HEAT BENDING SHALL NOT BE ALLOWED.

BAR TYPES	
ALL BAR DIMENSIONS ARE OUT-TO-OUT	

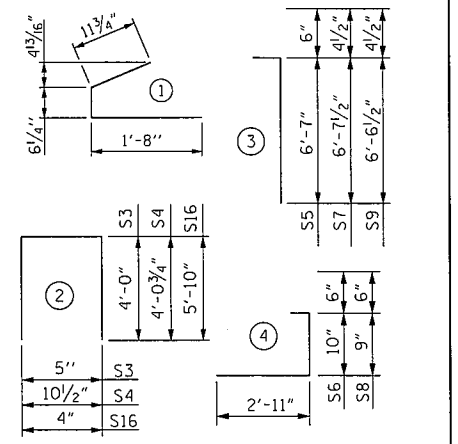


TABLE	
BAR TYPE	**
S5 & S6	8 1/2"
S7 & S8	8 1/2"
S9 & S8	8"

QUANTITIES FOR ONE GIRDER			
REINFORCING STEEL	10000 PSI CONCRETE	0.6" Ø L.R. STRANDS	
	LB.	C.Y.	No.
	3081	31.7	52

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
4	139'-2"	556'-8"

PROJECT NO. R-2519B
YANCEY/MITCHELL COUNTY
STATION: 122+22.50 -L-
SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
74" MODIFIED PRESTRESSED CONCRETE GIRDER
SPAN B
RIGHT LANE

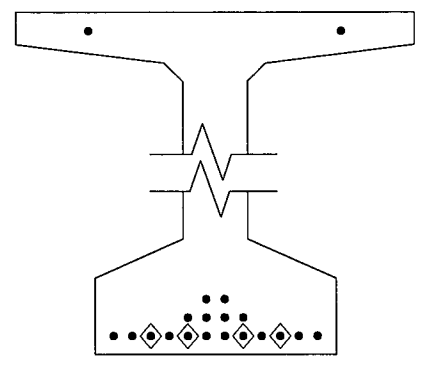
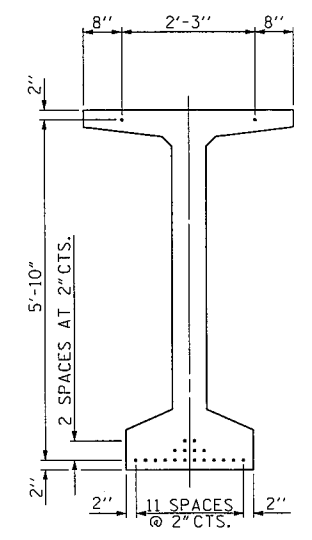
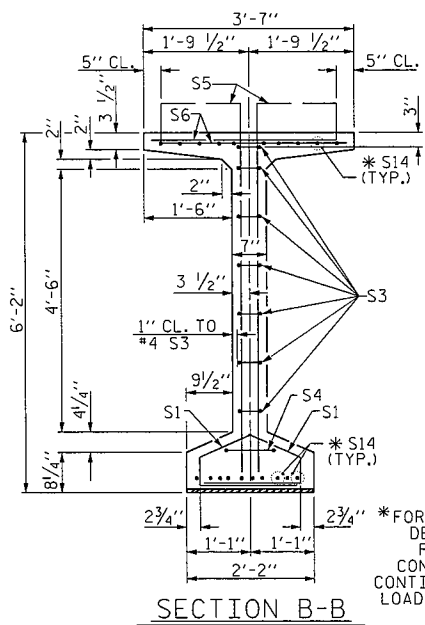
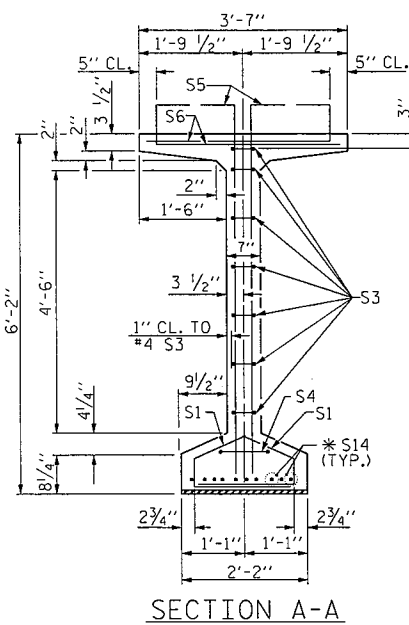
RS&H ARCHITECTS-ENGINEERS-PLANNERS, INC.
6601 Six Forks Road, Suite 280
Raleigh, NC 27615
919-446-4701 FAX 919-446-6080
www.rsandinc.com
North Carolina License No. 58071-1401-1208

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

SHEET NO. S-108	
TOTAL SHEETS 194	

DRAWN BY: JML DATE: 4/2013
CHECKED BY: JMR DATE: 4/2013
DESIGN ENGINEER OF RECORD: JMR DATE: 7/2013

DWG. No. 054



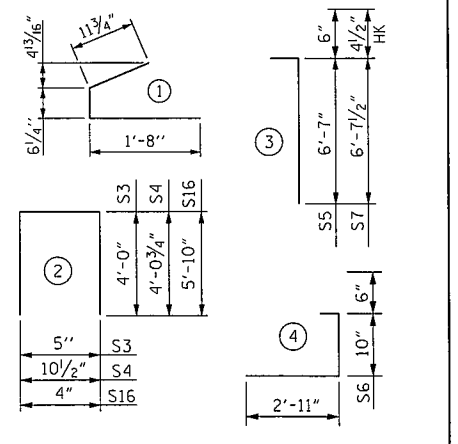
* FOR S14 BARS. SEE
DETAIL "C" OF
PRESTRESSED
CONCRETE GIRDER
CONTINUOUS FOR LIVE
LOAD DETAILS SHEET

0.6" Ø L. R. GRADE 270 STRANDS		
AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

REINFORCING STEEL FOR ONE GIRDER					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	92	#4	1	3'-2"	195
S3	14	#4	2	8'-5"	79
S4	2	#5	2	9'-0"	19
S5	32	#5	3	7'-1"	239
S6	112	#5	4	4'-3"	496
S7	122	#4	3	7'-0"	570
S13	21	#5	STR	3'-3"	71
*S14	30	#5	STR	3'-8"	115
S15	8	#5	STR	8'-0"	67
S16	4	#5	2	12'-0"	50

* NOTE: S14 BAR SHALL BE BENT BEFORE SHIPMENT, HEAT BENDING SHALL NOT BE ALLOWED.

BAR TYPES
ALL BAR DIMENSIONS ARE OUT-TO-OUT



QUANTITIES FOR ONE GIRDER			
REINFORCING STEEL	10000 PSI CONCRETE	0.6" Ø L.R. STRANDS	
LB.	C.Y.	No.	
1901	16.8	20	

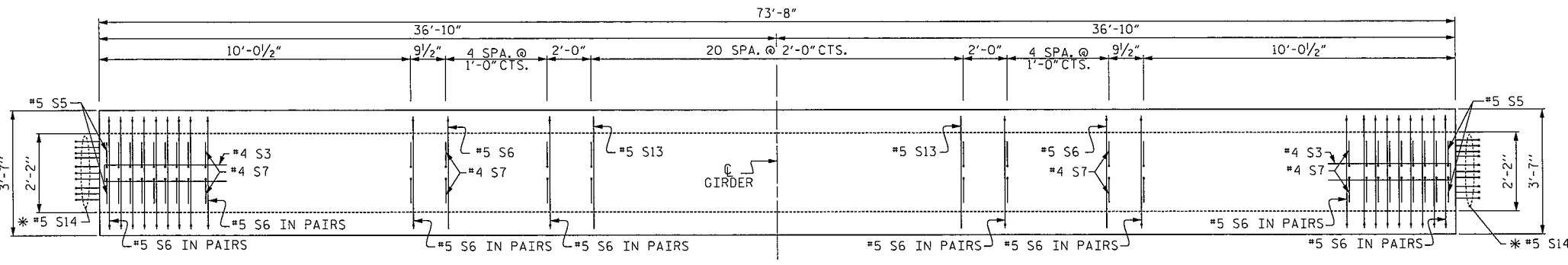
GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
4	73'-8"	294'-8"

PROJECT NO. R-2519B
YANCEY/MITCHELL COUNTY
STATION: 122+22.50 -L-
SHEET 3 OF 3

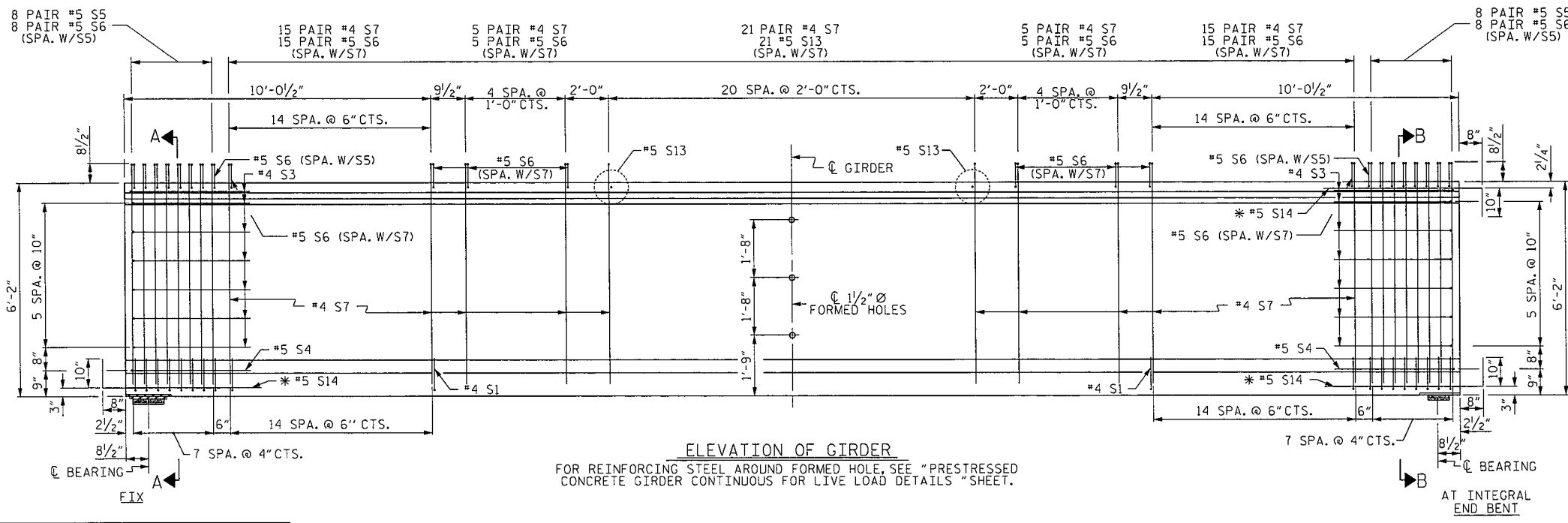
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
74" MODIFIED PRESTRESSED
CONCRETE GIRDER
SPAN C
RIGHT LANE

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

SHEET NO.
S-109
TOTAL
SHEETS
194



PLAN OF GIRDER



ELEVATION OF GIRDER

FOR REINFORCING STEEL AROUND FORMED HOLE, SEE "PRESTRESSED CONCRETE GIRDER CONTINUOUS FOR LIVE LOAD DETAILS" SHEET.

DRAWN BY: JML DATE: 4/2013
CHECKED BY: JMR DATE: 4/2013
DESIGN ENGINEER OF RECORD: JMR DATE: 7/2013

DWG. No. 055

DEAD LOAD DEFLECTION TABLE FOR GIRDERS

0.6" Ø LOW RELAXATION	SPAN A																						
	GIRDER 1 (EXTERIOR)											GIRDER 2 (INTERIOR)											
	TENTH POINTS	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.039	0.074	0.101	0.118	0.124	0.118	0.101	0.074	0.039	0.000	0.000	0.039	0.074	0.101	0.118	0.124	0.118	0.101	0.074	0.039	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.024	0.045	0.062	0.072	0.076	0.072	0.062	0.045	0.024	0.000	0.000	0.025	0.047	0.065	0.076	0.080	0.076	0.065	0.047	0.025	0.000
FINAL CAMBER	↑	0	3/16	5/16	7/16	9/16	9/16	7/16	5/16	3/16	0	0	3/16	5/16	7/16	1/2	1/2	1/2	7/16	5/16	3/16	0	

DEAD LOAD DEFLECTION TABLE FOR GIRDERS

0.6" Ø LOW RELAXATION	SPAN B																					
	GIRDER 1 (EXTERIOR)											GIRDER 2 (INTERIOR)										
	TWENTIETH POINTS	0	.05	.1	.15	.2	.25	.3	.35	.4	.45	.5	.55	.6	.65	.7	.75	.8	.85	.9	.95	0
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.059	0.116	0.170	0.219	0.263	0.300	0.330	0.351	0.364	0.369	0.364	0.351	0.330	0.300	0.263	0.219	0.170	0.116	0.059	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.046	0.090	0.132	0.171	0.205	0.234	0.257	0.274	0.284	0.288	0.284	0.274	0.257	0.234	0.205	0.171	0.132	0.090	0.046	0.000
FINAL CAMBER	↑	0	1/8	5/16	7/16	9/16	11/16	13/16	7/8	15/16	15/16	1	15/16	15/16	7/8	13/16	11/16	9/16	7/16	5/16	1/8	0

* INCLUDES FUTURE WEARING SURFACE
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT
"FINAL CAMBER", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS

0.6" Ø LOW RELAXATION	SPAN C																						
	GIRDER 1 (EXTERIOR)											GIRDER 2 (INTERIOR)											
	TENTH POINTS	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.017	0.032	0.043	0.051	0.053	0.051	0.043	0.032	0.017	0.000	0.000	0.017	0.032	0.043	0.051	0.053	0.051	0.043	0.032	0.017	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.007	0.014	0.019	0.022	0.024	0.022	0.019	0.014	0.007	0.000	0.000	0.008	0.015	0.020	0.023	0.025	0.023	0.020	0.015	0.008	0.000
FINAL CAMBER	↑	0	1/8	3/16	5/16	5/16	3/8	5/16	5/16	3/16	1/8	0	0	1/8	3/16	1/4	5/16	5/16	5/16	1/4	3/16	1/8	0

PROJECT NO. R-2519B
YANCEY/MITCHELL COUNTY
STATION: 122+22.50 -L-
SHEET 1 OF 1



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE DEAD LOAD DEFLECTIONS (SPANS A-C) RIGHT LANE					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-113					TOTAL SHEETS 194

DRAWN BY : JML DATE : 09/2014
CHECKED BY : JMR DATE : 09/2014
DESIGN ENGINEER OF RECORD : JMR DATE : 09/2014

DWG. No. 059