

**ACEC-KY Bridge Sub-Committee /
KYTC Division of Construction**

**Partnering Meeting Minutes
July 13, 2012**

The first meeting of the ACEC-KY Bridge Sub-Committee and the KYTC Division of Construction was held on July 13, 2012 at the Transportation Cabinet Office Building, Frankfort, KY. Members of the KYTC Division of Structural Design were also in attendance.

Present at the meeting were:

Nasby Stroop	Division of Construction
Adam Ross	Division of Construction
Jeremiah Littleton	Division of Construction
Vibert Forsythe	Division of Construction
Rob Harris	Division of Construction
Matt Looney	Division of Construction
Chris Slone	Division of Construction
Tim Layson	Division of Construction
Bill McKinney	Division of Structural Design
Kevin Sandefur	Division of Structural Design
Tony Hunley	Stantec
Chris Reid	J.M. Crawford & Associates
Pete Szak	Florence & Hutcheson, Inc.
Aaron Stover	Michael Baker
Craig Klusman	URS
David Deitz	Palmer

The following items were discussed:

- 1) **Purpose and Background** – This meeting was requested by the Sub-Committee in order to open a dialogue between the bridge design community and representatives of the Division of Construction familiar with bridge construction in the state. The committee would like to have a meeting on a regular basis (annually at first) to discuss questions that bridge designers have on the current state of practice, and get feedback on constructability issues or trends in bridge construction that the bridge design community can address.
- 2) **Construction Revisions to Bridge Plans** – The current process for producing, documenting, and submitting construction revision drawings was discussed. Construction indicated that there preferences include:
 - a. Use the 1, 1A, 1B, 1C, etc. numbering scheme for revised drawings.

- b. Use clouding and revision triangles on the sheet to clarify revisions, unless the sheet is replaced entirely.
- c. Place a note on sheets that are replaced entirely noting the sheet replaces the previous version of the sheet.
- d. Submission should be electronically submitted as individual revised drawings to the appropriate Division of Construction representative, with the Division of Structural Design copied.

Archival of construction revisions was discussed as critical to future maintenance, load rating, widening, and replacement projects. Currently construction revisions and as-built plans are supposed to be archived to Projectwise. Also, Construction noted that a construction revision index is generated by the Division of Construction and added to the front of the plans prior to archival that lists each revision and the affected sheets. A sample of the cover is attached to these minutes.

- 3) **Value Engineering Construction Proposals** – This discussion was limited to the process and mechanics of VECP's and not specific projects. The Sub-Committee communicated their general acceptance that there are appropriate situations for value engineering redesigns. The Sub-Committee's concern is regarding the ownership of the bridge design from a risk standpoint when components of a bridge design are changed by a VECP without the original designer's input. The Sub-Committee suggested that when a Contractor proposes to change individual components (a pier footing for example), the original designer would be best-suited to evaluate and provide the design revision from a cost and thoroughness standpoint – although there are some risk concerns. Construction indicated that the FHWA has communicated concerns that there could be a conflict of interest issue with this approach, and that there wasn't a resolution on that issue currently.

Archival of value engineering plans was also discussed as critical to future maintenance, load rating, widening, and replacement projects. Currently as-built plans (including VECP plans) are supposed to be archived to Projectwise.

- 4) **Jointless Bridges** –Construction noted that they are seeing longer integral and semi-integral bridges and that there have been some issues with movement and/or settlement at the ends causing problems. Construction suggested that this be evaluated on each bridge and that allowances be made for the movement at the end of the bridge, if excessive.
- 5) **Flowable Fill at Bridge Ends** – There have been some projects let with flowable fill replacing structural granular backfill behind bridge abutments to reduce settlement. Other projects have utilized a granular backfill region below the flowable fill to facilitate a backfill drain. And other projects have been constructed with large stone called for in the flowable fill. Currently, there is no preferred approach. It was discussed that buried approach slabs may be the most effective means to limit settlement. However, the use of buried approach slabs is still a project-by-project decision.

- 6) **Painting of Weathering Steel Bridges** – Current direction by KYTC leadership is to paint all new weathering steel bridges. This process was used on a recent steel truss bridge, but has been extended to include all steel plate girder bridges. The Division of Structural Design is currently painting exterior faces and the bottom of the bottom flange of exterior girders for rural bridges. For urban bridges, painting of all girders may be desirable. Attached is a copy of the general note and detail used by the DOSD. Also, Construction noted that Type 3 bolts and weathering steel DTI's should be called for on all steel bridges.
- 7) **Steel Reinforcing Bar Couplers** – The use of couplers in lieu of bar laps at phased construction joints was discussed. This issue was raised with the Contractors who participated in the Contractor's Forum at the Bridge Engineering Seminar and they communicated that their preference for one method or the other varied from project to project and varied over time. Construction did request that when bar laps are used, especially for transverse bars in bridge decks, they not be detailed with a shop bend for clearance. If clearance does not allow for a full lap with the bar extended horizontally, then use couplers.

Another issue that was raised by Construction was feedback from Contractor's regarding the cost of the extra couplers that were required to be purchased and submitted for extra testing. Depending on the number of couplers of a given size required in the project, this can be a significant cost. Construction requested that the number of couplers included in the bid quantity include the additional couplers for testing to address this concern.

- 8) **Bridge Engineering Seminar Day** – The success of the Bridge Engineering Seminar Day, held in January 2012, was discussed. Including the participation of bridge Contractor's in a forum with designers. The Division of Construction was asked to attend and participate in the next Bridge Seminar in February 2013. The Division will be given a 30-minute or one hour time slot to discuss any topic that they would like to address with designers or Contractors in attendance.
- 9) The next joint meeting of the KYTC Division of Construction and the ACEC-KY Bridge Sub-Committee will be in the Spring 2013.

The meeting concluded around 11:45 a.m.

CONSTRUCTION REVISION INDEX

COUNTY: HARDIN PROJECT NO. JPO2 047 NEW- ROUTE
 ROAD NAME : E2RC

COUNTY OF	ITEM NO.	SHEET NO.
HARDIN	4-8103.30	1

CONSTRUCTION REVISION NO.1

RIGHT OF WAY IS IS NOT INVOLVED
 _____ SHEETS IN REVISION/SEE CHANGE ORDER NO. _____
 DATE APPROVED BY FHWA: _____
 PAGE NOS. IN REVISION: T1-T9

CONSTRUCTION REVISION NO.3

RIGHT OF WAY IS IS NOT INVOLVED
 _____ SHEETS IN REVISION/SEE CHANGE ORDER NO. _____
 DATE APPROVED BY FHWA: _____
 PAGE NOS. IN REVISION: _____

CONSTRUCTION REVISION NO.5

RIGHT OF WAY IS IS NOT INVOLVED
 _____ SHEETS IN REVISION/SEE CHANGE ORDER NO. _____
 DATE APPROVED BY FHWA: _____
 PAGE NOS. IN REVISION: _____

CONSTRUCTION REVISION NO.7

RIGHT OF WAY IS IS NOT INVOLVED
 _____ SHEETS IN REVISION/SEE CHANGE ORDER NO. _____
 DATE APPROVED BY FHWA: _____
 PAGE NOS. IN REVISION: _____

CONSTRUCTION REVISION NO.9

RIGHT OF WAY IS IS NOT INVOLVED
 _____ SHEETS IN REVISION/SEE CHANGE ORDER NO. _____
 DATE APPROVED BY FHWA: _____
 PAGE NOS. IN REVISION: _____

SUBMITTED BY: _____ PROJECT ENGINEER DATE _____
 RECOMMENDED BY: _____ CHIEF DISTRICT ENGINEER DATE _____
 RECOMMENDED BY: _____ DIRECTOR OF CONSTRUCTION DATE _____
 APPROVED BY: _____ EXECUTIVE DIRECTOR FOR PROJECT DELIVERY DATE _____

SUBMITTED BY: _____ PROJECT ENGINEER DATE _____
 RECOMMENDED BY: _____ CHIEF DISTRICT ENGINEER DATE _____
 RECOMMENDED BY: _____ DIRECTOR OF CONSTRUCTION DATE _____
 APPROVED BY: _____ EXECUTIVE DIRECTOR FOR PROJECT DELIVERY DATE _____

SUBMITTED BY: _____ PROJECT ENGINEER DATE _____
 RECOMMENDED BY: _____ CHIEF DISTRICT ENGINEER DATE _____
 RECOMMENDED BY: _____ DIRECTOR OF CONSTRUCTION DATE _____
 APPROVED BY: _____ EXECUTIVE DIRECTOR FOR PROJECT DELIVERY DATE _____

SUBMITTED BY: _____ PROJECT ENGINEER DATE _____
 RECOMMENDED BY: _____ CHIEF DISTRICT ENGINEER DATE _____
 RECOMMENDED BY: _____ DIRECTOR OF CONSTRUCTION DATE _____
 APPROVED BY: _____ EXECUTIVE DIRECTOR FOR PROJECT DELIVERY DATE _____

SUBMITTED BY: _____ PROJECT ENGINEER DATE _____
 RECOMMENDED BY: _____ CHIEF DISTRICT ENGINEER DATE _____
 RECOMMENDED BY: _____ DIRECTOR OF CONSTRUCTION DATE _____
 APPROVED BY: _____ EXECUTIVE DIRECTOR FOR PROJECT DELIVERY DATE _____

EXPLANATION OF REVISION NO. 1

INSTALLATION OF TRAFFIC SIGNAL IS BEING ADDED TO THE PROJECT AT E2RC AND KY 220

T1 QUANTITY SHEET
 T2 BID ITEM NOTES
 T3 GENERAL NOTES
 T4 CONTROLLER CABINET DETAIL
 T5 LOOP DETAIL
 T6 POLE BASE SIGNAL HEAD DETAILS
 T7 JUNCTION BOX CONDUIT DETAILS
 T8 RADIO ANTENNA DETAIL
 T9 SIGNAL PLAN SHEET

EXPLANATION OF REVISION NO. 3

EXPLANATION OF REVISION NO. 5

EXPLANATION OF REVISION NO. 7

EXPLANATION OF REVISION NO. 9

CONSTRUCTION REVISION NO.2

RIGHT OF WAY IS IS NOT INVOLVED
 _____ SHEETS IN REVISION/SEE CHANGE ORDER NO. _____
 DATE APPROVED BY FHWA: _____
 PAGE NOS. IN REVISION: _____

CONSTRUCTION REVISION NO.4

RIGHT OF WAY IS IS NOT INVOLVED
 _____ SHEETS IN REVISION/SEE CHANGE ORDER NO. _____
 DATE APPROVED BY FHWA: _____
 PAGE NOS. IN REVISION: _____

CONSTRUCTION REVISION NO.6

RIGHT OF WAY IS IS NOT INVOLVED
 _____ SHEETS IN REVISION/SEE CHANGE ORDER NO. _____
 DATE APPROVED BY FHWA: _____
 PAGE NOS. IN REVISION: _____

CONSTRUCTION REVISION NO.8

RIGHT OF WAY IS IS NOT INVOLVED
 _____ SHEETS IN REVISION/SEE CHANGE ORDER NO. _____
 DATE APPROVED BY FHWA: _____
 PAGE NOS. IN REVISION: _____

CONSTRUCTION REVISION NO.10

RIGHT OF WAY IS IS NOT INVOLVED
 _____ SHEETS IN REVISION/SEE CHANGE ORDER NO. _____
 DATE APPROVED BY FHWA: _____
 PAGE NOS. IN REVISION: _____

SUBMITTED BY: _____ PROJECT ENGINEER DATE _____
 RECOMMENDED BY: _____ CHIEF DISTRICT ENGINEER DATE _____
 RECOMMENDED BY: _____ DIRECTOR OF CONSTRUCTION DATE _____
 APPROVED BY: _____ EXECUTIVE DIRECTOR FOR PROJECT DELIVERY DATE _____

SUBMITTED BY: _____ PROJECT ENGINEER DATE _____
 RECOMMENDED BY: _____ CHIEF DISTRICT ENGINEER DATE _____
 RECOMMENDED BY: _____ DIRECTOR OF CONSTRUCTION DATE _____
 APPROVED BY: _____ EXECUTIVE DIRECTOR FOR PROJECT DELIVERY DATE _____

SUBMITTED BY: _____ PROJECT ENGINEER DATE _____
 RECOMMENDED BY: _____ CHIEF DISTRICT ENGINEER DATE _____
 RECOMMENDED BY: _____ DIRECTOR OF CONSTRUCTION DATE _____
 APPROVED BY: _____ EXECUTIVE DIRECTOR FOR PROJECT DELIVERY DATE _____

SUBMITTED BY: _____ PROJECT ENGINEER DATE _____
 RECOMMENDED BY: _____ CHIEF DISTRICT ENGINEER DATE _____
 RECOMMENDED BY: _____ DIRECTOR OF CONSTRUCTION DATE _____
 APPROVED BY: _____ EXECUTIVE DIRECTOR FOR PROJECT DELIVERY DATE _____

SUBMITTED BY: _____ PROJECT ENGINEER DATE _____
 RECOMMENDED BY: _____ CHIEF DISTRICT ENGINEER DATE _____
 RECOMMENDED BY: _____ DIRECTOR OF CONSTRUCTION DATE _____
 APPROVED BY: _____ EXECUTIVE DIRECTOR FOR PROJECT DELIVERY DATE _____

EXPLANATION OF REVISION NO. 2

EXPLANATION OF REVISION NO. 4

EXPLANATION OF REVISION NO. 6

EXPLANATION OF REVISION NO. 8

EXPLANATION OF REVISION NO. 10

FILE NAME: G:\PWORK\LYNN.WITMER\0545025\CONSTRUCTION REVISION INDEX.DGN
 USER: JASON.HYATT
 DATE PLOTTED: March 29, 2012
 E-SHEET NAME:
 MicroStation v8.11.7.180

GENERAL NOTES

SPECIFICATIONS: References to the Specifications are to the current edition of the Kentucky Department of Highways Standard Specifications for Road and Bridge Construction including any current Supplemental Specifications. All references to the AASHTO Specifications are to the current editions of the AASHTO Standard Specifications for Highway Bridges or LRFD Bridge Design Specifications, with Interims.

DESIGN LOAD AND METHOD: This bridge is designed for HS25, HL93 Live Load, or alternate military loading, whichever produces the greater stress. The HS25 live load is arrived at by increasing the standard HS20-44 truck and lane loads as specified in the AASHTO LFD Specifications by 25%. All reinforced concrete members are designed by the load resistance factor method as specified in the current AASHTO LRFD Specifications.

FUTURE WEARING SURFACE: This bridge is designed for a 60 PSF Wearing Surface.

DESIGN STRESSES: Concrete Class "A" ~ 3500 psi
Concrete Class "AA" ~ 4000 psi
Steel Reinforcement ~ 60,000 psi
Structural Steel ~ FY = 50,000psi

WIND LOAD: This bridge is designed for a wind load based on a wind velocity of 100 mph.

REINFORCEMENT: Dimensions shown from the face of concrete to bars are to center of bars unless otherwise shown. Spacing of bars is from center to center of bars. Clear distance to face of concrete is 2", unless otherwise noted. Epoxy coat bars designated by suffix (e) in accordance with Section 811.10 of the Standard Specifications. Use stirrup bend diameters for bars designated by suffix (s) in a Bill of Reinforcement.

BEVELED EDGES: Bevel all exposed edges $\frac{3}{4}$ ", unless otherwise noted.

COMPLETION OF THE STRUCTURE: The Contractor is required to complete the structure in accordance with the plans and specifications. Material, labor or construction operations, not otherwise specified, are to be included in the bid item most appropriate to the work involved. This may include cofferdams, shoring, excavations, back filling, removal of all or parts of existing structures, phase construction, incidental materials, labor, or anything else required to complete the structure.

SHOP DRAWINGS: Submit shop drawings that are required by the plans and specifications directly to the Division of Structural Design. If any changes in the design plans are proposed by a fabricator or supplier, submit those changes to the Department through the Contractor.

FOOTING EXCAVATION: Ensure excavation for footings is in accordance with Subsection 603.03.03 of the specifications. Raising of the bottom of footings is not allowed.

DIMENSIONS: Dimensions are for a normal temperature of 60 degrees Fahrenheit. Layout dimensions are horizontal dimensions.

POURING SEQUENCE: The pouring sequence of the slab may not be changed without the written approval of the designer.

COFFERDAMS: Cofferdams, temporary sheeting, or shoring may be necessary for construction of substructure. Include the cost of this work in the bid for Structure Excavation.

SPIRAL REINFORCEMENT: Ensure spiral reinforcement is Grade 60 deformed or plain reinforcement. Use a minimum of one and one-half turns of the spiral for splices. Provide one and one-half closed coils at the ends of each spiral unit. Provide, for each coil, four channel, tee, or angle spacers, weighing approximately 0.8 pounds per linear foot, spacing them equally along the inside periphery of the coil. Include the cost of splices and spacers in the bid for steel reinforcement.

PAYMENT FOR STRUCTURAL STEEL: The lump sum bid for structural steel shall be full payment for all structural steel, bolts, washers, welding and welding materials, floor drains, and all labor and materials necessary to erect the steel in accordance with the plans and specifications. The approximate weight of structure steel shown in the estimate of quantities does not include overrun.

HIGH STRENGTH BOLT CONNECTIONS: Unless otherwise specified on the plans, all bolted connections shall be ASTM A325 1" diameter high strength bolts, nuts, and washers. Open holes shall be $\frac{1}{16}$ " diameter. Type 3 bolts suitable for use with weathering steel shall be used as described in AASHTO M164. All high strength bolted field connections are to be installed using "direct tension indicators" (DTI's) in accordance with the Standard Specifications and ASTM F959. All DTI's shall be manufactured from a steel conforming to the chemical requirements of ASTM A325 for Type 3 weathering steel. DTI's shall be installed under the bolt head with the bumps facing the underside of the bolt head. Put a hardened washer under the nut and tension from the nut.

PROHIBITED FIELD WELDING: No welding of any nature, other than indicated on plans, is to be performed without the written consent of the designer, and then only in the manner and at the locations designated in the authorization.

WELDING SPECIFICATIONS: All welding and welding materials shall conform to "Joint Specification ANSI/AASHTO/AWS D1.5 Bridge Welding Code". Modification and additions as stated on the plans and Special Provision 4 (08), shall supersede the joint specifications.

WELDING PROCEDURE: Qualification tests of all welding procedures shall be completed by the Contractor and approved by the Engineer prior to the final approval of the shop drawings and welding procedure and the start of fabrication.

DRAIN DETAILS: Foundry Note- All drains shall be gray iron castings, ASTM A48, current edition, class 30A. Foundries shall cast at least two test bars from each day's production. These test bars shall be tested by the Division of Materials, or by the Foundries' Quality Control Unit who shall furnish actual test results for each date of manufacture or lot number. Drains shall be painted inside and out. Drain pipe and fittings shall be 6" I.D., 0.25" minimum wall thickness, filament wound with fiberglass epoxy resin formulation with ultraviolet inhibitors. Pipe shall be supplied, pigmented to match the final color of the structural steel. Include the cost of the drain in the lump sum bid for structural steel. The cost of the fiberglass drain pipe is a separate bid item.

MATERIAL:	A.S.T.M	AASHTO
High Strength Low Alloy Structural Steel	•A709 GR 50W	•M270 GR 50W

* Use this equivalent specification with the ANSI/AASHTO/AWS D1.5 welding code, Special Provision 4 (03), and welding notes.

Pintles and stud shear connectors,	UNS G 1018	M-169
------------------------------------	------------	-------

High strength bolts, nuts, and washers A325	M-164	Type 3
---	-------	--------

Sheet lead and Pig lead	B29-79
-------------------------	--------

All flange and web material, including splice plates, in longitudinal plate girders shall meet the longitudinal charpy V-Notch toughness test applicable to Zone 2 minimum service temperature from -1 deg. F. to -30 deg. F. in accordance with the following:

M270 GR 50W	(up to 2" thickness) of 25 ft-lbs at 40° F.
M270 GR 50W	(2" to 4" thickness) of 30 ft-lbs at 40° F.

Other structural steel shall meet the impact testing requirements for non-fracture critical components Zone 2.

Sampling and testing procedures shall be in accordance with AASHTO T243 current edition, utilizing (H) frequency testing. When plate thickness exceeds $\frac{1}{2}$ ", frequency of testing shall be (P).

SHOP DRAWINGS (STRUCTURAL STEEL): The Contractor shall submit detailed shop drawings for all structural steel to the Department for review in accordance with Section 607.03.01 of the specifications.

SHEAR CONNECTORS: The minimum length of studs is $6\frac{1}{8}$ ". Provide the necessary length to penetrate at least 2" above bottom of slab.

The "Lump Sum Bid" for shear connectors shall be full payment for all necessary shear connectors, welding and welding material, and materials necessary to field weld or shop weld the shear connectors in place according to the plans and specifications.

If the Contractor wishes to use something other than the stud shear connectors shown on the plans, the proposed arrangement shall be submitted for approval with the shop plans.

Studs shall be welded in accordance with AWS Specifications.

CAMBER: Web plates shall be cut to provide for the camber of the girder. Provide for possible warpage due to extra heat in the top flange by virtue of the shear connectors. Rolled beams shall be heat cambered according to the plans and specifications. Girders which do not conform to plan camber and grade in the erected position shall be considered as requiring, at no additional cost to the state, either an adjustment in depth of the concrete haunch over the steel supporting members, or a reworking of the girder camber to meet the plan grade and slab thickness. However, in no case shall the shear connectors be allowed to penetrate the slab less than two inches.

MILL TEST REPORTS: Notarized mill test reports shall be furnished in triplicate to the Department, showing that all material used in the structural steel conform to the requirements of the specifications.

BLAST CLEANING: Blast clean all structural steel.

PAINT: Paint the exposed top flange, web, and bottom flange of the fascia side of the exterior girders in accordance with the specifications except as follows: use only a single epoxy shop coat, do not use the zinc-rich primer coat. Include the exposed surface of the fascia side of the exterior girder splice plates. Do not coat any faying surface of the splice connections. Apply the top coat to the fascia side of the bolt assemblies of the splice connections. Field clean each installed bolt to the satisfaction of the Engineer prior to applying the coating system. The final color is to be pigmented to match the long term weathering steel patina. Include all costs associated with painting in with the lump sum bid for structural steel.

FABRICATION AND ERECTION: Since it is important that the finished structure weather to a uniform dark russet color, special precautions are to be taken to assure that all exposed steel surfaces are kept free of grease, dirt, concrete stains, paint, or other foreign substances. Take care to avoid gouges, scratches, and dents. Removal of scale and stains by using acids is not permitted. No element of the structure is to be painted, unless shown otherwise on standard drawings or these plans. It is mandatory that all exposed surfaces in the complete structure be free of any type of shop markings or identification. Scale discolorations produced by welding and any foreign material which adheres to the steel that would inhibit formation of the oxide film is to be removed as soon as practical.

FILE NAME: H:\Archives\PIke\25880_12-1070_00\25880.dgn

USERNAME: Garry-Newton

DATE: 09-MAY-2012

SHEET LOCATION: X4

REVISION		DATE
DATE:	September 2007	CHECKED BY
DESIGNED BY:	C. Van Zee	J. Van Zee
DETAILED BY:	W. T. Mathews	C. Van Zee
Commonwealth of Kentucky		
DEPARTMENT OF HIGHWAYS		
COUNTY PIKE		
ROUTE KY 80	CROSSING Russell Fork, CSX RR & Approach Rd.	
GENERAL NOTES		
PREPARED BY Division of Structural Design		SHEET NO. S2
K. Sandefur Section		DRAWING NO. 25880

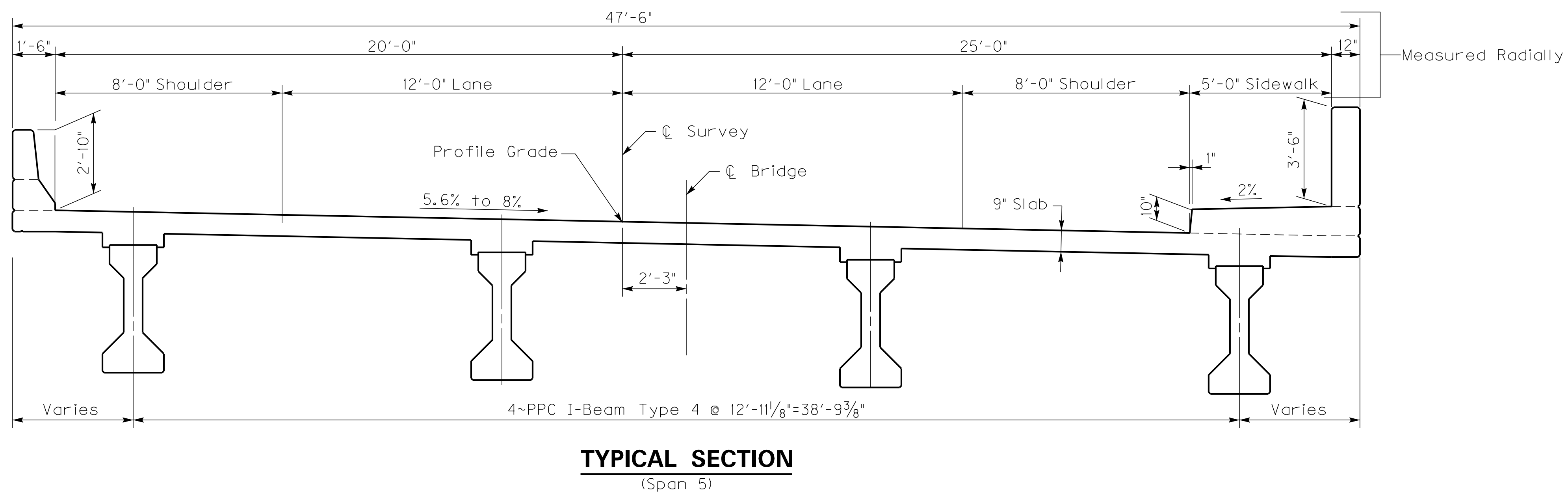
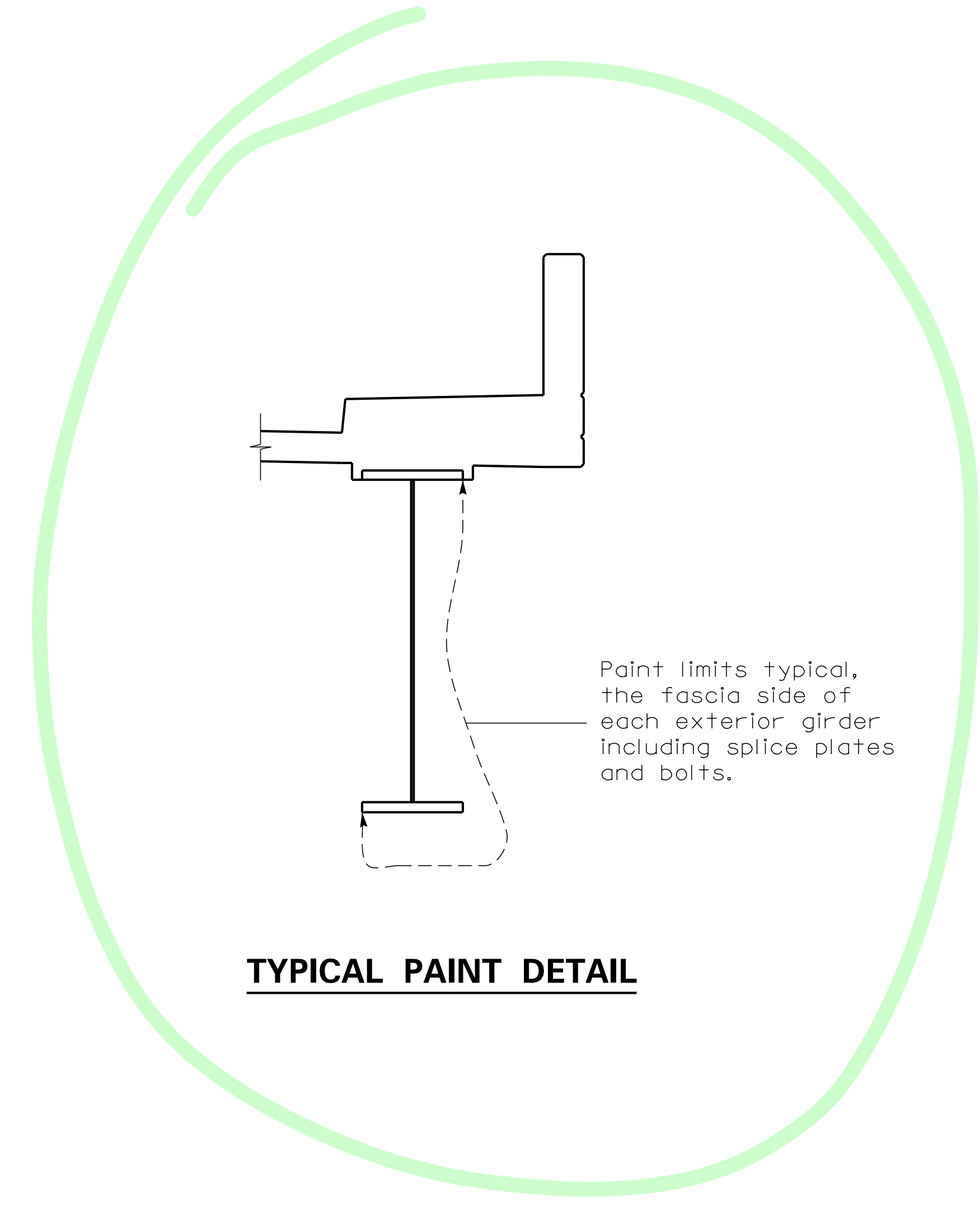
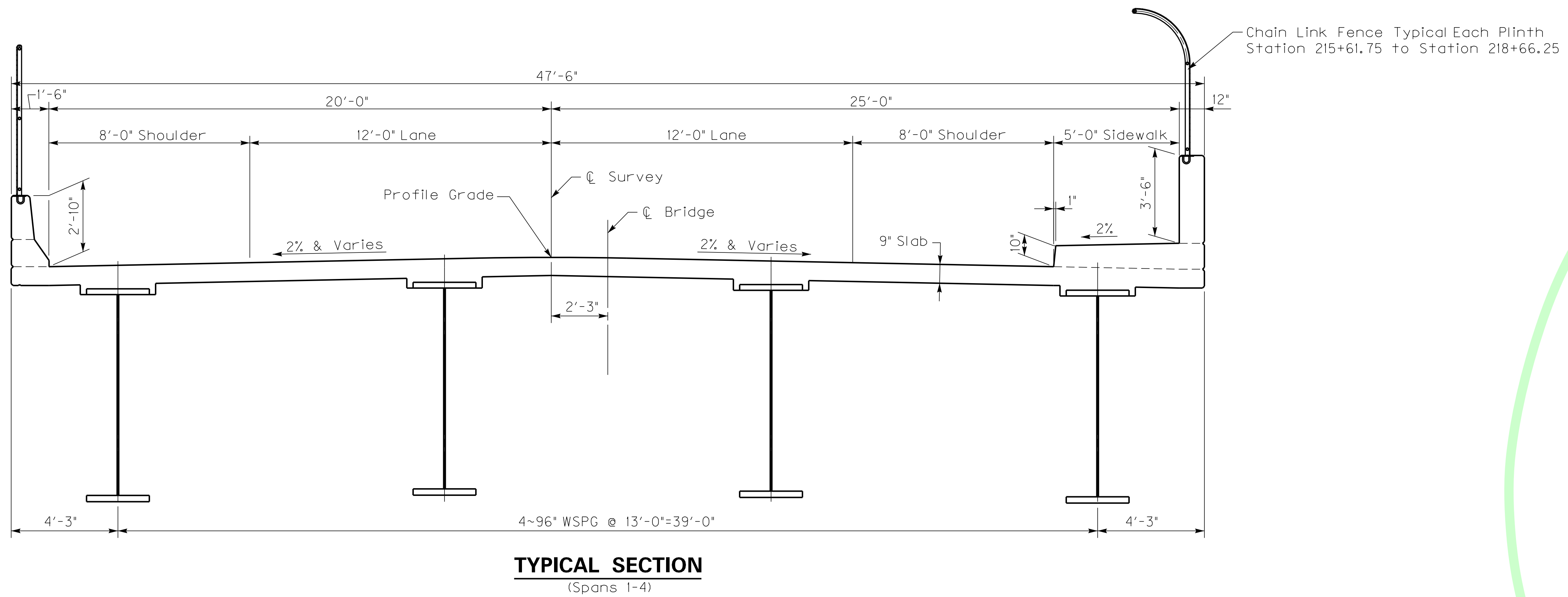
ITEM NUMBER
12-1070.00

FILE NAME: H:\Archives\Pike\25880_12-1070_00\25880.dgn

USERNAME: Gary Newton

DATE: 09-MAY-2012

SHEET LOCATION: BC2



REVISION	DATE
DATE: September 2007	CHECKED BY: J. Van Zee
DESIGNED BY: C. Van Zee	DETAILED BY: W. T. Mathews
	C. Van Zee

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
PIKE

ROUTE: KY 80 CROSSING: Russell Fork, CSX RR & Approach Rd.

LAYOUT

PREPARED BY: Division of Structural Design
K. Sandefur Section

SHEET NO. S6
DRAWING NO. 25880

ITEM NUMBER	12-1070.00
-------------	------------