FELSBURG HOLT & ULLEVIG

COMMENT RESOLUTION FORM

Date:	**1/27/2022**	**Disposition Codes:**	
FHU Project Number	**117253-08 EPC Reviews 2022**	**A. Accept Comment**	**E. Comment Conflicts with Previous Direction**
Project Name:	**Briargate Blvd over Sand Creek Bridge**	**B. Delete Comment**	**F. Designer to Evaluate Comment**
Project Number:	**EPC PCD CDR2113**	**C. Clarify Comment**	**G. Discuss Comment; Follow-up Required**
Client:	**El Paso County**	**D. Disagree with Comment**	
Designer:	**Kiowa Engineering Corporation**		
Submittal:	**1/03/2022 Plans; 12/6/2021 Sand Creek Drainageway Design Report; 1/29/2021 Subsurface Soil Investigation**	**Other Review:**	**N/A**

Reviewer Comments				Designer/Consultant Response			Final Disposition		
Comment No.	**Reviewer**	**Sheet/ Page No.**	**Comments**	**Initial Code**	**Date**	**Response**	**Code**	**Date**	**Initials**
1	CAO	General	Project specifications not submitted						
2	CAO	General	Design calculations and independent check calculations not submitted. CDOT Bridge Design Manual (BDM) requires both. EPC Engineering Criteria Manual requires conformance with CDOT BDM.						
3	CAO	General	The items noted in the EPC Check list for acceptance of bridges should be supplied to El Paso County. See second tab in this spreadsheet for Structure Record list.						
4	CAO	General	Conspan Bridge plans, details and design calculations not provided for review. Assume this will be handled in shop drawings. Shop drawings shall be reviewed by the Engineer of Record (EOR).						
5	CAO	General	Check all sheet references throughout plans set. Many appear to be referring to the wrong sheet. Typical all sheets.						
6	CAO	C001	State which year is applicable.						
7	CAO	C201	Suggest showing boring location in plan view for reference.						
8	CAO	C201	Does not correlate with thickness shown in Section B on Sheet C203.						
9	CAO	C201	Nothing submitted. Footing detail is show on C203. Is this not the intended detail?						
10	CAO	C201	Move grade control pile to the correction station in this view.						
11	CAO	C202	Label major contours.						
12	CAO	C202	Expand viewport to capture the end of this wingwall and TOC.						
13	CAO	C202	Sidewalk widths shown in this view do not appear to match plan view.						
14	CAO	C202	The bottom of this footing appears to be above the invert. What are bottom of footing elevations? Any required stepping for bottom of footing to align with grading?						
15	CAO	C203	Elevation does not match that shown on sheets C201 nor C202.						
16	CAO	C203	Section is cut at mid length of structure. Invert elevation should be less than 7089.00 per the bridge profile invert information. Otherwise this dimension seems off.						
17	CAO	C203	Sheet not provided or this is mislabeled.						
18	CAO	C203	Show minimum dimension that weep hole shall be above finished grade.						
19	CAO	C203	CDOT required base of spread footing to be 36 inches below finished grade for frost protection. Confirm design geometry and dimension to meet criteria.						
20	CAO	C203	Unclear what this is pointing to.						
21	CAO	C203	CIP concrete walls should have expansion joints and control joints per CDOT and general engineering practice for long retaining walls. Provide details and notes.						
22	CAO	C203	Unclear which soil was assumed for design. Geotechnical report gives three different allowable bearing pressures for three different types of bearing soil. Include design allowable pressure in plans. However, it should be noted that CDOT and EPC require LRFD design and not ASD.						
23	CAO	C203	Design seems incomplete. Is this a spread footing or a retaining wall on H-Pile with pile cap? If the latter, additional details are needed. What is bottom of footing elevation at each wall?						
24	CAO	C203	No H-piles are shown here not in foundation plan. Please clarify the design of this wall.						

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25	CAO	C203	Confirm that this is a pile cap. There are no H-piles shown here. If H-piles are intended, how far are the expected to be driven? Provide and estimated tip elevation. Also need details to show embedment into pile cap. An elevation view of the walls could help clarify.						
26	CAO	C203	Geotechnical report states that expansive soil could be encountered in some areas. How is this being handled for the Conspan structure foundations and wingwalls?						
27	CAO	C203	Suggest providing details showing the excavation recommendations outlined in the geotechnical report for structures and foundations.						
28	CAO	C204	Need to provide the actual M-Standard intended. There is more than one M-606.						
29	CAO	C211	How does the precast fabricator know the dimensions of the headwalls? Suggest providing basic elevations and dimensions to assist in the shop drawing development.						
30	CAO	C211	Geotechnical Report recommends 1.5:1 or flatter.						
31	CAO	C211	Is this equivalent to CDOT Class 1 backfill or the geotechnical recommendation?						
32	CAO	C211	Where does this apply?						
33	CAO	C211	Where does this apply?						
34	CAO	C212	Details seem incomplete. What is the height of the concrete encasement? What are the dimension and height of the concrete pedestals? Is reinforcement needed? Where are these mounting details to be used?						
35	CAO	C212	Need to provide the actual M-Standard intended. There is more than one M-606.						
36	CAO	C212	Reference location of this detail.						
37	CAO	C212	Unclear what you are referring to here.						
38	CAO	C212	Need to provide the actual M-Standard intended. There is more than one M-606.						
39	CAO	C212	Confirm sidewalk width shown here with plan views.						
40	CAO	C213	EPC Engineering Criteria Manual Section 2.5 states that railings shall not have openings large enough to pass a 4-inch sphere. This is consistent with AASHTO and CDOT criteria for pedestrian railings. It should be discussed with the County if the railings on the wingwalls and headwalls are considered pedestrian railings. Sidewalks are parallel to some wingwalls and the walls are within approx. 10-ft or less in some locations.						
41	CAO	C213	Where? IS this this fixed joint details?						
42	CAO	C213	Recommend more than one for rails over 80-ft in length.						
43	CAO	C213	Wingwall also?						
44	CAO	C301	Check dimension. Does not correlate with the 70'-0" dimension in Section C-C.						
45	CAO	C301	Check dimension. Does not correlate with the 30'-0" dimension in Section C-C.						
46	CAO	C301	Is the location of this section cut in the right place for what is shown in the Section B-B detail?						
47	CAO	C301	Clarify sheet reference.						
48	CAO	C301	Check dimension. Does not correlate with the 20'-0" dimension in Plan view.						

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49	CAO	C301	Check dimension. Does not correlate with the 60'-0" dimension in Plan view.						
50	CAO	C301	Clarify sheet reference.						
51	CAO	C301	Delete ":1". Not needed when showing the rise and run in section.						
52	CAO	C301	Specifications were not provided for review.						
53	CAO	C302	These three dimensions do not add up to 118'-0".						
54	CAO	C302	What is this dimensioning to?						
55	CAO	C302	Is this correct typical slope of 5:1? Dimensions in Section C-C indicate 4:1.						
56	CAO	C302	Check dimension. Does not correlate with the 30'-0" dimension in Section C-C.						
57	CAO	C302	What is this dimensioning to?						
58	CAO	C302	Is this the correct elevation? If this is the 4'drop structure, plan sheet C301 shows a crest elevation of 93.0.						
59	CAO	C302	Check dimensions. Does not match Plan view.						
60	CAO	C302	Check dimension. Does not correlate with the 20'-0" dimension in Plan view.						
61	CAO	C302	Delete ":1". Not needed when showing the rise and run in section. Slope appears to be 4:1 with 20' run and 5' rise dimensioned in this section.						
62	CAO	C302	Clarify sheet reference.						
63	CAO	C303	Sheet pile size? What is total length needed?						
64	CAO	C303	Does not match either crest elevation on Sheets C301 & C302.						
65	CAO	C303	Where is this section cut? Is this intended to be a detail blow up of part of Section C-C on sheets C301 & C302?						
66	CAO	C303	This is shown on Sheet C301. Why repeat here?						
67	CAO	SSI Report Page 2 & 5	Recommend updating to add language for the final bridge type. Report mentions in multiple places that a vehicle bridge with H-pile foundations will be constructed.						
68	CAO	SSI Report Page 7	CDOT requires LRFD design.						
69	CAO	SSI Report Page 7	CDOT requires base of footing to be 36 inches below finished grade for frost protection.						
70	CAO	SSI Report Page 9	Be aware that for H-piles, CDOT specifications requires Wave Equation Analysis, PDA or Static Load Test to determine nominal driving resistance.						
71	KMG	C203	This seems to be the only call out or detail for the riprap lined channel. Are there dimensions or station limits called out anywhere? The drainage report refers to soil riprap instead of void filled riprap.						
72	KMG	C301	Clarify this reference, which criteria manual?						
73	KMG	C301	Clarify the thickness of the bedding						
74	KMG	C301	What does this reference mean?						
75	KMG	C301	Consider adding existing/pr. contours further outside of the riprap view to more clearly show how the drop structure is tying in.						
76	KMG	C302	What does this reference mean?						
77	KMG	C302	Check riprap limits against section B-B, looks like they extend further.						
78	KMG	C302	Consider adding existing/pr. contours further outside of the riprap view to more clearly show how the drop structure is tying in.						
79	KMG	C303	This riprap is not shown on the drop structure details.						
80	KMG	Bridge Design Report, page 4	only the 100-year summary is provided in the appendix						

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81	KMG	Bridge Desing Report, general	Provide drop structure calculations for boulder sizes, drop structure dimensions, cutoff wall depth, etc.Discuss if the simplified or detailed drop structure design procedure was used.						
82	KMG	Bridge Design Report, Appendix	Delete duplicate appendix cover sheets						
83	KMG	Bridge Design Report, Appendix A	Add FEMA FIRM Panel						
84	KMG	Bridge Design Report, Floodplain Figure	are the existing condition (CE) floodplain limits significantly different from the FEMA limits? If so, add them to this figure.						
85	KMG	Bridge Design Report, Floodplain Figure	where does the proposed floodplain tie into the FEMA floodplain?						
86	KMG	Bridge Design Report, page 21	I don't think this will affect the final riprap size, but double check that this step was squared per the equation above.						
87	KMG	Bridge Design Report, page 31, 32	Show the expansion and contraction calculations that dictate where the ineffective flow areas need to be set upstream and downstream of the culvert.						
88	KMG	Bridge Design Report, page 32	Confirm the expansion and contraction coefficients were changed at the upstream and downstream culvert cross-sections						
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Verifier Signature:		**Date:**	
Distribution: FHU, El Paso County		**Other - Specify:**	