
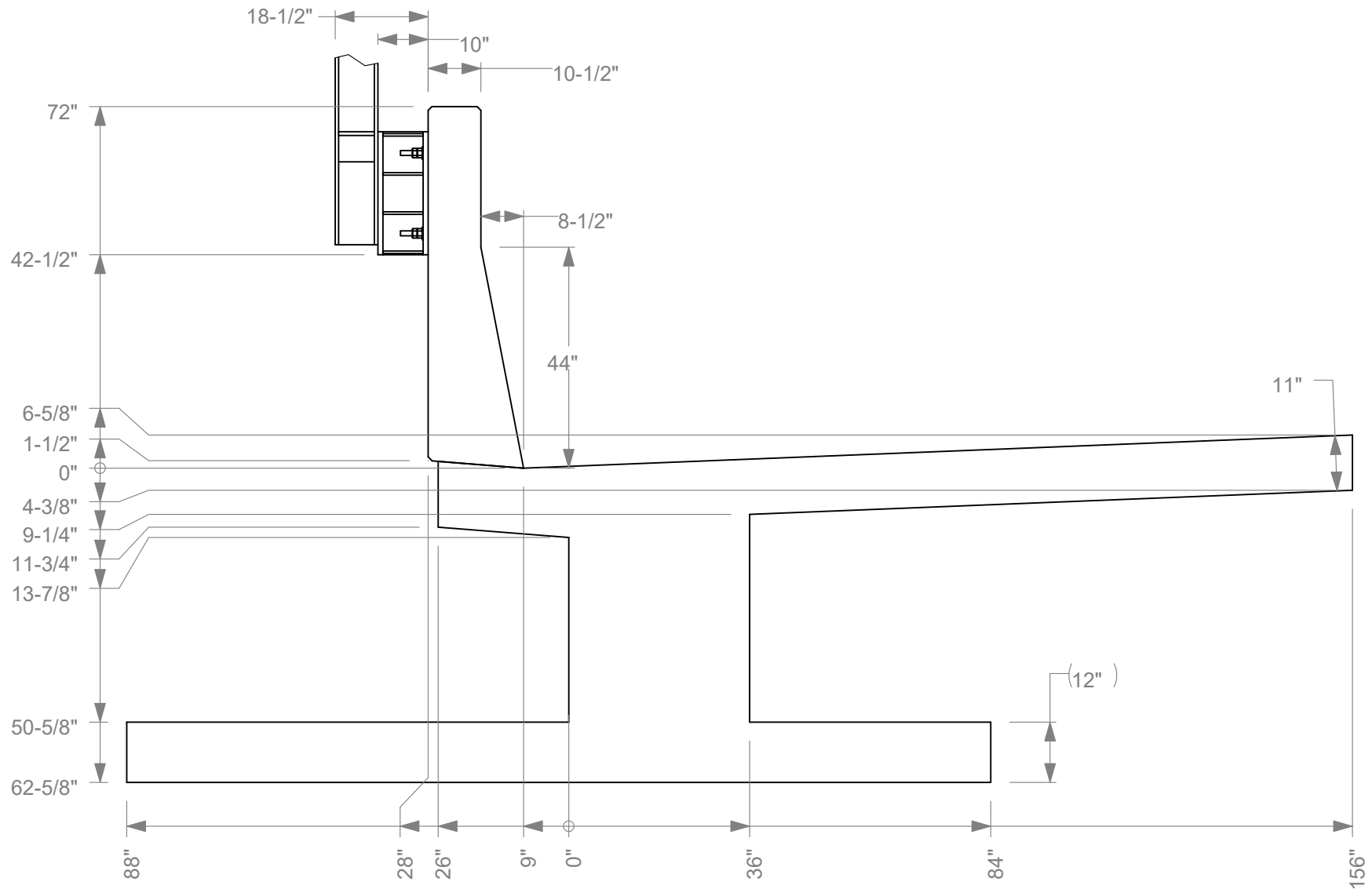


REINFORCEMENT BARS
 REINFORCEMENT BARS, INCLUDING EPOXY-COATED REINFORCEMENT BARS, SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-31 (ASTM A706), GRADE 60, DEFORMED BARS.

CAST-IN-PLACE CONCRETE
 ALL EXPOSED CONCRETE EDGES SHALL HAVE A 3/4" X 45° CHAMFER, EXCEPT WHERE SHOWN OTHERWISE.
 ALL CONCRETE = 4,000 PSI

		Roadside Safety and Physical Security Division - Proving Ground	
Project #690900-ITG FShape and Single Slope			2019-08-22
Drawn by BLG	Scale 1:225	Sheet 1 of 35 Test Installation	



Single Slope
End View



Roadside Safety and
Physical Security Division -
Proving Ground

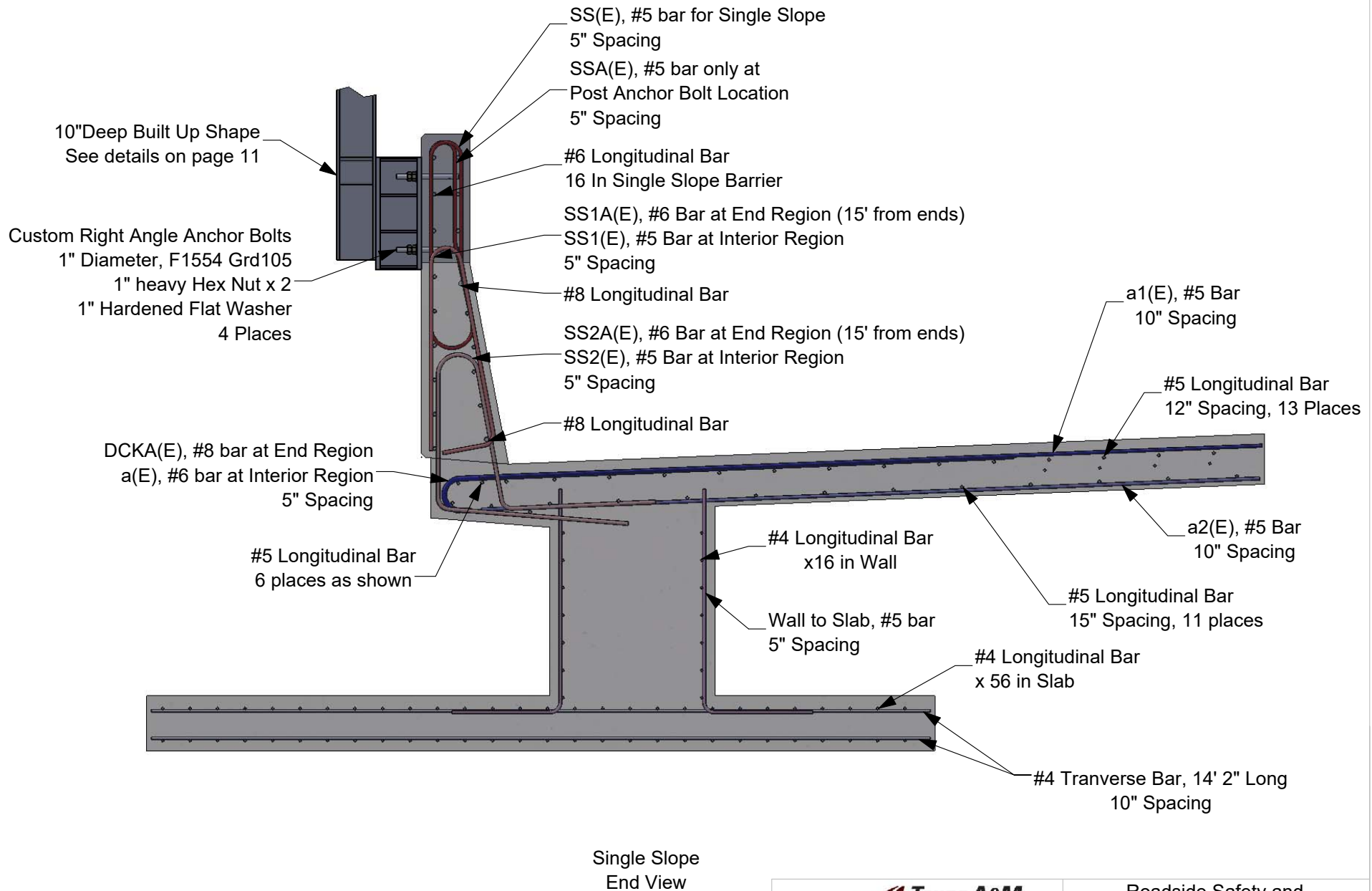
Project #690900-ITG FShape and Single Slope

2019-08-22

Drawn by BLG

Scale 1:30

Sheet 2 of 35 Single Slope End

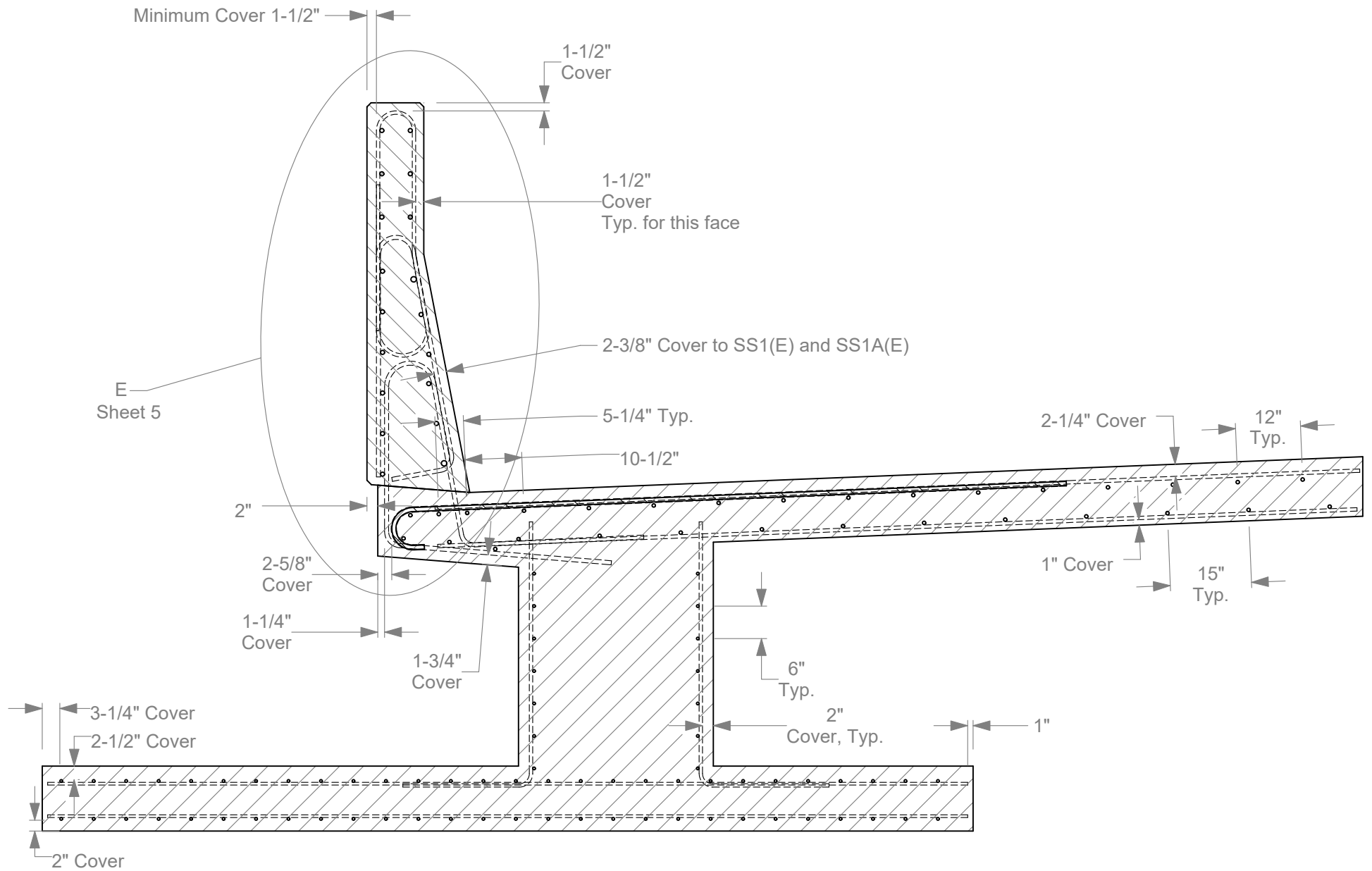


- 3a. All Rebar is 60 ksi rated
- 3b. All Epoxy Coated Rebar is designated with (E)



Roadside Safety and
Physical Security Division -
Proving Ground

Project #690900-ITG FShape and Single Slope		2019-08-22
Drawn by BLG	Scale 1:30	Sheet 3 of 35 Single Slope bar Callout



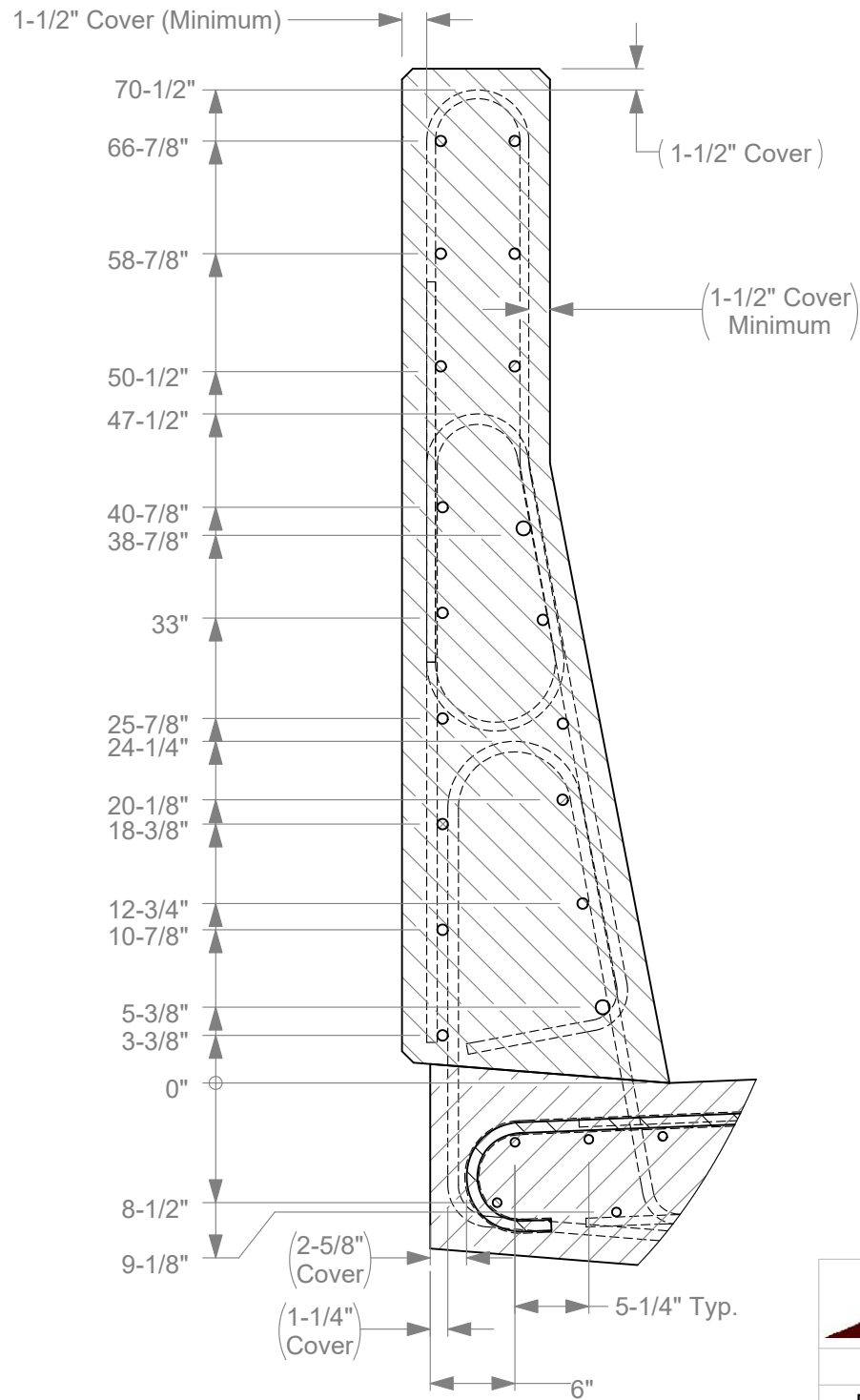
Section A-A
Single Slope
Away from NAW Posts

- 4a. All Rebar is 60 ksi rated
- 4b. All Epoxy Coated Rebar is designated with (E)



Roadside Safety and
Physical Security Division -
Proving Ground

Project #690900-ITG FShape and Single Slope		2019-08-22
Drawn by BLG	Scale 1:25	Sheet 4 of 35 Single Slope bar Locations

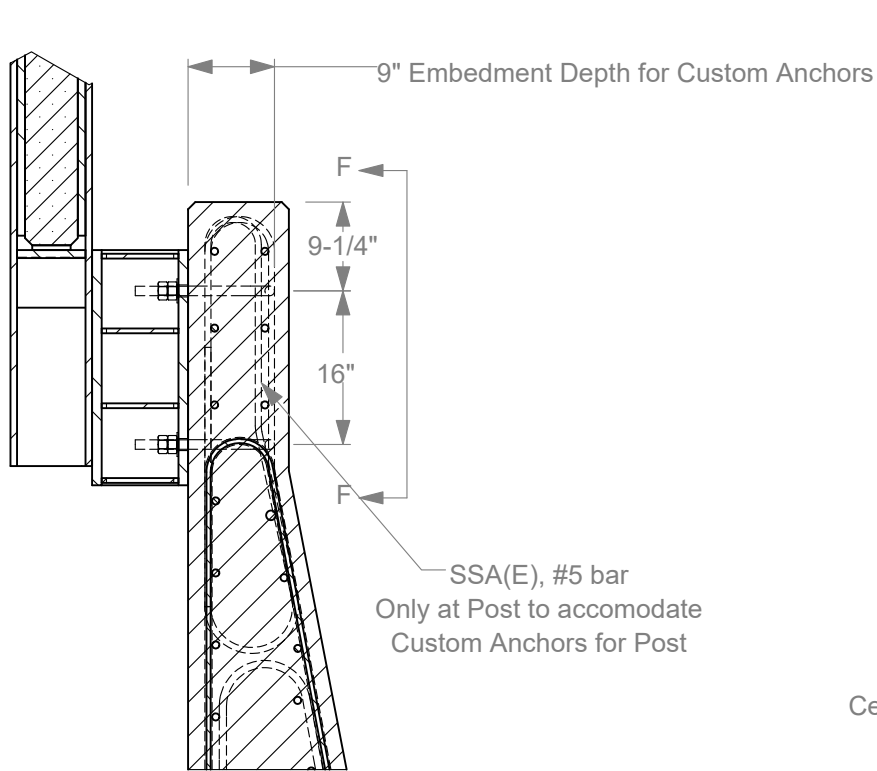


Detail E

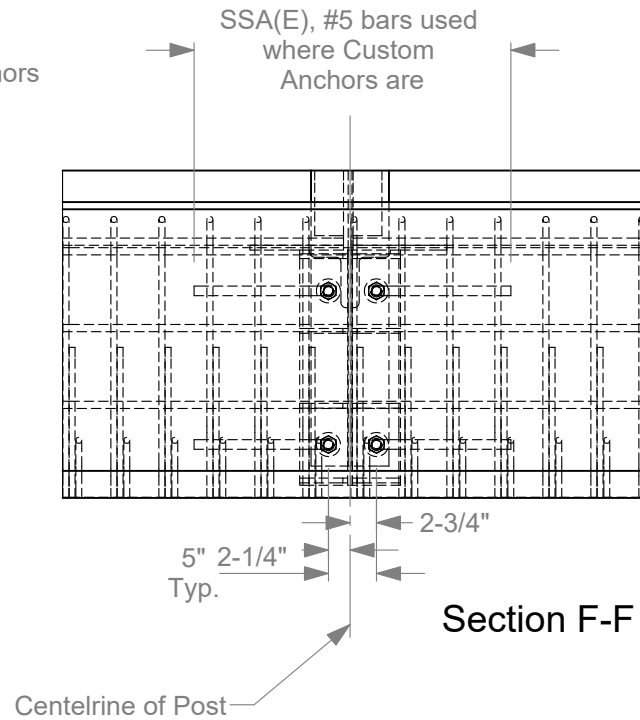


Roadside Safety and
Physical Security Division -
Proving Ground

Project #690900-ITG FShape and Single Slope		2019-08-22
Drawn by BLG	Scale 1:13	Sheet 5 of 35
Single Slope bar Locations 2		



Section B-B
Single Slope

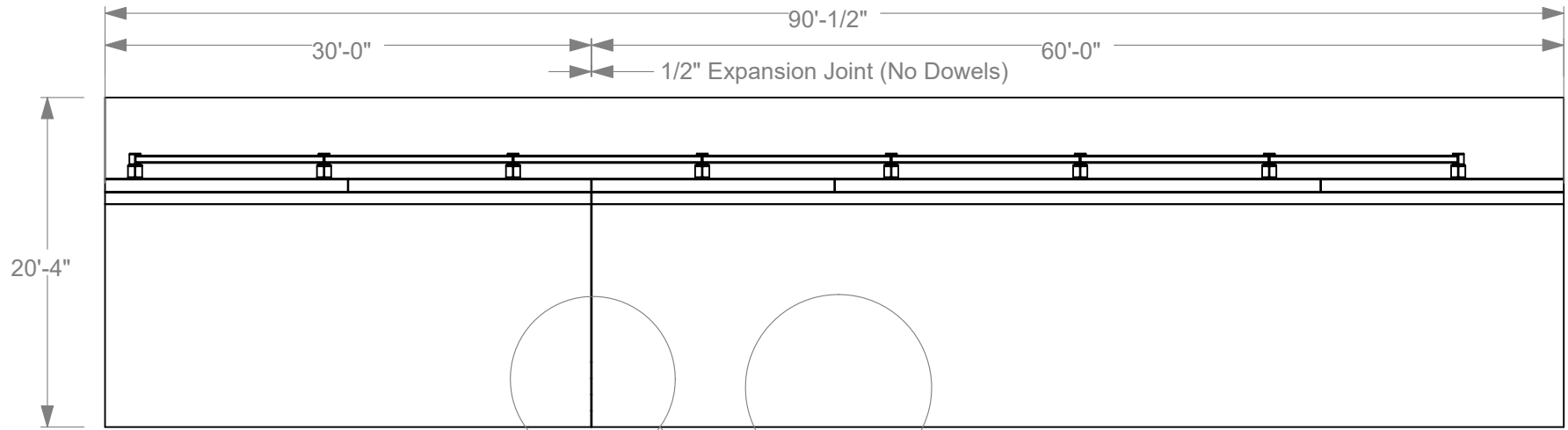


- 6a.** All Rebar is 60 ksi rated
- 6b.** All Epoxy Coated Rebar is designated with (E)

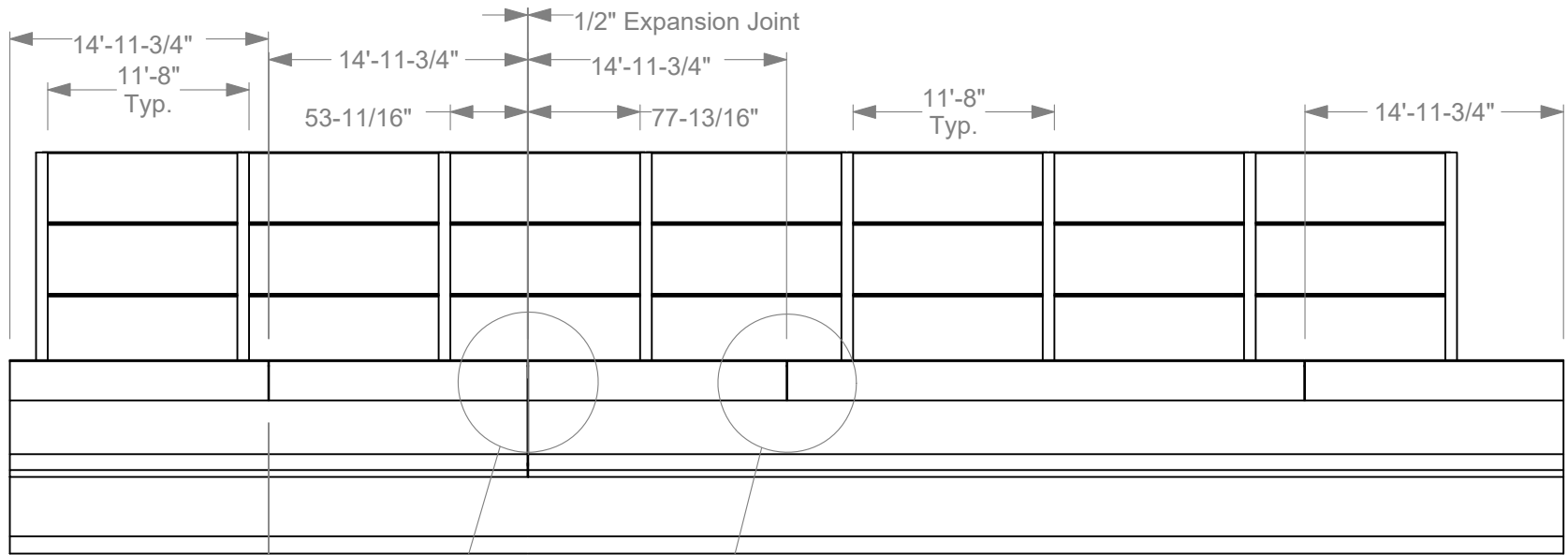


Roadside Safety and
Physical Security Division -
Proving Ground

Project #690900-ITG FShape and Single Slope		2019-08-22
Drawn by BLG	Scale 1:20	Sheet 6 of 35 Single Slope at Post



Single Slope Plan View



Single Slope Elevation View

1/2" Joint
No rebar or Dowels
3 places



Roadside Safety and
Physical Security Division -
Proving Ground

Project #690900-ITG FShape and Single Slope

2019-08-22

Drawn by BLG

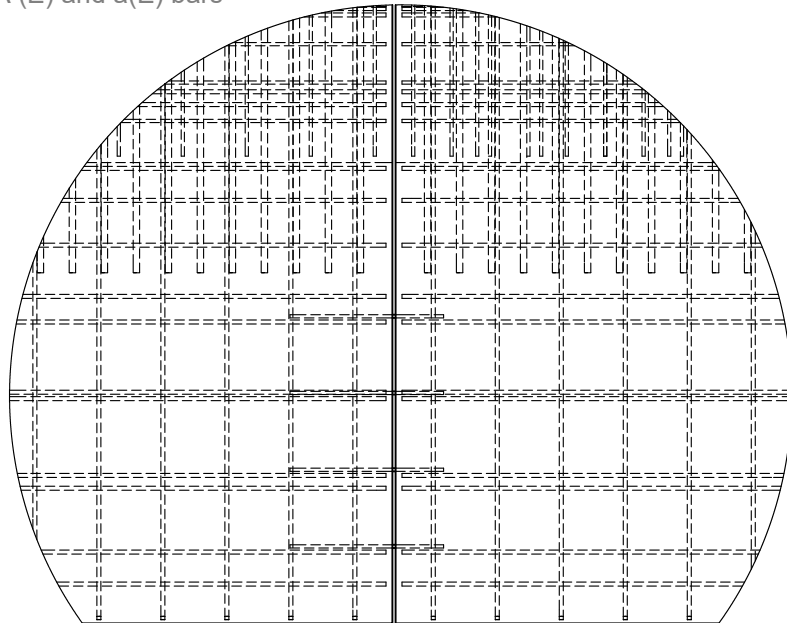
Scale 1:125

Sheet 7 of 35 Single Slope Deck Views

Detail G

Single Slope at
Expansion Joint

4-1/2" Cover to DCKA(E) bar
5" Typ. for
DCKA (E) and a(E) bars

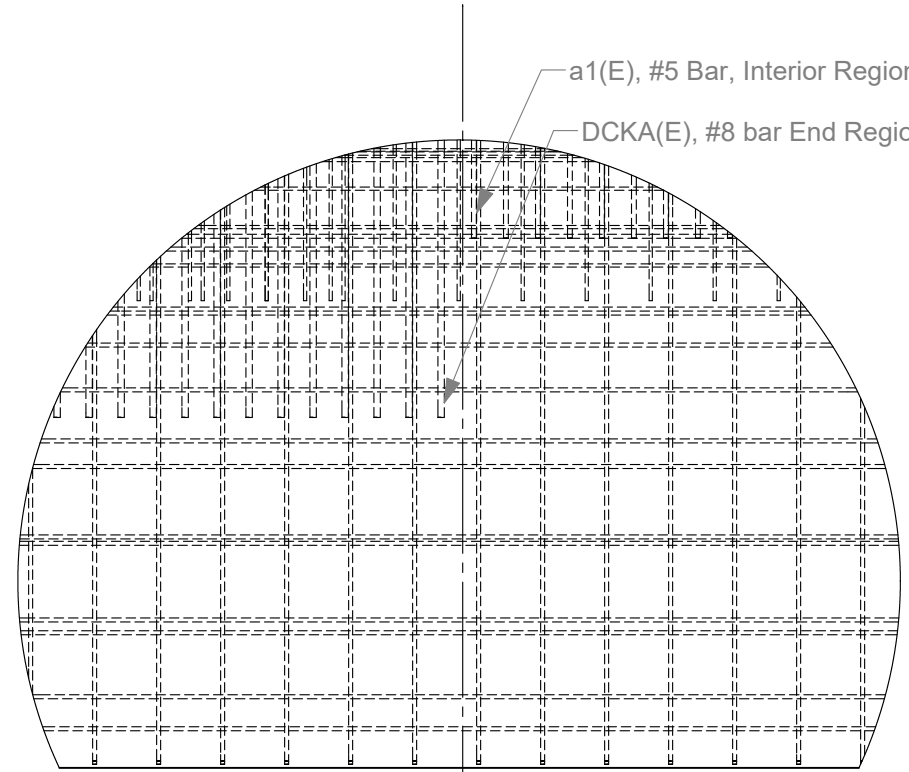


10" Typ. for
a1(E) and a2(E) bars
5-5/8" Cover
for a1(E) and a2(E) bars

Detail H


Single Slope at
End Region transition to Interior Region

a1(E), #5 Bar, Interior Region
DCKA(E), #8 bar End Region



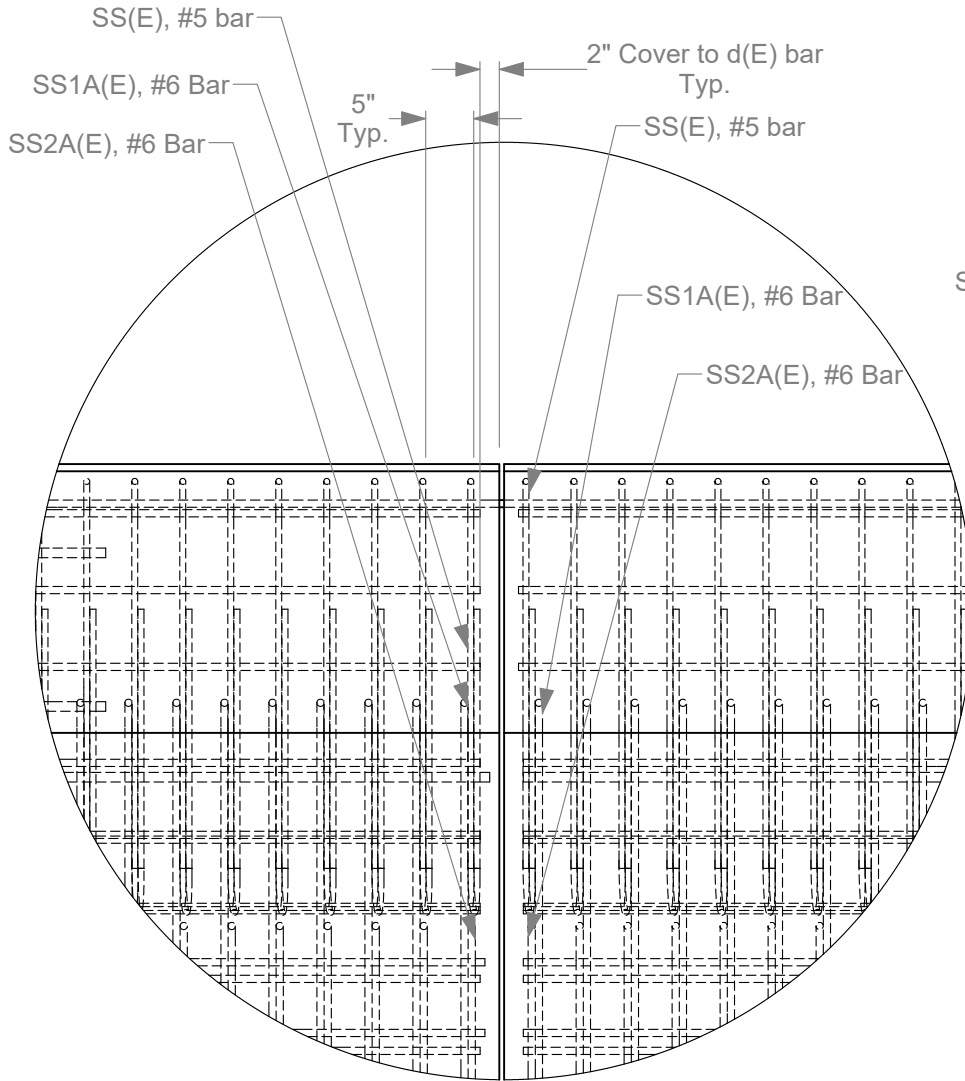
End Region stops 15' from ends
Interior Region Starts 15' from ends

- 8a. All Rebar is 60 ksi rated
- 8b. All Epoxy Coated Rebar is designated with (E)

	Roadside Safety and Physical Security Division - Proving Ground	
	Project #690900-ITG FShape and Single Slope	2019-08-22
Drawn by BLG	Scale 1:30	Sheet 8 of 35 SS Deck Rebar Locations

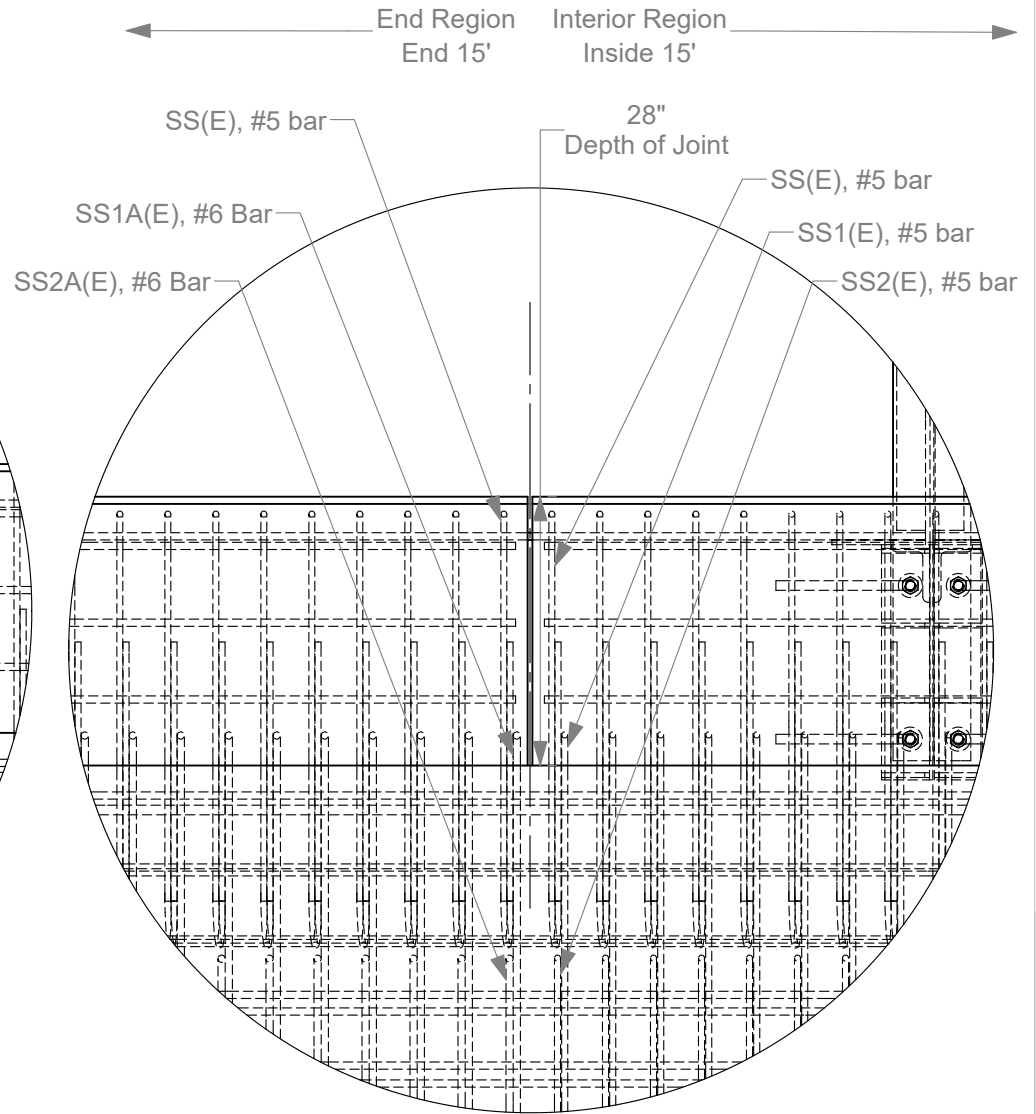
Detail I

Single Slope barrier
at Expansion Joint



Detail J

Single Slope Barrier at
end region to
interior region transition

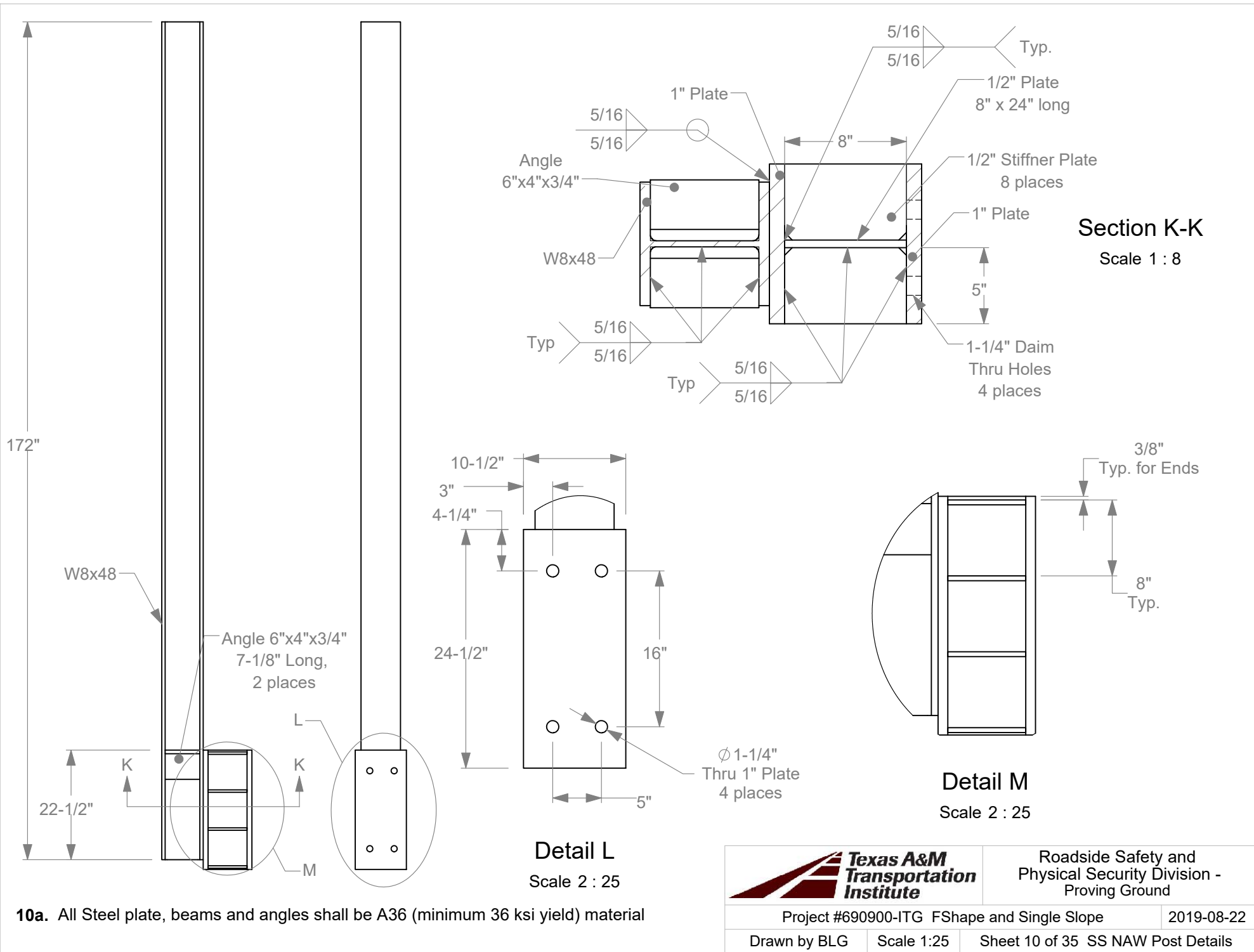


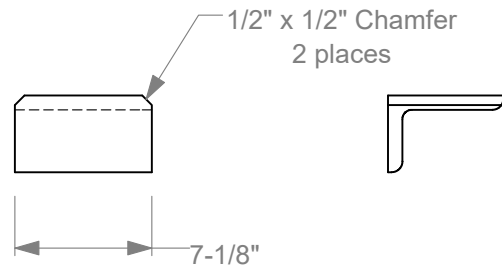
- 9a. All Rebar is 60 ksi rated
- 9b. All Epoxy Coated Rebar is designated with (E)



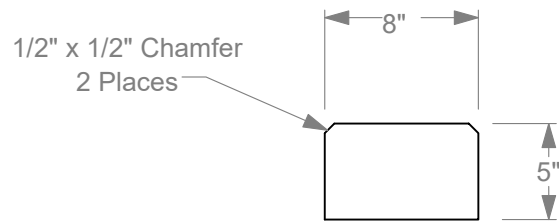
Roadside Safety and
Physical Security Division -
Proving Ground

Project #690900-ITG FShape and Single Slope		2019-08-22
Drawn by BLG	Scale 1:20	Sheet 9 of 35 SS Barrier Rebar Locations

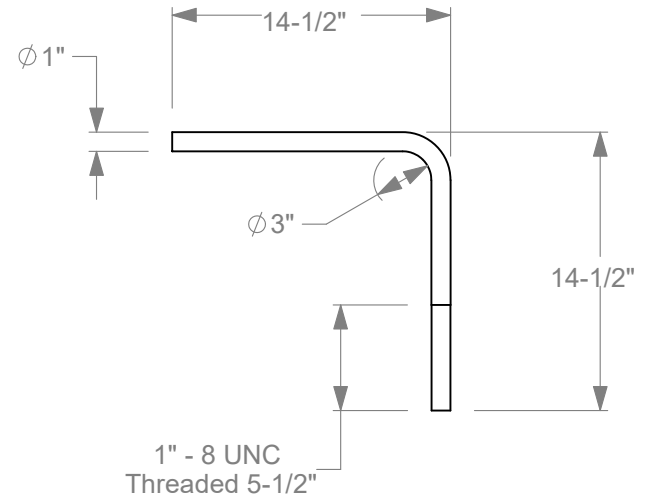




Angle, 6"x4"x3/4"
2 needed per post



Stiffner Plate, 1/2" thick
8 needed per post



Custom Right Angle Anchor
F1554 Grd 105
4 needed per post

11a. All Steel plate, beams and angles shall be A36 (minimum 36 ksi yield) material



Roadside Safety and
Physical Security Division -
Proving Ground

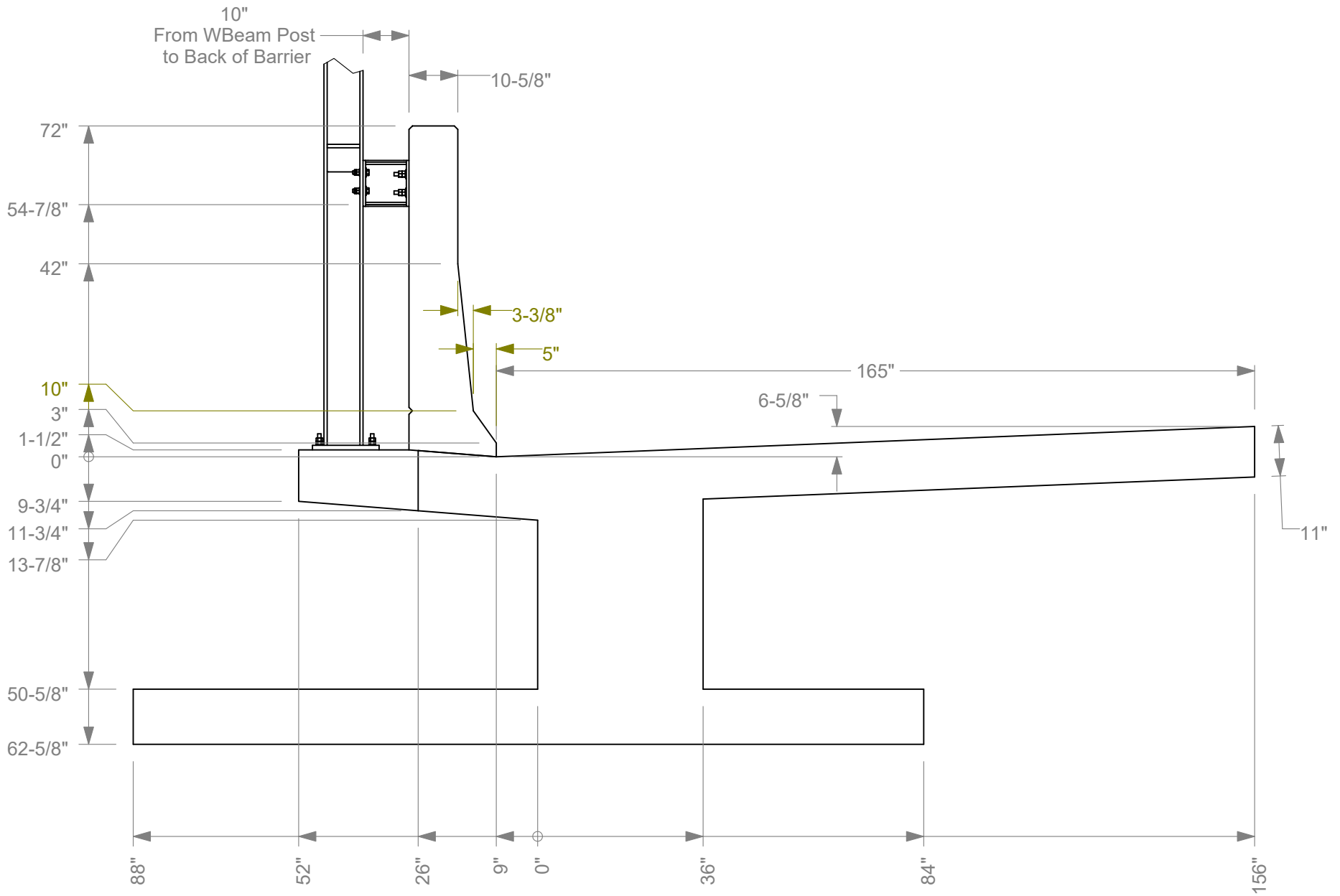
Project #690900-ITG FShape and Single Slope

2019-08-22

Drawn by BLG

Scale 1:10

Sheet 11 of 35 SS Post Build Up Details

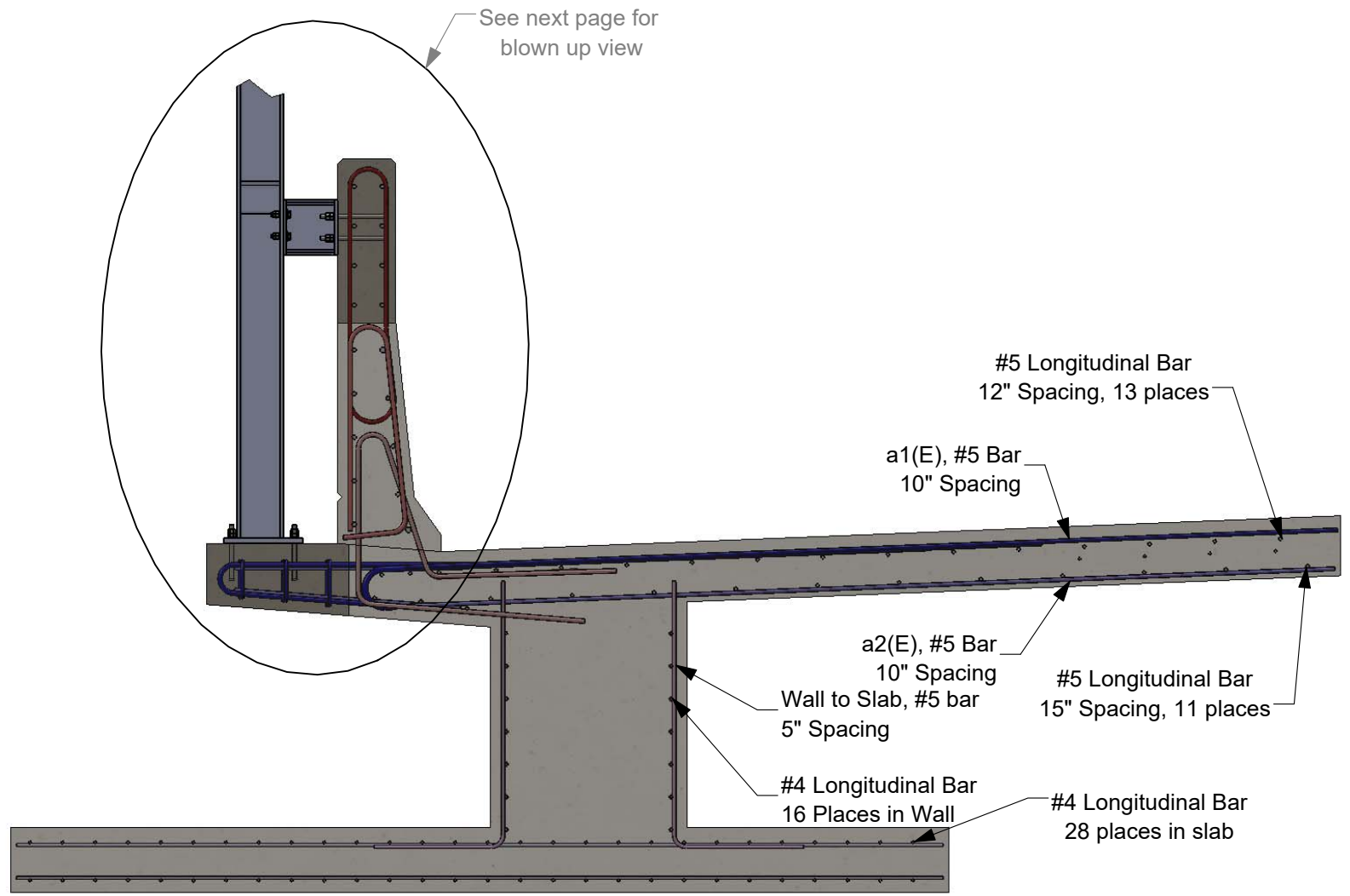


End View
F-Shape



Roadside Safety and
Physical Security Division -
Proving Ground

Project #690900-ITG FShape and Single Slope		2019-08-22
Drawn by BLG	Scale 1:30	Sheet 12 of 35 FShape End View



See next page for blown up view

End View
F-Shape

13a. All Rebar is 60 ksi rated

13b. All Epoxy Coated Rebar is designated with (E)



Roadside Safety and Physical Security Division - Proving Ground

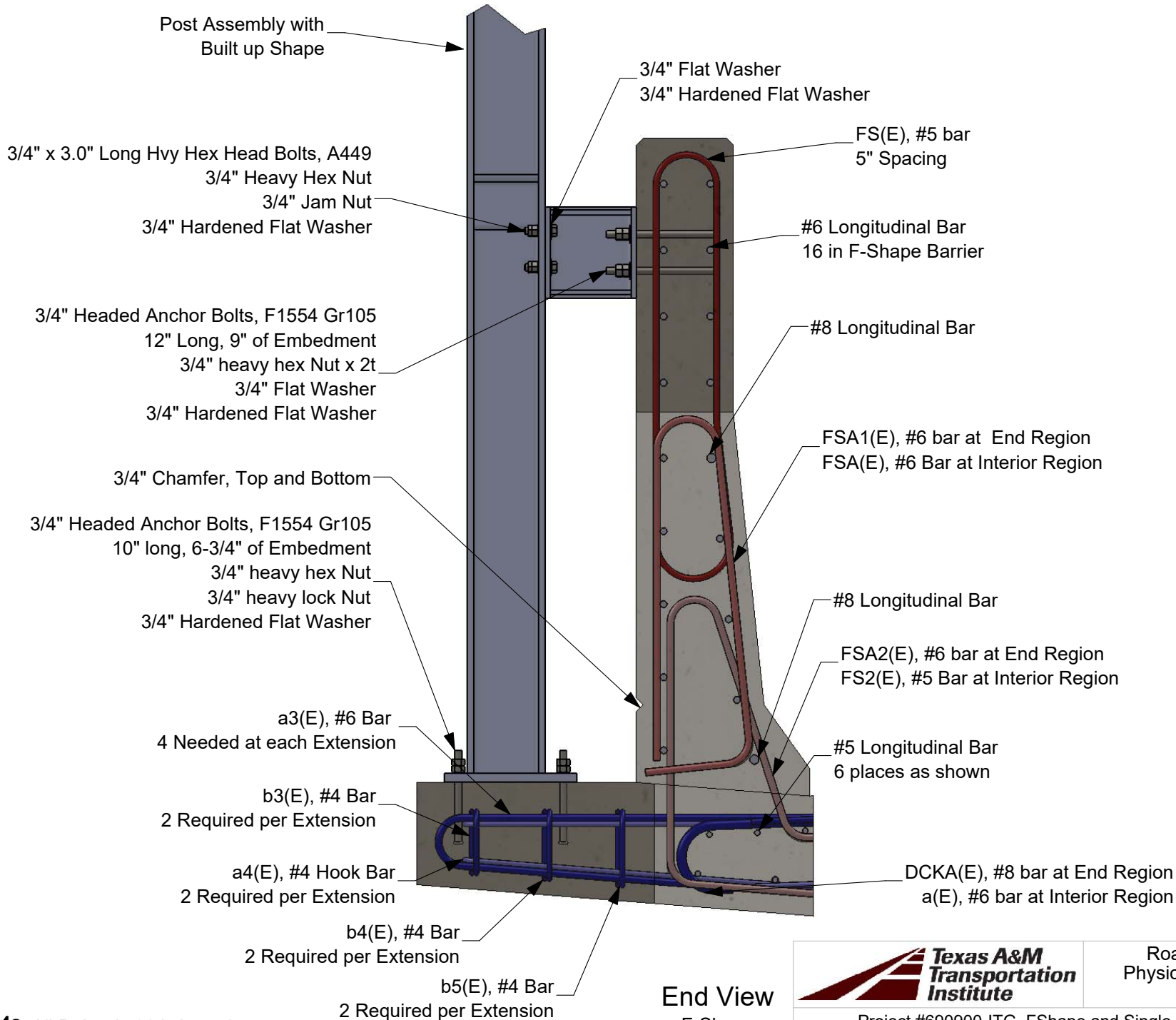
Project #690900-ITG FShape and Single Slope

2019-08-22

Drawn by BLG

Scale 1:30

Sheet 13 of 35 FShape bar Callout



14a. All Rebar is 60 ksi rated

14b. All Epoxy Coated Rebar is designated with (E)

End View
F-Shape



Roadside Safety and
Physical Security Division -
Proving Ground

Project #690900-ITG FShape and Single Slope

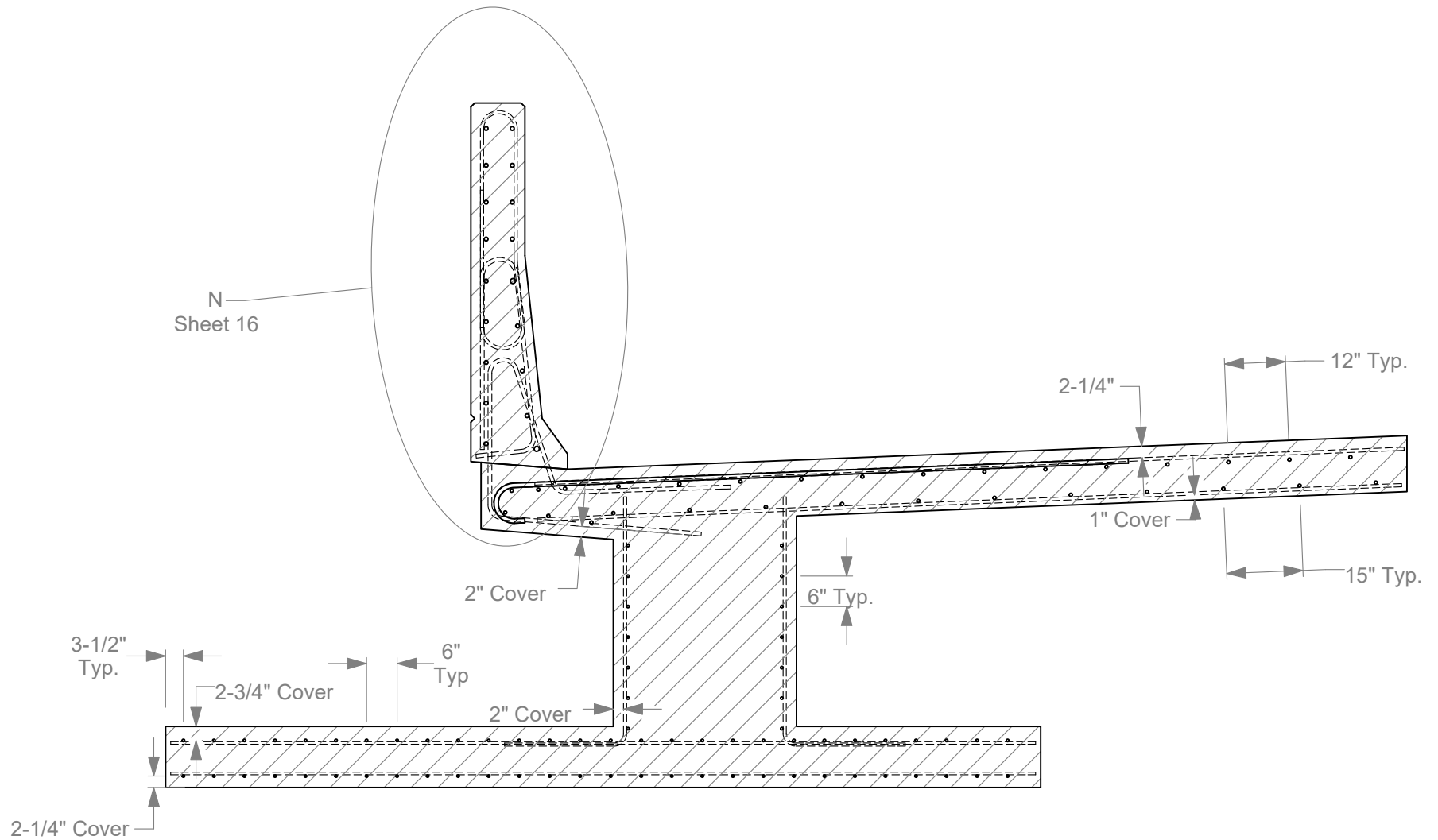
2019-08-22

Drawn by BLG

Scale 1:15

Sheet 14 of 35 FShape bar Callout, 2

N
Sheet 16



Section C-C
F-Shape at Extension

15a. All Rebar is 60 ksi rated

15b. All Epoxy Coated Rebar is designated with (E)



Roadside Safety and
Physical Security Division -
Proving Ground

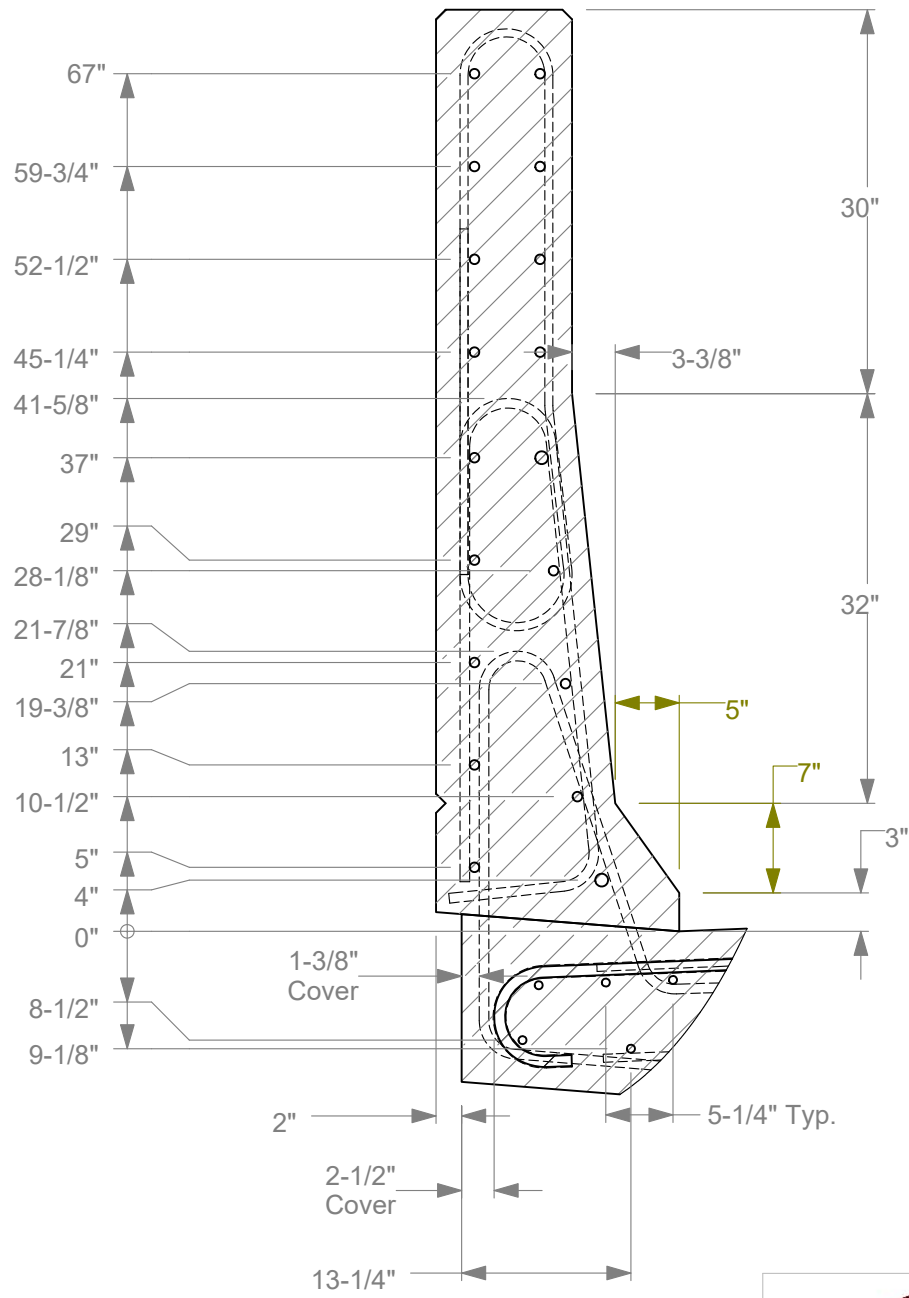
Project #690900-ITG FShape and Single Slope

2019-08-22

Drawn by BLG


Scale 1:30

Sheet 15 of 35 FShape bar Location

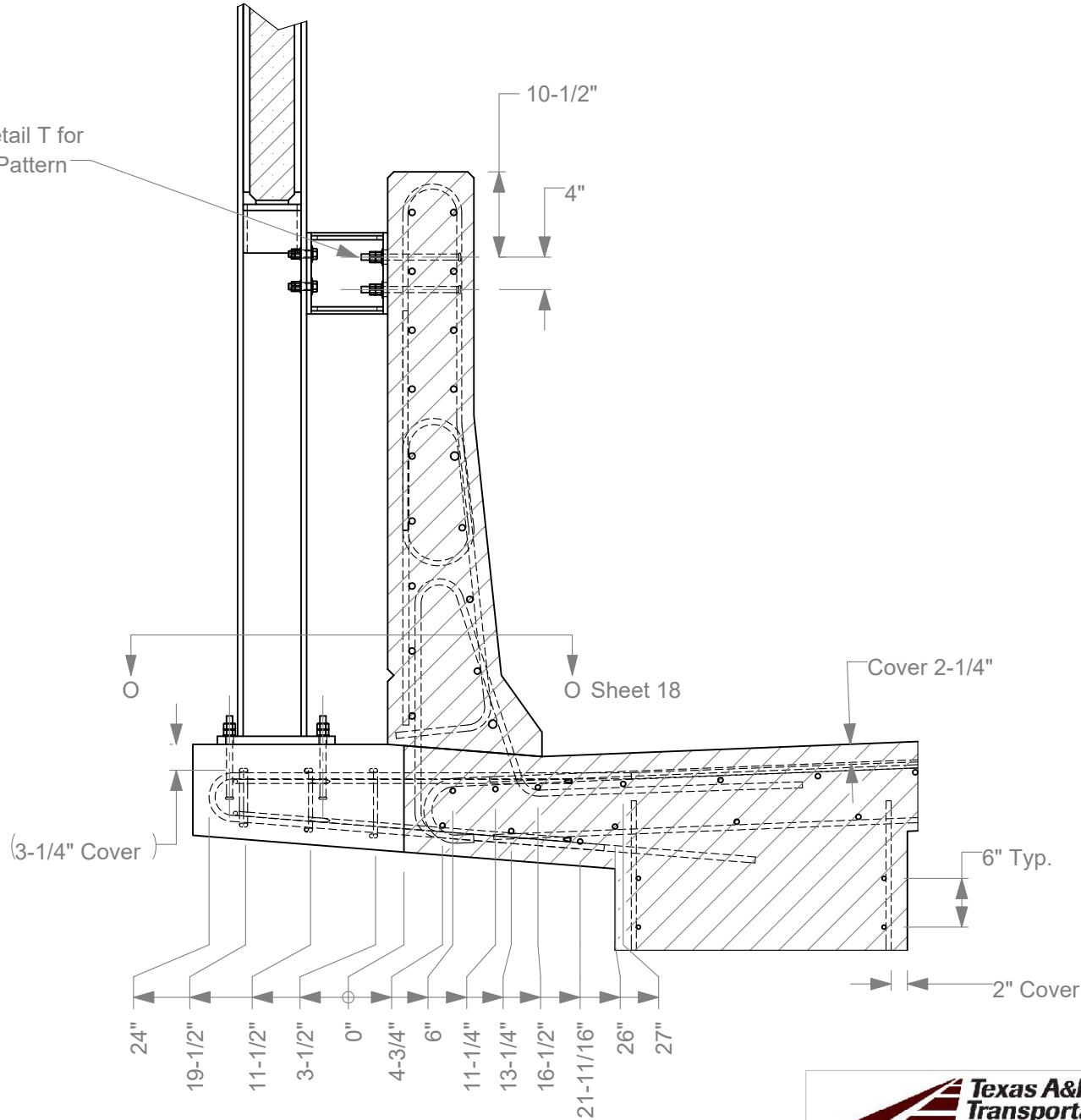


Detail N
Scale 1 : 15

16a. All Rebar is 60 ksi rated
16b. All Epoxy Coated Rebar is designated with (E)

		Roadside Safety and Physical Security Division - Proving Ground	
Project #690900-ITG FShape and Single Slope		2019-08-22	
Drawn by BLG	Scale 1:30	Sheet 16 of 35 FShape bar Location, 2	

See Detail T for Bolt Pattern



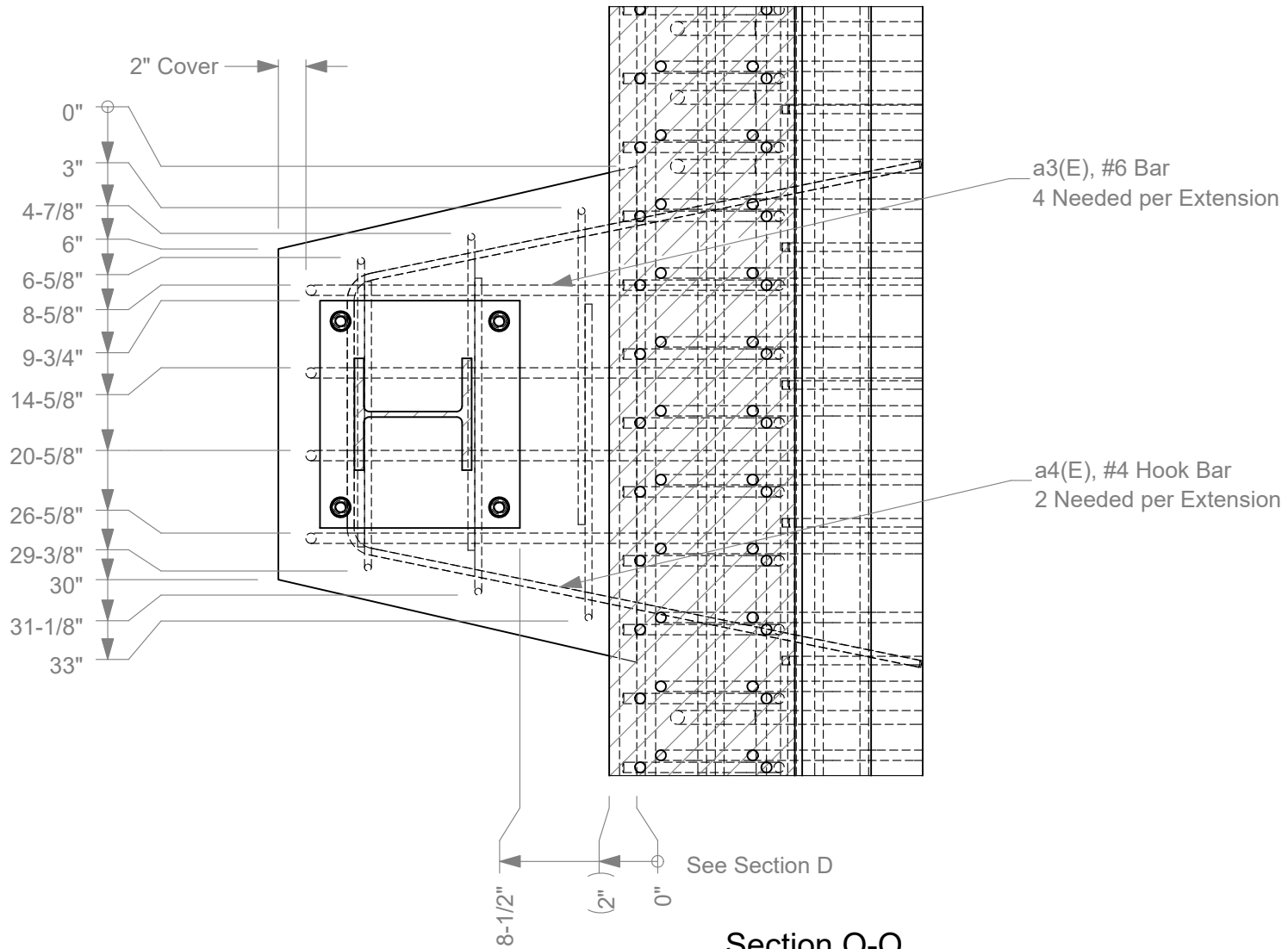
Section D-D

17a. All Rebar is 60 ksi rated
 17b. All Epoxy Coated Rebar is designated with (E)



Roadside Safety and Physical Security Division - Proving Ground

Project #690900-ITG FShape and Single Slope		2019-08-22
Drawn by BLG	Scale 1:20	Sheet 17 of 35 FShape Ext. Rebar Loc.



Roadside Safety and
Physical Security Division -
Proving Ground

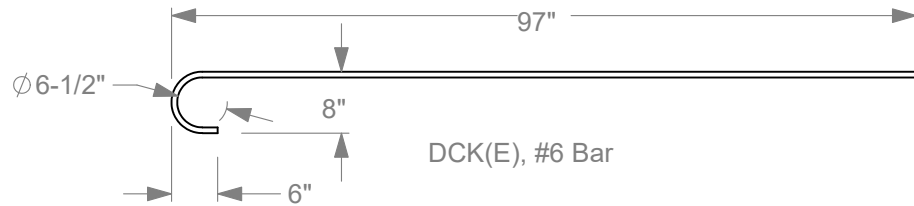
Project #690900-ITG FShape and Single Slope		2019-08-22
Drawn by BLG	Scale 1:12	Sheet 18 of 35 FShape Extension Detail



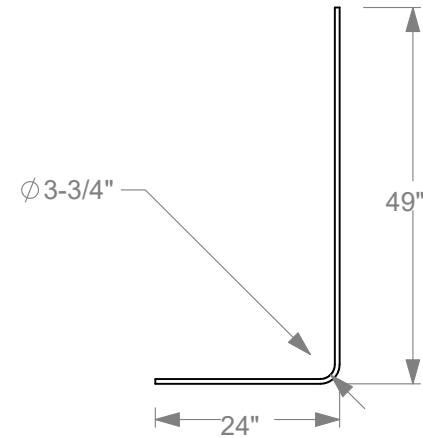
a1(E), #5 Bar



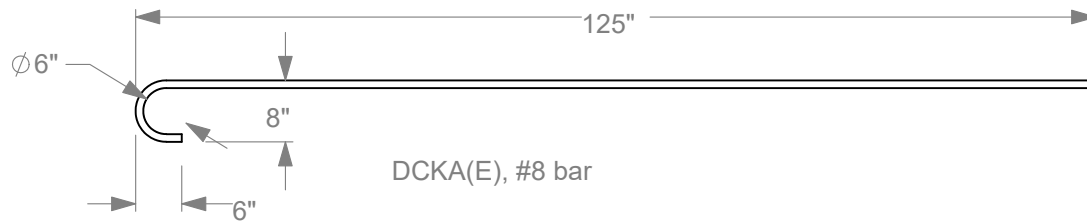
a2(E), #5 Bar



DCK(E), #6 Bar



Wall to Slab, #5 bar



DCKA(E), #8 bar

19a. All Rebar is 60 ksi rated

19b. All Epoxy Coated Rebar is designated with (E)



Roadside Safety and Physical Security Division - Proving Ground

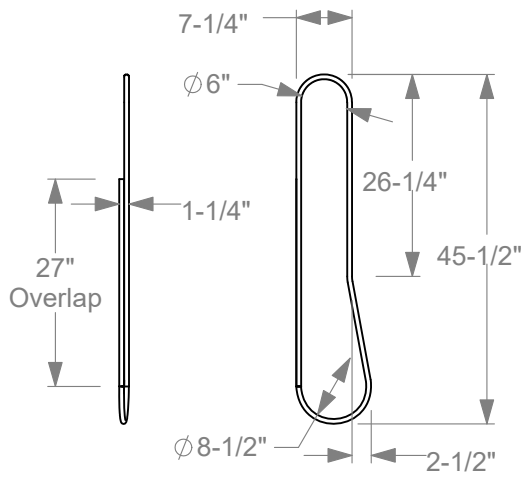
Project #690900-ITG FShape and Single Slope

2019-08-22

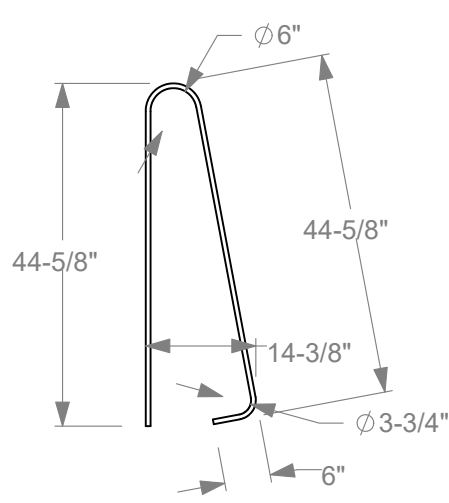
Drawn by BLG

Scale 1:25

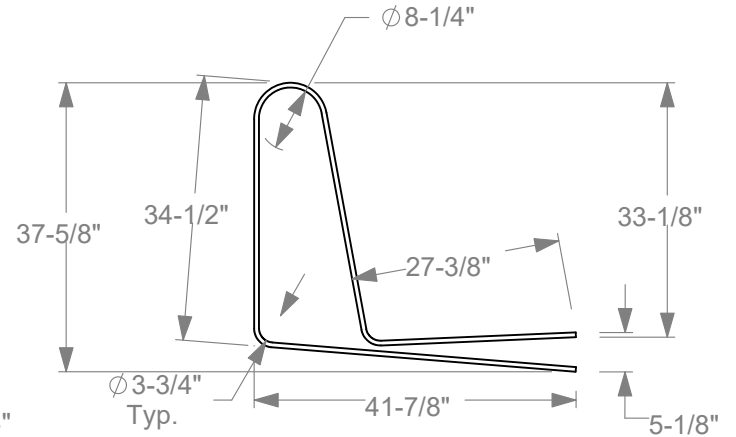
Sheet 19 of 35 Deck Rebar Details



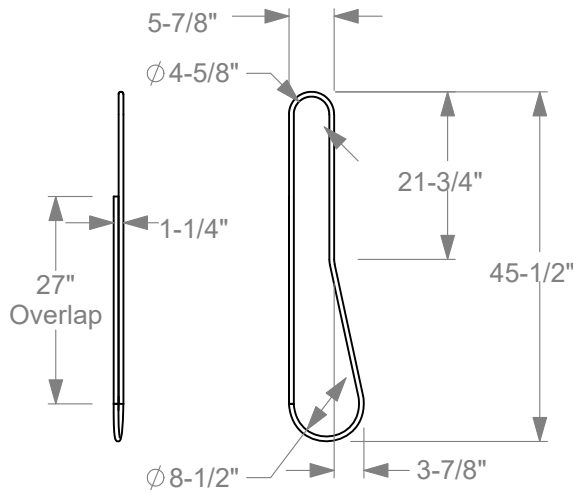
SS(E), #5 bar



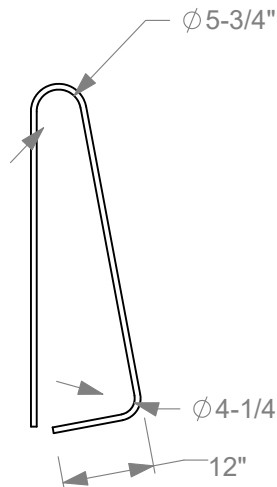
SS1(E), #5 bar
Interiors



SS2(E), #5 bar
Interiors

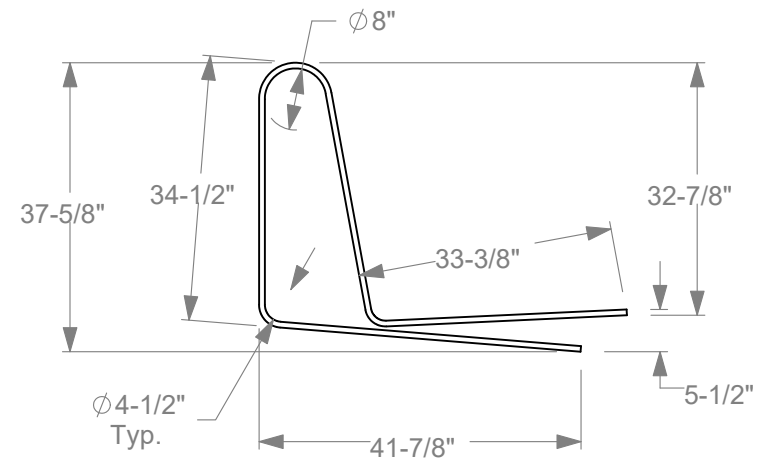


SSA(E), #5 bar



SS1A(E), #6 Bar
Ends

Only difference is
Rebar size and dimensions shown



SS2A(E), #6 Bar
Ends

- 20a. All Rebar is 60 ksi rated
- 20b. All Epoxy Coated Rebar is designated with (E)



Roadside Safety and
Physical Security Division -
Proving Ground

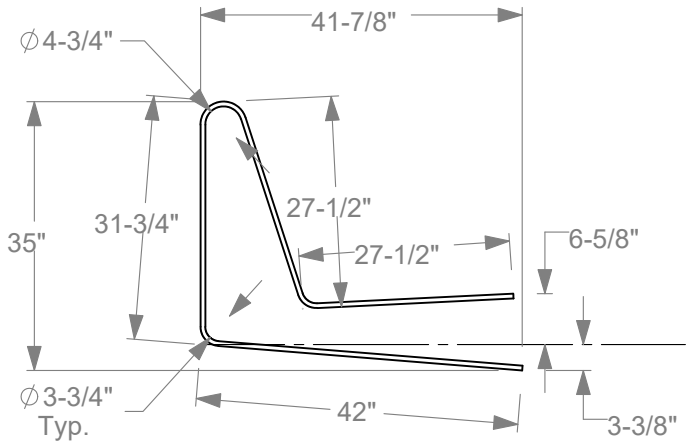
Project #690900-ITG FShape and Single Slope

2019-08-22

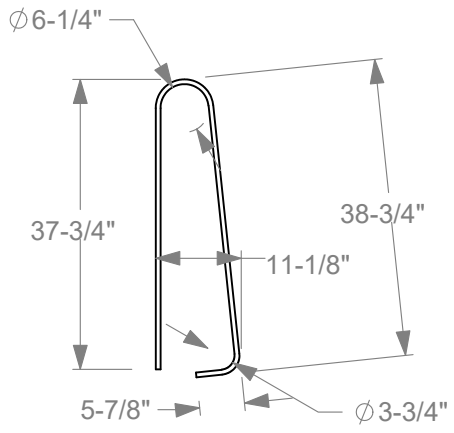
Drawn by BLG

Scale 1:25

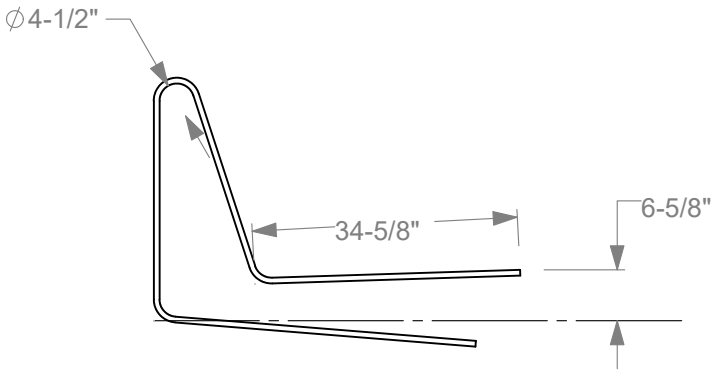
Sheet 20 of 35 Single Slope Rebar



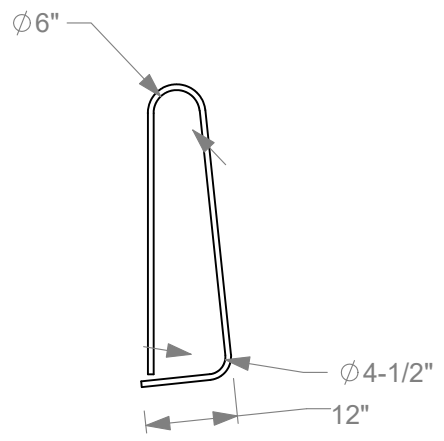
FS2(E), #5 bar
Interior for F-Shape



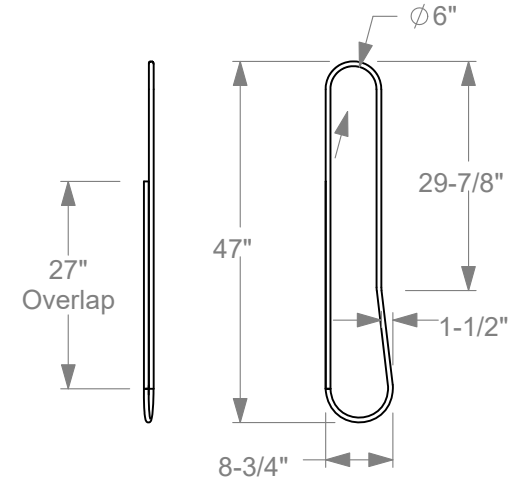
FS1(E), #6 bar
Interior for F-Shape



FSA2(E), #6 bar
for F-Shape, Ends
All other Dimensions similar to FS2(E) above




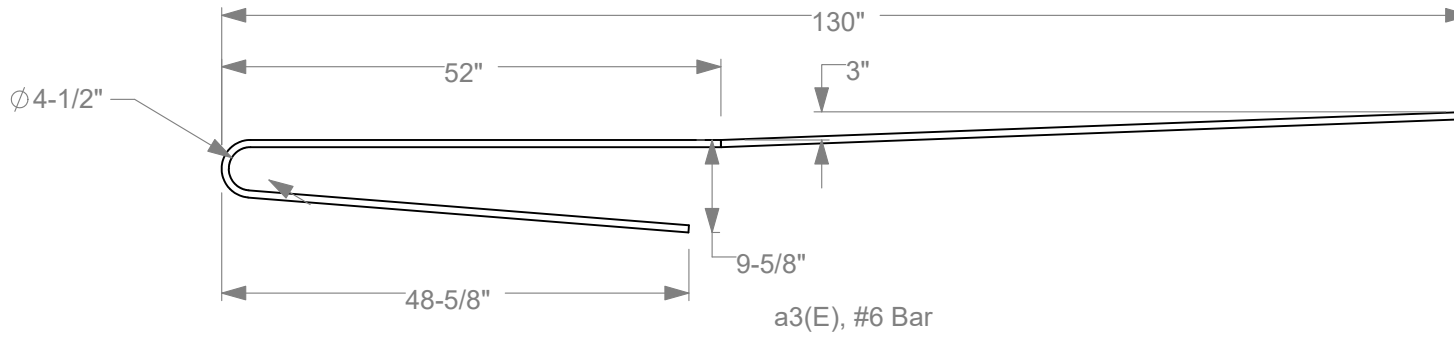
FSA1(E), #6 bar
For F-Shape, Ends
All other Dimensions similar to FS1(E) above



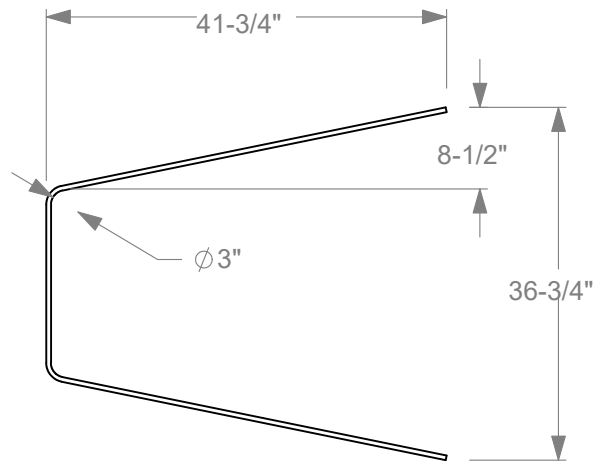
FS(E), #5 bar
for F-Shape

21a. All Rebar is 60 ksi rated
21b. All Epoxy Coated Rebar is designated with (E)

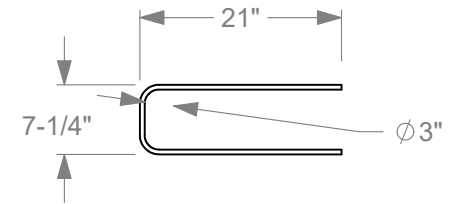
	Roadside Safety and Physical Security Division - Proving Ground	
	Project #690900-ITG FShape and Single Slope	2019-08-22
	Drawn by BLG	Scale 1:25



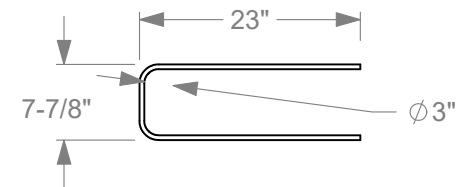
a3(E), #6 Bar



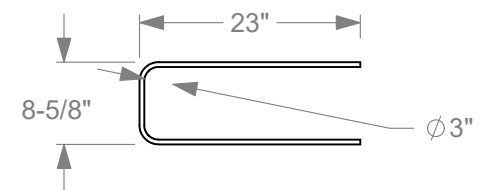
a4(E), #4 Hook Bar



b3(E), #4 Bar



b4(E), #4 Bar



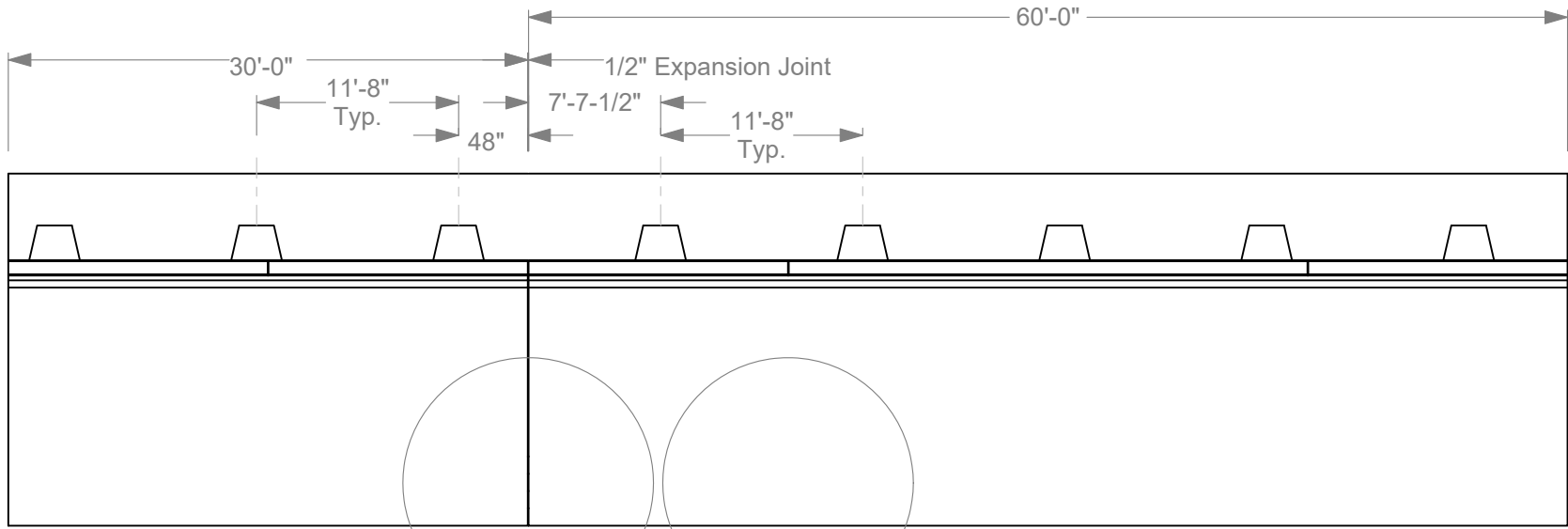
b5(E), #4 Bar

22a. All Rebar is 60 ksi rated
 22b. All Epoxy Coated Rebar is designated with (E)



Roadside Safety and Physical Security Division - Proving Ground

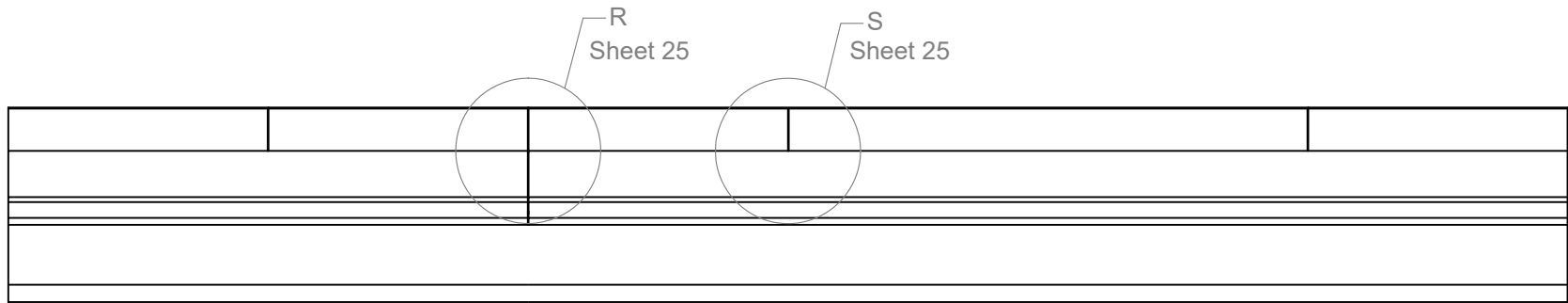
Project #690900-ITG FShape and Single Slope		2019-08-22
Drawn by BLG	Scale 1:20	Sheet 22 of 35 FShape Extension Rebar



F-Shape Deck Plan View

P
Sheet 24

Q
Sheet 24



F-Shape Deck Elevation View



Roadside Safety and
Physical Security Division -
Proving Ground

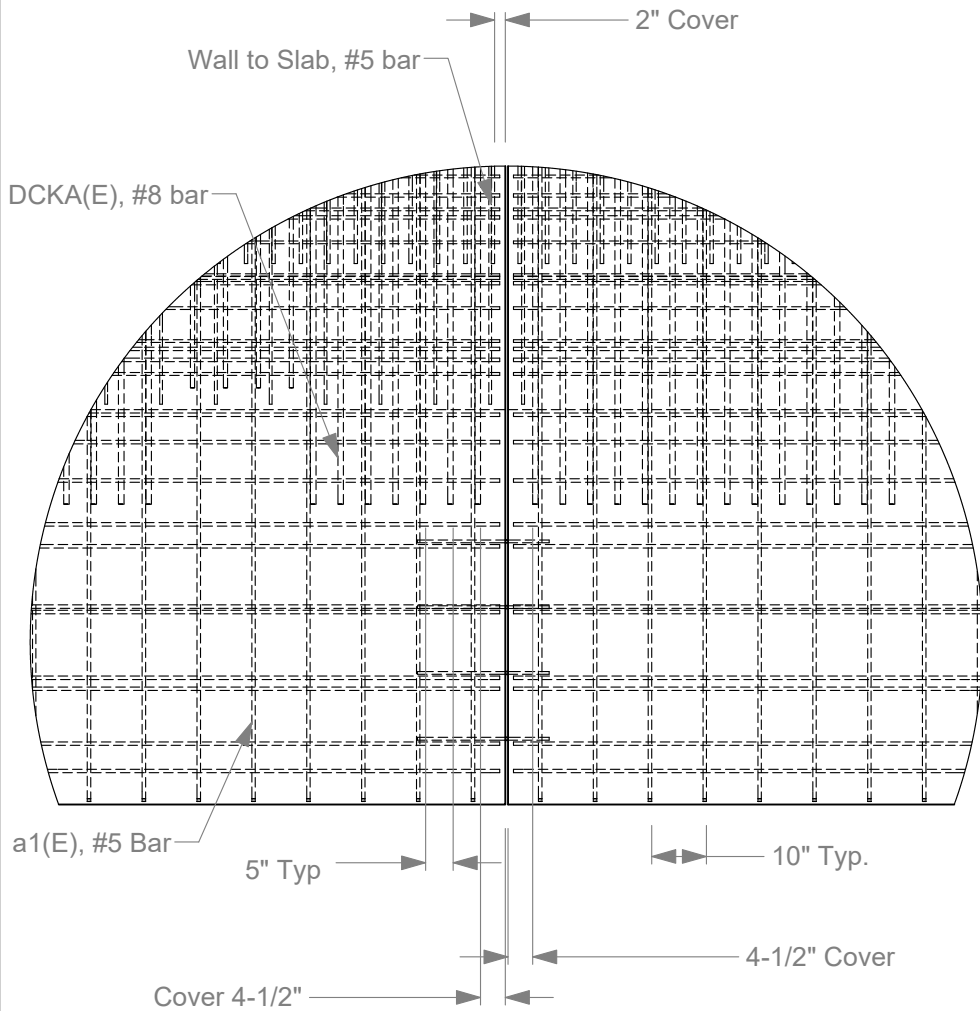
Project #690900-ITG FShape and Single Slope

2019-08-22

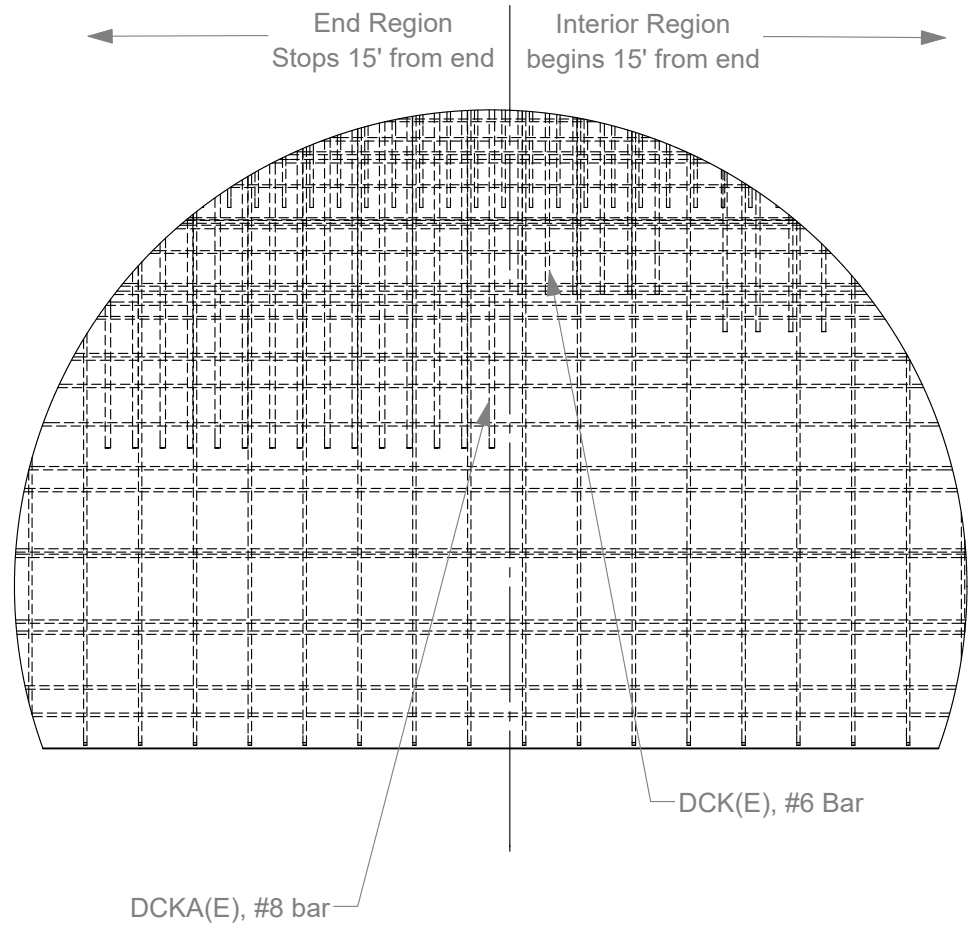
Drawn by BLG

Scale 1:125

Sheet 23 of 35 FShape Deck Views



Detail P
Deck Expansion Joint



Detail Q
Deck End to Interior Region
Transition

24a. All Rebar is 60 ksi rated

24b. All Epoxy Coated Rebar is designated with (E)



Roadside Safety and
Physical Security Division -
Proving Ground

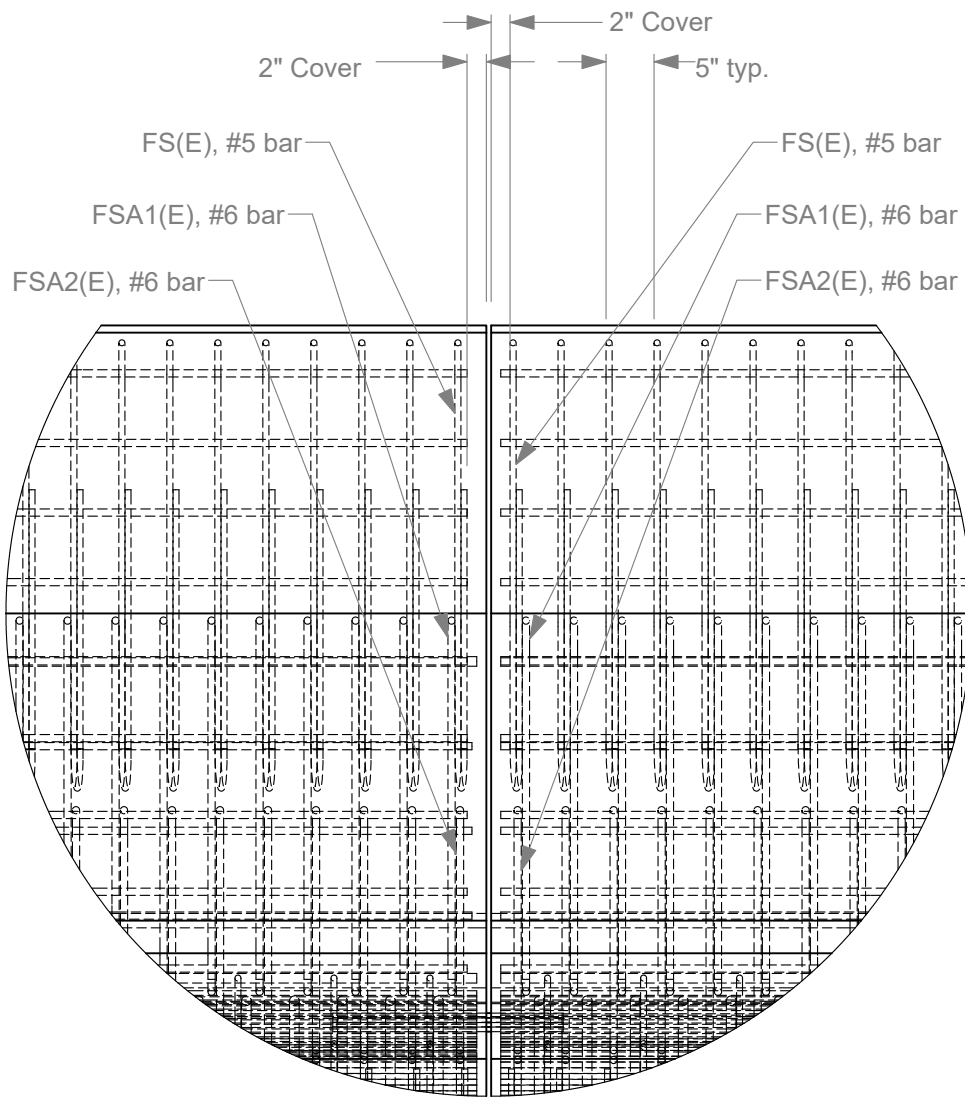
Project #690900-ITG FShape and Single Slope

2019-08-22

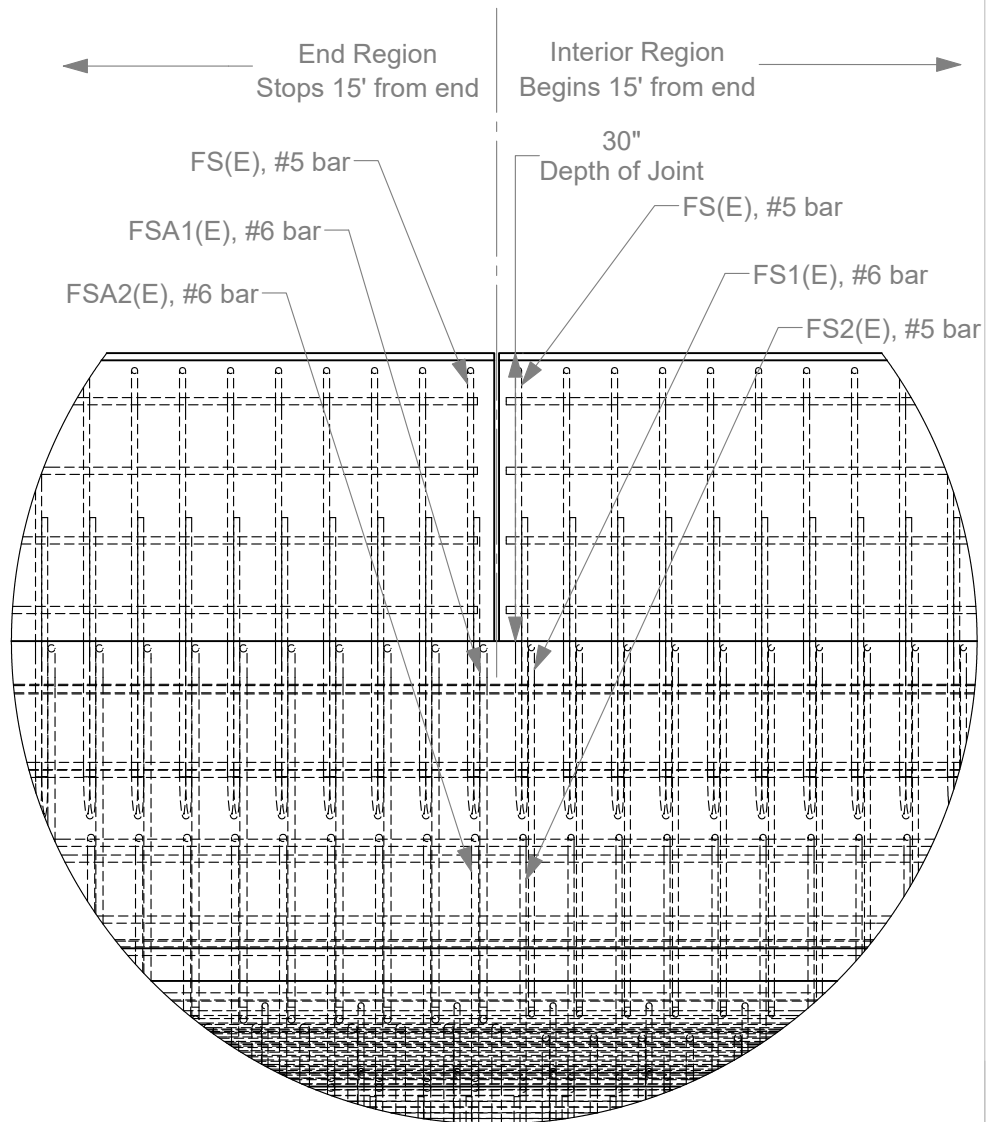
Drawn by BLG

Scale 1:35

Sheet 24 of 35 FShape Deck Detail



Detail R
Barrier at Expansion Joint



Detail S
Barrier End to Interior Region
Transition

25a. All Rebar is 60 ksi rated

25b. All Epoxy Coated Rebar is designated with (E)



Roadside Safety and
Physical Security Division -
Proving Ground

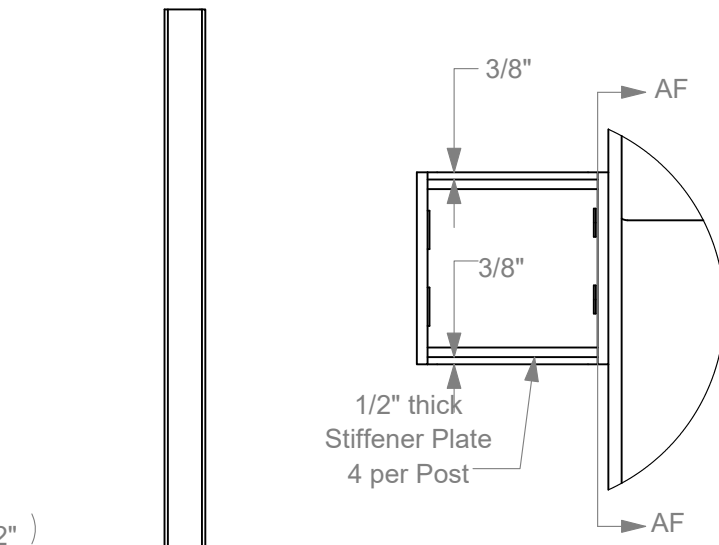
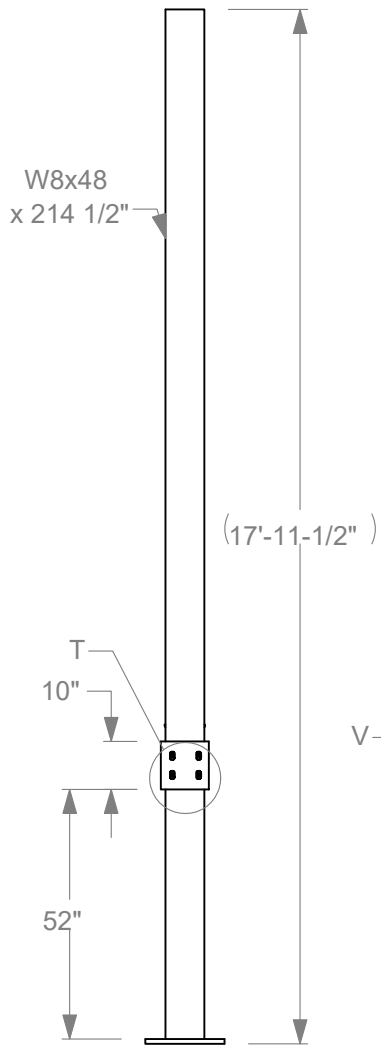
Project #690900-ITG FShape and Single Slope

2019-08-22

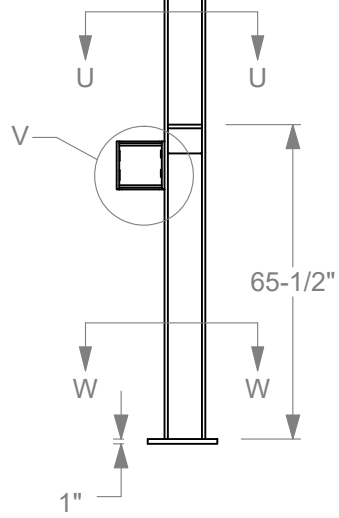
Drawn by BLG

Scale 1:20

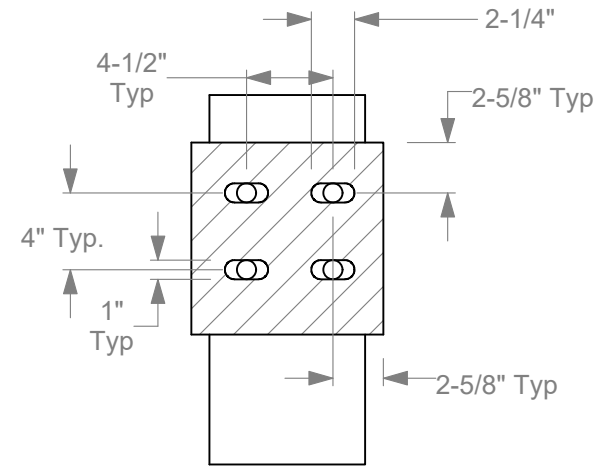
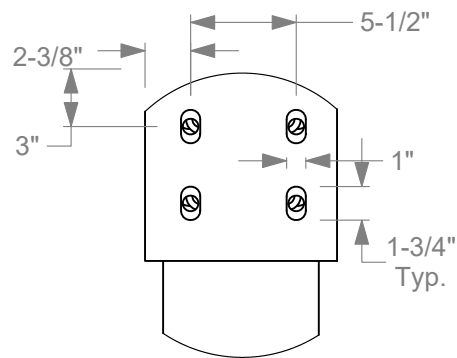
Sheet 25 of 35 FShape Barrier Detail



Detail V
Scale 1 : 10



Detail T
Scale 1 : 10



Section AF-AF
Scale 1 : 10

26a. All Steel plate, beams and angles shall be A36 (minimum 36 ksi yield) material



Roadside Safety and
Physical Security Division -
Proving Ground

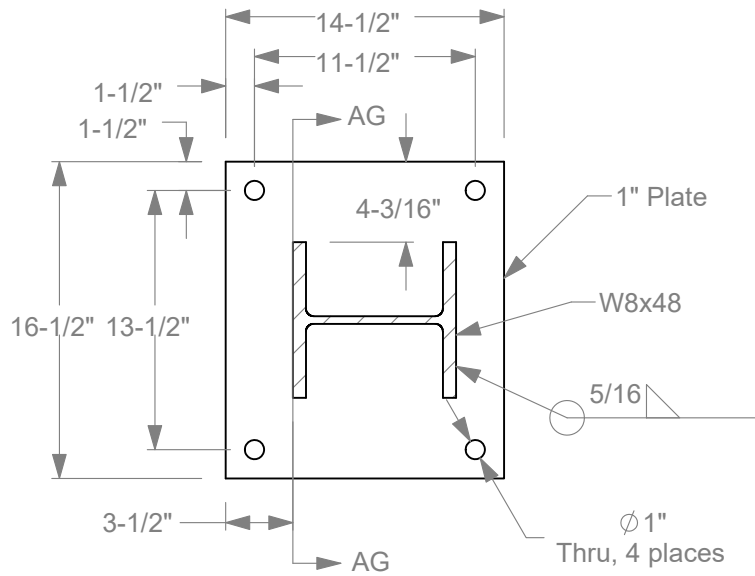
Project #690900-ITG FShape and Single Slope

2019-08-22

Drawn by BLG

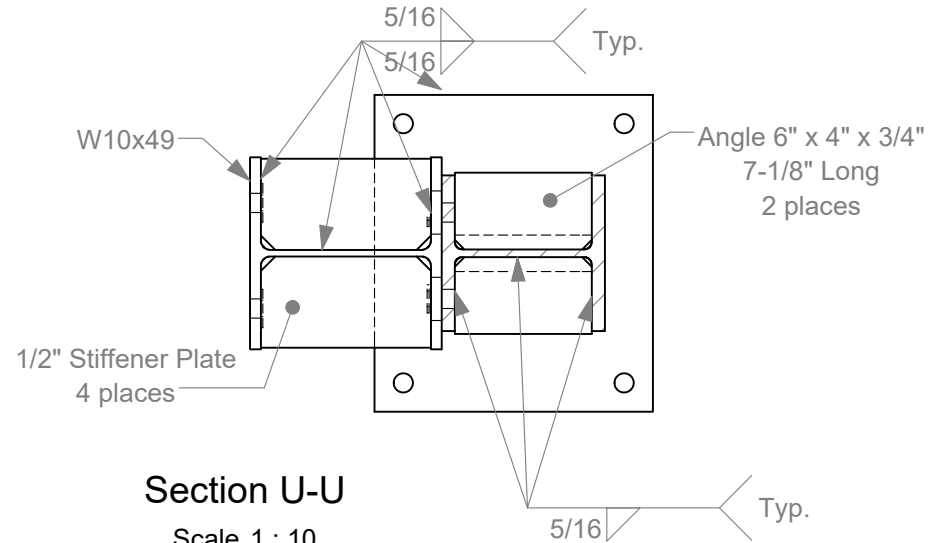
Scale 1:40

Sheet 26 of 35 FShape NAW Post Details



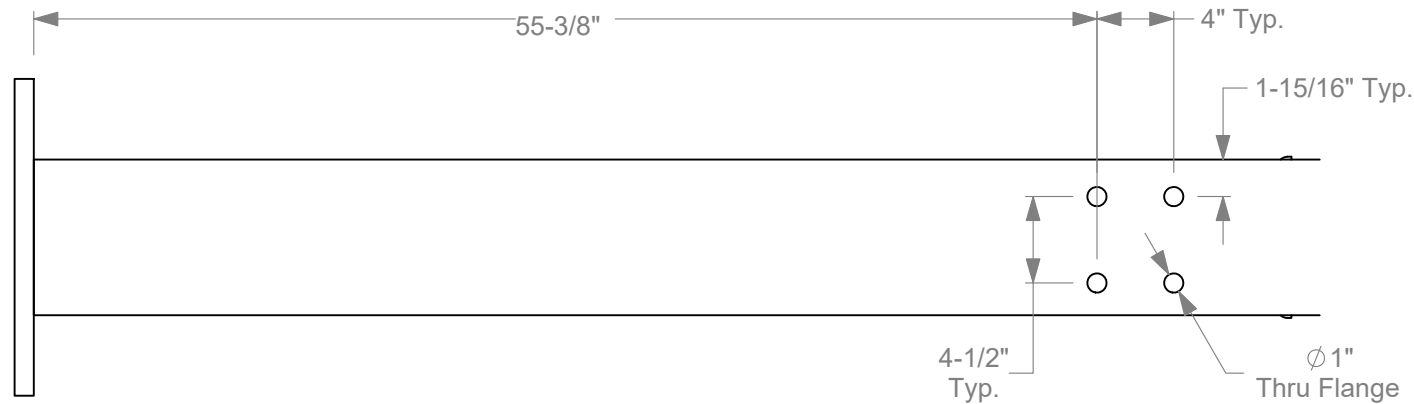
Section W-W

Scale 1 : 10



Section U-U

Scale 1 : 10



Section AG-AG

Scale 1 : 10



Roadside Safety and
Physical Security Division -
Proving Ground

Project #690900-ITG FShape and Single Slope

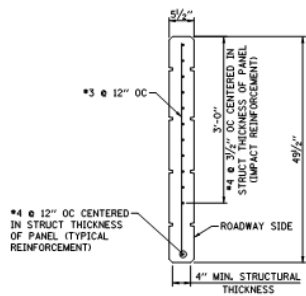
2019-08-22

Drawn by BLG

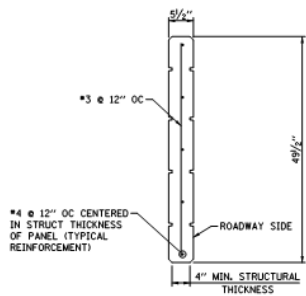
Scale 1:40

Sheet 27 of 35 FShape NAW Post 2

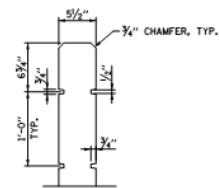
27a. All Steel plate, beams and angles shall be A36 (minimum 36 ksi yield) material



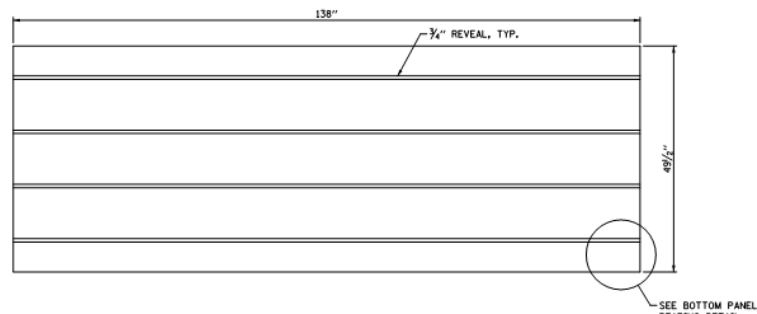
TOP PANEL



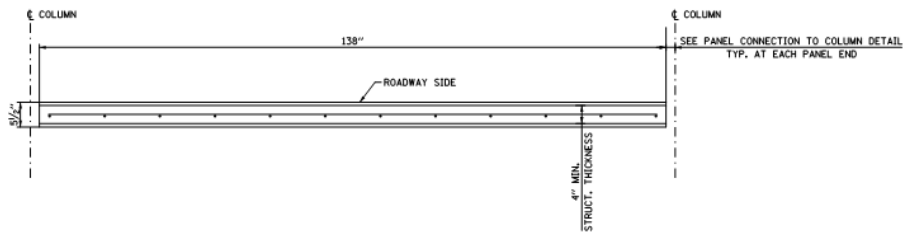
BOTTOM AND CENTER PANEL



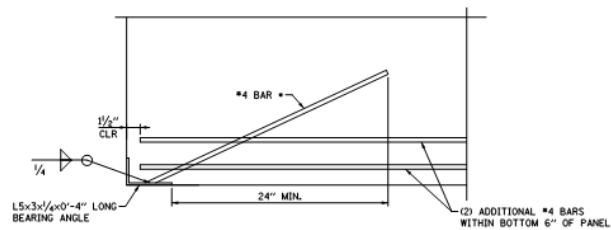
REVEAL DETAIL



TYPICAL NOISE WALL PANEL DETAIL

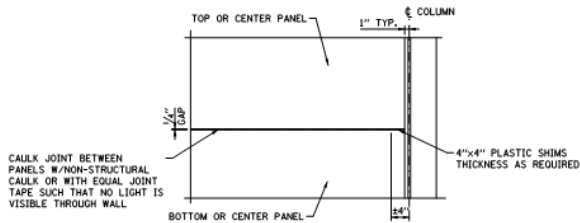


TYPICAL PLAN VIEW THRU NOISE ABATEMENT WALL

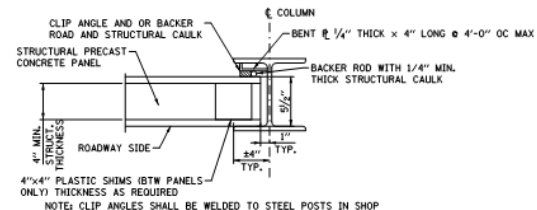


BOTTOM PANEL BEARING DETAIL

• E70 ELECTRODES ARE NOT PERMITTED FOR GRADE 60 REINFORCEMENT. REFER TO AWS D1.1 TABLE 3.1 - PREQUALIFIED BASE METAL-FILLER MATERIAL COMBINATIONS FOR MATCHING STRENGTH AND AWS D1.4 TABLE 5.1 MATCHING FILLER METAL REQUIREMENTS. USE E90 ELECTRODES FOR ASTM A615 REBAR.



HORIZONTAL JOINT DETAIL



PANEL CONNECTION TO COLUMN DETAIL

27A. ALL REBAR IS 60KSI RATED
 27B. ALL REBAR IS EPOXY COATED
 27C. CONCRETE CLASS "F" WITH COMPRESSIVE STRENGTH OF 4,000PSI MINIMUM

NOISE ABATEMENT
 WALL DETAILS
 BRIDGE DECK
 SHEET 1 OF 1



Roadside Safety and
 Physical Security Division -
 Proving Ground

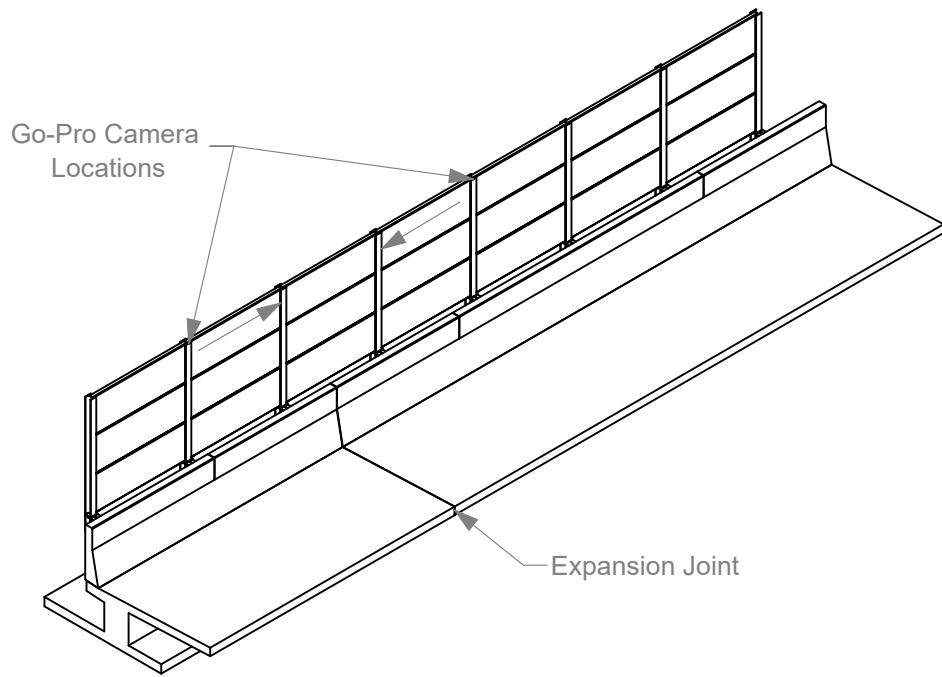
Project #690900-ITG FShape and Single Slope

2019-08-22

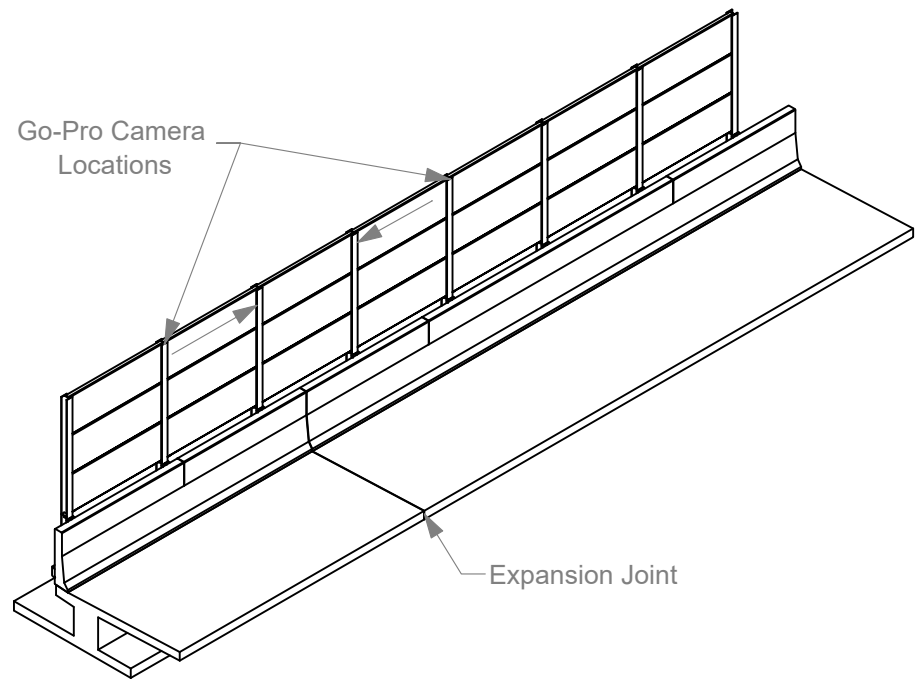
Drawn by BLG

Scale 1:25

Sheet 28 of 35 Noise Abatement Wall



Single Slope Barrier



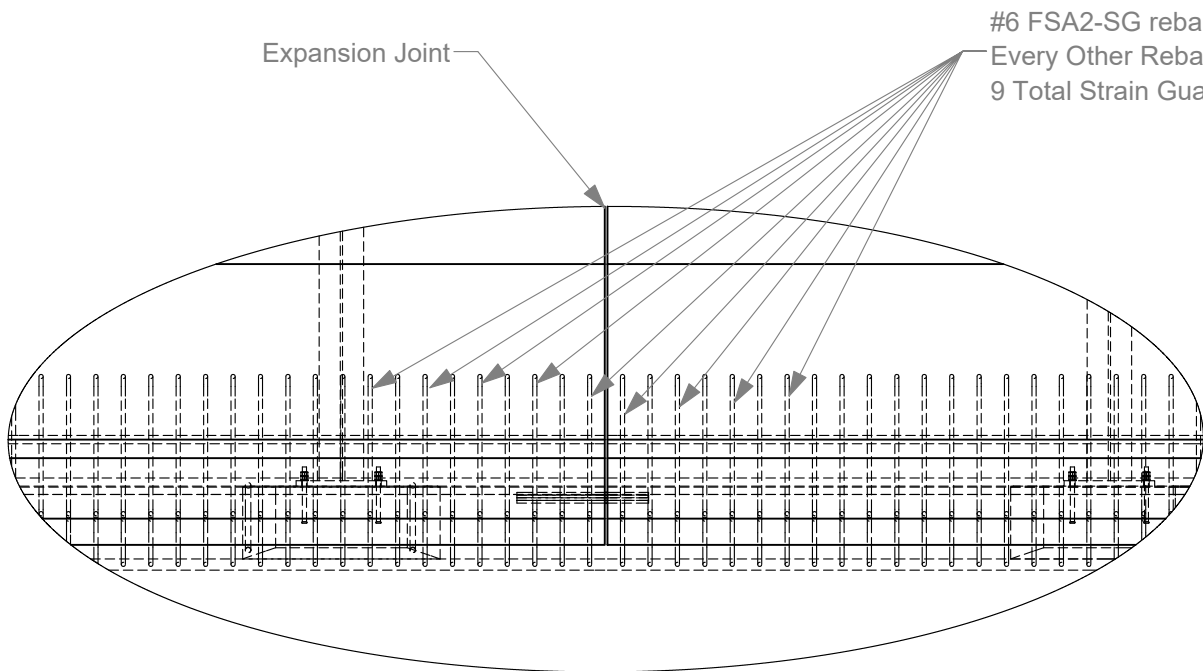
F-Shape Barrier

Go-Pro Cameras:
 Camera to be mounted on top of NAW post, facing
 along the front of the NAW toward the impact zone near
 the full joint in the barrier and deck



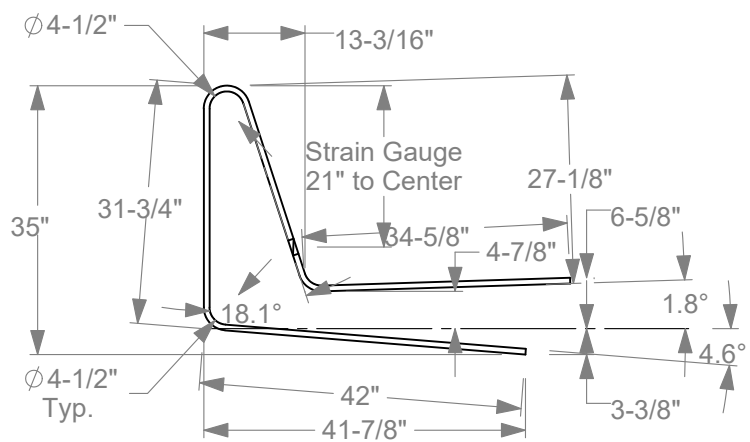
Roadside Safety and
 Physical Security Division -
 Proving Ground

Project #690900-ITG FShape and Single Slope		2019-08-22
Drawn by BLG	Scale 1:200	Sheet 29 of 35 Camera Location

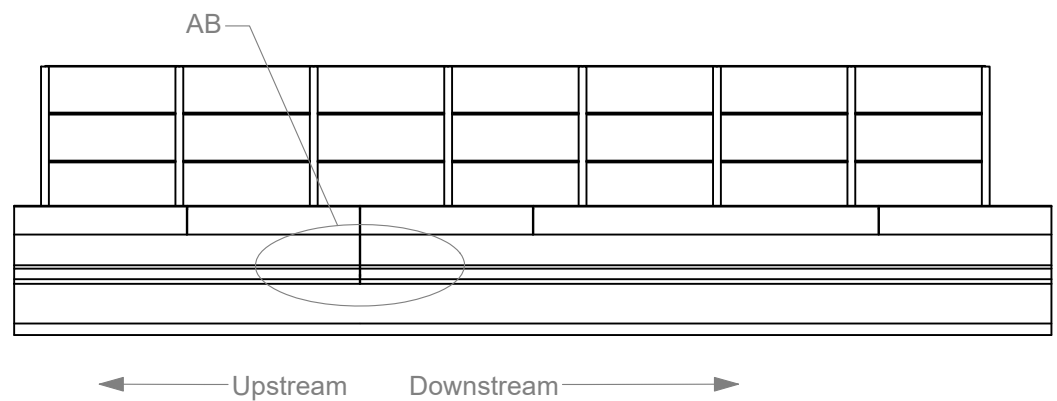


#6 FSA2-SG rebar for F-Shape
 Every Other Rebar starting from Joint as shown below
 9 Total Strain Guages needed


Detail AB
 Scale 1 : 35

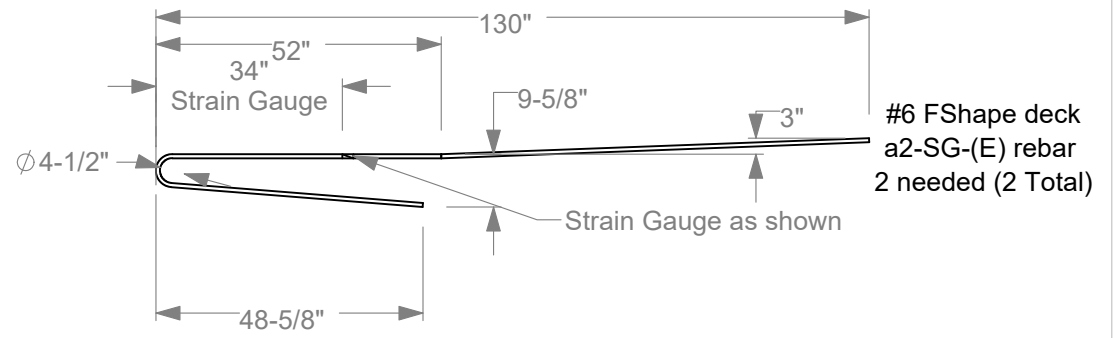
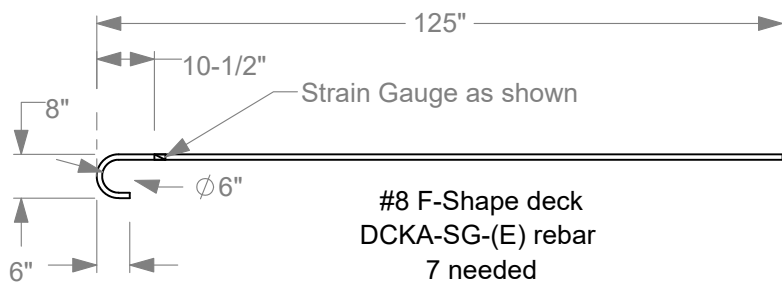


#6 F-Shape
 FSA2-SG-(E)
 9 Needed

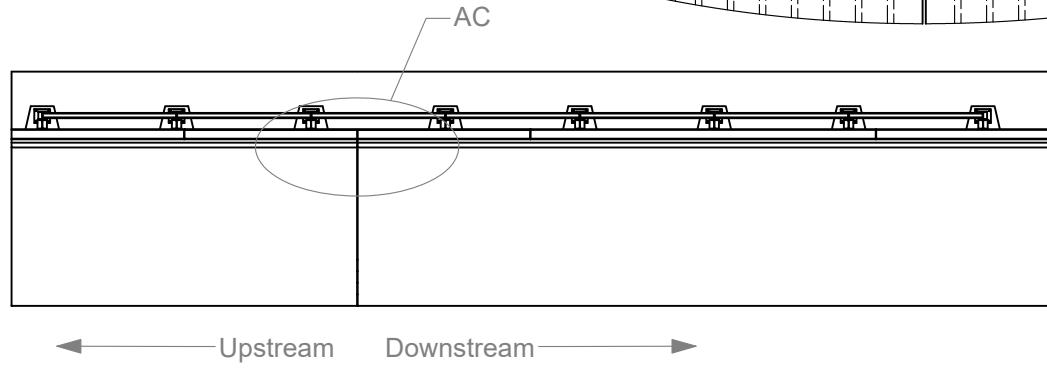
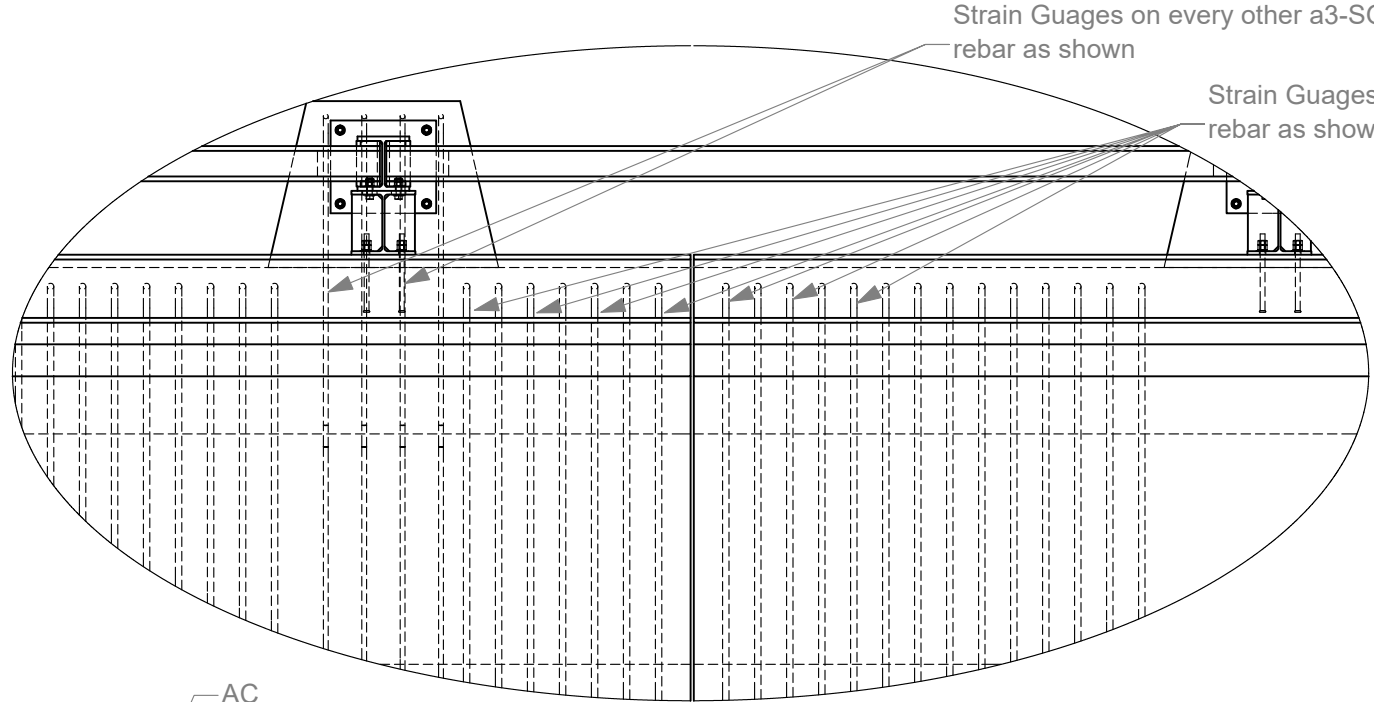


Elevation view of Fshape deck

	Roadside Safety and Physical Security Division - Proving Ground	
	Project #690900-ITG FShape and Single Slope	2019-08-22
Drawn by BLG	Scale 1:220	Sheet 30 of 35 Strain Gauges, FShape Barrier



Detail AC
Scale 1 : 30

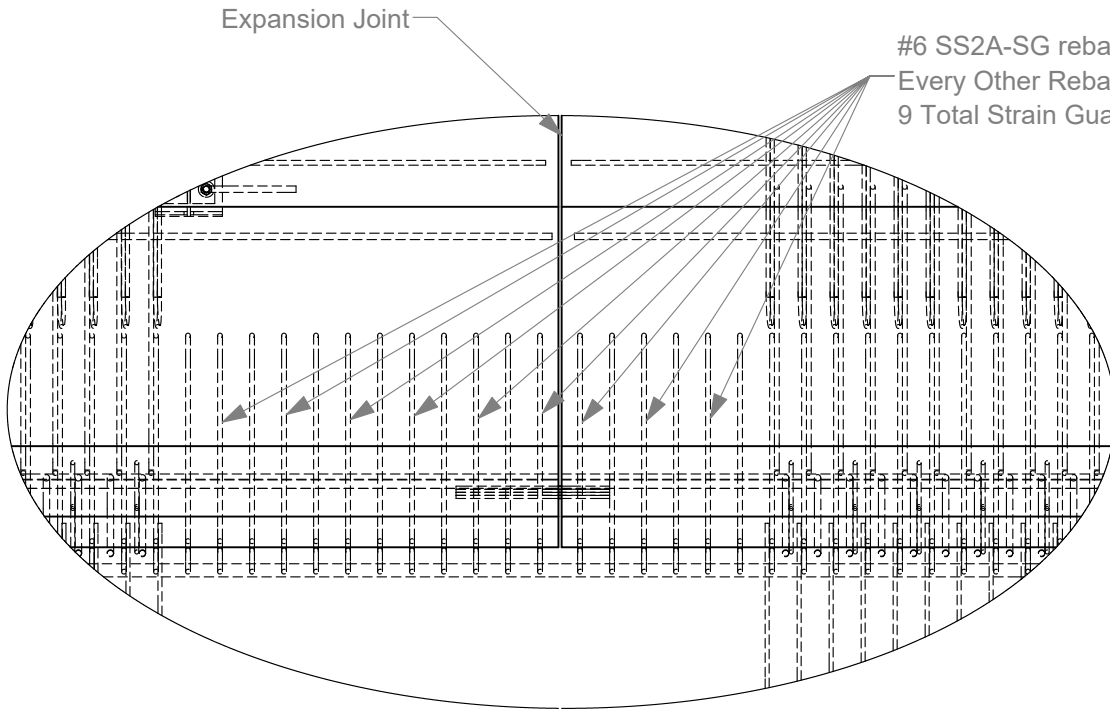


Plan view of Fshape deck

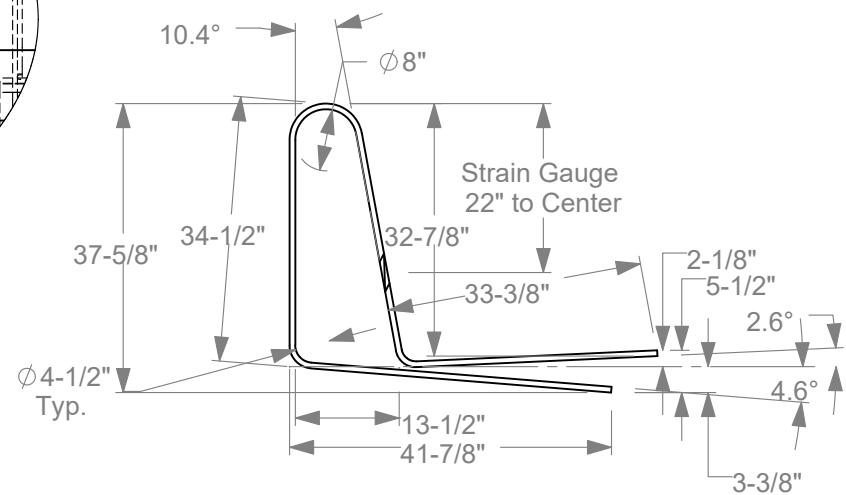


Roadside Safety and
Physical Security Division -
Proving Ground

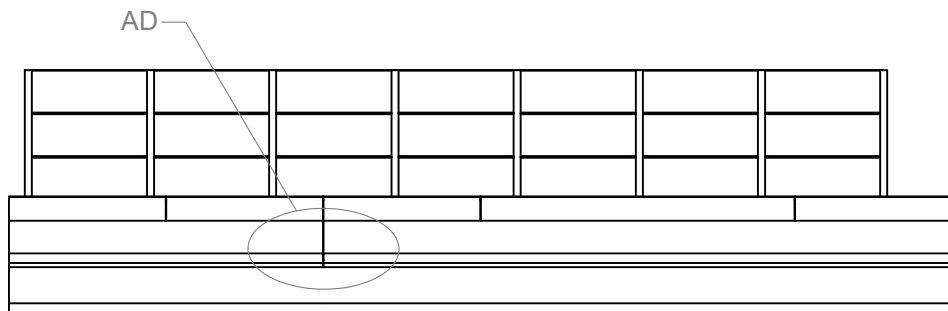
Project #690900-ITG FShape and Single Slope		2019-08-22
Drawn by BLG	Scale 1:250	Sheet 31 of 35 Strain Gauges, FShape Deck



Detail AD
Scale 1 : 30



#6 Single Slope
SS2A-SG(E)
9 Needed



Elevation View of Single Slope



Roadside Safety and
Physical Security Division -
Proving Ground

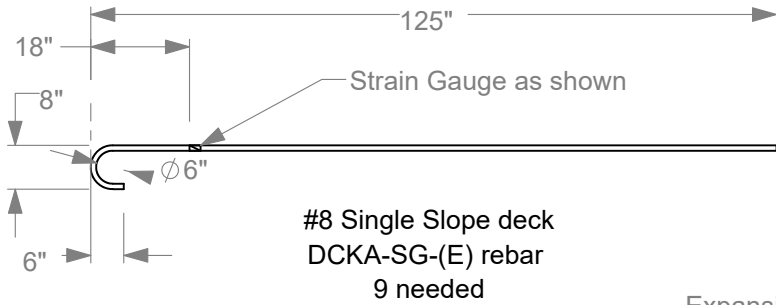
Project #690900-ITG FShape and Single Slope

2019-08-22

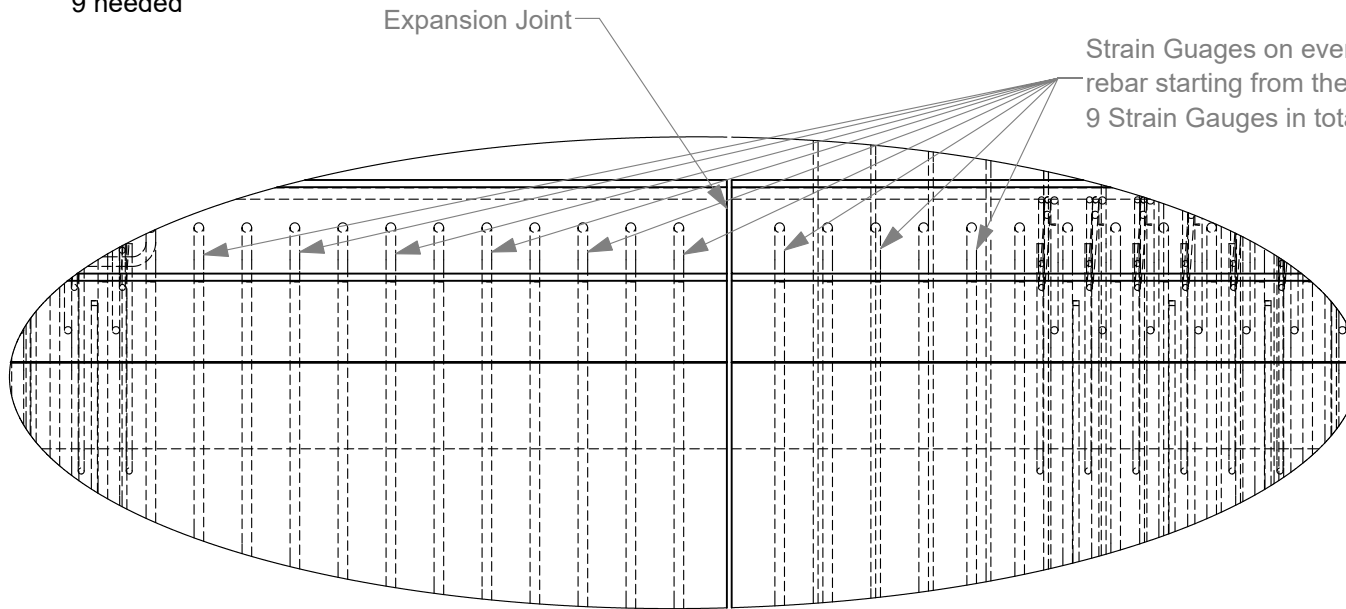
Drawn by BLG

Scale 1:220

Sheet 32 of 35 Strain Gauges, SS Barrier



#8 Single Slope deck
DCKA-SG-(E) rebar
9 needed



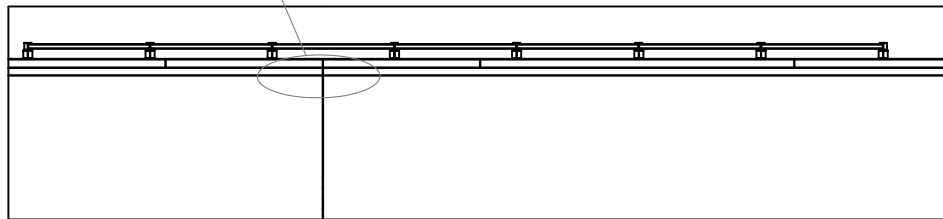
Expansion Joint

Strain Gauges on every other DCKA(E)
rebar starting from the expansion Joint as shown
9 Strain Gauges in total

Detail AE

Scale 1 : 20

AE



← Upstream

Downstream →

Plan view of Single Slope deck



Roadside Safety and
Physical Security Division -
Proving Ground

Project #690900-ITG FShape and Single Slope

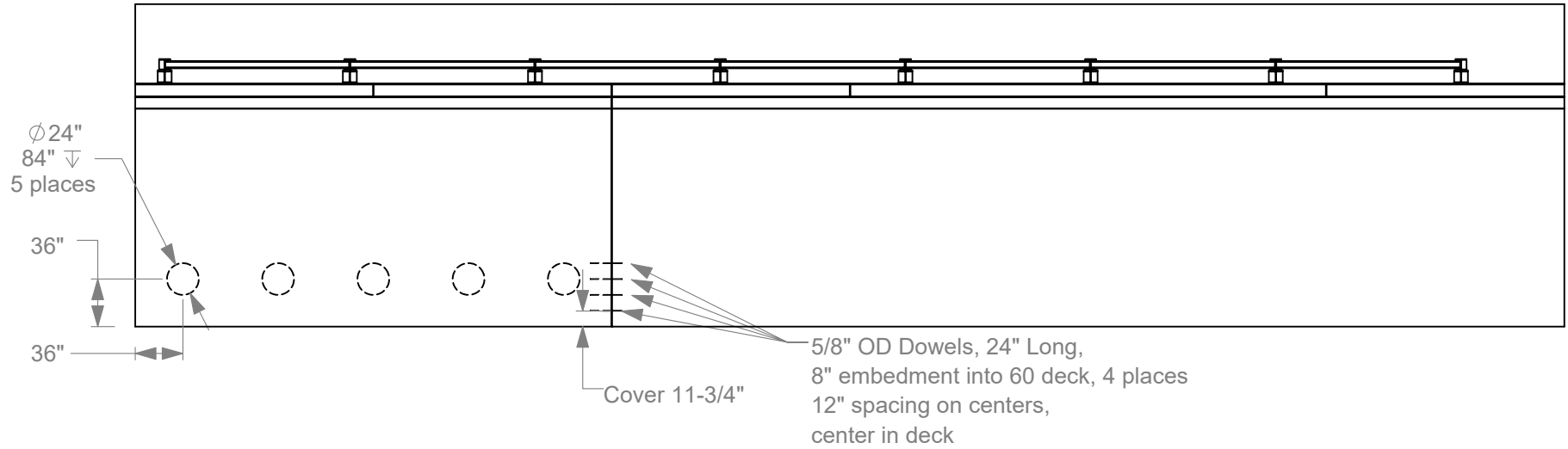
2019-08-22

Drawn by BLG

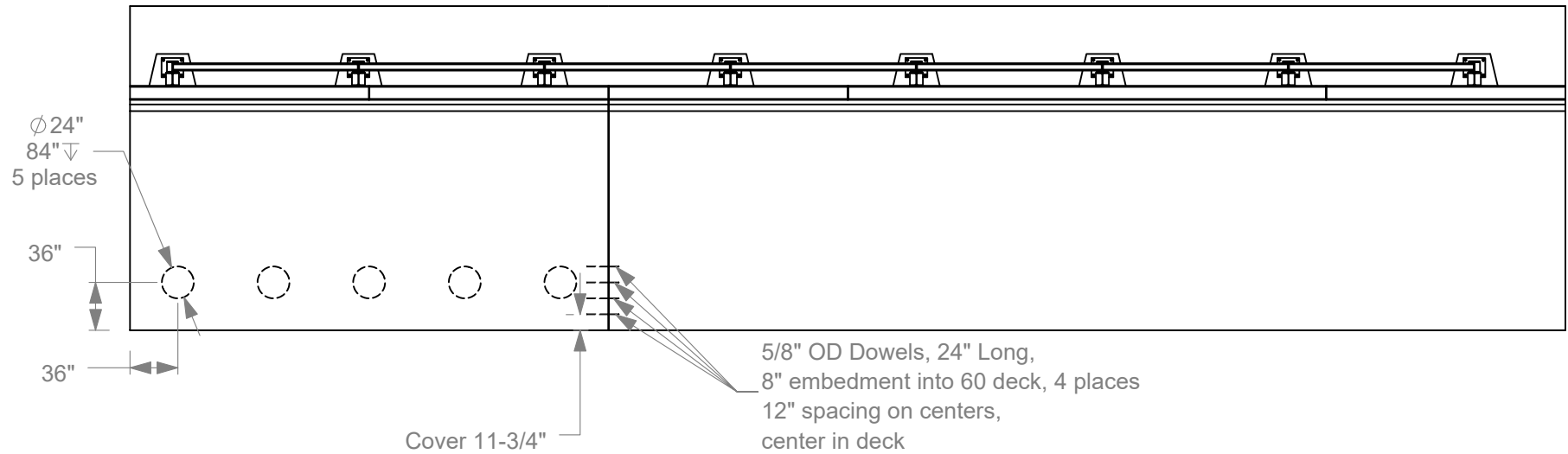
Scale 1:250

Sheet 33 of 35 Strain Gauges, SS Deck

Single Slope Plan View



F-Shape Plan View



Roadside Safety and
 Physical Security Division -
 Proving Ground

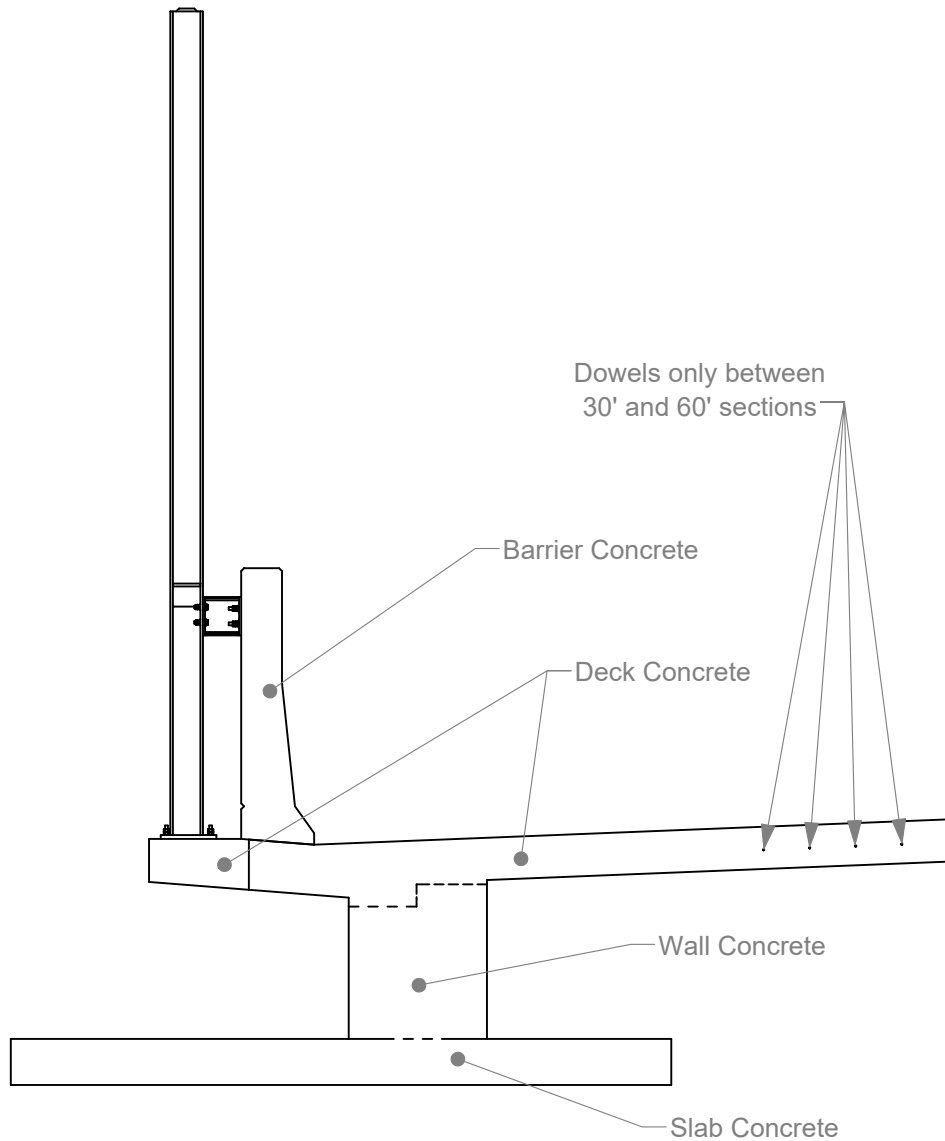
Project #690900-ITG FShape and Single Slope

2019-08-22

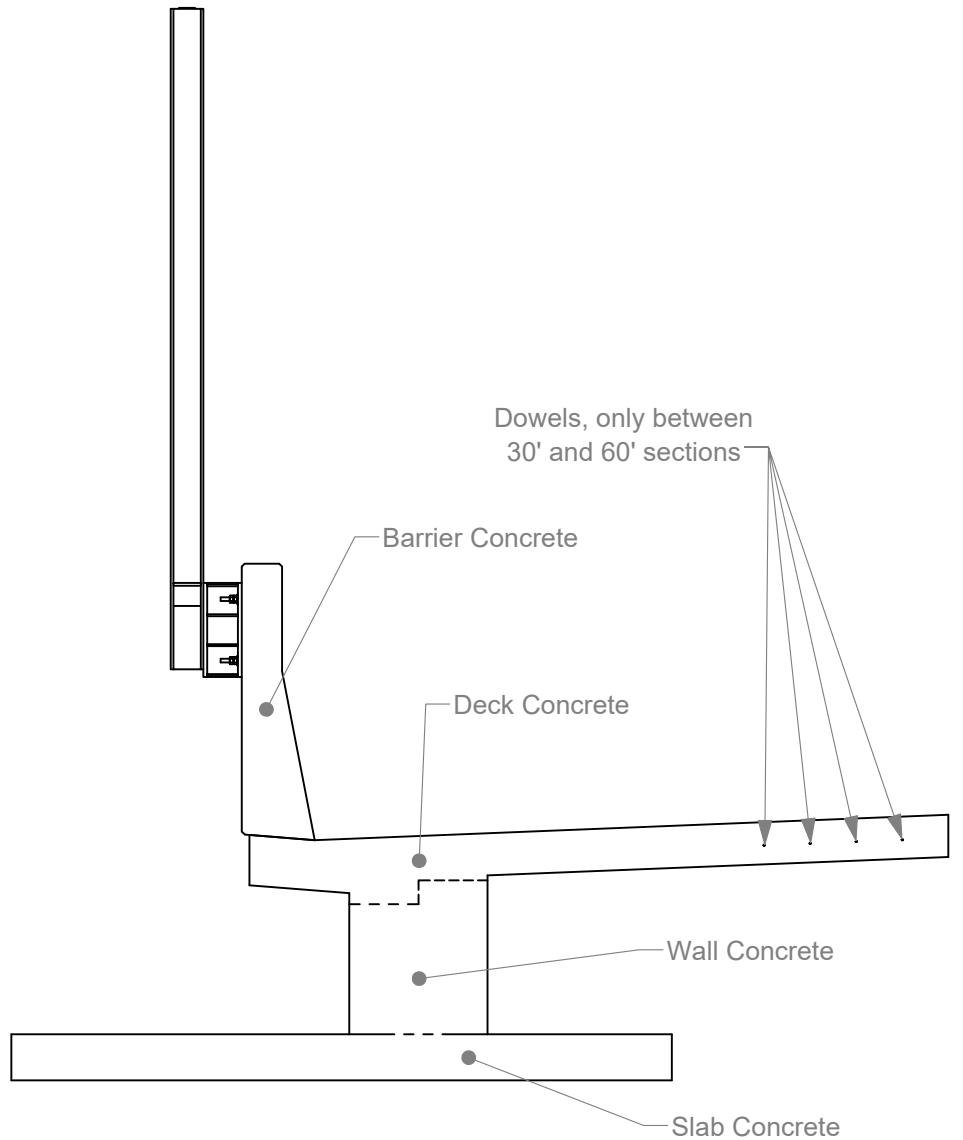
Drawn by BLG

Scale 1:250

Sheet 34 of 35 Deck Pile Locations



F-Shape End View



Single Slope End View



Roadside Safety and Physical Security Division - Proving Ground

Project #690900-ITG FShape and Single Slope		2019-08-22
Drawn by BLG	Scale 1:250	Sheet 35 of 35 Concrete Location