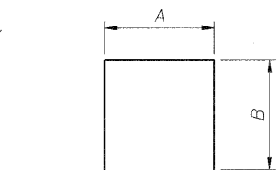
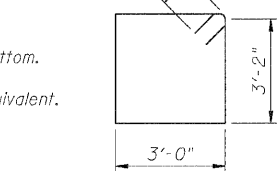
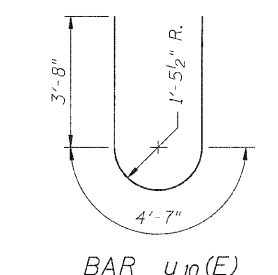
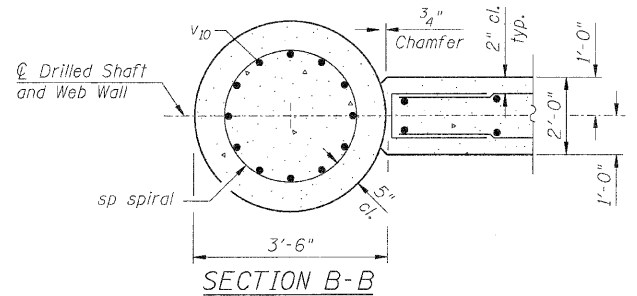
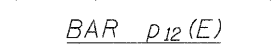
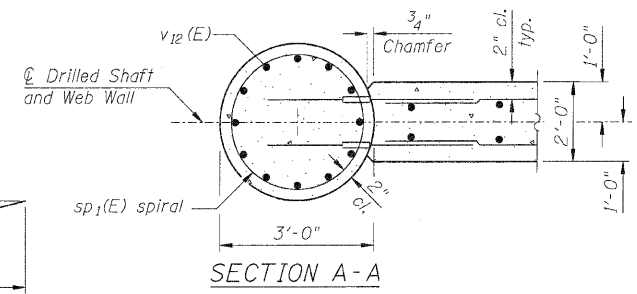
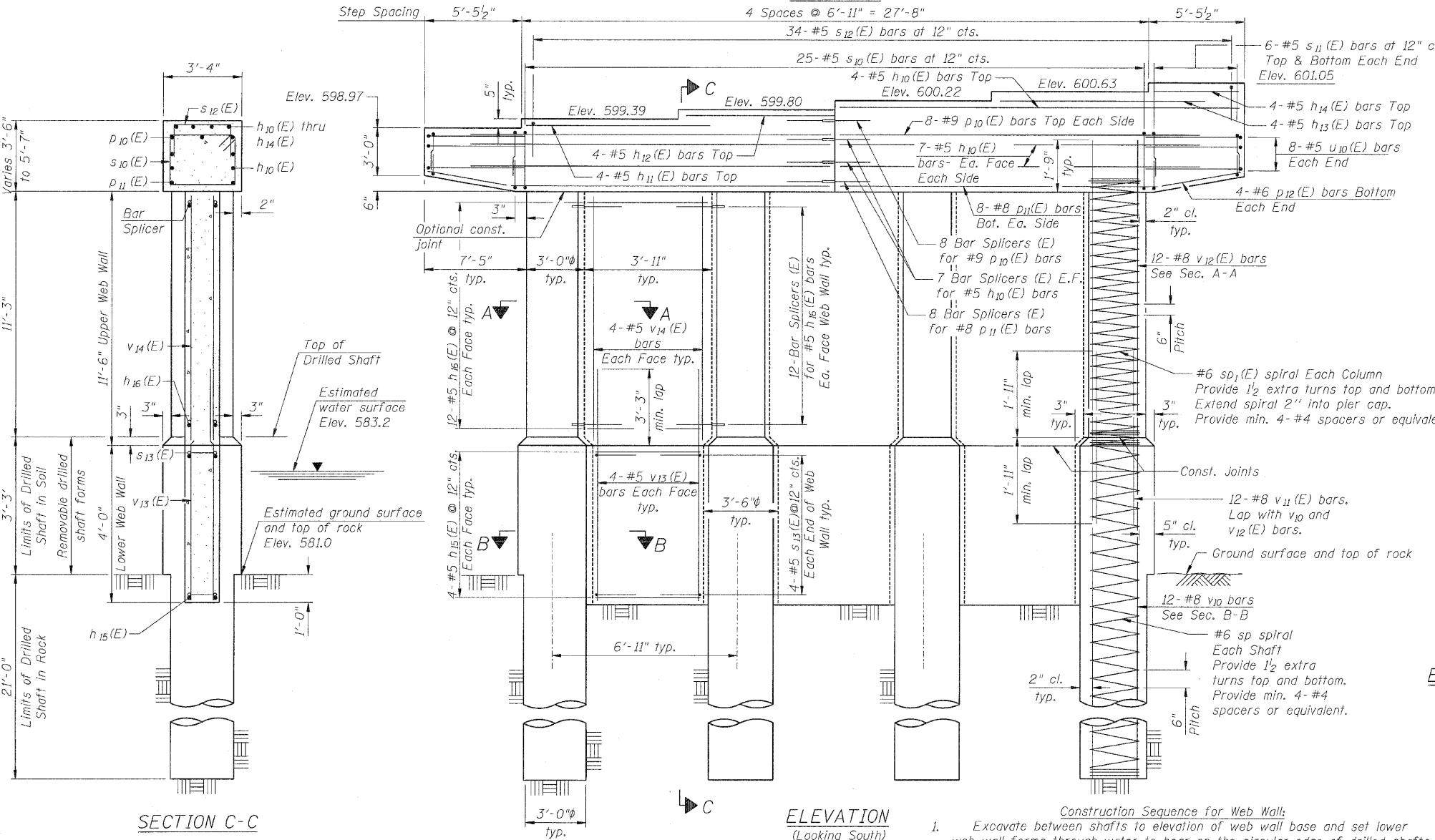
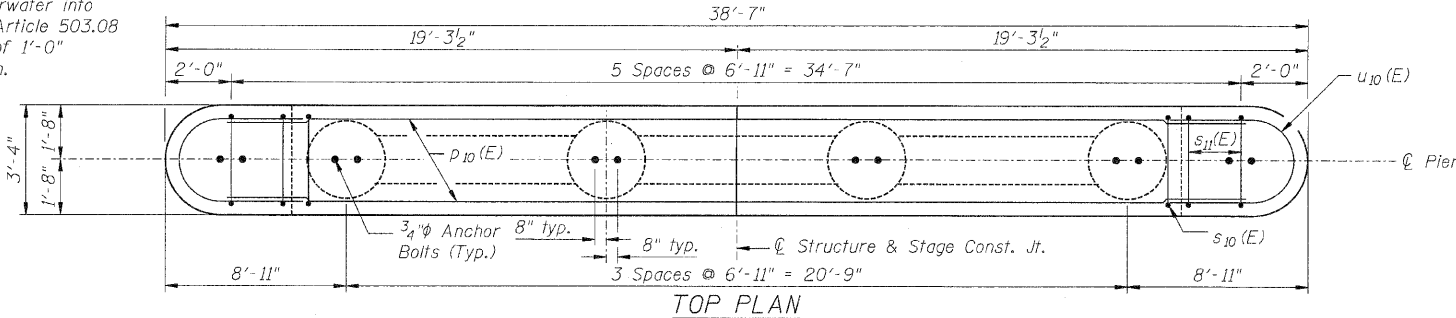


STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

Note:
If a portion of the pier wall or concrete encasement is under water, reinforcement may be placed underwater into forms. Concrete shall be tremied according to Article 503.08 of the Standard Specifications to an elevation of 1'-0" above the water line at the time of construction.



Bar	A	B
s11(E)	3'-0"	2'-9"
s12(E)	3'-0"	1'-9"
s13(E)	1'-8"	2'-2"

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h10(E)	32	#5	19'-0"	—
h11(E)	4	#5	13'-6"	—
h12(E)	4	#5	6'-7"	—
h13(E)	4	#5	12'-1"	—
h14(E)	4	#5	5'-2"	—
h15(E)	24	#5	3'-1"	—
h16(E)	72	#5	3'-7"	—
p10(E)	16	#9	19'-0"	—
p11(E)	16	#8	11'-9"	—
p12(E)	8	#6	11'-1"	—
s10(E)	25	#5	13'-3"	□
s11(E)	24	#5	8'-6"	□
s12(E)	24	#5	6'-6"	□
s13(E)	34	#5	6'-0"	□
sp	4	#6	24'-3"	⋈
sp1(E)	4	#6	11'-5"	⋈
u10(E)	16	#5	11'-11"	U
v10	48	#8	24'-3"	—
v11(E)	48	#8	3'-10"	—
v12(E)	48	#8	13'-0"	—
v13(E)	24	#5	7'-3"	—
v14(E)	24	#5	11'-0"	—
Concrete Structures	Cu. Yd.		46.0	
Reinforcement Bars	Pound		5,740	
Reinforcement Bars, Epoxy Coated	Pound		7,880	
Underwater Structure Excavation Protection Location 1	Each		1	
Structure Excavation	Cu. Yd.		2	
Drilled Shaft in Soil	Cu. Yd.		4.6	
Drilled Shaft in Rock	Cu. Yd.		22.0	

Cast steps monolithically with cap.
Space cap reinforcement to miss anchor bolts.
Minimum lap for spirals = 3'-10"
** Length is height of spiral.

PIER 1 DETAILS
STRUCTURE NO. 053-0189

- Construction Sequence for Web Wall:
- Excavate between shafts to elevation of web wall base and set lower web wall forms through water to bear on the circular edge of drilled shafts. Secure in place with fill, struts or tie forms together as required.
 - Place the lower web wall reinforcement cage into the forms using spacers to maintain proper clearances.
 - If the forms can be sealed against the shafts and streambed to allow dewatering, the reinforcement and the concrete placement may be completed in the dry. Alternatively, the rebar cage can be lowered into position through water and the concrete discharged at the base of the excavation through a tremie pipe or pump hose, displacing water, sediment, and tainted concrete out the top of the forms.
 - Construct Columns.
 - Construct upper web walls.
 - Center web wall shall be constructed in Stage II.

SHEET NO.	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
68		(102)BR-1	LIVINGSTON	58	30
OF 26 SHEETS		SN 053-0189	CONTRACT NO. 66822		
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT					

ZROKA engineering
Zroka Engineering, P.C.
4216 North Elmridge
Chicago, IL 60613

DESIGNED	LAS
CHECKED	JLA
DRAWN	SAW
CHECKED	LAS

* If the prevailing water surface elevation during construction is consistently different than estimated on the plans, the contractor may propose an adjustment to the top of the drilled shaft elevation as part of their installation procedure. The top of all drilled shafts within a substructure unit shall be constructed to the same elevation and extend above the prevailing water surface. The quantities and reinforcement detailing are based on the top of shaft and the estimated elevations shown and may change based on the actual elevations encountered at each shaft and the final top of shaft elevation.

P-DSWW 11-1-09

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