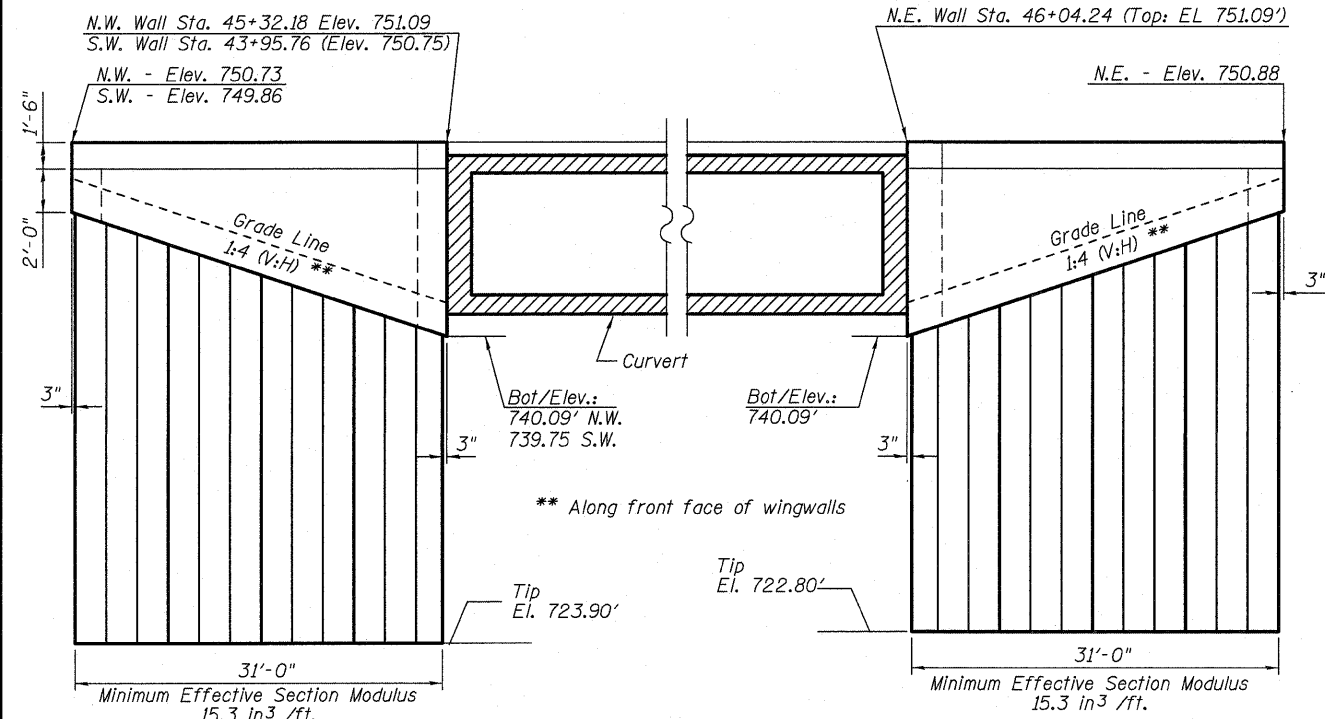


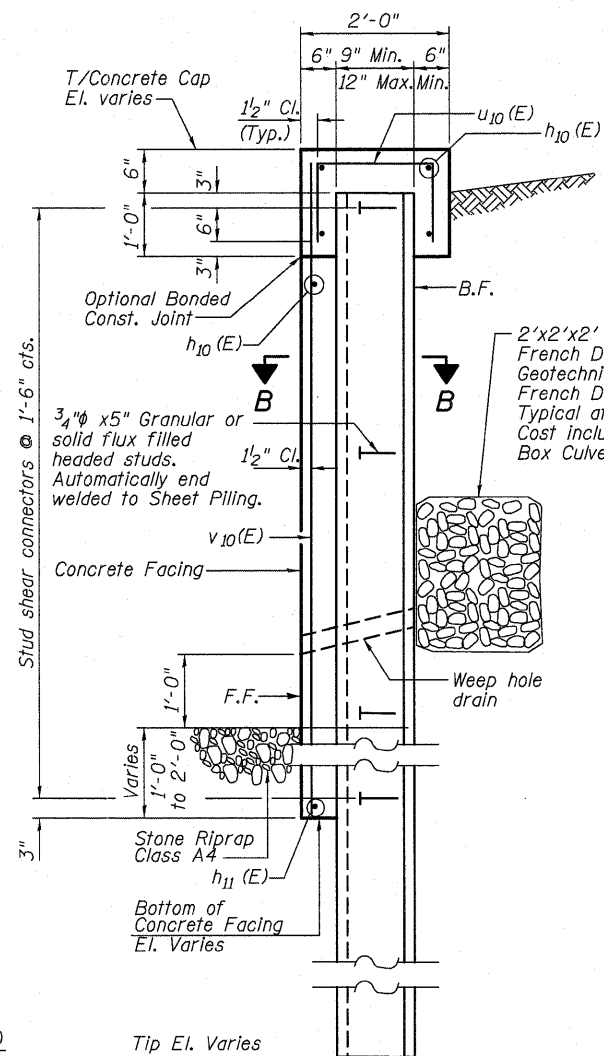
**NE & SE WINGWALL ELEVATION  
NW - OPPOSITE HAND**



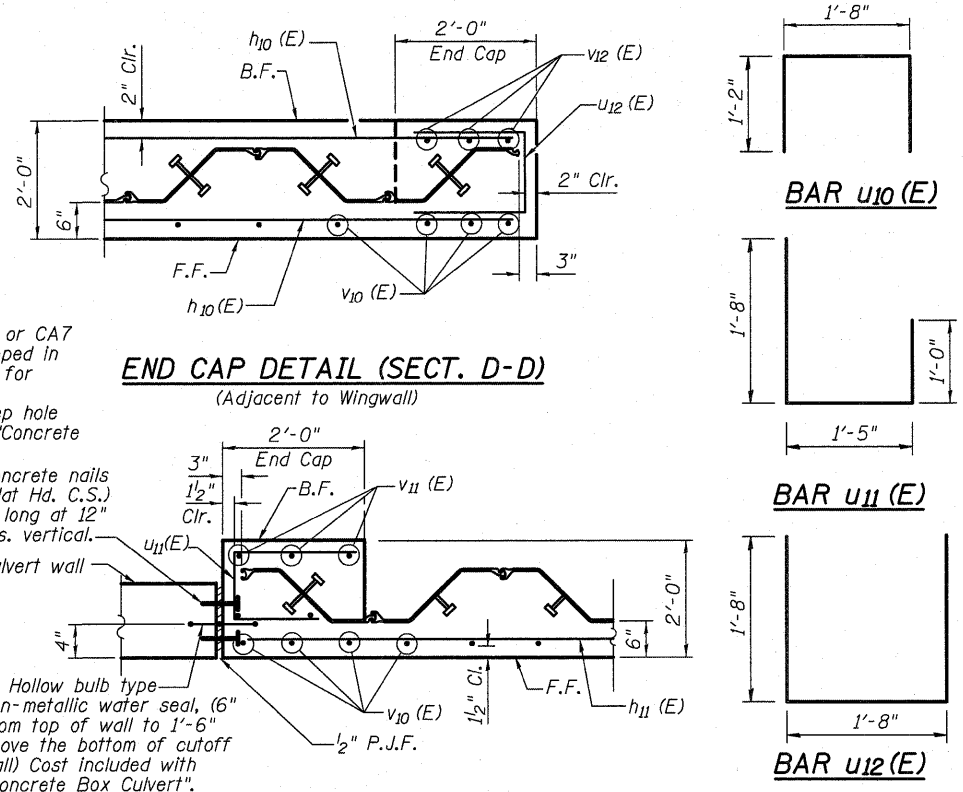
**NORTHWEST & SOUTHWEST WINGWALLS**

**ELEVATION**

**NORTHEAST WINGWALL**



**SECTION A-A**

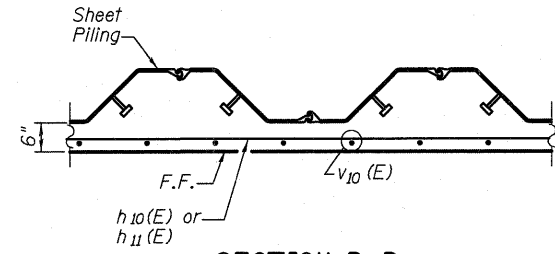


**END CAP DETAIL (SECT. D-D)**  
(Adjacent to Wingwall)

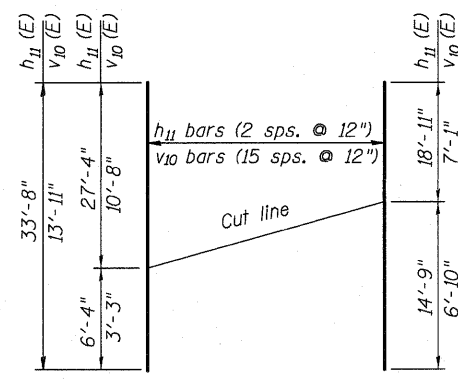
**END CAP DETAIL (SECT. C-C)**  
(Adjacent to Existing Retaining Wall)

**BILL OF MATERIAL  
NW, NE & SW WINGWALLS**

Bar	No.	Size	Length	Shape
$h_{10}(E)$	21	#5	31'-3"	—
$h_{11}(E)$	12	#5	33'-8"	—
$v_{10}(E)$	45	#5	13'-11"	—
$v_{11}(E)$	9	#5	10'-3"	—
$v_{12}(E)$	9	#5	3'-3"	—
$u_{10}(E)$	96	#4	4'-0"	□
$u_{11}(E)$	36	#4	4'-1"	□
$u_{12}(E)$	12	#4	5'-0"	□
Stud Shear Connectors	Each		395	
Reinforcement Bars Epoxy Coated	Pound		2,290	
Permanent Steel Sheet Piling	Sq. Ft.		2,484	
Concrete Box Culverts	Cu. Yd.		33.5	



**SECTION B-B**



**FIELD CUTTING DIAGRAM**

\* Order  $h_{11}(E)$  and  $v_{10}(E)$  bars full length. Cut to fit and use the remainder of bars in opposite face.

**WINGWALL  
MIN. BAR LAP**

#4 1'-8"  
#5 2'-2"

**NOTES:**

- Permanent Steel Pile Walls shall be backfilled prior to constructing the concrete facing.
- Hard driving may be encountered during the sheet piling installation. The Contractor shall provide the appropriate driving equipment for the soil conditions indicated on the boring logs.
- If the Contractor chooses to alter the permanent cantilevered sheet piling wingwall design requirements shown on the plans, design submittal including plan details and calculations will be required for review and acceptance by the Engineer.
- All dimensions are in feet except as noted.  
F.F. - Front Face  
B.F. - Back Face  
E.F. - Each Face  
P.J.F. - Preformed Joint Filler