

**TWO ABUTMENTS  
BILL OF MATERIAL**

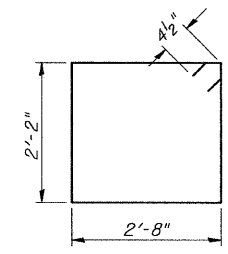
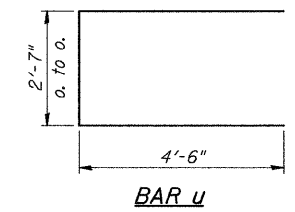
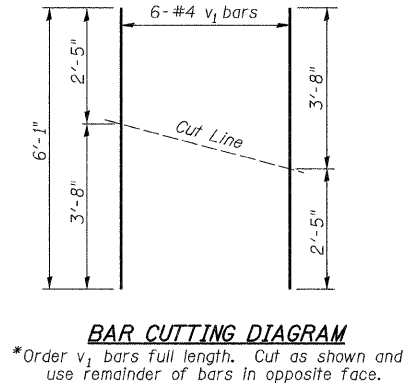
BAR	NO.	SIZE	LENGTH	SHAPE
h	12	#4	30'-9"	—
h1	40	#4	6'-6"	—
p	20	#7	30'-9"	—
s	68	#4	10'-5"	□
u	12	#6	11'-7"	□
v	124	#4	3'-2"	—
v1	24	#4	6'-1"	—
Concrete Structures		CU YD	23.2	
Reinforcement Bars		POUND	2,720	
Structure Excavation		CU YD	65	
Name Plates		EACH	1	
Furnishing Metal Shell Piles 12"x0.25"		FOOT	434	
Driving Piles		FOOT	434	
Test Pile Metal Shells		EACH	1	
Concrete Encasement		CU YD	2.6	

① See Special Provisions

**DESIGN STRESSES**  
 $f'_c = 3,500$  p.s.i.  
 $f_y = 60,000$  p.s.i.

- NOTES**
- The Backwall and the portion of the Wingwalls above the bonded construction joint shall be cast against the in-place beam.
  - Reinforcement bars shall conform to ASTM A706 Grade 60.

**PILE DATA**  
 Type & Size: Metal Shell-12"φ x 0.25" walls  
 Nominal Required Bearing: 180 kips  
 Allowable Resistance Available: 60 kips  
 Est. Length: 51' West Abutment  
 46' East Abutment  
 No. Req'd.: 10 (Includes 1 Test Pile at West Abut.)



**ABUTMENTS  
 COUNTY HIGHWAY 12  
 OVER MILLER CREEK  
 SECTION 00-00063-00-BR  
 CASS COUNTY  
 STATION 256+92.00**