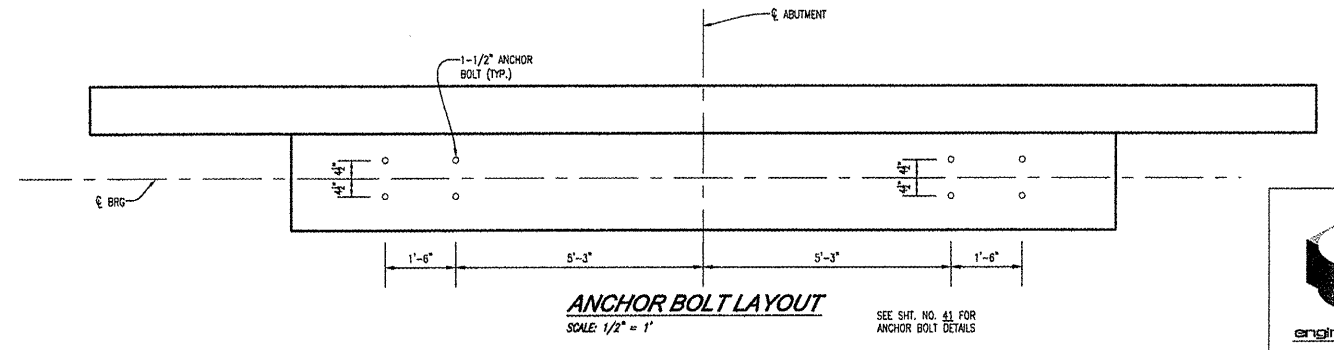
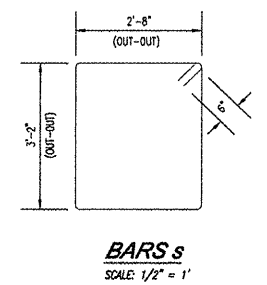


**BILL OF MATERIAL FOR ONE ABUTMENT**

Bar	No.	Size	Length	Shape
h	32	#4	5'-7"	—
h1	10	#4	17'-6"	—
p	10	#7	17'-2"	—
s	16	#4	12'-8"	□
u	8	#6	11'-7"	□
v1	20	#4	7'-4"	—
v2	38	#4	5'-6"	—
Concrete Structures *				12.5 Cu. Yd.
Reinforcement Bars				1,091 Lb.
Structure Excavation				48.9 Cu. Yd.
Furnishing Steel Piles, HP 12x63				200 FL.
Driving Piles				200 FL.
Controlled Low Strength Mat <sup>1</sup>				14.8 Cu. Yd.



**DESIGN STRESSES**

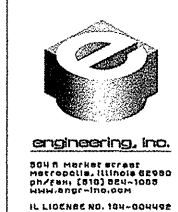
$f'_c = 3,500$  psi  
 $f_y = 60,000$  psi (Steel Reinforcement)

**PILE DATA**

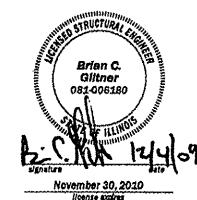
Type ..... HP 12x63 (Grade 50)  
No. Required ..... 10 (for 2 Abutments)  
Allowable Resistance Available ..... 89 kips per pile (West Abutment)  
..... 80 kips per pile (East Abutment)  
Nominal Required Bearing ..... 206 kips per pile (West Abutment)  
..... 264 kips per pile (East Abutment)  
Estimated Length ..... 40 feet per pile

**NOTES**

- Reinforcement bars shall conform to the requirements of A.A.S.H.T.O. M-31 or M-32, Grade 60.
- Reinforcement shall be spaced in cap to miss anchor bolts.



**GEORGE ROGERS CLARK DISCOVERY TRAIL  
OVER SEVENMILE CREEK**  
SECTION 09-00038-00-BT  
MASSAC COUNTY  
STATION 1204+52.00  
STRUCTURE NUMBER 064-9919



\* Concrete for Pile Encasement is included in this quantity