

SUMMARY OF QUANTITIES		
ITEM	QUANTITY	UNIT
Class III Excavation	34	Cu. Yds.
Concrete Grade 4.0 (AE)	17.0	Cu. Yds.
Reinforcing Steel (Gr. 60) (Epoxy)	4,780	Lbs.
Steel Pile (HP12x53)	330	Lin. Ft.

GENERAL NOTES

EXCAVATION: Structural excavation shall be in accordance with the plans and specifications. Class III Excavation shall include the entire volume of whatever material is found within the limits specified.

BACKFILL COMPACTION: Compact backfill at the abutments.

PILING: Steel H-piles shall conform to ASTM A572, Grade 50. Drive all piling to penetrate the Wellington Shale formation. Driving shall stop when in the opinion of the Engineer, additional driving may damage the piling. Drive all piling to the Pile Driving Formula Load of:

Abutments 65 tons

As a minimum drive each pile to the load and penetration, but in no case shall the pile be driven to more than 110% of Pile Driving Formula Driving Load. At locations where problems are experienced or pile damage is suspected, the Engineer may request that the Pile Driving Analyzer (PDA) equipment be used.

PREDRILLED PILE HOLES: Drill pilot holes for each pile to a depth 5'-0" below the nearest underground utility. Predrilling shall be subsidiary to the bid item "Steel Pile (HP12 x 53)".

CONCRETE: Concrete Grade 4.0 (AE) shall be used thruout. Bevel all exposed edges with a 3/4" triangular moulding unless otherwise noted.

REINFORCING: All reinforcing steel shall conform to the requirements of ASTM A615, Grade 60. All epoxy coated reinforcing steel shall conform to the requirements of ASTM A775. All reinforcing steel shall be epoxy coated. All dimensions in bending diagrams are out to out of bar. All other dimensions relative to reinforcing steel are to centerline of bar unless otherwise noted.

CONSTRUCTION: All concrete shall be placed monolithic.

QUANTITIES: Items not listed separately in the Summary of Quantities are subsidiary to other items in the proposal.

CONSTRUCTION: A vibration monitoring program shall be required in accordance with the specifications during pile driving and other construction activities.

CONSTRUCTION SPECIFICATIONS: All work and materials shall conform to the 2007 Edition of "Standard Specifications for State Road and Bridge Construction".

DESIGN DATA

DESIGN SPECIFICATIONS: AREMA Manual for Railway Engineering, 2009

RAILROAD BRIDGE DESIGN LOADS:

Dead Load:

- Unit Weight of Ballast, 120 pcf
- Unit Weight of Track, 200 plf
- Unit Weight of Backfill, 120 pcf
- Unit Weight of Concrete, 150 pcf
- Unit Weight of Steel, 490 pcf

Live Load:

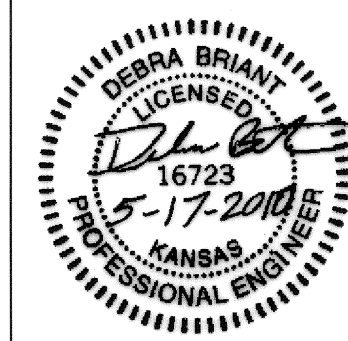
Cooper E 80 (EM 360) with diesel impact for rolling equipment without hammer blow.

UNIT STRESSES:

- Concrete Grade 4.0 (AE) $f'c = 4,000 \text{ psi}$
- Reinforcing Steel (Grade 60) (Epoxy) $f_y = 60,000 \text{ psi}$
- Steel Pile $f_y = 50,000 \text{ psi}$

DESIGN PILE LOAD:

- Design Load 52 (tons per Pile)
- Allowable Load 65 (tons per Pile)



Rev.	Date	Description	Designer: BLB	Drawn By:	Date: April 30, 2010	Revision No.

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Client: **HORIZON MILLINGS WICHITA, KANSAS**

SUMMARY OF QUANTITIES AND GENERAL NOTES UTILITY PROTECTION

FINNEY & TURNIPSEED
 TRANSPORTATION & CIVIL ENGINEERING
 TOPEKA, KANSAS

Drawing No. **S101**
 Project No. **465**