

**DESIGN NOTES**

**DESIGN SPECIFICATIONS**

STRUCTURE DESIGNED IN ACCORDANCE WITH "AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS" 5th EDITION.

**DESIGN PROCEDURES**

RAILING CONFORMS TO TL-x. DESIGN SPEED IS      mph.  
THE FOLLOWING PROPRIETARY COMPUTER SOFTWARE PROGRAMS WERE USED TO FACILITATE THE STRUCTURAL ANALYSIS:

NAME	VERSION	RELEASE DATE	NAME	VERSION	RELEASE DATE

**DESIGN LOADS**

**PERMANENT LOADS**

- DC UNIT WEIGHT OF REINFORCED CONCRETE ..... 0.150 kcf
- DW FUTURE SURFACING ..... x.xx ksf
- EV UNIT WEIGHT OF SOIL ..... xxx kcf
- FILL DEPTH ..... x.xx ft
- EH ACTIVE PRESSURE ..... xxx kcf
- AT REST PRESSURE ..... xxx kcf
- SOIL-STRUCTURE INTERACTION FACTOR ( $F_e$  OR  $F_t$ ) ..... x.xx
- ES EARTH LOAD SURCHARGE ..... x.xx ft

**TRANSIENT LOADS**

- LL HL-93
- IM DYNAMIC ALLOWANCE APPLIED TO TRUCK & TANDEM
- LS LIVE LOAD SURCHARGE AT ABUTMENT ..... x.xx feet
- LIVE LOAD SURCHARGE AT WING WALL ..... x.xx feet

**FOOTING DESIGN LOADS**

**STRENGTH LIMIT STATE**  
 NOMINAL BEARING RESISTANCE  $q_n = X$  ksf  
 EFFECTIVE FOOTING WIDTH  $B' = xx$  ft  
 EFFECTIVE FOOTING LENGTH  $L' = xx$  ft  
 RESISTANCE FACTOR  $\phi_b = x$   
 FACTORED BEARING RESISTANCE  $q_n = q_n \phi_b = xx$  ksf  
 FACTORED APPLIED LOAD  $\gamma Q/(B'L') = xx$  ksf  
**SLIDING**  
 NOMINAL SLIDING RESISTANCE  $R_n = X$  kips  
 RESISTANCE FACTOR  $\phi = xx$   
 FACTORED SLIDING RESISTANCE  $R_n = R_n \phi = xx$  kips  
 FACTORED APPLIED LOAD  $\gamma V = xx$  kips

**SERVICE LIMIT STATE**  
 PRESUMPTIVE BEARING CAPACITY  $q_p = X$  ksf  
 BASED UPON FOOTING SETTLEMENT =  $X$  inches OR LESS  
 EFFECTIVE FOOTING WIDTH  $B' = xx$  ft  
 EFFECTIVE FOOTING LENGTH  $L' = xx$  ft  
 RESISTANCE FACTOR  $\phi = 1.0$   
 FACTORED PRESUMPTIVE BEARING RESISTANCE  $\phi q_p = xx$  ksf  
 FACTORED APPLIED LOAD  $\gamma Q/(B'L') = xx$  ksf

**EXTREME LIMIT STATE**  
 NOMINAL BEARING RESISTANCE  $q_n = X$  ksf  
 EFFECTIVE FOOTING WIDTH  $B' = xx$  ft  
 EFFECTIVE FOOTING LENGTH  $L' = xx$  ft  
 RESISTANCE FACTOR  $\phi = 1.0$   
 FACTORED BEARING RESISTANCE  $\phi q_n = xx$  ksf  
 FACTORED APPLIED LOAD  $\gamma Q/(B'L') = xx$  ksf  
**SLIDING**  
 NOMINAL SLIDING RESISTANCE  $R_n = X$  kips  
 RESISTANCE FACTOR  $\phi = 1.0$   
 FACTORED SLIDING RESISTANCE  $\phi R_n = xx$  kips  
 FACTORED APPLIED LOAD  $\gamma V = xx$  kips

**GENERAL NOTES**

**CONSTRUCTION SPECIFICATIONS**

MATERIALS, CONSTRUCTION AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE STATE OF IDAHO TRANSPORTATION DEPARTMENT, "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION", 2004 EDITION, THE PROJECT PLANS AND SPECIFICATIONS.  
THE ENGLISH UNITS SYSTEM OF MEASUREMENT SHALL BE USED AS STANDARD.

**MATERIAL**

- CONCRETE : DECK SLAB AND EDGE BEAM - CLASS 40A .....  $f'c = 4.00$  ksi
- BARREL WALLS, FOOTINGS AND WINGS - CLASS 40B .....  $f'c = 4.00$  ksi
- METAL REINFORCEMENT : AASHTO M31, GRADE 60 .....  $f_y = 60.00$  ksi

**PLAN DIMENSIONS AND ELEVATIONS**


ALL EXPOSED EDGES OF CONCRETE SHALL BE BEVELED  $\frac{3}{4}$ " UNLESS NOTED OTHERWISE.  
ALL DIMENSIONS TO REINFORCING STEEL ARE TO CENTERLINE OF BAR UNLESS NOTED OTHERWISE.  
CONCRETE COVER MEASURED FROM THE FACE OF THE CONCRETE TO THE FACE OF ANY REINFORCING BAR SHALL BE 2", UNLESS SHOWN OTHERWISE ON THE DRAWINGS.  
REINFORCING STEEL SPLICE LENGTHS SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATIONS.

**CONSTRUCTION**

CONSTRUCTION JOINTS WILL BE PERMITTED ONLY AT THE LOCATIONS SHOWN ON THE PLANS OR AS APPROVED BY THE ENGINEER.  
CONCRETE WATERPROOF SYSTEM TYPE A OR D SHALL BE APPLIED TO THE TOP SLAB.  
THE DIFFERENCE IN ELEVATION OF THE BACKFILL MATERIAL ON BOTH SIDES OF THE STRUCTURE SHALL NOT EXCEED 2 FEET DURING BACKFILL OPERATIONS.  
THE ROLLER SHALL BE IN THE STATIC MODE FOR COMPACTING THE ASPHALT WEARING SURFACE OVER THE CULVERT WHEN THE DEPTH OF FILL IS LESS THAN 3'.

**INCIDENTAL ITEMS**

ALL ITEMS SHOWN OR NOTED ON PLANS WHICH ARE NOT SPECIFICALLY BID ITEMS ARE CONSIDERED INCIDENTAL ITEMS. THE COST OF FURNISHING AND INSTALLING ALL INCIDENTAL ITEMS WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE UNIT PRICE BID FOR OTHER ITEMS, UNLESS NOTED OTHERWISE.

REVISIONS				DESIGNED	SCALES SHOWN	ORIGINAL SIGNED BY:	IDaho TRANSPORTATION DEPARTMENT	<b>English</b>	PROJECT NO.	DESIGN AND GENERAL NOTES	BRIDGE PLANS	
NO.	DATE	BY	DESCRIPTION	DESIGN CHECKED	ARE FOR 34" X 22" PRINTS ONLY						COUNTY	KEY NO.
△				DETAILED	CADD FILE NO.					BOX CULVERT/STIFFLEG BRIDGE	BRIDGE LRFD MANUAL, PAGE B17.2D	
△				DWG. CHECKED	x:\cadd\std_dgns\ b17_2d.dgn						BIDGE DRAWING NO.	SHEET
△				CORRECTIONS	DRAWING DATE: MAR 2011	DATE SIGNED: DATE						
△						INTERNAL STORED AT: ITD-BRIDGE SECTION						OF