DESIGN NOTES

DESIGN SPECIFICATIONS

IN ACCORDANCE WITH : "AASHTO LRFD BRIDGE DESIGN SPECIFICATION" 4th EDITION, WITH THE 2008 INTERIMS.

DESIGN PROCEDURES

GIRDERS DESIGNED AS SIMPLE SPANS AND SLAB REINFORCEMENT ADDED TO RESIST NEGATIVE MOMENT.
DECK SLAB DESIGNED USING EMPIRICAL DESIGN METHOD. RAILING CONFORMS TO TL-x. DESIGN SPEED IS mph.
ABUTMENT/PIER DESIGNED TO RESIST THE VEHICULAR COLLISION FORCE.
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 WEARING SURFACE	0.028 ksf
	UTILITIES	xxx klf
	FUTURE UTILITIES	xxx klf
EV	UNIT WEIGHT OF SOIL	xxx kcf
EH	ACTIVE PRESSURE	xxx kcf
	AT REST PRESSURE	xxx kcf

TRANSIENT LOADS

LL	HL-93 INCLUDING PAIR OF DESIGN TANDEMS IN NEGATIVE MOMENT REGIONS	
	SINGLE LANE ADTT (year)	xxx
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
TU	UNIFORM TEMPERATURE RANGE	XX° F TO 80° F
	BASE SETTING TEMPERATURE	XX° F

EXTREME EVENT LOADS

EQ	SITE CLASS	x
	ACCELERATION COEFFICIENT SD_1	0.xx g
	SEISMIC PERFORMANCE ZONE	X
CT	VEHICULAR COLLISION FORCE	400 k
IC	ICE CRUSHING STRENGTH	xxx ksf
	ICE THICKNESS	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 Φ_b = X
FACTORED BEARING RESISTANCE $q_R = q_n\Phi_b$ = xx ksf
FACTORED APPLIED LOAD $\gamma Q/(B'L')$ = xx ksf
SLIDING
NOMINAL SLIDING RESISTANCE R_n = X kips
RESISTANCE FACTOR ϕ = xx
FACTORED SLIDING RESISTANCE $R_R = R_n\phi$ = xx kips
FACTORED APPLIED LOAD γV = 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 ϕ = 1.0
FACTORED PRESUMPTIVE BEARING RESISTANCE ϕq_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 ϕ = 1.0
FACTORED BEARING RESISTANCE ϕq_n = xx ksf
FACTORED APPLIED LOAD $\gamma Q/(B'L')$ = xx ksf
SLIDING
NOMINAL SLIDING RESISTANCE R_n = X kips
RESISTANCE FACTOR ϕ = 1.0
FACTORED SLIDING RESISTANCE ϕR_n = xx kips
FACTORED APPLIED LOAD γV = xx kips

PILE DESIGN LOADS

STRENGTH LIMIT STATE

NOMINAL AXIAL RESISTANCE R_n = X kips
AXIAL RESISTANCE FACTOR ϕ = xx
FACTORED AXIAL RESISTANCE ϕR_n = xxx kips
MAX. APPLIED AXIAL LOAD Q = xx kips
MIN. APPLIED AXIAL LOAD Q = xx kips
NOMINAL LATERAL RESISTANCE R_n = X kips
BASED UPON 2" OF HORIZONTAL MOVEMENT
LATERAL RESISTANCE FACTOR ϕ = 1.0
FACTORED LATERAL RESISTANCE ϕR_n = xx kips
FACTORED LATERAL APPLIED LOAD γV = xx kips

SERVICE LIMIT STATE

NOMINAL LATERAL RESISTANCE R_n = X kips
BASED UPON 1/4" OF HORIZONTAL MOVEMENT
LATERAL RESISTANCE FACTOR ϕ = 1.0
FACTORED LATERAL RESISTANCE ϕR_n = xx kips
FACTORED LATERAL APPLIED LOAD γV = xx kips

EXTREME LIMIT STATE

NOMINAL AXIAL RESISTANCE R_n = X kips
AXIAL RESISTANCE FACTOR ϕ = 1.0
FACTORED AXIAL RESISTANCE ϕR_n = xxx kips
MAX. APPLIED AXIAL LOAD Q = xx kips
MIN. APPLIED AXIAL LOAD Q = xx kips
LATERAL RESISTANCE FACTOR ϕ = 1.0
FACTORED LATERAL RESISTANCE ϕR_n = xx kips
FACTORED LATERAL APPLIED LOAD γV = xx kips

REVISIONS				DESIGNED	SCALES SHOWN ARE FOR 34" X 22" PRINTS ONLY	ORIGINAL SIGNED BY:	IDAHO TRANSPORTATION DEPARTMENT	English	DESIGN AND GENERAL NOTES 1 OF 2	BRIDGE PLANS
NO.	DATE	BY	DESCRIPTION	DESIGN CHECKED	CADD FILE NO. \prj00000\bridge\ b17_1a.dgn			PROJECT NO.	PRECAST, P/S GIRDER BRIDGE RAILROAD BRIDGE	BRIDGE LRFD MANUAL, PAGE B17.1A
				DETAILED						COUNTY / KEY NO.
				DWG. CHECKED	DRAWING DATE: APR 2008	DATE SIGNED: DATE				BRIDGE DRAWING NO. / SHEET OF
				CORRECTIONS		ORIGINAL STORED AT ITD BRIDGE SECTION				