

### LOAD AND RESISTANCE FACTOR DESIGN

#### DESIGN DATA

CLASS "AA" CONCRETE  $F'_c = 4,000$  PSI  
 CLASS "A" CONCRETE  $F'_c = 3,000$  PSI  
 REINFORCING STEEL AASHTO M31 (Gr. 60)  $F_y = 60,000$  PSI  
 STRUCTURAL STEEL AASHTO M270 (Gr. 50W)  $F_y = 50,000$  PSI

LOADING: HL-93  
 20 PSF FUTURE WEARING SURFACE  
 5 PSF STAY-IN-PLACE FORMS

DESIGN: AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 5TH EDITION, WITH 2010 INTERIM REVISIONS, EXCEPT AS MODIFIED BY CURRENT ODOT BRIDGE DIVISION DESIGN POLICIES. (PIERS - 7TH EDITION, 2014.)  
 ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE.

LFD OPERATING RATING: HS 34.7

#### FOUNDATION DATA

ABUTMENTS (HP10x42 PILING):

(1) MAXIMUM FACTORED PILE REACTION = 75.3 TONS/PILE

PIERS (72" DIAMETER DRILLED SHAFTS)	PIER 1	PIER 2
FACTORED REACTION (TONS/SHAFT)	= 468.3	475.1
NOMINAL UNIT BEARING RESISTANCE (TSF)	= 60.0	60.0
BEARING RESISTANCE FACTOR	= 0.7	0.7
FACTORED BEARING RESISTANCE (TONS/SHAFT)	= 1187.5	1187.5
NOMINAL UNIT FRICTION RESISTANCE (TSF)	= 9.0	4.6
FRICTION RESISTANCE FACTOR	= 0.45	0.45
FACTORED FRICTION RESISTANCE (TONS/SHAFT)	= 687.1	351.2
DEPTH OF ROCK NEGLECTED FOR FRICTION (FT.)	= 6.0	6.0
MINIMUM DEPTH INTO ROCK (FT.)	= 15.0	15.0
TOTAL FACTORED RESISTANCE (TONS/SHAFT)	= 1874.6	1538.7

(1) ABUTMENT PILING SHALL BE DRIVEN THROUGH THE COMPACTED FILL TO POINT BEARING ON SOLID FOUNDATION MATERIAL AT THE APPROXIMATE ELEVATION SHOWN ON THE PLANS. PILE CAPACITY SHALL BE VERIFIED USING THE GATES EQUATION PROVIDED ON SHEET NO. 6. IF THE FACTORED PILE CAPACITY IS NOT OBTAINED AT THIS ELEVATION, DRIVING SHALL CONTINUE UNTIL THE FACTORED PILE CAPACITY IS OBTAINED. THE LENGTH OF STEEL PILING SHOWN ON THE PLANS IS FOR ESTIMATING PURPOSES ONLY.

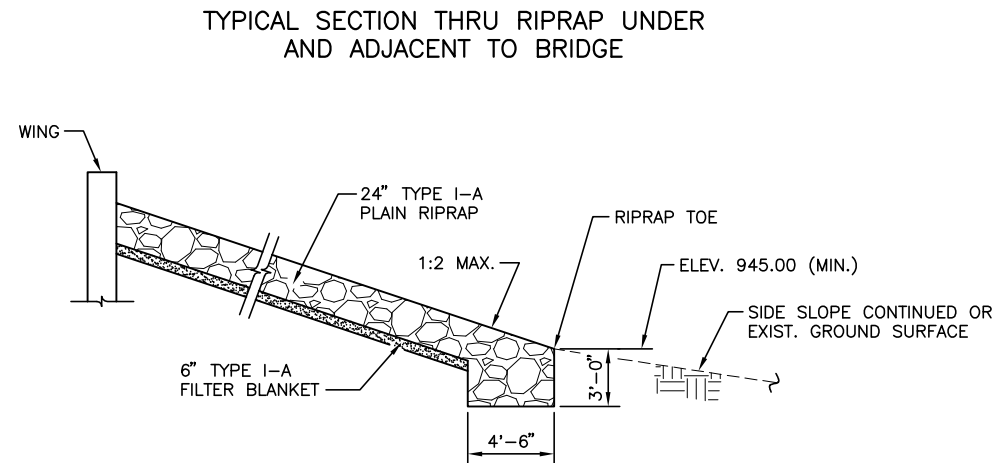
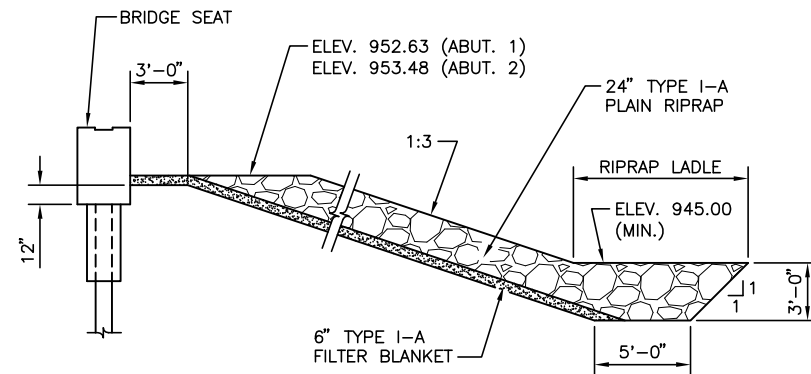
#### EXISTING BRIDGE NOTE:

THE EXISTING BRIDGE SHALL BE REMOVED IN ACCORDANCE WITH THE NOTES ON SHEET NO. 6.

#### HYDRAULIC DATA

TOTAL D.A.	= 19.90 sq. mi.	Q50	= 7450 cfs
CONTROLLED D.A.	= 0.00 sq. mi.	V50	= 10.65 fps
EFFECTIVE D.A.	= 19.90 sq. mi.	Q50 CHW	= 948.22 ft.
Q2	= 1080 cfs	Q100	= 9330 cfs
V2	= 5.14 fps	V100	= 11.41 fps
Q2 CHW	= 937.17 ft.	Q100 CHW	= 949.92 ft.
Q5	= 2350 cfs	Q500	= 14900 cfs
V5	= 7.09 fps	V500	= 11.93 fps
Q5 CHW	= 940.63 ft.	Q500 CHW	= 954.43 ft.
Q10	= 3620 cfs	Q0.T. > Q500	
V10	= 8.37 fps	O.T. ELEV.	= 956.71 ft.
Q10 CHW	= 943.17 ft.		
Q25	= 5760 cfs	MAX. CALC. TOTAL SCOUR	= 18.84 ft.
V25	= 9.82 fps	CONTRACTION SCOUR	= 8.72 ft.
Q25 CHW	= 946.41 ft.	PIER SCOUR	= 10.12 ft.

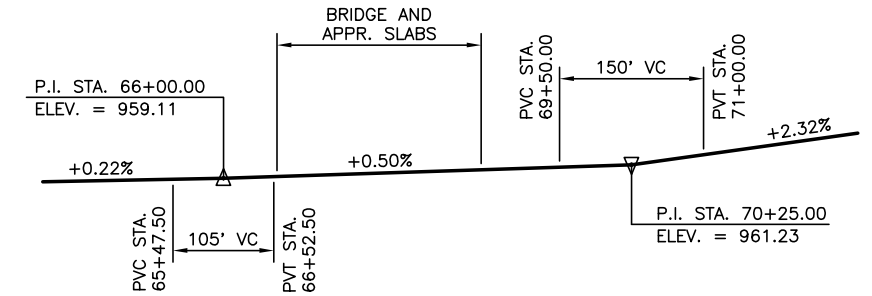
SUMMARY OF QUANTITIES						
DESCRIPTION	UNITS	ABUTS.	PIERS	SUPSTR.	APPR. SLABS	TOTAL
SUBSTRUCTURE EXCAVATION COMMON	CY	120.00				120.00
GRANULAR BACKFILL	CY	56.00				56.00
PRESTRESSED CONCRETE BEAM (TYPE B)	LF			397.34		397.34
PRESTRESSED CONCRETE BEAM (TYPE C)	LF			278.67		278.67
APPROACH SLAB	SY				141.60	141.60
SAW-CUT GROOVING	SY			614.60	141.50	756.10
CONCRETE RAIL (TR3)	LF	49.60		345.80		395.40
STRUCTURAL STEEL	LB			870.00		870.00
WEATHERING STEEL FIXED BEARING ASSEMBLY	EA			8.00		8.00
WEATHERING STEEL EXPANSION BEARING ASSEMBLY	EA			16.00		16.00
ELASTOMERIC BEARING PADS	EA			16.00		16.00
CLASS AA CONCRETE	CY			180.80		180.80
CLASS A CONCRETE	CY	42.20	74.90			117.10
CLASS C CONCRETE	CY					12.00
REINFORCING STEEL	LB	6420.00	610.00	42000.00		49030.00
EPOXY COATED REINFORCING STEEL	LB		9080.00			9080.00
PILES, FURNISHED (HP10x42)	LF	560.00				560.00
PILES, DRIVEN (HP10x42)	LF	560.00				560.00
PILE SPLICE, H-PILE (NON-BIDDABLE)	EA	2.00				2.00
WATER REPELLENT (VISUALLY INSPECTED)	SY		124.00			124.00
DRILLED SHAFTS 72" DIAMETER	LF		241.20			241.20
CROSSHOLE SONIC LOGGING	EA		1.00			1.00
TYPE I-A PLAIN RIPRAP	TON	1150.00				1150.00
TYPE I-A FILTER BLANKET	TON	205.00				205.00
6" PERFORATED PIPE UNDERDRAIN ROUND	LF	64.00				64.00
6" NON-PERF. PIPE UNDERDRAIN RND.	LF	80.00				80.00
REMOVAL OF EXISTING BRIDGE STRUCTURE	LSUM					1.00



TYPICAL SECTION THRU RIPRAP ALONG WINGS

NOTES: SEE SHEET NO. 17 FOR PLAN LIMITS.

RIPRAP SHALL NOT BE PLACED BELOW ELEV. 945.00 AT THE SURFACE.



FINISH GRADE DATA  
 & PROPOSED S.H. 74D

#### INDEX OF SHEETS

SHEET NO.	TITLE
6	PAY QUANTITIES AND GENERAL NOTES (BRIDGE "A")
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18	GENERAL PLAN AND ELEVATION (BRIDGE "A")
19	FOUNDATION REPORT
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21	SUBSTRUCTURE STAKING DIAGRAM
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23	PIER 2 DETAILS
24	MISCELLANEOUS PIER DETAILS
25	DRAIN AT END BRIDGE DETAILS

THE FOLLOWING STANDARDS SHALL BE REQUIRED:

TR3-2-01E	CB32-I-SKO-BRG-PC2-00E
HP1-2-01E	CB32-I-SKO-BRG-PC3-01E
CB32-I-SKO-ABUT-PC2-01E	CB32-I-SKO-SPR-QUAN-PCB-1-01E
CB32-I-SKO-XSECT-PC234-01E	CB32-I-SKO-SPR-QUAN-PCB-2-01E
CB32-I-SKO-LSECT-PCB-01E	CB32-I-SKO-AS-01E
CB32-I-SKO-DKSLB-BLIST-PCB-01E	CB26..32-I-SKO-WING-PC2-01E
CB32-I-SKO-PCB-B-50-01E	CB26..32-I-SKO-ABUT-MISC-01E
CB32-I-SKO-PCB-C-70-01E	CB26..32-C..I-SKO..30-PCB-DTL-1-01E
CB32-I-SKO-DIA-ABUT-PC2-01E	CB26..32-C..I-SKO..30-PCB-DTL-2-01E
CB32-I-SKO-DIA-INTPR-PCB-01E	CB26..32-C..I-SKO..30-GRAU-BC-00E

CONST. (50'-70'-50') PRESTRESSED CONCRETE BEAM SPANS; 32'-0" CLR. RDWY. W/ CONC. TRAFFIC RAILS (TR3) SKEWED 0°

Design	.	S.H. 74D OVER ROCK CREEK	LOGAN COUNTY
Drawn	PKW 08/14	GENERAL PLAN AND ELEVATION (BRIDGE "A")	
Checked	.	(SHEET 2 OF 2)	
Approved		BRIDGE "A" & STA. 67+62.00	
Squad		State Job No. 28312(04)	Sheet No. 18