

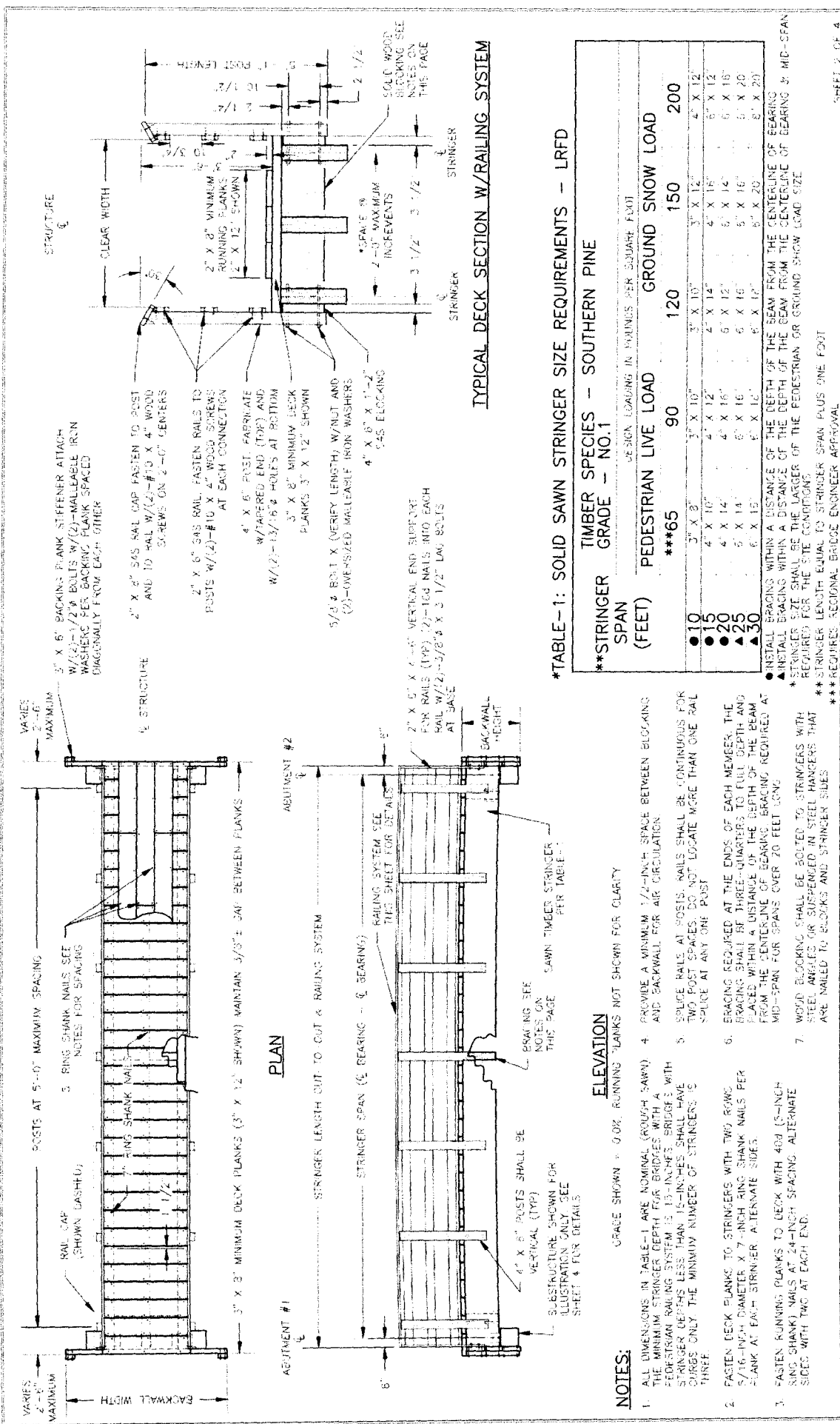


TABLE-1: SOLID SAWN STRINGER SIZE REQUIREMENTS - LRFD

TIMBER SPECIES - SOUTHERN PINE		DESIGN LOADING IN POUNDS PER SQUARE FOOT			
**STRINGER SPAN (FEET)	PEDESTRIAN LIVE LOAD	GROUND SNOW LOAD			
90	***65	120	150	200	
					10 3" X 8"
					15 4" X 10"
					20 4" X 12"
					25 5" X 14"
120	***65	150	200		30 5" X 15"
					35 6" X 16"
					40 6" X 18"
					45 6" X 20"
					50 6" X 20"
150	***65	200			55 6" X 20"
					60 6" X 20"
					65 6" X 20"
					70 6" X 20"
					75 6" X 20"

INSTALL BRACING WITHIN A DISTANCE OF THE DEPTH OF THE BEAM FROM THE CENTERLINE OF BEARING
 ** STRINGER LENGTH EQUAL TO STRINGER SPAN PLUS ONE FOOT
 *** REQUIRES REGIONAL BRIDGE ENGINEER APPROVAL

U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE

STANDARD TRAIL PLAN

SAWN TIMBER STRINGER TRAIL BRIDGE

962 - SAWN TIMBER TRAIL BRIDGE

STD 962-10-02b

NOT TO SCALE

GENERAL NOTES:

SPECIFICATIONS: MATERIALS AND CONSTRUCTION OF THIS STRUCTURE SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATION FOR CONSTRUCTION OF STAGES AND BRIDGES ON FEDERAL HIGHWAY PROJECTS (FH-403) AND STANDARD SPECIFICATIONS FOR CONSTRUCTION OF TRAILS AND TRAIL BRIDGES ON FEDERAL PROJECTS.

TIMBER & LUMBER: SOLID SAWN TIMBER MEMBERS SHALL CONFORM TO THE REQUIREMENTS OF THE GRADING RULES AGENCY FOR THE SPECIES, TYPE, AND GRADE SPECIFIED BELOW.

DECK PLANKS, CURBS, SILLS, & BACKING PLANKS

— LOCAL REGION VOUCHER: 18-1-ARCH RUGH SAWN AND 1 GRADE, GRADING RULES
— AGENCY: WAPA WOLF

RUNNING PLANKS

— LOCAL REGION VOUCHER: 18-1-ARCH RUGH SAWN AND 2 GRADE, GRADING RULES
— AGENCY: WAPA WOLF

RAILS & POSTS (SEE PROJECT CRITERIA)

UNGRADED

— REDWOOD: SEE NOT 1 GRADE GRADING RULES AGENCY - 403
— WESTERN RED CEDAR: SEE SILENT STRUCTURAL GRADE GRADING RULES AGENCY - WAPA WOLF

TREATED

— 40M-FIR/DOUGLAS FIR: SEE NOT 1 GRADE GRADING RULES AGENCY - WAPA WOLF

TREATMENT: SEE PROJECT CRITERIA FOR MEMBERS IDENTIFIED TO BE TREATED AND FOR TREATMENT TYPE. PRESERVATIVE TREATMENT SHALL BE IN ACCORDANCE WITH THE AMERICAN WOOD PROTECTION ASSOCIATION (AWPA) SPECIFICATION. USING THE TREATMENT MATERIALS LISTED BELOW. TREATMENT WILL CONFORM WITH THE REQUIREMENTS OF THE CURRENT EDITION OF WESTERN WOOD PRESERVATION INSTITUTE (WWPI) BEST MANAGEMENT PRACTICES FOR THE USE OF TREATED WOOD IN AQUATIC ENVIRONMENTS.

STRINGERS, DECKING, RUNNING PLANKS, & RAILING SYSTEM, IF TREATED

— AWPA USE CATEGORY SYSTEM (U1) FOR USE CATEGORY 3B ABOVE

— GROUND-EXPOSED (U2A-B)
— SENSATION-EXPOSED (U2C)
— CORNER W/OUT (U2D)
— CORNER W/IN (U2E)
— CORNER W/OUT (U2F)
— CORNER W/IN (U2G)
— CORNER W/OUT (U2H)
— CORNER W/IN (U2I)
— CORNER W/OUT (U2J)
— CORNER W/IN (U2K)
— CORNER W/OUT (U2L)
— CORNER W/IN (U2M)
— CORNER W/OUT (U2N)
— CORNER W/IN (U2O)
— CORNER W/OUT (U2P)
— CORNER W/IN (U2Q)
— CORNER W/OUT (U2R)
— CORNER W/IN (U2S)
— CORNER W/OUT (U2T)
— CORNER W/IN (U2U)
— CORNER W/OUT (U2V)
— CORNER W/IN (U2W)
— CORNER W/OUT (U2X)
— CORNER W/IN (U2Y)
— CORNER W/OUT (U2Z)

SILLS, BACKING PLANKS, CURBS, & TIMBER WALLS, IF TREATED

— AWPA USE CATEGORY SYSTEM (U1) FOR USE CATEGORY 4B

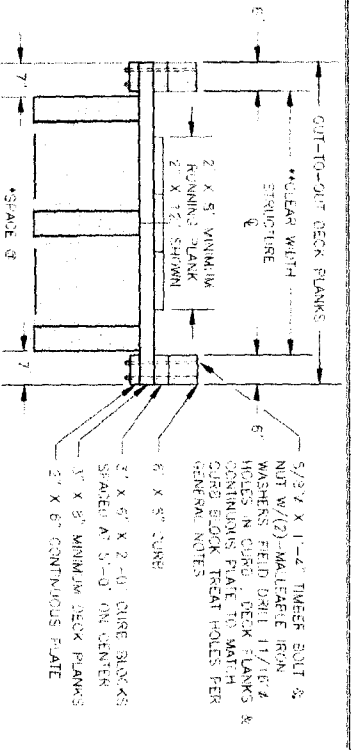
— CONTACT-HEAVY DUTY (U2A-B)
— CONTACT-HEAVY DUTY (U2C)
— CONTACT-HEAVY DUTY (U2D)
— CONTACT-HEAVY DUTY (U2E)
— CONTACT-HEAVY DUTY (U2F)
— CONTACT-HEAVY DUTY (U2G)
— CONTACT-HEAVY DUTY (U2H)
— CONTACT-HEAVY DUTY (U2I)
— CONTACT-HEAVY DUTY (U2J)
— CONTACT-HEAVY DUTY (U2K)
— CONTACT-HEAVY DUTY (U2L)
— CONTACT-HEAVY DUTY (U2M)
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— CONTACT-HEAVY DUTY (U2P)
— CONTACT-HEAVY DUTY (U2Q)
— CONTACT-HEAVY DUTY (U2R)
— CONTACT-HEAVY DUTY (U2S)
— CONTACT-HEAVY DUTY (U2T)
— CONTACT-HEAVY DUTY (U2U)
— CONTACT-HEAVY DUTY (U2V)
— CONTACT-HEAVY DUTY (U2W)
— CONTACT-HEAVY DUTY (U2X)
— CONTACT-HEAVY DUTY (U2Y)
— CONTACT-HEAVY DUTY (U2Z)

FIELD TREATMENT: COPPER NAPHTHENATE (2% SOLUTION) SHALL BE FINISHED FOR FIELD TREATING OF WOOD. ALL APPLICABLE AND -FIELD OUTS -APPROVED BY THE C.O.R. - SHALL BE CAREFULLY TRIMMED AND GIVEN THREE BRUSH COATS OF THE FIELD TREATMENT SOLUTION. WHERE APPROVED FIELD DRILLING OF 3/4" OR 1" DIA. HOLES IS REQUIRED, THE HOLES SHALL BE FILLED WITH PRESERVATIVE PRIOR TO INSERTING THE FASTENER.

HARDWARE AND STRUCTURAL STEEL: SEE PROJECT DESIGN CRITERIA FOR STEEL HARDWARE FINISH. GALVANIZED OR UNFINISHED HARDWARE SHALL MEET THE REQUIREMENTS OF ASTM A1270. GRADE 36 WITH NUTS AND BOLTS CONFORMING TO ASTM A307. GRADE A WEATHERING STEEL AND HARDWARE SHALL MEET THE REQUIREMENTS OF ASTM A1270. GRADE 50 WITH NUTS AND BOLTS CONFORMING TO ASTM A307. TYPE 316 USE MALLEABLE IRON WASHERS AGAINST WOOD UNLESS OTHERWISE NOTED.

WHEN STRUCTURAL STEEL IS TO BE WELDED, THE WELDING PROCEDURE SHALL BE IN ACCORDANCE WITH AWS D11 AND SHALL BE SUITABLE FOR THE GRADE OF STEEL AND INTENDED USE OR SERVICE.

FABRICATION: SUBMIT SHOP DRAWINGS FOR ALL ENDOR COMPONENTS (EXCEPT TIMBER RUNNING PLANKS) SHOW ALL DIMENSIONS AND FABRICATION DETAILS FOR ALL CUT OR BORED TIMBER. FIELD DRILLING OF HOLES SHALL NOT BE ALLOWED UNLESS OTHERWISE NOTED ON THE PLANS.



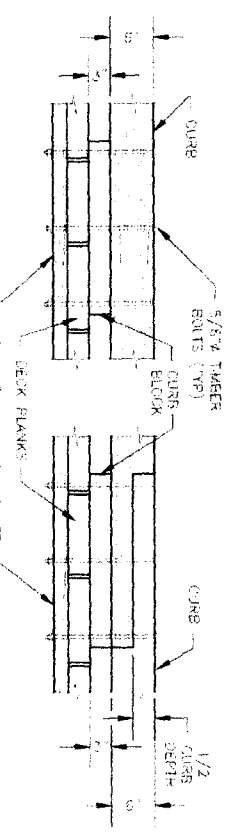
BRIDGE WITH CURBS ONLY
DECK SECTION W/STRINGERS @ 2'-0" O.C.

* MINIMUM NUMBER OF STRINGERS IS THREE
** INSIDE FACE TO INSIDE FACE OF BALING SYSTEM



PLAN-CURB BLOCK

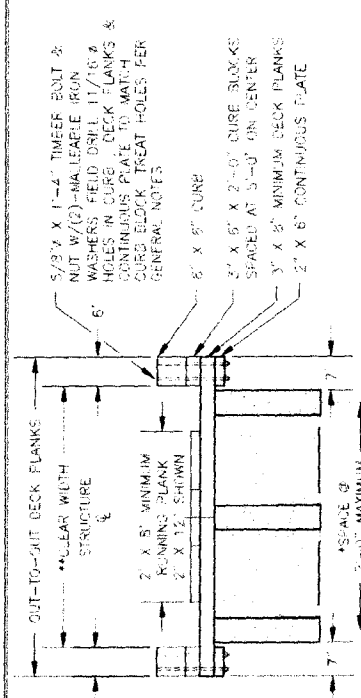
PLAN-CURB BLOCK AT SPLICE



ELEVATION-TYPICAL CONNECTION

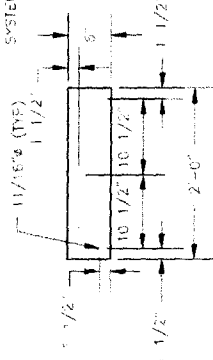
ELEVATION-CONNECTION AT SPLICE

SOLID SAWN CURB CONNECTION DETAILS

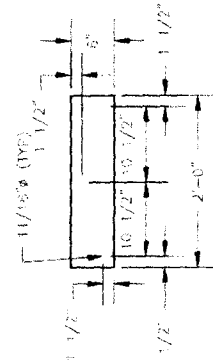


BRIDGE WITH CURBS ONLY
DECK SECTION W/STRINGERS @ 2'-0" O.C.

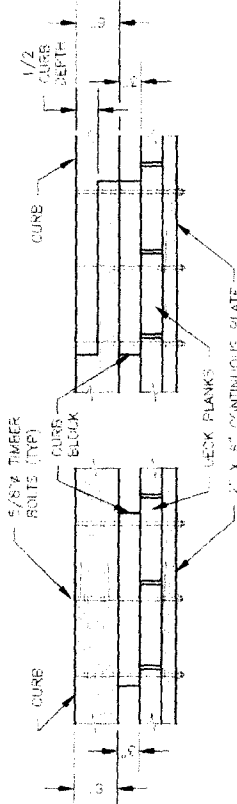
* MINIMUM NUMBER OF STRINGERS IS THREE
** INSIDE FACE TO INSIDE FACE OF RAILING SYSTEM



PLAN-CURB BLOCK



PLAN-CURB BLOCK AT SPLICE



ELEVATION-TYPICAL CONNECTION

ELEVATION-CONNECTION AT SPLICE

SOLID SAWN CURB CONNECTION DETAILS

GENERAL NOTES:

SPECIFICATIONS: MATERIALS AND CONSTRUCTION OF THIS STRUCTURE SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATION FOR CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS (FH-05) AND STANDARD SPECIFICATIONS FOR CONSTRUCTION OF TRAILS AND TRAIL STUDIES ON FEDERAL PROJECTS.

TIMBER & LUMBER: SOLID SAWN TIMBER MEMBERS SHALL CONFORM TO THE REQUIREMENTS OF THE GRADING RULES AGENCY FOR THE SPECIES, TYPE, AND GRADE SPECIFIED BELOW.

DECK PLANKS, CURBS, SILLS, & BACKING PLANKS RUNNING PLANKS

- SOUTHERN PINE NO. 1 GRADE GRADING RULES AGENCY - SPIB

- SOUTHERN PINE NO. 2 GRADE GRADING RULES AGENCY - SPIB

RAILS & POSTS (SEE PROJECT CRITERIA)

UNTREATED

- SOUTHERN PINE NO. 1 GRADE GRADING RULES AGENCY - SPIB

- WHITE OAK S4S SELECT STRUCTURAL GRADE GRADING RULES AGENCY - NEWA

TREATED

- SOUTHERN PINE S4S, NO. 1 GRADE GRADING RULES AGENCY - SPIB

- SOUTHERN PINE S4S, NO. 1 GRADE GRADING RULES AGENCY - SPIB

TREATMENT: SEE PROJECT CRITERIA FOR MEMBERS IDENTIFIED TO BE TREATED AND FOR TREATMENT TYPE. PRESERVATIVE TREATMENT SHALL BE IN ACCORDANCE WITH THE CURRENT AMERICAN WOOD PROTECTION ASSOCIATION (AWPA) SPECIFICATIONS USING THE TREATMENT MATERIALS LISTED BELOW. TREATMENT WILL COMPLY WITH THE REQUIREMENTS OF THE CURRENT EDITION OF WESTERN WOOD PRESERVERS INSTITUTE (WWPI) "BEST MANAGEMENT PRACTICES FOR THE USE OF TREATED WOOD IN AQUATIC ENVIRONMENTS".

STRINGERS, DECKING, RUNNING PLANKS, & RAILING SYSTEM, IF TREATED

- AWPA USE CATEGORY SYSTEM (U1) FOR USE CATEGORY 3B ABOVE

- GROUND-EXPOSED (U3C)

- CORNER NAPHTHENE IN LIGHT OIL (TYPE C SOLVENT)

- PENTACHLOROPHENOL IN LIGHT OIL (TYPE C SOLVENT)

SILLS, BACKING PLANKS, CRIBS, & TIMBER WALLS, IF TREATED

- AWPA USE CATEGORY SYSTEM (U1); FOR USE CATEGORY 4B

- CONTACT-HEAVY DUTY (UC4B)

- PENTACHLOROPHENOL IN HEAVY OIL (TYPE A SOLVENT)

- CORNER NAPHTHENE (C4) IN HEAVY OIL (TYPE A SOLVENT)

FIELD TREATMENT: CORNER NAPHTHENE (2% SOLUTION) SHALL BE FURNISHED FOR FIELD TREATMENT OF ALL APPLICABLE FIELD JOINTS. APPROVED BY THE COR. SHALL BE CAREFULLY TRIMMED AND GIVEN THREE BRUSH COATS OF THE FIELD TREATMENT SOLUTION WHERE APPROVED FIELD DRILLING OF BOLT OR NAIL HOLES IS REQUIRED. THE HOLES SHALL BE FILLED WITH PRESERVATIVE PRIOR TO INSERTING THE FASTENERS.

HARDWARE AND STRUCTURAL STEEL: SEE PROJECT DESIGN CRITERIA FOR STEEL HARDWARE FINISH. GALVANIZED OR UNFINISHED HARDWARE SHALL MEET THE REQUIREMENTS OF AASHTO M270. GRADE 55, WITH NUTS AND BOLTS CONFORMING TO ASTM A307. GRADE A WEATHERING STEEL AND HARDWARE SHALL MEET THE REQUIREMENTS OF AASHTO M270. GRADE 50W WITH BOLTS AND NUTS CONFORMING TO ASTM A225. TYPE 3. USE MALLEABLE IRON WASHERS AGAINST WOOD UNLESS OTHERWISE NOTED.

WHEN STRUCTURAL STEEL IS TO BE WELDED, THE WELDING PROCEDURE SHALL BE IN ACCORDANCE WITH AWS D11.1 AND SHALL BE SUITABLE FOR THE GRADE OF STEEL AND INTENDED USE OR SERVICE.

FABRICATION: SUBMIT SHOP DRAWINGS FOR ALL BRIDGE COMPONENTS (EXCEPT TIMBER RUNNING PLANKS). SHOW ALL DIMENSIONS AND FABRICATION DETAILS FOR ALL CUT OR BORED TIMBER. FIELD DRILLING OF HOLES SHALL NOT BE ALLOWED UNLESS OTHERWISE NOTED ON THE PLANS.

U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
STANDARD TRAIL PLAN

DRAWING NAME
SAWN TIMBER STRINGER TRAIL BRIDGE

PROJECT NAME & LOCATION
962 - SAWN TIMBER TRAIL BRIDGE

DESIGNER
STB

REVISION DATE
NOT TO SCALE

DRAWING NO.
STD_962-10-030

SHEET
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