

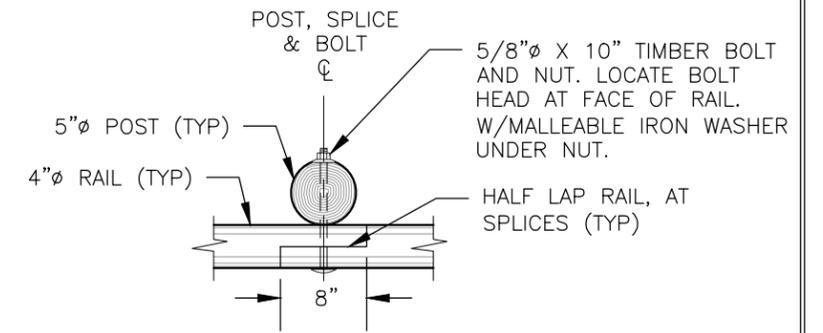
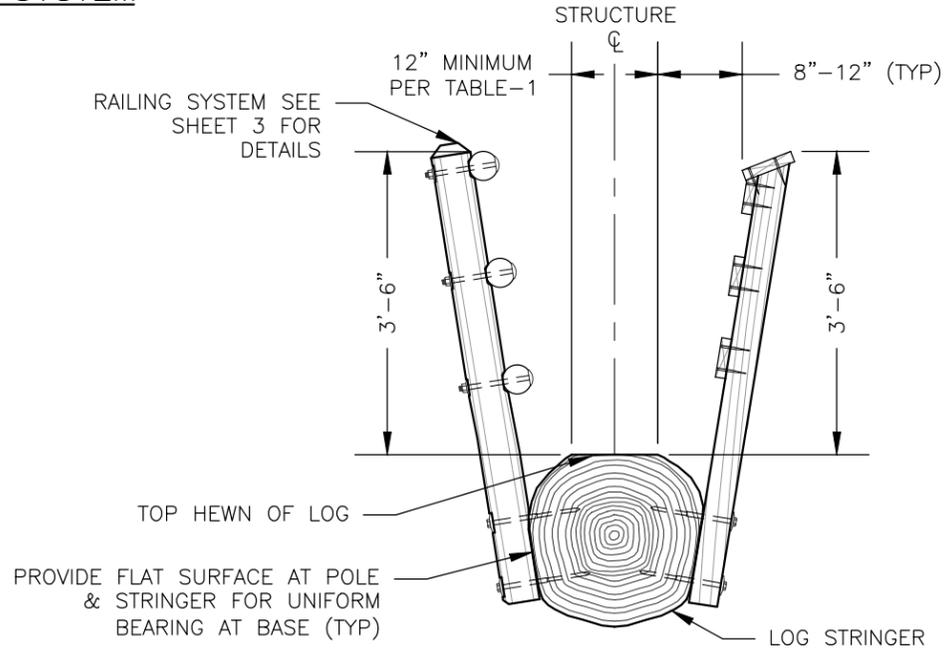
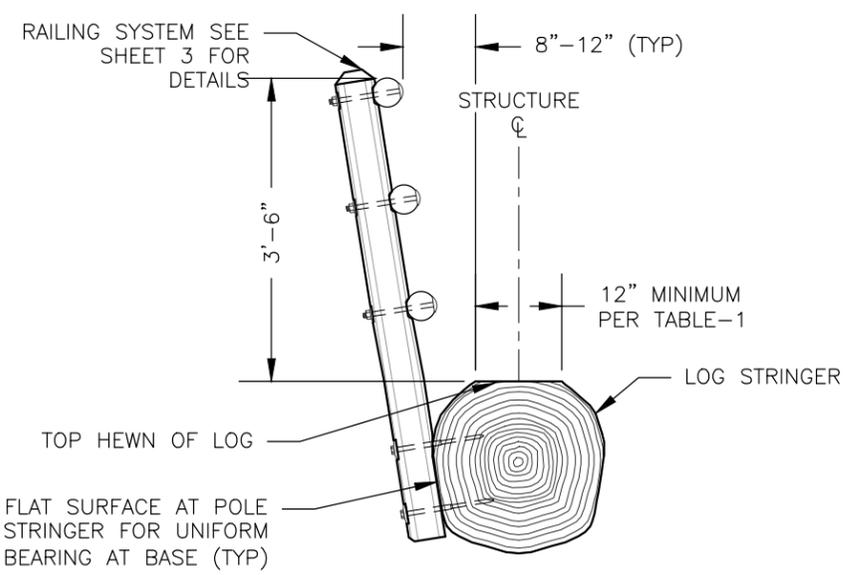
TABLE-1: LOG HEWN INFORMATION

PEELED DIAMETER	HEWN DIMENSION *DEPTH	WIDTH
16"	3"	12"
17"	3"	13"
18"	3 1/2"	14"
19"	4"	15"
20"	4"	16"
21"	4 1/2"	17"
22"	5"	18"
23"	5"	19"
24"	5"	20"

*DO NOT EXCEED HEWN DEPTH SHOWN FOR STRINGER DIAMETER.

MAXIMUM DEPTH OF DAP AT BEARING SHALL NOT EXCEED 10% OF LOG DIAMETER OR 2"

SUBSTRUCTURE SHOWN FOR ILLUSTRATION ONLY. SEE SHEET 4 FOR DETAILS



SPLICE RAILS AT POSTS, RAILS SHALL BE CONTINUOUS FOR A MINIMUM OF TWO POST SPACES. ALTERNATE RAIL SPLICES AT POSTS.

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 (FP-03) AND STANDARD SPECIFICATIONS FOR CONSTRUCTION OF TRAILS AND TRAIL BRIDGES ON FEDERAL PROJECTS,

LOG MEMBERS: LOGS USED FOR STRINGERS SHALL BE DOUGLAS FIR OR WESTERN LARCH WITH MINIMUM, PEELED, MID-SPAN LOG DIAMETER AS NOTED FOR THE VARIOUS SPANS AND DESIGN LOADING. NATIVE TREES TO BE USED FOR BRIDGE STRINGERS SHALL BE STRAIGHT, SOUND, AND FREE OF DEFECTS AND ROT. STRINGERS SHALL BE CHOSEN FROM TREES WITH RELATIVELY FEW LIMBS, AND HAVE NO KNOT GREATER THAN 3-INCH IN DIAMETER. LOGS SHALL BE DAPPED AT ENDS TO CREATE A LEVEL BEARING SURFACE AT SUPPORTS TAKING CARE TO AVOID OVER CUTTING. HEWN UPPER SURFACE OF LOGS TO PROVIDE A LEVEL TREAD SURFACE REFER TO PLANS FOR HEWN DETAILS.

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, SILLS, AND BACKING PLANKS

- COASTAL REGION DOUGLAS FIR - LARCH ROUGH SAWN NO.1 GRADE, GRADING RULES AGENCY - WWPA, WCLIB

RAILS & POSTS (SEE PROJECT CRITERIA)

SAWN - UNTREATED

- REDWOOD, S4S, NO.1 GRADE GRADING RULES AGENCY - RIS
- WESTERN RED CEDAR, S4S, SELECT STRUCTURAL GRADE GRADING RULES AGENCY - WWPA, WCLIB

SAWN - TREATED

- HEM - FIR/DOUGLAS FIR, S4S, NO.1 GRADE GRADING RULES AGENCY - WWPA, WCLIB

POLES

- LODGE POLE PINE, PEELED AND DRIED. GRADING RULES AGENCY - NLGA

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 & RAILING SYSTEM, IF TREATED

- AWPA USE CATEGORY SYSTEM (U1) FOR USE CATEGORY 3B ABOVE GROUND-EXPOSED (UC3B)
- PENTACHLOROPHENOL IN LIGHT OIL (TYPE C SOLVENT)
- COPPER NAPHTHENATE (CuN) IN LIGHT OIL (TYPE C SOLVENT)

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

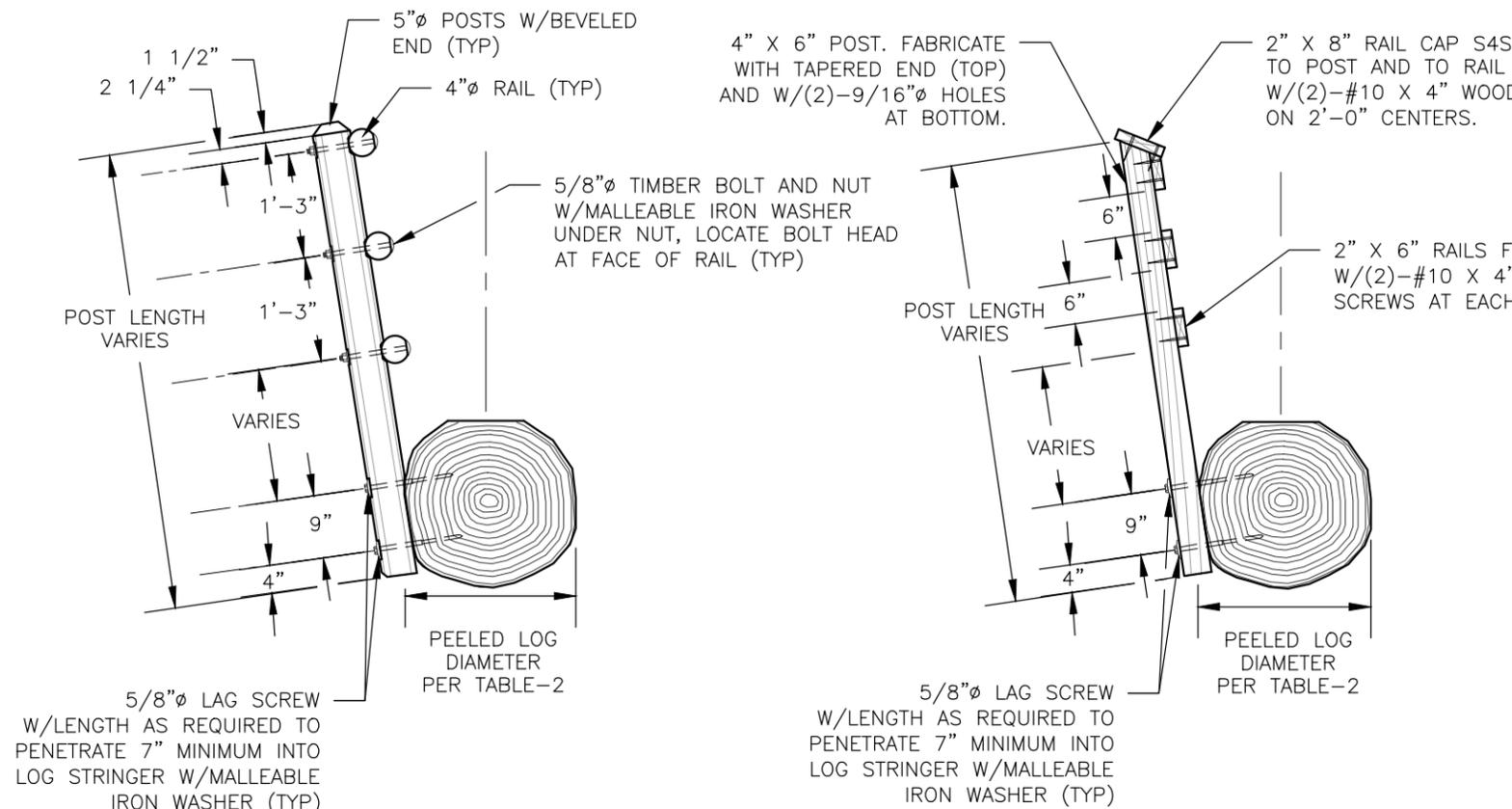
- AWPA USE CATEGORY SYSTEM (U1) FOR USE CATEGORY 4B GROUND CONTACT-HEAVY DUTY (UC4B)
- PENTACHLOROPHENOL IN HEAVY OIL (TYPE A SOLVENT)
- COPPER NAPHTHENATE (CuN) IN HEAVY OIL (TYPE A SOLVENT)

FIELD TREATMENT: COPPER NAPHTHENATE (2% SOLUTION) SHALL BE FURNISHED FOR FIELD TREATING OF WOOD. ALL ABRASIONS AND FIELD CUTS - 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 BOLT, SCREW OR NAIL HOLES IS REQUIRED, THE HOLES SHALL BE FILLED WITH PRESERVATIVE PRIOR TO INSERTING THE FASTENERS.

THE ENDS OF UNTREATED LOG STRINGERS (REFER TO THE PROJECT DESIGN CRITERIA), SHALL ALSO RECEIVE THREE BRUSH COATS OF THE FIELD TREATMENT PRIOR TO INSTALLATION OF THE BACKING PLANKS.

HARDWARE AND STRUCTURAL STEEL: SEE PROJECT DESIGN CRITERIA FOR STEEL HARDWARE FINISH. GALVANIZED OR UNFINISHED HARDWARE SHALL MEET THE REQUIREMENTS OF AASHTO M270, GRADE 36, 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 A325, TYPE 3. USE MALLEABLE IRON WASHERS AGAINST WOOD UNLESS OTHERWISE NOTED.

FOR LAG SCREWS DRILL HOLES 1/16-INCH LARGER THAN LAG SCREW DIAMETER FOR SHANK PORTION.



POLE RAILING SYSTEM DETAILS

SAWN RAILING SYSTEM DETAILS

*** TABLE-2: SINGLE ROUND LOG STRINGER PEELED MID SPAN DIAMETER REQUIREMENTS - LRFD**

**STRINGER SPAN (FEET)	TIMBER SPECIES - DOUGLAS FIR (COASTAL OR INTERIOR NORTH) AND WESTERN LARCH				
	DESIGN LOADING IN POUNDS PER SQUARE FOOT				
	PEDESTRIAN LOAD		GROUND SNOW LOAD		
	***65	90	120	150	200
10	16"	16"	16"	16"	16"
15	16"	16"	16"	16"	16"
20	16"	16"	16"	16"	16"
25	16"	16"	16"	16"	16"
30	16"	16"	16"	16"	17"
35	17"	18"	17"	18"	19"
40	20"	21"	20"	20"	22"
45	23"	23"	22"	23"	24"

*STRINGER SIZE SHALL BE THE LARGER OF THE PEDESTRIAN OR GROUND SNOW LOAD SIZE REQUIRED FOR THE SITE CONDITIONS

**STRINGER LENGTH EQUAL TO STRINGER SPAN PLUS ONE FOOT

***REQUIRES REGIONAL BRIDGE ENGINEER APPROVAL

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 (FP-03) AND STANDARD SPECIFICATIONS FOR CONSTRUCTION OF TRAILS AND TRAIL BRIDGES ON FEDERAL PROJECTS.

LOG MEMBERS: LOGS USED FOR STRINGERS SHALL BE DOUGLAS FIR OR WESTERN LARCH WITH MINIMUM, PEELED, MID-SPAN LOG DIAMETER AS NOTED FOR THE VARIOUS SPANS AND DESIGN LOADING. NATIVE TREES TO BE USED FOR BRIDGE STRINGERS SHALL BE STRAIGHT, SOUND, AND FREE OF DEFECTS AND ROT. STRINGERS SHALL BE CHOSEN FROM TREES WITH RELATIVELY FEW LIMBS, AND HAVE NO KNOT GREATER THAN 3-INCH IN DIAMETER. LOGS SHALL BE DAPPED AT ENDS TO CREATE A LEVEL BEARING SURFACE AT SUPPORTS TAKING CARE TO AVOID OVER CUTTING. HEWN UPPER SURFACE OF LOGS TO PROVIDE A LEVEL TREAD SURFACE REFER TO PLANS FOR HEWN DETAILS.

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, SILLS, AND BACKING PLANKS

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

RAILS & POSTS (SEE PROJECT CRITERIA)

SAWN - UNTREATED

- BALDCYPRESS, S4S, NO.1 GRADE GRADING RULES AGENCY - SPIB

- WHITE OAK, S4S, SELECT STRUCTURAL GRADE GRADING RULES AGENCY - NELMA

SAWN - TREATED

- SOUTHERN PINE, S4S, NO.2 GRADE GRADING RULES AGENCY - SPIB

POLES

- SOUTHERN PINE, PEELED AND DRIED. 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 & RAILING SYSTEM, IF TREATED

- AWPA USE CATEGORY SYSTEM (U1) FOR USE CATEGORY 3B ABOVE GROUND-EXPOSED (UC3B)

- PENTACHLOROPHENOL IN LIGHT OIL (TYPE C SOLVENT)

- COPPER NAPHTHENATE (CuN) IN LIGHT OIL (TYPE C SOLVENT)

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

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

CONTACT-HEAVY DUTY (UC4B)

- PENTACHLOROPHENOL IN HEAVY OIL (TYPE A SOLVENT)

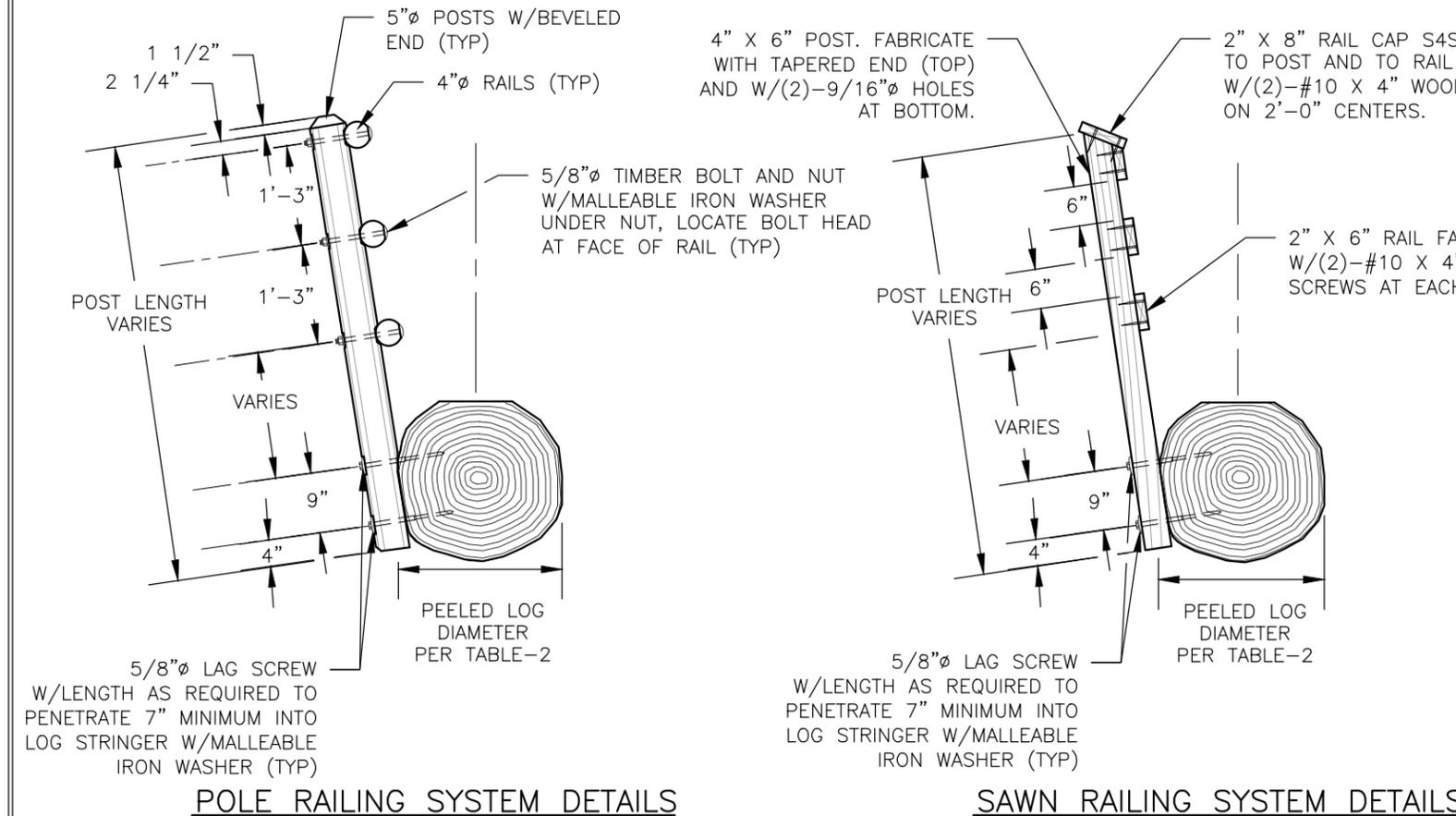
- COPPER NAPHTHENATE (CuN) IN HEAVY OIL (TYPE A SOLVENT)

FIELD TREATMENT: COPPER NAPHTHENATE (2% SOLUTION) SHALL BE FURNISHED FOR FIELD TREATING OF WOOD. ALL ABRASIONS AND FIELD CUTS - 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 BOLT, SCREW OR NAIL HOLES IS REQUIRED, THE HOLES SHALL BE FILLED WITH PRESERVATIVE PRIOR TO INSERTING THE FASTENERS.

THE ENDS OF UNTREATED LOG STRINGERS (REFER TO THE PROJECT DESIGN CRITERIA), SHALL ALSO RECEIVE THREE BRUSH COATS OF THE FIELD TREATMENT PRIOR TO INSTALLATION OF THE BACKING PLANKS.

HARDWARE AND STRUCTURAL STEEL: SEE PROJECT DESIGN CRITERIA FOR STEEL HARDWARE FINISH. GALVANIZED OR UNFINISHED HARDWARE SHALL MEET THE REQUIREMENTS OF AASHTO M270, GRADE 36, 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 A325, TYPE 3. USE MALLEABLE IRON WASHERS AGAINST WOOD UNLESS OTHERWISE NOTED.

FOR LAG SCREWS DRILL HOLES 1/16-INCH LARGER THAN LAG SCREW DIAMETER FOR SHANK PORTION.



POLE RAILING SYSTEM DETAILS

SAWN RAILING SYSTEM DETAILS

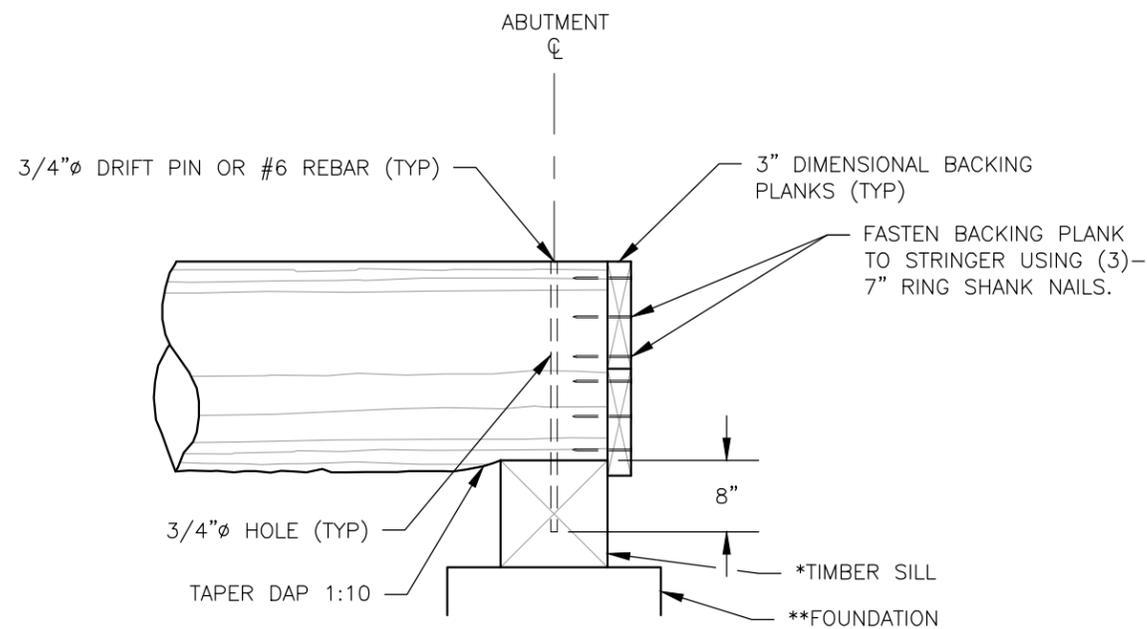
*** TABLE-2: SINGLE ROUND LOG STRINGER PEELED MID SPAN DIAMETER REQUIREMENTS - LRFD**

**STRINGER SPAN (FEET)	TIMBER SPECIES - SOUTHERN PINE				
	DESIGN LOADING IN POUNDS PER SQUARE FOOT				
	PEDESTRIAN LOAD		GROUND SNOW LOAD		
	***65	90	120	150	200
10	16"	16"	16"	16"	16"
15	16"	16"	16"	16"	16"
20	16"	16"	16"	16"	16"
25	16"	16"	16"	16"	16"
30	16"	16"	16"	16"	17"
35	18"	19"	18"	19"	20"
40	20"	21"	20"	21"	22"
45	23"	24"	23"	23"	24"

*STRINGER SIZE SHALL BE THE LARGER OF THE PEDESTRIAN OR GROUND SHOW LOAD SIZE REQUIRED FOR THE SITE CONDITIONS

**STRINGER LENGTH EQUAL TO STRINGER SPAN PLUS ONE FOOT

***REQUIRES REGIONAL BRIDGE ENGINEER APPROVAL



ABUTMENT CONNECTION DETAIL

BACKING PLANK STIFFENER NOT SHOWN FOR CLARITY

*TIMBER SILL CAN BE EITHER 12" X 12" SOLID SAWN, 10 3/4" X 12" GLUE-LAMINATED, BUILT-UP 3" X 12", 4" X 12", & 6" X 12" TREATED MEMBERS, OR LOG SILL, SEE LOG SILL NOTCHING DETAIL.

**SEE STANDARD DRAWINGS 965-10, 965-20, 965-30, & 965-40 FOR FOUNDATION ALTERNATIVES

NOTES:

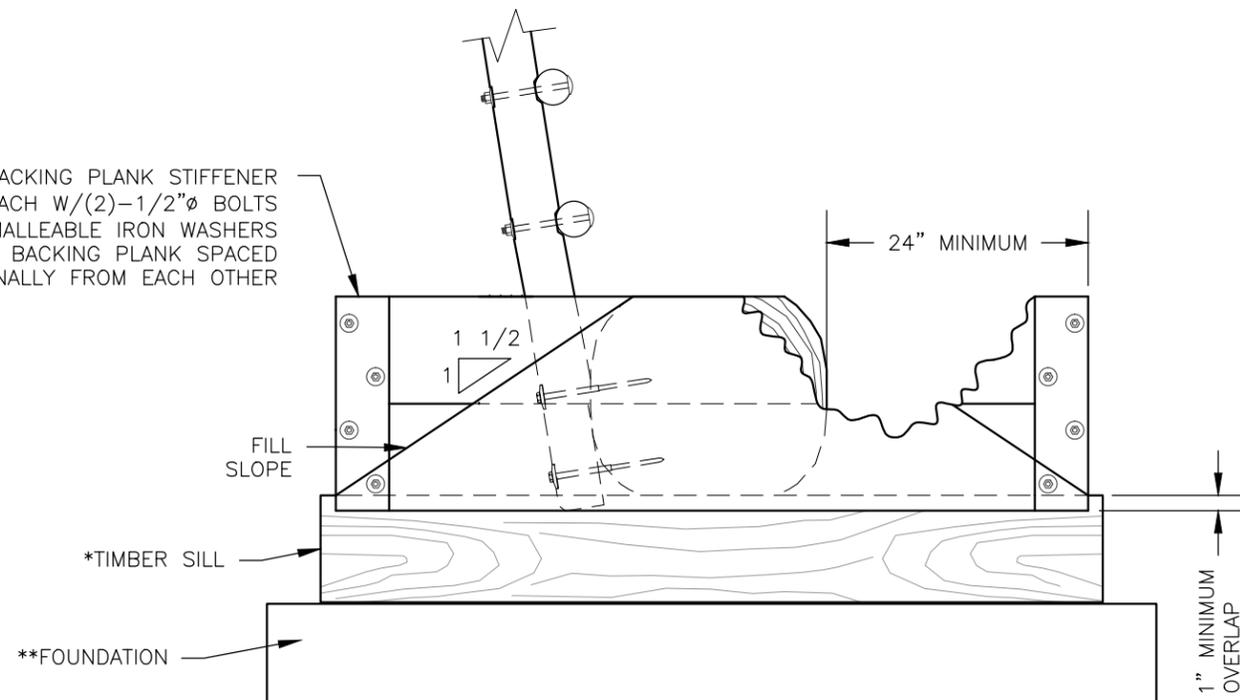
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HARDWARE AND STRUCTURAL STEEL: SEE SUPERSTRUCTURE DRAWINGS FOR PROJECT DESIGN CRITERIA AND GENERAL NOTES.

TREATED TIMBER & LUMBER: REFER TO THE GENERAL NOTES ON THE SUBSTRUCTURE DRAWINGS FOR TREATED TIMBER & LUMBER SPECIFICATIONS AND FIELD TREATING OF WOOD.

LAG SCREW INSTALLATION: PRE-BORE LAG SCREW HOLES USING TWO DIAMETERS, ONE FOR THE SHANK AND ONE FOR THE THREADS. THE LEAD HOLE FOR THE SHANK IS TO BE 1/16-INCH LARGER THAN THE SHANK DIAMETER AND IS TO BE BORED TO THE DEPTH OF PENETRATION OF THE SHANK. THE LEAD HOLE FOR THE THREADED PORTION IS TO BE 70% OF THE SCREW DIAMETER AS SHOWN ON THE PLANS AND IS TO BE BORED AT LEAST TO THE LENGTH OF THE THREADS. **DO NOT DRIVE LAG SCREWS WITH A HAMMER.**

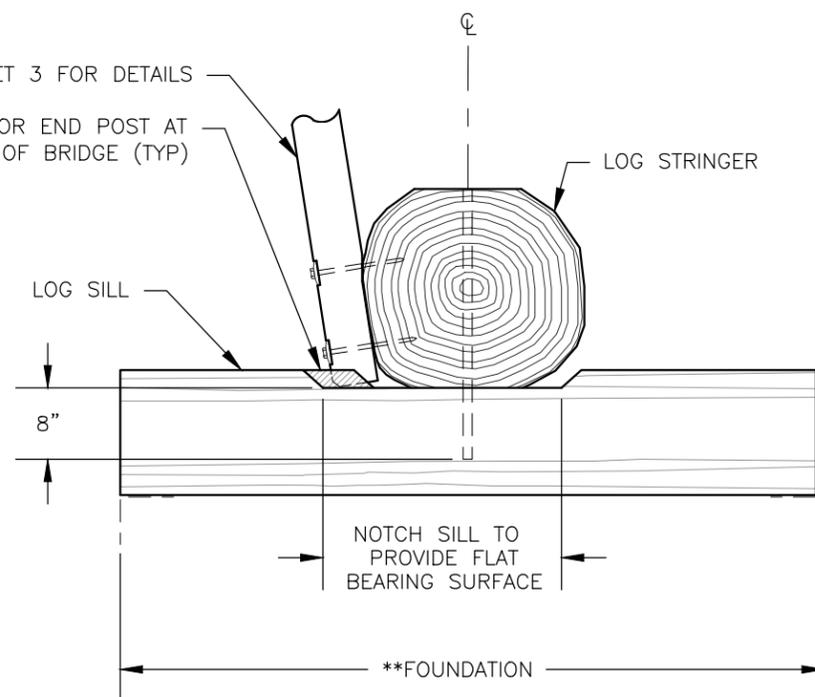
3" X 6" BACKING PLANK STIFFENER ATTACH W/(2)-1/2"Ø BOLTS W/(2)-MALLEABLE IRON WASHERS PER BACKING PLANK SPACED DIAGONALLY FROM EACH OTHER



BACKWALL DETAIL

RAILING SEE SHEET 3 FOR DETAILS

NOTCH SILL FOR END POST AT EACH END OF BRIDGE (TYP)



LOG SILL NOTCHING DETAIL