


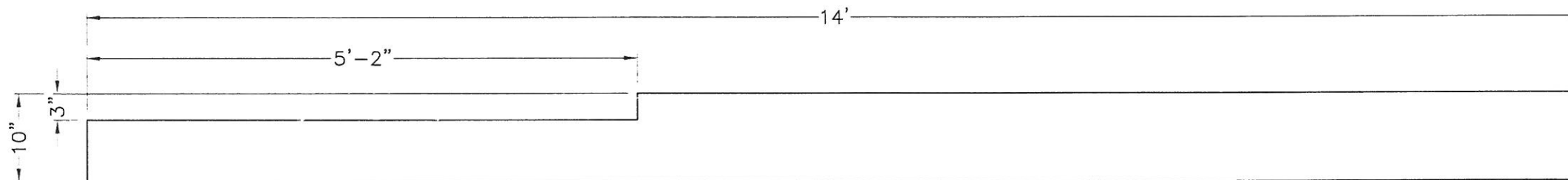
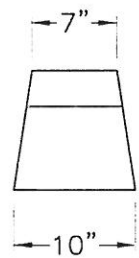
TOP VIEW
SCALE: 1-1/2" = 1'-0"

NOTES

(4) 7/16" ϕ HOLES FOR TRACK SPIKES ARE SHOWN FOR 70 LB. A.S.C.E. RAIL AND (4) 1/2" ϕ HOLES SHOWN FOR 115 LB. RE RAIL. EACH SET OF (4) HOLES FOR EACH WEIGHT OF RAIL SHALL BE PLACED SYMMETRICALLY ABOUT CENTERLINES OF TIES, USING THE DIMENSIONS APPLICABLE TO EACH WEIGHT OF RAIL. HOLES ARE TO EXTEND THROUGH TIES.


 ALASKA RAILROAD CORPORATION OFFICE OF THE CHIEF ENGINEER P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500 (907) 265-2456		
STANDARD TIE BORING AND ADZING FOR 70 LB. ASCE AND 115 LB. RE RAIL 6" x 8" x 8'-0" TIES		
DESIGNED BY:	SCALE: AS NOTED	FILE: 1-1.dwg
DRAWN BY: MGB	APPROVED BY: ENG DEPT	DATE: 1/02
		1.1

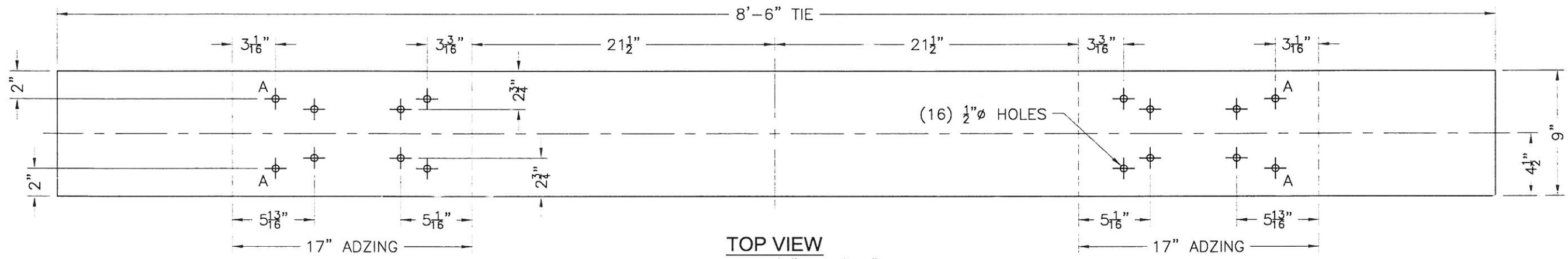
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DAPPED TRAPEZOID TIE
 SCALE: 3/4" = 1'-0"

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 ALASKA RAILROAD CORPORATION OFFICE OF THE CHIEF ENGINEER P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500 (907) 265-2456		
STANDARD		
DAPPED TRAPEZOID TIE		
DESIGNED BY:	SCALE: AS NOTED	FILE: #1-11.dwg
DRAWN BY: MGB		1.11
APPROVED BY: ENG. DEPT	DATE: 1/02	

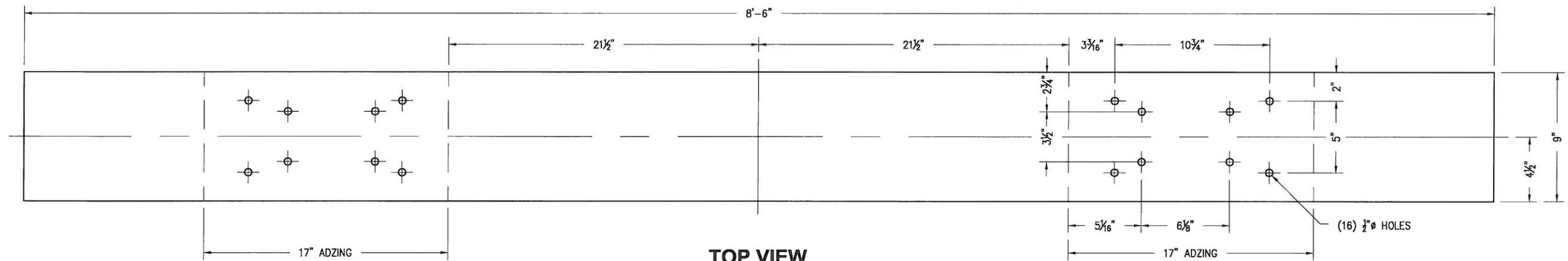


NOTES

1. ADZING - ADZING SHALL BE IN ACCORDANCE WITH A.R.E.A. - CHAPTER 3 - PARAGRAPH 1.5.2.
2. INCISING - INCISING SHALL BE IN ACCORDANCE WITH A.R.E.A. - CHAPTER 3 - PARAGRAPH 9.1.2.
3. BORING - EACH SET OF HOLES SHALL BE PLACED SYMMETRICALLY ABOUT CENTERLINES OF TIES USING THE DIMENSIONS SHOWN. HOLES SHALL EXTEND THROUGH THE TIES. HOLES SHALL BE BORED FROM THE SIDE OF THE TIE (WIDE FACE) THAT HAS THE LARGEST AMOUNT OF SAPWOOD. HOLES MARKED "A" MAY BE DELETED IF SO SPECIFIED.
4. DIMENSION TOLERANCES:
 LENGTH - 1" UNDER OR 1" OVER
 SIZE - 1/8" UNDER OR 1/2" OVER

ALASKA RAILROAD CORPORATION OFFICE OF THE CHIEF ENGINEER <small>P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500 (907) 265-2456</small>		
STANDARD TIE BORING AND ADZING FOR 115 LB. RE RAIL 7" x 9" x 8'-6" SOFTWOOD TIES		
APPROVED:	DATE:	
DESIGNED BY:	SCALE: AS NOTED	FILE: a1-12.dwg
DRAWN BY: MGB	DATE: 1/02	1.12
APPROVED BY: ENG. DEPT		

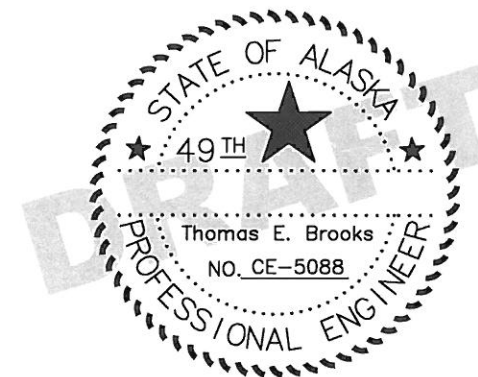
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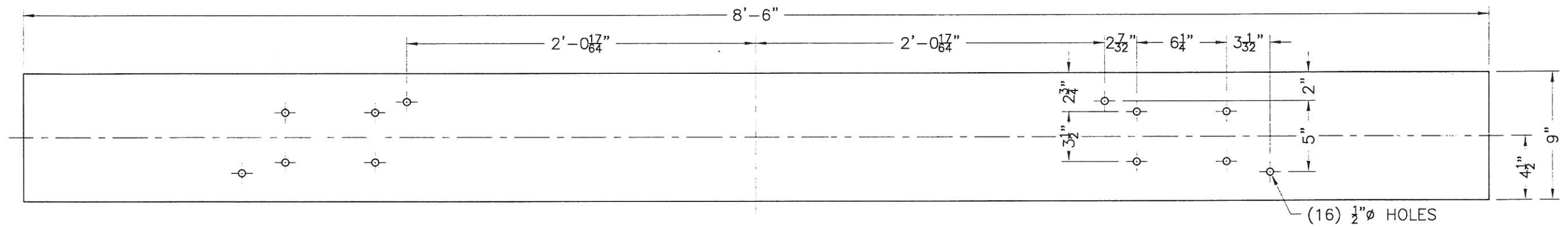
TOP VIEW
SCALE: 1-1/2" = 1'-0"

NOTES

1. ADZING - ADZING SHALL BE IN ACCORDANCE WITH AREMA - CHAPTER 3 - PARAGRAPH 1.5.2.
2. HOLES - EACH SET OF HOLES SHALL BE PLACED SYMMETRICALLY ABOUT CENTERLINES OF TIES USING THE DIMENSIONS SHOWN. HOLES SHALL EXTEND THROUGH TIES.
3. LENGTH - TIES MUST BE AT LEAST 8'-6" IN LENGTH AND MUST BE NO LONGER THAN 8'-7" AND DOUBLE END TRIMMED.




 ALASKA RAILROAD CORPORATION OFFICE OF THE CHIEF ENGINEER P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500 (907) 265-2456		
STANDARD TIE BORING AND ADZING FOR 115 LB. RE RAIL (7" x 13" PLATE) 7" x 9" x 8'-6" HARDWOOD TIES		
APPROVED:	DATE:	
DESIGNED BY: ARRC	SCALE: 1-1/2" = 1'	FILE: a1-13.04.dwg
DRAWN BY: BBF		
CHECKED BY: REH		
APPROVED BY: TEB	DATE: 1/15/2004	1.13-04

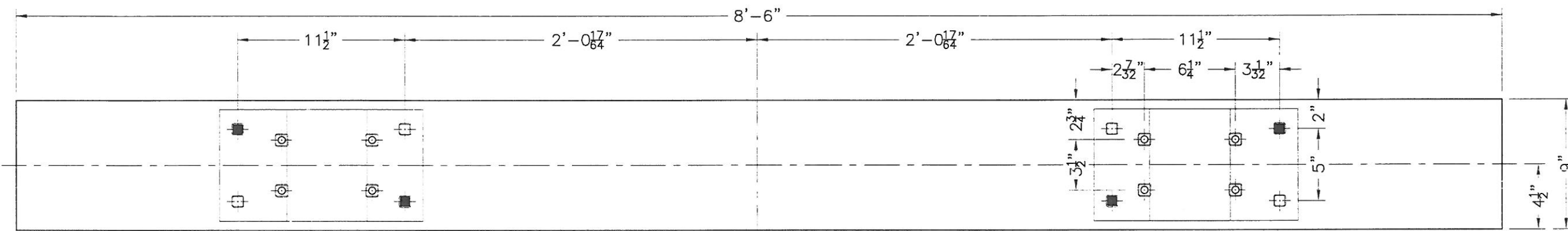



TOP VIEW
SCALE: 1-1/2" = 1'-0"

NOTES

1. INCISING - INCISING SHALL BE IN ACCORDANCE WITH AREMA - CHAPTER 30 - SECTION 3.9.1.2.
2. BORING - EACH SET OF HOLES SHALL BE PLACED SYMMETRICALLY ABOUT CENTERLINES OF TIES USING THE DIMENSIONS SHOWN. HOLES SHALL BE 1/2"Ø AND SHALL EXTEND THROUGH TIES. HOLES TO BE BORED FROM THE SIDE OF THE TIE (WIDE FACE) THAT HAS THE LARGEST AMOUNT OF SAPWOOD.
3. BRANDING - THE SIDE THAT THE HOLES WERE BORED FROM AND/OR THE CONTROLLING SIDE SHALL BE BRANDED WITH ARRC AND THE YEAR PER AREMA CHAPTER 30, SECTION 3.1.4.5.
4. LENGTH - TIES MUST BE AT LEAST 8'-6" IN LENGTH AND MUST BE NO LONGER THAN 8'-7" AND DOUBLE END TRIMMED.

 ALASKA RAILROAD CORPORATION OFFICE OF THE CHIEF ENGINEER P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500 (907) 265-2456	
STANDARD TIE BORING FOR 115 LB. RE RAIL (7-3/4" x 14") 7" x 9" x 8'-6" HARDWOOD TIES	
APPROVED:	DATE:
DESIGNED BY:	SCALE: AS NOTED
DRAWN BY: MGB	DATE: 1/02
APPROVED BY: ENG. DEPT	FILE: #1-14.dwg
1.14	



TOP VIEW
SCALE: 1-1/2" = 1'-0" 


NOTES

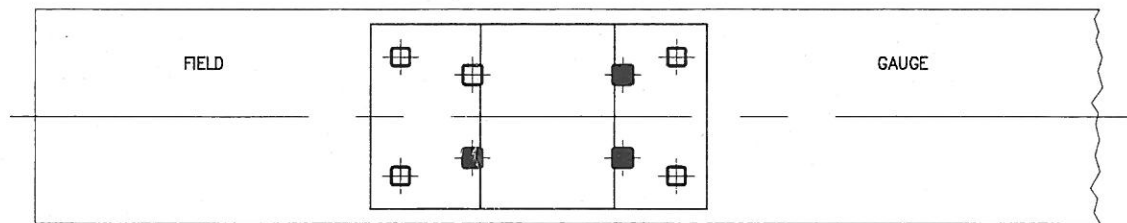
1. INCISING - INCISING SHALL BE IN ACCORDANCE WITH AREMA - CHAPTER 30 - SECTION 3.9.1.2.
2. BORING - IF REQUIRED, EACH SET OF HOLES SHALL BE PLACED SYMMETRICALLY ABOUT CENTERLINES OF TIES USING THE DIMENSIONS SHOWN. HOLES SHALL BE 1/2"Ø AND SHALL EXTEND THROUGH TIES. HOLES TO BE BORED FROM THE SIDE OF THE TIE (WIDE FACE) THAT HAS THE LARGEST AMOUNT OF SAPWOOD.
3. BRANDING - THE SIDE THAT THE HOLES WERE BORED FROM AND/OR THE CONTROLLING SIDE OR SAW KERF SHALL BE BRANDED WITH ARRC AND THE YEAR PER AREMA CHAPTER 30, SECTION 3.1.4.5 OR A SAW KERF 1/8" WIDE ON SIDE IN SUCH A WAY TO PREVENT KERF FROM HOLDING WATER.
4. LENGTH - TIES MUST BE AT LEAST 8'-6" IN LENGTH AND MUST BE NO LONGER THAN 8'-7" AND DOUBLE END TRIMMED.

 HOLES TO BE BORED AS REQUIRED.

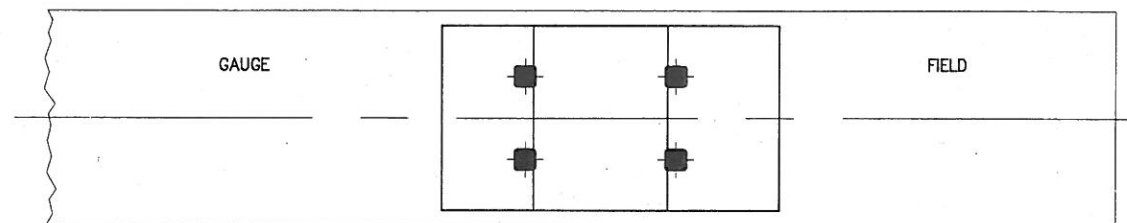
 HOLES TO BE BORED AND SPIKED FOR PREPLATED TIES AS REQUIRED.

Pre-plated Tie Only

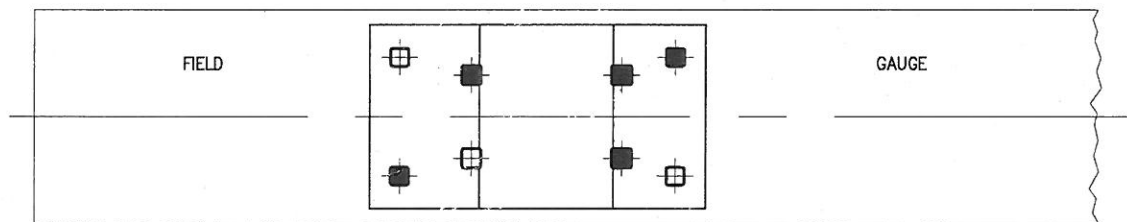
 ALASKA RAILROAD CORPORATION OFFICE OF THE CHIEF ENGINEER P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500 (907) 285-2456		
STANDARD TIE BORING FOR 115LB. RE RAIL (7-3/4" x 14" PLATE) 7" x 9" x 8'-6" HARDWOOD TIES		
APPROVED:	DATE:	
DESIGNED BY:	SCALE: AS NOTED	FILE: a1-15.dwg
DRAWN BY: MGB	DATE: 1/02	1.15
APPROVED BY: ENG. DEPT		



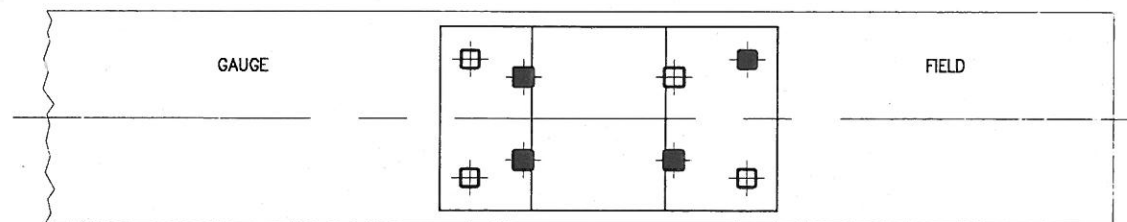
TANGENT TO 3° - 4 AND 8 HOLE PLATES
NOT TO SCALE



3° TO 10° - 4 HOLE PLATES
NOT TO SCALE



10°(+) - 8 HOLE PLATES
NOT TO SCALE

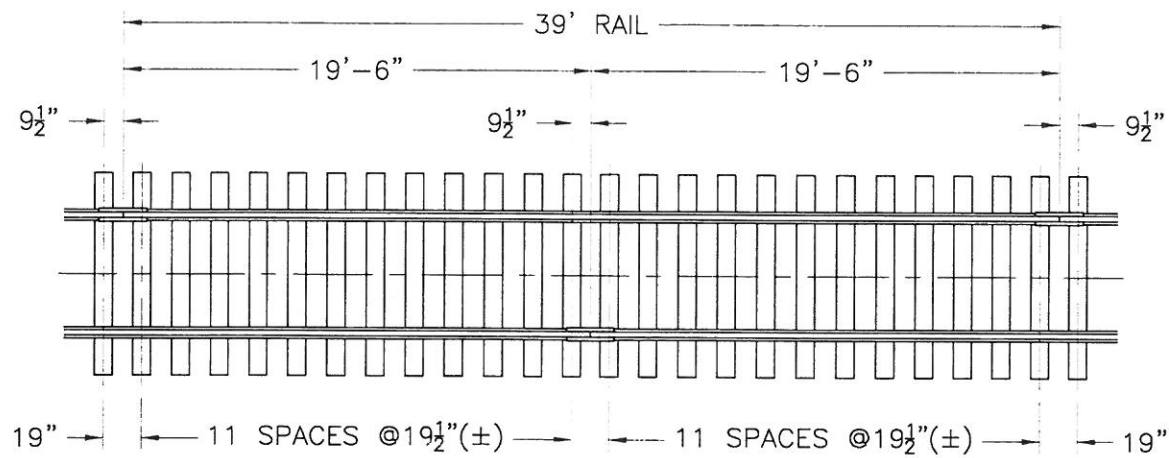


3° TO 10° - 8 HOLE PLATES
NOT TO SCALE

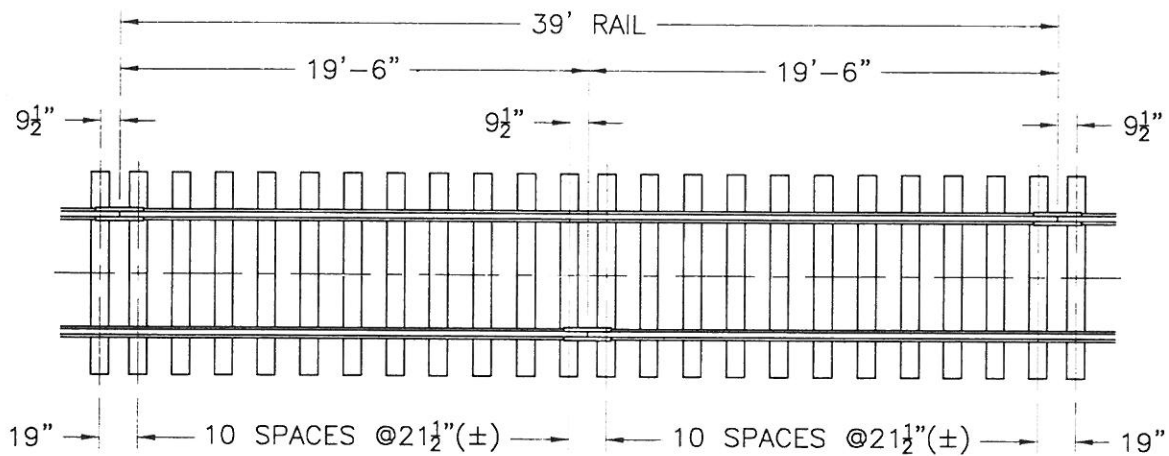
NOTES
 HOLES TO BE SPIKED



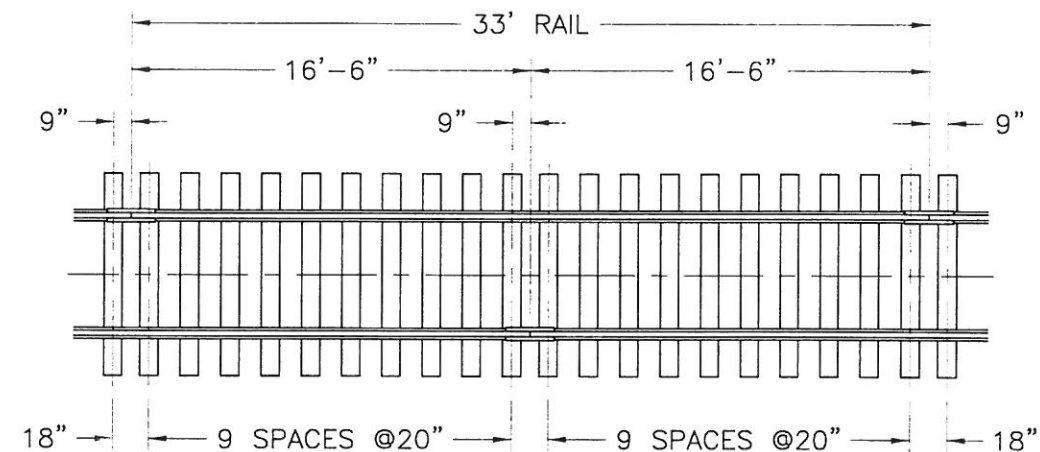
ALASKA RAILROAD CORPORATION OFFICE OF THE CHIEF ENGINEER P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500 (907) 265-2456		
STANDARD		
SPIKING PATTERNS		
DESIGNED BY:	SCALE: NOT TO SCALE	FILE: a1.16-03.dwg
DRAWN BY: BBF	DATE: 12/29/2003	1.16-03
APPROVED BY: TEB		



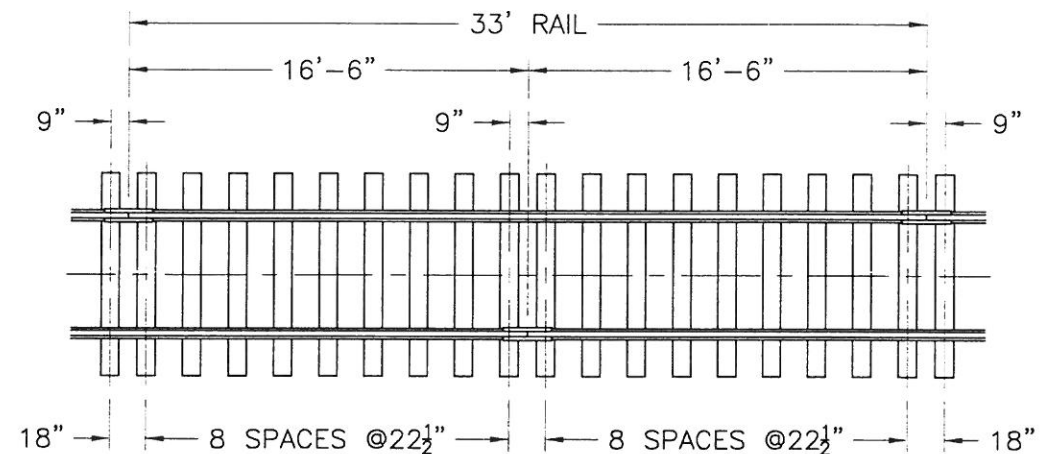
39' RAILS, MAIN TRACK OF MAIN LINE
24 TIES PER RAIL, 3250 TIES PER MILE



39' RAILS, MAIN TRACK OF BRANCH LINES, PASSING TRACKS, ETC.
22 TIES PER RAIL, 2979 TIES PER MILE




33' RAILS, MAIN TRACK OF MAIN LINE
20 TIES PER RAIL, 3200 TIES PER MILE



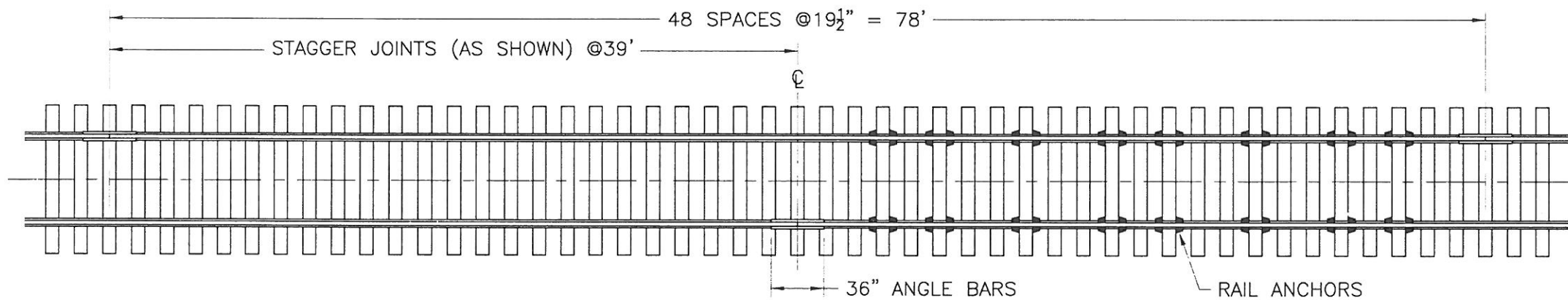
33' RAILS, MAIN TRACK OF MAIN LINE
18 TIES PER RAIL, 2880 TIES PER MILE

NOTES

SPACING OF TRACK TIES AND METHOD OF ANCHORING
FOR 78 FT. RAILS (SEE STANDARD PLAN 1.21)

 ALASKA RAILROAD CORPORATION OFFICE OF THE CHIEF ENGINEER P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500 (907) 265-2456		
STANDARD		
SPACING FOR TRACK TIES		
APPROVED:	DATE:	
DESIGNED BY:	SCALE: 1/8" = 1'-0"	FILE: s1-2.dwg
DRAWN BY: MGB	APPROVED BY: ENG. DEPT	DATE: 1/02
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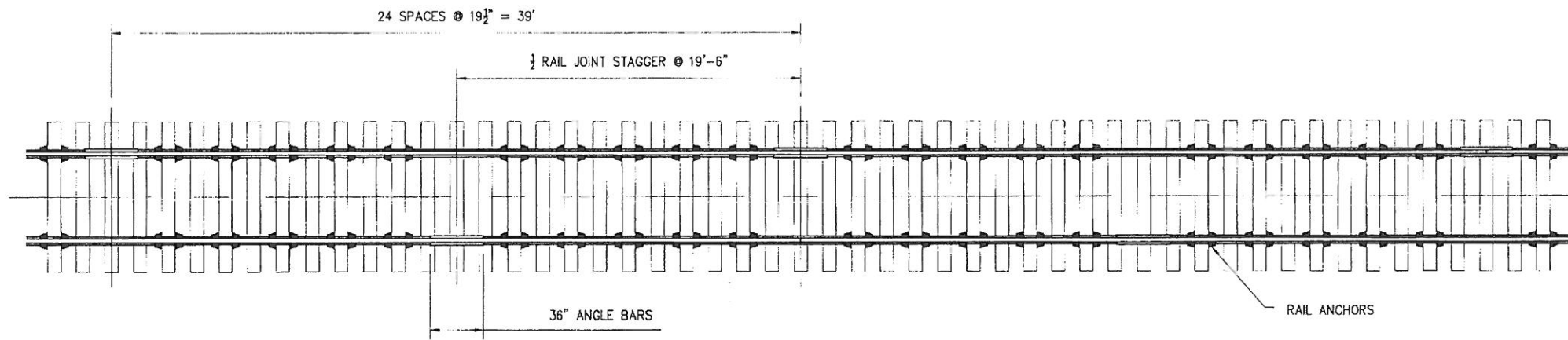
NOTES

64

78' OR 80' RAILS, MAIN TRACK OF MAIN LINE, 48 TIES PER RAIL, 3250 TIES PER MILE, 32 RAIL ANCHORS PER 78' OR 80' RAIL. ANCHOR PATTERN TO VARY TO ACCOMMODATE LOCATION OF JOINTS. LONGITUDINAL RAIL MOVEMENT MUST BE EFFECTIVELY CONTROLLED. ANCHORS MUST BE APPLIED TO THE SAME SIDE OF THE TIE ON BOTH RAILS. ANCHORS WILL BE APPLIED FROM THE GAUGE SIDE OF RAIL EXCEPT AT TURNOUTS, WHERE RAIL IS ANCHORED AT BRIDGES HAVING INNER GUARDRAILS, OR AT OTHER SPECIFIED LOCATIONS.

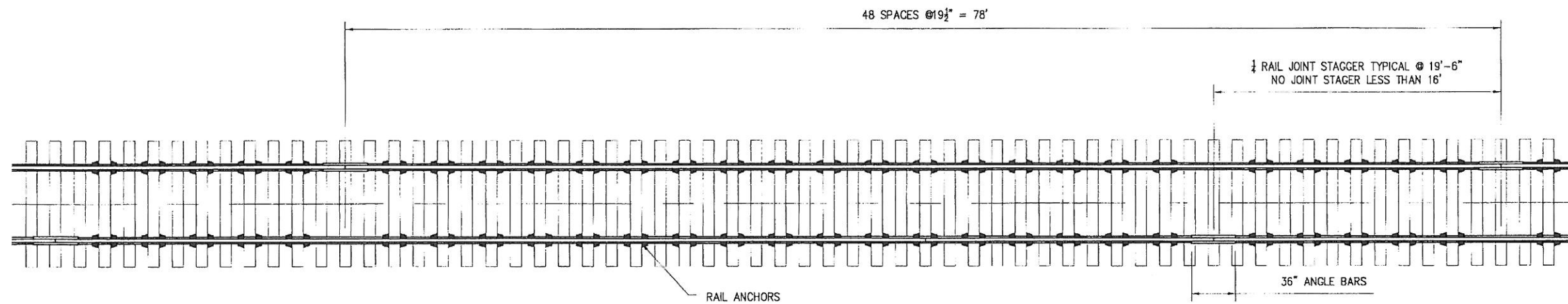
ANCHOR PATTERN SYMMETRICAL ABOUT CENTERLINE.

 ALASKA RAILROAD CORPORATION OFFICE OF THE CHIEF ENGINEER P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500 (907) 265-2456		
STANDARD MAIN TRACK CONSTRUCTION FOR 78' OR 80' RAIL		
DESIGNED BY:	SCALE: 1/8" = 1'-0"	FILE: sl-21.dwg
DRAWN BY: MGB	APPROVED BY: ENG. DEPT	DATE: 1/02
		1.21



39' JOINTED RAIL

FOR 39' JOINTED RAILS IN MAIN LINE TRACK, 24 TIES AND 40 RAIL ANCHORS PER RAIL, 3250 TIES, 5416 RAIL ANCHORS, 272 PAIRS OF ANGLE BARS, AND 1632 ANGLE BAR BOLTS, NUTS AND WASHERS PER MILE

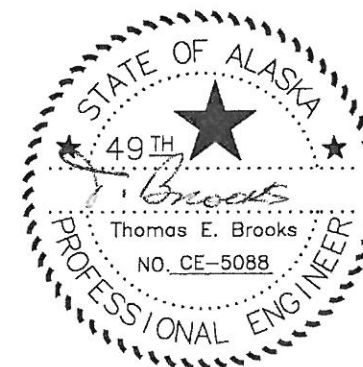


78' JOINTED RAIL

FOR 78' JOINTED RAILS IN MAIN LINE TRACK, 48 TIES AND 88 RAIL ANCHORS PER RAIL, 3250 TIES, 5956 RAIL ANCHORS, 136 PAIRS OF ANGLE BARS, AND 816 ANGLE BAR BOLTS, NUTS AND WASHERS PER MILE

NOTES

1. FOR JOINTED RAILS IN MAIN LINE TRACK, BOX ANCHOR EVERY OTHER TIE EXCEPT TIES UNDER JOINT BARS WHERE NO ANCHORS ARE APPLIED.
2. LONGITUNAL RAIL MOVEMENT MUST BE EFFECTIVELY CONTROLLED.
3. ANCHORS SHALL BE APPLIED FROM THE GAUGE SIDE OF RAIL WHERE POSSIBLE.
4. BOX ANCHOR 184 TIES EACH DIRECTION FROM FIXED OBJECTS IE TURNOUTS, ROAD CROSSINGS AND FIXED BRIDGES.

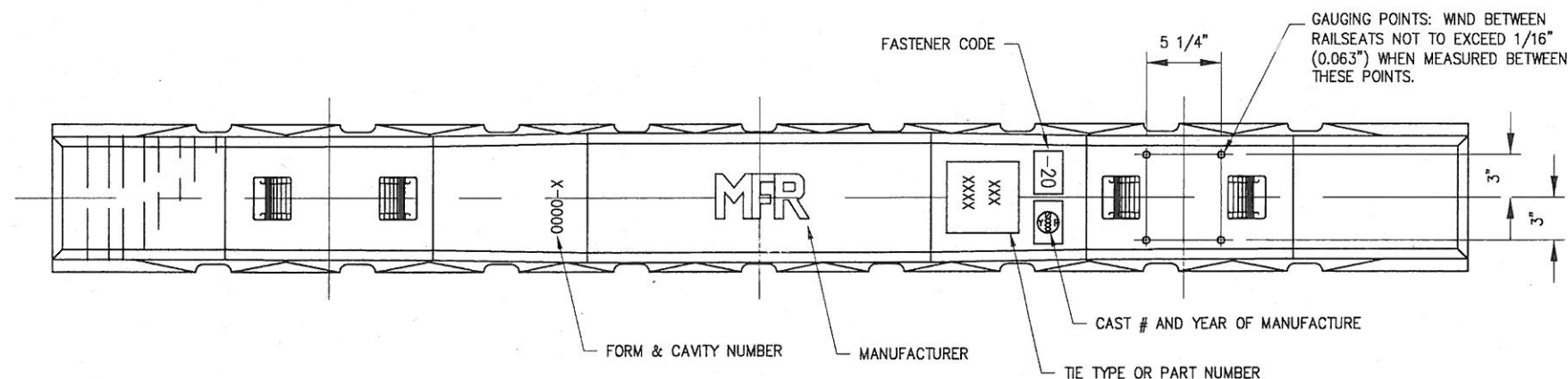


ALASKA RAILROAD CORPORATION OFFICE OF THE CHIEF ENGINEER P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500 (907) 285-2456		
STANDARD MAIN TRACK CONSTRUCTION WOOD TIE SPACING AND RAIL ANCHORING FOR 39' AND 78' RAIL LENGTHS		
DESIGNED BY: REH DRAWN BY: BBF APPROVED BY: IEB	SCALE: 1" = 100' DATE: 12/29/2003	FILE: #1.22-03.dwg 1.22-03

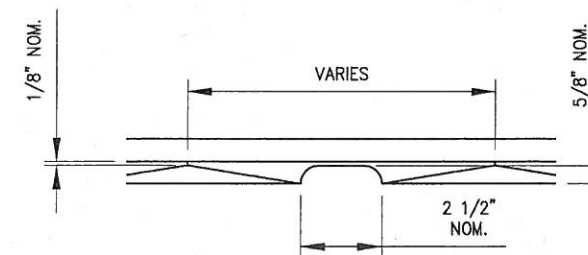
NOTES:

- TIES SHALL BE MADE IN ACCORDANCE WITH CURRENT AREMA SPECIFICATIONS FOR CONCRETE TIES. CXT-419S-20 OR APPROVED EQUAL.
- "PANDROL" RAIL FASTENERS TO BE USED AS FOLLOWS:

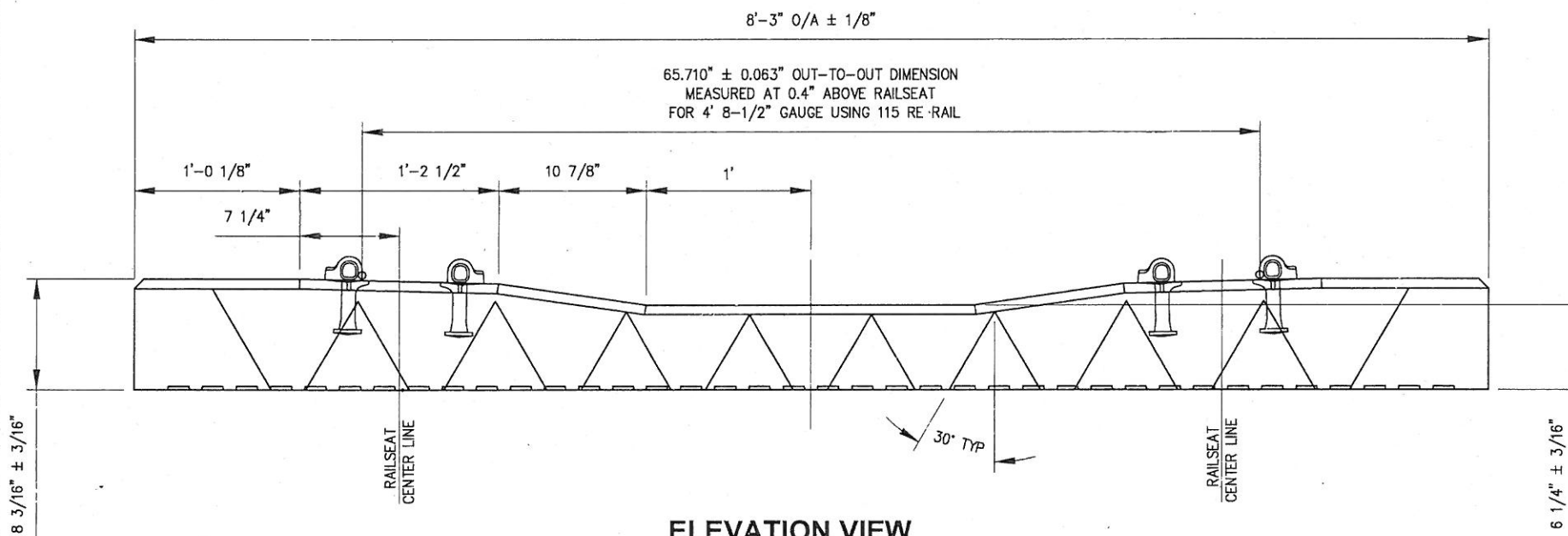
4EA E-CLIP	e2055
4EA INSULATORS	4263 (TANGENT TRACK)
OR 4EA INSULATORS	HD-10 (CURVED TRACK)
2EA 6.5MM RAIL PADS	RRP650
- RAILSEAT CANT = 1:40 +/- 5
- THE RAILSEAT SHALL BE A FLAT SMOOTH SURFACE +/- 1/32"
- APPROX. WEIGHT OF TIE = 620 LBS.
- CONCRETE TIE SPACING IS 24" OC TYP.
- DO NOT INTERMIX CONCRETE TIES WITH ANY OTHER TYPE OF TIE.
- 10 EACH 10' HARDWOOD TIES WITH PANDROL PLATES ARE TO BE USED TO TRANSITION TO EXISTING WOOD CROSS TIES.



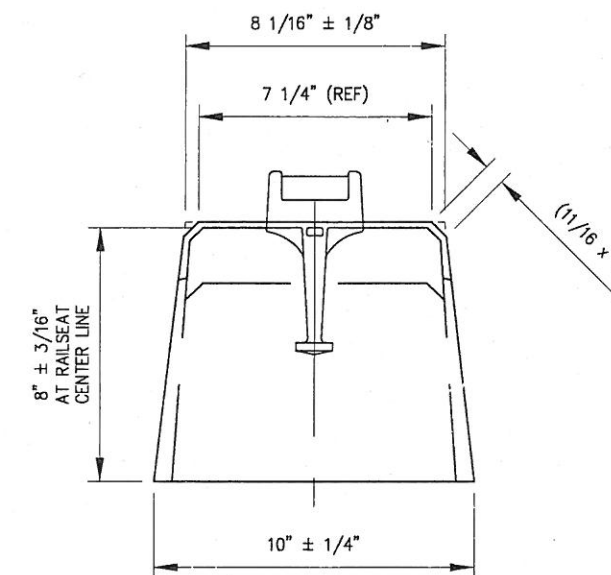
PLAN VIEW



SCALLOP DETAILS
SCALE 1" = 6"

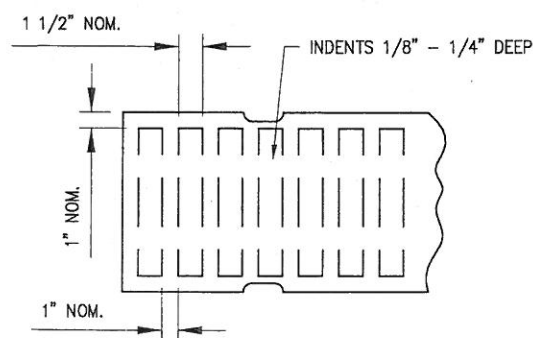


ELEVATION VIEW



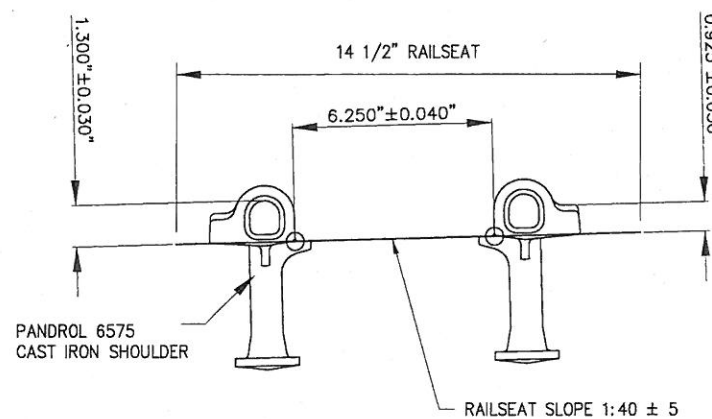
SECTION THROUGH RAILSEAT CENTER LINE

SCALE: 1" = 6"



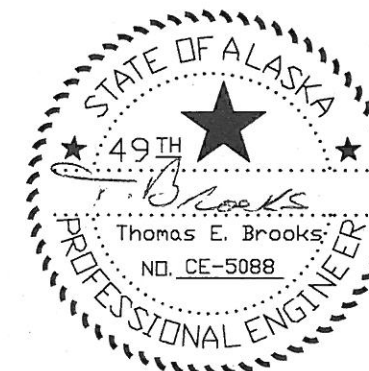
APPROX. BOTTOM INDENT DETAILS

SCALE 1" = 1'-0"



SHOULDER LOCATION DETAIL

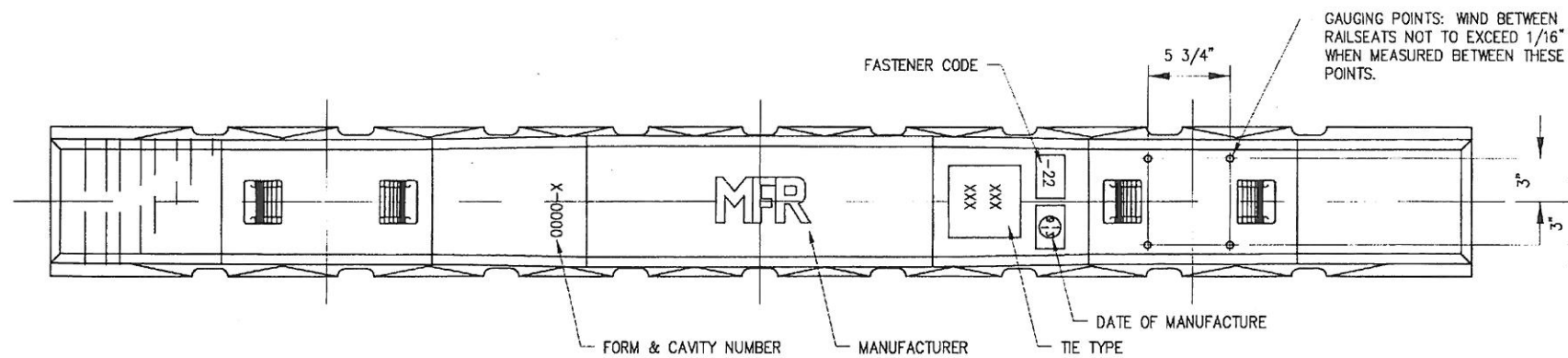
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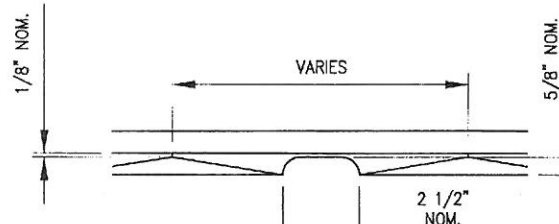
ALASKA RAILROAD CORPORATION
OFFICE OF THE CHIEF ENGINEER
P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500 (907) 265-2456

STANDARD
PRESTRESSED CONCRETE TIE
FOR 5 1/2" RAIL BASE

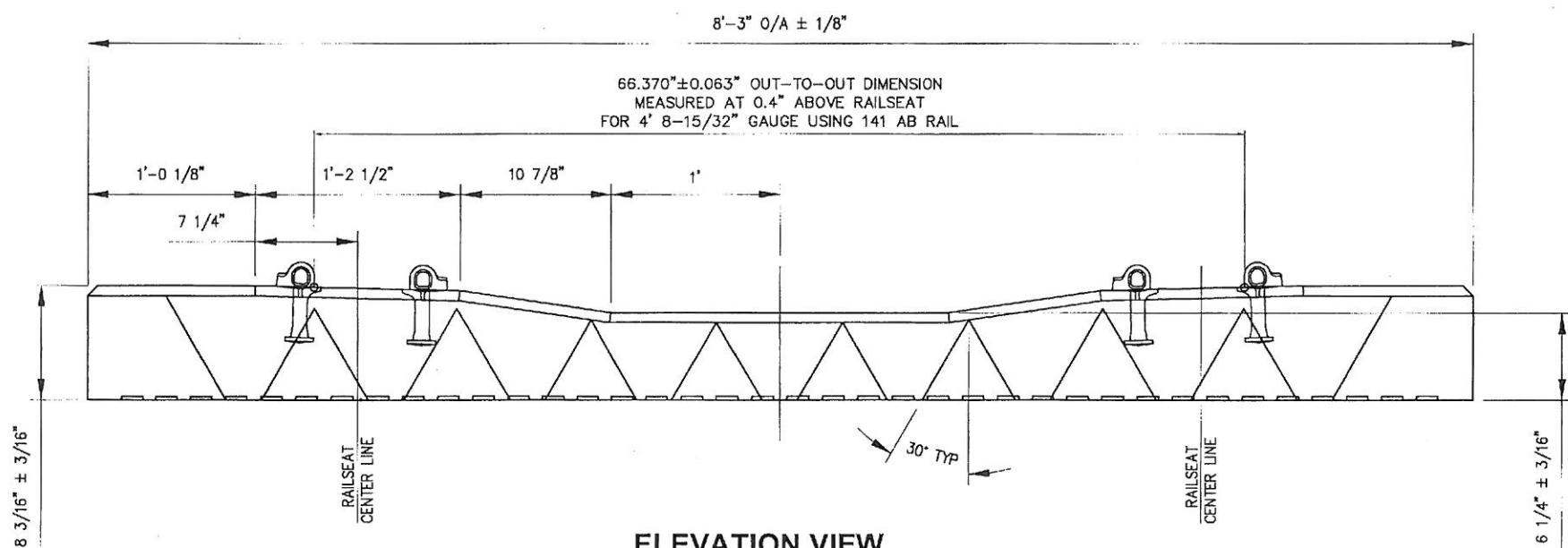
DESIGNED BY: REH	SCALE: 1" = 1'	FILE: SL3-03.dwg
DRAWN BY: BBF	DATE: 12/30/2003	1.3-03
APPROVED BY: IEB		



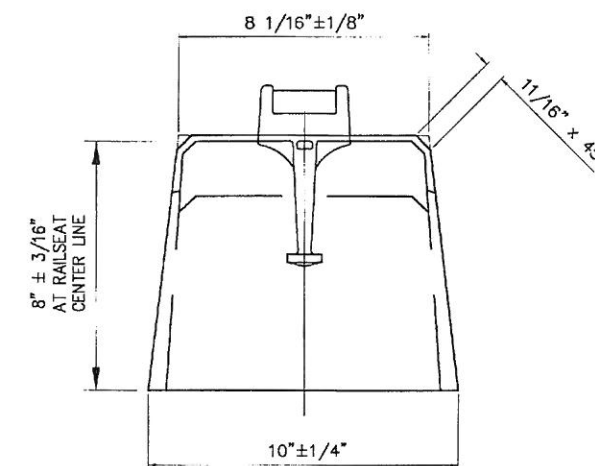
PLAN VIEW



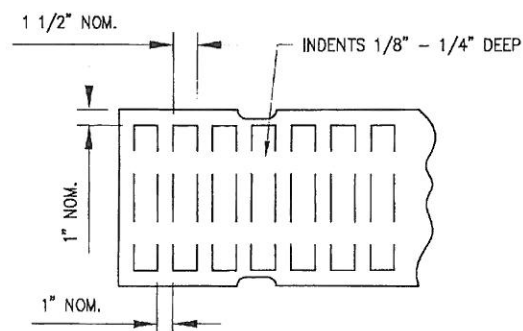
SCALLOP DETAILS
SCALE 1" = 6"



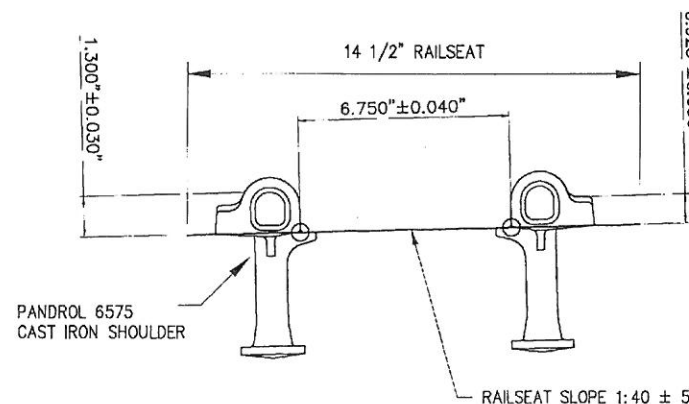
ELEVATION VIEW



SECTION THROUGH RAILSEAT CENTER LINE
SCALE: 1" = 6"



APPROX. BOTTOM INDENT DETAILS
SCALE 1" = 1'-0"



SHOULDER LOCATION DETAIL
SCALE: 1" = 6"

NOTES:

- TIES SHALL BE MADE IN ACCORDANCE WITH CURRENT AREMA SPECIFICATIONS FOR CONCRETE TIES. CXT-419S-22 OR APPROVED EQUAL.
- "PANDROL" RAIL FASTENERS TO BE USED AS FOLLOWS:

4EA E-CLIP	e2055
4EA INSULATORS	4263 (TANGENT TRACK)
OR 4EA INSULATORS	HD-10 (CURVED TRACK)
2EA 6.5MM RAIL PADS	RRP650
- RAILSEAT CANT = 1:40 +/- 5
- THE RAILSEAT SHALL BE A FLAT SMOOTH SURFACE +/- 1/32"
- APPROX. WEIGHT OF TIE = 620 LBS.
- CONCRETE TIE SPACING IS 24" OC TYP.
- DO NOT INTERMIX CONCRETE TIES WITH ANY OTHER TYPE OF TIE.
- 10 EACH 10' HARDWOOD TIES WITH PANDROL PLATES ARE TO BE USED TO TRANSITION TO EXISTING WOOD CROSS TIES.
- SCALLOPS ON THE SIDES OF TIES ARE PREFERRED BUT NOT REQUIRED.



ALASKA RAILROAD CORPORATION OFFICE OF THE CHIEF ENGINEER P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500 (907) 265-2456		
STANDARD PRESTRESSED CONCRETE TIE FOR 6" RAIL BASE		
DESIGNED BY: REH DRAWN BY: BBF APPROVED BY: IEB	SCALE: 1" = 1" DATE: 12/30/2003	12/30/03 FILE: S1.4-03.dwg 1.4-03