ALASKA RAILROAD CORPORATION

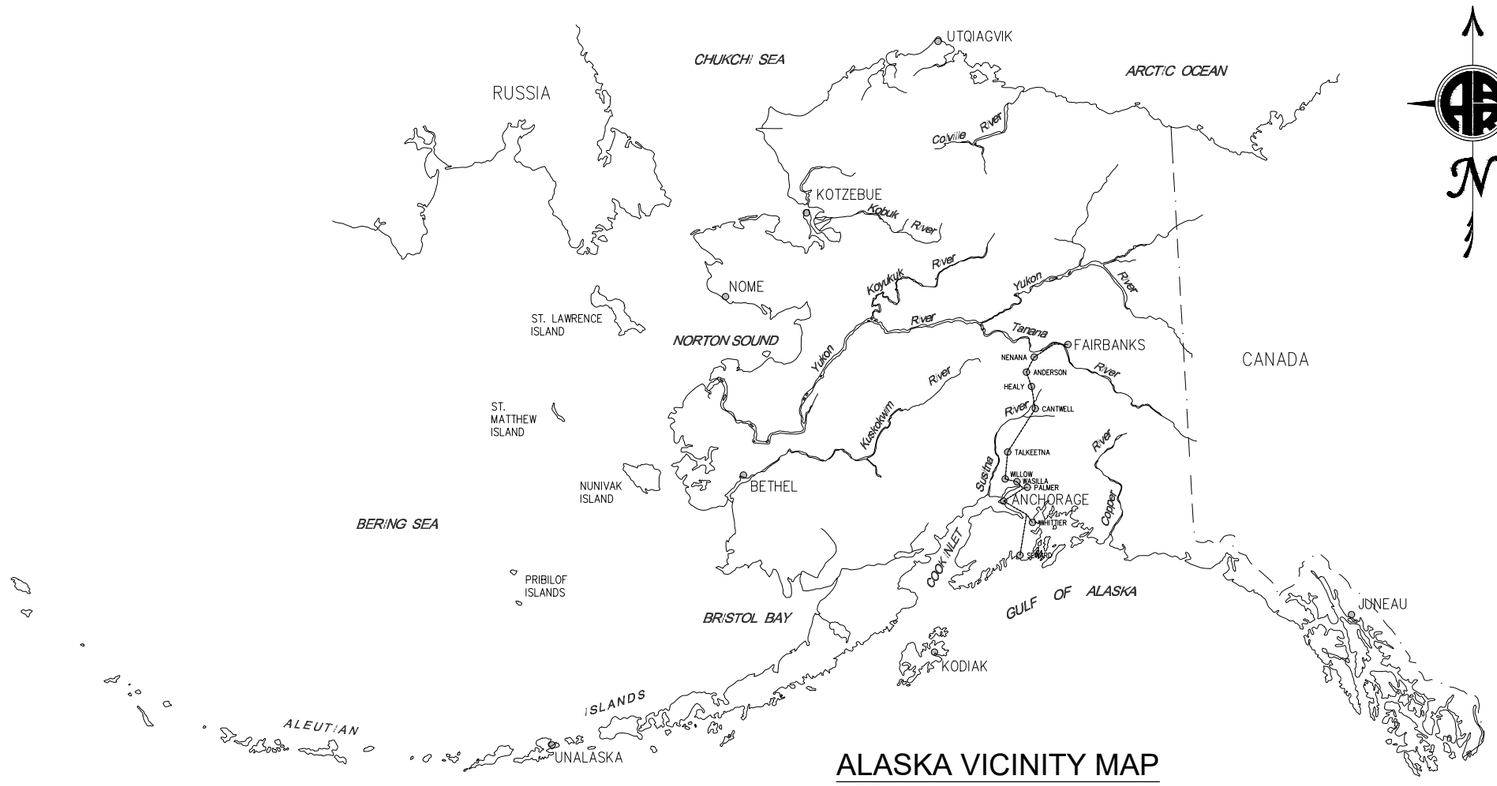
ENGINEERING SERVICES

P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500

CONCRETE BALLAST DECK (CBD) STANDARD DRAWINGS

PRELIMINARY PLAN SET

MAY 2025



ALASKA VICINITY MAP

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04	PRECAST SUPERSTRUCTURE SECTIONS
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12	PIPE PILE BRACING
13	STRUCTURE SECTIONS
14	BEARING DETAILS
15	MISC STEEL END DECK
16	MISC STEEL INTERMEDIATE DECK
17	MISC STEEL SUB DECK
18	MISC STEEL WALKWAY BRACKET
19	MISC STEEL HANDRAILS

PRELIMINARY
NOT FOR CONSTRUCTION

DRAWING LOCATION
P:\ENGINEERING\BRIDGES\00 - BRIDGE STANDARD PLANS\28' STANDARD CBD BRIDGE REPLACEMENT\CBD STANDARDS 2024.DWG

PUBLISHED CTB: ARRC_CTB_2023.CTB
SCALE: AS NOTED
DATE TIME: 11/7/2025 4:57 PM

DESIGNED BY:
CHECKED BY:
DRAFTED BY: MCG

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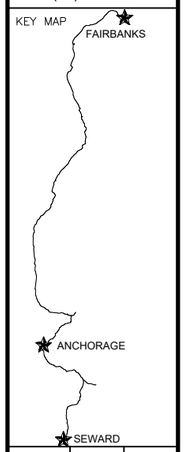
KEY MAP



ENGINEERING DEPARTMENT
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

ALASKA RAILROAD

PROJECT: STANDARD 28 FOOT SPAN CONCRETE BALLAST DECK (CBD)

SHEET TITLE: COVER SHEET

AFE NO. TBD
YEAR 2025
SHEET 01 OF 19

PUBLISHED CTB
ARRC_CTB_2023.CTB
SCALE
AS NOTED
DATE TIME
11/7/2025 4:57 PM
DRAWING LOCATION
P:\ENGINEERING\BRIDGES\00 - BRIDGE STANDARD PLANS\28' STANDARD CBD BRIDGE REPLACEMENT\CBD STANDARDS 2024.DWG

GENERAL NOTES

1. All metalwork hardware, unless otherwise noted shall be hot dip galvanized.
2. Main Track ballast to be furnished shall conform to the specifications detailed in the current edition of the ARRC SSC Section 309, "Railroad Ballast".
3. Bridge drainage system pipe shall be 3" MAX Dia., schedule 80, PVC.
4. All dimensions shown on the plans are true horizontal and true vertical at 68° F normal temperature.

DESIGN NOTES

1. This Standard has been designed in accordance with the 2025 edition of the ARRC Standard Specifications For Construction (SSC).
2. Two Row Bent is required every 140' of bridge length for longitudinal load (max spacing of 140').
3. The loads described as follows are combined as required by AREMA Service Load Design:
   - D = Dead Load of complete structure with 30" maximum ballast depth.
   - L = Live Load, Cooper E-80 with maximum offset between the centerline of track and center of the longitudinal joint between beams of 3"(tangent) or 6"(curve). E-80 Alternate Live Load is not considered.
   - I = Impact based on AREMA Chapter 8.
   - W = Wind of 30 psf on loaded bridge and 50 psf on unloaded bridge.
   - WL = Wind on Live Load of plf.
   - LF = Longitudinal Force from Live Load.
   - E = Earth pressure force.
   - EQ = Earthquake Load based on AREMA Chapter 9, with an acceleration coefficient of 0.25, return period of 100 years and soil profile type I or II.
   - ICE = Ice pressure of 200 psi with a thickness of 1.25'.

PILE DRIVING NOTES

MANUFACTURE

1. Pipe must be fabricated from a listed base metal plate found in SSC Section 715, Steel For Piles.
2. Mill certification documentation is required (SSC 715-2.03-.04). In addition, chemical composition documentation is required for pilling supplied under the specification for ASTM A252 Grade 2.
3. Piling shall have square or bevel ends.
4. Splice rings are compression fit mechanical splicer to match pile diameter and coating where provided.
5. Drive shoe are inside flange and open ended matching pile diameter with mill finish.
6. Individual pipe lengths must be delivered within a tolerance of plus or minus 12 inches from the length specified. The total length furnished of each shall not be less than the summation of the nominal specified length times the number required.
7. Delivery: Piling and associated materials shall be delivered, FOB, to:
   Alaska Railroad Corporation
   485 Ocean Dock Road
   Anchorage, Alaska 99501

STEEL

1. Piles – ASTM A252, Grade 3, split seam welded, upon approval, split seam welded pipe conforming to ASTM A53 Grade B, API Specifications 2B, or API Specification 5L X52 PSL2 may be used.
2. Pile splices – ASTM A572 Grade 36.
3. Backing rings – provided by manufacturer or an approved alternate equal to a minimum thickness of ¼" and a width of 4".

DESIGN

1. All piles shall be driven to capacity given in Design Tables per the Plan Set.
2. Depth of piles to be determined by project engineer in accordance with plan design loads.
3. Estimated capacity of driven piles shall be calculated using the Modified ENR formula, with Factor of Safety of 5. Pile driving records and estimated capacity shall be submitted to the engineer. Alternate methods such as Gates or PDA testing may also be considered at the Railroad's discretion.
4. Mark every pile with dimension indicating the pile depth from cutoff to point of pile. The dimension shall be rounded to the nearest foot. The mark shall be welded on the outside face, low mile post side on the pile flange, approximately 1'-0" below the bottom of the cap, and in numbers of approximately 3" in height. If a pile is not exposed, no mark is required.

GALVANIZED PIPE PILE

1. Where specified, galvanized coating for pipe piles shall conform to ASTM A123. Pickle per SSPC No. 8 and Hot-Dipped Galv. per current ASTM A123. Coating weight 2.3 oz. per sq. ft. (Grade 100).
2. Provide 3" Mask on each end of Pile.

SPLICES

1. Splices shall be made a sufficient distance above the ground or water (not less than one foot) so that the splice can be observed during driving. The number of splices shall be kept to a minimum. Splicing cut-offs or short pieces to make a main bearing pile is not permitted. The pile shall be driven so that the upper splice is at least 10 feet below the ground surface.

TOLERANCE

1. Variations greater than ¼" per foot from from vertical or batter line shall not be allowed. The deviation of the top of the piles in a bent shall not exceed one inch from the plan location. Piles not meeting tolerance requirements or out of line as to impair usefulness, or piles that are damaged in driving as to impair structural capacity, shall be pulled and re-driven or an additional pile shall be driven to provide added support.

MISCELLANEOUS STEEL SPECIFICATIONS:

1. Design and Workmanship – Per current ARRC Standard Specifications For Construction (SSC).
2. Miscellaneous Steel – Per current ASTM A36 Specification, unless otherwise noted.
3. Steel Coating – Unless otherwise noted, pickle per SSPC No. 8 and Hot-Dipped Galv. per current ASTM A123 (Grade100). Coating weight 2.3 oz. per sq. ft. Bolts and nuts to be zinc plated per ASTM A153.
4. Welding – Arc Process per current ARRC SSC 504-3.01(7), Welding.
5. High-Strength bolts (including nuts and washers) unless otherwise noted shall be ASTM F3125 Grade A325, Type 1. Nuts shall conform to ASTM A563. All bolts shall be ⅞" diameter unless noted otherwise. Diameter of bolt holes shall be 1/16" larger than nominal bolt diameter, unless noted otherwise. All bolts shall have one hardened steel washer conforming to ASTM F436 per bolt under the element to be turned.

PRECAST CONCRETE NOTES

CONCRETE

1. All concrete materials, placement and workmanship shall be in accordance with Section 501: Concrete For Structures of the ARRC SSC.
2. Minimum compression strength at 28 days shall be 4000 psi.
3. Exposed surfaces shall be formed in a manner which shall produce a smooth and uniform appearance without rubbing or plastering. Exposed edges of 90° or less are to be chamfered ¾" x ¾". Top surface to have a smooth finish, free of all float or trowel marks.
4. Concrete shall be proportioned such that the water – cement ratio (by weight) does not exceed 0.45. Concrete shall contain a minimum of 6½ sacks of cement per cubic yard of concrete.
5. Cement shall be Type I or Type II Portland Cement, blended hydraulic cement, fly ash, ground granulated blast-furnace slag, or silica fume in accordance with ASTM C150 specifications.
6. Aggregates shall be graded in accordance with ASTM C33 Specifications.
7. Air content shall be between 5.5% and 6.5% (by volume).
8. Admixtures shall not be used without approval by the Railroad.
9. Curing shall be accomplished by wet curing or application of a Type 2 membrane.
10. The Fabricator shall stencil the Fabricator's name, date of fabrication, lifting weight, bridge number and piece mark at location shown in drawings.
11. Production procedures for the manufacture of precast members shall be in accordance with ARRC SSC Section 501-3.13, Precast Concrete Members.
12. Dimensional tolerance governing the manufacture of precast members shall conform to ARRC SSC Section 501-3.10, Tolerances. Tolerance for location of lifting devices shall be ± ½".
13. The Fabricator shall be responsible for loading and properly securing all precast concrete members for shipment. All concrete components shall be made available for inspection by Railroad at the Fabricator's plant prior to shipment, at the Railroad's discretion.

REINFORCING STEEL

1. Reinforcing steel shall be deformed, new billet bars per ASTM A615 specifications and meet Grade 60 requirements.
2. Fabrication of reinforcing steel shall be per Section 503 of the ARRC SSC. Dimensions of bending details are out to out of bar.
3. Reinforcing steel shall be blocked and tied to proper location and securely wired against displacement. Tie wires shall be installed at every other bar intersection so that at least 50% of the intersections are tied. Tack welding of reinforcing is prohibited. Minimum concrete cover on reinforcing not otherwise noted shall meet ARRC SSC Section 503-3.04, Placing and Fastening.

STRUCTURAL STEEL

1. Steel plates shall conform to ASTM A36 or A709-Grade 36 specifications.
2. Studs shall be C1015, C1017 or C1020 cold drawn steel which conforms to ASTM A108 specifications. Shear studs are welded to embed plates as shown on pile cap drawings.
3. Where galvanizing is not indicated, material shall be plain.

LIFTING ANCHORS

1. Swift lift anchors shall be Dayton Richmond P-52 anchors or approved alternative with a safe working load sufficient for the weight of the precast element including form removal. The safe working load shall provide a minimum safety factor of 4.

PRESTRESSED CONCRETE NOTES

CONCRETE

1. All concrete materials, placement and workmanship shall be in accordance with Section 502, Prestressing Concrete of ARRC SSC.
2. Minimum compression strength at the transfer of the prestressing force shall be 4500 psi and at 28 days shall be 6000 psi (ASTM A416). Minimum compression strength at diaphragm shall be 4500 psi (Class A-A per AKDOT Subsection 501-1.01 and 501-2.02).
3. Exposed surfaces shall be formed in a manner which shall produce a smooth and uniform appearance without rubbing or plastering. Exposed edges of 90° or less are to be chamfered ¾" x ¾". Top surface to have a smooth finish, free of all float or trowel marks.
4. Concrete shall be proportioned such that the water – cement ratio (by weight) conforms to Table 502-2.01 of ARRC SSC for each type of concrete.
5. Cement shall be Type I or Type II Portland Cement, blended hydraulic cement, fly ash, ground granulated blast-furnace slag, or silica fume in accordance with ASTM C150 specifications.
6. Aggregates shall be graded in accordance with ASTM C33 for each type of concrete.
7. Air content (by volume) shall be in accordance with ASTM C26 for each type of concrete..
8. Admixtures shall not be used without approval by the Railroad.
9. Curing shall be accomplished by wet curing or application of a Type 2 membrane per ASTM C309.
10. The Fabricator shall stencil the Fabricator's name, date of fabrication, lifting weight, bridge number and piece mark at location shown in drawings.
11. Dimensional tolerance governing the manufacture of precast members shall conform to Section 502-3.04 of the ARRC SSC. Tolerance for location of lifting devices shall be ± ½".
12. The Fabricator shall be responsible for loading and properly securing all precast concrete members for shipment. All concrete components shall be made available for inspection by Railroad at the Fabricator's plant prior to shipment, at the Railroad's discretion.
13. The area around all lifting loops or devices shall be recessed so that the loops can be removed to a depth of 1" and grouted.
14. Ends of the strands shall be burned off and recessed to a depth of 1". Such recession and minor concrete spalls shall be filled and finished to the plan dimensions using an epoxy bonding compound and grout.
15. Contractor shall submit shop drawings for prestressed girders to Alaska Railroad for approval 30 days prior to fabrication.
16. Copies of the concrete mix design shall be submitted to Alaska Railroad for approval by the chief engineer 30 days prior to the start of the casting operation.

PRESTRESSING STRAND

1. All prestressing strands shall be ½" diameter, seven wire, uncoated, low relaxation with a minimum f's=270 ksi and meet the requirements of ASTM A416 specifications. Initial prestress shall be 0.75 f's=30,983 lbs per strand.
2. Strand shall be tested in accordance with PCI recommendations (Moustafa Method) and certified by the fabricator according to ARRC SSC 721-2.04, as having adequate band characteristics to satisfy the prediction equation for transfer and development length given in AREMA.

REINFORCING STEEL

1. Reinforcing steel shall be deformed, new billet bars per ASTM A615 specifications and meet Grade 60 requirements.
2. Fabrication of reinforcing steel shall be per Section 503-3.03 of ARRC SSC. Dimensions of bending details are out to out of bar.
3. Reinforcing steel shall be blocked and tied to proper location and securely wired against displacement. Tie wires shall be installed at every other bar intersection so that at least 50% of the intersections are tied. Tack welding of reinforcing is prohibited. Minimum concrete cover on reinforcing not otherwise noted shall meet ARRC SSC Section 503-3.04, Placing And Fastening.

LIFTING ANCHORS

1. Swift lift anchors shall be Dayton Richmond P-52 anchors or approved alternative with a safe working load sufficient for the weight of the precast element including form removal. The safe working load shall provide a minimum safety factor of 4.

BEARING NOTES

1. Bearing pad material shall be laminated elastomer made of natural rubber having a 60 durometer hardness. Conforming to Grade 5 of the current ARRC SSC Section 720-2.01 specifications.

CAST-IN-PLACE CONCRETE NOTES

CONCRETE

1. All concrete materials, placement and workmanship shall be in accordance with Section 501, Concrete For Structures of ARRC SSC. This section of notes applies to all concrete work except for drilled shafts.
2. Formwork tolerances shall be in accordance with ARRC SSC Section 501-3.12, Forms and Falsework.
3. Minimum compression strength at 28 days shall be 4000 psi.
4. Concrete shall be proportioned such that the water – cement ratio (by weight) does not exceed 0.45.
5. Cement shall be Type I or Type II Portland Cement, blended hydraulic cement, fly ash, ground granulated blast-furnace slag, or silica fume in accordance with ASTM C156 specifications.
6. Aggregates shall be graded in accordance with ASTM C33 Specifications.
7. Air content shall be between 5.5% and 6.5% (by volume).
8. Admixtures shall not be used without approval by the Railroad.
9. Curing shall be accomplished by wet curing or application of a Type 2 membrane per ASTM C309.
10. Concrete work shall conform to all requirements of Section 501-3.09, Protection Of Concrete. Contractor shall submit detailed procedures for the production, transportation, placement, protection, curing, and temperature monitoring of concrete during cold weather to the Railroad for approval.

REINFORCING STEEL

1. Reinforcing steel shall be deformed, new billet bars per ASTM A615 specifications and meet Grade 60 requirements. Bars shall be non-coated.
2. Fabrication of reinforcing steel shall be per Section 503-3.03 of ARRC SSC. Dimensions of bending details are out to out of bar.
3. Reinforcing steel shall be blocked and tied to proper location and securely wired against displacement. Tie wires shall be installed at every other bar intersection so that at least 50% of the intersections are tied. Tack welding of reinforcing is prohibited. Minimum concrete cover on reinforcing not otherwise noted shall meet ARRC SSC Section 503-3.04, Placing And Fastening.

FIELD WELDING NOTES

1. Welding shall be accomplished with SMAW or FCAW Process.
2. Welding shall be in compliance with the requirements specified in ARRC SSC Section 504, Steel Structures, except 5/16" fillet welds may be made with a single pass.
3. Welding electrodes shall be E7018 for SMAW or E71T-7 for FCAW.
4. Welders shall possess valid qualifications, which shall be furnished to the Railroad.
5. Consider making pipe to cap perimeter weld in opposing quadrants to control heat build-up and limit risk of damaging cap.

RIPRAP SPECIFICATIONS:

1. Riprap shall be placed to thickness, height and length shown on plans. Individual stones are to be keyed into each other to reduce void space in the finished product.
2. Riprap subgrade shall be prepared to achieve the lines and grades shown on the plans prior to riprap placement. Any fill required in the subgrade shall be compacted to a density consistent with surrounding undisturbed material.

WOVEN FILTER FABRIC SPECIFICATIONS:

1. Woven filtration fabric shall be installed between all riprap and underlying soil. Fabric material shall meet ARRC SSC Section 631, Geotextile For Subsurface Drainage And Erosion Control.
2. Site preparation shall include removing vegetation, large stones, limbs, brush, roots, and other debris.
3. Sheets placed in the improved bank and channel shall be oriented with the longer dimension parallel with the embankment.
4. Upper sheets shall overlap the lower sheets with a minimum 18" overlap between individual fabric sheets.
5. Include folds in fabric to minimize tension and stretching during settlement.
6. Secure fabric with pins and washers at 2 to 5 foot spacing along the overlaps.
7. Do not drop stones from height greater than 2 feet when placing riprap on filter fabric.

TYPICAL INSTALLATION:

1. STAGE MATERIALS AND EQUIPMENT.
2. LAYOUT BENT CENTERS AND PILE LOCATIONS.
3. RELOCATE AND PROTECT FIBER OPTIC CABLE(S) AND TRAY(S).
4. DRIVE PILES FOR ABUTMENTS AND INTERMEDIATE BENTS.
5. MARK AND CUT OFF PILING AT MINUS 7'-6" FROM TOP OF TIE.
6. FILL PILING WITH CONCRETE.
7. SET AND WELD CAPS.
8. STAGE CBD SECTIONS ALONGSIDE TRACK NEAR INSTALLATION ON DUNNAGE.
9. REPLACE BRIDGE TIES WITH MAINLINE TIES ON TRESTLE.
10. JACK AND SUPPORT TRACK NORTH AND SOUTH OF FIRST NEW SPAN LOCATION.
11. REMOVE TIMBER CHORDS AND PILE BENTS. DISPOSE OF WASTE AT APPROVED LOCATION. CUT OFF TIMBER PILES AT MUDLINE THAT CANNOT BE COMPLETELY EXTRACTED.
12. PICK AND SET CBD SECTIONS ONTO TEMPORARY PLYWOOD PADS USING STEEL TEES TO HOLD SPACE BETWEEN SECTIONS.
13. BOLT SECTIONS TOGETHER AT DIAPHRAGMS, PICK INDIVIDUAL CORNERS, REMOVE PLYWOOD AND INSTALL ELASTOMERIC BEARING PADS.
14. INSTALL ANCHOR BRACKETS AND BOLTS. USE LOW TEMPERATURE GROUT IF BELOW 40°F.
15. INSTALL TEMPORARY BULKHEAD BOARD AT TRESTLE ENDS.
16. PLACE BALLAST. TEMP AND LINE TRACK.
17. REMOVE NEXT OR REMAINING 28 FOOT CHORDS AND BENTS.
18. REPEAT STEPS 12 THROUGH 17 AS REQUIRED.
19. DRIVE SHEET PILE BULKHEADS AND INSTALL ABUTMENT CLOSURE PLATES.
20. REPLACE FIBER OPTIC CABLE(S) AND TRAY(S) ONTO NEW SPANS.
21. FILL AND REMOVE REMAINING TIMBER TRESTLE. DIRECT-BURY FIBER OPTIC CABLE(S).
22. VEGETATE DISTURBED SLOPES USING APPROVED SEED MIX.
23. DEMOBILIZE.

PRELIMINARY
NOT FOR CONSTRUCTION

DESIGNED BY:	
CHECKED BY:	
DRAFTED BY:	MCG

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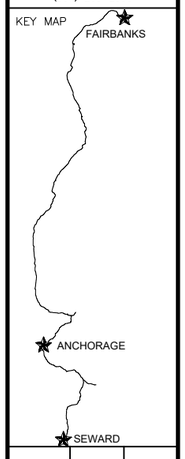

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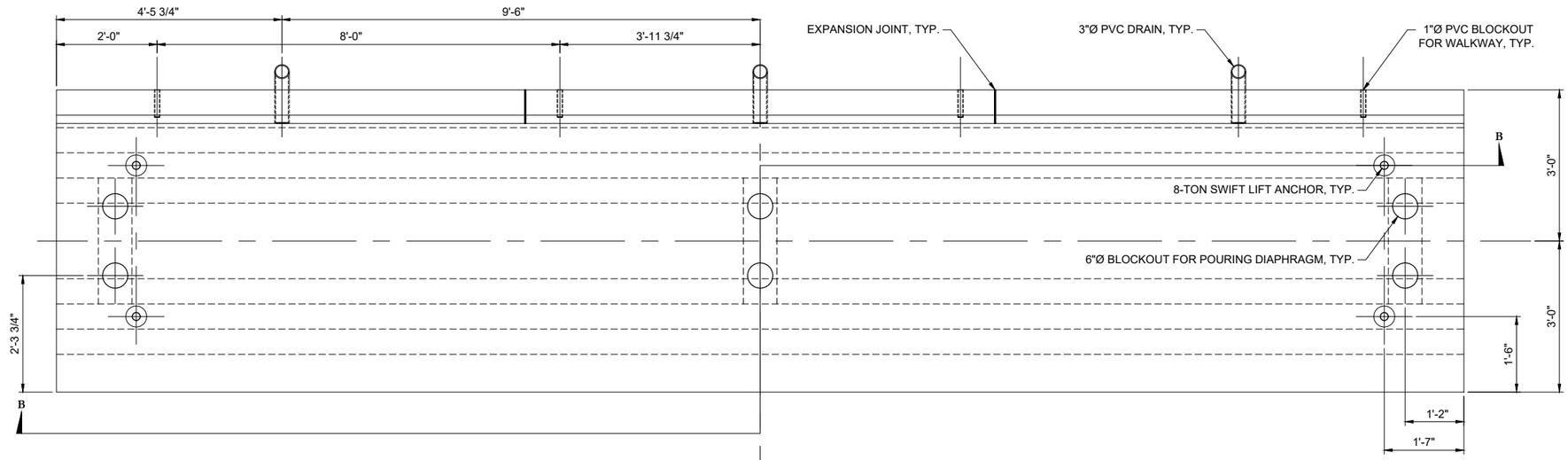
ALASKA RAILROAD

PROJECT: STANDARD 28 FOOT SPAN CONCRETE BALLAST DECK (CBD)

SHEET TITLE: NOTES AND SPECIFICATIONS

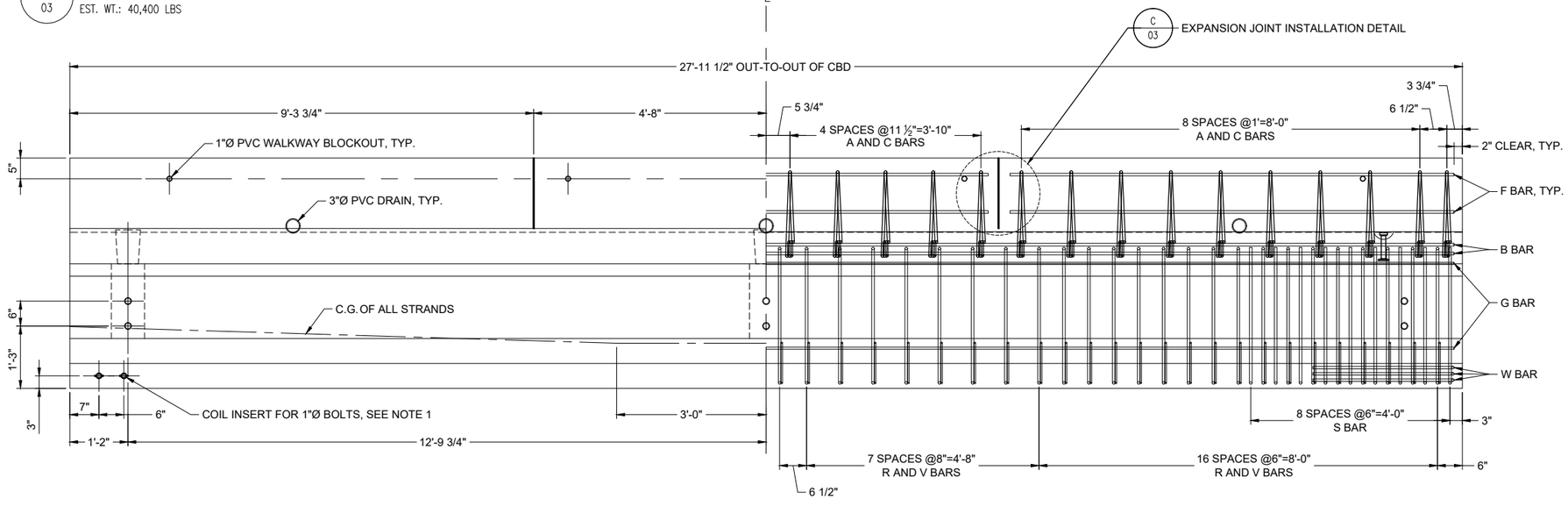
AFE NO.	TBD
YEAR	2025
SHEET	02 OF 19



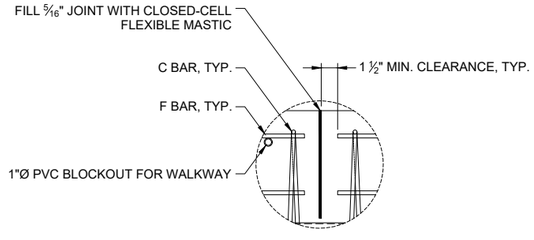
A 03 DECK PLAN

EST. WT.: 40,400 LBS

SYMMETRIC ABOUT ℄



B-B 03 ELEVATION SECTION



C 03 EXPANSION JOINT DETAIL

NOTES

1. COIL INSERTS ON CURB SIDE ONLY.
2. PRIOR TO POURING DIAPHRAGM AND CURB, ENSURE GIRDERS ARE RESTING LEVEL AND SQUARE.
3. COMPRESSIVE STRENGTH OF THE CAST-IN-PLACE REINFORCED CONCRETE CURB AND DIAPHRAGM SHALL EXCEED 4,500 PSI AT 28 DAYS.
4. ENSURE OUTER CURB FACE IS PLUMB WITH OUTER DECK FACE.
5. BUSH AND CLEAN CONSTRUCTION JOINTS PRIOR TO POURING.

PRELIMINARY
NOT FOR CONSTRUCTION

DESIGNED BY:
CHECKED BY:
DRAFTED BY: MCG

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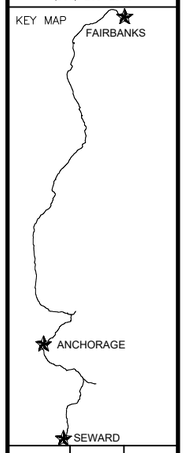
KEY MAP



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ALASKA RAILROAD

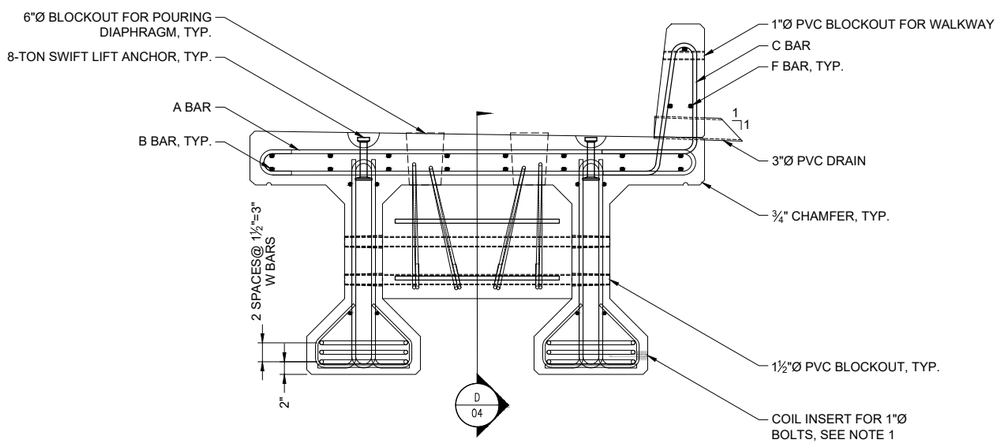
PROJECT: STANDARD 28 FOOT SPAN CONCRETE BALLAST DECK (CBD)

SHEET TITLE: PRESTRESSED GIRDER PLAN, ELEVATION, AND DETAILS

AFE NO. TBD
YEAR 2025
SHEET 03 OF 19

PUBLISHED CTB ARRC_CTB_2023.CTB
SCALE AS NOTED
DATE TIME 11/7/2025 4:57 PM

DRAWING LOCATION
P:\ENGINEERING\BRIDGES\00 - BRIDGE STANDARD PLANS\28' STANDARD CBD BRIDGE REPLACEMENT\CBD STANDARDS 2024.DWG



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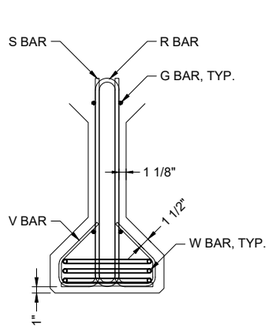
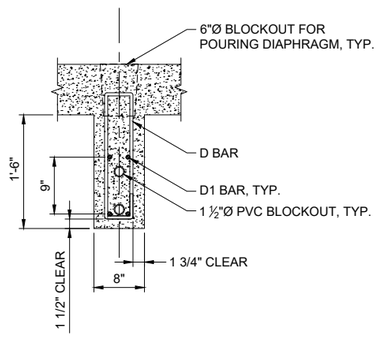
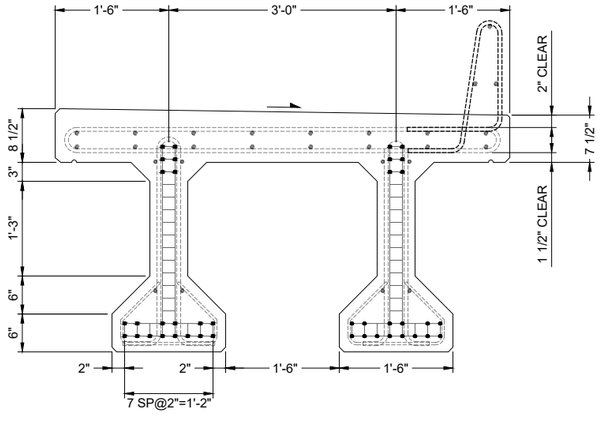


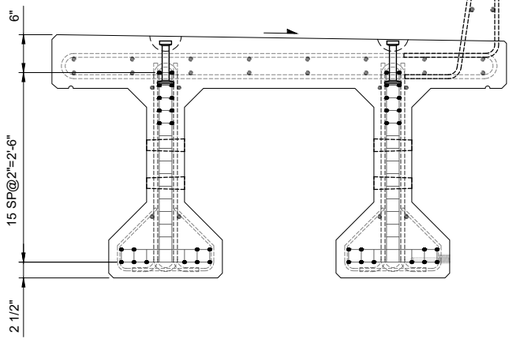
B 04 GIRDER SECTION



D 04 DIAPHRAGM SECTION
SEE NOTE 3



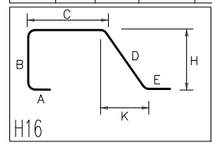
C 04 STRAND PATTERN AT CENTERLINE
(20 STRANDS PER GIRDER)



C 04 STRAND PATTERN AT BEARING
(20 STRANDS PER GIRDER)

28' CBD REINFORCING SCHEDULE

BAR NAME	SIZE	TYPE	A	B	C	D	E	G	H	J	K	O	LENGTH	# PER SPAN
A	#5	S9	0'-8"	5'-9"	0'-4"	5'-9"	--	0'-9"	--	0'-4"	--	--	12'-9"	60
B	#5	STR.	--	--	--	--	--	--	--	--	--	--	27'-7 1/2"	32
C	#5	H16	1'-3"	1'-5 1/2"	0'-4"	1'-10"	0'-7"	--	1'-9 7/8"	--	0'-3"	--	5'-1"	60
D	#4	T2	0'-4 1/2"	1'-8"	0'-4 1/2"	1'-8"	0'-4 1/2"	0'-4 1/2"	--	--	--	--	4'-4 7/8"	24
D1	#5	STR.	--	--	--	--	--	--	--	--	--	--	2'-2"	24
F	#5	STR.	--	--	--	--	--	--	--	--	--	--	8'-11"	18
G	#3	STR.	--	--	--	--	--	--	--	--	--	--	27'-6"	16
R	#5	S12	0'-6"	5'-6 1/4"	--	--	--	0'-6"	2'-9"	--	--	0'-2 1/2"	6'-4 3/4"	200
S	#5	S11	--	5'-6 1/4"	--	--	--	--	2'-9"	--	--	0'-2 1/2"	5'-6 1/4"	72
V	#3	ZZH1	--	0'-8 1/2"	0'-3 1/2"	1'-3 1/4"	0'-3 1/2"	--	--	--	--	--	3'-2"	200
W	#5	17	--	2'-10"	1'-2"	2'-10"	--	--	--	--	--	--	6'-7 5/8"	24



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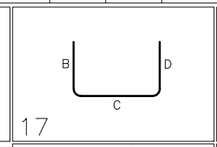

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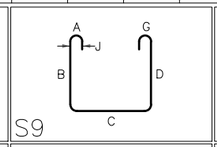

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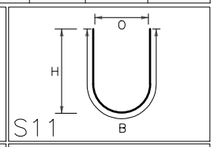

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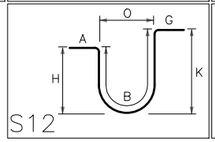

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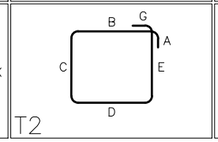

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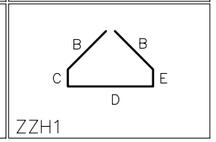

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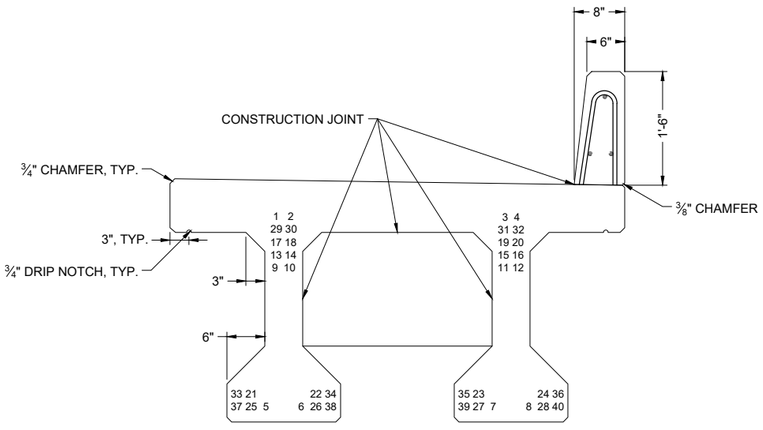

F 04 STRAND CUTTING PATTERN DETAIL
SEE NOTES 2 THRU 5

NOTES

1. COIL INSERTS ON CURB SIDE ONLY.
2. AFTER CONCRETE HAS REACHED COMPRESSIVE STRENGTH REQUIRED FOR TRANSFER OF PRESTRESSING FORCE, CUT THE PRESTRESSING STRANDS IN THE ORDER SHOWN.
3. PRIOR TO POURING DIAPHRAGM AND CURB, ENSURE GIRDERS ARE RESTING LEVEL AND SQUARE.
4. ENSURE OUTER CURB FACE IS PLUMB WITH OUTER DECK FACE.
5. BUSH AND CLEAN CONSTRUCTION JOINTS PRIOR TO POURING.
6. COMPRESSIVE STRENGTH OF THE CAST-IN-PLACE REINFORCED CONCRETE CURB AND DIAPHRAGM SHALL EXCEED 4,500 PSI AT 28 DAYS.

PRELIMINARY
NOT FOR CONSTRUCTION

PUBLISHED CTB
ARRC_CTB_2023.CTB
SCALE AS NOTED
DATE 11/7/2025 TIME 4:57 PM
DRAWING LOCATION
P:\ENGINEERING\BRIDGES\00 - BRIDGE STANDARD PLANS\28' STANDARD CBD BRIDGE REPLACEMENT\CBD STANDARDS 2024.DWG

DESIGNED BY:
CHECKED BY:
DRAFTED BY: MCG

ALASKA RAILROAD CORPORATION
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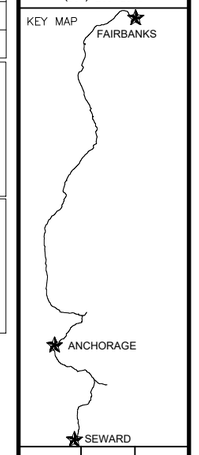
327 W SHIP CREEK AVE
ANCHORAGE, AK 99501
(907) 265-2300

KEY MAP



ENGINEERING DEPARTMENT
P.O. BOX 107500
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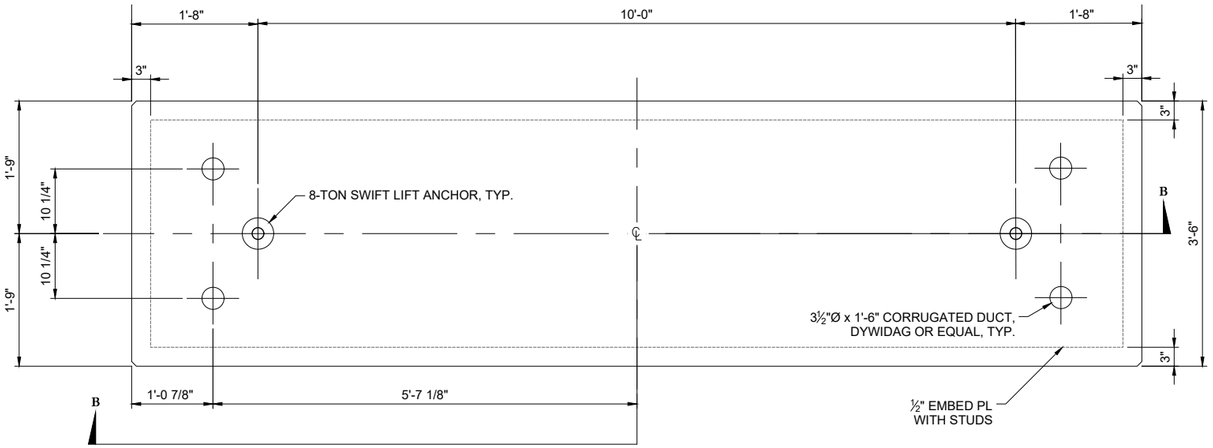
ALASKA RAILROAD

PROJECT: STANDARD 28 FOOT SPAN CONCRETE BALLAST DECK (CBD)

SHEET TITLE: PRESTRESSED GIRDER SECTIONS AND DETAILS

AFE NO. TBD
YEAR 2025
SHEET 04 OF 19



A 05 SINGLE ROW PILE CAP PLAN

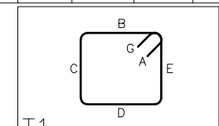
B-B 05 SINGLE ROW PILE CAP SECTION

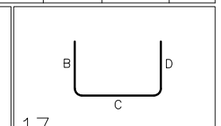
EST. WT.: 22,045 LBS

D 05 SINGLE ROW PILE CAP EMBEDDED PLATE DETAIL

C 05 SINGLE ROW PILE CAP ELEVATION

SINGLE ROW PILE CAP REINFORCING SCHEDULE										
BAR NAME	SIZE	TYPE	A	B	C	D	E	G	LENGTH	# PER CAP
P	#8	STR.	--	--	--	--	--	--	12'-10"	8
Q	#6	STR.	--	--	--	--	--	--	12'-10"	4
H	#5	T1	0'-5 1/2"	2'-6"	2'-0"	2'-6"	2'-0"	0'-5 1/2"	9'-11"	52
M	#5	17	--	1'-6"	2'-10 3/4"	1'-6"	--	--	5'-10 3/4"	8





NOTES

1. PROVIDE ¾" CHAMFER FOR ALL CONCRETE CORNERS.
2. THE TOP AND BOTTOM SURFACES MUST BE PARALLEL AND FINISHED FLAT WITH NO VARIANCES TO EXCEED ⅛" UNDER A 10' LONG STRAIGHT EDGE.
3. EXTRA ATTENTION SHOULD BE DIRECTED TO PLACEMENT OF THE DYWIDAGS SO THAT THEY ARE CONSISTENT WITH DRAWINGS.

PRELIMINARY
NOT FOR CONSTRUCTION

DESIGNED BY:
CHECKED BY:
DRAFTED BY: MCG

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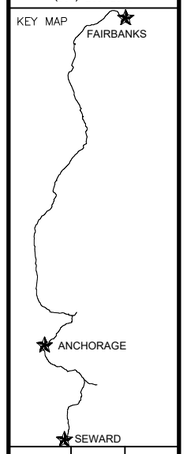
KEY MAP



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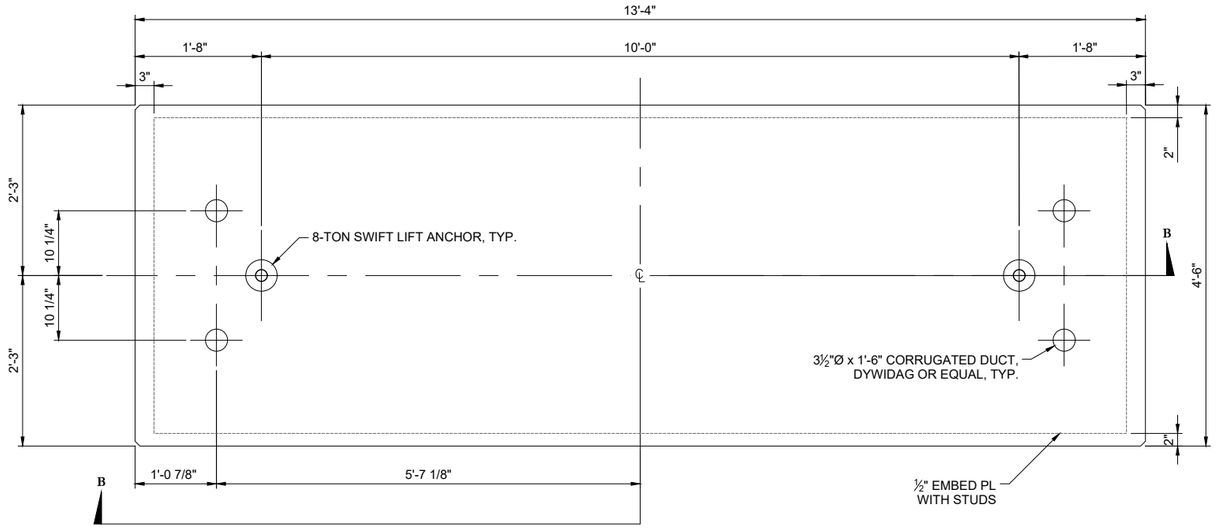
ALASKA RAILROAD

PROJECT: STANDARD 28 FOOT SPAN CONCRETE BALLAST DECK (CBD)

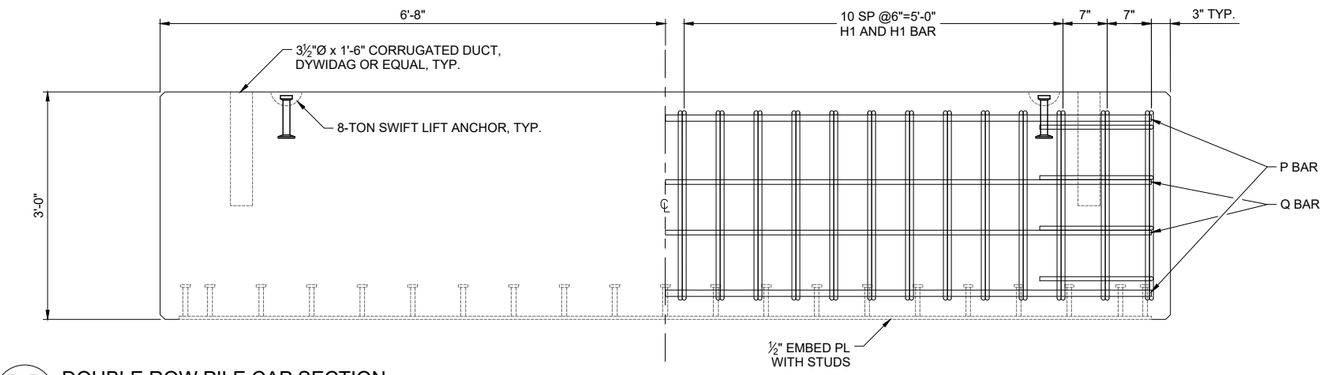
SHEET TITLE: SINGLE ROW PILE CAP PLAN AND DETAILS

AFE NO. TBD
YEAR 2025
SHEET 05 OF 19

PUBLISHED CTB ARRC_CTB_2023.CTB
SCALE AS NOTED
DATE 11/7/2025 TIME 4:57 PM
DRAWING LOCATION P:\ENGINEERING\BRIDGES\00 - BRIDGE STANDARD PLANS\28' STANDARD CBD BRIDGE REPLACEMENT\CBD STANDARDS 2024.DWG

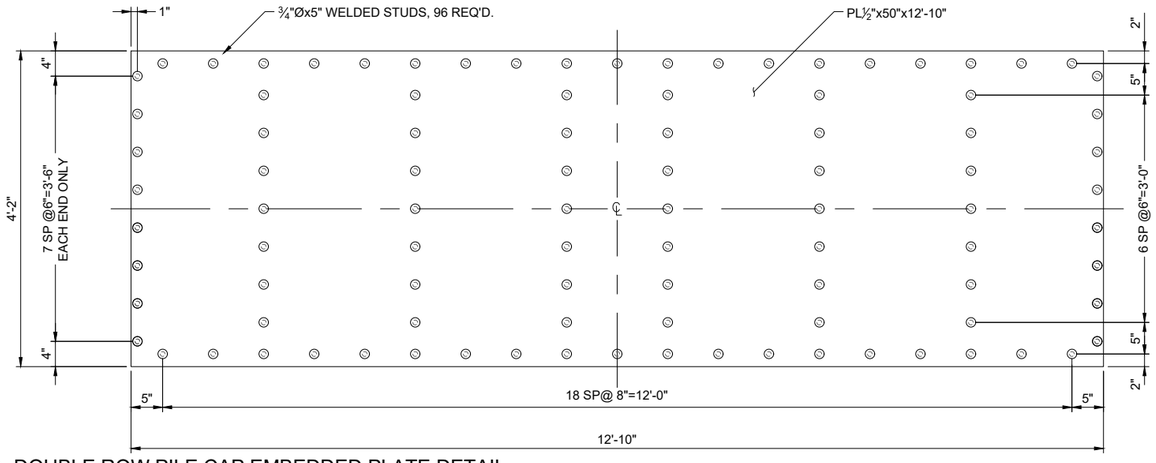


A 06 DOUBLE ROW PILE CAP PLAN

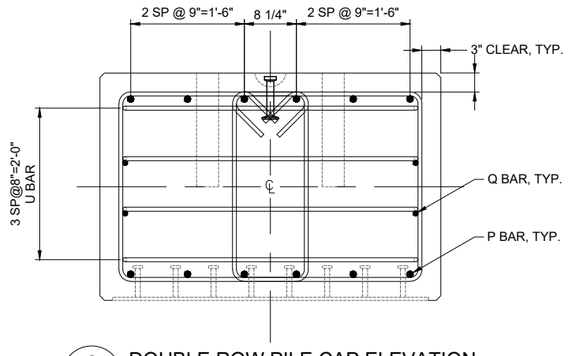


B-B 06 DOUBLE ROW PILE CAP SECTION

EST. WT.: 28,200 LBS



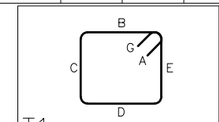
D 06 DOUBLE ROW PILE CAP EMBEDDED PLATE DETAIL

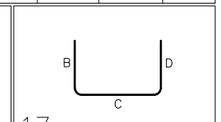


C 06 DOUBLE ROW PILE CAP ELEVATION

DOUBLE ROW PILE CAP REINFORCING SCHEDULE

BAR NAME	SIZE	TYPE	A	B	C	D	E	G	LENGTH	# PER CAP
P	#8	STR.	--	--	--	--	--	--	12'-10"	12
Q	#6	STR.	--	--	--	--	--	--	12'-10"	4
H1	#5	T1	0'-5 1/2"	2'-6"	2'-0"	2'-6"	2'-0"	0'-5 1/2"	9'-11"	52
U	#5	17	--	1'-6"	3'-10 3/4"	1'-6"	--	--	6'-10 3/4"	8





NOTES

1. PROVIDE ¾" CHAMFER FOR ALL CONCRETE CORNERS.
2. THE TOP AND BOTTOM SURFACES MUST BE PARALLEL AND FINISHED FLAT WITH NO VARIANCES TO EXCEED ⅛" UNDER A 10' LONG STRAIGHT EDGE.
3. EXTRA ATTENTION SHOULD BE DIRECTED TO PLACEMENT OF THE DYWIDAGS SO THAT THEY ARE CONSISTENT WITH DRAWINGS.

PRELIMINARY
NOT FOR CONSTRUCTION

DESIGNED BY:
CHECKED BY:
DRAFTED BY: MCG

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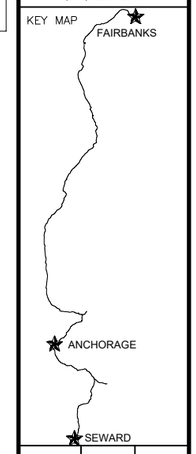
ANCHORAGE, AK 99501
(907) 265-2300

KEY MAP



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ANCHORAGE, ALASKA 99510-7500

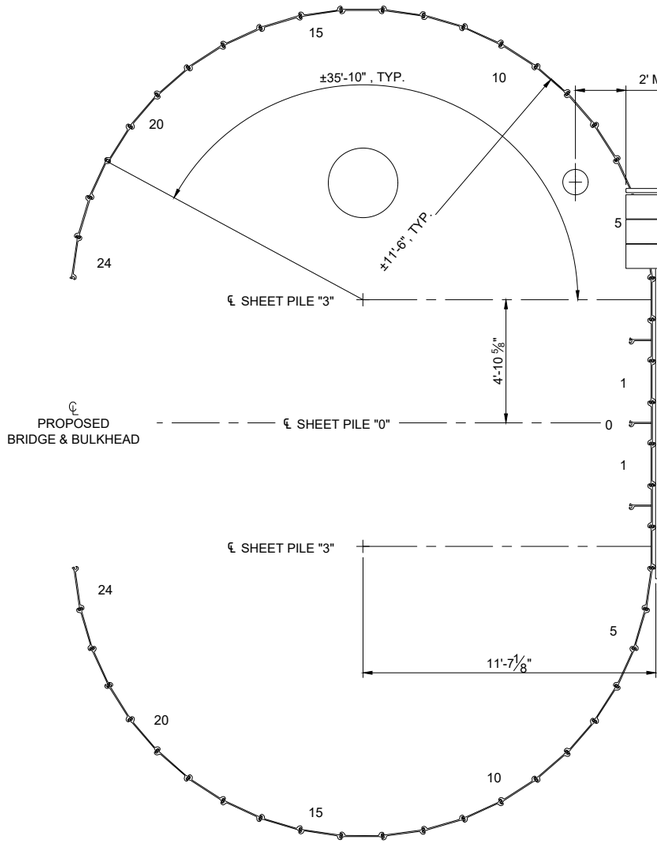
ALASKA RAILROAD

PROJECT: STANDARD 28 FOOT SPAN CONCRETE BALLAST DECK (CBD)

SHEET TITLE: DOUBLE ROW PILE CAP PLAN AND DETAILS

AFE NO. TBD
YEAR 2025
SHEET 06 OF 19

PUBLISHED CTB ARRC_CTB_2023.CTB
SCALE AS NOTED
DATE 11/7/2025 TIME 4:57 PM
DRAWING LOCATION P:\ENGINEERING\BRIDGES\00 - BRIDGE STANDARD PLANS\28' STANDARD CBD BRIDGE REPLACEMENT\CBD STANDARDS 2024.DWG



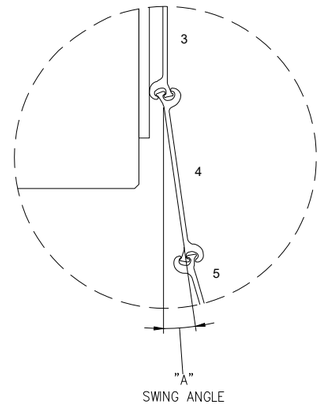
ABUTMENT #1

A 07 SHEET PILE BULKHEAD DETAILS - PLAN VIEW

ABUTMENT #2

SHEET PILE SWING ANGLE TABLE

BENT #1		BENT #3	
SHEET PILES	ANGLE "A"	SHEET PILES	ANGLE "A"
0 - 3	0.0°	0 - 3	0.0°
4 - 24	8.2°	4 - 24	8.2°



B 07 SHEET PILE SWING ANGLE

NOTES

1. DECK PLATES DP-E AND T-20 NOT SHOWN FOR CLARITY.
2. UTILITY SLACK BOX TO BE INSTALLED BY OTHERS WITH 4 FEET MINIMUM DISTANCE FROM END OF TIE AND MINIMUM DEPTH OF 2 FEET.

PRELIMINARY
NOT FOR CONSTRUCTION

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CHECKED BY:
DRAFTED BY: MCG

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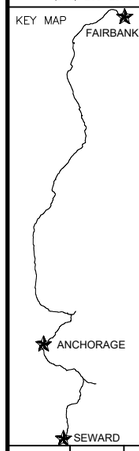
(907) 265-2300

KEY MAP



ENGINEERING DEPARTMENT
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ALASKA RAILROAD

PROJECT: STANDARD 28 FOOT SPAN CONCRETE BALLAST DECK (CBD)

SHEET TITLE: MULTI SPAN - SHEET PILE BULKHEAD DETAILS - PLAN VIEW

AFE NO. TBD
YEAR 2025
SHEET 07 OF 19

PUBLISHED CTB ARRC_CTB_2023.CTB
SCALE AS NOTED
DATE 11/7/2025 TIME 4:57 PM
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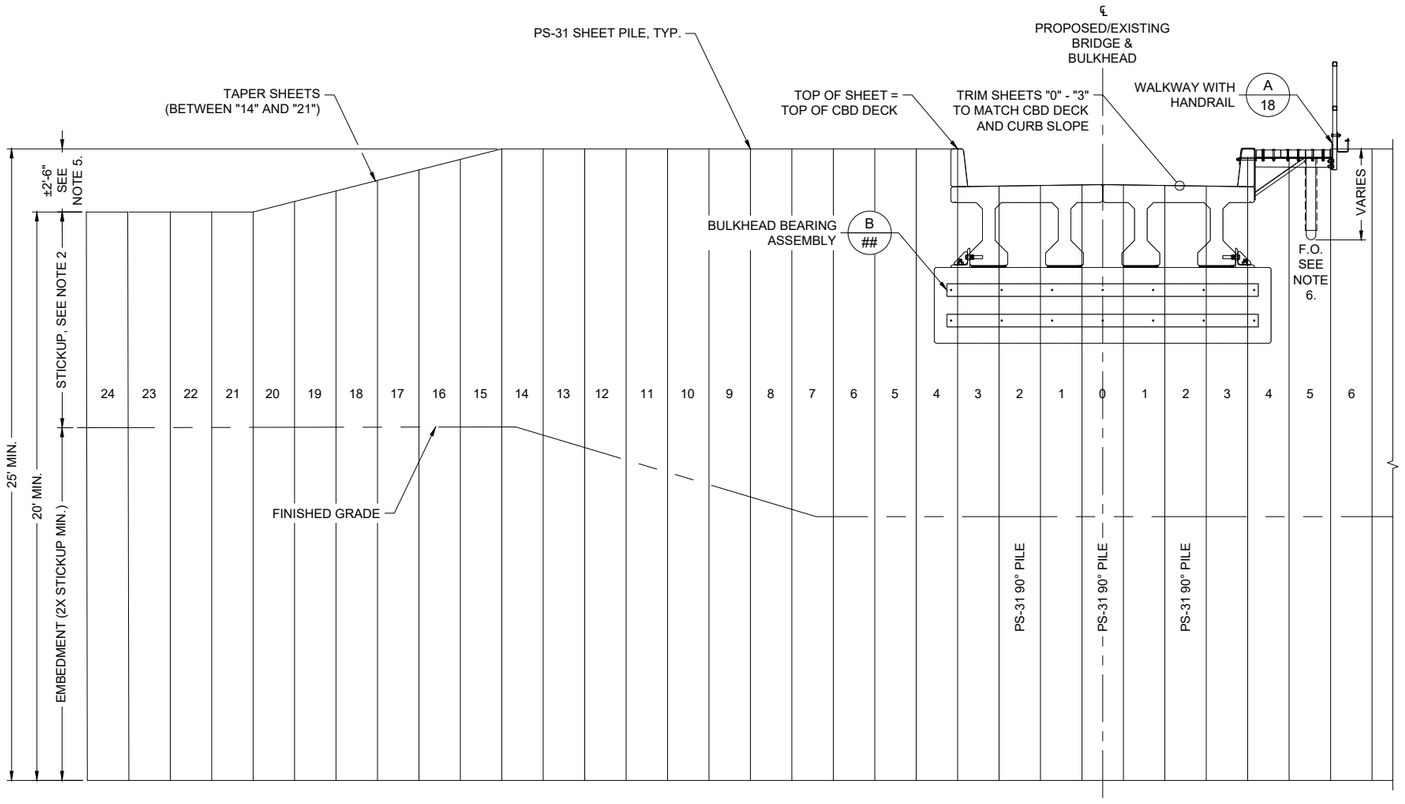
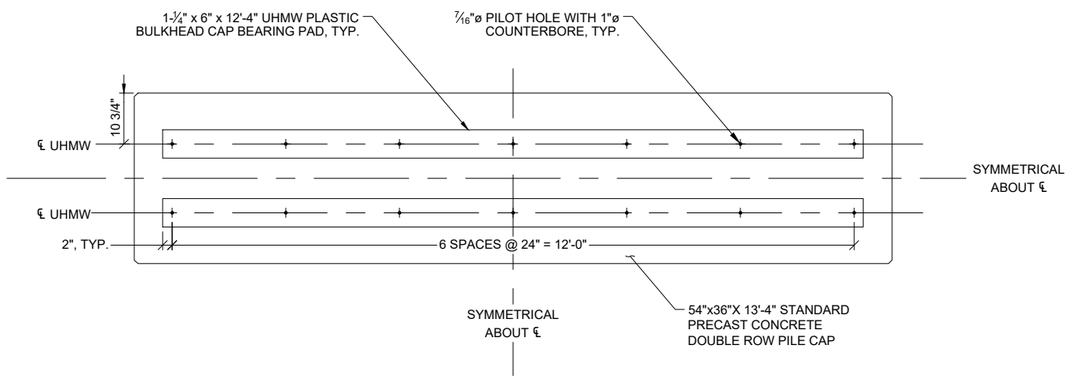


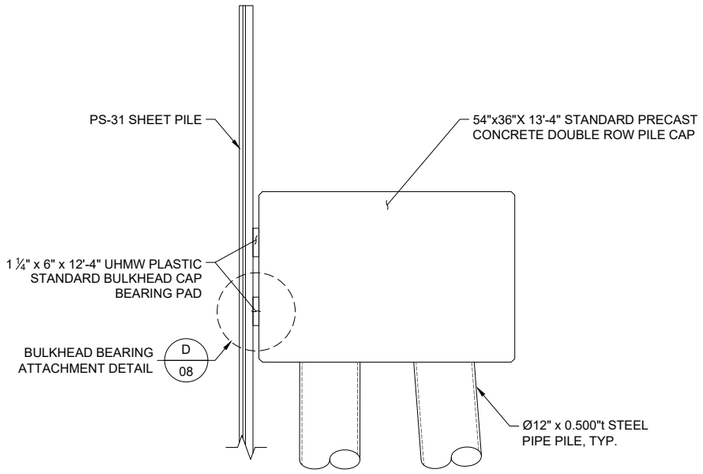
A 08 SHEET PILE BULKHEAD DETAILS - ELEVATION VIEW



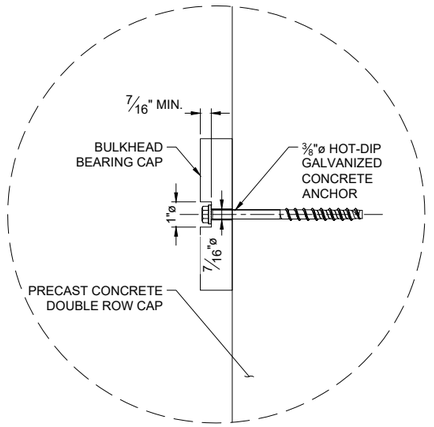
B 08 BULKHEAD BEARING ASSEMBLY DETAIL - ELEVATION

NOTES

1. SHEET PILES "0" AND "2" SHALL BE PS-31 90° T-PILES.
2. SHEET PILE EMBEDMENT TO BE TWICE THE STICKUP MEASURED FROM FINISHED GRADE.
3. FIELD CUT SHEET PILES WITHIN 0.25" OF THE BOTTOM OF THE SAFETY GRATING, WITHIN 1.0" OF THE OUTSIDE FACE OF THE HANDRAIL, AND A MINIMUM OF 0.5" OF THE OUTSIDE FACE OF THE CBD CURB.
4. ALL SHEETS TO BE DRIVEN TO AN ELEVATION NO MORE THAN 1'-0" ABOVE THE TOP OF THE CBD CURB ELEVATION. FIELD CUT DRIVEN SHEETS TO THEIR FINAL ELEVATION.
5. TOP OF SHEETS "21" THROUGH "24" ARE TO BE FIELD CUT A MINIMUM OF 0'-6" BELOW THE ELEVATION AT THE CENTER OF THE CBD'S DECK (1'-0" BELOW BOTTOM OF TIE).
6. WHERE APPLICABLE, CONTRACTOR TO COORDINATE WITH UTILITY OWNER FOR SIZE AND PLACEMENT OF SLOT. SLOT TO BE CUT IN WEB OF SHEET PILE NO CLOSER THAN 0.25" FROM KNUCKLE. CLOSURE PLATE TO BE A MINIMUM OF 0.500" THICK WITH 0.25" OVERLAP. WELD CLOSURE PLATE WITH $\frac{3}{16}$" CONTINUOUS FILLET WELD ON BOTH EDGES OF EXTERIOR FACE AFTER FIBER OPTIC TRAY HAS BEEN INSTALLED.
7. UPON SIGN OFF THE COMPLETED BULKHEAD, THE CONTRACTOR SHALL FIELD DRILL 1" DIAMETER DRAIN HOLES IN THE SHEET PILES 1'-0" ABOVE THE OUTER FINISHED GROUND SURFACE OF THE SHEET PILES. DRAIN HOLES SHALL BE A MAXIMUM OF 5'-0" SPACING LONGITUDINALLY AROUND THE CONSTRUCTED BULKHEAD.
8. INCREASE THE DEPTH OF THE COUNTERBORE AS NEEDED TO ENSURE THAT THE BOLT HEAD IS NOT PROUD OF THE UHMW PLASTIC BULKHEAD BEARING PAD.



C 08 BULKHEAD BEARING ASSEMBLY DETAIL - SECTION



D 08 BULKHEAD BEARING ATTACHMENT DETAIL

PRELIMINARY
NOT FOR CONSTRUCTION

DRAWING LOCATION
P:\ENGINEERING\BRIDGES\00 - BRIDGE STANDARD PLANS\28' STANDARD CBD BRIDGE REPLACEMENT\CBD STANDARDS 2024.DWG

PUBLISHED CTB
ARRC_CTB_2023.CTB

SCALE AS NOTED

DATE 11/7/2025 TIME 4:57 PM

DESIGNED BY:
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DRAFTED BY: MCG

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KEY MAP
FAIRBANKS
ANCHORAGE
SEWARD

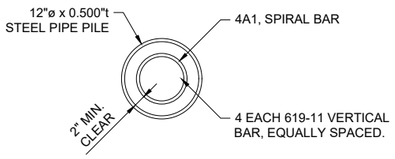
ENGINEERING DEPARTMENT
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

ALASKA RAILROAD

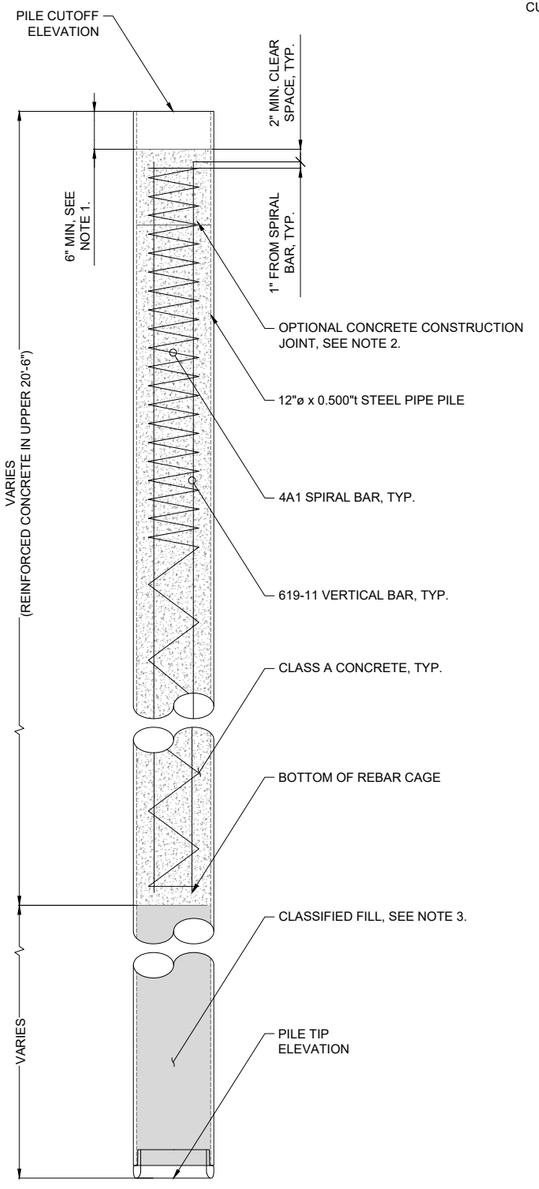
PROJECT: STANDARD 28 FOOT SPAN CONCRETE BALLAST DECK (CBD)

SHEET TITLE: SHEET PILE BULKHEAD DETAILS - ELEVATION VIEWS

AFE NO. TBD
YEAR 2025
SHEET 08 OF 19

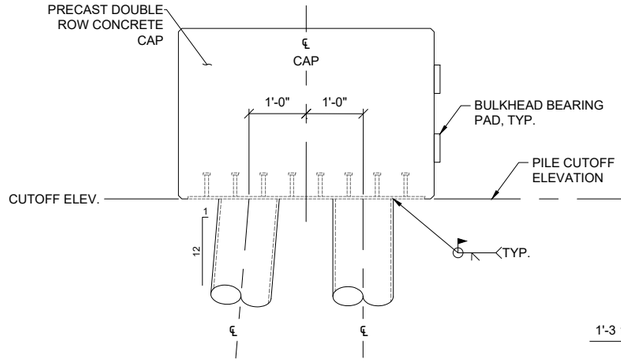


SECTION

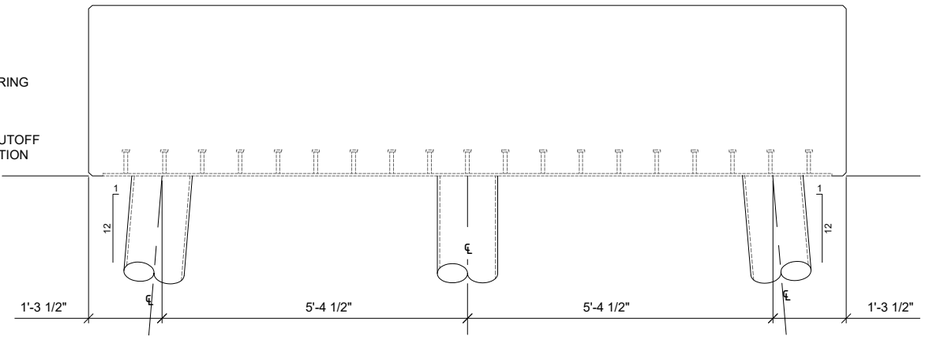


ELEVATION

A 09 ø12" x 0.500"t PILE REINFORCEMENT DETAIL

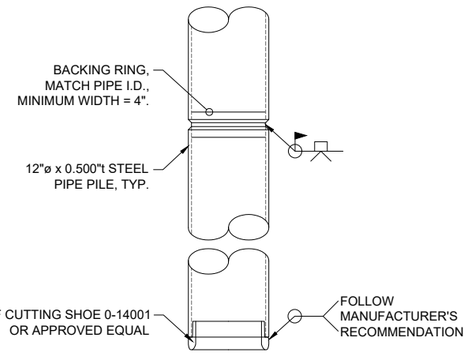


ELEVATION - SIDE



ELEVATION - FRONT

B 09 PILE TO CAP CONNECTION DETAILS

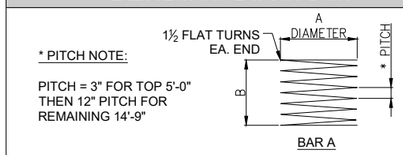


ELEVATION

C 09 PILE WELD DETAILS

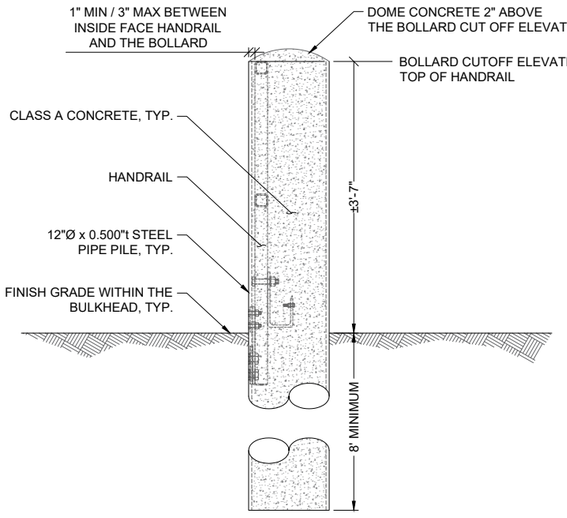
REINFORCING SCHEDULE						
NAME	SIZE	TYPE	A	B	LENGTH	PER PILE
619-11	#6	STR.	-	-	19'-11"	4
4A1	#4	A	6.75"	19'-9"	73'-8"	1

BENDING DIAGRAM



DIMENSIONS ARE OUT TO OUT OF BARS

ESTIMATED WEIGHT.OF REINFORCING STEEL PER PIPE PILE = 170 LB.



D 09 ø12" BOLLARD DETAILS

NOTES

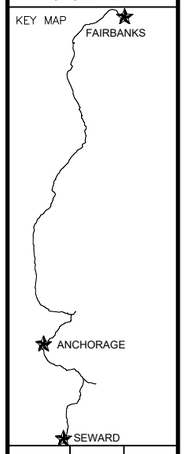
1. MEASUREMENTS TAKEN ABOUT THE LOW END OF THE BATTERED PILES.
2. A SINGLE CONSTRUCTION JOINT IN THE CONCRETE IS ALLOWED A MINIMUM OF 1.5' BELOW THE CUTOFF ELEVATION OF THE PILE.
3. WHEN REQUIRED; CLASSIFIED FILL MAY CONSIST OF CONCRETE, CONTROLLED LOW-STRENGTH MATERIAL (CLSM), OR PROCESSED AGGREGATES. THE USE OF IN-SITU MATERIAL IS NOT ALLOWED WITHOUT THE EXPRESS WRITTEN PERMISSION OF THE OWNER.
4. IF A PLUG IS REQUIRED, IT SHALL BE INSTALLED NO LESS THAN 20' 9" FROM THE DESIGNED PILE CUTOFF ELEVATION.

PRELIMINARY
NOT FOR CONSTRUCTION

DESIGNED BY:
CHECKED BY:
DRAFTED BY: MCG

ALASKA RAILROAD CORPORATION
PO BOX 107500, ANCHORAGE, AK
99510-7500
327 W SHIP CREEK AVE
ANCHORAGE, AK 99501
(907) 265-2300

KEY MAP



ENGINEERING DEPARTMENT
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

ALASKA RAILROAD

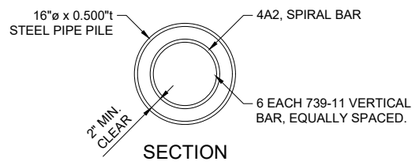
PROJECT: STANDARD 28 FOOT SPAN CONCRETE BALLAST DECK (CBD)

SHEET TITLE: 12"ø PIPE PILE DETAILS

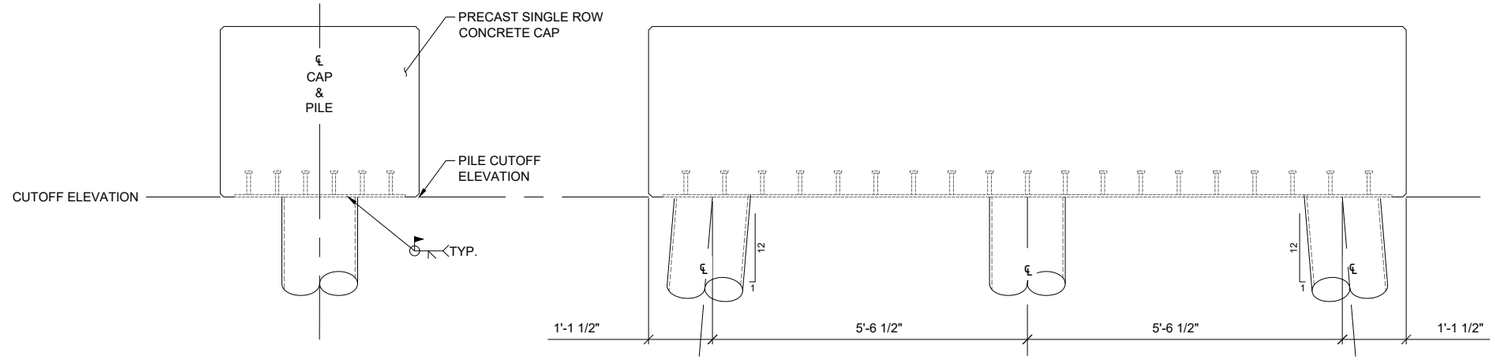
AFE NO. TBD
YEAR 2025
SHEET 09 OF 19

DRAWING LOCATION
P:\ENGINEERING\BRIDGES\00 - BRIDGE STANDARD PLANS\28' STANDARD CBD BRIDGE REPLACEMENT\CBD STANDARDS 2024.DWG

DATE 11/7/2025 TIME 4:57 PM
SCALE AS NOTED
PUBLISHED ARRC_CTB_2023.CTB



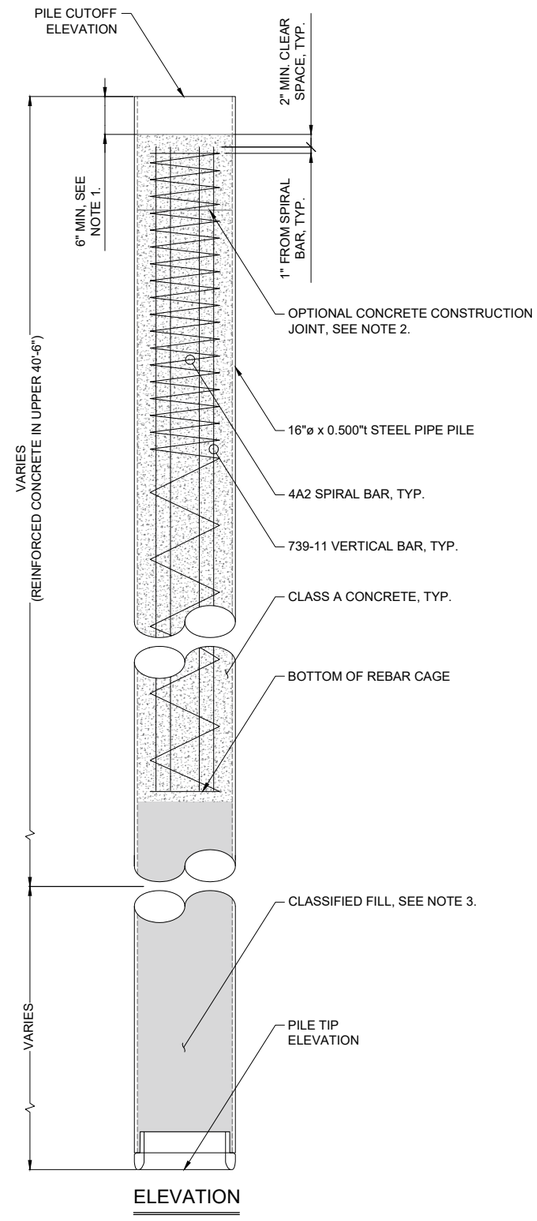
SECTION



ELEVATION - SIDE

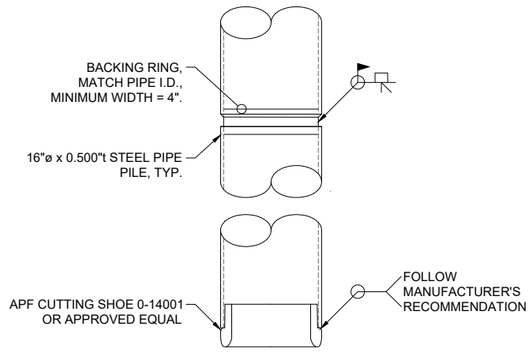
ELEVATION - FRONT

B 10 PILE TO CAP CONNECTION DETAILS



ELEVATION

A 10 ø16" x 0.500"t PILE REINFORCEMENT DETAIL



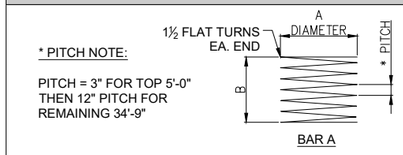
ELEVATION

C 10 PILE WELD DETAILS

REINFORCING SCHEDULE

NAME	SIZE	TYPE	A	B	LENGTH	PER PILE
739-11	#7	STR.	-	-	39'-11"	6
4A2	#4	A	10.75"	39'-9"	172'-8"	1

BENDING DIAGRAM



DIMENSIONS ARE OUT TO OUT OF BARS

ESTIMATED WEIGHT.OF REINFORCING STEEL PER PIPE PILE = 170 LB.

NOTES

1. MEASUREMENTS TAKEN ABOUT THE LOW END OF THE BATTERED PILES.
2. A SINGLE CONSTRUCTION JOINT IN THE CONCRETE IS ALLOWED A MINIMUM OF 1.5' BELOW THE CUTOFF ELEVATION OF THE PILE.
3. WHEN REQUIRED; CLASSIFIED FILL MAY CONSIST OF CONCRETE, CONTROLLED LOW-STRENGTH MATERIAL (CLSM), OR PROCESSED AGGREGATES. THE USE OF IN-SITU MATERIAL IS NOT ALLOWED WITHOUT THE EXPRESS WRITTEN PERMISSION OF THE OWNER.
4. IF A PLUG IS REQUIRED, IT SHALL BE INSTALLED NO LESS THAN 40' 9" FROM THE DESIGNED PILE CUTOFF ELEVATION.

PRELIMINARY
NOT FOR CONSTRUCTION

DESIGNED BY:	BAO
CHECKED BY:	DJS
DRAFTED BY:	BAO

ALASKA RAILROAD CORPORATION
PO BOX 107500, ANCHORAGE, AK
99510-7500
327 W SHIP CREEK AVE
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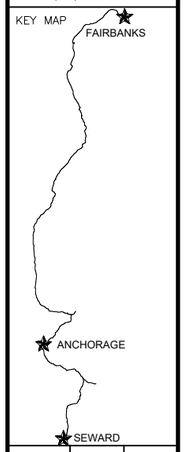

ENGINEERING DEPARTMENT
P.O. BOX 107500
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ALASKA RAILROAD

PROJECT: STANDARD 28 FOOT SPAN CONCRETE BALLAST DECK (CBD)

SHEET TITLE: 16"ø PIPE PILE DETAILS

AFE NO.	TBD
YEAR	2025
SHEET	10 OF 19

PUBLISHED CTB ARRC_CTB_2023.CTB
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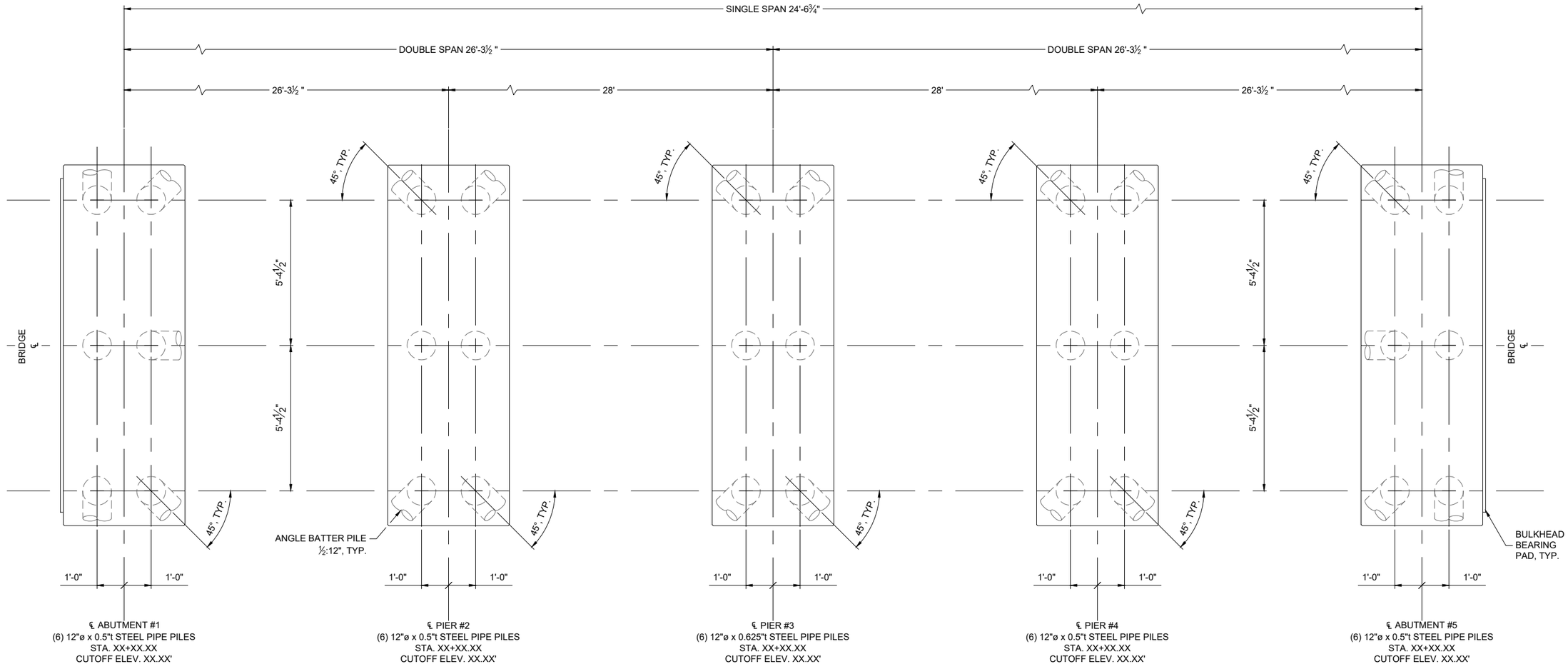
DATE TIME 11/7/2025 4:58 PM
DRAWING LOCATION P:\ENGINEERING\BRIDGES\00 - BRIDGE STANDARD PLANS\28' STANDARD CBD BRIDGE REPLACEMENT\CBD STANDARDS 2024.DWG



A
11
PROPOSED PIPE PILE LAYOUT

NOTES

1. WHEN REQUIRED; FORWARD BATTER PILE AND 45° ANGLE BATTER PILES MAY BE INSTALLED AT ALTERNATE ANGLES WITH ENGINEERING APPROVAL.
2. INTERMEDIATE PIERS MAY USE A SINGLE ROW OF 16" DIA. PILES IN PLACE OF DOUBLE ROW 12" DIA. PILES. HOWEVER, PROVIDE ONE PIER WITH DOUBLE ROW 12" DIA. PILES FOR EVERY 140 FT OF SPAN.
3. SINGLE ROW 16" DIA PILES USING A DOUBLE ROW CAP AT ABUTMENTS WITH ENGINEER APPROVAL ONLY.

PRELIMINARY
NOT FOR CONSTRUCTION

DRAWING LOCATION
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PUBLISHED	SCALE	TIME	DATE
ARRC_CTB_2023.CTB	AS NOTED	4:58 PM	11/7/2025

DESIGNED BY:	
CHECKED BY:	
DRAFTED BY:	MCG

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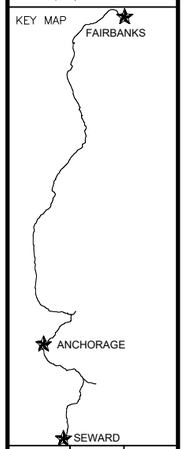
99510-7500
327 W SHIP CREEK AVE
ANCHORAGE, AK 99501
(907) 265-2300

KEY MAP



ENGINEERING DEPARTMENT
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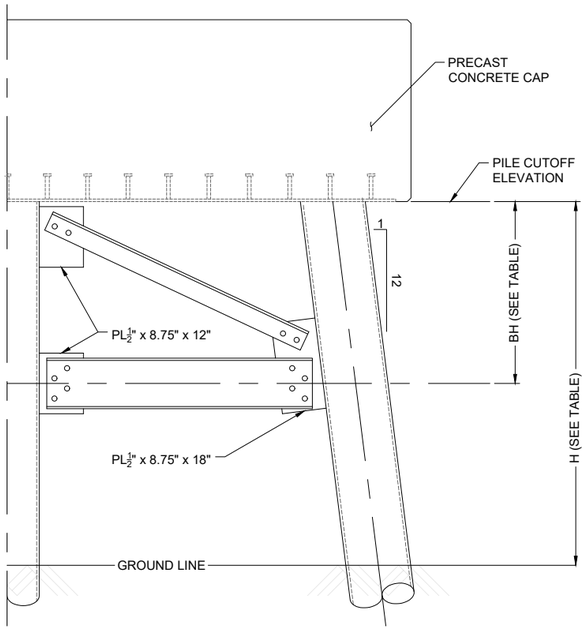
ANCHORAGE, ALASKA 99510-7500

ALASKA RAILROAD

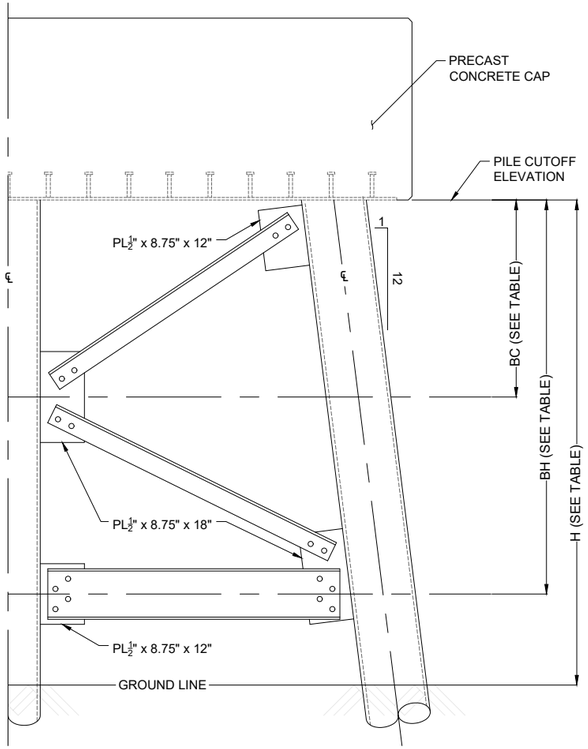
PROJECT: STANDARD 28 FOOT SPAN CONCRETE BALLAST DECK (CBD)

SHEET TITLE: MULTISPAN - DOUBLE ROW - PROPOSED PIPE PILE LAYOUT

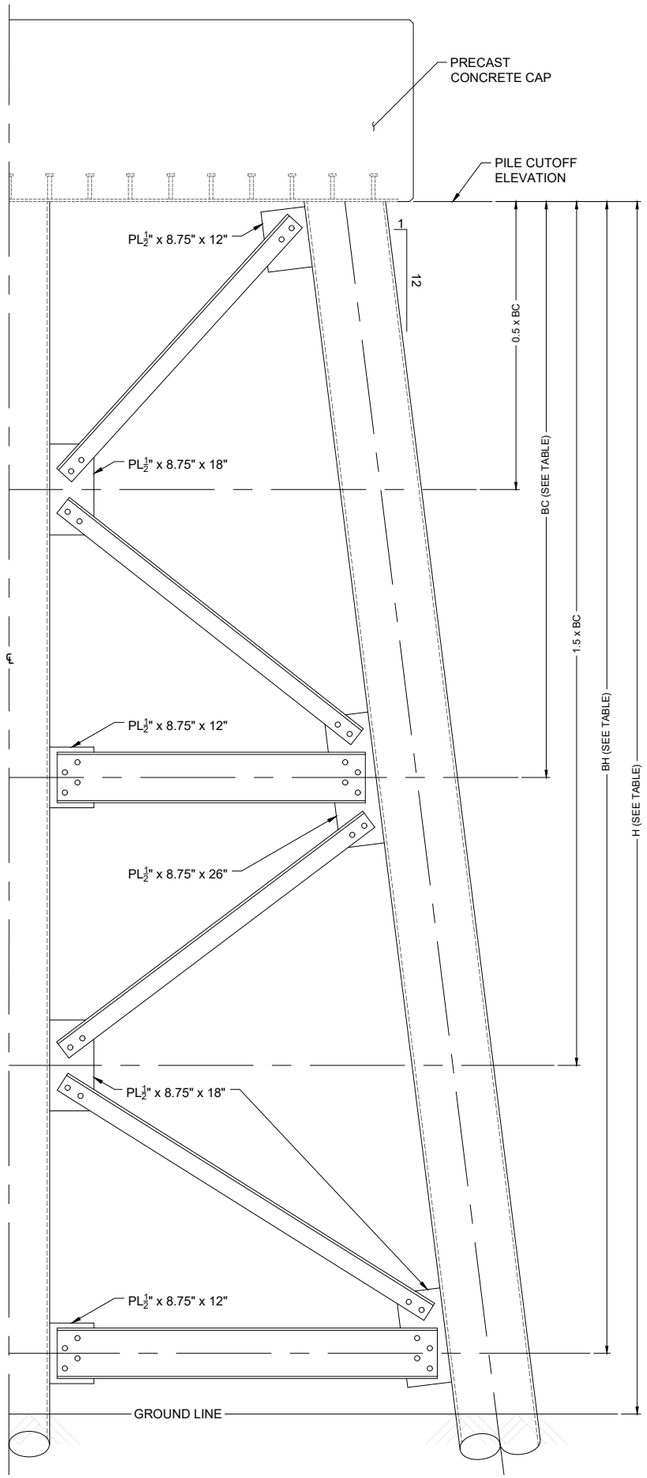
AFE NO.	TBD
YEAR	2025
SHEET	11 OF 19



A 12 HALF BRACING

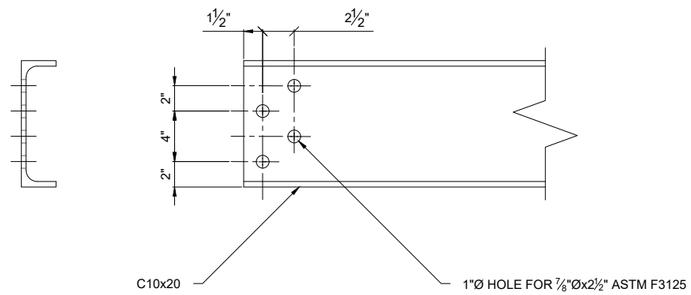


B 12 SINGLE BRACING

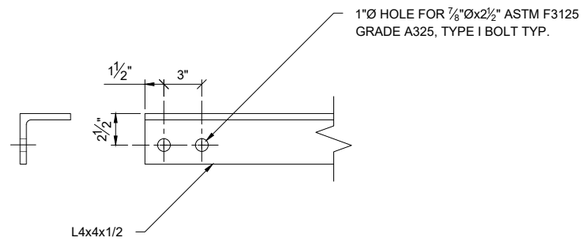


C 12 DOUBLE BRACING

BENT DESIGN TABLE (BRACING REQUIREMENTS)								
PIPE PILE	H, MAX BENT HEIGHT	# ROWS	# PILES PER ROW	EQUILIBRIUM SUPERELEVATION	MAX PILE LOAD (TONS)	BRACING	BH, BRACE HEIGHT	BC, BRACE CENTER
12"Ø x 1/2"	6'-0"	2	3	<=6"	80	HALF	3'-0"	--
12"Ø x 5/8"	8'-0"	2	3	<=3"	75	SINGLE	6'-6"	3'-3"
12"Ø x 5/8"	11'-0"	2	3	0"	74	SINGLE	9'-6"	4'-0"
16"Ø x 1/2"t	9'-0"	1	3	0"	87	SINGLE	7'-6"	3'-9"
16"Ø x 1/2"t	20'-0"	2	3	0"	102	DOUBLE	=H-1'	=BH/2



D 12 HORIZONTAL BRACING CHANNEL



E 12 BRACING ANGLE

NOTES

1. ALL STRUCTURAL STEEL ANGLES AND PLATES SHALL CONFORM TO ASTM A36.
2. MATERIALS SCHEDULED TO BE COATED SHALL BE GALVANIZED IN ACCORDANCE WITH ARRC SSC SECTION 716-2.07.
3. C-CHANNELS ON FORWARD BATTER PILES SHALL BE INSTALLED WITH OPENINGS FACING THE LOWER SIDE TO ENSURE DRAINAGE AND PREVENT WATER POOLING.
4. NUT AND BOLT ENDS TO ORIENT TOWARD NEAREST ABUTMENT.
5. TIGHTEN BOLTS USING TURN-OF-NUT METHOD AND TACK WELD AFTER TENSIONING.
6. HARDENED STEEL WASHERS (2 PER BOLT): ASTM F436

PRELIMINARY
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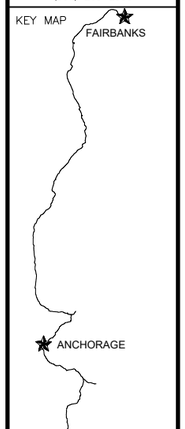
PUBLISHED CTB
ARRC_CTB_2023.CTB
SCALE AS NOTED
DATE 11/7/2025 TIME 4:58 PM
DRAWING LOCATION
P:\ENGINEERING\BRIDGES\00 - BRIDGE STANDARD PLANS\28' STANDARD CBD BRIDGE REPLACEMENT\CBD STANDARDS 2024.DWG

DESIGNED BY:
CHECKED BY:
DRAFTED BY: MCG

ALASKA RAILROAD CORPORATION
PO BOX 107500, ANCHORAGE, AK 99510-7500
327 W SHIP CREEK AVE
ANCHORAGE, AK 99501
(907) 265-2300

KEY MAP



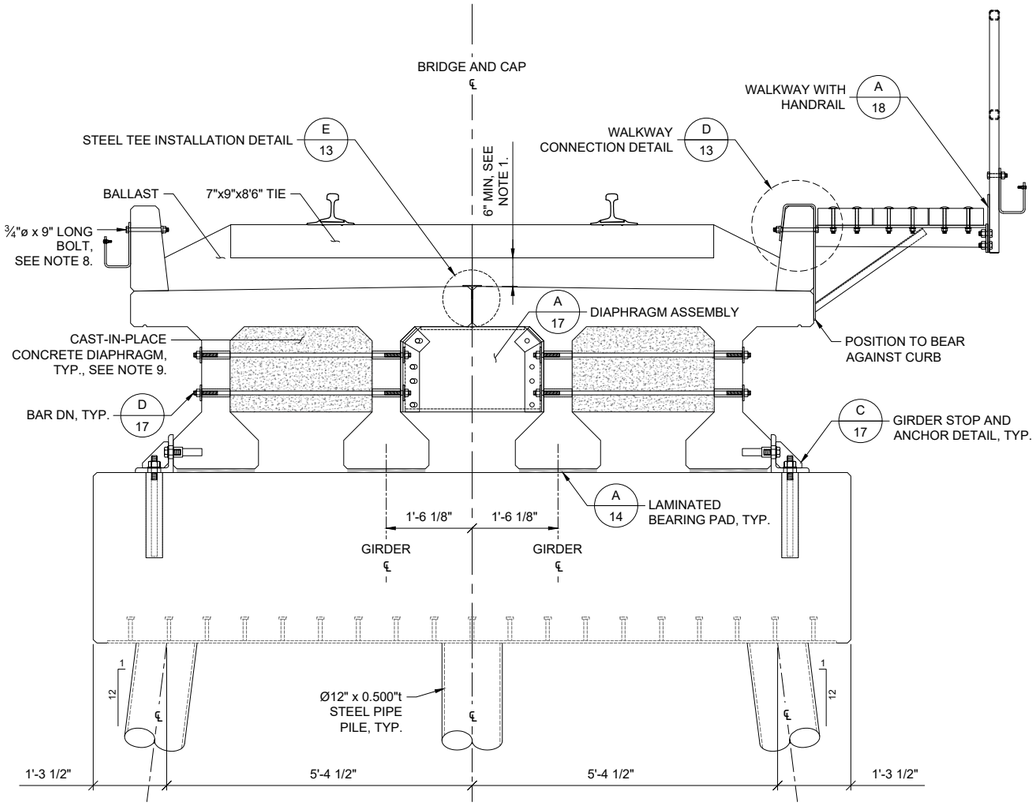
ENGINEERING DEPARTMENT
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

ALASKA RAILROAD

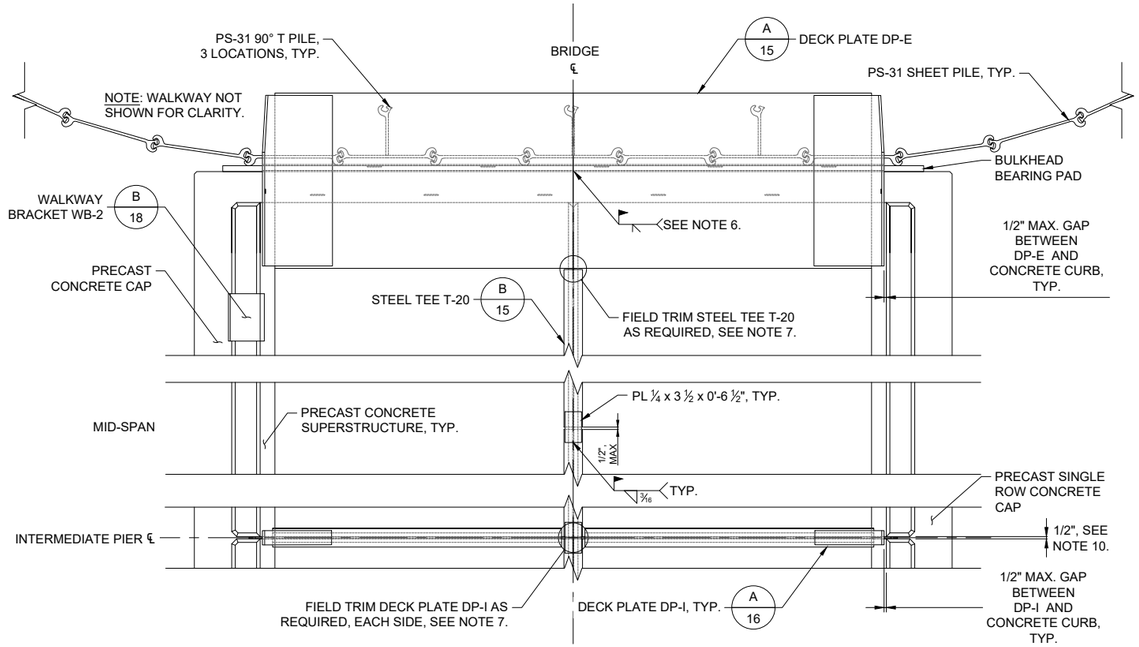
PROJECT: STANDARD 28 FOOT SPAN CONCRETE BALLAST DECK (CBD)

SHEET TITLE: PIPE PILE BRACING

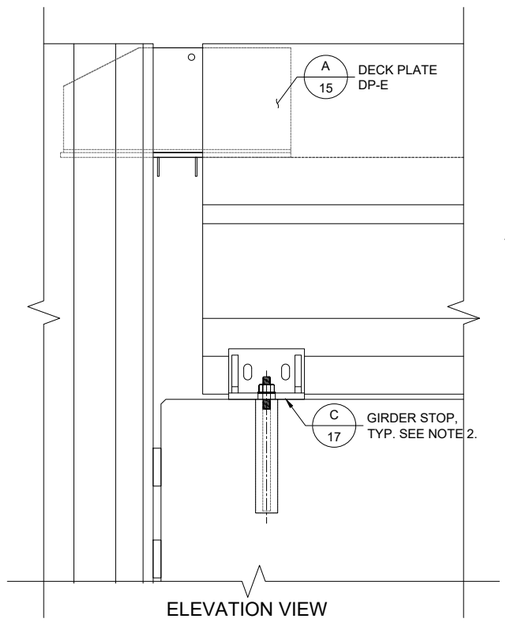
AFE NO. TBD
YEAR 2025
SHEET 12 OF 19

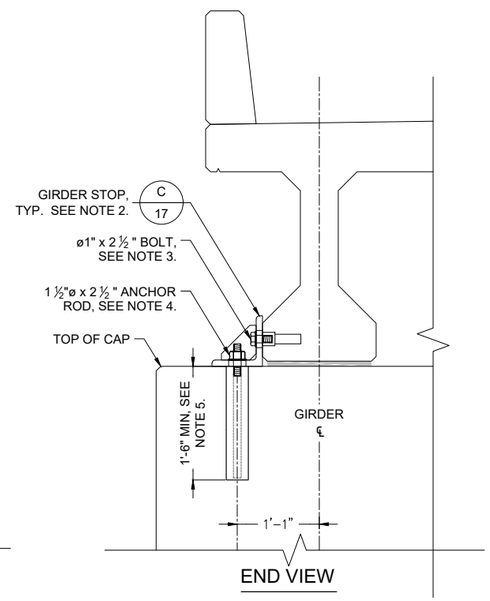


A 13 CROSS SECTION AT ABUTMENT

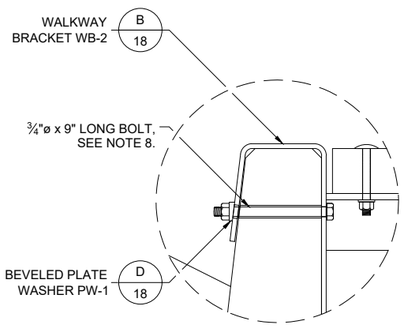


C 13 DECK PLATE WELDING DETAILS

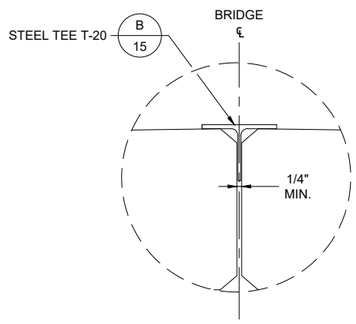




B 13 GIRDER STOP CONNECTION ABUTMENT DETAIL



D 13 WALKWAY CONNECTION DETAIL



E 13 STEEL TEE INSTALLATION DETAIL

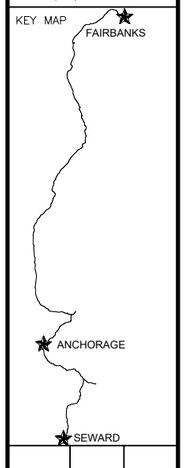
NOTES

1. MAXIMUM AMOUNT OF BALLAST IS 25".
2. GIRDER STOP IN ELEVATION SHOWN WITHOUT BOLTS FOR CLARITY. THE GS-1 CONFIGURATION WILL BE USED FOR THE EXPANSION END AND THE GS-2 FOR THE FIXED END.
3. ASTM F3125, GRADE A325, TYPE I, HOT DIP GALVANIZED BOLT TO BE COMPATIBLE WITH EXISTING ELECTRO GALVANIZED DAYTON SUPERIOR F64 FERRULE LOOP INSERT, CONTRACTOR TO VERIFY.
4. ASTM F1551, GRADE 36, HOT DIP GALVANIZED ANCHOR ROD SET WITH SIKA SIKADUR-32 HI-MOD GROUT, OR APPROVED EQUAL.
5. CORING DEPTH IS DEPENDENT UPON GROUT MANUFACTURERS RECOMMENDATIONS.
6. DECK PLATE DP-E MAY BE PROVIDED IN TWO PLATES TO ALLOW CREW TO INSTALL HALVES WITHOUT REQUIRING THE REMOVAL OF THE RAIL.
7. FIELD TRIM STEEL TEE T-20 AND DP-I SUCH THAT THE GAP BETWEEN THE DECK PLATES IS NOT MORE THAN ½".
8. ASTM A307, GRADE A, HOT DIP GALVANIZED BOLT WITH NYLOCK NUT. FOR WALKWAY BRACKET OR CONDUIT BRACKET.
9. EACH CBD HALF HAS THREE (6) CAST-IN-PLACE CONCRETE DIAPHRAGMS.
10. INSTALL CBD FORM SUCH THAT THE GAP ACROSS CENTER LINE IS NOT MORE THAN ¼" AND THE GAP BETWEEN FORM ASSEMBLIES IS NOT MORE THAN ½".

PRELIMINARY
NOT FOR CONSTRUCTION

DESIGNED BY:
CHECKED BY:
DRAFTED BY: MCG

ALASKA RAILROAD CORPORATION
PO BOX 107500, ANCHORAGE, AK 99510-7500
327 W SHIP CREEK AVE
ANCHORAGE, AK 99501
(907) 265-2300

KEY MAP


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P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

ALASKA RAILROAD

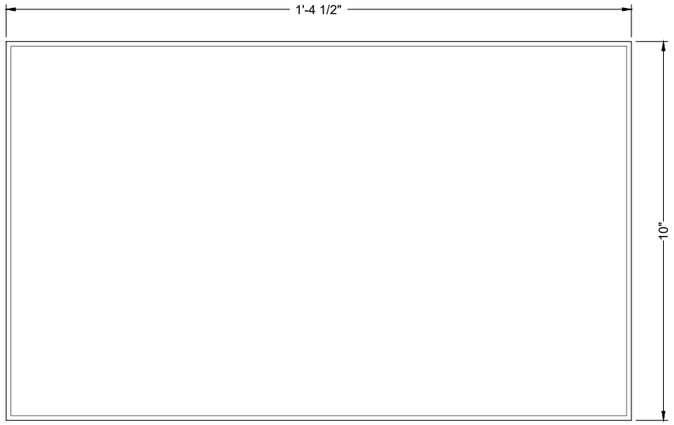
PROJECT: STANDARD 28 FOOT SPAN CONCRETE BALLAST DECK (CBD)

SHEET TITLE: STRUCTURE SECTIONS

AFE NO. TBD
YEAR 2025
SHEET 13 OF 19

DRAWING LOCATION
P:\ENGINEERING\BRIDGES\00 - BRIDGE STANDARD PLANS\28' STANDARD CBD BRIDGE REPLACEMENT\CBD STANDARDS 2024.DWG

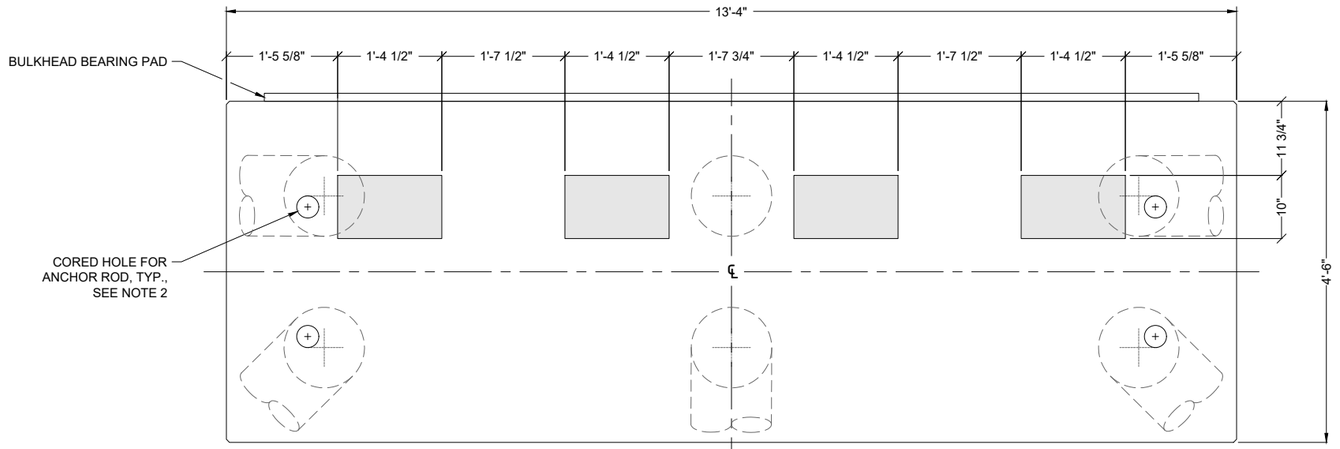
PUBLISHED CTB ARRC_CTB_2023.CTB
SCALE AS NOTED
DATE 11/7/2025 TIME 4:58 PM



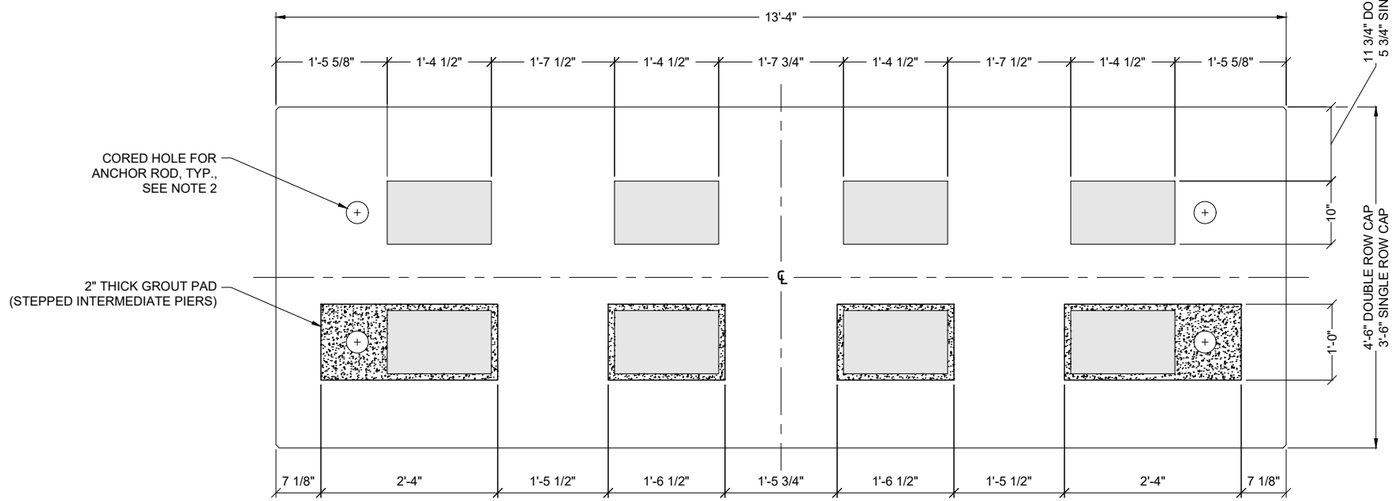
PLAN VIEW

ELEVATION VIEW

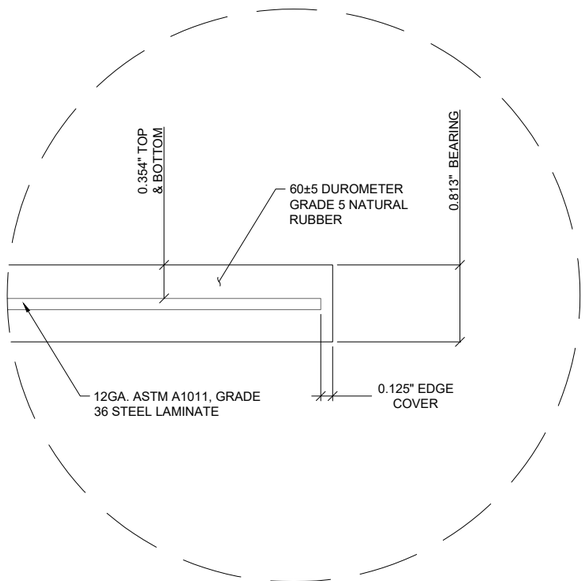
A 14 LAMINATED ELASTOMERIC GIRDER BEARING PAD



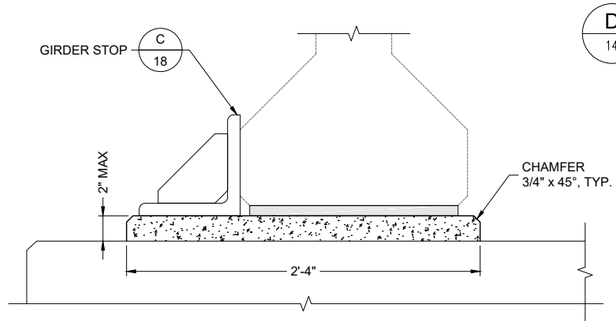
B 14 BEARING PAD PLACEMENT AT ABUTMENTS



D 14 BEARING PAD PLACEMENT AT PIERS



C 14 INTERNAL STRUCTURE DETAIL



E 14 BEARING PAD GROUT DETAIL

NOTES

1. MATERIALS AND MANUFACTURING TOLERANCES SHALL CONFORM TO THE LATEST REVISION OF SECTION 720 BEARINGS, OF THE ALASKA RAILROAD STANDARDS SPECIFICATIONS FOR CONSTRUCTION (SSC).
2. WHEN USING OWNER-PROVIDED PRE-CAST CONCRETE SUPERSTRUCTURES, HOLES FOR ANCHOR RODS MAY NEED TO BE CORED IN THE FIELD.
3. SINGLE ROW 16"Ø PILES USING A DOUBLE ROW CAP AT ABUTMENTS WITH ENGINEER APPROVAL ONLY.
4. WHEN STEPPED CAPS ARE USED, GROUT PADS TO BE BUILT UP BELOW BEARING PADS AND ANCHORS ON UPHILL SIDE OF INTERMEDIATE PILE CAP.

PRELIMINARY
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DRAWING LOCATION
P:\ENGINEERING\BRIDGES\00 - BRIDGE STANDARD PLANS\28' STANDARD CBD BRIDGE REPLACEMENT\CBD STANDARDS 2024.DWG

PUBLISHED CTB
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SCALE AS NOTED
DATE 11/7/2025 TIME 4:58 PM

DESIGNED BY:
CHECKED BY:
DRAFTED BY: MCG

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ANCHORAGE, AK 99501
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KEY MAP
FAIRBANKS
ANCHORAGE
SEWARD

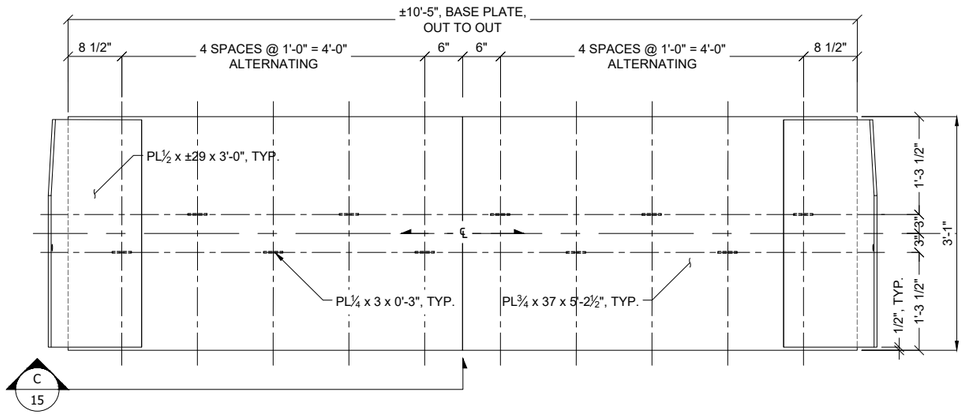
ENGINEERING DEPARTMENT
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

ALASKA RAILROAD

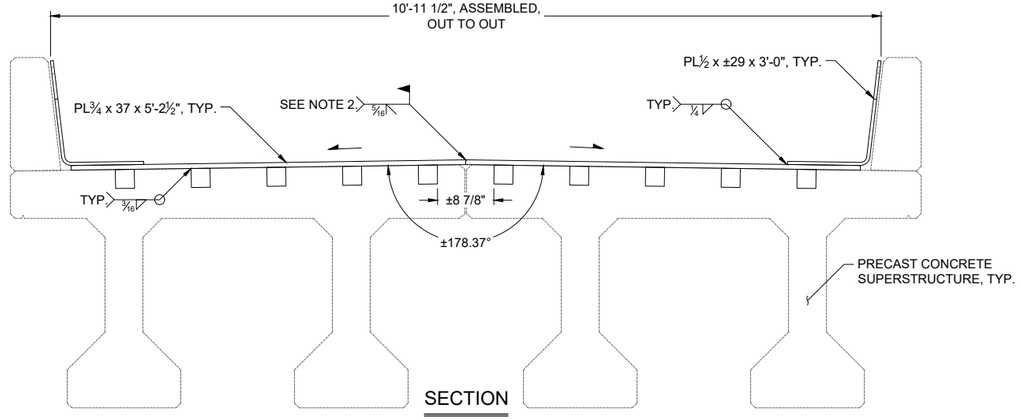
PROJECT: STANDARD 28 FOOT SPAN CONCRETE BALLAST DECK (CBD)

SHEET TITLE: BEARING PAD DETAILS AND PLACEMENT

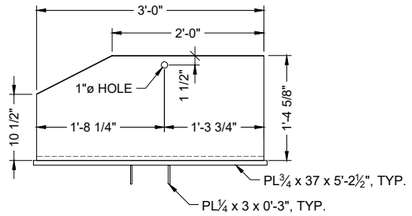
AFE NO. TBD
YEAR 2025
SHEET 14 OF 19



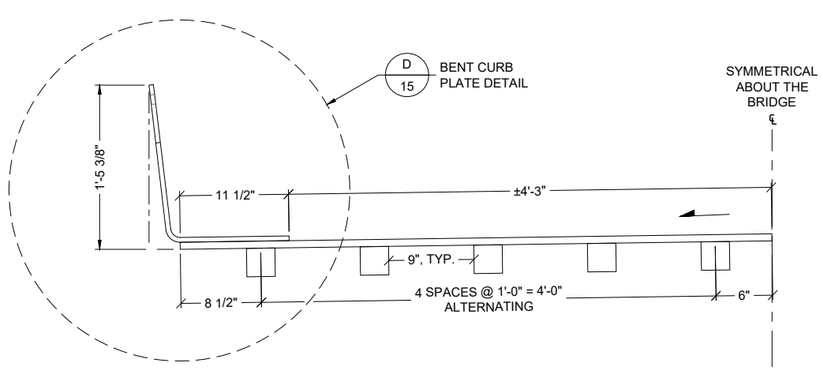
PLAN



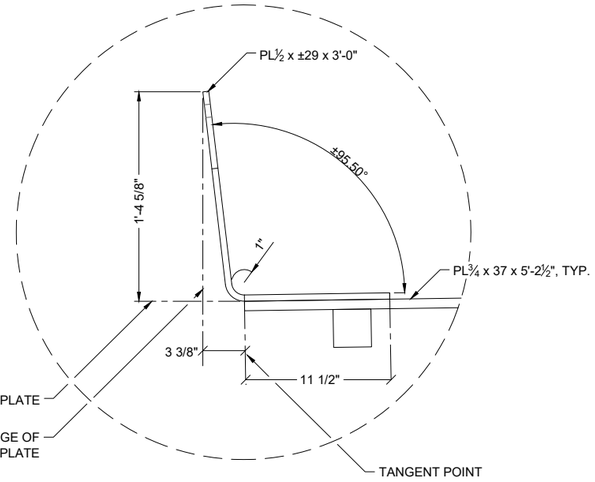
SECTION



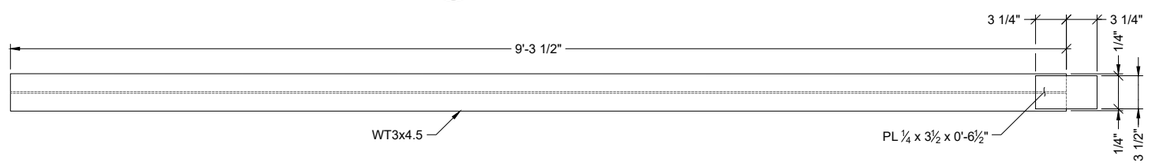
ELEVATION



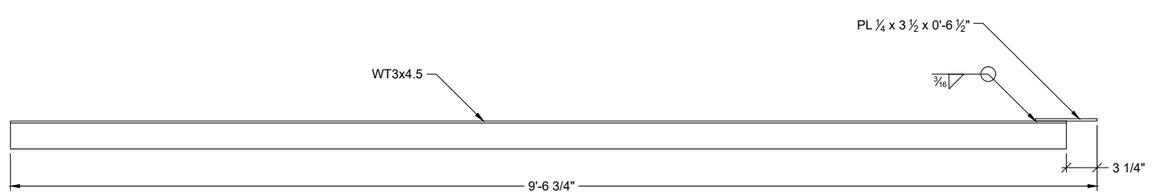
C 15 SECTION DETAIL VIEW



D 15 BENT CURB PLATE DETAIL



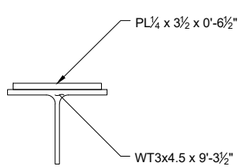
PLAN



ELEVATION

B 15 STEEL TEE T-20

EST. WT.: 44 LBS



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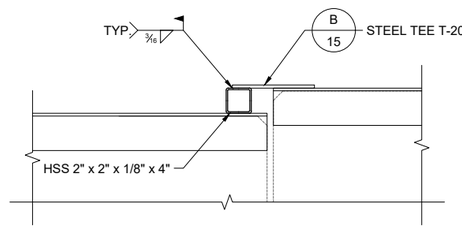


E 15 STEPPED STEEL TEE DETAIL

NOTES

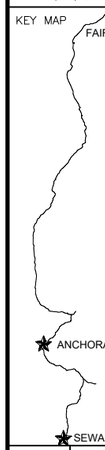
1. ALL STRUCTURAL STEEL ANGLES, PLATES, AND WT SHAPES SHALL CONFORM TO ASTM A36.
2. DECK PLATE DP-E MAY BE PROVIDED IN TWO PLATES. IF ELECTED TO SUPPLY AS ONE PIECE, SHOP WELD THE CONNECTION.
3. WHEN USING OWNER-PROVIDED PRE-CAST CONCRETE SUPERSTRUCTURES, FIELD VERIFY DIMENSIONS PRIOR TO FABRICATING.
4. STEPPED CAPS REQUIRING FILLER HSS SQUARE TUBING TO BE INSTALLED PLUM AND IN-LINE.

PRELIMINARY
NOT FOR CONSTRUCTION

DESIGNED BY:
CHECKED BY:
DRAFTED BY: MCG

ALASKA RAILROAD CORPORATION
PO BOX 107500, ANCHORAGE, AK 99510-7500
327 W SHIP CREEK AVE
ANCHORAGE, AK 99501
(907) 265-2300

KEY MAP



ENGINEERING DEPARTMENT
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

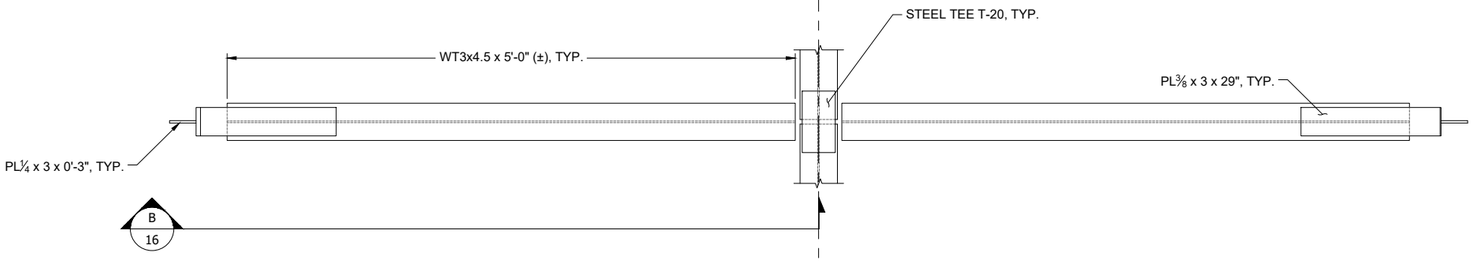
ALASKA RAILROAD

PROJECT: STANDARD 28 FOOT SPAN CONCRETE BALLAST DECK (CBD)

SHEET TITLE: MISCELLANEOUS STEEL: DP-E AND T-20

AFE NO. TBD
YEAR 2025
SHEET 15 OF 19

PUBLISHED CTB ARRC_CTB_2023.CTB
SCALE AS NOTED
DATE 11/7/2025 TIME 4:58 PM
DRAWING LOCATION P:\ENGINEERING\BRIDGES\00 - BRIDGE STANDARD PLANS\28' STANDARD CBD BRIDGE REPLACEMENT\CBD STANDARDS 2024.DWG



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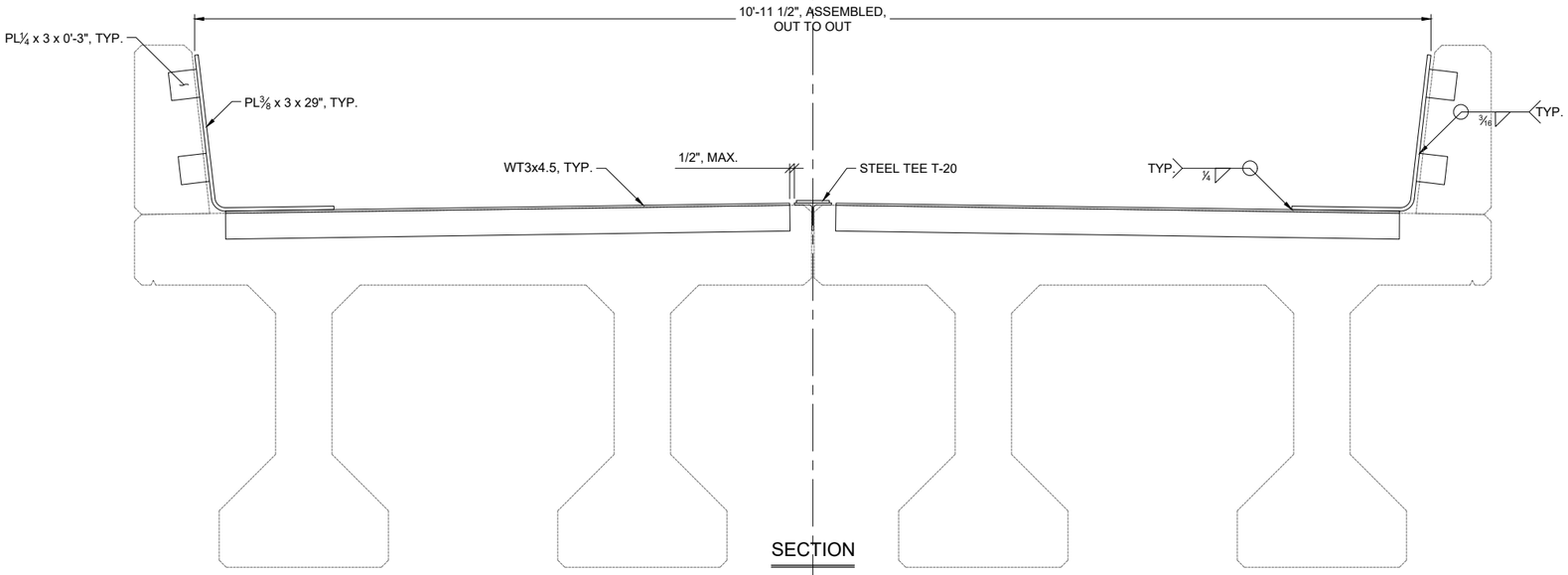
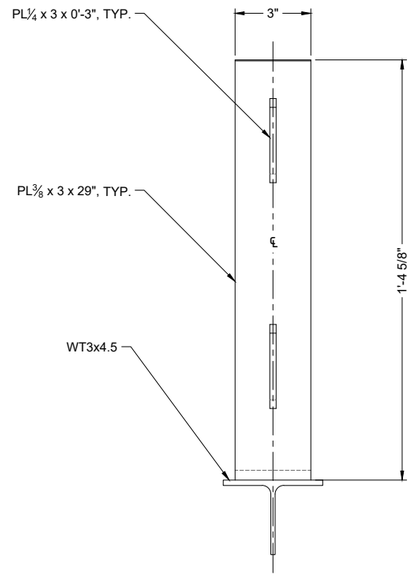
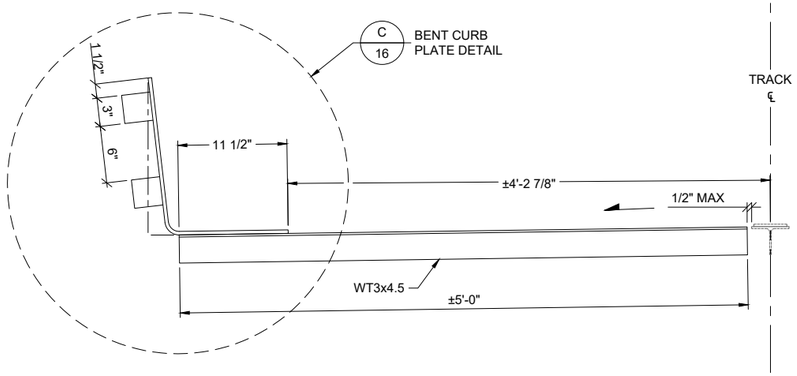


SECTION

A 16 DECK PLATE DP-I

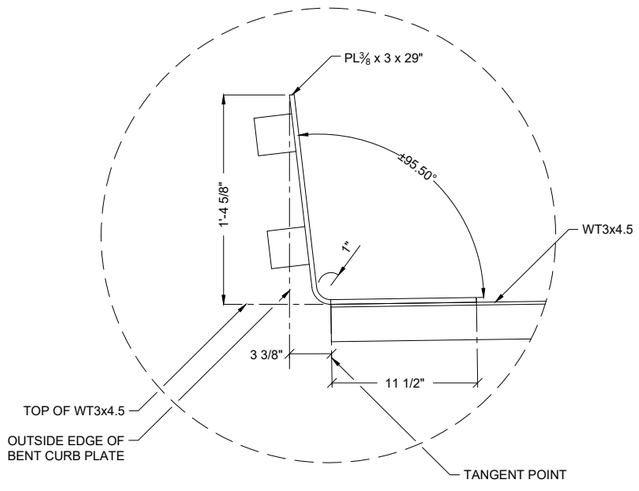


ELEVATION

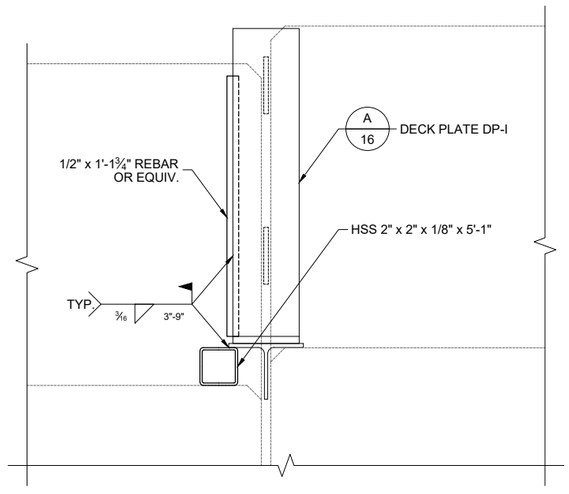


B 16 SECTION DETAIL VIEW

EST. WT.: 34 LBS



C 16 BENT CURB PLATE DETAIL



D 16 STEPPED DECK PLATE DETAIL

NOTES

1. ALL STRUCTURAL STEEL ANGLES, PLATES, AND WT SHAPES SHALL CONFORM TO ASTM A36.
2. DECK PLATE DP-I IS TO BE PROVIDED IN TWO PIECES.
3. WHEN USING OWNER-PROVIDED PRE-CAST CONCRETE SUPERSTRUCTURES, FIELD VERIFY DIMENSIONS PRIOR TO FABRICATING.
4. STEPPED CAPS REQUIRING FILLER HSS SQUARE TUBING TO BE INSTALLED PLUM AND IN-LINE.

PRELIMINARY
NOT FOR CONSTRUCTION

DESIGNED BY:	
CHECKED BY:	
DRAFTED BY:	MCG

ALASKA RAILROAD CORPORATION
PO BOX 107500, ANCHORAGE, AK
99510-7500
327 W SHIP CREEK AVE
ANCHORAGE, AK 99501
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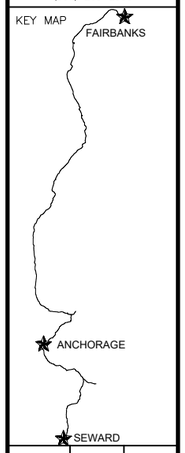
KEY MAP



ENGINEERING DEPARTMENT
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

ALASKA RAILROAD

PROJECT: STANDARD 28 FOOT SPAN CONCRETE BALLAST DECK (CBD)

SHEET TITLE: MISCELLANEOUS STEEL: DP-I

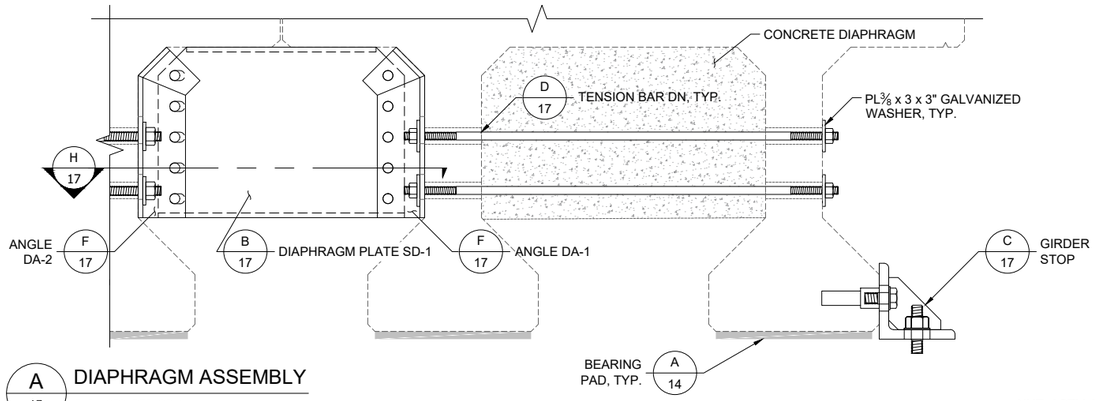
AFE NO.	TBD
YEAR	2025
SHEET	16 OF 19

DRAWING LOCATION
P:\ENGINEERING\BRIDGES\00 - BRIDGE STANDARD PLANS\28' STANDARD CBD BRIDGE REPLACEMENT\CBD STANDARDS 2024.DWG

PUBLISHED CTB
ARRC_CTB_2023.CTB

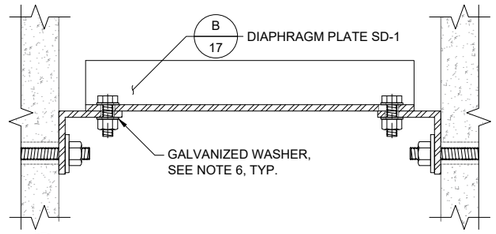
SCALE AS NOTED

DATE 11/7/2025 TIME 4:58 PM

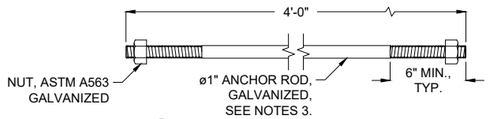


A 17 DIAPHRAGM ASSEMBLY

3 PLACES PER SPAN



H 17 DIAPHRAGM ASSEMBLY - PLAN VIEW

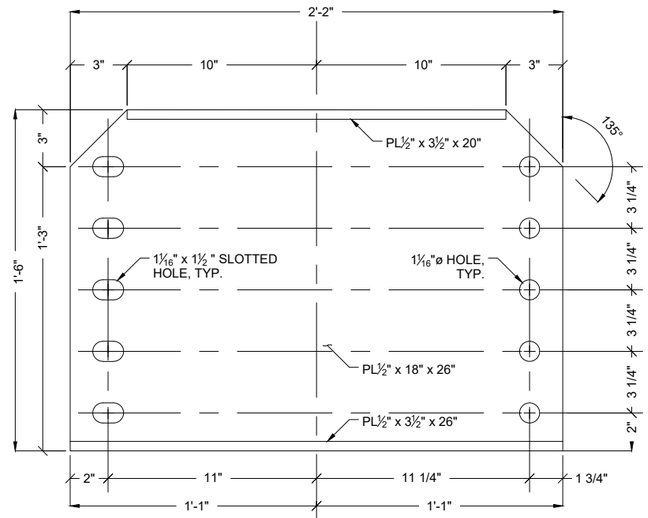


D 17 TENSION BAR DN

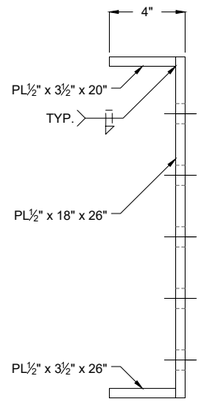
12 PER SPAN

NOTES

1. ALL STRUCTURAL STEEL ANGLES AND PLATES SHALL CONFORM TO ASTM A36.
2. MATERIALS SCHEDULED TO BE COATED SHALL BE GALVANIZED IN ACCORDANCE WITH ARRC SSC 716-2.07.
3. TENSION BARS SHALL CONFORM TO ASTM F1554, GRADE 36.
4. WHEN USING OWNER-PROVIDED PRE-CAST CONCRETE SUPERSTRUCTURES, FIELD VERIFY DIMENSIONS PRIOR TO FABRICATING.
5. TIGHTEN BOLTS USING TURN-OF-NUT METHOD AND APPLY HIGH STRENGTH (RED) THREADLOCK TO ALL THREADED CONNECTIONS.
6. HARDENED STEEL WASHERS (2 PER BOLT): ASTM F436
7. DIAPHRAGM ASSEMBLY, NUT END OF BOLTS ORIENTED TOWARD NEAREST ABUTMENT.



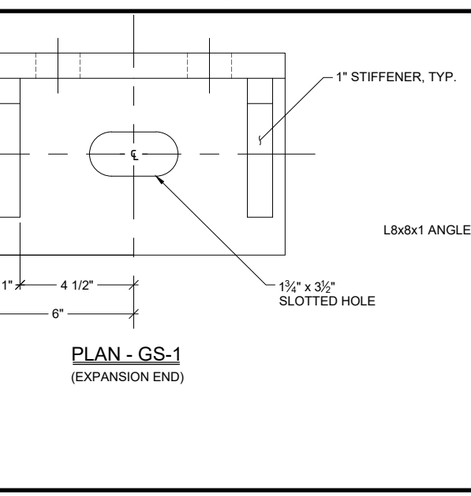
ELEVATION



SECTION

B 17 DIAPHRAGM PLATE SD-1

EST. WT.: 86 LBS, GALVANIZED

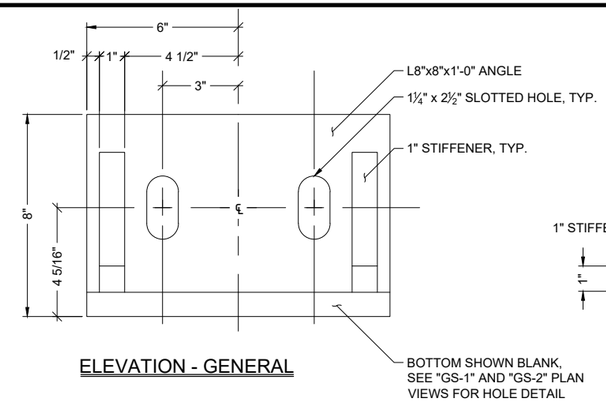


ELEVATION

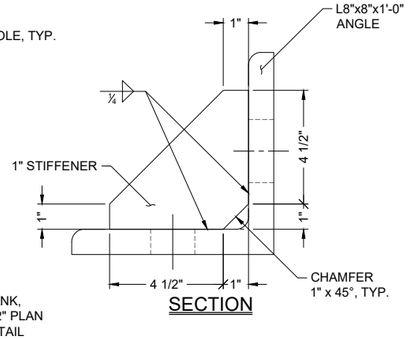
SECTION

E 17 DIAPHRAGM ANGLE DA-1/DA-2

EST. WT.: 30 LBS, GALVANIZED
DA–1 SHOWN, DA–2 MIRRORED



ELEVATION - GENERAL



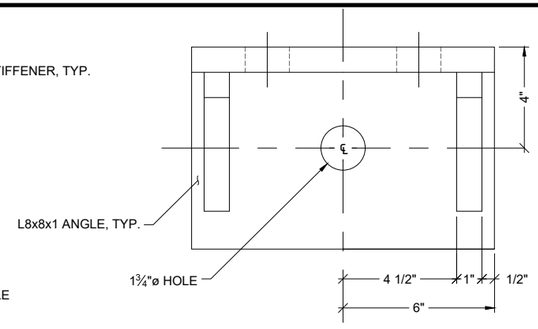
SECTION

C 17 GIRDER STOP

EST. WT.: 62 LBS

PLAN - GS-1

(EXPANSION END)



PLAN - GS-2

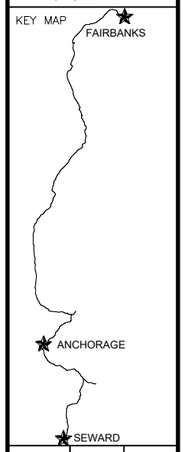
(FIXED END)

PRELIMINARY
NOT FOR CONSTRUCTION

DESIGNED BY:
CHECKED BY:
DRAFTED BY: MCG

ALASKA RAILROAD CORPORATION
PO BOX 107500, ANCHORAGE, AK 99510–7500
327 W SHIP CREEK AVE
ANCHORAGE, AK 99501
(907) 265–2300

KEY MAP



ENGINEERING DEPARTMENT
P.O. BOX 107500
ANCHORAGE, ALASKA 99510–7500

ALASKA RAILROAD

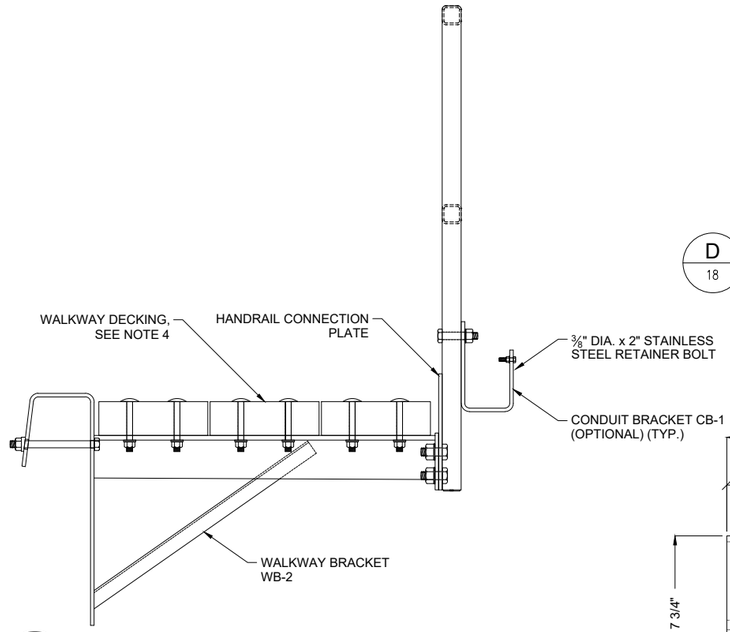
PROJECT: STANDARD 28 FOOT SPAN CONCRETE BALLAST DECK (CBD)

SHEET TITLE: MISCELLANEOUS STEEL: DIAPHRAGM AND GIRDER STOPS

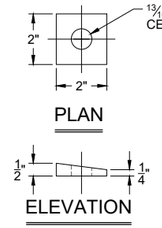
AFE NO. TBD
YEAR 2025
SHEET 17 OF 19

DRAWING LOCATION
P:\ENGINEERING\BRIDGES\00 – BRIDGE STANDARD PLANS\28' STANDARD CBD BRIDGE REPLACEMENT\CBD STANDARDS 2024.DWG

DATE 11/7/2025 TIME 4:58 PM
SCALE AS NOTED
PUBLISHED CTB
ARRC_CTB_2023.CTB

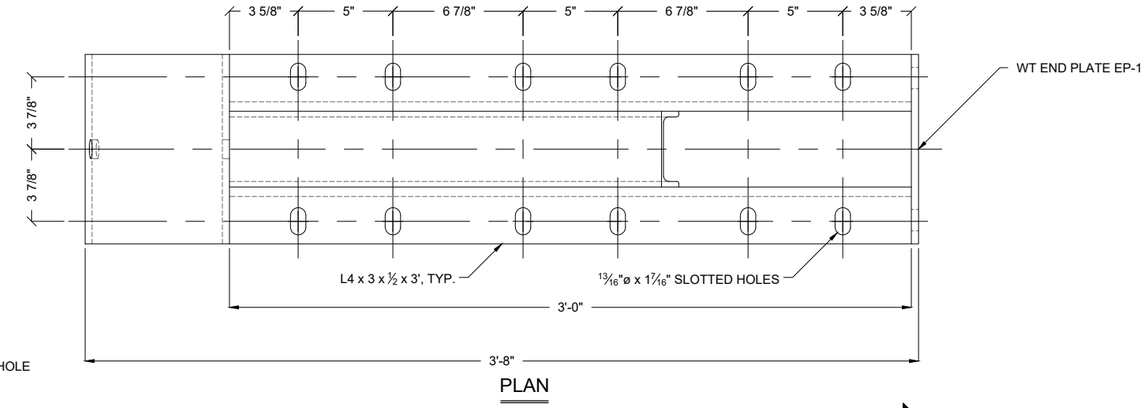


A 18 WALKWAY WITH HANDRAIL ASSEMBLY

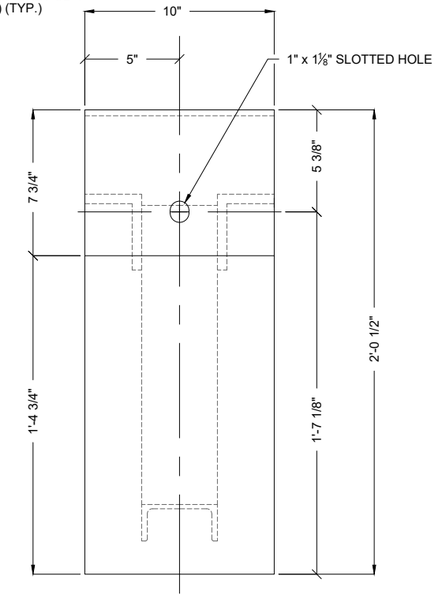


D 18 PLATE WASHER PW-1

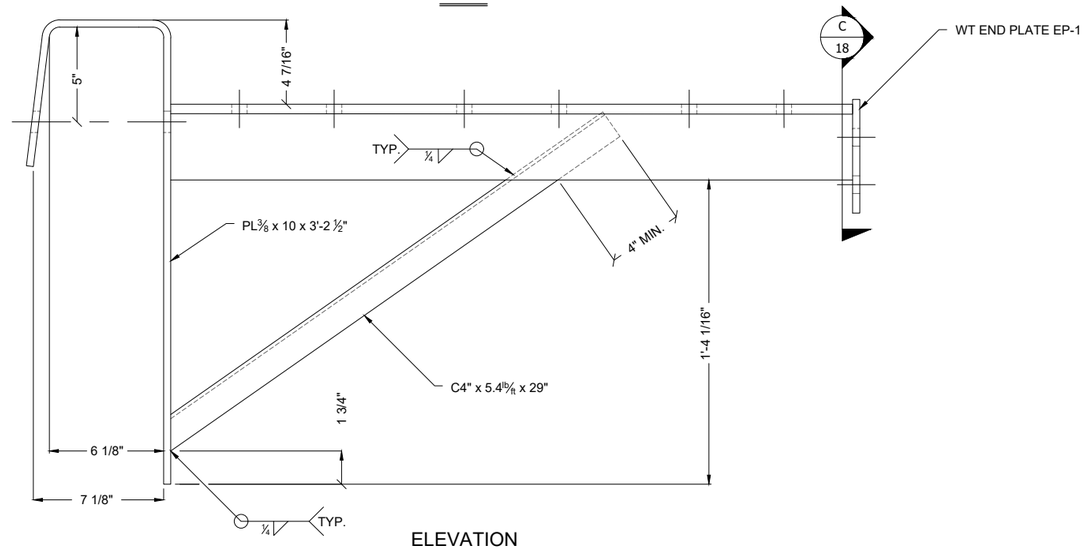
EST. WT.: 1 LBS, GALVANIZED



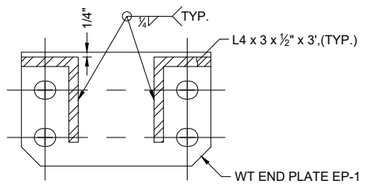
PLAN



SECTION



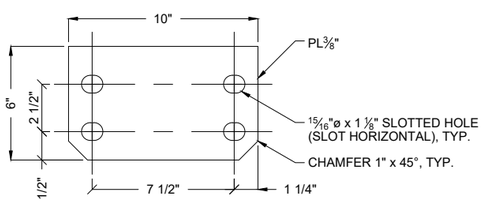
ELEVATION



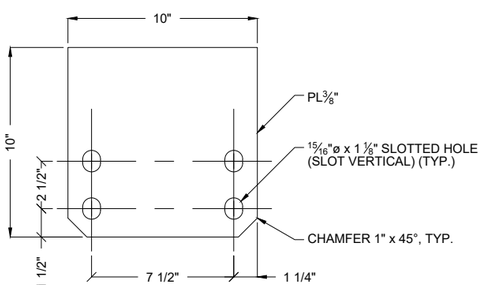
C 18 END PLATE SECTION

B 18 WALKWAY BRACKET WB-2

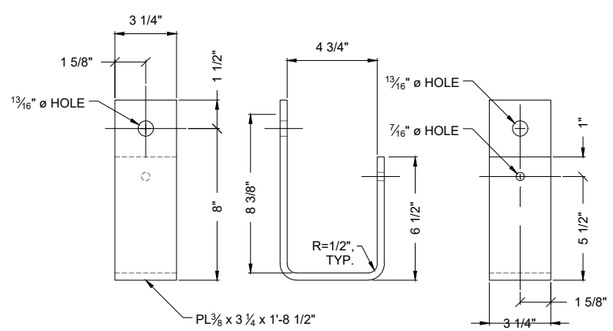
EST. WT.: 124 LBS, GALVANIZED



E 18 WT END PLATE EP-1



F 18 HANDRAIL CONNECTION PLATE



G 18 CONDUIT BRACKET CB-1

EST. WT.: 7 LBS, GALVANIZED

NOTES

1. ALL STRUCTURAL STEEL ANGLES AND PLATES SHALL CONFORM TO ASTM A36.
2. MATERIALS SCHEDULED TO BE COATED SHALL BE GALVANIZED IN ACCORDANCE WITH ARRC SSC 716-2.07.
3. WHEN USING OWNER-PROVIDED PRE-CAST CONCRETE SUPERSTRUCTURES, FIELD VERIFY DIMENSIONS PRIOR TO FABRICATING.
4. WALKWAY DECKING SHALL BE THREE 4"x12" HARDWOOD BEAMS FIELD CUT AND DRILLED OR STEEL 3' WIDE 38W2 DECKING RATED FOR MINIMUM 10' SPAN.
5. CONDUIT BRACKET CB-1 MAY BE INSTALLED WITHOUT THE WALKWAY USING ASTM A307, GRADE A, HOT DIP GALVANIZED ¾"Ø x 9" BOLT WITH NYLOCK NUT AND PLATE WASHER PW-1.
6. ALL BOLTS TACK WELDED AFTER TENSIONING.

PRELIMINARY
NOT FOR CONSTRUCTION

DRAWING LOCATION
P:\ENGINEERING\BRIDGES\00 - BRIDGE STANDARD PLANS\28' STANDARD CBD BRIDGE REPLACEMENT\CBD STANDARDS 2024.DWG

PUBLISHED CTB
ARRC_CTB_2023.CTB

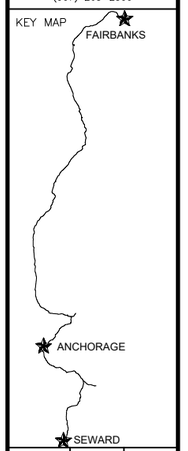
SCALE AS NOTED

DATE 11/7/2025 TIME 4:58 PM

DESIGNED BY:
CHECKED BY:
DRAFTED BY: MCG

ALASKA RAILROAD CORPORATION
PO BOX 107500, ANCHORAGE, AK 99510-7500
327 W SHIP CREEK AVE
ANCHORAGE, AK 99501
(907) 265-2300

KEY MAP



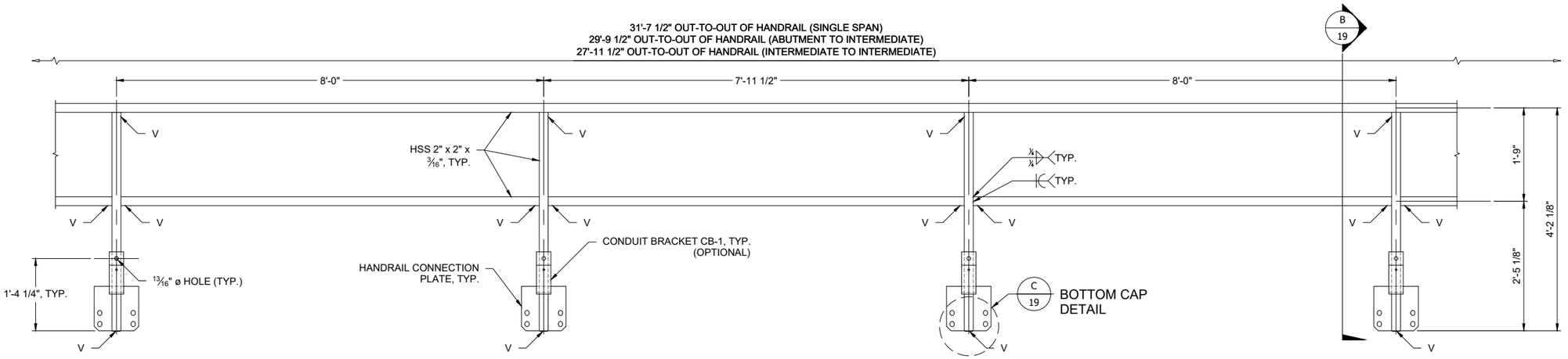
ENGINEERING DEPARTMENT
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

ALASKA RAILROAD

PROJECT: STANDARD 28 FOOT SPAN CONCRETE BALLAST DECK (CBD)

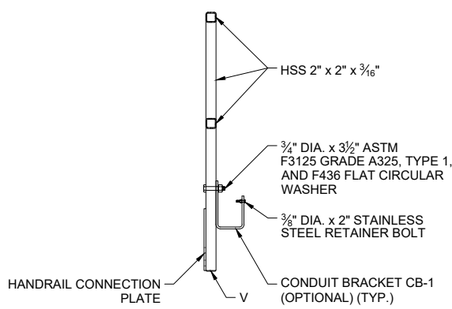
SHEET TITLE: MISCELLANEOUS STEEL: WALKWAY BRACKET

AFE NO. TBD
YEAR 2025
SHEET 18 OF 19



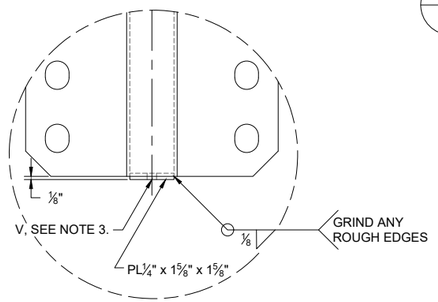
A 19 HANDRAIL PANEL HP-00

EST. WT.: 370 LBS., GALVANIZED



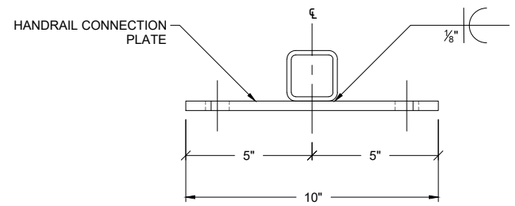
B 19 HANDRAIL SECTION

TYPICAL



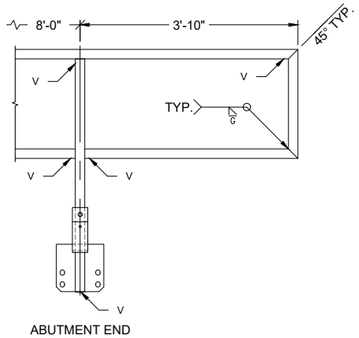
C 19 BOTTOM CAP DETAIL

TYPICAL



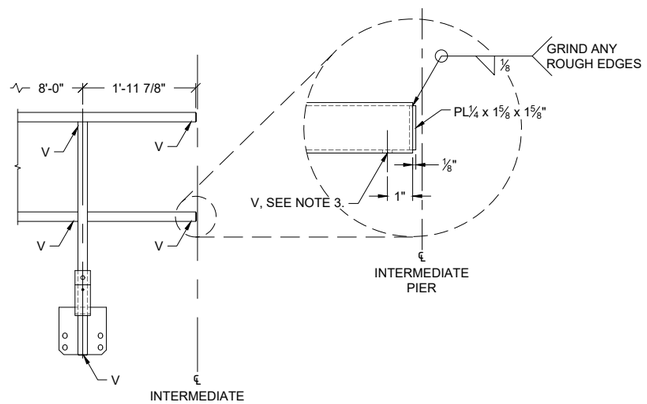
D 19 HANDRAIL CONNECTION DETAIL

TYPICAL



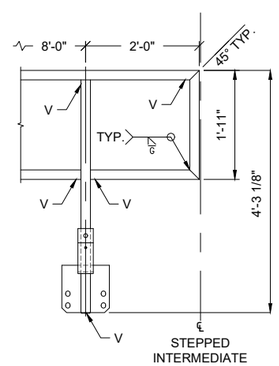
E 19 ABUTMENT END

APPLIES TO ALL ABUTMENT ENDS IN RESPECTIVE ORIENTATION (MIRRORED WHERE APPLICABLE).



F 19 INTERMEDIATE END

APPLIES TO ALL INTERMEDIATE PIER ENDS IN RESPECTIVE ORIENTATION (MIRRORED WHERE APPLICABLE).



G 19 STEPPED INTERMEDIATE END

APPLIES TO ALL STEPPED INTERMEDIATE PIER ENDS IN RESPECTIVE ORIENTATION (MIRRORED WHERE APPLICABLE).

NOTES

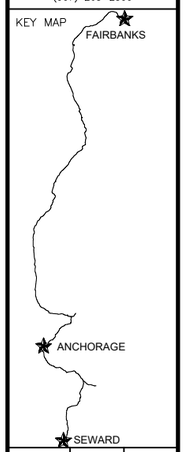
1. ALL STRUCTURAL STEEL ANGLES AND PLATES SHALL CONFORM TO ASTM A36.
2. MATERIALS SCHEDULED TO BE COATED SHALL BE GALVANIZED IN ACCORDANCE WITH ARRC SSC 716-2.07.
3. V = 3/8"ø DRILLED VENT HOLE 1" FROM JOINT IN (18) LOCATIONS.
4. HANDRAIL PANEL ON WALKWAY SHALL BE ERECTED PLUM AND IN-LINE.
5. WHEN USING OWNER-PROVIDED PRE-CAST CONCRETE SUPERSTRUCTURES, FIELD VERIFY DIMENSIONS PRIOR TO FABRICATING.

PRELIMINARY
NOT FOR CONSTRUCTION

DESIGNED BY:
CHECKED BY:
DRAFTED BY: MCG

ALASKA RAILROAD CORPORATION
PO BOX 107500, ANCHORAGE, AK 99510-7500
327 W SHIP CREEK AVE
ANCHORAGE, AK 99501
(907) 265-2300

KEY MAP



ENGINEERING DEPARTMENT
P.O. BOX 107500
ANCHORAGE, ALASKA 99510-7500

ALASKA RAILROAD

PROJECT: STANDARD 28 FOOT SPAN CONCRETE BALLAST DECK (CBD)

SHEET TITLE: MISCELLANEOUS STEEL: HANDRAIL PANEL

AFE NO. TBD
YEAR 2025
SHEET 19 OF 19

DRAWING LOCATION
P:\ENGINEERING\BRIDGES\00 - BRIDGE STANDARD PLANS\28' STANDARD CBD BRIDGE REPLACEMENT\CBD STANDARDS 2024.DWG

DATE 11/7/2025 TIME 4:58 PM
SCALE AS NOTED
PUBLISHED CTB
ARRC_CTB_2023.CTB