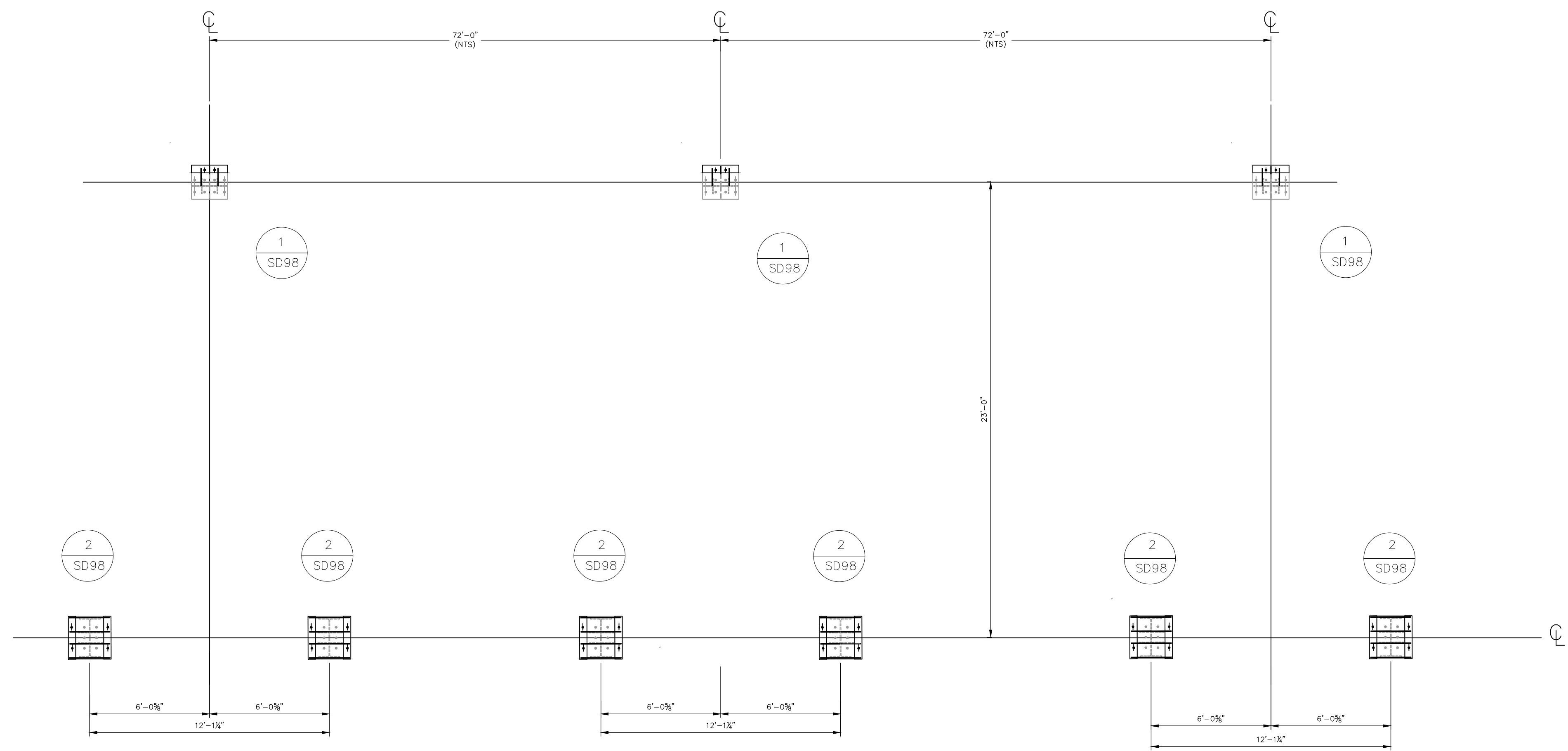
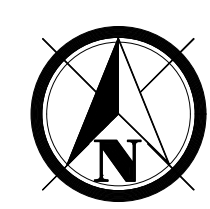


- CONSTRUCTION NOTES:
1. FOR BASEPLATE ADDITION, REMOVE GALVANIC PROTECTION FROM EXISTING BASEPLATE AT EDGE OF CONNECTION.
 2. WELD ON NEW ADDITION USING PARTIAL PEN. WELD. GRIND SURFACE FLUSH, SO THAT STIFFENERS CAN BE ADDED ALSO.
 3. WELD ON STIFFENERS USING FILLET WELD, AFTER GRINDING AWAY GALVANIC PROTECTION WHERE NECESSARY FOR WELDS.
 4. AFTER ALL WELDING IS COMPLETED, COVER ALL EXPOSED STEEL WITH COLD GALVANIZING COMPOUND.
 5. AFTER ALL WELDING IS COMPLETED, HIGH-STRENGTH GROUT BED UNDER EACH BASEPLATE MUST BE REPAIRED OR ADDED TO SO THAT ENTIRE BASEPLATE IS FULLY SUPPORTED BY GROUT BED.
 6. ONLY AFTER GROUT BED IS CURED, CAN NUTS ON ANCHORS BE TIGHTENED TO SNUG-TIGHT CONDITION.

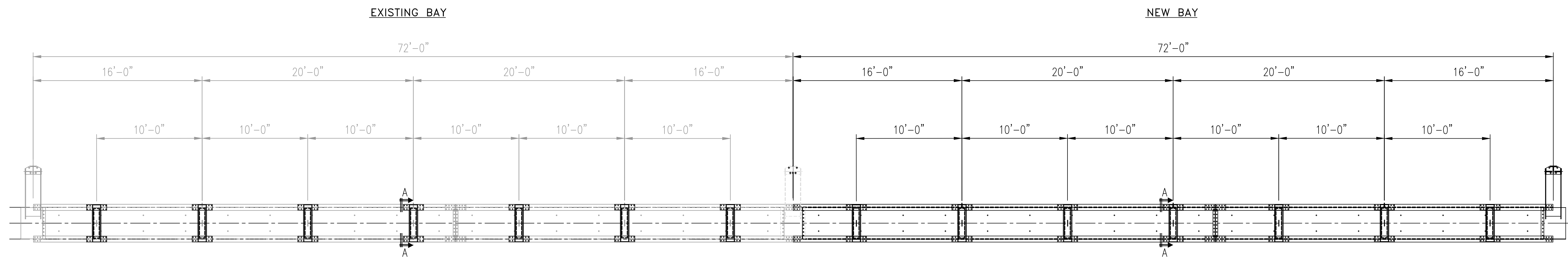


LEGEND:
 GRAY = EXISTING OR NEWLY INSTALLED STEEL
 BLACK = FIELD ADDITIONS

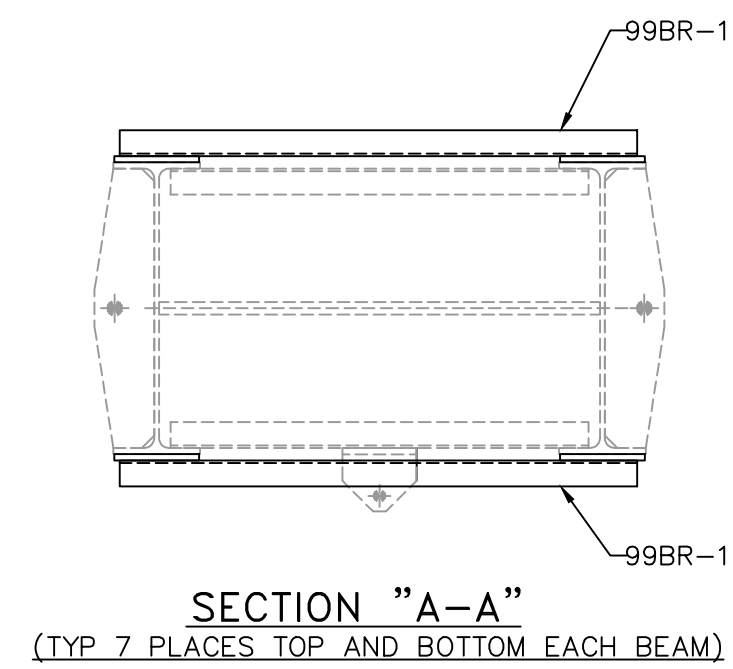
1 BASEPLATE & STIFFENER ADDITION PLAN
 SCALE: 1/4" = 1'-0"

PRELIMINARY
 NOT FOR
 CONSTRUCTION

DESCRIPTION: ISSUED FOR BID PURPOSES AND APPROVAL							GRAND RIVER DAM AUTHORITY					
A	24-324	6/3/2025	SLC	YD	BJM	NRM	CHOUTEAU, OKLAHOMA			GREC #2 345 kV		
DESCRIPTION:							BASEPLATE & STIFFENER ADDITION PLAN 345 kV A-FRAME DEADEND STRUCTURE					
REV. NO.							ENGINEER: SLC		SCALE: SEE DWG		DATE: 06/03/2025	
JOB NO.							DRAWN BY: YD		DRAWING NO.		SHEET 1 OF 1	
DATE							CHECKED BY: SLC		ER98		REV. A	
DESIGN ENGR.							P.O. BOX 669 CHOUTEAU, OK 74337		APPROVED BY: NRM		OLD DRAWING NO.:	
DFTR							DESIGN CHECK		ISSUE APPROV			



PLAN
SCALE: N.T.S.

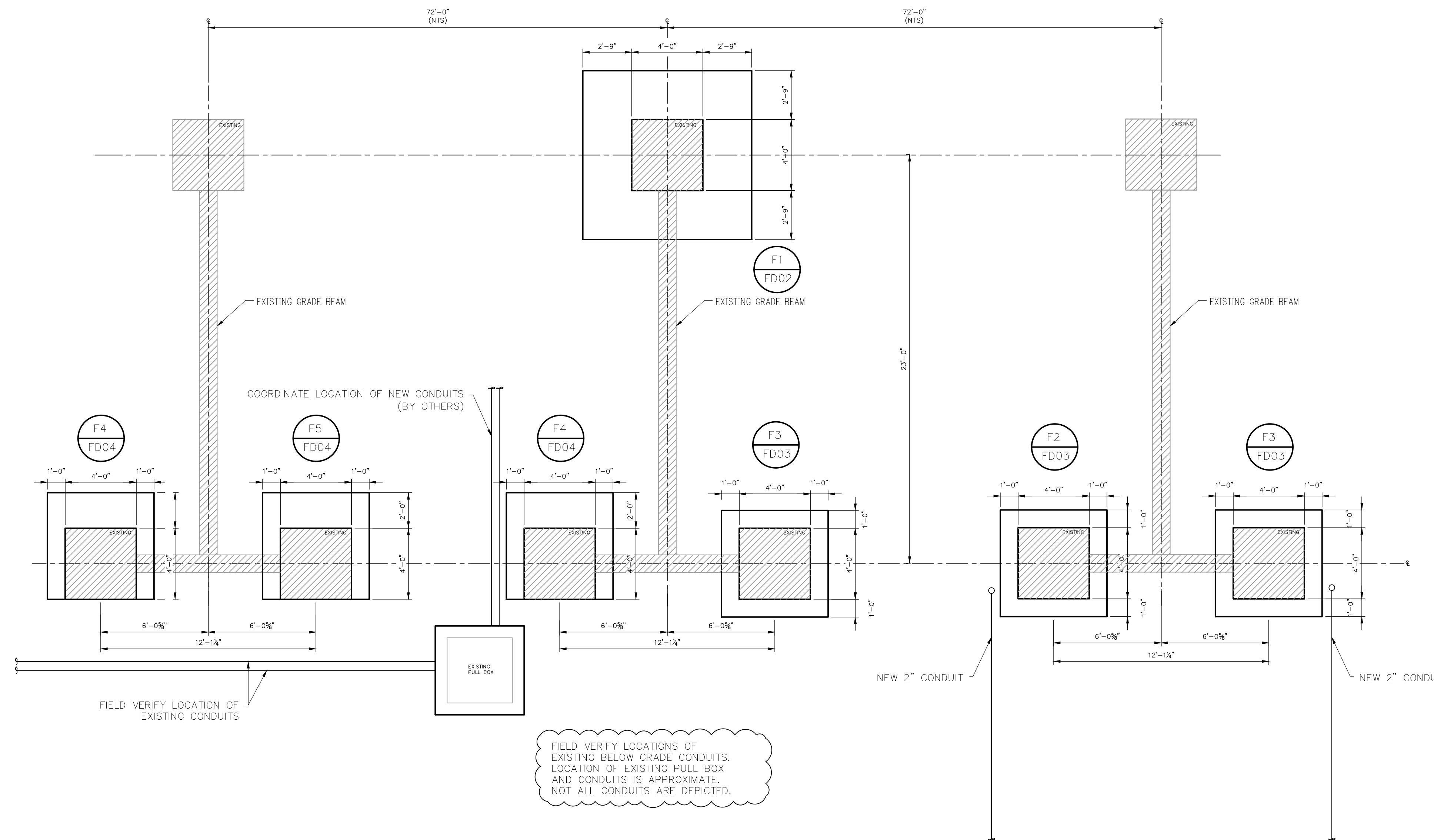


- FIELD ERECTION NOTES:**
- TENSION ON STRUCTURE MUST BE REDUCED SO THAT PULL-OFF BEAM IS NOT BOWED DURING BRACE ADDITIONS.
 - HOLES IN PULL-OFF BEAM MUST BE FIELD DRILLED AFTER ALIGNMENT OF EACH BRACE. ALIGN CENTERED ON EXISTING BEAM.
 - USE COLD-GALVANIZING COMPOUND ON EACH FIELD DRILLED HOLE.

- FIELD ASSEMBLY BOLTS**
- (3/4" A325)(TOTAL + %)
- 470 - 3/4" x 2 1/4" BOLTS
 - 470 - 3/4" HARDENED FLAT WASHERS
 - 470 - 3/4" ANCO LOCKNUTS

THIS DRAWING AND ITS ASSOCIATED ANCHOR BOLT PLAN, ERECTION DRAWING, AND STEEL DETAIL DRAWINGS WITHIN THIS SET (DRAWINGS) ARE RELEASED FOR FABRICATION ONLY. THE DRAWINGS ARE INTENDED TO REPLICATE AN EXISTING STRUCTURE USED BY GRAND RIVER DAM AUTHORITY (GRDA) AT ITS GREC #2 SUBSTATION FACILITY AND ARE BASED ON FIELD OBSERVATION AND HISTORIC FABRICATION DETAILS DRAWINGS PROVIDED BY GRDA. THE USE/ERECTION/CONSTRUCTION OF THE STRUCTURE(S) DEPICTED BY THESE DRAWINGS IS DONE AT GRDA'S SOLE RISK AND WITHOUT LIABILITY OR LEGAL EXPOSURE TO CROSS DISCIPLINE ENGINEERING, LLC (ENGINEER) OR ITS CONSULTANTS.

DESCRIPTION: ISSUED FOR BID PURPOSES AND APPROVAL							GRAND RIVER DAM AUTHORITY			
A	24-324	6/3/2025	SLC	YD	BJM	NRM	CHOUTEAU, OKLAHOMA			GREC #2
DESCRIPTION:							345 KV			
DESCRIPTION:							BRACE 99BR-1 INSTALLATION			
DESCRIPTION:							345KV A-FRAME DEADEND STRUCTURE			
DESCRIPTION:							ENGINEER: SLC			
DESCRIPTION:							SCALE: SEE DWG			
DESCRIPTION:							DATE: 06/03/2025			
DESCRIPTION:							DRAWN BY: YD			
DESCRIPTION:							DRAWING NO. SHEET 1 OF 1			
DESCRIPTION:							CHECKED BY: SLC			
DESCRIPTION:							ER99			
DESCRIPTION:							APPROVED BY: NRM			
DESCRIPTION:							OLD DRAWING NO.:			
REV. NO.	JOB NO.	DATE	DESIGN ENGR	DFTR	DESIGN CHECK	ISSUE APPROVD	P.O. BOX 669 CHOUTEAU, OK 74337			



FOUNDATION NOTES:

- RECOMMENDATIONS CONTAINED IN "FOUNDATION INVESTIGATION" DATED DECEMBER 27, 2024; PALMERTON & PARRISH PROJECT NUMBER 24-6082 WERE USED FOR DESIGN.
- WEATHERED LIMESTONE BEDROCK WAS ENCOUNTERED APPROXIMATELY 13.3 FEET BELOW GROUND SURFACE. AFTER FURTHER DRILLING, THE ENCOUNTERED ROCK LAYER WHEN TESTED IN THE LABORATORY HAD AN UNCONFINED COMPRESSIVE STRENGTH OF 3,460 KSF.
- THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING THE GEOTECHNICAL REPORT, AND SHALL FOLLOW THE RECOMMENDATIONS SPECIFIED THEREIN, INCLUDING, BUT NOT LIMITED TO, SUBGRADE PREPARATIONS, GROUND WATER MANAGEMENT, AND STEEP SLOPE BEST MANAGEMENT PRACTICES.
- FOOTINGS SHALL BEAR EITHER ON COMPETENT NATIVE SOIL OR COMPACTED STRUCTURAL FILL AS PER THE GEOTECHNICAL REPORT. IF THE SOIL AT THE BEARING ELEVATIONS SHOWN IS OF QUESTIONABLE VALUE, THE ENGINEER OF RECORD SHALL BE NOTIFIED IMMEDIATELY. SEE NOTE 2 ON FOLLOWING SHEETS.
- ALL FILL MATERIAL UNDER THE STRUCTURES SHALL COMPLY WITH REQUIREMENTS STATED IN THE GEOTECHNICAL REPORT (IF APPLICABLE). FILL REQUIRED TO ACHIEVE DESIGN GRADE SHOULD BE CLASSIFIED AS "STRUCTURAL FILL" AND "GENERAL FILL". STRUCTURAL FILL IS MATERIAL USED BELOW, OR WITHIN 10 FEET OF STRUCTURES, PAVEMENTS, OR CONSTRUCTED SLOPES. GENERAL FILL IS MATERIAL USED TO ACHIEVE GRADE OUTSIDE OF THESE AREAS.
- ANCHOR RODS SHALL MEET THE REQUIREMENTS OF ASTM F1554 UNLESS NOTED OTHERWISE.
- FOLLOW MANUFACTURERS RECOMMENDATIONS FOR ANCHOR MATERIALS AND INSTALLATION PRACTICES.

CONCRETE NOTES:

- ALL CONCRETE SHALL CONFORM TO THE SPECIFICATIONS FOR STRUCTURAL CONCRETE, ACI 301.
- CONTRACTOR SHALL FOLLOW ACI 306.1 FOR COLD WEATHER CONCRETE PLACEMENT AND CURING GUIDELINES.
- UNLESS NOTED OTHERWISE, BAR SPLICES SHALL BE CLASS B TENSION LAPS AND SHALL BE LAPPED WITH MINIMUM LENGTHS AS LISTED IN THE LAP LENGTH SCHEDULE, WHERE REQUIRED.
- PROVIDE SUITABLE WIRE SPACERS, CHAIRS, TIES, ETC. FOR RIGIDLY SUPPORTING REINFORCING STEEL IN THE PROPER POSITION BEFORE PLACING CONCRETE.
- LOCATIONS AND SIZES OF OPENINGS, SLEEVES, ETC. REQUIRED FOR OTHER TRADES MUST BE VERIFIED BY THESE TRADES BEFORE PLACING CONCRETE.
- ALL SLOTS, SLEEVES, TRENCHES, AND OTHER EMBEDDED ITEMS (ANCHOR BOLTS, ETC.) SHALL BE SET AND SECURED AGAINST MOVEMENT BEFORE THE CONCRETE IS PLACED.
- CONDUITS AND PIPES EMBEDDED IN CONCRETE SLABS MAY BE NO LARGER THAN 1/3 OF THE SLAB THICKNESS (BASED ON THE MAXIMUM OUTSIDE DIAMETER) AND SHALL HAVE A CENTER-TO-CENTER SPACING NO LESS THAN THREE (3) CONDUIT DIAMETERS. REGARDLESS OF DIAMETER, THE MINIMUM CLEAR SPACING BETWEEN CONDUITS OR REINFORCING SHALL BE ONE (1) INCH.
- NO MORE THAN FOUR (4) CONDUITS MAY BE PLACED ADJACENT TO EACH OTHER WITHOUT PRIOR APPROVAL IN WRITING FROM THE ENGINEER OF RECORD.
- NO ALUMINUM CONDUITS, DEVICES, OR FIXTURES MAY BE EMBEDDED INTO THE CONCRETE SO THAT THE ALUMINUM IS IN DIRECT CONTACT WITH THE CONCRETE.

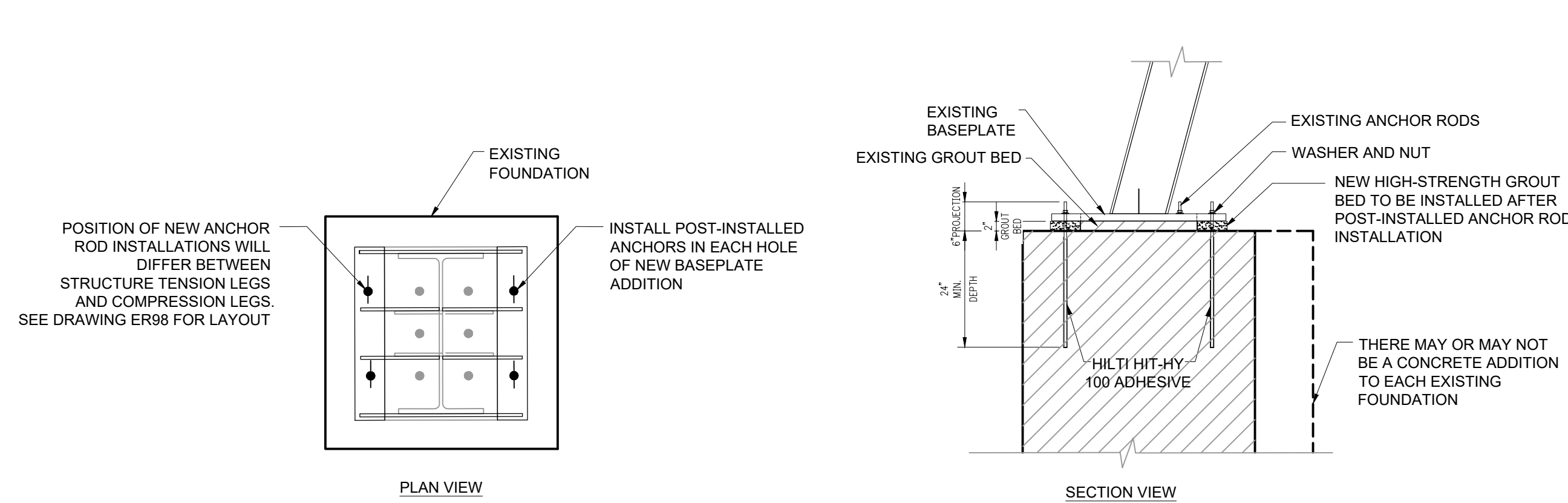
CONCRETE MATERIALS:

- CEMENTITIOUS MATERIALS:
 - A. PORTLAND CEMENT; ASTM C150, TYPE I/11 GRAY. SUPPLEMENT WITH THE FOLLOWING:
 - FLY ASH: ASTM C618, CLASS C OR F.
 - GROUND, GRANULATED BLAST FURNACE SLAG: ASTM C989, GRADE 100 OR 120.
 - NORMAL WEIGHT AGGREGATES: ASTM C33, CLASS 3M COARSE AGGREGATE OR BETTER, GRADED. PROVIDE AGGREGATES FROM A SINGLE SOURCE WITH DOCUMENTED SERVICE RECORD DATA OF AT LEAST 10 YEARS OF SATISFACTORY SERVICE IN SIMILAR APPLICATION AND SERVICE CONDITIONS USING SIMILAR AGGREGATES AND CEMENTITIOUS MATERIALS.
 - WATER: ASTM C94/ C94M AND POTABLE.

CONCRETE MIXTURES:

- PROPORTION NORMAL-WEIGHT CONCRETE MIXTURE FOR BLOCK ADDITION AS FOLLOWS:
 - A. MINIMUM COMPRESSIVE STRENGTH: 4,000 PSI AT 7 DAYS.
 - B. MAXIMUM WATER-CEMENTITIOUS MATERIALS RATIO: 0.45
 - C. MINIMUM CEMENTITIOUS MATERIALS CONTENT: 470 LB/CU YD.
 - D. SLUMP LIMIT: 4" +/- 1"
 - E. AIR CONTENT: 5 1/2% +/- 1 1/2% AT POINT OF DELIVERY.

1 FOUNDATION PLAN - SOUTH 345 kV DEADEND STRUCTURE
SCALE: 1/4" = 1'-0"



MATERIAL REQUIRED FOR POST-INSTALLED ANCHORS	
QUANTITY	COMMENTS
30	1 1/4" DIAM., 30" LONG HILTI HAS-E-55 HDG THREADED RODS
30	1 1/4" ANCO LOCKNUTS HDG
30	1 1/4" F436 WASHERS HDG
A.R.	HILTI HIT-HY 100 ADHESIVE
A.R. = AS REQUIRED. CONFIRM WITH MANUFACTURER REQUIREMENTS	

NOTE:
POST-INSTALLED ANCHOR SYSTEM IS COMPRISED OF 1 1/4" DIA., 30" LONG HILTI HAS-E-55 (ASTM F1554 GR 55) HDG THREADED RODS UTILIZING HILTI HIT-HY 100 ADHESIVE.
EMBEDMENT IS 24".

2 POST INSTALLED ANCHOR DETAIL
SCALE: 1/2" = 1'-0"



PRELIMINARY
NOT FOR
CONSTRUCTION

DESCRIPTION: ISSUED FOR BID PURPOSES AND APPROVAL		GRAND RIVER DAM AUTHORITY	
DESCRIPTION:		CHOUTEAU, OKLAHOMA	
		GREC #2 345 kV	
		FOUNDATION PLAN - SOUTH 345 kV DEADEND STRUCTURE	
ENGINEER: SLG	SCALE: SEE DWG	DATE: 4/30/2025	REV. A
DRAWN BY: YD	DRAWING NO.	SHEET 1 OF 1	
CHECKED BY: SLG		FD01	
APPROVED BY: NRM	OLD DRAWING NO.:		

GRDA
P.O. BOX 669
CHOUTEAU, OK 74337

