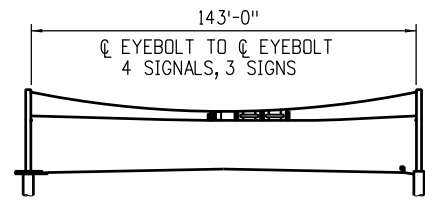


EXAMPLE 1:



SELECT THE STRAIN POLE SIZE, SPAN-WIRE DIAMETER, AND CAISSON DEPTH FOR A SINGLE SPAN INSTALLATION FOUNDED IN COHESIONLESS SOIL AS SHOWN ABOVE.

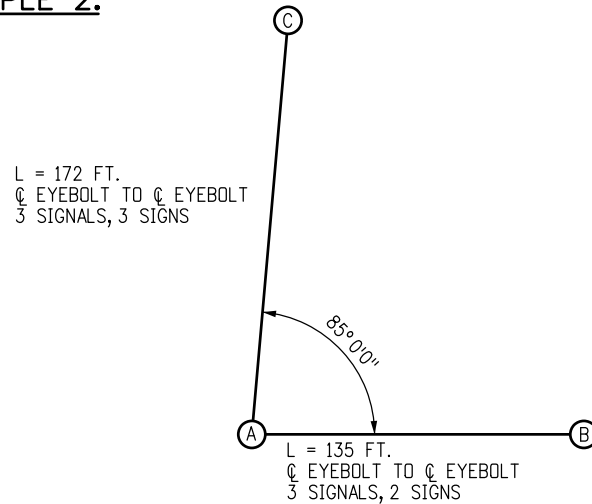
SOLUTION:

- DETERMINE THE LOAD KEY AS SHOWN HEREON OR ON SHEETS 7 TO 13.
4 SIGNALS AND 3 SIGNS = **4** (LOADS FOR 4 SIGNALS AND 4 SIGNS MAX.)
- DETERMINE THE STRAIN POLE SIZE BY USING SINGLE SPAN STRAIN POLE SELECTION CHART ON SHEET 7.
FIND THE 143' SPAN LENGTH ON THE HORIZONTAL AXIS OF THE CHART, THEN GO VERTICALLY TO MEET WITH LINE **4**. THE REQUIRED STRAIN POLE SIZE IS 18" Ø XS PIPE.
- DETERMINE THE SPAN WIRE DIAMETER BY USING THE SINGLE SPAN SPAN-WIRE DIAMETER SELECTION CHART ON SHEET 7.
FIND THE 143' SPAN LENGTH ON THE HORIZONTAL AXIS OF THE CHART, THEN GO VERTICALLY TO MEET WITH LINE **4**. THE REQUIRED SPAN WIRE DIAMETER IS 7/16" Ø.
- DETERMINE THE CAISSON DEPTH BY USING THE TABLE ON SHEET 5.
LOOK UP THE CAISSON DEPTH FOR COHESIONLESS SOIL AND 18" Ø STRAIN POLE. THE REQUIRED CAISSON DEPTH IS 14.5'.

LOAD KEY

- 5** = 5 SIGNALS AND 4 SIGNS MAX.
- 4** = 4 SIGNALS AND 4 SIGNS MAX.
- 3** = 3 SIGNALS AND 3 SIGNS MAX.
- 2** = 2 SIGNALS AND 2 SIGNS MAX.
- 1** = 1 SIGNAL AND 1 SIGN MAX.

EXAMPLE 2:

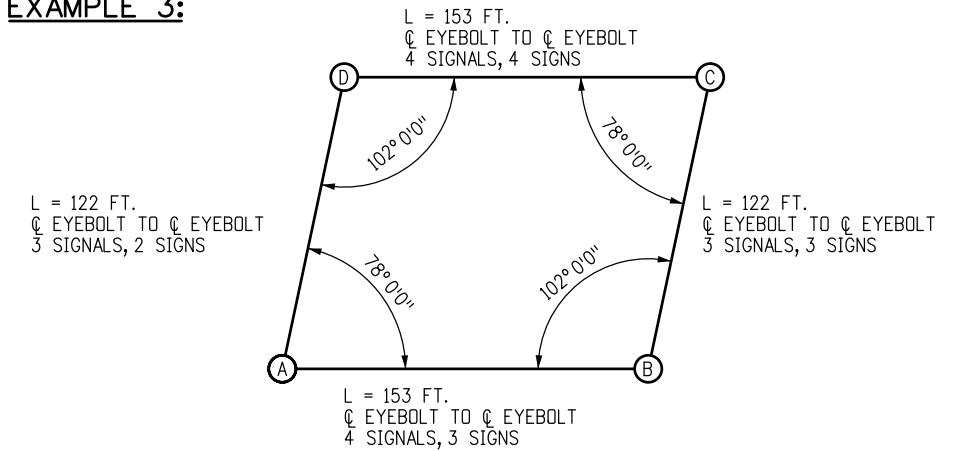


SELECT THE STRAIN POLE SIZES, SPAN-WIRE DIAMETERS, AND CAISSON DEPTHS FOR A DOUBLE SPAN (L-PLAN BOX) FOUNDED IN COHESIVE SOIL AS SHOWN ABOVE.

SOLUTION:

- DETERMINE THE LOAD KEYS AS SHOWN HEREON OR ON SHEETS 7 TO 13.
SPAN AC: 3 SIGNALS AND 3 SIGNS = **3** (LOADS FOR 3 SIGNALS AND 3 SIGNS MAX.)
SPAN AB: 3 SIGNALS AND 2 SIGNS = **3** (LOADS FOR 3 SIGNALS AND 3 SIGNS MAX.)
- DETERMINE THE SIZES OF STRAIN POLES **A**, **B** AND **C**.
FOR POLE **A** USING THE DOUBLE SPAN STRAIN POLE SELECTION CHART FOR $80^\circ \leq \theta < 90^\circ$ ON SHEET 9:
EITHER THE HORIZONTAL CHART OR THE VERTICAL CHART CAN BE USED FOR SPAN AC OR SPAN AB. USING THE HORIZONTAL CHART FOR SPAN AC AND THE VERTICAL CHART FOR SPAN AB, LOCATE THE 172' SPAN AC ON THE HORIZONTAL CHART THEN GO VERTICALLY TO MEET WITH LINE **3**. LOCATE THE 135' SPAN AB ON THE VERTICAL CHART THEN GO HORIZONTALLY TO MEET WITH LINE **3**. FROM THESE INTERCEPTION POINTS, GO HORIZONTALLY AND VERTICALLY TO THE SQUARE BOX. THE REQUIRED PIPE DIAMETER FOR POLE **A** IS 20" Ø XS PIPE.
FOR POLES **B** AND **C**, USE THE SINGLE SPAN POLE SELECTION CHART ON SHEET 7 AND FOLLOW THE SAME LOGIC AS SHOWN ON STEP 2 OF EXAMPLE 1 TO DETERMINE THE POLE SIZE. USING THIS LOGIC, THE REQUIRED POLE SIZE IS 16" Ø XS PIPE FOR STRAIN POLE **B** AND 18" Ø XS PIPE FOR STRAIN POLE **C**.
- DETERMINE THE SPAN WIRE DIAMETER BY USING THE DOUBLE SPAN SPAN-WIRE DIAMETER SELECTION CHART FOR 20" Ø POLE **A** ON SHEET 13.
SPAN AC: LOCATE THE 172' SPAN LENGTH ON THE HORIZONTAL AXIS, THEN GO VERTICALLY TO MEET WITH LINE **3**. THE REQUIRED SPAN WIRE DIAMETER IS 7/16" Ø.
SPAN AB: DO THE SAME FOR THE 135' LONG SPAN AC. THE REQUIRED SPAN WIRE IS 7/16" Ø.
- DETERMINE THE CAISSON DEPTHS BY USING THE TABLE ON SHEET 5.
LOOK UP THE CAISSON DEPTH FOR COHESIVE SOIL. THE REQUIRED CAISSON DEPTH FOR 20" Ø STRAIN POLE **A** IS 20.5', THE REQUIRED DEPTH FOR 16" Ø STRAIN POLE **B** IS 17.5', AND THE REQUIRED DEPTH FOR 18" Ø STRAIN POLE **C** IS 18.5'.

EXAMPLE 3:



SELECT THE STRAIN POLE SIZES, SPAN WIRE DIAMETERS AND CAISSON DEPTHS FOR CAISSONS FOR A DOUBLE SPAN (RECTANGULAR PLAN BOX) FOUNDED IN COHESIONLESS SOIL AS SHOWN ABOVE.

SOLUTION:

- DETERMINE THE LOAD KEYS AS SHOWN HEREON OR ON SHEETS 7 TO 13.
SPAN AB: 4 SIGNALS AND 3 SIGNS = **4** (LOADS FOR 4 SIGNALS AND 4 SIGNS MAX.)
SPAN BC: 3 SIGNALS AND 3 SIGNS = **3** (LOADS FOR 3 SIGNALS AND 3 SIGNS MAX.)
SPAN CD: 4 SIGNALS AND 4 SIGNS = **4** (LOADS FOR 4 SIGNALS AND 4 SIGNS MAX.)
SPAN AD: 3 SIGNALS AND 2 SIGNS = **3** (LOADS FOR 3 SIGNALS AND 3 SIGNS MAX.)
- DETERMINE THE SIZE OF POLES **A**, **B**, **C** AND **D**.
FOR POLE **A** USING THE DOUBLE SPAN STRAIN POLE SELECTION CHART FOR $70^\circ \leq \theta < 80^\circ$ ON SHEET 8:
EITHER THE HORIZONTAL CHART OR THE VERTICAL CHART CAN BE USED FOR SPAN AB OR SPAN AD. USING THE HORIZONTAL CHART FOR SPAN AB AND THE VERTICAL CHART FOR SPAN AD, LOCATE THE 153' SPAN AB ON THE HORIZONTAL CHART THEN GO VERTICALLY TO MEET WITH LINE **4**. LOCATE THE 122' SPAN AD ON THE VERTICAL CHART THEN GO HORIZONTALLY TO MEET WITH LINE **3**. FROM THESE INTERCEPTION POINTS, GO HORIZONTALLY AND VERTICALLY TO THE SQUARE BOX. THE REQUIRED PIPE DIAMETER FOR POLE **A** IS 24" Ø XS PIPE.
FOR POLE **B** USING THE DOUBLE SPAN STRAIN POLE SELECTION CHART FOR $100^\circ \leq \theta < 110^\circ$ ON SHEET 10:
EITHER THE HORIZONTAL CHART OR THE VERTICAL CHART CAN BE USED FOR SPAN AB OR SPAN BC. USING THE HORIZONTAL CHART FOR SPAN AB AND THE VERTICAL CHART FOR SPAN BC, LOCATE THE 153' SPAN AB ON THE HORIZONTAL CHART, THEN GO VERTICALLY TO MEET WITH LINE **4**. LOCATE THE 122' SPAN BC ON THE VERTICAL CHART, THEN GO HORIZONTALLY TO MEET WITH LINE **3**. FROM THESE INTERCEPTION POINTS, GO HORIZONTALLY AND VERTICALLY TO THE SQUARE BOX. THE REQUIRED PIPE DIAMETER FOR POLE **B** IS 20" Ø XS PIPE.
LIKEWISE, STRAIN POLE **C** IS 24" Ø XS PIPE AND STRAIN POLE **D** IS 20" Ø XS PIPE.
- DETERMINE THE SPAN-WIRE DIAMETER BY USING THE DOUBLE SPAN SPAN-WIRE DIAMETER SELECTION CHART FOR 24" Ø POLE ON SHEET 13. FOR THIS CASE, THE 24" Ø STRAIN POLES **A** AND **C** CONTROL THE DESIGN.
SPAN AB: LOCATE THE 153' SPAN LENGTH ON THE HORIZONTAL LINE, THEN GO VERTICAL TO MEET WITH LINE **4**. THE REQUIRED SPAN-WIRE IS 1/2" Ø.
SPANS AD, BC AND CD: DOING THE SAME AS FOR SPAN AB FOR DIFFERENT LOAD KEYS, THE REQUIRED SPAN-WIRE DIAMETERS FOR SPANS AD AND BC IS 7/16" Ø, AND 1/2" Ø FOR SPAN CD.
- DETERMINE CAISSON DEPTH BY USING TABLE ON SHEET 5.
LOOK UP THE CAISSON DEPTH FOR COHESIONLESS SOIL ON SHEET 13. THE REQUIRED CAISSON DEPTH FOR 24" Ø STRAIN POLES **A** AND **C** IS 15.5', AND THE REQUIRED DEPTH FOR 20" Ø STRAIN POLES **B** AND **D** IS 14.5'.

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Safety & Traffic Engineering Branch KCM/RLD

TEMPORARY SPAN WIRE SIGNALS

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