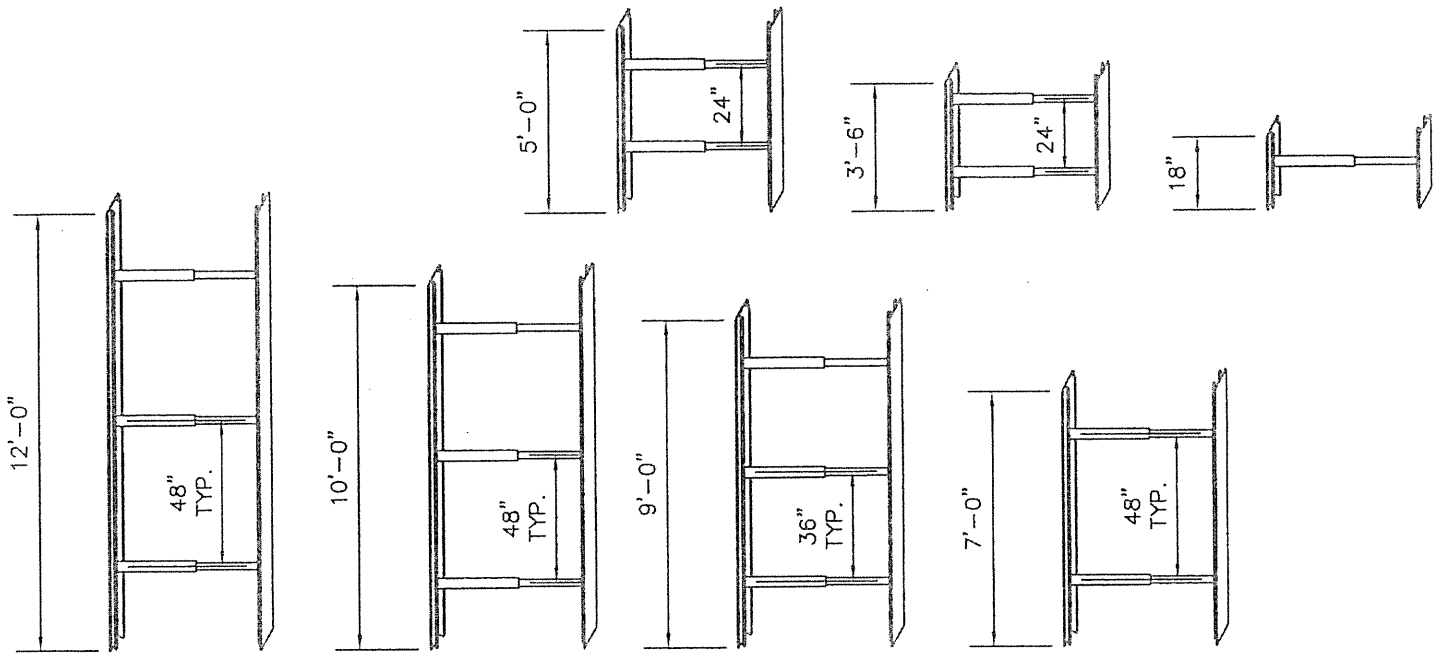
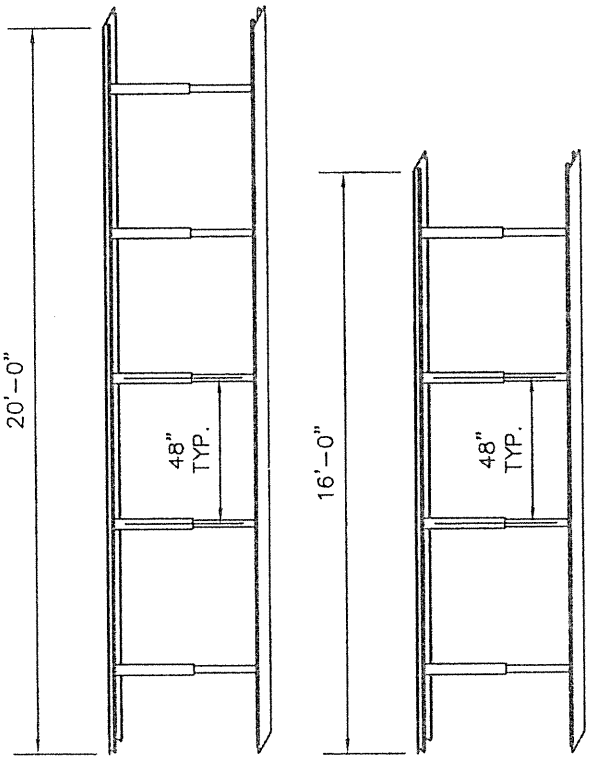
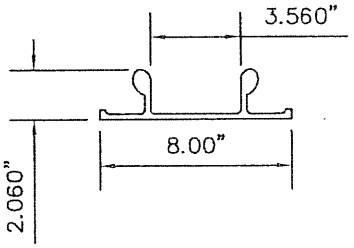
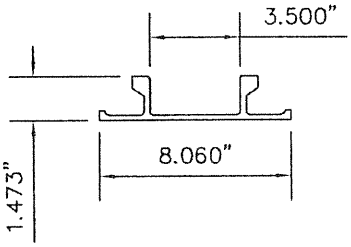
TRENCH AND TRAFFIC SUPPLY







1 CROSS SECTION
HEAVY DUTY VERTICAL RAIL NTS



1 CROSS SECTION
STANDARD VERTICAL RAIL NTS

REGISTERED PROFESSIONAL ENGINEER
BRIAN WELLINGTON
No. 63545
CIVIL
STATE OF CALIFORNIA

SIGNATURE DATE:
APR 21 2020

SHEET TITLE
TAB DATA

B.K. WELLINGTON
Engineering, Inc.
122 CALISTOGA ROAD #591 - SANTA ROSA, CA 95409
PH: (707) 595-5423

ALUMINUM
HYDRAULIC SHORES
MANUFACTURES TABULATED DATA

SACRAMENTO
2175 ACOMA STREET
SACRAMENTO, CA 95815

SHEET NO.
TD1.0
SHEET 1 OF 4
DATE
02/20/20
DRAWN
B.K.W.
JOB NO.
20.064-01

TRENCH AND TRAFFIC SUPPLY

VERTICAL HYDRAULIC SHORE OSHA TYPE "A" SOIL					
DEPTH OF TRENCH (FT)	MAXIMUM CYLINDER HORIZONTAL SPACING (FT)	MAXIMUM CYLINDER VERTICAL SPACING (FT)	WIDTH OF TRENCH (FT)		
			TO 8	8 TO 12	12 TO 15
TO 10	8	4	2" ID	2" ID	2" ID **
10 TO 15	8	4	2" ID	2" ID	2" ID **
15 TO 20	8	4	2" ID	2" ID **	2" ID **
20 TO 25	7	4	2" ID	2" ID **	2" ID **

VERTICAL HYDRAULIC SHORE OSHA TYPE "B" SOIL					
DEPTH OF TRENCH (FT)	MAXIMUM CYLINDER HORIZONTAL SPACING (FT)	MAXIMUM CYLINDER VERTICAL SPACING (FT)	WIDTH OF TRENCH (FT)		
			TO 8	8 TO 12	12 TO 15
TO 10	8	4	2" ID	2" ID	2" ID **
10 TO 15	7	4	2" ID	2" ID	2" ID **
15 TO 20	6	4	2" ID	2" ID **	2" ID **
20 TO 25	5	4 (*) (***)	2" ID	2" ID **	2" ID **

VERTICAL HYDRAULIC SHORE OSHA TYPE "C-60" SOIL					
DEPTH OF TRENCH (FT)	MAXIMUM CYLINDER HORIZONTAL SPACING (FT)	MAXIMUM CYLINDER VERTICAL SPACING (FT)	WIDTH OF TRENCH (FT)		
			TO 8	8 TO 12	12 TO 15
TO 10	6	4	2" ID	2" ID	2" ID **
10 TO 15	5	4 (*)	2" ID	2" ID	2" ID **
15 TO 20	4	4 (*)	2" ID	2" ID **	2" ID **
20 TO 25	3	4 (*) (***)	2" ID	2" ID **	NA

VERTICAL HYDRAULIC SHORE OSHA TYPE "C-80" SOIL					
DEPTH OF TRENCH (FT)	MAXIMUM CYLINDER HORIZONTAL SPACING (FT)	MAXIMUM CYLINDER VERTICAL SPACING (FT)	WIDTH OF TRENCH (FT)		
			TO 8	8 TO 12	12 TO 15
TO 10	5	4 (*)	2" ID	2" ID	2" ID **
10 TO 15	3.5	4 (*)	2" ID	2" ID **	NA
15 TO 20	2.5	4 (*) (***)	2" ID	2" ID **	NA
20 TO 25	-	-	-	-	NA

NOTE:
* SHEETING IS REQUIRED AT THIS DEPTH. SHEETING MUST EXTEND DOWN TO A MINIMUM OF 24" OFF THE BOTTOM OF EXCAVATION
** OVERSLEEVE IS REQUIRED. 3.5"x3.5"x3/16" ALUMINUM TUBE, 3"ø STANDARD ALUMINUM PIPE, OR EQUIVALENT STEEL OVERSLEEVE.
*** SHEETING MUST EXTEND TO BOTTOM OF TRENCH

SIGNATURE DATE:
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ALUMINUM HYDRAULIC SHORES
MANUFACTURES TABULATED DATA

SACRAMENTO
2175 ACOMA STREET
SACRAMENTO, CA 95815

SHEET NO.
TD2.0
SHEET 2 OF 4
DATE
02/20/20
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B.K.W.
JOB NO.
20.064-01

TRENCH AND TRAFFIC SUPPLY

GENERAL NOTES:

1. THIS IS DEPENDENT ON CLASSIFYING THE SOIL IN ACCORDANCE WITH OSHA APPENDIX A, SOIL CLASSIFICATION SHALL BE JUST PRIOR TO INSTALLING THE SHORES. THIS MUST BE DONE BY AN OSHA DEFINED COMPETENT PERSON ON SITE.

2. SHEETING: 1-1/8" PLYWOOD OR BETTER, 3/4" THICK 14 PLY FINFORM, SHEET PILE (ALUMINUM PS A4), KD VI/8 SHEETS, OR 1" STEEL PLATE. THIS IS FOR RAVELING & SLOUGHING ONLY. IT MAY BE REQUIRED IN ANY TYPE SOIL AND MUST BE USED IN TYPE "C-60" OVER 10' DEEP.

3. SOIL (TYPE "C-60" OR BETTER) MUST BE ABLE TO STAND LONG ENOUGH TO INSTALL THE SHORING. THE SHORES SHALL BE REMOVED FROM OUTSIDE OF THE EXCAVATION. THE SHORING MUST BE INSTALLED PRIOR TO ENTERING THE EXCAVATION.

4. THE SHORING IS ASSUMED TO BE IN PLACE THREE MONTHS OR LESS.

5. THERE MUST BE AT LEAST 3 COLUMNS OF SHORING IN THE TRENCH AT ALL TIMES AT THE HORIZONTAL SPACING INDICATED, OR LESS, TO FORM A SHORING SYSTEM. FOR EXCAVATIONS THAT ARE TOO SHORT TO PLACE 3 OR MORE COLUMNS OF SHORES AT THE REQUIRED SPACING, THERE SHALL BE 2 SHORES WITH 1 EACH AT LEAST 18" FROM THE END OF THE TRENCH.

6. TRENCH WALLS ARE TO BE VERTICAL, PARALLEL, AND WITHOUT VOIDS BEHIND THE CYLINDERS. EXCAVATION SHALL BE DUG NEAT.

7. SHORING LOADING SHALL BE DETERMINED FROM THE DEPTH OF THE EXCAVATION AND NOT FROM THE LOCATION OF THE CYLINDER.

8. EXCAVATIONS LESS THAN 5' DEEP MAY REQUIRE SHORING.

9. FOR VERTICAL SPACING THERE MUST BE A CYLINDER WITHIN 4' OF THE BOTTOM OF EXCAVATION AND 6" MINIMUM TO 24" MAXIMUM FROM THE TOP OF EXCAVATION. ALL SPACING CENTER TO CENTER.

10. THE RAILS MAY BE SET OFF VERTICAL PROVIDED THE HORIZONTAL AND VERTICAL CYLINDER SPACING IS MAINTAINED PER THIS TABULATED DATA.

11. SINGLE CYLINDER SHORES MAY BE USED IN PLACE OF MULTIPLE CYLINDER SHORES PROVIDED THE HORIZONTAL AND VERTICAL SPACING IS MAINTAINED.

12. VERTICAL HYDRAULIC SHORES ARE TABULATED BASE ON THE EFFECT OF A 20,000 POUND SURCHARGE LOAD SET BACK 2' FROM THE EDGE OF THE EXCAVATION AND THE EQUIVALENT WEIGHT EFFECT OF THE OSHA DEFINED SOIL TYPE.

13. A COMPETENT PERSON SHALL PROVIDE INSPECTIONS DAILY AND AS REQUIRED FOR HAZARDOUS CONDITIONS. INSPECTIONS SHALL BE PROVIDED BEFORE WORKERS ENTER THE PROTECTED AREA AND AS NEEDED THROUGHOUT THE WORK PERIOD. THE COMPETENT PERSON SHALL CHECK FOR POTENTIAL CAVE-INS, INDICATIONS OF FAILURE OF THE PROTECTIVE SYSTEM. IF THE COMPETENT PERSON FINDS OR SUSPECTS A HAZARDOUS SITUATION, WORKERS SHALL BE REMOVED FROM THE PROTECTED AREA. NO WORKERS SHALL RETURN TO THE PROTECTED AREA UNTIL REMEDIAL MEASURES HAVE BEEN PUT INTO PLACE TO INSURE THEIR SAFETY.

14. NO VERTICAL LOADS ARE TO BE APPLIED TO THE SHORES.

15. SPOILS AND WHEEL LOADS ARE TO BE KEPT A MINIMUM OF 2 FEET AWAY FROM THE EDGE OF THE TRENCH.

16. SPACING CHARTS ARE BASED ON SOIL TYPES AS DEFINED IN OSHA, CFR 29, SUB-PART P, AND FED OSHA SAFETY ORDERS TITLE 8 SECTIONS 1504, 1539-1547.

17. TYPE C-60 SOIL IS SOIL WITH UNCONFINED COMPRESSIVE STRENGTH OF LESS THAN 0.5 TSF AND NON COHESIVE MATERIAL THAT IS FULLY DEWATERED.

18. THE BOTTOM CYLINDER MAY BE 5' FROM BOTTOM OF EXCAVATION FOR ROUND BOTTOM TRENCH ONLY.

REGISTERED PROFESSIONAL ENGINEER
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SIGNATURE DATE:
APR 21 2020

REVISED: 04/21/2020

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TAB DATA

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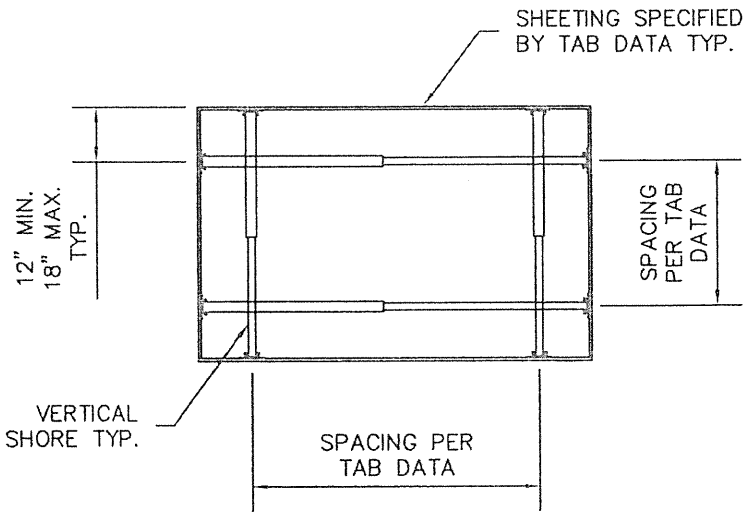
ALUMINUM
HYDRAULIC SHORES
MANUFACTURES TABULATED DATA

SACRAMENTO
2175 ACOMA STREET
SACRAMENTO, CA 95815

SHEET NO. TD3.0
SHEET 3 OF 4
DATE 02/20/20
DRAWN B.K.W.
JOB NO. 20.064-01

TRENCH AND TRAFFIC SUPPLY

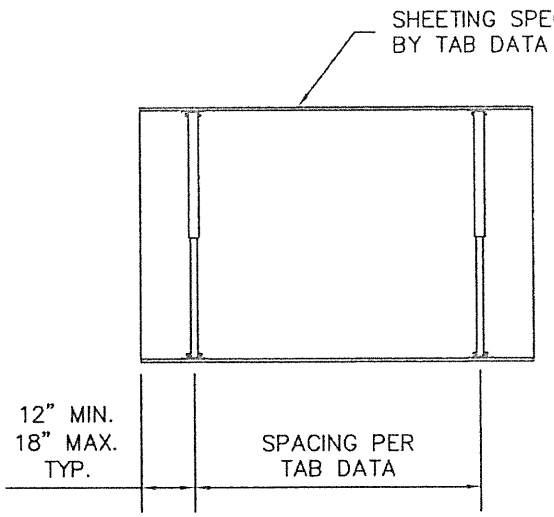
TYPICALS



PLAN VIEW

4 SIDED EXCAVATION
12' MAXIMUM DEPTH

Scale: NTS

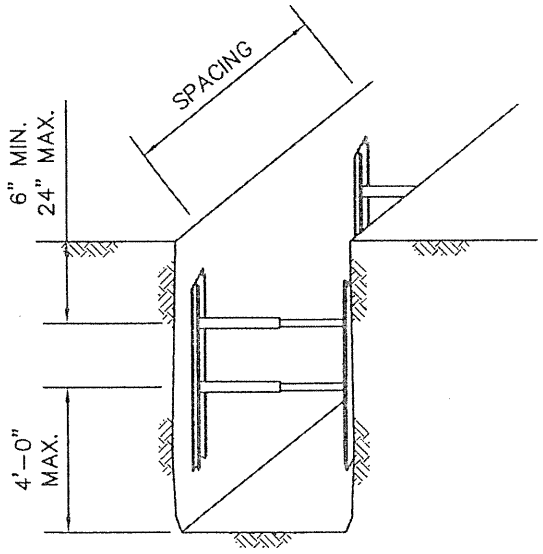


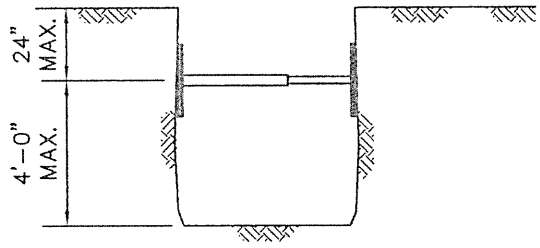
PLAN VIEW

EXCAVATION TOO SHORT TO SHORE WITH 3 SHORES
12' MAXIMUM DEPTH
MAXIMUM WIDTH 6' "A" & "B"
4' "C" SOIL TYPE

Scale: NTS

HORIZONTAL SPACING PER MANUFACTURES TABULATED DATA
REFER TO GENERAL NOTE 5





RE: USE SINGLE CYLINDER SHORE IN EXCAVATIONS TO 6' DEEP MAX.

SOIL BRIDGING MUST BE ESTABLISHED FOR THE PROPER FUNCTIONING OF THE SHORE CYLINDER TO CYLINDER, AS WELL AS, FROM CYLINDER TO SOIL AT THE BOTTOM OF THE EXCAVATION.

SINGLE CYLINDER SHORES MAY BE USED IN TRENCHES TO 6' DEEP MAX. AND ARE IN CONFORMANCE WITH THE MANUFACTURES TABULATED DATA FOR 18" RAIL SINGLE CYLINDERS.

SIGNATURE DATE:
APR 21 2020

SHEET TITLE: TAB DATA	ALUMINUM HYDRAULIC SHORES	SACRAMENTO	SHEET NO.: TD4.0 SHEET 4 OF 4
B.K. WELLINGTON Engineering, Inc.	MANUFACTURES TABULATED DATA	2175 ACOMA STREET SACRAMENTO, CA 95815	DATE: 02/20/20
122 CALISTOGA ROAD #591 · SANTA ROSA, CA 95409 PH: (707) 595-5423			DRAWN: B.K.W.
			JOB NO.: 20.064-01