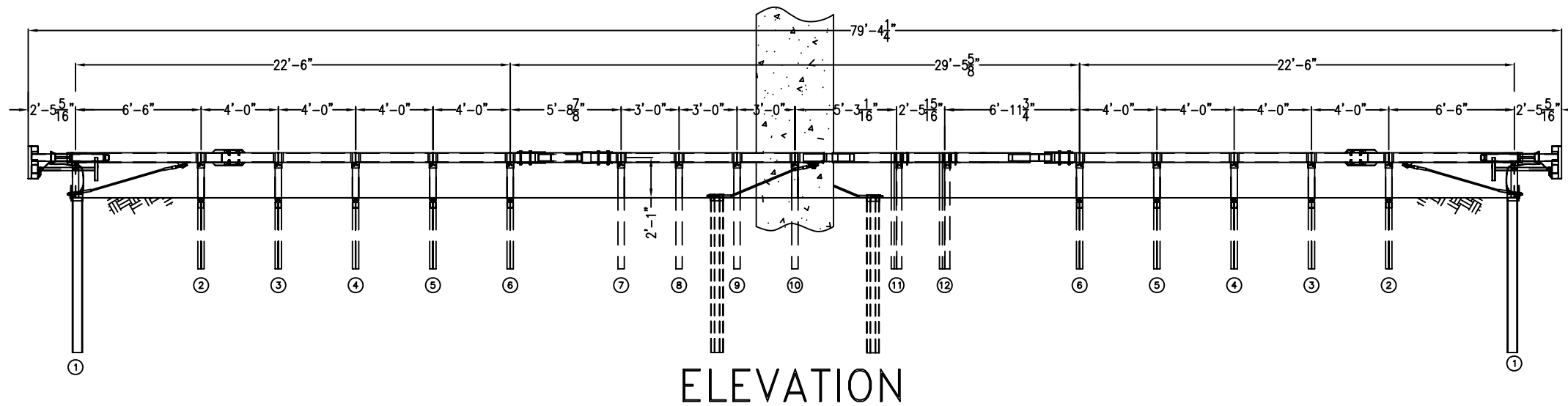
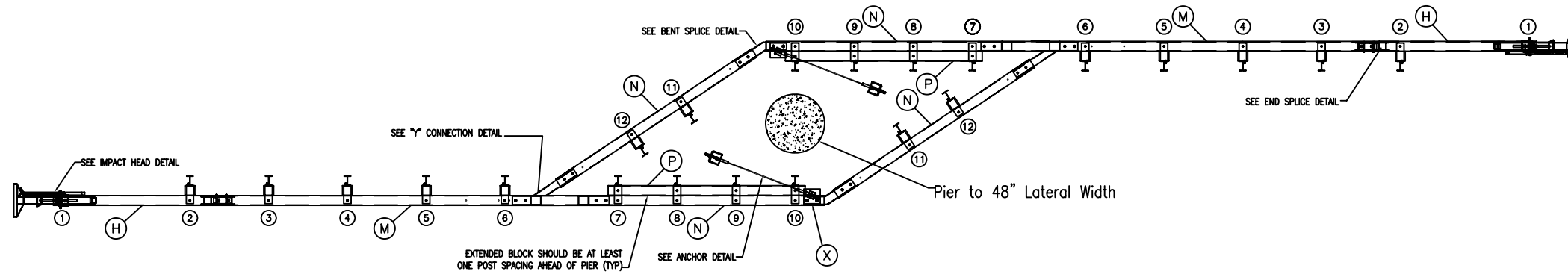
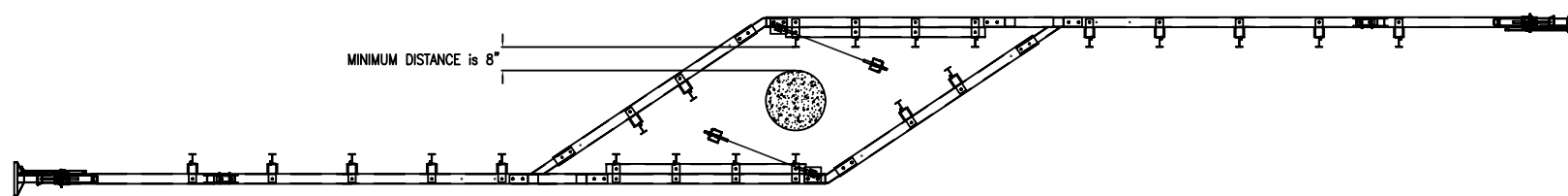


# PLAN

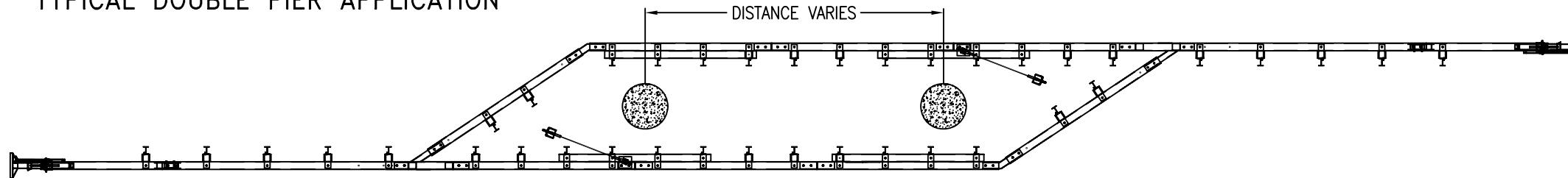


# ELEVATION

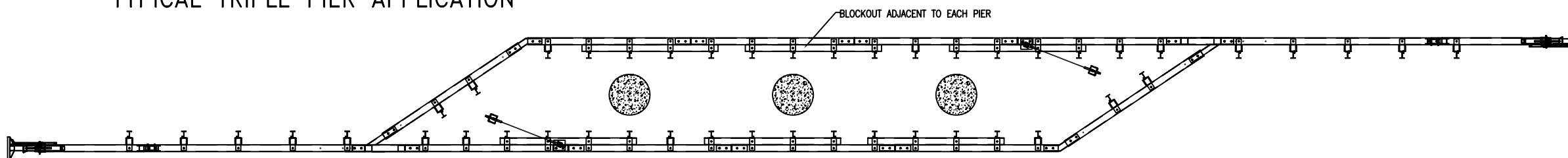
## TYPICAL SINGLE PIER APPLICATION



## TYPICAL DOUBLE PIER APPLICATION



## TYPICAL TRIPLE PIER APPLICATION



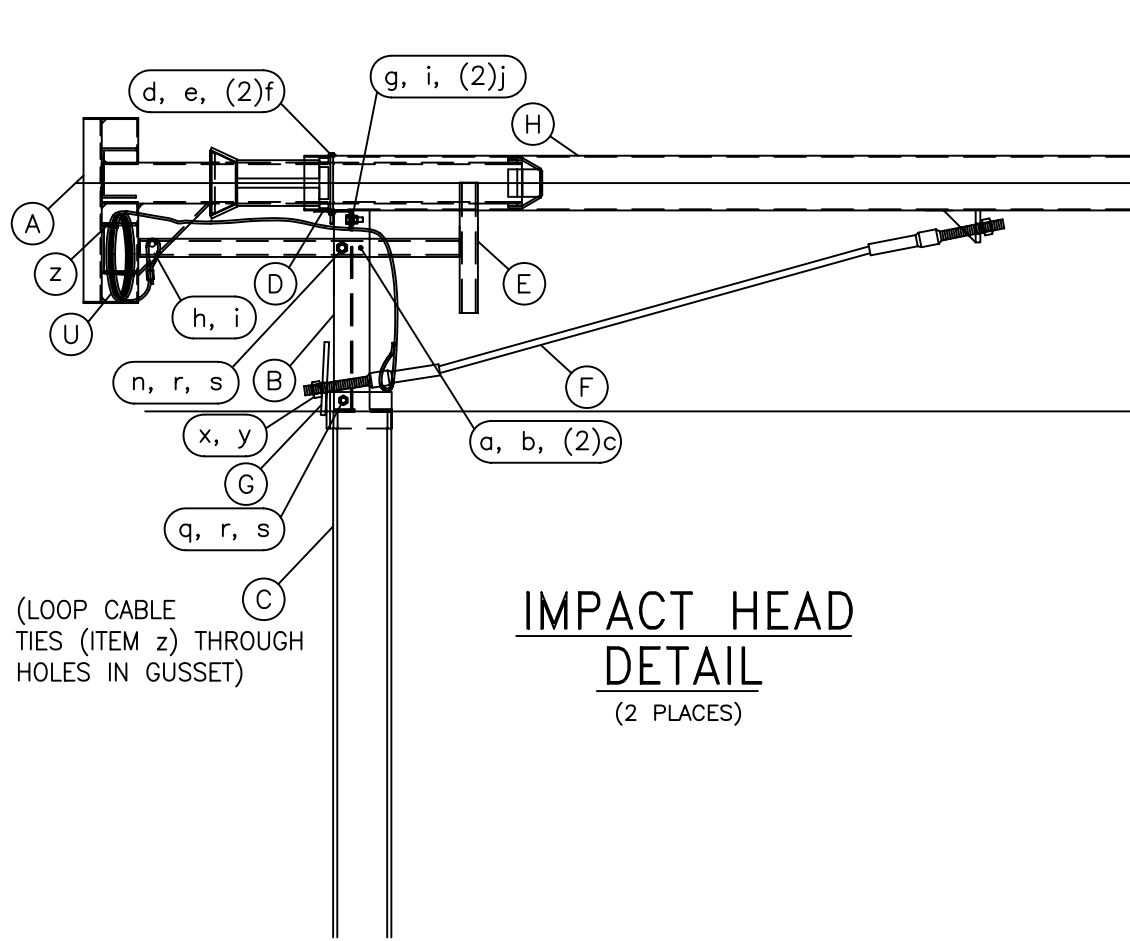
### General Notes for the BEAT-BP:

- 1.) Unless otherwise noted, all hardware, cable assemblies, tubing, posts, impact heads and other steel components shall be galvanized.
- 2.) When site conditions permit, posts may be driven. If posts are placed in a drilled hole, the backfill material must be satisfactorily compacted to prevent settlement.
- 3.) Contact the manufacturer for installation recommendations when rock is encountered.
- 4.) The lower section of post #1 should not be driven with the upper post section attached.
- 5.) The breakaway cable assembly must be taut. A locking device (vice grips or channel locks) should be used to prevent the cable from twisting when tightening nuts.
- 6.) An object marker meeting State specifications should be installed on the front of the impact head.
- 7.) The approach area in front of the BEAT-BP and the area within the system itself shall be free of fixed obstacles and have a fill slope or a cut slope of 10:1 or flatter.



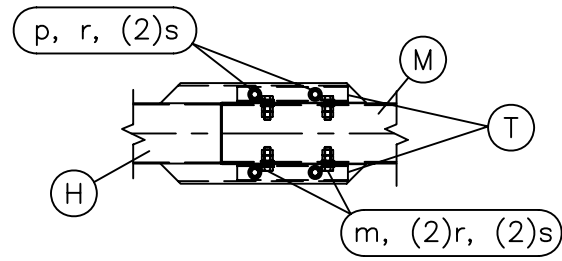
BEAT BRIDGE PIER PROTECTION SYSTEM  
TYPICAL SYSTEM LAYOUT FOR SINGLE PIER  
Drawing Name: BEAT-BP-1P  
Scale: NONE

Sheet: S1  
Date: 05/24/06  
By: JRR  
Rev:



**IMPACT HEAD  
DETAIL**

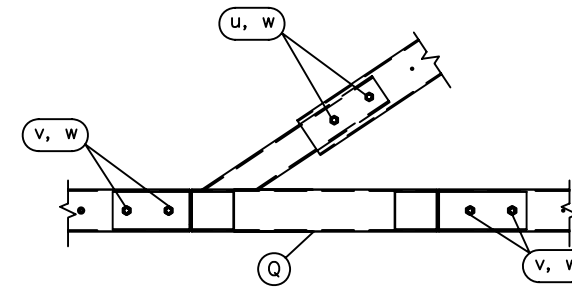
(2 PLACES)



**END SPLICE DETAIL**

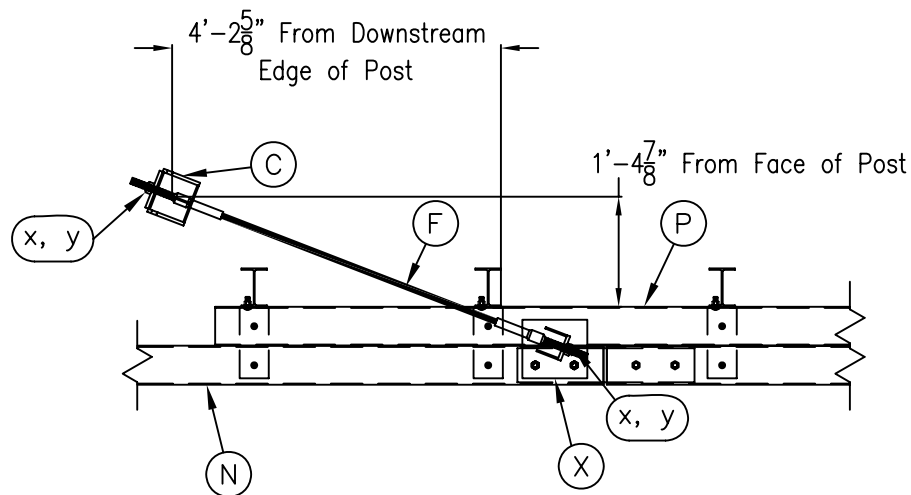
(2 PLACES)

ITEM T SPLICE CHANNELS WILL SET ON THE TOP AND BOTTOM OF ITEM M SECOND RAIL. THE BENT PLATES WELDED TO THE END OF ITEM H END TUBE RAIL WILL SET ON TOP OF ITEM T SPLICE CHANNELS



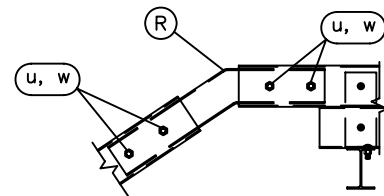
**"Y" CONNECTION DETAIL**

(2 PLACES)



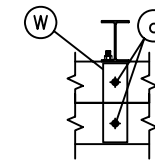
**ANCHOR DETAIL**

(2 PLACES)



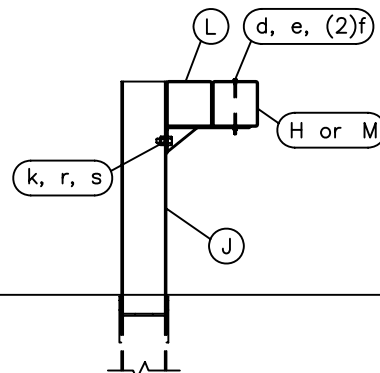
**BENT SPLICE DETAIL**

(2 PLACES)



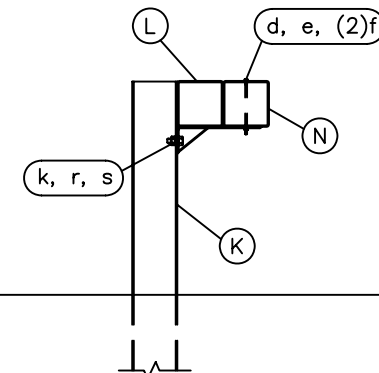
**TIE PLATE DETAIL**

(8 PLACES)



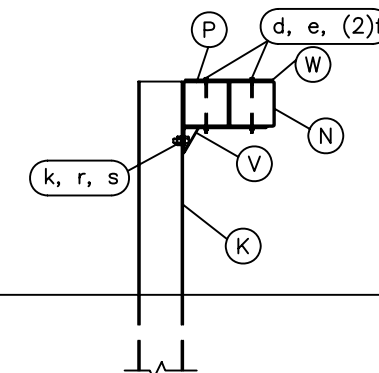
**POSTS 2 THRU 6**

(10 PLACES TOTAL)



**POSTS 11, 12**

(4 PLACES TOTAL)



**POSTS 7 THRU 10**

(8 PLACES TOTAL)

ITEM	QTY	DESCRIPTION
A	2	Box-Beam Impact Head
B	2	Upper End Post W6x9# x 21 1/2"
C	4	Lower End Post W6x15# x 8'-0"
D	2	Support Bracket L 4" x 2" x 4" LG.
E	2	Post Breaker Welded TS 2" x 2" x 1/4"
F	4	Cable Anchor Assembly
G	2	Cable Anchor Bearing Plate
H	2	End Tube Rail 8'-0" LG. x 1/8" THICK
J	10	Steel Breakaway Post W6x9# x 6'-0"
K	12*	Standard Steel Post W6x9# x 6'-0"
L	14*	Support Bracket TS 6" x 6" w/ Bent PL.
M	2	Second Rail 16'-2 1/2" LG.
N	4*	BP-Rail Section 11' - 11 1/2" LG.
P	2*	Extended Block 10' LG.
Q	2	"Y" Connection
R	2	Bent Splice
S	0*	Box Beam Splice Plates w/Nuts (2 per splice)
T	4	End Section Splice Channel Bent PL.
U	2	3/8" GALV. Cable 20' LG.
V	8*	Support Bracket
W	8*	Tie Plate
X	2	Anchor Plate
HARDWARE		
a	2	1/4" x 3" Hex Bolt
b	2	1/4" Hex Nut
c	4	1/4" Washer
d	32*	5/16" x 7 1/2" Hex Bolt Grade 5
e	32*	5/16" Hex Nut
f	64*	5/16" Washer
g	2	1/2" x 2" Hex Bolt Grade 2
h	2	1/2" x 5" Hex Bolt Grade 5
i	4	1/2" Hex Nut
j	4	1/2" Washer
k	22*	5/8" x 1 1/2" Hex Bolt Grade 5
m	8	5/8" x 2 1/2" Hex Bolt Grade 5
n	2	5/8" x 3" Hex Bolt Grade 5
p	8	5/8" x 6" Hex Bolt Grade 5
q	2	5/8" x 8" Hex Bolt Grade 5
r	50*	5/8" Hex Nut
s	58*	5/8" Washer
t	0*	3/4" x 2" Hex Bolt Grade 5
u	12	3/4" x 7" Hex Bolt Grade 5
v	8	3/4" x 8" Hex Bolt Grade 5
w	20	3/4" Hex Nut
x	8	1" Hex Nut Grade 5
y	8	1" Washer Grade 5
z	4	Cable Tie

\* QUANTITY VARIES DEPENDING ON PIER SPACING



BEAT BRIDGE PIER PROTECTION SYSTEM  
SYSTEM DETAILS AND PARTS LIST

Sheet: **S2**  
Date: 05/24/06  
By: JRR

Drawing Name: BEAT-BP-1P Scale: NONE