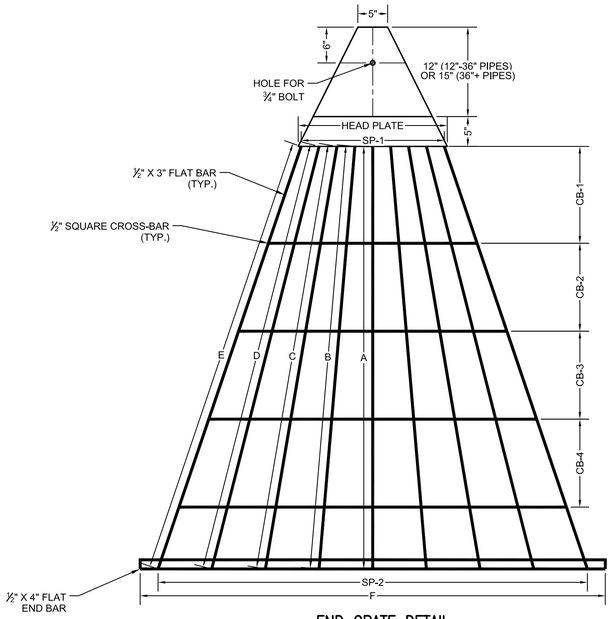


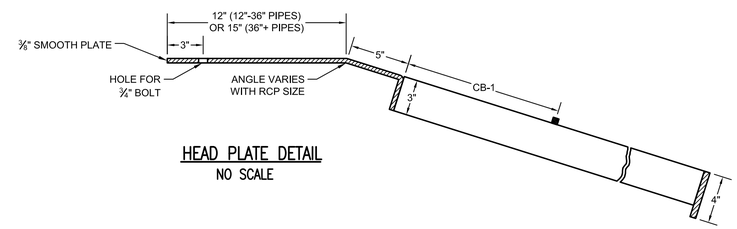
END GRATE DETAIL

NO SCALE

NOTE: GRATE TO BE USED AS DIRECTED BY THE CITY OF WICHITA.

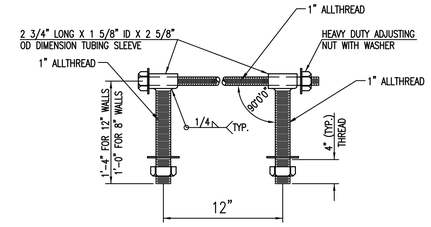
GRATE DIMENSIONS

PIPE SIZE	HEAD PLATE	A	B	C	D	E	F	CB-1	CB-2	CB-3	CB-4	SP-1	SP-2
12"	13"	19¼"	19⅜"	–	–	–	27"	10⅜"	–	–	–	3@4"	3@6"
15"	13"	23½"	25¼"	–	–	–	34"	10¾"	–	–	–	3@4"	3@8"
18"	13"	25"	26⅛"	–	–	–	40"	12⅞"	–	–	–	3@4"	3@9"
24"	17"	41½"	42½"	43½"	–	–	53"	12"	15"	–	–	4@4"	4@9"
30"	19"	51½"	52½"	53½"	–	–	65"	16¼"	11¾"	12"	–	2@3"+3@4"	5@9"
36"	21"	60½"	61½"	62½"	–	–	78"	18⅝"	14¼"	16"	–	2@2"+4@4"	6@9"
42"	22"	65½"	66½"	67⅜"	68¾"	–	86"	13⅜"	12⅝"	13"	11¾"	7@3"	7@9"
48"	25"	70⅞"	71"	71¾"	73"	74½"	90"	16¼"	14¾"	14¾"	14¾"	8@3"	8@9"
54"	26"	71¾"	73"	74½"	74¾"	76¾"	96"	6⅞"	20⅞"	17⅞"	15⅝"	4@2¾"+5@3"	9@9"
60"	28"	61⅛"	61¾"	62¾"	64½"	66⅝"	102"	12"	12"	11½"	13"	2@2"+8@3"	10@9"



HEAD PLATE DETAIL

NO SCALE

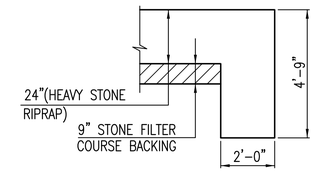


HEAVY DUTY (H.D.) COUPLER(≥36")

NO SCALE

NOTES

1. BOLTS TO BE A-36 1 1/2" DIAMETER.
2. BOLTS, NUTS, WASHERS AND SLEEVES TO BE ZINC PLATED.
3. WASHERS TO BE 3 1/2" O.D. X 7 GAUGE.
4. SHIP WITH NUTS AND WASHERS PLACED ON BOLTS.



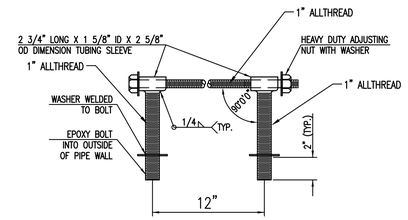
TYPICAL SECTION THRU TOEWALL

NO SCALE

NOTES

1. ALL RIPRAP FOR THIS PROJECT SHALL BE NATURAL STONE. NEITHER BROKEN CONCRETE, FABRIC ENVELOPE, NOR PREMIXED DRY PACKAGED CONCRETE BAG ALTERNATES WILL BE ALLOWED, UNLESS INDICATED OTHERWISE.
2. TOEWALLS SHALL BE INSTALLED ALONG ALL UNPROTECTED EDGES OF STONE RIPRAP.
3. GROUTING OF THE SURFACE OF THE RIPRAP SHALL NOT BE PERFORMED, UNLESS INDICATED OTHERWISE. GROUTING OF THE TOEWALLS SHALL BE PERFORMED PER CITY SPECIFICATIONS.

HEAVY STONE RIPRAP DETAILS

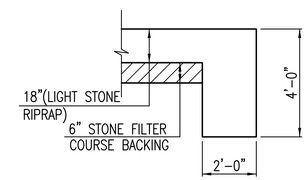


HEAVY DUTY (H.D.) COUPLER(≤30")

NO SCALE

NOTES

1. BOLTS TO BE A-36 1 1/2" DIAMETER.
2. BOLTS, NUTS, WASHERS AND SLEEVES TO BE ZINC PLATED.
3. WASHERS TO BE 3 1/2" O.D. X 7 GAUGE.
4. SHIP WITH NUTS AND WASHERS PLACED ON BOLTS.



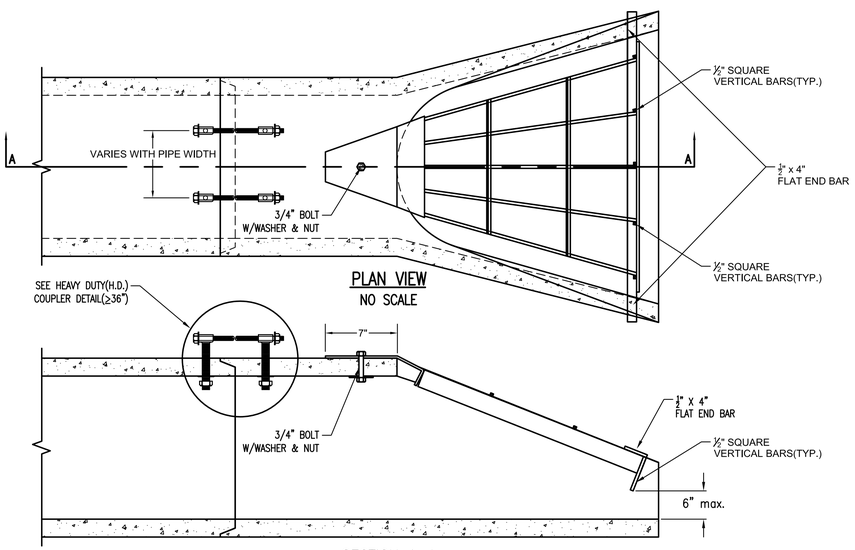
TYPICAL SECTION THRU TOEWALL

NO SCALE

NOTES

1. ALL RIPRAP FOR THIS PROJECT SHALL BE NATURAL STONE. NEITHER BROKEN CONCRETE, FABRIC ENVELOPE, NOR PREMIXED DRY PACKAGED CONCRETE BAG ALTERNATES WILL BE ALLOWED, UNLESS INDICATED OTHERWISE.
2. TOEWALLS SHALL BE INSTALLED ALONG ALL UNPROTECTED EDGES OF STONE RIPRAP.
3. GROUTING OF THE SURFACE OF THE RIPRAP SHALL NOT BE PERFORMED, UNLESS INDICATED OTHERWISE. GROUTING OF THE TOEWALLS SHALL BE PERFORMED PER CITY SPECIFICATIONS.

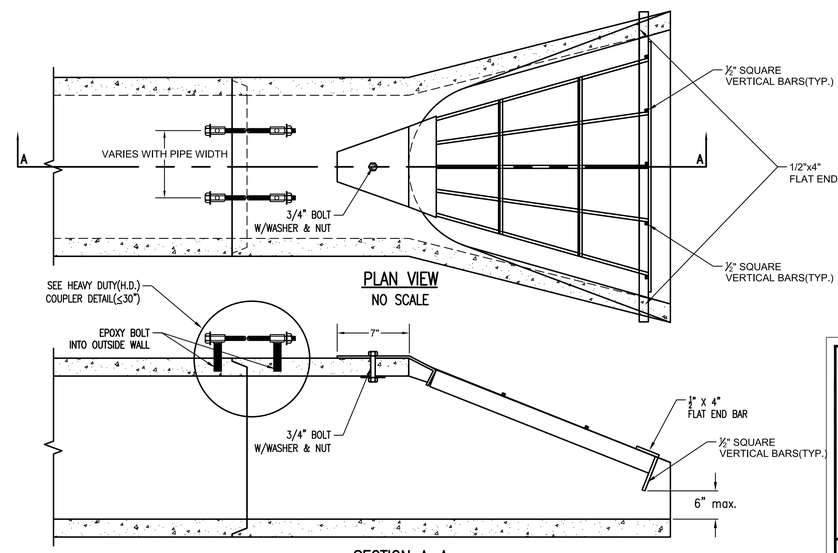
LIGHT STONE RIPRAP DETAILS



PLAN VIEW

NO SCALE

SECTION A–A



PLAN VIEW

NO SCALE

SECTION A–A

CITY OF WICHITA

PUBLIC WORKS & UTILITIES
ENGINEERING DIVISION

END SECTION, PIPE
RESTRAINT COUPLER
& END GRATE

CITY ENGINEER
GARY JANZEN, P.E

PROJECT NUMBER	OCA NUMBER	DATE
		01/2015

CITY ENGINEER'S OFFICE
CITY HALL - SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202-1620
(316) 268-4501

DESIGN | DRAWN

SHEET
2.2

SW-408