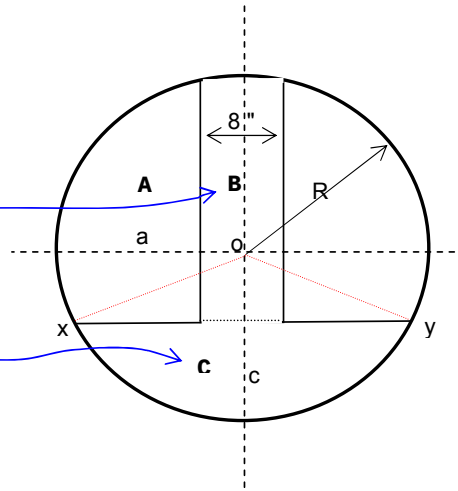


TRAILS ORIFICE PLATES**FIND:** Orifice Area, $O = B + C$

Pipe ID, in. = 48 " 1810 in²
 Radius, R, in. = 24 " = 12.57 ft²
 Orifice Ht., c, in. = 9 "
 Slot width, b, in. = 8 "
 $a = R - b/2 = 20$ "
 Area "B" $\approx (2R-c)*b = 312$ in² 2.17 ft²
 $\cos^{-1}(XOY/2) = 51.32^\circ$
 XOY = Angle x-o-y = 102.64 °
 Sector = $(XOY/360)*PI*R^2 = 516$ in²
 Triangle = $R*\sin(XOY/2)*(R-c) = 281$ in²
 Area "C" = Sector - Triangle = 235 in² 1.63 ft²
 Orifice O = B + C = 547 in² 3.80 ft²



POND ==>	D	E	F	G	H	J	K
Pipe ID, in. =	30 "	30 "	48 "	42 "	30 "	48 "	48 "
Radius, R, in. =	15 "	15 "	24 "	21 "	15 "	24 "	24 "
Orifice Ht., c, in. =	9 "	10 "	9 "	10 "	12 "	14 "	20 "
Slot width, b, in. =	8 "	8 "	8 "	8 "	8 "	8 "	8 "
$a = R - B/2 =$	11 "	11 "	20 "	17 "	11 "	20 "	20 "
Area of B $\approx (2R-c)*b =$	168 in ²	160 in ²	312 in ²	256 in ²	144 in ²	272 in ²	224 in ²
Slot "B" =	1.17ft ²	1.11ft ²	2.17ft ²	1.78ft ²	1.00ft ²	1.89ft ²	1.56ft ²
$\cos^{-1}(XOY/2) =$	1.16 Rad.	1.23 Rad.	0.90 Rad.	1.02 Rad.	1.37 Rad.	1.14 Rad.	1.40 Rad.
XOY = Angle x-o-y =	133 °	141 °	103 °	117 °	157 °	131 °	161 °
Sector = $(XOY/360)*PI*R^2 =$	261 in ²	277 in ²	516 in ²	450 in ²	308 in ²	657 in ²	808 in ²
Triangle = $R*\sin(XOY/2)*(R-c) =$	82 in ²	71 in ²	281 in ²	197 in ²	44 in ²	218 in ²	95 in ²
Area "C" = Sector - Triangle =	178 in ²	206 in ²	235 in ²	253 in ²	264 in ²	439 in ²	714 in ²
"C" =	1.24ft ²	1.43ft ²	1.63ft ²	1.76ft ²	1.83ft ²	3.05ft ²	4.96ft ²
Area "C" / DMP Value =	100%	100%	100%	100%	100%	100%	100%

Orifice O = B + C =	346 in ²	366 in ²	547 in ²	509 in ²	408 in ²	711 in ²	938 in ²
	2.41ft ²	2.54ft ²	3.80ft ²	3.53ft ²	2.83ft ²	4.94ft ²	6.51ft ²
"C" + Slot /DMP Value =	194%	178%	233%	202%	155%	162%	131%
% of Pipe ->	49%	52%	30%	37%	58%	39%	52%
POND ==>	D	E	F	G	H	J	K

DMP Value =	1.24ft ²	1.43ft ²	1.63ft ²	1.75ft ²	1.83ft ²	3.05ft ²	4.96ft ²
% of Pipe ->	47%	54%	19%	28%	69%	35%	57%
POND ==>	D	E	F	G	H	J	K

(B+C) minus DMPvalue (sf) =	1.17	1.11	2.17	1.78	1.00	1.89	1.55
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