COA Inlet Capacity Calculations
Marble Arno LOMR

COA Nominal Graphs							Notes
Inlet Type	Road Side	Slope	Clogging Factor	Discharge/Inlet*	# of Inlets	Capacity	
		%	%	cfs		cfs	
Double A Grate w/ throat	North	2%	15%	12.8	5	64.0	New Installed On Grade (Lomas and East of Broadway)
	South	2%	15%	12.8	7	89.6	New Installed On Grade (Lomas and East of Broadway)
						153.6	Total Inlet Capacity at Lomas Blvd and Arno St (newly installed inlets)
Double D Grate	North Side	2%	15%	12.8	1	12.8	Edith and Lomas (Northwest Corner)
Double C Grate	North Side	0.2%	15%	7.7	2	15.4	Existing on grade (Lomas and Arno South)
Double C Grate	North Side	2%	15%	12.8	1	12.8	Existing on grade (Lomas and Arno Northwest corner)
Subtotal of Inlet Capacity in Project Vicinity (Including newly installed inlets on Lomas Blvd)						194.6	
* From COA Grate Capacities for Types "Single A" Page 6-69 of 2020 DPM. Capacity calculated for grate, additional capacity through curb opening.							
* From COA Grate Capacities for Types "Double A" Page 6-70 of 2020 DPM. Capacity calculated for grate, additional capacity through curb opening.							

Manhole Flooding Summary from PCSWMM on Lomas Blvd			
Manhole Name	Surcharge Depth (ft)	Flood Rate (cfs)	Inlet Capacity (cfs)
	(a)	(b)	(c)
Ex6ftMH1	0.67	24.4	-
COA7870	0.67	56.7	-
Ex.54LomasBlvd	0.67	17.9	-
Total Flood Discharge		99.0	153.6

(a) A surcharge depth was added to model to account for the 8 inch curb in Lomas Blvd.
(b)The flood rate will be captured by the downstream inlets installed at Lomas Blvd and Arno St. The total flood discharge rate can be conveyed in Lomas Blvd roadway.
(c) Inlet Capacity calculations are provided for installed inlets in Lomas Blvd, east of Arno St as part of the construction of the Marble-Arno Pump Station.

Medical Arts Ave Cattleguard Inlet Capacity Calculations
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Curb Opening (Treated As Orifice)

Orifice Calcs

Qo = .6A√2gh

A = Open area of weir (sq. ft)	1.5
g = 32.2 (ft/s2)	32.20
H = Head (ft)	0.67
clogging factor =	0%
Qw = Capacity (cfs)	**5.9**
Number of Inlets	**2**
Total Discharge (cfs):	**11.8**

Notes:
Type "B" curb opening is approximately 6 inches (0.5 feet) tall by 36 inches wide (3 feet). 8 inch (0.67 feet) curb height, or head available.

Grate (Treated As Weir)

Weir Flow Calcs

Qw = 2.7L(H)1.5

P = Perimeter (ft)	23.4
H = Head (ft)	0.67
coefficient of discharge =	2.70
clogging factor =	15%
Qw = Capacity (cfs)	**29.5**

Notes:
Length of weir (P) is 23.4 feet since that's the length of grate perpendicular to flow. This calculation is discussed in the notes for "Grate Treated as Orifice"

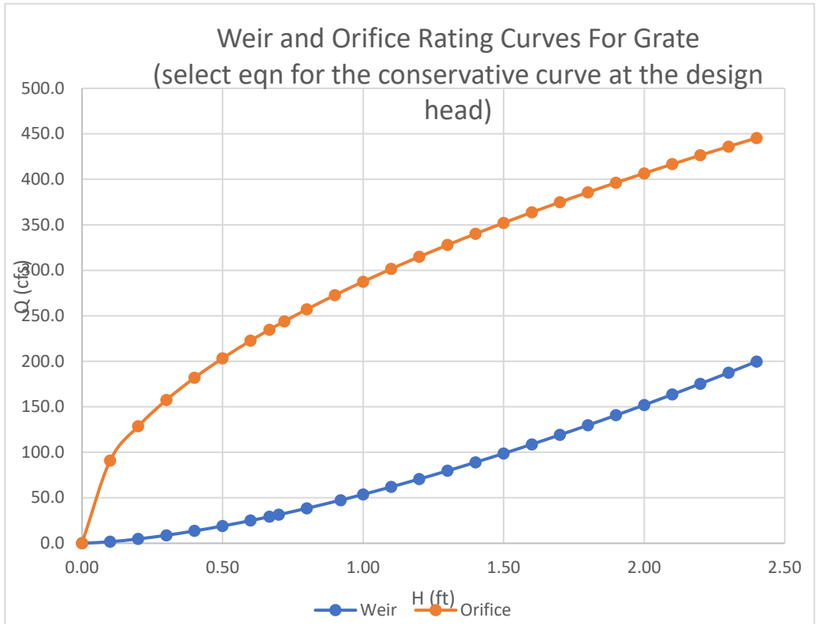
Grate (Treated As Orifice)

Orifice Calcs

Qo = .6A√2gh

A = Open area of grate (sq. ft)	70.3
g = 32.2 (ft/s2)	32.20
H = Head (ft)	0.67
clogging factor =	15%
Qo = Capacity (cfs)	**234.8**

Notes:
Total length of grate is 35 feet, then 2 type B inlet grate length total is 11.58 feet. Which will be the total length of the cattleguard.



Marble Ave and Arno St Cattleguard Inlet Capacity Calculations
Marble Arno LOMR

Curb Opening (Treated As Orifice)

Orifice Calcs

Qo = .6AV2gh

A = Open area of weir (sq. ft)	1.2
g = 32.2 (ft/s2)	32.20
H = Head (ft)	0.67
clogging factor =	0%
Qw = Capacity (cfs)	**4.6**
Number of Inlets	**2.0**
Total Discharge (cfs):	**9.2**

Notes:
Type "B" curb opening is approximately 4 inches (0.33 feet) tall by 42 inches wide (3.5 feet). 8 inch (0.67 feet) curb height, or head available.

Grate (Treated As Weir)

Weir Flow Calcs

Qw = 2.7L(H)1.5

P = Perimeter (ft)	30.0
H = Head (ft)	0.67
coefficient of discharge =	2.70
clogging factor =	15%
Qw = Capacity (cfs)	**37.8**

Notes:
Length of weir (P) is 30 feet since that's the length of grate perpendicular to flow. This calculation is discussed in the notes for "Grate Treated as Orifice"

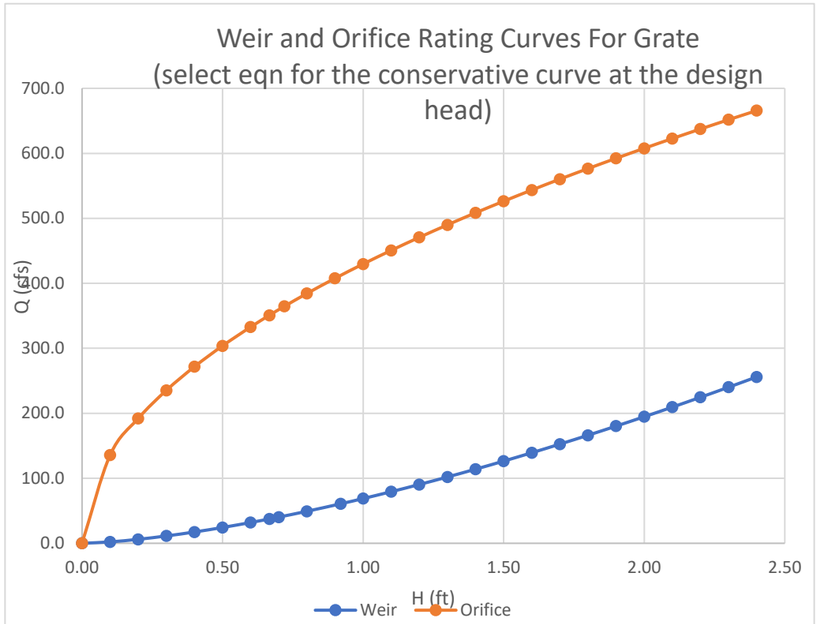
Grate (Treated As Orifice)

Orifice Calcs

Qo = .6AV2gh

A = Open area of grate (sq. ft)	105.0
g = 32.2 (ft/s2)	32.20
H = Head (ft)	0.67
clogging factor =	15%
Qo = Capacity (cfs)	**350.9**

Notes:
Total length of grate is 30 feet, then 2 type B inlet grates x 42" wide field measured.



Marble Ave and Arno St Double Type "A" Inlet Capacity Calculations
Marble Arno LOMR

Curb Opening (Treated As Orifice)

Orifice Calcs

Qo = .6A√2gh

A = Open area of weir (sq. ft)	5.0
g = 32.2 (ft/s2)	32.20
H = Head (ft)	0.67
clogging factor =	0%
Qw = Capacity (cfs)	**19.7**
Number of Inlets	**4**
Total Discharge (cfs):	**78.6**

Notes:
Type "A" curb opening is approximately 6 inches (0.5 feet) tall by 26 inches wide (2.17 feet). 8 inch (0.67 feet) curb height, or head available.

Grate (Treated As Weir)

Weir Flow Calcs

Qw = 2.7L(H)1.5

P = Perimeter (ft)	
H = Head (ft)	0.67
coefficient of discharge =	2.70
clogging factor =	15%
Qw = Capacity (cfs)	**0.0**

Notes:

Grate (Treated As Orifice)

Orifice Calcs

Qo = .6A√2gh

A = Open area of grate (sq. ft)	14.6
g = 32.2 (ft/s2)	32.20
H = Head (ft)	0.67
clogging factor =	15%
Qo = Capacity (cfs)	**48.9**
Number of Inlets	**4**
Total Discharge (cfs):	**195.5**

Notes:
Total length of grate is 81 inches (6.75 feet), then grate width total is 21 inches (2.17 feet).