



## Analysis of BaySeparator Removal Efficiencies

Project Name: Crossroads Mixed Use

Location: El Paso County, CO

### Project Information:

Drainage Area: 14 Acres  
2-Year Flow: 24.39 cfs  
100-Year Flow: 65.50 cfs

### Treatment System Information:

BaySeparator XK Unit  
Treatment Capacity: 25.0 cfs  
Peak Bypass Capacity: 96.2 cfs

The below table demonstrates the BaySeparator system has an average removal efficiency of 74% for incoming flows below, at, and above the listed treatment capacity of the specified system. These removal efficiencies were calculated based on data collected at the University of Minnesota's Saint Anthony Falls Laboratory and using the procedure outlined in the NJCAT verification program.

Fraction of MTR	Flow Rate (cfs)	Removal Efficiency	NJCAT Weighting Factor
25%	6.3	86%	0.25
50%	12.5	68%	0.30
75%	18.8	74%	0.20
100%	25.0	68%	0.15
125%	31.3	73%	0.10
Average Removal Efficiency		74%	

The 101 mg/L TSS incoming concentration is the "Median Event Mean Concentration for Urban Land Uses" provided by the Nationwide Urban Runoff Program (NURP).

Incoming EMC (mg/l)	Removal Efficiency (%)	Discharge EMC (mg/l)
101	74%	26.3 mg/l

As shown above, the proposed BaySeparator system for the Crossroads Mixed Use project site has an expected reduction of Effluent Mean Concentration to less than 30mg/l, thus meeting the water quality treatment requirement.

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## Analysis of BaySeparator Removal Efficiencies

Project Name: Crossroads Mixed Use

Location: El Paso County, CO

### Project Information:

Drainage Area: 18.2 Acres

2-Year Flow: 31.76 cfs

100-Year Flow: 112.1 cfs

### Treatment System Information:

BaySeparator XK Unit

Treatment Capacity: 32 cfs

Peak Bypass Capacity: 123 cfs

The below table demonstrates the BaySeparator system has an average removal efficiency of 74% for incoming flows below, at, and above the listed treatment capacity of the specified system. These removal efficiencies were calculated based on data collected at the University of Minnesota's Saint Anthony Falls Laboratory and using the procedure outlined in the NJCAT verification program.

Fraction of MTR	Flow Rate (cfs)	Removal Efficiency	NJCAT Weighting Factor
25%	8.0	86%	0.25
50%	16.0	68%	0.30
75%	24.0	74%	0.20
100%	32.0	68%	0.15
125%	40.0	73%	0.10
Average Removal Efficiency		74%	

The 101 mg/L TSS incoming concentration is the "Median Event Mean Concentration for Urban Land Uses" provided by the Nationwide Urban Runoff Program (NURP).

Incoming EMC (mg/l)	Removal Efficiency (%)	Discharge EMC (mg/l)
101	74%	26.3 mg/l

As shown above, the proposed BaySeparator system for the Crossroads Mixed Use project site has an expected reduction of Effluent Mean Concentration to less than 30mg/l, thus meeting the water quality treatment requirement.

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