



# 24th Street Bioretention Gardens

Part of the 26<sup>th</sup> & Corby CSO Sewer Separation Project

City of Omaha Stormwater Program & CSO Program



## SITE AND PROJECT SUMMARY

This project was a part of the 26<sup>th</sup> & Corby Sewer Separation Project. In addition to separating sanitary and storm sewer lines, a series of bioretention gardens were incorporated along 24<sup>th</sup> Street. The bioretention gardens were placed within the space between the street curb and the sidewalk along 24<sup>th</sup> Street, stretching from Maple to Binney Street.

The initial design for the bioretention gardens incorporated multiple layers of aggregate rock over the under-drain and an engineered soil distributed throughout the footprint of the system. Based on previous project experiences, the design was modified to reflect current Omaha bioretention design details and going from an in-line system to an offline system. Offline systems, once full, will have flows bypass the garden instead of flowing through it, in-line. Offline

systems reduce the overall stress placed on individual bioretention systems, including the plants within them.

Water enters the gardens through large square inlets where trash and sediment are captured before flowing into the vegetation and can be easily cleaned out. The gardens have been planted with palm & fox sedge throughout with prairie dropseed used in higher areas. They are fairly short in height, require no mowing, and are low maintenance once established.

The underdrain for each garden has a valve to adjust how fast water flows through them, allowing for flexibility in how they are maintained. These modifications (see details on the back of this sheet) resulted in approximately a 44% reduction in costs from the original design.



## PROJECT DETAILS

	BIORETENTION SYSTEM
Overall Bioretention Footprint	2,800 ft <sup>2</sup>
Inline or Offline System	Offline
Underdrain	4" PVC & washed limestone
Pre-Treatment System	Curb inlet concrete sump structures
Outlet Control	4" Slide-Gate Valve
Contributing Area	Approximately 10 acres
Predominant Land Use	Residential & Commercial
Percent Impervious (%)	Approximately 45%
Predominant Soil Types	Classic Urban Complex, Silty Clay Loam

COSTS	
Previous Design Cost	\$635,925.00
Modified Design Cost	\$351,414.00
Cost reduction	44%

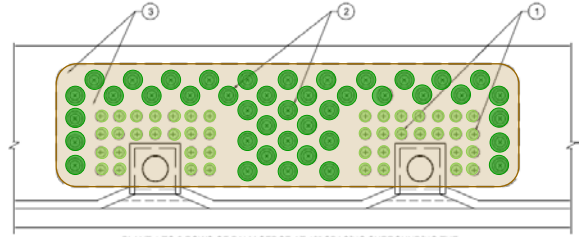
DESIGNED BY	CONSTRUCTED BY	MAINTENANCE BY
Tetra Tech	Roloff Construction	City of Omaha Stormwater Program



# SITE LOCATION – N 24<sup>th</sup> St & Locust St



# TYPICAL PLANTING LAYOUT



- ① PLANT 1 TO 2 ROWS OF PALM SEDGE AT 12" SPACING SURROUNDING THE BIOSWALE INLET STRUCTURE OUTSIDE OF PATIO STONE.
- ② PLANT OF VARIETY OF FOX SEDGE, PENNSYLVANIA SEDGE, ANA BROOM SEDGE AT 12-18" SPACING THROUGHOUT THE REMAINDER OF SWALE.
- ③ INSTALL SHREDDED HARDWOOD MULCH AROUND PLANTING PER CITY STD. FIGURE 8-15.

**BIOSWALE TYPICAL PLANTING LAYOUT**  
NO SCALE

## PRETREATMENT SUMPS



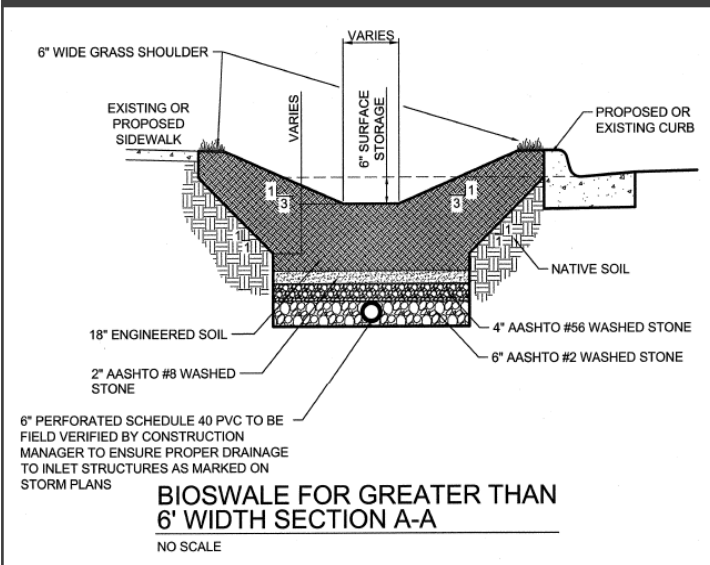
## SLIDE GATE VALVE



## PLANT INSTALLATION



## ORIGINAL DETAIL



## MODIFIED

