

RAINWATER HARVESTING SYSTEM AT VALLEY FAIR MALL

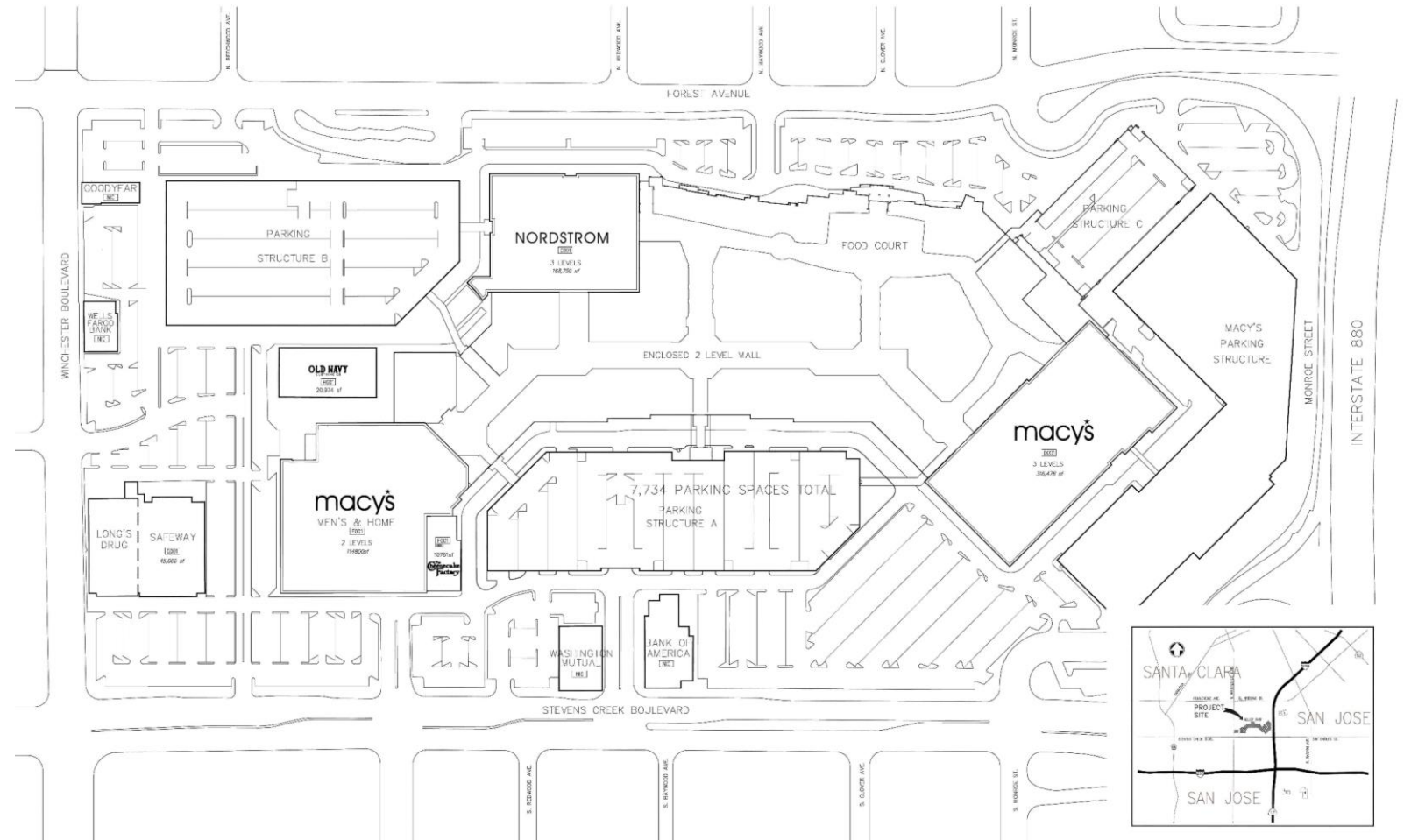


land use entitlements
land planning
land development
public works
civil engineering
landscape architecture
land surveying
stormwater compliance
arboriculture

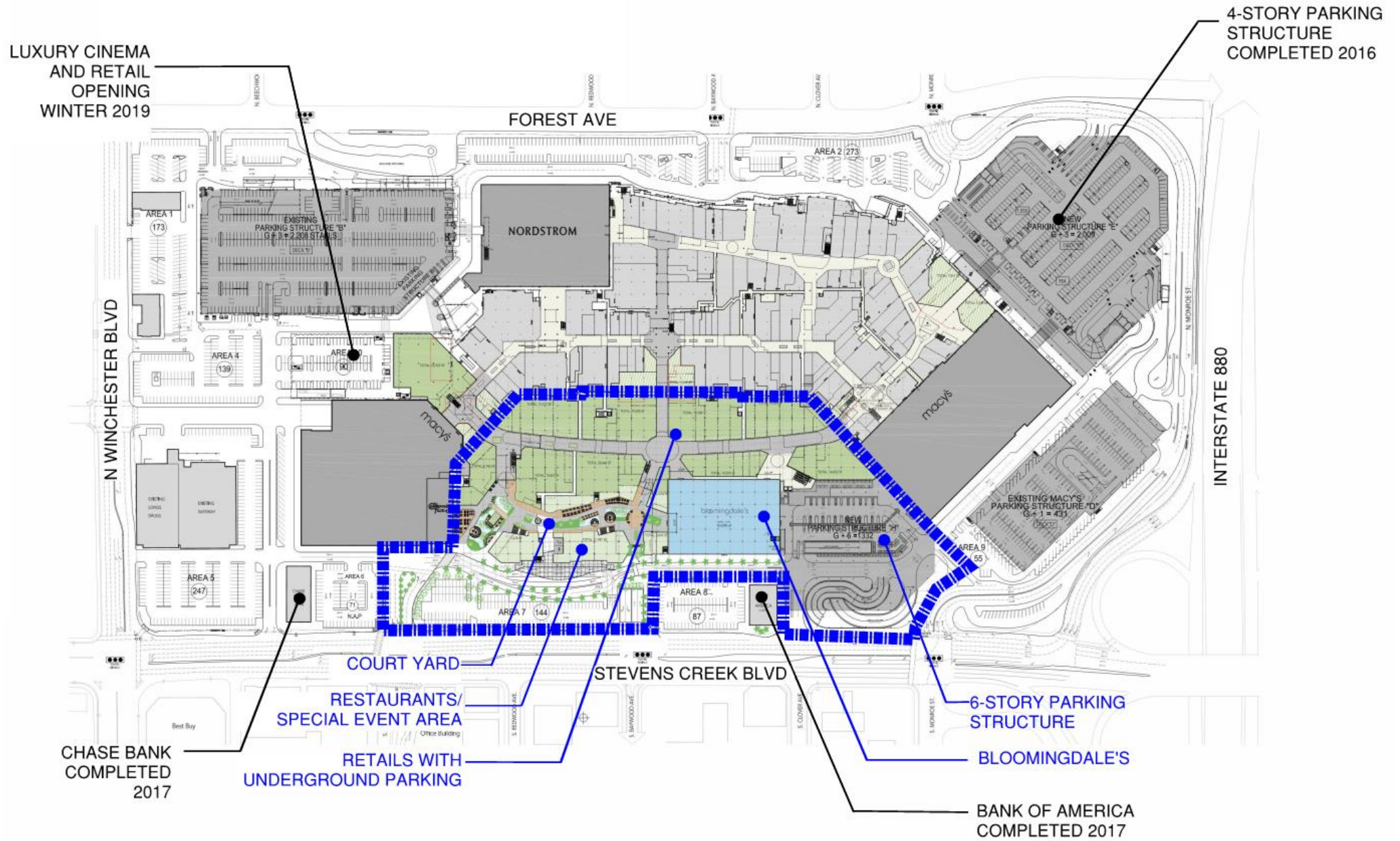


EXISTING SITE PLAN

- LOCATED IN BOTH THE CITY OF SAN JOSE AND CITY OF SANTA CLARA
- MOST PROFITABLE WESTFIELD MALL ON THE WEST COAST



PROPOSED SITE PLAN

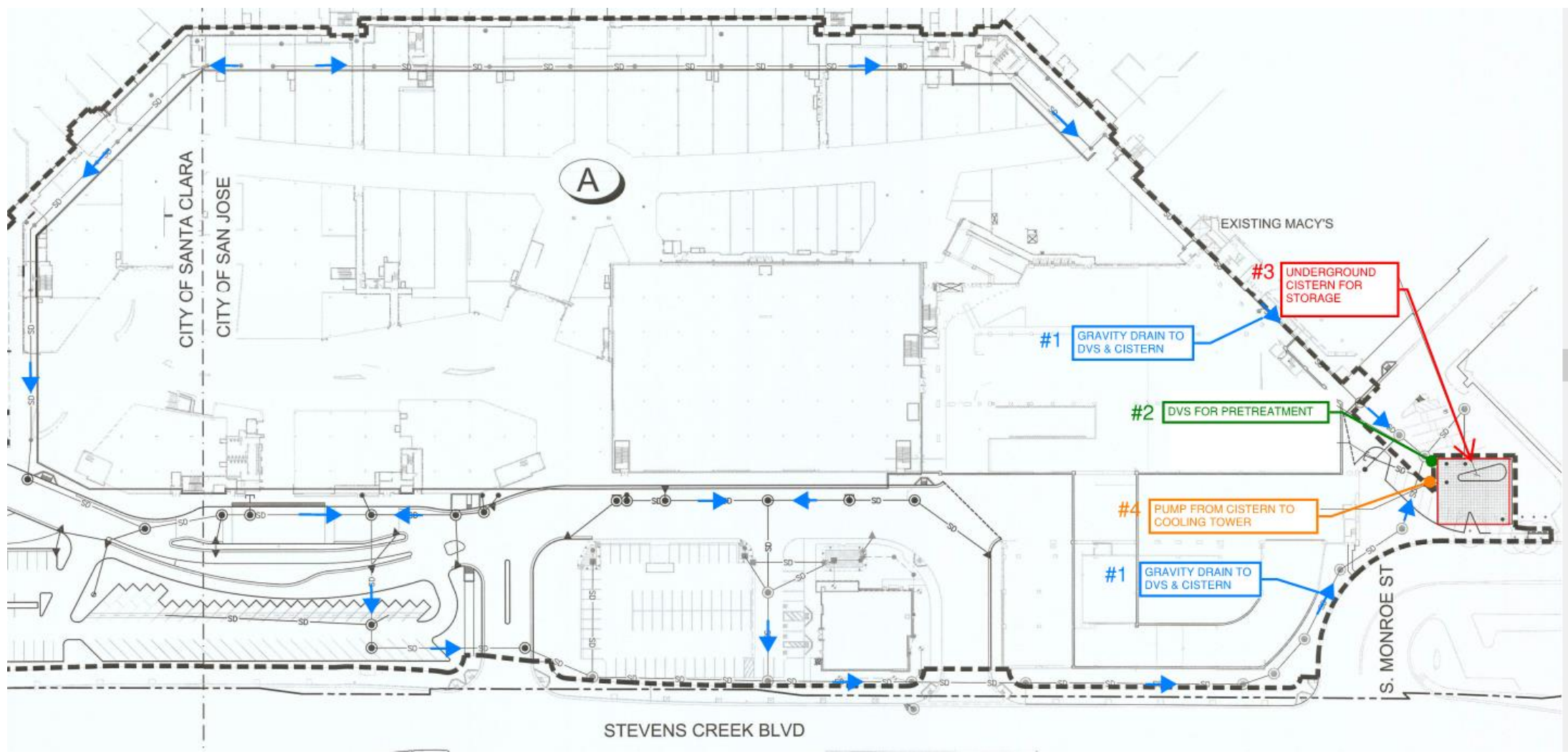


SITE DESIGN CHALLENGES

- BIOCELL
 - EXPANSION PHASE WOULD HAVE REQUIRED 26,000 SF OF BIOTREATMENT AREA
 - THIS WOULD HAVE REDUCED PRIME RETAIL & VALET PARKING AREA
- INFILTRATION
 - FIRST SUITABLE SOIL FOR INFILTRATION IS 30' BELOW FINISHED GRADE
 - GROUND WATER 40' BELOW FINISHED GRADE



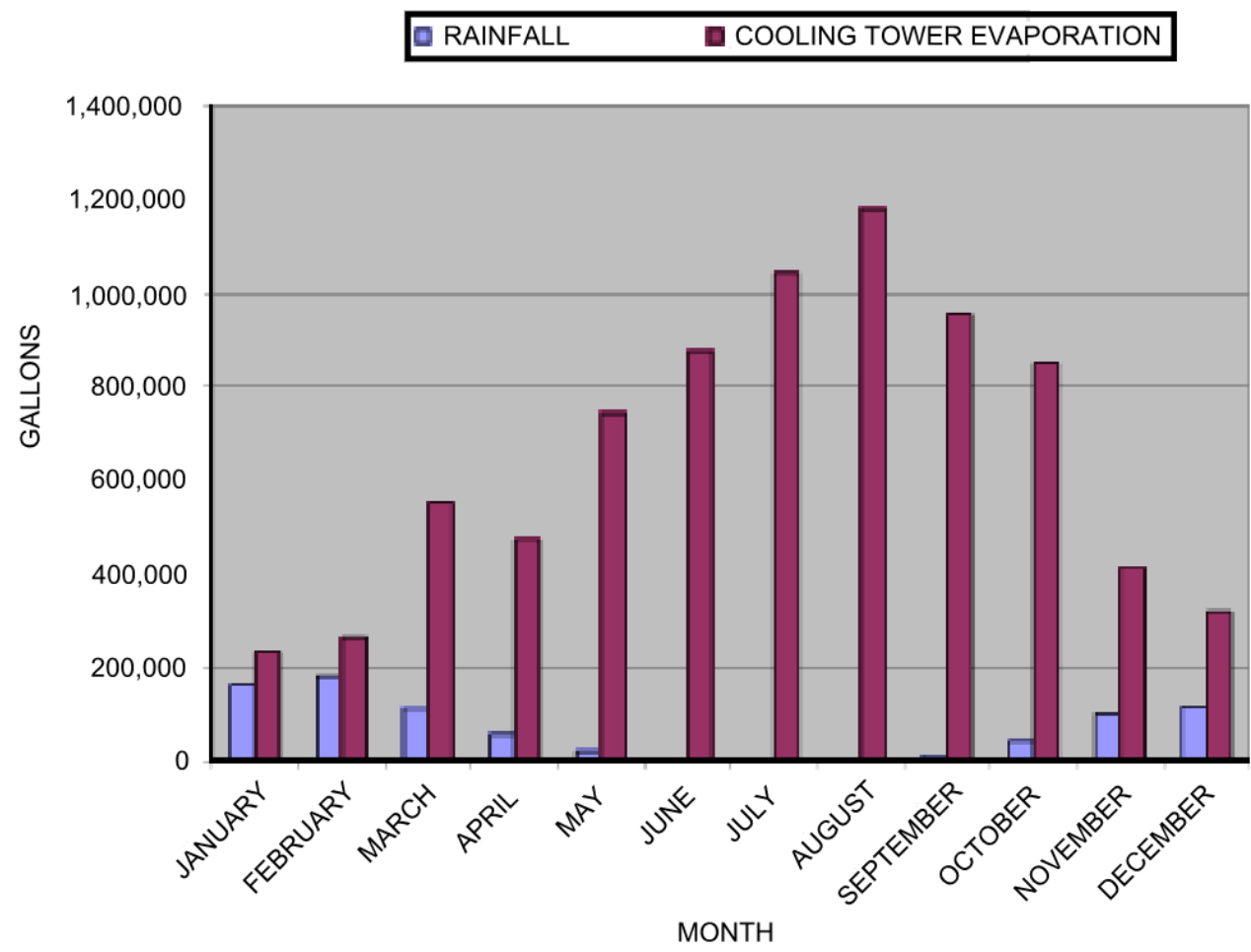
THE CONCEPT



TREATMENT SYSTEM PARAMETERS

- AVERAGE YEARLY RAINFALL
 - 820,000 GALLONS
- AVERAGE YEARLY COOLING TOWER DEMAND
 - 7.9 MILLION GALLONS
- RAINWATER QUALITY STORM
 - 220,000 GALLONS

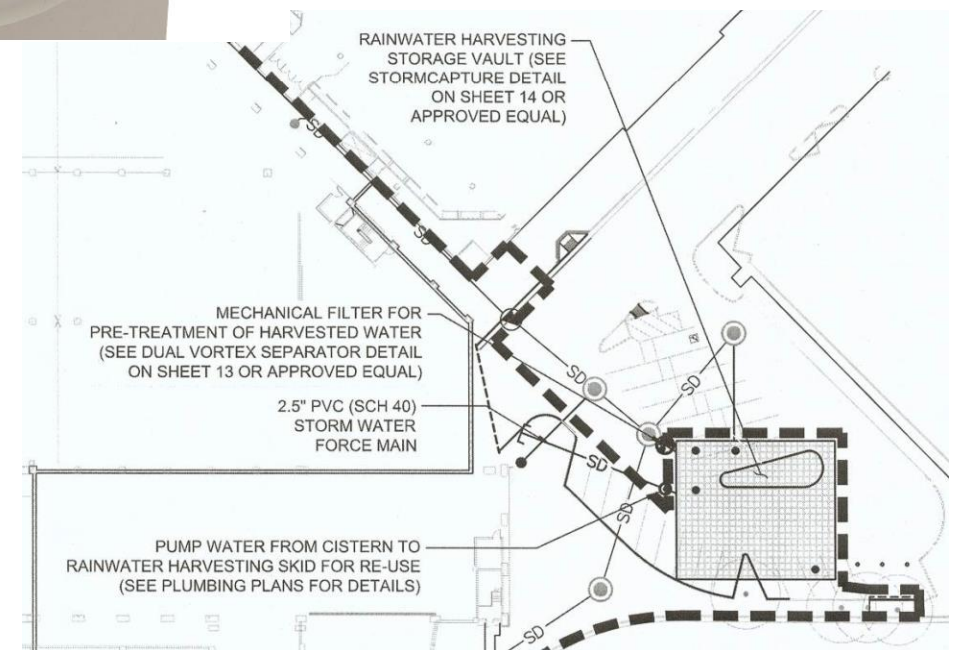
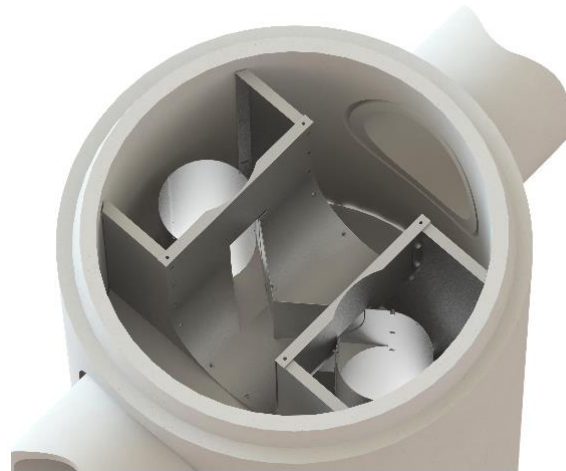
RAINFALL VS. COOLING TOWER EVAPORATION PER MONTH



NOTE: COOLING TOWER EVAPORATION PROVIDED BY PROJECT MEP, GLUMAC

TREATMENT SYSTEM PARAMETERS

- PRETREATMENT
 - DUAL VORTEX SEPARATOR
- CISTERN
 - 29,400 CU FT CONCRETE VAULT
- DUAL PUMPS IN SEPARATE WET WELL



C3 CHALLENGES

- LARGEST RAINWATER HARVESTING SYSTEM OF ITS KIND IN CITY OF SAN JOSE
 - INFORMATIONAL MEETING WITH PUBLIC WORKS DEPARTMENT ON SYSTEM PRIOR TO 1ST SUBMITTAL
 - EDUCATED CITY STAFF ON DESIGN DETAILS
- INTERFACE BETWEEN PLUMBING AND CIVIL
- DUAL WATER SYSTEMS FOR COOLING TOWER



LESSONS LEARNED

- SANITATION OF STORM WATER IS NOT REQUIRED BEFORE USE IN COOLING TOWER
- CITY REVIEW
 - PUBLIC WORKS
 - C3 CALCULATIONS
 - DESIGN CONCEPT
 - DUAL VORTEX SEPARATOR
 - BUILDING DEPARTMENT
 - STRUCTURAL DESIGN OF CISTERN
 - PUMP & WET WELL DESIGN

QUESTIONS?

