

# Bioretention Design

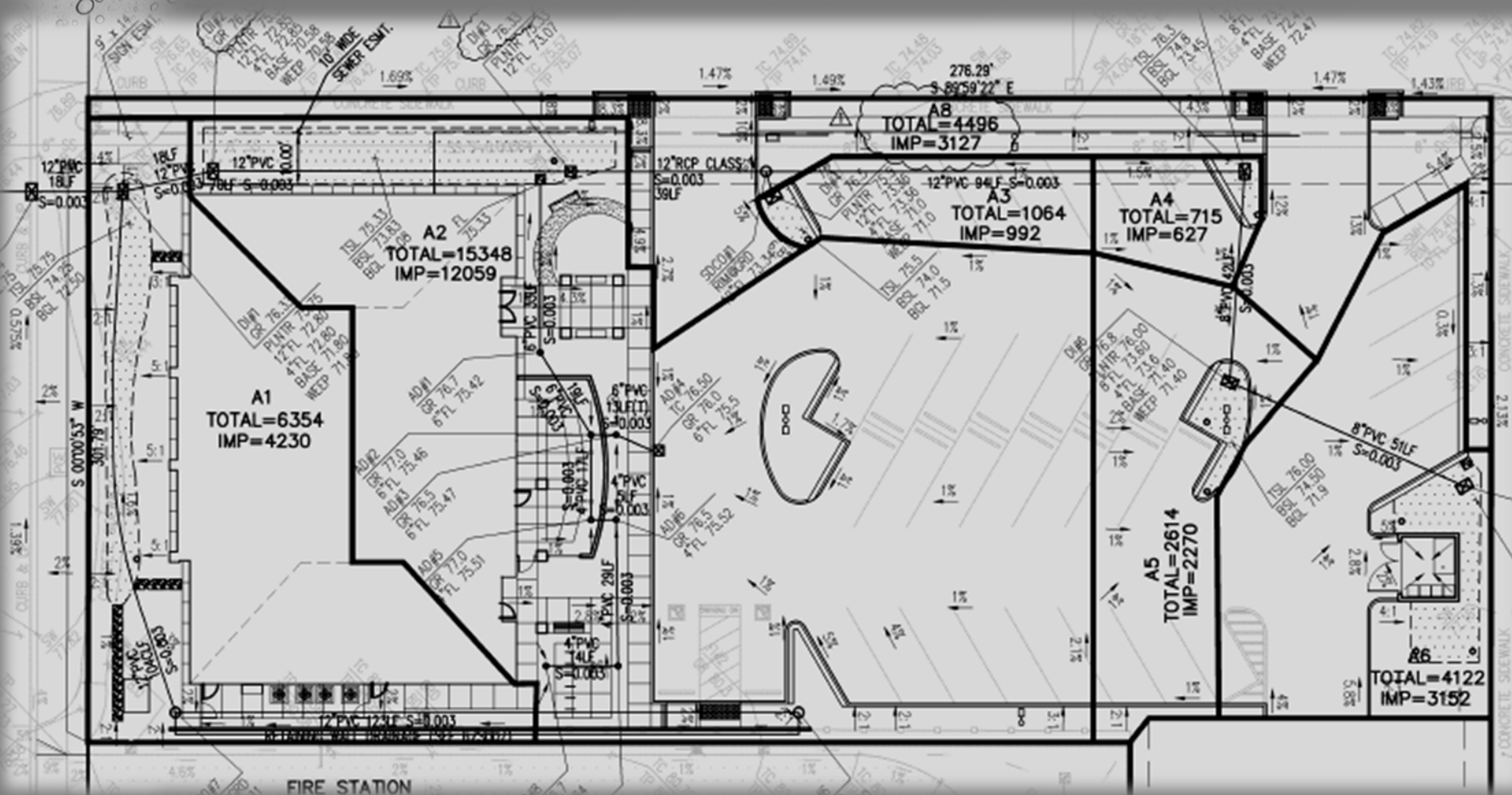
Getting the Details Right

# Coordination of Plans

- Curb elevations, grade breaks, architectural plans consistent with delineation of DMAs
- Harvesting and Reuse
  - Drainage to Cisterns
  - Cisterns
  - Distribution piping
- Bioretention facilities are level so they “fill up like a bathtub.”



# DMAs with Grading Shaded



# Pedestrian Access, Utilities

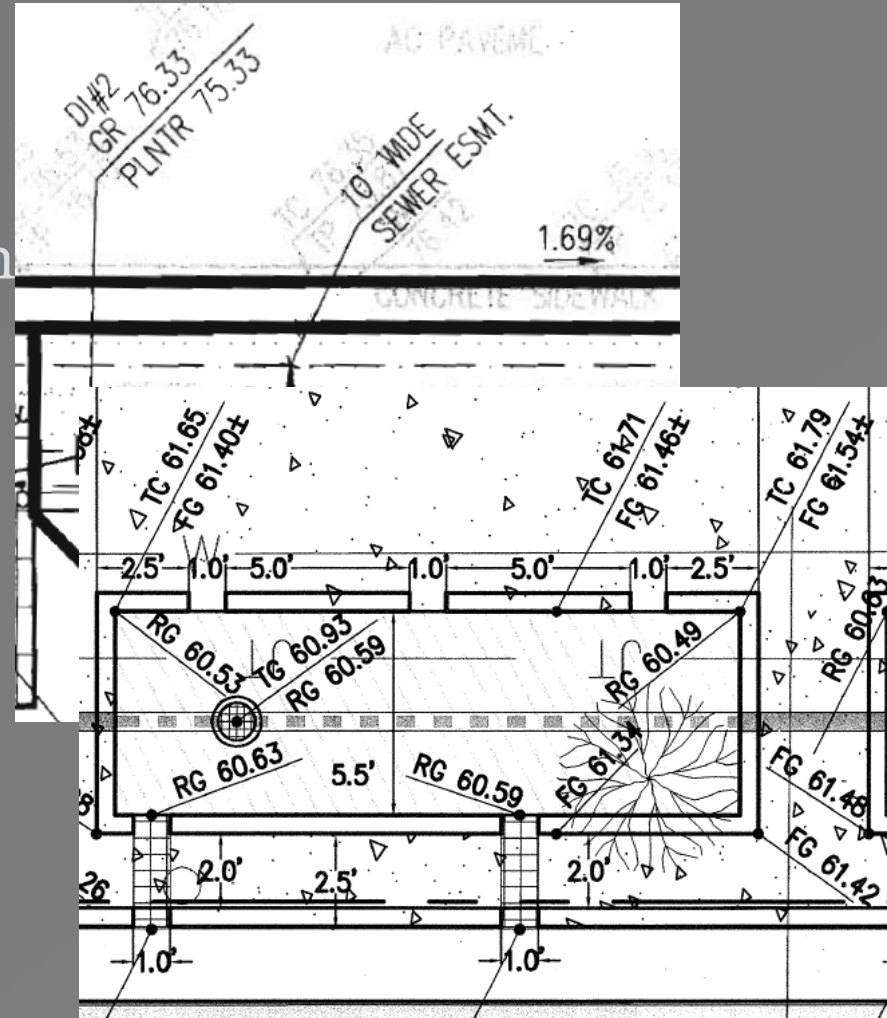


# Visual Impacts, planting plans

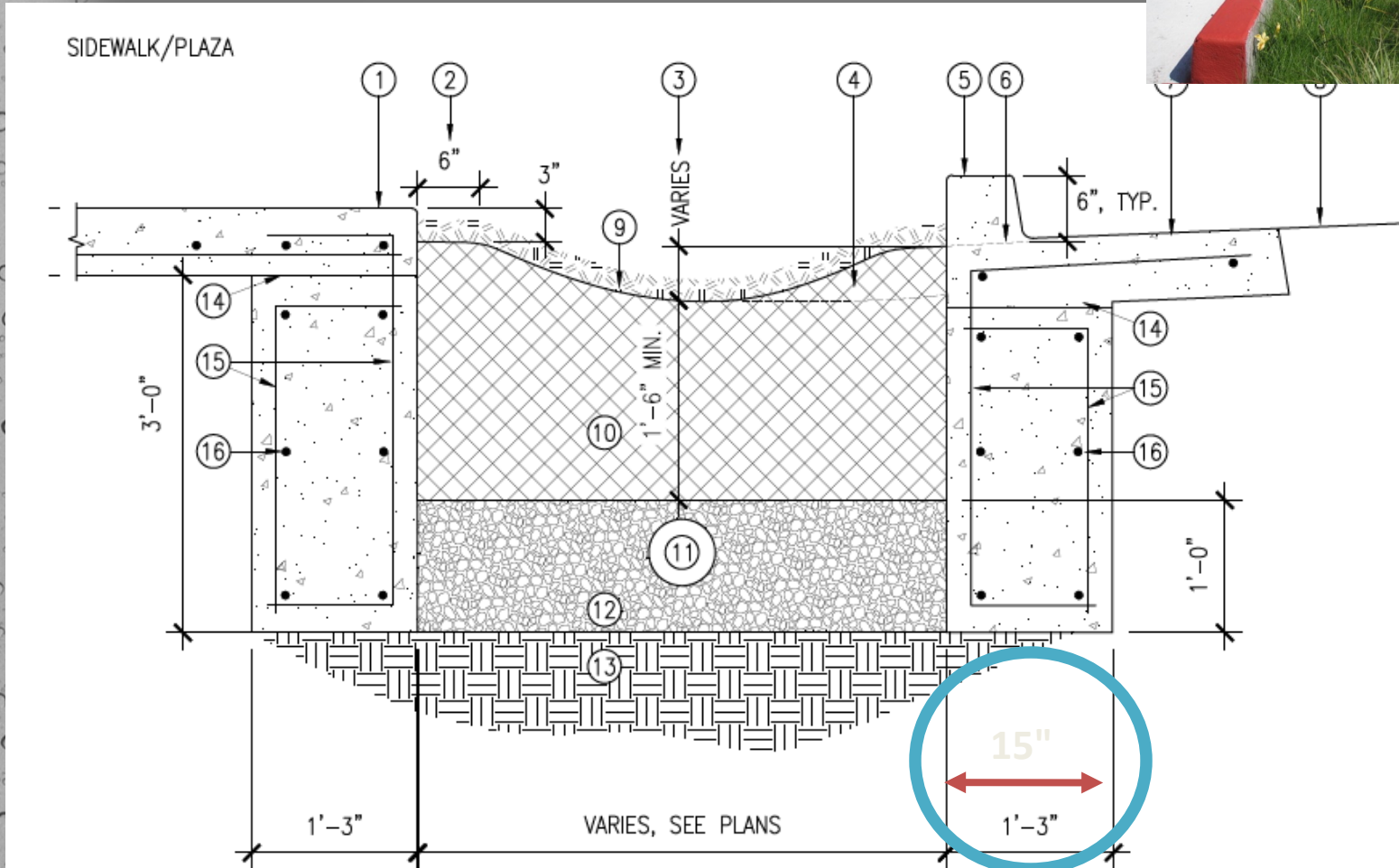


# Call out elevations

- Outlet structure
  - Top of overflow grate
  - Underdrain connection
- Inlet
  - Flow line at inlet
  - Top of curb
  - Top of adjacent paving
- Soil layers
  - Top of soil layer
  - Bottom of gravel layer
  - Bottom of soil layer



# Structural



# Structural



11/03/2007



# Grading and Paving



# Grading



# Roof leaders



# Gravel and Underdrain

- Class 2 permeable
  - Caltrans spec 68-1.025
  - Typical to be slightly off gradation spec on delivery
- No filter fabric
- Underdrain
  - Near top of gravel layer
  - PVC SDR 35 or equivalent; holes facing down
  - Solid pipe for 2' closest to outlet structure
  - Cleanout



# Soil Specification

- 60-70% Sand
  - ASTM C33 for fine aggregate
- 30-40% Compost
  - Certified through US Composting Council Seal of Testing Assurance Program
- Submittal per Guidebook
- Option to accept test results for a “brand-name” mix if volume is less than 100 cubic yards
- Install in 8"-12" lifts
- Do not compact
- Do not overfill
- Leave room for mulch



# Plantings

- Maintain design top of soil elevation
- Trees
  - Incorporate into bioretention facility
  - Account for surface roots

