

Sewer Capacity Analysis

08-3319

Cottonflower Marketplace

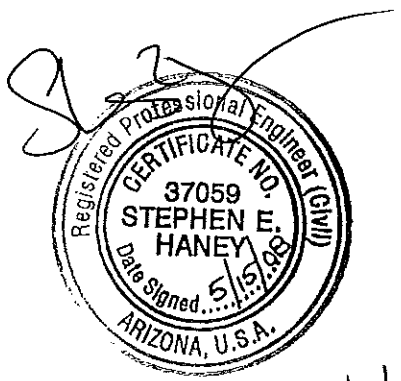
SWC of Cotton Lane and Yuma Road
Goodyear, Arizona

May 2008

Prepared for:
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System Description:

An 8" PVC Private Sanitary Sewer Main is proposed to service the Cottonflower Marketplace development located at the SWC of Cotton Lane and Yuma Road. There are eight commercial/retail buildings being proposed with this development. The proposed 8" PVC sewer main will connect into the existing 24" VCP City of Goodyear sewer main within Yuma Road via a proposed sewer manhole. The calculations in this analysis utilize flow rates given in the Arizona Administrative Code which are based on building square footage.

Calculations based upon Arizona Administrative Code

Average Wastewater Flows From Commercial Sources:

Retail/Commercial Sewage Design Flowrate (CF)= 0.1 gal/day/s.f. per AAC R18-9-E301.4.01.D.1.a

Dry Peaking Factor (DPF)= 3.62 per AAC R18-9-E301.4.01.D.1.c

Wet Weather Infiltration Percentage of Peak Dry Flow Rate (WPF)= 10%

Retail/Commercial Peak Sewer Flow

Fc= (CF*P)

Building	Square Feet [SF]	Sewage Design Flow [GPD]
Major A	45,000	4,500.0
Shops A	19,000	1,900.0
Shops B	13,000	1,300.0
Shops C	6,850	685.0
Pad A	4,600	460.0
Pad B	12,900	1,290.0
Pad C	3,500	350.0
Pad D	3,500	350.0
Total		10,835.0

Fc = 10,835.0 GPD

Fc = 7.52 GPM

Anticipated Flowrate

Flowrate w/ Dry Peaking Factor (Fd) = (DPF*Fc)

Flowrate w/ Wet Peaking Factor (Fw) = Fd*(1+WPF)

Fd = 27.24 GPM

Fw = 29.96 GPM

8" PVC Capacity Calculation:

Design Slope = 0.0033 ft/ft

Manning's "n" = 0.013

Full flow Velocity = 2.00 ≥ 2 ft/s < 10 ft/s

Full Flow Capacity = 315 gpm