APRIL 26, 2016

Supplemental Information

for

Advance Auto

Tract 1, Paradise Plaza

By

ISAACSON & ARFMAN, P.A.
Consulting Engineering Associates

Thomas O. Isaacson, PE(RET.) & LS(RET.)
Fred C. Arfman, PE
Åsa Nilsson-Weber, PE

APRIL 27, 2016

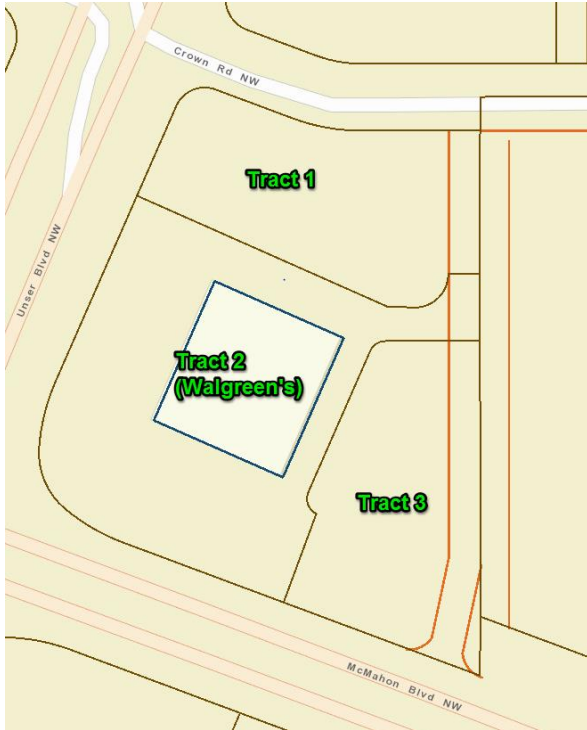# Supplemental Information

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The Supplemental Drainage Information for **PARADISE PLAZA** (Tracts 1, 2 and 3) was prepared by Isaacson & Arfman PA dated 8/14/08 (PP-DMP).

AUGUST 14, 2008

SUPPLEMENTAL DRAINAGE
INFORMATION

FOR

PARADISE PLAZA
Northeast Corner of Unser Blvd. NW and
McMahon Blvd. NW

BY

ISAACSON & ARFMAN, P.A.
Consulting Engineering Associates
128 Monroe Street N.E.
Albuquerque, New Mexico 87108
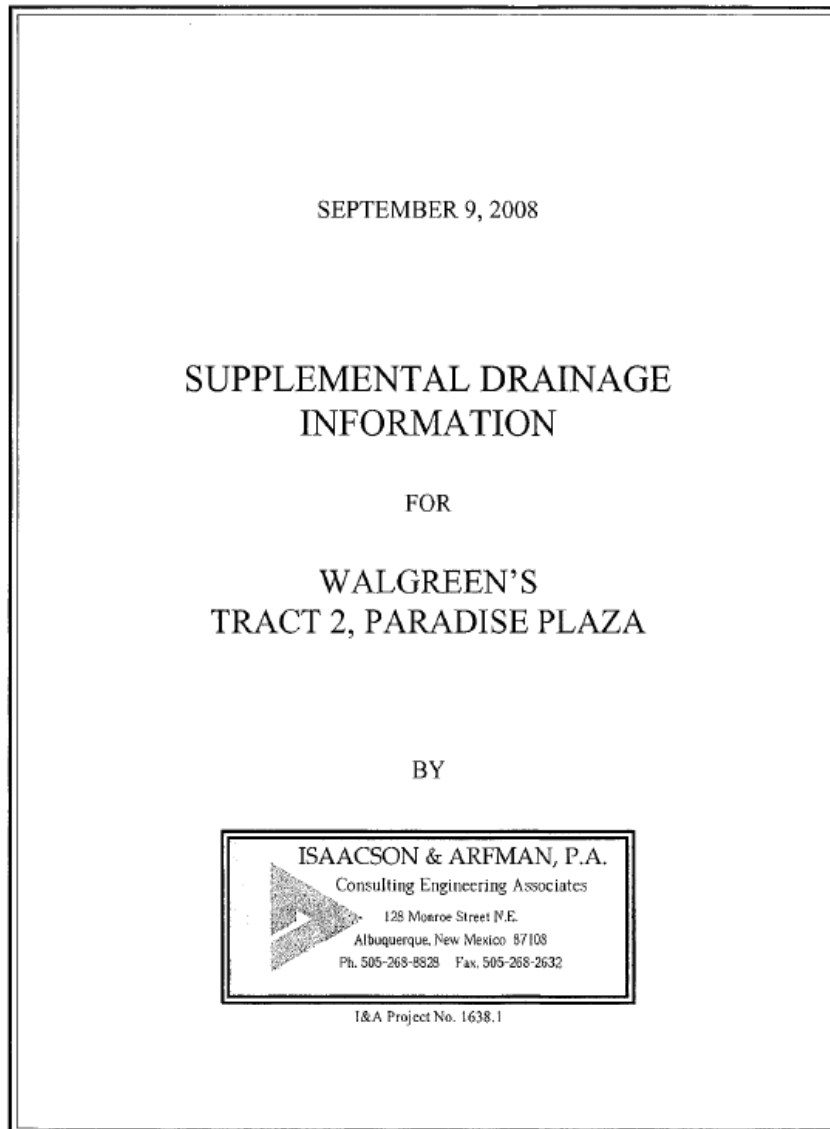Ph. 505-268-8828   Fax. 505-268-2632

I&A Project No. 1638

Based on this PP-DMP, the proposed Advance Auto property (Tract 1) falls within two of the master planned basins.

- Basin 4 (0.1 acre) is the existing asphalt access on the northwest side of the property. This road was constructed as part of the initial construction on Tract 2 (Walgreens) and will remain. Per the PP-DMP, this basin free discharges 0.5 cfs to Crown Road NW.
- The main Advance Auto building and parking fall within Basin 2 (2.9 acre total) which includes the Walgreens building, parking and a portion of the future construction that will occur on Tract 3.
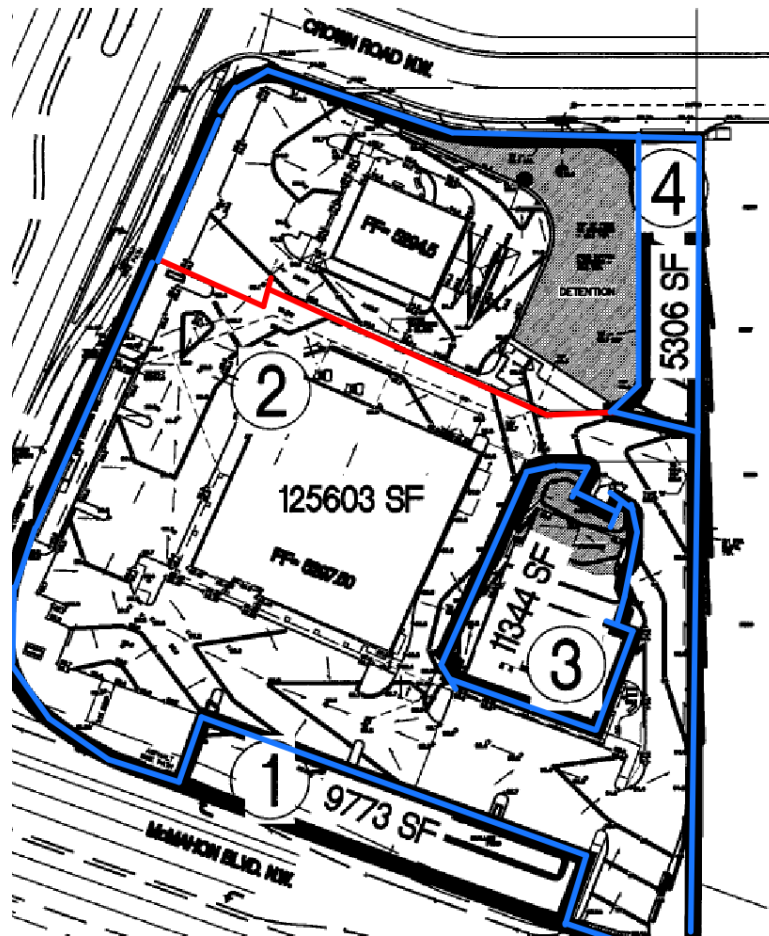
The Supplemental Drainage Information for **WALGREEN's** (Tract 2) was prepared by Isaacson & Arfman PA dated 9/9/08 (W-DP).

SEPTEMBER 9, 2008

SUPPLEMENTAL DRAINAGE INFORMATION

FOR

WALGREEN'S
TRACT 2, PARADISE PLAZA

BY

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Albuquerque, New Mexico 87108
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I&A Project No. 1638.1

Per the W-DP, Tract 2 (Walgreen's: 1.7 acre) fully developed generates 6.7 cfs.

The pond is sized to accept 12.4 cfs from 2.9 acres (Portions of Tracts 1, 2 and 3).

Therefore, the remaining 1.2 acre portion of Basin 2, is permitted to contribute (12.4-6.7) 5.7 cfs or 4.75 cfs per acre.

The portion of Tract 1 (Advance Auto) draining to this pond is 0.89 acres (total area) – 0.1 (PP-DMP basin free discharging from PP-DMP Basin 4 - northwest access drive) = .79 acre * 4.75 cfs per acre = 3.75 cfs allowable.

The total of Tract 1 generates 3.0 cfs. Subtracting the 0.5 cfs free discharging at the northwest access drive, the total from Tract 1 will be 2.5 cfs (3.75 cfs allowable).

CALCULATIONS: Advance Auto : April 26, 2016
Based on Drainage Design Criteria for City of Albuquerque Section 22.2, DPM, Vol 2, dated Jan., 1993
ON-SITE

AREA OF SITE: 39160.44   SF   =   0.90

100-year, 6-hour

<div style="text-align:center">ACTUAL</div>   EXCESS PRECIP:

		Treatment SF	%	Precip. Zone	1
Area A	=	11748	30%	E_A = 0.44	
Area B	=	0	0%	E_B = 0.67	
Area C	=	3916	10%	E_C = 0.99	
Area D	=	23496	60%	E_D = 1.97	
Total Area	=	39160.44	100%		

On-Site Weighted Excess Precipitation (100-Year, 6-Hour Storm)

$$\text{Weighted E} = \frac{E_A A_A + E_B A_B + E_C A_C + E_D A_D}{A_A + A_B + A_C + A_D}$$

Developed E	=	1.41 in.

On-Site Volume of Runoff: V360 = $E*A / 12$

Developed V_{360}	=	4611 CF

On-Site Peak Discharge Rate: $Qp = Q_{pA}A_A + Q_{pB}A_B + Q_{pC}A_C + Q_{pD}A_D / 43{,}560$

For Precipitation Zone   1

Q_{pA}	=	1.29		Q_{pC}	=	2.87
Q_{pB}	=	2.03		Q_{pD}	=	4.37

Developed Q_p	=	3.0 CFS

FIRST FLUSH:

The impervious area (building roof and asphalt pavement) draining to the main detention pond is 0.4 acres. Based on this area, the first flush retention volume = 544 cf.
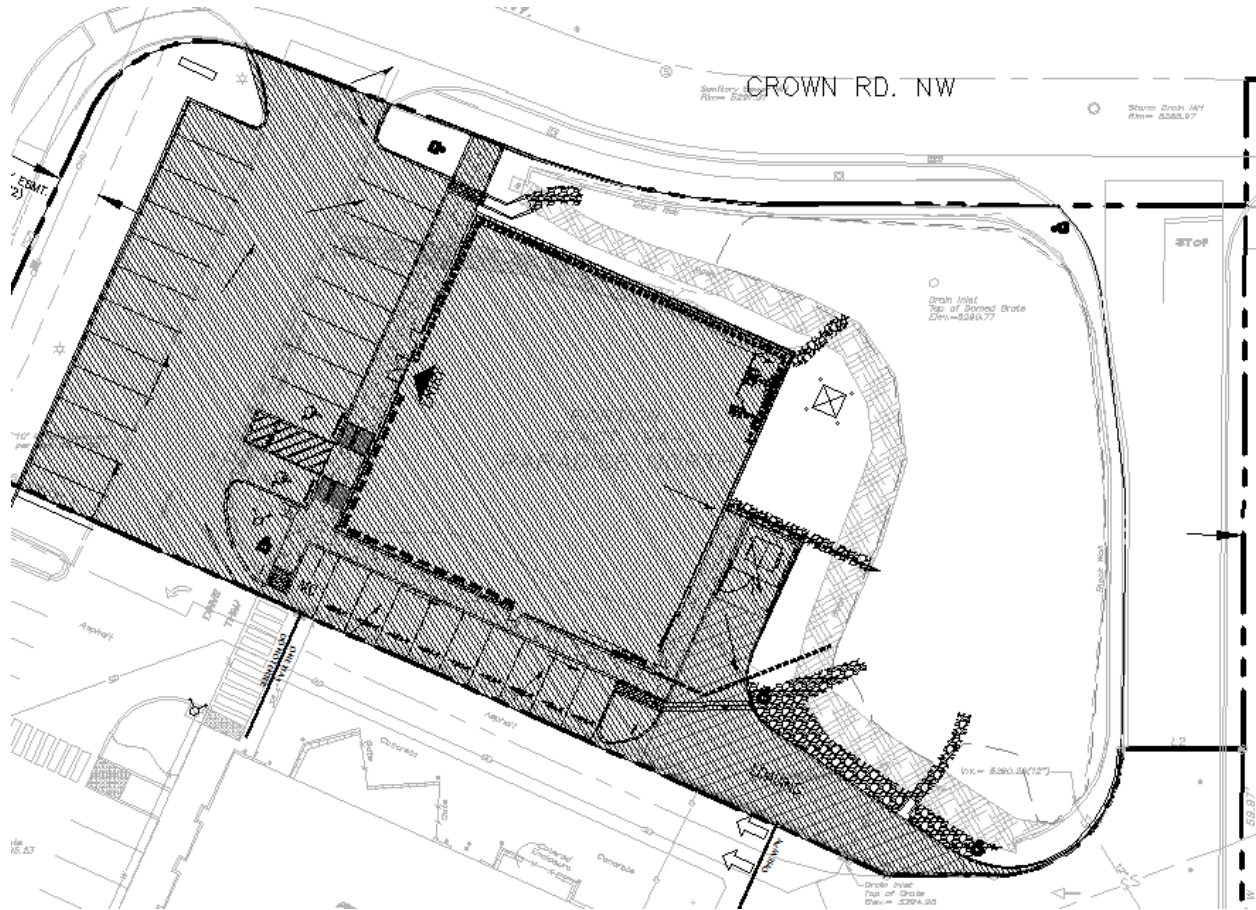
IMPERVIOUS AREA TO POND		DESCRIPTION		MAIN BLDG / PARKING TO POND	
Area of basin flows =	19200	SF	=	0.4 Ac.	
The following calculations are based on Treatment areas as shown in table to the right				LAND TREATMENT	
Sub-basin Weighted Excess Precipitation (see formula above)				A =	0%
Weighted E =		1.97 in.		B =	0%
Sub-basin Volume of Runoff (see formula above)				C =	0%
V_{360} =		3152 CF		D =	100%
Sub-basin Peak Discharge Rate: (see formula above)				FIRST FLUSH VOL.	
Q_P =		1.9 cfs		544 CF	

The existing pond constructed as part of the initial development has an existing outlet with a rim of 5290. In the image below, the area within the 5290 (representing the pond bottom) contour is shaded. Various as-built spot elevations within this area reflect available retention between 0.1' -0.4'. Assuming a 0.2' average retention over the area of 7277 sf provides an available volume of 1455 cf which will retain the first flush from Tract 1 with excess available for the future development of Tract 3.

In the future, the development of Tract 3 is permitted to discharge 5.7 cfs – 2.5 cfs = 3.2 cfs to the main pond to bring the total to:

2.5 cfs from Tract 2 (proposed)

6.7 cfs from Tract 1 (existing)

<u>3.2 cfs from Tract 3 (future)</u>

12.4 cfs allowable to Main Pond