

E-18,E-19 17A

Runoff Estimate: For On-site Basin of 22.8191 acres, onto Santa Monica Drive PROPOSED USE Land use Runoff Runoff Runoff CFS 0.57 994000.00 1.000 0.00 0.00 2.42 0.83 0.000 0.0 0.0 169000.00 0.170 9.39 11689.2 3.29 1.20 0.00 0.0 0.0 0.00 0.000 0.00 5.01 0,00 0.000 0.0 0.0 825000.00 0.830 94.89 160187.5 994000.00 1.000 37.4 47215.0 22.8191 acre 22.8191 acre TABLE B-2 Runoff Estimate: For On-site Basin of 3.7879 acres, onto San Antonio. Runoff Factors CURRENT USE PROPOSED USE Land use CFS 0.57 165000.00 6.2 7837.5 0.00 0.000 0.00 2.42 0.83 0.00 28000.00 0.170 1.56 0.000 0.0 0.0 1.20 3.29 0.00 0.000 0.0 0.0 0.00 0.000 0.00 0.830 15.76 26600.8 2.33 0.00 0.000 0.0 137000.00 165000.00 1.000 17.31 28537.5 6.2 7837.5 3.7879 acre 3.7879 acre TABLE B-3 Runoff Estimate: For On-site Basin of 0.5108 acres, onto Louisiana Blvd. Runoff Factors CURRENT USE PROPOSED USE Zone 3 Runoff Runoff CFS/acre CFS 0.57 1.64 22250.00 1056.9 0.00 0.000 0.00 2.42 0.83 0.00 0.000 0.0 3750.00 0.169 0.0 0.21 3.29 1.20 0.000 0.0 0.0 0.00 0.000 0.00 5.01 18500.00 0.831 2.13 3592.1 0.00 0.000 0.0 0.0 22250.00 1.000 22250.00 1.000 2.34 3851.5 0.5108 acre 0.5108 acre Runoff Estimate: For On-site Basin of 0.6742 acres, 7/11 site to San Pedro Blvd. Runoff Factors PROPOSED USE Runoff Runoff Runoff CFS/acre inches CFS 1.64 0.57 29370.00 1.1 1395.1 0.000 0.00 0.00 2.42 0.83 0.000 0.0 0.0 0.00 0.000 0.00 3.29 1.20 0.00 0.000 0.0 0.0 0.00 0.000 0.00 5.01 2.33 0.00 0.000 0.0 0.0 29370.00 1.000 3.38 5702.7 1.1 1395.1 29370.00 1.000 3.38 5702.7 0.6742 acre 0.6742 acre Runoff Estimate: For On-site Basin of 0.6742 acres, Lottaburger to San Antonio Drive. Runoff Factors PROPOSED USE Runoff Runoff Runoff CFS/acre inches CFS CF 1.64 0.57 0.00 0.000 0.0 0.0 1100.00 0.037 0.06 1.20 0.00 0.000 0.0 0.0 0.000 0.00 0.00 0.000 28270.00 0.963 3.25 5489.1 29370.00 1.000 1.1 1395.1 29370.00 1.000 3.31 5565.2 0.6742 acre 0.6742 acre Runoff Estimate: For On-site Basin of 1.8503 acres, Post Office site to San Antonio Drive PROPOSED USE Peak Area Percent Runoff 0.57 3828.5 0.00 0.00 1.64 1.000 3.0 0.211 0.94 17000.00 2.42 0.83 0.00 0.000 0.0 0.0 0.000 0.00 0.00 3.29 0.000 0.0 0.0 5.01 0.000 0.0 63600.00 0.789 7.31 12349.0 1.000 8.26 13524.8 3.0 3828.5 80600.00 1.000 1.8503 acre 1.8503 acre Runoff Estimate: For On-site Basin of 2.0983 acres, Post Office site to Santa Monica Drive. PROPOSED USE Runoff Factors CURRENT USE Runoff Runoff CFS 0.00 0.000 0.00 1.64 0.57 91400.00 1.000 4341.5 2.42 0.83 0.00 0.000 0.00 0.000 0.00 3.29 0.00 0.000 0.00 1.20 0.000 5.01 91400.00 1.000 10.51 17746.8 0.000 91400.00 1.000 10.51 17746.8 3.4 4341.5 2.0983 acre

Runoff Estimate: For On-site Basin of 1.7998 acres, vacant site north of Lottaburger and 7/11, to Santa Monica

Peak Runoff Runoff Runoff 1.64 0.57 0.00 0.0 2.42 0.0 0.0 13400.00 0.171 0.74 926.8 3.29 0.000 0.0 0.0 0.00 0.000 0.000 0.0 0.0 65000.00 0.829 7.48 12620.8 78400.00 1.000 8.22 13547.7 1.7998 acre

Runoff Estimate: For Off-site Basin of 3.0498 acres, 60 feet wide street right-of-way for San Antonio Drive. PROPOSED USE Runoff 1.64 0.57 5.0 6310.4 0.00 0.000 0.00 2.42 0.00 0.000 0.0 0.0 0.00 0.000 1.20 0.000 0.0 0.0 45170.00 0.340 3.41 4517.0 5.01 0.000 87680.00 0.660 10.08 17024.5

3.0498 acre

5.0 6310.4

132850.00 1.000 13.50 21541.5

3.0498 acre

PURPOSE: The purpose of this grading and Drainage Plan is to obtain approval to construct a facility for gasoline sales, convenience store and car wash on the described site.

## CONCEPTUAL DRAINAGE PLAN:

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Runoff

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A. A conceptual drainage plan for this area (D18/D26) was approved by letter October 1, 1992 from the Hydrology Section, Public Works, City of Albuquerque. This approval limited the discharge of free runoff from the 100 year, 6 hour design storm to 2.67 CFS per acre for the 1.0409 acre tract CDS-2, the 8.5604 acre tract CDS-1, and the approximately 10 acre tract between tract CDS-1 and the developed Post Office site. The approval letter does not specifically state that this is the limitation for runoff to San Antonio Drive, but the plan itself states that the limiting factor is a capacity of 78 CFS by the sub-surface drains at the intersection of San Pedro Blvd. and San Antonio Drive, and that existing development uses 26 CFS of the capacity, leaving 52 CFS for about 19 acres, assuming that all runoff is to the intersection of San Pedro Blvd. and San Antonio Drive.

B. The approved conceptual drainage plan would require some detention for the runoff from the proposed development on tract CDS-2, because the developed runoff onto San Antonio Drive from tract CDS-2 is estimated to be 4.45 CFS (Table A-1). C. I do not believe that the approved conceptual drainage plan (D18/D26) adequately addressed the total runoff from the tracts, specifically it did not quantify the runoff to Santa Monica Drive, and then to the North Pino Arroyo. Below is a suggested revision to the approved conceptual plan which addresses the total runoff.

## CONCEPTUAL PLAN REVISION:

A. This revision to the conceptual drainage plan addresses all of the land between the Santa Monica Drive south right-of-way on the north, and the San Antonio north right-of-way on the south; and the Louisiana Blvd. west right-of-way on the east, the San Pedro Blvd. east right-of-way on the west; and the north 60 feet of the San Antonio Drive right-of-way. (See the topographic map extract from City Sectional D-18)

B. The runoff from the undeveloped private property is divided into three basins as shown on the topographic map, basin B-1 going to Santa Monica Drive, and then north on San Pedro Blvd. to the North Pino Arroyo; basin B-2 going onto San Antonio, then through the sub-surface drain to the Pino Arroyo; and basin B-3 going to Louisiana Blvd. and then north to the North Pino Arroyo. Tables B-1, B-2 and B-3 provide estimates of the runoff from each of the the basins in the undeveloped state, and in a developed state with 83% impervious and 17% landscaped.

C. Runoff from the public right-of-way consisting of the north 60 feet of San Antonio is estimated in table D-1. This right-of-way is the west bound lane of San Antonio Drive. The developed state is the condition which will exist when the present design for the street is constructed. The construction is currently underway. The width of the right of way which drains into sub-surface drains at the intersection of San Pedro Blvd. and San Antonio Drive is defined on the south by the berm along the electric power line which is in the median between the east and west bound lanes on San Antonio Drive.

D. In the undeveloped state, the amount of runoff to the sub-surface drain is 11.2 CFS from Basins B-2 and D-1 (6.2+5). The developed runoff from the same basins is 30.81 CFS (17.31+13.50). If the runoff from the developed site followed the same divide that existed in the undeveloped state, there would be about 47.19 CFS (78-30.81) excess capacity in the sub-surface drain system.

## E. Current development has not followed the natural runoff pattern. Site developments and runoff estimates are discussed

1. The 7/11 convenience store at the corner of San Pedro Pondum at San Antonio Drive is graded so that runoff flows onto San Pedro Blvd. and the Blvd. and San Antonio Drive is graded so that runoff flows directly onto San Pedro Blvd., and then north. This site does not contribute flow to the sub-surface drain system. 2. The Lottaburger restaurant east of the convenience store is graded so that all runoff is directed onto San Antonio Drive. Table C-2 shows that the estimated runoff from this developed site is 3.31 CFS, all of which enters the sub-surface

3. Further east, the Post Office site is developed with flow to both San Antonio Drive and Santa Monica Drive. Table C-3 provides an estimate of runoff from the Post Office site of 8.26 CFS to San Antonio Drive. Areas on table C-3 are based on field measurements and observations, which differ somewhat from the approved as-built information in the file for the Drainage PLan (D18/D19). Specifically, the north-south divide for flow in the parking and driveway areas is the walled fence. Also, Table C-3 credits the non-paved areas as treatment B, landscaped, rather than as treatment C as shown on the approved conceptual plan (D18/D26). I believe the treatment B is appropriate because the landscape treatment is a 3"-6" of rock mulch over a porous fabric. The areas are planted with trees and shrubs, and a water system is provided for the plantings. Vehicle traffic is discouraged by the presence of barrier curbs around the landscaped areas.

4. The San Antonio Drive right-of-way for the west bound lane will contribute 13.50 CFS to the sub-surface drain system, as shown in Table D-1. The estimate is based on a paved surface off 7 feet of street, measured to the back of the curbs, and a 6 feet wide sidewalk. The remaining 27 feet of right-of-way is considered treatment C.

F. The total estimated runoff from developments as listed above is 25.09 CFS (3.31+8.26+13.5). The remaining capacity of the sub-surface drain is 52.91 CFS (78-25.09), which is comparable to the 52 CFS developed in the conceptual plan (D18/D26). There remains 1970 linear feet of undeveloped land facing on San Antonio Drive between the Post Office site and Louisiana Blvd. Equal distribution of the allowable runoff results in 0.026858 CFS per foot (52.91/1970). For the proposed tract CDS-2, the 199.8 feet of frontage would mean a share of 5.37 CFS allowable for discharge onto San Antonio Drive. For any development along San Antonio Drive, the 0.026858 CFS/foot translates into a depth of development of 356 feet (9532 SF/CFSx0.02858 CFS/FT), based on a development of 17% landscaped and 83% impervious (9532 SF/CFS, from table B-1, 994000 SF/104.28 CFS). To fully develop the vacant land, and to develop those portions of land facing Santa Monica Drive which do not have access to San Antonio Drive, runoff onto Santa Monica Drive, and then to San Pedro Blvd. and North Pino Arroyo will be required. Such runoff will follow historic runoff patterns.

A. The proposed development of the gas station, convenience store and car wash on tract CDS-2, with a runoff of 4.45 CFS to San Antonio Drive and the sub-surface drain system will be below the allowable amount of 5.37 CFS for the site.

B. The proposed discharge of 0.53 CFS (0.29+.24) from the developed site and access onto Louisiana Blvd., then to the North Pino Arroyo, will not exceed the capacity of Louisiana Blvd.

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GRADING AND DRAINAGE PLAN GAS STATION, CONVENIECE STORE CAR WASH LOUISIANA BLVD. & SAN ANTONIO

MAP NO. SHEET OF D-18

