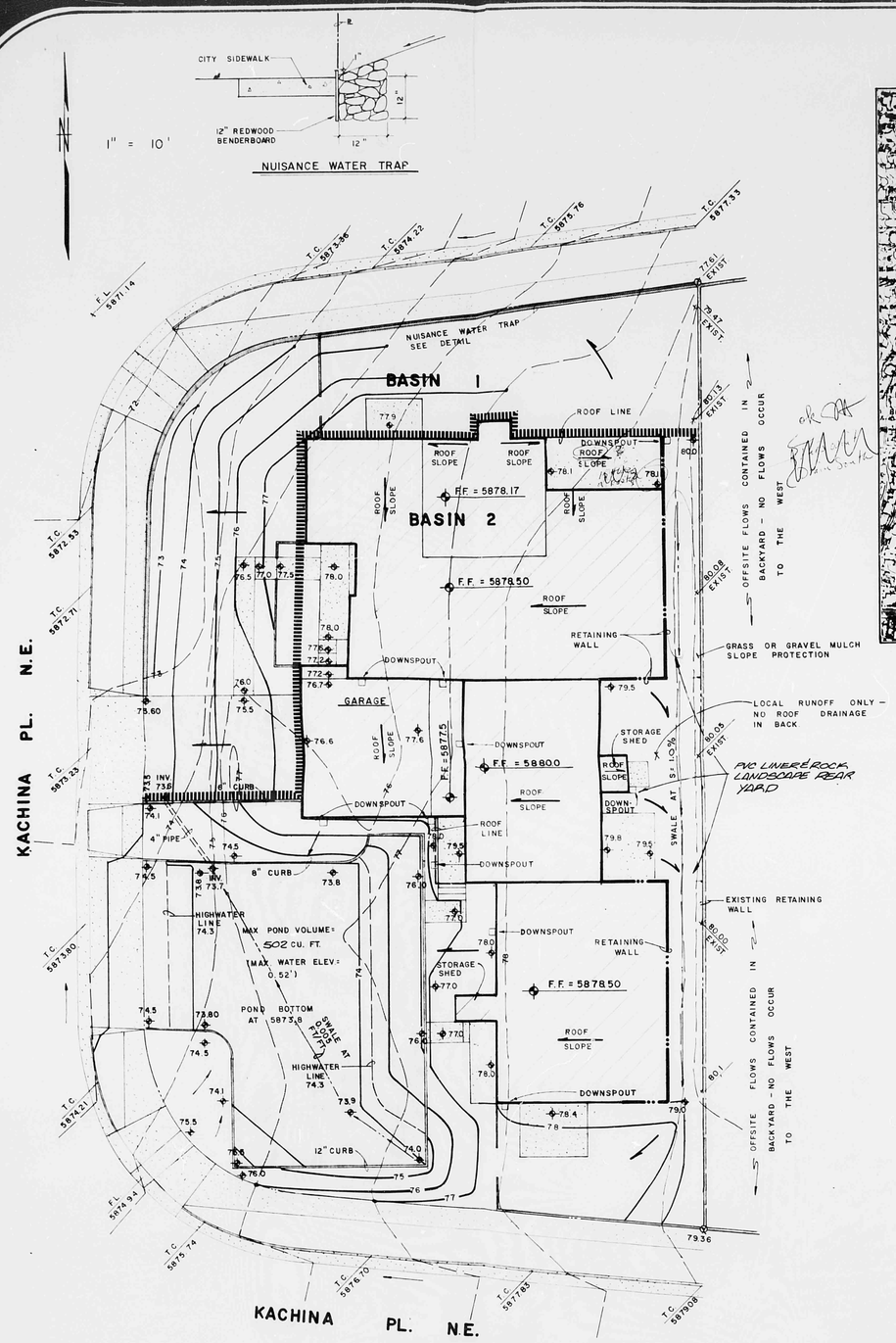
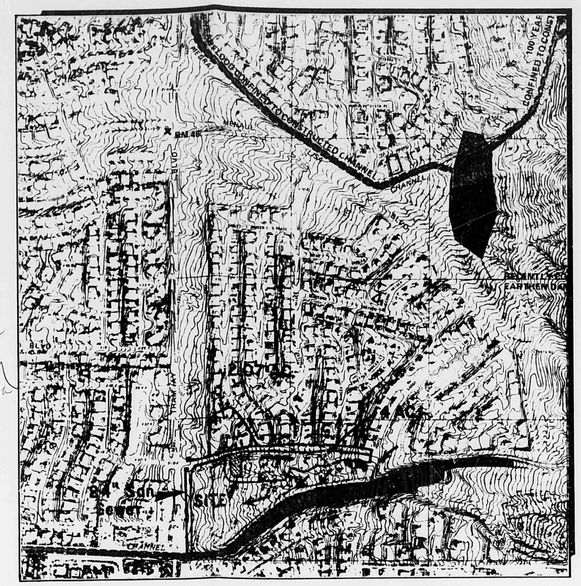
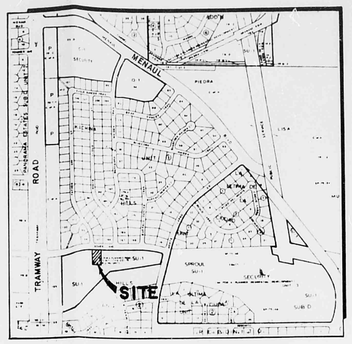




OFFSITE BASIN FOR DROP INLETS & FLOOD HAZARD BOUNDARY MAP



VICINITY MAP-H-23

LEGEND

- ASPHALT PAVING
- LANDSCAPED AREA
- PROPERTY LINE
- EXISTING CURB & GUTTER W/SIDEWALK
- 12.7 EXISTING SPOT ELEVATION
- 12 EXISTING CONTOUR
- 12.7 PROPOSED SPOT ELEVATION
- 12 PROPOSED FINISHED CONTOUR
- SURFACE FLOW DIRECTION
- BUILDING STRUCTURE
- RETAINING WALL

Drainage General Notes

1. Legal Description: Lot 23' of the Replat of lot 126A Kachina Hills Unit 1.
2. Flood Hazard Area: This site is in Flood Hazard Zone C
3. Zoning: SU-1
4. Soils: The USDA soil survey of Bernalillo defines the soil type to be embudo of the Tijeras series which is gravelly, sandy loam. Type B soil.
5. BM: The City of Albuquerque 2H23 ACS brass tablet stamped "2-H23 1982" Elev. 5851.08
6. Drainage Management:
   a) Off-site Drainage: This lot is "in-fill" in an approved and finished subdivision. The streets are all in and off-site drainage is not a consideration.

   b) Undeveloped Condition:
   Area = 0.26 acres
   C = 0.4
   I = 5.7 inches/hr.
   Q_{100} Undeveloped = C x I x A = (.4) x (5.7) x (.26) = 0.6 c.f.s.

   These flows drain to Rover Avenue to an existing double "C" catch basin. This basin then drains to a 24" R.C.P. and outfalls to the Embudo Channel. The slope of the RCP = 0.009 ft./ft.; therefore, $Q = (.462/M)\ D^{8/3} S^{1/2} = (0.462/.015)(2)^{8/3}(.009)^{1/2} = 19$ c.f.s. There are 2 double "C" inlets and 1 double "D" inlet into the pipe. Using Plate 22.3D6 these inlets could intercept 12 c.f.s. each.

   The drainage basins contributing to the drop inlets are outlined on the map. The double "C" inlet on the south of Rover R.O.W. has 4.0 acres contributing to it. Using a C factor of 0.70 for fully developed condition, the flow to the double "C" inlet = C x I x A = (0.75)(5.7)(4.0) = 17 c.f.s.

   The double "d" drop inlets have 2.04 acres resulting in CIA = (0.75)(5.7)(2.04) = 9 c.f.s. The total capacity of the 24" storm sewer is therefore 7 c.f.s. over capacity and detention is required for the site.

   c) Developed Condition

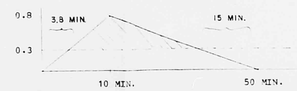
   The site is divided in two basins. Basin 1 is a free discharge basin of 2192 ft. of grassed or gravelled landscaped area (C=0.40). This will contribute the following flow: Q=CIA=(0.4)(5.7)(0.05) = 0.1 c.f.s. Since the City requires control of nuisance flows, the border of this basin will have a "nuisance flow trap" to prevent irrigation and small storms from running over the sidewalk (see detail). Basin 2 is comprised of 3605 sq. ft. of rooftop, 2059 sq. ft. of driveway and 2407 sq. ft. of landscaping. Composite $C = \frac{3605(.95) + (2059)95 + 2407(.4)}{8071} = 0.8$

   DEV
   $Q_{100} = (0.8)(5.7)(8071/43560) = 0.8$ c.f.s.
   Volume = 1/2(.8)(50)(60) = 1200 c. ft.

Determine Pond Volume for Dentention Pond

Maximum outfall via 4" dia pipe.

$Q = Ca\sqrt{2gh} = 0.6(0.39)\sqrt{64.4(.5)} = 0.05\sqrt{64.4(.5)} = 0.3$ c.f.s



Pond volume required = 1/2(.8-.3)(31.2)(60) = 475 < 502 O.K

POND AREA PROVIDED

Elev.	Area	Average Area	d	Σ Vol.
74.3	1240 ft.²			
		832 ft.²	.3	340 ft.³
74.0	1023 ft.²			
		812 ft.²	.2	162 ft.³
73.8	600 ft.²			

TOTAL VOL. = 502 ft.³

Conclusion

Total developed runoff = Basin 1 + Basin 2 = 0.27 + 0.1 = 0.4 c.f.s < 0.6 c.f.s. @ the undeveloped condition.

APPROVED FOR DRAINAGE
11/01/83
DATE
ADVISE DRAINAGE INSPECTOR WHEN GRADING EXECUTED

REVISED 8-19-83
REVISED 9-14-83
REVISED 10-31-83

H23/D12a

RECEIVED OCT 31 1983 HYDROLOGY SECTION

CONSULTANTS TERRA SOL INC.
ALBUQUERQUE OFFICE - 1100 B ALVARADO N.E. ALBUQUERQUE, N. MEX., 87110 266-3444
SANDIA PARK OFFICE - P.O. BOX 142 SANDIA PARK, N. MEX., 87047 281-1931

Revisions: WEST SIDE RET WALL 9-9-83
Date
Designed A.H. 7-83
Drawn M.L. 7-83
Checked C.L.W. 7-83

AMENDED GRADING DRAINAGE PLAN FOR

12911 Kachina Pl. N.E.

ANDRE HONSAK
NEW MEXICO
REGISTERED PROFESSIONAL ENGINEER
10-26-83

SHEET 1 OF 1