DRAINAGE PLAN

1. Existing Conditions

The proposed site is located at the northwest corner of the intersection of the I-25 Pan American Freeway and Ellison Street (see Location Map on this sheet). The site is a vacant undeveloped parcel with short native grass and weeds at the top surface. The site slopes approximately 25ft from the northeast to the southwest corner, but slopes 8ft (local vertical) from the southwest corner to the existing Ellison Street. The parcel consist of 1.6846 acres and contains existing great water, sanitary sewer easements running east/west across the site. The existing flows generated by this site flows in Ellison Street west to the intersection of Washington Street. The flows then discharge to the AMAFCA North Diversion Channel thru an existing 20-foot drainage easement (shown on Plat B14-205) via a 4-foot curb opening at the northwest corner of the intersection. A Master Drainage Study prepared in 1975 by Gordon Herkenhoff and Associates for Academy Park, Unit 4, indicated that Ellison Street is to discharge in the North Diversion Channel with a maximum flow rate of approximately 174 cfs. Charts in the report indicate that the street has a capacity of 194 cfs. No offsite flows will enter the site from the north or west due to the existing drainage pattern of the developed sites. Also, no offsite flows will enter the site from the east and south due to the existing landscaping berm.

2. Proposed Conditions

The proposed development is planned to consist of a three story motel with the surrounding parking lot areas. The site will be graded to discharge developed flows into the existing Ellison Street in accordance with the approved Master Drainage Study described above. The study was approved and accepted by the City of Albuquerque and stated on Page 4 that ponding areas will not be required. An additional drainage plan prepared by Tom Mann and Associates in 1987 was approved which allowed the addition of 5.1 cfs into Ellison Street.

3. Conclusions

The increase in flow generated by the development of this site was calculated to be 3.4 cfs. The Master Drainage Study indicated that the street capacity of Ellison is 194 cfs. With the addition of this development and the adjacent development, the street does have the capacity to handle the design flows. At the west end of Ellison, the two sidewalk culverts which allow flow into the existing arce underpsized for almost any flow. The excess water builds up at the culverts until it overflows and enters the North Diversion Channel. The existing 20' drainage easement has the capacity to handle the 100-year flows. Therefore, this Drainage Plan is in compliance with the Drainage Report that was established for this area when it was originally developed.

CALCULATIONS

Ground Cover Information
From SCS Bernalillo County Soil Survey
Plate: 21
Hydrologic Soil Group: B
Existing Pervious CN = 61 (DPM Plate 22.2 C-2
Developed Pervious CN = 98 (DPM Plate 22.2 C-2)

Time of Concentration/Time to Peak

$T_C = 0.0078\,(L^{0.77}/S^{0.385})$ (Kirpich Equation)

$T_p = T_c + 10$ min.

Point Rainfall
$P_6 = 2.2$ in. (DPM Plate 22.2 D-1)

Rational Method
Where $Q = CIA$
where C varies

$C_{undeveloped} = 0.40$

$C_{developed} = (0.28)(0.25) + (1.605)(.95) = 0.83$ (1.885)

$P_6 = 2.2$ in (DPM Plate 22.2 D-1)

$T_c = 10$ min. (minimum)
A = area, acres

SCS Method
Method: $V = 3630(DRO)\,A$
Where DRO = Direct runoff in inches
A = area, acres

Existing Condition

$A_{total} = 1.685$ Ac
C = 0.40 (weighted average per Emergency Rule, 1/14/86)

$Q_{100} = CIA = (0.4)(1.6)(1.685) = 3.1$ cfs
Area = .04 Ac. Impervious = 0.5
Composite CN = 84 (DPM Plate 22.2 C-3)
DRO = 0.2 in (DPM Plate 22.2 C-4)

$V_{100} = 3630\ (DRO)A = 3630\ (0.2)(1.685) = 1223.3$ cf

Developed Condition

$A_{total} = 1.685$ Ac
Paved and roof areas 1.405 Ac
Landscape area = 0.28 c
C = 0.83 (weighted average per Emergency Rule, 1/14/86)

$Q_{100} = CIA = (0.83)(1.6)(1.685) = 6.5$ cfs

Composite CN = 93 (DPM Plate 22.2 C-3)
DRO = 1.0 in (DPM Plate 22.2 C-4)

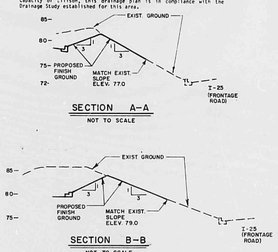
$V_{100} = 3630\ (DRO)\ A = 3630*(1.0)(1.685) = 11,009.8$ cf

Comparison

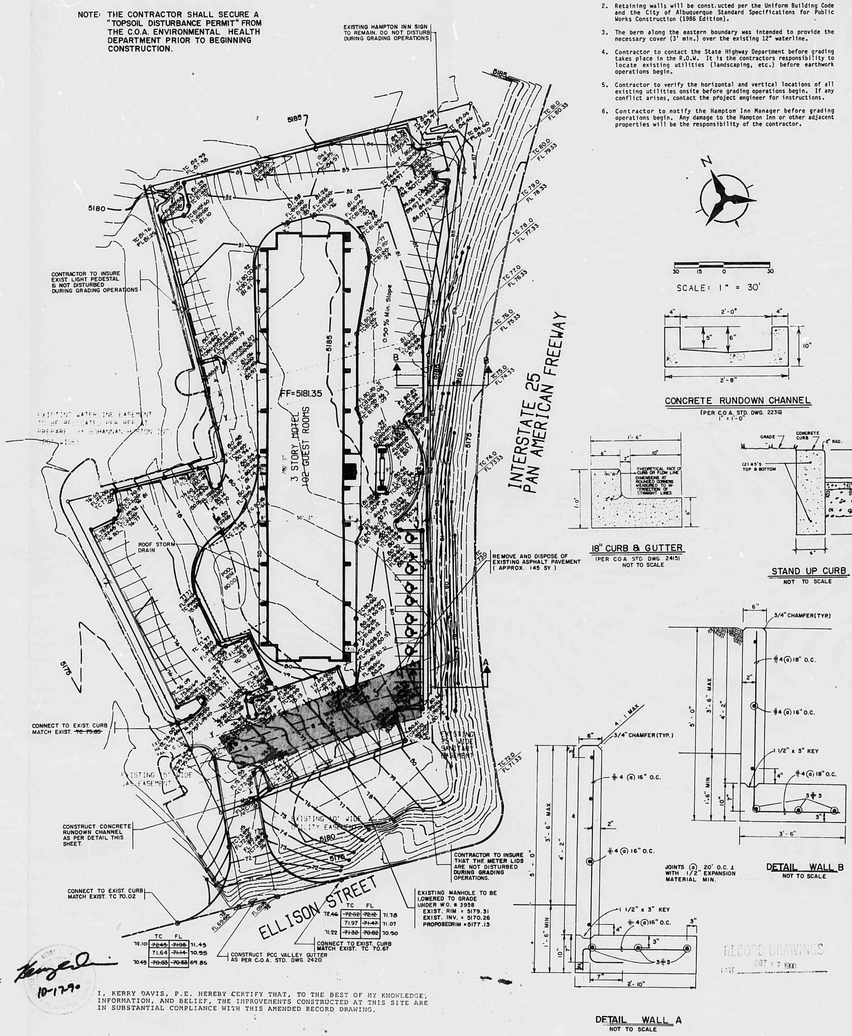
$Q_{100} = 6.5 - 3.1 = 3.4$ cfs

$V_{100} = 11,009.8 - 1223.3 = 9,786.5$

Because the developed runoff flows directly into Ellison Street and travels only 2500' to the 20-foot drainage channel and into the North Diversion Channel, free discharge from this site is appropriate. Since the runoff generated from this site does not exceed the street capacity of Ellison, this drainage plan is in compliance with the Drainage Study established for this area.

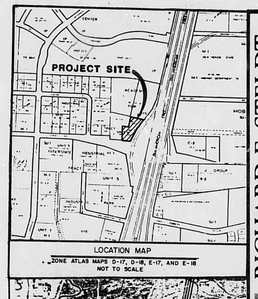


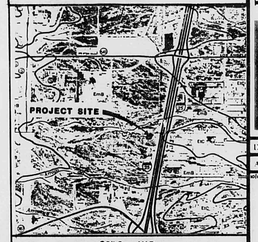
NOTE: THE CONTRACTOR SHALL SECURE A "TOPSOIL DISTURBANCE PERMIT" FROM THE C.O.A. ENVIRONMENTAL HEALTH DEPARTMENT PRIOR TO BEGINNING CONSTRUCTION.



NOTES

1. Any excess dirt created by grading operations will be hauled offsite at the contractor's expense.
2. Retaining walls will be constructed per the Uniform Building Code and the City of Albuquerque Standard Specifications for Public Works Construction (1986 Edition).
3. The berm along the eastern boundary was intended to provide the necessary cover (3' min.) over the existing 12" waterline.
4. Contractor to contact the State Highway Department before grading takes place in the R.O.W. It is the contractors responsibility to locate existing utilities (landscaping, etc.) before earthwork operations begin.
5. Contractor to verify the horizontal and vertical locations of all existing utilities onsite before grading operations begin. If any conflict arises, contact the project engineer for instructions.
6. Contractor to notify the Hampton Inn Manager before grading operations begin. Any damage to the Hampton Inn or other adjacent properties will be the responsibility of the contractor.





LEGEND

TW	TOP OF WALL
BW	BOTTOM OF WALL
TC	TOP OF CURB
FL	FLOW LINE
6758	PROPOSED SPOT ELEVATION
@6+5	EXISTING SPOT ELEVATION
	CURB AND GUTTER (PROPOSED)
	CURB AND GUTTER (EXISTING)
	EXISTING CURB AND GUTTER
	EXISTING CONTOUR
	PROPOSED CONTOUR

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ARCHITECTS
212 W. WISCONSIN AVENUE • MILWAUKEE, WI 53203
(414) 274-0501

D-17/D066

Drawn
Approved
Approved for Project Planning and Sup of Curb, HRM
date comments
REVISIONS
Job 1537-289
Date 1-15-90

Budgetel INN
ALBUQUERQUE NM

Sheet C-1

RECEIVED OCT 18 1990 HYDROLOGY DEPARTMENT

SITE GRADING AND DRAINAGE PLAN

Project No
Seal
Job No 89234.04 Sheet 1 Of 2
Drawn By KIS, HM Date JAN. 1990
Checked By RLD Scale 1" = 30'

I, KERRY DAVIS, P.E. HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE, INFORMATION, AND BELIEF, THE IMPROVEMENTS CONSTRUCTED AT THIS SITE ARE IN SUBSTANTIAL COMPLIANCE WITH THIS AMENDED RECORD DRAWING.

10-17-90

RECORD DRAWINGS

Rev 21 DATE 2-23-90 OR ETP

CITY OF ALBUQUERQUE

This microimage is certified to be a complete and accurate copy of the original as it appears in the files of the PUBLIC WORKS DEPARTMENT - HYDROLOGY DIVISION and was filmed in the normal course of business. The photographic processes used meet the Basic Microfilm Standards of the National Micrographics Association (NBS15-1977).

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My Commission Expires MAY 8 1992

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THIS PLAN SHOT TWICE ONCE ON LIGHT AND ONCE ON DARK.

PLANS/PLATS ON FILE

FILE DESC: D-17/D066

PLANS/PLATS 1

F 30 D 24 C 20 B 16 A 12 CITY OF ALBUQUERQUE C D F

DRAINAGE PLAN

1. Existing Conditions

The proposed site is located at the northwest corner of the intersection of the I-25 Pan American Freeway and Ellison Street. See Location Map on this sheet. The site is a vacant undeveloped parcel with short native grass and weeds at the top surface. The site slopes approximately 5.0' from the northeast to the southwest corner, but slopes 30' horizontal vertical from the southwest corner to the existing Ellison Street. The parcel consists of 1.0168 acres and contains existing gas, water, and sanitary sewer utilities running east west across the site. The existing runoff generated by this site flows to Ellison Street west to the intersection of Washington Street. It flows then discharge to the Arroyo Ojo Del Venado Diversion Channel through an existing 20-foot drainage easement shown on Plat B16-C93, via a 12-foot curb opening at the northwest corner of the intersection. A Master Drainage Study prepared in 1975 by Gordon Harwood and Associates for Academy Ranch Unit 1, indicated that Ellison Street is tributary to the North Diversion Channel with a capacity of approximately 175 cfs. Charts in the report indicate that the street has a capacity of 198 cfs. No offsite flows will enter the site from the north or west due to the existing drainage pattern of the developed sites. Also, no offsite flows will enter the site from the east and south due to the existing landscaping berm.

2. Proposed Conditions

The proposed development is planned to consist of a three story hotel with the surrounding parking lot areas. The site will retain its distinctive developed flow path, the existing Ellison Street, in accordance with the approved Master Drainage Study. The study was approved and accepted by the City of Albuquerque and the Pan Am I-25 freeway improvement project. The proposed additional drainage plan prepared by Jim Mann and Associates in 1987 was approved which allowed the additional 30cfs into the Ellison Street.

3. Conclusions

The increase in flow generated by the development of this site is calculated to be 1.4 cfs. The Master Drainage Study indicated that the street capacity is 198 cfs, with the additional flow from the development and the adjacent development, the street still has the capacity to handle the 'ultimate flows'. If the west end of the street fills, two flowpaths are available. The eastern path is the underpass for almost any flows. The eastern water surface will fill the culvert, which has a capacity of 175 cfs, before the Diversion Channel. The existing 20' drainage easement has capacity to handle flows with the freeboard. Therefore, this drainage plan is in compliance with the drainage plan that was established for this area when it was originally developed.

Calculations

Hydrology Calculations

Rainfall Data: Zone 3 Rainfall Data

Rational Method

Calculations

Conveyance Calculations

Hydraulic Calculations

Culvert Calculations

Culvert Data

Culvert Calculations

Culvert Data

Culvert Calculations

Culvert Data