K21/01

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1 Plan

DRAINAGE REPORT

FOR

CARROW'S RESTAURANT DEVELOPMENT

OF

LOT A, BLOCK 8, LA QUESTA SUBDIVISION

NOVEMBER 1978

Prepared By:

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DRAINAGE REPORT

FOR

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OF

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PURPOSE

The purpose of this report is to present to governing agencies and the developer a reasonable method of complying with AMAFCA Drainage Resolution 1972-2 and thereby lessen runoff from the proposed development to an amount not in excess of the flow to be expected from the property in its present state. The report is composed of a narrative of existing and proposed conditions, computations and grading plan.

LOCATION AND TERRAIN

The proposed development is located on the southeast corner of Copper Avenue and Juan Tabo Bouldvard in the northeast quadrant of the city. (See plate I for exact location.) The property slopes southwesterly at approximately three percent. Base soils are composed of granular decomposed granite. A small paved area is located on the northeast corner of the parcel. Vegetation is composed of prairie grasses and common weeds. Infiltration rates, due to sparse ground cover and base soil type, may be expected to be less than 1/2" per hour.

PROPOSED DEVELOPMENT

Site plan indicates location of buildings, parking, landscaping and storm water ponding, as well as proposed grading for drainage purposes. (See Plate II for site plan.)

UPLAND DRAINAGE

As per the Drainage Report for the design of Juan Tabo Boulevard Widening Project, M-4065(1), prepared by T. T. Burnett Engineering, July 24, 1976, all upland flows for the 100 year frequency storm are carried within the street section. Flows from the adjoining property shall be diverted to Copper Avenue and Zia Street, due to the construction of a wall along the east property boundary.

INTERNAL DRAINAGE

A portion of the flow, equivalent to existing conditions, will be retained on the site in a large retention pond located along the west property line. Maximum depth of the pond shall be 1.5 feet. (See Plate II and Computations for pond location and drainage areas.)

CONCLUSIONS

Upland flows are diverted through existing streets with the exception of adjoining property, which will be diverted to existing streets, and therefore do not enter the property. Flows generated internally will be partially stored in an onsite retention pond and planters. All flows will be routed through the retention pond. Flows in excess of storage capacity will exit the retention pond in a sheet flow condition to Juan Tabo Boulevard.

Carrow's Restaurant DRAINAGE REPORT JJB 11/78
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PONDING REQUIRED

Existing Condition

Site Area (119+147)(260)/2 = 34,580 ♯

	Area ♯	Runoff Coeff.	Equiv. Area
Soil	31,788	0.45	14,305
Asphalt Pavement	2,690	0.95	2,546
	34,468		16,851

Runoff Volume = (2.8)(16,851)/12 = 3932 cu.ft. = 6 hour runoff

Developed Condition

CONTRIBUTING TO POND	Area ♯	Runoff Coeff.	Equiv. Area
Planters (retained)	1364	0.00	0
(runoff to pond)	2,008	0.35	703
Roof, Sidewalk & Parking via front gutter	15,018	0.95	14,267
via rear gutter	8,400	0.95	7,980
roof via planted area	2736	0.95	2,610
Retention Pond	3500	1.00	3,500
Sub-total	33,026		29,060
DIRECT RUNOFF TO STREETS			
Planters (assume SW landscaping)	1,292	0.90	1,163
Asphalt Pavement	150	0.95	143
	1,442		1,306
	34,468		

Ponding - Required & Provided

Runoff Volume-Developed 2.8(30,366)/12 = 7,085 cu.ft. = 6 hr runoff

Existing from above = 3,932

PONDING REQUIRED 3,153 cu.ft.

PONDING PROVIDED = (1960+3000)(1.5)/2 = 3,720 cu.ft

Excess Capacity = 18%

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OPENING'S TO RETENTION POND

Via Front Gutter

Contributing Area = 15,018 ft², Runoff Coefficiant = 0.95

Use $t_c = 5 + 6 = 11$ min.

$Q = CiA$, where $i = 189/(t+25)$

$= (0.95)(189/(11+25))(15018/43560) = 1.72$ cfs

Opening Req'd

$Q = CLH^{3/2}$, where $C = 2.6$, $L = 4$ ft

$H = (1.72/(4)(2.6))^{2/3} = 0.30$ ft

H provided = 0.5 ft.

Via Rear Gutter

Contributing Area = 8400 ft², Runoff Coefficiant = 0.95

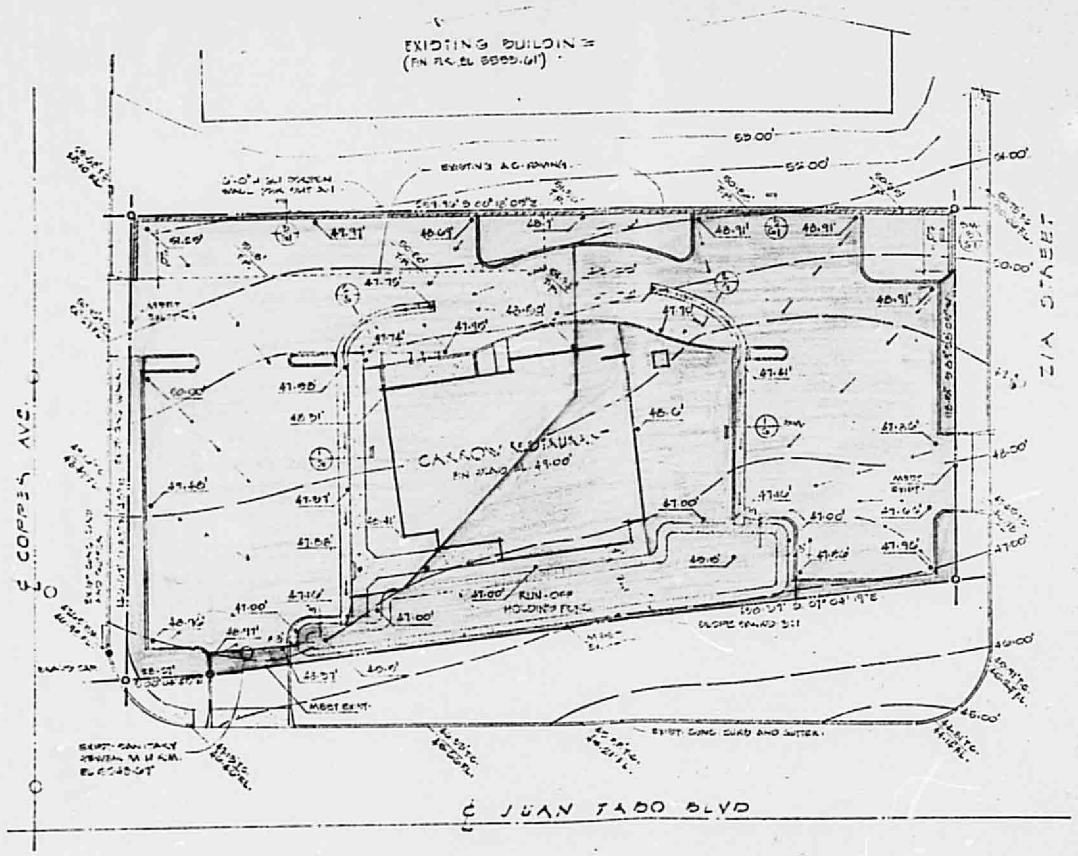
Use $t_c = 5 + 5 = 10$ min.

$Q = (0.95)(189/(10+26))(8400/43560) = 0.99$ cfs

Opening Req'd

$H = (0.99/(4)(2.6))^{2/3} = 0.21$ ft.

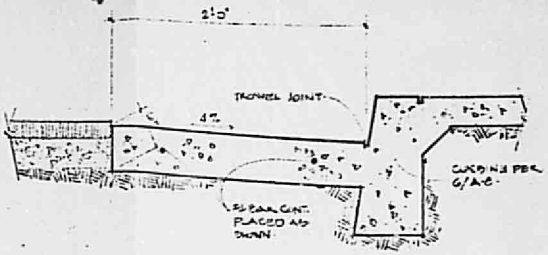
H provided = 0.5 ft.



GRADING AND PAVING PLAN

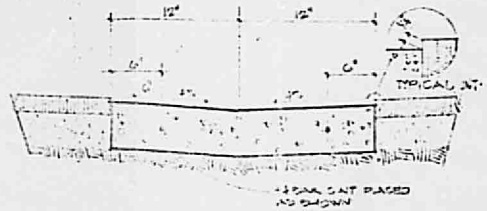
SCALE 1" = 20'-0"

RUNOFF SOURCE	AREA #	
Contributing to Pond		
Planters (retained)	1,364	
(runoff to pond)	2,008	
Roof, sidewalk & parking		
via front gutter	15,015	
via rear gutter	6,400	
roof via planted area	2,736	≈ 44003f²
Retention Pond	3,500	
DIRECT RUNOFF to STREET		
Planters	1,292	
Pavement	150	



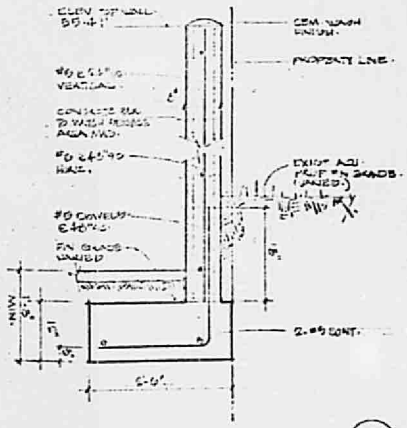
CONCRETE GUTTER SECTION (1)

NO SCALE



CONCRETE GUTTER SECTION (2)

NO SCALE



MASONRY SCREEN WALL (3)

SCALE 1/4" = 1'-0"

dexcom
STRUCTURES
8553 LA PASONTE DRIVE, SANTA BARBARA, CA TEL: (805) 683-7805

BUILDING FOR: CANNON RESTAURANTS INC.
JUAN TABO BLVD AT COPPER AVE. N.E.
ALBUQUERQUE, NEW MEXICO

GRADING & PAVING PLAN

DATE: JUNE 5, 1979
SCALE: 1" = 20'-0"
DRAWN: D. WILLIAMS
JOB:
SHEET: G-1
OF SHEETS

CARROW'S RESTAURANT DEVELOPMENT (LOT A, BLOCK 8, LA QUESTA SUBDIVISION)

STANDARD REQUIREMENTS FOR DRAINAGE PLANS

PURPOSE: The increasing volume of drainage plans submitted to this office makes it mandatory that such plans be standardized as much as possible in order to expedite reviews. This standardization is as much to the advantage of the developer and engineer as it is to the Hydrology Section which enforces the AMAFCA RES. 72-2. For parcels of land less than 20,000 sq. ft. in surface area no formal drainage report is required; the construction plans need only to include the standard form attached herein and the site drainage plan. Developers for larger parcels of land will have to submit a formal drainage report as specified in the Resolution.

RUNOFF PONDING: In most instances on site ponding is mandatory, with dispersal in the ground of the excess runoff arising from newly created impervious surfaces. The only exception allowed, is for those properties adjacent to a diversion channel which was designed for higher standard than 100 years frequency storm (existing conditions). For detailed computations of the runoff before and after development the assumed runoff coefficient recommended are C = 0.4 for undeveloped, landscaped or similar open areas and C = 0.9 for all other impervious surfaces, including areas in southwestern type landscaping with underlying polyethylene film and gravel covered parking areas where vehicular traffic will compact the soil and render it impervious. Due to the inadequacy of the existing drainage facilities in the valley area and to the limited capabilities of the City for providing relief, ponding requirements in the valley are higher than elsewhere.

COMPUTATION OF VOLUME OF RETENTION:

Valley Area = $1.0 \times \frac{2.2"}{12"} \times \text{Area (ft.)} = 0.18 \times A$

East and West Mesa = $(0.9 - 0.4) \times \frac{2.4"}{12"} \times \text{Area (ft.)} = 0.1 \times A$

In order to facilitate the design of drainage facilities, a checklist that will be followed in the review process is listed below:

CHECK LIST

1 - Flooding potential - adjacent water courses

YES Is property located in the flood plain? FHBM 24 K-22-Z

If so, is the finished floor above the 100 yrs. flood level?
NO MENTION OF FLOOD PLAIN IN REPORT.

Is property adjacent to a natural or artificial water course?

If so, what are the specific AMAFCA or City requirements?

RUNDOWNS

Are drainage R.O.W or easements shown on, or in the proximity of property? If so, are there drainage problems?

2 - Relation of property to surroundings

YES Per topo map, does property intercept other drainage upstream?

If so, how is runoff conveyed across property? ACCORDING TO THE REPORT THE [redacted] RUNOFF WILL BE DIVERTED TO THE [redacted] COPPER & ZIA STREET.

May there be erosion associated with offsite runoff conveyance?

May erosion or siltation result from proposed construction activities?

YES Does development block drainage from adjacent property?

3 - Site grading

yes Does site plan show contours before development (extending a minimum of 25 ft. beyond property lines)?

Does site plan show proposed grading with adequate swale definition to convey water to ponds?

Is all runoff conveyed to ponding areas before it overflows to public facilities?

yes Does the proposed grading plan indicate that under cutting or back-filling adjacent to property lines may require retention walls?

Is there continuity between proposed new contours and old contours offsite?

Is elevation of property line at least 0.3 ft. above top of curb?

4 - Storm water retention

YES Is ponding volume adequate (supply detailed computation)?

Are ponds balanced with areas they drain (can area draining to each pond be easily identified and will actually water flow there)? The plot plan must outline each drainage area.

Can pond volume be computed and verified?

Are ponds practical, can they be built as shown?

5 - Safety

Do the drainage provisions constitute an attractive nuisance, or safety hazard?

If the pond depth is greater than 18",are safety provisions supplied? (Minimum 3.0 ft. high chain link fence or similar physical barrier of ponding areas are adjacent to public R.O.W.?)

In general, ponds of depth greater than 18" will not be accepted for both safety consideration and for long term effectiveness of the facilities. In those cases where limited space is available for ponding, the use of gravel pits under the parking areas is suggested. It must be pointed out that mainstream and effectiveness of these facilities is necessary and is the responsibility of the owner. Existing or planned City facilities (streets, channels, storm sewers) can accommodate the natural runoff volumes. Greater discharges would cause flooding downstream and need to be limited at the source.

C-2
PRINCESS
JEANNE PARK
MANZANO HIGH SCHOOL
WILSON STADIUM
C-1
R-3
SU-1
LA CUESTA
CLOUDVIEW
KOA
UNIT 2
SUB'D
CANYON
ACRES
1+00
2+00
3+00
4+00

K-22-1