

ARMSTRONG ENGINEERING, INC.

CONSULTING ENGINEERS

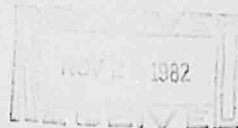
2709-C PAN AMERICAN N.E.

ALBUQUERQUE, NEW MEXICO 87107

JOHN ARMSTRONG P.E.

(505) 346-2133

November 23, 1982



Mr. Fred Aquirre PE
City of Albuquerque
P.O. Box 1293
Albuquerque, New Mexico 87103

Re: Marriott Hotel As-built and Drainage Improvements (File No. J-18-D1).

Dear Fred:

This letter is to certify that the improvements, called for in our 8/82 Report, have been completed in close accordance with the plans and the Certificate of Occupancy should be released.

Thank you,



John Armstrong



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

August 26, 1982

John Armstrong
Armstrong Engineering, Inc.
Consulting Engineers
2709-J Pan American NE
Albuquerque, New Mexico 87107

Re: Marriott Hotel As-built and Drainage Improvements
Dated 8/82 (File No. J-18D)

Dear Mr. Armstrong:

The As-built Plan with the proposed improvements for the referenced site is approved.

The Certificate of Occupancy will be released upon receipt of a letter of Certification by the owner's engineer for the proposed improvements.

If you have any questions regarding the above, please feel free to call me at 766-7644.

Sincerely,

Fred J. Aguirre, PE
Civil Engineer/Hydrology

FJA/el

cc: ✓ Drainage File
Reading File

MUNICIPAL DEVELOPMENT DEPARTMENT

Richard S. Heller, P.E., City Engineer

ENGINEERING DIVISION

Telephone (505) 766-7467

ARMSTRONG ENGINEERING, INC.

CONSULTING ENGINEERS

2709-J PAN AMERICAN B.E.
ALBUQUERQUE NEW MEXICO 87107

(505) 345-2133
(505) 345-8463

JOHN ARMSTRONG P.E.

August 25, 1982

Mr. Fred Aquirre, P.E.
City of Albuquerque
Engineering Division
P.O. Box 1293
Albuquerque, New Mexico 87103

Re: Marriott Hotel site as-built and drainage improvements

Dear Fred:

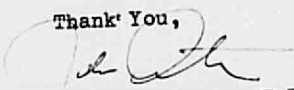
Please find attached the as-built of the Marriott along with the hydrological calculations at the various stations which correspond to the sections analyzed in the original drainage report for Park Square. It can be seen that Loop Rd. will carry the design flow (120 cfs from the Master Drainage Study) except for the area of the driveway at Station 9+80 where a large portion of the design flow would enter the Cinema I,II,III parking lot and run west. As a proposed solution to this problem, we have called for an asphalt berm to be constructed through the driveway to turn the water south into the drainage swale (See attached drawing).

The water at Station 9+05 must turn almost 90°, therefore the water must back up at that point. The energy grade line at Station 9+05 is elev. 58.05, therefore the maximum high water at that point was considered to be 58.00. It can be seen that the existing walls at Station 9+05 will direct most of the flow down the street but there will be some flow through landscaped areas in the area of Station 9+55, and at design flow some plantings may be lost, but the owner is aware of this potential problem and considers it to be a minor problem.

The energy grade line at Station 9+80 is elev. 57.61 and the top of the proposed berm to be elev. 57.85, which should contain the flow even in the event of a hydraulic jump at that point.

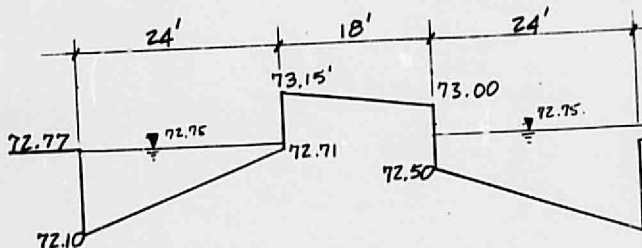
Grading on the Marriott site is fairly close to the original approved plan and any drainage problems on that site should be minor.

Thank You,


John Armstrong, P.E.

SLOPE TO NEXT STATION DOWNSTREAM: 1.7 %

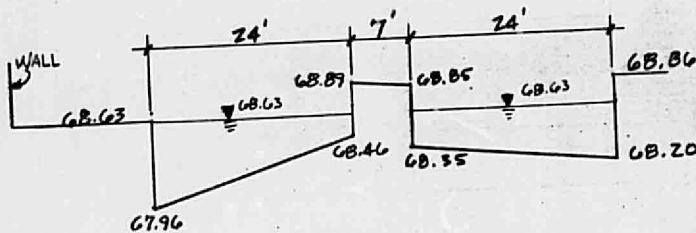
PROJECT: YAKKULI
PAGE: 1



STATION: 0+00

$n = 0.015$
 $A = 20.87$
 $P = 67.70$
 $R = 0.3081$
 $S = 0.017$
 $Q = 123 \text{ cfs}$
 $V = 5.89$
 $N = 1.58$
 $y_h = 0.43$

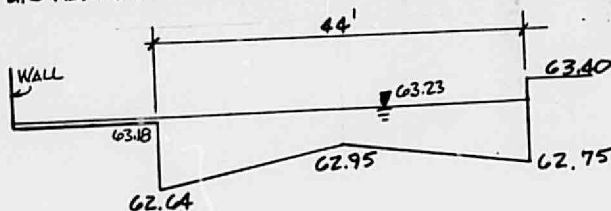
SLOPE FROM NEXT STATION UPSTREAM: 1.7 %



STATION: 2+32

$n = 0.015$
 $A = 18.12$
 $P = 49.52$
 $R = 0.3659$
 $S = 0.017$
 $Q = 119.7 \text{ cfs}$
 $V = 6.60$
 $N = 1.89$
 $y_h = 0.38$

SLOPE FROM NEXT STATION UPSTREAM: 1.6 %



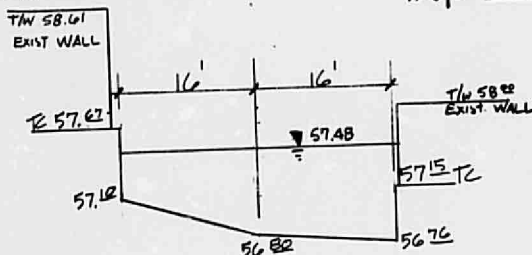
STATION: 5+65

$n = 0.015$
 $A = 17.93$
 $P = 45.07$
 $R = 0.39$
 $S = 0.016$
 $Q = 121.5 \text{ cfs}$
 $V = 6.78$
 $N = 1.87$

SCALE: $y_h = 0.41$
HORIZ: 1" = 15'
VERT: 1" = 1'

SLOPE TO NEXT STATION DOWNSTREAM: 0.74 %

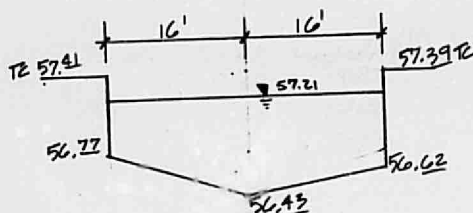
PROJECT: _____
PAGE: 2



STATION: 9+05

$n = 0.015$
 $A = 19.8 \text{ ft}^2$
 $P = 33.10$
 $R = 0.5991$
 $S = 0.0074$
 $Q = 119.9$
 $V = 6.05$
 $N = 1.36$
 $y_h = 0.62$

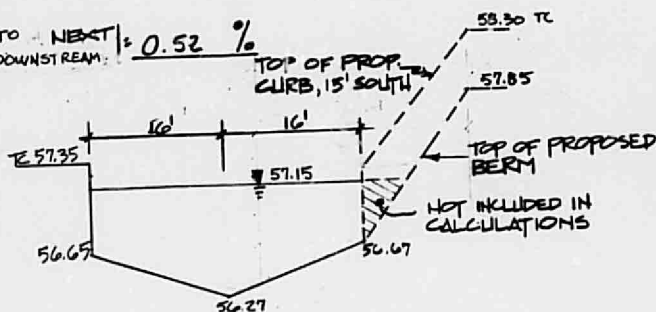
SLOPE FROM NEXT STATION UPSTREAM: 0.74 %



STATION: 9+55

$n = 0.015$
 $A = 20.72$
 $P = 33.03$
 $R = 0.6273$
 $S = 0.0064$
 $Q = 120.33$
 $V = 5.81$
 $N = 1.27$
 $y_h = 0.65$

SLOPE TO NEXT STATION DOWNSTREAM: 0.52 %



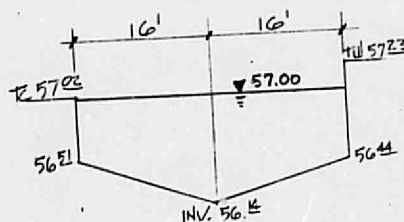
STATION: 9+80

$n = 0.015$
 $A = 21.92$
 $P = 32.98$
 $R = 0.6646$
 $S = 0.0052$
 $Q = 119.25$
 $V = 5.44$
 $N = 1.16$
 $y_h = 0.685$

SCALE: $y_h = 0.685$
HORIZ: $1" = 15'$
VERT: $1" = 1'$

SLOPE FROM NEXT STATION UPSTREAM: 0.52

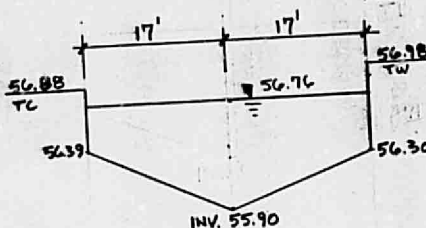
PROJECT: _____
PAGE: 3



STATION: 10+05

$n = 0.015$
 $A = 22.16$
 $P = 33.05$
 $R = 0.6705$
 $S = 0.0052$
 $Q = 121.27$
 $V = 5.47$
 $N = 1.16$
 $y_h = 0.69$

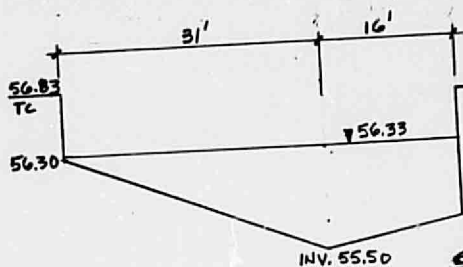
SLOPE FROM NEXT STATION UPSTREAM: 0.62 %



STATION: 10+42

$n = 0.015$
 $A = 21.68$
 $P = 34.83$
 $R = 0.6225$
 $S = 0.0062$
 $Q = 123.3$
 $V = 5.69$
 $N = 1.26$
 $y_h = 0.64$

SLOPE FROM NEXT STATION UPSTREAM: 0.62 %

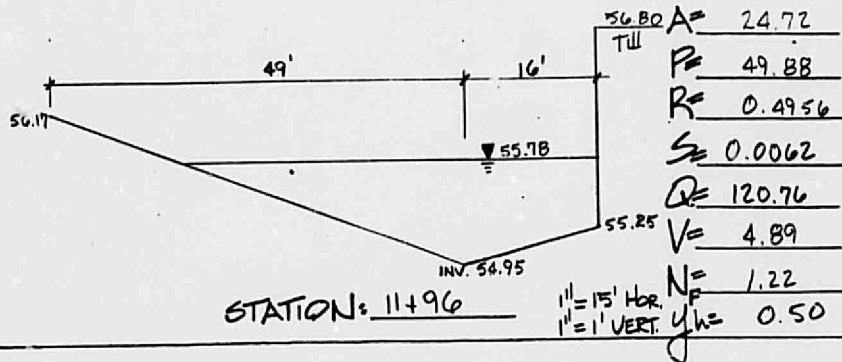


STATION: 11+05

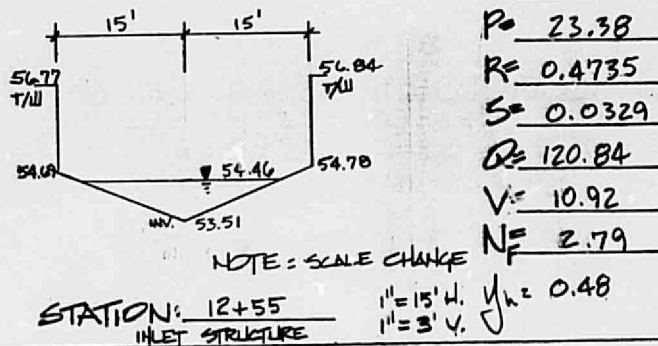
$n = 0.015$
 $A = 24.57$
 $P = 47.65$
 $R = 0.5156$
 $S = 0.0062$
 $Q = 123.23$
 $V = 5.02$
 $N = 1.22$
 $y_h = 0.52$
SCALE: $y_h = 0.52$
HORIZ: $1" = 15'$
VERT: $1" = 1'$

SLOPE FROM NEXT
STATION UPSTREAM: 0.62 %

PROJECT: _____
PAGE: 4



SLOPE FROM NEXT
STATION UPSTREAM: 3.29 %



SLOPE FROM NEXT
STATION UPSTREAM: _____ %

$n =$ _____
 $A =$ _____
 $P =$ _____
 $R =$ _____
 $S =$ _____
 $Q =$ _____
 $V =$ _____
 $N_F =$ _____

STATION: _____

SCALE: $y_h =$ _____
HORIZ. = AS
VERT. = NOTED

APPROVED FOR DRAINAGE
3/24/81
DATE
Brent Minter
SPECIAL AGENT

Office of the City Engineer
Building Plans
Drainage Review

2101 Louisiana N.E.

3/24/81

Date Issued _____

Generalmen:

In order to expedite the passage of building construction plans through the drainage review we have compiled this list of requirements. With a few exceptions, these requirements are complete.

- (1) Any building site 1.00 acres or larger will require a formal drainage report prepared by a professional engineer licensed to practice in New Mexico. This report must be submitted to the office of the Asst. City Engineer/Hydrology for review and acceptance prior to submission of construction plans for review.
- (2) Before attempting to submit a set of plans for a building located in a flood hazard area, contact the Drainage Division. Failure to do this will often result in much lost time.
- (3) When construction plans are submitted, the following items must be included:
 - ✓ (A) A grading plan showing:
 - 1) existing contours extending approximately 10 feet beyond the property line. If it is not feasible to provide contours beyond the property line, spot elevations, at the the property line, designated as existing and proposed may be substituted.

legend unclear as to what applies to what, see plan for detail

- 2) proposed contours at one foot intervals and proposed spot elevations at key points.
- 3) finish building floor elevation (s).
- 4) notes defining asphalt, sidewalks, planting areas, ponding areas, ^{property line,} and any other areas whose definition would increase clarity.
- 5) proposed alley grades, if property abuts a dedicated unpaved alley. These grades are available, at no charge, from the City Engineer's office. An advance request will expedite your project.

B) A drainage plan showing:

- ✓ 1) direction of roof drainage including canals, gutters, and downspouts. *Drain all roof runoff away from structure*
- 2) outlined contributory drainage areas, including roof areas.
- 3) swales with top and bottom spot elevations.
- 4) curb and sidewalk spot elevations.
- 5) flow lines with arrows and spot elevations for

C) *Designated "CFS" entering onto the drainage structure at west end.*
If ponding is required the drainage plan must also

show:

- 1) calculations showing developed and undeveloped volumetric flow rate.
 - 2) pond volume calculations.
 - 3) that pond volumes balance with area contributing to the pond.
- 3.5) Close proximity of ponding to any structure requires the concurrence of a soils investigation report.

- 4) the pond overflow point with spot elevation and slope protection if necessary.
- 5) positive discharge of ponds with required rate calculations and orifice calculations, if applicable.
- D) A discussion of offsite flows must be included. If the contour maps disagree with the designers opinion of offsite flows, further information will be required.
- E) A discussion of any other local conditions that effect site drainage should be included.
- ✓ F) Details of ponds, curbcuts, water blocks, and any other significant drainage structures must be included.
include detail from sheet C-5 on sheet C-2
- G) The professional who designs the drainage scheme must affix his/her stamp to the drainage plan.
- H) A copy of the ~~approved~~ drainage plan must ^{also, included} be submitted ~~with the construction plans~~
✓ ~~for drainage files, only prior to inspection.~~
- ✓ I) Construction in the public right of way requires approval, prior to construction, from the City Engineers office.

Approved _____

R. S. Heller

- J) Indicate all easements on site: Location, width, and purpose
- ✓ K) Provide a benchmark based on mean ^{or assumed datum} sea level datum with a description of said benchmark.
- ✓ L) Provide a location map with the zone atlas number and legal description. *not required but would be helpful*
- M) Storm runoff must be routed over the driveway or thru a city approved curb cut.
- ✓ N) Also include the required elevation for the Standard City Drivpad (CWS-P-11).