HOLMES & NARVER, INC.
ENGINEERS • CONSTRUCTORS

November 9, 1984
AL-1691.70-L-43

Mr. Billy J. Goolsby, PE
Civil Engineer/Hydrology
Municipal Development Department
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

GRADING PLANS FOR PARK SQUARE SITE AND INFRASTRUCTURE IMPROVEMENTS (J-18-DIA)

Dear Mr. Goolsby:

Per our discussion on November 8, 1984, copies of detailed final grading plans for the Park Square site and infrastructure improvements accompany this letter. As you had indicated, this submittal will fulfill your information requirements specific to plan review for the Phase I Office Tower.

Should you have any questions regarding this matter, do not hesitate to contact me.

Sincerely,

James L. Hewitt, Jr., PE
Senior Engineer II

JLH:lad, 0162H

cc: M. Gesler
J. Boyle
R. Booth
Project File
Central File
Arch. Master File

7801 ACADEMY BLVD. N.E., SUITE 104, ALBUQUERQUE, N.M. 87109 (505) 822-0663
951 CENTRAL AVENUE, LOS ALAMOS, N.M. 87544 (505) 662-6986
4047 FIRST STREET, SUITE 203, LIVERMORE, CA. 94550 (415) 449-3800

3633

HOLMES & NARVER, INC.
ENGINEERS • CONSTRUCTORS

Please have Fred Review & Then Rip & Damp for Docmnt Dimensions. & of above Log O.K. Steve Bowman should Review & then go for Signatures

CDS
JNH
HRO
cc: Fred
Greg
File

RECEIVED
JUL 25 1984
CITY ENGINEER

July 20, 1984
AL-1691.70-L-34

Mr. C. Dwayne Sheppard, P.E.
City Engineer
City of Albuquerque
P.O. Box 1293
Albuquerque, New Mexico 87103

PARK SQUARE ADDITION - UNDERGROUND DRAINAGE EASEMENT

Per our correspondence to you dated June 18, 1984, and as a condition of your approval of the final plat for the Park Square Addition, we are enclosing a draft of a grant of easement for underground drainage facilities within the Park Square Addition. As described within the enclosed document, Hines Industrial, Ltd. ("Hines") will dedicate a five foot underground drainage easement to the City of Albuquerque to accommodate the existing 4-inch diameter drainage conduit which extends from Americas Parkway to an existing drainage easement within Tract 2 of the Park Square Addition.

We are prepared to obtain signatures and acknowledgement on behalf of Hines, provided this document meets with your approval. We request your expeditious response to this matter. Please contact me if you have any questions regarding this matter.

7467

Sincerely,

James L. Hewitt, Jr., P.E.
Senior Engineer II

JLH/amh

Enclosure - as stated

cc: J. Boyle
H. Yntema
F. Sanchez
D. Newman
Master File
Job File/M. Gesler

7801 ACADEMY BLVD. N.E., SUITE 104, ALBUQUERQUE, N.M. 87109 (505) 822-0663
951 CENTRAL AVENUE, LOS ALAMOS, N.M. 87544 (505) 662-6986
4047 FIRST STREET, SUITE 203, LIVERMORE, CA. 94550 (415) 449-3800

GRANT OF EASEMENT

Hines Industrial, Ltd., a Texas limited partnership ("Owner") grants the City of Albuquerque, a New Mexico municipal corporation ("City") an easement ("Easement") over the portion of land described as the "Easement Property" on the attached Exhibit A, for the construction, maintenance and operation of an underground drain, for the installation of all equipment and fixtures necessary to maintain underground drainage facilities, together with the right of ingress and egress to the Easement, provided, however, that the Easement is effective only so long as the Easement is used for the public utility purposes of the City. If the City vacates or abandons the Easement, or ceases to use the Easement for public utility purposes, then the vacated, abandoned or unused Easement will revert to and revest in Owner, and Owner's successors and assigns, without any action on their part, as fully and completely as if this Easement had never been granted.

DATED: _____, 1984.

HINES INDUSTRIAL, LTD., a
Texas limited partnership

By HINES INDUSTRIAL
CORPORATION, a Texas
corporation, general
partner

By_____
Nathaniel J. Davis, III
President

STATE OF TEXAS)
) ss.
COUNTY OF HARRIS)

The foregoing instrument was acknowledged before me this ____ day of _____, 1984 by Nathaniel J. Davis, III, President of Hines Industrial Corporation, a Texas corporation, general partner of Hines Industrial, Ltd., a Texas limited partnership, on behalf of the partnership.

_____
Notary Public

My commission expires:

_____

EASEMENT PROPERTY

Being a Five (5) foot wide strip of land situate in Section 13, Township 10 North, Range 3 East, New Mexico Principal Meridian, Albuquerque, Bernalillo County, New Mexico being a portion of the land shown on the Plat of the Park Square Addition, filed for record in the Office of the County Clerk of Bernalillo County, New Mexico on June 28, 1984 in Volume C24, Folio 89, Pages 1-10, and being more particularly described by metes and bounds survey as follows:

BEGINNING, FOR A TIE, at the Point of Intersection of the Southerly right-of-way line of Indian School Road N.E. with the Westerly right-of-way line of Georgia Street N.E.; thence,

S. 00° 24' 02" W., 260.00 feet distance along the Westerly right-of-way line of Georgia Street N.E. to its point of intersection with the Southerly right-of-way line of Haines Avenue N.E., and being also the Northwesterly corner of Americas Parkway N.E. (a Southwesterly Portion of the "Proposed Loop Road System"); continuing thence,

S. 00° 24' 02" W., 115.22 feet distance along the Westerly right-of-way line of Americas Parkway N.E. (a Southwesterly Portion of the "Proposed Loop Road System") to a Point of Curvature; thence,

Southeasterly, 173.24 feet distance continuing along the Westerly right-of-way line of Americas Parkway N.E. (a Southwesterly Portion of the "Proposed Loop Road System") along the arc of a curve bearing to the left (said arc having a radius of 268.16 feet, a central angle of 37° 00' 54" and a chord which bears S. 18° 06' 25" E., 170.24 feet distance) to a Point on Curve and REAL PLACE OF BEGINNING and Northeast corner of the strip of land herein described; thence,

Southeasterly, 7.14 feet distance continuing along the Westerly right-of-way line of Americas Parkway N.E. (a Southwesterly Portion of the "Proposed Loop Road System") along the arc of a curve bearing to the left (said arc having a radius of 268.16 feet, a central angle of 01° 31' 34" and a chord which bears S. 37° 22' 39" E.,

7.14 feet distance) to a non-tangent Point on Curve being the Southeast corner of the strip of land herein described; thence,

N. 81° 11' 05" W., 25.69 feet distance to a point on the Easterly line of an existing "Water, Sewer and Public Utilities" Easement described on document No. 18651 recorded in the Office of the County Clerk of Bernalillo County, New Mexico on July 11, 1974 in Miscellaneous Volume 375, Folio 944-946 and Southwest corner of the strip of land herein described; thence,

N. 00° 24' 02" E., 5.00 feet distance along the Easterly line of the above referenced "Water, Sewer and Public Utilities" Easement to the Northwest corner of the strip of land herein described; thence,

S. 81° 11' 05" E., 21.27 feet distance to the Northeast corner and PLACE OF BEGINNING of the strip of land herein described and containing 116 square feet (0.0027 acre), more or less.

COS ~~[illegible]~~ 3420
4/18 cc: FJA
RECEIVED HRO [illegible]
JUN 18 1984 File
CITY ENGINEER

HOLMES & NARVER, INC.
ENGINEERS • CONSTRUCTORS

June 18, 1984
AL-1691.70-L-31

Mr. C. Dwayne Sheppard, P.E.
City Engineer
City of Albuquerque
P.O. Box 1293
Albuquerque, New Mexico 87103

Dwayne - Tom [illegible] is still trying to determine [illegible] [illegible]. From a site visit, it looks to me like a surface easement in the private street is more critical & will serve reasonably well. Suggest copies of this to Benny & to [illegible] [illegible]

PARK SQUARE ADDITION - AMERICAS PARKWAY TRANSVERSE DROP INLET

During a recent conversation with you, on June 8, 1984, regarding the dedication of an additional utility easement and right-of-way within the Park Square Addition for Americas Parkway NE (Loop Road, N.E.), it became apparent that an existing 4" diameter drainage conduit and dry well are partially situated on private property. These public storm drainage facilities are connected to the existing transverse drop inlet within Americas Parkway. In light of our compliance in all respects with the requirements of the City of Albuquerque Development Review Board and as the consequence of uncertainties surrounding the exact location of the subject drainage facilities, we propose to convey any easements which you deem necessary for these facilities via a separate document.

At the present time, the Americas Parkway drop inlet is silted in and is completely ineffective. We might also note that this drainage structure will probably be replaced during implementation of the Loop System roadway.

In all fairness, we consider this proposal to be reasonable and hereby request your approval of the Park Square Addition final plat in its present form.

Sincerely,

James L. Hewitt Jr

James L. Hewitt, Jr., P.E.
Senior Engineer II

MEG:JLH/amh

cc: J. Lester
T. McEwan
M. Gesler
J. Boyle
H. Yntema
F. Sanchez
D. Newman
Master File
Job File

I concur; easement is to be provided within 2 weeks. [signature: Sheppard] 6/6/84

3420
DOS — —
4/13/00 FJA

HOLMES & NARVER, INC.
ENGINEERS • CONSTRUCTORS

J-18 D1

RECEIVED
JUN 18 1984
CITY ENGINEER

June 18, 1984
AL-1691.70-L-31

Mr. C. Dwayne Sheppard, P.E.
City Engineer
City of Albuquerque
P.O. Box 1293
Albuquerque, New Mexico 87103

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Sincerely,

James L. Hewitt, Jr., P.E.
Senior Engineer II

MEG:JLH/amh

cc: J. Lester
T. McEwan
M. Gesler
J. Boyle
H. Yntema
F. Sanchez
D. Newman
Master File
Job File

Concur; easement is to be provided within 2 weeks.
C. Sheppard
6/6/84

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

DESIGN HYDROLOGY SECTION
123 Central NW, Albuquerque, NM 87102
(505) 766-7644

June 6, 1984

Mr. James Hewitt, PE
Holmes & Mower, Inc.
7801 Academy Boulevard NE, Suite 104
Albuquerque, NM 87109

REF: REVISED GRADING AND DRAINAGE REPORT FOR PARK SQUARE (J18-D1A)
RECEIVED MAY 4, 1984

Dear James:

Again I apologize for the late response, but we are still covered up with the increase in development and are just having our problems in trying to make timely responses.

The above referenced report is approved for drainage.

Please provide detailed grading plans for each phase of development prior to obtaining building permits.

If I can be of further assistance, please contact me at 766-7644.

Sincerely yours,

Billy J. Goolsby

Billy J. Goolsby, PE
City/County Flood Plain Admin.

BJG:mrk

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

DESIGN HYDROLOGY SECTION
123 Central NW, Albuquerque, NM 87102
(505) 766-7644

June 6, 1984 6501 Americas Parkway NE

Mr. James Hewitt, PE
Holmes & Mower, Inc.
7801 Academy Boulevard NE, Suite 104
Albuquerque, NM 87109

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Sincerely yours,

Billy J. Goolsby

Billy J. Goolsby, PE
City/County Flood Plain Admin.

BJG:mrk

HINES INDUSTRIAL
2700 POST OAK BOULEV
HOUSTON, TEXAS 77056
AREA CODE 713, 629-8400

May 25, 1984

Mr. Fred Aguirre, P.E.
City Engineer/Hydrology
Municipal Development Department
City of Albuquerque
P. O. Box 1293
Albuquerque, New Mexico 87103

PARK SQUARE INTERIM DRAINAGE IMPROVEMENTS

Dear Mr. Aguirre:

Hines Industrial, Ltd., hereby requests your approval of the Park Square Drainage Study (Revised, April 1984). As outlined in a recent discussion (May 18, 1984) between yourself and Mr. James L. Hewitt, of Holmes & Narver, Inc., the primary improvements proposed within this study are of an interim nature and shall remain in-place until completion of Albuquerque Master Drainage Study Project 357-01D. The interim improvements proposed include a high-flow diversion (100-year peak) and integral splash pad within the curb wall along the west perimeter of the Park Square drainage easement.

The high-flow diversion is an interim facility that will function as an emergency spillway only when 100-year peak storm-flow conditions occur. Under these circumstances, provision of an additional drainage easement across the south end of the cinema parking lot is uncalled for; however, we will take necessary precautions to insure that obstruction or impedance of surface drainage will not occur in this vicinity. We will modify the existing drainage easement along the west end of the Marriott Hotel parking lot to encompass the high-flow diversion splash pad via the summary plat for the Park Square Addition.

Should you have any questions regarding this matter, please direct them to Mr. James L. Hewitt, of Holmes & Narver, Inc.

Sincerely,

Tim. J.B. McEwan.

Tim J. B. McEwan
Senior Project Manager - Construction

TJBM:lwt
cc: M. Gesler
J. Boyle
J. Hewitt
H. Yntema
File

HOLMES & NARVER, INC.
ENGINEERS • CONSTRUCTORS

May 3, 1984
AL-1691.70-L-25

Mr. Billy J. Goolsby, P.E.
Civil Engineer Hydrology
Municipal Development Department
City of Albuquerque
P. O. Box 1293
Albuquerque, New Mexico 87103

REVISED GRADING AND DRAINAGE REPORT FOR PARK SQUARE (J-18-DIA)

Dear Mr. Goolsby:

In response to comments within your correspondence dated January 5, 1984, we have adjusted our site hydrology calculations for Park Square to reflect the 100-year peak flows that would be anticipated without implementation of Albuquerque Master Drainage Study Project 357-01D. As stated within the Park Square Drainage Study, a 100-year peak flow of 187.5 cfs would be anticipated at the Marriott drainage structure without implementation of this project. As demonstrated within our original calculations, the Marriott drainage structure is not capable of conveying storm flows in excess of 179.35 cfs without modification.

As an alternative, we propose to reduce the peak flow at the drainage structure by introducing a side-channel weir within the curb wall along the west side of the drainage easement. This would be accomplished by providing 8-inches of additional wall height from the Louisiana Boulevard Cinema entrance drive to the drainage structure. Computer analyses of the 100-year flood profile with and without this proposed modification are included with our revised calculations. As proposed, this side-channel weir will divert approximately 8.15 cfs onto the Louisiana Cinema I, II and III parcel.

From the lag in travel time between drainage areas we have concluded that the downstream impact of this diversion will be minimal. We have included our calculations and comments for your consideration.

7801 ACADEMY BLVD. N.E., SUITE 104, ALBUQUERQUE, N.M. 87109 (505) 822-0663
951 CENTRAL AVENUE, LOS ALAMOS, N.M. 87544 (505) 662-6986
4047 FIRST STREET, SUITE 203, LIVERMORE, CA. 94550 (415) 449-3800

We request your expeditious response to these matters so that we may incorporate the proposed drainage improvements within our final design. A revised erosion control plan for Park Square Phase I will be included with our final drawing submittal. Should you have any questions, do not hesitate to contact this office.

Sincerely,

James L. Hewitt, Jr., P.E.
Civil Engineer, Senior II

JLH:lad

cc: M. Gesler
T. McEwan
J. Lester
Job File
Master File

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

FILE COPY

January 5, 1984

Mr. James Hewitt
Holmes & Narver, Inc.
7801 Academy Boulevard NE
Albuquerque, NM 87109

REF: GRADING AND DRAINAGE REPORT FOR PARK SQUARE (J18-D1A) RECEIVED DECEMBER 12, 1983

Dear Mr. Hewitt:

I would like to apologize for not responding sooner. The holidays brought on an influx of pre-design conferences and reports in which we have had a hard time trying to keep up with it all.

The above referenced plan has a reduced discharge because of the utilization of the proposed storm relief system 357-01D. This is not allowed because the proposed system has not been funded as of yet. The Flood Ordinance, 63-1982, allows for utilizing such systems if they have been funded and are in the design process. This particular system does not meet this criteria.

Consequently, the plan, with respect to drainage, will need further analysis because of the increase in flow from the east side of Louisiana Boulevard.

I would like to commend you on the analysis of the improved inlet to the outfall structure. It is too bad that it didn't work out for your benefit, but maybe some suitable alternatives can be provided, e.g., the emergency side spill to the west, eventually draining into the I-40 roadside ditch. Any alternatives will need to be analyzed as to their impact. Another alternative, as previously discussed, was to provide temporary on-site detention until such time as the previously discussed system is funded and constructed.

If I can be of any assistance to you in this matter, please feel free to contact me at 766-7644.

Sincerely,

Billy J. Goolsby, PE
Civil Engineer/Hydrology

BJG:mrk

HOLMES & NARVER, INC.
ENGINEERS • CONSTRUCTORS

December 12, 1983
AL-1691.70-L-4

Mr. Billy J. Goolsby, P.E.
Civil Engineer/Hydrology
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

PARK SQUARE DRAINAGE STUDY (J18-D1a)

Dear Mr. Goolsby:

Transmitted herewith are two (2) copies of the Park Square Drainage Study. This study conforms to previous agreements made with the Albuquerque City Engineer's office regarding management of the total anticipated 100-year storm runoff without ponding. Upon completion, the Park Square development will be in substantial compliance with the drainage, erosion and flood control criteria, guidelines and standards outlined within the City of Albuquerque Development Process Manual.

From our revised hydrology calculations, we anticipate the 100-year peak flow from this development to be approximately 188 cfs, under completely developed conditions. Implementation of City of Albuquerque Flood Mitigation Project 357-01D will reduce this anticipated peak flow to approximately 148 cfs. From our calculations, we have determined that the drainage structure situated at the southwest corner of the Marriott Hotel parking lot is incapable of conveying storm flows in excess of 179 cfs without being overtopped; therefore, it is our recommendation that Flood Mitigation Project 357-01D be implemented at this time.

We also recommend immediate implementation of Flood Mitigation Project 356-01C. This project will reduce flooding along the southern frontage of Indian School Road.

7801 ACADEMY BLVD. N.E., SUITE 104, ALBUQUERQUE, NM 87109 (505) 822-0663

As prescribed within the City of Albuquerque Development Process Manual, appropriate figures, plans and supporting calculations have been incorporated within this drainage plan.

Should you have any questions, do not hesitate to contact this office.

Sincerely,

James L. Hewitt, P.E.
Civil Engineer, Senior II

JLH:vep

Enclosures -As Stated

cc: M. Gesler, w/enclosure
T. McEwan, Hines Industrial, Inc., w/enclosure
J. Fink, City of Albuquerque, w/o enclosure
R. Fosnaugh, City of Albuquerque, w/o enclosure
Master File
Job File

IN-BRIEFANCE CORRESPONDENCE

TO: Gene Mares, Chairman, Development Review Board

FROM: Fred J. Aguirre, Civil Engineer/Hydrology

SUBJECT: S-83-43 (DRB-83-533)

The City Engineer's Office has no objection to the proposed Site Development Plan amendment since the drainage submittal includes the Tennis Facility.

FJA/tsl

2 running File Comments

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

October 3, 1983

Mr. Ron Booth
Holmes & Narver, Inc.
7801 Academy Blvd. N.E.
Albuquerque, N.M. 87109

RE: PRELIMINARY DRAINAGE ANALYSIS OF PARK PLAZA (J18-D1a)

Dear Mr. Booth:

Regarding your drainage submittal, I have no adverse comments to the conceptual plan you propose for the subject site.

I do have a couple of comments that I feel should be investigated.

1. I couldn't determine from your report the specific size of the outfall structure under the interstate. In one place it was indicated to be 1-54" culvert and in another 2-36" culverts. In either case, the structure will probably be operating under inlet control unless there is an improved inlet to the structure. Due to the inlet control operation there will be ponded water because of the design discharge rate and the size of the structure. My concern is that since you will be adding some additional discharge, will there be sufficient freeboard such that water will not breach the area and spill out onto the freeway.

2. Since you propose to direct flow across the loop road, I would recommend that the flow be directed under any sidewalks to protect the walking public. Also, the flow across the loop road should be held to a depth of about two (2) inches to minimize the nuisance to the driving public.

I would also suggest that you investigate the possibility of construction of the proposed storm drain facility in Louisiana Blvd. which will remove the northern portion of your site from the floodplain on Indian School Rd. and also intercept the 130 cfs contributed by Winrock Center.

Should you have any questions or comments regarding this review, please contact me at 766-7467.

Yours truly,

Billy J. Goolsby P.E.

Billy J. Goolsby, P.E.
Civil Engineer/Hydrology

BJG/tsl

GORDON HERKENHOFF & ASSOCIATES, INC.
302 Eighth Street, N.W.
Albuquerque, New Mexico 87102
(505) 247-0294

755-G.O.-81

May 6, 1981

RECEIVED
MAY 06 1981
CITY ENGINEER

Mr. Fred J. Aguirre, P.E.
Civil Engineer
City of Albuquerque
P.O. Box 1293
Albuquerque, New Mexico 87103

RE: Drainage Report - Park Square

In response to our meeting with Mr. Easterling this morning, we are providing the following information:

The proposed finished floor elevation stated in the letter dated August 1, 1979, to Mr. Heller, on the referenced project, was based on an elevation of 5,200 plus the elevation shown for each building. All elevations called out in the drainage report and the proposed elevations were based on the Control Station 4-J18, located at the southwest corner of Indian School Road and Lousiana Blvd at elevation 5271.491.

If there are any questions concerning this matter, please contact us.

Russell B. Givler

RUSSEL B. GIVLER

RBG:jm

cc: Mr. John Moore
Mr. Joe Pino

2303-1673.12-79 RMT

GORDON HERKENHOFF & ASSOCIATES, INC.
303 Eighth Street, N.W.
Albuquerque, New Mexico 87102

(505) 247-0295

November 12, 1979

Mr. Richard Heller, City Engineer
City of Albuquerque
City Hall
400 Marquette Avenue N.W.
Albuquerque, New Mexico 87103

D18-D1

RECEIVED
NOV 1 . 1979
CITY ENGINEER

RE: ENGINEERING DRAWINGS
PARK SQUARE

Dear Dick:

Pursuant to our meeting in your office with Bob Fosnaugh on November 6th, we have provided a grated, low capacity channel across the Loop Road at Station 2+79 to transport nuisance flows to the south side of the street for outfall to the drainage structure. As we have stated, there is no available gradient to provide outfall from the channel; therefore, as we informed you in our telephone conversation on November 9th, we have provided a four inch pipe to a dry well in the adjacent planter distant enough from the street to prevent foundation settlement from the saturation which will occur. The channel is basically an overflow design, and the pipe is provided as a drain for the entrapped runoff. A much smaller outfall pipe would have provided a more appropriate system by establishing more overflow and smaller flows to the dry well, however the probability of clogging and the difficulty to clean renders this not advisable. As we explained, we are not very pleased with this design, but considering all of the existing constraints we do believe that it represents a reasonable solution to the problem.

This was the final requirement set forth in the City review and approval phase of the referenced plans, therefore we are submitting for final signature today. We will appreciate any assistant which you can render to expedite this process.

Very truly yours,

J. E. PINO
JEP:er

cc: Jeffrey Will
Peter A. Lendrum Associates
3820 North Third Avenue
Phoenix, Arizona 85012

2251-1673.12-79

GORDON HERKENHOFF & ASSOCIATES, INC.
302 Eighth Street, N.W.
Albuquerque, New Mexico 87102
(505) 247-0295

RECEIVED
NOV 06 1979
CITY ENGINEER

November 6, 1979

Mr. Richard Heller, City Engineer
City of Albuquerque
City Hall
400 Marquette Avenue N.W.
Albuquerque, New Mexico 87102

J18-P1

RE: ENGINEERING DRAWINGS
PARK SQUARE

Dear Mr. Heller:

Please refer to our meeting with Messrs. Fosnaugh and Conegliano on October 29th and our telephone conversation on November 1st. This letter will also serve as a guide for our discussion scheduled with Mr. Fosnaugh at 3:00 P.M. on November 6th.

As you directed, we did completely review the referenced drawings, and, in addition we asked one of our collegues to perform any independent appraisal to see if we had overlooked some possiblities. This review substantiated our belief that, in spite of the undesirable features, the proposed plan seems to represent a most reasonable solution when all existing factors are considered.

We did raise median elevations to provide for a minimum street cross slope in the permanent 66 foot wide street of 2% on the 24 foot wide section and 1 1/2% on the 36 foot wide section, and we shifted to provide for a minimum cross slope of 1 1/2% on the southerly and westerly 30 feet (24 feet wide could remain permanent if the street was widened to 66 feet). The northerly and easterly 14 feet have a considerable reach where the cross slope is 1 1/2% or more, however, when the street sidehill is between 0.3 and 0.5 feet, the cross slope is less than 1 1/2%. The crown is continuous at 30 feet from the face of the southerly and westerly curb with a transition to the northerly face of curb for 35 feet on each side of the 12 foot wide valley gutter crossing the street. This effectively prohibits overflows of the crown in low and nuisance water flows except at the control area adjacent to the valley gutter across the street. These changes will still accomodate the anticipated 100 year frequency storm flows as follows:

(1) 66 foot street - 2 each 24 foot sections with an 18 foot median - 134 C.F.S. curb high flow (130 C.F.S. anticipated flow);

(2) Minimum section of transition from 66 to 44 foot street - 14 foot and 24 foot section with 6 foot median - 156 C.F.S. curb high north and top of sidewalk south (140 C.F.S. anticipated);

(3) Minimum section (approaching 0.5 foot sidehill) of 44 foot wide section with 0.5 crown at 30 feet from south face of curb - 150 C.F.S. to top of south sidewalk (149 C.F.S. expected). Anticipated velocity average is approximately 7 F.P.S.

Elimination of the 1 1/2% adverse cross slope on the horizontal curve between Stations 1 + 15.22 and 4 + 30.12 required two vertical transitions which would likely be as detrimental to the conduct of traffic as the adverse cross slope, and the hydraulics of surface flows were also adversely affected. This change also necessitates directing approximately 225 feet of the Loop Road plus some of the site drainage to Indian School Road contrary to existing conditions where 163 feet of Georgia Street north of this site drain south into the development. After careful comparison of this alternate to the plan submitted, we judged the plan submitted to be the better option.

A study was also conducted to determine the future possibility of correcting the adverse cross slope if the street was widened after the interception of the 100 year frequency storm runoff from most of the Winrock Center contributing area can be accomplished. It is anticipated that a rate of flow approximately 100 C.F.S. can be expected for the 100 year frequency storm runoff from the site, Louisiana Boulevard, and the extreme westerly portion of the Winrock Center. Interception of this rate of flow would likely require some backwater or ponding to limit the surface requirement of the collection facility, and space for establishing this feature was not anticipated and is therefore limited. Gradient available from a point of collection to the outfall structure, after allowances for providing gradient required to conduct present surface flows, is limited, and a conduit and/or channel capable of transporting this anticipated flow would be an encumbrance to site utilization.

In view of the information presented, we respectfully request that you review our revised presentation, and, if it affords a reasonable design solution, approve it for construction. Our client is under extreme time pressures, and any assistance you can render to expedite this approval will be appreciated.

Very truly yours,

J.E. PINO
JEP:er

cc: Robert Fosnaugh, City Traffic Engineer
Bruno Conegliano, Assistant City Engineer - Hydrology
Arthur Briggs
Richard DeFabio
Jeffrey Will

...50-1673.12-79

GORDON HERKENHOFF & ASSOCIATES, INC.
302 Eighth Street, N.W.
Albuquerque, New Mexico 87102
(505) 247-0295

November 6, 1979

Mr. Robert Fosnaugh
City Traffic Engineer
City of Albuquerque
City Hall
400 Marquette Avenue N.W.
Albuquerque, New Mexico 87102

RE: ENGINEERING DRAWINGS
PARK SQUARE

Dear Mr. Fosnaugh:

Please refer to your written comments dated October 17th, our meeting with Messrs. Heller and Conegliano on October 29th, and our telephone conversation on November 1st.

We have revised the referenced drawings to provide for the 12 foot wide valley gutter centered on Loop Road Station 2 + 79 (3/4" invert depth), the 150 foot radius transitions for the Loop Road median turn bay, the removal of the curb transition at the north end of the west lane widening of Louisiana Boulevard replacing it with a straight section of curb and gutter, and revision of pavement cross slopes as will be discussed in more detail in the paragraph that follows. We will make the revision to provide the positive channelization to permit right turns only onto and off the Loop Road on the west side of Louisiana Boulevard when, as we discussed, an acceptable method can be determined for construction which will permit the required free passage of surface runoff while effectively accomplishing the traffic control. Revisions indicated above have been made, and prints of the three (3) affected sheets will be available for your inspection in our meeting scheduled for the late afternoon of November 6th. Our client is extremely anxious to obtain plan approval, so we will provide any information required in order to expedite this approval.

Regarding the pavement cross slope, we have provided for a 2 % slope in the two 24 foot wide sections and a 1 1/2% slope in the 36 foot wide section of the permanent 66 foot wide street in the 86 foot right of way. In the southerly and westerly 30 foot width of the 44 foot wide street on the 60 foot right of way which could feasibly remain after widening, if effected, the cross slope was established at 1 1/2% plus. The remaining 14 feet of pavement will have a cross slope in excess of 1 1/2% through most of its length, but where curb sidehills are between 0.3 and 0.5 foot the cross slope will be less than 1 1/2%. It was not possible to eliminate the adverse crown on the westernmost curve of the Loop Road and to effect the conduct of the surface runoff and its outfall acknowledging all existing constraints, and this will be the main item for discussion in our scheduled November 6th meeting.

As we discussed during our meeting of October 29th, it would be extremely advantageous if the plan for the widening of Louisiana Boulevard submitted could be approved as Phase 1 of the construction without further delay to approval of this set of drawings, since provisions for possible median changes and widening south of the Loop Road right of way have not been established and could entail some delays regarding approvals and determinations.

We will appreciate any assistance that you can give us to expedite plan approval, since, as we stated previously, the timing situation is critical for our client.

Very truly yours,

J. E. PINO
JEP:er

cc: Arthur Briggs
Richard DeFabio
Jeffrey Will
Richard Heller, City Engineer

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

August 2, 1979

Gordon Herkenhoff & Associates, Inc.
302 Eighth Street, N.W.
Albuquerque, New Mexico 87102

Attention: Joe Pino

Re: Park Square Drainage Report

Dear Joe:

Staff of the City Engineer's Office has reviewed your report submitted July 12, 1979 and your subsequent comments dated August 1, 1979. The drainage report is approved as submitted and amended by your letter of August 1. The site plan was signed by the City and AMAFCA today. We hope that this project will provide for a greater usage of the property than it is in its present state.

Thank you for your cooperation.

Very truly yours,

Richard S. Heller

Richard S. Heller
City Engineer

RSH/fs

cc - Bruno Conegliano
Fred Aguirre

MUNICIPAL DEVELOPMENT DEPARTMENT
Richard S. Heller, P.E., City Engineer ENGINEERING DIVISION Telephone (505) 766-7441

1522-1673.12-79

GORDON HERKENHOFF & ASSOCIATES, INC.
302 Eighth Street, N.W.
Albuquerque, New Mexico 87102
(505) 247-0295

August 1, 1979

RECEIVED
AUG 01 1979
CITY ENGINEER

Mr. Richard Heller, City Engineer
City of Albuquerque
City Hall
400 Marquette Avenue N.W.
Albuquerque, New Mexico 87102

RE: DRAINAGE REPORT PARK SQUARE

Dear Mr. Heller:

In response to our telephone conversation on July 31, 1979 and your comments regarding the referenced report, we offer the following comments:

We agree that protection should be provided around the transition from Area 4 and 6 to Area 7 to contain runoff in the street. You will note that we did provide for 75 feet of 10" high wall behind the sidewalk on the east side of the entrance (see Appendix G), and we will provide 25 feet on the west side of the entrance also. The sidewalk is adjacent to the curb on the south side in this reach of street, so the entire section would be hard surfaced. We also provided for a 12 inch high curb in the throat area of the entrance (see Appendix G).

It is not possible to provide a greater slope than indicated for the service drive outfall to the drainage structure due to the many existing vertical constraints governing the design of streets for this project. We do not believe that this creates a particular problem, since the hydraulic computations (shts 3 and 4 of Appendix D) indicate a "street-full velocity" of 7.5 feet per second (F.P.S.) for the public street and 6.4 F.P.S. for the outfall street. As stated in our letter (Appendix C), **we will provide for a tailwater pond with a water surface elevation** to the top of the inlet structure for 100 year **storm runoff.**

The transition from the street channel (with an inverted crown) will be designed in keeping with present design which enters the existing inlet structure (City File No. SS-6-73) with an inverted crown section which matches the floor of the inlet structure.

The theater property is leased from the same owner as the Park Square property, and certain modifications are possible. The need to provide an outfall structure tailwater surface elevation to the elevation of the top of the headwill will require some curbing. This is agreeable to the owner and leasee.

The proposed finished floor elevations of the various buildings indicated on the site plan with respect to the top of curb water surface level in the street near the main building entrance is as follows:

Building	Proposed Finished Floor	Street Identification	Water Surface Level
Marriot Hotel	67.0	Loop Road (Public Street)	65.7
Bennigan's	72.0	Merrill-Lynch Entrance Rd.	69.1
Steak & Ale	72.0	Loop Road (Public Street)	69.1
Merrill-Lynch	73.08	Merrill-Lynch Entrance Rd.	70.0
Office Tower	68.0	Merrill-Lynch Entrance Rd.	67.0

We trust that this information will provide sufficient supplementary data to complete your requirements regarding the reference drainage report. If anything further is required, please advise us, and we will respond immediately. If this completes requirements for the drainage report, we would appreciate your approval, so that we can proceed with project design.

Very truly yours,

J. E. PINO
JEP:er

cc: Mr. Richard DeFabio
Coldwell Banker Management Corp.
One Embarcadero Center
San Francisco, California 94111

Mr. Jeffrey Will
Peter A. Lendrum Associates
3820 North Third Street
Phoenix, Arizona 85012

1513-1673.12-79

GORDON HERKENHOFF & ASSOCIATES, INC.
302 Eighth Street, N.W.
Albuquerque, New Mexico 87102
(505) 247-0295

July 30, 1979

RECEIVED
JUL 30 1979
CITY ENGINEER

Mr. Richard Heller, City Engineer
City of Albuquerque
City Hall
400 Marquette Avenue N.W.
Albuquerque, New Mexico 87102

RE: DRAINAGE REPORT PARK SQUARE

Dear Mr. Heller:

Pursuant to our several telephone conversations during the past week, our conversation on this date, and Mr. Conegliano's letter dated February 27, 1979 regarding the referenced subject, we propose the following for your endorsement.

The referenced Drainage Report was submitted for approval on July 12, 1979, and provides a comprehensive solution to surface runoff in and through the Park Square Development. The only two items addressed in the report which will vary are (1) the slope of the Merrill-Lynch service road from a mimimum of 0.015 to 0.009 which will still provide a capacity of well over twice the anticipated flow and (2) the slope of the outfall drive will be approximately 0.004 which, with the required side elevation to provide the necessary tail-water elevation for the drainage structure, will provide more than adequate channel capacity.

Elevation relative to the Merrill-Lynch access road have been established by existing curb elevations on Louisiana Boulevard N.E. and the existing paving at the westerly parking entrance to the building. This provides for an entrance gradient of approximately 3.3%, and this will be moderated in a vertical curve to the near 0.9% mentioned in the preceding paragraph.. The remainder of the street traverse will be at a slope of approximately 0.009. The service road enters from a location on Louisiana Blvd. which is within 100 feet of a drainage divide which will permit only extremely small flows from Louisiana Blvd. to enter the site at this point. The service road will be paved at 0.1 foot below the existing Merrill-Lynch parking entrance paving to keep the small service road flows in the street. Drainage from the street will be temporarily routed to the temporary pond provided west of the Merrill-Lynch parking entrance drive.

While the referenced Drainage Report addresses the total runoff conveyance plan in detail, the foregoing explanations should provide sufficient information to permit the construction of the Merrill-Lynch service road adjacent to the existing construction and the release of the Certificate of Occupancy for the Merrill-Lynch Building which were both held in abeyance by the aforementioned Conegliano letter of February 27th.

If you agree to the stipulation set forth in the previous paragraph, please endorse three copies of this letter for our file and for distribution to the Building Department and the Planning Department.

Very truly yours,

J. E. PINO
JEP:er

Endorsed:

Richard S. Heller
Richard Heller, City Engineer
City of Albuquerque

cc: Mr. Charles Voltz
Building Department
City of Albuquerque

Mr. Phil Garcia
Planning Department
City of Albuquerque

1379-1673.12-79

GORDON HERKENHOFF & ASSOCIATES, INC.
302 Eighth Street, N.W.
Albuquerque, New Mexico 87102

(505) 247-0295

July 12, 1979

RECEIVED
JUL 12 1979
CITY ENGINEER

Mr. Bruno Conegliano
Assistant City Engineer-Hydrology
City of Albuquerque
City Hall
400 Marquette Avenue N.W.
Albuquerque, New Mexico 87102

RE: DRAINAGE REPORT PARK SQUARE

Dear Mr. Conegliano:

Attached please find three (3) copies of the referenced drainage report.

As you will recall the development of the entrance street and the certificate of occupancy for the nearly completed Merrill-Lynch building is contingent upon approval of this report. We fully realize that the late issuance of this report is not any fault of yours. The tardiness is due to a number of factors such as complex leasing negotiations, redesigning the site to accomodate drainage requirements, and accomodation of difficult utility requirements. The final site development plan was received on July 3rd, and we began immediately to prepare the drainage report.

We apologize for the delay in issuing this report, and hope that you will be able to expedite its processing. Please endorse and return one (1) copy at your earliest convenience. Thank you for your attention.

Very truly yours,

J. E. PINO
JEP:ef
Encl.
cc: Mr. Arthur Briggs
Coldwell Banker Management Corporation
533 Fremont Avenue
Los Angeles, California 90071

Mr. Richard DeFabio
Coldwell Banker Management Corporation
One Embarcadero Center
San Francisco, California 94111

Mr. Jeffrey Will
Peter A. Lendrum Associates
3820 N. Third Street
Phoenix, Arizona 85012

1033-1676.12-79

GORDON HERKENHOFF & ASSOCIATES, INC.
302 Eighth Street, N.W.
Albuquerque, New Mexico 87102

(505) 247-0295

May 24, 1979

RECEIVED
MAY 24 1979
CITY ENGINEER

Mr. Richard Heller, City Engineer
City of Albuquerque
City Hall
400 Marquette Avenue N.W.
Albuquerque, New Mexico 87102

J18-D1

RE: PHOTOGRAMMETIC MAP, PARK SQUARE

Dear Dick:

Attached please find one (1) print of the photogrammetric mapping for the Park Square Development proposed at the southwest corner of Indian School Road and Louisiana Boulevard N.E. As we told you the photography extended into the Winrock Center area, so we had the mapping completed to the westerly parking area of Winrock Center. This should provide you with some reliable information to permit some evaluations to be made regarding handling of storm runoff generated in the Winrock Center and discharged into Louisiana Boulevard N.E. and through the Park Square area.

There is one additional storm sewer inlet on the east extremity of the south Winrock Center entrance road north of the I-40 westbound on-ramp for north bound Louisiana Boulevard traffic. Evidentally the Chevron Oil sign screened it.

The two pipe discharging into the I-40 median channel are 30" pipe.

If we can be of any further assistance, please do not hesitate to advise us.

Very truly yours,

J. E. PINO

JEP:er
Encl. 1
cc: Mr. Arthur Briggs
Coldwell Banker Management Corporation
533 Fremont Avenue
Los Angeles, California 90071

Mr. Jeffrey Will
Peter A. Lendrum Associates
3820 North Third Street
Phoenix, Arizona 85012

890-1673.12-79

GORDON HERKENHOFF & ASSOCIATES, INC.
302 Eighth Street, N.W.
Albuquerque, New Mexico 87102

(505) 247-0295

May 4, 1979

RECEIVED
MAY 04 1979
CITY ENGINEERS

Mr. Richard Heller, City Engineer
City of Albuquerque
City Hall
Marquette Avenue at Fifth Street N.W.
Albuquerque, New Mexico 87102

RE: DRAINAGE MANAGEMENT PARK SQUARE

Dear Mr. Heller:

Please refer to our meetings on April 16th and May 3rd and our letters of April 17th and April 30th, wherein we discussed and resolved the drainage management criteria for the Park Square Project at the southwest corner of Indian School Road and Louisiana Boulevard N.E.

We will proceed to develop our grading and drainage plans with no on-site ponding as agreed in our April 16th meeting (see letter to Jeffrey Will dated April 17th), and our development will not include any special facilities to handle offsite flows from Winrock Center as agreed in our meeting with Mr. Arthur Briggs, Coldwell Banker representative and Mr. Jeffrey Will, Peter A. Lendrum Associates on May 3rd. We will, of course, provide a tailwater pond with a water surface to the top of the inlet of the outfall structure to the median channel of I-40 at the southwest corner of the site, and we will provide that our streets will handle and conduct offsite and onsite flows anticipated in the 100 yr. storm through the project to the outfall structure. Finished floors of buildings will also be established above anticipated water surface anticipated in the 100 year storm.

If there are any misunderstandings regarding this criteria, please advise us at your earliest possible convenience.

J. E. PINO
JEP:er

cc: Bruno Conegliano
Asst. Engr.-Hydrology

Jeffrey Will
Peter A. Lendrum Associates
3820 North Third St.
Phoenix, Arizona 85012

Arthur Briggs
Coldwell Banker Management Corp.
533 Fremont Avenue
Los Angeles, Calif. 90071

857-1673.12-79

GORDON HERKENHOFF & ASSOCIATES, INC.
302 Eighth Street, N.W.
Albuquerque, New Mexico 87102
(505) 247-0295

April 30, 1979

RECEIVED
APR 30 1979
CITY ENGINEERS

Mr. Richard Heller, City Engineer
City of Albuquerque
City Hall
Marquette Avenue at Fifth St. N.W.
Albuquerque, New Mexico 87102

RE: PARK SQUARE DEVELOPMENT

Dear Dick:

This letter will serve to guide the discussions in our forthcoming meeting scheduled for 1:30 P.M. on May 3, 1979 to discuss and resolve some of the criteria required in order to begin design and subdivision of the referenced project. The time schedule established by the developer (Coldwell-Banker) demands that the following be resolved immediately so that lease areas can be determined by May 10th and development plans completed by July 1st:

1) Present and future right of way and cross-section requirements for the proposed Loop Road;
2) Alignment for the proposed Loop Road; and
3) Handling storm runoff entering the Loop Road at Louisiana Boulevard (from a portion of Winrock Center).

We propose to develop a four lane (12 foot lanes) divided street (18 foot median with a 12 foot left turn lane) from Louisiana Boulevard west to the main entrance to the hotel to be constructed on the south side of the Loop Road. A transition will then be made to a 40 foot street for the remainder of the site. We would like to dedicate the smallest widths of rights of way permissible. The north and east right of way boundary would be expansible if the Loop Road development demands in the future.

We would like complete freedom of alignment of the Loop Road to connect the mandatory low vertical elevation on Louisiana Blvd. (east entrance) to the existing pavement of the Georgia Street south of Indian School Road to permit its use to subdivide lease tracts. We will observe any reasonable horizontal curve requirements to provide the desired traverse.

The management of storm runoff presents a considerable problem. After very careful consideration, we believe that the only practical way to handle the situation is to provide to accomodate the total offsite and onsite flow in the surfaces streets with a sub-surface storm sewer system to handle low flows generated on-site. There is a possibility that some of the offsite (Winrock Center) flows could be handled by expanding the existing Winrock system. On-site flows can be easily handled in the on-site streets, and nuisance and high frequency flows could be intercepted in an underground piping system. The impracticalities and difficulties that we anticipate in the timely development of a completely underground system are as follows:

1) Problems in negotiating with Winrock Center in arranging for the construction of intercepting and piping facilities in their site;
2) Problems in intercepting offsite flows if it cannot be effected on Winrock Center property;
3) Grading difficulties onsite to accomodate the necessary large diameter pipe with required cover in the street;
4) Conflict of utilities and building locations if routed on the south boundary;
5) Decreasing natural gradients to provide for underground piping and thereby increasing pipe diameter requirements; and
6) Providing outfall (daylighting) of the underground piping to discharge into the existing outfall structure to the freeway median channel.

We hope that this will provide a format for discussion to facilitate resolution of the aforementioned items.

Very truly yours,

J. E. Pino
JEP:er
cc: Jeffrey Will
Peter A. Lendrum Associates
3820 North Third Street
Phoenix, Arizona 85012

Arthur Briggs
Coldwell Banker Management Corp.
533 Fremont Avenue
Los Angeles, Calif. 90071

657-1673.12-79

GORDON HERKENHOFF & ASSOCIATES, INC.
302 Eighth Street, N.W.
Albuquerque, New Mexico 87102

(505) 247-0295

April 3, 1979

Mr. Bruno Conegliano
Assistant City Engineer-Hydrology
City Hall
Marquette Avenue at Fifth St. N.W.
Albuquerque, New Mexico 87102

RE: STORM DRAINAGE PARK SQUARE DEVELOPMENT

Dear Mr. Conegliano:

Please refer to our letter and exhibits dated February 26, 1979 and our several discussions with you and Mr. Heller regarding the management of storm runoff for the referenced project located at the southwest corner of the intersection of Indian School Road and Louisiana Boulevard N.E.

Our interpretation of the documents attached to the above letter as exhibits is that the facility constructed by the City in 1974 (2 each 36 inch steel pipes into the median channel of Interstate 40) discharges the entire flow generated for the complete contributing area (both onsite and offsite) in a totally developed condition, therefore no onsite ponding is required other than backwater necessary for the hydraulic function of the culverts.

The developer is ready to begin detailed design work at this time, so the decisions regarding management of storm runoff are imperative. We would appreciate a meeting with you and Mr. Heller to discuss and resolve these matters at your earliest possible convenience. We will attempt to contact you by telephone to make that arrangement.

Very truly yours,

J. E. PINO

JEP:er
cc: Richard Heller, City Engineer

Mr. Jeffrey Will
Peter A. Lendrum Associates
3820 North Third St.
Phoenix, Arizona 85012

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

MAYOR
David Rusk

February 27, 1979

Mr. Joe Pino
Gordon Herkenhoff & Associates, Inc.
302 Eighth Street N.W.
Albuquerque, New Mexico 87102

Re: Merrill-Lynch Building Site
Partial Development of Park Square
SW Corner Louisiana Blvd. and Indian School Road N.W.

Dear Mr. Pino:

In reply to your letter dated February 26, 1979, I want to advise you that a building permit for the Merrill-Lynch Project will be issued by the City if the temporary ponding facility that you mention will be shown on the appropriate construction plan. The Certificate of Occupancy will nevertheless be withheld if a comprehensive solution to the drainage of the Park Square Development is not available. The site grading indicated on the partial development plan appears to conflict with the need to convey the offsite flows across this parcel, and approval of the construction of the access road cannot be given at this time in the absence of an acceptable runoff conveyance plan. In view of the committments that the developer has, the City will endeavor to review expeditiously the plans submitted, but I need to point out that since November 16, 1978 the developer has not submitted to the City an acceptable drainage report as requested.

Very truly yours,

Bruno Conegliano
Assistant City Engineer-Hydrology

BC/fs
cc - Dick Heller
Gerald Davenport
Rich Leonard
Phil Garcia
Charles Voltz
Fred Aguirre
Drainage File

387-1628.12-79

GORDON HERKENHOFF & ASSOCIATES, INC.
302 Eighth Street, N.W.
Albuquerque, New Mexico 87102

(505) 247-0295

RECEIVED
FEB 26 1979
CITY ENGINEERS

February 26, 1979

Mr. Bruno Conegliano
Assistant City Engineer-Hydrology
City Hall
Marquette Avenue at Fifth St. N.W.
Albuquerque, New Mexico 87102

RE: MERRILL-LYNCH BUILDING SITE
PARTIAL DEVELOPMENT OF PARK SQUARE
SW CORNER LOUISIANA BLVD. AND INDIAN SCHOOL ROAD N.W.

Dear Mr. Conegliano:

The acquisition of a building permit for the referenced project is a matter of immediate urgency to our client, and the resolution of drainage management for this project is requisite for obtaining that permit. We are attaching a lengthy letter and relevant exhibits, and these should provide a basis for future negotiations and discussions. However, in the interest of expediting an immediate decision, we will summarize as follows:

1. Our review and interprepation of drainage reports and existing facilities indicates that those facilities will accomodate the anticipated runoff from the 100 year frequency storm from the total developed Park Square Project including the offsite flows from the Winrock Center;

2. The developer desires to provide ponding, if required, within the framework of the approved master development plan for Park Square and not on a piecemeal basis, and the revised plan will not be considered by the Environmental Planning Commision until March 15th which provides that any present ponding would be temporary; and

3. The developer will provide temporary ponding adjacent to this site, until a final determination of requirements has been resolved.

Since the requirement for ponding on this site is in question and since provision of this facility would be identical to that presently proposed by the developer, we respectfully request that the temporary pond design outlined in the attached letter be accepted as an interim provision and that the building permit be issued, so that construction can proceed. This will provide time to review all details and make a final determination.

If the procedure outlined hereinbefore is not acceptable, then we will immediately prepare a formal drainage report requesting the identical consideration. It is our belief that the latter procedure would be redundant, since it requests a review of existing circumstances and the documentation that provided for them prior to rendering the type of decision predicated by a drainage report.

It is mandatory that we begin proceedings immediately that will lead us to the most expedient resolution regarding the issuance of a building permit. We will abide by your decision in this regard, and request that you advise us at your earliest possible convenience.

Very truly yours,

J. E. PINO
JEP:er
Encl.
cc: Richard Heller
City Engineer
Arthur J. Briggs
Coldwell Banker Management Corp.
Charles Price
Sutin, Thayer, & Browne
Dick Engstrom
Chambers, Campbell, Isaacson, & Chaplin, INc.

228-1628.12-79

GORDON HERKENHOFF & ASSOCIATES, INC.
302 Eighth Street, N.W.
Albuquerque, New Mexico 87102
(505) 247-0295

Rec'd FEB 1979

February 26, 1979

Mr. Bruno Conegliano
Assistant City Engineer-Hydrology
City Hall
Marquette Avenue at Fifth St. N.W.
Albuquerque, New Mexico 87102

RE: MERRILL-LYNCH BUILDING SITE
PARTIAL DEVELOPMENT OF PARK SQUARE

Dear Mr. Conegliano:

We have done considerable research into previous reports, agreements, and design of hydraulic facilities relating to handling storm runoff for the total development of Park Square (a portion of the Beverly-Wood Addition) at the southwest corner of Louisiana Boulevard and Indian School Road, N.E. There is some confusion regarding the interpretation and utilization of information from these sources. It is urgent for the Coldwell Banker Fund to obtain a building permit for the Merrill-Lynch Building, so rather than to use present valuable time to debate the intent of the available documents, we propose that a temporary storage pond be constructed to impound surface runoff from the site. This ponding facility would allow the building permit to be issued, and would provide interim protection until it is ascertained whether or not ponding is required and, if so, the permanent facilities are constructed.

We suggest that the temporary pond be designed using most conservative data, in order to minimize concern. The formulation devised in your publication setting forth the Standard Requirements for Drainage Plans where in the site area multiplied by 0.1 (coefficient of runoff (c) for impervious areas is 0.9 and for natural pervious areas is 0.4). Actually the proposed site contains approximately 18,126 square feet of pervious area and 23,154 square feet of imprevious area which would produce a composite C of 0.68 using the same component C factors, and this indicated that there will be a considerable excess of ponding volume. 0.1 times the site area of 41,280 square feet (258' x 160') would produce a ponding volume requirement of 4,128 cubic feet. We propose that a temporary pond one foot deep with three to one side slopes be placed along the entire westerly pavement line of the building site (160 linear feet) with a bottom width of 23 feet to provide for storage capacity of 4,160 cubic feet. This would not be obtrusive, offensive, or dangerous, and should adequately provide for interim requirements.

The information that follows outlines our interpretation of the data available from the Engineer's Drainage Report for Proposed Theater Near Indian School Rd. & Georgia St. N.E., Albuquerque, New Mexico prepared by Wilson & Company dated January 1973 and revised 19 February 1973 (copy attached) and the agreement between the City and The Coldwell Banker Fund (City Work Order No. 32 Estimate No. SS-10-74 (33) Map J-18-N Revision of SS-6-73 Estimate Sewer Agreement # 74-759-copy attached) to share in the cost of providing a hydraulic

outfall structure from the Park Square Site under the west bound lane of Interstate 40 into the median drainage ditch. The Drainage Report indicates that 48.4 acres (22.8 acres paved and 25.6 acres soil) generated a rate of runoff of 143 cubic feet per second (cfs) and that when this 48.4 acres is completely developed a rate of runoff of 205 cfs can be anticipated. According to the maps attached to the Drainage Report only approximately 26 acres of the contributing drainage area lies east of Louisiana Blvd. (Winrock Center and Monroe School) and the remainder of the 48.4 acres is the Park Square Site. This interpretation indicates that storm runoff from the entire developed Winrock Center, Monroe School, and Park Square sites can be handled by the facility constructed to accomodate the 205 cfs. Since the median drainage channel of Interstate 40 was designed to accomodate rates of flow in excess of the 100 year frequency storm and since that channel discharges into the North Diversion Channel which is designed to accomodate the Corps of Engineer's Standard Project Flood, the direct disposal is in keeping with present permissible practices, and the increased volume generated should not create any problem. The agreement between the City and the Coldwell Banker Fund, indicates an interpretation that the rate of flow of 143 cfs was all generated east of Louisiana Blvd. N.E. This infers that some ponding is indicated for the Park Square Site. We believe that the interpretation set forth in the agreement may be in error. We would appreciate it if you would review all of this information, and ascertain your interpretation. We can then collaborate to reach a final determination.

We do not wish to delay any development or construction on this project by initiating a long debate that may be difficult to resolve. The proposed temporary ponding facility will provide adequate protection while final solutions are being formulated. Please advise us regarding your decision at your earliest possible convenience. If we can furnish any additional necessary information which will assist in expediting your decision, please advise us.

Very truly yours,

J. E. PINO
JEP:er
Encl. 2
cc: Richard Heller
City Engineer
Arthur J. Briggs
Coldwell Banker Management Corp.
Dick Engstrom
C.C.I.C., Inc.
Charles Price
Sutin, Thayer & Browne

COMMENT

Albuquerque/Bernalillo County Planning Department

AFFIC ENGINEER
TY ENGINEER
ATER ENGINEER
QUID WASTE ENGINEER
VIRONMENTAL HEALTH
RKS & RECREATION
PT. OF TRANSPORTATION
AFCA
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RE DEPT

RECEIVED
JAN 30 1979
CITY ENGINEERS

S- V- CZ- SC-
SDP- AX- CSU- CRV-
Z. 1450 SC5-

1. Require drainage study prior to approval of development plans and building plans.
2. The study should include the handling of the current run-off from Louisiana and the drainage channel (extension of Georgia) to the culverts under I-40.

ply Requested 2-12-79

heduled for Public Hearing 3-15-79

you have suggestions or information on
case, please so indicate on this form
return it to the Planning Department.

ur cooperation is appreciated.

1-29-79

For further information, contact [signature] in the Planning Dept.

3. Traffic to and from Winrock will utilize this wide road for travel between Indian School and Louisiana.

4. Is the loop road to be private or public? Portion of Georgia Rd (adjacent to Fire Station) is a public road.

5. It appears that there will be an overload in the tennis court parking in the vicinity of the Merrill Lynch Bldg. parking

6. The present dimensions for Georgia NE at Indian School Rd is 50' R/w and 44' street width

7. Most of the area is hard surfaced with no indication of storm run-off retention areas.

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

MAYOR
David Rusk

November 24, 1978

RECEIVED
NOV 24 1978
CITY ENGINEERS

J18-01

Mr. Charles P. Price, III
Agents for the Caldwell-Banker Fund
Sutin, Thayer & Brown
First Plaza
Box 1945
Albuquerque, New Mexico 87103

Subject: SUBDIVISION REQUEST FOR USE OF TEST TURNKEY PROCEDURE
OUTFALL SEWER LINE--PARK SQUARE PROJECT

Dear Mr. Price:

We are in receipt of your letter to Mr. Nickerson of October 19, 1978 requesting the use of the Test Turnkey Procedures. Enclosed is a copy of the "Test Turnkey Project Flow Chart and Test Turnkey Operational Instructions" which will be followed in using this test procedure.

A very important element in this procedure and one which must be rigidly observed is the "Start of Construction Work" stage following Steps 18, 19, 20 and 21. No field work may commence under this test procedure until this point.

Therefore, your request to design and construct this subdivision is approved, subject to following the procedures enclosed.

Sincerely,

For City Engineer

cc: Joe Pino, Gordon Herkenhoff & Associates
H. R. Orr, Jr., Acting Director of Public Works
Q. R. Kielich, Assistant City Engineer-Design
C. D. Sheppard, Assistant City Engineer-Field
La Monte Urban, Chief Surveyor
Bruno Conegliano, Assistant City Engineer-Hydrology

Enclosures

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION

HYDROLOGY SECTION PROJ. NO. _____ DATE: 8/11/83

PLANNING DIVISION NO. _____

CONFERENCE RECAP

SUBJECT: Home Development (Adjacent to Marriott Hotel)

WHO	REPRESENTING
ATTENDANCE:	

FINDINGS:

1. Drainage Report Required per the D.P.M.
2. Check Downstream Capacity to Justify Free Discharge from Proposed Development.
3. Check Storm Capacity Adjacent to the Proposed Development for the Given Drainage Basin Contributing Flows.

The undersigned agrees that the above findings are summarized accurately and are only subject to change if further investigation reveals that they are not reasonable or that they are based on inaccurate information.

SIGNED: _____ SIGNED: _____

TITLE: _____ TITLE: Comm Engr II

DATE: 8/11/83 DATE: 8/11/83

Rec'd 6/5/84 CHH
JNH — Monte —
HRO —
(Billy G) Fred A. —

Note - This mat'l will pertain to Park Square Plat and to Uptown Loop Road Agreement is executed. Ezsements are to be by Park Square Plat

81 9724

AGREEMENT

The CITY OF ALBUQUERQUE, a New Mexico municipal corporation, ("City") and THE COLDWELL BANKER FUND, a limited partnership ("Coldwell") agree:

1. First Recital. City contemplates the implementation some time in the future of a four-lane loop road system ("the Loop System") which would connect the Coronado and Winrock shopping centers with other privately-owned commercial developments on property located near those shopping centers. Coldwell owns certain real property ("the Property") which Coldwell is developing as Park Square through which a portion of the proposed Loop System would pass. City wants Coldwell to dedicate to City a right-of-way for a two-lane road over the portion of the Property through which the proposed Loop System would pass (the "2-Lane Right-of-Way"), and for Coldwell to agree to dedicate to City at some future time the additional right-of-way necessary to implement the Loop System (the "Loop System Right-of-Way").

2. Second Recital. On March 20, 1979, City's Environmental Planning Commission ("EPC") issued a Notification of Decision which approved a site development plan (the "Plan") for development of the Property. Among other things, the approval of the Plan was subject to the following condition:

> 4. Dedication of right-of-way for two lanes of the loop road is required at this time. An agreement is required between the City and [Coldwell] to dedicate at no cost to the City the additional right-of-way necessitated for the improvement of the loop street at such time that it is required by the City. It is understood that the improvement will be phased and will be at [Coldwell's] expense.

3. Third Recital. Additional conditions for approval of the Plan by City are that (a) Coldwell construct for City at Coldwell's cost water and sewer lines

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on the Property and then grant to City easements through the Property for drainage purposes and for City's water and sewer lines (the "Easements"), and (b) Coldwell construct for City at Coldwell's cost roadway improvements on the Property adjacent to Louisiana Boulevard, N.E., and then grant to City a right-of-way on the portion of the Property on which the roadway improvements are constructed (the "Louisiana Boulevard Right-of-Way"; collectively, the 2-Lane Right-of-Way, the Loop System Right-of-Way and the Louisiana Boulevard Right-of-Way are referred to herein as the "Road Rights-of-Way"). Parts of the Easements will be within portions of the Property which will be the subject of the Road Rights-of-Way. City may want to retain the Easements even if any of the Road Rights-of-Way revert to Coldwell.

4. Improvement Costs. Coldwell will construct at Coldwell's cost the two-lane road on the 2-Lane Right-of-Way and the roadway on the Louisiana Boulevard Right-of-Way, including medians, curbs, gutters, landscaping and any other improvements according to reasonable plans and specifications approved by the City Engineer. If Coldwell dedicates the Loop System Right-of-Way and City implements the Loop System, Coldwell will pay Coldwell's equitable share of the actual cost of constructing the Loop System improvements, provided that City establishes an Improvement District pursuant to N.M. Stat. Ann. §§ 3-19-7 through -12 (1978) and in accordance with the provisions of paragraph 5, below.

5. Dedication. After the construction by Coldwell of the two-lane road on the 2-Lane Right-of-Way and the roadway on the Louisiana Boulevard Right-or-Way, and the acceptance by City of that construction, Coldwell will dedicate to City the 2-Lane Right-of-Way described in Schedule A to Exhibit One using the form of Right-of-Way

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Dedication set forth in the attached Exhibit One, and the Louisiana Boulevard Right-of-Way described in Schedule B to Exhibit One using the form of Right-of-Way Dedication set forth in the attached Exhibit One. If, within 5 years of the date of this Agreement, City makes a final decision to implement the Loop System through adoption of an amendment to City's master plan in accordance with N.M. Stat. Ann. §§ 3-19-7 through -12 (1978) and all judicial proceedings for review of City's final decision have been concluded in favor of City or the time for judicial review of City's decision has run, Coldwell will dedicate to City the Loop System Right-of-Way described in Schedule A to Exhibit Two using the form of Right-of-Way Dedication set forth in the attached Exhibit Two. If, within 5 years of the date of this Agreement City does not make a final decision to implement the Loop System by amending City's master plan, Coldwell's obligation (the "Obligation") to dedicate the Loop System Right-of-Way to City will cease. After the construction by Coldwell of the water and sewer lines in the Easements, and the acceptance by City of that construction, Coldwell will grant the Easements to City using the form of Grant of Easements set forth on the attached Exhibit Three.

6. City Approval. Execution, delivery and performance of this Agreement by Coldwell constitutes compliance with Condition 4 of the March 20, 1979 EPC Notification of Decision.

7. Addresses. Written notice may be provided to the parties by mailing notices to:

The Coldwell Banker Fund
533 Fremont Avenue
Los Angeles, California 90071

City of Albuquerque
City Engineer
400 Marquette, N.W.
Albuquerque, New Mexico 87102

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8. Nature of the Lien and the Obligation. The Obligation will be binding upon the Property and subsequent owners of the Property and will run with the Property until the Obligation ceases or is performed as provided for in this Agreement. The Obligation will not bind any person or entity, including Coldwell, after that person or entity has transferred ownership of the Property to another person or entity, but will constitute a lien on the Property (the "Lien") as provided for in this Agreement. This Agreement or a memorandum of this Agreement may be recorded by City to provide notice of the Lien and the Obligation to subsequent purchasers of, and parties interested in, the Property.

9. Release from the Lien. Upon dedication of the Loop System Right-of-Way, or upon expiration of the 5-year period set forth in paragraph 5, above, without City implementing the Loop System, the Property will be automatically released from the Lien, but at the request of any owner of any of the Property, City will sign, acknowledge and record a release of the Lien.

10. Subordination. The Lien will be subordinate to any first encumbrance (whether mortgage, deed of trust or other encumbrance) placed upon any or all of the Property by Coldwell, and Coldwell's successors, assigns or lessees. This provision is self-operative, but City, upon request of Coldwell or Coldwell's successors, assigns or lessees, will promptly sign, acknowledge and return to Coldwell or Coldwell's successors, assigns or lessees any document required to confirm this subordination.

11. Automatic Reversion and Separate Estates. The dedications of the Road Rights-of-Way will be made upon the express condition that the dedications are effective so long as City uses the Road Rights-of-Way for paved

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and improved public streets or roads and for no other purpose. The dedication of the Loop System Right-of-Way will be made upon the express condition that the dedication is effective so long as City has completed or caused to be completed the construction of the paved public street or road improvements over the Loop System Right-of-Way within 10 years of the date of this Agreement. Whenever City vacates, abandons or ceases to use any of the Road Rights-of-Way for a paved and improved public road, or if City has not completed the construction of paved public street or road improvements on the Loop System Right-of-Way within 10 years of the date of this Agreement, ownership of the vacated, abandoned or unused Road Rights-of-Way or of the uncompleted Loop System Right-of-Way will automatically and immediately revert to and revest in Coldwell, or Coldwell's successors or assigns, without any action on the part of Coldwell, or Coldwell's successors or assigns, as fully and completely as if conveyances to City by Coldwell, or Coldwell's successors or assigns of the Road Rights-of-Way had never been given. The dedications of the Road Rights-of-Way are also to be made upon the express condition that each of these Road Rights-of-Way will constitute a separate estate from the other and from City's estates in the Easements and that the Road Rights-of-Way and the Easements will not merge with each other even after part or all of such estates have been conveyed to City by Coldwell.

12. Limitation of Liability. Coldwell's liability for any breach of this Agreement is limited to the partnership assets of Coldwell. City waives any right City might now have, or might acquire after the date of this Agreement, to proceed against any general or limited partner of Coldwell or against any individual officer or

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shareholder of any corporate general or limited partner of Coldwell, on account of any such breach, except and then only to the extent that any of such entities directly succeeds to all or a part of Coldwell's interest in this Agreement.

13. Binding Effect, Governing Law and Modification. This Agreement is binding upon, and inures to the benefit of, City, Coldwell, and Coldwell's successors and assigns. This Agreement will be governed by the laws of New Mexico, and may be modified only in writing.

[illegible] FUND
[illegible] ited Partnership

[illegible]

By: [signature] AVP 10-15-8

By: [signature] AVP

CITY OF ALBUQUERQUE

[signature]
CHIEF ADMINISTRATIVE OFFICER

REVIEWED AND APPROVED
BY LEGAL DEPARTMENT

[signature]
Deputy City Attorney

ATTEST: [signature]
City Clerk/Recorder

EXHIBITS:

Exhibit One: Right-of-Way Dedication with attached
Schedule A: The Real Estate (The 2-Lane Right-of-Way), and
Schedule B: The Real Estate (The Louisiana Boulevard Right-of-Way).

Exhibit Two: Right-of-Way Dedication with attached
Schedule A: The Real Estate (The Loop System Right-of-Way).

Exhibit Three: Grant of Easements with attached
Schedule A, and
Schedule B.

STATE OF CALIFORNIA)
) ss.
COUNTY OF LOS ANGELES)

On October 16, 1980, before me, the undersigned, a Notary Public in and for said State, personally appeared Luther J. Briggs, known to me to be the Asst Vice President, and Reid G Samuelson, known to me to be the Asst Vice President of Coldwell Banker ~~Management~~ Commercial Group, Inc ~~Corporation~~, the corporation that executed the within instrument and known to me to be the persons who executed the within instrument on behalf of said corporation, said corporation being known to me to be one of the partners of The Coldwell Banker Fund, the partnership that executed the within instrument, and acknowledged to me that such corporation executed the same as such partner and that such partnership executed the same.

WITNESS my hand and official seal.

Signature Patricia Ann Kramer

PATRICIA ANN KRAMER
Name (Typed or Printed)

OFFICIAL SEAL
PATRICIA ANN KRAMER
NOTARY PUBLIC - CALIFORNIA
LOS ANGELES COUNTY
My comm. expires FEB 17, 1984

STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

The foregoing instrument was acknowledged before me on January 8, 1981, by James C Jaramillo, Chief Administrative Officer for the City of Albuquerque, a New Mexico municipal corporation, on behalf of the municipal corporation.

Pamela J. McGrath
Notary Public

My commission expires:

_____

OFFICIAL SEAL
PAMELA J. McGRATH
NOTARY PUBLIC - NEW MEXICO
Notary Bond Filed with Secretary of State
My Commission Expires: 10/19/83

ag

RIGHT-OF-WAY DEDICATION

THE COLDWELL BANKER FUND, a limited partnership ("Coldwell") hereby dedicates to the CITY OF ALBUQUERQUE, a New Mexico municipal corporation ("City"), the strip of land described on the attached Schedule ___ located in Bernalillo County, New Mexico (the "Real Estate"), upon the following conditions:

1. This dedication is effective only for so long as the Real Estate is used by City for a paved and improved public street or road and for no other purpose. Whenever City vacates, abandons or ceases to use the Real Estate for a paved and improved public street or road, then ownership of the Real Estate and the improvements on the Real Estate will automatically and immediately revert to and revest in Coldwell, and Coldwell's successors or assigns, without any action on Coldwell's part, as fully and completely as if this Right-of-Way Dedication had never been executed by Coldwell.

2. The estate and interest created by this Right-of-Way Dedication will constitute a separate estate from any other grants or dedications made to City by Coldwell or any other party for easements, rights-of-way

EXHIBIT ONE

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or other purposes and will not merge with any other estate or interest in the Real Estate acquired by City from Coldwell or any other party.

DATED: _____, 1980.

THE COLDWELL BANKER FUND

By COLDWELL BANKER MANAGEMENT CORPORATION,
Its General Partner

By_____
Its_____

By_____
Its_____

STATE OF CALIFORNIA)
) ss.
COUNTY OF LOS ANGELES)

On _____, 1980, before me, the undersigned, a Notary Public in and for said State, personally appeared _____, known to me to be the _____, and _____, known to me to be the _____ of Coldwell Banker Management Corporation, the corporation that executed the within instrument and known to me to be the persons who executed the within instrument on behalf of said corporation, said corporation being known to me to be one of the partners of The Coldwell Banker Fund, the partnership that executed the within instrument, and acknowledged to me that such corporation executed the same as such partner and that such partnership executed the same.

WITNESS my hand and official seal.

_____

_____
Name (Typed or Printed)

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THE REAL ESTATE
(The 2-Lane Right-of-Way)

A certain tract of land which lies wholly within the parcel shown of the Map of Portion of The Replats of Beverly-Wood Addition, a plat of which was filed for record in the Office of the County Clerk of Bernalillo County, New Mexico in Volume D3, Folio 126 on September 14, 1965 (the "Replats"), which tract of land is more particularly described by metes-and-bounds as follows:

Commencing, for a tie, at a point on the northerly boundary of the Replats, which point is the point of intersection of the southerly right of way boundary of Indian School Road NE and the westerly right of way boundary of Georgia Street NE and which point is also the northeast corner of Tract A-1 of a Plat of Tracts A-1 and A-2 Comprising a Portion of Replatted Beverly-Wood Addition, a plat of which was filed in the Office of the County Clerk of Bernalillo County, New Mexico, in Volume C9, Folio 61 on April 27, 1973, and bearing S00°24'02"W along the westerly right of way boundary of Georgia Street NE for a distance of 260.00 feet to the northwest corner and POINT OF BEGINNING of the tract of land herein described;

Thence bearing S89°35'58"E for a distance of 60.00 feet to a point;

Thence bearing S00°24'02"W for a distance of 115.22 feet to a tangent-curve;

Thence in a southeasterly direction along a curve concave to the northeast which curve has a radius of 208.16 feet; a central angle of 75°45'29", and an arc length of 275.23 feet to a curve-tangent;

Thence along a tangent produced bearing S75°21'27"E for a distance of 389.37 feet to a tangent-curve;

Thence in an easterly direction along a curve concave to the north which curve has a radius of 383.32 feet, a central angle of 14°51'48", and an arc length of 99.44 feet to a curve-tangent;

Thence along a tangent produced bearing N89°46'45"E for a distance of 37.40 feet to a point;

Thence bearing N00°12'15"W for a distance of 14.00 feet to a point;

Thence bearing N89°46'45"E for a distance of 236.00 feet to the northeast corner of the tract of land herein described;

Thence bearing S00°13'15"E for a distance of 86.00 feet to the southeast corner of the tract of land herein described;

Thence bearing S89°46'45"W for a distance of 241.00 feet to a tangent-curve;

SCHEDULE A

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Thence in a westerly direction along a curve concave to the north which curve has a radius of 344.99 feet, a central angle of 14°51'48", and an arc length of 89.50 feet to a curve-tangent;

Thence along a tangent produced bearing N75°21'27"W for a distance of 448.98 feet to a tangent-curve;

Thence in a northwesterly direction along a curve concave to the northeast which curve has a radius of 268.16 feet, a central angle of 75°45'29", and an arc length of 354.57 feet to a curve-tangent;

Thence along a tangent produced bearing N00°24'02"E for a distance of 115.22 feet to the northwest corner and POINT OF BEGINNING of the tract of land herein described.

The tract of land herein described contains 1.815, Acres more or less.

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THE REAL ESTATE
(The Louisiana Boulevard Right-of-Way)

A certain tract of land which lies within the parcel shown on the Map of Portion of the Replats of Beverly-Wood Addition, a plat of which was filed for record in the Office of the County Clerk of Bernalillo County, New Mexico in Volume D3, Folio 126 on September 14, 1965 (the "Replats"), and within a vacated street which was filed for record in the Office of the County Clerk of Bernalillo County, New Mexico, as a Vacation of Haines Avenue NE in Miscellaneous Volume 226, Folio 689 on August 25, 1971, which tract of land is more particularly described by metes-and-bounds as follows:

Commencing, for a tie, at a point on the northerly boundary of the Replats, which point is the point of intersection of the southerly right of way boundary of Indian School Road NE and the westerly right of way boundary of Georgia Street NE and bearing S00°24'02"W along the westerly right of way boundary of Georgia Street NE for a distance of 260.00 feet to a point; thence bearing S89°35'58"E along the southerly right of way boundary of Haines Avenue NE for a distance of 225.00 feet to a point; thence along the westerly boundary of the vacation of Haines Avenue NE bearing N00°24'02"E for a distance of 50.00 feet to a point on the northerly boundary of Haines Avenue NE; thence along the easterly extension of the northerly right of way boundary of Haines Avenue in the reach vacated bearing S89°35'58"E for a distance of 736.07 feet to the northwest corner and POINT OF BEGINNING of the tract of land herein described;

Thence continuing on a bearing S89°35'58"E for a distance of 14.00 feet to the northeast corner of the tract of land herein described which northeast corner is also a point on the westerly right of way boundary of Louisiana Boulevard NE;

Thence bearing S00°13'15"E along the westerly right of way boundary of Louisiana Boulevard NE as shown on the Replats for a distance of 543.44 feet to the southeast corner of the tract of land herein described;

Thence bearing S89°46'45"W for a distance of 14.00 feet to the southwest corner of the tract of land herein described;

Thence bearing N00°13'15"W for a distance of 543.59 feet to the northwest corner and POINT OF BEGINNING of the tract of land herein described.

The tract of land herein described contains 0.1747 acres, more or less.

SCHEDULE B

RIGHT-OF-WAY DEDICATION

THE COLDWELL BANKER FUND, a limited partnership ("Coldwell") hereby dedicates to the CITY OF ALBUQUERQUE, a New Mexico municipal corporation ("City"), the strip of land described on the attached Schedule A located in Bernalillo County, New Mexico (the "Real Estate"), upon the following conditions:

1. This dedication is effective only for so long as the Real Estate is used by City for a paved and improved public street or road and for no other purpose. Whenever City vacates, abandons or ceases to use the Real Estate for a paved and improved public street or road, or if City has not completed the construction of paved public street or road improvements on the Real Estate by _____, 1990, then ownership of the Real Estate and the improvements on the Real Estate will automatically and immediately revert to and revest in Coldwell, and Coldwell's successors or assigns, without any action on Coldwell's part, as fully and completely as if this Right-of-Way Dedication had never been executed by Coldwell.

2. The estate and interest created by this Right-of-Way Dedication will constitute a separate estate from any other grants or dedications made to City by Coldwell or any other party for easements, rights-of-way

EXHIBIT TWO

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or other purposes and will not merge with any other estate or interest in the Real Estate acquired by City from Coldwell or any other party.

DATED: _____, 1980.

THE COLDWELL BANKER FUND

By COLDWELL BANKER MANAGEMENT CORPORATION,
Its General Partner

By_____
Its_____

By_____
Its_____

STATE OF CALIFORNIA)
) ss.
COUNTY OF LOS ANGELES)

On _____, 1980, before me, the undersigned, a Notary Public in and for said State, personally appeared _____, known to me to be the _____, and _____, known to me to be the _____ of Coldwell Banker Management Corporation, the corporation that executed the within instrument and known to me to be the persons who executed the within instrument on behalf of said corporation, said corporation being known to me to be one of the partners of The Coldwell Banker Fund, the partnership that executed the within instrument, and acknowledged to me that such corporation executed the same as such partner and that such partnership executed the same.

WITNESS my hand and official seal.

_____

_____
Name (Typed or Printed)

THE REAL ESTATE
(The Loop System Right-of-Way)

A certain tract of land which lies wholly within the parcel shown on the Map Of Portion of The Replats of Beverly-Wood Addition, a plat of which was filed for record in the Office of the County Clerk of Bernalillo County, New Mexico in Volume D3, Folio 126 on September 14, 1965 (the "Replats"), which tract of land is more particularly described by metes-and-bounds as follows:

Commencing, for a tie, at a point on the northerly boundary of the Replats which point is the point of intersection of the southerly right of way boundary of Indian school Road NE and the westerly right of way boundary of Georgia Street NE and which point is also the northeast corner of Tract A-1 of a Plat of Tracts [illegible]nd A-2 Comprising a Portion of Replatted Beverly-Wood Addition, a plat of which was filed in the Office of the County Clerk of Bernalillo County, New Mexico in Volume C9, Folio 61 on April 27, 1973, and bearing S00°24'02"W along the westerly right of way boundary of Georgia Street NE for a distance of 260.00 feet to a point;

Thence bearing S89°35'58"E for a distance of 60.00 feet to a point on the southerly right of way boundary of Haines Avenue NE which point is also the northwest corner and POINT OF BEGINNING of the tract of land herein described;

Thence continuing on a bearing of S89°35'58"E along the southerly right of way boundary of Haines Avenue NE for a distance of 26.00 feet to a point;

Thence bearing S00°24'02"W for a distance of 115.22 feet to a tangent-curve;

Thence in a southeasterly direction along a curve concave to the northeast which curve has a radius of 182.16 feet, a central angle of 75°45'29", and an arc length of 240.86 feet to a curve-tangent;

Thence bearing S75°21'27"E along a tangent produced for a distance of 448.98 feet to a tangent-curve;

Thence in an easterly direction along a curve concave to the North which curve has a radius of 258.99 feet, a central angle of 14°51'48", and an arc length of 67.19 feet to a curve-tangent;

Thence bearing N89°46'45"E along a tangent produced for a distance of 5.00 feet to the northeast corner of the tract of land herein described;

Thence bearing S00°13'15"E for a distance of 14.00 feet to the southeast corner of the tract of land herein described;

Thence bearing S89°46'45"W for a distance of 37.40 feet to a tangent curve;

Thence in a westerly direction along a curve concave to the north which curve has a radius of 383.32 feet, a central angle of 14°51'48", and an arc length of 99.44 feet to a curve-tangent;

Thence bearing N75°21'27"W along a tangent produced for a distance of 389.37 feet to a tangent-curve

SCHEDULE A

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which is the southwest corner of the tract of land herein described;

Thence in a northwesterly direction along a curve concave to the northeast which curve has a radius of 208.16 feet, a central angle of 75°45'29", and an arc length of 275.23 feet to a curve-tangent;

Thence bearing N00°24'02"E along a tangent produced for a distance of 115.22 feet to the northwest corner and POINT OF BEGINNING of the tract of land herein described;

The tract of land herein described contains 0.517 acres, more or less.

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GRANT OF EASEMENTS

THE COLDWELL BANKER FUND, a limited partnership ("Coldwell"), states:

1. Recital. Coldwell owns certain real estate located in Albuquerque, Bernalillo County, New Mexico, in the vicinity of Coronado and Winrock shopping centers (the "Real Estate") which Coldwell is developing as Park Square. A condition of approval by the City of Albuquerque, New Mexico ("City") of Coldwell's site development plan for the Real Estate is that Coldwell grant City easements over the Real Estate for drainage and for City's water and sewer lines; the drainage, water and part of the sewer line easements will lie within public street or road rights-of-way being separately granted to City by Coldwell. City and Coldwell intend for the drainage, water and sewer easements to revert to Coldwell, and Coldwell's successors or assigns, if such easements ever revert, separately from the public street or road rights-of-way.

2. Grants.

A. Coldwell grants to City an easement across the portion of the Real Estate described in Schedule A to this Grant of Easements for purposes of installing and maintaining City's water and sewer lines and for the use of the surface of this portion of the Real Estate for drainage purposes.

B. Coldwell grants to City an easement across the portion of the Real Estate described in Schedule B to this Grant of Easements for purposes of installing and maintaining City's sewer lines.

EXHIBIT THREE

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3. Automatic Reversion and Separate Estate.

Each of the grants in this Grant of Easements is made upon the express condition that the grant is effective only for so long as the respective easement is used for the purposes for which the easement is granted; whenever City vacates, abandons or ceases to use either of the easements for the purposes for which that easement is granted, then ownership of that easement and the improvements attributable to that easement will automatically and immediately revert to and revest in Coldwell, and Coldwell's successors and assigns, without any action on their parts, as fully and completely as if this Grant of Easements had never been executed.

Each of the grants in this Grant of Easements is made upon the additional express condition that the easements will constitute separate estates from each other and from any other grants or dedications made to City by Coldwell or any other party for easements, rights-of-way or other purposes and that the easements will not merge with any other estate or interest in the Real Estate acquired by City from Coldwell or any other party.

THE COLDWELL BANKER FUND

By COLDWELL BANKER MANAGEMENT CORPORATION
Its General Partner

By_____
Its_____

By_____
Its_____

ab

STATE OF CALIFORNIA)
) ss.
COUNTY OF LOS ANGELES)

On _____, 1980, before me, the undersigned, a Notary Public in and for said State, personally appeared _____, known to me to be the _____, and _____, known to me to be the _____ of Coldwell Banker Management Corporation, the corporation that executed the within instrument and known to me to be the persons who executed the within instrument on behalf of said corporation, said corporation being known to me to be one of the partners of The Coldwell Banker Fund, the partnership that executed the within instrument, and acknowledged to me that such corporation executed the same as such partner and that such partnership executed the same.

WITNESS my hand and official seal.

_____

_____
Name (Typed or Printed)

GB

A certain tract of land which lies wholly within the parcel shown of the Map of Portion of The Replats of Beverly-Wood Addition, a plat of which was filed for record in the Office of the County Clerk of Bernalillo County, New Mexico in Volume D3, Folio 126 on September 14, 1965 (the "Replats"), which tract of land is more particularly described by metes-and-bounds as follows:

Commencing, for a tie, at a point on the northerly boundary of the Replats, which point is the point of intersection of the southerly right of way boundary of Indian School Road NE and the westerly right of way boundary of Georgia Street NE and which point is also the northeast corner of Tract A-1 of a Plat of Tracts A-1 and A-2 Comprising a Portion of Replatted Beverly-Wood Addition, a plat of which was filed in the Office of the County Clerk of Bernalillo County, New Mexico in Volume C9, Folio 61 on April 27, 1973, and bearing S00°24'02"W along the westerly right of way boundary of Georgia Street NE for a distance of 260.00 feet to the northwest corner and POINT OF BEGINNING of the tract of land herein described;

Thence bearing S89°35'58"E for a distance of 60.00 feet to a point;

Thence bearing S00°24'02"W for a distance of 115.22 feet to a tangent-curve;

Thence in a southeasterly direction along a curve concave to the northeast which curve has a radius of 208.16 feet; a central angle of 75°45'29", and an arc length of 275.23 feet to a curve-tangent;

Thence along a tangent produced bearing S75°21'27"E for a distance of 389.37 feet to a tangent-curve;

Thence in an easterly direction along a curve concave to the north which curve has a radius of 383.32 feet, a central angle of 14°51'48", and an arc length of 99.44 feet to a curve-tangent;

Thence along a tangent produced bearing N89°46'45"E for a distance of 37.40 feet to a point;

Thence bearing N00°12'15"W for a distance of 14.00 feet to a point;

Thence bearing N89°46'45"E for a distance of 136.00 feet to the northeast corner of the tract of land herein described;

Thence bearing S00°13'15"E for a distance of 86.00 feet to the southeast corner of the tract of land herein described;

Thence bearing S89°46'45"W for a distance of 241.00 feet to a tangent-curve;

SCHEDULE A

aw

Thence in a westerly direction along a curve concave to the north which curve has a radius of 344.99 feet, a central angle of 14°51'48", and an arc length of 89.50 feet to a curve-tangent;

Thence along a tangent produced bearing N75°21'27"W for a distance of 448.98 feet to a tangent-curve;

Thence in a northwesterly direction along a curve concave to the northeast which curve has a radius of 268.16 feet, a central angle of 75°45'29", and an arc length of 354.57 feet to a curve-tangent;

Thence along a tangent produced bearing N00°24'02"E for a distance of 115.22 feet to the northwest corner and POINT OF BEGINNING of the tract of land herein described.

The tract of land herein described contains 1.815 acres, more or less.

GAB

A certain tract of land located in Albuquerque, Bernalillo County, New Mexico, situate between two lines parallel to, and 10 feet distant from a centerline (hereinafter called the "Centerline") within the parcel shown on the Map of Portion of the Replats of Beverly-Wood Addition a plat of which was filed for record in D3 Plats 126 of the Bernalillo County, New Mexico records on September 14, 1965 (the "Replats"). The Centerline of the tract of land herein described is more particularly described as follows:

Commencing, for a tie, at the northerly boundary of the Replats, which point is the point of intersection of the southerly right of way boundary of Indian School Road, N.E., and the westerly right of way boundary of Georgia Street, N.E., and which point is also the northeast corner of Tract A-1 of a Plat of Tracts A-1 and A-2 comprising a Portion of Replatted Beverly-Wood Addition, a plat of [illegible] was filed for record in C9 Plats 61 of the Bernalillo County, New Mexico records on April 27, 1973 (the "Point of Commencement");

Thence bearing S00°24'02"W along the westerly right of way boundary of Georgia Street, N.E., for a distance of 840.67 feet to a point, which is the point and place of beginning of the Centerline;

Thence bearing N33°37'37"E for a distance of 40.15 feet to a point;

Thence bearing N00°24'02"E for a distance of 150.00 feet to a point;

Thence bearing N75°11'07"E for a distance of 141.49 feet to a point of intersection with the utility easement which is described in Exhibit A to this Grant of Easements, which point is the ending point of the Centerline.

The two lines parallel to, and 10 feet distant from, the Centerline have for their northeasterly ending points, points of intersection with the utility easement described in Exhibit A to this Grant of Easements, and for their southwesterly ending points, points of intersection with the line bearing S00°24'02 W from the Point of Commencement.

STATE OF NEW MEXICO
COUNTY OF BERNALILLO
FILED FOR RECORD
FEB 24 10 36 AM '81
BK 833 PG 156 177
TENNY C. CULP
CO. CLERK & EX-OFFICIO RECORDER
DEPUTY

SCHEDULE B

ab

PARK SQUARE DRAINAGE STUDY

(REVISED CALCULATIONS)

HINES INDUSTRIAL
2700 POST OAK BOULEVARD, N.E.
HOUSTON, TEXAS

APRIL 1984

HOLMES & NARVER, INC.
7801 ACADEMY BLVD. N. E. SUITE 104
ALBUQUERQUE, NEW MEXICO 87109

HOLMES & NARVER, INC.
ENGINEERS • CONSTRUCTORS

November 8, 1984
AL-1691.70-L-42

Mr. Billy J. Goolsby, P.E.
Civil Engineer Hydrology
Municipal Development Department
City of Albuquerque
P. O. Box 1293
Albuquerque, New Mexico 87103

APPROVED GRADING AND DRAINAGE REPORT FOR PARK SQUARE (J-18-DIA)

Dear Mr. Goolsby:

Per our discussion on October 29, 1984, I am enclosing one additional copy of the approved Park Square Drainage Study for your records.

Please note that we have included prints of all drawings which were submitted with the original report (December 1983) and the final approved report (April 1984). The text within the final approved report remains unaltered from that within the original report. All changes are reflected within the table of contents.

Should you have any questions regarding this matter, do not hesitate to contact me.

Sincerely,

James L. Hewitt, Jr., P.E.
Senior Engineer II

JLH:lad, 0161H

cc: M. Gesler
J. Boyle
R. Booth
Project File
Arch. Master File
Central File

RECEIVED
NOV 0 8 1984
HYDROLOGY SECTION

Update information only to replace misplaced drawings

7801 ACADEMY BLVD. N.E., SUITE 101, ALBUQUERQUE, N.M. 87109 (505) 822-0663
951 CENTRAL AVENUE, LOS ALAMOS, N.M. 87544 (505) 662-6696
4047 FIRST STREET, SUITE 203, LIVERMORE, CA. 94550 (415) 449-3800

HOLMES & NARVER, INC.
ENGINEERS • CONSTRUCTORS

May 3, 1984
AL-1691.70-L-25

Mr. Billy J. Goolsby, P.E.
Civil Engineer Hydrology
Municipal Development Department
City of Albuquerque
P. O. Box 1293
Albuquerque, New Mexico 87103

REVISED GRADING AND DRAINAGE REPORT FOR PARK SQUARE (J-18-DIA)

Dear Mr. Goolsby:

In response to comments within your correspondence dated January 5, 1984, we have adjusted our site hydrology calculations for Park Square to reflect the 100-year peak flows that would be anticipated without implementation of Albuquerque Master Drainage Study Project 357-01D. As stated within the Park Square Drainage Study, a 100-year peak flow of 187.5 cfs would be anticipated at the Marriott drainage structure without implementation of this project. As demonstrated within our original calculations, the Marriott drainage structure is not capable of conveying storm flows in excess of 179.35 cfs without modification.

As an alternative, we propose to reduce the peak flow at the drainage structure by introducing a side-channel weir within the curb wall along the west side of the drainage easement. This would be accomplished by providing 8-inches of additional wall height from the Louisiana Boulevard Cinema entrance drive to the drainage structure. Computer analyses of the 100-year flood profile with and without this proposed modification are included with our revised calculations. As proposed, this side-channel weir will divert approximately 8.15 cfs onto the Louisiana Cinema I, II and III parcel.

From the lag in travel time between drainage areas we have concluded that the downstream impact of this diversion will be minimal. We have included our calculations and comments for your consideration.

7801 ACADEMY BLVD. N.E., SUITE 104, ALBUQUERQUE, N.M. 87109 (505) 822-0663
951 CENTRAL AVENUE, LOS ALAMOS, N.M. 87544 (505) 662-6986
4047 FIRST STREET, SUITE 203, LIVERMORE, CA. 94550 (415) 449-3800

We request your expeditious response to these matters so that we may incorporate the proposed drainage improvements within our final design. A revised erosion control plan for Park Square Phase I will be included with our final drawing submittal. Should you have any questions, do not hesitate to contact this office.

Sincerely,

James L. Hewitt, Jr., P.E.
Civil Engineer, Senior II

JLH:lad

cc: M. Gesler
T. McEwan
J. Lester
Job File
Master File

PARK SQUARE

DRAINAGE STUDY

NOVEMBER 1983

(Revised Calculations April 1984)

HOLMES & NARVER, INC.
7801 ACADEMY BOULEVARD, NE
ALBUQUERQUE, NEW MEXICO 87109

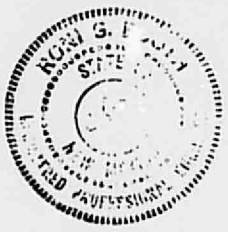
James L. Hewitt, Jr., P.E.

Roni G. Booth, P.E.

I hereby certify that this Drainage Report, prepared under my direction, conforms to previous agreements made with the Albuquerque City Engineer's Office in lieu of the normal requirements of Drainage Resolution 1972-2 and City Ordinance 59-176, is true and correct to the best of my knowledge and is, otherwise, in substantial compliance with those drainage, erosion, and flood control criteria, guidelines and standards outlined within the City of Albuquerque Development Process Manual.

Roni G. Booth
NM P.E. No. 5853

12/7/83
Date



Approved:

For the City of Albuquerque

I hereby certify that the revised drainage calculations included herein were prepared under my direction and are in conformance with previous agreements made with the Albuquerque City Engineer's Office in lieu of the normal requirements of Drainage Resolution 1972-2 and City Ordinance 59-176, are true and correct to the best of my knowledge and are, otherwise, in substantial compliance with those drainage, erosion, and flood control criteria, guidelines and standards outlined within the City of Albuquerque Development Process Manual. The revised drainage calculations included herein append to the Park Square Drainage Study submitted December 12, 1983.

Roni G. Booth

Roni G. Booth
NM P.E. No. 5853

6/4/84
Date

Approved:

For the City of Albuquerque

INFORMATION SHEET

PROJECT TITLE Park Square Study

TYPE OF SUBMITTAL Drainage

ZONE ATLAS PAGE NO. J-18

CITY ADDRESS Park Square, Albuquerque

LEGAL DESCRIPTION Replats of Beverly Wood Addition, Albuquerque, New Mexico, as filed with Bernalillo County Clerk on September 14, 1965 in Volume D3, Folio 126

ENGINEERING FIRM Holmes & Narver, Inc.
CONTACT James Hewitt
ADDRESS 7801 Academy Boulevard, N.E.
Albuquerque, New Mexico 87109
PHONE 822-0663

OWNER Hines Industrial, Inc.
CONTACT John Lester
ADDRESS 2700 Post Oak Boulevard
Houston, Texas 77056
PHONE (713) 629-8400

ARCHITECT Holmes & Narver, Inc.
CONTACT Mike Gesler
ADDRESS 7801 Academy Boulevard, N.E.
Albuquerque, New Mexico 87109
PHONE 822-0663

SURVEYOR Albuquerque Surveying Co., Inc.
CONTACT Fred Sanchez
ADDRESS 2119 Menaul Blvd., N.E.
Albuquerque, New Mexico 87107
PHONE 884-2036

CONTRACTOR IBS Inc.
CONTACT Jim Metzger
ADDRESS 3884 W. 12th Street
Houston, Texas 77008
PHONE (713) 956-0098

DATE SUBMITTED May 4, 1984

BY Holmes & Narver, Inc. - J. Hewitt

PARK SQUARE DRAINAGE STUDY

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LIST OF FIGURES

APPENDICES

ATTACHMENTS

PARK SQUARE

DRAINAGE STUDY

I. OBJECTIVE

This study examines existing and proposed site drainage conditions at Park Square, a commercial development for the Hines Industrial Corporation. Proposed improvements, site grading and drainage, adequacy of existing drainage structures and necessary drainage modifications and/or improvements are among the primary topics addressed within this report. Upon completion, the Park Square development will be in substantial compliance with the drainage, erosion, and flood control criteria, guidelines and standards outlined within the City of Albuquerque Development Process Manual.[2]

II. SITE LOCATION AND DESCRIPTION

Park Square is situated near the intersection of Louisiana Boulevard N.E. and Interstate 40 (Coronado Freeway). The Park Square development will occupy an 8.07 acre parcel comprised of Tracts B-1 and B-2, Block F, of the Beverly Wood Addition and a parcel to the south (also within the Beverly Wood Addition) which is encompassed by Loop Road and Marriott Drive (Section 13, T. 10 N., R. 3 E.), a subdivision to the City of Albuquerque, Bernalillo County, New Mexico (Vicinity Map, Figure 1).

The current development plan considers three 10-story office buildings, four 5 to 6-story parking structures, and four single story buildings to be used for retail trade.

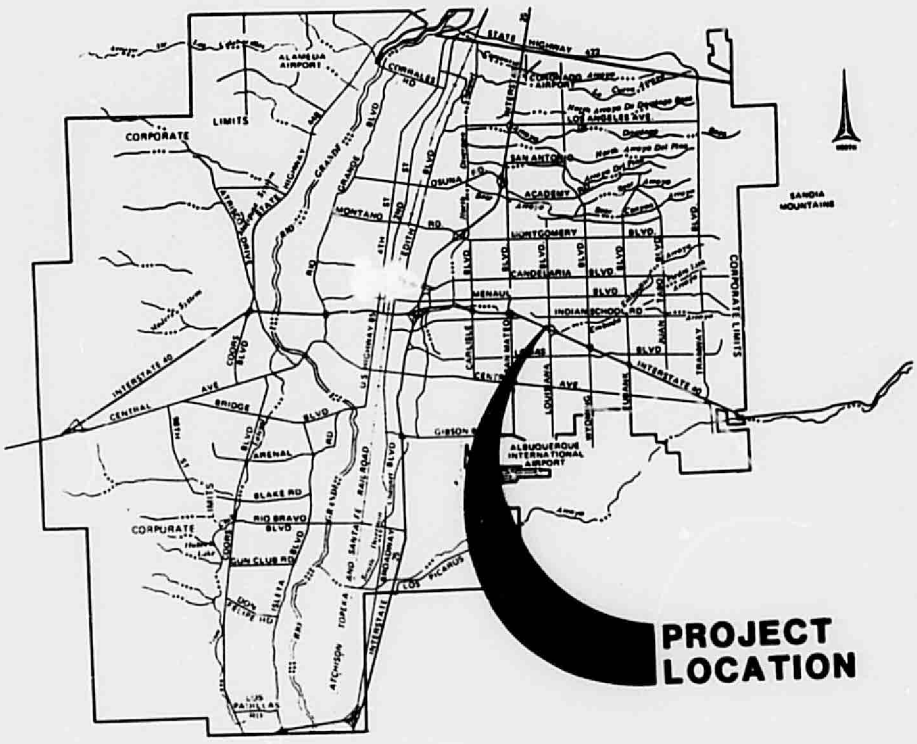


FIGURE 1
VICINITY MAP

III. AVAILABLE INFORMATION

A. Previous Drainage Studies

Drainage studies performed for other portions of the Park Square development have included the Engineer's Drainage Report[4] for the Louisiana Boulevard Cinema I, II and III (Wilson & Company Engineers, January 1973), the Engineer's Report[5] on Storm Drainage for Park Square (Gordon Herkenhoff & Associates, Inc., July 1979), the Albuquerque Master Drainage Study[1] (January 1981) and the Marriott Hotel Site "As-Built" and Drainage Improvements[10] (Armstrong Engineering, Inc., August 1982). As described within the Engineer's Report prepared by Gordon Herkenhoff & Associates, Inc.,[5] the existing drainage structure located at the southwest corner of the Marriott Hotel parking lot was designed to convey the total anticipated runoff (205 cfs) from the 100-year storm under the westbound lanes of Interstate 40 and into the median channel. This peak flow was established considering completely developed conditions, without on-site ponding, as stipulated within correspondence to the City Engineer dated May 4, 1979.[3]

B. Flood Hazard Boundary Map

That portion of the Park Square development addressed within this study has been delineated on the Flood Boundary and Floodway Map[11] (Panel 30) which accompanies this report (Figure 2). As further described within Volume III of the Albuquerque Master Drainage Study[1], implementation of Projects 356-01C and 357-01D will mitigate the flooding which occurs on Louisiana Boulevard, N.E. and on Indian School Road, N.E. as the result of off-site drainage

following localized storm events. Project 357-01D will significantly reduce the volume of off-site storm flow which enters onto the Park Square site. Project 356-01C will reduce the flooding which occurs along the southern frontage of Indian School Road. Implementation of both of these projects is strongly recommended at this time.

C. Site Soil Conditions

The Park Square Site and the contributing off-site drainage area to the east have been delineated on the SCS Soil Survey Map[13] (Sheet 31) which accompanies this report (Figure 3). Site soils are of the Embudo-Tijeras Complex and are further described as gravelly, fine sandy loams. These soils fall within Hydrologic Soil Group B. Runoff is medium and the hazard of water erosion on these soils is moderate.

A geotechnical investigation[7] recently performed by Sergent, Hauskins and Beckwith has revealed that silty, clayey, and relatively clean sands, interbedded with lesser amounts of sandy clays and silt, predominate at the Park Square site. The silty soils are generally nonplastic, while the clayey soils are generally of low to medium plasticity. These soils generally range from firm to hard or dense to very dense with occasional zones of moderately firm soils at the ground surface.

The Park Square soils have exhibited low to moderate moisture content throughout their extent; however, some of the clay and silt soils, near or above their plastic limits, exhibited high moisture contents.

Some of the low density native soils which underlie the site are moisture sensitive; therefore, positive site drainage should be provided during construction and maintained thereafter. The ground surface adjacent to proposed structures should be sloped away from the structures at a minimum grade of 2 percent to a point at least 15 feet from their perimeters to ensure positive drainage. Stormwater collected in this fashion should be conveyed away from these points and into adjacent streets or drainage easements.

Roof runoff should be conveyed away from the structures in a manner which will minimize erosion. Long-term ponding of stormwater near building perimeters must be avoided. Special precautions should be taken to ensure that any moisture which might result from plumbing leaks will not saturate the soils beneath structural foundations.

The edge of controlled fill embankments shall be graded to the contours shown on the drawings. Earth embankments with slopes steeper than 1 vertical to 3 horizontal shall be protected from erosion.

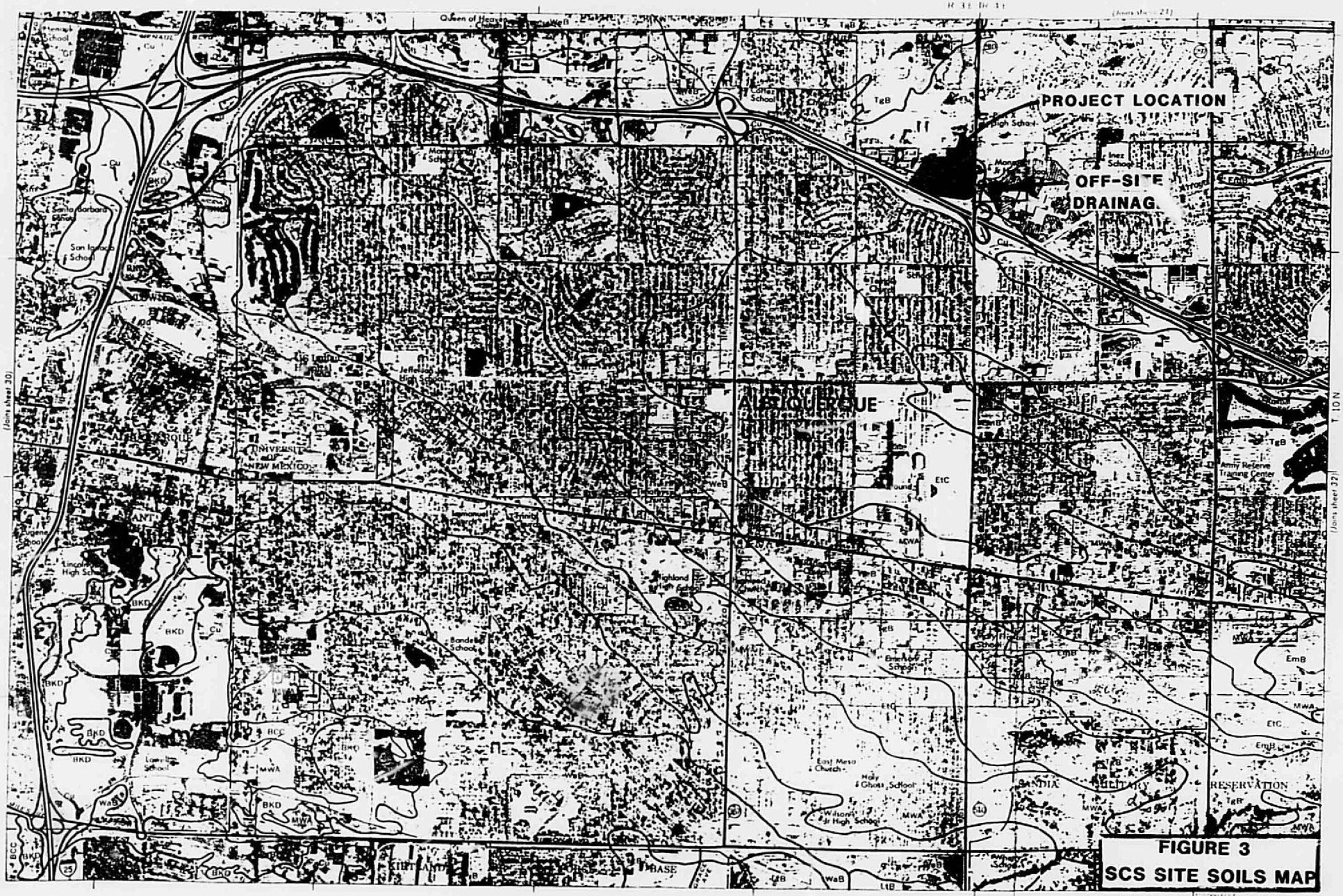


FIGURE 3
SCS SITE SOILS MAP

IV. METHOD OF INVESTIGATION

The revised hydrologic calculations presented within Appendix A of this report were developed, in part, from information presented within previous drainage studies and are consistent with methods outlined in Volume II of the City of Albuquerque Development Process Manual.[2] The hydraulic capacity of the existing drainage structure at the southwest corner of the Marriott Hotel parking lot was evaluated using the methods outlined within Hydraulic Engineering Circular No. 13.[9]

V. PRESENTATION OF RESULTS

For completely developed conditions, the revised hydrology calculations for Park Square yield an anticipated 100-year peak flow of approximately 188 cfs. Implementation of Project 357-01D will reduce this anticipated peak flow to approximately 148 cfs. As demonstrated within the calculations included in Appendix A, the drainage structure at the southwest corner of the Marriott Hotel parking lot is incapable of conveying storm flows in e ess of 179 cfs. Additional capacity could be provided at he structure by elevating the inlet headwall and training wall; however, implementation of Project 357-01D will enable conveyance of the reduced 100-year peak flow by the existing drainage structure without modification.

Previous studies [5, 10] have demonstrated that existing streets within the Park Square development have sufficient hydraulic capacity to allow conveyance of the anticipated 100-year peak flows to the Marriott parking lot drainage easement. The proposed widening of Loop Road can be accomplished such that its hydraulic capacity be will enhanced.

The transverse drop inlet which crosses Loop Road near its intersection with the southern entrance to the Louisiana Boulevard Cinema has silted in and is currently ineffectual. This structure will require modification during the widening of Loop Road. A sidewalk culvert will also be provided at the north end of this drop inlet to intercept nuisance flows.

Existing and proposed elevations at the Park Square site are presented on the grading plan which accompanies this report. Park Square frontage along Indian School Road will be graded to drain to the north; however, the majority of the Park Square site will be graded to drain to the southwest.

Revised site hydrology is presented on the drainage plan which accompanies this report. This drainage plan presents the peak flows which would be anticipated upon implementation of Project 357-01D.

The Park Square site will be developed in three phases. During the first phase, construction will be limited to one 10-story office building, four single story retail structures, the northernmost 6-story parking structure, and the north parking lot. During the second phase, construction will include the second 10-story office building and another 6-story parking structure. Third phase construction will include a third 10-story building and the two 6-story parking structures to be located within the Marriott Hotel parking lot. Accordingly, an erosion control plan for each phase of construction accompanies this report. Stormwater flow which originates on-site will be conveyed, as necessary, to the adjacent streets. As previously discussed, site soil conditions preclude ponding of stormwater near building perimeters; hence, the use of temporary detention ponds for erosion control will be limited. In any case, during each phase of construction the contractor will be responsible for effective management of on-site drainage and for street clean-up following local storm events.

VI. DISCUSSION, CONCLUSION, AND RESULTS

As discussed within the preceding section, Flood Mitigation Project 357-01D will reduce the off-site flow which originates from the Winrock Shopping Center to a degree which will allow safe conveyance of the anticipated 100-year flood peak through the drainage structure located at the southwest corner of the Marriott Hotel parking lot. Flood Mitigation Project 356-01C will reduce flooding along the southern frontage of Indian School Road. On this basis, implementation of both of these projects is recommended at this time.

A number of on-site drainage improvements will be implemented during the widening of Loop Road. During each phase of construction, appropriate erosion control measures will be taken to ensure minimal damage to the site and/or adjacent facilities.

The drainage conditions and improvements discussed within this study are in substantial compliance with those drainage, erosion, and flood control criteria, guidelines, and standards outlined within the City of Albuquerque Development Process Manual;[2] therefore, it is recommended that the City Engineer's office approve this study.

REFERENCES

1. Albuquerque Master Drainage Study, Volume III. Bohannan-Huston, Inc., Albuquerque, New Mexico (January 1981).

2. Development Process Manual, Volume 2: Design Criteria. City of Albuquerque Municipal Development Department, Albuquerque, New Mexico (March 1982).

3. Drainage Management Park Square. Correspondence, Gordon Herkenhoff & Associates, Albuquerque, New Mexico (May 4, 1979).

4. Engineer's Drainage Report for Proposed Theater Near Indian School Road and Georgia Street, N.E. Wilson & Company Engineers, Albuquerque, New Mexico (February 1973).

5. Engineer's Report on Storm Drainage for Park Square. Gordon Herkenhoff & Associates, Inc., Albuquerque, New Mexico (July 1979).

6. Flood Insurance Study, City of Albuquerque, New Mexico, Bernalillo County. Federal Emergency Management Agency, Community Number - 350002 (April 4, 1983).

7. Geotechnical Investigation Report, Proposed Office & Parking Structures, Louisiana Boulevard & Loop Road, N.E. Sergent, Hauskins, & Beckwith, SHB Job No. E83-1126, Albuquerque, New Mexico (October 25, 1983).

8. Hydraulic Charts for the Selection of Highway Culverts, Hydraulic Engineering Circular No. 5. U.S. Department of Commerce, Bureau of Public Roads (April 1964).

9. Hydraulic Design of Improved Inlets for Culverts, Hydraulic Engineering Circular No. 13. U.S. Department of Transportation, Federal Highway Administration (August 1972).

10. Marriott Hotel Site As-Built and Drainage Improvements. Armstrong Engineering, Inc., Albuquerque, New Mexico (August 1982).

11. National Flood Insurance Program, Floodway Flood Boundary and Floodway Map, City of Albuquerque, New Mexico, Bernalillo County. Federal Emergency Management Agency, Community - Panel Number 350002 0030 (October 1983).

12. Preliminary Drainage Analysis of Park Plaza. Holmes & Narver, Inc., Albuquerque, New Mexico (September 1983).

13. Soil Survey of Bernalillo County and Parts of Sandoval and Valencia Counties, New Mexico. U.S. Department of Agriculture Soil Conservation Service (June 1977).

ADDITIONAL REFERENCES

14. HEC-2 Water Surface Profiles Users Manual (Computer Program 723-X6-L202A). U.S. Army Corpos of Engineers Hydrologic Engineering Center, Davis, California (November, 1976).

15. Open Channel Flow. Henderson, F.M. The Macmillian Company, New York (1966).

APPENDIX "A"

CALCULATIONS

CHECKED _____ DATE _____
APPROVED _____ DATE _____
TITLE PARK SQUARE DRAINAGE STRUCTURE

HOLMES & NARVER, INC.
ENGINEERS-CONSTRUCTORS
7801 ACADEMY BLVD. NE, SUITE 104
ALBUQUERQUE, NEW MEXICO 87109

JOB NO. 1669.70
SHEET 1 OF 17
BY JCH DATE 10/8:

DRAINAGE STRUCTURE CAPACITY

EXISTING DRAINAGE STRUCTURE AT SW CORNER OF MARRIOTT PARKING LOT WAS SLOPE-TAPERED INLET WITH REPORTED CAPACITY OF 205 CFS (GORDON HERKENHOFF & ASSOC. DRAINAGE REPORT, 1979).

DRAINAGE STRUCTURE CHARACTERISTICS (SEE ATTACHED DRAWING)

2-36" Dia. Welded Steel Conduits
S = 0.0204%

DESIGN LIMITATIONS

EXISTING CONDITIONS	RECOMMENDED RANGE*	CONCLUSION
Sf = 2.02:1	2:1 to 3:1	OK
FALL = 1.98'	D/4 to 1.5D (where D=3')	ok
SIDEWALL TAPER = 4:1	4:1 to 6:1	OK
$L_3 > 0.5B$	$>0.5B$ (where B=3')	OK
TRANSITION = 3'	$>D/2$	OK
THROAT = 3'	$=D$	OK

DEVELOP PERFORMANCE CURVES

INLET CONTROL CONDITIONS

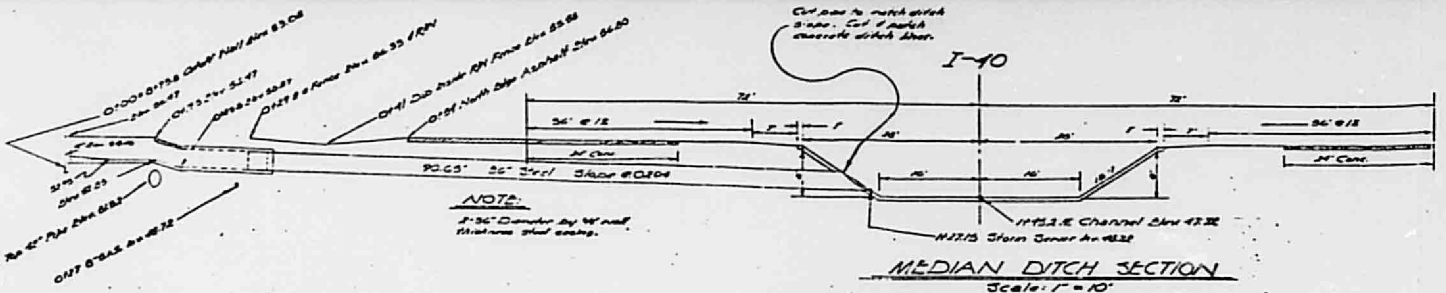
FACE CONTROL – BOX CULVERT SLOPE-TAPERED INLET (VERTICAL FACE)

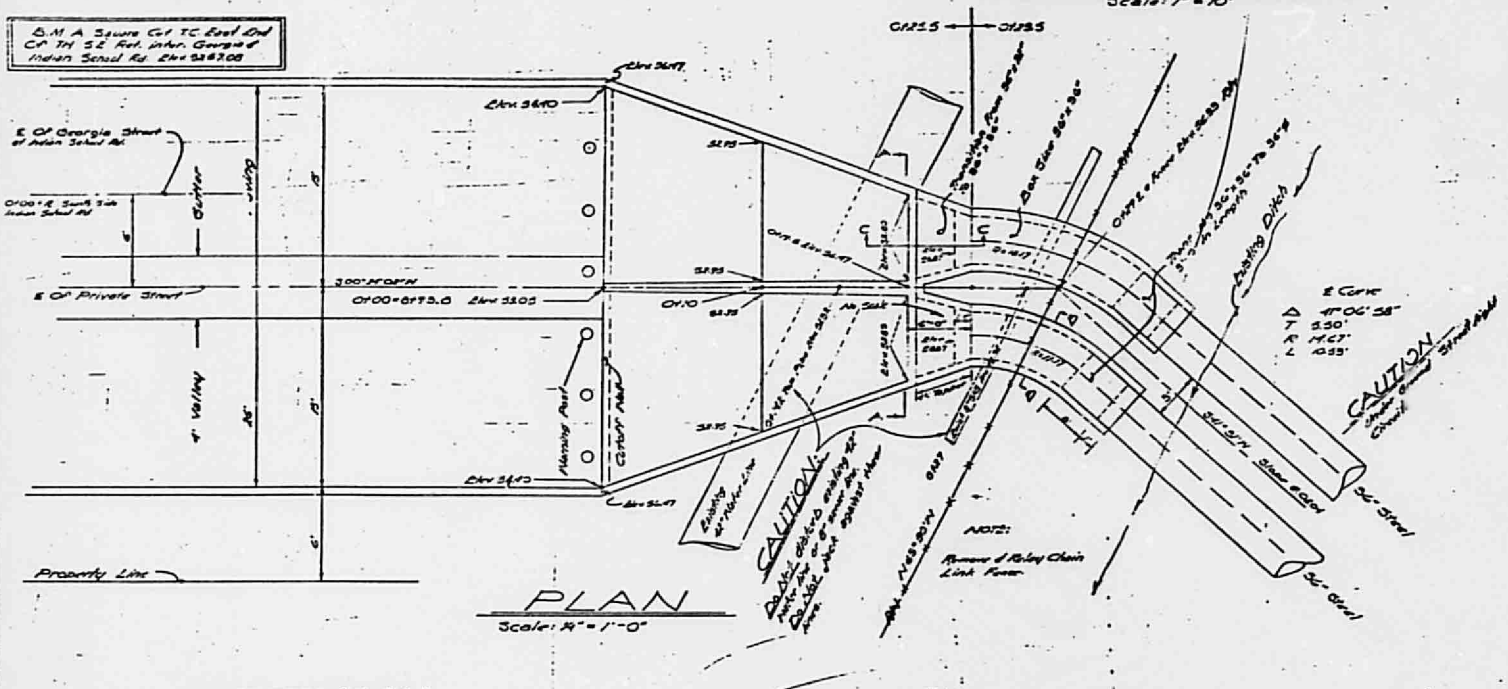
WINGWALL FLARE ANGLE = 19.75°

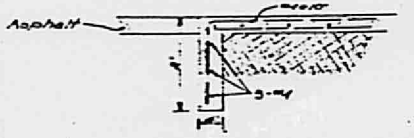
TOP OF RECTANGULAR FACE IS BEVELED

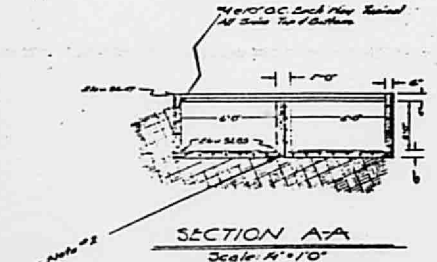
A-1

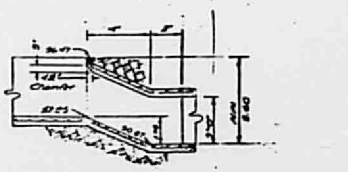
* Hydraulic Engineering Circular No. 13

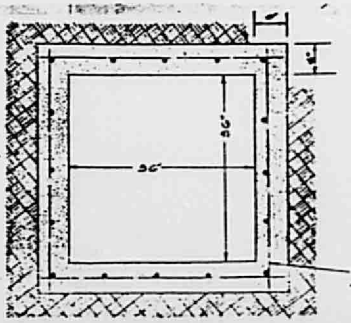












GENERAL NOTES

1. All Reinforcing Steel To Be Spliced 40 Diameter Of Rebar.
2. Alternate Direction Of Horizontal Leg Of Rebar.

MAP NO. J-18

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

TITLE PROPOSED STORM SEWER IN TH
BEVERLY-WOOD ADDITION

SUBMITTED BY	APPROVED BY CITY ENGINEER	PRELIMINARY DRWG.
DATE TITLE	DATE CC 73 TITLE ASSE	DATE
DESIGNED BY	APPROVED BY	CONSTRUCTION DRWG.
DRAWN BY	DATE 10-11-73 TITLE C.E.	DATE
CHECKED BY	APPROVED BY	AS BUILT DRWG.
QUANTITIES BY	DATE 11-13 TITLE PE	DATE
CHECKED BY	APPROVED BY	FILE NO.

A-2

CHECKED ____ DATE ____
APPROVED ____ DATE ____
TITLE PARK SQUARE DRAINAGE STRUCTURE

HOLMES & NARVER, INC.
ENGINEERS-CONSTRUCTORS
7801 ACADEMY BLVD. NE, SUITE 104
ALBUQUERQUE, NEW MEXICO 87109

JOB NO. 1669.70
SHEET 3 OF 17
BY JLH DATE 11/83

FACE CONTROL (CONT.)

$C_f = 0.59$ $k_f = 0.65$

$$\frac{H_f}{D} = 0.0446 \left(\frac{Q}{N B_f D^{3/2}}\right)^2 + 0.64$$

where $B_f = 6'$
$D = 3'$
$N = 2$

Q, cfs	$\frac{Q}{N B_f D^{3/2}}$	$\frac{H_f}{D}$	H_f	WSEL
60	0.962	0.681	2.044	54.89
80	1.283	0.713	2.140	54.99
100	1.604	0.755	2.264	55.11
120	1.925	0.805	2.416	55.27
140	2.245	0.865	2.595	55.45
160	2.566	0.934	2.801	55.65
180	2.887	1.012	3.035	55.89
200	3.208	1.099	3.297	56.15
205	3.288	1.122	3.366	56.22
212	3.400	1.156	3.467	56.32
220	3.528	1.195	3.586	56.44

CHECKED _____ DATE _____
APPROVED _____ DATE _____
TITLE PARK SQUARE DRAINAGE STRUCTURE

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ALBUQUERQUE, NEW MEXICO 87109

JOB NO. 1668.70
SHEET 4 OF 17
BY JEH DATE 11/83

THROAT CONTROL - PIPE CULVERT SLOPE-TAPERED INLET (SMOOTH PIPE)

$C_t = 0.89$ $\quad K_t = 0.90$

$$\frac{H_t}{D} = 0.0318\left(\frac{Q}{ND^{1/2}}\right)^2 + 0.89$$

where $D = 3'$
$N = 2$

Q cfs	$\frac{Q}{ND^{1/2}}$	$\frac{H_t}{D}$	H_t	WSEL
60	1.925	1.008	3.023	53.50
80	2.566	1.099	3.298	53.87
100	3.208	1.217	3.651	54.22
120	3.849	1.361	4.083	54.65
140	4.491	1.531	4.594	55.16
160	5.132	1.728	5.183	55.75
180	5.774	1.950	5.850	56.42
200	6.415	2.199	6.596	57.17
205	6.575	2.265	6.795	57.36
212	6.800	2.360	7.081	57.65
220	7.057	2.474	7.420	57.99

OUTLET CONTROL CONDITIONS - FLOWING FULL

$$H = H_v + H_e + H_f$$
$$= \left[1 + K_e + \frac{29n^2L}{R^{1.33}}\right]\frac{V^2}{2g}$$

CHECKED _____ DATE _____
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TITLE PARK SQUARE DRAINAGE STRUCTURE

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OUTLET CONTROL CONDITIONS (CONT.)

where $k_e = 0.2$ (SLOPE-TAPERED INLET)

$L = 90.65' + 23.67' = 114.32'$ (Avg. length through inlet sect. = 23.67')

$n = 0.012$ (steel pipe)

Assuming that tailwater within Embudo Channel does not submerge pipe outlet, the 36-inch drainage conduits will flow full and the hydraulic grade line will intersect the crown of the culvert barrel at the outlet. On this basis the water surface elevation within the headwater pool may be determined by adding H to the elevation of the culvert crown at the outlet.

Q, cfs	Q/2	V	$V^2/2g$	H	WSEL
60	30	4.24	0.28	0.53	52.25
80	40	5.66	0.50	0.95	52.67
100	50	7.07	0.78	1.48	53.20
120	60	8.49	1.12	2.13	53.85
140	70	9.90	1.52	2.89	54.61
160	80	11.32	1.99	3.78	55.50
180	90	12.73	2.52	4.78	56.50
200	100	14.15	3.11	5.91	57.63
205	102.5	14.50	3.27	6.21	57.93
212	106	15.00	3.49	6.64	58.36
220	110	15.56	3.76	7.15	58.87

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TITLE PARK SQUARE DRAINAGE STRUCTURE

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JOB NO. 1669.70
SHEET 6 OF 17
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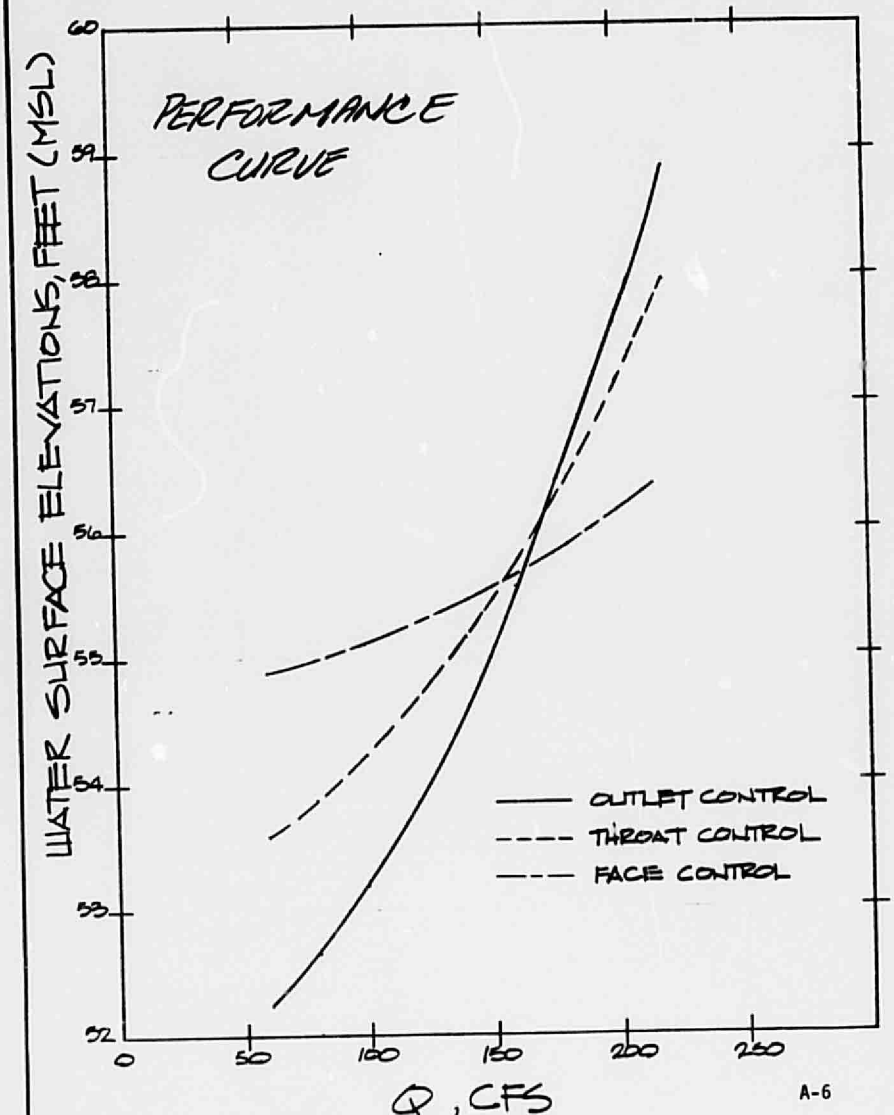

A-6

CHECKED _____ DATE _____
APPROVED _____ DATE _____
TITLE PARK SQUARE DRAINAGE STRUCTURE

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JOB NO. 1669.22
SHEET 7 OF 17
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Based upon the performance curve, the existing drainage structure located at the SW corner of the Marriott Hotel parking lot is incapable of conveying the reported design flow of 205cfs. At flowrates exceeding 179cfs, stormwater will overtop the existing headwall. Additional flow carrying capacity can be provided at this structure by elevating the headwall and the training wall along the western perimeter of the parking lot; however, the implementation of Flood Mitigation Project 357-01D will reduce the volume of off-site flow which enters the site. The hydrologic analysis for the Park Square Site has been revised and refined and is included herein. The reduced peak flow which would be effectuated by implementation of Flood Mitigation Project 357-01D is also included.

REVISED SITE HYDROLOGY

Using the same methods used within the Engineers Report prepared by Gordon Herkenhoff & Associates, Areas A & B within H&N's preliminary drainage analysis are considered comparable to Areas 4 & 6 described within the Herkenhoff report. On this basis, only the C values have changed from the original estimate.

CHECKED _____ DATE _____
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TITLE PARK SQUARE DRAINAGE STRUCTURE

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JOB NO. 1669.20
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REVISED C VALUES

	ORIGINAL	REVISED*
AREA 4	0.85	0.71
AREA 6	0.79	0.88

Comp. C = [(34.58 X 0.9) + (3.96 X 0.88) + (5.02 X 0.71)
+ (3.8 X 0.65) + (1.04 X 0.35)] / 48.4

= 0.85

Δ ELEV = 5298.5 - 5256.0
= 42.5 ft (FROM DRAINAGE MASTER PLAN)

DRAINAGE AREA CHARACTERISTICS (HOEKEMAOFF REPORT)

TRAVEL, L = 2450 ft

AVG. VEL, V = 2.5 fps

Tc = 16.33 min

* FROM PRELIMINARY DRAINAGE ANALYSIS (HOLMES & NARVER, INC.)

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$I_{100} = \left(\frac{189}{25 + Tc}\right)$

$= 4.57$ in/hr

$Q_{100} = AIC$

$= (48.4)(4.57)(0.85)$

$= 187.5$ cfs (completely developed conditions with off-site flow contribution from Winrock Shopping Center)

ADJUSTED PEAK FLOW

From the Master Drainage Study, implementation of Project 357-01D will remove 50 cfs from Winrock Shopping Center via a 30-inch diameter RCP. The adjusted peak flow is computed as follows:

Adjusted peak flow from Winrock = (130 - 50) cfs

= 80 cfs

Adjusted contributing drainage area (Area 1, Herkenhoff)

22.5 AC (Hard surface) (80/130)	=	13.85 AC
3.8 AC (Compacted Earth) (80/130)	=	2.34 AC
26.3 AC (Total Subarea) (80/130)	=	16.19 AC

CHECKED _____ DATE _____
APPROVED _____ DATE _____
TITLE PARK SQUARE DRAINAGE STRUCTURE

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JOB NO. 462.70
SHEET 10 OF 17
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DEVELOP WINROCK SUBAREA CONDITIONS

COMP. C = [(13.85 x 0.9) + (2.34 x 0.65)] / 16.19

= 0.86

Q_{100} = 80cfs = A I_{100} C

$$80\text{cfs} = 16.19\left(\frac{189}{25 + T_c}\right)(0.86)$$

$$T_c = \left[\frac{16.19(189)(0.86)}{80}\right] - 25$$

= 7.89 min

$$\text{TRAVEL, } L = 7.89\text{min} \times \frac{60\text{sec}}{1\text{min}} \times 2.5\text{fps}$$

= 1184'

$$\Delta\text{ELEV} = (5298.5 - 5274.0)$$

= 24.5'

$$\Delta L = (1200 - 1184)$$

= 16'

CHECKED _____ DATE _____
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TITLE PARK SQUARE DRAINAGE STRUCTURE

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JOB NO. 1669.70
SHEET 11 OF 17
BY JEH DATE 11/83

ADJUST ENTIRE STUDY AREA

COMP. $C = [(25.93 \times 0.9) + (3.96 \times 0.88) + (5.02 \times 0.71) + (2.34 \times 0.65) + (1.04 \times 0.35)] / 38.29$

$= 0.84$

TRAVEL TIME: $T_{TRAVEL} = (2450 - 16)$

$= 2434$ ft

AVG. VEL. $= 2.5$ fps

$T_c = 16.23$ min

$I_{100} = \left(\frac{189}{25 + T_c}\right)$

$= 4.58$ min

$Q_{100} = AIC$

$= 38.29 (4.58)(0.84)$

$= 147.9$ cfs (FACE CONTROL, W.S. ELEV. = 5255.52)

CHECKED _____ DATE _____
APPROVED _____ DATE _____
TITLE PARK SQUARE DRAINAGE STRUCTURE

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ALBUQUERQUE, NEW MEXICO 87109

JOB NO. 4629.20
SHEET 12 OF 17
BY JCH DATE 11/83

ADJUST REMAINING SUBAREAS

AREA 2 : EAST PARKING LOT HOTEL, EAST PARKING LOT RESTAURANT, 250' PUBLIC STREET & AREA 1 (WINROCK)

(3.20 Ac. HARD SURFACE + 0.30 Ac. GRASS + AREA 1)

COMP. C = [(17.05 x 0.9) + (2.34 x 0.65) + (0.11 x 0.35)] / 19.50

= 0.87

TRAVEL TIME: TRAVEL = 1434'

AVG. VEL = 2.5 fps

T_c = 9.56 min

$I_{100} = 189 / (25 + 9.56)$

= 5.47 IN/HR

$Q_{100} = AIC$

= 92.45 cfs

AREA 3 : FINANCIAL OFFICE & PARKING LOT, RESTAURANT & WEST PARKING LOT, SERVICE DRIVE, 320' PUBLIC ROAD, AREA 2 & AREA 1

(3.42 Ac. HARD SURFACE + 0.58 GRASS + AREA 1 & 2)

CHECKED _____ DATE _____
APPROVED _____ DATE _____
TITLE PARK SQUARE DRAINAGE STRUCTURE

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JOB NO. 66270
SHEET 13 OF 17
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COMP. C = [(20.47 x 0.9) + (2.34 x 0.65) + (0.69 x 0.35)] / 23.50
= 0.86

TRAVEL TIME: TRAVEL = 1754 ft
AVG. VEL. = 2.5 fps
Tc = 11.69 min

I_{100} = 189 / (25 + Tc)
= 5.15 IN/HR

Q_{100} = AIC
= 103.97 cfs

AREA 4: OFFICE TOWERS & PARKING LOT, 630' PUBLIC STREET, AREA 3,2 & 1
(5.02 Ac. HARD SURFACE & OTHER, AREA 3,2 & 1)

COMP. C = [(20.47 x 0.9) + (5.02 x 0.71) + (2.34 x 0.65)
+ (0.69 x 0.35)] / 28.52
= 0.83

TRAVEL TIME: TRAVEL = 2094 ft
AVG. VEL = 2.5 fps
Tc = 13.96 min

I_{100} = 189 / (25 + Tc)
= 4.85 IN/HR

CHECKED _____ DATE _____
APPROVED _____ DATE _____
TITLE PARK SQUARE DRAINAGE STRUCTURE

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JOB NO. 1669.70
SHEET 14 OF 17
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Q_{100} = AIC
= 115.21 cfs

AREAS: HOTEL & SOUTH AND WEST PARKING LOTS
(5.46 AC. HARD SURFACE + 0.35 AC. GRASS)

COMP C = [(5.46 × 0.9) + (0.35 × 0.35)]/5.81
= 0.87

TRAVEL TIME: TRAVEL = 960'
AVG. VEL. = 2.5 fps
Tc = 6.40 min

I_{100} = 189/(25 + Tc)
= 6.02 IN/HR

Q_{100} = AIC
= 30 cfs

AREAS: OFFICE TOWER, PARKING STRUCTURES & RETAIL STRUCTURES WITHIN CITY TENNIS COURT AREA
(3.96 AC. HARD SURFACE & OTHER)

COMP. C = 0.88 (FROM SHEET 8)

CHECKED _____ DATE _____
APPROVED _____ DATE _____
TITLE PARK SQUARE DRAINAGE STRUCTURE

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JOB NO. 1669.70
SHEET 15 OF 17
BY TCH DATE 11/83

TRAVEL TIME : TRAVEL = 1135'
AVG. VEL. = 2.5 fps
T_c = 7.57 min

$I_{100} = 189/(25+T_c)$
= 5.80 IN/HR

$Q_{100} = AIC$
= 20.22 cfs

AREA I : AREAS 1, 2, 3, 4 & 6 (ENTRANCE TO OUTFALL EASEMENT)

COMP. C = [(20.47 x 0.9) + (3.96 x 0.88) + (5.02 x 0.71) + (2.34 x 0.65) + (0.69 x 0.35)] / 32.48
= 0.84

TRAVEL TIME : TRAVEL = 2094'
AVG. VEL = 2.5 fps
T_c = 13.96 min

$I_{100} = 189/(25+T_c)$
= 4.85 IN/HR

$Q_{100} = AIC$
= 132.12 cfs

CHECKED _____ DATE _____
APPROVED _____ DATE _____
TITLE PARK SQUARE DRAINAGE STRUCTURE

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JOB NO. 1662.70
SHEET 16 OF 17
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AREA 8: AREA 7 + AREAS (ENTRANCE TO OUTFALL STRUCTURE)

COMP. C = [(25.93 x 0.9) + (3.96 x 0.88) + (5.02 x 0.71) + (2.34 x 0.65) + (1.04 x 0.35)] / 38.29

= 0.84

TRAVEL TIME: TRAVEL = 2434 ft
AVG. VEL = 2.5 fps
T_c = 16.23 min

I_{100} = 189 / (25 + T_c)
= 4.58 IN/HR

Q_{100} = A I C
= 147.9 cfs

AREA 9: AREA 3 WITHOUT AREAS 1 & 2:

COMP. C = [(3.42 x 0.9) + (0.58 x 0.35)] / 4.0

= 0.82

TRAVEL TIME: TRAVEL = 440 ft
AVG. VEL = 2.5 fps
T_c = 2.93 min

I_{100} = 189 / (25 + 2.93)
= 6.77 IN/HR

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APPROVED _____ DATE _____

TITLE PARK SQUARE DRAINAGE STRUCTURE

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JOB NO. 1669.70

SHEET 17 OF 17

BY JCM DATE 11/83

$Q_{100} = AIC$

$= 22.2 cfs$

CHECKED _____ DATE _____
APPROVED _____ DATE _____
TITLE LOOP ROAD DRAINAGE STRUCTURE

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ALBUQUERQUE, NEW MEXICO 87109

JOB NO. 1669.70
SHEET 1 OF 6
BY TCH DATE 11/83

ANTICIPATED PEAK RUNOFF FROM OFFICE TOWER PARCEL

$A = 4.46$ Acres
$C = 0.71$ (From Preliminary Drainage Analysis)

TRAVEL TIME: TRAVEL = 700 FT
AVG. VEL. = 2.5 fps
T_c = 4.67 min

$$I_{100} = \left(\frac{189}{25 + T_c}\right)$$
$$= 6.37 \text{ IN/HR}$$

$$Q_{100} = AIC$$
$$= 20.17 \text{ cfs}$$

ESTIMATED HYDRAULIC CAPACITY OF LOOP ROAD TRANSVERSE DROP INLET

$$S = (56.74 - 56.31)/40$$
$$= 0.0108 \text{ FT/FT}$$

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$A = (3\frac{1}{2}/12)(1)$
$= 0.2917\ FT^2$

$P = [12 + 2(3\frac{1}{2})]/12$
$= 1.58\ FT$

$Q = VA = \frac{1.486}{n} A R^{2/3} S^{1/2}$ where $n = 0.013$

$= 1.12\ CFS < 20.17\ CFS$

EXISTING TRANSVERSE DROP INLET MUST BE IMPROVED OR REPLACED WITH A DROP INLET HAVING GREATER CAPACITY TO HANDLE STORMWATER RUNOFF

CAPACITY OF SIDEWALK CULVERT (SINGLE CULVERT)

$S_{min} = \frac{1}{4}"/12" = 0.0208\ FT/FT$

$A = 2(7/12)$
$= 1.167\ FT^2$

$P = 2 + 2(7/12)$
$= 3.167\ FT$

$Q = AV = \frac{1.486}{n} A R^{2/3} S^{1/2}$ where $n = 0.013$

$= 9.89\ CFS$

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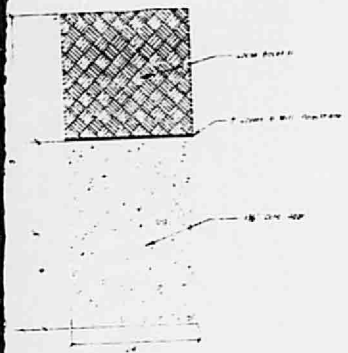
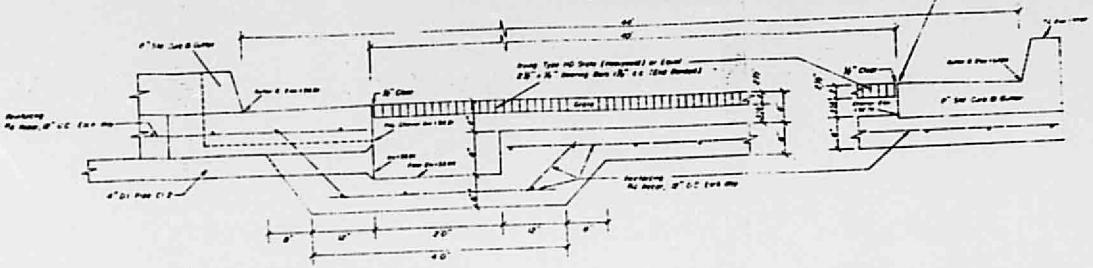
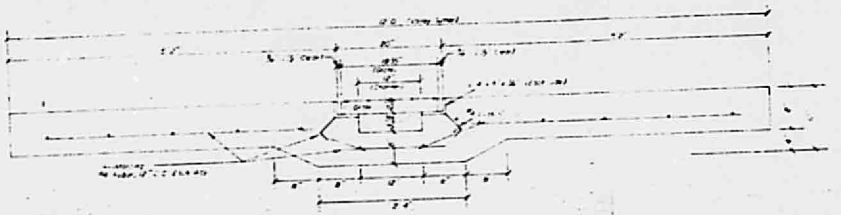
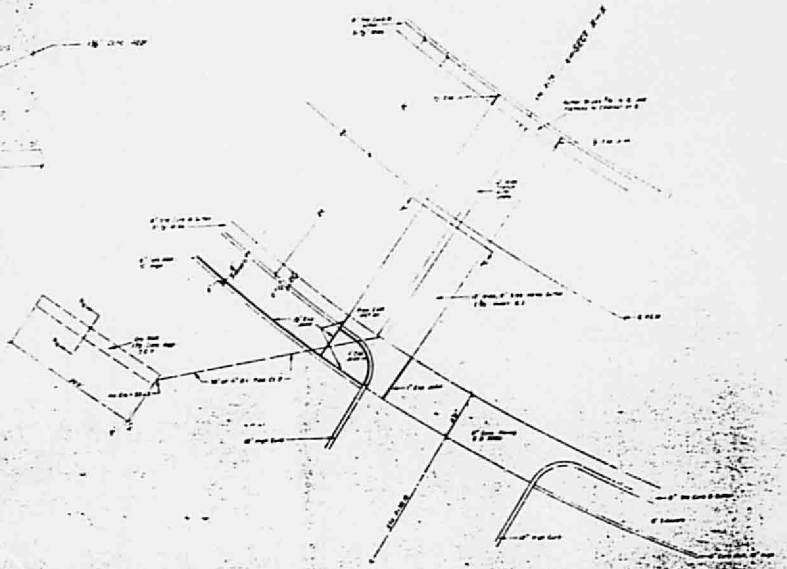




SEC X-X



SEC Y-Y



SEC Z-Z

AS BUILT INFORMATION
BENCH MARKS
SURVEY INFORMATION
FIELD NOTES BY DATE NO.
REFERENCES
MAP NO. W.O. NO.
EST. NO.
MICRO-FILM INFORMATION

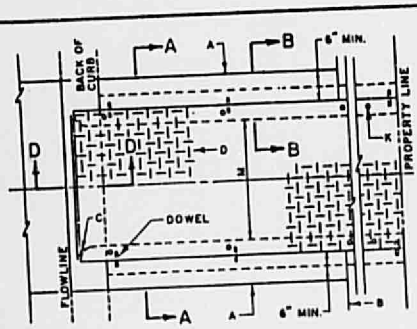
NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	

C-28-98

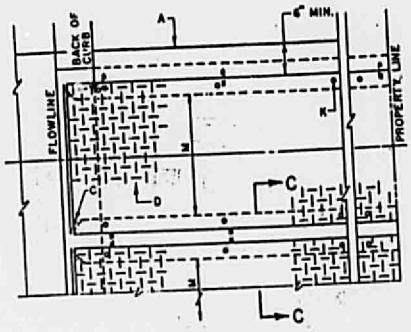
CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

TITLE DETAILS
PARK SQUARE
ALBUQUERQUE, NEW MEXICO

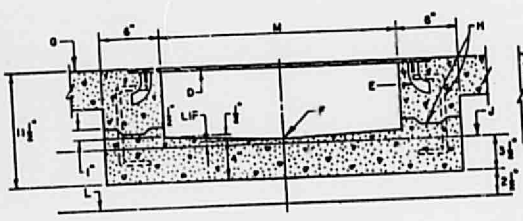
APPROVALS ENGINEER DATE APPROVALS ENGINEER DATE
City Engineer
A.C.E. Design



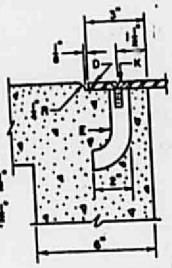
PLAN
SINGLE CULVERT



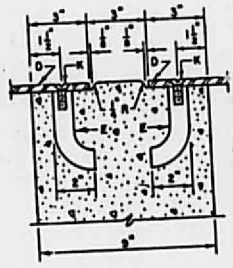
PLAN
MULTIPLE CULVERT



SECTION A-A

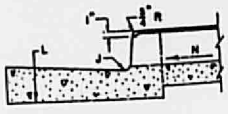


SECTION B-B



SECTION C-C

DOWEL DETAIL



SECTION D-D

GENERAL NOTES:

1. Placement of drain thru exist. sidewalk, curb and gutter will require removal and replacement of entire stones c sidewalk, curb and gutte as detailed hereia.
2. Bottom slab of culvert sh all be poured monolithically with new gutter.
3. The invert shall be trowsled and retrowsled to produce a hard polished surface of max. density and smoothness. "V" invert sha l be V-shaped to within 3' of the outlet and warped fr m this point to outlet. Invert at outlet shall parallel gutter flowline unless otherwise shown on plans.
4. Surface of all exposed concrete shall match the grad color, finish and scoring of adjacent curb and sidewa
5. Sidewalk replaced during construction shall be poured monolithically with culvert walls.
6. Stainless steel rod anchors drilled and topped for flat head machine screws, spaced 24" o.c. max. and a min of 2 per side per plate. There shall be an anchor within 6" of each end. Anchors shall be attached to the plat and the plate secured in pl ace prior to pouring the w
7. The culvert steel top plate shall be cut perpendicular t the walls unless otherwise specified. Lengths shall be such that the weight per plate does not exceed 300 lb It shall be stressed relieved after fabrication. After cleaning surface of scale, rust, etc., the plate and framing members shall be painted with one shop coat red oxide and two finish coats of aluminum paint (AASHO M29).
8. Joint and Dowels optional. Dowels spaced 24" o.c. max 1 ½" min. clearance from face of concrete, may be inclin if necessary.
9. The City does not accept r esponsibility for maintenanc for any drain lines installed by or for private property owners.

CONSTRUCTION NOTES:

A. JOIN NEAREST SCORE LINE OR WEAKENED PLANE JOINT, PLACE ½ EXPANSION JOINT MATERIAL.
B. SIDEWALK OR SETBACK, (VARIABLE).
C. 3" RADIUS, (TYPICAL).
D. ¼" CHECKERED STEEL PLATE CULVERT TOP
E. ROD ANCHOR ½" x 9".
F. "V" INVERT.
G. SIDEWALK GRADE.
H. DOWEL AND JOINT, (OPTIONAL).
J. GUTTER FLOWLINE ELEV.
K. ½" x 1" F.H. C'SUNK STAINLESS STL. MACHINE SCRE
L. BOTTOM OF GUTTER.
M. DRAIN WIDTH, 24" MAX. 12" MIN.
N. SLOPE ¼" PER FT. MIN.

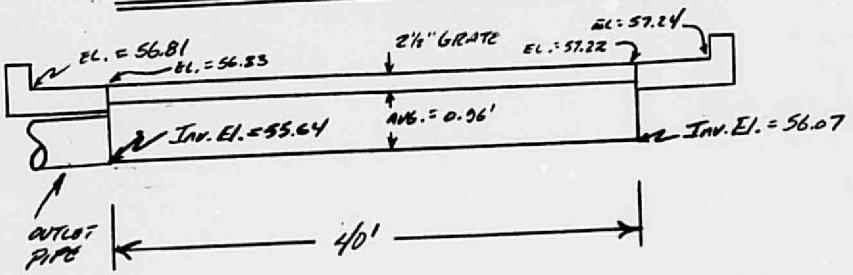
REVISIONS	CITY OF ALBUQUERQUE
FEB.10-82	DRAINAGE SIDEWALK CULVERT WITH STEEL PLATE TOP
	DWG. K-16-1 JAN 19

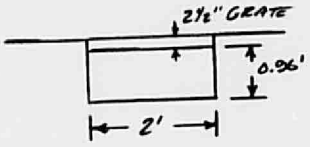
CHECKED _____ DATE _____
APPROVED _____ DATE _____
TITLE LOOP ROAD DRAINAGE STRUCTURE

HOLMES & NARVER, INC.
ENGINEERS-CONSTRUCTORS
7801 ACADEMY BLVD. NE, SUITE 104
ALBUQUERQUE, NEW MEXICO 87109

JOB NO. 1669.70
SHEET 5 OF 6
BY JLH DATE 11/83

PROPOSED DROP INLET MODIFICATIONS





CAPACITY

$S = (56.07 - 55.64)/40'$

$= 0.0108$ FT/FT

$A = 0.96(2) = 1.92$ FT^2

$P = 2 + 2(0.96) = 3.92$ FT

$Q = VA = \frac{1.486}{n} A R^{2/3} S^{1/2}$

$= 14.14$ CFS < 20.17 CFS

MODIFY OUTLET BY PROVIDING 2-12" DIA. PVC OUTLET PIPES WHICH WILL CONVEY STORMWATER COLLECTED WITHIN THE DROP INLET TO THE EXISTING DRAINAGE STRUCTURE AT THE SW CORNER OF THE MARRIOTT HOTEL PARKING LOT. THESE PIPES WILL BE CONCRETE ENCASED TO PREVENT COLLAPSE UNDER TRAFFIC LOADS

CHECKED _____ DATE _____
APPROVED _____ DATE _____
TITLE LOOP ROAD DRAINAGE STRUCTURE

HOLMES & NARVER, INC.
ENGINEERS-CONSTRUCTORS
7801 ACADEMY BLVD. NE, SUITE 104
ALBUQUERQUE, NEW MEXICO 87109

JOB NO. 1662.70
SHEET 6 OF 6
BY JCH DATE 11/8/

OUTLET PIPE CAPACITY

Invert Elev. @ Outlet = 52.85

Invert Elev. @ Inlet = 55.64

$S = (55.64 - 52.85) / 376'$

$= 0.0074 \text{ FT/FT}$

$A = 2(\pi(0.5)^2)$

$= 1.57 \text{ FT}^2$

$R = 2(D/4)$

$= 0.5 \text{ FT}$

$Q = VA = \frac{1.486}{n} A R^{2/3} S^{1/2}$

$= 14.07 \text{ CFS} < 20.17 \text{ CFS}$

CHECKED _____ DATE _____
APPROVED _____ DATE _____
TITLE PARK SQUARE DRAINAGE STRUCTURE

HOLMES & NARVER, INC.
ENGINEERS-CONSTRUCTORS
7801 ACADEMY BLVD. NE, SUITE 104
ALBUQUERQUE, NEW MEXICO 87109

JOB NO. 1462.20
SHEET 1 OF 5
BY JLH DATE 2/84

WINROCK SUBAREA CONDITIONS

COMP. C = [(22.5 x 0.9) + (3.8 x 0.65)] / 26.3
= 0.86

TRAVEL TIME: TRAVEL = 1200 ft
AVG. VEL. = 2.5 fps
Tc = 8.0 min

I_{100} = 189 / (25 + 8)
= 5.73 IN/HR

Q_{100} = A I C
= 130.12 cfs

AREA 2 : EAST PARKING LOT HOTEL, EAST PARKING LOT RESTAURANT, 23c' PUBLIC STREET & AREA 1 (WINROCK)
(3.2 AC. HARD SURFACE + 0.11 AC. GRASS + AREA 1)

COMP. C = [(25.7 x 0.9) + (3.8 x 0.65) + (0.11 x 0.35)] / 29.61
= 0.87

TRAVEL TIME: TRAVEL = 1450 ft
AVG. VEL. = 2.5 fps
Tc = 9.67 min

I_{100} = 189 / (25 + 9.67)
= 5.45 IN/HR

CHECKED _____ DATE _____
APPROVED _____ DATE _____
TITLE PARK SQUARE DRAINAGE STRUCTURE

HOLMES & NARVER, INC.
ENGINEERS-CONSTRUCTORS
7801 ACADEMY BLVD. NE, SUITE 104
ALBUQUERQUE, NEW MEXICO 87109

JOB NO. 1669.70
SHEET 2 OF 5
BY JLH DATE 2/84

$Q_{100} = AIC$
$= 139.78$ cfs

AREA 3: FINANCIAL OFFICE & PARKING LOT, RESTAURANT & WEST PARKING LOT, SERVICE DRIVE, 320' PUBLIC ROAD, AREA 2 & AREA 1

(3.42 Ac. HARD SURFACE + 0.58 GRASS + AREA 1 & 2)

COMP. $C = [(29.12 \times 0.9) + (3.8 \times 0.65) + (6.69 \times 0.35)] / 33.61$
$= 0.86$

TRAVEL TIME: TRAVEL = 1770 ft
AVG. VEL. = 2.5 fps
$T_c = 11.8$ min

$I_{100} = 189 / (25 + 11.8)$
$= 5.14$ IN/HR

$Q_{100} = AIC$
$= 148.53$ cfs

AREA 4: OFFICE TOWERS & PARKING LOT, 630' PUBLIC STREET, AREAS 1, 2 & 3

(5.02 Ac HARD SURFACE & OTHER, AREAS 1, 2 & 3)

COMP. $C = [(29.12 \times 0.9) + (5.02 \times 0.71) + (3.8 \times 0.65) + (0.69 \times 0.35)] / 38.63$
$= 0.84$

CHECKED _____ DATE _____
APPROVED _____ DATE _____
TITLE PARK SQUARE DRAINAGE STRUCTURE

HOLMES & NARVER, INC.
ENGINEERS-CONSTRUCTORS
7801 ACADEMY BLVD. NE, SUITE 104
ALBUQUERQUE, NEW MEXICO 87109

JOB NO. 1669.70
SHEET 3 OF 5
BY JCH DATE 2/84

TRAVEL TIME: TRAVEL = 2110 ft
AVG. VEL. = 2.5 fps
T_c = 14.07 min

I_{100} = 189/(25+14.07)
= 4.84 IN/HR

Q_{100} = AIC
= 157.15 cfs

AREA 5: HOTEL & SOUTH AND WEST PARKING LOTS
(5.46 Ac. HARD SURFACE + 0.35 Ac GRASS)

COMP. C = [(5.46 x 0.9) + (0.35 x 0.35)]/5.81
= 0.87

TRAVEL TIME: TRAVEL = 960 ft
AVG. VEL. = 2.5 fps
T_c = 6.4 min

I_{100} = 189/(25+T_c)
= 6.02 IN/HR

Q_{100} = AIC
= 30 cfs

AREA 6: OFFICE TOWER, PARKING STRUCTURES & RETAIL STRUCTURES WITHIN CITY TENNIS COURT AREA
(3.96 Ac. HARD SURFACE & OTHER)

COMP.C = 0.88 (FROM PARK SQUARE DRAINAGE STUDY)

TRAVEL TIME: TRAVEL = 1135 ft
AVG. VEL. = 2.5 fps
T_c = 7.57 min

I_{100} = 189/(25+7.57)
= 5.80 IN/HR

Q_{100} = AIC
= 20.22 cfs

AREA 7: AREAS 1, 2, 3, 4 & 6 (ENTRANCE TO OUTFALL EASEMENT)

COMP. C = [(29.12 x 0.9) + (3.96 x 0.88) + (5.02 x 0.71) + (3.8 x 0.65) + (0.69 x 0.35)] / 42.59
= 0.84

TRAVEL TIME: TRAVEL = 2110 ft
AVG. VEL. = 2.5 fps
T_c = 14.07 min

I_{100} = 189/(25+14.07)
= 4.84 IN/HR

Q_{100} = AIC
= 174.01 cfs

CHECKED _____ DATE _____
APPROVED _____ DATE _____
TITLE PARK SQUARE DRAINAGE STRUCTURE

HOLMES & NARVER, INC.
ENGINEERS-CONSTRUCTORS
7801 ACADEMY BLVD. NE, SUITE 104
ALBUQUERQUE, NEW MEXICO 87109

JOB NO. 1669.70
SHEET 5 OF 5
BY JCH DATE 2/84

AREA 8: AREA 7 + AREA 5 (ENTRANCE TO OUTFALL STRUCTURE)

COMP. C = [(34.58×0.9) + (3.96×0.88) + (5.02×0.71) + (3.8×0.65) + (1.04×0.35)] / 48.4
= 0.85

TRAVEL TIME: TRAVEL = 2450 ft
AVG. VEL = 2.5 fps
T_c = 16.33 min

I_{100} = 189 / (25 + 16.33)
= 4.57 IN/HR

Q_{100} = AIC
= 187.50 cfs

CHECKED _____ DATE _____
APPROVED _____ DATE _____
TITLE PARK SQUARE DRAINAGE STRUCTURE DIVERSION

HOLMES & NARVER, INC.
ENGINEERS-CONSTRUCTORS
7801 ACADEMY BLVD. NE, SUITE 104
ALBUQUERQUE, NEW MEXICO 87109

JOB NO. 1691.71
SHEET 1 OF 3
BY JCH DATE 4/84

HYDROLOGIC IMPACT OF PARK SQUARE DIVERSION

REVISED SITE HYDROLOGY - LOUISIANA BLVD. CINEMA I, II & III

$A = 3.4$ ACRES
$T_c = 5$ min
$I_{100} = \left(\frac{189}{5+25}\right)$
$= 6.3$ IN/HR
$C = 0.9$
$Q_{100} = AIC$
$= 19.3$ cfs

FROM: ENGINEER'S DRAINAGE REPORT, WILSON & CO., FEBRUARY 13, 1973

ADJUSTED HYDROLOGY BASED ON 0.186 ACRES OF PERVIOUS SURFACES (ie, PLANTING AREAS).

ADJUSTED C

(3.21 AC HARD SURFACE + 0.19 AC. GRASS)

COMP. $C = [(3.21 \times 0.9) + (0.19 \times 0.35)] / 3.4$
$= 0.87$

ADJUSTED PEAK FLOW

$Q_{100} = AIC$
$= 18.63$ cfs (excluding Park Square Inv.)

CHECKED _____ DATE _____
APPROVED _____ DATE _____
TITLE PARK SQUARE DRAINAGE STRUCTURE DIVERSION

HOLMES & NARVER, INC.
ENGINEERS-CONSTRUCTORS
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ALBUQUERQUE, NEW MEXICO 87109

JOB NO. 1691.71
SHEET 2 OF 3
BY JCH DATE 1/84

NOTE: CONTROLED RELEASE OF EXCESS FLOW FROM PARK SQUARE DIVERSION OCCURS AT T_c = 16.33 MIN (SEE REVISED CALCULATIONS).

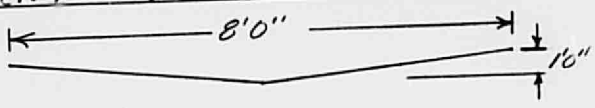
THE APPROXIMATE TRAVEL FROM THE SIDE-CHANNEL WEIR TO THE CINEMA OUTFALL STRUCTURE IS 500 FEET.

TRAVEL TIME:

TRAVEL = 500 FT
AVG. V_{ch} = 2.5 fps
T_c = 3.33 MIN

HENCE, THE TOTAL TRAVEL TIME FROM THE UPPER LIMITS OF THE PARK SQUARE DRAINAGE AREA TO THE CINEMA OUTFALL IS APPROXIMATELY 19.67 MIN OR 14.67 MIN AFTER THE PEAK FLOW FROM THE CINEMA ARRIVES AT THIS LOCATION. ON THIS BASIS, THE I-40 DRAINAGE SWALE SHOULD HAVE MORE THAN ADEQUATE CAPACITY TO ACCOMMODATE THE DIVERTED FLOW.

CAPACITY OF I-40 DRAINAGE SWALE



TYPICAL SECTION

CHECKED _____ DATE _____
APPROVED _____ DATE _____
TITLE DOZK SQUARE DRAINAGE STRUCTURE DIMENSION

HOLMES & NARVER, INC.
ENGINEERS-CONSTRUCTORS
7801 ACADEMY BLVD. NE, SUITE 104
ALBUQUERQUE, NEW MEXICO 87109

JOB NO. 1691.71
SHEET 3 OF 3
BY JH DATE 11/82

$n = 0.02$

$S = 0.02$ ft/ft

$A = 4(1) = 4\ ft^2$

$WP = 2\sqrt{(4)^2 + (4)^2}$

$= 8.25\ ft$

$Q = VA = \frac{1.486}{n} A R^{2/3} S^{1/2}$

$= \frac{1.486}{0.02} (4) \left(\frac{4}{8.25}\right)^{2/3} (0.02)^{1/2}$

$= 25.95\ cfs > 18.63\ cfs$

CHECKED _____ DATE _____
APPROVED _____ DATE _____
TITLE PARK SQUARE DRAINAGE STRUCTURE DIVERSION

HOLMES & NARVER, INC.
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ALBUQUERQUE, NEW MEXICO 87109

JOB NO. 1691.71
SHEET 1 OF 2
BY JLH DATE 4/82

SIDE-CHANNEL WEIR DESIGN

$Q = 3.33\, L_c\, H^{3/2}$

$Q = 8.15$ cfs

Let $L_c = 15H$

$H = \left(\frac{8.15}{3.33(15)}\right)^{2/3}$

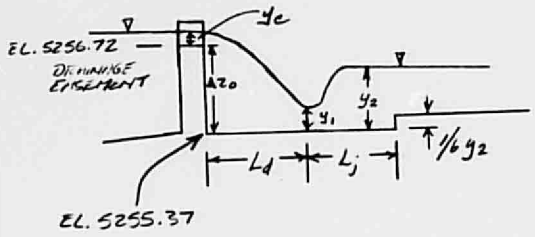
$= 0.299\, H$

WALL EXTENSION = 8 inches
$= 0.67\, H$

ENCROACHMENT = $\frac{0.67}{0.27} \times 100$

$\simeq 45\%$

ENERGY DISSIPATOR / SPLASH PAD DESIGN



CHECKED _____ DATE _____
APPROVED _____ DATE _____
TITLE DARK SQUARE DRAINAGE STRUCTURE DIVERSION

HOLMES & NARVER, INC.
ENGINEERS-CONSTRUCTORS
7801 ACADEMY BLVD. NE SUITE 104
ALBUQUERQUE, NEW MEXICO 87109

JOB NO. 1691.71
SHEET 2 OF 2
BY JCH DATE 4/84

$$y_c = \sqrt[3]{\frac{q^2}{g}}$$

$$= \sqrt[3]{\frac{(8.15/15)^2}{32.2}}$$

$$= 0.209\ ft$$

$$\Delta z_o = 1.35\ ft$$

$$\frac{L_d}{\Delta z_o} = 4.30\left(\frac{y_c}{\Delta z_o}\right)^{0.09}$$

$$L_d = \Delta z_o(4.30)\left(\frac{y_c}{\Delta z_o}\right)^{0.09}$$

$$= 4.91\ ft$$

$$\frac{y_1}{\Delta z_o} = 0.54\left(\frac{y_c}{\Delta z_o}\right)^{1.275}$$

$$y_1 = \Delta z_o(0.54)\left(\frac{y_c}{\Delta z_o}\right)^{1.275}$$

$$= 0.0677\ ft$$

$$\frac{y_2}{\Delta z_o} = 1.66\left(\frac{y_c}{\Delta z_o}\right)^{0.81}$$

$$y_2 = 0.495\ ft$$

$$L_j = 6.9(y_2 - y_1)$$

$$= 2.95\ ft$$

$$1/6\, y_2 = 0.0825\ ft \sim 1\ inch$$

COMPUTER ANALYSIS OF

100-YEAR FLOOD PROFILE

(PARK SQUARE DRAINAGE EASEMENT)

NOTE: The cross-section descriptions included in the Marriott Hotel Site As-Built and Drainage Improvements submitted by Armstrong Engineering, Inc. (1982) were used within this analysis.

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*****************************************
*  WATER SURFACE PROFILES               *
*  VERSION OF NOVEMBER 1976             *
*  UPDATED APRIL 1980                   *
*                                       *
*  RUN DATE  84/04/27. TIME  10.37.49.  *
*****************************************
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*****************************************
*  U.S. ARMY CORPS OF ENGINEERS         *
*  THE HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D           *
*  DAVIS, CALIFORNIA 95616              *
*  (916) 440-2105 (FTS) 448-2105        *
*****************************************
```

```
x      x  xxxxxxx   xxxxx              xxxxx
x      x  x         x     x           x     x
x      x  x         x                       x
xxxxxxx   xxxx      x           xxxxx   xxxxx
x      x  x         x                   x
x      x  x         x     x             x
x      x  xxxxxxx    xxxxx              xxxxxxx
```

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
  ERROR CORR -  01.02.03.04
  MODIFICATION -  50.51.52.53.54
**************************************************

T1      MARRIOTT DRAINAGE EASEMENT
T2      100-YR FLOOD PROFILE
T3      HEN JOB NO. 1669.70

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        0.      2.        0.        0.  0.000000      0.00      0.0       0.  5256.770     0.000
J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLOC     IBW       CHNIM     ITRACE
    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

NC      .013      .013      .013      .100      .300      0.000     0.000     0.000     0.000     0.000
NT     1.000   179.350     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1  1255.000     5.000     0.000    30.100     0.000     0.000     0.000     0.000     0.000     0.000
GR  5256.800     0.000  5254.780      .100  5253.510    15.000  5254.690    30.000  5256.770    30.100

X1  1196.000    11.000     0.000    33.000    59.000    59.000    59.000     0.000     0.000     0.000
GR  5256.800     0.000  5255.250      .100  5254.950    16.000  5255.370    33.000  5256.170    65.000
GR  5256.500    78.500  5256.680    99.500  5257.180    99.510  5257.310   116.500  5256.810   116.500
GR  5256.800   118.500     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
NT     1.000   187.500     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1  1105.000     5.000     0.000    47.100    91.000    91.000    91.000     0.000     0.000     0.000
GR  5256.700     0.000  5255.710      .100  5255.500    16.000  5256.300    47.000  5256.830    47.100
NT     1.000   197.500     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1  1042.000     8.000     0.000    34.100    63.000    63.000    63.000     0.000     0.000     0.000
GR  5257.000     0.000  5256.300      .100  5255.900    12.000  5256.390    34.000  5256.880    34.100
GR  5257.500    70.000  5257.030    70.100  5257.120    75.000     0.000     0.000     0.000     0.000

X1  1005.000     6.000     0.000    32.100    37.000    37.000    37.000     0.000     0.000     0.000
GR  5257.200     0.000  5256.440      .100  5256.140    16.000  5256.510    32.000  5257.020    32.100
GR  5257.200    40.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
```

84/09/27. 10.37.43.

XS	980.000	6.000	2.200	47.300	28.200	25.000	25.000	0.000	0.000	0.000
GR	5257.900	0.000	5257.850	2.200	5256.670	15.200	5256.270	31.200	5256.650	47.200
GR	5257.400	47.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
XS	955.000	5.000	0.000	32.100	42.000	22.000	10.000	0.000	0.000	0.000
GR	5257.400	0.000	5256.620	.100	5256.430	16.000	5256.770	32.000	5257.410	32.100
XS	905.000	7.000	0.000	33.330	50.000	50.000	50.000	0.000	0.000	0.000
GR	5258.000	0.000	5257.150	.670	5256.760	.700	5256.800	16.670	5257.100	32.670
GR	5257.700	32.700	5258.610	33.330	0.000	0.000	0.000	0.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

SECNO	DEPTH	CWSEL	CRIWS	WSELR	EG	HV	HL	QLOSS	BANK ELEV
J	JLOB	JCH	JROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IOC	ICONT	CONAR	TOPWID	ENDST

*PROF 1

CCHV= .100 CEHV= .300
*SECNO 1255.000

1255.00	3.26	5256.77	0.00	5256.77	5256.85	.08	0.00	0.00	5256.80
179.	0.	179.	0.	0.	79.	0.	0.	0.	5256.77
0.00	0.00	2.26	0.00	.013	.013	.013	0.000	5253.51	.00
.000127	0.	0.	0.	0	0	0	0.00	30.10	30.10

*SECNO 1196.000

3265 DIVIDED FLOW

3280 CROSS SECTION 1196.00 EXTENDED .00 FEET

1196.00	1.85	5256.80	0.00	0.00	5256.96	.06	.01	.00	5256.80
179.	0.	118.	61.	0.	55.	44.	0.	0.	5255.37
.01	0.00	2.14	1.40	.013	.013	.013	.013	5254.95	0.00
.000188	59.	59.	59.	2	0	0	0.00	100.17	118.50

*SECNO 1105.000

1105.00	1.14	5256.64	0.00	0.00	5256.99	.35	.04	.09	5256.70
188.	0.	187.	0.	0.	40.	0.	0.	0.	5256.83
.01	0.00	4.73	0.00	.013	.013	.013	.013	5255.50	.01
.002223	91.	91.	91.	3	0	0	0.00	47.06	47.06

*SECNO 1042.000
3280 CROSS SECTION 1042.00 EXTENDED .02 FEET

3685 20 TRIALS ATTEMPTED WSEL=CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

1042.00	1.12	5257.02	5257.02	0.00	5257.44	.42	.15	.02	5257.00
158.	0.	157.	1.	0.	30.	1.	0.	0.	5256.88
.02	0.00	5.18	.97	.013	.013	.013	.013	5255.90	0.00
.002504	63.	63.	63.	20	8	0	0.00	42.24	42.24

*SECNO 1005.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	CLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IUC	ICONT	CURAR	TOPWID	ENDST

3280 CROSS SECTION 1005.00 EXTENDED .04 FEET

3685 20 TRIALS ATTEMPTED WSEL=CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

1005.00	1.10	5257.24	5257.24	0.00	5257.66	.42	.09	.00	5257.20
158.	0.	156.	2.	0.	30.	1.	0.	0.	5257.02
.02	0.00	5.21	1.45	.013	.013	.011	.013	5256.14	0.00
.002392	37.	37.	37.	20	5	0	0.00	40.00	40.00

*SECNO 980.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

980.00	1.08	5257.35	5257.35	0.00	5257.75	.40	.06	.00	5257.85
158.	0.	157.	0.	0.	31.	0.	0.	0.	5257.40
.02	0.00	5.09	0.00	.013	.013	.013	.013	5256.27	7.70
.002821	28.	25.	25.	2	5	0	0.00	39.59	47.29

*SECNO 955.000
3280 CROSS SECTION 955.00 EXTENDED .07 FEET

3685 20 TRIALS ATTEMPTED WSEL=CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

955.00	1.04	5257.47	5257.47	0.00	5257.93	.45	.03	.02	5257.40
158.	0.	157.	0.	0.	29.	0.	0.	0.	5257.41
.02	0.00	5.41	0.00	.013	.013	.013	.013	5256.43	0.00
.002697	42.	10.	22.	20	8	0	0.00	32.10	32.10

*SECNO 905.000
3685 20 TRIALS ATTEMPTED WSEL=CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

905.00	1.01	5257.77	5257.77	0.00	5258.22	.45	.13	.00	5258.00
158.	0.	[illegible]	0.	0.	29.	0.	0.	0.	5258.61
.02	0.00	[illegible]	0.00	.013	.013	.013	.013	5256.76	.18
.002700	50.	50.	50.	20	8	0	0.00	32.57	32.75

PROFILE FOR STREAM H&H JOB NO. 1869.70

PLOTTED POINTS (BY PRIORITY)-E-ENERGY,W-WATER SURFACE,I-INVERT,C-CRITICAL ,S,,L-LEFT BANK,R-RIGHT BANK,M-LOWER END STA

ELEVATION SECNO	5253. CUMDIS	5254.	5255.	5256.	5257.	5258.	5259.	5260.	5261.	5262.
1255.00	0. C I	.	.	.	.	mL.	.	.	.	.
	5. C I	.	.	.	.	WmE.	.	.	.	.
	10. C I	.	.	.	. R	Wm.	.	.	.	.
	15. C I	.	.	.	. R	mE.	.	.	.	.
	20. C I	.	.	.	. R	mE.	.	.	.	.
	25. C I	.	.	. R	.	WE.	.	.	.	.
	30. C I	.	.	.R	.	mE.	.	.	.	.
	35. C I	.	. R	.	.	mE.	.	.	.	.
	40. C I	.	R	.	.	mE.	.	.	.	.
	45. C I	.	R	.	.	mE.	.	.	.	.
	50. C I	.	R	.	.	mE.	.	.	.	.
	55. C I	.	R	.	.	mE.	.	.	.	.
1190.00	60. I	. R	.	.	.	mE.	.	.	.	.
	65. C I	. R	.	.	.	mE.	.	.	.	.
	70. C I	. R	.	.	.	mE.	.	.	.	.
	75. C I	. R	.	.	.	mE.	.	.	.	.
	80. C .I	. R	.	.	.	mE.	.	.	.	.
	85. C .I	. R	.	.	.	mE.	.	.	.	.
	90. C .I	. R	.	.	.	mLE.	.	.	.	.
	95. C . I	. R	.	.	.	mLE.	.	.	.	.
	100. C . I	. R	.	.	.	mLE.	.	.	.	.
	105. C . I	. R	.	.	.	mLE.	.	.	.	.
	110. C . I	.	. R	.	.	m E.	.	.	.	.
	115. C . I	.	. R	.	.	m E.	.	.	.	.
	120. C . I	.	. R	.	.	m E.	.	.	.	.
	125. C . I	.	.	R	.	m E.	.	.	.	.
	130. C .	I	.	R	.	m E.	.	.	.	.
	135. C .	I	.	R	.	m E.	.	.	.	.
	140. C .	I	.	.	.	m E.	.	.	.	.
	145. C .	. I	.	.	.	m E.	.	.	.	.
1105.00	150. C .	. I	.	.	.	mLR E.	.	.	.	.
	155. C .	. I	.	.	.	mR E.	.	.	.	.
	160. C .	.	I	.	.	WR .E.	.	.	.	.
	165. C .	.	I	.	.	mL .E.	.	.	.	.
	170. C .	.	I	.	.	m .F.	.	.	.	.
	175. C .	.	. I	.	.	m . E.	.	.	.	.
	180. C .	.	. I	.	.	mR. F.	.	.	.	.
	185. C .	.	. I	.	.	m. F.	.	.	.	.
	190. C .	.	.	I	.	m. F.	.	.	.	.
	195. C .	.	.	I	.	m. E.	.	.	.	.
	200. C .	.	.	I	.	m. E.	.	.	.	.
	205. C .	.	.	I	.	Rm E.	.	.	.	.
	210. C .	.	.	. I	.	Rm F.	.	.	.	.
1042.00	215. .	.	.	. I	.	Rm F.	.	.	.	.
	220. .	.	.	. I	.	Rm E.	.	.	.	.
	225. .	.	.	. I	.	R.m E.	.	.	.	.
	230. .	.	.	. I	.	R.m E.	.	.	.	.
	235. .	.	.	. I	.	Rm I.	.	.	.	.
	240. .	.	.	.I	.	RLm I.	.	.	.	.
	245. .	.	.	.I	.	R m I.	.	.	.	.
1005.00	250. .	.	.	.I	.	R m I.	.	.	.	.


980.00
955.00
905.00

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HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
ERROR CORR - 01.02.03.04
MODIFICATION - 50.51.52.53.54
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

H&N JOB NO. 1669.70

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	1255.000	0.00	0.00	0.00	5253.51	179.35	5256.77	0.00	5256.85	1.27	2.26	79.36	159.41
	1196.000	59.00	0.00	0.00	5254.95	179.35	5256.80	0.00	5256.86	1.88	2.14	98.97	130.92
	1105.000	91.00	0.00	0.00	5255.50	187.50	5256.64	0.00	5256.99	22.23	4.73	39.63	39.76
*	1042.000	63.00	0.00	0.00	5255.90	157.50	5257.02	5257.02	5257.44	25.04	5.18	30.86	31.48
*	1005.000	37.00	0.00	0.00	5256.14	157.50	5257.24	5257.24	5257.66	23.92	5.21	30.97	32.20
*	980.000	25.00	0.00	0.00	5256.27	157.50	5257.35	5257.35	5257.75	28.21	5.09	30.92	29.65
*	955.000	10.00	0.00	0.00	5256.43	157.50	5257.47	5257.47	5257.93	26.97	5.41	29.12	30.33
*	905.000	50.00	0.00	0.00	5256.76	157.50	5257.77	5257.77	5258.22	27.00	5.39	29.24	30.31

HEN JOB NO. 1669.70

SUMMARY PRINTOUT TABLE 15

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	1255.000	179.35	5256.77	0.00	0.00	0.00	30.10	0.00
	1196.000	179.35	5256.80	0.00	.03	0.00	100.17	59.00
	1105.000	187.50	5256.64	0.00	-.16	0.00	47.06	91.00
*	1042.000	157.50	5257.02	0.00	.38	0.00	42.24	63.00
*	1005.000	157.50	5257.24	0.00	.22	0.00	40.00	37.00
*	980.000	157.50	5257.35	0.00	.11	0.00	39.59	25.00
*	955.000	157.50	5257.47	0.00	.12	0.00	32.10	10.00
*	905.000	157.50	5257.77	0.00	.30	0.00	32.57	50.00

SUMMARY OF ERRORS

```
CAUTION  SECNO= 1042.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO= 1042.000  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO= 1042.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO= 1005.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO= 1005.000  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO= 1005.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO=  980.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  980.000  PROFILE= 1  MINIMUM SPECIFIC ENERGY

CAUTION  SECNO=  955.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  955.000  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  955.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO=  905.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  905.000  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  905.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
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*********************************************************
*  WATER SURFACE PROFILES                               *
*  VERSION OF NOVEMBER 1976                             *
*  UPDATED APRIL 1980                                   *
*                                                       *
*  RUN DATE  84/04/27. TIME  10.42.06.                  *
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*****************************************
*  U.S. ARMY CORPS OF ENGINEERS         *
*  THE HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D           *
*  DAVIS, CALIFORNIA 95616              *
*  (916) 440-2105 (FTS) 448-2105        *
*****************************************
```


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x     x  xxxxxxx   xxxxx              xxxxx
x     x  x        x     x            x     x
x     x  x        x                  x     x
xxxxxxx  xxxx     x          xxxxx    xxxxx
x     x  x        x                  x
x     x  x        x     x            x
x     x  xxxxxxx   xxxxx              xxxxxxx
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**********************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
  ERROR CORR -  01.02.03.04
  MODIFICATION -  50.51.52.53.54
**********************************************************

T1      MARRIOTT DRAINAGE EASEMENT
T2      100-YR FLOOD PROFILE
T3      H&N JOB NO. 1669.70

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ
        0.       2.         0.         0.   0.000000       0.00       0.0        0.   5256.770    0.000

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IRU        CHNIM      ITRACE
       -1.000     0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

NC      .013       .013       .013       .100       .300     0.000      0.000      0.000      0.000      0.000
QT     1.000    179.350      0.000      0.000      0.000     0.000      0.000      0.000      0.000      0.000

X1  1255.000      5.000      0.000     30.100      0.000     0.000      0.000      0.000      0.000      0.000
GR  5257.500      0.000   5254.780       .100   5253.510    15.000   5254.690     30.000   5256.770     30.100

X1  1196.000     11.000      0.000     33.000     59.000    59.000     59.000      0.000      0.000      0.000
GR  5257.500      0.000   5255.250       .100   5254.950    16.000   5255.370     33.000   5256.170     65.000
GR  5256.500     78.500   5256.680     99.500   5257.180    99.510   5257.310    116.500   5256.810    116.500
GR  5256.800    118.500      0.000      0.000      0.000     0.000      0.000      0.000      0.000      0.000
QT     1.000    187.500      0.000      0.000      0.000     0.000      0.000      0.000      0.000      0.000

X1  1105.000      5.000      0.000     47.100     91.000    91.000     91.000      0.000      0.000      0.000
GR  5257.400      0.000   5255.710       .100   5255.500    16.000   5256.300     47.000   5256.830     47.100
QT     1.000    157.500      0.000      0.000      0.000     0.000      0.000      0.000      0.000      0.000

X1  1042.000      8.000      0.000     34.100     63.000    63.000     63.000      0.000      0.000      0.000
GR  5257.700      0.000   5256.300       .100   5255.900    12.000   5256.390     34.000   5256.880     34.100
GR  5257.500     70.000   5257.030     70.100   5257.120    75.000      0.000      0.000      0.000      0.000

X1  1005.000      6.000      0.000     32.100     37.000    37.000     37.000      0.000      0.000      0.000
GR  5257.900      0.000   5256.440       .100   5256.140    16.000   5256.510     32.000   5257.020     32.100
GR  5257.200     40.000      0.000      0.000      0.000     0.000      0.000      0.000      0.000      0.000
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84/04/27. 10.42.06.

X1	980.000	0.000	2.200	47.300	28.200	25.000	25.000	0.000	0.000	0.000
GR	5257.900	0.000	5257.850	2.200	5256.670	15.200	5256.270	31.200	5256.650	47.200
GR	5257.400	47.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	955.000	5.000	0.000	32.100	42.000	22.000	10.000	0.000	0.000	0.000
GR	5257.400	0.000	5256.620	.100	5256.430	16.000	5256.770	32.000	5257.410	32.100
X1	905.000	7.000	0.000	33.330	50.000	50.000	50.000	0.000	0.000	0.000
GR	5258.000	0.000	5257.150	.670	5256.760	.700	5256.800	16.670	5257.100	32.670
GR	5257.700	32.700	5258.610	33.330	0.000	0.000	0.000	0.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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    SECNO     DEPTH     CWSEL     CVINS     WSELK     EG        HV        HL        QLOSS     BANK ELEV
    J         QLOB      QCH       JXOB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
    TIME      VLOB      VCH       VXOB      XNL       XNCH      XNV       WTN       ELMIN       SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

 *PROF 1

 CCHV=    .100 CEHV=    .300
 *SECNO 1255.000
   1255.00      3.26   5256.77      0.00   5256.77   5256.85       .08      0.00      0.00   5257.50
      179.         0.      179.         0.         0.      79.         0.         0.         0.   5256.77
      0.00      0.00      2.26      0.00      .013      .013      .013     0.000   5253.51       .03
   .000127         0.        0.        0.         0         0         0      0.00     30.07     30.10


 *SECNO 1196.000

 3265 DIVIDED FLOW

 3280 CROSS SECTION    1196.00 EXTENDED        .00 FEET

   1196.00      1.85   5256.80      0.00      0.00   5256.86       .06       .01       .00   5257.50
      179.         0.      118.       61.         0.      55.       44.         0.         0.   5255.37
       .01      0.00      2.14      1.40      .013      .013      .013      .013   5254.95       .03
   .000188        59.       59.       59.         2         0         0      0.00    100.15    118.50


 *SECNO 1105.000
   1105.00      1.14   5256.64      0.00      0.00   5256.99       .35       .04       .09   5257.40
      188.         0.      187.         0.         0.      40.         0.         0.         0.   5256.83
       .01      0.00      4.73      0.00      .013      .013      .013      .013   5255.50       .04
   .002229        91.       91.       91.         3         0         0      0.00     47.02     47.06


 *SECNO 1042.000
 3685 20 TRIALS ATTEMPTED WSEL.CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
   1042.00      1.12   5257.02   5257.02      0.00   5257.44       .42       .15       .02   5257.70
      158.         0.      157.       1.         0.      30.       1.         0.         0.   5256.88
       .02      0.00      5.18       .98      .013      .013      .013      .013   5255.90       .05
   .002508        63.       63.       63.        20         8         0      0.00     42.20     42.24


 *SECNO 1005.000
 3280 CROSS SECTION    1005.00 EXTENDED        .04 FEET

 3685 20 TRIALS ATTEMPTED WSEL.CWSEL
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SECNO	DEPTH	CwSEL	CRIwS	wSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TwA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	wTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CONAR	TOPWID	ENDST

3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

1005.00	1.10	5257.24	5257.24	0.00	5257.66	.42	.09	.00	5257.90
158.	0.	156.	2.	0.	30.	1.	0.	0.	5257.02
.02	0.00	5.21	1.45	.013	.013	.013	.013	5256.14	.04
.002394	37.	37.	37.	20	5	0	0.00	39.96	40.00

*SECNO 980.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

980.00	1.08	5257.35	5257.35	0.00	5257.75	.40	.06	.00	5257.85
158.	0.	157.	0.	0.	31.	0.	0.	0.	5257.40
.02	0.00	5.09	0.00	.013	.013	.013	.013	5256.27	7.70
.002822	28.	25.	25.	2	5	0	0.00	39.59	47.29

*SECNO 955.000
3280 CROSS SECTION 955.00 EXTENDED .07 FEET

3685 20 TRIALS ATTEMPTED wSEL=CwSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

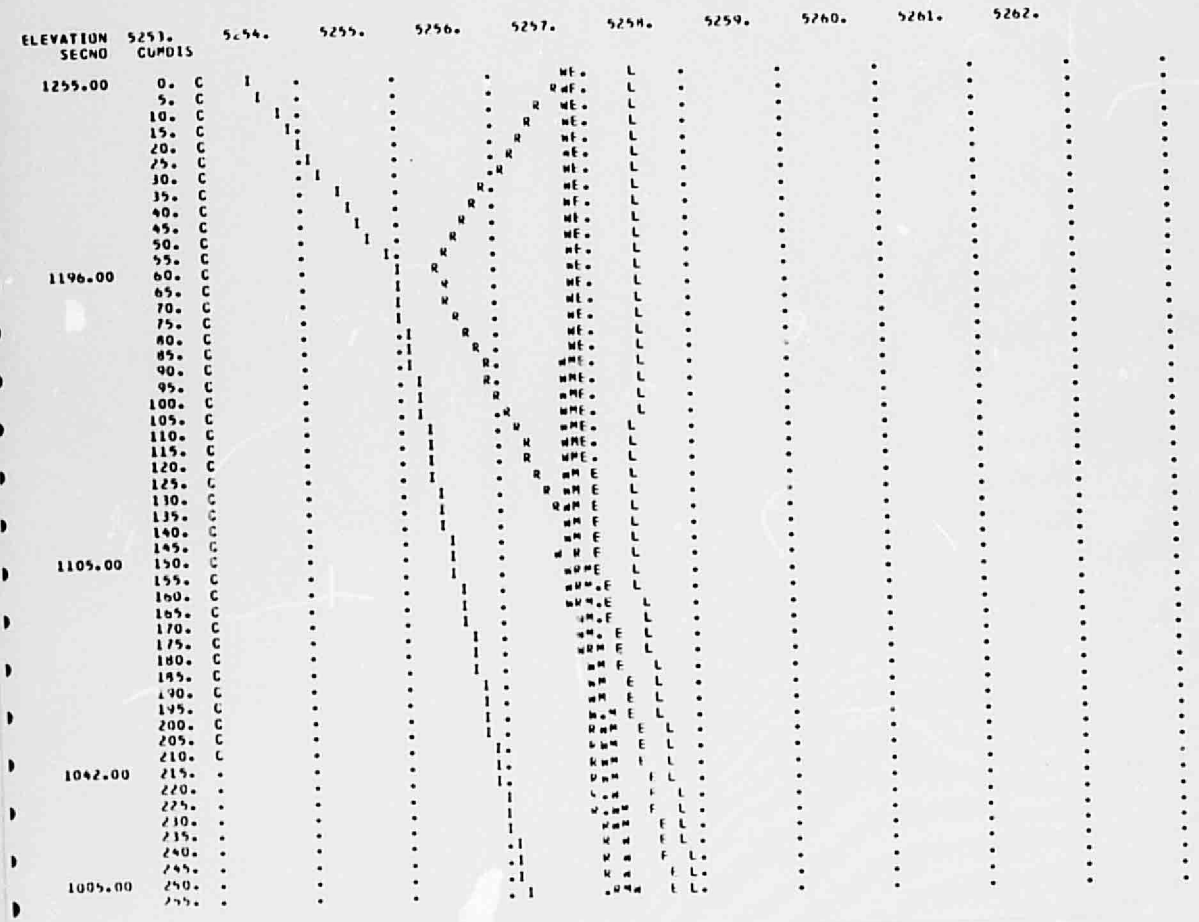
955.00	1.04	5257.47	5257.47	0.00	5257.93	.45	.03	.02	5257.40
158.	0.	157.	0.	0.	29.	0.	0.	0.	5257.41
.02	0.00	5.41	0.00	.013	.013	.013	.013	5256.43	0.00
.002698	42.	10.	22.	20	8	0	0.00	32.10	32.10

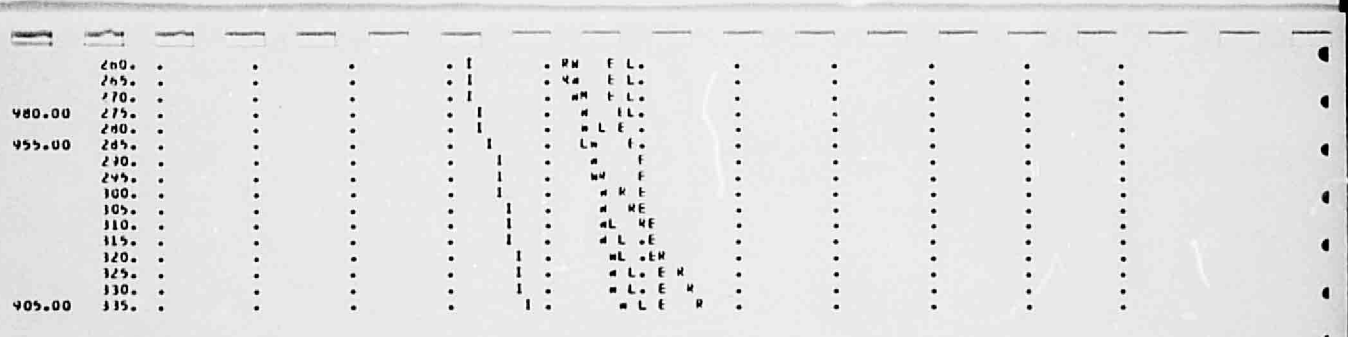
*SECNO 905.000
3685 20 TRIALS ATTEMPTED wSEL=CwSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

905.00	1.01	5257.77	5257.77	0.00	5258.22	.45	.13	.00	5258.00
158.	0.	157.	0.	0.	29.	0.	0.	0.	5258.61
.02	0.00	5.39	0.00	.013	.013	.013	.013	5256.76	.18
.002700	50.	50.	50.	20	8	0	0.00	32.57	32.75

PROFILE FOR STREAM H&N JOA NO. 1661.76

PLOTTED POINTS (BY PRIORITY)-E-ENERGY,W-WATER SURFACE,I-INVERT,C-CRITICAL W.S.,L-LEFT BANK,R-RIGHT BANK,M-LOWER END STA




260.
265.
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980.00 275.
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955.00 285.
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905.00 335.

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HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
ERROR CORR - 01.02.03.04
MODIFICATION - 50.51.52.53.54
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

H&N JOB NO. 1669.70

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	IOK*S	VCH	AREA	.01K
	1255.000	0.00	0.00	0.00	5253.51	179.35	5256.77	0.00	5256.85	1.27	2.26	79.34	159.33
	1196.000	59.00	0.00	0.00	5254.95	179.35	5256.80	0.00	5256.86	1.88	2.14	98.95	130.87
	1105.000	91.00	0.00	0.00	5255.50	187.50	5256.64	0.00	5256.99	22.29	4.73	39.60	39.72
*	1042.000	63.00	0.00	0.00	5255.90	157.50	5257.02	5257.02	5257.44	25.08	5.18	30.85	31.45
*	1005.000	37.00	0.00	0.00	5256.14	157.50	5257.24	5257.24	5257.66	23.94	5.21	30.96	32.19
*	980.000	25.00	0.00	0.00	5256.27	157.50	5257.35	5257.35	5257.75	28.22	5.09	30.92	29.65
*	955.000	10.00	0.00	0.00	5256.43	157.50	5257.47	5257.47	5257.93	26.98	5.41	29.11	30.32
*	905.000	50.00	0.00	0.00	5256.76	157.50	5257.77	5257.77	5258.22	27.00	5.39	29.24	30.31

84/04/27. 10.42.06.

H&N JOB NO. 1669.70

SUMMARY PRINTOUT TABLE 150

	SECNO	Y	Z=SEC	DIF=SP	DIF=SX	DIF=WS	TOPWID	XLCH
	1255.000	179.35	5256.77	0.00	0.00	0.00	30.07	0.00
	1196.000	179.35	5256.90	0.00	.03	0.00	100.15	59.00
	1105.000	187.50	5256.84	0.00	-.16	0.00	47.02	91.00
*	1042.000	157.50	5257.02	0.00	.38	0.00	42.20	63.00
*	1005.000	157.50	5257.24	0.00	.22	0.00	39.96	37.00
*	980.000	157.50	5257.35	0.00	.11	0.00	39.59	25.00
*	955.000	157.50	5257.47	0.00	.12	0.00	32.10	10.00
*	905.000	157.50	5257.77	0.00	.30	0.00	32.57	50.00

SUMMARY OF ERRORS

CAUTION SECNO= 1042.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1042.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 1042.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 1005.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1005.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 1005.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 980.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 980.000 PROFILE= 1 MINIMUM SPECIFIC ENERGY

CAUTION SECNO= 955.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 955.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 955.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 905.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 905.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 905.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL