City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

February 8, 2002

Lyle Losack
Community Science Corporation
P.O. Box 1328
Corrales, New Mexico 87048

RE: Grading and Drainage Plan for Motel 6 Storm Drain Connection (C18-D27) Dated January 22, 2002

Dear Mr. Losack:

The above referenced drainage plan received January 22, 2002 is approved. The project includes the reduction of pond size, connection into a future storm drain, construction of an inlet, and removal of a concrete swale. The connection of the 24-inch storm drain into the future storm drain will have to be coordinated with AMAFCA. The maintenance of the inlet and pond will be the responsibility of the private property owner.

Sincerely,

Carlos A. Montoya
City Floodplain Administrator

Called Lyle she said the project is being coordinated with AMAFCA

DRAINAGE INFORMATION SHEET

(REV. 11/01/2001)

C-18/D27

PROJECT TITLE: Motel 6 - I-25/Coronado ZONE MAP/DRG. FILE #: C-18

DRB #: _____ EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: _____

CITY ADDRESS: _____

ENGINEERING FIRM: CSC CONTACT: Ron Hensley / Lyle Lorack

ADDRESS: P.O. Box 1328 PHONE: 897-0000 ext 111

CITY, STATE: Corrales, NM ZIP CODE: 87048

OWNER: Accor Economy Lodging CONTACT: Bill Hurtado

ADDRESS: 14651 Dallas Pkwy #500 PHONE: 972-702-6841

CITY, STATE: Dallas, TX ZIP CODE:

ARCHITECT: N/A CONTACT: _____

ADDRESS: PHONE: _____

CITY, STATE: ZIP CODE: _____

SURVEYOR: Precision Survey CONTACT: _____

ADDRESS: PHONE: _____

CITY, STATE: ZIP CODE: _____

CONTRACTOR: Unknown CONTACT: _____

ADDRESS: PHONE: _____

CITY, STATE: ZIP CODE: _____

CHECK TYPE OF SUBMITTAL:

- ____ DRAINAGE REPORT
- X DRAINAGE PLAN
- ____ CONCEPTUAL GRADING & DRAINAGE PLAN
- X GRADING PLAN
- ____ EROSION CONTROL PLAN
- ____ ENGINEER'S CERTIFICATION (HYDROLOGY)
- ____ CLOMR/LOMR
- ____ TRAFFIC CIRCULATION LAYOUT (TCL)
- ____ ENGINEERS CERTIFICATION (TCL)
- ____ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
- ____ OTHER

CHECK TYPE OF APPROVAL SOUGHT:

- ____ SIA/FINANCIAL GUARANTEE RELEASE
- ____ PRELIMINARY PLAT APPROVAL
- ____ S. DEV. PLAN FOR SUB'D. APPROVAL
- ____ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ____ SECTOR PLAN APPROVAL
- ____ FINAL PLAT APPROVAL
- ____ FOUNDATION PERMIT APPROVAL
- X BUILDING PERMIT APPROVAL
- ____ CERTIFICATE OF OCCUPANCY (PERM)
- ____ CERTIFICATE OF OCCUPANCY (TEMP)
- X GRADING PERMIT APPROVAL
- ____ PAVING PERMIT APPROVAL
- ____ WORK ORDER APPROVAL
- ____ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ____ YES
- ____ NO
- ____ COPY PROVIDED

RECEIVED
JAN 22 2002
HYDROLOGY SECTION

DATE SUBMITTED: 1/22/02 BY: Lyle C. Lorack P.E.

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location and scope of the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan:** Required for approval of Site Development Plans greater than five (5)
2. **Drainage Plans:** Required for building permits, grading permits, paving permits and site plans less than five (5)
3. **Drainage Report:** Required for subdivisions containing more than ten (10) lots or constituting five (5) acres or

CITY OF
Albuquerque

October 15, 1997

Martin J. Chávez, Mayor

Dennis A. Lorenz, P.E.
Brasher & Lorenz, Inc.
2201 San Pedro NE
Building 1, Suite 210
Albuquerque, New Mexico 87110

RE: Engineer's Certification for Motel 6, Lot 22A, Blk. 14, Tract A, Unit B, NAA (C18/D27), Submitted for Certificate of Occupancy Approval, Engineer's Stamp Dated 9/25/97.

Dear Mr. Lorenz:

The above referenced Engineer's Certification for the Motel 6 located at 8510 Pan American Freeway NE is acceptable for release of the Permanent Certificate of Occupancy.

If you should have any questions, or if I may be of further assistance to you, please call me at 924-3982.

Sincerely,

Susan M. Calongne, P.E.
City/County Floodplain Administrator

c: Andrew Garcia, City Hydrology
Bill Hurtado, Motel 6
File

CITY OF
Albuquerque

Martin J. Chávez, Mayor

October 21, 1996

Dennis A. Lorenz, P.E.
Brasher & Lorenz, Inc.
2201 San Pedro NE
Bldg. 1, Suite 210
Albuquerque, New Mexico 87110

RE: DRAINAGE REPORT AND GRADING AND DRAINAGE PLAN FOR MOTEL 6, LOTS 22-24, BLK. 14, TRACT A, UNIT B, NAA (C18/D27), SUBMITTED FOR SITE DEVELOPMENT PLAN FOR SUBDIVISION APPROVAL, FINAL PLAT AND BUILDING PERMIT APPROVAL, ENGINEER'S STAMP DATE 9/26/96.

Dear Mr. Lorenz:

Based on the information provided in the submittal of October 1, 1996, the above referenced plan for the Motel 6 is approved for Site Plan and Final Plat approval and for Building Permit release. The financial guarantees must be in place prior to sign-off of the Site Plan and Final Plat.

The Agreement and Covenant must be in place prior to release of the Work Order for the construction of the pond.

As you are aware, the Engineer's Certification is required prior to Certificate of Occupancy release.

If you should have any questions, or if I may be of further assistance to you, please call me.

Sincerely,

Susan M. Calongne, P.E.
City/County Floodplain Administrator

c: Andrew Garcia, City Hydrology
File

DRAINAGE REPORT

FOR

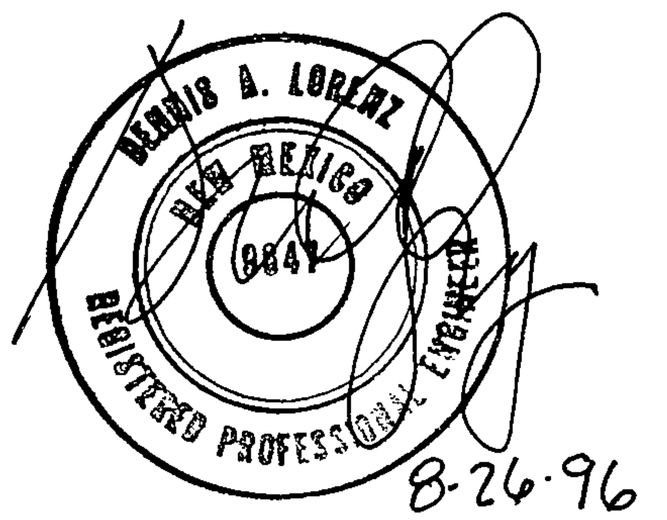
MOTEL 6

Albuquerque, New Mexico

Prepared By:

BRASHER & LORENZ, INC.
Consulting Engineers
San Pedro NE, Building No 1, Suite 210
Albuquerque, New Mexico 87110

August, 1996



8-26-96
9-26-96

PURPOSE AND SCOPE

Pursuant to the established Drainage Ordinance for the City of Albuquerque and the Development Process Manual, this Drainage Report outlines the drainage management criteria for controlling developed runoff from the project site. The property is to be developed as a Motel 6, with associated paving, landscaping, utility, grading, and drainage improvements. The scope of this plan is to establish site specific drainage management criteria and provide construction detail as required for building permit approval. This report is a follow-up to the Conceptual Drainage Plan for Motel 6, dated April 19, 1996 (C-18/D27).

EXISTING CONDITIONS

The project site is approximately 2.6 acres in size and is located on Corona Avenue NE, at the I-25 East Frontage Road. The site is bounded by the East Frontage Road on the west, and undeveloped property on the east, north and south. The site is presently described as Lots 22, 23 & 24, Block 14, Tract A, Unit B, North Albuquerque Acres. Presently the site is undeveloped. Site topography slopes from east to west at approximately 3%. The site is sparsely covered with native vegetation.

The site is impacted by off-site flows originating from undeveloped upstream lands. Recent construction of the Lower North Domingo Baca Dam has lessened the impact of the off-site contribution, however, the area west of Wyoming, north of Corona, and below the dam, comprise the remaining off-site drainage basin impacting the site. Concentrated flows enter the site from the east within a natural arroyo section which is a remnant of the North Domingo Baca Arroyo. An existing installation of 8-48 inch culverts convey the resulting flow under I-25 and to the west. Upon exiting the culverts west of I-25, flows are conveyed through the Coronado Mobile Home Park by private improvements.

The attached FIRM Panel indicates that this site lies within a designated flood hazard zone, however, construction of the dam has removed the floodplain. Map Revision is pending FEMA approval.

SUMMARY OF EXISTING DRAINAGE PLANS

The following drainage reports were utilized to develop the drainage management criteria for Motel 6:

1. **North and South Domingo Baca Arroyos and Paseo Del Norte Corridor Drainage Management Plan**, Resource Technologies, Inc., December 1991, (the Masterplan).

2. **Drainage Report for Sonora West Subdivision**, AVID Engineering, Inc.,

August 1996.

3. **Conceptual Grading and Drainage Plan for Alexis Park**, Brasher & Lorenz, Inc., May 1996 (C-18/D30).

The following studies are pending:

1. The City of Albuquerque has retained Griener Engineering, Inc., to prepare a regional study of the area to establish drainage management criteria and infrastructure alternatives. Scope of this study will include acquisition of right-of-way and recommendation of drainage improvements within the Coronado Mobile Home Park.

2. The New Mexico State Highway and Transportation Department has retained Bohannan Huston, Inc., to prepare a study for **the I-25 Northeast Corridor**. The study recommends drainage improvements along I-25 from Paseo Del Norte to Tramway.

3. Resource Technologies, Inc., is preparing a conceptual drainage plan for Lots 17-21, Block 14, Tract "A", Unit "B", North Albuquerque Acres, which is located immediately east of the Motel 6 project site.

PROPOSED CONDITIONS

I. OFF-SITE

As stated above, the site has been removed form the 100 year floodplain by construction of the Lower North Domingo Baca Dam. However, the site remains impacted by the remaining drainage basin located north and west of the dam site. The basin, which contains approximately 80 acres, concentrates within a natural arroyo section which enters the project site along the east property line. Outfall for the basin is an existing bank of 48 inch culverts at the East Frontage road. The Off-site basin is a linear shaped basin that begins at Wyoming Boulevard. City criteria dictates removal of surface flows at intersections with arterial streets. To satisfy this criteria a storm drain will be required beginning at Louisiana. Given position and capacity, the logical outfall for the storm drain is the existing 48 inch culvert pipes located at the East Frontage Road and Corona Avenue. The storm drain would collect runoff from the intersections of Corona with Louisiana and San Pedro, and at the terminus of Corona at the East Frontage Road.

The problem associated with construction of the storm drain is related to the multiple ownership of benefitting property within the basin. Without proper organization the storm drain will be constructed in segments as contiguous parcels develop. A likely vehicle for assembling the project is a Special Assessment District which would provide a project benefitting the entire contributing drainage basin. Benefitting property owners have

petitioned the City for construction of drainage improvements by the Special Assessment District process. The petition has been accepted by Lee Lundsford, Special Assessments Engineer, and project feasibility studies are underway.

Due to the difficulties associated with the permanent solution, this Plan recommends construction of interim improvements pending formation of a regional project. The Plan recommends construction of a temporary channel to accept and convey undeveloped runoff impacting the site from the east. The interim channel will convey flows to the 8-48 inch culverts located at the East Frontage Road. The culverts have capacity to drain undeveloped peak flows through the interstate (see Appendix for capacity determination).

As shown by the Plan, it is anticipated that a 54 inch storm drain would be required to drain the estimated developed peak flow from the contributing basin. Existing studies have selected Corona as a corridor for placement of a large diameter storm drain. Pending studies are reviewing the regional drainage needs and are assessing the use of the Corona corridor. Given the capacity of the Corona culverts, the City and Highway Department have indicated that diversions are likely from other drainage basins which have downstream capacity limitations. A DMP is required to adequately address these issues and establish criteria for development within the basin. As mentioned above, the City has retained a consultant to prepare the required study.

Downstream capacity through the Coronado Mobile Home Park, located west of I-25 has been an on-going concern. Capacity exists at the I-25 culverts to drain developed flows, however, the downstream channel and culvert crossings within the mobile home park are privately owned and lack capacity. Per the Masterplan, the downstream facilities have capacity to drain existing runoff, but improvement of the culvert crossings within the park will be required. The construction of the Dam has significantly reduced the impact of off-site runoff on the park. The City has begun the right-of-way acquisition process and fully intends to make the necessary improvements. In order to ensure that Motel 6 does not contribute to the existing problem, this Plan recommends construction of an interim detention pond to provide storage for developed runoff from the Motel 6 site.

II. ON-SITE

On-site all flows will drain overland by paving and drainage improvements to the interim drainage facilities recommended by this Plan. The site is to be developed in 2 phases. Phase one consists of the Motel 6 site, Lot 22-A, which contains the bulk of the acreage to be improved. Phase two, Lot 23-A, is a future restaurant site. Due to the capacity limitations through the Coronado Mobile Home Park an interim detention pond will be constructed on Lot 23-A. The pond is sized to detain runoff from the entire fully developed project site, and is designed to limit discharge from the project to historic rates. The pond outfall is the existing bank of 48 inch culverts at the East Frontage Road. Upon construction of the future storm drainage improvements the pond area will be reclaimed and the site will discharge direct to the system.

INFRASTRUCTURE RECOMMENDATIONS

The public infrastructure requirements for the project have been approved by the Development Review Board (see attached Infrastructure Listing). The project infrastructure requirements were determined by following the recommendations of the existing Masterplan, **North and South Domingo Baca Arroyos and Paseo Del Norte Corridor Drainage Management Plan**. Pending studies are assessing the use of the Corona corridor and evaluating the possibility of diverting flows from other basins. The purpose of the off-site evaluation by this report is to identify basic infrastructure requirements for the development of Motel 6. This analysis is based on the existing off-site drainage basin, without considering diversions. In considering the off-site basin, logical adjustments were made to allow for the position of property lines and recent development. From this analysis Corona was utilized as a storm drainage corridor, consistent with the Masterplan. The approved infrastructure List was developed from this criteria for the purpose of establishing a Financial Guaranty for the future storm drain. Pending studies may recommend revision to the infrastructure design, such as increased pipe size or diversions from other basins along the frontage road system. Based on the information available at the writing of this report the Infrastructure List was approved and an adequate Financial Guaranty has been approved to allow development of this project.

TEMPORARY EROSION CONTROL

Temporary erosion control will be required during construction to control the discharge of sediment into the public street and storm drainage network. The Plan recommends construction of the following temporary erosion control facilities:

1. Construction of the detention pond should be accomplished as the first phase of earthwork operations to provide storage for excess runoff and sediment.

2. Temporary erosion control berms shall be placed along the project boundaries to prohibit the escape of runoff and sediment from the site. All berms shall direct runoff to the detention pond.

3. Silt fencing shall be placed at the existing 48 inch culverts to prohibit discharge of sediment through the culverts.

The temporary erosion control measures shall be constructed and maintained by the contractor throughout the construction phase of the project.

CALCULATIONS

The calculations shown herein define the 100 year/6 hour design storm falling with the project area under existing and developed conditions. The Hydrology is per "Section

22.2, Part A, DPM, Vol 2" Dated January 1993. Calculations are also provided to demonstrate the sizing and function of the drainage improvements recommended by this Plan.

PROJECT NAME MOTEL 6 JOB NO. 6031

SUBJECT ON-SITE DETENTION POND

BY _____ CHECKED BY _____ DATE _____ PAGE _____ OF _____

ON-SITE INTERIM DETENTION POND

GIVEN: DISCHARGE LIMITED TO HISTORIC

$\Rightarrow Q_{100}$ HIST = 4.8 CFS

TOTAL PONDED ACREAGE = 2.58 AC

INCLUDES MOTEL 6 & RESTAURANT

SIZE OUTLET FOR Q_{OUT} = 4.8 CFS

DIA	AREA (SF)
8"	0.35
10"	0.55
12"	0.79

H	$Q_{8"}$	$Q_{10"}$	$Q_{12"}$
1	1.7	2.6	3.8
2	2.4	3.7	5.4
3	2.9	4.6	
4	3.4	5.3	

$Q = CA\sqrt{2gh}$

$C = 0.6$

PROJECT NAME MOTEL 6 JOB NO. 6031

SUBJECT ON-SITE DETENTION POND

BY _____ CHECKED BY _____ DATE _____ PAGE _____ OF _____

ROUT RES TABLE

ELEV	QOUT (CFS)	VOL (AF)
195.5	0	0
196.0	0.74	0.02572
197.0	2.73	0.08440
198.0	3.28	0.1536
199.0	4.61	0.2345
5200	5.35	0.3282

PER AHYMO:

QOUT PEAK = 4.2 CFS

MAX WSE = 5198.67

MAX VOL = 0.2078 AF

= 9052 CF

PROJECT NAME MOTEL 6 JOB NO. 6031

SUBJECT ON-SITE DETENTION POND

BY _____ CHECKED BY _____ DATE _____ PAGE _____ OF _____

CHECK PIPE FLOW BY MANNINGS:

SEWER PIPES

Enter up to 10 pipes.
Enter <Return> only for flowrate and diameter to end.

FLOWRATE (CFS)	DIAMETER (IN)	FRICTION (FT^1/6)	SLOPE (%)	VELOCITY (FPS)
2.27	8.00	0.0120	3.00	6.50
4.11	10.00	0.0120	3.00	7.54
6.69	12.00	0.0120	3.00	8.51

USE 10" POND DRAINLINE

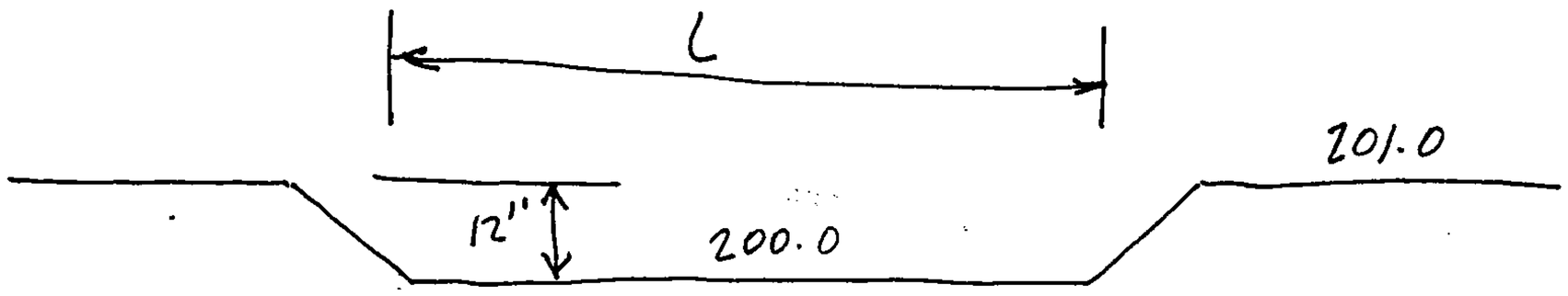
PROJECT NAME MOTEL 6 JOB NO. 6031

SUBJECT ON-SITE DETENTION POND

BY _____ CHECKED BY _____ DATE _____ PAGE _____ OF _____

PROVIDE SPILLWAY

$Q_{100} = 12.6$ CFS



SECTION

$Q = C L H^{3/2}$

$H = 1.0'$

$C = 2.50$

$Q = 12.6$

$\Rightarrow L = Q / CH^{3/2} = \underline{\underline{5'}}$

PROJECT NAME MOTEL 6 JOB NO. 6031

SUBJECT ON-SITE - RUNDOWN TO POND

BY _____ CHECKED BY _____ DATE _____ PAGE _____ OF _____

MAN-MADE CHANNELS

VARIABLES LIST:

Y - FLOW DEPTH	B - CHANNEL BOTTOM WIDTH	S - CHANNEL SLOPE
Q - FLOWRATE	M - CHANNEL SIDE SLOPE	N - CHANNEL ROUGHNESS

VARIABLE TO BE SOLVED (Y,Q,B,M,S OR N) ? Y

Q (CFS)	? 10.2
B (FT)	? 12
M (FT/FT)	? 0
S (FT/FT)	? .01
N (FT^1/6)	? .013

RESULTS

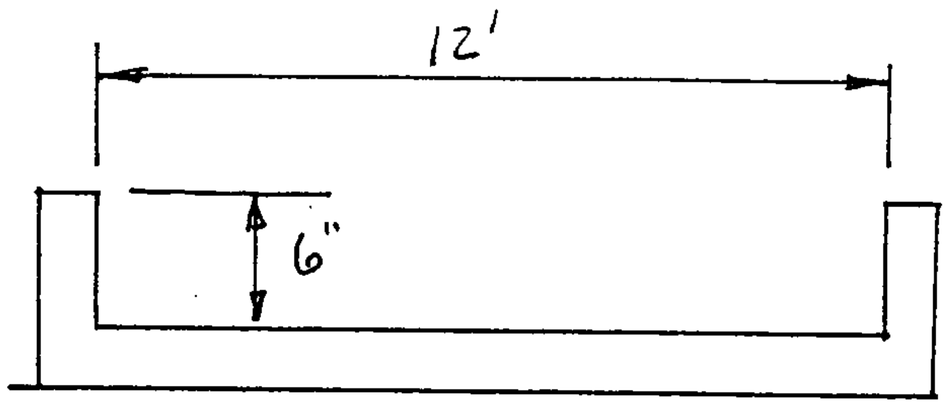
Y=	0.21 FT	
A=	2.56 SF	
P=	12.43 FT	
V=	3.99 FPS	
F=	1.52	SUPER-CRITICAL FLOW

<Shift> <Prt Sc> print <Return> repeat <Space Bar> back to menu

WEIRS

Enter up to 10 weirs.
Enter <Return> only for flowrate and length to end.

FLOWRATE (CFS)	LENGTH (FT)	COEFF (-)	HEAD (FT)
10.20	11.5	2.500	0.50



BRASHER & LORENZ, INC.
Consulting Engineers

PROJECT NAME MOTEL 6 JOB NO. 6031

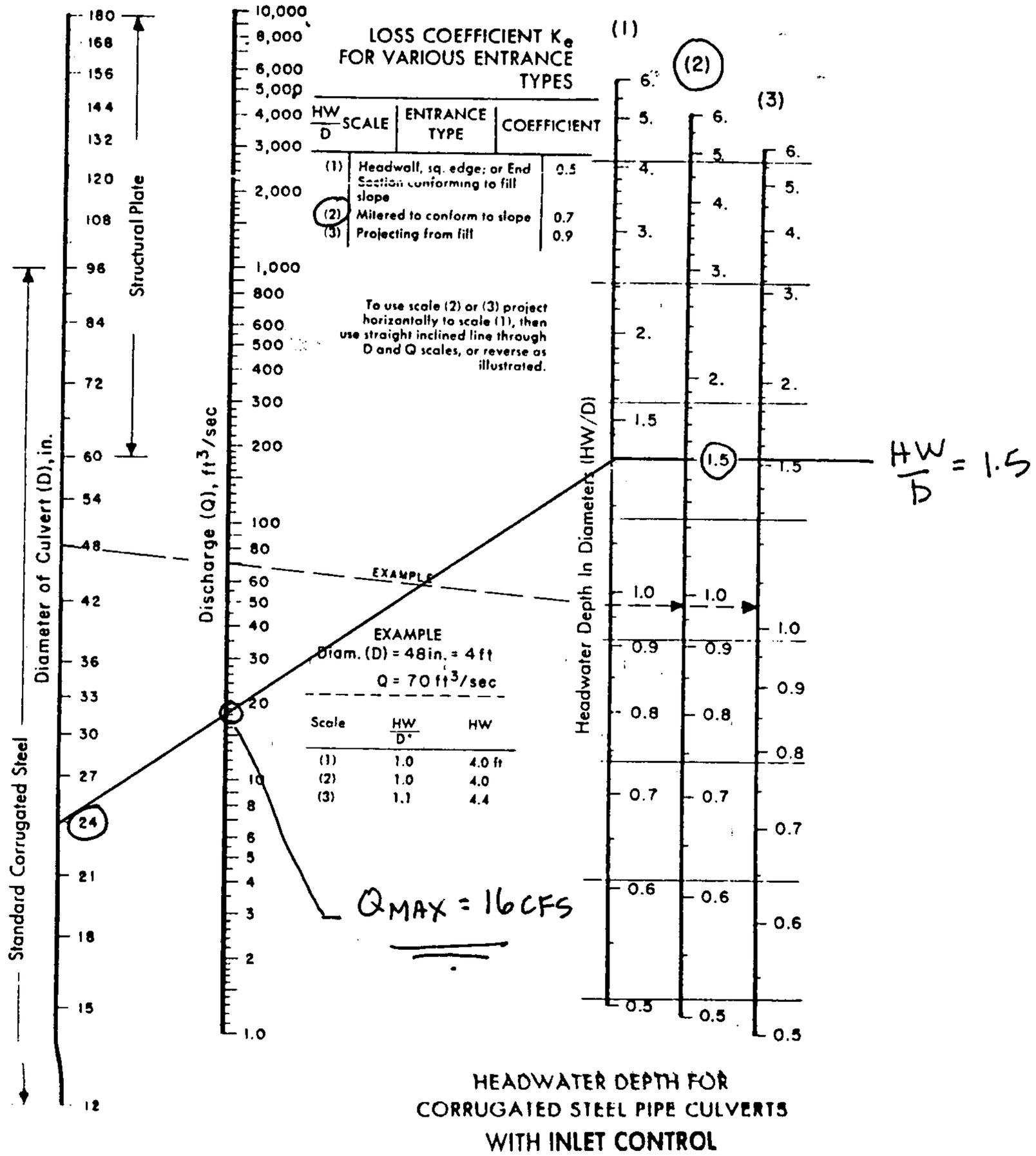
SUBJECT 24" CULVERT DESIGN @ ENTRY

BY _____ CHECKED BY _____ DATE _____ PAGE _____ OF _____

$Q_{100} = 6.2$ CFS

$\frac{HW}{D} = 1.5$

END SECTIONS



FHWA HEC 5

Figure 4-28 *Inlet control* nomograph for corrugated steel *pipe* culverts. The manufacturers recommended keeping *HWID* to a maximum of 1.5 and preferably to no more than 1.0.

PROJECT NAME MOTEL 6 JOB NO. 6031

SUBJECT OFF-SITE POND @ I-25 CULVERTS.

BY _____ CHECKED BY _____ DATE _____ PAGE _____ OF _____

USING NOMOGRAPH FOR INLET CONTROL

DETERMIME ROUT RES TABLE

8-48" RCP CULVERTS

ELEV	H	HW/D	Q OUT (CFS)	VOL (AF)
195.0	0	0	0	0
197.0	2'	0.5	184	0.1105
198.0	3'	0.75	376	0.2065
199.0	4'	1.00	560	0.3235

PER AHYMO:

QOUT PEAK = 148.3 CFS

MAX WSE = 196.6

MAX VOL = 0.0890 A·F

= 3877 CF.

PROJECT NAME MOTEL 6 JOB NO. 6031

SUBJECT OFF-SITE POND @ I-25 CULVERTS.

BY _____ CHECKED BY _____ DATE _____ PAGE _____ OF _____

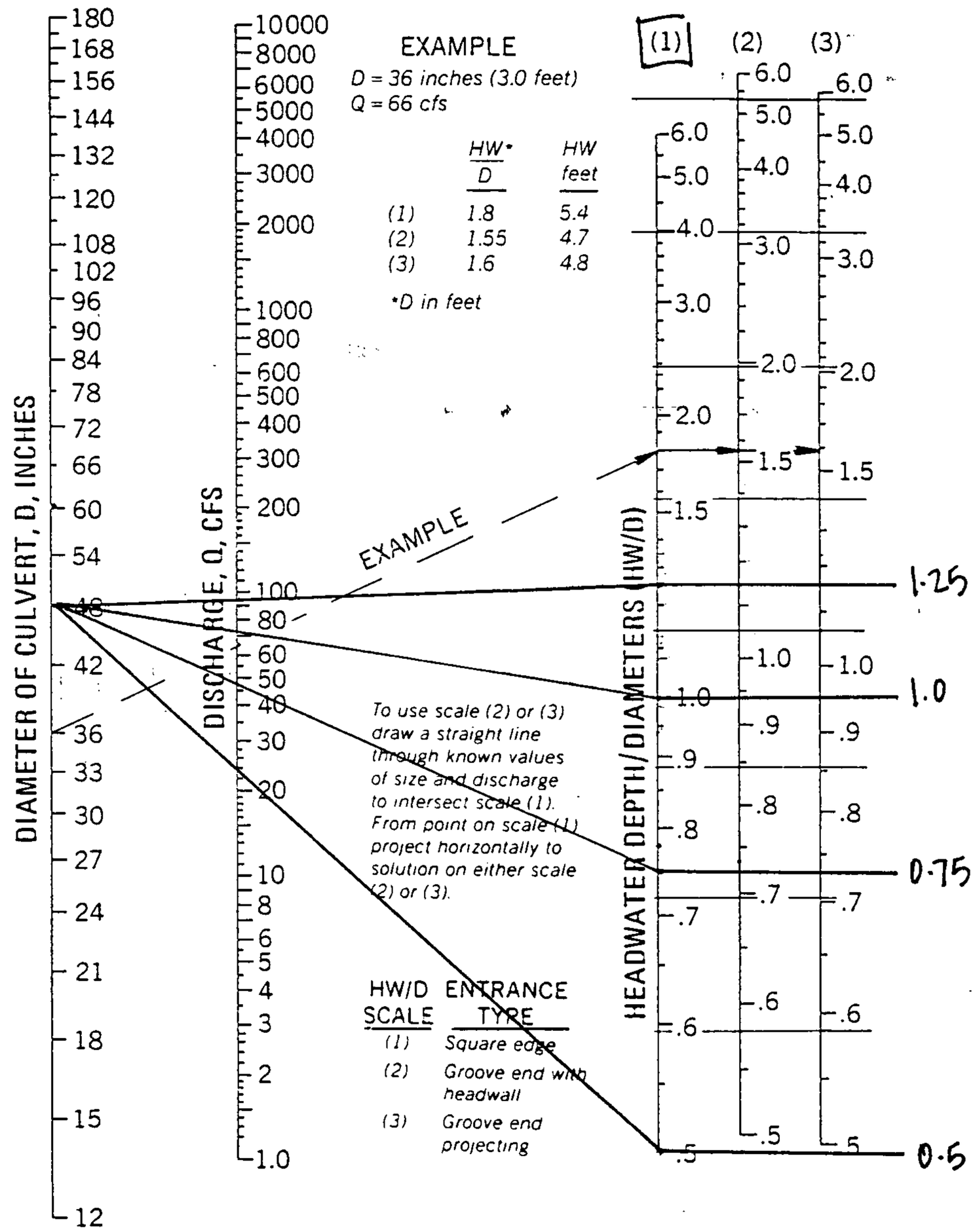


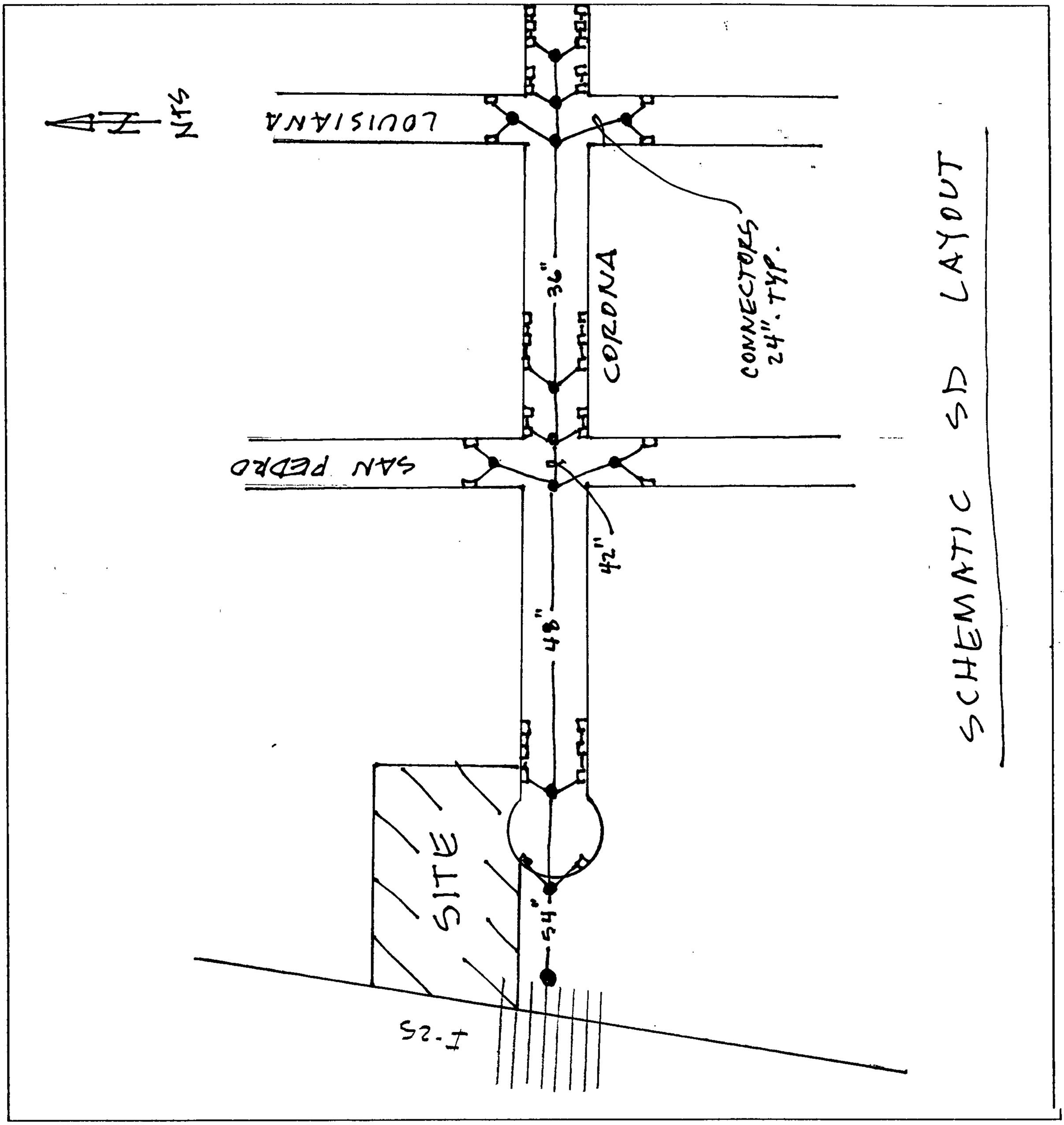
Figure 3.25. Headwater Depth for Circular Concrete Pipe Culverts with Inlet Control.

BRASHER & LORENZ, INC.
Consulting Engineers

PROJECT NAME MOTEL 6 JOB NO. 5091

SUBJECT SAD SD COST

BY _____ CHECKED BY _____ DATE 2-9-96 PAGE _____ OF _____



BRASHER & LORENZ, INC.
Consulting Engineers

PROJECT NAME MOTEL 6 JOB NO. 6031

SUBJECT OFF. SITE FUTURE SD.

BY _____ CHECKED BY _____ DATE _____ PAGE _____ OF _____

SEWER PIPES

Enter up to 10 pipes.
Enter <Return> only for flowrate and diameter to end.

FLOWRATE (CFS)	DIAMETER (IN)	FRICTION (FT^1/6)	SLOPE (%)	VELOCITY (FPS)
275.00	52.18	0.0120	2.00	18.52