HYDROLOGY

C17/D4

BALDRIDGE

LUMBER CO.

C-17/D4

1 PLAN

MOLZEN-CORBIN & ASSOCIATES
P. O. Box 3632
ALBUQUERQUE, NEW MEXICO 87190

(505) 242-5700

LETTER OF TRANSMITTAL

C17/D4

DATE 4-16-82	JOB NO.
ATTENTION C.M. Eastorling	
RE: SAN #201	
Structure @ Jefferson St.	
& Arroyo De Domingo Baca	

TO City Engineer's Office

GENTLEMEN:

WE ARE SENDING YOU [X] Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings [X] Prints ☐ Plans ☐ Samples ☐ Specifications

☐ Copy of letter ☐ Change order ☐ _____

COPIES	DATE	NO.	DESCRIPTION
1			Proposed plan & sectional views
1			Rough preliminary cost estimate

THESE ARE TRANSMITTED as checked below:

☐ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval

☐ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution

☐ As requested ☐ Returned for corrections ☐ Return _____ corrected prints

[X] For review and comment ☐ _____

☐ FOR BIDS DUE _____ 19____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS These sketches are based on my understanding of the comments made at the conference 4-13-82. Please review and let me know if you concur.

Any additional suggestions or comments at this stage will be appreciated.

COPY TO AMAFCA / Rick Leonard

SIGNED: Lance C-C

If enclosures are not as noted, kindly notify us at once.

7e-a
4-16-82

JEFFERSON ST. @ ARROYO DE DOMINGO BACA

QUAD-10'x6' C.B.C. w/WINGWALLS & MISC.
AS DISCUSSED IN CONFERENCE 4-13-82

4-10x6 x 89' L.F.	89 x 2.982	=	257.4 C.Y.
ENDS	2 x 8.96	=	17.9
Add'l skew; extra depth		=	5.0
East noses	$4(\frac{1}{2} \times 3.5^2 + (\frac{3.5+7}{2})10.5)\,0.5/27$	=	4.5
East Wingwalls	$(49+36)[(\frac{9+11.5}{2})\,0.67 + 4.34 \times 1.34)]\,1/27$	=	39.9
East Slab	$[(\frac{42+30}{2})41.5 + 1.12 \times 18 \times 30] \times 0.5$ $+ 43 \times 2 \times 0.17 + 3 \times 16 \times 4 \times 0.17]]\,1/27$	=	41.0
East Cut off	$(78 \times 3 + 18 \times 9)\,1/27$	=	14.7
West Wingwalls	$2 \times 20[(\frac{6+11}{2})\,0.67 + (\frac{3+4.34}{2})1.17)]\,1/27$	=	14.8
West Cut-off	$97 \times 3 \times 1/27$		10.8
Drop Inlets			3.8
Conc. Rundown			15.2
			425.0 C.Y.

CBC's	425.0 x 350.00	=	$148,750.00
Slope Paving	2x60x24 = 2880 # x 2.45	=	7,056.00
Grouted Rip-rap	$((\frac{107+49}{2})44 + \frac{1}{2} \times 49 \times 13)\,1/27 = 135 \times 90.00 =$		12,150.00
Bridge Rail	2 x 50 x 60.00		6,000.00
Handrail	125 x 15.00		1,875.00
Earthwork	2 x 250 x 50 x 9 x 1/27 = 8,500 C.Y. x 3.00		25,500.00
Drop Inlets w/ Outlet Pipes			8,669.00
			$210,000

4/13/82

MEMO FOR : R. Heller

FROM : R. Leonard REL

SUBJ : Jefferson St. Crossing of Domingo Baca Arroyo

I appreciate the urgency of building this structure and the shortage of funds. Therefore, I do not object to the conceptual design discussed today. However, I strongly recommend:

a. The City document all design assumptions. (Please send me a copy.)

b. Adjust upstream transition to more gradual situation (Corps has guides on this).

c. At downstream end spread water and reduce velocity to approximately existing conditions

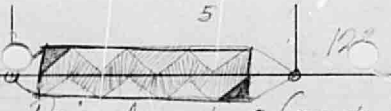
d. City acknowledge maintenance burden which may be imposed. Also, possibility of major repair after significant flows.

e. City establish timetable for upstream & downstream channel improvements

Thanks for including me in your discussions.

cc: Eartenling, Hicks, Burnett, Haw (Molzen Corbett)

BGB 4.13.82



South Drainage Basin — Design Assumptions: Concrete lined upstream and downstream

Existing

80' Bottom width — $A = 80y + 2y^2$

2:1 Side Slopes — $P = 80 + 2\sqrt{5}\,y$

$n = 0.03$ — $Q = 4000$ cfs

$S = 0.017$

$$V = \frac{1.49}{.03}\left(\frac{80y+2y^2}{80+2\sqrt{5}y}\right)^{2/3}(.017)^{1/2} = 6.476\,P^{2/3}$$

$V = 12.8$ fps

$$Q = 4000 = 6.476\,(P)^{2/3}\,A$$

$$617.69 = \left(\frac{80y+2y^2}{80+4.472y}\right)^{2/3}(80y+2y^2)$$

Depth $\doteq 3.3'$

Total Energy $= 5.85'$

Proposed

4 - 6x10 Boxes — $Q = 4000$ cfs

$n = 0.015$ — $A = 240$ sq ft. $H = 6.9'$

$S = .01$ — $V = 16.67$ fps

Maximum capacity of boxes

$$V = \frac{1.49}{.015}\left(\frac{240}{88}\right)^{2/3}(.01)^{1/2} = 19.39 \text{ fps}$$

$$Q = (240)(19.39) = 4,654 \text{ cfs}$$

Pre-Design Investigation DATE 10-28-82

ADDRESS 8200 JEFFERSON ZONE ATLAS # C-17-D4

LEGAL DESCRIPTION

ARCHITECT/ENGINEER

LOT SIZE

ZONING

PROPOSED DEVELOPMENT (C17-D4)

	YES	NO	NA	COMMENTS
FLOOD HAZARD AREA		✓		
PART OF AN APPROVED REPORT		✓		
CONSTRUCTION PLANS ON MICRO-FILM	✓			
FIELD INSPECTION	✓			No inherent problems Rear portion undeveloped

COMMENTS

1. Drain inlet from prior design in, but, 30" concrete pipe extends onto the middle of the unlined arroyo no rip-rap at the end

Field Inspector
10-28-82
Lloyd Durabilt
883-9100

Bill Simpson
268-9551

Donna
Jack Lyon

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

November 17, 1982

Mr. J. C. Baldridge
P. O. Box 13537
Albuquerque, New Mexico 87192

Attention: Wayne Harley

Re: 8200 Jefferson NE (Shed Addition) File No. C17-D4

Dear Sir:

The approval given with the construction plans referenced above is only for the 100' x 24' shed addition. Any further development on the site will require a revised drainage plan in compliance with the City's drainage ordinance.

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

Sincerely,

Fred J. Aguirre, PE
Civil Engineer/Hydrology

FJA/el

cc: Lloyd Goldrick (4808 Jefferson NE) Dura Bilt Products
Drainage File
Reading File

GRADING AND DRAINAGE

INFORMATION SHEET

HARLEY TRACT

PROJECT TITLE:	Material Storage Canopies (2)
ZONE ATLAS:	C-17-Z Address: 8200 Jefferson, N. E.
LEGAL DESCRIPTION:	Harley Tract Loop Industrial District Subdivision Unit 1
ENGINEER:	Lloyd Sallee 8200 Jefferson, N. E. Albuquerque, New Mexico Phone: 823-2200
OWNER:	J. C. Baldridge Lumber Company 8200 Jefferson, N. E. Albuquerque, New Mexico Contact: Wayne Harley Phone: 823-2200
ARCHITECT:	Pacheco Group 4808 Jefferson, N. E. Albuquerque, New Mexico Contact: Dan McDonald Phone: 883-9100
CONTRACTOR:	Dura Bilt Products, Inc. 4808 Jefferson, N. E. Albuquerque, New Mexico Contact: Dan McDonald Phone: 883-9100

RECEIVED
FEB 03 1984
HYDROLOGY SECTION

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

February 23, 1984

Mr. Lloyd Salles
8200 Jefferson NE
Albuquerque, NM 87109

REF: GRADING AND DRAINAGE FOR J.C. BALDRIDGE LUMBER COMPANY SITE
(C17-D4) RECEIVED FEBRUARY 3, 1984

Dear Mr. Salles:

The above referenced plan, dated January 30, 1984, is approved.

Please attach a copy of this plan to the construction set prior to issuance of the building permit.

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

Yours truly,

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

March 15, 1984

Mr. Lloyd Sallee
JC Baldridge Lumber Co.
P.O. Box 13537
Albuquerque, New Mexico 87192

REF: GRADING AND DRAINAGE FOR J.C. BALDRIDGE LUMBER COMPANY
SITE (C17-D4) RECEIVED FEBRUARY 3, 1984

Dear Mr. Sallee:

The above referenced plan, dated January 30, 1984, is approved.

Please attach a copy of this plan to the construction set prior to issuance of the building permit.

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

Yours truly,

Billy J. Goolsby

Billy Goolsby, PE
City/County Flood Ordinance Administrator

BG/ca

P.S. I appologize for the delay. The original letter was sent out Feb. 23, 1984 with the address of 8200 Jefferson NE. It was returned as non-deliverable for the reason that a drop was not provided at the address.

DRAINAGE INFORMATION SHEET

PROJECT TITLE: J.C. BALDRIDGE LUMBER COMPANY ZONE ATLAS/DRNG. FILE #: C17/D4 C-17-Z

LEGAL DESCRIPTION:

CITY ADDRESS: 8200 JEFFERSON N.E.

ENGINEERING FIRM: LEEDSHILL-HERKENHOFF CONTACT: EDDIE LIVINGSTON

ADDRESS: PO BOX 1217 ALB. NM PHONE: 247-0294

OWNER: J.C. BALDRIDGE LUMBER CO. CONTACT: WAYNE HARLEY

ADDRESS: PO BOX 13537 PHONE: 823-2200

ARCHITECT: JESSE A. PACHECO CONTACT: LLOYD GOLDRICK

ADDRESS: 4808 JEFFERSON NE PHONE: 883-9100

SURVEYOR: CONTACT:

ADDRESS: PHONE:

CONTRACTOR: CONTACT:

ADDRESS: PHONE:

RECEIVED OCT 16 1985 HYDROLOGY SECTION

PRE-DESIGN MEETING:

___ YES

✓ NO (DISCUSSED W/CHARLES MONTOYA ON 9/20)

___ COPY OF CONFERENCE RECAP SHEET PROVIDED

DRB NO. N/A

EPC NO.

PROJ. NO.

TYPE OF SUBMITTAL:

✓ DRAINAGE REPORT

✓ DRAINAGE PLAN

___ CONCEPTUAL GRADING & DRAINAGE PLAN

___ GRADING PLAN

___ EROSION CONTROL PLAN

___ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

___ SKETCH PLAT APPROVAL

___ PRELIMINARY PLAT APPROVAL

___ SITE DEVELOPMENT PLAN APPROVAL

✓ FINAL PLAT APPROVAL

✓ BUILDING PERMIT APPROVAL

___ FOUNDATION PERMIT APPROVAL

___ CERTIFICATE OF OCCUPANCY APPROVAL

___ ROUGH GRADING PERMIT APPROVAL

___ GRADING/PAVING PERMIT APPROVAL

___ OTHER _____ (SPECIFY)

DATE SUBMITTED: 10-17-85

BY: Eddie Livingston

LEEDSHILL-HERKENHOFF, INC.
500 Copper Avenue N.W.
P. O. Box 1217
Albuquerque, New Mexico 87103
(505) 247-0294

1599-810.12-85

October 7, 1985

RECEIVED
OCT 16 1985
HYDROLOGY SECTION

Mr. Carlos A. Montoya, P.E.
City/County Flood Plain Admin.
Design Hydrology Section
123 Central N.W.
Albuquerque, New Mexico 87102

RE: DRAINAGE PLAN REVISION FOR J.C. BALDRIDGE LUMBER CO. (C-17-Z)

Dear Mr. Montoya:

Attached is a revised drainage plan for the J.C. Baldridge Lumber Co. site, concerning a building permit approval. This plan is a revision of the existing drainage plan approved by your office in February 1984. This revised site includes an additional open-sided material storage cover (shown circled).

Also transmitted herewith are the following items:

1. Drainage Information Sheet.
2. Drainage Plan; Stamped, Signed and Dated.
3. Latest Revision Approval Letter.
4. Copies of a portion of the Original Drainage Calculations.

An overview of the drainage analysis and our subsequent drainage plan revision submittal is as follows:

The original drainage data (prepared by our office) was reviewed. A detailed analysis of the original runoff calculations indicate that for the on-site flows, a "C" factor of 1.0 was assumed. A "C" factor of 1.0 assumes that the entire area of the site (5.4 acres) is 100% impervious. This assumption allows the original drainage plan to attribute 100% of the area to runoff, with no infiltration into the soils. In actuality, less than 50% of the area is impervious. Based on this analysis and using the methodology of the original grading plan, it is concluded that there will be no additional increase in runoff from that shown in the original calculations. Therefore, Qp 100 should remain 51 cubic feet per second.

As shown in the calculations, the drop inlet used to drain the site into the abutting channel was originally designed for 55 cubic feet per second. Field investigation shows that the inlet appears to be operating satisfactorily to date. Since the design flow of the inlet is greater than the maximum runoff calculations, it is concluded that the inlet has capacity for the additional cover area.

Grading of the site will remain conceptually as is now approved. Grading will continue through the cover area, as the cover will utilize the ground as floor storage area.

If you have any questions, please call.

Sincerely,

EDDIE C. LIVINGSTON

Approved: Clint Dodge, P.E.

er

Encs.

cc: Wayne Harley
Lloyd Goldrick

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

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

October 18, 1985

Mr. Clinton Dodge
Leedshill-Herkenhoff
P.O. Box 1217
Albuquerque, NM

REF: DRAINAGE PLAN FOR J.C. BALDRIDGE LUMBER CO. (C17-D4) ENGINEER'S STAMP DATE 10/15/85

Dear Mr. Dodge:

Based on the information provided on your October 16, 1985 submittal, the above referenced drainage plan is approved.

Please attach a copy of this approved drainage plan to the construction sets before Hydrology will sign-off.

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

Sincerely,

Carlos A. Montoya

Carlos A. Montoya
City/County Flood Plain Admin.

BJM/CAM/cl

GORDON HERKENHOFF & ASSOCIATES ALBUQUERQUE SANTA FE ENGINEERING COMPUTATIONS	NAME OF PROJECT [illegible]			SHEET NUMBER OF
	COMPUTED BY [illegible]	CHECKED BY	JOB NUMBER [illegible]	DATE

Storm water Runoff Calculations

Offsite: Area = 11.4

C = 0.40

length of run = 1200'

elev diff = 24'

T_c = 8.2 min

$I_{100} = \frac{189}{8.2+25} = 5.69$ in/hr

$Q_{100} = CIA = (0.4)(5.69)(11.4) = 26$ cfs

Combined Areas (Eastridge site + offsite)

Area = 11.4 + 5.4 = 16.8

weighted C = $\frac{.4(11.4) + 1.0(5.4)}{16.8} = 0.59$

length of run = 1900'

elev diff = 36'

T_c = 11.5

$I_{100} = 189/11.5+25 = 5.18$ in/hr

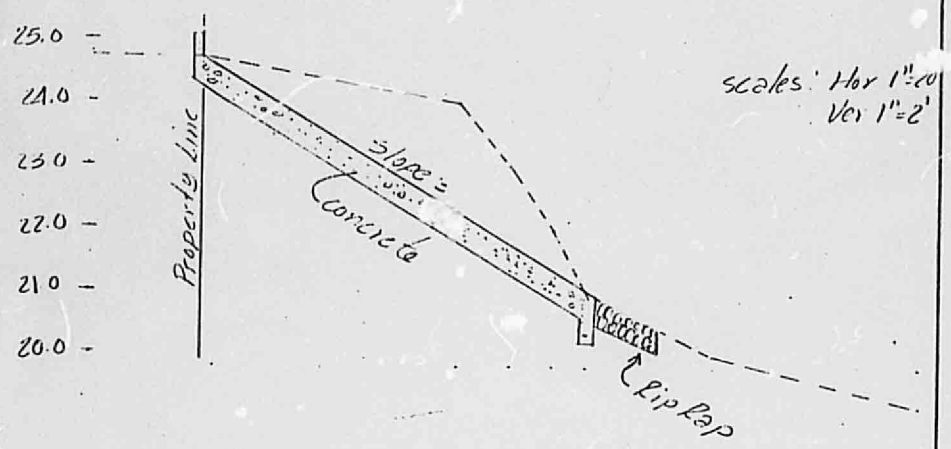
$Q_{100} = (.59)(5.18)(16.8) = 51$ cfs

Design inlet for 55 cfs

GORDON HERKENHOFF & ASSOCIATES ALBUQUERQUE SANTA FE ENGINEERING COMPUTATIONS	NAME OF PROJECT Baldridge Lumber			SHEET NUMBER OF
	COMPUTED BY Cooper	CHECKED BY	JOB NUMBER 1506-32	DATE

Design Rectangular Concrete lined open channel for 55 cfs flow

Use 4'-0" wide channel, 6" free board
6" bottom 4" walls



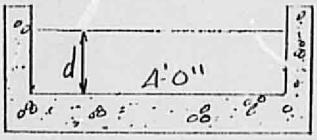
Section thru & Rundown

total length = 20', drop = 3.7', slope = $\frac{3.7}{20}$ - 18.50%

GORDON HERKENHOFF & ASSOCIATES ALBUQUERQUE SANTA FE ENGINEERING COMPUTATIONS	NAME OF PROJECT Baldridge			SHEET NUMBER OF
	COMPUTED BY Cooper	CHECKED BY	JOB NUMBER	DATE

From Mannings Eqn, $Q = \frac{1.486}{n} R^{2/3} S^{1/2} A$

Design for $Q = 55$ cfs, $n = .014$



$A = 4d$

Perim $= 2d + 4$

$R = \frac{4d}{2d+4}$

$$55 = \left(\frac{1.486}{.014}\right)\left(\frac{4d}{2d+4}\right)^{2/3} (.185)^{1/2} (4d)$$

try $d = 0.5'$: $\left(\frac{1.486}{.014}\right)\left(\frac{4(.5)}{2(.5)+4}\right)^{2/3} (.185)^{1/2}(4)(.5)$

$(106.14)(.4)^{2/3}(.43)(2.) = 49.55$

try $d = 0.6$: $(106.14)(.46)^{2/3}(.43)(2.4) = 65$

OK try $d = 0.53$: $(106.14)(.42)^{2/3}(.43)(2.12) = 54.6$

Check Flow Condition

$q = \frac{Q}{b} = \frac{55}{4} = 13.75$, $V = Q/A = 55/4(.53) = 26$

$E = y + \frac{q^2}{2gy^2} = .53 + \frac{(13.75)^2}{2(32.2)(.53)^2} = 10.98$

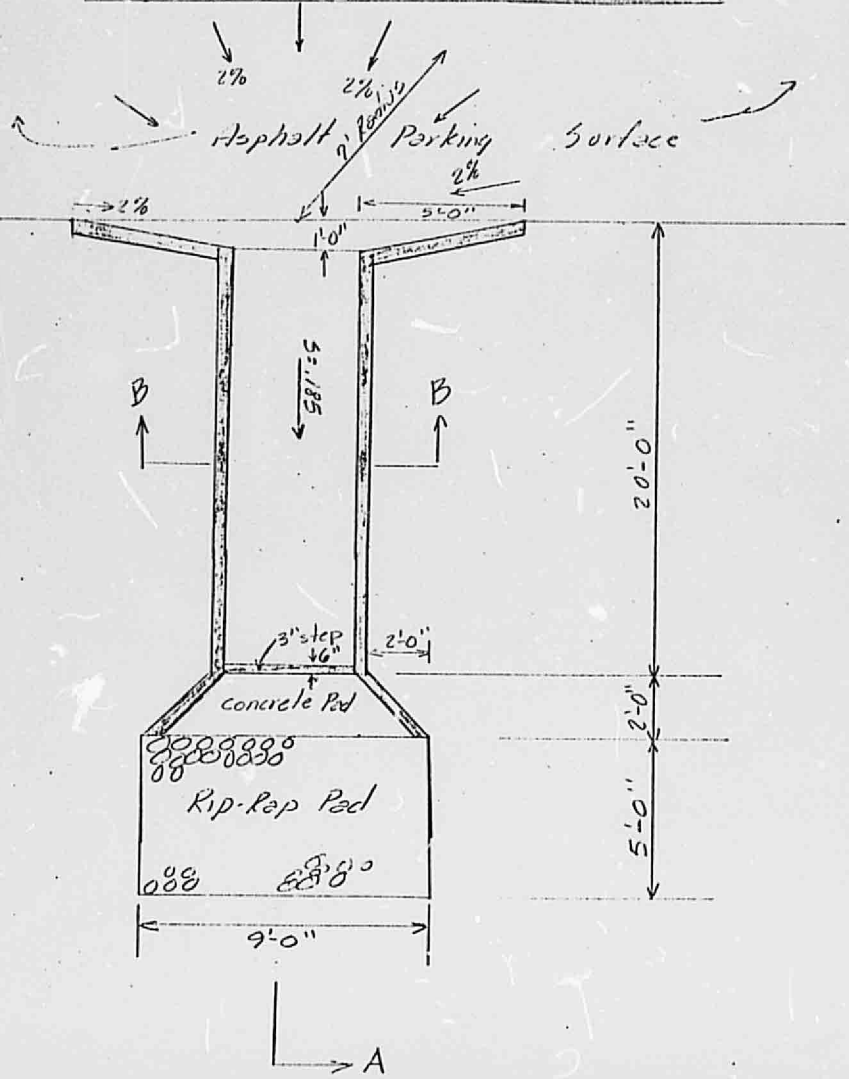
$y_c = \left(\frac{q^2}{g}\right)^{1/3} = \left(\frac{13.75^2}{32.2}\right)^{1/3} = 1.80' \rightarrow$ super critical

$E_c = 3/2\, y_c = \frac{3}{2}(1.8) = 2.70'$

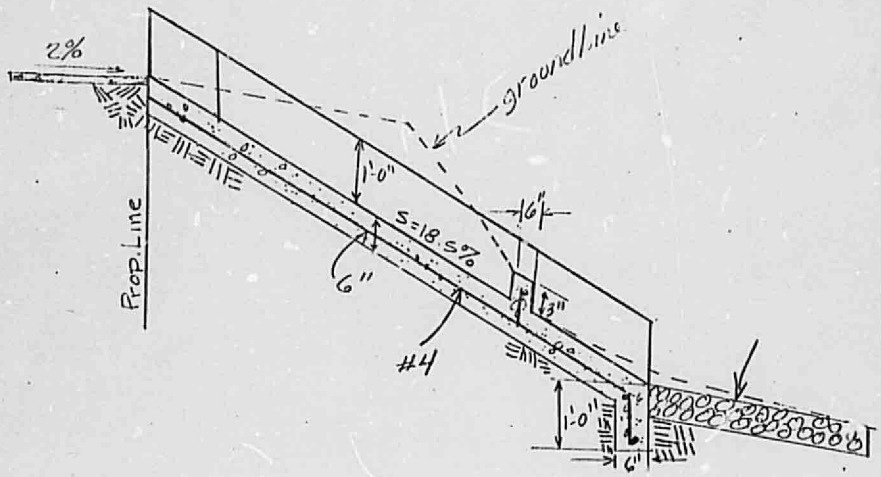
$F_r = \frac{V}{\sqrt{gd}} = \frac{26}{\sqrt{32.2(.53)}} = 6.3 \rightarrow$ flow super critical

GORDON HERKENHOFF & ASSOCIATES ALBUQUERQUE SANTA FE ENGINEERING COMPUTATIONS	NAME OF PROJECT Baldridge			SHEET NUMBER OF
	COMPUTED BY Cooper	CHECKED BY	JOB NUMBER	DATE

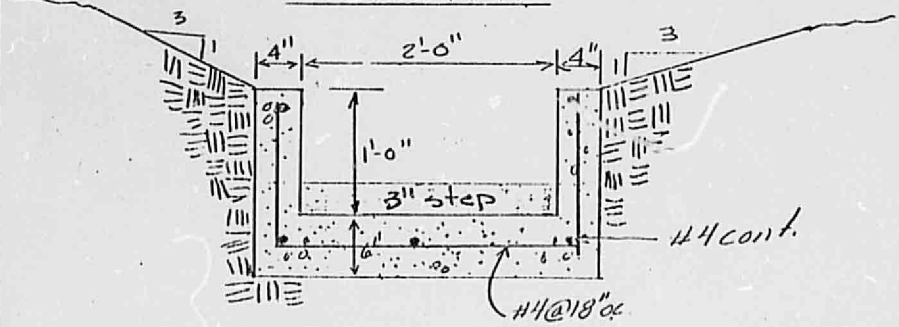
Layout Plan of Concrete Rundown



GORDON HERKENHOFF & ASSOCIATES ALBUQUERQUE SANTA FE ENGINEERING COMPUTATIONS	NAME OF PROJECT			SHEET NUMBER OF
	COMPUTED BY	CHECKED BY	JOB NUMBER	DATE



Section A-A



Section B-B

GORDON HERKENHOFF & ASSOCIATES ALBUQUERQUE SANTA FE ENGINEERING COMPUTATIONS	NAME OF PROJECT Boldridge			SHEET NUMBER OF
	COMPUTED BY Cooper	CHECKED BY	JOB NUMBER	DATE

Alternate Design

use 24" CMP for drop inlet

find minimum slope when flowing full

$Q = \frac{1.486}{n} K^{2/3} S^{1/2} A \; ; \; R = \frac{A}{P} = \frac{\pi(1)}{2\pi(1)} = .5$

$55 = \frac{1.486}{.024} (.5)^{2/3} \cdot S^{1/2} (3.14)$

$55 = 122.45 \, S^{1/2}$, $S = 0.2$, 20% , 24" CMP

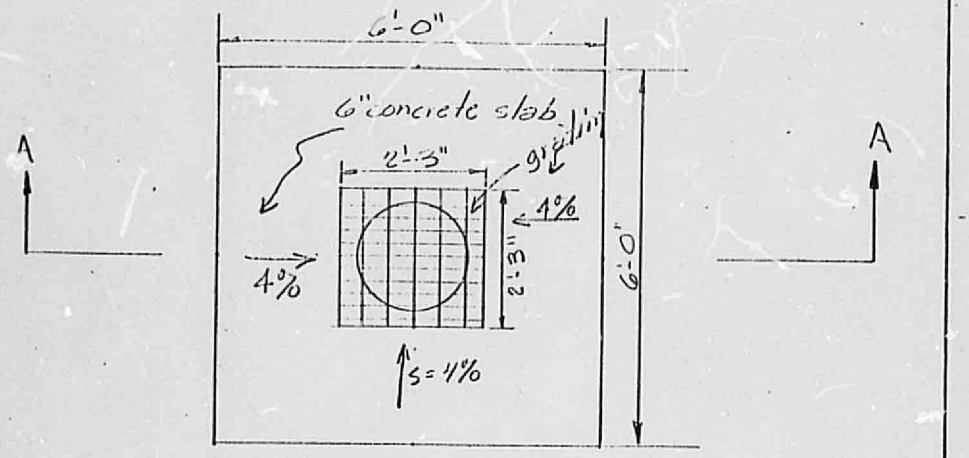
find min. slope for 30" CMP $A = 4.91$, $P = 7.86$

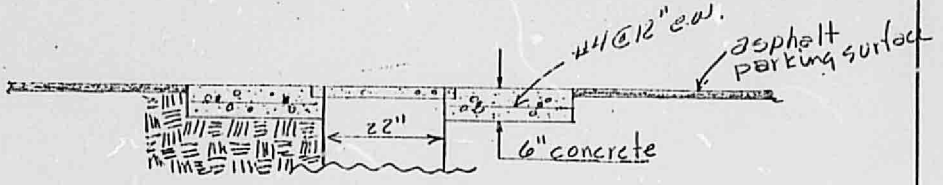
$55 = \frac{1.486}{.024} (.73)(S^{1/2})(4.91)$, $S = 6\%$

Use 30" CMP

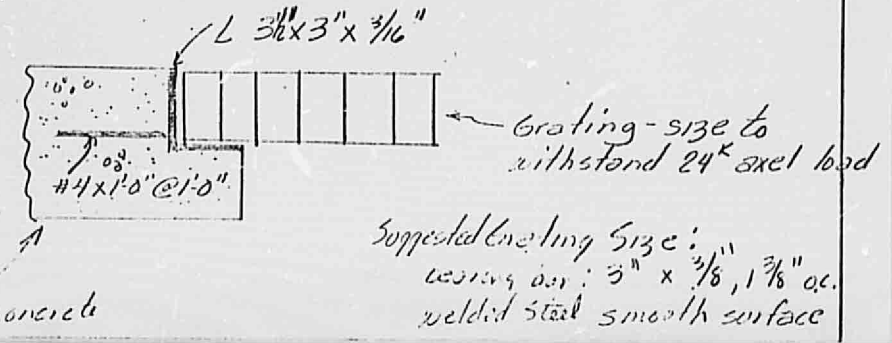
Use 4'-0" diameter Type "B" manhole, depth as required. Place 30" CMP on 6% min. Grade. Place 10'x5' rip-rap erosion control pad at outlet. Use grated man-hole lid for drain. See Detail

GORDON HERKENHOFF & ASSOCIATES ALBUQUERQUE SANTA FE ENGINEERING COMPUTATIONS	NAME OF PROJECT Eldridge			SHEET NUMBER OF
	COMPUTED BY	CHECKED BY	JOB NUMBER	DATE





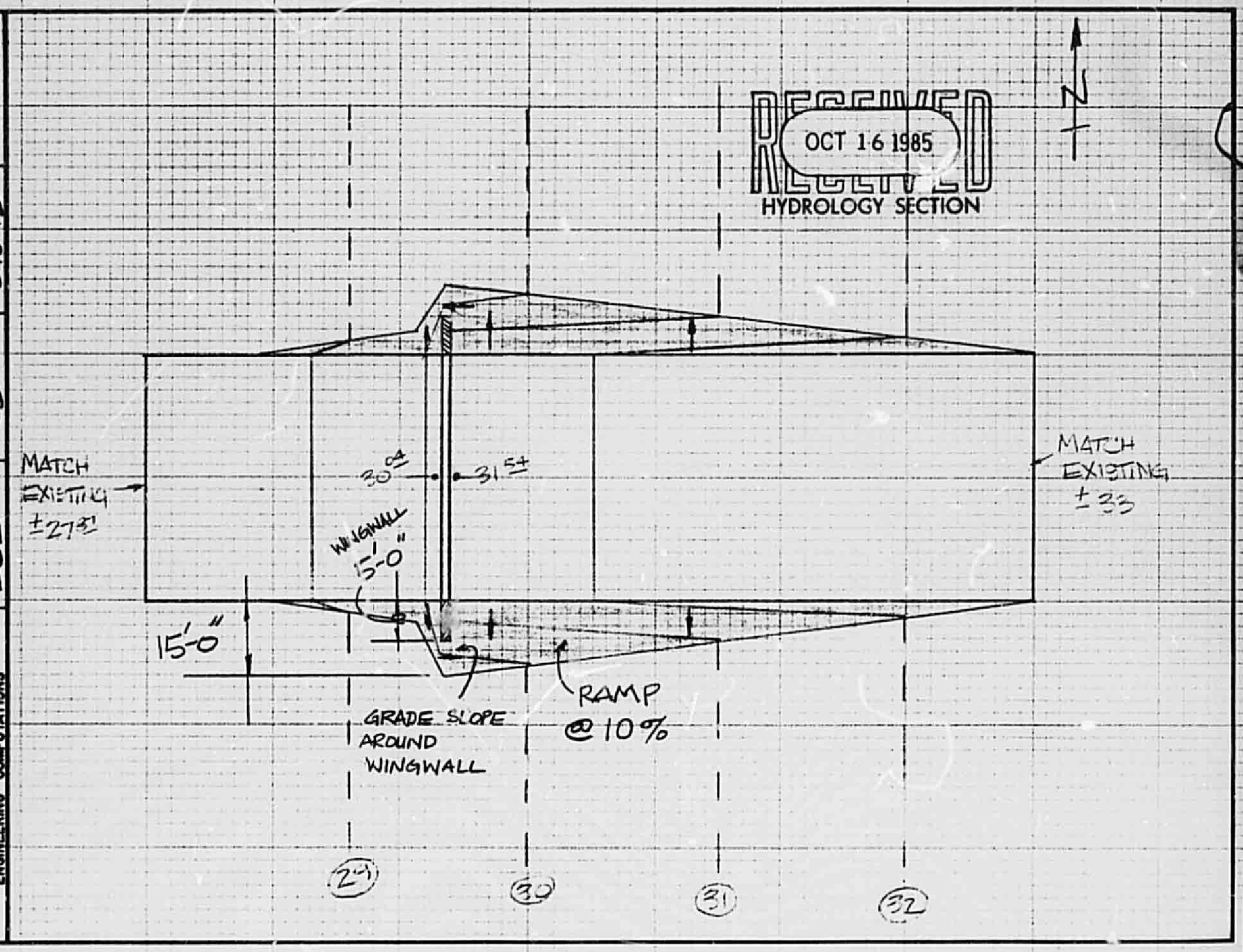
Section A-A



Suggested Grating Size:
bearing bar: 3" x 3/8", 1 3/8" o.c.
welded steel smooth surface

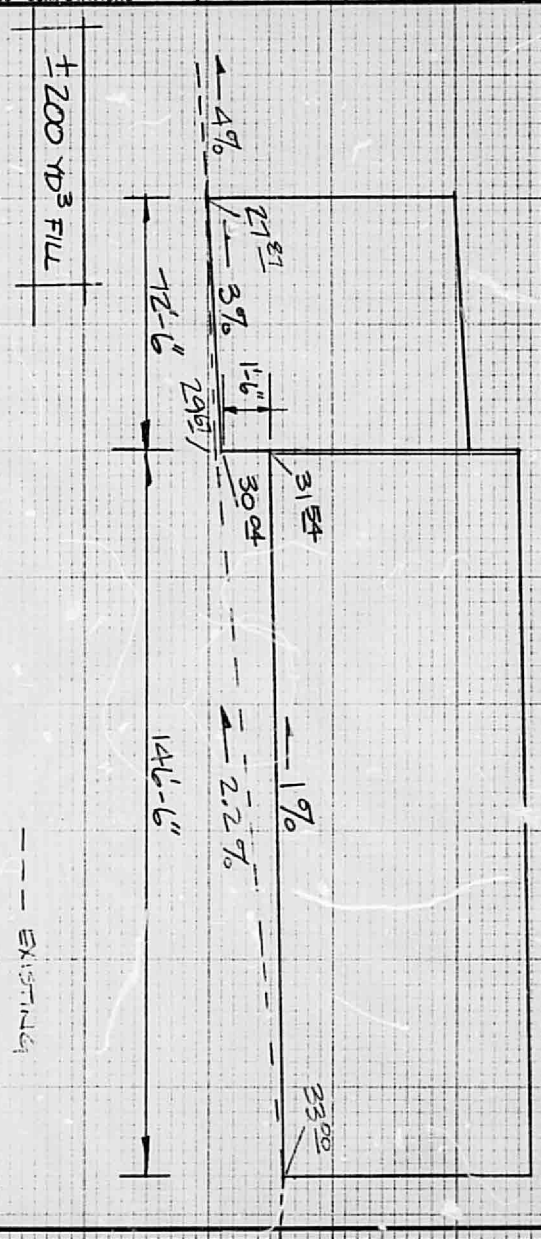
LEEDSHILL-HERKENHOFF, INC.
ALBUQUERQUE SANTA FE PHOENIX SAN DIEGO SAN FRANCISCO
ENGINEERING COMPUTATIONS

NAME OF PROJECT: BALDRIDGE LUMBER
COMPUTED BY: ECL
CHECKED BY: CD
JOB NUMBER: 810-12
SHEET NUMBER 1 OF 2
DATE:



PLAN
(NTS)

LEEDSHILL-HERKENHOFF, INC. ALBUQUERQUE SANTA FE PHOENIX SAN DIEGO SAN FRANCISCO ENGINEERING COMPUTATIONS	NAME OF PROJECT BALDRIDGE LUMBER			SHEET NUMBER 2 OF 2
	COMPUTED BY: ECL	CHECKED BY: CD	JOB NUMBER 810.12	DATE:



--- EXISTING

— FINAL

SECTION @ ℄

(NTS)