

CITY OF ALBUQUERQUE



March 27, 2008

Gregory J. Krenik, PE
Mark Goodwin & Associates
P.O. 90606
Albuquerque, NM 87199

**Re: Shoppes at Ventura Grading and Drainage Plan
Engineer's Stamp dated 2-22-08 (C20/D16)**

Dear Mr. Krenik,

Based upon the information provided in your submittal dated 2-25-08, the above referenced report is approved for Building Permit and Final Plat. Please attach a copy of this approved plan to the construction sets prior to sign-off by Hydrology.

Also, prior to Certificate of Occupancy release, Engineer Certification of the grading plan per the DPM checklist will be required.

If you have any questions, you can contact me at 924-3986.

Sincerely,

Bradley L. Bingham, PE
Principal Engineer, Planning Dept
Development and Building Services

C: file



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

March 30, 2001

Gregory J. Krenik, P.E.
Mark Goodwin & Assoc.
P.O. Box 90606
Albuquerque, New Mexico 87199

RE: **Grading and Drainage Certification**
Furr's Supermarket- Ventura & Paseo Del Norte (C-20/D16)
Submitted for Release of Financial Guarantees
Engineers Stamp dated 11/11/1999
Engineer's Certification dated 12/11/2000
Engineers Letter dated March 27, 2001

Dear Mr. Krenik:

Based upon the information provided in your submittal dated 12/12/2000 and your letter dated 3/27/2001, the above referenced plan is adequate to satisfy the Grading and Drainage Certification and Letter of Map Revision (LOMR) requirements for Release of the remaining Financial Guaranty.

This will satisfy the conditions for release of the remaining financial guaranty for \$20,000.00 being held as per City Hydrology's letter dated December 18, 2000.

If you have any questions, please call me at 924-3986.

Sincerely,

Bradley L. Bingham, P.E.
Senior Civil Engineer, Hydrology
Public Works Dept., C.O.A.

C: Arlene Portillo, PWD - #601981
File



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

October 23, 2000

Gregory j. Krenik, P.E.
Mark Goodwin & Associates, PA
P.O. Box 90606
Albuquerque, NM 87199

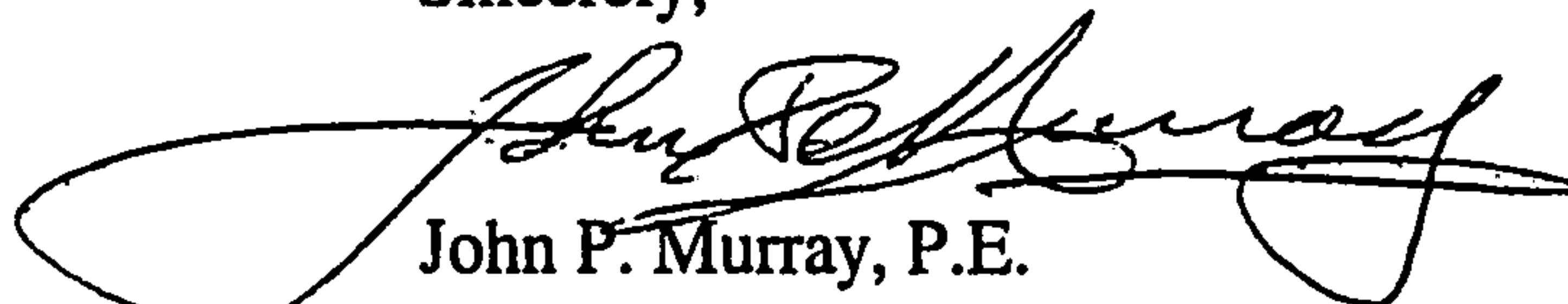
**RE: FURR'S, PASEO DEL NORTE & VENTURA (C20-D16). ENGINEER'S
CERTIFICATION FOR CERTIFICATE OF OCCUPANCY APPROVAL.
ENGINEER'S STAMP DATED OCTOBER 16, 2000.**

Dear Mr.Krenik:

Based on the information provided on your October 16, 2000 submittal, the above referenced project is approved for Certificate of Occupancy.

If I can be of further assistance, please feel free to contact me at 924-3984.

Sincerely,



John P. Murray, P.E.
Hydrology

c: Whitney Reiersen
File



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

July 20, 1999

Gregory J. Krenik, P.E.
Mark Goodwin & Associates, PA
P. O. Box 90606
Albuquerque, New Mexico 87199

RE: Revised Drainage Report and Grading and Drainage Plan for Furr's-East Paseo del Norte, (C20/D16) Submitted for Building Permit Approval, Engineer's Stamp Dated 6/23/99.

Dear Mr. Krenik:

Based on the information provided, the above referenced plan, dated June 23, 1999, is approved for Building Permit release.

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

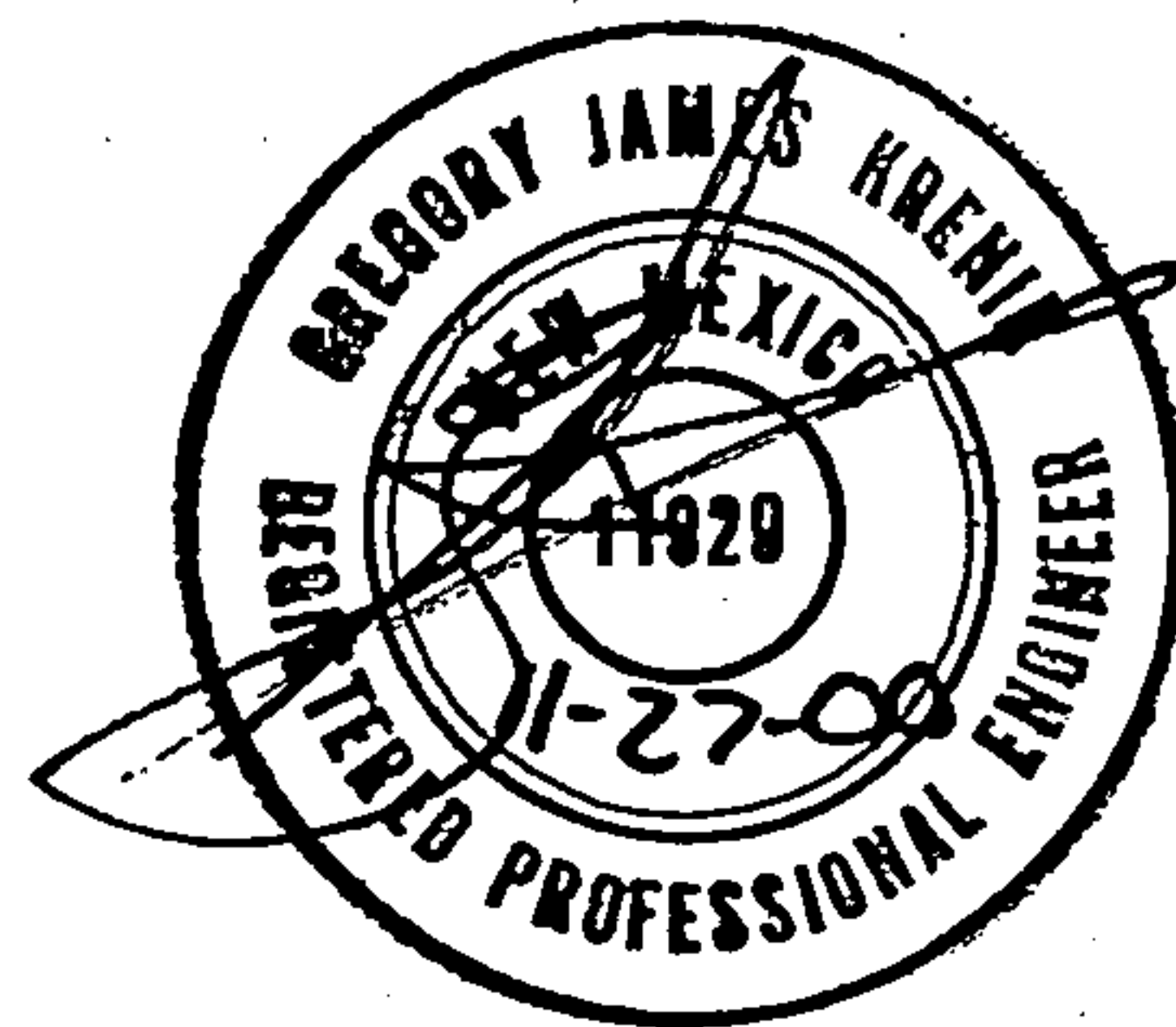
If you have any questions, or if I may be of further assistance to you, please call me at 924-3982.

Sincerely,

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

c: Fred Katz, The FHK Company
File

**ADDENDUM TO THE
DRAINAGE CALCULATIONS**
for
FURR'S
Paseo del Norte





D. Mark Goodwin & Associates, P.A.
Consulting Engineers

P.O. BOX 90606, ALBUQUERQUE, NM 87199
(505) 828-2200 FAX 797-9539
e-mail: dmgs@swcp.com

PROJECT FURR'S - PASEO DEL NORTE
SUBJECT REVISED PONDS
BY GSK DATE 11-27-00
CHECKED _____ DATE _____
SHEET 1 OF _____

- THIS REVISES THE DRAINAGE REPORT FOR FURR'S PASEO DEL NORTE PREPARED BY MARK GOODWIN AND ASSOCIATES 12-11-98 APPENDIX "A"
- THE BUILDING WAS DESIGNED WITH DOWN SPOUTS ON THE NORTH AND SOUTH SIDES INSTEAD OF THE WEST AND SOUTH SIDES.

- WE WILL PLACE A SMALLER ORIFICE ON THE UNDERGROUND POND. IT WILL BE REDUCED FROM 9.5 IN TO 8.5 IN.

THE AREA TO THE UNDERGROUND POND GETS REDUCED FROM 0.005812 SM TO 0.004951 SM.

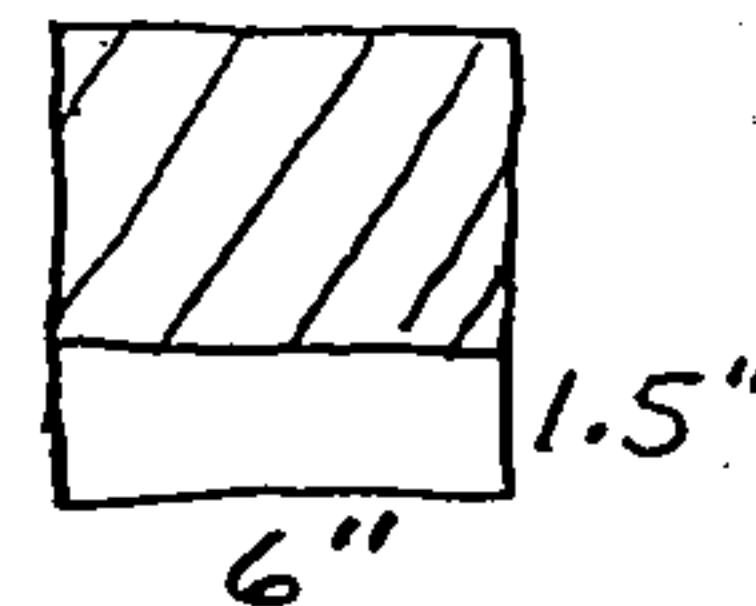
THE TYPE "B" AREA INCREASED FROM 9.27% TO 10.88% AND THE TYPE "D" AREA DECREASED FROM 90.73% TO 89.12%

- TOTAL ALLOWABLE Q FROM FURR'S = 6.09 CFS (sheet 7 OF ORIGINAL REPORT)

PER THE AHYMO OUTPUT FOR THE REVISED POND $Q = 4.80$ CFS SEE SHEETS 2-5

THIS LEAVES $6.09 - 4.80 = 1.29$ CFS TO BE DISCHARGED FROM THE NORTH SIDE OF BUILDING USING 6-1.5" x 6" ORIFICES OVER THE 6" x 6" OPENING TO THE DOWNSPOUTS

ROOF SLOPE = $\frac{1}{4}$ " PER FOOT
SIDE OF BLDG = 180'
AREA OF BLDG = 0.000861 SM
100% TYPE "D"



FROM AHYMO OUTPUT SHEETS 6-9
 $Q = 1.23$ CFS < 1.29 CFS OK

- DOWNSPOUTS WILL DISCHARGE THROUGH 4" PVC PIPES THROUGH CURB INTO HOLLY.



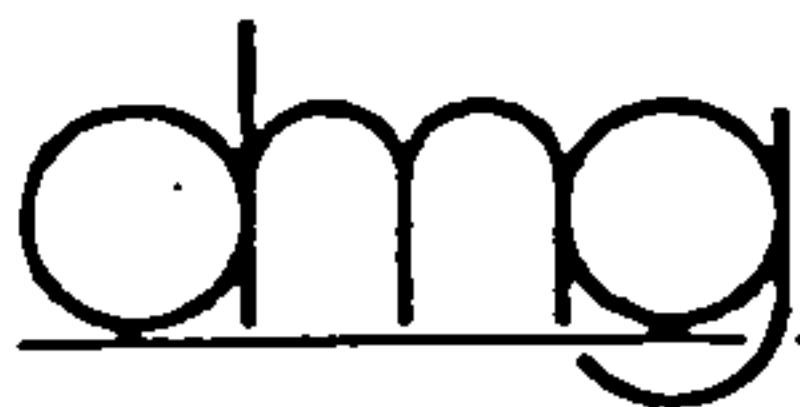
D. Mark Goodwin & Associates, P.A.
Consulting Engineers and Surveyors

PROJECT FURRS - PASEO DEL NORTE
SUBJECT DRAINAGE CALCS
BY GJK DATE 4-21-98
CHECKED _____ DATE _____

SHEET 1 OF _____

REVISED: 6-15-98 12-11-98

- SITE DOES NOT LIE IN A 100 YEAR FLOOD ZONE
- EXISTING OFFSITE FLOWS WILL NOT BE ALLOWED TO ENTER THE SITE BUT INSTEAD WILL BE ROUTED DOWN ALONG THE WALLS ON THE PROPERTY LINE TO EITHER THE ARROYO OR RIGHT OF WAY.
- THE SITE FOR THIS REPORT WILL BE DIVIDED INTO FOUR BASINS:
 - I - DRAINS TO HOLLY THEN TO VENTURA
 - II - DRAINS TO INTERIOR ROAD THEN TO VENTURA
 - III - DRAINS TO ONSITE STORM DRAIN THEN TO HOLLY
 - IV - DRAINS TO ONSITE STORM DRAIN THEN TO HOLLY
- DIRECT DISCHARGE WILL BE ALLOWED TO THE NEW STORM DRAIN IN THE ROAD ROW
- | | |
|--------------------------|--------------------|
| RETAIL PAD 1 = 0.6220 AC | BASINS IV & II |
| RETAIL PAD 2 = 0.7725 AC | BASINS IV & II |
| RETAIL PAD 3 = 0.9955 AC | BASIN I |
| RETAIL PAD 4 = 0.5826 AC | BASIN II |
| HOLLY ROW = 1.0331 AC | BASIN I |
| FURR'S PAD = 4.7843 AC | BASINS I, II & III |
| 8.7900 AC | |
- RETAIL PAD 3 (BASIN I) DIRECT RUNOFF
 - AREA = 0.9955 AC
 - TYPE B THAT DRAINS TO HOLLY = 0.2567 AC
 - TYPE D THAT DRAINS TO HOLLY = 0.7388 AC
- RETAIL PADS 1 + 2 (BASIN IV) NEEDS TO POND
 - TOTAL AREA = 1.3945 AC
 - ASSUME 90/10
 - TYPE D = 1.1807 AC
 - TYPE B = 0.1312 AC
 - 0.0826 AC IS THE 30' INTERIOR ROAD THIS WILL BE DIRECT DISCHARGE (BASIN II)
 - AREA TO POND = 1.3119 AC
- RETAIL PAD 4 (BASIN II) DIRECT RUNOFF AND PONDING
 - AREA = 0.5826 AC
 - ASSUME 90/10
 - TYPE B = 0.0492 AC
 - TYPE D = 0.4427 AC
 - 0.0907 AC IS THE 30' INTERIOR ROAD THIS WILL BE DIRECT DISCHARGE (BASIN II)
 - AREA AT 90/10 = 0.4919 AC TO BE PONDED
- HOLLY ROW (BASIN I) DIRECT DISCHARGE
 - AREA = 1.0331 AC
 - TYPE B = 25% = 0.2583 AC
 - TYPE D = 75% = 0.7748 AC



D. Mark Goodwin & Associates, P.A.
Consulting Engineers and Surveyors

PROJECT FURRS - POSEO DEL NORTE
SUBJECT DRAINAGE CALCS
BY GJK DATE 4-21-98
CHECKED _____ DATE _____

SHEET 2 OF _____

REVISED: 6-15-98 12-11-98

• FURR'S PAD SITE

$$AREA = 4.7843 AC$$

THIS SITE IS SPLIT INTO ALL 3 BASINS

BASIN	AREA	B	D
I	0.9287 AC	0.2308 AC	0.6979 AC
II	0.1358 AC	0.0102 AC	0.1256 AC
III	3.7198 AC	0.3448 AC	3.3750 AC

• TOTAL SITE BREAKDOWN

BASIN	AREA (AC)	"B" AREA / %	"D" AREA / %
I	2.9573	0.7458 AC / 25.22	2.2115 AC / 74.78
II	0.8010	0.0594 AC / 7.42	0.7416 AC / 92.58
III	3.7198	0.3448 AC / 9.27	3.3750 AC / 90.73
IV	1.3119	0.1312 AC / 10.00	1.1807 AC / 90.00
	8.7900		

FROM AHYMO OUTPUT SHEETS 10-21

BASIN	Q (CFS)
I	13.28
II	3.97
III	18.17
IV	6.40

$$P_1 = 2.1817$$

$$P_6 = 2.6017$$

$$P_{24} = 3.1017$$

$$DT = 0.03333 HR$$

$$TP = 0.1333 HR$$

• POND PAD 4

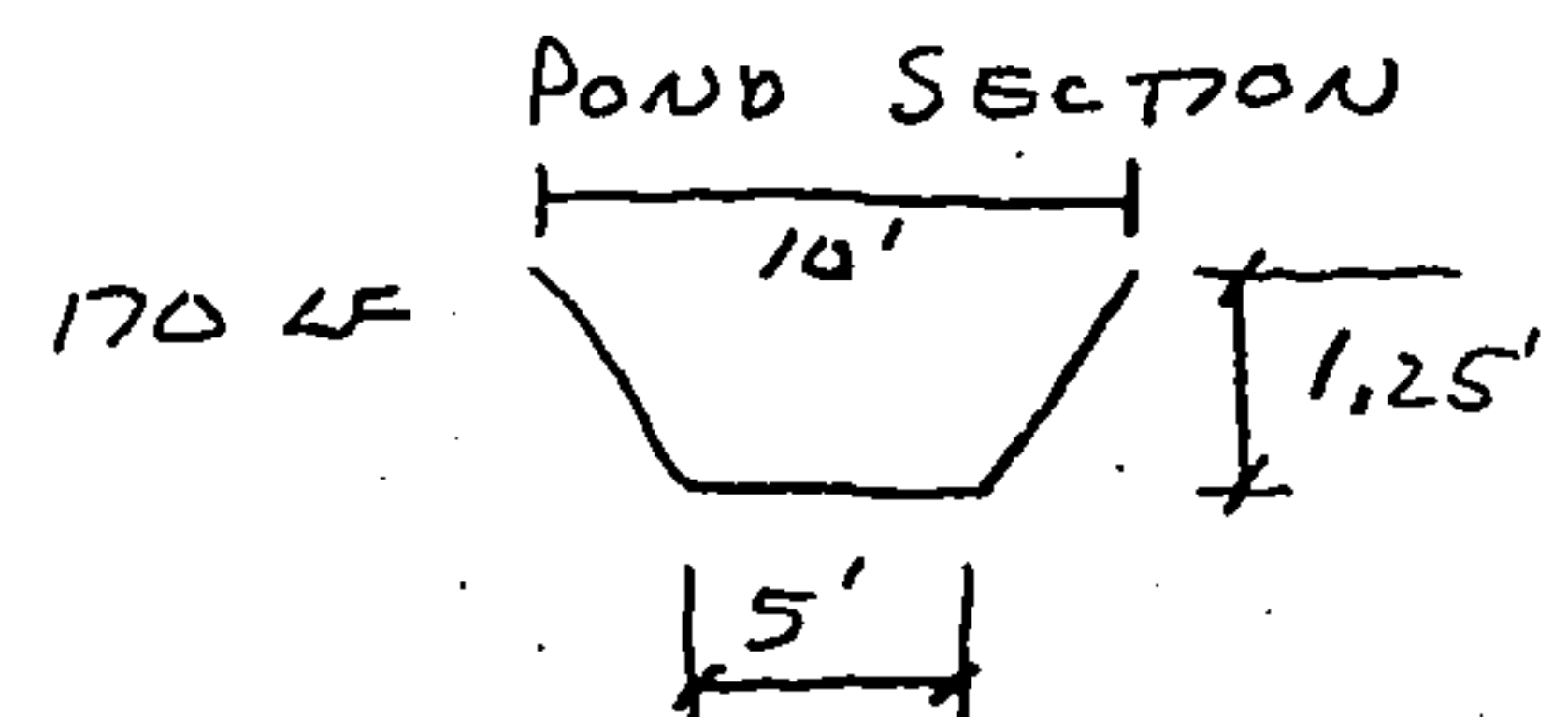
7" ORIFICE TO INTERIOR ROAD FROM POND

FROM AHYMO OUTPUT SHEETS 22-24

$$Q \text{ OF PAD} = 2.41 \text{ CFS}$$

$$\text{PEAK } Q \text{ FROM POND} = 1.02 \text{ CFS}$$

$$\text{MAX WATER SURFACE} = 54.95$$



• REVISE BASIN II RUNOFF

$$Q = 3.97 - (2.41 - 1.02)$$
$$= 2.58 \text{ CFS}$$



D. Mark Goodwin & Associates, P.A.
Consulting Engineers and Surveyors

PROJECT FURRS - Paseo Del Norte
SUBJECT DRAINAGE CALCS
BY GSK DATE 4-21-98
CHECKED _____ DATE _____

REvised: 6-15-98 9-1-98 12-11-98
SHEET 3 OF _____

- FIND AREA AND Q OF VENTURA SOUTH OF NEW HOLLY.

$$\frac{1}{2} (86 \times 450) = 19,350 \text{ sq ft} = 0.4442 \text{ AC} \quad 28\% \text{ B} \quad 72\% \text{ D}$$

FROM HYMO OUT PUT SHEETS 25-27

$$Q = 1.98 \text{ CFS}$$

- THE OFFSITE FLOWS ARE NEGLIGIBLE AND DO NOT HAVE AN IMPACT.

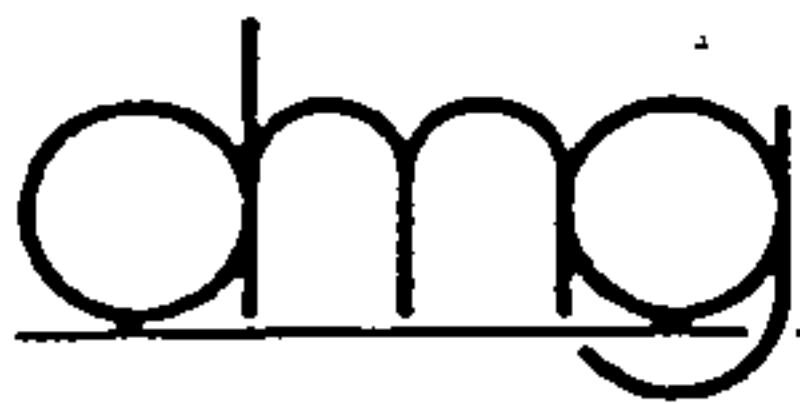
THESE BASINS ARE DIVIDED INTO FOUR.

OFFSITE BASIN 1 - DRAINS SOUTH ALONG RET. WALL ALONG THE RETAIL PAD TO HOLLY.

OFFSITE BASIN 2 - DRAINS NORTH ALONG RET. WALL ALONG FURRS TO HOLLY.

OFFSITE BASIN 3 - DRAINS SOUTH ALONG RET. WALL ALONG FURRS TO PDN ROW.

FOR THIS DESIGN 100% TYPE "A" LAND TREATMENT WAS USED. WHEN THESE SITES DEVELOP, RUNOFF WILL HAVE TO BE DIRECTED TO HOLLY AND AS A DEVELOPED SITE ARE NOT ALLOWED TO DISCHARGE ONTO ADJACENT PROPERTY.



D. Mark Goodwin & Associates, P.A.
Consulting Engineers and Surveyors

PROJECT FURRS - PAVED DEL NORTE
SUBJECT DRAINAGE CALCS
BY GSK DATE 6-15-98
CHECKED _____ DATE _____

SHEET 4 OF _____

REVISED 12-11-98

FROM AHYMO SHEETS 28-36

BASIN	Q (CFS)	SLOPE
1	0.67	5.00% FOR LAST 15' OTHERWISE FLAT
2	0.90	3.33%
3	0.20	2.00%

ALL OF THESE BASINS HAVE THE ADJACENT PROPERTY HIGHER THAN THE FURRS AND RETAIL PAD SITE.

THEREFORE UNDERCUTTING OF THE FOOTING IS NOT A CONCERN.

- DESIGN REQUIRED STORMDRAIN IN HOLLY TO ARROYO TOTAL AREA IS THE ROW OF LOTS NORTH & SOUTH OF HOLLY FROM VENTURA TO HOLBROOK. WE WILL USE OPTION E/J OF THE NORTH & SOUTH DOMINGO BACK ARROYO AND PDN CORRIDOR DRAINAGE MANAGEMENT PLAN. SEE "APPENDIX A"

THIS IS IN BASIN 921.2

PER THE REPORT THE AREA IS 0.085 SQ. MI. THIS ACCOUNTS FOR AREA ON BOTH THE NORTH AND SOUTH SIDE OF THE ARROYO.

THE AREA THAT DRAINS TO HOLLY EAST OF OUR SITE IS

21.2925 AC = 0.03327 SQ. MI, ZONED R-D

WE WILL USE 50% TYPE "D" AND 50% TYPE "B"

PER AHYMO OUTPUT SHEETS 37-39

Q = 73.05 CFS

WE WILL USE A 2.3% SLOPE PER THE REPORT.

FROM PIPE SIZE AHYMO SHEET 9

AT 2.3%

18"	CARRIES	16 CFS
24"	"	34 CFS
30"	"	60 CFS
36"	"	100 CFS
42"	"	140 CFS

TOTAL Q INCLUDING OUR SITE $73.05 + 13.28 + 3.97 + 18.17 + 6.40 = 114.87 \text{ CFS}$



D. Mark Goodwin & Associates, P.A.
Consulting Engineers and Surveyors

PROJECT FUNDS - PASEO DEL NORTE
SUBJECT DRAINAGE CALCS
BY GJK DATE 6-15-98
CHECKED _____ DATE _____

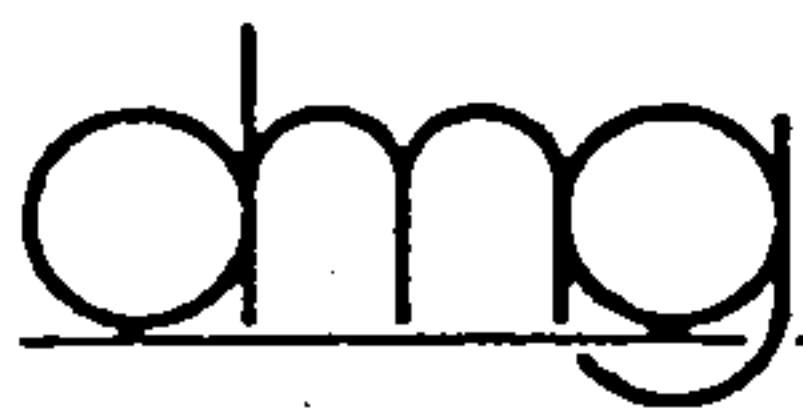
SHEET 5 OF _____

Revised 9-1-98 12-11-98

SINCE WE DO NOT KNOW HOW THE AREA EAST OF US WILL BE DEVELOPED WE WILL ONLY DESIGN FROM THE ARROYO TO OUR EAST PROPERTY LINE. FOR FUTURE DEVELOPMENT THE FLOW AND SIZES ON SHEET 4 WILL DIRECT THE DESIGN.

- Q AT OUR EAST PROP. LINE IN STORM DRAIN = 73.05 CFS
36" RCP
- AT THE ENTRANCE 300' EAST OF VENTURA ON HOLLY BASIN I ENTERS THE STORM DRAIN
 $Q = 73.05 + 13.28 = 86.33$ CFS USE 36" RCP
- AT INTERSECTION OF HOLLY AND VENTURA THE REMAINING 14.76 CFS + 7.80 CFS ENTERS THE STORM DRAIN
USE 42" RCP
- DETERMINE EROSION SETBACK
WE WILL USE 6 FEET PER 100 CFS
FROM THE DRAINAGE REPORT C20/05 LOTS 26 & 27 (Pete's Landscaping)
"APPENDIX B"
WE SHOW THE ESB FOR 756 CFS. = 45.36 FEET.
FROM THE PLOT ON THE G+D PLAN WE WILL NEED A SCOUR WALL FOR 190' ALONG HOLLY FROM VENTURA, THIS WALL WILL BE INCORPORATED INTO THE RETAINING WALL ALONG THE NORTH PROP. LINE.
- DETERMINE SCOUR
USE SECTION 60 FROM Pete's Landscaping
TOTAL SCOUR = $y_s + \frac{1}{2} h_a$
$$y_s = 0.6 (4) (F_r)^{0.33}$$
$$= \frac{122.81}{156.29} (4) (1.22)^{0.33}$$
$$= 5.74$$
$$\frac{1}{2} h_a = 0.07 (2) (\pi) \frac{V^2}{g}$$
$$= 0.07 (2) \pi \left(\frac{6.16^2}{32.2} \right)$$
$$= 0.52$$
$$\text{TOTAL SCOUR} = 5.74 + 0.52$$
$$= 6.26'$$

WE WILL USE A 6.5' SCOUR WALL
- WE WILL SUBMIT A LOMR TO FEMA AND VERIFY THE ABOVE HEC RUN



D. Mark Goodwin & Associates, P.A.
Consulting Engineers and Surveyors

PROJECT FURRS - Paseo Del Norte
SUBJECT DRAINAGE CALCS
BY GSK DATE 9-1-98
CHECKED _____ DATE _____

SHEET 6 OF _____

REVISE 12-11-98

- DETERMINE FLOWS FOR ENTIRE BASIN 921.2 AND COMPARE WITH ORIGINAL REPORT.
- TOTAL AREA PER ORIGINAL REPORT = 0.085 SM
PER SHEETS 1, 3 & 4 OF THIS REPORT THE AREA THAT DRAINS TO THE STORMDRAIN IN HOLLY
 $A = 21,2925 + 8.79 + 1.98$
 $= 32,0625 \text{ AC} = 0.050 \text{ SM}$
- THIS LEAVES $0.085 - 0.050 = 0.035 \text{ SM}$ THAT DRAIN IN THE BASIN. THESE FLOWS WILL COME DOWN CARMEL WHICH IS THE STREET NORTH OF HOLLY.
- THIS IS ZONED R-D SO THE LAND TREATMENTS OF 50% B & 50% D WILL BE USED.

FROM AHYMO OUTPUT SHEETS 40-42

$$Q = 86.67 \text{ CFS}$$

ADD THIS TO TOTAL Q ON SHEET 4 (114.87 CFS)

$$\text{TOTAL } Q = 119.03 + 91.62$$
$$= 210.65 \text{ CFS} < 254 \text{ PER ORIGINAL REPORT}$$

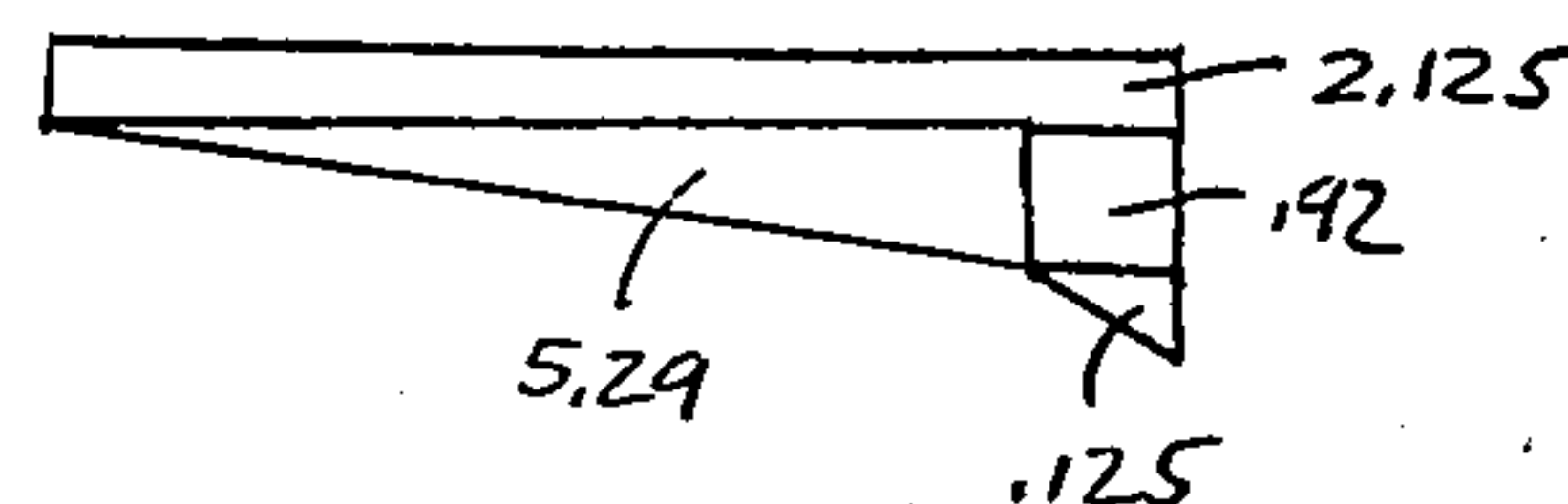
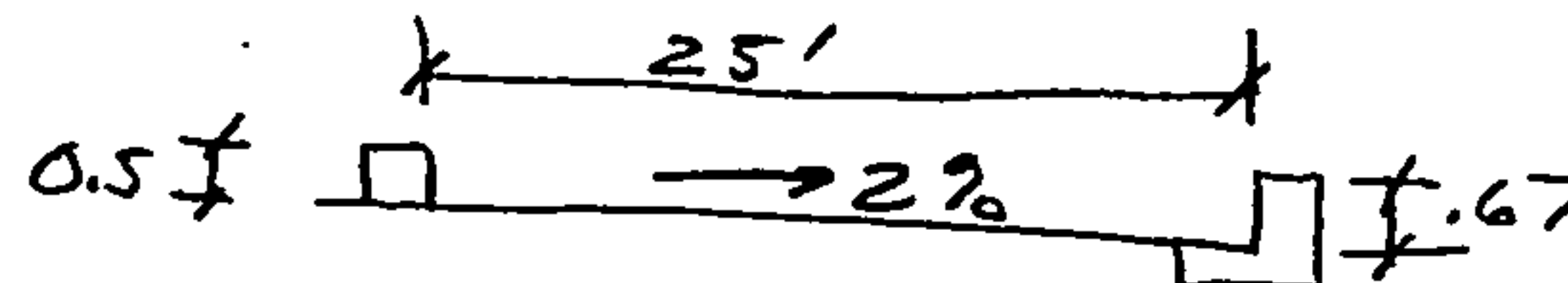
OK
2

* SINCE THE FLOWS FOR THE BASIN ARE ACTUALLY LESS THAN ORIGINALLY ESTIMATED THE FURR'S DESIGN IS ADEQUATE.

WHEN CARMEL IS DEVELOPED A STORMDRAIN WILL NEED TO BE DESIGNED.

- VERIFY STREET CAPACITY OF VENTURA
 $S = 1\%$ $n = 0.017$

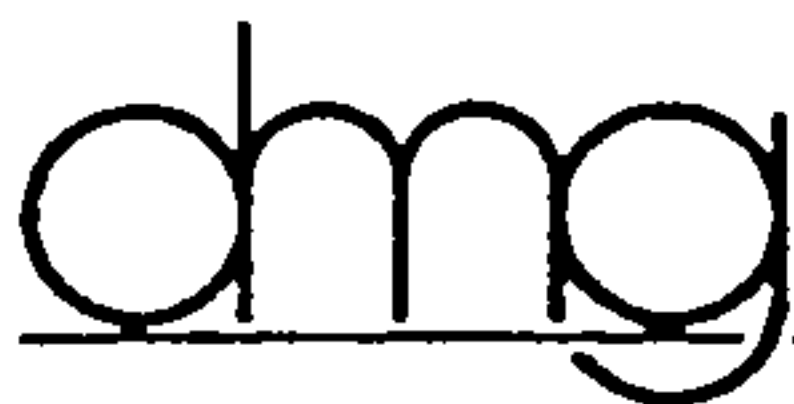
$$d = 0.67$$
$$WP = 25.76$$
$$A = 8.46$$
$$U = 4.16 \text{ F/S}$$
$$Q = 35.20 \text{ CFS}$$



- TOTAL Q IN VENTURA SOUTH OF INLETS

$$Q = 14.76 + 7.80 + 1.98 = 24.54 \text{ CFS} < 35.20 \text{ CFS} \text{ OK}$$

$\uparrow \quad \quad \uparrow \quad \quad \uparrow$
BASIN II UNDEV VENTURA



D. Mark Goodwin & Associates, P.A.
Consulting Engineers and Surveyors

PROJECT FURRS - PASEO DEL NORTE
SUBJECT DRAINAGE CALCS
BY GSK DATE 10-7-98
CHECKED _____ DATE _____

SHEET 7 OF _____

Revised 12-11-98

- FIND UNDEVELOPED RUNOFF OF EXISTING SITE

$$AREA = 8.7900 AC$$

USE 90% B AND 10% C

FROM HYDRO SHEETS 43-45

$$Q = 23.81 CFS$$

THIS IS THE ALLOWABLE RUNOFF FOR THE SITE

- FIND RUNOFF FROM DIRECT DISCHARGE AREAS.

BASINS I + II

$$Q = 13.28 + 2.58$$

$$= 15.86 CFS$$

- ALLOWABLE DISCHARGE FROM PADS 1+2 (BASIN II) AND FURRS (BASIN III)

$$Q = 23.81 - 15.86$$

$$= 7.95 CFS$$

- ALLOWABLE DISCHARGE FOR THESE 3 LOTS

$$RETAIL PAD 1 = 0.93 CFS$$

$$RETAIL PAD 2 = 0.93 CFS$$

$$FURRS = 4.09 CFS$$

- RETAIL PADS 1+2 WILL BE A TEMP. RETENTION POND FOR ITS RUNOFF UNTIL THEY ARE DEVELOPED THEN THEY WILL HAVE A CONTROLLED DISCHARGE FROM THEIR PONDS. SEE ABOVE.

- SIZE TEMP POND FOR 2-100 YR 6HR STORMS

$$V = 2 \times 0.2425 AC-FT = 21,127 CF$$

$$160' \times 200' = 32,000$$

$$154' \times 194' = 29,876$$

$$> 1 \text{ FOOT DEEP VOLUME} = 30,938 CF > 21,127 \text{ OK}$$

- SIZE FURRS POND

$$Q_{ALLOWABLE} = 5.95 CFS$$

USE 2-DBL "D" INLETS AT EACH SUMP LOCATION



D. Mark Goodwin & Associates, P.A.
Consulting Engineers and Surveyors

PROJECT FURRS - Paved Driveway
SUBJECT DRAINAGE CALCS
BY GSK DATE 10-7-98
CHECKED _____ DATE _____

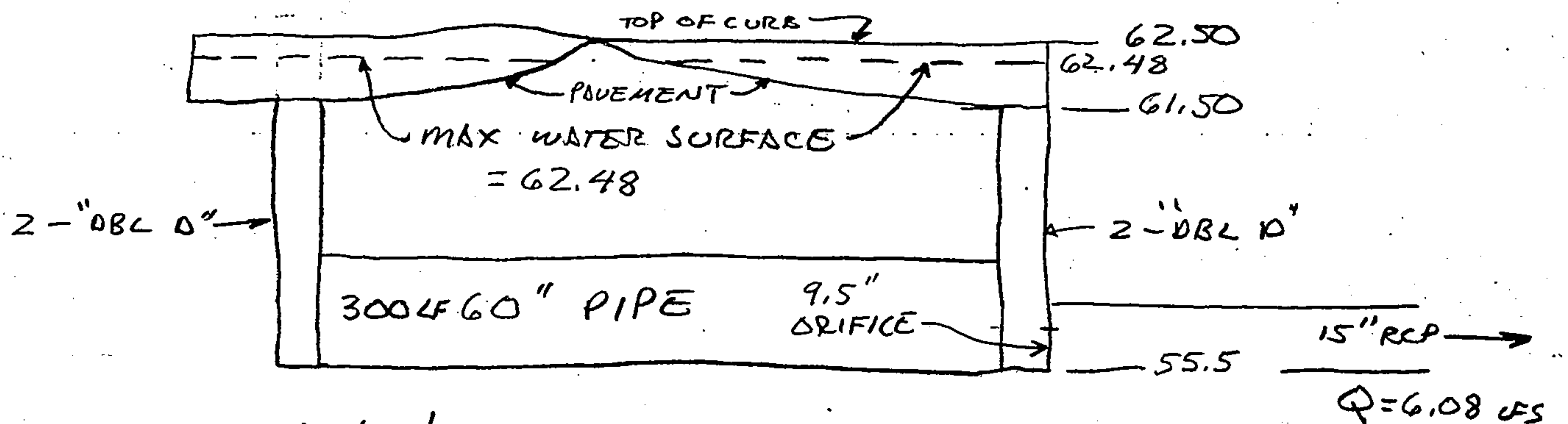
SHEET 8 OF _____

Revised 12-11-98

- USE IN COMBINATION PARKING LOT PONDING AND UNDERGROUND STORAGE

ELEV	VOLUME (AC-FT)	OUTFLOW (9.5" ORIFICE)	
55.5	0.0	0.0	
56.5	0.021	1.84	$Q = 0.6A\sqrt{2gh}$
57.5	0.053	3.00	
58.5	0.089	3.82	
59.5	0.122	4.50	
60.5	0.142	5.09	
61.5	0.143	5.61	
62.5	0.273	6.09	

POND WILL CONSIST OF 2 DBL "D" INLETS AT EACH END
CONNECTED BY 300 LF OF 60" PIPE ALONG WITH PARKING LOT



Peak discharge = 6.08 cfs < 6.09 cfs OK
FROM AITVMO OUTPUT SHEETS 46-48