KLH ENGINEERING CONSULTANTS, INC.
ENGINEERING • SURVEYING • PLANNING • CONSTRUCTION MANAGEMENT
206-208 Sutton Lane • Colorado Springs, Colorado 80907 • (303) 594-4200
111 East Fifth Street • P.O. Box 234 • Pueblo, Colorado 81002 • (303) 544-6823

July 9, 1987
KLH # 83 557 00
83 557 23

City of Colorado Springs
Engineering Division
30 S. Nevada Avenue, Suite 403
Colorado Springs, CO 80903

Attention: Dave Lethbridge

Subject: Drainage Report for Austin Bluffs Parkway (AMENDMENT)
(From Dublin Boulevard to Woodmen Road)

Dear Dave:

The purpose of this letter is to amend the Drainage Report for Austin Bluffs Parkway from Dublin Boulevard to Woodmen Road. That Drainage Report was prepared by KLH Engineering Consultants, Inc. in July of 1985, and was signed by the City Engineer on December 13, 1985. This amendment includes two major revisions to this report and plan.

The first revision involves the 100-year pickup in Austin Bluffs Parkway. The Drainage Report originally proposed a 100-year flow pickup in Austin Bluffs Parkway just North of its intersection with Dublin Boulevard. An 18' double-sided sumped inlet and a 20' double-sided sumped inlet were proposed for the West and East sides, respectively, of Austin Bluffs Parkway, with double 42" laterals carrying the flow from these inlets to the storm sewer main in Austin Bluffs. Downstream from this junction, the storm sewer main in Austin Bluffs was designed to carry the 100-year flows.

Upon completion of the street designs for Austin Bluffs and Dublin, it became apparent that a 100-year pickup in this manner was not as practical as in other locations where the design had been successfully implemented. It was determined that creating a sump in Austin Bluffs Parkway would cause less than desirable driving conditions in this case. After several meetings with City Engineering, it was agreed that the most acceptable solution to this problem is to extend the 100-year system North to the proposed auto park minor arterial street, thereby limiting the 100-year street flows in Austin Bluffs Parkway.

The second revision is necessary due to a proposed change in the routing of flows from the sub-basin tributary to the Northeast corner of Woodmen and Powers. Originally, it was assumed that this runoff would be conveyed to the Southwest corner of this intersection and would flow Westerly in a storm sewer system to the box culvert crossing in Austin Bluffs Parkway. However, as a result of a meeting on October 2, 1986, with City Engineering, it was decided that this runoff at the Southwest corner of Woodmen and Powers will

be carried in a closed conduit or an open channel along the South side of Woodmen Road. (Refer to the "Conceptual Master Drainage Plan - Woodmen Road/Austin Bluffs Parkway Intersection and Vicinity," prepared by Leigh Whitehead & Associates, and revised by Obering, Wurth & Associates, November, 1986.) This storm sewer will turn Northward and a culvert will convey the flows across Woodmen Road to Cottonwood Creek. As a result of this proposed change in flow routing, the 5-year and 100-year design flows for the box culvert in Austin Bluffs Parkway have decreased. The revised flows and facilities for this crossing are shown on the attached Drainage Plan.

The accompanying "Drainage Plan for Austin Bluffs Parkway - Dublin to Woodmen" shows the revised storm sewer system proposed for Austin Bluffs Parkway, North of Dublin Boulevard. Flow pickups at inlets and pipeflows in storm sewer mains are shown on this plan. The following is a revised cost estimate for Austin Bluffs Parkway (between Dublin Boulevard and Woodmen Road):

REVISED DRAINAGE FACILITIES COST ESTIMATE (July, 1987)

Austin Bluffs Parkway (Between Dublin Boulevard and Woodmen Road)

Public & Reimburseable:

18" R.C.P.	471 L.F. @ $ 26./L.F.	=	$ 12,246.00
24" R.C.P.	366 L.F. @ $ 37./L.F.	=	$ 13,542.00
30" R.C.P.	110 L.F. @ $ 42./L.F.	=	$ 4,620.00
36" R.C.P.	601 L.F. @ $ 51./L.F.	=	$ 30,651.00
60" R.C.P.	960 L.F. @ $ 126./L.F.	=	$ 120,960.00
66" R.C.P.	480 L.F. @ $ 145./L.F.	=	$ 69,600.00
72" R.C.P.	370 L.F. @ $ 165./L.F.	=	$ 61,050.00
78" R.C.P.	142 L.F. @ $ 185./L.F.	=	$ 26,270.00
Box Base Manhole	6 Ea. @ $2500./Ea.	=	$ 15,000.00
6' D-10R	1 Ea. @ $2000./Ea.	=	$ 2,000.00
8' D-10R	11 Ea. @ $2200./Ea.	=	$ 24,200.00
10' D-10R	1 Ea. @ $2700./Ea.	=	$ 2,700.00
12' D-10R	1 Ea. @ $3300./Ea.	=	$ 3,300.00
16' D-10R	2 Ea. @ $4500./Ea.	=	$ 9,000.00
18' D-10R	1 Ea. @ $5000./Ea.	=	$ 5,000.00
	Subtotal		$ 400,139.00
	+ 15% Engineering & Contingency		$ 60,020.85
	TOTAL		$ 460,159.85

Private and Non-Reimburseable:

Rip Rap	175 C.Y. @ $ 35./C.Y.	=	$ 6,125.00

Attached please find a copy of the Drainage Report Statements for this revision (signed by the Engineer and Developer). This revision letter is being submitted for signature by the City Engineer.

This letter, Drainage Report Statements page, drainage calculations pages, and Revised Drainage Plan shall all become a part of the existing Drainage Report for Austin Bluffs Parkway (from Dublin Boulevard to Woodmen Road) on file with the City, and should be attached to the existing report. The original Drainage Plan in the report pocket should be superseded by the Revised Drainage Plan.

If you have any questions, please call this office.

Very truly yours,

K L H ENGINEERING CONSULTANTS, INC.

Thomas C. Little, P.E.

bjm

Encs.

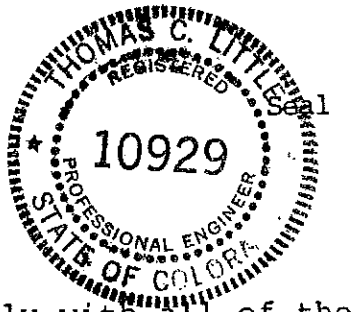
DRAINAGE REPORT STATEMENTS

AUSTIN BLUFFS PARKWAY - DUBLIN TO WOODMEN
(Revised July 9, 1987)

Engineer's Statement:

The attached drainage plan and report were prepared under my direction and supervision and are correct to the best of my knowledge and belief. Said drainage report has been prepared according to the criteria established by the City for drainage reports and said report is in conformity with the master plan of the drainage basin. I accept responsibility for any liability caused by the negligent acts, errors or omissions on my part in preparing this report.

Name



Seal

Developer's Statement:

The developer has read and will comply with all of the requirements specified in this drainage report.

NOR'WOOD DEVELOPMENT CORP.
Business Name

By: _____

Title: PRESIDENT

Address: P.O. Box 792
Manitou Springs, CO 80829

City of Colorado Springs:

Filed in accordance with Section 15-3-906 of the Code of the City of Colorado Springs, 1980, as amended.

City Engineer

9/10/87
Date

Conditions:

BASIN

ABnREV- 1 1A

ACREAGE	SQ.MI.	LAND USE	SOIL	CN	%	% x CN	
12.7		COMMERCIAL / R&D	A	89	100.0	8900.0	
12.7	.020				100.0	8900.0	WEIGHTED CN = 89.0

FLOW TYPE	L(ft)	H(ft)	Tc(hrs)	RUNOFF(in)	qp(CSM/in)	Q (cfs)
SHEET	1000	29	.071			
	1000	29	.071	1.11	1300	28.7 (5yr FLOW)
				2.36		60.8 (100yr FLOW)

BASIN

ABnREV- 2 1B

ACREAGE	SQ.MI.	LAND USE	SOIL	CN	%	% x CN	
13.6		COMMERCIAL / R&D	A	89	100.0	8900.0	
13.6	.021				100.0	8900.0	WEIGHTED CN = 89.0

FLOW TYPE	L(ft)	H(ft)	Tc(hrs)	RUNOFF(in)	qp(CSM/in)	Q (cfs)
SHEET	1050	42	.073			
	1050	42	.073	1.11	1300	30.7 (5yr FLOW)
				2.36		65.1 (100yr FLOW)

BASIN

ABnREV- 3 1C

ACREAGE	SQ.MI.	LAND USE	SOIL	CN	%	% x CN	
2.9		P.U.D.	A	77	53.9	4150.6	
2.5		STREETS & WALKS	A	98	46.1	4517.5	
5.4	.008				100.0	8668.0	WEIGHTED CN = 86.7

FLOW TYPE	L(ft)	H(ft)	Tc(hrs)	RUNOFF(in)	qp(CSM/in)	Q (cfs)
SHEET	620	16	.068			
STREET	1000	54	.054			
	1620	70	.122	.97	1210	9.8 (5yr FLOW)
				2.16		21.9 (100yr FLOW)

BASIN

ABnREV- 4 1D

ACREAGE	SQ.MI.	LAND USE	SOIL	CN	%	% x CN
1.0		STREETS & WALKS	A	98	100.0	9800.0
1.0	.002				100.0	9800.0

WEIGHTED CN = 98.0

FLOW TYPE	L(ft)	H(ft)	Tc(hrs)	RUNOFF(in)	qp(CSM/in)	Q (cfs)
STREET	1080	23	.069			
	1080	23	.069	1.87	1300	3.9 (5yr FLOW)
				3.27		6.8 (100yr FLOW)

BASIN

ABnREV- 5 2

ACREAGE	SQ.MI.	LAND USE	SOIL	CN	%	% x CN
8.2		COMMERCIAL / R&D	A	89	89.1	7932.6
1.0		STREETS & WALKS	A	98	10.9	1065.2
9.2	.014				100.0	8997.8

WEIGHTED CN = 90.0

FLOW TYPE	L(ft)	H(ft)	Tc(hrs)	RUNOFF(in)	qp(CSM/in)	Q (cfs)
SHEET	500	34	.025			
STREET	800	10	.048			
	1300	44	.073	1.18	1300	22.0 (5yr FLOW)
				2.45		45.7 (100yr FLOW)

BASIN

ABnREV- 6 3A

ACREAGE	SQ.MI.	LAND USE	SOIL	CN	%	% x CN
11.9		INDUSTRIAL/OFFICE	A	81	100.0	8100.0
11.9	.019				100.0	8100.0

WEIGHTED CN = 81.0

FLOW TYPE	L(ft)	H(ft)	Tc(hrs)	RUNOFF(in)	qp(CSM/in)	Q (cfs)
SHEET	200	2	.028			
STREET	1450	15	.107			
	1650	17	.135	.67	1180	14.7 (5yr FLOW)
				1.71		37.5 (100yr FLOW)

BASIN

ABnREV- 7 3B

ACREAGE	SQ.MI.	LAND USE	SOIL	CN	%	% x CN	
6.9		COMMERCIAL / R&D	A	89	95.8	8529.2	
.3		STREETS & WALKS	A	98	4.2	408.3	
7.2	.011				100.0	8937.5	WEIGHTED CN = 89.4

FLOW TYPE	L(ft)	H(ft)	Tc(hrs)	RUNOFF(in)	qp(CSM/in)	Q (cfs)	
SHEET	690	18	.062				
	690	18	.062	1.14	1300	16.6	(5yr FLOW)
				2.39		35.0	(100yr FLOW)

BASIN

ABnREV- 8 3C

ACREAGE	SQ.MI.	LAND USE	SOIL	CN	%	% x CN	
5.3		COMMERCIAL / R&D	A	89	100.0	8900.0	
5.3	.008				100.0	8900.0	WEIGHTED CN = 89.0

FLOW TYPE	L(ft)	H(ft)	Tc(hrs)	RUNOFF(in)	qp(CSM/in)	Q (cfs)	
SHEET	750	20	.064				
	750	20	.064	1.11	1300	12.0	(5yr FLOW)
				2.36		25.4	(100yr FLOW)

BASIN

ABnREV- 9 3D

ACREAGE	SQ.MI.	LAND USE	SOIL	CN	%	% x CN	
2.5		COMMERCIAL / R&D	A	89	100.0	8900.0	
2.5	.004				100.0	8900.0	WEIGHTED CN = 89.0

FLOW TYPE	L(ft)	H(ft)	Tc(hrs)	RUNOFF(in)	qp(CSM/in)	Q (cfs)	
SHEET	580	35	.032				
	580	35	.032	1.11	1300	5.6	(5yr FLOW)
				2.36		12.0	(100yr FLOW)

BASIN

ABnREV-10 3E

ACREAGE	SQ.MI.	LAND USE	SOIL	CN	%	% x CN	
.9		STREETS & WALKS	A	98	100.0	9800.0	
.9	.001				100.0	9800.0	WEIGHTED CN = 98.0

FLOW TYPE	L(ft)	H(ft)	Tc(hrs)	RUNOFF(in)	qp(CSM/in)	Q (cfs)	
STREET	470	10	.023				
	470	10	.023	1.87	1300	3.4	(5yr FLOW)
				3.27		6.0	(100yr FLOW)

BASIN

ABnREV-11 3F

ACREAGE	SQ.MI.	LAND USE	SOIL	CN	%	% x CN	
1.2		STREETS & WALKS	A	98	100.0	9800.0	
1.2	.002				100.0	9800.0	WEIGHTED CN = 98.0

FLOW TYPE	L(ft)	H(ft)	Tc(hrs)	RUNOFF(in)	qp(CSM/in)	Q (cfs)	
STREET	530	11	.028				
	530	11	.028	1.87	1300	4.6	(5yr FLOW)
				3.27		8.0	(100yr FLOW)

BASIN

ABnREV-12 4&5

ACREAGE	SQ.MI.	LAND USE	SOIL	CN	%	% x CN	
169.9		RES/COMM/IND/SCHL	A	74	87.5	6483.6	
24.2		INDUSTRIAL/OFFICE	A	81	12.5	1009.9	
194.1	.303				100.0	7493.5	WEIGHTED CN = 74.9

FLOW TYPE	L(ft)	H(ft)	Tc(hrs)	RUNOFF(in)	qp(CSM/in)	Q (cfs)	
SHEET	1000	10	.139				
STREET	1470	15	.109				
PIPE	4510	84	.108				
	6980	109	.356	.43	860	111.8	(5yr FLOW)
				1.30		338.5	(100yr FLOW)

BASIN

4A

ABnREV-13

ACREAGE	SQ.MI.	LAND USE	SOIL	CN	%	% x CN	
1.6		COMMERCIAL / R&D	A	89	57.1	5085.7	
1.2		STREETS & WALKS	A	98	42.9	4200.0	
2.8	.004				100.0	9285.7	WEIGHTED CN = 92.9

FLOW TYPE	L(ft)	H(ft)	Tc(hrs)	RUNOFF(in)	qp(CSM/in)	Q (cfs)
STREET	810	10	.056			
	810	10	.056	1.39	1300	7.9 (5yr FLOW)
				2.72		15.5 (100yr FLOW)

BASINS

ABnREV- 12,13 4&5,4A

ACREAGE	SQ.MI.	LAND USE	SOIL	CN	%	% x CN
169.9		RES/COMM/IND/SCHL	A	74	86.3	6391.4
1.6		COMMERCIAL / R&D	A	89	.8	72.3
24.2		INDUSTRIAL/OFFICE	A	81	12.3	995.5
1.2		STREETS & WALKS	A	98	.6	59.7
196.9	.308				100.0	7519.0

WEIGHTED CN = 75.2

FLOW TYPE	L(ft)	H(ft)	Tc(hrs)	RUNOFF(in)	qp(CSM/in)	Q (cfs)	
SHEET	1000	10	.138				
STREET	1470	15	.109				
PIPE	4510	84	.108				
	6980	109	.355	.44	860	115.8	(5yr FLOW)
				1.31		347.6	(100yr FLOW)

BASINS

ABnREV- 4 ,12,13 4&5,4A,1D

ACREAGE	SQ.MI.	LAND USE	SOIL	CN	%	% x CN
169.9		RES/COMM/IND/SCHL	A	74	85.8	6358.5
1.6		COMMERCIAL / R&D	A	89	.8	71.9
24.2		INDUSTRIAL/OFFICE	A	81	12.2	990.4
2.2		STREETS & WALKS	A	98	1.1	109.9
197.9	.309				100.0	7530.7

WEIGHTED CN = 75.3

FLOW TYPE	L(ft)	H(ft)	Tc(hrs)	RUNOFF(in)	qp(CSM/in)	Q (cfs)	
SHEET	1000	10	.138				
STREET	1470	15	.109				
PIPE	5530	106	.128				
	8000	131	.375	.44	840	114.7	(5yr FLOW)
				1.32		343.2	(100yr FLOW)

} Lower than for 4&5,4A

∴ use $Q_5 = 115.8$ cfs

$Q_{100} = 347.6$ cfs

BASINS

ABnREV- 1 ,4 ,12,13 1A,1D,4&5,4A

ACREAGE	SQ.MI.	LAND USE	SOIL	CN	%	% x CN	
169.9		RES/COMM/IND/SCHL	A	74	80.7	5975.1	
14.3		COMMERCIAL / R&D	A	89	6.8	604.3	
24.2		INDUSTRIAL/OFFICE	A	81	11.5	930.7	
2.2		STREETS & WALKS	A	98	1.1	103.3	
210.6	.329				100.0	7613.3	WEIGHTED CN = 76.1

FLOW TYPE	L(ft)	H(ft)	Tc(hrs)	RUNOFF(in)	qp(CSM/in)	Q (cfs)	
SHEET	1000	10	.138				
STREET	1470	15	.109				
PIPE	5530	106	.128				
	8000	131	.375	.47	840	130.2	(5yr FLOW)
				1.37		379.8	(100yr FLOW)

BASINS

ABnREV- 1 ,2 ,3 ,4 ,12,13 1A,1B,1C,1D,4&5,4A

ACREAGE	SQ.MI.	LAND USE	SOIL	CN	%	% x CN	
169.9		RES/COMM/IND/SCHL	A	74	74.0	5481.1	
2.9		P.U.D.	A	77	1.3	97.3	
27.9		COMMERCIAL / R&D	A	89	12.2	1081.5	
24.2		INDUSTRIAL/OFFICE	A	81	10.5	853.7	
4.7		STREETS & WALKS	A	98	2.0	200.6	
229.6	.359				100.0	7714.2	WEIGHTED CN = 77.1

FLOW TYPE	L(ft)	H(ft)	Tc(hrs)	RUNOFF(in)	qp(CSM/in)	Q (cfs)	
SHEET	1000	10	.138				
STREET	1470	15	.109				
PIPE	6070	118	.139				
	8540	143	.386	.51	830	151.3	(5yr FLOW)
				1.44		428.8	(100yr FLOW)

BASINS

ABnREV- 6 ,7 3A,3B

ACREAGE	SQ.MI.	LAND USE	SOIL	CN	%	% x CN	
6.9		COMMERCIAL / R&D	A	89	36.1	3215.2	
11.9		INDUSTRIAL/OFFICE	A	81	62.3	5046.6	
.3		STREETS & WALKS	A	98	1.6	153.9	
19.1	.030				100.0	8415.7	WEIGHTED CN = 84.2

FLOW TYPE	L(ft)	H(ft)	Tc(hrs)	RUNOFF(in)	qp(CSM/in)	Q (cfs)	
SHEET	200	2	.028				
STREET	1450	15	.107				
PIPE	560	12	.011				
	2210	29	.146	.82	1160	28.5	(5yr FLOW)
				1.95		67.5	(100yr FLOW)

BASINS

ABnREV- 6 ,7 ,8 ,10 3A,3B,3C,3E

ACREAGE	SQ.MI.	LAND USE	SOIL	CN	%	% x CN	
12.2		COMMERCIAL / R&D	A	89	48.2	4291.7	
11.9		INDUSTRIAL/OFFICE	A	81	47.0	3809.9	
1.2		STREETS & WALKS	A	98	4.7	464.8	
25.3	.040				100.0	8566.4	WEIGHTED CN = 85.7

FLOW TYPE	L(ft)	H(ft)	Tc(hrs)	RUNOFF(in)	qp(CSM/in)	Q (cfs)	
SHEET	200	2	.028				
STREET	1450	15	.107				
PIPE	1030	22	.020				
	2680	39	.155	.91	1140	40.8	(5yr FLOW)
				2.07		93.3	(100yr FLOW)

AUSTIN BLUFFS PARKWAY - DUBLIN TO WOODMEN - REVISED 03/31/87

BASINS

ABnREV- 5 ,6 ,7 ,8 ,9 ,10,11 2, 3A, 3B, 3C, 3D, 3E, 3F

ACREAGE	SQ.MI.	LAND USE	SOIL	CN	%	% x CN	
22.9		COMMERCIAL / R&D	A	89	59.9	5335.3	
11.9		INDUSTRIAL/OFFICE	A	81	31.2	2523.3	
3.4		STREETS & WALKS	A	98	8.9	872.3	
38.2	.060				100.0	8730.9	WEIGHTED CN = 87.3

FLOW TYPE	L(ft)	H(ft)	Tc(hrs)	RUNOFF(in)	qp(CSM/in)	Q (cfs)	
SHEET	200	2	.028				
STREET	1450	15	.107				
PIPE	1570	34	.031				
	3220	51	.166	1.00	1120	67.1	(5yr FLOW)
				2.21		147.7	(100yr FLOW)

AUSTIN BLUFFS PARKWAY - DUBLIN TO WOODMEN - REVISED 03/31/87

BASINS

ABnREV- 6 ,12,13 3A, 4&5, 4A

ACREAGE	SQ.MI.	LAND USE	SOIL	CN	%	% x CN	
169.9		RES/COMM/IND/SCHL	A	74	81.4	6027.1	
1.6		COMMERCIAL / R&D	A	89	.8	68.2	
36.1		INDUSTRIAL/OFFICE	A	81	17.3	1400.4	
1.2		STREETS & WALKS	A	98	.6	56.3	
208.8	.326				100.0	7552.1	WEIGHTED CN = 75.5

FLOW TYPE	L(ft)	H(ft)	Tc(hrs)	RUNOFF(in)	qp(CSM/in)	Q (cfs)	
SHEET	1000	10	.138				
STREET	1470	15	.109				
PIPE	4510	84	.108				
	6980	109	.355	.45	860	126.0	(5yr FLOW)
				1.33		374.5	(100yr FLOW)

BASINS

ABnREV- 1 ,4 ,6 ,7 ,8 ,10,12,13

ACREAGE	SQ.MI.	LAND USE	SOIL	CN	%	% x CN	
169.9		RES/COMM/IND/SCHL	A	74	72.0	5334.3	
26.5		COMMERCIAL / R&D	A	89	11.2	999.7	
36.1		INDUSTRIAL/OFFICE	A	81	15.3	1239.4	
3.4		STREETS & WALKS	A	98	1.4	142.1	
235.9	.369				100.0	7715.5	WEIGHTED CN = 77.2

BASINS

ABnREV- 1 ,4 ,6 ,7 ,8 ,10,12,13 1A, 1D, 3A, 3B, 3C, 3E, 4&5, 4A

ACREAGE	SQ.MI.	LAND USE	SOIL	CN	%	% x CN	
169.9		RES/COMM/IND/SCHL	A	74	72.0	5334.3	
26.5		COMMERCIAL / R&D	A	89	11.2	999.7	
36.1		INDUSTRIAL/OFFICE	A	81	15.3	1239.4	
3.4		STREETS & WALKS	A	98	1.4	142.1	
235.9	.369				100.0	7715.5	WEIGHTED CN = 77.2

FLOW TYPE	L(ft)	H(ft)	Tc(hrs)	RUNOFF(in)	qp(CSM/in)	Q (cfs)	
SHEET	1000	10	.138				
STREET	1470	15	.109				
PIPE	5530	106	.128				
	8000	131	.375	.51	840	157.5	(5yr FLOW)
				1.44		446.1	(100yr FLOW)

BASINS

ABnREV- 1 ,2 ,3 ,4 ,5 ,6 ,7 ,8 ,9 ,10,11,12,13 1A, 1B, 1C, 1D, 2, 3A, 3B, 3C, 3D, 3E, 3F, 4&5, 4A

ACREAGE	SQ.MI.	LAND USE	SOIL	CN	%	% x CN	
169.9		RES/COMM/IND/SCHL	A	74	63.4	4699.3	
2.9		P.U.D.	A	77	1.1	83.4	
50.8		COMMERCIAL / R&D	A	89	19.0	1688.3	
36.1		INDUSTRIAL/OFFICE	A	81	13.5	1091.9	
8.1		STREETS & WALKS	A	98	3.0	296.4	
267.8	.418				100.0	7859.2	WEIGHTED CN = 78.6

FLOW TYPE	L(ft)	H(ft)	Tc(hrs)	RUNOFF(in)	qp(CSM/in)	Q (cfs)	
SHEET	1000	10	.138				
STREET	1470	15	.109				
PIPE	6070	18	.139				
	8540	43	.386	.57	830	196.3	(5yr FLOW)
				1.54		534.1	(100yr FLOW)

TRIBUTARY FLOWS FROM PROPOSED AUTO CENTER -- JAN. 1987

BASIN

ABnREV-14

ACREAGE	SQ.MI.	LAND USE	SOIL	CN	%	% x CN	
64.2		AUTO PARK	A	90	100.0	9000.0	
64.2	.100				100.0	9000.0	WEIGHTED CN = 90.0

FLOW TYPE	L(ft)	H(ft)	Tc(hrs)	RUNOFF(in)	qp(CSM/in)	Q (cfs)	
SHEET	330	4	.115				
STREET	1180	36	.048				
PIPE	1800	36	.042				
	3310	76	.205	1.18	1060	125.4	(5yr FLOW)
				2.45		260.3	(100yr FLOW)

83557 23

AUSTIN BLUFFS -- 36" RCP CROSSING SOUTH OF WOODMEN ROAD

~STA. 74+73

BASIN

ABnREV-15

ACREAGE	SQ.MI.	LAND USE	SOIL	CN	%	% x CN	
12.0		COMMERCIAL / R&D	A	89	80.0	7120.0	
3.0		STREETS & WALKS	A	98	20.0	1960.0	
15.0	.023				100.0	9080.0	WEIGHTED CN = 90.8

FLOW TYPE	L(ft)	H(ft)	Tc(hrs)	RUNOFF(in)	qp(CSM/in)	Q (cfs)	
SHEET	1050	35	.112				
	1050	35	.112	1.24	1040	35.9	(5yr FLOW)
				2.52		73.3	(100yr FLOW)

Runoff tributary to 12' D-10R on Austin Bluffs, 8' D-10R (future) on Woodmen, and stub out back of 12' D-10R for onsite pickup. Additional 10 cfs is picked up in catch basin on West side of ~~Bl~~ Austin Bluffs, for a total of ~ 85 cfs (100-year).

UNPLATTED

BOULEVARD

DUBLIN

AUSTIN BLUFFS

FUTURE STREET

UNPLATTED

COTTONWOOD CREEK

ROAD

WOODMEN

SEE "DRAINAGE REPORT FOR DUBLIN BLVD. BETWEEN RANGEWOOD AND AUSTIN BLUFFS" BY KLH ENGINEERS FOR DRAINAGE FACILITIES IN DUBLIN

THE OUTFALL TO COTTONWOOD CREEK IS PRESENTLY OWNED BY NORWOOD DEVELOPMENT CORP.

142 LF-78" RCP @ s=1.5% min. (509 cfs PIPEFLOW)

16 D-10R SUMP 35.0 cfs PICKUP

18" RCP STUB FOR ON-SITE PICK UP BASIN 3D 12.5 cfs PICKUP

TEMPORARY OUTFALL TRENCH TO DAYLIGHT; PERMANENT OUTFALL TO BE BUILT WITH THE EXTENTION OF AUSTIN BLUFFS SOUTH.

67 CY-RIPRAP 450 ± SF

8' D-10R 6.8 cfs PICKUP

8' D-10R 12.5 cfs PICK UP

130 LF-102" RCP (614 cfs PIPEFLOW)

480 LF-66" RCP @ s=1.4% min. (389 cfs PIPEFLOW)

6' D-10R 12.5 cfs PICK UP

6' D-10R 12.5 cfs PICK UP

18' D-10R SUMP 35.8 cfs PICKUP

STUB FOR ONSITE PICK UP — 65 cfs — BASIN 1B

STUDY LIMIT

NOTE: DRAINAGE FACILITIES IN DUBLIN BOULEVARD AND AUSTIN BLUFFS PARKWAY, TO THE SOUTH, ARE ADDRESSED IN DRAINAGE REPORTS FOR EACH INDIVIDUAL SEGMENT OF ROADWAY. THESE REPORTS ARE BY KLH ENGINEERING.

ON-SITE FACILITIES TO PICK UP 25 cfs. LOCATIONS AND SIZES TO BE DETERMINED IN DRAINAGE REPORT FOR THIS SITE.

150 LF-24" RCP 11.8 cfs PICK UP

370 LF-60" RCP @ s=2.1% min. (373 cfs PIPEFLOW)

150 LF-24" RCP

ON-SITE FACILITIES TO PICK UP 28.7 cfs LOCATIONS AND SIZES TO BE DETERMINED IN DRAINAGE REPORT FOR THIS SITE.

PRIVATE DRIVE

410 LF-60" RCP @ s=1.9% min. (360 cfs PIPEFLOW)

8' D-10R 11.8 cfs PICK UP

6' D-10R 6.8 cfs PICK UP

8' D-10R 18 cfs PICK UP

240 LF-72" RCP @ s=0.7% min. (348 cfs PIPEFLOW)

60 CY-15" TEMPORARY RIP-RAP PAD

STUDY LIMIT

80 LF-30" RCP

10' D-10R 20.0 cfs PICK UP

ON-SITE FACILITIES TO PICK UP 5.0 cfs. LOCATIONS AND SIZES OF FACILITIES TO BE DETERMINED IN DRAINAGE REPORT FOR THIS SITE.

CONCRETE PAN (TYP.)

PRIVATE DRIVE

FUTURE 72" RCP TO CONNECT HERE. 428 cfs PIPEFLOW.

FUTURE INLETS

FUTURE PIPE

FUTURE 8' D-10R

FUTURE MANHOLE

FUTURE CLOSED CONDUIT

PRELIMINARY STREET LAYOUT AND FACILITIES SIZING.

FINAL DRAINAGE REPORT FOR THIS AREA TO BE SUBMITTED AT A LATER DATE (PRIOR TO PLATTING).

FUTURE STREETS (PRELIMINARY LAYOUT)

DAYLIGHT FILL

NOTE: ALL STREET FLOWS, PIPE FLOWS, AND CATCH BASIN PICKUP QUANTITIES ARE FOR THE 100-YEAR STORM.

THIS OUTFALL IS PRESENTLY OWNED BY NORWOOD DEVELOPMENT CORP.

TEMPORARY OUTFALL TRENCH TO DAYLIGHT; PERMANENT OUTFALL TO BE BUILT WITH PLATTING OF SITE.

20 CY - 18" RIP RAP

180 L.F. 60" RCP @ s=1.0% min. (261 cfs PIPEFLOW)

130 L.F. 36" RCP @ s=2.7% min. 175 cfs PIPEFLOW)

8' D-10R 6.8 cfs PICKUP

12' D-10R SUMPED 27.6 cfs PICK UP

36" STUB FOR ONSITE PICK UP

70 L.F. 18" RCP @ 0.91% min.

Temp Knox intersection Rec'd by City Engr. Dir.

Temp Knox intersection Required

EXISTING TWIN 36" CMP (FLOWS NORTH TO COTTONWOOD CREEK) (TO BE REMOVED OR ABANDONED IN CONJUNCTION WITH WOODMEN ROAD IMPROVEMENTS)

DRAINAGE FACILITIES REQUIRED FOR WOODMEN ROAD ARE NOT ADDRESSED IN THIS REPORT

240 L.F. 36" RCP @ 1.63% min. (185 cfs PIPEFLOW)

28 CY 18" RIP-RAP

FUTURE LOW POINT AT BRIDGE

FUTURE STORM SEWER

LEGEND

- 5-YEAR SUB-BASIN FLOW, cfs / 100-YEAR SUB-BASIN FLOW, cfs
- 5-YEAR ACCUMULATIVE FLOW, cfs / 100-YEAR ACCUMULATIVE FLOW, cfs
- SUB-BASIN DESIGNATION
- S.C.S. SOILS MAP NUMBER
- SOILS LIMIT LINE
- CATCH BASIN (CITY STD. D-10-R)
- MANHOLE
- EXISTING CONTOUR

REVISED JULY 8, 1987

KLH ENGINEERING CONSULTANTS INC.
ENGINEERS/SURVEYORS/PLANNERS PUEBLO/COLORADO SPRINGS

DRAINAGE PLAN
AUSTIN BLUFFS PARKWAY — DUBLIN TO WOODMEN

SCALE: 1"=100' | DRAWN BY: TMc | 83 557 00
DATE: 06/08/85 | CHECKED BY: TMc | JOB NO.

SEP 8 1987