

planners · consultants · engineers

Suite 200
4525 Northpark Drive
Colorado Springs, Colo. 80907

(303) 598-3222

March 23, 1972

Mr. DeWitt Miller
City Hall
P.O. Box 1575
Colorado Springs, Colorado

Subject: Vista Grande Terrace Northwest Master Drainage

Dear Deke:

Transmitted herewith is the Vista Grande Terrace Northwest Master Drainage plan with cost estimate and drainage fees. This report has been redeveloped due to new street alignments between Houck Boulevard and Vickers Drive. This cost estimate contains only those facilities between Houck Boulevard and Vickers Drive. This area of this study lies in the Templeton Gap Drainage Basin (76.10 Acres) and the Cottonwood Creek Basin (70.27 Acres). In addition to the basic plan and cost estimate, the following information is included: A detail regarding design of the curb outlet, and hydrologic computations for the area.

Please contact me if you have any questions.

Respectfully,

O. F. Watts
PE-LS 9853

CEA/cel

COL-TERRA INVESTMENTS

by SK Rockus up.

VISTA GRANDE TERRACE NORTHWEST
 TEMPLETON GAP BASIN COSTS

<u>Item</u>	<u>Quantity</u>	<u>Unit Price</u>	<u>Cost</u>
Curb Outlet	1 each	\$ 300.00	\$ 300.00
10' Catch Basin	2 each	600.00	1200.00
16' Catch Basin	2 each	775.00	1550.00
21" CMP	70 LF	9.00	630.00
24" CMP	70 LF	10.00	700.00
30" CMP	670 LF	12.00	8040.00
2'x1' Concr. Ditch	1550 LF	6.30	9765.00
4'x1' Concr. Ditch	2080 LF	8.22	17097.60

Subtotal \$ 39282.60
 10% Engr'g & Cont. 3928.26

TOTAL-----\$ 43210.86

Templeton Gap Drainage Basin Fees:

1971 Fees: 35.98 x \$467.00 = \$16,802.66 (VGT No. 9)
 1972 Fees: 40.12 x \$509.00 = 20,421.08

Total Fees: \$37,223.74
 Cost of facilities above: 43,210.86
 Total over-run: 5,987.12

VISTA GRANDE TERRACE NORTHWEST
 COTTONWOOD CREEK AND PULPIT ROCK BASIN COSTS

<u>Item</u>	<u>Quantity</u>	<u>Unit Price</u>	<u>Cost</u>
12' Catch Basin	4 each	\$ 700.00	\$ 700.00
21" CMP	70 LF	9.00	630.00
24" CMP	70 LF	10.00	700.00
	Subtotal		\$ 4130.00
	10% Engr & Cont		413.00
	TOTAL-----		\$ 4543.00

Cottonwood Creek Basin - 42.43 Acres
 Does not include anything North of Vickers Drive.

42.43 Acres x \$635.00/Acre-----\$26,943.05
 Actual Costs----- 4,543.00
 Proposed letter of credit-----\$22,400.05

Pulpit Rock Basin - 27.84 Acres
 27.84 Acres x \$735.00/Acre-----\$20,462.40

No facilities - Cash outlay required.

VISTA GRANDE TERRACE NORTHWEST
 COST ESTIMATE
 SUMMARY

<u>Item</u>	<u>Quantity</u>	<u>Unit Price</u>	<u>Cost</u>
North of Houck Boulevard Only:			
Curb Outlets	1 each	\$ 300.00	\$ 300.00
10' Catch Basin	2 each	600.00	1200.00
12' Catch Basin	4 each	700.00	2800.00
16' Catch Basin	2 each	775.00	1550.00
21" CMP	140 LF	9.00	1260.00
24" CMP	140 LF	10.00	1400.00
30" CMP	670 LF	12.00	8040.00
2'x6" Conc. Ditch	2280 LF	5.00	11400.00
4'x1' Conc. Ditch	1070 LF	6.57	7029.90
		Subtotal	\$ 34979.90
		10% Engr & Cont	3497.99
		TOTAL-----	\$ 38477.89

Cottonwood Creek Basin (42.43 Acres)

Drainage fees based on 1972 costs-----\$ 26943.05

Templeton Gap Basin (76.10 Acres)

Drainage fees based on 1971 costs-----\$ 16802.66

Drainage fees based on 1972 costs----- 20421.08

TOTAL-----\$ 37223.74

Pulpit Rock (27.84 Acres)

Drainage fees based on 1972 costs-----\$ 20462.40

Street and Storm Sewer Calculations

STREET	LOCATION	DIST	ELEVATION & SLOPE	TOTAL RUNOFF	STREET FLOW CAPACITY	PIPE FLOW	TYPE PIPE, CATCH BASIN & SLOPE %
TOMAN DRIVE (46' Rct)	ESCONDIDO DR		6521	14.7			
		270	S=1.1%		14.7/16.5 Rct		Ramp curb
	EL CANTO WAY		6518	21.1			
		260	S=2.3%		21.1/23.9 Rct		Ramp curb
HOUCK BLVD.	ORO GRANDE DR		6512	36.6			
		260	S=4.6%		0.0/24.6 R.		8" curb
			6500	56.6			2-16" CB w/24" cmp 30" cmp - 110' - 3%
HOUCK BLVD. (60' Int.)	DESCONSO Cir W.		6542	13.1			
		470	S=8.9%		20.0/30.0		
	TOMAN DRIVE		6500	56.6	20.0/30.0	+36.6	30" cmp - 6% - 550'
		550	S=4.0 min		0/30.0	36.6	
	ACADEMY Blvd.		6462	60.8	0/30	+24.2	2-10" CB w/27" cmp;
	Start RCTs by HWYS	0	-		60.8		
			-	136.3		136.3	USE 4' x 3' RCB by HWYS

UNITED
WESTERN
ENGINEERS

Project VISTA GRANDE TERRACE Page 1 of 1
 Calc. by RFA date 1-18-12
 Checked by _____ date _____

MAJOR BASIN	SUB BASIN	AREA		BASIN		Tc	DITCH		V	TPO	FLOW		Tb
		Planim. Read	MILE	LENGTH	HEIGHT		LENGTH	SLOPE			Q	qp	
I	A	45.41	.0163	900	57	.070				.542	1.50	21.83	
II	A	21.31	.0076	1000	57	.078				.547	1.50	10.09	
	B	40.33	.0145	1200	67	.088				.553	1.50	19.04	
	C	20.24	.0073	620	36	.055				.533	1.50	9.94	
	C1	3.16	.0011	350	30	.045				.527	1.50	1.56	
	D	23.54	.0084	880	32	.085				.551	.62	4.57	
	E	12.47	.0045	470	26	.046				.528	1.42	5.92	
	F	9.95	.0036	350	22	.036				.522	1.42	4.74	
	G	8.33	.0030	690	20	.079				.548	1.70	4.50	
III	A	16.00	.0057	750	37	.069				.541	1.70	8.67	
	B	20.11	.0072	620	48	.049				.529	0.62	4.08	
	C	16.53	.0059	580	30	.055				.533	1.42	7.61	
	D	9.78	.0035	460	30	.042				.525	1.42	4.58	
	E	18.24	.0065	600	46	.048				.529	1.42	8.44	
	F	4.26	.0015	290	16	.033				.520	1.70	2.37	

HYDROLOGIC COMPUTATION - BASIC DATA

PROJ: VGT NW

By: CEA
Date: 17 Mar '72



planners · consultants · engineers
Suite 200
4525 Northpark Drive
Colorado Springs, Colo. 80907

Page 1
of
5 Pages

MAJOR BASIN	SUB BASIN	AREA		BASIN		Tc	DITCH		V	TPO	FLOW		Tb
		Planim. Reed	MILE	LENGTH	HEIGHT		LENGTH	SLOPE			Q	qp	
IV	A	33.1	.0118	1030	27	.11				.566	1.70	17.3	
	N	8.0	.0028	350	26	.032				.519	1.70	4.5	
	O	17.9	.0064	770	51	.06				.536	1.42	8.2	
	P	13.2	.0047	600	60	.043				.526	1.42	6.2	
	Q	21.4	.0076	1090	87	.072				.543	1.42	9.7	
VIII	A	29.8	.0106	1460	89	.10				.560	1.42	13.1	
	B	14.8	.0053	740	65	.054				.532	1.42	6.9	
	C	34.9	.0125	1240	76	.090				.554	1.42	15.5	
	D	14.0	.0050	800	62	.060				.536	1.42	6.4	
	E	21.3	.0076	870	58	.068				.541	1.42	9.7	
	F	10.8	.0039	600	34	.054				.532	1.42	5.0	
	G	7.7	.0028	790	48	.064				.538	1.70	4.2	

HYDROLOGIC COMPUTATION - BASIC DATA

PROJ: VISTA GRANDE TERRACE MASTER By: KFA
 REVISED BASINS & CALCS Date: 1-13-72



planners · consultants · engineers
 Suite 200
 4525 Northpark Drive
 Colorado Springs, Colo. 80907

MAJOR BASIN	SUB BASIN	AREA		BASIN		Tc	DITCH		V	TPO	FLOW		Tb
		Planim. Read	MILE	LENGTH	HEIGHT		LENGTH	SLOPE			Q	qp	
IX	A	10.9	.0039	570	18	.065				.539	1.42	5.0	
	B	20.7	.0074	600	28	.060				.536	1.50	10.1	
	C	17.8	.0063	720	35	.065				.539	1.50	8.6	
	D	13.0	.0047	460	18	.050				.530	1.50	6.4	
	E	8.3	.0030	420	28	.039				.523	1.50	4.1	
	F	16.3	.0058	590	26	.058				.535	1.50	7.9	
	G	31.0	.0111	760	50	.060				.536	1.70	17.1	
	H	29.6	.0106	760	49	.061				.537	1.70	16.3	
IV	R	4.45	.0037 .0064	720	64	.050				.530	1.42	8.3	
	S	2.88	.0041	720	60	.052				.531	1.65	6.2	
	T	5.76	.0083	860	62	.062				.537	1.42	10.6	
	U	3.30	.0047	620	40	.052				.531	1.42	6.1	
	V	5.17	.0074	800	42	.069				.541	1.42	9.4	
	W	3.25	.0047	1120	56	.088				.553	1.65	6.7	
	X	6.88	.0099	770	52	.060				.536	0.25	2.2	
	Y	4.36	.0063	1000	48	.082				.549	1.42	7.8	

HYDROLOGIC COMPUTATION - BASIC DATA

PROJ: VGT Master - Revised

By: KFA

Date: 1-13-72

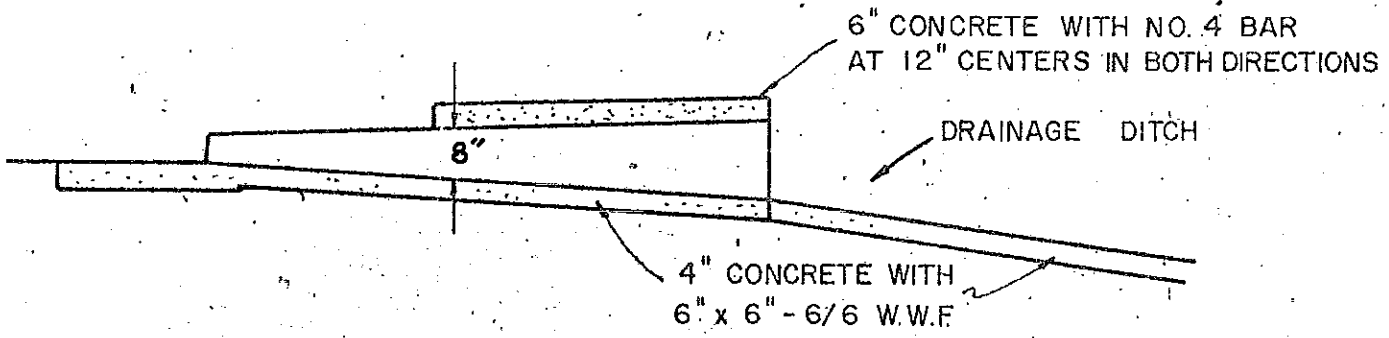
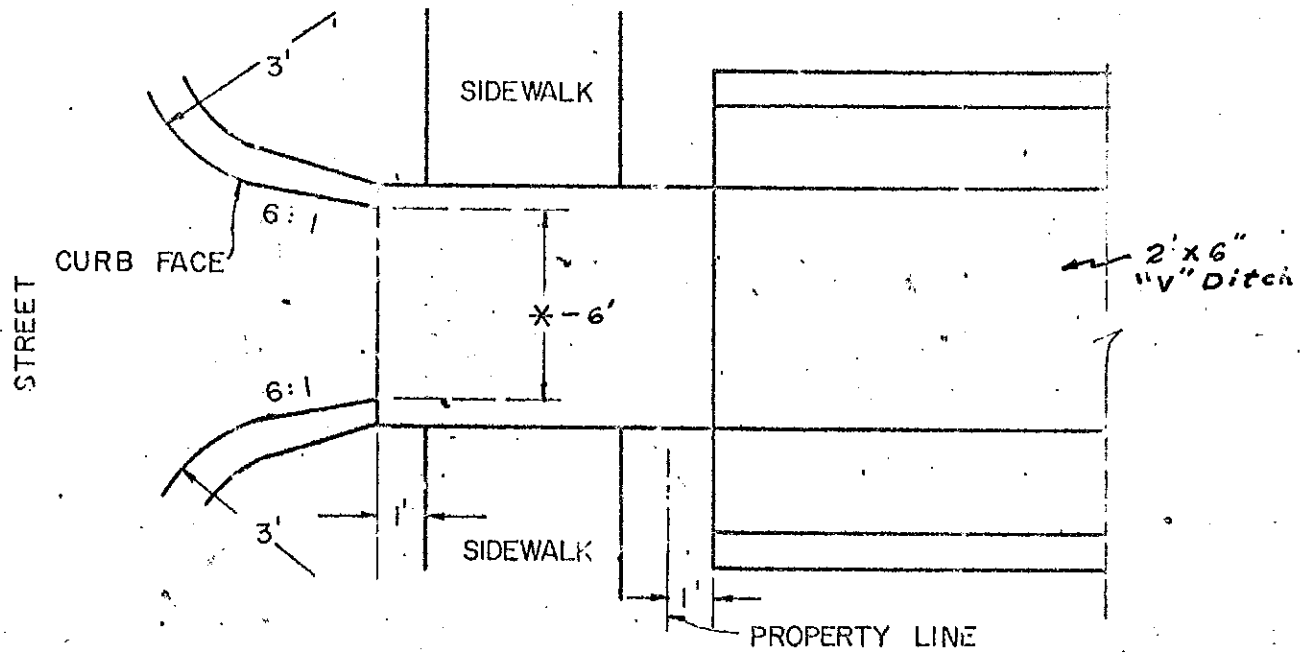


planners · consultants · engineers
Suite 200
4525 Northpark Drive
Colorado Springs, Colo. 80907

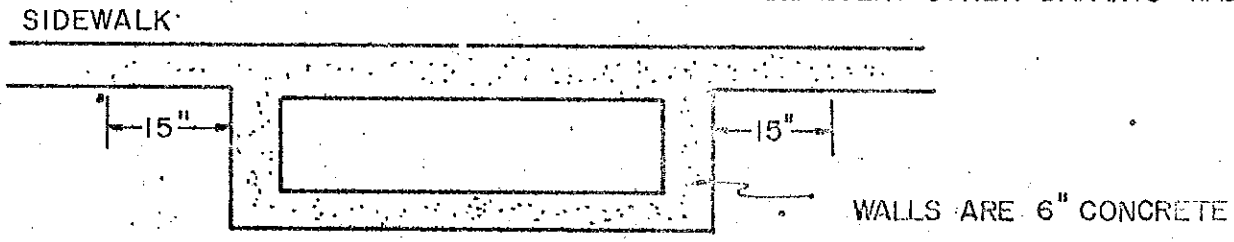
Page 29
of
5 Pages



Area	Composite		Curve No. Calc's		C x P
	Planim. Reading	Area (m ²)	(D) % Total Area	(C) Curve No.	
II D	6.54	.00235	27.8	50	13.88
	17.00	.00610	72.2	94	67.87
	Total	23.54	.00845	100	
				Use	82
III B	5.40	.00194	26.87	50	13.44
	14.71	.00528	73.13	94	68.74
	Total	20.11	.00722	100	
				Use	82
III H	4.20	.00151	25.42	50	12.71
	12.32	.00442	74.58	94	70.11
	Total	16.52	.00593	100	
				Use	83



EXTEND EVERY OTHER BAR 15" INTO SIDEWALK ON BOTH SIDES, BEND EVERY OTHER BAR INTO WALLS



NOTES:

1. SIDEWALK MAY BE PLACED ANYWHERE FROM CURB TO PROPERTY LINE BY EXTENDING THE TOP SLAB TO MATCH THE POSITION OF THE SIDEWALK
2. * VARIABLE DEPENDING ON QUANTITY OF WATER. MINIMUM 4'

CURB OUTLET
AT TOMAN CT.