

ENGINEER.

DRAINAGE REPORT

HOLLAND PARK (WEST)

R. Keith Hook & Associates, Inc.
2545 East Platte Place
Colorado Springs, Colorado 80909

July 17, 1969

Mr. Maury Pearce
Director of Public Works
City Hall
Colorado Springs, Colorado

Dear Mr. Pearce:

Transmitted herewith is the Drainage Report for Holland
Park (West), in the City of Colorado Springs, El Paso
County, Colorado.


Please return the original copy upon approval to
R. Keith Hook & Associates, Inc.

Yours truly,

R. KEITH HOOK & ASSOCIATES, INC.


Frederick P. Blessing, Director
Consultant and Inspection Department

FPB/vaj

Approved: 

Mr. Maury Pearce

R. Keith Hook & Associates, Inc.

DRAINAGE REPORT

HOLLAND PARK (WEST)

Prepared by: Frederick P. Blessing



r. keith hook & associates, inc.

PHONE 473-5653

2545 E. PLATTE AVE.

COLORADO SPRINGS, COLORADO 80909

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r. keith hook & associates, inc.

PHONE 473-5653

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COLORADO SPRINGS, COLORADO 80909

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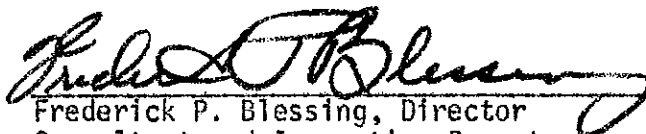
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Drainage Report
Holland Park (West)

GENERAL DESCRIPTION:

Holland Park Subdivision (West) is located in portions of Section 25 and 26, Township 13 South, Range 67 West of the 6th P.M. The Property consists of 196 Acres, more or less, (exclusive of lineal park), lying South of the Garden of the Gods Road, East of Interstate Highway No. 25 and approximately 2,000 feet North of Fillmore Street. The entire area lies in the Douglas Creek Drainage Basin.

A portion of the Subdivision is boarded on the North by the Garden of the Gods Industrial Park and other Holland Park single-family subdivisions. All property to the East consists of single-family developments. The area is boarded on the South by commercial properties and on the West, mainly by undeveloped land.

The subdivision is of rolling terrain and is drained by natural drainageways designated as Greenbelt areas. These drainageways pass almost directly thru the middle of the subdivision, and all zones will drain to the Greenbelt. Except where necessary, to control surface flow, i.e., into concrete culverts and where no definite natural drainage way now exists, the Greenbelts will be left in their natural configuration. See Drawing No. 171D, enclosed.

INTERIOR DRAINAGE:

The total development is divided into 26 major drainage zones as shown on the drawing. Surface flow patterns and CFS in and out of each zone are indicated. All flows will enter the Greenbelts which slope to the Southeast. The Greenbelts from the Northwest converge into one large Greenbelt, at approximately center of the development. The general direction of the main Greenbelt is also toward the Southeast where it will cross under Chestnut Street via, 3-90" CMP. The flow from this drainageway then passes under Highway 25 via, a concrete bridge and enters Monument Creek. The configurations of the main greenbelt is such that it can be left in its natural state except at certain points within the Development.

There are two (2) streets which cross the main greenbelt and at these locations the natural greenbelt will be shaped and rip-rapped to channel the flow of the water to concrete culverts. At the outlet from each of these culverts, the greenbelt again will be shaped and rip-rapped to bring the runoff back to the natural configuration. The greenbelt from the extreme Northwest corner of the development carries the flow from the existing culvert under the Garden of the Gods Road. This drainageway is not defined and a ditch section will be required to contain the flow within the easement. Where this greenbelt enters the main greenbelt, the

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Drainage Report
Holland Park (West)

ditch section will be widened and rip-rapped to allow flow to enter the natural configuration of the main drainageway.

Runoff from the high density areas (single-family areas) will be carried in the streets and to the greenbelt via, concrete swales or curb openings in the concrete culverts.

EXTERIOR DRAINAGE:

All areas surrounding the development contributes surface runoff to the area. Where possible streets are used to carry this runoff to the greenbelt, however, when the PIP, PUD and R-5 areas are developed-some additional concrete swales may be required where the internal paved areas cannot be used to convey surface runoff to the street systems.

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CALCULATIONS
HOLLAND PARK (WEST)

<u>ZONE</u>	<u>ACREAGE</u>	<u>AREA SQ. MI.</u>	<u>L (FT.)</u>	<u>H (FT.)</u>	<u>Tc (HRS.)</u>	<u>Tp (HRS.)</u>	<u>Q (IN.)</u>	<u>QP (CFS)</u>
1.	11.42	.0172	550	25	.055	.533	1.8	28.1
2.	11.72	.0183	600	15	.074	.544	1.8	29.3
3.	4.13	.0061	350	25	.033	.519	1.8	10.2
4.	4.95	.0077	300	15	.035	.521	1.6	11.4
5.	9.24	.0144	650	35	.057	.534	1.6	20.9
6.	16.21	.0254	700	25	.070	.542	1.6	36.3
7.	4.05	.0065	450	10	.060	.536	1.6	9.1
8.	6.96	.0108	530	25	.056	.533	1.6	15.7
9.	3.09	.0048	330	20	.034	.520	1.6	6.3
10.	5.79	.0092	400	40	.032	.519	1.6	13.7
11.	8.11	.0126	670	55	.049	.529	1.6	18.4
12.	5.55	.0088	500	15	.059	.535	1.6	12.7
13.	7.23	.001	350	35	.028	.516	1.6	16.5
14.	6.06	.009	375	40	.029	.517	1.6	13.5
15.	15.11	.024	1050	70	.11	.566	1.6	32.8
16.	5.53	.0086	600	20	.065	.539	1.8	13.9
17.	7.32	.012	670	35	.058	.534	1.6	17.4
18.	6.50	.010	500	25	.048	.528	1.6	14.7
19.	6.29	.0098	430	30	.038	.522	1.6	14.4
20.	8.41	.013	550	25	.054	.532	1.6	18.9
21.	5.99	.0093	1000	50	.08	.548	1.6	13.1
22.	5.02	.0078	450	15	.052	.531	1.6	11.4
23.	7.85	.0122	1100	50	.09	.554	1.6	17.0
24.	13.21	.0206	780	50	.06	.536	1.6	29.7
25.	19.09	.0298	1400	150	.076	.545	1.6	42.4
26.	1.03	.0016	320	35	.025	.515	1.6	2.4

Using Q of 1.6 for Housing Areas R-1, R-5 and PUD and School
1.8 for PIP and PBC

Drainage Report
Holland Park (West)

COST ESTIMATE

Concrete Culvert Amsterdam Drive and Greenbelt	1 ea.	\$18,000.00
Concrete Culvert Holland Park Boulevard and Greenbelt	1 ea.	\$17,000.00
90" CMP Chestnut Street	300 LF @ \$64/LF	\$19,200.00
36" CMP	100 LF @ \$16.50/LF	\$ 1,650.00
Greenbelt Shaping and Slope Treatment	3660 LF @ \$10.50/LF	<u>\$38,430.00</u>
Concrete Swales	700 LF @ \$8/LF	\$ 5,600.00
Splash Pans	4 ea @ \$300/	\$ 1,200.00
Curb Inlets	6 ea @ \$150/	<u>\$ 900.00</u>
	TOTAL	\$101,980.00

\$101,980.00 = \$520.30/Acre
196 Acres

APPROVED
8-14-1969
R. Mant

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Drainage Report
Holland Park (West)

COST ESTIMATE

Concrete Culvert Amsterdam Drive and Greenbelt	1 ea.	\$18,000.00
Concrete Culvert Holland Park Boulevard and Greenbelt	1 ea.	\$17,000.00
90" CMP Chestnut Street	180 LF @ \$64/LF	\$11,520.00
Greenbelt, Shaping and Slope Treatment	3660 LF @ \$10.50/LF	\$38,430.00
Concrete Swales	700 LF @ \$8/LF	\$ 5,600.00
Splash Pans	4 ea. @ \$300/ea.	\$ 1,200.00
Curb Inlets	6 ea. @ \$150/ea.	\$ 900.00
	TOTAL	\$92,650.00

$$\frac{\$92,650.00}{196 \text{ Acres}} = \$472.70/\text{Acre}$$



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