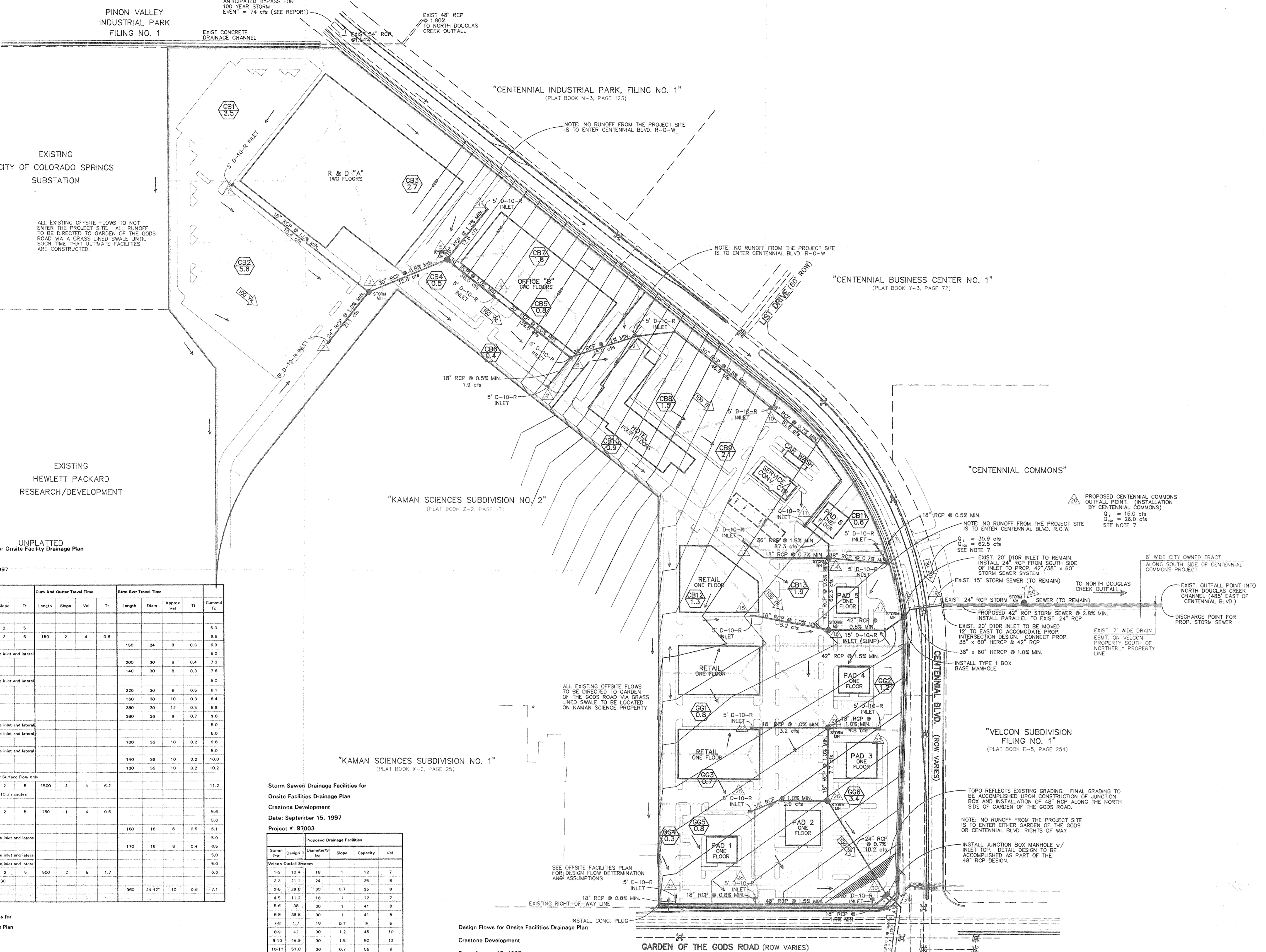


LEGEND

- 5600 CONTOUR LINE
- MAJOR BASIN BOUNDARY
- MINOR BASIN BOUNDARY
- FLOW ARROW
- SUBBASIN ID AREA (ACRES)
- SUMMARY POINT

NOTES

1. ALL DRAINAGE FACILITIES SHOWN ON THIS PLAN ARE BASED ON CONCEPT DESIGN ONLY. VERTICAL AND HORIZONTAL LOCATIONS ARE TO BE VERIFIED UPON PREPARATION OF THE FINAL CONSTRUCTION DRAWINGS.
2. DRAINAGE FACILITIES SHOWN ON THE PLAN REPRESENT A CONCEPT DESIGN FOR A SYSTEM THAT WILL ACCOMMODATE THE ANTICIPATED RUNOFF FROM THE MINOR 5 YEAR STORM EVENT. FINAL DESIGN FLOWS AND PIPE SIZES WILL NEED TO BE VERIFIED UPON PREPARATION OF THE FINAL DRAINAGE REPORT.
3. ALL FACILITIES SHOWN ON THIS PLAN LOCATED OUTSIDE THE PUBLIC RIGHTS-OF-WAY OF CENTENNIAL BOULEVARD AND GARDEN OF THE GODS ROAD ARE TO BE PRIVATELY OWNED AND MAINTAINED.
4. ALL DRAINAGE FACILITIES ARE TO BE CONSTRUCTED IN ACCORDANCE WITH STANDARD CITY OF COLORADO SPRINGS SPECIFICATIONS AND REQUIREMENTS.
5. THE HORIZONTAL LOCATION OF THE DRAINAGE FACILITIES SHOWN ON THIS PLAN ARE SUBJECT TO FINAL LOCATION OF PROPOSED PAD SITES.
6. ALL PRELIMINARY HYDRAULIC ANALYSIS WAS PERFORMED BASED ON THE USE OF REINFORCED CONCRETE PIPE. ADDITIONAL ANALYSIS WILL BE REQUIRED IF ALTERNATE PIPE MATERIAL IS USED.
7. THE DESIGN FLOWS SHOWN ON THIS PLAN WERE OBTAINED FROM THE FINAL DRAINAGE REPORT ENTITLED "CENTENNIAL COMMONS DRAINAGE PLAN" DATED 12/96, PREPARED BY OLIVER WATTS. SEE REPORT APPENDIX FOR EXHIBITS. SEE REPORT SECTION "C" HYDRAULIC ANALYSIS OF PROPOSED DRAINAGE FACILITIES" FOR ANALYSIS OF BOTH EXISTING AND PROPOSED DRAINAGE FACILITIES DOWNSTREAM OF POINT #18.
8. TOPD SHOWN ON THIS PLAN IS PER THE APPROVED GRADING AND EROSION CONTROL PLAN PREPARED BY OBERING, WURTH AND ASSOC.



Time of Concentration for Onsite Facility Drainage Plan
Crestone Development
Date: September 15, 1997
Project #: 97003

Summ. Pt.	Overland Travel Time					Curb And Gutter Travel Time					Storm Sewer Travel Time				
	Length	C	Slope	Tt	Val	Length	Slope	Val	Tt	Length	Diam	Appro. Vel	Tt	Cumulative	
1	200	0.8	2	5						150	24	8	0.3	6.0	
2	300	0.8	2	6	150	2	4	0.6						6.6	
3										200	30	8	0.4	7.3	
4										140	30	8	0.3	7.6	
5														5.0	
6										220	30	8	0.5	8.1	
7										160	30	10	0.3	8.4	
8										380	30	12	0.5	8.9	
9										380	36	9	0.7	9.6	
10														5.0	
11														5.0	
12										100	36	10	0.2	9.8	
13														5.0	
14										140	36	10	0.2	10.0	
15										130	36	10	0.2	10.2	
16														11.2	
17														11.2	

Sizing for Inlets in Sump Conditions for Onsite Drainage Facilities Drainage Plan
Crestone Development
Date: September 15, 1997
Project #: 97003

Point	Design Q (cfs)	Proposed Inlet Length	Intercept Capacity	Comments
1	10.4	5	14.7	
2	21.1	8	23.6	
3	11.2	5	14.7	
4	1.8	5	14.7	
5	2.7	5	14.7	
6	5.5	5	14.7	
7	4.9	5	14.7	
8	36.7	12	36	Design Q based on additional 30 cfs
9	2.5	5	14.7	
10	5.5	5	14.7	
11	45.9	15	45	Design Q based on additional 40 cfs

Storm Sewer/ Drainage Facilities for Onsite Facilities Drainage Plan
Crestone Development
Date: September 15, 1997
Project #: 97003

Summ. Pt.	Design Q (cfs)	Diameter (in)	Slope	Capacity	Val
1-3	10.4	18	1	12	7
2-3	21.1	24	1	25	8
3-5	29.8	30	0.7	35	8
4-5	11.2	18	1	12	7
5-6	38	30	1	41	8
6-8	39.9	30	1	41	8
7-8	1.7	18	0.7	9	6
8-9	4.2	30	1.2	45	10
9-10	46.9	30	1.5	50	12
10-11	51.8	36	0.7	58	8
11-14	67.3	36	1	70	10
12-14	3.7	18	0.7	9	5
13-14	2.5	18	0.7	9	5
14-16	67.3	36	0.7	70	10
15-16	5	18	0.7	9	5
16-17	66.9	36	1	70	10
17-20	70.2	36	1.2	75	11

Design Flows for Onsite Facilities Drainage Plan
Crestone Development
Date: August 15, 1997
Project #: 97003

Summ. Pt.	ID	Area (acres)	CS	C100	Tc (min)	IS	I100	QS	Q100	QS	Q100	Cumulative
1	CB1	2.5	0.80	0.90	5.0	5.2	9.0	10.4	20.3			10.4
2	CB2	5.6	0.80	0.90	6.6	4.7	8.2	21.1	41.3			31.7
3	CB1-2	8.1	0.80	0.90	6.9	4.6	8.0			29.8	58.3	58.3
4	CB3	2.7	0.80	0.90	5.0	5.2	9.0	11.2	21.9			70.2
5	CB1-3	10.8	0.80	0.90	7.3	4.4	7.9			38.0	76.6	76.6
6	CB4	0.5	0.80	0.90	7.6	4.4	7.8	1.8	3.5			78.1
7	CB1-4	11.3	0.80	0.90	7.6	4.4	7.8			39.8	79.3	79.3
8	CB5	0.4	0.80	0.90	5.0	5.2	9.0	1.7	3.2			82.5
9	CB5	0.8	0.80	0.90	8.1	4.2	7.9	2.7	5.3			87.8
10	CB1-5	12.5	0.80	0.90	8.1	4.2	7.3			42.0	81.1	81.1
11	CB7	1.8	0.80	0.90	8.4	4.1	7.1	5.9	11.7			92.8
12	CB1-7	14.3	0.80	0.90	8.4	4.1	7.1			46.9	92.7	92.7
13	CB8	1.5	0.80	0.90	8.9	4.1	7.1	4.9	9.6			102.3
14	CB1-8	15.8	0.80	0.90	8.9	4.1	7.1			51.8	101.0	101.0
15	CB9	2.1	0.80	0.90	9.6	4.0	7.0	6.7	13.2			114.2
16	CB1-9	17.9	0.80	0.90	9.6	4.0	7.0			57.3	112.8	112.8
17	CB10	0.9	0.80	0.90	5.0	5.2	9.0	3.7	7.3			120.1
18	CB11	0.4	0.80	0.90	5.0	5.2	9.0	2.5	4.9			125.0
19	CB11-1	19.4	0.80	0.90	9.8	4.0	7.0			62.3	122.2	122.2
20	CB12	1.2	0.80	0.90	5.0	5.2	9.0	5.0	9.7			131.9
21	CB1-12	20.6	0.80	0.90	10.0	4.0	7.0			65.9	129.8	129.8
22	CB13	1.9	0.80	0.90	10.2	3.9	6.9	5.9	11.8			141.6

Summ. Pt.	ID	Area (acres)	CS	C100	Tc (min)	IS	I100	QS	Q100	QS	Q100	Cumulative
17	CB1-13	22.5	0.80	0.90	10.2	3.9	6.9			70.2	139.7	139.7

NO. DATE REVISION BY

1 9/15/97 INCLUDES CITY OF COLO. SPGS. COMMENTS KCH

ON-SITE FACILITIES - MASTER DEVELOPMENT DRAINAGE PLAN

CENTENNIAL BLVD./GARDEN OF THE GODS RD.-COLO. SPGS., CO

Oberring, Wurth & Associates
Consulting Civil Engineers
Professional Land Surveyors

1015 Blkton Drive
Colorado Springs, Colorado
Phone (719) 531-6200

97003

2 OF 2 SHEETS

PROJECT IN THE CITY OF COLORADO SPRINGS, COLORADO
 PROJECT NO. 97003
 PROJECT NAME: CENTENNIAL COMMONS DRAINAGE PLAN
 PROJECT DATE: 9/15/97
 PROJECT LOCATION: CENTENNIAL COMMONS, COLORADO SPRINGS, CO
 PROJECT OWNER: CITY OF COLORADO SPRINGS
 PROJECT ENGINEER: KCH
 PROJECT SURVEYOR: KCH
 PROJECT DRAFTER: KCH
 PROJECT CHECKER: KCH
 PROJECT APPROVER: KCH