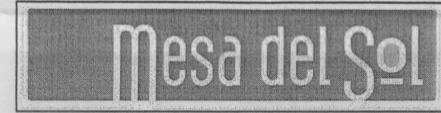


LOCATION MAP
ZONE ATLAS INDEX MAP R-16





DRAINAGE MANAGEMENT PLAN

Introduction/Purpos

This submittal describes the drainage scheme for Drainage Area Zero (DAO) within the Mesa del Sol Innovation Park. This drainage management plan will serve as guidelines for ultimate pond sizing and drainage calculations for the block. Specifically this DMP is submitted in support of COA hydrology approval for Project Pinnacle rough grading permit approval. In addition this plan will also provide a framework diagram for future submittals including but not limited to sites and work order approvals.

Existing Conditions

The drainage area at the north end of the Innovation Park (referred to here after as DAO) within Mesa del Sol is currently undeveloped and slopes 0.5% to 1.0% from the northwest to southeast. The final outfall for this current drainage is a series of playas that extend down the middle of the proposed Innovation Park to the south of DAO. The block being analyzed will be bound by University Blvd. to the west, Crick Avenue to the south, Watson Drive to the east and an existing escarpment to the north and northwest.

Offsite Drainage

Currently, no offsite drainage enters the drainage area due to an existing escarpment to the north and northwest of the site. All flow generated to the east and south of DAO will continue along the historic path to a series of aforementioned playas to the south. All drainage generated onsite will be retained under the 100yr 10day storm event and not effect surrounding areas.

Proposed Site Grading

The slope of the DAO basin under proposed conditions is similar to existing conditions. The DAO will have two centrally located, permanent, retention ponds within open space/drainage tracts. Together these ponds are designed to retain the 100 year, 10 day storm generated by the site.

Drainage generated by the roads within the DAO basin will be conveyed to the regional retention pond via surface flow and storm drainage. Each site will be analyzed on a site by site basis. The drainage for sites furthest from the pond will be conveyed to the pond by either direct storm drain or surface flow within the streets. The flow generated by each sub-basin is shown within the table labeled MESA DEL SOL — DEVELOPED HYDRAULIC CALCULATIONS. In addition the capacity of each road based on Manning's equation is shown on the overall drainage map.

The regional retention ponds will be subject to future site planning considerations which will incorporate water quality facilities, along with aesthetically pleasing features such as a trail system, pedestrian amenities, and sedimentation basin facilities. In addition, infiltration basins will be installed in the retention ponds to manage nuisance flows and provide a positive discharge of ponded water over time; however, the infiltration does not reduce the 100 year, 10 day stored ponding volume requirements.

The ponds are sized in accordance with the methodology outlined in the DPM section 22.2. Developed land treatments for the majority of this drainage area were assumed to be 90% treatment D and 10% treatment B (See MESA DEL SOL — DEVELOPED HYDRAULIC CALCULATIONS for basin calculations and land treatments). For DAO, the volume of retention required (Vr) is 892,394 CF and the volume of retention provided (Vp) is 964,701 CF.

loodolain

In accordance with FEMA Community Map Panel #35001C0555 E, the site is not located within a floodplain.

Conclusion

This drainage submittal has been prepared in accordance with City of Albuquerque requirements. This plan demonstrates the proposed grading and drainage concepts. The implementation of these concepts would result in the safe retention of the 100 yr, 10 day storm event. Individual sites will be subject to separate hydrology approval in conjunction with the guidelines set forth in this drainage management plan. This drainage management plan is submitted in support of future development within the block, including building sites and roads.

		This to	able is based o								
BASIN						jes	Q(100)	Q(100)	WTE	V(100) ₃₆₀	V(100) _{10day}
ID	(SQ. FT)	(AC.)	Α	В	С	D	(cfs/ac.)	(cfs)	(inches)	(CF)	(CF)
DRAINAGE											
AREA 0											
Basin 0A Surrounding Roads)	328943	7.55									
Basin 0A1	149860	3.44	0.0%	0.0%	0.0%	100.0%	4.70	16.17	2.12	26475	46457
Basin 0A2	76556	1.76	0.0%	0.0%	0.0%	100.0%	4.70	8.26	2.12	13525	23732
Basin 0A3	33373	0.77	0.0%	0.0%	0.0%	100.0%	4.70	3.60	2.12	5896	10346
Basin 0A4	69153	1.59	0.0%	0.0%	0.0%	100.0%	4.70	7.46	2.12	12217	21437
Basin 0A5	71975	1.65	0.0%	0.0%	0.0%	100.0%	4.70	7.77	2.12	12716	22312
Total								35.49			
Basin 0B (Open Space/Regional Retention Ponds)	259061	5.95									
Basin 0B1	65282	1.50	0.0%	50.0%	50.0%	0.0%	2.71	4.06	0.96	5195	5195
Basin 0B2	193779	4.45	0.0%	50.0%	50.0%	0.0%	2.71	12.06	0.96	15422	15422
Total								16.12			
Basin 0C (Interior Road)	21651	0.50	0.0%	0.0%	0.0%	100.0%	4.70	2.34	2.12	3825	6712
Basin 0D	346719	7.96	0.0%	10.0%	0.0%	90.0%	4.46	35.48	1.99	57382	98988
Basin 0E	570983	13.11	0.0%	10.0%	0.0%	90.0%	4.46	58.44	1.99	94498	163016
Basin 0F (Project Pinnacle)*	1080186	24.80	0.0%	10.0%	0.0%	90.0%	4.46	110.55	1.99	178771	308393
Basin 0G	148461	3.41	0.0%	10.0%	0.0%	90.0%	4.46	15.19	1.99	24570	42386
Basin 0H	99266	2.28	0.0%	10.0%	0.0%	90.0%	4.46	10.16	1.99	16429	28340
Basin 0J	322664	7.41	0.0%	10.0%	0.0%	90.0%	4.46	33.02	1.99	53401	92121

REVISIONS

A
A
A

DRAWN BY
REVIEWED BY
DATE

PROJECT NO.

DRAWING NAME

DRAINAGE AREA

ZERO DRAINAGE

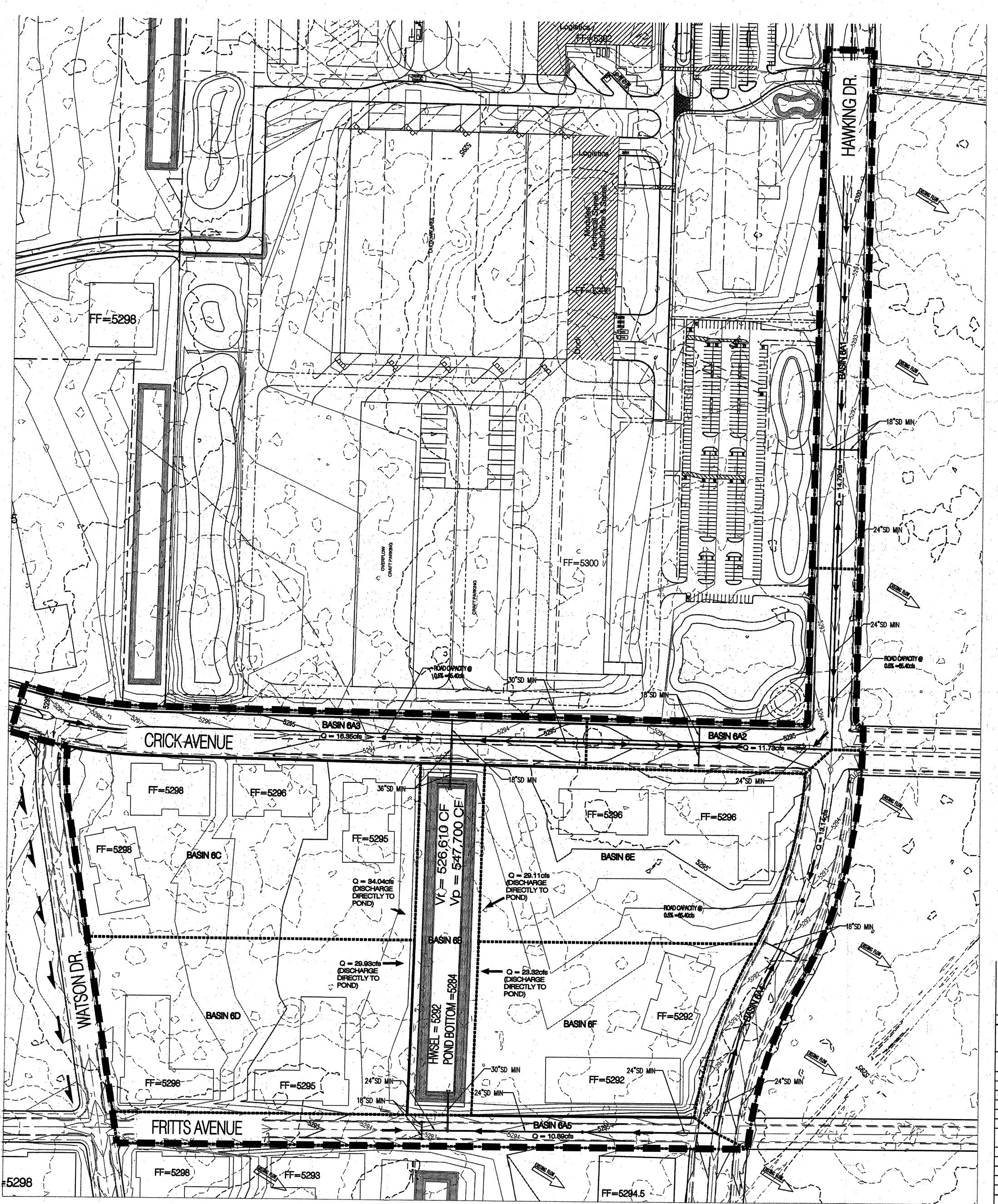
MANAGEMENT

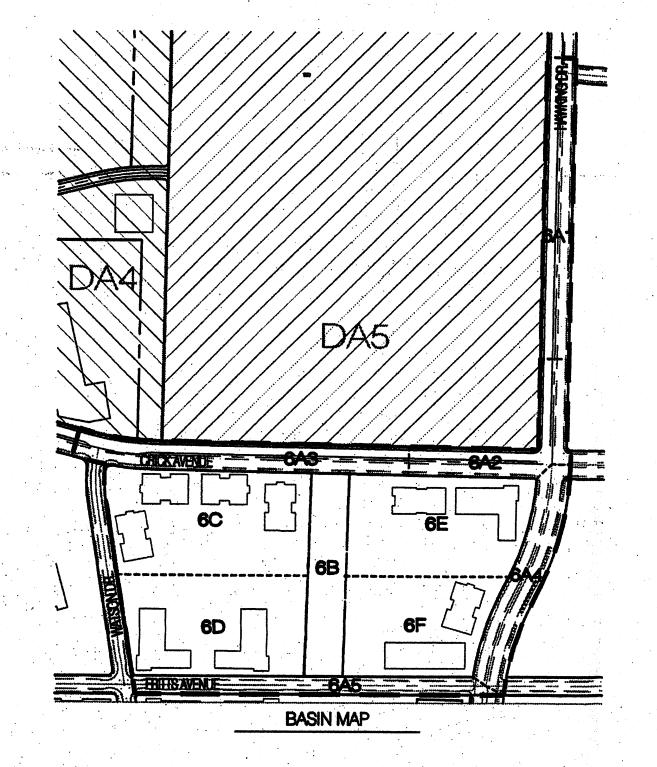
SHEET NO.

PLAN

C001

OF





LEGEND

SUB-BASIN LINE

DEVELOPED FLOW ARROW

DIVERSION (SWALE/BERM)

PROPOSED STORM DRAIN

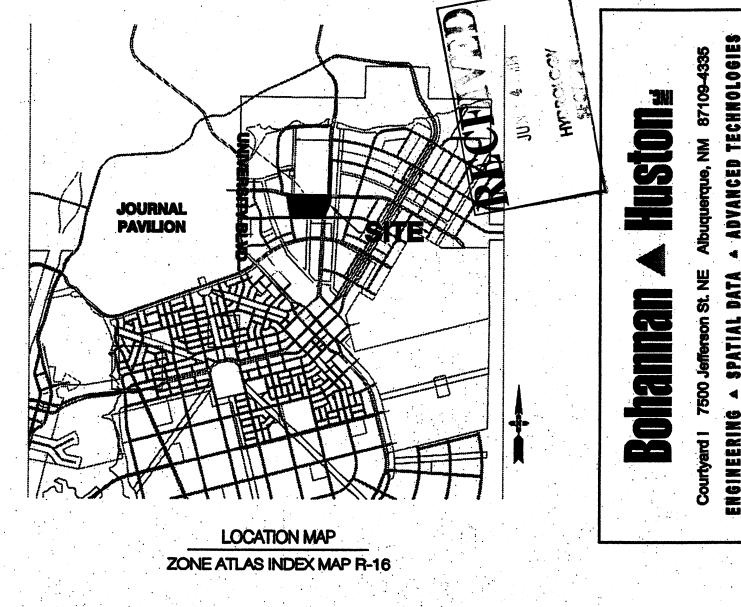
EXISTING FLOW ARROW

SUB-BASIN ID

Q = 52.6cfs DEVELOPED CONDITION FLOW

NOTE: FINISHED FLOORS AND PROPSED GRADING SHOWN ARE CONCEPTUAL.

SCALE: 1"=100'



DRAINAGE MANAGEMENT PLAN

Introduction/Purpose

This submittal describes the drainage scheme for Drainage Area Six (DA6) within the Mesa del Sol Innovation Park. This drainage management plan will serve as guidelines for ultimate pond sizing and drainage calculations for the block. This plan will provide a framework diagram for future hydrology submittals including but not limited to sites specific grading plans and work order approvals.

The drainage area at the northeast end of the Innovation Park (referred to here after as DA6) within Mesa del Sol is currently undeveloped and slopes 0.5% to 1.0%, generally from the northwest to southeast. The final outfall for this current drainage is a series of playas that extend down the middle of the proposed Innovation Park to the south of DA6. The block being analyzed will be bound by Watson Drive to the west, Crick Crossing to the north along with a portion of Hawking Drive, Hawking Drive to the east, and Fritts Crossing to the south.

Offsite Drainage

Any and all drainage from the west of the block will be mitigated and rerouted around the block to the south toward the current playa system. Flow generated to the east of DA6 will continue along the historic path to a series of aforementioned playas to the south. The drainage to the north will retained on site and will be explained in a separate Drainage Area submittal. All drainage generated onsite will be retained under the 100yr 10day storm event and not effect surrounding areas.

Proposed Site Grading
The slope of the DA6 basin under proposed conditions is similar to existing conditions. The DA6 will have one centrally located permanent retention pond within the open space/drainage tract. This pond has been designed to retain the 100 year, 10 day storm generated by the Drainage Area.

Drainage generated by the roads within the DA6 basin will be conveyed to the regional retention pond via surface flow to storm drain systems within the block. Each site will be analyzed on a site by site basis for future submitals. The drainage for each site will be discharged directly to the pond by either direct storm drain or surface flow. The flow generated by each sub-basin is shown within the table labeled MESA DEL SOL — DEVELOPED HYDRAULIC CALCULATIONS. In addition the capacity of each road based on Manning's equation is shown on the overall drainage

The regional retention pond will be subject to future site planning considerations which will incorporate water quality facilities, along with aesthetically pleasing features such as a trail system, pedestrian amenities, and sedimentation basin facilities. In addition, infiltration basins will be installed in the retention pond to manage nuisance flows and provide a positive discharge of ponded water over time; however, the infiltration does not reduce the 100 year, 10 day stored ponding volume requirements.

The pond is sized in accordance with the methodology outlined in the DPM section 22.2. Developed land treatments for the majority of this drainage area were assumed to be 90% treatment D and 10% treatment B (See MESA DEL SOL - DEVELOPED HYDRAULIC CALCULATIONS for basin calculations and land treatments). For DA6, the volume of retention required (Vr) is 526,610 CF and the volume of retention provided (Vp) is 547,700 CF.

Floodplain

In accordance with FEMA Community Map Panel #35001C0555 E, the site is not located within a floodplain.

Conclusion

This drainage submittal has been prepared in accordance with City of Albuquerque requirements. This plan demonstrates the proposed grading and drainage concepts. The implementation of these concepts would result in the safe retention of the 100 yr, 10 day storm event. Individual sites will be subject to separate hydrology approval in conjunction with the guidelines set forth in this drainage management plan. This drainage management plan is submitted in support of future development within the block, including building sites and roads.

MESA DEL SOL - DEVELOPED HYDRAULIC CALCULATIONS Ultimate Development Conditions Basin Data Table

	This table is based on the DPM Section 22.2, Zone: 2										
BASIN	Area	Area	Land Treatment Percentages				Q(100)	Q(100)	WTE	V(100) ₃₆₀	V(100) _{10day}
ID	(SQ. FT)	(AC.)	Α	В	C	D	(cfs/ac.)	(cfs)	(inches)	(CF)	(CF)
DRAINAGE AREA											
6											
Basin 6A (Surrounding Roads)	620000	14.23	0.0%	0.0%	0.0%	100.0%	4.70	66.90	2.12	109533	192200
Basin 6A1	137082	3.15	0.0%	0.0%	0.0%	100.0%	4.70	14.79			
Basin 6A2	108726	2.50	0.0%	0.0%	0.0%	100.0%	4.70	11.73			
Basin 6A3	151505	3.48	0.0%	0.0%	0.0%	100.0%	4.70	16.35			
Basin 6A4	121783	2.80	0.0%	0.0%	0.0%	100.0%	4.70	13.14			
Basin 6A5	100905	2.32	0.0%	0.0%	0.0%	100.0%	4.70	10.89			
Total								66.90			
Basin 6B (Open Space //Regional Retention Pond)	121778	2.80	0.0%	50.0%	50.0%	0.0%	2.71	7.58	0.96	9692	9692
Basin 6C	332648	7.64	0.0%	10.0%	0.0%	90.0%	4.46	34.04	1.99	55053	94971
Basin 6D	292456	6.71	0.0%	10.0%	0.0%	90.0%	4.46	29.93	1.99	48401	83496
Basin 6E	284417	6.53	0.0%	10.0%	0.0%	90.0%	4.46	29.11	1.99	47071	81201
Basin 6F	227841	5.23	0.0%	10.0%	0.0%	90.0%	4.46	23.32	1.99	37708	65049
Total	1879140.50	43.14						190.87		307458	526608

REVIEWED BY PROJECT NO.

DRAINAGE AREA SIX DRAINAGE MANAGEMENT PLAN