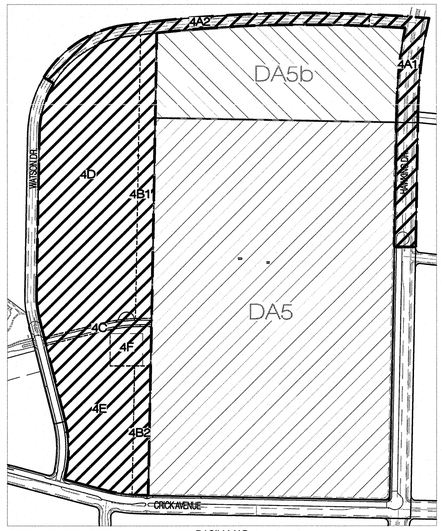
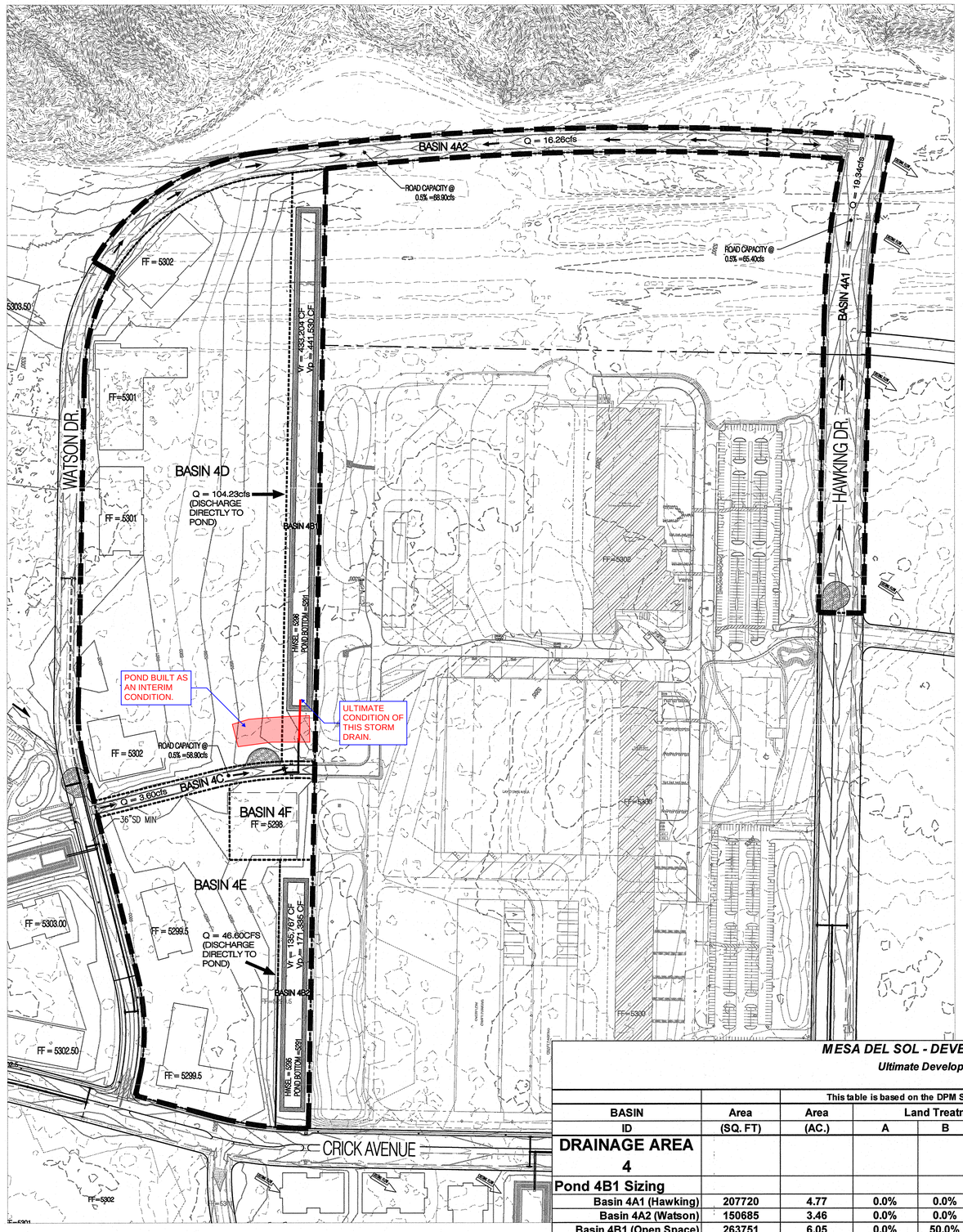


BASIN MAP



LEGEND

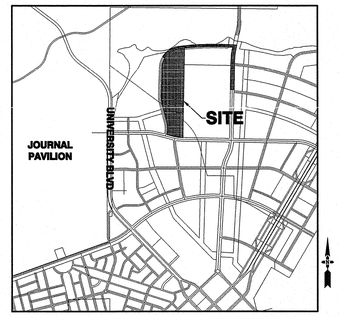
- DRAINAGE AREA LINE
- SUB-BASIN LINE
- BASIN 4_ — SUB-BASIN ID
- DEVELOPED FLOW ARROW
- EXISTING FLOW — EXISTING FLOW ARROW
- DIVERSION (SWALE/BERM)
- Q = 52.6cfs — DEVELOPED CONDITION FLOW
- PROPOSED STORM DRAIN

NOTE:
FINISHED FLOORS AND PROPSED GRADING SHOWN ARE CONCEPTUAL.

N

150 75 0 150

SCALE: 1"=150'



LOCATION MAP
ZONE ATLAS INDEX MAP R-16, Q-16

Mesa del Sol

Bohannan Huston
Courtyard | 7500 Jefferson St. NE Albuquerque, NM 87109-4335
ENGINEERING ▲ SPATIAL DATA ▲ ADVANCED TECHNOLOGIES

ENGINEER

BRUCE A. WARREN
NEW MEXICO
18187
REGISTERED PROFESSIONAL ENGINEER
6-18-08

PROJECT

DRAINAGE MANAGEMENT PLAN

Introduction/Purpose

This submittal describes the drainage scheme for Drainage Area Four (DA4) within Mesa del Sol Innovation Park II. This drainage management plan will serve as guidelines for ultimate pond sizing and drainage calculations for the block. In addition this plan will 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 II (referred to here after as DA4) 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 DA4. The block being analyzed will be bound by Watson Drive to the west and north, Crick Avenue to the south, and Drainage Area 5 to the east. The drainage area also includes a portion of Watson Drive from the northern retention pond to Hawking Drive and also a portion of Hawking Drive from Watson to the northern Schott Solar entry.

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 west and east will be retained on site and will be explained in a separate Drainage Area submittals. The flow generated south of DA4 will continue along the historic path to the 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 DA4 basin under proposed conditions is similar to existing conditions. The drainage basin will have two easterly located, permanent, retention ponds within open space/drainage tracts. These ponds are not connected however they have been designed to retain the 100 year, 10 day storm generated by their contributing basins.

Drainage generated by the roads (Basin 4A1, 4A2, and 4C) along with Basin 4D will be conveyed to the northern regional retention pond (Pond 4B1) via surface flow and storm drainage. Basin 4D will be discharged directly to the pond by either direct storm drain or surface flow. The remainder of the Basins (4E and 4F) will be conveyed to the southern regional retention pond (Pond 4B2) via surface flow and storm drainage. 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 DA4, the volume required (Vr) for Pond 4B1 is 433,205 CF with a volume provided of 441,530 CF. The volume required (Vr) for Pond 4B2 is 135,767 CF with a volume provided (Vp) of 171,335 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 ID	Area (SQ. FT)	Area (AC.)	Land Treatment Percentages A	B	C	D	Q(100) (cfs/ac.)	Q(100) (cfs)	WT E (inches)	$V(100)_{360}$ (CF)	$V(100)_{10day}$ (CF)
DRAINAGE AREA 4											
Pond 4B1 Sizing											
Basin 4A1 (Hawking)	207720	4.77	0.0%	0.0%	0.0%	100.0%	4.70	22.41	*2.12*	*36697*	*64393*
Basin 4A2 (Watson)	150685	3.46	0.0%	0.0%	0.0%	100.0%	4.70	16.26	*2.12*	*26621*	*46712*
Basin 4B1 (Open Space)	263751	6.05	0.0%	50.0%	50.0%	0.0%	2.71	16.41	*0.96*	*20990*	*20990*
Basin 4C (Access Road)	33330	0.77	0.0%	0.0%	0.0%	100.0%	4.70	3.60	*2.12*	*5888*	*10332*
Basin 4D	1018482	23.38	0.0%	10.0%	0.0%	90.0%	4.46	104.23	*1.99*	*168559*	*290777*
Total								162.91		258755	433205
Pond 4B2 Sizing											
Basin 4B2 (Open Space)	79547	1.83	0.0%	50.0%	50.0%	0.0%	2.71	4.95	*0.96*	*6331*	*6331*
Basin 4E	393299	9.03	0.0%	10.0%	0.0%	90.0%	4.46	40.25	*1.99*	*65091*	*112287*
Basin 4F (PNM Substation)	60069	1.38	0.0%	10.0%	0.0%	90.0%	4.46	6.15	*1.99*	*9941*	*17150*
Total								51.35		81363	135767
Total	*2206883*	*50.66*						*214.26*		*340119*	*568972*

REVISIONS
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DRAWN BY
REVIEWED BY
DATE
PROJECT NO.
DRAWING NAME
DRAINAGE AREA FOUR DRAINAGE MANAGEMENT PLAN
SHEET NO.
C001
OF

P:\Mesa Del Sol\Proposed\Grading\Employment_Center\Drainage\DrainageArea4.dwg
Wed, 18-Jun-2008 - 1:52:pm, Plotted by: BWARREN