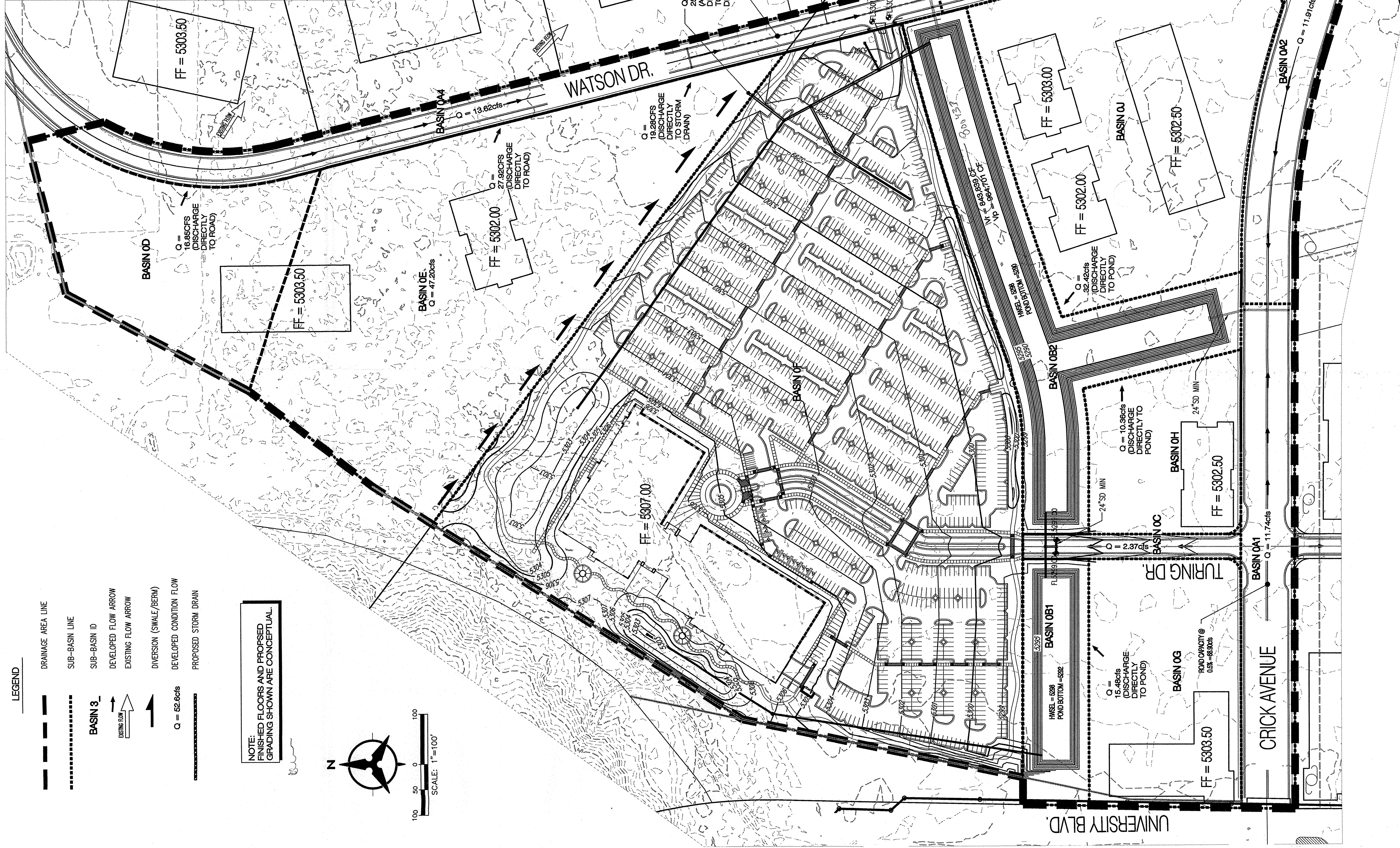
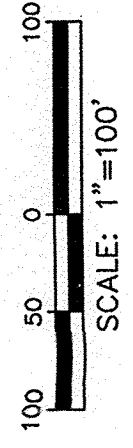
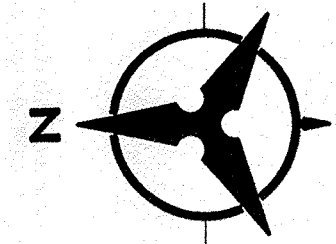
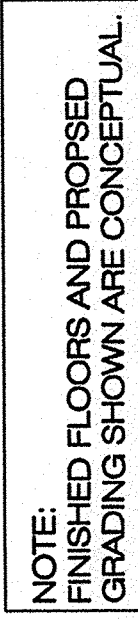




MESA DEL SOL - DEVELOPED HYDRAULIC CALCULATIONS											
Ultimate Development Conditions Basin Data Table											
This table is based on the DPM Section 22.2, Zone 1/2											
BASIN	Area (SQ. FT.)	Area (AC.)	Land Treatment Percentages				Q(100) (cfs/ac.)	Q(100) (cfs)	WT E (Inches)	V(100) ^{base} (CF)	V(100) ^{ready} (CF)
ID			A	B	C	D					
DRAINAGE AREA 0											
	Basin 0A (Surrounding Roads)	397932	9.14								
	Basin 0A1	108808	2.50	0.0%	0.0%	100.0%	4.70	11.74	2.12	19223	33730
	Basin 0A2	110350	2.53	0.0%	0.0%	100.0%	4.70	11.91	19965	34208	
	Basin 0A3	52499	1.21	0.0%	0.0%	100.0%	4.70	5.66	2.12	9275	16275
	Basin 0A4	128275	2.90	0.0%	0.0%	100.0%	4.70	13.82	2.12	22309	39145
	Total							42.94			123,358 ✓
Basin 0B (Open Space/Regional Retention Ponds)	259389	5.97									
Basin 0B1	65282	1.50	0.0%	50.0%	50.0%	0.0%	2.71	4.06	0.96	5195	5195
Basin 0B2	194707	4.47	0.0%	50.0%	50.0%	0.0%	2.71	12.11	0.96	15495	15495
Total								16.17		20,690 ✓	
Basin 0C (Interior Road)	21950	0.50	0.0%	0.0%	0.0%	100.0%	4.70		2.12	3878	6805
Basin 0D	164597	3.78	0.0%	10.0%	0.0%	90.0%	4.46	16.85	1.99	27241	46992
Basin 0E	481161	10.59	0.0%	10.0%	0.0%	90.0%	4.46	47.20	1.99	78722	137661
Basin 0F (Project Pinnacle)	1080138	24.80	0.0%	10.0%	0.0%	90.0%	4.46	110.54	1.99	178763	308380
Basin 0G	151292	3.47	0.0%	10.0%	0.0%	90.0%	4.46	15.48	1.99	25039	43794
Basin 0H	101277	2.33	0.0%	10.0%	0.0%	90.0%	4.46	10.36	1.99	16761	28915
Basin 0J	316770	7.27	0.0%	10.0%	0.0%	90.0%	4.46	32.42	1.99	52425	90438
Total	2955106.11	67.84						294.33		471421	800434

DRAINAGE MANAGEMENT PLAN

Introduction/Purpose
This submittal describes the drainage scheme for Drainage Area Zero (DA0) 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 Principle 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 1.5% to 1.0% from the north to south. 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. 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.

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 will continue along the historic path to a series of aforementioned playas to the south. All drainage generated onsite will be retained under the 100-yr 10-day 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 spaced drainage tracts. Together these ponds are designed to retain the 100 year, 10 day storm generated by the site.

Drainage generates

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.

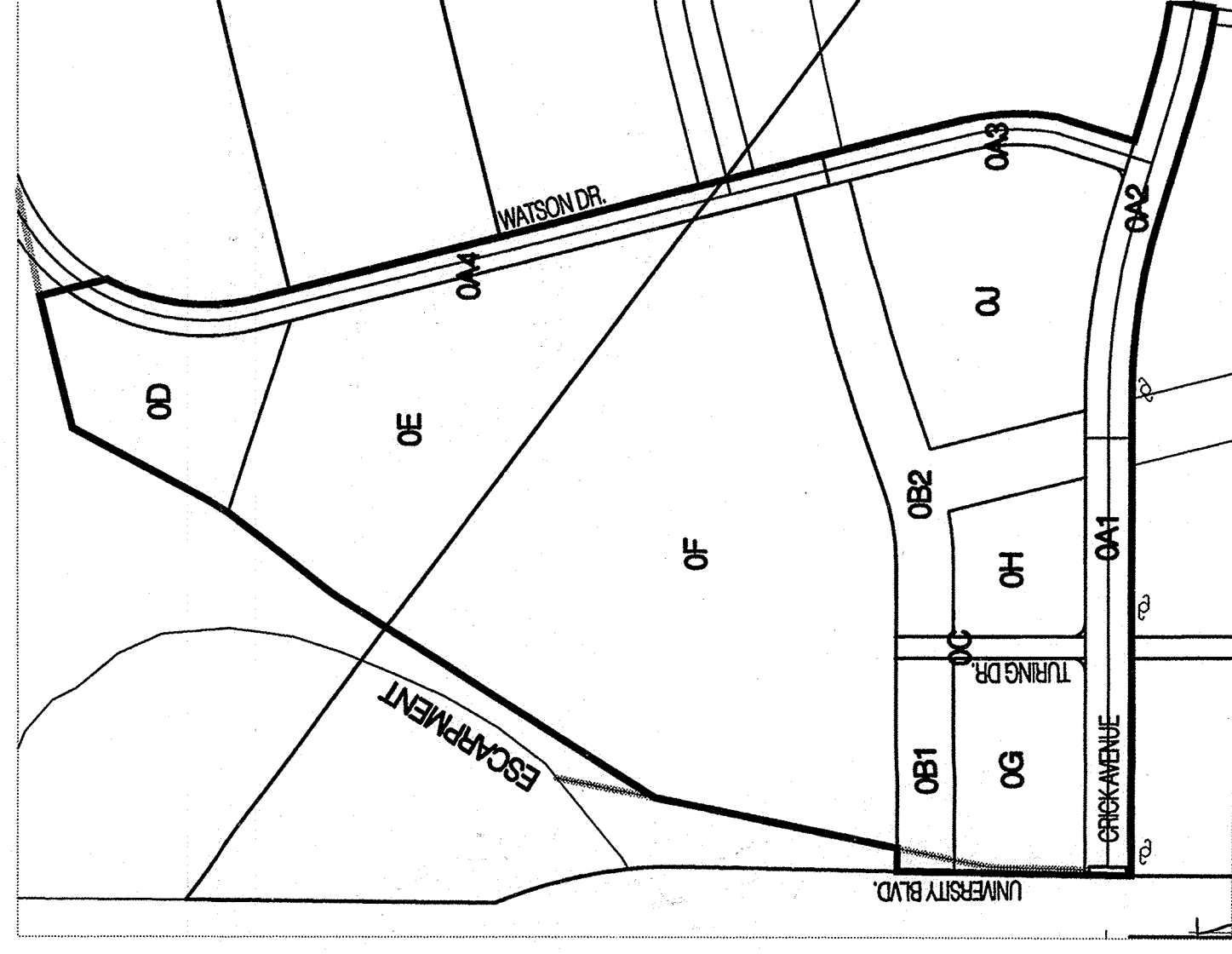
The ponds are sized in accordance with the methodology outlined in the DPM section 22.2. Developed land treatments for the majority of this drainage area were assumed to be 90% treatment D and 10% treatment B (See MESA DEL SOL - DEVELOPED HYDRAULIC CALCULATIONS for basin calculations and land treatments). For DAO, the volume of retention required (Vr) is 800,434 CF and the volume of retention provided (Vp) is 984,701 CF.

Floodplain

In accordance with FEMA Community Map Panel #5001C0555 E, the site is not located within a floodplain.

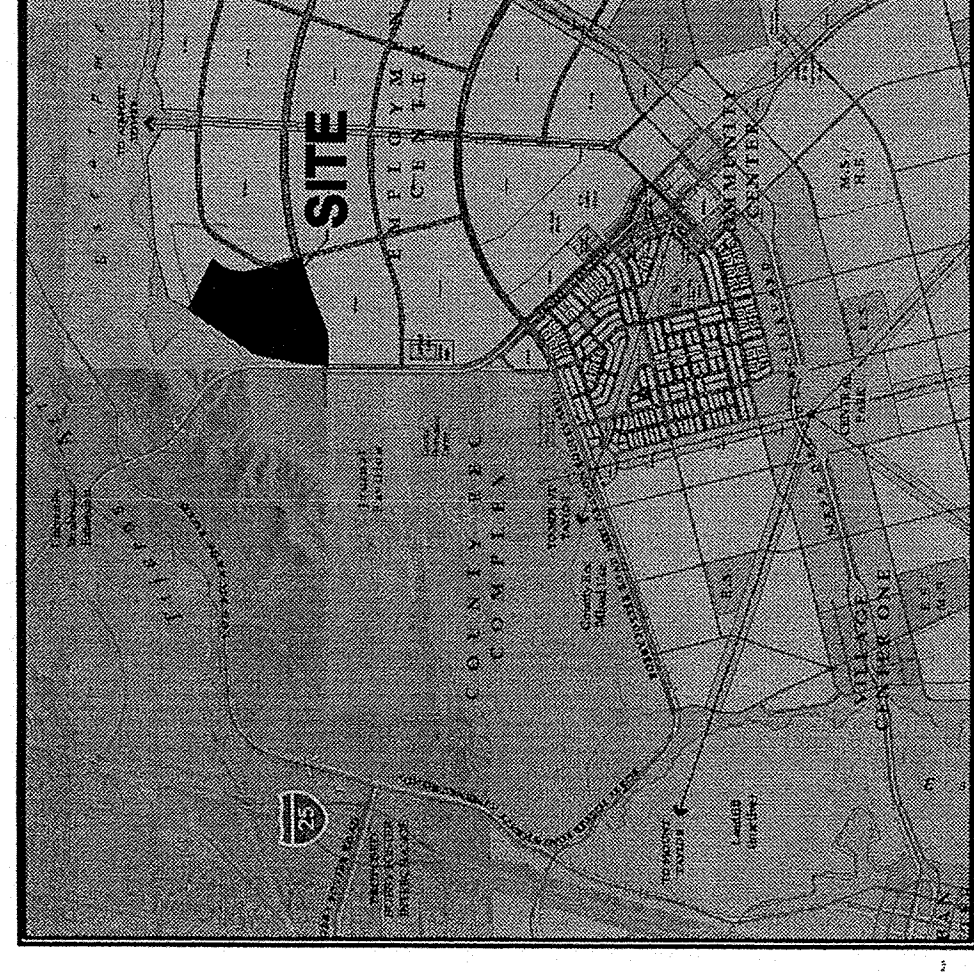
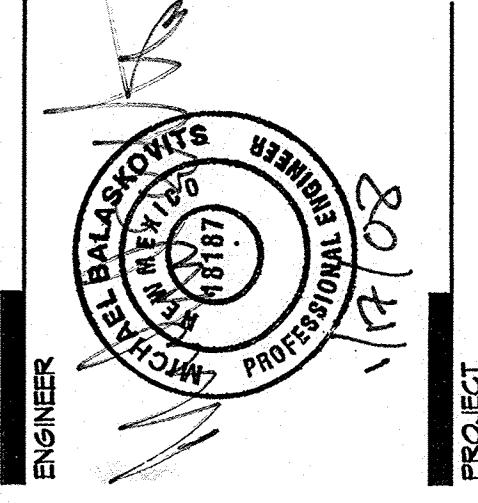
Conclusion

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. With this submittal we request Hydrology Department approval for Rough Grading Permit (Project Pmaade).

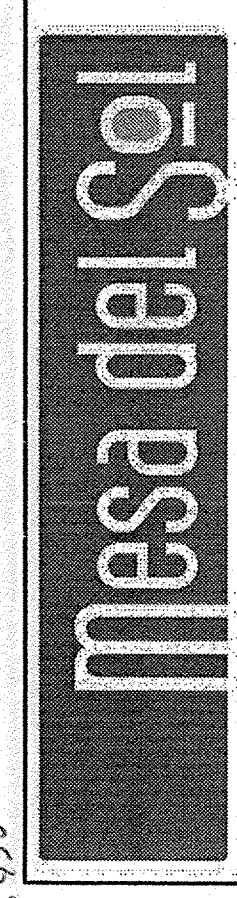


DRAWN BY _____
 REVIEWED BY _____
 DATE _____
 PROJECT NO. _____
 DRAWING NAME
**DRAINAGE AREA
 ZERO DRAINAGE
 MANAGEMENT
 PLAN**

RECEIVED
JAN 17 2008
HYDROLOGY
SECTION



LOCATION MAP
ZONE ATLAS INDEX MAP R-16



6-6-8
13B

R16 DAO 2

Meeting Memo

Subject: MDS DAO Pond volume

Attendance: Jeff, Mike, Curtis

Date: 5-8-09

Summary:

Turns out after the pond was landscaped they lost more volume than they figured and the 10-day storm puts the water surface elevation at top of curb in Crick Rd.

I told them that at the 10-day volume, the WSE had to be below the street grade and 1' of freeboard is standard.

Therefore, they are going to count up the volume for the LEED ponds (approx 0.5 inches) on each tract, adjust the land treatments on the Fidelity site to the as-built condition, and adjust the land treatments as necessary so that the WSE at the 10-day storm is below the street grade as discussed.

It is also important that the other tracts that contribute to the pond discharge to pipes that lead to the forebays.

Then they will resubmit the DMP for DAO.

Untitled

November 2009 Pipe into the west Fidelity pond fromt the site to the south has a couple joints that aren't tight. The first joint is about 10 feet south of the pond underneath the access road, There is a small pile of dirt in the pipe and you can see where the joint is not tight. HTen in about 20 more feet (about 1 stick) there is a larger pile of dirt in the pipe. HTe pipe is not hooked up to anything at this point. When the site comes in to the south of Fidelity, west of the access road this pipe hsould be inspected and if the dirt ple is still there, the pipe will need to be fixed. I told Mike balaskovitz about this about 2 months ago. Curtis Cherne

CITY OF ALBUQUERQUE



February 11, 2008

Michael Balaskovits, P.E.
Bohannon Huston, Inc.
7500 Jefferson NE
Albuquerque, NM 87109

Re: Mesa del Sol Drainage Area Zero Drainage Management Plan
Engineer's Stamp dated 1-17-08 (R16/DA0)

Dear Mr. Balaskovits,

Based upon the information provided in your submittal dated 1-17-08, the above referenced plan is approved as the Drainage Area Management Plan.

The 10-day volume in the table does not agree with the required volume printed on the pond. Please review and correct when revising this plan.

P.O. Box 1293

If you have any questions, you can contact me at 924-3695.

Albuquerque

Sincerely,

New Mexico 87103

Curtis A. Cherne, P.E.
Senior Engineer, Planning Dept.
Development and Building Services

www.cabq.gov

C: file

DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(Rev. 12/2005)

PROJECT TITLE: Mesa del Sol Drainage Area Zero ZONE MAP/DRG. FILE # R-16-Z / DAO
DRB#: _____ EPC#: _____ WORK ORDER#: _____

LEGAL DESCRIPTION: Portion of Tracts 1 and 2 Mesa del Sol Innovation Park Together with Canyon Mesa Avenue RW
and a Portion of Turing Drive RW **INNOVATION PARK**
CITY ADDRESS: N/A

ENGINEERING FIRM: Bohannon Huston Inc.
ADDRESS: 7500 Jefferson NE
CITY, STATE: Albuquerque, NM

CONTACT: Glenn Broughton
PHONE: (505) 823-1000
ZIP CODE: 87109

OWNER: Forest City Covington, NM, LLC
ADDRESS: 801 University Blvd SE Suite 200
CITY, STATE: Albuquerque, NM

CONTACT: Manny Barrera
PHONE: (505) 400-3021
ZIP CODE: 87106

ARCHITECT: Dekker/Perish/Sabatini
ADDRESS: 7601 Jefferson NE Suite 100
CITY, STATE: Albuquerque, NM

CONTACT: Scott Leonard
PHONE: (505) 761-9700
ZIP CODE: 87109

SURVEYOR: _____
ADDRESS: _____
CITY, STATE: _____

CONTACT: _____
PHONE: _____
ZIP CODE: _____

CONTRACTOR: _____
ADDRESS: _____
CITY, STATE: _____

CONTACT: _____
PHONE: _____
ZIP CODE: _____

TYPE OF SUBMITTAL:

- ☐ DRAINAGE REPORT
- ☐ DRAINAGE PLAN 1st SUBMITTAL
- ☐ DRAINAGE PLAN RESUBMITTAL
- ☐ CONCEPTUAL G & D PLAN
- ☐ GRADING PLAN
- ☐ EROSION CONTROL PLAN
- ☐ ENGINEER'S CERT (HYDROLOGY)
- ☐ CLOMR/LOMR
- ☐ TRAFFIC CIRCULATION LAYOUT
- ☐ ENGINEER CERT (TCL)
- ☐ ENGINEER CERT (DRB SITE PLAN)
- ☒ OTHER (OVERALL DRAINAGE AREA MANAGEMENT PLAN)

CHECK TYPE OF APPROVAL SOUGHT:

- ☐ SIA/FINANCIAL GUARANTEE RELEASE
- ☐ PRELIMINARY PLAT APPROVAL
- ☐ S. DEV. PLAN FOR SUB'D APPROVAL
- ☐ S. DEV. FOR BLDG. PERMIT APPROVAL
- ☐ SECTOR PLAN APPROVAL
- ☐ FINAL PLAT APPROVAL
- ☐ FOUNDATION PERMIT APPROVAL
- ☒ FUTURE BUILDING PERMIT APPROVAL
- ☐ CERTIFICATE OF OCCUPANCY (PERM)
- ☐ CERTIFICATE OF OCCUPANCY (TEMP)
- ☐ GRADING PERMIT APPROVAL
- ☐ PAVING PERMIT APPROVAL
- ☒ FUTURE WORK ORDER APPROVAL
- ☒ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ☐ YES
- ☐ NO
- ☐ COPY PROVIDED

SUBMITTED BY: Glenn Broughton/mb/bw

DATE: 01/17/08

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location and scope to the proposed development define the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan:** Required for approval of Site Development Plans greater than five (5) acres and Sector Plans.
2. **Drainage Plans:** Required for building permits, grading permits, paving permits and site plans less than five (5) acres.
3. **Drainage Report:** Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more.

RECEIVED
JAN 17 2008
HYDROLOGY SECTION

MASTER DRAINAGE PLAN
(REVISED DAO)