

**Hydrology Calculations**

The following calculations are based on Albuquerque's Development Process Manual, Section 22.2

**Runoff Rate:**

Treatment Type Areas

Subbasin	Area <sub>A</sub> (ac)	Area <sub>B</sub> (ac)	Area <sub>C</sub> (ac)	Area <sub>D</sub> (ac)	Total (ac)
Subbasin 1.1	0.00	0.08	0.08	0.15	0.30
Subbasin 1.2	0.00	0.11	0.11	1.48	1.69
Subbasin 2.1	0.00	0.04	0.04	0.09	0.17
Subbasin 2.2	0.00	0.03	0.03	0.06	0.13
Subbasin 2.3	0.00	0.04	0.04	0.08	0.16
Subbasin 3.1	0.00	0.09	0.09	0.19	0.38
Subbasin 3.2	0.00	0.10	0.10	0.19	0.38
Subbasin 4.1	0.00	0.09	0.09	0.18	0.35
Subbasin 4.2	0.00	0.07	0.07	0.15	0.30
Subbasin 4.3	0.00	0.08	0.08	0.16	0.32
Total	0.00	0.73	0.73	2.73	4.18

Peak Discharge values based on Zone 1 from Table A-9

$Q_A = 1.29 \text{ cfs/ac}$     $Q_B = 2.03 \text{ cfs/ac}$     $Q_C = 2.87 \text{ cfs/ac}$     $Q_D = 4.37 \text{ cfs/ac}$

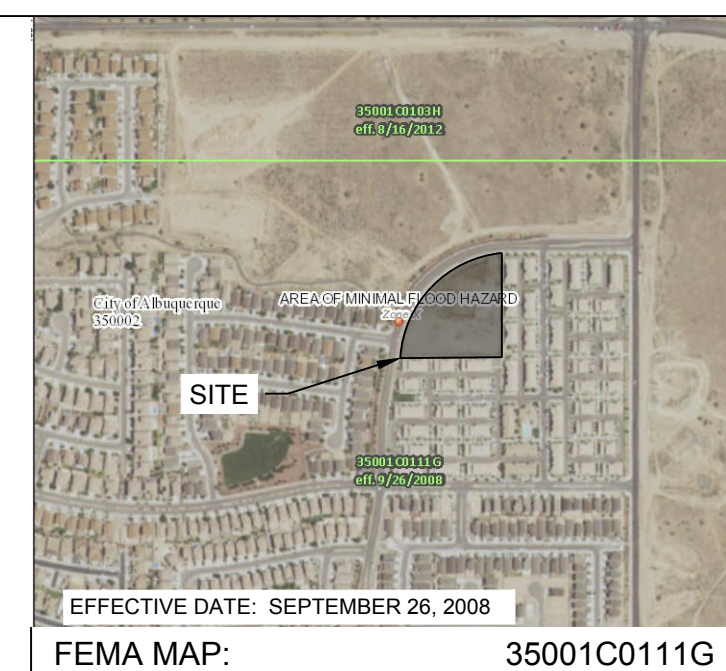
Peak Discharge calculation for a 100-yr, 24-hr storm event from equation A-10

Subbasin	Discharge (cfs)
Subbasin 1.1	1.0
Subbasin 1.2	7.0
Subbasin 2.1	0.6
Subbasin 2.2	0.4
Subbasin 2.3	0.5
Subbasin 3.1	1.3
Subbasin 3.2	1.3
Subbasin 4.1	1.2
Subbasin 4.2	1.0
Subbasin 4.3	1.1
Total	15.5

**Water Quality:**

Required Water Quality volume for first flush of 0.34"

Subbasin	Volume (cu. ft.)	Volume Provided (cu. ft.)
Subbasin 1.1	370	570
Subbasin 1.2	2,086	0
Subbasin 2.1	213	213
Subbasin 2.2	159	178
Subbasin 2.3	197	202
Subbasin 3.1	249	432
Subbasin 3.2	214	432
Subbasin 4.1	221	445
Subbasin 4.2	188	445
Subbasin 4.3	148	223
Total	3,709	2,473



**BACKGROUND**

TRACT A OF THE CANTANA AT THE TRAILS UNIT 2 IS APPROXIMATELY 3.26 ACRES IN THE CITY OF ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO. THE PROPERTY IS LOCATED JUST WEST OF UNIVERSE BOULEVARD BETWEEN TREELINE AVENUE AND OAKRIDGE STREET. THE SITE CURRENTLY IS AN UNDEVELOPED LOT. THE PROPOSED PROJECT IS AN APARTMENT COMPLEX. THERE IS NO DESIGNATED 100-YEAR FLOODPLAIN SHOWN ON THE SITE. THE SITE RECEIVES SOME OFFSITE FLOWS FROM NEIGHBORING PROPERTY. THE PLAN IS IN COMPLIANCE WITH THE TRAILS DMP BY TEC, 2015.

**METHODOLOGY**

HYDROLOGY CALCULATIONS FOR THE SITE ARE PERFORMED IN ACCORDANCE WITH THE CITY OF ALBUQUERQUE TECHNICAL STANDARDS. THE RATIONAL METHOD WAS USED, BASED ON THE 100-YR, 24-HR STORM EVENT, TO CALCULATE PEAK FLOW RATES IN ORDER TO ENSURE ALL FLOW PATHS ARE SUFFICIENT TO CARRY FLOWS. THE REQUIRED DETENTION POND VOLUME WAS CALCULATED BASED ON THE DIFFERENCE BETWEEN PRE AND POST DEVELOPMENT PEAK DISCHARGES. ALL HYDROLOGIC AND HYDRAULIC CALCULATIONS CAN BE FOUND ON THIS SHEET.

**EXISTING CONDITIONS**

THE AREA, IN GENERAL, SLOPES TOWARDS LOW POINT AT CENTER OF PROPERTY AND EVENTUALLY DRAINS TO THE SOUTHEAST AT AN APPROXIMATE SLOPE OF 2% - 4% TO A LOW RETENTION BASIN APPROXIMATELY FOUR FEET DEEP. STORM WATER RUNOFF GENERATED BY TRACT A SHEET DRAINS INTO RETENTION BASIN LOCATED ON THE PROPERTY. THE LOT TO THE EAST, TRACT B, CURRENTLY DRAINS TO THE EAST TO A DETENTION BASIN ON THE EAST SIDE OF UNIVERSE BOULEVARD. THERE IS AN EXISTING STORM DRAIN CONNECTION NEAR THE SOUTH-EAST CORNER OF THE TRACT A PROPERTY BOUNDARY WITHIN A DRAINAGE EASEMENT AND IS AVAILABLE TO CONNECT TO. THE TRACT A STORMWATER DISCHARGE INTO THE EXISTING STORM DRAIN PIPING IS LIMITED TO 10 CFS PER THE STORM DRAIN HYDRAULIC ANALYSIS BY BHI ON OCTOBER 2, 2012 FOR CANTANA AT THE TRAILS (C-09/D001B).

**PROPOSED CONDITIONS**

THE PROPOSED DEVELOPMENT WILL CONSIST OF ASPHALT AND CONCRETE PAVING FOR PARKING AND DRIVING SURFACES AND 52 INDIVIDUAL APARTMENT BUILDINGS. THE BASIN HAS BEEN SPLIT INTO 4 MAIN SUBBASINS.

SUBBASIN 1 IS 1.89 ACRES AND GENERATES 8.0 CFS. THIS SUBBASIN CONSISTS PRIMARILY OF THE RUNOFF GENERATED BY ASPHALT ROAD SURFACE, PARKING LOT, APARTMENT BUILDINGS, AND OPEN SPACE. THE ROADWAY GENERALLY SLOPES SOUTH AND EAST FROM THE PROPOSED ENTRY OFF OF OAKRIDGE STREET NW TO CATCH BASINS AT THE ULTIMATE LOW POINT AT THE SOUTH-EAST END OF THE PROPERTY. RUNOFF EXISTS THE CATCH BASINS AND IS CONVEYED VIA 18" STORM DRAIN PIPING TO THE SOUTH-EAST AND CONNECTS TO AN EXISTING 18" STORM DRAIN LOCATED WITHIN THE 15' PRIVATE DRAINAGE EASEMENT. THE FLOW FROM THIS SUB-BASIN WILL BE REDUCED FROM 8.0 CFS TO 5.6 CFS VIA DETENTION PONDING AND FLOW RESTRICTION AT THE OUTFALL TO SATISFY THE 10 CFS LIMITATION DISCHARGING TO THE CANTANA STORM DRAIN.

SUBBASIN 2 IS 0.46 ACRES AND GENERATES 1.6 CFS. THIS SUBBASIN CONSISTS OF HALF THE ROOF AREA OF THE PROPOSED APARTMENT BUILDINGS, LANDSCAPING, AND RETENTION BASINS. THIS AREA WILL FLOW WEST VIA SWALES AND DISCHARGE INTO SUBBASIN 1.

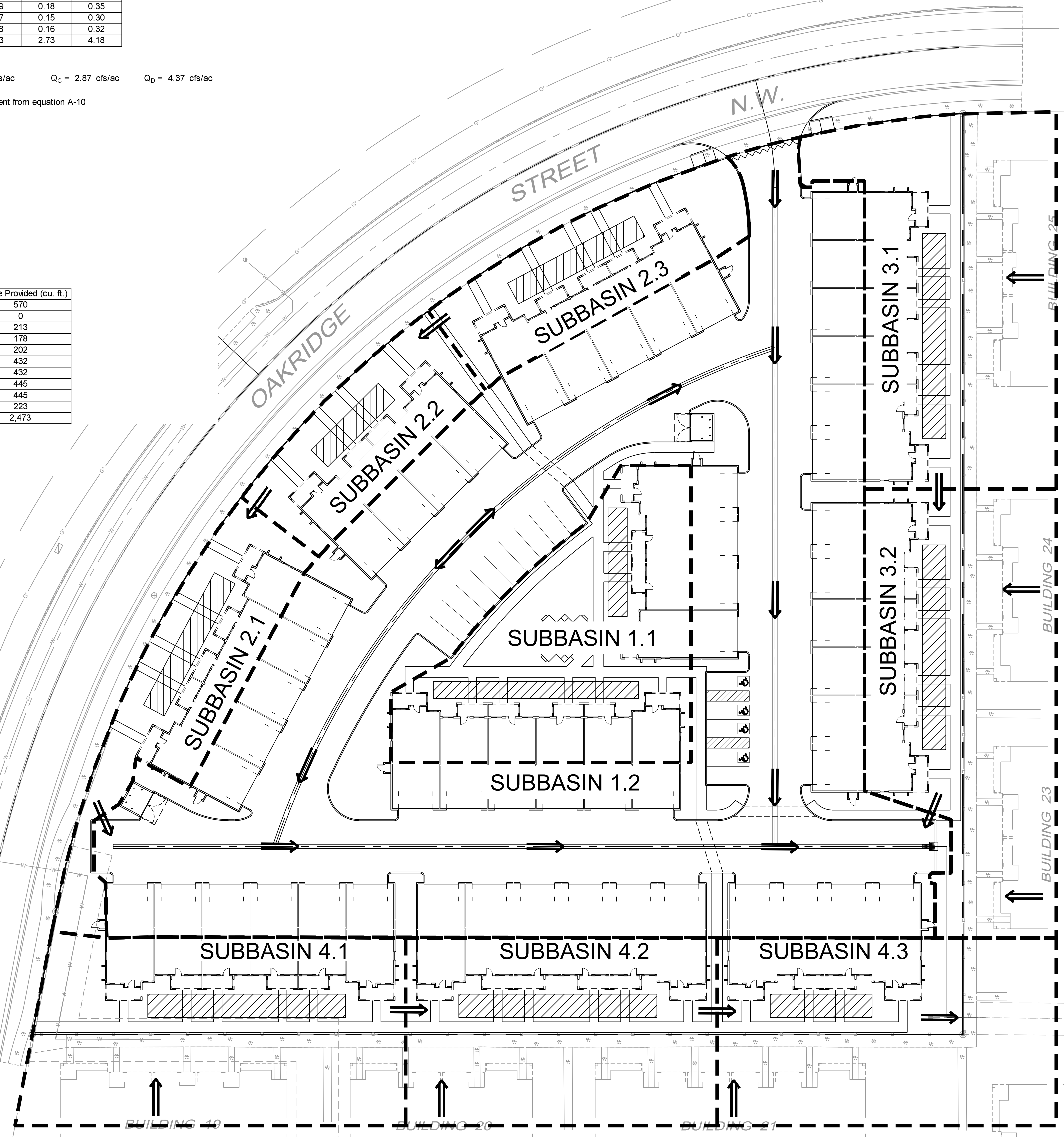
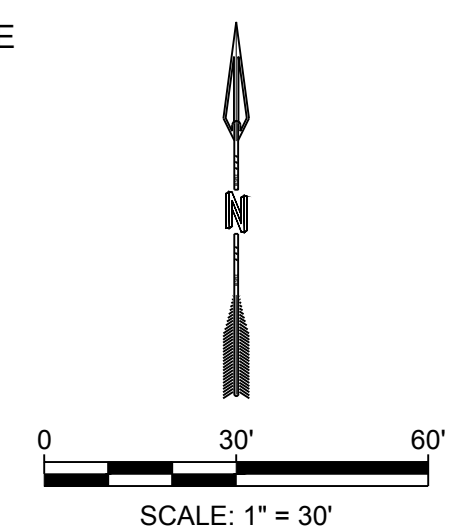
SUBBASIN 3 IS 0.76 ACRES AND GENERATES 2.6 CFS. OF THE 0.76 ACRES, 0.39 ACRES IS OFF-SITE. THIS SUBBASIN CONSISTS OF HALF THE ROOF AREA OF THE PROPOSED APARTMENT BUILDINGS, LANDSCAPING, AND RETENTION BASINS. THIS AREA WILL FLOW SOUTH VIA SWALES AND DISCHARGE INTO SUBBASIN 1.

SUBBASIN 4 IS 0.97 ACRES AND GENERATES 3.3 CFS. OF THE 0.97 ACRES, 0.52 ACRES IS OFF-SITE. THIS SUBBASIN CONSISTS OF HALF THE ROOF AREA OF THE PROPOSED APARTMENT BUILDINGS, LANDSCAPING, AND RETENTION BASINS. THIS AREA WILL FLOW EAST VIA SWALES AND DISCHARGE TO THE EXISTING STORM DRAIN.

THE WATER QUALITY TABLE AT THE TOP LEFT OF THIS SHEET SUMMARIZES THE WATER QUALITY VOLUMES REQUIRED AND PROVIDED. SUFFICIENT PONDING HAS BEEN PROVIDED FOR SUBBASINS 2 - 4 IN THE FRONT YARDS THE UNITS. THE PONDING REQUIREMENTS FOR SUBBASINS 3 & 4 ONLY INCLUDE THE ON-SITE STORMWATER VOLUME. THE OWNER HAS ELECTED TO PAY THE PAYMENT IN LIEU FOR THE STORMWATER QUALITY VOLUME OF 2,086 CF. THIS PAYMENT AMOUNT = 2,086 CF x \$8/CF = \$16,688.00.

**LEGEND**

- PROPERTY BOUNDARY
- - - 5430 EXISTING MAJOR CONTOUR
- - - 5430 EXISTING MINOR CONTOUR
- ⊙ EXISTING SANITARY SEWER MANHOLE
- ⊕ PROPOSED STORM DRAIN MANHOLE
- PROPOSED INLET GRATE
- - - - SUBBASIN BOUNDARY



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<p>DESIGNED RPE DRAWN RPE CHECKED JS DATE 8.16.2019</p>	<p>REVISION</p>
<p>RESPEC 5971 JEFFERSON STREET SUITE 101 ALBUQUERQUE, NM 87109 ALWAYS USE NATURAL RESOURCES WWW.RESPEC.COM 505.253.9718</p>	<p>STAMP SHELDON E. GREER NEW MEXICO 17154 REGISTERED PROFESSIONAL ENGINEER</p>
<p>THIS DRAWING IS INCOMPLETE AND NOT TO BE USED FOR CONSTRUCTION UNLESS IT IS STAMPED, SIGNED AND DATED</p>	<p>ADAGIO APARTMENTS</p>
<p>PROJECT NAME:</p>	<p>CONCEPT DRAINAGE PLAN</p>
<p>SHEET TITLE:</p>	<p>DRB SITE PLAN</p>
<p>SUBMITTED FOR:</p>	<p>SHEET NUMBER: <b>C-102</b></p>