Hydrology Calculations

The following calcualtions are based on Albuquerque's Development Process Manual, Seciton 22.2

Runoff Rate:

Treatment Type Areas

Subbasin	$Area_A$ (ac)	$Area_B$ (ac)	$Area_C$ (ac)	$Area_D$ (ac)	Total (ac)
Subbasin 1	0.00	0.12	0.12	1.74	1.99
Subbasin 2	0.00	0.12	0.12	0.23	0.46
Subbasin 3	0.00	0.19	0.19	0.38	0.76
Subbasin 4	0.00	0.24	0.24	0.49	0.97
Total	0.00	0.67	0.67	2.84	4.18

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

Q_A = 1.29 cfs/ac Q_B = 2.03 cfs/ac Q_C = 2.87 cfs/ac Q_D = 4.37 cfs/ac

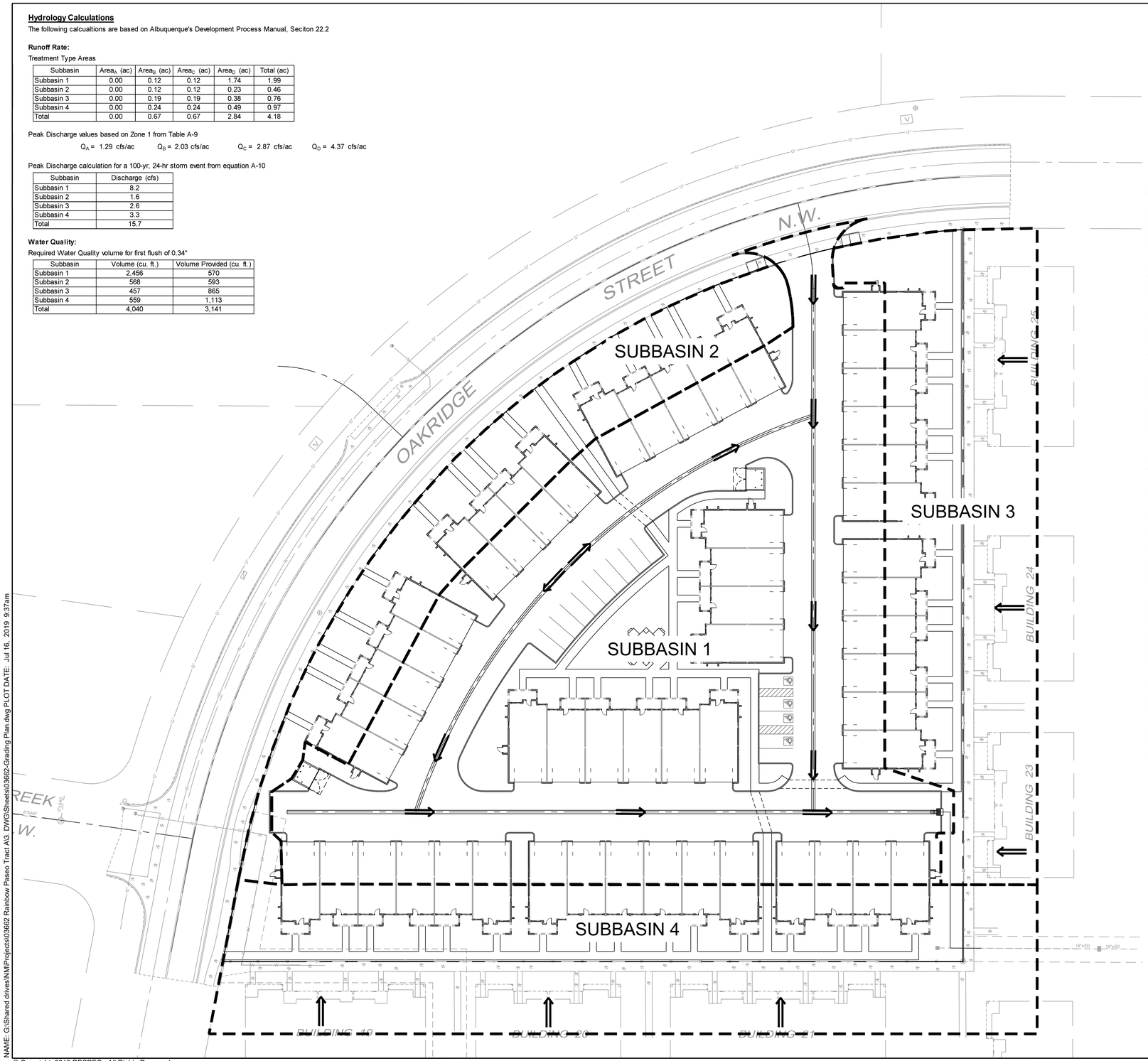
Peak Discharge calculation for a 100-yr, 24-hr storm event from equation A-10

Subbasin	Discharge (cfs)
Subbasin 1	8.2
Subbasin 2	1.6
Subbasin 3	2.6
Subbasin 4	3.3
Total	15.7

Water Quality:

Required Water Quality volume for first flush of 0.34"

Subbasin	Volume (cu. ft.)	Volume Provided (cu. ft.)
Subbasin 1	2,456	570
Subbasin 2	568	593
Subbasin 3	457	865
Subbasin 4	559	1,113
Total	4,040	3,141



FEMA MAP: 35001C0111G

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 IS NO DESIGNATED 100-YEAR FLOODPLAIN SHOWN ON THE SITE. THE SITE RECEIVES SOME OFFSITE FLOWS FROM NEIGHBORING PROPERTY.

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 AND 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 CANTATA 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 SUBBASINS.

SUBBASIN 1 IS 1.99 ACRES AND GENERATES 8.2 CFS. THIS SUBBASIN CONSISTS PRIMARILY OF THE RUNOFF GENERATED BY ASHPALT 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 EXITS 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 8.2 CFS TO 5.6 CFS TO SATISFY THE 10 CFS LIMITATION DISCHARING TO THE CANTATA 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 NORTH-WEST INTO MULTIPLE RETENTION BASINS.

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 NORTH-WEST INTO MULTIPLE RETENTION BASINS.

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 NORTH-WEST INTO MULTIPLE RETENTION BASINS.

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 OF EACH UNIT. 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 1,888 CF. THIS PAYMENT AMOUNT = 1,888 CF x $8/CF = $15,088.00.

LEGEND

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

0 30' 60'

SCALE: 1" = 30'

RESPEC
5971 JEFFERSON STREET SUITE 101
ALBUQUERQUE, NEW MEXICO 87109
WATER & NATURAL RESOURCES
WWW.RESPEC.COM 505-293-3718

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PROJECT NAME: ADAGIO APARTMENTS

SHEET TITLE: CONCEPT DRAINAGE PLAN

SUBMITTED FOR: DRB SITE PLAN

SHEET NUMBER: C-102

NAME: G:\Shared drives\NM\Projects\03662 Rainbow Paseo Tract A\3. DWG\Sheets\03662-Grading Plan.dwg PLOT DATE: Jul 16, 2019 9:37am

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