

DRAINAGE MANAGEMENT PLAN NARRATIVE

THE ABQ STUDIOS EXPANSION PROJECT SITE IS LOCATED WITHIN THE EMPLOYMENT CENTER DISTRICT OF THE MESA DEL SOL MASTER PLANNED DEVELOPMENT ON APPROXIMATELY 190 ACRES, EAST OF UNIVERSITY BOULEVARD, SOUTH OF EASTMAN CROSSING, AND NORTH OF FUTURE MESA DEL SOL BOULEVARD. A PORTION OF THE PROJECT SITE IS LOCATED IMMEDIATELY ADJACENT TO THE EXISTING ABQ STUDIOS "STUDIOS". THE EXISTING AND MASTER-PLANNED CONDITIONS FOR THIS AREA WERE ORIGINALLY STUDIED IN DEPTH AS THE MESA DEL SOL DRAINAGE AREA 3 DRAINAGE MANAGEMENT PLAN. A PORTION OF THIS D3A3 DM WAS AMENDED BY THE CITY-APPROVED DMP THAT REALIGNED A PORTION OF THE FLOWS CONTRIBUTING TO THE EXISTING POND (COA #R167D097A), CONSISTENT WITH THE MESA DEL SOL LEVEL B MASTER PLAN AND APPROVED DRAINAGE MANAGEMENT PLANS. DRAINAGE IS INTENDED TO PRESERVE AND RESTORE THE HYDROLOGIC CYCLE USING LOCALIZED WATER HARVESTING AND INFILTRATION WITHIN THE OVERALL DRAINAGE AREA. HISTORICALLY, NATURAL PLAYS COLLECTED AND INFILTRATED DRAINAGE INTO THE UNDERLYING AQUIFER. IN THE PROPOSED CONDITIONS, THE ABQ STUDIOS EXPANSION WILL MIMIC THE FUNCTIONALITY OF THESE PLAYS, ALBEIT ON A MORE LOCALIZED SCALE AND ACCOMMODATED VIA ENGINEERED DRAINAGE SYSTEMS. THESE SYSTEMS, AS IDENTIFIED IN THE CITY-ADOPTED MASTER PLANS ARE KNOWN AS DISTRIBUTIVE RETENTION AND INFILTRATION PONDING (DRIP) SYSTEMS. THE LEVEL B MASTER PLAN IDENTIFIED TWO OF THESE DRIP SYSTEMS WITHIN THE PROJECT AREA, WHICH WERE CONSTRUCTED IN PART BY PREVIOUS DEVELOPMENTS INCLUDING THE ORIGINAL STUDIOS PROJECT. THE PROPOSED PROJECT SEEKS TO MODIFY AND RE-ORIENT THESE DRIP SYSTEMS WHILE MAINTAINING FIDELITY TO THE ORIGINAL INTENT AND FUNCTION OF MASTER PLANNED AND PREVIOUSLY APPROVED INFRASTRUCTURE.

IN ACCORDANCE WITH FEMA MAP PANEL #35001C0555 E, NO PORTIONS OF THE SITE ARE WITHIN FEMA REGULATORY FLOODPLAINS. THE PROPOSED DEVELOPMENT HAS BEEN EVALUATED AND CONCEPTUALLY DESIGN IN COMPLIANCE WITH THE CITY OF ALBUQUERQUE DEVELOPMENT PROCESS MANUAL, JUNE 2020 UPDATE. THE EXISTING TOPOGRAPHY FOR MUCH OF THE SITE IS SPARSELY VEGETATED DESERT PLAINS, RELATIVELY FLAT WITH NO MAJOR DRAINAGE CONVEYANCES—EXTREMELY CHARACTERISTIC OF THE OVERALL AREA. THE FRONTAGE ALONG UNIVERSITY BOULEVARD INCLUDES THE EXISTING STUDIOS DEVELOPMENT, A MASS-GRADED PAD SITE NORTH OF THE EXISTING STUDIOS, WITH A LARGE DRIP SYSTEM CONSTRUCTED IMMEDIATELY TO THE EAST. THE FRONTAGE ALONG EASTMAN CROSSING INCLUDES THE INTERNATIONAL SCHOOL WHICH INCLUDES SEVERAL, PRIMARILY MODULAR BUILDINGS THAT WILL BE RELOCATED AS PART OF THE PROPOSED PROJECT. IMMEDIATELY EAST OF THE INTERNATIONAL SCHOOL IS A PMN SUBSTATION, AS WELL AS THE ABCOWA ELEVATED WATER TANK AND ITS SUPPORTING INFRASTRUCTURE. THE FINISHED FLOOR ELEVATIONS FOR ALL PROPOSED BUILDINGS WERE ESTABLISHED TO MINIMIZE GRADE CHANGE RELATIVE TO THE EXISTING TOPOGRAPHY, YET PROVIDE POSITIVE DRAINAGE AWAY FROM ALL THE BUILDINGS, AND MINIMIZE GRADE DIFFERENCES BETWEEN THE SITE AND SURROUNDING PROPERTIES.

EXISTING CONDITIONS

THE EXISTING AND MASTER-PLANNED DRAINAGE CONDITIONS ARE DOCUMENTED IN DEPTH UNDER THE MESA DEL SOL DRAINAGE AREA 3 DMP. THE EXISTING STUDIOS PROJECT WAS DESIGNED TO ALLOW THE DEVELOPED FLOWS TO DISCHARGE DIRECTLY TO THE EXISTING POND LOCATED TO THE EAST OF THE PROPERTY. THIS DRAINAGE PATTERN WILL BE MAINTAINED WITH THE SAME 126.05 CFS (Q100) AND 8.07 AC-FT (V100, 10DAY) WILL BE ACCOMMODATED BOTH IN THE ULTIMATE AND INTERIM CONDITIONS. PER COA PWO (CN #756854), THE DRAINAGE FROM BASINS 3F, 3G, AND PORTIONS OF 3E ARE GOING TO BE DIVERTED TO A NEW REGIONAL POND LOCATED SOUTHEAST OF THE SITE. PER CITY-APPROVED DMP (COA #R167D097A), THE REMAINDER OF THE SITE HAS BEEN RE-EVALUATED AND RE-DESIGNATED AS PART OF THIS CURRENT DMP.

PROPOSED CONDITIONS

THE ANALYSIS OF THE PROPOSED SITE IMPROVEMENTS WAS BASED ON THE FINDINGS FROM THE EXISTING CONDITIONS, AUGMENTED BY THE DEVELOPMENT OF SITE GRADING AND DEVELOPMENT PLANS. IN GENERAL, THE SITE DESIGN NECESSITATES THE RECONFIGURATION OF THE EXISTING PONDS, DUE TO THE PROPOSED BUILDING CONFIGURATION AND INTERNAL CIRCULATION. THE NORTH-SOUTH AND NORTHWEST-SOUTHEAST PONDS WILL BE COMBINED INTO A SINGULAR EAST-WEST POND THAT FULLY RETAINS THE 100-YEAR, 10-DAY STORM, PER DPM CRITERIA. THIS ALSO MINIMIZES EARTHWORK AND AMOUNTS OF ON-SITE HARD DRAINAGE INFRASTRUCTURE SUCH AS INLETS AND STORM DRAINS. PARTLY TO ACCOMMODATE INTERIM CONDITIONS OF THE PHASED DEVELOPED AND PARTLY AS AN EFFORT TO REMAIN CONSISTENT WITH THE MASTER-PLANNED DRY SYSTEMS, THE DRAINAGE AREAS ALONG THE PERIPHERY OF THE SITE WILL HAVE SHALLOW RETENTION PONDS IN THE SAME GENERAL EAST-WEST CONFIGURATION, PROVIDING THE 100-YEAR, 10-DAY VOLUMES FROM THEIR RESPECTIVE CONTRIBUTING BASINS. THIS WILL HELP LIMIT THE DEPTH OF THE PRIMARY RETENTION BASIN AND ENSURE DISTRIBUTED INFILTRATION.

WHERE APPLICABLE AND FEASIBLE, GREEN INFRASTRUCTURE IS INTENDED TO BE USED WITHIN LANDSCAPE AREAS TO REDUCE RUNOFF RATES AND BREAK UP DIRECTLY CONNECTED IMPERVIOUS DRAINAGE AREAS. HOWEVER, THE DRAINAGE ANALYSIS HEREIN DOES NOT ACCOUNT FOR THESE MEASURES BEYOND THE LAND TREATMENT PERCENTAGES. THE ON-SITE STORM DRAINS ARE INTENDED TO SERVE THE SITE BUILDINGS AND ENSURE POSITIVE DRAINAGE IS MAINTAINED THROUGHOUT. THE STORM DRAINS WILL ALL FEATURE EROSION CONTROL STRUCTURES AND MAINTENANCE ACCESSIBILITY AT EACH OUTLET TO THE RESPECTIVE PONDS.

HYDROLOGIC AND HYDRAULIC ANALYSES

AS THE SITE WILL MAINTAIN 100% ON-SITE RETENTION, THE PROJECT'S HYDROLOGIC ANALYSIS HAS BEEN COMPLETED UTILIZING THE COA DPM RATIONAL METHOD THAT FEATURES LAND TREATMENT DESIGNATIONS AND IMPERVIOUSNESS TO REPRESENT SURFACE LOSSES. AS THE SITE IS LOCATED WITHIN THE CITY'S PRECIPITATION ZONE 2, THE 100-YEAR, 6-HOUR RAINFALL DEPTH IS 2.29 INCHES AND THE 100-YEAR, 10-DAY DEPTH IS 3.62 INCHES. INLET LOCATIONS HAVE BEEN PRELIMINARILY IDENTIFIED BASED ON THE CONCEPTUAL GRADING AND CONCEPTUALLY SIZED WITH A 50% CLOGGING FACTOR. ON-SITE STORM DRAINS HAVE BEEN SIZED USING THE MANNING'S EQUATION, ASSUMING OPEN CHANNEL FLOW AT A MINIMUM SLOPE OF 0.30% AND A ROUGHNESS COEFFICIENT "N" OF 0.013.

STORMWATER QUALITY

THE STORMWATER QUALITY VOLUME, OR THE 'FIRST FLUSH', IS CALCULATED USING THE RUNOFF DEPTH OF 0.42 INCHES FOR NEWLY DEVELOPED SITES. AS THE SITE DRAINAGE IS FULLY RETAINED ON-SITE, THE STORMWATER QUALITY REQUIREMENT IS MORE THAN SUFFICIENTLY ACCOMMODATED.

Inlet Type	Depth	Clogging Factor	Capacity
COA Type D-SGL	0.5'	50%	3.98
COA Type D-DBL	0.5'	50%	6.46
COA Type A-SGL	0.5'	50%	7.08
COA Type A-DBL	0.5'	50%	8.47
COA Type C-SGL	0.5'	50%	2.54
COA Type C-DBL	0.5'	50%	3.78

STORM DRAIN PIPE TABLE				
PIPE #	Size in.	Slope	Capacity ¹ cfs	ACTUAL Flow cfs
ONSITE				
SDP-BA1.1	18	2.77%	17.48	4.81
SDP-BA1.2	18	2.77%	17.48	9.61
SDP-BA1.3	18	2.77%	17.48	14.42
SDP-BA1.4	18	1.37%	12.30	4.81
SDP-BA1.5	24	1.37%	26.48	20.22
SDP-BA1.6	30	0.54%	30.14	20.22
SDP-BA6.1	18	2.00%	14.86	14.69
SDP-BB1.1	24	4.73%	49.20	43.37
SDP-BB1.2	42	0.46%	68.24	66.14
SDP-BB2.1	24	0.56%	16.93	5.37
SDP-BB2.2	24	0.56%	16.93	10.75
SDP-BB2.3	24	0.56%	16.93	16.12
SDP-BB2.4	36	0.56%	49.91	21.50
SDP-BB2.5	36	0.56%	49.91	21.50
SDP-BB2.6	24	0.88%	21.22	5.37
SDP-BB2.7	24	0.88%	21.22	5.37
SDP-BB3.1	18	6.48%	26.74	7.22
SDP-BB3.2	18	6.48%	26.74	14.44
SDP-BB3.3	36	0.55%	49.46	31.78
SDP-BB3.4	36	0.55%	49.46	39.00
SDP-BB3.5	36	1.60%	84.37	46.22
SDP-BB3.6	18	1.00%	10.50	7.22
SDP-BB3.7	18	1.00%	10.50	7.22
SDP-BB4.1	18	0.86%	9.74	5.18
SDP-BB4.2	24	0.86%	20.98	10.35
SDP-BB4.3	24	0.86%	20.98	15.53

SDP-BB4.4	30	0.86%	38.04	20.71	SDP-BB9.2	24	0.50%	16.00	13.47
SDP-BB4.5	30	0.86%	38.04	25.89	SDP-BB9.3	18	1.51%	12.91	6.74
SDP-BB4.6	30	0.86%	38.04	25.89	SDP-BB9.4	30	0.50%	29.00	20.21
SDP-BB4.7	36	0.20%	29.83	25.89	SDP-BB9.5	30	0.50%	29.00	26.94
SDP-BB4.8	36	1.60%	84.37	46.22	SDP-BB9.6	18	0.91%	10.02	6.74
SDP-BB5.1	18	2.68%	17.20	7.71	SDP-BB9.7	24	0.91%	21.58	13.47
SDP-BB5.2	24	0.54%	16.62	7.71	SDP-BB9.8	36	0.50%	47.16	40.41
SDP-BB5.3	24	0.54%	16.62	15.41	SDP-BB9.9	42	0.50%	71.14	47.15
SDP-BB5.4	24	0.54%	16.62	15.41	SDP-BB9.10	42	0.50%	71.14	53.88
SDP-BB6.1	18	0.50%	7.43	6.05	SDP-BB10.1	18	0.50%	7.43	7.03
SDP-BB6.2	18	0.46%	7.12	6.05	SDP-BB10.2	18	0.50%	7.43	7.03
SDP-BB6.3	24	0.46%	15.34	12.10	SDP-BB11.1	18	4.02%	21.06	8.00
SDP-BB6.4	36	0.46%	45.24	18.15	SDP-BB11.2	30	0.50%	29.00	15.30
SDP-BB7.1	24	0.50%	16.00	10.68	SDP-BB11.3	30	0.50%	29.00	23.30
SDP-BB7.2	24	0.50%	16.00	10.68	SDP-BB11.4	36	0.50%	47.16	31.30
SDP-BB7.3	30	0.50%	29.00	15.30	SDP-BB11.5	36	0.50%	47.16	39.30
SDP-BB7.4	18	0.90%	9.97	4.63	SDP-BB12.1	18	1.00%	10.50	5.57
SDP-BB7.5	18	0.90%	9.97	9.25	SDP-BB12.2	18	0.48%	7.28	5.57
SDP-BB7.6	18	0.62%	8.27	4.63	SDP-BB12.3	18	0.48%	7.28	5.57
SDP-BB7.7	24	0.62%	17.81	9.25	SDP-BB12.4	24	0.48%	15.67	11.14
SDP-BB7.8	24	0.90%	21.46	18.50	SDP-BB12.5	30	0.48%	28.42	16.70
SDP-BB7.9	30	0.90%	38.91	23.13	SDP-BB12.6	30	0.48%	28.42	22.27
SDP-BB7.10	30	0.90%	38.91	27.75	SDP-BB12.7	30	0.48%	28.42	22.27
SDP-BB7.11	18	2.18%	15.51	4.63	SDP-BB12.8	24	2.00%	31.99	22.27
SDP-BB8.1	30	0.90%	38.91	27.75	SDP-BB12.9	24	2.00%	31.99	27.84
SDP-BB9.1	18	0.50%	7.43	6.74					

1- Capacity Based on Manning's Eq w/ N= 0.013

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ABQ Studios Expansion													
Basin Data Table													
This table is based on page 6-10 of the DPM, Zone: 2													
Basin ID	Area	Area	Land Treatment Percentages				Q(100yr)	Q(100yr)	E(100yr)	V _(100yr-24hr)	V _(100yr-10d)	V _(100yr-10d)	SWQV
	(SQ. FT)	(AC.)	A	B	C	D	(cfs/ac.)	(CFS)	(inches)	(CF)	(CF)	(AC-FT)	(CF)
SITE NORTH													
B1	912177	20.94	0.0%	10.0%	0.0%	90.0%	4.14	86.74	2.18	186008	276998	6.36	28734
B2	282588	6.49	0.0%	10.0%	0.0%	90.0%	4.14	26.87	2.18	57624	85813	1.97	8902
B3	303643	6.97	0.0%	10.0%	0.0%	90.0%	4.14	28.87	2.18	61918	92206	2.12	9565
B4	371897	8.54	0.0%	40.0%	40.0%	20.0%	3.03	25.89	1.20	38987	47231	1.08	2603
SITE NORTH SUBTOTAL	1,870,305	42.94	-	-	-	-	-	168.37		344,538	502,247	11.53	49,803
SITE EAST													
B7	442201	10.15	0.0%	10.0%	0.0%	90.0%	4.14	42.05	2.18	90172	134282	3.08	13929
B8	234971	5.39	0.0%	95.0%	0.0%	5.0%	2.46	13.26	0.88	17456	18759	0.43	411
B9	643927	14.78	0.0%	10.0%	0.0%	90.0%	4.14	61.23	2.18	131307	195539	4.49	20284
B11	254919	5.85	0.0%	10.0%	0.0%	90.0%	4.14	24.24	2.18	51982	77410	1.78	8030
B12	344451	7.91	0.0%	10.0%	0.0%	90.0%	4.14	32.75	2.18	70239	104598	2.40	10850
B13	412138	9.46	0.0%	10.0%	0.0%	90.0%	4.14	39.19	2.18	84042	125153	2.87	12982
B14	228275	5.24	0.0%	10.0%	0.0%	90.0%	4.14	21.71	2.18	46549	69320	1.59	7191
A5	360617	8.28	0.0%	20.0%	0.0%	80.0%	3.94	32.65	2.02	68036	100011	2.30	10097
SITE EAST SUBTOTAL	2,921,499	67.07	-	-	-	-	-	267.08		559,785	825,071	18.94	83,775
PERIPHERY BASINS													
A1	212367	4.88	0.0%	20.0%	0.0%	80.0%	3.94	19.23	2.02	40067	58896	1.35	5946
A2	593187	13.62	0.0%	20.0%	0.0%	80.0%	3.94	53.71	2.02	111915	164511	3.78	16609
A3	362555	8.32	0.0%	20.0%	0.0%	80.0%	3.94	32.83	2.02	68402	100549	2.31	10152
A4	313146	7.19	0.0%	10.0%	20.0%	70.0%	3.88	27.92	1.92	55505	79800	1.83	7672
A6	95948	2.20	0.0%	10.0%	0.0%	90.0%	4.14	9.12	2.18	19565	29136	0.67	3022
B5	245600	5.64	0.0%	10.0%	0.0%	90.0%	4.14	23.35	2.18	50082	74581	1.71	7736
NORTH PERIPHERY SUBTOTAL	1,822,803	41.85	-	-	-	-	-	166.16		345,536	507,472	11.65	51,138
B6	254505	5.84	0.0%	10.0%	0.0%	90.0%	4.14	24.20	2.18	51898	77285	1.77	8017
B10	147839	3.39	0.0%	10.0%	0.0%	90.0%	4.14	14.06	2.18	30147	44894	1.03	4657
C1	379991	8.72	0.0%	10.0%	0.0%	90.0%	4.14	36.13	2.18	77486	115391	2.65	11970
C2	381394	8.76	0.0%	10.0%	0.0%	90.0%	4.14	36.27	2.18	77773	115817	2.66	12014
C3	537177	12.33	0.0%	10.0%	0.0%	90.0%	4.14	51.08	2.18	109539	163123	3.74	16921
EAST PERIPHERY SUBTOTAL	1,700,906	39.05	-	-	-	-	-	161.73		346,843	516,508	11.86	53,579

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SABATINI**

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ARCHITECT

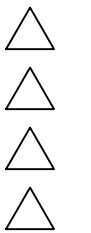


ENGINEER

PROJECT

ABQ Studios Expansion
SITE - NORTH
5650 UNIVERSITY BLVD SE
ALBUQUERQUE, NM 87106

REVISIONS



DRAWN BY KH

REVIEWED BY OB

DATE 7/13/2021

PROJECT NO. 20-0072.008

DRAWING NAME

DRAINAGE MANAGEMENT PLAN

SHEET NO.

C109

OF