



WILSON & COMPANY

4900 Lang Ave NE
Albuquerque, NM 87109
505-348-4000 phone
505-348-4055 fax

Alaska
Arizona
California
Colorado
Florida
Kansas
Missouri
Nebraska
New Mexico
Oklahoma
Texas
Utah

April 20, 2015

Jeanne Wolfenbarger, P.E.
Senior Engineer, Planning Department
Development Review Services
600 2nd St. NW, Suite 201
Albuquerque, NM 87102

RE: Chaparral Elementary School Portable Relocation
Grading and Drainage Plan
Engineer's Stamp Dated 4-14-15 (File: F10-D005)

Dear Ms. Wolfenbarger,

Attached is the revised Grading and Drainage Plan sheet submitted for approval. The revisions have been performed based on your comments from the original submittal. Two hardcopy sets will be delivered to your office in addition to this electronic submittal.

The following is a written response to those comments:

1. The first flush volume of 220 cubic feet will be conveyed to the Ladera Basin 16 sump which lies immediately east of the school site. The sump will allow any pollutants to settle out before entering the city storm drain system. The first flush computation have been included on the sheet.
2. Analysis points have been included at pipe inlets and sidewalk culverts. Calculations were also included showing the capacity of the proposed structures.
3. The existing 18" storm drain pipe has been labeled and a proposed 100-year discharge of 11.94 cfs is also labeled.
4. Additional flow arrows showing the direction of runoff from the roofs of the portable buildings have been included. Any flow on the west side of the portable buildings will flow north passed the portable building than east toward the proposed curb & gutter. The direction of discharge in Basin 4A within this project continues to follow existing drainage patterns. The increase in impervious area is accounted for in the plans to develop Basin 4A which will proceed following the completion of the portable relocation project. Refer to Chaparral Elementary School Addition Plans for Proposed Developments layouts.

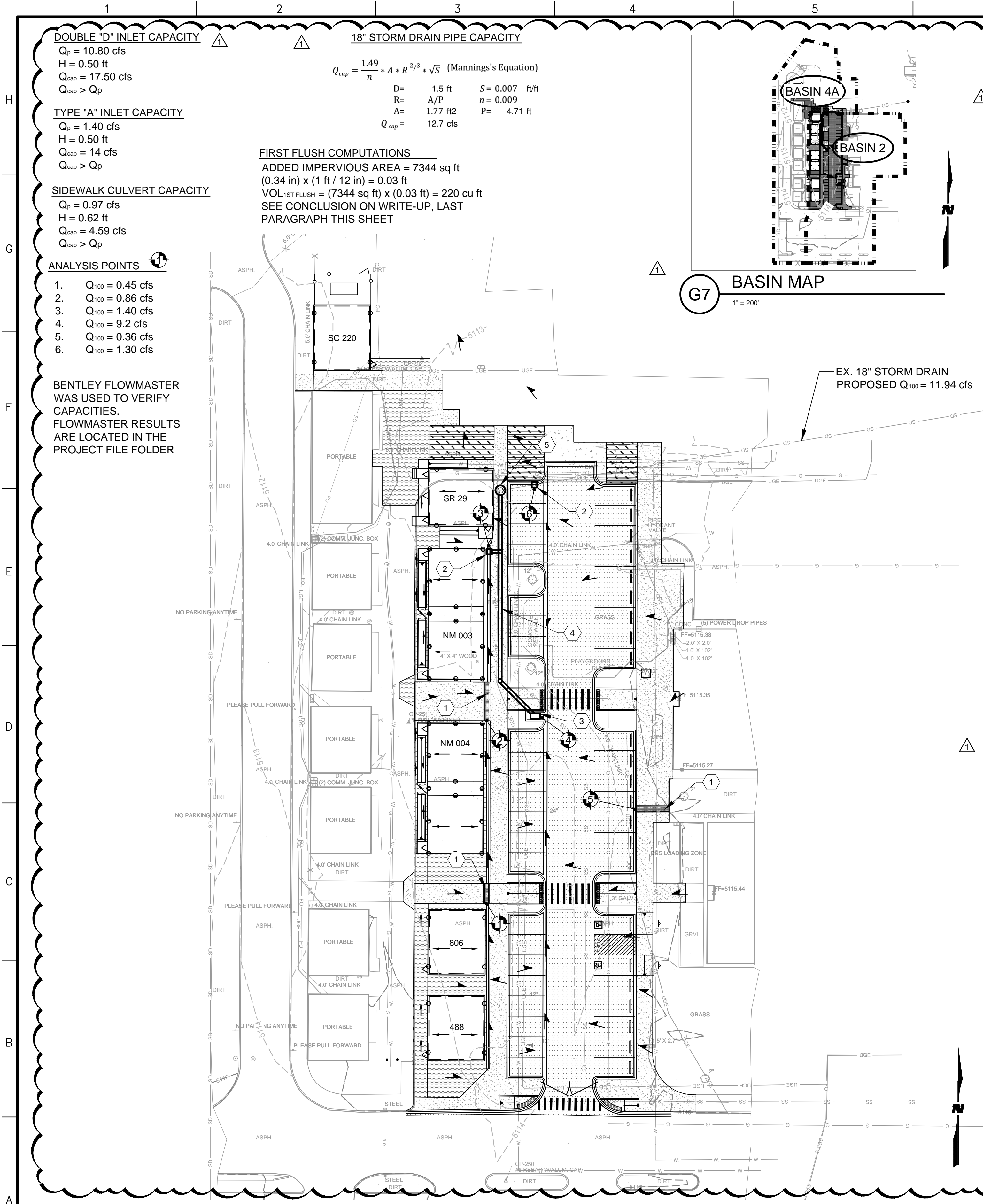
Sincerely,



Eugenio Valdez, P.E.
Project Engineer
Wilson & Company

Cc: Sal War
File





INTRODUCTION AND PROJECT DESCRIPTION:
CHAPARRAL ELEMENTARY SCHOOL IS LOCATED AT 6325 MILNE RD NW ON THE NORTHWEST MESA OF THE ALBUQUERQUE METROPOLITAN AREA. THE SCHOOL GENERALLY LIES AT THE SOUTHEAST CORNER OF THE INTERSECTION OF WESTERN TRAIL NW AND UNSER BLVD NW. THE PROPOSED SITE IS JUST WEST OF THE MAIN CLASSROOM BUILDING. OTHER PORTABLE CLASSROOM BUILDINGS ARE LOCATED JUST WEST OF THE PROPOSED RELOCATION SITE. THE SURROUNDING CAMPUS WILL BE UNDERGOING RENOVATIONS UNDER A SEPARATE PROJECT. THE GOAL OF THIS PROJECT IS TO ADD TEMPORARY PORTABLES AND PAVING TO PROVIDE CLASSROOMS FOR THE DISPLACEMENT OF STUDENTS DURING CONSTRUCTION OF THE EXPANSION OF THE CAMPUS.

THE DRAINAGE CONCEPT FOR THIS PROJECT WILL BE THE CONTINUED FREE DISCHARGE OF DEVELOPED RUNOFF TO LADERA BASIN 16 SOUTH SUMP PER THE 1983 APPROVED DRAINAGE PLAN PREPARED BY HIGH MESA CONSULTING GROUP. THE LADERA BASIN 16 SUMP LIES IMMEDIATELY EAST OF THE SCHOOL SITE.

AS SHOWN BY PANEL 114 OF 825 OF THE NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAPS PUBLISHED BY FEMA FOR BERNALILLO COUNTY, NEW MEXICO, SEPTEMBER 26, 2008, THE SITE DOES NOT LIE WITHIN A 100-YEAR DESIGNATED FLOOD HAZARD ZONE. THE SITE DOES LIE IMMEDIATELY WEST OF THE DESIGNATED FLOOD HAZARD ZONE, AE, COINCIDING WITH THE LADERA BASIN 16 SOUTH SUMP, A PUBLIC DETENTION BASIN. THE LADERA BASIN 16 SOUTH SUMP IS OWNED, OPERATED AND MAINTAINED BY THE CITY OF ALBUQUERQUE AND REPRESENTS THE OUTFALL FOR THE EXISTING SCHOOL SITE PER THE 2009 REVISED MASTER DRAINAGE PLAN PREPARED BY HIGH MESA CONSULTING GROUP.

METHODOLOGY:
SECTION 22.2 OF THE CITY OF ALBUQUERQUE DPM WAS UTILIZED TO CALCULATE DESIGN FLOWS. THE PROCEDURE FOR 40 ACRE AND SMALLER BASINS WAS USED. THE 100-YEAR, 6 HOUR STORM EVENT WAS THE DESIGN STORM COMPUTED FOR THE IMPROVEMENTS. THE SITE IS LOCATED IN PRECIPITATION ZONE 1 AS DESIGNATED IN TABLE A-1 OF THE DPM. BASINS WERE DELINEATED USING AN EXISTING OVERALL BASIN MAP PREPARED BY HIGH MESA CONSULTING.

EXISTING CONDITIONS:
THE PROJECT AREA IS A COMBINATION OF ASPHALT PARKING LOT WITH A VEGETATED ISLAND, ASPHALT ACCESS ROAD, AND CONCRETE SIDEWALKS. THE SITE IS CONTAINED PRIMARILY IN BASIN 2, AND A SMALL AREA WITHIN BASIN 4-A. SEE TABLE 1 FOR THE EXISTING HYDROLOGIC CONDITIONS.

BASIN 2 ENCOMPASSES APPROXIMATELY 2.81 ACRES AND CONSISTS OF THE MAIN PAVED PARKING LOT, THE WESTERN PORTION OF THE MAIN CLASSROOM BUILDING, AND SURROUNDING LANDSCAPE AREAS. THE BASIN SURFACE DRAINS FROM SOUTH TO NORTH TO AN EXISTING PRIVATE STORM INLET WITHIN THE EXISTING DRIVE. THE STORM INLET DISCHARGES TO AN EXISTING 18" PRIVATE STORM DRAIN THAT ULTIMATELY DISCHARGES TO THE LADERA BASIN 16 SOUTH SUMP.

BASIN 4-A ENCOMPASSES APPROXIMATELY 2.21 ACRES AND CONTAINS PORTABLE CLASSROOMS. PER THE 2009 MASTER DRAINAGE PLAN PREPARED BY HIGH MESA CONSULTING THIS BASIN DRAINS TO THE NORTH AND WEST, CURRENTLY FORMING A SHALLOW POND AT THE NORTHWEST CORNER OF THE SITE. OVERFLOW RUNOFF WILL FLOW TO THE NORTHWEST TO A DETENTION POND LOCATED ON THE ADJACENT APS ALTERNATIVE SCHOOL PROPERTY. THIS DETENTION POND DISCHARGES TO A PUBLIC STORM DRAIN THAT PASSES BENEATH THE SCHOOL SITE WITHIN A PUBLIC DRAINAGE EASEMENT ALONG THE NORTH EDGE OF THE PROPERTY. THE PUBLIC STORM DRAIN SYSTEM DRAINS FROM WEST TO EAST, DISCHARGING INTO THE LADERA BASIN 16 SOUTH SUMP."

BASIN	AREA ACRE	LAND TREATMENT (%)				Qp (100) (CFS)	V(100-6) (AC-FT) (CF)	V(100-9) (CF)
		A	B	C	D			
2	2.81	0	10	4	86	11.45	0.422	18,369
4-A	2.21	0	0	70	30	7.34	0.237	10,301

Table 1: Existing Hydrology

PROPOSED CONDITIONS:
THE PROJECT INCLUDES REMOVING THE EXISTING VEGETATED PARKING MEDIAN AND EXISTING SAND PLAYGROUND, AND RELOCATING SIX PORTABLES JUST EAST OF THE EXISTING LINE OF PORTABLES THAT LIE IN THE NORTHWEST CORNER OF BASIN 2. THE NORTH AREA OF BASIN 4-A WILL INCLUDE ONE 32'X28' PORTABLE. SEE TABLE 2 FOR THE PROPOSED HYDROLOGIC CONDITIONS. THE PROPOSED SITE WILL INCLUDE APPROXIMATELY 0.17 ACRES INCREASE IN LAND TREATMENT D. THIS INCLUDES THE ASPHALT PARKING LOT ADDED FOR THE NEW PORTABLES AND PROPOSED FLATWORK.

A PROPOSED TYPE DOUBLE D INLET AND AN 18" STORM DRAIN WILL BE CONSTRUCTED WITHIN THE PROPOSED ENCLOSED PARKING LOT JUST WEST OF THE MAIN BUILDING. THE STORM DRAIN WILL TIE INTO A PROPOSED MANHOLE THAT WILL GET CONSTRUCTED WITHIN THE EXISTING 18" PRIVATE STORM DRAIN. THE EXISTING INLET WITHIN BASIN 2 WILL BE REMOVED AND THE PROPOSED 18" STORM DRAIN WILL CAPTURE FLOWS FROM TWO TYPE A INLETS AND A DOUBLE D INLET TO ACCEPT RUNOFF FROM BASIN 2. APPROXIMATELY 9.2 CFS WILL GET CAPTURED IN THE DOUBLE D INLET LEAVING APPROXIMATELY 1.4 CFS TO BE CAPTURED BY THE WEST TYPE A INLET AND 1.3 CFS TO BE CAPTURED BY THE NORTH TYPE A INLET. BOTH THE DOUBLE D INLET AND THE TYPE A INLETS WILL BE PLACED AT LOW POINTS WITHIN THE PROJECT AND HAVE THE CAPACITY WITH NO MORE THAN 6" OF HEAD TO CAPTURE THE REQUIRED PEAK FLOWRATES.

BASIN 4A IS CURRENTLY A DIRT LOT. THESE PLANS INCREASE THE IMPERVIOUS AREA BY APPROXIMATELY 6%. THE INCREASE IN IMPERVIOUS AREA WILL BE ACCOUNTED FOR IN THE PLANS TO DEVELOP BASIN 4A WHICH WILL PROCEED FOLLOWING THE COMPLETION OF THE PORTABLE RELOCATION PROJECT. REFER TO CHAPARRAL ELEMENTARY SCHOOL ADDITION PLANS SHEET ES-C102 BY HIGH MESA FOR PROPOSED DEVELOPMENTS.

BASIN	AREA ACRE	LAND TREATMENT (%)				Qp (100) (CFS)	V(100-6) (AC-FT) (CF)	V(100-9) (CF)
		A	B	C	D			
2	2.81	0	0	8	92	11.94	0.443	19,295
4-A	2.21	0	0	64	36	7.54	0.243	10,772

Table 2: Proposed Hydrology

CONCLUSIONS:
THERE IS AN OVERALL INCREASE OF 0.69 CFS AND 1397 CF. THE DRAINAGE PATTERNS HAVE NOT BEEN ALTERED. THE 2009 MASTER DRAINAGE PLAN SHOWS THE EXISTING PRIVATE STORM DRAIN TO HAVE A CAPACITY OF 12.7 CFS WHICH IS GREATER THAN THE PROPOSED PEAK FLOW OF 11.94 CFS.

PER THE MOST RECENT COA DRAINAGE ORDINANCE EFFECTIVE MAY 12, 2014, THE PROJECT SHALL, WHERE PRACTICABLE MANAGE THE RUNOFF FROM A 0.44 INCH RAINFALL EVENT. BASED ON A TREATMENT 'D' INITIAL ABSTRACTION OF 0.10 INCHES (COA DPM, TABLE A-6) AN EXCESS PRECIPITATION OF 0.34 INCHES WILL BE CONSIDERED AS THE FIRST FLUSH VOLUME. THE FIRST FLUSH COMPUTATIONS RESULT IN A VOLUME OF APPROXIMATELY 220 CU FT. THIS VOLUME IS CONVEYED TO THE LADERA BASIN 16 SUMP WHICH LIES IMMEDIATELY EAST OF THE SCHOOL SITE. THIS VOLUME IS NEGLIGIBLE COMPARED TO THE STORAGE CAPACITY OF THE LADERA BASIN 16 SOUTH SUMP. THE SUMP WILL ALLOW ANY POLLUTANTS TO SETTLE OUT BEFORE ENTERING THE CITY STORM DRAIN SYSTEM.

INPUT DATA:

PRECIP. ZONE	RAINFALL DEPTHS (INCHES) AT 100-YEAR STORM				
	1 HOUR	6 HOUR	24 HOUR	4 DAY	10 DAY
1	1.87	2.20	2.66	3.12	3.67

HYDROLOGY SUMMARY

PROJECT NAME:				Chaparral ES Portable Relocation				JOB NUMBER:				1460011400								
BASIN		COND.		DESCRIPTION		AREA		2 YEAR		10 YEAR		100 YEAR								
								Q	VOLUME (ac-ft.)	Q	VOLUME (ac-ft.)	Q	VOLUME (ac-ft.)							
								A	B	C	D	E								
2		Existing		SITE		2.8100		0.0%	10.0%	4.0%	88.0%	4.15	14.664	0.1010	7.37	0.2510	3.308	1.145	42.17	0.5143
4		Developed		SITE		2.2100		0.0%	0.0%	0.0%	92.0%	1.95	0.6253	0.0000	0.0000	0.7516	0.0000	0.3423	0.4292	
4-a		Developed		SITE		2.2100		0.0%	0.0%	0.0%	92.0%	1.95	0.6253	0.0000	0.0000	0.7516	0.0000	0.3423	0.4292	
4-b		Developed		SITE		2.2100		0.0%	0.0%	84.0%	0.0%	2.73	0.0016	0.0751	4.41	0.1341	0.544	7.54	0.3067	2.278

BASIN	CONC.	DESCRIPTION	2 YEAR				
			AREA	VOLUME	Q	AREA	VOLUME
2	Developed	SITE	2.8100	0.0%	0.0%	8.0%	92.0%
4-A	Developed	SITE	2.2100	0.0%	0.0%	64.0%	36.0%

BASIN	CONC.	DESCRIPTION	10 YEAR				
			AREA	VOLUME	Q	AREA	VOLUME
2	Developed	SITE	2.8100	0.0%	0.0%	8.0%	92.0%
4-A	Developed	SITE	2.2100	0.0%	0.0%	64.0%	36.0%

BASIN	CONC.	DESCRIPTION	100 YEAR				
			AREA	VOLUME	Q	AREA	VOLUME
2	Developed	SITE	2.8100	0.0%	0.0%	8.0%	92.0%
4-A	Developed	SITE	2.2100	0.0%	0.0%	64.0%	36.0%

BASIN	CONC.	DESCRIPTION	100 YEAR				
			AREA	VOLUME	Q	AREA	VOLUME
2	Developed	SITE	2.8100	0.0%	0.0%	8.0%	92.0%
4-A	Developed	SITE	2.2100	0.0%	0.0%	64.0%	36.0%

BASIN	CONC.	DESCRIPTION	100 YEAR				
			AREA	VOLUME	Q	AREA	VOLUME
2	Developed	SITE	2.8100	0.0%	0.0%	8.0%	92.0%
4-A	Developed	SITE	2.2100	0.0%	0.0%	64.0%	36.0%

BASIN	CONC.	DESCRIPTION	100 YEAR				
			AREA	VOLUME	Q	AREA	VOLUME
2	Developed	SITE	2.8100	0.0%	0.0%	8.0%	92.0%
4-A	Developed	SITE	2.2100	0.0%	0.0%	64.0%	36.0%

BASIN	CONC.	DESCRIPTION	100 YEAR				
			AREA	VOLUME	Q	AREA	VOLUME
2	Developed	SITE	2.8100	0.0%	0.0%	8.0%	92.0%
4-A	Developed	SITE	2.2100	0.0%	0.0%	64.0%	36.0%

BASIN	CONC.	DESCRIPTION	100 YEAR				
			AREA	VOLUME	Q	AREA	VOLUME
2	Developed	SITE	2.8100	0.0%	0.0%	8.0%	92.0%
4-A	Developed	SITE	2.2100	0.0%	0.0%	64.0%	36.0%

BASIN	CONC.	DESCRIPTION	100 YEAR				
			AREA	VOLUME	Q	AREA	VOLUME
2	Developed	SITE	2.8100	0.0%	0.0%	8.0%	92.0%
4-A	Developed	SITE	2.2100	0.0%	0.0%	64.0%	36.0%

BASIN	CONC.	DESCRIPTION	100 YEAR				
			AREA	VOLUME	Q	AREA	VOLUME
2	Developed	SITE	2.8100	0.0%	0.0%	8.0%	92.0%
4-A	Developed	SITE	2.2100	0.0%	0.0%	64.0%	36.0%

BASIN	CONC.	DESCRIPTION	100 YEAR				
			AREA	VOLUME	Q	AREA	VOLUME
2	Developed	SITE	2.8100	0.0%	0.0%	8.0%	92.0%
4-A	Developed	SITE	2.2100	0.0%	0.0%	64.0%	36.0%

BASIN	CONC.	DESCRIPTION	100 YEAR				
			AREA	VOLUME	Q	AREA	VOLUME
2	Developed	SITE	2.8100	0.0%	0.0%	8.0%	92.0%
4-A	Developed	SITE	2.2100	0.0%	0.0%	64.0%	36.0%

BASIN	CONC.	DESCRIPTION	100 YEAR				
			AREA	VOLUME	Q	AREA	VOLUME
2	Developed	SITE	2.8100	0.0%	0.0%	8.0%	92.0%
4-A	Developed	SITE	2.2100	0.0%	0.0%	64.0%	36.0%

BASIN	CONC.	DESCRIPTION	100 YEAR				
			AREA	VOLUME	Q	AREA	VOLUME
2	Developed	SITE	2.8100	0.0%	0.0%	8.0%	92.0%
4-A	Developed	SITE	2.2100	0.0%	0.0%	64.0%	36.0%

BASIN	CONC.	DESCRIPTION	100 YEAR				
			AREA	VOLUME	Q	AREA	VOLUME
2	Developed	SITE	2.8100	0.0%	0.0%	8.0%	92.0%
4-A	Developed	SITE	2.2100	0.0%	0.0%	64.0%	36.0%

BASIN	CONC.	DESCRIPTION	100 YEAR				
			AREA	VOLUME	Q	AREA	VOLUME
2	Developed	SITE	2.8100	0.0%	0.0%	8.0%	92.0%
4-A	Developed	SITE	2.2100	0.0%	0.0%	64.0%	36.0%

BASIN	CONC.	DESCRIPTION	100 YEAR				
			AREA	VOLUME	Q	AREA	VOLUME
2	Developed	SITE	2.8100	0.0%	0.0%	8.0%	92.0%
4-A	Developed	SITE	2.2100	0.0%	0.0%	64.0%	36.0%

BASIN	CONC.	DESCRIPTION	100 YEAR				
			AREA	VOLUME	Q	AREA	VOLUME
2	Developed	SITE	2.8100	0.0%	0.0%	8.0%	92.0%
4-A	Developed	SITE	2.2100	0.0%	0.0%	64.0%	36.0%

BASIN	CONC.	DESCRIPTION	100 YEAR				
			AREA	VOLUME	Q	AREA	VOLUME
2	Developed	SITE	2.8100	0.0%	0.0%	8.0%	92.0%
4-A	Developed	SITE	2.2100	0.0%	0.0%	64.0%	36.0%

BASIN	CONC.	DESCRIPTION	100 YEAR				
			AREA	VOLUME	Q	AREA	VOLUME
2	Developed	SITE	2.8100	0.0%	0.0%	8.0%	92.0%
4-A	Developed	SITE	2.2100	0.0%	0.0%	64.0%	36.0%

BASIN	CONC.	DESCRIPTION	100 YEAR				
			AREA	VOLUME	Q	AREA	VOLUME
2	Developed	SITE	2.8100	0.0%	0.0%	8.0%	92.0%
4-A	Developed	SITE	2.2100	0.0%	0.0%	64.0%	36.0%

BASIN	CONC.	DESCRIPTION	100 YEAR				
			AREA	VOLUME	Q	AREA	VOLUME
2	Developed	SITE	2.8100	0.0%	0.0%	8.0%	92.0%
4-A	Developed	SITE	2.2100	0.0%	0.0%	64.0%	36.0%

BASIN	CONC.	DESCRIPTION	100 YEAR				
			AREA	VOLUME	Q	AREA	VOLUME
2	Developed	SITE	2.8100	0.0%	0.0%	8.0%	92.0%
4-A	Developed	SITE	2.2100	0.0%	0.0%	64.0%	36.0%

BASIN	CONC.	DESCRIPTION	100 YEAR				
			AREA	VOLUME	Q	AREA	VOLUME
2	Developed	SITE	2.8100	0.0%	0.0%	8.0%	92.0%
4-A	Developed	SITE	2.2100	0.0%	0.0%	64.0%	36.0%