

Mountain View Medical
Center Redevelopment

Concept Drainage Report



Prepared for:
Mountain View Medical Center,
LLC

Prepared by:
Stantec Consulting Services, Inc.



September 20, 2018

GRADING, DRAINAGE, AND ROUTING SUMMARY

The Mountain View Medical Center Redevelopment Project is a 3-phase, approximately 10-acre project in Paradise Valley, AZ at the intersection of Tatum Boulevard and Shea Boulevard. The site's grading and drainage have been designed so that each of the 3 phases will stand alone, ensuring that the storm water systems will function independent of construction phase.

The majority of the site's storm water will collect in the curb and gutter and be routed to the perimeter of the project where it will collect in above and below ground retention basins. The above ground retention basins have a 3-foot maximum depth and collected storm water will percolate into the ground over time. In storm events that exceed the 100-year, 2-hour design storm, the basins have been designed with overflows that direct water away from structures and into the City's storm water system. For the above ground retention ponds that are not large enough to contain the full amount of the contributing sub-basins storm water volume, underground retention systems and dry wells will be utilized to capture and drain storm water in a controlled manner. The underground storage systems will be comprised of large diameter pipes, ranging in size from 6-foot diameter RCP to 10-foot diameter coated CMP. The systems will be provided by Contech or a similar manufacturer. The underground storage systems will empty into dry wells that have the capacity to drain 12,500 cubic feet of water over a 36-hour period. A total of 5 drywells will be utilized for this project.

In addition to the retention basins on the perimeter, there are two underground retention systems located under asphalt pavement parking lots and one above and below ground retention system located in an interior landscape area. These systems will function in a similar manner to the perimeter systems previously described.

STORM DRAIN METHODOLOGY AND DESIGN BASIS

Per the Paradise Valley Storm Drainage Design Manual, the retention requirement for this project is the runoff flowrate during the 100-year, 2-hour storm event in the post-development condition, so long as the calculated rainfall volume is greater than the first flush event. Upon completion of the analysis, the 100-year, 2-hour storm event was in fact larger than the first flush volume for all 22 drainage sub-basins in the project.

The 100-year, 2-hour design storm produces approximately 2.2 inches of rain as is shown on the Maricopa County Drainage Manual Figure A.56 (Rainfall Isoplethals). This rainfall value was used in the Storm Water Storage Volume formula provided in the Paradise Valley Drainage Design Manual. The formula is:

Required Storage Volume = Weighted Average Runoff Coefficient x (2.2/12) x Area

The weighted average runoff coefficient was determined by calculating the weighted average of impervious area vs. pervious area for each of the 22 sub-basins. The runoff coefficient values were taken from the Maricopa County Drainage Manual Table 3.2. Two runoff coefficients were used for the project, one for impervious surfaces (roofs and pavement) and one for pervious surfaces (landscape). Table 3.2 lists impervious surface as having a runoff coefficient of 0.94. The landscape coefficient used was 0.38, which corresponds to DL2 "landscaping without impervious under treatment." This value was

used across the entire site as all existing grass will be replaced with desert landscape. Summaries of the retention basins, flow routing, runoff coefficients, and drainage areas are shown on the Concept Grading and Drainage Plan.

CONCLUSION

In conformance with the Paradise Valley Storm Drainage Design Manual, the proposed drainage system will retain the required rainfall from the 100-year, 2-hour design storm across the +/- 10-acre project site. This will be accomplished through the utilization of on-site underground retention pipes and above ground retention ponds. The underground retention pipes will drain over a period of 36 hours via one of five total dry wells. In total, the above ground retention ponds have a volume of 39,900 cubic feet (cf), which is 1,406 cf more than required and the underground retention pipes have a total volume of 20,178 cf which is 182 cf more than required.



Stantec Consulting Services, Inc.
8211 South 48th Street,
Phoenix, Arizona 85044

September 21, 2018
File: 180101666

Attention: Mr. Paul Michaud
Interim Development Director
Town of Paradise Valley
6401 E Lincoln Drive
Paradise Valley, AZ 85253

Dear Mr. Michaud,

**Reference: Major Special Use Application for Mountain View Medical Center Review #2
Response to Comment 13**

In response to comment 13 provided by your office on September 5, 2018, requesting information regarding utilities located on and adjacent to the property, we offer the following information for your use:

Water service:

Water service is provided by the City of Phoenix and is located along Beryl Avenue, Tatum Boulevard and Shea Boulevard. Tatum Boulevard has an existing 12" waterline located on the east side and a 6" waterline located on the west side. The 12" line has two existing 6" fire lines that are stubbed to the property and three existing 2" services lines, all of which serve the existing development located on the property. There is also an 8" water line that runs along the north side of Shea Boulevard. No services are existing or currently expected to be proposed off the 8" line. There is a 6" line along Beryl Avenue, but no services are existing or currently expected to be proposed off the Beryl Avenue line

Calculation of fire flow requirements and evaluation of capacity will be provided as a separate document once the fire department is able to do a fire flow test on the existing fire hydrants adjacent to the property. Existing building plans indicate the original water pressure at Tatum Boulevard are about 60 psi.

Sewer service:

Sewer service is provided by the City of Phoenix and is located on both Tatum Boulevard and on Shea Boulevard. There is a 12" sewer line along Tatum Boulevard and an 18" sewer line along Shea Boulevard. The sewer line flows north along Tatum Boulevard and then east along Shea Boulevard. There appears to be a sewer service at the southwest corner of the site. Sewer conveys to a line along the eastern boundary of the property.

Electric:

APS is the service provider for Electric. The existing primary electric line enters the site off Tatum Boulevard near Beryl Avenue and runs along the eastern boundary of the property to Shea Boulevard. Services are provided off this line to serve the existing buildings. It appears that the gas line and electric line are within the same trench.

September 21, 2018

Mr. Paul Michaud

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Gas:

Southwest Gas is the service provider for gas to the property. Per record information, there is an 8" gas line on the property and each service is a 2" gas line with a pressure reducing valve for each existing building. The line enters the site off Beryl Avenue and runs along the eastern boundary of the property to Shea Boulevard. Services are provided off this line to serve the existing buildings. It appears that the gas line and electric line are within the same trench.

Phone/Cable:

Cox Communications is the service provider for fiber optic and telephone. There is an existing service line that enters the site off Beryl Avenue and runs along the eastern boundary of the property. Services are provided off this line to serve the existing buildings.

Please let me know if you need any additional information.

Regards,

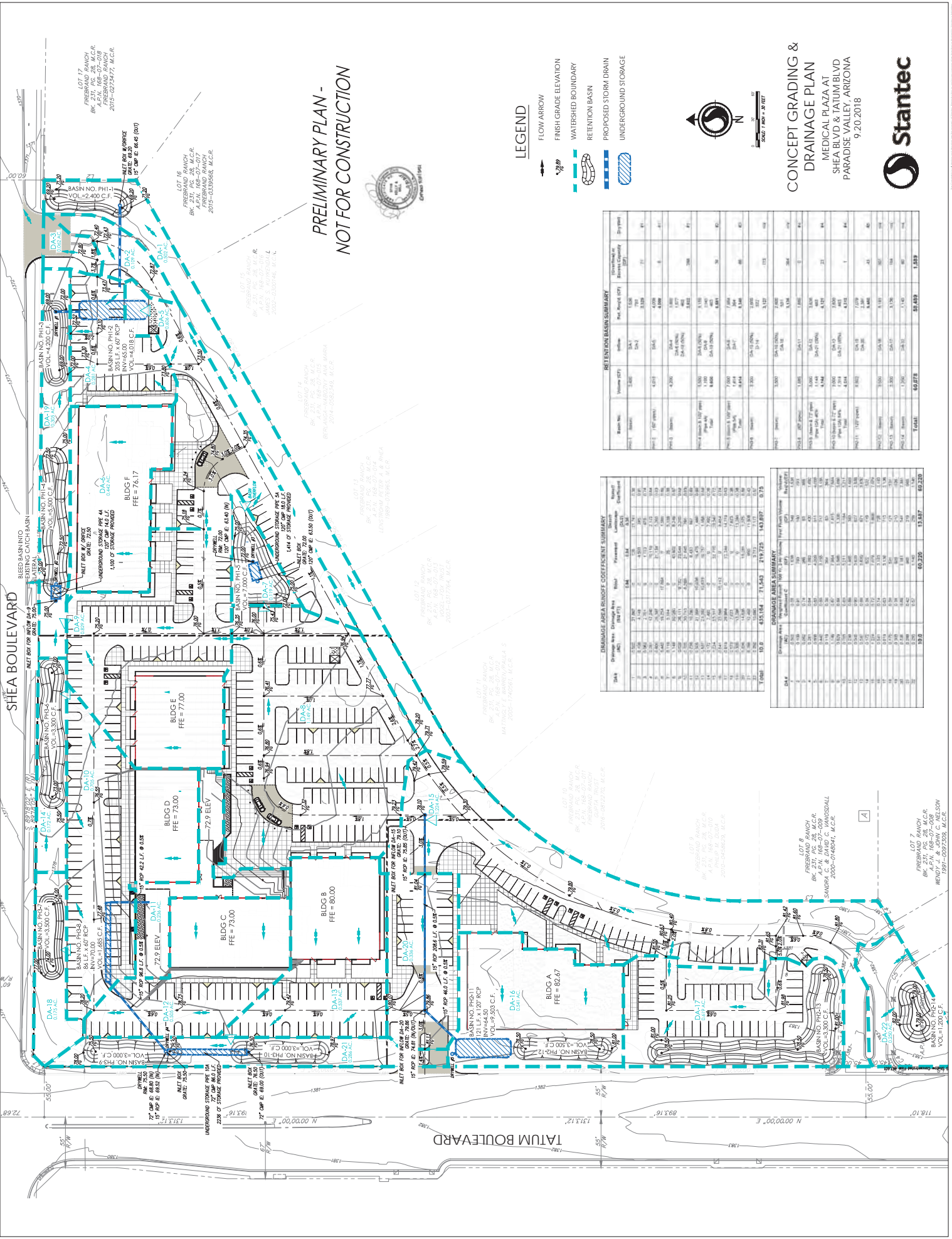


Kelly J. Bell, PE

Principal

Phone: 602.707.4642

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**PRELIMINARY PLAN -
NOT FOR CONSTRUCTION**

LEGEND

- FLOW ARROW
- FINISH GRADE ELEVATION
- WATERSHED BOUNDARY
- RETENTION BASIN
- PROPOSED STORM DRAIN
- UNDERGROUND STORAGE



SCALE 1" = 40'

**CONCEPT GRADING &
DRAINAGE PLAN**
MEDICAL PLAZA AT
SHEA BLVD & TATUM BLVD
PARADISE VALLEY, ARIZONA
9.20.2018



RETENTION BASIN SUMMARY

Basin No.	Volume (CF)	Volume (MG)	Retention Coefficient	Retention Time (min)
PH-1	2,400	0.04	0.25	15
PH-2	4,018	0.07	0.25	15
PH-3	4,200	0.08	0.25	15
PH-4	3,500	0.06	0.25	15
PH-5	4,800	0.09	0.25	15
PH-6	3,200	0.06	0.25	15
PH-7	2,800	0.05	0.25	15
PH-8	3,100	0.06	0.25	15
PH-9	3,400	0.06	0.25	15
PH-10	3,600	0.07	0.25	15
PH-11	3,800	0.07	0.25	15
PH-12	4,000	0.07	0.25	15
PH-13	4,200	0.08	0.25	15
PH-14	4,400	0.08	0.25	15
PH-15	4,600	0.09	0.25	15
PH-16	4,800	0.09	0.25	15
PH-17	5,000	0.10	0.25	15
PH-18	5,200	0.10	0.25	15
TOTAL	60,878	1.13	0.25	15

DRAINAGE AREA RAINFALL COEFFICIENT SUMMARY

Block	Drainage Area (sq ft)	Runoff Coefficient	Runoff Volume (cu ft)
1	10,000	0.30	3,000
2	12,000	0.35	4,200
3	15,000	0.40	6,000
4	18,000	0.45	8,100
5	20,000	0.50	10,000
6	22,000	0.55	12,100
7	25,000	0.60	15,000
8	28,000	0.65	18,200
9	30,000	0.70	21,000
10	32,000	0.75	24,000
11	35,000	0.80	28,000
12	38,000	0.85	32,300
13	40,000	0.90	36,000
14	42,000	0.95	40,000
15	45,000	1.00	45,000
16	48,000	1.05	50,400
17	50,000	1.10	55,000
18	52,000	1.15	60,000
19	55,000	1.20	66,000
20	58,000	1.25	72,600
21	60,000	1.30	78,000
22	62,000	1.35	83,700
23	65,000	1.40	91,000
24	68,000	1.45	98,400
25	70,000	1.50	105,000
TOTAL	1,015	0.75	437,887

DRAINAGE AREA SUMMARY

Block	Drainage Area (sq ft)	Runoff Volume (cu ft)
1	10,000	3,000
2	12,000	4,200
3	15,000	6,000
4	18,000	8,100
5	20,000	10,000
6	22,000	12,100
7	25,000	15,000
8	28,000	18,200
9	30,000	21,000
10	32,000	24,000
11	35,000	28,000
12	38,000	32,300
13	40,000	36,000
14	42,000	40,000
15	45,000	45,000
16	48,000	50,400
17	50,000	55,000
18	52,000	60,000
19	55,000	66,000
20	58,000	72,600
21	60,000	78,000
22	62,000	83,700
23	65,000	91,000
24	68,000	98,400
25	70,000	105,000
TOTAL	1,015	437,887

PROPOSED LOT 7
PROJECT NO. 2018-001
A.P.N. 188-07-009
MCD # 1987-0027509, M.C.R.

PROPOSED LOT 8
PROJECT NO. 2018-002
A.P.N. 188-07-009
MCD # 1987-0027509, M.C.R.

PROPOSED LOT 9
PROJECT NO. 2018-003
A.P.N. 188-07-009
MCD # 1987-0027509, M.C.R.

PROPOSED LOT 10
PROJECT NO. 2018-004
A.P.N. 188-07-009
MCD # 1987-0027509, M.C.R.

PROPOSED LOT 11
PROJECT NO. 2018-005
A.P.N. 188-07-009
MCD # 1987-0027509, M.C.R.

PROPOSED LOT 12
PROJECT NO. 2018-006
A.P.N. 188-07-009
MCD # 1987-0027509, M.C.R.

PROPOSED LOT 13
PROJECT NO. 2018-007
A.P.N. 188-07-009
MCD # 1987-0027509, M.C.R.

PROPOSED LOT 14
PROJECT NO. 2018-008
A.P.N. 188-07-009
MCD # 1987-0027509, M.C.R.

PROPOSED LOT 15
PROJECT NO. 2018-009
A.P.N. 188-07-009
MCD # 1987-0027509, M.C.R.