

Preliminary

Water Report

Prepared For:

Banner Behavioral Health Hospital- Inpatient Building

7575 East Earl Drive
Scottsdale, Arizona 85251

Accepted w/ Comment

City of Scottsdale
Water Resources Administration
9379 E. San Salvador
Scottsdale, AZ 85258



Expires: 6/20/18

Doug Mann 10.1.15

*No manifolding of meters
Size A single meters to
meet the demand.
Impact FEE Required
for New meter.*

Prepared By:



Littlejohn
An S&ME Company

Prepared By:

Littlejohn Project No. 20150054

Dated: September 22, 2015

51-DR-2015#2
9/24/15

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Expires: 6/19/18

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1.0 REPORT OVERVIEW

The purpose of this report is to provide information for the proposed domestic water and fire service for the new 96 bed, 78,000 sf inpatient building at the Banner Behavioral Health Hospital in Scottsdale Arizona.

2.0 PROJECT DESCRIPTION

The existing Banner Behavioral Health Hospital site is located at the southwest corner of Miller Road and Earl Drive. The location of the site is shown on the vicinity map, Appendix A.

A new 78,000 sf, Type II A Hospital Inpatient Building is proposed along the west side of Miller Road. The proposed building and new improvements are shown on attached Appendix B.

Existing 8" water mains are installed within Earl Drive and Miller Road adjacent to the north and east property lines. An existing 8" fire loop is connected to the existing mains and is installed along the west and south property lines. This existing fire line loop provides water to the existing fire sprinkling systems of the existing buildings and fire hydrants installed on hospital property.

The existing 4" domestic water service line for the existing building is connected into the 8" main in Earl Drive.

The new 6" water service line is proposed to connect into the existing 8" water main in Miller Road with 3-2" water meters located south of the new building. The new 6" fire service line will connect into the existing 8" fire loop installed along the westerly property line.

3.0 DESIGN FLOWS

3.1 Peak Hour Demand

- The expected Domestic Peak Hour Demand is estimated at 269 gpm.

3.2 Maximum Daily Demand

- The expected Domestic Maximum Daily Demand is estimated at $269/1.7=159$ gpm.

3.3 Fire Flow Demand

- The Fire Flow Demand for a 78,000 sf, Type IIA sprinkled building per IFC, Table B-105.1 is equal $4,000/2=2,000$ gpm

The total Fire Flow Demand + Maximum Daily Demand is equal 2,159 gpm.

4.0 PRESSURES

Appendix E presents the values calculated by WaterCAD for pressures within junctions J1 and J14.

The following table summarizes the minimum pressure under the Max Day + Fire Flow scenario:

	Minimum Pressure PSI
WaterCAD Label	J 11
Demand Conditions	80PSI
	Max Day w/ 1,500 Fire Flow

Additional flows of 250gpm was applied at each of the two hydrants (FH 5&6) located along miller Rd, between Earll Dr and the project driveway entrance.

5.0 VELOCITIES

Appendix C represents the values calculated by WaterCAD for velocities and head losses within the pipes P 1 and P 37. During maximum day plus fire flow demand conditions, the maximum velocity allowed in the pipe system is 10 ft/sec. The following table summarizes the maximum velocities and head-loss computed for the proposed pipes:

	Max Day + Fire Flow Maximum Velocity (ft/s)
	8.51
WaterCAD Label	P 36 & P 37

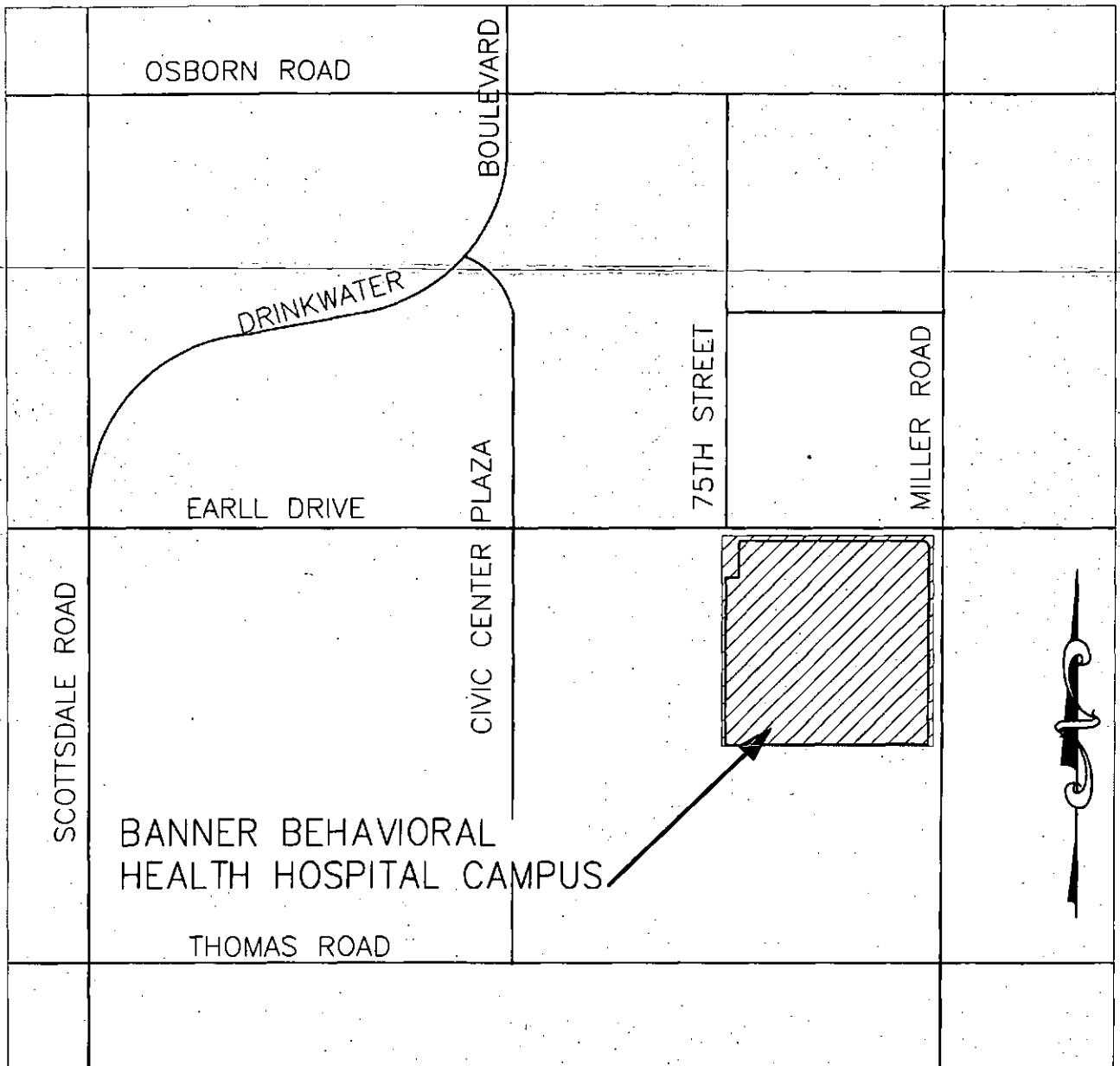
6.0 CONCLUSION

The proposed Water System is in compliance with the City of Scottsdale design criteria and other required water system design principles. This study has determined that:

- Water Mains have been designed to maintain pressures greater than or equal to 20 psi and flow velocities of less than or equal to 10 ft./sec. during maximum daily plus fire flow conditions.

Appendix A

Vicinity Map



VICINITY MAP

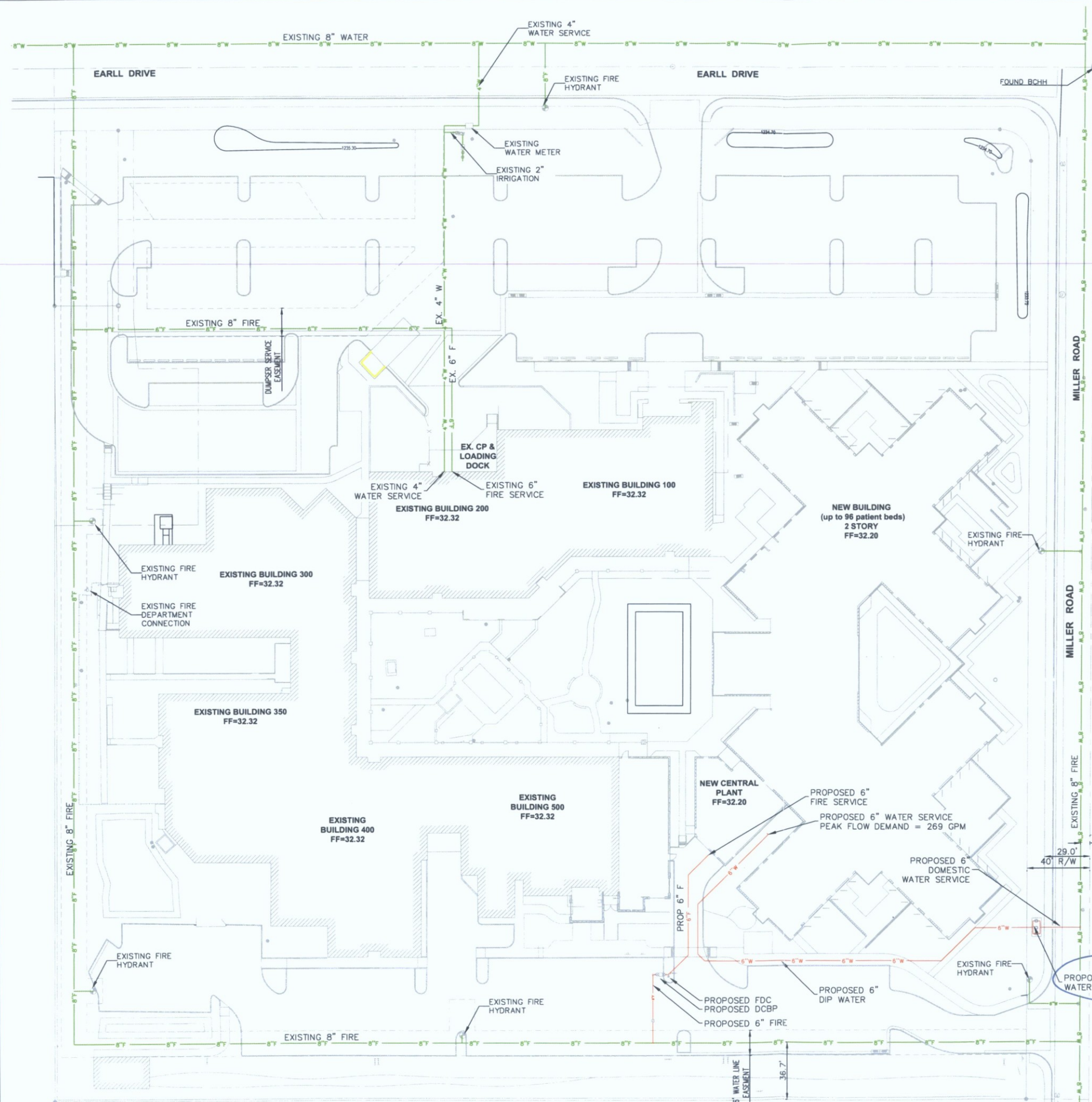
NTS

Appendix B

Water Exhibit

Appendix C

Hydraulic Model



BANNER HEALTH
Banner Behavioral Health
Hospital Inpatient Building
7575 EAST EARL DRIVE, SCOTTSDALE, ARIZONA 85251

7575 EAST EADLI DRIVE COOTSDALE ARIZONA 85024

CLIENT CONTACT

Bill Smith 480.226.9947 t
2145 W. Southern Ave. 480.412.4219 f
Mesa, Arizona 85202 bill.smith@bannerhealth.com

PROJECT NO.	DATE OF ISSUE
2015 043	08.24.2015

REVISION NO. DATE

PROJECT TEAM	DRAWN BY
mulhall	team

PROJECT PHASE

Design Review Board Application

SHEET CONTENTS

WATER
SCHEMATIC
SHEET NO.

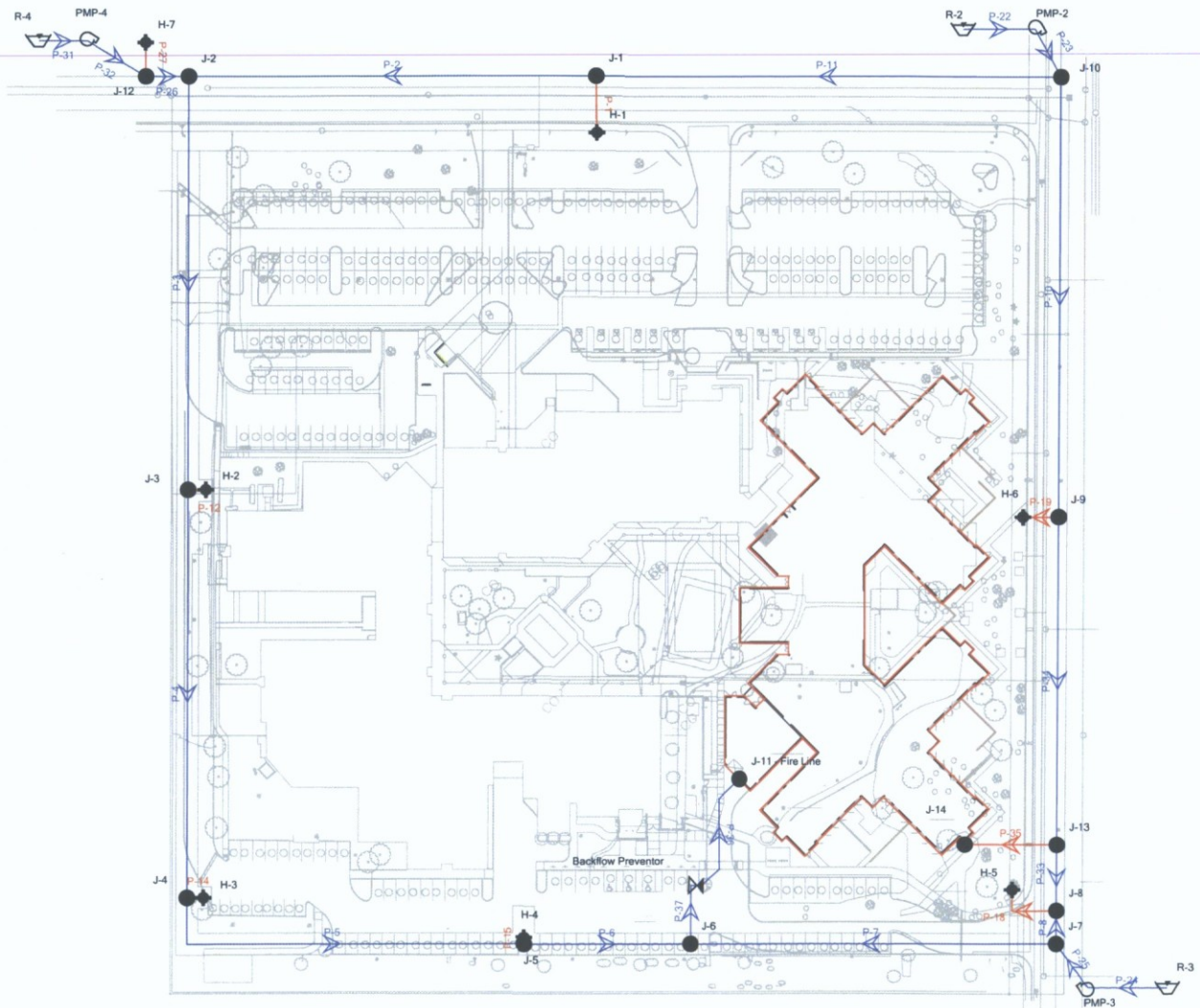
APPENDIX B

No manifold of meters. Size a single meter for needs

15 0 15 30
Scale: 1" = 30' + BFI



Scenario: Max Day +FF



Appendix D

Fire Flow Test

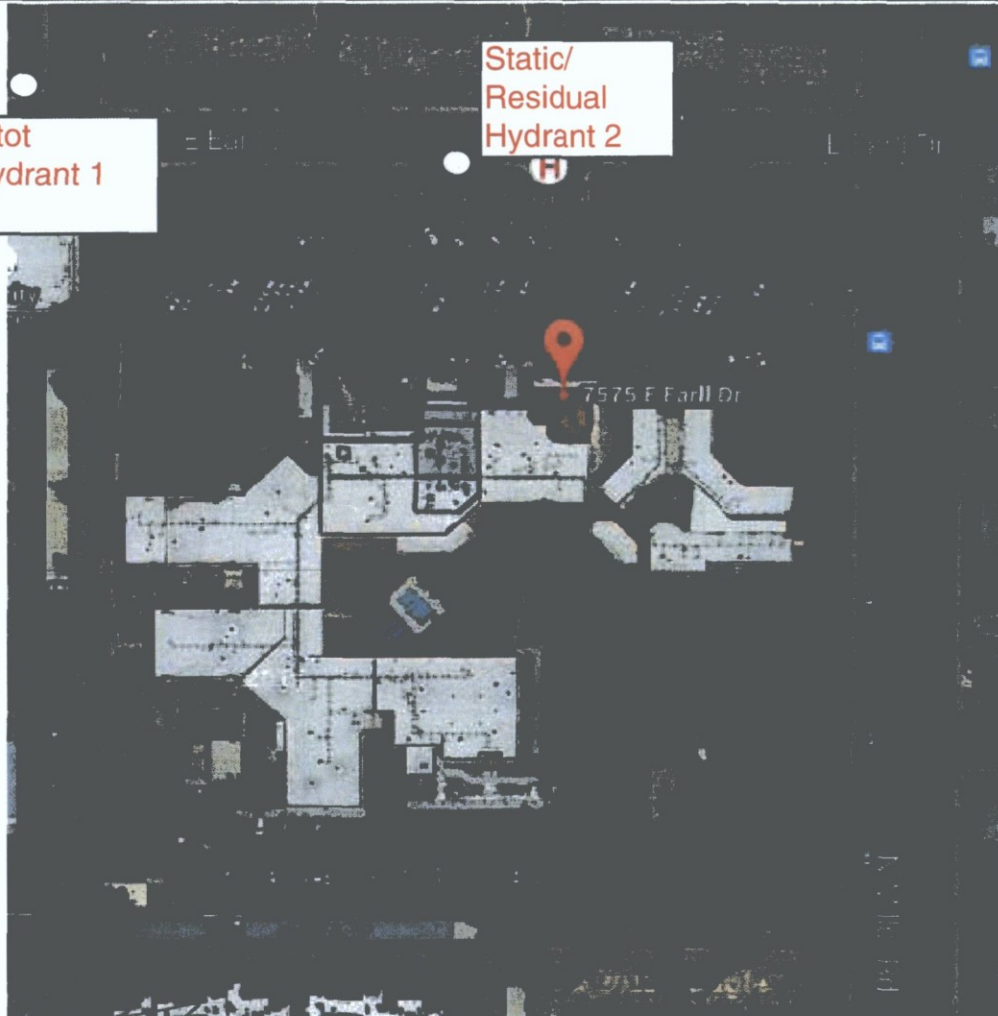
RCI SYSTEMS INC. FLOW TEST SUMMARY SHEET

REQUESTOR:	R.C.I. SYSTEMS INC.	CONTACT :	Zachary Teal						
ADDRESS:	1220 WEST GENEVA DRIVE	PHONE:	(480) 894-8711						
CITY/ST/ZIP:	TEMPE, AZ 85282	FAX:	(480) 894-8740						
DATE NEEDED:		MOBIL:							
PROJECT #:	152033	ADDITIONAL INFO							
PROJECT NAME:	Behavioral Health Hospital								
ADDRESS:	7575 Earll Drive								
CITY/ST/ZIP:	Scottsdale, AZ.								
HYDRANT READINGS:		DATE TAKEN:	9-Sep-15	TIME:	7:45 a.m.				
HYD #	2	STATIC	94	HYD #	2	RESIDUAL	90		
HYD #	1	PITOT	70	GPM	1403.9	DIA	2.5	C VAL	0.9
HYD #		PITOT		GPM		DIA		C VAL	
HYD #		PITOT		GPM		DIA		C VAL	
TOTAL GPM DURING TEST:			1403.9	AVAIL FLOW @ 20 PSI:		6796.5			



Pitot
Hydrant 1

Static/
Residual
Hydrant 2



[Signature]

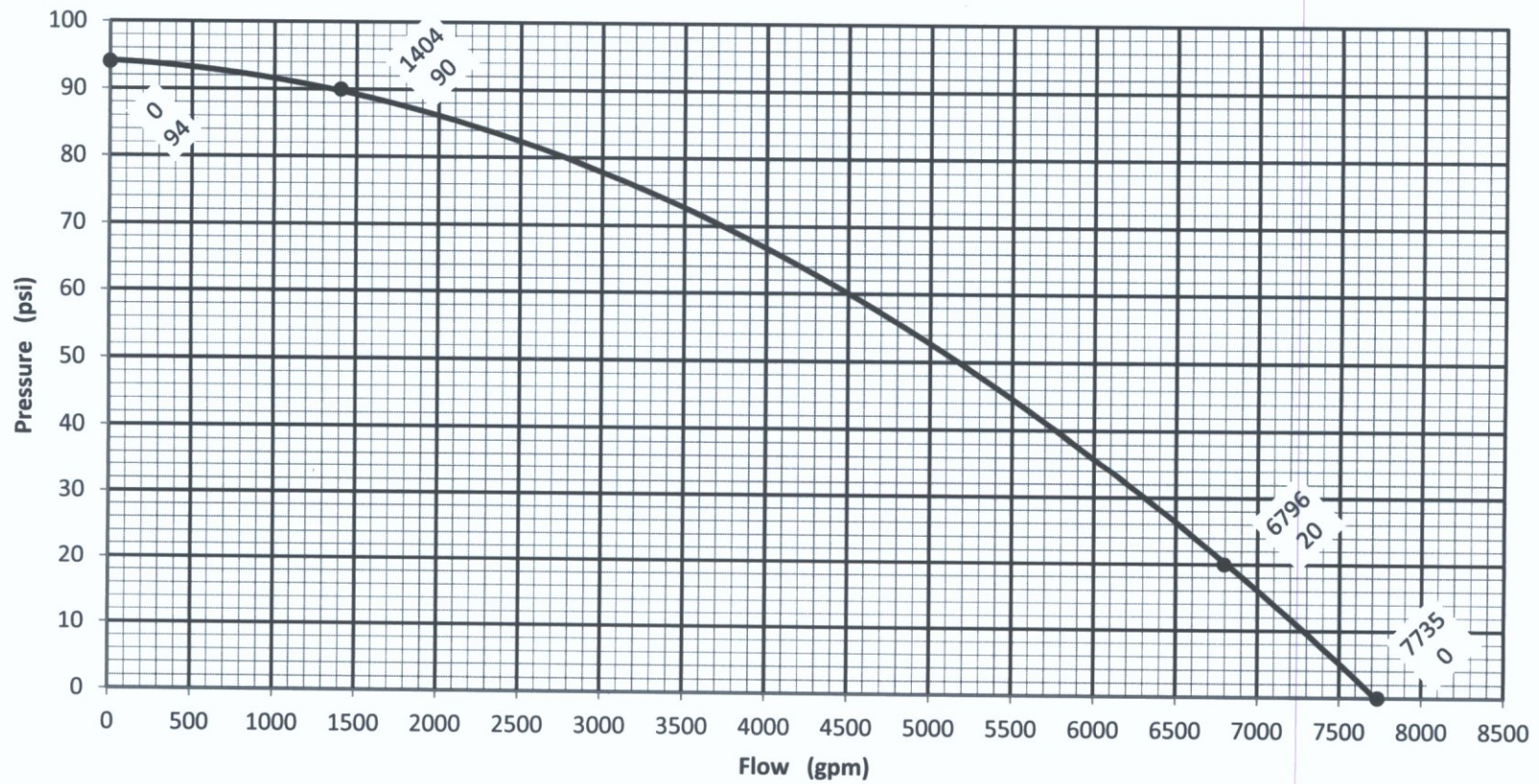
September 9, 2015

SIGNED:

DATE:

This flow test data is taken with pressure gauges which are calibrated for accuracy annually. We warrant that the results given are accurate for the time and date noted. We do not guarantee the results beyond this time due to daily or seasonal use, or water system changes. Careful consideration should be given to these issues when utilizing this information.

Flow Test Water Supply Curve



Preliminary

Sanitary Sewer Report

Prepared For:

Banner Behavioral Health Hospital- Inpatient Building

7575 East Earl Drive
Scottsdale, Arizona 85251

Accepted for

City of Scottsdale
Water Resources Administration
9379 E. San Salvador
Scottsdale, AZ 85258

Dray Mann 10.1.15



Expires: 6/30/18

Additional SEWER
IMPACT FEE WILL BE
BASED on New meter
SIZE.

Prepared By:

 **Littlejohn**
An S&ME Company

Prepared By:

Littlejohn Project No. 20150054

Dated: September 22, 2015

51-DR-2015#2
9/24/15

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Expires: 6/20/18

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Appendix B Sanitary Sewer Exhibit
-

Sanitary Sewer Report

Banner Behavioral Health Hospital – Inpatient Building

1.0 REPORT OVERVIEW

The purpose of this report is to provide information for the proposed sanitary sewer service for the new 96 bed, 78,000 sf inpatient building at the Banner Behavioral Health Hospital in Scottsdale Arizona.

2.0 PROJECT DESCRIPTION

The existing Banner Behavioral Health Hospital site is located at the southwest corner of Miller Road and Earl Drive. The location of the site is shown on the vicinity map, Appendix A.

The existing building is serviced by an 8" sanitary sewer connected into an existing manhole in Miller Road. The existing line in Miller Road is an 18" Public Sanitary Sewer line.

The new Hospital Inpatient Building is proposed along the west side of Miller Road. The proposed building and new improvements are shown on attached Appendix B.

The design flow for the new inpatient building will be conveyed in two 6" sanitary sewer service lines located along the east face of the new structure. Both services will connect into a new manhole along Miller Road and from there will flow into an 8" sanitary sewer line before flowing into the existing manhole and existing 18" line.

3.0 DESIGN FLOWS

The maximum flow from the new structure into the single 6" tap at new building is 470 F.U. The expected flow from the tower to sanitary manhole in Miller Road is equal to 940. F.U.

The maximum flows for each service line and maximum allowed per International Plumbing Code as adopted by the International Plumbing Code are as follows:

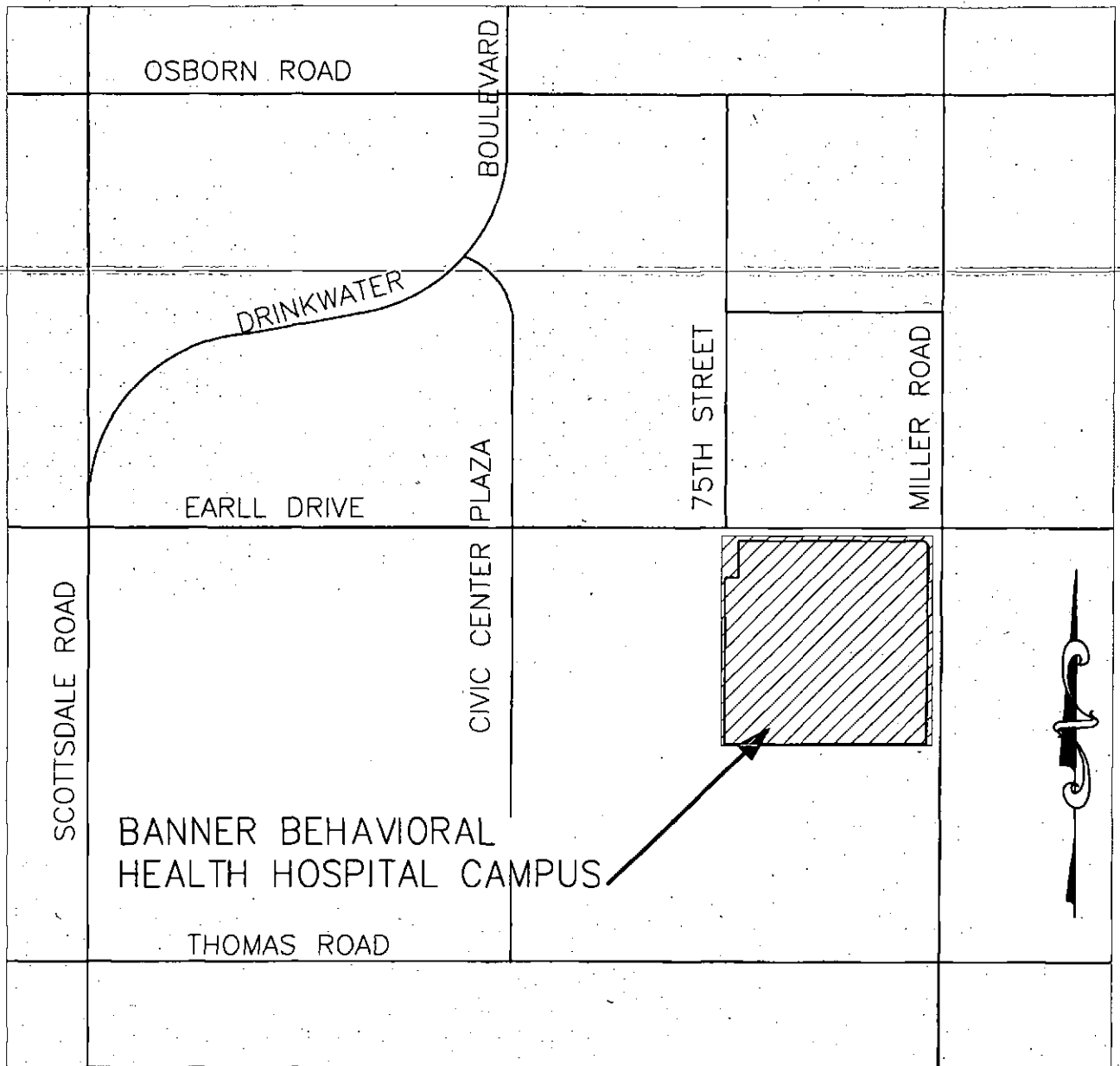
		Calculated Flow	Maximum Allowed
#1	6" service line @ 1% slope	470 FU	700 FU
#2	6" service line @ 1% slope	470 FU	700 FU
#3	8" service line @ 0.5% slope	940 FU	1,400 FU

4.0 CONCLUSION

The maximum allowed number of Drainage Fixture Units connected to the proposed sanitary sewer service is greater than calculated flow from the hospital.

Appendix A

Vicinity Map



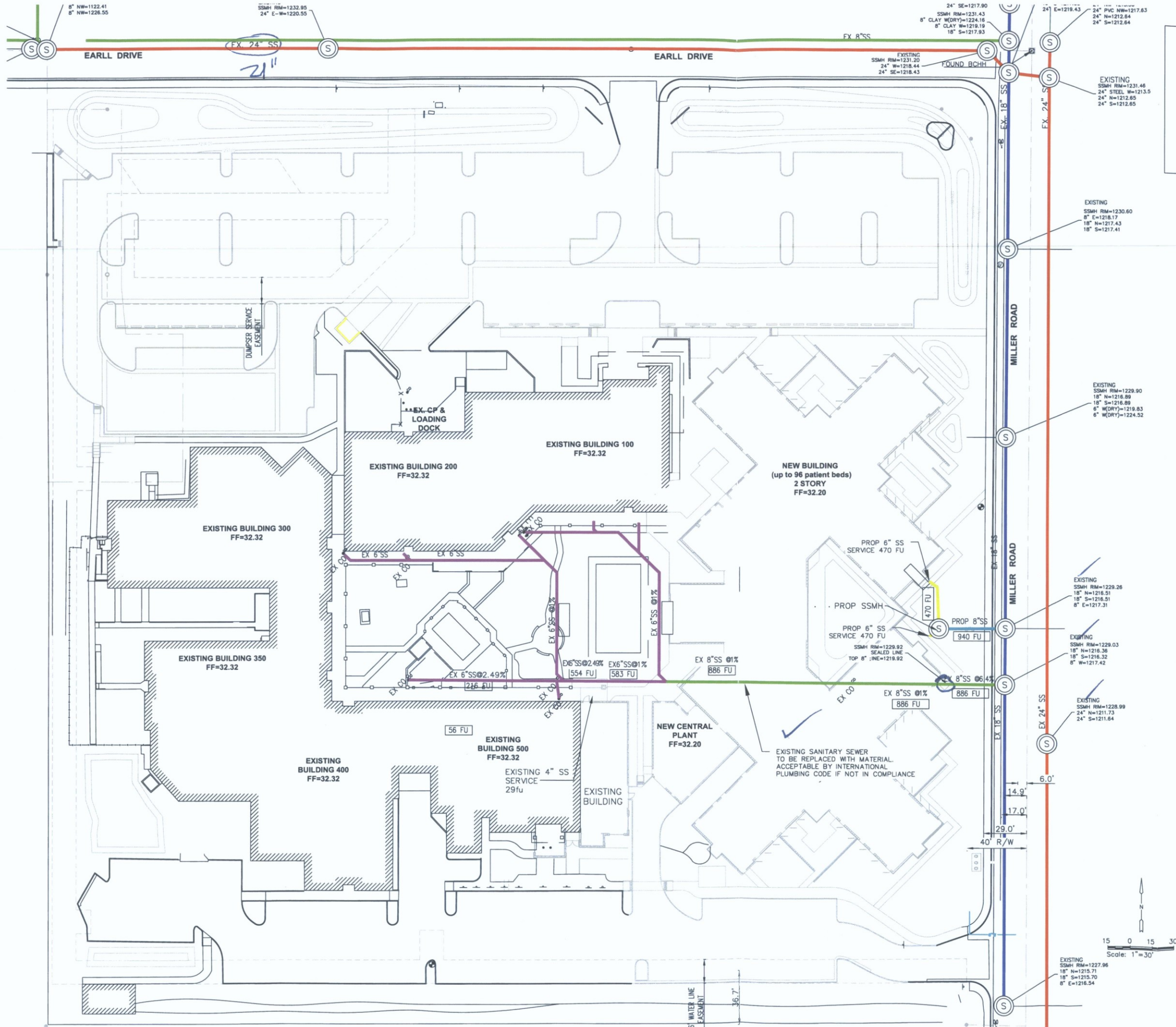
VICINITY MAP

NTS

Appendix B

Sanitary Sewer Exhibit

Orcutt Winslow Project 2015_043 Banner Behavioral Health Hospital Inpatient Building, 100 East Miller Road, Scottsdale, Arizona 85251. This is a preliminary plan and is not for construction. It is subject to change without notice. The information on this plan was prepared by Tyler Orcutt on Friday, July 10, 2015 at 11:51 AM. It is located at BMM Server: banner2015_043 BMM4 Inpatient Building.



LEGEND	
—	EX 6" SS
—	EX 8" SS
—	EX 18" SS
—	EX 24" SS
—	PROP 6" SS
—	PROP 8" SS

BANNER HEALTH
**Banner Behavioral Health
Hospital Inpatient Building**
7575 EAST EARLL DRIVE, SCOTTSDALE, ARIZONA 85251

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PROJECT NO. 2015_043
DATE OF ISSUE 08.24.2015

REVISION NO.
DATE

PROJECT TEAM mulhall
DRAWN BY team

PROJECT PHASE
Design Review Board Application

SHEET CONTENTS
SANITARY SEWER
SCHEMATIC
SHEET NO.

APPENDIX B

CALL TWO WORKING DAYS
BEFORE YOU DIG
602-263-1100
INSIDE MARICOPA COUNTY

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