WATER & SEWER BASIS OF DESIGN REPORT
FOR
SKYPORT AT REDFIELD HANGERS

APN: 215-56-114A

Date: 4/19/24

Location:
7600 E. Redfield Rd.,
Scottsdale, AZ

Prepared for:
Regehr Air Two
Attn: Jeff LaFrance
3335 E. Indian School Rd, #100
Phoenix, AZ 85018

PRELIMINARY Basis of Design Report

- ☐ ACCEPTED
- ☑ ACCEPTED AS NOTED
- ☐ REVISE AND RESUBMIT

CITY OF SCOTTSDALE
SCOTTSDALE WATER
9379 E San Salvador Dr.
Scottsdale, AZ 85258

Disclaimer: If accepted; the preliminary approval is granted under the condition that a final basis of design report will also be submitted for city review and approval (typically during the DR or PP case). The final report shall incorporate further water or sewer design and analysis requirements as defined in the city design standards and policy manual and address those items noted in the preliminary review comments (both separate and included herein). The final report shall be submitted and approved prior to the plan review submission.
For questions or clarifications contact the Water Resources Planning and Engineering Department at 480-312-5685.

BY jcampo **DATE** 5/15/2024

05/15/2024

-New 20' easement will be Water and Sewer Facilities Easement. Not P.U.E.
-Based on Table B105.2 of IFC, buildings may quality for an additional 25% reduction in fire flow contingent on Scottsdale Fire Dept. approval.
- Per DSPM 6-1.406, COS requires system be designed to maintain 30 psi, instead of 20 psi (10 psi factor of safety). Therefore based on fire flow test, approximately 2,800 GPM at 30 psi.
-A 24 psi factor of safety was already applied to hydrant flow test results. Based on multiple different safety factors, it is Water Resources assumption the proposed development can meet fire flow requirements.

Engineer:

SWS ENGINEERING, INC.
engineering. made. possible.

SWS Engineering, Inc.
4001 N. 3rd Street, Suite 165
Phoenix, AZ 85012
602-848-0249
PN: 24-162A

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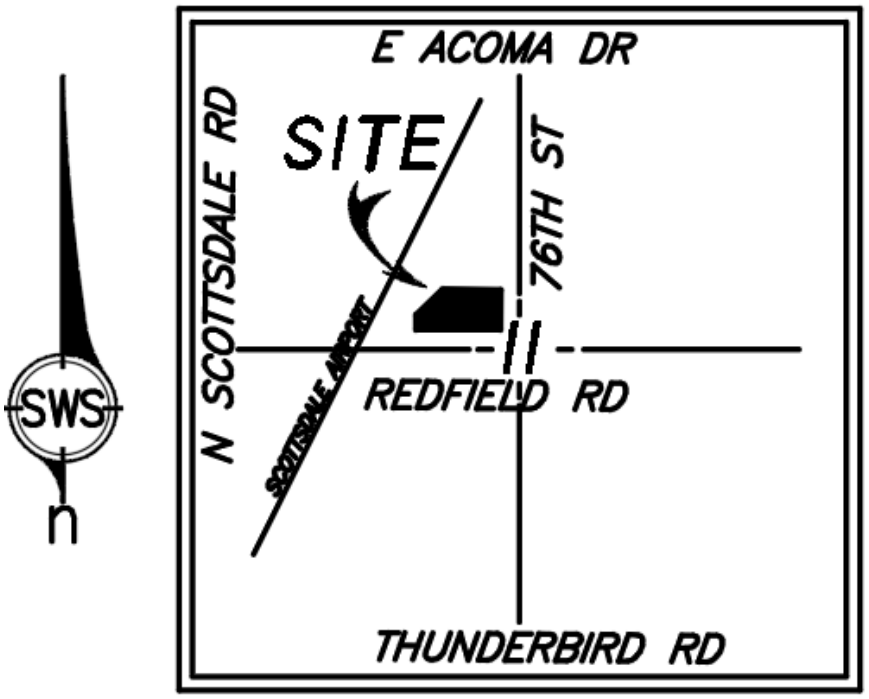
APPENDICES

1.0 INTRODUCTION

The Skyport at Redfield Hangars Project (Project) is being developed by West Stone Group of Companies and architecturally design by Ware Malcomb and is located at the northwest corner of the intersection of N. 76th Place and E. Redfield Rd. within the Scottsdale Airpark in Scottsdale, Arizona. The purpose of this report is to show that the proposed development will be designed to meet the City of Scottsdale's (City) design standards to provide the supporting documentation required for the Client to acquire the pertinent permits to construct the Project.

The site is further described as a portion of the NW ¼ of Section 11, Township 3 North, Range 4 East of the Gila and Salt River Base and Meridian within the Thunderbird Industrial Park No. 4 subdivision. Refer to the Vicinity Map below.



VICINITY MAP

NOT TO SCALE

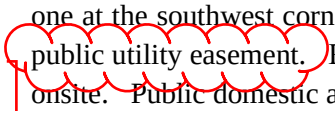
2.0 WATER STUDY – BASIS OF DESIGN

Existing Site Conditions

There is an existing 12-inch diameter ACP public water line located in Redfield Road and an existing 8-inch ACP public water line located in 76th Place. An existing 8-inch public water line (material unknown) that connects to the existing 8-inch diameter ACP public water line in 76th Place that is located within a 16' PUE that runs east/west along the north side to the proposed site, which then runs north/south to connect to the existing 12-inch public water line located in Redfield Road. It is proposed that a portion of this line will remain in place and a portion will be removed along with the associated easement. Proposed offsite public water improvements are not anticipated for this Project. Refer to the Utility Plan located in Appendix D at the back of this report for the existing and proposed water line locations.

Proposed System Improvements

Onsite water services for fire, domestic and irrigation purposes will be designed by connecting to the existing 8-inch public water line located onsite at two locations, one at the northwest corner of the site and one at the southwest corner of the site. The proposed public water line will be centered within a 20-foot public utility easement. Public fire hydrants will be spaced a maximum of 300' apart around the fire lane onsite. Public domestic and landscape water services will be provided for each building.



sed development is located in the City of Scottsdale Water Pressure Zone 3, per Figure 6-1.3, City Pressure Zone Map shown in the City of Scottsdale DS&PM (2018).

A fire flow test was conducted on April 12, 2024 by EJ Flow Tests. Existing water pressures with a safety factor applied are 72 psi static, and 48 psi residual at 2,110 gpm. The existing water pressures are [1]sufficient for the development in a worst-case fire flow scenario.

Domestic water demands for the project are calculated based on the City of Scottsdale DS&PM (2018). The water demands are for City of Scottsdale purposes and will not be used for water meter sizing.

Each building will require a separate domestic meter per developer's requirements. Each office building will be provided with a 1.5" domestic water meter. One 1" landscape meter will be utilized for landscape purposes.

Below is a table showing the proposed water demand calculations.

Per acre. Not sf.

Skyport at Redfield Hangers **Proposed Water Demands** (Per City of Scottdale DS&PM, 2018, Figure 6-1.2 Average Water Day Demands)			
Average Day Demand			
Land Use	Unit Demand Total Inside & Outside (gpm)	Site Area (sf)	Total Demand (gpm)
Industrial	**1.44**	**4.7**	**6.768**
Maximum Day Demand			
Land Use	Unit Demand Total Inside & Outside (gpm)	Site Area (sf)	Total Demand (gpm)
Industrial	**2.88**	**4.7**	**13.536**
Peak Day Demand			
Land Use	Unit Demand Total Inside & Outside (gpm)	Site Area (sf)	Total Demand (gpm)
Industrial	**5.04**	**4.7**	**23.688**

62,783 sq.ft. = 6,750 gpm fire flow from Table B105.1(2)
50% reduction = 3,375 gpm fire flow

Fire Flow Requirements

Fire flow demands have been calculated using the worst-case scenario building construction type (V-B) along with the maximum building square footage (62,783 sq. ft.) to calculate fire flow demand. The fire flow demand was calculated using Table B105.1: Fire Flow Requirement for Buildings from the International Building Code. A reduction in the required fire flow of 50 percent has been used because the building will be provided with an automatic sprinkler system.

Per City of Scottsdale Fire Flow Requirements a minimum of 1,500 gpm will be required for fire fighting activities. This requirement corresponds to the IFC, Appendix B.

Minimum requirement. Actual fire flow demand based on Table B105.1.

3.0 SEWER STUDY – BASIS OF DESIGN

Existing System

There is an existing 12-inch VCP public sewer line in Redfield Road. Refer to Utility plans for detail regarding how private sewer service will be extended into the site from Redfield Road.

Proposed System Improvements

The sewer needs for the project will be served by connecting a private sewer line to an existing public sewer manhole in Redfield Road. New 8-inch private and 6-inch private sewer services will run east/west and north/south within the project. Each building will be serviced by a 6-inch private sewer building connection.

Sewer demands for the proposed development are below:

Skyport at Redfield Hangers
Proposed Wastewater Demands
(Per City of Scottdale DS&PM, 2018, Figure 7-1.2 Average WastewaterDay Demands)

Average Day Demand						
Land	Unit Demand	Building 1 Area	Building 2 Area	Building 1 Demand	Building 2 Demand	Total Demand
Use	(gpd)	(sf)	(sf)	(gpd)	(gpd)	(gpd)
Industrial	**0.5**	**18319**	**44464**	**9159.5**	**22232**	**31391.5**
			Demand (gpm)	**6.36**	**15.44**	**21.80**
			Demand (cfs)	**0.01**	**0.03**	**0.05**

Peak Day Demand (3x Average Day Demand)						
Land	Unit Demand	Building 1 Area	Building 2 Area	Building 1 Demand	Buiding 2 Demand	Total Demand
Use	(gpd)	(sf)	(sf)	(gpd)	(gpd)	(gpd)
Industrial	**0.5**	**18319**	**44464**	**27478.5**	**66696**	**94174.5**
			Demand (gpm)	**19.08**	**46.32**	**65.40**
			Demand (cfs)	**0.04**	**0.10**	**0.15**

Refer to the Utility Plan located in Appendix D at the back of this report for existing and proposed utility line locations.

Detailed hydraulic calculations for the proposed sewer are located in Appendix C.

9.0 CONCLUSIONS

The proposed project will adhere to the City of Scottsdale criteria for water and sewer needs. The existing public water system will provide water service to the project without the need of offsite improvements, and additionally will provide for domestic and irrigation connections.

Sewer service will be provided to the proposed project by constructing public a private sewer line within the development. The sewer lines will provide adequate capacity for the estimated sewer flow.

10.0 REFERENCES

Maricopa County Health Code

Arizona Department of Environmental Quality Engineering Bulletin No. 10

Uniform Standard Details for Public Works Construction, by the M.A.G., Version 2018

Uniform Standard Specifications for Public Works Construction, by the M.A.G., Version 2018

Appendix A

Site Plan

SITE DATA

ADDRESS:	**7600 E REDFIELD RD, SCOTTSDALE AZ**
ACCESSOR'S PARCEL NO:	**215-56-113C**
ZONING	**I-1**
MAX HEIGHT	**52 FT**
BUILDING SETBACK (FRONT)	**50 FT**
LOT	**142,384 S.F.** (3.27 ACRES)
BUILDING 1 AREA	**18,319** S.F.
FIRST FLOOR AREA	**15,236** S.F.
SECOND FLOOR AREA	**3,083** S.F.
BUILDING 2 AREA	**44,464** S.F.
FIRST FLOOR AREA	**38,403** S.F.
SECOND FLOOR AREA	**6,061** S.F.
BUILDING 1+2 AREA	**62,783** S.F.
BUILDING COVERAGE	**44.0%** %
LANDSCAPE AREA	**25,502** S.F.
LANDSCAPE COVERAGE	**18.0** %
OFFICE PARKING REQUIRED (1:300)	**17,036 SF/300= 57**
TOTAL PARKING REQUIRED	**57 STALLS**

PARKING CALC

STANDARD PARKING PROVIDED	**52** STALLS
ACCESSIBLE PARKING PROVIDED	**8** STALLS
TOTAL PARKING PROVIDED	**60** STALLS

1" = 30'

0 15 30 60 150

Conceptual Site Plan

Skyport at Redfield Hangars

7600 E. Redfield Rd, Scottsdale, AZ 85260 - PHX24-0033-00

Appendix B

Water Calculation References

Flow Test Summary

Project Name:	EJFT 24104 - Sky Port Hangers
Project Address:	7600 E Redfield Rd, Scottsdale, AZ 85260
Date of Flow Test:	2024-04-12
Time of Flow Test:	7:10 AM
Data Reliable Until:	2024-10-12
Conducted By:	Steven S. & Simon R. (EJ Flow Tests) 602.999.7637
Witnessed By:	Christopher Mendez (City of Scottsdale) 602.908.9046
City Forces Contacted:	City of Scottsdale (602.908.9046)
Permit Number:	C74980

Note Scottsdale requires a max static pressure of 72 psi for safety factor.

Raw Flow Test Data

Static Pressure:	96.0 PSI
Residual Pressure:	72.0 PSI
Flowing GPM:	2,110
GPM @ 20 PSI:	3,932

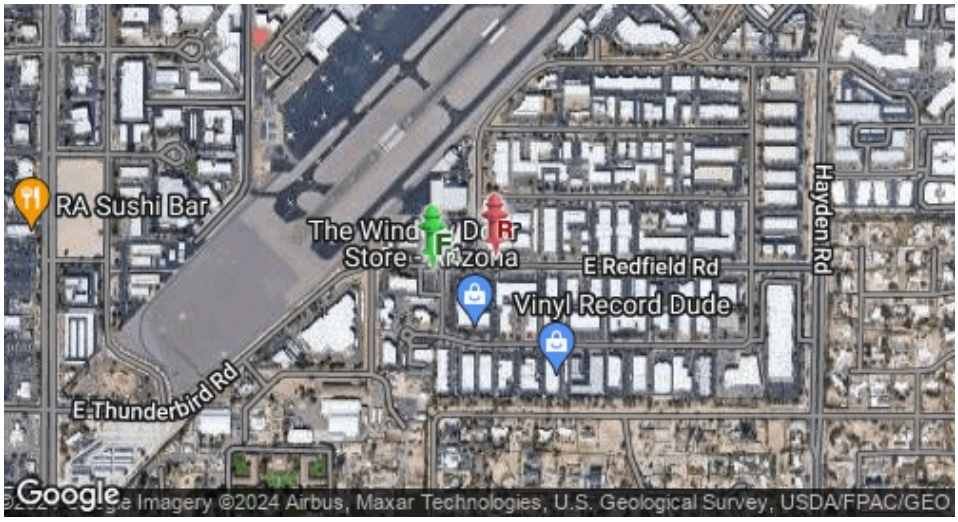
Data with a 24 PSI Safety Factor

Static Pressure:	72.0 PSI
Residual Pressure:	48.0 PSI
Flowing GPM:	2,110
GPM @ 20 PSI:	3,203

Hydrant F_1

Pitot Pressure (1):	35	PSI
Coefficient of Discharge (1):	0.9	
Hydrant Orifice Diameter (1):	4	inches

Additional Coefficient 0.83 on orifice #1



Static-Residual Hydrant

Flow Hydrant

Distance Between F_1 and R
439 ft (measured linearly)

Static-Residual Elevation
1440 ft (above sea level)

Flow Hydrant (F_1) Elevation
1438 ft (above sea level)

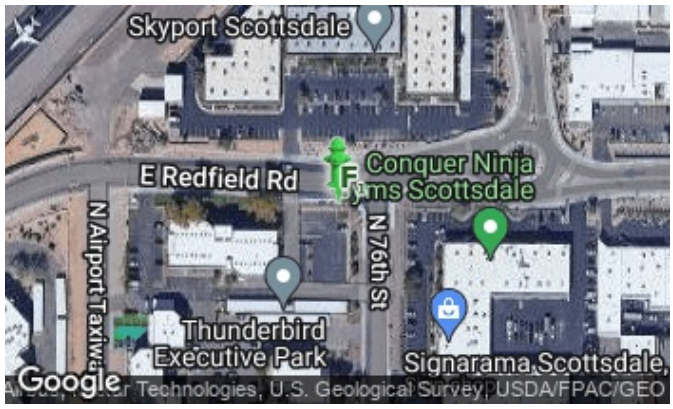
Elevation & distance values are approximate

EJ Flow Tests, LLC
21505 North 78th Ave. | Suite 130 | Peoria, Arizona 85382 | (602) 999-7637 |
John L. Echeverri | NICET Level IV 78493 SME | C-16 FP Contractor ROC 271705 AZ | NFPA CFPS 1915
www.flowtestsummary.com

Flow Test Summary

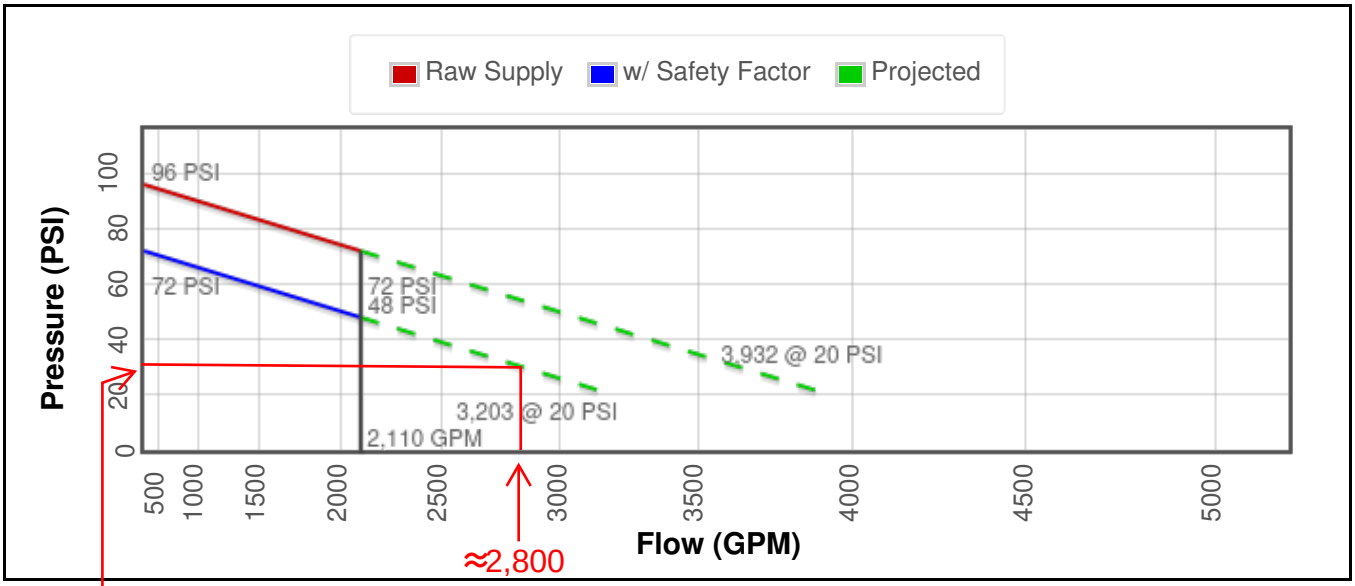
Static-Residual Hydrant

Flow Hydrant (only hydrant F1 shown for clarity)



Approximate Project Site

Water Supply Curve $N^{1.85}$ Graph



≈2,800 gpm @ 30 psi.

Per DSPM 6-1.406, COS requires system be designed to maintain 30 psi, instead of 20 psi. Therefore 10 psi factor of safety.

Pump Definition Detailed Report: EJ Flow Test

Element Details

ID	94	Notes	
Label	EJ Flow Test		

Pump Definition Type

Pump Definition Type	Standard (3 Point)	Design Head	110.88 ft
Shutoff Flow	0 gpm	Maximum Operating Flow	3,203 gpm
Shutoff Head	166.32 ft	Maximum Operating Head	46.20 ft
Design Flow	2,110 gpm		

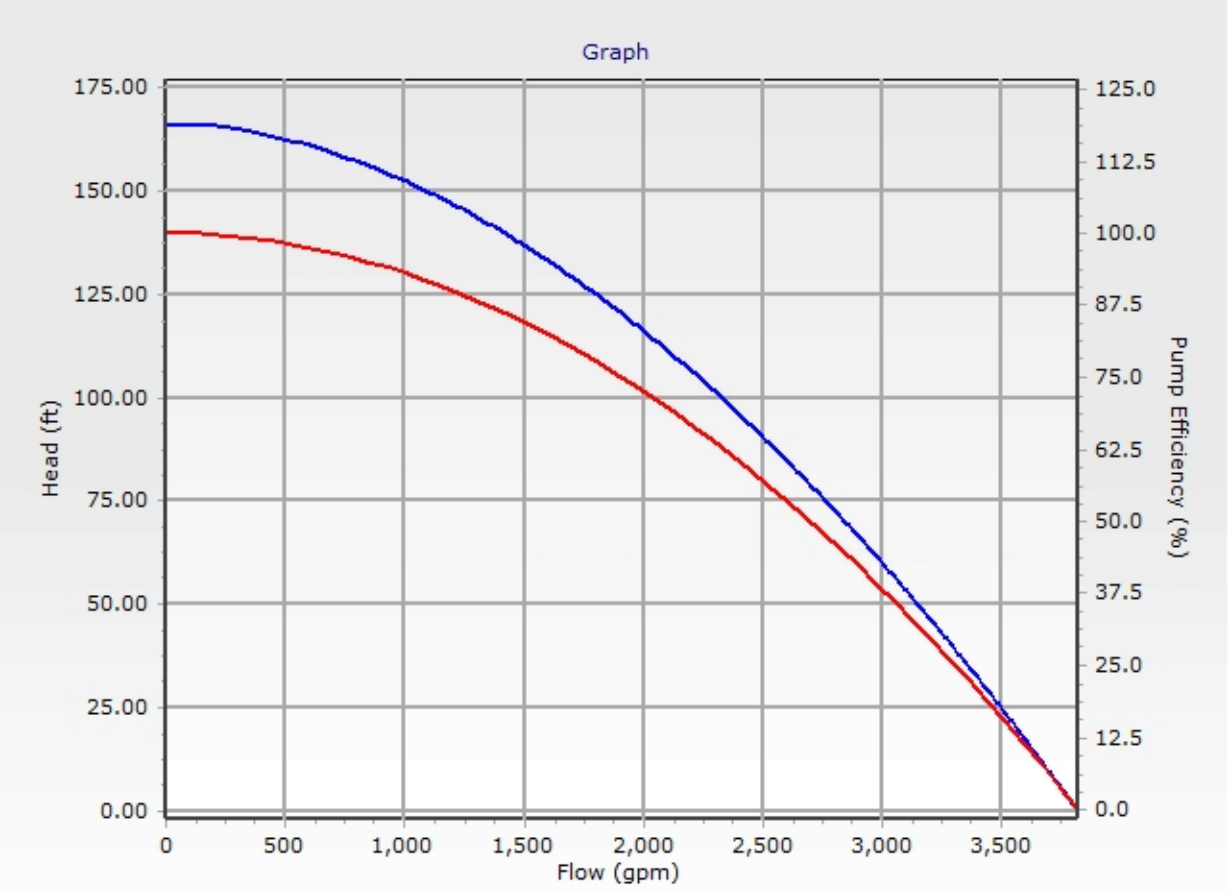
Pump Efficiency Type

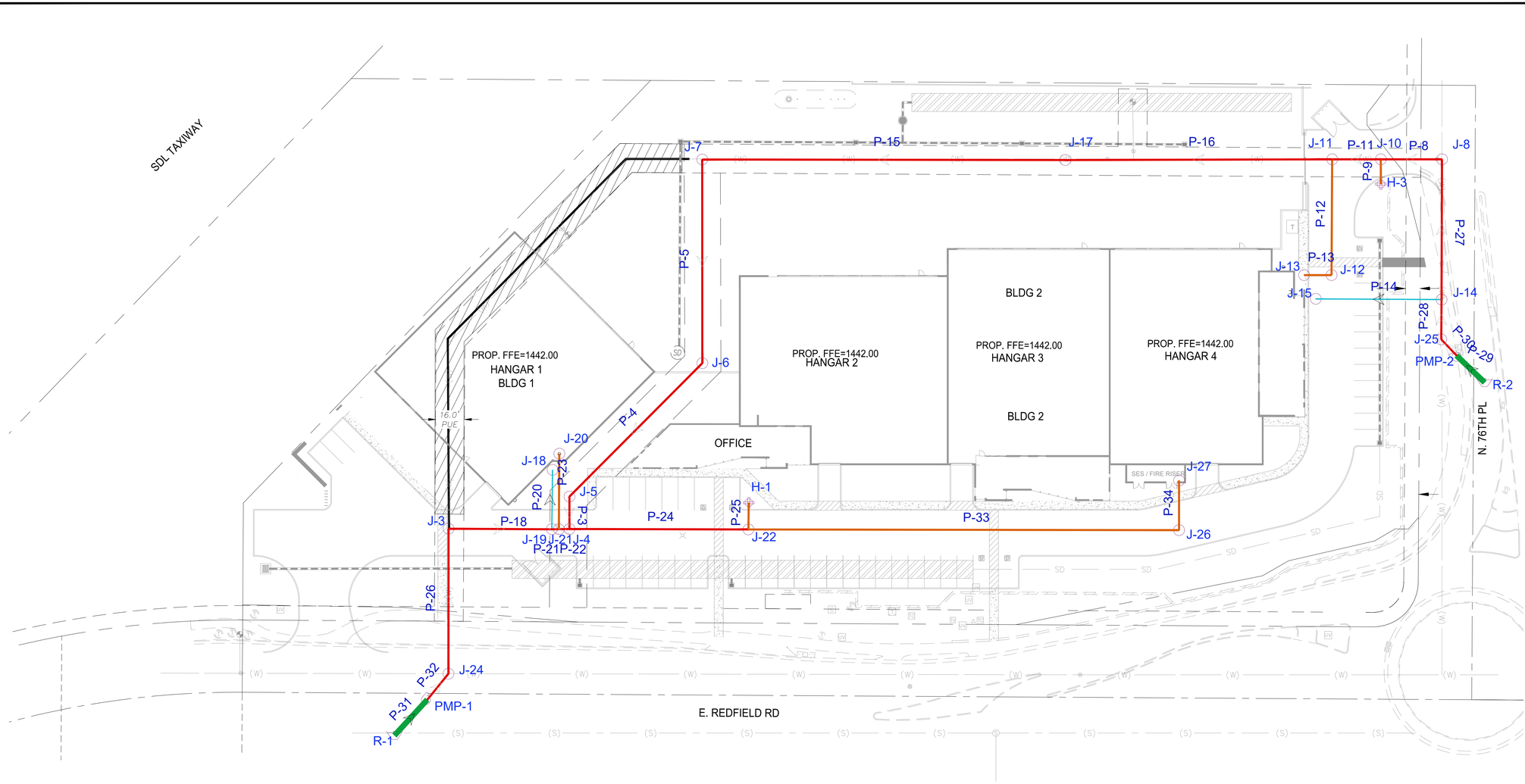
Pump Efficiency Type	Best Efficiency Point	Motor Efficiency	100.0 %
BEP Efficiency	100.0 %	Is Variable Speed Drive?	False
BEP Flow	0 gpm		

Transient (Physical)

Inertia (Pump and Motor)	0.000 lb·ft²	Specific Speed	SI=25, US=1280
Speed (Full)	0 rpm	Reverse Spin Allowed?	True

Pump Definition Detailed Report: EJ Flow Test





Skyport at Redfield Hangers
Proposed Water Demands
(Per City of Scottdale DS&PM, 2018, Figure 6-1.2 Average Water Day Demands)

Average Day Demand			
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Maximum Day Demand			
Land Use	Unit Demand Total Inside & Outside (gpm)	Site Area (sf)	Total Demand (gpm)
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Peak Day Demand			
Land Use	Unit Demand Total Inside & Outside (gpm)	Site Area (sf)	Total Demand (gpm)
Industrial	**5.04**	**4.7**	**23.688**

30 15 0 30 60 90
SCALE IN FEET
GRAPHIC SCALE

Call at least two full working days before you begin excavation
ARIZONA 811
Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
In Maricopa County: (602) 263-1100

47066
MICHAEL D. SCHWEITZER
Registered Professional Engineer
ARIZONA, U.S.A.

SWS ENGINEERING, INC.
CIVIL ENGINEERING • LAND PLANNING • SURVEYING
4001 North 3rd Street, Suite 165
Phoenix, AZ 85012
P 623-531-4905
SAN DIEGO • NASHVILLE • PHOENIX

DATE: Apr 18, 24 9:03am by jason.guerin
FILE: C:\Users\jason.guerin\DC\ACCDocs\SWS Engineering\2024\Project Files\24-162A\PROD\Exhibits\01 - Water Model Node Map\24-162A_DRC_WCAD.dwg

WATER MODEL
NODE MAP

SKYPORT AT REDFIELD HANGARS
7600 E. REDFIELD RD
SCOTTSDALE, ARIZONA 85260

REMARKS	DATE

PA / PM:	ASM
DRAWN BY:	DL
JOB NO.:	24-162A

SHEET 1 of 1

WCAD

Thu, 18 Apr 2024 - XXXXX

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AVERAGE DAY

FlexTable: Reservoir Table

ID	Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
86	R-1	1.00	3	1.00
88	R-2	1.00	4	1.00

AVERAGE DAY

FlexTable: Pump Table

ID	Label	Pump Definition	Hydraulic Grade (Suction) (ft)	Hydraulic Grade (Discharge) (ft)	Flow (Total) (gpm)	Pump Head (ft)
87	PMP-1	EJ Flow Test	1.00	167.32	3	166.32
89	PMP-2	EJ Flow Test	1.00	167.32	4	166.32

AVERAGE DAY

FlexTable: Hydrant Table

Label	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
H-1	0	167.32	72
H-3	0	167.32	72

AVERAGE DAY

FlexTable: Junction Table

Label	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-3	0	167.32	72
J-4	0	167.32	72
J-5	0	167.32	72
J-6	0	167.32	72
J-7	0	167.32	72
J-8	0	167.32	72
J-10	0	167.32	72
J-11	0	167.32	72
J-12	0	167.32	72
J-13	0	167.32	72
J-14	0	167.32	72
J-15	4	167.19	72
J-17	0	167.32	72
J-18	4	167.25	72
J-19	0	167.32	72
J-20	0	167.32	72
J-21	0	167.32	72
J-22	0	167.32	72
J-24	0	167.32	72
J-25	0	167.32	72
J-26	0	167.32	72
J-27	0	167.32	72

AVERAGE DAY

FlexTable: Pipe Table

Label	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Pressure (Start) (psi)	Minor Loss Coefficient (Local)
P-3	J-4	J-5	8.0	Ductile Iron	0	0.00	72	1.280
P-4	J-5	J-6	8.0	Ductile Iron	0	0.00	72	0.200
P-5	J-6	J-7	8.0	Ductile Iron	0	0.00	72	0.200
P-8	J-10	J-8	8.0	Ductile Iron	0	0.00	72	1.280
P-9	H-3	J-10	6.0	Ductile Iron	0	0.00	72	1.280
P-11	J-11	J-10	8.0	Ductile Iron	0	0.00	72	0.000
P-12	J-11	J-12	6.0	Ductile Iron	0	0.00	72	1.280
P-13	J-12	J-13	6.0	Ductile Iron	0	0.00	72	0.220
P-14	J-14	J-15	1.5	Ductile Iron	4	0.64	72	1.280
P-15	J-7	J-17	8.0	Ductile Iron	0	0.00	72	0.220
P-16	J-17	J-11	8.0	Ductile Iron	0	0.00	72	0.350
P-18	J-3	J-19	8.0	Ductile Iron	3	0.02	72	0.220
P-20	J-18	J-19	1.5	Ductile Iron	-4	0.64	72	1.280
P-21	J-19	J-21	8.0	Ductile Iron	0	0.00	72	0.350
P-22	J-21	J-4	8.0	Ductile Iron	0	0.00	72	0.350
P-23	J-20	J-21	6.0	Ductile Iron	0	0.00	72	1.280
P-24	J-4	J-22	8.0	Ductile Iron	0	0.00	72	0.350
P-25	J-22	H-1	6.0	Ductile Iron	0	0.00	72	0.370
P-26	J-3	J-24	8.0	Ductile Iron	-3	0.02	72	1.280
P-27	J-8	J-14	8.0	Ductile Iron	0	0.00	72	0.000
P-28	J-14	J-25	8.0	Ductile Iron	-4	0.02	72	0.000
P-29	R-2	PMP-2	120.0	Ductile Iron	4	0.00	0	0.000
P-30	PMP-2	J-25	8.0	Ductile Iron	4	0.02	72	0.000
P-31	R-1	PMP-1	120.0	Ductile Iron	3	0.00	0	0.000
P-32	PMP-1	J-24	8.0	Ductile Iron	3	0.02	72	0.000

AVERAGE DAY

FlexTable: Pipe Table

Label	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Pressure (Start) (psi)	Minor Loss Coefficient (Local)
P-33	J-22	J-26	6.0	Ductile Iron	0	0.00	72	0.000
P-34	J-26	J-27	6.0	Ductile Iron	0	0.00	72	0.000

MAX DAY

FlexTable: Reservoir Table

ID	Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
86	R-1	1.00	7	1.00
88	R-2	1.00	7	1.00

MAX DAY

FlexTable: Pump Table

ID	Label	Pump Definition	Hydraulic Grade (Suction) (ft)	Hydraulic Grade (Discharge) (ft)	Flow (Total) (gpm)	Pump Head (ft)
87	PMP-1	EJ Flow Test	1.00	167.32	7	166.32
89	PMP-2	EJ Flow Test	1.00	167.32	7	166.32

MAX DAY

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H-1	0	167.32	72
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MAX DAY

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J-3	0	167.32	72
J-4	0	167.32	72
J-5	0	167.32	72
J-6	0	167.32	72
J-7	0	167.32	72
J-8	0	167.32	72
J-10	0	167.32	72
J-11	0	167.32	72
J-12	0	167.32	72
J-13	0	167.32	72
J-14	0	167.32	72
J-15	7	166.83	72
J-17	0	167.32	72
J-18	7	167.07	72
J-19	0	167.32	72
J-20	0	167.32	72
J-21	0	167.32	72
J-22	0	167.32	72
J-24	0	167.32	72
J-25	0	167.32	72
J-26	0	167.32	72
J-27	0	167.32	72

MAX DAY

FlexTable: Pipe Table

Label	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Pressure (Start) (psi)	Minor Loss Coefficient (Local)
P-3	J-4	J-5	8.0	Ductile Iron	0	0.00	72	1.280
P-4	J-5	J-6	8.0	Ductile Iron	0	0.00	72	0.200
P-5	J-6	J-7	8.0	Ductile Iron	0	0.00	72	0.200
P-8	J-10	J-8	8.0	Ductile Iron	0	0.00	72	1.280
P-9	H-3	J-10	6.0	Ductile Iron	0	0.00	72	1.280
P-11	J-11	J-10	8.0	Ductile Iron	0	0.00	72	0.000
P-12	J-11	J-12	6.0	Ductile Iron	0	0.00	72	1.280
P-13	J-12	J-13	6.0	Ductile Iron	0	0.00	72	0.220
P-14	J-14	J-15	1.5	Ductile Iron	7	1.27	72	1.280
P-15	J-7	J-17	8.0	Ductile Iron	0	0.00	72	0.220
P-16	J-17	J-11	8.0	Ductile Iron	0	0.00	72	0.350
P-18	J-3	J-19	8.0	Ductile Iron	7	0.04	72	0.220
P-20	J-18	J-19	1.5	Ductile Iron	-7	1.27	72	1.280
P-21	J-19	J-21	8.0	Ductile Iron	0	0.00	72	0.350
P-22	J-21	J-4	8.0	Ductile Iron	0	0.00	72	0.350
P-23	J-20	J-21	6.0	Ductile Iron	0	0.00	72	1.280
P-24	J-4	J-22	8.0	Ductile Iron	0	0.00	72	0.350
P-25	J-22	H-1	6.0	Ductile Iron	0	0.00	72	0.370
P-26	J-3	J-24	8.0	Ductile Iron	-7	0.04	72	1.280
P-27	J-8	J-14	8.0	Ductile Iron	0	0.00	72	0.000
P-28	J-14	J-25	8.0	Ductile Iron	-7	0.05	72	0.000
P-29	R-2	PMP-2	120.0	Ductile Iron	7	0.00	0	0.000
P-30	PMP-2	J-25	8.0	Ductile Iron	7	0.05	72	0.000
P-31	R-1	PMP-1	120.0	Ductile Iron	7	0.00	0	0.000
P-32	PMP-1	J-24	8.0	Ductile Iron	7	0.04	72	0.000

MAX DAY

FlexTable: Pipe Table

Label	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Pressure (Start) (psi)	Minor Loss Coefficient (Local)
P-33	J-22	J-26	6.0	Ductile Iron	0	0.00	72	0.000
P-34	J-26	J-27	6.0	Ductile Iron	0	0.00	72	0.000

PEAK HOUR

FlexTable: Reservoir Table

ID	Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
86	R-1	1.00	11	1.00
88	R-2	1.00	13	1.00

PEAK HOUR

FlexTable: Pump Table

ID	Label	Pump Definition	Hydraulic Grade (Suction) (ft)	Hydraulic Grade (Discharge) (ft)	Flow (Total) (gpm)	Pump Head (ft)
87	PMP-1	EJ Flow Test	1.00	167.32	11	166.32
89	PMP-2	EJ Flow Test	1.00	167.32	13	166.32

PEAK HOUR

FlexTable: Hydrant Table

Label	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
H-1	0	167.32	72
H-3	0	167.32	72

PEAK HOUR

FlexTable: Junction Table

Label	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-3	0	167.32	72
J-4	0	167.32	72
J-5	0	167.32	72
J-6	0	167.32	72
J-7	0	167.32	72
J-8	0	167.32	72
J-10	0	167.32	72
J-11	0	167.32	72
J-12	0	167.32	72
J-13	0	167.32	72
J-14	0	167.32	72
J-15	12	166.00	72
J-17	0	167.32	72
J-18	12	166.64	72
J-19	0	167.32	72
J-20	0	167.32	72
J-21	0	167.32	72
J-22	0	167.32	72
J-24	0	167.32	72
J-25	0	167.32	72
J-26	0	167.32	72
J-27	0	167.32	72

PEAK HOUR

FlexTable: Pipe Table

Label	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Pressure (Start) (psi)	Minor Loss Coefficient (Local)
P-3	J-4	J-5	8.0	Ductile Iron	-1	0.00	72	1.280
P-4	J-5	J-6	8.0	Ductile Iron	-1	0.00	72	0.200
P-5	J-6	J-7	8.0	Ductile Iron	-1	0.00	72	0.200
P-8	J-10	J-8	8.0	Ductile Iron	-1	0.00	72	1.280
P-9	H-3	J-10	6.0	Ductile Iron	0	0.00	72	1.280
P-11	J-11	J-10	8.0	Ductile Iron	-1	0.00	72	0.000
P-12	J-11	J-12	6.0	Ductile Iron	0	0.00	72	1.280
P-13	J-12	J-13	6.0	Ductile Iron	0	0.00	72	0.220
P-14	J-14	J-15	1.5	Ductile Iron	12	2.18	72	1.280
P-15	J-7	J-17	8.0	Ductile Iron	-1	0.00	72	0.220
P-16	J-17	J-11	8.0	Ductile Iron	-1	0.00	72	0.350
P-18	J-3	J-19	8.0	Ductile Iron	11	0.07	72	0.220
P-20	J-18	J-19	1.5	Ductile Iron	-12	2.18	72	1.280
P-21	J-19	J-21	8.0	Ductile Iron	-1	0.00	72	0.350
P-22	J-21	J-4	8.0	Ductile Iron	-1	0.00	72	0.350
P-23	J-20	J-21	6.0	Ductile Iron	0	0.00	72	1.280
P-24	J-4	J-22	8.0	Ductile Iron	0	0.00	72	0.350
P-25	J-22	H-1	6.0	Ductile Iron	0	0.00	72	0.370
P-26	J-3	J-24	8.0	Ductile Iron	-11	0.07	72	1.280
P-27	J-8	J-14	8.0	Ductile Iron	-1	0.00	72	0.000
P-28	J-14	J-25	8.0	Ductile Iron	-13	0.08	72	0.000
P-29	R-2	PMP-2	120.0	Ductile Iron	13	0.00	0	0.000
P-30	PMP-2	J-25	8.0	Ductile Iron	13	0.08	72	0.000
P-31	R-1	PMP-1	120.0	Ductile Iron	11	0.00	0	0.000
P-32	PMP-1	J-24	8.0	Ductile Iron	11	0.07	72	0.000

PEAK HOUR

FlexTable: Pipe Table

Label	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Pressure (Start) (psi)	Minor Loss Coefficient (Local)
P-33	J-22	J-26	6.0	Ductile Iron	0	0.00	72	0.000
P-34	J-26	J-27	6.0	Ductile Iron	0	0.00	72	0.000

MAX DAY+ FIRE FLOW

FlexTable: Reservoir Table

ID	Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
86	R-1	1.00	763	1.00
88	R-2	1.00	751	1.00

MAX DAY+ FIRE FLOW

FlexTable: Pump Table

ID	Label	Pump Definition	Hydraulic Grade (Suction) (ft)	Hydraulic Grade (Discharge) (ft)	Flow (Total) (gpm)	Pump Head (ft)
87	PMP-1	EJ Flow Test	1.00	158.89	763	157.89
89	PMP-2	EJ Flow Test	1.00	159.15	751	158.15

MAX DAY+ FIRE FLOW

FlexTable: Hydrant Table

Label	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
H-1	1,000	152.39	66
H-3	500	156.23	68

MAX DAY+ FIRE FLOW

FlexTable: Junction Table

Label	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-3	0	157.32	68
J-4	0	156.25	68
J-5	0	156.32	68
J-6	0	156.47	68
J-7	0	156.63	68
J-8	0	157.96	68
J-10	0	157.15	68
J-11	0	157.12	68
J-12	0	157.12	68
J-13	0	157.12	68
J-14	0	158.78	69
J-15	7	158.29	68
J-17	0	156.91	68
J-18	7	156.38	68
J-19	0	156.62	68
J-20	0	156.44	68
J-21	0	156.44	68
J-22	0	154.22	67
J-24	0	158.68	69
J-25	0	159.01	69
J-26	0	154.22	67
J-27	0	154.22	67

MAX DAY+ FIRE FLOW

FlexTable: Pipe Table

Label	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Pressure (Start) (psi)	Minor Loss Coefficient (Local)
P-3	J-4	J-5	8.0	Ductile Iron	-244	1.56	68	1.280
P-4	J-5	J-6	8.0	Ductile Iron	-244	1.56	68	0.200
P-5	J-6	J-7	8.0	Ductile Iron	-244	1.56	68	0.200
P-8	J-10	J-8	8.0	Ductile Iron	-744	4.75	68	1.280
P-9	H-3	J-10	6.0	Ductile Iron	-500	5.67	68	1.280
P-11	J-11	J-10	8.0	Ductile Iron	-244	1.56	68	0.000
P-12	J-11	J-12	6.0	Ductile Iron	0	0.00	68	1.280
P-13	J-12	J-13	6.0	Ductile Iron	0	0.00	68	0.220
P-14	J-14	J-15	1.5	Ductile Iron	7	1.27	69	1.280
P-15	J-7	J-17	8.0	Ductile Iron	-244	1.56	68	0.220
P-16	J-17	J-11	8.0	Ductile Iron	-244	1.56	68	0.350
P-18	J-3	J-19	8.0	Ductile Iron	763	4.87	68	0.220
P-20	J-18	J-19	1.5	Ductile Iron	-7	1.27	68	1.280
P-21	J-19	J-21	8.0	Ductile Iron	756	4.83	68	0.350
P-22	J-21	J-4	8.0	Ductile Iron	756	4.83	68	0.350
P-23	J-20	J-21	6.0	Ductile Iron	0	0.00	68	1.280
P-24	J-4	J-22	8.0	Ductile Iron	1,000	6.38	68	0.350
P-25	J-22	H-1	6.0	Ductile Iron	1,000	11.35	67	0.370
P-26	J-3	J-24	8.0	Ductile Iron	-763	4.87	68	1.280
P-27	J-8	J-14	8.0	Ductile Iron	-744	4.75	68	0.000
P-28	J-14	J-25	8.0	Ductile Iron	-751	4.79	69	0.000
P-29	R-2	PMP-2	120.0	Ductile Iron	751	0.02	0	0.000
P-30	PMP-2	J-25	8.0	Ductile Iron	751	4.79	69	0.000
P-31	R-1	PMP-1	120.0	Ductile Iron	763	0.02	0	0.000
P-32	PMP-1	J-24	8.0	Ductile Iron	763	4.87	69	0.000

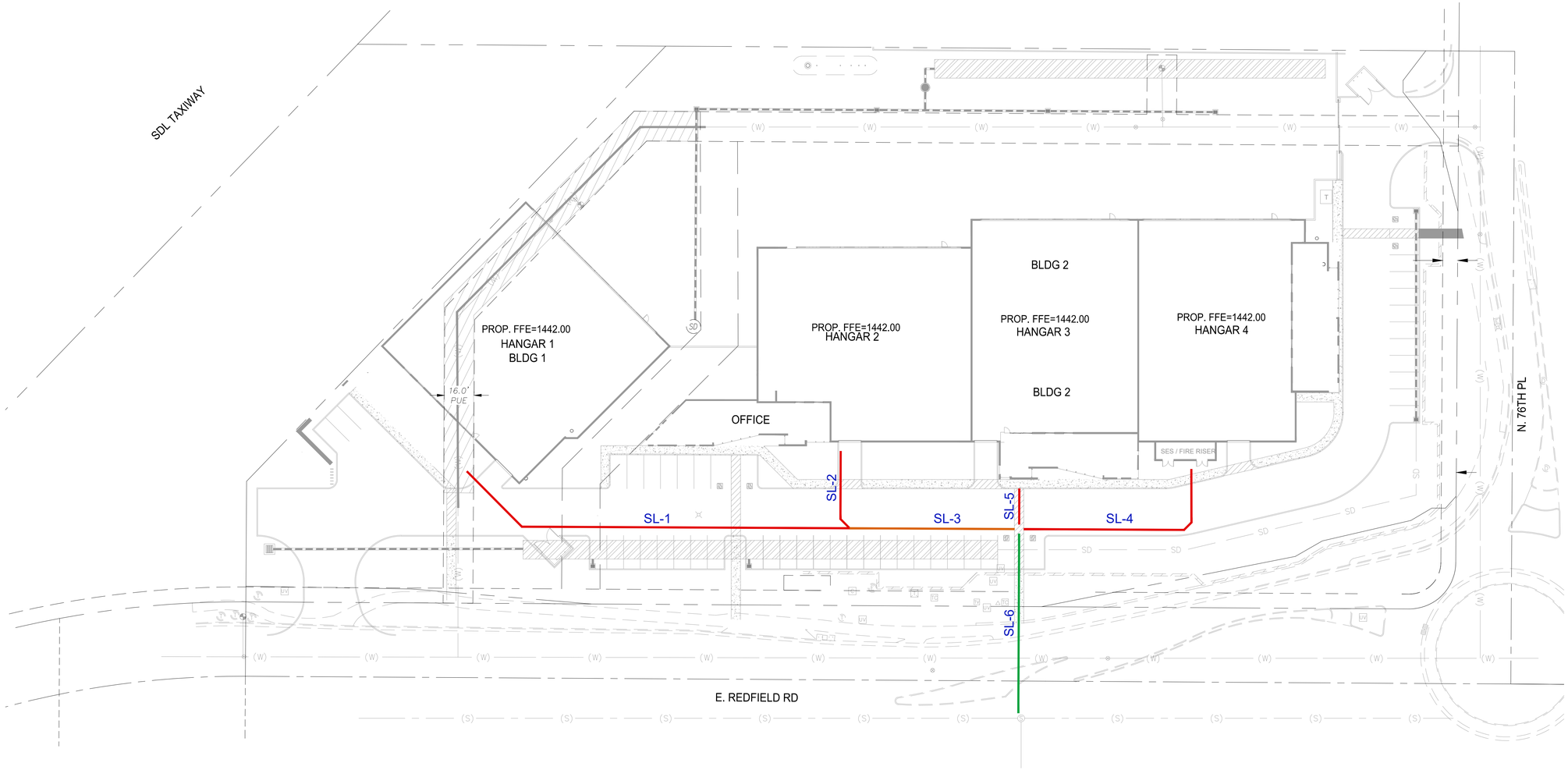
MAX DAY+ FIRE FLOW

FlexTable: Pipe Table

Label	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Pressure (Start) (psi)	Minor Loss Coefficient (Local)
P-33	J-22	J-26	6.0	Ductile Iron	0	0.00	67	0.000
P-34	J-26	J-27	6.0	Ductile Iron	0	0.00	67	0.000

Appendix C

Sewer Calculation References



Skyport at Redfield Hangers
Proposed Wastewater Demands
(Per City of Scottdale DS&PM, 2018, Figure 7-1.2 Average WastewaterDay Demands)

Average Day Demand						
Land Use	Unit Demand (gpd)	Building 1 Area (sf)	Building 2 Area (sf)	Building 1 Demand (gpd)	Building 2 Demand (gpd)	Total Demand (gpd)
Industrial	**0.5**	**18319**	**44464**	**9159.5**	**22232**	**31391.5**
			Demand (gpm)	**6.36**	**15.44**	**21.80**
			Demand (cfs)	**0.01**	**0.03**	**0.05**

Peak Day Demand (3x Average Day Demand)						
Land Use	Unit Demand (gpd)	Building 1 Area (sf)	Building 2 Area (sf)	Building 1 Demand (gpd)	Buiding 2 Demand (gpd)	Total Demand (gpd)
Industrial	**0.5**	**18319**	**44464**	**27478.5**	**66696**	**94174.5**
			Demand (gpm)	**19.08**	**46.32**	**65.40**
			Demand (cfs)	**0.04**	**0.10**	**0.15**

30
N
30 15 0 30 60 90
SCALE IN FEET
GRAPHIC SCALE

Call at least two full working days before you begin excavation
ARIZONA 811
Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
In Maricopa County: (602) 263-1100

47066
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Registered Professional Engineer
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ARIZONA, U.S.A.

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DATE: Apr 18, 24 12:54pm by jason.guerin
FILE: C:\Users\jason.guerin\DC\ACCDocs\SWS Engineering\2024\Project Files\24-162A\PROD\Exhibits\02 - Wastewater Node Map\24-162A_DRC_SEWER.dwg

WASTEWATER
NODE MAP

SKYPORT AT REDFIELD HANGARS

7600 E. REDFIELD RD
SCOTTSDALE, ARIZONA 85260

DATE	REMARKS

PA / PM:	ASM
DRAWN BY:	DL
JOB NO.:	24-162A

SHEET 1 of 1

SWR

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Thu, 18 Apr 2024 - 12:54pm

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Hydraulic Analysis Report

Project Data

Project Title: 24-162A - Skyport

Designer:

Project Date: Thursday, April 18, 2024

Project Units: U.S. Customary Units

Notes:

Channel Analysis: SL-1

Notes:

Input Parameters

Channel Type: Circular

Pipe Diameter 0.50 ft

Longitudinal Slope: 0.0100 ft/ft

Manning's n: 0.0130

Flow 0.0400 cfs

Result Parameters

Depth 0.0904 ft

Area of Flow 0.0242 ft^2

Wetted Perimeter 0.4391 ft

Hydraulic Radius 0.0551 ft

Average Velocity 1.6542 ft/s

Top Width 0.3848 ft

Froude Number: 1.1629

Critical Depth 0.0977 ft

Critical Velocity 1.4802 ft/s

Critical Slope: 0.0073 ft/ft

Critical Top Width 0.40 ft

Calculated Max Shear Stress 0.0564 lb/ft^2

Calculated Avg Shear Stress 0.0344 lb/ft^2

Channel Analysis: SL-2

Notes:

Input Parameters

Channel Type: Circular

Pipe Diameter 0.50 ft

Longitudinal Slope: 0.0100 ft/ft

Manning's n: 0.0130

Flow 0.0330 cfs

Result Parameters

Depth 0.0823 ft

Area of Flow 0.0211 ft^2

Wetted Perimeter 0.4177 ft

Hydraulic Radius 0.0506 ft

Average Velocity 1.5627 ft/s

Top Width 0.3708 ft

Froude Number: 1.1539

Critical Depth 0.0885 ft

Critical Velocity 1.4067 ft/s

Critical Slope: 0.0074 ft/ft

Critical Top Width 0.38 ft

Calculated Max Shear Stress 0.0513 lb/ft^2

Calculated Avg Shear Stress 0.0315 lb/ft^2

Channel Analysis: SL-3

Notes:

Input Parameters

Channel Type: Circular

Pipe Diameter 0.50 ft

Longitudinal Slope: 0.0100 ft/ft

Manning's n: 0.0130

Flow 0.0730 cfs

Result Parameters

Depth 0.1218 ft

Area of Flow 0.0370 ft^2

Wetted Perimeter 0.5162 ft

Hydraulic Radius 0.0717 ft

Average Velocity 1.9728 ft/s

Top Width 0.4292 ft

Froude Number: 1.1841

Critical Depth 0.1328 ft

Critical Velocity 1.7463 ft/s

Critical Slope: 0.0071 ft/ft

Critical Top Width 0.44 ft

Calculated Max Shear Stress 0.0760 lb/ft^2

Calculated Avg Shear Stress 0.0447 lb/ft^2

Channel Analysis: SL-4

Notes:

Input Parameters

Channel Type: Circular

Pipe Diameter 0.50 ft

Longitudinal Slope: 0.0100 ft/ft

Manning's n: 0.0130

Flow 0.0330 cfs

Result Parameters

Depth 0.0823 ft

Area of Flow 0.0211 ft^2

Wetted Perimeter 0.4177 ft

Hydraulic Radius 0.0506 ft

Average Velocity 1.5627 ft/s

Top Width 0.3708 ft

Froude Number: 1.1539

Critical Depth 0.0885 ft

Critical Velocity 1.4067 ft/s

Critical Slope: 0.0074 ft/ft

Critical Top Width 0.38 ft

Calculated Max Shear Stress 0.0513 lb/ft^2

Calculated Avg Shear Stress 0.0315 lb/ft^2

Channel Analysis: SL-5

Notes:

Input Parameters

Channel Type: Circular

Pipe Diameter 0.50 ft

Longitudinal Slope: 0.0100 ft/ft

Manning's n: 0.0130

Flow 0.0330 cfs

Result Parameters

Depth 0.0823 ft

Area of Flow 0.0211 ft^2

Wetted Perimeter 0.4177 ft

Hydraulic Radius 0.0506 ft

Average Velocity 1.5627 ft/s

Top Width 0.3708 ft

Froude Number: 1.1539

Critical Depth 0.0885 ft

Critical Velocity 1.4067 ft/s

Critical Slope: 0.0074 ft/ft

Critical Top Width 0.38 ft

Calculated Max Shear Stress 0.0513 lb/ft^2

Calculated Avg Shear Stress 0.0315 lb/ft^2

Channel Analysis: SL-6

Notes:

Input Parameters

Channel Type: Circular

Pipe Diameter 0.67 ft

Longitudinal Slope: 0.0100 ft/ft

Manning's n: 0.0130

Flow 0.1500 cfs

Result Parameters

Depth 0.1583 ft

Area of Flow 0.0637 ft^2

Wetted Perimeter 0.6803 ft

Hydraulic Radius 0.0936 ft

Average Velocity 2.3563 ft/s

Top Width 0.5693 ft

Froude Number: 1.2417

Critical Depth 0.1770 ft

Critical Velocity 2.0139 ft/s

Critical Slope: 0.0064 ft/ft

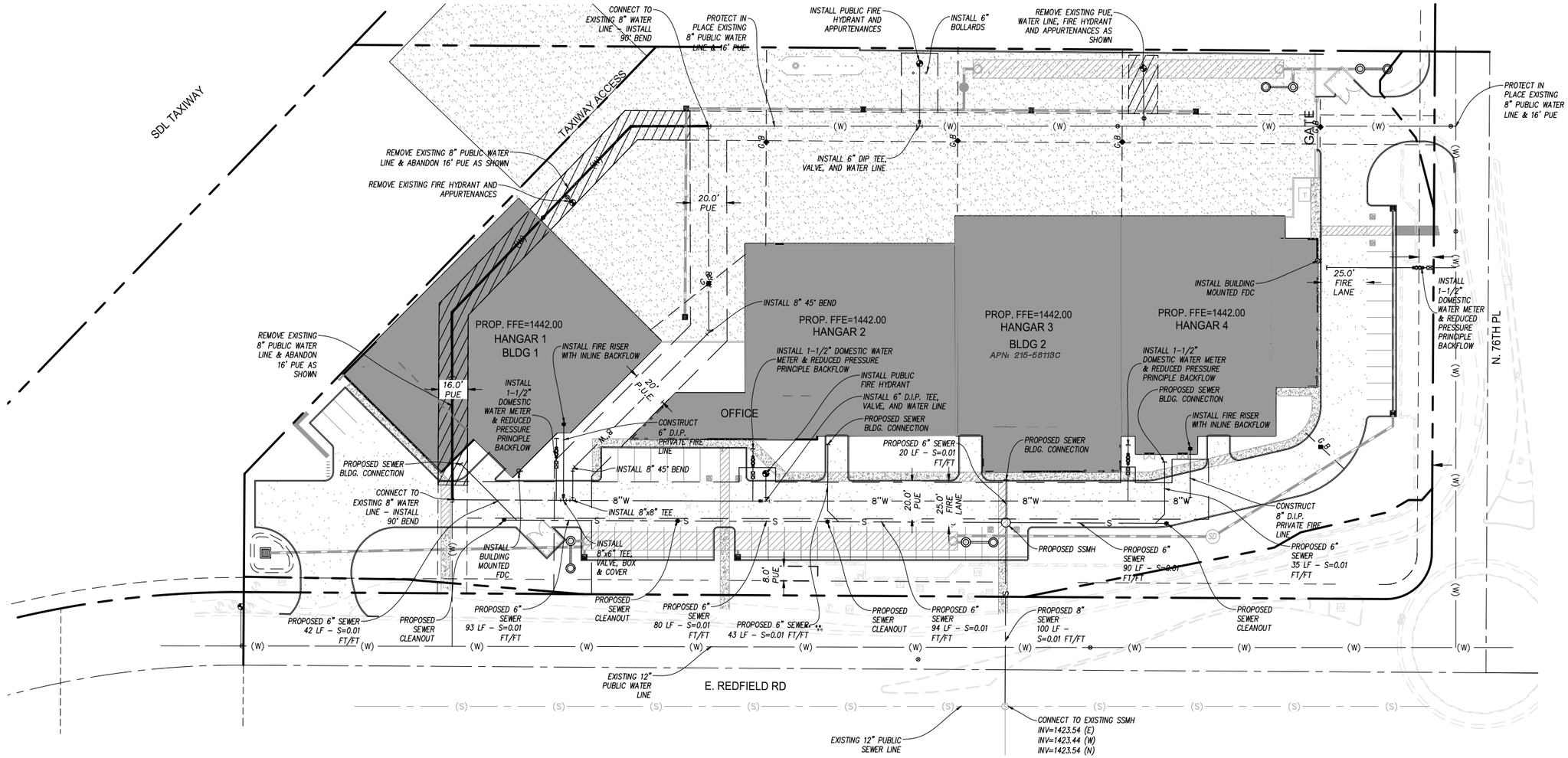
Critical Top Width 0.59 ft

Calculated Max Shear Stress 0.0988 lb/ft^2

Calculated Avg Shear Stress 0.0584 lb/ft^2

Appendix D

Utility Plans



Skyport at Redfield Hangers			
Proposed Water Demands			
(Per City of Scottdale DS&PM, 2018, Figure 6-1.2 Average Water Day Demands)			
Average Day Demand			
Land	Unit Demand Total Inside & Outside	Site Area	Total Demand
Use	(gpm)	(sf)	(gpm)
Industrial	**1.44**	**4.7**	**6.768**
Maximum Day Demand			
Land	Unit Demand Total Inside & Outside	Site Area	Total Demand
Use	(gpm)	(sf)	(gpm)
Industrial	**2.88**	**4.7**	**13.536**
Peak Day Demand			
Land	Unit Demand Total Inside & Outside	Site Area	Total Demand
Use	(gpm)	(sf)	(gpm)
Industrial	**5.04**	**4.7**	**23.688**

30 15 0 30 60 90
SCALE IN FEET
GRAPHIC SCALE

Call at least two full working days before you begin excavation
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Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
In Maricopa County: (602) 263-1100

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Phoenix, AZ 85012
P: 623-551-4005
SAN DIEGO • NASHVILLE • PHOENIX

DATE: Apr 19, 24 3:11pm by:adam.m
FILE:C:\Users\adam.m\DC\ACCDocs\SWS Engineering\2024\Project Files\24-162A\PROD\Planning\DRC\24-162A_DRC_UTIL01.dwg

CONCEPTUAL UTILITY PLAN

SKYPORT AT REDFIELD HANGARS
7600 E. REDFIELD RD
SCOTTSDALE, ARIZONA 85260

DATE	REMARKS

PA / PM:	ASM
DRAWN BY:	DL
JOB NO.:	24-162A

SHEET 3 of X
C-3

Fri, 19 Apr 2024 - XXXXX

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