

CITY OF EL MIRAGE

DEVELOPMENT APPLICATION FORM

Official Use

Case No: _____ Date Received: _____ Planning & Zoning Commission Meeting: _____ City Council Meeting: _____

PURPOSE

Development Applications are reviewed by the Technical Advisory Committee (TAC) with the intent to provide the applicant specific information in preparation to meeting the City's technical standards and requirements for the proposed development project. Information provided by TAC is based on applicant submittals and should be considered actual and detailed in nature.

ACTION REQUESTED (Check one)

☐ Conditional Use Permit	☐ Site Plan Approval
☐ General Plan Amendment: ☐ Major ☐ Minor	☒ Site Plan Amendment
☐ Planned Area Development (PAD)	☐ Preliminary Plat
☐ Planned Area Development Amendment	☐ Final Plat
☐ Rezoning	☐ Other: _____

PROPERTY INFORMATION:

Name of Project: PHX80 Site Plan Amendment Acreage: 15
 Property Address/Location: 12801 W Olive Ave
 Assessor's Parcel Number: 501-46-854

APPLICANT / OWNER INFORMATION:

Applicant: <u>Avery Africa</u>	Owner: <u>Adam McKnight</u>
Address: <u>1501 W. Fountainhead Pkwy</u>	Address: <u>5600 148th Ave NE</u>
City/ST/Zip: <u>Tempe, AZ 85282</u>	City/ST/Zip: <u>Redmond, WA 98052</u>
Phone: <u>(360) 643-0623</u>	Phone: <u>(903) 714-2783</u>
Email: <u>Avery.Africa@jacobs.com</u>	Email: <u>Adam.McKnight@microsoft.com</u>
Signature: _____	Signature: <u>Adam McKnight</u>

(Agreement to act as agent for owner)

(Authorization for agent to act for owner)

☒ Application Form	☒ Water Report
☒ Comprehensive Site Plan	☒ Sewer Report
☒ Deed and/or Title Report	☒ Traffic Statement
☒ Drainage Report	
<u>NA</u> A.L.T.A. Survey	
<u>NA</u> Phase I Environment Site Assessment	
☒ Preliminary Landscape Plans	
☒ Filing Fee (see Fee Schedule starting on page 9) (in the mail)	

SITE PLAN AMENDMENT

PHX81 Project Narrative

El Mirage, Arizona

Application Request

The narrative is provided as part of the requirements for the City of EL Mirage Site Plan Application Submittal Guidelines for Technical Advisory Committee (TAC) Review. Conceptual and comprehensive Site Plans are included in this submittal along with other required information.

Property Location and Description

The Subject Property consists of 150.51-acres at the southeast corner of West Olive Avenue and North Dysart Road in the City of El Mirage, Arizona. The site is currently zoned Employment/Industrial (EI)

The Applicant proposes to develop a data center campus consisting of a second approximately 250,000-square foot building, with the potential for up future development of three additional buildings of a similar size. The proposed data center building will be industrial in nature and consist of new construction, slab on grade, premium grade metal exterior walls, outside electrical and mechanical equipment, utilizing the substation operated by Arizona Public Service (APS) that exists onsite as part of the initial phase of construction. The proposed building will be serviced by EPCOR water and sanitary sewer, which will be accessed from municipal mains to be extended within the adjacent public rights-of-ways.

Approximately 50 parking spaces, with an additional 4 handicap parking spaces for employees of the facility will be located on the Subject Property for the proposed building. A Parking Statement is provided in addition to detail traffic generated by site operations. The potential additional buildings beyond the second building will be completed in phases and driven by market demand.

Historical Data

The proposed project site has been used for agriculture production since the 1950's. Please see Phase I Environmental Site Assessment for additional information of the history of the site.

Operational Aspects of Use

The proposed data center will support the storage and operation of computer servers within a series of data halls with a small administrative office area for personnel. The facility will be secured 24-hours per day, 365-days per year. The electrical and mechanical equipment surrounding the building are necessary to control the environment within the server equipment within the facility. During business hours, the security gate at the primary site access will be open.

Proposed Phasing

Potential future, phased development of up to three (3) additional data center buildings is proposed for the Subject Property. The timing of phasing is driven by market demand. A schedule for future development potential is not known at this time.

SITE PLAN AMENDMENT

PHX81 Project Narrative

El Mirage, Arizona

Additional Information

Twenty-one, diesel-fueled emergency generators will be installed for the proposed project. The proposed generators will be permitted with the Maricopa County Air Quality Department (MCAQD) and will operated in accordance with applicable, MCAQD, State of Arizona, and federal requirements. The generators are for emergency backup power only. Each generator will include an approximately 10,000-gallon capacity diesel storage tank, and the administration area generator will include an approximately 3,000-gallon capacity diesel storage tank.

Generator sound levels may exceed the City of El Mirage guideline of 55 decibels (dB) during operation. Generator operations are anticipated to be limited to periodic, short duration daytime, testing and maintenance activities (e.g., a single generator would be tested for few hours per month) or in response to short duration and infrequent utility outages. Evaluations of utility service in the area during site selection indicated historically reliable service. Additionally, the closest residential neighborhood is approximately one mile from the Subject Property. Given this distance and the limited duration that the generators would be in operation, noise from emergency use of the generators is not expected to be characterized in a manner that would “disturb the peace or quiet of a neighborhood, family or person,” consistent with City of El Mirage Zoning Ordinance § 154.107. Based on the initial analysis of potential sound levels during normal operations of the first site building, operations at the facility will comply with the City of El Mirage guideline of 55 decibels (dB).

Additional Permits and Approvals

Additional permits and approvals that are anticipated for the proposed project include:

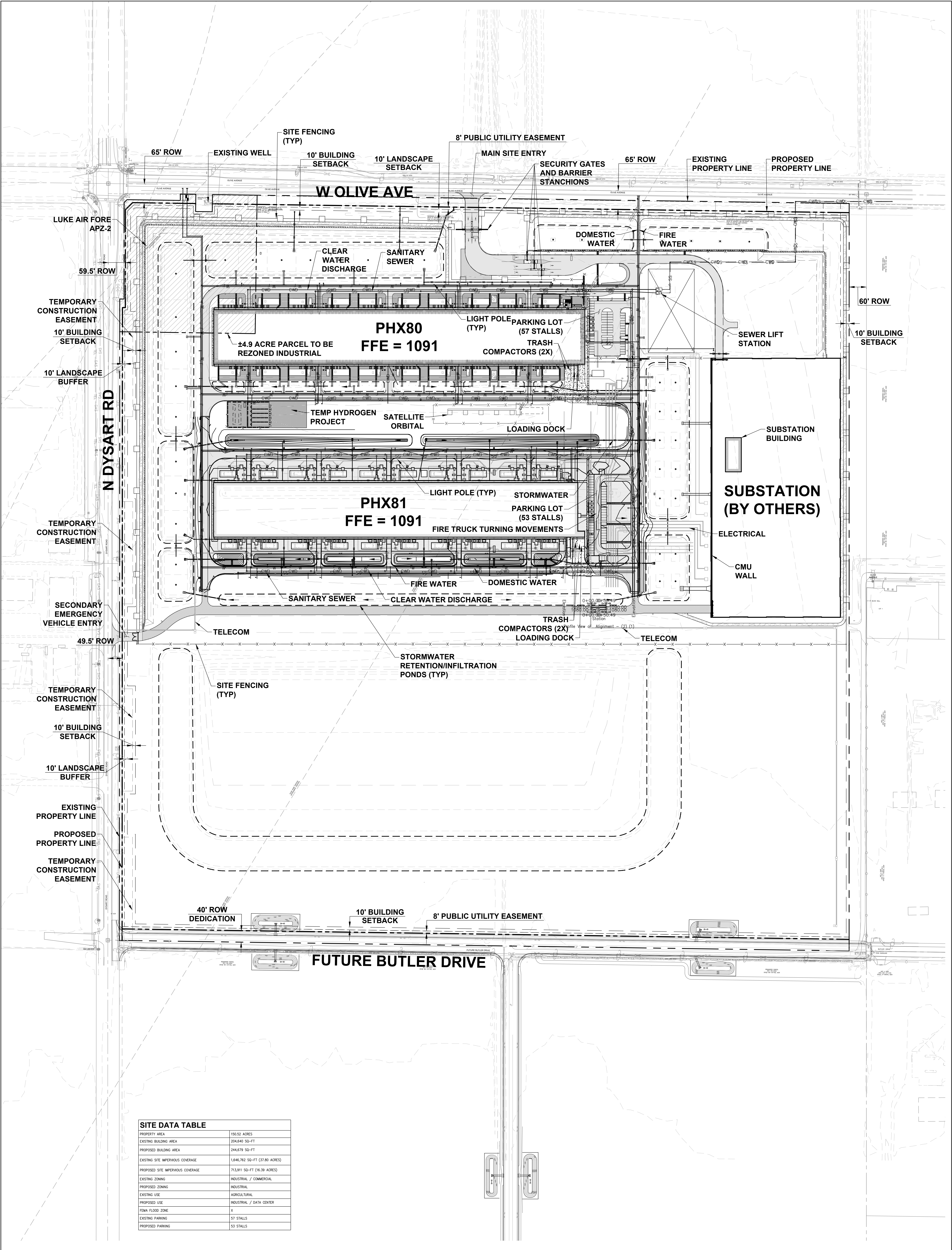
SITE PLAN AMENDMENT

PHX81 Project Narrative

El Mirage, Arizona

Permit/Approval	Status
City of El Mirage Engineering, Building, and Fire Permits	Plans and associated documents will be submitted to the City beginning in April 2021
Arizona Pollutant Discharge Elimination System (AZPDES) – Construction Stormwater Permitting (Section 402 of the Clean Water Act)	Notice of Intent for coverage under the Arizona Construction General Permit (CGP) will be submitted in April 2021
MCAQD Dust Control Permit	Permit application will be submitted at least 14 days prior to construction
MCAQD Non-Title V Permit	Application is being prepared and will be submitted in April 2021
Maricopa County Environmental Services Department (MCESD) Approval to Construct (for applicable water and sewer lines)	Plans will be submitted to MCESD for applicable on-site piping and structures (i.e, lift station and manholes) in April 2021. Plans for off-site improvements will be submitted upon completion of design.
MCESD Approval of Construction	Will be obtained at the completion of on and off-site construction of water and sewer piping and structures
Certificate of Assured Water Supply	Not required per input from the City of El Mirage since water will be provide by the City of El Mirage, which has a designation of assured water supply (DWR 86-400054.0001)
Certificate showing compliance with minimum county and state water quality standards.	Not required per input from the City of El Mirage since water with be provided by the City of El Mirage

B:\Arizona\MS\TY\PHX81\Drawings\Exhibits\210208 PHX81 Site Plan Application\PHX81 Site Plan-Exhibit 02.08.2021.dwg Feb 11, 2021 10:37am

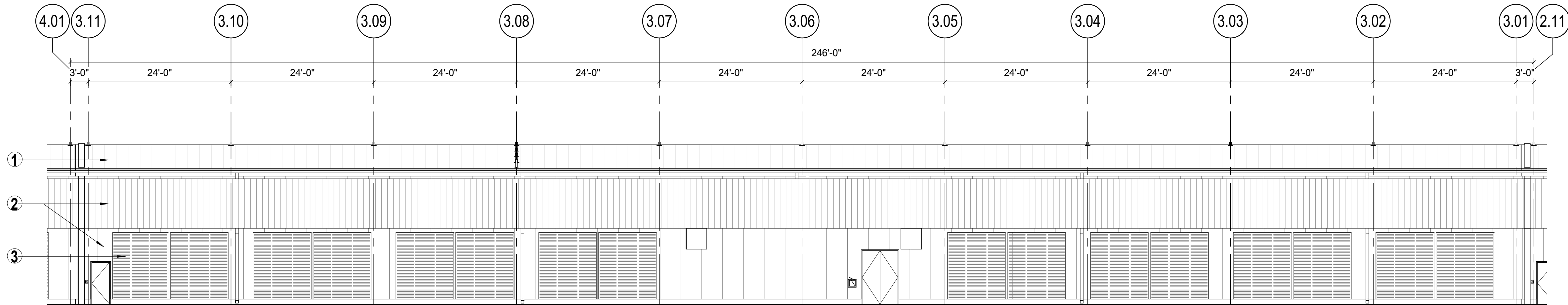


SITE DATA TABLE	
PROPERTY AREA	150.52 ACRES
EXISTING BUILDING AREA	204,640 SQ-FT
PROPOSED BUILDING AREA	244,679 SQ-FT
EXISTING SITE IMPERVIOUS COVERAGE	1,646,762 SQ-FT (37.80 ACRES)
PROPOSED SITE IMPERVIOUS COVERAGE	713,911 SQ-FT (16.39 ACRES)
EXISTING ZONING	INDUSTRIAL / COMMERCIAL
PROPOSED ZONING	INDUSTRIAL
EXISTING USE	AGRICULTURAL
PROPOSED USE	INDUSTRIAL / DATA CENTER
FEMA FLOOD ZONE	X
EXISTING PARKING	57 STALLS
PROPOSED PARKING	53 STALLS

<table><tr><th>REV</th><th>ISSUED FOR:</th><th>DATE</th></tr><tr><td>0</td><td>SITE PLAN AMENDMENT - IFP</td><td>02/12/2021</td></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr></table>	REV	ISSUED FOR:	DATE	0	SITE PLAN AMENDMENT - IFP	02/12/2021																												NORTH ARROW SCALE SCALE: 1 inch = 100ft.	PROJECT NAME PHX80 NAVIX PROJECT NUMBER: 50-050-099	CLIENT/OWNER MICROSOFT CORPORATION PROJECT ADDRESS EL MIRAGE, AZ LAT/LONG 33°33'55.5"N 112°20'28.5"W	NAVIX SITE CIVIL 11235 s.e. 6th street suite 150 bellevue, wa 98004 t: 425.453.9501 f: 425.453.9208 www.navixeng.com	STAMP CONFIDENTIAL	02/12/2021	SHEET NAME SITE PLAN EXHIBIT SHEET NUMBER C-C-000
REV	ISSUED FOR:	DATE																																						
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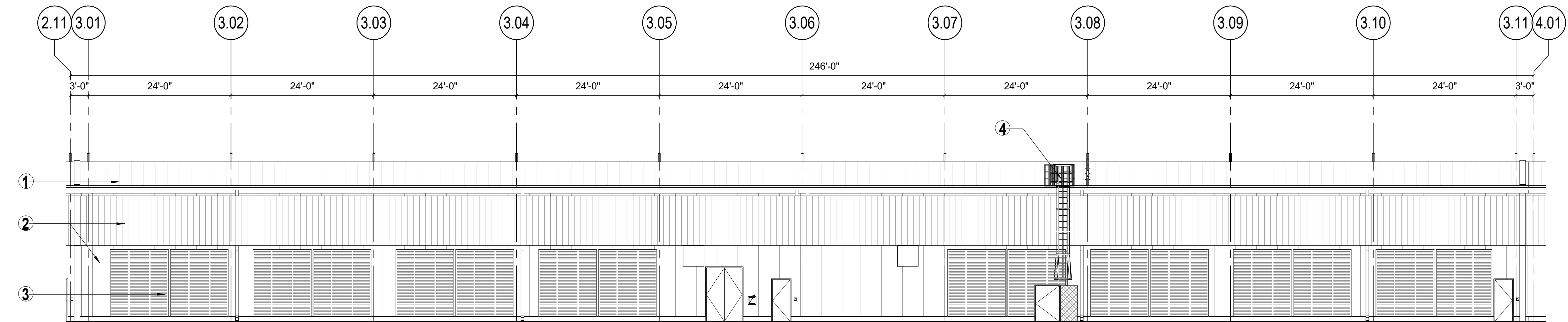


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1 ELEVATION - COLO 3 NORTH - B/W

3/32" = 1'-0"



2 ELEVATION - COLO 3 SOUTH - B/W

3/32" = 1'-0"

NOTE: ELEVATION FACES SOUTH TO SITE INTERIOR

NOTE: BUILDING ELEVATIONS DO NOT INCLUDE EXTERIOR EQUIPMENT OR PERIMETER SCREEN WALL

- 1 ROOF PANEL (WHITE)

2 METAL PANEL (WHITE)

3 MECHANICAL LOUVERS (WHITE)

4 ROOF / PLATFORM ACCESS LADDER

5 CANOPY

6 STOREFRONT & GLASS (CLEAR ANNODIZED & GRAY)

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Design	D. ENRIGHT
Drawn	D. JONES
Checked	B. SHANKS
Jacobs Project No.	D3127040
M.S. Project No.	P.16958

approvals

CUSTOMER	Brian Minarelli	Date
OPERATIONS		
	Samantha Biscottini	Date
Microsoft Mechanical Engineer	Carlos Elarimo	
Microsoft Cable Engineer	Jeremy Taylor	
Microsoft Electrical Engineer	Adam Mcknight	
Engineering Manager	Pete Bretzke	
Security Manager	Dan Schaeffer & Sandra Suskic	
CSA		

PROJECT MANAGEMENT

Project Planner	Date
Chavon Grande	
Project Manager	
Senior Project Manager	
Development Manager	
Quality Control Reviewer	
Quality Control FF&E	

Revisions

[illegible]

Registration

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Sheet Title/Number

COLO 4 - B/W

PHX81-CBEB-4



NOTE: ELEVATION FACES SOUTH TO SITE INTERIOR

NOTE: BUILDING ELEVATIONS DO NOT INCLUDE EXTERIOR EQUIPMENT OR PERIMETER SCREEN WALL

- ① ROOF PANEL (WHITE) ④ ROOF / PLATFORM ACCESS LADDER
② METAL PANEL (WHITE) ⑤ CANOPY
③ MECHANICAL LOUVERS (WHITE) ⑥ STOREFRONT & GLASS (CLEAR ANNOXIDIZED & GRAY)

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Approvals

Brian Minatelli

CUSTOMER _____ Date _____

PERATIONS

Samantha Biscottini

Microsoft Mechanical Engineer _____ Date _____
 Carlos Flores

Microsoft Cable Engineer

Jeremy Taylor

Microsoft Electrical Engineer
Adam Mcknight

Engineering Manager

Pete Bretzke

Security Manager

Dan Schaeffer & Sandra Suskio

PROJECT MANAGEMENT

Student's Name

Date

Project Planner: Charvon Grande Date:

Project Manager

Senior Project Manager

Development Manager

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Quality Control Reviewer

Revisions

[illegible]

Registration

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Sheet Title/Number

ADMIN - B/W

PHX81-CBEB-A



NOTE: ELEVATION FACES SOUTH TO SITE INTERIOR



NOTE: BUILDING ELEVATIONS DO NOT INCLUDE EXTERIOR EQUIPMENT OR PERIMETER SCREEN WALL

- | | |
|------------------------------|---|
| ① ROOF PANEL (WHITE) | ④ ROOF / PLATFORM ACCESS LADDER |
| ② METAL PANEL (WHITE) | ⑤ CANOPY |
| ③ MECHANICAL LOUVERS (WHITE) | ⑥ STOREFRONT & GLASS (CLEAR ANNOXIDIZED & GRAY) |

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PHX81 DATA CENTER

EL MIRAGE, AZ LANDSCAPE CONSTRUCTION DOCUMENTS

GENERAL NOTES:

- THESE CONSTRUCTION DOCUMENTS, INCLUDING ALL PLANS, NOTES, DETAILS AND SPECIFICATIONS ARE INTENDED TO FACILITATE THE INSTALLATION CONTRACTOR BY PROVIDING GENERAL GUIDELINES FOR DESIGN INTENT. IT IS THE GOAL OF THE DOCUMENTS THAT THE WORK IS TO BE COMPLETED WITHOUT CHANGE ORDERS. ALL QUANTITIES SHOWN IN THE DOCUMENTS ARE ESTIMATES ONLY AND ARE NOT GUARANTEED. THE CONTRACTOR SHALL SUPPLY ALL MATERIALS, LABOR AND EQUIPMENT IN ORDER TO FULFILL THE DESIGN INTENT.
- INTERPRETATION OF THE PLANS AND SPECIFICATIONS SHALL BE MADE BY THE "AUTHOR" OR "ARCHITECT/ENGINEER-OF-RECORD" OF THE RESPECTIVE DOCUMENT AND SHALL BE CONSIDERED FINAL. ANY POSSIBLE AMBIGUITY SHALL BE SUBMITTED IN WRITING BY THE CONTRACTOR PRIOR TO SUBMITTING FORMAL BIDS. ALL CLARIFICATIONS SHALL BE PREPARED IN WRITING BY THE "ARCHITECT/ENGINEER-OF-RECORD" PRIOR TO BIDDING. THE CONTRACTOR SHALL ACCEPT THE INTERPRETATION OF THE "ARCHITECT/ENGINEER-OF-RECORD" AS THE CORRECT AND FINAL INTERPRETATION.
- ANY INCIDENTAL INSTALLATION PROCEDURE, MATERIAL OR EQUIPMENT, NOT MENTIONED IN THESE CONSTRUCTION DOCUMENTS, THE SPECIFICATIONS NOT SHOWN ON THE PLANS, WHICH MAY BE NECESSARY FOR SATISFACTORY OPERATION OF THE DESIGN SYSTEM SHALL BE FURNISHED AND INSTALLED (AS BASED ON INDUSTRY STANDARDS) AS THOUGH SHOWN OR PROVIDED FOR.
- EXISTING CONDITIONS AND BASE INFORMATION ARE BASED ON PLANS PREPARED BY: CMX.
- THE CONTRACTOR SHALL BECOME FAMILIAR WITH THE LOCATIONS OF EXISTING AND FUTURE UNDERGROUND SERVICES AND IMPROVEMENTS WHICH MAY CONFLICT WITH THE WORK TO BE DONE. NOTIFY THE OWNER'S AUTHORIZED REPRESENTATIVE IMMEDIATELY SHOULD A CONFLICT ARISE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING ALL NECESSARY PERMITS AND SHALL NOTIFY ALL UTILITY COMPANIES WITH UTILITIES ON SITE PRIOR TO THE CONSTRUCTION OF THE PROJECT.
- FOR UNDERGROUND UTILITY COORDINATION AND 48 HOURS PRIOR TO START OF CONSTRUCTION (DEPENDENT ON AREA OR JURISDICTION), THE CONTRACTOR SHALL CONTACT:
 - BLUE STAKE (ARIZONA) 1-800-782-5348
 - UNDERGROUND SERVICES ALERT (USA) 1-800-227-2600
- THESE NOTES ARE TO BE USED FOR GENERAL REFERENCE IN CONJUNCTION WITH AND AS A SUPPLEMENT TO THE WRITTEN SPECIFICATION, APPROVED ADDENDUMS, AND THE CHANGE ORDERS AS ASSOCIATED WITH THESE CONSTRUCTION DOCUMENTS.
- SHOULD THE CONTRACTOR HAVE ANY QUESTIONS REGARDING THESE CONSTRUCTION DOCUMENTS OR SHOULD THERE BE ANY DISCREPANCIES, HE SHALL CONTACT THE LANDSCAPE ARCHITECT FOR CLARIFICATION BEFORE PROCEEDING FURTHER.
- ALL WORK SHALL CONFORM TO THE CONTRACT DOCUMENTS AND PER GOVERNING CODES AND/OR ORDINANCES.
- THE CONTRACTOR SHALL PROVIDE BARRICADES AND TRAFFIC CONTROL ALONG PUBLIC STREETS, IF REQUIRED, DURING INSTALLATION.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO REPORT TO THE LANDSCAPE ARCHITECT AND/OR THE OWNER'S AUTHORIZED REPRESENTATIVE ANY DISCREPANCIES BETWEEN THE CONSTRUCTION DOCUMENTS AND FIELD CONDITIONS PRIOR TO THE START OF WORK.
- BEFORE WORK BEGINS ON THE PROJECT, THE CONTRACTOR SHALL REVIEW THE PROJECT WITH THE LANDSCAPE ARCHITECT AND/OR THE OWNER'S AUTHORIZED REPRESENTATIVE.
- THE LANDSCAPE ARCHITECT AND/OR THE OWNER'S AUTHORIZED REPRESENTATIVE SHALL APPROVE ANY OR ALL CHANGES PRIOR TO THE START OF WORK.
- CONTRACTOR IS RESPONSIBLE FOR VERIFYING AND COORDINATING EXISTING SITE CONDITIONS.
- THE CONTRACTOR SHALL ADHERE TO ALL APPLICABLE LOCAL, STATE, AND/OR FEDERAL LAW OR REGULATION PERTAINING TO THE PROJECT.
- CONTRACTOR SHALL PROPERLY COORDINATE HIS WORK WITH OTHER CONTRACTOR'S WORK PRIOR TO INSTALLATION.
- THE CONTRACTOR SHALL TAKE PRECAUTIONARY MEASURES TO PROTECT EXISTING IMPROVEMENTS AND THE PUBLIC FROM DAMAGE THROUGHOUT CONSTRUCTION.
- CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY DAMAGES IMPOSED, UNINTENTIONALLY OR ACCIDENTALLY TO EXISTING UTILITIES, STRUCTURES, WALLS, OR OTHER AMENITIES, DUE TO THE ACTION OF THE CONTRACTOR, CONTRACTOR'S EMPLOYEES AND/OR THE CONTRACTOR'S SUBCONTRACTORS. DAMAGE OCCURRED DURING THE CONTRACTOR'S OPERATION SHALL BE REPAIRED, AT THE EXPENSE OF THE CONTRACTOR, TO THE SATISFACTION OF THE OWNER'S AUTHORIZED REPRESENTATIVE.
- MATCH GRADES, LAYOUT AND ELEVATIONS OF ADJOINING LANDSCAPE WORK BY OTHERS. NOTIFY THE LANDSCAPE ARCHITECT OF CONFLICTS BEFORE PROCEEDING WITH CONSTRUCTION.

PLANTING GENERAL NOTES:

- CONTRACTOR SHALL REVIEW PLANTING PLAN WITH LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
- LANDSCAPE ARCHITECT OR HIS REPRESENTATIVE RESERVES THE RIGHT TO REFUSE ANY PLANT MATERIALS HE DEEMS UNACCEPTABLE.
- ANY AND ALL SUBSTITUTIONS TO BE APPROVED BY THE LANDSCAPE ARCHITECT.
- LOCATE PLANTS AWAY FROM SPRINKLER HEADS, LIGHT FIXTURES AND OTHER OBSTRUCTIONS.
- FINAL LOCATION OF ALL PLANT MATERIAL SHALL BE SUBJECT TO THE APPROVAL OF THE OWNER'S AUTHORIZED REPRESENTATIVE.
- PLANTING AND IRRIGATION DESIGN MAY BE MODIFIED TO ADAPT TO WALK CONFIGURATIONS THAT DIFFER FROM THESE PLANS, OR BECAUSE OF GRADE LIMITATIONS ON SITE.
- WATER TEST ALL TREE PLANTING HOLES PRIOR TO PLANTING. IF TREE HOLE DOES NOT DRAIN, DO NOT PLANT, SEE HARDPAN DETAIL.
- REFER TO THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS NOT SHOWN ON DRAWINGS.
- TREES SHALL BE PLANTED A MINIMUM OF 2'-0" FROM STREET LIGHTS, LIGHTING CONTROL CABINETS & FIRE HYDRANTS, 7'-0" FROM UNDERGROUND PIPES AND A MINIMUM OF 5'-0" FROM CURBS AND WALLS. SHRUBS SHALL BE PLANTED A MINIMUM OF 2'-0" FROM CURB AND WALLS.
- ALL SPECIMEN TREES, SHRUBS AND CACTI SHALL BE FIELD LOCATED BY LANDSCAPE ARCHITECT OR OWNER'S AUTHORIZED REPRESENTATIVE.
- CONTRACTOR SHALL INSTALL "SHAWTOWN ROOT BARRIER PANELS" (OR APPROVED EQUAL) AT ALL TREES WITHIN 7'-0" FEET OF ALL HARDSCAPE ELEMENTS. IF NOT LIMITED TO SIDEWALKS, ASPHALT, CONCRETE SLABS / FOOTINGS AND STRUCTURES. CONTRACTOR SHALL SUBMIT SPECIFICATION SHEETS OF PROPOSED ROOT BARRIER PANELS TO THE LANDSCAPE ARCHITECT FOR APPROVAL PRIOR TO INSTALLATION.
- THE CONTRACTOR SHALL INSTALL ARBOR GUARDS AT ALL TREES LOCATED IN TURF AREAS.
- ON-SITE AND OFF-SITE TOPSOIL SHALL COMPLY WITH CONTENT REQUIREMENTS AS SPECIFIED IN PART 2 OF THE PLANTING SPECIFICATIONS. AGRONOMY TEST SUBMITTALS ARE REQUIRED FOR ALL MATERIAL USED FOR TOPSOIL AND BACK FILL. SUBMIT REPORT TO LANDSCAPE ARCHITECT FOR REVIEW.
- ALL PLANT MATERIAL SHALL BE IN COMPLIANCE WITH THE AMERICAN STANDARDS FOR NURSERY STOCK, LATEST EDITION.
- THE CONTRACTOR SHALL PROVIDE MAINTENANCE FOR ALL ALL PLANT MATERIAL FROM THE TIME OF INSTALLATION THROUGH SUBSTANTIAL COMPLETION.
- CACTI SHALL BE PLANTED A MINIMUM OF 5'-0" AWAY FROM ALL PEDESTRIAN ROUTES.
- CACTI SHALL BE WELL ROOTED AND NON-SCARRED.
- PLANT MATERIAL MARKED "SALVAGE" SHALL BE SELECTED FROM FROM ON-SITE SALVAGE INVENTORY. ALL MATERIAL SELECTIONS SHALL BE APPROVED BY LANDSCAPE ARCHITECT AND/OR OWNER'S AUTHORIZED REPRESENTATIVE.
- IN DISTURBED AREAS INDICATED TO RECEIVE REVEGETATION HYDROSEED AND/OR PLANTING, THE CONTRACTOR SHALL MATCH EXISTING NATURAL DESERT STONE GROUND COVER CONDITIONS ADJACENT TO THE PROJECT.
- NATIVE REVEGETATION AREAS AND PLANTER BEDS SHALL BE TREATED WITH PRE-EMERGENT AS PER MANUFACTURER'S INSTRUCTIONS. RE-APPLY AS NECESSARY TO ELIMINATE INVASIVE WEEDS. REMOVE ALL DEAD DEBRIS.
- THE CONTRACTOR SHALL PROVIDE A 50'-0" BY 50'-0" TYPICAL MOCK-UP OF NATIVE REVEGETATION AREAS FOR REVIEW BY THE LANDSCAPE ARCHITECT OR OWNER'S AUTHORIZED REPRESENTATIVE.
- ALL TREE STAKING SHALL CONFORM TO THE PLANTING DETAILS OR AS NOTED IN THE SPECIFICATIONS. THE LANDSCAPE ARCHITECT OR OWNER'S AUTHORIZED REPRESENTATIVE SHALL REVIEW TYPICAL TREE STAKING PRIOR TO FINAL ACCEPTANCE.

INERT GENERAL NOTES:

ANGULAR GRANITE RIP-RAP

- INSTALL GRANITE RIP-RAP IN ALL DRAINAGE SWALES, AND WHERE INDICATED ON PLANS (TYPICAL). REFER TO MATERIALS SCHEDULE / PLANTING LEGEND FOR COLOR AND SIZE OF GRANITE RIP-RAP.
- THE CONTRACTOR SHALL SUBMIT SAMPLES TO LANDSCAPE ARCHITECT FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
- THE CONTRACTOR SHALL REFER TO CIVIL PLANS FOR ADDITIONAL INFORMATION.

DECOMPOSED GRANITE

- DECOMPOSED GRANITE IS REQUIRED IN ALL PLANTING AREAS, EXCEPT AREAS OF TURF AND GRANITE RIP-RAP, AND SHALL EXTEND UNDER PLANT MATERIAL UNLESS NOTED OTHERWISE ON PLANS. REFER TO MATERIALS SCHEDULE / PLANTING LEGEND.
- ALL PLANTING AREAS SHALL RECEIVE A 2" MINIMUM LAYER OF DECOMPOSED GRANITE, THROUGHOUT (TYPICAL).
- CONTRACTOR SHALL SUBMIT SAMPLES TO LANDSCAPE ARCHITECT FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.

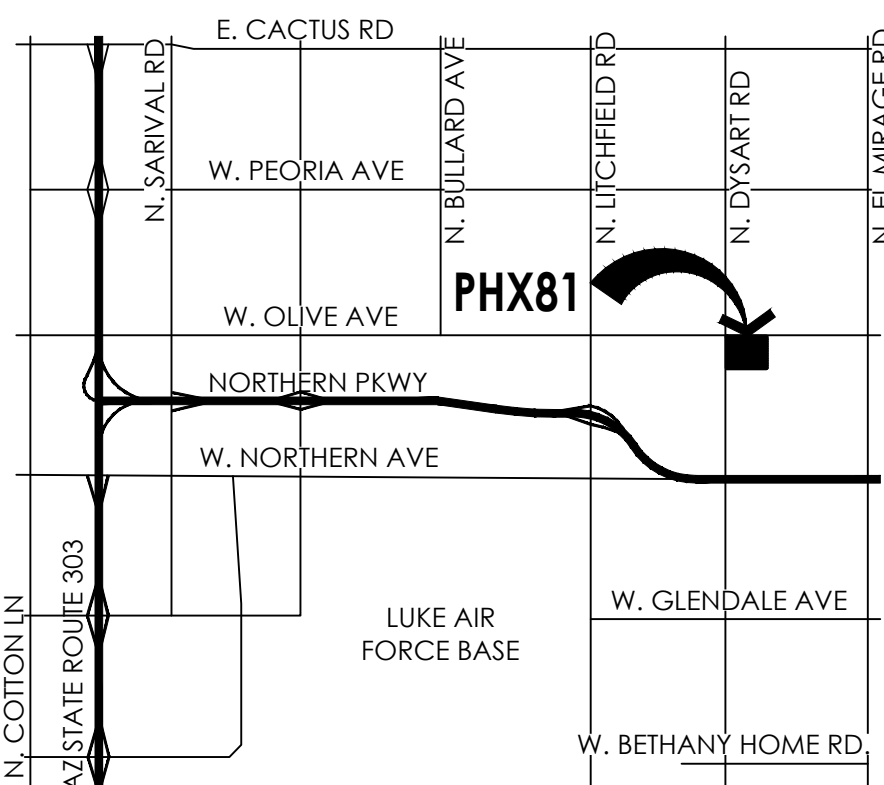
IRRIGATION GENERAL NOTES:

- THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR FULL IRRIGATION COVERAGE OF ALL PLANT MATERIAL.
- THE LANDSCAPE CONTRACTOR SHALL SUBMIT FULL PIPING PLANS, AFTER FIELD VERIFICATION, DEPICTING POINT OF CONNECTION, METER LOCATION AND SIZE, BACK FLOW PREVENTER LOCATION AND SITE, AND PIPE ROUTING AND SIZES.
- THE LANDSCAPE CONTRACTOR SHALL INSTALL THE SPECIFIED SYSTEM IN ACCORDANCE WITH THE ATTACHED SCHEDULES, NOTES, DETAILS, AND SPECIFICATIONS.
- CONTRACTOR TO SITE VERIFY PRESSURE AND NOTIFY LANDSCAPE ARCHITECT OF ANY DIFFERENCES PRIOR TO INSTALLATION OR ORDERING OF MATERIALS. IF CONTRACTOR FINDS NO MAJOR LANDSCAPE ARCHITECT, HE IS FINANCIALLY RESPONSIBLE FOR ANY NECESSARY SYSTEM ALTERATIONS THAT RESULT.
- THE LANDSCAPE CONTRACTOR SHALL FIELD VERIFY EXISTING TAP LOCATIONS. INSTALL NEW METERS PER THE ATTACHED IRRIGATION SCHEDULE.
- THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR CUTTING AND PATCHING OF ASPHALT AND CONCRETE AS REQUIRED FOR SLEEVE INSTALLATION ACCORDING TO THE IRRIGATION SCHEDULE.
- CONTROLLER TO BE INSTALLED AS PER MANUFACTURES SPECIFICATIONS, CONTROLLER SIZE AND QUANTITIES TO BE DETERMINED BY THE VALVE REQUIREMENTS AND POINT OF CONNECTIONS. INSTALL ONE (1) CONTROLLER AT EACH POINT OF CONNECTION.
- INSTALL PVC MAINLINE AND LATERALS ACCORDING TO THE IRRIGATION AND PIPING SCHEDULES.
- ALL VALVE FLOWS SHALL NOT EXCEED MANUFACTURER'S SPECIFICATIONS.
- VALVE BOXES SHALL BE SQUARE TO ADJACENT WALKS OR CURBS AND FLUSH WITH THE FINAL GRADE.
- WORK SHALL CONFORM TO ALL CONSTRUCTION CODES AND REGULATIONS.
- CONTRACTOR SHALL INSTALL GREEN VALVE BOXES IN TURF AREAS AND TAN VALVE BOXES IN DECOMPOSED GRANITE AREAS (TYPICAL).
- REFER TO THE IRRIGATION NOTES FOR THE CALCULATED PRESSURE AT THE WATER METER. REFER TO NOTE #4 IF PRESSURE DIFFERS FROM THAT NOTED.
- THE CONTRACTOR SHALL VISIT SITE PRIOR TO BIDDING ON PROJECT TO VERIFY INSTALLATION CONDITIONS.
- PRIOR TO COMMENCEMENT OF ANY WORK, THE CONTRACTOR SHALL CONTACT BLUE STAKE TO VERIFY LOCATIONS AND DEPTHS OF UNDERGROUND UTILITIES THAT MAY BE EFFECTED BY HIS WORK, AND HE SHALL BE RESPONSIBLE FOR DAMAGES TO SUCH UTILITIES CAUSED AS A RESULT OF HIS IRRIGATION INSTALLATION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPENSATING THE OWNER AND/OR THE OWNER'S REPRESENTATIVE FOR ANY DESIGN CHANGES MADE AS A RESULT OF DEVIATION BY THE CONTRACTOR FROM THE PLANS AND SPECIFICATIONS OR DUE TO ERRORS, FAULTY MATERIAL OR FAULTY WORKMANSHIP.
- INSTALL ALL MAINLINES WITH A MINIMUM OF 20" OF COVER.
- INSTALL ALL LATERALS WITH A MINIMUM OF 12" OF COVER.
- ALL PIPE TO BE INSTALLED PER THE MANUFACTURER'S SPECIFICATIONS AND ASTM STANDARD D 2774.
- ALL THREADED JOINTS TO BE COATED WITH TEFLON TAPE UNLESS OTHERWISE SPECIFIED BY THE MANUFACTURER. USE LIQUID TEFLON ON METAL PIPE THREADS ONLY.
- FLUSHING OF ALL LINES PRIOR TO INSTALLATION OF SPRINKLERS AND EMITTERS IS REQUIRED.
- INSTALL ALL SPRINKLERS, EMITTERS, AND RELATED MATERIAL PER IRRIGATION SYSTEM SPECIFICATIONS AND DETAILS.
- INSTALL ALL ELECTRICAL JOINTS WITH 3-M WATERPROOF CONNECTORS.
- ALL ELECTRICAL CONNECTIONS SHALL BE MADE AT THE REMOTE CONTROL VALVE BOXES. CONTROLLER ENCLOSURES AND VALVE BOXES SPECIFICALLY FOR ELECTRICAL CONNECTIONS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ALL WIRING FROM THE CIRCUIT BREAKER AT THE 120 VOLT SOURCE LOCATION TO AUTOMATIC CONTROLLER.
- ALL 120 VOLT VOLT POWER WIRE TO BE INSTALLED PER LOCAL CODE AND THE N.E.C.
- INSTALL ALL VALVE WIRING IN MAINLINE TRENCH AS DETAILED.
- INSTALL ALL REMOTE CONTROL VALVES AT HEIGHT INDICATED ON DETAILS, AS HIGH AS POSSIBLE BUT ALLOWING CLEARANCE BETWEEN VALVE BOX LID AND FLOW CONTROL HANDLE ON REMOTE CONTROL VALVE.
- INSTALL ALL MAINLINE GATE VALVES IN A ROUND PLASTIC VALVE BOX PER DETAILS.
- ALL PVC SOLVENT WELD FITTINGS SHALL BE LASCO OR APPROVED EQUAL.
- THE MAINLINE, LATERAL PIPE, AND VALVES ARE SHOWN SCHEMATICALLY AND SHALL BE INSTALLED WITHIN THE LANDSCAPE AREA OUT SIDE OF ROW AND FUE. ADJACENT TO SIDEWALK OR CURB AND OFFSET 18" WHEREVER POSSIBLE.
- SUPPLY THE FOLLOWING MATERIAL TO THE OWNER:
 - TWO WRENCHES FOR DISASSEMBLY AND ADJUSTING OF EACH TYPE OF SPRINKLER HEAD AND VALVE SUPPLIED.
 - TWO KEYS FOR EACH OF THE CONTROLLERS
 - TWO COUPLERS WITH MATCHING HOSE BIBBS AND SHUT-OFF VALVE.
 - TWO VALVE BOX KEYS.
- ALL MAINLINE FITTINGS FOR PIPE 3" AND LARGER SHALL BE CAST OR DUCTILE IRON FOR PVC; SCHEDULE 80 PVC FOR 2 1/2" AND SMALLER.
- ALL MAINLINE PIPE SHALL BE A MINIMUM OF SCHEDULE 40.
- SLEEVES SHALL BE A MINIMUM OF TWO TIMES THE DIAMETER OF THE LINE SIZE.
- ALL MAINLINE AND IRRIGATION EQUIPMENT SHALL BE PLACED IN THE LANDSCAPED AREAS.
- CONTROLLER WIRES THAT ARE DIRECT BURIED SHALL BE #14 OR BETTER, BUNDLED OR WRAPPED A MINIMUM OF EVERY TWELVE (12) FEET. DURING INSTALLATION WIRES SHALL HAVE A 24" TOP TIE TO THE TRENCH. ALL DIRECTION CHANGES GREATER THAN 30 DEGREES AND BE UNITED PRIOR TO TRENCH FILL.
- DRIP SYSTEM FLUSH CAPS SHALL BE PLACED IN A VALVE BOX AT THE END OF ALL DRIP LATERAL RUNS, AS DESCRIBED ON THE DRAWINGS.
- ALL VALVES, PRESSURE REGULATORS AND OTHER DEVICES SHALL BE PLACED IN AN APPROPRIATELY SIZED VALVE BOX WITH A MINIMUM OF TWO (2) INCHES OF PEA GRAVEL.
- PRIOR TO PLACING ANY IRRIGATION SYSTEM IN SERVICE, AN ARIZONA CERTIFIED BACK FLOW DEVICE TESTER SHALL TEST THE BACK FLOW PREVENTION DEVICE AND GIVE A COPY OF THE PASSED TEST RESULTS TO THE MARICOPA COUNTY INSPECTOR OR MAIL IT TO THE MARICOPA COUNTY DEPARTMENT OF PUBLIC WORKS INSPECTION STATION.
- AFTER INITIAL TESTING, ALL BACK FLOW DEVICES SHALL BE TESTED ANNUALLY.
- BACK FLOW DEVICES SHALL BE A MINIMUM OF TWO (2) FEET FROM THE WATER METER AND BE THE SAME SIZE AS THE METER SERVICE LINE.
- ALL BACK FLOW PREVENTION DEVICES SHALL HAVE A MINIMUM 24"x36"x4" CLASS B CONCRETE SLAB WITH PIPE SLEEVES. IF A SECURITY CAGE IS INSTALLED, CONCRETE SHALL BE SIX (6) INCHES LARGER ON ALL SIDES THAN THE SECURITY CAGE.
- ALL PIPE CROSSINGS IN THE RIGHT-OF-WAY SHALL BE MARKED ON EACH SIDE OF THE CURB WITH A NON-DESTRUCTIBLE MARKING.

GRADING GENERAL NOTES:

- CONTRACTOR SHALL GRADE TO MAINTAIN POSITIVE DRAINAGE AWAY FROM ALL STRUCTURES. REVIEW ENGINEER'S PLAN FOR DRAINAGE.
- FINISH GRADING SHALL BE BY THE DIRECTION OF LANDSCAPE ARCHITECT.
- LANDSCAPE ARCHITECT SHALL APPROVE GRADING PRIOR TO PLANTING.
- GRADING FOR THIS PROJECT INCLUDES THE FOLLOWING:
 - FINE GRADING OF EXISTING ROUGH GRADES IS REQUIRED TO PROVIDE SMOOTH, EVEN GRADE TRANSITION IN LANDSCAPE AREA.
 - IMPORTING AND PLACING "OFF-SITE 3/8" MINUS TOPSOIL" IN THE FOLLOWING AREAS:
 - TURF, AND ANNUAL AREAS (6" DEPTH).
 - PLANT BACK FILL (CAN BE SCREENED ON-SITE SOIL).
- THE CONTRACTOR IS RESPONSIBLE FOR REMOVING ANY CALICHE ENCOUNTERED ON SITE AT NO ADDITIONAL COST TO THE OWNER.
- FINISH GRADE OF ALL PLANTING AREAS IS TO BE 1.5" BELOW ADJACENT PAVING UNLESS NOTED OTHERWISE.
- REFERENCE CIVIL ENGINEERING DRAWINGS FOR GRADING AND DRAINAGE FLOWS. THE CONTRACTOR SHALL BE RESPONSIBLE THAT THESE ARE PROVIDED FOR AND NOT IMPAIRED WITH OBSTRUCTIONS.
- THE CONTRACTOR IS RESPONSIBLE FOR GRADING ALL AREAS AT THE DIRECTION OF THE LANDSCAPE ARCHITECT TO CREATE A NATURALLY UNDULATING GROUND PLANE.
- NOT FOR CONSTRUCTION. FOR REFERENCE ONLY, ON LANDSCAPE DRAWINGS.

VICINITY MAP:





N OLIVE AVE &
N DYSART RD
EL MIRAGE, AZ 85335

Design Team

Design	R. GEHRKE
Drawn	TEAM
Checked	R. GEHRKE
Jacobs Project No.	D3127040
M.S. Project No.	-

Approvals

CUSTOMER	OPERATIONS	Date
	Samantha Biscottini	
Microsoft Mechanical Engineer		Date
	Carlos Elarmo	
Microsoft Cable Engineer		
	Jeremy Taylor	
Microsoft Electrical Engineer		
	Adam McKnight	
Engineering Manager		
	Pete Bretzke	
Security Manager		
	Dan Schaeffer & Sandra Suskic	
CSA		

PROJECT MANAGEMENT

Project Planner	Date
Chavon Grande	
Project Manager	
Senior Project Manager	
Development Manager	
Quality Control Reviewer	
Quality Control FF&E	

Revisions

[illegible]

Registration



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Sheet Title/Number

PLANTING PLAN

PHX81-L-B-01-0

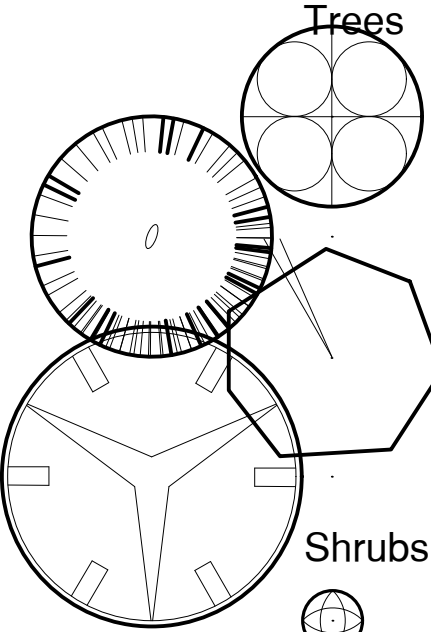


1. ALL PLANTS SHALL BE WATERED WITH AUTOMATIC DRIP IRRIGATION SYSTEM.
2. ALL LANDSCAPE AREAS EXCLUDING TURF TO BE COVERED WITH CRUSHED ROCK.
3. LANDSCAPE ARCHITECT TO APPROVE FINAL GRADING. PLANTING SHALL NOT OCCUR UNTIL FINAL GRADING IS APPROVED.
4. ALL SHRUBS TO BE PLANTED 3'-0" MINIMUM AWAY FROM EXISTING OR FUTURE WALLS.
5. ALL TREES TO BE PLANTED 5'-0" MINIMUM AWAY FROM EXISTING OR FUTURE WALLS.
6. WHERE POSSIBLE, ALL TREES AND SHRUBS TO BE PLANTED 2'-0" MINIMUM AWAY FROM WALKS AND CURBS.
7. PLANT MATERIAL SHALL BE ADJUSTED IN FIELD TO AVOID TREE ROOT BALLS.

PLANT LEGEND

Sym.	Plant Name	Size	Qty	Remarks
------	------------	------	-----	---------

~~Trees~~



Shrubs

	<i>Encelia farinosa</i>	5 gal.	14	-
	Brittlebush			
	<i>Ericameria laricifolia</i>	5 gal.	32	-
	Turpentine Bush			
	<i>Justicia californica</i> 'Yellow'	5 gal.	14	-
	Yellow Chuparosa			
	<i>Justicia californica</i>	5 gal.	5	-
	Chuparosa			
	<i>Larrea tridentata</i>	5 gal.	14	-
	Creosote			
	<i>Leucophyllum frutescens</i> 'Green Cloud'	5 gal.	11	-
	Green Cloud Sage			
	<i>Leucophyllum laevigatum</i>	5 gal.	12	-
	Chihuahuan Sage			
	<i>Leucophyllum zygophyllum</i>	5 gal.	43	-
	Blue Ranger			
	<i>Salvia clevelandii</i>	5 gal.	5	-
	Chaparral Sage			
	<i>Simmondsia chinensis</i>	5 gal.	12	-
	Jojoba			
	<i>Sphaeralcea ambigua</i>	5 gal.	34	-
	Globe Mallow			

Groundcovers

	<i>Chrysactinia mexicana</i>	5 gal.	49	-
	Damianita			
	<i>Viguiera deltoidea</i>	5 gal.	32	-
	Goldeneye			

Accents

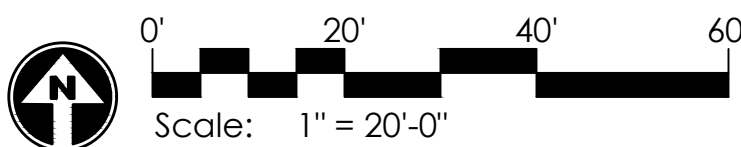
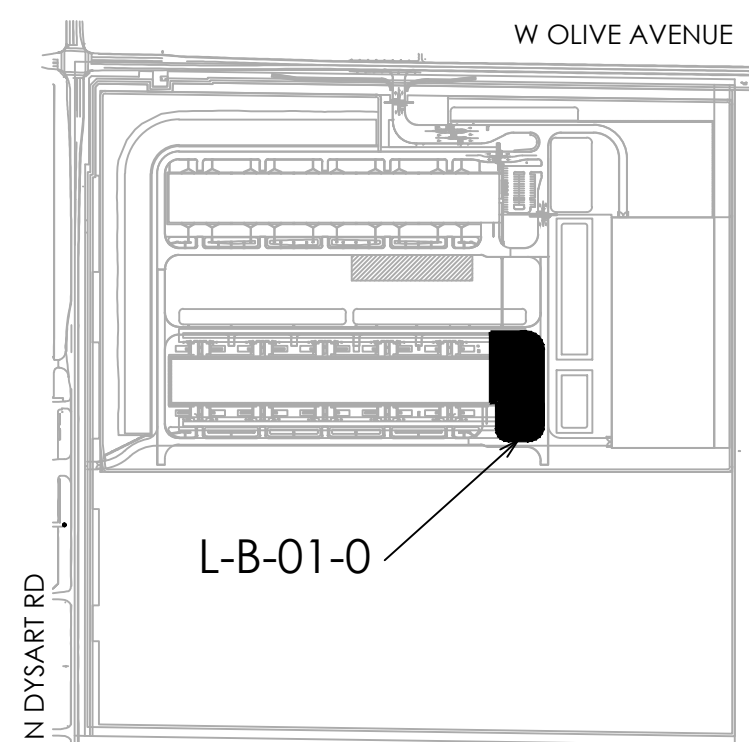
	<i>Agave perryi</i>	5 gal.	41	-
	Parry's Agave			
	<i>Asclepias subulata</i>	5 gal.	33	-
	Desert Milkweed			
	<i>Carnegiea gigantea</i>	2' min.	6	-
	Saguaro			
	<i>Echinocactus grusonii</i>	10" diam.	48	-
	Golden Barrel Cactus			
	<i>Euphorbia antisyphilitica</i>	5 gal.	30	-
	Candelilla			
	<i>Fouquieria splendens</i>	bare root	9	-
	Ocotillo			
	<i>Hesperaloe parviflora-red</i>	5 gal.	47	-
	Red Hesperaloe			
	<i>Opuntia basilaris</i>	5 gal.	4	-
	Beavertail Prickley Pear			
	<i>Opuntia engelmannii</i>	5 gal.	9	-
	Engelmann's Prickley Pear			
	<i>Opuntia violacea santa-rita</i>	15 gal.	7	-
	Purple Prickley Pear			
	<i>Yucca baccata</i>	5 gal.	5	-
	Banana Yucca			
	<i>Yucca elata</i>	5 gal.	3	-
	Soap tree Yucca			

INERTS

Sym.	Description
	3/4" DESERT GOLD DECOMPOSED GRANITE. 2" DEPTH MINIMUM.

KEY MAP

SCALE: NTS



MICROSOFT CONFIDENTIAL

APPENDIX A
REPRESENTATIVE SITE PHOTOGRAPHS



View to the south along Dysart Road (west site boundary) from the NWC of the subject property.



View to the east along West Olive Avenue (north site boundary) from the NWC of the subject property.



View to the southwest across the site from the middle of the northern site boundary of the subject property.



View to the southeast across the site from the NWC of the subject property.



View to the northeast of the north adjoining agricultural land from the NWC of the subject property.



View to the south along the irrigation canal running north to south in the middle of the subject property.



View of the irrigation supply well and pump located along the northern site boundary just east of the NWC of the subject property.



View to the southwest of the west adjoining RV & Boat Storage business, from the NWC the subject property.



View of the irrigation piping near the NWC of the subject property.



View to the south along the eastern site boundary from the NEC of the subject property.



View to the northwest of the north adjoining farmland across West Olive Avenue from the NWC of the subject property.



View to the southeast of the east adjoining property from the central portion of the eastern site boundary.



View to the southeast across the northeast portion of the subject property.



View to the west along the northern site boundary from the NEC of the subject property.



View to the southwest from the central portion of the eastern site boundary.



View to the north across West Olive Avenue from the central portion of the north site boundary.



View to the southwest across the site from the NEC of the subject property.



View to the east along West Olive Avenue from the NEC of the subject property.



View of a water standpipe in the central portion of the site from the central portion of the subject property.



View of standing water on the eastern adjoining Master Block property from near the east site boundary.



View to the northwest across the site, from near the SEC of the subject property.



View near the eastern adjoining Dakota Fabricating from near the central portion of the subject property.



View of standing water on the eastern adjoining Master Block property from near the east site boundary.



View to the west along the southern site boundary, from near the SEC of the subject property.



View of the eastern adjoining Master Block facility, from near the SEC of the subject property. Central Portion of the site.



View to the west along the central portion of the site, from near the eastern site boundary.



View to the southwest of the southern adjoining farmland, from near the SEC of the subject property.



View to the south along the irrigation canal in the central portion of the subject property.



View to the northwest across the NW portion of the site, from the central portion of the subject property.



View to the east from the central portion of the subject property.



View of the east adjoining property from the SEC of the subject property.



View to the west from the central portion of the subject property.



View to the northeast from the central portion of the subject property.



View to the north along the eastern site boundary, from near the SEC of the subject property.



View to the southwest from the central portion of the subject property.



View to the north from the central portion of the subject property.



View to the north along the western site boundary, from near the SWC of the subject property.



View to the northwest of the west adjoining property across Dysart Road, from near the SWC of the subject property.



View to the southwest from the central portion of the subject property.



View to the east along the southern site boundary, from near the SWC of the subject property.



View to the northeast across the site, from near the SWC of the subject property.



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February 17, 2021

Attention: Mr. Bryce Christo
City of El Mirage
10000 N. El Mirage Road
El Mirage, AZ 85335

Subject: PHX 81 Data Center: Traffic Statement

Dear Mr. Christo

In November 2019, a Traffic Impact Study (TIS) was submitted to the City of El Mirage by Jacobs, Inc. The study detailed the potential traffic impacts of the first of five proposed data center buildings called Lightspeed PHX 80 Data Campus located on the southeast corner of the Olive Avenue and Dysart Road intersection. Phase 1 consisted of 244,440 square foot of data center to be constructed by the end of 2021. At the time of that report, future phases of the proposed development were not known and therefore not included in the traffic review.

Phase 2 (Addition of PHX 81) of the campus is now being planned for development on the same parcel. Phase 2 will consist of one additional 244,440 square foot data center building. Below is a table summarizing the estimated trips generated by Phase 1 and 2 of the data center.

Land Use	Units	Size	Daily	AM Peak			PM Peak		
				In	Out	Total	In	Out	Total
Phase 1									
Data Center	1000 SF	244	241	15	12	27	7	15	22
Phase 2									
Data Center	1000 SF	244	241	15	12	27	7	15	22
TOTAL		488	482	30	24	54	14	30	44

Phase 2 is estimated to generate an additional 241 daily, 27 AM Peak hour, and 22 PM Peak hour trips. Once Phase 2 is complete the entire site is estimated to generate 482 daily, 54 AM Peak hour, and 44 PM peak hour trips.

A revision to the previously submitted PHX 80 TIS (Nov. 2019) will be completed detailing any impacts due to Phase 2 of the proposed data center. The revision will be submitted to the City with Building and Engineering plans for permit.

Regards,

Mike Heugh, PE
Traffic Engineer
720.286.5456
michael.heugh@jacobs.com



PHX 80-81

City of El Mirage

Sewer Report



Project No: D3127025
Document Title: Sewer Report
Revision: 0
Date: February 18, 2021

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Contents

Executive Summary	1
1. Introduction	2
2. Projected Wastewater Flows	3
2.1 Clear Water Discharge.....	3
3. Existing Sewer System.....	5
4. System Improvements.....	6
5. Lift Station Models and Design	7
5.1 CWD Lift Station Analysis	7
5.2 SAN Lift Station Analysis	7
6. Conclusion	8

Appendix A. Vicinity Map

Appendix B. Discharge Calculations

Appendix C. Lift Station Calculations

Executive Summary

This Sewer Report is prepared for the City of El Mirage for the PHX 80-81 project. The project is in the City of El Mirage and will utilize sanitary sewer infrastructure that is managed by the city. The project is for the construction of a second datacenter (PHX 81), in addition to an existing datacenter (PHX 80), with full buildout of up to five datacenters in future phases.

This report summarizes the result of a sewer flow model that demonstrates the connection of two lift stations for clear water and sanitary sewer flows for one new building. The lift stations will pump to respective force mains and connect to existing city infrastructure.

Peak CWD flows from PHX 80 and PHX 81 will exceed the capacity of the existing CWD lift station.

1. Introduction

The purpose of this report is to detail the additional flows the proposed PHX 80-81 project will convey to the existing sewer conveyance infrastructure managed by the city of El Mirage. The site is located within the City of El Mirage, AZ, and encompasses approximately 150 acres. The project site is bounded by W Olive Ave to the north and N Dysart Rd to the west.

One new data center building will be constructed as part of the project, addition to an existing datacenter building, with future expansion to up to five buildings. The first phase of the project involved the construction of on-site utilities to serve a single building, the construction of two lift stations, one for clear water discharge (CWD) and one for sanitary sewer discharge (SAN), and the construction of two force mains that connected to an existing sewer main.

2. Projected Wastewater Flows

The primary discharge from the data center is from the air handling units (AHUs) that cool the buildings. There will also be minor discharge from domestic use.

2.1 Clear Water Discharge

Each of the buildings will be cooled by air handling units (AHUs) that require cooling water when the ambient air temperature rises above 85° F. Each AHU has a 130 gallon (gal) sump that is filled using clear water supplied by the City of El Mirage.

At temperatures above 85° F, the AHUs will use the product water stored in the 130-gal sump. The water is cycled through the AHU and evaporates or is purged (blown down) when a sensor that detects conductivity of the water recirculating between the basin and evaporative media exceeds a certain threshold. Blown down water will enter the city sewer system through on-site clear water drain (CWD) piping and is replaced in the unit with additional clear water. The difference between the conductivity of the clear water and the conductivity at the point of blowdown is referred to as the cycles of concentration (COC), which is a function of the water chemistry of the clear water. The COC determines the ratio of blowdown to clear water and thus the amount of blowdown discharged to the sewer system. Based on the target conductivity of the clear water, the COC within the AHUs will be set to 2.

As water is evaporated and blowdown occurs, the AHU sump is refilled with clear water. PHX 80 and PHX 81 have different basin fill and makeup flow rates due to different IT loads. The volume of water consumed by each datacenter was determined using BIN weather hourly temperature data for Phoenix, AZ. Factors including dry bulb and wet bulb temperatures, humidity ratio, and discharge temperature were used to calculate the water consumed by the AHUs to perform evaporative cooling. Overall, the volume of water discharged from the AHUs will be 50% of the volume of water consumed for evaporative cooling. Detailed calculations and data tables are included in Appendix B.

AHU operation does not introduce any salt waste into the flow stream. As a result, brine concentrations are not a concern and the water discharged from the AHUs does not require supplemental treatment.

The AHUs will purge water to CWD piping that is collected at an on-site lift station. The lift station will pump the CWD to an off-site main on W Olive Ave.

A single data center building will have 160 AHUs. In normal operation, the maximum hourly instantaneous discharge for PHX 80 will be 348.8 gpm and for PHX 81 will be 374.8 gpm. Assuming a worst-case condition where all AHUs in both buildings are blowing down simultaneously, the peak discharge for PHX 80 will be 421.6 gpm and 542.4 gpm for PHX 81. The maximum blowdown scenario is unlikely but will last for duration of AHU blowdown, which will discharge a total of 20,944 gal for each building.

The projected instantaneous CWD flows for an average day and max day are presented by phase in Table 1.

Table 1: Instantaneous CWD by Phase

Discharge Type	Max Hourly Average (gpm)	Max Blowdown (gpm)
PHX 80	348.6	421.6
PHX 81	374.8	542.4
Total (PHX 80 + PHX 81)	723.6	964

The breakdown of total discharge volume across average and max days is presented in Table 2.

Table 2: Total CWD Discharge Volumes

Building	Average Day Volume (gal/day)	Total Annual Volume (gal/yr)
PHX 80	348,808	30,965,725
PHX 81	375,100	33,279,306
Total (PHX 80 + PHX 81)	723,908	64,245,031

2.2 Sanitary Sewer Discharge

In addition to discharge from the AHUs, each building is expected to have an additional sanitary sewer (SAN) discharge of 328 gallons per day from domestic use. This is based upon an anticipated occupancy of 64 people and 260 annual working days. SAN flows will be collected at an on-site lift station. The lift station will pump the SAN to an off-site main on W Olive Ave. Detailed calculations are shown in Appendix B.

The breakdown of total discharge volumes for an average day and annually is presented in Table 3.

Table 3: Total SAN Discharge Volumes

Building	Average Day Volume (gal/day)	Total Annual Volume (gal/yr)
PHX 80	328	85,280
PHX 81	328	85,280
Total (PHX 80 + PHX 81)	685	178,100

3. Existing Sewer System

No off-site system for CWD or SAN currently exists near the project. The nearest existing sewer manhole is approximately 2200 ft away from the project site to the east in Olive Avenue. The City has indicated that existing infrastructure is capable of handling CWD and SAN flows for the first phase of the project.

4. System Improvements

Industrial water will discharge to CWD piping and domestic water will discharge to Sanitary Sewer (SAN) piping. The two piping systems remain separate and each flow to separate lift stations on the eastern side of the project site. Flows from the two lift stations will be conveyed via separate force mains, a 4-inch SAN force main, and 8-inch CWD force main, that connect to an existing City of El Mirage sewer main along W Olive Ave. The two lift stations will be vendor package systems that are pre-engineered and sized appropriately for the respective CWD and SAN flows. The wet wells will be equipped with level sensors that will trigger an audio-visual alarm at the lift station and control center if fluid levels are excessively low or high.

Peak CWD flows from PHX 80 and PHX 81 will exceed the capacity of the existing CWD lift station. Improvements to the existing CWD lift station or expansion of CWD pumping capacity are required to handle peak flows from PHX 80 and PHX 81.

5. Lift Station Models and Design

The lift station models were developed using AFT Fathom 10 Software.

The following assumptions were made:

- The Hazen-Williams equation was used to calculate hydraulic losses, with a C value of 130.
- Only flows from PHX 80 and PHX 81 are considered for CWD and SAN flow rates.
- The force main design is preliminary and is subject to change.
- The lift stations will each contain two constant speed pumps, in duty/standby configuration, that will operate based on the water level inside the pump stations.
- The lift stations will include all appropriate valves on the discharge piping (gate valves, check valves, air release valves).
- Valves and discharge piping for the CWD lift station will be above ground on a concrete pad.
- Valves and discharge piping for the SAN lift station will be in an underground vault.

5.1 CWD Lift Station Analysis

The CWD lift station pumps have a design flow rate of 843 gpm, which provides capacity for twice the projected maximum CWD discharge rate from a single building. This allows for a pump cycle time of 5 minutes at the highest flow condition. The pumps discharge to an 8-inch force main at a velocity of 5.1 ft/sec.

Detailed lift station sizing and flow calculations are included in Appendix C.

The CWD lift station was designed to accommodate flows from PHX 80 only. The combined peak blowdown flows from PHX 80 and PHX 81 creates CWD a CWD flow rate of 964 gpm, which exceeds the design flow of a single CWD pump. Improvements to the existing CWD lift station or an additional lift station are required to the new peak flow.

5.2 SAN Lift Station Analysis

The SAN lift station pumps will each have a design flow rate of 170 gpm. Generally, SAN flow rates are expected to be very low. A projected daily discharge volume of 328 gallons for each building, for a total of 656 gallons, will activate the pumps to cycle twice in a 24-hour period. An air mixing system will be included with the SAN lift station to prevent the retained sewage from becoming septic. The air mixing system will not run while the pumps are in operation.

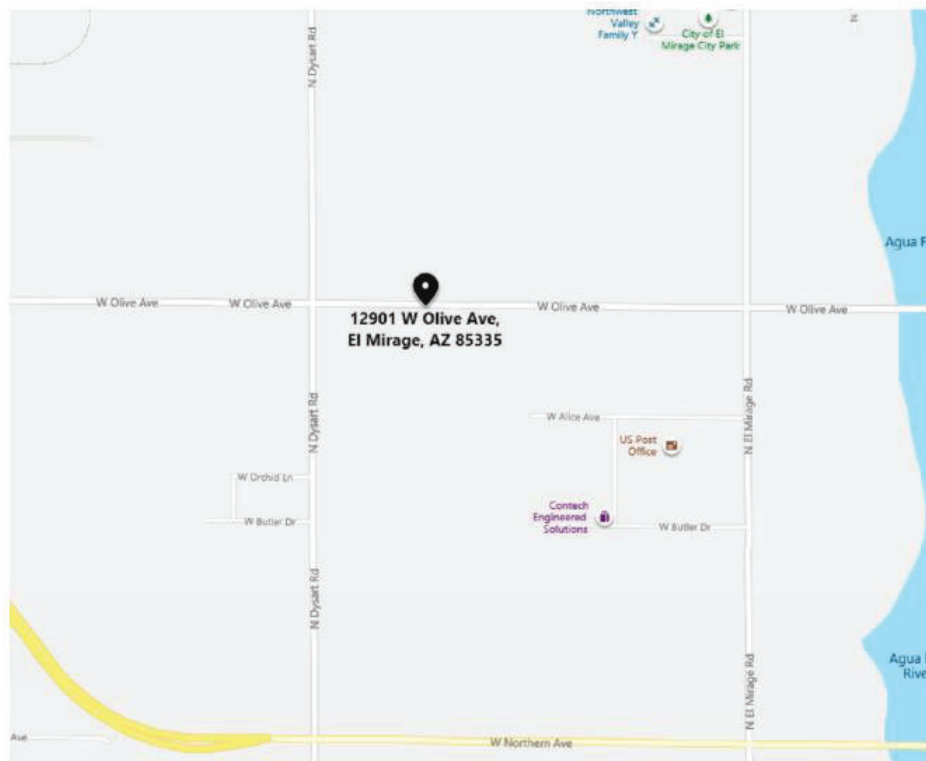
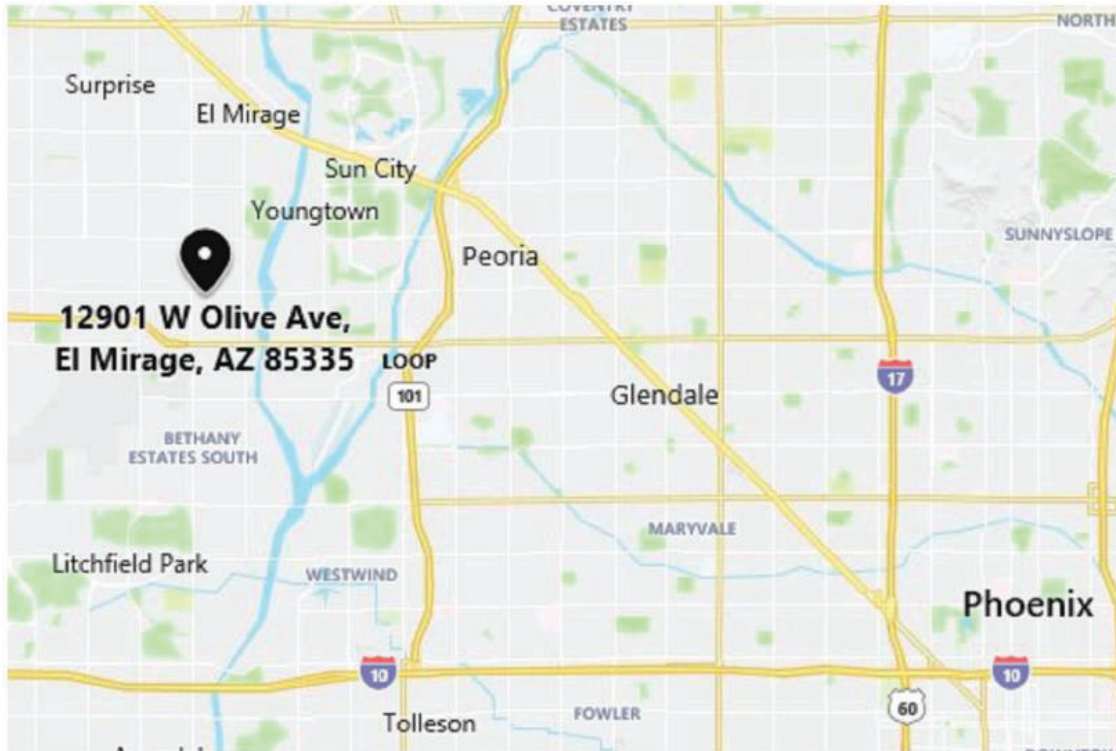
The pumps will discharge to a 4-inch force main with a velocity of 4.2 ft/sec.

Detailed lift station sizing and flow calculations are included in Appendix C.

6. Conclusion

The design of the lift stations only considered the first phase of the project, which included flows for PHX 80 only. The existing CWD lift station will require improvements to ensure peak flows from both PHX 80 and PHX 81 can be handled. The SAN lift station is capable of pumping flows from both PHX 80 and PHX 81 without requiring additional improvements.

Appendix A. Vicinity Map



Appendix B. Discharge Calculations

B.1 Industrial Water

AHU Performance Parameters:

Parameter	PHX 80	PHX 81
Evaporative Media:	Silent Aire	Silent Aire
Saturation Efficiency:	0.93	0.93
Air Pressure (PSIa)	14.12	14.12
Air Flow Rate (CFM)	37266.00	40075.00
Air Density (lb/cu ft)	0.0667	0.0667
Basin Volume (gal)	130.90	130.90
Target SA Temp (F)	85	85
Target SA RH	0.1	0.1
AHUs per Bldg (ea)	160	160
COC	2.0	2.0
Blowdown Ratio	1	1
Max Fill Rate (gpm)	5.27	6.79
Max Discharge Rate (gpm)	2.63	3.39

Water Discharge:

Building	PHX 80	PHX 81
Annual Water Discharge (gal)	30965725.4	33279306.5
Max AHU Evap (GPH)	130.7	140.5
Max COLO Evap (GPH)	4182.3	4497.6
Max Evap (GPH)	20911.7	22487.9
Max humidification (GPH)	3853.2	4143.7

Max Instantaneous Discharge (Blowdown):

Building	GPM/AHU	8 AHUs/Cell	4 Cells/Colo	5 Colos/Bldg
PHX 80	2.635	21.08	84.32	421.6
PHX 81	3.39	27.12	108.48	542.4
Total (gpm)				964.0

Max Instantaneous Discharge (Blowdown) by Colo Online:

Building	Colo 1 (gpm)	Colo 2 (gpm)	Colo 3 (gpm)	Colo 4 (gpm)	Colo 5 (gpm)
PHX 80	84.32	168.64	252.96	337.28	421.6
PHX 81	108.48	216.96	325.44	433.92	542.4
Total (gpm)					964.0

B.2 Domestic Water Demand and Discharge

Non-residential Buildings					
Baseline Case: change occupant values to reflect anticipated occupancy					
Fixture Type	Consumption	Daily Uses	Duration	Occupants	Daily Water Use (gal)
1.6 gpf toilet - male (gallons per flush)	1.6	1	1	32	51
1.6 gpf toilet - female (gallons per flush)	1.6	3	1	32	154
1.0 gpf urinal - male (gallons per flush)	1	2	1	32	64
Commercial Lavatory Faucet - 0.5 gpm	0.5	3	0.25	64	24
Kitchen sink - 2.2 gpm	2.2	1	0.25	64	35
Showerhead - 2.5 gpm	2.5	0.1	8	0	-
				Total Daily Volume	328
				Annual Work Days	260
				Total Annual Usage	85,280

Appendix C. Lift Station Calculations

C.1 CWD Lift Station Sizing Calculation

Project Information

Project:	PHX 80
System:	CWD Lift Station
Job No.:	
By:	James Wang
Date:	14-Nov-19

Input
Output

Cycle Time Calculation: $T = Vq / i(q-i)$

T = Cycle Time (time to fill, plus time to empty)

V = Active Volume Between LWL & HWL Setpoints

q = Pump Flow Rate

i = Inflow Rate to Sump

$$V_{cf} = (Q_{cfm} \times P_{min}) / 4$$

$V_{(cf)}$ = Working Volume

$Q_{(cfm)}$ = Pump Capacity

$P_{(min)}$ = Min Cycle Time, Start-to-Start

ROUND SUMPS:

	Exact	Sizing		
Sump Diameter	6	6	ft	
Pump ON Level	1067.25	1067.25	ft	
Pump OFF Level	1062	1062	ft	
Pump Capacity:	843	845	gpm	(q)
Level Differential:	5.25	5.25	ft	
Wet-Well Volume Between On/Off:	148.44	148.44	ft ³	
Wet-Well Volume Between On/Off:	1110	1110	gal	(V)
Wet-Well Inflow (Worst Case = 0.5 x Pump Capacity):	422	423	gpm	(i)
Cycle Time:	5.27	5.26	min	(T)
Volume to Discharge Ratio (Reference Only):	1.32	1.31		(V/q)
Starts Per Hour:	11.39	11.41		

C.2 SAN Lift Station Sizing Calculation

Project Information

Project:	PHX 80
System:	SAN Lift Station
Job No.:	
By:	James Wang
Date:	14-Nov-19

Input
Output

Cycle Time Calculation: $T = Vq / i(q-i)$

T = Cycle Time (time to fill, plus time to empty)

V = Active Volume Between LWL & HWL Setpoints

q = Pump Flow Rate

i = Inflow Rate to Sump

$$V_{cf} = (Q_{cfm} \times P_{min}) / 4$$

$V_{(cf)}$ = Working Volume

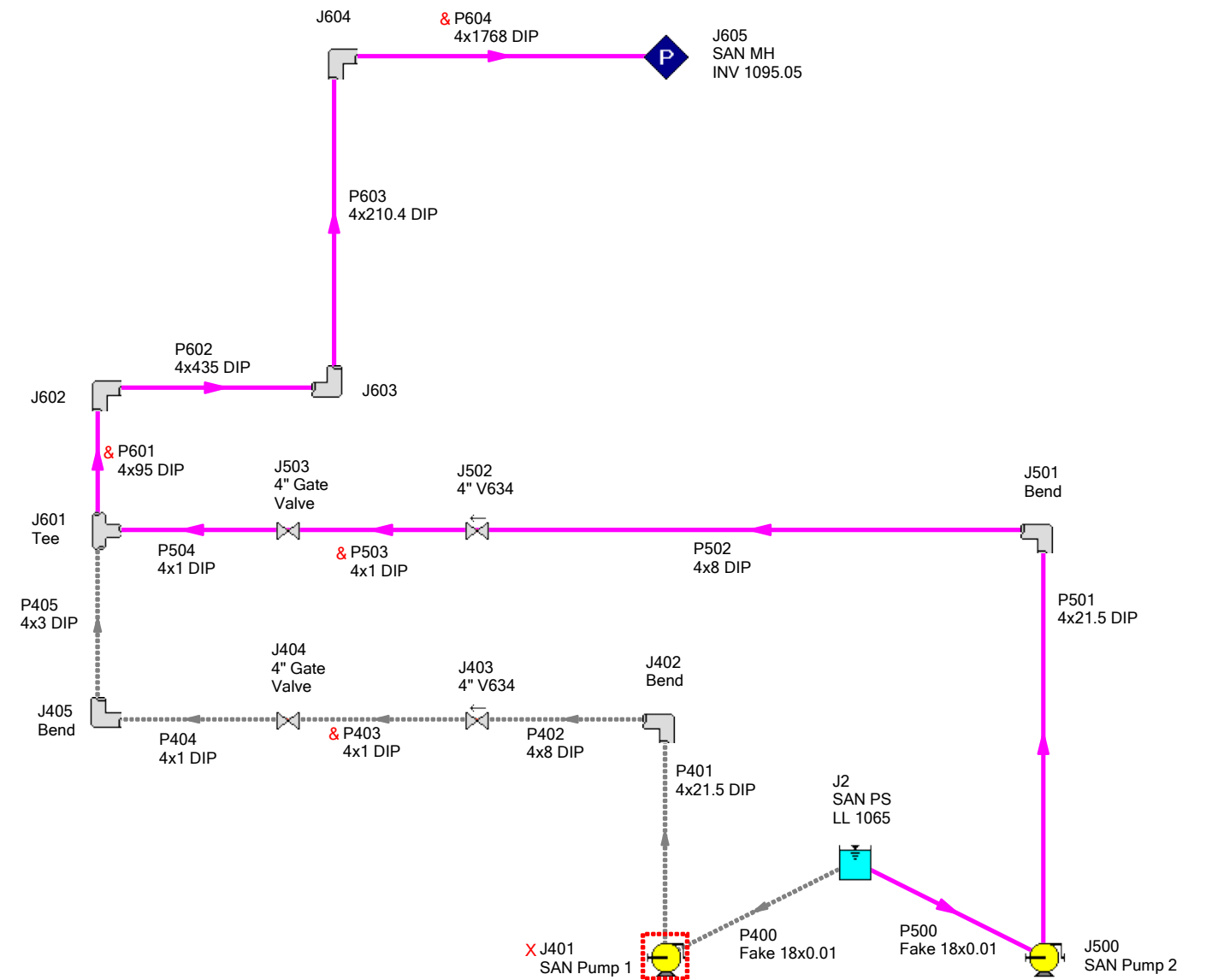
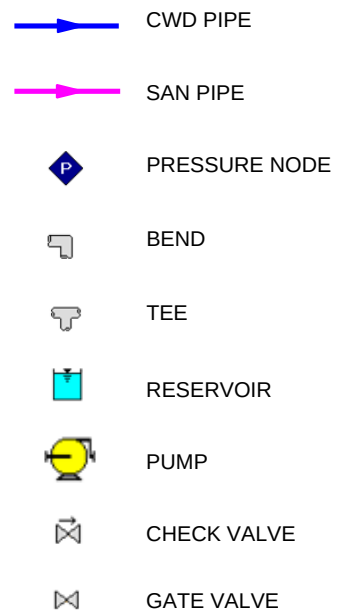
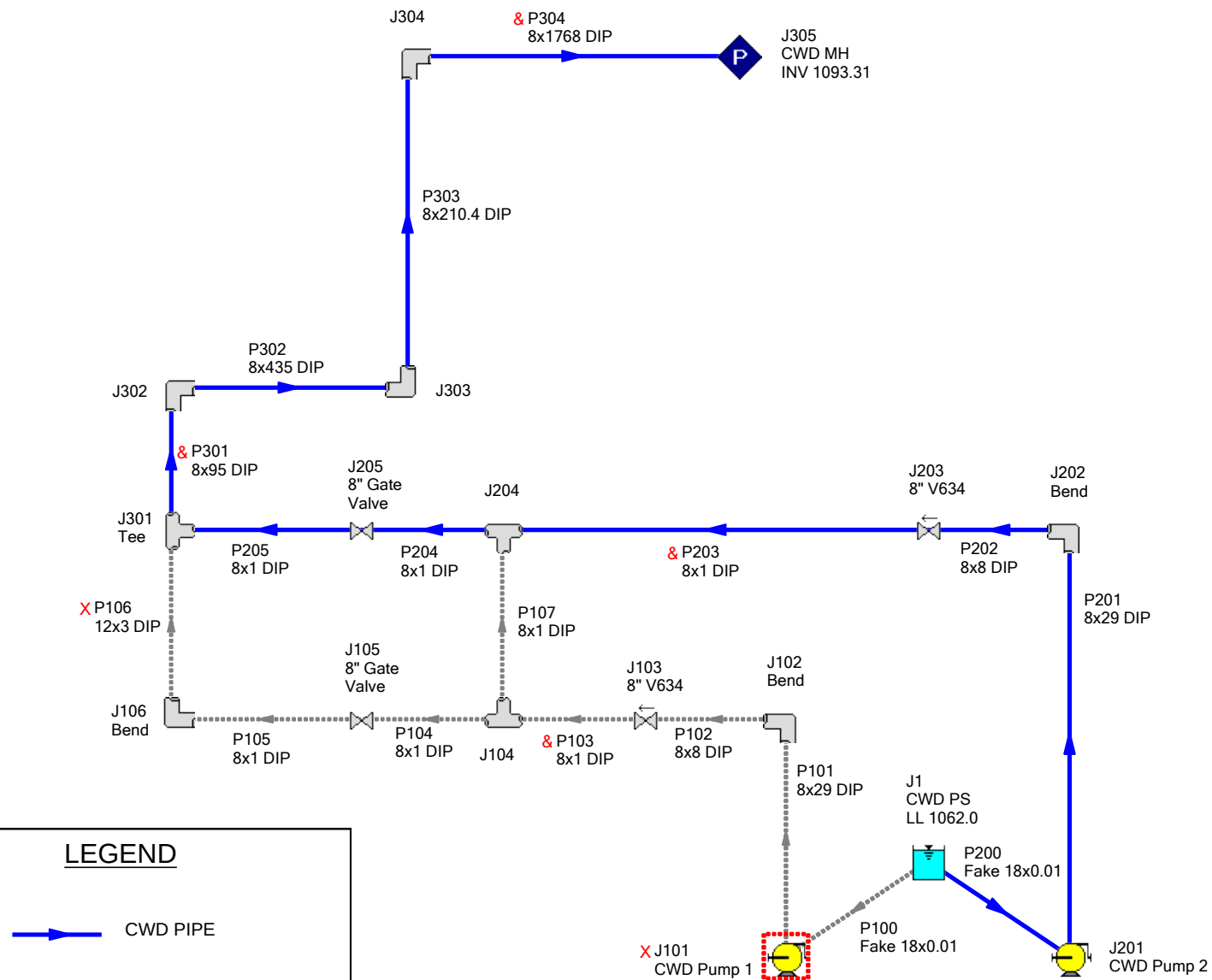
$Q_{(cfm)}$ = Pump Capacity

$P_{(min)}$ = Min Cycle Time, Start-to-Start

ROUND SUMPS:

	Exact	Sizing		
Sump Diameter	6	6	ft	
Pump ON Level	1066	1066	ft	
Pump OFF Level	1065	1065	ft	
Pump Capacity:	169.2	170	gpm	(q)
Level Differential:	1.00	1.00	ft	
Wet-Well Volume Between On/Off:	28.27	28.27	ft ³	
Wet-Well Volume Between On/Off:	212	212	gal	(V)
Wet-Well Inflow (Worst Case = 0.5 x Pump Capacity):	84.6	85.0	gpm	(i)
Cycle Time:	5.00	4.98	min	(T)
Volume to Discharge Ratio (Reference Only):	1.25	1.24		(V/q)
Starts Per Hour:	12.00	12.06		

C.3 CWD and SAN Model Overview



1. DOUBLE-LEAF ALUMINUM ACCESS DOOR WITH ALUMINUM OSHA FALL PROTECTION GRATING AND TYPE 316 HARDWARE. DESIGN FOR 300 PSF LIVE LOAD.
2. COORDINATE HATCH SIZE AND LOCATION AS REQUIRED TO PERMIT INSTALLATION AND REMOVAL OF PUMPS.
3. SEE MATERIAL SPECIFICATIONS TABLE BELOW.
4. ALL CONCRETE ANCHORS WITHIN THE WETWELL SHALL BE 316 SST, ADHESIVE TYPE.
5. PRECAST UNITS WITH VALVE BOX INTEGRAL WITH WET WELL ARE ACCEPTABLE.
6. INSTALL WITH FLOW METER MANUFACTURER'S RECOMMENDED UPSTREAM AND DOWNSTREAM STRAIGHT PIPE LENGTHS.
7. FORCE MAINS SHALL BE DESIGNED TO WITHSTAND A PRESSURE OF 50 PSI OR MORE ABOVE THE DESIGN WORKING PRESSURE FOR TWO HOURS AND BE TESTED UPON COMPLETION TO ENSURE NO LEAKAGE PER R18-9-E301-D.4.f AND MAG 615.11/610.15.
8. MANHOLES SHALL BE EPOXY COATED IN ACCORDANCE WITH CITY OF EL MIRAGE DESIGN & DEVELOPMENT STANDARDS MANUAL, 2019, WITH A MINIMUM WET FILM THICKNESS OF 125 MILS. THE EPOXY COATING SYSTEM SHALL BE ONE OF THE FOLLOWING: RLS RAVEN 405, SAURESEN SEWERGARD NO. 210, OR ENVIRONMENTAL COATINGS SEWER SHIELD 150.
9. AFFIX ON EXTERIOR AT LEAST ONE WARNING SIGN THAT INCLUDES THE 24-HOUR EMERGENCY PHONE NUMBER OF THE OWNER AND OPERATOR OF THE LIFT STATION, PER R18-9-E301-D.5.a.

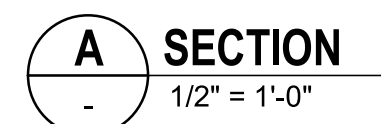
PUMP: SPECIFICATION SECTION 44 42 56.04B, SUBMERSIBLE PUMPS



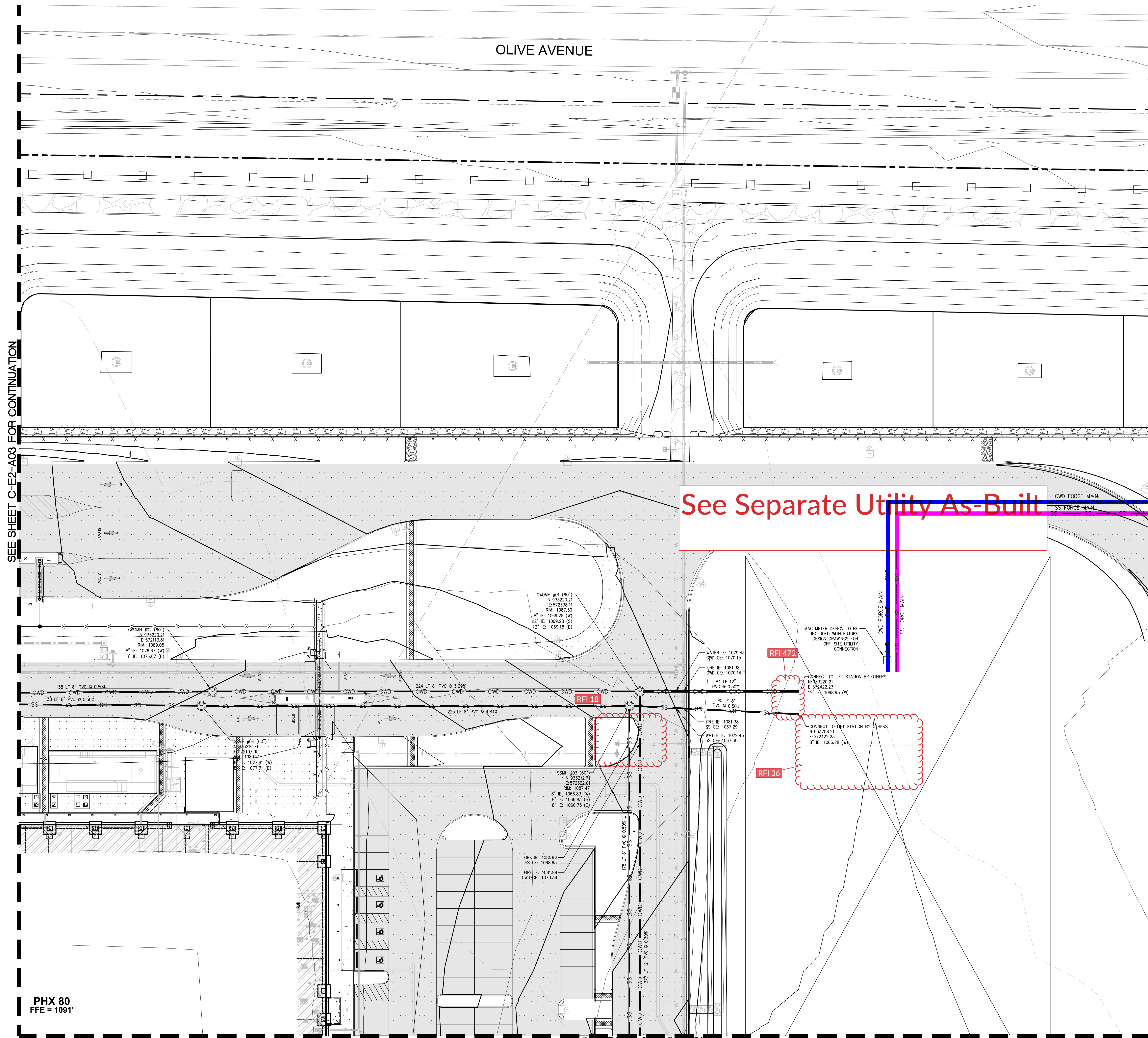
PHX80-C-C-01-S

1. DOUBLE-LEAF ALUMINUM ACCESS DOOR WITH ALUMINUM OSHA FALL PROTECTION GRATING AND TYPE 316 HARDWARE. DESIGN FOR 300 PSF LIVE LOAD.
2. COORDINATE HATCH SIZE AND LOCATION AS REQUIRED TO PERMIT INSTALLATION AND REMOVAL OF PUMPS.
3. SEE MATERIAL SPECIFICATIONS TABLE BELOW.
4. ALL CONCRETE ANCHORS WITHIN THE WETWELL SHALL BE 316 SST, ADHESIVE TYPE.
5. AIR MIXING SYSTEM TO RUN WHEN PUMPS ARE NOT OPERATING. MIXING SYSTEM NOT TO RUN WHEN PUMPS ARE OPERATING.
6. PRECAST UNITS WITH VALVE BOX INTEGRAL TO WET WELL ARE ACCEPTABLE.
7. MAINS SHALL BE DESIGNED TO WITHSTAND A PRESSURE OF 50 PSI OR MORE ABOVE THE DESIGN WORKING PRESSURE FOR TWO HOURS AND BE TESTED UPON COMPLETION TO ENSURE NO LEAKAGE PER R18-9-E301-D.4.f AND MAG 615.11/610.15.
8. MANHOLES SHALL BE EPOXY COATED IN ACCORDANCE WITH CITY OF EL MIRAGE DESIGN & DEVELOPMENT STANDARDS MANUAL, 2019, WITH A MINIMUM WET FILM THICKNESS OF 125 MILS. THE EPOXY COATING SYSTEM SHALL BE ONE OF THE FOLLOWING: RLS RAVEN 405, SAUREISEN SEWERGARD N. 210, OR ENVIRONMENTAL COATINGS SEWER SHIELD 150.
9. AFFIX ON EXTERIOR AT LEAST ONE WARNING SIGN THAT INCLUDES THE 24-HOUR EMERGENCY PHONE NUMBER OF THE OWNER AND OPERATOR OF THE LIFT STATION, PER R18-9-E301-D.5.a.

PRECAST CONCRETE VAULT: SPECIFICATION SECTION
33 05 16.13, PRECAST CONCRETE UTILITY STRUCTURE



SEE SHEET C-E2-A03 FOR CONTINUATION

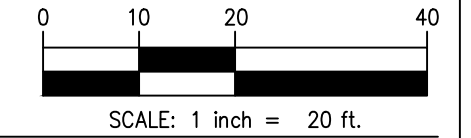


SEE SHEET C-E2-B04 FOR CONTINUATION

LEGEND

---	PROPERTY LINE
---	PROPOSED BUILDING
SS	SANITARY SEWER PIPE (406 C-F-4)
CWD	CLEAR WATER DISCHARGE PIPE (406 C-F-4)
⊙	SEWER MANHOLE (420 C-F-4) (422 C-F-4)
•	CLEANOUT (441 C-F-4)
○	WYE / BEND (1 C-F-4)
---	CONCRETE ENCASEMENT FOR WATER/SEWER SEPARATION (404 C-F-4)

NOTES:
1. CIVIL AND UTILITY DESIGN INCLUDED IS BASED ON ASSUMPTIONS FOR WATER AND SEWER CONNECTIONS WHICH ARE YET TO BE DETERMINED. CIVIL AND UTILITY DESIGN WILL BE CONFIRMED UPON REVIEW AND CONFIRMATION WITH WATER AND SEWER DESIGN DONE BY OTHERS.



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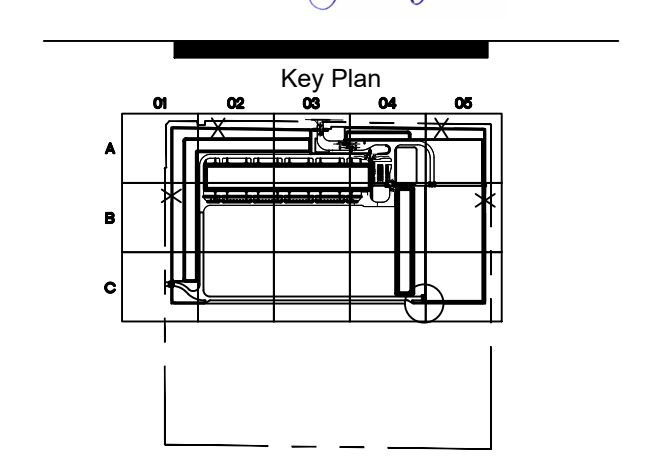
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1	08/01/2019
2	08/17/2019
3	08/20/2019
4	08/20/2019
5	08/20/2019
6	08/20/2019
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8	08/20/2019
9	08/20/2019
10	08/20/2019
11	08/20/2019
12	08/20/2019
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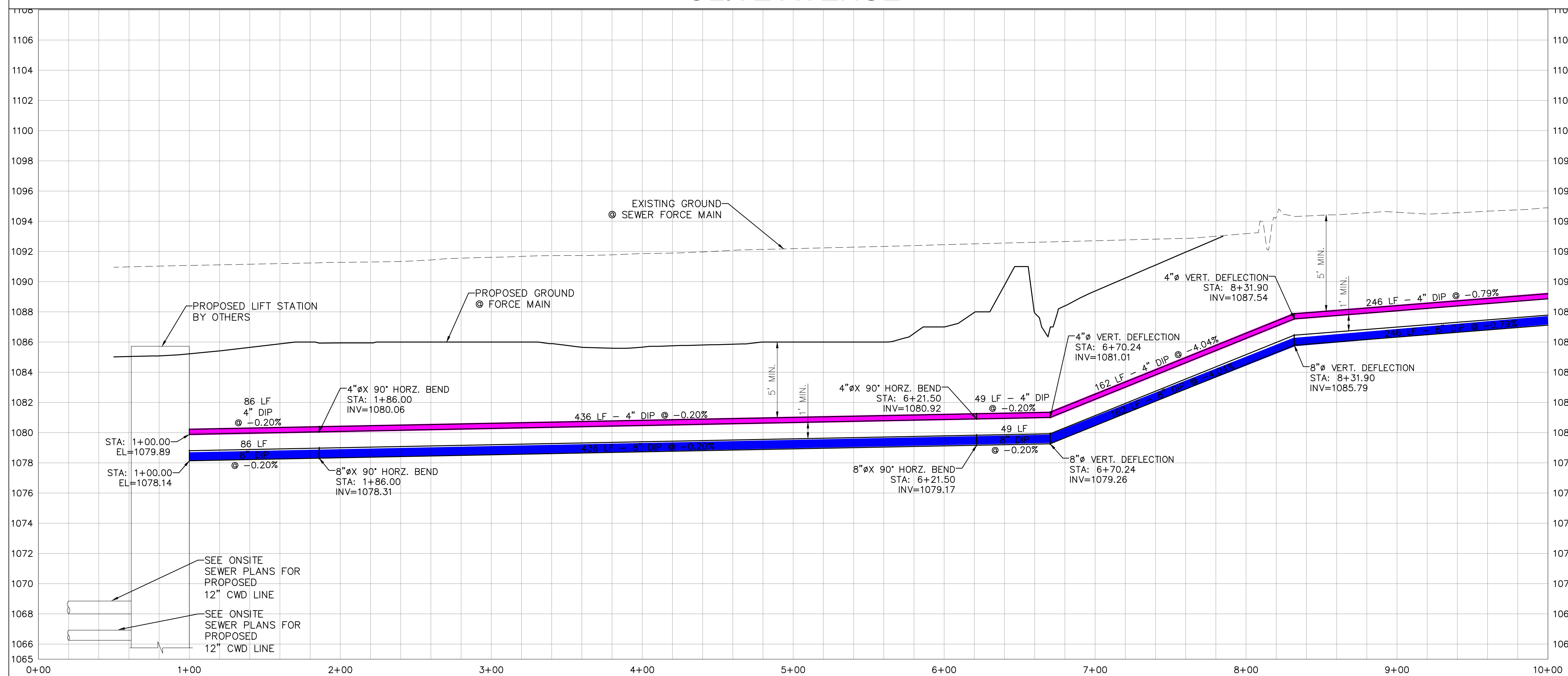
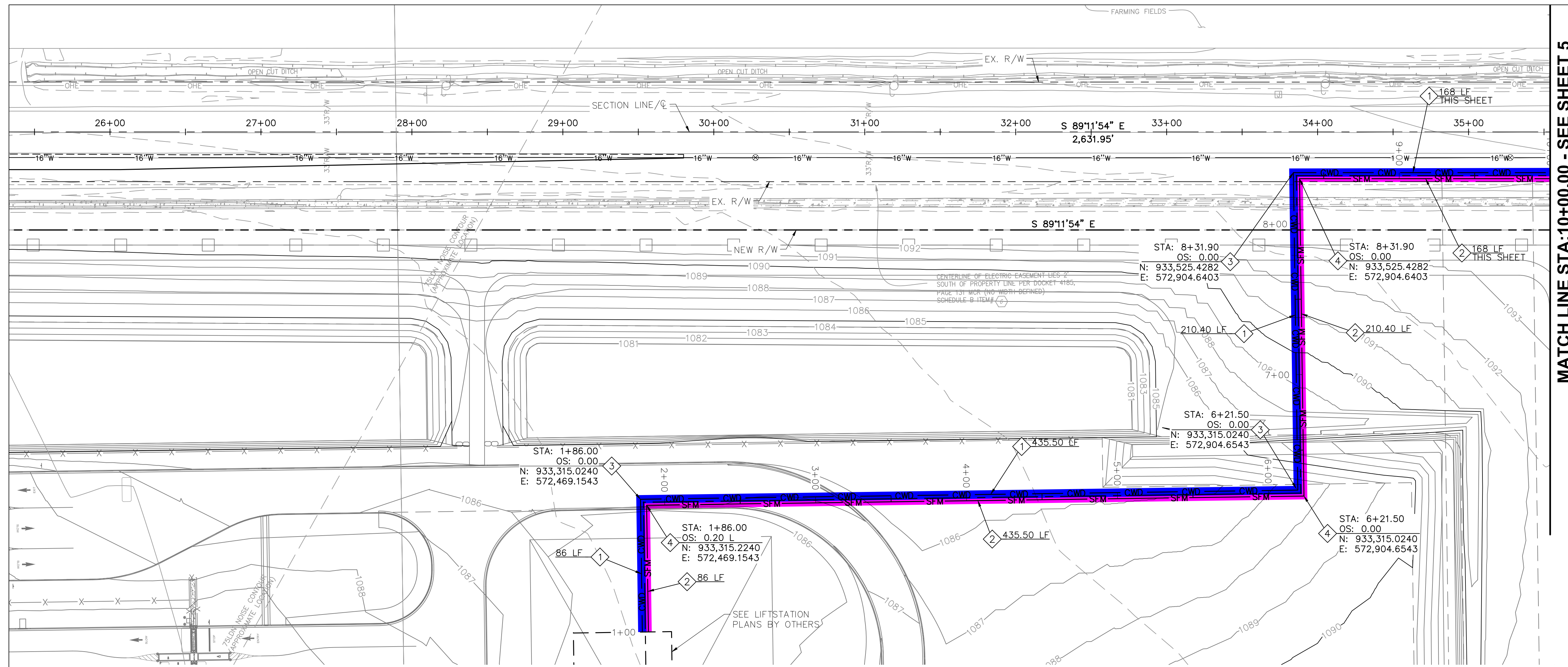
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Sheet Title/Number
**CIVIL CLEAR
WATER
DISCHARGE AND
SANITARY SEWER
PLAN
C-E2-A04**





CONSTRUCTION NOTES

- | SEWER NOTES | |
|-------------|---|
| 1 | INSTALL 8" PRESSURE CLASS 350 DUCTILE IRON PIPE CWD PIPE (POLYWRAPPED AND RESTRAIN ALL JOINTS). |
| 2 | INSTALL 4" PRESSURE CLASS 350 DUCTILE IRON PIPE SANITARY SEWER FORCE MAIN PIPE (POLYWRAPPED AND RESTRAIN ALL JOINTS). |
| 3 | INSTALL 8"-90" DIP BEND WITH RESTRAINTS PER MAG STD DET 303. |
| 4 | INSTALL 8"-90" DIP BEND WITH RESTRAINTS PER MAG STD DET 303. |



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Drawn	RMR
Checked	MAJ
IMEG Project No.	19002191.00
M.S. Project No.	

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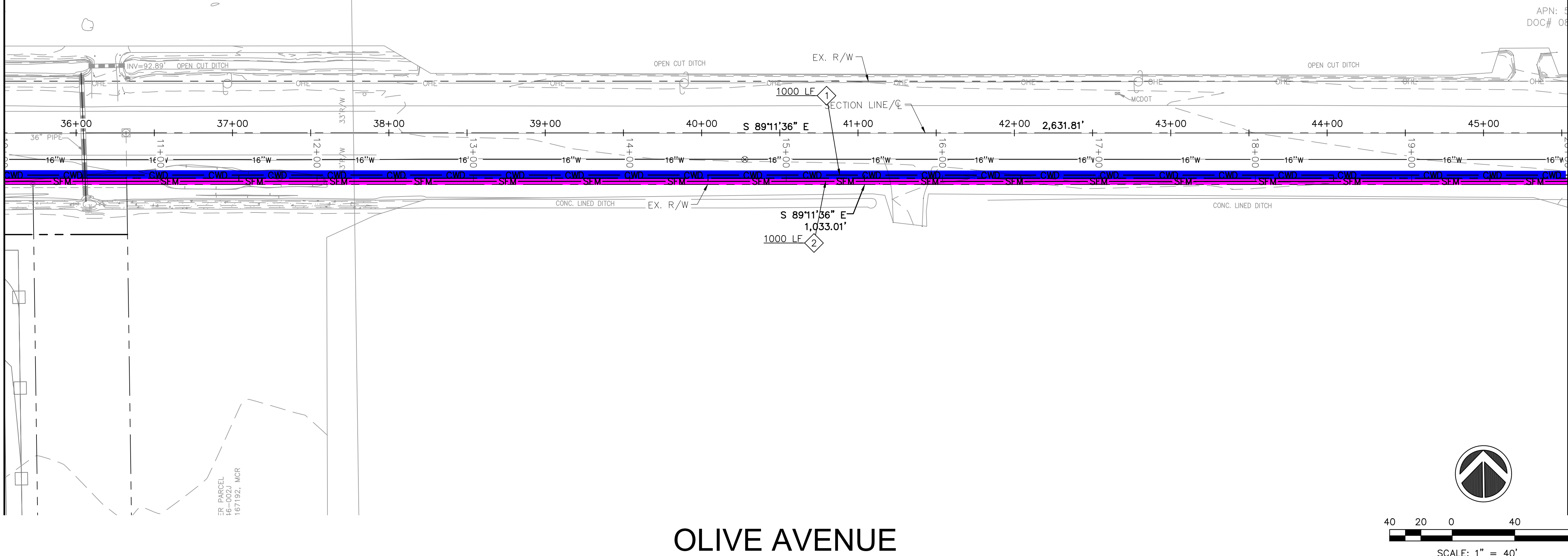
OLIVE AVENUE SEWER
FORCE MAIN

SFM-4

SHEET 4 OF 6

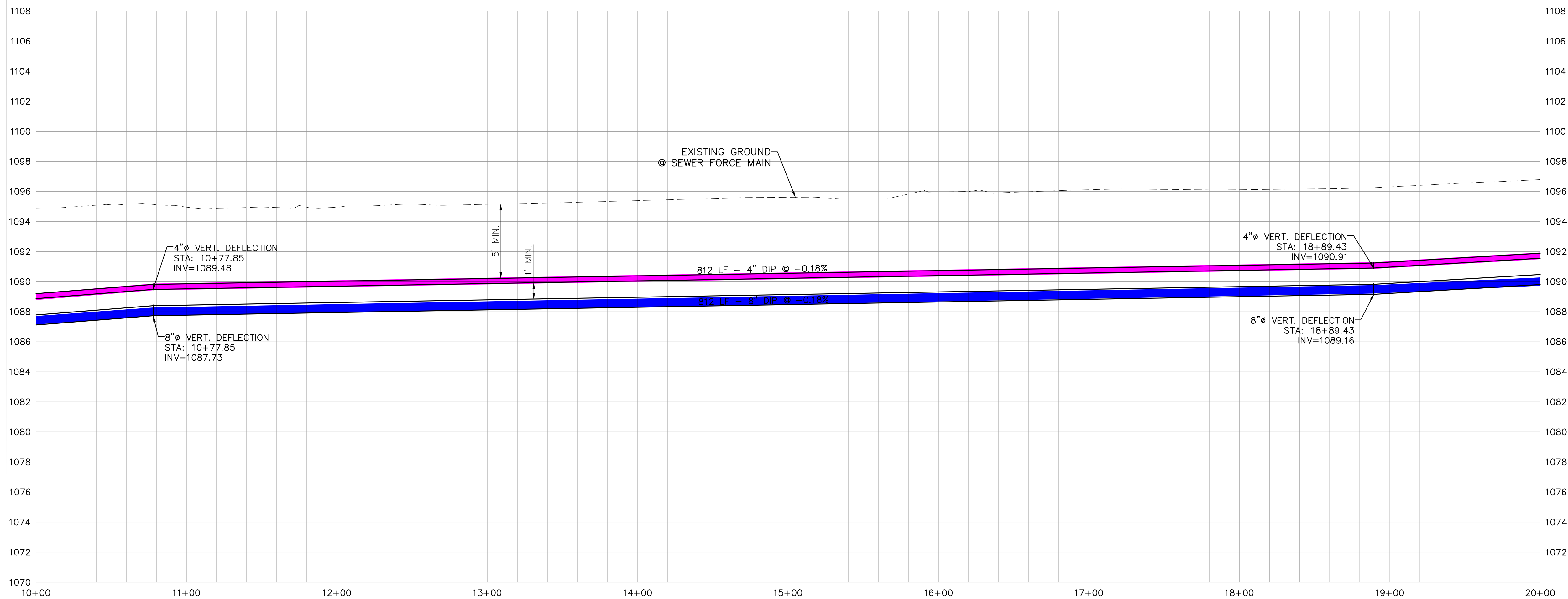


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OLIVE AVENUE

PROFILE VIEW OF FORCEMAIN-CL
HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 4'



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CONSTRUCTION NOTES

- SEWER NOTES

 1. INSTALL 8" PRESSURE CLASS 350 DUCTILE IRON PIPE CWD PIPE (POLYWRAPPED AND RESTRAIN ALL JOINTS).
 2. INSTALL 4" PRESSURE CLASS 350 DUCTILE IRON PIPE SANITARY SEWER FORCE MAIN PIPE (POLYWRAPPED AND RESTRAIN ALL JOINTS).



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Project Planner	Date
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FORCE MAIN

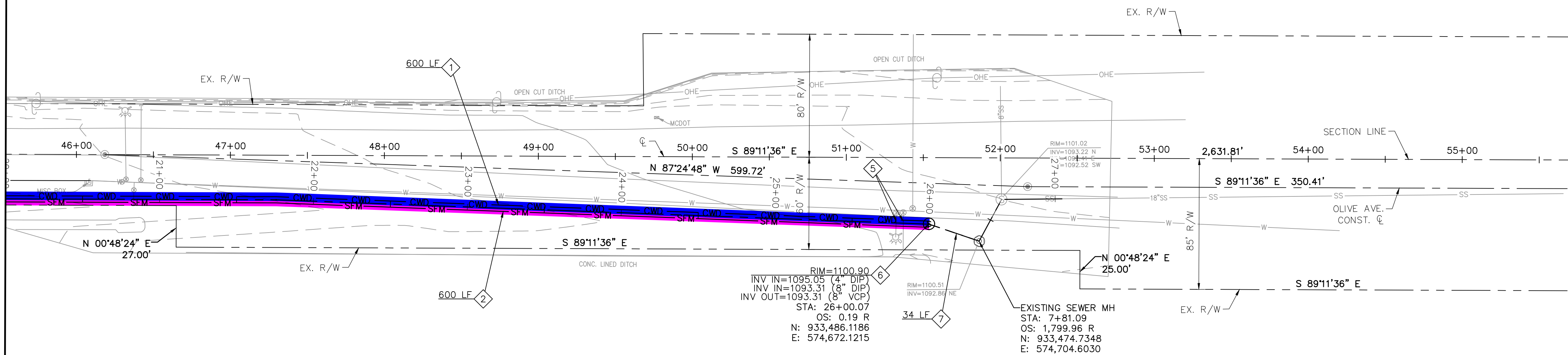
SFM-5

SHEET 5 OF 6

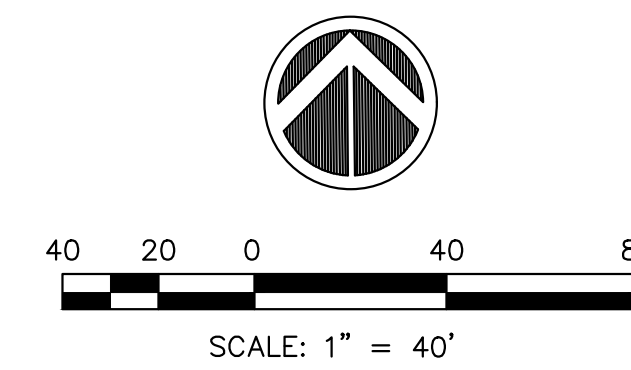


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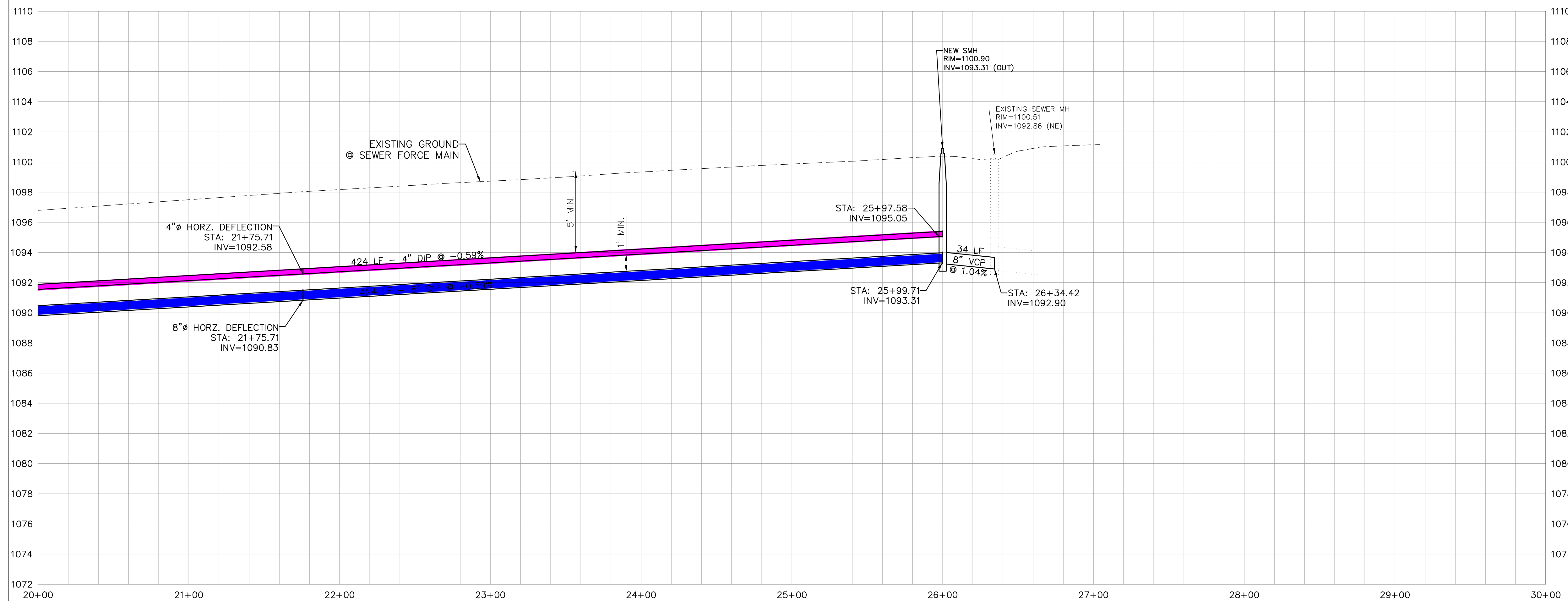
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OLIVE AVENUE



PROFILE VIEW OF FORCEMAIN-CL
HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 4'



CONSTRUCTION NOTES

- | SEWER NOTES | |
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| 1 | INSTALL 8" PRESSURE CLASS 350 DUCTILE IRON PIPE CWD PIPE (POLYWRAPPED AND RESTRAIN ALL JOINTS). |
| 2 | INSTALL 4" PRESSURE CLASS 350 DUCTILE IRON PIPE SANITARY SEWER FORCE MAIN PIPE (POLYWRAPPED AND RESTRAIN ALL JOINTS). |
| 3 | UTILITY CROSSING, PROVIDED SEPARATION PER MAG STD DET 404 |
| 6 | INSTALL MODIFIED 5' SANITARY SEWER MANHOLE PER MAG STD DET 420. SEE SHEET SFM-3 FOR DETAILS. |
| 7 | INSTALL 8" VCP SANITARY SEWER LINE. |

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OLIVE AVENUE SEWER
FORCE MAIN

SFM-6

SHEET 6 OF 6



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C.4 CWD and SAN Lift Station Model Output Calculations

Model Reference Information

General

Title: AFT Fathom Model

Analysis run on: 12/17/2019 2:09:01 PM

Application version: AFT Fathom Version 10 (2018.09.10)

Input File: \\ODIN\Groups\WBG\Lightspeed_PHX\PHX_80\Hydraulics\Lightspeed PHX80 Lift Stations 2019-9-19.fth

Output File: \\ODIN\Groups\WBG\Lightspeed_PHX\PHX_80\Hydraulics\Lightspeed PHX80 Lift Stations 2019-9-19_F1.out

Execution Time= 0.08 seconds

Total Number Of Head/Pressure Iterations= 0

Total Number Of Flow Iterations= 2

Total Number Of Temperature Iterations= 0

Number Of Pipes= 33

Number Of Junctions= 32

Matrix Method= Gaussian Elimination

Pressure/Head Tolerance= 0.0001 relative change

Flow Rate Tolerance= 0.0001 relative change

Temperature Tolerance= 0.0001 relative change

Flow Relaxation= (Automatic)

Pressure Relaxation= (Automatic)

Constant Fluid Property Model

Fluid Database: AFT Standard

Fluid: Water at 1 atm

Max Fluid Temperature Data= 212 deg. F

Min Fluid Temperature Data= 32 deg. F

Temperature= 74 deg. F

Density= 62.27697 lbm/ft³

Viscosity= 2.23384 lbm/hr-ft

Vapor Pressure= 0.41606 psia

Viscosity Model= Newtonian

Apply laminar and non-Newtonian correction to: Pipe Fittings & Losses, Junction K factors, Junction Special Losses, Junction Polynomials

Corrections applied to the following junctions: Branch, Reservoir, Assigned Flow, Assigned Pressure, Area Change, Bend, Tee or Wye, Control Valve, Spray Discharge, Relief Valve

Ambient Pressure (constant)= 1 atm

Gravitational Acceleration= 1 g

Turbulent Flow Above Reynolds Number= 4000

Laminar Flow Below Reynolds Number= 2300

Total Inflow= 1,014 gal/min

Total Outflow= 1,014 gal/min

Maximum Static Pressure is 43.33 psia at Pipe 201 Inlet

Minimum Static Pressure is 14.52 psia at Pipe 304 Outlet

Warnings

No Warnings

Pump Summary

Jct	Results Diagram	Name	Vol. Flow (gal/min)	dH (feet)	dP (psid)	Speed (Percent)	Ideal Power (hp)	NPSHA (feet)
X101	Show	CWD Pump 1	0.0	N/A	N/A	0	N/A	N/A
201	Show	CWD Pump 2	843.0	63.37	27.41	N/A	13.476	36.27
X401	Show	SAN Pump 1	0.0	N/A	N/A	0	N/A	N/A
500	Show	SAN Pump 2	171.0	62.31	26.95	N/A	2.687	36.52

Valve Summary

Jct	Name	Valve Type	Vol. Flow (gal/min)	dH (feet)	dP Stag. (psid)	P Static In (psig)	Cv	K	Open Percentage (Percent)	Valve State
105	8" Gate Valve	REGULAR	0.0	N/A	N/A	16.14	N/A	N/A	N/A	Open
205	8" Gate Valve	REGULAR	843.0	0.08132	0.03517	15.96	4,491.5	0.2000	N/A	Open
404	4" Gate Valve	REGULAR	0.0	N/A	N/A	18.58	N/A	N/A	N/A	Open
503	4" Gate Valve	REGULAR	171.0	0.05473	0.02367	18.59	1,110.6	0.2000	N/A	Open
103	8" V634	CHECK	0.0	N/A	N/A	16.14	N/A	N/A	N/A	Open
203	8" V634	CHECK	843.0	0.45446	0.19655	16.18	1,900.0	1.1177	N/A	Open
403	4" V634	CHECK	0.0	N/A	N/A	18.58	N/A	N/A	N/A	Open
502	4" V634	CHECK	171.0	0.34869	0.15080	18.77	440.0	1.2742	N/A	Open

Reservoir Summary

Jct	Name	Type	Liq. Height (feet)	Liq. Elevation (feet)	Surface Pressure (atm)	Net Vol. Flow (gal/min)
1	CWD PS LL 1062.0	Infinite	N/A	1,062	1.000	-843.0
2	SAN PS LL 1065	Infinite	N/A	1,065	1.000	-171.0

Pipe Output Table

Pipe	Name	Length (feet)	Junctions (Up, Down)	Hyd. Diameter (inches)	Roughness	Vol. Flow Rate (gal/min)	Velocity (feet/sec)	K	dH/ dx (ft/100 ft)
100	Fake 18x0.01	0.01000	1, 101	18.000	Frictionless	0.0	0.0000	0.0000	0.000
101	8x29 DIP	29.00000	101, 102	8.205	CHW= 130	0.0	0.0000	0.0000	0.000
102	8x8 DIP	8.00000	102, 103	8.205	CHW= 130	0.0	0.0000	0.0000	0.000
103	8x1 DIP	1.00000	103, 104	8.205	CHW= 130	0.0	0.0000	0.0000	0.000
104	8x1 DIP	1.00000	104, 105	8.205	CHW= 130	0.0	0.0000	0.0000	0.000
105	8x1 DIP	1.00000	105, 106	8.205	CHW= 130	0.0	0.0000	0.0000	0.000
X106	12x3 DIP	3.00000	106, 301	8.205	CHW= 130	0.0	0.0000	0.0000	0.000
107	8x1 DIP	1.00000	104, 204	8.205	CHW= 130	0.0	0.0000	0.0000	0.000
200	Fake 18x0.01	0.01000	1, 201	18.000	Frictionless	843.0	1.0629	0.0000	0.000
201	8x29 DIP	29.00000	201, 202	8.205	CHW= 130	843.0	5.1152	0.0000	1.179
202	8x8 DIP	8.00000	202, 203	8.205	CHW= 130	843.0	5.1152	0.0000	1.179
203	8x1 DIP	1.00000	203, 204	8.205	CHW= 130	843.0	5.1152	0.1120	1.179
204	8x1 DIP	1.00000	204, 205	8.205	CHW= 130	843.0	5.1152	0.0000	1.179
205	8x1 DIP	1.00000	205, 301	8.205	CHW= 130	843.0	5.1152	0.0000	1.179
301	8x95 DIP	95.00000	301, 302	8.205	CHW= 130	843.0	5.1152	0.5600	1.179
302	8x435 DIP	435.00000	302, 303	8.205	CHW= 130	843.0	5.1152	0.0000	1.179
303	8x210.4 DIP	210.39999	303, 304	8.205	CHW= 130	843.0	5.1152	0.0000	1.179
304	8x1768 DIP	1,768.00000	304, 305	8.205	CHW= 130	843.0	5.1152	1.0000	1.179
400	Fake 18x0.01	0.01000	2, 401	18.000	Frictionless	0.0	0.0000	0.0000	0.000
401	4x21.5 DIP	21.50000	401, 402	4.080	CHW= 130	0.0	0.0000	0.0000	0.000
402	4x8 DIP	8.00000	402, 403	4.080	CHW= 130	0.0	0.0000	0.0000	0.000
403	4x1 DIP	1.00000	403, 404	4.080	CHW= 130	0.0	0.0000	0.0000	0.000
404	4x1 DIP	1.00000	404, 405	4.080	CHW= 130	0.0	0.0000	0.0000	0.000
405	4x3 DIP	3.00000	405, 601	4.080	CHW= 130	0.0	0.0000	0.0000	0.000
500	Fake 18x0.01	0.01000	2, 500	18.000	Frictionless	171.0	0.2156	0.0000	0.000
501	4x21.5 DIP	21.50000	500, 501	4.080	CHW= 130	171.0	4.1963	0.0000	1.846
502	4x8 DIP	8.00000	501, 502	4.080	CHW= 130	171.0	4.1963	0.0000	1.846

Pipe	Name	Length (feet)	Junctions (Up, Down)	Hyd. Diameter (inches)	Roughness	Vol. Flow Rate (gal/min)	Velocity (feet/sec)	K	dH/ dx (ft/100 ft)
503	4x1 DIP	1.00000	502, 503	4.080	CHW= 130	171.0	4.1963	0.1354	1.846
504	4x1 DIP	1.00000	503, 601	4.080	CHW= 130	171.0	4.1963	0.0000	1.846
601	4x95 DIP	95.00000	601, 602	4.080	CHW= 130	171.0	4.1963	0.6768	1.846
602	4x435 DIP	435.00000	602, 603	4.470	CHW= 130	171.0	3.4960	0.0000	1.183
603	4x210.4 DIP	210.39999	603, 604	4.470	CHW= 130	171.0	3.4960	0.0000	1.183
604	4x1768 DIP	1,768.00000	604, 605	4.470	CHW= 130	171.0	3.4960	1.0000	1.183

All Junction Table

Jct	Name	Elevation Inlet (feet)	Vol. Flow Rate Thru Jct (gal/min)	dH (feet)	P Static In (psig)	P Static Out (psig)	Loss Factor (K)	HGL Inlet (feet)	HGL Outlet (feet)
1	CWD PS LL 1062.0	1,062	N/A	0.00000	0.00000	1.40556	0.0000	1,062	1,062
2	SAN PS LL 1065	1,065	N/A	0.00000	0.00000	1.51368	0.0000	1,065	1,065
X101	CWD Pump 1	1,059	0.0	N/A	1.40556	28.35440	0.0000	1,062	1,124
102	Bend	1,087	0.0	0.00000	16.13687	16.13687	0.0000	1,124	1,124
103	8" V634	1,087	0.0	0.00000	16.13687	16.13687	0.0000	1,124	1,124
104	Tee or Wye	1,087	N/A	0.00000	16.13687	16.13687	See Mult. Losses	1,124	1,124
105	8" Gate Valve	1,087	0.0	0.00000	16.13687	16.13687	0.0000	1,124	1,124
106	Bend	1,087	0.0	0.00000	16.13687	16.13687	0.0000	1,124	1,124
201	CWD Pump 2	1,059	843.0	-63.37477	1.39796	28.63795	0.0000	1,062	1,125
202	Bend	1,087	843.0	0.11385	16.27259	16.22335	0.2800	1,125	1,125
203	8" V634	1,087	843.0	0.45446	16.18257	15.98602	1.1177	1,124	1,124
204	Tee or Wye	1,087	N/A	See Mult. Losses	16.05871	16.05871	See Mult. Losses	1,124	1,124
205	8" Gate Valve	1,087	843.0	0.08132	15.95592	15.92075	0.2000	1,124	1,124
301	Tee	1,087	N/A	See Mult. Losses	15.86035	15.86035	See Mult. Losses	1,124	1,124
302	Bend	1,078	843.0	0.11385	18.93810	18.88886	0.2800	1,122	1,122
303	Bend	1,079	843.0	0.11385	16.29936	16.25012	0.2800	1,117	1,117
304	Bend	1,086	843.0	0.11385	12.31452	12.26528	0.2800	1,114	1,114
305	CWD MH INV 1093.31	1,093	843.0	0.00000	-0.17585	-0.17585	0.0000	1,093	1,093
X401	SAN Pump 1	1,062	0.0	N/A	1.51368	27.87440	0.0000	1,065	1,126
402	Bend	1,083	0.0	0.00000	18.57610	18.57610	0.0000	1,126	1,126
403	4" V634	1,083	0.0	0.00000	18.57610	18.57610	0.0000	1,126	1,126
404	4" Gate Valve	1,083	0.0	0.00000	18.57610	18.57610	0.0000	1,126	1,126
405	Bend	1,083	0.0	0.00000	18.57610	18.57610	0.0000	1,126	1,126
500	SAN Pump 2	1,062	171.0	-62.30516	1.51336	28.34100	0.0000	1,065	1,127
501	Bend	1,083	171.0	0.09260	18.87108	18.83103	0.3384	1,127	1,127
502	4" V634	1,083	171.0	0.34869	18.76717	18.61637	1.2742	1,126	1,126
503	4" Gate Valve	1,083	171.0	0.05473	18.59237	18.56870	0.2000	1,126	1,126
601	Tee	1,083	N/A	See Mult. Losses	18.52350	18.52350	See Mult. Losses	1,126	1,126
602	Bend	1,080	171.0	0.09260	18.89080	18.88696	0.3384	1,124	1,124
603	Bend	1,081	171.0	0.06279	16.28906	16.26191	0.3306	1,119	1,119
604	Bend	1,088	171.0	0.06279	12.32224	12.29509	0.3306	1,116	1,116
605	SAN MH INV 1095.05	1,095	171.0	0.00000	-0.08214	-0.08214	0.0000	1,095	1,095

WATER REPORT

PHX81 DATA CENTER
EL MIRAGE, ARIZONA

November 22, 2019

Revised: January 10, 2020

Revised: February 19, 2021

Prepared for:

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TABLE OF CONTENTS

Section	Page
Water System Design	1
Summary of Requirements	1
Summary of Results	1
Existing Conditions.....	2
Proposed Conditions.....	2
City of El Mirage Water Model	2
Hydraulic Calculations.....	2
Conclusion	2
 Appendix A	El Mirage Water Distribution System Study
Appendix B	Hydraulic Calculations
Appendix C	Vicinity Map
Appendix D	Water Model Exhibit

Water System Design

Summary of Requirements

This report provides an analysis of the water supply for the PHX80 Data Center development in El Mirage, Arizona. The assumed maximum water demands for the PHX80 development are as follows: 707.6 gpm for the PHX80 building and 758.4 gpm for the PHX81 building domestic and cooling demand and 2000 gpm over two hydrants for hydrant flow demand.

Summary of Results

Fire flow calculations were performed with the assumption that the full peak domestic flow demands for the PHX80 and PHX81 buildings would be expected during the fire flow event. The domestic event scenario was analyzed for the proposed PHX80 and PHX81 development and future PHX82 through PHX84 development. Model results showed the City of El Mirage water infrastructure has sufficient pressure to provide the required industrial water demands for PHX80 and PHX81 of the development in a domestic flow scenario. There is inadequate pressure provided by the city for the required fire scenario and a pump is recommended for the system to increase pressure capacity.

Existing Conditions

The proposed site is southeast of the intersection of Olive Avenue and Dysart Road located in El Mirage, Arizona. There is no existing water service to the site.

Olive Avenue contains a 16" water main located 1200 feet east of the PHX80 site and Dysart Road contains a 12" water main located 2600 feet north of the PHX80 site. The city's existing water distribution currently has a production capacity of 5,959 gpm and a max daily demand of 5,038 gpm. The water distribution system has 7 existing sites as follows: Rockwood, Cottonwood, Thompson Ranch, Alto, Sunnyvale, 127th Lane, and Canterbury.

Proposed Conditions

Connection to Existing: Water will be supplied via an extension of the mains on Dysart Road and Olive Avenue. The PHX80 development will be supplied via the 16" water main extension. The City of El Mirage water distribution system has an ultimate production capacity of 8,184 gpm, a firm well capacity of 6,684 gpm, and a max daily demand of 5,670 gpm. Additional well capacity is supplied from Brisas Well, 1500 gpm added, and Dietz-Crane Well, 725 gpm added.

This development proposes to construct two 12-inch loops onsite with a redundant connection as shown in the Water Model Exhibit. Water meter, reduced pressure backflow assembly, and detector check valve assembly losses are modeled at the connections to the existing City water main.

Fire Protection: Fire hydrants are provided on all sides of the proposed building. One 8-inch fire sprinkler connection is proposed to the Admin building and each fire riser room.

Domestic Water: The domestic water supply is provided to the buildings via 4" and 6" services from the 12-inch water main loop.

City of El Mirage Water Model

See Appendix A for the City of El Mirage Water Distribution Model information.

Hydraulic Calculations

A 75% reduction for fully sprinkled buildings is assumed to be acceptable when determining fire hydrant flow rates in accordance with the International Fire Code, Appendix B. Based upon the size of the building area and in accordance with the Uniform Building Code, the required flow rate is reduced to 2,000 gpm @ 20 psi for the hydraulically remote fire hydrants on the site.

Conclusion

The proposed system can be considered a reliable supply with respect to the assumed domestic flow demand requirements of this development. The proposed system is not a reliable supply with respect to the assumed fire flow demand requirements of the system and a pump is recommended. The proposed water system will be constructed to the City of El Mirage and MAG Design Standards with all necessary backflow prevention.

Appendix A

El Mirage Water Distribution System Study

MEMO

To:

Bryce Christo, P.E.
City of El Mirage

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Ben Chenevey, P.E.(Ohio)

Date:

May 14, 2019

Arcadis Project No.:

04277058.0000

Subject:

EL MIRAGE WATER DISTRIBUTION SYSTEM STUDY

Background

A prospective industrial/commercial development is being considered near N. Dysart Road and W. Olive Avenue in the City of El Mirage (City). The proposed data center would require between 421 gallons per minute (gpm) and 843 gpm of water from the City's distribution system. The cycling between these flow rates depends on outdoor temperature and other factors, but average daily usage should be approximately 632 gpm per building (one building is initially planned with expansion up to five buildings in the future). The City wants to evaluate the capacity of the system at this proposed site to help determine potential infrastructure improvements that are required to support these additional flow rates.

Hydraulic Modeling

An existing hydraulic model was utilized during this study to help evaluate system capacity. Two model versions were available based on recent City Master Plan projects by Malcom Pirnie/Arcadis (2008) and Wilson Engineers (2014). The more recently updated model was insufficient for the purposes of this study; therefore the 2008 Arcadis model was updated to represent the current system. Model updates included:

1. Added newly installed pipelines
2. Scaled to current system demands
3. Added new Brisas well, storage, and booster pumps

4. Updated rehabbed Cottonwood pump curves
5. Revised pump station operation controls (variable frequency drives [VFDs])

Average demands were determined based on 2018 production and billing data from the City, and the same max day peaking factor was used from the original 2008 model. All demands in the model were scaled equally to reach the anticipated average and max day; only one new customer was individually added to the model based on City information of their top water users. Table 1 shows the average and maximum day demands (MDD) for the City based on 2018 data and are represented in the updated model.

Table 1: Modeled water demands based on 2018 Data

	Average Demand	Peaking Factor	Max Demand
MGD	4.27	1.7	7.25
GPM	2,963		5,038

Pump stations in the system were also updated to closer resemble typical operation. In addition to adding a new pump station (Brisas) and updating pump curves for a rehabbed pump station (Cottonwood), all individual pumps were updated to represent typical VFD operation with pressure setpoints. Since having multiple VFDs pumping into a single system can cause some model instability, some manual operational adjustments were also necessary. Dietz-Crane and Brisas are not currently utilized by the City so they were not considered or operated in certain evaluations; however, they are both planned to be operational prior to the completion of the prospective development. Table 2 provides pumping and storage capacities for all the facilities in the distribution system.

Table 2: Pumping and Storage Capacity

Site	Production Capacity (gpm)	Storage Capacity (MG)	Booster Pump Capacity	
			Total (gpm)	Firm (gpm)
Rockwood	1,195	0.75	2,600	1,250
Cottonwood	752	0.5	2,000	1,250
Thompson Ranch	581	0	625	0
Dietz-Crane	725	1	2,750	1,900
Alto	657	1.25	2,600	1,600
Sunnyvale	1,027	0.6	1,600	1,000
Brisas	1,500	0.66	1,875	1,125
127th Lane	915	1	2,700	1,800
Canterbury	832	2	5,700	3,800
Total System	8,184	8	22,450	13,725

After the model was updated to average 2018 conditions, the model was validated using recent fire flow test data. Spot checks of modeled pressures were within 5 psi of observed static pressures, and the model was considered acceptable for capacity evaluations. A complete model calibration effort should be performed in the future since the model being used here was last calibrated in 2008. The model was scaled to MDD prior to system evaluations. A calculation summary including hourly system demand and

production in the model throughout the day is shown in Figure 1; the existing system sees a peak hour demand (PHD) of about 8,750 gpm at 7 PM based on the modeled diurnal demand pattern. Minimum system pressures are shown in Figure 2; in general, lower pressures are seen in the north (~50 psi) compared to the south (~ 70 psi). During the peak hour, seven pump stations were set to pump into the system, while six pump stations are utilized during the rest of the maximum day.

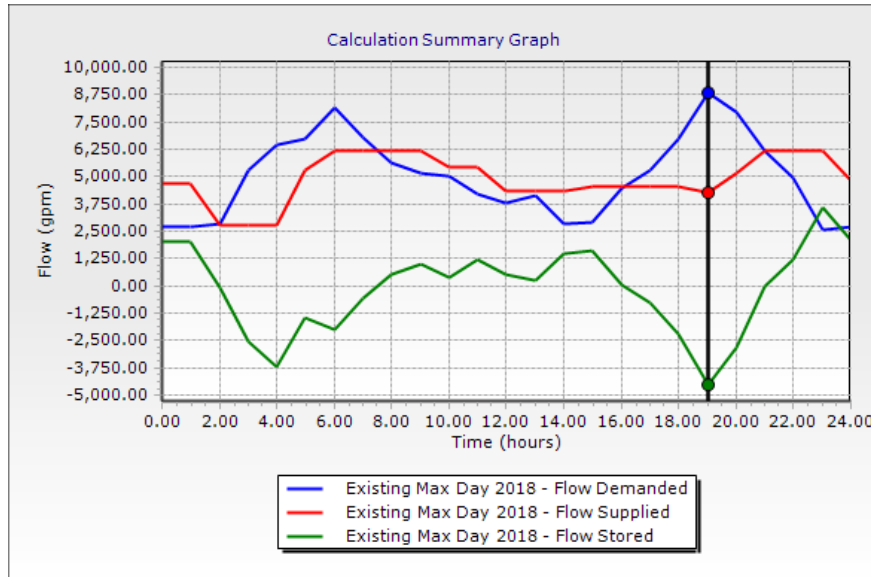


Figure 1: System Model Results Summary for Maximum Day Demands

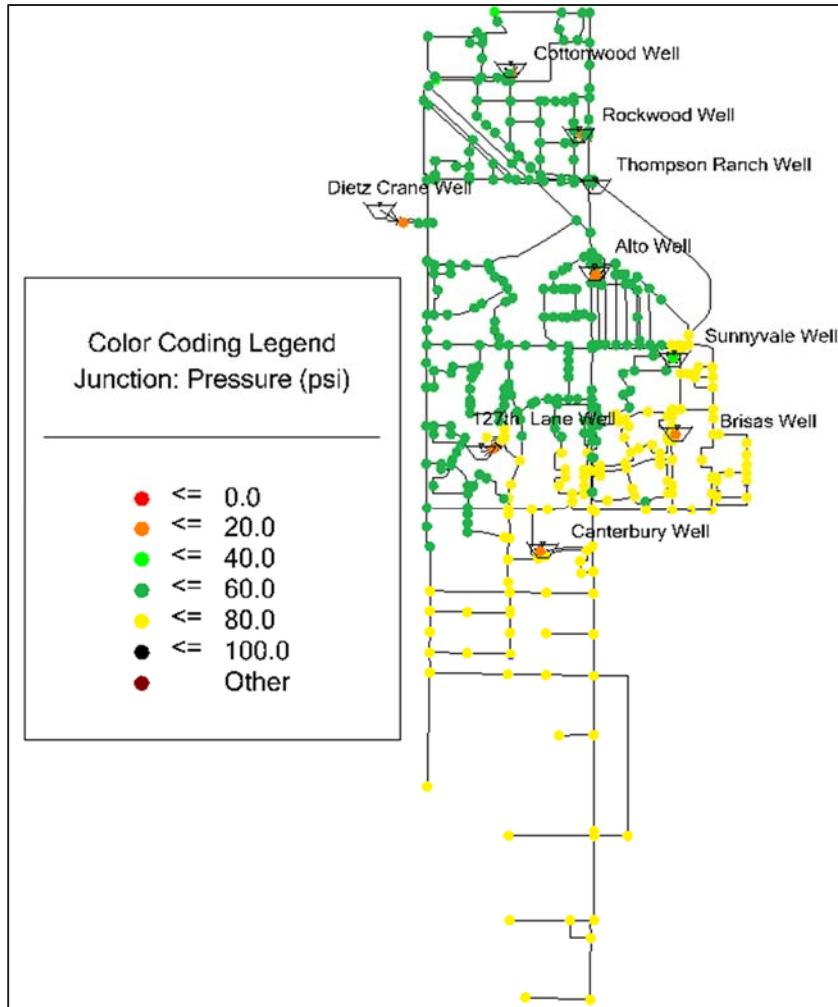


Figure 2: Minimum Modeled Pressures (During Peak Hour Demands) for Current Well Site Operations

The prospective development location is southeast of the intersection of Olive Avenue and Dysart Road. Currently, pipes in this area are not connected and dead end pipes exist to the north and west of this intersection. Therefore, evaluations were performed at both dead ends (A and B) assuming they are both potential development lateral connection points (Figure 3). An additional evaluation was also performed after connecting these two pipelines to determine the system capacity with future pipelines and added connectivity.

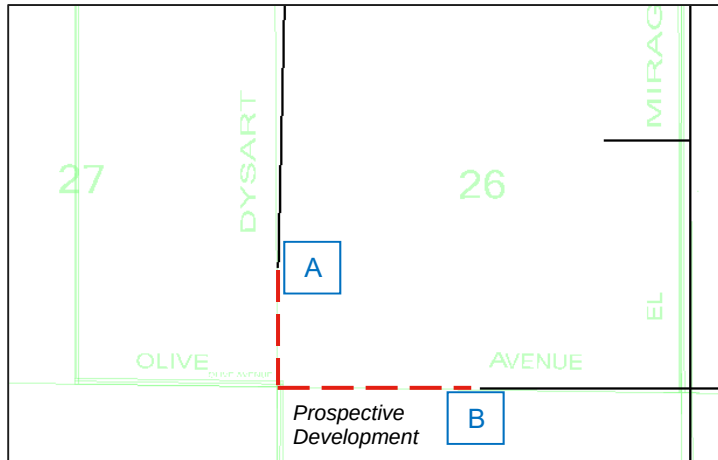


Figure 3: Prospective Future Development Location with Existing (black) and Future (red) Pipes

Evaluation Results

Multiple simulations were performed using the updated model to evaluate the capacity of the system at the prospective development location. Flow curves were developed for site A and B with and without the future pipe connecting the two sites. Figure 4 compares these scenarios during MDD under current well site operation conditions. Differences in pressure and capacity at site A and B are largely due to elevation differences, while the inclusion of future pipes to connect the locations does positively effect pressures (especially at higher flow rates). These results indicate that running at the prospective development flow rates of 632 gpm will result in a minor drop in pressure (80 psi to around 75 psi) during the maximum day. Peak hour results show similar behaviors though the pressure drop at this flow rate is more pronounced under existing operational conditions.

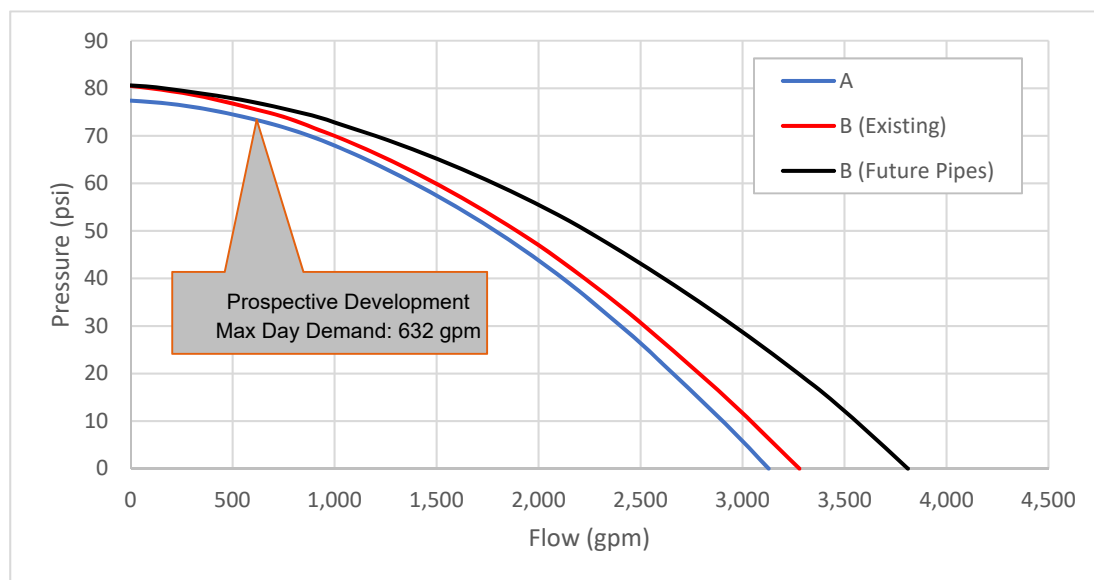


Figure 4: Max Day System Capacity at Prospective Development for Current Well Site Operations

Model simulations were also performed with the prospective development demands added directly to the model. System pressures throughout the day were analyzed for both current well site operation and future well site operation (Brisas and Dietz-Crane in operation). No operational settings at pump stations were changed during these future condition's simulations. Pressures at the prospective development location under different modeled scenarios (production capacity and system demand) are presented in Table 3 below. The results show that pressure does drop throughout the system (up to around 10 psi during peak hour) under current operation when the prospective development is online, but system pressures are significantly improved for future conditions when the remaining well sites are brought back into operation. Table 3 also provides a comparison of production capacity and MDD for these scenarios that indicate existing operations capacity and future demands have very little buffer and may produce operational challenges. Figure 5 shows pressure during future PHD with all well sites operational.

Table 3: Prospective Development Pressures (psi) Under Different Demands and Well Site Operation Scenarios

System Demand (gpm)	Production Capacity (gpm)	Existing Ops 5,959	Future Ops (All wells) 8,184
Existing MDD	5,038	80	81
Existing PHD	8,750	71	79
Future MDD	5,670	73	76
Future PHD	9,593	62	70

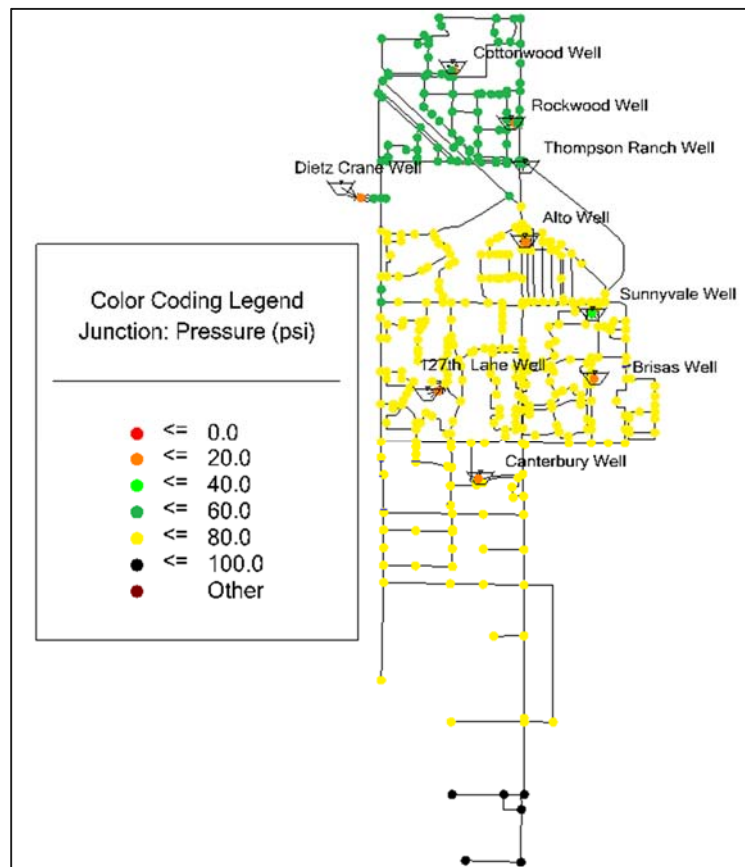


Figure 5: Minimum Modeled Pressures (During Peak Hour Demands) with Prospective Development Demands and All Well Sites in Operation

After the prospective development demand was added, a fire flow run was performed to assess fire protection at the site. Figure 6 shows a hydrant flow curve with and without the future pipeline connection; results indicate that available fire flow once this site is constructed will be between 3,000 and 3,500 gpm depending on if the future pipeline is installed.

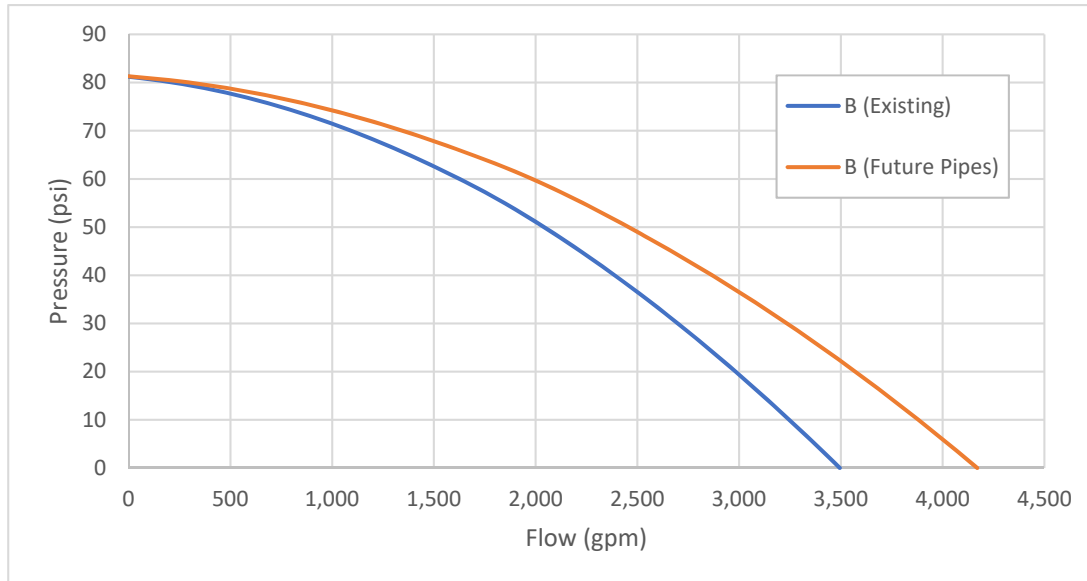


Figure 6: Hydrant Flow Curve for Prospective Development with All Well Sites in Operation

Conclusions

Several conclusions can be drawn from the model capacity evaluation presented above:

- Based on model results, there seems to be sufficient system capacity to support the prospective development's initial water demands. Model results indicate a drop in pressure for maximum day and peak hour demands of up to 10 psi, but once all well sites are in operation peak hour pressures resemble current system pressures. The addition of a future pipeline connection in this area does show slight improvements in pressures at the development along with an increase in available fire flow.
- Well site redundancy must be carefully considered in relation to this prospective expansion in system demands.
 - o Currently, neither the Brisas nor Dietz-Crane well sites are operated in the system due to routine maintenance. Both wells are planned to be in operation prior to the prospective development's completion, but existing system production capacity is currently reduced to around 5,959 gpm. Maximum day system demands if the prospective development is in place will be approximately 5,670 gpm, which leaves only 289 gpm of excess well capacity. Existing capacity would not allow for well redundancy since if, in addition to the Brisas and Dietz-Crane sites, even the smallest well is out of service, the system may not be able to supply water during the maximum day.
 - o Once all well sites are online, it's important to consider the firm capacity of the well sites (capacity of the largest production well is removed from service). Under firm capacity,

Brisas Well would not be available and firm well capacity would be 6,684 gpm which leaves excess well capacity of 1,014 gpm.

- o It is recommended that any well site improvements be scheduled during a period of the year with cooler ambient temperatures (less than 85 degrees Fahrenheit) to alleviate any effects on the data center site.
 - o One existing emergency interconnect with the City of Surprise (Country Gables Interconnect) is available within the City. While the interconnect was not modeled, it should provide system redundancy in the event of any emergency conditions or well site removal such that supply will be maintained.
- Based on information from the prospective developer, demands will cycle between 421 gpm and 843 gpm throughout the day. The rapidness of cycling between flow rates is dependent on temperature and other factors but can be as frequent as sub-hourly. While this behavior was not modeled, the VFDs in the system will likely ramp up and down during each of these cycles. Rapid cycling may strain the pumps since no equalization storage is available in the distribution system.

Appendix B

Hydraulic Calculations

Static Pressure

Domestic Flow

Fire Hydrant Flow

Fire Sprinkler Flow

Static Nodes			
Label	Elevation (ft)	Demand (gpm)	Pressure (psi)
22.50 Degree Bend (Point)-43	1,080.00	0	84
22.50 Degree Bend (Point)-44	1,080.00	0	84
22.50 Degree Bend (Point)-45	1,080.00	0	84
22.50 Degree Bend (Point)-46	1,080.00	0	84
22.50 Degree Bend (Point)-51	1,080.00	0	84
22.50 Degree Bend (Point)-52	1,080.00	0	84
22.50 Degree Bend (Point)-53	1,080.00	0	84
22.50 Degree Bend (Point)-54	1,080.00	0	84
45 Degree Bend (Point)-22	1,080.00	0	73
45 Degree Bend (Point)-23	1,080.00	0	73
45 Degree Bend (Point)-24	1,080.00	0	73
45 Degree Bend (Point)-25	1,080.00	0	73
45 Degree Bend (Point)-39	1,080.00	0	84
45 Degree Bend (Point)-40	1,080.00	0	84
45 Degree Bend (Point)-41	1,080.00	0	84
45 Degree Bend (Point)-42	1,080.00	0	84
45 Degree Bend (Point)-47	1,080.00	0	73
45 Degree Bend (Point)-48	1,080.00	0	73
45 Degree Bend (Point)-49	1,080.00	0	73
45 Degree Bend (Point)-50	1,080.00	0	73
45 Degree Bend (Point)-59	1,080.00	0	73
45 Degree Bend (Point)-60	1,080.00	0	73
45 Degree Bend (Point)-61	1,080.00	0	73
45 Degree Bend (Point)-62	1,080.00	0	73
90 Degree (Point)-126	1,080.00	0	73
90 Degree (Point)-127	1,080.00	0	73
90 Degree (Point)-128	1,080.00	0	84
90 Degree (Point)-129	1,080.00	0	84
90 Degree (Point)-130	1,080.00	0	73
90 Degree (Point)-131	1,080.00	0	73
90 Degree (Point)-27	1,080.00	0	84
90 Degree (Point)-29	1,080.00	0	73
90 Degree (Point)-30	1,080.00	0	73
90 Degree (Point)-31	1,080.00	0	84
189	1,080.00	0	87
190	1,080.00	0	87
191	1,080.00	0	84
213	1,080.00	0	73

Static Nodes			
215	1,080.00	0	84
J-77	1,080.00	0	84
J-104	1,080.00	0	84
J-105	1,080.00	0	84
J-109	1,080.00	0	84
J-112	1,080.00	0	84
J-118	1,080.00	0	73
J-119	1,080.00	0	73
J-123	1,080.00	0	73
J-124	1,080.00	0	73
J-125	1,080.00	0	73
J-126	1,080.00	0	73
J-127	1,080.00	0	73
J-128	1,080.00	0	73
J-129	1,080.00	0	73
J-130	1,080.00	0	73
J-131	1,080.00	0	73
J-132	1,080.00	0	73
J-133	1,080.00	0	73
J-134	1,080.00	0	73
J-135	1,080.00	0	73
J-136	1,080.00	0	73
J-137	1,080.00	0	84
J-138	1,080.00	0	84
J-140	1,080.00	0	84
J-141	1,080.00	0	84
J-142	1,080.00	0	84
J-143	1,080.00	0	84
J-144	1,080.00	0	84
J-145	1,080.00	0	84
J-146	1,080.00	0	84
J-149	1,080.00	0	84
J-151	1,080.00	0	84
J-152	1,080.00	0	84
J-153	1,080.00	0	84
J-154	1,080.00	0	84
J-155	1,080.00	0	84
J-156	1,080.00	0	84
J-157	1,080.00	0	84
J-158	1,080.00	0	84

Static Nodes			
J-159	1,080.00	0	84
J-170	1,080.00	0	73
J-172	1,080.00	0	73
J-177	1,080.00	0	73
J-178	1,080.00	0	73
J-179	1,080.00	0	73
J-180	1,080.00	0	73
J-181	1,080.00	0	73
J-182	1,080.00	0	73
J-185	1,080.00	0	73
J-186	1,080.00	0	73
J-187	1,080.00	0	73
J-188	1,080.00	0	73
J-190	1,080.00	0	84
J-193	1,080.00	0	84
J-194	1,080.00	0	84
J-195	1,080.00	0	84
J-196	1,080.00	0	84
J-197	1,080.00	0	84
J-199	1,080.00	0	84
J-200	1,080.00	0	84
J-201	1,080.00	0	84
J-202	1,080.00	0	84
J-203	1,080.00	0	84
J-204	1,080.00	0	84
J-205	1,080.00	0	84
J-206	1,080.00	0	87
WATER-TEE-2 Valve Alt1 (Point)-34	1,080.00	0	87
WATER-TEE-2 Valve Alt1 (Point)-70	1,080.00	0	73
WATER-TEE-2 Valve Alt1 (Point)-75	1,080.00	0	73
WATER-TEE-2 Valve Alt1 (Point)-87	1,080.00	0	84
WATER-TEE-2 Valve Alt1 (Point)-89	1,080.00	0	84
WATER-TEE-2 Valve Alt1 (Point)-91	1,080.00	0	84
WATR-Tee (Point)-4	1,080.00	0	84
WATR-Tee (Point)-5	1,080.00	0	84
WATR-Tee (Point)-7	1,080.00	0	84
WATR-Tee (Point)-8	1,080.00	0	84
WATR-Tee (Point)-9	1,080.00	0	84
WATR-Tee (Point)-10	1,080.00	0	84
WATR-Tee (Point)-11	1,080.00	0	84

Static Nodes			
WATR-Tee (Point)-12	1,080.00	0	84
WATR-Tee (Point)-13	1,080.00	0	84
WATR-Tee (Point)-14	1,080.00	0	84
WATR-Tee (Point)-15	1,080.00	0	84
WATR-Tee (Point)-16	1,080.00	0	84
WATR-Tee (Point)-17	1,080.00	0	73
WATR-Tee (Point)-18	1,080.00	0	73
WATR-Tee (Point)-19	1,080.00	0	73
WATR-Tee (Point)-20	1,080.00	0	73
WATR-Tee (Point)-21	1,080.00	0	73
WATR-Tee (Point)-94	1,080.00	0	84
WATR-Tee (Point)-95	1,080.00	0	84
WATR-Tee (Point)-96	1,080.00	0	84
WATR-Tee (Point)-97	1,080.00	0	84
WATR-Tee (Point)-98	1,080.00	0	84
WATR-Tee (Point)-99	1,080.00	0	84
WATR-Tee (Point)-100	1,080.00	0	84
WATR-Tee (Point)-101	1,080.00	0	84
WATR-Tee (Point)-102	1,080.00	0	84
WATR-Tee (Point)-103	1,080.00	0	73
WATR-Tee (Point)-104	1,080.00	0	73
WATR-Tee (Point)-105	1,080.00	0	73
WATR-Tee (Point)-106	1,080.00	0	73
WATR-Tee (Point)-107	1,080.00	0	73
WATR-Tee (Point)-108	1,080.00	0	73
WATR-Tee (Point)-109	1,080.00	0	73
WATR-Tee (Point)-110	1,080.00	0	73
WATR-Tee (Point)-111	1,080.00	0	73
WATR-Tee (Point)-112	1,080.00	0	73
WATR-Tee (Point)-113	1,080.00	0	73
WATR-Tee (Point)-114	1,080.00	0	73
WATR-Tee (Point)-115	1,080.00	0	73
WATR-Tee (Point)-116	1,080.00	0	73
WATR-Tee (Point)-117	1,080.00	0	84
WATR-Tee (Point)-118	1,080.00	0	84
WATR-Tee (Point)-119	1,080.00	0	84
WATR-Tee (Point)-120	1,080.00	0	84
WATR-Tee (Point)-121	1,080.00	0	84
WATR-Tee (Point)-122	1,080.00	0	84
WATR-Tee (Point)-124	1,080.00	0	73

Static Nodes			
WATR-Tee (Point)-125	1,080.00	0	73
WATR-Tee-1 Valve (Point)-133	1,080.00	0	84
WATR-Tee-1 Valve (Point)-26	1,080.00	0	84
WATR-Tee-1 Valve (Point)-67	1,080.00	0	73
WATR-Tee-1 Valve (Point)-69	1,080.00	0	73
WATR-Tee-1 Valve (Point)-71	1,080.00	0	73
WATR-Tee-1 Valve (Point)-72	1,080.00	0	73
WATR-Tee-1 Valve (Point)-74	1,080.00	0	73
WATR-Tee-1 Valve (Point)-82	1,080.00	0	84
WATR-Tee-1 Valve (Point)-84	1,080.00	0	84
WATR-Tee-1 Valve (Point)-86	1,080.00	0	84
WATR-Tee-1 Valve (Point)-88	1,080.00	0	84
WATR-Tee-1 Valve (Point)-90	1,080.00	0	84
WATR-Tee-1 Valve (Point)-92	1,080.00	0	84
WATR-Tee-2 Valves (Point)-64	1,080.00	0	84
WATR-Tee-2 Valves (Point)-65	1,080.00	0	84
WATR-Tee-2 Valves (Point)-66	1,080.00	0	84
WATR-Tee-3 Valves (Point)-28	1,080.00	0	73
WATR-Tee-3 Valves (Point)-32	1,080.00	0	84
WATR-Tee-3 Valves (Point)-33	1,080.00	0	87
WATR-Tee-3 Valves (Point)-68	1,080.00	0	73
WATR-Tee-3 Valves (Point)-73	1,080.00	0	73
WATR-Tee-3 Valves (Point)-76	1,080.00	0	73
WATR-Tee-3 Valves (Point)-77	1,080.00	0	84
WATR-Tee-3 Valves (Point)-78	1,080.00	0	73
WATR-Tee-3 Valves (Point)-80	1,080.00	0	84
WATR-Tee-3 Valves (Point)-83	1,080.00	0	84
WATR-Tee-3 Valves (Point)-85	1,080.00	0	84

Domestic/Cooling Nodes			
Label	Elevation (ft)	Demand (gpm)	Pressure (psi)
22.50 Degree Bend (Point)-43	1,080.00	0	63
22.50 Degree Bend (Point)-44	1,080.00	0	63
22.50 Degree Bend (Point)-45	1,080.00	0	63
22.50 Degree Bend (Point)-46	1,080.00	0	63
22.50 Degree Bend (Point)-51	1,080.00	0	63
22.50 Degree Bend (Point)-52	1,080.00	0	63
22.50 Degree Bend (Point)-53	1,080.00	0	63
22.50 Degree Bend (Point)-54	1,080.00	0	63
45 Degree Bend (Point)-22	1,080.00	0	49
45 Degree Bend (Point)-23	1,080.00	0	49
45 Degree Bend (Point)-24	1,080.00	0	49
45 Degree Bend (Point)-25	1,080.00	0	49
45 Degree Bend (Point)-39	1,080.00	0	63
45 Degree Bend (Point)-40	1,080.00	0	63
45 Degree Bend (Point)-41	1,080.00	0	63
45 Degree Bend (Point)-42	1,080.00	0	63
45 Degree Bend (Point)-47	1,080.00	0	49
45 Degree Bend (Point)-48	1,080.00	0	49
45 Degree Bend (Point)-49	1,080.00	0	49
45 Degree Bend (Point)-50	1,080.00	0	49
45 Degree Bend (Point)-59	1,080.00	0	49
45 Degree Bend (Point)-60	1,080.00	0	49
45 Degree Bend (Point)-61	1,080.00	0	49
45 Degree Bend (Point)-62	1,080.00	0	49
90 Degree (Point)-126	1,080.00	0	49
90 Degree (Point)-127	1,080.00	0	49
90 Degree (Point)-128	1,080.00	0	63
90 Degree (Point)-129	1,080.00	0	63
90 Degree (Point)-130	1,080.00	0	49
90 Degree (Point)-131	1,080.00	0	49
90 Degree (Point)-27	1,080.00	0	63
90 Degree (Point)-29	1,080.00	0	49
90 Degree (Point)-30	1,080.00	0	49
90 Degree (Point)-31	1,080.00	0	63
189	1,080.00	0	66
190	1,080.00	0	66
191	1,080.00	0	63
213	1,080.00	0	49
215	1,080.00	0	63

Domestic/Cooling Nodes			
Label	Elevation (ft)	Demand (gpm)	Pressure (psi)
J-77	1,080.00	0	63
J-104	1,080.00	0	63
J-105	1,080.00	0	63
J-109	1,080.00	0	63
J-112	1,080.00	0	63
J-118	1,080.00	0	49
J-119	1,080.00	0	49
J-123	1,080.00	0	49
J-124	1,080.00	0	49
J-125	1,080.00	0	49
J-126	1,080.00	0	49
J-127	1,080.00	0	49
J-128	1,080.00	0	49
J-129	1,080.00	0	49
J-130	1,080.00	0	49
J-131	1,080.00	0	49
J-132	1,080.00	0	49
J-133	1,080.00	0	49
J-134	1,080.00	0	49
J-135	1,080.00	0	49
J-136	1,080.00	0	49
J-137	1,080.00	0	63
J-138	1,080.00	0	63
J-140	1,080.00	0	63
J-141	1,080.00	0	63
J-142	1,080.00	0	63
J-143	1,080.00	0	63
J-144	1,080.00	0	63
J-145	1,080.00	0	63
J-146	1,080.00	0	63
J-149	1,080.00	0	63
J-151	1,080.00	0	63
J-152	1,080.00	0	63
J-153	1,080.00	0	63
J-154	1,080.00	0	63
J-155	1,080.00	0	63
J-156	1,080.00	0	63
J-157	1,080.00	0	63
J-158	1,080.00	0	63

Domestic/Cooling Nodes			
Label	Elevation (ft)	Demand (gpm)	Pressure (psi)
J-159	1,080.00	0	63
J-170	1,080.00	0	49
J-172	1,080.00	0	49
J-177	1,080.00	0	49
J-178	1,080.00	0	49
J-179	1,080.00	0	49
J-180	1,080.00	708	48
J-181	1,080.00	0	49
J-182	1,080.00	0	49
J-185	1,080.00	0	49
J-186	1,080.00	0	49
J-187	1,080.00	758	46
J-188	1,080.00	0	49
J-190	1,080.00	0	63
J-193	1,080.00	0	63
J-194	1,080.00	0	63
J-195	1,080.00	0	63
J-196	1,080.00	0	63
J-197	1,080.00	0	63
J-199	1,080.00	0	63
J-200	1,080.00	0	63
J-201	1,080.00	0	63
J-202	1,080.00	0	63
J-203	1,080.00	0	63
J-204	1,080.00	0	63
J-205	1,080.00	0	63
J-206	1,080.00	0	66
WATER-TEE-2 Valve Alt1 (Point)-34	1,080.00	0	66
WATER-TEE-2 Valve Alt1 (Point)-70	1,080.00	0	49
WATER-TEE-2 Valve Alt1 (Point)-75	1,080.00	0	49
WATER-TEE-2 Valve Alt1 (Point)-87	1,080.00	0	63
WATER-TEE-2 Valve Alt1 (Point)-89	1,080.00	0	63
WATER-TEE-2 Valve Alt1 (Point)-91	1,080.00	0	63
WATR-Tee (Point)-4	1,080.00	0	63
WATR-Tee (Point)-5	1,080.00	0	63
WATR-Tee (Point)-7	1,080.00	0	63
WATR-Tee (Point)-8	1,080.00	0	63
WATR-Tee (Point)-9	1,080.00	0	63
WATR-Tee (Point)-10	1,080.00	0	63

Domestic/Cooling Nodes			
Label	Elevation (ft)	Demand (gpm)	Pressure (psi)
WATR-Tee (Point)-11	1,080.00	0	63
WATR-Tee (Point)-12	1,080.00	0	63
WATR-Tee (Point)-13	1,080.00	0	63
WATR-Tee (Point)-14	1,080.00	0	63
WATR-Tee (Point)-15	1,080.00	0	63
WATR-Tee (Point)-16	1,080.00	0	63
WATR-Tee (Point)-17	1,080.00	0	49
WATR-Tee (Point)-18	1,080.00	0	49
WATR-Tee (Point)-19	1,080.00	0	49
WATR-Tee (Point)-20	1,080.00	0	49
WATR-Tee (Point)-21	1,080.00	0	49
WATR-Tee (Point)-94	1,080.00	0	63
WATR-Tee (Point)-95	1,080.00	0	63
WATR-Tee (Point)-96	1,080.00	0	63
WATR-Tee (Point)-97	1,080.00	0	63
WATR-Tee (Point)-98	1,080.00	0	63
WATR-Tee (Point)-99	1,080.00	0	63
WATR-Tee (Point)-100	1,080.00	0	63
WATR-Tee (Point)-101	1,080.00	0	63
WATR-Tee (Point)-102	1,080.00	0	63
WATR-Tee (Point)-103	1,080.00	0	49
WATR-Tee (Point)-104	1,080.00	0	49
WATR-Tee (Point)-105	1,080.00	0	49
WATR-Tee (Point)-106	1,080.00	0	49
WATR-Tee (Point)-107	1,080.00	0	49
WATR-Tee (Point)-108	1,080.00	0	49
WATR-Tee (Point)-109	1,080.00	0	49
WATR-Tee (Point)-110	1,080.00	0	49
WATR-Tee (Point)-111	1,080.00	0	49
WATR-Tee (Point)-112	1,080.00	0	49
WATR-Tee (Point)-113	1,080.00	0	49
WATR-Tee (Point)-114	1,080.00	0	49
WATR-Tee (Point)-115	1,080.00	0	49
WATR-Tee (Point)-116	1,080.00	0	49
WATR-Tee (Point)-117	1,080.00	0	63
WATR-Tee (Point)-118	1,080.00	0	63
WATR-Tee (Point)-119	1,080.00	0	63
WATR-Tee (Point)-120	1,080.00	0	63
WATR-Tee (Point)-121	1,080.00	0	63

Domestic/Cooling Nodes			
Label	Elevation (ft)	Demand (gpm)	Pressure (psi)
WATR-Tee (Point)-122	1,080.00	0	63
WATR-Tee (Point)-124	1,080.00	0	49
WATR-Tee (Point)-125	1,080.00	0	49
WATR-Tee-1 Valve (Point)-133	1,080.00	0	63
WATR-Tee-1 Valve (Point)-26	1,080.00	0	63
WATR-Tee-1 Valve (Point)-67	1,080.00	0	49
WATR-Tee-1 Valve (Point)-69	1,080.00	0	49
WATR-Tee-1 Valve (Point)-71	1,080.00	0	49
WATR-Tee-1 Valve (Point)-72	1,080.00	0	49
WATR-Tee-1 Valve (Point)-74	1,080.00	0	49
WATR-Tee-1 Valve (Point)-82	1,080.00	0	63
WATR-Tee-1 Valve (Point)-84	1,080.00	0	63
WATR-Tee-1 Valve (Point)-86	1,080.00	0	63
WATR-Tee-1 Valve (Point)-88	1,080.00	0	63
WATR-Tee-1 Valve (Point)-90	1,080.00	0	63
WATR-Tee-1 Valve (Point)-92	1,080.00	0	63
WATR-Tee-2 Valves (Point)-64	1,080.00	0	63
WATR-Tee-2 Valves (Point)-65	1,080.00	0	63
WATR-Tee-2 Valves (Point)-66	1,080.00	0	63
WATR-Tee-3 Valves (Point)-28	1,080.00	0	49
WATR-Tee-3 Valves (Point)-32	1,080.00	0	63
WATR-Tee-3 Valves (Point)-33	1,080.00	0	66
WATR-Tee-3 Valves (Point)-68	1,080.00	0	49
WATR-Tee-3 Valves (Point)-73	1,080.00	0	49
WATR-Tee-3 Valves (Point)-76	1,080.00	0	49
WATR-Tee-3 Valves (Point)-77	1,080.00	0	63
WATR-Tee-3 Valves (Point)-78	1,080.00	0	49
WATR-Tee-3 Valves (Point)-80	1,080.00	0	63
WATR-Tee-3 Valves (Point)-83	1,080.00	0	63
WATR-Tee-3 Valves (Point)-85	1,080.00	0	63

Hydrant Scenario Nodes			
Label	Elevation (ft)	Demand (gpm)	Pressure (psi)
22.50 Degree Bend (Point)-43	1,080.00	0	3
22.50 Degree Bend (Point)-44	1,080.00	0	3
22.50 Degree Bend (Point)-45	1,080.00	0	3
22.50 Degree Bend (Point)-46	1,080.00	0	3
22.50 Degree Bend (Point)-51	1,080.00	0	3
22.50 Degree Bend (Point)-52	1,080.00	0	3
22.50 Degree Bend (Point)-53	1,080.00	0	3
22.50 Degree Bend (Point)-54	1,080.00	0	3
45 Degree Bend (Point)-22	1,080.00	0	-8
45 Degree Bend (Point)-23	1,080.00	0	-8
45 Degree Bend (Point)-24	1,080.00	0	-8
45 Degree Bend (Point)-25	1,080.00	0	-8
45 Degree Bend (Point)-39	1,080.00	0	4
45 Degree Bend (Point)-40	1,080.00	0	4
45 Degree Bend (Point)-41	1,080.00	0	4
45 Degree Bend (Point)-42	1,080.00	0	4
45 Degree Bend (Point)-47	1,080.00	0	-8
45 Degree Bend (Point)-48	1,080.00	0	-8
45 Degree Bend (Point)-49	1,080.00	0	-8
45 Degree Bend (Point)-50	1,080.00	0	-8
45 Degree Bend (Point)-59	1,080.00	0	-8
45 Degree Bend (Point)-60	1,080.00	0	-8
45 Degree Bend (Point)-61	1,080.00	0	-8
45 Degree Bend (Point)-62	1,080.00	0	-8
90 Degree (Point)-126	1,080.00	0	-8
90 Degree (Point)-127	1,080.00	0	-8
90 Degree (Point)-128	1,080.00	0	2
90 Degree (Point)-129	1,080.00	0	2
90 Degree (Point)-130	1,080.00	0	-8
90 Degree (Point)-131	1,080.00	0	-8
90 Degree (Point)-27	1,080.00	0	4
90 Degree (Point)-29	1,080.00	0	-8
90 Degree (Point)-30	1,080.00	0	-8
90 Degree (Point)-31	1,080.00	0	4
WATER-TEE-2 Valve Alt1 (Point)-34	1,080.00	0	8
189	1,080.00	0	8
WATER-TEE-2 Valve Alt1 (Point)-70	1,080.00	0	-8
WATER-TEE-2 Valve Alt1 (Point)-75	1,080.00	0	-8
WATER-TEE-2 Valve Alt1 (Point)-87	1,080.00	0	3

Hydrant Scenario Nodes			
Label	Elevation (ft)	Demand (gpm)	Pressure (psi)
WATER-TEE-2 Valve Alt1 (Point)-89	1,080.00	0	4
WATER-TEE-2 Valve Alt1 (Point)-91	1,080.00	0	4
WATR-Tee (Point)-10	1,080.00	0	2
WATR-Tee (Point)-100	1,080.00	0	-2
WATR-Tee (Point)-101	1,080.00	0	0
WATR-Tee (Point)-102	1,080.00	0	-2
WATR-Tee (Point)-103	1,080.00	0	-8
WATR-Tee (Point)-104	1,080.00	0	-8
WATR-Tee (Point)-105	1,080.00	0	-8
WATR-Tee (Point)-106	1,080.00	0	-8
WATR-Tee (Point)-107	1,080.00	0	-8
WATR-Tee (Point)-108	1,080.00	0	-8
WATR-Tee (Point)-109	1,080.00	0	-8
WATR-Tee (Point)-11	1,080.00	0	2
WATR-Tee (Point)-110	1,080.00	0	-9
WATR-Tee (Point)-111	1,080.00	0	-9
WATR-Tee (Point)-112	1,080.00	0	-9
WATR-Tee (Point)-113	1,080.00	0	-9
WATR-Tee (Point)-114	1,080.00	0	-9
WATR-Tee (Point)-115	1,080.00	0	-8
WATR-Tee (Point)-116	1,080.00	0	-8
WATR-Tee (Point)-117	1,080.00	0	2
WATR-Tee (Point)-118	1,080.00	0	2
WATR-Tee (Point)-119	1,080.00	0	3
WATR-Tee (Point)-12	1,080.00	0	2
WATR-Tee (Point)-120	1,080.00	0	3
WATR-Tee (Point)-121	1,080.00	0	-1
WATR-Tee (Point)-122	1,080.00	0	-2
WATR-Tee (Point)-124	1,080.00	0	-9
WATR-Tee (Point)-125	1,080.00	0	-9
WATR-Tee (Point)-13	1,080.00	0	3
WATR-Tee (Point)-14	1,080.00	0	3
WATR-Tee (Point)-15	1,080.00	0	1
WATR-Tee (Point)-16	1,080.00	0	2
WATR-Tee (Point)-17	1,080.00	0	-8
WATR-Tee (Point)-18	1,080.00	0	-8
WATR-Tee (Point)-19	1,080.00	0	-8
WATR-Tee (Point)-20	1,080.00	0	-8
WATR-Tee (Point)-21	1,080.00	0	-8

Hydrant Scenario Nodes			
Label	Elevation (ft)	Demand (gpm)	Pressure (psi)
WATR-Tee (Point)-4	1,080.00	0	3
WATR-Tee (Point)-5	1,080.00	0	3
WATR-Tee (Point)-7	1,080.00	0	3
WATR-Tee (Point)-8	1,080.00	0	3
WATR-Tee (Point)-9	1,080.00	0	3
WATR-Tee (Point)-94	1,080.00	0	0
WATR-Tee (Point)-95	1,080.00	0	-2
WATR-Tee (Point)-96	1,080.00	0	-2
WATR-Tee (Point)-97	1,080.00	0	-2
WATR-Tee (Point)-98	1,080.00	0	-1
WATR-Tee (Point)-99	1,080.00	0	-1
WATR-Tee-1 Valve (Point)-133	1,080.00	0	3
WATR-Tee-1 Valve (Point)-26	1,080.00	0	3
191	1,080.00	0	3
WATR-Tee-1 Valve (Point)-67	1,080.00	0	-8
WATR-Tee-1 Valve (Point)-69	1,080.00	0	-8
WATR-Tee-1 Valve (Point)-71	1,080.00	0	-8
WATR-Tee-1 Valve (Point)-72	1,080.00	0	-8
WATR-Tee-1 Valve (Point)-74	1,080.00	0	-8
WATR-Tee-1 Valve (Point)-82	1,080.00	0	3
WATR-Tee-1 Valve (Point)-84	1,080.00	0	3
WATR-Tee-1 Valve (Point)-86	1,080.00	0	3
WATR-Tee-1 Valve (Point)-88	1,080.00	0	4
WATR-Tee-1 Valve (Point)-90	1,080.00	0	4
WATR-Tee-1 Valve (Point)-92	1,080.00	0	4
WATR-Tee-2 Valves (Point)-64	1,080.00	0	3
WATR-Tee-2 Valves (Point)-65	1,080.00	0	4
WATR-Tee-2 Valves (Point)-66	1,080.00	0	4
WATR-Tee-3 Valves (Point)-28	1,080.00	0	-8
WATR-Tee-3 Valves (Point)-32	1,080.00	0	4
WATR-Tee-3 Valves (Point)-33	1,080.00	0	8
190	1,080.00	0	8
WATR-Tee-3 Valves (Point)-68	1,080.00	0	-8
WATR-Tee-3 Valves (Point)-73	1,080.00	0	-8
WATR-Tee-3 Valves (Point)-76	1,080.00	0	-8
WATR-Tee-3 Valves (Point)-77	1,080.00	0	3
WATR-Tee-3 Valves (Point)-78	1,080.00	0	-8
213	1,080.00	0	-8
WATR-Tee-3 Valves (Point)-80	1,080.00	0	3

Hydrant Scenario Nodes			
Label	Elevation (ft)	Demand (gpm)	Pressure (psi)
215	1,080.00	0	4
WATR-Tee-3 Valves (Point)-83	1,080.00	0	3
WATR-Tee-3 Valves (Point)-85	1,080.00	0	3
J-104	1,080.00	0	2
J-105	1,080.00	0	0
J-109	1,080.00	0	3
J-112	1,080.00	0	3
J-118	1,080.00	0	-8
J-119	1,080.00	0	-9
J-123	1,080.00	0	-8
J-124	1,080.00	0	-8
J-125	1,080.00	0	-8
J-126	1,080.00	0	-8
J-127	1,080.00	0	-8
J-128	1,080.00	0	-8
J-129	1,080.00	0	-9
J-130	1,080.00	0	-9
J-131	1,080.00	0	-8
J-132	1,080.00	0	-8
J-133	1,080.00	0	-9
J-134	1,080.00	0	-9
J-135	1,080.00	0	-8
J-136	1,080.00	0	-8
J-137	1,080.00	0	4
J-138	1,080.00	0	4
J-140	1,080.00	0	3
J-141	1,080.00	0	4
J-142	1,080.00	0	4
J-143	1,080.00	0	3
J-144	1,080.00	0	-2
J-145	1,080.00	0	3
J-146	1,080.00	0	4
J-149	1,080.00	0	3
J-151	1,080.00	0	2
J-152	1,080.00	0	-2
J-153	1,080.00	0	2
J-154	1,080.00	0	0
J-155	1,080.00	0	2
J-156	1,080.00	0	3

Hydrant Scenario Nodes			
Label	Elevation (ft)	Demand (gpm)	Pressure (psi)
J-157	1,080.00	0	3
J-158	1,080.00	0	3
J-159	1,080.00	0	3
J-77	1,080.00	0	3
J-170	1,080.00	0	-8
J-172	1,080.00	0	-8
J-177	1,080.00	0	-8
J-178	1,080.00	0	-8
J-179	1,080.00	0	-8
J-180	1,080.00	708	-10
J-181	1,080.00	0	-9
J-182	1,080.00	0	-8
J-185	1,080.00	0	-8
J-186	1,080.00	0	-8
J-187	1,080.00	758	-11
J-188	1,080.00	0	-8
J-190	1,080.00	0	2
J-193	1,080.00	0	3
J-194	1,080.00	0	3
J-195	1,080.00	0	3
J-196	1,080.00	0	4
J-197	1,080.00	0	4
J-199	1,080.00	0	3
J-200	1,080.00	0	-1
J-201	1,080.00	0	-2
J-202	1,080.00	0	-1
J-203	1,080.00	0	2
J-204	1,080.00	0	-2
J-205	1,080.00	0	3
J-206	1,080.00	0	9

Hydrants			
Label	Elevation (ft)	Demand (gpm)	Pressure (psi)
H-3	1,080.00	0	4
H-4	1,080.00	1,000	-1
H-5	1,080.00	1,000	-1
H-6	1,080.00	0	4
H-7	1,080.00	0	2

Appendix C

Vicinity Map

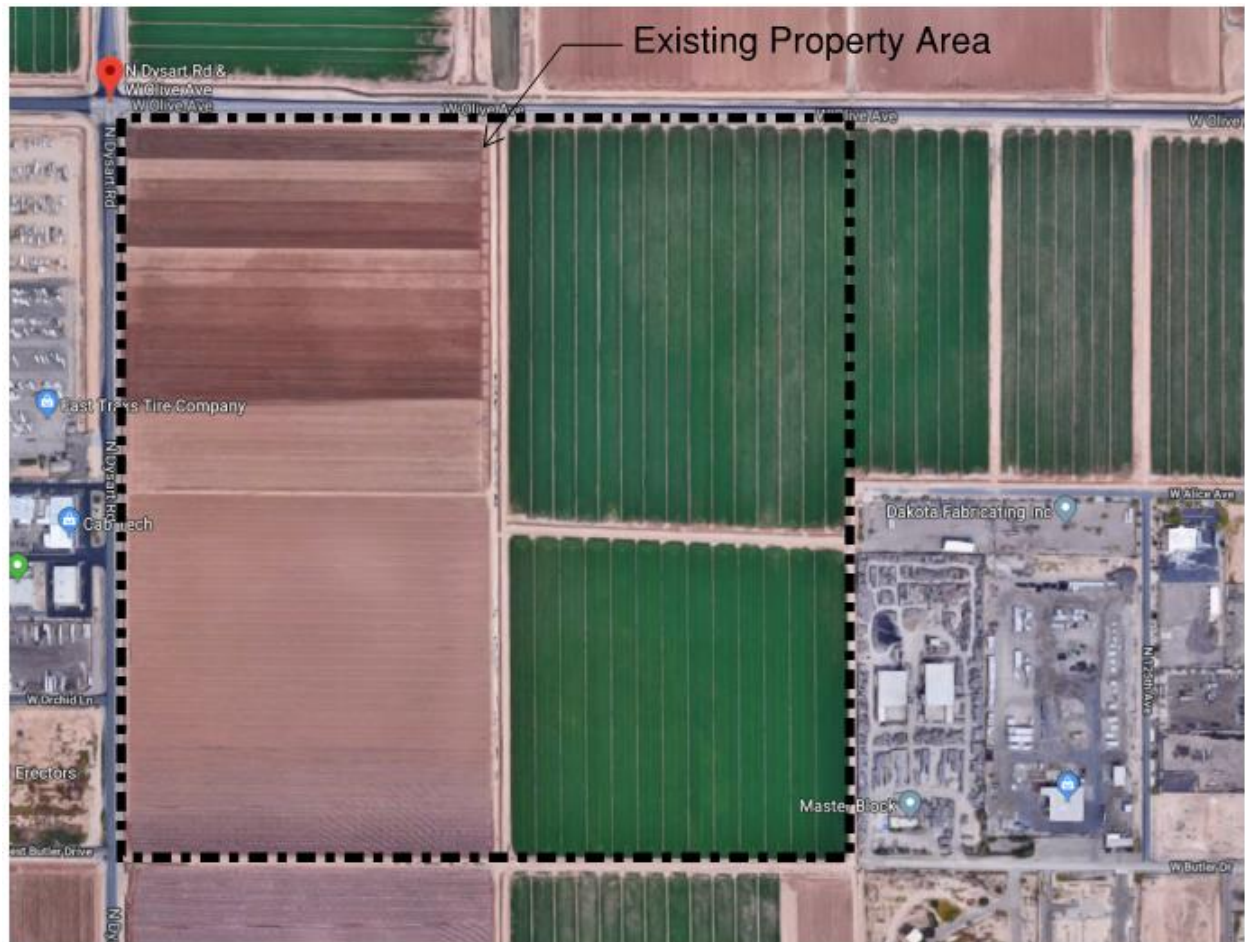


Figure 1: Vicinity Map

Appendix D

Water Model Exhibit

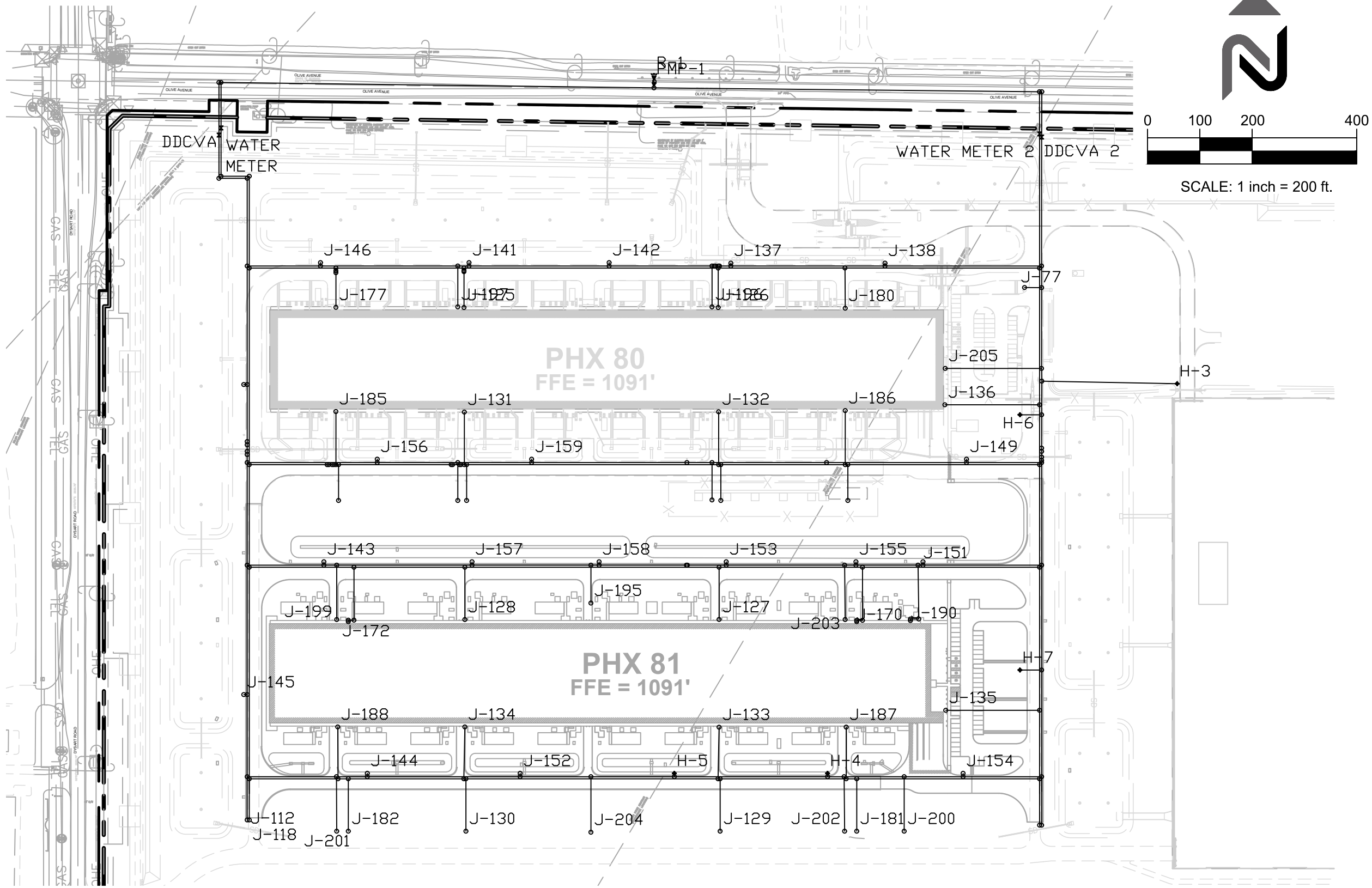


EXHIBIT A 2/15/2021	PHX80 EL MIRAGE, ARIZONA WATER MODEL EXHIBIT	NAVIX SITE CIVIL 11400 s.e. 8th street suite 345 bellevue, wa 98004 t: 425.453.9501 f: 425.453.8208 www.navixeng.com
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