AGENDA 4:30 P.M.

CITY COUNCIL MEETING TUESDAY, OCTOBER 22, 2024

NOTES:

- Public Forum:
  Comments are generally limited to **3 minutes**.
- Consent Items:
  Items listed under Consent Items have been distributed to Council Members in advance for study and will be enacted by one motion. Any member of the Council, staff or the public may remove an item from the Consent Items for discussion. For additional information on pulling a Consent Item, please contact the City Clerk's Office staff, preferably in advance of the Call to Order. Items removed from the Consent Items may be acted upon before proceeding to the next agenda item.
- Meeting room is wheelchair accessible. American Disabilities Act (ADA) accommodations are available upon request. Please phone 928-282-3113 at least two (2) business days in advance.
- City Council Meeting Agenda Packets are available on the City's website at:

www.SedonaAZ.gov

THE MEETING CAN BE VIEWED LIVE ON THE CITY'S WEBSITE AT WWW.SEDONAAZ.GOV OR ON CABLE CHANNEL 4.

GUIDELINES FOR PUBLIC COMMENT

PURPOSE:

- To allow the public to provide input to the City Council on a particular subject scheduled on the agenda.
- This is not a question/answer session.
- No disruptive behavior or profane language will be allowed.

PROCEDURES:

- Fill out a "Comment Card" and deliver it to the City Clerk.
- When recognized, use the podium/ microphone.
- State your:
  1. Name and
  2. City of Residence
- Limit comments to **3 MINUTES.**
- Submit written comments to the City Clerk.

1. CALL TO ORDER/PLEDGE OF ALLEGIANCE/MOMENT OF SILENCE
2. ROLL CALL
3. CONSENT ITEMS - APPROVE — LINK TO DOCUMENT =
   a. Minutes - September 25, 2024 City Council Joint Meeting with SFD.
   b. Minutes - September 25, 2024 City Council Special Meeting.
   c. AB 3120 Approval of an Ordinance amending Sedona City Code Title 13 (Public Service and Utilities) Division I Wastewater, amending Chapter 13.05 Definitions, Sewer Availability, and other miscellaneous amendments. (Second Meeting)
4. APPOINTMENTS - None
5. SUMMARY OF CURRENT EVENTS BY MAYOR/COUNCILORS/CITY MANAGER & COUNCIL ASSIGNMENTS
6. PUBLIC FORUM

   (This is the time for the public to comment on any issue within the jurisdiction of City Council not listed on the agenda. The City Council may not discuss items that are not specifically identified on the agenda. Therefore, pursuant to A.R.S. § 38-431.01(H), action taken as a result of public comment will be limited to directing staff to study the matter, responding to any criticism, or scheduling the matter for further consideration and decision at a later date.)
7. PROCLAMATIONS, RECOGNITIONS & AWARDS - None.
8. REGULAR BUSINESS
   a. AB 3134 **Discussion/presentation** by Coconino County Manager, Andy Bertelsen regarding Proposition #482 Coconino County Expenditure Limit.
   b. AB 3130 **Discussion/possible action** regarding a presentation by Sedona Sister Cities' Board of Directors Chuck Marr on their activities and accomplishments; and use of City resources to support the Sister Cities efforts.
   c. AB 3119 **Discussion/possible action** regarding approval of a Construction Manager at Risk contract with KEAR Civil Corporation for the construction of the WWRP UV Replacement Project, in an amount not-to-exceed $4,096,710, and approval of a Professional Services Agreement for the Construction Administration and Post-Design Services to Sunrise Engineering, LLC in the amount of $73,300.
   d. AB 3122 **Discussion/possible action** regarding the installation of a Flagpole at the Posse Grounds Pavilion to exceed City Code Height.
   e. AB 3086 **Discussion/possible direction** regarding traffic testing and monitoring with data collection using various traffic control strategies to update traffic modeling in the high congestion corridors, with a focus at the Y Roundabout and SR 179 crosswalk near Oak Creek.
   f. AB 3066 **Discussion/possible action** regarding future meeting/agenda items.

CITY COUNCIL CHAMBERS
102 ROADRUNNER DRIVE, SEDONA, AZ

The mission of the City of Sedona government is to provide exemplary municipal services that are consistent with our values, history, culture and unique beauty.

Note: Pursuant to A.R.S. § 38-431.02 notice is hereby given to the members of the City Council and to the general public that the Council will hold the above open meeting. Members of the City Council will attend either in person or by telephone, video, or internet communications. The Council may vote to go into executive session on any agenda item, pursuant to A.R.S. § 38-431.03(A)(3) and (4) for discussion and consultation for legal advice with the City Attorney. Because various other commissions, committees and/or boards may speak at Council meetings, notice is also given that four or more members of these other City commissions, boards, or committees may be in attendance.

A copy of the packet with materials relating to the agenda items is typically available for review by the public in the Clerk's office after 1:00 p.m. the Thursday prior to the Council meeting and on the City's website at www.SedonaAZ.gov. The Council Chambers is accessible to people with disabilities, in compliance with the Federal 504 and ADA laws. Those with needs for special typeface print, may request these at the Clerk's Office. All requests should be made **forty-eight hours** prior to the meeting.

NOTICE TO PARENTS AND LEGAL GUARDIANS: Parents and legal guardians have the right to consent before the City of Sedona makes a video or voice recording of a minor child, pursuant to A.R.S. § 1-602(A)(9). The Sedona City Council meetings are recorded and may be viewed on the City of Sedona website. If you permit your child to attend/participate in a televised City Council meeting, a recording will be made. You may exercise your right not to consent by not allowing your child to attend/participate in the meeting.

9. EXECUTIVE SESSION

Upon a public majority vote of the members constituting a quorum, the Council may hold an Executive Session that is not open to the public for the following purposes:

a. To consult with legal counsel for advice on matters listed on this agenda per A.R.S. § 38-431.03(A)(3).

b. Return to open session. Discussion/possible action on executive session items.

10. ADJOURNMENT

Posted: 10/14/2024

By: MG

JoAnne Cook, CMC
City Clerk

CITY COUNCIL CHAMBERS
102 ROADRUNNER DRIVE, SEDONA, AZ

The mission of the City of Sedona government is to provide exemplary municipal services that are consistent with our values, history, culture and unique beauty.

Summary Minutes
Special City Council Meeting with Sedona Fire Department
Vultee Conference Room, Sedona City Hall, Sedona, AZ
Wednesday, September 25, 2024 – 1:00 p.m.

1. CALL TO ORDER/PLEDGE OF ALLEGIANCE

Mayor Jablow called the meeting to order at 1:00 p.m.

2. ROLL CALL & INTRODUCTIONS

Council Present: Mayor Scott Jablow, Vice Mayor Holli Ploog, Councilor Melissa Dunn, Councilor Brian Fultz, Councilor Pete Furman, Councilor Kathy Kinsella, and Councilor Jessica Williamson.

Sedona Fire District Governing Board: Chairperson Helen Briggs McNeal, Clerk Corrie Cooperman, Member David Soto, Member Janet Jablow, Executive Assistant to the Fire Chief Kimberly Smathers and Fire Chief Ed Mezulis.

Staff Present: City Manager Anette Spickard, Deputy City Manager Andy Dickey, City Attorney Kurt Christianson, Police Chief Stephanie Foley, Director of Community Development Steve Mertes, Principal Planner Cynthia Lovely and Deputy City Clerk Marcy Garner.

3. SPECIAL BUSINESS

a. AB 3077 **Discussion/possible direction** regarding location of future Fire Station

Presentation by Fire Chief Ed Mezulis regarding Fire Station 4. Chief Mezulis presented on current conditions of Fire Station 4. An upgrade has been needed since 1996. They are in good financial position to move forward with a new station.

Fire Chief Mezulis and Chairperson Helen Briggs McNeal introduced themselves and the rest of the Sedona Fire District Governing Board.

Questions and comments by Council, Board Members and staff during the presentation. Discussion included location, access, housing, Uptown needs, public concerns and cost.

Presentation by Cynthia Lovely. Presentation included a look at four sites for a potential location to explore and the logistics and considerations of each site. Cynthia discussed location, access, current property owners, the city's involvement and the city's needs.

By majority consensus, Council directed staff to continue to explore the 401 Jordan Road and 391/431 Forest Road location sites.

b. **Discussion/possible action** regarding ideas for future meetings/agenda items.

None.

4. Executive Session

Upon a public majority vote of the members constituting a quorum, the Council may hold an Executive Session that is not open to the public for the following purposes:

a. To consult with legal counsel for advice on matters listed on this agenda per A.R.S. § 38-431.03(A)(3).

b. Return to open session. Discussion/possible action on executive session items.

No Executive Session was held.

5. Adjournment

Mayor Jablow adjourned the meeting at 2:46 p.m. without objection.

I certify that the above are the true and correct actions of the Regular City Council Meeting held on September 25, 2024.

_____ _____

Marcy Garner, Deputy City Clerk Date

Action Minutes
Special City Council Meeting
City Council Chambers, Sedona City Hall
102 Roadrunner Drive, Sedona, Arizona
Wednesday, September 25, 2024, 3:00 p.m.

1. Call to Order

Mayor Jablow called the meeting to order at 3:00 p.m.

2. Roll Call

Roll Call: Mayor Scott Jablow, Vice Mayor Holli Ploog, Councilor Melissa Dunn, Councilor Brian Fultz, Councilor Pete Furman, Councilor Kathy Kinsella, and Councilor Jessica Williamson.

Staff in attendance: City Manager Anette Spickard, Deputy City Manager Andy Dickey, City Attorney Kurt Christianson, Director of Community Development Steve Mertes and Deputy City Clerk Marcy Garner.

Motion: Vice Mayor Ploog moved to go into executive session for legal consultation per 4a, regarding item 3a at 3:01 p.m. Councilor Williamson seconded. Entered into executive session at 3:02 p.m. Vote: Motion passed with seven (7) in favor (Jablow, Ploog, Dunn, Fultz, Furman, Kinsella, Williamson) and zero (0) opposed.

Reconvened in open session 3:07 p.m.

No action taken.

3. Special Business

a. AB 3025 Discussion/possible direction regarding the findings and recommendations of the Airport Assessment.

Presentation by Andy Dickey and Airport General Manager, Ed Rose.

Questions and Comments from Council throughout the presentation.

Public Comment at 3:41 p.m.

Russell Demaray, Sedona, Ed Kettler, Sedona, gave his time to Robert Stephens, Sedona, Rodger Paker, Sedona, Steve Hein, Sedona, David Cooper, Sedona, and Mark Allen, Sedona, all spoke in opposition of this item.

Public Comment closed at 3:53 p.m.

Brought back to council.

Comments by Council.

By majority consensus, Council directed staff to not pursue a dialogue with Yavapai County regarding sponsorship transfer of the airport. Staff was directed to continue to collaborate and support the airport.

b. Discussion/possible action regarding ideas for future meetings/agenda items

None.

4. Executive Session

Upon a public majority vote of the members constituting a quorum, the Council may hold an Executive Session that is not open to the public for the following purposes:

a. To consult with legal counsel for advice on matters listed on this agenda per A.R.S. § 38-431.03(A)(3).

b. Return to open session. Discussion/possible action on executive session items.

5. Adjournment

Mayor Jablow adjourned the meeting at 4:07 p.m. without objection.

I certify that the above are the true and correct actions of the Special City Council Meeting held on September 25, 2024.

_____ _____

Marcy Garner, Deputy City Clerk Date

CITY COUNCIL AGENDA BILL

AB 3120
October 22, 2024
Consent

Agenda Item: 3c
Proposed Action & Subject: Approval of an Ordinance amending Sedona City Code Title 13 (Public Service and Utilities) Division I Wastewater, amending Chapter 13.05 Definitions, Sewer Availability, and other miscellaneous amendments. (Second Meeting)

Department	Wastewater/City Manager's Office J. Andy Dickey
Time to Present **Total Time for Item**	5 minutes 20 minutes
Other Council Meetings	October 8, 2024 – AB 3120
Exhibits	A. Draft Ordinance B. 2024 Amendments to SCC Title 13, Public Services and Utilities, Division I Wastewater

Finance Approval	Reviewed 10/7/24 BGW
City Attorney Approval	Reviewed 10/7/24 KWC
City Manager's Recommendation	Recommend approval ABS 10/7/24

Expenditure Required	
$	N/A
Amount Budgeted	
$	N/A
Account No. (Description)	

SUMMARY STATEMENT

Background: Sedona City Code (SCC) Title 13, Division I Wastewater provides regulations for the disposal of wastes, sewerage, and storm waters to protect the health, safety and welfare of the citizens of the city and the environment.

Significant proposed amendments to SCC Title 13 include:

- Chapter 13.05.020 currently provides definition of sewer availability that is vague and leads to extensive sewer main extensions to meet code requirements. In some cases, this has resulted or would result in sewer main extensions in excess of 700 feet at the cost of the property owner/developer in order to meet the sewer connection requirements. The proposed ordinance redefines sewer availability to mean that existing sewer infrastructure is available adjacent to and within 300 feet of any parcel boundary. By revising this definition this will make sewer connections more feasible for individual parcels. City code will still allow those properties to connect if they wish, but it would not be a requirement. Subdivisions, multi-family, commercial and industrial properties will not be subject to the 300-foot threshold.

- Chapter 13.15.020 requires connection to the city collection system within 180 days of the Notice of Sewer Availability. This means that if a sewer main extension brings a parcel into the definition of having sewer availability, existing developed parcels must convert from septic to city sewer within 180 days regardless of septic system age or condition. The proposed ordinance will allow existing developed properties to defer connection to the city sewer system for up to four years. This allows property owners who are developing to extend the sewer main for connection to city sewer without forcing adjacent existing developed properties to connect. There have been several instances in the last 5 years where sewer has not been available to a property, the owners have been willing to extend the sewer main at their cost, but they do not move forward with the sewer main extension because of adjacent properties not willing to endure the cost of converting from septic to city sewer within 180 days. It is advantageous for homeowners and the environment to convert from septic to city sewer. By allowing deferments, it will afford more flexibility for private developers to fund sewer main extensions and individual homeowners to plan for conversion over a longer time frame.

Additional minor amendments to SCC Title 13 include:

- The addition of specifications for sewer clean-outs at the property line
- The requirement to install a sewer clean-out at the property line when undergoing a remodel or addition
- The revision to the lowest drain fixture elevation requiring a backwater valve on the sewer lateral
- The requirement to install a backwater valve when undergoing a remodel or addition, if the property meets elevation difference requirements between the lowest drain fixture and the upstream manhole.

This is the second public meeting. Council reviewed the proposed amendments at their October 8, 2024 meeting.

Climate Action Plan/Sustainability Consistent: ☒**Yes -** ☐**No -** ☐**Not Applicable**

A goal of the climate action plan is to “Manage, restore, and foster resilient ecosystems, landscapes, and resources.” This applies to the proposed code amendments as they’re intended to protect private properties, and the environment, by making the wastewater system resilient.

Board/Commission Recommendation: ☐**Applicable -** ☒**Not Applicable**

Alternative(s): Council could choose to not move forward with the proposed code changes. This would leave the issues intended to be addressed by the code changes as they exist.

MOTION

I move to: Approve Ordinance 2024-___ amending Sedona City Code Title 13 (Public Service and Utilities) Division I Wastewater, amending Chapter 13.05 Definitions, Sewer Availability, and other miscellaneous amendments.

ORDINANCE NO. 2024-___

AN ORDINANCE OF THE CITY OF SEDONA, ARIZONA, DECLARING THE DOCUMENT TITLED "2024 AMENDMENTS TO SCC TITLE 13, PUBLIC SERVICES AND UTILITIES, DIVISION I WASTEWATER" AS A PUBLIC RECORD, ADOPTING THE SAME BY REFERENCE, AND AMENDING THE SEDONA CITY CODE AS SET FORTH THEREIN; PROVIDING FOR PENALTIES, SEVERABILITY, AND REPEAL OF CONFLICTING ORDINANCES; AND ESTABLISHING AN EFFECTIVE DATE.

WHEREAS, the City deems it necessary to adopt certain amendments to Sedona City Code Title 13, Public Services and Utilities, Division I Wastewater to protect the health, safety, and welfare of the public.

BE IT ORDAINED BY THE MAYOR AND CITY COUNCIL OF THE CITY OF SEDONA, ARIZONA, as follows:

Section 1. The recitals above are hereby incorporated as if fully set forth herein.

Section 2. That certain document titled the "2024 Amendments to SCC Title 13, Public Services and Utilities, Division I Wastewater" ("SCC Wastewater Amendment"), of which one paper copy and one electronic copy are maintained, in compliance with A.R.S. § 44-701, on file in the office of the City Clerk as required by A.R.S. § 9-802, and available for public use and inspection during normal business hours, is hereby declared to be a public record and said copies thereof are hereby ordered to remain on file with the City Clerk.

Section 3. Sedona City Code Title 13, Public Services and Utilities, Division I Wastewater is hereby amended as set forth in the SCC Wastewater Amendment, which is hereby referred to, adopted, and made a part hereof as if fully set forth herein.

Section 4. If any section, subsection, sentence, clause, phrase, or portion of this ordinance or any part of the SCC Wastewater Amendment adopted herein is for any reason held to be invalid or unconstitutional by a court of competent jurisdiction, such decision shall not affect the validity of the remaining portions thereof.

Section 5. The Mayor, the City Manager, the City Clerk, and the City Attorney are hereby authorized and directed to take all steps necessary to carry out the purpose and intent of this ordinance.

Section 6. Penalties:

A. Any person, operator or owner who shall violate any provision of this ordinance, or who shall fail to comply with any provision hereof, shall be guilty of a Civil Offense or a Class 1 misdemeanor and, upon conviction thereof, shall be punished by a fine not to exceed $2,500 or by imprisonment for a period not to exceed six months, or by both such fine and imprisonment. Each day that a violation continues is a separate offense punishable as set forth herein. Violations relating to nonpayment of delinquent fees and charges shall not be subject to prosecution as a misdemeanor.

B. If any person discharges sewage, industrial wastes or other wastes into the city wastewater system contrary to the provisions of this ordinance, federal or state pretreatment requirements or any order of the director, the city attorney, subject to approval by the council, may commence an action for appropriate legal and equitable relief in the superior court of the appropriate county.

C. Any person, operator, or owner that has violated any provision of this ordinance is liable to the city for any expense, loss or damage occasioned by the city for reason of appropriate cleanup and proper disposal of waste materials. Additionally, an administrative fee equal to one-half of assessed cleanup costs shall be levied by the city against the guilty party.

D. The city may report violations of this ordinance to appropriate state and federal agencies as violations of the Clean Water Act and related acts, laws and regulations.

E. All other penalties herein notwithstanding, it is unlawful for any person, whether principal, owner, agent or tenant, to unlawfully violate, disobey, omit or refuse to comply with or to resist the enforcement of any of the provisions of this ordinance.

F. The director may refuse service to and disconnect any user who fails to comply with any of the provisions of this ordinance.

G. Discontinuance of wastewater services shall not occur until the noncomplying person, industry or business has been notified that it is not in compliance with this ordinance and has been given a reasonable time in which to come into compliance. The director may immediately halt service with no notice to the user when the director determines that such action is necessary to prevent a discharge of pollutants that represents an imminent danger to the public health, safety or welfare or may result in immediate and significant environmental damage.

H. This section shall not be held to prohibit the city engineer or city manager from acting to require and effect correction of violations or removal of nuisances.

I. In addition to any criminal fine which may be imposed for violation of any provision of this ordinance, any person shall be liable for all charges which may be assessed by the city on any user of the city wastewater system who discharges wastes containing impermissible quantities of prohibited substances into the city wastewater system. The director may assess charges based on the costs incurred by the city in surveillance, sampling and testing of the discharges, for additional operating and maintenance expenses, or for any other action required to identify, handle, process or supplement normal activities due to the unauthorized discharge of wastes, plus overhead charges.

J. The director may discontinue wastewater collection or treatment service to premises for any of the following reasons:

1. Failure to pay a charge assessed by the director for unauthorized discharges.
2. Failure to correct an unauthorized discharge as required by the director.
3. Discharging any unauthorized substances, materials, water or waste as prohibited by federal, state or local regulation.
4. To prevent fraud or abuse.
5. In response to disregard of city rules pertaining to water or sewer service.
6. For emergency repair.
7. In response to local emergency requiring emergency measures.

K. Before disconnecting the property from the city wastewater system, the city shall provide written notice, by certified, return receipt requested mail, to the violator of the pending disconnection, and the city shall follow the procedure set forth in SCC 13.15.080 for setting a hearing. However, if the discharge is a threat to the public health, safety or welfare, or poses an immediate and significant potential for environmental harm, the city may initiate an enforcement action without giving notice.

L. Upon notice of the final determination by the director of an assessment or order to correct an unauthorized discharge, the responsible party shall tender the amount assessed within 10 days of the date ordered and discontinue the unauthorized discharge as ordered by the director. In the event the unauthorized discharge is not corrected or the assessment is not tendered, continued operation resulting in a discharge is unlawful, and the discharge will be a public nuisance which may be abated by order of a court of competent jurisdiction. This remedy shall be in addition to any other remedy.

M. Any charges imposed by this ordinance if not paid by the due date, may also be collected by a civil suit, instituted in the name of the city by the city attorney at the request of the city at any time after the

charge becomes delinquent, not withstanding any other provisions to the contrary.

N. In addition to any late charges specified in this chapter, the city may recover all costs of litigation and collection including a reasonable attorney's fee.

O. The city may assign late charges to a bona fide collection agency for collection.

P. The remedies provided by this section shall be cumulative and supplemental to other remedies provided by provisions of this ordinance.

Q. In the event that sewer services are terminated, a charge of $500.00 shall be paid, together with any other charges which are due and owing to the city under any city ordinance, prior to the re-establishment of sewer service.

Section 7. Severability. If any section, subsection, sentence, clause, phrase, or portion of this Ordinance is for any reason held to be invalid or unconstitutional by the decision of any court of competent jurisdiction, such decision shall not affect the validity of the remainder of this Ordinance.

Section 8. Repeal. All other code provisions, ordinances, or parts of ordinances in conflict with the provisions of this Ordinance are hereby repealed to the extent of such conflict as of the effective date hereof.

Section 9. Effective Date. The effective date of this Ordinance shall be 30 days following adoption by the City Council.

PASSED AND ADOPTED by the Mayor and Council of the City of Sedona, Arizona, this _____ day of _____, 2024.

_____
Scott M. Jablow, Mayor

ATTEST:

_____
JoAnne Cook, CMC, City Clerk

APPROVED AS TO FORM:

_____
Kurt W. Christianson, City Attorney

Title 13

PUBLIC SERVICES AND UTILITIES

Chapters:

Division I.
Wastewater

13.05 **General Provisions**
13.10 **Determination of Areas to be Sewered – Extensions to City Wastewater System**
13.15 **Connections to Wastewater System**
13.20 **Wastewater Monthly Service Charge**
13.25 **Prohibited Discharges – Inspections**
13.30 **Registration of Septage Haulers – Reporting Requirements**
13.35 **Environmental Nuisances**
13.40 **Pretreatment Requirements**
13.45 **Violation – Penalty**

Division I. Wastewater

Chapter 13.05

GENERAL PROVISIONS

Sections:

13.05.010 **Purpose.**
13.05.020 **Definitions.**
13.05.030 **General considerations.**
13.05.040 **Nonliability of city for wastewater collection service.**

...

13.05.020 Definitions.

For the purpose of this chapter, the following definitions shall apply unless the context clearly indicates or requires a different meaning:

“Backflow prevention device” means a device or valve installed in a pressure sewer system which is intended to prevent wastewater from the sewer main system from entering facilities connected to the private sewer lateral.

“Backwater valve” means a device or valve installed in a sewer lateral which is intended to prevent wastewater from the public sewer system from backing up into low level fixtures on private property and causing a flooding condition.

“BOD” or “biochemical oxygen demand” means an analytical test that indicates the strength of wastewater by measuring the amount of oxygen in parts per million (ppm) required to stabilize organic compounds.

“Capacity fee” means the fee charged by the city to connect to the wastewater system and thus receive an allocation of wastewater treatment and disposal capacity.

“Capacity standby fee” means the monthly fee charged to property owners of undeveloped property located in an area where the city wastewater system is available for connection. This fee is equal to one-half of the standard ERU rate. This fee is designed to recoup the city’s costs for maintenance and depreciation on wastewater facilities.

“Chemical toilet waste” means waste from a toilet containing chemicals for sanitary management of feces and/or urine. Generally, a portable toilet facility.

“City engineer” means the individual or company acting in the capacity per SCC 2.55.010, City engineer.

"Cluster system" means a wastewater collection and treatment system serving more than one parcel, the collection and treatment components of which are located wholly with the city of Sedona, but is not owned by the city of Sedona.

"Collector cluster system" means pipelines or conduits, excluding house sewers, for collecting and conducting wastewater to a point or points of treatment or disposal from two or more residents, apartment units, condominiums or businesses.

"Commercial account" means a sewer billing account for a nonresidential use connected to the city wastewater system.

"Department" means the Arizona Department of Environmental Quality.

"Director" means the director of wastewater who is the director of the office of wastewater management.

"Drainage fixture unit" means a measure of the probable discharge into the drainage system by various types of plumbing fixtures. The drainage fixture unit for a given plumbing fixture shall be determined in accordance with the city's adopted plumbing code.

"Drive-up window" means an opening between the interior and exterior of a building for the purpose of passing food from inside a business to its customers located outside the building. The customers may or may not be in a vehicle.

"Economically feasible" means a determination by the council, pursuant to this division, that extension of the city wastewater system to such area is financially feasible.

"Effluent" means wastewater discharged or leaving a treatment unit or treatment process.

"Environmentally necessary" means a determination by the council, pursuant to this division, that a public health hazard exists or may exist from the pollution of, or from the reasonable probability of pollution of, surface waters or groundwater.

"ERU" or "equivalent residential unit" means the base unit allocated to a single-family residential structure for the wastewater system capacity it uses, ERU for city facilities located at other locations may vary and shall be determined by appropriate analysis.

"Facility," when referring to the city wastewater system, means those pipes, devices, manholes, pumps, buildings, walls, machines, treatment works, or combinations of these including related items comprising the city wastewater system. In cases where the city wastewater system is not being referred to, according to context, facility refers to privately owned pipes, machines, manholes, devices, building fixtures, or physical items or machines, or combinations of these including related items.

"Grease and oil analysis" means an analytical test used to measure the amount of grease and oil in parts per million (ppm) present in wastewater.

"Grease interceptor" means a grease-collecting device that is larger than a grease trap regarding flow rate and capacity. The interceptor discharges directly into the wastewater system preventing grease from entering the wastewater system by means of baffling.

"Grease, oil and fat" means animal and/or mineral byproduct that dissociates from water and adheres to the sidewalls of sewer pipes creating potential clogging problems in sewer systems.

"Grease trap" means a grease collecting device normally with less than a 51 gallons per minute (gpm) flow rate with a capacity of 40 gallons of water, the placement of which is downstream of a sink but upstream of the city wastewater system.

"Guest house" means an accessory building with one or more rooms used solely as the temporary dwelling of the guests of the occupants of the premises and not rented or used for supplemental income. Guest houses shall not include mobile or manufactured homes, shall contain no kitchen facilities, shall be connected to the same utility services as the main dwelling and shall not be used as a separate dwelling unit.

"Individual sewage disposal system" means a privately owned residential or commercial wastewater treatment system.

"Infiltration" means the entry of groundwater into a sanitary sewer system through joints, porous walls, and cracks, as well as the extraneous flow (inflow) that enters a sanitary sewer from other sources such as connections from roof leaders, basement drains, land drains, and manhole covers. Inflow infiltration typically results directly from rainfall or irrigation runoff.

"Influent" means wastewater entering a treatment unit, treatment process or city wastewater collection system.

"Interceptor" includes traps, filters, separators, vaults, processes and other devices, means or processes intended to remove solids, liquids, or gases from wastewater prior to its discharge to the city wastewater system.

"Minimum monthly service charge" means the minimum charge for a commercial account regardless of the level of activity of the unit or if the unit is vacated.

"Mixed loads" means combined septage tanker loads as a result of pumping grease interceptors and septic tanks into the same septage tanker.

"Monthly service fee" means the fee charged each month for use of the wastewater system.

"Nonresidential use" means any land use other than single-family residences, apartments, condominiums or multi-unit residential buildings.

"Nonuser service fee" means the monthly fee charged to residential property owners of developed residential property who have received a notice of sewer availability, but have a legally functioning on-site septic system, and elect to defer connection to the city's wastewater system by entering into a wastewater connection deferral agreement. This fee is equal to one-half the standard ERU rate for the property.

"Office" means the Sedona office of wastewater management.

"Pollution" means such contamination or other alteration of the physical, chemical or biological properties of any waters or such discharge of any liquid, gaseous or solid substance into any waters, onto or under any land as will or is likely to create a public health hazard or environmental nuisance or render such waters or land harmful or injurious to public health, safety or welfare to domestic, commercial, industrial, agricultural, recreational or other lawful beneficial uses, or to livestock, wildlife, birds, fish or other aquatic life.

"SDG system" means a small diameter gravity system which accepts the effluent from septic tanks in small diameter sewer pipes and wastewater runs in pipes by gravity without the aid of a pump to the city wastewater system.

"Septage hauler" means any person or business entity engaged in pumping wastes from individual wastewater disposal systems or in transporting septage.

"Septic tank" means a receptacle which receives raw sewage and which is designed, constructed and installed to city, state and county standards to prevent leakage, to retain settleable solids and to discharge sewage liquids into an absorption field, seepage pit, evapotranspiration bed or a wastewater collection system.

"Sewer availability" means a condition that occurs when the city wastewater system exists in a street or easement adjacent to and within 300 feet of a real property or adjacent to and within 300 feet of a private wastewater collection system serving that real property and the city wastewater system is ready for connection, and wastewater treatment and disposal capacity is adequate for the proposed connection, subject to any state or federal consent order or judgment. The 300-foot distance shall only apply to single-family residential properties. Subdivisions, multi-family, commercial, and industrial properties shall have sewer availability when the city wastewater system exists in a street or easement adjacent to the real property or adjacent to a private wastewater collection system serving that real property and the city wastewater system is ready for connection, and wastewater treatment and disposal capacity is adequate for the proposed connection, subject to any state or federal consent order or judgement. Final determination of sewer availability shall be by the city engineer or director.

"Standard gravity system" means a collection system that accepts all of the wastewater generated on a property except for special pretreatment which may be required by the city, such as grease removal or volatile or toxic wastes removal.

"Step system" means a septic tank effluent pumping collection system which uses a pump and reservoir tank to pump the effluent from a private septic tank to the city wastewater system.

"Storm waters" means rainwater and other waters specifically identified in the latest city of Sedona storm water management program filed with the department as acceptable to go into the municipal separate storm sewer system (MS4).

"Take-out" means food or drink prepared and sold with the intent that it will be consumed elsewhere than within the dining area owned by the business selling it.

"TSS" or "total suspended solids" means an analytical test result that measures the presence of solids in parts per million (ppm) within a sample of wastewater.

"Wastewater" means a combination of water-carried wastes from residences, institutions, public and private business buildings, mobile homes, motor homes, trailers and other places of human habitation, employment or recreation. For the purpose of this division, "wastewater" does not include storm water.

"Wastewater system (city wastewater system)" means pipelines or conduits, pumping stations, force mains, wastewater treatment plant, disposal field, lagoon, pumping stations, incinerator, wetlands and all other treating devices, appurtenances and facilities for collecting and conducting wastewater to a point of treatment and disposal constructed or operated by the city.

"Waters within the city" means all streams, lakes, ponds, marshes, drainage systems, aquifers and all other bodies or accumulations of water, surface or underground, natural or artificial, public or private, which are contained within, flow through or border upon the corporate limits of the city. [Code 2006 § 13-1-2. Ord. 2009-04, 4-14-2009; Ord. 2010-07 § 1, 4-13-2010; Res. 2010-08 § 3 Exh. B, 4-13-2010; Ord. 2010-14 § 1, 9-28-2010; Res. 2010-27 § 1 Exh. A, 9-28-2010; Ord. 2014-06 § 1, 5-27-2014; Res. 2014-10 Exh. A, 5-27-2014].

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13.15.020 Notice of sewer availability.

a. After completion of any extension of the city wastewater collection system, the finance director shall send a written "notice of sewer availability" to all affected property owners or their agents or lessees, as shown on the last assessment of the property, that the city wastewater system is available and that property owners must connect within 180 days. Such notice shall be given by certified mail to the property owner or agent or lessee, and by publishing the same notice, together with a description of the affected parcels, in not less than two issues of a newspaper of general circulation within the city. The times prescribed in this section shall run from the date of such notice. [Code 2006 § 13-5-3. Ord. 2010-14 § 1, 9-28-2010; Res. 2010-27 § 1 Exh. A, 9-28-2010; Ord. 2014-06 § 1, 5-27-2014; Res. 2014-10 Exh. A, 5-27-2014; Ord. 2021-07 § 1, 9-28-2021; Res. 2021-23 Exh. A, 9-28-2021].

b. Property owners may elect to enter into a deferred connection agreement for a period of no more than four (4) years. Deferment is subject to inspection of existing private sewage disposal systems by a licensed septage company at the sole expense of the property owner on an annual basis. Property owners in deferment shall submit inspection reports to the city for review. If inspection results indicate an improperly functioning private sewage disposal system, the property owner shall connect to the city wastewater collection system within 60 days from the date of the inspection. Upon completion of the four-year deferment, the property owner shall be required to connect to the city wastewater collection system within 180 days of the expiration of the deferment period. Failure to timely connect will result in fines for each day the property owner does not connect to the city wastewater collection system.

1. A deferred connection agreement shall not apply to new construction when there is sewer availability, as defined in SCC 13.05.020, at the time of construction

2. Deferred connection agreements are subject to approval by the city engineer or director.

13.15.030 Mandatory connection to city wastewater system once available.

A. Within 180 days from the date that the finance director provides notice of sewer availability as defined in SCC 13.05.020, or the end of the deferment period as defined in SCC 13.15.020 (b), , a real property owner with building or water fixtures thereon shall make direct connection to the city wastewater system in accordance with the city design requirements, the adopted plumbing code, as amended, and all applicable state, county and city regulations.

B. *Cluster Systems.*

1. If the sewer availability notice is given to property owners that are both the users and owners of an existing collector cluster system, the city shall request that the property owners shall pay to the city an administrative processing fee, together with a fee to be set by the city manager to reimburse the city for the cost of inspecting the system. The administrative processing fee shall be $5,000 beginning in September 2008 and increase no more than two percent annually thereafter over the previous year's fee beginning in August 2009. The applicable fee shall be stated within and approved as part of the annual city budget. The property owners shall provide to the city an acceptable set of as-built drawings of the system, copies of all applicable permits and copies of all records of inspection, maintenance, repair, expansion and improvement of the system. If the city is not provided with the administrative processing and inspection fees, or information regarding the system stated herein, the city may proceed to perform the required work and pursue any legal remedies on properties served by the existing system or upon the common disposal field as the city may deem appropriate.

2. If, upon inspection, it appears that the physical condition of the system does not meet the standards adopted by city council for sewer connection to the city's wastewater system, then it shall be the responsibility of the property owners to bring the system into compliance with such standards before the city will accept sewer connection to the city's wastewater system. If the system needs to be connected because it is necessary for public health or environmental reasons, then the city may proceed with such connection and

assess the property owners using the system for the incurred cost or at the city's discretion treat the improvement as a city-initiated extension.

3. Once it is determined the cluster system meets city standards, the city shall allow the cluster system to be connected to the city wastewater system only after every property owner in that area has paid or made arrangements to pay the capacity fee pursuant to SCC 13.15.060 and the cluster system owners have presented to the city an acceptable written plan for responding to spills, overflows, blockages and damage to the cluster system.

C. If a property owner fails to connect to the city wastewater system within the time limits set forth in subsection (A) of this section, the city shall assess a monthly environmental penalty charge for every month such property remains unconnected. This charge shall be equal to twice the current monthly service charge for the property in question and shall be due and payable monthly. The city may employ the procedures set forth in SCC 13.20.060 and 13.20.070 for collection of such environmental penalty charge if not paid when due and payable. Outstanding environmental penalties owed are not considered to be outstanding late charges for purposes of this section.

D. Upon connection to the city wastewater system, any septic, STEP or alternate disposal system shall be pumped and abandoned and either removed or filled in at the owner's expense, in accordance with the city's adopted plumbing code, as may be amended from time to time, and all local and state laws, rules and regulations.

E. Failure to abandon a septic or other alternate disposal system in accordance with subsection (D) of this section shall constitute a public nuisance pursuant to SCC 8.10.020(A). Pursuant to the provisions of SCC 1.15.010(A), as amended or as may be amended from time to time, any person found guilty of violating this provision shall be guilty of a class 1 misdemeanor and, upon conviction thereof, shall be punished by a fine not to exceed $2,500 or by imprisonment for a period not to exceed six months, or by both such fine and imprisonment. Each day that a violation continues is a separate offense punishable as set forth herein or by civil sanction.

F. Single connections to the city sewer system serving two or more land parcels shall not be allowed prior to the city being presented with an acceptable written plan for responding to

spills, overflows, blockages, pump failures and conveyance system damage by the owner of the private collection and conveyance system and demonstrating compliance with state regulations regarding private sewer systems. [Code 2006 § 13-5-4. Ord. 98-04, 3-11-1998; Ord. 2009-04, 4-14-2009; Ord. 2010-07 § 1, 4-13-2010; Res. 2010-08 § 3 Exh. B, 4-13-2010; Ord. 2010-14 § 1, 9-28-2010; Res. 2010-27 § 1 Exh. A, 9-28-2010; Ord. 2014-06 § 1, 5-27-2014; Res. 2014-10 Exh. A, 5-27-2014; Ord. 2021-07 § 1, 9-28-2021; Res. 2021-23 Exh. A, 9-28-2021].

13.15.040 Permits for service connections.

A. Before physical connection is made to the city wastewater system, a permit must be secured from and 48 hours' notice given to the city. The issuance of a permit is subject to sewer availability and approval of the city engineer as to the point and type of connection. The director shall be consulted as regards available capacity for treatment at the plant. Sewer connection permits shall run with the land and shall not be transferable from one parcel to another parcel or from property to property. All such connections shall be made and all such work done at the expense of the applicant. All connections shall be made under the supervision of the city, and no such connection shall be covered until the work has been inspected and approved by the city. The city engineer shall issue permits for connection. The director of wastewater shall issue a written finding of available collection and treatment plant capacity as necessary.

B. Connection to city sewer shall also be a grant of permission to conduct announced inspections of the connected premises to verify compliance with city requirements regarding sewer facilities, materials directed to the sewer system, and flows directed to the sewer system. Subject to approval of the city attorney or other legal authority, the city may conduct unannounced inspections based upon reasonable suspicion that prohibited activities related to the city sewer are taking place or being maintained or allowed to exist on the connected premises.

C. When the lowest drain fixture for a facility served by a gravity sewer lateral is less than twelve inches higher than the nearest upstream manhole cover elevation, a backwater valve shall be installed on the lateral on private property exterior to and downstream of the facility

served by the lateral. A backwater valve shall be installed on existing laterals by December 31, 2011, or when the lateral is replaced or repaired, whichever occurs first.

D. All gravity laterals shall have a clean out near the property or right-of-way line in a location approved by the city engineer. The clean out must meet requirements of City of Sedona Revised Details 440-3 and 270. The city may require that an on-site pressure system deliver flow to a city gravity main using a gravity sewer lateral.

E. All pressure systems shall have a backflow prevention device on private property between the force main and the facility served by the sewer lateral. This requirement shall be met by December 31, 2011, for all existing pressure systems and before connection and operation of new pressure systems connected thereafter.

F. Pretreatment devices shall be installed when required by city code.

G. Connection shall be made utilizing one sewer lateral per parcel of one acre or less. Properties over one acre in size may appeal to the city engineer for more than one lateral. A lateral may serve no more than one parcel. The city shall not be obligated to install a lateral if it is not extending a main wastewater collection pipe intended to serve more than one parcel. The city shall not be obligated to provide a lateral for a vacant parcel exceeding two acres in area. In cases in which the city is not obligated to install a sewer lateral, the property owner shall install the lateral and/or main to the city's main sewer line.

H. In cases where the city becomes aware of a sewer lateral not meeting these standards, the city may require that a lateral meeting these standards be installed and the old lateral abandoned. If the lateral was installed prior to July 2007 under a city-issued permit, then the city of Sedona shall bear the cost to replace the lateral between the city system and the portion of the connected facility closest to the connection to the city system, with the exception of backflow and backwater prevention devices, which remain a property owner responsibility. If the lateral was installed without a city-issued permit or after July 2007, the property owner shall bear the cost to replace the new lateral.

I. The city shall determine the point of connection to its system. The city is not required to allow connection to its system at a point other than it determines as appropriate, even if a

property owner obtains an easement which might facilitate making connection to another location. Connections to sewer mains are to be located within the addressed street of a connecting facility, unless otherwise approved by the city engineer. [Code 2006 § 13-5-5. Ord. 98-18, 8-11-1998; Ord. 2009-04, 4-14-2009; Ord. 2014-06 § 1, 5-27-2014; Res. 2014-10 Exh. A, 5-27-2014; Ord. 2021-07 § 1, 9-28-2021; Res. 2021-23 Exh. A, 9-28-2021].

13.15.050 Property owner's and user's responsibility.

When a piece of property is connected to the city's wastewater system, the property owner shall be responsible for the maintenance, operation, repair and replacement of all pretreatment devices, flow measurement devices, backwater valves, backflow prevention devices, conveyance lines, lift pumps, septic tanks or alternate wastewater treatment systems located on the property. The owner shall also remove any connections between the storm water drainage system and the wastewater system.

A. Where, prior to the amendment of the wastewater code on March 11, 1998, there exists a STEP or SDG system already connected to the city wastewater system, or a STEP or SDG system has been already approved by the city in writing to be connected to the city wastewater system, the property owner, lessee or user of the city wastewater system, at his or her own expense, shall be responsible for pumping septage or wastewater from his or her property as required, and for cleaning, unstopping, maintaining and repairing the conveyance sewer from the building or residence up to and including the connection to the city wastewater system in the public right-of-way or utility easement (collectively referred to herein as on-site system maintenance). If, from time to time, the city wastewater system is modified so as to eliminate the need for a STEP or SDG system, the property owner shall comply with SCC 13.15.030(D), as may be amended from time to time. Nothing herein shall require the city to provide or be responsible for on-site system maintenance for any STEP or SDG system, unless expressly agreed to by contract or other agreement.

B. Where there exists a cluster system connected to the city's wastewater system, the individual property owners are responsible as stated in subsection (A) of this section. If an easement is granted on private roads as the only access and the existing sewer lines comply

with the city design requirements and are considered acceptable for donation, the city may, at its discretion, accept responsibility for the sewer lines as designated main sewer lines on the city's wastewater system. If an easement is granted for access to existing lift or pump stations that are or have been brought into compliance with city standards of operation and are considered acceptable for donation, the city may, at its discretion, accept responsibility for the stations as part of the city's wastewater system.

C. Where a cluster system that is to be connected to the city wastewater system is a septic effluent wastewater system (referred to herein as a cluster system), the city, in its discretion, may allow septic tanks to remain as an integral component of that system until such time as the cluster system is converted to a raw wastewater collection system. At the time of such conversion to a raw wastewater collection system, all septic tanks in the cluster system shall be pumped and abandoned and either removed or filled in, all at the owner's expense, in accordance with the city's adopted plumbing code, as may be amended from time to time, and all local and state laws, rules and regulations.

D. The property owner shall be responsible to install and maintain in proper operation all backwater valves and backflow prevention devices. The property owner shall be responsible for the consequences of not providing and not maintaining these devices as required by this code.

E. The property owner shall be responsible to install and maintain in proper operation pretreatment devices. The property owner shall be responsible to maintain records demonstrating the periodic cleaning and proper disposal of material collected by such devices.

F. The portions of a sewer lateral located on private property shall be removed if the facility to which it is connected is removed. The property owner may request and the city engineer may approve an exemption from this requirement, provided the sewer lateral or portions thereof will be reused for wastewater disposal within one year or less. The property owner shall, if an exemption is granted, commit in writing to restore use or remove the portions of the sewer lateral within one year. If the commitment is not kept, the city may enter the property to remove the portions of the lateral and cap the lateral, and seek all legal remedies for reimbursement of its costs.

G. The owner shall be responsible to contact the director prior to performing work between the sewer clean out and the city sewer main or within the city right-of-way or easement. The owner shall be responsible to notify the director should it appear that a problem with the sewer system between the facility and the sewer clean out or right-of-way or easement is due to improper operation of the city sewer system.

H. The city shall not be responsible for costs or impacts due to the owner's failure to perform owner's responsibilities. The city shall not be responsible for work that may occur between the sewer clean out and the city sewer main or within the city right-of-way or easement, if the city has not granted permission for such work prior to it proceeding. If work is performed without prior permission between the sewer clean out and the city sewer main or within the city right-of-way or easement the city may hold the individual or entity performing the work responsible for any damages or repair work resulting from such work.

I. The property owner shall be responsible for making sure that the allowable capacity for a parcel or nonresidential development is not exceeded. The allowable capacity is the sewer capacity, in terms of WSFUs (water supply fixture units) for which sewer permits have been issued. No owner shall make or maintain nonresidential uses that would require WSFUs in excess of the allowable capacity. If the city determines that an owner's sewer connections exceed the allowable capacity, then upon notice by the city, the owner must make the necessary modifications to ensure that the development configuration of the property does not exceed the allowable capacity.

J. Owners shall provide all requested information concerning the water supply fixtures upon any change of ownership, remodel or change of billing address. The city may require that continuing owners of such facilities provide current requested information to the city regarding the water supply fixture count. [Code 2006 § 13-5-6. Ord. 98-04, 3-11-1998; Ord. 2009-04, 4-14-2009; Ord. 2014-06 § 1, 5-27-2014; Res. 2014-10 Exh. A, 5-27-2014; Ord. 2021-07 § 1, 9-28-2021; Res. 2021-23 Exh. A, 9-28-2021].

K. Owners shall install a clean out at the property line, if one does not already exist, upon any remodel or addition to the property. The clean out must meet requirements of City of Sedona Revised Details 440-3 and 270. If a clean out does exists but does not meet the requirements of

City of Sedona Revised Details 440-3 and 270, the property owner shall replace the existing clean out with a clean out meeting the requirements of the revised details.

L. Owners shall install a backwater valve on the lateral on private property exterior to and downstream of the facility served by the lateral, if one does not already exist and conditions meet the requirements of SCC 13.50.040(C), upon any remodel or addition to the property.

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13.20.020 Calculation of monthly service charge amount.

A. The charge for each connection shall be the number of ERUs assessed to that connection times the basic rate for one ERU as set forth in the rate table adopted by the city council and as amended from time to time. In no case shall a charge be less than minimums established by ordinance of the city council.

B. Commercial users, other than hotels and restaurants, will be allowed to install, at their own expense, an appropriate device to aid in determining sewage flows. When installed, this device may be used, at the discretion of the city engineer, to determine the flow of sewage for that user, and may be the basis for the billing charge. Flows will be calculated using the average monthly flow over a consecutive 12-month period. The use of flow based billing for commercial accounts shall not reduce the load BOD and TSS load determined by the unreduced flow used in the adopted rate schedule, unless a reduction in these loads has also been demonstrated. For purposes of determining BOD and TSS loads Tables 15 through 19 in the city of Sedona 2013 Wastewater System Rate Study provided by Hoag Consulting, LLC January 17, 2014 shall be used, when the table addresses the use category for which a rate modification is being requested. After the initial adjustment, in order to continue to use flow based rates the city must receive by May 1st 12 months of flow information. The 12 months shall be measured from January 1st to December 31st. The city reserves the right to require that owners using flow based rates sign a release allowing the city to receive relevant billing information directly from

their water provider or in the alternative to require that the owners provide the flow information in the required form directly to the city. The monthly charge beginning in July and continuing to June 30th following shall be based upon the average monthly flow for the 12 months of flow. Reversion from a flow based charge to a square footage charge for the monthly charge shall only be allowed one year after the written request for reversion.

Flow based billing shall be determined based on a fixed charge per account plus an amount per unit of flow as determined in a fee schedule adopted by council for each category of use for which flow based billing may be used.

C. For built properties that may be vacant or unoccupied and have sewer availability, the city will charge the minimum monthly service charge rate as adopted by the city council. For vacant unimproved land that has sewer availability, the city will charge a "capacity standby charge" that is designed to recoup the city's costs for maintenance and depreciation on wastewater facilities. The amount of this charge shall be set forth in the rate tables adopted by the city from time to time in accordance with the procedure set forth in SCC 13.20.010.

D. Restaurants and hotels shall be billed using either a square footage determined per SCC 13.20.020(D)(1), room, or water based charge after June 30, 2015. Restaurants not having 12 months of water use history shall use a square footage basis for monthly charges after June 30, 2015. Restaurants not having a water based charge shall allow the city to measure their square footage to determine the appropriate charge or in the absence of such allowance the city may use 80 percent of the building floor area using the exterior area of the building, plus any outside dining area, to determine the monthly rate. Change from a flow based charge to a square footage charge for the monthly charge shall only be allowed one year after the written request for reversion, unless one year of water use history is available for the restaurant under current ownership. Hotels offering only food processed off the hotel site for their guests using only disposable serving plates, cups, and utensils are not classified as having a restaurant for purposes of monthly service billings.

1. For restaurants, area-based calculations shall not include kitchen, area behind a bar, office, and walled storage areas, except in the case of take-out restaurants, in which case the kitchen area shall be included in the calculation. Hallways leading only to kitches,

office, and storage areas shall be counted as part of the excluded area for fee determination. A restaurant shall be considered a take-out restaurant if the city engineer determines it has a drive-up window or the restaurant design or type is such that more than 30 percent of its business based on food sales revenue is anticipated to be take-out. The calculated area for capacity fee purposes shall include but not be limited to waiting areas, food serving areas, and dining areas. Restaurant areas are associated with other uses separately determined and food preparation area shall not be excluded. The city engineer shall make the final determination of chargeable area.

E. Information for water usage based charges shall be presented by May 1st of each year for the prior 12-month period ending December of the prior year. The new usage based rate will be effective July 1st for the following 12-month period. To qualify for a water usage based charge, the customer must have an independent, dedicated (unshared) water service metering system. Customers who do not have a full 12-month calendar year of metered water usage may provide the most current 12-month period, at the discretion of the finance director. The city reserves the right to utilize an area based calculation to determine monthly charges if timely provided water usage information is unavailable or incomplete. If the city is unable to obtain complete water usage information from directly from the water providers, the burden to provide complete and accurate water usage information is on the customer.

F. In case of change of ownership for an account having flow based charges the new owner shall continue to pay the monthly flow based charge previously determined for the commercial account prior to change in ownership. In the case of closure of an account the owner shall be responsible to pay the flow based charge until June 30th next.

G. After July 1, 2015, in the case of a restaurant, or hotel, when the city has not been provided 12 months of flow information the square footage or per room charge may be used until 12 months of flow information is provided to the city. The 12 months of flow information shall be the basis for monthly charges until July 1st of the next year.

H. Between July 1, 2014, and June 30, 2015, any restaurant or hotel may provide 12 months of flow information to establish flow based charges. The charges shall be based on the average of the 12 months of flow and shall be subject to revision after June 30, 2015, so that annual

modifications in the monthly charge will be effective on July 1st of each year. The city reserves the right to require that owners using flow based rates sign a release allowing the city to receive relevant billing information directly from their water provider or in the alternative to require that the owners provide the flow information in the required form directly to the city.

I. When rates are based on measures other than flow volume or area the director of finance may request that an annual statement of units be provided to the city by May 1st of each year. The time frame covered by the statement of units shall be for a period of one year and may consist of a month by month statement of the number of units so that it may be determined if a maximum value of units or an average number of units per month is the appropriate measure on which to base the monthly rate.

J. The city or property owner may question the completeness or accuracy of the information used to calculate charges. The city engineer and director of finance shall determine such questions and provide the correct unit upon which charges are to be determined. The determination shall be subject to review by the wastewater hearing officer according to the procedures in SCC 13.15.080(B) through (C)(4)(b). The hearing officer shall make a determination which shall be binding to the extent it complies with the reference procedures. Written notice of the hearing officer determination shall be sent within 15 days of the hearing to the city engineer, the director of finance, and the property owner. [Code 2006 § 13-6-2. Ord. 2009-04, 4-14-2009; Ord. 2010-07 § 1, 4-13-2010; Res. 2010-08 § 3 Exh. B, 4-13-2010; Ord. 2014-06 § 1, 5-27-2014; Res. 2014-10 Exh. A, 5-27-2014].

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13.30.030 Acceptance of septage.

A. The city has no obligation to accept septage pumped from without the city limits for treatment and disposal. In the event there is sufficient treatment and disposal capacity in the city wastewater system, the city may enter into agreements to accept septage pumped from without the city limits, and charge fees for the acceptance, treatment and disposal of such

septage as may be established by the city manager. Septage transported into the city shall be considered as septage outside the city, even if discharged to a septage receiving facility within the city.

B. The city may accept, but is not obligated to accept, septage pumped from within the city limits for treatment and disposal, as may be authorized under state and local regulation, the permits for the city wastewater system and any federal or state consent order or judgment. The city council shall establish and charge fees for the acceptance, handling, treatment and disposal of such septage commensurate with the costs to the city, including administrative costs. [Code 2006 § 13-8-3. Ord. 2009-04, 4-14-2009; Ord. 2014-06 § 1, 5-27-2014; Res. 2014-10 Exh. A, 5-27-2014].

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13.40.020 Requirements.

A. It shall be the responsibility of any facility connected to the city wastewater facility to provide pretreatment of the wastes discharged to the city wastewater system so that the influent complies with the requirements of Chapter 13.25 SCC. The owner of each facility connected to the city wastewater system shall provide, install, maintain in good operation, repair and replace, at his or her own expense, such pretreatment as may be necessary to reduce objectionable characteristics or constituents to within the maximum limits provided for in this code. Plans, specifications and any other pertinent information relating to proposed preliminary treatment facilities shall be submitted for the approval of the director and city engineer. No construction of such facilities shall be commenced until the director's or city engineer's approval has been obtained in writing. The completed facilities shall not be placed in service until they have been inspected for conformance to the approved plans and the final construction approved by the city engineer. The approval of the plans and inspection of construction shall not relieve the owner from complying with discharge limitations set forth in this division.

B. Where installed, all pretreatment devices and systems shall be maintained by the owner, at his or her expense, in continuously efficient operation at all times.

C. Materials removed by pretreatment devices or processes shall be disposed of in accordance with all state and local regulations, at the expense of the owner. The city has no obligation to accept pretreatment wastes from within or without the city limits for handling and disposal. Pretreatment wastes from within the city may, however, be accepted by the city in accordance with policy approved by the city council and for fees set by the city manager commensurate with all city expenses for the handling and disposal of such wastes, including the city's administrative costs.

D. As a minimum pretreatment requirement, grease, oil or sand interceptors shall be provided by food preparation or food handling facilities, laundries, restaurants, service stations, auto repair shops, car washes and other facilities that have the potential to discharge high levels of grease, oil or solids. An exemption to this requirement may be granted when it can be shown (and the owner of a facility sets forth in a recorded document) the specific activities that will be conducted on the site that will not produce wastewater containing oils, greases, or fats.

E. No residential garage floor drain shall be connected to the city wastewater system.

F. It shall be the responsibility of the owner and operator of any facility to provide regular maintenance of any grease, oil, or sand filter to include but not limited to the cleaning of their grease traps and interceptors at least once every six months, or at a frequency determined by the director or director's designee based on inspection, observations of operating conditions, and/or analytical test data. Should current maintenance practices prove ineffective by evidence of analytical test data or reoccurring maintenance problems within the city's wastewater collection system, an alternative method of maintenance shall be required by the city.

G. All interceptors, traps, and separators shall be of a type and capacity approved by the engineer and shall be located as to be readily and easily accessible for cleaning and for inspection by the director or the director's designee. In no case shall the type or capacity be less than that specified in the city plumbing code.

H. Grease and oil interceptors and separators shall be constructed of impervious materials capable of withstanding abrupt and extreme changes in temperature. They shall be of substantial construction, watertight and equipped with easily removable covers. When bolted covers are required, they shall be gastight and watertight. [Code 2006 § 13-10-2. Ord. 2009-04, 4-14-2009; amended during 2012 codification; Ord. 2014-06 § 1, 5-27-2014; Res. 2014-10 Exh. A, 5-27-2014].

13.40.030 Monitoring manholes.

A. When required by the director, the owner of any property served by a building sewer carrying potentially harmful or industrial wastes shall install a suitable monitoring manhole in the building sewer to facilitate observation, measurement and sampling of the wastes. Such manhole, when required, shall be accessible and safely located and shall be constructed in accordance with plans approved by the city engineer. The manhole shall be installed by the owner at his or her expense and shall be maintained by him or her so as to be safe and accessible at all times.

B. All food preparation and food handling facilities, and other grease and oil generators connected to the wastewater system, shall install a grease trap or grease interceptor consistent with the provisions of the city-adopted plumbing code. The city engineer or designee shall review the design and installation of food preparation and handling facility grease traps and grease interceptors. The design and installation of such traps and interceptors shall conform to all applicable statutes, codes, ordinances, regulations and laws. Any food preparation or food handling facility responsible for the discharge of grease trap or interceptor wastewater must provide and maintain traps or interceptors in an effective operating condition at all times at its own expense.

C. It shall be the responsibility of the owner and operator of any facility required to have interceptors, traps, and separators to provide regular maintenance to include but not limited to the cleaning at least once every six months, or at a frequency determined by the director or director’s designee based on inspection, observations of operating conditions, and/or analytical test data. Should current maintenance practices prove ineffective by evidence of analytical test

data or reoccurring maintenance problems within the city's wastewater collection system, an alternative method of maintenance shall be required by the city.

D. A food preparation or food handling facility with a seating capacity of up to 100 persons shall install a grease interceptor with a minimum 1,000-gallon holding capacity and provide proper and accessible inspection points for sampling discharge from interceptor. Owners of facilities exceeding the aforementioned seating capacity may require larger interceptors or traps and shall contact the city to determine the appropriate size required.

E. Authorized employees of the city, bearing proper credentials and identification, shall be permitted to enter any food preparation or food handling facility and grease receiving or treatment facility for the purposes of inspection, observation, measurement, sampling and testing in accordance with the provisions of this chapter.

F. Discharge into a grease trap or interceptor shall not exceed 145 degrees Fahrenheit, and the temperature of the liquid leaving the grease trap shall be in compliance with SCC 13.25.030(H).

G. No enzymes or emulsifiers shall be discharged into a grease trap or interceptor.

H. It will be the responsibility of all food preparation and food handling facilities, and other grease and oil generators connected to the wastewater system, to comply with the requirements of SCC 13.40.020 by January 1, 2010. [Code 2006 § 13-10-3. Ord. 2009-04, 4-14-2009; Ord. 2014-06 § 1, 5-27-2014; Res. 2014-10 Exh. A, 5-27-2014].

...

CITY COUNCIL AGENDA BILL

AB 3134
October 22, 2024
Regular Business

Agenda Item: 8a
Proposed Action & Subject: Discussion/Presentation by Coconino County Manager, Andy Bertelsen regarding Proposition #482 Coconino County Expenditure Limit.

Department	City Manager
Time to Present **Total Time for Item**	15 min 15 min
Other Council Meetings	NA
Exhibits	None

Finance Approval	Reviewed 10/7/24 BGW
City Attorney Approval	Reviewed 10/7/24 KWC
City Manager's Recommendation	Reviewed ABS 10/7/24

Expenditure Required	
$	0
Amount Budgeted	
$	0
Account No. (Description)	

SUMMARY STATEMENT

Background: At the request of Coconino County, Andy Bertelsen, Coconino County Manager, will be giving a brief presentation on Coconino County's Proposition #482 Coconino County Expenditure Limit that is going forward to the Coconino County voters on the November 5, 2024 General Election.

Climate Action Plan/Sustainability Consistent: ☐**Yes** - ☐**No** - ☒**Not Applicable**

Board/Commission Recommendation: ☐**Applicable** - ☒**Not Applicable**

Alternative(s): Not Applicable

MOTION

I move to: Discussion/Presentation only.

CITY COUNCIL AGENDA BILL

AB 3130
October 22, 2024
Regular Business

Agenda Item: 8b
Proposed Action & Subject: Discussion/ possible action regarding a presentation by Sedona Sister Cities' Board of Directors Chuck Marr on their activities and accomplishments; and use of City resources to support the Sister Cities efforts.

Department	City Manager/ City Council
Time to Present **Total Time for Item**	5 min 15 min
Other Council Meetings	N/A
Exhibits	A. Jaslo, Poland Presentation

Finance Approval	Reviewed 10/7/24 BGW
City Attorney Approval	Reviewed 10/7/24 KWC
City Manager's Recommendation	Reviewed ABS 10/7/24

Expenditure Required	
$	0
Amount Budgeted	
$	0
Account No. (Description)	

SUMMARY STATEMENT

Background: Sedona Sister Cities Association representatives Chuck Marr, President; Don Groves, Canmore Team; Edyta Wieczorek, Jaslo Team will present a status report of their Friendship City, Canmore; the recent Sedona delegation visit to Jaslo, Poland and plans for hosting the November 15-16, 2024, Arizona Sister Cities Annual Convention.

Previously, Council declined the use of any City resources for the Sister Cities efforts. Now, the Sedona Sister Cities Association is requesting minimal administrative assistance from the City. For example, preparing and mailing letters from Mayor Jablow to mayors statewide and regionally for an upcoming Sister Cities conference; review of documents by City staff or sharing city promotional materials, and use of City conference rooms for meetings.

Climate Action Plan/Sustainability Consistent: ☐Yes - ☐No - ☒Not Applicable

Board/Commission Recommendation: ☐Applicable - ☒Not Applicable

Alternative(s): Not applicable

MOTION

I move to: allow use of City resources for administrative functions in support of the Sister Cities efforts.

SEDONA

Sister Cities Association

City Council Report 10/22/24

Our Mission

to promote peace through mutual respect, understanding and cooperation…one individual, one community at a time

Chuck Marr, Don Groves, Edyta Wieczorek

Our Friendship City



Canmore’s Friendship Team

Rob Seeley, Mayor Sean Krausert, Janet Krausert, Jeremy Elbourne, Lynda Damen, Martin Buckley



Exchanges Underway

- School to School Partnerships: Canmore/Sedona First Grades; Grades 9-12 Student Science Project

- Arts Exchange: Plans underway for an October 25, 2025 concert featuring vocalists and pianists from both towns

- Student Youth Exchange: Six Rotarian youth from both communities experiencing the U.S. and Canada

- Sister Libraries: Discussion underway for a joint sharing project between Libraries



Jaslo, Poland



Mayor Adam Kostrzab, Edyta Wieczorek, City Council Chair Marcin Węgrzyn





The Sedona Delegation

Miki, Donna, Edyta, Dick, David, Danusia, Chuck, Matthew


Sukiennice
RESTAURACJA
Kozel









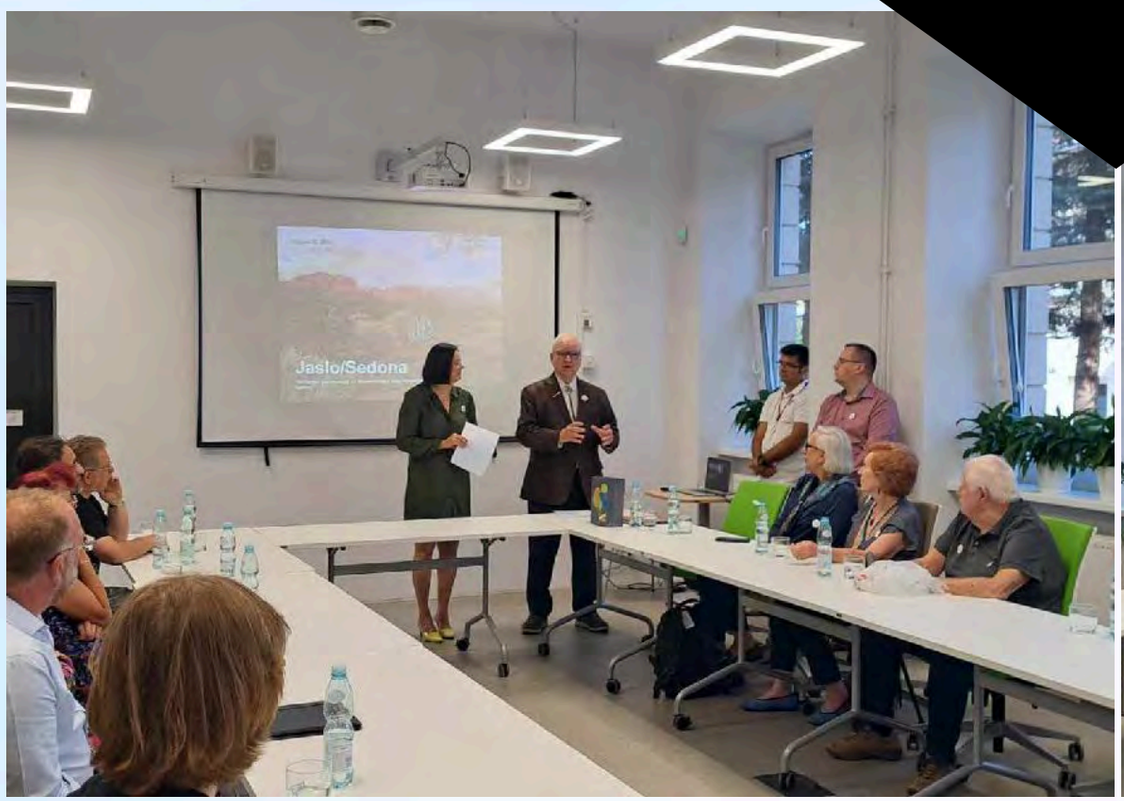
Welcome to Jaslo, Poland







We meet Mayor Kostrazb and staff



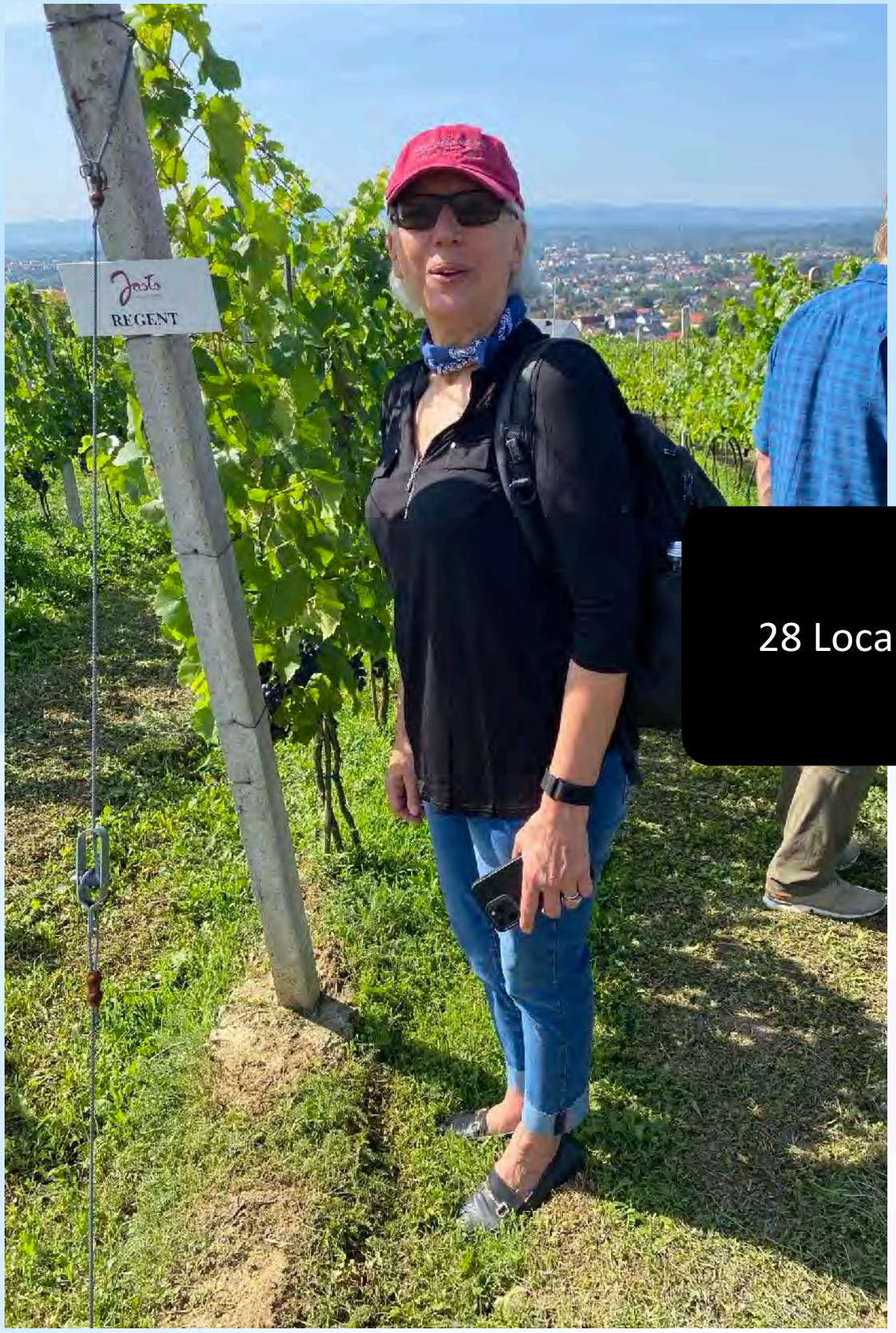






World’s First Oil Field







28 Local Wineries



17th Annual International Days of Wine

Hundreds of Central European Wineries



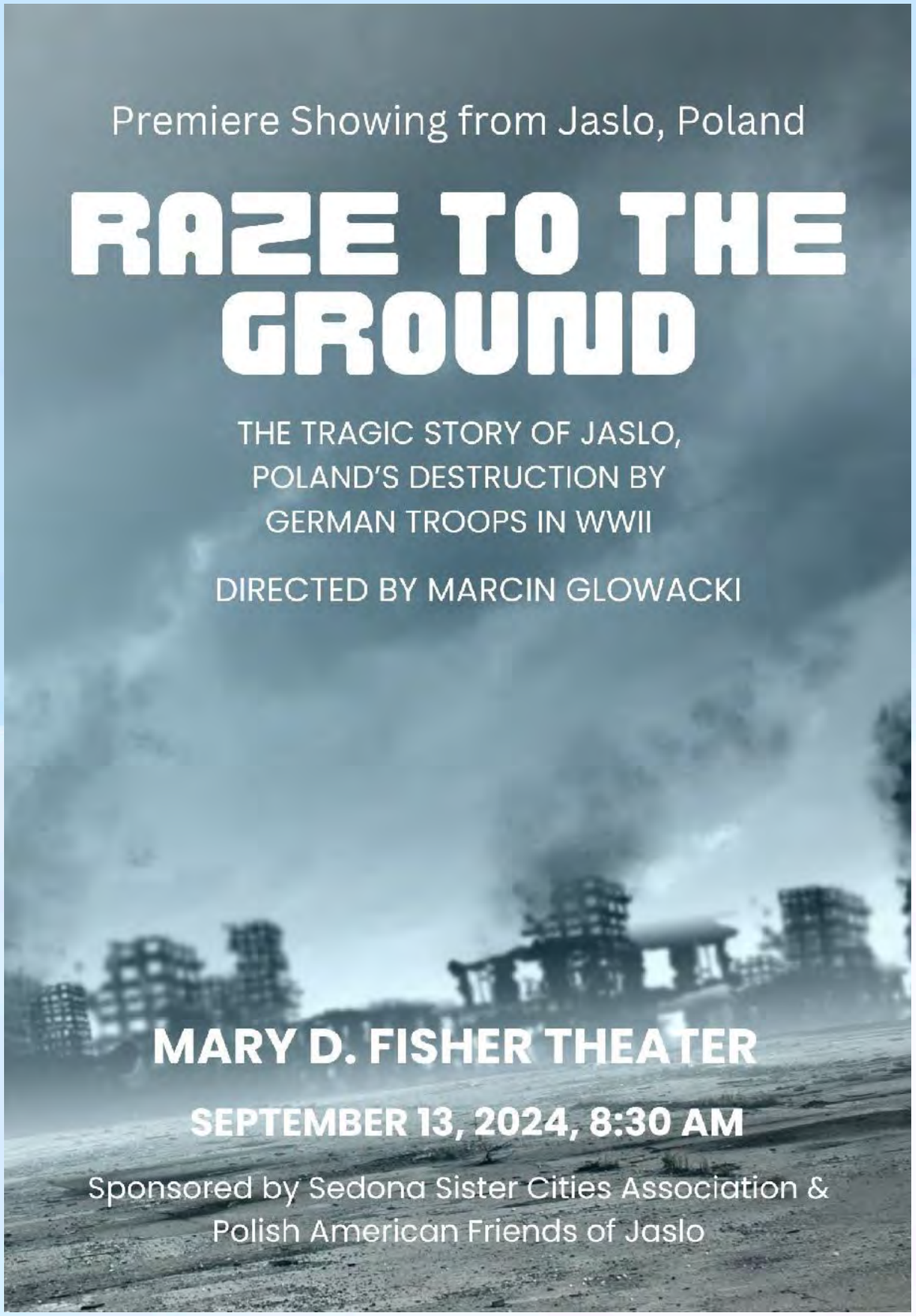




Cultural Center









"Jaslo was destroyed by hate; it rebuilds with love"



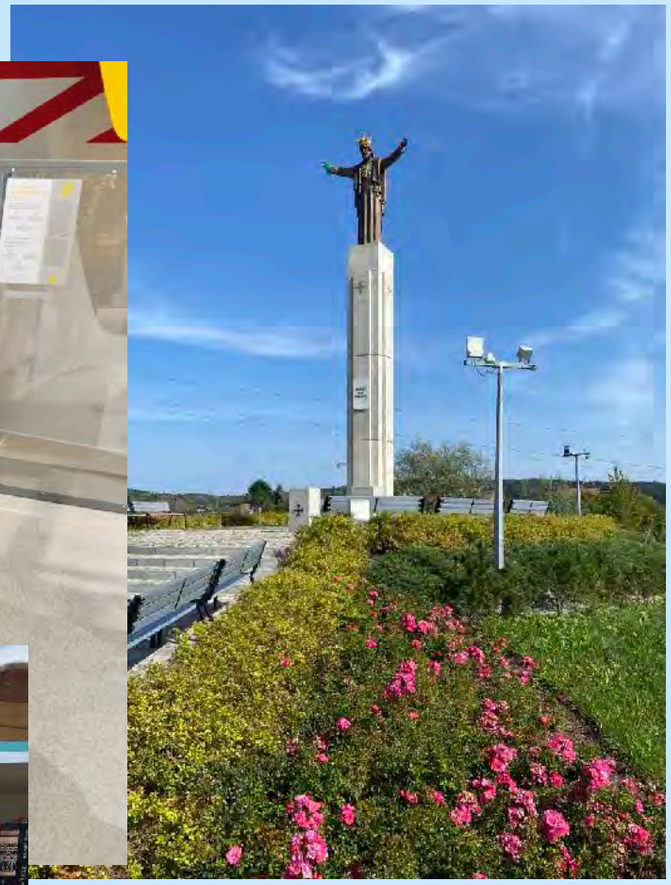


Historical Museums









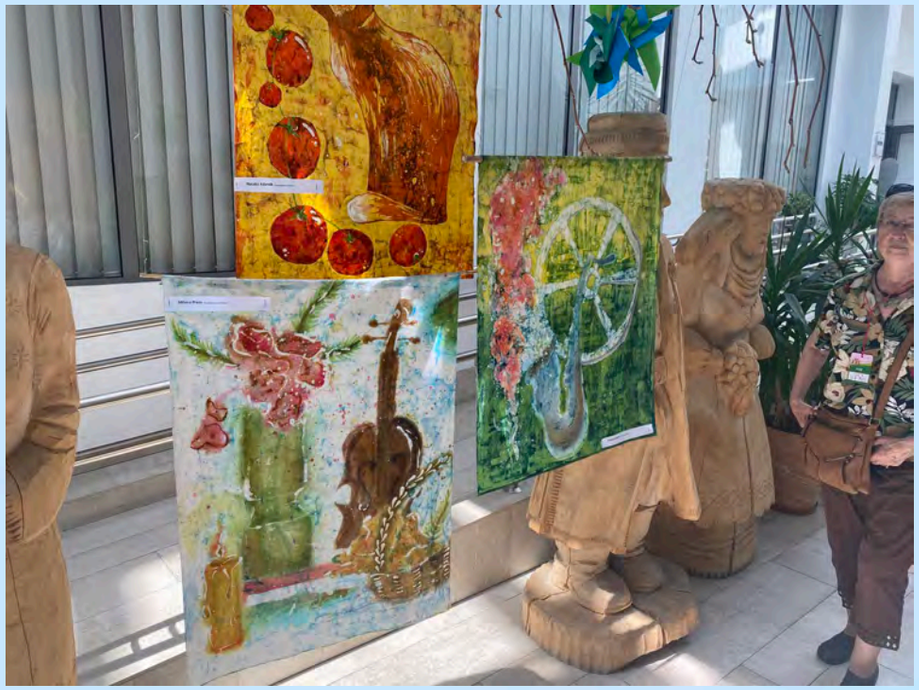








Exchange Opportunities



- Film Maker Exchange: Producer Began Miszcak
- Photography Exhibits: Artist Piotr Betlej and Regional Museum Director Mariusz Swiatek
- 2025 Regional Volleyball Tournament Invitation
- Wine Tourism



Arizona Sister Cities State Conference 2024

Finding common ground

The Heart of Creating, Revitalizing and Growing Sister Cities

November 15 - 16, 2024

Welcoming Citizen Diplomats from throughout Arizona and the World

November 15: Eight, Unique Sedona Pre-Conference Experiences

Mayor's International Dinner with featured speaker Ricki Garrett, President & CEO, Sister Cities International

November 16: In depth Conference Sessions led by experienced Sister City Leaders





Agenda Item: 8c
Proposed Action & Subject: Discussion/possible action regarding approval of a Construction Manager at Risk contract with KEAR Civil Corporation for the construction of the WWRP UV Replacement Project, in an amount not-to-exceed $4,096,710, and approval of a Professional Services Agreement for the Construction Administration and Post-Design Services to Sunrise Engineering, LLC in the amount of $73,300.

Department	Wastewater/Roxanne Holland
Time to Present **Total Time for Item**	N/A N/A
Other Council Meetings	October 10, 2023 – AB 2999
Exhibits	A. Construction Manager at Risk – Construction Phase Services Contract B. Professional Services Agreement

Finance Approval	Reviewed 10/7/24 BGW
City Attorney Approval	Reviewed 10/7/24 KWC
City Manager's Recommendation	Recommend approval ABS 10/7/24

Expenditure Required	
$	4,170,010
Amount Budgeted	
$	3,515,500 (FY 25)
Account No. (Description)	59-5252-89-68D6 WWRP Treatment Process Upgrades (WW-09)

SUMMARY STATEMENT

Background:

At the October 10, 2023 City Council meeting, City Council approved a Professional Services Agreement with Sunrise Engineering, LLC for design of the Wastewater Reclamation Plant (WWRP) UV Replacement Project. The project will replace the existing open-channel ultraviolet (UV) disinfection system, which has been in operation for 14 years, with a new non-contact UV system. The new UV system will be placed in abandoned tertiary sand filter basins. The project is necessary as the existing UV system is experiencing reduced efficacy and increasingly high costs for maintenance and annual UV bulb replacement. Loss of disinfection efficacy increases the likelihood for improper disinfection of wastewater effluent, which can result in permit violations. Without proper UV disinfection, we would not be able to dispose of treated effluent to the wetlands or aquifer recharge.

Solicitation of a Construction Manager at Risk (CMAR) contractor was pursued in April 2024 and KEAR Civil Corporation was the selected CMAR contractor. Final design of the project was completed in September 2024.

Construction Manager at Risk

KEAR Civil Corporation was chosen, based on qualifications, as the general contractor for the project after solicitation and review of qualified contractors interested in the project. KEAR participated in the design process by providing review of preliminary plans, constructability analysis, value engineering, construction phasing and scheduling, detailed cost estimates, and development of a guaranteed maximum price (GMP) proposal.

The proposed GMP for Construction Services (attached as Exhibit A) includes procurement and installation of equipment, structural and electrical modifications, programming, and all other work required to complete the project as designed. The GMP also includes a project schedule. The procurement process for the new UV equipment is scheduled to begin in November 2024. Due to lead times on the UV equipment, mobilization for construction will not be until February 2025. The anticipated project completion is November 2025.

Professional Services – Construction Administration and Post-Design Services

Sunrise Engineering will provide assistance to City staff for Construction Administration and Post-Design Services. The project includes numerous electrical upgrades that require detailed material submittal review and construction inspection that is beyond the capabilities of City staff. It is typical to retain a design engineer for projects similar in complexity as this one.

Permitting

The project will require an amendment to the Aquifer Protection Permit (APP) issued by the Arizona Department of Environmental Quality (ADEQ). City staff and Sunrise Engineering have completed pre-application meetings with ADEQ during the design of the project. The permit application will be submitted and reviewed concurrently with procurement of equipment.

Budget

The approved FY 2025 budget for the project includes $85,000 for post-design services and $3,430,500 for construction, for a total of $3,515,500. A summary of required FY 2025 and FY 2026 funding for proposals received from Sunrise Engineering for post-design services and CMAR design phase and construction phase services from KEAR Civil Corporation are below:

	DESIGN	CONSTRUCTION	TOTAL
FY 25 BUDGET	$ 85,000	$ 3,430,500	$ 3,515,500
DESIGN:			
Design Contract Carryover from FY24	$ 28,315	$ -	$ 28,315
Post-Design Services	$ 73,300	$ -	$ 73,300
CONSTRUCTION:			
CMAR Design Phase Services	$ -	$ 59,634	$ 59,634
CMAR Construction Phase Services	$ -	$ 4,096,710	$ 4,096,710
PERMITTING:	$ -	$ -	$ 5,000
FUNDING NEEDS:			
Total FY25 Funding Required	$ 101,615	$ 4,156,344	**$ 4,262,959**
Additional funding needed over FY25 budgeted amounts	$ 16,615	$ 725,844	$ 747,459

* Permitting was budgeted in FY24, however the permitting process did not begin until FY25

The table above shows a shortage of approved funding for the project. Budgeted amounts in FY 25 were based on planning level engineering cost estimates from the Design Report that was completed in FY 23. The project will carry over into FY 26, thus staff is proposing to account for the additional funding needed during the FY 26 budget process.

Climate Action Plan/Sustainability Consistent: ☒**Yes -** ☐**No -** ☐**Not Applicable**

This project meets the Climate Action Plan goal of ensuring long term access to clean energy while reducing the fiscal and environmental impacts of consumption.

Board/Commission Recommendation: ☐**Applicable -** ☒**Not Applicable**

Alternative(s): Council could elect to not award the CMAR Construction Contract and Professional Services Agreement for the WWRP UV Replacement Project. Doing so would result in continued high annual maintenance costs for the existing UV system, would increase the risk of permit violations, and limit the ability to dispose of treated effluent through wetlands and aquifer recharge.

MOTION

I move to: Approve the award for the Construction Manager at Risk Construction Services Contract to KEAR Civil Corporation for the construction of the WWRP UV Replacement Project, in an amount not-to-exceed $4,096,710, subject to approval of a written contract by the City Attorney's office.

I move to: Approve the award for the Professional Services Agreement to Sunrise Engineering, LLC for Construction Administration and Post-Design Services for

the WWRP UV Replacement Project in an amount not-to-exceed $73,300, subject to approval of a written contract by the City Attorney’s office.

Project: _____
Date: _____
Vendor: _____
Section/Job Order#/Description: _____
Document: CMAR

WWRP UV REPLACEMENT PROJECT

CONSTRUCTION MANAGER AT RISK

CONSTRUCTION SERVICES CONTRACT

DATED Click or tap to enter a date.

MAYOR
SCOTT JABLOW

VICE MAYOR
HOLLI PLOOG

CITY COUNCIL

MELISSA DUNN **KATHY KINSELLA**
BRIAN FULTZ **JESSICA WILLIAMSON**
PETE FURMAN

CITY MANAGER
ANETTE SPICKARD

Table of Contents

RECITALS 3
ARTICLE 1 – DEFINITIONS 3
ARTICLE 2 – CMAR'S SERVICES AND RESPONSIBILITIES 7
ARTICLE 3 - CITY'S SERVICES AND RESPONSIBILITIES 16
ARTICLE 4 - CONTRACT TIME 18
ARTICLE 5- CONTRACT PRICE 22
ARTICLE 6 - CHANGES TO THE CONTRACT PRICE AND TIME 24
ARTICLE 7- PROCEDURE FOR PAYMENT 27
ARTICLE 8- CLAIMS AND DISPUTES 31
ARTICLE 9 – SUSPENSION AND TERMINATION 33
ARTICLE 10 - INSURANCE AND BONDS 35
ARTICLE 11 - INDEMNIFICATION 40
ARTICLE 12 – GENERAL PROVISIONS 41
SIGNATURE PAGE 49
EXHIBIT A - PROJECT DESCRIPTION 50
EXHIBIT B – APPROVED GMP PROPOSAL 51
EXHIBIT C – TECHNICAL SPECIFICATIONS 52
ATTACHMENT 1 TO EXHIBIT C – SPECIAL CONDITIONS 53
EXHIBIT D – CONSTRUCTION DRAWINGS 59

CITY OF SEDONA, ARIZONA
WASTEWATER DEPARTMENT

WWRP UV REPLACEMENT PROJECT CONSTRUCTION MANAGER AT RISK CONSTRUCTION PHASE SERVICES

THIS CONTRACT, hereinafter referred to as "Contract" or "Agreement", made and entered by and between City of Sedona, an Arizona municipal corporation, hereinafter designated the "City" and KEAR Civil Corporation, an Arizona corporation, hereinafter designated the "Construction Manager at Risk" or "CMAR" or "Contractor".

RECITALS

A. The Sedona City Code authorizes the Sedona City Manager to approve procurement of design services, construction, and construction services utilizing the Construction Manager at Risk job delivery method in accordance with the Arizona Revised Statutes (A.R.S.) Section 34-602 et. seq. and to execute contracts with the CMAR for design services, construction, and construction services.

B. The City intends to construct the WWRP UV Replacement Project as more fully described in Exhibit A attached, hereinafter referred to as the "Project".

C. The City and Sunrise Engineering, LLC will provide construction administration services for this work.

D. The CMAR has represented to the City the ability to provide construction management services and to construct the Project and based on this representation the City engages the CMAR to provide these services and construct the Project.

E. A contract dated 6/3/2024has been executed previously between City and CMAR to perform CMAR design phase services. Those services may continue during the duration of this Contract.

NOW THEREFORE, for and in consideration of the mutual covenants and considerations hereinafter contained, it is agreed by and between the City and CMAR as follows:

ARTICLE 1 – DEFINITIONS

"Agreement" ("Contract") means this written document signed by the City and CMAR covering the construction phase of the Project, and including other documents itemized and referenced in or attached to and made part of this Contract.

"Change Directive" means a written order prepared and signed by City, directing a change in the Work prior to agreement on an adjustment in the Contract Price and the Contract Time.

"Change Order" means a type of contract amendment issued after execution of this Agreement or future GMP Amendments signed by City and CMAR, agreeing to changes to a GMP. The Change Order will state the following: the addition, deletion or revision in the scope of Work; the amount of the adjustment to the Contract Price; and the extent of the adjustment to the Contract Times or other modifications to Contract terms.

"City ("Owner"") means the City of Sedona, a municipal corporation, with whom CMAR has entered into this Contract and for whom the services are to be provided pursuant to this Contact. Regulatory activities handled by the City of Sedona are independent of any responsibilities of the City under this Agreement.

"City's Representative" means the person designated in Article 8.3.1.2.

"City's Senior Representative" means the person designated in Article 8.3.1.1.

"Construction Administration" means review of contract performance in a general sense or to the degree deemed appropriate by the Owner as necessary to determine if the work appears to comply with the contract requirements, and based upon such review determine appropriate payments to be made or other actions the Owner or its agent(s) should or may take under the contract provisions.

"Construction Documents" means the plans, specifications and drawings prepared by the Design Professional after correcting for permit review requirements.

"CMAR" means the firm selected by the City to provide construction services as detailed in this Agreement.

"CMAR's Contingency" means a fund to cover cost growth during the project used at the discretion of the CMAR usually for costs that result from project circumstances. The amount of the CMAR's Contingency will be negotiated as a separate line item in each GMP package. Use and management of the CMAR's Contingency is described in Article 5.1.2.3.

"CMAR's Representative" means the person designated in Article 8.3.2.2.

"CMAR's Senior Representative" means the person designated in Article 8.3.2.1.

"Contract Documents" means the following items and documents in descending order of precedence executed by the City and the CMAR: (i) all written modifications, amendments and Change Orders; (ii) this Agreement, including all exhibits and attachments; (iii) Construction Documents; (iv) GMP Plans and Specifications.

"Contract Price" means the amount or amounts set forth in Article 5.

"Construction Fee" means the CMAR's administrative costs, home office overhead, and profit.

"Contract Time" means the Days as set forth in Article 4; the period of time, including authorized adjustments, allotted in the Contract Documents for Final Acceptance of the Work.

"Cost of the Work" means the direct costs necessarily incurred by the CMAR in the proper performance of the Work. The Cost of the Work shall include direct labor costs, subcontract costs, costs of materials and equipment incorporated in the completed construction, costs of other materials and equipment, temporary facilities, permit and license fees, materials testing, and related items. The Cost of the Work shall not include the CMAR's Construction Fee, General Conditions Costs, and taxes.

"Critical Path" means the sequence of activities from the start of the Work to the Final Acceptance of the Project. Any delay in the completion of these activities will extend the Final Acceptance date.

"Day(s)" mean calendar days unless otherwise specifically noted in the Contract Documents.

"Design Phase Contract" means the agreement between the City and CMAR for the Services provided by the CMAR during the design phase which may include the following: design recommendations, project scheduling, constructability reviews, alternate systems evaluation, cost estimate(s), subcontractor bid phase services and GMP preparation.

"Design Professional" means a qualified, licensed design professional who furnishes design and/or construction administration services required for the Project.

"Differing Site Conditions" means concealed or latent physical conditions or subsurface conditions at the Site that, (i) materially differ from the conditions indicated in the Contract Documents or (ii) are of an unusual nature, differing materially from the conditions ordinarily encountered in the execution of the Work and generally recognized as inherent in the Work, or in the performance of reasonable and prudent due diligence on the part of the CMAR.

"Final Acceptance" means the completion of the Work as prescribed in Section 4.2.

" Float" means the number of Days by which an activity can be delayed without lengthening the Critical Path and extending the Final Acceptance date.

"General Conditions Costs" includes, but is not limited to the following types of costs for the CMAR during the construction phase: (i) payroll costs for project manager or CMAR for work conducted at the site, (ii) payroll costs for the superintendent and full-time general foremen, (iii) payroll costs for other management or working personnel resident and working at the site, (iv) workers not included as direct labor costs engaged in support (e.g. loading/unloading, clean-up, etc.), (v) costs of offices and temporary facilities including office materials, office supplies, office equipment and minor expenses, (vi) cost of utilities, fuel, sanitary facilities and telephone services at the site, (vii) costs of liability insurance premiums not included in labor burdens for direct labor costs, (viii) costs of bond premiums, (ix) costs of consultants not in the direct employ of the CMAR or Subcontractors.

"Guaranteed Maximum Price" or "GMP" means the sum of the maximum Cost of the Work; the Construction Fee; General Conditions Costs, taxes, and CMAR's Contingency.

"GMP Contract" means the WWRP UV Replacement Project Construction Manager at Risk Construction Services Contract.

"GMP Plans and Specifications" means the plans and specifications upon which the Guaranteed Maximum Price proposal is based.

"Legal Requirements" means all applicable federal, state and local laws, codes, ordinances, rules, regulations, orders and decrees of any government or quasi-government entity having jurisdiction over the Project or Site, the practices involved in the Project or Site, or any Work.

"Notice to Proceed" or "NTP" means the directive issued by the City, authorizing the CMAR to start Work.

"Owner's Contingency" means a fund to cover cost growth during the project used at the discretion of the Owner usually for costs that result from Owner directed changes. The amount of the Owner's contingency will be set solely by the Owner and will be in addition to the project costs included in the CMAR's GMP packages. Use and management of the Owner's contingency is described in Article 5.1.4.

"Performance Period" means the period of time allotted in the Contract Documents to complete the Work comprised within a GMP. The Performance Period shall be stated within each GMP and shown on the Project Schedule.

"Payment Request" means the City form used by the CMAR to request progress payments for Work in accordance with Article 7.

"Product Data" means illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the CMAR to illustrate materials or equipment for some portion of the Work.

"Project" means the work to be completed in the execution of this Agreement as may be amended from time to time and as described in the Recitals above and in Exhibit A attached.

"Project Record Documents" means the documents created pursuant to Article 2.10.

"Samples" means physical examples, which illustrate materials, equipment or workmanship and establish standards by which the Work will be evaluated.

"Shop Drawings" mean drawings, diagrams, schedules and other data specially prepared for the Work by the CMAR or a Subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

"Site" means the land or premises on which the Project is located generally described as the Sedona Wastewater Reclamation Plant.

"Specifications" means the part(s) of the Contract Documents for the construction phase consisting of written technical descriptions of materials, equipment, construction systems, standards and workmanship as applied to the Work and certain administrative details applicable thereto.

"Subcontractor" means an individual or firm having a direct contract with the CMAR or any other individual or firm having a contract with the aforesaid contractors at any tier, who undertakes to perform a part of the construction phase Work for which the CMAR is responsible.

"Substantial Completion" means when the Work, or an agreed upon portion of the Work, is sufficiently complete so that City can use the Project or a portion thereof for its intended purposes. The conditions of Substantial Completion that do not apply to a specific GMP will be listed in the Notice to Proceed Letter pursuant to Section 2.4.3.

"Supplier" means a manufacturer, fabricator, supplier, distributor, material man or vendor having a direct contract with CMAR or any Subcontractor to furnish materials or equipment to be incorporated in the construction phase Work by CMAR or any Subcontractor.

"Work" means the entire completed construction or the various separately identifiable parts thereof, required to be furnished during the construction phase. Work includes and is the result of performing or furnishing labor and furnishing and incorporating materials, resources and equipment into the construction, and performing or furnishing services and documents as required by the Contract Documents for the construction phase.

ARTICLE 2 – CMAR'S SERVICES AND RESPONSIBILITIES

2.0 The CMAR shall furnish any and all labor, materials, equipment, transportation, utilities, services and facilities required to perform all Work for the construction of the Project, and to completely and totally construct the same and install the material therein for the City. All Work will be performed in a good and workmanlike and substantial manner and within the care and skill of a qualified CMAR in Sedona, Arizona. The Work shall be to the satisfaction of the City and strictly pursuant to and in conformity with the Project's Contract Documents as modified. It is not required that the services be performed in the sequence in which they are described.

2.1. General Services

2.1.1. CMAR's Representative shall be reasonably available to City and shall have the necessary expertise and experience required to supervise the Work. CMAR's Representative shall communicate regularly with City but not less than once a week and shall be vested with the authority to act on behalf of CMAR. CMAR's Representative may be replaced only with the written consent of City.

2.1.2. ***Section intentionally left blank***

2.2 Prohibition on Discrimination

2.2.1 CMAR, its agents, employees, and subcontractors, shall not discriminate in any employment policy or practice. "Discrimination" means to exclude individuals from an opportunity or participation in any activity or to accord different or unequal treatment in the context of a similar situation to similarly situated individuals because of race, color, gender, gender identity, sexual orientation, religion, national origin or ancestry, marital status, familial status, age, disability, or veteran status. (Sedona City Code Section 9.30.030))

2.3 Government Approvals and Permits

2.3.1 Unless otherwise provided, CMAR shall obtain or assist the City to obtain all necessary permits, approvals and licenses required for the prosecution of the Work from any government or quasi-government entity having jurisdiction over the Project. **The CMAR is specifically reminded of the need to obtain the necessary environmental permits or file the necessary environmental notices.**

2.3.2 Copies of these permits and notices must be provided to the City's Representative prior to starting the permitted activity. In the case of Sedona Fire District permits, a copy of the application for permit shall also be provided to the City's Representative. This provision does not constitute an assumption by the City of an obligation of any kind for violation of said permit or notice requirements.

2.3.3 ***Section intentionally left blank***

2.3.4 CMAR shall be responsible for all other permits and review fees not specifically listed in this Agreement.

2.3.5 CMAR is responsible for the cost of water meter(s), water and sewer taps, fire lines and taps, and all water bills on the project meters until Final Acceptance of the Project. Arrangements for construction of the water system are the CMAR‘s responsibility.

2.4 Pre-construction Conference

2.4.1 Prior to the commencement of any Work, the City’s Representative will schedule a Pre-construction conference.

2.4.2 The purpose of this conference is to establish a working relationship between the CMAR, utility firms, and various City agencies. The agenda will include critical elements of the work schedule, submittal schedule, cost breakdown of major lump sum items, Payment Requests and processing, coordination with the involved utility firms, the level of Project Record Documents required and emergency telephone numbers for all representatives involved during construction.

2.4.3 The Notice to Proceed date will be negotiated between the City and the CMAR. After the pre-construction conference a Notice to Proceed letter will be issued confirming the construction start date, Performance Period and if applicable, conditions of Substantial Completion, and the Final Acceptance date.

2.4.4 ***Section intentionally left blank***

2.4.5 The CMAR shall provide a schedule of values based on the categories used in the buyout of the Work but not greater than the approved GMP and identifying the CMAR’s Contingency. The schedule of values will subdivide the Work into all items comprising the Work.

2.4.6 Minimum attendance by the CMAR shall be the CMAR’s Representative, who is authorized to execute and sign documents on behalf of the CMAR, the job superintendent, the CMAR's safety officer, and a representative for each specialty sub-contractor.

2.5 Control of the Work

2.5.1 Unless otherwise provided in the Contract Documents to be the responsibility of City or a separate contractor, CMAR shall provide through itself or Subcontractors the necessary supervision, labor, inspection, testing, start-up, material, equipment, machinery, temporary utilities and other temporary facilities to permit CMAR to complete the Work consistent with the Contract Documents.

2.5.2 CMAR shall perform all construction activities efficiently and with the requisite expertise, skill and competence to satisfy the requirements of the Contract Documents. CMAR shall, at all times, exercise complete and exclusive control over the means, methods, sequences and techniques of construction.

2.5.3 CMAR or the CMAR’s Superintendent shall be present at the Site at all times in which construction activities are taking place.

2.5.3.1 All elements of the Work shall be under the direct supervision of a foreman or his designated representative on the Site who shall have the authority to take actions required to properly

carry out that particular element of the work.

2.5.3.2 In the event of noncompliance of this Section, the City may require the CMAR to stop or suspend the Work in whole or in part.

2.5.4 Where the Contract Documents require that a particular product be installed and/or applied by an applicator approved by the manufacturer, it is the CMAR's responsibility to ensure the Subcontractor employed for such work is approved by the manufacturer.

2.5.5 Before ordering materials or doing work, the CMAR and each Subcontractor shall verify measurements at the Site and shall be responsible for the correctness of such measurements. No extra charge or compensation will be allowed because of differences between actual dimensions and the dimensions indicated on the drawings; differences, which may be found, shall be submitted to the City for resolution before proceeding with the work.

2.5.6 The CMAR shall take field measurements and verify field conditions and shall carefully compare such field measurements and conditions and other information known to the CMAR with the Contract Documents before commencing activities. Errors, inconsistencies or omissions discovered shall be reported to the City at once.

2.5.7 The CMAR shall establish and maintain all building and construction grades, lines, levels, and bench marks, and shall be responsible for accuracy and protection of the same. This Work shall be performed or supervised by a licensed civil engineer or surveyor in the State of Arizona.

2.5.8 Any person employed by the CMAR or any Subcontractor who, in the opinion of the City, does not perform his work in a proper, skillful and safe manner or is intemperate or disorderly shall, at the written request of the City, be removed from the Work by CMAR or Subcontractor employing such person, and shall not be employed again in any portion of Work without the written approval of the City. The CMAR or Subcontractor shall keep the City harmless from damages or claims, which may occur in the enforcement of this Section.

2.5.9 CMAR assumes responsibility to City for the proper performance of the work of Subcontractors and any acts and omissions in connection with such performance. Nothing in the Contract Documents is intended or deemed to create any legal or contractual relationship between City and any Subcontractor or Sub-Subcontractor, including but not limited to any third-party beneficiary rights.

2.5.10 CMAR shall coordinate the activities of all Subcontractors. If City performs other work on the Project or at the Site with separate contractors under City's control, CMAR agrees to reasonably cooperate and coordinate its activities with those of such separate contractors so that the Project can be completed in an orderly and coordinated manner without unreasonable disruption.

2.6 Control of the Work Site

2.6.1 Throughout all phases of construction, including suspension of Work, CMAR shall keep the Site reasonably free from debris, trash and construction wastes to permit CMAR to perform its construction services efficiently, safely and without interfering with the use of adjacent land areas. Upon Substantial Completion of the Work, or a portion of the Work, CMAR shall remove

all debris, trash, construction wastes, materials, equipment, machinery and tools arising from the Work or applicable portions thereof to permit City to occupy the Project or a portion of the Project for its intended use.

2.6.2 CMAR shall take whatever steps, procedures or means to prevent any dust nuisance due to construction operations. The dust control measures shall be maintained at all times to the satisfaction of the City.

2.6.3 CMAR shall maintain ADA and ANSI accessibility requirements during construction activities in an occupied building or facility. ADA and ANSI accessibility requirements shall include, but not be limited to, parking, building access, entrances, exits, restrooms, areas of refuge, and emergency exit paths of travel. CMAR shall be responsible for the phasing and coordination of all work to minimize disruption to building occupants and facilities, traffic flow and normal City services.

2.6.4 Only materials and equipment, which are to be used directly in the Work, shall be brought to and stored on the Site by the CMAR. When equipment is no longer required for the Work, it shall be removed promptly from the Site. Protection of construction materials and equipment stored at the Site from weather, theft, damage and all other adversity is solely the responsibility of the CMAR.

2.7 Shop Drawings, Product Data and Samples

2.7.1 Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents. The purpose of their submittal is to demonstrate for those portions of the Work for which submittals are required the way the CMAR proposes to conform to the information given and the design concept expressed in the Contract Documents. In light of this, it is understood that City review of submittals or approval of same does not constitute a change of contract provisions. Such changes if made must be made by Contract Change Orders.

2.7.2 The CMAR shall review, approve, verify, and submit to the City one electronic copy of each Shop Drawing, Product Data, and similar submittals required by the Contract Documents in accordance with the approved GMP schedule as shown in Exhibit B as to cause no delay in the Work or in the activities of the City or of separate contractors. Contractor shall supply City with one physical product and/or material samples required by the Contract Documents. Submittals made by the CMAR, which are not required by the Contract Documents, may be returned without action.

2.7.3 The CMAR shall perform no portion of the Work requiring submittal and review of Shop Drawings, Product Data, Samples, or similar submittals until the respective submittal has been approved by the City. Such Work shall be in accordance with approved submittals.

2.7.4 By approving, verifying and submitting Shop Drawings, Product Data, Samples and similar submittals, the CMAR represents that the CMAR has determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

2.7.5 The CMAR shall not be relieved of responsibility for deviations from requirements of the

Contract Documents by the City 's approval of Shop Drawings, Product Data, Samples or similar submittals unless the CMAR has specifically informed the City in writing of such deviation at the time of submittal and the City has given written approval to the specific deviation. The CMAR shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals by the City's approval thereof.

2.7.6 The CMAR shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples, or similar submittals, to revisions other than those requested by the City on previous submittals.

2.7.7 Informational submittals upon which the City is not expected to take responsive action may be so identified in the Contract Documents.

2.7.8 When professional certification of performance criteria of materials, systems or equipment is required by the Contract Documents, the City shall be entitled to rely upon the accuracy and completeness of such calculations and certifications.

2.8 Quality Control, Testing and Inspection

2.8.1 All materials used in the Work shall be new and unused, unless otherwise noted, and shall meet all quality requirements of the Contract Documents.

2.8.2 All construction materials to be used on the Work or incorporated into the Work, equipment, plant, tools, appliances or methods to be used in the Work may be subject to the inspection and approval or rejection by the City. Any material rejected by the City shall be removed immediately and replaced in an acceptable manner.

2.8.3 ***Section intentionally left blank***

2.8.4 ***Section intentionally left blank***

2.8.5 CMAR shall be responsible for all required testing and inspection of materials and installations to assure compliance with contract requirements. City shall be provided with those tests and inspection results upon request or as otherwise required by the contract documents.

2.8.5.1 When the first and subsequent tests and inspections indicate noncompliance with the Contract Documents, all retesting and reinspection shall be performed by the same testing agency, unless written approval is received for another agency from City. Such approval shall not be unreasonably withheld.

2.8.5.2 The CMAR will cooperate with the selected testing laboratory and all others responsible for testing and inspecting the work and shall provide them access to the Work at all times.

2.8.5.3 The City may contract with a third-party testing agency, at no cost to the CMAR, to conduct its own quality control testing and inspection or to verify CMAR's test results.

2.8.6 At the option of the City, materials may be approved at the source of supply before delivery is started.

2.8.7 Code compliance testing and inspections required by codes or ordinances, or by a plan approval authority, and which are made by a legally constituted authority, shall be the responsibility of and shall be paid by the CMAR, unless otherwise provided in the Contract Documents.

2.8.8 CMAR's convenience and quality control testing and inspections shall be the sole responsibility of the CMAR and paid by the CMAR.

2.9 Trade Names and Substitutions.

2.9.1 Contract Document references to equipment, materials or patented processes by manufacturer, trade name, make or catalog number, unless indicated that no substitutions are permitted, substitute or alternate items may be permitted, subject to the following:

2.9.1.1 The substitution shall be submitted by CMAR in writing to the City.

2.9.1.2 The CMAR shall certify that the substitution will perform the functions and achieve the results called for by the general design, be similar and of equal substance, and be suited to the same use as that specified.

2.9.1.3 The submittal shall state any required changes in the Contract Documents to adapt the design to the proposed substitution.

2.9.1.4 The submittal shall contain an itemized estimate of all costs and credits that will result directly and indirectly from the acceptance of such substitution, including cost of design, license fees, royalties, and testing. Also, the submittal shall include any adjustment in the Contract Time created by the substitution.

2.9.1.5 The CMAR if requested by the City shall submit Samples or any additional information that may be necessary to evaluate the acceptability of the substitution.

2.9.1.6 The City will make the final decision and will notify the CMAR in writing as to whether the substitution has been accepted or rejected.

2.9.1.7 If the City does not respond in a timely manner, the CMAR shall continue to perform the Work in accordance with the Contract Documents and the substitution will be considered rejected.

2.10 Project Record Documents

2.10.1 During the construction period, the CMAR shall maintain at the jobsite a set of blueline or blackline prints of the Construction Document drawings and shop drawings for Project Record Document purposes.

2.10.2 The CMAR shall mark these drawings to indicate the actual installation where the installation varies appreciably from the original Construction Documents. Give particular attention to information on concealed elements, which would be difficult to identify or measure and record later. Items required to be marked include but are not limited to:

- Dimensional changes to the drawings.

- Revisions to details shown on Drawings
- Locations and depths of underground utilities
- Revisions to routing of piping and conduits
- Revisions to electrical circuitry
- Actual equipment locations
- Locations of concealed internal utilities
- Changes made by Change Order
- Details not on original Contract Drawings

2.10.3 Mark completely and accurately Project Record Drawing prints of Construction Documents or Shop Drawings, whichever is the most capable of indicating the actual physical condition. Where Shop Drawings are marked, show cross-reference on the Construction Documents location.

2.10.4 Mark Project Record Drawings sets with red erasable colored pencil.

2.10.5 Note RFI Numbers, ASI Numbers and Change Order numbers, etc., as required to identify the source of the change to the Construction Documents.

2.10.6 The CMAR shall as a condition of Final Acceptance, submit Project Record Drawing prints and Shop Drawings to the City or its representative for review and comment.

2.10.7 Upon receipt of the reviewed Project Record Drawings from the City, the CMAR shall correct any deficiencies and/or omissions to the drawings and prepare the following for submission to the City within 14 Days:

2.10.7.1 A complete set of electronic Project Record Drawings prepared in AutoCAD format compatible with City of Sedona CADD technology. The Design Professional will provide files of the original Construction Documents to the CMAR for the use of preparing these final Project Record Drawings or the CMAR may contract with the Design Professional to revise and update the electronic drawing files. Each drawing shall be clearly marked with "As-Built Document."

2.10.7.2 A complete set of printed record drawings from the final AutoCAD drawings.

2.10.7.3 The original copy of the Project Record Drawings (redline mark-ups).

2.11 Project Safety

2.11.1 CMAR recognizes the importance of performing the Work in a safe manner so as to prevent damage, injury or loss to (i) all individuals at the Site, whether working or visiting, (ii) the Work, including materials and equipment incorporated into the Work or stored on-Site or off-Site, and (iii) all other property at the Site or adjacent thereto.

2.11.2 CMAR assumes responsibility for implementing and monitoring all safety precautions and programs related to the performance of the Work.

2.11.3 CMAR shall, prior to commencing construction, designate a Safety Representative with the necessary qualifications and experience to supervise the implementation and monitoring of all safety precautions and programs related to the Work. Unless otherwise required by the Contract Documents, CMAR's Safety Representative shall be an individual stationed at the Site

who may have other responsibilities on the Project in addition to safety.

2.11.4 The Safety Representative shall make routine daily inspections of the Site and shall hold weekly safety meetings with CMAR's personnel, Subcontractors and others as applicable.

2.11.5 CMAR and Subcontractors shall comply with all Legal Requirements relating to safety, as well as any City-specific safety requirements set forth in the Contract Documents, provided that such City-specific requirements do not violate any applicable Legal Requirement.

2.11.6 CMAR will immediately report in writing any safety-related injury, loss, damage or accident arising from the Work to City's Representative and, to the extent mandated by Legal Requirements, to all government or quasi-government authorities having jurisdiction over safety-related matters involving the Project or the Work.

2.11.7 CMAR's responsibility for safety under this Section is not intended in any way to relieve Subcontractors and Sub-Subcontractors of their own contractual and legal obligations and responsibility for (i) complying with all Legal Requirements, including those related to health and safety matters, and (ii) taking all necessary measures to implement and monitor all safety precautions and programs to guard against injury, losses, damages or accidents resulting from their performance of the Work.

2.12 Warranty

2.12.1 CMAR warrants to City that the construction, including all materials and equipment furnished as part of the construction, shall be new unless otherwise specified in the Contract Documents, of good quality, in conformance with the Contract Documents and free of defects in materials and workmanship.

2.12.2 CMAR's warranty obligation excludes defects caused by abuse, alterations, or failure to maintain the Work by persons other than CMAR or anyone for whose acts CMAR may be liable.

2.12.3 CMAR's warranty obligation shall be for two years after Final Acceptance.

2.12.4 Nothing in this warranty is intended to limit any manufacturer's warranty which provides City with greater warranty rights than set forth in this Section or the Contract Documents. CMAR will provide City with all manufacturers' warranties upon Final Acceptance.

2.13 Correction of Defective Work

2.13.1. CMAR agrees to correct any Work that is found to not be in conformance with the Contract Documents, including that part of the Work subject to Section 2.12 above, within a period of two years from the date of Final Acceptance of the Work or any portion of the Work, or within such longer period to the extent required by the Contract Documents. A progress payment, or partial or entire use or occupancy of the Project by the City, shall not constitute acceptance of Work not in accordance with the Contract Documents.

2.13.2. During the Work, CMAR shall take meaningful steps to commence correction of such nonconforming Work as notified by the City. This includes the correction, removal or replacement of the nonconforming Work and any damage caused to other parts of the Work

affected by the nonconforming Work. If CMAR fails to commence the necessary steps during the Work, City, in addition to any other remedies provided under the Contract Documents, may provide CMAR with written notice that City will commence correction of such nonconforming Work with its own forces.

2.13.3. CMAR shall, take meaningful steps to commence correction of nonconforming Work subject to Section 2.12 above, within seven days of receipt of written notice from City. This includes the correction, removal or replacement of the nonconforming Work and any damage caused to other parts of the Work affected by the nonconforming Work. If CMAR fails to commence the necessary steps within such seven-day period, City, in addition to any other remedies provided under the Contract Documents, may provide CMAR with written notice that City will commence correction of such nonconforming Work with its own forces.

2.13.4. If City does perform such corrective Work, CMAR shall be responsible for all reasonable costs incurred by City in performing such correction.

2.13.5. Nonconforming Work that creates an emergency requiring an immediate response, the CMAR will respond and initiate corrections within twenty-four hours.

2.13.6. The two-year period referenced in Section 2.12 above applies only to CMAR's obligation to correct nonconforming Work and is not intended to constitute a period of limitations for any other rights or remedies City may have regarding CMAR's other obligations under the Contract Documents.

ARTICLE 3 - CITY'S SERVICES AND RESPONSIBILITIES

3.1 Duty to Cooperate.

3.1.1 City shall, throughout the performance of the Work, cooperate with CMAR and perform its responsibilities, obligations and services in a timely manner to facilitate CMAR's timely and efficient performance of the Work and so as not to delay or interfere with CMAR's performance of its obligations under the Contract Documents.

3.1.2 City shall furnish at the CMAR's request, at no cost to the CMAR, a CADD file of the Construction Documents in AutoCAD format compatible with City of Sedona CADD technology. This section is not applicable to the WWRP UV Replacement Project Contract.

3.2 City's Representative

3.2.1 City's Representative shall be responsible for providing City-supplied information and approvals in a timely manner to permit CMAR to fulfill its obligations under the Contract Documents.

3.2.2 City's Representative shall also provide CMAR with prompt notice if it observes any failure on the part of CMAR to fulfill its contractual obligations, including any default or defect in the project or non-conformance with the drawings and specifications.

3.2.3 The City may utilize field inspectors to assist the City's Representative during construction in observing performance of the CMAR. The inspector is for the purpose of assisting the City's Representative only and should not be confused with an inspector with a City regulatory agency or with an inspector from a City laboratory.

3.2.3.1 Through onsite observation of the Work in progress and field checks of materials and equipment, the inspector shall endeavor to provide protection against defects and deficiencies in the Work.

3.2.3.2 The inspector will be authorized to inspect all Work and materials furnished. Such inspection may extend to all or part of the Work and to the preparation, fabrication or manufacture of the materials to be used.

3.2.3.3 The inspector will not be authorized to issue instructions contrary to the Construction Documents or to act as foremen for the CMAR.

3.2.3.4 The inspector shall have the authority to reject work or materials until any questions at issue can be decided by the City's Representative.

3.2.3.5 The furnishing of such services for the City shall not make the City responsible for or give the City control over construction means, methods, techniques, sequenced or procedures or for safety precautions or programs or responsibility for the CMAR's failure to perform the work in accordance with Contract Documents.

3.3 Design Professional Services

3.3.1 The City may contract separately with one or more Design Professionals to provide construction administration of the project. The Design Professional's contract as well as other firms hired by the City shall be furnished to the CMAR. The CMAR shall not have any right however, to limit or restrict any contract modifications that are mutually acceptable to the City and Design Professional.

3.3.2 The City may contract with the Design Professional to provide some or all of the following services during the performance of the Work.

3.3.2.1 Provide oversite of the Work. The City and CMAR shall endeavor to communicate through the Design Professional. Communications by and with the Design Professional's consultants shall be through the Design Professional.

3.3.2.2 Site visits at intervals appropriate to the stage of construction to become generally familiar with the progress and quality of the completed Work and to determine in general if the Work is being performed in accordance with the Contract Documents. The Design Professional will keep the City informed of progress of the Work, and will endeavor to guard the City against defects and deficiencies in the Work. The Design Professional may have authority to reject construction, which does not conform to the Construction Documents, and to require additional inspection or testing of the construction in accordance with Section 2.8.

3.3.2.3 Review and recommend approval of Payment Requests.

3.3.2.4 Review and approve or take other appropriate action upon the CMAR's submittals such as Shop Drawings, Product Data and Samples in accordance with Section 2.7.

3.3.2.5 Interpret and decide matters concerning performance under and requirements of the Contract Documents on written request of either the City or CMAR. The design Professional's response to such requests will be made with reasonable promptness and within any time limits agreed upon.

3.3.2.6 Prepare Change Orders, and may authorize minor changes in the Work as provided in Section 6.6.1. Conduct inspections to determine Substantial Completion and Final Acceptance.

3.3.2.7 Receive and forward to the City for the City's review and records written warranties and related documents required by the Contract Documents and assembled by the CMAR.

3.4 City's Separate Contractors

3.4.1 City is responsible for all work performed on the Project or at the Site by separate contractors under City's control. City shall contractually require its separate contractors to cooperate with, and coordinate their activities so as not to interfere with, CMAR in order to enable CMAR to timely complete the Work consistent with the Contract Documents.

3.5 Permit Review and Inspections.

3.5.1 If requested by the CMAR, the City's Representative will provide assistance and guidance in obtaining necessary reviews, permits and inspections.

3.5.2 Regulating agencies of the City, such as Developmental Services, Planning Departments, and Sedona Fire District enforce Legal Requirements. These enforcement activities are not subject to the responsibilities of the City under this Agreement.

ARTICLE 4 - CONTRACT TIME

4.0. Contract Time

4.0.1. Contract Time for the WWRP UV Replacement Project Contract shall start with the Notice to Proceed for each division and end with Final Acceptance.

4.0.1.1. This GMP will establish a Performance Period. The Performance Period shall be 361 calendar days for the entire work.

4.0.2. CMAR agrees that it will commence performance of the Work and achieve the Performance Periods and Contract Time.

4.0.3. All of the times set forth in this Article 4 shall be subject to adjustment in accordance with Article 6.

4.1. Substantial Completion

4.1.1. Substantial Completion shall be for the entire Project unless a partial Substantial Completion is identified in the approved GMP schedule and stated in the Notice to Proceed letter. Substantial Completion shall be in accordance with its definition in Article 1 and with the criteria set forth in the Notice to Proceed.

4.1.2. Prior to notifying the City in accordance to Division 4.1.3 below, the CMAR shall inspect the Work and prepare and submit to the City a comprehensive list of items to be completed or corrected. The CMAR shall proceed promptly to complete and correct items on the list. Failure to include an item on such list does not alter the responsibility of the CMAR to complete all Work in accordance with the Contract Documents.

4.1.3. CMAR shall notify City when it believes the Work, or to the extent permitted in the Contract Documents, a portion of the Work, is substantially complete.

4.1.4. Within five (5) days of City's receipt of CMAR's notice, City and CMAR will jointly inspect such Work to verify that it is substantially complete in accordance with the requirements of the Contract Documents.

4.1.5. If such Work is substantially complete, City shall prepare and issue a Certificate of Substantial Completion that will set forth (i) the date of Substantial Completion of the Work or portion thereof, (ii) the remaining items of Work that have to be completed within thirty (30) calendar days before Final Acceptance, (iii) provisions (to the extent not already provided in the Contract Documents) establishing City's and CMAR's responsibility for the Project's security, maintenance, utilities and insurance pending Final Acceptance and (iv) an acknowledgment that warranties commence to run on the date of Final Acceptance, except as may otherwise be noted in the Certificate of Substantial Completion.

4.1.6. City, at its option, may use a portion of the Work which has been determined to be substantially complete, provided, however, that (i) a Certificate of Substantial Completion has been issued for the portion of Work addressing the items set forth in Division 4.1.5 above, (ii) CMAR and City have obtained the consent of their sureties and insurers, and to the extent applicable, the appropriate government authorities having jurisdiction over the Project, and (iii) City and CMAR agree that City's use or occupancy will not interfere with CMAR's completion of the remaining Work.

4.2. Final Acceptance

4.2.1. Upon receipt of written notice that the Work or identified portions of the Work is ready for final inspection and acceptance by the City, City and CMAR will jointly inspect to verify that the remaining items of Work have been completed as set forth in Division 4.1.5. The City will issue a Final Acceptance Letter and payment pursuant to Section 7.5.

4.3. Liquidated Damages

4.3.1. CMAR understands that if Substantial Completion is not attained within the Contract Time as adjusted, City will suffer damages, which are difficult to determine and accurately specify. CMAR agrees that if Substantial Completion is not attained within the Contract Time as adjusted, CMAR shall pay the City one thousand seventy dollars ($1,070) as liquidated damages for each Calendar Day that Substantial Completion extends beyond the date determined by the Contract Time as adjusted.

4.4. Incentive Bonuses.

4.4.1. There are no incentive bonuses for this project.

4.5. Project Schedule

4.5.1. The Project Schedule approved as part of a GMP shall be updated and maintained throughout the Work.

4.5.2. The Project Schedule shall be revised as required by conditions and progress of the Work, but such revisions shall not relieve CMAR of its obligations to complete the Work within the Contract Time, as such dates may be adjusted in accordance with the Contract Documents.

4.5.3. Updated Project Schedule shall be submitted at least monthly to the City as part of the Payment Request.

4.5.3.1. CMAR shall provide City with a monthly status report with each Project Schedule detailing the progress of the Work, including: (i) if the Work is proceeding according to schedule, (ii) any discrepancies, conflicts, or ambiguities found to exist in the Contract Documents that require resolution, and (iii) other items that require resolution so as not to jeopardize ability to complete the Work as presented in the GMP and within the Contract Time.

4.5.3.2. With each schedule submittal the CMAR shall include a transmittal letter including the following:

- Description of problem tasks (referenced to field instructions, requests for information (RFI's), as appropriate.
- Current and anticipated delays including:
  - Cause of the delay
  - Corrective action and schedule adjustments to correct the delay
  - Notice of potential impact of the delay on other activities, milestones, and on the date of Substantial Completion or Final Acceptance.
- Changes in construction sequence
- Pending items and status thereof including but not limited to:
  - Time Extension requests
  - Other items
- Final Acceptance date status:
  - If ahead of schedule, the number of calendar days ahead.
  - If behind schedule, the number of calendar days behind.

- Other project or scheduling concerns
-

4.5.4. City's review of and response to the Project Schedule is only for general conformance with the scheduling requirements of the Contract Documents. The review shall not relieve the CMAR from compliance with the requirements of the Contract Documents or be construed as relieving the CMAR of its complete and exclusive control over the means, methods, sequences and techniques for executing the Work.

4.5.5. The Project Schedule shall include a Critical Path Method (CPM) diagram schedule that shall show the sequence of activities, the interdependence of each activity and indicate the Critical Path.

4.5.5.1. The CPM diagram schedule shall be in Days and indicate duration, earliest and latest start and finish dates for all activities, and total Float times for all activities except critical activities. The CMP diagram shall be presented in a time scaled graphical format for the Project as a whole.

4.5.5.2. The CPM diagram schedule shall indicate all relationships between activities.

4.5.5.3. The activities making up the schedule shall be sufficient detail to assure that adequate planning has been done for proper execution of the Work and such that it provides an appropriate basis for monitoring and evaluating the progress of the Work.

4.5.5.4. The CPM diagram schedule shall be based upon activities, which would coincide with the schedule of values.

4.5.5.5. The CPM diagram schedule shall show all submittals associated with each work activity and the review time for each submittal.

4.5.5.6. The schedule shall show milestones, including milestones for Owner-furnished information, and shall include activities for Owner-furnished equipment and furniture when those activities are interrelated with the CMAR activities.

4.5.5.7. The schedule shall include a critical path activity that reflects anticipated rain delay during the performance of the contract. The duration shall reflect the average climatic range and usual industrial conditions prevailing in the locality of the site.

4.5.6. The Project Schedule shall consider the City's and the tenants' occupancy requirements showing portions of the Project having occupancy priority, and Contract Time.

4.5.7. Float time shall be as prescribed below:

4.5.7.1. The total Float within the overall schedule, is not for the exclusive use of either the City or the CMAR, but is jointly owned by both and is a resource available to and shared by both parties as needed to meet contract milestones and the Project completion date.

4.5.7.2. The CMAR shall not sequester shared Float through such strategies as extending activity duration estimates to consume available Float, using preferential logic, or using extensive crew/resource sequencing, etc. Since Float time within the schedule is jointly owned, no time extensions will be granted nor delay damages paid until a delay occurs which extends the Work beyond the Final Acceptance date.

4.5.7.3. Since Float time within the schedule is jointly owned, it is acknowledged that City-caused delays on the Project may be offset by City-caused time savings (i.e., critical path submittals returned in less time than allowed by the contract, approval of substitution requests and credit changes

which result in savings of time to the CMAR, etc.). In such an event, the CMAR shall not be entitled to receive a time extension or delay damages until all City-caused time savings are exceeded, and the Final Acceptance date is also exceeded.

ARTICLE 5- CONTRACT PRICE

5.0. The CMAR agrees at his own proper cost and expense, to do all Work as aforesaid for the construction of said improvements and to completely construct the same and install the material therein, as called for by this Agreement free and clear of all claims, liens, and charges whatsoever, in the manner and under the conditions specified within the time, or times, stated in the approved Guaranteed Maximum Price.

5.1. Contract Price.

5.1.1. The Contract Price will be as approved in the Guaranteed Maximum Price proposal attached as Exhibit B.

5.1.2. Guaranteed Maximum Price is composed of the following not-to-exceed cost reimbursable and lump sum amounts defined below. The CMAR is at risk to cover any additional Project costs. Any amounts in excess of the actual Cost of the Work, CMAR's Contingency and/or taxes shall revert to the City.

5.1.2.1. The Cost of the Work is actual costs and is a not-to-exceed reimbursable amount.

5.1.2.2. The General Conditions Costs and the Construction Fee are firm fixed lump sums.

5.1.2.3. CMAR's Contingency is an amount the CMAR may use under the following conditions: (1) for increases in the Cost of the Work subject to written agreement from the city of conformance with the circumstances for which the contingency was developed as described for the contingency item in the CMAR's cost proposal, or (2) with written approval of the City for increases in General Condition Costs. CMAR's Contingency is assumed to be a direct project cost and so has received all markups at the time of GMP submission.

5.1.2.1 When the CMAR utilize CMAR's Contingency funds, the CMAR shall make the appropriate changes to the schedule of values with the next regular progress payment request. The CMAR shall deduct the amount of CMAR's Contingency funds used from the CMAR's Contingency line item and adding the same amount to the line item on the schedule of values where the funds were used. If the CMAR's Contingency funds are used for a new line item that was not given with the original schedule of values that will be so indicated.

5.1.3 Taxes are deemed to include all sales, use, consumer and other taxes, which are legally enacted when negotiations of the GMP were concluded, whether or not yet effective, or merely scheduled to go into effect. Taxes are actual costs and are a not-to-exceed reimbursable amount.

5.1.4 Owner's Contingency is funds to be used at the discretion of the Owner to cover any increases in Project costs that result from Owner directed changes. Owner's Contingency will be added to the GMP amount provided by the CMAR, the sum of which will be the full contract price for construction. Markups for Construction Fee and taxes will be applied by the CMAR at the time that Owner's Contingency is used.

5.1.5 The GMP is subject to adjustments made in accordance with Article 6 and by GMP amendments to this Agreement.

5.1.5.1 GMP amendments are accumulative except for contingency. The amount of contingency for each GMP amendment will be negotiated separately.

5.1.5.2 If the GMP requires an adjustment due to changes in the Work, the cost of such changes is determined subject to Article 6. The markups that shall be allowed on such changes shall be no greater than the markups delineated in the approved GMP.

ARTICLE 6 - CHANGES TO THE CONTRACT PRICE AND TIME

6.0. Delays to the Work

6.0.1. If CMAR is delayed in the performance of the Work that will cause a change in the date of Final Acceptance due to acts, omissions, conditions, events, or circumstances beyond its control and due to no fault of its own or those for whom CMAR is responsible, the Contract Times for performance shall be reasonably extended by Change Order.

6.0.2. The CMAR shall request an increase in the Contract Time by written notice including an estimate of probable effect of delay on progress of the Work. In the case of a continuing delay only one request is necessary.

6.0.3. By way of example, events that will entitle CMAR to an extension of the Contract Time include acts or omissions of City or anyone under City's control (including separate contractors), changes in the Work, Differing Site Conditions, Hazardous Conditions, delays by regulating agencies, wars, floods, labor disputes, unusual delay in transportation, epidemics, earthquakes, adverse weather conditions not reasonably anticipated, and other acts of God.

6.0.4. If weather conditions are the basis for a request for additional Contract Time, such requests shall be documented by data substantiating that weather conditions were abnormal for the period of time and could not have been reasonably anticipated, and that weather conditions had an adverse effect on the scheduled Final Acceptance.

6.0.5. It is understood, however, that permitting the CMAR to proceed to complete any Work, or any part of the Work, after the date to which the time of completion may have been extended, shall in no way act as a waiver on the part of the City of any of its legal rights.

6.0.6. In addition to CMAR's right to a time extension for those events set forth in this Section, CMAR shall also be entitled to an appropriate adjustment of the Contract Price provided, however, that the Contract Price shall not be adjusted for those events set forth in this Section that are beyond the control of both CMAR and City, including the events of war, floods, labor disputes, earthquakes, epidemics, adverse weather conditions not reasonably anticipated, and other acts of God.

6.1. Differing Site Conditions

6.1.1. If CMAR encounters a Differing Site Condition, CMAR will be entitled to an adjustment in the Contract Price and/or Contract Times to the extent CMAR's cost and/or time of performance are adversely impacted by the Differing Site Condition. Inasmuch as the CMAR has had an opportunity and responsibility to determine existing subsurface conditions on the project site per Section 2.6 of the Design Phase Services Contract for this project, existence of subsurface rock in the excavation area of this project will not be considered as a Differing Site Condition on the Project.

6.1.2. Upon encountering a Differing Site Condition, CMAR shall provide prompt written notice to City of such condition, which notice shall not be later than seven (7) days after such condition has been encountered. CMAR shall, to the extent reasonably possible, provide such notice before the Differing Site Condition has been substantially disturbed or altered.

6.2. Errors, Discrepancies and Omissions

6.2.1. If the CMAR observes errors, discrepancies or omissions in the Contract Documents, CMAR shall promptly notify the City and the Design Professional and request clarification through the City.

6.2.2. If the CMAR proceeds with the Work affected by such errors, discrepancies or omissions, without receiving such clarifications, CMAR does so at its own risk. Adjustments involving such circumstances made by the CMAR prior to clarification by the Design Professional shall be at the CMAR's risk.

6.3. City Requested Change in Work

6.3.1. The City reserves the right to make, at any time during the progress of the Work, such alterations as may be found necessary or in the City's best interest.

6.3.2. Such alterations and changes shall not invalidate this Agreement nor release the surety and the CMAR agrees to perform the Work as altered, the same as if it has been a part of the original Contract Documents.

6.3.3. The City will request a proposal for a change in Work from CMAR, and an adjustment in the Contract Price and/or Contract Times shall be made based on a mutual agreed upon cost and time.

6.4. Legal Requirements

6.4.1. The Contract Price and/or Contract Times shall be adjusted to compensate CMAR for the effects of any changes in the Legal Requirements enacted after the date of the Agreement or the date of the GMP, affecting the performance of the Work

6.5. Change Directives and Change Orders

6.5.1. City and CMAR shall negotiate in good faith and as expeditiously as possible the appropriate adjustments for a Change Directive. Upon reaching an agreement, the parties shall prepare and execute an appropriate Change Order reflecting the terms of the adjustment.

6.5.2. All changes in Work authorized by Change Orders shall be performed under the conditions of the Contract Documents

6.6. Minor Changes in the Work

6.6.1. The City has authority to order minor changes in Work that do not materially and adversely affect the Work, including the design, quality, performance and workmanship required by the Contract Documents. Such changes shall be affected by written order and shall be binding on the City and CMAR. The CMAR shall carry out such written orders promptly.

6.6.2. CMAR may make minor changes in Work, provided, however that CMAR shall promptly inform City, in writing, of any such changes and record such changes, if appropriate, on the Project Record Documents maintained by CMAR.

6.6.3. Minor changes in Work will not involve an adjustment in the Contract Price and/or Contract Times.

6.7. Contract Price Adjustments

6.7.1. The increase or decrease in Contract Price resulting from a change in the Work shall be determined by one or more of the following methods:

6.7.1.1. Unit prices set forth in the Agreement or as subsequently agreed to between the parties;

6.7.1.2. A mutually accepted, lump sum, properly itemized and supported by sufficient substantiating data to permit evaluation by City; and

6.7.1.3. Costs, fees and any other markups.

6.7.2. The markups that shall be allowed on such changes shall be no greater than the markups delineated in the approved GMP as shown on Exhibit B.

6.7.3. If an increase or decrease cannot be agreed to as set forth in items Sections 6.7.1.1 through 6.7.1.3 above and City issues a Change Directive, the cost of the change of the Work shall be determined by the reasonable expense and savings in the performance of the Work resulting from the change, including a reasonable overhead and profit, as may be set forth in the Agreement. CMAR shall maintain a documented, itemized accounting evidencing the expenses and savings associated with such changes.

6.7.4. If unit prices are set forth in the Contract Documents or are subsequently agreed to by the parties, but application of such unit prices will cause substantial inequity to City or CMAR because of differences in the character or quantity of such unit items as originally contemplated, such unit prices shall be equitably adjusted.

6.7.5. If City and CMAR disagree upon whether CMAR is entitled to be paid for any services required by City, or if there are any other disagreements over the scope of Work or proposed changes to the Work, City and CMAR shall resolve the disagreement pursuant to Article 8 hereof.

6.7.5.1. As part of the negotiation process, CMAR shall furnish City with a good faith estimate of the costs to perform the disputed services in accordance with City's interpretations.

6.7.5.2. If the parties are unable to agree and City expects the CMAR to perform the services in accordance with City's interpretations, CMAR shall proceed to perform the disputed services, conditioned upon City issuing a written order to CMAR (i) directing CMAR to proceed and (ii) specifying City's interpretation of the services that are to be performed.

6.7.6. Emergencies

6.7.6.1. In any emergency affecting the safety of persons and/or property, CMAR shall act, at its discretion, until direction is provided by responsible authorities, to prevent threatened damage, injury or loss. Any change in the Contract Price and/or Contract Time resulting from emergency work under this Division shall be determined as provided in this Article. The CMAR shall notify the City of any emergency, actual or potential, as quickly as feasible.

ARTICLE 7- PROCEDURE FOR PAYMENT

7.0. For and in consideration of the faithful performance of the work herein embraced as set forth in the Contract Documents, which are a part hereof and in accordance with the directions of the City and to its satisfaction, the City agrees to pay the said CMAR the actual Cost of the Work and any applicable General Conditions Costs including, insurance and bonding, taxes and the CMAR's Construction Fee, but no more than the GMP as adjusted by any change orders. Payment for the specific work under this Agreement will be made in accordance with payment provisions detailed below.

7.1. GMP Payment Request

7.1.1. At the pre-construction conference prescribed in Section 2.4, CMAR shall submit for City's review and approval a schedule of values. The schedule of values will serve as the basis for monthly progress payments made to CMAR throughout the Work.

7.1.2. At least five (5) working days prior to the date established for a Payment Request, the CMAR shall submit an updated Project Schedule and meet with the City's Representative to review the progress of the Work as it will be reflected on the Payment Request.

7.1.3. The Payment Request shall constitute CMAR's representation that the Work has been performed consistent with the Contract Documents, has progressed to the point indicated in the Payment Request, and that all Work will pass to City free and clear of all claims, liens, encumbrances, and security interests upon the incorporation of the Work into the Project.

7.1.4. Unless otherwise stated in this contract the Payment Request may not request payment for stored equipment and materials. Requests for payment for equipment and materials shall only be made for equipment and materials actually installed, placed, or used or otherwise incorporated into the Work. If Payment Request for stored equipment and materials is allowed the request may not include request for payment for equipment or materials that are not anticipated to be incorporated into the work based on approved plans and specifications for the work. The request shall be limited to equipment and materials anticipated to be incorporated into the work within 180 calendar days unless agreed to in writing by City.

7.1.4.1. For equipment and materials suitably stored at the Site, the equipment and materials shall be protected by suitable insurance and City shall receive the equipment and materials free and clear of all liens and encumbrances.

7.1.4.2. For materials and equipment stored off the Site, the City must approve the storage. The material and/or equipment must be accessible for City's inspection. The CMAR must protect the City's interest and shall include applicable insurance, bonding, storage and transportation to the Site.

7.1.4.3. All bonds and insurance required for stored materials shall name the City as the loss payee to the extent of its interest in the stored materials.

7.1.5. CMAR shall submit to City on the monthly anniversary of the construction Notice to Proceed beginning with the first month after the construction Notice to Proceed, its Payment Request. Only one payment per each calendar month shall be requested, and there shall be at least 15

days between payment requests.

7.2. Payment of GMP

7.2.1. City shall make payment in accordance with A.R.S. 34-609. Payment will be made no later than fourteen (14) days after the Payment Request is certified and approved, but in each case less the total of payments previously made, and less amounts properly retained under Section 7.3 below.

7.2.2. City shall pay CMAR all amounts properly due. If City determines that CMAR is not entitled to all or part of a Payment Request, it will notify CMAR in writing within (7) days after the date Payment Request is received by the City. The notice shall indicate the specific amounts City intends to withhold, the reasons and contractual basis for the withholding, and the specific measures CMAR must take to rectify City's concerns. CMAR and City will attempt to resolve City's concerns. If the parties cannot resolve such concerns, CMAR may pursue its rights under the Contract Documents, including those under Article 8 hereof.

7.2.3. Prior to the City making the first progress payment the Contractor shall submit a schedule itemized similar to the itemization in for determination of the GMP and any approved change orders. The format of the schedule shall be approved by the City, but shall at a minimum include columns showing original estimated cost for each line item, the percent completion of an item, cost incurred for an item, and the amount billed for an item. The schedule shall be updated for each progress payment billing and supporting documentation for the cost of actual cost of labor, equipment, and material employed on the project shall be provided, in format and forms acceptable to the City

7.3. Retention on GMP

7.3.1. City will retain ten percent (10%) of each Payment Request amount provided, however, that when fifty percent (50%) of the Work has been completed by CMAR, upon request of the CMAR, City may reduce the amount retained to five percent (5%) from CMAR's subsequent Payment Requests if the CMAR's performance of work has been satisfactory.

7.3.2. In lieu of retention, the CMAR may provide as a substitute, an assignment of time certificates of deposit (CDs) from a bank licensed by Arizona, securities guaranteed by the United States, securities of the United States, the state of Arizona, Arizona counties, Arizona municipalities, Arizona school districts, or shares of savings and loan institutions authorized to transact business in Arizona.

7.3.2.1. CDs assigned to the City must be maintained at the City's single servicing bank designated by the City, in the form of time deposit receipt accounts.

7.3.2.2. Securities deposited in lieu of retention must be deposited into a separate account with a bank designated by the City having a branch located in the City of Sedona.

7.3.2.3. CDs and Securities shall be assigned exclusively for the benefit of the City of Sedona pursuant to the City's form of escrow Agreement. All requirements of ARS 34-609.B.5 shall be adhered to in the event CDs or securities are used in lieu of retainage.

7.4. ***Section intentionally left blank***

7.5. Final Payment

7.5.1. After receipt of a final Payment Request, City shall make final payment 60 days after the receipt by the City, provided that CMAR has completed all of the Work in conformance with the Contract Documents and a Final Acceptance Letter has been issued by the City.

7.5.2. At the time of submission of its final Payment Request, CMAR shall provide the following information:

7.5.2.1. An affidavit that there are no claims, obligations or liens outstanding or unsatisfied for labor, services, material, equipment, taxes or other items performed, furnished or incurred for or in connection with the Work which will in any way affect City's interests;

7.5.2.2. A general release executed by CMAR waiving, upon receipt of final payment by CMAR, all claims, except those claims previously made in writing to City and remaining unsettled at the time of final payment; and

7.5.2.3. Consent of CMAR's surety, if any, to final payment.

7.6. Payments to Subcontractors or Supplier

7.6.1. CMAR shall pay its Subcontractors or suppliers within seven (7) calendar days of receipt of each progress payment from the City. The CMAR shall pay for the amount of Work performed or materials supplied by each Subcontractor or supplier as accepted and approved by the City with each progress payment. In addition, any reduction of retention by the City to the CMAR shall result in a corresponding reduction to Subcontractors or suppliers who have performed satisfactory work. CMAR shall pay Subcontractors or suppliers the reduced retention within fourteen (14) calendar days of the payment of the reduction of the retention to the CMAR. No Contract between CMAR and its Subcontractors and suppliers may materially alter the rights of any Subcontractor or supplier to receive prompt payment and retention reduction as provided herein.

7.6.2. If the CMAR fails to make payments in accordance with these provisions, the City may take any one or more of the following actions and CMAR agrees that the City may take such actions:

7.6.2.1. To hold the CMAR in default under this Agreement;

7.6.2.2. Withhold future payments including retention until proper payment has been made to Subcontractors or suppliers in accordance with these provisions;

7.6.2.3. Reject all future offers to perform work for the City from the CMAR for a period not to exceed one year from Final Acceptance date of this Project; or

7.6.2.4. Terminate this agreement.

7.6.3. If CMAR's payment to a Subcontractor or supplier is in dispute, CMAR and Subcontractor or supplier agree to submit the dispute to any of one of the following dispute resolution processes

within fourteen (14) calendar days from the date any party gives notice to the other: (a) binding arbitration; (b) a form of alternative dispute resolution (ADR) agreeable to all parties or (c) a City of Sedona facilitated mediation. When disputed claim is resolved through ADR or otherwise, the CMAR and Subcontractor or supplier agrees to implement the resolution within seven (7) calendar days from the resolution date.

7.6.4. Should the City fail or delay in exercising or enforcing any right, power, privilege, or remedy under this Section, such failure or delay shall not be deemed a waiver, release, or modification of the requirements of this Section or of any of the terms or provisions thereof.

7.6.5. CMAR shall include these prompt payment provisions in every subcontract, including procurement of materials and leases of equipment for this Agreement.

7.7. Record Keeping and Finance Controls

7.7.1. Records of the CMAR's direct personnel payroll, reimbursable expenses pertaining to this Project and records of accounts between the City and CMAR shall be kept on a generally recognized accounting basis and shall be available for three years after Final Acceptance of the Project. The City may, after issuance of the Notice to Proceed for any part of the Work, request personnel payroll records containing sufficient information to verify workers right to work on City projects, worker payments, worker identification, and right of the worker to work on the project as employed.

7.7.2. The City, its authorized representative, and/or the appropriate federal agency, reserve the right to audit the CMAR's records to verify the accuracy and appropriateness of all pricing data, including data used to negotiate Contract Documents and any change orders.

7.7.3. The City reserves the right to decrease Contract Price and/or payments made on this Agreement if, upon audit of the CMAR's records, the audit discloses the CMAR has provided false, misleading, or inaccurate cost and pricing data.

7.7.4. The CMAR shall include a similar provision in all of its agreements with Subconsultants and Subcontractors providing services under the Contract Documents to ensure the City, its authorized representative, and/or the appropriate federal agency, has access to the Subconsultants' and Subcontractors' records to verify the accuracy of cost and pricing data.

7.7.5. The City reserves the right to decrease Contract Price and/or payments made on this Agreement if the above provision is not included in Subconsultant's and Subcontractor's contracts, and one or more Subconsultants and/or Subcontractors do not allow the City to audit their records to verify the accuracy and appropriateness of pricing data.

ARTICLE 8- CLAIMS AND DISPUTES

8.0. Requests for Contract Adjustments and Relief

8.0.1. If either CMAR or City believes that it is entitled to relief against the other for any event arising out of or related to Work, such party shall provide written notice to the other party of the basis for its claim for relief.

8.0.2. Such notice shall, if possible, be made prior to incurring any cost or expense and in accordance with any specific notice requirements contained in applicable sections of the Agreement.

8.0.3. In the absence of any specific notice requirement, written notice shall be given within a reasonable time, not to exceed twenty-one (21) days, after the occurrence giving rise to the claim for relief or after the claiming party reasonably should have recognized the event or condition giving rise to the request, whichever is later.

8.0.4. Such notice shall include sufficient information to advise the other party of the circumstances giving rise to the claim for relief, the specific contractual adjustment or relief requested and the basis of such request.

8.1. Dispute Avoidance and Resolution

8.1.1. The parties are fully committed to working with each other throughout the Project and agree to communicate regularly with each other at all times so as to avoid or minimize disputes or disagreements. If disputes or disagreements do arise, CMAR and City each commit to resolving such disputes or disagreements in an amicable, professional and expeditious manner so as to avoid unnecessary losses, delays and disruptions to the Work. CMAR understands that authorities granted City employees and representatives to resolve disputes are subject to City Code requirements and constraints.

8.1.2. CMAR and City will first attempt to resolve disputes or disagreements at the field level through discussions between CMAR's Representative and City's Representative.

8.1.3. If a dispute or disagreement cannot be resolved through CMAR's Representative and City's Representative, CMAR's Senior Representative and City's Senior Representative, upon the request of either party, shall meet as soon as conveniently possible, but in no case later than fourteen (14) days after such a request is made, to attempt to resolve such dispute or disagreement. Prior to any meetings between the Senior Representatives, the parties will exchange relevant information that will assist the parties in resolving their dispute or disagreement.

8.2. Duty to Continue Performance

8.2.1. Unless provided to the contrary in the Contract Documents, CMAR shall continue to perform the Work and City shall continue to satisfy its payment obligations to CMAR, pending the final resolution of any dispute or disagreement between CMAR and City.

8.3. Representatives of the Parties

8.3.1. City's Representatives

8.3.1.1. City designates the individual listed below or his designee as its Senior Representative ("City's Senior Representative"), which individual has the authority and responsibility for avoiding and

resolving disputes under Division 8.1.3:

Roxanne Holland, Director of Wastewater
102 Roadrunner Drive
Sedona, AZ 86336
(928) 203-5069

8.3.1.2. City designates the individual listed below as its City's Representative, which individual has the authority and responsibility set forth in Division 8.1.2:

Roxanne Holland, Project Manager
102 Roadrunner Drive
Sedona, AZ 86336

8.3.2. CMAR's Representatives

8.3.2.1. CMAR designates the individual listed below as its Senior Representative ("CMAR's Senior Representative"), which individual has the authority and responsibility for avoiding and resolving disputes under Division 8.1.3:

Mike Fossett, President
22555 N. 20th Ave.
Phoenix, AZ 85027

8.3.2.2. CMAR designates the individual listed below as its CMAR's Representative, which individual has the authority and responsibility set forth in Division 8.1.2:

Mike Fossett, President
22555 N. 20th Ave.
Phoenix, AZ 85027

ARTICLE 9 – SUSPENSION AND TERMINATION

9.0. City's Right to Stop Work

9.0.1. City may, at its discretion and without cause, order CMAR in writing to stop and suspend the Work. Such suspension shall not exceed one hundred and eighty (180) consecutive days.

9.0.2. CMAR may seek an adjustment of the Contract Price and/or Contract Time if its cost or time to perform the Work has been adversely impacted by any suspension or stoppage of Work by City.

9.1. Termination for Convenience

9.1.1. Upon receipt of written notice to CMAR, City may, at its discretion and without cause, elect to terminate this Agreement. In such event, City shall pay CMAR only the direct value of its completed Work and materials supplied as of the date of termination and the reasonable costs and expenses attributable to such termination. CMAR shall be entitled to profit and overhead on completed Work only, but shall not be entitled to anticipated profit or anticipated overhead.

9.1.2. If the City suspends the Work for 181 consecutive Days or more, such suspension shall be deemed a termination for convenience.

9.1.3 Upon such termination, the CMAR shall proceed with the following obligations.

9.1.3.1 Stop Work as specified in the notice.

9.1.3.2 Place no further subcontracts or orders.

9.1.3.3 Terminate all subcontracts to the extent they relate to the work terminated.

9.1.3.4 Assign to the City all right, title and interest of the CMAR under the subcontracts terminated, in which case the City shall have the right to settle or to pay any termination settlement proposal arising out of those terminations.

9.1.3.5 Take any action that may be necessary for the protection and preservation of the property related to the contract that is in the possession of the CMAR and which the City has or may acquire an interest.

9.1.4 The CMAR shall submit complete termination inventory schedules no later than 120 Days from the date of the notice of termination.

9.1.5 The City shall pay CMAR the following.

9.1.5.1 The direct value of its completed Work and materials supplied as of the date of termination.

9.1.5.2 The reasonable costs and expenses attributable to such termination.

9.1.5.3 CMAR shall be entitled to profit and overhead on completed Work only, but shall not be entitled to anticipated profit or anticipated overhead. If it appears the CMAR would have sustained a loss on the entire Work had they been completed, the CMAR shall not be allowed profit and the City shall reduce the settlement to reflect the indicated rate of loss.

9.1.6 The CMAR shall maintain all records and documents for three years after final settlement. These records shall be maintained and subject to auditing as prescribed in Section 7.7.

9.2. City's Right to Perform and Terminate for Cause

9.2.1.1. If the City provides the CMAR with a written order to provide adequate maintenance of traffic, adequate cleanup, adequate dust control or to correct deficiencies or damage resulting from abnormal weather conditions, and the CMAR fails to comply in a time frame specified, the City may have work accomplished by other sources at the CMAR's expense.

9.2.1.2. If CMAR persistently fails to (i) provide a sufficient number of skilled workers, (ii) supply the materials required by the Contract Documents, (iii) comply with applicable Legal Requirements, (iv) timely pay, without cause, Subconsultants and/or Subcontractors, (v) prosecute the Work with promptness and diligence to ensure that the Work are completed by the Contract Time, as such times may be adjusted, or (vi) perform material obligations under the Contract Documents, then City, in addition to any other rights and remedies provided in the Contract Documents or by law, shall have the rights set forth in Sections 9.2.3 and 9.2.4 below.

9.2.2. Upon the occurrence of an event set forth in Section 9.2.1.2 above, City may provide written notice to CMAR that it intends to terminate the Agreement unless the problem cited is cured, or commenced to be cured, within seven (7) days of CMAR's receipt of such notice.

9.2.2.1. If CMAR fails to cure, or reasonably commence to cure, such problem, then City may give a second written notice to CMAR of its intent to terminate within an additional seven (7) day period.

9.2.2.2. If CMAR, within such second seven (7) day period, fails to cure, or reasonably commence to cure, such problem, then City may declare the Agreement terminated for default by providing written notice to CMAR of such declaration.

9.2.3. Upon declaring the Agreement terminated pursuant to Section 9.2.2.2 above, City may enter upon the premises and take possession, for the purpose of completing the Work, of all materials, equipment, scaffolds, tools, appliances and other items thereon, which have been purchased or provided for the performance of the Work, all of which CMAR hereby transfers, assigns and sets over to City for such purpose, and to employ any person or persons to complete the Work and provide all of the required labor, services, materials, equipment and other items.

9.2.4. In the event of such termination, CMAR shall not be entitled to receive any further payments under the Contract Documents until the Work shall be finally completed in accordance with the Contract Documents. At such time, the CMAR will only be entitled to be paid for Work performed and accepted by the City prior to its default.

9.2.5. If City's cost and expense of completing the Work exceeds the unpaid balance of the Contract Price, then CMAR shall be obligated to pay the difference to City. Such costs and expense shall include not only the cost of completing the Work, but also losses, damages, costs and expense, including attorneys' fees and expenses, incurred by City in connection with the re-procurement and defense of claims arising from CMAR's default.

9.2.6. If City improperly terminates the Agreement for cause, the termination for cause shall be converted to a termination for convenience in accordance with the provisions of Section 9.1.

ARTICLE 10 - INSURANCE AND BONDS

10.0. Insurance Requirements

10.0.1. CMAR and Subcontractors shall procure and maintain until all of their obligations have been discharged, including any warranty periods under this Agreement are satisfied, insurance against claims for injury to persons or damage to property which may arise from or in connection with the performance of the Work hereunder by the CMAR, his agents, representatives, employees or Subcontractors.

10.0.2. The insurance requirements herein are minimum requirements for this Agreement and in no way limit the indemnity covenants contained in this Agreement. All policies must be written by insurance companies whose rating, in the most recent AM Best's Rating Guide, is not less than A-VII or higher, unless CMAR obtains prior written approval of City.

10.0.3. The City in no way warrants that the minimum limits contained herein are sufficient to protect the CMAR from liabilities that might arise out of the performance of the work under this Agreement by the CMAR, his agents, representatives, employees, or subcontractors. CMAR is free to purchase such additional insurance as may be determined necessary.

10.1. Minimum Scope and Limits of Insurance. CMAR shall provide coverage with limits of liability not less than those stated below:

10.1.1. Commercial General Liability – Occurrence Form. Policy shall include bodily injury, property damage, broad form contractual liability and XCU coverage.

- General Aggregate/for this Project $3,000,000/$1,000,000
  Excess Liability up to $2,000,000 may be used to meet the General Aggregate Limits
- Products – Completed Operations Aggregate $1,000,000
- Personal and Advertising Injury $1,000,000
- Each Occurrence $1,000,000

10.1.2. Professional Liability

- General Aggregate $2,000,000.00
- Each Claim $1,000,000.00

In the event the policy is written on a "claims made" basis, the CMAR warrants that any retroactive date shall precede any work on the Project.

10.1.3. Automobile Liability. Bodily injury and property damage for any owned, hired, and non-owned vehicles used in the performance of this Agreement.

- Combined Single Limit (CSL) $1,000,000

10.1.4. Worker's Compensation and Employers' Liability.

- Workers' Compensation Statutory
- Employers' Liability
    - Each accident $1,000,000
    - Disease – Each Employee $1,000,000
    - Disease – Policy Limit $1,000,000

This policy shall contain a **waiver of subrogation** against the City of Sedona.

10.1.5. Builders' Risk Insurance and Installation Floater $4,096,710.00

- Combined Single Limit (CSL) In an amount equal to the initial Guaranteed Maximum Price plus additional coverage equal to the agreed amount for all subsequent change orders.

10.1.5.1. Coverage shall be written on an all risk, replacement cost basis and **shall include coverage for soft costs, flood and earth movement.**

10.1.5.2. Policy shall be maintained until whichever of the following shall first occur: (i) final payment has been made; or, (ii) until no person or entity, other than the City of Sedona, has an insurable interest in the property required to be covered.

10.1.5.3. Policy shall be endorsed such that the insurance shall not be cancelled or lapse because of any partial use or occupancy by the City.

10.1.5.4. Policy must provide coverage from the time any covered property becomes the responsibility of the CMAR, and continue without interruption during construction, renovation, or installation, including any time during which the covered property is being transported to the construction installation site, or awaiting installation, whether on or off site.

10.1.5.5. CMAR is responsible for the payment of all policy deductibles.

10.2. Additional Insurance Requirements. The policies shall include, or be endorsed to include, the following provisions:

10.2.1. On insurance policies where the City of Sedona is named as an additional insured, the City of Sedona shall be an additional insured to the full limits of liability purchased by the CMAR even of those limits of liability are in excess of those required by this Agreement.

10.2.2. The CMAR's insurance coverage shall be primary insurance and non-contributory with respect to all other available sources.

10.2.3. All policies shall include waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to any person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay for the insurance premium directly or indirectly and whether or not the person or entity had an insurable interest in the property damaged.

10.2.4. The City of Sedona shall be named as an additional insured on all policies except for Workers Compesation and Employers' Liability, and the CMAR shall provide Additional Insured endorsements to the City. The City of Sedona shall be an additional insured to the full limits of liability purchased by the CMAR for these policies, even if those limits of liability are in excess of those required by this Contract.

10.2.5. Coverage provided by the CMAR shall not be limited to the liability assumed under the indemnification provision of this Agreement.

10.2.6. City reserves the right to require higher limits of liability coverage if, in the City's opinion, operations or services create higher than normal hazards.

10.3. **Notice of Cancellation.** Each insurance policy required by the insurance provisions of this Agreement shall provide the required coverage and shall not be suspended, voided, canceled, reduced in coverage or endorsed to lower limits except after thirty (30) days prior written notice has been given to the City. Such notice shall be sent directly to the City Senior Representative and shall be sent by certified mail, return receipt requested.

10.4. **Acceptability of Insurers.** All policies must be written by insurance companies whose rating, in the most recent AM Best's Rating Guide, is not less than A-VII or higher, unless CMAR obtains prior written approval of City. The City in no way warrants that the above-required minimum insurer rating is sufficient to protect the CMAR from potential insurer insolvency.

10.5. Verification of Coverage

10.5.1. CMAR shall furnish the City with certificates of insurance (ACORD form or equivalent approved by the City) as required by this Agreement. The certificates for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf.

10.5.2. All certificates, including any required additional insured endorsements, and waivers of subrogation, are to be received and approved by the City before work commences. Each insurance policy required by this Agreement must be in effect at or prior to commencement of work under this Agreement and remain in effect for the duration of the project.. Failure on the part of CMAR to procure or maintain policies providing the required coverages, conditions and minimum limits shall constitute a Material Breach of Contract upon which City may immediately terminate this Contract or, at its discretion, City may procure or renew any such policy or any extended reporting period thereto and may pay any and all premiums in connection therewith, and all monies so paid by City shall be repaid by the CMAR to City upon demand, or City may offset the cost of the premiums against any monies due to CMAR from City.

10.5.3. All certificates required by this Agreement shall be sent directly to City's Senior Representative. The City project/contract number and project description shall be noted on the certificate of insurance. The City reserves the right to require complete, certified copies of all insurance policies required by this Agreement at any time**.**

10.5.4. If the Certificate of Insurance reflecting policy coverage and cancellation notice does not conform to the City's requirements, the contractor must: Submit a current insurance certificate

(dated within 15 days of the payment request submittal) with each payment request form. The payment request will be rejected if the insurance certificate is not submitted with the payment request.

10.5.5. The City, its officers, officials, agents, and employees will be additional insureds to the full limits of liability purchased by the CMAR, even if those limits of liability are in excess of those required by this Contract. The Commercial General Liability additional insured endorsement will be at least as broad as the Insurance Service Office, Inc.'s Additional Insured, Form B GC 20 10 11 85.

10.5.6. The City reserves the right to request and receive a certified copy of any policy and any pertinent endorsement thereto. CMAR agrees to execute any and all documents necessary to allow City access to any and all insurance policies and endorsements pertaining to this Project.

10.6. Subcontractors. CMARs' certificate(s) shall include all Subcontractors as additional insureds under its policies **or** CMAR shall furnish to the City separate certificates and endorsements for each Subcontractor. All coverages for Subcontractors shall be subject to the minimum requirements identified above.

10.7. Approval. Any modification or variation from the insurance requirements in this Contract shall be made by the City Attorney's Office, whose decision shall be final. Such action will not require a formal Contract amendment, but may be made by administrative action.

10.8. Bonds and Other Performance Security

10.8.1. Prior to execution of this Agreement, the CMAR must provide a performance bond and a payment (labor and materials bond), each in an amount equal to the full amount of the GMP set forth in this Agreement, and each of which complies with A.R.S. 34-610.. Performance and Payment bonds forms will be provided by the City.

10.8.2 Each such bond shall be executed by a surety company or companies holding a Certificate of Authority to transact surety business in the state of Arizona, issued by the Director of the Arizona Department of Insurance. A copy of the Certificate of Authority shall accompany the bonds. The Certificate shall have been issued or updated within two years prior to the execution of this Agreement.

10.8.3 The bonds shall be made payable and acceptable to the City of Sedona.

10.8.4 The bonds shall be written or countersigned by an authorized representative of the surety who is either a resident of the state of Arizona or whose principal office is maintained in this state, as by law required, and the bonds shall have attached thereto a certified copy of Power of Attorney of the signing official.

10.8.4.1 If one Power of Attorney is submitted, it shall be for twice the total GMP amount.

10.8.4.2 If two Powers of Attorney are submitted, each shall be for the total GMP amount. Personal or individual bonds are not acceptable.

10.8.5 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract Documents, the CMAR shall promptly furnish a copy of the bonds or shall permit a copy to be made.

10.8.6 All bonds submitted for this project shall be provided by a company which has been rated AM Best rating of "B+6 or better for the prior four quarters" by the A.M. Best Company.

ARTICLE 11 - INDEMNIFICATION

11.1 Indemnification.

11.1.1 To the fullest extent permitted by law, CMAR will indemnify, defend and hold harmless the City, and each council member, officers, boards, commissions, officials, employee or agent thereof (collectively the CITY and any such person being herein called an "Indemnified Party"), for, from and against any and all losses, claims, damages, liabilities, costs and expenses (including, but not limited to, reasonable attorneys' fees, court costs and the costs of appellate proceedings) to which any such Indemnified Party may become subject, under any theory of liability whatsoever ("Claims") to the extent that such Claims (or actions in respect thereof) relate to, arise out of, or are caused by, or in connection with the negligent acts or omissions, recklessness or intentional misconduct of CMAR, its officers, employees, agents or any tier of subcontractor in connection with CMAR's work or Services in the performance of this Contract. In consideration of the award of this Agreement, CMAR agrees to waive all rights of subrogation against the Indemnified Party for losses arising from the work or Services performed by CMAR for the CITY. The amount and type of insurance coverage requirements set forth in the Agreement will in no way be construed as limiting the scope of the indemnity in this Section. This indemnification survives the expiration or termination of this Contract.

ARTICLE 12 – GENERAL PROVISIONS

12.1 Contract Documents

12.1.1 Contract Documents are as defined in Article 1. This Agreement, Plans, Standard Specifications and Details, Special Provisions, and Addenda (if any) are used as the basis for the Guaranteed Maximum Price Proposal, as accepted by the Mayor and Council per Council Minutes of the 10/22/2024 meeting, Performance Bond, Payment Bond, Certificates of Insurance, Construction Documents and Change Orders (if any) are by this reference made a part of this Agreement to the same extent as if set forth herein in full.

12.1.2 The Contract Documents are intended to permit the parties to complete the Work and all obligations required by the Contract Documents within the Contract Times for the Contract Price. The Contract Documents are intended to be complementary and interpreted in harmony so as to avoid conflict, with words and phrases interpreted in a manner consistent with construction and design industry standards.

12.1.3 In the event of any inconsistency, conflict, or ambiguity between or among the Contract Documents, the Contract Documents shall take precedence in the order in which they are listed in the definition of Contract Documents in Article 1.

12.1.3.1 On the drawings, given dimensions shall take precedence over scaled measurements, and large-scale drawings over small-scale drawings.

12.1.3.2 Specifications take precedence over Plans.

12.1.3.3 In the event of any inconsistency, conflict, or ambiguity between the Contract Documents and the Design Phase Contract, the Contract Documents take precedence over the Design Phase Contract

12.1.4 The headings used in this Agreement, or any other Contract Documents, are for ease of reference only and shall not in any way be construed to limit or alter the meaning of any provision.

12.1.5 The Contract Documents form the entire agreement between City and CMAR, superseding all prior oral or written communications, and by incorporation herein are as fully binding on the parties as if repeated herein.

12.2 Amendments. The Contract Documents may not be changed, altered, or amended in any way except in writing signed by a duly authorized representative of each party.

12.3 Time is of the Essence. City and CMAR mutually agree that time is of the essence with respect to the dates and times set forth in the Contract Documents.

12.4 Mutual Obligations. City and CMAR commit at all times to cooperate fully with each other, and proceed on the basis of trust and good faith, to permit each party to realize the benefits afforded under the Contract Documents.

12.5 **Cooperation and Further Documentation.** The CMAR agrees to provide the City such other duly executed documents as shall be reasonably requested by the City to implement the intent of the Contract Documents.

12.6 **Successors and Assigns.** The City and the CMAR will each bind itself, and their partners, successors, assigns, and legal representatives to the other party to this Contract and to the partners, successors, assigns, and legal representatives of such other party in respect to all covenants of this Contract. Neither the City nor the CMAR will assign, sublet, or transfer its interest in this Contract without the written consent of the other. In no event will any contractual relationship be created or be construed to be created as between any third party and the City.

12.7 **Third Party Beneficiary.** Nothing under this Contracts shall be construed to give any rights or benefits in the Contract to anyone other than the City and the CMAR, and all duties and responsibilities undertaken pursuant to the Contract Documents will be for the sole and exclusive benefit of City and the CMAR and not for the benefit of any other party.

12.8 **Governing Law and Jurisdiction.** This Contract shall be governed by the laws of the State of Arizona, and any legal action concerning the provisions hereof shall be brought in the County of Yavapai, State of Arizona. Both parties hereby waive any right to a jury trial which they may otherwise have in the event of litigation arising out of this Contract or the subject matter thereof and consent to a trial to the court.

12.9 **Severability.** If any provision of this Contract or the application thereof to any person or circumstance shall be invalid, illegal or unenforceable to any extent, the remainder of this Contract and the application thereof shall not be affected and shall be enforceable to the fullest extent permitted by law.

12.10 **Compliance with All Laws.** CMAR understands and acknowledges the applicability of the American with Disabilities Act, the Immigration Reform and Control Act of 1986 and the Drug Free Workplace Act of 1989 to this Agreement. The CMAR agrees to comply with these laws in performing the Contract Documents and to permit the City to verify such compliance.

12.10.1 In the performance of this Contract, CMAR will abide by and conform to any and all federal, state and local laws.

12.10.2 Under the provisions of A.R.S. §41-4401, CMAR hereby warrants to City that CMAR and each of its subcontractors will comply with, and are contractually obligated to comply with, all Federal Immigration laws and regulations that relate to their employees and A.R.S. §23-214(A) (hereinafter "Contractor Immigration Warranty"). A breach of the Contractor Immigration Warranty shall constitute a material breach of this Contract and shall subject CMAR to penalties up to and including termination of this Contract at the sole discretion of the City. The City retains the legal right to inspect the papers of any CMAR or subcontractor employee who works on this Contract to ensure that the CMAR or subcontractor is complying with the Contractor Immigration Warranty. CMAR agrees to assist the City in regard to any such inspections. City may, at its sole discretion, conduct random verification of the employment records of CMAR and any subcontractors to ensure compliance with the Contractor Immigration Warranty. CMAR

agrees to assist City in regard to any random verification performed. Neither CMAR nor any subcontractor shall be deemed to have materially breached the Contractor Immigration Warranty if CMAR or any subcontractor establishes that it has complied with the employment verification provisions prescribed by Sections 274A and 274B of the Federal Immigration and Nationality Act and the E-Verify requirements prescribed by A.R.S. § 23-214, Subsection A.

12.10.3 The provisions of this Section must be included in any contract CMAR enters into with any and all of its subcontractors who provide services under this Contract or any subcontract. For the purposes of this paragraph, "Services" are defined as furnishing labor, time or effort by a contractor or subcontractor. Services include construction or maintenance of any structure, building, transportation facility or improvement to real property.

12.10.4 CMAR understands and acknowledges the applicability to it of the Americans with Disabilities Act, the Immigration Reform and Control Act of 1986 and the Drug Free Workplace Act of 1989. If applicable, CMAR must also comply with A.R.S. § 34-301, "Employment of Aliens on Public Works Prohibited," and A.R.S. §34-302, as amended, "Residence Requirements for Employees."

12.11 **Legal Requirements.** CMAR shall perform all Work in accordance with all Legal Requirements and shall provide all notices applicable to the Work as required by the Legal Requirements. It is not the CMAR's responsibility to ascertain that the Construction Documents are in accordance with applicable laws, statutes, ordinances, building codes, rules and regulations. However, if the CMAR recognizes that portions of the Construction Documents are at variance therewith, the CMAR shall promptly notify the Design Professional and City in writing, describing the apparent variance or deficiency.

12.12 **Independent Contractor.** CMAR is an independent contractor. Notwithstanding any provision appearing in this Contract and any exhibits, all personnel assigned by CMAR to perform work under the terms of this Contract shall be and remain employees or agents of the CMAR for all purposes. The City does not have the authority to supervise or control the actual work of CMAR, its employees or subcontractors. CMAR shall make no representation that it is the employee of the City for any purpose.

12.13 **City's Right of Cancellation.** All parties hereto acknowledge that this Agreement is subject to cancellation by the City of Sedona pursuant to the provisions of A.R.S. 38-511.

12.14 **Survival.** All warranties, representations and indemnifications by the CMAR shall survive the completion or termination of this Agreement.

12.15 **Covenant Against survice Fees**. The CMAR warrants that no person has been employed or retained to solicit or secure this Agreement upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, and that no member of the City Council, or any employee of the City of Sedona has any interest, financially, or otherwise, in the firm. For breach or violation of this warrant, the City of Sedona shall have the right to annul this Agreement without liability, or at its discretion to deduct from the Contract Price or consideration, the full amount of such commission, percentage, brokerage, or contingent fee.

12.16 **No Waiver.** The failure of either party to enforce any of the provisions of the Contract Documents or to require performance of the other party of any of the provisions hereof shall

not be construed to be a waiver of such provisions, nor shall it affect the validity of the Contract Documents or any part thereof, or the right of either party to thereafter enforce each and every provision. Delays in enforcement or the waiver of one or more defaults or breaches of this Contract by the City shall not constitute a waiver of any of the other terms or obligations of this Contract.

12.17 Notice.

12.17.1 Unless otherwise provided, any notice, request, instruction or other document to be given under this Agreement by any party to any other party shall be in writing and shall be delivered in person or by courier or email transmission or mailed by certified mail, postage prepaid, return receipt requested and shall be deemed given upon (a) confirmation of receipt of an e-mail transmission, (b) confirmed delivery by hand or standard overnight mail or (c) upon the expiration of three (3) business days after the day mailed by certified mail, as follows:

To CMAR:
KEAR Civil Corporation
Mike Fossett, President
22555 N. 20th Ave.
Phoenix, AZ 85027
Phone: (623) 580-1100

To City of Sedona:
City of Sedona Wastewater Department
102 Roadrunner Drive
Sedona, Arizona 86336
Attn: Roxanne Holland, Director of Wastewater
Phone: (928) 203-5069

With Copies to:
Design Professional:
Sunrise Engineering, LLC
Attn: Geoffrey S. Child, P.E., Vice President
2045 S. Vineyard, Suite 101
Mesa, AZ 85210

Or to such other place and with such other copies as either Party may designate as to itself by written notice to the other Party. Rejection, any refusal to accept or the inability to deliver because of changed address of which no notice was given shall be deemed to be receipt of the notice as of the date of such rejection, refusal or inability to deliver.

12.19.2 Notices Related to Payment, Securities-in-lieu, Bonds. Any notice, request, instruction or other document to be given under this Agreement by any party to any other party related to payment, securities-in-lieu, bonds or other instrument securing the performance of this Agreement, including but not limited to, bid bonds, performance bonds, payment bonds or letters of credit, shall be in writing and shall be delivered in person or by courier or facsimile transmission or mailed by certified mail, postage prepaid, return receipt requested and shall be deemed given upon (a) confirmation of receipt of a facsimile transmission, (b) confirmed delivery by hand or

standard overnight mail or (c) upon the expiration of three (3) business days after the day mailed by certified mail, as follows:

To CMAR:
KEAR Civil Corporation
Mike Fossett, President
22555 N. 20th Ave.
Phoenix, AZ 85027
Phone: (623) 580-1100

To City of Sedona:
City of Sedona Wastewater Department
102 Roadrunner Drive
Sedona, Arizona 86336
Attn: Roxanne Holland, Director of Wastewater
Phone: (928) 203-5069

Or to such other place and with such other copies as either Party may designate as to itself by written notice to the other Party. Rejection, any refusal to accept or the inability to deliver because of changed address of which no notice was given shall be deemed to be receipt of the notice as of the date of such rejection, refusal or inability to deliver.

12.20 Equal Opportunity/Affirmative Action

12.20.1 . CMAR, its agents, employees, and subcontractors, shall not discriminate in any employment policy or practice. "Discrimination" means to exclude individuals from an opportunity or participation in any activity or to accord different or unequal treatment in the context of a similar situation to similarly situated individuals because of race, color, gender, gender identity, sexual orientation, religion, national origin or ancestry, marital status, familial status, age, disability, or veteran status. (Ordinance 2015-10 (2015)).

12.20.2 The City of Sedona extends to each individual, firm, vendor, supplier, contractor, and Subcontractor an equal economic opportunity to compete for City business and strongly encourages voluntary utilization of Disadvantaged and/or Minority-owned or Woman-owned business to reflect both the industry and community ethnic composition.

12.21 Confidentiality of Plans & Specifications

12.21.1 Any plans or specifications CMAR receives regarding this project are for official use only. CMAR may not share them with others except as required to fulfill the obligations of CMAR contract with the City.

12.21.2 All Record Documents, Shop Drawings and other plans or drawings prepared or submitted by the CMAR shall include the following language: "These plans are for official use only and may not be shared with others except as required to fulfill the obligations of your contract with the City of Sedona".

12.22 PROJECT STAFFING

12.22.1 Prior to the start of any work or Deliverable under this Contract, the CMAR will submit to the City, an organizational chart for the CMAR staff and Subconsultants and detailed resumes of key personnel listed in its response to the City's Request for Qualifications or subsequent fee proposals (or revisions thereto), that will be involved in performing the services prescribed in the Contract. Unless otherwise informed, the City hereby acknowledges its acceptance of such personnel to perform such services under this Contract. In the event the CMAR desires to change such key personnel from performing such services under this Contract, the CMAR will submit the qualifications of the proposed substituted personnel to the City for prior approval. Any substituted key personnel shall have the same or higher qualifications as the key personnel being replaced. Key personnel will include, but are not limited to, principal in charge, project manager, superintendent, project director or those persons specifically identified to perform services of cost estimating, scheduling, value engineering, and procurement planning.

12.22.2 The CMAR will maintain an adequate number of competent and qualified persons, as determined by the City, to ensure acceptable and timely completion of the scope of services described in this Contract throughout the period of those services. If the City objects, with reasonable cause, to any of the CMAR's staff, the CMAR will take prompt corrective action acceptable to the City and, if required, remove such personnel from the Project and replace with new personnel acceptable to the City

12.23 Hazardous Materials

12.23.1 Unless included in the Work, if the CMAR encounters onsite material which he reasonably believes to contain asbestos, polychlorinated biphenyl (PCB), or other hazardous substances or materials regulated by Public Health Laws, he shall immediately stop work and report the condition to the City.

12.23.2 If the material is found to contain asbestos, PCB or other hazardous substances or materials regulated by Public Health Laws, the CMAR shall not resume work in the affected area until the material has been abated or rendered harmless. The CMAR and the City may agree, in writing, to continue work in non-affected areas onsite.

12.23.3 An extension of Contract Time may be granted in accordance with Article 6.

12.23.4 The CMAR will comply with all applicable laws/ordinances and regulations and take all appropriate health and safety precautions upon discovery.

12.24 Traffic Control. CMAR will comply with all provisions of the City of the latest version of the Manual on Uniform Traffic Control Devices and any other traffic control provisions as may be provided in the technical specifications.

12.25 Appropriation of Funds. Every payment obligation of the City under this Contract is conditioned upon the availability of funds appropriated or allocated for payment of such obligation. If funds are not allocated and available for the continuance of this Contract, this Contract may be terminated by the City at the end of the period for which funds are available. No liability shall

accrue to the City in the event this provision is exercised, and City shall not be obligated or liable for any future payments or for any damages resulting from termination under this provision.

12.26 Conflict of Interest. From the date of this Contract through the termination of its Service to City, CMAR shall not accept, negotiate or enter into any contract or agreements for services with any other party that may create a substantial interest, or the appearance of a substantial interest in conflict with the timely performance of the work or ultimate outcome of this Contract and/or adversely impact the quality of the work under this Contract without the express approval of the City Manager and the City Attorney. Whether such approval is granted shall be at the sole discretion of the City Manager and the City Attorney.

12.26.1 To evaluate and avoid potential conflicts of interest, the CMAR will provide written notice to the City, as set forth in this section, of any work or services performed by the CMAR for third parties that may involve or be associated with any real property or personal property owned or leased by the City. Such notice will be given seven business days prior to commencement of the Project by the CMAR for a third party, or seven business days prior to an adverse action as defined below. Written notice and disclosure will be sent to:

City of Sedona
102 Roadrunner Dr.
Sedona, AZ 86336

12.26.2 Actions considered to be adverse to the City under this Contract include but not limited to:

(a) Using data as defined in the Contract, acquired in connection with this Contract to assist a third party in pursuing administrative or judicial action against the City;

(b) Testifying or providing evidence on behalf of any person in connection with an administrative or judicial action against the City; and

(c) Using data to produce income for the CMAR or its employees independently of performing the services under this Contract, without the prior written consent of the City.

12.26.3 The CMAR represents that except for those persons, entities and projects previously identified in writing to the City, the services to be performed by the CMAR under this Contract are not expected to create an interest with any person, entity, or third party project that is or may be adverse to the interests of the City.

12.26.4 The CMAR's failure to provide a written notice and disclosure of the information as set forth in this section will constitute a material breach of this Contract.

12.27 CONTRACTOR'S LICENSE. Prior to beginning work under this Contract, the CMAR must provide to the City of Sedona, its Contractor's License Classification and number and its Federal Tax I.D. number.

12.28 FORCE MAJEURE. If either party is delayed or prevented from the performance of any service, in whole or part, required under this Contract by reason of acts of God or other cause beyond the

control and without fault of that party (financial inability excepted), performance of that act will be excused, but only for the period of the delay. The time for performance of the act will be extended for a period equivalent to the period of delay.

12.29 REMEDIES UPON BREACH. If any party to this Contract materially breaches the terms of the Contract, the non-breaching party may exercise any and all remedies available to them under Arizona law, including, without limitation, if applicable, bringing a lawsuit for monetary damages or specific performance. The parties hereto expressly covenant and agree that in the event of litigation arising from this Contract, neither party shall be entitled to an award of attorneys' fees, either pursuant to contract, pursuant to A.R.S. §12-341.01 (A) and (B), or pursuant to any other state or federal statute, court rule, case law, or common law.

12.30 PUBLIC RECORDS. Notwithstanding any provisions of this Contract regarding confidentiality, secrets, or protected rights, CMAR acknowledges that all documents provided to the City may be subject to disclosure by the Arizona public records law under A.R.S. §39-121 and related provisions. In the event CMAR objects to any disclosure, CMAR agrees to handle all aspects related to the request including properly communicating with the requester and timely responding with information, and CMAR agrees to indemnify CITY from an claims, actions, lawsuits, damages and losses resulting from CONTRACTOR's objection to the disclosure.

12.31 NO BOYCOTT OF ISRAEL OR USE OF FORCED LABOR OF ETHNIC UYGHURS IN PEOPLES REPUBLIC OF CHINA. As applicable, CMAR certifies and agrees that it is not currently engaged in and for the duration of the Contract will not engage in a boycott of Israel, as that term is defined in A.R.S. §35-393 and will not use forced labor or goods or services produced by forced labor of ethnic Uyghurs in the People's Republic of China (PRC) or any contractors, subcontractors or suppliers that use forced labor or goods or services produced by forced labor of ethnic Uyghurs in the PRC as provided by A.R.S. §35-394.

12.32 BUSINESS IN ARIZONA. CMAR, and any subconsultants, subcontractors, and/or suppliers must be granted authority to transact business in the state of Arizona by the Arizona Corporation Commission and be in good standing prior to beginning any work under this Contract, unless a valid statutory exception is asserted in writing to the City.

12.33 DEBARMENT AND SUSPENSION. CMAR shall notify the City if it or any of its principals become debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in any procurement process by any federal, state or local department or agency.

CITY OF SEDONA, ARIZONA
Wastewater Department

The WWRP UV Replacement Project

IN WITNESS WHEREOF, the parties hereto have executed this Contract on _____.

The CMAR agrees that this Agreement, as awarded, is for the stated work and understands that payment for the total work will be made on the basis of the indicated amount(s), per the terms and conditions of the Agreement.

Guaranteed Maximum Price

Four Million Ninety-six Thousand Seven Hundred Ten Dollars and Zero Cents
written out

$4,096,710.00

CITY OF SEDONA, ARIZONA,
an Arizona Municipal Corporation
Anette Spickard, City Manager

By:_____
Anette Spickard, City Manager

DATE: _____

KEAR Civil Corporation
an Arizona Corporation

By:_____

Title:_____

DATE: _____

(Corporate Seal)

ATTEST:

_____
JoAnne Cook, City Clerk

_____
ATTEST: (Signature and Title)

APPROVED AS TO FORM:

_____
Kurt Christensen, City Attorney

APPROVED BY CITY COUNCIL
DATE: 10/22/2024

EXHIBIT A - PROJECT DESCRIPTION

This project consists of installing new UV reactors in abandoned travelling bridge sand filter basins. Work will include demolition of the abandoned travelling bridge sand filter basins, basin modifications, installation of two non-contact UV systems, electrical modifications, programming of the new system, and removal of the existing UV system. The specifications and plans for this project are described in Exhibits C and D.

EXHIBIT B – APPROVED GMP PROPOSAL

See Attached EXHIBIT B – KEAR Civil Corporation GMP Proposal dated 10/3/2024, with related Summary and Contingency worksheets

City of Sedona
Wastewater Reclamation Plant

GMP Rev 1
UV Replacement
CMAR

October 3, 2024

Prepared & Submitted By:

KEAR Civil Corporation
22555 N. 20th Ave
Phoenix, AZ 85027

www.kearcorp.com

AZROC: A-231544

City of Sedona Wastewater Reclamation Plant CMAR
UV Replacement Project
100% Design GMP Rev 1

TABLE OF CONTENTS

1. Purpose & Reference Drawing & Documents Used
2. 100% Design Clarifications & Assumptions
3. 100% GPM Summary and General Conditions
4. Project Master Schedule
5. Work Package Evaluations

22555 N 20TH AVENUE
PHOENIX, ARIZONA 85207
PHONE (623) 580-1100
FAX (623) 580-1101
WWW.KEARCORP.COM

Date: October 3, 2024

City of Sedona
Wastewater Reclamation Plant – Construction Manager at Risk
100% Design GMP Rev 1 – UV Replacement

1. Reference Drawings & Documents Used

The following 100% Design GMP Rev 1 has been prepared in accordance with the Construction Services Contract Requirements including the clarifications and exclusions in the GMP Rev 1 proposal. This proposal is based on the evaluation of the following documents provided by the City of Sedona:

1. Standard Specifications & Special Provisions- 100% Submittal - Sunrise Engineering - 82 Pages – Received September 22, 2024
2. Project Plan Set - 100% Submittal- Sunrise Engineering Dated August 23, 2024 - 26 Pages

2. 100% GMP Rev 1 Clarifications & Assumptions

General Clarifications & Assumptions

1. It is assumed that the City of Sedona will issue the UV Replacement contract with a duration as depicted on the attached schedule.
2. We have included a 2” non-shrink self-leveling grout (Sikagrout-212 or equal) to level the area under the new UV systems.
3. We believe that there are existing embedded plates that support the clips baffle plates. Existing embedded plates are to remain - KEAR will remove the baffle plates and clips.
4. Existing sand to be removed is assumed to be non-hazardous waste.
5. We assume that any ADEQ required permitting, permit modifications, and water sampling/testing requirements are by COS and are excluded.
6. The existing UV system and filter bridges will be removed from the site.
7. We propose furnishing handrail that matches the existing.
8. Payment for stored materials will be made by the City of Sedona for materials and equipment delivered to the site.

Changes from the 90% Cost model to the GMP (from the 90% Design to 100% Design)

1. Added 18” Pipe fittings and 8” cleanouts at 3 locations.
2. Deleted the enclosure building at the monitoring area.
3. Added 3/8” steel plating at the existing UV demo area.
4. Added two (2) concrete walls at the existing UV demo area.
5. Added for the clarified concrete patching requirements.
6. Added for the material to be used for the leveling at the existing channel floors. Non-shrink grout in lieu of concrete.
7. Added cost to dispose of equipment removed during demolition.
8. Added electrical for scope additions and material escalation.
9. Added for painting subcontractor quoted price change.
10. Added the cost to change the warranty period for the UV units as quoted by APG from a one-year period to a two-year period.

3. 100% Design GMP Rev 1 Summary & General Conditions Breakdown

Project: City of Sedona Wastewater Reclamation Plant UV Replacement
Project #: 1367
Dwgs: 100% Design Package - Sunrise Engineering, Inc.
Submitted: 10/3/2024

100% GMP Rev 1 SUMMARY

ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	SUBTOTAL
	GENERAL REQUIREMENTS				
1	Temporary Site Facilities	6	MO	$ 6,160.00	$ 36,960.00
2	Small Tools & Consumables	1	LS	$ 6,510.00	$ 6,510.00
3	SWPPP BMP	1	LS	$ 2,730.00	$ 2,730.00
4	SWPPP Plan- Sub	1	LS	$ -	$ -
5	SWPPP Install & Maintain	6	MO	$ 1,140.00	$ 6,840.00
6	Trailer Setup & Takedown	2	EA	$ 1,400.00	$ 2,800.00
7	Equip Mob	20	EW	$ 300.00	$ 6,000.00
8	Labor- Move In & Out	320	MH	$ 49.00	$ 15,680.00
	SITE CONSTRUCTION				
9	Remove Filter Drain Material	1	LS	$ 76,300.00	$ 76,300.00
10	Demo Equipment - Beds #3 & #4	1	LS	$ 59,600.00	$ 59,600.00
11	Concrete (Leveling, Walls at UV, Slabs)	1	LS	$ 151,100.00	$ 151,100.00
12	UV Units #1 & #2	1	LS	$ 1,277,500.00	$ 1,277,500.00
13	Mechanical Piping	1	LS	$ 418,300.00	$ 418,300.00
14	Handrail, Stairways, Platforms	1	LS	$ 140,700.00	$ 140,700.00
15	Electrical & Programming	1	LS	$ 506,000.00	$ 506,000.00
16	Testing, Startup, Commisioning UV Units	1	LS	$ 22,300.00	$ 22,300.00
17	Demo Existing UV Units, Install Steel Plating	1	LS	$ 31,900.00	$ 31,900.00
18	Monitoring Area - Install COS testing equipment	1	LS	$ 15,800.00	$ 15,800.00
	BID ALTERNATES				
	ALLOWANCES				
	SUBTOTAL - GENERAL REQUIREMENTS + SITE CONSTRUCTION				$ 2,777,020.00
GMP SUMMARY					
A.	C.O.W. (L,M,S,E)				$ 2,777,020.00
	Indirect Costs			**Rate**	
B.	CMAR Contingency			3.0%	$ 83,310.60
C.	Construction Fee (A.+B.)x8%			8.0%	$ 228,826.45
D.	General Conditions			17.8%	$ 730,615.00
D1.	Payment & Performance Bond	$ 32,940.00		1.00%	Included in D above
D2.	Insurance	$ 40,148.00		0.98%	Included in D above
	SUBTOTAL - Direct Costs + Indirect Costs				$ 3,819,772.05
E.	Sales Tax	*65% of 10.40%*		6.76%	$ 276,937.95
			F. TOTAL GMP		**$ 4,096,710.00**
			G. Owner's Contingency		$ -
			H. Contract Amount		**$ 4,096,710.00**

Project: City of Sedona Wastewater Reclamation Plant UV Replacement
Project #: 1367
Dwgs: 100% Design Package - Sunrise Engineering, Inc.
Submitted: 10/3/2024

GENERAL CONDITIONS

DIV	DESCRIPTION	QTY	UNIT	UNIT COST	SUBTOTAL	NOTES
D1- Payment & Performance Bonds						
1	P&P Bond Fee	1	LS	$ 32,940.00	$ 32,940.00	
D2- Insurance						
2	Insurance (.98%)	1	LS	$ 40,148.00	$ 40,148.00	
3	Builders Risk Insurance	1	LS	$ 13,114.00	$ 13,114.00	
KCC Project Management & Staff						
4	Project Manager- NTP to Construction	2	MO	$ 20,886.00	$ 41,772.00	
5	Project Manager	5	MO	$ 20,886.00	$ 104,430.00	
7	QC Manager/Project Engineer	6	MO	$ 14,380.00	$ 86,280.00	
8	Project Superintendent	7	MO	$ 18,717.00	$ 131,019.00	
9	Management Vehicles & Fuel	20	MO	$ 2,430.00	$ 48,600.00	
10	PM Software (Procore)	1	LS	$ 7,800.00	$ 7,800.00	
Housing & Per Diem Management & Staff						
11	Project Manager	86	DAYS	$ 238.00	$ 20,468.00	
12	QC Manager/Project Engineer	150	DAYS	$ 238.00	$ 35,700.00	
13	Project Superintendent	180	DAYS	$ 238.00	$ 42,840.00	
Permits & Licenses						
14	Dust Control Permit & Licenses	1	LS	$ -	$ -	**None Required**
15	City of Sedona Reclaimed Water Permit Fee	1	LS	$ -	$ -	**Use water on site**
KCC Temp Facilities						
16	Yard Housekeeping, Site Housekeeping	320	MH	$ 49.00	$ 15,680.00	
Survey/Engineering						
17	Survey- Site	1	LS	$ 4,000.00	$ 4,000.00	
Safety						
18	Locating	8	HR	$ 280.00	$ 2,240.00	
19	Drug Screening & Testing	10	EA	$ 180.00	$ 1,800.00	
20	Safety Equipment & PPE	6	MO	$ 1,880.00	$ 11,280.00	
21	Safety Training	96	MH	$ 49.00	$ 4,704.00	
Craft Travel/Per Diem						
22	Craft Travel/Per Diem	440	DAYS	$ 195.00	$ 85,800.00	
	General Condition Totals:				**$ 730,615.00**	

4. Project Master Schedule

The current master schedule is attached as Exhibit A. The project was extended one additional month from the 90% cost model submittal due to added scope and some changes to the activity logic.

5. Work Package Evaluations

KEAR has prepared work package evaluations for the major subcontracted scopes of work on the project as well as the major material and equipment supplier. The work package evaluations are attached as Exhibit B.

Below is a summary of the work package evaluated scopes and the firm selected for each:

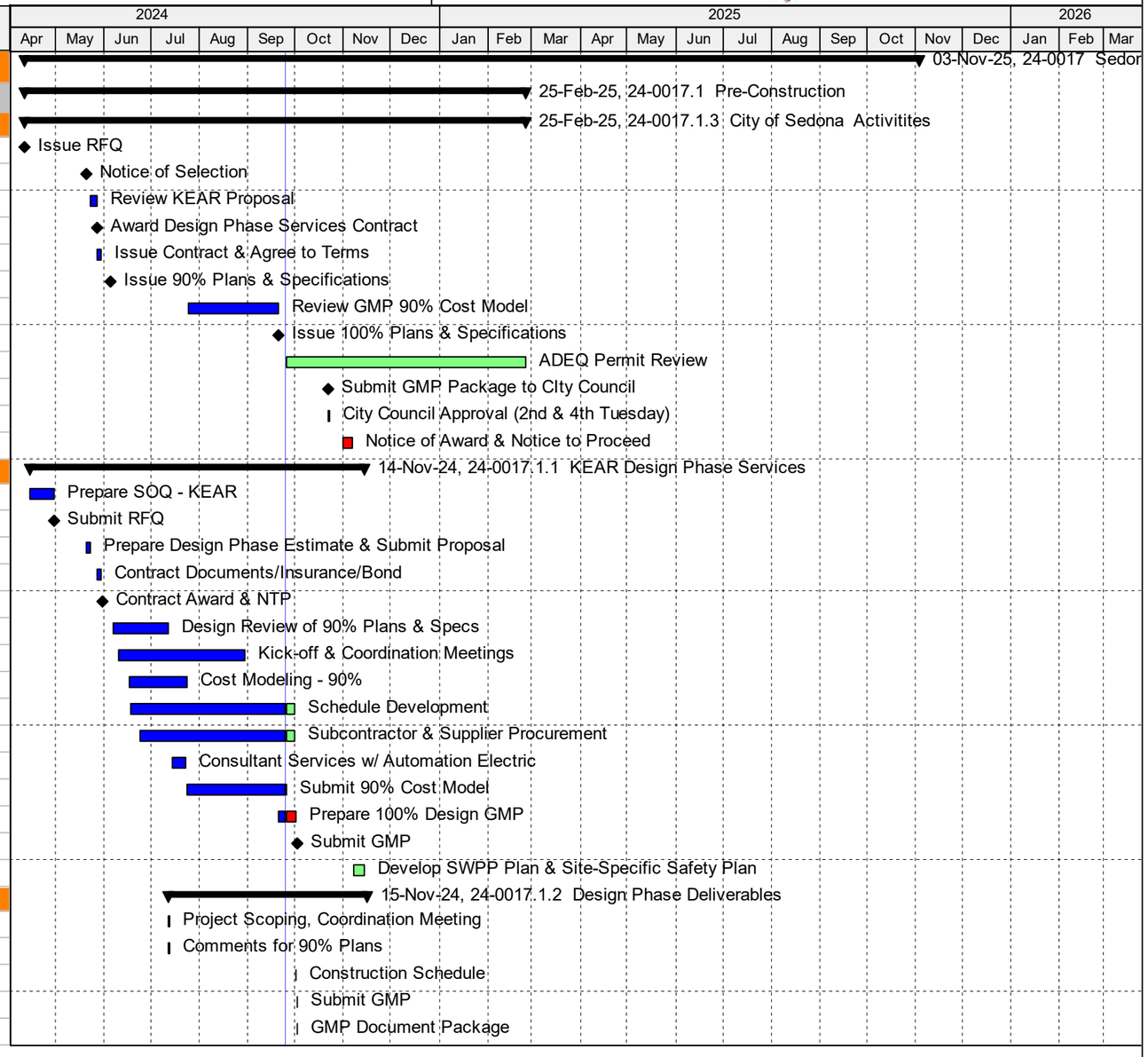
Scope of Work	Selected Firm
Electrical & Programming	Rural Electric
Painting	PPS
Vac Truck Services	Badger
Concrete	J.CO Contracting
UV Units	APG
Metals	SAC
Pipe/Fittings/Valves	Core & Main

Appendix A

Schedule

CITY OF SEDONA
WASTEWATER TREATMENT PLANT UV REPLACEMENT

Activity ID	Activity Name	Original Duration	Start	Finish
24-0017 Sedona WWTP UV Replacement		340	11-Apr-24 A	03-Nov-25
24-0017.1 Pre-Construction		183	11-Apr-24 A	25-Feb-25
24-0017.1.3 City of Sedona Activitites		181	11-Apr-24 A	25-Feb-25
SED 1000	Issue RFQ	0		11-Apr-24 A
SED 1100	Notice of Selection	0		21-May-24 A
SED 1200	Review KEAR Proposal	20	23-May-24 A	28-May-24 A
SED 1300	Award Design Phase Services Contract	0		28-May-24 A
SED 1400	Issue Contract & Agree to Terms	10	28-May-24 A	30-May-24 A
SED 1500	Issue 90% Plans & Specifications	0		05-Jun-24 A
SED 1600	Review GMP 90% Cost Model	10	25-Jul-24 A	20-Sep-24 A
SED 2000	Issue 100% Plans & Specifications	0	20-Sep-24 A	
SED 2100	ADEQ Permit Review	90	25-Sep-24	25-Feb-25
SED 1700	Submit GMP Package to CIty Council	5	22-Oct-24*	
SED 1800	City Council Approval (2nd & 4th Tuesday)	1	22-Oct-24	22-Oct-24
SED 1900	Notice of Award & Notice to Proceed	5	31-Oct-24	06-Nov-24
24-0017.1.1 KEAR Design Phase Services		125	15-Apr-24 A	14-Nov-24
KEAR 1000	Prepare SOQ - KEAR	20	15-Apr-24 A	30-Apr-24 A
KEAR 1100	Submit RFQ	0		30-Apr-24 A
KEAR 1200	Prepare Design Phase Estimate & Submit Proposal	15	21-May-24 A	23-May-24 A
KEAR 1300	Contract Documents/Insurance/Bond	10	28-May-24 A	30-May-24 A
KEAR 1400	Contract Award & NTP	0		31-May-24 A
KEAR 1800	Design Review of 90% Plans & Specs	10	07-Jun-24 A	12-Jul-24 A
KEAR 1600	Kick-off & Coordination Meetings	20	10-Jun-24 A	30-Aug-24 A
KEAR 2000	Cost Modeling - 90%	20	17-Jun-24 A	24-Jul-24 A
KEAR 1500	Schedule Development	30	18-Jun-24 A	30-Sep-24
KEAR 1900	Subcontractor & Supplier Procurement	20	24-Jun-24 A	30-Sep-24
KEAR 1700	Consultant Services w/ Automation Electric	20	15-Jul-24 A	23-Jul-24 A
KEAR 2100	Submit 90% Cost Model	1	24-Jul-24 A	25-Sep-24
KEAR 2300	Prepare 100% Design GMP	10	20-Sep-24 A	01-Oct-24*
KEAR 2400	Submit GMP	0		02-Oct-24*
KEAR 2200	Develop SWPP Plan & Site-Specific Safety Plan	4	07-Nov-24	14-Nov-24
24-0017.1.2 Design Phase Deliverables		83	12-Jul-24 A	15-Nov-24
DPD 1000	Project Scoping, Coordination Meeting	1	12-Jul-24 A	12-Jul-24 A
DPD 1200	Comments for 90% Plans	1	12-Jul-24 A	12-Jul-24 A
DPD 1100	Construction Schedule	1	01-Oct-24	01-Oct-24
DPD 1300	Submit GMP	1	02-Oct-24	02-Oct-24
DPD 1400	GMP Document Package	1	02-Oct-24	02-Oct-24

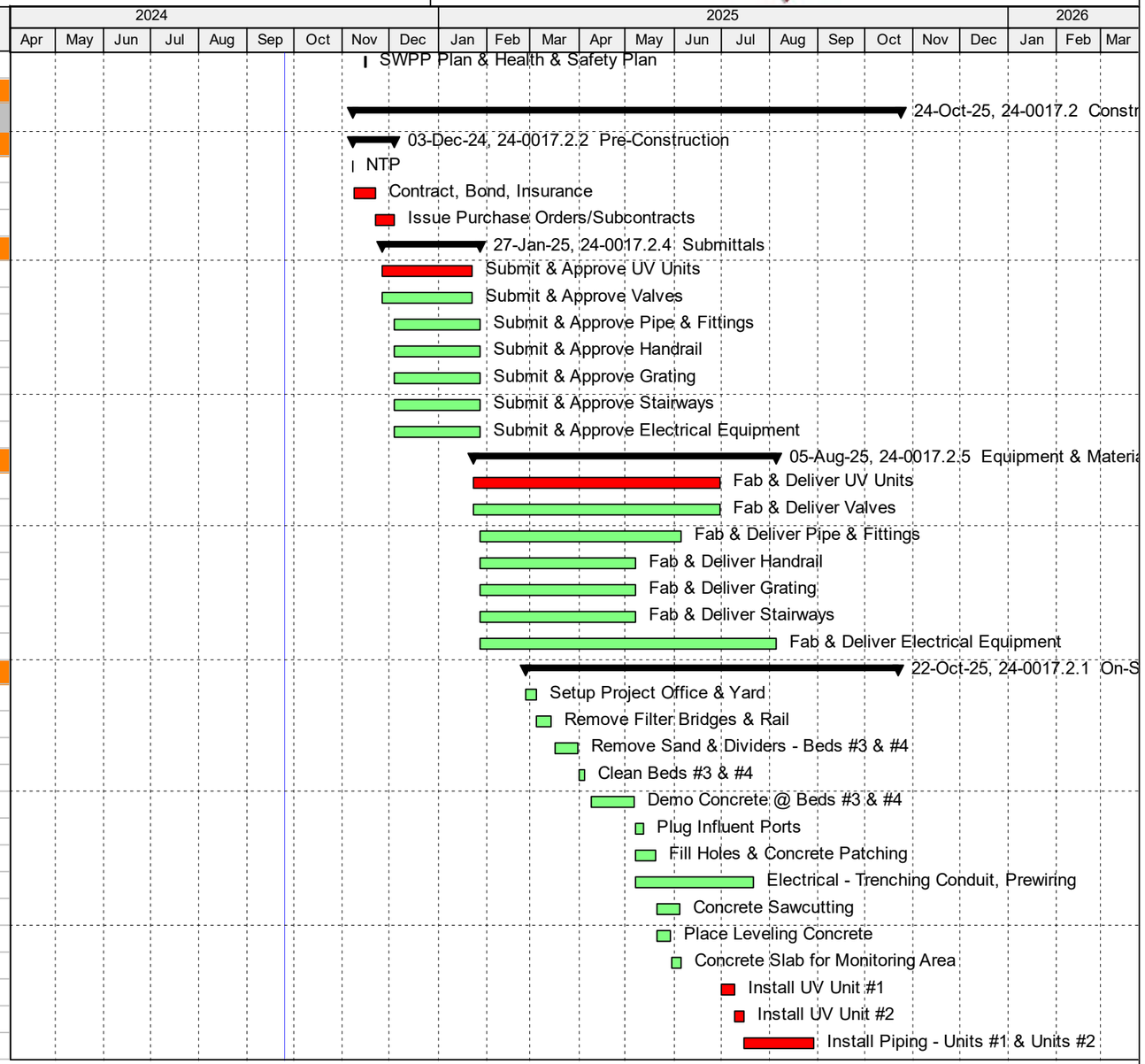


Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

Preliminary GMP Schedule

CITY OF SEDONA
WASTEWATER TREATMENT PLANT UV REPLACEMENT

Activity ID	Activity Name	Original Duration	Start	Finish
DPD 1500	SWPP Plan & Health & Safety Plan	1	15-Nov-24	15-Nov-24
24-0017.1.5 Equipment Delivery		0		
24-0017.2 Construction		213	07-Nov-24	24-Oct-25
24-0017.2.2 Pre-Construction		14	07-Nov-24	03-Dec-24
PRE 1000	NTP	1	07-Nov-24	07-Nov-24
PRE 1100	Contract, Bond, Insurance	8	08-Nov-24	21-Nov-24
PRE 1200	Issue Purchase Orders/Subcontracts	5	22-Nov-24	03-Dec-24
24-0017.2.4 Submittals		33	26-Nov-24	27-Jan-25
SUBM 1000	Submit & Approve UV Units	30	26-Nov-24	22-Jan-25
SUBM 1200	Submit & Approve Valves	30	26-Nov-24	22-Jan-25
SUBM 1100	Submit & Approve Pipe & Fittings	30	04-Dec-24	27-Jan-25
SUBM 1300	Submit & Approve Handrail	30	04-Dec-24	27-Jan-25
SUBM 1400	Submit & Approve Grating	30	04-Dec-24	27-Jan-25
SUBM 1500	Submit & Approve Stairways	30	04-Dec-24	27-Jan-25
SUBM 1600	Submit & Approve Electrical Equipment	30	04-Dec-24	27-Jan-25
24-0017.2.5 Equipment & Material Delivery		123	23-Jan-25	05-Aug-25
A1000	Fab & Deliver UV Units	100	23-Jan-25	30-Jun-25
A1100	Fab & Deliver Valves	100	23-Jan-25	30-Jun-25
A1200	Fab & Deliver Pipe & Fittings	80	28-Jan-25	05-Jun-25
A1300	Fab & Deliver Handrail	60	28-Jan-25	07-May-25
A1400	Fab & Deliver Grating	60	28-Jan-25	07-May-25
A1500	Fab & Deliver Stairways	60	28-Jan-25	07-May-25
A1600	Fab & Deliver Electrical Equipment	120	28-Jan-25	05-Aug-25
24-0017.2.1 On-Site Construction		149	26-Feb-25	22-Oct-25
CONS 1000	Setup Project Office & Yard	5	26-Feb-25	04-Mar-25
CONS 2900	Remove Filter Bridges & Rail	6	05-Mar-25	14-Mar-25
CONS 1200	Remove Sand & Dividers - Beds #3 & #4	8	17-Mar-25	31-Mar-25
CONS 1300	Clean Beds #3 & #4	4	01-Apr-25	04-Apr-25
CONS 1400	Demo Concrete @ Beds #3 & #4	18	09-Apr-25	06-May-25
CONS 1500	Plug Influent Ports	4	07-May-25	12-May-25
CONS 3100	Fill Holes & Concrete Patching	10	07-May-25	20-May-25
CONS 3200	Electrical - Trenching Conduit, Prewiring	50	07-May-25	21-Jul-25
CONS 2000	Concrete Sawcutting	10	21-May-25	04-Jun-25
CONS 2700	Place Leveling Concrete	6	21-May-25	29-May-25
CONS 2800	Concrete Slab for Monitoring Area	5	30-May-25	05-Jun-25
CONS 1600	Install UV Unit #1	4	01-Jul-25	09-Jul-25
CONS 1700	Install UV Unit #2	4	10-Jul-25	15-Jul-25
CONS 1800	Install Piping - Units #1 & Units #2	30	16-Jul-25	29-Aug-25

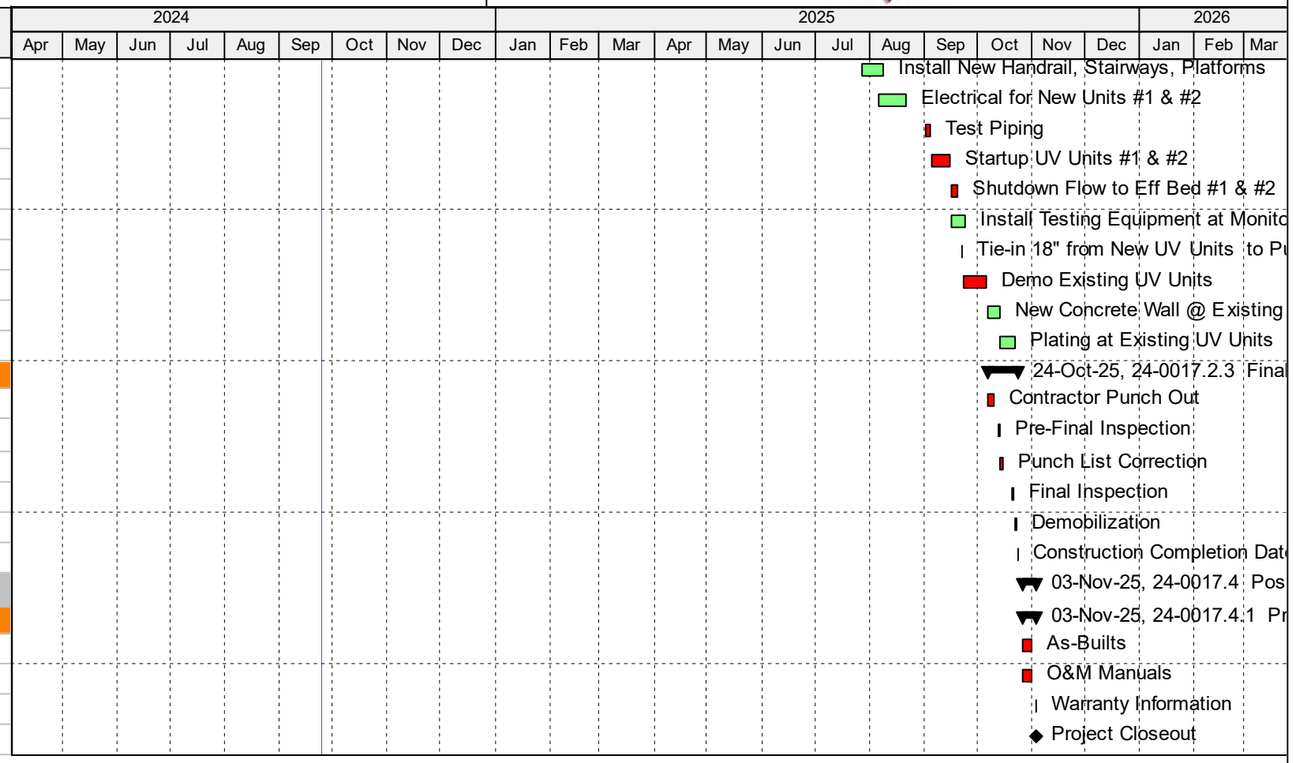


Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

Preliminary GMP Schedule

CITY OF SEDONA
WASTEWATER TREATMENT PLANT UV REPLACEMENT

Activity ID	Activity Name	Original Duration	Start	Finish
CONS 1900	Install New Handrail, Stairways, Platforms	10	28-Jul-25	08-Aug-25
CONS 2100	Electrical for New Units #1 & #2	10	06-Aug-25	21-Aug-25
CONS 2200	Test Piping	3	02-Sep-25	04-Sep-25
CONS 2300	Startup UV Units #1 & #2	6	05-Sep-25	15-Sep-25
CONS 2500	Shutdown Flow to Eff Bed #1 & #2	3	16-Sep-25	19-Sep-25
CONS 3000	Install Testing Equipment at Monitoring Area	6	16-Sep-25	24-Sep-25
CONS 2400	Tie-in 18" from New UV Units to Pump Station	1	22-Sep-25	22-Sep-25
CONS 2600	Demo Existing UV Units	10	23-Sep-25	06-Oct-25
CONS 3300	New Concrete Wall @ Existing UV Units	5	07-Oct-25	13-Oct-25
CONS 3400	Plating at Existing UV Units	4	14-Oct-25	22-Oct-25
24-0017.2.3 Final Completion		11	07-Oct-25	24-Oct-25
FC 7000	Contractor Punch Out	4	07-Oct-25	10-Oct-25
FC 7020	Pre-Final Inspection	1	13-Oct-25	13-Oct-25
FC 7030	Punch List Correction	2	14-Oct-25	15-Oct-25
FC 7040	Final Inspection	1	21-Oct-25	21-Oct-25
FC 7050	Demobilization	2	22-Oct-25	23-Oct-25
FC 7060	Construction Completion Date	1	24-Oct-25	24-Oct-25
24-0017.4 Post Construction		6	27-Oct-25	03-Nov-25
24-0017.4.1 Project Closeout		6	27-Oct-25	03-Nov-25
PC 7000	As-Builts	5	27-Oct-25	31-Oct-25
PC 7010	O&M Manuals	5	27-Oct-25	31-Oct-25
PC 7020	Warranty Information	1	03-Nov-25	03-Nov-25
PC 7040	Project Closeout	0		03-Nov-25



Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

Preliminary GMP Schedule

Appendix B
Work Package Evaluations

SUBCONTRACTOR WORK PACKAGE EVALUATION

Project:	**Sedona UV Replacement**	Rural Electric knows the plant as they have worked at this facility.		Scope did not included buried conduit, nor the programming. Overall we are not confident this firm has the full scope of work covered. Payments terms are not acceptable. Not pre-qualified .			
Owner:	**City of Sedona**						
GMP No & Date:	**GMP 10/2/2024**						
KEAR Project #	**1367**						
Scope:	**Electrical & Programming**						
Option:		**Selected**	**No Bid**	**Non-Responsive**	**No Bid**	**No Bid**	**No Bid**
	COMPANY INFORMATION	Rural Electric Don Schauerman 480-850-3520 dons@Ruralelectric.com	Alliance Service & Control Rod Robertson 602-431-8434 rodrobertson@as-cs.com	Enviro Tech Electrical John Patton 928-707-1261 envirotech.john@gmail.com	Ludvig Tom Spackman 602-777-5022 tspackman@ludvikelectric.com	AGM Power Systems Brad Powers 928-634-2223 b.bowers@agmpowersystems.com	K&H Cody Vineyard 602-269-6104 cody@kandhelectric.us
Trade Contractor Scope of Work:							
1	**Base Bid**	**$484,041.00**		**$296,545.96**			
2	**Bond**	**$9,878.39**		**$8,896.38**			
3	**Programming**	**Included**		**Excluded**			
4	**Buried Conduit**	**Included**		**Excluded**			
5							
6							
KEAR Subcontract Terms Checklist:							
7	Hold bid for 30 Days	Yes		Yes			
8	Payment Terms	OK		25% down - uniform Billing			
9	Proposal Provided Per Spec	Yes		Yes			
10	Acknowledge Contract Plans & Specifications	Yes		Yes			
11	Provide a clear scope of work identifying work items, quantities, and materials.	Yes		NO			
12	Acknowledge All Amendments	N/A		N/A			
13	Insurance Requirements Satisfied	Yes		???			
14	Is Contractor Controlled Insurance Program (CCIP) Required/Included	N/A		N/A			
15	Subcontractor Safety Plan - Submit at Project Start	Yes		Yes			
16	TAX Included	No		No			
17	Bond Included	Can Furnish		Can Furnish			
18	Buy American/Domestic Requirement Conformance	N/A		N/A			
19	Prequalification Completed	Yes		NO			
20	Prevailing Wages/Tero Requirements Included	N/A		N/A			
21	Liquidated Damages - Acknowledges compliance with the liquidated damages terms.	Yes		Yes			
22	Warranty - Included all warranties as outlined in the specifications.	Yes		Yes			
23	Start Up/Commissioning/Site Visits-Verify Included and per contract/specification requirements-correct quantity and duration	Yes		Not Clear			
24	Schedule-Provide lead time for submittals & critical materials	Yes		Yes			
25	Duration of work & phasing provided	Yes		Yes			
26	O&M Manuals & Training Included per specification	Yes		Yes			
27	Shop Drawings - Provide as required	Yes		Yes			
28	As-Builts - Provide complete detailed As-Builts	Yes		Yes			
29	As-Builts - Are CAD As-Builts required	No		No			
30	Marking, Coatings, Labeling, Signage	Yes		Yes			
31	Escalation required through project duration	No - Include in Contingency		No - Include in Contingency			
32	Survey & Layout	By KEAR		By KEAR			
33							
34	**Total Cost**	**$493,919.39**		**$305,442.34**			
35							

Pricing Evaluation Notes:
1.) Pricing is based on 100% Design Plans & Specifications Division 16

RURAL ELECTRIC
BUILDING POWERFUL CONNECTIONS

9502 East Main Street
Mesa, AZ 85207

Licensed Contractor
ISO 9001:2012 Registered

Office (480) 986-1488
Fax (480) 984-0319

October 2, 2024

Subject: **Sedona Wastewater Reclamation Plant UV Replacement**
Electrical Proposal Revision – 100% Drawings

Att: **Garry Higdem**
Garry.higdem@kearcorp.com
KEAR Civil Corporation
623.742.2329

Rural Electric respectfully submits for your review and comments, the following narrative and cost proposal for the Sedona UV Replacement project. All the information requested has been included and will meet your requirements. See yellow highlighted changes.

We have included a summary that identifies the basic inclusions, exclusions, and clarifications.

Inclusions:

- Clean up of our work to a dumpster supplied by others.
- The proposal is based on 100 % construction drawings E100, E201, E202, E203, E204, E301, E302, E401, E501, DM1, DM2, and DM3. Specifications (90%) Revised by Sunrise Engineering Incorporated on several dates noted at bottom of specification sheets.
- This project is scheduled for normal business hours.
- Provide & install ¾" minimum PVC coated Rigid conduit.
- Provide & install (1) 250/3A, 480-volt Allen Bradley breaker in MCC-4.
- Provide & install (1) 100/3A, 480-volt Allen Bradley breaker in MCC-4.
- **This proposal carries an allowance of $8,500.00 for the Allen Bradley breakers. (no information was obtained for the exact CAT# and AIC rating for these components, Electric room was un-accessible during site visit).**
- Provide & install (4) 20-amp, 120-volt single pole breakers in "LP2".
- Install ONLY "LP2", UV1 & UV2, (1) 25kVA transformer, P-UV, and JB-1 (8) UV bank disconnect switches, (9) instrumentation controls. (all furnished by others).
- Provide & install conduit, wire, and cable per E204 "Conduit & Conductor Schedule".
- One-point connections to UV equipment.
- Fire caulking penetrations per specifications.
- Demolition as noted on DM1 and DM2.
- Add conduit and wire for P-044 and C-018 to Motorized Valve #1. Drawing E302.
- Add conduit and wire for P-045 and C-019 to existing Motorized Valve #2. Drawing E302.
- Add conduit and wire for C-018 and C-019 from UV Control to PLC Cabinet #2. Drawing E302.
- Add conduit & wire changes for P-40, P-041, P-042, and P-043 at Sampling Enclosure. Drawing E401.

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- One-line changes on drawing E201.
- Panel changes for LP1 per drawing E203.
- Additional Power (P-045) and Signal (C-018 & C-019) circuits per drawing E204.
- Commodity escalation costs from previous pricing July 2024.
- Safe-off for equipment area west of new work under canopy-light fixtures to remain and operational. This may require leaving point of service to sustain power.
- Wire conductor labels and Equipment nameplates.
- **Automation Electric Inclusions:**
  1.0 Offsite work:
  a. Screen preparation for Enaqua UV System
  b. Changes after customer screen review
  2.0 Onsite work:
  a. Screen migration to existing system
  b. Screen testing and modifications
  c. Code implementation for background polling
  d. Add customer alarm list to Topview
  e. Cleanup and final changes
  The above Automation Electric scope assumes that Enaqua provides the complete Modbus TCP register list.

Exclusions:

- Environmental conditions requiring remediation and Hazardous material remediation.
- Performance & payment bond.
- DBE/SBE requirements, if applicable.
- Arc-Flash & Coordination Studies, and third-party testing.
- Starters and/or VFD's, VDF cabling.
- Cable tray, ladder tray, racks.
- Taxes, utility fees and permits.
- Lightning protection system, including counterpoise system and Fire alarm system.
- Cathodics.
- ~~PLC programming & commissioning.~~
- Warranty of owner furnished equipment.
- Special wage requirements.
- Liquidated damages.
- Premium time and/or shift differentials.
- Coring and imaging.
- Concrete cutting, removal, and replacement.
- Sanitation Facilities.
- Ground Enhancement Material.
- Excavation, backfill and compaction for underground conduits. **Assume approximately 190 linear feet to be performed by others.**
- Sand-bedding and/or concrete encasement of underground conduits.
- GPS marking balls for underground conduits.
- Formed concrete for housekeeping pads etc.

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- All work not specifically included above.
- Contingencies and allowances unless specifically stated above.

Clarifications:

- This proposal requires that we be allowed sufficient time to complete our work.
- This proposal is based upon both parties entering into an acceptable contract agreement.
- This proposal is based on a 4-month schedule uninterrupted.
- We require progress payments including mobilization.
- This proposal and pricing are valid for (30) days from the date listed above.
- The proposal is based upon a single mobilization.
- This proposal reserves the right to recover commodity escalated prices beyond the term for which this proposal is valid.
- **Please be informed that this proposal is based on current market pricing for copper but has a history of fluctuating daily, increasing in price.**

Base Revised 100% Drawings Total Bid: $ 484,041.00

If we can be of further assistance, or if you have questions on the scope or breakdowns included, please feel free to contact us. We look forward to working with everyone associated with this project.

Sincerely,
Don Schauerman
Estimator
DonS@ruralelectric.com
C: 480.850.3520

Patton Electric LLC

DBA: ENVIRO TECH ELECTRICAL SOLUTIONS
1273 Mountainaire Road
Flagstaff, AZ 86005

Estimate

Date	Estimate #
10/1/2024	608

Name / Address
KEAR Civil Corporation 22555 N. 20th Ave. Phoenix, Arizona 85027

Description	Qty	Rate	Total
This quote is for the City of Sedona Wastewater Reclamation Plant UV Replacement electrical portion of the project. This Quote includes all labor, material and equipment for a complete electrical job as per electrical plans and specs specifically pertaining to drawing sheet number DM1 thru DM3, drawing sheet number E100, E201 thru E204, E301 thru E302, E401 and E501 Note 1: This quote does not include any excavation, dirt work, concrete work or state sales tax. Note 2: A 25% down payment will be required at the beginning of the contract with uniform billing from start to finish of the project.		296,545.96	296,545.96

We look forward to working with you

Total $296,545.96

Phone #	Fax #	E-mail
9287071261		enviroteches@gmail.com

Signature _____

SUBCONTRACTOR WORK PACKAGE EVALUATION

Project:	**Sedona UV Replacement**	Working on current Sedona project	No Interest due to size & location	No Interest due to size & location
Owner:	**City of Sedona**			
GMP No & Date:	**GMP 10/2/2024**			
KEAR Project #	**1367**			
Scope:	**Painting**			
Option:		**Selected**		
COMPANY INFORMATION		PPS Tony Bodzioney 480-825-2413 tbodz@ppsphx.com	AO Painting Bruiser Ortega 520-573-0051 Botega@aopaintinginc.com	Riley Industrial Ralph Doolin 505-327-4947 ralphd@rileyindustrial.com
Trade Contractor Scope of Work:				
1	**Base Bid**	**$41,826.00**		
2	**Bond 2%**	**$836.52**		
3				
4				
5				
KEAR Subcontract Terms Checklist:				
6	Hold bid for 30 Days	Yes		
7	Proposal Provided Per Spec	Yes		
8	Acknowledge Contract Plans & Specifications & Geotechnical report	Yes		
9	Provide a clear scope of work identifying work items, quantities, and materials.	Yes		
10	Acknowledge All Amendments	N/A		
11	Insurance Requirements Satisfied	Yes		
12	Is Contractor Controlled Insurance Program (CCIP) Required/Included	N/A		
13	Subcontractor Safety Plan - Submit at Project Start	Yes		
14	TAX Included	No		
15	Bond Included	Yes		
16	Buy American/Domestic Requirement Conformance	N/A		
17	Prequalification Completed	Yes		
18	Prevailing Wages/Tero Requirements Included	N/A		
19	Liquidated Damages - Acknowledges compliance with the liquidated damages terms.	Yes		
20	Warranty - Included all warranties as outlined in the specifications.	Yes		
21	Start Up/Comissioning/Site Visits-Verify Included and per contract/specification	N/A		
22	Schedule-Provide lead time for submittals & critical materials	Yes		
23	Duration of work & phasing provided	Yes		
24	O&M Manuals & Training Included per specification	N/A		
25	Shop Drawings - Provide as required	N/A		
26	As-Builts - Provide complete detailed As-Builts	N/A		
27	As-Builts - Are CAD As-Builts required	No		
28	Marking, Coatings, Labeling, Signage	Yes		
29	Escalation required through project duration	No - Include in Contingency		
30	Survey & Layout	N/A		
31	NACE Inspection	Not Included		
32				
33	**Total Cost**	**$42,662.52**		
34				

Pricing Evaluation Notes:
1.) Pricing is based on 100% Design Plans & Specifications Section 09910

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Phoenix, AZ 85040
602-497-4997
tbodz@ppsphx.com
www.ppsphx.com

Gerry Higdem
Kear Civil
Sedona UV CMAR

Tony Bodzioney
Professional Piping Systems, LLC
Quote# PPS24-301

9-30-24

ATTACHMENT 1
PROPOSED PRICING

Professional Piping Systems, LLC submits its Firm Lump sum pricing below.
Taxes are not Included
Add 2% For Payment / Performance Bonds if Required

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ATTACHMENT 2
Scope of work

PPS has **INCLUDED** in this proposal the following:

Inclusions					
Bid Item	**Qty.**	**Unit**	**Sedona UV CMAR**	**Unit Price**	**Total**
1	1	Lot	**UV channel above grade DI piping** • **SSPC-SP2/3 Prep (on MFG prep and prime)** • **Mask as required** • **1 intermediate coat of epoxy @ 4-6 mils DFT** • **1 finish coat of Polyurethane @ 3-5 mils DFT**		**$41,826.00**
1	1	Lot	**4ea UV channel new platforms** • **SSPC-SP2/3 (on MFG prep and prime)** • **Mask as required** • **1 intermediate coat of epoxy @ 4-6 mils DFT** • **1 finish coat of Polyurethane @ 3-5 mils DFT**		**$33,950.00**
			• All field coatings are on top of MFG prep and prime. • Assuming quoted coating system. Spec was incomplete. • Assuming all flange nuts/bolts and all tread rod mask. • Platform coatings to be applied PRIOR to grating installation.	This painting is completed by the steel fabricators. Need a small allowance for touch-up	

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ATTACHMENT 3
EXCLUSIONS

PPS has specifically **EXCLUDED** from this proposal the following:

- 3rd party inspection costs
- Coatings at inaccessible areas
- Unbolting of flanged connections
- Coatings over galvanized or non ferrous metals
- Coating of handrail
- Coating of grating
- Pipe markers or stickers
- Field blasting
- Containment systems

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ATTACHMENT 4

Terms & Conditions

The following terms and conditions (these "Terms & Conditions") apply to the sale of goods, materials or products (collectively, "Products") or provision of services (collectively, "Services") by Professional Piping Systems, LLC, an Arizona limited liability company ("PPS"), to the customer identified on the Purchase Order to which these Terms & Conditions are attached (the "Customer") and all purchase orders and the provision of all Products or Services by PPS are subject to the Terms & Conditions.

1. Prices. Except as provided herein, prices offered by PPS for Services or Products in any written quote or estimate ("Quote") will remain in effect for a period of fifteen (15) days after the date of the Quote (the "Quote Date"). After said fifteen (15) day period, prices are subject to change. Prices for Products to be used in any Work (hereafter defined) which are obtained by PPS from a third party, are subject to change at any time to account for any fluctuations in the market price after the Quote Date.

2. Purchase Orders. All Services or Products to be provided by PPS to Customer shall be pursuant to a written purchase order executed by PPS and the Customer (a "Purchase Order"), referencing the scope of work described on the Quote, which will, at a minimum, include a description of the Services or Products to be provided by PPS (collectively, the "Work"), and the compensation to PPS therefor. PPS shall have no obligation to proceed with any Work until such time that it has received a fully executed Purchase Order and any initial deposit required there under.

3. Change Orders. The parties may only modify or add to the Work described in the Purchase Order by executing a written change order describing in reasonable detail the modified or additional Work to be completed and any adjustments to the schedule or the compensation to PPS therefore (a "Change Order"). PPS shall have no obligation whatsoever to commence or complete any additional or modified Work unless and until Customer and PPS have executed a Change Order.

4. Plans and Specifications; Scheduling. PPS shall complete or provide all Work in substantial conformity with written specifications, drawings and descriptions provided by Customer to PPS (collectively, "Customer Specifications"). PPS shall have no liability to Customer for any delays, damages or claims of any kind arising from defects, omissions, errors or deficiencies in the Customer Specifications and Customer shall defend, indemnify and hold PPS harmless for, from and against any and all liability, damages, claims, losses and expenses, including attorneys' fees and costs, arising therefrom or related thereto. PPS will furnish detailed joint design, pipeline layouts and manufacturing drawings for Customers' approval prior to commencing pipe manufacture at no extra cost. Drawings will be provided one (1) week after receipt of the approved layout.

5. Shipping. Shipping rate and delivery date will be arranged by mutual written agreement between PPS and Customer upon receipt of approved drawings. Any revised delivery schedule will be negotiated between PPS and Customer and will take into account PPS' current schedules of work on hand as well as current availability and prices of materials. Any delays on the project resulting in production or delivery delays longer than thirty (30) days may result in an escalation charge in an amount determined by PPS in its sole discretion. Prices are based on delivers in full truckload lots. Deliveries requested for material in quantities less than truckload lots will be billed to Customer at the full truck load rate. Internal bracing,

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stulling, and shoring are placed in pipe at the time of manufacture for the purpose of limited pipe deflection during hauling and handling. PPS is not responsible for internal bracing required for the installation or grouting of the pipe. Any special requirements, i.e. vertical elongation etc., will be the sole responsibility of Customer. Shipping Cradles and stull are the property of PPS and are to be grouped and reloaded on trucks, at Customer's expense, for reuse by PPS, if requested. Any bunks or stulls not returned in reusable condition will be billed to the Customer's account at full replacement cost. Risk of loss or damage shall pass to Customer when Products are delivered to Customer or delivered to or picked up by the shipping company.

6. Payment Terms. Payment terms are net thirty (30) days from the date that PPS sends an invoice to Customer for the amounts due. Any amounts not paid within such thirty (30) day period shall accrue interest thereafter until paid in full at a rate which is the lesser of eighteen percent (18%) per annum or the highest rate allowed under applicable laws, computed on a 365/360 day year basis. In addition, in the event that the Customer fails to pay the full amount due within thirty (30) days after PPS has sent Customer an invoice, PPS shall be entitled to exercise any of its available remedies under applicable law, which include suspension of any further work by PPS and retention of any equipment or other personal property owned by the Customer and in PPS' possession, until all past due amounts owing to PPS have been paid in full. PPS will invoice Customer for 100% of raw material (no retention) upon its arrival at PPS' facility. PPS will invoice Customer monthly for progress payments (less retention) per a PPS supplied schedule of values. PPS will invoice for all final amounts including retention amounts, after completion of the Work.

6. Warranty. PPS warrants that Products and Services provided by PPS to Customers are free from defects in material and workmanship. PPS' obligation under this warranty is limited to correction of defects in Products or Services which were provided by PPS. Within ten (10) calendar days after discovery of any defective Services or Products provided by PPS, Customer shall provide PPS written notice of such defect. This warranty does not cover any repairs or replacement required due to a Customer or third parties' accident, abuse, misuse, failure to maintain, disassembly, repair, modification, negligence, fault, or natural or man-made disaster. PPS shall have no liability to Customer for any: (a) consequential, special, indirect, incidental, punitive, or liquidated damages; or, (b) damages to or from products or services not furnished by PPS; or, (c) repair, replacement or other expenses incurred by Customer in correcting defective Products or Services provided by PPS. PPS' warranty will remain in effect for a period of twelve (12) months from the date the Products or Services were provided or completed. Notwithstanding the foregoing, with respect to new equipment, PPS' warranty will remain in effect until the earlier of: (i) twelve (12) months from the time the new equipment is placed into service; or, (ii) eighteen (18) months from the date of delivery to the Customer. PPS' warranty for new equipment shall apply only if Customer properly stores, maintains and operates said equipment in accordance with the original equipment manufacturer's procedures and specifications. EXCEPT FOR PPS' EXPRESS WARRANTY CONTAINED HEREIN, PPS IS NOT MAKING AND HEREBY EXPRESSLY DISCLAIMS ANY OTHER IMPLIED OR EXPRESS WARRANTIES WITH RESPECT TO THE SERVICES AND PRODUCTS. WITHOUT LIMITING THE FOREGOING, PPS EXPRESSLY DISCLAIMS ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

7. Indemnification. PPS will indemnify and hold Customer harmless for, from and against any and all claims, damages, liability, losses, or expenses, including reasonable attorneys' fees and costs pursuant

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to Arizona statutes, arising from or relating to PPS' breach of the Purchase Order or the Terms & Conditions. Customer will indemnify and hold PPS harmless for, from, and against any and all claims, damages, liability, losses or expenses, including reasonable attorneys' fees and costs pursuant to Arizona statutes, arising from or relating to Customer's breach of the Purchase Order or the Terms & Conditions. Notwithstanding anything to the contrary, under no circumstances will either party be liable to the other party for consequential, special, indirect, incidental, punitive, or liquidated damages.

8. Shortages, Defects or Errors. Customer shall give prompt written notice to PPS of any shortages, defects or errors in any Products or Services, which notice shall be given to PPS no later than ten (10) business days of Customer's receipt of the Product or the provision of Services.

9. Title. Title to Products provided by PPS shall not pass to Customer until PPS has received full payment of all amounts due for all Services performed and Products provided by PPS.

10. Cancellation. Customer may cancel a Purchase Order by providing written notice to PPS, provided, however, Customer will be obligated for all unpaid Work completed up to and including the date that PPS receives written notice of cancellation, plus PPS' reasonable profit for uncompleted Work under the Purchase Order.

11. Force Majeure. Neither PPS nor the Customer shall be liable for any damages, claims or liability of any kind arising from delay in performance caused by a "Force Majeure Event". As used herein, "Force Majeure Event" shall mean acts of God; acts of terrorism; explosion; fire; extreme weather conditions; flood; drought; epidemic; pandemic; earthquake; riot; insurrection; blockade; war or other hostilities; strike, lockout or other industrial disturbance; act or restraint of governmental authority whether valid or invalid; the refusal or failure of any governmental authority to promptly issue or grant any necessary governmental authorizations, permits, licenses, certificates or approvals or the action or inaction of any governmental authority which causes the lapse or expiration of any of the foregoing; shortages of materials or Products to be incorporated in the Work, and any other cause or event which is reasonably beyond the control of the party and which the party is not able to overcome by the exercise of reasonable diligence, provided, however, that neither party shall be required to settle any strike, work stoppage or other labor dispute on terms which, in its opinion, are unsatisfactory. If any delay in PPS' performance is attributable to a Force Majeure Event, the time for performance shall be extended for a period equal to the time of the delay caused by the Force Majeure Event. Notwithstanding the foregoing, the occurrence of a Force Majeure Event shall not excuse or delay any payment obligation under the Purchase Order or the Terms & Conditions.

12. Access and Cooperation. Customer shall provide PPS access to the Work site at all times during PPS' normal hours of business to enable PPS to complete the Work and shall otherwise cooperate with PPS so that the Work may be completed on a timely and efficient basis. Such cooperation shall include providing information to PPS necessary to obtain permits or other required governmental approvals for the Work and coordination with Customer's other contractors or employees to enable PPS to complete the Work without interference or interruption.

13. Jurisdiction, Venue and Waiver of Jury Trial. These Terms & Conditions and all Purchase Orders between PPS and Customer shall be interpreted and enforced according to Arizona substantive laws, without regard to Arizona's choice of law provisions. Any disputes between the parties arising from these Terms & Conditions or the Purchase Order shall be brought and maintained in a court of competent jurisdiction in Maricopa County, Arizona. PPS and Customer hereby irrevocably waive any and all rights they have to demand that any action, proceeding or counterclaim arising out of or in any way related to these Terms & Conditions or any Purchase Order be tried by jury.

14. Attorney Fees. In the event that either party hereto institutes an action or other proceeding to enforce any rights arising under these Terms & Conditions or any Purchase Order, the party prevailing in

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such action or other proceeding shall be paid all reasonable costs and reasonable attorneys' fees by the other party pursuant to Arizona statutes.

15. Entire Agreement. Incorporation and Modification. These Terms & Conditions and the applicable Purchase Order contain the entire agreement between the parties. These Terms & Conditions and the Purchase Order have been negotiated among the parties and, if there is any ambiguity, no presumption construing these Terms & Conditions or the Purchase Order shall be imposed because the same were prepared by such party or its attorney. These Terms & Conditions are hereby incorporated in and as a part of all Purchase Orders. To the extent that there is any conflict in the terms of these Terms & Conditions and the terms of a Purchase Order, these Terms & Conditions shall control, unless the Purchase Order, by its express terms, supersedes these Terms & Conditions by specific reference to the provision of these Terms & Conditions so modified. No modification of these Terms & Conditions or any Purchase Order shall be of any force or effect unless such modification is in writing and executed by both of the parties. These Terms & Conditions shall control over all additional or conflicting terms and conditions that may appear on Customer written documents, including purchase orders, delivery tickets, service order tickets, invoices or any other document and PPS' signature on any Customer written document shall not constitute PPS' consent to any terms and conditions set forth in such document. Notwithstanding the foregoing, the terms of the Purchase Order shall control over any conflicting Customer Specifications.

16. Notices. All notices or other communications required or provided to be given by either party shall be in writing and shall be hand delivered, transmitted by email or by United States first class mail, postage prepaid. Notices shall be deemed given upon hand delivery, or if sent via email, upon transmission provided the same is also sent on the date of transmission by first class mail, postage prepaid, or if mailed, three (3) calendar days after such notice is deposited in the mail, in each case, addressed to the parties to the addresses set forth in the Purchase Order. Any party may change the address to which notice shall be delivered or mailed or emailed by written notice duly given.

17. Severability and Waiver. The invalidity or unenforceability of any provision hereof shall in no way affect the validity or enforceability of any other provision hereof. Any waivers must be in writing and signed by the party sought to be charged. The waiver by any party of a right provided thereunder shall not be deemed to be a continuing waiver of that right or a waiver of any other right.

18. Miscellaneous. In these Term & Conditions: (i) the singular includes the plural and vice versa and reference to any gender includes each other gender; (ii) reference to any person includes such person's successors and assigns but only if such successors and assigns are not prohibited by these Term & Conditions; (iii) "hereunder," "hereof," "hereto," and words of similar import shall be deemed references to these Terms and Conditions as a whole; (iv) reference to any agreement, document or instrument means such agreement, document or instrument as amended or modified and in effect from time to time in accordance with the terms thereof; (v) references to documents, instruments or agreements shall be deemed to refer as well to all addenda, exhibits, schedules, restatement, supplements or amendments thereto; (vi) references to "day" or "days" mean calendar days; (vii) "including" (and with correlative meaning "include") means including without limiting the generality of any description preceding the word "including"; (viii) where specific language is used to clarify by example a general statement contained herein, such specific language shall not be deemed to modify, limit or restrict in any manner; (ix) "or" is used in the inclusive sense of "and/or"; (x) with respect to the determination of any period of time, "from" means "from and including" and "to" means "to but excluding"; (xi) references to amounts of money expressed in Dollars are references to United States Dollars; and (xii) any action required hereunder to be taken within a certain number of days shall, except as may otherwise be expressly provided herein, be taken within that number of days excluding the day on which the counting is initiated and including the final day of the period.

SUBCONTRACTOR WORK PACKAGE EVALUATION

Project:	**Sedona UV Replacement**			
Owner:	**City of Sedona**			
GMP No & Date:	**GMP 10/2/2024**			
KEAR Project #	**1367**			
Scope:	**Vac Truck Services**			
Option:		**Selected**		
	COMPANY INFORMATION	Badger Daylighting Stacy Barker 480-766-1276 sbarker@badgerinc.com	No other bids received due to limited competition for this scope expertise	
Trade Contractor Scope of Work:				
1	**Base Bid**	**$49,142.80**		
2	**Bond**	**Not required**		
3	**Scope Contingency/Support/Survey (KEAR)**			
4				
5				
6				
7				
8				
KEAR Subcontract Terms Checklist:				
9	Hold bid for 30 Days	Yes		
10	Proposal Provided Per Spec	Yes		
11	Acknowledge Contract Plans & Specifications & Geotechnical report	Yes		
12	Provide a clear scope of work identifying work items, quantities, and materials.	Yes		
13	Acknowledge All Amendments	N/A		
14	Insurance Requirements Satisfied	Yes		
15	Is Contractor Controlled Insurance Program (CCIP) Required/Included	N/A		
16	Subcontractor Safety Plan - Submit at Project Start	Yes		
17	TAX Included	No		
18	Bond Included	No		
19	Buy American/Domestic Requirement Conformance	N/A		
20	Prequalification Completed	Not required		
21	Prevailing Wages/Tero Requirements Included	N/A		
22	Liquidated Damages - Acknowledges compliance with the liquidated damages terms.	N/A		
23	Warranty - Included all warranties as outlined in the specifications.	N/A		
24	Start Up/Comissioning/Site Visits-Verify Included and per contract/specification	N/A		
25	Schedule-Provide lead time for submittals & critical materials	N/A		
26	Duration of work & phasing provided	Yes		
27	O&M Manuals & Training Included per specification	N/A		
28	Shop Drawings - Provide as required	N/A		
29	As-Builts - Provide complete detailed As-Builts	N/\A		
30	As-Builts - Are CAD As-Builts required	No		
31	Marking, Coatings, Labeling, Signage	N/A		
32	Escalation required through project duration	No - Include in Contingency		
33	Survey & Layout	KEAR to Provide		
34				
35	**Total Cost**	**$49,142.80**		
36				

Pricing Evaluation Notes:
1.) Pricing is based on 100% Design Plans & Specifications

Badger Hydrovac Service Proposal

United States

Prepared By:	Stacy Barker
Email:	sbarker@badgerinc.com
Phone:	
Date:	06/07/2024
Estimate Number:	CPQ-84464v1
Project Name:	Sedona WWTP UV Updgrades

Badger Daylighting Corp
PHOENIX AZ CORP
8222 N 67th Avenue
Glendale, AZ 85303
"An equal opportunity employer"
AZ License #268390

Estimate

Date	06/07/2024
Reference	CPQ-84464
Prepared By	Stacy Barker

Customer Information

Company	KEAR CIVIL CORPORATION	**Contact Name**	Garry Higdem
Contact Phone #	+1 (480) 271-2721	**Email**	Garry.higdem@kearcorp.com
Billing Address	22555 N 20TH AVE	**Title**	Sr. Estimator
Billing City/State	PHOENIX AZ 85027	**Account Number**	26449
Service Address	7500 W State Rte State Rte 89a Sedona AZ 86336		

Scope Of Work

Scope of Work: Removal of sand from filter beds and wash down as best as possible. Steel plates will be removed prior to vacuuming.

• Badger Daylighting Corp. estimates that scope of work can be completed in (8) working days, utilizing (1) Badger Hydro Vac unit(s) and all necessary personnel.
• Client is responsible for permitting, access within 25', traffic control, barricades/ open hole securement, coring, asphalt /concrete removal, backfill, reinstatement, dump, and hole layout.
• Client is to be present or have representative on site to sign off at completion of the day/work to confirm scope of work.
• Delays out of control of Badger, debris greater than 6" in diameter, compacted soils/refusals, cave ins, use of remote hose or any work deviations requested by client will be considered out of scope & billed at an additional hourly rate. Out of scope work, may impact projected estimated days or cause Badger to stop safe dig services.
• Fluctuating Fuel Recovery Fee (currently FFRF is 8.52% of total daily ticket & is subject to change weekly or monthly.)
• T&M proposal pricing is considered M-F during normal working hours. Nights, weekends, and prevailing wage projects will be subject to premium time pricing.

This is a multiple day job. Number of days: 8

Service Item	Item Description	Unit Cost	UOM	Quantity	Amount
BADGER HYDROVAC WITH OPERATOR	Up to 8 hours	$285.00	HR	64	$18,240.00
BADGER HYDROVAC WITH OPERATOR OVERTIME	After 8 hours, if needed	$325.00	HR	20.0	$6,500.00
ADDITIONAL OPERATOR	Up to 8 hours	$65.00	HR	64	$4,160.00
ADDITIONAL OPERATOR OVERTIME	After 8 hours, if needed	$105.00	HR	20.0	$2,100.00
DISPOSITION		$0.00	EA	8	$0.00
MOBILIZATION DEMOBILIZATION		$750.00	DAY	4.0	$3,000.00
CONSUMABLE MATERIALS		$50.00	EA	20.0	$1,000.00
SUPPLY WATER		$100.00	EA	8	$800.00
SUPPORT TRUCK	Includes 60' remote hose	$500.00	DAY	10.0	$5,000.00

PER DIEM		$289.18	DAY	16	$4,626.88
FLUCTUATING FUEL RECOVERY		$3,715.92	EA	1	$3,715.92
			Total		$49,142.80

This proposal contains the budgetary estimate to complete the work as described above under the heading "Scope of Work". If any part of the work varies from that described in Scope of Work, or if unexpected digging conditions are encountered (eg rocks, rubble, roots, etc...), then additional charges shall apply. All work will be done on a time and material basis. All work will be done in accordance with the terms and conditions contained in Badger Daylighting Corp.'s standard terms and conditions (USA) attached hereto.

Customer (Company) _____ PO #: _____

Name (Please Print) _____ Title: _____

Signature _____ Date: _____

I am authorized to bind the Company

General Notes, Conditions, & Badger Responsibilities:

1. Travel rates apply when traveling from the closest Badger Operation to the client's project site.
2. Badger will off load material at contracted facility. Travel to and from a designated facility is considered part of the work day and charged at the hourly rate.
3. Any additional third party services provided by Badger Daylighting outside of our typical Hydrovac activities shall be charged out at cost +.
4. With any Hydrovac project, there are possible additional charges that are application and site specific. For example, items such as water trucks, specialized equipment and attachments (remote hose, etc.), crew trucks, and other items may be required. Rather than provide an extensive listing of all possible considerations, this is best implemented on a project-by-project basis and evaluated at the field operations level. The information presented in this document represents the complete proposal.
5. This proposal is valid for 30 days from the date posted on this proposal document.
6. Any and all quotes, offers and transactions are pending Credit Approval by Badger.
7. Terms of Payment - Net 30 days from date of invoice. Late invoices subject to service fees.
8. Zero (0) % retainage is withheld.
9. Taxes – tax will be added to quote pricing as required by State/Local governments.
10. All invoices will be assessed a Fluctuating Fuel Recover Fee on the entire amount of the invoice. This fee is reviewed regularly and is subject to change. Badger utilizes information from the US Department of Energy and the Canadian Department of Natural Resources when calculating the fee.

Customer responsibilities include:

1. Access to the Hydrovac site, including permits and permission from property owners, utilities, and government agents.
2. Surface locates, survey marks and traffic control, if needed unless agreed to in writing prior.
3. Breaking, removal, and restoration of asphalt and or concrete unless agreed to in writing prior.
4. Establish, maintain, and remediate accessible water source and disposal site.
5. Specific direction and locations for Hydrovac excavation.
6. Backfill and site restoration unless agreed to in writing prior to completing work.
7. Materials to secure and cover the excavation unless agreed to in writing prior.
8. Shoring, maintenance, and barricading.
9. Ownership of the soil and debris removed by the Hydrovac including any soils or material contaminated or suspect.
10. Any project delays caused by others that result in downtime of Badger Hydrovac units will be billed at the hourly rates.
11. Pay for all specialized training that is required by contractor/owner/Badger to be on the site to work.
12. Notify Badger of all billing requirements and any appropriate purchase orders, job numbers, AFE, etc. that would be necessary to release payment to Badger. This must be done prior to the first day of work.
13. Notify Badger of any of the following: Certified payrolls, OCIP requirements, prevailing wages.
14. Additional insurance requirements over what Badger already has in place

Customer Representative		**Badger Representative**	
Printed Name:	_____	Printed Name:	_____
Signature:	_____	Signature:	_____
Date:	_____	Date:	_____

I am authorized to bind the Company

BADGER DAYLIGHTING CORP. STANDARD TERMS AND CONDITIONS (USA)

1. **Definitions**. "Service Provider" shall mean Badger Daylighting Corp. "Buyer" shall mean any party who contracts to purchase Services from Service Provider, as indicated on a service agreement or a statement of work. "Services" shall mean those services and any related goods ordered by Buyer from Service Provider pursuant to a service agreement accepted by Service Provider. "Credit Application" shall mean Service Provider's form of credit application, as may be amended from time to time, the review and written approval of which is a pre-requisite to Service Provider entering into any type of binding agreement with Buyer to provide Services. "USA" shall mean the United States of America.

2. **Terms of Service Agreement Acceptance and Complete Agreement**

(a) Acceptance. Buyer's order for Services is binding only when accepted in writing by an authorized representative of Service Provider, and is accepted subject to all of Service Provider's Standard Terms and Conditions of Services, which constitute the complete agreement between the parties. Buyer's acceptance of delivery and performance of Services evidences Buyer's acceptance of all of Service Provider's Standard Terms and Conditions of Services.

(b) No Acceptance. Service Provider's performance under any Buyer service agreement or a statement of work does not constitute an acceptance of any provision of any Buyer service agreement that is different from or additional to Service Provider's Standard Terms and Conditions of Services, and any such different or additional provisions are hereby expressly rejected and are void.

3. **Buyer's Obligations.**

(a) Services. Buyer shall: (i) cooperate with Service Provider in all matters relating to Services and provide such access to Buyer's premises, and other facilities as may reasonably be requested by Service Provider, for the purposes of performing Services; (ii) respond promptly to any Service Provider request to provide direction, information, approvals, authorizations or decisions that are reasonably necessary for Service Provider to perform Services in accordance with the requirements of the service agreement; (iii) provide such Buyer materials or information as Service Provider may reasonably request and Buyer considers reasonably necessary to carry out Services in a timely manner and ensure that such Buyer materials or information are complete and accurate in all material respects; and (iv) obtain and maintain all necessary permits and consents and comply with all applicable laws in relation to Services before the date on which Services are to start.

(b) Shipment and Delivery. Any goods provided in relation to the Services are sold EXW Service Provider's Facility Incoterms 2010. The method and route of shipment shall be as mutually agreed in each accepted service agreement. Service Provider shall tender delivery of all such related goods to a carrier for transportation to Buyer's place of business. All costs of transportation, including, without limitation, taxes and standard insurance shall be assessed by Service Provider and borne by Buyer unless otherwise agreed to in writing by Service Provider. Service Provider shall invoice Buyer for all shipping related costs.

All risk of loss shall pass to Buyer when such related goods are made available to the carrier at Service Provider's facility, including, without limitation, all risks of loading, transportation, and shipment. Delivery and acceptance shall not be affected by a delay on the part of Buyer in accepting delivery. Shipment of such related goods held by reason of Buyer's request or inability to receive such related goods will be at the risk and expense of Buyer. Claims for shortages in shipment shall be deemed waived by Buyer unless made in writing to Seller within thirty (30) days from the date of invoice.

4. **Buyer's Acts or Omissions**. If Service Provider's performance of its obligations under this Agreement is prevented or delayed by any act or omission of Buyer or its agents, subcontractors, consultants or employees, Service Provider shall not be deemed in breach of its obligations under the service agreement or otherwise liable for any costs, charges or losses sustained or incurred by Buyer, in each case, to the extent arising directly or indirectly from such prevention or delay. breach of its obligations under the service agreement or otherwise liable for any costs, charges or losses sustained or incurred by Buyer, in each case, to the extent arising directly or indirectly from such prevention or delay.

5. **Taxes and Fees.** Unless expressly stated and agreed to in writing by Service Provider, quoted prices do not include any shipping and handling charges, sales, use, excise, or similar taxes or duties. Buyer shall pay these taxes directly if the law permits or shall reimburse Service Provider if Service Provider is required to collect and pay them.

6. **Representations and Warranties; Limitation of Remedy.**

(a) Service Provider represents and warrants to Buyer that it shall perform Services using personnel of required skill, experience and qualifications and in a professional and workmanlike manner in accordance with generally recognized industry standards for similar services and shall devote adequate resources to meet its obligations under the service agreement.

(b) Service Provider shall not be liable to a breach of the warranty set forth in Section 6(a) unless Buyer gives written notice of the defective Services, reasonably described, to Service Provider with three (3) days of the time when Buyer discovers or ought to have discovered that Services were defective.

(c) The sole and exclusive remedy of Buyer for any liability of Service Provider of any kind, including (i) warranty, express or implied, whether contained in the terms and conditions hereof or in any terms additional or supplemental hereto, (ii) contract, (iii) negligence, (iv) tort, or (v) otherwise, is limited to Service Provider's repair or re-performance of Services. The sole and exclusive remedy for goods related to Services shall be Service Provider's repair or replacement of those related goods the examination of which by Service Provider reveals material defects during the warranty period or, at Service Provider's option, a refund to Buyer of the money paid to Services Provider for such goods. The warranty period shall begin on the date of completion of Services on Service Provider's invoice and shall continue for a period of one (1) year therefrom for all Services. This limited warranty shall not extend to any Services that have been modified, disassembled, altered, changed, damaged, misused, repaired, misapplied or negligently maintained in any manner.

(d) EXCEPT FOR THE EXPRESS LIMITED WARRANTY SET FORTH IN SECTION 6(a) ABOVE, SERVICE PROVIDER MAKES NO WARRANTY WHATSOEVER WITH RESPECT TO SERVICES, EXPRESS OR IMPLIED, INCLUDING ANY (i) WARRANTY OF MERCHANTABILITY; OR (ii) WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE; OR (iii) WARRANTY OF TITLE; OR (iv) WARRANTY AGAINST INFRINGEMENT OF

INTELLECTUAL PROPERTY RIGHTS OF A THIRD PARTY; WHETHER EXPRESS OR IMPLIED BY LAW, COURSE OF DEALING, COURSE OF PERFORMANCE, USAGE OF TRADE OR OTHERWISE.

7. **Limitation of Liability.**

(a) SERVICE PROVIDER'S LIABILITY SHALL BE LIMITED TO THE COST OF REPAIR AND RE-PERFORMANCE OF SERVICES WITHIN A REASONABLE PERIOD OF TIME FOLLOWING PROPER AND TIMELY NOTICE BY BUYER. IN NO EVENT SHALL SERVICE PROVIDER BE LIABLE TO BUYER OR TO ANY THIRD PARTY FOR ANY LOSS OF USE, REVENUE, OR PROFIT; OR FOR ANY CONSEQUENTIAL, INCIDENTAL, INDIRECT, EXEMPLARY, SPECIAL OR PUNITIVE DAMAGES WHETHER ARISING OUT OF BREACH OF CONTRACT, TORT (INCLUDING NEGLIGENCE) OR OTHERWISE, REGARDLESS OF WHETHER SUCH DAMAGES WERE FORESEEABLE AND WHETHER OR NOT SERVICE PROVIDER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, AND NOTWITHSTANDING THE FAILURE OF ANY AGREED OR OTHER ESSENTIAL PURPOSE. IN NO EVENT SHALL SERVICE PROVIDER'S AGGREGATE LIABILITY ARISING OUT OF OR RELATED TO THE SERVICE AGREEMENT, WHETHER ARISING OUT OF OR RELATED TO BREACH OF CONTRACT, TORT (INCLUDING NEGLIGENCE) OR OTHERWISE, EXCEED THE AGGREGATE AMOUNTS PAID OR PAYABLE TO SERVICE PROVIDER. Buyer agrees to indemnify and hold Service Provider harmless from and against all liabilities, claims, or demands of third parties of any kind relating to Services and the use of any related goods arising after performance of Services.

(b) The limitation of liability set forth in Section 7(a) above shall not apply to (i) liability resulting from Service Provider's gross negligence or willful misconduct and (ii) death or bodily injury resulting from Service Provider's negligent acts or omissions.

8. **Rejection or Claims**. A rejection of Services for non-conformity, or a claim of incomplete performance and/or damage by Buyer, shall not be effective unless it is made, and written notice thereof is given to Service Provider, within thirty (30) days after Services are provided to Buyer; or, with respect to any goods related to Services, within thirty (30) days after such related goods arrive at the destination specified in Service Provider's statement of work. Service Provider reserves the right to inspect the site of supposed non-conforming Services and to determine lack of conformity in its sole discretion.

9. **Performance Dates.** Service Provider shall use reasonable efforts to meet any performance dates specified in the service agreement, and any such dates shall be estimates only.

10. **Failure to Take Delivery.** If Buyer fails to take delivery of any goods related to Services, or any part thereof, such related goods not delivered shall be held at Buyer's sole risk in all respects. Service Provider, acting as Buyer's agent and at Buyer's expense, may thereafter store, insure and/or otherwise protect such related goods or may resell same for Buyer's account. The delivery date(s) quoted are based on Service Provider's best estimate of a realistic time when delivery to the carrier will be made, and are subject to confirmation at time of acceptance of any resulting Service Agreement. Service Provider reserves the right to make either early delivery or partial delivery upon prior notice to Buyer as provided in Section 23 hereof and to invoice Buyer accordingly.

11. **Title and Risk of Loss or Damage.** Title, risk of loss and/or damage shall pass to Buyer when any goods related to Services are made available to the carrier at Service Provider's facility.

12. **Payment Terms.**

All payments are due thirty (30) days from date of invoice in U.S. Dollars, unless otherwise specified by Service Provider. Buyer's failure to make payment when due will be a material breach of the service agreement and these Standard Terms and Conditions of Services. Subject to applicable law, amounts unpaid after such date may, at Service Provider's discretion, bear interest from the date of the invoice at a rate of one and one-half percent (1.5%) per month, or eighteen percent (18%) per annum. Service Provider shall be entitled to reimbursement from Buyer for all costs and fees, including reasonable attorneys' fees, incurred by Service Provider in the collection of any overdue amounts. Service Provider, at its sole option and without incurring any liability, may suspend its performance of Services until such time as any overdue payment is made or Service Provider receives assurances, adequate in Service Provider's opinion, that the payment will be promptly made. In the event of such suspension of performance of Services by Service Provider, there will be an equitable adjustment made to the remaining performance schedule and pricing to reflect the duration and cost resulting from such suspension. Buyer may only suspend performance upon Service Provider's written consent. In the event of such Buyer suspension, the performance time will be changed, taking into account the suspension, and Buyer will promptly pay Service Provider for all costs, including related overhead costs, resulting from such suspension. All terms of the Credit Application are incorporated into and are part of this Agreement.

13. **Cancellation**. Except as otherwise expressly provided in a statement of work, the service agreement shall be cancelled only by mutual written consent of the parties. Notice is hereby given that Service Provider shall not consent to cancellation if Buyer has bound itself to purchase Services. If Buyer is in default by failure to pay any previous invoice within credit terms at the expected date of performance of Services or any part thereof, has not otherwise performed or complied with any of the terms of the service agreement, in whole or in part; or becomes insolvent, files a petition for bankruptcy or commences or has commenced against it proceedings relating to bankruptcy, receivership, reorganization or assignment for the benefit of creditors, or if Service Provider has received any adverse credit information about Buyer, Service Provider may delay performance and/or cancel performance of Services without liability. In the event of U.S. or foreign government intervention, trade restrictions, and/or quotas, which may delay or prevent performance of Services or any part thereof, Service Provider, at Service Provider's option, may cancel the performance of Services without liability. In the event any Services shall become subject to any governmental fees or duties not presently in effect or to any increase in any existing fee or duty, including any antidumping duty or countervailing duty, Service Provider shall have the right to cancel performance of Services without liability.

14. **Default**. If Buyer breaches or is otherwise in default under the service agreement or under any other contract between the parties hereto, Service Provider at its sole option, may defer performance of Services until the default is cured, or may treat the default as a repudiation by Buyer of the service agreement in its entirety, and hold Buyer liable for such damages as Service Provider may incur, including consequential and incidental damages. For purposes hereof, Buyer's insolvency shall be a default.

15. **Waiver**. No waiver by Service Provider of any of the provisions of the service agreement is effective unless explicitly set forth in writing and signed by Service Provider. No failure to exercise, or delay in exercising, any rights, remedy, power or privilege arising from the service agreement operates or may be construed as a waiver thereof. No single or partial exercise of any right, remedy, power or privilege hereunder precludes any other or further exercise thereof or the exercise of any other right, remedy, power or privilege.
16. **Force Majeure**. Service Provider shall be free from any liability for delay or failure in performance of Services arising from strikes, lockouts, labor troubles of any kind, accidents, perils of the sea, fire, earthquake, civil commotion, terrorist acts, war or consequences of war, government acts, restrictions or requisitions, failure of manufacturers or suppliers to deliver, bankruptcy or insolvency of manufacturers or suppliers, suspension of shipping facilities, act or default of carrier or any other contingency of whatsoever nature beyond Service Provider's control affecting production and performance of Services, including disturbances existing on the date of the service agreement or a statement of work. In such a situation, if performance is not made during the period contracted for, Buyer shall accept performance under the service agreement when performance is made; provided, however, Buyer shall not be obligated to accept performance if performance is not made within a reasonable time after the cessation of the aforementioned impediments or causes.
17. **Intellectual Property.** All the designs, know-how, innovations, inventions and discoveries related to Services provided under this transaction shall be and remain the property of Service Provider.
18. **Confidential Information**.
(a) All non-public, confidential or proprietary information of Service Provider, including, but not limited to, trade secrets, technology, information pertaining to business operations and strategies, and information pertaining to customers, pricing, and marketing (collectively, the "Confidential Information"), disclosed by Service Provider to Buyer, whether disclosed orally or disclosed or accessed in written, electronic or other form or media, and whether or not marked, designated or otherwise identified as "confidential," in connection with the provision of Services and the service agreement is confidential, and shall not be disclosed or copied by Buyer without the prior written consent of Service Provider. Confidential Information does not include information that is (i) in the public domain; (ii) known to Buyer at the time of the disclosure; or (iii) rightfully obtained by Buyer on a non-confidential basis from a third party.
(b) Buyer agrees to use the Confidential Information only to make use of Services, and deliverables.
(c) Service Provider shall be entitled to injunctive relief for any violation of this Section.
19. **Integration**. The service agreement, these Standard Terms and Conditions of Services, and a statement of work supersede all prior negotiations, representations, agreements, quotes and catalogues, whether written or oral, and shall not be modified, supplemented or interpreted by evidence of course of dealing, course of performance or usage of trade. To the extent the provisions hereof conflict with any prior or subsequent agreement of the parties, these Standard Terms and Conditions of Services will control. Any amendment to these Standard Terms and Conditions of Services must be in writing and signed by both parties.
20. **Assignment**. Buyer acknowledges that no service agreement or statement of work, nor the obligations represented thereby, may be assigned or delegated, in whole or in part by Buyer, without the prior written consent of Service Provider. Buyer's unauthorized attempt to assign or delegate any rights or obligations shall serve as grounds for termination of the service agreement.
21. **Severability**. Service Provider and Buyer agree that each and every paragraph, sentence, clause, term and provision of these Standard Terms and Conditions of Services is severable and that, in the event any portion hereof is adjudged to be invalid or unenforceable, the remaining portions shall remain in full force and effect to the fullest extent permitted by law.
22. **Relationship of the Parties**. The relationship between the parties is that of independent contractors. Nothing contained in these Standard Terms and Conditions of Services or the service agreement shall be construed as creating any agency, partnership, joint venture or other form of joint enterprise, employment or fiduciary relationship between the parties; and neither party shall have authority to contract for or bind the other party in any manner whatsoever.
23. **Notices**. All notices, requests, consents, claims, demands, waivers and other communications hereunder (each, a "Notice") shall be in writing and addressed to the parties at the addresses set forth in the service agreement or to such other address that may be designated by the receiving party in writing. All Notices shall be delivered by personal delivery, nationally recognized overnight courier (with all fees prepaid), facsimile (with confirmation of transmission) or certified or registered mail (in each case, return receipt requested, postage prepaid). Except as otherwise provided in the service agreement, a Notice is effective only (a) upon receipt of the receiving party, and (b) if the party giving the Notice has complied with the requirements of this Section.
24. **Governing Law**; Venue. All matters involving the validity, interpretation and application of these Standard Terms and Conditions of Services will be controlled by the laws of the State of Indiana, United States of America and Buyer and Service Provider hereby irrevocably consent to the jurisdiction of the state and federal courts located in Marion County, Indiana for the resolution of any disputes arising under these Standard Terms and Conditions of Services and the service agreement.
25. **Collection, Use and Disclosure of Information**.
Notwithstanding section 18, by submitting an application for the Services, Buyer consents to and authorizes Service Provider and its service providers to use the personal information, confidential information, financial information and other details (collectively "Information") about Buyer that Buyer has provided to:
(a) Exchange Information and reports about Buyer with credit reporting agencies, credit reporting services including Creditsafe USA Inc., and other lenders (collectively "Credit Agencies") prior to the commencement of Services for the purposes of Service Provider providing credit to Buyer, including

in the form of an outstanding receivable with the Service Provider for Services to be performed pursuant to these Service Provider's Standard Terms and Conditions of Services;
(b) Conduct, or arrange for a Credit Agency to conduct, "soft" or "hard" credit checks from time to time for up to one year after Buyer submits an application and Service Provider exchanges Information with Credit Agencies;
(c) Conduct, or arrange for third parties to conduct, risk assessments and identity and payment verification checks from time to time;
(d) Assess Buyer's application for the Services based on the results of the credit, risk assessment, and identity and payment verification checks;
(e) Periodically review and verify Buyer creditworthiness, establish credit and hold limits, help Service Provider collect a debt or enforce an obligation owed to Service Provider by Buyer, and/or manage and assess risk; and
(f) Issue a decision to grant or deny Buyer's application for credit.
Service Provider shall determine in its sole discretion whether to grant any credit to Buyer and, if so, the amount of any such credit. Service Provider has no obligation to grant any credit, and any granting of credit is without commitment to provide any future credit. Buyer shall be responsible for all credit it receives from Service Provider, whether or not such credit exceeds authorized credit limits. In the event that Service Provider grants credit to Buyer and for a reasonable period of time afterwards, Service Provider may from time to time disclose Buyer's Information to other lenders and credit reporting agencies requesting such Information. Service Provider may obtain Information and reports about Buyer from third party providers such as Creditsafe USA Inc., and other Credit Agencies. Once Buyer has applied for credit with Service Provider, Buyer may not withdraw their consent to this exchange of Information.
For more information about the Service Provider's privacy policy and our collection and use of personal information, please see: https://www.badgerinc.com/learn-about-badger/privacy[1]antispam-web-policy/.

End

SUBCONTRACTOR WORK PACKAGE EVALUATION

Project:	**Sedona UV Replacement**	Need to add contingency for full scope coverage as quote is deemed too low as quoted.		
Owner:	**City of Sedona**			
GMP No & Date:	**GMP 10/2/2024**			
KEAR Project #	**1367**			
Scope:	**Concrete**			
Option:		**Selected**		
	COMPANY INFORMATION	J.CO. Contracting Mike Nay 928-277-4617 mikenay@jcocontrcating.com	Fields Custom Concrete Alan Fields 928-300-1627 alanlorifields@gmail.com	KEAR Self Perform
Trade Contractor Scope of Work:				
1	**Concrete**	**$29,839.00**	**$226,025.00**	**$67,939.00**
2	**Bond**	**$976.31**	**$4,598.00**	
3				
4				
5				
KEAR Subcontract Terms Checklist:				
6	Hold bid for 30 Days	Yes	Yes	Yes
7	Proposal Provided Per Spec	Yes	Yes	Yes
8	Acknowledge Contract Plans & Specifications & Geotechnical report	Yes	Yes	Yes
9	Provide a clear scope of work identifying work items, quantities, and materials.	Yes	Yes	Yes
10	Acknowledge All Amendments	N/A	N/A	N/A
11	Insurance Requirements Satisfied	Yes	Yes	Yes
12	Is Contractor Controlled Insurance Program (CCIP) Required/Included	N/A	N/A	N/A
13	Subcontractor Safety Plan - Submit at Project Start	Yes	Yes	Yes
14	TAX Included	No	No	No
15	Bond Included	No	No	No
16	Buy American/Domestic Requirement Conformance	N/A	N/A	N/A
17	Prequalification Completed	Yes	Yes	Yes
18	Prevailing Wages/Tero Requirements Included	N/A	N/A	N/A
19	Liquidated Damages - Acknowledges compliance with the liquidated damages terms.	Yes	Yes	Yes
20	Warranty - Included all warranties as outlined in the specifications.	N/A	N/A	N/A
21	Start Up/Comissioning/Site Visits-Verify Included and per contract/specification	N/A	N/A	N/A
22	Schedule-Provide lead time for submittals & critical materials	Yes	Yes	Yes
23	Duration of work & phasing provided	Yes	Yes	Yes
24	O&M Manuals & Training Included per specification	N/A	N/A	N/A
25	Shop Drawings - Provide as required	N/A	N/A	N/A
26	As-Builts - Provide complete detailed As-Builts	N/A	N/A	N/A
27	As-Builts - Are CAD As-Builts required	No	No	No
28	Marking, Coatings, Labeling, Signage	N/A	N/A	N/A
29	Escalation required through project duration			
30	Survey & Layout	N/A	N/A	N/A
31				
32	**Total Cost**	**$30,815.31**	**$230,623.00**	**$67,939.00**
33				

Pricing Evaluation Notes:
1.) Pricing is based on 100% Design Plans & Specifications

J. Co Contracting, LLC. - PO Box 3787
Prescott, AZ 86302

Office (928)277-4617
ROC -239181

Sedona UV replacement
Kear Civil

Date
9/27/2024

LINE NO.	ITEM NO.	DESCRIPTION	BID QTY	UNIT	BID UNIT PRICE	ITEM TOTAL
		CIP cut off walls per sheet DM 3	2	Ea	$ 750.00	$ 1,500.00
		12" thick concrete slab per sheet DT 1 10' x 6'	60	Sf	$ 25.00	$ 1,500.00
		Self leveling grout per sheet S02	768	Sf	$ 23.00	$ 17,664.00
		Fill influent ports sheet P12	26	Ea	$ 150.00	$ 3,900.00
		Fill openings with non shrink grout	11	Ea	$ 175.00	$ 1,925.00
		Concrete stairway pad 3'-6" x 4'-7" x 10" w/#5 @ 12" o.c.	1	Ea	$ 350.00	$ 350.00
		Mobilization	1	Ls	$ 3,000.00	$ 3,000.00
						$ 29,839.00

EXCLUSIONS:

* Survey
* Grading and Fine Grading
* Colored Concrete
* Exposed Aggregate Finished
* Area Drainage
* Subbase Prep
* Embeds
* Finish Grade to be +/- 1/10th by Others, Prior to Placement of Concrete
* ABC Materials and Placement by Others.
* Potable Water
* Prevailing Wage
* Concrete Washout

Proposal

Fields Custom Concrete, Masonry, & Excavation
2705 S. Anica Ln.
Cottonwood, AZ 86326
Cell: 928-300-1627 Lic# 307680 CR-9
email: alanlorifields1861@gmail.com

PROPOSAL SUBMITTED TO: Rear Civil Corporation		PHONE: Revised =	DATE: 9-24-24
STREET		JOB NAME: City of Sedona Wastewater	
CITY, STATE and ZIP CODE		JOB LOCATION: Reclamation Plant UV Replacement	
ARCHITECT	DATE OF PLANS	7500 W. State Route 89A	JOB PHONE

We hereby submit specifications and estimates for:

Slab for fiberglass enclosed Monitoring equipment.
Slab for steel steps page 9.
Approx 40 pipe penetrations filled with Concrete.
2" of Sika self level, nonshrink in filter beds.
80 +or- influent Ports filled with Concrete.
2 new Concrete walls 3'x4'x6" per plan.

Thank you Sam,
Alan

We Propose hereby to furnish material and labor — complete in accordance with above specifications, for the sum of:

Two hundred twenty six thousand Twenty five dollars ($ 226,025.).

Payment to be made as follows:
1/3 to start $75,341.66

All material is guaranteed to be as specified. All work to be completed in a workmanlike manner according to standard practices. Any alteration or deviation from above specifications involving extra costs will be executed only upon written orders, and will become an extra charge over and above the estimate. All agreements contingent upon strikes, accidents or delays beyond our control. Owner to carry fire, tornado and other necessary insurance. Our workers are fully covered by Workman's Compensation Insurance.

Authorized Signature Alan Fields

Note: This proposal may be withdrawn by us if not accepted within _____ days.

Acceptance of Proposal — The above prices, specifications and conditions are satisfactory and are hereby accepted. You are authorized to do the work as specified. Payment will be made as outlined above.

Signature _____

Date of Acceptance: _____

Signature _____

MATERIAL WORK PACKAGE EVALUATION

Project:	**Sedona UV Replacement**				No other bids received but contacted Miscowater	
Owner:	**City of Sedona**					
GMP No & Date:	**GMP 10/2/2024**					
KEAR Project #	**1367**					
Scope:	**UV Units**					
Option:			**Selected**		**No Bid**	
COMPANY INFORMATION			APG Ron Clark 602-793-6545 rclark@apgwater.com		Miscowater Stefan Oreshkov 480-415-7846 soreshkov@miscowater.com	
Misc Terms / Clarifications						
1	Hold bid for:		30 Days			
2	Proposal Provided Per Spec		Yes except equipment warranty period			
Scope of Work:		**#**	**Unit Price**	**Total**	**Unit Price**	Total
3	**UV Units by Enaqua**	**2**	**$588,975.00**	**$1,177,950.00**		
4	**2 Year Extended Warranty Add**			**$2,356.00**		
5	**Specified Manufacturer Pipe: Regularly involved for 10 years**			Yes		
6	Submittals			3-4 Weeks		
7	Delivery after approved shop drawings			16-20 Weeks		
8						
9	UV Lamp Installation by APG			Yes		
10	Performance Warranty			Per Spec		
11	Equipment Warranty - 2 Years per spec from substantial completion			Yes		
12	O&M Manuals			Included		
13	Spare Parts			Included		
14	Installation & Testing 1 trip (2 Technicians) - 2 days (32 Hours)			Included		
15	Start Up & Training 1 Trip (2 Technicians) - 1 Day (16 Hours)			Included		
16	Freight			Included		
17						
18	**Total Cost Base**			**$1,180,306.00**		
19						

Pricing Evaluation Notes:

1.) Pricing is based on 100% Design Plans & Specification Section 13100

NON-CONTACT UV DISINFECTION SYSTEM
REV 2 CONCEPT LEVEL PROPOSAL



Sedona, AZ WWRP

Prepared For:

Gary Higdem
Kear Construction

Addressed to:

Gary Higdem
Kear Construction

ENAQUA
1350 Specialty Drive, Suite F
Vista, CA 92081
Phone: (+1)760 599 2644
Fax: (+1)760 599 2642
www.enaqua.com

Name: Will Meigs
Direct: 760-477-0869
Email: wmeigs@enaqua.com
Date: September 10, 2024

REF: Sedona, AZ WWRP
SUB: REV 2 Concept Level Proposal for UV Disinfection System **Enaqua Ref No: WIM_B23USAZ02_2**

Dear Gary,

Enaqua is pleased to provide the following concept level proposal for Non-Contact UV Disinfection Systems for the above referenced project.

The budgetary pricing for the proposed UV scope of supply is $1,177,950.00.

Enaqua Non-Contact UV Disinfection Systems have been proven to provide superior performance, resistance to fouling and scaling, combined with electrical efficiency and minimum maintenance. The lack of quartz sleeves and seals completely eliminate the need for automated cleaning systems, acid baths, hoists, and the replacement cost of the quartz sleeves housing the lamps.

Please do not hesitate to contact us with any questions you may have regarding this proposal, or the Enaqua Non-Contact UV Disinfection system operation. Thank you for your interest in in Enaqua and the opportunity to provide you with this proposal.

Regards,

Will Meigs
Applications Manager

Your Local Sales Representative:

Ron Clark
Applied Products Group
23623 N. Scottsdale Rd, Suite D3-270
Scottsdale, AZ 85255
Cell: 602.793.6545
Office: 480.595.9739
e-mail: rclark@apgwater.com

Your Enaqua Sales Contact:

Rick McIntyre (Director of Sales)
Office: 203-269-9890
Cell: 760-936-1979
Email: rmcintyre@enaqua.com

Table of Contents Page

1. UV DESIGN CRITERIA: 4
2. SCOPE OF SUPPLY: 4
3. PROPOSED PROCESS FLOW & DESIGN REDUNDANCY: 4
4. OPERATING CONDITIONS: 5
5. OPERATIONS & MAINTENANCE INFORMATION: 5
6. ELECTRICAL REQUIREMENTS: 5
7. STANDARD EQUIPMENT WARRANTIES: 5
8. BUDGETARY PRICING: 5
9. MECHANICAL DRAWINGS: 6

List of Figures Page

Figure 1: Preliminary Process Flow Diagram 5
Figure 2: UV Reactor Drawings 7

List of Tables Page

Table 1: UV Design criteria 4
Table 2: Scope of Supply – UV Reactor(s) 4
Table 3: Scope of Supply – Controls 4
Table 4: Spare Parts included in scope of supply 4
Table 5: Startup services included in scope of supply 4
Table 6: Process Flow 5
Table 7: Head Loss Calculations 5
Table 8: Electrical Details 5
Table 9: Power Usage at Daily Average Flow 5
Table 10: Lamp Replacement Cost Evaluation 5
Table 11: Electrical Requirements – Per UV Reactor 5

SUMMARY:

The details of the UV design criteria, process configuration, UV reactor(s), scope of supply, reactor drawings, summarized O & M information, and other pertinent information are provided in the following sections.

1. UV DESIGN CRITERIA:

The flow rates and water quality parameters used for reactor sizing are listed in the Table 1 below:

Table 1: UV Design criteria

Average Flow Rate	1.8/1,250	MGD/GPM
Peak Design Flow Rate (Peak Disinfection Flow Rate)	2.0/1,389	MGD/GPM
UV Transmittance	65.0	% UVT (Minimum)
Total Suspended Solids	<10.0	mg/l (30-day average)
CBOD5	<10.0	mg/l (30-day average)
Type of Reuse	AZ Title 18 Class A+ Reuse	
Indicator Organism	Fecal Coliform	
Permit Limit 1	4/7	Samples Non-Detect
Permit Limit 2	23.0	CFU/100 mL, single sample maximum
MS-2 Reduction Equivalent Dose (RED)	100.0	Minimum validated MS-2 RED of 100.0 mJ/cm^2. UV Dose per Independent Third-Party Bioassay conducted in accordance with NWRI 2012- after applying certified Lamp End of Lamp Life (EOLL) of .87 and Fouling Factors of .89
Plant Process	Tertiary filtration prior to disinfection	
Particle Size*	30.0	Microns
Total Iron*	0.3	mg/l
Turbidity*	5	NTU
Operating Pressure	< 20.0	PSIG
Equipment Redundancy	100% redundancy. Two UV trains in parallel, each with three banks in series. One train active and one on stand-by at peak flow.	

*Note: Industry standard parameters used for this proposal.

2. SCOPE OF SUPPLY:

Summary details of the proposed reactor selected to meet the effluent permit criteria (based on the water quality parameters listed in Table 1) are provided in the tables below:

Table 2: Scope of Supply – UV Reactor(s)

Reactor model number	C9t.07103
Reactor type	In-Pipe
Installation notes	Indoor/ Outdoor – Covered Installation
Process connection	16.00" ø CL 150 Flange
Reactor configuration	Validated per NWRI 2012
UV Lamps - Enaqua part #: 001.0617045 XUV60L	145-Watt LPHO Non-Amalgam Smart Lamps
UV Lamp output at 253.7 nm (Nominal Watts)	55.00 Watts
Ballasts - Enaqua part #: 502.5V2427M	145-Watt Enlight High Efficiency Ballast
Non-Contact Reactor Material	C-Series AFP 840 Tube
Material of Construction	304 SS
UV REACTOR(S)	
# of proposed UV reactors	2
# of banks per reactor	3
# of AFP tubes per reactor	70
# of lamp racks per bank	11
# of lamps per lamp rack	9
Total # of lamps per bank	99
Total # of ballasts per bank	99
Total #of lamps per reactor	297
Total # of lamps in system	594
REACTOR THERMAL CONTROL MECHANISM	
Air to water heat exchangers	24 (Four per bank)
Cooling Pumps	4 (Two per reactor)

Table 3: Scope of Supply – Controls

CONTROLS & ELECTRICAL	
ADR GEN 2. Enaqua part number: 062.01003500	12 (Two per bank)
EDC GEN 2 (Ensure Dosing Controller) and SCADA integration using MODBUS TCP	2 (One per reactor)
Power Disconnect Panel in NEMA 4X SS Enclosure	8 (One per bank + One per cooling system)
UV Control Panel - HMI Panel: 19.00" Touch Screen Color HMI (Panel PC)- Enaqua part Number 064.01000542 installed in NEMA 4 X SS- RITTAL Model WM363012N4. 36.00" x 30.00" x 12.00" Enclosure.	1
SENSORS	
Radar level sensor	2 (One per reactor)
UV intensity sensor - Enaqua part number: 560.601902	6 (One per bank)
EFFLUENT LEVEL CONTROL MECHANISM	
Effluent flat weir plate (Rectangular or V-Notch). Weir plate and frame 304 SS.	2 (One per train)

Table 4: Spare Parts included in scope of supply

ITEM	QTY
Spare UV Lamps	36
Spare UV Ballasts	18
Operator's safety kit	2
Cleaning Kit	2

Table 5: Startup services included in scope of supply

ITEM	QTY (hr.)
TRIP 1- One trip, two technicians, and three eight-hour workdays included for Start-up, testing, training, and commissioning	24

3. PROPOSED PROCESS FLOW & DESIGN REDUNDANCY:

The proposed UV configuration consists of two in-pipe UV reactors in parallel, each with three banks in series. With one reactor/two banks active, the UV system is sized to disinfect 100% of the peak disinfection flow rate, given the water quality parameters listed in Table 1. With the second reactor on standby at 2.0 MGD, this configuration offers 100% redundancy of banks at peak flow.

Ron corrected this to 48

The proposed process flow diagram is shown in Figure 1 below, and the flow ranges of the UV reactor banks presented in the Table 6 below.

Figure 1: Preliminary Process Flow Diagram

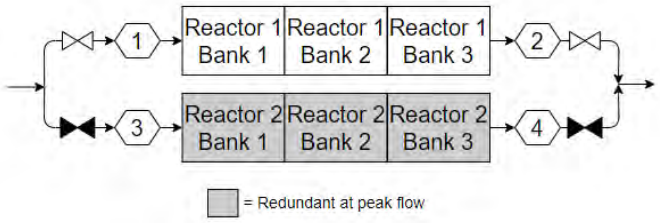


Table 6: Process Flow

Tag	Description	Bank 1-3 Disinfection Peak Flow Rate MGD
1	Influent to UV Reactor 1	2.0
2	Effluent from UV Reactor 1	2.0
3	Influent to UV Reactor 2	-
4	Effluent from UV Reactor 2	-

4. OPERATING CONDITIONS:

The reactor head loss at peak flow rate and the total connected load of the reactors are provided in Table 7 and Table 8 below:

Table 7: Head Loss Calculations

Calculated Head loss (inches)-Flange to Flange	
Peak flow rate (2.0 MGD)	< 3.5 Inches+

+Note: Flange to flange head loss at flow listed.

Table 8: Electrical Details

Total Connected Load Per Reactor @ 480V 3Ø	
Total connected Load (kW)	48.38
Total connected Load (kVA) (w/ PF of .95)	50.93
Total connected Load (Amps)*	61.26

*Note: Total connected load for the entire UV reactor including cooling and control components

5. OPERATIONS & MAINTENANCE INFORMATION:

The estimated power usage at daily average flow (kW), and the projected lamp replacement costs based on 24/7 operations at average flow are provided in Table 9 and Table 10 below:

Table 9: Power Usage at Daily Average Flow

Power Usage (kW)	
Average flow of 1.8 MGD	37.5 kW*

*Note: Assumed three banks operating using level pacing. Six vertical rows of AFP tubes (60 AFP tubes) and associated UV lamps active to disinfect average flow rate.

Table 10: Lamp Replacement Cost Evaluation

Lamp Replacement Costs ($)	
Number of lamps per year	140+
Price per Lamp ($)	90.0
Annual Lamp Replacement Cost ($)	12,600.0

+ Note: Based on 240 UV Lamps in 3 UV Banks at average flow, and an annual lamp replacement factor of .584 {(24 hrs. /day x 365 days a year)/ (15,000 Hr. lamp Life)}

GENERAL MAINTENANCE:

The AFP840™ Tube reactors are the only UV transmitting reactor component that is in contact with waste water, and the AFP840™ tubes have been demonstrated to have high resistance to fouling. No cleaning chemicals are required/ necessary for cleaning of the AFP840™ tubes. The cleaning procedure is very simple and cleaning instructions are provided in the O&M manual and the brush attachment for manual cleaning is supplied with the reactors.

6. ELECTRICAL REQUIREMENTS:

The electrical requirements for the proposed reactor(s) are provided in Table 11 below:

Table 11: Electrical Requirements – Per UV Reactor

1. Each BANK requires an electrical supply of One (1) 480V/3P 4 wire (plus ground) – 30.0 A
2. Each cooling pump requires an electrical supply of One (1) 480V/3P 3 wire (plus ground) – 15.0 A
3. Each reactor cooling system & control requires an electrical supply of one (1) 120V/ 1P/ 2 wire (plus ground) – 20.0 A
4. Each HMI Panel requires an electrical supply of one (1) 120V/ 1P/ 2 wire – 20 A

Note: Based on 60Hz power

7. STANDARD EQUIPMENT WARRANTIES:

The equipment furnished (excluding lamps, ballasts) shall be warranted to be free of defects in material and workmanship, including damages that may be incurred during shipping for the lessor of a period of 12 months from substantial completion of the installed UV system or 18 months from receipt of all equipment supplied by the contractor and received in good condition by owner.

UV LAMPS: UV lamps shall be warranted for a minimum of 15,000 hours operating time under the conditions specified herein prorated after 12,000 hours. In the event of premature UV lamp failure, the UV system supplier shall offer the following:

1. Lamp failure before 12,000 hours – send a replacement lamp free of charge.
2. Lamp failure after 12,000 hours – issue a credit proportional to the hours not used.

BALLASTS: Electronic ballasts are fully warranted for 5 years, extended to 10 years with first purchase of (1:1) replacement lamps from ENAQUA lamps within three years of installation.

8. BUDGETARY PRICING:

Budgetary pricing for the proposed UV reactor(s) is provided below.

DESCRIPTION	QTY
UV Reactor – C9t.07103	2
Power Panels	8
HMI Panel	1
Effluent Level Control Weirs	2
Spare Parts	Per Table 4
Start-up and Commissioning	Per Table 5
Shipping and handling	1
Net sales price	$1,177,950.00
***TOTAL**	**$1,177,950.00**

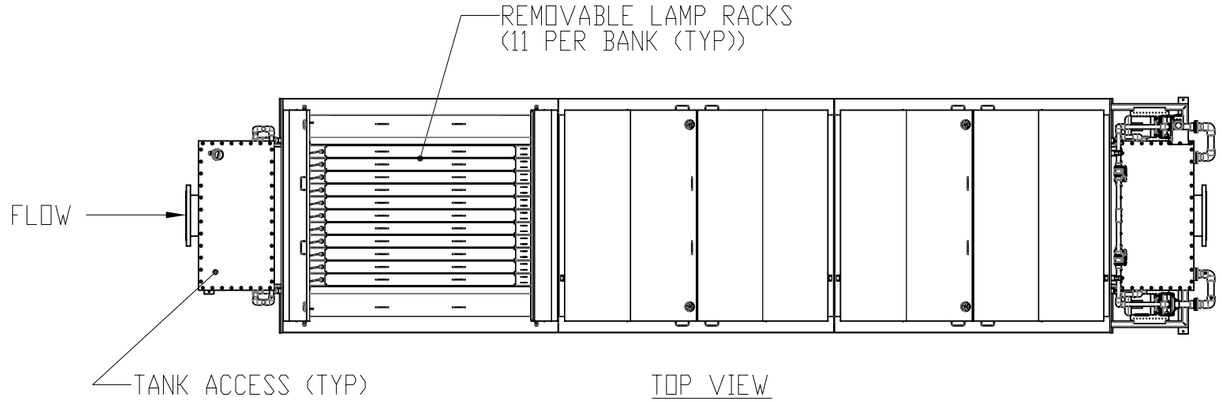
Note: Shipping is FOB Jobsite, Sedona, AZ.

9. MECHANICAL DRAWINGS:

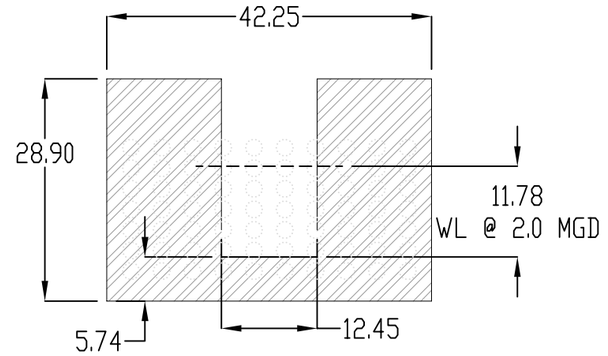
Sales Engineering drawings of the proposed UV reactor are provided in Figure 2 below; the drawings are for dimensional reference only.

Figure 2: UV Reactor Drawings

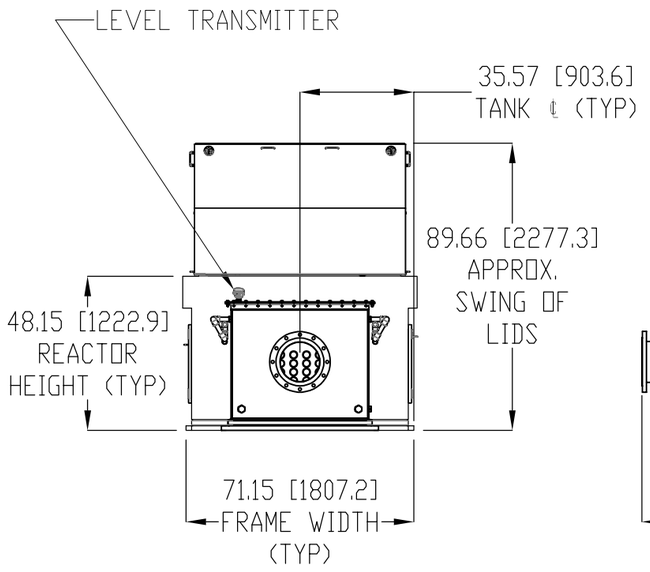
REVISIONS					
REV.	ZONE	ECM#	DESCRIPTION	DATE	APPROVED
A	ALL	-	INITIAL RELEASE	11/30/23	WIM



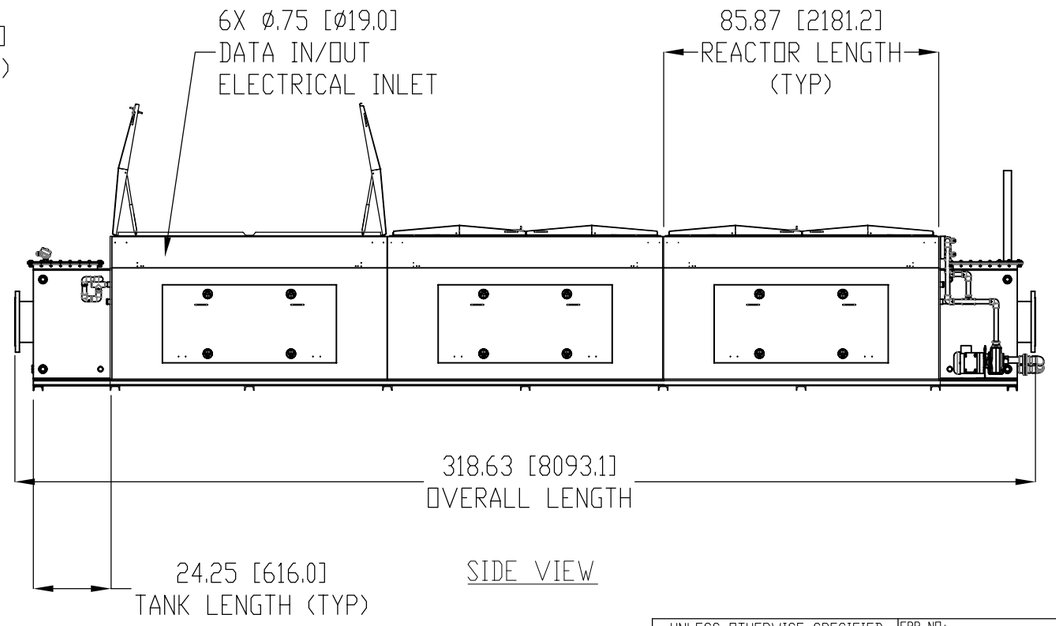
TOP VIEW



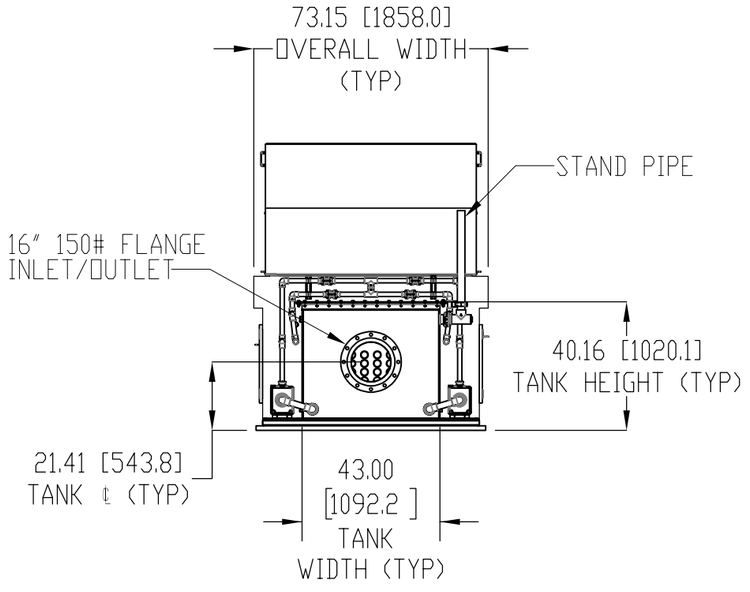
DETAIL A (SCALE 1:20)
RECTANGULAR FLAT WEIR PROFILE



INLET VIEW



SIDE VIEW



OUTLET VIEW

NOTES (UNLESS OTHERWISE SPECIFIED):

1. REMOVE ALL SHARP EDGES AND BURRS.
2. DRAWING IS IN ACCORDANCE WITH ASME Y14.5-2009.
3. ALL DIMENSIONS ARE IN INCHES AND/OR [MILLIMETERS].

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES[mm]

TOLERANCES:
X.X ± .1[2.54]
X.XX ± .03[.76]
X.XXX ± .010[.25]
XX/XX ± 1/16

ANGLES:
X ±[25.4]
.X ±°[2.7]
.XX ± .25°[6.4]

PROPRIETARY AND CONFIDENTIAL
THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF ENAQUA. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF ENAQUA IS PROHIBITED.

ERP NO.: N/A
SERIES: C-SERIES
MATERIAL: N/A
FINISH: N/A

DO NOT SCALE DRAWING

APPROVALS		
TITLE	NAME	DATE
DRAWN	WIM	11/30/23
CHECKED		
ENG. APPR.		
MFG. APPR.		
Q.A.		

ENAQUA 1350 SPECIALTY DR
VISTA, CA 92081

TITLE:
SE DRAWING, MODEL C9T.07103
SEDONA, AZ WWTP

SIZE	DWG. NO.	REV
B		A

SCALE: 1:48 | SHEET 1 OF 1

ATTACHMENT A: BIOASSAY VALIDATION CERTIFICATE

Validation Test Certification

for the
Enaqua Enlight Non-Contact Ultraviolet Disinfection System

This Document certifies that validation testing was conducted on the Enaqua Enlight Non-Contact UV disinfection system, manufactured by Enaqua.

The validation testing was conducted by Carollo Engineers in accordance with the Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse (National Water Research Institute [NWRI]/American Water Works Association Research Foundation [AwwaRF], August 2012). Bioassay testing was performed in August and September of 2015 in Ramona, California. Carollo Engineers conducted oversight on all validation testing, analyzed the test data, and developed the performance models. All microbiology services were conducted by GAP Laboratories, Canada.

The Enaqua Enlight UV disinfection system tested consisted of 60 mm AFP_{840}™ tubes. The system was validated at 20 to 90 gpm/tube over a range of 53 to 80 percent ultraviolet transmittance. The performance equation developed can be used within this validation range.

End of lamp life factor and fouling factor testing was conducted by Carollo Engineers in Lodi, California. The lamp age factor for the Enlight lamp (Model 001.0619055) was 0.87 at 15,812 hours of operation. The fouling factor was 0.89 for the 60 mm AFP_{840}™ tubes.

REGISTERED PROFESSIONAL ENGINEER
ANDREW THOMAS SALVESON
No. 56902
CIVIL
STATE OF CALIFORNIA

Disinfection Principal Technologist

REGISTERED PROFESSIONAL ENGINEER
NICOLA A. FONTAINE
No. 76863
CIVIL
STATE OF CALIFORNIA

Senior Technologist

2700 Ygnacio Valley Road, Suite 300, Walnut Creek, California 94598
P. 925.932.1710 F. 925.930.0208
carollo.com

Gary Higdem
Kear Construction

ENAQUA
1350 Specialty Drive, Suite F
Vista, CA 92081
www.enaqua.com

Name: Frederick P. McIntyre
Direct: (+1) 760 477 0880
Mobile: 760 936-1979
Email: rmcintyre@enaqua.com

Date: October 3, 2024

Reference: City of Sedona AZ UV Wastewater Disinfection System Equipment Upgrade

Subject: ENAQUA UV Disinfection System Extended Warranty Letter Relating to Proposal **WIM_B23USAZ02_2**

Dear Gary,

Please allow this letter to supersede the Standard Equipment Warranty statement ENAQUA AFP™ Ultraviolet Disinfection System™ proposal for the City of Sedona, AZ UV Wastewater Disinfection System Equipment Upgrade Enaqua REF **WIM_B23USAZ02_2**. For over 30 years, ENAQUA has been an industry leader in UV systems for municipal wastewater disinfection, with thousands of installations worldwide.

The equipment manufactured and furnished by Enaqua shall be warranted against defects in material and workmanship for a period of two (2) years from the date of installation and startup of the UV reactor(s).

The price for this extension to the warranty is $2,356.00

Enaqua Ultraviolet Disinfection System Limited Warranty Terms are outlined below.

ULTRAVIOLET DISINFECTION SYSTEM LIMITED WARRANTY-TERMS

This warranty supersedes and replaces any warranty statements orally made by the Sales Person, Distributor, or Dealer or contained in written instructions or other Brochures or informational documents in relation to this product.

The Manufacturer's obligations under this warranty is being limited to repairing or replacing any part found to its satisfaction to be so defective, provided that such part is, upon request, returned to the Distributor or Manufacturer, with freight prepaid. This warranty does not cover parts damaged by decomposition from chemical action or wear caused by abrasive materials, nor does it covers damage resulting from misuse, abuse, or any other than its intended use, accident, neglect, or from improper operation, maintenance, installation, modification or adjustments.

The Manufacturer's sole responsibility shall be limited to repair or replacement of the equipment within the terms stated herein above.

The Manufacturer shall not be liable for consequential or punitive damages whether caused by manufacturer's negligence or resulting from any expressed or implied warranty or breach thereof. Consequential damages for the purpose of this agreement shall include, but are not limited to, the loss of use, income or profit, or loss of or damage to property occasioned by or arising out of the in-operation, use, the operation of, installation, repair, or replacement of the equipment or for any other reason.

It is understood that any controversy or claim arising out of or relating to the AFP™ Ultraviolet Disinfection System Warranty herein or the alleged breach thereof, shall be settled by arbitration in accordance with the rules of the Arbitration Association of America, and judgment upon the award rendered by the arbitrator(s) may be entered in a court of San Diego County, California, USA.

ULTRAVIOLET DISINFECTION SYSTEM LIMITED WARRANTY:

The equipment furnished (excluding lamps, ballasts) shall be warranted to be free of defects in material and workmanship, including damages that may be incurred during shipping for the lessor of a period of 24 months from installation and startup of the installed UV system or 36 months from receipt of all equipment supplied by the contractor and received in good condition by owner.

UV LAMPS: UV lamps shall be warranted for a minimum of 12,000 hours operating time under the conditions specified herein prorated after 9,000 hours. In the event of premature UV lamp failure, the UV system supplier shall offer the following:

1. Lamp failure before 9,000 hours – send a replacement lamp free of charge
2. Lamp failure after 9,000 hours – issue a credit proportional to the hours not used.

BALLASTS: Electronic ballasts are fully warranted for 3 years.

PERFORMANCE/DISINFECTION GUARANTEE:

The proposed UV disinfection system shall produce an effluent that meets or exceeds the requirements of this specification. The effluent quality exiting the UV system must be equal to or better than the specification requirements. The guarantee shall be applicable for a duration of twenty (20) years from the date of startup as long as the wastewater flow and quality remains in the range(s) specified in the Design Criteria.

WARRANTY SERVICE

To obtain warranty service, contact ENAQUA and a customer service representative will help with the warranty problem, determine the status, and issue a Warranty Authorization Number. Be prepared to answer specific questions on the problem at hand. If there are warranted part(s) that need to be returned, include the Warranty Authorization Number with the item(s) being submitted for warranty, a brief explanation of the problem or defect, and return it to Enaqua.

ARE THERE ANY PARTS THAT ARE NOT COVERED BY THIS WARRANTY (THAT THE MANUFACTURER WILL NOT REPAIR OR REPLACE)?

A. Parts that are damaged by decomposition from chemical action or wear caused by abrasive materials. It does not cover damage resulting from misuse, abuse, any other than its intended use, accident, neglect, or from improper operation, maintenance, installation modification or adjustments.

STEPS THAT SHOULD BE TAKEN IF WARRANTY WORK OR REPLACEMENT IS NEEDED

A. Call the local distributor or ENAQUA Warranty Department and notify them of the problem or malfunction. Be prepared to be very descriptive with the problem.
B. If it is determined that a part has malfunctioned because of a defect, a Warranty Authorization Number will be given for tracking the part. Include the Warranty Authorization Number with the item(s) being shipped, a brief explanation of the problem or defect, and return it with the part(s) to ENAQUA.

STEPS THAT MUST BE DONE TO HELP KEEP THE AFP ULTRAVIOLET DISINFECTION SYSTEM WORKING PROPERLY

- Read and understand this Owner's Manual thoroughly.
- Make sure all of the employees who operate the system are fully trained on the procedures for operating the system and follow preventive maintenance routines strictly.
- Make sure the system is operated in accordance with the Manufacturer's suggested instructions.
- Ensure proper clean-up procedures are followed.
- Should there be any questions relating to this warranty policy information, please contact our customer service representative at: +1.760.477.0851 or Service +1.760.477.0859

With best regards,



Frederick McIntyre
Director of Sales, EVP

Cc; Ron Clark, Applied Products Group.

MATERIAL WORK PACKAGE EVALUATION

Project:	**Sedona UV Replacement**							
Owner:	**City of Sedona**							
GMP No & Date:	**GMP 10/2/2024**							
KEAR Project #	**1367**							
Scope:	**Metals**							
Option:			**Selected**					
COMPANY INFORMATION			SAC David Gillespie 903-643-9100 rdavidg@sacmfg.us		Ideal Steel Derrick Von Gunten 801-915-0984 Derrick Von Gunten			
Misc. Terms / Clarifications								
1	Hold bid for:		30 Days		30 Days			
2	Proposal Provided Per Spec		Yes		Yes			
Scope of Work:		**#**	**Unit Price**	**Total**	**Unit Price**	**Total**	**Unit Price**	**Total**
3	**Structural Steel, Handrail, Grating. Plate, Stairways**	**1**	**$86,925.00**	**$86,925.00**	**$147,585.00**	**$147,585.00**		
4								
5	**Specified Manufacturer: Open**							
6								
7	Structural Steel is painted			Yes		Yes		
8								
9	Submittals			6-8 Weeks		*6-8 Weeks*		
10	Delivery			6-12 Weeks		*6-12 Weeks*		
11	Escalation (Has the potential clause)			No		No		
12	Warranty			1 Year		1 Year		
13	O&M Manuals - Printed			N/A		N/A		
14	Spare Parts			N/A		N/A		
15	Installation & Testing 1 trip - 1 day			N/A		N/A		
16	Start Up & Training 1 Trip - 1 day			N/A		N/A		
17	Freight			Included		Included		
18								
19	**Total Cost Base**			**$86,925.00**		**$147,585.00**		
20								

Pricing Evaluation Notes:

1.) Pricing is based on 100% Design Plans & Specifications MAG Section 515

Garry Higdem

From: David Gillespie <rdavidg@sacmfg.us>
Sent: Monday, September 30, 2024 11:38 AM
To: Garry Higdem
Subject: Re: Sedona WW Reclamation Plant UV Replacement Project

Sandblast and paint w/2 part epozy.

I didn't see prime and the epoxy is dtm.

Thanks,

R. David Gillespie, PE
SAC Manufacturing Inc

On Sep 30, 2024, at 12:16 PM, Garry Higdem <garry.higdem@kearcorp.com> wrote:

David,

Received. What did you decide on the priming and painting?

Garry

Garry Higdem | Director of Preconstruction Services & Estimating
KEAR Civil Corporation | 22555 N. 20th Ave. Phoenix, AZ 85027
Office: 623-742-2329 | **Cell: 303-619-0823** www.kearcorp.com

From: rdavidg@sacmfg.us
Sent: Monday, September 30, 2024 10:14 AM
To: Garry Higdem <garry.higdem@kearcorp.com>
Subject: RE: Sedona WW Reclamation Plant UV Replacement Project

Garry,

Here is what I came up with:

CITY OF SEDONA		
WASTEWATER RECLAMATION PLANT UV REPLACMENT		
KEY ID	DESCRIPTION	LUMP SUM
1	33'-2" x 2'-9" WALKWAY PLATFORM WITH STAIRS AT EACH END	$18,500.00
2	33'-2" x 2'-9" WALKWAY PLATFORM WITH STAIRS AT EACH END	$18,500.00
3	36' x 2'9" WALKWAY BRIDGE WITH STEPS ON ONE END	$18,850.00
A-F	175' HANDRAILS +/-	$17,750.00
UV	CHECKERED PLATE - UV - 3/8"x4'x18' QTY 2 (2,300#'s)	$7,500.00

N 15	PIPE SUPPORTS - QTY 7 @ $475/EA	$3,325.00
MISC	DELIVERY	$2,500.00
	TOTAL	$86,925.00

Please review and let me know if you have any questions.

Thanks,

David

From: Garry Higdem <garry.higdem@kearcorp.com>
Sent: Monday, September 30, 2024 10:23 AM
To: rdavidg@sacmfg.us
Subject: RE: Sedona WW Reclamation Plant UV Replacement Project

David,

I have attached a few pictures to show you what is existing.

Good questions as we wanted the designer to address the supports for the walkway at elev. 4043.5. Assume the support frame is the same as the other 2.

The grating should be galvanized. Quote priming the supports and we will paint onsite unless you want to paint them – just let us know.

For the 3/8" plate, until we get actual dimensions, use 2 EA @ 4' wide x 18' long.

Quote 7 supports and agree they do not have a detail. Should be similar to this:

<image001.png>

Garry Higdem | **Director of Preconstruction Services & Estimating**
KEAR Civil Corporation | 22555 N. 20th Ave. Phoenix, AZ 85027
Office: 623-742-2329 | **Cell: 303-619-0823** www.kearcorp.com

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From: rdavidg@sacmfg.us
Sent: Monday, September 30, 2024 8:07 AM
To: Garry Higdem <garry.higdem@kearcorp.com>
Subject: Sedona WW Reclamation Plant UV Replacement Project

Good morning!

I have a couple of questions:

Referring to Sht PI1 (9 of 26):

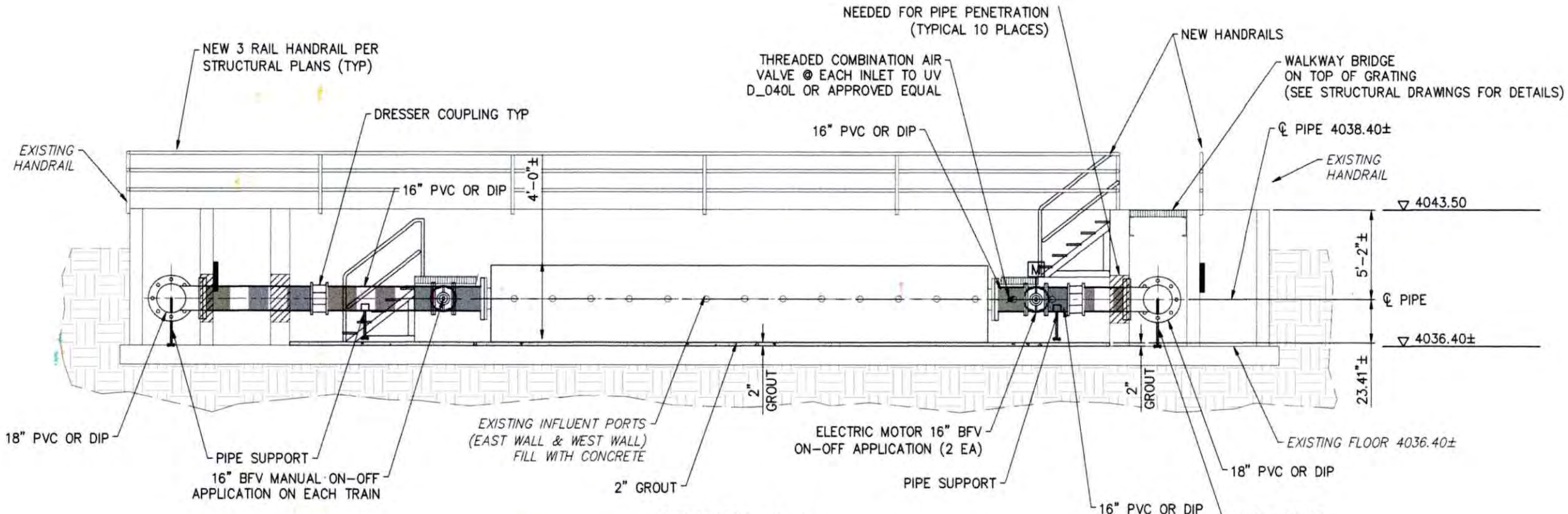
1. Are the "Walkway Platforms" Elev 4040.7 (Qty 2) and the "Walkway on top of the Channel" Elev 4043.5 (Qty 1) the same detail shown on S1.1 (Sht 15)? Basically, is the frame the same on both of these as per Detail C?
2. Is the grating to be painted, HDG or fiberglass type? (I have not seen for sure)
3. On the notes on Sht S1.1 – The plateforms are to be painted. Do you want me to quote the prime coat only or prime and final coat?

1. Do you have a sq ft on the 3/8” shiny checker plate shown on Sht DM3? I looked on google earth and did not see anything that looks like this drawing on the outside of the building.
2. Note #15, PI2 referring to the Qty 7 pipe supports “See Detail Sheet 9”, did not see this detail on Sht 9, it only shows 4 locations.

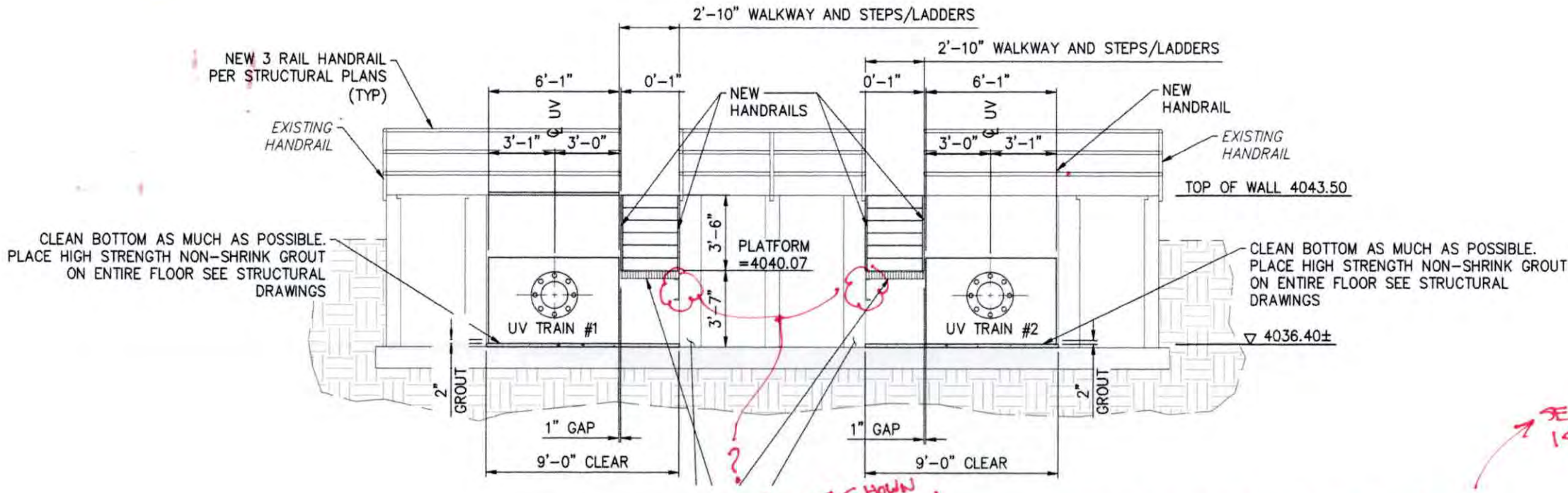
I think that is all I need at this point.

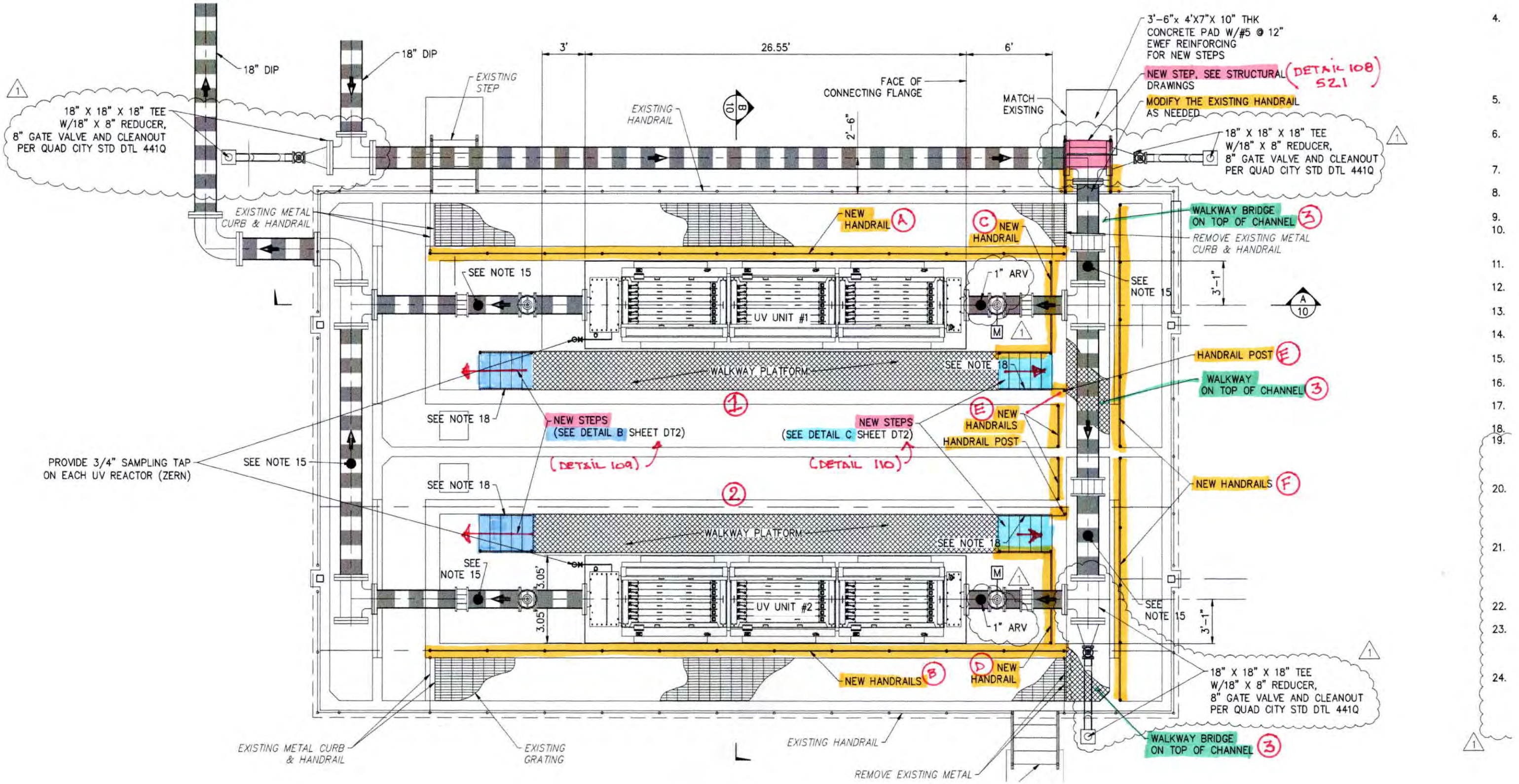
Thanks,

David
903-643-9100


NEW 3 RAIL HANDRAIL PER STRUCTURAL PLANS (TYP)
DRESSER COUPLING TYP
EXISTING HANDRAIL
16" PVC OR DIP
4'-0"±
18" PVC OR DIP
PIPE SUPPORT
16" BFV MANUAL ON-OFF APPLICATION ON EACH TRAIN
EXISTING INFLUENT PORTS (EAST WALL & WEST WALL) FILL WITH CONCRETE
2" GROUT
2" GROUT
NEEDED FOR PIPE PENETRATION (TYPICAL 10 PLACES)
THREADED COMBINATION AIR VALVE @ EACH INLET TO UV D_040L OR APPROVED EQUAL
16" PVC OR DIP
ELECTRIC MOTOR 16" BFV ON-OFF APPLICATION (2 EA)
PIPE SUPPORT
16" PVC OR DIP
NEW HANDRAILS
WALKWAY BRIDGE ON TOP OF GRATING (SEE STRUCTURAL DRAWINGS FOR DETAILS)
℄ PIPE 4038.40±
EXISTING HANDRAIL
▽ 4043.50
5'-2"±
℄ PIPE
▽ 4036.40±
23.41"±
EXISTING FLOOR 4036.40±
18" PVC OR DIP
PIPE SUPPORT

SECTION A-A


2'-10" WALKWAY AND STEPS/LADDERS
2'-10" WALKWAY AND STEPS/LADDERS
NEW 3 RAIL HANDRAIL PER STRUCTURAL PLANS (TYP)
EXISTING HANDRAIL
6'-1"
0'-1"
UV
3'-1"
3'-0"
NEW HANDRAILS
NEW HANDRAIL
TOP OF WALL 4043.50
CLEAN BOTTOM AS MUCH AS POSSIBLE. PLACE HIGH STRENGTH NON-SHRINK GROUT ON ENTIRE FLOOR SEE STRUCTURAL DRAWINGS
3'-6"
PLATFORM =4040.07
3'-7"
UV TRAIN #1
UV TRAIN #2
▽ 4036.40±
2" GROUT
1" GAP
9'-0" CLEAR
OTHER SIDE IS NOT SHOWN
B-B
IF ONE SIDE OF PLATEFORM IS ON CONCRETE WALL, I WOULD RECOMMEND NOT USING SECTION DETAIL "C"/S1.1
SECTION 1/2/S2.2 IS AN OVER KILL


18" DIP
18" DIP
EXISTING STEP
3'
26.55'
6'
3'-6"x 4'X7"X 10" THK CONCRETE PAD W/#5 @ 12" EWEF REINFORCING FOR NEW STEPS
NEW STEP, SEE STRUCTURAL DRAWINGS
(DETAIL 108 S2.1)
MODIFY THE EXISTING HANDRAIL AS NEEDED
EXISTING HANDRAIL
FACE OF CONNECTING FLANGE
MATCH EXISTING
2'-6"
18" X 18" X 18" TEE W/18" X 8" REDUCER, 8" GATE VALVE AND CLEANOUT PER QUAD CITY STD DTL 441Q
18" X 18" X 18" TEE W/18" X 8" REDUCER, 8" GATE VALVE AND CLEANOUT PER QUAD CITY STD DTL 441Q
EXISTING METAL CURB & HANDRAIL
NEW HANDRAIL A
C NEW HANDRAIL
WALKWAY BRIDGE ON TOP OF CHANNEL 3
REMOVE EXISTING METAL CURB & HANDRAIL
SEE NOTE 15
1" ARV
SEE NOTE 15
3'-1"
UV UNIT #1
HANDRAIL POST E
WALKWAY PLATFORM
SEE NOTE 18
WALKWAY ON TOP OF CHANNEL 3
SEE NOTE 18
NEW STEPS (SEE DETAIL B SHEET DT2)
(DETAIL 109)
NEW STEPS (SEE DETAIL C SHEET DT2)
(DETAIL 110)
E NEW HANDRAILS
HANDRAIL POST
PROVIDE 3/4" SAMPLING TAP ON EACH UV REACTOR (ZERN)
SEE NOTE 15
SEE NOTE 18
NEW HANDRAILS F
WALKWAY PLATFORM
SEE NOTE 18
SEE NOTE 15
3.05'
3.05'
UV UNIT #2
1" ARV
SEE NOTE 15
3'-1"
NEW HANDRAILS B
D NEW HANDRAIL
18" X 18" X 18" TEE W/18" X 8" REDUCER, 8" GATE VALVE AND CLEANOUT PER QUAD CITY STD DTL 441Q
WALKWAY BRIDGE ON TOP OF CHANNEL 3
EXISTING METAL CURB & HANDRAIL
EXISTING GRATING
EXISTING HANDRAIL
REMOVE EXISTING METAL

REVISION 1 - Bid proposal for: KEAR

Date: October 1, 2024 **Bid Expiration Date:** November 1, 2024

Bid Number: B-24-079-R1

Project: SEDONA WASTEWATER RECLAMATION PLANT UV REPLACEMENT Sedona, AZ

PRICE

We present the project noted above and described in detail below for the price of **$ 147,585.00**

The price includes shop drawing preparation, materials, fabrication, and delivery to the jobsite F.O.B trucks. Sales tax is excluded.

Scope:

Drawing List:

Architectural Drawings: None

Structural Drawings: Per the Sheet Index on drawing COV – 1of26 - dated 05/31/2024 – 90% Submittal Issue - prepared by SUNRISE ENGINEERING of Mesa, AZ

Architectural Drawings: Per the Sheet Index on drawing COV – 1of26 - dated 05/31/2024 – 90% Submittal Issue - prepared by SUNRISE ENGINEERING of Mesa, AZ

Addenda Noted: None

Fabrication and installation of the following items:

Structural Steel Inclusions – delivered F.O.B trucks at the jobsite:

1. Shop fabrication and erection drawings, for work in our scope
2. This bid is based on all structural steel receiving SSPC-SP-2 – hand tool cleaning for surface preparation, and hot-dipped galvanizing per ASTM A123, UNO
3. WF steel beams – platforms (Sherwin-Williams 3-coat system)
4. HSS steel posts – platforms (Sherwin-Williams 3-coat system)
5. Channel beams – platforms (Sherwin-Williams 3-coat system)
6. Galvanized steel grating walking surface

Miscellaneous Metals Inclusions - delivered FOB trucks at the jobsite:

7. This bid is based on all miscellaneous metals receiving SSPC-SP-2 – hand tool cleaning for surface preparation, hot-dipped galvanizing per ASTM A123, UNO
1. Shop fabrication and erection drawings, for work in our scope.
2. Steel stairs, channel stringers with galvanize steel grating treads: 109, 110/S2.2

3. 2-line aluminum pipe stair guardrails, with aluminum pipe grabrail: 109,110/S2.2 – (Anodized)
4. 3-line aluminum pipe railing at platform edge: PI2, DT2 – (Anodized)
5. Pads at base plates of rail posts to prevent galvanic corrosion due to contact of dissimilar metals.

NOTES

Due to steel price fluctuations, we reserve the right to reprice material at time of award.

The Sherwin-Williams 3-coat system will be composed of the following:

1. Prime Coat – SW Corothane Galvpac
2. Intermediate Coat – SW Macropoxy 646 B58 series
3. Finish Coat – SW H1 Solids Polyurethane B65

Surface prep is to be per Sherwin Williams product recommendation.

This offering excludes the following:

Project Specific Structural Steel and Misc. Metals Exclusions:

1. All demolition work
2. Any new plate or other metals required by discovery of conditions during demolition, see DM3, and RFI Response 1 (9/23/2024)
3. Field measuring
4. All installation
5. 3rd party shop inspection
6. Sales taxes
7. Engineering of railing or stairs, compliance with engineered safety values for OSHA Standards

General Exclusions:

1. Standard Exclusions unless specifically included elsewhere.
2. Steel items identified on C, M, E & P drawings unless specifically noted above
3. Any item not identified in our inclusions.
4. Any painting of fireproofed steel
5. Bolts Thru Wood to Steel
6. Burglar Bars
7. Barricades
8. Chain-link fence and gates
9. Concrete fill at pipe bollards
10. Concrete fill at steel stair tread pans
11. Core drilling.
12. Cost of Outside Tests and Inspections, Special Testing for Field
13. Cutting and/or banding of penetrations through grating or floor plate for other trades
14. Cutting of deck at mechanical openings
15. Davis Bacon Wages (unless noted otherwise)
16. Design or Engineering
17. Demolition of any kind or removal and relocation of existing steel
18. Finish Gate Hardware, Locks, Lock Boxes, etc. (unless listed in inclusions)
19. Fasteners (other than normal erection bolts)
20. Field cutting or drilling for other trades.
21. Field Measuring of any kind

22. Field Welding of Reinforcing Materials to Steel
23. Field Welding metal studs or light gauge steel to our steel
24. Field Painting
25. Finish Painting
26. Gutters, Downspouts, Scuppers, Transitions, Flashing, Counterflashing, Trim, Revels, etc.
27. Gapo Type Lintels
28. Grout and Placement thereof
29. Glass Stops
30. Grab Bars
31. Hoisting for other trades
32. Holes through lintels, columns, and beams for reinforcement bars
33. Items not shown on Structural or Architectural Drawings
34. Items not identified on drawings
35. Items called out as by others on the drawings or specifications
36. Joist hangers not welded to steel
37. Ladder extensions or ladder ups
38. Light poles
39. Light gauge metal framing
40. Louvers, Vents and Grilles
41. Liquidated Damages
42. Metal Stud Framing, Tracks, Braces, Struts, Joists, Purlins, etc.
43. Non-ferrous Metals
44. Powder Coating (unless listed in inclusions)
45. Revisions in field to accommodate errors of other trades
46. Roof Drains
47. Stair Nosings (unless listed in inclusions)
48. Setting of Base Plates or nuts to elevation
49. Setting of bearing and embed plates
50. Smooth dowels
51. Standing seam metal roofing, Architectural metal building panels, R panels
52. Shoring of any kind
53. Sleeves in concrete for other trades
54. Steel Curbing
55. Steel forms
56. Steel 10 ga and lighter (except at stair pans and stair landings)
57. Steel Supports in Casework
58. Supports for other trades
59. Tilt Panel erection or welding of any kind
60. Unistrut Material
61. Wave our right to lien
62. Wood to Steel Connections
63. Wrought Iron Fence and Gates unless specifically included
64. Permits
65. Taxes, state, city or local
66. Bonds

Terms and Conditions:

Note:

SPECIAL CONDITIONS AND CLARIFICATIONS

1. Any required overhead protection, screens for the perimeter of the building, sidewalks, streets, and the like are to be furnished, installed, maintained, and removed by others.

2. Ideal steel will provide galvanizing where noted, this will function as the prime coat. Ideal steel does not include any coatings in the shop or the field over the prime coat – for scope items that are prime painted and/or galvanized.

3. Spec section 051200/1.06/A requires "A qualified fabricator that participates in the AISC Quality Certification Program and is designated an AISC-Certified Plant, Category STD." Ideal Steel fabricates to AISC Quality Standards but does not currently have AISC certification. If requested, Ideal Steel will provide third party inspections for additional costs to be determined at time of request.

3A. Overhead wires and above ground obstructions, which interfere with access and erection, shall be removed by the General Contractor prior to commencement of erection.

8. Notwithstanding any provision of the construction contract or any bid document to the contrary, if at the request or direction of the Contractor, we will not provide hoisting services or facilities or permit persons other than Our personnel to use Our equipment, such as safety planks, ladders and scaffolds, the Contractor shall indemnify us and hold us harmless from any and all liability, claims, actions, demands and expense including without limitation reasonable attorney fees arising out of injury to persons or property in any way connected with such use of our, facilities or equipment.

9. General Contractor will locate the centerlines of each steel column and establish the proper elevations by setting one leveling nut for each base plate to the required elevation. This nut shall be painted.

10. We will require access roads around and into the building. These roadways are to remain until the building is erected and must be capable of supporting our equipment.

11. In the event that, when drilling concrete or masonry for installation of wedge anchors or epoxy anchors, we should encounter reinforcing materials that make it necessary to diamond core drill the holes, such drilling shall be considered to be extra work and will be billed to the General Contractor.

12. All areas in which our mobile erection equipment and/or delivery trucks must operate are assumed to be suitably designed to support this equipment. If planking, matting or shoring or other protection is required it is to be designed, furnished, installed and removed by the General Contractor.

13. This proposal is based upon work being performed in a standard 40-hour workweek and in one continuous operation. We have made no allowance for overtime premiums or additional mobilizations.

14. We do not paint field bolt heads and nuts or field welds, nor touch up abrasions of the shop coat nor perform any other field painting. (AISC 7.15)

15. Installation will be done in accordance with the AISC Code of Standard Practice, 9th Edition.

16. This proposal shall become a part of any contract entered into between the buyer and us. In the event of Discrepancies in wording between this proposal and any contract resulting therefrom, wording of this proposal shall govern.

17. We will accept no back charges without being given the opportunity to correct the problem with our own forces.

18. We will install a double strand of safety cable at the areas that it is required for our erection work forces safety only. If the general contractor requires other areas, then the general contractor will be billed for the extra cable and labor to install it.

Safety cable will be left in place until no longer required by the Contractor who will be responsible for maintenance of the cable during the absence of our work forces from the jobsite. When safety cable is no longer required it shall be removed by the Contractor and returned to Ideal Steel.

19. Buyer shall be responsible for paying us in a timely manner regardless of whether or not buyer has been paid by the owner or others responsible to the buyer.

20. In the event that we are selected to perform the work described in the body of this proposal, buyer shall, at the time of notifying us to proceed, provide us with a copy of the buyer.

21. This proposal is valid for 30 days from the bid opening date.

22. This offer is made with the understanding that a pre-award meeting will include a review and mutual acceptance of the scope of work, contract documents, schedule and terms and conditions prior to finalizing an agreement.

23. We will review each modification issued by the owner and advise the contractor in writing within a timely manner of receipt of the Modification, if we have been impacted. If an adjustment in subcontract time or subcontract sum is required, we will submit a change order on a timely basis and will not proceed with said work until the subcontract sum has been modified and agreed to buy us or that we have been directed in writing by the contractor to do said work. Upon receipt of written direction or acceptance of the subcontract sum modification by us the work will be completed and installed (if needed), notwithstanding any other contract provisions.

24. Traffic barricades and traffic control shall be supplied and maintained by the general contractor.

25. Perimeter edge plate or perimeter edge angle will be provided to within one inch from face of metal studs. This is to allow for tolerances as specified by the AISC Code of standard practice. Metal stud subcontractor will be responsible for providing and installing clips to attach and align his product.

26. The cost for installing floor and roof frames as described in our scope of work has been estimated assuming that the size and location of said frames will be furnished by the time our installation crew needs them. Any delay in furnishing this information shall constitute a change in our scope of work and may result in additional costs.

27. If the steel members of this job are fireproofed or embedded in concrete, we will not remove weld back-up plate extensions or guy lugs unless they interfere with cladding or finishing.

28. All trash containment and removal, dust control and sanitary facilities are to be by others at no cost to us.

29. We may prior to installation decide to survey all anchor bolts, weld plates and elevations affecting our trade. If this survey reveals nonconformance or dimensions of line and grade to be outside of industry standards, the cost for such survey will be paid by the general contractor.

30. Punch List Items will be handled before our last day on job site or an extra mobilization charge will be charged for each additional trip.

31. This bid covers only the main structural components as specifically shown on the plans and does not include any peripheral items regardless of architectural intent. Any members not sized in the drawings have not been included in pricing.

32. We reserve the right to subcontract parts of this contract.

33. Installation sequence must be provided within 1 week of receipt of an order or we will install as we want.

34. The contract will contain a Force Majeure/Excusable Delay clause, such as but not limited to, Act of God, fire, strike, breakdown, shortage of energy source, Act of Government, unusual weather, owner delays, etc., under which above delays by us would be excused if caused by events which we could not anticipate or prevent, and for which we are not responsible.

35. Two sets of Issued-for-construction design drawings will be furnished by the GC for our use.

SPECIFIC QUALIFICATIONS:

The estimate is based on aluminum pipe rails made from 1-1/2" schedule 40 aluminum pipe – grade 6061 T6 aluminum.

We have the HSS posts, Channel beams and WF beams for (3) platforms – as laid out on drawing S1.1

CHANGE ORDER RATES (Rates do not include overhead and profit)

Detailing: $100.00/hr

Shop: $75.00/Hr

Field: $85.00/Hr

Mobilization:

TERMS OF PAYMENT

We will invoice once a month (by the 25th of the month) for detailing, fabrication, installation, and rental equipment. 5% percent retention will be left out of invoice. The balance of retention is to be paid 30 days after substantial completion and acceptance of the structural steel work, if payment is not paid within 30 days, interest will be charged at ten percent (10%) per annum.

We agree to the terms and conditions of this quotation and by signing below agree to use this quotation as a letter of intent with contract to follow.

Signed by _____

Of _____

Dated _____

Thank you for the opportunity to quote on this project.

Sincerely,

Derrick Von Gunten

Derrick@idealsteelco.com

801-915-0984

We received the following paint information from you in July.

2.01 MATERIALS

A. General:
1. P = prime coat. I = intermediate coat. F = finish coat. Finish color to be selected by OWNER.
2. All coatings and products for each coating system shall be the product of a single coating manufacturer.
3. All materials brought to the jobsite shall be subject to inspection by ENGINEER.
4. Only full kits of approved coating shall be mixed. No partial kits will be saved or mixed at a later time.
5. All coating materials used must not contain more than 3.5 LBS/GAL VOC as applied (in a thinned state).
6. Coating thicknesses specified are minimum dry mil thicknesses.

B. Acceptable Manufacturers
1. Following are acceptable coating manufacturers:
a. AkzoNobel International Protective (Devoe) Coatings.
b. Sherwin-Williams

C. Coating Systems:
1. System No. 1: Polyamide Epoxy and Aliphatic Polyurethane System - For ferrous metals and metals exterior surface coating (except galvanized steel and pre-primed steel). Items include but are not limited to entire new equalization tanks and clearwater tank exterior surface, exterior ladder, shell manways, roof vents, handrails, roof hatches, conduit supports, sludge holding tank, steel and ductile iron piping, equipment, pipe supports and vessels' pedestal.
a. Surface Preparation: Per Section 3.01.D.
b. Following are acceptable coating systems:

Devoe Epoxy/Urethane System
P1 = Bar-Rust 235 (Off White), 1 coat, 6-8 mils DFT.
F1E = Devthane 378H (color choice by OWNER) 1 coat, 3-5 mils DFT.
Sherwin-Williams System
P1 = SW Corothane Galvpac, 2-4 mils DFT.
I1 = SW Macropoxy 646 B58 series, 6-8 mils DFT.
F1E = SW H1 Solids Polyurethane B65 series, 3-5 mils DFT.

MATERIAL WORK PACKAGE EVALUATION

Project:	**Sedona UV Replacement**				Dana Kepner was purchased by Core & Main after we solicited quotes.		Plans and specs send to them but choose not to bid due to workload.	
Owner:	**City of Sedona**							
GMP No & Date:	**GMP 10/2/2024**							
KEAR Project #	**1367**							
Scope:	**DIP/Fittings/Valves**							
Option:			**Selected**				**NO BID**	
COMPANY INFORMATION			Core & Main Shelly Anderson 916-707-4571 Shelly Anderson		Dana Kepner Randy Reno 602-878-2841 rreno@danakepner.com		Fergusson Rick Chavez 480-619-2550 rick.chavez@ferguson.com	
Misc. Terms / Clarifications								
1	Hold bid for:		30 Days					
2	Proposal Provided Per Spec		Yes					
Scope of Work:		**#**	**Unit Price**	**Total**	**Unit Price**	**Total**	**Unit Price**	**Total**
3	**DIP/Fittings/Valves**	**1**	**$315,775.63**	**$315,775.63**				
4	**Freight**	**1**	**$3,000.00**	**$3,000.00**				
5	**Specified Manufacturer:**							
6	Valves: Dresser, Henry Pratt, Mueller, DeZurik, Keystone			Yes				
7	Pipe:							
8	Submittals			4-5 Weeks				
9	Delivery			12-14 Weeks				
10	Warranty			1 Year				
11	O&M Manuals - Printed			**N/A**				
12	Spare Parts			N/A				
13	Installation & Testing 1 trip - 1 day			N/A				
14	Start Up & Training 1 Trip - 1 day			**N/A**				
15	Freight			Included				
16								
17	**Total Cost Base**			**$318,775.63**				
18								

Pricing Evaluation Notes:

1.) Pricing is based on 100% Design Plans & Specification Sections 15110, 15230

Bid Proposal

SEDONA WWRP UV REPLACEMENT-PI1 CHANGES

KEAR CIVIL CORP PLANT
Job Location: SEDONA, AZ
Engineer:
Bid Date: 07/19/2024 02:00 pm
Bid Due Date:
Addendum Number:
Plan Sheet Date:
Core & Main Bid #: 3788255

Core & Main
3622 S 30th St
Phoenix, AZ 85040
Phone: 6022688781
Fax: 6022688973

Seq #	Product #	Qty	Description	UoM	Sell	Ext Sell
			BID ITEM #1 - UV REPLACEMENT PIPE & APPURTENANCE			
30	NS	1	18X7'0" FLG X PE DI SPL P401/PR	EA	3,518.05	3,518.05
40	NS	1	18X15'0" FLG X FLG DI SPL P401/PR	EA	8,367.23	8,367.23
50	NS	2	18X17'0" FLG X FLG DI SPL P401/PR	EA	9,272.64	18,545.28
60	NS	1	18X4'0" FLG X PE DI SPL P401/PR	EA	2,612.64	2,612.64
70	NS	3	18 RESTR FLEX CPLG 316SS EPOXY F/ DI	EA	5,406.80	16,220.40
90	NS	1	18X3'0" FLG X PE DI SPL P401/PR	EA	2,159.93	2,159.93
100	NS	4	18X16 FLG TEE C110 P401 PR IMP	EA	4,737.68	18,950.72
110	NS	2	18X11'6" FLG X PE DI SPL P401/PR	EA	6,007.93	12,015.86
120	NS	2	18X6'6" FLG X PE DI SPL P401/PR	EA	3,744.40	7,488.80
130	24I18FBPR	2	18 BLIND FLG DI PR IMP	EA	823.35	1,646.70
140	NS	2	16X3'0" FLG X PE DI SPL P401/PR	EA	1,838.25	3,676.50
150	NS	4	16 RESTR FLEX CPLG 316SS EPOXY F/ DI	EA	4,952.97	19,811.88
170	NS	2	16X1'6" FLG X PE DI SPL P401/PR	EA	1,258.44	2,516.88
180	NS	2	16 FLG BUTTERFLY VALVE- EMO	EA	25,628.56	51,257.12
190	NS	2	16X9'0" FLG X PE DI SPL P401/PR	EA	4,157.50	8,315.00
200	NS	2	16X6'6" FLG X PE DI SPL P401/PR	EA	3,191.15	6,382.30
210	24AFBNKS18	10	18 316SS HEX BOLT & NUT KIT	EA	237.98	2,379.80
220	24AFGFR18A	10	18X1/8 FLG FF RR GASKET	EA	11.45	114.50
230	24AFBNKS16	12	16 316SS HEX BOLT & NUT KIT	EA	169.72	2,036.64
240	24AFGFR16A	12	16X1/8 FLG FF RR GASKET	EA	10.13	121.56
250	NS	4	18" PIPE SUPPORT- HDG	EA	1,278.58	5,114.32
260	NS	4	16" PIPE SUPPORT-HDG	EA	871.43	3,485.72
			TOTAL - BID ITEM #1 - UV REPLACEMENT			**196,737.83**
			BID ITEM #2 - PIPE & APPURTENANCE TO EFFLUENT PS			
290	NS	1	18X5'6" FLG X FLG DI SPL P401/PR	EA	4,066.52	4,066.52
300	24I189F401PR	1	18 FLG 90 C110 P401 PR IMP	EA	3,220.76	3,220.76
310	NS	3	18X17'6" FLG X FLG DI SPL P401/PR	EA	9,498.99	28,496.97
320	NS	1	18X14'6" FLG X FLG DI SPL P401/PR	EA	8,140.88	8,140.88
330	NS	1	18 FLG WYE C110 P401 PR IMP	EA	6,737.32	6,737.32
340	24I18R12FP401	2	18X12 FLG RED C110 P401 IMP	EA	2,365.70	4,731.40
350	5112A23626	1	12 A2362-6 FLG RW GV OL W/HW	EA	2,953.63	2,953.63
360	NS	1	12X3'6" FLG X FLG DI SPL P401/PR	EA	1,654.56	1,654.56
370	24I124F401PR	1	12 FLG 45 C110 P401 PR IMP	EA	1,450.50	1,450.50
380	NS	1	18X11'0" FLG X FLG DI SPL P401/PR	EA	6,556.40	6,556.40
390	NS	1	18 FLG 45 BEND C110 P401 PR IMP	EA	2,766.17	2,766.17
400	24AFBNKS18	11	18 316SS HEX BOLT & NUT KIT	EA	237.98	2,617.78
410	24AFGFR18A	11	18X1/8 FLG FF RR GASKET	EA	11.45	125.95
420	24AFBNKS12	3	12 316SS HEX BOLT & NUT KIT	EA	73.82	221.46
430	24AFGFR12A	3	12X1/8 FLG FF RR GASKET	EA	6.82	20.46
			TOTAL - BID ITEM #2 - PIPE &			**73,760.76**

ESTIMATED POTENTIAL FREIGHT

$3000.00

BID ITEM #3- CHANGES TO PI1

490	NS	1	18X6'6" FLG X PE DI SPL P401/PR	EA	3,518.05	3,518.05
500	24I18T180F401	2	18 FLG TEE C110 P401 PR IMP	EA	4,737.68	9,475.36
510	NS	3	18X8 FLG RED C110 IMP P401	EA	2,251.51	6,754.53
520	0108350TP401	18	8 TJ PR350 DI PIPE P401	FT	62.56	1,126.08
530	NS	3	8" FLG GATE VALVE	EA	1,486.97	4,460.91
540	NS	3	8" VALVE BOX/ COVER	EA	220.00	660.00
550	21I084M401	3	8 MJ 45 C153 P401 IMP	EA	511.42	1,534.26
560	21I082M401	6	8 MJ 22-1/2 C153 P401 IMP	EA	508.17	3,049.02
570	21I089F401	3	8 MJXFLG 90 C153 P401 IMP	EA	691.09	2,073.27
580	21I089M401	3	8 MJ 90 C153 P401 IMP	EA	563.91	1,691.73
590	NS	17	8 RESTR FLEX CPLG 316SS EPOXY F/ DI	EA	109.59	1,863.03
610	NS	2	16X2'0" FLG X FLG DI SPL P401/PR W/ 1" TAP	EA	2,341.25	4,682.50
630	NS	2	1" ARV ASSEMBLY	EA	887.50	1,775.00
640	NS	2	1" THREAD BALL VALVE-316SS STD PORT	EA	58.47	116.94
660	3110N060S	1	1X6 316SS NIPPLE	EA	9.87	9.87
670	3110N030S	1	1X3 316SS NIPPLE	EA	5.32	5.32
680	24AFBNKS18	8	18 316SS HEX BOLT & NUT KIT	EA	237.98	1,903.84
690	24AFGFR18A	8	18X1/8 FLG FF RR GASKET	EA	11.45	91.60
700	24AFBNKS08	9	8 316SS HEX BOLT & NUT KIT	EA	49.49	445.41
710	24AFGFR08A	9	8X1/8 FLG FF RR GASKET	EA	4.48	40.32
			Grand Total			**315,775.63**

Bid Notes

-ALL SPOOLS LENGTHS ARE QUOTED ROUNDED UP TO THE NEAREST 6" INCRIMENT. -ALL DI SPOOLS AND FITTINGS ARE QUOTED AS P401 LINED & STANDARD PRIMER. -FREIGHT CHARGES TBD

UNLESS OTHERWISE SPECIFIED HEREIN, PRICES QUOTED ARE VALID IF ACCEPTED BY CUSTOMER AND PRODUCTS ARE RELEASED BY CUSTOMER FOR MANUFACTURE WITHIN THIRTY (30) CALENDAR DAYS FROM THE DATE OF THIS QUOTATION. CORE & MAIN LP RESERVES THE RIGHT TO INCREASE PRICES TO ADDRESS FACTORS, INCLUDING BUT NOT LIMITED TO, GOVERNMENT REGULATIONS, TARIFFS, TRANSPORTATION, FUEL AND RAW MATERIAL COSTS. DELIVERY WILL COMMENCE BASED UPON MANUFACTURER LEAD TIMES. ANY MATERIAL DELIVERIES DELAYED BEYOND MANUFACTURER LEAD TIMES MAY BE SUBJECT TO PRICE INCREASES AND/OR APPLICABLE STORAGE FEES. THIS BID PROPOSAL IS CONTINGENT UPON BUYER'S ACCEPTANCE OF SELLER'S TERMS AND CONDITIONS OF SALE, AS MODIFIED FROM TIME TO TIME,

SUBCONTRACTOR WORK PACKAGE EVALUATION

Project:	**Sedona UV Replacement**			
Owner:	**City of Sedona**			
GMP No & Date:	**GMP 10/2/2024**			
KEAR Project #	**1367**			
Scope:	**Metal - Furnish & Install**			
Option:			**Selected**	
	COMPANY INFORMATION	SH Engineering & Mfg Bob Skiles 520-494-2900 SH Engineering & Mfg	KEAR Self-Perform	
Trade Contractor Scope of Work:				
1	**Base Bid**	**$182,500.00**	**$142,497.00**	
2	**Bond**	**$4,679.00**		
3				
4				
5				
KEAR Subcontract Terms Checklist:				
6	Hold bid for 30 Days	NO - 15 Days		
7	Proposal Provided Per Spec	Yes		
8	Acknowledge Contract Plans & Specifications	Yes		
9	Provide a clear scope of work identifying work items, quantities, and materials.	Yes		
10	Acknowledge All Amendments	N/A		
11	Insurance Requirements Satisfied	Yes		
12	Is Contractor Controlled Insurance Program (CCIP) Required/Included	N/A		
13	Subcontractor Safety Plan - Submit at Project Start	Yes		
14	TAX Included	No		
15	Bond Available	Yes		
16	Buy American/Domestic Requirement Conformance	N/A		
17	Prequalification Completed	Yes		
18	Prevailing Wages/Tero Requirements Included	N/A		
19	Liquidated Damages - Acknowledges compliance with the liquidated damages terms.	Yes		
20	Warranty - Included all warranties as outlined in the specifications.	Yes		
21	Start Up/Comissioning/Site Visits-Verify Included and per contract/specification	N/A		
22	Schedule-Provide lead time for submittals & critical materials	Yes		
23	Duration of work & phasing provided	Yes		
24	O&M Manuals & Training Included per specification	N/A		
25	Shop Drawings - Provide as required	N/A		
26	As-Builts - Provide complete detailed As-Builts	N/A		
27	As-Builts - Are CAD As-Builts required	Yes		
28	Marking, Coatings, Labeling, Signage	N/A		
29	Escalation required through project duration	No - Include in Contingency		
30	Survey & Layout	KEAR to Provide		
31				
32	**Total Cost**	**$187,179.00**	**$142,497.00**	
33				

Pricing Evaluation Notes:
1.) Pricing is based on 100% Design Plans & Specifications MAG Section 515

PROPOSAL

September 30, 2024
Project Name: Sedona WRP UV Replacement
To: Kear Civil

SH Engineering & Mfg. is Pleased to Offer the Following Proposal for Your Consideration.
SH will provide the following materials and services FOB the project address: Sedona AZ

Sheet P1
Provide and install 170' – new 3 rail aluminum guardrail with hardware.
Provide and install 3'-0" x 40'-0" new walkway for upper basin walkway. (match lower platform design)
Sheet S1.1
Provide and install 82' – New 3 rail aluminum guardrail with hardware.
Provide and install 2 – 33'-2" x 2'-9" shop painted steel platforms with aluminum gratings, anchors and hardware.
Provide and Install 4 – 5 tread shop painted steel stairs with aluminum treads, anchors and hardware.
Provide and install 1 – 3 tread shop painted steel stairs with aluminum treads, anchors and hardware.
Sheet DM3
Provide and install 2 – 4'-0" x 18'-0" HDG steel cover plates with ledger angle and anchors at the existing UV channels.
Some galvanizing does not apply "shiny" as described on the drawings.

Total Price 182,500.00

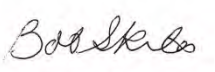
- Included with items in this proposal are shop drawings delivery to the site.
- Off-loading at the site is the responsibility of the purchaser.
- It is the purchaser's responsibility to review shop drawings for accuracy and to obtain all field verification information.
- All stored materials will be billed for the invoice amount plus 10% to be paid net 30 days upon arrival at the fabricator's facility.
- All costs associated with design and engineering work will be billed 100% upon approval of the submittal for those items.
- Exclusions: all taxes, bonds, permits, fees, engineering (unless specifically listed above), testing, inspections, field verification of provided shop drawings, weld testing or inspections, job specific welding procedure or qualification documents, installation (unless specifically listed above) materials testing, inspections, jobsite safety plans, cost of jobsite safety training, safety engineering/design work, coatings, epoxies for anchors, field touch up of shop primers or coatings, special or additional insurances including professional liability, builders risk, or any other item not specifically mentioned above.
- Railings quoted are Golden Railing's 2 or 3-rail standard riveted sub-assembled clear anodized system. Railings may or may not meet the specifications. Anodizing will be per AA-M10/M12-C22-A41. Installation of railings excludes cutting or coring through rebar that is in the base plate locations. Railings exclude load testing of completed railings. Manufactures standard load test data is available.
- All aluminum and stainless steel are provided as mill finish unless noted otherwise.
- All stainless-steel materials will be provided in standard mill finish. All stainless steel will be pickled and passivated after fabrication per ASTM A380
- Special stainless-steel testing and product submission is excluded, mill reports, and weld certifications will be provided prior to work.
- Metal stairs are manufactured by SH Engineering & Mfg. and not purchased from a specified manufacture unless noted otherwise.
- Metal stairs to have standard metal nosing's (not cast abrasive type).
- All gratings are 19-4 spacing mill finished I-Bar gratings manufactured by Grating Systems Inc. unless noted otherwise.
- Gratings are quoted per the drawings and don't include design of additional supports that are not shown. Dimensions for gratings are not always clear on the drawings, gratings are quoted per the dimensions stated above.
- All installation of anchors excludes the cost of coring or locating reinforcing bars.
- All embedded anchors are installed by others.
- Testing of anchors is excluded.
- SH Engineering & Mfg. is not an AISC certified shop.
- SH Engineering & Mfg. does not utilize an onsite CWI at all times and excludes the cost to provide shop inspections.
- Shop priming is a shop coat of primer and may not be the specified coating system.
- Shop painting is quoted as standard colors, special colors may cost more.

- Mill certificates for raw materials are only available upon the purchase of the materials and not available for submittal purposes.
- Deliveries are included as one delivery of each type of item (example one grating delivery, one hatch delivery)
- Materials are not necessarily domestic, buy American or AIS unless specifically stated above.
- Pricing is based upon the supply of the total quantity of items and labor in this proposal and may or may not be valid if broken up.

Term: Per SH Engineering & Mfg. Standard Purchase Agreement or
SH Engineering & Mfg. Will Only Accept an Agreement That Has Scope of Work Itemized & Mutually Agreeable
This quote is good for 15 days.
Shop drawings are 6 to 16 weeks upon receipt of PO/contract.
Materials are 6 to 20 weeks after approval of shop drawings.
100% Due Net 30 days from Delivery to Site No Retention unless Agreed Upon
Any shop drawings, design and engineering will be billed to be paid for net 30 days upon submission.
Bonds may or may not be available for this project. Bonds are 2.5% if utilized.

Potential Escalation
We are in an unprecedented time of market fluctuation of material pricing. SH Engineering & Mfg. reserves the right to reprice all items at the time of actual purchase to reflect any escalation to pricing during the time of bid to the time items are released for fabrication. Pricing checks/clarifications will be made prior to any contract being executed.

Sincerely,



Bob Skiles
shengmfg@shengmfg.com
Cell # - 602 370-0656

EXHIBIT C – TECHNICAL SPECIFICATIONS

See attached Exhibit C – Technical Specifications

STANDARD SPECIFICATIONS
AND
SPECIAL PROVISIONS
(100% SUBMITTAL)

FOR THE

SEDONA
WASTEWATER RECLAMATION PLANT
UV REPLACEMENT

Prepared by:

SUNRISE ENGINEERING, INC.

TABLE OF CONTENTS
FOR
STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS
(100% SUBMITTAL)

TECHNICAL SPECIFICATION

Construction of this project will conform to Uniform Standard Specifications for public works as published by Maricopa Associations of Governments (MAG) 1922 or latest edition and technical specifications provided in this contract. If a conflict arises amongst these specifications the engineer's decision will be final and binding on all parties.

MAG REFERENCES

Section 109..... Measurements and Payments
Section 350.....Removal of Existing Improvements
Section 505..... Concrete Structures
Section 515..... Steel Structures
Section 520..... Steel and Aluminum Handrails
Section 601.....Trench Excavation, Backfilling and Compaction
Section 610..... Water Line Construction
Section 611..... Water, Sewer and Storm Drain Testing
Section 630…….. Tapping Sleeves, Valves and Valve Boxes on Water lines
Section 726..... Concrete Curing Materials
Section 750 ..... Ductile Iron Water Pipe and Fittings
Section 753.....Galvanized Pipe and Fittings
Section 754 ..... …… Copper Pipe, Tubing and Fittings
Section 760 .....Coating Corrugated Metal Pipe and Arches
Section 761 ..... Structural Plate Pipe, Arches, and Pipe Arches
Section 771.....Galvanizing

Section No. of Pages

DIVISION 1 - GENERAL REQUIREMENTS

01510 Protection of Existing Improvements 1
01520 Environmental Control..... 3
01750 Testing, Training, and Startup..... 14

DIVISION 9 - FINISHES

09910 Painting……...4

DIVISION 13 – SPECIAL PROVISIONS

13100 Non- Contact UV Specifications…….15

DIVISION 15 –MECHANICAL

15110 Pipe Supports, Pipe and Piping System…….3
15230 Waterline Valves……4

DIVISION 16 – ELECTRICAL & INSTRUMENTATION

16010 Electrical General Requirements……..19
16150 Electrical Control Devices……..……....3
16400 Service and Distribution Systems……...7
16410 Fuses……...1

DIVISION 1 - GENERAL REQUIREMENTS

01510.1 DESCRIPTION

This section covers measures and instructions for prevention of damage to existing structures and utilities, whether above ground or underground, during execution of the Work of the Contract.

01510.2 PROTECTION OF EXISTING UTILITIES

01510.2.1 MAINTENANCE OF SERVICE

01510.2.1.1 CONTINUOUS SERVICE - Unless otherwise required in the Contract Documents, all utilities, both underground and overhead, shall be maintained in continuous service throughout the entire contract period. The Contractor shall be responsible and liable for any damages to or interruption of service caused by the construction.

01510.2.1.2 ACCIDENTAL INTERRUPTION OF SERVICE - In the event of interruption of other utility services as a result of accidental breakage, the Contractor shall promptly notify the appropriate responsible authority. The Contractor shall then cooperate with that authority in restoration of service as soon as possible and shall bear all cost of repair. In no case shall interruption of any water or other utility service be allowed outside working hours unless the Engineer has issued prior authorization.

01510.2.1.3 TEMPORARY INTERRUPTION AND RELOCATION - If the Contractor desires to temporarily or permanently relocate or shut down any utility or appurtenance, the Contractor shall make the necessary arrangements and agreements with the owner or operator of the respective utility and shall be completely responsible for all costs concerned with the relocation or shutdown and reconstruction. Shutdown and relocation and/or reconstruction shall be subject to inspection and approval by the Engineer and the owner of the utility.

01510.3 PROTECTION OF PROPERTY AND EXISTING STRUCTURES

01510.3.1 REMOVAL OR RELOCATION OF PROPERTY - All property removed or relocated by the Work shall be reconstructed in its original or new location as soon as possible. Restoration of existing property or facilities shall be to a condition as good or better than its original condition. All removed items must be disposed off unless otherwise directed by the Owner.

01510.3.2 DAMAGE TO PROPERTY - All property damaged by the Contractor, whether inside or outside the limits of easements provided by the Owner, shall be the responsibility of the Contractor. All such damages shall be repaired with like material and restored to its original condition, or better. Such repair or restoration shall be accomplished at the Contractor's expense without additional compensation from the Owner.

01520.1 DESCRIPTION

This Section includes requirements that shall be followed by the Contractor, to protect the environment, while performing work under this contract. The Contractor shall also comply with any applicable additional requirements made by federal, state, or local government agencies.

01520.1.1 RELATED WORK AND REFERENCED SECTIONS

Section 00701 – General Conditions - Supplement

01520.1.2 DEFINITIONS

Not used.

01520.2 MATERIALS

Not used.

01520.3 CONSTRUCTION REQUIREMENTS

01520.3.1 EXPLOSIVES AND BLASTING

The use of explosives on the work will not be permitted unless approved otherwise in the Contract Documents or in writing by the Engineer.

01520.3.2 DUST ABATEMENT

01520.3.2.1 CONTROL MEASURES - The Contractor shall furnish all labor, equipment, water and means required to provide effective dust control and abatement measures. Control measures shall be applied as often as necessary and wherever directed in writing by the Engineer, to prevent construction operations from producing dust in amounts that may be damaging to property, vegetation, or animals, or detrimental to persons within reasonable proximity of the work site.

01520.3.2.2 HAUL ROUTES AND WORK SITES - The Contractor shall identify haul routes or material handling areas, outside of the Work site, whereon dust may be generated, and shall exercise appropriate measures to abate any dust problem caused by its operation. Such dust abatement measures shall be taken immediately when observed or when required in writing by the Engineer.

01520.3.3 NOISE ABATEMENT

In or near inhabited areas, particularly residential areas, the Contractor's operations shall be performed in a manner to prevent noise from becoming a nuisance or problem. Particular consideration shall be given to noise generated by repair and service activities during the night hours.

01520.3.4 CHEMICALS

All chemicals and/or petroleum based products used during project construction or furnished for project shall be handled, applied and disposed of in strict accordance with the printed instructions of the manufacturer and regulations enforced by Federal, State and Local health authorities.

01520.3.5 WASTE AND SURPLUS MATERIALS DISPOSAL

01520.3.5.1 CLEAN WORK SITE - The Contractor shall keep the work site, haul roads and other areas of use in a neat, clean condition, free from any accumulation of surplus materials. It shall be the

responsibility of the Contractor, at its own expense, to remove and legally dispose of all surplus materials resulting from all Work activities performed in accordance with the Contract Documents.

01520.3.5.2 SURPLUS MATERIAL - Surplus material includes, but is not limited to, salvaged materials and equipment that otherwise would have been abandoned in place, rocks too large to be used as backfill, wood and other organic or unsuitable materials, trash, rubbish, and waste products of any nature, and any other debris generated by the Work.

01520.3.5.3 REGULATORY COMPLIANCE - Disposal of surplus materials shall be accomplished in accordance with all local codes, laws, ordinances, and all applicable safety laws (particularly to the requirements of Part 1926 of the OSHA Safety and Health Standards for Construction) in affect at the approved disposal site. In no case shall it be acceptable for any surplus material to be disposed of in streams, marshes or wetlands.

01520.3.5.4 APPROVAL OF DISPOSAL - The Engineer will not approve any disposal operation, which creates an unsightly and/or unsanitary nuisance. The Contractor shall maintain disposal sites in a reasonable condition of appearance during construction. When designated and/or public disposal sites are unavailable, written approval must be obtained from the Engineer to dispose of any surplus materials on any other site. All disposal sites are subject to approval by the Engineer. The Contractor shall secure permission and all permits required for use of any dumpsite not previously arranged and designated by the Owner. The Contractor shall retain copies, and provide copies upon request, of all disposal permits and/or agreements obtained for the Contract Work.

01520.3.5.5 SCHEDULED REMOVAL - The Contractor shall establish regular intervals of collection and disposal of surplus materials during construction. Stockpiling of surplus materials for later disposal will not be approved or allowed.

01520.3.6 OPEN BURNING

Open burning of materials may be allowed only in strict accordance with all regulations in effect for the area at which the burning would be performed, and the Contractor shall obtain any necessary permits from the appropriate governing entity prior to the start of burning. The Contractor shall not allow fire to spread beyond the material intended for burning. No accumulation of residue from burning shall remain on or adjacent to the construction site, without written approval of the Engineer.

01520.3.7 SANITATION

01520.3.7.1 TOILETS - The Contractor shall provide fixed or portable chemical toilets for employee use in conformance with the requirements of Part 1926 of the OSHA Standards for Construction and when public toilets are not available or within fifteen (15) minutes walking distance of the Work site.

01520.3.7.2 COLLECTION OF WASTES - The Contractor shall be responsible for daily collection of all sanitary and organic wastes. All wastes and refuse from sanitary facilities provided by the Contractor shall be disposed of away from the site in accordance with all laws and regulations pertaining thereto.

01520.3.8 HAZARDOUS MATERIAL

01520.3.8.1 REGULATORY COMPLIANCE - Disposition of any hazardous material or toxic or hazardous waste shall be made in accordance with the requirements and regulations administered by the State agency wherein the Work site is located.

01520.3.8.2 ABNORMAL CONDITONS - Abnormal conditions include, but are not limited to, the following: buried barrels with liquid or solid contents; buried or above ground tanks with liquid contents; obnoxious odors; excessively hot earth; stained and discolored soils; smoke; unidentifiable powders, sludge, pellets; or any other similar condition.

01520.3.8.3 DISCOVERY AND NOTIFICATION - If any abnormal conditions are encountered during construction, which indicate the presence of a hazardous material, toxic, or hazardous waste, the Contractor shall immediately suspend work in the area of the discovery and notify the Engineer and treat the situation with extreme caution. The Contractor's operation in the area of discovery shall not resume until so directed by the Engineer; however, the Contractor shall continue working in other areas of the project, unless otherwise directed by the Engineer.

01520.3.8.4 DISPOSAL - When it becomes necessary for the Contractor to dispose of discovered materials, the work may be considered a change and administered in accordance with the General Conditions. Should the disposition of discovered waste material require special procedures or handling by certified personnel, the Contractor will make all such arrangements. When it becomes necessary to obtain permits for transporting or handling discovered material, the Owner will obtain the permits.

01520.3.8.5 SPILLS AND NOTIFICATION - In the event of spills of petroleum-based products or hazardous wastes by the Contractor, the Contractor shall immediately notify the Engineer. The Contractor shall also notify the appropriate State environmental enforcement agency, unless the spill consists of less than one (1) gallon of petroleum based products. In no case will notification be made later than 24 hours after the discovery of the spill. In addition, written notification shall also be made within 5 calendar days of the discovery.

01520.3.8.6 COST OF CLEANUP - <u>All costs</u> for cleanup and disposal of hazardous materials due to spills, inappropriate handling, or negligence of the Contractor shall be borne by the Contractor.

01520.4 METHOD OF MEASUREMENT

Not used.

01520.5 BASIS OF PAYMENT

Not used.

01750.1 GENERAL

01750.1.1 GENERAL

01750.1.1.1 This Section is provided to the MANUFACTURER as additional information as it relates to the CONTRACTOR's responsibility for installing the CONTRACTOR-furnished equipment.

01750.1.1.2 SCOPE:

1. This Section covers general equipment and system testing and startup requirements, services of the manufacturer's representatives and special coordinating services required of the CONTRACTOR that shall apply during construction and training of the OWNER's personnel for facilities operation.

2. Specific testing and tracking procedures and requirements found in the Technical Specifications shall also apply.

01750.1.1.3 The CONTRACTOR shall inform all Subcontractors and manufacturers of the requirements herein and include the required services in their costs for the work specified in these Contract Documents. Where a minimum amount of time is stated in the Technical Specifications for manufacturers' services, any additional time required to perform the specified services shall be provided at no additional cost to the OWNER.

01750.1.1.4 SCHEDULING:

1. Equipment testing and plant startup are requisite to satisfactory completion of the Contract and, therefore, shall be completed within the contract time.

2. All equipment testing and plant startup activities shall be realistically allowed for and shown on the CONTRACTOR's Construction Schedule.

01750.1.1.5 Equipment testing shall be satisfactorily completed prior to commencing plant startup associated with the particular equipment item or equipment package. The equipment shall not be considered ready for testing until the following conditions are satisfied:

1. Manufacturer's certification of equipment installation has been accepted by the ENGINEER.

2. Electrical and/or instrumentation Subcontractor certification of motor control logic has been accepted by the ENGINEER.

3. Related Technical Submittals, Preliminary O&M Manual and Final Shop Drawings have been accepted by the ENGINEER.

4. Operator training services have been furnished by the CONTRACTOR (operational testing only).

5. Testing procedures have been submitted in writing and accepted by the ENGINEER in accordance with CMAR Construction Phase Services Contract. All testing procedures and results shall be submitted in writing.

01750.1.1.6 The requirements of plant startup specified herein shall also apply to the startup of individual treatment plant processes and facilities.

01750.1.1.7 STARTUP PLAN:

1. The CONTRACTOR shall submit to the ENGINEER for review, a detailed Facilities Startup Plan for the associated items of equipment and/or systems.

2. The Startup Plan shall include:

   a. A detailed sub-network of the CONTRACTOR's Construction Progress Schedule including the following activities:

      i. Manufacturer's Services

      ii. Installation Certifications

      iii. Operator Training

      iv. O&M Manual

      v. Functional Testing

      vi. Performance Testing

      vii. Operational Testing

      viii. All other activities necessary to affect a coordinated and successful Testing, Training and Startup

   b. Written testing plan with proposed data logs for each item of equipment to be tested.

   c. A discussion of any coordination required with the Owners staff and/or any system or equipment outage requirements.

   d. The Plan shall be updated and/or revised as necessary prior to subsequent Construction Progress Meetings.

   e. Testing shall not be scheduled earlier than 30 days after approval of the Plan unless approved by the Engineer/Owner.

01750.1.2 SERVICES DURING CONSTRUCTION

01750.1.2.1 GENERAL:

1. Manufacturer’s Representative:

   a. The CONTRACTOR shall provide the services of a competent and experienced technical representatives of the manufacturers of all equipment and systems furnished under the contract, for as many days as may be necessary for assembly, installation, testing assistance and operator training.

   b. Manufacturer's field representatives shall observe, instruct, guide, and direct CONTRACTOR's erection or installation procedures, or perform an installation check, as required.

   c. In each case, the CONTRACTOR shall arrange to have the manufacturer's representative revisit the job site as often as necessary until operator training is complete and testing and startup problems have been resolved to the satisfaction of the ENGINEER.

d. This requirement applies to manufacturers of all equipment furnished (excluding manually operated valves smaller than 24 inches in size, and any other items of equipment specifically exempted by the ENGINEER in writing), whether or not specifically set forth in the Technical Specifications.

e. The CONTRACTOR shall maintain a service record on each item of equipment and shall deliver these service records to the ENGINEER prior to acceptance of operational testing.

01750.1.2.2 FULFILLMENT OF SPECIFIED MINIMUM SERVICES:

1. The CONTRACTOR shall obtain prior written approval from the ENGINEER for providing manufacturers' services.

2. All requests to the ENGINEER or OWNER for prior approval shall (1) be in writing, (2) be submitted not less than 10 calendar days prior to the providing of the subject services, (3) state the service to be provided, and (4) state the reason(s) why the timing of the service is appropriate.

3. Request made to the ENGINEER or OWNER less than 10 calendar days prior to the manufacturers' services may not receive consideration and response prior to the times the services are provided.

4. Visits of manufacturers and their representatives to the jobsite or training classroom without prior approval as provided herein may not act to fulfill the specified minimum man-day requirements.

01750.1.2.3 CERTIFICATE OF PROPER INSTALLATION:

1. Equipment requiring factory tests shall not be delivered to the jobsite until the CONTRACTOR submits acceptable certified test results to the ENGINEER.

2. Equipment shall not be considered ready for functional testing until after the following certifications have been submitted and accepted by the ENGINEER.

   a. Manufacturer Representatives:

      i. The CONTRACTOR shall require that each manufacturer's representative furnish to the ENGINEER a written and signed report addressed to the OWNER certifying that the equipment has been properly installed, adjusted, lubricated, is in accurate alignment, is free from any undue stress imposed by connecting piping or anchor bolts, has been operated satisfactorily under full-load conditions and is ready for full-time operation.

      ii. For pumps, compressors, blowers, engines, motors, and other rotating or reciprocating equipment, the report shall certify that the equipment operates within the manufacturer's allowable limits for vibration.

      iii. The report shall also certify that all controls, protective devices, instrumentation, and control panels furnished as part of the manufacturer's equipment package are properly installed and calibrated; and that the control logic for equipment startup, shutdown, sequencing, interlocks, and emergency shutdown has been tested and is properly operating.

      iv. The CONTRACTOR shall also sign said certification.

v. The CONTRACTOR shall submit "Manufacturer's Certification of Proper Installation" to the Engineer.

b. Electrical and Instrumentation Subcontractor:

i. The CONTRACTOR shall require that the electrical and/or instrumentation Subcontractor shall furnish a written and signed report to the ENGINEER certifying that the motor control logic for the equipment item that resides in motor control centers, control panels, control boards, microprocessors, distributed processing units, computers, and the like furnished by the electrical and/or instrumentation Subcontractor has been properly tested and calibrated.

ii. The report shall certify that the control logic for equipment startup, shutdown, sequencing, interlocks, and emergency shutdown has been tested and is properly operating.

iii. The CONTRACTOR shall also sign said certification.

01750.1.3 STARTUP AND TESTING

01750.1.3.1 GENERAL:

1. The CONTRACTOR shall provide the effective coordination of all parties necessary for the successful project startup.

2. The ENGINEER shall not be responsible to instruct the CONTRACTOR in the startup of the project, however, the ENGINEER will be available prior to and during startup to provide operational and technical support to the CONTRACTOR.

3. The CONTRACTOR shall furnish all labor, consumables (power, water, chemicals, air, etc.) tools, equipment, instruments, and services required and incidental to completing all functional, performance and operational testing of installed equipment.

4. The CONTRACTOR shall submit the proposed test procedures to the ENGINEER for review at least 30 days prior to testing.

5. The CONTRACTOR shall give the ENGINEER written notice confirming the date of testing at least five working days before the time the equipment is scheduled to be tested.

6. All testing shall be witnessed by the ENGINEER to be considered valid.

7. Test Reports:

a. CONTRACTOR shall submit written detailed results of all functional, performance and operational testing.

b. Upon successful completion of Operational testing all equipment installation, testing and maintenance records shall be submitted to the ENGINEER and OWNER.

c. Said records shall be bound separately for each piece of equipment or system and shall be collected by type of record.

8. For factory tests, written test results shall be submitted to the ENGINEER at least 10 days prior to shipment.

01750.1.3.2 FUNCTIONAL TESTING:

1. All items of mechanical and electrical equipment shall be functionally tested by the CONTRACTOR after installation for proper operation.

2. A minimum of ten (10) days prior to the start of functional testing, the CONTRACTOR shall submit interconnection diagrams for the equipment and for the alarms, controls and instruments associated with the equipment. This requirement shall not relieve the CONTRACTOR of meeting any requirements in the technical specifications for earlier submittal of the interconnection diagrams.

3. Minimum Test Requirements

    a. The functional test of each piece of mechanical equipment shall continue for not less than eight (8) continuous hours without interruption.

    b. The functional test shall include checking for proper rotation, alignment, speed, flows, pressure, vibration, sound level, etc. Initial equipment and system adjustment and calibrations shall be performed in the presence of and with the assistance of the manufacturer's representative.

    c. The functional test shall include a demonstration of the proper performance of all alarms, local and remote controls, instrumentation, equipment functions, and all other electrical, mechanical and piping systems.

    d. All parts shall operate satisfactorily in all respects, under continuous full load, and in accordance with the specified requirements, for the full duration of the eight-hour test period.

    e. If any part of a unit shows evidence of unsatisfactory or improper operation during the eight-hour test period, correction or repairs shall be made and the full eight-hour test operation, as specified herein, shall be repeated after all parts operate satisfactorily.

01750.1.3.3 PERFORMANCE TESTING:

1. Where performance testing is required by the Technical Specifications, the testing shall be supervised by the manufacturer's representative. These services shall continue until such times as the applicable equipment or system has been successfully tested for performance and has been accepted by the ENGINEER for operational testing.

2. Performance testing shall take place after functional testing is successfully completed in accordance with Article 1.3 B.

3. Performance testing shall demonstrate that the equipment meets all performance requirements specified.

01750.1.3.4 STARTUP/OPERATIONAL TESTING:

1. Upon successful completion of operator training and the functional, performance and leakage testing, the CONTRACTOR shall startup the plant facilities and test the equipment operation and performance by conducting a seven (7) day, continuous operational test of the completed facilities as an operational process unit to demonstrate to the ENGINEER's satisfaction that all equipment and systems required by these specifications will operate in the manner in which they are intended to perform.

2. The OWNER will provide CONTRACTOR-trained operating personnel for the duration of the operational test. Said operation shall be conducted and under the supervision and direction of the CONTRACTOR and/or manufacturer's representative.

3. Operational Defects:

   a. All defects in materials or workmanship which appear during the operational test shall be immediately corrected by the CONTRACTOR.

   b. In the event of a malfunction or deficiency that results in shutdown or partial operation of a system or process unit or results in performance that is less than that specified, the startup duration shall be repeated for that corresponding system or process unit and any other affected equipment, so its proper operation and performance as required by the Contract Documents is demonstrated for a minimum of seven (7) continuous and trouble free days.

4. If the operational test is interrupted through no fault of the CONTRACTOR, the test may resume at the earliest mutually agreeable time.

5. No unit process or part thereof shall be placed in service until it has successfully completed operational testing.

6. During plant startup, the CONTRACTOR shall provide the appropriate construction trades and the services of authorized Manufacturer's representatives for operational testing and as necessary, to correct faulty equipment operation.

7. After completion of all startup/operational testing, the CONTRACTOR shall repaint, hose, scrub, clean up and otherwise return the work to a "like new" condition, prior to OWNER acceptance.

01750.1.4 TRAINING OF OWNER PERSONNEL

01750.1.4.1 GENERAL:

1. Operation and maintenance training of OWNER's personnel shall be provided for mechanical, electrical, instrumentation and control equipment as listed in this Section or elsewhere in the Specifications.

2. For the purposes of this requirement, operations training is considered to be separate from maintenance training. Instructions are to be tailored to the needs of each group.

3. These training services shall be conducted by the manufacturer's representative and shall ensure measurable and observable means that OWNER personnel are qualified to perform equipment task requirements, including essential knowledge, skills and abilities.

4. Training shall be conducted by competent representatives who are certified by the manufacturer to be thoroughly familiar with the subject matter as well as instructional methods.

5. Training materials shall be submitted to the OWNER (see Paragraph 1.4 C below) for review. Acceptance of training materials is required prior to start of training.

6. All training shall be completed prior to beginning operational testing.

7. The OWNER shall have the right to videotape any or all training sessions or may designate separate sessions or portions thereof for the sole purpose of videotaping.

01750.1.4.2 TRAINING COORDINATOR:

1. The CONTRACTOR shall designate and provide one or more persons to be responsible for coordinating and expediting training duties.

2. The person or persons so designated shall be present at all training coordination meetings with the OWNER.

01750.1.4.3 TRAINING SCHEDULE:

1. The CONTRACTOR's coordinator shall coordinate the training periods with OWNER's personnel and manufacturer's representatives and shall submit a training schedule and the training materials for each piece of equipment or system for which training is to be provided.

2. The training schedule shall be submitted not less than 21 calendar days prior to the time that the associated training is to be provided and shall be based on the then current Plan of Operation.

3. Equipment and/or systems shall be deemed suitable for use in training upon satisfactory completion of functional testing.

4. All training with regards to a unit process or part thereof shall be completed prior to the start of operational testing.

5. The CONTRACTOR shall provide distinct and separate training sessions for both operations and maintenance personnel, when required, meeting the following criteria:

    a. Maintenance Training:

        i. Maintenance training shall be provided for all items in 1.4.C.5 above.

        ii. The CONTRACTOR shall provide two (2) separate training sessions on a day agreed to by the OWNER.

        iii. Training shall emphasize theory of operations, troubleshooting, and preventative maintenance and repair procedures.

        iv. The discussion shall encompass issues relating to instrumentation, electrical, and mechanical systems.

    b. Operations training:

        i. Operations training shall be provided for each piece of equipment listed in Paragraph 1.4.C.5 above.

        ii. The CONTRACTOR shall provide two (2) separate training sessions for each three (3) operating shifts.

        iii. Sessions are to be provided within the following time periods:

            Tuesday 8:00 a.m. – 3:00 p.m.

            Wednesday or 8:00 a.m. – 3:00 p.m.

            Thursday 8:00 a.m. – 3:00 p.m.

    c. Training session schedules shall be approved by the OWNER.

d. Training shall emphasize theory of operations, startup instructions, emergency and normal shutdown instructions, lockout procedures, troubleshooting, preventative maintenance, and alarm and control logic.

6. The CONTRACTOR shall confirm each training period a minimum of five working days prior to the schedule time.

7. If a manufacturer's representative fails to conduct a scheduled training class, the CONTRACTOR hereby agrees to compensate the OWNER for labor costs, including overhead, for all OWNER personnel in attendance for the entire scheduled training period.

8. If the CONTRACTOR or the manufacturer's representative fails to provide training that qualifies the OWNER personnel to perform equipment task requirements, the CONTRACTOR hereby agrees to provide remedial training to ensure OWNER personnel proficiency at no additional cost to the OWNER.

01750.2 PRODUCTS (NOT USED)

01750.3 EXECUTION

01750.3.1 RECORD KEEPING

The CONTRACTOR shall maintain as a minimum, the following records:

1. Equipment manufacturer's shop drawings.

2. Daily logs indicating all equipment testing and startup activities.

3. Log and time sheets of all manufacturer's representatives performing services on the jobsite.

4. Updated equipment testing and startup schedules.

5. Records of system cleaning.

6. Hydrostatic and pressure test records.

7. Equipment alignment and vibration measurements and corrective actions.

8. Equipment lubrication records.

9. Insulation resistance measurements.

10. Electrical phase, voltage, and amperage measurements.

11. Electrical breaker inspection, test, and adjustment records.

12. Logs of abnormal circuits and lifted wires.

13. Testing and validation of all central and alarm functions.

14. Data sheets of all testing and calibration of instrumentation devices and control loops including documentation of set points.

15. Equipment and system release logs (from construction to startup).

16. Daily work reports.

01750.3.2 GENERAL PROCEDURES

01750.3.2.1 The general work procedures listed below outline the work to be performed by the CONTRACTOR. Additional procedures applicable to specific equipment items are specified elsewhere.

01750.3.2.2 TECHNICAL ASSISTANCE AND SUPPORT:

1. Obtain the assistance of the appropriate construction trades and the manufacturer or vendor, as required for technical assistance during equipment installation, testing, and startup by the CONTRACTOR and for training of the OWNER's Operation and Maintenance personnel.

2. Furnish names and telephone numbers of manufacturer's and vendor's current technical service representatives for use by the ENGINEER.

01750.3.2.3 INSTRUCTIONS:

Maintain an adequate manufacturer's instruction file so that the information will be readily available during equipment testing and startup.

01750.3.2.4 REMOVAL OF RUST PREVENTIVES:

Prior to equipment testing, remove all rust preventives and oils used to protect the equipment during the construction period whenever these protective materials will be detrimental to operation or equipment maintenance.

01750.3.2.5 LUBRICANTS:

1. At least 60 days prior to startup, provide a list of the manufacturer's recommended lubricants for use in the plant. All equipment lubrication shall be listed with the lubricant types and quantities recommended and approved by the equipment manufacturers.

2. Provide the necessary lubricants for startup and the initial 60 days of operation.

3. Flush systems and install the initial charge of all lubricants. Dispose of flushing oil in accordance with applicable regulations.

4. The CONTRACTOR shall lubricate the equipment in accordance with the manufacturer's recommendations until the equipment is accepted by the OWNER.

5. Maintain a lubrication record for each item of equipment. The CONTRACTOR shall submit the lubrication records to the ENGINEER prior to equipment testing.

01750.3.2.6 PACKING AND SEALS:

1. Install, adjust, and replace packing, mechanical seals, and accessories, as necessary, during the equipment testing and startup period.

2. Adjust seal water and flushing water flow rates in accordance with the equipment manufacturer's recommendations.

01750.3.2.7 REMOVAL OF TEMPORARY BRACING:

Prior to equipment testing, remove all temporary supports, bracing, or other foreign objects that were installed in vessels, transformers, rotating machinery, or other equipment to prevent damage during shipping, storage, and erection, and repair any damage sustained.

01750.3.2.8 ROTATION, ALIGNMENT, AND VIBRATION:

1. Prior to equipment testing, check rotating machinery for correct direction of rotation and for freedom of moving parts before connecting the driver.

2. Prior to equipment testing, perform the cold alignment and hot alignment to the manufacturer's tolerances.

3. Prior to equipment testing, test equipment vibration and correct any vibration in excess of the manufacturer's recommendation.

01750.3.2.9 TIE-INS AT THE CONTRACT LIMITS:

1. Provide proper notification, preparation, and coordination for safe tie-ins and minimal interference with the plant operation.

2. Obtain approval and make the necessary tie-ins at the unit limits as required by the Contract Documents and as approved by the ENGINEER and/or OWNER.

3. Prior to startup, remove the temporary blind flanges, plugs, bulkheads, seals, etc.

01750.3.2.10 LEAK AND PRESSURE TESTS:

1. Provide the OWNER and ENGINEER with 3-day advance notification in writing of the schedule for non-operating field leak tests or field pressure tests on piping and field fabricated equipment, unless otherwise directed by the ENGINEER.

2. Provide the water, air and any special media required for the test purposes.

3. Prior to startup, conduct all leak and pressure tests in accordance with applicable codes, regulations, and the Contract Documents, and as approved by the ENGINEER. The CONTRACTOR is advised that the tests shall be witnessed by the City Inspector, to be considered valid.

4. Maintain a record of the leak and pressure test data and work completed.

5. Dispose of the test media in a manner that is acceptable to and approved by the OWNER and applicable regulatory agencies.

6. Isolate in-line equipment as necessary for protection against test pressure.

01750.3.2.11 PRESSURE/VACUUM SAFETY RELIEF DEVICES:

1. Prior to equipment testing, test and adjust all safety devices as recommended by the equipment manufacturer.

2. Prior to plant startup, provide the ENGINEER with a list of all field or factory equipment settings.

01750.3.2.12 FLUSHING AND CHEMICAL/MECHANICAL CLEANING:

1. Prior to equipment operation, conduct all flushing, blowing, and chemical/mechanical cleaning operations without using the permanently installed equipment.

2. Provide any special media needed for flushing and/or cleaning purposes.

3. Dispose of all media in a manner that is acceptable to and approved by the OWNER and the applicable regulatory agencies.

4. All systems shall be free of trash and construction debris before initiating startup.

5. Maintain a record of the work completed.

01750.3.2.13 SCREENS, STRAINERS, AND BLIND FLANGES:

1. Provide and install temporary strainers, screens, and blind flanges as necessary to protect the equipment and to test the equipment and pipelines.

2. Prior to startup, remove all the temporary blinds and temporary appurtenances.

3. Clean the screens and strainers as required during startup.

4. At the end of startup, clean all of the permanently installed screens and strainers.

01750.3.2.14 PURGING/INERTING:

1. Prior to startup, purge and/or passivate the facilities as specified.

2. Install purge/inerting connections in accordance with the manufacturer's recommendations.

3. Provide purge or inerting materials and conduct the necessary operations as recommended by the equipment manufacturer.

01750.3.2.15 DRYING OUT:

1. Prior to startup, dry out the facilities as specified or recommended by the equipment manufacturer to prevent contamination of catalysts, operating materials, and/or product.

2. Dry out systems, protective coatings, refractories, and linings as specified or recommended by the equipment manufacturers.

01750.3.3 SPECIFIC PROCEDURES

01750.3.3.1 In addition to the work responsibilities described in Subsection 3.2, the procedures outlined below further define the work responsibilities of the CONTRACTOR for specific systems and items of equipment.

01750.3.3.2 MECHANICAL EQUIPMENT:

1. Level baseplates and soleplates and grout under all load bearing surfaces.

2. Install suitable supports and flexible connections to alleviate any piping stresses that may be imposed on pumps, compressors, and drivers.

3. In accordance with the manufacturer's recommendations, chemically clean lube oil, seal oil, and cooling systems. Dispose of waste and cleaning media in a manner that is acceptable to and approved by the OWNER and applicable regulatory agencies.

4. In accordance with the manufacturer's recommendations, charge the lube oil, seal oil, and cooling systems with flushing media and circulate for cleaning purposes. Dispose of any flushing media in a manner that is acceptable to and approved by the OWNER and applicable regulatory agencies.

5. Charge the lube oil systems, seal oil systems, and cooling systems with the amount and type of operating oil or coolant recommended by the manufacturer.

6. Operate the equipment and check for excessive vibration, abnormal operating noises, overheating and lubricant leakage, etc., and test any safety shutdown/alarm devices for proper operation, and make any operating tests required by the ENGINEER. The adjustments required for proper operation shall be made prior to operational testing.

7. Utilize manufacturer's representative for technical assistance during installation and startup.

8. Prior to startup, all sidewalks, gratings, handrails, safety chains, safety shields, etc., shall be installed.

9. Prior to startup, demonstrate to the ENGINEER's satisfaction that all chemical solution pipelines are connected to the intended tank(s), feeder(s), pump(s), and application points, and that the pipes, appurtenances contained therein and diffusers will operate at the intended flow rates.

10. Prior to startup, the applicable safety equipment, emergency shower and eyewash units, fire extinguishers, fire suppression equipment, self-contained breathing apparatus, toxic and/or combustible gas detectors (including the respective personnel warning system), protective clothing, emergency repair kits, etc., shall be installed in an acceptable manner-subject to the ENGINEER's approval, and be fully ready for operation.

11. All safety hazards, e.g., exposed drive shafts or rotating equipment members, exposed electrical circuitry, open electrical junction boxes and panels, improperly supported piping and conduits, missing safety devices, etc., shall be corrected prior to supplier training of the OWNER's personnel.

12. The CONTRACTOR shall perform a comprehensive safety inspection and correct any safety deficiencies found before implementing plant startup.

13. Roadways that are required for ambulance service, firefighting access, delivery of treatment chemicals and supplies, and disposal of the treatment byproducts shall be completed prior to startup.

14. Prior to startup, install all warning and safety signs, labels, and devices.

01750.3.3.3 ELECTRICAL POWER AND LIGHTING SYSTEMS:

1. Provide the ENGINEER with 3-day advance notification in writing of the test schedule. The CONTRACTOR is advised that the tests shall be witnessed by the ENGINEER.

2. Perform insulation resistance tests on all wiring 120 volt and larger. Do not meggar instruments or solid-state devices.

3. Perform insulation resistance tests on all motor and transformer windings from phase to phase and phase to ground.

4. Perform grounding system tests to determine the continuity of connections and the value of resistance to ground.

5. Fill electrical gear with oil and/or other media as recommended by the equipment manufacturer.

6. Prior to substantial completion and startup, test and set switchgear and circuit breaker relays for proper coordination and operation.
7. The CONTRACTOR shall obtain the services of a qualified "independent testing service", member of the National Electric Testing Association, to perform a thermographic survey on all switchgear buses, insulators and power connections when energized and under at least 20 percent load. Significant hot spots shall be further checked by infrared pyrometer for exact temperature rise. The CONTRACTOR shall troubleshoot and correct the thermographic hot spots. Correction shall be verified by repeating the thermographic survey at no additional cost to the OWNER.

8. The CONTRACTOR shall obtain the services of a qualified "independent testing service", member of the National Electric Testing Association, to inspect and test the protective relays and the 800-ampere and larger drawout breakers for proper installation, adjustment, and operation in accordance with the manufacturer recommendations.

9. The CONTRACTOR shall obtain the services of a qualified "independent testing service", member of the National Electrical Testing Association, to perform DC high potential tests on all cables that will operate at more than 2,000 volts to ground.

10. Obtain local electrical inspector's approval where required.

11. Energize all substations, with approval of the Utility Company and the ENGINEER after completion of all electrical testing.

12. Prior to startup, perform tests and adjustments on all switchgear and motor control equipment to demonstrate proper operation and conformance to the Contract Documents and manufacturer's recommended settings.

13. Prior to startup, test installation of emergency power and lighting systems for proper operation, including light intensity.

14. Prior to startup, provide the ENGINEER with a record of all test data and the work completed.

15. Vacuum clean all electrical equipment prior to startup and acceptance.

01750.3.3.4 PIPING SYSTEMS:

1. Provide the ENGINEER with 3-day advance notification in writing of test schedule.

2. Hydrostatically or pneumatically test all piping as required by the codes and contract documents.

3. After successful testing of the piping, slowly drain the system and then flush the system. Orifice plates shall be installed after testing. If installed with the piping, they will be removed and replaced with spacers or pipe spools of equal length prior to the pressure test.

4. Dewater the system, remove blind flanges, and perform tightness tests, as required by the ENGINEER.

5. Insulate or paint piping, flanges, threaded joints, or field welds after the specified testing of each item has been completed unless instructed otherwise by the ENGINEER.

6. Leave exposed all welded joints (longitudinal, girth, and nozzle) in underground piping that have not been shop tested until the specified testing has been completed. After final testing of these joints, cover the system.

7. Prior to substantial completion and startup, check pipe hangers, supports, guides, and pipe specialties for the removal of all shipping and erection stops and for the correctness of the cold and hot settings for the design service, make adjustments as necessary to obtain proper installation. Provide the ENGINEER with instructions for the hot settings.

8. As necessary during equipment testing and at the end of substantial completion and startup, clean or replace the screens and filter elements as appropriate for the filter type and service.

9. Prior to startup, verify, to the extent required by the ENGINEER, that specified valve packing has been provided on valves installed in the plant.

10. Prior to startup, install all of the valve and piping system identification labels.

11. Prior to startup, check and record the position of all process system valves.

12. Prior to startup, correct support, vibration, and thermal expansion problems detected during the preliminary equipment testing.

13. Prior to the startup, re-torque all hot and cold service bolting as required to ensure a permanent and proper installation.

14. Prior to startup, demonstrate to the ENGINEER's satisfaction that each piping system (e.g., chemical, sample, utility, irrigation process, etc.) functions as designed and required by the Contract Documents.

DIVISION 9 - FINISHES

09910.1 DESCRIPTION

The Contractor shall furnish all labor, materials, and equipment necessary to paint all designated ferrous metal surfaces as called out here in this section. PVC pipes. Galvanizes steel pipes, Aluminum surfaces and stainless steel surfaces will not be painted.

09910.1.1 RELATED WORK

Not used.

09910.1.2 SUBMITTALS

09910.1.2.1 DESCRIPTIVE LITERATURE - Descriptive literature identifying manufacturer, type, content, application recommendations, and color samples, shall be provided to the engineer.

09910.1.2.2 DATA FOR PAINT APPROVAL - Complete data on each type and kind of paint and primer shall be submitted to the Engineer for approval. Approval shall be received from the Engineer before the paint is delivered to the jobsite. Information submitted on each proposed type and kind of paint shall include data to show that the paint meets the detailed requirements of these Specifications.

09910.1.2.3 SAMPLES - The Contractor will submit color chart to engineer for selection of color.

09910.1.2.4 SAND BLAST PANELS - The Contractor shall adhere to the manufacturer's recommendations. Should the manufacturer specify sandblasting, the Contractor will proceed with that method.

09910.1.2.5 PAINT REMNANT - At the end of the project, the Contractor shall turn over to the Owner a gallon can of each type and color of paint, primer, thinner, or other coating used in the field painting. A typewritten inventory list shall be furnished at the time of delivery.

09910.1.3 DEFINITIONS

Submerged Surfaces - Not applicable.

09910.2 MATERIALS

09910.2.1 QUALITY CONTROL

This Specification is not intended to be exclusive or limit competition, but rather to set forth the minimum standards for quality and performance. The Owner reserves the right to reject substitutions if in his opinion, the proposed substitutions will not achieve comparable equipment installation and performance standards.

09910.2.2 COLOR

The Owner will make color selection from color samples provided by the Contractor.

09910.2.3 PAINT SELECTION

All paint and coating systems shall include high quality materials, resistant to temperatures up to 130ºF, and sunlight exposure. Paints selected shall meet the manufacturer's recommendations and suitability standards for the specific application where it will be used.

09910.2.3.1 MINIMUM REQUIREMENTS - Minimum requirements for paint materials and their application shall be as shown in the tables below:

1. Prepare ferrous metal surfaces in accordance with the SSPC-SP6 "Commercial Blast Cleaning".

2. Before blast cleaning remove visible deposits of oil or grease by any of the methods specified in SSPC-SP1 "Solvent Cleaning".
3. Abrasive shall be free of corrosion -producing contaminants and shall also be free of oil, grease or other deleterious contaminants.

EXTERIOR PAINT APPLICATION TABLE

Application Substrate	No. of Coats	Paint Materials and Manufacturer*	Coating Thickness (Mils Per Coat)
Ferrous metal surfaces, steel, or ductile iron surfaces such as pipes, supports, valves, dresser couplings etc.	2 2	The primer coat shall be Tnemec 20-1255 (color) Pota Pox primer 4-6 mils in 2 coats. The finish coat shall be Tnemec 69 (color) 4-6 mills in 2 coats.	1-3 1-3

09910.3 APPLICATION REQUIREMENTS

ALL paint and coating systems shall be applied in strict accordance with the manufacturer's published instructions for use.

09910.3.1 METAL SURFACES - Except as otherwise provided, all preparation of metal surfaces shall be in accordance with Specifications SP-1 through SP-10 of the Steel Structures Painting Council (SSPC). Sandblasting procedures shall be as follows:

- No surface, which is to be sandblasted, shall be given a coat of primer or paint in the shop or in the field before sandblasting.

- Unless otherwise specified, all iron or steel surfaces which are to be painted as submerged metal shall be dry sandblasted on the site in accordance with Specification SP-10, near white blast cleaning.

- Except as otherwise specified, all metal surfaces, which are to be painted as non-submerged metal, shall be commercial blast cleaned per Specification SP-6. This sandblasting shall be done not more than 12 hours ahead of the painting, subject to humidity and weather conditions between the time of sandblasting and painting operations. If any rusting of sandblasted surfaces occurs before painting, such rusting shall be removed by additional sandblasting.

- Threaded portions of valve and gate stems, machined surfaces intended for sliding contact, surfaces to be assembled against gaskets, surfaces of shafts for sprockets or to fit into bearings, machined surfaces of bronze trim on slide gates, and similar surfaces shall be masked off to protect them from the sandblasting of adjacent surfaces.

- Cadmium-plated or galvanized items shall not be sandblasted except that cadmium plated, zinc-plated, or sherardized fasteners used in assembly of equipment to be sandblasted shall be sandblasted in the same manner as the other metal.

- Surfaces which cannot be sandblasted or cannot be sandblasted and then painted after the assembly of which they are a part has been completed and placed in final position, shall be sandblasted, or sandblasted and painted, before the items are put into final position. In some cases, while the painting could be done after the items concerned were in place, the limitation on time between sandblasting and painting may make it necessary to paint the surfaces before installation of those items.

- Sand or other media residue from sandblasting operations shall be thoroughly removed, using any method necessary and consistent with the requirements of the painting system, including vacuum cleaners or other means.

TEMPERATURES AND COATING TIMES

Average Temperature	Maximum Time Between Coats
50 - 60° F	36 hours
60 - 70° F	24 hours
70 - 80° F	12 hours
80 - 120° F	4 hours

Coal tar epoxy shall not be applied when the ambient temperature is less than 50 degrees.

09910.3.2 EDGES AND CORNERS - The Contractor is hereby CAUTIONED that the edges and corners of members are difficult places upon which to build the required thickness of paint. The required thickness must be applied to all surfaces, including the corners and edges, by applying as many spray coats as necessary or by additional brush coats on the corners and edges, if necessary, in order to build up the required thickness.

09910.3.3 FINISH SCHEDULE

The Contractor shall finish all work as follows unless indicated otherwise on the Drawings or within these Specifications:

TABLE OF FINISH SCHEDULES

NO FINISH	FACTORY FINISH	SITE FINISH
Stainless Steel Surfaces	Heating Units	Interior Concrete Building Floors and Walls
Polished Aluminum Surfaces	Electric Control Panel Cabinets	Interior Building Walls & Ceiling
Chain Link or Stock Fencing	Cranes & Hoists	All Interior and Exterior Exposed Piping Valves & Pipe Supports
Name Plates	Gauges and Meters	Exposed Electrical Conduit & Junction Boxes
Exterior Concrete	Instruments	Entry Doors and Frames
Exterior Masonry Surfaces	Light Fixtures and Cover Plates	Wood Moldings and Trim
Exposed Plastic Pipe & Fittings	Electrical Wiring & Transformers	Other Exterior Surfaces Indicated on drawings
Warning Labels	Ventilating Fans	
Operating Instructions	Dampers	
Gratings	Air Conditioning Units	
Buried or Encased Pipe	Metal Soffit & Fascia Covering	
	Roofing and Siding	
	Roll-Up Overhead Doors	
	Motors, Pumps, Equipment	

09910.3.4 CLEANUP

Upon completion of painting, the Contractor shall remove all masking and protective covers and properly dispose of all rubbish, debris and unused paint materials. The Contractor shall remove and cleanup all paint overspray, drips, spatters and etc. from any and all surfaces where it does not belong.

09910.4 METHOD OF MEASUREMENT

09910.4.1 NO MEASUREMENT

Painting will be included in the lump Sum bid of the project.

09910.5 BASIS OF PAYMENT

When Painting is included as part of the measurement of another item, structure or building listed in the Bid Schedule, separate payment will not be made.

SPECIAL PROVISIONS

MANUFACTURER'S SPECIFICATION FOR NON-CONTACT ULTRAVIOLET DISINFECTION EQUIPMENT

PART 1 – GENERAL INFORMATION

1.1 SCOPE OF SUPPLY

A. The contractor will install two identical Ultraviolet (UV) non-contact disinfection systems as outlined in these plans and specifications.
B. Manufacturer shall furnish a complete "In-Pipe" flange connected, low pressure high intensity/output (LPHO) Ultraviolet (UV) Non-Contact disinfection system to provide required disinfection of plant effluent waters prior to ultimate plant discharge.
C. UV systems that require lamps with input power greater than 145 watts shall not be considered. Amalgam lamps shall not be considered, system with quartz sleeve surrounded lamps shall not be considered.
D. The equipment shall essentially be automatic in operation, with no automated cleaning apparatus. Separate cleaning apparatus', integrated wiper mechanisms, quartz sleeves, O-rings, or lifting cranes shall not be required as per of the non-contact UV disinfections system.
E. The system shall be complete with power enclosures, power distribution and system controls shown on the contract drawings and specified herein.

1.2 SUBMITTALS

A. The Manufacturer shall furnish electronic submittals consisting of the following information:
   1. Detailed scope of supply
   2. Mechanical/ assembly drawings.
   3. Hydraulic calculations
   4. Summary UV dose calculations based on Bioassay Validation Report.
   5. Power/Control wiring single line diagrams.
   6. Manufacturer's catalog information consisting of descriptive literature, specifications, and materials of construction for all components.

B. After successful startup, Manufacturer shall provide certification that the ultraviolet disinfection system is commissioned and is ready for service.

C. The manufacturer shall furnish the OWNER with three (3) hard copies and electronic copies of maintenance data on all machinery and equipment furnished for the system. The manuals shall include the following:
   1. Equipment operating and maintenance instructions.
   2. Parts lists
   3. Assembly and disassembly instructions
   4. Equipment specifications and guaranteed performance data
   5. Recommendations for preventive maintenance
   6. Step-by-step operating and start-up procedures
   7. Lists of spare parts, tools, and supplies
   8. Wiring diagrams of all control circuits
   9. Software programming as updated after final acceptance
   10. Troubleshooting instructions

1.3 QUALITY ASSURANCE:

A. Manufacturer's Qualification Requirements:

1. The equipment manufacturer shall be regularly involved in the manufacture and supply of low-pressure high output UV Disinfection systems for a minimum period of ten (10) years, and with a history of at least one hundred (100) successful Municipal Wastewater installations of non-contact UV systems. The manufacturer will submit a list of ten (10) similar UV systems installations operating in the last five (5) years.

2. The UV Manufacturer shall submit a Bioassay Validation Report for the proposed reactor conducted and certified by an independent third party. The bioassay protocol, testing, QAQC, data analysis, and report shall be in accordance with the NWRI Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse (May 2012). The bioassay shall have been conducted on an identical UV reactor to the proposed UV reactor, with identical UV lamps, reactor lamp symmetry, and configuration. The UV manufacturer shall demonstrate that the scale up factor from the UV reactor used for bioassay testing to the proposed reactor is less than the maximum allowable scaling ratio. The bioassay report testing shall clearly indicate the proposed reactor(s) ability to meet the specified dose with the number of total UV lamps.

3. The bioassay report shall include evaluations of the reactor performance over varying range of flow per AFP tube, the range of UVT % tested, and the MS-2 Reduction Equivalent Doses calculated per NWRI 2012. The bioassay validation testing must include comprehensively the range of flow, UVT %, and UV MS-2 RED specified for this project. Extrapolations of flow rates, UV Transmittance values, or UV doses outside the range actually tested shall not be permitted for design of the proposed UV system(s).

B. UV Design Criteria:

1. The UV equipment to be supplied and installed shall meet the performance requirement as stated below:

Peak Design Flow Rate (Peak Disinfection Flow Rate)	2.0/1,389	MGD/GPM
UV Transmittance	65.0	% UVT (Minimum)
Total Suspended Solids*	< 10.0	mg/l (7-day average)
Total BOD*	< 10.0	mg/l (7-day average)
Type of Reuse	Arizona Title 10 Class A+	
Indicator Organism	Fecal Coliform	
Permit Criteria 1	4/7	Samples Non-Detect for Fecal Coliform

Permit Criteria 2	23.0	MPN/100 mL, single sample maximum
Validated MS-2 RED	100.0	Minimum validated MS-2 UV RED of 100.0 mJ/cm2. UV Dose per Independent Third-Party Bioassay conducted in accordance with NWRI 2012- after applying certified Lamp End of Lamp Life (EOLL) and Fouling Factors.
End of Lamp Life (EOLL) Factor	.87	Validated by independent third party
AFP Tube Sleeve Fouling (FF) Factor	.89	Validated by independent third party
Plant Process	Tertiary Filtration > UV Disinfection.	
Particle Size*	< 30.0	Microns
Total Iron*	< 0.3	mg/l
Effluent Turbidity*	< 5.0	NTU

*Note: standard water quality parameters used.

C. UV Design Dose:

1. The UV disinfection system shall be designed to deliver a MS-2 Reduction Equivalent Dose of 100.0 mJ/cm^2 under flow and design conditions listed in Section 1.3-B.1 & 1.3-C.1, after adjusting for lamp End of Lamp Life (EOLL) and Sleeve Fouling factor (FF). The RED must be verified by the third-party validation bioassay per sections 1.3-A.2, and 1.3-A.3
2. The UV dose shall be adjusted using an EOLL factor of 0.5 to compensate for lamp output reduction over the time corresponding to the manufacturer's lamp warranty. A higher EOLL factor shall be allowed only if manufacturer can provide third party verified Microbial testing (testing for EOLL using MS-2) data that has been collected and analyzed in accordance with protocols described in NWRI Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse.
3. The UV dose shall be adjusted using a FF of .5 for contact systems (using quartz sleeves) and non-contact systems. A higher FF shall be considered if manufacturer can provide third party certified report that supports a fouling factor greater than .5, up to a maximum of .9; use of fouling factor greater than .9 shall not be allowed.

D. Head Loss

1. Flange to Flange Head loss through the reactor shall be as follows:

   a. Head loss through UV reactor < 3.5" at 2.0 MGD.

E. Operating Conditions:

1. The system shall be designed for indoor or outdoor covered installation, with ambient temperatures ranging between 20°F to 110.0°F, with effluent temperatures ranging between 1° C to 30°C.

1.4 EQUIPMENT

A. The Ultraviolet Disinfection (UV) system shall consist of the following components:

1. Reactor Model No: C9t.07103
   a. Number of reactors: 2

2. Each reactor shall consist of the following:
   a. Number of Banks per Reactor 3
   b. Number of AFP Tubes per Bank 70
   c. Number of Lamp Racks per Bank 11
   d. Number of Lamps per Lamp Rack 9
   e. Number of Lamps per Bank 99
   f. Number of Lamps per Reactor 297
   g. Number of Ballasts per Reactor 297

3. Reactor thermal control mechanism shall consist of the following:
   a. Air/water Heat Exchangers 4 per UV bank

4. The UV system shall include the following controls/monitoring:
   a. Radar Level Sensor 2 (one per reactor)
   b. UV Intensity Monitor: 6 (1 per UV bank)
   c. EDC: 2 (1 per UV reactor)
   d. PIO 2
   e. UV Control Panel: 1
   f. Power Disconnect Panels: 6 (1 per UV bank)
   g. Pump Panel 2 (1 per Reactor)

5. Spare parts consisting of the following:
   a. Spare UV Lamps 36
   b. Spare Ballasts 18
   c. Operator's safety kit includes UV resistant Gloves, and Face Shields that block UV light wavelengths between 200 and 400 nm. 2
   d. AFP Tube Cleaning Kit- Teflon Brush and extension kit with adaptable poles. 2
6. Effluent level control mechanism shall consist of the following:
   a. Effluent flat weir plate – installed in effluent tank 1

1.5 WARRANTY

A. PERFORMANCE WARRANTY

1. The manufacturer shall guarantee that the proposed UV disinfection system shall produce an effluent that meets or exceeds the requirements of this specification, listed in Section 1.3.B by delivering the specified MS-2 UV dose in Section 1.3.C. The effluent quality exiting the UV system must be equal to or better than the specification requirements, as long as the wastewater flow and quality remains in the range(s) specified in the Design Criteria in Section 1.3.B, and the UV reactors are operated in accordance with the UVSS O& M Manual.

B. EQUIPMENT WARRANTY:

1. The equipment furnished in the scope of supply (excluding lamps, ballasts) shall be warranted to be free of defects in material and workmanship, including damages that may be incurred during shipping for a period of 24 months from substantial completion of the installed UV system.
2. UV LAMPS: UV lamps shall be warranted for a minimum of 15,000 hours operating time under the conditions specified herein prorated after 12,000 hours. In the event of premature UV lamp failure, the UV system supplier shall offer the following:
    i. Lamp failure before 12,000 hours – send a replacement lamp free of charge.
    ii. Lamp failure after 12,000 hours – issue a credit proportional to the hours not used.
3. BALLASTS: Electronic ballasts are fully warranted for 3 years, extended to 5 years with first purchase of (1:1) replacement lamps from manufacturer's lamps within three years of installation.
4. AFP TUBES: AFP tubes shall be warranted for twenty years as long as the wastewater flow and quality remain in the range(s) specified in the Design Criteria, and the UV system is operated in accordance with the O&M manual.

1.6 ACCEPTABLE MANUFACTURERS

A. The equipment manufacturer shall be regularly involved in the manufacture and supply of low-pressure high output UV Disinfection systems for a minimum period of ten (10) years, and with a history of at least one hundred (100) successful Municipal Wastewater installations of non-contact UV systems.
B. Basis of Design for non-contact UV disinfection system and components shall be equipment manufactured and supplied by manufacturer/approved vendor, 1350 Specialty Drive-Ste.F, Vista, CA. All alternate manufacturers must be pre-qualified a minimum of 30 days prior to bid and must meet all performance, warranty, control and experience criteria.

1. Alternate equipment for the Basis of Design may be accepted for consideration if Seller of alternate equipment (Seller) adequately demonstrates to Buyer, at Buyer's sole discretion, that:

    a. The proposed alternate equipment shall be equal to the Basis of Design equipment and shall meet the design and performance criteria described herein, have the same warranty, shall maintain compliance of wastewater treatment plant discharge permit(s), rules, and

regulations, and not result in any adverse impacts on OWNER, including, but not limited to, additional capital or operational costs.

b. Seller shall indemnify buyer from any and all patent infringement claims that may arise from the purchase of seller's equipment.
c. Seller shall pay all costs to Buyer to re-design and re-schedule the Project and revise the Bid and Contract Documents as necessary for the incorporation of the proposed alternate equipment.
d. Seller shall provide documentation showing compliance with all sections of this specification at time of bid.

PART 2 - PRODUCTS

2.1 DESIGN, CONSTRUCTION AND MATERIALS

A. General

1. All module welded metal components in contact with effluent shall be Type 304 stainless steel.
2. All non-wetted metal components shall be Type 304 stainless steel with the exception of the Lamp Rack Assembly, which shall be constructed of aluminum and be capable of sustaining intermittent pedestrian traffic on the lamp racks.
3. All wiring exposed to UV light within the UV reactor, or electrical ballast enclosure shall be Teflon™ coated.
4. All wires connecting the lamps to the ballasts shall be enclosed inside the frame of lamp rack and not exposed to the effluent.
5. The effluent water shall be conveyed through the UV reactor via AFP_{840}™ tubes – there shall be no contact with effluent and quartz sleeves at any time during normal operation.
6. All wetted components in the UV reactor shall be: AFP_{840}™, 304 SS, PVC, ABS or other non-reactive, non-corrosive material.
7. The UV system (ballasts, lamps, and controls) shall be capable of 24 on/off cycles per 24-hour day for the full specified warranty life of the lamps and ballasts.

B. Lamp Array Configuration:

1. The lamp array configuration shall be the uniform array with all lamps parallel to each other and to the flow.
2. The UV reactor shall be designed to avoid any immersion of UV lamps in the Effluent.
3. The UV lamps shall be arranged around the outside of the AFP_{840}™ tubes in such a way that each AFP_{840}™ tube shall have no less than 6 lamps irradiating it at all times.
4. Reflectors optimized to reflect UVC wavelength of 253.7 nm, and improve UVC energy density within the UV reactor shall be arranged in between the UV lamps in the lamp racks such that each AFP_{840}™ tube reactor has a minimum of six (6) UV lamps and four (4) reflectors surrounding it.

C. Inlet/Outlet Flow Distribution:

1. Each UV reactor shall have an inlet and outlet tank. Plant effluent piping shall connect to each of the tanks to convey effluent through the UV reactor.

2. Connection to inlet and outlet tanks of UV reactor:
   Diameter: 16.00" Diameter (ASME/ANSI B16.5, CL 150 Flange)
3. Each UV reactor shall have a flow distribution sheet, so as to distribute wastewater efficiently through the AFP_{840}™ tubes.
4. The tanks and inlet flow distribution sheet shall be made of 304SS material. All material which comes in contact with the wastewater shall be non-corrosive.

D. Effluent Level Control Mechanism:

1. The UV reactor(s) shall have effluent level control mechanism installed in the effluent tank, provided by manufacturer. The weir geometry shall be designed such that the weir will flood varying # of AFP tubes based on flow thus achieving the required minimum submergence of the calculated # of AFP tubes and providing the minimum specified UV dose at varying flow conditions.
2. The effluent level control shall be a removable weir plate, and a weir frame installed in the effluent tank of the UV reactor. The weir plate and all mounting hardware shall be of 304 SS, to be supplied and installed by manufacturer.

E. AFP_{840}™ Tube Ultraviolet reactor:

1. Within the ultraviolet reactor, AFP_{840}™ UV transmitting tubes are arranged in a horizontal and vertical array. These AFP_{840}™ tubes are in a parallel mode and are attached at one end to the inlet flow distributor sheet and to the outlet flow distributor sheet with appropriate leak proof fittings. The AFP_{840}™ tubes shall be adequately supported.
2. In between and around the AFP_{840}™ tubes, lamp rack assemblies shall be placed in such a fashion so as to provide uniform and adequate ultraviolet light intensity. The lamp racks slide in and out between and around a row of AFP_{840}™ tube array.
3. Within the AFP_{840}™ UV reactor, all UV sensitive materials shall be protected from the UV light.
4. The flow path through the AFP_{840}™ tubes shall achieve optimized plug flow regime. The flow of wastewater should be in sufficient turbulent mode; therefore, the Reynold's number in each UV reactor would be greater than 50,000 at peak flow. A turbulent flow shall be in such a way that it scours the inner walls of the AFP_{840}™ tube to help prevent scaling or fouling.
5. The UV reactor shall be covered from five sides with either coated aluminum or stainless panels. The sixth side (top) shall have access door(s). The lamp racks shall be accessible through these doors.
6. The air temperature inside the AFP_{840}™ UV reactor shall be maintained between 90-120 deg. F by means of an air-air heat exchanger to minimize the potential for increase in the temperature of the disinfected effluent. The control of the reactor temperature shall ensure optimum UV light emissions from the UV lamp.
7. A temperature sensor shall be installed within the UV reactor for protection against heat build-up under no or low flow conditions.

F. UV Lamps: The UV lamps shall have the following characteristics:

1. A low pressure, high output (LPHO) non-amalgam mercury vapor lamp of the hot cathode type.
2. The filament shall be of the clamped design, significantly rugged to withstand shock and vibration.
3. Each lamp will produce at least 90% emissions at the germicidal frequency of 253.7 (254nm) nanometers.
4. The power consumption shall be a maximum of 138 input watts per lamp, total including ballasts losses shall not exceed 145 watts including ballast losses.
   The rated UV output at 253.7 nanometers (nm) shall be a nominal 57 UVC Watts at 100 hours of operation.
5. The lamp shall have a minimum UV intensity of >400 microwatts/cm^2 at 1 meter.
6. Each lamp shall have a rated life of 12,000 hours.
7. Each lamp shall be single ended. Each lamp shall have a nominal arc length of 1400 millimeters.
8. Each lamp has a minimum length of 1554 mm.
9. Each lamp shall produce no measurable amount of ozone.
10. Each lamp envelope is made of fused quartz and is capable of transmitting at 90% of UV light at 253.7 nm.
11. Electrical connections shall be at one end of the lamp and have six (6) pins, dielectrically tested for 2,500 volts. Lamps that have 2-4 pins (instant start) may be considered. However, to be considered as an alternate, instant start lamp systems shall supply replacement spare lamps equal to 20% of the total number of lamps in the system.
12. Each UV lamp shall have a smart lamp Module (an integral unique lamp identification chip) embedded in the lamp pin connector that enables the lamp position in the UV reactor to be altered independent of a lamp holder. The smart lamp module shall be capable of measuring and storing at a minimum the following data for each UV lamp in a reactor:
    a. Part and Serial number (unique identification) of each individual UV lamp
    b. Total accrued run time hours
    c. Lamp ON/OFF cycles

G. UV Lamp Racks

1. The UV lamp racks shall be placed between rows of the AFP_{840}™ tubes.
2. The lamp racks shall typically slide in and out within a track that shall be attached to the main frame of the UV reactor.
3. The use of cranes, hoists or other mechanical lifting devices shall not be required.
4. The lamp rack assemblies shall be made from aluminum.
5. Electrical mounting sockets shall be attached to one end of the lamp rack.
6. The other end of the rack shall have slotted holes to slide lamps in and out during installation and removal of lamps.
7. Reflectors optimized to reflect UVC wavelength of 253.7 nm, and improve UVC energy density within the UV reactor shall be arranged in between the UV lamps in the lamp racks such that each AFP840™ tube reactor has a minimum of six (6) UV lamps and four (4) reflectors surrounding it.
8. Quick power disconnects allow quick disconnect of the lamp rack assembly to the main power at the UV reactor chassis.

9. Each lamp rack shall be equipped with its own on/off switch and fuse.
10. Each lamp rack shall be equipped with an LED indicator to identify the operating condition of each lamp on the lamp rack.
11. Lamp Racks shall be removable for service during UV operation without impacting Hydraulic flow and still maintaining plug flow regime in the reactor.
12. Each lamp shall be controlled by an individual ballast. Systems that have one ballast controlling multiple lamps shall not be considered.
13. There shall be no quartz sleeves, O rings, seals, glands or retainers required to be around the lamps when installed in the lamp racks.

H. Electronic Ballasts:

1. The ballast used to energize the UV lamps shall be high frequency electronic ballasts. The ballasts shall be housed in the lamp rack assembly as an integral part of the lamp rack.
2. The electronic ballasts shall be rated at 120-277 V +/- 10% without discernible change of characteristics.
3. The electronics ballast shall have the following features:
   a. Power factor greater than or equal to 0.95.
   b. Electrical conversion efficiency greater than or equal to 90%.
   c. Ballast shall have high frequency phase returns from the UV lamps.
   d. The ballast operating frequency shall be between 40 and 150 K Hz.
   e. The ballast shall have a thermal overload protector to protect against overheating when ballast skin temperature reaches 75 deg. C.

I. UV Intensity Monitors

1. The UV reactor shall have a minimum of one UV intensity sensor per bank which responds to the germicidal portion of light generated. The sensor shall not degrade after prolonged exposure to the UV light or effluent.
2. The sensor shall measure only the germicidal portion of the light emitted by the UV lamps as measured at 254 nm. It shall have sensitivity at 254 nm of greater than 95%. Sensors whose sensitivity to other wavelengths amounts to more than 5% of the total sensitivity shall not be allowed.

J. Radar Level Sensor

1. 1. The inlet tank of each UV reactor shall include a radar level sensor and transmitter provided by Manufacturer of the non-contact UV disinfection equipment, which will monitor the water level in the inlet box and transmit a signal to the EDC for activation and de-activation of UV lamps based on the level in the influent tanks.
2. The radar level sensor/transmitter shall conform to the following requirements:

i.	Range:	Rod & coaxial: 9.8’ (3m) Cable: 18’ (5.5m)
ii.	Accuracy:	± 3mm
iii.	Dead band:	Top: 4” (10cm) Bottom: 2” (5cm)

iv.	Repeatability:	< 2mm
v.	Resolution:	< 2mm
vi.	Configuration:	WebCal® PC Windows® USB 2.0
vii.	Supply voltage:	10-30 VDC
viii.	Max. consumption:	< 50mA @ 24 VDC
ix.	Signal output:	4-20mA, 3-wire
x.	Signal fail-safe:	4mA, 20mA, 21mA, 22mA or hold last
xi.	Dielectric:	> 1.8
xii.	Process temp.:	F: -40º to 302º C: -40º to 150º
xiii.	Ambient temp.:	F: -40º to 185º C: -40º to 85º
xiv.	Pressure:	-14.5 to 250 PSI (-1 to 17 bar)
xv.	Enclosure rating:	NEMA 4
xvi.	Encl. material:	Aluminum
xvii.	Feed through mat.:	316L SS & PEEK
xviii.	Conduit entrance:	(1) 1/2" NPT connector
xix.	Probe material:	Rod: 316L SS Coaxial: 316L SS or galvanized Cable: 316 SS
xx.	Process mount:	3/4" NPT (3/4" G)
xxi.	Classification:	General purpose
xxii.	Certification:	cCSAus, NRTL
xxiii.	Compliance:	CE, CRN, RoHS

3. The radar level sensor/transmitters shall be Flowline EchoWave® LG10-11 Guided Wave Radar Level Transmitter or approved equal.
4. The radar level sensor/transmitter(s) shall be mounted atop the removeable lid of the inlet tank and extending to within one inch (1") of the bottom of the inlet tank.

K. Electrical:

1. The UV reactor shall be powered from its own incoming power supply (to be supplied by others).
2. All cabling, conduit runs and wiring from the plant power supply to the UV reactor shall be as shown on the construction drawings.
3. The CONTRACTOR shall be responsible for bringing main and control power to the UV reactor through a Branch Circuit protections device (disconnect) as shown on the drawings.
4. Electrical power required shall consist of the following:

a.	Main power to reactor banks(s):	480VAC, 3 phase, 4 Wire plus ground
b.	Control power to reactor(s):	120VAC, 1 phase, 2 wire plus ground
c.	Power to UV Control Panel:	120VAC, 1 phase, 2 wire plus ground
d.	Power to Cooling Pump Panel:	480VAC, 3 phase, 4 wire plus ground

L. Power Panels:
1. The power panel(s) for the UV banks shall consist of a UL 508-A NEMA 4X rated electrical enclosures. The power panels shall house the following:
    a. All contactors, disconnects, terminations and fuses required to power the appropriate bank.
    b. Electrical safety lock-out.

PART 3 – CONTROL

A. Analog Input Output Modules (AIO)
1. If required One (1) AIO module shall be supplied in the UV control panel. AIO module provides for Precision and Isolated Analog Input and Output. The analog signals are in the form of a 4-20mA current loop. The Inputs can be signals from Flow and/or Level Sensors.
2. Features of AIO modules:
    a. 2 RJ 45 Ethernet ports for network integration with EDC module
    b. Daisy Change up to 2 AIOs
    c. 2 Precision Analog Inputs – 4~20 mA, Isolated
    d. 1 Precision Analog Output – 4~20 mA, Isolated

B. Port Input Output Modules (PIO)

3. Two (2) PIO modules shall be supplied in the UV control panel. PIO modules provide for one Analog Input (4-20 mA) and Switch Inputs and Relay Outputs. Switch Inputs may be remote start signals from a PLC or HOA (Hand-Off-Auto) switch. Relay Outputs can be programmed to provide an Alarm signal, System Operating and/or Cooling Control..
4. Features of PIO modules:
    e. 2 RJ 45 Ethernet ports for network integration with EDC module
    f. Daisy Change up to 2 PIO's
    g. One Simple Analog Inputs – 4~20mA
    h. 4 Switch Inputs – Dry Contact
    i. 4 Relay Outputs – Switch 120VAC @ 6A
    j. 2 Temperature Probe Inputs

C. Electronic Data Center (EDC)

1. Each UV reactor shall be equipped with a supervisory microcontroller called Electronic Data Center (EDC). The EDC shall collect all the data from individual UV lamps, UV and other sensors in the system and shall display it at the HMI and remotely to the plant operation console. The Local display panel (HMI) shall show at a minimum the following data:
    a. On/Off status of lamps.
    b. Error Status of lamps and sensors.
    c. Lamp Hours
    d. An advanced signal for lamp service or replacement.
    e. UV intensity per UV Bank.
    f. The type and location of the alarm.
    g. The frequency of alarms shall be counted and stored.
    h. Alarms and historical operating data shall be stored in a removable storage device in comma delineated format.

2. Communication between each bank of UV rector and the EDC's shall be via CAT5 or CAT 6 Ethernet cable.

D. UV Control Panel (HMI Panel)

1. The HMI for non-contact UV provider's EDC's shall be installed and mounted in a UL 508-A NEMA 4X type 304 SS rated electrical enclosure to provide graphic interface for monitoring and control.
2. The HMI interface shall be 19" NEMA 4X Touchscreen Industrial Display (Hope Industries Model HIS-ML19 (Rev. G)) with VIA Technologies Windows 10 PC (AMOS-3005-1Q12A2), and shall display all system operational data, system operational history and shall allow access via remote internet connection for troubleshooting and system upgrades.
    a. The UV Control System enclosure shall house the following:
        i. 19-inch color touchscreen display
        ii. Windows 10 Industrial PC
        iii. Ethernet Switch, 8 port 10/100BaseT(X) (RJ45 connector. Weidmuller Model IE-SW-BL08-8TX
        iv. Electronic Data Center (EDC) EDC GEN 2- Part # 62.010037
        v. PIO (non-contact UV provider's Port I/O Modules). Part # 062.01003600
        vi. AIO (non-contact UV provider's Analog IO Module)
        vii. 24 V DC Power Supply. IDEC Slim Line Model PS5R-SB24
        viii. 500VA UPS. Marathon MODEL DINR500

E. ALARMING AND CONTROLS:

1. Minor alarms shall be communicated to the plant's SCADA system by the non-contact UV provider's EDC via either MODBUS TCP, or dry contacts to indicate to plant operators that maintenance attention is required. Minor alarms shall include:
    a. Low UV Intensity shall be pre-set at the factory for 70% of the intensity after 100 hours. Alarm set point shall be field adjustable.
    b. Single Lamp Out per UV Bank
    c. Lamp Life approaching EOLL
2. Major alarms shall be communicated to the plant's SCADA by the non-contact UV provider's EDC via either MODBUS TCP, or dry contact to indicate to indicate an extreme alarm condition in which the disinfection performance may be jeopardized. Major alarms shall include:
    a. Low UV Transmittance alarm, default at 65.5% UVT
    b. Low UV Intensity Alarm. This alarm shall be pre-set at the factory for 50% of the intensity after 100 hours burn-in of the lamps. The alarm set point shall be field adjustable. A low intensity alarm shall not cause any bank to turn off.
    c. Contiguous lamp failure alarm
    d. UV Bank Over Temperature Alarm.

F. Remote Monitoring and Control

1. **Each UV reactor will have a Hand -Off-Auto switch to allow local and/or remote operation**.
2. The Run command for the UV reactor shall be via hard wired connections from the Plant SCADA PLC to non-contact UV provider's PIO (port input output) for each UV reactor in the

UV control panel. The UV reactors can be turned ON or OFF by the Main Plant's PLC/SCADA system via an enable bit or by opening or closing dry contacts.

3. The UV reactor shall have the capability of providing basic remote monitoring/control via the plants main console (or another designated computer). The plant shall provide either an Internet IP address specific to the UV system or allow access through its network and via secure website.
4. Communications between the non-contact UV provider's EDC and the plant's SCADA system and integration of the UV system controls with the plant's SCADA system shall be provided by others. Connection/integration to the main console (or customer SCADA system) shall be MODBUS TCP protocol.
5. The following status IO's are provided both over network (MODBUS TCP) and as discrete outputs to Plant SCADA PLC, one per UV Bank, 18 total outputs.
    a. UV Bank (1.1, 1.2, 1.3, 2.1, 2.2, 2.3) ON
    b. UV Bank (1.1, 1.2, 1.3, 2.1, 2.2, 2.3)- Minor Alarm
    c. UV Bank (1.1, 1.2, 1.2, 2.1, 2.2, 2.3)- Major Alarm

G. Control Philosophy for the UV System.

1. At any given time, three UV banks shall be active, designated as DUTY.
2. The inlet and discharge isolation valves for each UV reactor shall be maintained in the proper (OPEN/CLOSE) positions by the operators, and the HOA selector switches for the required UV reactor banks shall be placed in their respective positions. For UV reactor banks to be utilized the HOA selector switches shall be in AUTO position. For UV reactor banks in Stand-by the HOA selectors shall be in OFF position.
3. Level Pacing (UV Dose Pacing):
    a. The effluent weir plate shall control the level of water in the UV system based on flow. The Weir geometry shall be designed to ensure that the minimum # of AFP tube required to be flooded downstream of the UV reactor at varying rows to deliver the minimum MS-2 UV of 100.00 mJ/cm^2 at the minimum UVT of 65.0% are flooded.
    b. This function is called controlled Level Pacing, wherein only the # of AFP tubes necessary to provide the minimum specified MS-2 RED based on flow and the specified minimum UVT% are flooded by the geometry and weir crest of the effluent weir. The associated UV lamps in each lamp rack of each UV bank, based on level of water in the influent tanks, are active, and the rest of the UV lamps are OFF. Level pacing of the UV lamps in the lamp racks of each UV bank is controlled by the EDC.
    c. Depending on the water level in the inlet tank, the turndown range (ratio of lamps in lamp rack to lamps used based on liquid level) shall be from as low as 33.3 % to 100.00 %. Determining water level shall be provided via an integral level sensor using a 4-20 mA signal terminated at the HMI panel.

4. The UV control system design shall allow operation of the UV system in either manual or automatic modes.

3.1 INSTALLATION

A. Equipment shall be installed by CONTRACTOR in accordance with the manufacturer's recommendations, drawings and specifications to provide a complete installation.

B. Installation Responsibilities of the CONTRACTOR

1. Provide Manufacturer with at least two (2) week notice prior to any changes in the installation date previously agreed upon by the OWNER and Manufacturer.
2. Sufficient space for moving into place and placement of all equipment supplied by Manufacturer.
3. Equipment anchoring and grouting including anchor bolts.
4. All required permits.
5. Structural work such as concrete pads, mezzanines for elevating equipment items, etc.
6. Interconnecting electrical outside of the UV Skid limits.
7. Connection and sealing of al flanges, fittings and connections to the adjacent plan processes.
8. All flanges, reducers, elbows, valves and other plumbing appurtenances not specified within these specifications shall be by the CONTRACTOR.
9. All electrical outside the skid limits including, transformers and disconnect switches. Equipment electrical supply shall be detailed on the shop drawings.
10. Protecting the UV reactor from damage between the time of delivery and installation.
11. Analytical testing.
12. Equipment unloading, moving and rigging into position.

C. Installation Responsibilities of Manufacturer

1. Equipment packaging for transportation from Manufacturer Factory to the job site.
2. All labor to complete the tasks listed as Manufacturer’s responsibility shall be performed as straight time rates by employees of Manufacturer is a non-union company, or our designated subcontractors.
3. Any deviations from this assumption shall require approval of a Change Order.

D. Startup Responsibilities of the CONTRACTOR

1. Provide the Manufacturer with a two (2) week notice prior to any changes in the start-up date previously agreed upon.
2. Availability of all required utilities.
3. Availability of typical feed water quality and quantity.

E. Joint Responsibility of Manufacturer and CONTRACTOR

1. Final assembly of and loading of the UV lamps supplied by Manufacturer.

F. Startup Responsibilities of Manufacturer

1. Startup Services:

a. The manufacturer's representative for the equipment specified herein shall be present at the jobsite for a minimum amount of workdays for services listed below. Excluded from these time requirements shall be travel time spent, time spent during shipping of equipment, time spent at the jobsite correcting any fabrication or manufacturing errors, and time spent preparing and operating the equipment to meet performance requirements including all performance testing. The Bid shall include all associated expenses incurred by the technical representative during the jobsite visits. The following services shall be provided in one trip:

i. One trip (two technicians), and three eight-hour workdays each included IO Checkout, electrical testing, Start-up, performance testing, commissioning, and operator training. The contractor will provide manpower ready to make any modifications that may be recommended by the factory experts.

ii. The contractor may operate the system by taking full responsibility after substantial completion. The inspection and verification must be completed before final acceptance. The equipment supplier will issue a letter to the engineer stating his certification or rejection of the installation if the equipment has been installed substantially as per the contract documents and documents provided by the manufacturer.

3.2 ELECTRICAL CONNECTIONS AND CONTROLS

A. Wiring and conduits for electrical power, controls, and instrumentation shall be provided by the CONTRACTOR.

END OF SECTION

DIVISION 15 –MECHANICAL

15110.1 DESCRIPTION

This section is a materials specification and is included for guidance in selecting materials for pipe and related fittings and appurtenances used in the construction of water and sewer systems.

15110.1.2 SUBMITTALS

The Contractor shall submit for review complete information, showing all pipe, materials, fittings, gaskets, couplings, coatings, linings, supports, mechanical restraints, thrust blocks and configuration prior to the delivery of any components to the project. Written evidence of compliance from the manufacturer shall accompany each delivery of material.

15110.1.3 DEFINITIONS

Not used.

15110.2 MATERIALS

15110.2.1 NSF COMPLIANCE

All pipe and materials furnished and installed for potable use shall comply with NSF 61. Also, all plastic pipe must be approved by the NSF for potable water use and shall carry the factory "NSF" stamped label on the pipe indicating such approval.

15110.2.2 Stainless Steel Pipe

15110.2.2.1 Pipe shall be 316L stainless steel per ASTM A312.

Size	Description
1 inch and smaller	Schedule 80, seamless
>1 inch to 3 inch	Schedule 80, seamless
3 inch and larger	Schedule 40, welded or seamless

All welding procedures and qualifications of the welding procedures shall conform to Section IX of the ASME Boiler and Pressure Vessel Code. All welders and welding operators shall be qualified under Section IX of the ASME Boiler and Pressure Vessel Code. Provide full penetration welds, free of cracks, overlap and cold laps.

15110.2.2.2 Joints

Size	Description
1 inch and smaller	Threaded, flanged or compression at valves and equipment
>1 than 1 inch	Threaded, flanged at valves and equipment
3 inch and larger	Schedule 40, welded or seamless

15110.2.2.3 Fittings

Fittings 3 inches and smaller shall be forged butt welded per ASTM A-182 or cast threaded and socket welded per ASTM A-351.

15110.2.3 MISCELLANEOUS FITTINGS AND MATERIALS

15110.2.3.1 PIPE SUPPORTS - Floor mounted pipe supports for suspended exposed piping systems shall be adjustable stanchion type supports designed to cradle the pipe diameter by 170 degrees. The support shall fit ductile iron or steel diameters snugly, without excessive gaps between the support and the pipe. Support saddle width shall be a minimum of 2 inches wide. The support must offer a minimum of 3 inches of final adjustment, after installation. Supports shall be supplied with independent base and adjustment collar designed to accept standard sized Schedule 40 galvanized steel pipe for coarse adjustment. Supports shall be fabricated from A36 mild steel and shall have an electro-galvanized finish. Floor mounted pipe supports shall be the Standon Model S92 or C92 as manufactured by Material Resources, Inc., 22700 N. W. Quatama Street, Hillsboro, Oregon 97124, or approved equal. The standard required model shall be the S92. Nonstandard materials or model numbers shall be as specified on the Drawings. Pipe supports shall be spaced a maximum of 10 ft apart for the pipes 8 inch and larger pipes and 5 ft apart for the pipes smaller than 8 inches.

15110.2.3.2 FASTENERS – Fastener requirements are as follows:

- Unless otherwise required in these Specifications or shown on the Drawings, all bolting hardware for buried pipe, fittings, valves, and components shall be of manufacturer's standard materials.

- Unless otherwise required in these Specifications or shown on the Drawings, all bolting materials for exposed pipe, fittings, valves, and components shall be Type 316 stainless steel. Where space restrictions preclude the use of regular bolts, stainless steel threaded studs may be used on all valve flange connections.

- In all instances where stainless steel threaded fasteners are used, a coating of an approved, permanent anti-seize compound shall be applied to the fastener to prevent galling and to assist in disassembly.

- All bolts and/or studs shall extend through the nuts at least 1/4 inch.

15110.2.3.3 COUPLINGS – Couplings shall meet the following requirements:

- Unless prescribed otherwise on the Drawings or in these Specifications, couplings shall meet the requirements of ANSI/AWWA C-219. All flexible couplings shall meet the minimum requirements of Smith Blair 400 series.

- Sleeves shall have a smooth inside taper and there shall be no surface irregularities on any sealing surface. Gaskets shall be suitable for the project application.

- Flexible couplings for buried DI and PVC pipe sizes 2 through 16 inches in diameter shall be fabricated of steel or ductile iron. For pipe sizes larger than 16 inches, flexible couplings shall be of steel. Coupling components for use in potable water systems shall be factory coated with an FDA approved, bonded epoxy coating, applied to an average 12 mil thickness.

- Flexible couplings for exposed pipe shall be manufactured of steel, unless shown otherwise on the Drawings, or approved by the Engineer. Coupling components for use in potable water systems shall be factory coated with an FDA approved, fusion-bonded epoxy coating, applied to an average 12 mil thickness.

15110.2.3.4 RESTRAINT HARNESS – Where required, restraint harness for bell and spigot pipe joints shall be as manufactured by EBAA Iron Co. or an approved equal. The restraint shall consist of a split bell ring to go behind the bell and a split, serrated ring to grip the pipe on the other side of the joint. The harness shall be held together with clamping bolts and tie bolts. The rings shall be

fabricated of 60-42-10 DI conforming to ASTM A-536. Clamping bolts shall be grade 5 zinc coated machine bolts. Tie bolts are of low alloy steel. The harness shall have a minimum working pressure of 150 psi. Harness size shall be as shown in the schedule on the Drawings or as specified in the Special Provisions.

15110.2.3.5 VALVES AND FITTINGS - Shall be as specified in their respective sections in these Specifications.

15110.4 METHOD OF MEASUREMENT

In general, fittings for pipe and piping systems are, and will be, considered appurtenant to the pipeline being installed unless specifically called out for separate payment on the Bid Schedule.

15110.5 BASIS OF PAYMENT

Not used.

15230.1 DESCRIPTION

This section covers furnishing and installing valves in water transmission and distribution lines, together with fittings, thrust blocking, and boxes and enclosures related to the operating equipment.

15230.1.1 RELATED WORK

Section 15110 - Pipe and Piping Systems

15230.1.2 SUBMITTALS

Written evidence of compliance from the manufacturer shall accompany each delivery of material.

15230.1.2.1 VALVES 12 INCHES AND SMALLER - For valve sizes 12-inches and smaller, the Contractor shall furnish the manufacturer's standard data and catalogues for review and approval.

15230.1.2.2 CONTENT - Submittals shall include complete details, dimensions, weights, diameter of stems, alloy for all valve parts and any information that may be required to assemble, install, operate, and maintain the valve.

15230.1.2.3 BUTTERFLY VALVES - Certification of performance together with leakage and hydrostatic tests as described in Section 13 of ASTM/AWWA C-504 and C516 standards shall be furnished to the Engineer upon the Engineer's request.

15230.2 MATERIALS – The materials of construction will be standard material used in such construction. Valve body shall be of cast iron per ASTM A126 Class B flanged body, AWWA C504 design with Class 125 flanged ends. The disc will be offset to provide 360 degrees seating edge and shall be 316 stainless steel ASTM A743. The disc shall be attached to the valve shaft with 316 stainless steel pins which can be removed/replaced in the field. Disc edges will be solid ASTM A276 type 316 Stainless steel. The Valve shaft shall be ASTM A276, type 316 stainless steel.

15230.2.1 BUTTERFLY VALVES - The 16-inch Butterfly valves called out on the plans will be full flanged Baw AWWA butterfly valves as manufactured by DeZurik Valves. The valves will be Uninterrupted seat Resilient Seated Butterfly valves. The valves will be installed on 16- inch pipe influent to UV disinfection reactors. Water will be filtered wastewater. The pipe will be under full flowing condition and pressure may not exceed 10 psi. The valve operation will be on-off application. Inlet side valves will be motorized operation. The downstream valves will be manual operation. Downstream valves will remain open all the time except when closed by the operator. The upstream valve will open when the reactor is selected for operation. Upstream valve operation will be integrated with the UV Reactor operation. The electric motor operator/actuator and limit switches will be sized to handle 50 psi internal pressure flow conditions.

Butterfly valves 3-20" (80-500mm) shall meet or exceed the requirements of the latest revision of AWWA Standard C504 for Class 150B butterfly valves. Valves 12" (300mm) and smaller shall have a working pressure of 200 psi (1380 kPa). When customer specified, valves shall meet NSF/ANSI 61/372.

Valve bodies shall be of cast iron per ASTM A126 Class B. Flanged end valves shall be of the AWWA C504 short body design with Class 125 flanged ends faced and drilled per ASME B16.1 standard for cast iron flanges. Mechanical Joint end valves shall meet the requirements of AWWA C111/ANSI 21.11.

Discs shall be offset to provide an uninterrupted 360-degree seating edge and shall be ductile iron ASTM A536 (65-45-12) or 316 stainless steel ASTM A743. The disc shall be securely attached to the

valve shaft utilizing a field removable/replaceable 316 stainless steel torque screw on sizes 3-12" (80-300mm) or a tangential pin locked in place with a set screw on sizes 14-20" (350-500mm).
Disc edges shall be solid ASTM A276, Type 316 stainless steel. Discs with bronze edges shall not be used. (Per AWWA C504, bronze disc edges are not suitable for installations where valves will be operated more than once per month.)

Valve shafts shall be ASTM A276, Type 316 stainless steel. Valve shaft seals shall be self-compensating V-type packing with a minimum of four sealing rings. One-piece molded shaft seals and O-ring shaft seals are not acceptable.

Seat shall be of Acrylonitrile-Butadiene (NBR) for water, or as required for other services, and shall be molded in and vulcanized to the valve body. The seat shall contain an integral shaft seal protecting the valve bearings and packing from any line debris. Seats vulcanized to cartridge inserts in the valve body and seats on the disc are not acceptable. Valve shaft bearings shall be non-metallic and permanently lubricated.

The motorized valves shall operate on 240V single phase power. Valves will be provided with local and remote switch on the valve and actuator will be accessible to operate controls.

Coatings, unless otherwise specified, exterior and interior metallic surfaces of each valve shall be coated per the latest revision of AWWA C504. The interior of the body shall have a full rubber lining vulcanized to the valve body. Mechanical Joint valves shall be fully rubber lined to point of pipe insertion. Rubber lining on the flange face and boot style seats are not acceptable.

Actuators shall be sized to customer-specified operating conditions. If actual operating conditions are not provided within customer's specification, per ANSI/AWWA C504, the valve actuator shall be sized to operate the valve at the rated working conditions of the valve. Each valve and valve actuator shall be assembled, adjusted, and tested as a unit per the latest revision of AWWA C504, by the valve manufacturer.

Ten position locking levers shall be available for 3-8" (80-200mm) valves. Provision must be made for locking in any of the ten positions using a standard padlock.

Manually actuated valves 3-20" (80-500mm) shall be designed and tested per the requirements of AWWA C504. Actuators shall be available in both weatherproof and buriable constructions with handwheel, chainwheel, or 2" (50mm) square AWWA nut input. All units shall have independently adjustable open and closed position stops that are adjustable under full line pressure and flow. Open and closed position stop adjustments shall not require the removal of any load or torque transmitting components.

Pneumatic and hydraulic cylinder actuators shall be double acting, stationary mounted, with all working parts totally protected within weatherproof enclosures. Actuators must be in total conformance to AWWA C540, when specified.

Two Year Warranty shall be provided for all valves and actuators.

15230.2.1.1 MANUFACTURER - Butterfly valves shall be Dresser Industries "450", Henry Pratt "Groundhog", Mueller Lineseal III, DeZurik, Keystone, or an approved equal.

15230.2.1.2 COMPLIANCE - Butterfly valves shall conform to AWWA C-504.

15230.2.1.3 CLASS - Valves shall be Class 150 seated, tight closing valves, furnished with mechanical or flanged joints.

15230.2.1.4 SEATS - Rubber valve seats shall be replaceable without disassembling the valve and shall not be interrupted by the shafting. Rubber seats may be retained on the disc edge by stainless steel clamping in lieu of bonding to the valve body.

15230.2.1.5 SHAFT PACKING - Shaft packing shall be of the self-adjusting permanent type.

15230.2.1.6 OPERATION - Underground opening and closing shall be accomplished with permanently lubricated screw-type operators, totally enclosed and of watertight construction. Overload protection shall be incorporated into the operator allowing the application of 450 foot-pounds input torque at full-open and full-closed positions without damage to the operator or valve. A 2-inch square wrench nut and valve box shall be provided for operating the valve. Valves shall open counter clockwise unless indicated otherwise in the Special Provisions.

15230.2.2 OPERATING WRENCHES

Unless notified otherwise by the Engineer, the Contractor shall furnish two T-handle, operating wrenches for each project incorporating valves with 2-inch square-head operating nuts.

15230.3 CONSTRUCTION REQUIREMENTS

15230.3.1 SETTING VALVES

All valves shall be set and jointed to the pipe in the manner described for pipe laying and jointing in the Drawings. Valves shall be oriented with the operating nut vertical.

15230.3.2 VALVE RESTRAINT

Restraint shall be installed on all valves connected with slip-on, gasketed, or O-ring joints (i.e., bell & spigot, mechanical, etc.) in accordance with these Specifications and as shown on the Drawings.

15230.3.3 CONNECTING TO EXISTING MAINS

15230.3.3.1 CONNECTION TO EXISTING WORK - All connections to existing water mains shall be made by the Contractor, unless otherwise provided in these Specifications. The Contractor shall provide labor and materials, including special fittings and restraint devices, required to make the required connections between existing lines and new lines.

15230.3.3.2 INTERRUPTION OF SERVICES - Where the connection of new work to old requires interruption of service, the Owner, Engineer and Contractor shall mutually agree upon a date for such connection which will allow ample time to assemble labor and materials and to notify all customers in accordance with Section 01510.

15230.4 METHOD OF MEASUREMENT

15230.4.1 VALVES

Excavation, foundation preparation, restraint devices, valve boxes, backfill, and other miscellaneous devices, materials, or equipment required for installation shall be considered part of and included in the measurement of all valves and valve assemblies.

15230.4.1.1 NUMERICAL COUNT - When valves are installed as separate items or assemblies, the measurement shall be determined by counting the number of each size and type (including any associated valve box and concrete valve box collar) of valve installed and accepted.

15230.4.1.2 LUMP SUM - When valves are located in an enclosure, measurement shall be made as lump sum for the enclosure assembly and shall include the valve, any supplemental valves and fittings in the enclosure, and the enclosure.

15230.4.2 NO SEPARATE MEASUREMENT

No separate measurement will be made for thrust blocks or other restraint provided with valves and fittings. Measurement for these items will be included with the quantity of the assembly whereon they are installed.

15230.5 BASIS OF PAYMENT

The accepted quantities will be paid for at the contract unit price.

PAY ITEM	UNIT
(Size) Butterfly Valve	Each

ELECTRICAL
&
INSTRUMENTATION

16010.1 DESCRIPTION

The General Conditions, Supplementary General Conditions, Alternates and Addenda, applicable drawings and the Technical Specifications herein shall apply to the providing and construction of a complete electrical system under the requirements of this Division 16.

16010.1.1 RELATED WORK AND REFERENCED SECTIONS

Section 01300 - Submittal Procedure
Section 02200 - Backfilling Trenches
Section 16150 - Electrical Control Devices
Section 16400 - Service and Distribution System

16010.1.2 SCOPE

A. The Work required under this Section consists of the Electrical General Requirements and related items necessary to complete the Work indicated within the Contract Documents.

B. This Section describes procedures and incidental items of Work relating to Electrical Division 16.

C. The drawings are diagrammatic, intended to indicate the general scope and location of the Work to be installed and are not to be considered as complete in every detail. The Contractor shall install all Work indicated and/or specified herein, complete in every way to perform the function (s) intended without additional cost.

D. Plans and Specifications are complementary; whatever is called for in either shall be as called for in both. In the event Work is called for in more than one place and is of conflicting requirements, the right shall be reserved to require the installation of the larger or the more expensive.

16010.1.3 CONTRACT DOCUMENTS

A. Contract documents consist of drawings, specifications, and other documents issued by the Engineer. Each is complementary and requirements shown, written or reasonably inferable therefrom on one is considered as written, shown and implied in all.

B. Electrical drawings are diagrammatic but shall be followed as closely as actual construction and Work of other Contractors will permit. Runs to panels from outlets referred to as “home runs” are indicated, by pointing in the general direction of panels. Contractor shall continue such circuits to the panels as though the routes were completely indicated.

C. Deviations from the Drawings required to make Work of this Contract conform to Building as constructed, or as to Work of other contractors or subcontractors, shall be made by the Contractor at his expense. The Engineer reserves the right to make minor changes in the location of equipment and outlets without additional charges.

D. The Contractor shall familiarize himself with the architectural and mechanical plans. The Contractor shall perform all Work and provide all material required by the electrical Contractor shown under these and all other sections of the plans and specifications.

16010.1.4 SUBMITTALS

All submittals shall meet the requirements of Section 01300 of these Specifications.

16010.1.4.1 SHOP DRAWINGS – Submittal of shop drawings shall be as follows:

A. Submittal of shop drawings shall meet the requirements of Section 01300 of these Specifications.

B. Shop drawings shall be submitted within fifteen (15) days after the award of contract.

C. Shop drawing shall include functional and descriptive literature of the particular item furnished complete with dimensional drawings, rough-in and installation instructions, knock-out locations, hangers or mounting devices, etc., as required for the proper checking and installation of the equipment. Catalog sheets without any reference made to the particular item will not be acceptable. All special features called for in the Contract Documents shall be noted. Where performance test results of a product design are called for in the technical sections of these specifications, test data sheets shall be provided with the shop drawing submittal.

D. Shop drawings shall be submitted for all switch gear, motor control centers, motor starters, control panels, telemonitoring panels, alarms, electrical controls, electrical instrumentation, communication devices and circuitry, lighting fixtures, and equipment anchors and supports for seismically supported components.

E. In connection with seismic restraint requirements, shop drawings are required for all equipment anchors, supports, and seismic restraints. Submittals shall include weights, dimensions, load/deflection data, centers of gravity, standard connections, manufacturer's recommendations, and behavior problems (vibration, thermal, expansion, etc.) associated with equipment so that the final design can be properly reviewed.

F. Three preliminary sets shall be submitted to the Architect/Engineer for their review. Following review, two sets will be returned to the Contractor for correction. After corrections have been made, the formal six sets of the corrected shop drawings shall be submitted for final review and distribution.

G. Each shop drawing required under this or other sections of Division 16 shall be bound together in sets in one hard back three ring binder per set, properly indexed for the formal submittal. Binders shall be properly sized to adequately contain all of the materials to be placed therein and shall be labeled to identity the Owner, the name of the job, the name of the Contractor and/or any sub-contractor (s), and any other pertinent information.

16010.1.4.2 MATERIALS LIST - A materials list including manufacturer, type, size, model number and other properties shall be submitted for all raceway, conduit, fittings, support materials, wire, cable, junction boxes, and wiring devices, including boxes for weather proof devices.

16010.1.4.3 EQUIPMENT/INSTRUMENT LIST - Equipment/Instrument list(s) including manufacturer, type, size, model number and other properties shall be submitted for all equipment and instruments.

16010.1.4.4 OPERATION AND MAINTENANCE MANUAL – The Contractor, or electrical subcontractor, shall assemble and deliver to the Owner an operation and maintenance (O&M) manual for the electrical systems furnished and installed in connection with the Work. O&M manuals shall be as follows:

A. Number of copies shall be as specified in Section 01300 or as required in the Special

Provisions or by the Engineer or the Owner. The O&M manual shall be reviewed and approved prior to the final inspection.

B. Each copy of the O&M manual shall be bound in a hard-backed binder. The front of each binder shall have the following information printed on it by silk screen process:

OPERATION AND MAINTENANCE MANUAL
FOR
(*PROJECT NAME*)
(*SPECIFIC SYSTEM NAME AND/OR LOCATION*, as appropriate)
(*OWNER'S NAME*)

C. Each copy shall contain a master index at the beginning of the manual showing all items included.

D. A separate section for each different type of item of equipment or information furnished shall be provided. Use plastic tab indexes for all sections of the book.

E. The first section of the manual shall consist of the names, addresses and telephone numbers of the Mechanical Engineer, Electrical Engineer, General Contractor, Electrical Contractor.

F. Descriptive literature (manufacturer's catalog cuts and other data) of each manufactured item shall be included. Literature shall show capacities and size of equipment used and shall be marked indicating each specific item with all applicable data underlined.

G. Operating instructions shall, at a minimum, include:

1. General description of the electrical system.
2. Where applicable, a step-by-step procedure to follow in putting each piece of electrical equipment in operation.
3. Provide diagram for the electrical control system showing the wiring of all related electrical control items, such as fuses, interlocks, electrical switches and relays.
4. Test results of all items requiring testing as called for in the technical section of specifications.

H. Maintenance instructions shall, at a minimum, include:

1. Manufacturer's maintenance instructions for each piece of electrical equipment installed in the project. Instructions should include installation instructions, parts numbers and lists, operation instructions of equipment, name of vendor, and maintenance and lubrication instructions.
2. A summary list of each piece of electrical equipment requiring lubrication, showing the name of the equipment, location, type and frequency of lubrication.
3. A complete list of all electrical equipment used indicating name, model, serial number and nameplate data of each item, together with number and name of each system with which the item is associated.

I. An approved copy of the manual shall be used during final inspection and shall be left with the Owner for its use and disposition.

16010.1.4.5 OTHER INFORMATION - Other information shall be provided as required by the Engineer.

16010.2 MATERIALS

All equipment and materials shall be as specified, new, of the best quality and free from defects. Each type of equipment or material shall be the same make and quality.

16010.2.1 UNDERWRITERS LABORATORIES

All equipment, materials, and devices shall be approved by Underwriters Laboratories, Inc. (UL). Custom designed items shall be fabricated using UL approved materials. All custom panels shall bear the UL label certifying UL-508 standards.

16010.2.2 MATERIALS AND EQUIPMENT TO BE SUPPLIED

The Contractor or electrical Subcontractor shall provide all materials, equipment, and any other fittings or devices required for a complete and finished installation. Materials and equipment shall be as shown on the Drawings and/or as called for in these Specifications, including the Special Provisions if any, unless otherwise approved, in writing, by the Engineer.

16010.2.3 APPROVAL OF SUBSTITUTIONS

Equipment and materials are designated by one or more manufacturer's name brands or numbers. It is not the intent of the Specifications to exclude other equipment or materials that equal the standard of those specified. If the Bidder, in its bid, desires to use equipment or materials other than those specified, the Bidder must obtain written approval from the Engineer in this regard at least seven (7) calendar days prior to bidding. Submit complete data, including detailed specifications and drawings with written request in duplicate. Samples may be requested if deemed necessary. Certificates of compliance with specifications or a list of all exceptions to the specifications shall be included with request.

16010.2.4 STORAGE OF EQUIPMENT AND MATERIALS

A. The Contractor shall be responsible for the proper transportation, unloading, storage, and holding of all electrical systems, materials, and equipment until they are installed in the Work, and accepted by the Owner. This shall include responsibility for damage, loss, theft, and pilferage.

B. Materials and equipment shall be handled and stored in accordance with the manufacturer’s and/or supplier’s instructions. Packaged items shall be stored in original, undamaged condition with manufacturer’s seals and labels intact. Materials and equipment shall be stored in a neat and orderly condition at all times and allowing for easy access for inspection.

16010.2.5 RACEWAYS AND FITTINGS

The manufacturer shall be Republic Steel, Triangle, National, Carlon, Allied or approved equal. All conduits shall be in accordance with the requirements of the National Electric Code (NEC) and applicable local codes. Steel conduit shall be in accordance with recommendations of the latest edition of American Iron and Steel Institute “Design Manual on Steel Electric Raceways.”

A. RIGID GALVANIZED STEEL CONDUIT (RGS)

1. Shall be USAS C80.1, zinc-coated by hot-dip galvanizing or sheradizing with additional enamel or lacquer coating.
2. Fittings shall be threaded type and of the same material as the conduit.
3. Unless otherwise noted, rigid metallic conduit shall be used for underground runs, under slab runs, and where runs are placed in concrete. It shall also be used

for exposed runs in mechanical rooms and for other exposed runs where the conduit is exposed to moisture, weather or mechanical injury.

4. Where rigid metallic conduit is used for underground installations, including elbows required to make sweeps in PVC conduit runs, the conduit shall be wrapped with 3m-50 10 mil pipe wrap or approved equal.

B. INTERMEDIATE METAL CONDUIT (IMC)

1. Shall be UL Standard 1242, hot-dip galvanized steel.
2. Fittings shall be threaded type and of the same material as the conduit.
3. It can be used for exposed runs in mechanical rooms and for other exposed runs where the conduit is exposed to moisture, weather or mechanical injury.
4. **This conduit shall not be used in hazardous areas.**

C. ELECTRICAL METALLIC TUBING (EMT)

1. Shall be in accordance with UL "Standard for Electrical Metallic Tubing" No. 797, galvanized mild steel with interior coat of enamel.
2. Fittings shall be steel compression type.
3. **Cast type, indenter, or set-screw type fittings shall not be used**.
4. EMT shall be used for exposed and concealed runs to lighting fixtures above 10 feet or above ceilings.
5. **Not approved for any exposed conduit runs or drops**.

D. NON-METALLIC CONDUIT (PVC)

1. Shall be PVC Schedule 40 heavy wall suitable for direct burial.
2. Fittings shall be threaded or solvent welded type of the same material as the conduit.
3. **Shall not be used above grade or embedded in concrete, except as noted specified for runs above 600 volts. PVC shall not be used where exposed or concealed in walls or floors**.
4. PVC may be used for all underground runs, except for bends exceeding 22 degrees where jacketed or wrapped rigid galvanized steel is required, and runs under concrete slabs. Runs under concrete slabs shall be embedded in earth a minimum of 4 inches below the bottom of the slab. Risers through concrete slabs shall be rigid steel or intermediate metal conduit.
5. Provide PVC to steel adapters as required.

E. FLEXIBLE LIQUID-TIGHT CONDUIT

1. Shall be galvanized steel, liquid-tight, with moisture and oil- proof extruded PVC cover.
2. Fittings shall be liquid-tight, compression type.
3. Approved for flexible connections to equipment, items or instruments subject to vibration such as motors, fans, pumps, dry transformers, etc.
4. **Flexible Liquid-tight conduit shall not be less than 18 inches in length and not more than 3 feet in length**.

F. FLEXIBLE STEEL CONDUIT

1. Shall be galvanized steel.
2. Fittings shall be compression type of the same material as the conduit.
3. Shall be used for lighting fixture runs above drop ceiling grid systems or other devices required or approved by NEC or as requested or approved by the Engineer. (Install ground conductor per NEC in runs over 6 feet in length.)

G. PVC COATED CONDUIT

1. Rigid Steel conduit coated with a minimum of 40 mil of PVC coating shall be used in all corrosive areas or where required by NEC or the Engineer.
2. **All fittings, boxes, support materials, clamps, etc., used with PVC coated conduit shall be PVC coated in a like manner**.
3. Wiring devices shall be corrosion resistant UL rated in corrosive areas requiring PVC coated conduit.

H. WALL AND FLOOR SLEEVES

Shall be galvanized sheet steel or pipe.

I. CLAMPS

1. Shall be galvanized malleable iron one-hole straps, beam clamps or other approved device with necessary bolts and expansion shields.
2. **Perforated metal straps shall not be used**.

J. CONDUIT SIZES

1. Shall be as indicated on the drawings.
2. **Shall not be smaller than ¾ inch exposed or 1 inch buried conduit unless otherwise specifically approved by the Engineer**.

K. CONDUIT BUSHINGS

1. For conduit 1-1/4 inch and larger use OZ type BLG or SBLG with Lay-in-Lug.
2. Use Lay-in-Lug bushings on multiple conduit entrances to enclosures or gutters.
3. Bonding bushings shall be used on conduits containing service entrance conductors.

L. ENTRANCE SEALS

Provide and install OZ entrance seals on all conduits entering building below grade.

M. RACKS AND SUPPORTS

1. Conduit support racks, Unistrut supports and fittings, etc., shall be hot-dipped galvanized, except in corrosive areas where the supports and fittings must be PVC coated.
2. **Painted metal supports are not allowed**.

N. PULL BOXES

1. Pull boxes, which are required for proper conduit installation, shall be sized according to the requirements of Article 314 of the NEC.
2. Conduit bodies shall be cast type with threaded hubs.
3. Outdoor, buried pull boxes shall be Oldcastle H-Series or equal.
   a) Pull boxes shall be sized per NEC 314.28.
   b) If fully enclosed pull boxes are used, they shall be coated with coal tar epoxy per specification 9900.3.2.4.

O. OUTLET/JUNCTION BOXES

1. Boxes shall be provided in the wiring or raceway systems wherever required for routing/pulling of wires, making connections and mounting of devices or fixtures.
2. Boxes in exposed conduit runs shall be cast metal condulets with threaded hubs installed exposed. **Non-metallic boxes are not allowed**.
3. Each box shall be metal and shall have the volume required by the National Electrical Code for the number of conductors enclosed in the box. Boxes for mounting lighting fixtures shall not be less that 4 inch octagonal or 4 inch square except that smaller boxes may be installed as required by fixture configuration, as approved. Boxes in the raceway system shall not be less than 1-1/2 inches deep, except where shallower boxes required by structural conditions are approved.
4. Boxes for other than lighting fixture outlets shall not be less than 4 inches square.
5. Boxes in concealed conduit runs shall be equipped with tile extension rings, device mounting straps and accessories required for the purpose of the outlet.

16010.2.6 A. CONDUCTORS

1. Shall be of the type, size, and locations as shown on the Drawings and meet the requirements of the latest addition of the National Electric Code (NEC).
2. Shall be soft-annealed coated copper in accordance with ASTM B33 or B189.
3. Conductors No. 10 and smaller shall be solid copper for lighting circuits only, all other circuits shall be stranded copper.
4. All conductors shall be THHN/THWN copper rated at 600 volts, unless otherwise noted.
5. **Aluminum conductors will not be allowed**.

B. GROUNDING CABLE

Shall be as called out on the drawings and per NEC. (Grounding lugs shall be the clamp type made of high conductivity copper alloy and shall be provided for all equipment to be grounded.)

C. VFD CABLE

Conductor size shall be as shown in Plans and shall meet the requirements of the latest addition of the National Electric Code (NEC). Cable shall meet the requirements below:

6. Cable shall be designed for VFD applications and shall be rated 600V/2kV, NEC Type TC with a 90°C rating.
7. Three Copper circuit conductors with XLPE insulation.
8. Three symmetrical copper ground wires.

9. Spiral copper tape shield with 100% coverage.
10. Outer PVC jacket.
11. Suitable for Indoor, Outdoor, Burial and Oil Resistance

Acceptable manufacturers:

1. Belden
2. Southwire
3. Approved Equal

16010.2.7 SPLICES, TAPS AND TERMINATIONS

A. Splices, taps and terminations made in interior damp or wet locations, corrosive atmosphere locations or exterior boxes above or below grade shall be covered with 3M heat shrinkable ITCSN series sleeves or end caps or Raychem equal as approved by the Engineer.

B. All splices shall require approval by the Engineer.

16010.2.8 SAFETY SWITCH DISCONNECTS

A. Provide disconnect switches where shown and required by NEC as specified herein.

B. Type: Heavy duty, manual, single throw, fusible or non-fusible as indicated.

C. Rating: 600 volt, ampere size as noted or as required for load served.

D. Enclosure: Nema 4, Gasketed stainless steel or as called out in equipment schedule on drawings. Stainless steel 316 shall be used in hazardous/corrosive areas. Stainless steel 304 shall be used in all other locations.

E. Fuses: Switches shall be equipped with Type "R" fuse clips factory installed. Fuses shall be dual element type RK5 of size as noted.

F. Non-Fusible Switches: For equipment 2 horsepower and smaller, shall be horsepower rated; toggle switch type; quantity of poles and voltage rating as indicated. For equipment larger than 2 horsepower, switches shall be the same as fusible type.

16010.2.9 JUNCTION BOXES

A. Junction or pull boxes, which are required but not shown, shall be sized according to requirement of Articles 370 and 373 of NEC.

B. Shall be cast type condulets with threaded hubs.

16010.2.10 WIRE DEVICES

A. Switches: 20 ampere, 120/277 volt, toggle type. Single pole used as designation for entire series - double pole, 3-way, 4-way or lock type. Hubbell #1221, Bryant #1221, Leviton #1221. Switch and pilot shall be Hubbell #1221-PL or Leviton #1221-PL. Double pole toggle switch shall be Hubbell #1222-2.

B. Ground Fault Interrupter Receptacles: 20 ampere, 125 volt, NEMA 5-20R, gray color. Leviton #6398.

C. Receptacles: 20 ampere, 125 volt, NEMA 5-20R, gray color for locations where indicated. Hubbell #5352, Bryant #5352, or Leviton #5352.

D. All devices shall be gray in color.

E. Special receptacles other than those listed above shall be as designated on the drawings.

F. Device Plates:

1. For surface mounted boxes plates shall be stainless steel suitable for use on cast metal device boxes, condulet FS and FD types. Shall be complete with gaskets and approved for wet locations.

2. For flush boxes in finished areas, plates shall be stainless steel. Gang plates shall be one-piece.

16010.3 CONSTRUCTION REQUIREMENTS

Unless notified otherwise, the Contractor responsible for the electrical Work shall perform all electrical work in accordance with the Drawings and with these Specifications.

16010.3.1 CODES, PERMITS, LICENSES AND STANDARDS

A. PERMITS AND LICENSES – The Contractor shall secure all permits and licenses required in connection with this work.

B. CODES AND STANDARDS - All work, labor, and equipment shall conform to applicable State and Local Codes and Standards and the applicable sections of the latest revisions of the following:

- American Society for Testing and Materials (ASTM)
- National Fire Protection Association, National Electrical Code (NEC)
- Insulated Power Cable Engineers Association (IPCEA)
- Underwriters Laboratories Inc. (UL)
- American Steel and Iron Institute, “Design Manual on Steel Electrical Raceways”
- National Electrical Manufacturer’s Association (NEMA)
- American National Standards Institute (ANSI)
- Institute of Electrical and Electronic Engineers (IEEE)
- Uniform Building Code (UBC)
- Uniform Fire Code (UFC)
- Sheet Metal and Air Conditioning Contractors National Association (SMACNA)

Conflicts between any of the above referenced codes and standards and between any of them and these Specifications and/or the Project Drawings shall be resolved by complying with the more stringent requirements.

16010.3.2 SAFETY

A. REGULATIONS - The Contractor’s work shall conform to the Associated General Contractors of America, Inc. *Manual of Accident Prevention in Construction* and shall comply with all current regulations of the Occupational Safety and Health Act (OSHA) as required for work identified on the Drawings or in these Specifications.

B. SAFETY GUARDS - All equipment, which the Contractor furnishes and installs, shall be provided with appropriate safety guards for prevention of accidents. The Contractor shall provide and maintain any other necessary construction required to secure safety of life or property, including the maintenance of sufficient lights to secure such protection.

16010.3.3 DIAGRAMMATIC DRAWINGS

A. The electrical drawings are diagrammatic, intended to indicate the general scope and locations of the work to be installed and are not to be considered as complete in every detail. The Contractor shall install all work indicated and/or specified herein, complete to perform the function intended without additional cost.

B. The electrical drawings are diagrammatic, however, they shall be followed as closely as actual construction and work of other contractors will permit. Runs to panels from outlets, referred to as "home runs", are indicated on the drawings by arrows pointing in the general direction of panels. Contractor shall continue such circuits to the panels as though the routes were completely indicated. Deviations from drawings required to make the work of this Contract conform to building as constructed, or as to work of other contractors, shall be made at the Contractor's expense. The Engineer reserves the right to make minor changes in the location of equipment and outlets without additional charges.

16010.3.4 SITE EXAMINATION

Examination of the site shall be made by the Contractor, who shall compare it with the drawings and specifications and satisfy himself as to the conditions under which the work is to be performed. The Contractor shall, at such time, ascertain and check all conditions which may affect its work. No allowance shall subsequently be made in the Contractor's behalf for any extra expenses to which the Contractor may be put due to failure or neglect on its part to make such examination and determination of the condition.

16010.3.5 SUPERVISION

A. A competent foreman or superintendent, approved by the Owner's Representative, shall be at the site at all times to receive instructions and shall have the proper authority to act on behalf of the Contractor. The Contractor shall verify dimensions given on the electrical drawings and report any errors or inconsistencies to the Engineer before commencing the work. The Engineer or its representative will interpret the meaning of the Drawings and Specifications where questions arise.

B. Contractor shall assign persons to be in direct charge of work who are thoroughly experienced in the types of construction work specified herein. All labor shall be performed in a workmanlike manner by skilled workmen under the supervision of competent foremen.

16010.3.6 WORKMANSHIP

Workmanship shall be in accordance with the best present-day construction methods and shall be neat and orderly throughout the project.

16010.3.7 COORDINATION OF CONSTRUCTION

A. The Contractor shall coordinate work with other contractors, subcontractors, the Owner, and the Engineer to assure orderly and expeditious progress of work. The Contractor shall select order/sequence of work and establish schedule of working hours for construction, all subject to review and direction by the Owner.

B. This Contractor shall be held solely responsible for the proper installation of its work. The Contractor shall arrange with the proper contractors for the installation of anchors and other embedded devices, and for the leaving of required chases, openings, etc., and shall do all cutting and patching made necessary by its failure or neglect to make such arrangements with others. Any cutting or patching done by this Contractor shall be subject to the directions of the Engineer and shall not be started until approval has been obtained.

C. All cutting, welding or drilling of concrete or structural members shall be properly reinforced and patched to match as nearly as possible the surrounding work. Before cutting, welding or drilling any concrete or structural member, the Contractor shall secure the approval of the Engineer. Where deemed appropriate by the Engineer, in the case of gross negligence pertaining to this issue, the Engineer reserves the right to back-charge the Contractor for the Engineers associated costs.

16010.3.8 **INSTALLATION**

RACEWAY AND FITTINGS

A. STANDARDS

1. All conduit to be installed in accordance with the requirements of the National Electrical Code, latest addition.
2. Steel conduit to be installed in accordance with recommendations of American Iron and Steel Institute “Design Manual on Steel Electrical Raceways”, latest addition.
3. PVC coated conduit installed in accordance with manufacturer instructions.

B. ELECTRICAL CONTINUITY

All metallic conduit systems shall be electrically continuous throughout.

C. MOISTURE

1. All conduit raceway systems shall be essentially moisture tight.
2. Conduit drainage shall be accomplished by sloping conduits towards manholes or boxes.
3. Where pockets cannot be avoided in exposed conduits, provide drainage fittings or weep holes. Weep holes drilled through the walls of any conduit or fitting shall not produce burrs on the inside or outside surface.

D. ALIGNMENT OF EXPOSED CONDUIT

Install conduit runs parallel or at right angles to lines of structure.

E. FIELD CUTS AND THREADS

1. Field cuts shall be made square, threads clean and sharp.
2. Remove burrs, sharp or rough edges by reaming.
3. Before couplings or fittings are attached, apply a coat of red lead or zinc chromate to male threads of RGS or IMC conduit, also apply these coatings or other special compound recommended by the manufacturer of the conduit where the conduit protective coating is damaged.

4. PVC coated conduit system requires male threads on conduit, elbows and nipples and all female threads on fittings or conduit couplings to be protected by application of a urethane coating.
5. **Care must be taken to assure that concrete surfaces are protected from cutting oil, any/all damage will be the responsibility of the Contractor**.

F. BENDS

1. Uniform, whether job-fabricated or made with standard fittings or boxes.
2. Do not dent or flatten conduit
3. Conduit installation should be installed symmetrically insofar as practicable.
4. Unless approved otherwise, bends larger than 1-1/4 inch shall be factory made.
5. Bends in exposed conduit shall be symmetrical insofar as practicable.
6. Do not expose bends at floor or ceiling.

G. LOCATION

1. Conduit routing is generally shown in schematic fashion, unless dimensioned or noted to the contrary.
2. Contractor is responsible to route conduits as required to connect equipment or devices.
3. Vertical risers, equipment and device locations are approximately as indicated on the drawings. Contractor shall coordinate installation of conduit with structure and equipment.
4. Contractor is responsible to coordinate conduit installation with other contractors installations, in the event of conflict, field routed conduit shall be moved at the Contractors expense.
5. Conduit shall be located a minimum 6 inches away from steam, hot water, or other hot surface. Protect from heat, as Engineer approved, if the 6 inch separation is impracticable.
6. Diagonal installation is not permitted.

H. BURIED/EMBEDDED CONDUIT

1. RGS conduit installed underground, or used in PVC runs for sweeps larger than 22 degrees, must be wrapped with 3M-50 10 mil pipe wrap, approved asphalt compound or approved equal.
2. Mid-run weep holes and gravel drainage pockets will not be permitted.
3. Conduits embedded in concrete or masonry shall be securely held in place during concrete placement and construction operations.
4. In concrete floors, conduit shall be set before pouring of concrete begins. Conduit shall be routed in a direct line, with bends as long as possible, with 2 inches minimum from conduit to bottom of slab and maximum conduit size of 2 inch, unless otherwise approved.
5. Non-metallic conduits above 600 Volts shall be encased in red concrete covered by a minimum of 2 inches on all sides.
6. Buried conduit shall be placed 18” below grade, then filled to grade with flowable fill concrete.
7. If minimum of 18” cannot be reached, 3000 psi concrete shall fill the trench to grade .

I. WALL PENETRATIONS

1. Penetrations through exterior building walls to be by core drilling and providing appropriate conduit entrance seals.

2. Openings through existing partitions shall be provided at Contractor's expense. Holes through masonry construction shall be drilled with suitable core drilling machine.
3. All work is to be performed neatly.
4. Patches shall match original material in composition and appearance.
5. Provide fire seals as detailed or required by NEC where a fire rated wall or partition is penetrated.
6. A template shall be provided by the Contractor to hold conduit groups terminating together or passing through fire walls or floors.
7. In walls and partitions, conduit shall be installed vertically. If vertical installation is impracticable, the Engineer shall approve horizontal installation for each location.

J. EXPANSION FITTINGS

Install expansion fittings in all conduit runs crossing structural expansion joints and in all straight conduit runs exceeding 75 feet in length.

K. CONDUIT ENDS

1. Insulating bushings shall be installed at open conduit ends, terminating in panels, control centers, consoles or other similar locations.
2. Plug space around cables with oakum and/or an approved sealing compound where conduits enter switchboards, cabinets or similar locations.
3. Cap or plug all spare conduit ends to prevent the entrance of foreign material.

L. CONDUIT CONNECTIONS

1. At cabinets and boxes use double locknuts and insulating bushings for rigid conduit.
2. At cable tray securely clamp conduit to tray and install insulating bushings.
3. Install insulated grounding bushings with lay-in ground lugs where metallic conduit terminates in non-metallic manholes or pullboxes.
4. Flexible conduit for connection to movable/vibrating equipment shall be liquid-tight, Sealtite as manufactured by Anaconda Metal Hose Company, or approved equal, utilizing approved liquid-tight fittings.

M. SUPPORTS

1. Hangers and supports shall be galvanized or PVC coated.
2. Hangars generally are not detailed, but must be adequate to support combined weight of conduit. Rigid fastenings are to spaced at a maximum of 6 feet.
3. Clamps will be galvanized malleable iron one-hole straps, beam clamps or other approved device with necessary bolts, washers and expansion shields.
4. **Perforated metal straps shall not be used**.
5. Adjustable hangers shall be used to support horizontal runs only, use trapeze hangers for parallel runs of conduit. Install u-bolts or other approved clamping device at each end and at each elbow. Install clamp every third intermediate hanger for each conduit.

N. CONDUIT CLEANING

Contractor is to clean and swab the inside of conduits, by mechanical means, to remove foreign materials and moisture before conductors are installed.

O. SPARE CONDUITS

1. Spare conduits shall have a nylon pulling line installed for future installation of cables.
2. Recessed panels shall have three 1 inch spare conduits in the wall space stubbed-out above ceiling and three 1 inch spare conduits stubbed under the floor.
3. Spare conduits shall be capped.

CONDUCTOR INSTALLATION

A. BENDING RADII

Not to be less than permitted by ICEA and/or NEC.

B. SUPPORTS IN VERTICAL RUNS

To be in accordance with NEC requirements.

C. SPLICING

1. Will be permitted only with Engineers approval, and will be held to an absolute minimum.
2. Permitted only in junction boxes or similar accessible locations.
3. Cover with heat shrinkable sleeves to make moisture proof and corrosive resistant.
4. No splicing of instrument or control wiring shall be allowed without specific approval, by the Engineer.

D. CONNECTORS

1. Solderless compression or mechanical type will be utilized where screw does not bear directly on the wire.
2. Apparatus lugs, conductor, and coat shall be thoroughly cleaned with suitable oxidation inhibiting compound prior to connection.
3. Retaining cup washers shall be used where solid wire is used at terminal blocks.
4. Compression type connectors shall be installed using ratchet type crimping tools that will not release until full compression has been achieved.
5. Dies for the crimping tools shall be matched to the connector and approved for use by the Engineer and the connector manufacturer.
6. Twist on type, Scotch-lok or approved equal, connectors shall be restricted to the connection of lighting fixture wires only.

E. POWER CABLES

All power cables will be installed in strict accordance with the manufacturers instruction, and in conformance with NEC.

F. CONNECTIONS

All apparatus lugs shall be tandem single or multi-barrel lugs as detailed/required.

G. CONDUCTOR PULLING

1. Use pulling grips or eyes.

2. Firmly mount pulling reels on portable stand and secure against displacement
3. Use an approved by the Engineer commercial pulling compound for lubrication.
4. Monitor and do not exceed cable-pulling tension as specified by the cable manufacturer.

H. COLOR CODING

1. Single phase service - use white for neutral conductor, and black for ungrounded conductors.
2. Three phase service - feeder and branch conductors shall be color coded as follows:

	120/208 Volt	277/480 Volt
a.	Phase A – Black	Brown
b.	Phase B – Red	Orange
c.	Phase C – Blue	Yellow
d.	Neutral – White	Grey
e.	Ground – Green or Bare	Green or Bare

3. Coding shall be by insulation color or minimum 1 inch band of colored tape.
4. Green covering of conductors shall be solely for grounding.

I. PHASING

1. Where common neutral is run for two or three circuits, phase conductors shall be connected to breakers in the panel, which are connected to different phase legs.
2. Home runs may be combined at the option of the Contractor, providing not more than three circuits are installed in one conduit, unless otherwise approved by the Engineer.

J. SERVICE SYSTEMS

1. Incoming service systems shall be grounded at two points with the UFER (ground wire tied to the rebar of the footings) and to driven ground rods as indicated on the Standard Detail Drawing.
2. Jumpers shall be provided around water meters and any dialectric sections of pipe.
3. Size shall be as indicated on the Drawings and/or as required by NEC.
4. Connections shall be accessible for inspection.
5. Neutral conductor connection to grounding electrode conductor shall be at the main service enclosure only.
6. Type of equipment and details of installation shall be verified with Power Company representatives.
7. Metering equipment shall be provided as indicated on the Drawings or as required by these Specifications.

16010.3.9 INSTALLATION OF POWER AND CONTROLS TO EQUIPMENT

Contractor shall provide all power and control wiring required for the work of other trades as described on the drawings and in the specifications, except where the furnishing and installing of such wiring is specified elsewhere. Connect cord sets to Owner furnished equipment and make connections to all electric power consuming equipment whether furnished under contract or by Owner.

16010.3.10 TEMPORARY ELECTRIC SERVICE DURING CONSTRUCTION

A. The Project Contractor is responsible for all project electrical work unless otherwise noted. The Contractor shall be aware, however, that some or all of the project electrical work may be performed by the Owner and/or an independent electrical contractor. The division of work to be performed by others may be indicated on the drawings, or may be as called for by the Engineer. But, the Contractor shall be responsible to review the Drawings and consult with the Engineer, to determine if its scope is less than one hundred percent of all project electrical work. The Contractor shall also be responsible to coordinate and schedule its work with that of the Owner or independent electrical contractor, and to leave its installations ready, with the connecting wires coiled, for the Owner or independent contractor to connect to or to terminate as necessary, thereby ensuring the most efficient completion of the project by all parties.

B. The Contractor or electrical subcontractor doing the work shall provide temporary power, complete with metering and wiring, for lighting and power outlets for construction tools and equipment. This contractor will make arrangements with the local power company for temporary electrical service connections for construction power.

C. No attempt shall be made herein to specify construction power requirements for equipment in detail. However, all temporary wiring shall meet NEC, Article 305, requirements. The service shall be provided with a main disconnect, and all power receptacles shall be, or be protected by, appropriately rated GFI single-pole devices.

D. At completion of the Project, or sooner if directed, the temporary power supply shall be disconnected and removed from the construction site.

E. During construction, if it becomes necessary to shut down power to a critical item of equipment or process, the Contractor or electrical subcontractor shall provide the necessary wiring and a portable generator or other source of electric power to keep such critical equipment or process in operation.

16010.3.11 SEISMIC RESTRAINT

A. The appropriate Seismic Zone Classification will be provided on the Drawings or in the Special Provisions. All electrical equipment shall be securely anchored and seismically braced in accordance with the regulations contained in the most recently adopted edition of the UBC and with the SMACNA *Guidelines for Seismic Restraints of Electrical Systems* as they pertain to the Seismic Zone Classification given.

B. Units mounted and secured directly to structures shall be provided with connectors of sufficient strength to meet the restraining criteria.

C. All electrical equipment which is to be securely anchored (hard mounted) to the building or structure shall have supports designed to withstand lateral and vertical "G" loadings equal to or greater than UBC requirements and SMACNA guidelines for the given seismic zone.

16010.3.12 LABELING OF J-BOX COVERS

All J-Box covers shall be labeled with information showing the voltage and the circuit number in reference to each home run pulled through that J-Box and a particular run of conduit. The Contractor shall continue such circuits to the panels as though the routes were completely indicated.

16010.3.13 REPAIR OF WORK

A. The work shall be carefully laid out in advance and where cutting, channeling, chasing, or drilling of floors, walls, partitions, ceilings or other surfaces is necessary for the proper installation, support, or anchorage of the conduit raceways or other electrical work, this work shall be carefully done. Any damage to building, piping or equipment shall be repaired by skilled mechanics of the trades involved, at no additional cost to the Owner.

B. Penetrations within fire rated wall assemblies shall be appropriately repaired and replaced to full integrity of the designed fire resistance of the wall.

16010.3.14 TESTING

On completion of the work, the installation shall be tested free from all grounds and short circuits. Normal feeders, circuits, and service entrance conductors with wire size #2 and larger shall be tested for leakage phase-to-ground and phase-to-phase prior to energizing the electrical system. The Contractor shall submit a written report to the Engineer showing methods used and readings taken. Voltage applied for testing shall not exceed two times normal operating voltage.

16010.3.15 GUARANTEE/WARRANTY

A. The following guarantee is a part of the specification and shall be binding on the part of the Contractor:

"The Contractor guarantees that this installation is free from defects. The Contractor agrees to replace or repair, to the satisfaction of the Owner's Representative, any part of this installation which may fail or be determined unacceptable within a period of one (1) year after final acceptance."

B. Electrical systems and equipment shall not be considered acceptable for substantial completion until they have performed in service continuously without malfunction for at least ten (10) days.

16010.3.16 DEFECTIVE EQUIPMENT

If equipment fails to conform to the Specifications or to operate satisfactorily, the Owner will have the right to operate said equipment until defects are corrected. The Owner will have the right to operate rejected equipment until it is replaced, without cost for depreciation use or wear. The Contractor shall remove defective equipment from operation for examination, adjustment, alteration, or change only at times approved by Owner.

16010.3.17 CLEAN-UP

A. As the work progresses, and on a daily basis, the Contractor shall remove from the premises and surrounding streets, alleys, etc., all rubbish and debris resulting from its operations and shall leave all equipment and material furnished by the Contractor absolutely clean and ready for use.

B. In addition, the Contractor shall periodically remove all debris and waste in order to maintain safe working and operating conditions, and shall dispose of the same in an approved manner. At the completion of work, The Contractor shall remove all its rubbish, tools, scaffolds and surplus materials from and about the site, leaving its work clean and the areas ready for occupancy.

16010.3.18 AS-BUILT DRAWINGS

Blue line white prints of drawings will be furnished by the Engineer, on which the Contractor shall accurately and neatly mark, in colored pencil, all changes or deviations from the drawings as such changes are made in the work. These drawings shall be reviewed with the Engineer on a timely basis, not to exceed at least once each month. Failure to keep as-built drawings up to date shall be cause for withholding monthly or final payment.

16010.3.19 FINAL INSPECTION AND ACCEPTANCE

The Contractor shall notify the Engineer when work is considered to be complete, in full operating condition, and ready for final inspection. The Engineer, after determining that the installation is ready for final inspection, will conduct the final inspection and tests as are deemed necessary to determine that the provisions of the specifications are satisfied. The Owner will not accept work nor make final payment to the Contractor until Engineer has certified that the work of the Contractor is complete and in conformance with the specifications and guarantees.

16010.4 METHOD OF MEASUREMENT

16010.4.1 NO SEPARATE MEASUREMENT

Separate measurement shall NOT be made for furnishing or installing electrical systems, components, materials required to be installed within the pay limits for a building or enclosure identified in the Bid schedule to be furnished by the Contractor.

16010.4.2 SEPARATE MEASUREMENT

A. NEW BUILDINGS - Separate measurement shall be made for installation of electrical systems, components, and materials, required for a building or enclosure shown on the Drawings and as called for in these Specifications and identified in the Bid Schedule, when such electrical systems, components, and materials are identified and listed in the Bid Schedule.

B. EXISTING BUILDINGS - Separate measurement will be made for installation of electrical systems, components, and materials, required to be installed or replaced in an existing building or enclosure, as shown on the Drawings and as called for in these Specifications, when such electrical systems, components, and materials are identified and listed in the Bid Schedule.

16010.5 BASIS OF PAYMENT

16010.5.1 No separate payment shall be made for furnishing or installing electrical systems, components, or materials required to be installed within the pay limits for a building or enclosure identified in the BID schedule to be furnished by the Contractor.

PAY ITEM	UNIT
Electrical System *(Indicate Building)*	Lump Sum
Install Electrical *(Describe Component)*	Lump Sum
Install Electrical *(Describe Component)*	Each
Install Electrical *(Describe material)*	Lump Sum
Install Electrical *(Describe material)*	Lineal Foot
Replace Electrical *(Describe Component)*	Lump Sum
Replace Electrical *(Describe Component)*	Lump Sum
Replace Electrical *(Describe material)*	Lump Sum
Replace Electrical *(Describe material)*	Lineal Foot

16150. 1 GENERAL

16150.1.1 QUALITY ASSURANCE

A. Comply with NFPA 70 requirements for electrical materials and installation.

B. Provide products and components which have been UL listed and labeled, including UL marks indicating special type usage whenever applicable.

16150.2 PRODUCTS

16150.2.1 MOTOR STARTERS

A. Acceptable Manufacturers:

1. Allen-Bradley Co.
2. Eaton Corp/Power Distribution Div.
3. Cutler Hammer
4. General Electric Co. (GE Supply)
5. Square D Co.

B. Provide factory fabricated starters complying with NEMA Standards Publication ICS 2 with NEMA Type enclosures as specified in Section 16010.

C. Provide starters with thermal overload protection on each phase utilizing interchangeable melting alloy, Class 20 (trip in 20 seconds or less when carrying a current equal to 600 percent of its current rating) overload heaters, sized in field for full load current rating indicated on each motor nameplate.

D. Manual Motor Starter: Quick-make, quick-break trip free toggle or pushbutton operating mechanism; provisions for positive padlocking in OFF position.

E. Magnetic Motor Starter: Non-reversing or reversing, as indicated; manual reset overload relay with reset button on face of enclosure; full voltage starting; control transformer of sufficient capacity to handle operating coil and associated controls, integral with each starter; 120 volts control circuit, fuse protected; equipped with pilot light.

16150.2.2 CONTACTORS

A. Acceptable Manufacturers:

1. Allen-Bradley Co.
2. Eaton Corp/Power Distribution Div.
3. Culter Hammer
4. General Electric Co. (GE Supply)
5. Square D Co.

B. Provide contactors complying with NEMA Standards Publication ICS 2 with NEMA Type enclosures as specified in Section 16010, unless otherwise indicated.

16150.2.3 RELAYS

A. Acceptable Manufacturers:

1. Control Relays:

2. Allen-Bradley Co.
3. IDEC Systems & Controls Corp.
4. Omron Electronics, Inc./Control Components Div.
5. Potter & Brumfield
6. Square D Co.

B. Provide relays complying with NEMA Standards Publication ICS 2 with NEMA Type enclosures as specified in Section 16010, unless otherwise indicated.

16150.2.4 CONTROL PANELS

A. Acceptable Manufacturers:

1. Allen-Bradley Co.
2. Eaton Corp/Power Distribution Div.
3. Cutler Hammer
4. Square D Co.

B. Provide factory fabricated oiltight pushbuttons, selector switches, pilot (indicating) lights, and pushbutton stations complying with NEMA Standards Publication ICS 2, heavy duty, with NEMA Type enclosures as specified in Section 16010.

1. Fabricate pushbutton stations for vertical or horizontal mounting, as indicated, and with button and light arrangements, as indicated on drawings.

C. Pushbuttons: Momentary or maintained contacts, as indicated; contacts rated 10 amps continuous carrying current, 600 volts AC; quick-make, quick-break, snap action operating mechanism.

D. Selector Switches: Rotary type; two or three position control, as indicated; legend plate with markings as indicated.

E. Pilot Lights: Transformer type, 120 volts AC; glass or acrylic plastic prismatic lens, color as indicated; legend plate with markings as indicated.

16150.2.5 CIRCUIT AND MOTOR DISCONNECTS

A. Acceptable Manufacturers:

1. Cutler Hammer
2. Allen-Bradley Co.
3. Siemens Corp/Electrical Apparatus Div.
4. Square D Co.
5. General Electric Co. (GE Supply)

B. Provide factory fabricated switches complying with NEMA Standards Publication KS 1 with NEMA Type enclosures as specified in Section 16010.

C. Safety Switches: 3 pole, heavy-duty, horsepower rated disconnect; rated at 600 volts; quick-make, quick-break operating mechanism; integral operating handle provided with means for positive padlocking in OFF position; current carrying parts constructed of high conductivity copper, with silver-tungsten type switch contacts; fusible or non-fusible as indicated; positive pressure type reinforced fuse clips for fusible switches.

D. Fuses: Dual element type, with time delay; non-renewable; current limiting where indicated.

16150.2.6 TRANSFER SWITCHES – MANUAL

A. Acceptable Manufacturers:

1. Cutler Hammer
2. Square D Co.
3. General Electric Co. (GE Supply)

B. Provide manual transfer switches complying with NEMA Standards Publication KS 1, specifically designed to transfer power from one load to another load, with NEMA Type enclosures as specified in Section 16010.

C. Manual Transfer Switches: Double throw, 3 pole, heavy-duty, safety switch; rated at appropriate amperes, 600 volts; quick-make, quick-break operating mechanism; blades visible from front of unit for positive indication that switch is OFF; integral three position operating handle provided with means for positive padlocking in OFF position; current carrying parts constructed of high conductivity copper, with silver-tungsten type switch contacts; non-fusible.

16150.3 METHOD OF MEASUREMENT AND BASIS OF PAYMENT

16150.3.1 These control devices shall be considered pertinent to the equipment which they are associated with. They will not be measured or paid for separately, but shall be included in other appropriate bid items.

16400.1 GENERAL

16400.1.1 APPLICABLE SECTIONS

The General Conditions, Supplementary General Conditions, Special Conditions, Alternates and addenda, applicable drawings and the technical specifications herein shall apply to all work under this Division 16.

16400.1.2 SCOPE

Provide all operations, methods, labor and equipment and provide and install all materials and incidentals necessary for the completion of the work as specified herein or included on the drawings.

16400.1.3 WORK INCLUDED

A. Electrical work required for this work is shown on the drawings and includes, but is not necessarily limited to:

1. Complete new electrical distribution system for power and lighting as shown.
2. Complete system of raceways and outlets for Control and all other auxiliary systems of this Division 16. Unless noted otherwise, the equipment and wiring of these auxiliary systems will be furnished and installed under their respective sections; however, the conduit raceway systems will be furnished and installed under this Section 16400.
3. All excavating, backfilling, compacting, and grading required for the installation of all work covered under this Division 16.

B. Shall furnish and install all component parts of all the systems required for their safe and proper operation, whether or not specifically mentioned or noted on the drawings, except those items or articles which are specifically noted hereinafter as being supplied otherwise.

C. Perform all trenching and backfilling required in connection with the work of this section in strict accordance with the provisions of Division 02000 of these specifications.

D. Provide all required electrical connections and service to items described in all other sections of these specifications. Provide all those services outlined in other divisions of the specifications as being done by the electrical sub-contractor.

16400.1.4 RELATED WORK SPECIFIED ELSEWHERE:

Section 16010 – Electrical General Requirements
Section 16410 – Fuses

16400.2 PRODUCTS

16400.2.1 DISTRIBUTION PANELBOARDS

A. Distribution panelboards shall be factory assembled dead front, wall mounted as scheduled and braced for the indicated ampere rms symmetrical with equipment, bussing connections, circuit breakers and all similar components indicated on the drawings or required for proper completion. Each breaker shall have an etched micarta nameplate secured by two cadmium plated screws. Nameplates shall indicate equipment served as shown in schedule. Busses shall be copper of a maximum current density of 1000 amperes per inch and shall be equipped with uninsulated equipment ground bus. Three phase, 4-wire panels shall have full capacity neutral bus.

B. All floor mounted panels shall be mounted on a **4" housekeeping pad** and therefore to comply with NEC, the operating handles of switches and breakers shall be no more than 6'-2" above the bottom of the panel.

C. Distribution panel boards shall be wall mounted as indicated in schedules. For access to wiring gutters, panel shall be door within door construction. Shall be Square D, I-Line or equal of Siemens I.T.E., Cutler Hammer/Westinghouse or General Electric.

16400.2.2 BRANCH CIRCUIT PANELBOARDS

A. Branch circuit panelboards shall be Square D for the scheduled voltage, 3 phase, 4 wire operation or equal of Siemens, or General Electric. Shall be equipped with bolt-on breakers. Minimum width shall be 20 inches. Minimum depth shall be 5.75 inches. Panel trims shall be of the door within door construction.

B. Busses shall be copper.

C. Branch circuit breakers shall be provided per schedules on drawings. All multi-pole breakers shall be common trip.

D. Doors shall be complete with corrected circuit schedule on inside. Panels shall be NEMA 3R type construction.

16400.2.3 DRY TYPE TRANSFORMERS

A. General Purpose Dry-Type Transformers: (Under 600 volts)

1. General: Furnish and install at locations shown on the drawings dry-type two winding power transformers for general power and lighting applications indicated. Transformers shall be UL listed and bear the required Listing Mark.
2. Electrical Rating: Shall be 60 hertz of sizes, phases, high voltage and low voltage as scheduled on the drawings. Each transformer, unless specifically noted otherwise, shall have six (6) 2-1/2% full capacity taps, two above and four below nominal voltage in the high voltage winding.Temperature Classification: Each transformer shall utilize an insulation system that has been properly temperature classified and approved by Underwriters' Laboratories. Unless specifically noted otherwise, the insulation classification shall be 220 C with 150 C winding temperature rise in accordance with Underwriters' Laboratories specification UL506.

3. Load Rating:

   a. Each transformer supplied to this specification shall be capable of operating at 100% of nameplate rating (NPR) continuously while in an ambient temperature not exceeding 40°C and shall be capable of meeting the daily overload requirements of ANSI Standard C57.96 as stated in the following chart:

PERMISSIBLE ONCE DAILY OVERLOADS WITH NORMAL LIFE MAINTAINED			
Peak Load Following and Followed by a Constant Load of			
Peak Load Time (Hours)	90% NPR	70% NPR	50% NPR
1/2	162% NPR	185% NPR	200% NPR
1	138% NPR	148% NPR	152% NPR
2	123% NPR	128% NPR	133% NPR
4	113% NPR	115% NPR	118% NPR
8	106% NPR	107% NPR	108% NPR
NPR = Nameplate Rating			

   b. Transformer loaded in accordance with this paragraph shall be capable of long service life under the thermal conditions specified. There shall be no need for derating.

4. Sound Rating: Each transformer shall have sound levels equal or lower than those established in the latest revision of ANSI Standard C89 as shown in the following chart:

Transformer Rating KVA	Maximum Sound Level Decibels
10-50	45
51-150	50
150-300	55

5. Other Requirements: The following requirements shall be in accordance with Underwriters' Laboratories specification UL506:
   a. Enclosure:
      (i) Ventilation openings
      (ii) Corrosion resistance
      (iii) Cable bending space
      (iv) Grounding provisions
      (v) Surface temperature rise
      (vi) Wiring compartment temperature rise
      (vii) Terminations

6. Test Requirements:
   a. Each transformer furnished to this specification shall be subjected to the following production tests:
      (i) Applied potential
      (ii) Induced potential
      (iii) No load losses
      (iv) Voltage ratio
      (v) Polarity
      (vi) Continuity
   b. The manufacturer shall have performed the following additional tests on units identical to the design type being furnished to this specification. Proof of performance of these lists in the form of test data sheets shall be provided as part of the shop drawing submittal.
      (i) Sound levels
      (ii) Temperature rise tests
      (iii) Full-load losses
      (iv) Regulation
      (v) Impedance

7. Shop Drawings: Submit shop drawing for review prior to delivery to job site.

16400.3 EXECUTION

16400.3.1 INSTALLATION OF GROUNDING SYSTEM

A. The conduit system and neutral conductor of the wiring system shall be grounded to the cold water pipe having a continuous path to earth in compliance with grounding provisions as outlined in the NEC. Point of connection to the water system shall be as near as practicable to the service entrance. Provide bonding jumper same size as system ground to provide ground continuity from customer's side of metallic lines service entrance and street side of metallic mains. The neutral and ground shall be connected together at the main service switch only.

B. Where the water main is not metallic, delete water pipe ground requirements and provide a concrete encased electrode consisting of a 20-foot length of #3/0 bare copper conductor tied to the steel reinforcing bars and encased within a concrete footing. This footing shall be in direct contact with earth and located near the main panel.

C. The Contractor shall also install a made electrode ground system consisting of copperclad rods spaced not closer than six feet apart. Grounding conductors and connections to ground rods shall be protected from damage and shall be placed to avoid disconnect by unauthorized personnel. Interconnect with water pipe ground system.

D. The equipment grounding system shall be such that all metallic structures, enclosures, raceways, junction boxes, outlet boxes, cabinets, machine frames, portable equipment and other conductive items in close proximity with the electrical circuits operate continuously at ground potential and provide a low impedance path for the possible ground fault currents. The system shall comply with the National Electrical Code, modified as indicated on the drawings or specifications and as hereinafter specified to incorporate a maximum 25 ohms ground resistance. Grounding connections shall be accessible for inspection.

E. The distributions system shall be provided with a separate equipment grounding conductor for each single or three-phase feeder, each branch circuit with a multi-pole protective device and each single phase receptacle and motor circuit as indicated. The required grounding conductor shall be installed in the common raceway with the related phase and/or neutral conductors. Single-phase branch circuits required for lighting, shall consist of phase and neutral conductors installed in common metallic conduit which shall serve as the grounding conductor. Conduit equipment connections utilized in conjunction with the above single-phase branch circuits shall be provided with suitable bonding jumpers connected to approved grounding type bushings. Single-phase branch circuits and all branch circuits installed in flexible conduits shall be provided with a separate grounding conductors as hereinbefore specified for the multi-pole branch circuits.

16400.3.2 INSTALLATION OF PANELS

A. Installation: Unless otherwise indicated on the drawings, install wall panels with the top of the trim 6'-0" above the finished floor. Panels located in equipment rooms and wire closets shall be surface mounted. Floor mounted panels shall be provided with a 4" concrete housekeeping pad. Floor mounted panels shall be anchored to floor at all four corners and to wall or structural member at top for seismic restraint.

B. Directories: Mount a typewritten directory behind glass or plastic on the inside of each panel door. On the directory, show the circuit number and complete description of all outlets with specific locations on each circuit. In addition, provide a typewritten label inside door showing source of power to panel both as to feeder switch, panel designation and location within buildings.

16400.3.3 GENERAL PURPOSE DRY TYPE TRANSFORMERS

General purpose dry transformers shall be mounted on floor at locations shown on drawings. Each shall be anchored to floor by means of a minimum of four 1/2" x 6" anchor bolts grouted in existing concrete floor.

16400.3.4 TESTING

A. General: Upon completion of this portion of the work, test all parts of the electrical system in the presence of the Engineer Owner's Representative.

B. Test Requirements: All systems shall test free from short circuits and grounds, shall be free from mechanical and electrical defects, and shall show an insulation resistance between phase conductors and ground of not less than that required by the National Electrical Code.

16400.3.5 FINAL INSPECTION

A. This Division 16 contractor's job foreman shall be present at the final inspection of the work by the Owner.

B. Electrical job foreman shall have pad and pencil to list all deficient items noted. Corrections and adjustments of deficient items shall be done after the inspection, not during.

C. See Section 16010 for other requirements for final inspection.

16400.4 METHOD OF MEASUREMENT

16400.4.1 SERVICE ENTRANCE. Provide all conduit, sweeps, support members, concrete transformer pads & pad vaults, grounding equipment, breakers, disconnects, enclosures, conductors, and appurtenances as required by the local utility, and as shown on the drawings and as defined in the applicable sections of the specifications required for a complete and fully functioning system.

16400.4.2 GROUNDING SYSTEM. Provide all grounding conductors, connections, ground rods, ground wells, and associated appurtenances and as shown on the drawings, and as defined in the applicable sections of the specifications.

16400.4.3 POWER PANEL (PP) OR MOTOR CONTROL CENTER (MCC). Provide all conduit, sweeps, pull boxes, power panels, motor starters, motor savers, receiving and installation of motor control center, transient voltage surge suppressor (TVSS), support members, grounding equipment, breakers, disconnects, enclosures, conductors and connections, and appurtenances as shown on the drawings and as defined in the applicable sections of the specifications required for a complete and functioning system.

16400.4.4 DRY TYPE TRANSFORMERS. Provide dry type transformer and appurtenances as shown on the drawings and as defined in the applicable sections of the specifications required for a complete and functioning system.

16400.4.5 LIGHTING PANEL (LP). Provide all conduit, sweeps, support members, grounding equipment, breakers, disconnects, enclosures, conductors and connections, switches, receptacles, and appurtenances as shown on the drawings and as defined in the applicable sections the specifications required for a complete and functioning system. Where lighting fixtures are not called out in the pay item, they are included in the LIGHTING PANEL (LP).

16400.4.6 LIGHTING FIXTURES. Material cost for lighting fixtures and all appurtenances. Note: conduit, wire and switches and included in LIGHTING PANEL (LP) section(s).

16400.4.7 HEATING VENTILLATION AIR CONDITIONING (HVAC). Provide all conduit, sweeps, support members, grounding equipment, breakers, disconnects, enclosures, conductors, switches, receptacles, and appurtenances as shown on the drawings and as defined in the applicable sections the specifications required for a complete and functioning system. Note: conduit, wire and switches and included in LIGHTING PANEL (LP) section(s).

16400.4.8 CONTROL PANELS. Provide all conduit, signal and power conductors and connections, and appurtenances for all control panels as shown on the drawings and as defined in the applicable sections of the specifications required to provide a complete and functioning system.

16400.5 BASIS OF PAYMENT

16400.5.1 No separate payment shall be made for furnishing or installing electrical systems, components, or materials required to be installed within the pay limits for a building or enclosure identified in the BID schedule to be furnished by the Contractor.

16400.5.2 When electrical systems, components, or materials are measured for a new building or enclosure as shown on the Bid Schedule, separate payment will be made as listed below.

16400.5.3 When initial installation or replacement of electrical systems, components, or materials is made in an existing building as shown on the Bid Schedule, the accepted quantity will be paid for at the contract price listed below:

PAY ITEM	UNIT
Service Entrance	Lump Sum
Grounding System	Lump Sum
Lighting Panel LP1 & Control Panel	Lump Sum
Lighting Fixtures	Lump Sum
HVAC	Lump Sum
Control Panels	Lump Sum

16410.1 GENERAL

16410.1.1 ACCEPTABLE MANUFACTURERS

A. Manufacturer: Bussmann.

B. Other acceptable manufacturer: Gould Shawmut, Littlefuse.

C. All fuses shall be of one manufacturer. Fuses shall have a 200,000 ampere RMS symmetrical interrupting rating unless noted otherwise.

16410.1.2 FUSE TYPES AND RATINGS

A. Fuses from 0 to 600 ampere for each circuit serving a single motor shall be UL Class RK5 dual-element Low Peak, LPN-RK (250 volt).

B. All other fuses in the 0 to 600 ampere range shall be UL Class J, dual-element, time delay, low peak, LPJ-SP (250 volt).

C. Fuses larger than 600 ampere shall be UL Class L with time delay, Hi Cap, KRP-C.

16410.2 METHOD OF MEASUREMENT

16410.2.1 This work shall not be measured for separate payment, but shall be considered incidental to other items in the Bid Schedule.

16410.3 BASIS OF PAYMENT

16410.3.1 Complete compensation for the accepted work outlined in this Section shall be included in other bid items.

ATTACHMENT 1 TO EXHIBIT C – SPECIAL CONDITIONS

General

Work shall be in accordance with Uniform Standard Specifications for Public Works Construction, distributed by Maricopa Association of Governments, 2020 edition, revised through 2023 (MAG), except to the extent that these specifications specify other procedures, processes, forms, materials, details, or other direction regarding the work, and as required to comply with local ordinances and regulations.

Whenever the term County is used it shall be held to mean the City of Sedona. Whenever the term County Engineer is used it shall be held to refer to the City Engineer.

Electrical work shall be subject to inspection by the City of Sedona Building Safety Division and/or Design Professional compliance with its requirements.

1. Dust Control

a) Dust control shall be maintained at all times on the project. Spray nozzles shall be used as necessary on equipment to reduce dust. Mist shall be visible when standing adjacent to the equipment. Rock Trenchers shall be equipped with a mister system that runs the entire length of the boom. Spray nozzles shall provide an uninterrupted pattern over the entire boom plus 2 feet outside the boom and discharge belt area.
b) A dust control plan shall be submitted prior to start of construction. The dust control plan shall address specific equipment and procedures the contractor shall follow to control dust during trenching, backfill, and hauling activities, and to control dust on streets and other surfaces affected by the construction.
c) The equipment used to sweep streets shall be of a type or operated in such a manner and rate that it does not generate high amounts of dust in the opinion of the City Engineer or his authorized agents.

2. Work Hours

The contractor shall limit work hours from 7:00 A.M. to 5:30 P.M. Monday through Thursday, and from 7:00 A.M. to 5:30 P.M. on Friday. City Holidays, weekends, and work outside the aforementioned work hours periods shall be considered non-regular work hours. The active work hours shall be within the times indicated above and shall include clean up time and time for storage of equipment and material. The contractor shall provide the Engineer with a written work schedule projecting out at least two workweeks. Permission to work non-regular work hours shall be subject to approval of the Engineer.

3. Testing

Sewer mains (Force and Gravity), laterals, and storm drainage pipes placed under roadways or within the roadway's loading zone of influence shall be subject to the following testing frequency.

Activity	Frequency
Bedding Material	1 each 100 ft per lift

AB Subgrade	1 each 100 ft per lift
Trench Backfill	1 each 100 ft per lift

4. Intentionally Left Blank:

5. Storage of Equipment and Material

Equipment and material shall not be stored in the right-of-way during non-work hours without the permission of the City Engineer. Such permission shall be subject to a finding that it is impractical to move the equipment or material because of size or that permission has been granted to close the right-of-way to all traffic, including local traffic. Lack of construction yard or other staging area shall not be considered as reason to grant permission. Such permission if granted shall be subject to conditions determined at the sole discretion of the City Engineer. The contractor shall be responsible for security of the site, equipment, work, and materials.

6. Intentionally Left Blank:

7. Property Inspections and Restoration:

a. Property Inspection

i. For vegetation and exterior structures that will be removed or destroyed during construction, the report shall document existing conditions including those items that will be damaged or destroyed during the construction. In turn, the City and CMAR shall use this information to coordinate with property owners to reach an agreement as to what restoration efforts the CMAR shall be responsible for during the construction phase of the work. It is recognized that the CMAR will not need to restore some items to pre-construction condition, and that the CMAR may not be able to replace all items which may be damaged or destroyed. For example, the CMAR will not be required to replace in kind a 50-foot tall, 40-year old pine tree.

ii. For affected structures that are to remain before, during and after the construction, the report shall consider and document the existing structural and architectural condition of those structures. The intent of this report is to document the condition of such structures before construction, obtain agreement with the property owner, and use for comparison purposes after construct is completed.

b. Landscape Restoration: The Contractor shall restore all landscaping encountered during the execution of the contract work. The work shall include, but not be limited to the following:

i. Restore all structures, including fences within and adjacent to the work-site.
ii. Protect existing trees, shrubs, bushes, cacti and other vegetation within and adjacent to the work-limits to a reasonable extent.
iii. Replace all flowers, bushes, cacti and other vegetation outside of the ROW and permanent easements damaged during construction.
iv. Replace to grade all landscaping materials and or decorations outside the ROW disturbed within and adjacent to the work-limits.

8. Traffic Control:

In addition to Item D, Section 18, of the General Conditions the following shall apply:

a) General

i. All streets and traffic ways shall be kept continuously open for the passage of all traffic and pedestrians during the construction period, unless otherwise approved by the CITY, in writing, or authority having jurisdiction over same.
ii. When required to cross, obstruct or temporarily close a street or traffic way, CONTRACTOR shall provide and maintain suitable bridges, detours or other approved temporary expedient for the accommodation of traffic. Closings shall be for the shortest time practical, and passage shall be restored immediately after completion of backfill and temporary paving or bridging.
iii. CONTRACTOR shall give the advance notice to the fire and police departments of his proposed operations, involving closure of roads.
iv. CONTRACTOR shall provide signs, signals, barricades, flares, lights and all other equipment, service and personnel required to regulate and protect all traffic and warn of hazards. All such work shall conform to requirements of CITY or authority having jurisdiction. Remove temporary equipment and facilities when no longer required, and restore grounds to original or to specified conditions.
v. CONTRACTOR shall conform to all applicable requirements of Section 401 of the Uniform Standard Specifications for Public Works Construction by the Maricopa Association of Governments (MAG), City of Sedona, Yavapai County and The City of Phoenix Traffic Control Manual.

b) Parking Control

i. Control and monitor CONTRACTOR related vehicular parking within the limits of the Work to preclude interference with public traffic or parking, access by emergency vehicles, CITY'S operations, or construction operations. Contractor related parking includes, parking by Contractor, Contractor's employees, Subcontractor's equipment, employees and suppliers.
ii. Monitor parking of all construction and private vehicles:
iii. Private Vehicles shall park only in designated areas.
iv. The Contractor shall identify parking areas in submittals at least one week prior to using the area. The City reserves the right for cause to disapprove a proposed parking area.

Failure to comply with the aforementioned Traffic Control provisions may result in reduction in the amount of contract compensation.

9. Easements

The Contractor shall remain within easement areas and rights-of-way obtained or owned by the City or easement areas the contractor has obtained. Disturbed areas shall be reasonably restored upon completion of installation of storm drainage facilities and related appurtenances in the easement. The Contractor shall be responsible to adhere to easement provision whether the easement was obtained by Contractor or City.

A temporary 4-foot high orange fence shall be placed to define the work area for all easements encompassing all work that occurs outside the City right-of way. Clearing by manual means for the purpose of defining the area to be fenced shall be the only activity allowed on the easement before fence is placed. City shall provide the Contractor with a copy of the easement agreement

with the property owner. Contractor shall be responsible for all restoration of the easement as described in the easement agreement. Trees and larger vegetation shall be preserved to the maximum extent practicable.

10. Survey Monumentation

Prior to construction the Contractor shall locate property corner monuments located within and adjacent to the Contract's easements. The Contractor shall be responsible for the preservation of all existing property pins. If disturbed or damaged the Contractor shall be responsible for all costs associated with the restoration of any property pins disturbed by the construction activities. Any property pins, which require resetting, shall be done under the direction of a licensed Surveyor by the State of Arizona. Compensation for this work shall be considered as included in the Cost Proposal Item "Construction Staking".

11. Permits

The City shall pay for permits required for the work, except stormwater pollution prevention permits for construction.

12. Public Convenience and Safety

Within the City of Sedona public convenience and safety are matters to which the Contractor is expected to devote attention to at all times during the project. The contractor shall minimize disruption of normal vehicular and pedestrian traffic patterns and routes, the disruption of normal property services such as, but not limited to, mail delivery and garbage pick-up. Failure to make provisions for these services when they are disrupted shall subject the contractor to deductions from payments due under the contract as determined by the City Engineer.

13. Access to Adjacent Properties

Care shall be taken not to block access into or out of properties adjacent to the work. Access may be limited to on 11-foot wide lane during working hours, provided proper traffic control is provided, as approved by the City Engineer.

14. Start of Construction

Construction shall not begin until the contractor has at a minimum provided the following:

- A complete project schedule as required by the project specifications.
- Survey stakes and marks have been placed in the field to accommodate at least two weeks construction work and survey notes have been provided to the City as per the project specifications.

This provision does not operate to require that the City of Sedona refrain from issuing a notice to proceed or require an extension of time to accommodate Contractor compliance with it.

15. Project Control

The Contractor shall be responsible for all survey on the project.

16. Off Road Manhole Markers

Off road manhole markers shall be installed according to ADOT Detail C-21.10, SD-11, Elevation Reference Marker. The off-road manhole markers shall be installed for all MHs not located in pavement or travel way. The Markers shall be placed on the left of the MH facing upstream within 3 feet of the outside edge of the MH cover and the top of the marker shall be 2.5 to 3 feet above the center of the MH cover. Installation of the off-road manhole Markers is incidental to Manhole Installation Work. Compensation for provision and installation of off road manhole markers shall be considered as included in the price paid for manholes.

17. Stormwater Pollution Prevention Plan

The Stormwater Pollution Prevention Plan shall include measures to prevent debris generated by this project from proceeding down the existing channel crossed by this project. Measures such as trapping and removing debris and dirt generated, or other measures acceptable to the City Engineer, shall be taken. The Contractor shall provide the City with a copy of the plan. The Contractor shall adhere to State of Arizona requirements regarding stormwater pollution prevention. The City may require evidence of compliance with State requirements.

18. Intentionally Left Blank

19. Mobilization

Retention shall apply to mobilization payments. The first payment for mobilization shall be contingent on providing:

- A storm water pollution control plan complying with the project specifications
- A complete project schedule as required by the project specifications.

20. Videotape

Videotape all installed 6" diameter or larger gravity sanitary sewer main line. Work associated with obtaining the aforementioned sanitary sewer line video is incidental installation of the sewer lines. Sewer lines shall be clean and flushed prior to video taping the line. A written report of the video tape identifying conditions of the line between each manhole and or mainline clean out shall be provided prior to requests that the line be accepted as complete. Deficiencies identified during the videoing of a line shall be repaired and the line televised and a new report prepared. In order for a line to be accepted it must successfully pass the video inspection. Dips shall not exceed ½" in depth, pipe gaps shall not exceed manufacturer's tolerances or ½ " whichever is less. The pipe shall not appear to be more out of round than allowed in the manufacturer's generally issued written guides or 1" whichever is less.

21. Various items of Work

a) The Contractor shall provide the City reasonable and timely notice in writing prior to exceeding quantities established in the GMP Cost Proposal. Failure to notify the City in a timely manner prior to using a contingency item identified in the GMP shall be sufficient reason for the City to deny such payment.

b) Clearing and grubbing shall be subject to MAG specification section 201 and full compensation shall be considered as provided in the Clear and Grub cost proposal item. No separate payment shall be made for trees.

c) The contractor shall be responsible to replace in kind any irrigation damaged during the course of the construction. To facilitate this the contractor shall take photographs and

document in writing observed conditions. The contractor shall be responsible to obtain written evidence of satisfaction regarding any private landscape or irrigation replacement. Removed fences shall be replaced in kind and to a standard of new construction using new materials, unless approved otherwise in writing. There shall be no adjustment in compensation for the landscape item on account of the length of fence removed and properly replaced.

d) The manhole work shall include pouring a collar conforming to MAG Detail 422, except that the top shall be at finish grade of the adjacent ground or asphalt. Manholes shall be vacuum tested to manufacturer or ADEQ requirements, whichever is greater. In absence of requirements the City Engineer may set requirements commensurate with those utilized for other City projects.

e) Native crushed 3/8" minus rock material may be used in the pipe zone. The pipe zone extends to one foot above the outside of the pipe. Compaction shall be to a minimum of 95%.

f) All sewer pipe acceptance tests required by Arizona Department of Environmental Quality shall be performed and written results provided. The written results shall identify the firm and the individual conducting the tests.

22. Local Drainage

CMAR shall reconstruct roadways, driveways, sidewalks, ditches and other surfaces at elevations that will ensure the drainage is improved or unchanged from the existing preconstruction conditions.

EXHIBIT D – CONSTRUCTION DRAWINGS

See attached construction drawings

CITY OF SEDONA

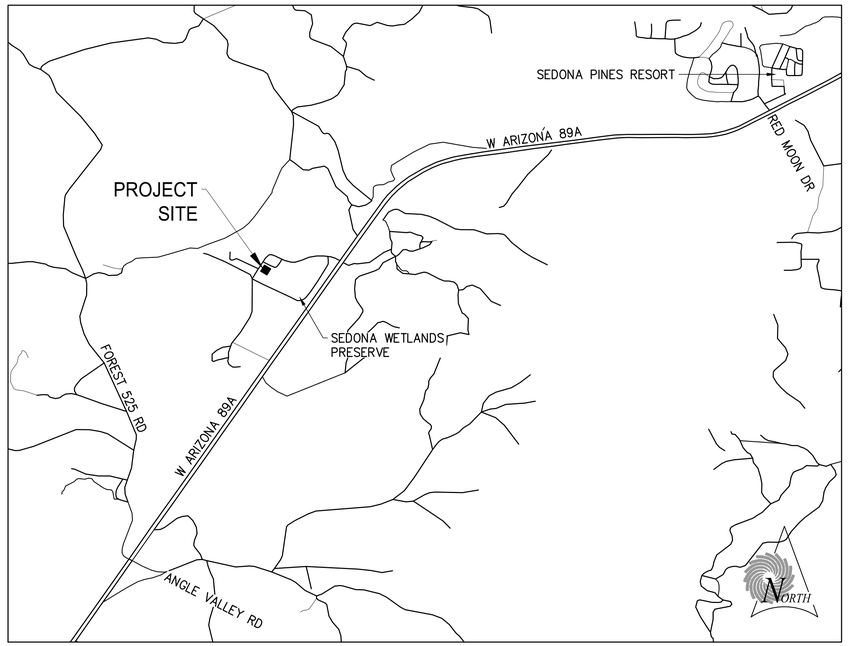
WASTEWATER RECLAMATION PLANT UV REPLACEMENT

7500 W STATE ROUTE 89A SEDONA, AZ 86336

PHONE NO. (928) 204-2234

LOCATED IN PORTION OF SECTION 25, TOWNSHIP 17 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER MERIDIAN, YAVAPAI COUNTY, ARIZONA

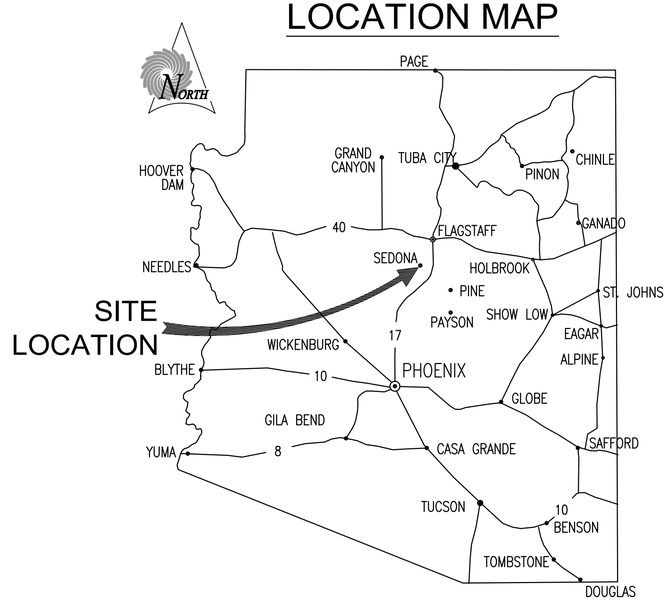
SEI PROJECT NO. 09085



VICINITY MAP

NOT TO SCALE

LOCATION MAP



ENGINEER

SUNRISE ENGINEERING, INC
2045 SOUTH VINEYARD, SUITE 101
MESA, ARIZONA 85210
CONTACT: SHASHI PRASAD
PHONE: (480) 768-8600

BENCHMARK

ARIZONA DEPARTMENT OF TRANSPORTATION HIGHWAY
DIVISION ALUMINUM CAP FLUSH
DESIGNATION: WHITE
PERMANENT IDENTIFIER: ES1038
YAVAPAI COUNTY, ARIZONA
ELEVATION: 4002.35 US SURVEY FEET NAVD88 DATUM

BASIS OF BEARING

THE BASIS OF BEARINGS IS GRID NORTH
(NO ROTATION WAS APPLIED)
COORDINATES ARE BASED ON SPCS NAD83
2011 EPOCH (2010), CENTRAL ZONE 0202,
US SURVEY FOOT (NO SCALE WAS APPLIED)

PROJECT ADDRESS

7500 W STATE ROUTE 89A
SEDONA, AZ 86336
LATITUDE: 34°49'49"N
LONGITUDE: 111°53'44"W

CONTACT INFORMATION

OWNER	CITY OF SEDONA 102 ROADRUNNER DRIVE SEDONA, ARIZONA 86336 (928) 203-5069 ROXANNE HOLLAND, P.E. DIRECTOR OF WASTEWATER
MAYOR	SCOTT JABLOW
VICE MAYOR	HOLLI PLOOG
CITY COUNCIL	MELISSA DUNN BRIAN FULTZ PETE FURMAN KATHY KINSELLA JESSICA WILLIAMSON
CITY MANAGER	ANETTE SPICKARD
DIRECTOR OF WASTEWATER	ROXANNE HOLLAND
ENGINEER	SUNRISE ENGINEERING, INC. 2045 S VINEYARD, SUITE 101 MESA, AZ 85210 TELEPHONE: (480) 768-8600 CONTACT: ALLEN SNYDER, P.E.

NOTICE OF EXTENDED PAYMENT PROVISION (PER ARS 32-1129.01): THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 15 DAYS AFTER CERTIFICATION AND APPROVALS OF BILLINGS AND ESTIMATES FOR PROGRESS PAYMENTS. WITHIN 15 DAYS AFTER CERTIFICATION AND APPROVALS OF BILLINGS AND ESTIMATES FOR RELEASE OF RETENTION AND WITHIN 15 DAYS AFTER CERTIFICATION AND APPROVAL OF BILLINGS AND ESTIMATES FOR FINAL PAYMENT.

SHEET INDEX

SHEET #	DESCRIPTION	TITLE
1	COVER SHEET	COV
2	GENERAL NOTES, LEGEND & ABBREVIATIONS	GN
3	PROCESS FLOW DIAGRAM	PD
4	HYDRAULIC PROFILE	HP
5	EXISTING/PROPOSED SITE PLAN	SP
6	EXISTING FILTER DEMOLITION PLAN	DM1
7	EXISTING FILTER DEMOLITION SECTION	DM2
8	EXISTING UV DEMOLITION PLAN	DM3
9	PROPOSED IMPROVEMENT PLAN	PI1
10	PROPOSED IMPROVEMENT SECTION	PI2
11-12	DETAILS	DT1-DT2
13-17	STRUCTURAL PLANS	S0.1-S2.2
18-26	ELECTRICAL PLANS	E100-E501

RECORD DRAWING CERTIFICATION

I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED AND ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

REGISTERED ENGINEER/LAND SURVEYOR _____ DATE _____

REGISTRATION NUMBER _____

REV NO.	COMMENT	DATE
1	REVISIONS FOR 100% SUBMITTAL	8-23-24

Professional Engineer
13082
SHASHI B PRASAD
9/6/24
ARIZONA, U.S.A.

SUNRISE ENGINEERING
2045 SOUTH VINEYARD, SUITE 101
MESA, ARIZONA 85210
TEL 480.768.8600
www.sunrise-eng.com

CITY OF SEDONA

WASTEWATER RECLAMATION PLANT UV REPLACEMENT

COVER SHEET

SEI NO.	DESIGNED	DRAWN	CHECKED		
09085	SP/SH	CAH	SP	COV	1 of 26

100% SUBMITTAL

P:\Sedona\09085 UV Plant\Dwg\Plan Sets\SUV-COV.dwg Sep 06, 2024 8:53am chendricks

SEI GENERAL NOTES

1. ALL SITE WORK SHALL CONFORM TO THE CURRENT EDITION OF THE MARICOPA ASSOCIATION OF GOVERNMENTS UNIFORM STANDARD SPECIFICATIONS AND DETAILS (MAG SPECIFICATIONS AND DETAILS) AND ANY SUPPLEMENTS TO THE MAG SPECIFICATIONS AND DETAILS BY THE JHA UNLESS SPECIFICALLY STATED OTHERWISE IN THESE PLANS.
2. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS PRIOR TO BEGINNING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR THE VERIFICATION OF EXISTING PERMITS, RENEWAL OF LAPSED PERMITS, AND OBTAINING OF ANY NEW PERMITS, INCLUDING, BUT NOT LIMITED TO A DUST CONTROL PERMIT AND TRAFFIC CONTROL PERMITS AS REQUIRED BY THE JHA.
3. THE CONTRACTOR IS RESPONSIBLE FOR MAKING ARRANGEMENTS FOR INSPECTION AND TESTING.
4. THE CONTRACTOR SHALL NOTIFY THE JHA'S INSPECTION DEPARTMENT 48 HOURS PRIOR TO CONSTRUCTION. CONSTRUCTION CONCEALED WITHOUT THE REQUIRED INSPECTION SHALL BE SUBJECT TO EXPOSURE AT THE CONTRACTOR'S EXPENSE.
5. THE CONTRACTOR SHALL FOLLOW GUIDELINES AND REGULATIONS SET FORTH BY O.S.H.A. SUNRISE ENGINEERING, INC. WILL NOT BE RESPONSIBLE FOR JOB–SITE SAFETY PROCEDURES OR CONDITIONS.
6. THE CONTRACTOR IS RESPONSIBLE FOR HIS OWN TAKEOFF QUANTITIES. QUANTITIES, IF SHOWN HEREON, ARE ESTIMATES ONLY AND AS SUCH ARE NOT TO BE USED FOR BID PURPOSES.
7. THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING THE PROPER AUTHORITY(S) IF THERE ARE OBSTRUCTIONS TO PROPOSED IMPROVEMENTS AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY EXISTING ITEM REMOVED TO FACILITATE CONSTRUCTION SHALL BE REPLACED IN THE SAME OR BETTER CONDITION AT THE CONTRACTOR'S EXPENSE.
8. THE CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANIES FOR LOCATION OF SERVICE AND/OR RELOCATION OF UTILITIES IN CONFLICT WITH PROPOSED CONSTRUCTION. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR COORDINATING THE RELOCATION OF UTILITIES, POWER POLES, ETC.
9. A THOROUGH ATTEMPT HAS BEEN MADE TO SHOW THE LOCATIONS OF ALL UNDERGROUND OBSTRUCTIONS AND UTILITY LINES IN THE WORK AREA. HOWEVER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO OBSTRUCTIONS AND UTILITY LINES ENCOUNTERED DURING CONSTRUCTION AND SHALL DETERMINE THE EXACT LOCATION OF UTILITIES IN ADVANCE OF TRENCHING. THE ENGINEER WILL NOT GUARANTEE ANY ELEVATIONS AT LOCATIONS OF THE EXISTING UNDERGROUND UTILITIES SHOWN ON THESE PLANS.
10. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REMOVE AND SAFELY DISPOSE OF ALL REMOVAL MATERIAL AND DEBRIS DEEMED UNSALVAGEABLE BY THE ENGINEER PER THE PROVISIONS SET FORTH IN MAG SPECIFICATION 350.
11. THE CONTRACTOR IS RESPONSIBLE FOR TRAFFIC CONTROL ON AND AROUND THE CONSTRUCTION SITE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS.
12. THE CONTRACTOR SHALL PROVIDE ADEQUATE MEANS FOR CLEANING TRUCKS AND/OR OTHER EQUIPMENT OF MUD PRIOR TO ENTERING PUBLIC STREETS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CLEAN STREETS AND TAKE WHATEVER MEASURES ARE NECESSARY TO INSURE THAT ALL ROADS ARE MAINTAINED IN A CLEAN, MUD, AND DUST FREE CONDITION AT ALL TIMES. NO WORK WILL BE CONSIDERED COMPLETE UNTIL ALL PAVEMENTS HAVE BEEN SWEPT CLEAN OF DIRT AND DEBRIS.
13. PRIOR TO MOVING OR DESTROYING PROTECTED NATIVE PLANT SPECIES, THE CONTRACTOR SHALL FILE A FORMAL NOTICE OF INTENT WITH THE ARIZONA DEPARTMENT OF AGRICULTURE NATIVE PLANTS (602) 542–3292.
14. THE CONTRACTOR SHALL PROVIDE A LICENSED SURVEYOR FOR THE SURVEYING/CONSTRUCTION STAKING OF ALIGNMENT AND GRADE FOR EACH MAIN AND/OR FACILITY AS SHOWN ON THE PLANS.
15. EXACT POINT OF MATCHING, TERMINATION, AND OVERLAY, IF NECESSARY, MAY BE DETERMINED IN THE FIELD BY THE ENGINEER OF RECORD OR THE RESIDENT ENGINEER OVERSEEING THE PROJECT CONSTRUCTION.
16. ANY AMBIGUITIES OR DEFICIENCIES DISCOVERED ON THESE PLANS ARE TO BE RESOLVED BY SUNRISE ENGINEERING OR ITS APPOINTED REPRESENTATIVE. ANY PERSON OR ENTITY OTHER THAN SUNRISE ENGINEERING OR ITS APPROVED REPRESENTATIVE THAT MAKES MODIFICATIONS TO THESE PLANS IS SOLELY RESPONSIBLE FOR THOSE MODIFICATIONS.
17. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL VERIFY INVERT ELEVATION, LOCATION, SIZE, AND MATERIAL OF EXISTING WATER, SEWER, STORM DRAIN, OR ANY OTHER UTILITIES AS SHOWN ON THE PLANS. CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES BETWEEN THE PLANS AND EXISTING CONDITIONS. CONNECTIONS TO EXISTING UTILITIES SHALL NOT BE MADE UNTIL DISCREPANCIES ARE RESOLVED WITH THE ENGINEER.
18. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL VERIFY EXISTING CONCRETE AND PAVEMENT ELEVATIONS AT TIE–INS/SAWCUT LINES AND VERIFY CROSS SLOPES WITH THE PROPOSED PLANS. CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES BETWEEN THE PLANS AND EXISTING CONDITIONS. CONCRETE AND PAVEMENT ITEMS SHALL NOT BE CONSTRUCTED UNTIL DISCREPANCIES ARE RESOLVED WITH THE ENGINEER.

SEI GRAVITY SEWER NOTES

1. THE CONTRACTOR IS TO FIELD VERIFY THE LOCATIONS, THE INVERT ELEVATIONS, AND THE MATERIALS OF ALL EXISTING SEWER PIPES OR MANHOLES AT THE POINTS OF TIE–IN PRIOR TO COMMENCING ANY NEW SEWER CONSTRUCTION. SHOULD ANY LOCATION, ELEVATION, OR MATERIAL DIFFER FROM THAT SHOWN ON THESE PLANS, THE CONTRACTOR IS TO CONTACT THE ENGINEER FOR DIRECTION.
2. ALL 4 INCH THROUGH 15 INCH PVC (POLYVINYL CHLORIDE) PLASTIC SEWER PIPE AND FITTINGS SHALL BE IN CONFORMANCE WITH MAG STANDARD SPECIFICATION 745 AND SHALL BE INSTALLED PER THESE PLANS, MAG STANDARD SPECIFICATIONS 601, 602 & 615 AND THE PIPE MANUFACTURER'S RECOMMENDATIONS.
3. ALL 4 INCH THROUGH 24 INCH DUCTILE IRON SEWER PIPE AND FITTINGS SHALL BE ANSI THICKNESS CLASS 52 WITH AN APPROVED POLYURETHANE OR CERAMIC EPOXY INTERIOR LINING, WITH AN APPROVED PETROLEUM ASPHALTIC EXTERIOR COATING, AND SHALL BE ENCASED WITHIN AN APPROVED POLYETHYLENE ENCASEMENT. PIPES AND FITTINGS SHALL BE INSTALLED PER THESE PLANS, MAG STANDARD SPECIFICATIONS 601, 602 & 615 AND THE PIPE MANUFACTURER'S RECOMMENDATIONS.
4. IN THE PRESENCE OF THE CITY INSPECTOR, THE CONTRACTOR SHALL PERFORM FIVE PERCENT MANDREL DEFLECTION TESTS (AND MAINTAIN RECORDS OF THE RESULTS) ON THE TOTAL LENGTH (100%) OF ALL PVC AND/OR HDPE SEWER LINES INSTALLED. ANY SEGMENT OF PIPE FAILING THE FIVE PERCENT MANDREL DEFLECTION TEST SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE CONTRACTING PARTY.
5. IN THE PRESENCE OF THE CITY INSPECTOR, THE CONTRACTOR SHALL PERFORM LEAKAGE TESTS (AND MAINTAIN RECORDS OF THE RESULTS) ON THE TOTAL LENGTH (100%) OF ALL SEWER LINES INSTALLED. THE CONTRACTOR SHALL USE THE FOLLOWING APPLICABLE TEST METHOD: A. "STANDARD TEST METHOD FOR INSTALLATION ACCEPTANCE OF PLASTIC GRAVITY SEWER LINES USING LOW–PRESSURE AIR" ASTM F1417 (LATEST REVISION) B. "STANDARD TEST METHOD FOR LOW–PRESSURE AIR TEST OF VITRIFIED CLAY PIPE LINES "ASTM C828 (LATEST REVISION). C. DUCTILE IRON SEWER PIPE SHALL BE TESTED USING THE SAME TEST METHOD FOR THE TYPICAL SEWER PIPE MATERIAL INSTALLED. SEGMENTS OF SEWER PIPE THAT FAIL THE LEAKAGE TEST SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE CONTRACTING PARTY.
6. IN THE PRESENCE OF THE CITY INSPECTOR, THE CONTRACTOR SHALL PERFORM GRADE TESTS (AND MAINTAIN RECORDS OF THE RESULTS) ON THE TOTAL LENGTH (100%) OF THE SEWER LINE INSTALLED FOR UNIFORM SLOPE BY LAMP LIGHTING, REMOTE CAMERA OR SIMILAR METHOD APPROVED BY THE UTILITY. ANY SEWER LINE THAT HAS BEEN INSTALLED AT A GRADE DIFFERENT FROM THAT CALLED FOR IN THESE PLANS, AND IS DETERMINED TO BE UNACCEPTABLE TO THE CONSTRUCTION INSPECTOR, SHALL BE RE–LAID TO THE CORRECT GRADE BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE CONTRACTING PARTY.
7. PER ADEQ REQUIREMENTS, A MINIMUM COVER OF 36 INCHES SHALL BE MAINTAINED OVER ALL SEWER PIPE, AS MEASURED TO FINISH GRADE, UNLESS DUCTILE IRON PIPE IS USED.
8. ALL GRAVITY SEWER PIPE SHALL BE INSTALLED STARTING AT THE LOWEST DOWNSTREAM POINT AND THEN PIPE IS TO BE LAID AS INSTALLATION PROGRESSES UPSTREAM. THE BELL END FOR EACH LENGTH OF PIPE, SHALL BE AT THE UPSTREAM END AND THE SPIGOT END SHALL BE AT THE DOWNSTREAM END.
9. SEWER PIPE JOINT DEFLECTION SHALL NOT EXCEED PIPE MANUFACTURER'S RECOMMENDATION. PIPES SHALL NOT BE DEFLECTED AT JOINTS UNLESS CALLED FOR IN THESE PLANS.
10. A THOROUGH ATTEMPT HAS BEEN MADE TO SHOW THE LOCATIONS OF ALL UNDERGROUND OBSTRUCTIONS AND UTILITY LINES IN THE WORK AREA. HOWEVER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO OBSTRUCTIONS AND UTILITY LINES ENCOUNTERED DURING CONSTRUCTION AND SHALL DETERMINE THE EXACT LOCATION OF UTILITIES IN ADVANCE OF TRENCHING. THE ENGINEER WILL NOT GUARANTEE ANY ELEVATIONS AT LOCATIONS OF THE EXISTING UNDERGROUND UTILITIES SHOWN ON THESE PLANS.
12. DUCTILE IRON PIPE USED IN GRAVITY SEWER AND/OR FORCE MAIN SHALL COMPLY WITH MAG SECTION 750 SPECIFICATION.
13. THE CONTRACTOR SHALL COPY THE OWNER (CITY OF SEDONA) IN ALL CONTACT EMAILS WITH THE ENGINEER.
14. PAYMENT PROVISION: PER ARS 32 – 1129.01, THE OWNER WILL MAKE PAYMENT TO THE CONTRACTOR WITHIN 15 DAYS AFTER CERTIFICATION AND APPROVAL OF BILLINGS AND ESTIMATES FOR PROGRESS PAYMENTS.

LEGEND

	EXISTING CONCRETE
——— s ———	EXISTING SEWER
——— w ———	EXISTING WATER LINE
——— tw ———	EXISTING TREATED WATER
——— npw ———	EXISTING NON–POTABLE WATER
——— pa ———	EXISTING PLANT AIR
——— uge ———	EXISTING UNDERGROUND ELECTRIC
——— ohe ———	EXISTING OVERHEAD ELECTRIC
	EXISTING PROPERTY LINE
X 1443.08	EXISTING SPOT ELEVATION
---- 1440 ----	EXISTING CONTOUR
	EXISTING GATE VALVE
	EXISTING SEWER MANHOLE
	PROPOSED CONCRETE
X"W	PROPOSED WATER LINE
TW	PROPOSED TREATED WATER LINE
UGE	PROPOSED UNDERGROUND ELECTRIC
OHE	PROPOSED OVERHEAD ELECTRIC
	PROPOSED 18–INCH DIP
	PROPOSED 16–INCH DIP OR PVC
X 1443.08	PROPOSED SPOT ELEVATION
1440	PROPOSED CONTOUR
	PROPOSED PLUG VALVE
	DIRECTION OF FLOW
	PROPOSED REDUCER
	PROPOSED TEE
	PROPOSED ELBOW
M	PROPOSED MOTORIZED BFV
	PROPOSED DRESSER COUPLING
	BRASS CAP MONUMENT
B / D2	PLAN, SECTION OR DETAIL LABEL / DRAWING TITLE/SHEET NUMBER

ABBREVIATIONS

ARV	AIR RELEASE VALVE
BFV	BUTTERFLY VALVE
BM	BENCHMARK
BNR	BIOLOGICAL NUTRIENT REMOVAL
CL	CENTER LINE
CMU	CONCRETE MASONRY UNIT
CY	CUBIC YARD
DG	DECOMPOSED GRANITE
DIP	DUCTILE IRON PIPE
DWG	DRAWING
DTL	DETAIL
E	EAST
ELEV	ELEVATION
EOR	ENGINEER OF RECORD
EX, EXIST	EXISTING
FEQ	FLOW EQUALIZATION
FF	FINISHED FLOOR
FG	FINISHED GRADE
FL	FLANGE
FND	FOUND
FT	FOOT, FEET
G	GAS, GUTTER, GRADE
GPM	GALLONS PER MINUTE
GSN	GENERAL STRUCTURAL NOTES
HGL	HYDRAULIC GRADE LINE
IN	INCH, INCHES
INV	INVERT
JHA	JURISDICTION HAVING AUTHORITY
LF	LINEAR FEET
MAG	MARICOPA ASSOCIATION OF GOVERNMENTS
MFR	MANUFACTURER
MJ	MECHANICAL JOINT
N	NORTH
O.C.	OFF CENTER
O.S.H.A	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
P/L	PROPERTY LINE
PS	PIPE SUPPORT
RAS	RETURN ACTIVATED SLUDGE
PVC	POLYVINYL CHLORIDE
S	SEWER, SLOPE, SOUTH
S/M	SAWCUT AND MATCH
SF	SQUARE FEET
STA	STATION
STD	STANDARD
SY	SQUARE YARD
TYP	TYPICAL
UGE	UNDERGROUND ELECTRIC
U.N.O.	UNLESS NOTED OTHERWISE
UV	ULTRA VIOLET
W	WATER, WEST, WITH
WAS	WASTE ACTIVATED SLUDGE

UV DESIGN CRITERIA

PARAMETER	VALUE	UNITS
AVERAGE FLOW RATE	1.8	MGD
PEAK DAILY FLOW RATE	2.0	MGD
UV TRANSMITTANCE	65.0	% UVT (MINIMUM)
TYPE OF REUSE	ARIZONA TITLE 18 CLASS A+ REUSE	
INDICATOR ORGANISM	FECAL COLIFORM	
PERMIT LIMIT 1	4/7	SAMPLES NON–DETECT
PERMIT LIMIT 2	23.0	CFU/100 ML, SINGLE SAMPLE MAXIMUM
PLANT PROCESS	TERTIARY FILTRATION PRIOR TO DISINFECTION	
EQUIPMENT REDUNDANCY	100% REDUNDANCY. TWO UV TRAINS IN PARALLEL, EACH WITH THREE BANKS IN SERIES. ONE TRAIN ACTIVE AND ONE ON STAND–BY AT PEACK FLOW.	

100% SUBMITTAL

REV NO.	COMMENT	DATE
1	REVISIONS FOR 100% SUBMITTAL	8–23–24

REGISTERED ENGINEER 13082 SHASHI B PRASAD Date Signed 8/16/24 ARIZONA, U.S.A.

SUNRISE ENGINEERING
2045 SOUTH VINEYARD, SUITE 101
MESA, ARIZONA 85210
TEL 480.768.8600
www.sunrise-eng.com

CITY OF SEDONA

WASTEWATER RECLAMATION PLANT
UV REPLACEMENT

GENERAL NOTES, LEGEND & ABBREVIATIONS

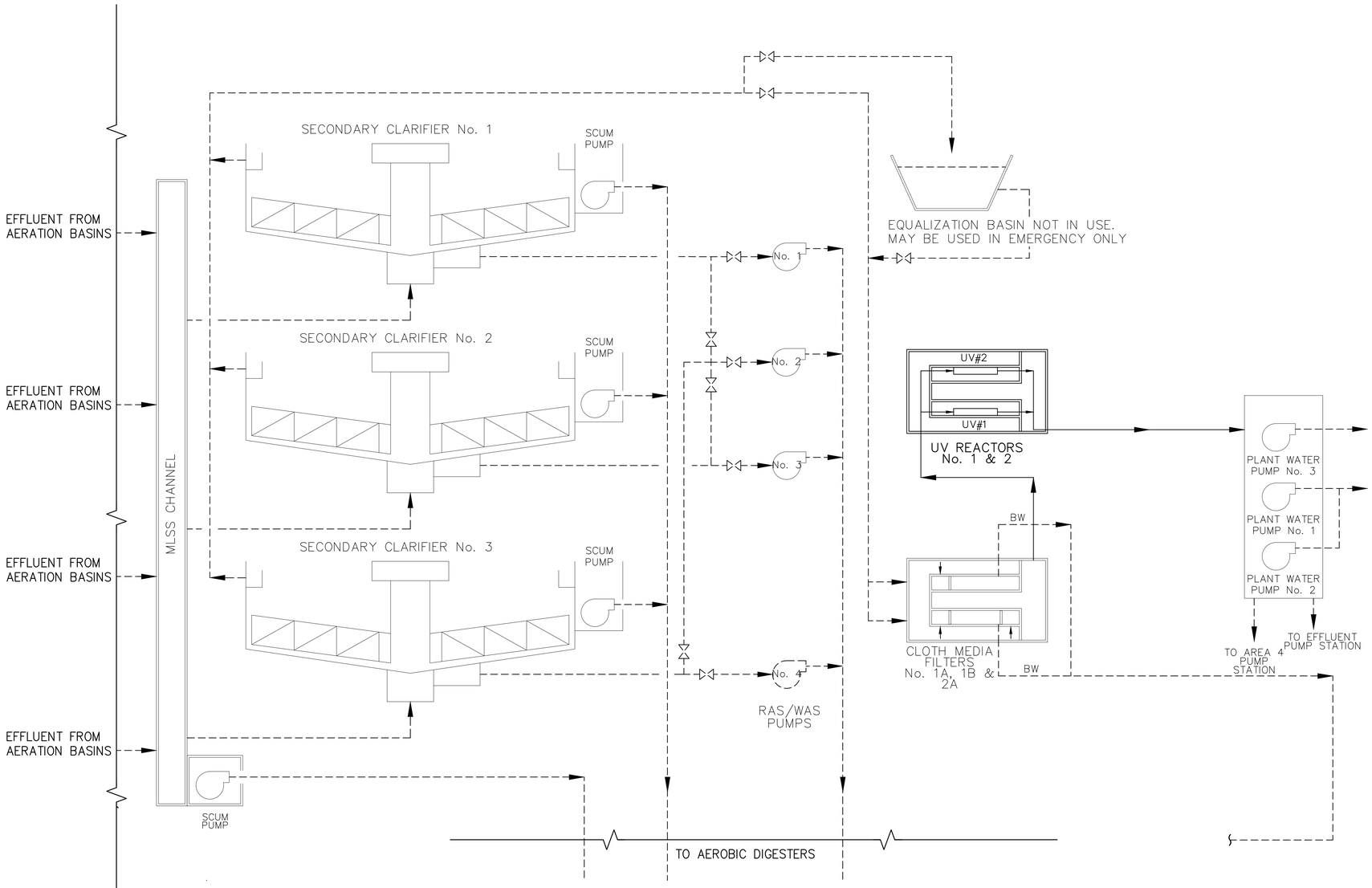
SEI NO.	DESIGNED	DRAWN	CHECKED		
09085	SP/SH	CAH	SP	GN	2 of 26

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LEGEND

- BLOWER
- CENTRIFUGAL PUMP
- GLOBE VALVE
- GATE VALVE
- EXISTING PIPING
- NEW PIPING
- PLUG VALVE



A ~ PROCESS FLOW DIAGRAM
NOT TO SCALE

REV NO.	COMMENT	DATE
1	REVISIONS FOR 100% SUBMITTAL	8-23-24

13082 SHASHI B PRASAD
Date Signed 9/6/24
ARIZONA, U.S.A.

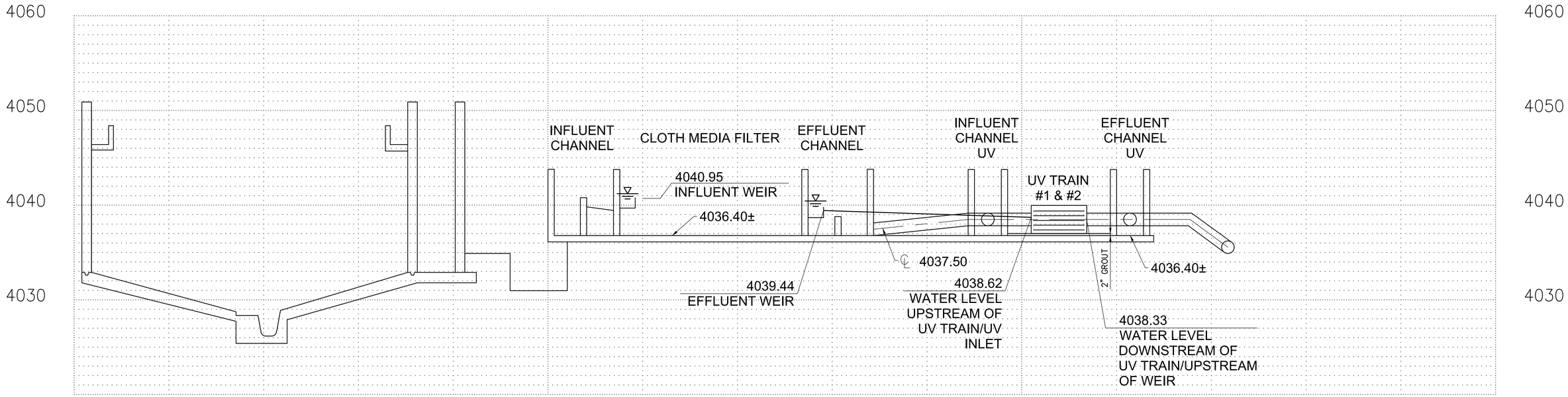
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CITY OF SEDONA

WASTEWATER RECLAMATION PLANT
UV REPLACEMENT
PROCESS FLOW DIAGRAM

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EXISTING SECONDARY CLARIFIERS

CLOTH MEDIA FILTERS

UV DISINFECTION

HYDRAULIC PROFILE

HORIZ SCALE: NOT TO SCALE
VERT SCALE: 1" = 10'

NOTE:
1. THE ELEVATIONS SHOWN IN THIS HYDRAULIC PROFILE ARE BASED ON SURVEY CONDUCTED BY SUNRISE ENGINEERING FOR THE UV REPLACEMENT PROJECT. IT IS BASED ON 2.0 MGD PEAK FLOW AND ELEVATIONS PROVIDED BY THE UV MANUFACTURER, AS FOLLOWS:
   WATER ELEVATION ABOVE WEIR: 11.78"
   WEIR CREST: 9.4"

REV NO.	COMMENT	DATE
1	REVISIONS FOR 100% SUBMITTAL	8-23-24

Professional Engineer — 13082 SHASHI B PRASAD — Date Signed 9/6/24 — ARIZONA, U.S.A.

SUNRISE ENGINEERING
2045 SOUTH VINEYARD, SUITE 101
MESA, ARIZONA 85210
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www.sunrise-eng.com

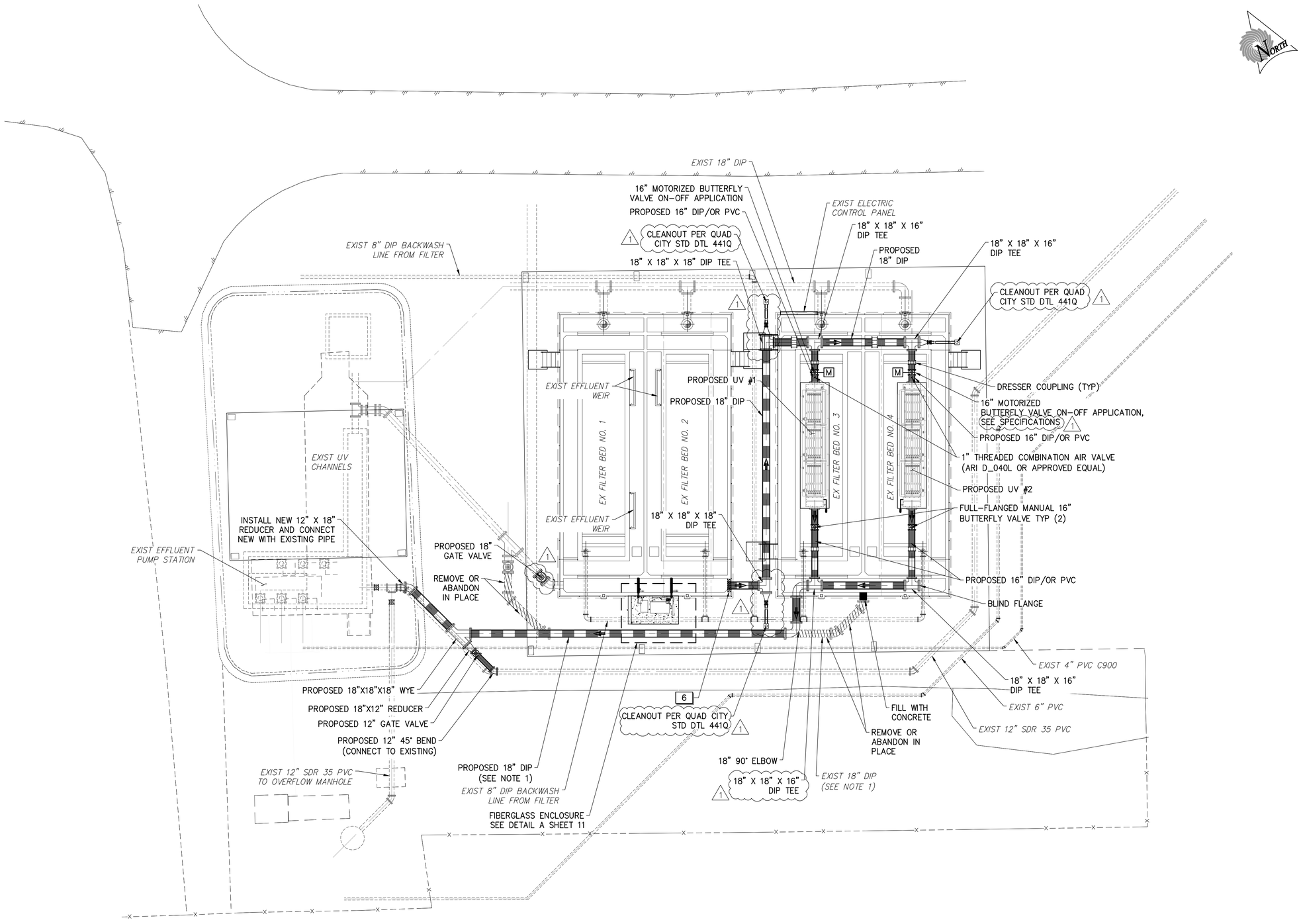
CITY OF SEDONA

WASTEWATER RECLAMATION PLANT
UV REPLACEMENT
HYDRAULIC PROFILE

SEI NO.	DESIGNED	DRAWN	CHECKED		
09085	SP/SH	CAH	SP	HP	4 of 26

100% SUBMITTAL

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CONSTRUCTION NOTES

REMOVALS

6 REMOVE A PORTION OF EXISTING WALL AS NEEDED — LS

GENERAL NOTES

1. THE ENGINEER AND CONTRACTOR WILL EVALUATE THE CONDITION OF THE EXISTING 18-INCH DIP. IF THE PIPE IS FOUND IN GOOD CONDITION, THEN THE CONTRACTOR WILL KEEP THE OLD PIPE IN PLACE AND CONNECT NEW PIPE SECTIONS TO THE EXISTING PIPE. THE CONTRACTOR WILL BID ON THE JOB ASSUMING THE PIPE WILL BE REPLACED WITH A NEW PIPE. THE CONTRACTOR WILL SET ASIDE A FIXED AMOUNT TO BE CREDITED TO THE OWNER IF THE OLD PIPE IS FOUND IN GOOD CONDITION AND KEPT IN PLACE.

2. THE DRAWINGS/SPECIFICATIONS HAVE BEEN PREPARED BASED ON BEST INFORMATION AVAILABLE TO THE ENGINEER. THE ENGINEER DOES NOT GUARANTEE ACCURACY OF EXISTING CONDITIONS. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING CONDITIONS AND REPORT TO ENGINEER IF ANY DISCREPANCY WAS FOUND.

SCALE
0 10' 20'
HORIZ: 1" = 10'

Know what's below. Call before you dig. 1-800-782-5348

REV NO.	COMMENT	DATE
1	REVISIONS FOR 100% SUBMITTAL	8-23-24

Professional Engineer (Civil) 13082 SHASHI B PRASAD Date Signed 9/6/24 ARIZONA, U.S.A.

SUNRISE ENGINEERING
2045 SOUTH VINEYARD, SUITE 101
MESA, ARIZONA 85210
TEL 480.768.8600
www.sunrise-eng.com

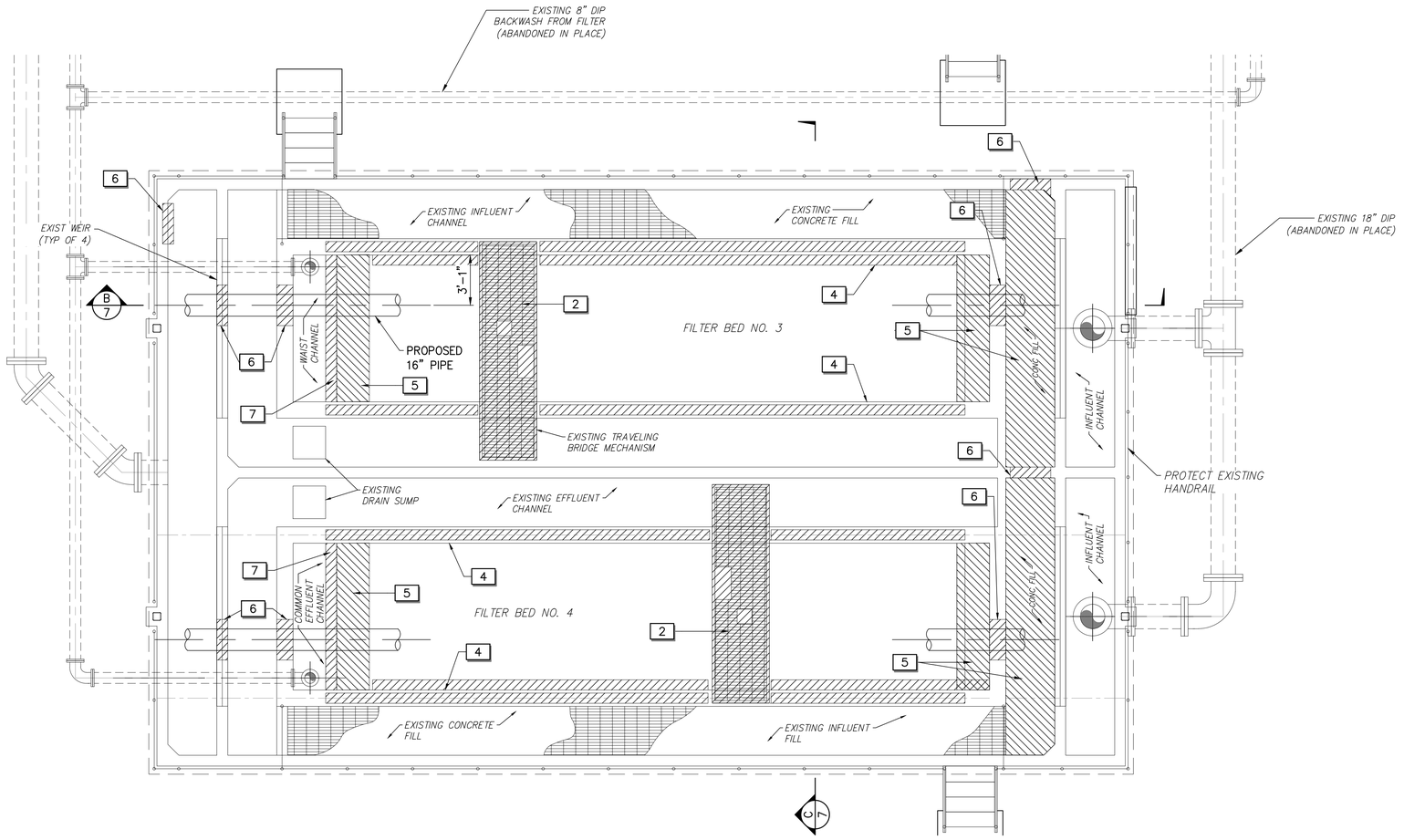
CITY OF SEDONA

WASTEWATER RECLAMATION PLANT
UV REPLACEMENT
EXISTING / PROPOSED SITE PLAN

SEI NO.	DESIGNED	DRAWN	CHECKED		
09085	SP/SH	CAH	SP	SP	5 of 26

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A PLAN
~ NOT TO SCALE

CONSTRUCTION NOTES

REMOVALS

2	DEMOLISH AND DISPOSE OF EXISTING TRAVELLING BRIDGE MECHANISM	0 LS
1 4	DEMOLISH AND DISPOSE OF ALL RAILS, CONDUITS AND CONTROL VALVES/PANELS ETC.	LS
5	REMOVE CONCRETE FILLETS	0 LS
6	REMOVE A PORTION OF EXISTING WALL AS NEEDED	0 LS
7	REMOVE CONCRETE WALL	LS

100% SUBMITTAL

GENERAL NOTES

1. ALL DEMOLITION SHOWN ON THIS SHEET SHALL TAKE PLACE ON FILTER CELL 3 AND FILTER CELL 4.

North

SCALE
0 4' 8'
HORIZ: 1" = 4'

811 Know what's below. Call before you dig. 1-800-782-5348

REV NO.	COMMENT	DATE
1	REVISIONS FOR 100% SUBMITTAL	8-23-24

Professional Engineer 13082 SHASHI B PRASAD Date Signed 9/6/24 ARIZONA, U.S.A.

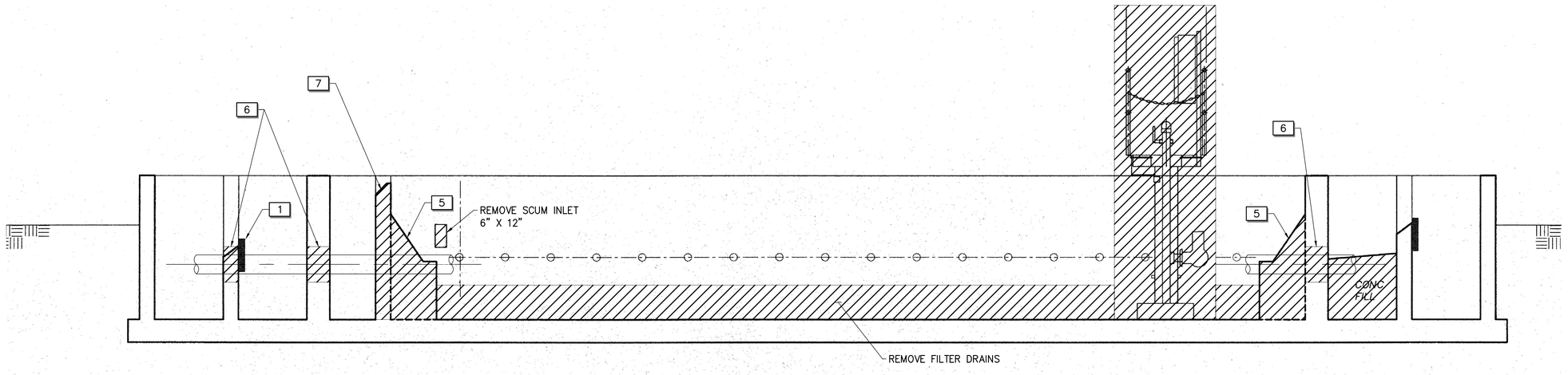
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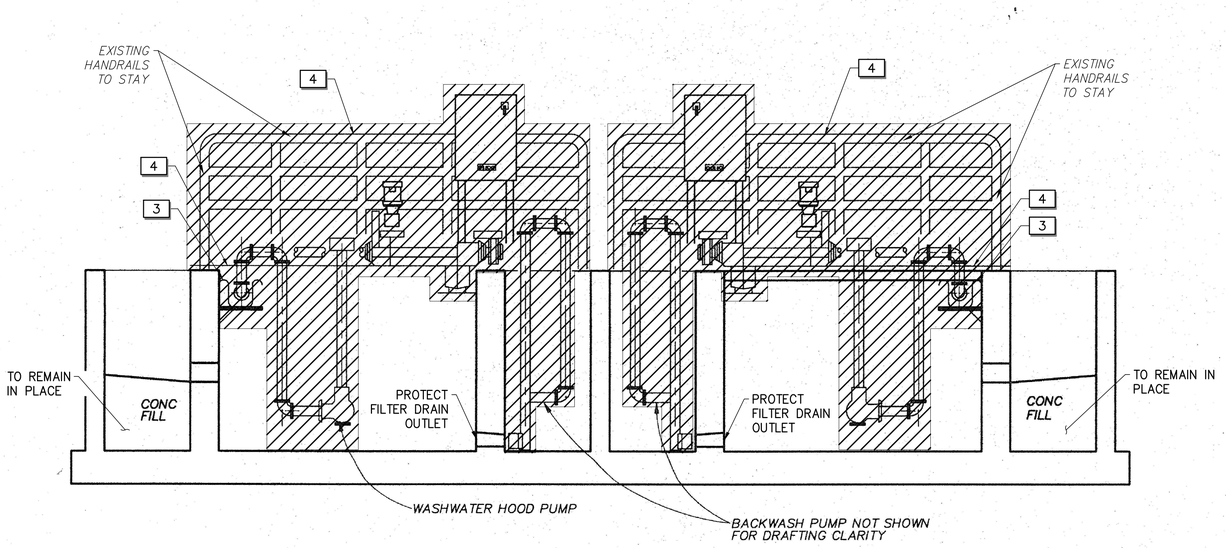
WASTEWATER RECLAMATION PLANT
UV REPLACEMENT
EXISTING FILTER DEMOLITION PLAN

SEI NO.	DESIGNED	DRAWN	CHECKED		
09085	SP/SH	CAH	SP	DM1	6 of 26

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B ~ SECTION
NOT TO SCALE



C ~ SECTION
NOT TO SCALE

CONSTRUCTION NOTES

REMOVALS

1	DEMOLISH EXISTING EFFLUENT WEIR AND WALLS (SEE STRUCTURAL DRAWINGS)	0 LS
3	DEMOLISH EXISTING BACKWASH WATER LAUNDER	2 LS
1 4	DEMOLISH AND DISPOSE OF ALL RAILS, CONDUITS AND CONTROL VALVES/PANELS ETC.	LS
5	REMOVE CONCRETE FILLETS	0 LS
6	REMOVE A PORTION OF EXISTING WALL AS NEEDED	0 LS
7	REMOVE CONCRETE WALL	1 LS

100% SUBMITTAL

GENERAL NOTES

1. ALL DEMOLITION SHOWN ON THIS SHEET SHALL TAKE PLACE ON FILTER CELL 3 AND FILTER CELL 4.

SCALE
0 30' 60'
HORIZ: 1" = 30'

811 Know what's below. Call before you dig. 1-800-782-5348

REV NO.	COMMENT	DATE
1	REVISIONS FOR 100% SUBMITTAL	8-23-24

Professional Engineer — 13082 SHASHI B PRASAD — Date Signed 9/6/24 — ARIZONA, U.S.A.

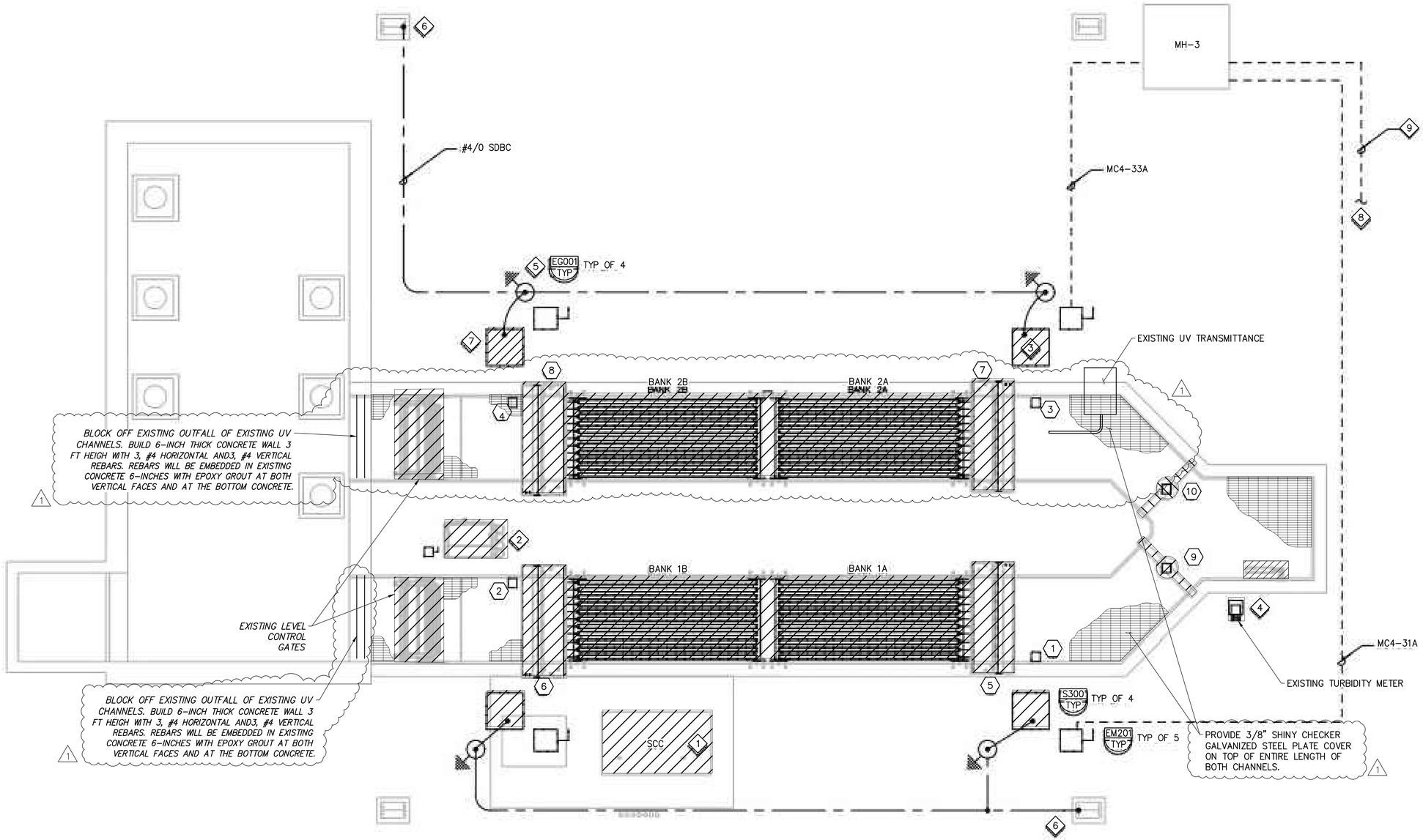
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MESA, ARIZONA 85210
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WASTEWATER RECLAMATION PLANT
UV REPLACEMENT
EXISTING FILTER DEMOLITION SECTION

SEI NO.	DESIGNED	DRAWN	CHECKED		
09085	SP/SH	CAH	SP	DM2	7 of 26

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KEY NOTES:

1. SYSTEM CONTROL CENTER [SCC-500]
2. HYDRAULIC SYSTEMS CENTER [HSC-500]
3. UV BANK TRANSFORMER AND DISCONNECT, TYPICAL OF FOUR
4. NOT USED
5. GROUND ROD IN GROUND WELL, TYPICAL OF FOUR
6. CONNECT GROUND WIRE TO CANOPY STRUCTURAL STEEL
7. GROUND TRANSFORMERS PER SINGLE LINE, DRAWING NO. E-04
8. TO HH-E3. SEE DRAWING NO. 40-E-07 FOR CONTINUATION
9. (3) 2"C REFER TO KEYNOTE 4, DRAWING 40-E-07 FOR ADDITIONAL REQUIREMENTS

EQUIPMENT TAGS

1. LSH-0510
2. LSL-0510
3. LSH-0520
4. LSL-0520
5. PDC-510
6. PDC-511
7. PDC-520
8. PDC-521
9. FCV-0510
10. FCV-0520

A ~ EXISTING UV DEMOLITION PLAN
NOT TO SCALE

CONSTRUCTION NOTES

GENERAL NOTES

1. THIS DRAWING HAS BEEN TAKEN FROM CAROLLO 2011 UV PROJECT. THIS DRAWING IS INCOMPLETE. IT IS FOR REFERENCE ONLY. FIELD VERIFY ALL EXISTING CONDITIONS.
2. EVERYTHING RELATED TO THE EXISTING UV WILL BE DEMOLISHED.
3. COMPOSITE SAMPLER, UV TRANSMITTANCE AND TURBIDITY METER WILL BE RELOCATED TO THE CONCRETE SLAB UNDER CANOPY.

SCALE 0 30' 60'
HORIZ: 1" = 30'

811 Know what's below. Call before you dig. 1-800-782-5348

REV NO.	COMMENT	DATE
1	REVISIONS FOR 100% SUBMITTAL	8-23-24

13082 SHASHI B PRASAD Registered ARIZONA, U.S.A. 6/30/25
SUNRISE ENGINEERING
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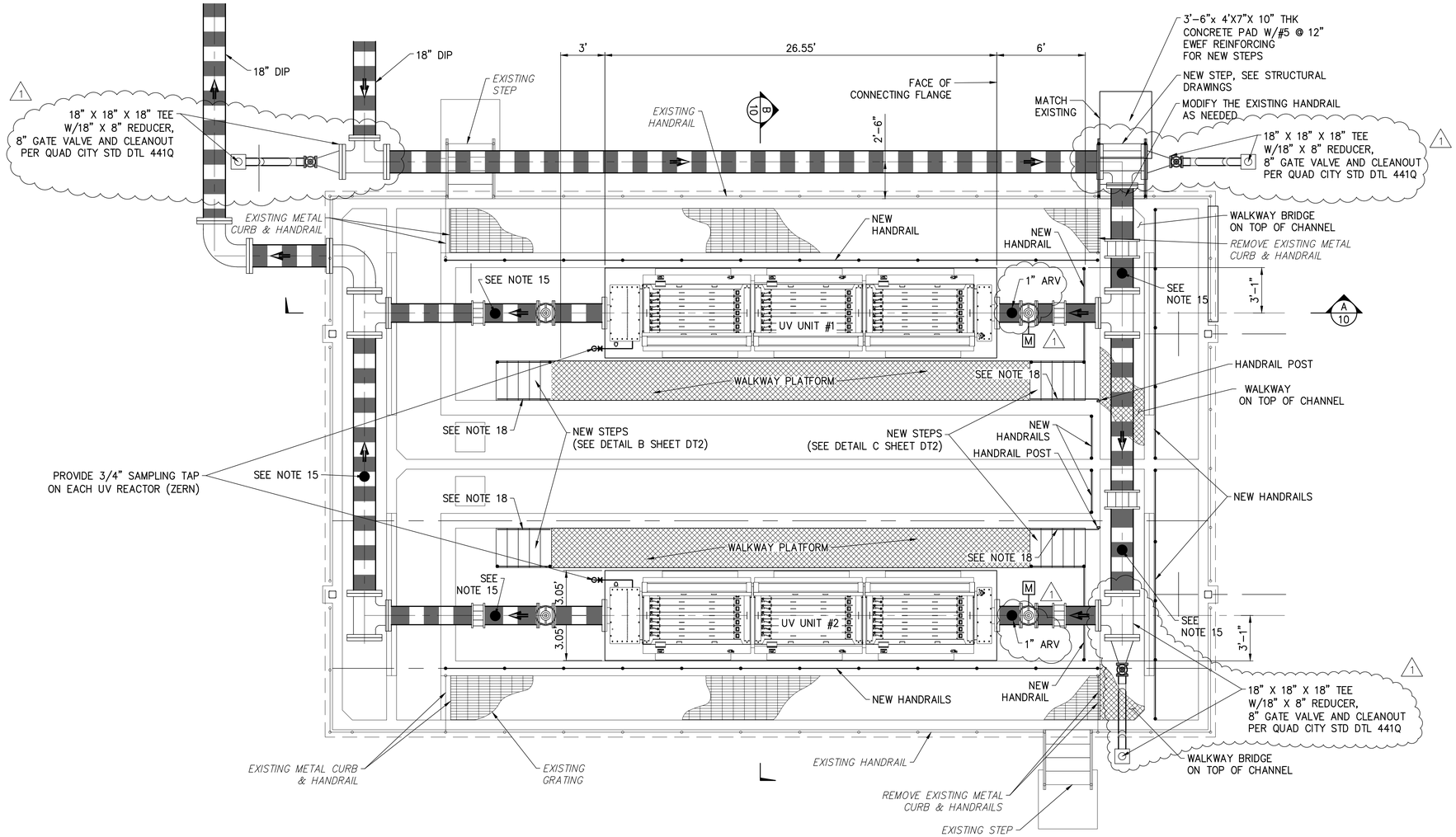
CITY OF SEDONA

WASTEWATER RECLAMATION PLANT
UV REPLACEMENT
EXISTING UV DEMOLITION PLAN

SEI NO.	DESIGNED	DRAWN	CHECKED		
09085	SP/SH	CAH	SP	DM3	8 of 26

100% SUBMITTAL

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NOTES:

1. THE CONTRACTOR MUST COORDINATE WITH THE PLANT STAFF TO SCHEDULE THEIR WORK IN A MANNER THAT IS HARMONIOUS WITH ONGOING PLANT OPERATIONS. IT IS CRUCIAL THAT THE PLANT REMAINS OPERATIONAL AT ALL TIMES, ENSURING THAT AT LEAST ONE UV TRAIN, WHETHER EXISTING OR NEW, IS ALWAYS RUNNING AND FULLY OPERATIONAL.
2. THE CIVIL WORK, DEMOLITION WORK, SITE WORK, PIPING, HANDRAILS, STRUCTURAL STEEL WORKS AND CONCRETE WORK WILL BE PERFORMED IN COMPLIANCE WITH THE LATEST EDITION OF MARICOPA ASSOCIATION OF GOVERNMENTS (MAG) SPECIFICATIONS. TECHNICAL SPECIFICATIONS HAVE BEEN PROVIDED IN THESE CONTRACT DOCUMENTS AND CALLED OUT ON THE PLANS. IF A CONFLICT ARISES, THE ENGINEER'S DECISION WILL BE FINAL AND BINDING ON ALL PARTIES.
3. THE BURIED PIPING WILL BE DUCTILE IRON PIPES (DIP). THE VISIBLE EXPOSED PIPES MAY BE DUCTILE IRON PIPES OR PVC PIPES. BOTH DIP AND PVC WILL BE RATED FOR PRESSURE FLOW CONDITIONS AND MUST BE RATED FOR A MINIMUM OPERATING PRESSURE OF 150 PSI. THE DIP PIPE WILL BE MINIMUM CLASS 150 AND THE PVC PIPE WILL BE C 905 RATED FOR MINIMUM 150 PSI OPERATING PRESSURE.
4. THE CONTRACTOR WILL PROVIDE ADEQUATE PROFESSIONAL QUALITY PIPE SUPPORT FOR EXPOSED PIPES. THE MAXIMUM SPACING OF SUPPORTS WILL BE 10 FEET FOR PIPES LARGER THAN 6 INCHES. THE MAXIMUM SPACING OF SUPPORTS FOR PIPES 6 INCHES AND SMALLER WILL BE 5 FEET. THE SUPPORTS MAY BE MADE OF GALVANIZED STEEL COMPONENTS OR BLACK IRON FERROUS METAL COMPONENTS. THE BLACK METAL SURFACES WILL BE PAINTED AS CALLED OUT IN SPECIFICATIONS.
5. THE BURIED PIPING WILL BE BUILT WITH PUSH ON/ MJ JOINTS. THE EXPOSED PIPING WILL BE BUILT WITH RESTRAINED FLANGED JOINTS. THRUST BLOCKS WILL BE PROVIDED AS CALLED OUT IN MAG SPECIFICATIONS.
6. CONCRETE WILL BE SAW CUT AS NEEDED AT 11 LOCATIONS TO INSTALL NEW PIPES. THE CONCRETE CUTS/OPENINGS WILL BE FILLED/ REPAIRED WITH NON-SHRINK GROUT AFTER INSTALLATION OF NEW PIPES. 1
7. BURIED DIP WILL BE ENCASED IN POLYETHYLENE WRAPPING AS CALLED OUT IN MAG SPECIFICATIONS.
8. THE CONTRACTOR WILL TAKE MEASURES TO KEEP ACCESS OPEN TO PLANT FACILITIES FOR THE PLANT OPERATORS AND EMERGENCY VEHICLES/PERSONNEL.
9. NEW WALKWAYS WILL BE DESIGNED FOR A LIVE LOAD OF 200# PER SQUARE FT.
10. 16-INCH MOTORIZED BUTTERFLY VALES (2EA) WILL BE INTEGRATED WITH UV CONTROL SYSTEMS. THE 16-INCH VALVES AND THE UV TRAIN WILL BE PROVIDED WITH LOCAL AND REMOTE SCADA CONTROLS.
11. THE VALVE WILL BE RATED TO OPERATE UNDER LOW OPERATING PRESSURE OF 10 PSI. ELECTRIC MOTOR AND ACTUATOR WILL BE SIZED ACCORDINGLY.
12. THE NEW HANDRAILS WILL BE HOT DIPPED GALVANIZED STEEL HANDRAILS WITH THREE RUNGS MATCHING THE EXISTING HANDRAILS.
13. HANDRAILS/WALKWAYS/LADDERS MUST COMPLY WITH O.S.H.A SAFETY STANDARDS.
14. THE CONTRACTOR WILL CLEAN THE EXISTING HANDRAILS AND WALKWAYS WITH WATER, SOAP, BRUSH, RAGS, AND LEAVE THEM IN CLEAN SHINING CONDITIONS.
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19. IT WILL BE RESPONSIBILITY OF THE CONTRACTOR TO REMOVE ANY LEAKED WATER IN AND OUT OF THE TWO UV TANKS. THERE IS NO OUTLET FOR LEAKED WATER FROM THE TANKS. THE CITY WILL TAKE RESPONSIBILITY AFTER 100% COMPLETION/ACCEPTANCE OF THE PROJECT.
20. THE CONTRACTOR WILL RUN A SEVEN (7) DAY TEST OF THE COMPLETED UV SYSTEM. THE CONTRACTOR WILL REPAIR/CORRECT ANY ISSUE THAT MAY COME UP DURING THIS SEVEN-DAY PERIOD. THE OWNER WILL ACCEPT THE FACILITY AFTER ALL ISSUES ARE RESOLVED AND WHEN NO NEW ISSUE ARISES FOR 24 HOURS.
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22. THE UNUSED/ABANDONED PIPES WILL BE FILLED WITH 24-INCH CONCRETE MIX AT THE OPEN PIPE ENDS.
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24. 1-INCH AIR RELEASE VALVE (ARV, 2EA) WILL BE SUITABLE FOR FILTERED WASTEWATER EFFLUENT. THE VALVE WILL BE ARI MODEL D04OL OR APPROVED EQUAL MOUNTED ON A ONE-INCH OUTLET WITH AN ISOLATION VALVE. THE OUTLET WILL BE INTEGRAL CAST INTO PIPE OR A TAPPING SADDLE WILL BE USED.

1

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REV NO.	COMMENT	DATE
1	REVISIONS FOR 100% SUBMITTAL	8-23-24

13082 SHASHI B PRASAD Professional Engineer (Civil) Date Signed 9/6/24 ARIZONA, U.S.A.

SUNRISE ENGINEERING
2045 SOUTH VINEYARD, SUITE 101
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CITY OF SEDONA

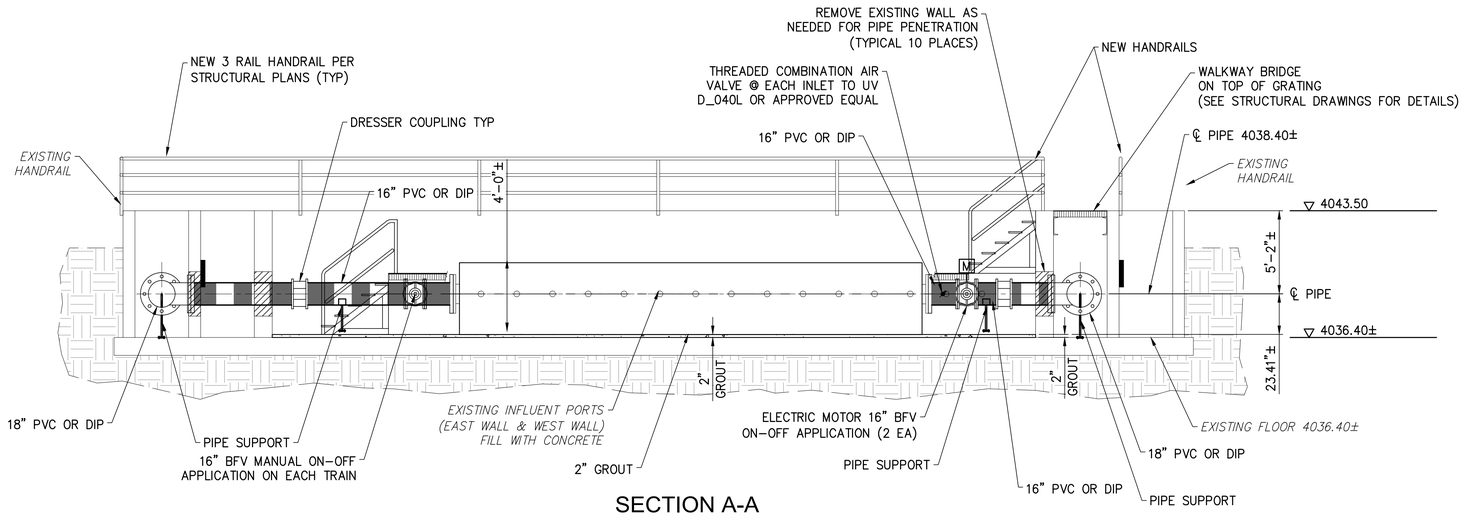
WASTEWATER RECLAMATION PLANT UV REPLACEMENT

PROPOSED IMPROVEMENT PLAN

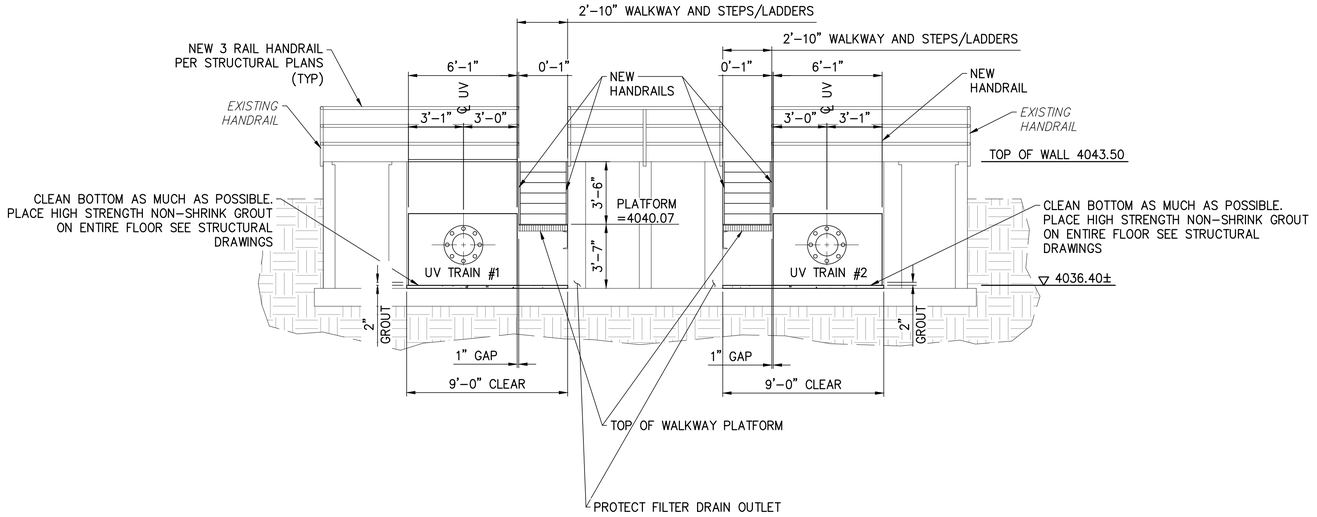
North

SCALE
0 4' 8'
HORIZ: 1" = 4'

SEI NO.	DESIGNED	DRAWN	CHECKED		
09085	SP/SH	CAH	SP	PI1	9 of 26



SECTION A-A



SECTION B-B

NOTES:

1. THE CONTRACTOR MUST COORDINATE WITH THE PLANT STAFF TO SCHEDULE THEIR WORK IN A MANNER THAT IS HARMONIOUS WITH ONGOING PLANT OPERATIONS. IT IS CRUCIAL THAT THE PLANT REMAINS OPERATIONAL AT ALL TIMES, ENSURING THAT AT LEAST ONE UV TRAIN, WHETHER EXISTING OR NEW, IS ALWAYS RUNNING AND FULLY OPERATIONAL.
2. THE CIVIL WORK, DEMOLITION WORK, SITE WORK, PIPING, HANDRAILS, STRUCTURAL STEEL WORKS AND CONCRETE WORK WILL BE PERFORMED IN COMPLIANCE WITH THE LATEST EDITION OF MARICOPA ASSOCIATION OF GOVERNMENTS (MAG) SPECIFICATIONS. TECHNICAL SPECIFICATIONS HAVE BEEN PROVIDED IN THESE CONTRACT DOCUMENTS AND CALLED OUT ON THE PLANS. IF A CONFLICT ARISES, THE ENGINEER'S DECISION WILL BE FINAL AND BINDING ON ALL PARTIES.
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6. CONCRETE WILL BE SAW CUT AS NEEDED AT 11 LOCATIONS TO INSTALL NEW PIPES. THE CONCRETE CUTS/OPENINGS WILL BE FILLED/ REPAIRED WITH NON-SHRINK GROUT AFTER INSTALLATION OF NEW PIPES. (1)
7. BURIED DIP WILL BE ENCASED IN POLYETHYLENE WRAPPING AS CALLED OUT IN MAG SPECIFICATIONS.
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(1)

SCALE
0 4' 8'
HORIZ: 1" = 4'

811 Know what's below. Call before you dig. 1-800-782-5348

REV NO.	COMMENT	DATE
1	REVISIONS FOR 100% SUBMITTAL	8-23-24

13082 SHASHI B PRASAD Registered Professional Engineer (Civil) ARIZONA, U.S.A. Date Signed 9/10/24

SUNRISE ENGINEERING
2045 SOUTH VINEYARD, SUITE 101
MESA, ARIZONA 85210
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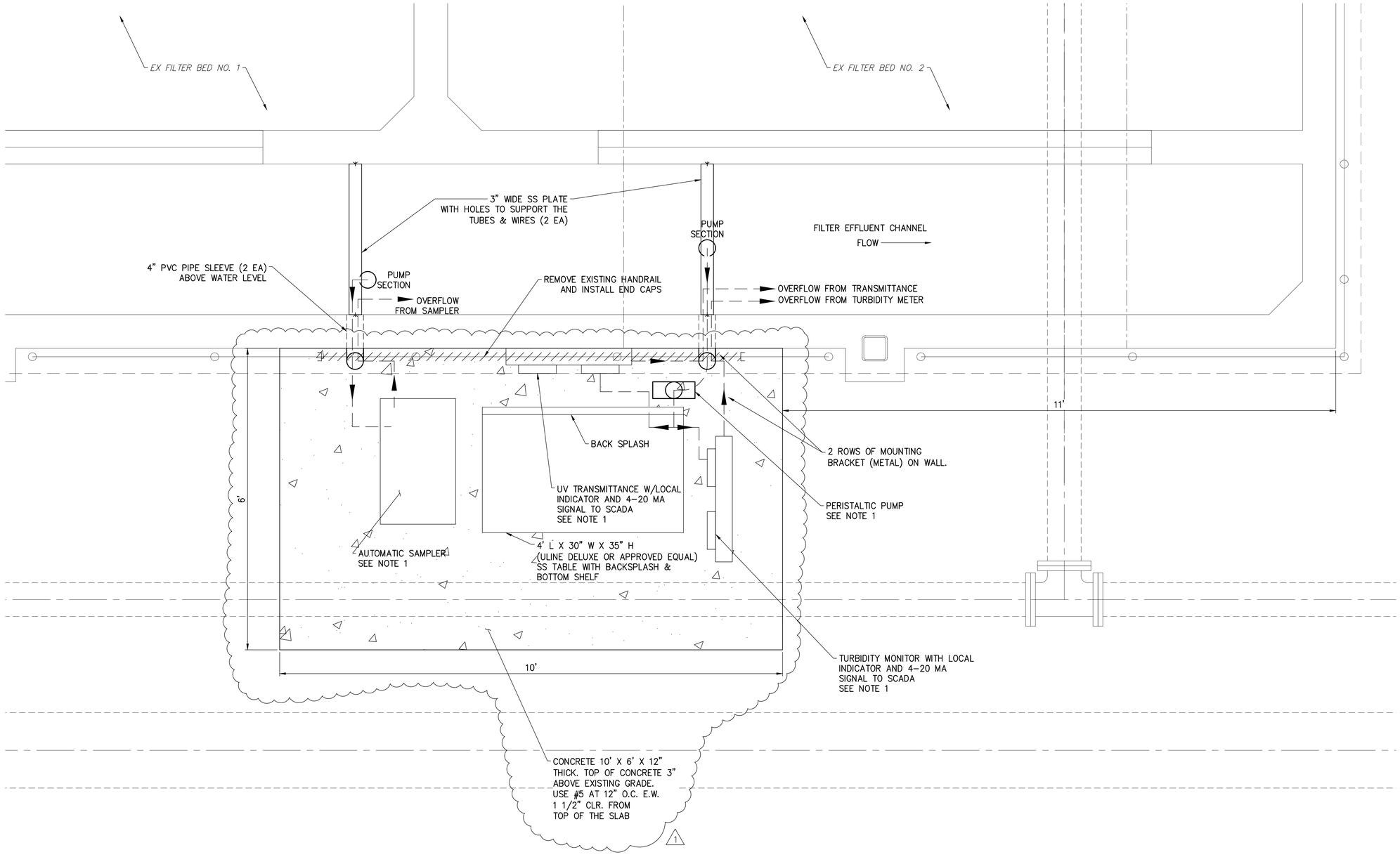
CITY OF SEDONA

WASTEWATER RECLAMATION PLANT
UV REPLACEMENT
PROPOSED IMPROVEMENT SECTION

SEI NO.	DESIGNED	DRAWN	CHECKED		
09085	SP/SH	CAH	SP	PI2	10 of 26

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A/5 DETAIL - MONITORING EQUIPMENT ON CONCRETE SLAB

SCALE: 1"=1'

1

NOTE:

1. THE EXISTING MONITORING EQUIPMENT AT THE PLANT WILL BE RELOCATED UNDER THE CANOPY ON THE PROPOSED CONCRETE SLAB.

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WASTEWATER RECLAMATION PLANT UV REPLACEMENT

DETAILS

SEI NO.	DESIGNED	DRAWN	CHECKED		
09085	SP/SH	CAH	SP	DT1	11 of 26

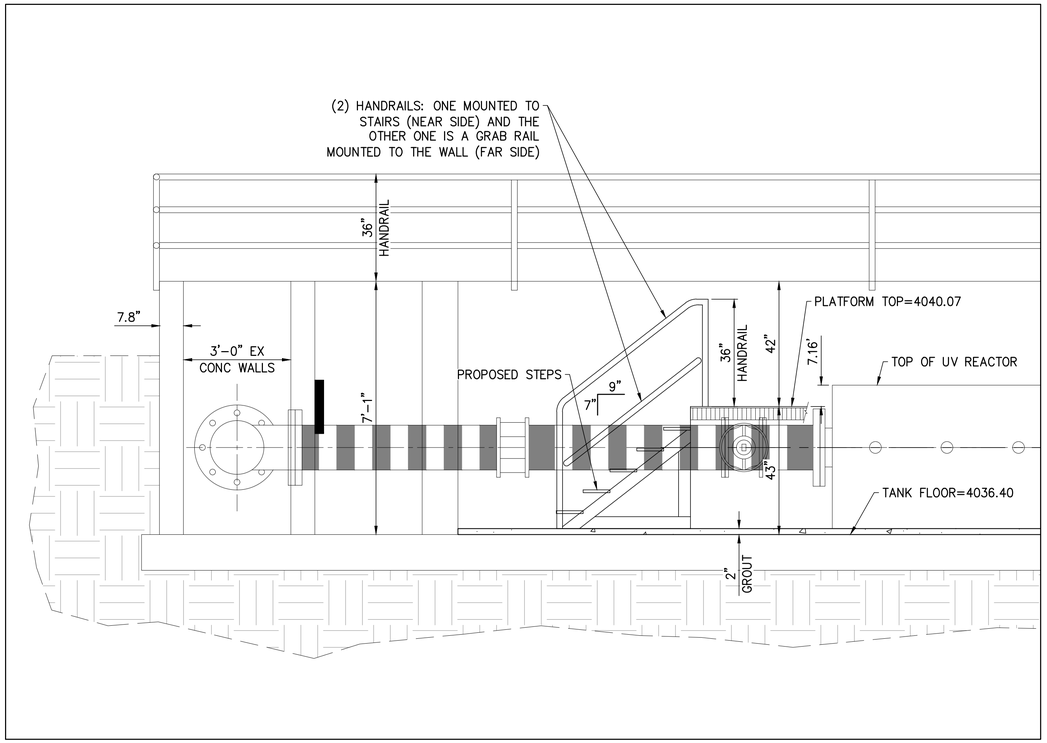
North

SCALE 0 1' 2'

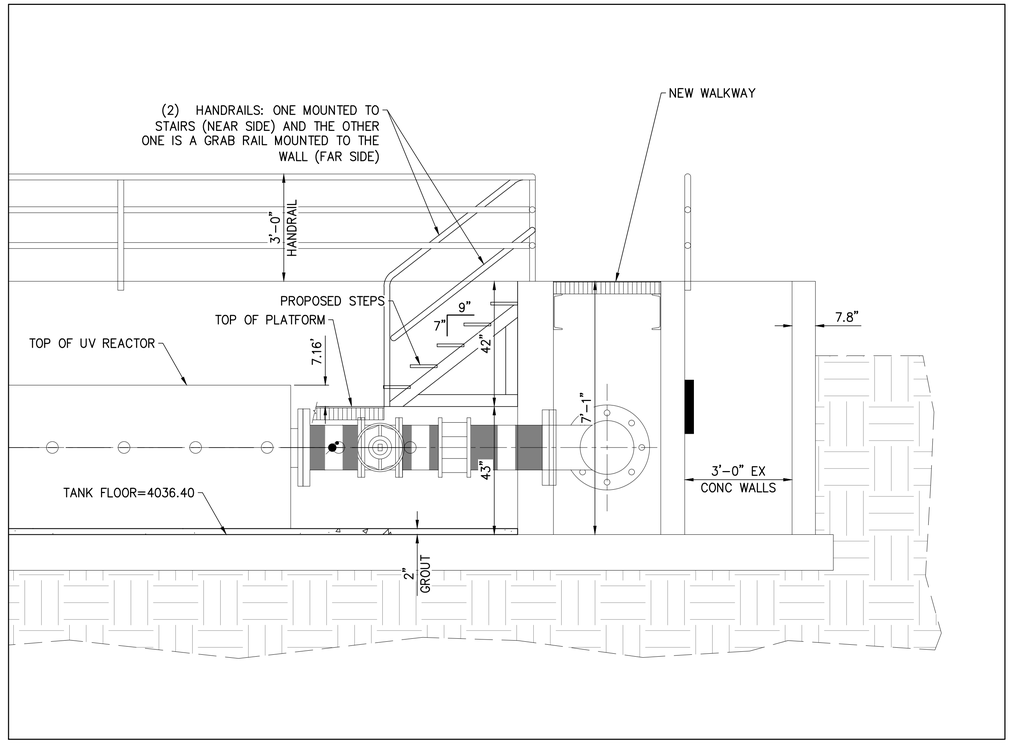
HORIZ: 1" = 1'

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B ~ DETAIL - STEPS AT TWO LOCATIONS
1"=2'



C ~ DETAIL - STEPS AT TWO LOCATIONS
1"=2'

NOTES:
1. SEE STRUCTURAL DRAWINGS FOR DETAILS OF HANDRAILS, STEPS & WALKWAYS.
2. FIELD VERIFY ALL EXISTING CONDITIONS. CONTRACTOR WILL MEASURE LENGTH, WIDTH AND DEPTH OF EXISTING TANKS AND VERIFY WITH THE NEW DESIGN AS SHOWN HERE.

SCALE
0 1' 2'
HORIZ: 1" = 1'

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Professional Engineer 13082 SHASHI B PRASAD Date Signed 9/6/24 ARIZONA, U.S.A.

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CITY OF SEDONA

WASTEWATER RECLAMATION PLANT
UV REPLACEMENT
DETAILS

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STRUCTURAL SPECIFICATIONS & REQUIREMENTS

A. DESIGN CRITERIA:

1. BUILDING CODES:
   2021 INTERNATIONAL BUILDING CODE
   ASCE 7-16 "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES"
2. RISK CATEGORY IV PER IBC TABLE 1604.5
3. DESIGN DEAD LOADS: N/A
4. LIVE LOAD:
   CATWALK LL = 40 PSF
5. SNOW LOAD: N/A – COVERED ELEMENTS
6. WIND LOADING: N/A
7. SEISMIC LOADING: PER ASCE 7-16
   SITE CLASS D "DEFAULT", SEISMIC IMPORTANCE FACTOR I_e = 1.5
   S_S = 0.297g
   S_1 = 0.094g
   S_{DS} = 0.31g
   S_{D1} = 0.15g
   SEISMIC DESIGN CATEGORY C PER ASCE 7-16 TABLE 11.6-2

B. GENERAL REQUIREMENTS:

1. DIMENSIONS: CONTRACTOR TO VERIFY ALL DIMENSIONS ON SITE PRIOR TO CONSTRUCTION AND REPORT ANY DISCREPANCIES TO THE ENGINEER OF RECORD.
2. THE CONTRACTOR MUST SUBMIT IN WRITING ANY REQUESTS FOR MODIFICATIONS TO THE PLANS AND SPECIFICATIONS. SHOP DRAWINGS SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW DO NOT CONSTITUTE "IN WRITING" UNLESS IT IS CLEARLY NOTED THAT SPECIFIC CHANGES ARE BEING REQUESTED.
3. LOADS FROM CONSTRUCTION MATERIALS SHALL BE SPREAD OUT IF PLACED ON FRAMED FLOORS OR ROOFS. CONSTRUCTION LOADS SHALL NOT EXCEED THE DESIGN LIVE LOAD PER SQUARE FOOT LISTED IN THE DESIGN CRITERIA. CONTRACTOR SHALL PROVIDE ADEQUATE SHORING AND OR BRACING WHERE STRUCTURE HAS NOT ATTAINED DESIGN STRENGTH.
4. THESE DOCUMENTS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS AS REQUIRED FOR THIS OR SIMILAR LOCALITIES. THEY ASSUME THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKMEN WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.
5. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, LAGGING, SHORING, BRACING, FORM-WORK, ETC. AS REQUIRED FOR THE PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION.

C. FOUNDATION REQUIREMENTS:

1. FOUNDATIONS FOR THE STRUCTURES SHOWN IN THE PLANS WERE DESIGNED BASED ON THE RECOMMENDATIONS OF THE INTERNATIONAL BUILDING CODE 2021, CHAPTER 18. LOAD-BEARING VALUES OF THE SOILS ARE PROVIDED IN THE CODE. CONTINUOUS AND SPREAD FOOTINGS DESIGNED FOR ALLOWABLE BEARING PRESSURE OF 1,500 PSF PER THE CODE. IF SOIL CONDITIONS ARE FOUND TO BE DIFFERENT THAN THE TYPES LISTED ABOVE OR OF UNUSUAL MAKE-UP, OR SUB-STANDARD, PLEASE CONTACT THE ENGINEER OF RECORD.

D. CONCRETE REQUIREMENTS:

1. ALL CONCRETE CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH ACI 318 AND ACI 301, EXCEPT AS MODIFIED BY THE CONSTRUCTION DOCUMENTS.
2. CONCRETE SHALL HAVE THE FOLLOWING COMPRESSIVE STRENGTHS:

CONCRETE	MIN. f'c (28 DAYS)	SLUMP	W/C RATIO	CLASS
FOUNDATIONS	4000 PSI	3" TO 6"	0.45	F2
INT. SLAB-ON-GRADE	4000 PSI	3" TO 6"	0.45	F2
CONCRETE NOT NOTED	4000 PSI	3" TO 6"	0.45	F2

   AIR ENTRAINMENT: 4.5% TO 7.5%
   CONCRETES SHALL BE INCRETE GRANULAR COLOR "RED ROCK SEDONA", 2 LB PER SACK OF CEMENTATION REQUIRED, OR IT'S EQUIVALENT DAVIS 160 BAJA RED AT 3.05 LB DOSAGE OF LIQUID COLOR PER SACK OF CEMENTATION OR SOLMAN CANYON RED AT 2 LB PER SACK OF CEMENTATION.

3. ADMIXTURES:
   3.1. AIR ENTRAINMENT ASTM C-260
   3.2. CALCIUM CHLORIDE NOT PERMITTED
   3.3. ALUMINUM PRODUCTS NOT PERMITTED
4. CONCRETE MIXES SHALL BE DESIGNED BY A CERTIFIED LABORATORY, STAMPED BY AN APPROPRIATELY LICENSED SPECIALTY ENGINEER, AND APPROVED BY THE ENGINEER OF RECORD. MIX DESIGNS SHALL INCLUDE THE PROJECT NAME AND INDICATE THEIR USE WITHIN THE STRUCTURE. MIX DESIGNS SHALL BE PROPORTIONED TO MINIMIZE SHRINKAGE AND HAVE PROVEN SHRINKAGE CHARACTERISTICS OF 0.05% OR LESS BASED ON TESTING PER ASTM C157.

D. CONCRETE REQUIREMENTS CONTINUED:

5. IF USED, EARLY STRENGTH CONCRETE SHALL BE PROPORTIONED TO DEVELOP THE 28 DAY COMPRESSIVE STRENGTH AT THE AGE REQUIRED BY THE CONTRACTOR. CONTRACTOR SHALL SUBMIT TEST DATA FOR REVIEW BY THE STRUCTURAL ENGINEER TO SUBSTANTIATE THE CONCRETE STRENGTH AT THE REQUIRED AGE.
6. ALL CONCRETE SHALL BE NORMAL WEIGHT OF 145 POUNDS PER CUBIC FOOT USING HARD ROCK AGGREGATES CONFORMING TO ASTM C33 U.N.O. WHERE LIGHTWEIGHT CONCRETE IS SPECIFIED, CONCRETE SHALL BE 110 POUNDS PER CUBIC FOOT USING AGGREGATES CONFORMING TO ASTM C330. LARGEST NOMINAL AGGREGATE SIZE SHALL BE 1-1/2" OR GREATER FOR SLABS ON GRADE AND 3/4" OR GREATER FOR ALL OTHER CONCRETE U.N.O.
7. PORTLAND CEMENT SHALL CONFORM TO ASTM C150. TYPE V CEMENT SHALL BE USED FOR CONCRETE IN CONTACT WITH EARTH. TYPE II CEMENT MAY BE USED ELSEWHERE. CEMENT SHALL BE TYPE V WITH POZZOLAN WHERE CONCRETE IS IN CONTACT WITH SOIL CONTAINING VERY SEVERE SULFATE EXPOSURE.
8. FLY ASH MAY BE USED IN CONCRETE, SUBJECT TO APPROVAL BY THE ARCHITECT AND ENGINEER, PROVIDED THE FOLLOWING CONDITIONS ARE MET:
   8.1. FLY ASH SHALL COMPLY WITH ASTM C618.
   8.2. CEMENT CONTENT SHALL BE REDUCED A MINIMUM OF 15 PERCENT UP TO A MAXIMUM OF 25 PERCENT WHEN COMPARED TO AN EQUIVALENT CONCRETE MIX DESIGN WITHOUT FLY ASH. FLY ASH CONTENT SHALL NOT COMPRISE MORE THAN 35 PERCENT OF THE TOTAL CEMENTITIOUS CONTENT. THE WATER-CEMENT RATIO SHALL BE CALCULATED BASED ON THE TOTAL CEMENTITIOUS MATERIAL IN THE MIX.
   8.3. CLASS F FLY ASH SHALL BE USED IN SULFATE RESISTANT CONCRETE WITH f'c EQUAL TO OR GREATER THAN 4000 PSI. CLASS C FLY ASH MAY BE USED ELSEWHERE.
9. WATER SOLUBLE CHLORIDE ION CONCENTRATIONS IN CONCRETE SHALL BE LIMITED PER ACI 318, SECTION 4.4.
10. ALL CONCRETE EXPOSED TO FREEZE/THAW CYCLES OR DEICING CHEMICALS SHALL CONFORM TO ACI 318, SECTION 4.2.
11. TIME BETWEEN CONCRETE BATCHING AND PLACEMENT SHALL BE IN ACCORDANCE WITH ASTM C94.
12. CONCRETE MIXING, PLACEMENT, AND QUALITY SHALL BE PER IBC SECTION 1905. MECHANICALLY VIBRATE ALL CONCRETE WHEN PLACED. SLABS ON GRADE NEED TO BE VIBRATED ONLY AROUND AND UNDER FLOOR DUCTS OR SIMILAR ELEMENTS. REMOVE ALL DEBRIS FROM FORMS BEFORE PLACING CONCRETE. CONCRETE SHALL NOT BE DROPPED THROUGH REINFORCING STEEL SO AS TO CAUSE SEGREGATION OF AGGREGATES. UNCONFINED FALL OF CONCRETE SHALL NOT EXCEED 5 FEET.
13. PROTECT CONCRETE FROM DAMAGE OR REDUCED STRENGTH DUE TO COLD OR HOT WEATHER IN ACCORDANCE WITH ACI 305 AND 306. CONTRACTOR SHALL TAKE SPECIAL CURING PRECAUTIONS TO MINIMIZE SHRINKAGE CRACKING OF CONCRETE SLABS.
14. ALL REINFORCING STEEL SHALL BE SET AND TIED IN PLACE PRIOR TO POURING OF CONCRETE, EXCEPT VERTICAL DOWELS FOR MASONRY WALL REINFORCING MAY BE "FLOATED" IN PLACE. DO NOT FIELD BEND BARS PARTIALLY EMBEDDED IN HARDENED CONCRETE UNLESS SPECIFICALLY INDICATED OR APPROVED BY THE ENGINEER OF RECORD.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PLACEMENT AND LOCATION OF ANY AND ALL EMBED ITEMS INCLUDING PLATES, BOLTS, AND OTHER INSERTS SPECIFIED IN THE DRAWINGS.
16. ALL ITEMS TO BE CAST IN CONCRETE SUCH AS REINFORCEMENT, DOWELS, BOLTS, ANCHORS, SLEEVES, ETC., SHALL BE SECURELY POSITIONED IN THE FORMS.
17. MECHANICAL, ELECTRICAL, AND PLUMBING PENETRATIONS / EMBEDDED CONDUITS SHALL COMPLY WITH THE FOLLOWING:
   17.1. ELECTRICAL CONDUITS MAY BE EMBEDDED IN STRUCTURAL CONCRETE ONLY AS NOTED IN TYPICAL DETAILS FOR WALLS AND CAST-IN-PLACE ELEVATED SLABS (EMBEDDED CONDUITS IN CONCRETE OVER STEEL DECK ARE NOT PERMITTED) OR WHERE SPECIFICALLY APPROVED IN WRITING BY THE ENGINEER. PIPING SHALL NOT BE EMBEDDED IN STRUCTURAL CONCRETE U.N.O. EMBEDDED ITEMS SHALL NOT IMPAIR THE STRENGTH OF THE MEMBER.
   17.2. REFER TO TYPICAL DETAILS FOR ACCEPTABLE CONDUIT, PIPING, AND DUCT PENETRATIONS THRU SLABS AND WALLS. DO NOT CUT ANY REINF. THAT MAY INTERFERE WITH PERMITTED PENETRATIONS. OPENINGS SHALL NOT BE CORED WITHOUT PRIOR WRITTEN APPROVAL OF ENGINEER. PENETRATIONS THRU BEAMS AND COLUMNS ARE PERMITTED ONLY WHERE SPECIFICALLY DETAILED.
   17.3. CONTRACTOR SHALL SUBMIT SHOP DRAWING SHOWING SIZES AND DIMENSIONED LOCATIONS OF ALL PENETRATIONS AND EMBEDDED CONDUITS IN WALLS AND ELEVATED SLABS. SHOP DRAWING MUST BE APPROVED BY ENGINEER PRIOR TO CONCRETE PLACEMENT. PENETRATIONS AND EMBEDDED CONDUITS NOT SHOWN ON APPROVED SHOP DRAWING WILL NOT BE PERMITTED UNLESS SPECIFICALLY APPROVED IN WRITING BY THE ENGINEER.
18. FORMWORK, SHORING, AND RESHORING SHALL BE DESIGNED PER ACI 347 RECOMMENDATIONS BY AN APPROPRIATELY LICENSED SPECIALTY ENGINEER EXPERIENCED IN THIS TYPE OF WORK AND SHALL BE SUBMITTED TO ENGINEER OF RECORD FOR REVIEW. FOR MULTISTORY CONSTRUCTION, SHORING/RESHORING DESIGN SHALL DEMONSTRATE THAT SHORES/RESHORES WILL BE PROVIDED FOR A SUFFICIENT NUMBER OF FLOORS TO DISTRIBUTE IMPOSED CONSTRUCTION LOADS TO SEVERAL SLAB LEVELS WITHOUT CAUSING EXCESSIVE STRESSES AND SLAB DEFLECTIONS. FOR PURPOSES OF SHORING/RESHORING CALCULATIONS, MAGNITUDES OF REDUCED LIVE LOADS SHALL BE TAKEN TO BE 60% OF VALUES INDICATED IN BASIS FOR DESIGN U.N.O.
19. CONSTRUCTION JOINTS OR POUR JOINTS IN STRUCTURAL ELEMENTS (BEAMS, COLUMNS, ELEVATED SLABS, ETC.) NOT SPECIFICALLY SHOWN OR NOTED ON THE DRAWINGS REQUIRE PRIOR APPROVAL OF THE ENGINEER. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS SHOWING PROPOSED JOINTS TO ENGINEER FOR APPROVAL.

D. CONCRETE REQUIREMENTS CONTINUED:

20. CONSTRUCTION JOINT SURFACES SHALL BE CLEANED AND LAITANCE REMOVED. HORIZONTAL JOINT SURFACES SHALL BE ROUGHENED TO 1/4" AMPLITUDE. THOROUGHLY WET ALL JOINT SURFACES AND REMOVE STANDING WATER IMMEDIATELY PRIOR TO NEW CONCRETE PLACEMENT.
21. CONCRETE SHALL BE CURED IN ACCORDANCE WITH ACI 318, SECTIONS 5.11.1 OR 5.11.2, WHICHEVER IS APPLICABLE, UNLESS ALTERNATE METHODS HAVE BEEN APPROVED BY THE ARCHITECT AND ENGINEER. WHERE CURING COMPOUNDS HAVE BEEN APPROVED FOR SLAB CURING, CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING COMPATIBILITY OF COMPOUNDS WITH ANTICIPATED FLOOR FINISH (e.g., RESILIENT TILE) PRIOR TO CURING COMPOUND APPLICATION.
22. CONCRETE FINISH DESIGNATION:
   F1 – AS CAST FORM FINISH
   F2 – ROUGH FINISH
   F3 – SMOOTH FINISH
   F4 – SMOOTH RUBBED FINISH
   F5 – GROUT CLEANED RUBBED FINISH
   F6 – CORK FLOATED RUBBED FINISH
   F7 – UNFORMED FINISH
   F8 – BLASTED FINISH
   F9 – ARCHITECTURAL FINISH
   F10 – TOOLED FINISH
   S1 – FLOATED FINISH
   S2 – TROWEL FINISH
   S3 – BROOM FINISH
   S4 – EXPOSED AGGREGATE FINISH
   S5 – CHEMICAL HARDENER FINISH
23. ALL CONCRETE TICKETS SHALL BE GIVEN TO CITY INSPECTORS UPON ARRIVAL TO THE JOBSITE AND SHALL HAVE THE FOLLOWING INFORMATION ON THE DELIVERY TICKET.
   - DATE, TRUCK NUMBER, AND DRIVER'S NAME
   - NAME OF SUPPLIER
   - NAME OF CONTRACTOR
   - STAMPED BATCH TIME
   - SPECIFIC DESIGNATION (PROJECT NAME, LOCATION, AND STREET ADDRESS)
   - NUMBER OF CUBIC YARDS IN THE BATCH
   - SUPPLIERS MIX DESIGN CODE NUMBER
   - SERIAL NUMBER OF THE TICKET
   - AMOUNT OF WATER ADDED AT THE JOB SITE (REQUEST OF RECEIVER, SIGNATURE/DATE, AND ESTIMATE OF GALLONS ADDED ARE REQUIRED)
   - TYPE AND AMOUNT OF INHIBITORS, ACCELERANTS, OR AIR ENTRAINMENT THAT IS NOT ALREADY INCLUDED IN THE APPROVED MIX DESIGN "IF ANY" (RECEIVER, SHALL SIGN AND DATE DELIVERY TICKET)

E. REINFORCING STEEL REQUIREMENTS:

1. REINFORCING STEEL SHALL BE DETAILED AND PLACED IN ACCORDANCE WITH ACI 318 AND CRSI'S MANUAL OF STANDARD PRACTICE.
2. REINFORCING STEEL SHALL CONFORM TO ASTM A615 OR ASTM A706 (A706 REQUIRED FOR ALL REINFORCING TO BE WELDED) AND SHALL BE GRADE 60 (fy = 60 KSI) DEFORMED BARS U.N.O. REINFORCING IN SLABS ON GRADE MAY BE GRADE 40 (fy = 40 KSI) DEFORMED BARS FOR ALL BARS #4 AND SMALLER U.N.O. ON PLANS OR DETAILS.
3. ALL DIMENSIONS SHOWING THE LOCATION OF REINFORCING STEEL NOT NOTED AS "CLEAR" OR "CLR." ARE TO CENTER OF STEEL. CLEAR COVER FOR NON-PRESTRESSED CONCRETE REINFORCING SHALL BE AS NOTED BELOW, U.N.O. ON PLANS OR DETAILS. CLEAR COVER FOR PRESTRESSED CONCRETE AND FOR PRECAST CONCRETE MANUFACTURED UNDER PLANT CONTROL CONDITIONS SHALL BE PER ACI 318, SECTIONS 7.7.2 AND 7.7.3, RESPECTIVELY.

EXPOSURE CONDITION:	COVER:
CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH	3"
EXPOSED TO WEATHER (INCLUDES SLABS ON GRADE)	
NO. 5 AND SMALLER	1 1/2"
NO. 6 AND LARGER	2"
NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND STRUCTURAL SLABS, WALLS, JOISTS	
NO. 11 AND SMALLER	3/4"

4. LAP SPLICES OF REINFORCING STEEL SHALL CONFORM TO TYPICAL REBAR LAP SCHEDULE U.N.O. NO TACK WELDING OF REINFORCING BARS ALLOWED. LATEST ACI CODE AND DETAILING MANUAL APPLY. AT WALLS AND FOOTINGS, PROVIDE BENT CORNER BARS TO MATCH AND LAP WITH HORIZ. BARS AT ALL CORNERS AND INTERSECTIONS U.N.O. VERT. WALL BARS SHALL BE SPLICED AT OR NEAR FLOOR LINES. SPLICE TOP BARS AT CENTER LINE OF SPAN AND BOTTOM BARS AT THE SUPPORT IN SPANDRELS, BEAMS, GRADE BEAMS, ETC., U.N.O. ON PLANS OR DETAILS.
5. MECHANICAL SPLICE COUPLERS SHALL HAVE CURRENT ICC APPROVAL AND SHALL BE CAPABLE OF DEVELOPING 125% OF THE SPLICED BAR'S YIELD STRENGTH.
6. ALL REINFORCING SHALL BE BENT COLD. BARS SHALL NOT BE UN-BENT AND RE-BENT. FIELD BENDING OF REBAR SHALL NOT BE ALLOWED UNLESS SPECIFICALLY NOTED.
7. WELDING OF REINFORCING BARS, METAL INSERTS, AND CONNECTIONS SHALL BE MADE ONLY AT LOCATIONS SHOWN ON PLANS OR DETAILS. SEE WELDING SECTION OF G.S.N. FOR ADDITIONAL REQUIREMENTS.

E. REINFORCING STEEL REQUIREMENTS CONTINUED:

8. REINFORCING BAR SPACINGS SHOWN ON PLANS ARE MAX. ON CENTER DIMENSIONS. DOWEL ALL VERT. REINFORCING TO FOUNDATION. SECURELY TIE ALL BARS IN LOCATION BEFORE PLACING CONCRETE. MIN. CLEAR SPACING BETWEEN PARALLEL REINFORCEMENT SHALL BE THE LARGER OF 1-1/2 TIMES NOMINAL BAR DIA. OR 1-1/3 TIMES MAX. AGGREGATE SIZE OR 1-1/2". CLEAR SPACING LIMITATION APPLIES ALSO TO CLEAR DISTANCE BETWEEN A CONTACT LAP SPLICE AND ADJACENT SPLICES OR BARS.
9. MIN. REINFORCING AT EDGES OF CONCRETE WALL OPENINGS SHALL BE (2) #5 BARS. EXTEND THE GREATER OF THE DEVELOPMENT LENGTH OF THE BAR PER TYPICAL REBAR LAP SCHEDULE OR 24" MIN. PAST EDGES OF OPENING U.N.O. HOOK ENDS AT INTERFERENCE WITH EXTENSION.

F. STRUCTURAL STEEL REQUIREMENTS:

1. STRUCTURAL STEEL SHALL HAVE THE FOLLOWING MATERIALS UNLESS NOTED OTHERWISE:

WIDE FLANGE SECTIONS	ASTM A992 (50 ksi)
OTHER ROLLED SHAPES AND PLATES	ASTM A36
HEADED STUD ANCHORS (HAS)	ASTM A307 WITH ASTM A563 HEAVY HEX
DEFORMED BAR ANCHORS (DBA)	ASTM A496
BOLTED CONNECTIONS	ASTM A325
THREADED ROD	ASTM A36, A193 GR. B7
ANCHOR BOLTS	ASTM F1554 GR. 36 OR 55
NUTS	ASTM A563 (HEAVY HEX)
WASHERS	ASTM F436 GRADE A (HARDENED) OR A36 AT ANCHOR RODS

2. THE FABRICATION AND CONSTRUCTION OF ALL STRUCTURAL STEEL SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING CODES:
   IBC 2021 SECTION 2205
   AISC SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL BUILDINGS.
   AISC CODE OF STANDARD PRACTICE EXCLUDING SECTIONS 3.4, 4.4, AND 4.4.1.
   AISC SPECIFICATIONS FOR STRUCTURAL JOINTS.
   AWS WELDING CODE.
   AISC SEISMIC PROVISIONS FOR STRUCTURAL STEEL BUILDINGS.
   PROVIDE SHOP DRAWINGS FOR REVIEW PRIOR TO FABRICATION. ALL SHOP FABRICATION BE BY AISC-APPROVED FABRICATORS.
3. ALL STRUCTURAL WELDING SHALL CONFORM WITH THE FOLLOWING SPECIFICATIONS:

WELDING RODS	E-70 XX (typical) E-60 XX (roof decks)
STRUCTURAL WELDING	AWS D1.1 (performed by AWS certified welder)
STRUCTURAL CUTTING	AWS CERTIFIED WELDER
HSA's/DBA's	MANUFACTURERS SPECIFICATIONS
REINFORCING BARS (REBAR)	DO NOT WELD REBAR
ANCHOR BOLTS	DO NOT WELD ANCHOR BOLTS (including tack welds)

4. ANY SUBSTITUTION OF ANY MEMBERS SHALL BE AT THE WRITTEN CONSENT OF THE STRUCTURAL ENGINEER.

REV NO.	COMMENT	DATE

Registered Professional Engineer — CERTIFICATE — 59754 — STEVEN M. HANSEN — Date Signed 9/5/2024 — ARIZONA, U.S.A. — Expires 6/30/27

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CITY OF SEDONA

WASTEWATER RECLAMATION PLANT
UV REPLACEMENT
STRUCTURAL SPECS AND REQUIREMENTS

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STRUCTURAL SPECIFICATIONS & REQUIREMENTS CONTINUED...

G. STRUCTURAL STEEL REQUIREMENTS CONTINUED:

5. ANY CONNECTIONS OF INTERSECTING STEEL MEMBERS SHALL BE A FILLET WELD AND SHALL BE SIZED BY SUBTRACTING 1/16" LESS THAN THE THINNEST CONNECTING MEMBER WITH A MINIMUM OF A 3/16" FILLET WELD. ALL WELDS SHALL BE FULL SURFACE WELDS. WHEN IN DOUBT CONTACT THE ENGINEER.

6. ALL STRUCTURAL CONNECTIONS, SHOWN IN THE PLANS, SHALL BE BOLTED WITH A MINIMUM OF A 3/4" DIAMETER ASTM A325N BOLT, UNLESS NOTED OTHERWISE AND SHALL BE TIGHTENED TO A SNUG TIGHT FIT, AS DEFINED BY AISC SPECIFICATIONS.

7. HARDENED WASHERS SHALL BE PROVIDED AT ALL TURNED ELEMENTS OF BOLTED CONNECTIONS. IF THE CONNECTION IS SLOPED OR SKEWED THEN PROVIDE BEVELED WASHERS AS REQUIRED. PROVIDE WASHERS THAT COMPLETELY COVER ANY OVERSIZED HOLES OR SLOTS ER ASTM F-436.

8. TIGHTEN ALL SLIP-CRITICAL BOLTS, MOMENT FRAME BOLTS AND BOLTS INSTALLED IN OVERSIZED OR SLOTTED HOLES BY THE "TURN OF THE NUT" OR THE "DIRECT TENSION" METHOD. PROVIDE HARDENED WASHERS UNDER ALL TURNED ELEMENTS.

9. WHERE ASTM A490 OR STRONGER BOLTS ARE SPECIFIED IN THE DRAWINGS, BOTH THE BOLT HEAD AND THE NUT SHALL HAVE A HARDENED WASHER BETWEEN IT AND THE BASE STEEL AND REQUIRED IN AISC SPECIFICATIONS.

10. BOLTS MUST BE LONG ENOUGH FOR THREADS TO BE FLUSH WITH THE OUTSIDE FACE OF THE NUT AFTER TIGHTENING. NO MORE THAN 5 THREADS OF "STICKOUT" ARE PERMITTED. THE "TURN OF THE NUT" METHOD IS DESCRIBED BELOW (THIS IS FOR PERPENDICULAR SURFACES ONLY):

10.1. THE TURN OF THE NUT METHOD IS NOT TO BE USED FOR BOLTS LONGER THEN 12 BOLT DIAMETERS. TIGHTEN ALL BOLTS IN THE CONCO NECTION TO THE SNUG, TIGHT CONDITION. FROM THE SNUG, TIGHT CONDITION, TIGHTEN EACH BOLT AS SPECIFIED BELOW:

BOLT LENGTH:	AMOUNT OF TURN APPLIED TO NUT:
UP TO AND INCLUDING 4 DIAMETERS	1/3 TURN OF THE NUT
OVER 4 DIAMETERS BUT NOT EXCEEDING 8 DIAMETERS	1/2 TURN OF THE NUT
OVER 8 DIAMETERS BUT NOT EXCEEDING 12 DIAMETERS	2/3 TURN OF THE NUT

11. DO NOT REUSE BOLTS, NUTS OR WASHERS.

12. FITTED STIFFENER PLATES SHALL BE PROVIDED AT ALL BEARING LOCATIONS AND SHALL MEET THE FOLLOWING REQUIREMENTS UNLESS NOTED OTHERWISE IN THE DRAWINGS:

FLANGE WIDTH	STIFFENER PLATE THICKNESS	FILLET WELD THICKNESS
UP TO 8"	3/8"	1/4"
8" to 12"	3/8"	1/4"
12" to 16"	1/2"	5/16"
16" AND BIGGER	5/8"	3/8"

13. HOLES IN STEEL SHALL BE DRILLED OR PUNCHED. ALL SLOTTED HOLES SHALL BE PROVIDED WITH SMOOTH EDGES. BURNING OF HOLES AND TORCH CUTTING AT THE SITE IS NOT PERMITTED.

14. THE STRUCTURAL STEEL ERECTOR SHALL PROVIDE ANY REQUIRED TEMPORARY GUYING AND BRACING REQUIRED. COLUMNS, ANCHOR BOLTS, BASE PLATES, ETC. HAVE BEEN DESIGNED FOR THE FINAL COMPLETED CONDITION AND HAVE NOT BEEN INVESTIGATED FOR POTENTIAL LOADINGS ENCOUNTERED DURING STEEL ERECTION AND CONSTRUCTION. ANY INVESTIGATION OF THE COLUMNS, ANCHOR BOLTS, BASE PLATES, ETC.. FOR ADEQUACY DURING THE STEEL ERECTION AND CONSTRUCTION PROCESS IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

15. REFER TO THE "SPECIAL INSPECTION" SECTION OF THE GENERAL STRUCTURAL NOTES FOR ANY INSPECTION REQUIREMENTS.

H. SPECIAL INSPECTION REQUIREMENTS:

1. SPECIAL INSPECTION AND QUALITY ASSURANCE, AS REQUIRED BY SECTION 1705 OF THE IBC, SHALL BE PROVIDED BY AN INDEPENDENT AGENCY EMPLOYED BY THE OWNER UNLESS WAIVED BY THE BUILDING OFFICIAL. THE CONTRACTOR SHALL COORDINATE AND COOPERATE WITH THE REQUIRED INSPECTIONS. ALL TESTING AND INSPECTION REPORTS SHALL BE SENT TO THE ENGINEER OF RECORD FOR REVIEW. ITEMS REQUIRING SPECIAL INSPECTION AND QUALITY ASSURANCE ARE SHOWN IN THIS SECTION.

2. CONCRETE CONSTRUCTION PER IBC SECTION 1705.3:

2.1 SPECIAL INSPECTIONS NOT REQ'D. PER SECTION 1705.3, EXCEPTION 2.3 (STRUCTURAL DESIGN OF FOUNDATIONS IS BASED ON COMPRESSIVE STRENGTH f'_c = 2,500 psi)

J. DEFERRED SUBMITTAL REQUIREMENTS:

1. SHOP DRAWINGS OR REPORTS FOR THE FOLLOWING ITEMS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER OF RECORD PRIOR TO FABRICATION OR CONSTRUCTION (AS APPLICABLE) U.N.O.

STRUCTURAL STEEL

2. CONTRACTOR SHALL REVIEW AND STAMP SHOP DRAWINGS PRIOR TO SUBMITTING. CONTRACTOR'S REVIEW SHALL CHECK FOR COMPLETENESS/COMPLIANCE WITH CONTRACT DOCUMENTS.

3. SHOP DRAWINGS ARE REVIEWED BY ENGINEER ONLY FOR GENERAL COMPLIANCE WITH THE STRUCTURAL DRAWINGS. RESPONSIBILITY FOR CORRECTNESS SHALL REST WITH THE CONTRACTOR. SHOP DRAWINGS DO NOT SUPERSEDE OR REPLACE THE CONTRACT DRAWINGS OR SPECIFICATIONS. CHANGES, SUBSTITUTIONS, OR DEVIATIONS FROM CONTRACT DRAWINGS AND/OR SPECIFICATIONS WILL NOT BE ACCEPTED VIA SHOP DRAWING REVIEW. ALL SUCH MODIFICATIONS SHALL BE SUBMITTED SEPARATELY FOR ENGINEER'S REVIEW.

4. PREFABRICATED COMPONENTS, SPECIALTY ITEMS, OR DESIGN-BUILD ELEMENTS NOTED ON THE STRUCTURAL DRAWINGS, BUT WHICH REQUIRE THE MFR. OR SUPPLIER TO PROVIDE THE DESIGN, SHALL BE SUBMITTED BY THE CONTRACTOR TO THE ARCHITECT AND/OR ENGINEER FOR REVIEW AS A DEFERRED SUBMITTAL. DEFERRED SUBMITTALS REQ'D. BY THE STRUCTURAL ENGINEER OF RECORD SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING:

STEEL RAILING

5. DEFERRED SUBMITTALS SHALL INCLUDE CALCULATIONS AND DRAWINGS PREPARED AND STAMPED BY AN APPROPRIATELY LICENSED ENGINEER (SPECIALTY ENGINEER) SHOWING LOCATION AND MAGNITUDE OF LOADS, CONFIGURATION AND SIZE OF MEMBERS, AND COMPATIBILITY OF SUBMITTAL ITEM WITH THE PRIMARY STRUCTURAL SYSTEM.

6. THE PURPOSE OF THE STRUCTURAL ENGINEER'S REVIEW OF DEFERRED SUBMITTALS SHALL BE LIMITED TO DETERMINING THAT THE DRAWINGS AND CALCULATIONS HAVE BEEN PROPERLY SEALED, THAT THE LOAD CRITERIA IS IN GENERAL CONFORMANCE WITH THE CONTRACT DOCUMENTS AND WITH THE REFERENCED BUILDING CODE, THAT CONNECTIONS TO THE PRIMARY STRUCTURE ARE COMPATIBLE WITH THE PRIMARY DESIGN, AND THAT THE PRIMARY STRUCTURE IS CAPABLE OF SUPPORTING THE IMPOSED LOADS.

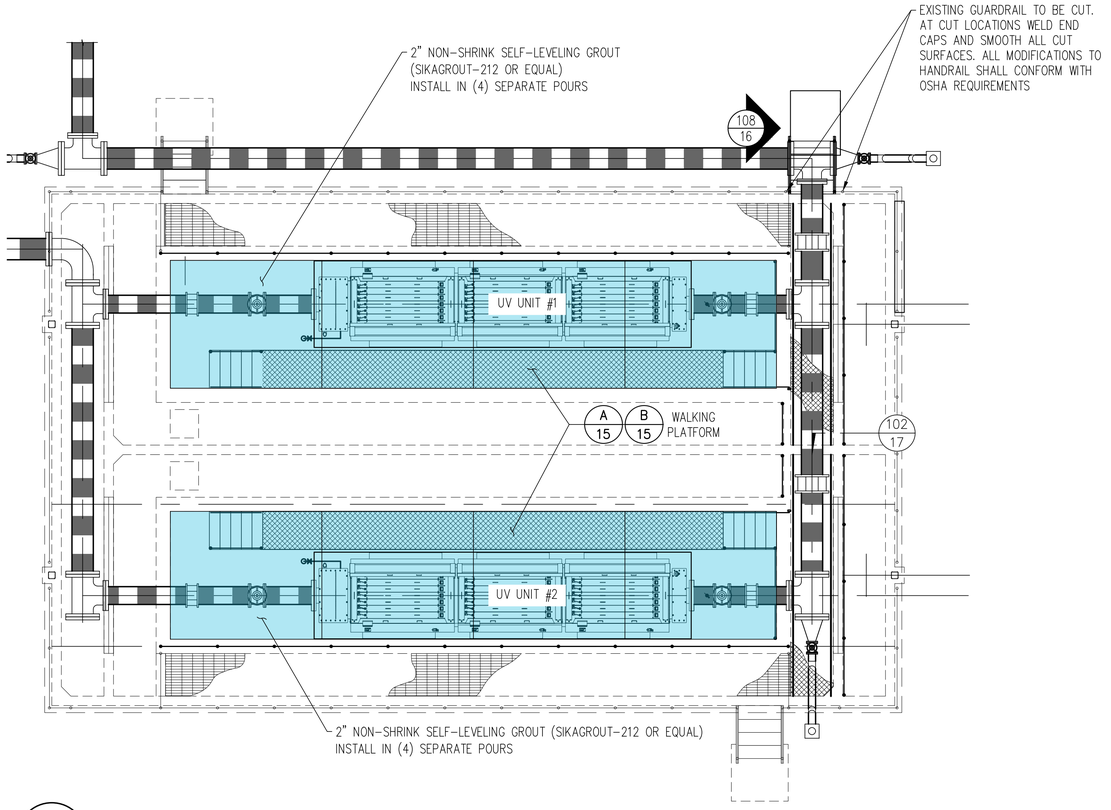
7. THE STRUCTURAL ENGINEER WILL RELY UPON THE SPECIALTY ENGINEER'S SEAL AS CERTIFICATION THAT THE ITEMS DESIGNED BY THE SPECIALTY ENGINEER COMPLY WITH THE CRITERIA SET FORTH IN THE CONTRACT DOCUMENTS AND APPLICABLE CODES AND STANDARDS. THE STRUCTURAL ENGINEER SHALL NOT BE RESPONSIBLE FOR THE ADEQUACY OF DESIGNS PROVIDED BY OTHERS.

8. FOR ALL SUBMITTALS, ANY CORRECTIONS NOTED WILL BE MARKED ON ONE (1) COPY SET ONLY AND RETURNED. ADDITIONAL COPIES OF ANY SUBMITTAL WILL BE RETURNED UNMARKED. CONTRACTOR SHALL BE RESPONSIBLE FOR REPRODUCING ENGINEER'S CORRECTIONS ON ADDITIONAL COPIES REQ'D. ONE COPY SET MAY BE RETAINED FOR THE ENGINEER'S RECORDS. ALLOW FIVE (5) TO TEN (10) WORKING DAYS FOR THE ENGINEER'S REVIEW.

9. REFER TO APPLICABLE G.S.N. SECTIONS FOR FURTHER REQUIREMENTS SPECIFIC TO INDIVIDUAL SUBMITTALS.

ABBREVIATIONS

A.C.I.	AMERICAN CONCRETE INSTITUTE	L.L.V.	LONG LEG VERTICAL
BOT.	BOTTOM	L.L.H.	LONG LEG HORIZONTAL
C.M.U.	CONCRETE MASONRY UNIT	K.S.	KING STUD
CLR.	CLEAR	MAX.	MAXIMUM
C.F.S.	COLD FORMED STEEL	MIN.	MINIMUM
COL.	COLUMN	N/A	NOT APPLICABLE
CONC.	CONCRETE	NO.	NUMBER
CONT.	CONTINUOUS	O.C.	ON CENTER
D.B.A.	DEFORMED BAR ANCHORS	O.M.F.	ORDINARY MOMENT FRAME
DIA.	DIAMETER	REINF.	REINFORCING
DBL.	DOUBLE	R.S.	ROUGH SAWN
D.F.	DOUGLAS FIR/LARCH	S.E.I.	SUNRISE ENGINEERING
E.F.	EACH FACE	SIM.	SIMILAR
E.W.	EACH WAY	S.M.F.	SPECIAL MOMENT FRAME
EXT.	EXTERIOR	S.O.G.	SLAB-ON-GRADE
GA.	GAUGE	STRUCT'L	STRUCTURAL
GLB.	GLU-LAMINATED BEAM	T.S.	TRIMMER STRUD
G.S.N.	STRUCTURAL REQUIREMENTS AND SPECIFICATIONS (GENERAL STRUCTURAL NOTES)	TYP.	TYPICAL
		U.N.O.	UNLESS NOTED OTHERWISE
H.S.A.	HEADED STUD ANCHORS	V.I.F.	VERIFY IN FIELD
HORIZ.	HORIZONTAL	WT.	WEIGHT
I.M.F.	INTERMEDIATE MOMENT FRAME	W/	WITH
IN.	INCHES	W/C	WATER TO CEMENT RATIO
I.C.C.	INTERNATIONAL CODE COUNCIL	(E)	EXISTING
L.F.R.S.	LATERAL FORCE RESISTING SYSTEM	(N)	NEW



A ~ GENERAL LAYOUT
NTS

NON-SHRINK GROUT REQUIREMENTS:
1. REMOVE ALL DIRT, OIL, GREASE, AND OTHER BOND-INHIBITING MATERIALS BY MECHANICAL MEANS.
2. CONCRETE MUST BE SOUND AND ROUGHENED TO A CSP4 OR HIGHER TO PROMOTE MECHANICAL ADHESION.
3. PRIOR TO POURING, SURFACE SHOULD BE BROUGHT TO A SATURATED SURFACE DRY (SSD) CONDITION
4. CONSTRUCT FORMS BETWEEN POURS TO RETAIN GROUT WITHOUT LEAKAGE. FORMS SHOULD BE LINED OR COATED WITH BOND BREAKER FOR EASY REMOVAL.
5. MIXING SHALL BE ACCOMPLISHED FOLLOWING THE MFR. RECOMMENDATIONS PRECISELY.
6. AGGREGATE SHALL BE ⅜" COURSE AGGREGATE AND SHALL BE ADDED PER MFR. RECOMMENDATIONS.
7. AGGREGATES MUST BE NON-REACTIVE, CLEAN, WELL GRADED, SATURATED SURFACE DRY, HAVE LOW ABSORPTION, AND HIGH DENSITY, AND COMPLY WITH ASTM C-33 SIZE NUMBER 8, PER TABLE 2.

REV NO.	COMMENT	DATE

Registered Professional Engineer CERTIFICATE NO. 59754 STEVEN M. HANSEN 6/30/27 State of ARIZONA, U.S.A. Expires 6/30/27

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CITY OF SEDONA

WASTEWATER RECLAMATION PLANT
UV REPLACEMENT
STRUCTURAL SPECS AND REQUIREMENTS

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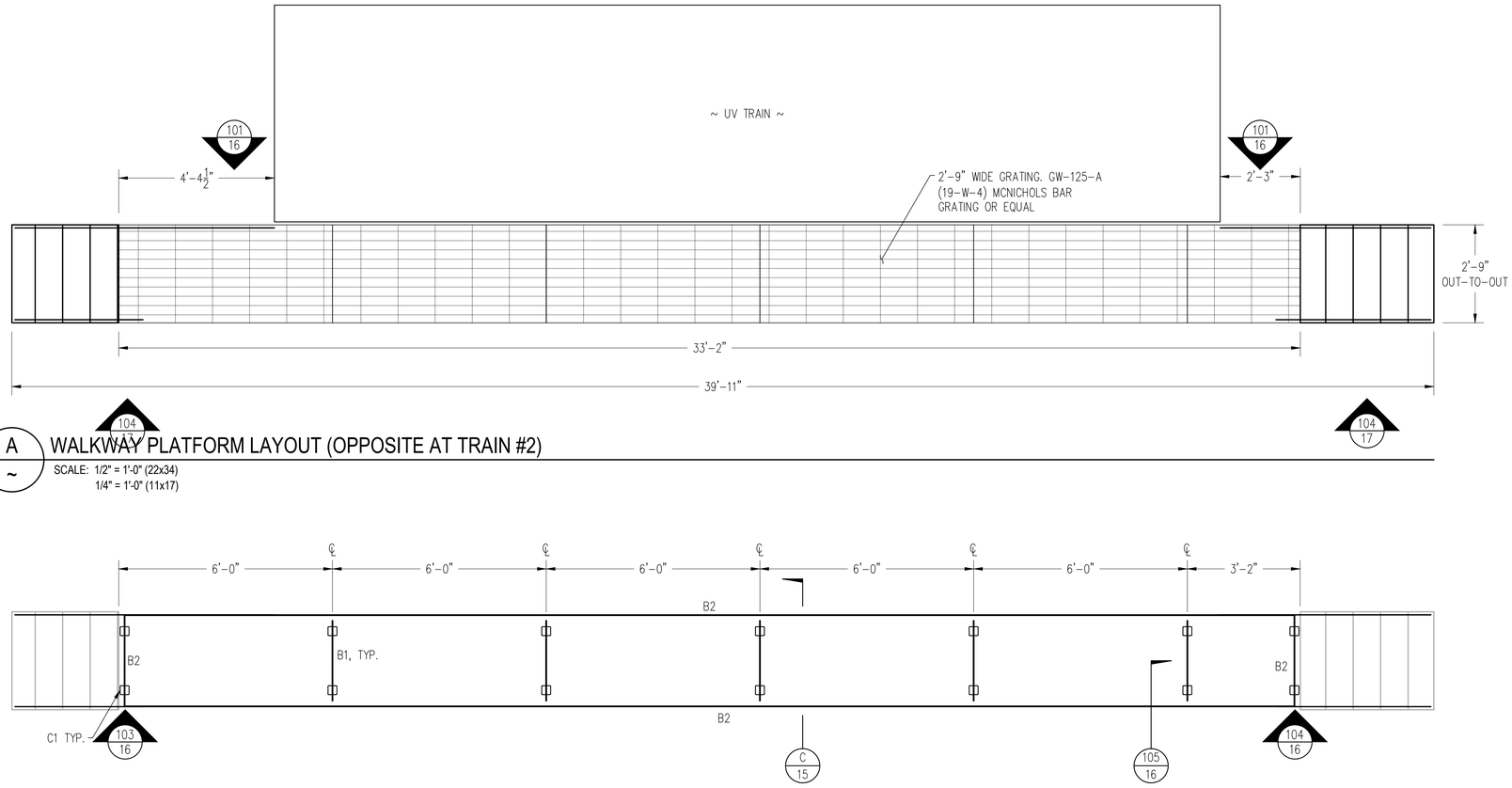
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BEAM SCHEDULE

MARK	TYPE	SIZE	TRIMMER STUDS/POST	KING STUDS/POST
B1	A992 STEEL	W8x10	N/A	N/A
B2	A992 STEEL	C8x11.5	N/A	N/A

STEEL COLUMN SCHEDULE

MARK	SIZE	BASEPLATE TYPE	BASEPLATE DIM.	ANCHOR BOLT
C1	HSS3x3x¼	TYPE 1	6" x 8" x 1/4"	(1) 1/2" DIA.

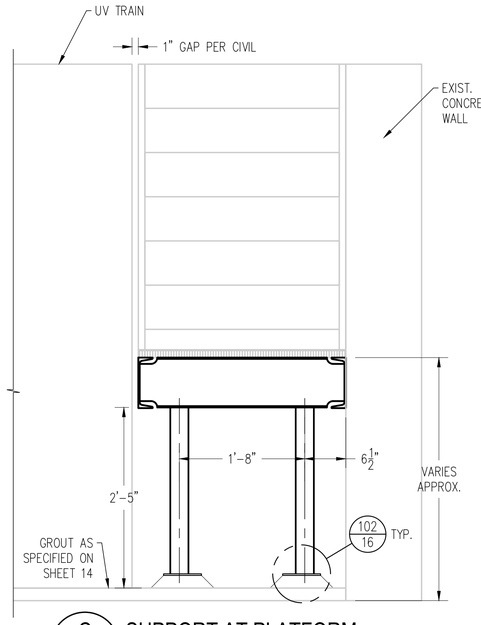


A ~ WALKWAY PLATFORM LAYOUT (OPPOSITE AT TRAIN #2)

SCALE: 1/2" = 1'-0" (22x34)
1/4" = 1'-0" (11x17)

B ~ WALKWAY PLATFORM STRUCTURE (OPPOSITE AT TRAIN #2)

SCALE: 1/2" = 1'-0" (22x34)
1/4" = 1'-0" (11x17)



C ~ SUPPORT AT PLATFORM

SCALE: 1/2" = 1'-0" (22x34)
1/4" = 1'-0" (11x17)

PAINTING REQUIREMENTS:

1. ALL PAINT AND COATING SYSTEMS SHALL INCLUDE HIGH QUALITY MATERIALS, RESISTANT TO TEMPERATURES UP TO 150° F, AND SUNLIGHT EXPOSURE. PAINTS SELECTED SHALL MEET THE MANUFACTURERS RECOMMENDATIONS AND SUSTAINABILITY STANDARDS FOR THE SPECIFIC APPLICATION WHERE USED.
2. ALL SURFACES SHALL BE CLEANED AND PREPPED FOR PAINTING. GREASE AND OIL SHALL BE REMOVED PER SSPC-SP1. MINIMUM SURFACE PREPARATION SHALL BE COMMERCIAL BLAST CLEANING PER SSPC-SP6.
3. STEEL SHALL BE PAINTED WITH A TWO PART INDUSTRIAL EPOXY ENAMEL COATING. ENGINEER SHALL APPROVE PAINT SPECIFICATION PRIOR TO APPLICATION.

REV NO.	COMMENT	DATE

Registered Professional Engineer — Certificate No. 59754 — STEVEN M. HANSEN — Date Signed 9/5/2024 — ARIZONA, U.S.A. — Expires 6/30/27

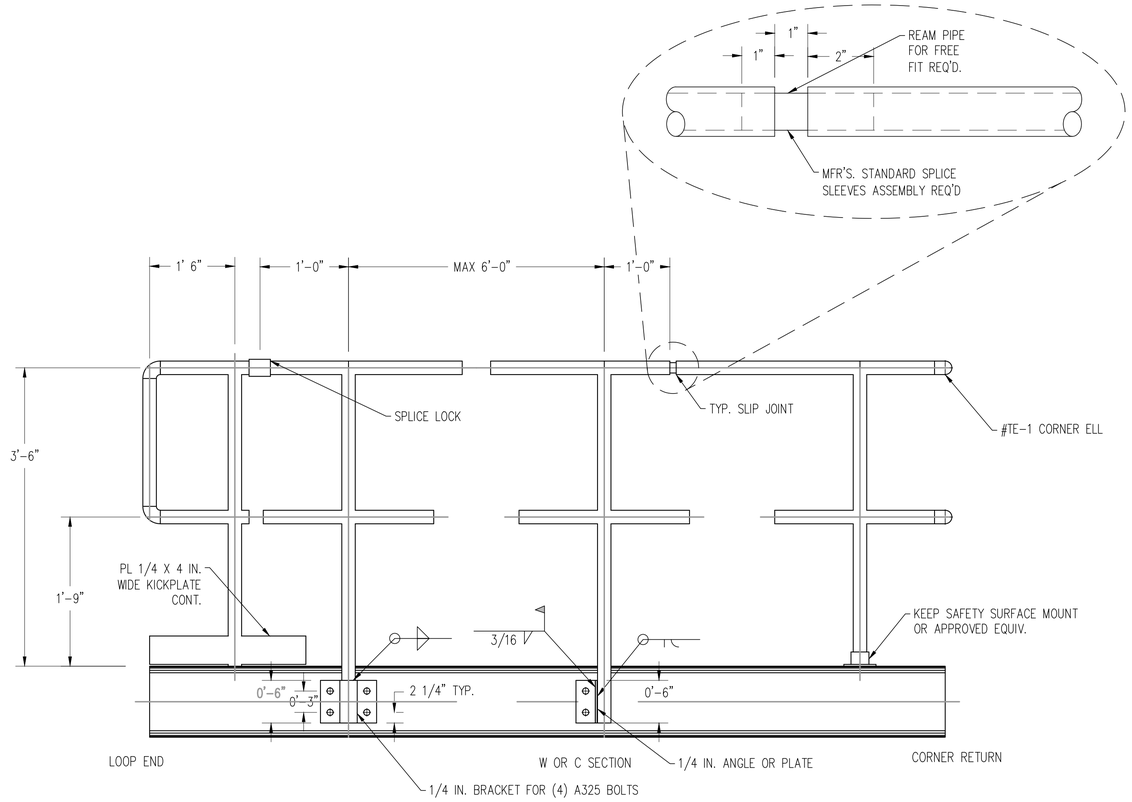
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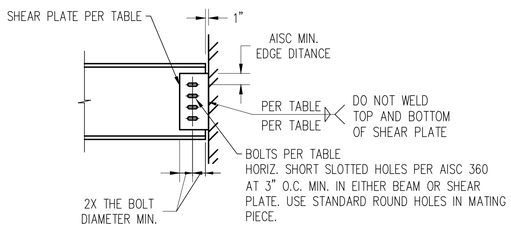
WASTEWATER RECLAMATION PLANT
UV REPLACEMENT
STRUCTURAL DESIGN

SEI NO.	DESIGNED	DRAWN	CHECKED		
09085	EL	EL	SH	S1.1	15 of 26

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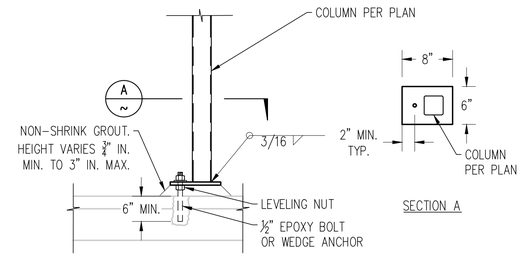


101 HANDRAIL AT METAL BEAM
~ NTS

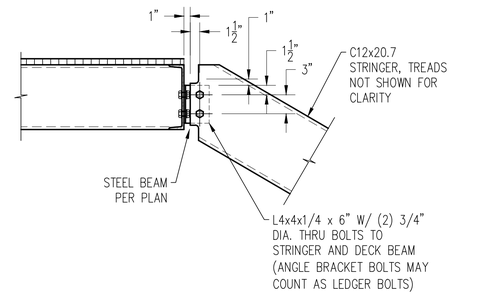


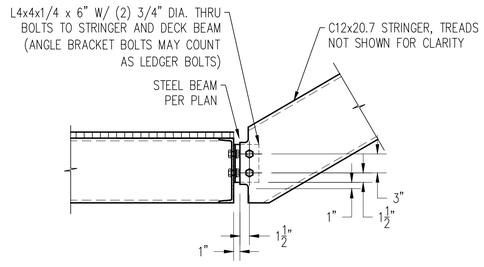
NOMINAL BEAM DEPTH D (in)	NUMBER OF BOLTS #	BOLT DIA. (in)	SHEAR PLATE THICKNESS (in)	FILLET WELD SIZE (in)	USED IN PROJECT
8 TO 10	2	3/4	1/4	3/16	X
12 TO 14	3	3/4	3/8	1/4	
16	4	3/4	3/8	1/4	
18	5	3/4	3/8	1/4	
21	6	3/4	3/8	1/4	
24	6	1	1/2	5/16	

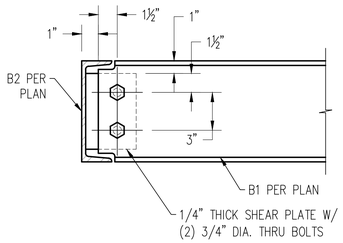
102 COLUMN BASE PLATE
~ NTS



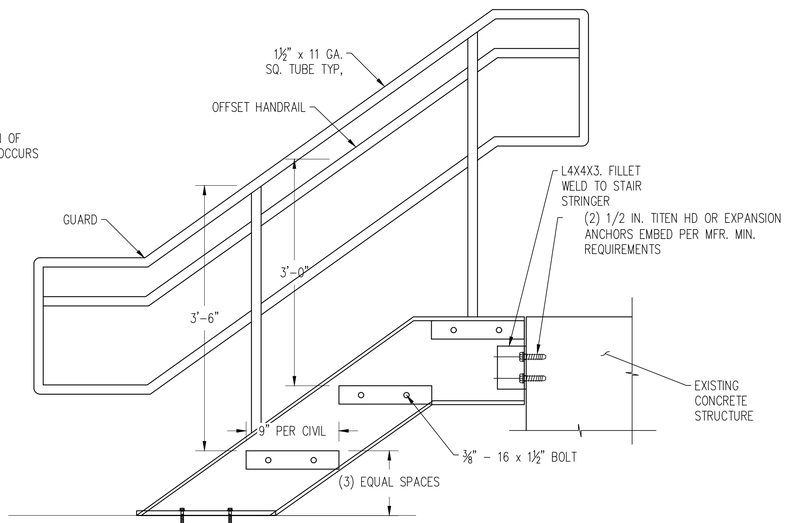
103 DOWNWARD STEEL STRINGER AT STEEL BEAM
~ NTS



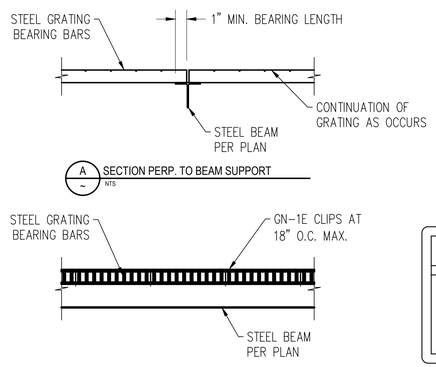




104 UPWARD STEEL STRINGER AT STEEL BEAM
~ NTS



105 STEEL BEAM AT STEEL BEAM
~ NTS



106 TYPICAL SHEAR PLATE CONNECTION
~ NTS

107 METAL GRATING AT STEEL BEAM
~ NTS

108 METAL STAIRS AT EXISTING STRUCTURE
~ NTS

REV NO.	COMMENT	DATE

Registered Professional Engineer (Civil) CERTIFICATE NO. 59754 STEVEN M. HANSEN Date Signed 6/30/27 ARIZONA, U.S.A. Expires 6/30/27

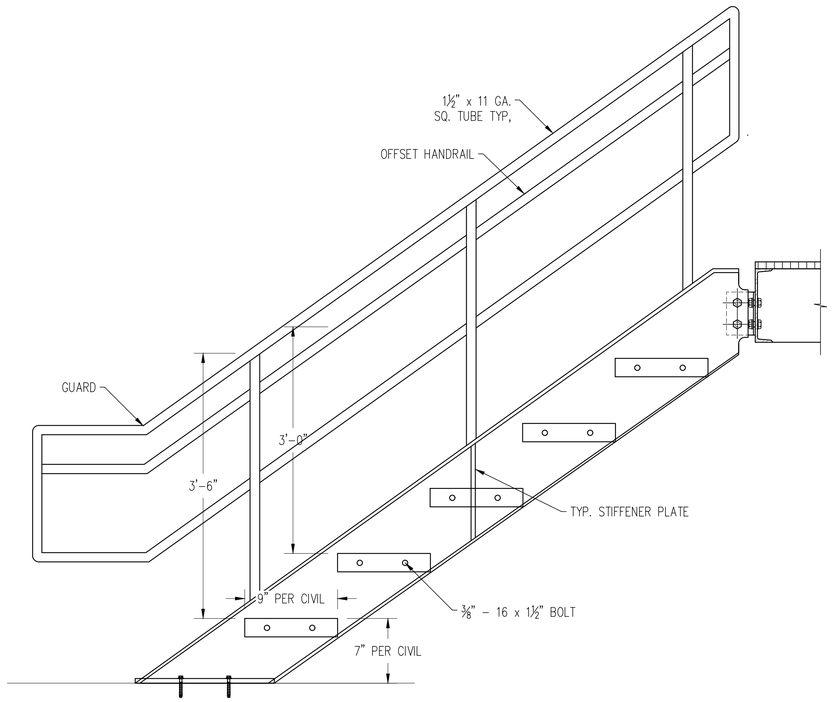
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WASTEWATER RECLAMATION PLANT
UV REPLACEMENT
STRUCTURAL DETAILS

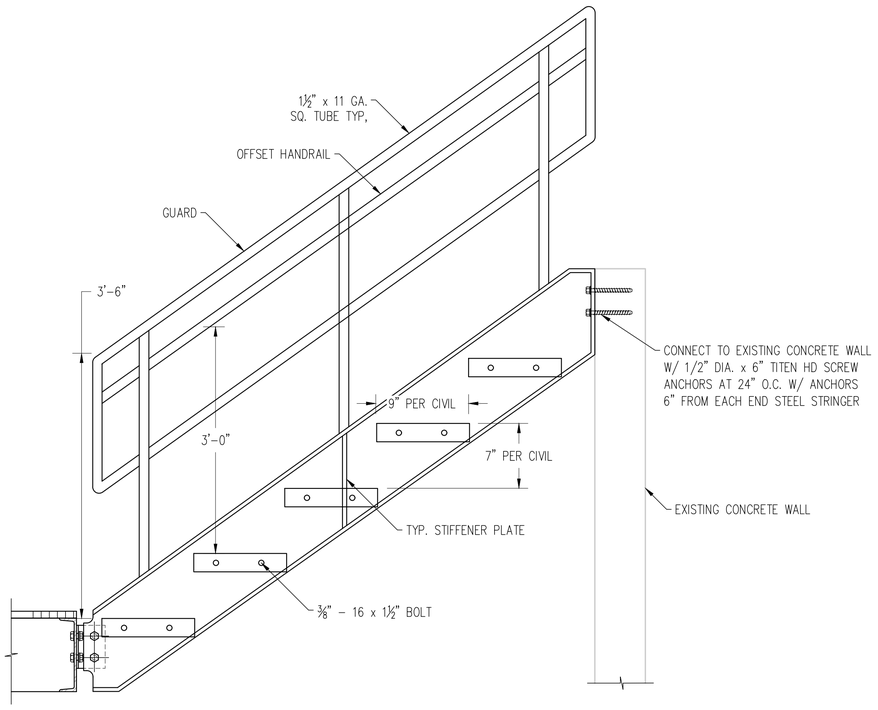
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09085	EL	EL	SH	S2.1	16 of 26

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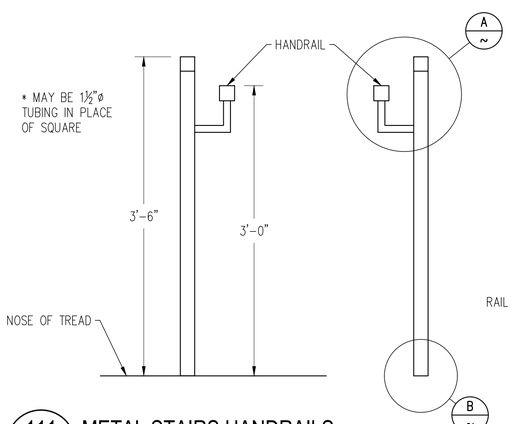
109 METAL STAIRS WITH FLOOR AND BEAM CONNECTIONS

NTS



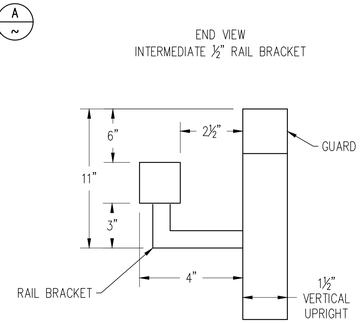
110 METAL STAIRS WITH WALL AND BEAM CONNECTIONS

NTS

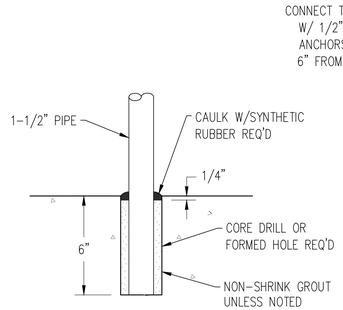


111 METAL STAIRS HANDRAILS

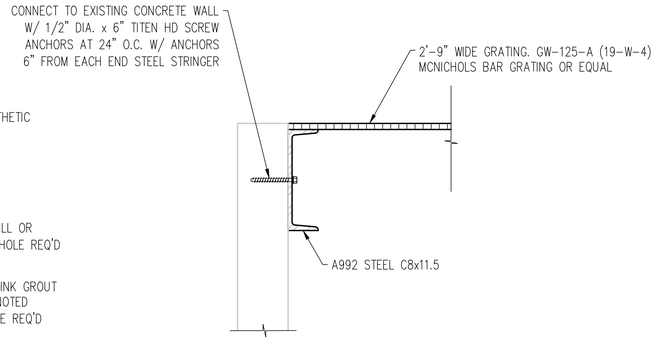
NTS



A HANDRAIL DIMENSIONS
NTS



B CONCRETE POST ANCHORAGE OPTION
NTS



112 PLATFORM SUPPORT AT EXISTING WALL

NTS

REV NO.	COMMENT	DATE

59754 STEVEN M. HANSEN Date Signed 9/5/2024 ARIZONA, U.S.A. Expires 6/30/27

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WASTEWATER RECLAMATION PLANT
UV REPLACEMENT
STRUCTURAL DETAILS, CONT.

SEI NO.	DESIGNED	DRAWN	CHECKED	
09085	EL	EL	SH	S2.2 | 17 of 26

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ELECTRICAL STANDARDS LEGEND

(ALL SYMBOLS MAY NOT BE USED IN DRAWINGS)

- DIRECT BURIED OR CONCRETE EMBEDDED CONDUIT
- CONDUIT RUN EXPOSED
- PROCESS FLOW
- PNEUMATIC SIGNAL
- ELECTRICAL SIGNAL
- PANEL OR ENCLOSURE
- ???KW G XXXA — STAND–BY GENERATOR ??? DENOTES SIZE
- GENERATOR MAIN BREAKER XXX DENOTES BREAKER SIZE
- WP — WALL PACK FIXTURE. MOUNTING HEIGHT AS INDICATED IN DRAWINGS
- FL — FLOOD LIGHT 7'–2" ABOVE FLOOR
- EXIT — EMERGENCY EXIT SIGN 7'–2" ABOVE FLOOR
- EM — EMERGENCY LIGHTING PACK 7'–2" ABOVE FLOOR
- HIGH/LOW BAY LED FIXTURE AS INDICATED IN DRAWINGS AND EQUIPMENT SCHEDULE
- 1' X 4' LED FIXTURE AS INDICATED IN DRAWINGS AND EQUIPMENT SCHEDULE
- G — INDICATOR LAMP – LETTER INDICATES COLOR
- R — FLASHING BEACON – LETTER INDICATES COLOR
- MS — MOTION SENSOR
- EXHAUST FAN
- OTHER LIGHT FIXTURE AS INDICATED IN DRAWINGS.
- AUDIBLE ALARM OR HORN
- JB — UNDERGROUND JUNCTION/PULLBOX – SIZE 5 UNLESS OTHERWISE INDICATED
- J — STEEL JUNCTION/PULLBOX
- E — ELECTRIC MANHOLE
- XX — FUSE; XX – DENOTES AMPERAGE
- GFCI — 120 V GROUND FAULT INTERRUPTER DUPLEX RECEPTACLE
- WP — 120 V DUPLEX RECEPTACLE, WP (WEATHERPROOF)

- 240 V RECEPTACLE
- DISCONNECT SWITCH
- 20A / 3P — CIRCUIT BREAKER – UPPER NUMBER INDICATES AMP TRIP RATING – LOWER NUMBER INDICATES POLES
- MOTOR OVERLOAD
- EQUIPMENT GROUND
- LIGHT SWITCH, SINGLE POLE, MOUNT 4'–6" ABOVE FLOOR ON BUILDING WALL
- $_{WP} — LIGHT SWITCH, SINGLE POINT MOUNT 4'–6" ABOVE FLOOR ON BUILDING WALL, WEATHER PROOF
- R — RELAY
- TR1 — TIMING RELAY
- TDR — TIMING DELAY RELAY
- CR — CONTROL RELAY COIL
- M — MAGNETIC RELAY
- MOMENTARY PUSH–BUTTON SWITCH
- OFF / HAND / AUTO — HAND–OFF–AUTO SELECTOR SWITCH
- NORMALLY CLOSED PUSHBUTTON
- NORMALLY OPEN PUSHBUTTON
- RTM — RUNNING TIME METER
- OR — MOTOR STARTER – NUMBER INDICATES SIZE
- NORMALLY CLOSED CONTACTS
- NORMALLY OPEN CONTACTS
- CONTACTOR OR STARTER, NUMBER DENOTES NEMA SIZE
- 10 — MOTOR – NUMBER INDICATES HORSEPOWER RATING

- FM — FLOW METER
- ETM — ELAPSED TIME METER
- LIMIT SWITCH
- INSTRUMENT TRANSFORMER
- CT — CURRENT TRANSFORMER
- POWER TRANSFORMER
- T — THERMOSTAT
- G.F.I. — GROUND FAULT INTERRUPTER
- AUXILIARY CONTACT
- INTERLOCK
- PUMP
- S OR S — SOLENOID VALVE
- VALVE WITH MANUAL OPERATOR
- M — ELECTRIC MOTOR OPERATED VALVE (MODULATING OR NON–MODULATING)
- M — MOTOR OPERATED VALVE WITH LIMIT SWITCH ASSEMBLY
- I — COMPUTER/CONTROL INPUT
- O — COMPUTER/CONTROL OUTPUT
- LP1–XX — CIRCUIT LABEL: LP1 – PANEL NAME, XX – CIRCUIT NUMBER
- EXPLOSION PROOF SEAL OFF
- CONDUIT IDENTIFICATION, REFER TO CONDUIT AND CONDUCTOR SCHEDULE FOR QUANTITY AND FILL: X = CONDUIT TYPE (P–POWER, C–CONTROL, F–FIBER OPTIC CABLE, X–OTHER); YYY = ID
- X–YYY
- --- — OTHER SYMBOLS AS SHOWN ON DRAWINGS

GENERAL ELECTRICAL ABBREVIATIONS

A	AMPS	EC	ELECTRICAL CONTRACTOR	LCP	LOCAL CONTROL PANEL	RM	ROOF MOUNTED
ACB	AIR CIRCUIT BREAKER	EF	EXHAUST FAN	LFMC	LIQUID–TIGHT FLEX. METAL. C	RMC	RIGID METALLIC CONDUIT
AFC	AVAILABLE FAULT CURRENT	EM	EMER./EGRESS BATTERY	LFNC	LIQUID–TIGHT FLEX.	RNC	RIGID NON–METAL. CONDUIT
AFF	ABOVE FINISHED FLOOR	EMG	ELECTRICAL MANHOLE	LP	LIGHTING PANEL	RTU	REMOTE TERMINAL UNIT
AFG	ABOVE FINISHED GRADE	EMT	ELEC. METALLIC TUBING	MC	NON–METAL. CONDUIT	RVSS	REDUCED VOLTAGE
AIC	AMPS INTERR. CAPACITY	ENT	ELEC. NON–METAL. TUBING	MC	MECHANICAL CONTRACTOR	SBJ	SYSTEM BONDING JUMPER
ATS	AUTOMATIC TRANSFER SWITCH	ER	EXISTING TO BE RELOCATED	MCA	MINIMUM CIRCUIT AMPS	SCA	SHORT CIRCUIT AMPERES
AWG	AMERICAN WIRE GUAGE	EX	EXISTING TO REMAIN	MCB	MAIN CIRCUIT BREAKER	SPC	SPARE CONDUIT
BC	BARE COPPER	FMC	FLEXIBLE METAL. CONDUIT	MCP	MOTOR CIRCUIT PROTECTOR	SPD	SURGE PROTECTIVE DEVICE
BFC	BELOW FINISHED CEILING	GC	GENERAL CONTRACTOR	MLO	MAIN LUG ONLY	SPIC	SPARE INSTRUMENT CONDUIT
BFG	BELOW FINISHED GRADE	GEC	GRND. ELEC. COND. AT SES	MTU	MASTER TERMINAL UNIT	SSSS	SOLID STATE SOFT START
C	CONDUIT	GFCI	GRND. FLT. CURR. INTERR.	N1	NEMA 1	SW	SWITCH
CB	CIRCUIT BREAKER	GND	GROUND	NC	NORMALLY CLOSED	T	TRANSMITTER
CND	CONDUIT	HMI	HUMAN MACHINE INTERFACE	NL	NIGHT LIGHT. BYPASS	TC	TEMP. CONTROL
CO	CONDUIT ONLY	IC	INSTRUMENTATION CONDUIT	NO	NORMALLY OPEN	TSP	TWISTED SHILDED PAIR
CT	CURRENT TRANSDUCER	IER	INTEGRATED EQUIPMENT RATING	OL	MOTOR OVERLOAD	TVSS	TRANSIENT VOLTAGE SURGE SUPRESSOR
CTRL	CONTROL	IG	ISOLATED GROUND	PB	PULL BOX	UG	UNDERGROUND
CU	COPPER MATERIAL	IMC	INTER. METAL. CONDUIT	PCP	PUMP CONTROL PANEL	UNO	UNLESS NOTED OTHERWISE
DED	DEDICATED	INST	INSTRUMENTATION CONDUIT	PLC	PROGRAMMABLE LOGIC CONTROLLER	VFD	VARIABLE FREQUENCY DRIVE
DFA	DROP FROM ABOVE	JB	JUNCTION BOX	POC	POINT OF CONNECTION	WP	WEATHERPROOF
DS	DISCONNECT SWITCH	KCMIL	1000 CIRCULAR MILLS (MCM)	PP	POWER PANEL		

GENERAL ELECTRICAL REQUIREMENTS

1. THE COMPLETED INSTALLATION SHALL CONFORM TO ALL APPLICABLE FEDERAL, STATE AND LOCAL CODE ORDINANCES AND REGULATIONS. CONTRACTOR SHALL OBTAIN NECESSARY PERMITS AND INSPECTIONS REQUIRED BY THE GOVERNING AUTHORITIES. ALL WORK SHALL BE DONE IN A NEAT, PROFESSIONAL, FINISHED AND SAFE MANNER, UNDER COMPETENT SUPERVISION. INSTALL GROUNDING AND ALL ELECTRICAL WORK AS REQUIRED BY THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE AS WELL AS ANY OTHER APPLICABLE CODES.
2. MATERIAL, EQUIPMENT AND INSTALLATION SHALL BE IN ACCORDANCE WITH PROJECT SPECIFICATIONS WHICH ARE PART OF THE CONTRACT DOCUMENTS FOR THIS PROJECT.
3. VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS AND ALL OTHER FACTORS WHICH MAY AFFECT THE EXECUTION OF THIS WORK. INCLUDE ALL RELATED COSTS IN THE INITIAL BID PROPOSAL.
4. ALL MATERIALS SHALL BE NEW AND OF THE BEST QUALITY, MANUFACTURED IN ACCORDANCE WITH NEMA, ANSI, U.L. OR OTHER APPLICABLE STANDARDS. THE USE OF MANUFACTURER'S NAMES, MODELS AND NUMBERS IS INTENDED TO ESTABLISH STYLE, QUALITY, APPEARANCE, USEFULNESS AND BID PRICE. PROPOSED SUBSTITUTIONS SHALL BE SUBMITTED IN WRITING AND APPROVED BY THE ENGINEER BEFORE ORDERING.
5. PROTECT ALL ELECTRICAL MATERIAL AND EQUIPMENT INSTALLED UNDER THIS PROJECT AGAINST DAMAGE BY OTHER TRADES, WEATHER CONDITIONS OR ANY OTHER CAUSES. EQUIPMENT FOUND DAMAGED OR IN OTHER THAN NEW CONDITIONS WILL BE REJECTED AS DEFECTIVE.
6. LEAVE THE SITE CLEAN, REMOVE ALL DEBRIS, EMPTY CARTONS, TOOLS, CONDUIT, WIRE SCRAPS AND ALL MISCELLANEOUS SPARE EQUIPMENT AND MATERIALS USED IN THE WORK DURING CONSTRUCTION. ALL COMPONENTS SHALL BE FREE OF DUST, GRIT AND FOREIGN MATERIALS, LEFT AS NEW BEFORE FINAL ACCEPTANCE OF WORK.
7. ALL CONDUCTORS SHALL BE THHN/THWN COPPER, STRANDED RATED AT 600 VOLTS UNLESS OTHERWISE NOTED. ALUMINUM WIRE WILL NOT BE ALLOWED.
8. ALL CONDUCTORS SHALL BE INSTALLED IN A CONDUIT SYSTEM EXCEPT WHERE NOTED IN DRAWINGS. REFER TO CONDUIT AND CONDUCTOR SCHEDULE FOR CONDUIT TYPE AND SIZE. WHERE CONDUIT SIZE IS NOT CALLED OUT, CONDUIT SHALL BE INSTALLED PER SPECIFICATION 16010 AND SIZED PER LATEST ADOPTED EDITION OF THE NEC.
9. ALL UNDERGROUND CONDUIT TO BE SCHEDULE 40 PVC. MINIMUM DEPTH 30", MINIMUM SIZE 3/4" EXCEPT AS NOTED IN DRAWINGS AND SPECIFICATIONS. ALL UNDERGROUND ELBOWS SHALL BE RIGID LONG SWEEP WRAPPED WITH 3M–50 10 MIL PIPE WRAP OR APPROVED EQUAL EXCEPT FOR COMMUNICATIONS CABLE AND CONDUIT WHEN SPECIFIED DIFFERENTLY ON THE DETAILED ELECTRICAL DRAWINGS.
10. ALL EXPOSED CONDUIT SHALL BE IMC OR RIGID STEEL CONDUIT, WITH A MINIMUM SIZE OF 1" EXCEPT AS NOTED IN DRAWINGS AND SPECIFICATIONS. EXPOSED PVC CONDUIT SHALL NOT BE PERMITTED UNLESS NOTED OTHERWISE IN DRAWINGS.
11. ALL SAFETY SWITCHES AND OTHER DISTRIBUTION AND CONTROL ELECTRICAL EQUIPMENT SHALL BE RATED FOR HEAVY DUTY SERVICE.
12. ALL WIRING DEVICES SHALL BE SPECIFICATION GRADE GROUNDED BODY TYPE DEVICES.
13. THE CONTRACTOR SHALL INSTALL ALL INSTRUMENTS AND CONTROLS, INCLUDING HVAC AND CONTROL PANELS. THE CONTRACTOR SHALL OBTAIN AND REVIEW ALL INSTRUMENT, CONTROL AND HVAC DRAWINGS FOR TOTAL SCOPE OF WORK.
14. ALL PANELS, DISCONNECTS AND SWITCHGEAR ON THE OUTSIDE OF THE BUILDING SHALL BE NEMA 3R TYPE ENCLOSURES UNLESS OTHERWISE SPECIFIED. CT CABINET AND METER BASE SHALL BE OUTSIDE THE BUILDING.
15. SURGE PROTECTIVE DEVICES (SPD) SHALL BE SIZED FOR 160KA UNLESS OTHERWISE NOTED.
16. ALL CONDUIT FOR ALL EQUIPMENT, INCLUDING EQUIPMENT FURNISHED BY OTHERS, SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR.
17. ALL CONDUIT, WHERE LEAVING ELECTRICAL EQUIPMENT TO GO UNDERGROUND, MUST BE ANCHORED TO THE FOUNDATION WITH STAND–OFF BRACKETS TO ALLOW FOR SUFFICIENT CLEARANCE FOR FOOTINGS AND WALL STUDS ON THE WALLS IN THE BUILDING. ALL RGS CONDUIT AND ELBOWS USED UNDERGROUND WILL BE WRAPPED WITH AN APPROVED PIPE WRAP. (TYP. FOR ALL BUILDINGS)
18. ALL WIRING IN CLASS I HAZARDOUS LOCATIONS SHALL COMPLY WITH NEC 501. WET WELL SHALL BE CONSIDERED CLASS I DIV 1, GROUPS C&D.

REV NO.	COMMENT	DATE

Registered Professional Engineer — CERTIFICATE NO. 36659 — J. RANDALL KNAPP — Date Signed 09-05-24 — ARIZONA, U.S.A.

Expires: 6/30/2027

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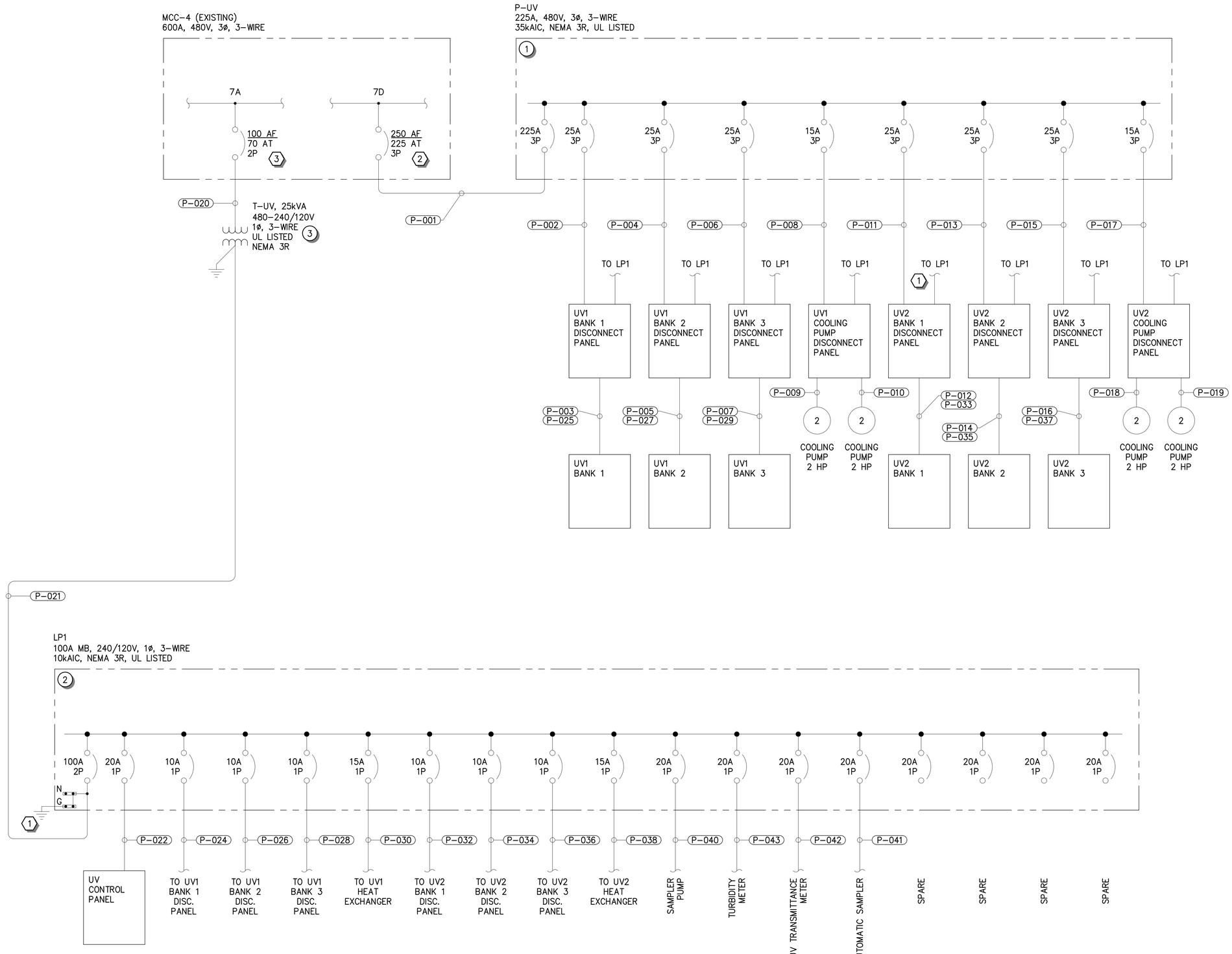
CITY OF SEDONA

WASTEWATER RECLAMATION PLANT
UV REPLACEMENT
ELECTRICAL NOTES AND SYMBOLS

SEI NO.	DESIGNED	DRAWN	CHECKED		
S09085	JRK	CJP	JRK	E100	18 of 26

100% SUBMITTAL

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SHEET NOTES:

1. THE CONTRACTOR SHALL COORDINATE ALL WORK WITH OWNER PRIOR TO CONSTRUCTION.
2. THE CONTRACTOR IS RESPONSIBLE FOR ALL TRENCHING, BACKFILL, COMPACTION, AND THE INSTALLATION OF CONDUIT SHOWN AS NEW OR TO BE EXTENDED TO NEW EQUIPMENT LOCATION.
3. PROVIDE BONDING AND GREEN INSULATED GROUND FOR ALL ELECTRICAL ENCLOSURES PER LATEST EDITION OF NEC.
4. (X) DENOTES ELECTRICAL EQUIPMENT. REFER TO DRAWING E203 FOR ELECTRICAL EQUIPMENT SCHEDULE.
5. REFER TO DRAWING E204 FOR CONDUIT IDENTIFICATION.

KEY NOTES

1. BOND TO ALL ELECTRODES PRESENT PER NEC 250 AND LOCAL AHJ.
2. CONTRACTOR SHALL PROVIDE AND INSTALL NEW 250A CIRCUIT BREAKER WITH A TRIP SETTING OF 225A IN EXISTING MCC-4, SECTION 7D. EXISTING MCC IS ALLEN BRADLEY CENTERLINE SERIES. CONTRACTOR SHALL CONFIRM FRAME SIZE AND INSTALLATION REQUIREMENTS WITH MANUFACTURER PRIOR TO PROCUREMENT OF CIRCUIT BREAKER.
3. CONTRACTOR SHALL REMOVE EXISTING 100A CIRCUIT BREAKER LOCATED IN MCC-4, SECTION 7A TO ABANDONED SAND FILTER EQUIPMENT. PROVIDE AND INSTALL NEW 100A FRAME 2-POLE CIRCUIT BREAKER WITH A TRIP SETTING OF 70A IN SECTION 7A. EXISTING MCC IS ALLEN BRADLEY CENTERLINE SERIES.

100% SUBMITTAL

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REV NO.	COMMENT	DATE

Registered Professional Engineer (Electrical) CERTIFICATE NO. 43659 J. RANDALL KNAPP Date Signed 09.04.24 ARIZONA, U.S.A.

Expires: 6/30/2027

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CITY OF SEDONA

WASTEWATER RECLAMATION PLANT
UV REPLACEMENT
ONE-LINE DIAGRAM

SEI NO.	DESIGNED	DRAWN	CHECKED		
S09085	JRK	CJP	JRK	E201	19 of 26

PANEL P–UV SEDONA UV PLANT DESIGN															CU Bus 22 KA SC Rating (RMS)			
VOLTAGE		PH	WIRE															
480/277		3	4 – WIRE	PANEL SCHEDULE CIRCUIT											225 AMP MAIN CB			
CKT NO.	AMPS	POLE	DESCRIPTION	LOAD (VA)			AMPS						LOAD (VA)			DESCRIPTION	POLE	AMPS	CKT NO.
				LIGHT	RECEP	OTHER	A		B		C		OTHER	RECEP	LIGHT				
1	20	3	SPARE	0	0	0	0.0	0.0					12.654	0	0	SPACE	–		2
3	–	–	' '	0	0	0			0.0	0.0			0	0	0		–		4
5	–	–	' '	0	0	0					0.0	0.0	0	0	0		–		6
7	25	3	UV1 BANK 1 DISCONNECT	15131	0	0	18.2	20.4					0	0	16977	UV2 BANK 1 DISCONNECT	3	30	8
9	–	–	' '	0	0	0			18.2	20.4			0	0	0	' '	–	–	10
11	–	–	' '	0	0	0					18.2	20.4	0	0	0	' '	–	–	12
13	25	3	UV1 BANK 2 DISCONNECT	15131	0	0	18.2	20.4					0	0	16977	UV2 BANK 2 DISCONNECT	3	30	14
15	–	–	' '	0	0	0			18.2	20.4			0	0	0	' '	–	–	16
17	–	–	' '	0	0	0					18.2	20.4	0	0	0	' '	–	–	18
19	25	3	UV1 BANK 3 DISCONNECT	15131	0	0	18.2	20.4					0	0	16977	UV2 BANK 3 DISCONNECT	3	30	20
21	–	–	' '	0	0	0			18.2	20.4			0	0	0	' '	–	–	22
23	–	–	' '	0	0	0					18.2	20.4	0	0	0	' '	–	–	24
25	15	3	UV1 PUMP DISCONNECT	0	0	5653	6.8	6.8					5653	0	0	UV2 PUMP DISCONNECT	3	15	26
27	–	–	' '	0	0	0			6.8	6.8			0	0	0	' '	–	–	28
29	–	–	' '	0	0	0					6.8	6.8	0	0	0	' '	–	–	30
				45393	0	5653	130		130		130		5666	0	50931				
			Subtotal Watts			51046									56597	Subtotal Watts			
			Total Watts			107643									130	Average Amps			

NEC DIVERSIFIED LOAD CALCULATIONS			
LIGHTING AND CONTINOUS LOADS: (100% CONNECTED LOAD PLUS 25%)	96.3 kVA	Lighting Total kVA:	120.4
RECEPTACLES: (FIRST 10kVA @ 100%, REMAINDER @50%)	0.0 kVA	Receptacles Total kVA:	0.0
ALL OTHER LOADS @ 100%: MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED AT 125% PER NEC	11.3 kVA	Other Loads Total kVA:	12.7
		DIVERSIFIED TOTAL kVA	133.1
		AVERAGE AMPS PER PHASE	160.2

100% SUBMITTAL

REV NO.	COMMENT	DATE

Registered Professional Engineer
CERTIFICATE NO.
53659
J. RANDALL KNAPP
Date Signed 09-09-24
ARIZONA, U.S.A.
Expires: 6/30/2027

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CITY OF SEDONA

WASTEWATER RECLAMATION PLANT
UV REPLACEMENT
ELECTRICAL SCHEDULES

SEI NO.	DESIGNED	DRAWN	CHECKED	
S09085	JRK	CJP	JRK	E202 20 of 26

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PANEL LP1 SEDONA UV PLANT DESIGN													CU Bus 10 KA SC Rating (RMS)			
VOLTAGE		PH	WIRE													
240/120		1	3 –WIRE	PANEL SCHEDULE CIRCUIT									100 AMP MAIN CB			
CKT NO.	AMPS	POLE	DESCRIPTION	LOAD (VA)			AMPS				LOAD (VA)			DESCRIPTION	POLE	AMPS	CKT NO.
				LIGHT	RECEP	OTHER	L1		L2		OTHER	RECEP	LIGHT				
1	20	1	UV1 CONTROL PANEL	0	0	600	5.0	0.0			0	0	0	SPARE	1	20	2
3	10	1	UV1 BANK 1 DISCONNECT	0	0	420			3.5	3.5	420	0	0	UV2 BANK 1 DISCONNECT	1	10	4
5	10	1	UV1 BANK 2 DISCONNECT	0	0	420	3.5	3.5			420	0	0	UV2 BANK 2 DISCONNECT	1	10	6
7	10	1	UV1 BANK 3 DISCONNECT	0	0	420			3.5	3.5	420	0	0	UV2 BANK 3 DISCONNECT	1	10	8
9	15	1	UV1 HEAT EXCHANGER	0	0	1017	8.5	4.2			500	0	0	SAMPLER PUMP	1	20	10
11	15	1	UV2 HEAT EXCHANGER	0	0	1017			8.5	4.2	500	0	0	TURBIDITY METER	1	20	12
13	20	2	MOTORIZED VALVE #1	0	0	2500	10.4	4.2			500	0	0	TRANSMITTANCE METER	1	20	14
15	–	–	' '	0	0	0			10.4	8.3	1000	0	0	AUTOMATIC SAMPLER	1	20	16
17	20	2	MOTORIZED VALVE #2	0	0	2500	10.4	0.0			0	0	0		–		18
19	–	–	' '	0	0	0			10.4	0.0	0	0	0		–		20
21		–		0	0	0	0.0	0.0			0	0	0		–		22
23		–		0	0	0			0.0	0.0	0	0	0		–		24
25		–		0	0	0	0.0	0.0			0	0	0		–		26
27		–		0	0	0			0.0	0.0	0	0	0		–		28
29		–		0	0	0	0.0	0.0			0	0	0		–		30
				0	0	8894	50		56		3760	0	0				
			Subtotal Watts			8894							3760	Subtotal Watts			
			Total Watts			12654							53	Average Amps			

NEC DIVERSIFIED LOAD CALCULATIONS			
LIGHTING AND CONTINOUS LOADS: (100% CONNECTED LOAD PLUS 25%)	0.0 kVA	Lighting Total kVA:	0.0
RECEPTACLES: (FIRST 10kVA @ 100%, REMAINDER @50%)	0.0 kVA	Receptacles Total kVA:	0.0
ALL OTHER LOADS @ 100%: MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED AT 125% PER NEC	12.7 kVA	Other Loads Total kVA:	12.7
		DIVERSIFIED TOTAL kVA	12.7
		AVERAGE AMPS PER PHASE	52.7

ELECTRICAL EQUIPMENT SCHEDULE

Ⓧ	DESCRIPTION	QUANTITY	MODEL / SPECIFICATION	MANUFACTURER	COMMENTS
1	PANEL P–UV, 480/277V, 3ø, 4–WIRE, 200A MAIN CB CU BUS 35 kAIC, 30 CIRCUIT	1	16400	SQUARE D OR APPROVED	
2	PANEL LP1, 120/240V, 1ø, 3–WIRE, 100A MAIN CB CU BUS 10 kAIC, 30 CIRCUIT	1	16400	SQUARE D OR APPROVED	
3	STEP–DOWN TRANSFORMER, 25kVA, 480–240/120V, DRY–TYPE, CU WINDING	1	16400	SQUARE D OR APPROVED	
4	ELECTRICAL JUNCTION BOX, JB–1, NEMA 3R, 8"X8"X6"	1	A8R86HCR	HOFFMAN OR EQUAL	

REV NO.	COMMENT	DATE

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CITY OF SEDONA

WASTEWATER RECLAMATION PLANT
UV REPLACEMENT
ELECTRICAL SCHEDULES

SEI NO.	DESIGNED	DRAWN	CHECKED	
S09085	JRK	CJP	JRK	E203 21 of 26

100% SUBMITTAL

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CONDUIT AND CONDUCTOR SCHEDULE

CONDUIT TAG	DESCRIPTION	ROUTING		MIN. CONDUIT		CONDUCTORS (CU) PER C.		VOLTAGE	REMARKS OR REFERENCE DRAWING
		FROM	TO	QTY	SIZE	(QTY) & SIZE	GND		
P-001	FEEDER TO PANEL P-UV	MCC-4 7D	P-UV	1	2"	(3) #3/0 AWG	#4	480	
P-002	POWER TO UV1 BANK 1 DISCONNECT	P-UV-7,9,11	UV1 BANK 1 DISCONNECT	1	1"	(3) #10 AWG	#10	480	
P-003	POWER TO UV1 BANK 1	UV1 BANK 1 DISCONNECT	UV1 BANK 1	1	1"	(3) #10 AWG	#10	480	
P-004	POWER TO UV1 BANK 2 DISCONNECT	P-UV-13,15,17	UV1 BANK 2 DISCONNECT	1	1"	(3) #10 AWG	#10	480	
P-005	POWER TO UV1 BANK 2	UV1 BANK 2 DISCONNECT	UV1 BANK 2	1	1"	(3) #10 AWG	#10	480	
P-006	POWER TO UV1 BANK 3 DISCONNECT	P-UV-19,21,23	UV1 BANK 3 DISCONNECT	1	1"	(3) #10 AWG	#10	480	
P-007	POWER TO UV1 BANK 3	UV1 BANK 3 DISCONNECT	UV1 BANK 3	1	1"	(3) #10 AWG	#10	480	
P-008	POWER TO UV1 COOLING PUMP DISCONNECT	P-UV-25,27,29	UV1 COOLING PUMP DISCONNECT	1	1"	(3) #12 AWG	#12	480	
P-009	POWER TO UV1 COOLING PUMP #1	UV1 COOLING PUMP DISCONNECT	UV1 COOLING PUMP #1	1	1"	(3) #12 AWG	#12	480	
P-010	POWER TO UV1 COOLING PUMP #2	UV1 COOLING PUMP DISCONNECT	UV1 COOLING PUMP #2	1	1"	(3) #12 AWG	#12	480	
P-011	POWER TO UV2 BANK 1 DISCONNECT	P-UV-8,10,12	UV2 BANK 1 DISCONNECT	1	1"	(3) #10 AWG	#10	480	
P-012	POWER TO UV2 BANK 1	UV2 BANK 1 DISCONNECT	UV2 BANK 1	1	1"	(3) #10 AWG	#10	480	
P-013	POWER TO UV2 BANK 2 DISCONNECT	P-UV-14,16,18	UV2 BANK 2 DISCONNECT	1	1"	(3) #10 AWG	#10	480	
P-014	POWER TO UV2 BANK 2	UV2 BANK 2 DISCONNECT	UV2 BANK 2	1	1"	(3) #10 AWG	#10	480	
P-015	POWER TO UV2 BANK 3 DISCONNECT	P-UV-20,22,24	UV2 BANK 3 DISCONNECT	1	1"	(3) #10 AWG	#10	480	
P-016	POWER TO UV2 BANK 3	UV2 BANK 3 DISCONNECT	UV2 BANK 3	1	1"	(3) #10 AWG	#10	480	
P-017	POWER TO UV2 COOLING PUMP DISCONNECT	P-UV-26,28,30	UV2 COOLING PUMP DISCONNECT	1	1"	(3) #12 AWG	#12	480	
P-018	POWER TO UV2 COOLING PUMP #1	UV2 COOLING PUMP DISCONNECT	UV2 COOLING PUMP #1	1	1"	(3) #12 AWG	#12	480	
P-019	POWER TO UV2 COOLING PUMP #2	UV2 COOLING PUMP DISCONNECT	UV2 COOLING PUMP #2	1	1"	(3) #12 AWG	#12	480	
P-020	FEEDER TO 25kVA XFMR T-UV	MCC-4 7A	T-UV	1	1"	(2) #4 AWG	#8	480	
P-021	FEEDER TO PANEL LP1	T-UV	LP1	1	1-1/2"	(3) #1 AWG	#6	240	
P-022	POWER TO UV CONTROL PANEL	LP1-1	UV CONTROL PANEL	1	1"	(2) #12 AWG	#10	120	
P-023	-- DELETED --								
P-024	CONTROL POWER TO UV1 BANK 1 DISCONNECT	LP1-3	UV1 BANK 1 DISCONNECT	1	1"	(2) #12 AWG	#12	120	
P-025	CONTROL POWER TO UV1 BANK 1	UV1 BANK 1 DISCONNECT	UV1 BANK 1	1	1"	(2) #12 AWG	#12	120	
P-026	CONTROL POWER TO UV1 BANK 2 DISCONNECT	LP1-5	UV1 BANK 2 DISCONNECT	1	1"	(2) #12 AWG	#12	120	
P-027	CONTROL POWER TO UV1 BANK 2	UV1 BANK 2 DISCONNECT	UV1 BANK 2	1	1"	(2) #12 AWG	#12	120	
P-028	CONTROL POWER TO UV1 BANK 3 DISCONNECT	LP1-7	UV1 BANK 3 DISCONNECT	1	1"	(2) #12 AWG	#12	120	
P-029	CONTROL POWER TO UV1 BANK 3	UV1 BANK 3 DISCONNECT	UV1 BANK 3	1	1"	(2) #12 AWG	#12	120	
P-030	POWER TO UV1 HEAT EXCHANGER	LP1-9	UV1 COOLING PUMP DISCONNECT	1	1"	(2) #12 AWG	#12	120	
P-031	POWER TO UV1 HEAT EXCHANGER	UV1 COOLING PUMP DISCONNECT	UV1 BANK 3	1	1"	(2) #12 AWG	#12	120	
P-032	CONTROL POWER TO UV2 BANK 1 DISCONNECT	LP1-4	UV2 BANK 1 DISCONNECT	1	1"	(2) #12 AWG	#12	120	
P-033	CONTROL POWER TO UV2 BANK 1	UV2 BANK 1 DISCONNECT	UV2 BANK 1	1	1"	(2) #12 AWG	#12	120	
P-034	CONTROL POWER TO UV2 BANK 2 DISCONNECT	LP1-6	UV2 BANK 2 DISCONNECT	1	1"	(2) #12 AWG	#12	120	
P-035	CONTROL POWER TO UV2 BANK 2	UV2 BANK 2 DISCONNECT	UV2 BANK 2	1	1"	(2) #12 AWG	#12	120	
P-036	CONTROL POWER TO UV2 BANK 3 DISCONNECT	LP1-8	UV2 BANK 3 DISCONNECT	1	1"	(2) #12 AWG	#12	120	
P-037	CONTROL POWER TO UV2 BANK 3	UV2 BANK 3 DISCONNECT	UV2 BANK 3	1	1"	(2) #12 AWG	#12	120	
P-038	POWER TO UV2 HEAT EXCHANGER	LP1-10	UV2 COOLING PUMP DISCONNECT	1	1"	(2) #12 AWG	#12	120	
P-039	POWER TO UV2 HEAT EXCHANGER	UV2 COOLING PUMP DISCONNECT	UV2 BANK 3	1	1"	(2) #12 AWG	#12	120	
P-040	POWER TO SAMPLER PUMP	LP1-10	SAMPLER PUMP	1	3/4"	(2) #12 AWG	#12	120	
P-041	POWER TO AUTOMATIC SAMPLER	LP1-16	SAMPLER (SIGMA SC 900)	1	3/4"	(2) #12 AWG	#12	120	
P-042	POWER TO UV TRANSMITTANCE METER	LP1-14	UV TRANSMITTANCE METER (SC 200)	1	3/4"	(2) #12 AWG	#12	120	
P-043	POWER TO TURBIDITY MONITOR	LP1-12	TURBIDITY METER (SC 4500)	1	3/4"	(2) #12 AWG	#12	120	
P-044	MOTORIZED VALVE #1	LP1-13,15	VALVE #1	1	1"	(2) #12 AWG	#12	240	
P-045	MOTORIZED VALVE #2	LP1-17,19	VALVE #2	1	1"	(2) #12 AWG	#12	240	
C-001	CONTROL TO UV CONTROL PANEL	PLC CABINET #2 (EXISTING)	UV1 CONTROL PANEL	1	1-1/4"	(16) #14 AWG (2) CAT 6	#14	CTRL	UV IN AUTO, START, MAJOR ALARM, MINOR ALARM - FOR EACH REACTOR
C-002	-- DELETED --								
C-003	CONTROL TO UV1	UV CONTROL PANEL	UV1 BANK 2	1	3/4"	(1) CAT 6		CTRL	
C-004	CONTROL TO UV2	UV CONTROL PANEL	UV2 BANK 2	1	3/4"	(1) CAT 6		CTRL	
C-005	CONTROL TO UV1 UPS POWER	UV CONTROL PANEL	UV1 BANK 1	1	3/4"	(2) #14 AWG	#14	CTRL	
C-006	CONTROL TO UV2 UPS POWER	UV CONTROL PANEL	UV2 BANK 1	1	3/4"	(2) #14 AWG	#14	CTRL	
C-007	CONTROL TO UV1 COOLING PUMP START	UV CONTROL PANEL	UV1 COOLING PUMP DISCONNECT	1	3/4"	(2) #14 AWG	#14	CTRL	
C-008	CONTROL TO UV2 COOLING PUMP START	UV CONTROL PANEL	UV2 COOLING PUMP DISCONNECT	1	3/4"	(2) #14 AWG	#14	CTRL	
C-009	-- DELETED --								
C-010	-- DELETED --								
C-011	CONTROL TO UV1 EFFLUENT PRESSURE SWITCH	UV CONTROL PANEL	UV1 EFFLUENT PUMP MANIFOLD	1	3/4"	(1) #16 TSP		CTRL	
C-012	CONTROL TO UV2 EFFLUENT PRESSURE SWITCH	UV CONTROL PANEL	UV2 EFFLUENT PUMP MANIFOLD	1	3/4"	(1) #16 TSP		CTRL	
C-013	CONTROL TO UV SAMPLER ENCLOSURE	PLC CABINET #2 (EXISTING)	JUNCTION BOX JB-1	1	2"	TBD		CTRL	
C-014	SAMPLER STATUS	JB-1	SAMPLER	1	3/4"	(1) #16 TSP		CTRL	MATCH EXISTING CONTROL WIRING
C-015	UV TRANSMITTANCE LEVEL	JB-1	TRANSMITTANCE METER	1	3/4"	(1) #16 TSP		CTRL	MATCH EXISTING CONTROL WIRING
C-016	SAMPLER PUMP CONTROL	JB-1	SAMPLER PUMP	1	3/4"	TBD		CTRL	MATCH EXISTING CONTROL WIRING
C-017	TURBIDIMETER LEVEL	JB-1	TURBIDIMETER LEVEL	1	3/4"	(1) #16 TSP		CTRL	MATCH EXISTING CONTROL WIRING
C-018	VALVE #1 CONTROL	PLC CABINET #2 (EXISTING)	VALVE #1	1	1"	(10) #14 AWG	#14	CTRL	IN AUTO, OPEN, CLOSE, OPENED, CLOSED
C-019	VALVE #2 CONTROL	PLC CABINET #2 (EXISTING)	VALVE #2	1	1"	(10) #14 AWG	#14	CTRL	IN AUTO, OPEN, CLOSE, OPENED, CLOSED

* CONDUITS FOR LIGHTING AND RECEPTACLE CIRCUITS TYPICALLY NOT SHOWN IN CONDUIT SCHEDULE.

SHEET NOTES:

1. THE CONTRACTOR SHALL COORDINATE ALL WORK WITH OWNER PRIOR TO CONSTRUCTION.
2. THE CONTRACTOR IS RESPONSIBLE FOR ALL TRENCHING, BACKFILL, COMPACTION, AND THE INSTALLATION OF CONDUIT SHOWN AS NEW OR TO BE EXTENDED TO NEW EQUIPMENT LOCATIONS.
3. PROVIDED BONDING AND GREEN INSULATED GROUND FOR ALL ELECTRICAL ENCLOSURES PER LATEST EDITION OF NEC.
4. SOME CONDUITS SHOWN AS COMBINED FOR CLARITY. REFER TO CONDUIT SCHEDULE FOR CONDUIT QUANTITY, SIZE AND FILL.

100% SUBMITTAL

REV NO.	COMMENT	DATE

Registered Professional Engineer CERTIFICATE NO. 53659 Electrical J. RANDALL KNAPP Date Signed 03.06.24 ARIZONA, U.S.A.

Expires: 6/30/2027

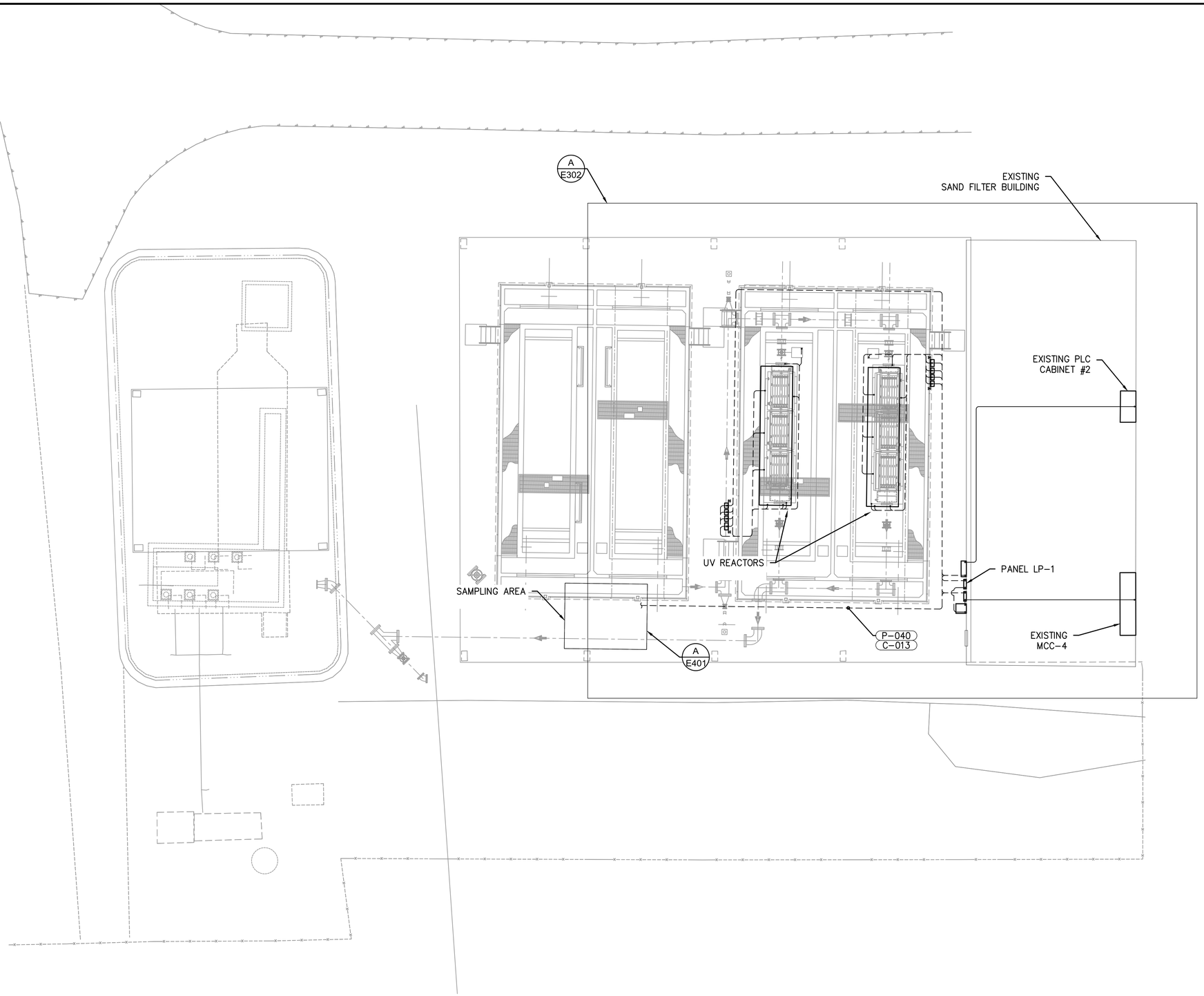
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CITY OF SEDONA

WASTEWATER RECLAMATION PLANT
UV REPLACEMENT
CONDUIT & CONDUCTOR SCHEDULE

SEI NO.	DESIGNED	DRAWN	CHECKED		
S09085	JRK	CJP	JRK	E204	22 of 26

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A ~ OVERALL SITE PLAN
SCALE 1" = 10' AT PAGE SIZE 22"X34"

NORTH

SCALE
0 5' 10'
HORIZ: 1" = 5'

SHEET NOTES:

1. THE CONTRACTOR WILL BE RESPONSIBLE TO LOCATE ALL EXISTING UNDERGROUND UTILITIES BEFORE ANY EXCAVATION IS PERFORMED. ANY DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED TO NEW CONDITION OR REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
2. NOT ALL CONDUITS ARE SHOWN. REFER TO CONDUIT AND CONDUCTOR SCHEDULE FOR INDIVIDUAL CONDUIT FILL REQUIREMENTS. CONDUIT LAYOUT SHOWN IS DIAGRAMMATIC ONLY. CONTRACTOR SHALL FIELD ROUTE AS NECESSARY TO ACCOMMODATE FIELD CONDITIONS AND AVOID OTHER STRUCTURES AS REQUIRED.
3. ALL ELECTRICAL WORK SHALL COMPLY WITH GENERAL ELECTRICAL NOTES SHOWN ON DRAWING E100.

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REV NO.	COMMENT	DATE

Registered Professional Engineer (Electrical) CERTIFICATE NO. 53659 J. RANDALL KNAPP Date Signed 03-06-24 ARIZONA, U.S.A.
Expires: 6/30/2027

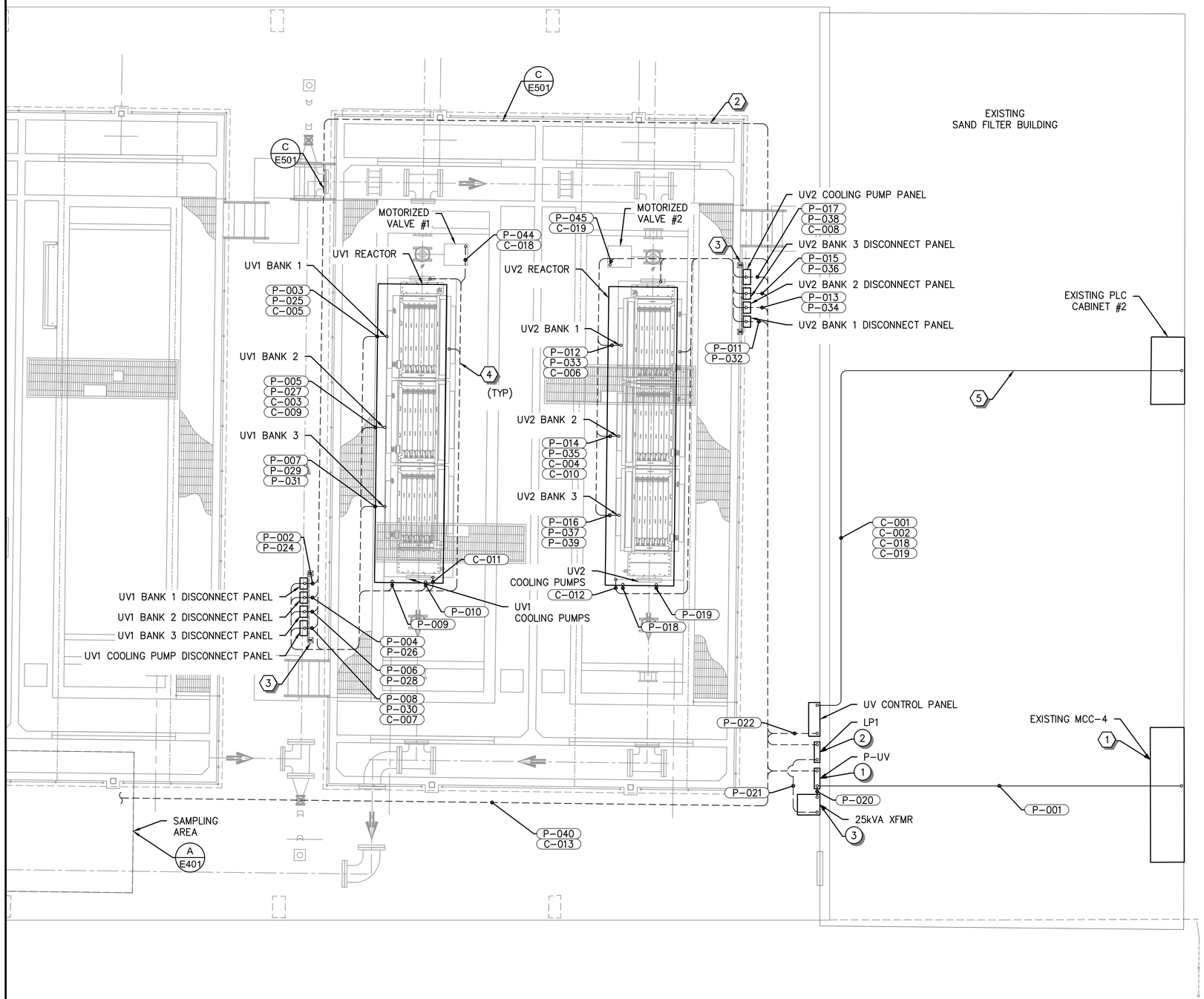
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CITY OF SEDONA

WASTEWATER RECLAMATION PLANT
UV REPLACEMENT
OVERALL SITE PLAN

SEI NO.	DESIGNED	DRAWN	CHECKED		
S09085	JRK	CJP	JRK	E301	23 of 26

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A SITE PLAN
SCALE 1" = 5' AT PAGE SIZE 22"X34"

NORTH

SCALE
0 5' 10'
HORIZ: 1" = 5'

SHEET NOTES:

1. THE CONTRACTOR WILL BE RESPONSIBLE TO LOCATE ALL EXISTING UNDERGROUND UTILITIES BEFORE ANY EXCAVATION IS PERFORMED. ANY DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED TO NEW CONDITION OR REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
2. NOT ALL CONDUITS ARE SHOWN. REFER TO CONDUIT AND CONDUCTOR SCHEDULE FOR INDIVIDUAL CONDUIT FILL REQUIREMENTS. CONDUIT LAYOUT SHOWN IS DIAGRAMMATIC ONLY. CONTRACTOR SHALL FIELD ROUTE AS NECESSARY TO ACCOMMODATE FIELD CONDITIONS AND AVOID OTHER STRUCTURES AS REQUIRED.
3. ALL ELECTRICAL WORK SHALL COMPLY WITH GENERAL ELECTRICAL NOTES SHOWN ON DRAWING E100.

KEY NOTES

1. CONTRACTOR SHALL PROVIDE AND INSTALL NEW CIRCUIT BREAKER AS SHOWN IN ELECTRICAL ONELINE DIAGRAM ON DRAWING E201.
2. CONTRACTOR SHALL PROVIDE AND INSTALL RMC CONDUIT TO UV SYSTEM DISCONNECTS. SURFACE MOUNT CONDUIT TO EXISTING CONCRETE. PROVIDE ALL MOUNTING HARDWARE AND FITTINGS AND PROVIDE SUPPORTS PER NEC REQUIREMENTS.
3. CONTRACTOR SHALL INSTALL VENDOR SUPPLIED EQUIPMENT TO EXISTING RAILING. PROVIDE ALL CONDUIT, FITTINGS, MOUNTING HARDWARE, AND ACCESSORIES REQUIRED FOR AN OPERABLE SYSTEM.
4. CONDUIT STUB-UP LOCATIONS SHOWN ARE APPROXIMATED. CONDUIT SHALL BE INSTALLED PER EQUIPMENT SHOP DRAWINGS.
5. INSTALL CONDUIT ALONG CEILING IN EXISTING SAND FILTER BUILDING. FIELD ROUTE TO AVOID LIGHT FIXTURES, AND OTHER OBSTACLES. PROVIDE ALL CONDUIT BRACKETS, HANGARS, FITTINGS, AND OTHER MOUNTING HARDWARE.

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REV NO.	COMMENT	DATE

Registered Professional Engineer (Electrical) CERTIFICATE NO. 33659 J. RANDALL KNAPP Date Signed 09-09-24 ARIZONA, U.S.A.
Expires: 6/30/2027

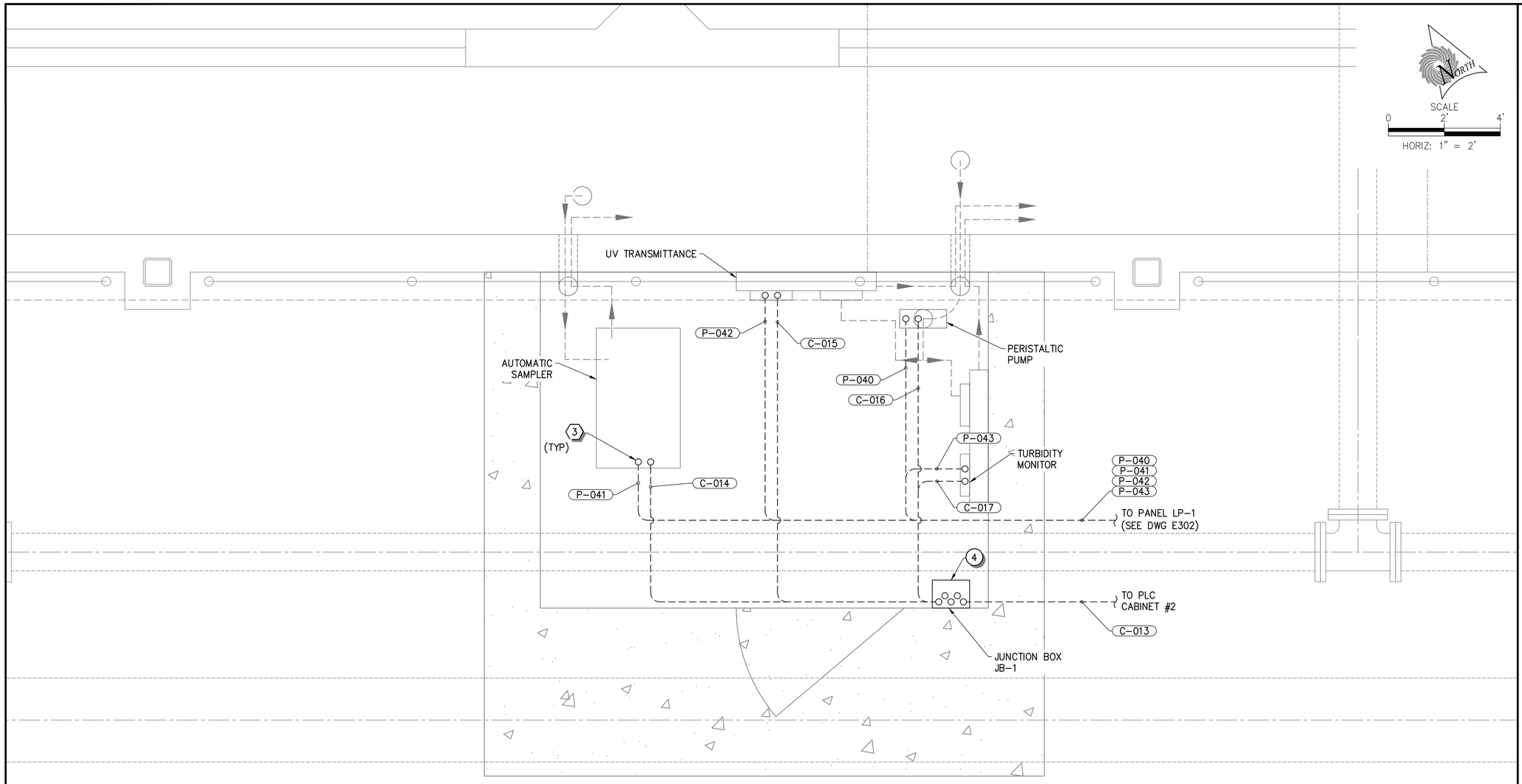
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CITY OF SEDONA

WASTEWATER RECLAMATION PLANT
UV REPLACEMENT
SITE PLAN

SEI NO.	DESIGNED	DRAWN	CHECKED	
S09085	JRK	CJP	JRK	E302 24 of 26

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A SAMPLING ENCLOSURE ELECTRICAL PLAN

SCALE: 1/2" = 1' AT PAGE SIZE 22"X34"

NORTH

SCALE
0 2' 4'
HORIZ: 1" = 2'

GENERAL NOTES:

1. CONTRACTOR TO COMPLY WITH GENERAL ELECTRICAL REQUIREMENTS ON DRAWING E100.
2. CONDUITS SHOWN ARE SCHEMATIC ONLY. CONTRACTOR SHALL FIELD ROUTE CONDUIT AS NECESSARY TO AVOID OBSTACLES AND OTHER EQUIPMENT.
3. NOT ALL CONDUITS ARE SHOWN FOR CLARITY. REFER TO CONDUIT AND CONDUCTOR SCHEDULE FOR ADDITIONAL CIRCUITING INFORMATION.
4. SEE DRAWING E204 FOR CONDUIT AND CONDUCTOR SCHEDULE.
5. (X) DENOTES ELECTRICAL EQUIPMENT. REFER TO DRAWING E203 FOR ELECTRICAL EQUIPMENT SCHEDULE.

KEY NOTES

(1) CONTRACTOR SHALL COORDINATE CONDUIT STUB-UP LOCATIONS WITH EQUIPMENT SHOP DRAWINGS. PROVIDE FLEXIBLE LIQUID TIGHT CONDUIT TO EQUIPMENT AND TERMINATE PER MANUFACTURER REQUIREMENTS.

100% SUBMITTAL

REV NO.	COMMENT	DATE

Registered Professional Engineer — CERTIFICATE NO. 53659 — J. RANDALL KNAPP — Date Signed 09-05-24 — ARIZONA, U.S.A.
Expires: 6/30/2027

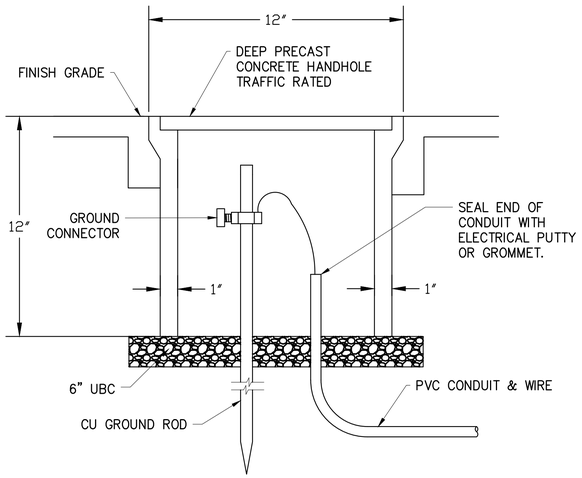
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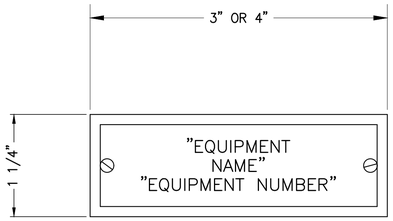
WASTEWATER RECLAMATION PLANT
UV REPLACEMENT
POWER AND CONTROL PLAN

SEI NO.	DESIGNED	DRAWN	CHECKED	
S09085	JRK	CJP	JRK	E401 25 of 26

W:\EIC\Projects\Sedona\s09085 sedona uv plant design\dwg\Electrical Building Plan.dwg Sep 05, 2024 7:47am rknapp



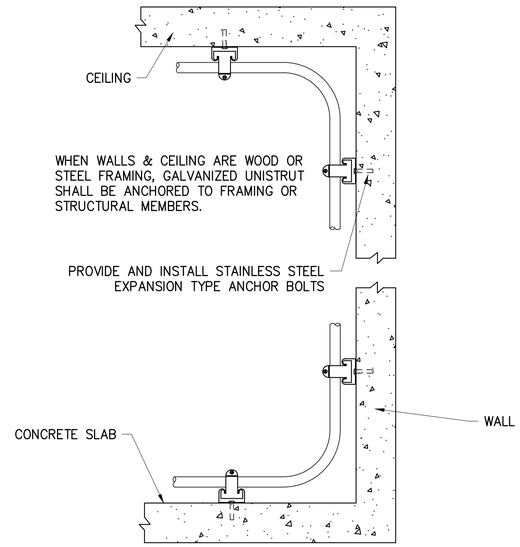
A GROUND WELL
N.T.S.



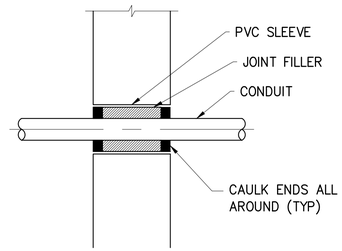
1. ALL LETTERS TO BE WHITE 1/4" HIGH, ON A BLACK BACKGROUND UNLESS NOTED OTHERWISE.
2. ALL NAMEPLATES TO BE MOUNTED ON THE VERTICAL CENTER LINE OF THE CUBICLE OR DEVICE.
3. ATTACH ALL NAMEPLATES WITH STAINLESS STEEL SCREWS.
4. PROVIDE BLANK NAMEPLATES FOR ALL SPARE AND AN ADDITIONAL TEN PERCENT FOR FUTURE DEVICES.

B NAMEPLATE
N.T.S.

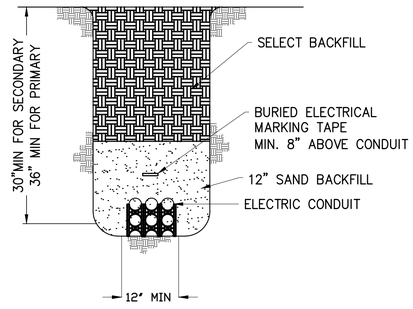
7/8" GALVENIZED UNISTRUT AND PIPE CLAMPS TO BE ANCHORED TO THE WALL & CEILING, THEN CONDUIT SHALL BE RUN AND ATTACHED WITH UNISTRUT STRAPS. PROVIDE ANCHOR BRACKETS EVERY 6" MINIMUM. ALL EXPOSED CONDUIT SHALL BE RMC UNLESS OTHERWISE NOTED IN DRAWINGS.



C CONDUIT MOUNT
N.T.S.



D CONDUIT PENETRATION
N.T.S.



1. WARNING TAPE MUST BE PLACED ON TOP OF CONDUIT (5 MILS THICKNESS)
2. ALL TRENCHES MUST BE INSPECTED PRIOR TO BACKFILLING
3. TRENCHES SHOULD BE SPOT BACKFILLED TO PREVENT MOVEMENT OF TAPE DURING BACKFILL.
4. SELECT BACKFILL MUST BE COMPACTED IN 1 FOOT LIFTS TO PREVENT SETTLING.

E UNDERGROUND CONDUIT POWER CABLE TRENCH
N.T.S.

REV NO.	COMMENT	DATE

Registered Professional Engineer — CERTIFICATE NO. 53659 — J. RANDALL KNAPP — Date Signed 09-05-24 — ARIZONA, U.S.A.
Expires: 6/30/2027

SUNRISE ENGINEERING
2045 SOUTH VINEYARD, SUITE 101
MESA, ARIZONA 85210
TEL 480.768.8600
www.sunrise-eng.com

CITY OF SEDONA

WASTEWATER RECLAMATION PLANT
UV REPLACEMENT
ELECTRICAL DETAILS

SEI NO.	DESIGNED	DRAWN	CHECKED	
S09085	JRK	CJP	JRK	E501 26 of 26

100% SUBMITTAL

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PROFESSIONAL SERVICES AGREEMENT
FOR
THE CITY OF SEDONA

This Professional Services Agreement ("Agreement") is made and entered into on this ____ day of _____, 20 _____ ("Effective Date"), by and between the City of Sedona, an Arizona municipal corporation ("CITY") and Sunrise Engineering, LLC. ("CONSULTANT").

RECITALS

A. CITY intends to undertake a project for the benefit of the public and with public funds that is more fully set for in Exhibit A, Scope of Work.

B. CITY desires to retain the professional services of CONSULTANT to perform certain services and produce the specific work as set forth in Exhibit A.

C. CONSULTANT desires to provide CITY with professional services ("Services") consistent with consulting or other professional practices and the standards set forth in this Agreement, in order to complete the project; and

D. CITY and CONSULTANT desire to memorialize their agreement with this document.

AGREEMENT

The parties agree as follows:

1. **SCOPE OF WORK**.
   A. Scope of Work. The CONSULTANT agrees to perform certain professional consulting and coordinating services for CITY, in connection with the **WWRP UV Replacement Project** (the "Project") as set forth in **Exhibit A** "Scope of Work" attached hereto and incorporated by this reference. The services include any and all services reasonably contemplated, normally included, and necessary to complete the Scope of Work in a professional manner with due diligence and in a timely manner, including working closely with the CITY and its designated employees. CONSULTANT shall perform the services required by, and as outlined in, Exhibit A to the satisfaction of the City, exercising that degree of care, skill, diligence and judgment ordinarily exercised, under similar circumstances, by reputable members of its profession in the same locality at the time the services are provided.

   B. Change in Scope of Work. If deemed necessary by CITY, the CONSULTANT and CITY will confer to further define specific tasks in the Scope of Work and estimate the amount of time to be spent on those tasks. Any work that is different from or in addition to the work specified shall constitute a change in the Scope of Work. No such change, including any additional compensation, shall be effective or paid unless authorized by written amendment executed by the City Manager and by CONSULTANT. If CONSULTANT proceeds without such written authorization, CONSULTANT shall be deemed to have waived any claims of unjust enrichment, *quantum meruit* or implied contract. Except as expressly provided herein, no agent, employee or representative of CITY shall have the authority to enter into any changes or modifications, either directly or implied by a course of action, relating to the

terms and scope of this Agreement.

C. Inspection; Acceptance. All work and Services performed by CONSULTANT will be subject to inspection and acceptance by the CITY at reasonable times during CONSULTANT's performance. If requested by the CITY, CONSULTANT will provide the CITY with record drawings at the completion of the project in such form and detail as the CITY may require.

D. Time. Time is of the essence for this Agreement. CONSULTANT shall complete all Services timely, efficiently and in accordance with any schedule set forth in Exhibit A.

E. Corrections. CONSULTANT shall promptly provide, at no additional cost to the CITY, any and all corrections, modifications, additional documents, or other items that may be necessary to correct any errors and/or omissions in the work, Services, documents, designs, specification, and/or drawings by CONSULTANT.

F. Key Personnel. CONSULTANT shall utilize the key personnel, if any, listed in Exhibit A or in the proposal to the CITY. CONSULTANT shall not change key personnel, not utilize the listed key personnel, or utilize any other key personnel without the prior written approval of the CITY. Any substituted personnel shall have the same or higher qualifications as the personnel being replaced.

2. **COMPENSATION; BILLING**.

A. Compensation. CITY agrees to pay the CONSULTANT as compensation for Services on a time and materials basis in accordance with the Scope of Work and fee schedule set forth in **Exhibit A** not to exceed a total amount of **$73,300**. Except as otherwise set forth in this Agreement, billing and payment will be in accordance with the conditions set forth in **Exhibit A**.

B. Payment. Unless otherwise agreed to by the CITY in writing, CONSULTANT will submit monthly invoices to the CITY. CITY will process and remit payment within thirty (30) days and payment will be delinquent only thirty (30) days after the date received by CITY. Each invoice shall set forth a general description of the work performed, in accordance with the Scope of Work, for the hours billed. Payment may be subject to or conditioned upon CITY'S receipt of unconditional waivers and releases on final payment from all subconsultants. If a dispute over payment arises, and during all claims resolution proceedings, CONSULTANT shall continue to render the Services in a timely manner. Payment by the CITY does not constitute acceptance by the CITY of the Services or CONSULTANT's performance, nor does payment constitute a waiver of any rights or claims by the CITY.

C. Expenses. Any fee required by any governmental agency in order for CONSULTANT to accomplish a task hereunder shall be provided by CITY and is not included in the hourly fee. No reimbursable expenses or costs of any kind shall be paid by the CITY unless expressly approved by the CITY in writing before they are incurred. Any approved reimbursable expenses will be paid at the actual cost without any markup and will be paid only after they are incurred.

D. Taxes. CONSULTANT shall be solely responsible for any and all tax obligations which may result out of the CONSULTANT's performance of this Agreement. The CITY shall have no obligation to pay any amounts for taxes, of any type, incurred by the CONSULTANT.

3. **OWNERSHIP OF DOCUMENTS**. All documents, including, but not limited to, correspondence, estimates, notes, recommendations, analyses, reports, data and studies that are prepared in the performance of this Agreement are to be, and shall remain, the property of CITY and are to be delivered to CITY before the final payment is made to the CONSULTANT. CONSULTANT hereby grants to the CITY an irrevocable, exclusive, royalty-free perpetual license to reproduce and use any and all data, documents (including electronic documents and files), designs, drawings and specifications prepared or furnished by CONSULTANT pursuant to this Agreement. Any modifications made by the CITY to any of the CONSULTANT'S documents, or any use, partial use or reuse of the documents without written authorization or adaptation by the CONSULTANT will be at the CITY'S sole risk and without liability to the CONSULTANT.

4. **PROFESSIONAL RESPONSIBILITY**. CONSULTANT hereby warrants that it is qualified to assume the responsibilities and render the Services described herein and has all requisite corporate authority and professional licenses in good standing, required by law. CONSULTANT warrants that the Services rendered will conform to the requirements of this Agreement and to the professional standards in the field. The CITY has no obligation to provide CONSULTANT any business registrations, licenses, tools, equipment or material required to perform the Scope of Work.

5. **COMPLIANCE WITH LAW**. It is contemplated that the work and Services to be performed by CONSULTANT hereunder shall be done in compliance with applicable laws, ordinances, rules and regulations that are in effect on the date of this Agreement. Any subsequent changes in applicable laws, ordinances, rules or regulations that necessitate additional work shall constitute a change in the Scope of Work. Each and every provision of law and any clause required by law to be in the Agreement will be read and enforced as though it were included.

6. **INDEMNIFICATION**. To the fullest extent permitted by law, CONSULTANT will indemnify, defend (except Professional Liability Claims) and hold harmless CITY, and each council member, officers, boards, commissions, officials, employee or agent thereof (collectively the CITY and any such person being herein called an "Indemnified Party"), for, from and against any and all losses, claims, damages, liabilities, costs and expenses to which any such Indemnified Party may become subject, under any theory of liability whatsoever ("Claims") to the extent that such Claims (or actions in respect thereof) relate to, arise out of, or are caused by, or in connection with the negligent acts or omissions, recklessness or intentional misconduct of CONSULTANT, its officers, employees, agents or any tier of subcontractor in connection with CONSULTANT'S work or Services in the performance of this Agreement. In consideration of the award of this Agreement, CONSULTANT agrees to waive all rights of subrogation against the Indemnified Party for losses arising from the work or Services performed by CONSULTANT for the CITY. The amount and type of insurance coverage requirements set forth below will in no way be construed as limiting the scope of the indemnity in this Section.

7. **INSURANCE**.

A. General:

1. The CONSULTANT agrees to procure and maintain in force during the term of this Agreement, at its own cost, the following coverages and as may be requested by CITY, either in the initial bid, or prior to commencement of particular tasks. CONSULTANT shall submit to CITY before any work is performed, certificates from the CONSULTANT's insurance carriers indicating the presence of coverages and limits of liability as follows:

2. Worker's Compensation Insurance:

   Coverage A: Statutory benefits as required by the Labor Code of the State of Arizona.

   Coverage B: Employer's Liability

Bodily Injury by accident	$1,000,000 each accident
Bodily Injury by disease	$1,000,000 policy limit
Bodily Injury by disease	$1,000,000 each employee

3. Commercial General or Business Liability Insurance with minimum combined single limits of ONE MILLION DOLLARS ($1,000,000.00) each occurrence and TWO MILLION DOLLARS ($2,000,000.00) general aggregate.

4. Automobile Liability Insurance with minimum combined single limits for bodily injury and property damage of not less than ONE MILLION DOLLARS ($1,000,000.00) for any one occurrence, with respect to each of the CONSULTANT'S owned, hired or non-owned automobiles assigned to or used in performance of the Services. Certificate to reflect coverage for "Any Auto, All Owned, Scheduled, Hired or Non-Owned."

5. Professional Liability coverage with minimum limits of ONE MILLION DOLLARS ($1,000,000.00) each claim and TWO MILLION DOLLARS ($2,000,000.00) general aggregate. If approved by CITY, evidence of qualified self-insured status may be substituted for one or more of the foregoing insurance coverages. Coverage must have no exclusion for design-build projects.

B. CONSULTANT shall procure and maintain the minimum insurance coverages listed herein. Such coverages shall be procured and maintained with forms and insurers acceptable to CITY, acceptance of which shall not be unreasonably withheld. All coverages shall be continuously maintained to cover all liability, claims, demands and other obligations assumed by the CONSULTANT pursuant this Agreement. In the case of any claims made to the policy, the necessary retroactive dates and extended reporting periods shall be procured to maintain such continuous coverage.

C. All policies must be written by insurance companies whose rating, in the most recent AM Best's Rating Guide, is not less than A- VII or higher, unless CONSULTANT obtains prior written approval of CITY.

D. A Certificate of Insurance shall be completed by the CONSULTANT'S insurance agent(s) as evidence that policies providing the required coverages, conditions and minimum limits are in full force and effect and shall be subject to review and approval by CITY. The Certificate shall identify this Agreement and shall provide that the coverages afforded under

the policies shall not be canceled, terminated or limits reduced until at least thirty (30) days prior written notice has been given to CITY. The CITY shall be named as an additional insured. The completed Certificate of Insurance shall be sent to:

City of Sedona
102 Roadrunner Drive
Sedona, AZ 86336
ATTN: City Clerk

E. Failure on the part of CONSULTANT to procure or maintain policies providing the required coverages, conditions and minimum limits shall constitute a Material Breach of Contract upon which CITY may immediately terminate this Agreement or, at its discretion, CITY may procure or renew any such policy or any extended reporting period thereto and may pay any and all premiums in connection therewith, and all monies so paid by CITY shall be repaid by the CONSULTANT to CITY upon demand, or CITY may offset the cost of the premiums against any monies due to CONSULTANT from CITY.

F. CITY reserves the right to request and receive a certified copy of any policy and any pertinent endorsement thereto. CONSULTANT agrees to execute any and all documents necessary to allow CITY access to any and all insurance policies and endorsements pertaining to this particular job.

G. All policies shall provide primary coverage and waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to any person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay for the insurance premium directly or indirectly and whether or not the person or entity had an insurable interest in the property damaged.

H. The following policies shall include Additional Insured endorsements: Automobile Liability Insurance and Commercial General Liability.

I. CITY reserves the right to require higher limits of liability coverage if, in the CITY's opinion, operations or services create higher than normal hazards.

8. **NON-ASSIGNABILITY**. Neither this Agreement, nor any of the rights or obligations of the parties hereto, shall be assigned by either party without the written consent of the other.

9. **TERM; TERMINATION**.

A. Term. This Agreement shall terminate on **December 31, 2025**, or at such time as the work in the Scope of Work is completed, whichever occurs first.

B. Termination for Convenience. This Agreement is for the convenience of the CITY and may be immediately terminated without cause after receipt by the CONSULTANT of written notice by the CITY. Upon termination for convenience, CITY shall pay CONSULTANT for all work previously authorized and performed prior to the date of termination. If, however, CONSULTANT has substantially or materially breached the standards and terms of this Agreement, CITY shall have any remedy or right of set-off available at law and

equity. Upon any termination of this Agreement, no further payments shall be due from the CITY to CONSULTANT unless and until CONSULTANT has delivered to the CITY full sized and usable copies of all documents, designs, drawings, and specifications generated by CONSULTANT in relation to the Project or this Agreement. No other payments, including any payment for lost profit or business opportunity, and no penalty shall be owed by CITY to CONSULTANT in the event of termination upon notice. After termination, CONSULTANT may complete other such work as it deems necessary, except that such work will be at its own expense and there shall be no "termination charge" whatsoever to CITY.

C. Termination for Cause. CITY may terminate this Agreement for cause if CONSULTANT fails to cure any breach of this Agreement within seven days after receipt of written notice specifying the breach.

D. Extension for Procurement Purposes. Upon expiration of the Term of this Agreement, including the initial term and any renewals, at the CITY'S discretion, this Agreement may be extended on a month-to-month basis for a maximum of six (6) months to allow for the CITY to complete its procurement processes to select a vendor to provide the services/materials similar to those provided under this Agreement. There are no automatic renewals of this Agreement.

E. Appropriation of Funds. Every payment obligation of the CITY under this Agreement is conditioned upon the availability of funds appropriated or allocated for payment of such obligation. If funds are not allocated and available for the continuance of this Agreement, this Agreement may be terminated by the CITY at the end of the period for which funds are available. No liability shall accrue to the CITY in the event this provision is exercised, and CITY shall not be obligated or liable for any future payments or for any damages resulting from termination under this provision.

10. **VENUE; JURISDICTION; JURY TRIAL WAIVER**. This Agreement shall be governed by the laws of the State of Arizona, and any legal action concerning the provisions hereof shall be brought in the County of Yavapai, State of Arizona. Both parties hereby waive any right to a jury trial which they may otherwise have in the event of litigation arising out of this Agreement or the subject matter thereof and consent to a trial to the court.

11. **INDEPENDENT CONTRACTOR**. CONSULTANT is an independent contractor. Notwithstanding any provision appearing in this Agreement, and any exhibits and/or addenda, all personnel assigned by CONSULTANT to perform work under the terms of this Agreement shall be, and remain at all times, employees or agents of CONSULTANT for all purposes. The CITY does not have the authority to supervise or control the actual work of CONSULTANT, its employees or subcontractors. CONSULTANT shall make no representation that it is the employee of CITY for any purpose.

12. **NO WAIVER**. Delays in enforcement or the waiver of any one (1) or more defaults or breaches of this Agreement by CITY shall not constitute a waiver of any of the other terms or obligations of this Agreement.

13. **ENTIRE AGREEMENT**. This Agreement, together with the attached exhibits, is the entire

agreement between CONSULTANT and CITY, superseding all prior oral or written communications. None of the provisions of this Agreement may be amended, modified or changed except by written amendment executed by both parties. This Agreement will be construed and interpreted according to its plain meaning, and no presumption will be deemed to apply in favor of or against the party drafting the Agreement. In the event any term or provision of this Agreement is held to be illegal or in conflict with any law of the United States or Arizona or any local law, the validity of the remaining provisions shall not be affected, and this Agreement shall be construed and enforced as if it did not contain the particular term or provision.

14. **NON-DISCRIMINATION**. CONSULTANT, its agents, employees, contractors and subcontractors shall not discriminate in any employment policy or practice. "Discrimination" means to exclude individuals from an opportunity or participation in any activity or to accord different or unequal treatment in the context of a similar situation to similarly situated individuals because of race, color, gender, gender identity, sexual orientation, religion, national origin or ancestry, marital status, familial status, age, disability, or Veteran status. (Ordinance 2015-10) (2015).

15. **COMPLIANCE WITH FEDERAL AND STATE LAWS**.

A. In the performance of this Agreement, CONSULTANT will abide by and conform to any and all federal, state and local laws.

B. Under the provisions of A.R.S. § 41-4401, CONSULTANT hereby warrants to CITY that CONSULTANT and each of its subcontractors will comply with, and are contractually obligated to comply with, all Federal Immigration laws and regulations that relate to their employees and A.R.S. § 23-214(A) (hereinafter "Contractor Immigration Warranty"). A breach of the Contractor Immigration Warranty shall constitute a material breach of this Agreement and shall subject CONSULTANT to penalties up to and including termination of this Agreement at the sole discretion of CITY. CITY retains the legal right to inspect the papers of any contractor or subcontractor employee who works on this Agreement to ensure that the contractor or subcontractor is complying with the Contractor Immigration Warranty. CONSULTANT agrees to assist CITY in regard to any such inspections. CITY may, at its sole discretion, conduct random verification of the employment records of CONSULTANT and any subcontractors to ensure compliance with the Contractor Immigration Warranty. CONSULTANT agrees to assist CITY in regard to any random verification performed. Neither CONSULTANT nor any subcontractor shall be deemed to have materially breached the Contractor Immigration Warranty if CONSULTANT or any subcontractor establishes that it has complied with the employment verification provisions prescribed by Sections 274A and 274B of the Federal Immigration and Nationality Act and the E-Verify requirements prescribed by A.R.S. § 23-214, Subsection A.

C. The provisions of this Section must be included in any contract that CONSULTANT enters into with any and all of its subcontractors who provide services under this Agreement or any subcontract. For the purposes of this paragraph, "Services" are defined as furnishing labor, time or effort by a contractor or subcontractor. Services include construction or maintenance of any structure, building or transportation facility or improvement to real property.

D. If applicable (CONSULTANT is a natural person), CONSULTANT shall execute the required documentation and affidavit of lawful presence as set forth in ARS 1-502/8 USC § 1621 (**Exhibit B**).

E. CONSULTANT understands and acknowledges the applicability to it of the Americans with Disabilities Act, the Immigration Reform and Control Act of 1986 and the Drug Free Workplace Act of 1989. The following is only applicable to construction contracts: CONSULTANT must also comply with A.R.S. § 34-301, "Employment of Aliens on Public Works Prohibited," and A.R.S. § 34-302, as amended, "Residence Requirements for Employees."

16. **DISPUTE RESOLUTION**. The parties agree in good faith to attempt to resolve amicably, without litigation, any dispute arising out of or relating to this Agreement. In the event that any dispute cannot be resolved through direct discussions, the parties agree to endeavor to settle the dispute by mediation. Either party may make a written demand for mediation, upon which demand the matter shall be submitted to a mediation firm mutually selected by the parties. The mediator shall hear the matter and provide an informal opinion and advise within twenty (20) days following written demand for mediation. Said informal opinion and advice shall not be binding on the parties, but shall be intended to help resolve the dispute. The mediator's fee shall be shared equally by the parties. If the dispute has not been resolved, the matter may then be submitted to the judicial system.

17. **DELAYS**. CONSULTANT shall not be responsible for delays which are due to causes beyond CONSULTANT'S reasonable control. In case of any such delay, any deadline established as part of the Scope of Work shall be extended accordingly.

18. **REMEDIES UPON BREACH**. If any party to this Agreement materially breaches the terms of the Agreement, the non-breaching party may exercise any and all remedies available to them under Arizona law, including, without limitation, if applicable, bringing a lawsuit for monetary damages or specific performance. THE PARTIES HERETO EXPRESSLY COVENANT AND AGREE THAT IN THE EVENT OF LITIGATION ARISING FROM THIS AGREEMENT, NEITHER PARTY SHALL BE ENTITLED TO AN AWARD OF ATTORNEY FEES, EITHER PURSUANT TO CONTRACT, PURSUANT TO A.R.S. § 12-341.01 (A) AND (B), OR PURSUANT TO ANY OTHER STATE OR FEDERAL STATUTE, COURT RULE, CASE LAW, OR COMMON LAW.

19. **CONFLICT OF INTEREST**. From the date of this Agreement through the termination of its service to CITY, CONSULTANT shall not accept, negotiate or enter into any contract or agreements for services with any other party that may create a substantial interest, or the appearance of a substantial interest in conflict with the timely performance of the work or ultimate outcome of this Agreement and/or adversely impact the quality of the work under this Agreement without the express approval of the City Manager and the City Attorney. Whether such approval is granted shall be in the sole discretion of the City Manager and the City Attorney. The parties hereto acknowledge that this Agreement is subject to cancellation pursuant to the provisions of ARS § 38-511.

20. **NOTICE**. Any notice or communication between CONSULTANT and CITY that may be required, or that may be given, under the terms of this Agreement shall be in writing, and shall be deemed to have been sufficiently given when directly presented or sent pre-paid, first-class United States Mail, addressed as follows:

CITY:	City of Sedona Attn: City Manager 102 Roadrunner Drive Sedona, AZ 86336
CONSULTANT:	Sunrise Engineering, LLC. 2045 S. Vineyard, Suite 101 Mesa, AZ 85210

21. **EXHIBITS**. The following exhibits, are a part of this Agreement and incorporated by this reference:
Exhibit A Scope of Work
Exhibit B Affidavit of Lawful Presence
In the event of any conflict between the terms of an Exhibit and this Agreement, the terms of the Agreement shall control.

22. **NOTICE TO PROCEED**. Unless otherwise noted by CITY, acceptance of this Agreement is official notice to proceed with the work.

23. **PUBLIC RECORDS**. Notwithstanding any provisions of this Agreement regarding confidentiality, secrets, or protected rights, CONSULTANT acknowledges that all documents provided to the CITY may be subject to disclosure by the Arizona public records law under A.R.S. 39-121 and related provisions. In the event CONSULTANT objects to any disclosure, CONSULTANT agrees to handle all aspects related to the request including properly communicating with the requester and timely responding with information and CONSULTANT agrees to indemnify the CITY from any claims, actions, lawsuits, damages and losses resulting from CONSULTANT's objection to the disclosure.

24. **NO BOYCOTT OF ISRAEL OR USE OF FORCED LABOR OF ETHNIC UYGHURS IN PEOPLES REPUBLIC OF CHINA.** As applicable, CONSULTANT certifies and agrees it is not currently engaged in and for the duration of the Agreement will not engage in a boycott of Israel, as that term is defined in A.R.S. §35-393 and will not use forced labor or goods or services produced by forced labor of ethnic Uyghurs in the People's Republic of China (PRC) or any contractors, subcontractors or suppliers that use forced labor or goods or services produced by forced labor of ethnic Uyghurs in the PRC as provided by A.R.S. §35-394.

CITY OF SEDONA, ARIZONA

Anette Spickard, City Manager

ATTEST:

JoAnne Cook, City Clerk

APPROVED AS TO LEGAL FORM:

Kurt W. Christianson, City Attorney

SUNRISE ENGINEERING, LLC

By:

Title:

I hereby affirm that I am authorized to enter into and sign this Agreement on behalf of CONSULTANT

EXHIBITS

Exhibit A

☒ Scope of Work and Associated Costs.

Exhibit B

☐ Affidavit of Lawful Presence as set forth in ARS 1-502/8 USC §1621.

☒ Affidavit of Lawful Presence not required as this consultant is a corporation (Inc., LLC, LLP).

SUNRISE ENGINEERING
Phoenix Metro Office
2045 S. Vineyard, Suite 101, Mesa, Arizona 85210 | 480.768.8600

October 2, 2024

Roxanne Holland
City of Sedona
Phone: 928-203-5069
Email: rholland@sedonaaz.gov

Subject: **CONTRACT for Engineering Services**
Wastewater Treatment Plant UV Addition
Construction Administration & Post Design Services

Dear Roxanne,

Sunrise Engineering, LLC. (SE) is pleased to submit the following proposal to the City of Sedona (Client), to provide Professional Services for the Wastewater Treatment Plant (WWTP) UV Addition Construction Administration and Post Design Services. SE agrees, upon receipt of your acceptance to this agreement, to perform the following identified services.

Scope of Services
The City of Sedona would like to install a non-contact UV disinfection system at their WWTP located on the west side of the Arizona State Route 89A. Client is also looking for a system that will provide more ease of operation and maintenance versus the existing system. The scope of services for this contract is to provide construction administration and post design services for the construction of the proposed UV disinfection.

PHASE 0001 – CONSTRUCTION ADMINISTRATION: This phase of the contract includes the construction administration portion of the work and will consist of the following tasks:

Task 001 – Pre-Construction Meeting: SE will attend a pre-construction meeting that will cover the construction of the UV addition. This meeting is assumed to be onsite and include the contractor and City staff.

Task 002 – Bi-Weekly Construction Progress Meetings: This task will include attendance at bi-weekly progress meetings for the duration of the project plus up to five (5) additional meetings. It is expected that these meetings will be held/attended electronically, via Microsoft TEAMS or other similar platform with up to three (3) meetings being held onsite and in person. The duration of construction is anticipated to last for five (5) consecutive months and as such, a total of sixteen (16) Bi-Weekly meetings have been budgeted for this task.

Task 003 – RFI Review: SE will review and respond to up to sixteen (16) Requests for Information (RFI's) to provide interpretations and clarifications. Responses will be submitted to the City for verification/final approval prior to being issued to the Contractor.

Task 004 – Material Submittals: SE will provide review, and approve/disapprove materials submittals related to this project. Fee includes a maximum of two (2) reviews per submittal on a maximum of twelve (12) material submittals. Reviews more than the included quantities will be billed as a reimbursable expense on a Time & Materials basis per Attachment C. Submittals must be submitted from the Contractor per MAG Specifications 105.2 – Plans and Shop Drawings.

Task 005 – Final Walk-through/Punch-List: Upon substantial completion of the project and upon request by the City, SE will visit the site to review the construction of the project for "Acceptance" per MAG Specification Section 105.15 – Acceptance. SE will record and track necessary punch-list items and verify completion prior to final acceptance.

Task 006 – Record Drawings & Final Approvals: SE will Provide contract record drawings at the conclusion of the UV disinfection system replacement project construction. Services will include:

1. Show revisions/modifications occurring during construction on the design/bid plans. Plan revisions will be based on redlines provided to SE by the Client's construction observer and/or Contractor.
2. Provide the Client with one hard and one digital copy of the contract record drawings
3. Provide a Manufacturer's Operation and Maintenance Manual
4. Submit to ADEQ for final construction approval and Engineer's Certificate of Completion

PHASE 0002 – SPECIAL INSPECTIONS: This phase of the contract includes the observation and project construction recording of the work and will consist of the following tasks:

Task 001 – Electrical Inspection: SE will provide remote assistance (via face time, email, TEAMS, etc.) to the City inspectors (upon request) for the observation and inspection of the electrical installations. At the substantial completion of construction, SE will provide one (1) day of onsite inspection services of the electrical installations. This includes observation and verification of construction/installation substantial conformance with the project construction documents (plans and specifications) and verify correction of deficiencies.

Task 001 – Structural Inspection: SE will provide remote assistance (via face time, email, TEAMS, etc.) to the City inspectors (upon request) for the observation and inspection of the structural installations. At the substantial completion of construction, SE will provide one (1) day of onsite inspection services of the structural installations. This includes observation and verification of construction/installation substantial conformance with the project construction documents (plans and specifications) and verify correction of deficiencies.

PHASE 0003 – PROJECT MANAGEMENT: This phase of this project includes general project management during the project. This phase will include the following task:

Task 001 – Project Management: SE will provide project management, coordination, and monitoring of the project for the duration of construction activities.

PHASE 0004 – ALLOWANCES: This phase of this project includes allowances for the project to cover any reimbursable expenses. This phase will include the following task:

Task 001 – Reimbursable Expenses: This will be an allowance used for reimbursable expenses which may include, but are not limited to, reprographics (documents, plans, reports, maps, etc.) and delivery services. Backup documentation for expenses will be provided to the Client.

Scope of Work Exclusions & Conditions

1. This project is being constructed via CMAR. It is the contractor's responsibility to have a surveyor on site to document final locations and elevations of all construction/installations per the plans.
2. Construction staking is not included in the scope of work. The contractor is anticipated to include this service during construction. If requested or required, these services can be provided on a time and material basis at the rates show in Attachment C in addition to the contract cost or through a contract amendment.
3. Scope of work does not include Storm Water Pollution Prevention Plan or Notice of Intent (NOI) services. It is assumed that these services will be provided by the Contractor.
4. Scope of work does not include any Quality Control/Quality Assurance testing (i.e. materials testing, disinfection, pressure testing, etc.)
5. Scope of work does not include any public relations related work (i.e. hanging door hangars, attending public meetings, etc.)
6. Scope of work does not include daily onsite construction observations.
7. Review, processing, permitting, and all other fees are excluded.
8. Reproduction costs for plans, exhibits, reports, etc. will be billed as a reimbursable expense or on a Time and Material basis depending on method of execution.
9. Any items not specifically included within the scope of this proposal are excluded. If additional items are added to the contract, they will be performed in accordance with rates and fees shown in Attachment C.

Fees
The fee for this scope of work is summarized in the Fees Summary Table in Attachment B. All Phases will be performed on a Time and Materials, Not to Exceed (T&M, NTE) basis per the fees/rates shown in Attachment C.

Proposal Expiration and Notice to Proceed
The Scope, Fee and Terms outlined in this proposal (contract) will be deemed valid and will be honored by SE for a period of up to 60 calendar days from the date listed on page 1. After that time, SE reserves the right to void the proposal.

Once a signed contract is returned to our office, the Scope, Fee and Terms will be in force for the duration of the project subject to the Terms and Conditions provided herein. A signed contract will also be considered a Notice to Proceed (NTP) for SE to start providing the services as outlined in this contract.

If you are interested in having us complete the services outlined in this proposal, please execute the agreement below and return one copy to our office. Client will be billed monthly based on the amount of work completed for each task. We will invoice you at the beginning of each month for services performed during the previous month. Payment is due 30 days from the date of the invoice.

If you have any questions regarding this proposal, please contact me at (480) 768-8600. We look forward to working with you.

Sincerely,
SUNRISE ENGINEERING, LLC

Geoffrey S. Child, P.E.
Vice President

ACCEPTED & AGREED
City of Sedona

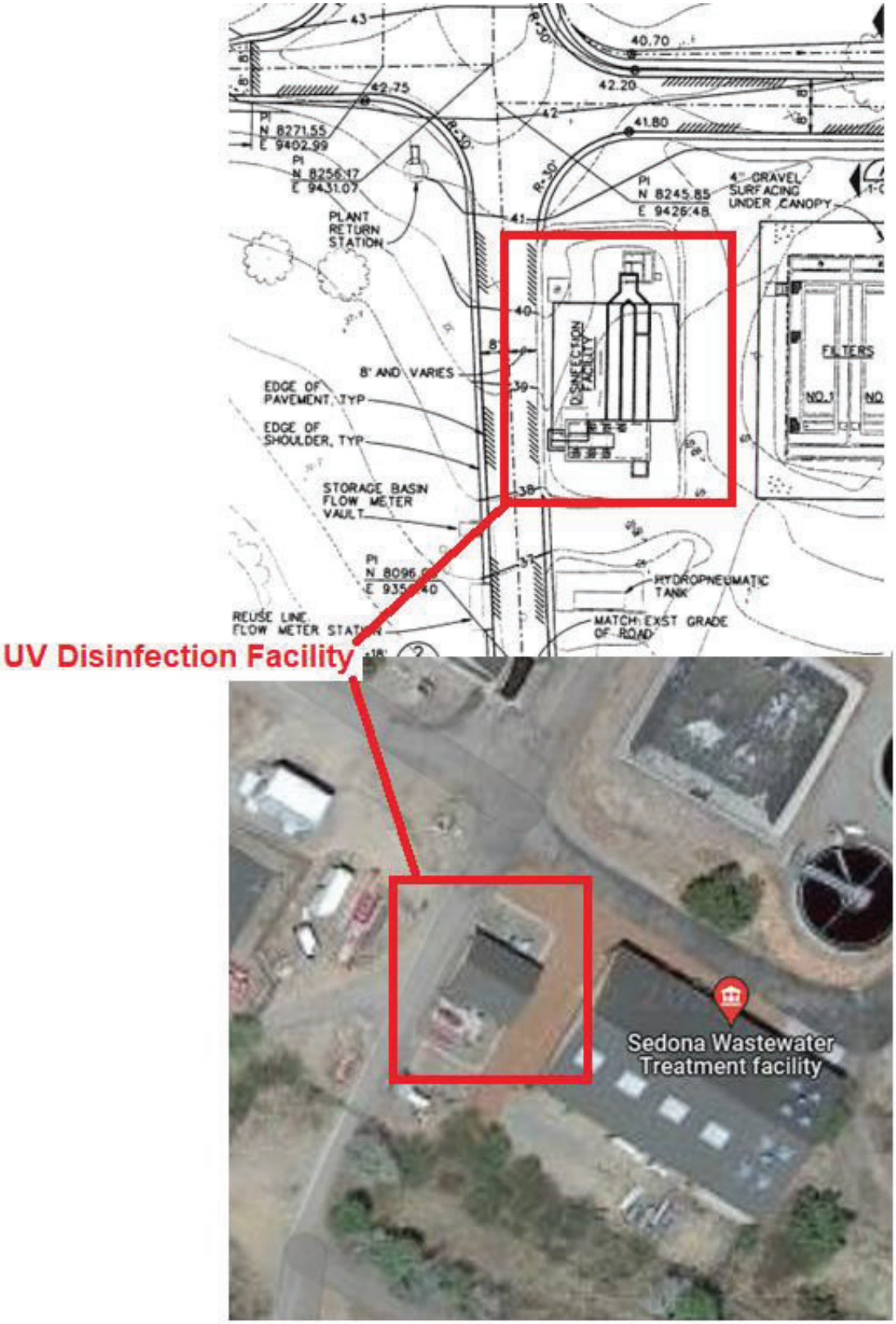
By: _____
Signature

_____
Printed Name

Title: _____
Print Title

Date: _____
Date

ATTACHMENT A



ATTACHMENT B

Fee Summary

Phase	Task	Work Task Description	($)	*Fee Type
0001		**Construction Administration**		
	001	Pre-Construction Meeting	$3,100	
	002	Bi-Weekly Construction Progress Meetings	$14,300	
	003	RFI Review	$10,800	
	004	Material Submittals	$6,500	
	005	Final Walk-through/Punch-List	$6,000	
	006	Record Drawings & Final Approvals	$6,500	
		Subtotal	**$47,200**	**T&M NTE**
0002		**Special Inspections**		
	001	Electrical Inspections	$7,500	
	002	Structural Inspections	$7,500	
		Subtotal	**$15,000**	**T&M NTE**
0003		**Project Management**		
	001	Project Management	$10,100	
		Subtotal	**$10,100**	**T&M NTE**
0004		**Allowances**		**T&M NTE**
	001	Reimbursable Expenses	$1,000	
		Subtotal	**$1,000**	**T&M NTE**
		****Total T&M Not to Exceed (Budgeted)**	**$73,300**	

*Lump Sum = Fixed Fee; T&M = Time & Materials; NTE = Not to Exceed

**Budgeted T&M (Time and Materials) is a budgeted amount that will not be exceeded without Client approval and does not guarantee the tasks will be completed within this amount.

ATTACHMENT C

SUNRISE ENGINEERING

Arizona Offices

2024- 1.1 Fee Schedule

CODE	CLASSIFICATION	RATE		CODE	CLASSIFICATION	RATE	
101	Engineer (E.I.T.) I	$123	*per h our*	051	Administrative I	$49	*per hour*
102	Engineer (E.I.T.) II	$133		052	Administrative II	$59	
103	Engineer (E.I.T.) III	$143		053	Administrative III	$69	
104	Engineer III	$173					
105	Engineer IV	$193		921	Survey Tech I	$89	
106	Engineer V	$213		922	Survey Tech II	$99	
110	Principal Engineer	$233		930	Survey CAD Tech	$139	
711	Project Manager I	$168		935	Survey Crew Chief	$165	
712	Project Manager II	$188		940	Survey Manager	$175	
301	Engineering Tech I	$99		945	Registered Surveyor	$189	
302	Engineering Tech II	$119		950	Principal Surveyor	$209	
303	Engineering Tech III	$132		351	Construction Observer I	$95	
304	Engineering Tech IV	$142		352	Construction Observer II	$115	
401	CAD Technician I	$94		353	Construction Observer III	$130	
402	CAD Technician II	$104		354	Construction Observer IV	$145	
403	CAD Technician III	$114		357	Construction Manager I	$135	
404	CAD Technician IV	$124		358	Construction Manager II	$160	
510	Civil Plan Reviewer	$155		MILE	Mileage	$0.670	*per mile*

Subconsultants and other direct expenses as incurred plus 10% handling fee

CITY COUNCIL AGENDA BILL

AB 3122
October 22, 2024
Regular Business

Agenda Item: 8c
Proposed Action & Subject: Discussion/possible action regarding the installation of a Flagpole at the Posse Grounds Pavilion to exceed City Code Height.

Department	Parks & Recreation/Josh Frewin
Time to Present **Total Time for Item**	5 min 10 min
Other Council Meetings	N/A
Exhibits	A. SAVCO Discussion and brief presentation on reasoning for increased height

Finance Approval	Reviewed 10/7/24 BGW
City Attorney Approval	Reviewed 10/7/24 KWC
City Manager's Recommendation	Recommend approval ABS 10/7/24

Expenditure Required	
$	5,500.00
Amount Budgeted	
$	0
Account No. (Description)	10-5320-26-6263

SUMMARY STATEMENT

Background: SAVCO has proposed a permanent flagpole located at the Sedona Pavilion in Posse Grounds Park. A couple of council members emailed support for the permanent install after a temporary flagpole was in place during the Memorial Day Celebration. SAVCO proposes the height to be between 27' – 30'.

City code permits flagpoles up to 22' in height, with the exception being an American Flag can stand at 27' to be above the state (or other flag) when at 22'. In this circumstance we would hang the American Flag only between 27' – 30'.

Climate Action Plan/Sustainability Consistent: ☒**Yes** - ☐**No** - ☐**Not Applicable**

Board/Commission Recommendation: ☐**Applicable** - ☒**Not Applicable**

Alternative(s): No flagpole at Pavilion or stick to City Code Height Requirement with shorter pole if not approved.

Sample image of proposed location:



MOTION

I move to: approve the height and installation of a flagpole at Posse Grounds Pavilion with a height not to exceed 30’.

July 2024 meeting at the Pavilion

City of Sedona

Josh Frewin
Ryan Hayes
Jason Vargo

SAVCO

Don Hallford
John Martinez
Jack Ross


SAVCO and Parks & Rec
ask for a permanent
Flagpole
at the Posse Grounds
Pavilion


KANE '24









Respectfully asking for a 30' permanent flag pole





30ft (1) Piece Wind Speed 117 Mph 6 Butt Dia. x .156 Wall Thickness Internal Halyard Cam Cleat Aluminum Flagpole

Item# IC306156

Regular price: ~~$2,842.95~~ Sale price: **$2,742.95**

Finish: Natural Satin (Standard)* ($0

Mount: Ground Sleeve (Standard) ($0

Flag: No Flag (Standard) ($00.00)

Hooks: Fly One Flag (Standard) ($00.

Light: 120 Solar Led Down Light. Ma

Eagle: No Eagle (+ $00.00)

Qty: 1 Add to Cart



SAVCO proposes the City purchase and place the pole as indicated at the Posse Grounds Pavilion.

Parks & Recreation will provide 2 - 4x6 US Flags per year to be displayed at Posse Grounds Pavilion.

SAVCO will be responsible for maintaining the flag just as it does with the flags at the Military Park. This includes Half Staffing as directed by the Governor of Arizona and the President of the United States. SAVCO will also be responsible for changing out worn flags and disposing of as appropriate.

Field Lighting
Posts are 40'



Pavilion Spire
Height 24ft 7in



Council - Do you have any questions?

THANK YOU

CITY COUNCIL AGENDA BILL

AB 3086
October 22, 2024
Regular Meeting

Agenda Item: 8e
Proposed Action & Subject: Discussion/possible direction regarding traffic testing and monitoring with data collection using various traffic control strategies to update traffic modeling in the high congestion corridors, with a focus at the Y Roundabout and SR 179 crosswalk near Oak Creek.

Department	Public Works / Kurt Harris
Time to Present **Total Time for Item**	30 min 60 min
Other Council Meetings	April 24, 2024, July 10, 2024
Exhibits	A. Technical Memorandum B. Settlement Agreement

Finance Approval	Reviewed 10/7/24 BGW
City Attorney Approval	Reviewed 10/7/24 KWC
City Manager's Recommendation	Reviewed ABS 10/13/24

Expenditure Required	
$	NA
Amount Budgeted	
$	NA
Account No. (Description)	

SUMMARY STATEMENT

Background:

The January 2018 City of Sedona Transportation Master Plan (TMP) evaluated Citywide transportation needs and concluded with recommended strategies to address the congestion and mobility needs of residents, visitors, and commuters. These strategies have been developed into a system of capital improvement projects that collectively have been identified and promoted as the Sedona In Motion (SIM) program. The SIM program is a multi-modal transportation initiative embracing Sedona's community values for improved traffic flow, community connections, business and tourism connections, economic vitality and diversity, environmental stewardship, walkability, and a sense of place.

Traffic Control Update:

At the July 10th council meeting, staff provided a SIM update which included an initial report on new traffic control strategies implemented at the Y Roundabout and adjacent intersections and crosswalks. This presentation will provide a continuation of the report on traffic testing and

monitoring in the high-congestion corridors of the city, with a focus on the Y Roundabout and SR 179 pedestrian crosswalk.

Please also note, an in-depth SIM Update will be provided at the November 13, 2024 council meeting.



The Y Roundabout during high congestion on July 6th, 2024

The Independence Holiday weekend was selected to begin testing traffic control strategies at the Y Roundabout and adjacent intersections and crosswalks. Police Officers were used to control traffic. A second test was performed over Labor Day Weekend using temporary traffic signal metering to compare results.

The traffic control operation included the following:

- Controlling traffic entering the Y Roundabout. Public Works and Police Department staff manually controlled traffic to simulate Y Roundabout signal metering. During the Labor Day Weekend test, temporary signals were used to control traffic at this location.
- Temporarily closing the SR179 at grade crosswalk (adjacent to Tlaquepaque) and the crosswalk on the north side of the Jordan Roundabout.
- Increasing time, for northbound traffic to clear, at the Forest Rd traffic signal.
- Sequencing of the previous items to gain traffic flow efficiency.
- Camera and staff observation.

Traffic data (volume and travel times) was collected during congestion events to compare individual (existing and pending) project improvement and efficiencies to overall mobility. Public Works, and Police Department staff oversaw this field testing. A Technical Memorandum was completed following the testing performed in July, which provided a complete traffic analysis. This memorandum was updated with additional analysis, and data gathered during the Labor Day Weekend testing. See attached Exhibit A, Technical Memorandum.



Temporary Signal just north of the Y Roundabout for southbound SR 89A

Future traffic control (with signal metering) is planned for Thanksgiving weekend and in between the Christmas and New Year holidays. Longer duration pedestrian crossing closures will be tested during the fall high traffic congestion events.

The traffic control testing, including the signal metering, and crosswalk closures, are aimed at gaining the following:

- Data showing the impact of SIM improvements completed.
- Data showing the impact of traffic control (including signal metering) at the Y Roundabout. This information will be considered for potential future improvements.
- Information indicating how traffic control in this area can be more effective in the future. This includes how to improve synchronization of the various controls, how to further automate systems and reduce staff dependence, and where effort may be added or relocated to be most effective during different congestion events (fall vs spring, etc.).
- Information indicating how traffic data should be updated as modeling information is replaced with field data.
- Information indicating how control of the SR 179 at grade crossing at Oak Creek is effectively applied during different congestion events. As a condition of the ADOT permit, for the underpass, ADOT required this testing to occur. Not only do congestion events have seasonal variations but, each congested weekend has variations of traffic arriving, interacting within, and leaving the city. This occurs over the beginning, middle, and end of a weekend. In addition, as we've understood in Uptown, placing automated controls at crosswalks (ie. Midblock Signal) does not automatically remove the need for manual control (TCA's). While the Uptown improvements have resulted in significant traffic efficiencies, there is still a need for TCA's to ensure compliance with automated control.

The vehicle and pedestrian data and traffic analysis is included in Exhibit A the Technical Memorandum.

Pedestrian Crossing at Oak Creek:

Another focus of this agenda item is providing an update on the status of further improvements, and traffic congestion improvement in this area, since the completion of the Pedestrian Crossing at Oak Creek (SIM 4C).

At the March 28th 2023 council meeting, the Settlement Agreement with the owners of Tlaquepaque Arts and Retail Village (Exhibit B) was approved by council.

Items of work that are in process, with the following status, are:

- The temporary median barrier will be replaced with a permanent fencing/barrier similar to the median barrier in Uptown. This is under ADOT review currently.
- The City is working with ADOT to have flood stage emergency evacuation elevations painted on one of the bridge pier columns. This will help staff be able to monitor and respond to flood conditions.
- A temporary camera has been installed with views of the pathway, waterwheel area, and Oak Creek. Permanent cameras with additional views are expected to be installed later this fall.
- No trespass signs, approved by the city and ADOT, will soon be posted, which will allow both the city and DPS enforcement.
- Temporary a-frame wayfinding signs have been placed to help encourage use of the underpass.
- Art Deco trash cans are to be installed mid-November or City standard pebble concrete.

With the approval of the settlement agreement, council decided to move forward with the terms of the agreement, which included not permanently closing the crossing at that time.

Considering the at-grade crosswalk is in ADOT right of way, it is ADOT's decision to close the at-grade crosswalk or not. However, contacting ADOT to convince them to close the at-grade crosswalk is not helpful. This is because the terms of the ADOT permit, for the Underpass improvements, require the city to test the at-grade crosswalk conditions to show if further improvements or closure is needed. So, testing the crosswalk to determine the need for further restriction or closure is the city's responsibility.

Further testing traffic conditions around the at-grade crosswalk has occurred, as discussed in the Traffic Control Update. In addition, further testing will occur moving forward, and some testing will be long duration, to further determine the effect on congestion.

Other improvements that may need to be considered in this corridor include:

- Portal/Brewer Connection (is proceeding, a new design contract will be presented to council on December 10, 2024)
- Potential adjacent crosswalk closure
- Signal improvements at the at-grade crosswalk
- Turn lane restrictions
- Permanent median improvements to reduce jay walking

Again, an in-depth SIM Update will be provided at the November 13, 2024 council meeting.

Climate Action Plan/Sustainability Consistent: ☒**Yes -** ☐**No -** ☐**Not Applicable**

Strategies implemented in this traffic control operation aim to reduce congestion and improve travel times, which results in reduced vehicle emissions.

Board/Commission Recommendation: ☐**Applicable -** ☒**Not Applicable**

Alternative(s): Not Applicable

MOTION

I move to: Discussion/possible direction only.

Transportation Network Roundabout Metering Simulation Memorandum

October 2024



Prepared by:

Kimley»Horn

TABLE OF CONTENTS

1.Introduction 4
2.4th of July Weekend 4
2.1 Data Collection 4
2.2 Observations 5
2.3 Peak 15-Minute Count 9
2.4 Traffic Count Data Processing 10
2.4.1 Southern Shopping Center At-Grade Crossing 10
2.4.2 The “Y” SR 89A and SR 179 Roundabout 12
2.4.3 Forest Road and SR 89A Intersection 15
2.5 Travel Time Data 18
3.Labor Day Weekend 21
3.1 Data Collection 21
3.2 Traffic Count Data Processing 22
3.2.1 Pedestrian Movements near the Southern Shopping Center 22
3.2.2 SR 179 Travel Time 25
3.2.3 Brewer Road Roundabout and Brewer Road/Ranger Road Intersection 26
3.3.3 July 4th and Labor Day Weekend Comparison at the “Y” 26
3.4.3 Forest Road and SR 89A Intersection 27
3.3 Key Findings 31

LIST OF TABLES

Table 1: Metering Scenarios 4
Table 2. Southern Shopping Center Saturday and Sunday Crossing Pedestrian Counts 23

LIST OF FIGURES

Figure 1: Congestion in the “Y” blocking SR 179 left turns 6
Figure 2: Zipper merge being fully utilized 6
Figure 3: SR 179 northbound backup and SR 179 southbound clear during metering 7
Figure 4: Vehicle attempting to merge and blocking northbound traffic 8
Figure 5: Peak 15 Minute Volumes at the “Y” 9
Figure 6: Southern Shopping Center Friday and Saturday Vehicle and Pedestrian Counts 11
Figure 7: Predicted Model Peak Hour Volumes at the “Y” 12
Figure 8: “Y” Roundabout Friday and Saturday Volume by Approach 13
Figure 9: “Y” Roundabout Friday and Saturday Turning Movement Counts 14
Figure 10: Forest Road & SR 89A Friday and Saturday Vehicle and Pedestrian Counts 16
Figure 11: Forest Road & SR 89A Friday and Saturday Turning Movement Counts 17
Figure 12: SR 179 Friday and Saturday Vehicle Travel Time 20
Figure 13. Labor Day Metering Simulation Camera Locations 21
Figure 14. Pedestrian Crossing and Underpass Location 22
Figure 15. NB SR 179 Traffic Congestion 23
Figure 16: Southern Shopping Center Saturday and Sunday Crossing Pedestrian Counts 24
Figure 17. Brewer Road/SR 89A Roundabout Northbound Turning Movements 26
Figure 18. 2024 Holiday Weekend Comparison 27
Figure 19. "Y" Metering with SR 179 Left-Turns Cleared 28
Figure 20: Forest Road & SR 89A Vehicle 5-Minute Counts 29
Figure 21: Forest Road & SR 89A Hourly Volumes 30

1. Introduction

The City of Sedona experiences extremely high traffic volumes throughout the year. As part of on-going efforts to constantly improve the congestion conditions for residents and visitors alike City staff is considering efforts to meter the "Y" roundabout. The intent with the simulated metering is to allow for the easier movement of northbound traffic on State Route (SR) 89A and northbound SR 179 by coordinating a free-flow condition of northbound traffic (by holding the southbound SR 89A traffic) to correspond with a northbound green light at Forest Road. Before implementation of a permanent metering system, the City is undertaking simulations, or tests, in order to determine the optimum way to implement permanent solutions in the future.

The purpose of this testing effort is to simulate a meter for the northbound/southbound movement along State Route (SR) 89A at the "Y" roundabout and record its effects on the transportation network surrounding SR 89A and SR 179 around Uptown Sedona during high-intensity traffic scenarios. This simulation was first tested on the holiday weekend of the Fourth of July, Friday, July 5th and Saturday, July 6th, 2024. A second test occurred on Labor Day Weekend: Saturday, August 31st and Sunday, September 1st.

In order to determine conclusions and next steps in regard to metering the roundabout, turning movement count (TMC) data was collected at the "Y" roundabout, Southern Shopping Center at-grade pedestrian crossing (adjacent to Tlaquepaque), and the Forest Road and SR 89A intersection.

The following sections summarize the data collection process, results and observations, and recommendations for the next version of this simulation

2. 4th of July Weekend

2.1 Data Collection

Traffic cameras for the purposes of collecting turning movement count (TMC) data were setup at the "Y" roundabout, Forest Road/State Route 89A intersection and Southern Shopping Center pedestrian crossing. The processed data is shown in **Section 5**. Cameras will be processed to confirm traffic counts at each location along with pedestrian counts at the Southern Shopping Center crossing. See **Table 1** below for the scenarios tested. The Forest Road and SR 89A intersection was manually held on green for 2 consecutive minutes at the time each metering cycle started.

Table 1: Metering Scenarios

Time	Scenario	Cycle Length
11:30am-11:50am	Meter NB SR89A approach to the "Y" until 100' Queue Length was Reached (Friday only)	10 Minutes
11:50am-12:30pm	Meter NB SR89A approach to the "Y" until 100' Queue Length was Reached	5 Minutes
12:30pm-2:00pm	Meter NB SR89A approach to the "Y" until 300' Queue Length was Reached'*	5 Minutes

** Officers began metering other legs when there when vehicular traffic overwhelmed the roundabout.*

The next test will collect data in 5-minute bins rather than 15-minute bins to produce a more granular dataset.

2.2 Observations

During the simulations, the notes and images below were taken:

Friday (7/5/24)

- 100' metering queue builds too quickly and does not have any effect on traffic
- 11:50 am switched from 10-minute cycles to 5-minute cycles
- 12:15 am 40s delay for northbound left turns from SR 179
- Officers were monitoring traffic along SR 89A northbound approach during metering
- Officers kept the roundabout clear during backup and encouraged traffic to move through without yielding during metering.
- 1:30pm travel time from Southern Shopping Center crossing to the "Y" was 4 minutes and 6 seconds
- 2:20 pm travel time from Southern Shopping Center crossing to the "Y" was 3 minutes 15 seconds
- Northbound SR 179 was observed to experience much higher volumes than northbound SR 89A in the AM peak period (prior to noon). The data was analyzed to confirm or correct this perception.
- Northbound SR 89A to southbound SR 179 slip lane would help alleviate backup on Cooks Hill while not clogging up the "Y"
- Northbound SR 89A backup was never past Mariposa per police
- The "Y" and southbound SR 179 traffic become significantly more congested after metering ended

Saturday (7/6/24)

- At 11:15 am Traffic along SR 179 was backed up to Schnebly roundabout
- At 11:23 am travel time from Southern Shopping Center crossing to the "Y" was 7 minutes and 52 seconds
- At 11:32 am travel time from Cooks Hill to the "Y" was 4 minutes and 52 seconds
- At 12:10 pm traffic backed up to Chapel and Airport Road per police observations
- At 12:30 pm it was observed that the zipper merge not being fully utilized



Figure 1: Congestion in the "Y" blocking SR 179 left turns



Figure 2: Zipper merge being fully utilized



Figure 3: SR 179 northbound backup and SR 179 southbound clear during metering



Figure 4: Vehicle attempting to merge and blocking northbound traffic

2.3 Peak 15-Minute Count

Peak 15-minute volumes were manually counted from the traffic camera at the “Y” roundabout prior to the full data being processed, see **Figure 5** below.

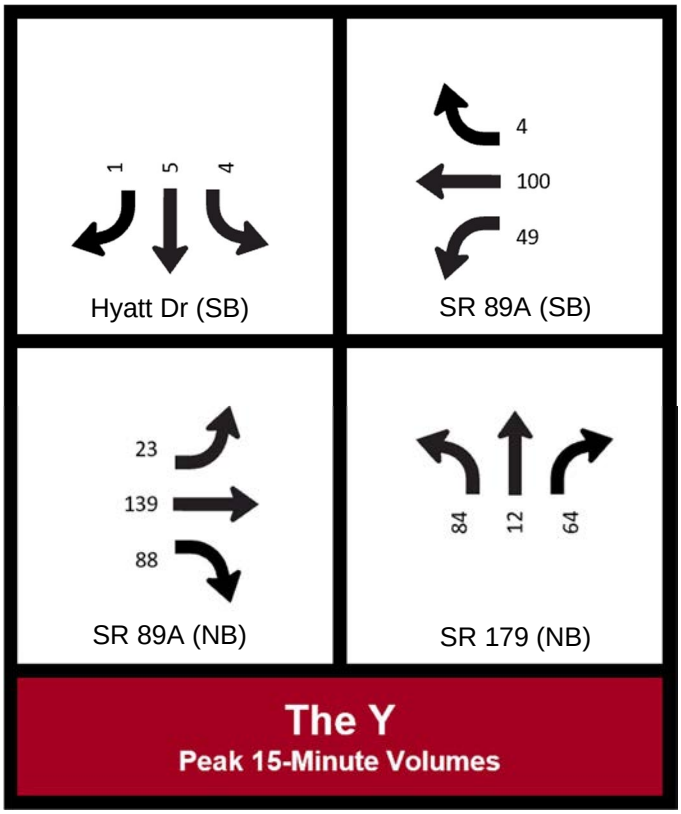


Figure 5: Peak 15 Minute Volumes at the “Y”

2.4 Traffic Count Data Processing

The following section summarizes the traffic counts collected at the Southern Shopping Center South at-grade crossing, the "Y" roundabout, and the Forest Road and SR 89A signalized intersection. Counts were collected Friday, July 5th and Saturday, July 6th.

2.4.1 Southern Shopping Center At-Grade Crossing

Part of the simulation was to temporarily close the at-grade pedestrian crossing at the Southern Shopping Center between 11 am and 2 pm on Saturday, July 6th. 15-minute traffic and pedestrian count data is shown in **Figure 6**.

Field observations indicated that the lack of metering from at-grade pedestrian crossings increased congestion at the "Y" roundabout. The northbound volume at Southern Shopping Center decreased on average the same amount (about 10 vehicles per 15 minutes) from during the metering simulation (and closing of the pedestrian crossing) to after. If the data bin sizes are small enough, this indicates that the closing of the crosswalk did not affect the throughput at the "Y" as was observed. The next test will analyze the vehicle and pedestrian volumes with a closed at-grade pedestrian crossing in 5-minute batches rather than 15-minute batches in order to confirm the initial results.

Additionally, pedestrian hand-counts were completed for one hour at this crossing in October 2022 for one hour. The peak hour volume was 68 pedestrians total. During a similar time period during this simulation, 221 pedestrians were observed at this crossing on Friday, July 5th. The increased pedestrian volume observed during the metering simulation may have contributed to overall congestion within the study area.

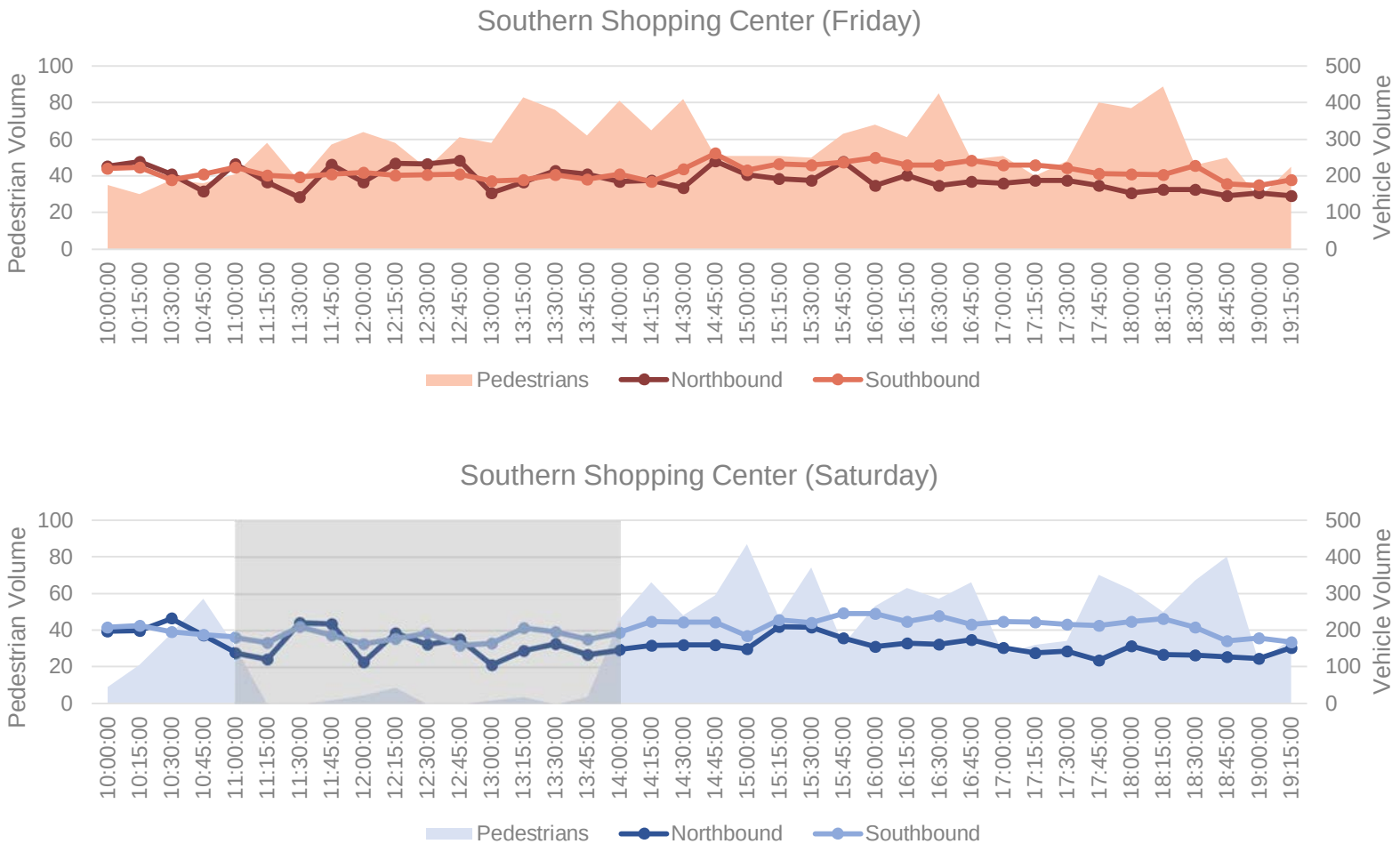


Figure 6: Southern Shopping Center Friday and Saturday Vehicle and Pedestrian Counts

2.4.2 The "Y" SR 89A and SR 179 Roundabout

Historical traffic data used in previous modeling efforts indicated that the northbound (SR 179), northbound (SR 89A), and southbound (SR 89A) approaches are all equally congested during the peak hour on a Saturday in March (see **Figure 7**). Observations in the field gave the impression that northbound SR 179 was higher volume in the AM before shifting to northbound SR 89A in the early afternoon. Count data collected and shown in **Figure 8** and **Figure 9** indicates that this was not true. On Friday, northbound SR 89A peaked at 11:30 AM, while northbound SR 179 peaked at 12:15PM and was less than SR 89A northbound and southbound traffic for the majority of the day. Additionally, northbound traffic from SR 89A on Friday was significantly higher than the northbound SR 179 and southbound SR 89A traffic until around noon. Saturday traffic patterns throughout the day more closely matched the model volumes from the Sedona in Motion (SIM) VISSUM and data collection efforts shown in **Figure 7**.

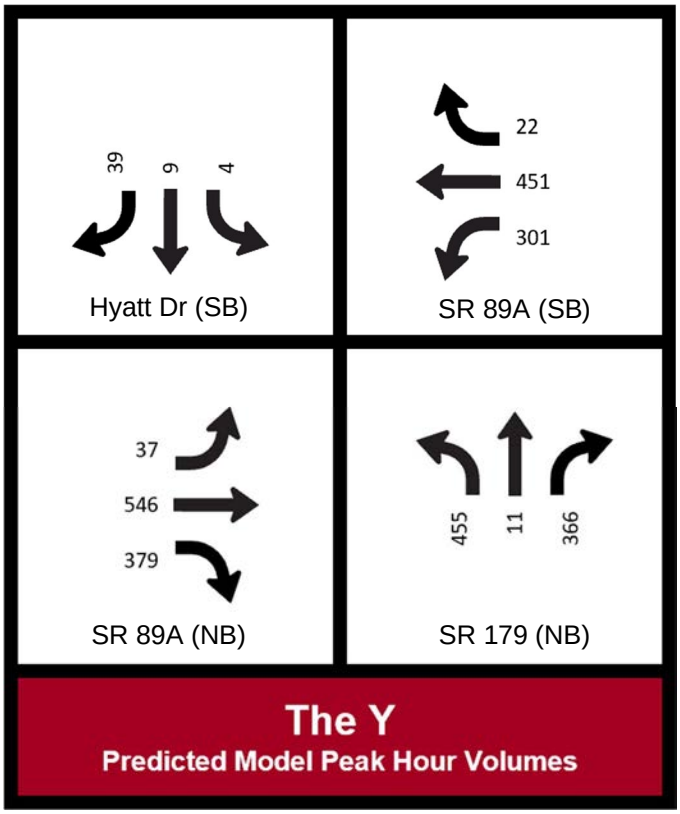
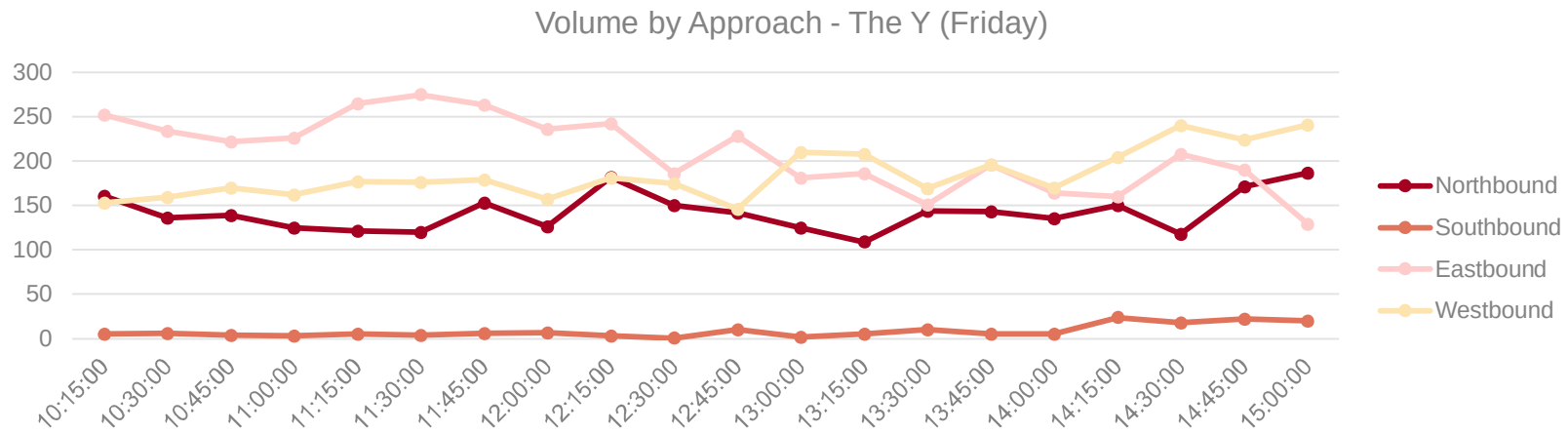
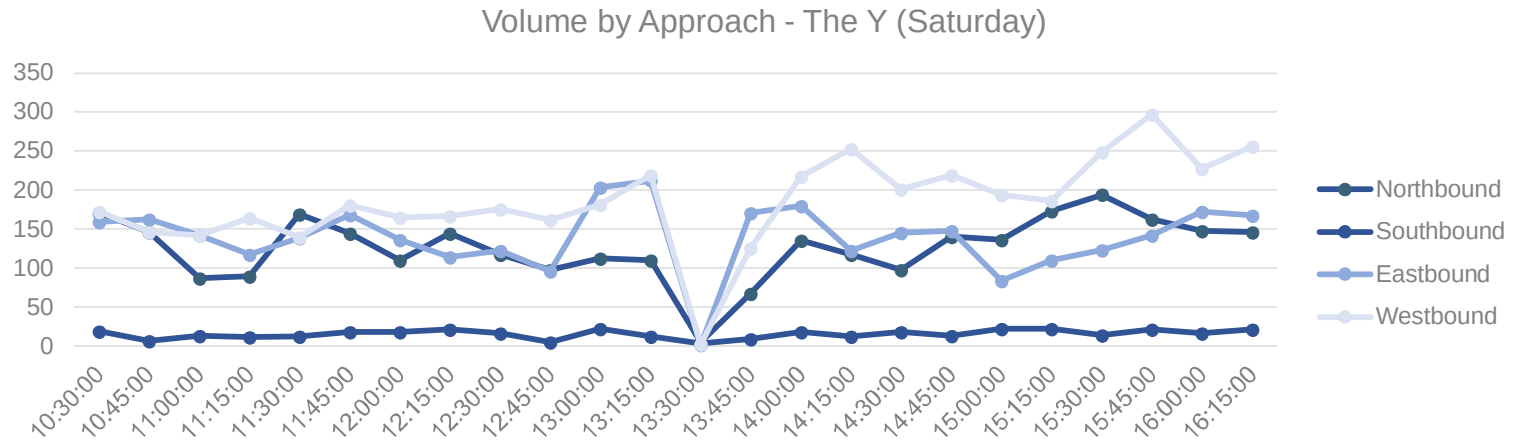


Figure 7: Predicted Model Peak Hour Volumes at the "Y"





** There was a lapse in data collection due to a camera battery malfunction from 1:15 to 1:30.*

Figure 8: "Y" Roundabout Friday and Saturday Volume by Approach

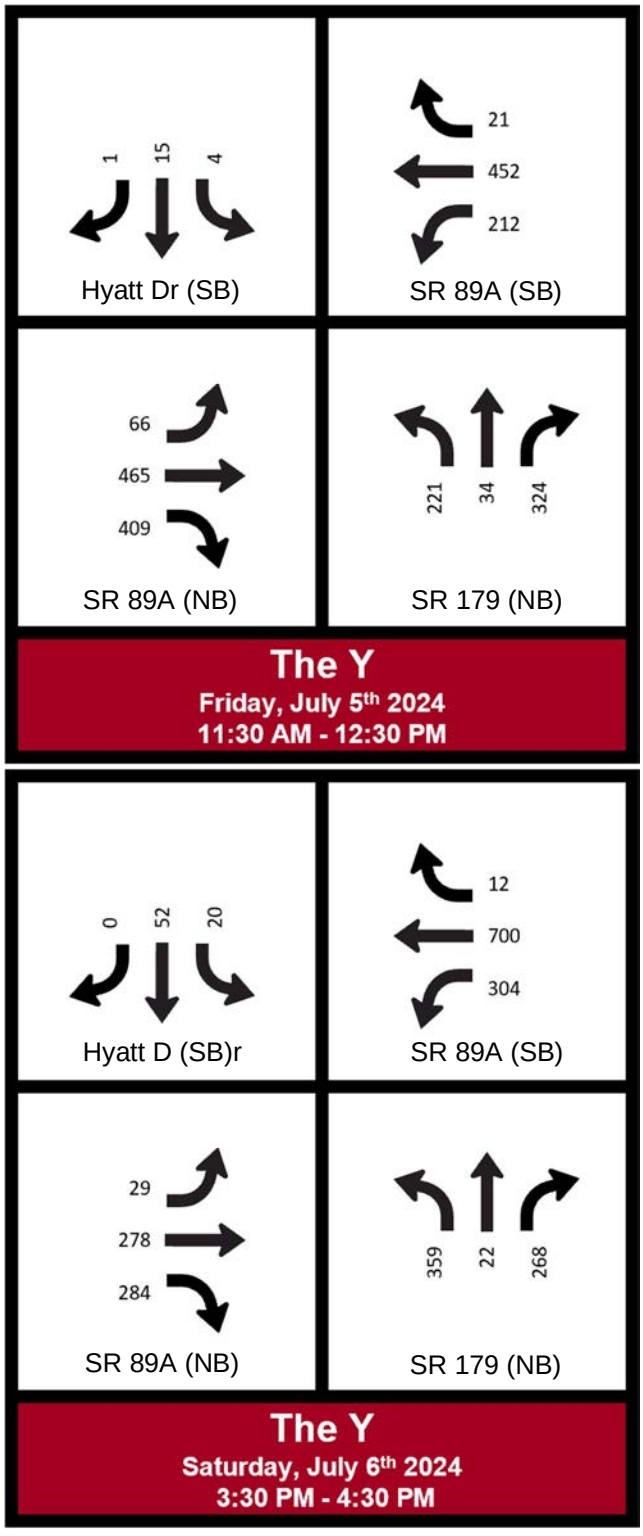


Figure 9: "Y" Roundabout Friday and Saturday Turning Movement Counts

2.4.3 Forest Road and SR 89A Intersection

Vehicle and pedestrian volumes at Forest Road and SR 89A were collected Friday and Saturday both during and after the metering simulation. This data is summarized in **Figure 10** and **Figure 11.** Unlike the Southern Shopping Center 15-minute data being more variable during the simulation, holding the green light at Forest Road northbound normalized the northbound throughput slightly both on Friday and Saturday – meaning the northbound and southbound traffic flow were more consistent during the metering period.

Much of the throughput on northbound SR 89A was metered by what was occurring further north throughout Uptown. While holding the northbound green light at Forest Road did allow for more efficient operations at Forest Road, downstream the congestion at the “Y” roundabout was consistent throughout the day.

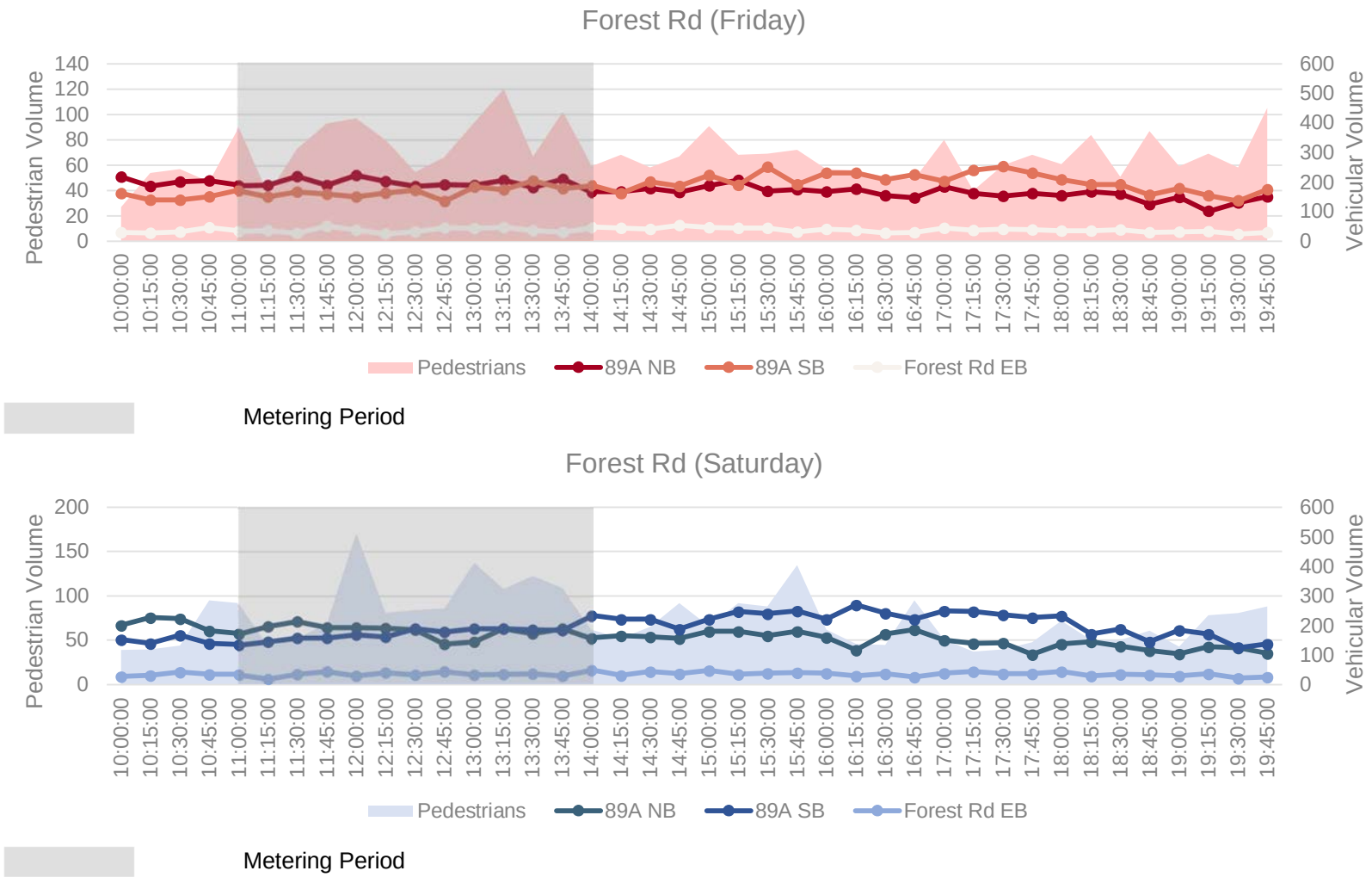


Figure 10: Forest Road & SR 89A Friday and Saturday Vehicle and Pedestrian Counts

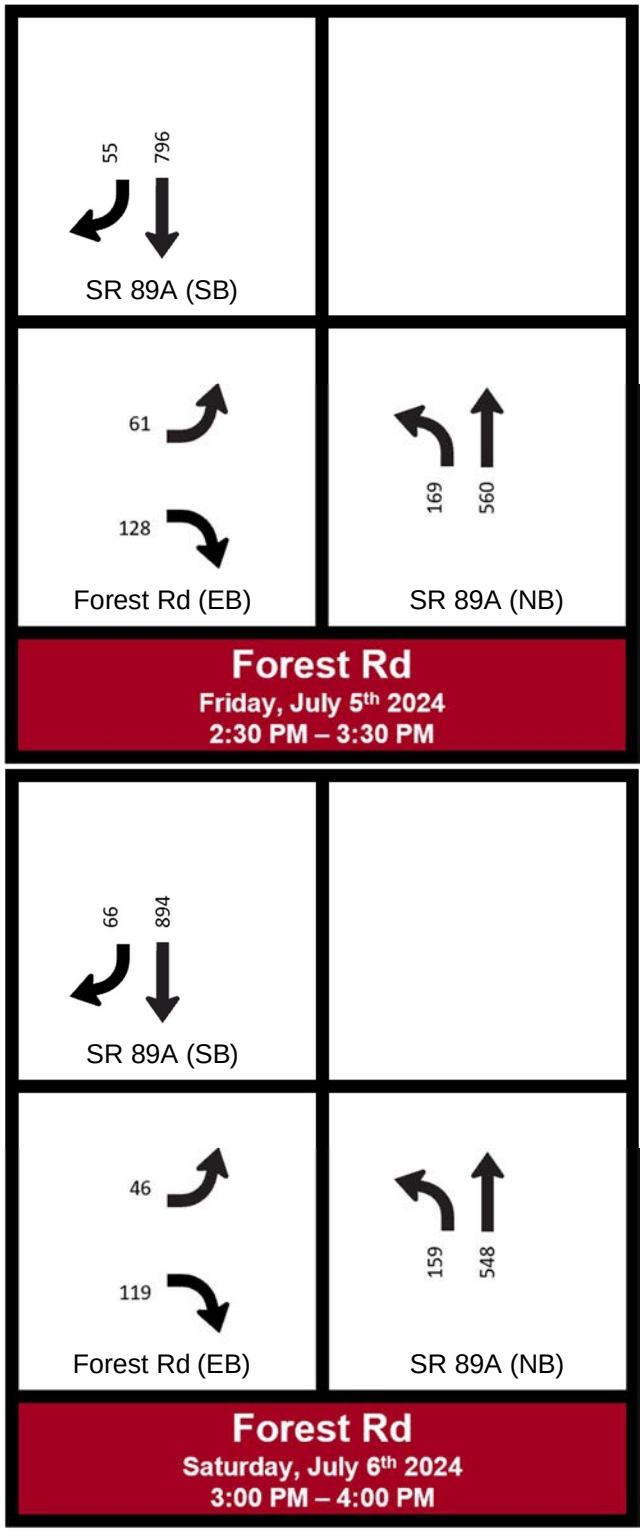


Figure 11: Forest Road & SR 89A Friday and Saturday Turning Movement Counts

2.5 Travel Time Data

In order to determine the effects of southbound metering at the "Y", Traction Travel was used to collect travel times on SR 89A from Airport Road to the "Y" and on SR 179 from Schnebly Hill Road to Forest Road. Travel times the days of the metering simulation were compared to the following days:

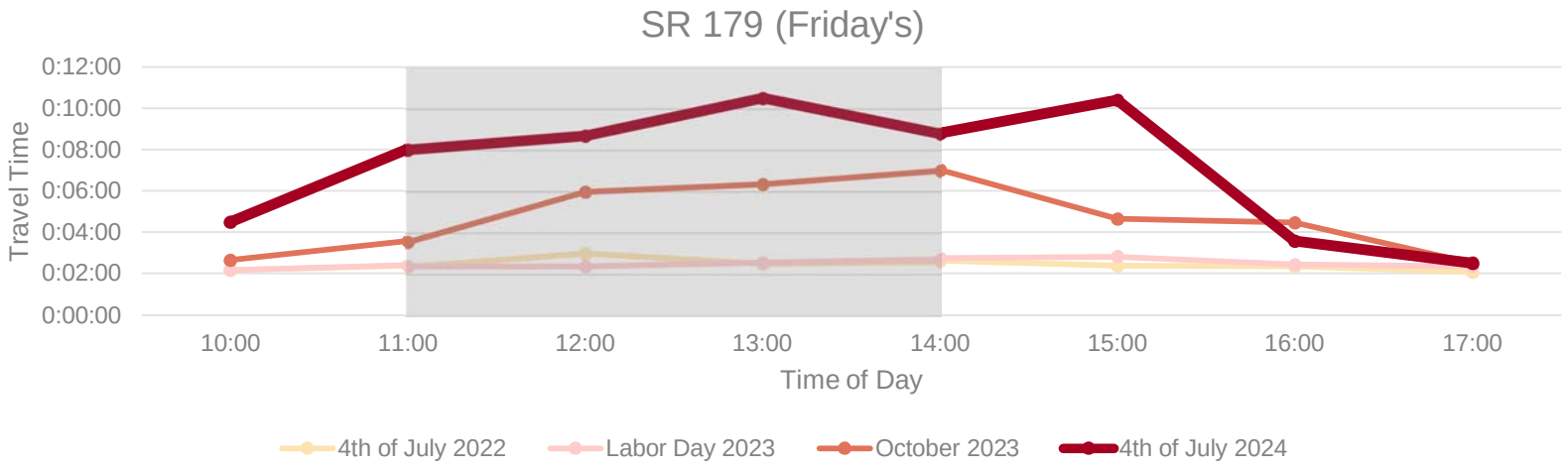
- July 4th weekend 2022 – Same time period, however the holiday fell on a Monday in 2022 instead of Thursday in 2024
- Labor Day weekend 2023 – This weekend experienced similar volumes to the study weekend
- October weekend 2023 – October is one of the peak periods in Sedona



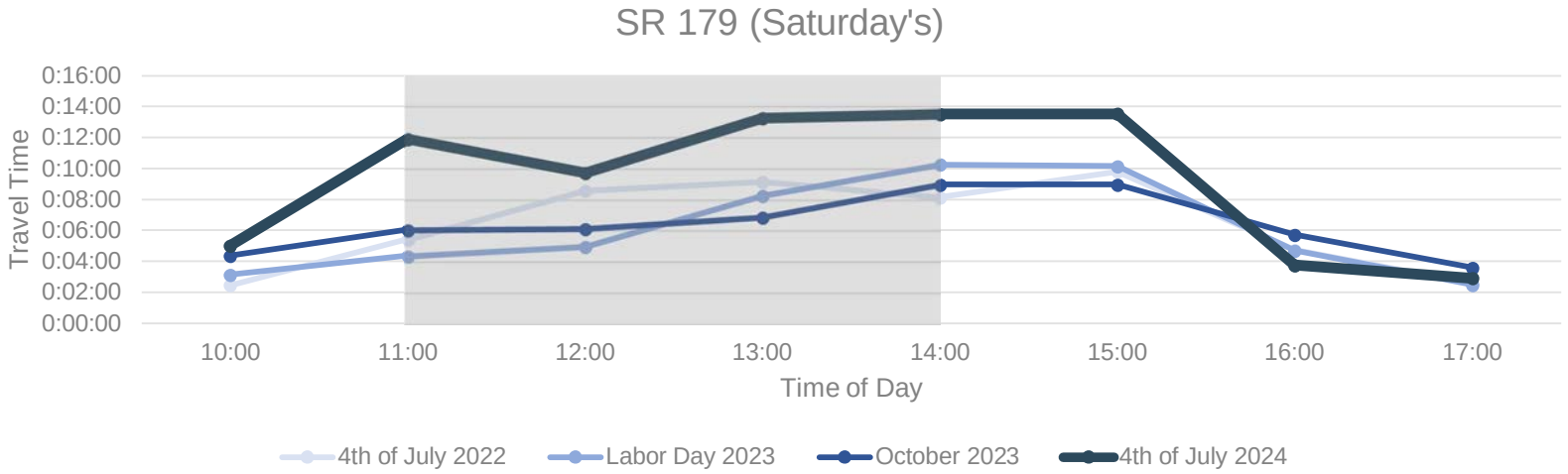
The travel times confirm field observations of northbound SR 179 being negatively affected by the metering simulation while the northbound SR 89A being positively affected by the metering simulation.

Traffic volumes, shown in **Figure 12** indicates SR 179 followed a similar congestion pattern when compared to previous year's data. This may have resulted from meter prioritization for northbound SR 89A or the 400% increase in 1-hour pedestrian crossings at Southern Shopping Center.

The travel times on northbound SR 89A confirm the metering simulation reduced the directional congestion.



Metering Period



Metering Period and Pedestrian Crossing Closing Improvement Test

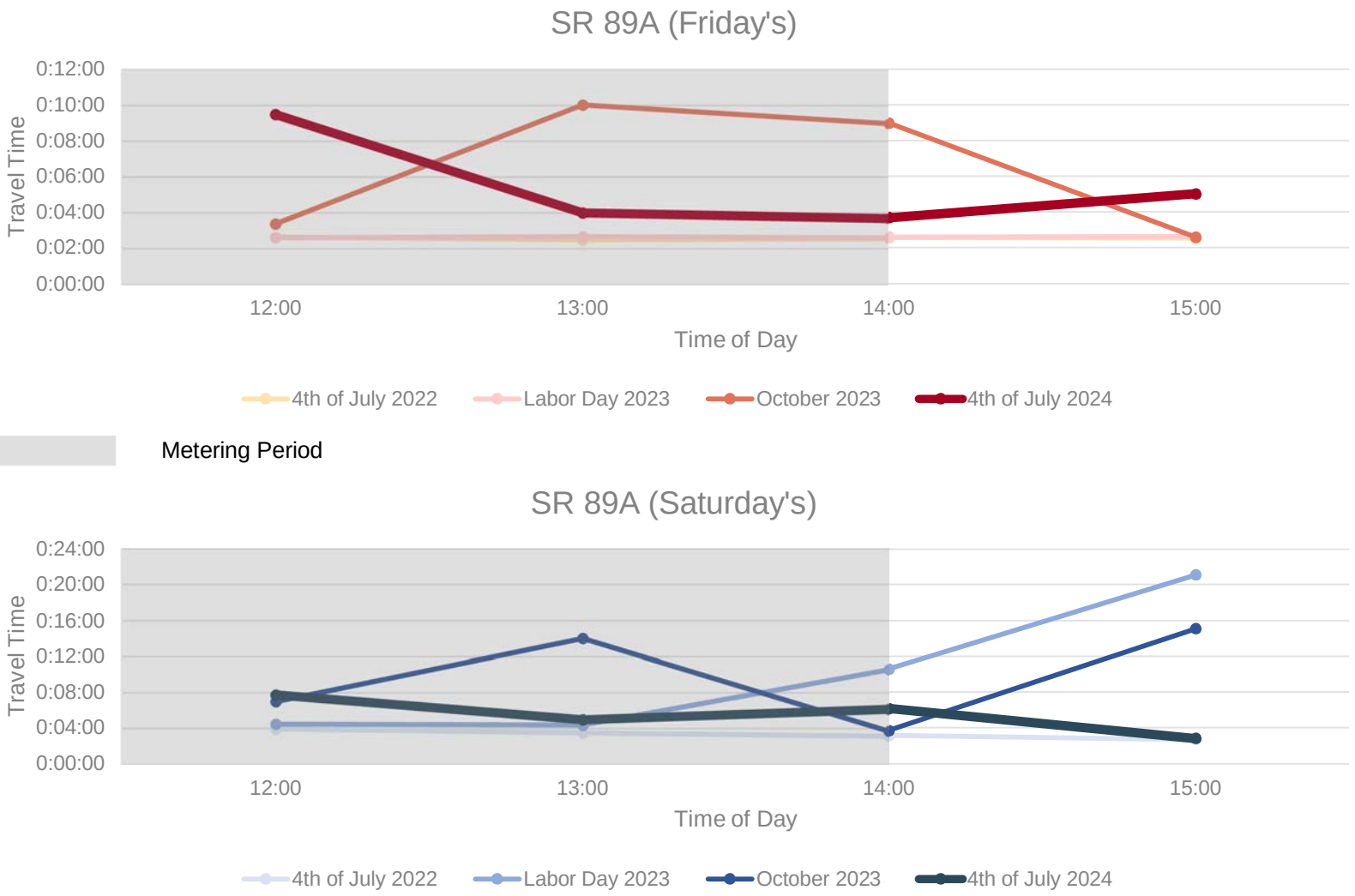


Figure 12: SR 179 Friday and Saturday Vehicle Travel Time

3. Labor Day Weekend

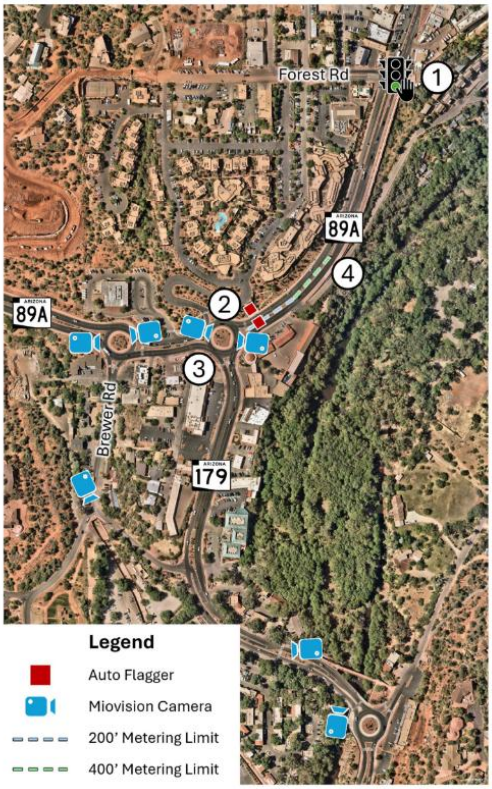
3.1 Data Collection

Traffic cameras for the purposes of collecting TMC data were set up at the “Y” roundabout, Forest Road/State Route 89A, Brewer Road/Ranger Road, the Southern Shopping Center, and the State Route 179 pedestrian undercrossing at Oak Creek. Cameras will be processed to confirm traffic counts at each location along with pedestrian counts at the Southern Shopping Center crossing and pedestrian underpass.

This metering simulation utilized the following approach:

- Hold Forest Road northbound on green for 2 minutes while also holding the midblock and Jordan roundabout crossing.
- After control at Forest Road is released, immediately begin metering the southbound SR 89A traffic while allowing northbound SR 89A traffic to continue.
- When the southbound SR 89A queue reaches 200 feet, initiate a hold on the northbound SR 89A movement, allowing for free flow of SR 179 traffic.
- When the southbound SR 89A traffic reaches 400 feet, release metering on both legs.
    - Due to observations in the field, the 400 feet indicator was switched to 90 seconds of hold time.

Figure 13. Labor Day Metering Simulation Camera Locations



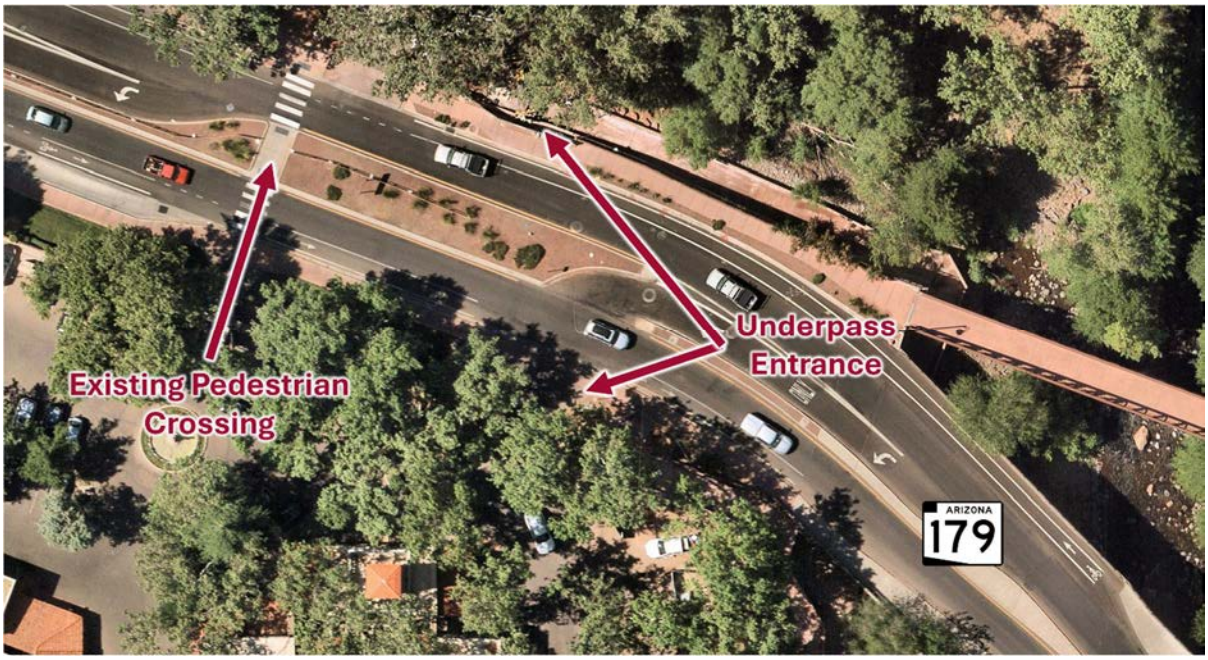
3.2 Traffic Count Data Processing

The following section summarizes the traffic counts collected at the Southern Shopping Center at-grade crossing, SR 179 pedestrian underpass, the "Y" roundabout, Brewer Road and Ranger Road intersection, and the Forest Road and SR 89A signalized intersection. Counts were collected Friday, August 30th and Monday, September 2nd. The simulation was run Saturday, August 31st and Sunday, September 1st.

3.2.1 Pedestrian Movements near the Southern Shopping Center

Considerations for improving travel times along SR 179 included the potential closure of the Southern Shopping Center Pedestrian crossing. To evaluate this, part of the simulation process included closing the pedestrian crossing during the metering period on Sunday, September 1st and diverting pedestrians that wanted to cross SR 179 to use a newly constructed pedestrian underpass just to the south of the current crossing, shown in **Figure 14**. The pedestrian underpass is not open to the public yet but was temporarily opened for the purposes of this simulation.

Figure 14. Pedestrian Crossing and Underpass Location



On Saturday, August 31st, 3,749 pedestrians were counted at the Southern Shopping Center between 10 AM and 10 PM. This included 2,901 pedestrians using the existing crossing to get to their destination. On Sunday, September 1st, 4,976 pedestrians were counted 3,424 utilizing the pedestrian underpass (during simulation) or the crossing. The resulting pedestrian movements during the simulation periods are shown in **Table 2** and graphed in **Figure 19**. Pedestrian crossing movements were not significantly different between both days, suggesting that pedestrian volumes were not impacted due to the diversion to the underpass. The at grade Southern Shopping Center Pedestrian Crossing was closed between 10:45 am and 2:15 pm on Sunday, September 1st. Staff present during the closure observed pedestrian movement and talked to pedestrians during this time. Staff did not observe a large amount of pedestrians being diverted from crossing the highway.

Current congestion allows for cars that are already stopped to be stopped “again” for pedestrians to cross shown in **Figure 15**. As traffic improves upstream, vehicular traffic should be able to move more consistently through this intersection. This may lead to increased conflicts of vehicles and pedestrian traffic. Removing this conflict point by directing pedestrians to only use the underpass would increase safety and reduce potential inefficiencies or stoppages on SR 179.

Figure 15. NB SR 179 Traffic Congestion



Table 2. Southern Shopping Center Saturday and Sunday Crossing Pedestrian Counts

	North Side of SR 179			South Side of SR 179		
	Total Peds	Peds Crossing to Other Side	% Crossing	Total Peds	Peds Crossing to Other Side	% Crossing
Saturday, August 31st						
Total (10 AM to 10 PM)	1,916	1,391	**72.6%**	1,833	1,510	**82.4%**
10:45 AM to 2:15 PM	631	440	**69.7%**	550	457	**83.1%**
Sunday, September 1st						
Total (10 AM to 10 PM)	2,786	1,580	**56.7%**	2,190	1,826	**83.4%**
10:45 AM to 2:15 PM	1,195	548	**45.9%**	719	626	**87.1%**

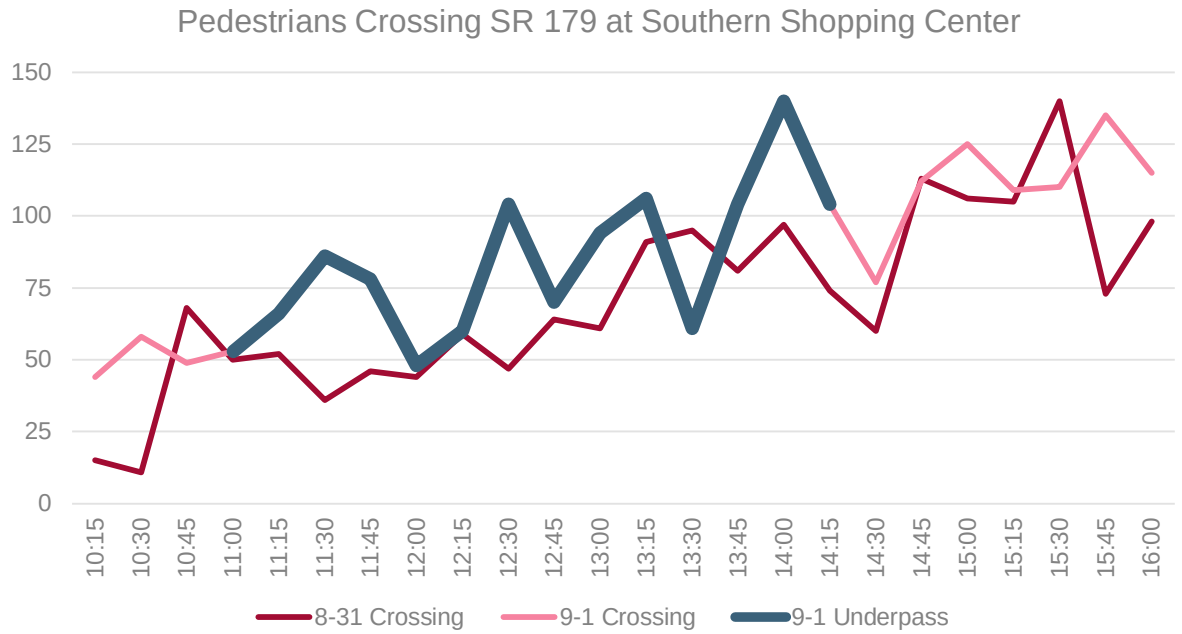
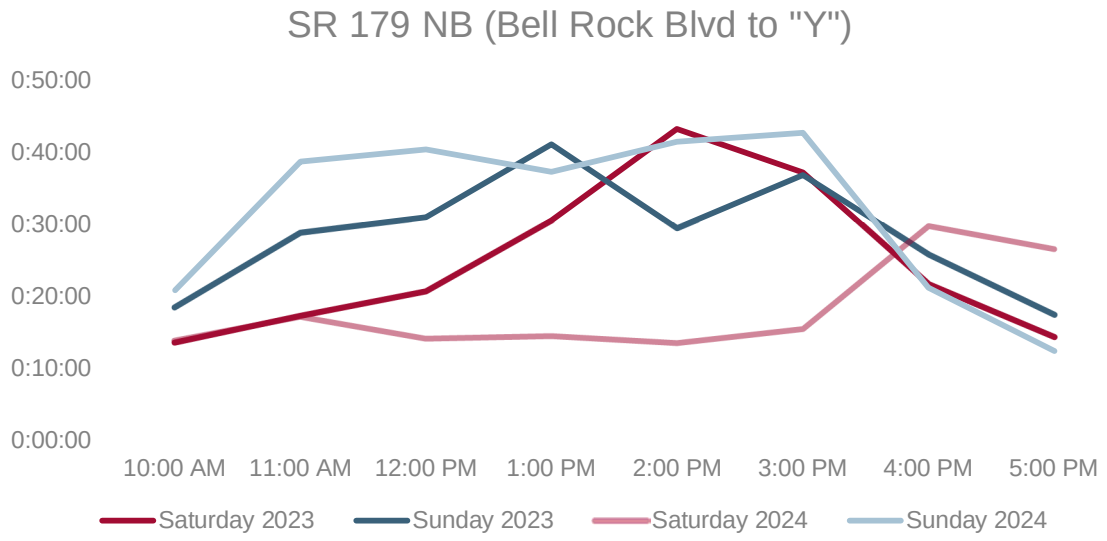


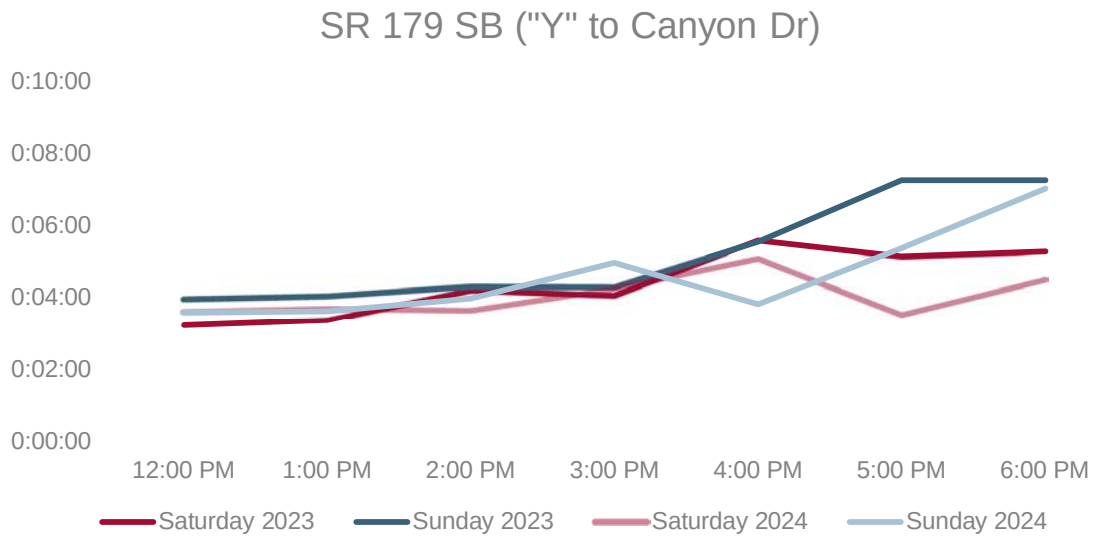
Figure 16: Southern Shopping Center Saturday and Sunday Crossing Pedestrian Counts

3.2.2 SR 179 Travel Time

In order to determine the effects of closing the pedestrian crossing on SR 179, Traction Travel was used to collect travel times on SR 179 from Bell Rock Boulevard to the “Y” and the “Y: to Canyon Drive. Both Labor Day holiday weekends from 2023 and 2024 were collected and compared.

In 2023, the nearest ADT count station found that volumes for Labor Day weekend on SR 89A were roughly 25,000 on Saturday and 21,000 on Sunday. Similarly, volumes on SR 179 were 14,000 and 16,000 on Saturday and Sunday, respectively. Counts collected for the 2024 Labor Day weekend simulation show roughly 23,000 on Saturday and 23,000 again on Sunday for the same section of SR 89A. Volumes for SR 179 were 18,000 on Saturday and 17,000 on Sunday, resulting in slightly higher volumes in 2024.

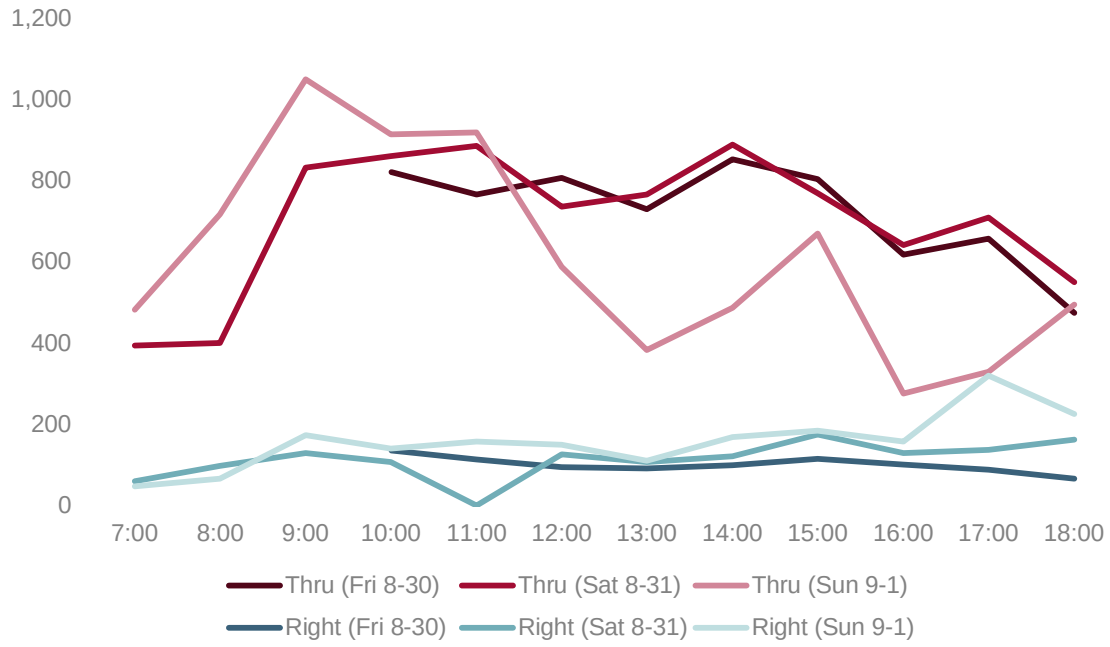




3.2.3 Brewer Road Roundabout and Brewer Road/Ranger Road Intersection

Vehicular volumes were collected at the roundabout at SR 89A and Brewer Road, as well as Brewer Road and Ranger Road. In-person observations suggested more congestion on SR 89A led to more northbound vehicles turned right onto Brewer Road in an effort to reroute. **Figure 17** shows the volumes at both of these intersections for both Saturday and Sunday. As northbound through movements approached their peaks early in the morning, these volumes slowly fell throughout the day as congestion at the "Y" continued to worsen. Northbound rights onto Brewer Road remained relatively stagnant 100 and 200 vehicles. While right-turn volumes did not see a dramatic increase, they remained at the same level while through-volumes decreased due to increasing congestion.

Figure 17. Brewer Road/SR 89A Roundabout Northbound Turning Movements



3.3.3 July 4th and Labor Day Weekend Comparison at the "Y"

Volumes at the "Y" were compared from Saturday, July 6th and Saturday, August 31st to compare summer 2024 holiday weekends. Shown in **Figure 18**, the 4th of July Saturday volumes totaled 10,316 while Labor Day Saturday volumes totaled 11,319.

Figure 18. 2024 Holiday Weekend Comparison



3.4.3 Forest Road and SR 89A Intersection

Vehicular volumes were also collected at the intersection of Forest Road and SR 89A on Friday, Saturday, and Sunday. Shown below in **Figure 20** and **Figure 21**, volumes through the intersection are rather consistent on both Saturday and Sunday. Northbound traffic observed during the metering period on both days came near to a gridlock at peak times. The northbound volumes during the metering period are more variable than the period directly after the metering period ended, roughly from 2:00 PM to 4:00 PM. The variability reflects the stoppages caused by the metering. Once the metering period ends, the northbound volumes continue on a gradual decline, indicating that the metering is helping, even during maximum capacity scenarios.

Northbound traffic towards Forest Road continually backs up into the “Y” roundabout, even during the metering scenario. This backup restricts movements from SR 179, including the left-turn movement onto southbound SR 89A. The metering scenario allows for this movement to continue, even during the gridlock on SR 89A northbound. This results in an uptick in volumes. An example of this was observed at roughly 1:51 PM on Saturday, shown in **Figure 19** and **Figure 20**.

The data also suggests that the “Y” transportation system is reaching its capacity somewhere between 9:00 AM and 12:00 PM, leaving congestion at an irreparable level at an unpredictable frequency. It is possible that if the metering period is started earlier, overall throughput may improve.

Figure 19. "Y" Metering with SR 179 Left-Turns Cleared



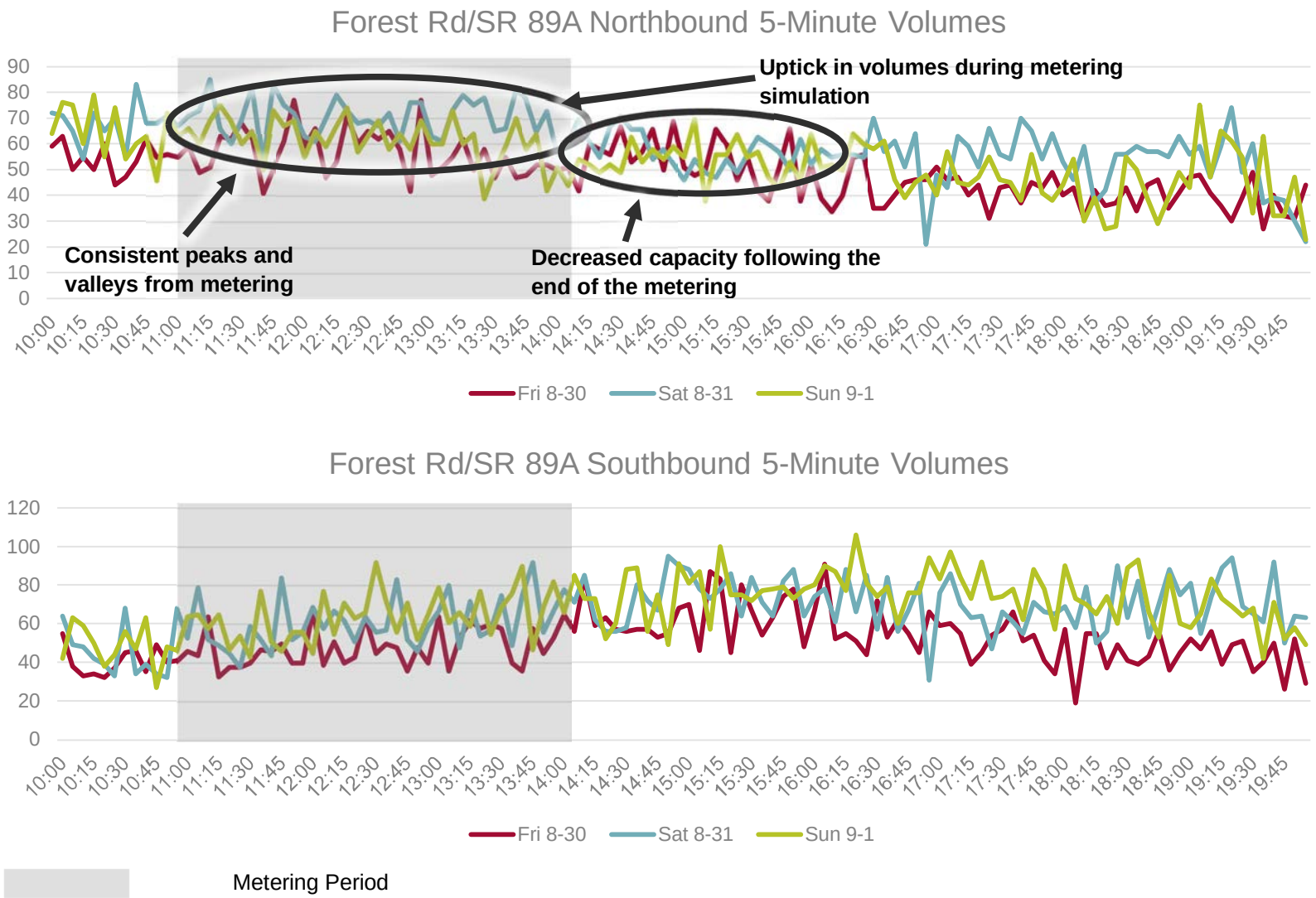


Figure 20: Forest Road & SR 89A Vehicle 5-Minute Counts

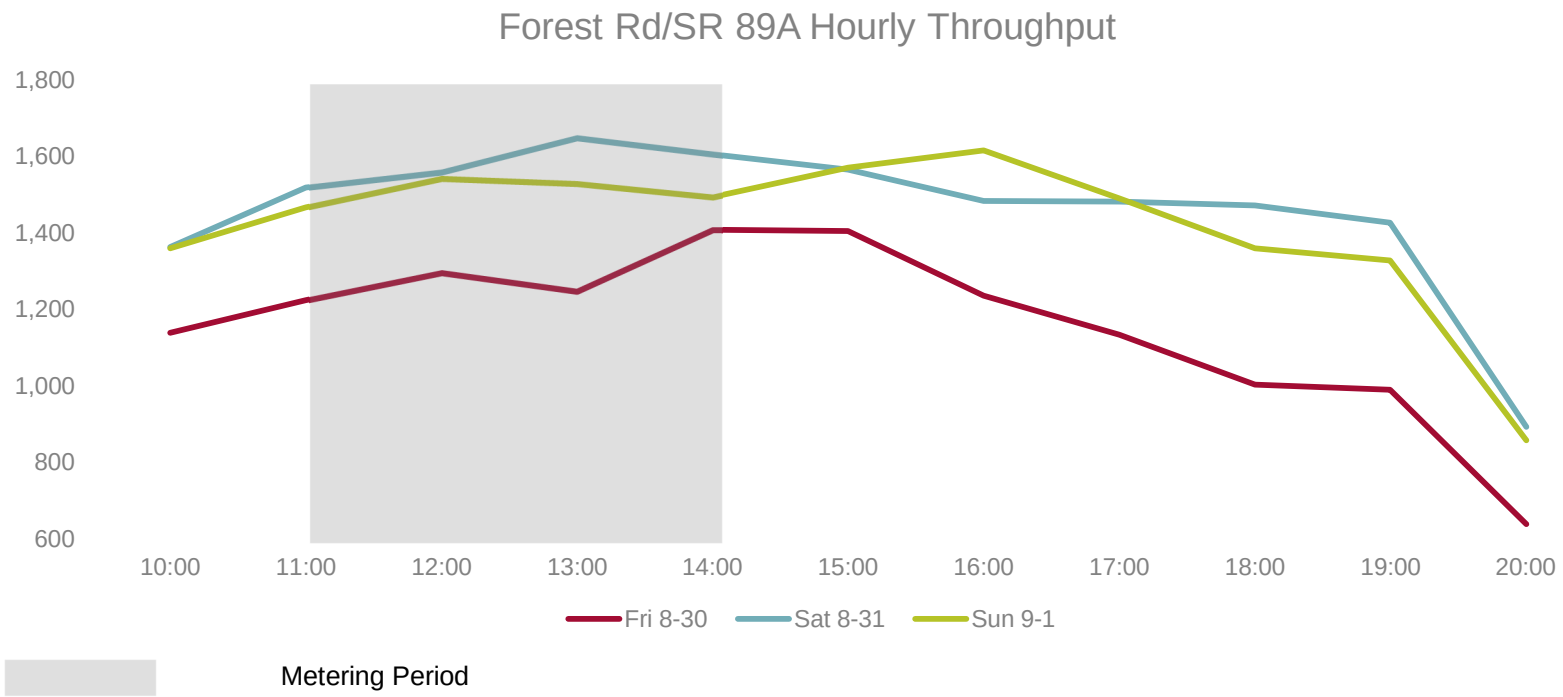


Figure 21: Forest Road & SR 89A Hourly Volumes

3.3 Key Findings

- The metering process at the 'Y' is improving travel times and throughput volumes however when downstream capacity is reached through Uptown, the metering is less effective.
- The closure of the Southern Shopping Center pedestrian crossing did not significantly alter pedestrian volumes. As traffic conditions improve downstream ('Y', Forest, midblock, etc), this pedestrian crossing will be a primary conflict point, making the underpass an even more viable option.
- Vehicles are utilizing Brewer Road as an alternative route when NB SR 89A is congested, reinforcing the need for an alternative route.
- Intense volumes were seen as early as 9:00 AM on Sunday, September 1st, potentially hindering the impacts of the metering process which commenced at 11:00 AM.
- Holidays and weather greatly impact the volumes and performance of the transportation system. Dynamic automated metering would be more efficient able to "react" to high volumes as they fluctuate throughout the day.

SETTLEMENT AGREEMENT

This Agreement ("Agreement") is entered into by and between the City of Sedona, an Arizona municipal corporation (herein "City") and the owners of the Tlaquepaque Arts and Retail Village who own the real property and improvements as tenants in common as identified in Section II, Recitals, Paragraph 2.1 (the tenants in common owners are collectively referred to herein as "Tlaquepaque"). The City and Tlaquepaque are referred to herein collectively as the "Parties."

In consideration of the mutual covenants, agreements, and obligations of the Parties and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties hereby represent and agree as follows:

I. EFFECTIVE DATE.

1.1 The effective date of this Agreement is March 28, 2023.

II. RECITALS.

2.1 **Ownership of the Tlaquepaque Property**. The Coconino County Assessor identifies parcel numbers 401-18-009A, 020A, 021A, 074B and 401-19-027H as contiguous to one another. These parcels collectively represent a ±6.595-acre property located at the southeast corner of State Route 179 and Ranger Road (the "Tlaquepaque Property"). Parcels 401-18-074B and 401-19-027H of the Tlaquepaque Property are owned by the following entities:

a. Ownership of parcel 401-19-027H includes: Tlaq. Partners, LLC, Ragland/Sedona, LLC, CMR/Sedona, LLC, and Horn/Sedona, LLC as tenants in common.

b. Ownership of Parcel 401-18-074B includes HRT/Sedona, LLC.

2.2 **The SR 179 At-Grade Crosswalk**. Around 2009, the Arizona Department of transportation ("ADOT") made improvements to SR 179 adjacent to the Tlaquepaque Arts and Retail Village. ADOT acquired land, including a number of mature Sycamore trees, from the Tlaquepaque Property for the public project. ADOT also mandated the installation of the SR 179 at-grade crosswalk between Schnebly Hill Rd. and Ranger Rd., and allowing pedestrians to cross SR 179 from the west and east sides of the road.

2.3 **Tlaquepaque North Development**. Around 2010, the site for Tlaquepaque North was purchased and a retail center was developed by 2016, with the approval of the City. The development requirements for Tlaquepaque North imposed by the City included, but were not limited to, completing pedestrian and traffic studies, evaluation of the level of service of the existing SR 179 at-grade pedestrian crosswalk, and payment of significant funds toward the enhancement of the crosswalk by owners of Tlaquepaque North.

2.4 **Connectivity**. Tlaquepaque North and the Tlaquepaque Arts and Retail Village are considered to be a single economic unit by Tlaquepaque and the owners of Tlaquepaque North, connected by the SR 179 at-grade crosswalk.

2.5 **The Underpass - SR 179 Pedestrian Crossing at Oak Creek.** The City has planned, designed, and approved a capital improvement project known as SR 179 Pedestrian Crossing at Oak Creek (the "Public Project") and it is necessary for the City to acquire certain land rights from the Tlaquepaque Property as part of this Public Project. The necessary land rights required include:

- A Shared Use Path of ±2,790.37 SF in fee title from parcel 401-19-027H;
- A Temporary Construction Easement of ±9,927 SF.09 over a portion of parcel 401-19-027H; and
- A Temporary Construction Easement of ±1,569.40 SF over a portion of parcel 401-18-074B.

The locations and area calculations for the property rights to be acquired are depicted in the plans and drawings under **Exhibit A**, attached hereto.

2.6 **Affected Parcels**. The public project, SR 179 Pedestrian Crossing at Oak Creek, will specifically impact Coconino County Assessor parcel numbers 401-18-074B and 401-19-027H of the Tlaquepaque Property.

2.7 **City Approval of Acquisitions from the Tlaquepaque Property.** On February 14, 2023, the City Council approved acquisition of the necessary land rights from the Tlaquepaque Property for the Public Project.

2.8 **Traffic Congestion**. The Parties acknowledge that traffic congestion in Sedona is a public concern. Tlaquepaque has, and continues to support, viable public projects by the City that will provide meaningful and measurable relief to traffic congestion. Tlaquepaque questioned the public necessity of the proposed underpass (the Public Project). It also opposed removal of the existing SR 179 at-grade crosswalk for various reasons, including the studies and modeling completed by the City and its consultants did not support a conclusion that the crossing was as a significant cause to traffic congestion and removal of the crossing would not meaningfully reduce traffic travel times until further geometric improvements are made.

2.9 **ADOT Encroachment Permit Application**. As part of the SR 179 Pedestrian Crossing at Oak Creek project, the City submitted an application with the Arizona Department of Transportation ("ADOT") for an encroachment permit (the "ADOT Encroachment Permit Application") to construct improvements related to the planned underpass – a grade separated crossing - within ADOT's right-of-way for SR 179. The ADOT Encroachment Permit Application is attached hereto as Exhibit B and incorporated herein.

2.10 **Proposed Permit Language**. The ADOT Encroachment Permit Application includes certain language which the City and Tlaquepaque reviewed, negotiated, and approved. The approved language concerns the existing, at-grade crosswalk connecting the Tlaquepaque Arts and Retail Village with Tlaquepaque North and conditions for the crosswalk to remain.

2.11 **The SR 179 At-Grade Crosswalk**. Preserving the use, availability, functionality, and safety of the existing at-grade crosswalk is significantly important to Tlaquepaque, but Tlaquepaque recognizes ADOT owns and controls the existence of the at-grade crosswalk.

2.12 **Litigation**. The Parties desire to avoid the cost, expense, and time of litigation associated with eminent domain and a condemnation lawsuit to acquire the necessary property rights for the Public Project. To that end, the Parties have engaged in meaningful discussions regarding the Public Project, its impacts on the Tlaquepaque Property, and traffic congestion over the past two years and enter into this Agreement according to the terms, conditions, and provisions hereof. The parties are entering into this Agreement in order to buy such party's peace and avoid litigation with each other and the costs and expenses associated therewith, and in so doing, each party agrees to bear that party's own attorney's fees and costs.

III. WARRANTIES AND REPRESENTATIONS.

3.1 Each of the Parties expressly represents and warrants that the Recitals set forth above are fair and accurate.

3.2 The Parties each expressly represent and warrant that the Parties' undersigned individuals and or entities are authorized to execute this Agreement on its behalf.

3.3 The Parties each represent and warrant that they have been represented by legal counsel with respect to the negotiation, terms, and execution of this Agreement, that they have read the Agreement, and that they are freely and voluntarily entering into this Agreement.

IV. TERMS OF AGREEMENT.

4.1 The foregoing "Recitals" and Representations" are incorporated by reference into the "Terms of Agreement" section of this Agreement as though fully set forth herein.

4.2 **ADOT Encroachment Permit and Obligations.**

4.2.1 The Parties acknowledge and expressly agree that the approval by ADOT for an encroachment permit that includes the language approved by the City and Tlaquepaque, as set forth in **Exhibit B**, is a condition subsequent of this Agreement. In the event ADOT denies issuance of an Encroachment Permit to the City for the SR 179 Pedestrian Crossing at Oak Creek project or issues an Encroachment Permit that does not include the language substantially in the form as approved by the Parties in the ADOT Encroachment Permit Application, then this Agreement is void.

4.2.2. Upon ADOT approving and issuing an encroachment permit as contemplated by Paragraph 4.2.1, the Parties expressly agree to the following obligations relating to the ADOT Encroachment Permit and its requirements:

a. Permit Requirement: As required by the ADOT Encroachment Permit, the City will perform a Pedestrian Crosswalk warrant analysis in accordance with ADOT TGP 91.

City's Obligation to Tlaquepaque: City shall notify Tlaquepaque at least 30 days in advance of the planned warrant analysis and allow Tlaquepaque to observe, receive, and discuss the results of the warrant analysis prior to submitting the information to ADOT.

b. Permit Requirement: As required by the ADOT Encroachment Permit, the City will perform the following actions in relation to the existing at-grade crosswalk:

    - The City shall study the feasibility of creating a parkway that would provide physical separation between the sidewalk and the back of the curb in front of Tlaquepaque and present the results of the study to ADOT. If it is determined this action is feasible, the City shall develop and construct said parkway.

    City's Obligation to Tlaquepaque: City shall advise Tlaquepaque 60 days in advance of beginning the feasibility study of creating a parkway that would provide physical separation between the sidewalk and the back of the curb in front of Tlaquepaque, provide Tlaquepaque with the results of the feasibility study, and discuss the results of the study prior to submitting the information to ADOT.

c. Permit Requirement: As required by the ADOT Encroachment Permit, the City will perform a study and investigation (including analysis of MUTCD traffic signal Warrant 4, Pedestrian Volume) to determine how best to ensure pedestrian safety while maintaining acceptable traffic operational performance at the at-grade crosswalk.

    City's Obligation to Tlaquepaque: Advise Tlaquepaque 60 days in advance of the study and investigation, provide the results to Tlaquepaque, and discuss the information and results with Tlaquepaque.

d. Permit Requirement: As required by the ADOT Encroachment Permit, the City shall develop signal operational characteristics, including cycle length and coordination as part of the study for all studied at-grade crosswalk enhancements.

    City's Obligation to Tlaquepaque: Advise and discuss with Tlaquepaque signal operational characteristics, including cycle length and coordination as part of the study for all studied at-grade crosswalk enhancements.

e. Permit Requirement: If the MUTCD traffic signal Warrant 4 Pedestrian Volume is met as required by the ADOT Encroachment Permit, City shall advise Tlaquepaque of the results and discuss the alternatives for enhancements to the at-grade crosswalk.

f. Permit Requirement: As required by the ADOT Encroachment Permit, within 60 days of receiving notice from ADOT that the at-grade crosswalk is no longer warranted, the City must submit a permit application with ADOT to remove the crosswalk.

City's Obligation to Tlaquepaque: Promptly advise Tlaquepaque if ADOT gives the City notice that the crosswalk is no longer warranted.

g. Notwithstanding that the City removed the Z-Crossing as part of the scope of work covered by its request for construction bids relating to the Underpass, the Z-Crossing shall be considered as a possible viable enhancement to the at-grade crossing when the studies and recommendations outlined in 4.2.2 a, b, c, d, e, and f, above, are undertaken by the City.

4.3 **Acquisition of Land Rights**. The City does hereby acquire from Tlaquepaque and Tlaquepaque does hereby agree to sell to the City the following land rights for the Public Project in lieu of exercising its power of eminent domain for this Public Project:

a. The Shared Use Path of +2,790.37 SF in fee title from parcel 401-19-027H in the location described and in the form of **Exhibit C** attached hereto and to be recorded at City's expense upon execution of this Agreement;

b. A Temporary Construction Easement of +9,927.09 SF from parcel 401-19-027H for a period of 12 months beginning on the date the City starts construction of the Public Project, in the location described and in the form attached hereto as **Exhibit D**;

c. A Temporary Construction Easement of +1,569.40 SF from parcel 401-18-074B for a period of 12 months beginning on the date the City starts construction of the Public Project, in location described and the form attached hereto as **Exhibit E**.

4.4 As compensation for the land rights acquired by the City as set forth in Paragraph 4.3, the City shall pay Tlaquepaque the sum of $85,000 upon execution of this Agreement.

4.5 In the event either or both of the temporary construction easements being acquired by the City continues for more than 12 months from the date the City starts construction of the Public Project, the City shall pay a per diem to Tlaquepaque, as follows:

a. $276.25 per day for the Temporary Construction Easement over the defined area of parcel 401-18-074B until the easement is terminated by the City.

b. $710.00 per day for the Temporary Construction Easement over the defined area of parcel 401-19-027H until the easement is terminated by the City.

4.6 **Taking and Damaging of Sycamore Trees**. Compensation for Sycamore trees that are to be removed, or that are damaged or that die as a result of the Public Project if the damage or death occurs within 36 months of the completion of the Public Project, shall be paid by the City to Tlaquepaque, as follows:

a. Non-Replaceable Sycamore Trees (greater than 12" diameter). Four (4) trees identified on Plan Sheet D13 are located within the project excavation area of the creek bed and may be removed, damaged or die as a result of the Public Project.

Tlaquepaque shall be compensated by the City, as follows if the trees are removed, damaged or die as a result of the Public Project:

4 trees: 16.75 in. diameter/average
8.375 in. radius
220.241563 sq. in.
@ $41/sq. in.
$9,030 per tree
Not to exceed $36,120 Total

The funds shall be paid to Tlaquepaque within 30 days upon presenting notice to the City that a non-replaceable tree has been: 1) removed as part of the Public Project, or 2) was damaged or died within 36 months of the date the City completes construction of the Public Project if the damage or death is result of the Public Project as determined by a certified arborist approved by both Parties.

b. Replaceable Sycamore Trees (less than 12" diameter). Six (6) Sycamore trees that vary in diameter from 5" to 7" and saplings between 1" and 2" caliper, are located within the project excavation area of the creek bed and will likely be removed. Tlaquepaque shall be compensated by the City, as follows:

6 trees: $799 per tree (36" box tree)
$80 sales tax (estimated)
$744/tree planting cost
$1,623 per tree
Not to exceed $9,738 Total

Payment of $9,738 shall be made to Tlaquepaque shall be made within 30 days of the date the City starts construction of the Public Project.

c. At-Risk Trees to Be Protected. Five (5) mature Sycamore trees located at the top of the embankment adjacent to the proposed Underpass. These trees are at future risk if the construction protections implemented ultimately fail. Three (3) of the five (5) at-risk trees are shown of Plan Sheet 23-24. Tlaquepaque to be compensated, as follows:

5 trees: 32.4" average diameter
16.2" average radius
824.0616 sq. in.
@ $41/sq. in.
$33,787 per tree
Not to exceed $168,933 Total Potential Damage/Loss

The funds shall be paid to Tlaquepaque within 30 days upon it presenting notice to the City that an at-risk tree has been: 1) removed as part of the Public Project, or 2) was damaged or died within 36 months of the date the City completes construction of the Public Project if the damage or death is a result of the Public Project as determined by a certified arborist approved by both Parties.

d. For the purposes of this Section 4.6, the following definition applies:

"Damage, damaged, damaging" means a significantly reduced lifespan of the tree or significant health decline of the tree such as major: branch damage, structural damage to stem, or root system destruction, as determined by a certified arborist approved by both Parties. Some minor root system destruction is anticipated by the parties as part of the construction of Public Project.

e. Notwithstanding the foregoing, Tlaquepaque is now and will remain responsible for the good care and upkeep of all trees on its property including the replacement trees discussed in this Section 4.6. The City will not be responsible for any replacement costs for trees that are damaged or die more than 36 months after the completion of the Public Project or for tree damage or death that is not the result of the Public Project.

f. Certified Arborist. Tlaquepaque and City agree to work in good faith to identify one or more certified arborist(s) not previously used by either party. Approval of the certified arborist may not be unreasonably withheld by either party. The Certified Arborist will provide an initial tree assessment no earlier than 30 days prior to the commencement of construction of the Public Project at City's expense. The certified arborist will also assess the trees every two months during underground construction of the Public Project and every six months for the 36-month period after completion of the Public Project.

4.7 **Arched Entrance**. The existing arched entrance over the east driveway to the Tlaquepaque Arts and Retail Village is not planned to be removed, or to have its existing footings modified, as disclosed by the City's 100% project plan sheets. If, for any reason, the footings to the archway, the arch itself, or the east driveway will be modified, the City agrees that in advance and prior to any such work, the City will:

a. Notify Tlaquepaque in writing of the need to modify the arch, the footings, and/or driveway;

b. Consult with and obtain Tlaquepaque's consent to any proposed modifications and revised plans;

c. Obtain the approval of Tlaquepaque in advance for any modifications to the arched entrance, the footings, and/or the driveway; and

d. Resolve to the reasonable satisfaction of Tlaquepaque all impacts caused by changes to the arch, the footing for the arch, and/or the driveway, whether through compensation or other consideration.

4.8 **Vault and Meter Relocation**. The Tlaquepaque Property is benefitted by an existing, large water meter vault between the existing parking and the east driveway on parcel 401-19-027H. The 100% project plans for the Public Project require the vault and meter to be relocated. The City agrees to perform all necessary work for removing the existing water meter vault, relocating the vault and water meter, and re-establishing connections with the property's line(s)

and components, to an area selected by and approved by Tlaquepaque, and to pay for all costs associated.

4.9 **Parking and Drive Aisles**. The City's 100% project plans for the Pedestrian Underpass at Oak Creek do not contemplate the permanent loss of any existing parking stalls, permanent impairment to existing parking stalls, permanent changes to maneuvering room for parking, or permanent modifications to drive aisles on the property. Some temporary impairment will occur within the Temporary Construction Easements contemplated in Sections 4.3 and 4.5 of this Agreement. In the event any parking stalls, maneuvering room for parking, or drive aisles are lost or permanently impaired as a result of the Public Projector completion of project improvements, the City agrees to:

a. Pay Tlaquepaque for all costs associated with any work that may be reasonably required to design, review with the City, obtain approval from the City, to obtain permits, and to modify the property in order to cure the lost parking stall(s), the maneuvering room, and/or the drive aisles. If any parking stalls are lost as a result of the Public Project or completion of project improvements, then (i) the City shall pay Tlaquepaque $35,000 per stall and (ii) in determining any parking requirements for the Tlaquepaque Arts and Retail Village, Tlaquepaque shall be given credit for the lost parking stalls as if they still existed.

4.10 **Notice.** All notices to be made or required under this Agreement shall be sent to:

If to City:

Kurt Christianson
City Attorney
102 Roadrunner Drive
Sedona, AZ 86336
KChristianson@sedonaaz.gov

with a copy to:

Andy Dickey
Assistant City Manager
102 Roadrunner Drive
Sedona, AZ 86336

If to Tlaquepaque:

Wendy Lippman, General Manager
Tlaquepaque
P.O. Box 1868
Sedona, AZ 86339
wendy@tlaq.com

with a copy to:

Anthony Misseldine, Esq.
Jackson White, P.C.
40 N. Center Street, Suite 200
Mesa, AZ 85201
amisseldine@jacksonwhtelaw.com

4.11 **Further Cooperation**. The Parties agree that each of them shall take such further action and execute such further documents, if any, which may be necessary or appropriate to implement this Agreement according to its terms.

4.12 **Severability**. If, after the date of this Agreement, any provision hereof is held to be illegal, invalid, or unenforceable, such provision shall be fully severable, and the remainder of the Agreement shall remain enforceable and not affected thereby.

4.13 **Modifications**. This Agreement shall not be altered, modified, or amended except by written agreement signed by the Parties.

4.14 **Interpretation**. This Agreement has been reached through negotiations between, and has been jointly drafted by, the Parties. The Parties have used their own judgment in entering into this Agreement. Therefore, this Agreement shall not be construed against the "drafter" of the same.

4.15 **Integration**. With respect to its subject matter, including without limitation all matters incorporated herein by reference, this Agreement is a complete integration and final expression of the Parties' rights and duties, and there are no other agreements or understandings between the Parties, oral or otherwise, to the contrary.

4.16 **Attorney's Fees**. In the event of any conflict, claim or dispute between the Parties affecting or relating to the subject matter of this Agreement, the prevailing Party shall be entitled to receive from the non-prevailing Party its reasonable expenses, including but not limited to, attorneys' fees and costs. Costs and attorneys' fees shall be assessed by the court and not by a jury and shall be included in any judgment obtained by the prevailing Party.

4.17 **Time of the Essence**. Time is of the essence for the obligations under this Agreement.

4.18 **Counterparts.** This Agreement may be executed in any number of counterparts. All counterparts are deemed to constitute one and the same instrument, and each counterpart is deemed to be an original of that instrument.

4.19 **Applicable Law**. This Agreement is made in Arizona and is governed by and construed in accordance with Arizona law. The sole and exclusive jurisdiction for any dispute arising under this Agreement shall be the state or federal courts in Arizona, and all Parties consent to the jurisdiction of those courts.

4.20 **Delivery of Copies**. The Parties agree that signatures and executed copies of this Agreement may be delivered by facsimile or e-mail, and upon receipt, shall be deemed originals and binding upon the Parties.

4.21 **Reasonable Efforts.** The City acknowledges that Tlaquepaque believes the at-grade crosswalk is essential to the continued economic viability and success of Tlaquepaque North and the Tlaquepaque Arts and Retail Village. Consequently, in the future the City agrees to use all reasonable efforts to assist Tlaquepaque in preserving the continued existence of the at-grade crosswalk.

4.22 **Full and Final Settlement**. Each party declares that the terms of this Agreement have been completely read and are fully understood and voluntarily accepted for the purpose of making, respectively as the context may be, a full and final compromise, adjustment and settlement and release for all claims released herein, disputed or otherwise, between and among the parties hereto. This Agreement constitutes the full, complete, final, and exclusive expression of all of the representations, warranties, covenants, promises, and agreements of the parties hereto relative to the subject matter hereof. In consideration of the terms, conditions and releases in this Agreement, the parties agree that each party hereby fully, completely, and finally releases and forever discharges the other party from any and all claims, demands, actions, or causes of action of any nature whatsoever relating to, accruing or arising at any time through the date of the execution and delivery hereof, whether known or unknown, whether contingent or not contingent, relating to this Public Project as defined in this Agreement.

4.23 **SUBMISSION TO JURISDICTION; VENUE; WAIVER OF JURY TRIAL**. THE PARTIES TO THE FULL EXTENT PERMITTED BY LAW, HEREBY KNOWINGLY, INTENTIONALLY AND VOLUNTARILY, DO THE FOLLOWING: (1) SUBMIT TO PERSONAL JURISDICTION IN THE STATE OF ARIZONA WITH RESPECT TO ANY ACTION ARISING FROM OR RELATING TO THIS AGREEMENT; (2) AGREE THAT THE SUPERIOR COURT OF ARIZONA, COCONINO COUNTY (SITTING IN FLAGSTAFF, ARIZONA) SHALL HAVE EXCLUSIVE JURISDICTION TO HEAR AND DETERMINE ALL CLAIMS OR DISPUTES BETWEEN THE PARTIES PERTAINING DIRECTLY OR INDIRECTLY TO THIS AGREEMENT; (3) WAIVE ANY CLAIM THAT THE COURT IN SUBPART (2) IS AN INCONVENIENT FORUM OR AN IMPROPER FORUM BASED ON LACK OF VENUE; (4) AGREE THAT THE EXCLUSIVE CHOICE OF FORUM SET FORTH IN THIS PARAGRAPH SHALL NOT PRECLUDE ANY PARTY FROM ENFORCING OR SEEKING TO ENFORCE ANY JUDGMENT IN ANY OTHER APPROPRIATE JURISDICTION; AND (5) ACKNOWLEDGE AND AGREE THAT (i) ANY CONTROVERSY WHICH MAY ARISE UNDER, AS A RESULT OF, OR IN CONNECTION WITH THIS AGREEMENT WOULD BE BASED UPON DIFFICULT OR COMPLEX ISSUES; AND (ii) AS A RESULT, ANY LAWSUIT ARISING OUT OF ANY SUCH CONTROVERSY SHALL BE TRIED IN A COURT OF COMPETENT JURISDICTION BY A JUDGE SITTING WITHOUT A JURY.

IN WITNESS WHEREOF, the parties have executed this Agreement as of the date first written above.

CITY OF SEDONA

By: Scott M. Jablow
Its: Mayor

ATTEST:

JoAnne Cook, City Clerk

APPROVED AS TO FORM

Kurt W. Christianson, City Attorney

TLAQUEPAQUE (As to parcel 401-19-027H)

Tlaq. Partners, LLC

By:
Its: Authorized Agent

Ragland/Sedona, LLC

By:
Its: Authorized Representative

CMR/Sedona, LLC

By:
Its: Authorized Representative

Horn/Sedona, LLC

By:
Its: Authorized Representative

TLAQUEPAQUE (as to parcel 401-18-074B)

HRT/Sedona, LLC

By:
Its: Authorized Representative

IN WITNESS WHEREOF, the parties have executed this Agreement as of the date first written above.

CITY OF SEDONA

By: Scott M. Jablow
Its: Mayor

ATTEST:

JoAnne Cook, City Clerk

APPROVED AS TO FORM

Kurt W. Christianson, City Attorney

TLAQUEPAQUE (As to parcel 401-19-027H)

Tlaq. Partners, LLC

By:
Its: Authorized Agent

Ragland/Sedona, LLC

By:
Its: Authorized Representative

CMR/Sedona, LLC

By:
Its: Authorized Representative

Horn/Sedona, LLC

By:
Its: Authorized Representative

TLAQUEPAQUE (as to parcel 401-18-074B)

HRT/Sedona, LLC

By:
Its: Authorized Representative

Tlaquepaque SR179 Undercrossing Final Language

The at-grade crosswalk located on SR179 between Portal Lane and Schnebly Hill Road will remain until such time as a Pedestrian Crosswalk warrant analysis is performed by the City In accordance with ADOT TGP 910. The City will notify ADOT at least 20 business days in advance of the warrant analysis so that ADOT staff may participate, if deemed necessary. The City will provide the results of the analysis to ADOT for review. If ADOT determines that the crossing is not warranted, the City shall remove the at-grade crosswalk.

Additionally, the city shall perform the following actions in relation to the existing at-grade crosswalk. These actions include, but are not limited to, the following:

- The City shall Reconstruct the accessible sidewalk ramp on the northwest corner of Portal Lane to better direct pedestrians across Portal Lane rather than across SR 179;
- The City shall study the feasibility of creating a parkway that would provide physical separation between the sidewalk and the back of the curb in front of Tlaquepaque and present the results of the study to ADOT. If it is determined this action is feasible, the City shall develop and construct said parkway.

If the at-grade crossing continues to be warranted, then:

- The City shall take the lead in performing a study and investigation (including analysis of MUTCD traffic signal Warrant 4, Pedestrian Volume) to determine how best to ensure pedestrian safety while maintaining acceptable traffic operational performance at the at-grade crosswalk. Alternatives to be considered (known as 'at-grade crosswalk enhancements', hereinafter) include (but are not limited to) a traffic signal, a Pedestrian Hybrid Beacon installation, and a Rectangular Rapid Flashing Beacon installation.
- The City shall develop signal operational characteristics, including cycle length and coordination, as part of the aforementioned study and investigation for all of the studied at-grade crosswalk enhancements.
- If MUTCD traffic signal Warrant 4, Pedestrian Volume is met, and after the study and investigation are completed it is determined by ADOT that at-grade crosswalk enhancements are needed, the preferred alternative (as determined by ADOT when considering both pedestrian safety and traffic operational impacts) shall be developed and installed by the City.
- The City shall keep its crossing guards (TCA's) in place at the location of the existing pedestrian crosswalk during the weekends for a minimum of 6 months after any improvements are installed to help foster compliance. Additionally, crossing guards (TCA's) will be required at the crosswalk during all special events and on holiday weekends thereafter, unless and until the crosswalk is removed.

In order to fully understand the impact of the existing at-grade crosswalk on the operational performance of SR 179, the following shall occur:

Once the grade-separated crossing is completed and operational and an at-grade crosswalk enhancement (as determined by ADOT following the City's study) is installed at the at-grade crosswalk, the City will perform a traffic and pedestrian study, which shall include the following:

- For the same pre-specified 24-hour period on each day of two weekends and of one full week (to be mutually agreed upon between ADOT and the City as appropriate times of the year to conduct such a count) the City shall count the number of pedestrians that use the grade-separated crossing, and the number of pedestrians that use the enhanced at-grade crossing. The City shall also study the traffic flow characteristics along SR 179 southbound from Cook's Hill to Schnebly Hill and northbound from Schnebly Hill to Forest Road. The City will present the findings to ADOT within 60 days of the count data collection.
- For two weekends and one week (to be mutually agreed upon by ADOT and the City as appropriate times of the year to conduct such a count) the City shall close the enhanced at-grade crossing and count pedestrians that use the grade separated crossing. The City shall also study the traffic flow characteristics along SR 179 southbound from Cook's Hill to Schnebly Hill and northbound from Schnebly Hill to Forest Road. The City shll present the findings to ADOT within 60 days of the count data collection.
- Every other year for a minimum of 10 years (5 count cycles) on the same day(s) as above, the City shall perform a pedestrian count to determine if the use of the grade-separated crossing outweighs the use of the at-grade crossing, and whether the at-grade crossing still meets ADOT Pedestrian Crosswalk warrants. The time period for pedestrian counts may be extended upon mutual agreement by ADOT and the City.
- The study shall also consider the traffic flow characteristics as if all of the geometric improvement components of Alternative 5B, (as described during the 10/12/2021 City Council hearing except as subsequently amended by direction of City Council), are completed and the Brewer/Ranger Road Improvements (as described during the 5/11/2022 City Council hearing except as subsequently amended by direction of City Council) are completed.

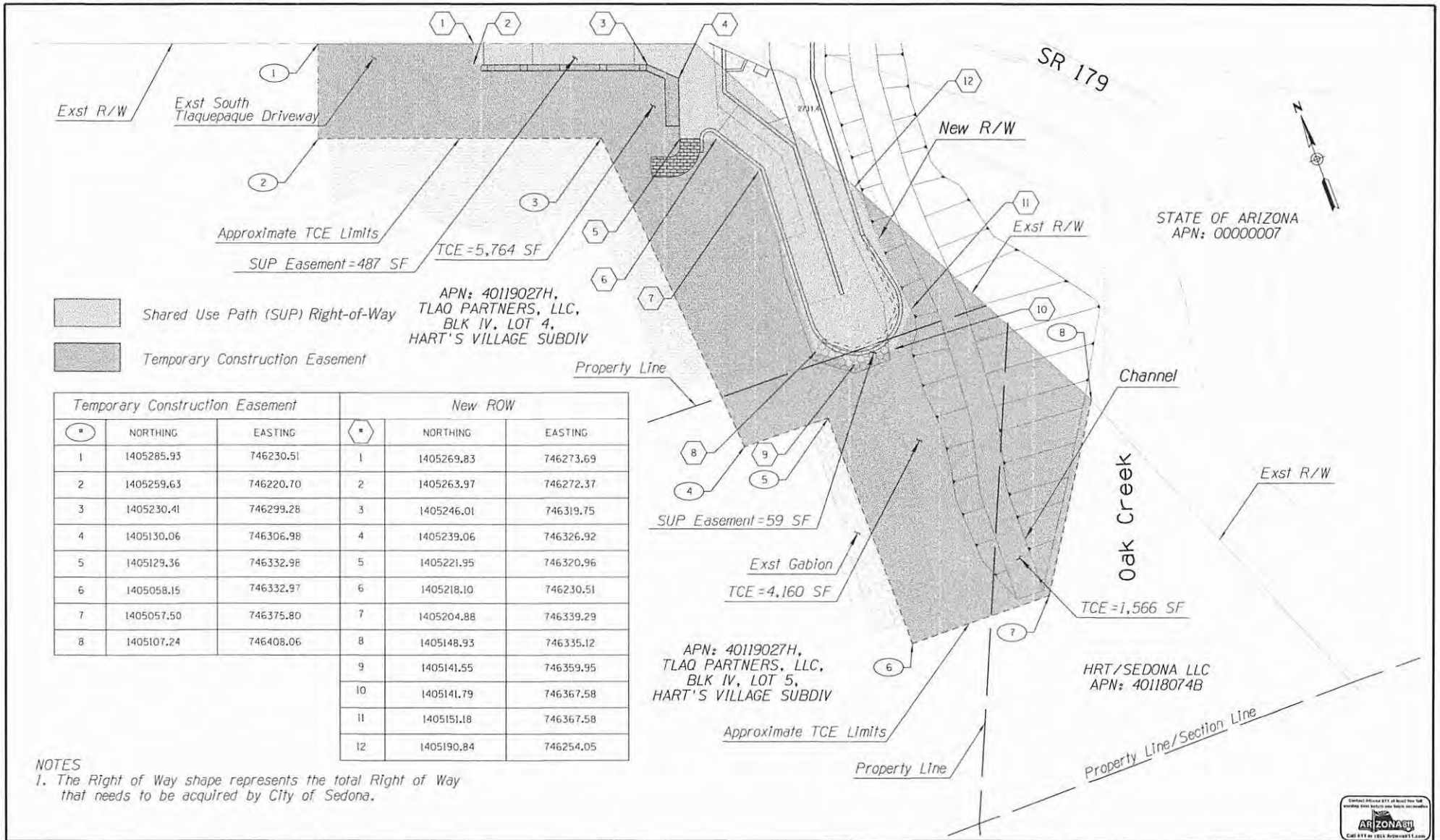
After the study is completed, the City shall present to ADOT the results of the study and the City's preliminary recommendation concerning the at-grade crossing. If, after full compliance with the requirements of this Permit, it is then determined by ADOT that substantial justification exists (based on pedestrian safety and maintaining acceptable traffic operational performance) to support the elimination of the at-grade crossing, the City shall remove the at-grade crossing and all associated appurtenances. Once the determination is made to remove the at-grade crossing, the City shall commence construction on the removal within 1 year of receiving written direction from ADOT to do so.

As properties adjacent to SR179 between SR89A and Schnebly Hill Road redevelop (especially on the north side of SR179) the City shall investigate with the property owners the possibility of consolidating driveways to reduce the total number of driveways and help reduce side friction along SR179.

The City shall also study pedestrian and vehicular movements at the Schnebly Hill Road roundabout with the intention of determining whether an at-grade crossing (in particular, the crossing at the northwest leg of the roundabout) can be eliminated. The City shall evaluate the results of the study, present the results to ADOT, and make a recommendation as to the possible elimination of an at-grade crossing at this location.

This permit applies only to the construction of the grade-separated crossing under SR 179. All other studies, investigations, and construction contemplated in this permit shall require the submission of separate encroachment permit application(s), as needed.

EXHIBIT A "Public Project"



Temporary Construction Easement			New ROW		
#	NORTHING	EASTING	#	NORTHING	EASTING
1	1405285.93	746230.51	1	1405269.83	746273.69
2	1405259.63	746220.70	2	1405263.97	746272.37
3	1405230.41	746299.28	3	1405246.01	746319.75
4	1405130.06	746306.98	4	1405239.06	746326.92
5	1405129.36	746332.98	5	1405221.95	746320.96
6	1405058.15	746332.97	6	1405218.10	746230.51
7	1405057.50	746375.80	7	1405204.88	746339.29
8	1405107.24	746408.06	8	1405148.93	746335.12
			9	1405141.55	746359.95
			10	1405141.79	746367.58
			11	1405151.18	746367.58
			12	1405190.84	746254.05

NOTES
1. The Right of Way shape represents the total Right of Way that needs to be acquired by City of Sedona.

Symbol	Revisions	Date	Appr.

Designed by: J. Ilijevski
Drawn by: J. Ilijevski
Checked by: A. Galietti
Date: 02/2022
Scale: 1:20
Project Code:

PRELIMINARY EXHIBIT NOT FOR CONSTRUCTION OR RECORDING

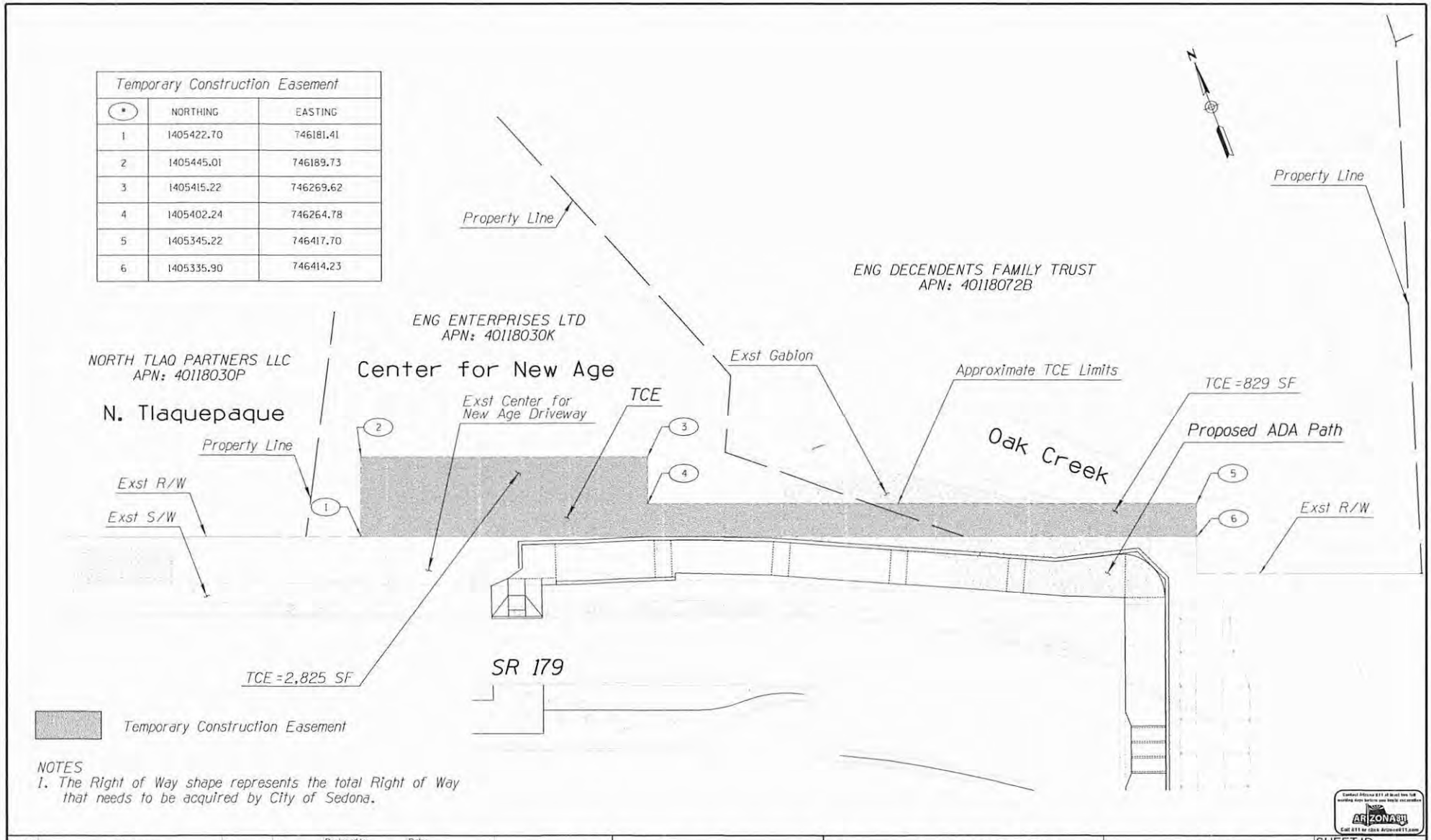
WSP USA Inc.
1230 W. Washington St
Suite 405
Tempe, AZ 85281

CITY OF SEDONA
PUBLIC WORKS DEPARTMENT
102 ROADRUNNER DRIVE
SEDONA, ARIZONA 86336
928-204-7111

SEDONA
SR 179
Proposed R/W & TCE

SHEET ID: 1
SHEET NO.: 1 of 2

ccccSYSTIMEcccccc
ccccDGNcSPECIFICATIONcccccc



Symbol	Revisions	Date	Appr.

Designed by: J. Ilijevski | Date: 02/2022
Drawn by: J. Ilijevski | Scale: 1:20
Checked by: A. Galletti | Project Code:

PRELIMINARY EXHIBIT NOT FOR CONSTRUCTION OR RECORDING

WSP USA Inc. 1230 W. Washington St. Suite 405 Tempe, AZ 85281

CITY OF SEDONA
PUBLIC WORKS DEPARTMENT
102 ROADRUNNER DRIVE
SEDONA, ARIZONA 86336
928-204-7111

SEDONA
SR 179
Proposed ROW & TCE

SHEET ID 2
SHEET NO. 2 of 2

ccccSYSTIMEccccc ccccDGNcSPECIFICATIONccccc

ADOT USE ONLY							
Administrative Review			Substantive Review		X		
Tracking No	T120986		Route(s)	SR 179	Milepost(s):	312.98	
Date submittal received:	02.18.22		Date comments returned back to applicant:				
Date submitted to reviewer:	04.14.22		Requested date comments returned:		04.29.22		
Hours spent on review:			Applicant:	City of Sedona			
Project Description/Activity:	Construction of a pathway under the existing SR 179 Oak Creek bridges, with ramps running parallel to SR 179 on each side of the roadway. The proposed improvements will include: construction of a concrete pathway under the Oak Creek bridges that connects both the north and south sidewalks of SR 179; installation of pavement marking and signing related to the proposed path; pedestrian channelization and signage along SR 179; pedestrian wayfinding and enhanced landscaping in the project area and installation of a Hawk signa						

Request for reviews from:		*Name of Reviewer:*	*Request for reviews from:*		*Name of Reviewer:*
X	*Development Engineer*	Nate reisner		*Permits Supervisor*	Vern Dumbeck
X	*Traffic Engineer*	John Litteer	X	*Roadside Dev.*	John Hucko
X	*Drainage Design*	Haldun Guvenen		*Construction*	
	Environmental Coord.			*Right of way*	
X	*Other:*	Joe Reed	X	*Other:*	Joshua Fife

Attachments:

X	Construction Plans		Traffic Control Plans		Drainage Report		Application
	Permit Tech. Comments	X	Traffic Study		Other		Other

Return Comments to:

	Vern Dumbeck 928-779-7529		Rebekah Wilkes 928-779-7549		Michael Ashcraft 928-779-7520	X	Chuck King 928-779-7520

Drawing # or Page #	Item #	ADOT Comments	Applicants Response
Name of Reviewer : **John Litteer** Date of Review:_____ Hours Spent on Review:_____			

Name of Reviewer : **Haldun Guvenen** Date of Review:_____4/21/2022_____ Hours Spent on Review:_____8___			
All pages	1	This is a resubmittal of plans submitted On 9/27/2021 which was approved on 10/13/2021. ADOT Roadway Drainage Section has no more drainage related comments.	
Name of Reviewer : **Joe Reed** Date of Review: 04/19/2022_ Hours Spent on Review: 2			
43	1	Prefer Siemens TS2 type IV cabinet (with riser) and controller with the controller pre-programmed to operate as a HAWK	A – Will change.
43	2	Pedestrian heads to be countdown units	A – Will change.
43	3	Who will be responsible for spare poles if there is a knockdown? (what's called out is non-standard to ADOT	D – As with the current decorative light poles in this area, the City will be responsible for operating and maintaining the additional decorative light poles via modification to the IGA (in process).
43	4	Who will be responsible for the finish (paint ect.) on the poles? ADOT uses non-painted galvanized poles	D – Same as above.
43	5	Who will be responsible for replacement luminaires? It appears as though these are also non-standard	D – Same as above.
43	6	Control and service cabinets shall not be painted or wrapped but instead left in standard aluminum finish	A – cabinets will not be painted.
43	7	Have the specified poles been windload tested and approved for use with signal equipment?	A – Language has been added to the Specifications for required wind load requirements.
43	N/A	ADOT standard communications equipment will need to be installed to provide connectivity to our signal control network	A – Comment acknowledged. No further items needed from Design at this time.

43	N/A	Color temperature and specs for the called out luminaires?	D – This is in the special provisions. 3,000K; GBLF3 P70 30K MVOLT ASY QSM AO NL3X3 and GBLF3 P80 30K MVOLT ASY QSM AO NL3X3
44	1	Regarding general note 2. IMSA conductors will run from the pull box adjacent to the control cabinet, to the pull box adjacent to the poles. IMSA will then be run from the signal heads and push buttons to the pull box where the splices will be made. The contractor will not be responsible for conductors from the pull box adjacent to the control cabinet nor will they make any terminations in the control cabinet.	A – Will modify note 2.
58 of technical specifications	1	It appears as though the poles being called out in this document are our standard steel poles but the plans appear to call for a non-standard Holophane SSA pole (which is aluminum). Please see comments 3 and 4 above if the latter is the case	A – Will modify the SPEC if we keep the aluminum poles. Will leave in language requiring design to AASHTO 2013 structural requirements.
Name of Reviewer : **Joshua Fife** Date of Review:_____ Hours Spent on Review:_____			
Name of Reviewer : **Nate Reisner** Date of Review:_____ Hours Spent on Review:_____			
Name of Reviewer : **Ryan Wolff** Date of Review:_____ Hours Spent on Review:_____			

CITY COUNCIL AGENDA BILL

AB 3066
October 22, 2024
Regular Business

Agenda Item: 8f
Proposed Action & Subject: Discussion/possible direction regarding future agenda items.

Department	City Manager
Time to Present **Total Time for Item**	2 Minutes 5 Minutes
Other Council Meetings	Included in City Council regular meeting agenda packets as of May 14, 2024
Exhibits	A. Future Agenda Items

Finance Approval	Reviewed BGW
City Attorney Approval	Reviewed KWC
City Manager's Recommendation	For discussion and direction only. ABS 10/7/24

Expenditure Required	
$	N/A
Amount Budgeted	
$	N/A
Account No. (Description)	N/A

SUMMARY STATEMENT

Background: Council requested a document showing future agenda items be added to the Council packet going forward. Attached as Exh. A is the Future Agenda Items document for review and discussion, and possible direction purposes.

Climate Action Plan/Sustainability Consistent: ☐**Yes** - ☐**No** - ☒**Not Applicable**

Board/Commission Recommendation: ☐**Applicable** - ☒**Not Applicable**

Alternative(s): None

MOTION

I move to: For presentation and direction only.

Date	Day	Time	Type	Topic	Agenda Section	Requestor	Estimated Total Time
PENDING ITEMS							
				AB 3091 Discussion/possible action regarding an additional $600,000 into the SIM 1B -Uptown Road Improvements Project for the completion of the paving northbound areas from Forest Road to Owenby Roundabout, but to also include the southbound areas.	Regular	Hall/Harris	30 min
10/23/2024	Wednesday	3:00 p.m.	Special Meeting				
				AB 3079 Presentation/discussion from Arizona Water Company and City of Sedona staff regarding Growing Water Smart initiatives.	Special	Beck	1 hour
11/12/2024	Tuesday	2:30 p.m.	Executive Session				
				Discussion and consultation regarding personnel matters, specifically to discuss Magistrate Judge Paul Schlegel's annual evaluation. This matter is brought in executive session pursuant to A.R.S. 38-431.03(A)(1).	Special	Schlegel	1 hour
11/12/2024	Tuesday	3:30 p.m	Special Meeting				
				AB 3116 Discussion/possible action regarding a Resolution approving the canvass of the City's General Election held on November 5, 2024.	Special	Cook	2 min
				Public Forum/Recognition of Outgoing Councilors	Public Forum	Council	15 min
				Swearing In of Newly Elected Council Members By Magistrate Judge Paul Schlegel.	Special	Cook	10 min
				AB 3117 Discussion/possible action regarding the appointment of a Vice Mayor.	Appointments	Cook	5 min
11/12/2024	Tuesday	4:30 p.m	Regular Meeting				
				AB 3107 Approval of a Resolution authorizing the execution of an Intergovernmental Agreement (IGA) between the City of Sedona and Arizona Department of Transportation (ADOT) regarding the construction of Shelby Drive Shared Use Path in the amount of $500,000.00	Consent	Ueda/Phillips	NA

				Proclamation, Sedona Kindness Day, November xx, 2024	Consent	Kinsella/Ploog	NA
				Proclamation, Sedona Kindness Day, November xx, 2024	Proclamation	Kinsella/Ploog	5 min
				AB 3124 Discussion/possible action regarding the award of a Construction Contract for the PR Buildout of Ranger Station Park Project, Restroom.	Regular	Farhat/Phillips	5 min
				AB 3131 Discussion / possible action PT-01 Maintenance and Operations Facility – Design Contract for Professional Services Approval.	Regular	Hall	5
				AB 3125 Public hearing/discussion/possible action regarding proposed revisions to the Sedona Land Development Code. The proposed revisions include allowances for Accessory Dwelling Units (ADUs), updates to reflect State legislation regarding time frames for processing residential rezoning applications, and updates to definitions to more accurately define terms. Case Number: PZ24-00010 (LDC) Applicant: City of Sedona.	Regular	Meyer	30 min
				AB 3071 Public Hearing on draft Development Impact Fees	Regular	Spickard	1 hour
				AB 3111 Discussion / possible action regarding the Extreme Weather Overnight Lodging Program to shelter 'rough sleepers' during inclement or extreme weather conditions.	Regular	Frieder	20 min
				AB 3129 Tourism Update including results of summer marketing campaign, branding concepts, winter marketing campaign concepts.	Regular	Browne	1.5 hour
				AB 3066 Discussion/possible action regarding future meeting and agenda items.	Regular	Spickard	5 min
11/13/2024	Wednesday	3:00 p.m.	Special Meeting				
				AB 3086 Discussion/possible action regarding the Sedona in Motion Transportation program update.	Regular	Harris	2 hours
11/26/2024	Tuesday	4:30 p.m	Regular Meeting				
				AB 3133 Discussion/possible action regarding approval of PT-04B SR179 Park and Ride Construction Contract.	Regular	Hall/Harris	

				AB 3121 Approval of sustainably adding grass to the Sedona Dog Park to better serve the dog park community and relocate the Yappy Hour weekly event to the Sedona Dog Park.	Regular	Frewin	45 min
				AB 3095 Public hearing/discussion/possible action regarding adoption of a Resolution and Ordinance updating the City of Sedona's Fee Schedule.	Regular	Cook	30 min
11/27/2024	Wednesday	3:00 p.m.	Special Meeting	No work session due to holiday			
12/10/2024	Tuesday	4:30 p.m	Regular Meeting				
				AB 3128 Presentation/discussion regarding Arts & Culture Program Update including details on how the arts are supported through various creative programs, as well as through our Public Art Ordinance and Small Grants Program.	Regular	Lattanzi	1 hour
12/11/2024	Wednesday	8:00 a.m.	Special Meeting				
				Hold for Council Retreat - Tentative			
12/12/2024	Thursday	8:00 a.m.	Special Meeting				
				Hold for Council Retreat - Tentative			
1/14/2025	Tuesday	4:30 p.m	Regular Meeting				
				AB 3071 Public Hearing/possible action regarding adoption of the Development Fee Report.	Regular	Spickard	30 min
				AB 3135 Discussion/direction to staff for submission of city comments to utility commission regarding APS 2025 rate case.	Regular	Spickard	30 min
1/15/2025	Wednesday	3:00 p.m.	Special Meeting				
1/28/2025	Tuesday	4:30 p.m	Regular Meeting				
1/29/2025	Wednesday	3:00 p.m.	Special Meeting				