



General Services Agency
Capital Projects
COUNTY OF TULARE
2637 W BURREL AVE., SUITE 200
VISALIA, CA 93291



January 15, 2021

ADDENDUM NO. 7

COUNTY OF TULARE – Sheriff and Fire Dispatch Project

Any Addenda issued by the Owner or Owner's Representative during the time of bidding are to be considered in the Bid and will become a part of the Agreement between Contractor and Owner. Bidders shall acknowledge receipt of all Addenda on the Bid Form in the space provided.

ITEM 1: Communications Tower Building Electrical Allowance

The Communications Tower Building Electrical Allowance included as a part of Addendum No. 6 Item 2 is hereby rescinded and shall not be included as a part of the bid for this project.

ITEM 2: Communications Tower and Support Building Allowance

The contractor shall include an allowance of \$350,000 for design and installation of the Communications Tower, support building and all associated work in the lump sum bid for the Sheriff and Fire Dispatch Project. The existing Tower and Support Building Plans shall be used as the bridging documents and basis of design. This work shall include, but is not necessarily limited to, design and installation of the communications tower and support building and all associated work necessary to provide a fully functional and operational tower and support building that meets the needs of the County. The tower shall follow the Motorola R56 grounding standards. The contractor is required to obtain County approval of the design. The County will obtain the building permit for the Contractor once final design is completed by the Contractor and approved by the County. The contractor shall provide a detailed cost for the use of the allowance. Refer to Section 00700 4.8 regarding the use of allowances.

The designer of the communications tower bridging plans used as the basis of design **shall not** be the subcontractor for designing, manufacturing, and installing the communications tower. The General Contractor must list a separate subcontractor for this work.

ITEM 3: Tower/Communications Equipment

Attached to this addendum is the list of tower and communications equipment that will be provided by the County and shall be installed by the Contractor.

ITEM 4: Contractor Questions

Question: Window Key "A" and "F" are listed as existing frames to remain and be reused. These frames can only accept 1/4" glazing. Please clarify.



General Services Agency
Capital Projects
COUNTY OF TULARE
2637 W BURREL AVE., SUITE 200
VISALIA, CA 93291



Answer: Window Key “A” and “F” shall be revised as follows: Remove existing frames and replace with new 2”x6” center-glazed aluminum storefront – Kawneer “Tri-Fab 601T”, or equal product approved by the Architect. Provide for 1” glazing. Glazing to remain as keyed on the Drawings. Frame finish shall match existing.

Question: The existing glazing that is on the building is no longer available. Please clarify new glazing requirements.

Answer: Glazing Key “G1” shall remain as noted on the Drawings. If the exact exterior glazing is not available, provide new glazing in color as close as possible to match existing. Provide samples to Architect for approval.

Question: Window Key “F” is scheduled to receive 1” insulated panel infill. These panels are only available up to 48” width, which is not wide enough to fill the opening. Please clarify.

Answer: The insulated panel infill shall be split into two (2) equal widths with a joint centered in the opening. Provide smooth, matching color caulk at panel joint.

Question: Kawneer will only sell to specific glass dealers.

Answer: Kawneer products are listed only as a guide to the level of quality required for the project. The equal products of other manufacturers may be used when submitted for review per the Specifications and approval received from the Architect.

Question: The flush aluminum door required at Door Key 01 is only available through Kawneer. Will you accept a commercial storefront door with a matching insulated infill panel?

Answer: The Architect will accept a Type “B” wide-stile aluminum door with 1” insulated panels per the Glazing Schedule.

Question: Electrical Sheet E3.1 lists Reference Note 8 that refers to a rooftop cable bridge. Please clarify.

Answer: This note is left from previous project conditions and is no longer valid. Revise Reference Note 8 to read “Not Used”.

Question: Electrical Sheet E3.1 lists Reference Note 9 that refers to a 20’ rooftop tower. Please clarify.

Answer: This note is left from previous project conditions and is no longer valid. Revise Reference Note 9 to read “Not Used”.

Question: Electrical Sheet E3.1 includes a note with specifications for Lightning Protection. Is this for the existing building or new tower? Please clarify the extent of lightning protection.

Answer: The Lightning Protection note on E3.1 was intended to apply only to the existing building, and is left from previous project conditions, and is no longer valid. No new lightning protection is required for the existing building. Refer to the tower drawings (prepared by other professionals) for required lightning protection at the tower and tower support building.

Question: Please clarify if cable trays or conduits are required below the raised floor.



General Services Agency
Capital Projects
COUNTY OF TULARE
2637 W BURREL AVE., SUITE 200
VISALIA, CA 93291



Answer: All power wiring under the raised floor shall be run in conduit secured to the floor slab – coordinate routing with floor support pier layout. All data cables under the raised floor shall be plenum-rated, and shall be supported with galvanized j-hooks per TIA standards.

Question: The Ground/Bonding Plan on Sheet E3.1 notes (5) ground bars. However, there are no grounding details for the raised floor. Please clarify.

Answer: Reference Note 3 on Sheet E3.1 stipulates the required grounding to the raised floor system, which shall be coordinated with the raised floor manufacturer. Detail 2 on Sheet E4.2 depicts the method of raised floor grounding.

Question: Please clarify required grounding at the electrical and data room.

Answer: On Sheet E3.1, the ground bar depicted as located in Room 04 shall actually be located in Room 05. All Reference Notes still apply.

Question: Please see attached from access control supplier. Is this a correct interpretation of who is furnishing what hardware?

Answer: It is the sole responsibility of the General Contractor to determine the distribution of Work to specific subcontractors.

Question: What is the specific plastic laminate required for the laminate faced doors?

Answer: The specific laminate will be selected from samples provided by the Contractor after the bid award.

Question: Please confirm type of roofing on the existing building.

Answer: The existing roofing is a built-up composition system.

Question: The sales representative indicates that the specified luxury vinyl tile is no longer available. Please clarify.

Answer: Specifications Section 09660, Paragraph 2.02 shall be deleted. Substitute the following:

2.02 PREMIUM VINYL FLOOR TILE

A. General: All premium vinyl floor tile shall be the product of one manufacturer and shall, to the maximum extent possible, be of a single batch number.

1. Field Tile: All field tile shall be 18" x 18" x 1/8", and shall have a 20-mil wear layer.

a. Armstrong Flooring "Natural Creations – Diamond 10 – EarthCuts", or approved equal product from other manufacturer.

b. Color/pattern as selected by Architect from full range.

2. Accent Stripes: All solid-color accent stripes shall be cut from tile which shall be 18" x 18" x 1/8", and shall have a 20-mil wear layer.



General Services Agency
Capital Projects
COUNTY OF TULARE
2637 W BURREL AVE., SUITE 200
VISALIA, CA 93291



- a. Armstrong Flooring “Natural Creations – Diamond 10 – Mystix – Mixers”, or approved equal product from other manufacturer.
- b. Color as selected by Architect from full range.

Question: Keynote 3 on Sheet M3.0 notes an ODU on the roof. Please provide details for the rooftop platform along with any blocking requirements and specifications for roofing patch.

Answer: The Contractor shall provide and install a factory pre-fabricated galvanized roof platform of the size recommended by the ODU manufacturer. This platform shall be installed per attached Drawing AD7-1. All roof patching shall comply with the “NRCA Repair Manual – 2nd Edition”, and shall be water-tight.

Question: Is clean agent fire suppression system needed for server room or any other location?

Answer: Fire suppression requirements are shown on Sheet FS1.

Question: Please advise where the FACP is located and provide manufacturer make/model, pictures of the inside and outside of the existing FACP, and list of approved vendors to work on existing fire alarm system.

Answer: The existing FACP is located in the main power room at the south end of the building. The existing FACP is “Notifier” as manufactured by Honeywell. Contractors were given the opportunity to conduct field investigations to establish existing conditions, so no photos will be provided. Record drawings of the existing system could not be located. In the past, the County has used the following vendors: Stop Alarm; Johnson Controls; Cosco and Jorgensen, but no official approved vendor list has been prepared.

Question: Please clarify if the Owner would like to add to the existing FACP, Access Control/Intrusion and CCTV, or replace the existing with new.

Answer: The project area was covered by the existing FACP when that space housed other uses. The existing FACP should be capable of controlling the new alarm system for the area. Access control requirements are indicated on the Drawings. Intrusion alarm work is not a part of the Project. CCTV work is not a part of the project.

Question: Will the County be issuing a new bid bond form or will we need to modify the existing to reflect the change in bid date?

Answer: Attached to this addendum is an updated Bid Bond Form.

Question: Please provide the soils report?

Answer: Soils Report attached.

ITEM 5: Bid Opening

The updated Zoom link to view the bid opening is as follows.



General Services Agency
Capital Projects
COUNTY OF TULARE
2637 W BURREL AVE., SUITE 200
VISALIA, CA 93291



Kyle Taylor is inviting you to a scheduled Zoom meeting.

Topic: Sheriff and Fire Dispatch Bid Opening

Time: Jan 21, 2021 02:00 PM Pacific Time (US and Canada)

Join Zoom Meeting

<https://tularecounty-ca.zoom.us/j/95232791154?pwd=N2VoQUlNldlVnM09wcFB2eGJCSzArZz09>

Meeting ID: 952 3279 1154

Passcode: 396207

One tap mobile

Dial by your location

+1 669 900 9128 US (San Jose)

+1 253 215 8782 US (Tacoma)

+1 346 248 7799 US (Houston)

+1 301 715 8592 US (Washington D.C)

+1 312 626 6799 US (Chicago)

+1 646 558 8656 US (New York)

Meeting ID: 952 3279 1154

Passcode: 396207

ITEM 6: Clarification

Clarification: The Answer to Question 3 on Addendum No. 1 shall be disregarded. The requirement for fire-rated plywood at Room 05 Power and Data shall be as stated in Reference Note 1 on Sheet E2.2.

ITEM 7: Addition

Addition: Provide (2) 4" communications conduits between Room 05 Power and Data and the tower support building. Conduit shall be EMT above ceiling, GRS at exterior walls, and PVC40 underground. Run conduits in the same power trench shown on Sheet ES.1. Allow 6" minimum spacing from power conduits. Refer to Sheet E11 and follow the 3" power conduit to the building and stub conduits to nearest ladder tray on Room 05 Power and Data.

As per ANSI/TIA568.C standards: Provide pull box at every 4th 90-degree bend sweep (no more than 360 degrees) within the section of conduit pathway, and at each entry into the Building or Room 05. Pull box sizing shall be based on County requirements for communications.

Both conduits shall have a spare 3/4" pull tape rope for future fiber pulls.



General Services Agency
Capital Projects
COUNTY OF TULARE
2637 W BURREL AVE., SUITE 200
VISALIA, CA 93291



At one conduit, Contractor shall supply all fiber and rack mount LIU's, terminate all ends on SC/UPS connectors, label fiber LIU's, test fiber, and provide fiber results. Coordinate with County IT for exact rack termination point at each end.

Fiber shall be (1) 24-strand (12 pair) single mode fiber (OS2) armored indoor/outdoor and plenum rated per County requirements.

The 2nd conduit shall serve as a spare.

ITEM 8: Time of Completion

TIME OF COMPLETION: The Project is to be completed within **180** calendar days from the date to be established in the "NOTICE TO PROCEED". The Agreement includes provisions for Liquidated Damages if the Project is not timely completed.

A handwritten signature in blue ink, appearing to read "Kyle Taylor", is written over a horizontal line.

Kyle Taylor
Capital Projects Coordinator III

End of Addendum No. 7

Tulare County Akers Communications Tower Project
Equipment List, Roles and Responsibilities

This narrative provides guidance for the hardware and infrastructure to be installed or provisioned for Tulare County's new communications tower to be built at 833 South Akers Street, Visalia, CA, 93277.

The Tulare County Radio Unit will procure all hardware and other technology for the new communications tower. This procurement will be outside of the bidding process and all equipment will be provided to the awarded Contractor for installation according to approved project plans and required inspections, and to meet industry and County standards.

The County Radio unit will specifically source all antennas, coaxial cables, coaxial cable clicks, cable termination connectors, and the lightening arrestors; as well as all radios and dishes required for the microwave path between the Cigna building and the communications tower.

Below are listed the types and quantities of all items to be procured for the new radio tower. The list provides all parts and their quantities together with an explanation of how and where each of the moving parts will be installed.

As noted above, all parts listed in this section will be purchased by the County and installed by the awarded Contractor.

1. **QTY 4:** Telewave TELANT150F2-DIN from Talley. (Minimum 8 Weeks lead time required before installation)
2. **QTY 7:** Telewave TELANT450F2DIN from Talley. (Minimum 8 Weeks lead time required)
3. **QTY 1:** Comander CMD1142-2CN from Talley. (Minimum 4 Weeks lead time required).
4. **QTY 3000 FT:** Andrews AVA5-50A 7/8" Ridged Helix from Talley. (Minimum 12 Weeks lead time required if not in stock. Quote indicates currently in stock.)
5. **QTY 1:** TIMLMR-400-1000. 1000' spool of Times Microwave LMR 400 3/8" coax to be used to install from the microwave radio IDU to the Microwave ODU as well as to be installed to each inside connection of polyphaser and handed off to each radio. Sourced from Talley.
6. **QTY 12:** ANDF4-PDMDM-XX 7/16 DIN Male to 7/16 DIN Male FSJ4-50B Cable Assy 5' jumper to attach between the 7/8" ridged and antenna from Talley. (Minimum 4 weeks lead time required)
7. **QTY 1:** ANDF4-PNMNM-XX N-Male to N-Male FSJ4-50B Cable Ass 5' jumper to attach to 7/8" ridged and between the commander antenna
8. **QTY 11:** POLVHF50D-MA-PGR polyphaser lightning arrestor to be mounted to the inside main grounding bus bar. Each cable ingressing the building will be terminated and connected to each of these. Source from Talley
9. **QTY 1:** POLIS-NEMP-C0-MA polyphaser lightening arrestor for the commander antenna. Same requirement for mounting and terminating as listed above. Source from Talley.
10. **QTY 36:** AND78EZDM Connector, EZfit 7/16 DIN Male. This connector will be the inside termination connector of the 7/8" ridged to be connected to the ingress side of said polyphasers on the inside main grounding bus terminal bar. This to pre sourced from Talley.
11. **QTY 36:** AND78EZDF Connector, EZfit 7-16 DIN Fem. This will be the connector that is the termination point being handed off to the 5' jumpers to be attached to each of the said antennas requiring this type of connector. Sourced from Talley.
12. **QTY 10:** ANDAL5NM-PSA Conn, Positive Stop N-Male for AVA5-50 Only. These are the connectors for the commander antenna and to be sourced from talley.
13. **QTY 30:** AND245171 Cold Shrink, 1/4" thru 1/2" Coax to 7/8" Coax, DIN or N. This to be installed at the junction where the coax and the jumper connect to provide for weather protection as well as

Tulare County Akers Communications Tower Project
Equipment List, Roles and Responsibilities

where the jumper connect to the antenna for weather protection of each said antenna. Sourced from Talley

14. **QTY 50:** AND220497 Ground Kit for 5/8", 7/8", EW90 ALT-SKU#220497 EW132 Field Attached Lug 60"Lead. One needs to be installed to the coax and terminated to the top tower grounding bus bar, another needs to be terminated to the base of tower grounding bus bar and a third one installed on the coax and terminated on the outside grounding bus bar just prior to entry of building. Sourced from Talley
15. **QTY 6:** HDG412U-K 4" X 12" steel ground bus bar. To be sourced by Valmont. These are the grounding bus bars that are called for in item 14.
16. **QTY 2:** MG406U-K 4" X 6" grounding Bus bar sourced by Valmont
17. **QTY 1:** ATK306U 3 level arrestor trapeze grounding kit. This is the Inside of building where the polyphasers and terminated coax affix to. This will need to be installed on the inside wall where the cables ingress the building and are terminated and affixed to their said polyphaser. Sourced from Valmont
18. **QTY 1:** E1118 4" 12 port entry panel (3X4) This is the cable entry panel that is to be installed on at the part of the building where the cables enter the building. Sourced from Valmont
19. **QTY 4:** BA784 4" boot assembly for 4 7/8" coax entry. This is to be installed on the outside cable entry port of the building. Sourced from Valmont.
20. **QTY 2:** BA384 4" boot assembly for 4 3/8" coax assembly. This to be installed on the outside cable entry port of the building. Sourced from Valmont.
21. **QTY 6:** BAZERO 4" Blank boot assembly for unused cable entry ports. This to be installed on the outside of the cable assembly for all unused ports. Sourced from Valmont.
22. the cables immediately ingress the building and tied back into the outside building grounding bus bar. Sourced from Valmont
23. **QTY 10:** ANDSSH-78 pack of 10 Stackable Snap-In Hanger Kit for 7/8" Helix Cable, 10/Pkg to attach 7/8" ridged coax cable to cable ladder and cable bridge. Sourced from Talley.
24. **QTY 100:** SIC-2 mono block stackable click for 7/8" helix cable packs of to. Sourced from Valmont
25. **QTY 1:** 3/8" LMR 400 microwave dish. Mounted to the tower at the 65" level on the southern leg, pointing to the roof of the CIGNA building on the provided microwave tower mount as part of the tower construction at said level.
26. **Qty 7:** Chatsworth 46353-703 Universal Rack 19 X 7-0 BL.
27. **Qty 2:** Chatsworth 10250-718 18IN CBL Runway Tube BLK
28. **Qty 1:** Chatsworth 11301-701 BUTT Splice 1.5 STRG BKZ

Vendor Installation Requirements

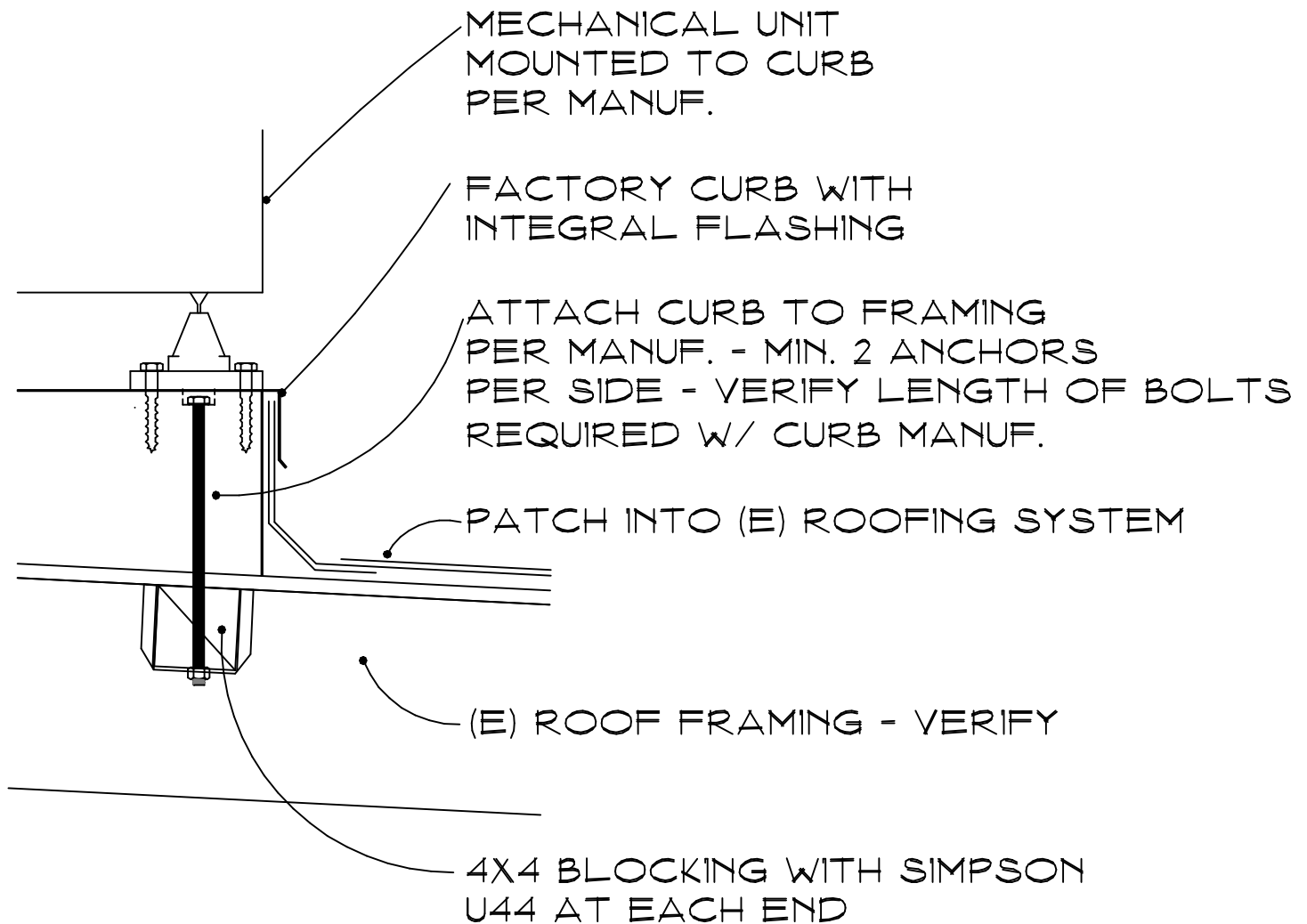
Install Antenna Mounts, dish mounts, per the assembly drawings.

Install radio cables from the building to the tower in a continuous run using a large cable roll (to be supplied by the County). The contractor shall ensure the cable is never bent or kinked.

The cable routes extend from the building entry ports, across the cable bridge, up the cable ladder at the middle of the tower with provided cable, cable clicks, and terminate at the appropriate antenna or microwave dish together with all said grounding and lightning suppression equipment.

Tulare County Akers Communications Tower Project
Equipment List, Roles and Responsibilities

A single VHF antenna and a single UHF antenna can be mounted side by side at their appropriate levels on the tower, provided the vendor installs with a minimum of 8 feet vertical separation between each UHF antenna and a Minimum of 20 feet vertical separation of each VHF antenna.



SUPPORT AT ROOF EQUIPMENT

SECTION 00501 - BID BOND

COUNTY OF TULARE
STATE OF CALIFORNIA

BIDDER'S BOND

KNOW ALL MEN BY THESE PRESENTS:

That we, _____
_____ as PRINCIPAL, and

_____ as SURETY, are held and firmly bound unto the County of Tulare, hereinafter called the Obligee, in the sum of TEN PERCENT (10%) OF THE TOTAL AMOUNT OF THE BID of the Principal above named, submitted by said Principal to the Board of Supervisors, County of Tulare, for the work described below, for the payment of which sum in lawful money of the United States, well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents. In no case shall the liability of the surety hereunder exceed the sum of \$_____.

THE CONDITION OF THIS OBLIGATION IS SUCH that, whereas, the Principal has submitted the above-mentioned bid to the Board of Supervisors, County of Tulare, for certain construction specifically described as follows, for which bids are to be opened at Visalia, California, on Thursday, **January 21, 2021**, for construction on the Tulare County – **Sheriff and Fire Dispatch Center at 5300 W Tulare Avenue, Visalia, CA 93277.**

NOW, THEREFORE, if the aforesaid Principal is awarded the Contract, given the required notice of award and presented with the County-Contractor Agreement for signature, and, within the time and manner required under the Specifications, executes and files it with the Clerk of the Board of Supervisors in the prescribed form and in accordance with the bid, together with all insurance certificates, bonds, powers of attorney, certificates of authority and financial statements, proofs of licensing, and any other documents required by the Specifications to be filed with the executed Agreement, then this obligation shall be null and void; otherwise, it shall be and remain in full force and effect.

In the event suit is brought upon this bond by the Obligee and judgement is recovered, the surety shall pay all costs incurred by the Obligee in such suit, including a reasonable attorney's fee to be fixed by the Court.

IN WITNESS WHEREOF, we have hereunto set our hands and seals on this _____ day of _____, 2020.

Principal

(Seal)

(Seal)

(Seal)

Surety

(Seal)

(Seal)

(Seal)

Note: Signature of those executing for the surety must be properly acknowledged or notarized.

END OF SECTION 00501

**SOIL INVESTIGATION FOR
TULARE AKERS PROFESSIONAL
CENTER NEW COMMUNICATION TOWER
AKERS STREET,
VISALIA, CALIFORNIA**

Submitted to:
Capital Projects

May 29, 2020

Submitted by:
CTL- INC.

May 29, 2020
File No. E2755-20

Mr. Kyle Taylor
Capital Projects
5953 south Mooney Blvd.,
Visalia, Ca. 93277

SUBJECT: Soil Investigation for proposed Tulare Akers Professional Center
New Communication Tower, Akers Street, Visalia, California.

Gentlemen:

At your authorization and request, we have performed a Soil Investigation for Tulare Akers Professional Center New Communication Tower, Akers Street, Visalia, California.

The accompanying report presents the results of our Soil Investigation for the above referenced project. The report describes our study, findings, conclusions, and recommendations for use in design by the project consultants. It is the client's responsibility to see that all parties to the project, including the designer, contractor, subcontractors, etc., are made aware of this report in its entirety, including the Additional Services and Limitations sections.

We appreciate the opportunity to be of service. If you have questions regarding the information contained in this report, please contact us.

Respectfully submitted,

CTL, Inc.

Santiago Espinoza
Managing Engineer
RCE No. 83299



SE:rc

TABLE OF CONTENTS

	<u>PAGE</u>
INTRODUCTION.....	1
SITE LOCATION AND DESCRIPTION	1
PROPOSED DEVELOPMENT.....	1
SOIL AND GROUNDWATER CONDITIONS.....	2
CONCLUSIONS AND RECOMMENDATIONS.....	3
1.0 General.....	3
2.0 Site Preparation.....	3
2.1 Clearing.....	3
2.2 Compaction.....	4
2.3 Engineered fill.....	4
2.4 Fill Placement.....	4
2.5 Utility Trench Backfill.....	5
3.0 Foundation Recommendations.....	6
3.1 Drilled Piers.....	6
3.2 Seismic Design Parameters.....	7
4.0 Lateral Earth Pressure and Frictional Resistance.....	8
5.0 Additional Services.....	8
CHANGED CONDITIONS AND LIMITATIONS.....	9

APPENDIX

APPENDIX A	Suggested Earthwork Specifications
APPENDIX B	Testhole Boring Logs
APPENDIX C	Laboratory Findings
APPENDIX D	Testhole Boring Location Map

**SOILS INVESTIGATION
FOR THE NEW COMMUNICATIONS TOWER
TULARE COUNTY AKERS PROFESSIONAL CENTER
5300 WEST TULARE STREET
VISALIA, CALIFORNIA**

INTRODUCTION

This report presents the results of a Soils Investigation for the Proposed Communications Tower at the Tulare County Akers Professional Center, 5300 West Tulare Street in Visalia, California. The purpose of the investigation was to explore and evaluate the subsurface conditions, and to make recommendations for the site preparation procedures and foundation parameters. This report includes the field and laboratory investigation data and presents geotechnical conclusions and recommendations. This report is based upon data obtained from one soil boring and laboratory tests performed on samples obtained from the boring and bulk samples.

SITE LOCATION AND DESCRIPTION

The project is located at 5300 West Tulare Street in Visalia, California. The latitude is 36.3228 degrees and the longitude is -119.3514 degrees at the approximate center of the site. A Site Location Map is presented in Appendix C. At the time of the investigation, the proposed construction area lies within an existing solar parking structure. The description of the site is based on visual observations made during our field investigation on May 22, 2020.

PROPOSED DEVELOPMENT

Based on information obtained, the proposed Communication Tower will be self-supported. Structural loads for the Tower will be supported on a pier footing. No detailed structural information was provided at this time. Appurtenant construction will include underground utilities.

SOIL AND GROUNDWATER CONDITIONS

The subsurface soils encountered generally consist of sandy silt, sand and sandy clay. The upper surface is generally medium dense sandy silt to 13 feet below grade (BG) underlain by medium dense sand to a depth of 18 feet BG, the clayey sand was underlain by sandy silt, sand and sandy clay to a depth of 18 feet BG. The sand was underlain by dense to very dense silty sand, clayey sand and sandy clay to 36.5 feet BG, maximum depth explored.

Groundwater was not encountered during our field exploration during and after drilling. It should be noted that groundwater level fluctuates due to variations in precipitation, land use, irrigation, and other factors. The evaluation of these factors is beyond our scope of services.

The soil profile described above is generalized, therefore, the reader is advised to consult the Logs of Borings in Appendix A for soil conditions at specific locations or depths. Care should be exercised in interpolating or extrapolating subsurface conditions beyond the boring locations.

Locations of our exploratory borings, shown on the Boring Location Maps in Appendix C were determined with a measuring wheel from features shown on the Site Plan provided for our use. Hence, the accuracy of the boring locations can be implied only to the degree that this method warrants. Surface elevations at the boring locations were not measured.

CONCLUSIONS AND RECOMMENDATIONS

1.0 General

Based on field data and engineering analyses, the site is suitable for the proposed construction provided the site is graded in accordance with 2019 California Building Code and that our recommendations are incorporated into the project design and are followed throughout the construction.

Expansive soil was encountered within the near surface soils at the site. The subject site is not near any active known fault, and surface rupture does not apply. Groundwater was not encountered in our exploration boring. Therefore, there is a low liquefaction potential and lateral spreading to occur at the site. No special mitigation is required.

Detailed site grading and foundation design recommendations are presented in the following sections.

2.0 Site Preparation

2.1 Clearing: Prior to earthwork operations, the area to be developed should be stripped of vegetation, organic topsoil, undocumented fills and cleared of surface and subsurface obstructions and miscellaneous debris from the proposed construction areas. **We estimate the depth of clearing to be approximately four to nine inches.** Deeper clearing may be required in localized areas. The actual depth of clearing should be reviewed by CTL. Since no grading is involved with the construction of the tower, no further site preparation is required.

2.2 Compaction: The scarified subgrade and any subsequent fill placed at the site should be moisture conditioned to within 0 to 4 percent over the optimum moisture content and compacted to at least 90 percent of maximum dry density as determined by ASTM Test Method D1557. Aggregate Base should be compacted to 95 percent.

2.3 Engineered Fill: Fill should consist of select material. Native soils, free from organic, vegetation and rocks or cobbles larger than one inch and have an expansion index less than 20, may be used as Engineered Fill. Fill with an organic content higher than 3 percent by dry weight should not be used and removed from the site or used in non-structural areas as approved by the owner. Import material if required, must be reviewed by CTL prior to transport to the site. Import material should conform to the following criteria:

ENGINEERED FILL REQUIREMENTS	
Maximum Expansion Index	20
Maximum Particle Size (inch)	1
Percentage Passing #200 Sieve	12-70
Maximum Water-Soluble Sulfate in Soil, percent by dry weight	0.2

2.4 Fill Placement: Fill material should be moisture-conditioned to within 0 to 4 percent above the optimum moisture content prior to compaction. Fill material with excessive moisture should be allowed to dry prior to compaction or be mixed with dry soil to bring the fill to a workable moisture content. Fill should be placed in level lifts not exceeding a loose, uncompacted thickness of eight inches, and compacted as engineered fill.

2.5 Utility Trench Backfill: The underground utilities should be installed according to the manufacturer's recommendations. However, where no manufacturer's recommendations are available, underground utilities should be installed as described below. Underground utility lines should have no less than 18 inches of cover. A minimum of six inches of compacted sand bedding under the pipe, and a pipe envelop extending six inches above the pipe, should be provided. The remaining backfill material should consist of Engineered Fill as described previously in this report. Utility trench backfill should be moisture conditioned and compacted to 95 percent in the upper 2 feet in structural pavement areas and 90 percent below 2 feet from the top of final grade

3.0 Foundation Recommendations

3.1 Drilled Piers: The proposed structures may be supported on straight shaft, cast-in-place, concrete piers with the supporting capacity derived from friction and end bearing. The drilled piers should be a minimum of 24 inches in diameter. A structural engineer should design the piers to resist the moment, shear and axial loads.

These piers may be designed using the allowable end bearing capacity of 3,000 pounds per square foot (psf) and allowable skin resistance of 300 psf. The allowable pier support capacity is for combined dead and sustained live loads and may be increase by one-third ($1/3$) when including transient live loads due to wind or seismic loading. To calculate the uplift resistance, the allowable friction resistance is compression listed above may be multiplied by a reduction factor of 0.6, plus the pier weight. Settlement is expected to be due to substantially to elastic compression of the foundation materials and should be essentially complete following application of the design loads. The total settlement to the cast-in-place piers is expected to be on the order of $\frac{1}{2}$ of an inch.

Resistance to lateral loads may be determined by using the "Pole Formula" given in Section 1807.3.2.1 of the California Building Code. For this method, we recommend the lateral soil bearing pressure of 300 pounds per square foot per foot of embedment to be used to establish the required embedment depth (maximum of 3,000 psf). It is recommended that the piers have a minimum embedment depth of 10 feet below grade. The design value may be increased to twice the above value of the structure which will not be adversely affected by a half inch lateral deflection at the ground surface due to short-term lateral loads.

Loose soils at the bottom of the drilled piers should be removed to the extent possible by a cleanout bucket or other pier cleaning equipment. A representative of CTL should be present at the site during pier drilling and concrete placement operation to establish substantial conformance with the design concepts and specification requirements.

The structural engineer should provide the structural specifications for the cast-in-place drilled hole foundation. Concrete should be placed in the drilled shaft as

soon as possible following the drilling. If required, sand layers require temporary casing to support the excavations during construction. The casing should be slowly removed from the shaft excavation during placement of concrete while ensuring the casing is not raised above the level of the concrete during the shaft construction. As an alternat to temporary casing, it may be possible to utilize a drilling slurry for temporary support of the foundation if unstable sidewall conditions occur.

3.2 Seismic Design Parameters: The proposed structure should be designed with construction specifications and structure properties to withstand the anticipated or probable effects of seismic ground motion, if a seismic event was to occur. The approximate center of the project site is at a latitude of 36.3228 ° and longitude of -119.3514°. Probabilistic values of ground motion corresponding to various levels of seismic hazards have been established by CGS and USGS based on ASCE 7-16. Based on the new procedure in Section 1613 of 2019 California Building Code (CBC), the seismic design parameters are provided as follows:

SEISMIC DESIGN PARAMETERS 2019 CBC		
Property	Symbol	Value
Occupancy Category	-	I, II or III
Site Class	-	D
Mapped MCE Acceleration at Short Periods	S_s	0.567
Mapped MCE Acceleration at 1-Second Periods	S_1	0.223
Site Coefficient	F_a	1.346
Adjusted MCE Spectral Response Acceleration Parameter	S_{MS}	0.764
Design Spectral Acceleration Parameter	S_{DS}	0.509
Mapped Maximum Considered Earthquake MCE_G	PGA	0.247
Maximum Considered Earthquake MCE_G adjusted for site effects	PGA_M	0.334

4.0 Lateral Earth Pressure and Frictional Resistance

For structures subject to lateral pressures from native soils and backfill at the Site, the following values are recommended:

Lateral Earth Pressures	
Lateral Pressure and Condition	Equivalent Fluid Pressure, pcf
Active case, drained	45
At-rest case, drained	60
Passive case, drained	360

Design values assume level, drained granular backfill. Pressures due to surcharge loads from adjacent footings, traffic, etc., should be analyzed separately. The upper one foot of soil of the adjacent grade should not be used in the passive pressure computation. A coefficient of friction of 0.35 may be used between subgrade soil and concrete footings. Vertical soil loads may be calculated based on soil bulk density of 120 pounds per cubic foot.

The foregoing equivalent fluid pressures and fractional coefficients represent ultimate soil values, and a safety factor consistent with design conditions should be included. A minimum safety factor of 1.5 against lateral sliding is recommended if the sliding is resisted only by frictional resistance. When combined passive and frictional resistance is used, we recommend a minimum safety factor of 2.0. For lateral stability against seismic loading, we recommend a minimum safety factor of 1.1.

5.0 Additional Services

The review of plans and specifications, construction consultation, and field observation by CTL, Inc. are an integral part of the conclusions and recommendations made in this report. These are vital elements and extensions of this geotechnical engineering investigation. We recommend that following the development of construction plans and specifications, those portions of the contract drawings and specifications that pertain to earthwork be made available to CTL, Inc.

to verify that they are consistent with our recommendations contained in this report. We recommend that CTL, Inc. be retained to provide geotechnical consultation and construction testing services during site preparation and grading phases of the project. This would include observation and testing of the earthwork.

CHANGED CONDITIONS AND LIMITATIONS

Findings of this report are valid as of the present. However, changes in proposed construction such as structure type, design loads, and location may invalidate the report. Also, site conditions and applicable standards may change. Therefore, this report should be reviewed to determine its applicability considering changed conditions or after a substantial lapse of time between the preparation of our report and the start of work at the site (two years or more). The analyses and recommendations submitted in this report are based upon the data obtained from the exploratory borings performed. The samples obtained and tested, and the observations made, are assumed to be representative of the site soils. The report does not reflect variations which may occur between borings. The validity of the recommendations contained in this report is also dependent upon the prescribed testing and observation program during the site preparation and construction phases. Our firm assumes no responsibility for construction compliance with these design concepts and recommendations unless we have been retained to perform observation and review during site preparation, grading, and foundation/slab construction. CTL, Inc. has prepared this report for the exclusive use of the client noted on the cover page and the project design consultants. The report has been prepared in accordance with generally accepted practices by reputable geotechnical engineers practicing in this or a similar locality at the time the report was written. No other warranties, either expressed or implied, are made as to the professional advice provided under the terms of this agreement and included in this report.

TEST BORING LOG LEGEND

DEPTH	SAMPLES	SOIL GROUP	
0'			UNDISTURBED TUBE SAMPLE (2-3/8" INSIDE DIAMETER SPLIT SPOON SAMPLER OR 1-3/8" INSIDE DIAMETER OR STANDARD PENETRATION SAMPLER (SPLIT BARREL SAMPLER)
1'			
2'			
3'			NO RECOVERY
4'			
5'			
6'			PARTIAL RECOVERY
7'			
8'			
9'			STANDARD PENETRATION BLOW COUNTS FOR 6" DRIVE OF SAMPLER USING 140LBS. DROP HAMMER WITH 30" DROP
10'			
11'			
12'			SMALL DISTURBED SAMPLE COLLECTED FROM TESTHOLE CUTTINGS
13'			
14'			
15'			LARGE BULK SAMPLE COLLECTED FROM TESTHOLE CUTTINGS
16'			
17'			
18'	1		HNU 101 PHOTOIONIZATION ANALYZER FIELD READING IN (PPM)
19'	2		
20'	3		
21'	BAG		SOIL SAMPLE NUMBER
22'	SX.		
23'	(250)		
24'			
25'			
26'	#1669		
27'			
28'			
29'			
30'			

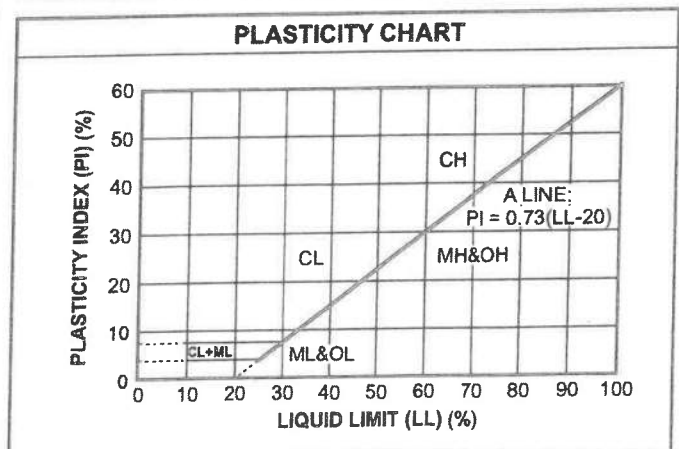
UNIFIED SOIL CLASSIFICATION SYSTEM

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART		
COARSE-GRAINED SOILS (more than 50% of material is larger than No. 200 sieve size.)		
GRAVELS More than 50% of coarse fraction larger than No. 4 sieve size	Clean Gravels (Less than 5% fines)	
	GW	Well-graded gravels, gravel-sand mixtures, little or no fines
	GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines
	Gravels with fines (More than 12% fines)	
	GM	Silty gravels, gravel-sand-silt mixtures
	GC	Clayey gravels, gravel-sand-clay mixtures
SANDS 50% or more of coarse fraction smaller than No. 4 sieve size	Clean Sands (Less than 5% fines)	
	SW	Well-graded sands, gravelly sands, little or no fines
	SP	Poorly graded sands, gravelly sands, little or no fines
	Sands with fines (More than 12% fines)	
	SM	Silty sands, sand-silt mixtures
	SC	Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS (50% or more of material is smaller than No. 200 sieve size.)		
SILTS AND CLAYS Liquid limit less than 50%	ML	Inorganic silts and very fine sands, rock flour, silty of clayey fine sands or clayey silts with slight plasticity
	CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
	OL	Organic silts and organic silty clays of low plasticity
SILTS AND CLAYS Liquid limit 50% or greater	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
	CH	Inorganic clays of high plasticity, fat clays
	OH	Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS	PT	Peat and other highly organic soils

LABORATORY CLASSIFICATION CRITERIA		
GW	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{D_{30}}{D_{10} \times D_{60}}$ between 1 and 3	
GP	Not meeting all gradation requirements for GW	
GM	Atterberg limits below "A" line or P.I. less than 4	Above "A" line with P.I. between 4 and 7 are borderline cases requiring use of dual symbols
GC	Atterberg limits above "A" line with P.I. greater than 7	
SW	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{D_{30}}{D_{10} \times D_{60}}$ between 1 and 3	
SP	Not meeting all gradation requirements for GW	
SM	Atterberg limits below "A" line or P.I. less than 4	Limits plotting in shaded zone with P.I. between 4 and 7 are borderline cases requiring use of dual symbols.
SC	Atterberg limits above "A" line with P.I. greater than 7	

Determine percentages of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size), coarse-grained soils are classified as follows:

Less than 5 percent GW, GP, SW, SP
 More than 12 percent GM, GC, SM, SC
 5 to 12 percent Borderline cases requiring dual symbols



PROJECT: Soils Investigation
 New Tower at Akers Professional
 Building Visalia, California

CTL, INC.
 Consolidated Testing Laboratories
 710 S. Kaweah Avenue, Exeter, Ca
 559-592-3555 Fax 559-592-3553

JOB NO.: E2755-20
 DATE: 05/22/20
 BY: Z. Boudreaux

BORING LOG NUMBER B1

DEPTH	%REC	BLOW COUNTS	SAMPLE NO.	SOIL GROUP	SOIL DESCRIPTION	PERCENT MOISTURE	DRY DENSITY
0'					0-4"		
					Asphalt concrete		
					4"-9"		
			2.5"		¾" Class II Aggregate Base		
			2.5"		9"-5'		
				ML	Sandy silt; dark grayish brown, moist, very fine to fine grained sand.		
5'							
			2.5"		5'-9'		
				ML	Sandy silt; grayish brown, moist, very fine to Medium grained sand.		
					9'-13'		
10'			2.5"	ML	Sandy silt; brown, moist, very fine to fine grained sand, slight clay binder.		
					13'-18'		
				SP	Sand; dark yellowish brown, moist, very fine to coarse grained sand.		
15'			2.5"				
					18'-23'		
				ML	Sandy silt; brown, moist, very fine to fine grained sand.		
20'			2.5"				
					23'-31'-3"		
				SP	Sand; grayish brown, moist, very fine to fine grained.		
25'			2.5"				
30'							

LOCATION: B1 (See location map)
 EQUIPMENT: B-80 drill rig with 3.25" hollow stem augers with 2.5" and 1.5' split spoon sampler.

PROJECT: Soil Investigation for
New Tower at Akers Professional
Building, Visalia, California

CTL, INC.
Consolidated Testing Laboratories
710 S. Kaweah Avenue, Exeter, Ca
559-592-3555 Fax 559-592-3553

JOB NO.: E2755-20
DATE: 05/22/20
BY: Z. Boudreaux
PAGE: 2 of 2

BORING LOG NUMBER B1

DEPTH	% REC	BLOW COUNTS	SAMPLE NO.	SOIL GROUP	SOIL DESCRIPTION	PERCENT MOISTURE	DRY DENSITY
30'		7 12 13	2.5"				
35'		9 13 16	2.5"	CL	31'-3"-36.5' Sandy clay; grayish brown, moist, very fine to fine grained sand fraction, low plasticity clay.		
40'							
45'							
50'							
55'					Terminated drilling at 36.5' below existing ground. No free-standing ground water encountered		
60'							

B1 (See location map)

LOCATION: EQUIPMENT: B-80 mobile drill rig with 3 1/4" I.D. hollow stem augers with 1.5 and 2.5 split spoon sampler.

APPENDIX C
LABORATORY
SOIL TEST DATA

DIRECT SHEAR TEST

Quick-consolidated, direct shear tests were performed on undisturbed, saturated samples of native materials. These tests provide information on soil shear strength vs. Normal load and are used to determine the angle of internal friction and cohesion of earth materials under essentially "drained" conditions.

SOLUBLE SULFATE TEST

Combined samples from various locations on the site were collected for soluble sulfate tests. Tests were performed on samples taken from the upper five (5) feet to determine the extent to which measures should be taken (if any) to prevent sulfate attack on concrete surfaces exposed to direct contact with soils. The result of the tests show sulfate content in the areas to be tested are less than 0.1% by weight, indicating that special procedures as mentioned above should not be required.

Grain size distributions for samples selected as most representative of sub-soils encountered in our test borings were determined by Sieve Analysis (ASTM Test D422).

PROJECT: New Tower at Akers Professional
Complex, Visalia, Ca.

FILE NO. E2755-20
DATE: 05/28/20

**DIRECT SHEAR TESTS
(UNDISTURBED SAMPLES)**

**MOISTURE CONTENT
% OF DRY WT.**

SAMPLE LOCATION	DEPTH	BEFORE TEST	AFTER TEST	COHESION LBS./SQ.FT.	INTERNAL FRICTION	USCS
B1	6'-6.5'	17.5	26.8	90	30°	ML
B1	11'-11.5'	2.89	10.10	0	32°	SP
B1	25'-25.5'	5.50	12.48	0	30°	SP

PROJECT: Soils investigation
for New Tower at Akers Professional Complex
Visalia, Ca.

FILE NO: E2755-20
Date: 5/26/2020

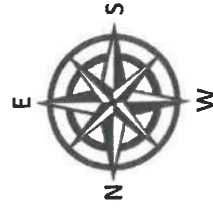
TABLE 2

CHEMICAL TESTS

SAMPLE I.D.	SULFATE CONTENT (ppm)	CHLORIDE CONTENT (ppm)	pH (Std. units)	MINIMUM RESISTIVITY (ohm-cm)
B1 @ 0-3'	300	120	7.5	2,500

Cigna Building Aerial View

Akers Street



**Tulare Akers Professional Center
New Communication Tower
Akers Street,
Visalia Ca**

LEGEND

 Approximate location of testhole boring