# **ADSA**

# 140

### **APPLICATION FOR SUBMITTAL OF POST-APPROVAL DOCUMENT**

This application is for submittal of documents, after the initial approval of the project (post-approval documents), that require Division of the State Architect (DSA) review and approval. This form shall be completed by the Design Professional in General Responsible Charge of the project, in accordance with California Code of Regulations, Title 24, Part 1, Sections 4-317, 4-323 and 4-338 and in compliance with DSA IR A-6: Construction Change Document Submittal and Approval Process.

DSA documents referenced within this form are available on the DSA Forms or DSA Publications webpages.

1. SUBMITTAL TYPE: (Is this a re	submittal? Yes No 🖌 )						
Deferred Submittal  Addendur	n Number: 1	Revision Number:	C	CD Numbe	er:	Category A	or B
2. PROJECT INFORMATION:							
School District/Owner: Bakersfield City School District			D	SA File Numbe	er: 15.6	6	
Project Name/School: Dr. Martin Lu	ther King Jr. Elementary So	chool		D	SA Application	Number 03	122604
3. APPLICANT INFORMATION:							
Date Submitted: 12/19/24		Attached Pa	iges? No⊡Yes	Number	r of pages? 16	67	
Firm Name: Integrated Designs by	SOMAM, Inc.	Contact Nar	ne: Sean Parker	r			
Work Email: sparker@somam.com		Work Phone	e: (559) 436-088	1			
Firm Address: 6011 N. Fresno Stree	et, Suite 130	City: Fresr	10	:	State: CA	Zip Code: 9371	10
4. REASON FOR SUBMITTAL: (C	heck applicable boxes)						
For revision or addendum prior to	construction.		[	□ For a pro	pject currently u	nder construction	1.
□ For a project that has a form <i>DSA</i> a 90-Day Letter issued.	301-N: Notification of Requ	uirement for Certifica	tion, DSA 301-P	2: Posted N	otification of Re	equirement for Ce	<i>rtification</i> or
□ To obtain DSA approval of an exi	sting uncertified building or	buildings.					
□ For Category B CCD this is: □a \	/oluntary submittal,∏a DS	A required submittal	(attach DSA not	ice requirin	g submission).		
5. DESIGN PROFESSIONAL IN G	ENERAL RESPONSIBLE	CHARGE:					
Name of the Design Professional In	General Responsible Char	ge: Curtis E. Flynn					
Professional License Number: C289	Professional License Number: C28966 Discipline: Architect						
Design Professional in General Responsible Charge Statement: The attached post-approval documents have been examined by me for design intent and appear to meet the appropriate requirements of Title 24, California Code of Regulations and the project specifications. They are acceptable for incorporation into the construction of the project. Signature:							
6. CONFIRMATION, DESCRIPTION AND LISTING OF DOCUMENTS:							
For addenda, revisions, or CCDs: CHECK THIS BOX I to confirm that <i>all</i> post-approval documents have been stamped and signed by the Responsible Design Professional listed on form DSA 1: Application for Approval of Plans and Specifications for this project. (For Deferred Submittals, refer to IR A-18: Use of Construction Documents Prepared by Other Professionals, and IR A-19: Design Professional's Signature and Seal (Stamp) on Construction Documents, when applicable, for signature and seal requirements.)							
Provide a brief description of construction scope for this post-approval document (attach additional sheets if needed): Final Coordination Items, Please see Project Manual							
List of DSA-approved drawings affected by this post-approval document: C1.0, C1.1, L1.01, L1.02, A0.01, A1.02, A1.03, A2.10, A4.10, A5.10, A6.10, A7.02, A7.03, S2.01, S3.01, S4.01, S6.01, S7.02, S7.03, M0.01, M0.11, M2.11, M3.11, E-1.0, E-3.0, E-4.0, E-5.0							
DSA USE ONLY							
			Returne	ed	D	SA STAMP	
SSSDate	Approved Disappro	oved   Not Required	Date:				
Comments:			By:				
FLSDate	Approved Disappro	oved □Not Required					

ACS\_\_\_\_\_Date\_\_\_\_ □Approved □Disapproved □Not Required

FLS\_\_\_\_\_ Comments:

#### ADDENDUM NO. 1

#### **PROJECT MANUAL**

#### MLK ELEMENTARY SCHOOL PARENT CENTER BAKERSFIELD CITY SCHOOL DISTRICT

Project No.: 5528 DSA File No. 15-6 DSA App No. 03-122604 December 19, 2024



This Addendum and Addendum drawings form a part of the Contract Documents. It modifies the original Project Manual and Drawings. Bidders are required to acknowledge receipt of this Addendum in the space provided in the Bid Form. Failure to acknowledge receipt of each addendum may subject bidder to disqualification.

Addendum No. 1 – December 11, 2024 Project No. 5528

- **1-01 <u>GEOTECH REPORT</u>**: Add attached Geotech report in its entirety. See Exhibit 1-01
- **1-02 <u>BID FORM:</u>** replace Bid Form and Proposal document 004113 in its entirety. See Exhibit 1-02.
- **1-03** The contractor shall install owner furnished HVAC equipment per Exhibit 1-03.
- **1-04** District will provide Pelican Thermostat. Contractor to install. See Exhibit 1-04.
- **1-05** District will cut and cap existing irrigation lines as necessary for construction of new building.

#### PROJECT MANUAL

- 1-06 PROJECT MANUAL, SPECIFICATION SECTION 000010 TABLE OF <u>CONTENTS:</u> Replace specification section 000010 in its entirety. See Exhibit 1-06
- **1-07 PROJECT MANUAL, SPECIFICATIONS SECTION 097217 VINYL COVERED TACKBOARD:** Add the following to Part 2, Section C:
  - 15. Color: Match Chatfield Clarke Company, INC Color Ceres Fog.
- 1-08 <u>PROJECT MANUAL, SPECIFICATION SECTION 271000 STRUCTURED</u> <u>CABLING SYSTEM:</u> Add specification section 271000 in its entirety. See Exhibit 1-08.

#### DRAWINGS

#### <u>CIVIL</u>

- **1-09 DRAWING, SHEET C1.0 GRADING PLAN:** Note the following changes (see C1.0 addendum 1 drawing):
  - 1. Utility yard has been added to the Southwest corner of the building.
- **1-10 DRAWING, SHEET C1.1 SEWER AND WATER PLAN:** Not the following changes (See C1.1 addendum 1 drawing):
  - 1. Water point of connect has changed.
  - 2. Utility yard has been added to Southwest corner of the building.

#### **LANDSCAPE**

**1-11 DRAWING, SHEET L1.01 – LANDSCAPE PLAN:** Plan has been updated to show utility yard at Southwest corner of the building. (See L1.01 addendum 1 Drawing):

**1-12 DRAWING, SHEET L1.02 – IRRIGATION PLAN**: Plan has been updated to show utility yard at Southwest corner of the building. Irrigation line has been adjusted accordingly. See L1.02 addendum 1 drawing

#### **ARCHITECUTURAL**

- **1-13 DRAWING, SHEET A0.01 SCHEDULES:** Note the following changes (See A0.01 Addendum 1 drawing):
  - 1. Mag locks added to doors 101A and 101B
  - 2. Walk off carpet tiles are added to room 101-see floor plan for locations
  - 3. Add plywood over GYP board in room 103. On the North and East walls.
  - 4. Add plywood to the abbreviations.
  - 5. Change ceiling height to 9'-0" in room 103.
- **1-14 DRAWING, SHEET A1.02 ENLARGED SITE PLAN:** Note the following changes (See A1.02 Addendum 1 drawing)
  - 1. POC locations for the water line has been modified.
  - 2. A utility yard has been added at the Southwest corner of the building. See Detail 12/A1.03
  - 3. Keynotes 4 and 7 have been modified.
  - 4. Planter symbols has been added to the legend.
  - 5. Turf areas east of the new building have been replaced with planters. See keynote 19.
- **1-15 DRAWING, SHEET A1.03 SITE DETAILS:** Note the following changes (See A1.03 Addendum 1 drawing):
  - 1. Add detail 12/A1.03 for new utility yard.
  - 2. Add detail 13/A1.03 for new decorative gate.
  - 3. Add detail 14/A1.03 for new housekeeping pad.
- **1-16 DRAWING, SHEET A2.10 FLOOR PLAN:** Note the following changes (See addendum 1 drawing):
  - 1. Dimensions for pilasters and columns have been changed.
  - 2. Electrical and low voltage panels in room 103 have been changed. See keynotes 21, 22, 24, 25 and 26 and Interior Elevations 3/A5.10
  - 3. Add IDF cabinet to room 101. See keynote 20.
  - 4. Add cabinets to room 101. See keynote 19.
  - 5. Add mag lock pad at doors 101A and 101B. See keynote 28.
  - 6. Add walk off carpet tiles to room 101. See keynote 27.
  - 7. Add security keypad next to door 101A. See keynote 23.
  - 8. Change markerboards to 4'-0" long. See keynote 2.
  - 9. Keynotes 7, 8 and 12 have been modified.

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Project No. 5528

- **1-17 DRAWING, SHEET A4.10 ROOF PLAN:** Note the following changes (See A4.10 addendum 1 drawings):
  - 1. Revise key note 6.
  - 2. Add outdoor unit. See keynote 12.
  - 3. Add roof walk mats. See keynote 13
  - 4. Add hose bibb. See keynote 14.
  - 5. Add roof vent penetrations. See keynote 15.
  - 6. Add condensate pipe. See keynote 16.
- **1-18 DRAWING, SHEET A5.10 INTERIOR ELEVATIONS:** Note the following changes (See A5.10 addendum 1 drawings):
  - 1. Elevation "A" classroom 101:
    - i. Add IDF cabinet. See keynote 32.
    - ii. Add full height cabinet. See keynote 38.
  - 2. Elevation "C" classroom 101:
    - i. Change markerboards to 4'-0" long. See keynote 5.
  - 3. Elevation "D" classroom 101:
  - i. Add IDF cabinet. See keynote 32.
  - 4. Electrical room 103:
    - i. Add elevations B, C and D
    - ii. Modify Elevation A.
- **1-19 DRAWING, SHEET A6.10 REFLECTED CEILING PLAN:** Note the following changes (See A6.10 addendum 1 drawing):
  - 1. Modify keynote 8
  - 2. Add indoor air unit to room 103. See keynote 17.
  - 3. Add 4x surface mounted light fixture to the legend.
- **1-20 DRAWING, SHEET 7.02 EXTERIOR DETAILS:** Note the following changes (See A7.02 addendum 1 drawing):
  - 1. Replace roof drain details 2/A7.02 and 3/A7.02.
  - 2. Add pipe penetration detail 6/A7.02
  - 3. Add electrical room section detail 15/A7.02.
- **1-21 DRAWING, SHEET A7.03 EXTERIOR DETAILS:** Note the following changes (See A7.03 addendum 1 drawing):
  - 1. Details 10, 11 and 12 have new dimensions and show correct locations of the steel columns.

#### **STRUCTURAL**

**1-22** DRAWING, SHEET S2.01 – FOUNDATION PLAN: Note the following changes (See S2.01 addendum 1 drawing):

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- 1. Dimensions for columns and pilasters have been changed.
- **1-23 DRAWING, SHEET S3.01 CEILING FRAMING PLAN:** Note the following changes (See S3.01 addendum 1 drawing):
  - 1. Add ceiling framing to electrical room.
  - 2. Add attic access door framing at covered walkway.
- **1-24 DRAWING, SHEET S4.01 ROOF FRAMING PLAN:** Note the following changes (See S4.01 addendum 1 drawing):
  - 1. Dimensions for columns and pilaster have been changed.
- **1-25 DRAWING, SHEET S6.01 FOUNDATION DETAILS:** Note the following changes (See S6.01 addendum 1 drawings):
  - 1. Details 3 and 6 the column pocket depth has bene changed to 6".
  - 2. Detail 9 concrete ledge has been added for the block veneer.
- **1-26 DRAWING, SHEET S7.02 FRAMING DETAILS:** Note the following changes (See S7.02 addendum 1 drawing):
  - 1. Detail 2/S7.02 has been deleted.
  - 2. Detail 1/S7.02 has been modified
- **1-27 DRAWING, SHEET S7.03 FRAMING DETAILS:** Note the following changes (See detail S7.03 addendum 1 drawings):
  - 1. Detail 2/S7.03 and 7/S7.03 has been added.
  - 2. Detail 4/S7.03 has been modified

#### **MECHANICAL**

- **1-28 DRAWING, SHEET M0.01 GENERAL NOTES-LEGEND:** Note the following changes (See M0.01 addendum 1 drawing):
  - 1. Add OFCI "Owner Furnished Contractor Installed" to schedules
- **1-29 DRAWING, SHEET M0.11 DETAILS:** Note the following changes (See M0.11 addendum 1 drawing):
  - 1. Add detail 8 and 13.M0.11 in their entirety.
- **1-30 DRAWING, SHEET M2.11 HVAC PLAN:** Note the following changes (See M2.11 Addendum 1 drawing):
  - 1. Change location of wireless repeater in room 103. See keynote 3.
  - 2. Change locations of thermostat and CO2 detector. See keynote 6.
  - 3. Keynotes 1, 2, 4, 5, and 6 have been modified.

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- 4. Legend have been added.
- **1-31 DRAWING, SHEET M3.11 PLUMBING PLAN:** Note the following changes (See M3.11 addendum 1 drawing):
  - 1. Point of connection for water line has changed.
  - 2. Keynotes 3, 8 and 10 have been modified.
  - 3. Legend has been added.

#### ELECTRICAL

- **1-32** DRAWING, SHEET E-1.0 GENERAL NOTES, SYMBOLS AND DETAILS: Note the following changes (See E1.0 addendum 1 drawing):
  - 1. Update panel schedule LPC-1.
- **1-33 DRAWING, SHEET E-3.0 ENLARGED ELCTRICAL SITE PLAN:** Note the following changes (See E3.0 addendum 1 drawing):
  - 1. (N)transformer and electrical panel locations have been changed.
  - 2. (N)pull box locations have changed.
- **1-34 DRAWING, SHEET E-4.0 ELECTRICAL FLOOR PLAN:** Note the following changes (See E4.0 addendum 1 drawing):
  - 1. Add electrical notes.
  - 2. Add panels to electrical room.
  - 3. Add mag lock FOB at exterior doors.
  - 4. Add WAP and PA speaker.
  - 5. Add exterior PA speakers.
- **1-35 DRAWING, SHEET E-5.0 LIGHTING AND FIRE ALARM PLANS:** Note the following changes (See E5.0 addendum 1 drawing):
  - 1. Add panels to electrical room.
  - 2. Add light fixture to electrical room.

#### END ADDENDUM NO. 1

GEOTECHNICAL ENGINEERING & GEOLOGIC HAZARDS INVESTIGATION PROPOSED WELLNESS CENTER AND PARENT CENTER MLK ELEMENTARY SCHOOL 1100 CITADEL STREET BAKERSFIELD, KERN COUNTY, CALIFORNIA

> **PROJECT NO. 022-22124** OCTOBER 14, 2022

#### **Prepared for:**

MR. ROBERT VAN TASSEL Bakersfield City School District 1501 Feliz Drive Bakersfield, California 93307

#### **Prepared by:**

KRAZAN & ASSOCIATES, INC. GEOTECHNICAL ENGINEERING DIVISION 2205 COY AVENUE BAKERSFIELD, CALIFORNIA 93307 (661) 837-9200



GEOTECHNICAL ENGINEERING • ENVIRONMENTAL ENGINEERING CONSTRUCTION TESTING & INSPECTION

October 14, 2022

KA Project No. 022-22124

. . . .

Mr. Robert Van Tassel Bakersfield City School District 1501 Feliz Drive Bakersfield, California 93307

RE: Geotechnical Engineering & Geologic Hazards Investigation Proposed Wellness Center and Parent Center MLK Elementary School 1100 Citadel Street Bakersfield, Kern County, California

Dear Mr. Van Tassel:

In accordance with your request, we have completed a Geotechnical Engineering and Geologic Hazards Investigation for the above-referenced site. The results of our investigation are presented in the attached report.

If you have any questions, or if we may be of further assistance, please do not hesitate to contact our office at (661) 837-9200.

Respectfully submitted,
CROPESSIONA KRAZAN & ASSUCIATES, INC.
S R. JAROCHE
2698
avid R. Jarosz, II
TECH Se Managing Engineer
COF CALL RGE No. 26/8/RCE No. 60185

DRJ:ht



GEOTECHNICAL ENGINEERING • ENVIRONMENTAL ENGINEERING CONSTRUCTION TESTING & INSPECTION

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## **EKrazan** & ASSOCIATES, INC.

#### GEOTECHNICAL ENGINEERING • ENVIRONMENTAL ENGINEERING CONSTRUCTION TESTING & INSPECTION

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GEOTECHNICAL ENGINEERING • ENVIRONMENTAL ENGINEERING CONSTRUCTION TESTING & INSPECTION

October 14, 2022

KA Project No. 022-22124

#### GEOTECHNICAL ENGINEERING & GEOLOGIC HAZARDS INVESTIGATION PROPOSED WELLNESS CENTER AND PARENT CENTER MLK ELEMENTARY SCHOOL 1100 CITADEL STREET BAKERSFIELD, KERN COUNTY, CALIFORNIA

#### INTRODUCTION

This report presents the results of our Geotechnical Engineering and Geologic Hazards Investigation for the proposed MLK Elementary School Wellness Center and Parent Center to be located at 1100 Citadel Street in Bakersfield, Kern County, California. Discussions regarding site conditions are presented herein, together with conclusions and recommendations pertaining to site preparation, Engineered Fill, utility trench backfill, drainage and landscaping, foundations, concrete floor slabs and exterior flatwork, retaining walls and pavement design.

A site plan showing the approximate boring locations is presented following the text of this report. A description of the field investigation, boring logs, and the boring log legend are presented in Appendix A. Appendix A contains a description of the laboratory testing phase of this study, along with the laboratory test results. Appendices B and C contain guides to earthwork and pavement specifications. When conflicts in the text of the report occur with the general specifications in the appendices, the recommendations in the text of the report have precedence.

#### PURPOSE AND SCOPE

This investigation was conducted to evaluate the soil and groundwater conditions at the site, to make geotechnical engineering recommendations for use in design of specific construction elements, and to provide criteria for site preparation and Engineered Fill construction.

Our scope of services was outlined in our proposal dated August 10, 2022 (KA Proposal No. P543-22) and included the following:

- A site reconnaissance by a member of our engineering staff to evaluate the surface conditions at the project site.
- A review of available data for evaluation of subsurface conditions at the project site.
- Aerial photograph interpretation.
- A search of geologic and seismologic literature pertaining to the area of the site.

- Evaluation of potential geologic hazards.
- A field investigation consisting of drilling 4 borings to depths ranging from approximately 10 to 50 feet for evaluation of the subsurface conditions at the project site.
- Performing laboratory tests on representative soil samples obtained from the borings to evaluate the physical and index properties of the subsurface soils.
- Evaluation of the data obtained from the investigation and an engineering analysis to provide recommendations for use in the project design and preparation of construction specifications.
- Preparation of this report summarizing the results, conclusions, recommendations, and findings of our investigation.

#### PROPOSED CONSTRUCTION

We understand that design of the proposed development is currently underway. Some of the final details pertaining to the structures are unavailable. It is understood the project will include the addition of 2 new buildings: a 3,600 sq ft Wellness Center and a 960 sq ft Parent Center. On-site concrete flatwork areas and landscaping are associated with the development. The proposed development may also include paved access drives and parking areas.

It is anticipated the structures will utilize conventional shallow foundations and concrete slab-on-grade. Footing loads are anticipated to be light to moderate.

In the event, these structural or grading details are inconsistent with the final design criteria, the Soils Engineer should be notified so that we may update this writing as applicable.

#### SITE LOCATION, SITE HISTORY AND SITE DESCRIPTION

The proposed additions to the new school campus are located within the southern portion of the San Joaquin Valley, within the eastern portion of the City of Bakersfield, in Kern County, California (see Vicinity Map, Figure 1). The school campus is irregular in shape and encompasses approximately 33 acres of developed and vacant land in a developed area. The site is located about 600 feet south of Belle Terrace, at Citadel Street. The proposed elementary school campus is bound to the east by Cottonwood Road, a park, and several rural residential developments; to the south by East Branch Kern Island Canal and residential development; to the west by vacant land; and to the north by park/playground areas and drainage basins. The proposed elementary school campus is located at longitude 118.98978° West and latitude 35.34415° North. The US Geological Survey, Lamont, California 7.5-minute Quadrangle, dated 1992, indicates that surface elevations in the vicinity of the site are on the order of 390 to 395 feet above mean sea level. A significant watercourse identified as the Kern River is located approximately 3.7 miles northwest of the subject site. The East Branch Kern Island Canal trends along the southwest edge of the site. The Central Branch Kern Island Canal is located about 1.1 miles northwest of the site.

Site history was obtained by reviewing aerial photographs taken in 1937, 1942, 1952, 1956, 1968, 1973, 1975, 1981, 1984, 1992, 2003, 2006, 2010, 2012 and 2022. Review of the 1937 aerial photograph indicates that the proposed elementary school property consisted of agricultural land. No structures appeared to be located on the site. A tree-lined area appears to outline the location of a ditch that was observed within the north-central portion of the site still present during Krazan's August 2022 site reconnaissance. In addition, a canal trends northwest-southeast along the southwestern boundary of the site.

Review of the 1942 aerial photograph indicates that the project site conditions appeared to be relatively similar to that noted in the 1937 aerial photograph.

Review of the 1952 aerial photograph indicates that the project site conditions appeared to be relatively similar to that noted in the 1942 aerial photograph, except the on-site ditch is more evident due to the apparent removal of trees. The ditch appears to have previously trended northeasterly from the adjacent canal. The current observation during the August 2022 site reconnaissance observed the ditch to be present within the north-central portion of the site.

Review of the 1956, 1968, 1973 and 1975 aerial photographs indicate that the project site conditions appeared to be relatively similar to that noted in the 1952 aerial photograph.

Review of the 1981 aerial photograph indicates that the site may or may not be in agricultural use, but remains vacant with no structures. The southwest-northeast trending portion of the ditch had been removed and soil appears to have been worked in the area of the existing portion of the ditch.

Review of the 1984 and 1992 aerial photographs indicate that the project site conditions appeared to be relatively similar to that noted in the 1981 aerial photograph.

Review of the 2003 aerial photograph indicates that the project site predominately consisted of vacant land crisscrossed with unimproved roads or foot trails. The remaining site conditions appeared to be relatively similar to that noted in the previous aerial photographs.

Review of the 2006, 2010 and 2012 aerial photographs indicate that the project site conditions appeared to be relatively similar to that noted in the 2003 aerial photograph.

The conditions shown on the aerial photographs dating 1937 to 2022 (Scale: 1"= 500') indicate the site was predominately utilized as agricultural land until the 1980s. Since the early 1980s the site predominately consisted of vacant land. Presently, the site consists of a school with associated classroom buildings, play courts, playfields and parking lots. Portions of the site are covered by a sparse to moderate weed or grass growth and the surface soils have a loose consistency. A canal is located along the southwest edge of the site. Buried utility lines are located throughout the site. Several trees are located along the edges of the site and throughout portions of the site. Wood and chain-link fencing trend along the edges of the site. With the exception of the canal berms, the site is relatively level with no major changes in grade.

No evidence of surface faulting was observed on the property during our reconnaissance. No evidence of slope failures or instabilities was observed on the subject property or adjoining properties.

#### **GEOLOGIC SETTING**

#### <u>General</u>

The subject property is located along the eastern margin of the southern San Joaquin Valley portion of the Great Valley Geomorphic Province of California. The San Joaquin Valley is bordered to the north by the Sacramento Valley portion of the Great Valley, to the east by the Sierra Nevada, to the west by the Coast Ranges, and to the south by the Transverse Ranges. The San Joaquin sedimentary basin is separated from the Sacramento basin to the north by the buried Stockton arch and associated Stockton Fault. The buried Bakersfield arch near the south end of the valley separates the relatively small Maricopa-Tejon subbasin at the south end of the San Joaquin basin from the remainder of the basin. The 450-mile long Great Valley is an asymmetric structural trough that has been filled with a prism of Mesozoic and Cenozoic sediments up to 5 miles thick.

The Sierra Nevada, located east of the San Joaquin Valley, is gently southwesterly tilted fault block comprised of igneous and metamorphic rocks of pre-Tertiary age that comprise the basement beneath the San Joaquin Valley. The Coast Ranges, located west of the San Joaquin Valley, are comprised of folded and faulted sedimentary and metasedimentary rocks of Mesozoic and Cenozoic age.

The Kern River is the principal rivers in the area. Alluvial fans formed by this river are the predominant geomorphic features in the Bakersfield area. The area of the subject site is characterized by low alluvial fans and plains, which constitute a belt of coalescing alluvial fans of low relief between the dissected uplands, adjacent to the Sierra Nevada and the valley trough. This has resulted in a rather flat topography in the vicinity of the project site. The site is comprised of alluvial deposits which are mostly sands and silts.

A Regional Geologic Map, Regional Geologic Cross-Section, and Local Geologic Map are presented on Figures 4, 5, and 6, respectively.

#### Lithology

The thick accumulation of deposits within the San Joaquin Valley range in age from Jurassic to Holocene and include both marine and continental rocks and deposits. The 1964 Geologic Map of California, Bakersfield Sheet, indicates that the near-surface deposits in area of the subject site are identified as Quaternary Fan Deposits.

The 2011 Geologic Map of the Quaternary Surficial Deposits in Southern California, the Tehachapi 30' x 60' Quadrangle (Solomon McCrea and Shannon Utley, 2011) further defines the near-surface deposits in the area of the subject site as Quaternary Fan Deposits and Quaternary Old Alluvial Fan Deposits consisting of unconsolidated boulders, cobbles, gravel, sand and silt recently deposited where a river or stream issues from a confined valley or canyon; sediment typically deposited in a fan-shaped cone; gravelly sediment generally more dominant than sandy settlement.

The subsurface information obtained in this study indicates that the surface and near-surface soil deposits at the subject site generally consist of sandy silts, silty sands, and sands with some gravel. These observed deposits are consistent with those mapped in the area, and are further described in the Soil Profile and Subsurface Conditions section of this report.

#### **Structure and Faults**

The general area of the subject site is underlain by a homoclinal series of Cenozoic deposits dipping 4 degrees to 6 degrees to the southwest toward the center of the San Joaquin Valley. The contact between the Cenozoic and basement rocks dips nearly 8 degrees southwest, or at a slightly greater inclination than does the on-lapping homoclinal Cenozoic sequence. A slightly elevated basement structure, the Bakersfield Arch is located in the vicinity of the site. This structure is considered to have controlled sedimentation within the far southern portion of the valley.

The south end of the San Joaquin Valley is bordered on the west, south, and east by three major fault systems: the San Andreas, Garlock, and Breckenridge-Kern Canyon faults, respectively. All three of these faults zone appear to be directly related to the uplifting of the mountain ranges in which they are located and the downwarping of the intermediate land mass which constitutes the San Joaquin Valley portion of the Great Valley Geosyncline. The forces which have resulted in the formation of these major fault zones and the continuing movements along them have had great influence locally in the valley floor in the form of folding and faulting of the thick section of sedimentary beds and the underlying basement complex. Deformation of the sedimentary rocks in the area has not been restricted to faulting. Localized folding had also occurred within the geosyncline forming entrapments for oil and gas accumulations.

Adjacent to the San Joaquin Valley, the Sierra Nevada and Coast Ranges are geologically young mountain ranges that possess active and potentially active fault zones. Major active faults and fault zones occur at some distance to the east, west, and south of the project site. The Sierra Nevada and Owens Valley Fault Zones bound the eastern edge of the Sierra Nevada block approximately 68 and 73 miles east of the site, respectively. Numerous active faults are present within the San Joaquin Valley, San Emigdio Mountains, and Tehachapi Mountains south of the site including the White Wolf, Pleito Thrust, Garlock, and Big Pine Faults. These faults are located approximately 16, 24, 34, and 36 miles from the site, respectively.

The White Wolf Fault (responsible for a 1952 earthquake that caused extensive damage in the Bakersfield area) is located in the tectonically active Tehachapi Mountains as the southerly terminus of the valley, approximately 16 miles southeast of the subject site.

Numerous active faults are present within the central Coast Ranges west of the site including the San Andreas Fault located approximately 35 miles west of the subject site. The fault is considered active and is of primary concern in evaluating seismic hazards throughout western Kern County. The 684-mile-long San Andreas Fault Zone is the principal element of the San Andreas Fault system, a network of faults with predominately dextral strike-slip displacement that collectively accommodates the majority of relative north-south motion between the North America and Pacific plates. The San Andreas Fault

zone is the most extensively studied fault in California, and perhaps the world. The San Andreas Fault Zone is considered to be the Holocene and historically active dextral strike-slip fault that extends along most of coastal California from its complex junction with the Mendocino Fault zone on the north, southwest to the northern Transverse Range and inland to the Salton Sea, where a well defined zone of seismicity transfers the slip to the Imperial fault along a right-releasing step.

Two major surface-rupturing earthquakes have occurred on the San Andreas Fault in historic time: the 1857 Forth Tejon and 1906 San Francisco earthquakes. Additional historic surface rupturing earthquakes include the unnamed 1812 earthquake along the Mojave section and the northern part of the San Bernardino Mountains section, and a large earthquake in the San Francisco Bay area that occurred in 1838 that was probably on the Peninsula section. Historic fault creep rates are as high as 32 millimeters per year for the 82-mile-long creeping section in central California with creep rates gradually tapering to zero at the northwestern and southeastern ends of the section.

One of the nearest seismotectonic sources is the Great Valley Fault Zone (Coast Ranges-Central Valley boundary zone), located approximately 70 miles west of the site. The Great Valley Fault zone is the geomorphic boundary of the Coast Ranges and the Central Valley and is underlain by a 300-mile long seismically active fold and thrust belt that has been the source of recent earthquakes, such as the 1983 magnitude 6.5 Coalinga and the 1985 magnitude 6.1 Kettleman Hills earthquakes. Nearly the entire thrust system is concealed or "blind". The basal detachment of this thrust system dips at a shallow angle to the west. East-directed thrusting over ramps in the detachment and west-directed thrusting on backthrusts are responsible for the uplift along the eastern range front of the Coast Ranges. Based on earthquake focal mechanisms, movement on the thrust zone is generally perpendicular to the strike of the geomorphic boundary and trend of the San Andreas Fault system. Shortening along the geomorphic boundary is driven by a component of the Pacific-North American Plate motion that is normal to the plate boundary. The Great Valley Fault Zone is considered a dominant seismic feature with potential for affecting the subject site.

Tensional forces resulting in normal faults are reported to be related to crustal stress relief in the southeast portion of the San Joaquin Valley. Numerous relatively short, normal faults traverse this region. Creep activity is the prominent mode of slip on those faults in this region that are active. These movements have continued on an intermittent basis from the early Miocene to Recent time. This faulting is directly related to and controls the accumulation of oil in several oil fields within the easterly portion of the valley. Most authors agree that current creep movements can be ascribed to subsidence promoted by extensive withdrawal of petroleum, and in some cases, groundwater. Those faults considered to be active in the southern valley are the Kern Front, Premier, New Hope and Pond Faults located approximately 7.4, 10, 14 and 16 miles north of the subject site, respectively.

The Kern Front, Premier and New Hope Faults, are actively creeping westerly-dipping normal faults in oil-producing areas. The Buena Vista Fault, also located within a nearby oil producing area, is indicated to be a north-dipping thrust fault. Recent aseismic movement along these pre-existing faults is considered to be related to oil field fluid withdrawal. In addition, numerous unnamed faults are mapped within the oil fields in the vicinity of the site. The majority of the mapped faults associated with the oil fields, do not extend through the Kern River Formation to the surface and have been mapped based on

extensive subsurface exploration associated with the oil industry. The Pond Fault is a relatively minor, actively creeping west-dipping to vertical normal fault which is considered to be due to differential subsidence caused by groundwater withdrawal.

The Sierra Nevada and Owens Valley Fault Zones bound the eastern edge of the Sierra Nevada block more than 58 and 81 miles east of the site, respectively.

The northwest trending Clovis Fault and two unnamed related faults are believed to be located approximately 48 to 100 miles north to northeast of the City of Bakersfield, extending from an area just south of the San Joaquin River to a few miles south of Fancher Creek and from just south of the City of Dinuba to just south of the City of Porterville. These faults are considered pre-quaternary faults with no recognized Quaternary displacement. These faults are not necessarily inactive.

As noted above, several dominant faults with seisongenic structures are located in the vicinity of the subject site. Table I is a listing of active faults or seismogenic structures within 60 miles of the site, and a Fault Map is provided on Figure 7.

#### **GEOLOGIC HAZARDS**

#### Fault Rupture Hazard Zones in California

The Alquist-Priolo Geologic Hazards Zones Act went into effect in March, 1973. Since that time, the act has been amended 10 times (Hart, 1994). The purpose of the Act, as provided in DMG Special Publication 42 (SP 42), is to prohibit the location of most structures for human occupancy across the traces of active faults and to mitigate thereby the hazard of fault-rupture." The act was renamed the Alquist-Priolo Earthquake Fault Zoning Act in 1994, and at that time, the originally designated "Special Studies Zones" was renamed the "Earthquake Fault Zones."

The subject site does not lie on a Fault Rupture Hazard Zones Map, and accordingly, the site is not within a Fault-Rupture Hazard Zone. The nearest zoned fault is a portion of the Kern Front Fault located more than 7 miles northwest of the subject site.

#### Seismic Hazard Zones in California

In 1990, the California State Legislature passed the Seismic Hazard Mapping Act to protect public safety from the effects of strong shaking, liquefaction, landslides, or other ground failure, and other hazards caused by earthquakes. The Act requires that the State Geologist delineate various seismic hazards zones on Seismic Hazards Zones Maps. Specifically, the maps identify areas where soil liquefaction and earthquake-induced landslides are most likely to occur. A site-specific geotechnical evaluation is required prior to permitting most urban developments within the mapped zones. The Act also requires sellers of real property within the zones to disclose this fact to potential buyers. The area of the subject site is not included on any of the state maps released to date. However, the site is located on the Seismic Hazard Atlas, Lamont Quadrangle, effective date November 1975. The site is noted to be located within an area of younger sediments (Pleistocene and younger), with no fault or landslide features within the site or vicinity.

#### Historic Seismicity/Earthquake Epicenter Distribution

The Bakersfield area has historically experienced a low to moderate degree of seismicity. A listing of historic earthquakes with magnitudes greater than 4.0 within approximately 50 miles (80 kilometers) of the subject site was obtained from the comprehensive California Geological Survey computerized earthquake catalog for the State of California, the Townley and Allen (1939) catalog and the U.S. Geological Survey Earthquake Data Base System. In addition, a listing was obtained for all historic earthquakes with magnitudes greater than 5.0 within approximately 100 miles of the site. The listings include the date, time, location, depth, magnitude, and intensity all recorded events within the search radius between 1800 and 2021. A review of the literature for pre-1900 earthquakes (Toppozada, 1991) does not reveal any significant recorded seismic events in the vicinity of the subject site prior to the period covered by the above listing.

The historic earthquake listings are included in Appendix D. A plot of epicenters associated with historic earthquakes in the region of the site with magnitudes greater than 5 is shown on Figure 8, Epicenter Map. The earthquake data indicates that 320 events with magnitudes greater than 4.0 occurred within 50 miles of the subject site between 1800 and 2021. None of the listed events occurred within 5 miles of the site. The data indicates that 151 events exceeded magnitudes 5.0 within 100 miles of the subject site. The nearest listed event occurred approximately 1.1 miles southwest of the site in 1870 with a magnitude of 4.3. Forty of the listed earthquakes are listed with magnitudes greater than 5.0 occurred within 50 miles of the site. Numerous earthquakes are listed with magnitudes greater than 6.0 within 50 miles of the site. The largest magnitude found in the search radius was 7.9 occurring January 9, 1857.

The geologic literature indicates that groundshaking of VIII intensity (Modified Mercalli Scale) was felt in Bakersfield from the 1857 Fort Tejon Earthquake and the 1952 Arvin-Tehachapi Earthquake. These are the largest known earthquake events to have affected the Bakersfield area. The most recent earthquake significant to the site area was the seismic event which occurred on July 21, 1952. A significant number of the listed historic earthquakes occurred in 1952 and are considered related to the Arvin-Tehachapi earthquake of July 21, 1952. This magnitude 7.7 event affected all of Kern County as well as parts of Los Angeles and Santa Barbara Countries. The earthquake took place near Wheeler Ridge on the White Wolf Fault, located approximately 24 miles southeasterly of the subject site. Vertical displacements of as much as three feet occurred at the fault line. Destruction in the communities of Arvin and Tehachapi was extensive; the quake caused numerous landslides and damaged highways, bridges, and railroads. Damage to Bakersfield from the main shock was slight, however, on July 29 and August 5, 1952, aftershocks generated just east of Bakersfield produced a great deal of damage to older buildings. Estimated average value of the maximum bedrock accelerations from the 1952 events are about 0.14 gravity (g) at the subject site.

#### Geologic Subgrade

Information obtained from the geologic literature, as well as data from the above-described site exploration, indicate the general soil profile at the site consists predominately of medium dense to very dense silty sands, sandy silts, and relatively clean sands underlain at a shallow depth by very dense decomposed granite and granitic rock. Assuming that any loose surface soil and fill material on the site are removed and recompacted as recommended in our Geotechnical Engineering Investigation, the geologic subgrade of the site can be conservatively approximated as "stiff soil". A Joyner-Boore Class C subgrade classification is considered appropriate for the soil profile and corresponds with a National Earthquake Hazard Reduction Program (NEHRP) (BSSC, 1994) Site Class D. The site class definition from the 2019 California Building Code that is most consistent with the site conditions is Site Class D.

#### Soil Liquefaction

Soil liquefaction is a state of soil particles suspension caused by a complete loss of strength when the effective stress drops to zero. Liquefaction normally occurs in soils such as sand in which the strength is purely friction. However, liquefaction has occurred in soils other than clean sand. Liquefaction usually occurs under vibratory conditions such as those induced by seismic event.

To evaluate the liquefaction potential of the site, the following items were evaluated:

- 1) Groundwater depth;
- 2) Soil type;
- 3) Relative density;
- 4) Initial confining pressure;
- 5) Intensity and duration of groundshaking.

The soils encountered within a depth of 50 feet on the project site predominately consist of loose to very dense sandy silts, silty sands, and sands. Groundwater was not encountered within the soil borings advanced during subsurface exploration. Available groundwater data indicates that groundwater depth has been as shallow as 22 feet within the project site vicinity.

The potential for soil liquefaction during a seismic event was evaluated using the LIQUEFYPRO computer program (version 5.8h) developed by CivilTech Software. For the analysis, a maximum earthquake magnitude of 7.91 was used. A peak horizontal ground surface acceleration of 0.491g was considered conservative and appropriate for the liquefaction analysis. A groundwater depth of 22 feet was used for the analysis indicates that soils above a depth of 22 feet are non-liquefiable due to the absence of groundwater. The soils below a depth of 22 feet are considered to be non-liquefiable to slightly liquefiable with factors of safety ranging from 0.68 to 5.0. The analysis indicates that the total and differential seismic induced settlement is not anticipated to exceed 2 inches and 1¼ inch, respectively. The project's Structural Engineer should consider the anticipated seismic settlements in the project design.

Due to the relatively low levels of expected groundshaking at the site, the density of the native soil deposits, and the recommendation that all loose fill within proposed building areas be excavated and recompacted, liquefaction is not considered a significant geologic hazard at the subject site.

#### Seismic Settlement

One of the most common phenomena during seismic shaking accompanying any earthquake is the induced settlement of loose unconsolidated soils. Based on the nature of the subsurface materials, the plan to excavate and recompact the upper soils and any loose fill soils within the proposed building areas and the relatively low to moderate seismicity of the region, we would not expect seismic settlement to represent a significant geologic hazard to the site, provided that the recommendations of our referenced Geotechnical Engineering Investigation are followed.

One of the most common phenomena during seismic shaking accompanying any earthquake is the induced settlement of loose unconsolidated soils. Based on the nature of the subsurface materials and the relatively low to moderate seismicity of the region, we would not expect seismic settlement or lateral spread to represent a significant geologic hazard to the site.

The estimated seismic settlement was determined at the site using the settlement analysis method by Tokimatsu, Seed, and Bolton (1987). The results of the settlement analysis are included as follows:

	Seismic Settlement (inches)				
Location	Saturated Settlement	Unsaturated Settlement	Total Settlement	Range of Differential Settlement	Design for Differential Settlement
B1	0.64	1.33	1.97	0.98 to 1.30	1¼ Inch in 100 Feet

The above settlement values were determined at specific boring locations. The consolidated settlement (under static load of specific structures) and differential settlement (per specified length in building area) are indicated in the Foundations section of this report.

The native soils within the project site are not conducive to hydrocollapse due to the relatively medium dense soil conditions, low void-ratio, and moderate to high penetration resistance measured. Any loose fill material at the site could be vulnerable to hydrocollapse. However, the proposed structure is planned to be supported on engineered fill. Therefore, the structures will not be vulnerable to hydrocollapse. In addition, this hazard can be mitigated by following the design and construction recommendations of current and future Geotechnical Engineering Investigations (over-excavation and rework of any loose soils and/or uncertified fill materials).

Two drainage basins are located about 230 feet north of the school campus within a park area. The basins may be up to 8 feet deep with sidewall slopes approximately 26 degrees. A canal is located along the southwest edge of the school campus. The canal is up to 8 feet deep with side slopes up to 26 degrees. The structures planned for development will be located greater than 50 feet away from the

basin and canal. The potential for lateral spreading was evaluated using the "Revised Multilinear Regression Equations for Prediction of Lateral Spread Displacement" by Youd, Hansen, Corbett and Bartlett (2002). Based on a lack of shallow liquefiable soils within the subject site, the distance of proposed structures from the basins and a lack of saturated cohesionless sediments with (N1)<sub>60</sub> less than 15, the site is not likely subject to lateral spreading hazards.

#### Subsidence Due to Fluid Withdrawal

Portions of the San Joaquin Valley have been subject to land subsidence due to fluid withdrawal (groundwater and petroleum). The Bakersfield area has been subject to significant subsidence hazards in the past. The Arvin-Maricopa area, which includes the Bakersfield area, is one of three principal areas of widespread subsidence in the San Joaquin Valley. As of 1970, 700 square miles of irrigable land, roughly 60 percent of the area, had subsided due to the intensive pumping of groundwater. Maximum subsidence exceeded 9 feet, and the total volume of subsidence (1926 – 1970) was about 1 million acrefeet. Subsidence results from the compaction of water-yielding deposits as inter-granular stresses are increased by water level declines. Also, scattered local areas are affected by the hydrocompaction of moisture-deficient surficial deposits and by subsidence due to the extraction of oil field fluids.

The use of groundwater in the Arvin-Maricopa area greatly increased during the late forties and fifties. This increase resulted in the accelerated decline of water levels and accompanying land subsidence in the central part of the area. Significantly, this was a period of below normal precipitation and severely deficient groundwater recharge. From 1947 to 1966 above normal runoff occurred in only 3 years, and a runoff deficiency of 2,500,000 acre-feet accumulated for the Kern River. With the return of normal precipitation and the importation of surface water from the Friant-Kern Canal and the California Aqueduct, the groundwater supply changed from one of shortage to one of excess. The groundwater levels of the late sixties could possibly be the lowest of all time – past and future.

As in other subsidence areas of the San Joaquin Valley, subsidence will continue in the Arvin-Maricopa area as long as declining water levels continue to cause increased effective stresses and will stop as soon as excess pore pressures in the aquitards are dissipated. Beginning in the mid-sixties, significant quantities of canal water were imported into the Arvin-Maricopa area; this water had the dual effect of increasing recharge to the groundwater reservoir and reducing groundwater pumpage.

Since the early 1970's land subsidence has continued in some locations, but has generally slowed due to reductions in groundwater pumpage and the accompanying recovery of groundwater levels made possible by supplemental use of surface water for irrigation. The surface water is diverted principally from the Sacramento-San Joaquin Delta and the San Joaquin, Kings, Kern, and Feather Rivers. Several droughts since 1975 have caused surface water deliveries in the valley to be sharply curtailed, and demonstrated the valley's vulnerability to continued land subsidence when groundwater pumpage is increased.

The history of land subsidence in the San Joaquin Valley is integrally linked to the development of agriculture and the availability of water for irrigation. Further agricultural development without accompanying subsidence is dependent on the continued availability of surface water, which is subject to

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uncertainties due to climatic variability and pending regulatory decisions. Due to the current regulatory water use and storage requirements, subsidence is not anticipated to be a significant hazard in the project site area.

Land subsidence caused by the hydrocompaction of moisture deficient surficial deposits commonly identified as collapsible soils is common within the Kern County area. This type of subsidence is common in regions where rainfall, irrigation water, or other moisture has not penetrated the upper soils for an extended period of time. Areas where a hydrocompaction concern exist are typically defined during the Geotechnical Engineering Investigation phase of the development and corrective measures for dealing with these potentially collapsible soils are included as part of the site preparation section of this report.

Land subsidence caused by the extraction of oil field fluids is monitored by the State of California, Division of Oil, Gas, and Geothermal Resources. The State regulates oil and gas withdrawal and repressurizing of the fields. This type of subsidence is not significant enough to be of serious concern.

#### **Expansive Soils**

The surface and near-surface soils observed on the site surface consist of sandy silts, silty sands, and relatively clean sands. These materials are considered to have a low expansion potential.

#### **Inundation Hazards**

A review of Federal Emergency Management Agency (FEMA) Flood Insurance Mapping for the area of the subject site (Community Panel Number 06029C2325E, dated September 26, 2008, indicates that the subject site is within "Zone "X" - Areas determined to be outside the 0.2 percent annual chance flood."

A review of the Office of Emergency Services and Corps of Engineers Dam Inundation Mapping for the area of the subject site indicates that the subject site is outside the "Inundation Area" should a failure occur at the Isabella Lake Dam, located 36 miles east.

#### **Tsunamis and Seiches**

A tsunami is a series of ocean waves generated in the ocean by an impulsive disturbance. Due to the inland location of the subject site, tsunamis are not considered a threat to the site. Seiches are standing waves in a body of water such as a lake or reservoir. Because such a body of water is not located near the site, seiches are not anticipated to affect the subject site.

#### **Slope Stability and Potential for Slope Failure**

Due to the generally flat-lying nature of the site and surrounding areas, problems from landslides are not anticipated to affect this site.

#### Volcanic Hazards

The subject site is not within an area known to be affected by volcanic hazards (Miller, 1989, USGS Bulletin, 1847).

#### County Seismic Safety Element

Documentation and mapping included in the Health and Safety Element of the Kern County General Plan, dated March 2007, and the Seismic Safety Element of the Metropolitan Bakersfield General Plan, dated December 2002, and General Plan Update EIR dated June 2002, were reviewed. The seismic information contained within the Safety and Land Use Elements is somewhat dated and or generalized and is superseded by more recent information and analyses described herein. The referenced documents generally indicate that the site area is subject to relatively low to moderate seismicity and related hazards.

#### FIELD AND LABORATORY INVESTIGATIONS

A previous Geotechnical Engineering Investigation was performed at this site by Krazan & Associates, Inc. in November 2017 (KA Project No. 022-17101). An additional subsurface soil investigation consisting of exploratory drilling was performed at the site as part of this report. Subsurface soil conditions were recently explored by drilling 4 borings to depths ranging from approximately 10 to 50 feet below existing site grade, using a truck-mounted drill rig. The approximate boring locations are shown on the site geologic map, Figure No. 2. During drilling operations, penetration tests were performed at regular intervals to evaluate the soil consistency and to obtain information regarding the engineering properties of the subsoils. Soil samples were retained for laboratory testing. The soils encountered were continuously examined and visually classified in accordance with the Unified Soil Classification System. Site geologic cross sections based on the exploratory drilling data are provided on Figure No. 3.

Laboratory tests were performed on selected soil samples to evaluate their physical characteristics and engineering properties. The laboratory testing program was formulated with emphasis on the evaluation of natural moisture, density, gradation, shear strength, consolidation potential, and moisture density relationships of the materials encountered. In addition, chemical tests were performed to evaluate the soil-cement reactivity. Details of the laboratory test program and results of the laboratory tests are summarized in Appendix A. This information, along with the field observations, was used to prepare the final boring logs in Appendix A.

#### SOIL PROFILE AND SUBSURFACE CONDITIONS

Based on our findings, the subsurface conditions encountered appear typical of those found in the geologic region of the site. In general, the surface soils consisted of 6 to 12 inches of very loose silty sand. These soils are disturbed, have low strength characteristics, and are highly compressible when saturated.

Below the loose surface soils, approximately 2 to 3 feet of loose to medium dense silty sand or silty sand/sandy silt was encountered. Field and laboratory tests suggest that these soils are moderately strong and slightly compressible. Penetration resistance ranged from 9 to 36 blows per foot. Dry densities ranged from 93 to 131 pcf. Representative soil samples consolidated approximately 2 percent under a 2 ksf load when saturated. Representative soil samples had angles of internal friction of 29 to 40 degrees.

Below 3 to 4 feet, layers of predominately loose to very dense silty sand, silty sand/sand, sand, silty sand/sandy silt or sandy silt were encountered. Field and laboratory tests suggest that these soils are moderately strong and slightly compressible. Penetration resistance ranged from 8 blows per foot to greater than 50 blows per 6 inches. Dry densities ranged from 97 to 122 pcf. A representative soil sample consolidated approximately 1½ percent under a 2 ksf load when saturated. These soils had similar strength characteristics as the upper soils and extended to the termination depth of our borings.

For additional information about the soils encountered, please refer to the boring logs in Appendix A.

#### **GROUNDWATER**

Test boring locations were checked for the presence of groundwater during and immediately following the drilling operations. Free groundwater was not encountered within the depths explored (50 feet). Review of the Department of Water Resources groundwater level readings from November 1941 to March 2022 indicates that historic high groundwater within the project site and vicinity range from 22 to 196 feet below site grade. Groundwater information was obtained from 7 groundwater wells located within 1.4 miles of the subject site (Well Nos.: 29S28E31J001M, 29S28E32L001M, 30S28E03D001M, 30S28E06C001M, 30S28E07B001M, 30S28E09B001M, and 30S28E09E001M).

It should be recognized that water table elevations may fluctuate with time, being dependent upon seasonal precipitation, irrigation, land use and climatic conditions, as well as other factors. Therefore, water level observations at the time of the field investigation may vary from those encountered during the construction phase of the project. The evaluation of such factors is beyond the scope of this report.

#### CONCLUSIONS AND RECOMMENDATIONS

Based on the findings of our field and laboratory investigations, along with previous geotechnical experience in the project area, the following is a summary of our evaluations, conclusions, and recommendations.

#### **Administrative Summary**

In brief, the subject site and soil conditions with the exception of the loose surface soils and existing development, appear to be conducive to the development of the project. The surface soils have a loose consistency. These soils are disturbed, have low strength characteristics, and are highly compressible when saturated. Accordingly, it is recommended that the surface soils be recompacted. This compaction effort should stabilize the surface soils and locate any unsuitable or pliant areas not found during our field investigation.

Fill material was not encountered in our borings. However, fill may be present between and beyond our boring locations. The extent of fill material was determined based on limited test borings and visual observation. Verification of the extent of fill should be determined during site grading. It is recommended that fill soils which have not been properly compacted and certified be excavated and stockpiled so that the native soils can be prepared properly. It is anticipated the fill material will be suitable for reuse as Engineered Fill, provided it is cleansed of excessive organics and debris.

Presently, portions of the site are surrounded by existing developments. Associated with these developments are buried structures, such as utility lines and irrigation lines, that trend throughout the site. Demolition activities should include removal of any buried structures. Any buried structures encountered during construction should be properly removed and the resulting excavations backfilled. It is suspected that demolition activities of the existing structures will disturb the upper soils. After demolition activities, it is recommended that the disturbed soils be removed and/or recompacted. This compaction effort should stabilize the upper soils and located any unsuitable or pliant areas not found during our field investigation. The resulting excavations should be backfilled with Engineered Fill.

A canal trends along the southwestern edge of the site. If the canal will be backfilled, all deleterious materials and loose soils should be removed from the canal and the resulting excavation should be cleaned to firm native soil, and backfilled with Engineered Fill compacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557.

In order to reduce the potential for differential settlement and provide uniform support for the planned structures, it is recommended that following stripping, fill removal operations, and demolition activities, the upper 24 inches of exposed subgrade within the proposed building areas be excavated, worked until uniform and free from large clods, moisture-conditioned to near optimum moisture content, and recompacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557. In addition, it is recommended that proposed structural elements be supported by a minimum of 12 inches of Engineered Fill. Over-excavation should extend to a minimum of 5 feet beyond proposed footing lines. The excavation should be backfilled with Engineered Fill, compacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557. Prior to fill placement, Krazan & Associates, Inc. should inspect the bottom of the excavation to verify no additional removal will be required.

Several trees and shrubs are located throughout the site. If not utilized for the proposed development, tree and shrub removal operations should include roots greater than 1 inch in diameter. The resulting excavations should be backfilled with Engineered Fill.

Sandy soil conditions were encountered at the site. These cohesionless soils have a tendency to cave in trench wall excavations. Shoring or sloping back trench sidewalls may be required within these sandy soils.

Relatively clean sands were encountered at various locations throughout the site. The possibility exists that site grading operations could expose these soils in areas of proposed buildings, pavements, and/or retaining walls. The Contractor should note that these soils lack the cohesion necessary to stand

vertically, even in shallow excavations such as footing trenches. If these conditions are encountered, it will be necessary to over-excavate the affected area(s) to a minimum of 2 feet below the proposed bearing surface. These areas may be backfilled using a mix of the silty sand and sand soils that contains at least 20 percent fines and meeting the requirements for Engineered Fill. This material may be obtained from elsewhere at the site, imported to the site from an approved off-site source, or manufactured through blending of the excavated clean sand with other suitable material containing a higher percentage of fines to result in material meeting the requirements for Engineered Fill.

After completion of the recommended site preparation, the site should be suitable for shallow footing support. The proposed structure footings may be design utilizing an allowable bearing pressure of 2,500 psf for dead-plus-live loads. Footings should have a minimum embedment of 18 inches.

#### Groundwater Influence on Structures/Construction

Based on our findings and historical records, it is not anticipated that groundwater will rise within the zone of structural influence or affect the construction of foundations and pavements for the project. However, if earthwork is performed during our soon after periods of precipitation, the subgrade soils may become saturated, "pump," or not respond to densification techniques. Typical remedial measures include: discing and aerating the soil during dry weather; mixing the soil with dryer materials; removing and replacing the soil with an approved fill material; or mixing the soil with an approved lime or cement product. Our firm should be consulted prior to implementing remedial measures to observe the unstable subgrade conditions and provide appropriate recommendations.

#### **Site Preparation**

General site clearing should include removal of asphaltic concrete; concrete; vegetation and existing utilities; and structures; including foundations; basement walls and floors; existing stockpiled soil; trees and associated root systems; rubble; rubbish; and any loose and/or saturated materials. Site stripping should extend to a minimum depth of 2 to 4 inches, or until all organics in excess of 3 percent by volume are removed. Deeper stripping may be required in localized areas. These materials will not be suitable for reuse as Engineered Fill. However, stripped topsoil may be stockpiled and reused in landscape or non-structural areas.

Fill material was not encountered in our borings. However, fill may be present between and beyond our boring locations. The extent of fill material was determined based on limited test borings and visual observation. Verification of the extent of fill should be determined during site grading. It is recommended that fill soils which have not been properly compacted and certified be excavated and stockpiled so that the native soils can be prepared properly. It is anticipated the fill material will be suitable for reuse as Engineered Fill, provided it is cleansed of excessive organics and debris.

Structures are located within portions of the site. Any surface or buried structures, including utilities and loosely backfilled excavations, encountered during construction should be properly removed and/or relocated. The resulting excavations should be cleaned to firm native ground and backfilled with Engineered Fill, compacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557. Excavations, depressions, or soft and pliant areas extending below planned finish

subgrade level should be cleaned to firm undisturbed soil, and backfilled with Engineered Fill. In general, any septic tanks, debris pits, cesspools, or similar structures should be entirely removed. Concrete footings should be removed to an equivalent depth of at least 3 feet below proposed footing elevations or as recommended by the Soils Engineer. Any other buried structures should be removed in accordance with the recommendations of the Soils Engineer. The resulting excavations should be backfilled with Engineered Fill.

A canal trends along the southwestern edge of the site. If the canal will be backfilled, all deleterious materials and loose soils should be removed from the canal and the resulting excavation should be cleaned to firm native soil, and backfilled with Engineered Fill compacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557.

Several trees and shrubs are located throughout the project site. If not utilized for the proposed development, tree and shrub removal operations should include roots greater than 1 inch in diameter. The resulting excavation should be cleansed to firm ground and backfilled with Engineered Fill compacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557.

In order to reduce the potential for differential settlement and provide uniform support for the planned structures, it is recommended that following stripping, fill removal operations, and demolition activities, the upper 24 inches of the exposed subgrade within the proposed building areas be excavated, worked until uniform and free from large clods, moisture-conditioned as necessary, and recompacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557. In addition, it is recommended that proposed structural elements be supported by a minimum of 12 inches of Engineered Fill. Over-excavation should extend to a minimum of 5 feet beyond proposed footing lines. The excavation should be backfilled with Engineered Fill compacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557. In addition, it is excavation should be backfilled with Engineered Fill compacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557. The excavation should be backfilled with Engineered Fill compacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557. Prior to backfilling, the exposed subgrade should be proof-rolled and observed by Krazan & Associates, Inc. to verify stability. This compaction effort should stabilize the surface soils and locate any unsuitable or pliant areas not found during our field investigation. Soft or pliant areas encountered should be excavated to firm native ground.

Following stripping, tree and shrub removal, fill removal operations, and demolition activities, the exposed subgrade in exterior flatwork and pavement areas should be excavated to a depth of at least 12 inches, worked until uniform and free from large clods, moisture-conditioned as necessary, and recompacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557. Limits of recompaction should extend 2 feet beyond the edge of pavements or sidewalks. Prior to backfilling, the exposed subgrade should be proof-rolled and observed by Krazan & Associates, Inc. to verify stability. This compaction effort should stabilize the surface soils and locate any unsuitable or pliant areas not found during our field investigation. Soft or pliant areas encountered should be excavated to firm native ground.

It is recommended that any uncertified fill material encountered within pavement areas be removed and/or recompacted. The fill material should be moisture-conditioned to near optimum moisture and recompacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557. As an alternative, the Owner may elect not to recompact the existing fill within paved areas. However, the

Owner should be aware that the paved areas may settle which may require annual maintenance. At a minimum, it is recommended that the upper 12 inches of subgrade soil be moisture-conditioned as necessary and recompacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557.

The upper soils, during wet winter months, become very moist due to the absorptive characteristics of the soil. Earthwork operations performed during winter months may encounter very moist unstable soils which may require removal to grade a stable building foundation. Project site winterization consisting of placement of aggregate base and protecting exposed soils during the construction phase should be performed.

A representative of our firm should be present during all site clearing and grading operations to test and observe earthwork construction. This testing and observation is an integral part of our service, as acceptance of earthwork construction is dependent upon compaction and stability of the material. The Soils Engineer may reject any material that does not meet compaction and stability requirements. Further recommendations of this report are predicated upon the assumption that earthwork construction will conform to recommendations set forth in this section and the Engineered Fill section.

#### **Supplemental Site Preparation - Geogrid Option**

Subsurface soils within the site are prone to seismic settlement under high groundshaking acceleration during an earthquake. If the potential differential settlement is not acceptable, the proposed structures can be constructed over a geogrid reinforced soil mat. If this option is utilized, the building area should be excavated to a minimum depth of 3 feet below the bottom of the deepest foundation and the resulting excavation should be backfilled with a layered system of Engineered Fill and geogrid reinforcement. The depth of the over-excavation should be measured from existing ground or rough pad grade, whichever is deeper.

The first layer of geogrid reinforcement will be placed directly at the bottom of the excavation. The geogrid material should be overlapped a minimum of 3 feet in all directions. The geogrid strips should be "shingled" such that the exposed geogrid edge is opposite the direction of fill placement (as roof shingles to rain runoff). The interlock between the geogrid and Engineered Fill will provide load transfer. No vehicles may traverse the geogrid prior to placement of the Engineered Fill cover.

The next layer of geogrid should be placed on top of the compacted Engineered Fill. This and subsequent layers need only be overlapped a minimum of 1 foot on all sides. The geogrid strips of this layer, and all subsequent layers within the footprint, should be placed with lengths perpendicular to those in the layer immediately below. The fill soils excavated from the area beneath the structure may be moisture-conditioned and recompacted between geogrid layers as reinforced fill. The reinforced fill should be conditioned to near optimum moisture and recompacted to a minimum of 90 percent of maximum density based on ASTM D1557 Test Method.

A total of 3 geogrid layers, including the layer at the base of the excavation, should be installed at vertical increments of 1 foot. The geogrid layers should extend to a minimum of 5 feet beyond the exterior footing perimeter of the structure. The geogrid reinforcement fabric should consist of Tensar® BX6200 Geogrid, TriAx TX-5 or equivalent. Any unstable soils within building areas should be excavated and backfilled with Engineered Fill as requested by the Soil Engineer.

It is recommended that each building site be excavated at once, and soils be stockpiled. The geogrid and excavated soil may then be placed and recompacted as recommended herein. Alternatively, the Contractor may elect to excavate the site in two stages, where excavated soil can be stockpiled over one-half of the site while the other half is mitigated. However, if the Contractor elects the option of two stages over the preferred option of using one stage, a minimum of 5 feet of geogrid from the first half should overlap the second half. Furthermore, the overlapping geogrid should be protected from damages, which may be caused by operating equipment. It is further recommended that flexible utility connections be used for the project.

#### **Engineered Fill**

The organic-free, on-site, upper native and fill soils are predominately silty sand, silty sand/sandy silt, sandy silt, and silty sand/sand. Preliminary testing indicates the on-site soils will be suitable for reuse as Engineered Fill, provided they are cleansed of excessive organics and debris.

The preferred materials specified for Engineered Fill are suitable for most applications with the exception of exposure to erosion. Project site winterization and protection of exposed soils during the construction phase should be the sole responsibility of the Contractor since he has complete control of the project site at that time.

Imported Fill material should be predominately non-expansive granular material with a plasticity index less than 10 and a UBC Expansion Index less than 15. Imported Fill should be free from rocks and clods greater than 4 inches in diameter. All Imported Fill material should be submitted to the Soils Engineer for approval at least 48 hours prior to delivery at the site.

Fill soils should be placed in lifts approximately 6 inches thick, moisture-conditioned to near optimum moisture content, and compacted to achieve at least 90 percent maximum density based on ASTM Test Method D1557. Additional lifts should not be placed if the previous lift did not meet the required dry density or if soil conditions are not stable.

#### **Drainage and Landscaping**

The ground surface should slope away from building pad and pavement areas toward appropriate drop inlets or other surface drainage devices. In accordance with Section 1804 of the 2019 California Building Code, it is recommended that the ground surface adjacent to foundations be sloped a minimum of 5 percent for a minimum distance of 10 feet away from structures, or to an approved alternative means of drainage conveyance. Swales used for conveyance of drainage and located within 10 feet of foundations should be sloped a minimum of 2 percent. Impervious surfaces, such as pavement and

exterior concrete flatwork, within 10 feet of building foundations should be sloped a minimum of 1 percent away from the structure. Drainage gradients should be maintained to carry all surface water to collection facilities and off-site. These grades should be maintained for the life of the project.

#### **Utility Trench Backfill**

Utility trenches should be excavated according to accepted engineering practices following OSHA (Occupational Safety and Health Administration) standards by a Contractor experienced in such work. The responsibility for the safety of open trenches should be borne by the Contractor. Traffic and vibration adjacent to trench walls should be reduced; cyclic wetting and drying of excavation side slopes should be avoided. Depending upon the location and depth of some utility trenches, groundwater flow into open excavations could be experienced; especially during or following periods of precipitation.

Sandy soil conditions were encountered at the site. These cohesionless soils have a tendency to cave in trench wall excavations. Shoring or sloping back trench sidewalls may be required within these sandy soils.

Utility trench backfill placed in or adjacent to buildings and exterior slabs should be compacted to at least 90 percent of maximum density based on ASTM Test Method D1557. Utility trench backfill placed in pavement areas should be compacted to at least 90 percent of the maximum density based on ASTM Test Method D1557. Pipe bedding should be in accordance with pipe manufacturer's recommendations.

The Contractor is responsible for removing all water-sensitive soils from the trench regardless of the backfill location and compaction requirements. The Contractor should use appropriate equipment and methods to avoid damage to the utilities and/or structures during fill placement and compaction.

#### **Foundations**

After completion of the recommended site preparation, the site should be suitable for shallow footing support. The proposed structure may be supported on a shallow foundation system bearing on a minimum of 12 inches of Engineered Fill. Spread and continuous footings supported by a minimum of 12 inches of Engineered Fill can be designed for the following maximum allowable soil bearing pressures:

Load	Allowable Loading
Dead Load Only	1,875 psf
Dead-Plus-Live Load	2,500 psf
Total Load, including wind or seismic loads	3,325 psf

The footings should have a minimum depth of 18 inches below pad subgrade (soil grade) or adjacent exterior grade, whichever is lower. Footings should have a minimum width of 12 inches, regardless of load. Ultimate design of foundations and reinforcement should be performed by the project Structural Engineer.

The total static settlement is not expected to exceed  $\frac{3}{4}$  inch. Differential static settlement should be less than  $\frac{3}{6}$  inch. Most of the settlement is expected to occur during construction as the loads are applied. However, additional post-construction settlement may occur if the foundation soils are flooded or saturated. The total seismic-induced settlement is not expected to exceed 2 inches. Differential settlement caused by a seismic event should be less than  $1\frac{1}{4}$  inches. If the structure is supported on geogrid reinforced Engineered Fill, the differential settlement associated with a seismic event should be less than  $\frac{3}{4}$  inch. The anticipated differential settlement associated with a seismic event is estimated over a horizontal distance of 100 feet.

Resistance to lateral footing displacement can be computed using an allowable friction factor of 0.4 acting between the base of foundations and the supporting subgrade. Lateral resistance for footings can alternatively be developed using an equivalent fluid passive pressure of 350 pounds per cubic foot acting against the appropriate vertical footing faces. The frictional and passive resistance of the soil may be combined without reduction in determining the total lateral resistance. A  $\frac{1}{3}$  increase in the above value may be used for short duration, wind, or seismic loads.

#### Foundations - Drilled Caissons

The proposed structures can be supported on caissons using an allowable sidewall adhesion of 400 psf. This value is for dead-plus-live loads. This value may be increased  $\frac{1}{3}$  for short duration loads, such as wind or seismic. Uplift loads can be resisted by caissons using an allowable sidewall adhesion of 275 psf of the surface area and the weight of the pier. The upper 2 feet should be neglected from friction calculations. The caissons should have a minimum embedment depth of 8 feet. The total settlement of the light pole is not expected to exceed 1 inch. Differential settlement should be less than  $\frac{1}{2}$  inch. Most of the settlement is expected to occur during construction as the loads are applied.

Sandy soil conditions were encountered at the site. Due to the sandy soil conditions, casing of the caissons may be required.

#### Lateral Loading Criteria - Caissons

Lateral resistance of the poles may be calculated utilizing the CBC flagpole formula per Section 1807.3.2.1 for nonconstrained poles or Section 1807.3.2.2 constrained poles. In using the flagpole formula, the allowable lateral bearing capacity may be calculated using an allowable equivalent fluid pressure of 175 pounds per cubic foot, with an allowable deflection of  $\frac{1}{4}$  inch at the ground surface. This value may be increased up to 350 pcf, based upon the assumption that the isolated poles are not adversely affected by a  $\frac{1}{2}$  inch motion at the ground surface. Furthermore, an additional  $\frac{1}{3}$  increase is allowed for short-term transient lateral loads such as wind or seismic. The upper 2 feet should be neglected from lateral resistance calculations.

#### **Excavation Stability**

Temporary excavations planned for the construction of the building and other associated structures may be excavated, according to the accepted engineering practices following Occupational Safety and Health Administration (OSHA) standards by a Contractor experienced in such work. Open, unbraced excavations in undisturbed soils should be made according to the table below.

Recommended Excavation Slopes			
<b>Depth of Excavation (ft)</b>	Slope (Horizontal:Vertical)		
	Temporary		
0-5	1:1		
5-10	1½:1		
10-15	1¾:1		
15+	2:1		

If, due to space limitations, excavation near existing structures or roads is performed in a vertical position, braced shorings or shields may be used for supporting vertical excavations. Therefore, in order to comply with the local and state safety regulations, a properly designed and installed shoring system would be required to accomplish planned excavation and installation. A specialty Shoring Contractor should be responsible for the design and installation of such a shoring system during construction. The lateral pressures provided below may be used in the design of a braced-type shoring system.

Recommended Lateral Earth Pressure for Braced Shoring				
Depth of Excavation Below Ground Surface (feet) Lateral Soil Pressure (psf)				
0	30 H			
0.25 H	30 H			
Н 30 Н				
Where H is the total depth of the excavation in feet.				

The foregoing does not include excess hydrostatic pressure or surcharge loading. Fifty percent of any surcharge load, such as construction equipment weight, should be added to the lateral load given above.

Since the Contractor has the ultimate responsibility for excavation stability, he may design a different shoring system for the excavation.

The excavation/shoring recommendations provided herein are based on soil characteristics derived from limited test borings within the site. Variations in soil conditions will likely be encountered during the excavations. Krazan & Associates, Inc. should be afforded the opportunity to provide field review to evaluate the actual conditions and account for field condition variations not otherwise anticipated in the preparation of this recommendation.

#### Floor Slabs and Exterior Flatwork

Concrete slab-on-grade floors that will include moisture-sensitive floor coverings should be underlain by a water vapor retarder. The water vapor retarder should be installed in accordance with accepted engineering practice. The water vapor retarder should consist of a vapor retarder sheeting underlain by a minimum of 3 inches of compacted, clean, gravel of <sup>3</sup>/<sub>4</sub>-inch maximum size. To aide in concrete curing an optional 2 to 4 inches of granular fill may be placed on top of the vapor retarder. The granular fill should consist of damp clean sand with at least 10 to 30 percent of the sand passing the 100 sieve. The sand should be free of clay, silt, or organic material. Rock dust which is manufactured sand from rock crushing operations is typically suitable for the granular fill. This granular fill material should be compacted.

The exterior floors should be poured separately in order to act independently of the walls and foundation system. All fills required to bring the building pads to grade should be Engineered Fills.

Moisture within the structure may be derived from water vapors, which were transformed from the moisture within the soils. This moisture vapor can travel through the vapor membrane and penetrate the slab-on-grade. This moisture vapor penetration can affect floor coverings and produce mold and mildew in the structure. To reduce moisture vapor intrusion, it is recommended that a vapor retarder be installed. It is recommended that the utility trenches within the structure be compacted, as specified in our report, to reduce the transmission of moisture through the utility trench backfill. Special attention to the immediate drainage and irrigation around the building is recommended. Positive drainage should be established away from the structure and should be maintained throughout the life of the structure. Ponding of water should not be allowed adjacent to the structure. Over-irrigation within landscaped areas adjacent to the structure should not be performed. In addition, ventilation of the structure (i.e. ventilation fans) is recommended to reduce the accumulation of interior moisture.

#### Lateral Earth Pressures and Retaining Walls

Walls retaining horizontal backfill and capable of deflecting a minimum of 0.1 percent of its height at the top may be designed using an equivalent fluid active pressure of 32 pounds per square foot per foot of depth. Walls that are incapable of this deflection or walls that are fully constrained against deflection may be designed for an equivalent fluid at-rest pressure of 52 pounds per square foot per foot per depth. Expansive soils should not be used for backfill against walls. The wedge of non-expansive backfill material should extend from the bottom of each retaining wall outward and upward at a slope of 2:1 (horizontal to vertical) or flatter. The stated lateral earth pressures do not include the effects of hydrostatic water pressures generated by infiltrating surface water that may accumulate behind the retaining walls; or loads imposed by construction equipment, foundations, or roadways.

During grading and backfilling operations adjacent to any walls, heavy equipment should not be allowed to operate within a lateral distance of 5 feet from the wall or within a lateral distance equal to the wall height, whichever is greater, to avoid developing excessive lateral pressures. Within this zone, only hand operated equipment ("whackers," vibratory plates, or pneumatic compactors) should be used to compact the backfill soils.

#### Seismic Parameters – 2019 California Building Code

The Site Class per Section 1613A of the 2019 California Building Code (2019 CBC) and ASCE 7-16, Chapter 20 is based upon the site soil conditions. It is our opinion that a Site Class D is most consistent with the subject site soil conditions. For seismic design of the structures based on the seismic provisions of the 2019 CBC, we recommend the following parameters:

Seismic Item	Value	CBC Reference
Site Class	D	Section 1613A.2.2
Site Coefficient F <sub>a</sub>	1.118	Table 1613A.2.3 (1)
Ss	0.956	Section 1613A.2.1
S <sub>MS</sub>	1.068	Section 1613A.2.3
S <sub>DS</sub>	0.712	Section 1613A.2.4
Site Coefficient Fv	1.955	Table 1613A.2.3 (2)
$S_1$	0.345	Section 1613A.2.1
S <sub>M1</sub>	0.674	Section 1613A.2.3
S <sub>D1</sub>	0.450	Section 1613A.2.4
Ts	0.632	Section 1613A.2

<sup>\*</sup> Based on Equivalent Lateral Force (ELF) Design Procedure being used.

#### Soil Cement Reactivity

Excessive sulfate in either the soil or native water may result in an adverse reaction between the cement in concrete (or stucco) and the soil. HUD/FHA and UBC have developed criteria for evaluation of sulfate levels and how they relate to cement reactivity with soil and/or water.

Soil samples were obtained from the site and tested in accordance with State of California Materials Manual Test Designation 417. The sulfate concentrations detected from these soil samples were less than 150 ppm and are below the maximum allowable values established by HUD/FHA and UBC. However, it is recommended that a Type II cement be used within the concrete to compensate for sulfate reactivity with the cement.

#### **Pipe Corrosion**

Below grade, metal piping should be protected against corrosion in accordance with the pipe manufacturer recommendations. In addition, below grade metal systems should be electrically isolated from the building and reinforcing steel in the CMU walls and/or foundation to prevent development of the galvanic cells and premature corrosion of the below grade metal systems.

#### **Compacted Material Acceptance**

Compaction specifications are not the only criteria for acceptance of the site grading or other such activities. However, the compaction test is the most universally recognized test method for assessing the performance of the Grading Contractor. The numerical test results from the compaction test cannot be used to predict the engineering performance of the compacted material. Therefore, the acceptance of compacted materials will also be dependent on the stability of that material. The Soils Engineer has the option of rejecting any compacted material regardless of the degree of compaction if that material is considered to be unstable or if future instability is suspected. A specific example of rejection of fill material passing the required percent compaction is a fill which has been compacted with an in-situ moisture content significantly less than optimum moisture. This type of dry fill (brittle fill) is susceptible to future settlement if it becomes saturated or flooded.

#### **Testing and Inspection**

A representative of Krazan & Associates, Inc., should be present at the site during the earthwork activities to confirm that actual subsurface conditions are consistent with the exploratory fieldwork. This activity is an integral part of our service, as acceptance of earthwork construction is dependent upon compaction testing and stability of the material. This representative can also verify that the intent of these recommendations is incorporated into the project design and construction. Krazan & Associates, Inc. will not be responsible for grades or staking, since this is the responsibility of the Prime Contractor.

#### **LIMITATIONS**

Soils Engineering is one of the newest divisions of Civil Engineering. This branch of Civil Engineering is constantly improving as new technologies and understanding of earth sciences advance. Although your site was analyzed using the most appropriate and most current techniques and methods, undoubtedly there will be substantial future improvements in this branch of engineering. In addition to advancements in the field of Soils Engineering, physical changes in the site, either due to excavation or fill placement, new agency regulations, or possible changes in the proposed structure after the soils report is completed may require the soils report to be professionally reviewed. In light of this, the Owner should be aware that there is a practical limit to the usefulness of this report without critical review. Although the time limit for this review is strictly arbitrary, it is suggested that 2 years be considered a reasonable time for the usefulness of this report.

Foundation and earthwork construction is characterized by the presence of a calculated risk that soil and groundwater conditions have been fully revealed by the original foundation investigation. This risk is derived from the practical necessity of basing interpretations and design conclusions on limited sampling of the earth. The recommendations made in this report are based on the assumption that soil conditions do not vary significantly from those disclosed during our field investigation. If any variations or undesirable conditions are encountered during construction, the Soils Engineer should be notified so that supplemental recommendations may be made.
The conclusions of this report are based on the information provided regarding the proposed construction. If the proposed construction is relocated or redesigned, the conclusions in this report may not be valid. The Soils Engineer should be notified of any changes so the recommendations may be reviewed and re-evaluated.

This report is a Geotechnical Engineering and Geologic Hazards Investigation with the purpose of evaluating the soil conditions in terms of foundation design. The scope of our services did not include any Environmental Site Assessment for the presence or absence of hazardous and/or toxic materials in the soil, groundwater, or atmosphere; or the presence of wetlands. Any statements, or absence of statements, in this report or on any boring log regarding odors, unusual or suspicious items, or conditions observed, are strictly for descriptive purposes and are not intended to convey engineering judgment regarding potential hazardous and/or toxic assessment.

The geotechnical engineering information presented herein is based upon professional interpretation utilizing standard engineering practices and a degree of conservatism deemed proper for this project. It is not warranted that such information and interpretation cannot be superseded by future geotechnical engineering developments. We emphasize that this report is valid for the project outlined above and should not be used for any other sites.

If you have any questions, or if we may be of further assistance, please do not hesitate to contact our office at (661) 837-9200.

Respectfully submitted, **KRAZAN & ASSOCIATES, INC.** EI SA No. 2146 CERTIFIED MOINFERING Stephen J. Nelson **BEOLOGIST** Certified Engineering Geologist CEG No. 2146 R. Jarosz, II aging Engineer E No. 2698/RCE No. 60185

SJN/DRJ:ht













### REGIONAL GELOGIC CROSS-SECTION SHOWING THE SAN JOAQUIN VALLEY

	Scale:	Date:
GEOTECHNICAL ENGINEERING INVESTIGATION	NTS	Oct. 202
MLK ELEMENTARY SCHOOL	Drawn by:	Approved by:
1100 Citadel Street	HT	DJ
Bakersfield California	Project No.	Figure No.
Dakeisnen, Cantonna	022-22124	5

NOTE:

SEE FAULT MAP FOR LOCATION OF GEOLOGIC CROSS-SECTION.

#### EXPLANATION



#### NOTE:

SEE FAULT MAP FOR LOCATION OF GEOLOGIC CROSS SECTION







#### MAP UNITS

			MAP VIELS					
		Late Hold	ocene (Surficial	Deposits)				
81	Artificial Fill - de engineered fill fo	aposits of fill resulti r buildings, roads, (	ng from human cons dams, airport runway	truction, mining, or quarrying activities; includes s, harbor facilities, and waste landfills				
Qsu	Undifferentiated deposits of all ag	i Surficial Depositi es; generally unco	is - includes coliuviu Insolidated but locally	n, slope wash, tatus deposits, and other surface may contain consolidated layers				
	Landslide Depo types; unconsoli	sits - may include lated to moderately	debris flows and olde / well-consolidated	er landslides of various earth material and movement				
Qw	Alluvial Wash Deposits - unconsolidated sandy and gravely sediment deposited in recently active channel of streams and rivers; may contain loose to moderately loose sand and sity sand							
Qf	Alluvial Fan Dej river or stream is gravelly sedimen	oosite - unconsolid sues from a confine t generally more do	ated bouiders, cobbi ed valley or canyon; pminant than sandy t	es, gravel, sand, and silt recently deposited where a sediment typically deposited in a fan-shaped cone; sediment				
Qa	Afluvial Valley E stream valleys a generally more d	eposits - unconso nd/or spread more iominant than grave	lidated clay, silt, san regionally onto alluvi ally sediment	d, and gravel recently deposited parallel to localized al flats of larger river valleys; sandy sediment				
Qt	Terrace Deposit moderately cons river terrace dep	s - includes marine olidated and bedde osits consist of unc	and stream terrace d gravel and congloi onsolidated thin- to t	deposits; marine deposits include slightly to nerate, sand and sandstone, and silt and siltstone; hick-bedded gravel				
Q	Lacustrine, Play and clay from fre estuaries; depos	ve, and Estuarine sh water (lacustrine its may contain call	(Paralic) Deposits - e) lakes, saline (play t and other evaporite	mostly unconsolidated fine-grained sand, silt, mud, a) dry takes that are periodically flooded, and s				
Qe .	Eolian and Dun forms or sheet sa	e Deposits - uncon and	solidated, generally	well-sorted wind-blown sand; may occur as dune				
	Но	locene to Late	Pleistocene (S	urficial Deposits)				
Byw	Young Alluvial sandy and grave channels	Wash Deposits - u Ily stream bed sedi	nconsolidated to slig iments in marginal pr	htly consolidated, undissected to slightly dissected arts of active and recently active washes and river				
Gyl	Young Alluvial boulder, cobble,	Fan Deposits - und gravel, sand, and s	consolidated to slight ill deposits issued fr	ly consolidated, undissected to slightly dissected om a confined valley or canyon				
Ciya.	Young Alluvial clay, silt, sand, a	Valley Deposits - u nd gravel along str	mconsolidated to slip eam valleys and allu	ntly consolidated, undissected to slightly dissected vial flats of larger rivers				
on.	Young Terrace I and stream terra	Deposits - unconse ce deposits	pliciated to slightly co	nsolidated, undissected to slightly dissected marine				
Cyl	Young Lacustri undissected to s deposits of vario	ne; Playa, and Est lightly dissected fin us types	uarine (Paralic) De e-grained sand, silt,	posits - unconsolidated to slightly consolidated, mud and clay from lake, playa, and estuarine				
Qve	Young Eolian an dissected wind-b	nd Dune Deposits Iown sands	- unconsolidated to	slightly consolidated, undissected to slightly				
	LOCAL GEOLOGIC MAP							
			EXPLANATIO	)N				
FROM: GEOLOGIC MAP OF THE DEPOSITS IN SOUTHER OF THE TEHACHAPI 30 HAYTON AND C.A. HAYE	QUATERNARY N CALIFORNIA, X 60' QUADI IURST, 2011.	SURFICIAL EAST HALF RANGLE BY W.D	).					
GEOTECHNICAL ENGI	NEERING	Scale:	Date: Oct 2022	all manage				
INVESTIGATIO MLK ELEMENTARY S	INVESTIGATION WILK ELEMENTARY SCHOOL							

GEOTECHN INVI MLK ELEN 1100 Citadel Street Bakersfield, California

Scale:	Date:
As Shown	Oct. 2022
Drawn by:	Approved by:
HT	SN
Project No.	Figure No.
022-22124	6a



	Fault along w of the followin (a) a recorde	nhich historic (last 2 ng: ed earthquake with	00 years) displaceme	ent has occurred and is associated with one or more Iso included are some well-defined surface breaks			
	caused by ground shaking during earthquakes, e.g. extensive ground breakage, not on the White Wolf fault, caused by the Arvin-Tehachapi earthquake of 1952). The date of the associated earthquake is indicated. Where repeated surface ruptures on the same fault have occurred, only the date of the latest movement may be indicated, especially if earlier reports are not well documented as to location of ground breaks.						
	(b) fault creer	o slippage - slow gr	ound displacement u	sually without accompanying earthquakes.			
	(c) dienlaned	survey lines.					
	(c) uispiaceu	Survey miles.					
1808 ► 4 1906 1838 ► 4 1838	A triangle to the right or left of the date indicates termination point of observed surface displacement. Solid red triangle indicates known location of rupture termination point. Open black triangle indicates uncertain or estimated location of rupture termination point.						
Constant of States of Constant	Date bracket	ed by triangles indi	cates local fault break	κ.			
	No triangle by	y date indicates an	intermediate point al	ong fault break.			
CREEP	Fault that exi with leader) i	hibits fault creep sl ndicates representa	ippage. Hachures in ative locations where	dicate linear extent of fault creep. Annotation (creep fault creep has been observed and recorded.			
1959	Square on fai on some othe nal points be between thes	ult indicates where er fault. Date of caus stween which trigge se end points).	fault creep slippage f sative earthquake ind red creep slippage f	has occured that has been triggered by an earthquake licated. Squares to right and left of date indicate termi- has occurred (creep either continuous or intermittent			
and an an an an and a second a	Holocene fau Holocene fau age deposits of faulting off	It displacement (du Ilting includes sag : offset stream cou shore is based on t	uring past 11,700 yea ponds, scarps showin rses, linear scarps, s the interpreted age of	ars) without historic record. Geomorphic evidence for ng little erosion, or the following features in Holocene shutter ridges, and triangular faceted spurs. Recency f the youngest strata displaced by faulting.			
3.	Late Quaterr described for younger over	nary fault displace r Holocene faults rlying deposits prec	ment (during past 70 except features are ludes more accurate	00,000 years). Geomorphic evidence similar to that tess distinct. Faulting may be younger, but lack of age classification.			
3.	Quatemary fault (age undifferentiated). Most faults of this category show evidence of displacement some- time during the past 1.6 million years; possible exceptions are faults which displace rocks of undifferenti- ated Plio-Pleistocene age. Unnumbered Quatemary faults were based on Fault Map of California, 1975. See Bulletin 201, Appendix D for source data.						
<del></del>	Pre-Quatemary fault (older that 1.6 million years) or fault without recognized Quatemary displacement. Some faults are shown in this category because the source of mapping used was of reconnaissnce nature, or was not done with the object of dating fault displacements. Faults in this category are not necessarily inactive.						
		F	AULT MAP				
NOTES:		EX	PLANATION				
PREPARED FROM THE C.G.S. "FAUL" CALIFORNIA" JENNINGS AND BRYA	F ACTIVITIY NT, 2010	MAP OF					
FAULT TRACES ON LAND ARE INDIO LINES WHERE WELL LOCATED, BY WHERE CONCEALED BY YOUNGER LAKES OR BAYS. FAULT TRACES A CONTINUATION OR EXISTENCE IS U	CATED BY SO DASHED LIN ROCKS OR B RE QUERIED INCERTAIN.	OLID ES BY WHERE		CROSS SECTION LOCATION A ————————————————————————————————————			
GEOTECHNICAL ENGINE	ERING	Scale:	Date:				
INVESTIGATION		As Shown	Oct. 2022	<b>K</b> ra7an			
MLK ELEMENTARY SCH	OOL	HT	SN				
1100 Citadel Street		Project No.	Figure No.	GEOTECHNICAL ENGINEERING			
Bakersfield, California 022-22124 7a							







Bakersfield, California

	10 + H + H + H	
	As Shown	Oct. 2022
	Drawn by:	Approved by:
	HT	SN
	Project No.	Figure No.
	022-22124	10
_	the second se	





EXPLANATION

NOTE:

ALL OF FEMA FLOOD INSURANCE MAP IS SHOWN WITHIN "ZONE X" UNLESS OTHERWISE NOTED

GEOTECHNICAL ENGINEERING INVESTIGATION MLK ELEMENTARY SCHOOL 1100 Citadel Street Bakersfield, California

	Scale:	Date:
	As Shown	Oct. 2022
1	Drawn by:	Approved by:
Į	HT	SN
	Project No.	Figure No.
	022-22124	11a
-		





U.S. Geological Survey - Earthquake Hazards Program

# **Unified Hazard Tool**

Please do not use this tool to obtain ground motion parameter values for the design code reference documents covered by the <u>U.S. Seismic Design Maps web tools</u> (e.g., the International Building Code and the ASCE 7 or 41 Standard). The values returned by the two applications are not identical.

Input

Edition

Dynamic: Conterminous U.S. 2014 (upd...

### Latitude

Decimal degrees

35.34415

### Longitude

Decimal degrees, negative values for western longitudes

-118.98978

### Site Class

259 m/s (Site class D)

### Spectral Period

**Peak Ground Acceleration** 

Time Horizon Return period in years

2475

## Hazard Curve

Please select "Edition", "Location" & "Site Class" above to compute a hazard curve.

Compute Hazard Curve

### Deaggregation

### Component





## Summary statistics for, Deaggregation: Total

#### **Deaggregation targets**

Return period: 2475 yrs Exceedance rate: 0.0004040404 yr<sup>-1</sup> PGA ground motion: 0.53122883 g

#### Totals

Binned: 100 % Residual: 0 % Trace: 0.09 %

#### Mode (largest m-r bin)

m: 5.5
r: 10.06 km
ε₀: 1.48 σ
Contribution: 8.73 %

#### Discretization

r: min = 0.0, max = 1000.0,  $\Delta$  = 20.0 km m: min = 4.4, max = 9.4,  $\Delta$  = 0.2 ɛ: min = -3.0, max = 3.0,  $\Delta$  = 0.5  $\sigma$ 

#### **Recovered targets**

**Return period:** 2847.8207 yrs **Exceedance rate:** 0.0003511457 yr<sup>-1</sup>

### Mean (over all sources)

m: 6.4
r: 19.46 km
ε₀: 1.49 σ

#### Mode (largest m-r-& bin)

m: 7.91
r: 56.19 km
ε₀: 2.18 σ
Contribution: 4.04 %

#### **Epsilon keys**

 $\epsilon 0: [-\infty .. -2.5)$ 
 $\epsilon 1: [-2.5 .. -2.0)$ 
 $\epsilon 2: [-2.0 .. -1.5)$ 
 $\epsilon 3: [-1.5 .. -1.0)$ 
 $\epsilon 4: [-1.0 .. -0.5)$ 
 $\epsilon 5: [-0.5 .. 0.0)$ 
 $\epsilon 6: [0.0 .. 0.5)$ 
 $\epsilon 7: [0.5 .. 1.0)$ 
 $\epsilon 8: [1.0 .. 1.5)$ 
 $\epsilon 9: [1.5 .. 2.0)$ 
 $\epsilon 10: [2.0 .. 2.5)$ 
 $\epsilon 11: [2.5 .. +\infty]$ 

## Deaggregation Contributors

Source Set 😝 Source	Туре	r	m	ε <sub>0</sub>	lon	lat	az	%
LIC33hrAvg FM31 (opt)	Grid							39.51
PointSourceFinite: -118.990, 35.385		6.59	5.77	0.96	118.990°W	35.385°N	0.00	5.12
PointSourceFinite: -118.990, 35.385		6.59	5.77	0.96	118.990°W	35.385°N	0.00	5.11
PointSourceFinite: -118.990, 35.403		7.76	5.84	1.10	118.990°W	35.403°N	0.00	3.05
PointSourceFinite: -118.990, 35.403		7.76	5.84	1.10	118.990°W	35.403°N	0.00	3.04
PointSourceFinite: -118.990, 35.448		11.03	6.02	1.42	118.990°W	35.448°N	0.00	2.53
PointSourceFinite: -118.990, 35.448		11.03	6.02	1.42	118.990°W	35.448°N	0.00	2.53
PointSourceFinite: -118.990, 35.430		9.68	5.95	1.30	118.990°W	35.430°N	0.00	2.17
PointSourceFinite: -118.990, 35.430		9.68	5.95	1.30	118.990°W	35.430°N	0.00	2.17
PointSourceFinite: -118.990, 35.439		10.35	5.98	1.36	118.990°W	35.439°N	0.00	1.53
PointSourceFinite: -118.990, 35.439		10.35	5.98	1.36	118.990°W	35.439°N	0.00	1.53
PointSourceFinite: -118.990, 35.502		15.39	6.21	1.74	118.990°W	35.502°N	0.00	1.33
PointSourceFinite: -118.990, 35.502		15.39	6.21	1.74	118.990°W	35.502°N	0.00	1.33
UC33brAvg FM32 (opt)	Grid							39.46
PointSourceFinite: -118,990, 35.385		6.59	5.77	0.96	118.990°W	35.385°N	0.00	5.11
PointSourceFinite: -118.990, 35.385		6.59	5.77	0.96	118.990°W	35.385°N	0.00	5.11
PointSourceFinite: -118.990, 35.403		7.76	5.83	1.10	118.990°W	35.403°N	0.00	3.04
PointSourceFinite: -118.990, 35.403		7.76	5.83	1.10	118.990°W	35.403°N	0.00	3.04
PointSourceFinite: -118.990, 35.448		11.03	6.02	1.42	118.990°W	35.448°N	0.00	2.53
PointSourceFinite: -118.990, 35.448		11.03	6.02	1.42	118.990°W	35.448°N	0.00	2.53
PointSourceFinite: -118.990, 35.430		9.68	5.95	1,30	118.990°W	35.430°N	0.00	2.17
PointSourceFinite: -118.990, 35.430		9.68	5.95	1.30	118.990°W	35.430°N	0.00	2.16
PointSourceFinite: -118.990, 35.439		10.35	5.98	1.36	118.990°W	35.439°N	0.00	1.53
PointSourceFinite: -118.990, 35.439		10.35	5.98	1.36	118.990°W	35.439°N	0.00	1.52
PointSourceFinite: -118.990, 35.502		15.40	6.21	1.74	118.990°W	35.502°N	0.00	1.33
PointSourceFinite: -118.990, 35.502		15.40	6.21	1.74	118.990°W	35.502°N	0.00	1.32
UC33brAvg FM31	System							10.55
San Andreas (Big Bend) [3]	-	56.58	8.07	2.06	119.138°W	34.850°N	193.82	6.44
Pleito [2]		39.28	7.91	1.79	119.058°W	34.996°N	189.17	1,33
UC33hrAvg FM32	System							10.48
San Andreas (Big Bend) [3]		56.58	8.07	2.06	119.138°W	34.850°N	193.82	6.41
Pleito [2]		39.28	7.91	1.79	119.058°W	34.996°N	189.17	1.29

# 2008 National Seismic Hazard Maps - Source Parameters

#### New Search

Distance in Miles	Name	State	Pref Slip Rate (mm/yr)	Dip (degrees)	Dip Dir	Slip Sense	Rupture Top (km)	Rupture Bottom (km)	Length (km)
16.51	<u>White Wolf</u>	СА	2	75	S	reverse	0	14	63
23.47	<u>Pleito</u>	CA	2	46	s	reverse	0	14	44
33.75	<u>Garlock;GC+GW</u>	CA	n/a	90	v	strike slip	0.4	12	210
33.75	<u>Garlock;GE+GC+GW</u>	CA	n/a	90	v	strike slip	0.3	12	256
33.75	<u>Garlock;GW</u>	CA	6	90	v	strike slip	0.7	14	98
35.10	<u>S. San Andreas;BB+NM+SM+NSB+SSB+BG+CO</u>	CA	n/a	85		strike slip	0.1	13	390
35.10	<u>S. San</u> Andreas; <u>CH+CC+BB+NM+SM+NSB+SSB+BG+CO</u>	CA	n/a	86		strike slip	0.1	13	512
35.10	S. San Andreas;BB+NM+SM	CA	n/a	90	v	strike slip	0	14	184
35.10	S. San Andreas;PK+CH+CC+BB	CA	n/a	90	v	strike slip	0.1	12	208
35.10	S. San Andreas;PK+CH+CC+BB+NM	CA	n/a	90	v	strike slip	0.1	12	245
35.10	S. San Andreas;PK+CH+CC+BB+NM+SM	CA	n/a	90	v	strike slip	0.1	13	342
35.10	S. San Andreas;PK+CH+CC+BB+NM+SM+NSB	CA	n/a	90	v	strike slip	0.1	13	377
35.10	S. San Andreas; PK+CH+CC+BB+NM+SM+NSB+SSB	CA	n/a	90	v	strike slip	0.1	13	421
35.10	<u>S. San</u> Andreas;PK+CH+CC+BB+NM+SM+NSB+SSB+BG	CA	n/a	86		strike slip	0.1	13	479
35.10	<u>S. San</u> Andreas;PK+CH+CC+BB+NM+SM+NSB+SSB+BG+CO	CA	n/a	86		strike slip	0.1	13	548
35.10	<u>S. San Andreas;BB+NM+SM+NSB</u>	CA	n/a	90	V	strike slip	0	14	220
35.10	S. San Andreas;BB+NM+SM+NSB+SSB	CA	n/a	90	V	strike slip	0	14	263
35.10	S. San Andreas;BB+NM+SM+NSB+SSB+BG	CA	n/a	84		strike	0	14	321

35.10	S. San Andreas;CH+CC+BB+NM+SM	CA	n/a	90	V	strike slip	0	14	306
35.10	<u>S. San Andreas;CC+BB</u>	CA	n/a	90	v	strike slip	0	15	109
35.10	<u>S. San Andreas;CC+BB+NM</u>	CA	n/a	90	v	strike slip	0	15	146
35.10	S. San Andreas;CC+BB+NM+SM	CA	n/a	90	v	strike slip	0	14	243
35.10	S. San Andreas;CC+BB+NM+SM+NSB	CA	n/a	90	V	strike slip	0	14	279
35.10	S. San Andreas;CC+BB+NM+SM+NSB+SSB	CA	n/a	90	v	strike slip	0	14	322
35.10	S. San Andreas;CC+BB+NM+SM+NSB+SSB+BG	CA	n/a	85		strike slip	0	14	380
35.10	S. San Andreas;CC+BB+NM+SM+NSB+SSB+BG+CO	CA	n/a	86		strike slip	0.1	13	449
35.10	<u>S. San Andreas;BB</u>	CA	34	90	v	strike slip	0	15	50
35.10	S. San Andreas;CH+CC+BB	CA	n/a	90	v	strike slip	0	14	171
35.10	S. San Andreas;CH+CC+BB+NM	CA	n/a	90	v	strike slip	0	14	208
35.10	S. San Andreas;CH+CC+BB+NM+SM+NSB	CA	n/a	90	v	strike slip	0	14	341
35.10	<u>S. San Andreas;CH+CC+BB+NM+SM+NSB+SSB</u>	CA	n/a	90	v	strike slip	0	14	384
35.10	S. San Andreas;CH+CC+BB+NM+SM+NSB+SSB+BG	CA	n/a	86		strike slip	0	14	442
35.10	<u>Ş. San Andreas;BB+NM</u>	CA	n/a	90	v	strike slip	0	15	87
36.20	<u>Ş. San Andreas;CC</u>	CA	34	90	V	strike slip	0	15	5 <del>9</del>
36.20	<u>S. San Andreas;CH+CC</u>	CA	n/a	90	V	strike slip	0	14	122
36.20	S. San Andreas; PK+CH+CC	CA	n/a	90	V	strike slip	0.2	11	158
37.40	<u>S. San Andreas;NM+SM+NSB+SSB+BG</u>	CA	n/a	83		strike slip	0	14	271
37.40	S. San Andreas;NM+SM+NSB+SSB+BG+CO	CA	n/a	84		strike slip	0.1	13	340
37.40	S. San Andreas;NM+SM+NSB	CA	n/a	90	v	strike	0	13	170

slip

						slip			
37.40	S. San Andreas;NM+SM+NSB+SSB	CA	n/a	90	V	strike slip	0	13	213
37.40	<u>S. San Andreas;NM</u>	CA	27	90	V	strike slip	0	15	37
37.40	<u>S. San Andreas;NM+SM</u>	CA	n/a	90	V	strike slip	0	14	134
43.91	San Gabriel	CA	1	61	Ν	strike slip	0	15	71
49.60	<u>S. San Andreas;PK+CH</u>	CA	n/a	90	v	strike slip	0.4	8	99
49.60	<u>S. San Andreas;CH</u>	CA	34	90	v	strike slip	0	12	63

#### APPENDIX A

#### FIELD AND LABORATORY INVESTIGATIONS

#### **Field Investigation**

The field investigation consisted of a surface reconnaissance and a subsurface exploratory program. Four  $4\frac{1}{2}$ -inch to  $6\frac{1}{2}$ -inch exploratory borings were advanced. The boring locations are shown on the site plan.

The soils encountered were logged in the field during the exploration and with supplementary laboratory test data are described in accordance with the Unified Soil Classification System.

Modified standard penetration tests and standard penetration tests were performed at selected depths. These tests represent the resistance to driving a 2½-inch and 1½-inch diameter core barrel, respectively. The driving energy was provided by a hammer weighing 140 pounds falling 30 inches. Relatively undisturbed soil samples were obtained while performing this test. Bag samples of the disturbed soil were obtained from the auger cuttings. The modified standard penetration tests are identified in the sample type on the boring logs with a full shaded in block. The standard penetration tests are identified in the sample type on the boring logs with half of the block shaded. All samples were returned to our Clovis laboratory for evaluation.

#### Laboratory Investigation

The laboratory investigation was programmed to determine the physical and mechanical properties of the foundation soil underlying the site. Test results were used as criteria for determining the engineering suitability of the surface and subsurface materials encountered.

In-situ moisture content, dry density, consolidation, direct shear, and sieve analysis tests were completed for the undisturbed samples representative of the subsurface material. These tests, supplemented by visual observation, comprised the basis for our evaluation of the site material.

The logs of the exploratory borings and laboratory determinations are presented in this Appendix.

## UNIFIED SOIL CLASSIFICATION SYSTEM



CONSISTENCY CLASSIFICATION							
Description	<b>Blows per Foot</b>						
Granular Soils							
Very Loose	< 5						
Loose	5 - 15						
Medium Dense	16-40						
Dense	41 - 65						
Very Dense	> 65						
Cohesiv	e Soils						
Very Soft	< 3						
Soft	3-5						
Firm	6-10						
Stiff	11-20						
Very Stiff	21-40						
Hard	> 40						

GRAIN SIZE CLASSIFICATION								
Grain Type	Standard Sieve Size	Grain Size in Millimeters						
Boulders	Above 12 inches	Above 305						
Cobbles	12 to 13 inches	305 to 76.2						
Gravel	3 inches to No. 4	76.2 to 4.76						
Coarse-grained	3 to <sup>3</sup> / <sub>4</sub> inches	76.2 to 19.1						
Fine-grained	<sup>3</sup> / <sub>4</sub> inches to No. 4	19.1 to 4.76						
Sand	No. 4 to No. 200	4.76 to 0.074						
Coarse-grained	No. 4 to No. 10	4.76 to 2.00						
Medium-grained	No. 10 to No. 40	2.00 to 0.42						
Fine-grained	No. 40 to No. 200	0.42 to 0.074						
Silt and Clay	Below No. 200	Below 0.074						



Depth to Water>			Ini	tial: N	lone		At Completion: None						
		SUBSURFACE PROFILE		SAM	1PLE								
Depth (ft)	Symbol	Description	Dry Density (pcf) Moisture (%) Type Blows/ft.		Blows/ft.	Penetration Test blows/ftWater Content (%)20406010203040							
0	antamanna	Ground Surface											
2-		SILTY SAND (SM) Very loose, fine- to medium-grained; brown, moist, drills easily Loose below 12 inches											
		Medium dense below 2 feet	131.1	7.2		32	A						
4													
6		Very dense and drills hard below $5\frac{1}{2}$ feet	122.9	8.2		50+							
8-		SH TY SAND(SAND (SM/SD)	_										
10		Medium dense, fine- to coarse-grained with trace GRAVEL; light brown, damp, drills easily											
-			103.2	2.5		11							
12													
14													
			101.6	1.7		12							
16-													
18-		SAND (SP)	-										
20-	and a second	Medium dense, fine- to medium-grained; brown, damp, drills easily											
	目的自己的		-			10							

Drill Method: Hollow Stem

Drill Rig: CME 45C

Driller: Eddie Tapia

**Krazan and Associates** 

Drill Date: 8-15-22

Hole Size: 61/2 Inches

Elevation: 50 Feet Sheet: 1 of 3

Logged By: Erick Escobar

Client: Bakersfield City School District

Location: 1100 Citadel Street, Bakersfield, California

#### Internet NL

Log of Boring B1

Project: MLK Elementary School Welness Center and Parent Center

Project No: 022-22124

Figure No.: A-1

Depth to Water>			Ini	itial: N	lone		At Completion: None						
	98	SUBSURFACE PROFILE		SAM	IPLE			T					
Depth (ft)	Symbol	Description	Dry Density (pcf) Moisture (%) Type Blows/ft.			Blows/ft.	Penetration Test blows/ft 20 40 60 10 20 30			ent (% ) 4	%) 0		
2			96.8	3.1		12	4	1					
22													
24 -		SILTY SAND/SAND (SM/SP) Medium dense, fine- to medium-grained; brown, damp, drills easily											
26-			102.8	1.8		28	À						
-													
28 -								<u> </u>	0				
30 -		Medium dense, fine- to coarse-grained; with trace GRAVEL brown, damp, drills easily											
-			113.0	1.9		28	+						
32 -													
34		SILTY SAND/SANDY SILT (SM/ML) Medium dense, fine- to medium-grained; brown, moist, drills easily											
-			115.6	11.5		23							
36-								-					
	1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.												
38 -		SILTY SAND/SAND (SM/SP) Dense, fine- to medium-grained; brown, damp, drills firmly											
40						~~					_		

Drill Method: Hollow Stem

Drill Rig: CME 45C

Driller: Eddie Tapia

**Krazan and Associates** 

Drill Date: 8-15-22

Hole Size: 61/2 Inches

Elevation: 50 Feet Sheet: 2 of 3

## Log of Boring B1

Project: MLK Elementary School Welness Center and Parent Center

Client: Bakersfield City School District

Location: 1100 Citadel Street, Bakersfield, California

Project No: 022-22124

Figure No.: A-1

Logged By: Erick Escobar

Client: Bakersfield City School District						Figure No.: A-1						
Lo	catio	n: 1100 Citadel Street, Bakersfield, Calif	ornia				Logged By: Erick Escobar					
De	Depth to Water>				lone		At Completion: None					
		SUBSURFACE PROFILE		SAM	1PLE							
Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.	Penetration Test blows/ft 20 40 60	Water Content (%)				
32 37			109.2	1.8		39	7					
42												
44												
46			115.0	1.9		34						
48		<b>SANDY SILT (ML)</b> Dense, fine- to medium-grained; brown, damp, drills firmly										
50 -		End of Borehole										
52												
54												
56-												
65 24												
58-												
60												

Drill Method: Hollow Stem Drill Date: 8-15-22 **Krazan and Associates** Drill Rig: CME 45C Hole Size: 61/2 Inches Driller: Eddie Tapia Elevation: 50 Feet

## Log of Boring B1

Project: MLK Elementary School Welness Center and Parent Center

Project No: 022-22124

Sheet: 3 of 3

Project: MLK Elementary School Welness Center and Parent Center

Client: Bakersfield City School District

Location: 1100 Citadel Street, Bakersfield, California

#### Depth to Water>

Initial: None

SAMPLE SUBSURFACE PROFILE Penetration Test blows/ft Dry Density (pcf) Water Content (%) Moisture (%) Description Depth (ft) Blows/ft. Symbol Type 20 40 60 10 20 30 40 Ground Surface 0 SILTY SAND (SM) Very loose, fine- to medium-grained; brown, moist, drills easily Loose below 12 inches 2 Medium dense below 2 feet 127.6 6.8 36 . 4 Dense below 5 feet 121.6 6.0 41 6 SANDY SILT (ML) Medium dense, fine- to medium-grained; brown, moist, drills easily 8 10.1 25 SILTY SAND (SM) Medium dense, fine- to medium-grained; 10 brown, moist, drills easily End of Borehole 12 14 16 18 20

 Drill Method: Solid Flight
 Drill Date: 8-15-22

 Drill Rig: CME 45C
 Krazan and Associates
 Hole Size: 4½ Inches

 Driller: Eddie Tapia
 Elevation: 10 Feet
 Sheet: 1 of 1



## Log of Boring B2

Figure No.: A-2

Logged By: Erick Escobar

Project No: 022-22124

At Completion: None

Depth to Water>		Ini	tial: N	lone		At Completion: None					
		SUBSURFACE PROFILE		SAM	IPLE						
Depth (ft)	Symbol	Description	Dry Density (pcf) Moisture (%) Type Blows/ft.			Blows/ft.	Penetration Test blows/ft 20 40 60	Water Content (%)			
0	uuuuuuu	Ground Surface									
2		<i>SILTY SAND (SM)</i> Very loose, fine- to medium-grained; brown, moist, drills easily Loose below 12 inches	98.3	11 7	12.0	12					
4			50.5			12	Ţ				
6			109.2	7.3		8					
8											
10		Medium dense below 10 feet	105.4	12.0		16					
12											
14		<i>SAND (SP)</i> Medium dense, fine- to coarse-grained; brown, damp, drills easily									
16-				2.4		18					
18		<b>SANDY SILT (ML)</b> Medium dense, fine- to medium-grained; brown, damp, drills easily									
20											

Drill Method: Solid Flight

Drill Rig: CME 45C

Driller: Eddie Tapia

**Krazan and Associates** 

Drill Date: 8-15-22

Hole Size: 41/2 Inches

Elevation: 20 Feet Sheet: 1 of 1

Figure No.: A-3

Logged By: Erick Escobar

At Completion: None

## Log of Boring B3 Project: MLK Elementary School Welness Center and Parent Center

Location: 1100 Citadel Street, Bakersfield, California

Client: Bakersfield City School District

Project No: 022-22124

Client: Bakersfield City School District

Location: 1100 Citadel Street, Bakersfield, California

Depth to Water>

Initial: None

Log of Boring B4

Project No: 022-22124

Figure No.: A-4

Logged By: Erick Escobar

At Completion: None

	SUBSURFACE PROFILE		SAMPLE								
Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.	Penetration Test blows/ft 20 40 60		Water Content (%)		
0		Ground Surface									
2-		SILTY SAND (SM) Very loose, fine- to medium-grained; brown, moist, drills easily Loose with thin lenses of SILTY									
		SAND/SANDY SILT below 12 inches	93.3	22.2		9	<b>^</b>		•		
4 -											
	6		108.1	8.5		9					
6-							2				
8											
		End of Borehole									
12											
1											
14 -											
14											
16-											
1											
18											
20-											

Drill Method: Solid FlightDrill Date: 8-15-22Drill Rig: CME 45CKrazan and AssociatesHole Size: 4½ InchesDriller: Eddie TapiaElevation: 10 Feet<br/>Sheet: 1 of 1

## **Consolidation Test**

Project No	Boring No. & Depth	Date	Soil Classification
022-22124	B1 @ 2-3'	8/29/2022	SM



**Krazan Testing Laboratory** 

## **Consolidation Test**

Project No	Boring No. & Depth	Date	Soil Classification
022-22124	B3 @ 2-3'	8/29/2022	SM



**Krazan Testing Laboratory** 

## **Consolidation Test**

Project No	Boring No. & Depth	Date	Soil Classification	
022-22124	B3 @ 5-6'	8/29/2022	SM	



**Krazan Testing Laboratory**
## Shear Strength Diagram (Direct Shear) ASTM D - 3080 / AASHTO T - 236



**Krazan Testing Laboratory** 

## Shear Strength Diagram (Direct Shear) ASTM D - 3080 / AASHTO T - 236

Project Number	Boring No. & Depth	Soil Type	Date
022-22124	B4 @ 2-3'	SM/ML	8/29/2022



Krazan Testing Laboratory

**Grain Size Analysis** 



Krazan Testing Laboratory

022-22124 SM B1 @ 2-3'

Project Name Project Number Soil Classification Sample Number

**Grain Size Analysis** 



Krazan Testing Laboratory

**Grain Size Analysis** 



Krazan Testing Laboratory

Project Number Soil Classification Sample Number

## APPENDIX B

## EARTHWORK SPECIFICATIONS

## GENERAL

When the text of the report conflicts with the general specifications in this appendix, the recommendations in the report have precedence.

**SCOPE OF WORK:** These specifications and applicable plans pertain to and include all earthwork associated with the site rough grading, including but not limited to the furnishing of all labor, tools, and equipment necessary for site clearing and grubbing, stripping, preparation of foundation materials for receiving fill, excavation, processing, placement and compaction of fill and backfill materials to the lines and grades shown on the project grading plans, and disposal of excess materials.

**PERFORMANCE:** The Contractor shall be responsible for the satisfactory completion of all earthwork in accordance with the project plans and specifications. This work shall be inspected and tested by a representative of Krazan and Associates, Inc., hereinafter known as the Soils Engineer and/or Testing Agency. Attainment of design grades when achieved shall be certified by the project Civil Engineer. Both the Soils Engineer and the Civil Engineer are the Owner's representatives. If the Contractor should fail to meet the technical or design requirements embodied in this document and on the applicable plans, he shall make the necessary readjustments until all work is deemed satisfactory as determined by both the Soils Engineer and the Civil Engineer. No deviation from these specifications shall be made except upon written approval of the Soils Engineer, Civil Engineer or project Architect.

No earthwork shall be performed without the physical presence or approval of the Soils Engineer. The Contractor shall notify the Soils Engineer at least 2 working days prior to the commencement of any aspect of the site earthwork.

The Contractor agrees that he shall assume sole and complete responsibility for job site conditions during the course of construction of this project, including safety of all persons and property; that this requirement shall apply continuously and not be limited to normal working hours; and that the Contractor shall defend, indemnify and hold the Owner and the Engineers harmless from any and all liability, real or alleged, in connection with the performance of work on this project, except for liability arising from the sole negligence of the Owner or the Engineers.

**TECHNICAL REQUIREMENTS**: All compacted materials shall be densified to a density not less than 90 percent relative compaction based on ASTM Test Method D1557 or CAL-216, as specified in the technical portion of the Soil Engineer's report. The location and frequency of field density tests shall be as determined by the Soils Engineer. The results of these tests and compliance with these specifications shall be the basis upon which satisfactory completion of work will be judged by the Soils Engineer.

**SOILS AND FOUNDATION CONDITIONS**: The Contractor is presumed to have visited the site and to have familiarized himself with existing site conditions and the contents of the data presented in the soil report.

The Contractor shall make his own interpretation of the data contained in said report, and the Contractor shall not be relieved of liability under the Contract documents for any loss sustained as a result of any variance between conditions indicated by or deduced from said report and the actual conditions encountered during the progress of the work.

**DUST CONTROL:** The work includes dust control as required for the alleviation or prevention of any dust nuisance on or about the site or the borrow area, or off-site if caused by the Contractor's operation either during the performance of the earthwork or resulting from the conditions in which the Contractor leaves the site. The Contractor shall assume all liability, including court costs of codefendants, for all claims related to dust or windblown materials attributable to his work.

### SITE PREPARATION

Site preparation shall consist of site clearing and grubbing and the preparations of foundation materials for receiving fill.

**CLEARING AND GRUBBING:** The Contractor shall accept the site in this present condition and shall demolish and/or remove from the area of designated project earthwork all structures, both surface and subsurface, trees, brush, roots, debris, organic matter, and all other matter determined by the Soils Engineer to be deleterious or otherwise unsuitable. Such materials shall become the property of the Contractor and shall be removed from the site.

Tree root systems in proposed building areas should be removed to a minimum depth of 3 feet and to such an extent which would permit removal of all roots larger than 1 inch. Tree roots removed in parking areas may be limited to the upper  $1\frac{1}{2}$  feet of the ground surface. Backfill of tree root excavations should not be permitted until all exposed surfaces have been inspected and the Soils Engineer is present for the proper control of backfill placement and compaction. Burning in areas which are to receive fill materials shall not be permitted.

**SUBGRADE PREPARATION:** Surfaces to receive Engineered Fill, building or slab loads shall be prepared as outlined above, excavated/scarified to a depth of 12 inches, moisture-conditioned as necessary, and compacted to 90 percent relative compaction.

Loose soil areas, areas of uncertified fill, and/or areas of disturbed soils shall be moisture-conditioned as necessary and recompacted to 90 percent relative compaction. All ruts, hummocks, or other uneven surface features shall be removed by surface grading prior to placement of any fill materials. All areas which are to receive fill materials shall be approved by the Soils Engineer prior to the placement of any of the fill material.

**EXCAVATION:** All excavation shall be accomplished to the tolerance normally defined by the Civil Engineer as shown on the project grading plans. All over-excavation below the grades specified shall be backfilled at the Contractor's expense and shall be compacted in accordance with the applicable technical requirements.

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**FILL AND BACKFILL MATERIAL:** No material shall be moved or compacted without the presence of the Soils Engineer. Material from the required site excavation may be utilized for construction site fills provided prior approval is given by the Soils Engineer. All materials utilized for constructing site fills shall be free from vegetation or other deleterious matter as determined by the Soils Engineer.

**PLACEMENT, SPREADING AND COMPACTION:** The placement and spreading of approved fill materials and the processing and compaction of approved fill and native materials shall be the responsibility of the Contractor. However, compaction of fill materials by flooding, ponding, or jetting shall not be permitted unless specifically approved by local code, as well as the Soils Engineer.

Both cut and fill areas shall be surface-compacted to the satisfaction of the Soils Engineer prior to final acceptance.

**SEASONAL LIMITS:** No fill material shall be placed, spread, or rolled while it is frozen or thawing or during unfavorable wet weather conditions. When the work is interrupted by heavy rains, fill operations shall not be resumed until the Soils Engineer indicates that the moisture content and density of previously placed fill are as specified.

## APPENDIX C

#### PAVEMENT SPECIFICATIONS

1. **DEFINITIONS** - The term "pavement" shall include asphaltic concrete surfacing, untreated aggregate base, and aggregate subbase. The term "subgrade" is that portion of the area on which surfacing, base, or subbase is to be placed.

The term "Standard Specifications": hereinafter referred to is the 2010 Standard Specifications of the State of California, Department of Transportation, and the "Materials Manual" is the Materials Manual of Testing and Control Procedures, State of California, Department of Public Works, Division of Highways. The term "relative compaction" refers to the field density expressed as a percentage of the maximum laboratory density as defined in the applicable tests outlined in the Materials Manual.

2. SCOPE OF WORK - This portion of the work shall include all labor, materials, tools, and equipment necessary for, and reasonably incidental to the completion of the pavement shown on the plans and as herein specified, except work specifically noted as "Work Not Included."

**3. PREPARATION OF THE SUBGRADE** - The Contractor shall prepare the surface of the various subgrades receiving subsequent pavement courses to the lines, grades, and dimensions given on the plans. The upper 12 inches of the soil subgrade beneath the pavement section shall be compacted to a minimum relative compaction of 90 percent. The finished subgrades shall be tested and approved by the Soils Engineer prior to the placement of additional pavement courses.

4. UNTREATED AGGREGATE BASE - The aggregate base material shall be spread and compacted on the prepared subgrade in conformity with the lines, grades, and dimensions shown on the plans. The aggregate base material shall conform to the requirements of Section 26 of the Standard Specifications for Class 2 material, 1½ inches maximum size. The aggregate base material shall be spread and compacted in accordance with Section 26 of the Standard Specifications. The aggregate base material shall be spread in layers not exceeding 6 inches and each layer of aggregate material course shall be tested and approved by the Soils Engineer prior to the placement of successive layers. The aggregate base material shall be compacted to a minimum relative compaction of 95 percent.

**5.** AGGREGATE SUBBASE - The aggregate subbase shall be spread and compacted on the prepared subgrade in conformity with the lines, grades, and dimensions shown on the plans. The aggregate subbase material shall conform to the requirements of Section 25 of the Standard Specifications for Class 2 material. The aggregate subbase material shall be compacted to a minimum relative compaction of 95 percent, and it shall be spread and compacted in accordance with Section 25 of the Standard Specifications. Each layer of aggregate subbase shall be tested and approved by the Soils Engineer prior to the placement of successive layers.

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6. ASPHALTIC CONCRETE SURFACING - Asphaltic concrete surfacing shall consist of a mixture of mineral aggregate and paving grade asphalt, mixed at a central mixing plant and spread and compacted on a prepared base in conformity with the lines, grades and dimensions shown on the plans. The viscosity grade of the asphalt shall be PG 64-10. The mineral aggregate shall be Type B, ½ inch maximum size, medium grading and shall conform to the requirements set forth in Section 39 of the Standard Specifications. The drying, proportioning and mixing of the materials shall conform to Section 39.

The prime coat, spreading and compacting equipment and spreading and compacting mixture shall conform to the applicable chapters of Section 39, with the exception that no surface course shall be placed when the atmospheric temperature is below 50° F. The surfacing shall be rolled with a combination of steel wheel and pneumatic rollers, as described in Section 39-6. The surface course shall be placed with an approved self-propelled mechanical spreading and finishing machine.

7. FOG SEAL COAT - The fog seal (mixing type asphaltic emulsion) shall conform to and be applied in accordance with the requirements of Section 37.

# LIQUEFACTION ANALYSIS

## **MLK Elementary School - Bakersfield**

## Hole No.=B1 Water Depth=22 ft

## Magnitude=7.91 Acceleration=0.491g



LIQUEFACTION ANALYSIS SUMMARY Copyright by CivilTech Software www.civiltechsoftware.com 10/4/2022 2:44:57 PM Licensed to Krazan and Associates, Inc., Input File Name: H:\Liquefy5\02222124B1.liq Title: MLK Elementary School - Bakersfield Subtitle: Boring B1 Surface Elev.= Hole No.=B1 Depth of Hole= 50.00 ft Water Table during Earthquake= 22.00 ft Water Table during In-Situ Testing= 50.00 ft Max. Acceleration= 0.49 q Earthquake Magnitude= 7.91 Input Data: Surface Elev.= Hole No.=B1 Depth of Hole=50.00 ft Water Table during Earthquake= 22,00 ft Water Table during In-Situ Testing= 50.00 ft Max. Acceleration=0.49 g Earthquake Magnitude=7.91 No-Liquefiable Soils: Based on Analysis 1. SPT or BPT Calculation. 2. Settlement Analysis Method: Ishihara / Yoshimine 3. Fines Correction for Liquefaction: Modify Stark/Olson 4. Fine Correction for Settlement: During Liquefaction\* 5. Settlement Calculation in: All zones\* Ce = 1.256. Hammer Energy Ratio, Cb= 1 7. Borehole Diameter, Cs = 18. Sampling Method, 9. User request factor of safety (apply to CSR) , User= 1.3 Plot one CSR curve (fs1=User) 10. Use Curve Smoothing: Yes\* \* Recommended Options In-Situ Test Data: Depth SPT gamma Fines pcf 00 ft 0.00 22.00 141.00 38.00 
 1.00
 50.00
 133.00
 37.00

 8.00
 11.00
 106.00
 11.00

 13.00
 12.00
 103.00
 10.00

 18.00
 12.00
 100.00
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 23.00
 28.00
 105.00
 10.00
 10.00 28.00 28.00 115.00 33.00 23.00 129.00 47.00 9.00 38.00 35.00 111.00 38.0035.00111.005.0043.0034.00117.0010.0047.0030.00118.0070.0050.0030.00118.0070.00 50.00 30.00 118.00

Output Results:

Settlement of Saturated Sands=0.64 in. Settlement of Unsaturated Sands=1.33 in. Total Settlement of Saturated and Unsaturated Sands=1.97 in. Differential Settlement=0.985 to 1.300 in.

	_		
Depth CRRm	CSRfs F.S.	S_sat.	S_dry S_all
ft		in. in	. in.
0 00 1 74	0.41 E.00	0 64 1	22 1 97
0.00 1.74	0.41 5.00	0.64 1	23 1 97
0.05 1.74	0.41 5.00	0.64 1.	$33 \pm 37$
0.10 1.74	0.41 5.00	0.64 1.	$33 \pm .97$
0.15 1.74	0.41 5.00	0.64 1.	1.77
0.20 1.74	0.41 5.00	0.64 1.	33 I.97
0.25 1.74	0.41 5.00	0.64 1.	33 1.97
0.30 1.74	0.41 5.00	0.64 1.1	33 1.97
0.35 1.74	0.41 5.00	0.64 1.3	33 1.97
0.40 1.74	0.41 5.00	0.64 1.3	33 1.97
0.45 1.74	0.41 5.00	0.64 1.3	33 1.97
0.50 1.74	0.41 5.00	0.64 1.3	33 1.97
0.55 1.74	0.41 5.00	0.64 1.3	33 1.97
0.60 1.74	0.41 5.00	0.64 1.3	33 1.97
0.65 1.74	0.41 5.00	0.64 1.3	33 1.97
0.70 1.74	0.41 5.00	0.64 1.3	33 1.97
0.75 1.74	0.41 5.00	0.64 1.3	33 1.97
0.80 1 74	0.41 5.00	0.64 1.1	33 1.97
0.00 1.71	0.41 5.00	0 64 1	33 1.97
$0.05 \pm .74$	0.41 5.00	0 64 1	22 1 97
0.90 1.74	0.41 5.00	0.64 1	33 1 97
0.95 1.74	0.41 5.00	0.04 1.	22 1 07
1.00 1.74	0.41 5.00	0.64 1.	22 1.27
1.05 1.74	0.41 5.00	0.64 1.	$33 \pm .97$
1.10 1.74	0.41 5.00	0.64 1.	33 1.97
1.15 1.74	0.41 5.00	0.64 1.	33 1.97
1.20 1.74	0.41 5.00	0.64 1.	33 1.97
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1.40 1.74	0.41 5.00	0.64 1.	33 1.97
1.45 1.74	0.41 5.00	0.64 1.	33 1.97
1.50 1.74	0.41 5.00	0.64 1.	33 1.97
1.55 1.74	0.41 5.00	0.64 1.	33 1.97
1.60 1.74	0.41 5.00	0.64 1.	33 1.97
1.65 1.74	0.41 5.00	0.64 1.	33 1.97
1.70 1 74	0.41 5.00	0.64 1.	33 1.97
1 75 1 7/	0 41 5 00	0.64 1	33 1.97
1 20 1 74		0 64 1	33 1.97
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2.20 1.74	0.41 5.00	0.64 1.	33 1.97
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2.30 1.74	0.41 5.00	0.64 1.	33 1.97
2.35 1.74	0.41 5.00	0.64 1.	33 1.97
2.40 1.74	0.41 5.00	0.64 1.	33 1.97
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2.70 1.74	0.41 5.00	0.64 I.	22 I.27 1 07
2.75 $1.74$	U.41 5.00	U.64 I.	JJ I.7/

2.80	1.74	0.41	5.00	0.64	1.33	1.97	
2.85	1.74	0.41	5.00	0.64	1.33	1.97	
2.90	1.74	0.41	5.00	0.64	1.33	1.97	
2.95	1.74	0.41	5.00	0.64	1.33	1.97	
3.00	1.74	0.41	5.00	0.64	1.33	1.97	
3 05	1.74	0.41	5.00	0.64	1.33	1.97	
3 10	1 74	0 41	5.00	0.64	1.33	1.97	
2 15	1 74	0 41	5 00	0.64	1.33	1.97	
2.20	1 7/	0.11	5 00	0 64	1 33	1.96	
2.20	1 74	0.41	5 00	0 64	1.33	1.96	
2.20	1 74	0.41	5.00	0.64	1 33	1 96	
3.30	1.74	0.41	5.00	0.64	1 33	1 96	
3.30	1 74	0.41	5.00	0.04	1 22	1 96	
3.40	1.74	0.41	5.00	0.04	1 22	1 96	
3.45	1.74	0.41	5.00	0.04	1 22	1 96	
3.50	1.74	0.41	5.00	0.64	1 22	1 06	
3.55	1.74	0.41	5.00	0.64	1 22	1.90	
3.60	1.74	0.41	5.00	0.64	1.33	1.90	
3.65	1.74	0.41	5.00	0.64	1.33	1.96	
3.70	1.74	0.41	5.00	0.64	1.33	T.96	
3.75	1.74	0.41	5.00	0.64	1.33	1.96 1.96	
3.80	1.74	0.41	5.00	0.64	1.33	1.96	
3.85	1.74	0.41	5.00	0.64	1.33	1.96	
3.90	1.74	0.41	5.00	0.64	1.33	1,96	
3.95	1.74	0.41	5.00	0.64	1.33	1.96	
4.00	1.74	0.41	5.00	0.64	1.33	1.96	
4.05	1.74	0.41	5.00	0.64	1.33	1.96	
4.10	1.74	0.41	5.00	0.64	1.33	1.96	
4.15	1.74	0.41	5.00	0.64	1.33	1.96	
4.20	1.74	0.41	5.00	0.64	1.33	1.96	
4.25	1.74	0.41	5.00	0.64	1.33	1.96	
4.30	1.74	0.41	5.00	0.64	1.32	1.96	
4.35	1.74	0.41	5.00	0.64	1.32	1.96	
4.40	1.74	0.41	5.00	0.64	1.32	1.96	
4.45	1.74	0.41	5.00	0.64	1.32	1.96	
4.50	1.74	0.41	5.00	0.64	1.32	1.96	
4.55	1.74	0.41	5.00	0.64	1.32	1.96	
4.60	1.74	0.41	5.00	0.64	1.32	1.96	
4 65	1.74	0.41	5.00	0.64	1.32	1.96	
4 70	1.74	0.41	5.00	0.64	1.32	1.96	
4 75	1 74	0.41	5.00	0.64	1.32	1.96	
4 80	1 74	0 41	5.00	0.64	1.32	1.96	
1 25	1 74	0.41	5 00	0.64	1.32	1.96	
4 90	1 74	0.41	5.00	0.64	1.32	1.96	
4.95	$\frac{1}{1}$	0 41	5.00	0.64	1.32	1.96	
5 00	1 7/	0.41	5 00	0 64	1.32	1.96	
5.00	1 7/	0.41	5 00	0 64	1 32	1.96	
5.U5 E 10	1 7/4	0.41	5.00	0.04	1 22	1 96	
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5.40	1.74	0.41	5.00	0.64	1 22	1.90	
5.45	1.74	0.41	5.00	0.64	1.32	1.96	
5.50	1.74	0.41	5.00	U.64	1.32	1.96	
5.55	1.74	0.41	5.00	0.64	1.32	1.96	
5.60	1.74	0.41	5.00	0.64	1.32	1.96	
5.65	1.74	0.41	5.00	0.64	1.32	1.96	
5.70	1.74	0.41	5.00	0.64	1.32	1.96	
5.75	1.74	0.41	5.00	0.64	1.32	1.96	

5.80	1.74	0.41	5.00	0.64	1.32	1.96
5.85	1.74	0.41	5.00	0.64	1.32	1.96
5.90	1.74	0.41	5.00	0.64	1.32	1.96
5.95	1.74	0.41	5.00	0.64	1.32	1.96
6.00	1.74	0.41	5.00	0.64	1.32	1.96
6.05	1.74	0.41	5.00	0.64	1.32	1.96
6 10	1.74	0.41	5.00	0.64	1.32	1.96
6 15	1 74	0 41	5 00	0.64	1.32	1.96
6 20	1 74	0.41	5 00	0.64	1.32	1.96
6 25	1 74	0.11	5 00	0 64	1 32	1.96
6 20	1 74	0.41	5 00	0.64	1 32	1 96
6.30	1 74	0.41	5 00	0.64	1 32	1 96
6.35	1.74	0.41	5.00	0.04	1 32	1 96
6.40	1.74	0.41	5.00	0.04	1 22	1 96
6.45	1.74	0.41	5.00	0.04	1 20	1 96
6.50	1.74	0.41	5.00	0.64	1 22	1.90
6.55	1.74	0.41	5.00	0.64	1.32	1.96
6.60	1.74	0.41	5.00	0.64	1.32	1.96
6.65	1.74	0.41	5.00	0.64	1.32	1.96
6.70	1.74	0.41	5.00	0.64	1.32	1.96
6.75	1.74	0.41	5.00	0.64	1.32	1.96
6.80	1.74	0.41	5.00	0.64	1.32	1.96
6.85	1.74	0.41	5.00	0.64	1.32	1.96
6.90	1.74	0.41	5.00	0.64	1.32	1.96
6.95	1.74	0.41	5.00	0.64	1.32	1.95
7.00	1.74	0.41	5.00	0.64	1.32	1.95
7.05	1.74	0.41	5.00	0.64	1.32	1.95
7.10	1.74	0.41	5.00	0.64	1.32	1.95
7.15	0.40	0.41	5.00	0.64	1.32	1.95
7.20	0.33	0.41	5.00	0.64	1.31	1.95
7.25	0.31	0.41	5.00	0.64	1.31	1.95
7.30	0.29	0.41	5.00	0.64	1.31	1.95
7.35	0.27	0.41	5.00	0.64	1.31	1.95
7.40	0.26	0.41	5.00	0.64	1.31	1.95
7.45	0.25	0.41	5.00	0.64	1.31	1.95
7 50	0.24	0.41	5.00	0.64	1.31	1.95
7.55	0.23	0.41	5.00	0.64	1.31	1.95
7 60	0 22	0 41	5.00	0.64	1.31	1.95
7 65	0 21	0.41	5.00	0.64	1.31	1.94
7 70	0.20	0 41	5 00	0.64	1.30	1.94
7 75	0.19	0 41	5 00	0.64	1.30	1.94
7 90	0.19	0.41	5 00	0.64	1 30	1.94
7 05	0.17	0.41	5 00	0 64	1 30	1 93
7.05	0.17	0.41	5 00	0.01	1 29	1 93
7.90	0.16	0.41	5 00	0.64	1 29	1 92
7.95	0.15	0.41	5.00	0.04	1 28	1 92
8.00	0.15	0.41	5.00	0.04	1 27	1 91
8.05	0.15	0.41	5.00	0.04	1 26	1 90
8.10	0.15	0.41	5.00	0.64	1 25	1 00
8.15	0.15	0.41	5.00	0.64	1.20	1 07
8.20	0.15	0.41	5.00	0.64	1.24	1.87
8.25	0.17	0.41	5.00	0.64	1.22	1.86
8.30	0.17	0.41	5.00	0.64	1.22	1.85
8.35	0.17	0.41	5.00	0.64	1.21	1.85
8.40	0.17	0.41	5.00	0.64	1.20	1.84
8.45	0.17	0.41	5.00	0.64	1.20	1.83
8.50	0.17	0.41	5.00	0.64	1.19	1.83
8.55	0.17	0.41	5.00	0.64	1.18	1.82
8.60	0.17	0.41	5.00	0.64	1.17	1.81
8.65	0.17	0.41	5.00	0.64	1.16	1.80
8.70	0.17	0.41	5.00	0.64	1.16	1.79
8.75	0.17	0.41	5.00	0.64	1.15	1.78

8.80	0.17	0.41	5.00	0.64	1.14	1.77
8.85	0.17	0.41	5.00	0.64	1.13	1.76
8.90	0.17	0.41	5.00	0.64	1.12	1.75
8.95	0.17	0.41	5.00	0.64	1.10	1.74
9.00	0.17	0.41	5.00	0.64	1.09	1.73
9.05	0.17	0.41	5.00	0.64	1.08	1.72
9.10	0.17	0.41	5.00	0.64	1.07	1.71
9.15	0.17	0.41	5.00	0.64	1.07	1.70
9.20	0.17	0.41	5.00	0.64	1.07	1.70
9.25	0.16	0.41	5.00	0.64	1.06	1 70
9.30	0.16	0.41	5.00	0.64	1.06	1 70
9.35	0.16	0.41	5.00	0.64	1 06	1,70
9.40	0.16	0.41	5.00	0.64	1 06	1 69
9.45	0.10	0.41	5 00	0.64	1 05	1.69
9.50	0.16	0.41	5 00	0 64	1.05	1.69
9 60	0.16	0.41	5.00	0.64	1.05	1.69
9 65	0.16	0.41	5.00	0.64	1.05	1.69
9.70	0.16	0.41	5.00	0.64	1.05	1.68
9.75	0.16	0.41	5.00	0.64	1.04	1.68
9.80	0.16	0.41	5.00	0.64	1.04	1.68
9.85	0.16	0.41	5.00	0.64	1.04	1.68
9.90	0.16	0.41	5.00	0.64	1.04	1.68
9.95	0.16	0.41	5.00	0.64	1.04	1.67
10.00	0.16	0.41	5.00	0.64	1.03	1.67
10.05	0.16	0.41	5.00	0.64	1.03	1.67
10.10	0.16	0.41	5.00	0.64	1.03	1.67
10.15	0.16	0.41	5.00	0.64	1.03	1.67
10.20	0.16	0.41	5.00	0.64	1.03	1.66
10.25	0.16	0.40	5.00	0.64	1.02	1.66
10.30	0.16	0.40	5.00	0.64	1 02	1 66
10.35	0.16	0.40	5.00	0.64	1 02	1 66
10.40	0.16	0.40	5 00	0.64	1 02	1 65
10.50	0.16	0.40	5.00	0.64	1.01	1.65
10.55	0.16	0.40	5.00	0.64	1.01	1.65
10.60	0.16	0.40	5.00	0.64	1.01	1.65
10.65	0.16	0.40	5.00	0.64	1.01	1.64
10.70	0.16	0.40	5.00	0.64	1.00	1.64
10.75	0.16	0.40	5.00	0.64	1.00	1.64
10.80	0.16	0.40	5.00	0.64	1.00	1.64
10.85	0.16	0.40	5.00	0.64	1.00	1.63
10.90	0.16	0.40	5.00	0.64	0.99	1.63
10.95	0.16	0.40	5.00	0.64	0.99	1.63
11.00	0.16	0.40	5.00	0.64	0.99	1.63
11.05	0.16	0.40	5.00	0.64	0.99	1.62
11.10	0.16	0.40	5.00	0.64	0.98	1.62
11.15	0.16	0.40	5.00	0.64	0.98	1 67
11.20	0.16	0.40	5.00	0.64	0.90	1 61
11.25	0.16	0.40	5.00	0.04	0.98	1 61
11 25	0.16	0.40	5 00	0.64	0.97	1.61
11 40	0.16	0.40	5.00	0.64	0.97	1.61
11 45	0.16	0.40	5.00	0.64	0.96	1.60
11.50	0.16	0.40	5.00	0.64	0.96	1.60
11.55	0.16	0.40	5.00	0.64	0.96	1.60
11.60	0.16	0.40	5.00	0.64	0.96	1.59
11.65	0.16	0.40	5.00	0.64	0.95	1.59
11.70	0.16	0.40	5.00	0.64	0.95	1.59
11.75	0.16	0.40	5.00	0.64	0.95	1,58

11.80	0.16	0.40	5.00	0.64	0.94	1.58
11.85	0.16	0.40	5.00	0.64	0.94	1.58
11.90	0.15	0.40	5.00	0.64	0.94	1.58
11.95	0.15	0.40	5.00	0.64	0.93	1.57
12.00	0.15	0.40	5.00	0.64	0.93	1.57
12.05	0.15	0.40	5.00	0.64	0.93	1.57
12.10	0.15	0.40	5.00	0.64	0.93	1.56
12.15	0.15	0.40	5.00	0.64	0.92	1.56
12 20	0.15	0.40	5.00	0.64	0.92	1.56
12 25	0.15	0.40	5.00	0.64	0.92	1.55
12.30	0.15	0.40	5.00	0.64	0.91	1.55
12 35	0.15	0.40	5.00	0.64	0.91	1.55
12 40	0.15	0.40	5.00	0.64	0.91	1.54
12.10	0 15	0.40	5.00	0.64	0.90	1.54
12 50	0.15	0.40	5.00	0.64	0.90	1.54
12.50	0 15	0.40	5.00	0.64	0.90	1.53
12.50	0 15	0.40	5.00	0.64	0.89	1.53
12.00	0.15	0 40	5.00	0.64	0.89	1.53
12 70	0 15	0 40	5.00	0.64	0.88	1.52
12.70	0.15	0 40	5 00	0.64	0.88	1.52
12.75	0.15	0.40	5 00	0.64	0.88	1.51
12.00	0.15	0.40	5 00	0.64	0.87	1.51
12.00	0.15	0.40	5.00	0 64	0.87	1.51
10 95	0.15	0 40	5 00	0 64	0.87	1.50
12.00	0.15	0.40	5 00	0 64	0.86	1.50
13.00	0.15	0.40	5 00	0 64	0.86	1.50
13 10	0.15	0.40	5 00	0.64	0.85	1.49
13.15	0.15	0.10	5 00	0.64	0.85	1.49
13 20	0 15	0 40	5.00	0.64	0.85	1.48
13 25	0 15	0 40	5.00	0.64	0.84	1.48
13 30	0 15	0.40	5.00	0.64	0.84	1.48
13 35	0.15	0 40	5.00	0.64	0.83	1.47
13 40	0 15	0.40	5.00	0.64	0.83	1.47
13.45	0.15	0.40	5.00	0.64	0.83	1.46
13.50	0.15	0.40	5.00	0.64	0.82	1.46
13.55	0.15	0.40	5.00	0.64	0.82	1.45
13.60	0.15	0.40	5.00	0.64	0.81	1.45
13.65	0.15	0.40	5.00	0.64	0.81	1.45
13.70	0.15	0.40	5.00	0.64	0.80	1.44
13.75	0.15	0.40	5.00	0.64	0.80	1.44
13.80	0.15	0.40	5.00	0.64	0.79	1.43
13.85	0.15	0.40	5.00	0.64	0.79	1.43
13.90	0.15	0.40	5.00	0.64	0.79	1.42
13.95	0.15	0.40	5.00	0.64	0.78	1.42
14.00	0.15	0.40	5.00	0.64	0.78	1.41
14.05	0.15	0.40	5.00	0.64	0.77	1.41
14.10	0.15	0.40	5.00	0.64	0.77	1.40
14.15	0.15	0.40	5.00	0.64	0.76	1.40
14.20	0.15	0.40	5.00	0.64	0.76	1.39
14.25	0.15	0.40	5.00	0.64	0.75	1.39
14.30	0.15	0.40	5.00	0.64	0.75	1.38
14.35	0.15	0.40	5.00	0.64	0.74	1.38
14.40	0.15	0.40	5.00	0.64	0.74	1.37
14.45	0.15	0.40	5.00	0.64	0.73	1.37
14.50	0.15	0.40	5.00	0.64	0.73	1.36
14.55	0.15	0.40	5.00	0.64	0.72	1.36
14.60	0.14	0.40	5.00	0.64	0.71	1.35
14.65	0.14	0.40	5.00	0.64	0.71	1.35
14.70	0.14	0.40	5.00	0.64	0.70	1.34
14 75	0.14	0.40	5.00	0.64	0.70	1.34

14.80	0.16	0.40	5.00	0.64	0.69	1.33
14.85	0.16	0.40	5.00	0.64	0.69	1.33
14.90	0.16	0.40	5.00	0.64	0.68	1.32
14.95	0.16	0.40	5.00	0.64	0.68	1.32
15.00	0.16	0.40	5.00	0.64	0.67	1.31
15.05	0.16	0.40	5.00	0.64	0.67	1.31
15.10	0.16	0.40	5.00	0.64	0.67	1.30
15.15	0.16	0.40	5.00	0.64	0.66	1.30
15.20	0.16	0.40	5.00	0.64	0.66	1.29
15.25	0.16	0.40	5.00	0.64	0.65	1.29
15.30	0.16	0.40	5.00	0.64	0.65	1.29
15.35	0.16	0.40	5.00	0.64	0.64	1.28
15.40	0.16	0.40	5.00	0.64	0.64	1.28
15.45	0.16	0.40	5.00	0.64	0.63	1.27
15.50	0.16	0.40	5.00	0.64	0.63	1.27
15.55	0.16	0.40	5.00	0.64	0.62	1.20
15.60	0.16	0.40	5.00	0.64	0.62	1 25
15.65	0.16	0.40	5.00	0.64	0.61	1 25
15.70	0.16	0.40	5.00	0.64	0.61	1, 20
15.75	0.16	0.40	5.00	0.04	0.00	1.24
15.80	0.16	0.40	5.00	0.64	0.00	1 23
15.85	0.10	0.40	5.00	0.04	0.59	1 23
15.90	0 15	0.40	5 00	0.04	0.52	1 22
16 00	0.15	0.40	5 00	0.64	0.58	1.21
16 05	0.15	0.40	5 00	0.64	0.57	1.21
16 10	0.15	0.40	5.00	0.64	0.57	1.20
16 15	0.15	0.40	5.00	0.64	0.56	1.20
16 20	0.15	0.40	5.00	0.64	0.55	1.19
16.25	0.15	0.40	5.00	0.64	0.55	1.19
16.30	0.15	0.40	5.00	0.64	0.54	1.18
16.35	0.15	0.40	5.00	0.64	0.54	1.18
16.40	0.15	0.40	5.00	0.64	0.53	1.17
16.45	0.15	0.40	5.00	0.64	0.53	1.16
16.50	0.15	0.40	5.00	0.64	0.52	1.16
16.55	0.15	0.40	5.00	0.64	0.51	1.15
16.60	0.15	0.40	5.00	0.64	0.51	1.15
16.65	0.15	0.40	5.00	0.64	0.50	1.14
16.70	0.15	0.40	5.00	0.64	0.50	1.13
16.75	0.15	0.40	5.00	0.64	0.49	1.13
16.80	0.15	0.40	5.00	0.64	0.48	1.12
16.85	0.15	0.40	5.00	0.64	0.48	1.11
16.90	0.15	0.40	5.00	0.64	0.47	1.11
16.95	0.15	0.40	5.00	0.64	0.46	1.10
17.00	0.15	0.40	5.00	0.64	0.46	1.09
17.05	0.15	0.40	5.00	0.64	0.45	1.09
17.10	0.15	0.40	5.00	0.64	0.44	1.08
17.15	0.15	0.40	5.00	0.64	0.44	1.07
17.20	0.15	0.40	5.00	0.64	0.43	1.07
17.25	0.15	0.40	5.00	0.64	0.42	1.00
17.30	0.15	0.40	5.00	0.64	0.42	1 05
17 40	0.15	0.40	5.00	0.04	0.40	1 04
17 40	0.15	0.40	5.00	0.64	0.40 N 29	1 03
17 50	0.15	0.40	5 00	0.64	0.29	1 02
17 55	0.15	0.40	5 00	0 64	0.38	1.02
17 60	0.15	0.40	5.00	0.64	0.37	1.01
17 65	0.15	0 40	5.00	0.64	0.36	1.00
17 70	0.15	0.40	5.00	0.64	0.36	1.00
17.75	0.15	0.40	5.00	0.64	0.35	0.99

17.80	0.15	0.40	5.00	0.64	0.34	0.98
17.85	0.15	0.40	5.00	0.64	0.33	0.97
17.90	0.15	0.40	5.00	0.64	0.33	0.96
17.95	0.15	0.40	5.00	0.64	0.32	0.96
18.00	0.15	0.40	5.00	0.64	0.31	0.95
18.05	0.15	0.40	5.00	0.64	0.30	0.94
18.10	0.15	0.40	5.00	0.64	0.29	0.93
18.15	0.15	0.40	5.00	0.64	0.29	0.92
18.20	0.15	0.40	5.00	0.64	0.28	0.92
18.25	0.16	0.40	5.00	0.64	0.27	0.91
18.30	0.16	0.40	5.00	0.64	0.26	0.90
18.35	0.16	0.40	5.00	0.64	0.26	0.90
18.40	0.16	0.40	5.00	0.64	0.25	0.89
18.45	0.16	0.40	5.00	0.64	0.24	0.88
18.50	0.16	0.40	5.00	0.64	0.24	0.88
18.55	0.17	0.40	5.00	0.64	0.23	0.87
18.60	0.17	0.40	5.00	0.64	0.23	0.86
18.65	0.17	0.40	5.00	0.64	0.22	0.86
18.70	0.17	0.40	5.00	0.64	0.21	0.85
18.75	0.17	0.40	5.00	0.64	0.21	0.85
18.80	0.17	0.40	5.00	0.64	0.20	0.84
18.85	0.17	0.40	5.00	0.64	0.20	0.84
18.90	0.18	0.40	5.00	0.64	0.19	0.83
18.95	0.18	0.40	5.00	0.64	0.19	0.83
19.00	0.18	0.40	5.00	0.64	0.18	0.82
19.05	0.18	0.40	5.00	0.64	0.18	0.82
19.10	0.18	0.40	5.00	0.64	0.17	0.81
19.15	0.18	0.40	5.00	0.64	0.17	0.81
19.20	0.19	0.40	5.00	0.64	0.16	0.80
19.25	0.19	0.40	5.00	0.64	0.16	0.80
19.30	0.19	0.40	5.00	0.64	0.15	0.79
19.35	0.19	0.40	5.00	0.64	0.15	0.79
19.40	0.19	0.40	5.00	0.64	0.15	0.78
19.45	0.19	0.40	5.00	0.64	0.14	0.78
19.50	0.20	0.40	5.00	0.64	0.14	0.78
19.55	0.20	0.40	5.00	0.64	0.13	0.77
19.60	0.20	0.40	5.00	0.64	0.13	0.77
19.65	0.20	0.40	5.00	0.64	0.13	0.76
19.70	0.20	0.40	5.00	0.64	0.12	0,76
19.75	0.20	0.40	5.00	0.64	0.12	0.76
19.80	0.21	0.40	5.00	0.64	0.11	0.75
19.85	0.21	0.40	5.00	0.64	0.11	0.75
19.90	0.21	0.40	5.00	0.64	0.11	0.75
19.95	0.21	0.40	5.00	0.64	0.10	0.74
20.00	0.21	0.40	5.00	0.64	0.10	0.74
20.05	0.22	0.40	5.00	0.64	0.10	0.73
20.10	0.22	0.40	5.00	0.64	0.09	0.73
20.15	0.22	0.40	5.00	0.64	0.09	0.73
20.20	0.22	0.40	5.00	0.64	0.09	0.72
20.25	0.22	0.40	5.00	0.64	0.08	0.72
20.30	0.22	0.40	5.00	0.64	0.08	0.72
20.35	0.23	0.40	5.00	0.64	0.08	0.72
20.40	0.23	0.40	5.00	0.64	0.07	0./1
20.45	0.23	0.40	5.00	0.64	0.07	0.71
20.50	0.23	0.40	5.00	0.64	0.07	U./L
20.55	0.23	0.40	5.00	0.64	0.07	0.70
20,60	0.24	0.39	5.00	0.64	0.06	0.70
20.65	0.24	0.39	5.00	0.64	0.06	0.70
20.70	0.24	0.39	5.00	0.64	0.06	0.70
20.75	0.24	0.39	5.00	0.64	0.05	0.09

20.80	0.24	0.39	5.00	0.64	0.05	0.69
20.85	0.25	0.39	5.00	0.64	0.05	0.69
20.90	0.25	0.39	5.00	0.64	0.05	0.68
20.95	0.25	0.39	5.00	0.64	0.04	0.68
21.00	0.25	0.39	5.00	0.64	0.04	0.68
21.05	0.26	0.39	5.00	0.64	0.04	0.68
21 10	0.26	0.39	5.00	0.64	0.04	0.67
21.15	0.26	0 39	5 00	0.64	0.03	0.67
21.10	0.20	0.39	5 00	0 64	0 03	0.67
21.20	0.20	0.30	5.00	0.64	0.03	0 67
21.25	0.27	0.39	5.00	0.04	0.03	0.66
21.3U	0.27	0.39	5.00	0.04	0.00	0.00
21.35	0.27	0.39	5.00	0.64	0.02	0.00
21.40	0.27	0.39	5.00	0.64	0.02	0.00
21.45	0.28	0.39	5.00	0.64	0.02	0.66
21.50	0.28	0.39	5.00	0.64	0.02	0.66
21.55	0.28	0.39	5.00	0.64	0.02	0.65
21.60	0.28	0.39	5.00	0.64	0.01	0.65
21.65	0.29	0.39	5.00	0.64	0.01	0.65
21.70	0.29	0.39	5.00	0.64	0.01	0.65
21.75	0.29	0.39	5.00	0.64	0.01	0.64
21.80	0.30	0.39	5.00	0.64	0.00	0.64
21.85	0.30	0.39	5.00	0.64	0.00	0.64
21.90	0.30	0.39	5.00	0.64	0.00	0.64
21.95	0.31	0.39	5.00	0.64	0.00	0.64
22.00	0.31	0.39	5.00	0.64	0.00	0.64
22.05	0.32	0.39	0.80*	0.64	0.00	0.64
22.10	0.32	0.39	0.81*	0.63	0.00	0.63
22.15	0.32	0.39	0.82*	0.63	0.00	0.63
22.20	0.33	0.39	0.83*	0.62	0.00	0.62
22.20	0 34	0.40	0.85*	0.62	0.00	0.62
22.20	0.34	0 40	0 86*	0.61	0.00	0.61
22.30	0.35	0.10	0 88*	0 61	0 00	0.61
22.33	0.35	0.40	0.00 n q1*	0.60	0 00	0 60
22.40	0.30	0.40	0.91*	0.00	0.00	0.00
22.40	0.37	0.40	0.94	0.00	0.00	0.00
22.50	0.39	0.40	1 06	0.00	0.00	0.00
22.55	0.42	0.40	4 20	0.59	0.00	0.50
22.60	1.74	0.40	4.38	0.59	0.00	0.59
22.65	1.74	0.40	4.37	0.59	0.00	0.59
22.70	1.74	0.40	4.37	0.59	0.00	0.59
22.75	1.74	0.40	4.36	0.59	0.00	0.59
22.80	1.74	0.40	4.36	0.59	0.00	0.59
22.85	1.74	0.40	4.35	0.59	0.00	0.59
22.90	1.74	0.40	4.35	0.59	0.00	0.59
22.95	1.74	0.40	4.35	0.59	0.00	0.59
23.00	1.74	0.40	4.34	0.59	0.00	0.59
23.05	1.74	0.40	4.34	0.59	0.00	0.59
23.10	1.74	0.40	4.33	0.59	0.00	0.59
23.15	1.74	0.40	4.33	0.59	0.00	0.59
23.20	1.74	0.40	4.32	0.59	0.00	0.59
23.25	1.74	0.40	4.32	0.59	0.00	0.59
23.30	1.74	0.40	4.31	0.59	0.00	0.59
23.35	1.74	0.40	4.31	0.59	0.00	0.59
23.40	1.74	0.41	4.30	0.59	0.00	0.59
23.45	1.74	0.41	4.30	0.59	0.00	0.59
23.50	1.74	0.41	4.30	0.59	0.00	0.59
23.55	1.74	0.41	4.29	0.59	0.00	0.59
23 60	1.74	0.41	4.29	0.59	0.00	0.59
23.65	1.74	0.41	4.28	0.59	0.00	0.59
23.00	1.74	0 41	4.28	0.59	0.00	0.59
23.75	1.74	0.41	4.27	0.59	0.00	0.59
Z. J. J. 1		V & L.L				

23.80	1.74	0.41	4.27	0.59	0.00	0.59
23.85	1.74	0.41	4.26	0.59	0.00	0.59
23.90	1.74	0.41	4.26	0.59	0.00	0.59
23.95	1.74	0.41	4.26	0.59	0.00	0.59
24.00	1.74	0.41	4.25	0.59	0.00	0.59
24.05	1.74	0.41	4.25	0.59	0.00	0.59
24 10	1 74	0 41	4.24	0.59	0.00	0.59
24 15	1 74	0.41	4.24	0.59	0.00	0.59
24.10	1 7/	0.41	4 23	0 59	0 00	0.59
24.20	1 74	0.41	1 23	0.59	0 00	0.59
24.20	1.74	0.41	4 22	0.50	0.00	0.59
24.30	1.74	0.41	4.20	0.59	0.00	0.55
24.35	1.74	0.41	4.22	0.59	0.00	0.59
24.40	1.74	0.41	4.22	0.59	0.00	0.59
24.45	1.74	0.41	4.21	0.59	0.00	0.59
24.50	1.74	0.41	4.21	0.59	0.00	0.59
24.55	1.74	0.41	4.21	0.59	0.00	0.59
24.60	1.74	0.42	4.20	0.59	0.00	0.59
24.65	1.74	0.42	4.20	0.59	0.00	0.59
24.70	1.74	0.42	4.19	0.59	0.00	0.59
24.75	1.74	0.42	4.19	0.59	0.00	0.59
24.80	1.74	0.42	4.19	0.59	0.00	0.59
24.85	1.74	0.42	4.18	0.59	0.00	0.59
24.90	1.74	0.42	4.18	0.59	0.00	0.59
24.95	1.74	0.42	4.17	0.59	0.00	0.59
25.00	1.74	0.42	4.17	0.59	0.00	0.59
25 05	1.74	0.42	4.17	0.59	0.00	0.59
25 10	1 74	0.42	4.16	0.59	0.00	0.59
25.15	0 43	0.42	1.02	0.59	0.00	0.59
25.20	0.42	0.42	1 00*	0.59	0.00	0.59
25.20	0.41	0,12		0.59	0 00	0 59
25.25	0.41	0.42	0.20	0.59	0.00	0.58
25.30	0.41	0.42	0.90*	0.50	0.00	0.50
25.35	0.40	0.42	0.95"	0.50	0.00	0.50
25.40	0.39	0.42	0.94*	0.50	0.00	0.50
25.45	0.39	0.42	0.92^	0.57	0.00	0.57
25.50	0.39	0.42	0.91*	0.57	0.00	0.57
25.55	0.38	0.42	0.90*	0.57	0.00	0.57
25.60	0.38	0.42	0.89*	0.56	0.00	0.56
25.65	0.37	0.42	0.89*	0.56	0.00	0.56
25.70	0.37	0.42	0.88*	0.56	0.00	0.56
25.75	0.37	0.42	0.87*	0.55	0.00	0.55
25.80	0.37	0.42	0.86*	0.55	0.00	0.55
25.85	0.36	0.42	0.86*	0.54	0.00	0.54
25.90	0.36	0.43	0.85*	0.54	0.00	0.54
25.95	0.36	0.43	0.85*	0.53	0.00	0.53
26.00	0.36	0.43	0.84*	0.53	0.00	0.53
26.05	0.36	0.43	0.83*	0.53	0.00	0.53
26.10	0.35	0.43	0.83*	0.52	0.00	0.52
26.15	0.35	0.43	0.83*	0.52	0.00	0.52
26.20	0.35	0.43	0.82*	0.51	0.00	0.51
26.25	0.35	0.43	0.82*	0.51	0.00	0.51
26 30	0 35	0.43	0.81*	0.50	0.00	0.50
26.35	0 35	0 43	0.81*	0.50	0.00	0.50
26 40	0.34	0.43	0.80*	0.49	0.00	0.49
20.40	0.24	0 42	0 80*	0 49	0 00	0.49
20.40	0.54	0.42	0 20*	0 4 9	0 00	0 4 8
20.50	0.34	0.40	0.00%	0 10	0.00	0 4 2
20.00	0.34	0.40	0.75*	0.40	0.00	0.17
20.60	0.34	0.43	0.79*	0.47	0.00	0.17
26.65	0.34	0.43	0./9*	0.4/	0.00	0.4/
26.70	0.34	0.43	0.78*	0.46	0.00	0.40
26.75	0.34	0.43	U.78*	0.46	0.00	0.46

26.80 0	).33	0.43	0.78*	0.45	0.00	0.45
26.85 0	).33	0.43	0.77*	0.45	0.00	0.45
26.90 0	).33	0.43	0.77*	0.44	0.00	0.44
26.95 0	).33	0.43	0.77*	0.44	0.00	0.44
27.00 0	).33	0.43	0.76*	0.43	0.00	0.43
27 05 0	1 33	0.43	0.76*	0.43	0.00	0.43
27.10.0	1 33	0 43	0 76*	0 42	0.00	0.42
27.10 0		0.40	0.75*	0.42	0.00	0 41
27.15 0	.33	0.43	0.75*	0.41	0.00	0.11
27.20 0	1.33	0.43	0.75^	0.41	0.00	0.41
27.25 0	).33	0.44	0.75*	0.40	0.00	0.40
27.30 0	).33	0.44	0.75*	0.40	0.00	0.40
27.35 0	).32	0.44	0.74*	0.39	0.00	0.39
27.40 0	).32	0.44	0.74*	0.39	0.00	0.39
27.45 0	).32	0.44	0.74*	0.38	0.00	0.38
27.50 0	).32	0.44	0.74*	0.37	0.00	0.37
27.55 0	).32	0.44	0.73*	0.37	0.00	0.37
27 60 0	32	0 44	0 73*	0.36	0.00	0.36
27.000	, 32	0 44	0 73*	0 36	0.00	0.36
27.05 0		0.44	0.75	0.25	0.00	0.25
27.70 0	.32	0.44	0.75"	0.33	0.00	0.33
27.75 0	).32	0.44	0.72*	0.34	0.00	0.34
27.80 0	).32	0.44	0.72*	0.34	0.00	0.34
27.85 0	).32	0.44	0.72*	0.33	0.00	0.33
27.90 0	).42	0.44	0.96*	0.32	0.00	0.32
27.95 0	).41	0.44	0.94*	0.32	0.00	0.32
28.00 0	).41	0.44	0.92*	0.32	0.00	0.32
28.05 0	).41	0.44	0.93*	0.31	0.00	0.31
28.10 0	).41	0.44	0.93*	0.31	0.00	0.31
28 15 0	) 41	0.44	0.94*	0.31	0.00	0.31
20,100	) 12	0 44	0 95*	0 30	0 00	0.30
20.200	), <u>4</u> 2	0.11	0.95 0 95*	0.30	0 00	0 30
28.250	).42	0.44	0.95*	0.30	0.00	0.30
28.30 0	).42	0.44	0.96*	0.30	0.00	0.30
28.35 0	).43	0.44	0.9/*	0.30	0.00	0.30
28.40 0	).43	0.44	0.98*	0.29	0.00	0.29
28.45 1	L.74	0.44	3.94	0.29	0.00	0.29
28.50 1	L.74	0.44	3.93	0.29	0.00	0.29
28.55 1	L.74	0.44	3.93	0.29	0.00	0.29
28.60 1	L.74	0.44	3.93	0.29	0.00	0.29
28.65 1	L.74	0.44	3.93	0.29	0.00	0.29
28.70 1	L.74	0.44	3.92	0.29	0.00	0.29
28 75 1	- 74	0 45	3.92	0.29	0.00	0.29
20.70 -	1 74	0 45	3 92	0 29	0.00	0.29
20.00 1	1 74	0.45	3 91	0 29	0 00	0.29
	L./±	0.45	2 91	0.20	0.00	0.29
28.90 1	L, 74	0.45	3.91 2.01	0.20	0.00	0.20
28.95 1	L./4	0.45	2.91	0.29	0.00	0.20
29.00 1	L.74	0.45	3.91	0.29	0.00	0.29
29.05 1	L.74	0.45	3.90	0.29	0.00	0.29
29.10 1	L.74	0.45	3.90	0.29	0.00	0.29
29.15 1	L.74	0.45	3.90	0.29	0.00	0.29
29.20 1	L.76	0.45	3.92	0.29	0.00	0.29
29.25 1	L.75	0.45	3.91	0.29	0.00	0.29
29.30 1	L.75	0.45	3.91	0.29	0.00	0.29
29.35 1	1.75	0.45	3.91	0.29	0.00	0.29
29.40 1	1.75	0.45	3.90	0.29	0.00	0.29
29 15 1	1 75	0 45	3.90	0,29	0.00	0.29
20.40 1	1 75	0 45	3 90	0.29	0.00	0.29
	L. / J I 7E	0,40	2 00	0.20	0 00	0.20
29.55	1.75	0.45	2.07	0.29	0.00	0.29
29.60 ]	1.75	0.45	2.87	0.29	0.00	0.29
29.65 1	1.75	0.45	3.88	0.29	0.00	0.29
29.70 1	1.75	0.45	3.88	0.29	0.00	0.29
29.75 1	1.75	0.45	3.88	0.29	0.00	0.29

29.80 1.75	5 0.45	3.87	0.29	0.00	0.29
29.85 1.75	5 0.45	3.87	0.29	0.00	0.29
29.90 1.75	0.45	3.87	0.29	0.00	0.29
29.95 1.75	0.45	3.86	0.29	0.00	0.29
30.00 1.75	5 0.45	3.86	0.29	0.00	0.29
30.05 1.75	5 0.45	3.86	0.29	0.00	0.29
30.10 1.75	5 0.45	3.85	0.29	0.00	0.29
30 15 1 75	5 0 45	3.85	0.29	0.00	0.29
30 20 1 74	0.15	3 85	0 29	0.00	0.29
20 25 1 74	0.45	2 25	0.29	0 00	0 29
20.25 1.74		3 8/	0.29	0.00	0 29
30.30 I.74		5.04 5 04	0.20	0.00	0.29
30.35 1.74		5.04 5.04	0.29	0.00	0.20
30.40 1.74	E 0.45	3.84	0.29	0.00	0.29
30.45 1.74	0.45	3.84	0.29	0.00	0.29
30.50 1.74	0.45	3.83	0.29	0.00	0.29
30.55 1.74	0.45	3.83	0.29	0.00	0.29
30.60 1.74	0.45	3.83	0.29	0.00	0.29
30.65 1.74	0.45	3.83	0.29	0.00	0.29
30.70 1.74	0.45	3.83	0.29	0.00	0.29
30.75 1.74	0.45	3.82	0.29	0.00	0.29
30.80 1.74	0.46	3.82	0.29	0.00	0.29
30.85 1.74	L 0.46	3.82	0.29	0.00	0.29
30.90 1.74	L 0.46	3.82	0.29	0.00	0.29
30.95 1.74	0.46	3.81	0.29	0.00	0.29
31.00 1.74	0.46	3.81	0.29	0.00	0.29
31.05 1.74	0.46	3.81	0.29	0.00	0.29
31.10 1.74	0.46	3.81	0.29	0.00	0.29
31.15 1.74	0.46	3.81	0.29	0.00	0.29
31.20 1.73	0.46	3.80	0.29	0.00	0.29
31 25 1.73	0.46	3.80	0.29	0.00	0.29
31 30 1 73	0 46	3.80	0.29	0.00	0.29
31 35 1 73	0.10	3 80	0.29	0.00	0.29
21 10 1 73	0.10	3 79	0 29	0 00	0.29
31,40 1.7. 31 AE 1 72	0.46	3 79	0.29	0.00	0.29
31.431.75	0.46	2 79	0.29	0.00	0.29
31.50 1.71 31 EE 1 73	0.10	2 70	0.20	0.00	0.29
31.55 1.73	0.40	2.72	0.29	0.00	0.29
31.60 1.73	0.40	2.12	0.29	0.00	0.20
31.65 1.73	0.46	3.78	0.29	0.00	0.29
31.70 1.72	3 0.46	3.78	0.29	0.00	0.29
31.75 1.75	3 0.46	3.78	0.29	0.00	0.29
31.80 1.73	3 0.46	3.78	0.29	0.00	0.29
31.85 1.73	3 0.46	3.78	0.29	0.00	0.29
31.90 1.73	3 0.46	3.77	0.29	0.00	0.29
31.95 1.73	3 0.46	3.77	0.29	0.00	0.29
32.00 1.73	3 0.46	3.77	0.29	0.00	0.29
32.05 1.73	3 0.46	3.77	0.29	0.00	0.29
32.10 1.73	3 0.46	3.77	0.29	0.00	0.29
32.15 1.72	2 0.46	3.76	0.29	0.00	0.29
32.20 1.72	2 0.46	3.76	0.29	0.00	0.29
32.25 1.72	2 0.46	3.76	0.29	0.00	0.29
32.30 1.72	2 0.46	3.76	0.29	0.00	0.29
32.35 1.72	2 0.46	3.76	0.29	0.00	0.29
32.40 1.72	2 0.46	3.75	0.29	0.00	0.29
32.45 1.72	2 0.46	3.75	0.29	0.00	0.29
32,50 1.72	2 0.46	3.75	0.29	0.00	0.29
32.55 1.72	2 0.46	3.75	0.29	0.00	0.29
32,60 1.72	2 0.46	3.75	0.29	0.00	0.29
32,65 1 72	2 0.46	3.74	0.29	0.00	0.29
32 70 1 72	2 0 46	3.74	0.29	0.00	0.29
32 75 1 72	2 0 46	3.74	0.29	0.00	0.29
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32.80 1.72	0.46	3.74	0.29	0.00	0.29
32.85 1.72	0.46	3.74	0.29	0.00	0.29
32,90 1.72	0.46	3.73	0.29	0.00	0.29
32.95 1.72	0.46	3.73	0.29	0.00	0.29
33 00 1 72	0.46	3.73	0.29	0.00	0.29
33 05 1 72	0 46	3 73	0.29	0.00	0.29
$33.05 \pm .72$	0.16	3 73	0.29	0 00	0 29
33.10 1.71	0.40	2.72	0.20	0.00	0.29
33.15 1.71	0.40	)./J	0.20	0.00	0.20
33.20 1.71	. 0.46	3.72	0.29	0.00	0.29
33.25 1.71	. 0.46	3.12	0.29	0.00	0.29
33.30 1.71	. 0.46	3.72	0.29	0.00	0.29
33.35 1.71	. 0.46	3.72	0.29	0.00	0.29
33.40 1.71	0.46	3.72	0.29	0.00	0.29
33.45 1.71	0.46	3.71	0.29	0.00	0.29
33.50 1.71	0.46	3.71	0.29	0.00	0.29
33.55 1.71	0.46	3.71	0.29	0.00	0.29
33.60 1.71	0.46	3.71	0.29	0.00	0.29
33.65 1.71	0.46	3.71	0.29	0.00	0.29
33.70 1.71	0.46	3.71	0.29	0.00	0.29
33 75 1 71	0.46	3.70	0.29	0.00	0.29
33 80 1 71	0 46	3 70	0.29	0.00	0.29
22 95 1 71	0.46	3 70	0 29	0 00	0.29
22 00 1 71	0.46	2 70	0.20	0.00	0 29
33.90 I.71	0.40	2 70	0.20	0.00	0.20
33.95 I.71	- 0.40	2.70	0.29	0.00	0.20
34.00 1.71	. 0.46	3.70	0.29	0.00	0.29
34.05 1.71	0.46	3.69	0.29	0.00	0.29
34.10 1.70	) 0.46	3.69	0.29	0.00	0.29
34.15 1.70	) 0.46	3.69	0.29	0.00	0.29
34.20 1.70	) 0.46	3.69	0.29	0.00	0.29
34.25 1.70	0.46	3.69	0.29	0.00	0.29
34.30 1.70	0.46	3.69	0.29	0.00	0.29
34.35 1.70	0.46	3.68	0.29	0.00	0.29
34.40 1.70	0.46	3.68	0.29	0.00	0.29
34.45 1.70	0.46	3.68	0.29	0.00	0.29
34.50 1.70	0.46	3.68	0.29	0.00	0.29
34.55 1.70	0.46	3.68	0.29	0.00	0.29
34.60 1.70	0.46	3.68	0.29	0.00	0.29
34.65 1.70	0.46	3.67	0.29	0.00	0.29
34.70 1.70	0.46	3.67	0.29	0.00	0.29
34.75 1.70	0.46	3.67	0.29	0.00	0.29
34.80 1.70	0.46	3.67	0.29	0.00	0.29
34.85 1.70	0.46	3.67	0.29	0.00	0.29
34.90 1.70	0.46	3.67	0.29	0.00	0.29
34,951,70	0.46	3.66	0.29	0.00	0.29
35 00 1 70	0.46	3.66	0.29	0.00	0.29
35 05 1 70	0 46	3.66	0.29	0.00	0.29
35 10 1 69	0.10	3 66	0 29	0.00	0.29
JJ. 10 1.0-	0.40	3 66	0.29	0 00	0 29
35.15 1.02	0.46	3 66	0.29	0 00	0 29
35.20 I.03	0.40	3.00	0.20	0.00	0.29
35.25 1.03	0.40	3.00 3.65	0.20	0.00	0.20
35.30 1.63	0.40	3.05	0.29	0.00	0.20
35.35 1.65	0.40	3.05	0.29	0.00	0.27
35.40 1.65	0.46	3.65	0.29	0.00	0.29
35.45 1.69	0.46	3.65	0.29	0.00	0.29
35.50 1.69	0.46	3.65	0.29	0.00	0.29
35.55 1.69	0.46	3.65	0.29	0.00	0.29
35.60 1.69	0.46	3.64	0.29	0.00	0.29
35.65 1.69	0.46	3.64	0.29	0.00	0.29
35.70 1.69	0.46	3.64	0.29	0.00	0.29
35.75 1.69	0.46	3.64	0.29	0.00	0.29

35.80	1.69	0.46	3.64	0.29	0.00	0.29
35.85	1.69	0.46	3.64	0.29	0.00	0.29
35.90	1.69	0.46	3.64	0.29	0.00	0.29
35.95	1.69	0.46	3.63	0.29	0.00	0.29
36.00	1.69	0.46	3.63	0.29	0.00	0.29
36 05	1 69	0.46	3.63	0.29	0.00	0.29
26 10	1 69	0.46	3 63	0 29	0 00	0.29
20.1U	1 (0)	0.40	2.03	0.20	0.00	0.29
36.15	1.00	0.40	2.03	0.20	0.00	0.20
36.20	1.68	0.46	3.03	0.29	0.00	0.20
36.25	1.68	0.46	3.63	0.29	0.00	0.29
36.30	1.68	0.46	3.63	0.29	0.00	0.29
36.35	1.68	0.46	3.62	0.29	0.00	0.29
36.40	1.68	0.46	3.62	0.29	0.00	0.29
36.45	1.68	0.46	3.62	0.29	0.00	0.29
36.50	1.68	0.46	3.62	0.29	0.00	0.29
36.55	1.68	0.46	3.62	0.29	0.00	0.29
36.60	1.68	0.46	3.62	0.29	0.00	0.29
36.65	1.68	0.46	3.62	0.29	0.00	0.29
36.70	1.68	0.46	3.61	0.29	0.00	0.29
36 75	1.68	0.46	3.61	0.29	0.00	0.29
36 80	1 68	0.46	3.61	0.29	0.00	0.29
36 95	1 68	0.10	3 61	0 29	0.00	0.29
26 00	1 60	0.46	3 61	0.29	0 00	0 29
30.90	1.00	0.40	2.01 2.61	0.20	0 00	0.29
36.95	1.00	0.47	3.01 2 C1	0.20	0.00	0.20
37.00	1.68	0.47	3.01	0.29	0.00	0.20
37.05	1.68	0.47	3.60	0.29	0.00	0.29
37.10	1.68	0.4/	3.60	0.29	0.00	0.29
37.15	1.68	0.47	3.60	0.29	0.00	0.29
37.20	1.68	0.47	3.60	0.29	0.00	0.29
37.25	1.67	0.47	3.60	0.29	0.00	0.29
37.30	1.67	0.47	3.60	0.29	0.00	0.29
37.35	1.67	0.47	3.60	0.29	0.00	0.29
37.40	1.67	0.47	3.60	0.29	0.00	0.29
37.45	1.67	0.47	3.59	0.29	0.00	0.29
37.50	1.67	0.47	3.59	0.29	0.00	0.29
37.55	1.67	0.47	3.59	0.29	0.00	0.29
37.60	1.67	0.47	3.59	0.29	0.00	0.29
37.65	1.67	0.47	3.59	0.29	0.00	0.29
37.70	1.67	0.47	3.59	0.29	0.00	0.29
37.75	1.67	0.47	3.59	0.29	0.00	0.29
37.80	1.67	0.47	3.59	0.29	0.00	0.29
37.85	1.67	0.47	3.58	0.29	0.00	0.29
37 90	1.67	0.47	3.58	0.29	0.00	0.29
37 95	1.67	0.47	3.58	0.29	0.00	0.29
38 00	1 67	0.47	3.58	0.29	0.00	0.29
20.00	1 67	0 47	3 58	0 29	0 00	0.29
20.00	1 67	0.47	3 58	0.29	0 00	0.29
20.1U	1.07	0.47	3 58	0.29	0 00	0.29
20.10	1 67	0.17	2.50	0.20	0.00	0.29
38.20	1.07	0.47	5.50 5 E0	0.20	0.00	0.29
38.25	1.07	0.47	3.00	0.29	0.00	0.20
38.30	1.67	0.47	3.57	0.29	0.00	0.20
38.35	1.6/	0.4/	3.5/	0.29	0.00	0.29
38.40	1.67	0.47	3.5/	0.29	0.00	0.49
38.45	1.66	0.47	3.57	0.29	0.00	0.29
38.50	1.66	0.47	3.57	0.29	0.00	0.29
38.55	1.66	0.47	3.57	0.29	0.00	0.29
38.60	1.66	0.47	3.57	0.29	0.00	0.29
38.65	1.66	0.47	3.57	0.29	0.00	0.29
38.70	1.66	0.47	3.56	0.29	0.00	0.29
38.75	1.66	0.47	3.56	0.29	0.00	0.29

38.80 1.66	0.47	3.56	0.29	0.00	0.29
38.85 1.66	0.47	3.56	0.29	0.00	0.29
38.90 1.66	0.47	3.56	0.29	0.00	0.29
38.95 1.66	0.47	3.56	0.29	0.00	0.29
39.00 1.66	0.47	3.56	0.29	0.00	0.29
39 05 1.66	0.47	3.56	0.29	0.00	0.29
39 10 1 66	0.47	3 56	0.29	0.00	0.29
20 15 1 66	0.47	2.50	0.20	0.00	0.29
39.15 1.66	0.47	5.55	0.29	0.00	0.20
39.20 1.66	0.4/	3.55	0.29	0.00	0.29
39.25 1.66	0.47	3.55	0.29	0.00	0.29
39.30 1.66	0.47	3.55	0.29	0.00	0.29
39.35 1.66	0.47	3.55	0.29	0.00	0.29
39.40 1.66	0.47	3.55	0.29	0.00	0.29
39.45 1.66	0.47	3.55	0.29	0.00	0.29
39.50 1.66	0.47	3.55	0.29	0.00	0.29
39.55 1.66	0.47	3.55	0.29	0.00	0.29
39 60 1 65	0 47	3 55	0.29	0.00	0.29
29 65 1 65	0.47	3 54	0 29	0.00	0.29
39.03 1.05	0.17	2.54	0.20	0.00	0.29
39.70 1.65	0.47	5.54	0.29	0.00	0.20
39.75 1.65	0.47	3.54	0.29	0.00	0.29
39.80 1.65	0.47	3.54	0.29	0.00	0.29
39.85 1.65	0.47	3.54	0.29	0.00	0.29
39.90 1.65	0.47	3.54	0.29	0.00	0.29
39.95 1.65	0.47	3.54	0.29	0.00	0.29
40.00 1.65	0.47	3.54	0.29	0.00	0.29
40.05 1.65	0.47	3.54	0.29	0.00	0.29
40.10 1.65	0.47	3.54	0.29	0.00	0.29
40.15 1.65	0.47	3.53	0.29	0.00	0.29
40 20 1 65	0.47	3.53	0.29	0.00	0.29
40 25 1 65	0 47	3.53	0.29	0.00	0.29
40.20 1.65	0.17	3 53	0.29	0 00	0.29
40.30 1.05	0.47	2 52	0.29	0.00	0.29
40.35 1.65	0.47	J.JJ 3 E3	0.27	0.00	0.20
40.40 1.65	0.47	3.33	0.29	0.00	0.20
40.45 1.65	0.47	3.53	0.29	0.00	0.29
40.50 1.65	0.47	3.53	0.29	0.00	0.29
40.55 1.65	0.47	3.53	0.29	0.00	0.29
40.60 1.65	0.47	3.53	0.29	0.00	0.29
40.65 1.65	0.47	3.52	0.29	0.00	0.29
40.70 1.65	0.47	3.52	0.29	0.00	0.29
40.75 1.65	0.47	3.52	0.29	0.00	0.29
40.80 1.64	0.47	3.52	0.29	0.00	0.29
40.85 0.41	0.47	0.88*	0.29	0.00	0.29
40.90 0.40	0.47	0.86*	0.29	0.00	0.29
40.95 0.40	0.47	0.85*	0.28	0.00	0.28
41 00 0 39	0.47	0.83*	0.28	0.00	0.28
41 05 0 38	0 47	0 82*	0 27	0.00	0.27
41.00.000	0.47	0.02	0.27	0 00	0 27
41.10 0.30	0.47	0.01*	0.27	0.00	0.27
41.15 0.37	0.47	0.00*	0.20	0.00	0.20
41.20 0.37	0.4/	0.79*	0.26	0.00	0.20
41.25 0.37	0.47	0.78*	0.26	0.00	0.26
41.30 0.36	0.47	0.78*	0.25	0.00	0.25
41.35 0.36	0.47	0.77*	0.25	0.00	0.25
41.40 0.36	0.47	0.76*	0.24	0.00	0.24
41.45 0.35	0.47	0.76*	0.24	0.00	0.24
41.50 0.35	0.47	0.75*	0.23	0.00	0.23
41.55 0.35	0.47	0.75*	0.23	0.00	0.23
41.60 0.35	0.47	0.74*	0.22	0.00	0.22
41.65 0.34	0.47	0.74*	0.21	0.00	0.21
41.70 0.34	0.47	0.73*	0.21	0.00	0.21
41 75 0 34	0.47	0.73*	0.20	0.00	0.20
	U.I/	0.75	2.20		

41.80	0.34	0.47	0.73*	0.20	0.00	0.20
41.85	0.34	0.47	0.72*	0.19	0.00	0.19
41.90	0.34	0.47	0.72*	0.19	0.00	0.19
41.95	0.33	0.47	0.72*	0.18	0.00	0.18
42.00	0.33	0.47	0.71*	0.18	0.00	0.18
42.05	0.33	0.47	0.71*	0.17	0.00	0.17
42.10	0.33	0.47	0.71*	0.16	0.00	0.16
42.15	0.33	0.47	0.70*	0.16	0.00	0.16
42.20	0.33	0.47	0.70*	0.15	0.00	0.15
42.25	0.33	0.47	0.70*	0.15	0.00	0.15
42.30	0.32	0.47	0.69*	0.14	0.00	0.14
42.35	0.32	0.47	0.69*	0.13	0.00	0.13
42 40	0 32	0.47	0.69*	0.13	0.00	0.13
42 45	0.32	0.47	0.69*	0.12	0.00	0.12
42 50	0 32	0.47	0.68*	0.11	0.00	0.11
42.50	0.32	0 47	0 68*	0.11	0.00	0.11
12.55	0.32	0.17	0.68*	0 10	0.00	0.10
42.00	0.32	0.47	0.68*	0 10	0 00	0.10
42.00	0.32	0.47	0.00	0.19	0 00	0.09
42.70	0.32	0.47	0.00		0.00	0 08
42.75	0.51	0.17	0.07	0.00	0.00	0.08
42.00	0.31	0.47	0.07	0.00	0.00	0 07
42.85	0.31	0.47	0.67*	0.07	0.00	0.07
42.90	0.31	0.47	0.67*	0.00	0.00	0.00
42.95	0.31	0.47	0.67*	0.00	0.00	0.00
43.00	0.31	0.47	0.66*	0.05	0.00	0.05
43.05	0.31	0.47	0.6/*	0.04	0.00	0.04
43.10	0.32	0.47	0.68*	0.04	0.00	0.04
43.15	0.33	0.47	0.70*	0.03	0.00	0.03
43.20	0.33	0.47	0.71*	0.03	0.00	0.03
43.25	0.34	0.47	0.73*	0.02	0.00	0.02
43.30	0.35	0.47	0.76*	0.01	0.00	0.01
43.35	0.37	0.47	0.79*	0.01	0.00	0.01
43.40	0.40	0.47	0.86*	0.00	0.00	0.00
43.45	1.62	0.47	3.48	0.00	0.00	0.00
43.50	1.62	0.47	3.48	0.00	0.00	0.00
43.55	1.62	0.47	3.48	0.00	0.00	0.00
43.60	1.62	0.47	3.48	0.00	0.00	0.00
43.65	1.62	0.47	3.48	0.00	0.00	0.00
43.70	1.62	0.47	3.48	0.00	0.00	0.00
43.75	1.62	0.47	3.48	0.00	0.00	0.00
43.80	1.62	0.47	3.48	0.00	0.00	0.00
43.85	1.62	0.47	3.48	0.00	0.00	0.00
43.90	1.62	0.47	3.48	0.00	0.00	0.00
43.95	1.62	0.47	3.47	0.00	0.00	0.00
44.00	1.62	0.47	3.47	0.00	0.00	0.00
44.05	1.62	0.47	3.47	0.00	0.00	0.00
44.10	1.62	0.47	3.47	0.00	0.00	0.00
44.15	1.62	0.47	3.47	0.00	0.00	0.00
44.20	1.62	0.47	3.47	0.00	0.00	0.00
44.25	1.62	0.47	3.47	0.00	0.00	0.00
44.30	1.62	0.47	3.47	0.00	0.00	0.00
44.35	1.62	0.47	3.47	0.00	0.00	0.00
44.40	1.61	0.47	3.47	0.00	0.00	0.00
44.45	1.61	0.47	3.47	0.00	0.00	0.00
44.50	1.61	0.47	3.47	0.00	0.00	0.00
44.55	1.61	0.47	3.47	0.00	0.00	0.00
44.60	1.61	0.47	3.47	0.00	0.00	0.00
44.65	1.61	0.47	3.47	0.00	0.00	0.00
44.70	1.61	0.47	3.47	0.00	0.00	0.00
44.75	1.61	0.47	3.47	0.00	0.00	0.00

44.80 1.61	0.47	3.47	0.00	0.00	0.00	
44.85 1.61	0.46	3.46	0.00	0.00	0.00	
44.90 1.61	0.46	3.46	0.00	0.00	0.00	
44.95 1.61	0.46	3.46	0.00	0.00	0.00	
45.00 1.61	0.46	3.46	0.00	0.00	0.00	
45 05 1 61	0 46	3.46	0.00	0.00	0.00	
45.05 1.01	0.10	3 46	0 00	0.00	0.00	
45.10 1.01	0.16	2 46	0 00	0 00	0 00	
45.15 1.01	0.40	2.16	0.00	0.00	0.00	
45.20 1.61	0.46	5.40 5.40	0.00	0.00	0.00	
45.25 1.61	0.46	2.40	0.00	0.00	0.00	
45.30 1.61	0.46	3.40	0.00	0.00	0.00	
45.35 1.61	0.46	3.46	0.00	0.00	0.00	
45.40 1.61	0.46	3.46	0.00	0.00	0.00	
45.45 1.61	0.46	3.46	0.00	0.00	0.00	
45.50 1.61	0.46	3.46	0.00	0.00	0.00	
45.55 1.61	0.46	3.46	0.00	0.00	0.00	
45.60 1.60	0.46	3.46	0.00	0.00	0.00	
45.65 1.60	0.46	3.46	0.00	0.00	0.00	
45.70 1.60	0.46	3.46	0.00	0.00	0.00	
45.75 1.60	0.46	3.46	0.00	0.00	0.00	
45.80 1.60	0.46	3.46	0.00	0.00	0.00	
45.85 1.60	0.46	3.45	0.00	0.00	0.00	
45.90 1.60	0.46	3.45	0.00	0.00	0.00	
45.95 1.60	0.46	3.45	0.00	0.00	0.00	
46.00 1.60	0.46	3.45	0.00	0.00	0.00	
46.05 1.60	0.46	3.45	0.00	0.00	0.00	
46.10 1.60	0.46	3.45	0.00	0.00	0.00	
46 15 1.60	0.46	3.45	0.00	0.00	0.00	
46 20 1 60	0.46	3.45	0.00	0.00	0.00	
46 25 1 60	0.46	3 4 5	0.00	0.00	0.00	
46.20 1.60	0.10	3 45	0 00	0 00	0.00	
40.30 1.00	0.46	3 45	0.00	0.00	0 00	
40.35 1.00	0.40	2 15	0.00	0.00	0 00	
46.40 1.00	0.40	2 45	0.00	0.00	0.00	
46.45 1.00	0.40	2 15	0.00	0.00	0.00	
46.50 1.60	0.40	5.4J 2 /5	0.00	0.00	0.00	
46.55 1.60	0.46	3.40 2.45	0.00	0.00	0.00	
46.60 1.60	0.46	3.45 3.45	0.00	0.00	0.00	
46.65 1.60	0.46	3.45	0.00	0.00	0.00	
46.70 1.60	0.46	3.45	0.00	0.00	0.00	
46.75 1.60	0.46	3.45	0.00	0.00	0.00	
46.80 1.60	0.46	3.45	0.00	0.00	0.00	
46.85 1.59	0.46	3.45	0.00	0.00	0.00	
46.90 1.59	0.46	3.45	0.00	0.00	0.00	
46.95 1.59	0.46	3.45	0.00	0.00	0.00	
47.00 1.59	0.46	3.45	0.00	0.00	0.00	
47.05 1.59	0.46	3.44	0.00	0.00	0.00	
47.10 1.59	0.46	3.44	0.00	0.00	0.00	
47.15 1.59	0.46	3.44	0.00	0.00	0.00	
47.20 1.59	0.46	3.44	0.00	0.00	0.00	
47.25 1.59	0.46	3.44	0.00	0.00	0.00	
47.30 1.59	0.46	3.44	0.00	0.00	0.00	
47.35 1.59	0.46	3.44	0.00	0.00	0:00	
47.40 1.59	0.46	3.44	0.00	0.00	0.00	
47.45 1.59	0.46	3.44	0.00	0.00	0.00	
47 50 1 59	0.46	3.44	0.00	0.00	0.00	
47 55 1 59	0.46	3.44	0.00	0.00	0.00	
17 60 1 59	0 46	3 44	0 00	0.00	0,00	
47 65 1 50	0.40	2.11	0.00	0 00	0.00	
47.00 1.09	0.40	2 11	0.00	0 00	0 00	
4/./U 1.59	0.40	5.44 5 //	0.00	0.00	0.00	
4/./5 I.59	U.46	J.44	0.00	0.00	0.00	

	47.80 1.59	0 46	3.44	0.00	0.00	0.00					
	47.85 1.59	0.46	3.44	0.00	0.00	0.00					
	47.90 1.59	0.46	3.44	0.00	0.00	0.00					
	47.95 1.59	0.46	3.44	0.00	0.00	0.00					
	48.00 1.59	0.46	3.44	0.00	0.00	0.00					
	48.05 1.59	0.46	3.44	0.00	0.00	0.00					
	48.10 1.58	0.46	3.44	0.00	0.00	0.00					
	48.15 1.58	0.46	3.44	0.00	0.00	0.00					
	48.20 1.58	0.46	3.44	0.00	0.00	0.00					
	48.25 1.58	0.46	3.44	0.00	0.00	0.00					
	48.30 1.58	0.46	3.44	0.00	0.00	0.00					
	48.35 1.58	0.46	3.44	0.00	0.00	0.00					
	48.40 1.58	0.46	3.44	0.00	0.00	0.00					
	48.45 1.58	0.46	3.44	0.00	0.00	0.00					
	48.50 1.58	0.46	3.44	0.00	0.00	0.00					
	48.55 1.58	0.46	3.44	0.00	0.00	0.00					
	48.60 1.58	0.46	3.44	0.00	0.00	0.00					
	48.65 1.58	0.46	3.44	0.00	0.00	0.00					
	48.70 1.58	0.46	3.43	0.00	0.00	0.00					
	48.75 1.58	0.46	3.43	0.00	0.00	0.00					
	48.80 1.58	0.46	3.43	0.00	0.00	0.00					
	48.85 1.58	0.46	3.43	0.00	0.00	0.00					
	48.90 1.58	0.46	3.43	0 . 00	0.00	0.00					
	48.95 1.58	0.46	3.43	0.00	0.00	0.00					
	49.00 1.58	0.46	3.43	0.00	0.00	0.00					
	49.05 1.58	0.46	3.43	0.00	0.00	0.00					
	49.10 1.58	0.46	3.43	0.00	0.00	0.00					
	49.15 1.58	0.46	3.43	0.00	0.00	0.00					
	49.20 1.58	0.46	3.43	0.00	0.00	0.00					
	49.25 1.58	0.46	3.43	0.00	0.00	0.00					
	49.30 1.58	0.46	3.43	0.00	0.00	0.00					
	49.35 1.57	0.46	3.43	0.00	0.00	0.00					
	49.40 1.57	0.46	3.43	0.00	0.00	0.00					
	49.45 1.57	0.46	3.43	0.00	0.00	0.00					
	49.50 1.57	0.46	3.43	0.00	0.00	0.00					
	49.55 1.57	0.46	3.43 3 13	0.00	0.00	0.00					
	49.60 1.57	0.46	3.43	0.00	0.00	0.00					
	49.65 1.57	0.46	3.43	0.00	0.00	0.00					
	49.70 1.57	0.40	2.42	0.00	0.00	0.00					
	49.75 1.57	0.40	3.43	0.00	0.00	0.00					
	49.80 1.57	0.40	3 43	0.00	0.00	0.00					
	49.05 1.57	0.46	3 43	0.00	0.00	0.00					
	49.90 1.57	0.46	3 43	0 00	0.00	0.00					
	49,95 1.57 50 00 1 57	0.46	3.43	0.00	0.00	0.00					
	50.00 1.57	0.10	0.10								
	* F.S.<1, ]	Liquef	action	Poter	ntial .	Zone					
	(F.S. is 1:	imited	to 5,	CRR i	s lim:	ited to 2,	CSR i	s limite	ed to 2)		
	Units:	Unit:	qc,	fs, St	ress c	or Pressure	e = atm	(1.0581t	sf); Uni	t Weight	=
pcf;	Depth = ft;	Settl	ement	= in.							
<del> </del>	1 atm (atmo	ospher	e) = 1	tsf	(ton/f	t2)					
	CRRm		Cycli	c res	istanc	e ratio fr	om soil:	S			
	CSRsf		Cycli	c str	ess ra	tio induce	ed by a g	given ea	rthquake	(with us	er
reque	st factor o	f safe	ety)								

Factor of Safety against liquefaction, F.S.=CRRm/CSRsf Settlement from saturated sands F.S.

S\_sat S\_dry Settlement from Unsaturated Sands S\_all Total Settlement from Saturated and Unsaturated Sands NoLiq No-Liquefy Soils

LIQUEFACTION ANALYSIS SUMMARY Copyright by CivilTech Software www.civiltechsoftware.com 10/4/2022 2:44:57 PM Licensed to Krazan and Associates, Inc., Input File Name: H:\Liquefy5\02222124B1.liq Title: MLK Elementary School - Bakersfield Subtitle: Boring B1 Surface Elev.= Hole No.=B1 Depth of Hole= 50.00 ft Water Table during Earthquake= 22.00 ft Water Table during In-Situ Testing= 50.00 ft Max. Acceleration= 0.49 g Earthquake Magnitude= 7.91 Input Data: Surface Elev.= Hole No.=B1 Depth of Hole=50.00 ft Water Table during Earthquake= 22.00 ft Water Table during In-Situ Testing= 50.00 ft Max. Acceleration=0.49 g Earthquake Magnitude=7.91 No-Liquefiable Soils: Based on Analysis 1. SPT or BPT Calculation. 2. Settlement Analysis Method: Ishihara / Yoshimine 3. Fines Correction for Liquefaction: Modify Stark/Olson 4. Fine Correction for Settlement: During Liquefaction\* 5. Settlement Calculation in: All zones\*  $Ce = 1 \cdot 25$ 6. Hammer Energy Ratio, Cb= 1 7. Borehole Diameter, Cs = 18. Sampling Method, 9. User request factor of safety (apply to CSR) , User= 1.3 Plot one CSR curve (fs1=User) 10. Use Curve Smoothing: Yes\* \* Recommended Options In-Situ Test Data: Depth SPT gamma Fines ft pcf 😵 0.00 22.00 141.00 38.00 4.00 50.00 133.00 37.00 11.00 8.00 11.00 106.00 10.00 13.00 12.00 103.00 10.00 18.00 12.00 100.00 23.00 28.00 105.00 10.00 10.00 28.00 28.00 115.00 47.00 33.00 23.00 129.00 9.00 38.00 35.00 111.00 10.00 43.00 34.00 117.00 70.00 47.00 30.00 118.00 50.00 30.00 118.00 70.00

Output Results:

Settlement of Saturated Sands=0.64 in. Settlement of Unsaturated Sands=1.33 in. Total Settlement of Saturated and Unsaturated Sands=1.97 in. Differential Settlement=0.985 to 1.300 in.

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## DOCUMENT 00 41 13

## **BID FORM AND PROPOSAL**

To: Governing Board of the Bakersfield City School District ("District" or "Owner")

From:

(Proper Name of Bidder)

The undersigned declares that Bidder has read and understands the Contract Documents, including, without limitation, the Notice to Bidders and the Instructions to Bidders, and agrees and proposes to furnish all necessary labor, materials, and equipment to perform and furnish all work in accordance with the terms and conditions of the Contract Documents, including, without limitation, the Drawings and Specifications of for the following projects known as:

## Martin Luther King Jr. Elementary School - Wellness Center / 22243.00-09-WEL / DSA # 03-122605, Parent Center / 22243.00-09-PRC / DSA # 03-122604, T-Kindergarten / 23189.00-09-TK / DSA # 03-123900

("Project" or "Contract") and will accept in full payment for that Work the following grand total lump sum amount, all taxes included:

	_ dollars	\$
WELLNESS CENTER TOTAL	_ dollars	\$
PARENT CENTER TOTAL	_ dollars	\$
TRANSITIONAL KINDERGARTEN TOTAL BASE BID GRAND TOTAL	_ dollars	\$

## Additive/Deductive Alternates: None

1. The undersigned has reviewed the Work outlined in the Contract Documents and fully understands the scope of Work required in this Proposal, understands the construction and project management function(s) is described in the Contract Documents, and that each Bidder who is awarded a contract shall be in fact a prime contractor, not a subcontractor, to the District, and agrees that its Proposal, if

#### **BAKERSFIELD CITY SCHOOL DISTRICT**

BID FORM AND PROPOSAL DOCUMENT 00 41 13-1 accepted by the District, will be the basis for the Bidder to enter into a contract with the District in accordance with the intent of the Contract Documents.

- 2. The undersigned has notified the District in writing of any discrepancies or omissions or of any doubt, questions, or ambiguities about the meaning of any of the Contract Documents, and has contacted the Construction Manager before bid date to verify the issuance of any clarifying Addenda.
- 3. The undersigned agrees to commence work under this Contract on the date established in the Contract Documents and to complete all work within the time specified in the Contract Documents.
- 4. The liquidated damages clause of the General Conditions and Agreement is hereby acknowledged.
- 5. It is understood that the District reserves the right to reject this bid and that the bid shall remain open to acceptance and is irrevocable for a period of ninety (90) days.
- 6. The following documents are attached hereto:
  - Bid Bond on the District's form or other security
  - Designated Subcontractors List
  - Non-Collusion Declaration
  - Iran Contracting Act Certification
- 7. Receipt and acceptance of the following Addenda is hereby acknowledged:

No, Dated	No, Dated
No, Dated	No, Dated
No, Dated	No, Dated

- 8. Bidder acknowledges that the license required for performance of the Work is a B license.
- 9. Bidder hereby certifies that Bidder is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the Work.
- 10. Bidder specifically acknowledges and understands that if it is awarded the Contract, that it shall perform the Work of the Project while complying with all requirements of the Department of Industrial Relations.
- 11. Bidder hereby certifies that its bid includes sufficient funds to permit Bidder to comply with all local, state or federal labor laws or regulations during the Project, including payment of prevailing wage, and that Bidder will comply with the provisions of Labor Code section 2810(d) if awarded the Contract

#### BAKERSFIELD CITY SCHOOL DISTRICT

BID FORM AND PROPOSAL DOCUMENT 00 41 13-2

- 12. Bidder specifically acknowledges and understands that if it is awarded the Contract, that it shall perform the Work of the Project while complying with the Davis Bacon Act, applicable reporting requirements, and any and all other applicable requirements for federal funding. If a conflict exists, the more stringent requirement shall control.
- 13. Bidder represents that it is competent, knowledgeable, and has special skills with respect to the nature, extent, and inherent conditions of the Work to be performed. Bidder further acknowledges that there are certain peculiar and inherent conditions existent in the construction of the Work that may create, during the Work, unusual or peculiar unsafe conditions hazardous to persons and property.
- 14. Bidder expressly acknowledges that it is aware of such peculiar risks and that it has the skill and experience to foresee and to adopt protective measures to adequately and safely perform the Work with respect to such hazards.
- 15. Bidder expressly acknowledges that it is familiar with and capable of complying with applicable federal, State, and local requirements relating to COVID-19 or other public health emergency/epidemic/pandemic including, if required, preparing, posting, and implementing a Social Distancing Protocol.
- 16. Bidder expressly acknowledges that it is aware that if a false claim is knowingly submitted (as the terms "claim" and "knowingly" are defined in the California False Claims Act, Gov. Code, § 12650 et seq.), the District will be entitled to civil remedies set forth in the California False Claim Act. It may also be considered fraud and the Contractor may be subject to criminal prosecution.
- 17. The undersigned Bidder certifies that it is, at the time of bidding, and shall be throughout the period of the Contract, licensed by the State of California to do the type of work required under the terms of the Contract Documents and registered as a public works contractor with the Department of Industrial Relations. Bidder further certifies that it is regularly engaged in the general class and type of work called for in the Contract Documents.

Furthermore, Bidder hereby certifies to the District that all representations, certifications, and statements made by Bidder, as set forth in this bid form, are true and correct and are made under penalty of perjury.

BAKEDSETELD CITY SCH		
Taxpayer Identification No	o. of Bidder:	
Address of Bidder:		
Title:		
Print Name:		
Signature:		
Type of Organization:		
Name of Bidder:		
Dated this	_ day of	20

BID FORM AND PROPOSAL DOCUMENT 00 41 13-3
Telephone Number:			
Fax Number:			
E-mail:		_ Web Page:	
Contractor's License No(s):	No.:	Class:	Expiration Date:
	No.:	Class:	Expiration Date:
	No.:	Class:	Expiration Date:
Public Works Contractor Rec	jistration No.:		

END OF DOCUMENT

# MLK – Parent Center – Owner Furnished Contractor Installed HVAC Equipment

District is providing all HVAC Units and Exhaust Fans noted on DSA Drawing Sheet M0.01. See associated District Equipment Purchase Orders attached.

Snap shot below from District's HVAC Equipment bid with Model Numbers being provided. Contractor to include labor for all items noted below as "Field Installed."

Contractor to include all costs to coordinate pick up, loading, trucking of HVAC equipment from District warehouse located at 1201 Citation Way, Bakersfield, CA, 93308. Include delivery to jobsite for installation, 1100 Citadel St., Bakersfield, CA, 93307.

HP-7	72	50GCQJ05J2M6-0A3A0	<ul> <li>4 Ton Heat Pump Rooftop Packaged Unit 460-3-60</li> <li>Two-Stage Cooling single circuit (SEER)</li> <li>460-3-60</li> <li>4 Tons</li> <li>Condensate overflow switch</li> <li>Direct drive, EcoBlue, medium static fan</li> <li>Al/Cu cond. coil - Al/Cu evap coil w/Hail Guards</li> <li>Electro-Mechanical Ctl</li> <li>Hinged access panels</li> <li>Ion Generator</li> <li>Factory Start-Up with 1<sup>st</sup> Year Labor Warranty</li> </ul>
HP-7	72		Time Guard II (Field Installed)
HP-7	72		Fan/Filter Status Switch (Field Installed)
HP-7	72		Phase Monitor Control (Field Installed)
HP-7	72		5.5 kW Electric Heat Strip (Field Installed)
HP-7	72		Hinged Access Door (Field Installed)
HP-7	72		Down Discharge Dry Bulb Economizer (Field Installed)
HP-7	72		14" Tall Pitched Welded Roof Curb (Field Installed) (Contractor to Verify Prior to Order)
HP-9	1	38MARBQ12AA3	1 Ton Heat Pump Condenser 208/230-1-60  • Factory Start-Up with 1st Year Labor Warranty
HP-9	1	40MAHBQ12XA3	1 Ton High Wall Indoor Unit 208/230-1-60  Factory Start-Up with 1st Year Labor Warranty
HP-9	1		24V Interface Kit (Field Installed)
HP-9	1	and the second se	Gobi Condensate Pump (Field Installed)

			Bakersfield City Schoo 1300 Baker Stree Bakersfield, CA 93305 Phone: (661) 631-4600 Fax: (6	ol District t 5-4326 561) 861-9907	PU No: Date:	URCHASE OF P2400291 08/24/2023	RDER 7
VENDO	SIGLER V 7021 SCH BAKERS	WHOLESAL IIRRA CT. FIELD, CA	LE DISTRIBUTORS 93313	S Bakersfield Cit Dr. Martin Luth 1100 Citadel St Bakersfield, CA	y School her King, treet A 93307	District Jr. Elementa	ry School
R	Phone: (6	61) 636-079	2 Fax: (860) 622-6719	• For: Maintenance, MLK JR 222	Operation 43.00-09-1	s and Facilities PARENT CENT	ER
Ver	ndor # 2959	060 DAYS	Due Date: 09/20/2023	Buyer: Melissa Hernan FOB: N/A	ndez F	Req # R24003 Ship Via: OUR	760 PICK-UP
ITEM	QUANTITY	UNIT ISSUE	DESCRIPTIO	ON		UNIT COST	EXTENSION
1 2 3	1 1	EA EA EA	MLK JR 22243.00-09-PARENT CENTER BID #23-06-01 Carrier HP-7 (4) Ton Unit, Model: 50GCQM05 Electric Carrier HP-9 (1) Ton Unit, Model: 40MABO12 Electric IDU-1 Indoor Unit Carrier HP-9 (1) Ton Unit, Model: 38MARBQ12 Electric ODU-1 Outdoor Unit PRICING PER HVAC EQUIPMENT REF BOARD APPROVAL DATE: AUGUST 8	2023	6-01		
Specia 1. Purc	I Instructions	to Vendor:	ear on all invoices, shinning papers and correspond	dence		SUB TOTAL	
2. Sub	mit itemized in 800 Baker Stree	voice to the Ac	counts Payable Office,			SALES TAX	
3. Pack	cing slip must a	ccompany eac	h delivery, showing PO number, serial number, and	d description.		SHIPPING	
5. If fr	eight charges a	pply, prepay a	and add to invoice. No C.O.D. charges permitted.			TOTAL	
7. This that prop Fede 8. <u>MAT</u>	PO is a covere to the best of it losed for disbar ral departmen <u>FERIAL SAFE</u>	ed transaction ts knowledge a rment, declare t or agency. TY DATA SHI	for purposes of 49 CFR Part 29. As such, the vende nd belief that it and its principals are not presently d ineligible, or voluntarily excluded from covered to EETS MUST BE SUPPLIED WHERE APPLICABLE	or/contractor certifies debarred, suspended, ransactions by any LE	wid J. We	D SIGNATURE	De
			Page 1 of	1			

			Bakersfield City Sch 1300 Baker Str Bakersfield, CA 933 Phone: (661) 631-4600 Fax	1001 District reet 105-4326 : (661) 861-9907	No Da	PURCHASE OI           p:         P2400289           ate:         08/24/2023	RDER 09
V E Z D O	NORMAN MECHAN EQUIPM 7595 N. E FRESNO	N S. WRIGH NICAL ENT CO., LI DEL MAR AV CA 93711	T DUCKWORTH LC VENUE	Bakerst Dr. Mar P 1100 Ci Bakerst	field City Sch rtin Luther K itadel Street field, CA 933	ool District ing, Jr. Elementa 307	ry School
R	Phone: (5	59) 449-870	1 Fax: (559) 449-8734	• For: Mai	ntenance, Opera K JR 22243.00-	ations and Facilities 09-PARENT CENT	ER
Ven Ter	ndor # 3179 ms: NET 30	) DAYS	Due Date: 09/20/2023	Buyer: Melis: FOB: FRESN	sa Hernandez 10	Req # R24003 Ship Via: UPS	870
ITEM	QUANTITY	UNIT ISSUE	DESCRI	TION		UNIT COST	EXTENSION
1		EA	Greenheck EF-7, Model: SP-All0-QD PRICING PER EXHAUST FAN REPI BOARD APPROVAL DATE: AUGUS	ACEMENT BID #	23-06-01		
Specia 1. Pure	l Instruction	s to Vendor: mber must apr	pear on all invoices, shipping papers and corres	pondence.		SUB TOTAL	
2. Subr	nit itemized in 800 Baker Stre	voice to the Ac	counts Payable Office, . CA 93305			SALES TAX	
3. Pack	ing slip must	accompany eac	h delivery, showing PO number, serial number	, and description.		SHIPPING	
5. If fro 6. Rece	eight charges a	apply, prepay a :00 a.m 4:00	and add to invoice. No C.O.D. charges permitted p.m., Monday - Friday.	1.		TOTAL	
7. This that prop Fede 8. <u>MAT</u>	PO is a cover- to the best of i osed for disba ral departmer TERIAL SAFE	ed transaction ts knowledge a rment, declare at or agency. TTY DATA SH	for purposes of 49 CFR Part 29. As such, the v nd belief that it and its principals are not prese d ineligible, or voluntarily excluded from cover EETS MUST BE SUPPLIED WHERE APPLIC	endor/contractor certil ntly debarred, suspend ed transactions by any <u>ABLE</u>	fies AUTHOR	RIZED SIGNATURE	

VEN	DOR
Page	1 of 1

# Data Sheet / TS250



# **TS250** Internet-Enabled Thermostat with Integrated CO<sup>2</sup> Sensor

The Pelican Internet-Enabled Thermostat with an integrated CO<sup>2</sup> sensor provides commercial customers with virtual climate and air quality management. The TS250 delivers accurate temperature management, air quality (CO<sup>2</sup>) management, leading edge energy efficiency, built-in safeties and alarming, and fine tuned comfort. Coupled with the Pelican Web App, the TS250 tracks space temperature, CO<sup>2</sup> levels, and HVAC operational data in real-time and historically. All information is displayed in real-time online and is viewable on any Internet-connected device.

# MESH WIRELESS NETWORK

The TS250 communicates wirelessly with a GW400 to reach the Internet. Each TS250 has built-in state-of-the-art wireless mesh network communication and repeating.

# FAULT ALARMING

Built-in system and space analytics with automated email or text message alerts when a fault is detected.

# WEB APP

Virtual and central management of TS250 available on all smart phones, tablets, and PCs. Directly manage thermostat temperature and CO<sup>2</sup> levels through a web browser. Designed for intuitive control over multiple thermostats.

#### HISTORICAL TREND DATA

Online viewable historical data of space temperature, setpoints, HVAC demand, CO<sup>2</sup> level, and fan demand.

# INSTALLATION

Industry standard HVAC terminals utilize existing thermostat wire. Included with TS250 is Pelican's innovative limited wiring relay pack (WM500) used in applications where there are only three (3) wires to the HVAC unit.

# SCHEDULING

Through the Pelican Web App you can schedule the TS250 thermostat for daily, 5-2, or 7-day schedules. Thermostats can also be scheduled as groups, for simple multi-thermostat management.

# Designed and assembled in the USA 5-Year Limited Warranty





(888) 512-0490 | sales@pelicanwireless.com



Specifications	
POWER Hardwire Voltage Range Relay Current	24VAC, 60Hz; 50 mA 23 - 30VAC 1.0A running
COMPATIBILITY 24VAC gas, electric, or Conventional and Hea	oil heating systems. at Pump
WIRING Conventional Heat Pump	R, RC, W, W2, Y, Y2, G, C R, RC, O/B, AUX, Y, Y2, G, C
SYSTEM PROTECTION Four-Minute Compres Temporary Schedule ( Auxiliary/Emergency H Keypad Lockout Trend Data Analytics a	sor Short-Cycle Protection Override Heat Efficiency Algorithm and Fault Monitoring
THERMOSTAT RANGE Operating Range Differential Temperatu Operating Humidity (9	-20°F to 122°F ure ±0.5°F %RH) 5 to 90% RH; non-condensing
integrated Room CO-	+/- 50ppm accuracy

Storage Temperature -20°F to 160°F

SIZE	
Inch	H 3.5 x W 5.97 x D 1.5
mm	H 89 x W 150 x D 38
Horizontal Mounting	

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www.pelicanwireless.com

DS-TS250-02

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# Part 1 General

- 1.1 Work Included
  - A. General
    - 1. Provide all labor, materials, tools and equipment required for the complete installation of work called for on the Construction Drawings and described in the Scope Documentation.
    - 2. This document describes the requirements for the contractors, products and installation relating to furnishing and installing Telecommunications Cabling systems.
    - 3. The Horizontal Cabling System as described in this document consists of cabling, infrastructure, J-hook pathways and termination devices for Data systems.
    - 4. Contractor will provide a bid including all labor, materials, tools and equipment required for the complete installation of work called for on the Construction Drawings and described in this Document. It is the responsibility of the Contractor to provide all material necessary to provide a complete and operable system. If the contractor feels that the system described is incomplete, they must address this in writing to the Owner/Owner's Representative before providing a bid.
    - 5. All questions concerning non-specified product and services will be addressed to the Owner's Representative before Contactor provides a bid. Owner expects that by accepting the Contractor's bid proposal that the Contractor has provided a competent bid for a complete solution.
    - 6. Product specifications, general design considerations, and installation guidelines are provided in this document. Quantities of telecommunications outlets, typical installation details, cable routing and outlet types will be provided as an attachment to this document.
- 1.2 References
  - A. Regulatory References
    - 1. Contractors will comply with all requirements as specified in Section 27 0000 '1.3. Regulatory References'.
- 1.3 Safety and Indemnity
  - A. Requirements
    - 1. Contractors will submit the necessary documentation to demonstrate their compliance with Section 27 0000 '2.1 Safety and Indemnity'.
- 1.4 Contractor Qualifications
  - A. Requirements
    - 1. Contractors will submit the necessary documentation to demonstrate their compliance with Section 270000 '2.2 Contractor Qualifications'.
- 1.5 Quality Assurance
  - A. Requirements
- 5528 STRUCTURED CABLING SYSTEM

- 1. Contractors shall comply with all requirements as specified in Section 27 0000 '2.3 Quality Assurance'.
- 1.6 Equivalent Products
  - A. Approved Products
    - 1. All Products described, and Part Numbers given in this Specification are those of Hubbell unless otherwise noted.
  - B. Pre-Approved Equals:
    - 1. None
  - C. Other Than Approved Products
    - 1. Contractors wishing to approve a system other than those specified in this document shall do so in accordance with Section 27 000 '3.1 Products'.
- 1.7 Submittal Documentation
  - A. Requirements
    - 1. The successful contractor shall provide their submittal package in accordance with the Section '01 20 00 Submittal Schedule' and Section 27 0000 '3.2 Submittal Documentation'.
- 1.8 Acceptance
  - A. Requirements
    - 1. The contractor shall comply with all requirements as listed in Section 27 0000 '3.3 Acceptance'.
  - 1.9 Warranty
  - A. Requirements
    - 1. The contractor shall comply with all requirements as listed in Section 27 0000 '3.4 Warranty'.
- 1.10 Technology Clause
  - A. General Requirements
    - 1. As technology advances, it is understood that improved or enhanced products may supersede existing products in both price and performance and yet be essentially similar. This request for bids seeks to address the rapid advances in technology by allowing functionally similar or identical products that may be introduced in the future, during the term of this bid, to be included under the general umbrella of compatible product lines and are thus specifically included in this bid document.
    - 2. Discontinued or end of life products shall be replaced with an equal product to the original specified product at no additional costs to the owner.

# 5528 - STRUCTURED CABLING SYSTEM

# Part 2 Products

# 2.1 Work Area Subsystem

- A. General
  - 1. The Work Area shall consist of the connectivity equipment used to connect the horizontal cabling subsystem and the equipment in the work area. The connectivity equipment shall include the following options:
    - Patch Cords
    - Modular Inserts, Jacks and Plugs
    - Faceplates
  - 2. Category 6A Wireless Access Points Outlet Patch Cords
    - All category 6A channel patch cords shall be constructed with a snagless boot, made of molded PVC, colored matched to the color of the patch cord cable.
    - All category 6A channel patch cords shall be constructed with category 6A patch cable, 24 AWG, 7/32 tinned copper stranded patch cable, insulated with polyethylene and paired, jacketed with PVC, ETL Verified for ISO 11801, (UL) NEC type CM or CMR, 75° C, Article 800 CSA Type CMG.
    - All category 6A channel patch cords shall be 100% factory tested to pass return loss (RL) and near-end cross talk (NEXT).
    - All category 6A channel patch cords shall be manufactured using a T568-B plugwiring format.
      - All patch cords will be delivered to the site and must be signed for by the Owner/Owner's Representative. It will be the responsibility of other to install all Work Area Data Patch Cords.
    - Length:
      - Wi-Fi patch cords will be 3 feet long.
    - Color:
      - Wi-Fi White
    - Quantity
      - Wi-Fi Contractor will provide one (1) patch cable for each Wi-Fi data outlet.
    - Hubbell Premise Part #, or approved equal:
      - Wi-Fi HCL6AW03
- B. Modular Inserts and Jacks
  - 1. Category 6 Data/Voice Jack & Camera Termination Plugs
    - Jack will meet the Category 6 Standard.
    - Jacks shall be 8 positions un-keyed

- Each jack shall be an individually constructed unit and shall snap mount in an industry standard keystone opening (.760" x 580")
- Jacks shall utilize a 2-layer printed circuit board to control NEXT
- Jack termination shall follow the industry standard 110 IDC.
- Jacks shall have a designation indicating Category 6 on the nose which can be plainly seen from the front of the faceplate. Bottom of jack shall have date code and an abbreviated catalog number.
- Jacks shall utilize a paired punch down sequence. Cable pair twists shall be maintained up to the IDC, terminating all conductors adjacent to its pair mate to better maintain pair characteristics designed by the cable manufacturer.
- Jacks shall terminate 22-26 AWG stranded or solid conductors.
- Jacks shall be compatible with single conductor 110 impact termination tools.
- Jacks shall be compatible with TIA/EIA 606 color code labeling
- Jacks shall have universal wiring designation.
- Jacks shall have an attached color-coded wiring instruction label housed between the IDC termination towers.
- Jacks shall be manufactured in the USA
- Jacks will be terminated according to theT568B wiring scheme
- Color:

•	Data/Voice	WHITE
	2 404 1 0100	

- Camera Factory
- Quantity: Contractor will provide one jack for every outlet cable shown on the drawings.
- Hubbell Premise Part #, or approved equal.
  - Data/Voice HXJ6W
  - Camera SP6
- 2. Category 6A Wireless Access Point Jack
  - Jack will meet the Category 6A Standard.
  - Jacks shall be 8 positions un-keyed
  - Each jack shall be an individually constructed unit and shall snap mount in an industry standard keystone opening (.760" x 580")
  - Jacks shall utilize a 2-layer printed circuit board to control NEXT
  - Jack termination shall follow the industry standard 110 IDC.
  - Jacks shall have a designation indicating Category 6A on the nose which can be plainly seen from the front of the faceplate. Bottom of jack shall have date code and an abbreviated catalog number.
  - Jacks shall utilize a paired punch down sequence. Cable pair twists shall be maintained up to the IDC, terminating all conductors adjacent to its pair mate to better maintain pair characteristics designed by the cable manufacturer.
  - Jacks shall terminate 22-26 AWG stranded or solid conductors.
  - Jacks shall be compatible with single conductor 110 impact termination tools.
  - Jacks shall be compatible with TIA/EIA 606 color code labeling
  - Jacks shall have universal wiring designation.
  - Jacks shall have an attached color-coded wiring instruction label housed between the IDC termination towers.
  - Jacks shall be manufactured in the USA
  - Jacks will be terminated according to theT568B wiring scheme
  - Color:

- Wi-Fi Purple
- Quantity: Contractor will provide one jack for every outlet cable shown on the drawings.
- Hubbell Premise Part #, or approved equal.
  - Wi-Fi HJU6AP24
- C. Wall Mount and Modular Furniture Faceplates
  - 1. Wall Plates
    - Faceplates shall be UL Listed and CSA Certified
    - Faceplates shall be 2.75" W x 4.5" H (69.8 mm x 114.3 mm)
    - Faceplates shall provide for TIA/EIA 606 compliant station labeling
    - Faceplates shall have plastic covers over the mounting screws that can be replaced with a clear plastic window over a printable paper insert
    - Color: WHITE or STAINLESS STEEL.
      - Contractor will field verify and match finish to the existing electrical outlet face plate cover.
    - Quantity: Contractor will provide one single gang faceplate for each outlet shown on the drawings.
    - Hubbell Premise Part #, or approved equal.
      - WHITE

0	1 Port	IFP11W
0	2 Port	IFP12W
0	3 Port	IFP13W
0	4 Port	IFP14W
0	6 Port	IFP16W

STAINLESS STEEL

0	1 Port	SSFL11
0	2 Port	SSFL12
0	3 Port	SSFL13
0	4 Port	SSFL14
0	6 Port	SSFL16

- 2. Blank Insert
  - Color: Blank Insert to be WHITE –
  - Quantity: Contractor will provide one insert for every unused port in a faceplate.
  - Hubbell Wiring, Part #: SFBW10, or approved equal.
- 3. Wall Phone Plates
  - Faceplate shall be a two-piece design, including a steel base and a stainless-steel cover plate.
  - Faceplates steel base shall incorporate six screw terminals, one 6 position jack and an insulating plastic sleeve.

- Faceplate shall be equipped with screw studs to be used as the mounts for wall hung telephones.
- Color: Faceplate to be STAINLESS STEEL
- Quantity: Contractor will provide one faceplate for each Intercom Handset outlet shown on the drawings.
- Allen Tel, Part #: AT630A-6, or approved equal. Tragic
- 4. Blank Wall Plates
  - Faceplate shall be constructed from stainless steel.
  - Faceplates shall be UL Listed and CSA Certified
  - Faceplates shall be 2.75" W x 4.5" H (69.8 mm x 114.3 mm) for single gang.
  - Color: Faceplate to be STAINLESS STEEL
  - Quantity: Contractor will provide one faceplate for each unused data/voice/video/intercom outlet shown on the drawings.
  - Hubbell Wiring Part #: S13, or approved equal.
- 5. Surface Mount Raceway Insert
  - Inserts for Hubble PB2, PB3, and PS3 Device Mounting Brackets
  - Insert shall allow for two category 6 jacks to be mounted flush.
  - Insert shall match the color of the Raceway installed.
  - Color: Faceplate to be IVORY
  - Quantity: Contractor will provide one 2port insert for each outlet in the Surface Mount Raceway shown on the drawings.
  - Hubbell Part #: KP2162 or approved equal.
- 2.2 Horizontal Distribution Cabling
  - 1. The horizontal distribution cabling system is the portion of the telecommunications cabling system that extends from the Work Area (WA) telecommunications outlet/connector to the horizontal cross-connect in the Telecommunications Room (TR).
    - Cabling Support System
    - Copper Station Cabling
    - Copper Cross-Connect Cabling
  - B. Cabling Support System
    - 1. J-Hooks
      - Cable supports shall provide a bearing surface of sufficient width to comply with required bend radii of high-performance cables; cULus Listed.
      - Cable supports shall have flared edges to prevent damage while installing cables.
      - Cable support system shall provide fasteners that allow them to be mounted to wall, concrete, joist, tee-bar wire, treaded rod, beams and raised floor supports.
      - Fasteners shall have the ability to either be factory or jobsite assembled; rated for indoor use in non-corrosive environments; cULus Listed.
      - Fastener to with one non-continuous cable support, factory or jobsite assembled.
      - Color: NA
      - Quantity: Contractor will provide quantities of j-hooks and hanger accessories in the amount necessary to support all horizontal cabling every 4-5 feet.
      - Part #:

- ERICO CAT425
- Cooper B-Line BCH12, BCH21, BCH32, BCH64 and accessories.
- C. Copper Station Cable
  - 1. Category 6 Data/Voice, Camera, and Intercom Unshielded Twisted Pair (UTP) Cable
    - Cable will meet or exceed the proposed requirements of ANSI/TIA/EIA 568-B.2, 568-B.2 Addendum #1 and ISO/IEC 11801 Category 6 Cable Standard for: NEXT and ELFEXT (Pair-To-Pair and Power Sum), Insertion Loss (Attenuation), Return Loss, and Delay Skew.
    - Cable shall be proven to support Gigabit Ethernet / 1000BASE-T / IEEE 802.3ab, ATM up to 155 Mbps, IEEE 802.3af Power Over Ethernet for VoIP, 100 Mbps Fast Ethernet / 100BASE-T / IEEE 802.3, ANSI.X3.263 FDDI TP-PMD, Ethernet / 10BASE-T / IEEE 802.3, 4 & 16 Mbps Token Ring / IEEE 802.5, T1/E1, xDSL, ISDN, 550 MHz Broadband Video and standards under development such as ATM at 622 Mbps, 1.2 and 2.4 Gbps.
    - The cable shall consist of four unshielded twisted pairs of thermoplastic insulated bare copper enclosed in a thermoplastic jacket.
    - All cable shall conform to the requirements for communications circuits defined by the National Electrical Code (Article 800) and the Canadian Building Code. Cable listed to NEC Article 800-51(a) will be used for "Plenum" installations. Cable listed to NEC Article 800-51(b) shall be installed in vertical runs penetrating more than one floor.
    - Cable shall have been certified with the UL 1666 Vertical Tray Flame Test.
    - Cable shall be available in a Plenum, Riser and Indoor/Outdoor rated jackets.
    - Contractor will use the indoor/outdoor rated cable for all locations where the cable pathway goes underground and/or run in exterior conduit.
    - The listed Category 6 cables in this specification are manufactured by Mohawk/CDT. All other manufactures eligible for Hubbell's Certified Premise Solution also have been pre-approved.
    - Color:
      - Data/Voice BLUE
      - Camera WHITE
      - Intercom YELLOW
    - Quantity: See Drawing for quantity and installation details.
    - Part#:
      - For Riser Application:

0	Data/Voice	Hubbell	C6RREB
0	Camera	Hubbell	C6RREW
0	Intercom	Hubbell	C6RREY

• For Plenum Application:

0	Data/Voice	Hubbell	C6RPEB
0	Camera	Hubbell	C6RPEW
0	Intercom	Hubbell	C6RPEY

For Indoor/Outdoor Application:

- Data/Voice, Mohawk PN# M58722 (all cable jackets will be BLACK)
- 2. Category 6A Wireless Access Point Unshielded Twisted Pair (UTP) Cable
  - Cable will meet or exceed the proposed requirements of ANSI/TIA/EIA 568-B.2, 568-B.2 Addendum #1 and ISO/IEC 11801 Category 6 Cable Standard for: NEXT and ELFEXT (Pair-To-Pair and Power Sum), Insertion Loss (Attenuation), Return Loss, and Delay Skew.
  - Cable shall be proven to support Gigabit Ethernet / 1000BASE-T / IEEE 802.3ab, ATM up to 155 Mbps, IEEE 802.3af Power Over Ethernet for VoIP, 100 Mbps Fast Ethernet / 100BASE-T / IEEE 802.3, ANSI.X3.263 FDDI TP-PMD, Ethernet / 10BASE-T / IEEE 802.3, 4 & 16 Mbps Token Ring / IEEE 802.5, T1/E1, xDSL, ISDN, 550 MHz Broadband Video and standards under development such as ATM at 622 Mbps, 1.2 and 2.4 Gbps.
  - The cable shall consist of four unshielded twisted pairs of thermoplastic insulated bare copper enclosed in a thermoplastic jacket.
  - All cable shall conform to the requirements for communications circuits defined by the National Electrical Code (Article 800) and the Canadian Building Code. Cable listed to NEC Article 800-51(a) will be used for "Plenum" installations. Cable listed to NEC Article 800-51(b) shall be installed in vertical runs penetrating more than one floor.
  - Cable shall have been certified with the UL 1666 Vertical Tray Flame Test.
  - Cable shall be available in a Plenum, Riser and Indoor/Outdoor rated jackets.
  - Contractor will use the indoor/outdoor rated cable for all locations where the cable pathway goes underground and/or run in exterior conduit.
  - The listed Category 6 cables in this specification are manufactured by Mohawk/CDT. All other manufactures eligible for Hubbell's Certified Premise Solution also have been pre-approved.
  - Color:
    - Wi-Fi BLUE
  - Quantity: See Drawing for quantity and installation details.
  - Part#:
    - For Riser Application:
      - o Wi-Fi Hubbell C6ASRB
    - For Plenum Application:
      - o Wi-Fi Hubbell C6ASPB
    - For Indoor/Outdoor Application:
      - Wi-Fi, Mohawk PN# M58722 (all cable jackets will be BLACK)

# D. Horizontal Copper Cross-Connect Cabling

- 1. Voice Cross-Connect Cabling
  - Cable shall meet and/or exceed the UL Listed Type CMR and the ANSI/ICEA S-80-576 standard.
  - Core Construction

- Conductors: Solid-copper conductors, 24 AWG.
- Insulation: Flame retardant semi-rigid PVC.
- Core Assembly: Cable core will be made up of 100 pair units consisting of four (4) 25 pair sub-units. Each group individually identifiable by color coded unit binders.
- Jacket: Gray, flame retardant PVC jacket.
- Color: Voice cable jacket will be GRAY
- Quantity: See Drawing for quantity and installation details. The number of 25-pair cable between the MDF and the IDF shall be derived by multiplying the number of pairs required for the cross-connect by 1.25 to the nearest 25-pair increment.
- Part#: Equal to Mohawk Cable:
  - 12 pair = PN# 09-094-02 Superior Essex
  - 25 pair = PN# M58141
  - 50 pair = PN# M58522
  - 100 pair = PN# M585201
- 2.3 Backbone Cabling
  - A. General
    - 1. The backbone cabling system is the portion of the telecommunications cabling system that extends from the Intermediate Distribution Frame (IDF) to the Main Distribution Frame (MDF).
      - Fiber Optic Backbone Cabling
      - Copper Backbone Cabling
  - B. Fiber Optic Backbone Cabling
    - 1. Data System Backbone Cabling
      - Cable shall be UL/cUL OFNR/OFN FTA rated and be Flame Resistant in accordance with the UL 1666.
      - Cable shall an indoor/outdoor rated jacket.
      - Cable shall be constructed utilizing a loose tube design.
      - Cable will be fully water blocked combining overall water blocking tape and a moisture blocking gel for each individual tube.
      - Cable will maintain the following:
        - Crush Resistance (EIA-455-41) = 2000 N/cm
        - Impact Resistance (EIA-455-25) = 2000 Impacts w/1.6 N-m
        - Min Bend Radius:
          - $\circ$  Long Term No Load = 15x Cable diameter
          - $\circ$  Short Term Load = 20x Cable diameter
        - Operating Temp. =  $-40^{\circ}$ C to  $+70^{\circ}$ C
        - Storage Temp. =  $-40^{\circ}$ C to  $+80^{\circ}$ C
      - Cable shall be constructed of 50/125µ Laser Optimized rated glass capable of:
        - 1 Gigabit Ethernet Link at 1000m/600m (@850nm/1300nm)

- 10 Gigabit Ethernet Link at 300m/300m (@850nm/1300nm)
- The Fiber Optic Cable in this specification is manufactured by Mohawk/CDT. All other manufactures eligible for Hubbell's Certified Premise Solution that meet and/or exceed the below specifications have also been pre-approved.
- Color: Fiber Optic cable jacket will be BLACK
- Quantity: See Drawing for quantity and installation details.
- Hubbell Premise Part #:
  - 12 Strand Multi Mode Fiber HFCD14012R4BK
- C. Copper System Backbone Cabling
  - 1. Voice & Intercom System Backbone Cabling
    - Cable shall meet or exceed those specified in RUS Bulletin 1753F-208 (REA PE-89)
    - Core Construction
      - Conductors: Solid, annealed copper, 24 AWG unless otherwise noted on design documents.
      - Insulation: Dual insulation consisting of an inner layer of foamed polyolefin skin, colored coded in accordance with industry standards
      - Core Assembly: Cables of 25 pairs and less formed by assembling pairs together in a single group. Cables of more than 25 pairs formed by twisted pairs arranged in groups with each group having a color coded unit binder.
      - Filling Compound: The entire core assembly completely filled with ETPR compound, filling the interstices between the pairs and under the core tape.
      - Core Wrap: Non-hygroscopic dielectric tape applied longitudinally with an overlap.
      - Sheath Construction
      - Aluminum Shield: Corrosion protected plastic coated, corrugated 0.008" aluminum tape.
    - Jacket: Black, linear low-density polyethylene.
    - Color: Voice cable jacket will be BLACK
    - Quantity: See Drawing for quantity and installation details. The number of 25-pair cable between the MDF and the IDF shall be derived by multiplying the number of pairs serving the individual telephone handsets by 1.25 to the nearest 25-pair increment.
    - Part#: Equal to General Cable:
      - 12 pair = PN#09-094-02 Superior Essex
      - 25 pair = PN# 7525758
      - 50 pair = PN# 7525793
      - 75 pair = PN# 7525801
      - 100 pair = PN# 7525819
      - 200 pair = PN# 7525835
- 2.4 Telecommunication Room
  - A. General Requirements

- 1. The Telecommunication Room (TR) includes those products that terminate horizontal and backbone cabling subsystems and connect then to the network equipment.
  - Patch Cords
  - Horizontal Cabling Termination Equipment
  - Backbone Cabling Termination Equipment
  - Cabinets, Racks, and Enclosures
  - Cable Support System
- B. Patch Cords
  - 1. Category 6 Data/Voice & Camera TR Patch Cords
    - TR Copper Patch Cords shall comply with those specified in 2.1 Work Area Subsystem, A. Patch Cords, 1. Category 6 Data Outlet Patch Cords
    - All patch cords will be delivered to the site and must be signed for by the Owner/Owner's Representative. It will be the responsibility of other to install all TR Data and Voice Patch Cords.
    - Color:
      - Data/Voice BLUE
      - Camera RED
    - Quantity: Contractor will provide one patch cord for every data and voice outlet cable shown on the drawings. Contractor will provide the quantity of different length patch cords as follows:
    - Part#:
      - Data/Voice Patch Cords
        - o 3-Foot HCL6B03
      - Camera Patch Cords
        - o 3-Foot HCL6R03
  - 2. Category 6A Wireless Access Points TR Patch Cords
    - TR Copper Patch Cords shall comply with those specified in 2.1 Work Area Subsystem, A. Patch Cords, 1. Category 6A Data Outlet Patch Cords
    - All patch cords will be delivered to the site and must be signed for by the Owner/Owner's Representative. It will be the responsibility of other to install all TR Data and Voice Patch Cords.
    - Color:
      - Wi-Fi PURPLE
    - Quantity: Contractor will provide one patch cord for every data and voice outlet cable shown on the drawings. Contractor will provide the quantity of different length patch cords as follows:
    - Part#:
      - Wi-Fi Patch Cords

o 3-Foot HCL6AP03

- 3. Fiber Patch Cords
  - Patch Cords shall be a Duplex LC to LC 50/125µm "Laser Optimize" Graded-Index Multimode Fiber Patch Cord.
  - All patch cords shall be factory polished and 100% optically tested for superior performance.
  - Cables shall have a Mated Pair MM Insertion Loss of less than 0.60 dB (0.25 dB Typical).
  - Cable Retention: > 25 pounds
  - All optical, mechanical and environmental performance shall meet and/or exceed the TIAEIA-568-B.3 specifications.
  - Fiber patch cords will be 1-meter long.
  - Color: NA
  - Quantity: Contractor will provide two fiber patch cords for every New fiber optic backbone cable run shown on the drawings.
  - Part#: DFRCLCLCF1MM
- C. Horizontal Cable Termination Equipment
  - 1. Modular Unloaded Patch Panels (Only 48-Port Patch Panels is Acceptable)
    - Panels shall be made of black anodized aluminum in 24-, 48-, and 96- port configurations.
    - Panels shall have modular jacks employing a tri-plane staggered contact array with a flat "hairpin" contact design made of Beryllium copper with a minimum 50-micro-inch gold plating on contact surfaces over 50-100 micro-inch of nickel compliant with FCC part 68.
    - Panels shall be equipped with 110-style termination made of fire retardant UL 94V0 rated thermoplastic and tin lead solder plated IDC.
    - Panels shall have optional rear cable support bar for strain relief. Cable support bar shall attach to the rear of the patch panel itself without the use of additional fasteners or screws.
    - Panels shall have self-adhesive, clear label holders and white designation labels provided with the panel for each row of 24 ports.
    - Panels shall provide wiring identification & color code and maintain an in-line, paired punch down sequence that does not require the splitting of conductors from individual cable pairs.
    - Panels shall terminate 22-26 AWG solid conductors, maximum insulated conductor outside diameter 0.050".
    - Panels shall be ANSI/TIA/EIA-568-B.1, B.2 and ISO/IEC 11801 category 6 compliant.
    - Panels shall be UL LISTED 1863 and CSA certified.
    - Panels shall be made by an ISO 9002 Certified Manufacturer.
    - Panels installed in a 4-connector channel with a category 6 modular jack, and category 6 patch cords, all from the same manufacturer, and a qualified category 6 cables shall meet or exceed the requirements of Draft 5 of the TIA UTP Systems Task Group PN3727, Category 6 Draft Addendum to the ANSI/TIA/EIA-568-B.2 standard.
    - Color: Patch Panel shall be BLACK
    - Quantity: See Drawing for quantity and installation details. The number of patch panels to be supplied shall be derived by multiplying the number of data/voice

cables being terminated at the individual TR by 1.25 and providing additional panels in the nearest 24 port increment.

- Part#:
  - 24 port Category Patch Panel, HWS14608C
  - 48 port Category Patch Panel, HWS14609C
    - \*Provide one Cable Management Bar, PN# PCBLMGT, for each 24 ports.
- D. Horizontal Voice & Intercom Cross-Connect 66 Wiring Blocks
  - 1. Wall Mount
    - Blocks shall be available in a 25 pair unit.
    - Blocks shall be wall mounted.
    - Wiring blocks shall be available as kits that include the wiring blocks, the proper number of connecting clips, wire management and label strips.
    - Blocks shall be constructed of a UL94 V0 rated polycarbonate blend.
    - Blocks shall be mounted to a rugged 16 ga steel distribution frame. Frame shall support the 66 blocks and allow for a through for cables to be routed through the rear of the blocks directly to the termination point.
    - Blocks shall be UL VERIFIED for TIA/EIA-568-B compliance.
    - Color: NA
    - Quantity: See Drawing for quantity and installation details.
    - Part#: 6 pair block, PN# HPW66B16
    - Part#: 25 pair block, PN# HPW66B425
    - Accessories to be provided with each installed 66 Block:
      - Mounting Bracket PN# HPW89D
- E. Backbone Cable Termination Equipment
  - 1. Fiber Optic Cassette
    - ETL Tested per TIA/EIA-568-C.3
    - MM Mated Pair Insertion Loss: <0.5dB (0.35dB typical)
    - Return Loss: <-35dB
    - Operating temperature: 0-70°C
    - Materials:
      - Connector ferrule: Zirconia ceramic
      - Connector body/nut: Nickel plated brass/zinc or polymer
    - Strain relief boot: Flame retardant (UL-Rated 94-V0) polymer
    - Color: Aqua
    - Quantity: See Drawing for quantity and installation details.
    - Part#: OCLC50G4CVI
- F. Copper Termination Panels
  - 1. Voice 110 Wiring Blocks
  - 2. Wall Mount

- Blocks shall be available in a 300-pair unit.
- Blocks shall be wall mounted.
- Wiring blocks shall be available as kits that include the wiring blocks, the proper number of 5 pair connecting clips, wire management and label strips.
- Blocks shall be constructed of a UL94 V0 rated polycarbonate blend.
- Blocks shall be mounted to a rugged 16 ga steel distribution frame. Frame shall support the 110 blocks and allow for a through for cables to be routed through the rear of the blocks directly to the termination point.
- Blocks shall be UL VERIFIED for TIA/EIA-568-B compliance.
- Color: NA
- Quantity: See Drawing for quantity and installation details. The number of 110 blocks to be supplied shall be derived by multiplying the number of voice/intercom cables being terminated at the individual TR by 1.25 and providing additional panels in the nearest 300 pair block increment.
- Part#: 300 pair block, PN# 110WMK
- 3. OSP Protection Panels
  - 110 connector input and output
  - wall or frame mountable
  - designed with an internal splice chamber and cover over incoming and outgoing connections and protection modules
  - stackable to allow for future service expansion
  - equipped with an internal fuse link
  - external ground connectors accept 6-14 AWG ground wire
  - accommodates industry standard 5 pin protection modules
  - designed to exceed the requirements set forth in Underwriters Laboratory's UL497
  - Color: NA
  - Quantity: One protection panel will be installed per IDF home run to the MDF. Protection panels are not required at the IDF side of the cable run.
- 4. Part#: Circa Enterprise inc. –
  25 pair block, PN# 1880ECA1-25
  50 pair block, PN# 1880ECA1-50
  100 pair block, PN# 1880ECA1-100
- G. Fiber Termination Panels
  - 1. MDF Rack Mount Fiber Panel
    - Panels shall be constructed of cold rolled 16 ga. steel with a black powder paint finish and provide for fully enclosed fiber patching and termination.
    - Panels shall have a removable smoked Plexiglas front cover with optional lock kit. The panel shall have a removable top, front and rear covers. The panel adapter tray shall be removable from the front of the panel by sliding the tray forward. Panels shall come with rack mounting brackets that allow it to be mounted with the front cover flush with the front of the rack, or with the front of the panel extended 5.0" in front of the rack.
    - Panels shall be 2 rack spaces, accepting 9 adapter panels.
    - Adapter panels shall be available with SC multimode adapters. Adapter shall have a zirconia alignment sleeve.
    - Panel shall have a splice tray mounting stud incorporated into the base for mounting of mechanical or fusion splice trays. Adapter tray shall have cable

management anchor points and come with cable anchors allowing for the maintenance of the incoming cable with the proper minimum bend radius.

- Panels shall have four cable entrance ports on the top and 2 on the bottom, which are covered by knock outs. Panels shall have two jumper ports in the bottom at the front of the panel with plastic dust covers for routing of jumpers.
- Color: Fiber Panel will be BLACK
- Quantity: See Drawing for quantity and installation details.
- Hubbell Premise Part #, or approved equal:
  - 4U Rack Mount Panel FCR4U15SPL
  - Insert Panels

• Blanks FSPB

- 2. IDF Rack Mount Fiber Panel
  - Panels shall be constructed of cold rolled 16-gauge steel with a black powder paint finish.
  - The panel shall have a hinged swing-out fiber drawer. Panels shall come with rack mounting brackets that allow it to be mounted on a 19" or 23" rack. Panel shall occupy no more than one rack space.
  - Panel shall be constructed to accept up to 3 adaptor panels.
  - Panels shall have cable entrance points in the rear, which are covered by knockouts
  - Color: Fiber Panel will be BLACK
  - Quantity: See Drawing for quantity and installation details.
  - Hubbell Premise Part #, or approved equal:
    - Rack Mount Panel
      - 0 1U Rack Mount PanelFCR1U3SPL
    - Insert Panels
      - o Blanks FSPB
- 3. IDF Wall Mount Fiber Panel
  - Panels shall be constructed of cold rolled 16-gauge steel with a black powder paint finish.
  - Panel shall be constructed to accept up to 1 adaptor panels.
  - Color: Fiber Panel will be BLACK
  - Quantity: See Drawing for quantity and installation details.
  - Corning Cabling System Part #, or approved equal:
    - Wall Mount Panel
      - Single Panel Housing SPH-01P
- H. Cabinets, Racks, and Enclosures
  - 1. Contractor will provide the following 'MDF/IDF' Cabinets, Racks, Enclosures and components based on the number of cables to that will be terminated:

# 1. <u>Floor Mount Cabinets</u>

- Width: 750.0mm 29.52" (19" EIA)
- Height: 1991.0mm 78.38" (42 RMU)
- Depth: 39"
- Color: Floor Mount Cabinet will be or BLACK
- Quantity: See Drawing for quantity and installation details.
- Part#: Floor Mount Cabinet
  - AR3150 NetShelter SX 42U
- Contractor to provide 3 for MDF
- 2. Floor Mount 2-post Racks
  - Overall dimensions of 86.0"H x 29.1" W x 18.6" D
  - Provides 45U x 19" W of mounting space
  - Channel or Trough Depth 3"
  - Rack shall provide High-density cable management fins provide an integrated vertical pathway for premise cabling and facilitate adherence to bend radius requirements
  - Features EIA-310-D, Universal spacing, threaded #12-24 mounting holes
  - Frame components are aluminum, while cable rings are an engineered polymer
  - Finished with black, powder coat paint
  - Supports 1,000 lb. [110 lb. maximum. per cable fin]
  - Color: BLACK
  - Quantity: See Drawing for quantity and installation details.
  - Part #'s:
    - 2-Post Rack HPW84RR19
    - Vertical Management VM820
- 3. Wall-Mounted Cabinets
  - Wall-mounted cabinets shall be manufactured from steel sheet.
  - Each cabinet will have a rear panel that attaches to the wall, a hinged cabinet body that swings open from the rear panel providing easy access to the rear of equipment and a locking front door.
  - The rear panel will provide cable access with pre-punched knockouts, up to 3", for conduit along the top and bottom edges of the panel. There will also be cutouts in the back of the rear panel so that cables can enter the panel through the wall. The rear panel will provide attachment points for accessory equipment mounting brackets and cable tie points within the panel (cabinet).
  - The cabinet body will include a single pair of vertical 19" EIA equipment mounting rails. The mounting rails will be EIA-310-D compliant with the Universal hole pattern. Mounting holes will have #12-24 threads.
  - Mounting rails will be adjustable in depth so that they can be positioned at any point within the cabinet body. The design of all cabinets will allow an additional pair of mounting rails (for a total of two pairs of mounting rails per cabinet) to be added to the cabinet.
  - The wall-mount cabinet shall provide a hinge design that attaches the cabinet body and the rear panel and allow the rear panel to be removed during installation. The hinge design will allow the cabinet body to open at least

 $90^{\circ}$ . The hasp used to secure the rear panel and the cabinet body together will assist in drawing the components together during the locking action.

- The cabinet body will include vents that are designed to accept fan kits.
- The front door will be hinged and locking. The front door and rear panel will be keyed alike. The front door will have rounded edges and corners. The cabinet body will allow the front door to be attached so that it will swing open from the right or left. The cabinet manufacture shall provide an option for a solid or a tinted plexi-glass window front door. The plexi-glass in doors shall be bronze acrylic (not clear) with a UL flammability classification of 94HB or better.
- Finish shall be epoxy-polyester hybrid powder coat (paint).
- The cabinet shall have the option of being delivered fully assembled. All cabinets will include installation hardware (hex lag screws) for wood studs and 50 each #12-24 equipment mounting screws.
- Load bearing capacity for cabinets that wall-mount will be a minimum of 200 pounds per cabinet.
- Cabinets that are wall-mount only will be certified and UL Listed to standard UL 60950 under category NWIN.
- Color: Wall Mount Cabinet will be White
- Quantity: See Drawing for size, quantity and installation details.
- Part#:
  - Hubbell RE4X
  - Great Lakes GL24WE-B-0
  - Great Lakes GL48WMCMM-B-SH-AF-CM
  - 11900-724 Chatsworth Cube-it
  - Accessories to be provided with each installed cabinet:

0	Sound Dampening Kit	REKS
0	Fan Kit	REKF
0	Fan Filter Kit	REKFF

- I. Telco Backboards
  - 1. Backboards shall be 4' x 8' x .75" void free plywood (ACX Plywood with the "A" side turned out).
  - 2. Sheets shall be but to size for the application intended.
  - 3. The plywood shall be painted with two coats of white fire-retardant paint.
    - Flame Stop III paint additive ASTM E-84, NFPA 255, UL 723
    - Add one pint of Flame Stop III and one pint of water to one gallon of latex-based paint.

#### Part 3 Execution

- 3.1 Installation
  - A. Work Area Outlets Installation
    - 1. No more than 12" of cable shall be stored in an outlet box, modular furniture raceway, or insulated walls.
    - 2. Bend radius of the cable in the termination area shall not be less than 4 times the outside diameter of the cable.

- 3. The cable jacket shall be maintained to within 12.7mm ( $\frac{1}{2}$  inch) of the termination point.
- 4. All UTP cables shall have no more than 12.7mm (½ inch) of pair untwist at the termination point.
- 5. Data jacks, unless otherwise noted in drawings, shall be located in the top position(s) of each faceplate. Data jacks in horizontally oriented faceplates shall occupy the left-most position(s).
- 6. Voice jacks, unless otherwise noted in drawings, shall occupy the next position(s) below the data on the faceplate. Voice jacks in horizontally oriented faceplates shall occupy the position left of the data jack.
- 7. Video jacks, unless otherwise noted in drawings, shall occupy the bottom position(s) on the faceplate. Video jacks in horizontally oriented faceplates shall occupy the position left of the data/voice jack.
- 8. All faceplates installed shall be level.
- 9. All outlets will be labeled according to the approved labeling scheme.
- 10. Each faceplate shall be machine labeled. The labeling shall be placed on the faceplate so that the individual jack can be clearly identified by its associated label.
- 11. Cables shall be identified by a self-adhesive label in accordance with the Identification and Labeling section of this specification and ANSI/TIA/EIA-606. The cable label shall be applied to the cable no further than 6" behind termination module, behind the faceplate on a section of cable that can be accessed by removing the cover plate.
- B. Horizontal Distribution Cable Installation
  - 1. Cable shall be installed in accordance with manufacturer's recommendations and best industry practices.
  - 2. Tie Wraps will not be allowed for supporting, bundling and/or dressing of any station cables on this project.
  - 3. Contractor will provide a three foot "service loop" for all station cables. The service loop will be coiled and secured using Velcro in the accessible ceiling at the conduit stub to the work area outlet box.
  - 4. A pull cord (nylon; 1/8" minimum) shall be co-installed with all cable installed in all "common" conduit runs. "Common" Conduit Runs are those that house more than one cable or set of cables that do not specifically feed a Work Station Outlet. Examples of "Common" Conduit Runs are: floor/ceiling penetrations, stub-throughs, distribution conduits, all conduits between J-boxes, etc.
  - 5. Cable raceways shall not be filled greater than the TIA/EIA-569-A maximum fill for the particular raceway type or 40%.
  - 6. Cables shall be installed in continuous lengths from origin to destination (no splices) except for transition points, or consolidation points.
  - 7. The cable's minimum bend radius and maximum pulling tension shall not be exceeded.
  - 8. Pulling tension on 4-pair UTP cables shall not exceed 25-lb for a four-pair UTP cable.
  - 9. The Cable Support System shall be installed in such away that will allow for future cables to be added and to provide sufficient protection of all cable.
  - 10. For all installs where station cables are not installed in a continuous conduit run the following guidelines will apply. The Contractor will be responsible to reinstall all cables and pathways that do not meet with the following at no additional cost to the Owner:
  - 11. J-hooks shall be installed to support all station cables every 4ft to 5ft.
  - 12. All pathways shall be run at right angles. No diagonal pathways will be allowed unless otherwise noted on the drawings.
  - 13. Horizontal cables shall be bundled in groups of no more than 25 cables per Cooper B-Line's BCH21 J-hook, no more than 40 cables per Cooper B-Line's BCH32 J-hook, and no more than 64 cables per Cooper B-Line's BCH64 J-hook.
  - 14. At no point shall cable(s) rest on acoustic ceiling grids, acoustic panels, or lighting fixtures.

- 15. All cables will be installed so that there is a minimum of 3" of clearance above all ceiling grid and tiles.
- 16. All cables will be installed so that there is a minimum of 12" of clearance above all florescent lighting.
- 17. All cables will be installed so that there is a minimum of 6" of clearance from all fire alarm and electrical system conduits.
- 18. Cables shall not be attached to the ceiling grid or lighting fixture wires. The contractor will provide their own carriers wires to support their horizontal cabling.
- 19. All cables shall be installed above fire-sprinkler systems and plumbing system fixtures and devises. Cables shall not be attached to or supported by these fixtures and/or their ancillary equipment or hardware.
- 20. The cable system and support hardware shall be installed so that it does not obscure any valves, fire alarm conduit, boxes, or other control devices.
- 21. Contractor is responsible for sealing around all cables that penetrate fire rated barriers.
- 22. Any cable damaged or exceeding recommended installation parameters during installation shall be replaced by the contractor prior to final acceptance at no cost to the Owner.
- C. Horizontal Cross-Connect Installation
  - 1. Cables shall be dressed and terminated in accordance with the recommendations made in the TIA/EIA-568-A standard, manufacturer's recommendations and best industry practices.
  - 2. The cable jacket shall be maintained to within 12.7mm ( $\frac{1}{2}$  inch) of the termination point.
  - 3. All UTP cables shall have no more than 12.7mm (½ inch) of pair untwist at the termination point.
  - 4. Bend radius of the cable in the termination area shall not exceed 4 times the outside diameter of the cable.
  - 5. All cables shall be neatly bundled and dressed continuously from the entrance point of the Telecommunications Room to their respective panels or blocks. Each panel or block shall be fed by an individual bundle separated and dressed back to the point of cable entrance into the rack or frame. Contractor will use Velcro strip to bundle cables together. The use of Tie –Wraps is not permitted.
  - 6. Each cable shall be clearly labeled on the cable jacket behind the patch panel at a location that can be viewed without removing the bundle support ties. Cables labeled within the bundle, where the label is obscured from view shall not be acceptable.
- D. Backbone Cable Installation
  - 1. Backbone cables shall be installed separately from horizontal distribution cables.
  - 2. Where possible the backbone and horizontal cables shall be installed in separate conduits.
  - 3. Where backbone cables and distribution cables are installed in a cable tray or wireway, backbone cables shall be installed first and bundled separately from the horizontal distribution cables.
  - 4. Pulling tension on Backbone cables shall not exceed the manufacture's limitations.
  - 5. The minimum bend radius for all Backbone cables is 16 times the cable diameter or the manufactures specification, whichever is greater.
  - 6. All OSP cables may not penetrate more than 50ft into the buildings before be terminated or splices to cable with a fire resistant jacket, unless the jacket is indoor/outdoor rated.
  - 7. A pull cord (nylon; 1/8" minimum) shall be co-installed with all cable installed in any conduit.
  - 8. A pull cord (nylon; 1/8" minimum) shall be installed with all empty OSP and Entrance Facility conduit.
  - 9. All backbone cables shall be securely fastened to the sidewall of the TR on each floor.

- 10. Backbone cables spanning more than three floors shall be securely attached at the top of the cable run with a wire mesh grip and on alternating floors or as required by local codes.
- 11. Vertical runs of cable shall be supported to messenger strand, cable ladder, or other method to provide proper support for the weight of the cable.
- 12. Large bundles of cables and/or heavy cables shall be attached using metal clamps and/or metal banding to support the cables.
- E. Backbone Cross-Connect Installation
  - 1. Cables shall be dressed and terminated in accordance with the recommendations made in the TIA/EIA-568-A document, manufacturer's recommendations and best industry practices.
  - 2. Bend radius of the cable in the termination area shall not exceed 16 times the outside diameter of the cable.
  - 3. All cables shall be neatly bundled and dressed continuously from the entrance point of the Telecommunications Room to their respective panels or blocks.
  - 4. Contractor will provide a minimum of a 3 foot "service loop" for each backbone cable before terminating to allow future rearrangement. Cables will be coiled and secured above the ceiling where possible or to the Telco Backboard where entrance point is from the floor.
  - 5. Wall mounted termination block fields shall be installed with the lowest edge of the mounting frame 18" from the finished floor.
  - 6. Contractor shall provide a machine label 1ft. to 2ft. from the entrance point of the TR and 6in. to 12in. from the termination point on each backbone cable. Cable shall be easily identified and fully legible without removing the bundle support ties.
- F. Cabinets, Racks, Enclosures and Ladder Rack Installation
  - 1. Wall Mount Racks/Cabinets shall be securely attached to the Telco Backboard using minimum 3/8" hardware or as required by local codes.
  - 2. Floor Mount Racks/Cabinets shall be securely attached to the concrete floor using minimum 3/8" drop-in anchor hardware or as required by local codes.
  - 3. All Floor Mount Racks/Cabinets will be either; secured on one side to the wall or attached to the closest wall with ladder rack.
  - 4. All Racks/Cabinets shall be braced to meet Zone 4 seismic requirements.
  - 5. Contractor will maintain a minimum of 36 inches of clearance from the front of the all rack/cabinets and all other obstructions.
  - 6. Floor Mount Racks/Cabinets shall be installed to allow for a minimum of 36" from rear and all other obstructions.
  - 7. All racks shall be grounded to the telecommunications ground bus bar.
  - 8. Rack mount screws not used for installing patch panels and other hardware shall be bagged and left with the rack upon completion of the installation.
  - 9. The plywood bottom edge shall be mounted vertically no less than 12" above the finished floor.
  - 10. Contractor will provide all cutouts for the Electrical Contractors expansion rings and electric receptacles as shown on the drawings.
  - 11. Ladder Rack must be securely attached to walls, backboards, and racks/cabinets to comply with all Zone 4 seismic requirements.
  - 12. Ladder rack shall be installed so that there is a minimum of 8" of unobstructed clearance above rack.
  - 13. Ladder Rack shall be installed so that there is a minimum of 12" of clearance from all: florescent lighting, electrical conduits/circuits, and fire alarm conduits/devices.

- 3.2 Identification and Labeling
  - A. General Requirements
    - 1. The contractor shall develop and submit for approval a labeling system for the cable installation. The Owner will negotiate an appropriate labeling scheme with the successful contractor.
    - 2. The approved system will comply with the TIA/EIA -606-A Class 2 designations and include at a minimum, identifiers for all major components of the system: telecommunication rooms, grounding bus bars, racks, cables, panels and outlets. The labeling system shall designate the cables origin and destination and a unique identifier for the cable within the system. Racks and patch panels shall be labeled to identify the location within the cable system infrastructure.
    - 3. All label printing will be machine generated or hand-held printers using indelible ink ribbons or cartridges. Self-laminating labels will be used on cable jackets, appropriately sized to the OD of the cable, and placed within view at the termination point on each end. Outlet, patch panel and wiring block labels shall be installed on, or in, the space provided on the device.
    - 4. All labeling information shall be recorded on the as-built drawings and all test documents shall reflect the appropriate labeling scheme.
- 3.3 Testing and Acceptance
  - A. General
    - 1. All cables and termination hardware shall be 100% tested for defects in installation and to verify cabling system performance under installed conditions according to the requirements of ANSI/TIA/EIA-568-A Addendum 5, TSB-67 and TSB-95. All pairs of each installed cable shall be verified prior to system acceptance. Any defect in the cabling system installation including but not limited to cable, connectors, feed through couplers, patch panels, and connector blocks shall be repaired or replaced in order to ensure 100% useable conductors in all cables installed.
    - 2. All cables shall be tested in accordance with this document, the ANSI/TIA/EIA standards, the Manufacturer's Warranty guidelines and best industry practice. If any of these are in conflict, the Contractor shall bring any discrepancies to the attention of the project team for clarification and resolution.
    - 3. Contractor will notify the Owner/Owner's Representative 72 hours before commencement of testing.
    - 4. Upon receipt of the test documentation, the Customer reserves the right to have the contractor perform a 10% witnessed "spot testing" of the cabling system to validate test results provided in the test document, at no additional cost. If a significant amount of cables are marginal and/or fail during the "spot test" Contractor will retest the entire cable plant at no additional cost.
  - B. Copper Cable Testing
    - 1. Twisted Pair Cable
      - All twisted-pair copper cable links (including backbone cables) shall be tested for continuity, pair reversals, shorts, opens and performance as indicated below.
      - Continuity Each pair of each installed cable shall be tested using a test unit that shows opens, shorts, polarity and pair-reversals, crossed pairs and split pairs. Shielded/screened cables shall be tested with a device that verifies shield continuity in addition to the above stated tests. The test shall be recorded as pass/fail as

indicated by the test unit in accordance with the manufacturers' recommended procedures, and referenced to the appropriate cable identification number and circuit or pair number. Any faults in the wiring shall be corrected and the cable retested prior to final acceptance.

- Length Each installed cable link shall be tested for installed length using a TDR type device. The cables shall be tested from patch panel to patch panel, block to block, patch panel to outlet or block to outlet as appropriate. The cable length shall conform to the maximum distances set forth in the ANSI/TIA/EIA-568-A Standard. Cable lengths shall be recorded, referencing the cable identification number and circuit or pair number. For multi-pair cables, the shortest pair length shall be recorded as the length for the cable.
- 2. Category 6 Performance
  - Follow the Standards requirements established in:
    - ANSI/TIA/EIA-568-A -TSB-67
    - Wire Map
    - Length
    - Attenuation
    - NEXT (Near end crosstalk)
    - • ANSI/TIA/EIA-568-A -TSB-95
    - Return Loss
    - ELFEXT Loss
    - Propagation Delay
    - Delay skew
    - $\circ$  · ANSI/TIA/EIA-568-A, Amendment 5.
    - PSNEXT (Power sum near-end crosstalk loss)
    - PSELFEXT (Power sum equal level far-end crosstalk loss)
  - A Level III or better test unit is required to verify category 6 performances and must be updated to include the requirements of TSB-95 and Amendment 5. Testers will be equal to Fluke Network's DXT CableAnalyzer<sup>™</sup> Series.
  - All testers shall have been recalibrated with 6 months of use on this project. Contractor will be asked to provide proof of recalibration.
  - Test results shall be automatically evaluated by the equipment, using the most upto-date criteria from the TIA/EIA Standard, and the result shown as pass/fail. The approved Level Three tester shall provide a printed document for each test that is also available in a downloadable file using an application from the test equipment manufacturer. The printed test results shall include a print out of all tests performed, and the individual test results for each cable.
- C. Fiber Optic Cable Testing
  - 1. 50/125µ Backbone Fiber
    - Each fiber strand shall be tested for attenuation with an Optical Power Meter and light source and with an Optical Time Domain Reflectometer (OTDR) for actual length and splice/connector loss. Cable length shall be verified using sheath markings. The guidelines and procedures established for Tier 1 testing in TIA/TSB-140 shall apply.
    - All fiber optic cables shall be tested from the site's MDF to each fiber terminals located in the IDF. The results of OTDR testing to define the length of each riser cable shall be documented. The Contractor shall conduct a power meter (loss) test

of each fiber optic station and riser cable at both wavelengths, 850/1300nm for MM and 1310/1550nm for SM, A to B, B to A, and OSPL (OSPL is defined as La + Lb). No individual station or riser fiber link segment (including connectors) shall measure more than 2.0 dB loss. Tests shall be conducted using ANSI/EIA/TIA/EIA-526-14A, Method B. Test results evaluation for the panel to panel (backbone) shall be based on the values set forth in ANSI/TIA/EIA-568-B.1.The Contractor shall provide an electronic printout for each strand tested with the Power Meter and the OTDR.

- Where concatenated links are installed to complete a circuit between devices, the Contractor shall test each link from end to end to ensure the performance of the system. After the link performance test has been successfully completed, each link shall be concatenated and tested. The test method shall be the same used for the test described above. The evaluation criteria shall be established between the Owner and the Contractor prior to the start of the test.
- All installed cables must meet or exceed the defined standards for performance. The Contractor shall take all steps necessary to repair or replace any optic not meeting the standard.
- Fiber optic riser and station cable test results shall be provided in electronic format to the Owner.
- 3.4 System Closeout and As-built Documentation
  - A. General Requirements
    - 1. Upon completion of the installation, the telecommunications contractor shall provide three (3) full documentation sets to the Owner's Representative/Engineer for approval. One (1) to be a hardcopy and two (2) to be electronic copies. Documentation shall include the items detailed in the sub-sections below.
    - 2. Documentation shall be submitted within ten (10) working days of the completion of each testing phase. This is inclusive of all test results and draft as-built drawings. Draft drawings may include annotations done by hand. Machine generated (final) copies of all drawings shall be submitted within 30 calendar days of the completion of each testing phase. At the request of the Owner's Representative/Engineer, the telecommunications contractor shall provide copies of the original test results.
    - 3. The Owner's Representative/Engineer will request that a 10% random field re-test be conducted on the cable system, at no additional cost, to verify documented findings. Tests shall be a repeat of those defined above. If findings contradict the documentation submitted by the telecommunications contractor, additional testing can be requested to the extent determined necessary by the Engineer, including a 100% re-test. This re-test shall be at no additional cost to the Owner.
    - 4. Test Results documentation shall be provided in two media, as listed above, one (1) hardcopy and one (1) on disk within three weeks after the completion of the project. The documentation shall be clearly marked on the outside front cover with the words "Project Test Documentation", the project name, and the date of completion (month and year). The results shall include a record of test frequencies, cable type, conductor pair and cable (or outlet) I.D., measurement direction, reference setup, and crew member name(s). The test equipment name, manufacturer, model number, serial number, software version and last calibration date will also be provided at the end of the document. Unless the manufacturer specifies a more frequent calibration cycle, an bi-annual calibration cycle is anticipated on all test equipment used for this installation. The test document shall detail the test method used and the specific settings of the equipment during the test as well as the software version being used in the field test equipment.
    - 5. Printouts generated for each cable by the wire test instrument shall be submitted as part of the documentation package.

- 6. When repairs and re-tests are performed, the problem found and corrective action taken shall be noted, and both the failed and passed test data shall be documented.
- 7. The As-Built drawings are to include cable routes, outlet locations and the approved labeling identifiers. Their sequential number as defined elsewhere in this document shall identify outlet locations. Numbering, icons, and drawing conventions used shall be consistent throughout all documentation provided. The Owner will provide floor plans in paper and electronic (DWG, AutoCAD 2008) formats on which as-built construction information can be added. These documents will be modified accordingly by the telecommunications contractor to denote as-built information as defined above and returned to the Owner.
- 8. Contractor will provide one laminated 11"x17" drawing at each IDF that includes the building layout for that IDF, along with the outlet locations and all of the approved labeling.

END OF SECTION

↓       DESIGN ELEVATION         ±SISTING ELEVATION       EXISTING ELEVATION         1.5%       DESIGN GRADE         S       PROPOSED SEWER MAIN         W       PROPOSED SEWER CLEANOUT         M       PROPOSED STORM DRAIN         PROPOSED STORM DRAIN       PROPOSED STORM DRAIN         PROPOSED STORM DRAIN INLET       EXISTING CHAIN-LINK FENCE         C       PROPOSED STORM DRAIN         PROPOSED STORM DRAIN INLET       EXISTING CHAIN-LINK FENCE         C       EXISTING CHAIN-LINK FENCE         C       EXISTING BLECTRICAL VAULT         III       EXISTING CHAIN-LINK FENCE         C       EXISTING WROUGHT IRON FENCE         EXISTING WROUGHT IRON FENCE       EXISTING WROUGHT IRON FENCE         IIII EXISTING KURGHTIRON CONTROL VAU       IIII EXISTING KATER VALVE         ©       EXISTING WATER VALVE         ©       EXISTING SEWER CLEAN-OUT         IIII EXISTING KATER VALVE       IIII EXISTING SURFACE         IIII EXISTING STORM DRAIN LINE       EXISTING GRADE        XSD       EXISTING STORM DRAIN LINE         ABBREVIATIONS       EX         EX       EXISTING STORM DRAIN LINE         ABBREVIATIONS       EX         FF       FINISHED SURFACE	LEGEND:	
1.5%       EXISTING ELEVATION         1.5%       DESIGN GRADE         S       PROPOSED SEWER MAIN         W       PROPOSED WATER LINE         ©       PROPOSED WATER VALVE         PROPOSED WATER VALVE       PROPOSED STORM DRAIN         N       EXISTING CHAIN-LINK FENCE         S       EXISTING WROUGHT IRON FENCE         EXISTING WROUGHT IRON FENCE       EXISTING WATER VALVE         ©       EXISTING IRGATION CONTROL VAL         ®       EXISTING IRGATION CONTROL VAL         ®       EXISTING SEWER CLEAN-OUT         \$\phi_SENSTING LIGHT STANDARD       EXISTING SEWER CLEAN-OUT         \$\phi_SENSTING SEWER LINE       EXISTING GRADE         \$       EXISTING SEWER LINE         \$       EXISTING SEWER LINE         \$       EXIS	XXESC	DESIGN ELEVATION
1.5%       DESIGN GRADE         S       PROPOSED SEWER MAIN         W       PROPOSED SEWER CLEANOUT         PROPOSED WATER VALVE       PROPOSED STORM DRAIN         PROPOSED STORM DRAIN       PROPOSED STORM DRAIN INLET         X       EXISTING CHAIN-LINK FENCE         EXISTING CHAIN-LINK FENCE       EXISTING WOUGHT IRON FENCE         EXISTING UGHT BOX       EXISTING LIGHT BOX         Image: String Water Valve       Image: String Chain Control Val         Image: String Water Valve       Image: String Control Control Val         Image: String Water Valve       Image: String Control Control Val         Image: String Water Valve       Image: String Control With Elevation         Image: String Contour With Elevation       String Contour With Elevation         Image: String Contour With Elevation       String Contour With Elevation         Image: String Contour With Elevation       String Storm Drain Line         Image: String Contour With Elevation       String Storm Drain Line         Image: String Contour With Elevation       String Storm Drain Line         Image: String Contour With Elevation       String Storm Drain Line         Image: String Contour With Elevation       String Storm Drain Line         Image: String Contour Control Contour       String Storm Drain Line         Image: String Cont		EXISTING ELEVATION
S       PROPOSED SEWER MAIN         W       PROPOSED SEWER CLEANOUT         PROPOSED SEWER CLEANOUT         PROPOSED WATER VALVE         PROPOSED STORM DRAIN         N       PROPOSED STORM DRAIN         PROPOSED STORM DRAIN         PROPOSED STORM DRAIN         NE       PROPOSED STORM DRAIN         NE       PROPOSED STORM DRAIN         NE       EXISTING CHAIN-LINK FENCE         X       EXISTING WAUGHT IRON FENCE         X       EXISTING KELECTRICAL VAULT         III       EXISTING KATER VALVE         ©       EXISTING UGHT BOX         IIII EXISTING WATER VALVE       ©         EXISTING WATER VALVE       ©         EXISTING SEWER CLEAN-OUT       ☆         X       EXISTING SEWER CLEAN-OUT         X       EXISTING CONTOUR WITH ELEVATION         X       EXISTING CONTOUR WITH ELEVATION         X       EXISTING CONTOUR WITH ELEVATION         X       EXISTING GRADE        XS       EXISTING STORM DRAIN LINE         ABBREVIATIONS       EXISTING STORM DRAIN LINE         EX       EXISTING GRADE         FF       FINISHED GROUND         FS       FINISHED GROUND         FS <th>* <u>1.5%</u></th> <th>DESIGN GRADE</th>	* <u>1.5%</u>	DESIGN GRADE
W       PROPOSED       WATER LINE         Image: Construct of the second service of the second service of the	s	PROPOSED SEWER MAIN
<ul> <li>PROPOSED SEWER CLEANOUT</li> <li>PROPOSED WATER VALVE</li> <li>PROPOSED STORM DRAIN</li> <li>PROPOSED STORM DRAIN INLET</li> <li>X—X—X— EXISTING CHAIN—LINK FENCE</li> <li>EXISTING WROUGHT IRON FENCE</li> <li>EXISTING BELECTRICAL VAULT</li> <li>EXISTING LIGHT BOX</li> <li>W EXISTING LIGHT BOX</li> <li>W EXISTING WATER VALVE</li> <li>EXISTING WATER VALVE</li> <li>EXISTING SEWER CLEAN—OUT</li> <li>EXISTING LIGHT STANDARD</li> <li>EXISTING SIGN</li> <li>EXISTING SIGN</li> <li>EXISTING CONTOUR WITH ELEVATIO</li> <li>× №</li> <li>EXISTING GRADE</li> <li>X=XX</li> <li>X=0.0</li> <li>EXISTING STORM DRAIN LINE</li> <li>ABBREVIATIONS</li> <li>EX</li> <li>EX</li> <li>EXISTING STORM DRAIN LINE</li> <li>ABBREVIATIONS</li> <li>EX</li> <li>EX</li> <li>EXISTING STORM DRAIN LINE</li> <li>ABBREVIATIONS</li> <li>EX</li> <li>EX</li> <li>EX</li> <li>EXISTING STORM DRAIN LINE</li> </ul>	—— w ——	PROPOSED WATER LINE
<ul> <li>PROPOSED WATER VALVE</li> <li>PROPOSED STORM DRAIN</li> <li>PROPOSED STORM DRAIN INLET</li> <li>PROPOSED STORM DRAIN INLET</li> <li>PROPOSED STORM DRAIN INLET</li> <li>EXISTING CHAIN-LINK FENCE</li> <li>EXISTING CHAIN-LINK FENCE</li> <li>EXISTING WROUGHT IRON FENCE</li> <li>EXISTING ELECTRICAL VAULT</li> <li>EXISTING ELECTRICAL VAULT</li> <li>EXISTING LIGHT BOX</li> <li>EXISTING LIGHT BOX</li> <li>EXISTING KATER VALVE</li> <li>EXISTING SEWER CLEAN-OUT</li> <li>EXISTING SEWER CLEAN-OUT</li> <li>EXISTING SIGN</li> <li>EXISTING SIGN</li> <li>EXISTING TREE (SIZE VARIES)</li> <li>EXISTING SIGN</li> <li>EXISTING CONTOUR WITH ELEVATION</li> <li>Seven EXISTING GRADE</li> <li>XSD</li> <li>EXISTING SEWER LINE</li> <li>XSD</li> <li>EXISTING STORM DRAIN LINE</li> <li>ABBRE VIATIONS</li> <li>EX EXISTING GROUND</li> <li>FG FINISHED GROUND</li> <li>FS FINISHED SURFACE</li> <li>FP FINISHED FLOOR</li> <li>NG or OG NATURAL/ORIGINAL GROUND</li> <li>EP EDGE OF ASPHALT PAVEMENT</li> <li>AGGREGATE BASE</li> <li>FL FLOWLINE</li> <li>GB GRADE BREAK</li> <li>TOG TOP OF CONCRETE</li> <li>CONC CONCRETE</li> <li>BW BACK OF SIDEWALK</li> <li>TC TOP OF CONCRETE</li> <li>CONC CONCRETE</li> <li>BW BACK OF SIDEWALK</li> <li>TC TOP OF CONCRETE</li> <li>CONC CONCRETE</li> <li>BW BACK OF SIDEWALK</li> <li>TC TOP OF CONCRETE</li> <li>CONC CONCRETE</li> <li>MIN MINIMUM</li> <li>MYN MINIMUM</li> </ul>	©	PROPOSED SEWER CLEANOUT
Image: String of the strin	<b>M</b>	PROPOSED WATER VALVE
<ul> <li>X EXISTING CHAIN-LINK FENCE</li> <li>EXISTING CHAIN-LINK FENCE</li> <li>EXISTING WROUGHT IRON FENCE</li> <li>EXISTING ELECTRICAL VAULT</li> <li>EXISTING ELECTRICAL VAULT</li> <li>EXISTING LIGHT BOX</li> <li>EXISTING LIGHT BOX</li> <li>EXISTING SEWER VALVE</li> <li>EXISTING SEWER CLEAN-OUT</li> <li>EXISTING SEWER CLEAN-OUT</li> <li>EXISTING SEWER CLEAN-OUT</li> <li>EXISTING LIGHT STANDARD</li> <li>EXISTING SIGN</li> <li>EXISTING CONTOUR WITH ELEVATIO</li> <li>Statistic Contour With ELEVATIO</li> <li>Statistic Contour With ELEVATIO</li> <li>Statistic Contour With ELEVATIO</li> <li>Statistic Contour With ELEVATIO</li> <li>EXISTING SEWER LINE</li> <li>XS</li> <li>EXISTING STORM DRAIN LINE</li> </ul> ABBREVIATIONS EX <ul> <li>EX</li> <li>EXISTING STORM DRAIN LINE</li> </ul> ABBREVIATIONS EX <ul> <li>EX</li> <li>EXISTING CONDUND</li> <li>FS</li> <li>FINISHED GROUND</li> <li>FS</li> <li>FINISHED SURFACE</li> <li>FP</li> <li>FINISHED FLOOR</li> <li>NG or OG</li> <li>NATURAL/ORGINAL GROUND</li> <li>EP</li> <li>EDGE OF ASPHALT PAVEMENT</li> <li>AC</li> <li>TOP OF CONCRETE</li> <li>CONC</li> <li>CONCRETE</li> <li>BW</li> <li>BACK OF SIDEWALK</li> <li>TC</li> <li>TOP OF CURB</li> <li>ON THIS SHEET</li> <li>MAX</li> <li>MAXIMUM</li> <li>MIN</li> <li>MINIMUM</li> <li>MIN&lt;</li></ul>		PROPOSED STORM DRAIN PROPOSED STORM DRAIN INLET
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Image: Construct of the second se	$\bowtie$	EXISTING ELECTRICAL VAULT
Image: Second	LT	EXISTING LIGHT BOX
<ul> <li>EXISTING WATER VALVE</li> <li>EXISTING SEWER CLEAN-OUT</li> <li>EXISTING LIGHT STANDARD</li> <li>EXISTING SIGN</li> <li>EXISTING SIGN</li> <li>EXISTING TREE (SIZE VARIES)</li> <li>EXISTING CONTOUR WITH ELEVATION</li> <li>EXISTING GRADE</li> <li>EXISTING GRADE</li> <li>X=XS</li> <li>EXISTING SEWER LINE</li> <li>XS</li> <li>EXISTING WATER LINE</li> <li>XS</li> <li>EXISTING WATER LINE</li> <li>XSD</li> <li>EXISTING STORM DRAIN LINE</li> <li>ABBREVIATIONS</li> <li>EX</li> <li>EX</li> <li>EXISTING FG</li> <li>FINISHED SURFACE</li> <li>FP</li> <li>FINISHED FLOOR</li> <li>NG or OG</li> <li>NATURAL/ORIGINAL GROUND</li> <li>FS</li> <li>FINISHED FLOOR</li> <li>NG or OG</li> <li>NATURAL/ORIGINAL GROUND</li> <li>EP</li> <li>EDE OF ASPHALT PAVEMENT</li> <li>AC</li> <li>TOP OF ASPHALT PAVEMENT</li> <li>AGGREGATE BASE</li> <li>FL</li> <li>FLOWLINE</li> <li>GB</li> <li>GRADE BREAK</li> <li>TOG</li> <li>TOP OF CONCRETE</li> <li>CONC</li> <li>CONCRETE</li> <li>BW</li> <li>BACK OF SIDEWALK</li> <li>TC</li> <li>TOP OF CONCRETE</li> <li>CONC</li> <li>CONCRETE</li> <li>BW</li> <li>BACK OF SIDEWALK</li> <li>TC</li> <li>TOP OF CURB</li> <li>ON THIS SHEET</li> <li>MAX</li> <li>MAXIMUM</li> <li>MIN</li> <li>MINIMUM</li> <li>TYP</li> <li>TYPICAL</li> <li>EL or ELEV</li> <li>ELEVATION</li> <li>BDRY</li> <li>BOUNDARY</li> <li>EA</li> <li>EACH</li> <li>ESMT</li> <li>EASEMENT</li> <li>RW</li> <li>RIGHT-OF-WAY</li> <li>SD</li> <li>STORM DRAIN</li> <li>CB</li> <li>CATCH BASIN</li> <li>SWR</li> <li>SANITARY SEWER</li> <li>MH</li> <li>MANHOLE</li> <li>WTR</li> <li>WTR</li> </ul>	$\mathbb{RR} \& \mathbb{R}$	EXISTING IRRIGATION CONTROL VALV
© EXISTING SEWER CLEAN-OUT EXISTING LIGHT STANDARD EXISTING SIGN EXISTING TREE (SIZE VARIES) EXISTING CONTOUR WITH ELEVATIC SB900 EXISTING CONTOUR WITH ELEVATIC SB900 EXISTING GRADE 	(W)	EXISTING WATER VALVE
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	XS	EXISTING SEWER LINE
xsd       Existing Storm drain line         ABBRE VIATIONS         Ex       Existing         FG       Finished ground         FS       Finished surface         FP       Finished Floor         NG or OG       NATURAL/ORIGINAL GROUND         EP       EDGE OF ASPHALT PAVEMENT         AC       TOP OF ASPHALT PAVEMENT         AC       TOP OF ASPHALT PAVEMENT         AC       TOP OF GRATE         TOG       TOP OF GRATE         TOC       TOP OF CONCRETE         CONC       CONCRETE         BW       BACK OF SIDEWALK         TC       TOP OF CURB         ~       ON THIS SHEET         MAX       MAXIMUM         MIN       MINIMUM         TYP       TYPICAL         EL or ELEV       ELEVATION         BDRY       BOUNDARY         EA       EACH         ESMT       EASEMENT         RW       RIGHT-OF-WAY         SD       STORM DRAIN         CB       CATCH BASIN         SWR       SANITARY SEWER         MH       MANHOLE         WTR       WTR	— — — XW— — —	EXISTING WATER LINE
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# GRADING CONSTRUCTION NOTES

- 1 CONSTRUCT 4" MIN. CONCRETE SIDEWALK/FLATWORK, REFER TO ARCHITECT'S PLAN FOR DIMENSIONS NOT SHOWN. COMPACT 6" MIN. SUB-GRADE TO 90% MAX DENSITY.
- 2 DAYLIGHT LINE, SLOPE TO MATCH EXISTING GROUND.

03/14/23 03/14/23

ADDENDUM 1



03/14/23









TING LEGEND		LANDSCAPE NOTES	
EES: STACIA CHINENSIS 'KEITH DAVEY' IINESE PISTACHE (24" BOX) DICATES ROOT BARRIER INSTALLATION IN IIS LOCATION. REFER TO INSTALLATION STAIL #02 ON PLAN SHEET L1.03.	1.	IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE IF IT IS OBVIOUS THAT OBSTRUCTIONS OR STRUCTURES, IRRIGATION SYSTEM MALFUNCTION, EXISTING TREES OR OTHER PLANT MATERIAL, GRADE DIFFERENCES, OR CHANGES IN THE SITE PLAN ARE PRESENT THAT WILL IMPACT THE PLANTING DESIGN. FAILURE TO GIVE SUCH NOTIFICATION SHALL PLACE THE RESPONSIBILITY ON THE CONTRACTOR FOR ANY REVISIONS OR REPLACEMENTS NECESSARY FOR CORRECTION.	
IRUBS: ROPETALUM CHINENSE 'JAZZ HANDS' HINESE FRINGE FLOWER' (5 GAL.) UMBAGO AURICULATA 'ROYAL CAPE'	2.	PLANT QUANTITIES ARE NOT SHOWN. THE CONTRACTOR SHALL VERIFY ALL QUANTITIES SHOWN ON PLAN PRIOR TO BIDDING. THE CONTRACTOR SHALL PROVIDE SUFFICIENT QUANTITIES OF PLANTS EQUAL TO THE SYMBOL COUNT OR TO FILL THE AREAS SHOWN ON THE PLAN AT THE SPECIFIED SPACING LISTED IN THE PLANT LIST.	Owner:
LAYER OF TAN / GOLD COLOR COMPOSED GRANITE MULCH. COMPOSED GRANITE MULCH TO BE ACED UNDER ALL DESIGNATED LANDSCAPE REAS AND WHERE SHOWN ON PLAN. REFER INSTALLATION DETAILS #01 AND #03 ON AN SHEET L1.03.	3.	ALL TREE AND SHRUB SPECIMENS ALLOCATED FOR INSTALLATION SHALL BE OF 'CLASS A' QUALITY, FREE OF PESTS, DISEASE, AND / OR DAMAGE, AND SHALL BE WELL ESTABLISHED IN THEIR CONTAINERS WITHOUT ANY GIRDLING ROOTS OR EXCESSIVE TOP GROWTH. ALL PLANT MATERIAL INTENDED FOR INSTALLATION SHALL COMPLY WITH THE REQUIREMENTS OF THE "AMERICAN STANDARDS FOR NURSERY STOCK" (ANSI Z60.1).	BAKERSFIELD
X OF 75% BERMUDA & 25% PERENNIAL 'EGRASS (SEED) PER DISTRICT AND 'ECIFICATIONS.	4.	THE CONTRACTOR SHALL PRUNE NEW TREES ONLY WHEN SPECIFICALLY DIRECTED BY THE ARCHITECT. TREES SHALL BE REJECTED WITHOUT ADEQUATE BRANCH STRUCTURE, IN POOR HEALTH, OR IN ROOT-BOUND CONTAINERS.	CITY SCHOOL DISTRICT
ISTING TREE TO REMAIN. PROTECT IN ACE DURING CONSTRUCTION.	5.	NOTIFY THE ARCHITECT PRIOR TO THE INSTALLATION OF IRRIGATION COMPONENTS AND LANDSCAPE PLANTING FOR APPROVAL OF LAYOUT AND PLANT SPECIMEN QUALITY. PLANT LOCATIONS SHALL BE ADJUSTED PER THE ARCHITECT'S DIRECTION TO AVOID CONFLICTS WITH EXISTING IMPROVEMENTS, EXISTING PLANT MATERIAL, UTILITIES, LIGHT POLES, OR TO MEET THE DESIGN INTENT. DO NOT PLANT TREES WITHIN 15 FEET OF LIGHT POLES UNLESS SPECIFICALLY AUTHORIZED. FAILURE TO OBTAIN SUCH APPROVAL SHALL PLACE THE RESPONSIBILITY ON THE CONTRACTOR FOR ANY RELOCATION OR REPLACEMENT OF IRRIGATION COMPONENTS AND / OR NEW PLANT MATERIAL.	1300 BAKER ST BAKERSFIELD, CA 93305 Project Name: <b>PARENT CENTER</b>
	6.	INSTALLATION OF ALL TREES AND SHRUBS SHALL BE SPACED AND INSTALLED IN ACCORDANCE WITH COMMON NURSERY LANDSCAPE STANDARDS.	Project Address:
	7.	ALL TREES LOCATED WITHIN 10 FEET OF PAVEMENT OR STRUCTURES SHALL HAVE A ROOT CONTROL BARRIER INSTALLED WHEN PLANTED. UNLESS OTHERWISE SPECIFIED, INSTALL A 16 FOOT LONG x 24 INCH DEEP LINEAR POLYETHYLENE BARRIER AT THE EDGE OF PAVEMENT / STRUCTURES, CENTERED ON THE TREE TRUNK.	PARENT CENTER
	8.	AFTER TREE STAKING OR GUYING IS COMPLETED, REMOVE NURSERY STAKES FROM TREES.	1100 Citadel, Bakersfield, CA 93307
	9.	INSTALL PERFORATED POLYETHYLENE TREE TRUNK PROTECTORS FOR ALL NEW TREES PLANTED IN TURF AREAS. UNLESS NOTED OTHERWISE, MAINTAIN A MINIMUM FOUR FOOT (4') DIAMETER MULCHED AREA AT THE BASE OF THE TREE INSIDE THE WATERING BASIN.	
	10.	PRIOR TO SOIL CONDITIONING, RIP IN FOUR DIFFERENT DIRECTIONS WITH TINES AT 12 INCH SPACING, ALL TURF AREAS TO A 12 INCH DEPTH, AND SHRUB AREAS TO A 18 INCH DEPTH. ROUGH GRADE AND TILL THE APPROVED SOIL CONDITIONERS AND FERTILIZERS INTO THE TOP 6 INCHES (6").	
	11.	UPON THE COMPLETION OF THE SOIL CONDITIONING, REMOVE ROCKS AND CLODS ONE INCH (1") DIAMETER AND GREATER FROM THE TOP TWO INCHES (2") OF TOPSOIL, AND ALL DEBRIS. FINISH GRADE THE AREA TO +/- 0.05 FOOT TOLERANCE. RELATIVE DENSITY OF THE TOPSOIL SHALL NOT EXCEED 85% COMPACTION.	<b>integrated</b> <b>designs</b> by SOMAM. Inc.
	12.	OBTAIN THE APPROVAL OF THE OWNER'S REPRESENTATIVE TO BEGIN PLANTING OPERATIONS ONCE THE IRRIGATION SYSTEM IS PRESSURE TESTED AND OPERATIONAL, AND THE SOIL CONDITIONING AND FINISH GRADING IS COMPLETED.	
	13.	INSTALL A THREE INCH (3") DEPTH OF THE SPECIFIED DECOMPOSED GRANITE MULCH IN ALL PLANTING AREAS EXCEPT FOR TURF AREAS, SLOPES 3H:1V OR GREATER, AREAS TO RECEIVE SEED PLANTING, OR AS NOTED ON THE DI ANI	ENGINEERING INTERIOR DESIGN
	14.	CONTRACTOR SHALL SUSTAIN NEW PLANTING FOR HEALTHY AND VIGOROUS GROWTH, WHICH INCLUDES BUT IS NOT LIMITED TO WATERING, WEEDING, FERTILIZING, MOWING AND EDGING (AT LEAST ONCE A WEEK), REMOVING TRASH AND DEBRIS, AND OTHER RELATED ACTIVITIES THROUGHOUT THE DURATION OF THE MAINTENANCE PERIOD UNTIL FINAL ACCEPTANCE BY OWNER.	6011 N. FRESNO STREET, SUITE 130 FRESNO CALIFORNIA 93710 P:(559) 436-0881 F:(559) 436-0887 E: design@somam.com integrateddesigns.com
			Ownership of Documents
			Stamp:



LANDSCAPE PLAN Job No.: 5528 Sheet No .: L1.01 Release: ADDENDUM 1/1

11/22/24




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IRRIGATION CONTROL

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)	IRRIGATION NOTES	
Ilating stem, nstall on	<ol> <li>IF EXISTING IRRIGATION SYSTEMS ARE TO BE USED AND EXPANDED TO HANDLE ADDITIONAL COVERAGE OF NEW PLANTING, THE CONTRACTOR SHALL BE RESPONSIBLE TO UPSIZE ANY PART OF THAT SYSTEM TO COMPENSATE FOR THE IRRIGATION EXPANSION.</li> </ol>	
l System. Plan Sheet	2. THE ARCHITECT RESERVES THE RIGHT TO REJECT ANY MATERIAL OR WORK WHICH DOES NOT CONFORM TO THE CONTRACT PLANS AND SPECIFICATIONS WITHOUT THE PRIOR WRITTEN APPROVAL OF THE ARCHITECT	
IP 1000 (½" inlet: ent overspray nent required zle with 8',	3. CONFIRM OPERATIONAL STATUS OF EXISTING METER AND WATER SERVICE IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE. THE CONTRACTOR SHALL ALSO VERIFY THE AVAILABLE STATIC PRESSURE AT THE POINT-OF-CONNECTION. NOTIFY THE OWNER'S REPRESENTATIVE BEFORE STARTING WORK OF ANY DEVIATION FROM THE INFORMATION SHOWN ON THE CONTRACT DOCUMENTS	Owner:
er. or comment, tterns, 1.0 LA,	4. THE CONTRACTOR IS RESPONSIBLE TO LOCATE AND PROTECT ALL EXISTING UTILITIES. UTILITIES SHOWN ARE FOR THE CONTRACTOR'S AWARENESS AND NO SURVEY HAS BEEN COMPLETE TO VERIFY THE ACCURACY OF THE UTILITIES SHOWN. IT IS THE CONTRACTORS RESPONSIBILITY TO REPAIR ANY DAMAGED UTILITIES CAUSED BY CONSTRUCTION ACTIVITIES	
uildings and L1.04.	5. THE CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY ALL DIMENSIONS SHOWN, AND TO ADJUST SAID DIMENSIONS TO FIT, SITE CONDITIONS AND ACTUAL EQUIPMENT INSTALLED	BAKERSFIELD
ote Control ectangular ame size as er is to be Plan Sheet Remote andard s to be the er valves	6. ALL OFFSETS, FITTINGS, ETC. SHALL BE IN ACCORDANCE WITH CURRENT MWELO REQUIREMENTS. THE CONTRACTOR SHALL CAREFULLY INVESTIGATE THE STRUCTURAL AND FINISHED CONDITIONS AFFECTING HIS WORK. HE SHALL PLAN HIS WORK ACCORDINGLY, FURNISHING SUCH FITTINGS, ETC., AS MAY BE REQUIRED TO INSTALL THE PROPOSED FACILITIES AND ACCOMMODATE THE SITE CONDITIONS. DRAWINGS ARE DIAGRAMMATIC AND INDICATIVE OF THE WORK TO BE DONE TO PROVIDE A COMPLETE AND OPERATIONAL IRRIGATION SYSTEM. ALL WORK TO BE DONE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, LOCAL CODES, AND ORDINANCES ACCORDINGLY	CITY SCHOOL DISTRICT 1300 BAKER ST BAKERSFIELD, CA 93305
Detail #06 on	<ul> <li>7. IRRIGATION VALVES AND VALVE BOXES SHALL BE LOCATED IN SHRUB / GROUNDCOVER AREAS INSTEAD OF IN TURF GRASS AREAS WHENEVER POSSIBLE</li> </ul>	Project Name: PARENT CENTER
de vels. Install n Sheet	8. INSTALL SLEEVES UNDER ALL ASPHALT, CONCRETE, OR OTHER HARDSCAPE IMPROVEMENTS. SLEEVES SHALL BE PVC SCH. 40 PVC OR SDR 35 AND TWICE THE DIAMETER OF THE PIPE UNLESS NOTED OTHERWISE. CONTROL WIRING SHALL BE SLEEVED IN TWO INCH (2") SCH 40 PVC UNLESS NOTED OTHERWISE. MINIMUM DEPTH OF SLEEVES UNDER ALL HARDSCAPE IMPROVEMENTS IS TO BE 18" BELOW SUBGRADE	
be line size ) for each L1.04.	<ol> <li>CONTRACTOR SHALL SAWCUT ASPHALT OR CONCRETE TO EXISTING JOINTS. REMOVE AND REPLACE SURFACING (CONCRETE, ASPHALT) AS NECESSARY TO INSTALL THE IRRIGATION SYSTEM</li> </ol>	
lance with direction. he pipe	10. THE CONTRACTOR SHALL PROVIDE AND KEEP AN UP-TO-DATE "RECORD DRAWING" SHOWING ALL CHANGES TO THE ORIGINAL DRAWINGS AND EXACT LOCATIONS OF THE FACILITIES INSTALLED. BEFORE FINAL INSPECTION, THE CONTRACTOR SHALL FURNISH MARKED "RECORD DRAWINGS" TO THE INSPECTOR	
ble, such as eeve all pipe hree inch pproved hils #02, #05	11. THE CONTRACTOR SHALL PROVIDE ADJUSTMENT TO SPRAY HEAD NOZZLE ARC AND RADIUS, INCLUDING ANY ALTERNATE NOZZLE TYPES, NECESSARY TO PROVIDE COMPLETE COVERAGE, TO SUIT ACTUAL SITE CONDITIONS. CONTRACTOR TO MINIMIZE OVERSPRAY ONTO HARDSCAPE, PAVEMENT AND / OR STRUCTURES ACCORDING TO INDUSTRY INSTALLATION STANDARDS AND CURRENT MWELO REQUIREMENTS.	1100 Citadel, Bakersfield, CA 93307
der paved /o times sleeve size as noted on	12. ALL TRENCHING FOR MAINLINE, LATERAL LINES, AND CONTROL WIRES SHALL BE INSTALLED IN ACCORDANCE WITH LOCAL CODES.	
per second tructions, vailing site n the	13. CONCRETE THRUST BLOCKS SHALL BE PROVIDED ON ALL MAINLINE PIPING. THEY ARE TO BE LOCATED AT ALL ABRUPT CHANGES IN PIPELINE GRADE, CHANGES IN HORIZONTAL ALIGNMENT, REDUCTION IN PIPE SIZES, END OF LINE AND IN-LINE VALVES TO ABSORB ANY AXIAL THRUST OF THE PIPE. THE PIPE MANUFACTURER'S RECOMMENDATIONS FOR THRUST CONTROL SHALL BE INSTALLED ACCORDINGLY. CONCRETE THRUST BLOCKS MUST BE FORMED AGAINST UNDISTURBED EARTH	
fer to	14. ALL MAINLINE AND LATERAL LINE PIPES UNDER PAVEMENT SHALL BE PRESSURE TESTED WITH ALL VALVES INSTALLED. THE CONTRACTOR SHALL PROVIDE ALL EQUIPMENT NEEDED. IF ANY LEAKS DEVELOP, REPAIRS ARE TO BE MADE AND THE TEST REPEATED UNTIL THE SYSTEM IS PROVEN WATERTIGHT. THE CONTRACTOR IS TO CENTER LOAD THE PIPE AND LEAVE ALL JOINTS EXPOSED FOR INSPECTION. THE PRESSURE TEST SHALL BE OBSERVED AND APPROVED BY THE OWNER'S REPRESENTATIVE. WHEN THE PIPE IS PROVEN WATERTIGHT, AND ONLY THEN, MAY THE LINE BE BACKFILLED.	by SOMAM, Inc.
	15. WIRED CONNECTIONS BETWEEN THE CONTROLLER AND REMOTE CONTROL VALVES SHALL BE MADE WITH ONE CONTINUOUS DIRECT BURIAL WIRE RUN FOR WIRE CONNECTOR METHODS ALLOWABLE. A VALVE BOX MUST BE PROVIDED AT THE CONTRACTOR'S EXPENSE AT ALL UNDERGROUND SPLICES.	ENGINEERING INTERIOR DESIGN
WN W	16. ONLY TEFLON TAPE, OR AN APPROVED TEFLON PASTE, MAY BE USED AS THE SEALING MATERIAL TO MAKE ALL THREADED CONNECTIONS. A MINIMUM OF TWO (2) WRAPS IN THE DIRECTION OF THE THREADS TO BE USED FOR TAPE	6011 N. FRESNO STREET, SUITE 130 FRESNO CALIFORNIA 93710 P:(559) 436-0881 F:(559) 436-0887
// 1.04	<ol> <li>THE CONTRACTOR SHALL PROVIDE TWO (2) INDIVIDUALLY BOUND SETS OF OPERATION AND MAINTENANCE MANUALS. THE MANUAL SHALL CONTAIN THE FOLLOWING INFORMATION:         <ul> <li>CONTRACTOR'S ADDRESS AND PHONE NUMBER.</li> <li>DURATION OF GUARANTEE PERIOD (ONE YEAR AFTER FINAL ACCEPTANCE).</li> <li>NAMES, ADDRESSES AND PHONE NUMBERS OF LOCAL MANUFACTURER REPRESENTATIVES.</li> <li>COMPLETE SET OF MANUFACTURER'S LITERATURE AND SPECIFICATIONS.</li> <li>COMPLETE OPERATING AND MAINTENANCE INSTRUCTIONS ON ALL MAJOR EQUIPMENT.</li> </ul> </li> </ol>	E: design@somam.com integrateddesigns.com Ownership of Documents
ND. ND. ED.	<ul> <li>F. ISSUE A "CERTIFICATE OF CONSTRUCTION COMPLIANCE" WHICH STATES THAT ALL WORK DONE AND MATERIALS AND EQUIPMENT USED ARE IN CONFORMANCE WITH THE APPROVED PLANS, SPECIFICATIONS AND ALL AUTHORIZED REVISIONS.</li> <li>G. INITIAL ELECTRICAL DATA ON EACH VALVE: <ul> <li>(1) OHMMS READING FOR EACH VALVE TAKEN AT THE CONTROLLER.</li> <li>(2) VOLTAGE READING FOR EACH VALVE TAKEN BOTH AT THE CONTROLLER AND AT THE VALVE.</li> </ul> </li> </ul>	Stamp: CENSED ARCHI, FC $V = C 28966$
	18. THE CONTRACTOR SHALL PROVIDE TWO (2) SETS OF CONTROLLER CHARTS. THE CHARTS ARE TO BE A REDUCED DRAWING OF THE ACTUAL PLANS COLOR CODED WITH DIFFERENT COLORS FOR EACH IRRIGATION CIRCUIT. THE CHARTS SHALL BE COVERED IN A WATERTIGHT ENVELOPE	Print 5-31-23 OF CALIFORNIA
	19. IRRIGATION TRENCHING AND PIPE INSTALLATION, LOCATED WITHIN EXISTING TREE CANOPIES TO REMAIN, SHALL BE PERFORMED BY HAND OR BY AIR SPADE WITHOUT CUTTING OR DAMAGING EXISTING ROOTS GREATER THAN ONE INCH (1") IN DIAMETER.	Sheet Title:
	LANDSCAPE IRRIGATION COMPLIANCE: THE LANDSCAPE IRRIGATION PLAN SHALL COMPLY WITH THE CALIFORNIA DEPARTMENT OF WATER RESOURCES MODEL WATER EFFICIENT LANDSCAPE ORDINANCE (MWELO) COMMENCING WITH SECTION 490 OF CHAPTER 2.7. DIVISION 2. TITLE 23. CALIFORNIA	IRRIGATION PLAN
	CODE OF REGULATIONS, EXCEPT THAT THE EVAPOTRANSPIRATION ADJUSTMENT FACTOR (ETAF) SHALL BE 0.65 WITH AN ADDITIONAL WATER ALLOWANCE FOR SPECIAL LANDSCAPE AREAS (SLA) OF 0.35 IN ACCORDANCE WITH THE 2019 CAL GREEN BUILDING STANDARDS CODE PARAGRAPH 5.304.6.	Job No.: 5528
		Sheet No.:

L1.02

11/22/24

Release: ADDENDUM  $1/1^{1}$ 



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	DOOR NO. 101A 101B 102 103 104	TYPE       I         NO       A         A       B         B       B         B       B         B       I         A       I         A       I         I       I	DOOR OPENIN SIZE 3'-0"x 7'-0" 3'-0"x 7'-0" 3'-0"x 7'-0" 3'-0"x 7'-0" 3'-0"x 7'-0" 3'-0"x 7'-0"	G THK 1 3/4" 1 3/4" 1 3/4" 1 3/4" 1 3/4" <b>R T</b>		DOOR CORE INSUL INSUL SC SC INSUL	FIN. P P FF FF FF	FF MAT HM HM HM HM	RAME FIN P P P P P	DOC GLASS SIZE - - - - - - - - - - - - - - - - - - -	SCHEI LOUVEF SIZE - - - - - - - - - - - - - - - - - - -	SCH DULE U/L RAT'G - - - - - - - - - - - - - - - - - - -
Room No. 101	7 A7.01 ROOM			OR FIN FF R	BA SI AT FIN TB FF	TYPE	B MA WAIN MAT F	SCOT IN HT		RIAL AN RIAL AN FIN FF		
101 102 103	UNISEX TOLLE	T	CPT CT VCT	FF C FF C FF R	T FF TB FF	4" 6" 4"	-	 		FF FF		FF P
103 104	ELECTRICAL FIRE RISER	<b>8.F</b> N ROOM CTION INF SHALL CO BERS WITH IOR TO OF TIONS FC OR PLANS O COMPLY XTURE TO IS	VCT CONC NAMES AND NUI ORDINATE ACTO ORDINATE ACTO ORDINAT	FF R SEAL R SEAL R MBERS AR Y. THE JAL ROOM OOM SIGN FINISH AL BE STABL 11B-302.1 6.3 Y PER	TB FF TB FF	4" 4"	- SAT CP CT CTE FF FRF GB P RTE SV COI SE/ PLY * SE	$\begin{array}{c c} \hline - & - \\ \hline - & -$	SPENDE RPET RAMIC 1 RAMIC 1 RAMIC 1 RAMIC 1 BERGLAS PSUM B INT SYS IBBER 10 IEET VIN DNCRETE ALED CO YWOOD	P P P P P P P P P P P P P P	GB 1 USTICAL ORCED F ASE	P P M&















## ALS SYSTEM

ASSISTIVE LISTENING SYSTEM (ALS):

PROVIDE A SET OF PORTABLE ALS WITH A TRANSMITTER AND A MINIMUM OF TWO HEARING-AID COMPATIBLE RECEIVERS.

PER CBC 2019, 11B-219.

960S.F. / 20 (OCCUPANT LOAD) = 48 48 x 4% = 1.92 ALS DEVICES REQUIRED (OR 2 MIN.).

THE SYSTEM SHALL BE STORE IN THE SCHOOL ADMINISTRATION OFFICE UNTIL REQUESTED FOR

SPECIFY THE ALS TYPE AND THAT THE SYSTEM SHALL BE CAPABLE OF INTERFACING WITH THE VOCE AMPLIFICATION SYSTEMS AND ANY MEDIA PROGRAM AUDI SYSTEM INSTALLED, AND SHALL COMPLY WITH CBC SECTIONS 11B-219 AND 11B-706

SYSTEM SHALL INCLUDE: ANCHOR AUDIOASSISTIVE LISTENING PACKAGE #AL-9000: 16 CHANNEL TRANSMITTER, DC POWER SUPPLY, 4 BELT PACK RECEPTACLES WITH EAR BUDS WITH NECK LOOPS, WIRELESS MICROPHONE & BATTERY CHARGER, OR

# **KEY NOTES**

- 4'-0"x 6'-0" SMART BOARD .
- 4'-0" X4'-0" MARKER BOARD. SEE DETAIL 9/A8.02
- ROOM ID SIGNAGE SEE DETAIL 5/A8.01
- 4. FIRE EXTINGUISHER CABINET. SEE DETAIL 5/A8.02
- TACTILE EXIT SIGN. SEE DETAIL 4/A8.01
- REFRIGERATOR F.B.O.
- UPPER CABINETS (BACKING BY CONTRACTOR, CABINETS F.B.O. / I.B.O. SEE DETAIL 10/A8.02 BASE CABINETS (BACKING BY CONTRACTOR, CABINETS F.B.O. / I.B.O. / SEE DETAIL 10/A8.02

Owner:

Project Name:

Project Address:

BAKERSFIELD

**CITY SCHOOL** 

DISTRICT

1300 BAKER ST

BAKERSFIELD, CA 93305

**PARENT CENTER** 

DR. MARTIN LUTHER

**KING JR. ELEMENTARY** 

SCHOOL

1100 Citadel,

Bakersfield, CA 93307

integrated

designs

by SOMAM, Inc.

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ENGINEERING

INTERIOR DESIGN

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Sheet Title:

Release: ADDENDUM 1 🔿

11/22/24

- -----BUILDING ENTRANCE SIGNAGE PER DETAIL 1/A8.01
- 10. METAL CANOPY ABOVE
- 11. DASHED LINE INDICATES SOFITT ABOVE
- 12. S.S HANDWASH WITH SOAP AND PAPER TOWEL DISPENSER HANDWASH F.B.O. / I.B.O.  $\dots$
- 13. CLOCK AND SPEAKER ABOVE MARKER BOARD SEE INTERIOR ELEVATIONS AND ELECTRICAL DRAWINGS
- 14. ACCESSIBLE UNISEX TOILET SIGNAGE SEE DETAIL 2/A8.01
- 15. FIRE RISER
- 16. ROOF ACCESS LADDER SEE DETAILS 10/A7.01 THRU 14/ A7.01
- 17. ALS AVAILABLE SIGN, PROVIDE PORTABLE ASSISTIVE LISTENING SYSTEM PER CBC, 11B-216.10, 11B-219 AND 11B-706, -SEE DETAIL 11/A8.01.
- 18. FLOOR DRAIN, -SEE PLUMBING DRAWINGS.
- 19. FULL HEIGHT LOCKING CABINETS BACKING BY CONTRACTOR, CABINETS F.B.O. / I.B.O. SEE DETAIL 10/A8.02.
- 20. IDF, -SEE ELECTRICAL SHEETS.
- 21. FATC, -SEE ELECTRICAL SHEETS.
- 22. ELECTRICAL PANEL, -SEE ELECTRICAL SHEETS.
- 23. ALARM KEYPAD, -SEE ELECTRICAL SHEETS.
- 24. SONITROL SECURITY CABINET, -SEE ELECTRICAL SHEETS.
- 25. MAG CONTROL BOX, -SEE ELECTRICAL SHEETS.
- 26. HVAC WIRELESS REPEATER, -SEE MECHANICAL SHEETS.
- 27. (N) WALK OFF CARPET TILES 28. (N) MAG LOCK.

# **GENERAL NOTES**

- DIMENSIONS ARE GIVEN TO FACE OF STUD UNLESS NOTED OTHERWISE.
- DIMENSIONS FOR ACCESSIBILTY COMPLIANCE ARE GIVEN FROM CENTERLINE OR FACE OF FIXTURE/ACCESSORY TO FACE OF FINISH OR ADJACENT FIXTURE/ACCESSORY. SEE NOTE BELOW
- SEE SHEET A8.01 FOR MOUNTING HEIGHT AND CLEARANCE REQUIREMENTS AT ALL TOILET ROOM ACCESSORIES AND ACCESSIBLE FIXTURES: WATER CLOSETS, LAVATORIES, DRINKING FOUNTAINS, ETC.
- SEE MATERIAL & FINISH SCHEDULE ON SHEET A0.01 FOR MATERIAL & FINISH SELECTIONS.
- ALL INTERIOR WALLS INDICATED TO RECEIVE ACOUSTIC BATT INSULATION. PROVIDE GYPSUM BD. FROM FINISH FLOOR TO WITHIN  $\frac{1}{4}$ " OF ROOF DECK ABOVE W/ BLOCKING BETWEEN ROOF FRAMING MEMBERS
- ALL EXTERIOR WALLS TO RECEIVE R-19 F.G. BATT INSULATION
- ALL GYPSUM BOARD TO BE 5/8" U.N.O. CEMENT BACKER @ C.T.
- FRAME ALL WALLS FROM FLOOR SLAB BELOW TO WITHIN 1/4" OF THE UNDERSIDE OF THE ROOF DECK ABOVE U.N.O. W/ 5/8" GYP. BD. BOTH SIDES FROM FIN. FLOOR BELOW TO 6" ABOVE HIGHEST ADJACENT CEILING
- SEE STRUCTURAL DRAWINGS FOR SHEAR WALL LOCATIONS
- 10. SEE STRUCTURAL DRAWINGS FOR TYPICAL WOOD FRAMING CONSTRUCTION DETAILS
- 11. ALL INSULATION AT EXTERIOR WALLS SHALL BE R-19 INSULATION. INSULATION IN ATTIC SPACE SHALL BE R-38 FOIL-FACT F.G. BATT INSULATION INSTALLED. INSULATION INSTALLED ON ROOF DECK SHALL BE R-30 RIGID INSULATION

R-30 RIGID INSULATION	<b>FLOOR PLAN</b>
ENERAL NOTES	
6" METAL STUD	Job No.: <b>5528</b>
4" METAL STUD	Sheet No.:
	A2.10











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![](_page_154_Figure_0.jpeg)

![](_page_154_Figure_1.jpeg)

![](_page_154_Figure_2.jpeg)

## FOUNDATION PLAN

SCALE: 1/4"=1'-0"

FOUNDATION NOTES	DSA STAMP
1. REFER TO GENERAL NOTES AND TYPICAL DETAILS ON SHEET S1.01 THRU S1.05.	
2. SEE DETAIL 5/S1.03 WHERE PIPES INTERSECT FOOTING.	
3. ALL EMBEDDED ITEMS MUST BE TIED IN PLACE AND SECURE PRIOR TO FOUNDATION INSPECTION.	
<ol> <li>SEE 1/S1.02 FOR METHOD OF POURING CONCRETE SLABS ON GRADE.</li> <li>PLYWOOD WALL SHEATHING IS TO BE APPLIED OVER THE ENTIRE WALL.</li> </ol>	Owner:
6. 4" (MIN.) THICK CONCRETE SLAB WITH #3 BARS AT 16"OC EACH WAY SET $1\frac{1}{2}$ " DOWN FROM TOP OF SLAB. MAINTAIN MINIMUM SLAB THICKNESS AT	STATE OF THE STATE
SLOPED SLABS. 7. • DENOTES HOLDOWN TYPE "1" PER "HOLDOWN SCHEDULE", THIS SHEET.	
8. SEE 10/S1.05 FOR TYPICAL STEEL STUD TO COLUMN CONNECTION.	
<ul> <li>9. DENOTES SHEAR WALL PER "SHEAR WALL SCHEDULE", THIS SHEET.</li> <li>10. WALL STUDS SHALL BE 600S162-43 @ 16"OC U.N.O.</li> </ul>	
	DISTRICT
WALL SHEATHING SCHEDULE	1300 BAKER ST.
TYPE     THICK- NESS     PANEL INDEX     GRADE     TRAM'G MEMBER     SIZE     TYPE     SPACING     DIA- METER     EMBED. DEPTH     SPACING     REFERENCE     CAPACITY (PLF) WIND / SEISMIC       1     15/32"     32 16     CDX STRUCT 1 PLYWD.     STEL STUD     #10     SMS     6     12     1/4"     1¾"     PER DETAIL     SEE 2/S1.04     455 / 356	BAKERSFIELD, CA 93305
NOTES: 1. PROVIDE FRAMING MEMBERS AT MINIMUM WIDTH INDICATED WHERE	Project Name & Address: PARENT CENTER
PLYWOOD SHEETS ARE SPLICED. 2. P.E.S. – PLYWOOD EDGE SCREW SPACING 3. INT – INTERIOR PLYWOOD SCREWS TO SUPPORTS, NOT OTHERWISE	
SPECIFIED. SEE 2/S1.04 FOR OTHER INFORMATION. 4. SMS – SHEET METAL SCREW (1" MIN. LENGTH) 5. SCREWS USED TO ATTACH SHEATHING SHALL BE IN ACCORDANCE WITH	
ASTM C1513.	
	DR. MARTIN LUTHER KING JR. ELEMENTARY
FUUTING SCHEDULE	
MARKPLAN DIM.MIN. DEPTHREINFORCEMENT $\langle 1 \rangle$ 1'-0" WD.1'-6"2-#5 CONT. TOP & BOT.	1100 CITADELL, BAKERSEIELD, CA 93307
SIMPSON MIN POST FASTENERS ANCHOR DETAIL	
TYPEHOLDOWNMIN. POSTSCREWS TO POSTBOLTSREFERENCE1S/HDU6DBL. 600S162-6812 - #145/8"ø8/S1.03	
NOTES: 1. INSTALL HOLDOWN IMMEDIATELY ADJACENT TO END OF WALL, AS SHOWN ON FOUNDATION PLAN ATTACH TO POST	integrated
<ol> <li>INSTALL PER MANUFACTURERS REQUIREMENTS AND GUIDELINES.</li> <li>PROVIDE PLYWOOD EDGE SCREWS TO POST AT HOLDOWN.</li> </ol>	designs
	by SOMAM, Inc.
	ARCHITECTURE ENGINEERING
	INTERIOR DESIGN
	6011 N. FRESNO STREET, SUITE 130 FRESNO CALIFORNIA 93710
	P:(559) 436-0881 F:(559) 436-0887 E: design@somam.com
	integrateddesigns.com
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	FIF OF CALIFORN
	Sheet Title:
	FOUNDATION
	PLAN
	Job No.: <b>5528</b>
	Sheet No.:
	Release: ADDENDUM 1 1         11/7/24

![](_page_155_Figure_0.jpeg)

## CEILING FRAMING NOTES

1. REFER TO GENERAL NOTES ON SHEETS S1.01 THRU S1.05.

2. CONTRACTOR SHALL VERIFY FIRE SPRINKLER LINE LAYOUT AND PROVIDE FOR ADDITIONAL FRAMING AS REQUIRED FOR PROPER SUPPORT.

3. CONTRACTOR SHALL VERIFY AND COORDINATE THE LOCATIONS OF ALL ROOF SUPPORTED MECHANICAL AND ELECTRICAL EQUIPMENT.

![](_page_155_Picture_7.jpeg)

DSA STAMP

![](_page_156_Figure_0.jpeg)

## ROOF FRAMING NOTES

- 1. REFER TO GENERAL NOTES ON SHEETS S1.01 THRU S1.05.
- 2. ALL ROOF FRAMING SPACES AS SHOWN ON PLANS SHALL BE AS MEASURED ON OF SLOPE.
- 3. ALL ROOF SHEATHING SHALL BE TYPE "A" PER DETAIL 1/S1.04, U.N.O.
- 4. SEE DETAIL 9/S1.05 FOR TYPICAL FRAMING AT ROOF OPENINGS.
- 5. CONTRACTOR SHALL VERIFY FIRE SPRINKLER LINE LAYOUT AND PROVIDE FOR ADDITIONAL FRAMING AS REQUIRED FOR PROPER SUPPORT.
- 6. CONTRACTOR SHALL VERIFY AND COORDINATE THE WEIGHTS & LOCATIONS OF ALL ROOF SUPPORTED MECHANICAL AND ELECTRICAL UNITS AND PROVIDE ADDITIONAL FRAMING AS REQUIRED FOR PROPER SUPPORT. 7.  $\longrightarrow$  REPRESENTS DIRECTION OF DOWNWARD SLOPE.
- 8. ALL POST TO BEAM CONNECTIONS SHALL HAVE SIMPSON PC OR EPC CONNECTORS, U.N.O..
- 9. USE SPLICE PER 6/S1.05 TYPICAL, U.N.O.
- 10. ALL WALLS SHALL BE 600S162-43 STUDS @ 16"OC, U.N.O.
- 11. PROVIDE COMPLETE TRUSS DRAWINGS AND CALCULATIONS. TRUSS DRAWINGS MUST BE APPROVED WITHIN 30 DAYS OF PERMIT ISSUANCE. NO INSPECTIONS WILL BE PERFORMED IF TRUSS DRAWINGS ARE NOT APPROVED AFTER 30 DAYS. TRUSS DRAWINGS MUST INCLUDE THE HANGERS FOR TRUSSES.
- 12. APPROVED TRUSS DRAWINGS MUST BE ON JOB SITE FOR INSPECTION PURPOSES.

![](_page_156_Picture_15.jpeg)

DSA STAMP

S4.01

Release: ADDENDUM 1 /1

![](_page_157_Figure_0.jpeg)

![](_page_157_Figure_1.jpeg)

![](_page_157_Figure_2.jpeg)

![](_page_157_Figure_3.jpeg)

Release: ADDENDUM 1 /1

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![](_page_159_Figure_0.jpeg)

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![](_page_159_Picture_3.jpeg)

![](_page_160_Figure_0.jpeg)

MARK LOCATION DESCRIPTION

	200,000	
Â	CEILING SUPPLY	TITUS TDC STEEL FULL LOUVER FACE WITH SQUARE OR RECTANGULAR NECK, TYPE 3 BORDER FOR LAY-IN CEILING, STANDARD #26 WHITE FINISH.
B	CEILING RETURN	TITUS 50F ALUMINUM EGGCRATE WITH 1/2x1/2x1/2 GRID, TYPE 3 BORDER FOR LAY-IN CEILING, STANDARD #26 WHITE FINISH.

NOTE: ALL INTERIOR COMPONENTS, EVERYTHING BEHIND THE FACE PLATE, SHALL BE PAINTED FLAT BLACK.

	PLU	MBING	<b>FIXTL</b>	JRE & I	EQUIP	MENT SCHEDULE
			CONNE	CTIONS	6	
MARK	FIXTURE	CW	HW	W	V	DESCRIPTION
WC 1	WATER CLOSET ADA	1"	-	4"	2"	KOHLER K-96057-SS "HIGHCLIFF ULTRA" WITH ANTIMICROBIAL FINISH, ELONGATED BOWL, FLOOR MOUNT, 1.1 TO 1.6 GPF. SLOAN "ROYAL" 111-1.28 FLUSH VALVE WITH HANDLE POINTED TOWARDS WIDE SIDE OF STALL. BEMIS 1655SSCT EXTRA HEAVY DUTY OPEN FRONT SEAT.
	LAVATORY ADA	1/2"	-	2"	1-1/2"	KOHLER K-2005 "KINGSTON", 21"x18" WALL HUNG VITREOUS CHINA WITH 4" CENTERS. MCGUIRE 155A GRID DRAIN AND TAILPIECE. CHICAGO 420-E2805ABCP 0.5 GPM, SINGLE LEVER FAUCET WITH VANDAL PROOF NON-AERATING OUTLET. PROVIDE J.R. SMITH 723 CONCEALED ARMS AND STEEL SUPPORT PLATE PER 11/M0.11 FOR FIXTURE MOUNTING. REFER TO ARCHITECTURAL PLANS FOR ACCESSIBLE MOUNTING HEIGHT. CONNECT COLD WATER TO BOTH INLETS.
	SINK ADA	1/2"	-	2"	1-1/2"	JUST SLF-ADA-2225-A-GR SINGLE COMPARTMENT 18 GAUGE STAINLESS STEEL, 16"x22"x6-1/2" DEEP BOWL SIZE, J-35-SSF SINK STRAINER. CHICAGO 350-E35ABCP 1.5 GPM GOOSENECK FAUCET WITH VANDAL PROOF LEVER HANDLE. PROVIDE EXTRA HOLE FOR GLASS FILLER FAUCET.
ST 1	SINK TRIM	1/2"	-	-	-	CHICAGO 712-ABCP GLASS FILLER FAUCET WITH DECK FLANGE, SET ADJUSTABLE FLOW CONTROL TO 1.0 GPM, COATED METAL PUSH-BACK HANDLE WITH LOCKING CLIP.
HB 1	HOSE BIBB	3/4"	-	-	-	J.R. SMITH 5573 RECESSED WALL FAUCET IN CONCEALED STAINLESS STEEL BOX WITH LOCKING DOOR, VACUUM BREAKER, REMOVABLE HANDWHEEL, AND TEE KEY.
	HOSE BIBB	3/4"	-	-	-	WOODFORD MODEL Y24-BR ROUGH BRASS STANDPIPE FAUCET, 34HF ANTI-SIPHON VACUUM BREAKER, METAL HANDWHEEL, AND LOOSE TEE KEY.
WHA 1	WATER HAMMER ARRESTER	1/2"	-	-	-	SIOUX CHIEF HYDRA-RESTER 652-AS, SEAMLESS COPPER CHAMBER APPROVED FOR CONCEALED INSTALLATION, UP TO 11 FIXTURE UNITS. INSTALL IN UPWARD POSITION.
FD 1	FLOOR DRAIN	1/2"	-	2"	1-1/2"	J.R. SMITH 2005(B)-P050-BHP 5" SQUARE NICKEL BRONZE STRAINER HEAD, DUCO CAST IRON BODY WITH FLASHING COLLAR, TRAP PRIMER CONNECTION, HEEL PROOF GRATE.
	TRAP PRIMER	1/2"	-	-	-	PRECISION PLUMBING PRODUCTS P1-500 VALVE. PROVIDE DU-U DISTRIBUTION UNIT WHEN MORE THAN ONE DRAIN IS SERVED, UP TO 4 DRAINS PER DISTRIBUTION UNIT. PLUG UNUSED OUTLETS AS REQUIRED. PROVIDE WALL ACCESS DOOR. REFER TO PLANS FOR NUMBER OF DRAINS SERVED.
(RD) 1	COMBINATION ROOF & OVERFLOW DRAIN	-	-	-	-	J.R. SMITH SERIES 148 COMBINATION ROOF AND OVERFLOW DRAIN, CAST IRON, FLASHING CLAMPS, GRAVEL STOPS, AND ENAMEL PAINT FOR OUTDOOR PROTECTION. PROVIDE 148-10 OVERFLOW DOME. SEE PLANS FOR OUTLET SIZE.

![](_page_160_Figure_5.jpeg)

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INDOOR UNIT SC	HEDULE		T SCHED		PACKAGE AIR CO	OND UNIT SCHEE	EXHAUST I	AN SCHED		GENER	AL P	LUMBING	
	IDU		ODU			AC		EF			ΗνΔ		
MARK		MARK		-	MARK		MARK			A. THE PLANS AND SE	PECIFICATIONS	DESCRIBE THE PLUMBING WORK	
CFM (LOW / MED / HIGH) ESP (IN WC)	176 / 335 / 382	FUSE SIZE	15 / 15 15	-	VOLTS/PHASE MCA / MOCP	460/3 23 / 25	CFM ESP (IN WC)	95 0.25		AND HVAC WORK ( PART SHALL BE AS	DF THIS PROJE	CT. ANY ITEMS MENTIONED IN ONE IOUGH MENTIONED IN BOTH.	
MINIMUM OSA (CFM)	0	VOLTAGE/PHASE	208-230/1		FLA / LRA	21 / 53	HP / BHP / WATT	<b>S</b> - / - / 19.4		PROVIDE THE NEC AND SERVICES FO	ESSARY LABOF R A COMPLETE	, MATERIALS, EQUIPMENT, TOOLS FUNCTIONING SYSTEM.	
HP / BHP / WATTS VOLTAGE/PHASE	(1)	COOLING:	ROOF (5)	-	FUSE SIZE BLOWER:	25	VOLTAGE/PHAS	E 115/1 950		B. ALL LOCATIONS OF EQUIPMENT SHOW	F EXISTING UTIL	ITIES, DUCTWORK, AND	Ownor
МСА / МОСР	0.3125 /	TOTAL (MBH)	12		CFM	1600	TIP SPEED			VERIFY ALL CONDI INCLUDING EXACT	TIONS PRIOR T LOCATION, SIZ	O PROCEEDING WITH ANY WORK, E, SERVICE, AND ROUTING OF	Gwiler.
RPM DRIVE	DIRECT	AMBIENT DB (°F) SEER / EER AT AHRI	95 25.5 / 14	-	DUCT SP (IN WC) MINIMUM OSA (CFM)	0.8	SONES	0.5 DIRECT		EXISTING UTILITIES	S AND DUCTWO	RK. CONTRACTOR SHALL ENGINEER OF ANY EXISTING	
MOUNTING	WALL (4)	HEATING:			HP / BHP	1 / 0.79	MOUNTING	CEILING (6)		CONDITIONS WHIC CONSTRUCTION DO	OCUMENTS.	T WITH INFORMATION PROVIDED IN	
COOLING:	12	CAPACITY (MBH)	12 47	-	DRIVE COOLING:	DIRECT 2 STAGES				C. PLUMBING AND HV DIAGRAMMATIC ON	AC LAYOUTS IN	DICATED ON PLANS ARE RK MAY BE SHOWN OFFSET FOR	Constant Constant
SENSIBLE (MBH)		HSPF / COP	13 / 3.81		TOTAL (MBH)	44.5	MANUFACTURE	R GREENHECK		CLARITY. EXACT L SHALL BE COORDII	OCATION OF EC	QUIPMENT, DUCTWORK, AND PIPES HER TRADES.	
EADB / EAWB (°F)	80 / 67		R410A		SENSIBLE (MBH)	35				D. PROVIDE CLEANOU	JTS PER CPC S	ECTIONS 707, 719 AND 1101.13.	BAKERSFIELD
REFRIGERANT	95 R410A	SUCTION LINE SIZE	1/4"	-	AMBIENT DB (°F)	80 / 67 105	CONTROL	(1)		E. PROVIDE PLUMBIN PLUMBING VENTS	G VENT TERMIN	IATION PER CPC SECTION 906.	CITY SCHOOL
LIQUID LINE SIZE	1/4"				REFRIGERANT	R410A	SERVICE	SEE PLANS		FROM, OR NOT LES SHAFT. COORDINA	SS THAN THREE	FEET ABOVE, AIR INTAKE OR VENT ATION WITH OTHER TRADES.	DISTRICT
SUCTION LINE SIZE	5/8"	TYPE	CARRIER HEAT PUMP		CONDENSATE CONN SEER / EER AT AHRI	3/4" 16.2 / 12.2	OP WEIGHT (LBS	<b>5)</b> 17 (2),(3),(4),(5)		F. PENETRATIONS TH	IROUGH FIRE R	ATED ASSEMBLIES SHALL BE PER	1300 BAKER ST
SEER / EER AT AHRI	25.5 / 14	MODEL NUMBER	38MARBQ12	- OFCI	HEATING:					CBC SECTIONS 714 TESTED ASSEMBLY	AND 717. FIRE Y APPROVED BY ANS FOR LOC	THE FIRE MARSHALL SEE	BAKERSFIELD, CA 93305
HEATING: CAPACITY (MBH)	12	SERVICE OP WEIGHT (LBS)	IDU-1		CAPACITY (MBH)	45.6	(1) INTERLOCK (2) SOLID STAT			G. THE SEISMIC REST		HANICAL EQUIPMENT, DUCTWORK,	Project Name:
EADB (°F)	70	ACCESSORIES	(1),(2),(3),(4)		AMBIENT DB (°F)	47	(3) BACKDRAF			AND PIPES SHALL	CONFORM TO C	BC CHAPTER 16A.	PARENT CENTER
AMBIENT DB (°F)	47	NOTES: (1) INDOOR UNIT REC	EIVE POWER		STRIP HEATER (KW)	5.5	(4) ROOF CAP 1			H. PROVIDE FRESH A TERMINATION AND	IR INTAKE SEPA PLUMBING VEI	RATION FROM EXHAUST	
FILTERS:	13 / 3.81	FROM OUTDOOR U	UNIT		FILTERS:	8.3/3.7	(5) DISCONNEC	T BY DIV 26		WITH OTHER TRAD	0.9 AND 519.5, Al DES.	ND CPC SECTION 906. COORDINATE	
QUANTITY / SIZE					RA: QUANTITY / SIZE	4 / 16x16x2	ELECTRICA (6) FOR MOUNT	- ING, SEE DETAIL		I. DUCTWORK SIZES ACOUSTIC LINING	INDICATED ARE	INSIDE DIMENSIONS. WHERE	
TYPE PD, CLEAN (IN WC)	WASHABLE		)°F )// 26		TYPE PD, CLEAN (IN WC)	0.3	4/M0.11			DIMENSIONS BY IN ACCOMMODATE LI	CREASING THE	SHEET METAL SIZE TO SS.	
					OSA: QUANTITY / SIZE	1 / 20x24x1				J. SEE ARCHITECTUR			
MANUFACTURER TYPE	CARRIER HEAT PLIMP	(3) FOR MOONTING, S 5/M0.11			ТҮРЕ	WASHABLE				OF CEILING DIFFOR	DERO, REGIOTE	(S, AND GRILLES.	DR. MARTIN LUTHER KING JR. ELEMENTARY
MODEL NUMBER	40MAHBQ12	OFCI 1			MANUFACTURER	CARRIER							SCHOOL
CONTROL	T'STAT (3)												1100 Citadel,
OP WEIGHT (LBS)	25				CONTROL	T'STAT (6)							Bakersfield, CA 93307
ACCESSORIES	(2)	1			SERVICE	CLASSROOM E							
(1) INDOOR UNIT RECEIV	/E POWER				ACCESSORIES	800 (1),(2),(3),(4),(5),(7)							
(2) CONDENSATE PUMP	WITH												
(3) CONTROLLER INTERF	FACE FOR				SLOPE; SEE DETAIL 3/								
COMMUNICATION TO WIRELESS THERMOS	STAT - OFCI	$\boxed{1}$			(2) HEAVY DUITY COMBEN								
	6/M0 11												
(4) FOR MOUNTING, SEE	0/10/0.11				(3) HINCED ACCESS PAN FACTORY INSTALLED								interreter
(4) FOR MOUNTING, SEE					<ul> <li>(3) HINGED ACCESS PAN FACTORY INSTALLED</li> <li>(4) CA COMPLIANT ECON FULLY MODULATING E BAROMETRIC RELIEF</li> </ul>	IOMIZER WITH FDD, DAMPERS, AND DEMAND		MECH			GENI	)	integrated dociment
(4) FOR MOUNTING, SEE					<ul> <li>(3) HINGED ACCESS PAN FACTORY INSTALLED</li> <li>(4) CA COMPLIANT ECON FULLY MODULATING E BAROMETRIC RELIEF, CONTROL VENTILATION</li> </ul>	ELS 1 IOMIZER WITH FDD, DAMPERS, , AND DEMAND DN - OFCD 1	SYMBOL	DESCRIPTION	ANI	CAL LE	<b>GENI</b> Abbr	DESCRIPTION	integrated designs
(4) FOR MOUNTING, SEE					<ul> <li>(3) HINGED ACCESS PAN FACTORY INSTALLED</li> <li>(4) CA COMPLIANT ECON FULLY MODULATING E BAROMETRIC RELIEF, CONTROL VENTILATIO</li> <li>(5) DISCONNECT BY DIV 2</li> <li>(6) CONTROLLER INTERF</li> </ul>	ELS 1 IOMIZER WITH FDD, DAMPERS, AND DEMAND DN - OFCI 1 26 ELECTRICAL FACE FOR DELICAN WIDEL FOS	SYMBOL	DESCRIPTION	ANI Abbr	SYMBOL	GENI ABBR s. w. d.	DESCRIPTION SOIL, WASTE OR DRAIN	<b>integrated</b> <b>designs</b> by SOMAM, Inc.
(4) FOR MOUNTING, SEE					<ul> <li>(3) HINGED ACCESS PAN FACTORY INSTALLED</li> <li>(4) CA COMPLIANT ECON FULLY MODULATING D BAROMETRIC RELIEF, CONTROL VENTILATIO</li> <li>(5) DISCONNECT BY DIV 2</li> <li>(6) CONTROLLER INTERF COMMUNICATION TO THERMOSTAT</li> </ul>	ELS OMIZER WITH FDD, DAMPERS, AND DEMAND DN - OFCD 1 26 ELECTRICAL FACE FOR PELICAN WIRELESS	SYMBOL AC 1	DESCRIPTION -EQUIPMENT DESIGNATION -UNIT ABBREVIATION	ABBR AC-1	SYMBOL	GENI ABBR s. w. d. v	DESCRIPTION SOIL, WASTE OR DRAIN VENT	integrated designs by SOMAM, Inc. ARCHITECTURE
(4) FOR MOUNTING, SEE					<ul> <li>(3) HINGED ACCESS PAN FACTORY INSTALLED</li> <li>(4) CA COMPLIANT ECON FULLY MODULATING E BAROMETRIC RELIEF, CONTROL VENTILATIO</li> <li>(5) DISCONNECT BY DIV 2</li> <li>(6) CONTROLLER INTERF COMMUNICATION TO THERMOSTAT</li> <li>(7) UL 867 AND 2998 LISTE GENERATOR POWERE</li> </ul>	ELS OMIZER WITH FDD, DAMPERS, AND DEMAND DN - OFCI 1 26 ELECTRICAL FACE FOR PELICAN WIRELESS ED NPBI TYPE ION ED BY UNIT -	SYMBOL AC 1	DESCRIPTION -EQUIPMENT DESIGNATION -UNIT ABBREVIATION -NUMBER - GRILLE DESIGNATION	ABBR AC-1	SYMBOL	GENI ABBR S. W. D. V CW	DESCRIPTION SOIL, WASTE OR DRAIN VENT DOMESTIC COLD WATER	<b>integrated</b> <b>designs</b> by SOMAM, Inc. <b>ARCHITECTURE</b> ENGINEERING
(4) FOR MOUNTING, SEE	MED C				<ul> <li>(3) HINGED ACCESS PAN FACTORY INSTALLED</li> <li>(4) CA COMPLIANT ECON FULLY MODULATING E BAROMETRIC RELIEF, CONTROL VENTILATIO</li> <li>(5) DISCONNECT BY DIV 2</li> <li>(6) CONTROLLER INTERF COMMUNICATION TO THERMOSTAT</li> <li>(7) UL 867 AND 2998 LISTE GENERATOR POWERE FACTORY INSTALLED</li> </ul>	ELS 1 IOMIZER WITH FDD, DAMPERS, AND DEMAND DN - OFCD 1 26 ELECTRICAL ACE FOR PELICAN WIRELESS ED NPBI TYPE ION ED BY UNIT -	SYMBOL AC 1 A 10x10-3 120	DESCRIPTION -EQUIPMENT DESIGNATION -UNIT ABBREVIATION -NUMBER -GRILLE DESIGNATION -NECK SIZE & BLOW	ABBR AC-1	SYMBOL	GENI ABBR S. W. D. V CW	DESCRIPTION SOIL, WASTE OR DRAIN VENT DOMESTIC COLD WATER	<b>integrated</b> <b>designs</b> by SOMAM, Inc. <b>ARCHITECTURE</b> ENGINEERING INTERIOR DESIGN
(4) FOR MOUNTING, SEE	MEP CO ALL MEC	DMPONENT ANCHORAG			<ul> <li>(3) HINGED ACCESS PAN FACTORY INSTALLED</li> <li>(4) CA COMPLIANT ECON FULLY MODULATING E BAROMETRIC RELIEF, CONTROL VENTILATIO</li> <li>(5) DISCONNECT BY DIV 2</li> <li>(6) CONTROLLER INTERF COMMUNICATION TO THERMOSTAT</li> <li>(7) UL 867 AND 2998 LISTE GENERATOR POWERE FACTORY INSTALLED</li> </ul>	ELS 1 IOMIZER WITH FDD, DAMPERS, AND DEMAND DN - OFCI 1 26 ELECTRICAL ACE FOR PELICAN WIRELESS ED NPBI TYPE ION ED BY UNIT - 1 INSTALLED PER MPONENTS SHALL	SYMBOL AC 1 A 10x10-3 120	DESCRIPTION -EQUIPMENT DESIGNATION -UNIT ABBREVIATION -NUMBER -GRILLE DESIGNATION -NECK SIZE & BLOW -CFM SLIPPLY AIR	ABBR AC-1	CAL LE         SYMBOL	GENI ABBR S. W. D. V CW HW	DESCRIPTION SOIL, WASTE OR DRAIN VENT DOMESTIC COLD WATER DOMESTIC HOT WATER	<b>integrated</b> <b>designs</b> by SOMAM, Inc. <b>ARCHITECTURE</b> <u>ENGINEERING</u> INTERIOR DESIGN
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(4) FOR MOUNTING, SEE	MEP CO ALL MECT THE DET BE ANCH 2019 CBC 1. ALL	DMPONENT ANCHORAG HANICAL, PLUMBING, AND ELEC AILS ON THE DSA APPROVED CO ORED OR BRACED TO MEET THE SECTIONS 1617A.1.18 THROUG PERMANENT EQUIPMENT AND	E NOTE TRICAL COMPC DNSTRUCTION E FORCE AND E SH 1617A.1.26 / COMPONENTS	DNENTS S DOCUME DISPLACE AND ASC	<ul> <li>(3) HINGED ACCESS PAN FACTORY INSTALLED</li> <li>(4) CA COMPLIANT ECON FULLY MODULATING E BAROMETRIC RELIEF, CONTROL VENTILATIO</li> <li>(5) DISCONNECT BY DIV 2</li> <li>(6) CONTROLLER INTERF COMMUNICATION TO THERMOSTAT</li> <li>(7) UL 867 AND 2998 LISTE GENERATOP POWERE FACTORY INSTALLED</li> <li>SHALL BE ANCHORED AND INSTALLED</li> </ul>	ELS 1 IOMIZER WITH FDD, DAMPERS, AND DEMAND DN - OFCD 1 26 ELECTRICAL ACE FOR PELICAN WIRELESS ED NPBI TYPE ION ED BY UNIT - 1 INSTALLED PER MPONENTS SHALL ESCRIBED IN THE ND 30:	SYMBOL AC 1 1 A 10x10-3 120	DESCRIPTION -EQUIPMENT DESIGNATION -UNIT ABBREVIATION -NUMBER -GRILLE DESIGNATION -NECK SIZE & BLOW -CFM SUPPLY AIR RETURN AIR	ABBR AC-1 SA RA	CAL LE         SYMBOL	GENI ABBR S. W. D. V CW HW HWR	DESCRIPTION SOIL, WASTE OR DRAIN VENT DOMESTIC COLD WATER DOMESTIC HOT WATER DOMESTIC HOT WATER RETURN GAS MAIN BY GAS UTILITY COMPANY	integrated designs by SOMAM, Inc. ARCHITECTURE SOMAM, Inc. ARCHITECTURE SOMAM, Inc. 6011 N. FRESNO STREET, SUITE 130 FRESNO CALIFORNIA 93710 P:(559) 436-0881 F:(559) 436-0887 E: design@somam.com integrateddesigns.com
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V         CW         HW         HWR         G         RWL         OL         CD         D         IW         FCO         CUTR         GV OR SOV         BV         CV         RED         HB         PP	DESCRIPTION SOIL, WASTE OR DRAIN VENT DOMESTIC COLD WATER DOMESTIC HOT WATER DOMESTIC HOT WATER RETURN GAS MAIN BY GAS UTILITY COMPANY ILOW PRESSURE NATURAL GAS RAIN WATER LEADER OVERFLOW LEADER OVERFLOW LEADER CONDENSATE DRAIN DRAIN INDIRECT WASTE FLOOR CLEANOUT CLEANOUT TO GRADE FLOOR CLEANOUT CLEANOUT TO GRADE WALL CLEANOUT VENT THROUGH ROOF GATE OR SHUT - OFF VALVE BALL VALVE CHECK VALVE CHECK VALVE CHECK VALVE STRAINER UNION ELBOW UP ELBOW DOWN REDUCER	<section-header><section-header><section-header><section-header><section-header><section-header><text><text><text><text><text><text><text></text></text></text></text></text></text></text></section-header></section-header></section-header></section-header></section-header></section-header>
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THE STRUCTU E TO SUPPORT THE HANGEI</li> <li>CPLICABLE HCAI PRE-APPRI <u>SYSTEMS</u>.</li> </ul>	ELS OMIZER WITH FDD, DAMPERS, AND DEMAND DAMPERS, AND DEMAND DAMPERS, AND DEMAND DAMPERS, AND DEMAND DEMAND COPELICAL ACE FOR PELICAN WIRELESS ED NPBI TYPE ION ED BY UNIT - INSTALLED PER MPONENTS SHALL ESCRIBED IN THE ND 30: (e.g. HARD WIRED) ANENTLY 10/220 VOLT DS OR HAS A DF LEVEL THAT ER APPROVED BY ACHED TO THE SNOTED ABOVE. MPONENT AND MOVEMENT IN CATED 4 FEET OR COMPONENT. SYSTEMS, LESS UNG FROM A DE SUBJECT TO TRUCTURAL CTOR WILL VERIFY THE ABOVE CING NOTE AND 1617A.1.26. INSTRIBUTION CT SPECIFIC DISTRIBUTION CT SPECIFIC DOVAL (OPM #) DELINES FOR		DESCRIPTION	ABBR         AC-1         SA         SA         RA         ICU         ICU         FSD         SD         VCD         T'STAT         ICO2         RL         RS         AFF         ICO2         RL         ICO2         RL         ICO2         RL         OSA         POC         TYP		ABBR         S. W. D.         V         CW         HW         HWR         G         RWL         OL         CD         D         IW         FCO         COTG         WCO         VTR         GV OR SOV         BV         CV         STR         HB         PP         PRV	DESCRIPTION SOIL, WASTE OR DRAIN VENT DOMESTIC COLD WATER DOMESTIC HOT WATER DOMESTIC HOT WATER RETURN GAS MAIN BY GAS UTILITY COMPANY IOW PRESSURE NATURAL GAS RAIN WATER LEADER OVERFLOW LEADER OVERFLOW LEADER OVERFLOW LEADER INDIRECT WASTE FLOOR CLEANOUT INDIRECT WASTE FLOOR CLEANOUT CLEANOUT TO GRADE FLOOR CLEANOUT VENT THROUGH ROOF GATE OR SHUT - OFF VALVE BALL VALVE CHECK VALVE CHECK VALVE CHECK VALVE STRAINER UNION ELBOW UP ELBOW UP ELBOW DOWN REDUCER HOSE BIBB	<section-header><section-header><section-header><text><text><text><text><text><text><text></text></text></text></text></text></text></text></section-header></section-header></section-header>

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![](_page_162_Figure_1.jpeg)

![](_page_162_Picture_2.jpeg)

SCALE: 1/4" = 1

**KEY NOTES** # AC UNIT ON ROOF WITH 18x14(L) SUPPLY AIR PLENUM AND 26x12(L) RETURN AIR PLENUM DROP THRU ROOF. SEE DETAILS 3 & 8/M0.11. TRANSITION AND OFFSET AS NEEDED TO AVOID STRUCTURAL MEMBERS. SEE STRUCTURAL ROOF FRAMING PLAN. UNIT IS OWNER FURNISHED, CONTRACTOR INSTALL (OFCI) CEILING EXHAUST FAN WITH 6" ROUND EXHAUST DUCT THRU ROOF. PROVIDE FLASHING AND CAP ASSEMBLY SEE 4/M0.11 AND 7/M0.11 Owner: HVAC WIRELESS REPEATER. COORDINATE EXACT LOCATION WITH OWNER. PROVIDE 120/1 WALL OUTLET. OUTDOOR UNIT ON ROOF. EXTEND REFRIGERANT PIPING TO INDOOR UNIT. SEE 5/M0.11 UNIT IS OFCI INDOOR UNIT ON WALL. EXTEND REFRIGERANT BAKERSFIELD PIPING TO OUTDOOR UNIT. SEE 6/M0.11 UNIT IS OFCI **CITY SCHOOL** TOP OF THERMOSTAT AND CARBON DIOXIDE SENSOR AT 48" MAXIMUM ABOVE EINISHED ELOOR THERMOSTAT WITH INTEGRAL CO2 SENSOR IS OFCI DISTRICT 1300 BAKER ST BAKERSFIELD, CA 93305 Project Name: **PARENT CENTER** Project Address: DR. MARTIN LUTHER KING JR. ELEMENTARY SCHOOL 1100 Citadel, Bakersfield, CA 93307 integrated designs LEGEND by SOMAM, Inc. DESCRIPTION SYMBOL ABBR ARCHITECTURE -EQUIPMENT DESIGNATION AC ENGINEERING UNIT ABBREVIATION AC-1 INTERIOR DESIGN -NUMBER -GRILLE DESIGNATION A 10x10-3 NECK SIZE & BLOW 6011 N. FRESNO STREET, SUITE 130 FRESNO CALIFORNIA 93710 -CFM P:(559) 436-0881 F:(559) 436-0887  $\square$ SUPPLY AIR SA É: design@somam.com integrateddesigns.com  $\square$ **RETURN AIR** RA  $\square$ EXHAUST AIR EXH Ownership of Documents is document, the ideas and designs incorporated herein, as an instrument of essional Service is the property of Integrated Designs by SOMAM Inc. and is ACOUSTIC LINED DUCT (L) to be used, in whole or in part for any other project without written authorizat COPYRIGHT 2024 DUCT RISER DUCT DROP Stamp:  $\frac{1}{2}$ SQUARE TO ROUND FITTING FIRE/SMOKE DAMPER  $\rightarrow$ FSD 32712 EXP. 6-30-26 SD DUCT SMOKE DETECTOR SD \_\_\_\_\_ VOLUME CONTROL DAMPER VCD CARBON DIOXIDE SENSOR AT 48" MAXIMUM TO TOP OF BOX (CO2) CO2 S Sheet Title: SWITCH THERMOSTAT AT 48" MAXIMUM TO TOP OF BOX T **HVAC PLAN** REFRIGERANT LIQUID —— RL —— REFRIGERANT SUCTION RS — RS — — ABOVE FINISH FLOOR AFF EXISTING (E) Job No 5528 + + + +(E) TO BE REMOVED DEMO (N) NEW Sheet No .: OUTSIDE AIR OSA M2.11 X POINT OF CONNECTION POC TYPICAL TYP elease: ADDENDUM 1 11/22/24 C12022firs122-5528 BOSD MLK RABENT CENTERISHEETS SEAN PARKER

![](_page_163_Figure_0.jpeg)

![](_page_163_Figure_1.jpeg)

![](_page_163_Picture_2.jpeg)

# PLUMBING PLAN

í –		<u>EY NOI</u>	ES		
1 1	1-1/2"CW, 4" 3/4"CW, 2"W	'S, 2"V TO WATER CLOSE /, 1-1/2"V TO LAV, TYP.	<b>Τ,</b> ΤΥ <b>Ρ</b> .		
3.	3/4"CW, 2"W	WITH WCO, 1-1/2"V TO S	SINK, TYP.		
	OWNER. CO	OORINATE SINK INSTALL	ATION WITH	5	
4. (	COMBO RO ARCH ROO	OF DRAIN AND OVERFLC F PLAN FOR EXACT LOCA	OW DRAIN. SEE ATION.	-	Owner:
5. 3 7	3/4"CW TO I TYP.	HOSE BIBB AT 12" ABOVE	FINISH GRADE,		THE CIVIL SCHOOL
6. 3 5	3/4"CW UP 1 SEE ARCH F PLACE IN W	TO HOSE BIBB ON ROOF PLANS FOR EXACT LOCA /AI KWAY	WITH SOV, TYP. TION. DO NOT		
7. /	AC UNIT ON	I ROOF. SEE MECH PLAN	NS FOR EXACT		THE CHILD COM
8. (	CONNECT 3 AND DISCH	3/4"CD TO AC UNIT WITH ARGE TO NEAREST ROO 3/M0.11	TRAP PER 12/M0. IF DRAIN WITH AII	11 R	BAKERSFIELI
9.3	3" RWL DOV COTG AND	WN IN WALL TO BELOW G	GRADE, PROVIDE RM DRAIN SYSTE	M,	
10. 3 / E	3" OL DOWN ABOVE FINI SEAL WALL EXPOSED F	N IN WALL, DISCHARGE T SH GRADE WITH 1" EXTE PENETRATION WATER T PIPE TO MATCH WALL.	THRU WALL AT +1 ENSION PAST WA	2" LL.	DISTRICT 1300 BAKER ST BAKERSFIELD, CA 9330
ະ 11. ∥	SEE ARCH I	PLANS FOR EXACT LOCA	ENSATE PUMP. S	<u>1</u> SEE	
N 12. (	MECH PLAN CONNECT 3	IS FOR EXACT LOCATION	N. NIT, OFFSET ABO	VE	PARENI CENIE
) 13. ٤	CEILING, AN SEE CIVIL P	ND DISCHARGE TO TAILP	VIECE OF LAV.		
14. 1	1/2"CW BEL	OW FLOOR FROM TRAP I	PRIMER, 2"W, 1-1/	/2"V	
15. 3		TRAP PRIMER WITH SOV		<i>ا</i> ۸/	Project Address:
F	LOOR TO F	FLOOR DRAIN.			
					SCHOOL
					1100 Citadel,
					Bakersfield, CA 93307
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					integrated designs
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SYN	ивог	<b>DESCRIPTION</b> SOIL OR WASTE VENT	D AB S. V	BBR W.	Integrated
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		JESCRIPTION   SOIL OR WASTE   VENT   DOMESTIC COLD WAT   DOMESTIC HOT WATE   OMESTIC HOT WATE   CONDENSATE DRAIN   DRAIN   FLOOR CLEANOUT OF   CLEANOUT TO GRADE   WALL CLEANOUT   VENT THROUGH ROOD   GATE OR SHUTOFF V   UNION   ELBOW UP   ELBOW DOWN   REDUCER   HOSE BIBB   ABOVE FINISH FLOOF   CAP   EXISTING	D AB S. V IER CV IER CV IER CV IC I R CV IC I R CV I I R CV I I R CV I I R I I I I I I I I I I I I I I I I	BR W. W W D CO TG CO TG CO TG CO TG CO TG CO TG CO TG CO TG CO TG CO TG CO TG CO TG CO TG CO TG CO TG CO TG CO TG CO TG CO TG	LINE TITE: LINE SEASA LINE SEASA
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SYN		JESCRIPTION   SOIL OR WASTE   VENT   DOMESTIC COLD WAT   VENT   DOMESTIC HOT WATE   CONDENSATE DRAIN   DRAIN   FLOOR CLEANOUT OF   CLEANOUT TO GRADE   WALL CLEANOUT   VENT THROUGH ROOD   GATE OR SHUTOFF V   WALL CLEANOUT   VENT THROUGH ROOD   GATE OR SHUTOFF V   UNION   ELBOW UP   ELBOW DOWN   REDUCER   HOSE BIBB   ABOVE FINISH FLOOF   CAP   EXISTING   (E) TO BE REMOVED   NEW	D AB S. V IER CV IER CV IER CV IC IER IE		<image/> Lorentario de la construcción d
		JESCRIPTION   SOIL OR WASTE   VENT   DOMESTIC COLD WAT   DOMESTIC COLD WAT   DOMESTIC HOT WATE   CONDENSATE DRAIN   DRAIN   FLOOR CLEANOUT OF   CLEANOUT TO GRADE   WALL CLEANOUT   VENT THROUGH ROOD   GATE OR SHUTOFF VA   WALL CLEANOUT   GATE OR SHUTOFF VA   UNION   ELBOW UP   ELBOW DOWN   REDUCER   HOSE BIBB   ABOVE FINISH FLOOF   CAP   EXISTING   (E) TO BE REMOVED   NEW   POINT OF CONNECTION	D         AB         S.         V         FER       K         I	BR W. W W W D C C	Integrated Starp: Jon Nor Jon Nor J

![](_page_164_Figure_0.jpeg)

SERVICE: 120/208V 10	3W											BUS	S: 10	00A				LOC.: SEE PLAN
			•															MTG.: SURFACE
REMARKS	LO	AD	R E	L T	M I	P O	T R	C I		C I	T R	P O	R E	L T	M I	LO	AD	REMARKS
	ФА	ΦВ	C	G	S C	L E	I P	R C		R C	l P	L E	С	G	S C	ФА	ФВ	
R/R REC			1			1	20	1		2	20	1	3					WORK ROOM REC
COUNTER REC			1			1	20	3		4	20	1	1					SMART BOARD
"			1			1	20	5		6	20	1	2					WORK ROOM REC
"			1			1	20	7		8	20	1	2					"
REFRIGERATOR			1			1	20	9	*	10	20	1	2					ELECTRIC ROOM
← EXT REC			3			1	20	11		12	20	1	1					"
IDF	500		1			1	20	13		14	20	1						SPARE
IDF CABINET		180	1			1	20	15		16	20	1						MAG LOCK CONTROL
MAG LOCK DOORS	500		2			1	20	17		18	20	1						EXT LIGHTING
CHROME BOOK REC		500	1			1	20	19		20	20	1						LIGHTING
SPARE						1	20	21	1	22	15	2			1			OPU-1 / IDU-1
COND PUMP		200			1	1	20	23		24	Х	Х						"

						(N	) P.	ANE	EL S	SCHE	DU	LE	"LP	°C"						
SERVICE: 120/208V 3Ф	9 4 W		MAIN E	3KR.:	400	A - 3	P						BUS	S: 40	0A					LOC.: SEE PLAN
NEMA 3R																				MTG.: SURFACE
REMARKS		LOAD	I	R E	L	M I	P O	T R	C I		C I	T R	P O	R E	L	M I		LOAD		REMARKS
	ΦΑ	ΦВ	ФС	С	G	c c	L E	P	R C		C	P	E	C	G	C	ΦА	ΦВ	ФС	
PANEL LPC - 1						1	2	100	1		2									SPACE
11							Х	Х	3		4									
SPARE							2	100	5		6									
							Х	Х	7		8									
11							2	100	9		10									
							Х	Х	11		12									
11							2	100	13		14									
II							Х	Х	15		16									
SPARE							1	20	17		18									
11							1	20	19		20									
11							1	20	21		22									"
н							1	20	23		24									
						, ,				×		MIN	IMU	M BK	(R	-	ALCR		10.000	AMPS SYM

![](_page_164_Figure_3.jpeg)

## GENERAL NOTES

- I. VISIT JOB SITE AND VERIFY EXISTING CONDITIONS PRIOR TO BID.
- 2. THE ELECTRICAL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE 2019 CALIFORNIA ELECTRICAL CODE AND ALL APPLICABLE LOCAL ORDINANCES. WHERE PLANS CALL FOR A HIGHER STANDARD THAN APPLICABLE CODES, THE PLANS SHALL GOVERN.
- 3. CONDUIT RUNS ARE SHOWN DIAGRAMMATICALLY. EXACT LOCATIONS SHALL BE DETERMINED IN THE FIELD TO SUIT FIELD CONDITIONS.
- 4. ALL ELECTRICAL EQUIPMENT, APPLIANCES AND LIGHTING FIXTURES SHALL BE LISTED BY A RECOGNIZED TEST LAB AND BEAR THAT LABEL OF APPROVAL.
- 5. CONTRACTOR SHALL FURNISH, INSTALL AND CONNECT ALL MATERIAL AND EQUIPMENT FOR THIS WORK UNLESS OTHERWISE NOTED.
- 6. FURNISH DISCONNECT SWITCHES AT REMOTE MOTORS.
- 7. ALL SPACES AS INDICATED ON PANELS OR SWITCHBOARDS SHALL BE COMPLETE WITH HARDWARE AND BUSSING FOR FUTURE BREAKER OR SWITCH.
- 8. CHECK ARCHITECTURAL PLANS FOR DOOR SWINGS BEFORE INSTALLING SWITCH OUTLETS.
- 9. GROUNDING AND BONDING SHALL BE PER CODE PLUS ANY ADDITIONAL PROVISIONS SPECIFIED OR SHOWN ON DRAWINGS.
- O. ALL CONDUIT RUNS SHALL CONTAIN A CODE SIZED GREEN GROUND WIRE.
- II. THESE PLANS ARE NOT COMPLETE UNTIL APPROVED BY THE AUTHORITY HAVING JURISDICTION.
- 12. ALL CONDUCTORS SHALL BE IN CONDUIT.
- 13. ALL CONDUCTORS SHALL BE COPPER WITH TYPE THHN/THWN INSULATION.

### MEP Component Anchorage Note

All mechanical, plumbing, and electrical components shall be anchored and installed per the details on the DSA-approved construction documents. The following components shall be anchored or braced to meet the force and displacement requirements prescribed in the 2019 CBC Sections 1617A.1.18 through 1617A.1.26 and ASCE 7-16 Chapters 13, 26, and 30:

- 1. All permanent equipment and components.
- 2. Temporary, movable or mobile equipment that is permanently attached (e.g., hard wired) to the building utility services such as electricity, gas or water. "Permanently attached" shall include all electrical connections except plugs for 110/220 volt receptacles having a flexible cable.
- 3. Temporary, movable or mobile equipment which is heavier than 400 pounds or has a center of mass located 4 feet or more above the adjacent floor or roof level that directly support the component is required to be restrained in a manner approved by DSA.

The following mechanical and electrical components shall be positively attached to the structure but need not demonstrate design compliance with the references noted above. These components shall have flexible connections provided between the component and associated ductwork, piping, and conduit. Flexible connections must allow movement in both transverse and longitudinal directions:

- A. Components weighing less than 400 pounds and having a center of mass located 4 feet or less above the adjacent floor or roof level that directly support the component.
- B. Components weighing less than 20 pounds, or in the case of distributed systems, less than 5 pounds per foot, which are suspended from a roof or floor or hung from a wall.

The anchorage of all mechanical, electrical and plumbing components shall be subject to the approval of the design professional in general responsible charge or structure engineer delegated responsibility and acceptance by DSA. The project inspector will verify that all components and equipment have been anchored in accordance with the above requirements.

### Piping, Ductwork and Electrical Distribution System Bracing

Piping, ductwork and electrical distribution systems shall be braced to comply with the forces and displacements prescribed in ASCE 7-16 Section 13.3 as defined in ASCE 7-16 Sections 13.6.5, 13.6.6, 13.6.7, 13.6.8; and 2019 CBC, Sections 1617A.1.24, 1617A.1.25 and 1617A.1.26.

The method of showing bracing and attachments to the structure for the identified distribution system are as noted below. When bracing and attachments are based on a preapproved installation guide (e.g., HCAi OPM for 2013 CBC or later), copies of the bracing system installation guide or manual shall be available on the jobsite prior to the start of and during the hanging and bracing of the distribution systems. The Structural Engineer of Record shall verify the adequacy of the structure to support the hanger and brace loads.

Electrical Distribution Systems (E):

Detailed on the approved drawings with project specific notes and details.

### ACCESSIBILITY NOTES

Installation of switches, outlets and controls to reflect the accessibility requirements of the 2022 CBC Chapters 11A and 11B for Accessibility.

1. CBC 11B-308.1.1 Electrical controls and switches intended to be used by the occupant of a room or area shall be located within the allowable reach ranges. Low reach shall be measured from the bottom of the outlet box and high reach is measured to the top of the outlet box.

2. CBC 11B-308.1.2 Electrical receptacle outlets on branch circuits of 30 amperes or less and communication system receptacles shall be located in the allowable reach range. Low reach shall be measured from the bottom of the outlet box and high reach is measured to the top of the outlet box.

3. CBC 11B-308.2.1 High forward reach that is unobstructed shall be 48 inches maximum and the low forward reach shall be 15 inches minimum above finish floor or ground.

4. CBC 11B-308.2 Forward Reach Obstructed - Electrical receptacle outlets shall be located no more than 44 inches measured from the top of the receptacle outlet box when the obstruction is over 20" and does not exceed 25". When the depth is less than 20" height can be increased to 48". (desk counters)

5. CBC 11B-308.3 Side Reach Obstructed - Electrical receptacle outlets shall be located no more than 46 inches measured from the top of the receptacle outlet box when the obstruction is over 10" and does not exceed 24". When the depth is less than 10" height can be increased to 48".

6.Overhang light fixtures or wall fixtures projecting more than 4" from the wall surface shall be a minimum of 80" above the walking surface.

![](_page_164_Picture_44.jpeg)

## SYMBOLS

· ·	CONDUIT EXISTING
	CONDUIT CONCEALED IN WALL OR CEILING
	CONDUIT STUBBED OUT AND CAPPED
	CONDUIT TURNED UP
	CONDUIT TURNED DOWN
<b>\</b> \\	HATCH MARKS INDICATE NO. OF #12 WIRES IN CODE SIZED CONDUIT (3) MAX. IN $1/2''$ C., (5) MAX. IN $3/4''$ C., (8) MAX IN $1''$ C. NO MARKS = 2.#12
	HOME RUN: LETTER INDICATES PANEL, NUMBER(S) INDICATES CIRCUIT(S).
====	SAWCUT
	GROUND CONNECTION
	DISTRIBUTION SWITCHBOARD OR PANEL
	PANEL, BRANCH CIRCUIT TYPE, SURFACE AND FLUSH SIGNAL TERMINAL CABINET, SURFACE & FLUSH
$\bigcirc$	FLU2RESCENT FIXTURE
2 a	OUTLET DATA: BAR INDICATES WALL MOUNT, LETTER INDICATES SWITCH CONTROL, NO. INDICATES CIRCUIT. SURFACE FIXTURE ON FLUSH OUTLET.
$\overline{D}$	RECESSED FIXTURE WITH JUNCTION BOX FOR THRU WIRING
2 2 2	EXIT LIGHT WITH ARROWS AS SHOWN ON PLANS, WALL AND
	CEILING MOUNT. LOW LEVEL EXIT SIGN. +6" AFF. +4" FROM DOOR JAMB
A 100	LIGHT FIXTURE DESIGNATION, LETTER INDICATES TYPE, NO. INDICATES WATTAGE. SEE FIXTURE SCHEDULE.
	MECHANICAL EQUIPMENT DESIGNATION.
$\bigtriangleup$	SEE MECTANICAL DRAWINDS. SPECIAL RECEPTACLE - SEE PLAN
$(M) \rightarrow$	METER
$\odot$	FLUSH FLOOR RECEPTACLE
$\Rightarrow$	RECEPTACLE, DUPLEX, 15A, 125V, NEMA 5-15R +18" U.N.O.
$\Rightarrow$	DUPLEX RECEPTACLE MTD. ABOVE BACKSPLASH
	DUPLEX RECEPTACLE W/LOWER HALF SWITCHED
	GROUND FAULT CIRCUIT INTERRUPTING RECEPTACLE
<b>+</b>	DAUBLE DUPLEX RECEPTACLE
Ø	CEILING RECEPTACLE
$\stackrel{\frown}{\rightarrow}$	RECEPTAGLE, DUPLEX, 20A, 125V, NEMA 5-20R +18" U.N.O.
	THERMOSTAT FB0 $\pm 48''$
(1)	MOTOR, NO. INDICATES HORSEPOWER
Ð	CLOCK OUTLET +7'-6" U.N.O.
$\Box$	DISCONNECT SWITCH, NON-FUSED
F	DISCONNECT SWITCH FUSED HORSEPOWER RATED OR SIZED AS
$\bowtie$	COMBINATION MAGNETIC STARTER WITH DISCONNECT SWITCH AND
	FUSES
	DIMMER W/INTEGRAL "2N-2FF" SW
•	
<u></u>	PHOTOCELL
SD	SMOKE DETECTOR
$\bowtie$	TELEPHONE/COMPUTER/DATA OUTLET, TWO GANG BOX W/  GANG COVERPLATE & GROMMETED OPENING +18" U.N.O.
	CABLE TV OUTLET +18" U.N.O.
M	MOTION SENSOR
\$	EXISTING SWITCH
S	SINGLE PALE SWITCH
S <sup>2</sup>	DOUBLE POLE SWITCH QUIET TOGGLE TYPE RATED AT $200 120/277 4 c +42"$ UNC
2 <sup>3</sup>	THREE WAY SWITCH
S <b>F</b>	SWITCH W/PILOT LT.
SM	MANUAL MOTOR STARTER
FACP	FIRE ALARM CONTROL PANEL
GFI	GROUND FAULT CIRCUIT INTERRUPTING LABOR SAVING TANDEM
MLO	MAIN LUGS ONLY
W/	
С.С. М.Ф	
F.B.O.	FURNISHED BY OTHERS, INSTALL & CONNECT
U.N.O.	UNLESS NOTED OTHERWISE
N.E.C.	NATIONAL ELECTRICAL CODE ELECTRICAL ENGINEERING
(E)	EXISTING CA REGISTRATION NO E13083
(N)	NEW 22492
	REMOVE 627 OLIVE STREET
(RL)	KELUCAIE SANTA BARBARA CA 93101 SANTA BARBARA CA 93101 (805) 569–9216
5/M 1]/G	UNDERGROUND FAX (805) 569–2405 email : maloney@jmpe.net
CWP	COLD WATER PIPE
AFF	ABOVE FINISHED FLOOR
HACR	HEATING AND AIR CONDITIONING RATED CIRCUIT PREAKER
N.L.	
NOTE: NOT	ALL SYMBOLS SHOWN ARE USED ON THIS PROJECT.

![](_page_164_Picture_47.jpeg)

Owner:

Date: 11/22/24

5528

E-1.0

Job No.:

Sheet No.:

![](_page_165_Figure_0.jpeg)

![](_page_165_Picture_1.jpeg)

Date: 11/22/24

![](_page_166_Figure_0.jpeg)

![](_page_166_Figure_1.jpeg)

ELECTRICAL FLOOR PLAN SCALE: 1/4" = 1'-0"

![](_page_166_Picture_5.jpeg)

![](_page_166_Picture_6.jpeg)

Release: ADDENDUM 1

JMPE

22492

ELECTRI AL ENGINEERING

LIGHT NG DESIGN

CA REGIST ATION NO E13083

627 OLIVE STREET SANTA BARBARA CA 93101 (805) 569-9216 FAX (805) 569-2405 email : maloney@jmpe.net www.jmpe.net

Date: 11/22/24

			LED FIXTUR	E SCHED	ULE		
			LED MODULE				
TYPE	MANUFACTURER AND CATALOG NUMBER	TYPE	COLOR TEMP	WATTS	DRIVER	OPTIC/LENS	REMARKS
$\begin{pmatrix} A \\ 34 \end{pmatrix}$	LITHONIA 2BLT448LADPGZ10LP835		3500К	34	0-10V	DIFFUSE	2 X 4
$\begin{pmatrix} B \\ 34 \end{pmatrix}$	LITHONIA FMLWL848-35K		3500К	34	0-10V	DIFFUSE	4 FT S/M WRAP
$\begin{pmatrix} C \\ 14 \end{pmatrix}$	LITHONIA EVOSH30/15DFFSOLMVOLTEZ10		3500К	14	0-10V	DIFFUSE	6" WP DOWNLIGHT
$\left\langle \begin{array}{c} D\\ 24 \end{array} \right\rangle$	TECH 700BCBAS24S927LED		2700К	24	ELV	DIFFUSE	VANITY LIGHT
$\begin{pmatrix} E \\ 6 \end{pmatrix}$	ISOLITE RLPGUWHMTEB		GREEN 4000K	6	NICAD BATTERY	PRISMATIC	EXIT SIGN W/ EM LIGHT
$\left\langle \begin{array}{c} ED \\ 6 \end{array} \right\rangle$	ISOLITE RLEMGUWHMTEB		GREEN 4000K	6	NICAD BATTERY	PRISMATIC	DOUBLE SIDED EXIT SIGN W/ EM LIGHT
$\begin{pmatrix} X \\ 35 \end{pmatrix}$	LITHONIA CNY LED P1 40K MVOLT DDB		4000K	35	0-10V	DIFFUSE	LED CANOPY LIGHT
$\begin{pmatrix} Y \\ 45 \end{pmatrix}$	RADIAN LIGHTING RAD PT P2 40K PATH 120 PT4 PE RSS12		4000K	45	0-10V	DIFFUSE	LED POLE LIGHT

![](_page_167_Figure_1.jpeg)

 $\bigcirc$ 

~ \_\_\_\_\_

![](_page_167_Figure_3.jpeg)

![](_page_167_Figure_4.jpeg)