Department of Conservation and Development

Airport Land Use Commission

Thursday, January 16, 2025 – 7:00 P.M.

STAFF REPORT **Agenda Item# 5.a.**

Project Title:	FSRE Industrial Concord Project
ALUC File #:	County File# DP21-03022
Lead Agency:	Contra Costa County
Applicant/Owner:	FSRE Industrial Concord Company, LLC/Contra Costa County
Site Address/Location:	Buchanan Field's western edge between Marsh Drive and Sally Ride Drive
Staff Recommendation(s):	APPROVE (see Staff Report Section VI)
List of Exhibits:	Exhibit A: Proposed Project Plans Exhibit B: Solar Glare Hazard Report Exhibit C: FAA Aeronautical Study
Staff Contact:	Jamar Stamps, AICP, (925) 655-2917

I. PROJECT SUMMARY

The applicant requests Airport Land Use Commission ("ALUC") review and determination of consistency with the *Contra Costa Airport Land Use Compatibility Plan* ("Plan") for the proposed FSRE Industrial Concord Project ("proposed project") which will construct a single-story concrete tilt-up logistics warehouse totaling 223,145 square feet, including approximately 213,962 square feet of warehouse space and approximately 9,183 square feet of ancillary office space, 3.11 acres of on-site stormwater treatment areas (detention and bioretention), and a rooftop photovoltaic ("PV") solar energy system. The proposed project site is a 15.5-acre leasehold area on the western Buchanan Field Airport property, located between Marsh Drive and Sally Ride Drive in unincorporated Contra Costa County. Proposed project plans are provided in Exhibit A.

II. RECOMMENDATION

APPROVE (see Staff Report Section VI)

III. BACKGROUND

July 2021, the Contra Costa County ("County") Department of Conservation and Development received a Development Plan application (County File #DP21-3022) for a proposed 98,000 square foot distribution warehouse. The proposed project underwent significant modification and was resubmitted in June 2022 as a proposed 225,150 square foot general purpose warehouse. Following resubmittal, the proposed project underwent additional modifications, including reducing the size of the proposed warehouse to 223,145 square feet and incorporating approximately 3.11 acres of on-site stormwater treatment areas (detention and bioretention).

July 2024, the County published a Notice of Preparation ("NOP") and Public Scoping Meeting for an Environmental Impact Report ("EIR"). ALUC staff received the NOP which contained the proposed project description, various maps, and the proposed site plan. ALUC staff determined release of the NOP was an appropriate point to begin ALUCP review as the project would be less likely to undergo significant modification during the Draft EIR process (barring discovery of significant environmental effects).

When reviewing major land use actions, the Plan gives ALUC staff two choices of action[1]:

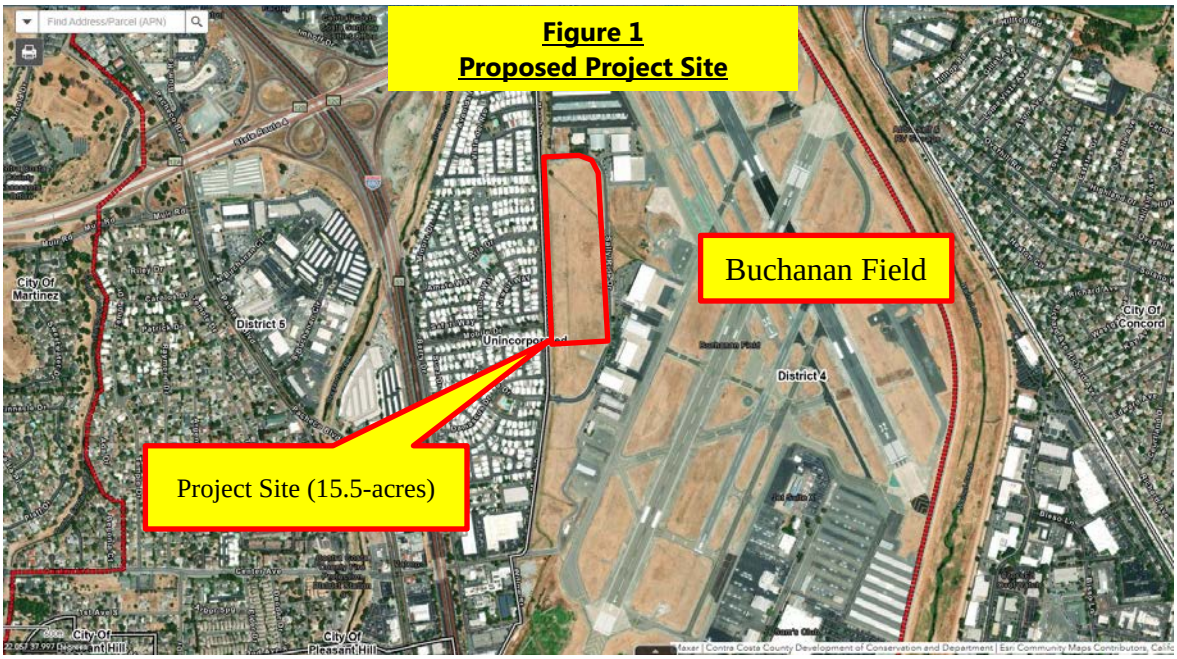
a. *Find that the proposed project does not contain characteristics likely to result in inconsistencies with the compatibility criteria set forth in this plan. The Secretary is authorized to approve such projects on behalf of the Commission.*

b. *Find that the proposed project may be inconsistent with the Compatibility Plan. The Secretary shall forward any such project to the Commission for a consistency determination.*

As discussed later in this staff report, ALUC staff believes the proposed warehouse building and stormwater facilities do not present significant compatibility concerns. However, the proposed PV solar energy system warrants Commission review (note, the project as a whole is under the Commission's purview). The proposed project site is shown in Figure 1:

[1] ALUCP Policy 2.3.2. – ALUC Secretary's Choices

Figure 1
Proposed Project Site



The proposed project site is a vacant 15.5-acre leasable area within the Buchanan Field Airport property, between Marsh Drive and Sally Ride Drive, west of the runways.

IV. AIRPORT LAND USE COMPATIBILITY PLAN ANALYSIS

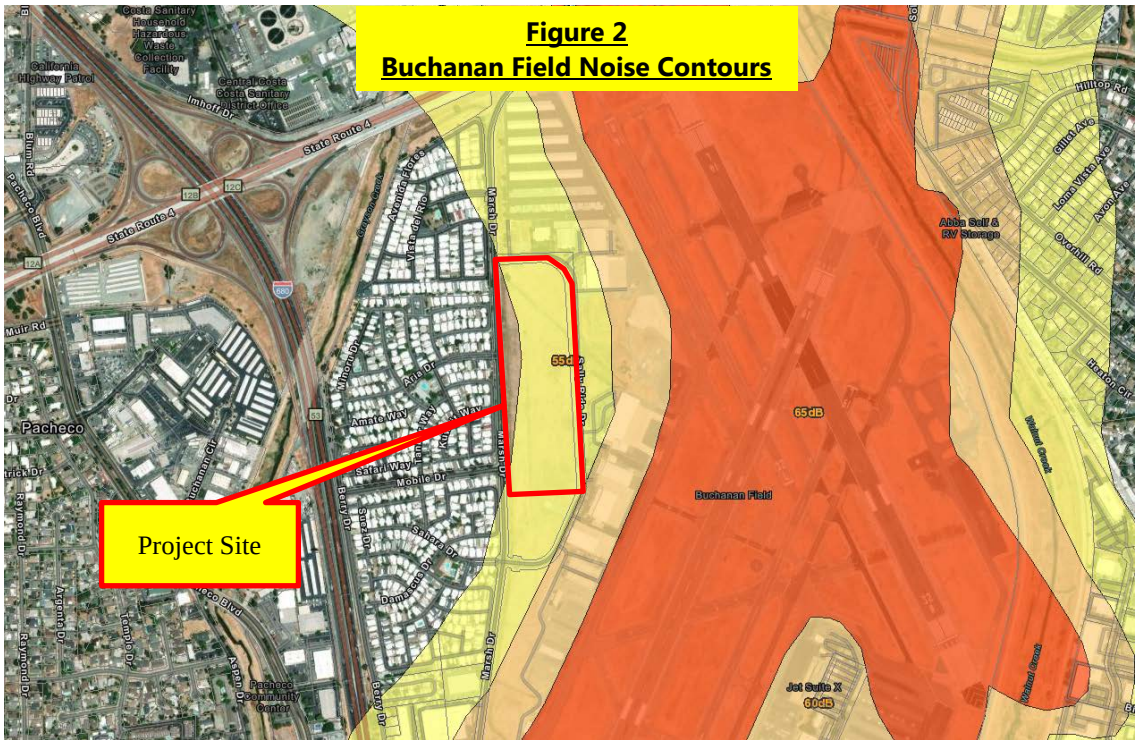
ALUCP criteria potentially affected by the proposed project are provided as follows:

A. Airport Influence Area ("AIA"): The project site is within the Airport Influence Area ("AIA") of Buchanan Field Airport.

B. Noise Compatibility Criteria: The project site is within Buchanan Field's 55db noise contour (Figure 2). The proposed land use falls within the *Commercial and Industrial: offices, utilities*[2] land use category of the Buchanan Field Airport Noise Compatibility Criteria (Table 3A of the Plan). The Plan considers the proposed land use "Clearly Acceptable," meaning, *"the activities associated with the specified land use can be carried out with essentially no interference from the noise exposure."*

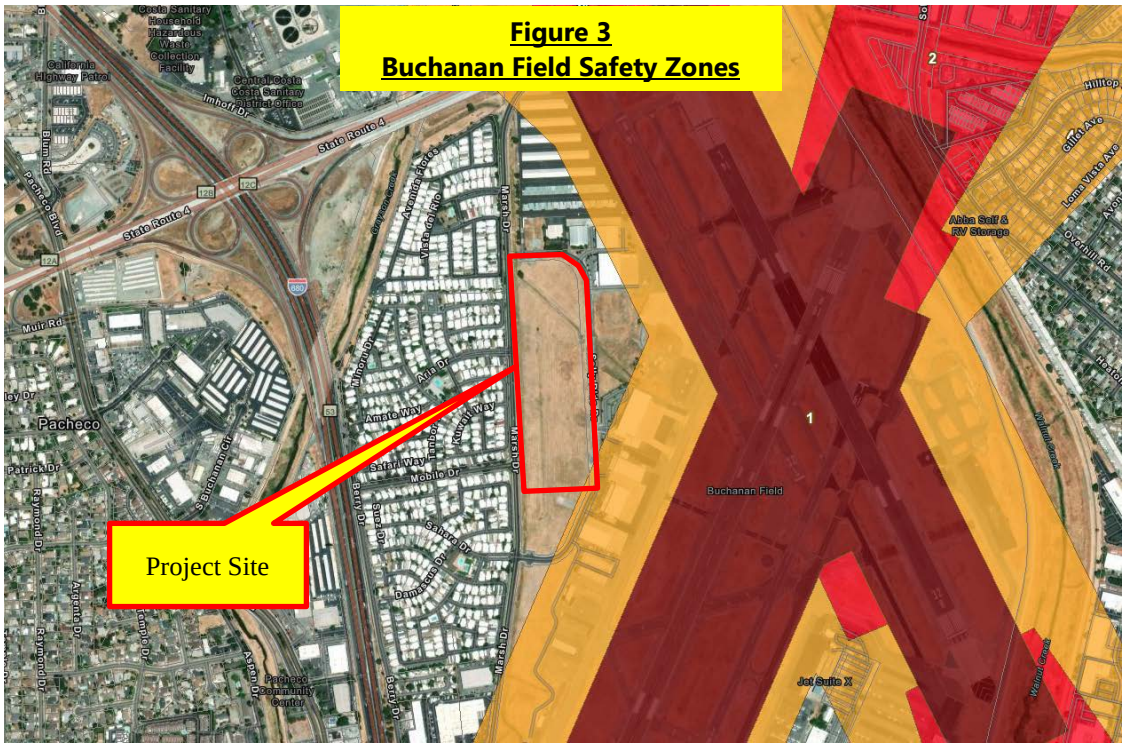
[2] *Contra Costa Airport Land Use Compatibility Plan (December 2000), Chapter 3 – Buchanan Field Policies*

Figure 2
Buchanan Field Noise Contours



C. Safety Compatibility Criteria: The project site is not within any of Buchanan Field's Safety Zones (Figure 3).

Figure 3
Buchanan Field Safety Zones



D. Airspace Protection Criteria: The basic criteria for limiting the height of structures, trees, and other objects near airports are set by federal regulations: Part 77, Subpart C, of the Federal Aviation Regulations ("FAR"); the United States Standard for Terminal Instrument Procedures ("TERPS"); and applicable airport design standards[3]. The project site is within Buchanan Field's Horizontal Surface 173' M.S.L. (mean sea level) (150' Above Airport Elevation of 23'), as shown on Figure 3D of the Plan. The proposed project site elevation is approximately 20 feet above mean sea level ("AMSL"). The proposed warehouse is approximately 44 feet 8 inches above ground level ("AGL") creating an overall object height of up to approximately 64 feet 58 inches AMSL. Therefore, proposed object heights will not impact Buchanan Field's protected airspace.

E. Overflight: The project site is not located directly within Buchanan Field's flight paths where the most significant concerns are considered to typically exist but is directly adjacent to Buchanan Field where general airport operations may expose sensitive receptors to varying frequencies of overflight annoyance.

Annoyance from the presence of frequent aircraft overflights and perceived safety could be factors for concern but vary depending on the individual and therefore tend to be subjective. Overflight concerns typically affect residential development or development intending to host sensitive receptors (e.g., schools, hospitals, etc.). However, based on the nature of the proposed use (i.e., warehousing where most activities are indoors), annoyance from frequent Buchanan Field overflight would not be a compatibly concern.

V. DISCUSSION

The proposed warehouse building and stormwater facilities likely do not contain characteristics that result in ALUCP compatibility concerns. However, given the proximity and orientation of the proposed building with a rooftop PV solar energy system installed, it is necessary to consider the potential for glint and glare as a potential hazard to pilots and airport operations.

FAA Guidance for Review of Solar Energy System Projects

October 2013, the Federal Aviation Administration ("FAA") and United States Department of Energy ("USDOE") developed policy guidance for review of solar energy projects on federally obligated airports. The guidance assists local agencies in evaluating solar energy projects to ensure safety by eliminating the potential for

[3] ALUCP Policy 4.3. – Airspace Protection

ocular impact[4] to pilots and/or air traffic control facilities due to glare from such projects. Per the 2013 guidance, for a proposed solar energy project to be deemed to have no ocular impact it must meet the following standards:

A. *No potential for glint or glare in the existing or planned Airport Traffic Control Tower ("ATCT") cab, and*

B. *No potential for glare or "low potential for after-image" along the final approach path for any existing landing threshold or future landing thresholds (including any planned interim phases of the landing thresholds) as shown on the current FAA-approved Airport Layout Plan ("ALP"). The final approach path is defined as two (2) miles from fifty (50) feet above the landing threshold using a standard three (3) degree glidepath.*

Per FAA guidance, ocular impact must be analyzed over the entire calendar year in one (1) minute intervals from when the sun rises above the horizon until the sun sets below the horizon[5].

May 2021, this policy was updated[6] to replace the 2013 policy. Primarily, the FAA determined that glare analysis would only be required for airports with ATCTs, and glare analysis from the perspective of the pilot's final approach is no longer required. Based on analysis collected since the 2013 policy was instituted, the FAA concluded that in most cases, the glint and glare from solar energy systems to pilots on final approach is similar to glint and glare pilots routinely experience from water bodies, glass façade buildings, parking lots, and similar features.

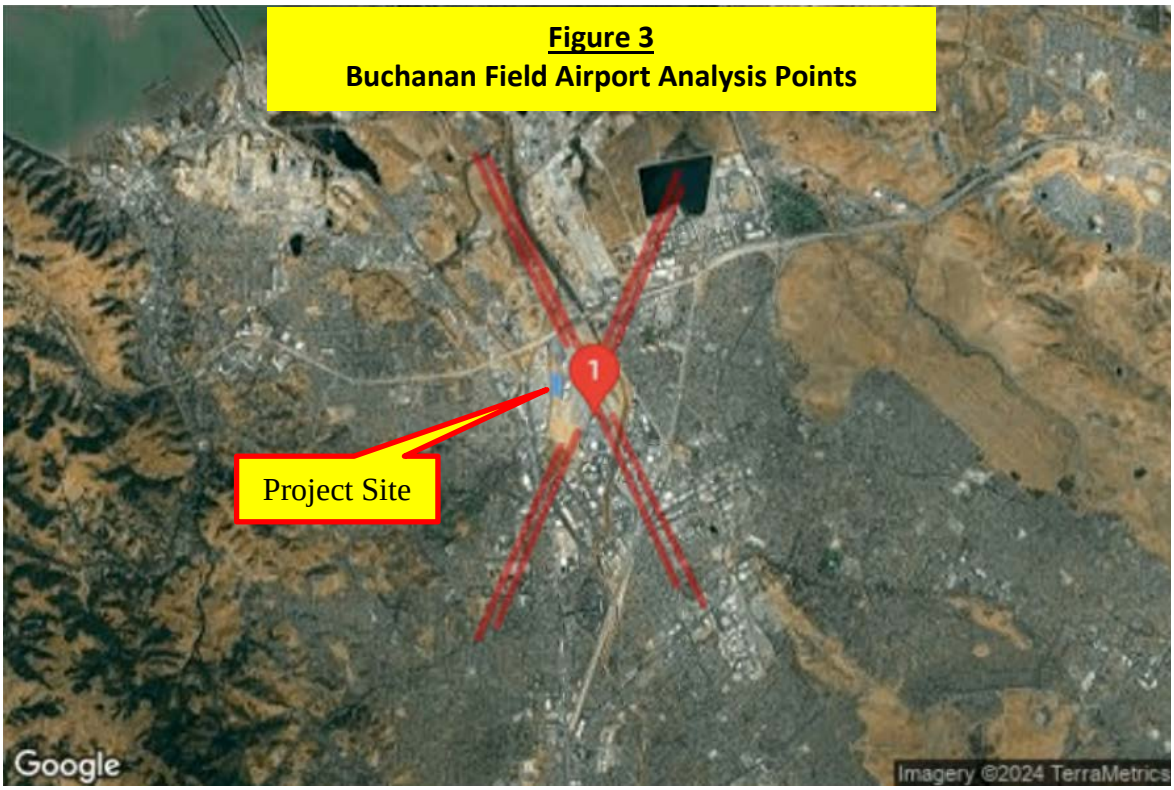
Solar Glare Hazard Report (June 2024)

June 2024, a solar glare hazard report was completed by Harris Miller Miller & Hanson Inc. ("HMMH") for the proposed project (Exhibit B). The report applies the 2013 FAA guidance (considered more conservative) and analyzes glint and glare from Buchanan Field's final approaches and the ATCT. To calculate the potential for aviation hazards from glare, the proposed project was modeled in a glare impact analysis software program originally developed by the FAA and USDOE (Solar Glare Hazard Analysis Tool or "SGHAT"), which was later improved by a private company

[4] Ocular impact is generally defined on a plot (function of retinal irradiance and the subtended angle of the glare source) of potential hazard from solar glare ranging from "low potential" to "retinal burn/permanent eye damage."
[5] U.S. Department of Transportation, FAA Review of Solar Energy System Projects on Federally Obligated Airports, Federal Register / Vol. 78, No. 205 (2013)
[6] U.S. Department of Transportation, FAA Review of Solar Energy System Projects on Federally Obligated Airports, Federal Register / Vol. 86, No. 89 (2021)

(ForgeSolar) and accepted by the FAA. This model uses various inputs including project and site-specific attribute data to analyze the potential for solar glare of any intensity for every minute of the year at several user-defined observation points and/or routes (Figures 3). Specifically, the analysis for the proposed project assessed all eight final approach flight paths at Buchanan Field.

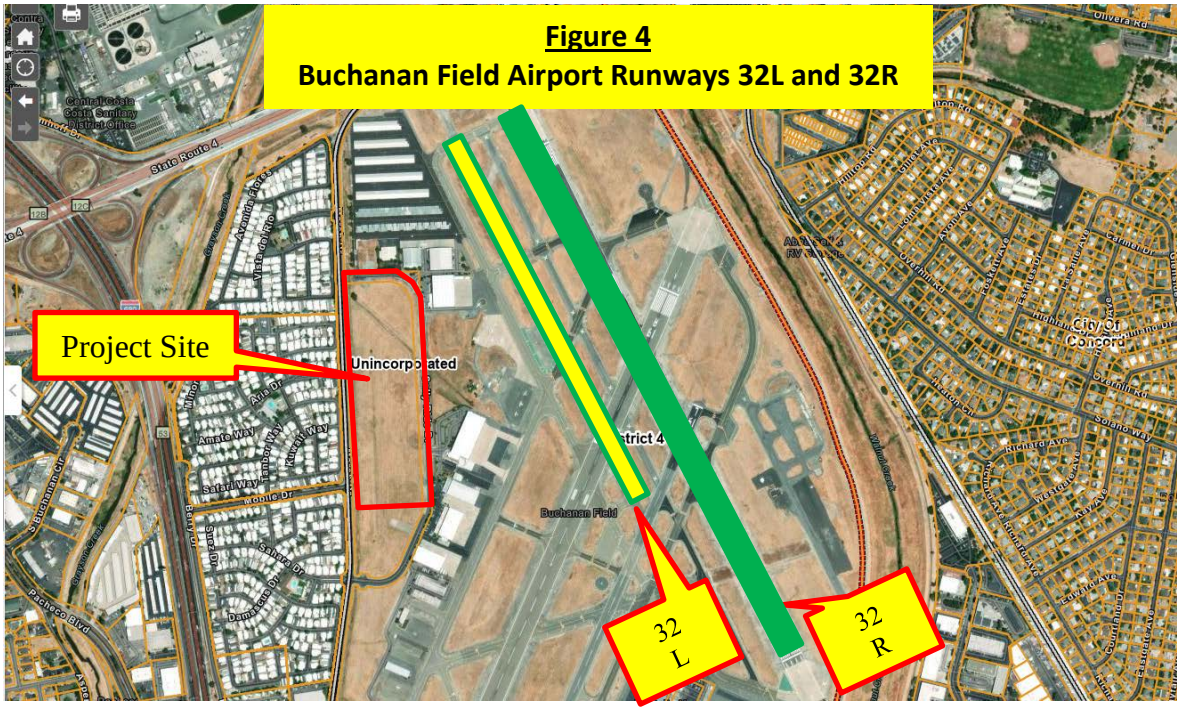
Figure 3
Buchanan Field Airport Analysis Points



The proposed project's solar glare hazard report concluded that the proposed PV solar energy system would not create glare that would result in a hazard to air navigation to 7 of the 8 final runway approaches or the Buchanan Field ATCT. However, the analysis shows 1,264 minutes of green and 1,161 minutes of yellow glare[7] for the Runway 32L approach, and 931 minutes of green glare for the Runway 32R approach (Figure 4). According to FAA guidance, green glare is generally acceptable while yellow glare could have the potential for temporary after image.

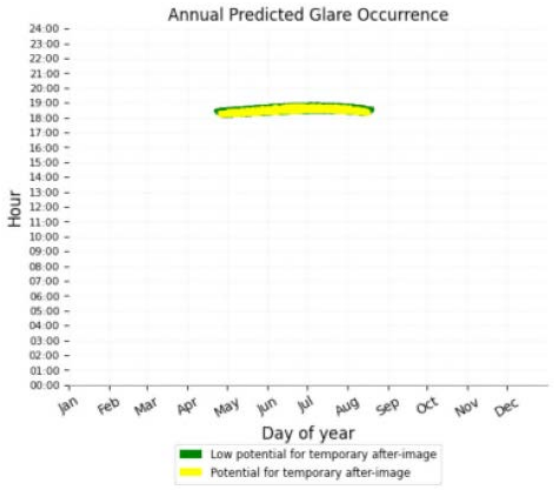
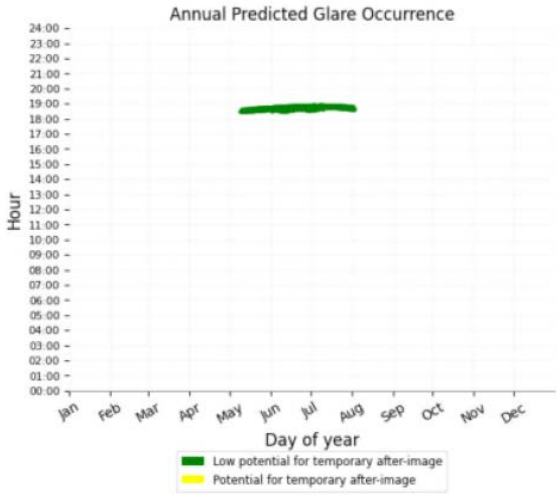
[7] SGHAT software classifies solar glare in terms of ocular impact. The categories of impact are: Green Glare = low impact/low potential for after image; Yellow Glare = potential for temporary after image; Red Glare = potential to cause retinal burn (permanent eye damage).

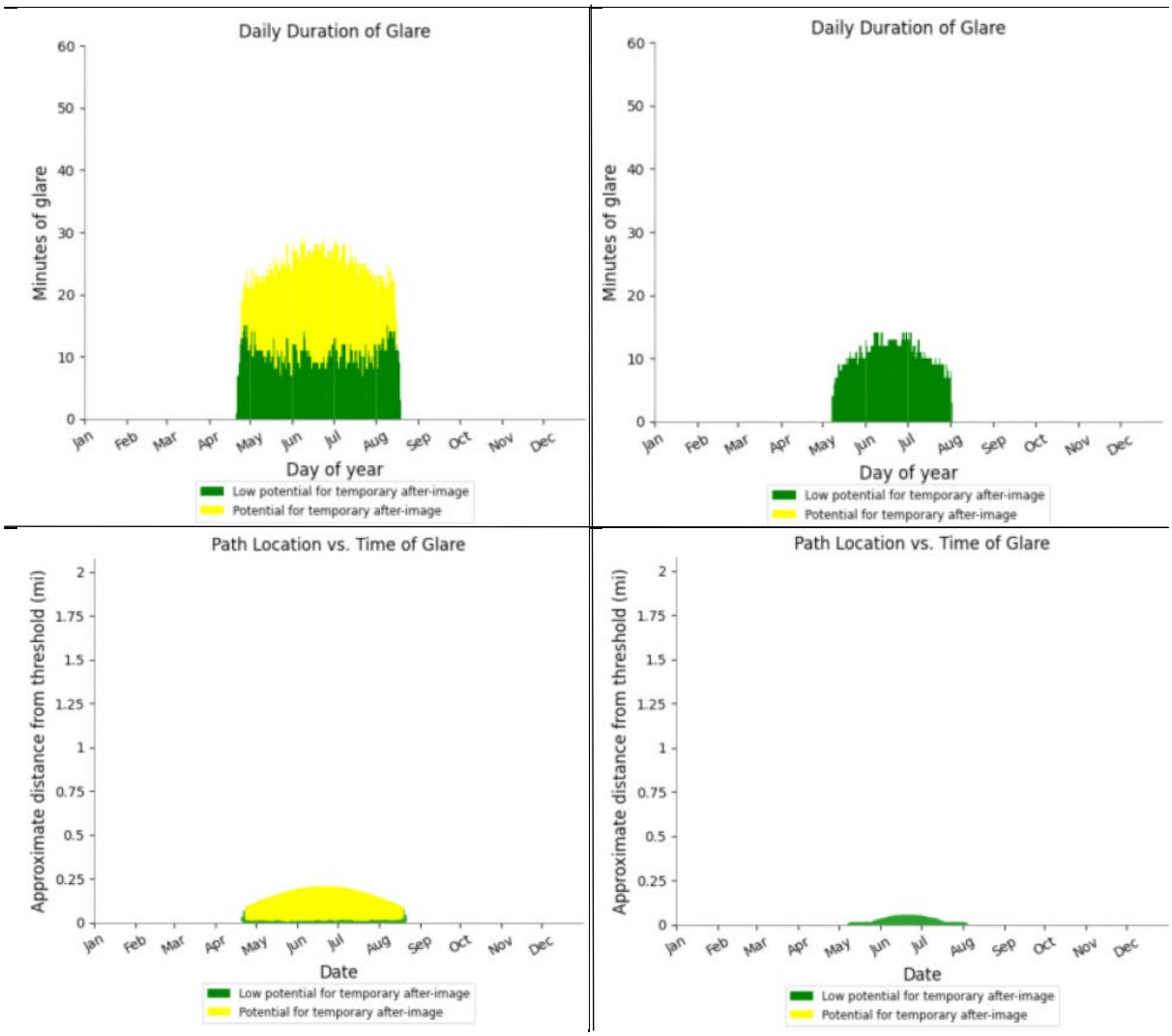
Figure 4
Buchanan Field Airport Runways 32L and 32R



The time of year and duration of green and yellow glare for both runways is further illustrated below (Table 1, also see diagrams in Exhibit B). The model predicts this glare occurring within approximately 0.25 miles or less of the end of either final approach (i.e., within 0.25 miles or less of the end of the runway).

TABLE 1

Flight Path: RWY 32L 1,611 minutes of yellow glare 1,264 minutes of green glare	Flight Path: RWY 32R 0 minutes of yellow glare 931 minutes of green glare
	



As mentioned in the previous section, the latest 2021 FAA Glare Standards updated and replaced the previous 2013 policy including removing the requirement to evaluate glare for pilots on final approach. However, the Commission may determine the amount and duration of yellow glare is significant enough to warrant modification or removal of the proposed PV solar energy system.

<u>Federal Aviation Administration Obstruction Evaluation / Airport Airspace Analysis ("OE/AAA")</u>

November 2024, the FAA completed the OE/AAA (Exhibit C) for the proposed project. The FAA OE/AAA used multiple reference points for the proposed project site, each ultimately resulting in a "No Hazard" determination. The determinations also required mitigating glint or glare impacts to Buchanan Field's ATCT if impacts are discovered after construction (assuming a PV solar energy system is installed).

Proposed Off-Line Detention Basin

The proposed 2.7-acre off-line stormwater detention basin may have the potential for attracting hazardous wildlife. FAA Advisory Circular 150/5200-33C, *Hazardous Wildlife Attractants on or near Airports,* recommends new stormwater facilities be designed for a maximum 48–hour detention period after the design storm and to remain completely dry between storms[8]. Physical barriers (e.g., netting, wire mesh, etc.) are also recommended to prevent access of hazardous wildlife to open water. Per the proposed project's hydrologic report[9], *a small pump system will be installed along the floor of the basin to assure the basin will fully drain even in conditions of elevated ditch baseflow and/or high groundwater levels*. This, with appropriate monitoring, would ensure wildlife hazards are not a concern.

VI. CONCLUSION

The proposed warehouse building and stormwater facilities do not contain characteristics that result in inconsistencies with ALUCP compatibility criteria. The solar glare hazard report, prepared in accordance with FAA guidance, for the proposed rooftop PV solar energy system resulted in a limited duration of yellow glare for Runway 32L. Otherwise, there are no significant ocular hazards. Additionally, the FAA OE/AAA determined the proposed project results in no hazard to air navigation. Therefore, ALUC staff recommends the Commission approve the proposed project with the following conditions:

1. PV solar energy system:
    a. APPROVE, the predicted amount and intensity of yellow glare is nominal and would not present a significant hazard to air navigation, or

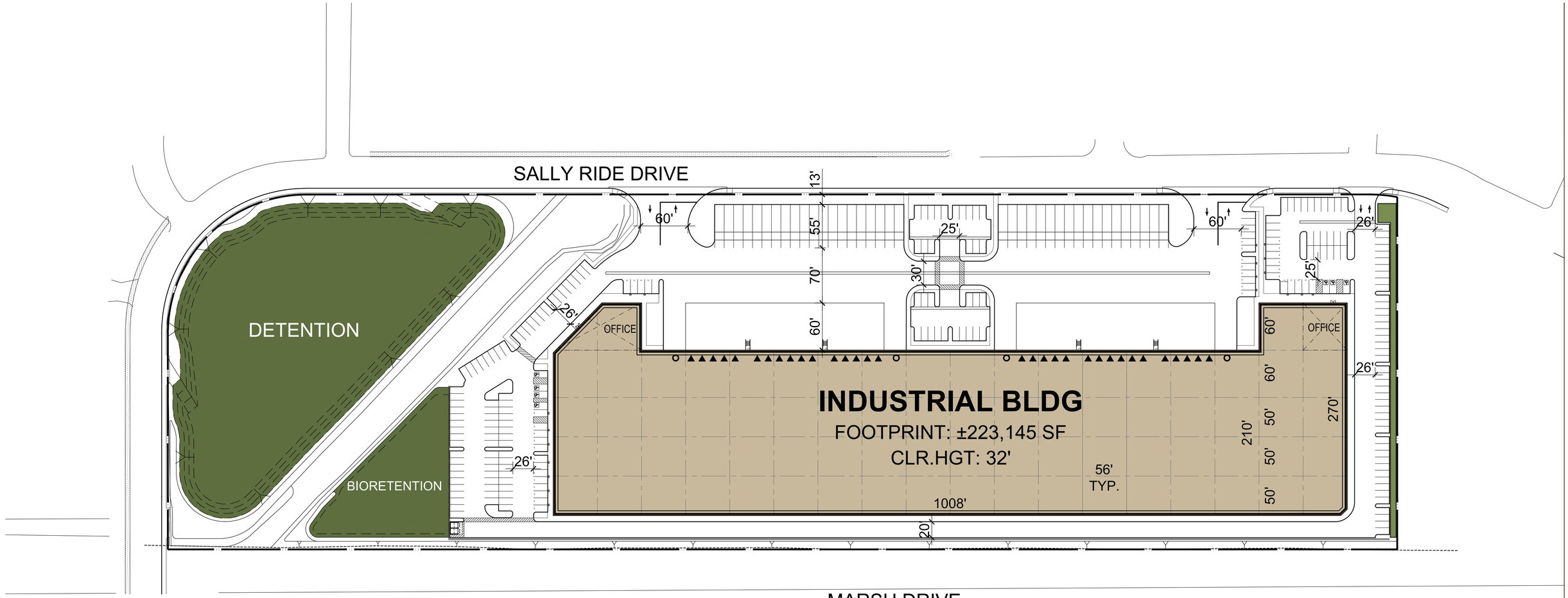
    b. CONDITIONALLY APPROVE, the predicted amount and intensity of yellow glare may be mitigated with the use of a tracker system or other rack technology to adjust panel positioning and minimize glare, or

    c. OTHER ACTION: The Commission may also determine another action(s) and/or condition(s) as appropriate.

2. Stormwater facilities shall be designed in accordance with FAA Advisory Circular 150/5200-33C, 2.3.2 New Stormwater Management Facilities.

[8] FAA Advisory Circular 150/5200-33C, 2.3.2 New Stormwater Management Facilities
[9] Hydraulic Modeling for the Proposed Sally Ride Field Commercial Project, August 9, 2023

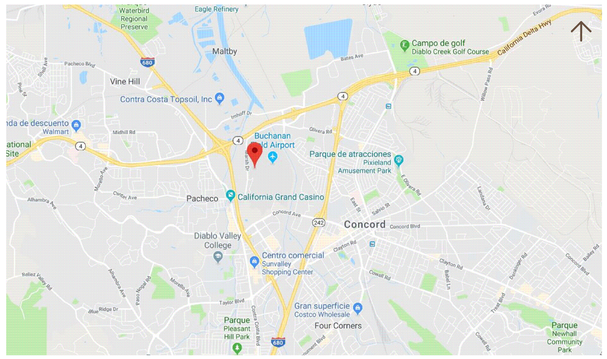
Exhibit A



This conceptual design is based upon a preliminary review of entitlement requirements and on unverified and possibly incomplete site and/or building information, and is intended merely to assist in exploring how the project might be developed.

Boundary Source:
GIS MAP & AERIAL IMAGE

PROJECT DATA:		
SITE AREA:		
GROSS:		16.01 AC
		697,237 SF
BIORETENTION/DET	@ 18%	125,497 SF
NET:		13.13 AC
		571,740 SF
BUILDING FOOTPRINT:		223,145 SF
BUILDING USE:		
WAREHOUSE		213,962 SF
OFFICE	@ 4%	9,183 SF
COVERAGE:		
GROSS:		32%
NET:		39%
PARKING REQUIRED:		
WAREHOUSE	1/1000 SF	223 STALLS
PARKING PROVIDED:		
AUTO:		223 STALLS
		@1,/1000 SF
REQ. ACCESSIBLE		*7 STALLS*
TRAILER:		38 STALLS
TRUCK DOCKS:		
▲ DOCK-HIGH DOORS		32
O GRADE-LEVEL DOORS		4



1" =50'

0 25 50 100 250

NORTH

scheme: 21

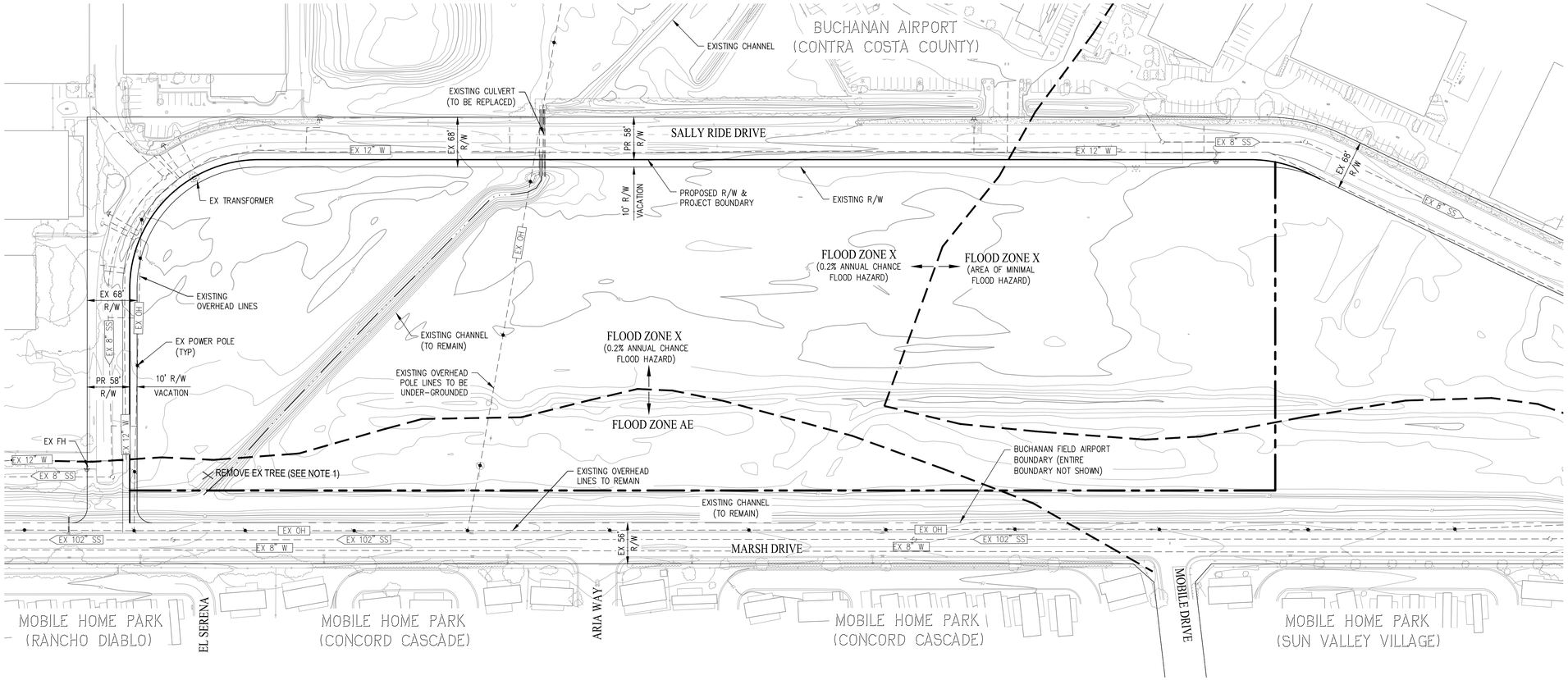
Conceptual Site Plan

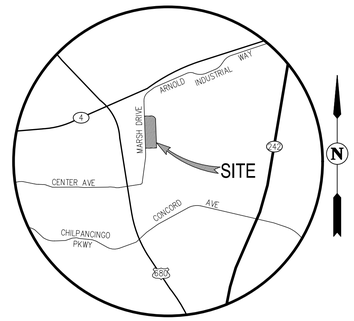
Sally Ride Drive
Concord, CA 94520

WARE MALCOMB

SNR18-0080-01
12.21.2023

SHEET
1





VICINITY MAP

NOT TO SCALE

CONTACTS:

1. DEVELOPER: FSRE INDUSTRIAL – CONCORD, LLC
   (619) 888-5525
   KARL HIGGINS

2. ENGINEER: CARLSON, BARBEE & GIBSON, INC.
   2633 CAMINO RAMON, SUITE 350
   SAN RAMON, CALIFORNIA 94583
   (925) 866-0322
   LEE ROSENBLATT, P.E.

NOTES

1. EXISTING TREE ON SITE TO BE REMOVED:
   SPECIES: SCHINUS MOLLE CALIFORNIA PEPPER
   DIAMETER: 45"
   HEIGHT: 28'
   CANOPY WIDTH: 42'

GENERAL NOTES:

1. ASSESSORS PARCEL NO. 125-010-023 (PORTION)
2. SITE AREA: 15.6± ACRES (TO EXISTING R/W)
   16.0± ACRES (TO PROPOSED R/W)
3. LOTS: 1
4. BUILDING FOOTPRINT: 223,145 SF±
5. EXISTING ZONING: UNRESTRICTED
   PROPOSED ZONING: UNRESTRICTED
6. EXISTING LAND USE: PUBLIC / SEMI-PUBLIC
   PROPOSED LAND USE: INDUSTRIAL
7. BENCHMARK: BEING A BRASS DISK IN A MONUMENT WELL NGS DESIGNATION HT0142, HAVING AN NAVD88 PUBLISHED ELEVATION OF 33.66 FEET.
8. BASIS OF BEARINGS: THE BASIS OF BEARINGS FOR THIS SURVEY IS THE CALIFORNIA COORDINATE SYSTEM (1983, EPOCH 2021.0), ZONE 3, BASED ON NSG POINTS DE8504 AND HT0142, THE CALCULATED BEARING BEING N75°16'26"E.
9. FLOOD ZONE: ZONE AE: SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD, BASE FLOOD ELEVATIONS DETERMINED (18 FEET).
   ZONE X: AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.
   ZONE X: AREAS OF MINIMAL FLOOD HAZARD
   SOURCE: FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), FLOOD INSURANCE RATE MAP, MAP NUMBER 06013C0281F DATED: JUNE 16, 2009
10. UTILITIES:
    WATER: CONTRA COSTA COUNTY WATER DISTRICT
    SEWER: CENTRAL CONTRA COSTA SANITARY DISTRICT
    STORM DRAIN: CONTRA COSTA COUNTY
    GAS & ELECTRIC: PG&E
11. GRADING: GRADING SHOWN IS PRELIMINARY AND SUBJECT TO CHANGE DURING FINAL DESIGN.

LEGEND

EXISTING	PROPOSED	
		PROJECT BOUNDARY LINE
		RIGHT OF WAY LINE
		FEMA ZONE BOUNDARY
	SD	STORM DRAIN LINE
	SDFM	STORM DRAIN FORCE MAIN
EX 102" SS	SS	SANITARY SEWER LINE
EX 8" W	WS	WATER SERVICE LINE
	FS	FIRE SERVICE LINE
EX OH		OVERHEAD LINE
		FIRE HYDRANT
		WHARF HYDRANT
		PIV
		WATER VALVE
		STORM DRAIN MANHOLE
		STORM DRAIN FIELD INLET
		STORM DRAIN CATCH BASIN
		STORM DRAIN PUMP
		OUTFALL
		SANITARY SEWER MANHOLE
		UTILITY POLE

ABBREVIATIONS

AC	ACRES
CC	CURB CUT
DCDA	DOUBLE CHECK DETECTOR ASSEMBLY
EG	EXISTING GRADE
EP	EDGE OF PAVEMENT
EX	EXISTING
FC	FACE OF CURB
FDC	FIRE DEPARTMENT CONNECTION
FS	FIRE SERVICE
OH	OVERHEAD
PIV	POST INDICATOR VALVE
PR	PROPOSED
PROJ	PROJECTED
R	RADIUS
RET	RETAINING
R/W	RIGHT OF WAY
SD	STORM DRAIN
SF	SQUARE FEET
SS	SANITARY SEWER
TYP	TYPICAL
WS	WATER SERVICE

EXISTING CONDITIONS PLAN
DEVELOPMENT PLAN APPLICATION
BUCHANAN AIRPORT - SALLY RIDE DRIVE

CITY OF CONCORD CONTRA COSTA COUNTY CALIFORNIA

SCALE: 1" = 80' DATE: DECEMBER 2023

0 60 120 180

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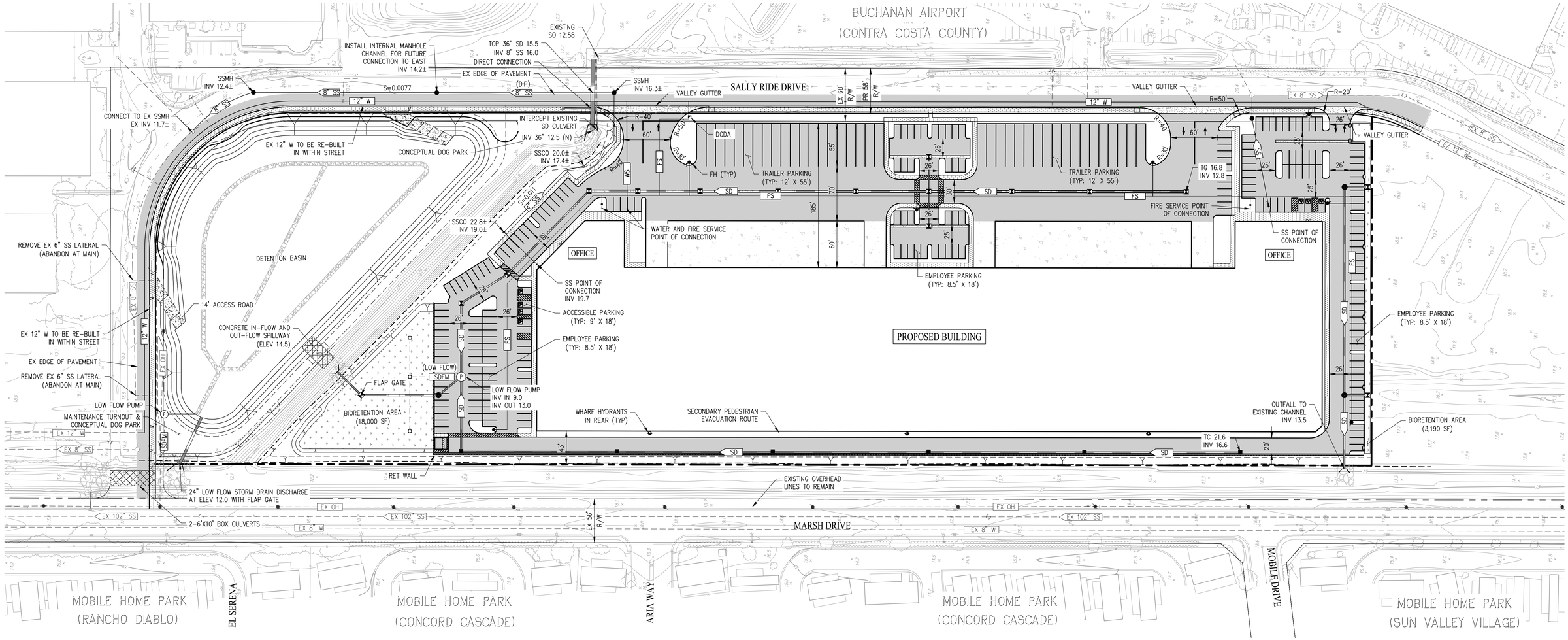
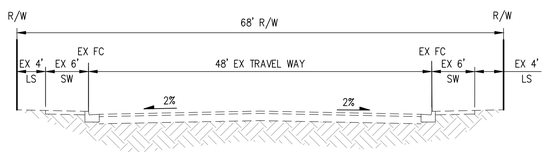
JOB NO.: 3263-000

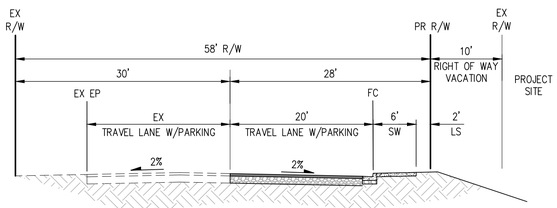
SHEET NO. C1 OF 3 SHEETS

F:\3263\ACAD\TM\PLANNING APPLICATION\C1. EXISTING CONDITIONS PLAN.DWG

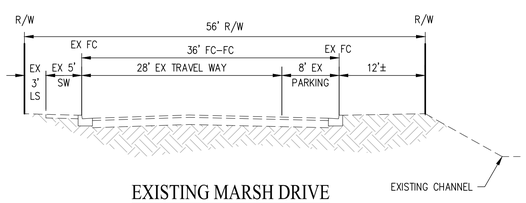




EXISTING SALLY RIDE DRIVE (SOUTH)
(NOT TO SCALE)



SALLY RIDE DRIVE (NORTH & EAST)
PROPOSED 58' RIGHT OF WAY
(MODIFIED CCCPWD CA50 - ARTERIAL TWO LANE)
(NOT TO SCALE)



EXISTING MARSH DRIVE
(NOT TO SCALE)

PARKING NOTE:

SEE ARCHITECTURAL SITE PLAN FOR ANALYSIS OF PROVIDED PARKING SPACES.

PRELIMINARY SITE PLAN & UTILITY PLAN

DEVELOPMENT PLAN APPLICATION

BUCHANAN AIRPORT - SALLY RIDE DRIVE

CITY OF CONCORD CONTRA COSTA COUNTY CALIFORNIA

SCALE: 1" = 60' DATE: DECEMBER 2023

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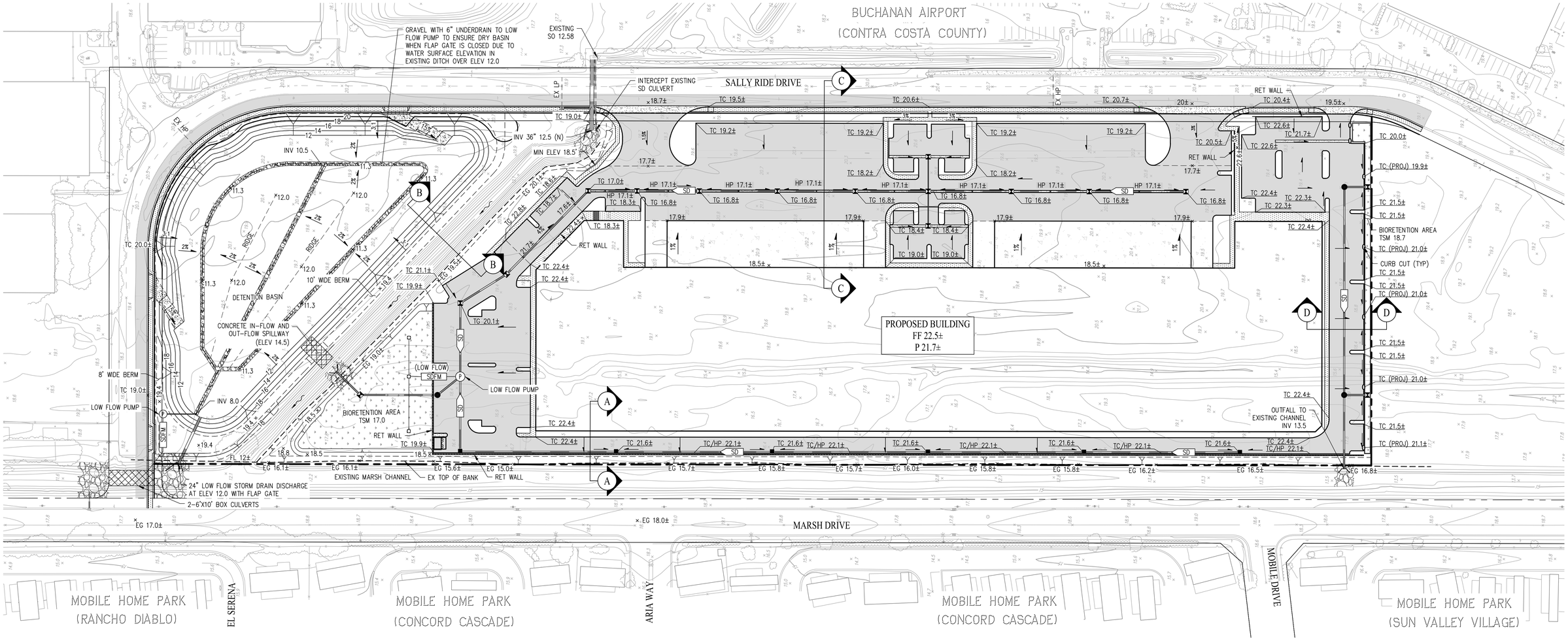
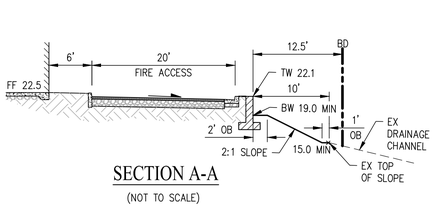
SHEET NO.
C2
OF 3 SHEETS

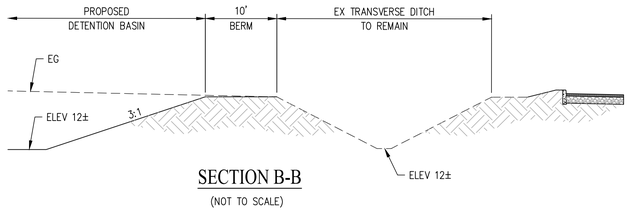
JOB NO.: 3263-000

F:\3263\ACAD\TM\PLANNING APPLICATION\C2. SITE PLAN.DWG

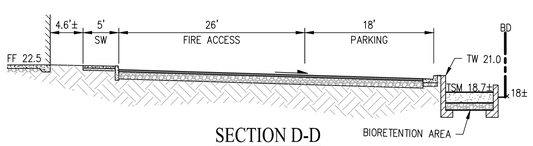




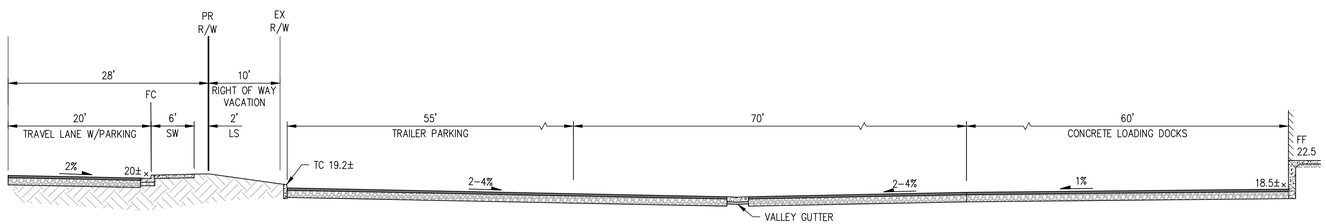
SECTION A-A
(NOT TO SCALE)



SECTION B-B
(NOT TO SCALE)



SECTION D-D
(NOT TO SCALE)



SECTION C-C
(NOT TO SCALE)

IMPERVIOUS SURFACE SUMMARY	
IMPERVIOUS SURFACE	454,895 SF
PERVIOUS SURFACE	242,210 SF
TOTAL	697,105 SF

EARTHWORK SUMMARY	
CUT	40,000 CY
FILL	40,000 CY

PRELIMINARY GRADING & DRAINAGE PLAN
DEVELOPMENT PLAN APPLICATION
BUCHANAN AIRPORT - SALLY RIDE DRIVE

CITY OF CONCORD CONTRA COSTA COUNTY CALIFORNIA

SCALE: 1" = 60' DATE: DECEMBER 2023

0 60 120 180

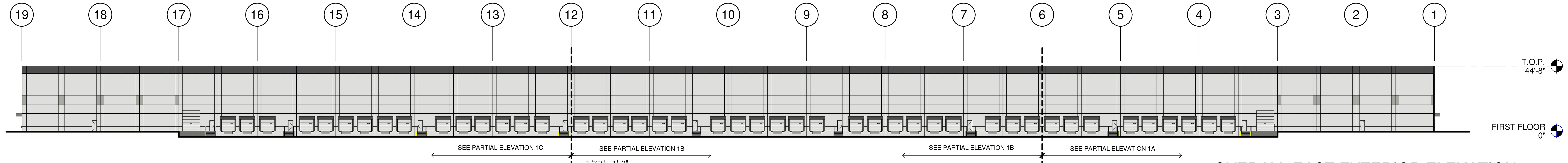
cbg CIVIL ENGINEERS ▪ SURVEYORS ▪ PLANNERS
SAN RAMON ▪ (925) 866-0322
ROSEVILLE ▪ (916) 788-4456
WWW.CBANDG.COM

JOB NO.: 3263-000

SHEET NO. C3 OF 3 SHEETS

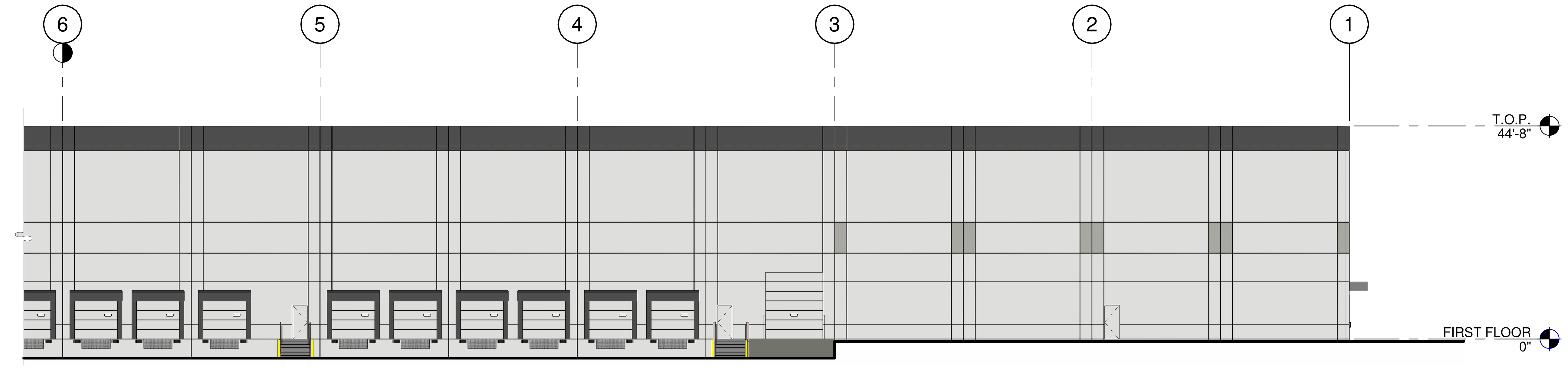
F:\3263\ACAD\TM\PLANNING APPLICATION\C3. GRADING AND DRAINAGE PLAN.DWG

CAUTION: IF THIS SHEET IS NOT 30"x42" IT IS A REDUCED PRINT



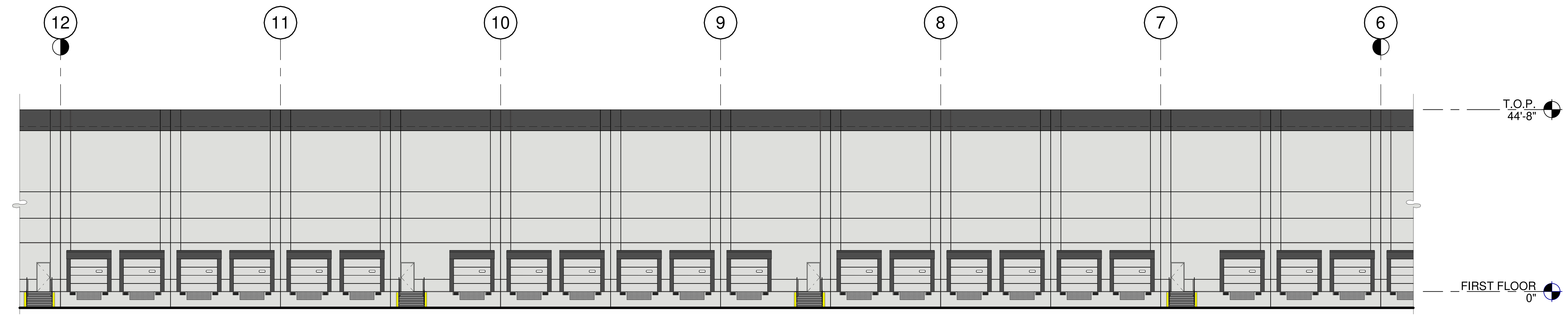
OVERALL EAST EXTERIOR ELEVATION (1)

SCALE: 1/32" = 1'-0"



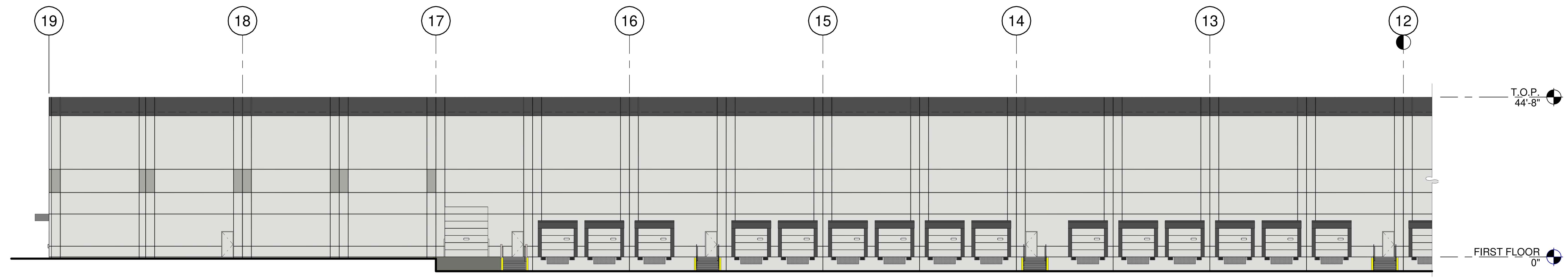
PARTIAL EAST EXTERIOR ELEVATION (1A)

SCALE: 1/16" = 1'-0"



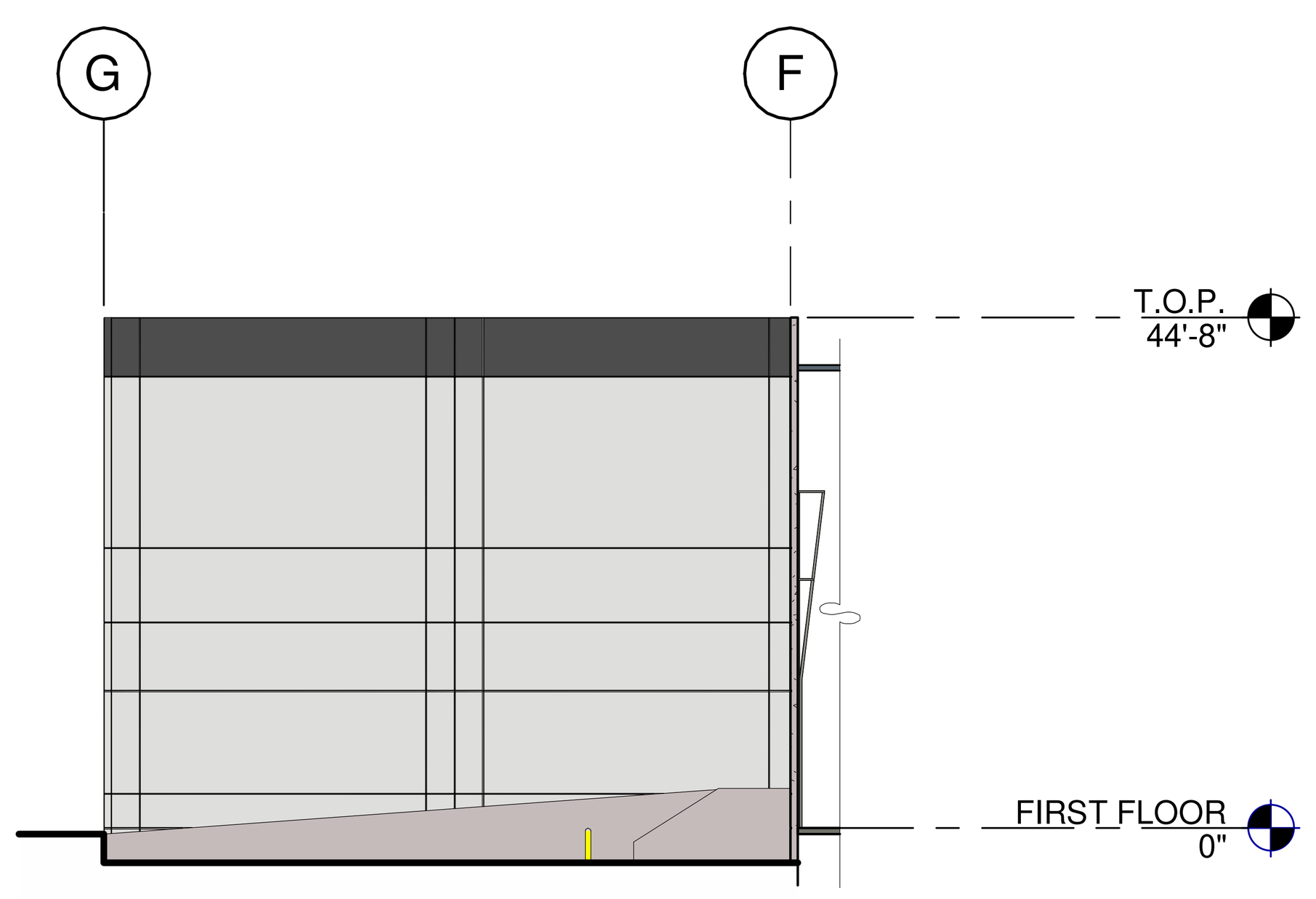
PARTIAL EAST EXTERIOR ELEVATION (1B)

SCALE: 1/16" = 1'-0"



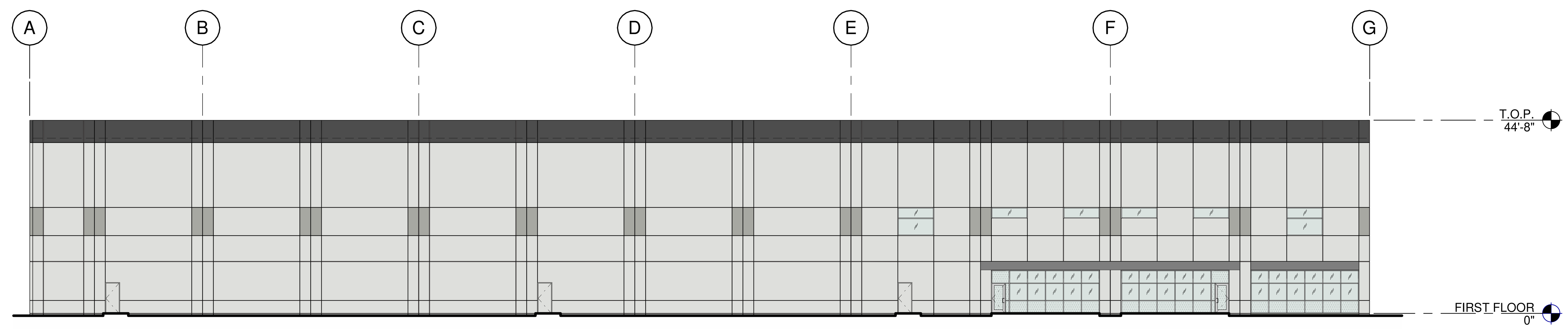
PARTIAL EAST EXTERIOR ELEVATION (1C)

SCALE: 1/16" = 1'-0"



NORTH EXTERIOR ELEVATION (4A)

SCALE: 1/16" = 1'-0"



SOUTH EXTERIOR ELEVATION (2)

SCALE: 1/16" = 1'-0"

KEYNOTES:

SEE SHEET A0.2 FOR GENERAL NOTES

LEGEND

GLASS:

- VISION GLASS
- SPANDREL GLASS
- TEMPERED GLASS

ALL GLASS USED ON THE ENVELOPE OF THE BUILDING TO BE:
XXXXXXX
U FACTOR = 0.28 AND SHGC = 0.28
GLASS WIND LOAD RESISTANCE CALCULATIONS ARE UNDER SEPARATE PERMIT

WARE MALCOMB
4683 Chabot Dr, Suite #300
Pleasanton, CA 94588
P 925.244.9620
ARCHITECTURE, PLANNING, INTERIORS, CIVIL ENGINEERING, BRANDING, BUILDING MEASUREMENT

CIENT LOGO

CCR 01 WEST - BUCHANAN FIELD AIRPORT

510 SALLY RIDE DRIVE,
CONCORD, CALIFORNIA 94520

EXTERIOR ELEVATIONS

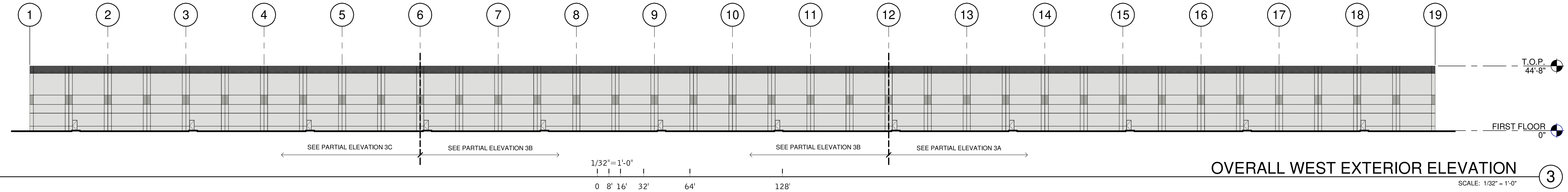
DATE	REMARKS

PA/PM:	J.CORTINAS
DRAWN BY.:	S.J. / E.S.
JOB NO.:	SNR18-0080-01

SHEET
A4.1

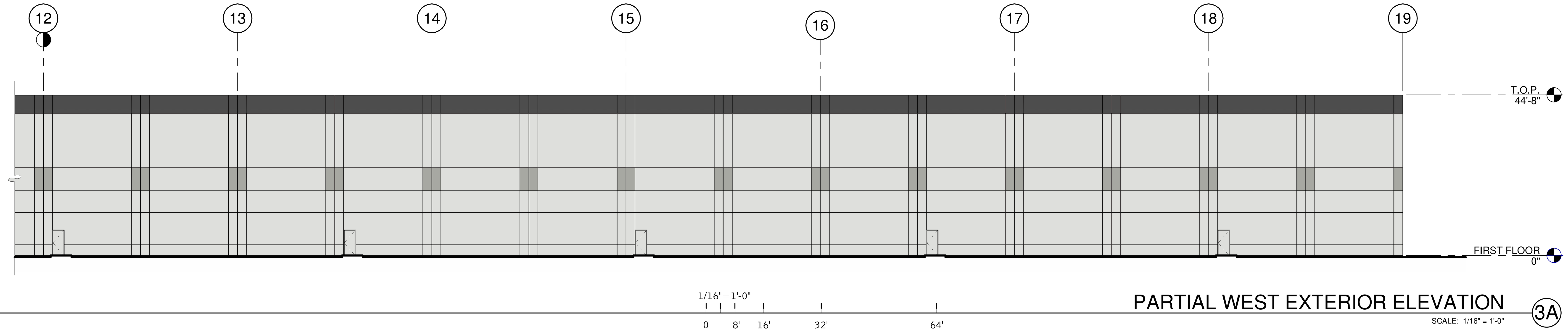
5/31/2022 9:42:32 AM

CAUTION: IF THIS SHEET IS NOT 30"x42" IT IS A REDUCED PRINT



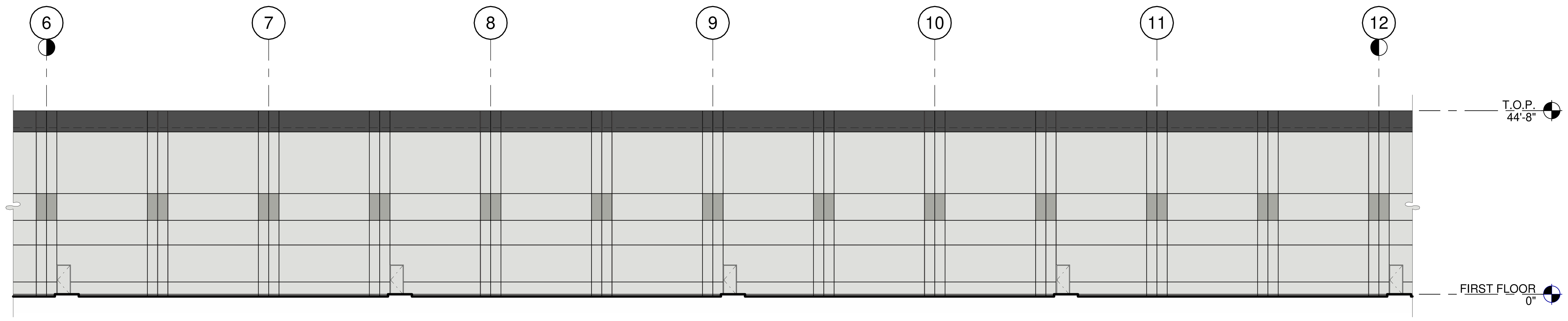
OVERALL WEST EXTERIOR ELEVATION 3

SCALE: 1/32" = 1'-0"



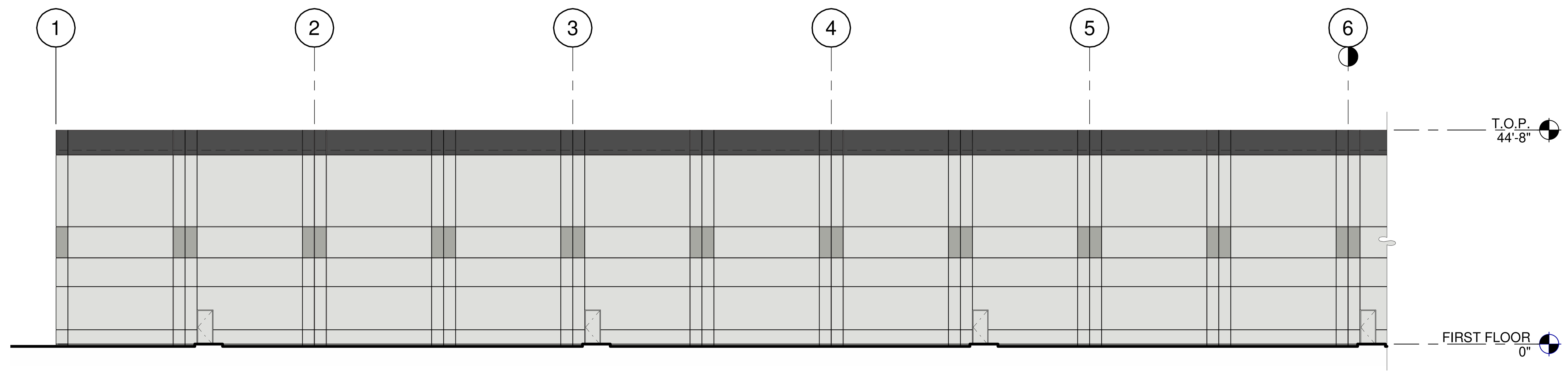
PARTIAL WEST EXTERIOR ELEVATION 3A

SCALE: 1/16" = 1'-0"



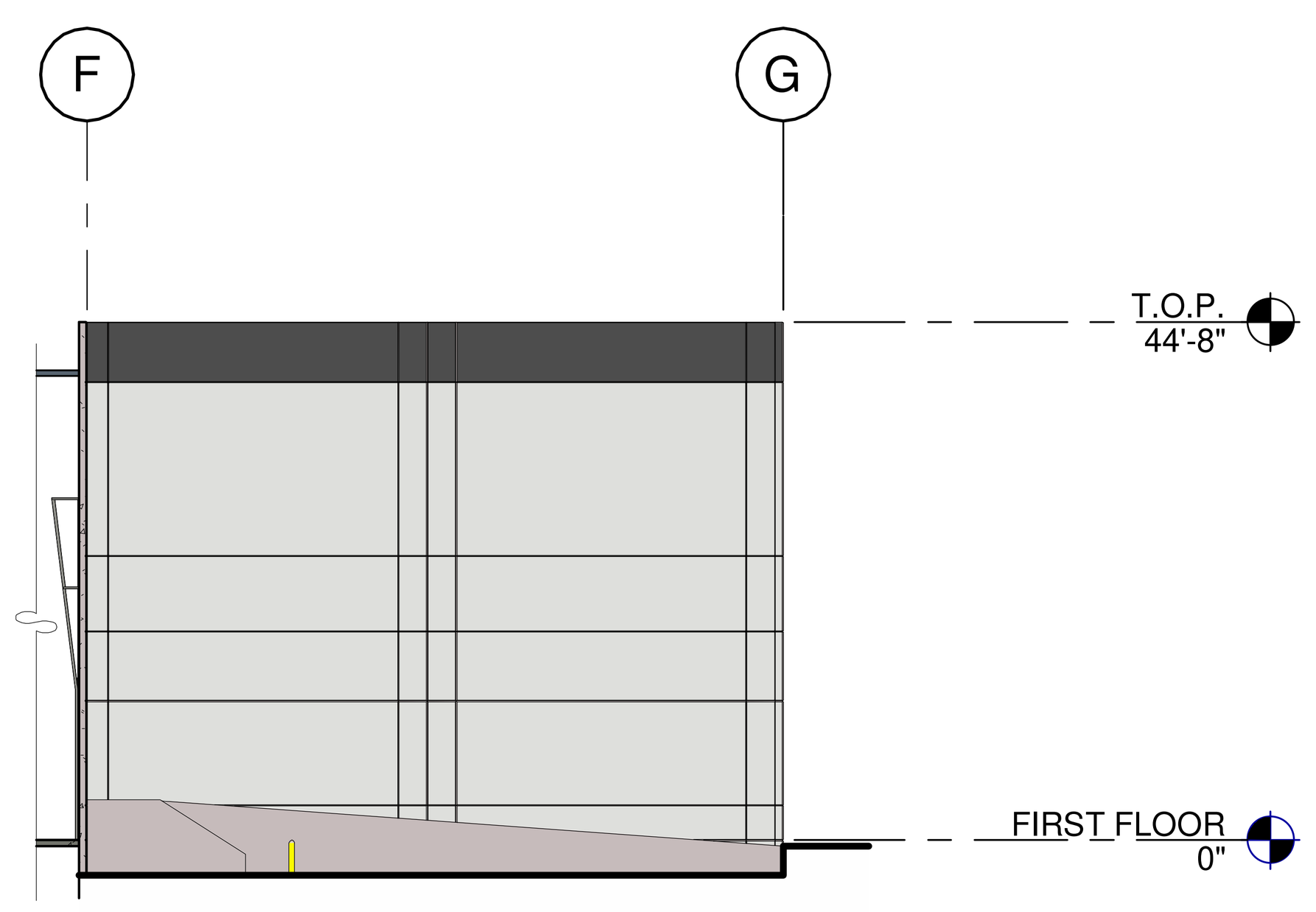
PARTIAL WEST EXTERIOR ELEVATION 3B

SCALE: 1/16" = 1'-0"



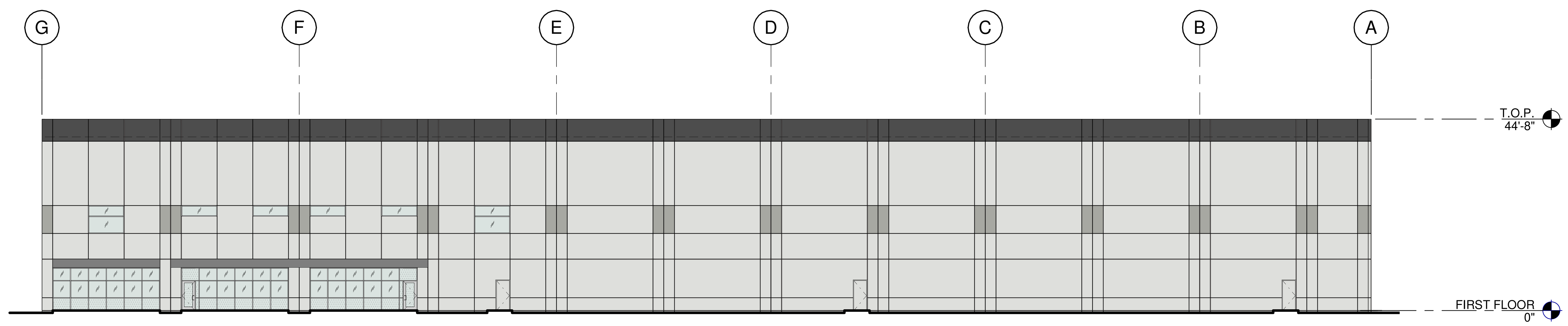
PARTIAL WEST EXTERIOR ELEVATION 3C

SCALE: 1/16" = 1'-0"



SOUTH EXTERIOR ELEVATION 2A

SCALE: 1/16" = 1'-0"



NORTH EXTERIOR ELEVATION 4

SCALE: 1/16" = 1'-0"

KEYNOTES:

SEE SHEET A0.2 FOR GENERAL NOTES

LEGEND

GLASS:

- VISION GLASS
- SPANDREL GLASS
- TEMPERED GLASS

ALL GLASS USED ON THE ENVELOPE OF THE BUILDING TO BE:
XXXXXXX
U FACTOR = 0.28 AND SHGC = 0.28
GLASS WIND LOAD RESISTANCE CALCULATIONS ARE UNDER SEPARATE PERMIT

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CIENT LOGO

CCR 01 WEST - BUCHANAN FIELD AIRPORT

510 SALLY RIDE DRIVE,
CONCORD, CALIFORNIA 94520

EXTERIOR ELEVATIONS

DATE	REMARKS

PA/PM:	J.CORTINAS
DRAWN BY.:	S.J. / E.S.
JOB NO.:	SNR18-0080-01

SHEET

A4.2

5/31/2022 9:42:37 AM

Exhibit B

HMMH
700 District Avenue, Suite 800
Burlington, Massachusetts 01803
781.229.0707
www.hmmh.com

MEMORANDUM

To: Karl Higgins, Montecito Development Co LLC

From: Philip DeVita, HMMH

Date: June 25, 2024

Subject: Concord Buchanan Field Airport Solar PV

Reference: HMMH Job No.312460

Introduction

Harris Miller Miller & Hanson Inc. (HMMH) evaluated potential glare at the Buchanan Field Airport (CCR) sensitive observer locations from the roof mounted project on the proposed warehouse building located on the airport property. **Figure 1** shows the project location relative to the airport and its runways at CCR.

Source: Google Earth

Figure 1. Locus Map of Potential Roof Mount Solar PV Project Relative to Buchanan Field Airport

HMMH used the latest version of the ForgeSolar GlareGauge solar glare tool, formerly known as the Solar Glare Hazard Analysis Tool (SGHAT) developed by Sandia National Laboratories to analyze potential glare at sensitive airport receptor locations and reviewed the model results relative to the Federal Aviation Administration's (FAA) Interim Policy of Solar Projects at Airports.

In deploying the model, we selected the footprint of the solar project area of the proposed roof mount array on the GlareGauge google map interface and input the project design parameters provided by Montecito Development as shown in **Table 1.**

Table 1. Future Warehouse Potential Solar PV Project Design Parameters

Solar System	*System*	*Orientation*	*Tilt Angle*	*Panel Height (AGL)*[1]
Future Warehouse Building	***Roof Mount***	***180°***	***10°***	***45 feet***

1. Denotes height of the roof peak above ground.

The Project is required by local development code to build a solar ready roof on the proposed warehouse. As such, a roof mount system would have an orientation to the south at 180 degrees and a tilt angle of 10 degrees. The project would be located on the roof at a height 45 feet above ground level if it were to be built.

To assess airport sensitive receptors the FAA 2021 updated policy[1] was used for evaluation of potential glare at the air traffic control tower (ATCT). For transparency, the previous FAA 2013 Interim Guidance was used for evaluating potential glare for pilots on final approach to any of the airport runways as shown in **Figure 1**.

FAA Jurisdiction and Standards for Measuring Ocular Impact

Interim Policy for Solar Projects at Airports as Published on October 23, 2013

The FAA initially published an Interim Policy for Solar Projects at Airports on October 23, 2013. The policy clarified the FAA's jurisdiction in reviewing solar projects and the standards it uses to determine if a project will result in a negative glare impact to airspace safety.

Relative to its jurisdiction, the FAA affirmed that it has jurisdiction to regulate potential glare impacts as part of its responsibilities under Federal Aviation Regulations (FAR) Part 77 to any solar project proposed on the property of a Federally-obligated airport, which includes many airports in the U.S. The FAA also clarified that it does not have jurisdiction to regulate potential glare from projects located on non-airport land. However, as stated in the Policy, "the FAA urges proponents of off-airport solar-installations to voluntarily implement the provisions in this policy."

The Policy also describes the standards for measuring ocular impact:

To obtain FAA approval and a "no objection" to a Notice of Proposed Construction Form 7460-1, the airport sponsor will be required to demonstrate that the proposed solar energy system meets the following standards: (1) no potential for glint or glare in the existing or planned Air Traffic Control Tower cab, and (2) no potential for glare or "low potential for after-image" (shown in green) along the final approach path.

Table 2 presents the airport sensitive receptors that must be evaluated, the potential results presented by the model and the acceptable levels of glare with the FAA ocular hazard standard presented in the Policy.

[1] Federal Register: Federal Aviation Administration Policy: Review of Solar Energy System Projects on Federally-Obligated Airports

Table 2. Acceptable Levels of Glare with FAA Policy

Airport Sensitive Receptor	Acceptable Level of Glare	Color Result
ATCT Cab	No glare	None
Aircraft along final approach path	No glare	None
	Low Potential for After-Image	Green

Any glare recorded on the ATCT that is not compliant with FAA policy and will not receive a "no objection" determination from the FAA. Measurement of *no or low potential for after-image* or "Green" is acceptable for aircraft on final approach but greater levels with the potential for after image or permanent eye damage (indicated in yellow and red) are not allowed.

Review of Solar Energy System Projects on Federally Obligated Airports on May 11, 2021

More recently, the FAA updated this policy on May 11, 2021[2]. The new policy replaces the Interim Policy published on October 23, 2013. The updated policy is pared down compared to the 2013 policy and focuses on solar glare impacts only in the air traffic control tower. Also, there is no longer a need to assess glare for pilots approaching the airport and no specific tool is required or recommended to analyze glare impacts from the panels. In summary, the new policy:

- Only applies to solar projects on airports (same as before)
- Only applies to airports with a control tower (no longer applies to non-towered airports)
- Only applies to impacts at the tower and no longer need to evaluate pilots on final approach. FAA determined that glint and glare from solar energy systems to pilots on final approach is "similar to glint and glare pilots routinely experience from water bodies, glass-façade buildings, parking lots, and similar features".
- Sponsor does not have to submit any glare modeling results with the 7460 application. It just has to include a statement that glint/glare has been evaluated and determined that impacts will not occur.
- FAA's determination of no hazard will have a statement saying that its determination is based on sponsor's glint/glare analysis, and further stating that sponsor will be responsible for mitigating any impacts observed after construction.
- Sponsor is no longer required to use SGHAT or similar program for evaluating glare. Policy says there are many options for evaluating potential glare impacts. Sponsor may not have to model for glare in certain instances (i.e., building blocks view of solar array location).
- Statement remains similar to previous policy in that proponents of off-airport projects are encouraged to evaluate glare especially near towered airports and proponents should consult with their local airport sponsor.

Summary of Results

HMMH analyzed the potential for the proposed roof mount solar PV panel array to produce glare at the ATCT. Based on the design and layout, GlareGauge modeling showed:

- ATCT: no glare detected at the ATCT; proposed design meets the FAA Standard for glare at the ATCT.

Results in Detail

[2] Federal Register: Federal Aviation Administration Policy: Review of Solar Energy System Projects on Federally-Obligated Airports

To accurately model the proposed project, HMMH outlined the potential project array on the model's interactive Google map, and the GlareGauge tool analyzed the potential glare impact from the project site. **Figure 2** shows the layout of the project area as input into the model.

Source: GlareGauge

Figure 2. Modeled Array as Input into the GlareGauge Model

We input the specifications of the potential array including a fixed system with an orientation of 180 degrees, a tilt angle of 10 degrees and an average panel height of 45 feet above ground level (peak height of the building roof slope). As a conservative approach, we also assumed a smooth panel surface without anti-reflective coating in module selection to allow for panel flexibility. Modeling was then undertaken for the analysis at the ATCT. The modeling result output sheets are provided as **Attachment A**.

ATCT

Modeling was conducted for the active ATCT location at the airport. The ATCT tower was located on the Google Maps aerial tool and input into the model. A cab viewing height of 67 feet above ground level was used as provided Montecito Development who retrieved the data from the Buchanan Field Airport Layout Plan[3].

Results

As shown in **Table 3**, no glare was detected by the model for the ATCT location. The no glare result at the ATCT comply with the FAA's ocular impact standard as published in the Federal Register on October 23, 2013 and included by reference in the May 11, 2021 update and as shown in **Table 2**.

[3] June 3, 2021 email from Karl Higgins.

Table 3 – GlareGauge Results (in minutes per year) for the Proposed Roof Mount Solar PV Project at Buchanan Field Airport

Site	System	(orient/tilt)	ATCT (minutes)	Comply with FAA Thresholds
Proposed Warehouse Solar PV	Roof-Mount	180°/10°	0	Yes

For transparency, an additional analysis was conducted at the request of Montecito to evaluate potential glare for pilots on final approach to each of the runway ends at Buchanan Field Airport. The glare results were compared to the 2013 FAA Interim Policy which included glare to pilots on final approach but was removed from the 2021 guidance as stated in the updated policy*" Initially, FAA believed that solar energy systems could introduce a novel glint and glare effect to pilots on final approach. FAA has subsequently concluded that in most cases, the glint and glare from solar energy systems to pilots on final approach is similar to glint and glare pilots routinely experience from water bodies, glass-façade buildings, parking lots, and similar features. However, FAA has continued to receive reports of potential glint and glare from on-airport solar energy systems on personnel working in ATCT cabs. Therefore, FAA has determined the scope of agency policy should be focused on the impact of on-airport solar energy systems to federally-obligated towered airports, specifically the airport's ATCT cab*[4]**.**

Arriving Aircraft

To analyze arriving aircraft, HMMH selected locational information associated with each runway individually and generated associated results to evaluate the potential impacts of the proposed project on that runway.

To model a runway approach, we selected a point at the centerline on the runway threshold which is located near the runway end. We then selected a second point away from the runway to represent the orientation of the aircraft descent (or glide) path. The model automatically plots the glide path out two miles from the runway end and evaluates potential for glare along the entire glide path. Given that Buchanon Field Airport has eight runway ends, the model assessed the potential for glare along each of the eight aircraft final approach paths landing at the airport. The model automatically plots the location and height above ground of each observation point along the glide path assuming a 3-degree glide slope for the approach. In the model's flight path window, we checked the "consider pilot visibility from cockpit" box and kept the default azimuth-viewing angle of 50° so that the model would not register glare that the pilot would not see from behind the aircraft. We also kept the default downward viewing angle of 30° to eliminate false glare results from below the aircraft. **Figure 3** shows the GlareGauge illustration of the 2-mile approach and **Figure 4** shows the flight path analyzed by the model for each runway (the ATCT is denoted in the red bubble "1").

[4] https://www.federalregister.gov/documents/2021/05/11/2021-09862/federal-aviation-administration-policy-review-of-solar-energy-system-projects-on-federally-obligated

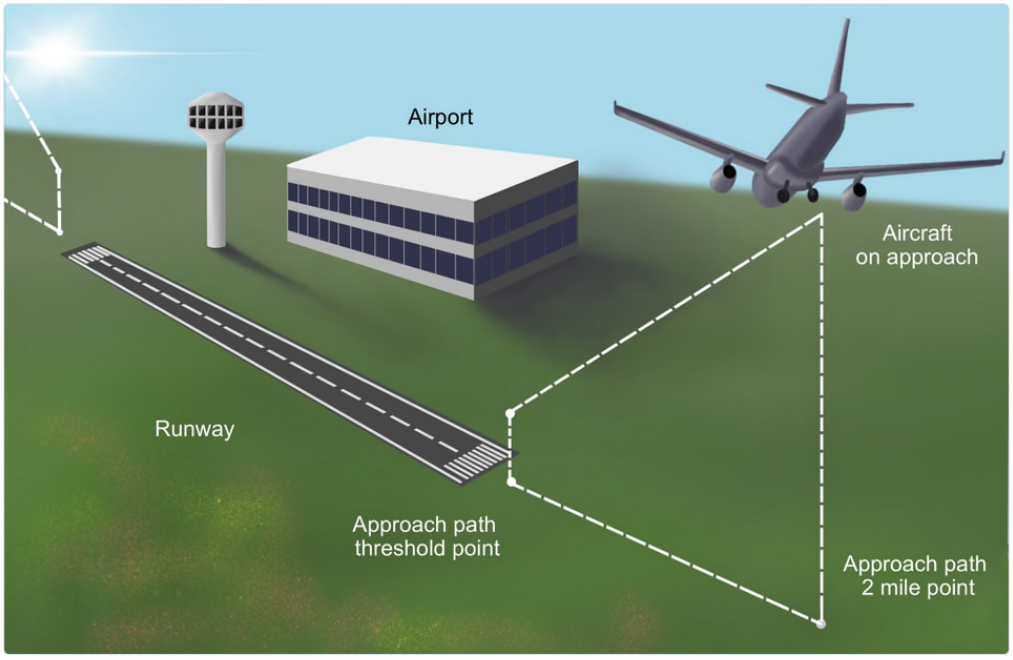


Illustration of aircraft utilizing 2-mile approach path toward airport

Source: GlareGauge

Figure 3. GlareGauge 2-Mile Approach

Source: GlareGauge

Figure 4. Flight Path Analyzed by GlareGauge

The model shows component results in time for the aircraft along a continuous route. **Table 3** presents the GlareGauge modeling results for each runway in terms of predicted minutes of green, yellow, or red glare using the same design parameters for the ATCT analysis. A total of 1,264 minutes and 1,1611 minutes of green and yellow glare, respectively is predicted for approach to RWY 32L and 931 minutes of green glare is predicted for runway approach 32R. As shown in the model plots in **Attachment B**, most of the glare along the path to RWY 32L and 32R occurs in the afternoon when the sun sets during May thru August. The no

glare and green glare result on aircraft on approach to each runway complies with the FAA's ocular impact standard as published in the Federal Register on October 23, 2013 and shown in above **Table 2**, however, the yellow glare along the approach to 32L does not comply with the acceptable 2013 ocular standard for aircraft on final approach. As noted above, the latest 2021 FAA Glare Standards updated and replaced the previous 2013 policy including removing the requirement to evaluate glare for pilots on final approach. The FAA concluded: "FAA has subsequently concluded that in most cases, the glint and glare from solar energy systems to pilots on final approach is similar to glint and glare pilots routinely experience from water bodies, glass-façade buildings, parking lots, and similar features" and only an analysis for glare at the ATCT is required in the 2021 updated policy.

In conclusion, while the project as modeled *would* meet the current 2021 FAA Glare Standards for the ATCT, it would *not* meet the previous 2013 Interim Guidance for aircraft on final approach to RWY 32L.

Table 3 – GlareGauge Results (in minutes per year) for the Potential Roof Mount Solar PV Project at Buchanan Field Airport Along the Runway Approach

Site	System	(orient/tilt)	RWY 14L (minutes)	RWY 14R (minutes)	RWY 19L (minutes)	RWY 19R (minutes)	RWY 1L (minutes)	RWY 1R (minutes)	RWY 32L (minutes)	RWY 32R (minutes)	Comply with 2012 FAA Thresholds
Proposed Warehouse Solar PV	Roof-Mount	180°/10°	0	0	0	0	0	0	1,264 1,611	931	NO

Notes:

G (Green) = Low Potential for Temporary After-Image
Y (Yellow) = Potential for Temporary After-Image

Conclusions

HMMH utilized the GlareGauge model developed by the Department of Energy's Sandia National Laboratories to evaluate potential glare from the potential roof mounted solar PV project at Buchanan Field Airport. The analysis focused on potential glare effects at the ATCT and for transparency, the pilots on final approach.

GlareGauge model results were compared to the FAA's ocular hazard standard as defined in the *Interim Solar Policy and referenced in the latest May 11, 2021 Policy as updated by FAA*. The model results provided in **Attachment A** show that no glare was detected at the ATCT. Therefore, there is no evidence based upon our modeling using the design parameters provided by Montecito Development, LLC that glare from the Project will cause an adverse impact at the ATCT. These results *comply* with the FAA standards described in the Interim Solar Policy and referenced in the May 11, 2021 policy.

For transparency, the analysis included potential glare to pilots on final approach *with the older 2013 FAA ocular hazard standards published in the FAA's Interim Policy.* The model results provided in **Attachment B** show that minutes of green glare (or low potential) were predicted for the approach to Runway 32L and 32R while yellow glare (potential for temporary after image) were also predicted for the approach to Runway 32L. These minutes of predicted yellow glare does not comply with the older 2013 FAA standards for pilots on final approach. The developer, Montecito, states they do not intend to mount an array on their proposed warehouse but will design the roof to be solar ready per county code consistent with the parameters modeled in this report.

Attachment A

GlareGauge Modeling Results – Potential Roof Mount Solar Project on the ATCT

FORGESOLAR GLARE ANALYSIS

Project: **Moniceto Concord Warehouse**
Monticeto Concord Warehouse

Site configuration: **Moniceto Concord Warehouse-temp-11**

Site description: Monticeto Concord Warehouse

Created 18 Jun, 2024
Updated 18 Jun, 2024
Time-step 1 minute
Timezone offset UTC-8
Minimum sun altitude 0.0 deg
DNI peaks at 1,000.0 W/m^2
Site ID 121863.20812

Ocular transmission coefficient 0.5
Pupil diameter 0.002 m
Eye focal length 0.017 m
Sun subtended angle 9.3 mrad
PV analysis methodology V2

Glare Policy Adherence

The following table estimates the policy adherence of this glare analysis according to the **2021** U.S. Federal Aviation Administration Policy:

Review of Solar Energy System Projects on Federally-Obligated Airports

This policy may require the following criteria be met for solar energy systems on airport property:

- No glare of any kind for Air Traffic Control Tower(s) ("ATCT") at cab height.
- Default analysis and observer characteristics, including 1-minute time step.

ForgeSolar is not affiliated with the U.S. FAA and does not represent or speak officially for the U.S. FAA. ForgeSolar cannot approve or deny projects - results are informational only. Contact the relevant airport and FAA district office for information on policy and requirements.

COMPONENT	STATUS	DESCRIPTION
Analysis parameters	PASS	Analysis time interval and eye characteristics used are acceptable
ATCT(s)	PASS	Receptor(s) marked as ATCT do not receive glare

The referenced policy can be read at https://www.federalregister.gov/d/2021-09862

Component Data

This report includes results for PV arrays and Observation Point ("OP") receptors marked as ATCTs. Components that are not pertinent to the policy, such as routes, flight paths, and vertical surfaces, are excluded.

PV Arrays

Name: PV array 1
Axis tracking: Fixed (no rotation)
Tilt: 10.0°
Orientation: 180.0°
Rated power: -
Panel material: Smooth glass without AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	37.991677	-122.061702	20.23	45.00	65.23
2	37.989153	-122.061649	18.08	45.00	63.08
3	37.989140	-122.062662	17.29	45.00	62.29
4	37.991680	-122.062769	15.73	45.00	60.73

Observation Point ATCT Receptors

Name	ID	Latitude (°)	Longitude (°)	Elevation (ft)	Height (ft)
1-ATCT	1	37.985815	-122.055291	22.96	67.00

Map image of 1-ATCT

Glare Analysis Results

Summary of Results No glare predicted

PV Array	Tilt	Orient	Annual Green Glare		Annual Yellow Glare		Energy
	°	°	min	hr	min	hr	kWh
PV array 1	10.0	180.0	0	0.0	0	0.0	-

Total annual glare received by each receptor; may include duplicate times of glare from multiple reflective surfaces.

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
1-ATCT	0	0.0	0	0.0

PV: PV array 1

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
1-ATCT	0	0.0	0	0.0

PV array 1 and 1-ATCT

Receptor type: ATCT Observation Point
No glare found

Assumptions

"Green" glare is glare with low potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
"Yellow" glare is glare with potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
The algorithm does not rigorously represent the detailed geometry of a system; detailed features such as gaps between modules, variable height of the PV array, and support structures may impact actual glare results. However, we have validated our models against several systems, including a PV array causing glare to the air-traffic control tower at Manchester-Boston Regional Airport and several sites in Albuquerque, and the tool accurately predicted the occurrence and intensity of glare at different times and days of the year.
Several V1 calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for large PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare. This primarily affects V1 analyses of path receptors.
Random number computations are utilized by various steps of the annual hazard analysis algorithm. Predicted minutes of glare can vary between runs as a result. This limitation primarily affects analyses of Observation Point receptors, including ATCTs. Note that the SGHAT/ ForgeSolar methodology has always relied on an analytical, qualitative approach to accurately determine the overall hazard (i.e. green vs. yellow) of expected glare on an annual basis.
The analysis does not automatically consider obstacles (either man-made or natural) between the observation points and the prescribed solar installation that may obstruct observed glare, such as trees, hills, buildings, etc.
The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
The variable direct normal irradiance (DNI) feature (if selected) scales the user-prescribed peak DNI using a typical clear-day irradiance profile. This profile has a lower DNI in the mornings and evenings and a maximum at solar noon. The scaling uses a clear-day irradiance profile based on a normalized time relative to sunrise, solar noon, and sunset, which are prescribed by a sun-position algorithm and the latitude and longitude obtained from Google maps. The actual DNI on any given day can be affected by cloud cover, atmospheric attenuation, and other environmental factors.
The ocular hazard predicted by the tool depends on a number of environmental, optical, and human factors, which can be uncertain. We provide input fields and typical ranges of values for these factors so that the user can vary these parameters to see if they have an impact on the results. The speed of SGHAT allows expedited sensitivity and parametric analyses.
The system output calculation is a DNI-based approximation that assumes clear, sunny skies year-round. It should not be used in place of more rigorous modeling methods.
Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid based on aggregated research data. Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.
Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
Refer to the Help page at **www.forgesolar.com/help/** for assumptions and limitations not listed here.

Default glare analysis parameters and observer eye characteristics (for reference only):

- Analysis time interval: 1 minute
- Ocular transmission coefficient: 0.5
- Pupil diameter: 0.002 meters
- Eye focal length: 0.017 meters
- Sun subtended angle: 9.3 milliradians

Attachment B

GlareGauge Modeling Results – Potential Roof Mount Solar Project on the Pilots on Final Approach

FORGESOLAR GLARE ANALYSIS

Project: **Moniceto Concord Warehouse**
Monticeto Concord Warehouse

Site configuration: **Montecito Development Pilot Approach**
Analysis conducted by Phil DeVita (pdevita@hmmh.com) at 12:42 on 18 Jun, 2024.

U.S. FAA 2013 Policy Adherence

The following table summarizes the policy adherence of the glare analysis based on the 2013 U.S. Federal Aviation Administration Interim Policy 78 FR 63276. This policy requires the following criteria be met for solar energy systems on airport property:

- No "yellow" glare (potential for after-image) for any flight path from threshold to 2 miles
- No glare of any kind for Air Traffic Control Tower(s) ("ATCT") at cab height.
- Default analysis and observer characteristics (see list below)

ForgeSolar does not represent or speak officially for the FAA and cannot approve or deny projects. Results are informational only.

COMPONENT	STATUS	DESCRIPTION
Analysis parameters	PASS	Analysis time interval and eye characteristics used are acceptable
2-mile flight path(s)	FAIL	Flight path receptor(s) receive yellow glare
ATCT(s)	PASS	Receptor(s) marked as ATCT do not receive glare

Default glare analysis parameters and observer eye characteristics (for reference only):

- Analysis time interval: 1 minute
- Ocular transmission coefficient: 0.5
- Pupil diameter: 0.002 meters
- Eye focal length: 0.017 meters
- Sun subtended angle: 9.3 milliradians

FAA Policy 78 FR 63276 can be read at https://www.federalregister.gov/d/2013-24729

SITE CONFIGURATION

Analysis Parameters

DNI: peaks at 1,000.0 W/m^2
Time interval: 1 min
Ocular transmission coefficient: 0.5
Pupil diameter: 0.002 m
Eye focal length: 0.017 m
Sun subtended angle: 9.3 mrad
Site Config ID: 121862.20812
Methodology: V2

PV Array(s)

Name: PV array 1
Axis tracking: Fixed (no rotation)
Tilt: 10.0°
Orientation: 180.0°
Rated power: -
Panel material: Smooth glass without AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	37.991677	-122.061702	20.23	45.00	65.23
2	37.989153	-122.061649	18.08	45.00	63.08
3	37.989140	-122.062662	17.29	45.00	62.29
4	37.991680	-122.062769	15.73	45.00	60.73

Flight Path Receptor(s)

Name: RWY 14L
Description:
Threshold height: 50 ft
Direction: 154.7°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	37.995772	-122.058465	16.84	50.00	66.84
Two-mile	38.021903	-122.074186	6.86	613.41	620.27

Name: RWY 14R
Description:
Threshold height: 50 ft
Direction: 154.4°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	37.995913	-122.060418	16.72	50.00	66.72
Two-mile	38.021976	-122.076318	5.21	614.93	620.15

Name: RWY 19L
Description:
Threshold height: 50 ft
Direction: 203.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	37.990850	-122.054554	21.10	50.00	71.10
Two-mile	38.017466	-122.040209	34.23	590.30	624.53

Name: RWY 19R
Description:
Threshold height: 50 ft
Direction: 203.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	37.993021	-122.055236	21.78	50.00	71.78
Two-mile	38.019630	-122.040866	34.03	591.17	625.21

Name: RWY 1L
Description:
Threshold height: 50 ft
Direction: 23.4°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	37.981946	-122.061366	23.31	50.00	73.31
Two-mile	37.955408	-122.075940	70.80	555.94	626.74

Name: RWY 1R
Description:
Threshold height: 50 ft
Direction: 22.7°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	37.983879	-122.058411	22.03	50.00	72.03
Two-mile	37.957204	-122.072578	58.00	567.47	625.46

Name: RWY 32L
Description:
Threshold height: 50 ft
Direction: 335.7°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	37.989006	-122.056106	21.55	50.00	71.55
Two-mile	37.962659	-122.040981	42.49	582.49	624.98

Name: RWY 32R
Description:
Threshold height: 50 ft
Direction: 334.2°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	37.986060	-122.052311	24.69	50.00	74.69
Two-mile	37.960022	-122.036344	46.19	581.93	628.12

Discrete Observation Receptors

Name	ID	Latitude (°)	Longitude (°)	Elevation (ft)	Height (ft)
1-ATCT	1	37.985815	-122.055291	22.96	67.00

Map image of 1-ATCT

GLARE ANALYSIS RESULTS

Summary of Glare

PV Array Name	Tilt (°)	Orient (°)	"Green" Glare min	"Yellow" Glare min	Energy kWh
PV array 1	10.0	180.0	2,195	1,611	-

Total annual glare received by each receptor

Receptor	Annual Green Glare (min)	Annual Yellow Glare (min)
RWY 14L	0	0
RWY 14R	0	0
RWY 19L	0	0
RWY 19R	0	0
RWY 1L	0	0
RWY 1R	0	0
RWY 32L	1264	1611
RWY 32R	931	0
1-ATCT	0	0

Results for: PV array 1

Receptor	Green Glare (min)	Yellow Glare (min)
RWY 14L	0	0
RWY 14R	0	0
RWY 19L	0	0
RWY 19R	0	0
RWY 1L	0	0
RWY 1R	0	0
RWY 32L	1264	1611
RWY 32R	931	0
1-ATCT	0	0

Flight Path: RWY 14L

0 minutes of yellow glare
0 minutes of green glare

Flight Path: RWY 14R

0 minutes of yellow glare
0 minutes of green glare

Flight Path: RWY 19L

0 minutes of yellow glare
0 minutes of green glare

Flight Path: RWY 19R

0 minutes of yellow glare
0 minutes of green glare

Flight Path: RWY 1L

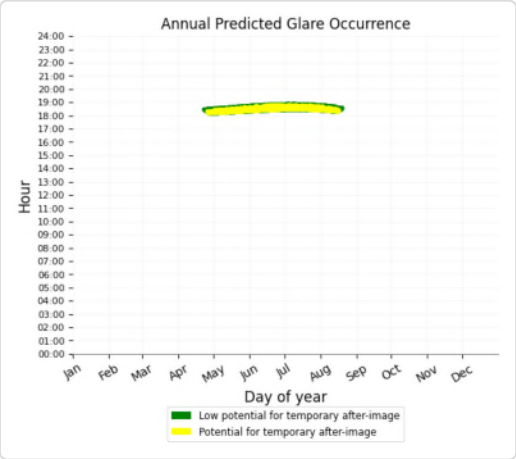
0 minutes of yellow glare
0 minutes of green glare

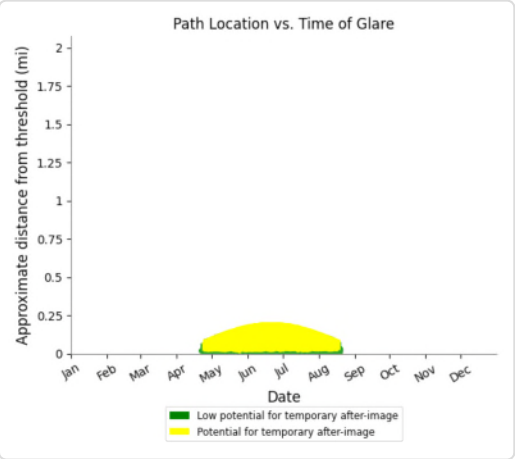
Flight Path: RWY 1R

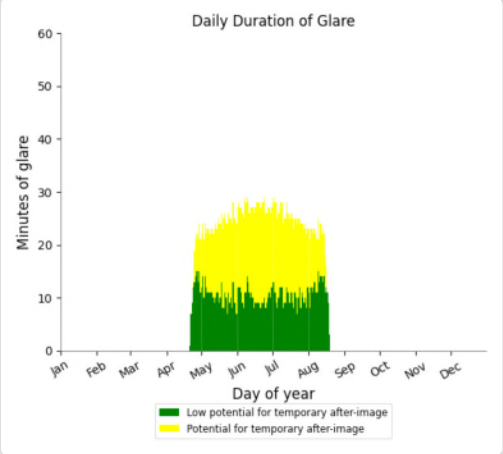
0 minutes of yellow glare
0 minutes of green glare

Flight Path: RWY 32L

1611 minutes of yellow glare
1264 minutes of green glare

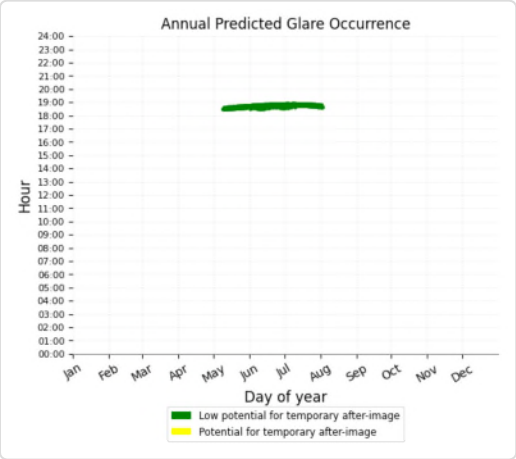


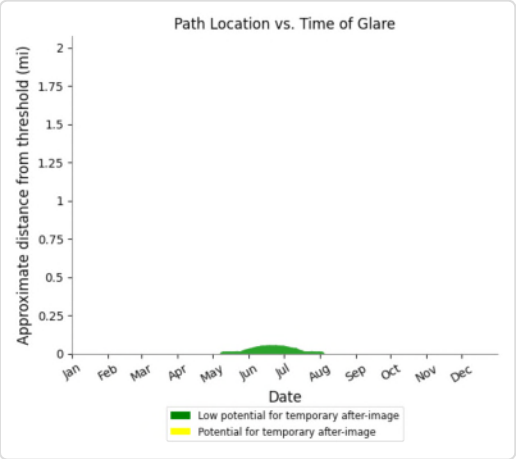


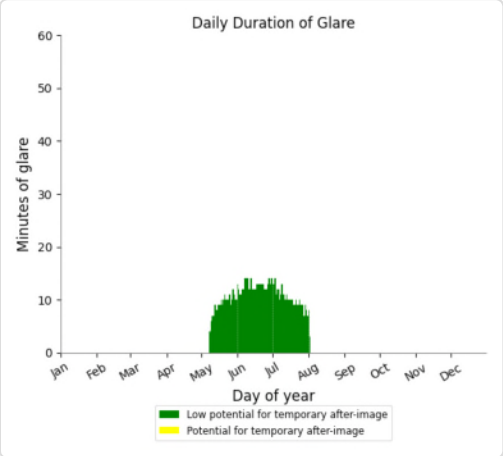


Flight Path: RWY 32R

0 minutes of yellow glare
931 minutes of green glare







Point Receptor: 1-ATCT

0 minutes of yellow glare
0 minutes of green glare

Assumptions

"Green" glare is glare with low potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
"Yellow" glare is glare with potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
Glare analyses do not account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographic obstructions.
Several calculations utilize the PV array centroid, rather than the actual glare spot location, due to V1 algorithm limitations. This may affect results for large PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare.
The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
Glare vector plots are simplified representations of analysis data. Actual glare emanations and results may differ.
The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual results and glare occurrence may differ.
Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid based on aggregated research data. Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.
Refer to the Help page at **www.forgesolar.com/help/** for assumptions and limitations not listed here.

Exhibit C

Federal Aviation Administration

November 15, 2024

TO:
Montecito Development, LLC
Attn: Karl Higgins
1247 Firecrest Way
Fallbrook, CA 92028
karl@mdevair.com

CC:
CONTRA COSTA COUNTY
181 JOHN GLENN DR, SUITE 100
CONCORD, CA 94520
Greg.Baer@airport.cccounty.us

CC:
Harris Miller Miller
& Hanson, Inc.
Attn: phil devita
77 South Bedford Street
Burlington, MA 01803
pdevita@hmmh.com

RE: *(See attached Table 1 for referenced case(s))*
FINAL DETERMINATION

Table 1 - Letter Referenced Case(s)

ASN	Prior ASN	Location	Latitude (NAD83)	Longitude (NAD83)	AGL (Feet)	AMSL (Feet)
2024-AWP-7058-NRA		CONCORD,CA	37-59-30.04N	122-03-42.13W	45	62
2024-AWP-7059-NRA		CONCORD,CA	37-59-30.04N	122-03-42.13W	45	62
2024-AWP-7060-NRA		CONCORD,CA	37-59-20.95N	122-03-41.94W	45	62
2024-AWP-7061-NRA		CONCORD,CA	37-59-20.90N	122-03-45.58W	45	62
2024-AWP-7062-NRA		CONCORD,CA	37-59-30.05N	122-03-45.97W	45	62

Description: Roof top solar project on proposed new warehouse building at the airport.

We do not object with conditions to the construction described in this proposal provided:

You comply with the requirements set forth in FAA Advisory Circular 150/5370-2, "Operational Safety on Airports During Construction."

The proponent is required to coordinate all associated activities with the Airport Manager/Airport Traffic Control Tower (ATCT) 5 business days prior to the beginning of the project.

This determination is subject to review if disruption to FAA Operations should occur.

FAA relies on the airport sponsor's statement in the submitted Form 7460-1 that it has proposed a project that will not create ocular (i.e., glint or glare) impacts to personnel in the airport's airport traffic control tower. If impacts to the airport traffic control tower are discovered after construction, the Sponsor must mitigate those impacts at its own expense. The Sponsor remains subject to a compliance action under 14 CFR part 16 for failing to mitigate ocular impacts that interfere with aviation safety.

For current Advisory Circulars go to www.oeaaa.faa.gov

A separate notice to the FAA is required for any construction equipment, such as temporary cranes, whose working limits would exceed the height and lateral dimensions of your proposal.

This determination does not constitute FAA approval or disapproval of the physical development involved in the proposal. It is a determination with respect to the safe and efficient use of navigable airspace by aircraft and with respect to the safety of persons and property on the ground.

In making this determination, the FAA has considered matters such as the effects the proposal would have on existing or planned traffic patterns of neighboring airports, the effects it would have on the existing airspace structure and projected programs of the FAA, the effects it would have on the safety of persons and property on the ground, and the effects that existing or proposed manmade objects (on file with the FAA), and known natural objects within the affected area would have on the airport proposal.

This determination expires on May 15, 2026 unless:
(a) extended, revised or terminated by the issuing office.
(b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for the completion of construction, or the date the FCC denies the application.

NOTE: Request for extension of the effective period of this determination must be obtained at least 15 days prior to expiration date specified in this letter.

If you have any questions concerning this determination contact Lloyd E. Lewis (424) 405-7316 lloyd.e.lewis@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2024-AWP-7058-NRA.

Lloyd E. Lewis
DivUser
Signature Control No: 633517217-639326138