FINAL INITIAL STUDY/

MITIGATED NEGATIVE DECLARATION FOR THE

GRANT UNION HIGH SCHOOL SPORTS COMPLEX PROJECT

Prepared for:

Twin Rivers Unified School District
3222 Winona Way,
North Highlands, CA 95660

Prepared by:

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September 17, 2021

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ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
ADWF	average dry weather flow
APE	Area of Potential Effect
BMP	Best Management Practice
CARB	California Air Resources Board
DPR	California Department of Parks and Recreation
FEMA	Federal Emergency Management Agency
CO	carbon monoxide
CO2E	carbon dioxide equivalent
GHG	greenhouse gas
gpd	gallons of wastewater per day
LOS	level of service
mgd	million gallons per day
MLD	Most Likely Descendant
NAHC	Native American Heritage Commission
NOx	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NWIC	Northwest Information Center
OHP	State Office of Historic Preservation
O3	ozone
PM10	particulate matter less than 10 microns
PM2.5	particulate matter less than 2.5 microns
RWQCB	Regional Water Quality Control Board
SCH	State Clearinghouse
SOx	sulfur dioxide
SWPPP	Stormwater Pollution Prevention Plan
TAC	toxic air contaminant
TMDL	Total Maximum Daily Load
UCMP	University of California Museum of Paleontology
VOC	volatile organic compound

ENVIRONMENTAL DETERMINATION

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED: The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

	Aesthetics		Greenhouse Gas Emissions		Public Services
	Agricultural and Forestry Resources		Hazards and Hazardous Materials		Recreation
	Air Quality	X	Hydrology/Water Quality		Transportation/ Traffic
X	Biological Resources		Land Use/Planning		Tribal Cultural Resources
X	Cultural Resources		Mineral Resources		Utilities/Service Systems
	Energy	X	Noise		Wildfire Hazards
X	Geology/Soils		Population/Housing	X	Mandatory Findings of Significance

DETERMINATION: On the basis of this initial evaluation:

I find that the proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.	
I find that although the proposed Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the Project have been made by or agreed to by the Project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.	**X**
I find that the proposed Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.	
I find that the proposed Project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.	
I find that although the proposed Project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed Project, nothing further is required.	

9/18/21

Perry Herrera, Director, Facilities Construction and Engineering, TRUSD

Date

I. INTRODUCTION

This Initial Study/Mitigated Negative Declaration (IS/MND) has been prepared by the Twin Rivers Unified School District (TRUSD or District), 3222 Winona Way Suite 201, North Grant, Sacramento CA 95660, pursuant to the California Environmental Quality Act (CEQA) statutes[1] and Guidelines[2]. It provides documentation to support the conclusion that the proposed Grant Union High School Sports Complex Project ("the project"), with mitigation identified herein, would not cause a potentially significant impact to the physical environment. The proposed site is located on the Grant High School campus, in in the Del Paso Heights neighborhood in the northeastern area of the City of Sacramento

This IS/MND describes the location of the project site, the project sponsor's objectives, and the details of the proposed project. The Environmental Checklist Form included as Appendix G of the CEQA Guidelines serves as the basis for the environmental evaluation contained in the IS/MND. The Checklist Form examines the specific potential project-level physical environmental impacts that may result from the construction and operation of the proposed new and expanded facilities onsite. Mitigation measures have been identified to reduce any potentially significant impacts that would otherwise occur with development and operation of the new facilities to a less-than-significant level.

The District will serve as the "lead agency" (the public agency that has the principal responsibility for carrying out and/or approving a project) for the proposed project. The governing board of the District is responsible for ensuring that the environmental review and documentation meet the requirements of CEQA. The Draft IS/MND is subject to review and comment by responsible agencies and the public during a statutory public review period (30 days). Any necessary revisions would be incorporated in the Final IS/MND.

The Draft IS/MND was circulated for public review from August 17 through September 17, 2021. Should the District approve the project, it would be required to file a "Notice of Determination" for posting by the County Clerk and the State Clearinghouse. The filing ofthe notice and its posting starts a 30- day statute of limitations on court challenges to the CEQA review of the Project.

Document Organization

This document is organized into the following sections:

SECTION I – INTRODUCTION: Provides background information about the project.

SECTION II – PROJECT DESCRIPTION: Includes project background and detailed description of the project.

SECTION III – INITIAL STUDY CHECKLIST AND DISCUSSION: Reviews the proposed project and states whether the project would have potentially significant environmental effects.

[1] Public Resources Code Sections 21000 et seq.
[2] Title 14, Section 15000 et seq. of the California Code of Regulations

SECTION IV – MANDATORY FINDINGS OF SIGNIFICANCE: States whether environmental effects associated with development of the proposed project are significant, and what, if any, added environmental documentation may be required.

SECTION V – REFERENCES: Identifies source materials that have been consulted in the preparation of the IS.

SECTION IV – REPORT PREPARERS: Identifies the firms and individuals who prepared the IS.

APPENDICES: Includes technical reports, comments and responses on the Draft IS/MND, and Mitigation Monitoring and Reporting Program.

II. PROJECT DESCRIPTION

Project Name:	Grant Union High School Sports Complex Project
Project Location:	1400 Grand Avenue. Sacramento, CA 95838
Project Applicant and Lead Agency Contact:	Perry Herrera, Director, Facilities Construction and Engineering Twin Rivers Unified School District 3222 Winona Way, Ste. 201 (916) 566-1600 ext. 36205 Perry.Herrera@twinriversusd.org
General Plan Designation:	Public/Quasi-Public Residential
Zoning:	Standard Single-Family
Project Approvals:	TRUSD approval. Review of facilities by Division of the State Architect for structural safety, fire and life safety, and ADA accessibility.
Date Initial Study Completed:	September 17, 2021

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PROJECT DESCRIPTION

Project Location

Grant Union High School is located at 1400 Grand Avenue in the Del Paso Heights neighborhood in the northeastern area of the City of Sacramento. (See Figure 1). The school is located north of South Avenue, south of Grand Avenue, east of Dry Creek Road, and west of Marysville Boulevard. Regionally, the campus is accessed via from US Highway 80, via Marysville Boulevard and Grand Avenue.

Grant Union High School has an enrollment of 1,934 students and was originally built in 1935. Existing athletic facilities on the campus include six tennis courts, a swim center, baseball and softball diamonds and practice fields, and a football field with bleachers.

The project site, which currently includes an unimproved earthen track and natural grass soccer practice field, is at the northwestern corner of the campus. The project site comprises approximately 4.52 acres of the overall 59.29-acre campus.

Surrounding Land Uses

The portion of the campus containing the project site is bounded on the north by Grand Ave. and a church and single-family residences; on the south by the campus "Geo Garden," a school and community garden; on the east by a school bus parking lot and associated buildings; and on the west by Dry Creek Road and a small commercial building and single-family residences.

Existing Site Conditions and Facilities

The existing project site currently contains a minimally improved earthen track and grass soccer field, as well as grassy open space areas with a few trees. The existing field has no spectator facilities.

Proposed Sports Complex

The proposed sports complex upgrades are described below and shown in Figure 2.

The existing natural grass field and earthen track would be replaced with synthetic turf and synthetic track surface. The turf would include four components: fiber, infill, backing, and underlayment. The fiber would consist of polyethylene slit film, would be grass-like in appearance. The infill, which would be used to provide stability, would be made of sand, cryogenic rubber and natural cork. The backing would be comprised of polyethylene and its function would be to bind the slit film. The underlayment would consist of polyethylene mat. The turf would be expected to last approximately eight to 12 years and could then be recycled and replaced with a new surface.

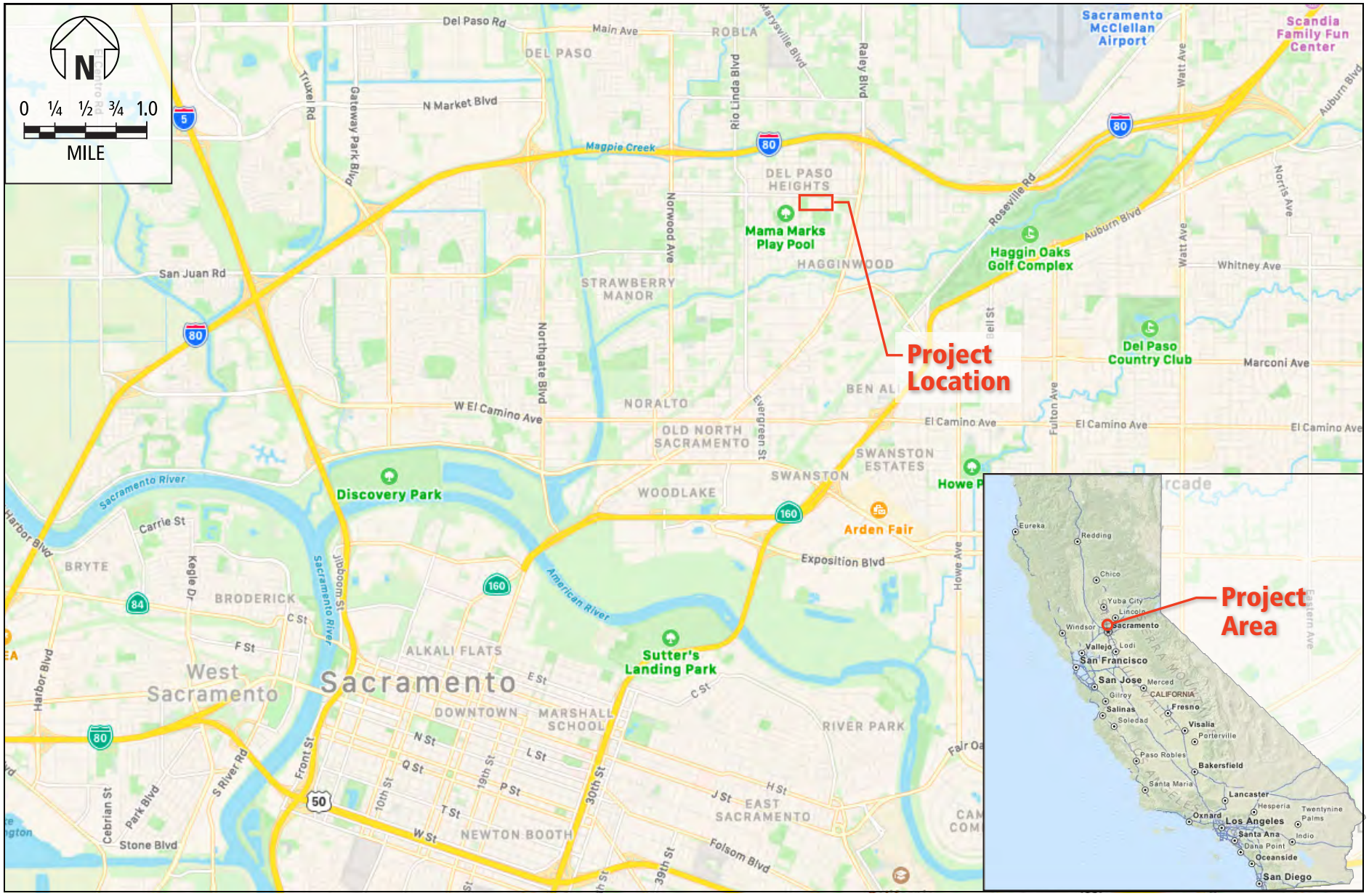

Figure 1

Project Location

Source: Grassetti Environmental and TomTom Maps

Figure 2
Project Site

Source: Grassetti Environmental and Google Maps

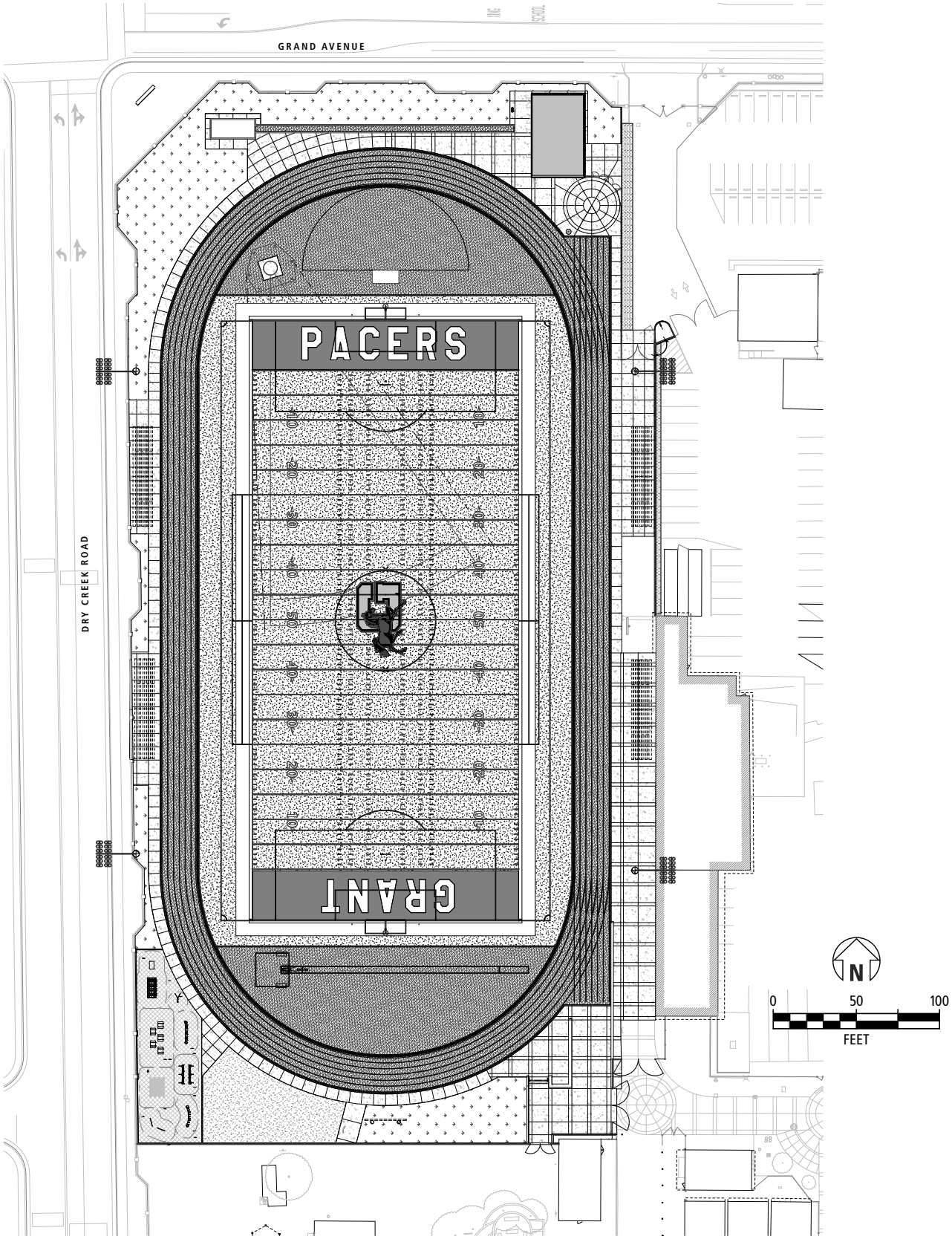

Figure 3
Site Plan

Source: PBK Architects, Inc.

Public Address System. The project includes a new public address system to announce events during competitions. The proposed system would use standard sound system components and be designed to provide sound coverage for the seating and competition areas.

Track and Field Lighting. Four 80-foot-tall LED light poles would be installed as part of the project with two on either side of the track and field. Each pole would have 11 LED lamps -- ten for the field and one for egress.

All lamps would be shielded and directed to focus the lighting on the field and to minimize spillage beyond the desired illuminated areas. The proposed pole-mounted LED lighting fixtures would be hooded to eliminate sky glow and are pre-aimed to keep on the light within the competition areas and away from the neighboring areas. Please see Section III.I for a discussion of the light and glare impacts.

Accessory Structures and Features. The project would include, an approximately 50- by 32-foot (1,620 square-foot) one-story, 11-foot-high modular building containing a concession stand, restrooms, and storage area on the north side of the field; eight 8-foot-high portable bleacher structures with total seating capacity of 496 spectators; a fitness course; and an equipment area (at the northwest corner of the site adjacent to the track). The project also would include a scoreboard, new walkways, and landscaping, as well as approximately 744 linear feet of fencing up to six feet in height.

Infrastructure Connections. Water and sewage service would be provided via connections to existing mains on Grand Avenue and Dry Creek Road. Electrical service also would be provided from existing on-site service.

Days and Hours of Operation. The existing grass field and earthen track is currently used for high school soccer practices. The proposed new facility would be used by the high soccer teams and the District would also make the facility available for community use.

Soccer. Soccer games and practices would be held on the proposed upgraded field and would accommodate 40 players. The number of players and the 50 to 100 spectators would not increase as a result of the project, but the games would be held on the upgraded field complex instead of the stadium where they are currently held.

Soccer is a winter sport and games are currently held from 4:00 to 8:00 PM Monday through Saturday. Practice times currently run between 3:30 and 9:00 PM Monday through Saturday and there are about 100 practices per year. Game times, practice times, and the number of practices would not change with the project. However, the number of soccer games per year would increase from 11 to 20 with the project.

Football. The field would be used for occasional football practice, with 30-55 students.

Community Use. The sports complex would be available for community use. The facilities would accommodate 100 to 200 participants, seven days a week between the hours of 8:00 AM and 10:00 PM. It is expected that there would be 30 to 50 community events per year with 100 to 200 spectators.

The portable bleachers on the home and visitor site would accommodate approximately 496 spectators. The bleachers would be used by spectators for Grant Union High School soccer games as well as for community use which could include track and field, soccer matches and tournaments, and other sports. It is estimated that there could be up to ten large-capacity events annually where up to 496 spectators could attend. However, as discussed above, typical attendance would be far less.

School Capacity. There would be no change in student enrollment or staffing from the proposed field upgrade project.

Tree Protection, Planting and Removal. The project includes 22 new trees along Grand Avenue and Dry Creek Road frontages. No existing trees would be removed.

Grading and Earthwork. The preliminary project grading scheme would result in 2,400 cubic yards of cut and 2,400 cubic yards of fill (i.e., balanced on the site). Minimal topographic changes to the level site would occur as a result of the project's cut and fill.

Drainage and Runoff. The approximately 4.5-acre project area is currently undeveloped and unpaved. With the project there would be an increase in impervious surface area of 86,677 square feet (1.98 acres). New storm drains would be installed to connect field subdrain systems to an underground infiltration and retention system along the south edge of the project. A new storm drain connection is proposed into the City storm drain system, but peak flows would not be expected to exceed existing site peak runoff conditions because any increase would be detained by the on-site stormwater system.

Construction Schedule, Equipment, Workers, and Hours

Construction Schedule. The project has a tentative construction start date of mid-September 2021, with completion anticipated by mid-March 2022.

***Equipment Use*.** Equipment used during construction would vary by phase, but would include excavators, backhoes, dump trucks, graders, compactors, water trucks, and similar equipment.

Construction Workers. Up to 12 construction workers would be onsite on an average day.

Construction Hours. Typical construction hours would be 7:00 am to 4:30 PM, weekdays. Some work may also be done on Saturdays between 7:00 am and 4:30 PM.

***Staging Areas*.** Construction staging would be located on the project site.

III. INITIAL STUDY CHECKLIST

The initial study checklist recommended by the CEQA Guidelines is used to describe the potential impacts of the proposed Project on the physical environment.

I. Aesthetics

Would the Project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?				**X**
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				**X**
c) In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?			**X**	
d) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?			**X**	

Discussion

a, c) There are no scenic vistas in the project vicinity, which is generally level land developed mostly with are suburban residential, institutional, and commercial uses. The project would replace an existing earthen track and grass soccer field with an improved field and track, bleachers, concession stands, and parking. These uses would be visually similar to existing uses at the school's football field and would not degrade or substantially alter the visual character of the site. The addition of 22 new trees would enhance the appearance of the project area. Therefore, the project would have **no impact** on scenic vistas or scenic resources.

b) There are no rock outcroppings, historic buildings, or scenic highways on the project site and no scenic highways with views of the project site. The project site is just over 1.5 miles from I-80, which is a County-designated Scenic Corridor (Sacramento County General Plan, 2017 Circulation Element, Figure 5). The project improvements would not be visible

from this highway due to the distance from it and the intervening trees and buildings. Therefore, there would be **no impact**.

d) The proposed project lighting for the athletic facilities would create a new source of nighttime light and glare. Currently, use of the field is limited to daylight hours, and there is no lighting.

With the project, the site would be lit for games and practices on average no later than 9:00 PM, but in no case later than 10:00 PM. The proposed sports lighting is designed to control light to maximize illumination on the field and minimize off-site light and glare. The proposed lighting would be less impactful and more focused than older systems. An illumination spillover study assessed light spillover at the front property lines of buildings across the streets from the field along both Grand Avenue. and Dry Creek Road (Musco Sports Lighting, 2021) (See Figure 3 below and Appendix A.).

The lighting study also assessed off-site glare, in terms of the maximum illuminance candela, or amount of glare an observer would see when facing the brightest light source from any direction. High glare is considered to be 150,000 or more candela. Significant glare is defined as 10,000-75,000 candelas, which is equivalent to the low and high beam headlights on a car. Minimal to no glare is 500 or fewer candela, or equivalent to a 100-watt incandescent light bulb.

Figures 3 and 4 show that the residents along Dry Creek Road and Grand Avenue may notice new nighttime light from their front yards as a result of project lighting. However, the homes along Dry Creek Road are set back 100 feet or more from the light poles and those along Grand Avenue are set back 250 feet or more from the light poles. And the lights would be aimed down and away from these houses. A maximum of 0.76 foot-candles at one point along Dry Creek Road and no more than 0.10 foot-candles along Grand Avenue.

Glare would be less than significant: it would be less than 10,000 candela at most locations with just four of the 45 locations studied ranging from 10,089 to 11,294 candela. The study determined that the maximum illuminance in footcandles (fc) from proposed lights at the residential property lines would be less than is typical of roadway lighting. And the lights would not operate after typical bedtimes. Therefore, light and glare impacts on these residences would be **less than significant**.

The church across Grand Avenue. from the field also would experience some light and glare (under 3,000 candela) from the project, however that facility is not considered a sensitive receptor to the light and glare, and the light and glare levels at the church, which is over 300 feet from the nearest lights, would be below 0.1 foot-candle and 3,000 candelas, respectively, which is below potentially significant levels and considered **less than significant**.

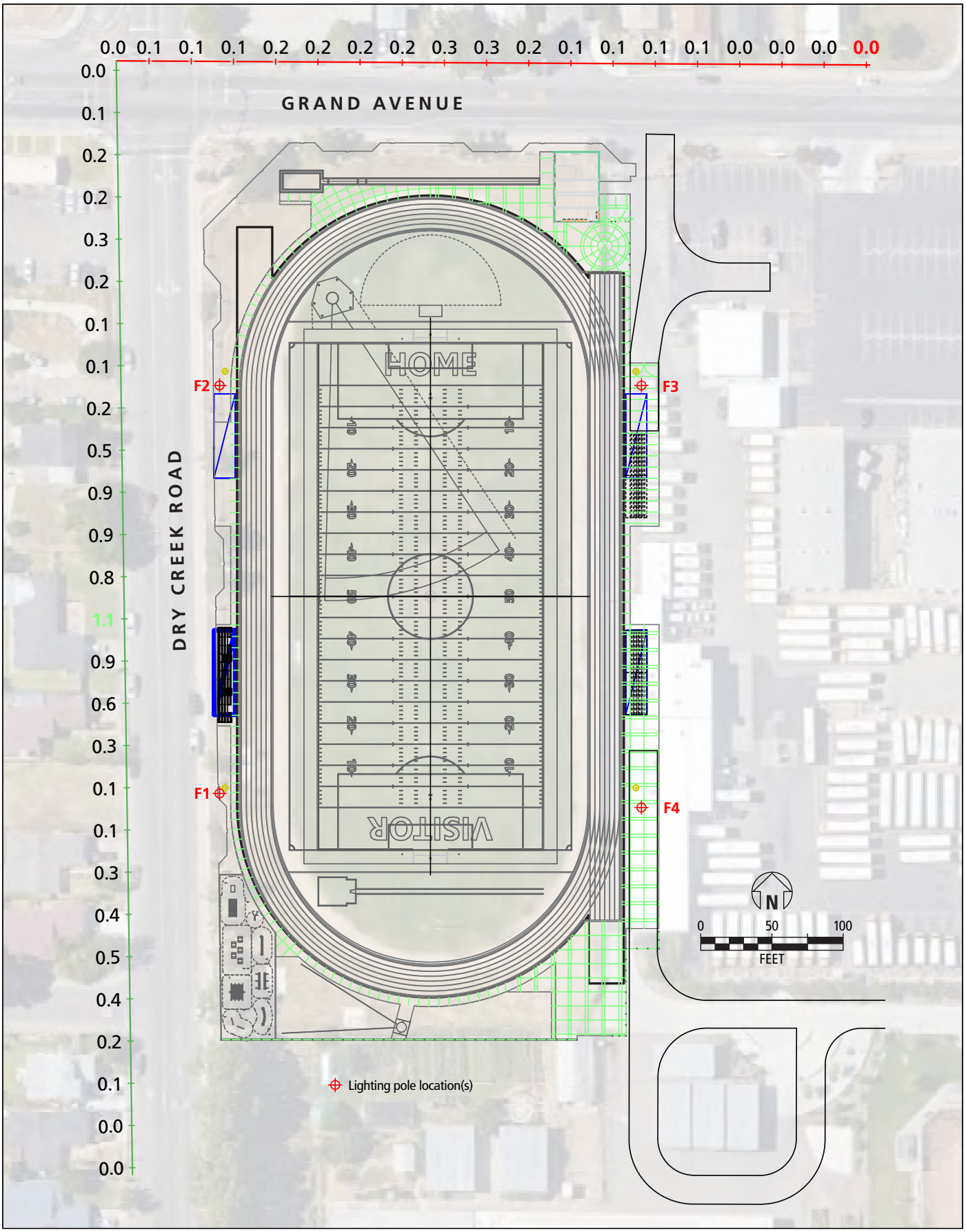

Figure 4

Lighting Spillover at Property Lines (footcandles)

Source: Musco Lighting

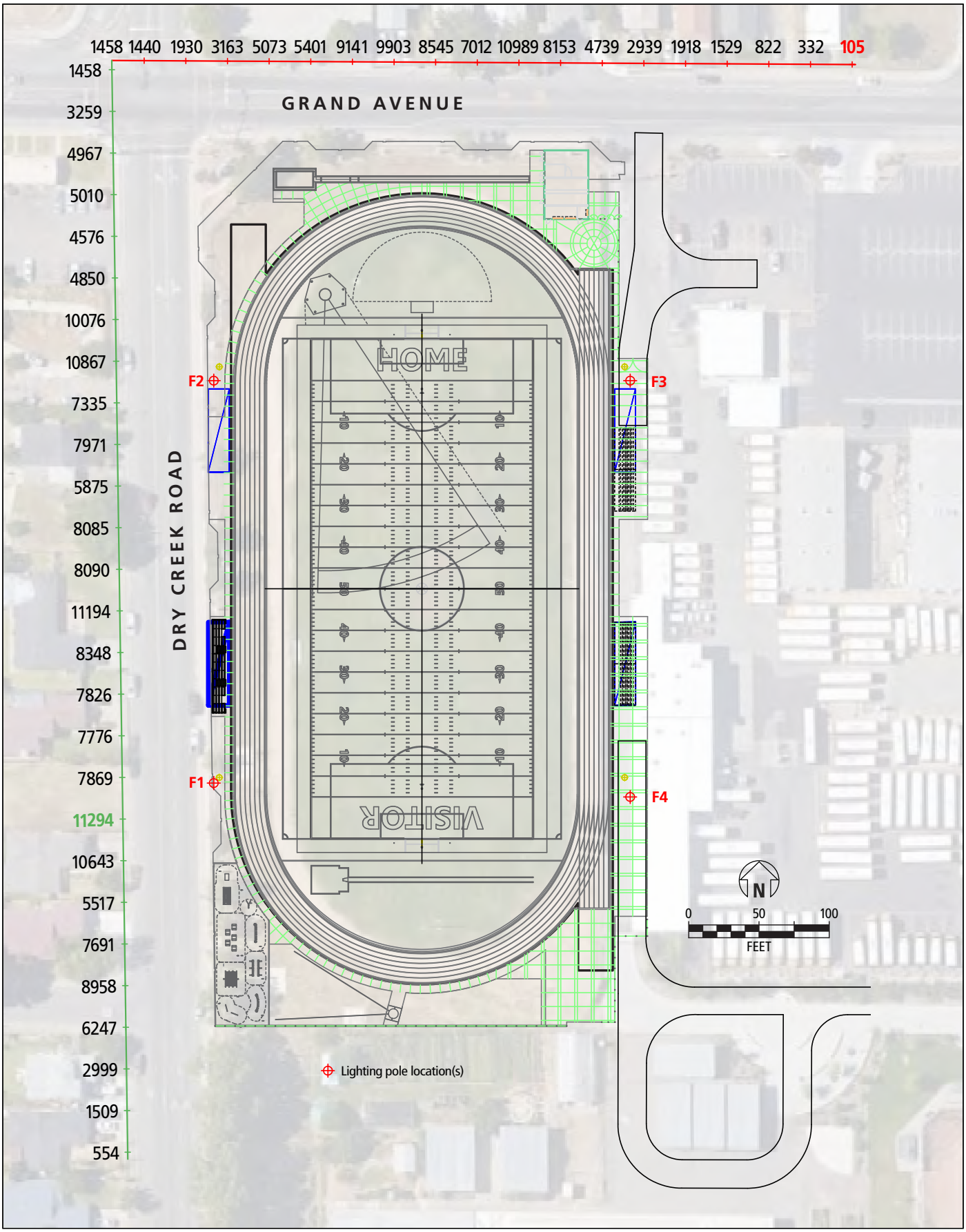

Figure 5

Glare at Property Lines (candelas)

Source: Musco Lighting

II. Agricultural and Forestry Resources

Would the Project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				**X**
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				**X**
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?				**X**
d) Result in the loss of forest land or conversion of forest land to non-forest use?				**X**
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?				**X**

Discussion

a-e) The project site is covered by existing track and soccer field. There are no agricultural or forested lands on or in the vicinity of the high school campus, with the exception of the garden adjacent to the field, which would remain and not be impacted by the project. Therefore, the project would not result in the conversion of farmland or forestland to non-agricultural uses would have **no impact** on agricultural and forestry resources.

III. Air Quality

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?			**X**	
b) Result in a cumulatively considerable net increase of any criteria for which the Project region is non-attainment under an applicable federal or state ambient air quality standard?			**X**	
c) Expose sensitive receptors to substantial pollutant concentrations?			**X**	
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?			**X**	

Background

The project site is in a predominantly residential suburban area of northern Sacramento County, which is part of the Sacramento Valley Air Basin (which includes all the Sacramento Valley counties from Sacramento County at the south end to Shasta County in the north). The mountains surrounding the Sacramento Valley create a barrier to airflow, which can trap air pollutants when meteorological conditions are right, particularly in the autumn and early winter when surface wind speeds are low and vertical mixing is inhibited by temperature inversions (i.e., colder air near the ground, capped by warmer air aloft, which limits the vertical dispersion of air pollutants). The major air pollutants of concern for their widespread adverse health effects include ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, and particulate matter (specifically two types of the latter: particulate matter less than 10 microns in diameter (PM_{10}) and particulate matter less than 2.5 microns in diameter ($PM_{2.5}$).

Except for ozone, PM_{10} and $PM_{2.5}$, Sacramento County attains all state and federal ambient air quality standards. Sacramento County is designated a “severe” nonattainment area for the federal eight-hour ozone standard, a “serious” nonattainment area for the state one-hour ozone standard, and nonattainment for the state PM_{10} and $PM_{2.5}$ standards.

The Sacramento Metropolitan Air Quality Management District (SMAQMD) and the California Air Resources Board (CARB) maintain a number of air quality monitoring stations, which continually measure the ambient concentrations of major air pollutants in Sacramento County. The closest monitoring station to the Project site is in Del Paso Manor Park, about four miles southeast of the

site). Violations of both the ozone and particulate standards have been recorded at these monitoring stations over the most recent three years of collected data, as shown in Table AQ-1.

TABLE AQ-1: LOCAL AIR QUALITY MONITORING DATA SUMMARY

Pollutant	Air Quality Standard	Maximum Concentrations and Number of Days Standards Exceeded		
		2017	2018	2019
Ozone				
Maximum 8-hour concentration (ppb)		79	87	69
# Days 8-hour national/state standard exceeded	70 ppb	5	6	0
Nitrogen Dioxide				
Maximum 1-hour concentration (ppb)		37	42	51
# Days 1-hour national standard exceeded	100 ppb	0	0	0
Suspended Fine Particulates (PM2.5)				
Maximum 24-hour concentration (µg/m^3)		42.0	228.4	41.4
# Days national 24-hour standard exceeded	35 µg/m^3	6	10	3

Notes:
As measured at the SMAQMD monitoring station in Del Paso Manor Park.
µg/m^3 = micrograms per cubic meter ppb = parts per billion.
na = insufficient data to determine the value
Source: CARB iADAM Air Quality Data Statistics https://www.arb.ca.gov/adam/

There are many other chemical compounds that are commonly emitted into the air and are regulated as toxic air contaminants (TACs). In California, most the estimated carcinogenic/chronic health risk can be attributed to relatively few TACs, the most important being particulate matter from diesel-fueled engines (DPM, which is also a form of $PM_{2.5}$). The CARB has identified DPM as being responsible for about 70 percent of the cumulative cancer risk from all airborne TAC exposures statewide.

This air quality analysis addressing the Initial Study air quality checklist items above was performed using the methodologies recommended in the SMAQMD's *Guide to Air Quality Assessment in Sacramento County (CEQA Guide)*[3] The air pollutants evaluated in this Initial Study are: reactive organic compounds (ROG) and nitrogen oxides (NO_x) (both being precursors to ozone formation), inhalable particulates (PM_{10}), and fine particulates ($PM_{2.5}$).

According to the *CEQA Guide*, any project would have a significant potential for causing/contributing to a local air quality standard violation or making a cumulatively considerable contribution to a regional air quality problem if its criteria pollutant emissions would exceed any the following thresholds during construction or operation as presented in Table AQ-2.

[3] http://www.airquality.org/Residents/CEQA-Land-Use-Planning/CEQA-Guidance-Tools

TABLE AQ-2: SIGNIFICANCE THRESHOLDS FOR AIR POLLUTANT EMISSIONS

Pollutant	Construction Daily/Annual Emissions (lbs./tons)	Operational Daily/Annual Emissions (lbs./tons)
Reactive Organic Gases (ROG)	----/----	65/----
Oxides of Nitrogen (NO_x)	85/----	65/----
Inhalable Particulate Matter (PM_{10})	80/14.6	80/14.6
Fine Inhalable Particulate Matter ($PM_{2.5}$)	82/15.0	82/15.0

Discussion

a) The regional air districts of the Sacramento Ozone Planning Region (i.e., all of Sacramento and Yolo counties and portions of Placer, El Dorado, Solano, and Sutter counties) developed the Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan in 2013 to address how the region would attain the federal 8-hour ozone standard. The Sacramento PM2.5 Planning Region (i.e., all of Sacramento County, the eastern portion of Yolo County, the western portions of El Dorado and Placer counties, and the northeast portion of Solano County) had been classified as nonattainment for the federal 24-hour PM2.5 standard. The regional districts prepared the PM2.5 Maintenance Plan and Redesignation Request in 2013 to address how the region had attained and would maintain the federal 24-hour PM2.5 standard.

The regional air quality plans are based on regional air pollutant emission inventories and the effects of expected regional changes in population, transportation, housing, employment, etc. on future emissions. The Proposed Project would replace the existing athletic fields of Grant Union High School. The improved fields and their supporting facilities would occupy the same area in the same location on the school campus. The school's student population would not change as a result of the project. Thus, the school and its athletic fields would continue to serve the same local communities and the Project would not substantially affect regional employment, transportation, housing or population that underlie the regional air quality plans. The Project would not introduce any new stationary sources of air pollutants to the site. Also, compliance with SMAQMD CEQA significance thresholds is a test of consistency with plan air quality control strategies and noninterference with the attainment of plan goals. As the pollutant inventories below demonstrate, the Proposed Project would have less than significant air quality impacts because it does not exceed any SMAQMD CEQA threshold. The project has the potential to affect migratory and nesting protected bird species resulting from construction noise impacts on active nests. This potentially significant impact would be reduced to a **less-than-significant** level by implementation of Mitigation Measure BIO- 1, below.

b) Under the proposed project, Grant Union High School's existing natural grass athletic field and earthen track (total field area 4.52 acres) would be replaced with synthetic turf, and the project would not change student enrollment or staffing. Construction of the athletic facility improvements would begin in Fall 2021 and would be completed in about 6 months. Air

pollutants would be present in the construction equipment exhaust and in the fugitive dust stirred up by construction equipment/material movement. The SMAQMD *CEQA Guide* recommends quantification of construction-related exhaust and fugitive emissions, and comparison of those emissions to the CEQA significance thresholds. Thus, the CalEEMod (California Emissions Estimator Model, Version 2020 4.0) was used to quantify construction-related emissions of criteria pollutants.

Table AQ-3a displays the estimated daily Proposed Project construction pollutant emissions from earth-moving equipment, supply delivery trucks, and worker vehicle commute vehicles, and their comparisons at each construction phase to the CEQA significance thresholds. All construction-related engine exhaust emissions would be Table AQ-3b displays the estimated total Proposed Project construction pollutant emissions from earth-moving equipment, supply delivery trucks, and worker vehicle commute vehicles, and their comparisons to the annual average emission CEQA significance thresholds. All construction-related engine exhaust total emissions would be well below the corresponding thresholds.

In addition to the pollutants contained in the construction equipment and motor vehicle exhaust, the fugitive dust stirred up by equipment/vehicular movement would contain PM_{10} and $PM_{2.5}$ well below the thresholds during each construction phase.

TABLE AQ-3a: PROJECT CONSTRUCTION CRITERIA POLLUTANT EMISSIONS (Daily maximum)

Construction Phase/Duration	ROG (lbs./day)	NOx (lbs./day)	PM_{10} (Exhaust) (lbs./day)	$PM_{2.5}$ (Exhaust) (lbs./day)
Demolition/10 days	0.4	4.2	0.2	0.2
Clear & Grub/5 days	1.2	11.5	0.7	0.4
Rough Grade/20 days	3.3	31.2	1.6	1.3
Fine Grade/10 days	1.7	15.7	0.9	0.7
Rock Placement/15 days	1.8	16.9	0.9	0.7
Paving/5 days	0.8	8.8	0.4	0.4
Turf Placement/30 days	0.9	7.3	0.5	0.2
Fencing/20 days	0.4	2.8	0.1	0.1
Landscaping/18 days	0.5	4.8	0.2	0.2
Concrete Placement/20 days	0.4	4.9	0.3	0.2
Significance Thresholds	**----**	**85**	**80**	**82**
Significant Impact?	**No**	**No**	**No**	**No**

TABLE AQ-3b: PROJECT CONSTRUCTION CRITERIA POLLUTANT EMISSIONS

Construction Phase	ROG (tons/year)	NOx (tons/year)	PM_{10} (Exhaust) (tons/year)	$PM_{2.5}$ (Exhaust) (tons/year)
Total	0.09	0.82	0.04	0.03
Significance Thresholds	**----**	**----**	**14.6**	**15.0**
Significant Impact?	**No**	**No**	**No**	**No**

Table AQ-4a displays the estimated daily Proposed Project fugitive particulate pollutant emissions during the two highest-emitting construction phases, and their comparisons to the CEQA significance thresholds. All construction-related fugitive emissions would be well below the thresholds during these most emission-intensive construction phases. This would also be true of the combined engine exhaust and fugitive particulate emissions during the same two phases.

Table AQ-4b displays the estimated total proposed project fugitive particulate pollutant emissions from all construction phases, and their comparisons to the annual CEQA significance thresholds. Total construction-related fugitive emissions would be well below the thresholds during Project construction. This would also be true of the combined total engine exhaust and fugitive particulate emissions during project construction.

TABLE AQ-4a: PROJECT CONSTRUCTION FUGITIVE POLLUTANT EMISSIONS (daily maximum)

Construction Phase	ROG (lbs./day)	NOx (lbs./day)	PM_{10} (Fugitive) (lbs./day)	$PM_{2.5}$ (Fugitive) (lbs./day)
Clear & Grub	----	----	0.90	0.10
Rough Grade	----	----	6.47	3.36
Significance Thresholds	**----**	**----**	**80**	**82**
Significant Impact?	**----**	**----**	**No**	**No**

TABLE AQ-4b: PROJECT CONSTRUCTION FUGITIVE POLLUTANT EMISSIONS

Construction Phase	ROG (tons/year)	NOx (tons/year)	PM_{10} (Exhaust) (tons/year)	$PM_{2.5}$ (Exhaust) (tons/year)
Total All Phases	----	----	0.07	0.04
Significance Thresholds	----	----	**14.6**	**15.0**
Significant Impact?	**----**	**----**	**No**	**No**

The improved athletic field would have bleachers for spectators of the soccer games and football team practice, but all league football games would continue to be played at the existing football stadium. Based on the Project Transportation Impact Assessment, the provision for additional spectators at soccer games/football practice would generate about

71 additional daily motor vehicle trips. Table AQ-4 provides the estimated Proposed Project net new operational emissions from these additional motor vehicle trips, and compares daily and total annual emissions to the CEQA significance thresholds. Project operational emissions would be well below the thresholds.

TABLE AQ-4: PROJECT OPERATIONAL CRITERIA POLLUTANT EMISSIONS (daily average/annual total)

Operational Source	ROG (lbs./tons)	NOx (lbs./ tons)	PM10 (lbs./tons)	PM2.5 (lbs./tons)
Additional Motor Vehicle Trips Associated with Athletic Fields	0.13/0.02	0.57/0.08	0.50/0.07	0.14/0.02
Significance Thresholds	---/----	85/----	80/14.6	82/15.0
Significant Impact?	**No**	**No**	**No**	**No**

Thus, the Proposed Project would not make cumulatively considerable contributions to the Sacramento planning region's problems with ozone or particulate matter. Cumulative emission impacts would be **less than significant**.

c) Under the proposed project, pollutant concentrations would be generated during the construction and operation periods of the project. However, as detailed below, these would be kept to a **less than significant level**.

Project Construction-Related Impacts

The SMAQMD *CEQA Guide* requires several construction Emission Control Processes (ECPs) to control fugitive dust and the $PM_{10}/PM_{2.5}$ it would contain. Thus, the following measures must be implemented by the Proposed Project construction contractor to assure that local sensitive receptors would not be exposed to substantial ambient concentrations of $PM_{10}/PM_{2.5}$:

***SMAQMD Basic Construction Emission Control Processes*:** The following practices are considered feasible for controlling fugitive dust from a construction site. Control of fugitive dust is required by SMAQMD Rule 403 and enforced by SMAQMD staff.

- Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads.
- Cover or maintain at least two feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered.
- Use wet power vacuum street sweepers to remove any visible track-out mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited.
- Limit vehicle speeds on unpaved roads to 15 miles per hour (mph).

- All roadways, driveways, sidewalks, parking lots to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used.
- The following practices describe exhaust emission control from diesel powered fleets working at a construction site. California regulations limit idling from both on-road and off-road diesel-powered equipment, which the CARB enforces.
- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes [required by California Code of Regulations, Title 13, sections 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site.

  The CARB's *In-Use Off-Road Diesel Vehicle Regulation* applies to off-road diesel engines greater than 25 horsepower (hp) used in construction equipment. As required by this regulation:

- All Project construction equipment shall be reported to CARB using the Diesel Off-Road Online Reporting System (DOORS) and each piece of equipment shall be labeled as to its emission potential as listed in DOORS.

  Although not required by local or state regulation, many construction companies have equipment inspection and maintenance programs to ensure work and fuel efficiencies.
- Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determine to be running in proper condition before it is operated.

Project Operational Impacts

Cancer risk is the lifetime probability of developing cancer from exposure to carcinogenic substances. Following health risk assessment (HRA) guidelines established by the State of California's Office of Environmental Health and Hazards Assessment (OEHHA), incremental cancer risks are estimated by applying established toxicity factors to modeled TAC concentrations. For cancer, an incremental increase in risk greater than 10 in one million at any sensitive off-site receptor is considered to be significant. Adverse health impacts unrelated to cancer are measured using a hazard index (HI), which is defined as the ratio of a project's incremental TAC exposure concentration to a published reference exposure level (REL) as determined by OEHHA. If the HI is greater than 1.0, then the impact is considered to be significant.

Ambient DPM in construction equipment/truck exhaust could substantially affect sensitive receptors near the locus of construction activity if such emissions were strong enough and lasted long enough. However, the CEQA significance thresholds for TACs are based on assumptions of exposure duration of a year or longer (i.e., a year for chronic non-cancer health impacts, 70 years for cancer risk). Given that the most intensive DPM-emitting Project phase (i.e., Rough Grading) would be completed in about 20 work days, the TAC exposure period for the local school and residential sensitive receptors would be very short in comparison to the exposure times needed to threaten adverse health impacts. Thus, Proposed Project-related TAC health risks would be substantially below the CEQA health-

risk significance thresholds and TAC impacts for the Proposed Project construction emissions would be **less than significant**.

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people? – *Less than Significant Impact.*

The SMAQMD's Rule 402 (Nuisance) prohibits any person or source from emitting air contaminants that cause detriment, nuisance, or annoyance to a considerable number of persons or the public. Odiferous compounds can be generated from a variety of source types including construction activities that include a substantial number of diesel-fueled equipment and heavy-duty trucks.

The construction fleet required to install the Proposed Project's athletic fields would be relatively small (i.e., for Rough Grading, the Project's most intensive phase, a grader, a front-loader, a dozer, and a water truck would be required). This equipment would be operating for a relatively brief time (i.e., 20 workdays) and the locus of equipment activity would move over the 4.5-acre worksite over that time. Thus, any perceptible odor impacts from construction equipment exhaust to the school population and to the closest local residents would be transitory. Therefore, odor impacts associated with Proposed Project construction would be **less than significant**.

IV. Biological Resources

Would the Project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?			**X**	
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?				**X**
c) Have a substantial adverse effect on federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?				**X**
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?				**X**
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				**X**
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				**X**

Background

The project site is currently a grass covered athletic fields and earthen track, in a developed suburban area.

Based on habitat requirements and regional distribution, no State or federally Threatened or Endangered species are expected to occur on the project site. No sensitive habitats or plant

communities for these occur on the project site. However, there are a few existing mature trees surrounding the field, which may provide nesting habitat for special status songbirds and raptors, but these would not be removed. No potential jurisdictional wetlands or Waters of the United States occur on the project site[4]. Trees surrounding the school fields may provide nesting and/or roosting habitat for a number of special-status bird species.

Discussion

a) The project has the potential to affect migratory and nesting protected bird species resulting from construction noise impacts on active nests. This potentially significant impact would be reduced to a **less-than-significant** level by implementation of Mitigation Measure BIO-1, below.

b) The project would not affect any riparian habitat or sensitive natural communities, as none of those are present on the site. **No impact** would occur.

c) The project would not affect any wetlands habitats, as none of those are present on the site. **No impact** would occur.

d) The project has no potential to impede any migration corridors. The proposed project is not expected to "interfere substantially with the movement of any native resident or migratory fish or wildlife species" because there is minimal habitat on the site and the proposed project would not substantially change the uses of the project site and area. With respect to native wildlife nursery sites, see Migratory and Nesting Bird Species discussion, above. **No impact** would occur.

e) No trees would be removed as a result of the project. Therefore, **no impact** would occur.

f) The project site is not covered by any federal, state, or local conservation plan. Therefore, the project would have **no impact** with respect to habitat conservation plan compliance.

Mitigation Measures

Measure BIO-1: Prevent Loss of Active Bird Nests. A pre-construction survey for nesting birds shall be conducted by a qualified biologist within two weeks of construction activities, if activities are to occur within nesting/breeding season of native bird species (February- August). If active nests are identified within 300 feet of construction and would be exposed to prolonged construction-related noise above normal levels, a buffer shall be implemented around nests during the breeding season, or until a biologist determines the young have fledged. The size of the buffer and the type of construction activity would depend on multiple factors including relative change in noise and disturbance during construction activity, amount of vegetative screening between activity and nest, and sensitivity of species.

[4] https://www.fws.gov/wetlands/data/mapper.html

V. Cultural Resources

Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?				**X**
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?		**X**		
c) Disturb any human remains, including those interred outside of dedicated cemeteries?		**X**		

Background

The project site was graded to provide a level playing field and track when the original school was constructed 86 years ago and has been used as a field for much of that time.

Discussion

a) The project site is an existing graded high school sports field and track on an existing high school campus. Consequently, the project site contains no historical resources as defined in CEQA Guidelines Section 15064.5. Minimal additional grading would occur for construction of the proposed field upgrades. The project would not have the potential to affect off-site historic resources. Therefore, the project would have **no impact** on historical resources.

b) The project would involve grading the portion of the site proposed for the track and field by a few feet to install the artificial turf and track systems. Although the likelihood of project's grading, trenching, and digging for utility lines and lighting fixture foundations to encounter and disturb archaeological resources is low, it is possible that prehistoric materials and sites could be encountered. Implementation of Mitigation Measures CULT-1 and CULT-2 would reduce this **potentially significant impact** to a **less-than-significant level**.

c) Although no prehistoric or historic-era human remains are known to exist on the project site, it is possible that presently undocumented human interments may be uncovered during grading. Implementation of Mitigation Measures CULT-2 and CULT-2 would reduce this **potentially significant impact** to a **less-than-significant** level.

Mitigation Measures

Mitigation Measure CULT-1: Archaeological Deposits. If archaeological remains are encountered during project activities, project ground disturbances at the find and immediate vicinity shall be halted immediately until a qualified archaeologist can evaluate the finds (§15064.5 [f]). The archaeologist shall examine the finds and recommend mitigation measures which may include documentation in place, avoidance, testing, and/or data recovery. Project personnel should not collect cultural resources. Native American resources include chert or obsidian flakes, projectile points, mortars, and pestles; and dark friable soil containing shell and bone dietary debris, heat-affected rock, or human burials. Historic-period resources include stone or adobe foundations or walls; structures and remains with square nails; and refuse deposits or bottle dumps, often located in old wells or privies. In addition, as a precaution, the project shall include cultural resource sensitivity training for crews involved in grading activities, as well as construction monitoring by a qualified professional archaeologist during all ground disturbing activities.

Mitigation Measure CULT-2: Human Remains*.* California law recognizes the need to protect interred human remains, particularly Native American burials and associated items of patrimony, from vandalism and inadvertent destruction. The procedures for the treatment of discovered human remains are contained in California Health and Safety Code Section 7050.5 and Section 7052 and California Public Resources Code Section 5097.

In accordance with the California Health and Safety Code, if human remains are uncovered during ground disturbing activities all such activities in the vicinity of the find shall be halted immediately and the District or the District's designated representative shall be notified. The District shall immediately notify the county coroner and a qualified professional archaeologist. The coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (Health and Safety Code Section 7050.5[b]). If the coroner determines that the remains are those of a Native American, he or she must contact the Native American Heritage Commission (NAHC) by phone within 24 hours of making that determination (Health and Safety Code Section 7050[c]). The responsibilities of the District for acting upon notification of a discovery of Native American human remains are identified in detail in the California Public Resources Code Section 5097.9. The District or their appointed representative and the professional archaeologist would consult with a Most Likely Descendent determined by the NAHC regarding the removal or preservation and avoidance of the remains and determine if additional burials could be present in the vicinity.

VI. Energy

Would the Project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?			**X**	
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?			**X**	

Discussion

a) The project would not result in wasteful, inefficient, or unnecessary consumption of energy, given project installation of outdoor lighting and public systems compliant with State of California energy conservation regulations, and its reduction of water use associated with the replacement of natural turf athletic fields by artificial turf. Therefore, this impact would be **less than significant**.

b) The California State Building Standards Commission adopted updates to the California Green Building Standards Code (CALGreen). CALGreen contains requirements for construction site selection, storm water control during construction, construction waste reduction, indoor water use reduction, material selection, natural resource conservation, and site irrigation conservation. CALGreen is intended to (1) reduce GHG emissions; (2) promote environmentally responsible, cost-effective, healthier places to live and work; and (3) reduce energy and water consumption. The project would-be built in accord with CALGreen standards and reduce water use by the installation of artificial turf athletic fields. Therefore, this impact would be **less than significant**.

VII. Geology and Soils

Would the Project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map, issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.				X
ii) Strong seismic ground shaking?			X	
iii) Seismic-related ground failure, including liquefaction?			X	
iv) Landslides?				X
b) Result in substantial soil erosion or the loss of topsoil?			X	
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?		X		
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial director indirect risks to life or property?		X		
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of wastewater?				X
f) Directly or indirectly destroy a unique paleontological resource or site, or unique geologic feature?			X	

Background

Wallace Kuhl and Associates (WKA) prepared a Geotechnical Engineering Report for the project (WKA 2021)[5]. That study included a literature review and thirteen exploratory soil borings. Relevant portions of that investigation report are summarized below.

Soil and Geologic Conditions

The site is mapped as underlain by the Middle Unit of the Riverbank Formation soils, as identified by the California Geological Survey. This formation consists of Quaternary age deposits, comprised mostly of silt, sand, and gravel. This is consistent with WKA's field explorations. (WKA 2021)

Eleven soil borings conducted across the site indicate that parts of the site are underlain by 2 to-4.5 feet of fills consisting of clayey and silty sands and silty clay. The fill is underlain by layers of clays and clayey sands to maximum depths explored (31.5 feet below grade). (WKA 2021)

Groundwater was not encountered in any of the on-site borings. Regional information from well logs indicates that groundwater in the project area is about 69 feet below Mean Sea Level, or about 113 feet below the ground surface. (WKA 2021)

Seismic Conditions

There are no faults mapped as crossing or near the site, and the site is not in a fault rupture hazard zone as identified by the California Geological Survey. (WKA 2021)

Discussion

a) i. Based on available published geologic information, the project site is not located within a Fault Rupture Hazard Zone. The potential for fault rupture on the site is therefore considered to be low and **no impact** would occur.

ii. The site would not be subject to strong ground shaking in the event of a major earthquake on any of the regional fault zones. The small building and bleachers proposed for the site, as well as light poles are not likely to be damaged by this shaking. The building is intended for restroom, storage, and concession use only and would be constructed to current seismic codes so would not pose a safety risk in an earthquake. The poles and bleachers would be deigned to resist this seismic shaking. This impact would be **less than significant**.

iii. The project would not include installation of any large structures that could be significantly affected by differential settlement, and as described in Item c, below, no loose sands were encountered that could affect the bleacher footings WKA determined the liquefaction potential at the site to be "very low". (WKA 2021) Therefore this impact would be **less than significant**.

[5] Wallace Kuhl and Associates, Geotechnical Engineering Report, Grant High School Sports Complex, April 9, 2021.

iv. The site and adjacent lands are nearly level, so there would be no landslide hazards.

b) The site is nearly level so erosion hazards would not be substantial. However, if grading were to occur during the rainy season, erosion could result from the site. Mitigation Measure HYD-1, in the Hydrology and Water Quality section would reduce this potential impact to **less than significant**.

c) No loose sand was encountered in the exploratory borings and therefore, it is not expected that there would be settlement that could affect the bleacher footings. There would **be no impact** related to settlement. Due to the presence of stiff, dense, and partially cemented soils underlying the site and because there have been no reported instances of liquefaction having occurred within the Sacramento area during major earthquake events the potential for liquefaction onsite is very low and impacts would be **less-than-significant** with implementation of implementation of Mitigation Measure GEO-1, below.

d) Expansive soils shrink and swell with changes in moisture content and can exert significant expansion pressures on building foundations, interior floor slabs, and exterior flatwork. Site soils were tested and determined to have a low to medium expansion potential. (WKA 2021) The WKA report includes specific recommendations to reduce this impact to less-than significant. The impact would be **potentially significant** but **less-than-significant** with implementation of implementation of Mitigation Measure GEO-1, below.

e) The proposed project would be served by the public sewer system and would not include any septic systems. Therefore, **no impact** would occur with respect to adequacy of site soils for septic systems.

f) The project excavation work would occur primarily within previously graded areas, and would not involve deep excavations, therefore potential impacts to paleontological resources are unlikely and would be considered **less than significant**.

Mitigation Measures

Mitigation Measure GEO-1. The project's site clearing, site preparation, subgrade preparation and stabilization, fill, drainage, and any foundation systems shall be designed and constructed per the specifications set forth in the WKA Geotechnical Engineering Report (WKA 2021).

VIII. Greenhouse Gas Emissions

Would the Project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			**X**	
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			**X**	

Background

Gases that trap heat in the atmosphere are referred to as greenhouse gases (GHGs) because they capture heat radiated from the sun as it is reflected back into the atmosphere, much like a greenhouse does. The accumulation of GHGs has been implicated as the driving force for global climate change. The primary GHGs are carbon dioxide (CO2), methane (CH4), and nitrous oxide (N2O), ozone, and water vapor.

While the presence of the primary GHGs in the atmosphere are naturally occurring, CO2, CH4, and N2O are also emitted from human activities, accelerating the rate at which these compounds occur within earth's atmosphere. Emissions of CO2 are largely by-products of fossil fuel combustion, whereas methane results from off-gassing associated with agricultural practices and landfills. Other GHGs include hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride, and are generated in certain industrial processes. Greenhouse gases are typically reported in units of "carbon dioxide-equivalents" (CO2e).[6]

There is international scientific consensus that human-caused increases in GHGs have and will continue to contribute to global warming. Potential global warming impacts in California may include, but are not limited to, loss in snowpack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years. Secondary effects are likely to include a global rise in sea level, impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity (California Climate Change Portal, accessed September 2015.)

California Air Resources Board (CARB) estimated that in 2011 California produced 448 million gross metric tons of CO_2e, or about 535 million U.S. tons CARB found that transportation is the source of 37.6 percent of the state's GHG emissions, followed by industrial sources at

[6] Because of the differential heat absorption potential of various GHGs, GHG emissions are frequently measured in "carbon dioxide-equivalents," which present a weighted average based on each gas's heat absorption (or "global warming") potential.

20.8 percent and electricity generation (both in-state and out-of-state) at 19.3 percent. Commercial and residential fuel use (primarily for heating) accounted for 10.1 percent of GHG emissions.

Regulatory Setting

Assembly Bill 32 required the CARB to lower GHG emissions to 1990 levels by 2020 - a 25 percent reduction statewide, with mandatory caps for significant emissions sources. AB 32 directed CARB to develop discrete early actions to reduce GHG while also preparing a scoping plan (i.e., the Climate Change Scoping Plan) in order to identify how best to reach the 2020 goal.

Motivated by AB 32, the CARB estimated statewide GHG emissions in 2020 under business-as-usual (BAU) conditions (i.e., a scenario where no GHG reduction measures are taken) and identified a 28.5 percent reduction in GHG from year 2020 BAU levels as necessary to achieve the targets of AB 32. CARB has since updated the BAU forecast to reflect conditions in light of the 2008 economic downturn and measures not previously considered in the Scoping Plan baseline inventory. The revised forecast shows that a 21.6 percent GHG reduction from 2020 BAU would be necessary.

Statewide strategies to reduce GHG emissions include the Low Carbon Fuel Standard (LCFS), the California Appliance Energy Efficiency regulations, the California Renewable Energy Portfolio standard, changes in the motor vehicle corporate average fuel economy (CAFE) standards, and other early action measures that would ensure the state is on target to achieve the GHG emissions reduction goals of AB 32.

In an effort to make further progress in attaining the longer-range GHG emissions reductions required by AB 32, an additional goal (i.e., reducing GHG emissions to 40% below 1990 levels by 2030) is to be attained by implementing several key climate change strategy “pillars:” (1) reducing present petroleum use in cars and trucks by up to 50 percent; (2) increasing from one-third to 50 percent the share of California’s electricity derived from renewable sources; (3) doubling the energy efficiency savings achieved at existing buildings and making heating fuels cleaner; (4) reducing the release of methane, black carbon, and other short-lived GHGs; (5) managing farm and rangelands, forests and wetlands to more efficiently store carbon; and (6) periodically updating the State's climate adaptation strategy.

The SMAQMD CEQA Guide specifies 1100 metric tons of CO2e per year as significance thresholds for both construction and operational GHG emissions from land use projects, which is also considered the definition of a cumulatively considerable contribution to the global GHG burden and, therefore, of a significant cumulative impact. The SMAQMD also requires that for projects meeting the 1100 metric ton limit on operational GHG emissions that 1) they be designed/constructed without natural gas infrastructure; and 2) they shall meet the State’s current CalGreen energy efficiency standards. The CEQA Guide methodology and thresholds of significance have been used in this Initial Study’s analysis of potential GHG impacts associated with the Project.

Discussion

a) The CalEEMod (California Emissions Estimator Model, Version 2016.3.2) model was used to quantify GHG emissions associated with Proposed Project construction activities. The Proposed Project's estimated construction GHG emissions are 126.8 metric tons of CO2e, which is well below the SMAQMD's 1,100 metric tons of CO2e/year construction emissions threshold. The Proposed Project's net new GHG operational emissions (from the 71 additional daily motor vehicle trips expected from soccer game and football practice spectators) would be 70.5 metric tons per year at most, also below the SMAQMD threshold. The Proposed Project would have a **less than significant impact**.

b) By providing an upgraded sports complex as a replacement for existing natural grass playing field and installing high-efficiency LED lighting for future outdoor events, the Proposed Project would not conflict with the goals of AB 32 or any other State climate change prevention or adaptation strategies. Thus, the Proposed Project would not conflict with applicable plans, policies, and regulations adopted for the purpose of reducing GHG emissions and, thus, would have a **less than significant impact**.

IX. Hazards and Hazardous Materials

Would the Project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			**X**	
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?			**X**	
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?			**X**	
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?			**X**	
e) For a Project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project result in a safety hazard or excessive noise for people residing or working in the Project area?				**X**
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				**X**
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?				**X**

Discussion

a) Project construction activities may involve the use and transport of hazardous materials. These materials may include fuels, oils, mechanical fluids, and other chemicals used during construction. Transportation, storage, use, and disposal of hazardous materials during construction activities would be required to comply with applicable federal, state, and local statutes and regulations. Compliance would ensure that human health and the environment are not exposed to hazardous materials. In addition, the construction

contractor would be required to implement a Stormwater Pollution Prevention Plan during construction activities to prevent contaminated runoff from leaving the project site. Therefore, no significant impacts would occur during construction activities.

In addition, the proposed project would not use large-quantities of hazardous materials. Small quantities of hazardous materials would likely routinely be used on site, including some fertilizers, herbicides, and pesticides, although the use of these substances would decrease with the project due to natural grass being replaced by synthetic turf. These substances would be stored in secure areas and would comply with all applicable storage, handling, usage, and disposal requirements. The potential risks posed by the use and storage of these hazardous materials are limited primarily to the immediate vicinity of the materials. Any transport of these materials would be required to comply with various federal and state laws regarding hazardous materials transportation.

In summary, the proposed project would not create a significant hazard to the public or the environment from routine transport, use, or disposal of hazardous materials and impacts would be **less than significant**.

b, d) The site is not included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962 (Cortese List) or within 4,000 feet of any such sites.[7] Prior to school construction in 1935, the site was undeveloped. For these reasons, potential impacts from site contamination would be **less than significant**.

c) As described under response to question IX a, above, the project would reduce the use of pesticides and other hazardous materials on campus, and storage and use would comply with applicable regulations. Therefore, the project would have a **less-than-significant** potential to significantly affect children or adults at the school.

e) The project site is approximately three miles southwest of the Sacramento McClellan Airport. Given the distance from the airport and because the project would not change the land use on campus, it would not present a hazard to air safety, and **no impact** would occur.

f) Construction and operation of the project are not expected to interfere with City of Sacramento's emergency response. Construction would be limited to the existing high school field, and traffic would not be substantially affected by the project. Therefore, it would not adversely affect emergency response or access. **No impact** would occur.

g) The project is in a developed urban area. It is surrounded by urban uses and there are no wildfire-hazard areas in the vicinity of the site. Therefore, the project would have **no impact** with respect to wildfire hazards.

[7] https://www.envirostor.dtsc.ca.gov/public/map/?global_id=38330005

X. Hydrology and Water Quality

Would the Project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?		X		
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?				X
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: i) result in substantial erosion or siltation on- or off-site; ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on-or off-site; iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or iv) impede or redirect flood flows?		X		
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?			X	
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?				X

Discussion

a, c, e) Under Section 402 of the Clean Water Act, the U.S. EPA has established regulations through the National Pollution Discharge Elimination System (NPDES) stormwater program to control stormwater discharges, including those associated with construction activities. The NPDES stormwater permitting program regulates stormwater quality from construction sites. The State Construction General Permit (CGP) requires the development and

implementation of a Stormwater Pollution Prevention Plan (SWPPP) and the use of appropriate best management practices (BMPs) for erosion control and spill prevention during construction. Dischargers whose projects disturb one or more acres of soil or whose projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the CGP for Discharges of Stormwater Associated with Construction Activity (CGP Order 2009-0009-DWQ).

The City of Sacramento Stormwater Quality Improvement Program is a comprehensive program comprised of various program elements and activities designed to reduce stormwater pollution to Maximum Extent Practicable (MEP) and eliminate prohibited non-stormwater discharges through a National Pollutant Discharge Elimination System (NPDES) municipal stormwater discharge permit.

The City of Sacramento Stormwater Quality Improvement Program manages stormwater runoff within the city and is responsible for administering Countywide Stormwater Quality Program. The Stormwater Quality Improvement Program is a partner in the larger Sacramento Stormwater Quality Partnership that covers the Sacramento County area including the Cities of Citrus Heights, Elk Grove, Folsom, Galt, and Rancho Cordova.

As a co-permittee, the City is required to possess the necessary legal authority, and to implement appropriate procedures, to regulate the entry of pollutants and non-stormwater discharges into and from the City storm drain system.

The project site is relatively flat and covered with the existing grass athletic field and earthen track. Development of the proposed project would require disturbance and some grading to install the artificial turf system and utilities, as described in the Project Description. No substantial topographic changes would be required to construct the new fields.

During construction activities, there would be a potential for surface water to carry sediment from on-site erosion and small quantities of pollutants into the County's local stormwater system, which discharges to tributaries to the American River. Soil erosion may occur along project boundaries during construction in areas where temporary soil storage may be required. Small quantities of pollutants may enter the storm drainage system, potentially degrading water quality.

Construction of the proposed project also would require the use of gasoline and diesel-powered heavy equipment. Chemicals such as gasoline, diesel fuel, lubricating oil, hydraulic oil, lubricating grease, automatic transmission fluid, paints, solvents, glues, and other substances would be used during construction. An accidental release of any of these substances could degrade the water quality of the surface water runoff and add additional sources of pollution into the drainage system.

The proposed project would be required to comply with the State CGP. The District would be required to develop and implement a SWPPP that identifies appropriate construction BMPs in order to minimize potential sedimentation or contamination of storm water runoff generated from the project site. The SWPPP would identify the risk level for erosion and sedimentation and how much monitoring of potential pollutants is required. Implementation of a SWPPP as required would ensure that the construction of the proposed project would not violate any water quality standards or waste discharge requirements and reduce potential impacts to a less-than-significant level, as described in Mitigation Measure HYD-1.

The SWPPP must identify a practical sequence for BMP implementation and maintenance, site restoration, contingency measures, responsible parties, and agency contacts. The SWPPP would include but not be limited to the following elements:

- Temporary erosion control measures would be employed for disturbed areas.
- No disturbed surfaces would be left without erosion control measures in place during the winter and spring months. Cover disturbed areas with soil stabilizers, mulch, fiber rolls, or temporary vegetation.
- Sediment would be retained on site by a system of sediment basins, traps, or other appropriate measures. Drop inlets shall be lined with filter fabric/geotextile.
- The construction contractor would prepare Standard Operating Procedures for the handling of hazardous materials on the construction site to eliminate or reduce discharge of materials to storm drains. This may include locating construction-related equipment and processes that contain or generate pollutants in a secure area, away from storm drains and gutters, and wetlands; parking, fueling, and cleaning all vehicles and equipment in the secure area; designating concrete washout areas; and preventing or containing potential leakage or spilling from sanitary facilities.
- BMP performance and effectiveness would be determined either by visual means where applicable (e.g., observation of above-normal sediment release), or by actual water sampling in cases where verification of contaminant reduction or elimination (such as inadvertent petroleum release) is required by the RWQCB to determine adequacy of the measure.
- In the event of significant construction delays or delays in final landscape installation, native grasses or other appropriate vegetative cover would be established on the construction site as soon as possible after disturbance, as an interim erosion-control measure throughout the wet season.

As required under State Water Resources Control Board Order No. R5-2002-0206, the County requires regulated projects, such as this one, to prepare a Stormwater Quality Improvement Plan (SQIP). The SQIP must include post-construction stormwater treatment measures such as bio-retention facilities and source controlled BMPs. The SWCP must also address ongoing maintenance of those facilities. The project proposed Low Impact design (LID) measures to minimize stormwater contamination.

the project site is about 4.5 acres (370,260 square feet). Currently, none of the site is covered with impervious surfaces. The project would result in an increase of 86,677 square feet (1.98

acres) of impervious area. New storm drains would be installed to connect field subdrain systems to an underground infiltration and retention system along the south edge of the project. A new storm drain connection is proposed into the City storm drain system, but peak flows would not be expected to exceed existing site peak runoff conditions because any increase would be detained by the on-site stormwater system. The District would coordinate any new connections with the City of Sacramento Public Works Department. Therefore, impacts to runoff would be **less than significant**.

The quality of the runoff would improve since pesticide and fertilizer use would decrease since such substances would no longer be needed for the natural grass that would be replaced with synthetic turf. Implementation of the Construction General Permit requirements described above, as well as Mitigation Measures HYD-1 and HYD-2, below, would reduce water quality impacts to a **less-than-significan**t level.

b) The City of Sacramento Water Division (SWD) is responsible for the operation and maintenance of the water supply and distribution systems for the project site. The Water Division treats more than 25 billion gallons of drinking water a year, maintains over 1,500 miles of water mains, and ensures that drinking water meets or exceeds all state and federal drinking water standards.

The project would improve an existing athletic field and track, and replace a large area of natural turf, which requires irrigation, with synthetic turf, for which irrigation would no longer be needed. While irrigation will be required for the new trees that would be planted as part of the project, it is not anticipated that there would be a net increase in water use. Therefore, the proposed project would not contribute to depletion of water supplies and **no impact** would occur to surface or groundwater.

Because of the reduced overall demand from the project, and because it would incorporate water conservation equipment, landscaping, and practices, it would not conflict with any groundwater management plan, and **no impact** would result.

d) The Federal Emergency Management Agency (FEMA) has mapped the site as an "Area of Reduced Flood Risk Due to Levee Zone X"[8]. Therefore, flooding impacts to the new facilities would be **less than significant**.

The project site is not mapped as being within a dam failure area[9]. Therefore, the project would not be subject to flood hazards from that source. **No impact** would occur.

Seiches and tsunamis are seismically induced large waves of water. Because of the distance of the site from any large water body, the absence of steep slopes above the site, and the elevation of the site well above sea level, there is no potential for a tsunami seiche, or mudflow

[8] Federal Emergency Management Agency (FEMA) FIRM Flood Hazard Maps, https://msc.fema.gov/portal/search?AddressQuery=1400%20grand%20avenue%20sacramento%20ca#searchresultsanchor.
[9] https://fmds.water.ca.gov/webgis/?appid=dam_prototype_v2

to affect the project site. Therefore, the proposed project would have no impact to future occupants of the project from these hazards, and **no impact** would occur.

Mitigation Measures

Mitigation Measure HYD-1: Prior to the issuance of grading permits for the proposed Project, the project engineers shall prepare a Stormwater Pollution Prevention Plan, which shall identify pollution prevention measures and practices to prevent polluted runoff from leaving the project site.

Mitigation Measure HYD-2: The District shall maintain in perpetuity the post- construction BMPs listed in the Low Impact Design plans developed for the project. The District shall make changes or modifications to the LID measures to ensure peak performance. The District shall be responsible for costs incurred in operating, maintaining, repairing, and replacing any stormwater quality improvements and features. The District shall conduct inspection and maintenance activities and complete annual reports.

XI. Land Use and Planning

Would the Project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Physically divide an established community?				**X**
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?				**X**
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?				**X**

Discussion

a) The athletic facility improvements are proposed for existing facilities on an existing high school campus. Because the project would not change the existing land use but would instead upgrade the existing athletic facilities onsite, the project would not create conflicts between uses or divide an established community, there would be **no impact**.

b) The project would not change the existing land use on site and would therefore have **no impact** on plan conformance.

c) The project site is not located within the boundaries of a habitat conservation plan or a natural community conservation plan; therefore, the project would not conflict with any habitat plans and there would be **no impact**.

XII. Mineral Resources

Would the Project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				**X**
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?				**X**

Discussion

a, b) The project site a developed school campus in an urban area and is not identified in the Sacramento County General Plan as a site containing mineral resources that would be of local, regional, or statewide importance. Therefore, the project would not have any impacts on mineral resources. The project site is also outside of any areas designated by the State Mining and Geology Board as containing regionally significant construction-grade aggregate resources (used in concrete). The project site does not contain any known mineral deposits or active mineral extraction operations. Therefore, the project would have **no impact** on mineral resources.

XIII. Noise

Would the Project result in:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Generation of a substantial temporary or permanent increase in ambient noise levels in vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?		X		
b) Generation of excessive groundborne vibration or groundborne noise levels?			X	
c) For a Project within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the project area to excessive noise levels?				X

Background

A detailed noise analysis was conducted for the project by RGD Acoustical Consulting (August 9, 2021). The discussion below is summarized from that analysis. The full RGD study is included in Appendix B of this document.

Noise Descriptors

Noise can be defined as unwanted sound. It is commonly measured with an instrument called a sound level meter. The sound level meter captures the sound with a microphone and converts it into a number called a sound level. Sound levels are expressed in units of decibels.

To correlate the microphone signal to a level that corresponds to the way humans perceive noise, the A-weighting filter is used. A-weighting de-emphasizes low-frequency and very high-frequency sound in a manner similar to human hearing. The use of A-weighting is required by most local General Plans as well as federal and state noise regulations (e.g. Caltrans, EPA, OSHA and HUD). The abbreviation dBA is sometimes used when the A-weighted sound level is reported.

Because of the time-varying nature of environmental sound, there are many descriptors that are used to quantify the sound level. Although one individual descriptor alone does not fully describe a particular noise environment, taken together, they can more accurately represent the noise environment. The maximum instantaneous noise level (L_{max}) is often used to identify the loudness of a single event such as a car pass-by or airplane flyover.

To express the average noise level the L_{eq} (equivalent noise level) is used. The L_{eq} can be measured over any length of time but is typically reported for periods of 15 minutes to 1 hour. The background noise level (or residual noise level) is the sound level during the quietest moments. It is usually generated by steady sources such as distant freeway traffic. It can be quantified with a descriptor called the L_{90} which is the sound level exceeded 90 percent of the time.

There are other descriptors that are used, often times as part of a local noise ordinance. These descriptors are used since local ordinances will have limits based on the number of minutes per hour that an intrusive sound may exceed a specified limit. For example, if a specified noise level cannot be exceeded more than 30 minutes in an hour that is referred to as the L_{50}. The L_{50} is used in this is also referred to as the median noise level.

To quantify the noise level over a 24-hour period, the Day/Night Average Sound Level (DNL or L_{dn}) or Community Noise Equivalent Level (CNEL) is used. These descriptors are averages like the L_{eq} except they include a 10 dB penalty during nighttime hours (and a 5 dB penalty during evening hours in the CNEL) to account for peoples increased sensitivity during these hours. The CNEL and DNL are typically within one decibel of each other.

In environmental noise, a change in noise level of 3 dB is considered a just noticeable difference. A 5 dB change is clearly noticeable, but not dramatic. A 10 dB change is perceived as a halving or doubling in loudness.

Vibration is an oscillatory motion which can be described in terms of the displacement, velocity, or acceleration. The peak particle velocity (PPV) is the descriptor used in monitoring of construction vibration.

Existing Noise Environment

To quantify ambient noise levels, two continuous, long-term (2-day) noise measurement and three short-term (15-minute) noise measurements were made in the project vicinity. The long-term monitors began on Wednesday, April 21, 2021, and ended on Friday, April 23, 2021. The noise measurement locations are shown in Figure 6.

TABLE N-1: SHORT-TERM NOISE MEASUREMENT RESULTS – APRIL 21, 2021

Location		Time	A-weighted Sound Level, dBA					
			L_{eq}	L_2	L_8	L_{50}	CNEL*	L_{max}
ST-1	Grand Ave.	4:10 PM – 4:16 PM	65 (59 w/o loud car)	66	74	71	71	Cars: 67 – 75, 78 School Bus: 70 Medium Truck: 77 Bus: 75
ST-2	Dry Creek Rd.	4:20 PM – 4:35 PM	59 54 (w/o loud car)	58	65	63	63	Cars: 57 – 65, 74 Fire truck: 77 Crow: 52, 55, 59, 60

* L_{dn} and CNEL based on comparison with simultaneous measurement at the long-term location. For ST-2, noise from a fire truck was excluded in the calculation of the CNEL.

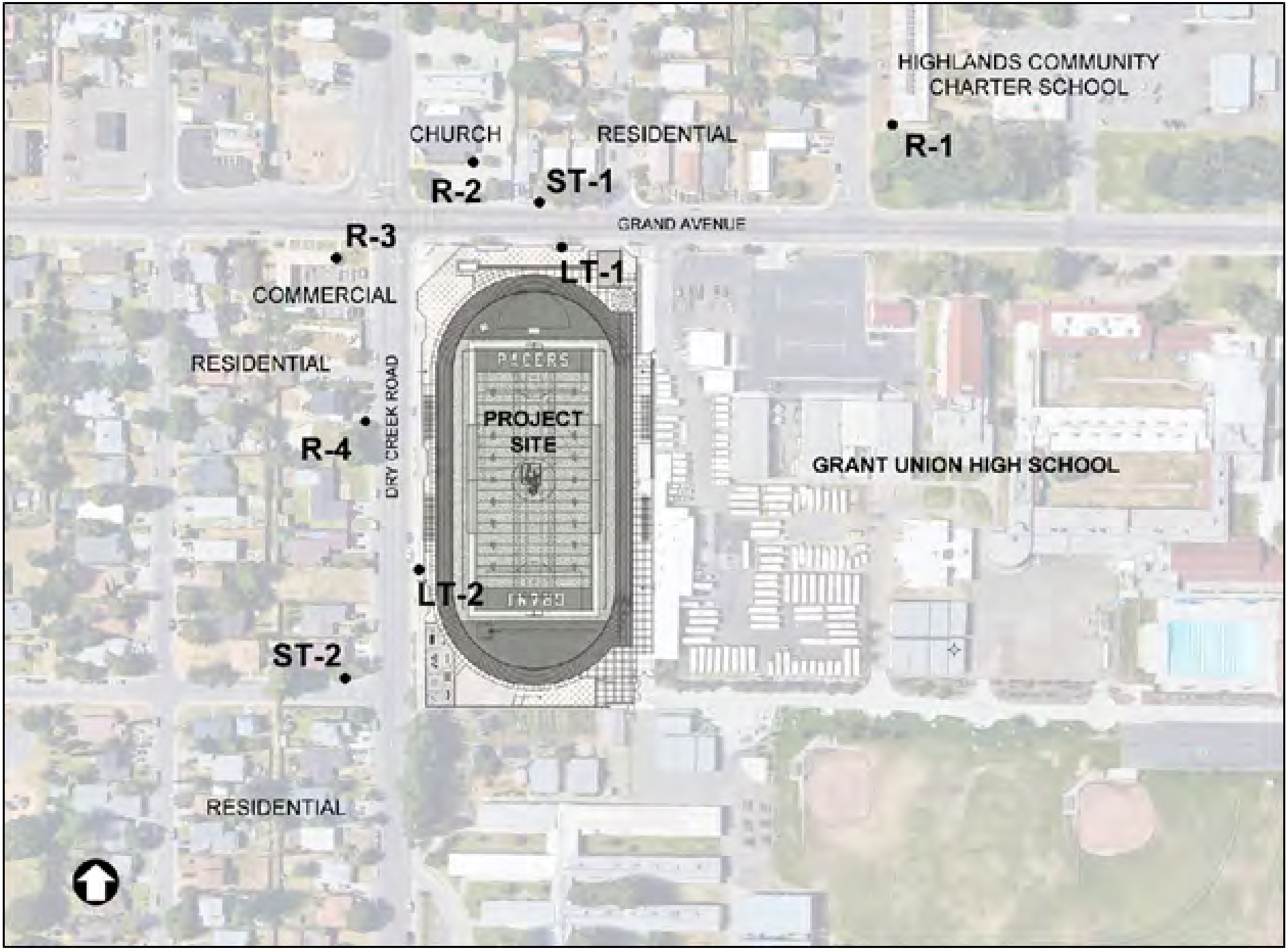

Figure 6

Noise Monitoring Locations

Source: RDG Acoustics

Coronavirus Pandemic Adjustments. As a result of limited in-person learning and the COVID pandemic, the measured ambient noise levels are likely lower compared to before the COVID pandemic. According to the project's traffic engineer[10], traffic volumes are expected to be higher once the school is fully open. However, not enough detailed current and prior traffic volume data is available to fully quantify the degree to which the ambient noise levels measured during the ambient noise survey underrepresent the pre-pandemic traffic noise levels. Since the impact analysis uses the measured ambient noise levels without adjustment, it tends to result in a conservative assessment of increase in noise due to the project.

CEQA Thresholds of Significance

CEQA does not provide quantitative noise level limits to use as thresholds of significance for a project. Instead, it points to use of local ordinances, adopted standards of agencies as well as the potential for a project to significantly increase existing noise levels above those that were present without the project. A full discussion of the regulatory setting – the City of Sacramento General Plan Noise Element and City of Sacramento Municipal Code -- is provided in sections 3.1 and 3.2 of Appendix B. Within this framework, the following thresholds are adopted for this project.

Threshold 1: A significant noise impact would occur if the noise from the new PA system would exceed 70 dBA at the neighboring noise sensitive uses (residences and church), or occurs outside the hours of 9 a.m. to 10 p.m. on Sundays to Thursday, or outside the hours of 9 a.m. to 11 p.m. on Fridays and Saturdays, or the day before specified holidays per Municipal Code Section 8.68.160.B.

Discussion: The City's Municipal Code Section 8.68.160.B (Outdoor Recreational Activities) specifies time limits for amplified sounds from outdoor recreational activities. While the City's municipal code Section 8.68.080 exempts school athletic and entertainment events from the exterior noise standards of Section 8.68.060, for the purposes of this report, the Lmax standard is applied to the PA sound. The Lmax standard is reduced by 5 dB for sounds consisting primarily of speech or music. The resulting threshold of significance for PA sounds is a Lmax of 70 dBA at the neighboring noise sensitive uses (residential properties and church).

Threshold 2: *A significant noise impact would occur if the increase in noise from project-related activities exceeds the General Plan's Allowable Noise Increment as per the Exterior Incremental Noise Impact Standards for Noise-Sensitive Uses (General Plan Table EC 2).*

Discussion: Per General Plan Policy EC3.1.2, the City shall require noise mitigation for all development that increases existing noise levels by more than the allowable increment shown in Table EC 2, to the extent feasible. The allowable noise increment is in based on the existing Ldn for residences and based on the existing peak hour Leq for institutional land uses.

In order to evaluate the potential impact that would occur as a result of peoples' sensitivity to

[10] Ho, Pang. PHA Transportation Consultants. "Re: Grant and Highlands Noise." Email to Anthony Wong.

evening noise, this report considers the increase in the daily CNEL instead of the Ldn. The Ldn is similar to the CNEL but the CNEL includes a 5 dBA "penalty" which is added to noise during evening hours (7 p.m. – 10 p.m.) to account for peoples' increased sensitivity during the evening. Based on the ambient noise levels. The table below summarizes the allowable noise increment according to General Plan Table EC 2.

Allowable Noise Increment Locations

	Category	Noise Metric	Allowable Noise Increment
ST-1	Residential	Existing CNEL	1
ST-2	Residential	Existing CNEL	2
R-1	School	Existing Peak Hour Leq	5
R-2	Church	Existing Peak Hour Leq	3
R-3	Commercial	Existing Peak Hour Leq	3
R-4	Residential	Existing CNEL	2

Threshold 3: A significant impact would occur if the increase in annual average peak hour Leq and CNEL exceed the General Plan's Allowable Noise Increment for Noise-Sensitive Uses (General Plan Table EC 2), as summarized in the table above.

Discussion: While the CNEL and peak-hour Leq increase on a day is helpful to understand potential impact on a daily basis, it does not necessarily provide a measure of the impact based on frequency of events since there will be events happening on the field throughout the year.

In order to evaluate the potential impact of noise from all field related activities during the course of a year, this report considers the increase in the annual average Leq and CNEL that would result from all games, practices, events attributed to the project.

To determine the increase in the annual average CNEL from the field sources, a method similar to the daily CNEL was used. In this case, an annual average CNEL from each noise source was calculated for existing and future conditions based on Table 2 in Appendix B. The existing and future annual average CNEL for each source was then added to the ambient CNEL to determine a total CNEL for existing and future conditions.

Threshold 4: A significant impact would occur if the project results in the generation of construction noise outside the allowable hours per the City's Municipal Code and exceeds the exterior noise standards per the City's Municipal Code.

Discussion: According to General Plan Policy EC3.1.10, the City shall require development projects subject to discretionary approval to assess potential construction noise impacts on nearby uses and to minimize impacts on these uses, to the extent feasible. Per Municipal Code Section 8.68.080.D, construction noise is exempted from the exterior noise standards of Section 8.68.060 provided that construction activities take place between the hours of 7:00 AM. and 6:00

PM on weekdays, and Saturdays, and between 9:00 AM and 6:00 PM on Sunday; provided that internal combustion engines is equipped with suitable exhaust and intake silencers which are in good working condition.

Threshold 5: A significant impact would occur if the project results in the generation of excessive groundborne vibration or groundborne noise.

Discussion: The operation of the project (i.e. activities on the field) is not expected to include groundborne vibration sources. However, construction activities will generate groundborne vibration. Neither CEQA, City, nor the State specifies acceptable vibration levels from construction activities. For the purposes of this assessment, the guideline criteria for building damage recommended by Caltrans[11] is used. The construction vibration damage criteria range from a Peak Particle Velocity (PPV) of 0.5 inches/sec for new residential and modern commercial structures.

Threshold 6: A significant impact would occur if the project would expose people residing or working in the project area to excessive aircraft noise levels.

Discussion: The City of Sacramento General Policy EC 3.2.2 states that the City shall discourage outdoor activities or uses in areas within the 70 dBA CNEL airport noise contour.

Discussion

Noise impacts are identified for the public address sound system, use of the field during events with maximum attendance and construction. The impact analysis considers the City of Sacramento General Plan policies and Municipal Code requirements, as well as the potential for the project to significantly increase noise levels. Mitigation is proposed for each identified significant impact as follows: 1) For construction, there is a list of specific construction noise reduction measures to be implemented. 2) For all activities using the PA system, there is a maximum PA noise level limit that must be met at the neighboring noise sensitive uses. (3) For community events there is a limit on use of bleachers and hours of use. 4) For large capacity events with maximum attendance, there are limits on use to daytime hours or if events are to occur in the evening, then a noise barrier along the west side of the field is also required

a) ***Construction Noise Impacts***.

Construction of the project would include the renovation of existing field, grading/foundation work, and the addition of light poles and other structures. Equipment used during construction would vary by phase, but would include excavators, backhoes, dump trucks, graders, compactors, water trucks and similar equipment. As stated in the Project Description, construction hours would be 7:00 AM to 4:30 PM on weekdays only. Some work may be done on Saturdays between 7:00 AM to 4:30 PM.

[11] Caltrans, Transportation and Construction Vibration Guidance Manual, September 2013.

Construction noise would be noticeable at times and may temporarily interfere with normal outdoor activities such as speech communications. When construction activities occur farther from the neighboring uses, construction noise levels will be reduced due to the greater distance. For example, when construction activities occur at the center of the new soccer field, the typical noise source would be attenuated to 67 dBA at the nearest building across Grand Avenue and 71 dBA at the nearest home along Dry Creek Road.

Since the project's construction hours are 7:00 a.m. to 4:30 p.m. on Mondays to Fridays and occasionally Saturdays, the City's Municipal Code (Section 8.68.060D) provides an exemption to construction noise from the municipal code's exterior noise standards provided that construction activities take place between the hours of 7:00 AM. and 6:00 PM. on weekdays, and Saturdays, and between 9:00 AM. and 6:00 PM. on Sunday; provided that internal combustion engines are equipped with suitable exhaust and intake silencers which are in good working condition.

Noise from construction activities would be reduced to a **less than significant impact** with Mitigation Measure NO-1, below.

Operational Noise Impacts

Project generated operational noise impacts include noise from the proposed PA system and field activities, including event-generated traffic and crowd noise. These are discussed below.

Noise from PA Sound System Lmax 70 dBA at Sensitive Receivers which include the Neighboring Residences and the Church. The project PA system would use standard sound system components and be designed to provide sound coverage for the seating and competition areas. For the purposes of this analysis, it is assumed that there will be two loudspeakers installed on each of the four light poles by the bleacher areas. To provide adequate sound coverage it is assumed that the sound system would be designed and used to provide a design sound level of 85 dBA in the bleachers and 75 dBA on the field.

Based on the SoundPlan results for the PA system as described in Section 5.1, in Appendix B, noise from the PA sound system has the potential to exceed the threshold of L_{max} 70 dBA at the noise sensitive outdoor use areas at neighboring land uses (See ST-1, ST-2, R-2 to R-4 on Figure 6). It would affect 16 residences and a church. This is a **potentially significant impact**. However, it is feasible to design a PA system that can be limited to an L_{max} of 70 dBA at the neighboring noise sensitive uses and limit the hours of use. Therefore, this is a **less than significant impact** with Mitigation Measure NO-2 below.

Noise from Activities on the Fields. Noise would be generated by field activities including soccer games and practices, and community use. There could be up to ten full capacity events per year with up to 496 spectators. The project would not result in a change in student enrollment or in other athletic facilities on campus.

In order to evaluate the impact of the project on the neighbors surrounding the school, the data acquired from other similar projects were used to determine future noise levels emanating from the proposed project. The characteristics and assumptions used for calculating project related noise levels for each activity are discussed below.

Soccer. Soccer games currently occur at the stadium and soccer practices occur at the existing field. Soccer games are currently scheduled from 4:30 PM to 8:00 PM and practices are scheduled from 3:30 PM to 9:00 PM.

With the project, soccer and practices would be relocated to the new field. The times of day for soccer practices would not change, but the games would start 30 minutes earlier – they would be scheduled from 4:00 PM to 8:00 PM. The number of games and practices would remain the same with 20 soccer games per year and 100 soccer practices per year.

To determine the noise associated with soccer games, noise measurements were taken during a soccer game at the Grant High stadium on April 23, 2021. During the soccer game, only the players and coaches were allowed to be in the stadium due to COVID related restrictions. At the top of the bleachers, approximately 150 feet from the center of the field, the typical maximum instantaneous noise levels (L_{max}) were L_{max} 58 to 70 dBA from player voices, 67 to 72 dBA from the coaches, and L_{max} 67 dBA from whistles near the center field. To account for noise from the expected 100 spectators, noise measurements from a football game at San Marin High School in 2016 with approximately 350 spectators was used with adjustment for the difference in number of spectators. Specifically, the crowd noise was adjusted using a standard rate of 3 dBA for each doubling of crowd size.

To determine the noise associated with soccer practices, noise measurements from a soccer practice at Mills High School in 2019 was used. The soccer practice occurred on a field layout similar to the project. During the soccer practice, there were approximately 50 people on the field. Voices of students generated typical maximum instantaneous noise levels of L_{max} 56 to 63 dBA at the bleachers approximately 130 feet from the center of the field.

Football Practices. Football practices currently occur at the stadium and, with the project, will be relocated to the new practice field. Each practice has between 45 to 55 students and is assumed to occur for no more than four hours during the daytime hours. The number of practices is assumed to be 100 times per year, same as soccer practice, and is expected to remain the same with the project in the future. To determine the noise level from football practices, we used the noise measurements from the soccer practice as discussed above.

Full Capacity Events. According to the project description, there could be up to 10 large school events (sports tournaments, student rallies, etc.) per year at the new field. These

events will use the new PA system and the crowd size could reach the bleacher capacity of 496. The full capacity event is assumed to occur for 6 hours in a day.

Community Use. The project facilities would include 30 to 50 community use events between the daytime hours of 8 AM to 10 PM Community use is expected to be similar to the school usage but could include sport clinics/camps for various other sports: softball, baseball, ultimate frisbee and youth football with 100 to 200 spectators. For the purpose of this report, community use includes competition games with spectators and practices with minimal spectators, similar to the high school soccer games/practices.

Noise from PA Use Exceeds Lmax (70 dBA) Noise Standard. Noise from the PA sound system has the potential to exceed the threshold of Lmax 70 dBA at neighboring residential land uses (ST-1, ST-2, R-2 to R-4). It would affect 16 residences and a church. This is a **potentially significant impact**.

Careful design of the PA system would limit PA sound to an Lmax of 70 dBA at the neighboring residential and church properties. Therefore, this is a **less than significant** impact with Mitigation Measure NO-2 which also includes limitations on hours of use.

Noise from Field Activities Combined with Project-Generated Traffic and PA Use Exceeds Daily CNEL and Leq Noise Standard Thresholds. Tables 6 through 9 in Appendix B detail the change in daily average CNEL and peak-hour Leq for a soccer game day, community use game day, and a full-capacity event day due to the project. The calculations also include contribution from future traffic to and from the school site.

The increase in daily average CNEL and peak-hour Leq from a soccer game day as well as soccer practice would be less than the increase threshold at all locations. (See Tables 6 and 7 in Appendix B.).

The increase in daily average CNEL from a community use game day would be less than the increase threshold at all locations except location R-4 where the increase would be 4.6 dBA thereby exceeding the 2 dBA increase threshold. (See Table 8 in Appendix B.)

The increase in daily average CNEL from a full-capacity event would be less than the increase threshold at all locations except location ST-2 where the increase would be 3.1 thereby exceeding the 2 dBA threshold and at R-4 where the increase would be 7.2 dBA thereby exceeding the 2 dBA threshold. (See Table 9 in Appendix B.)

The increase in noise due to a soccer game and practices would be within the allowable noise increase thresholds. However, the increase in noise due to a community event and a large school event would exceed the allowable noise increase thresholds. This would affect 15 residences during a community event and 19 residences during a large event day. Therefore, the increase in noise due to the project is considered **potentially significant**.

The project can limit the noise increase due to the community events and large events to within the allowable threshold with Mitigation Measure NO-2 and Mitigation Measure NO-3. With these two mitigation measures, this is a **less than significant impact**.

b) The nearest neighboring buildings are located across Grand Avenue and Dry Creek Road more than 80 feet from the nearest edge of the project site. Table 12 in Appendix B shows the calculated vibration levels based on the nearest distance from the project site. Construction vibration levels are expected to be PPV 0.04 inches/sec or less at the nearest homes and church building across Grand Avenue and Dry Creek Boulevard. A temporary vibration level of 0.04 inches/second may occur when a vibratory roller is operating at the nearest project boundary. According to Caltrans' human response guideline table, a vibration level of 0.04 inches/second would be distinctly perceptible. Vibration from other equipment operating at the nearest project boundary would be barely perceptible. When construction activities occur near the center of the field, the neighboring residences, churches and homes would be more than 150 feet away. At a distance of 150 feet or more, vibration from construction equipment would be 0.01 inches/second or less, which is less than Caltrans' "barely perceptible" threshold. Construction vibration would be less than the adopted City threshold of significance of the potential building damage criteria of 0.5 inches/second for new residential and modern commercial buildings and the impact would be **less than significant**.

c) The project site is located approximately two miles southwest of the nearest runway from Sacramento McClellan Airport. According to the McClellan Airport Noise Contours from the Sacramento County Airport Land Use Commission's website, the project site is located outside the CNEL 60 dBA aircraft noise contour. . Therefore, there would be **no impact**.

Mitigation Measures

Mitigation Measure NO-1. In order to minimize disruption and potential annoyance during construction, the following is recommended:

- All construction equipment shall be equipped with mufflers and sound control devices (e.g., intake silencers and noise shrouds) that are in good condition and appropriate for the equipment.
- Maintain all construction equipment to minimize noise emissions.
- Stationary equipment shall be located on the site to maintain the greatest possible distance to the sensitive receptors.
- Unnecessary idling of internal combustion engines should be strictly prohibited.
- The construction contractor shall provide the name and telephone number an on-site construction liaison. In the event that construction noise is intrusive to the community, the construction liaison shall investigate the source of the noise and require that reasonable measures be implemented to correct the problem.

Mitigation Measure NO-2. In order to reduce noise from the PA system to a less-than-significant level, implement the following measures:

- Design the PA system so that it does not exceed a L_{max} of 70 dBA at the neighboring noise sensitive land uses (ST-1, ST-2, R1, R2, R3 and R4). This would require the installation of a distributing sound system with highly directional and carefully aimed loudspeakers around the bleachers and field. The distance between the loudspeakers and the coverage area should be minimized to reduce spill to the community. In addition, the PA system output volume should be regulated by an audio processor with the ability to limit the audio output levels (e.g., compressor/limiter).
- Use of the PA system must be limited to hours between 9 a.m. and 10 p.m. as per Municipal Code Section 8.68.160.B.

Mitigation Measure NO-3. To reduce noise from large-capacity events ***implement either the first or second*** measures below.

1) Limit full-capacity events to no more than a total of 1.5 hours in duration, ending by 7:00 PM; or,

2) Limit event duration to a maximum of four hours during the daytime and ending by 7 p.m. ***and*** construct a noise barrier around at the west perimeter of the field as shown on Figure 7. The barrier must be three feet taller than the bleacher's top row seating area. The barrier should be solid with no cracks or gaps.

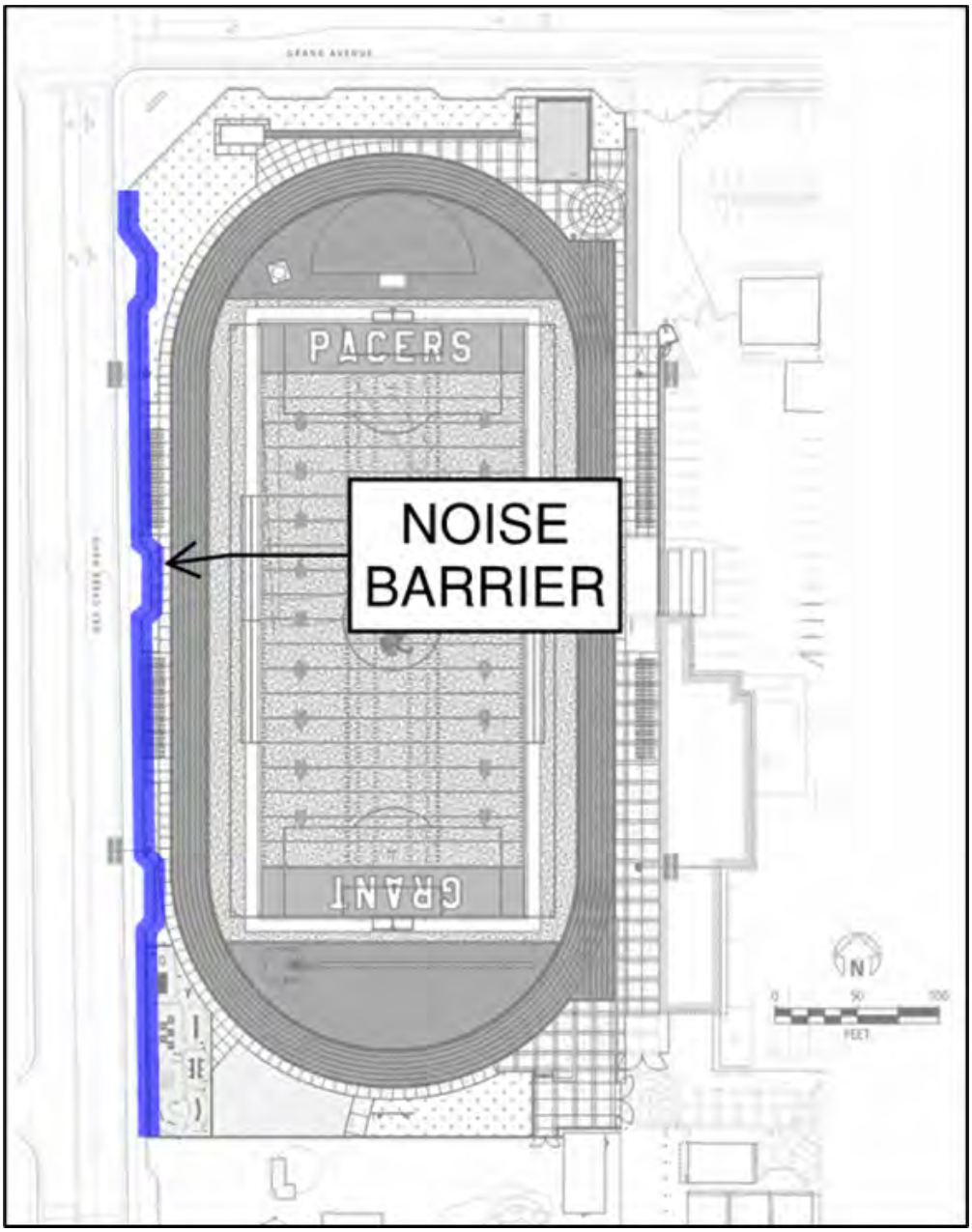

Figure 7: Noise Barrier Location

XIV. Population and Housing

Would the Project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?				**X**
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?				**X**

Discussion

a) The proposed athletic field upgrade project would not directly or indirectly increase population growth because no new housing or permanent jobs are proposed as part of the project. The project site and surrounding areas are developed with urban land uses and no extensions of roads or other infrastructure would be required that would indirectly induce growth. Therefore, the project would not induce new development on nearby lands, and **no impact** would occur.

b) The project site contains an existing high school athletic track and field with no housing. The proposed project would not displace existing housing or people, so there would be **no impact**.

XV. Public Services

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Fire protection?			X	
b) Police protection?			X	
c) Schools?				X
d) Parks?				X
e) Other public facilities?				X

Discussion

a) The City of Sacramento Fire Department (SFD) provides fire protection and emergency medical services for the project site. The fire stations located closest to the project site are Station 17, located at 311 Bell Avenue, approximately two miles northwest of the site and. Station 20, located at 2512 Rio Linda Blvd., approximately two miles south of the project site. Implementation of the project would not materially alter uses of the site, and therefore would not result in a substantive increase in demand for fire protection services. The project would not require the provision of or need for new or physically altered facilities to continue to serve the project site. The project's impact related to the provision of fire services would be **less than significant**.

b) The Twin Rivers Unified School District has its own police department, The Department works 24/7 with a focus on students, staff, schools, and safety/security, and serves more than 26,000 students, faculty, and staff at more than 50 schools in the Northern Sacramento area. Authorized staffing includes 21 sworn officers, 5 dispatchers, 1 professional staff. Sworn personnel of the Department are peace officers pursuant to Penal Code 830.32 and Education Code 38000. The Department has been certified by the Commission on Peace Officer Standards and Training since 2008. As discussed for fire, above, the project would be an enhancement of existing site recreational uses, and therefore not substantially increase the need for police services. No new police facilities would be required. Therefore, this impact would **be less than significant**.

c) The proposed facilities would not increase the population or otherwise increase demands for school services. It would not alter the capacity of students at Grant Union High School. Therefore, the project would have **no impact** on schools.

d) As described above, the proposed project would not result in an increase in residents and therefore, would not increase demand for any parks facilities. For this reason, the project would be expected to have **no impact** on recreational facilities

e) No other public facilities would be required by the proposed project. Therefore, there would be **no impact** on other facilities.

XVI. Recreation

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Would the Project increase the use of existing neighborhood and regional parks or other recreational facilities such that physical deterioration of the facility would occur or be accelerated?				**X**
b) Does the Project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?				**X**

Discussion

a) As described in response to question d) under Public Services, above, the project would have **no adverse impact** on parks and other recreational facilities and, in fact, would improve those facilities at the site. Therefore, the project would not cause physical deterioration of any recreational facility to occur or be accelerated.

b) The project includes upgrades to the school athletic facilities, which are evaluated by topic in this document. The project would not require the construction or expansion of other recreational facilities. **No impacts** would occur that are not already addressed elsewhere in this IS.

XVII. Transportation/Traffic

Would the Project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit roadways, pedestrian and bicycle facilities?			X	
b) Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b) (vehicle Miles traveled)?			X	
c) Substantially increase hazards due to design features (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?			X	
d) Result in inadequate emergency access?			X	

Discussion

a) PHA Transportation Consultants (PHA) conducted a focused traffic assessment report for the project (PHA, July 5, 2021). The information below is summarized from that report, and the entire report is included as Appendix C.

Access to the campus is provided via driveways and pedestrian drop-off points on Grand Avenue. There are access driveways on South Avenue and Fig Street but those are mainly for the football stadium. There is no vehicular access to the project site on Dry Creek Road.

Grand Avenue is a two-lane arterial road running in an east-west orientation. It has one travel lane in each direction plus parking lanes and bike lanes on both sides of the road. It has driveways and drop-off points for both vehicles and pedestrian access to the campus area and school buildings. There are bus stops at various points along the segment between Dry Creek Road and Maryville Boulevard. Its intersections at Dry Creek Road and Marysville Boulevard are signalized. Grand Avenue currently carries about 8,800 vehicles daily according to a traffic count conducted on June 1, 2021.

Dry Creek Road at the west border of the school is a three-lane road running in a north-south orientation. There is no access driveway or student pedestrian access to the school campus. However, there is a small parking lot for Grant West High School near the southeast corner of the intersection with South Avenue.

Fig Street and the Fig Street-Balsam Street Alley on the eastern border of the campus is a residential street-alley way providing access to homes on the east side of the street. There is no access to the campus from the street. However, there is gated access to the secondary parking lot for the football stadium.

South Avenue at the southern border is a three-lane road running in an east-west orientation. It has two travel lanes in the westbound direction and one in the eastbound direction. There are two driveways on the north side of the street that provide vehicle access to the football stadium.

The school has several parking lots at various parts of the campus with a total of 483 parking spaces. Additionally, there is a Twin Rivers School District school bus parking lot adjacent to the subject field with 78 spaces.

The proposed soccer field upgrade would not conflict with the existing Sacramento County Transportation Plan as the project is to upgrade an existing field within the school.

According to the Sacramento County Bike Master Plan, the streets that border the school; Grand Avenue between Dry Creek Road and Marysville Boulevard, and Marysville Boulevard between North Avenue and South Avenue have existing Class II bike lanes. Class II bike lanes are established along streets and are defined by pavement striping and signage to delineate a portion of a roadway for bicycle travel. Bike lanes are one-way facilities, typically striped adjacent to motor traffic traveling in the same direction. The County's Bike Master Plan shows no proposed change to the existing bike lane configuration and designation at these streets bordering the school. The existing bikes lanes on Dry Creek Road and Grand Avenue would accommodate students who ride their bikes to school.

Public transit service to the area and Grant School is provided by Sacramento Regional Transit District with Route 15 and 86. Route 15 begins service begins at 5:30 am and ends at 9:00 pm. Route 86 begin at 5:30 am and ends at 10 15 pm. There are several bus stops along the Grand Avenue segment between Dry Creek Road and Marysville Boulevard serving the school. The project would not add parking and or access driveways and would not change street configuration and site access.

Project Traffic Generation Estimates

Based on the trip generation rate published in the ITE Trip Generation Manual, 9th Edition, a soccer field is likely to generate 71 daily vehicle trips, including one am peak-hour trip and 18 PM peak-hour trips. For school soccer fields such as this, students would walk to the field from within the school campus during the day. When inter school games are held, most trips would occur during the day in the afternoon, evening, or on weekends, and would have little conflict with normal commute hour traffic operation.

With the project, there would be about 20 soccer games and 100 practice sessions yearly. Games generally run about six hours, including field setups, player warm-ups, and half-time activities. Practice sessions generally run about five hours. Practices generally occur after school at 3:30 PM with about 40 players and would run as late as 9:00 PM. Games generally occur between 4 and 8:00 PM with about 40 players on each side. An estimated 50 to 100 spectators would attend each game. There could be up to ten events per year where the approximately 500- person-capacity bleachers could be filled.

Site Access Traffic Operation

The project will not add new parking or access driveway to the subject filed. Students will simply walk to the field from the classroom area for practices as before. Visiting teams and community users are expected to enter the field via the existing entrances and park their vehicles at the parking area nearest the field next to the school bus parking lot or the parking lanes along Grand Avenue and Dry Creek Road. Both roads have parking and bike lanes on both sides of the street. Grant Avenue currently carries about 8,800 vehicles daily. As a two-lane arterial road, Grand Avenue would have the ability to carry about 12,000 vehicles daily at acceptable conditions.

Driveway Operation Analysis

The field upgrade would not result in additional athletic activities, parking capacities, and access configuration. Traffic operations analyses were conducted at the access driveway nearest the field to identify current traffic operational Level-of-Service (LOS). Traffic counts collected in June 2021 indicated very low vehicle turning movements at the parking lot driveway nearest the field on Grand Avenue. This was possibly because the school was not fully opened due to COVID 19.

As a conservative approach, traffic operation analyses assumed that the parking lot was full for both existing and project conditions since the proposed project would not add parking spaces or activities to the field. The result of the analyses indicated the study location would operate at LOS B with less than 15 seconds average delays per vehicle for both morning and afternoon peak-hours for existing and project conditions. Table TRA-1 shows the driveway traffic operation analyses results. LOS Calculation sheets with traffic count data are in the technical appendixes.

TABLE TRA-1: DRIVEWAY TRAFFIC OPERATION (LOS) ANALYSIS

Study Driveway (Non-Signalized)	Existing Conditions				Project Conditions			
	A.M Peak		P.M. Peak		A.M Peak		P.M. Peak	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Grand Ave./ Access Driveway	13.4	B	14.9	B	13.4	B	14.9	B

Notes: Study intersection LOS was calculated with SYNCHRO computer software based on Highway Capacity Manual Methodology for non-signalized intersection. Traffic count data were collected in 3/17/2021 when school athletic teams started practices on 6/1/2021. The above delays and LOS represent the worst-case turning movement, which is the left-turn movement out from the driveway. Through traffic on the major street (Grand Avenue) would operate at LOS A as traffic would not have to stop or yield. LOS A: Delay 0.0-10.0 Seconds, B: 10.1-15.0 Seconds, C: 15.1-25.0 Seconds, D: 25.1-35.0 Seconds, LOS E: 35.1-50.0 Seconds, LOS F: >50.0 Seconds

b) With the passage of Senate Bill SB 743 in 2013 and full implementation on July 1, 2020, Vehicle Miles Traveled (VMT) became the main metric to evaluate transportation impacts of proposed development projects. Traffic LOS and parking deficiencies are no longer considered significant impacts in CEQA analysis.

With SB 743, most development projects need to provide a VMT analysis to determine traffic impacts. However, there are several exceptions. These include small projects that generate fewer than 110 daily trips; locally serving retail and similar land uses; and locally serving public facilities such as public schools and parks.

As discussed above, the project is to upgrade the exiting grass field and would not result in additional athletic activities and events that would change the current traffic circulation patterns and operations in the area. The project will not add new driveways or parking and will not create conflicts with the Sacramento Transportation Plan. The Grand Avenue study segment is not considered a collision hot spot based on the review of traffic collision statistics. There were 11 traffic collision reported along the Grand Avenue near the school for the past three years, most occurred near the intersections at Dry Creek Road and Marysville Boulevard. The 483 parking spaces on the campus site along with parking lanes on Dry Creek Road and Grand Avenue would be able to accommodate the parking needs of the proposed field upgrade.

According to the ITE trip generation rates, a public soccer field is likely to generate an average of about 70 trips a day, which qualifies it for the small-project exemption. Further, the project is public high school soccer field that mainly serves the students from within the school and, as such, would be exempt from VMT analysis. According to the Governor's Office of Planning and Research (Technical Advisory on Evaluating Transportation Impacts in CEQA, April 2018), similar to small projects, locally serving retail and land uses, and local-serving public facilities, including schools, are presumed to have a less than significant impact on VMT. A study indicating the user capture area may be required in order to demonstrate that a public facility is local serving. As indicated above, the project is not a new project but an upgrade of an existing facility and would be mainly used by the school, the

adjacent art school, and perhaps local residents after school hours for exercise. As such, the VMT impact of the project would be **less than significant**.

c, d) According to collision data collected from TIMS (Traffic Injuries Mapping System) service at University of California at Berkeley, there are 11 reported collisions that occurred along the Grand Avenue segment between Dry Creek Road and Marysville Boulevard between 2018 and 2020; 3 occurred in 2018, 5 in 2019, and 3 in 2020. From a general traffic engineering practice standpoint, any location that experiences five or more traffic collisions a year requires investigation and mitigation. Based on this data, this segment of Grand Avenue does not appear to be a collision hotspot.

Driveway traffic operations were modeled with the added parking to the field sharing the current employee parking area access, to identify problems with vehicle turning movements. Driveway operations analyses were conducted for existing and project conditions for am and pm peak hours. For the purpose of the study, it was conservatively assumed the soccer field would generate 20 trips during am and pm peak hours respectively. Results of the driveway analyses indicated that vehicle turning movements would result in traffic conditions no worse than Level of Service (LOS) B with under 15 seconds of delays for both am and pm peak-hour conditions. There are no curves along this section of the Grand Avenue and the access and driveway do not have any sight restriction issues.

Because the proposed project would not introduce new design features or other changes that are incompatible with the existing transportation infrastructure or otherwise adversely affect emergency access, it would not create any traffic hazards. Therefore, project traffic and safety impacts would be **less than significant**.

XVIII. Tribal Cultural Resources

Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Would the project cause a significant adverse change in the significance of a tribal cultural resource defined in Public Resource Code Section 21074 as either a site, feature, place cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or			**X**	
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code section 5024.1. In applying criteria set forth in subdivision (c) of Public Resources Code section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.			**X**	

Background

The existing school on the site was constructed in 1935. The entire project site was graded at the time of construction and has been in use as a track and field, like the proposed use. The project site also is surrounded by suburban land uses and not near any streams or other areas where Native American habitation are likely to have occurred. There is no undisturbed land on or near the site. No tribal representatives have requested consultation with the District.

Discussion

a) i., ii. As described in the Cultural Resources section of the IS, because the site has already been graded and is the location of an existing high school facility, and because the project would have minimal earthmoving beyond the previously graded depths, impacts to culturally sensitive sites would be unlikely. Additionally, Mitigation Measures

CULT-1 and CULT -2, in the Cultural Resources section would address impacts on any unknown cultural resources and would assure that any potential tribal cultural resource impacts would be reduced to **less than significant**.

XIX. Utilities and Service Systems

Would the Project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?				X
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?				X
c) Result in a determination by the waste water treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?			X	
d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?				X
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?			X	

Background

The Sacramento Department of Utilities Wastewater Division (SDUWD) provides wastewater collection, treatment, and disposal services for the project area. The SDUWD supports the operation, maintenance, and repair of the City's wastewater system. This system provides safe and reliable collection and conveyance of wastewater and ensures that the wastewater systems comply with all state and federal regulations.

The Wastewater Collections Team maintain above and below-ground assets in both the Combined and Separated Sewer System. These assets are connected to the City's Combined Water Treatment Plant and Sacramento Regional Wastewater Treatment Plant where water is safely treated and discharged to the Sacramento River.

The City of Sacramento Water Division (SWD) is responsible for the operation and maintenance of the water supply and distribution systems for the project site. The Water Division treats more

than 25 billion gallons of drinking water a year, maintains over 1,500 miles of water mains, and ensures that drinking water meets or exceeds all state and federal drinking water standards.

The City of Sacramento Recycling and Solid Waste Division of the Department of Public Works provides solid waste management services to the site. Refuse collected in the project area is transported to the Sacramento County North Area Recovery Station (NARS). Refuse is then hauled to the Sacramento County Kiefer Landfill. Commercial solid waste is collected by private franchised haulers and disposed of at various facilities including the Sacramento Recycling and Transfer Station (SRTS), the Sacramento County Kiefer Landfill, the Yolo County Landfill, L and D Landfill, Florin Perkins Landfill, Elder Creek Transfer Station, and the Sacramento County North Area Recovery Station. Recycling is hauled to the SRTS at 8491 Fruitridge Road.

Discussion

a, b, c) The project would improve an existing athletic field, and replace a large area of natural turf, which requires irrigation, with synthetic turf, for which irrigation would no longer be needed. Therefore, the proposed project would not contribute to depletion of water supplies and **no impact** would occur to surface or groundwater.

The project includes a concession stand and bathroom facilities that would minimally increase sewage generated at the site. These facilities would discharge to the City of Sacramento's existing lines. The SDUWD would review and approve the connection, however, because of the minimal increase in sewage anticipated to be generated by the project, any impacts are expected to be **less than significant**.

The project area is fully developed, and no substantial expansions or extensions of utility services would be required.

d, e) Because the project would replace the existing fields on the site, there would be a minimal increase in solid waste generation as a result of project operation, and there would **a less-than-significant impact** on solid waste generation or disposal.

XX. Wildfire Hazards

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the Project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?				**X**
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?				**X**
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?				**X**
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?				**X**

Discussion

a, b, c) The project site is in a heavily developed urban area designated as a "Non-Very High Fire Hazard Zone" by CalFire[12]. The site is level and does not require installation of wildfire-hazard related infrastructure. Therefore, the project would have **no impact** with respect to wildfire hazards, associated hazards, and equipment /infrastructure needs.

[12] https://osfm.fire.ca.gov/media/6758/fhszl_map34.pdf

IV. MANDATORY FINDINGS OF SIGNIFICANCE

Environmental Issue	Potentially Significant	Less Than Significant with Mitigation	Less Than Significant	No Impact
a) Does the Project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of an endangered, rare or threatened species or eliminate important examples of the major periods of California history or prehistory?		**X**		
b) Does the Project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a Project are considerable when viewed in connection with the effects of past Projects, the effects of other current Projects, and the effects of probable future Projects)?			**X**	
c) Does the Project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?			**X**	

a) As described in the Aesthetics section of this IS, potentially significant light and glare impacts would be mitigated to a **less-than-significant level** by measures included in that section. As described in the Biological Resources section of this IS, potentially significant impacts to biological resource impacts (nesting birds and bats) would be mitigated to a **less-than-significant** level by measures included in that section. Compliance with the mitigation measures for the unearthing of any unknown cultural resources would ensure all potential impacts associated with cultural resources would be reduced to a **less-than-significant** level.

b) No other projects are proposed at the school that would overlap this project. Based on a review of the City of Sacramento Planning Department Development Tracker, there are currently three proposed development projects in the Del Paso Heights area: the 21-unit McClellan Heights townhome project (2336 Bell Avenue), one manufactured home at 2245 Downar Way, and one duplex proposed for 2227 Roanoke Avenue as of July 20, 2021.[13] The sports complex would contribute to any impacts of these residential projects in a cumulatively considerable manner. Therefore, the project's contribution to cumulative impacts would be **less than significant**.

[13] https://sacramento.civicinsight.com/#search_term=Del+Paso+Heights&workflow=planning&boundary_id=4299&step=&status=Applied%2CIn+Progress%2CPreliminary+Review%2CWaiting&start_date=&end_date=

c) The proposed project would not increase long-term air pollutant emissions and greenhouse gasses because it would not add any net new workers. Mitigation measures for emissions from construction emissions would reduce any such emissions to less than significant levels. The project's noise impacts also would be less than significant. The project's hazards to human health and safety would be less than significant, as described in Section VIII of this Initial Study. The impact would be reduced to a **less-than-significant** level with mitigation.

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APPENDIX A: MUSCO LIGHTING INFORMATION

Grant High School Sports Complex

Sacramento, CA

Lighting System

Pole / Fixture Summary

Pole ID	Pole Height	Mtg Height	Fixture Qty	Luminaire Type	Load	Circuit
F1-F2	80'	80'	7	TLC-LED-1500	10.01 kW	A
		80'	1	TLC-LED-600	0.58 kW	B
		80'	1	TLC-LED-900	0.89 kW	A
		16'	2	TLC-BT-575	1.15 kW	A
F3-F4	80'	80'	8	TLC-LED-1500	11.44 kW	A
		80'	1	TLC-LED-600	0.58 kW	B
		16'	2	TLC-BT-575	1.15 kW	A
4			***44***		***51.60 kW***	

Circuit Summary

Circuit	Description	Load	Fixture Qty
A	Football	49.28 kW	40
B	Egress	2.32 kW	4

Fixture Type Summary

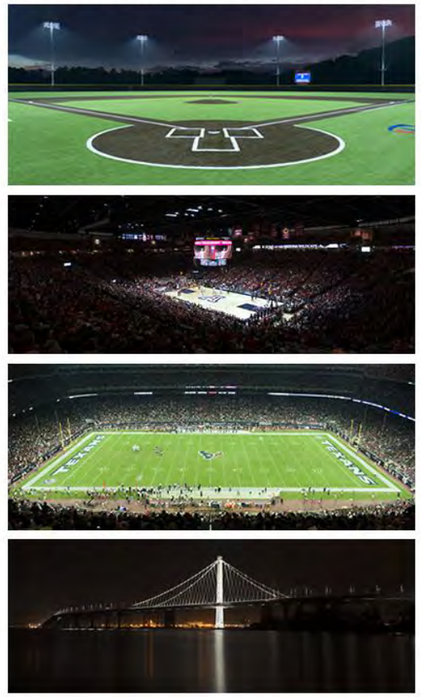
Type	Source	Wattage	Lumens	L90	L80	L70	Quantity
TLC-LED-600	LED 5700K - 75 CRI	580W	65,600	>120,000	>120,000	>120,000	4
TLC-LED-1500	LED 5700K - 75 CRI	1430W	160,000	>120,000	>120,000	>120,000	30
TLC-LED-900	LED 5700K - 75 CRI	890W	89,600	>120,000	>120,000	>120,000	2
TLC-BT-575	LED 5700K - 75 CRI	575W	52,000	>120,000	>120,000	>120,000	8

Light Level Summary

Calculation Grid Summary

Grid Name	Calculation Metric	Illumination					Circuits	Fixture Qty
		Ave	Min	Max	Max/Min	Ave/Min		
Blanket to Zero	Horizontal	11.2	0	47	55756.73		A,B	44
D Zones	Horizontal	23	10	34	3.50	2.30	A	40
East Bleachers 1	Horizontal Illuminance	6.16	3	10	3.60	2.05	B	4
East Bleachers 2	Horizontal Illuminance	7.75	2	10	4.15	3.88	B	4
Football	Horizontal Illuminance	32.8	28	39	1.37	1.17	A	40
Soccer	Horizontal Illuminance	33.1	28	41	1.44	1.18	A	40
Spill	Horizontal	0.14	0	0.76	2146.90		A,B	44
Spill	Max Candela (by Fixture)	5866	105	11294	107.82	56.00	A,B	44
Spill	Max Vertical Illuminance Metric	0.26	0	1.12	702.13		A,B	44
Track	Horizontal Illuminance	20.4	3	39	12.36	6.80	A	40
West Bleachers 1	Horizontal Illuminance	10.5	5	15	2.98	2.11	B	4
West Bleachers 2	Horizontal Illuminance	15.2	10	20	2.09	1.52	B	4

From Hometown to Professional



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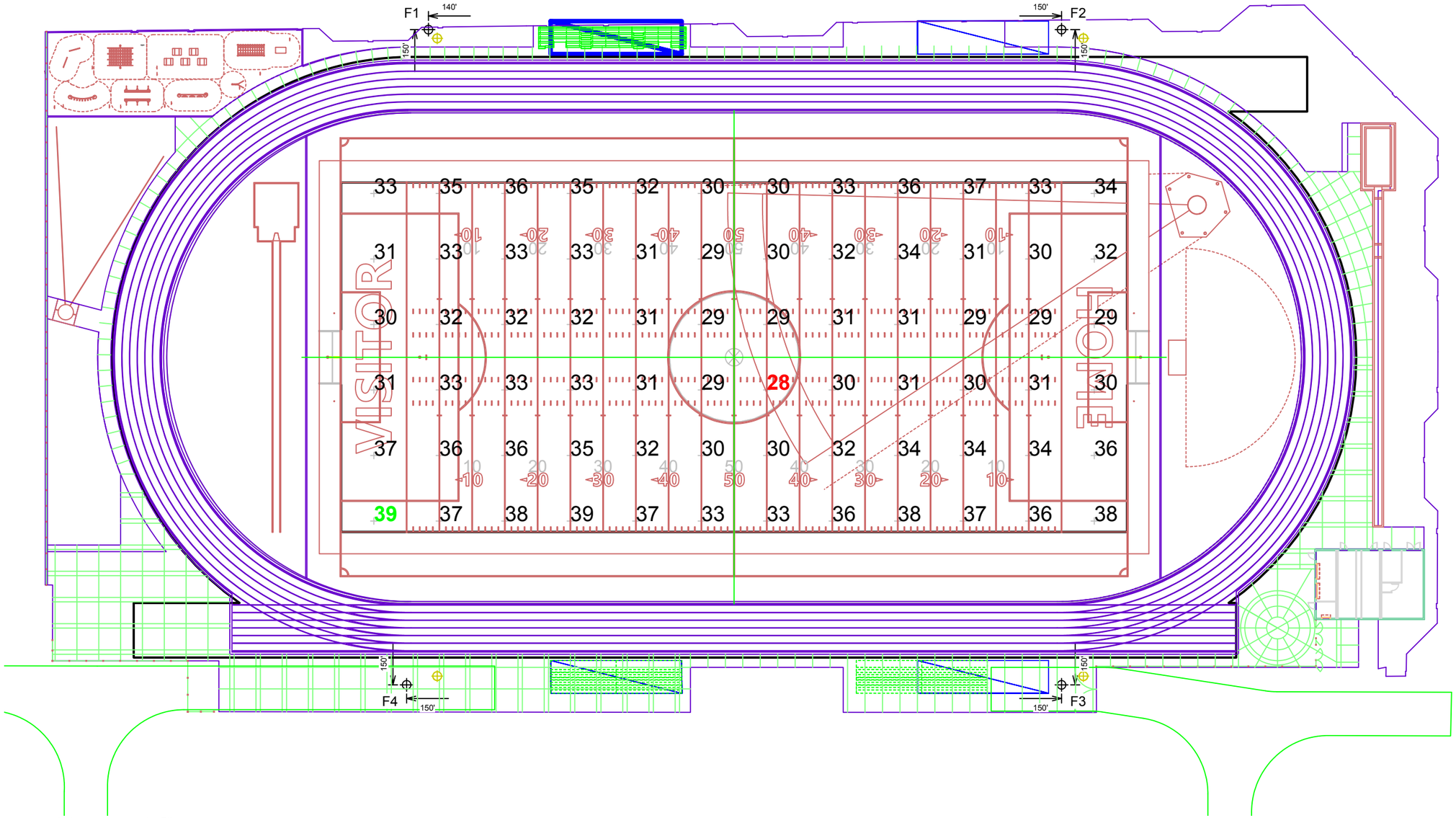
EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
1	F1	80'	-	80'	TLC-LED-900	1	1	0
				80'	TLC-LED-1500	7	7	0
				15.5'	TLC-BT-575	2	2	0
				80'	TLC-LED-600	1	0	1
1	F2	80'	-	80'	TLC-LED-900	1	1	0
				80'	TLC-LED-600	1	0	1
				15.5'	TLC-BT-575	2	2	0
				80'	TLC-LED-1500	7	7	0
2	F3-F4	80'	-	80'	TLC-LED-600	1	0	1
				15.5'	TLC-BT-575	2	2	0
				80'	TLC-LED-1500	8	8	0
4	TOTALS					44	40	4



SCALE IN FEET 1 : 50

0' 50' 100'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

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Grant High School Sports Complex

Sacramento, CA

GRID SUMMARY

Name:	**Football**
Size:	360' x 160'
Spacing:	30.0' x 30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Entire Grid
Guaranteed Average:	**30**
Scan Average:	32.81
Maximum:	39
Minimum:	28
Avg / Min:	1.16
Guaranteed Max / Min:	**2.5**
Max / Min:	1.37
UG (adjacent pts):	1.18
CU:	0.41
No. of Points:	72

LUMINAIRE INFORMATION

Applied Circuits:	A
No. of Luminaires:	**40**
Total Load:	49.28 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

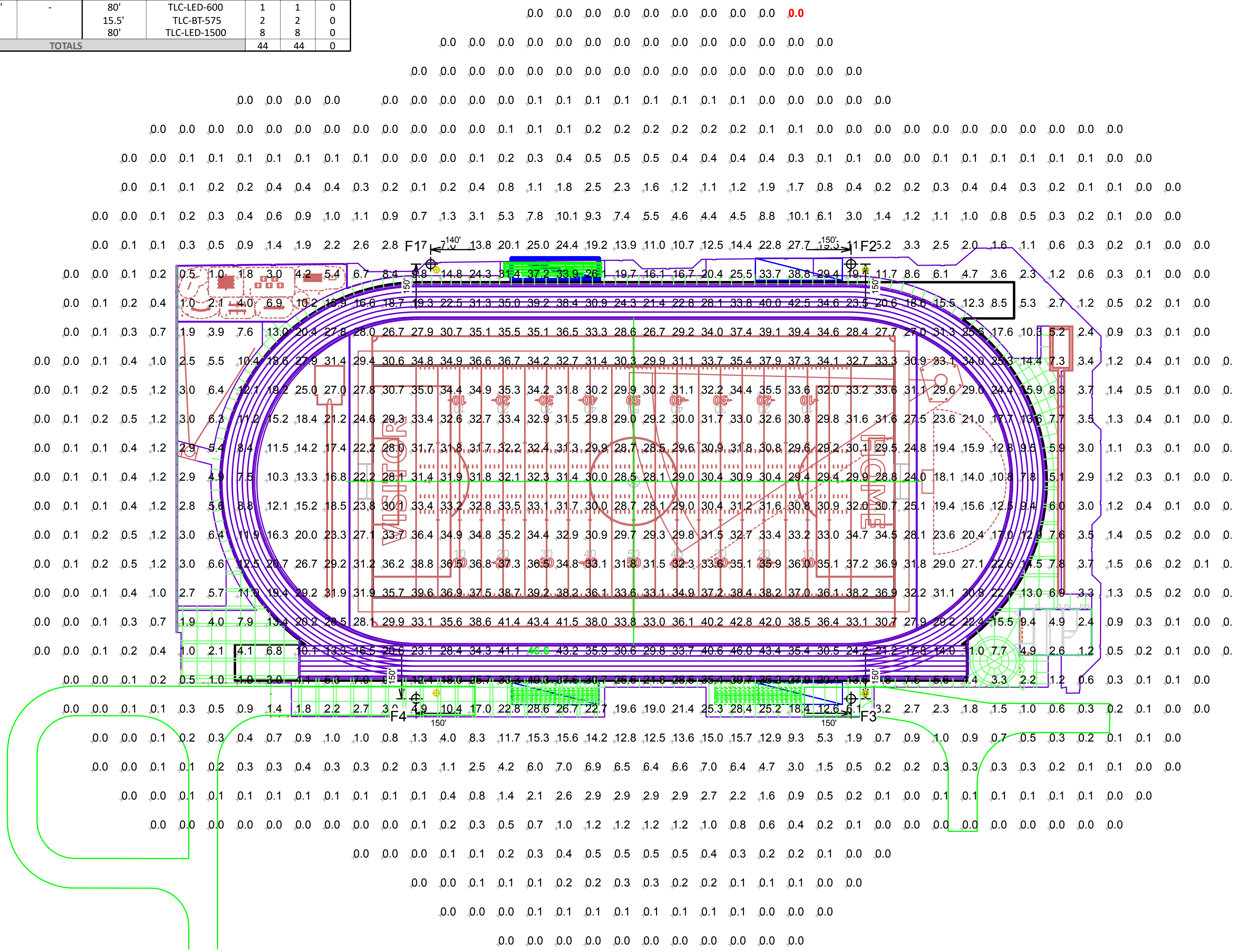
Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

We Make It Happen.

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
1	F1	80'	-	80'	TLC-LED-900	1	1	0
				80'	TLC-LED-1500	7	7	0
				15.5'	TLC-BT-575	2	2	0
				80'	TLC-LED-600	1	1	0
1	F2	80'	-	80'	TLC-LED-900	1	1	0
				80'	TLC-LED-600	1	1	0
				15.5'	TLC-BT-575	2	2	0
				80'	TLC-LED-1500	7	7	0
2	F3-F4	80'	-	80'	TLC-LED-600	1	1	0
				15.5'	TLC-BT-575	2	2	0
				80'	TLC-LED-1500	8	8	0
4	TOTALS					44	44	0



SCALE IN FEET 1 : 80

0' 80' 160'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

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Grant High School Sports Complex

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GRID SUMMARY

Name:	**Blanket to Zero**
Size:	360' x 160'
Spacing:	20.0' x 20.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES	
	Entire Grid
Scan Average:	**11.21**
Maximum:	47
Minimum:	0
Avg / Min:	13398.70
Max / Min:	**55756.73**
UG (adjacent pts):	7.62
CU:	0.91
No. of Points:	1114
LUMINAIRE INFORMATION	
Applied Circuits:	A, B
No. of Luminaires:	**44**
Total Load:	51.6 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

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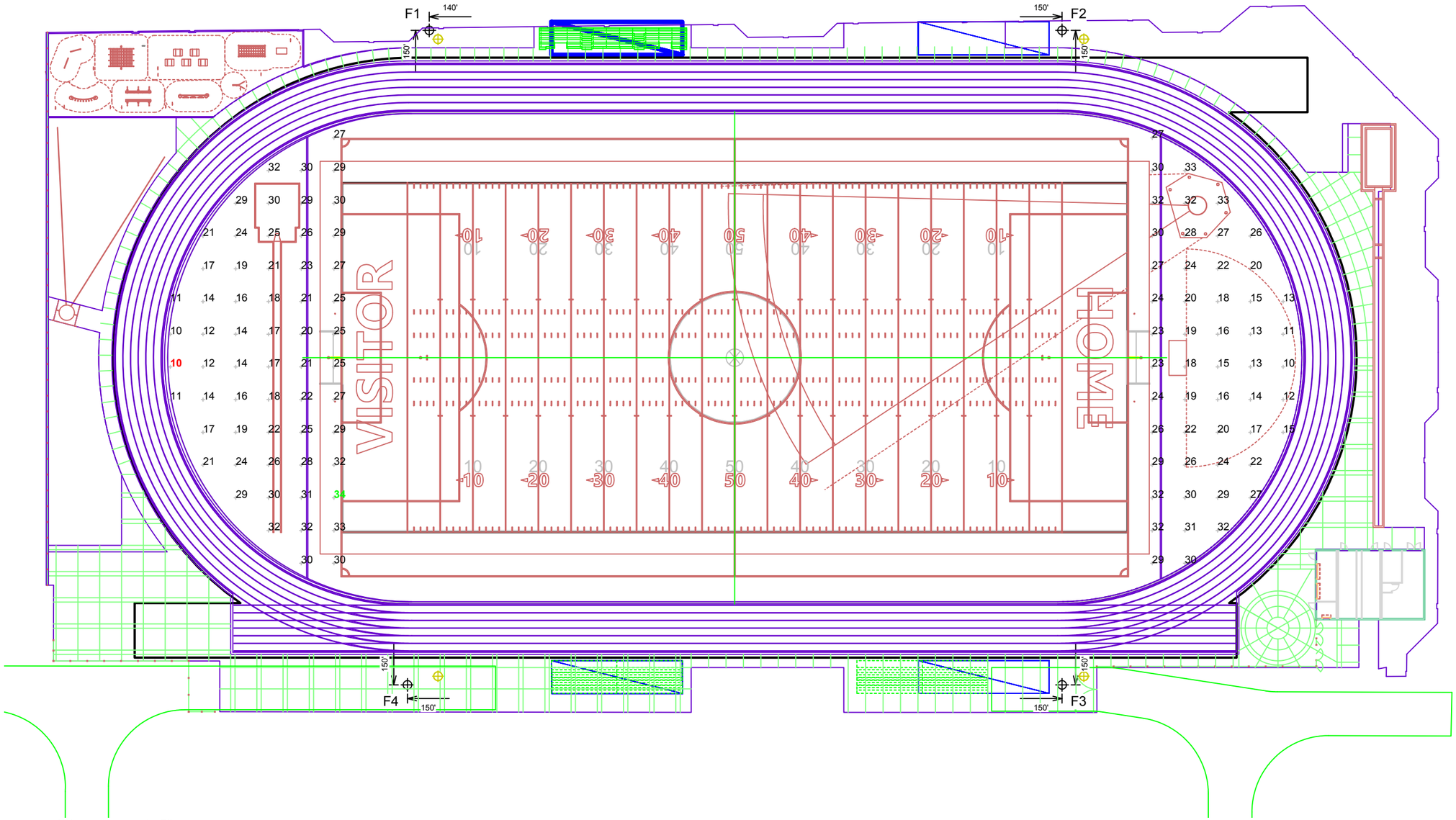
EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
1	F1	80'	-	80'	TLC-LED-900	1	1	0
				80'	TLC-LED-1500	7	7	0
				15.5'	TLC-BT-575	2	2	0
				80'	TLC-LED-600	1	0	1
1	F2	80'	-	80'	TLC-LED-900	1	1	0
				80'	TLC-LED-600	1	0	1
				15.5'	TLC-BT-575	2	2	0
				80'	TLC-LED-1500	7	7	0
2	F3-F4	80'	-	80'	TLC-LED-600	1	0	1
				15.5'	TLC-BT-575	2	2	0
				80'	TLC-LED-1500	8	8	0
4	TOTALS					44	40	4



GRID SUMMARY

Name:	**D Zones**
Size:	360' x 160'
Spacing:	15.0' x 15.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Entire Grid
Guaranteed Average:	**20**
Scan Average:	22.98
Maximum:	34
Minimum:	10
Avg / Min:	2.39
Max / Min:	**3.50**
UG (adjacent pts):	1.31
CU:	0.11
No. of Points:	113

LUMINAIRE INFORMATION

Applied Circuits:	A
No. of Luminaires:	**40**
Total Load:	49.28 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

SCALE IN FEET 1 : 50

0' 50' 100'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

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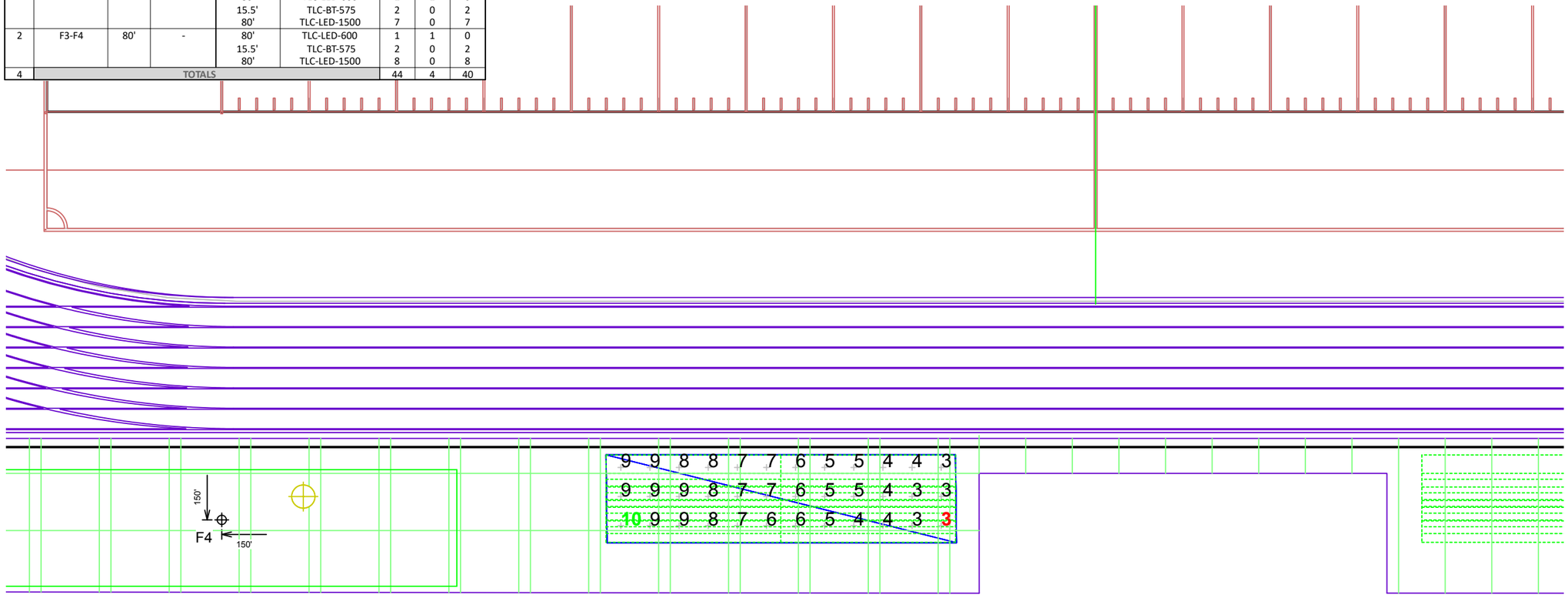
Grant High School Sports Complex

Sacramento, CA

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
1	F1	80'	-	80'	TLC-LED-900	1	0	1
				80'	TLC-LED-1500	7	0	7
				15.5'	TLC-BT-575	2	0	2
				80'	TLC-LED-600	1	1	0
1	F2	80'	-	80'	TLC-LED-900	1	0	1
				80'	TLC-LED-600	1	1	0
				15.5'	TLC-BT-575	2	0	2
				80'	TLC-LED-1500	7	0	7
2	F3-F4	80'	-	80'	TLC-LED-600	1	1	0
				15.5'	TLC-BT-575	2	0	2
				80'	TLC-LED-1500	8	0	8
4	TOTALS					44	4	40



GRID SUMMARY

Name:	**East Bleachers 1**
Size:	360' x 160'
Spacing:	5.0' x 5.0'
Height:	9.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Entire Grid
Scan Average:	**6.16**
Maximum:	10
Minimum:	3
Avg / Min:	2.28
Max / Min:	**3.60**
UG (adjacent pts):	0.00
CU:	0.02
No. of Points:	36

LUMINAIRE INFORMATION

Applied Circuits:	B
No. of Luminaires:	**4**
Total Load:	2.32 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

SCALE IN FEET 1 : 20

0' 20' 40'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

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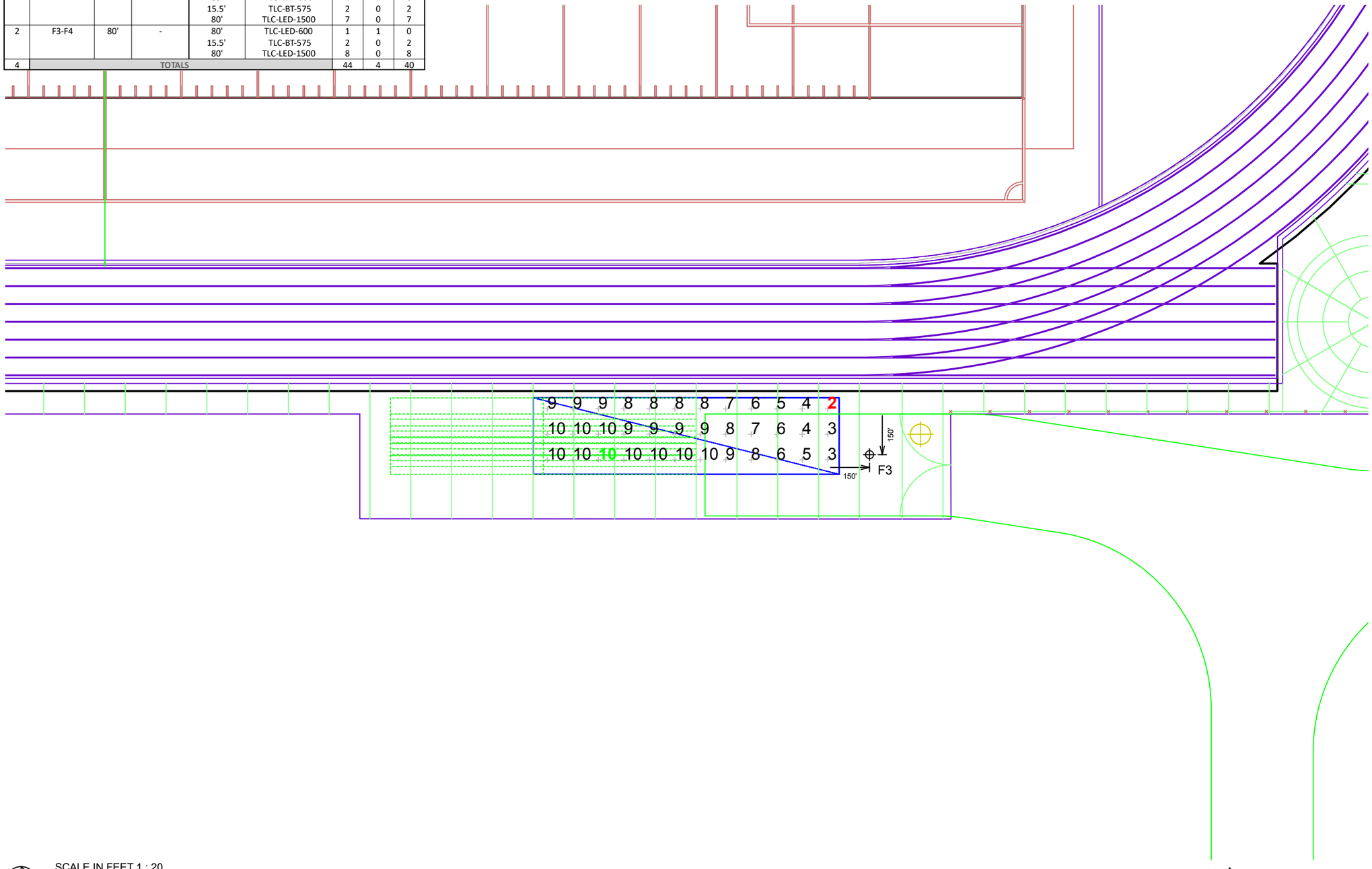
ILLUMINATION SUMMARY

Grant High School Sports Complex

Sacramento, CA

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
1	F1	80'	-	80'	TLC-LED-900	1	0	1
				80'	TLC-LED-1500	7	0	7
				15.5'	TLC-BT-575	2	0	2
				80'	TLC-LED-600	1	1	0
1	F2	80'	-	80'	TLC-LED-900	1	0	1
				80'	TLC-LED-600	1	1	0
				15.5'	TLC-BT-575	2	0	2
				80'	TLC-LED-1500	7	0	7
2	F3-F4	80'	-	80'	TLC-LED-600	1	1	0
				15.5'	TLC-BT-575	2	0	2
				80'	TLC-LED-1500	8	0	8
4	TOTALS					44	4	40



GRID SUMMARY

Name:	**East Bleachers 2**
Size:	360' x 160'
Spacing:	5.0' x 5.0'
Height:	9.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Entire Grid
Scan Average:	**7.75**
Maximum:	10
Minimum:	2
Avg / Min:	3.11
Max / Min:	**4.15**
UG (adjacent pts):	0.00
CU:	0.03
No. of Points:	36

LUMINAIRE INFORMATION

Applied Circuits:	B
No. of Luminaires:	**4**
Total Load:	2.32 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

SCALE IN FEET 1 : 20

0' 20' 40'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

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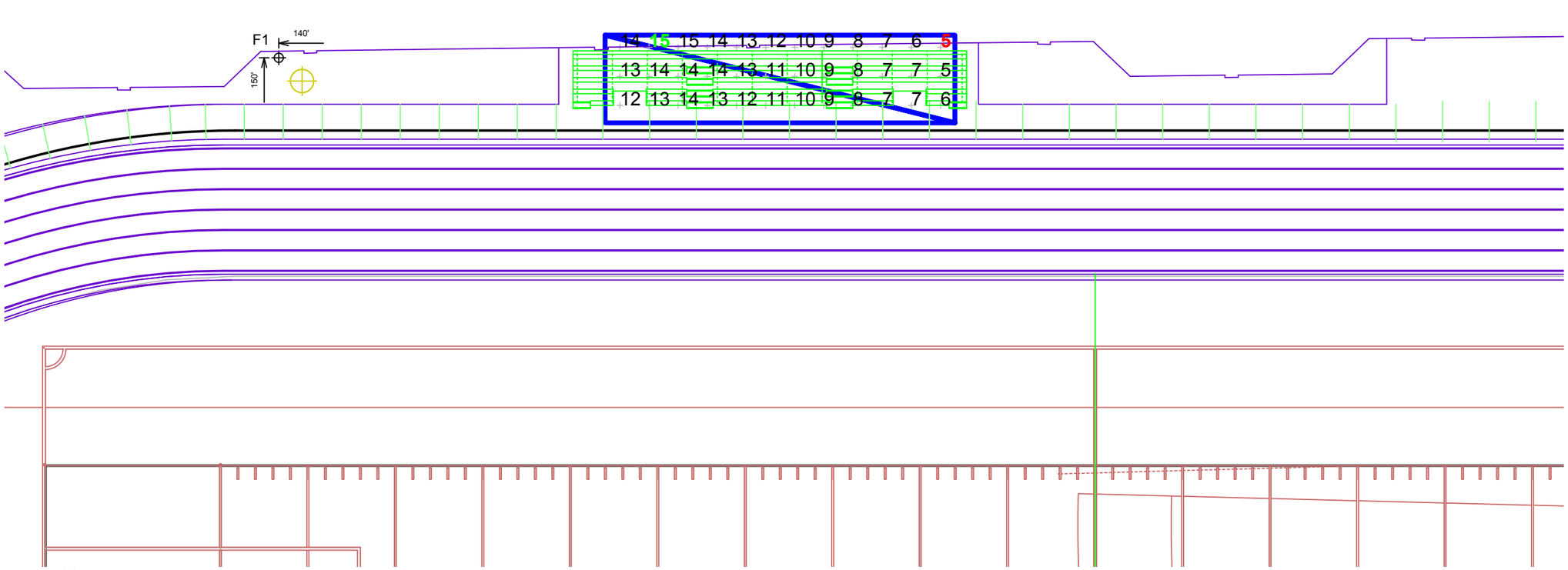
EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
1	F1	80'	-	80'	TLC-LED-900	1	0	1
				80'	TLC-LED-1500	7	0	7
				15.5'	TLC-BT-575	2	0	2
				80'	TLC-LED-600	1	1	0
1	F2	80'	-	80'	TLC-LED-900	1	0	1
				80'	TLC-LED-600	1	1	0
				15.5'	TLC-BT-575	2	0	2
				80'	TLC-LED-1500	7	0	7
2	F3-F4	80'	-	80'	TLC-LED-600	1	1	0
				15.5'	TLC-BT-575	2	0	2
				80'	TLC-LED-1500	8	0	8
4	TOTALS					44	4	40



Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

Grant High School Sports Complex

Sacramento, CA

GRID SUMMARY

Name:	**West Bleachers 1**
Size:	360' x 160'
Spacing:	5.0' x 5.0'
Height:	6.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Entire Grid
Scan Average:	**10.53**
Maximum:	15
Minimum:	5
Avg / Min:	2.07
Max / Min:	**2.98**
UG (adjacent pts):	0.00
CU:	0.04
No. of Points:	36

LUMINAIRE INFORMATION

Applied Circuits:	B
No. of Luminaires:	**4**
Total Load:	2.32 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

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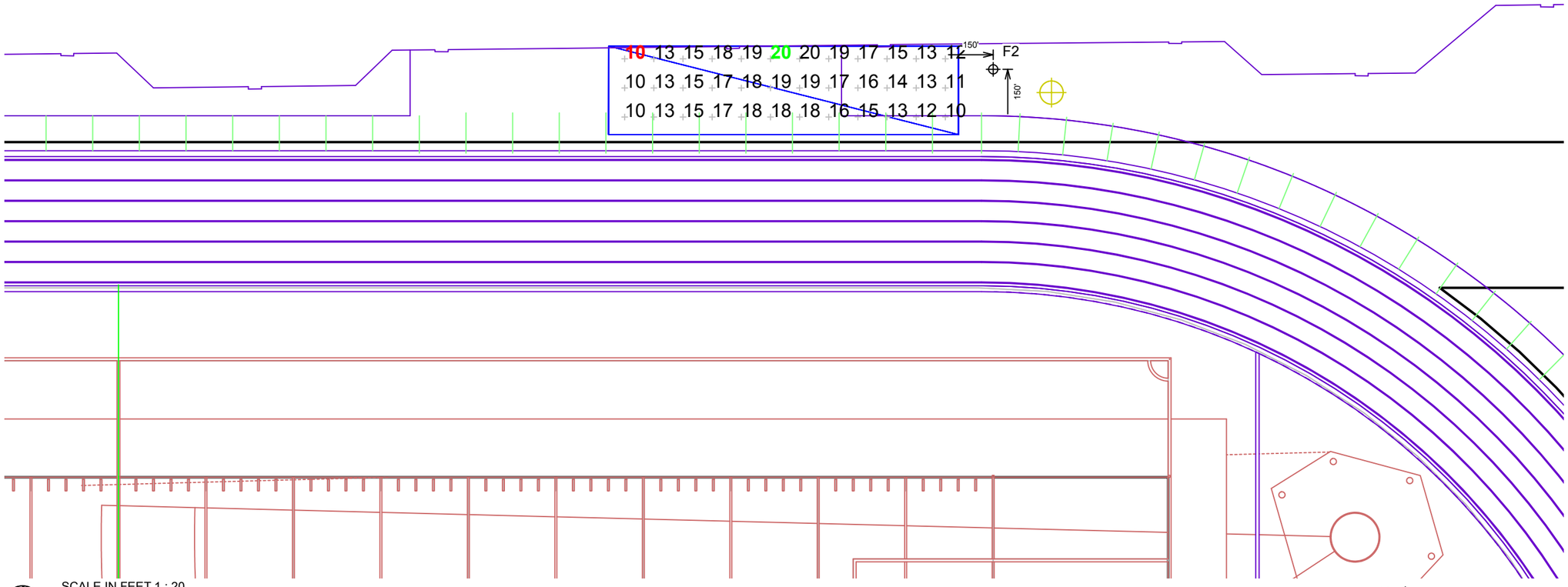
ILLUMINATION SUMMARY

Grant High School Sports Complex

Sacramento, CA

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
1	F1	80'	-	80'	TLC-LED-900	1	0	1
				80'	TLC-LED-1500	7	0	7
				15.5'	TLC-BT-575	2	0	2
				80'	TLC-LED-600	1	1	0
1	F2	80'	-	80'	TLC-LED-900	1	0	1
				80'	TLC-LED-600	1	1	0
				15.5'	TLC-BT-575	2	0	2
				80'	TLC-LED-1500	7	0	7
2	F3-F4	80'	-	80'	TLC-LED-600	1	1	0
				15.5'	TLC-BT-575	2	0	2
				80'	TLC-LED-1500	8	0	8
4	TOTALS					44	4	40



Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

GRID SUMMARY

Name:	**West Bleachers 2**
Size:	360' x 160'
Spacing:	5.0' x 5.0'
Height:	6.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Entire Grid
Scan Average:	**15.18**
Maximum:	20
Minimum:	10
Avg / Min:	1.58
Max / Min:	**2.09**
UG (adjacent pts):	0.00
CU:	0.05
No. of Points:	36

LUMINAIRE INFORMATION

Applied Circuits:	B
No. of Luminaires:	**4**
Total Load:	2.32 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

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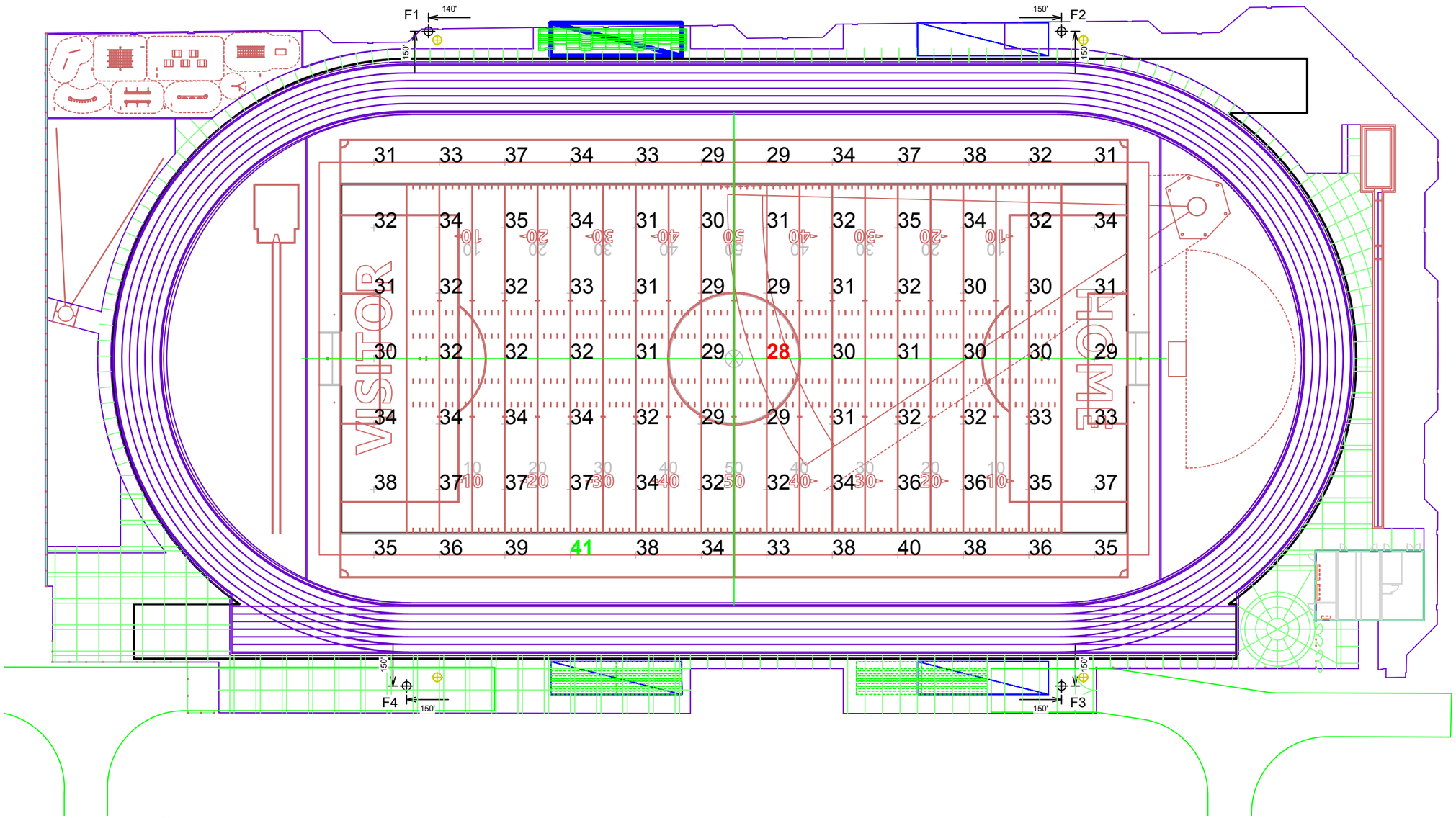
EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
1	F1	80'	.1'	80.1'	TLC-LED-900	1	1	0
				80.1'	TLC-LED-1500	7	7	0
				15.6'	TLC-BT-575	2	2	0
				80.1'	TLC-LED-600	1	0	1
1	F2	80'	.1'	80.1'	TLC-LED-900	1	1	0
				80.1'	TLC-LED-600	1	0	1
				15.6'	TLC-BT-575	2	2	0
				80.1'	TLC-LED-1500	7	7	0
2	F3-F4	80'	.1'	80.1'	TLC-LED-600	1	0	1
				15.6'	TLC-BT-575	2	2	0
				80.1'	TLC-LED-1500	8	8	0
4	TOTALS					44	40	4



SCALE IN FEET 1 : 50

0' 50' 100'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

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Grant High School Sports Complex

Sacramento, CA

GRID SUMMARY

Name:	**Soccer**
Size:	360' x 200'
Spacing:	30.0' x 30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Entire Grid
Guaranteed Average:	**30**
Scan Average:	33.09
Maximum:	41
Minimum:	28
Avg / Min:	1.17
Guaranteed Max / Min:	**2.5**
Max / Min:	1.44
UG (adjacent pts):	1.20
CU:	0.48
No. of Points:	84

LUMINAIRE INFORMATION

Applied Circuits:	A
No. of Luminaires:	**40**
Total Load:	49.28 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

musco Lighting

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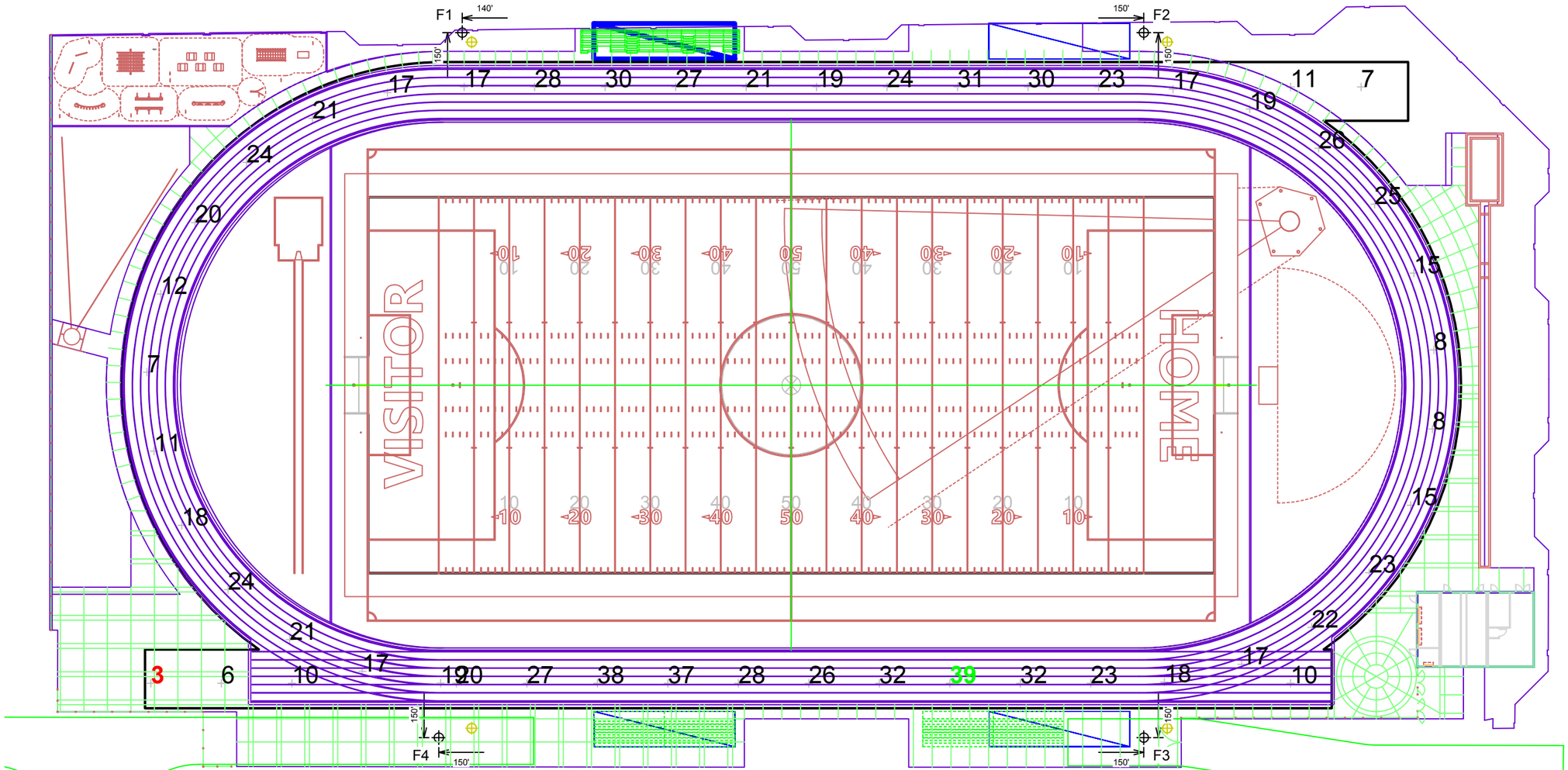
EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
1	F1	80'	0'	80'	TLC-LED-900	1	1	0
				80'	TLC-LED-1500	7	7	0
				15.52'	TLC-BT-575	2	2	0
				80'	TLC-LED-600	1	0	1
1	F2	80'	0'	80'	TLC-LED-900	1	1	0
				80'	TLC-LED-600	1	0	1
				15.52'	TLC-BT-575	2	2	0
				80'	TLC-LED-1500	7	7	0
2	F3-F4	80'	0'	80'	TLC-LED-600	1	0	1
				15.52'	TLC-BT-575	2	2	0
				80'	TLC-LED-1500	8	8	0
4	TOTALS					44	40	4



GRID SUMMARY

Name:	**Track**
Size:	Irregular
Spacing:	30.0' x 30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Entire Grid
Guaranteed Average:	**20**
Scan Average:	20.40
Maximum:	39
Minimum:	3
Avg / Min:	6.54
Max / Min:	**12.36**
UG (adjacent pts):	0.00
CU:	0.18
No. of Points:	50

LUMINAIRE INFORMATION

Applied Circuits:	A
No. of Luminaires:	**40**
Total Load:	49.28 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

SCALE IN FEET 1 : 50

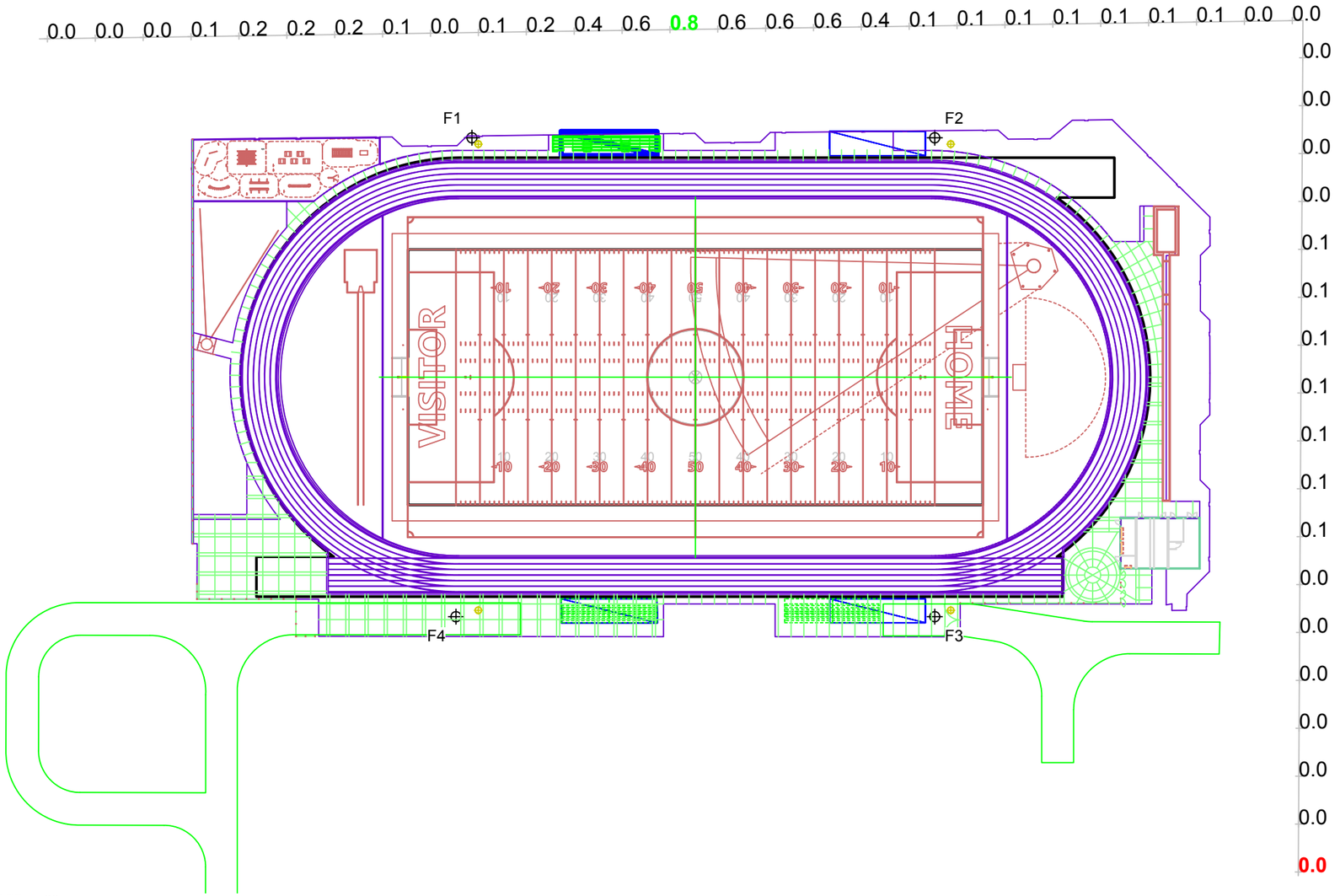
0' 50' 100'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

ENGINEERED DESIGN By: H.Sabers · File #209708B · 29-Mar-21

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
1	F1	80'	-	80'	TLC-LED-900	1	1	0
				80'	TLC-LED-1500	7	7	0
				15.5'	TLC-BT-575	2	2	0
				80'	TLC-LED-600	1	1	0
1	F2	80'	-	80'	TLC-LED-900	1	1	0
				80'	TLC-LED-600	1	1	0
				15.5'	TLC-BT-575	2	2	0
				80'	TLC-LED-1500	7	7	0
2	F3-F4	80'	-	80'	TLC-LED-600	1	1	0
				15.5'	TLC-BT-575	2	2	0
				80'	TLC-LED-1500	8	8	0
4	TOTALS					44	44	0



SCALE IN FEET 1 : 80

0' 80' 160'

ENGINEERED DESIGN By: H.Sabers · File #209708B · 29-Mar-21

Grant High School Sports Complex

Sacramento, CA

GRID SUMMARY

Name:	**Spill**
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

HORIZONTAL FOOTCANDLES

	Entire Grid
Scan Average:	0.1437
Maximum:	0.76
Minimum:	0.00
No. of Points:	45

LUMINAIRE INFORMATION

Applied Circuits:	A, B
No. of Luminaires:	**44**
Total Load:	51.6 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

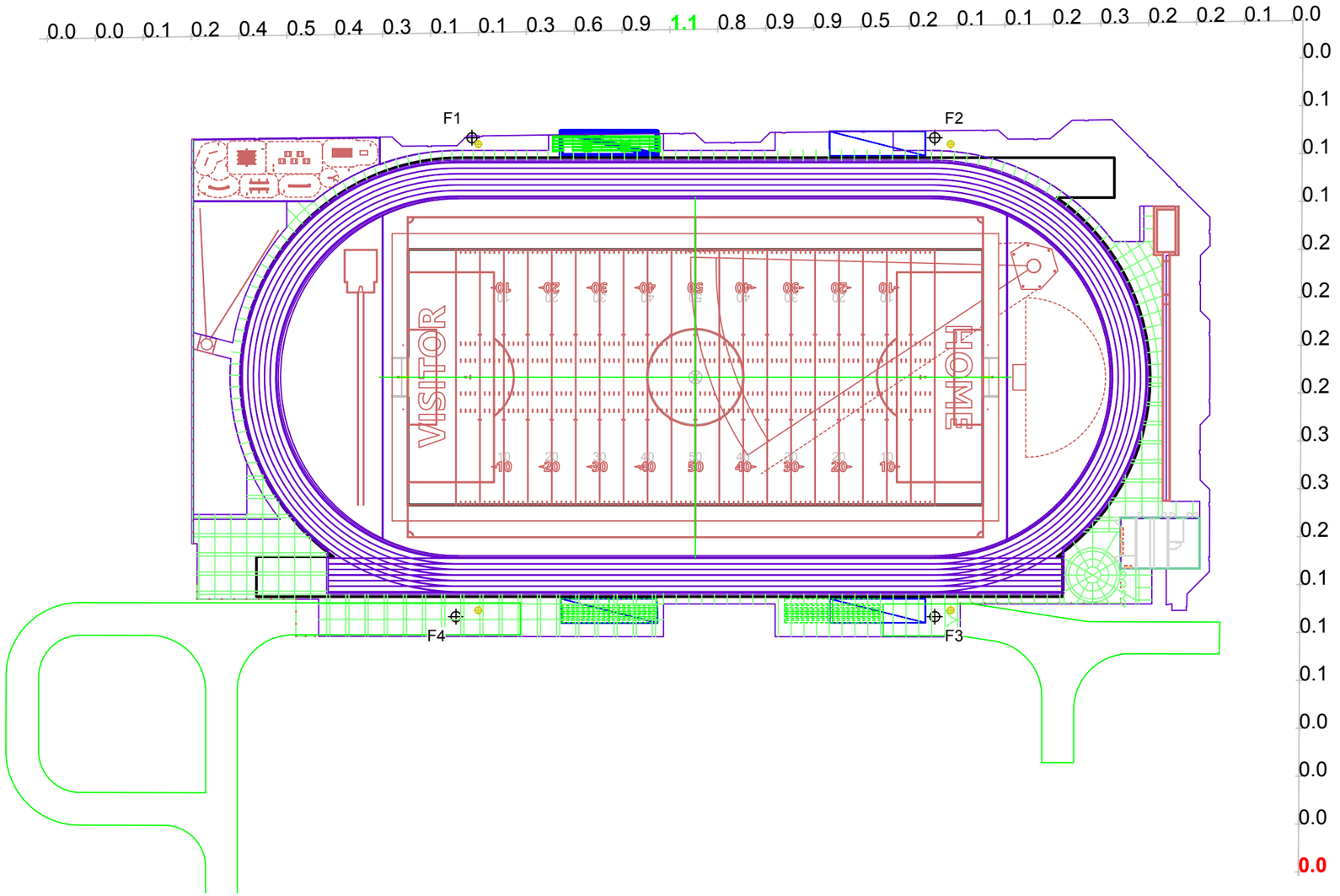
Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
1	F1	80'	-	80'	TLC-LED-900	1	1	0
				80'	TLC-LED-1500	7	7	0
				15.5'	TLC-BT-575	2	2	0
				80'	TLC-LED-600	1	1	0
1	F2	80'	-	80'	TLC-LED-900	1	1	0
				80'	TLC-LED-600	1	1	0
				15.5'	TLC-BT-575	2	2	0
				80'	TLC-LED-1500	7	7	0
2	F3-F4	80'	-	80'	TLC-LED-600	1	1	0
				15.5'	TLC-BT-575	2	2	0
				80'	TLC-LED-1500	8	8	0
4	TOTALS					44	44	0



SCALE IN FEET 1 : 80

0' 80' 160'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

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Grant High School Sports Complex

Sacramento, CA

GRID SUMMARY

Name:	**Spill**
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAX VERTICAL FOOTCANDLES

	Entire Grid
Scan Average:	0.2593
Maximum:	1.12
Minimum:	0.00
No. of Points:	45

LUMINAIRE INFORMATION

Applied Circuits:	A, B
No. of Luminaires:	**44**
Total Load:	51.6 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

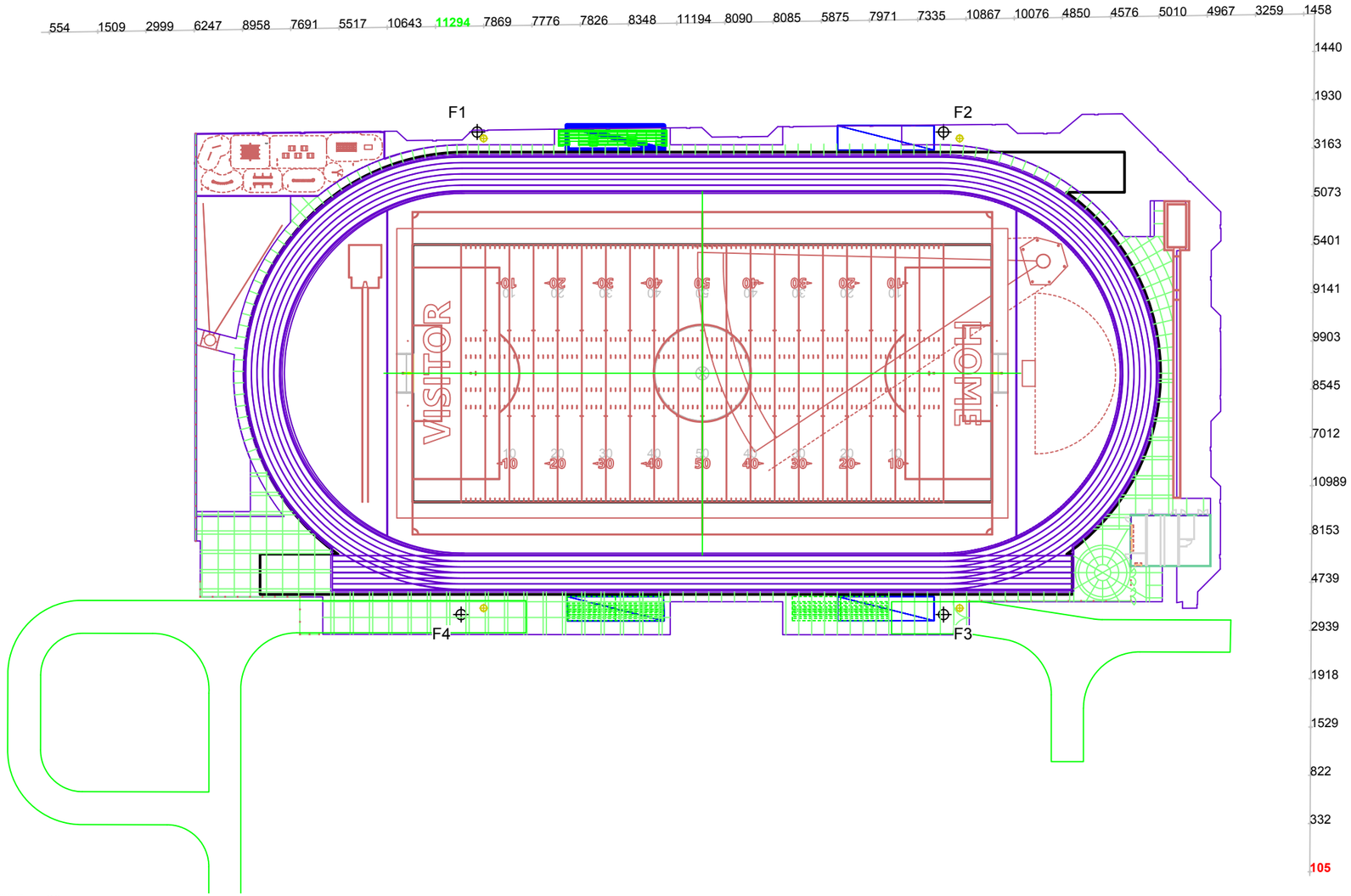
Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
1	F1	80'	-	80'	TLC-LED-900	1	1	0
				80'	TLC-LED-1500	7	7	0
				15.5'	TLC-BT-575	2	2	0
				80'	TLC-LED-600	1	1	0
1	F2	80'	-	80'	TLC-LED-900	1	1	0
				80'	TLC-LED-600	1	1	0
				15.5'	TLC-BT-575	2	2	0
				80'	TLC-LED-1500	7	7	0
2	F3-F4	80'	-	80'	TLC-LED-600	1	1	0
				15.5'	TLC-BT-575	2	2	0
				80'	TLC-LED-1500	8	8	0
4	TOTALS					44	44	0



Grant High School Sports Complex

Sacramento, CA

GRID SUMMARY

Name:	**Spill**
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

CANDELA (PER FIXTURE)

	Entire Grid
Scan Average:	5866.1665
Maximum:	11293.64
Minimum:	104.75
No. of Points:	45

LUMINAIRE INFORMATION

Applied Circuits:	A, B
No. of Luminaires:	**44**
Total Load:	51.6 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

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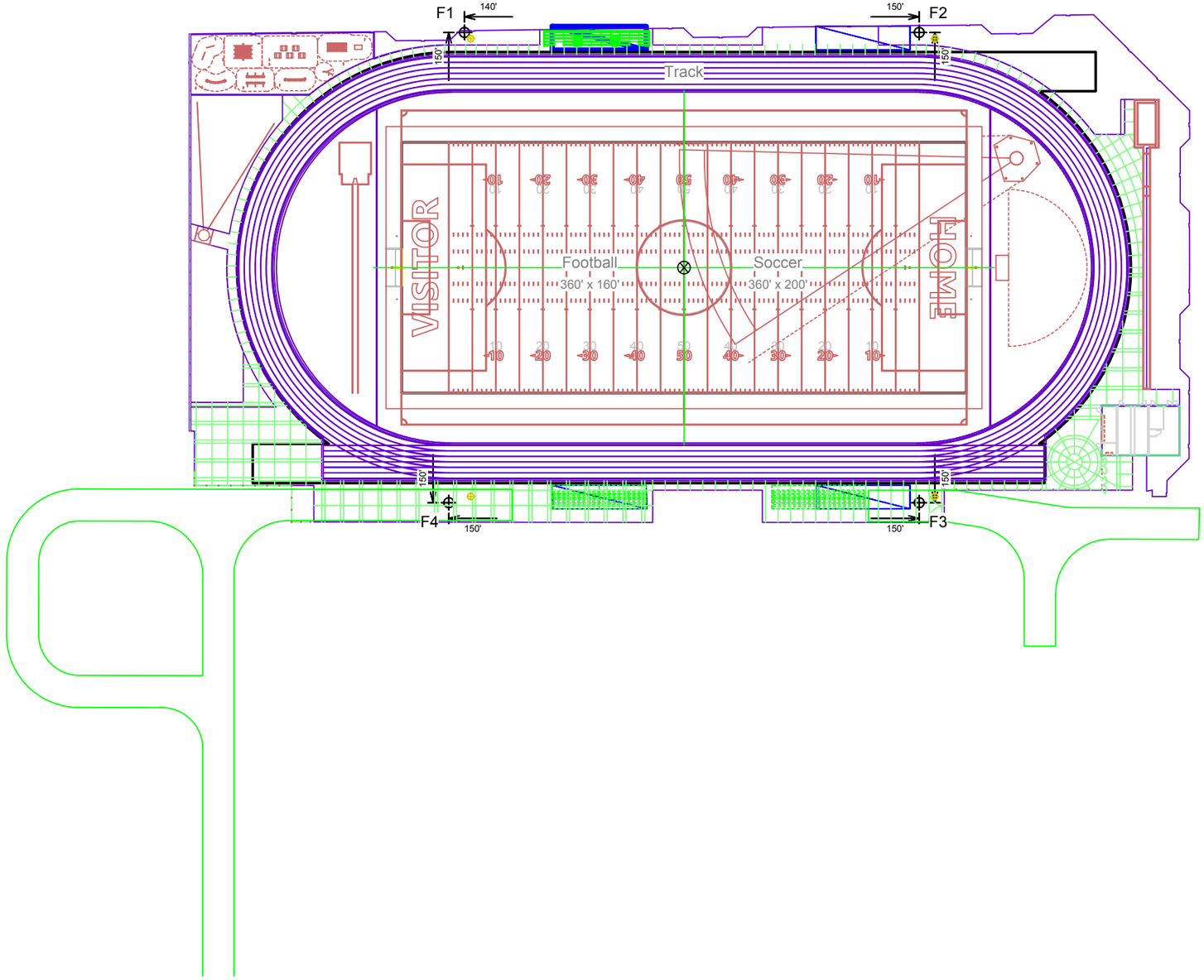
Grant High School Sports Complex

Sacramento, CA



EQUIPMENT LAYOUT

INCLUDES:
· Football
· Soccer
· Track

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires		
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE
1	F1	80'	-	80'	TLC-LED-900	1
				80'	TLC-LED-1500	7
				15.5'	TLC-BT-575	2
				80'	TLC-LED-600	1
1	F2	80'	-	80'	TLC-LED-900	1
				80'	TLC-LED-600	1
				15.5'	TLC-BT-575	2
				80'	TLC-LED-1500	7
2	F3-F4	80'	-	80'	TLC-LED-600	1
				15.5'	TLC-BT-575	2
				80'	TLC-LED-1500	8
4	TOTALS					44

SINGLE LUMINAIRE AMPERAGE DRAW CHART

Ballast Specifications (.90 min power factor)	Line Amperage Per Luminaire (max draw)						
Single Phase Voltage	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)	480 (60)
TLC-LED-600	3.4	3.2	3.0	2.6	2.0	1.9	1.5
TLC-LED-1500	8.5	8.1	7.4	6.4	5.1	4.7	3.7
TLC-LED-900	5.3	5.0	4.6	4.0	3.2	2.9	2.3
TLC-BT-575	3.4	3.2	2.9	2.5	2.0	1.8	1.5

SCALE IN FEET 1 : 80

0' 80' 160'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

ENGINEERED DESIGN By: H.Sabers · File #209708B · 29-Mar-21

APPEDIX B: NOISE REPORT

RGD ACOUSTICS

Acoustical & Audiovisual Consultants

NOISE IMPACT ASSESSMENT FOR:

Grant Union High School Sports Complex

Sacramento, CA

RGD Project #: 21-030

PREPARED FOR:

Grassetti Environmental Consulting
7008 Bristol Drive.
Berkeley, CA 94705

PREPARED BY:

Alan Rosen
Harold Goldberg, P.E.
Anthony Wong

DATE:

9 August 2021

1. Executive Summary

   The proposed project is the renovation of the track and practice field at Grant Union High School. The project includes field lighting with a new PA sound system. The study addresses project noise impacts with consideration of the General Plan policies and Municipal Code requirements of the City of Sacramento, as well as the potential for the project to significantly increase noise levels.

   Noise impacts are identified for the public address sound system, use of the field for community events, school soccer games/practices, large school events with maximum attendance, and construction. Mitigation is proposed for each of the identified impact as follows: 1) For all activities using the PA system, there is a maximum PA noise level limit that must be met at the neighboring noise sensitive uses; 2) For community events, there is a limit on use of bleachers and hours of use; 3) For large capacity events with maximum attendance, there are limits on use to daytime hours or, if events are to occur in the evening, a noise barrier along the west side of the field is also required; 4) For construction, there is a list of specific construction noise reduction measures to be implemented.

2. Environmental Noise Fundamentals

   Noise can be defined as unwanted sound. It is commonly measured with an instrument called a sound level meter. The sound level meter captures the sound with a microphone and converts it into a number called a sound level. Sound levels are expressed in units of decibels.

   To correlate the microphone signal to a level that corresponds to the way humans perceive noise, the A-weighting filter is used. A-weighting de-emphasizes low-frequency and very high-frequency sound in a manner similar to human hearing. The use of A-weighting is required by most local General Plans as well as federal and state noise regulations (e.g. Caltrans, EPA, OSHA and HUD). The abbreviation dBA is sometimes used when the A-weighted sound level is reported.

   Because of the time-varying nature of environmental sound, there are many descriptors that are used to quantify the sound level. Although one individual descriptor alone does not fully describe a particular noise environment, taken together, they can more accurately represent the noise environment. The maximum instantaneous noise level (L_{max}) is often used to identify the loudness of a single event such as a car pass-by or airplane flyover.

   To express the average noise level the L_{eq} (equivalent noise level) is used. The L_{eq} can be measured over any length of time but is typically reported for periods of 15 minutes to 1 hour. The background noise level (or residual noise level) is the sound level during the quietest moments. It is usually generated by steady sources such as

distant freeway traffic. It can be quantified with a descriptor called the $L_{90,}$ which is the sound level exceeded 90 percent of the time.

There are other statistical descriptors that are used, often times as part of a local noise ordinance. These descriptors are used since local ordinances will have specific limits based on the number of minutes per hour that an intrusive sound may exceed. For example, if a specified noise level cannot be exceeded more than 30 minutes in an hour that is referred to as the L_{50}. The L_{50} is also referred to as the median noise level.

To quantify the noise level over a 24-hour period, the Day/Night Average Sound Level (DNL or L_{dn}) or Community Noise Equivalent Level (CNEL) is used. These descriptors are averages like the L_{eq} except they include a 10 dB penalty during nighttime hours (and a 5 dB penalty during evening hours in the CNEL) to account for peoples increased sensitivity during these hours. The CNEL and DNL are typically within one decibel of each other.

In environmental noise, a change in noise level of 3 dB is considered a just noticeable difference. A 5 dB change is clearly noticeable, but not dramatic. A 10 dB change is perceived as a halving or doubling in loudness.

Examples of common noise sources and their corresponding noise levels are provided in the following table.

Sound Source	Sound Pressure Level (dBA)
Air raid siren at 50 ft (threshold of pain)[1]	120
Maximum levels in audience at rock concerts[1]	110
Train horn at 100 ft[3]	103
On platform by passing subway train[1]	100
On sidewalk by passing heavy truck or bus[1]	90
Commuter train traveling at 79 mph at 100 ft[3]	88
On sidewalk by passing automobiles[1]	70
Typical gas and electric powered leaf blower at 50 ft[2]	68 - 71
Conversational speech[4]	60
Typical urban area background/busy office[1]	60
Typical suburban area background[1]	50
Quiet suburban area at night[1]	40
Typical rural area at night[1]	30
Isolated broadcast studio[1]	20
Audiometric (hearing testing) booth[1]	10
Threshold of hearing without hearing damage[1]	0

[1]Cowan, James P. *Handbook of Environmental Acoustics*. Van Nostrand Reinhold, 1994.

[2]California Environmental Protection Agency, Air Resources Board. Mobile Source Control Division (2000). A report to the California legislature on the potential health and environmental impacts of leaf blowers. Retrieved from https://ww3.arb.ca.gov/msprog/leafblow/leafblow.htm

[3]California High-Speed Rail Authority. (2018). *How do High-Speed Train Noise Levels Compare to Traditional Trains. Retrieved from* https://www.hsr.ca.gov/communication/info_center/factsheets.aspx

[4]Everest, Fredrick Alton, and Ken C. Pohlmann. *Master Handbook of Acoustics*, *5th Ed*. McGraw-Hill, 2009.

Vibration is an oscillatory motion which can be described in terms of the displacement, velocity, or acceleration. Because the motion is oscillatory, there is no net movement. Displacement is the easiest descriptor to understand. For a vibrating floor, the displacement is simply the distance that a point on the floor moves away from its static position. The velocity represents the instantaneous speed of the floor movement. The peak particle velocity (PPV) is the descriptor used in monitoring of construction vibration.

3. Acoustical Criteria

3.1. General Plan Noise Element

The Noise Element of Sacramento 2035 General Plan (adopted in 2015) has goals and policies to assure the compatibility of a new development with the noise environment of the City. The applicable goals, policies and actions are below:

GOAL EC 3.1: **Noise Reduction**.

Minimize noise impacts on human activity to ensure the health and safety of the community.

Policy EC3.1.1 Exterior Noise Standards. The City shall require mitigation for all development where the projected exterior noise levels exceed those shown in Table EC 1, to the extent feasible.

Table EC 1 Exterior Noise Compatibility Standards for Various Land Uses

Land Use Type	*Highest Level of Noise Exposure That Is Regarded as "Normally Acceptable"[a] (L_{dn}[b] or CNEL[c])*
Residential—Low Density Single Family, Duplex, Mobile Homes	60 dBA[d,e]
Residential—Multi-family[g]	65 dBA
Urban Residential Infill[h] and Mixed-Use Projects[i,j]	70 dBA
Transient Lodging—Motels, Hotels	65 dBA
Schools, Libraries, Churches, Hospitals, Nursing Homes	70 dBA
Auditoriums, Concert Halls, Amphitheaters	Mitigation based on site-specific study
Sports Arena, Outdoor Spectator Sports	Mitigation based on site-specific study
Playgrounds, Neighborhood Parks	70 dBA
Golf Courses, Riding Stables, Water Recreation, Cemeteries	75 dBA
Office Buildings—Business, Commercial and Professional	70 dBA
Industrial, Manufacturing, Utilities, Agriculture	75 dBA

SOURCE: Governor's Office of Planning and Research, State of California General Plan Guidelines 2003, October 2003

a. As defined in the Guidelines, "Normally Acceptable" means that the "specified land use is satisfactory, based upon the assumption that any building involved is of normal conventional construction, without any special noise insulation requirements."
b. Ldn or Day Night Average Level is an average 24-hour noise measurement that factors in day and night noise levels.
c. CNEL or Community Noise Equivalent Level measurements are a weighted average of sound levels gathered throughout a 24-hour period.
d. Applies to the primary open space area of a detached single-family home, duplex, or mobile home, which is typically the backyard or fenced side yard, as measured from the center of the primary open space area (not the property line). This standard does not apply to secondary open space areas, such as front yards, balconies, stoops, and porches.
e. dBA or A-weighted decibel scale is a measurement of noise levels.
f. The exterior noise standard for the residential area west of McClellan Airport known as McClellan Heights/Parker Homes is 65 dBA.
g. Applies to the primary open space areas of townhomes and multi-family apartments or condominiums (private year yards for townhomes; common courtyards, roof gardens, or gathering spaces for multi-family developments). These standards shall not apply to balconies or small attached patios in multistoried multi-family structures.
h. With land use designations of Central Business District, Urban Neighborhood (Low, Medium, or High) Urban Center (Low or High), Urban Corridor (Low or High).
i. All mixed-use projects located anywhere in the City of Sacramento.
j. See notes d and g above for definition of primary open space areas for single-family and multi-family developments.

Policy EC3.1.2 Exterior Incremental Noise Standards. The City shall require noise mitigation for all development that increases existing noise levels by more than the allowable increment shown in Table EC 2, to the extent feasible.

Table EC 2 Exterior Incremental Noise Impact Standards for Noise-Sensitive Uses (dBA)			
Residences and buildings where people normally sleep[a]		*Institutional land uses with primarily daytime and evening uses*[b]	
Existing L_{dn}	*Allowable Noise Increment*	*Existing Peak Hour L_{eq}*	*Allowable Noise Increment*
45	8	45	12
50	5	50	9
55	3	55	6
60	2	60	5
65	1	65	3
70	1	70	3
75	0	75	1
80	0	80	0

SOURCE: Federal Transit Administration, *Transit Noise Impact and Vibration Assessment*, May 2006

a. This category includes homes, hospitals, and hotels where a nighttime sensitivity to noise is assumed to be of utmost importance.

b. This category includes schools, libraries, theaters, and churches where it is important to avoid interference with such activities as speech, meditation, and concentration on reading material.

Policy EC3.1.5 Interior Vibration Standards. The City shall require construction projects anticipated to generate a significant amount of vibration to ensure acceptable interior vibration levels at nearby residential and commercial uses based on the current City or Federal Transit Administration (FTA) criteria.

Policy EC3.1.10 Construction Noise. The City shall require development projects subject to discretionary approval to assess potential construction noise impacts on nearby uses and to minimize impacts on these uses, to the extent feasible.

GOAL EC 3.2: **Airport Noise.**

Minimize exposure to high noise levels in areas of the city affected by Mather, Executive, McClellan, and Sacramento International Airports.

Policy EC3.2.1 Land Use Compatibility. The City shall require new residential development within the 65 dBA CNEL airport noise contour, or in accordance with plans prepared by the Airport Land Use Commission, and shall only approve noise-compatible land uses.

Policy EC3.2.2 Hazardous Noise Protection. The City shall discourage outdoor activities or uses in areas outside the 70 dBA CNEL airport noise contour where people could be exposed to hazardous noise levels.

3.2. Sacramento City Municipal Code

Chapter 8.68.060 Exterior Noise Standards.

A. The following noise standards unless otherwise specifically indicated in this article shall apply to all agricultural and residential properties[1].

1) From seven a.m. to ten p.m. the exterior noise standard shall be fifty-five dBA.
2) From ten p.m. to seven a.m. the exterior noise standard shall be fifty dBA.

B. It is unlawful for any person at any location to create any noise which causes the noise levels when measured on agricultural or residential property to exceed for the duration of time set forth following, the specified exterior noise standards in any one hour by:

Cumulative Duration of the Intrusive Sound		**Allowance Decibels**
1.	Cumulative period of 30 minutes per hour	0
2.	Cumulative period of 15 minutes per hour	+5
3.	Cumulative period of 5 minutes per hour	+10
4.	Cumulative period of 1 minute per hour	+15
5.	Level not to be exceeded for any time per hour	+20

C. Each of the noise limits specified in subsection B of this section shall be reduced by five dBA for impulsive or simple tone noises, or for noises consisting of speech or music.

D. If the ambient noise level exceeds that permitted by any of the first four noise-limit categories specified in subsection B of this section, the allowable noise limit shall be increased in five dBA increments in each category to encompass the ambient noise level. If the ambient noise level exceeds the fifth noise level category, the maximum ambient noise level shall be the noise limit for that category.

[1] *"Residential property" means a parcel of real property which is developed and used either in part or in whole for residential purposes other than transient uses such as hotels and motels, and other than nonconforming residential uses within C-4, M-1, M-2, M-1-S, and M-2-S zones.*

Chapter 8.68.080 Exemptions.

The following activities shall be exempted from the provisions of this chapter:

A. School bands, school athletic and school entertainment events. School entertainment events shall not include events sponsored by student organizations.

B. Activities conducted on parks and public playgrounds, provided such parks and public playgrounds are owned and operated by a public entity;

D. Noise sources due to the erection (including excavation), demolition, alteration or repair of any building or structure between the hours of seven a.m. and six p.m., on Monday, Tuesday, Wednesday, Thursday, Friday, and Saturday, and between nine a.m. and six p.m. on Sunday; provided, however , that the operation of an internal combustion engine shall not be exempt pursuant to this section if such engine is not equipped with suitable exhaust and intake silencers which are in good working order. The director of building inspections may permit work to be done during the hours not exempt by this subsection in the case of urgent necessity and in the interest of public health and welfare for a period not to exceed three days. Application for this exemption may be made in conjunction with the application for the work permit or during progress of the work;

Chapter 8.68.100 Schools, Hospitals and Churches.

It is unlawful for any person to create any noise which causes the noise level at any school, hospital or church, while the same is in use, to exceed the noise standards specified in Section 8.68.060 of this chapter or to create any noise which unreasonably interferes with the use of such institution or unreasonably disturbs or annoys patients in the hospital. In any disputed case, interfering noise which is ten (10) dBA or more, greater than the ambient noise level at the building, shall be deemed excessive and unlawful.

Chapter 8.68.150 Findings.

A. Outdoor recreational activities involving amplified sound, including, but not limited to, athletic events, sporting events, entertainment events and concerts, may create excessive noise which is detrimental to the public health, safety, welfare and the peace and quiet of the inhabitants of the city and its environs.

E. Limiting sound levels of outdoor activities to ninety-six (96) dBA L_{eq} and requiring amplified sound not to be used at outdoor activities after ten p.m. on Sunday

through Thursday, and after eleven p.m. at other times, is necessary to protect the public health, safety, welfare and the peace and quiet of the inhabitants of the city and its environs.

F. A sound level of ninety-six (96) dBA is as loud as or louder than a refuse truck three feet from the listener, a jet plane taking off one thousand (1000) feet from the listener, or a train horn one hundred (100) feet from the listener.

G. Limiting sound levels at the source is content neutral. It helps to avoid the problem of complaints being received, and therefore measurements being made and enforcement undertaken, only in connection with certain kinds of activities, or certain kinds of music, which some people may consider objectionable and not other kinds of activities or music which may be just as loud.

Chapter 8.68.160 Outdoor Recreational Activities.

A. It is unlawful for any person to conduct, or permit to be conducted on its property, any outdoor recreational activity, including, but not limited to, athletic events, sporting events, entertainment events and concerts at which amplified noise, amplified music, or amplified sound exceeding the following levels is created: ninety-six (96) dba L_{eq} during the months of September and October; ninety-eight (98) dba L_{eq} during the months of November through August. The noise, music or sound shall be measured at the sound booth or other reasonable location which is not more than one hundred fifty (150) feet from the source. Every person conducting, or permitting to be conducted, on its property, any outdoor recreational activity shall, upon request, permit the chief of the environmental health division, Sacramento environmental management department, or the chief's designee, to place a sound level monitor (with or without an accompanying staff member) at a location described in this subsection to monitor sound levels.

B. Time Limits.

1. Sunday through Thursday. Except as provided in subsection (B)(2) of this section, the amplified sound associated with the outdoor activities described in subsection A of this section shall commence not earlier than nine a.m. and shall be terminated no later than ten p.m. on Sunday, Monday, Tuesday, Wednesday and Thursday.

2. Friday, Saturday and the Day Before Specified Holidays. The amplified sound associated with the outdoor activities described in subsection A of this section shall commence not earlier than nine a.m. and shall be terminated no later than eleven p.m. on Friday, Saturday and the day before the specified holidays listed below. For purposes of this provision, the specified holidays are the holidays specified in Government Code Sections 6700 and 6701, as those sections may be amended from time to time.

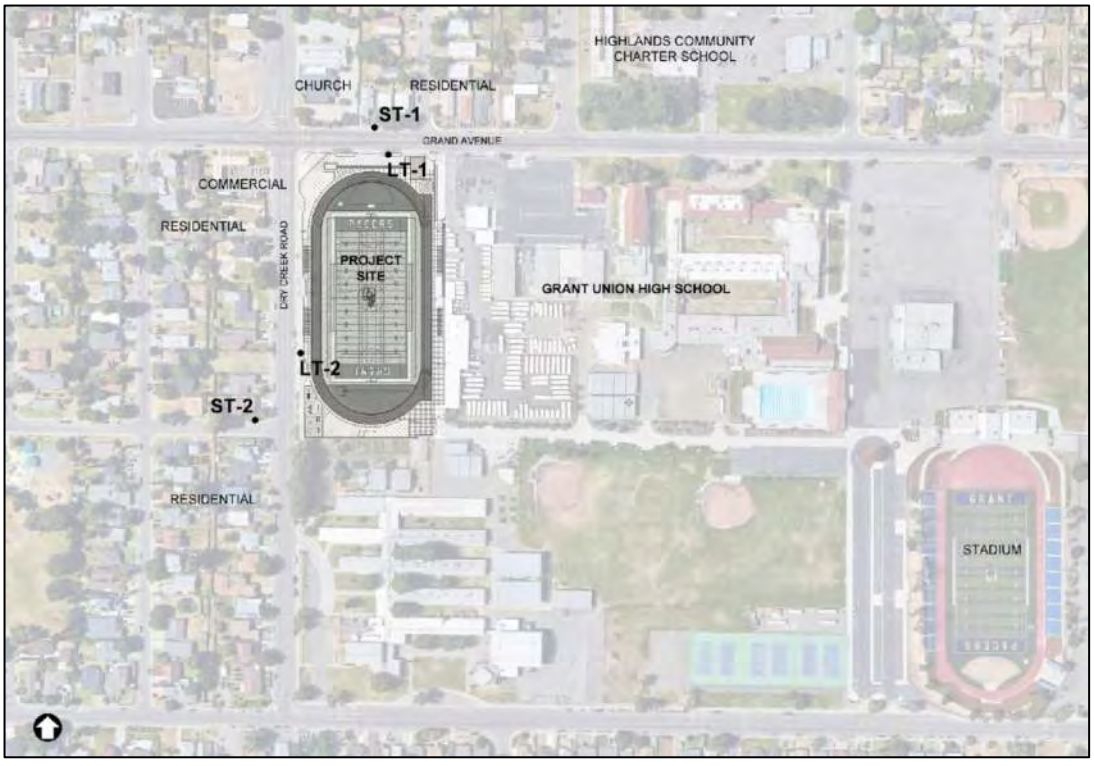
Chapter 8.68.200 Specific unlawful noises.

D. Pile Drivers, Hammers, Etc. The operation between the hours of ten p.m. and seven a.m. of any pile driver, steam shovel, pneumatic hammer, derrick, steam or electric hoist or other appliance, the use of which is attended by loud or unusual noise.

4. Existing Noise Environment

To quantify ambient noise levels, two continuous, long-term (2-day) noise measurement and two short-term (15-minute) noise measurements were made in the project vicinity. The long-term monitors began on Wednesday, 21 April 2021 and ended on Friday, 23 April 2021. The noise measurement locations are shown in Figure 1.

Figure 1: Noise Measurement Locations



The long-term noise measurement at location LT-1 was made on a tree along Grand Avenue at 12 feet above ground. The long-term noise measurement at location LT-2 was made on a tree along Dry Creek Road at approximately 12 feet above street ground.

The short-term noise measurement at location ST-1 was made near the nearest homes across Grand Avenue at 5 feet above ground. The short-term noise measurement at location ST-2 was made at the setback of the homes along Dry Creek Road at 5 feet above ground.

Figures 2 and 3 show a graph of the long-term measurement results at LT-1 and LT-2, respectively. A summary of the short-term measurements is provided in Table 1. The sound measurements were made with Larson-Davis Model 820 and Larson-Davis Model 824 sound level meters meeting Type 1 specifications (ANSI S1.4). The sound level meter calibration was checked with an acoustical calibrator (Larson-Davis Model Cal200). The peak hour L_{eq} shown for these measurements excludes anomalously loud hours in order to provide a more representative value.

Figure 2: Long-Term Noise Measurement Results, Location LT-1: Grand Avenue
L_{dn} 70 dBA, CNEL 71 dBA, Peak Hour L_{eq} 71 dBA

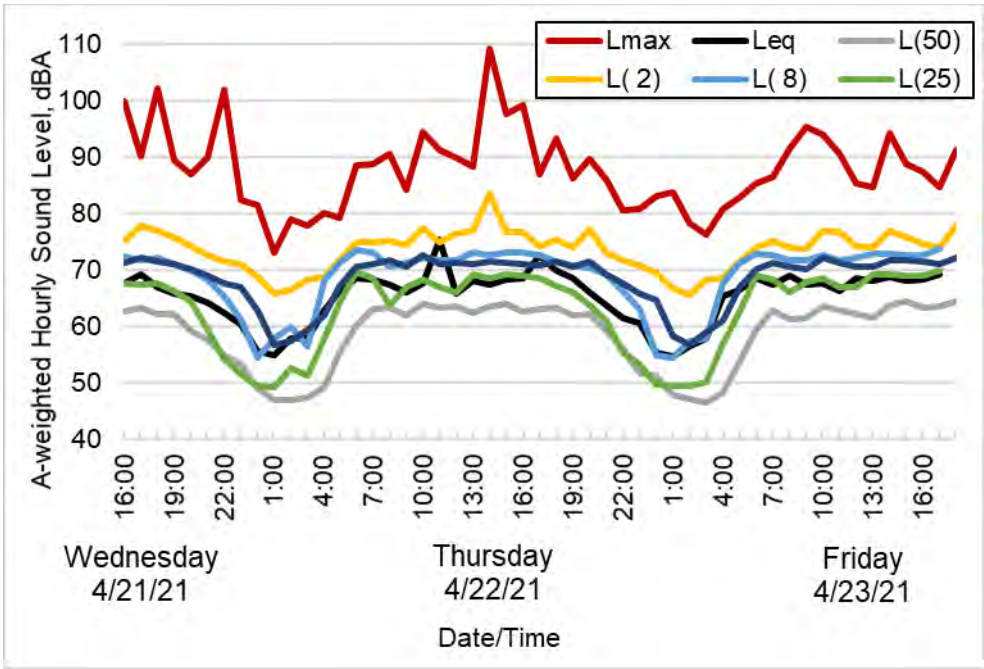


Figure 3: Long-Term Noise Measurement Results, Location LT-2

L_{dn} 62 dBA, CNEL 63 dBA, Peak Hour L_{eq} 67 dBA

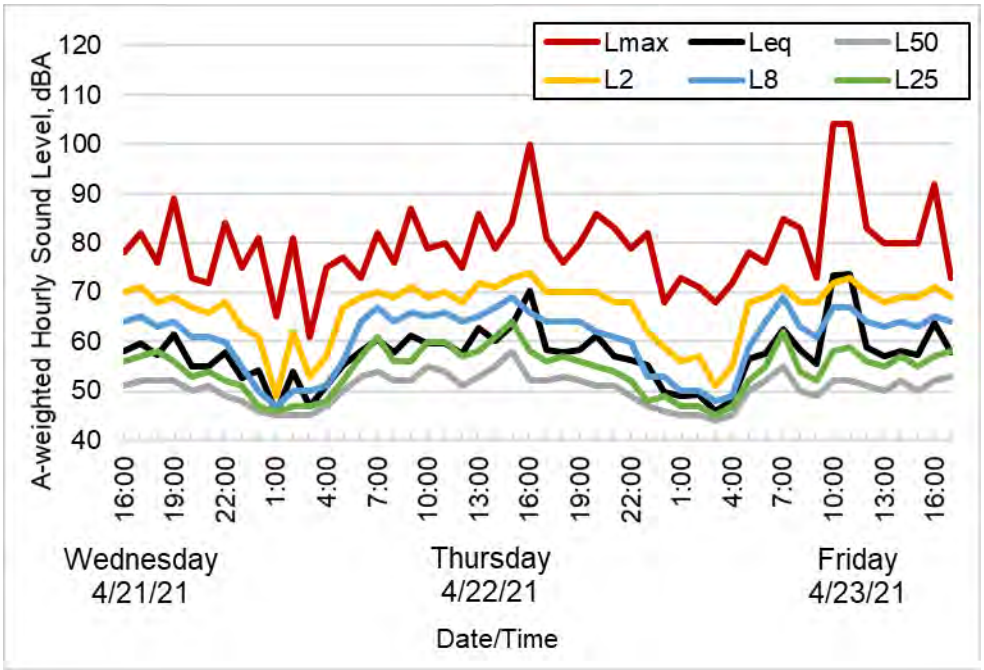


Table 1: Short-Term Noise Measurement Results – 21 April 2021

Location		Time	A-weighted Sound Level, dBA						
			L_{eq}	L_2	L_8	L_{50}	L_{dn}*	CNEL*	L_{max}
ST-1	Grand Avenue	4:01 PM – 4: 16 PM	66	74	70	62	71	71	Cars: 67 – 75, 78 School Bus: 70 Medium Truck: 77 Bus: 75
ST-2	Dry Creek Road	4:20 PM – 4:35 PM	58	65	60	48	62	63	Car: 57 – 65, 74 Fire truck: 77 Crow: 52, 55, 59, 60

*L_{dn} and CNEL based on comparison with simultaneous measurement at the long-term locations. For ST-2, the calculation of the CNEL excludes noise from a passing fire truck.

4.1. Coronavirus Pandemic

Based on our observations and experience with other projects, it appears that the coronavirus pandemic has affected traffic volumes on roadways in the Sacramento Area. Information from the school's website shows that Grant Union High School was operating on a "distant learning" bell schedule due to COVID-19 which uses virtual instruction. As a result of virtual instruction and the COVID pandemic, the measured ambient noise levels are likely lower compared to before the COVID pandemic. According to the project's traffic engineer[2], traffic volume is expected to be higher once the school is fully open. However, not enough detailed current and prior traffic volume data is available to fully quantify the degree to which the ambient noise levels measured during our noise survey underrepresent the pre-pandemic traffic noise levels. Since our analysis uses the measured ambient noise levels without adjustment, it tends to result in a conservative assessment of increase in noise due to the project.

5. Project Generated Noise

The first part of this section describes the computer modeling of field and PA usage. The second part of this section discusses the methodology and assumptions used to determine future noise levels from all activities on the fields.

5.1. Computer Modeling and PA System

According to the project description, the project's PA system would use standard sound system components and be designed to provide sound coverage for the seating and competition areas. For the purposes of this analysis, it is assumed that there will be two loudspeakers installed on each of the four light poles by the bleacher areas. To provide adequate sound coverage we assumed that the sound system would be designed and used to provide a sound level of 85 dBA in the bleachers and 75 dBA on the field.

The SoundPLAN computer program was used to model and predict noise levels from the loudspeakers and field noise at measurement locations and additional points of interest in the surrounding residential areas. SoundPLAN is a 3D environmental acoustics modeling software package. The SoundPLAN model takes into account attenuation from distance, terrain and intervening buildings.

[2] Ho, Pang. PHA Transportation Consultants. *"Re: Grant and Highlands Noise."* Email to Anthony Wong. 23 July 2021.

5.2. Noise from Future Field Activities

According to the project description and information from the school, the project site would be used by soccer games and practices. There would also be community use as well as up to 10 large-capacity (up to 496 spectators) events per year. There would be no change in student enrollment. In general, there would be no change in the other sports facilities at the school.

In order to evaluate the impact of the project on the neighbors surrounding the school, the data acquired from other similar projects were used to determine future noise levels emanating from the proposed project. The characteristics and assumptions used for calculating project related noise levels for each activity are discussed in the following sections.

5.2.1. Soccer

Soccer games currently occur at the stadium and soccer practices occur at the existing field and at the stadium. Soccer games are currently scheduled from 4:30 p.m. to 8:00 p.m. and practices are scheduled from 3:30 p.m. to 9:00 p.m.

With the project, soccer games and practices would be relocated to the new field. Soccer games would be scheduled from 4:00 p.m. to 8:00 p.m. and the timing for practices would remain the same. The number of games and practices would remain the same with 20 soccer games per year and 100 soccer practices per year.

To determine the noise associated with soccer games, noise measurements were taken during a soccer game at Grant Union High School on 23 April 2021. During the soccer game, only the players and coaches were allowed to be in the stadium due to COVID related restrictions. At the top of the bleachers, approximately 150 feet from the center of the field, the typical maximum instantaneous noise levels (L_{max}) were L_{max} 58 to 70 dBA from player voices, 67 to 72 dBA from the coaches, and L_{max} 67 dBA from whistles near the center field. To account for noise from the expected 100 spectators, noise measurements from a football game at San Marin High School in 2016 with approximately 350 spectators was used with adjustment for the difference in number of spectators. Specifically, the crowd noise was adjusted using a standard rate of 3 dBA for each doubling of crowd size.

To determine the noise associated with soccer practices, noise measurements from a soccer practice at Mills High School in 2019 was used. The soccer practice occurred on a field layout similar to the project. During the soccer practice, there were approximately 50 people on the field. Voices of students generated typical maximum instantaneous noise levels of L_{max} 56 to 63 dBA at the bleachers approximately 130 feet from the center of the field.

5.2.2. Football Practices

Football practices currently occur at the stadium and, with the project, will occasionally be relocated to the new practice field. Each practice has between 45 to 55 students and is assumed to occur for no more than four hours during the daytime hours. Noise from a football practice is expected to be similar to the noise levels from soccer practice. For the purposes of assessing impact, this report assumes up to 100 practices per year at the new field.

5.2.3. Large Capacity Events

According to the project description, there could be up to 10 large school events (sports tournaments, student rallies, etc.) per year at the new field. These events will use the new PA system and the bleachers have a maximum capacity of 496.

For the purposes of this analysis, we modeled a full capacity event as a soccer game with an adjustment to account for the maximum of 496 spectators. The large event is assumed to occur for 6 hours in a day.

5.2.4. Community Events

According to the project description, the project facilities would include 30 to 50 community use events between the daytime hours of 8 a.m. to 10 p.m. Community use is expected to be similar to the school usage but could include sport clinics/camps for various other sports; softball, baseball, ultimate frisbee and youth football with 100 to 200 spectators. For the purpose of this report, the community event hours are assumed to be similar to existing soccer games/practices.

Table 2 summarizes the field usage.

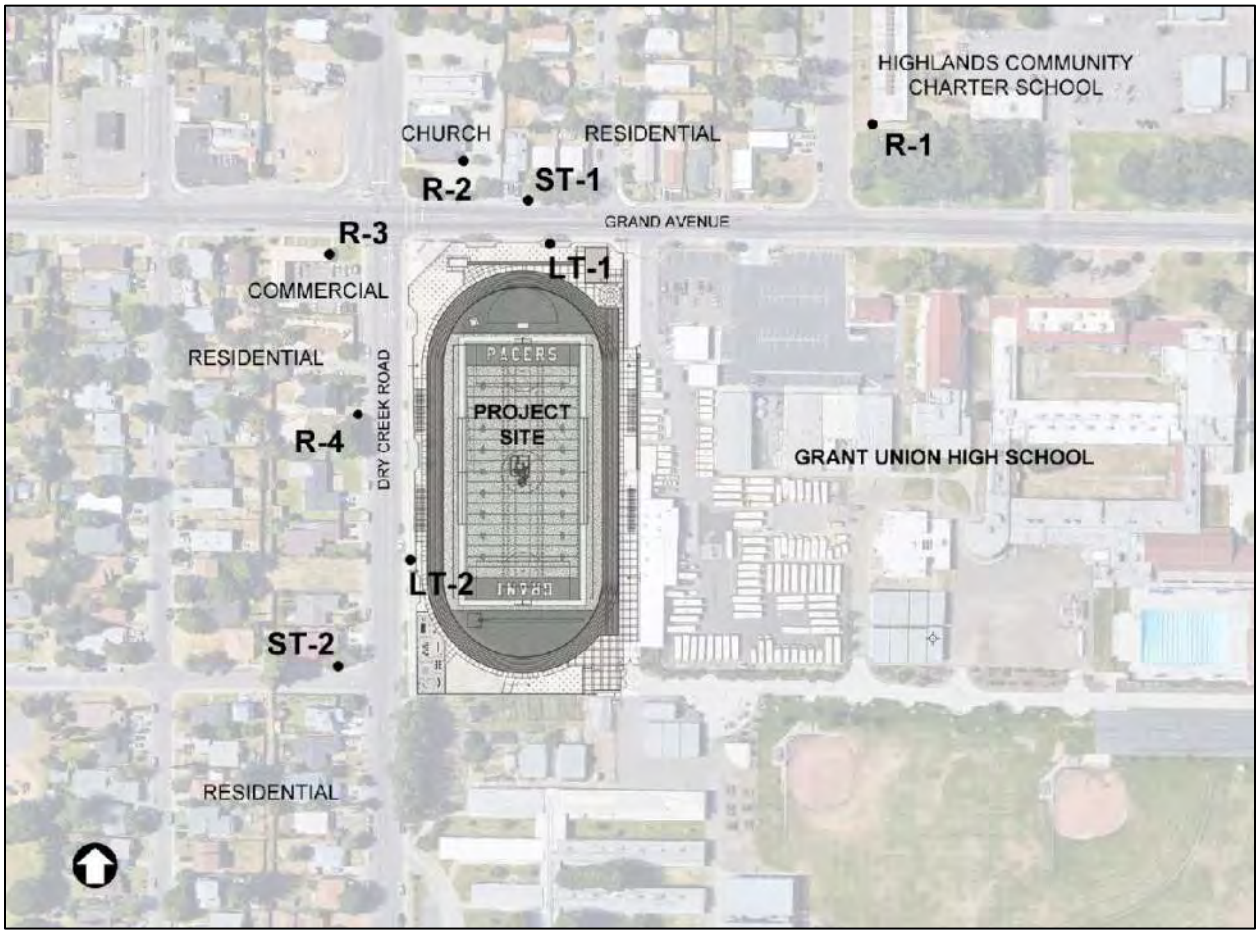
Table 2: Field Usage

Activities	Existing					With Project					
	Location	# of players	# of spectators	Time of Day	Events per year	Location	# of players	# of spectators	Time of Day	Events per year	Events with PA use
Soccer Game	Stadium	40	50 - 100	4:30 PM – 8 PM	20	New Field	40	50 – 100	4 PM – 8 PM	20	20
Soccer Practice	Existing Field	40	10	3:30 PM – 9 PM	100	New Field	40	10	3:30 PM – 9 PM	100	0
Football Practice	Stadium	45 - 55	0			New Field	45 - 55	0	3 PM – 7 PM	100	0
Full Capacity Events	N/A	----	----	----	----	New Field	40	496	4 PM – 10 PM	10	10
Community Events	N/A	----	----	----	----	New Field	40	100 – 200	4 PM – 10 PM	30 - 50	10

5.2.5. Noise Assessment Locations

Figure 4 shows the noise assessment locations that represent residences and schools near the project. Locations ST-1 and ST-2 represent receivers at the short-term noise measurement locations. Location R-1 represents the Highlands Community Charter School. Location R-2 represents the church across Grand Avenue (Allen Chapel AME Church). Location R-3 represents the commercial business across Dry Creek Road. Location R-4 represents the homes along Dry Creek Road west of the project site.

Figure 4: Noise Assessment Locations



5.3. Noise Modeling Results

Table 3 shows the calculated hourly L_{eq} noise levels from the activities related to the project at the various receiver locations. The noise levels include contributions of all of the noise sources at the field including players and coaches on the field and spectators in the bleachers. Noise levels in terms of the maximum instantaneous level from the PA is also included.

Table 3: L_{eq} Due to Field Activities

Receiver	Hourly L_{eq} from Field and Spectators, dBA				PA L_{max}, dBA
	Soccer Game	Soccer Practice	Community Use - Game	Large Capacity Event	
ST-1	60	49	63	66	70
ST-2	59	47	62	65	73
R-1	54	43	56	59	63
R-2	59	48	61	64	68
R-3	59	47	61	65	70
R-4	65	52	68	72	79

Table 4 shows the existing peak hour L_{eq} and CNEL at each of the receiver locations due to ambient noise sources such as local traffic between 8 a.m. to 10 p.m. The L_{eq} during evening hours would be 2 to 6 dBA less.

A comparison with ambient noise levels help put the project generated noise levels into perspective. Where project noise levels are greater than the ambient noise levels, the project noise will be very noticeable and tend to dominate the noise environment. Where ambient noise levels are greater than project noise levels, the project noise may be audible but would tend to blend into the ambient noise environment. Table 4 also shows the existing CNEL at each of the receiver locations.

Table 4: Ambient during Proposed Activity Hours (8 a.m. to 10 p.m.)

Receiver	Peak Hour L_{eq} (dBA)	CNEL (dBA)
ST-1	71	71
ST-2	62	63
R-1	64	64
R-2	66	67
R-3	68	68
R-4	62	63

6. Thresholds of Significance used in this Report

According to Appendix G of the *CEQA Guidelines*, a proposed project could have a significant environmental impact if it would result in:

a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

b. Generation of excessive groundborne vibration or groundborne noise levels.

c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels.

CEQA does not provide quantitative noise level limits to use as thresholds of significance for a project. Instead, it points to use of local ordinances, adopted standards of agencies as well as the potential for a project to significantly increase existing noise levels above those that were present without the project. Within this framework, the following thresholds are adopted for this project.

Threshold 1: A significant noise impact would occur if the noise from the new PA system would exceed 70 dBA at the neighboring noise sensitive uses (residential properties and church) or noise from the new PA system occurs outside the hours of 9 a.m. to 10 p.m. on Sundays to Thursday, or outside the hours of 9 a.m. to 11 p.m. on Fridays and Saturdays, or the day before specified holidays per Municipal Code Section 8.68.160.B.

Discussion: The City's Municipal Code Section 8.68.160.B (Outdoor Recreational Activities) specifies time limits for amplified sounds from outdoor recreational activities. While the City's municipal code Section 8.68.080 exempts school athletic and entertainment events from the exterior noise standards of Section 8.68.060, for the purposes of this report, the L_{max} standard is applied to the PA sound. The L_{max} standard is reduced by 5 dB for sounds consisting primarily of speech or music. The resulting threshold of significance for PA sounds is a L_{max} of 70 dBA at the neighboring noise sensitive uses (residential properties and church).

Threshold 2: A significant noise impact would occur if the increase in noise from project-related activities exceeds the General Plan's Allowable Noise Increment as per the Exterior Incremental Noise Impact Standards for Noise-Sensitive Uses (General Plan Table EC 2).

Discussion: General Plan Policy EC3.1.2 The City shall require noise mitigation for all development that increases existing noise levels by more than the allowable increment shown in Table EC 2, to the extent feasible. The allowable noise increment is in based on the existing L_{dn} for residences and based on the existing peak hour L_{eq} for institutional land uses.

In order to evaluate the potential impact that would occur as a result of peoples' sensitivity to evening noise, this report considers the increase in the daily CNEL instead of the L_{dn}. The L_{dn} is similar to the CNEL but the CNEL includes a 5 dBA "penalty" which is added to noise during evening hours (7 p.m. – 10 p.m.) to account for peoples' increased sensitivity during the evening.

Based on the ambient noise levels. Table 5 summarizes the allowable noise increment according to General Plan Table EC 2.

Table 5: Allowable Noise Increment

Locations	Category	Noise Metric	Allowable Noise Increment
ST-1	Residential	Existing CNEL	1
ST-2	Residential	Existing CNEL	2
R-1	School	Existing Peak Hour L_{eq}	5
R-2	Church	Existing Peak Hour L_{eq}	3
R-3	Commercial	Existing Peak Hour L_{eq}	3
R-4	Residential	Existing CNEL	2

Threshold 3: A significant impact would occur if the increase in annual average peak hour L_{eq} and CNEL exceeds the General Plan's Allowable Noise Increment for Noise-Sensitive Uses (General Plan Table EC 2):

Discussion: While the CNEL and peak hour L_{eq} increase on a day is helpful to understand potential impact on a daily basis, it does not necessarily provide a measure of the impact based on the frequency of events since they will be happening on the field throughout the year.

In order to evaluate the potential impact of noise from all field related activities during the course of a year, this report considers the increase in the annual average noise that would result from all games, practices, events attributed to the project.

To determine the increase in the annual average CNEL and L_{eq} from the field sources, a method similar to the daily CNEL was used. In this case, an annual average CNEL and L_{eq} from each noise source was calculated for existing and future conditions based on Table 2. The future annual average CNEL and L_{eq} for each source was then added to the ambient CNEL and peak hour L_{eq} to determine a total CNEL and peak hour L_{eq} for existing and future conditions.

Threshold 4: A significant impact would occur if the project results in the generation of construction noise outside the allowable hours per City's Municipal Code and exceeds the exterior noise standards per City's Municipal Code.

Discussion: According to General Plan Policy EC3.1.10, the City shall require development projects subject to discretionary approval to assess potential construction noise impacts on nearby uses and to minimize impacts on these uses, to the extent feasible. Per Municipal Code Section 8.68.080.D, construction noise is exempted from the exterior noise standards of Section 8.68.060 provided that construction activities take place between the hours of 7 a.m. and 6 p.m. on weekdays, and Saturdays, and between 9 a.m. and 6 p.m. on Sunday; provided that internal combustion engines are equipped with suitable exhaust and intake silencers which are in good working condition.

Threshold 5: A significant impact would occur if the project results in the generation of excessive groundborne vibration or groundborne noise.

Discussion: The operation of the project (i.e. activities on the field) is not expected to include groundborne vibration sources. However, construction activities will generate groundborne vibration.

Neither CEQA, City, nor the State specifies acceptable vibration levels from construction activities. For the purposes of this assessment, the guideline criteria for building damage recommended by Caltrans[3] is used. The construction vibration damage criteria range from a Peak Particle Velocity (PPV) of 0.5 inches/sec for new residential and modern commercial structures. This is comparable to the Federal Transit Administration's construction vibration criteria for reinforced concrete, steel or timber buildings[4].

Threshold 6: A significant impact would occur if the project would expose people residing or working in the project area to excessive aircraft noise levels of CNEL 65 dBA or greater.

Discussion: According to Sacramento City General Plan's Policy EC 3.2.1, the City shall restrict new residential development within the 65 dBA CNEL airport noise contour. General Policy EC 3.2.2 states that the City shall discourage outdoor activities or uses in areas within the 70 dBA CNEL airport noise contour.

[3] Caltrans, *Transportation and Construction Vibration Guidance Manual,* September 2013.
[4] Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual,* September 2018.

7. Impact and Mitigation Measures

The following section describes potential impacts based on a comparison of project generated noise with adopted thresholds of significance. Where impacts are identified, feasible noise mitigation measures are provided. For ease of identification, any receptor exposed to a significant impact is identified in the following tables with "**bold**" numbers.

Impact 1: Noise from PA Sound System Exceeds L_{max} 70 dBA at Neighboring Residential Properties, including Church, or Occurs Outside the Allowable hours Per Municipal Code Section 8.68.160.B.

Based on the SoundPLAN results for the PA system described in Section 5.1, noise from the PA sound system has the potential to exceed the threshold of L_{max} 70 dBA at neighboring residential land uses (ST-1, ST-2, R-2 to R-4). It would affect 16 residences and a church. This is a potentially significant impact.

It is feasible, with careful design of the PA system, to limit PA sound to an L_{max} of 70 dBA at the neighboring residential properties. Therefore, this is a less than significant impact with Mitigation Measure NO-1 which also includes limitations on hours of use.

Mitigation Measure NO-1: Noise from the PA System

- The project must design and operate the new PA system to not exceed an L_{max} of 70 dBA at the neighboring noise sensitive land uses. This would require a distributed sounds system with highly directional and carefully aimed loudspeakers around the bleachers and field. The distance between the loudspeakers and the coverage area should be minimized to reduce spill to the community. In addition, the PA system output volume should be regulated by an audio processor with the ability to limit the audio output levels (e.g. compressor/limiter).

- Use of the PA system must be limited to hours between 9 a.m. and 10 p.m. as per Municipal Code Section 8.68.160.B.

Impact 2: Increase in Daily CNEL and Peak Hour L_{eq} Exceeds Thresholds

Tables 6 to 9 shows the change in daily noise levels from a day with a soccer game, soccer practice, community game, and large event.

The calculation of the change in noise level includes PA system noise and assumes that it will not exceed L_{max} 70 dBA at the receivers as per Mitigation Measure NO-1. The calculation of CNEL also includes a contribution from future traffic to and from the school site.

According to the project's traffic engineer[5], field users will be students from within the campus, where they walk from the classroom building to the field for practice and game. For community events, there would be 25 incoming and outgoing trips. For the large capacity event with 496 spectators, a vehicle occupancy between 2 to 4 persons per vehicle can be assumed.

Based on these traffic volumes, an hourly traffic noise level is calculated using the Federal Highway Administration's Traffic Noise Model (TNM 2.5). The hourly traffic noise level is then converted to a CNEL by assuming generated traffic would occur an hour before and an hour after the event. Noise levels exceeding the significance thresholds are in **bold**.

Table 6: Increase in Noise on a Soccer Game Day

Receiver	Noise Descriptor	Source	Existing	With Project	Increase	Increase Threshold
ST-1	CNEL, dBA	Ambient	71.3	71.3		
		Project		56.3		
		Total	71.3	71.4	0.1	1
ST-2	CNEL, dBA	Ambient	63.0	63.0		
		Project		55.7		
		Total	63.0	63.7	0.7	2
R-4	CNEL, dBA	Ambient	62.9	62.9		
		Project		60.2		
		Total	62.9	64.8	1.9	2
R-1	Peak Hour L_{eq}, dBA	Ambient	63.9	63.9		
		Project		55.4		
		Total	63.9	64.4	0.6	5
R-2	Peak Hour L_{eq}, dBA	Ambient	62.5	62.5		
		Project		60.6		
		Total	62.5	64.6	2.1	5
R-3	Peak Hour L_{eq}, dBA	Ambient	68.1	68.1		
		Project		61.3		
		Total	68.1	69.0	0.9	3

[5] Ho, Pang. PHA Transportation Consultants. *"Re: Grant and Highlands Noise."* Email to Anthony Wong. 13 July 2021.

Table 7: Increase in Noise on a Soccer Practice Day

Receiver	Noise Descriptor	Source	Existing	With Project	Increase	Increase Threshold
ST-1	CNEL, dBA	Ambient	71.3	71.3		
		Project		45.9		
		Total	71.3	71.3	< 0.1	1
ST-2	CNEL, dBA	Ambient	63.0	63.0		
		Project		43.2		
		Total	63.0	63.0	< 0.1	2
R-4	CNEL, dBA	Ambient	62.9	62.9		
		Project		47.7		
		Total	62.9	63.0	0.1	2
R-1	Peak Hour L_{eq}, dBA	Ambient	63.9	63.9		
		Project		43.1		
		Total	63.9	63.9	< 0.1	5
R-2	Peak Hour L_{eq}, dBA	Ambient	62.5	62.5		
		Project		47.6		
		Total	62.5	62.6	0.1	5
R-3	Peak Hour L_{eq}, dBA	Ambient	68.1	68.1		
		Project		46.5		
		Total	68.1	68.2	0.1	3

Table 8: Increase in Noise on a Community Game Day

Receiver	Noise Descriptor	Source	Existing	With Project	Increase	Increase Threshold
ST-1	CNEL, dBA	Ambient	71.3	71.3		
		Project		61.0		
		Total	71.3	71.7	0.4	1
ST-2	CNEL, dBA	Ambient	63.0	63.0		
		Project		60.3		
		Total	63.0	64.9	1.9	2
R-4	CNEL, dBA	Ambient	62.9	62.9		
		Project		65.7		
		Total	62.9	67.5	**4.6**	2
R-1	Peak Hour L_{eq}, dBA	Ambient	63.9	63.9		
		Project		57.0		
		Total	63.9	64.7	0.8	5
R-2	Peak Hour L_{eq}, dBA	Ambient	62.5	62.5		
		Project		62.2		
		Total	62.5	65.4	2.9	5
R-3	Peak Hour L_{eq}, dBA	Ambient	68.1	68.1		
		Project		62.9		
		Total	68.1	69.3	1.1	3

Table 9: Increase in Noise on a Large Event Day

Receiver	Noise Descriptor	Source	Existing	With Project	Increase	Increase Threshold
ST-1	CNEL, dBA	Ambient	71.3	71.3		
		Project		64.1		
		Total	71.3	72.0	0.7	1
ST-2	CNEL, dBA	Ambient	63.0	63.0		
		Project		63.1		
		Total	63.0	66.1	**3.1**	2
R-4	CNEL, dBA	Ambient	62.9	62.9		
		Project		69.2		
		Total	62.9	70.1	**7.2**	2
R-1	Peak Hour L_{eq}, dBA	Ambient	63.9	63.9		
		Project		59.8		
		Total	63.9	65.3	1.4	5
R-2	Peak Hour L_{eq}, dBA	Ambient	62.5	62.5		
		Project		65.0		
		Total	62.5	66.9	4.5	5
R-3	Peak Hour L_{eq}, dBA	Ambient	68.1	68.1		
		Project		65.7		
		Total	68.1	70.1	2.0	3

Table 6 and Table 7 show that the increase in noise due to a soccer game and practices would be within the allowable noise increase thresholds. However, Table 8 and Table 9 show the increase in noise due to a community event and a large school event would exceed the allowable noise increase thresholds. This would affect 15 residences during a community event and 19 residences during a large event day. Therefore, the increase in noise due to the project is considered potentially significant.

The project can limit the noise increase due to the community events and large events to within the allowable threshold with Mitigation Measure NO-2 and Mitigation Measure NO-3. With these two mitigation measures, this is a less than significant impact with mitigation.

Mitigation Measure NO-2: Noise from Community Events

- Restrict spectators to east side bleachers
- Limit event duration to six hours and ending by 8 pm.

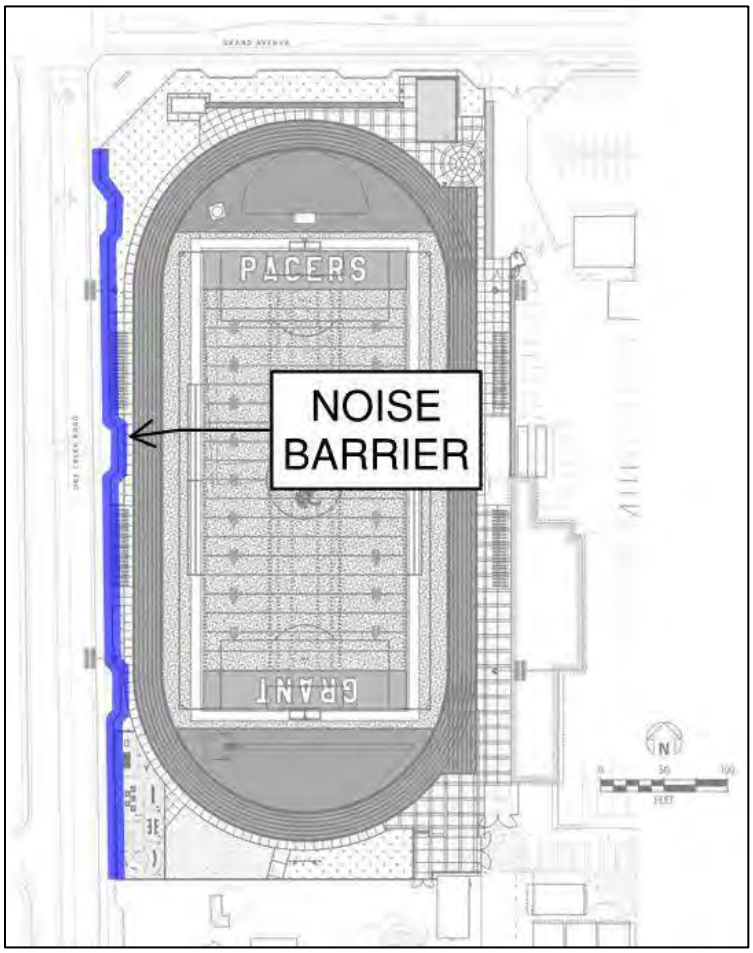
Mitigation Measure NO-3: Noise from Large Capacity Events

1) Limit event duration to a maximum of 1.5 hours and ending by 7 p.m.,

   OR

2) Limit event duration to a maximum of four hours during the daytime and ending by 7 p.m. *AND* construct a noise barrier along the west perimeter of the field as shown in Figure 5. The barrier must be three feet taller than the bleacher's top row seating area. For example, a bleacher with the top row at seven feet above grade would require a noise barrier that is minimum 10 feet above grade. The barrier should be solid with no cracks or gaps.

Figure 5: Noise Barrier Location



Impact 3: Average Annual Increase Due to Field and PA Noise Exceeds Thresholds

Table 10 shows the change in the annual average increase in noise as a result of the project. The calculated levels in Table 10 includes a limit on PA noise of L_{max} 70 dBA but does not include Mitigation Measure NO-2 and Mitigation Measure NO-3. Incorporation of Mitigation Measures NO-2 and NO-3 would reduce the increase shown in Table 10.

The table shows that the annual average CNEL would increase by 0.1 to 1.5 dBA at nearby residences (ST-1, ST-2, and R-4) and the peak hour L_{eq} would increase by 0.2 to 0.9 dBA at the school (R-1), church (R-2), and commercial business (R-3). Since the increase in noise due to the project does not exceed the threshold of significance, this is considered a less than significant impact.

Table 10: Increase in Noise – Average Annual

Receiver	Noise Descriptor	Source	Existing	Future	Increase	Threshold
ST-1	CNEL, dBA	Ambient	71.3	71.3		
		Project		54.4		
		Total	71.3	71.4	0.1	*1*
ST-2	CNEL, dBA	Ambient	63.0	63.0		
		Project		53.6		
		Total	63.0	63.5	0.5	*2*
R-4	CNEL, dBA	Ambient	62.9	62.9		
		Project		59.1		
		Total	62.9	64.4	1.5	*2*
R-1	Peak Hour L_{eq}, dBA	Ambient	63.9	63.9		
		Project		51.0		
		Total	63.9	64.1	0.2	*5*
R-2	Peak Hour L_{eq}, dBA	Ambient	62.5	62.5		
		Project		56.1		
		Total	62.5	63.4	0.9	*5*
R-3	Peak Hour L_{eq}, dBA	Ambient	68.1	68.1		
		Project		56.7		
		Total	68.1	68.4	0.3	*3*

Impact 4: Construction Noise

Construction of the project would include the renovation of existing fields, grading/foundation work, and the addition of light poles and other structures. Equipment used during construction would vary by phase, but would include excavators, backhoes, dump trucks, graders, compactors, water trucks and similar equipment. According to the Project Description, there would be up to 12 construction workers on-site on an average day and construction hours would be 7:00 AM to 4:30 PM on weekdays. Some work may be done on Saturdays between 7:00 AM to 4:30 PM. Project construction has a tentative start of mid-September 2021 with completion anticipated by mid-March 2022.

Table 11 presents typical construction equipment noise levels at a reference distance of 50 feet.

Table 11: Construction Equipment Sound Levels

Construction Equipment	Ref. Level dBA at 50 feet
Backhoe	78
Compressor	78
Dozer	82
Dump Truck	76
Gradall	83
Grader	85
Flat Bed Trucks	74
Excavator	81
Tractor	84
Front End Loader	79
Compactor (ground)	83
Generator	81
Pneumatic Tools	85
Pump	81
Roller	80
Paver	77

There are church, school, and residences, and a commercial business across Grand Avenue and Dry Creek Road. For the nearest building (home) across Grand Avenue, the project's proposed field upgrades are located between 80 feet to 700 feet away. For the nearest home across Dry Creek Road, the project's proposed field upgrades are located between 100 to 400 feet away.

Based on a noise source level of 85 dBA at 50 feet, the noise levels are calculated to be approximately 81 dBA for the nearest building across Grand Avenue when construction equipment are located at the near distance of 80 feet from the home. Construction equipment noise level would be 79 dBA or less for the nearest homes along Dry Creek Road when construction equipment is located at the near distance of 100 feet from the home.

Construction noise will be noticeable at times and may temporarily interfere with normal outdoor activities such as speech communications. When construction activities occur farther from the neighboring uses, construction noise levels will be reduced due to the greater distance. For example, when construction activities occur at the center of the new soccer field, the typical noise source would be attenuated to 67 dBA at the nearest building across Grand Avenue and 71 dBA at the nearest home along Dry Creek Road.

Since the project's construction hours are 7:00 a.m. to 4:30 p.m. on Mondays to Fridays and occasionally Saturdays, the City's municipal code Section 6.68.090.e provides an exemption to construction noise from the municipal code's exterior noise standards.

Noise from construction activities is considered a less than significant impact with the following mitigation measure (NO-4).

Mitigation Measure NO-4: Construction Noise

In order to minimize disruption and potential annoyance during construction, the following is recommended:

- All construction equipment shall be equipped with mufflers and sound control devices (e.g., intake silencers and noise shrouds) that are in good condition and appropriate for the equipment.
- Maintain all construction equipment to minimize noise emissions.
- Stationary equipment shall be located on the site so as to maintain the greatest possible distance to the sensitive receptors.
- Unnecessary idling of internal combustion engines should be strictly prohibited.
- The construction contractor shall provide the name and telephone number an on-site construction liaison. In the event that construction noise is intrusive to the community, the construction liaison shall investigate the source of the noise and require that reasonable measures be implemented to correct the problem.

Impact 5: Construction Vibration

The nearest neighboring buildings across Grand Avenue and Dry Creek Road are located 80 feet or more from the nearest edge of the project site. Table 12 shows the calculated vibration levels. The calculations were based on the nearest distance from the project site.

Table 12: Calculated Vibration Levels

Equipment	PPV (inches/sec) 80 feet from Equipment
Vibratory Roller	0.04
Hoe Ram	0.02
Large Bulldozer	0.02
Caisson Drilling	0.02
Loaded Trucks	0.01
Jackhammer	0.01
Small Bulldozer	< 0.01

Table 12 shows that construction vibration levels are expected to be PPV 0.04 inches/sec or less at the nearest neighboring buildings across Grand Avenue and Dry Creek Road. A temporary vibration level of 0.04 inches/sec may occur when a vibratory roller is operating at the nearest project boundary. According to Caltrans' human response guideline table, a vibration level of 0.04 inches/sec would be distinctly perceptible. Vibration from other equipment operating at the nearest project boundary would be "barely perceptible". When construction activities occur near the center of the field, the neighboring residences, churches and homes would be more than 150 feet away. At a distance of 150 feet or more, vibration from construction equipment would be 0.01 inches/sec or less, which is less than Caltrans' "barely perceptible" threshold.

Since construction vibration would be less than the adopted threshold of significance of the potential building damage criteria of 0.5 inches/sec for new residential and modern commercial buildings. Vibration from construction would not exceed the threshold for potential building damage, and therefore, this is considered a less than significant impact.

Impact 6: Aircraft Noise Exposure

The project site is located approximately 2 miles southwest of the nearest runway from Sacramento McClellan Airport. According to the McClellan Airport Noise Contours from the Sacramento County Airport Land Use Commission's website[6], the project site is located within the CNEL 60 dBA but outside the CNEL 65 dBA aircraft noise contours. Since the project site is located outside the aircraft noise contour CNEL 65 dBA, this is considered a less than significant impact.

* * *

[6] SACRAMENTO AREA COUNCIL OF GOVERNMENTS, AIRPORT LAND USE COMMISSION. *McClellan Airport Noise Contours*. www.sacog.org/post/airport-land-use-commission.

APPEDIX C: TRAFFIC REPORT

Grant High School Soccer Field Upgrade
Traffic Impact Assessment

Prepare for Twin Rivers Unified School District

July 2021

PHA Transportation Consultants

Grant High School Soccer Field Upgrade
Traffic Impact Assessment

Introduction

PHA Transportation Consultants (PHA) has conducted this focused traffic assessment report for Grant High School in Sacramento County as part of the CEQA Initial Study. The purpose of the report is to evaluate the potential impact of a proposal to upgrade an existing grass soccer field to an artificial turf soccer and practice field. The field site is at the northwest part of the campus near the intersection of Dry Creek Road and Grand Avenue in North Sacramento.

Existing Conditions

The school is bounded by Grand Avenue to the north, South Avenue to the south, Fig Street-Balsam Street Alley to the east, and Dry Creek Road to the west. Access to the school campus is provided via driveways and pedestrian drop-off points on Grand Avenue. There are access driveways on South Avenue and Fig Street but those are mainly for the football stadium. There is no vehicular access to the site on Dry Creek Road.

Grand Avenue is a two-lane arterial road running in an east-west orientation. It has one travel lane in each direction plus parking lanes and bike lanes on both sides of the road. It has driveways and drop-off points for both vehicles and pedestrian access to the campus area and school buildings. There are bus stops at various points along the segment between Dry Creek Road and Maryville Boulevard. Its intersections at Dry Creek Road and Marysville Boulevard are signalized. Grand Avenue currently carries about 8,800 vehicles daily according to a traffic count conducted on June 1, 2021.

Dry Creek Road at the west border of the school is a three-lane road running in a north-south orientation. The segment between South Avenue and Grand Avenue has two travel lanes in the northbound direction and one travel lane in the southbound direction. Parking is permitted on both sides of the street. There is no access driveway or student pedestrian access to the school campus. However, there is a small parking lot for Grant West High School near the southeast corner of the intersection with South Avenue.

Fig Street and the Fig Street-Balsam Street Alley on the eastern border of the campus is a residential street-alley way providing access to homes on the east side of the street. There is no access to the campus from the street. However, there is gated access to the secondary parking lot for the football stadium.

South Avenue at the southern border is a three-lane road running in an east-west orientation. It has two travel lanes in the westbound direction and one in the eastbound direction. Parking is permitted on both sides of the street and there are two driveways on the north side of the street that provide vehicle access to the football stadium.

The school currently has an artificial turf football stadium/field with spectator stands, four baseball diamonds, six tennis courts, a swimming pool, a grass soccer/football field, and several basketball courts. The project proposal would convert the current grass soccer field at the northwest corner of the campus to artificial turf soccer and football practice field with running tracks and bleachers.

The school has several parking lots at various parts of the campus with a total of 483 parking spaces. Additionally, there is a Twin River School District school bus parking lot adjacent to the subject field with 78 spaces. According to the 2021 Twin Rivers Unified School District website, the school has an enrollment of 1,934 students.

According to the Sacramento County Bike Master Plan, the streets that border the school; Grand Avenue between Dry Creek Road and Marysville Boulevard, and Marysville Boulevard between North Avenue and South Avenue have existing Class II bike lanes. Class II bike lanes are established along streets and are defined by pavement striping and signage to delineate a portion of a roadway for bicycle travel. Bike lanes are one-way facilities, typically striped adjacent to motor traffic traveling in the same direction. The County's Bike Master Plan shows no proposed change to the existing bike lane configuration and designation at these streets bordering the school. The existing bikes lanes on Dry Creek Road and Grand Avenue would accommodate students who ride their bikes to school.

Public transit service to the area and Grant School is provided by Sacramento Regional Transit District with Route 15 and 86. Route 15 begins service begins at 5:30 am and ends at 9:00 pm. Route 86 begin at 5:30 am and ends at 10 15 pm. There are several bus stops along the Grand Avenue segment between Dry Creek Road and Marysville Boulevard serving the school needs.

The proposed soccer field upgrade will not have conflicts with the existing Sacramento County Transportation Plan as the project is to upgrade an existing field within the school. The project would not add parking and or access driveways and would not change street configuration and site access. Figure 1 shows the location of Grant High School.

Figure 1 Grant High School – North Sacramento

Project Description

As indicated above, the Project proposal will upgrade the existing grass field to a regulation-size artificial turf field with a 9-lane running track. The field will have four sets of bleachers, two on the west side for the visitors and two on the east side for the home team. The project proposal would include a one-story 1,600 square-foot modular building with a concession stand, restrooms, and a storage area. The project would also include a fitness course area adjacent to the track. The project will not add parking and driveways. Figure 2 shows the proposed project site plan.

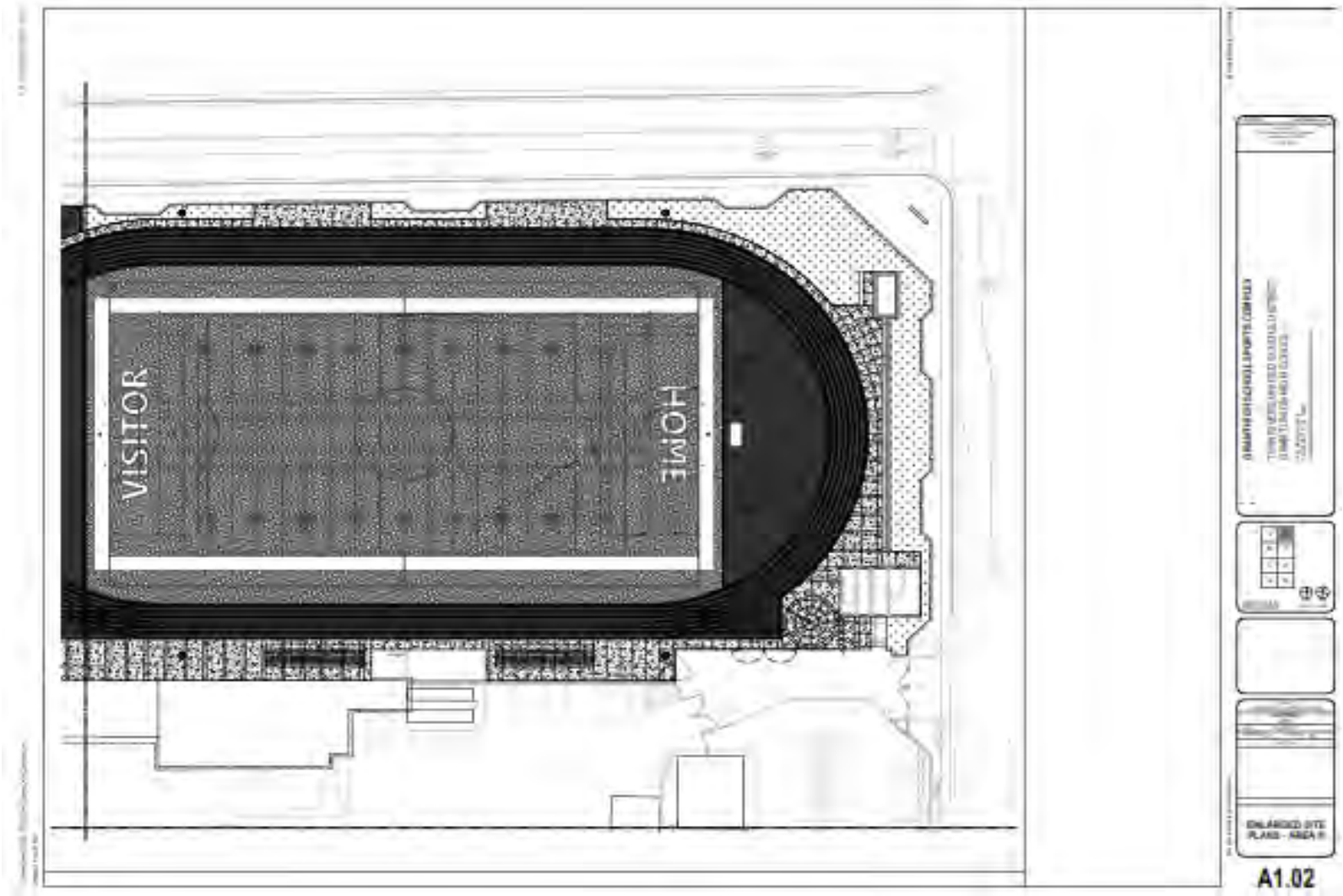


Figure 2 Project Site Plan –PBK Architects, Inc.

Existing and Anticipated Athletic Activities

School officials indicated that the subject grass field currently is used for soccer practices and games during the fall and winter seasons and baseball/softball practice and games in the summer. In general, there are 20 soccer games and 100 practice sessions during the soccer season with about 40 players attending for practices and games respectively. During the baseball/softball seasons, there are 20 baseball and softball games each and up to 60 practices respectively during the baseball and softball seasons.

Soccer, baseball, and softball practices are generally held in the afternoon and or Saturdays from 3 to 6 pm. Spectators for soccer, baseball, and softball games generally range between 50 and 100.

With the proposed upgrade from natural grass to artificial turf, the number and types of games and practices will remain essentially unchanged. However, the field will be open to community use after hours. It is expected that there would be 30 to 50 community events per year with 100 to 200 spectators.

Project Traffic Generation Estimates

Based on the trip generation rate published in the latest ITE Trip Generation Manual, a soccer field is likely to generate 71 daily vehicle trips, including one am peak-hour trip and 18 pm peak-hour trips. For school fields such as this, students would walk to the field from within the school campus during the day. When inter-school games are held, most trips would occur during the day in the afternoon, evening, or on weekends, and will have little conflict with normal commute hour traffic operation. Parking for visiting team players and parents will be accommodated at the current school parking lots, while additional parking needs will be accommodated along parking lanes on the street. The number of games and practice sessions will remain essentially unchanged from the existing conditions.

According to school estimates, field use for games generally runs about 5 and 6 hours, which include field setups, player warm-ups, and half-time activities. Practice sessions generally run about 3-4 hours. Practices generally occur after school at 3:30 p.m. with about 40 players. Games generally occur between 4 and 7 p.m. with about 40 players on each side. An estimated 50 and 100 spectators would attend each game. Games and practices are generally held weekdays after school and some on Saturdays.

Site Access Traffic Operation Analyses

The project will not add new parking or access driveway to the subject filed. Students will simply walk to the field from the classroom area for practices as before. Visiting teams and community users are expected to enter the field via the existing entrances and park their vehicles at the parking area nearest the field next to the school bus parking lot or the parking lanes along Grand Avenue and Dry Creek Road. Both roads have parking and bike lanes on both

sides of the street. Grant Avenue currently carries about 8,800 vehicles daily. As a two-lane arterial road, Grand Avenue would have the ability to carry about 12,000 vehicles daily at acceptable conditions.

The field upgrade would not result in additional athletic activities, parking capacities, and access configuration. Traffic operations analyses were conducted at the access driveway nearest the field to identify current traffic operational Level-of-Service (LOS). Traffic counts collected in June 2021 indicated very low vehicle turning movements at the parking lot driveway nearest the field on Grand Avenue. This was perhaps the school was not fully opened due to COVID 19.

To take on a conservative approach, traffic operation analyses assumed that the parking lot was full for both existing and project conditions since the proposed upgrade will not add parking spaces or activities to the field. The result of the analyses indicated the study location would operate at LOS B with less than 15 seconds average delays per vehicle for both morning and afternoon peak-hours for existing and project conditions. Table 1 shows the results of the traffic operation analysis.

Table 1 Access Driveway Traffic Operation (LOS) Analysis
Grant High School Soccer Field Upgrade Traffic Study – Sacramento

Access Driveway (Non-Signalized)	Existing Conditions				Project Conditions			
	A.M Peak		P.M. Peak		A.M Peak		P.M. Peak	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Grand Ave./Access Driveway	13.4	B	14.9	B	13.4	B	14.9	B

Study intersection LOS was calculated with SYNCHRO computer software based on Highway Capacity Manual Methodology for non-signalized intersections. Traffic count data were collected on 6/1/2021 when school was partially opened.
The above delays and LOS represent the worst-case turning movement, which is the left-turn movement out from the driveway. Through traffic on the major street (Grand Ave) would operate at LOS A as traffic would not have to stop or yield. LOS Calculation sheets with traffic count data are in the technical appendixes.
LOS A: Delay 0.0-10.0 Seconds, B: 10.1-15.0 Seconds, C: 15.1-25.0 Seconds, D: 25.1-35.0 Seconds, LOS E: 35.1-50.0 Seconds, LOS F: >50.0 Seconds

Traffic Collisions

According to collision data collected from TIMS (Traffic Injuries Mapping System) service at the University of California at Berkeley, there are 11 reported collisions that occurred along the Grand Avenue segment between Dry Creek Road and Marysville Boulevard between 2018 and 2020; 3 occurred in 2018, 5 in 2019, and 3 in 2020. Based on this data, this segment of Grand Avenue does not appear to be a collision hotspot. From a general traffic engineering practice standpoint, any location that experiences five or more traffic collisions a year requires investigation and mitigation. TIMS obtained its collision data from SWITRS (Statewide Integrated Traffic Records System), which in turn receives its data from CHP. Figure 3 shows the locations of the reported collisions over the past three years.

Figure 3 Traffic Collisions near the Project Site - TIMS

Vehicle Miles Travel (VMT) Analysis

With the passage of Senate Bill SB 743 in 2013 and full implementation on July 1, 2020, Vehicle Miles Travel (VMT) became the main metric to evaluate transportation impacts of proposed development projects in CEQA documents. Traffic LOS and parking deficiencies are no longer considered significant impacts in CEQA analysis.

With SB 743, development projects, in general, need to provide a VMT analysis to determine potential project impact. However, there are exceptions; small projects that generate less than 110 daily trips; locally serving retail and similar land uses; and locally serving public facilities such as public schools and parks are excluded.

According to the ITE trip generation rates, a public soccer field is likely to generate an average of about 70 trips a day, which qualifies the project for the small-project exemption. Further, as the project is a public high school soccer field that mainly serves the students from within the school, it also would be exempt from VMT analysis. Below is a brief discussion of the "Local-Serving Public Facilities" exemption that also would apply to the proposed Highland High School Soccer Field upgrade project.

Local-Serving Public Facilities Exemption

According to the Governor's OPR (Office of Planning and Research) Technical Advisory, similar to small projects, locally serving retail and land uses, and local-serving public facilities are presumed to have a less than significant impact on VMT. This would include government facilities intended to serve the local public, parks, and public elementary schools, middle schools, and high schools. A study indicating the user capture area may be required to demonstrate that a public facility is local-serving. As indicated above, the project is not a new project but an upgrade of an existing facility and would be mainly used by the school, the adjacent art school, and perhaps residents after school hours for exercise. As such, no additional VMT analysis is needed in this case.

Site Plan Review

The project is to upgrade the existing grass soccer field to an artificial turf field with running tracks, bleachers, locker rooms, and a concession stand. According to the site plan, all proposed upgrades will be placed within the boundary of the existing field. Several parking spaces between the field and the School District bus parking lot will be eliminated. The proposed project will not add parking spaces or accesses driveway since the proposed upgrade will not result in additional athletic activities and events. The school currently has 483 parking spaces on the site plus parking lanes on both Grand Avenue and Dry Creek and should be able to accommodate the anticipated community events.

Conclusion

As discussed above, the project is to upgrade the exiting grass field and would not result in additional athletic activities and events that would change the current traffic circulation patterns and operations in the area. The project will not add new driveways or parking and will not create conflicts with the Sacramento Transportation Plan. The Grand Avenue study segment is not considered a collision hot spot based on the review of traffic collision statistics. There were 11 traffic collision reported along the Grand Avenue near the school for the past three years, most occurred near the intersections at Dry Creek Road and Marysville Boulevard.

The 483 parking spaces on the campus site along with parking lanes on Dry Creek Road and Grand Avenue would be able to accommodate the parking needs of the proposed field upgrade.

Appendices

Traffic Counts and LOS Calculations

Under Separate Cover

Prepared by National Data & Surveying Services

VOLUME

Grand Ave Bet. Alder St & Fell St

Day: Tuesday
Date: 6/1/2021

City: Sacramento
Project #: CA21_070083_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	4,745	4,093	8,838

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			13		5		18		12:00			70		74		144	
00:15			8		10		18		12:15			55		56		111	
00:30			11		9		20		12:30			60		67		127	
00:45			7	39	3	27	10	66	12:45			61	246	62	259	123	505
01:00			10		7		17		13:00			55		54		109	
01:15			5		6		11		13:15			55		46		101	
01:30			7		8		15		13:30			54		54		108	
01:45			5	27	8	29	13	56	13:45			66	230	47	201	113	431
02:00			6		5		11		14:00			68		70		138	
02:15			1		2		3		14:15			70		46		116	
02:30			4		3		7		14:30			75		77		152	
02:45			6	17	2	12	8	29	14:45			51	264	61	254	112	518
03:00			3		2		5		15:00			63		73		136	
03:15			8		4		12		15:15			69		64		133	
03:30			9		1		10		15:30			60		59		119	
03:45			9	29	1	8	10	37	15:45			71	263	55	251	126	514
04:00			10		6		16		16:00			61		67		128	
04:15			6		5		11		16:15			71		70		141	
04:30			9		2		11		16:30			69		69		138	
04:45			9	34	8	21	17	55	16:45			55	256	62	268	117	524
05:00			12		3		15		17:00			56		46		102	
05:15			20		9		29		17:15			91		57		148	
05:30			32		15		47		17:30			94		77		171	
05:45			26	90	10	37	36	127	17:45			116	357	59	239	175	596
06:00			25		8		33		18:00			102		70		172	
06:15			28		16		44		18:15			80		57		137	
06:30			48		25		73		18:30			117		59		176	
06:45			48	149	35	84	83	233	18:45			97	396	54	240	151	636
07:00			55		36		91		19:00			70		46		116	
07:15			81		41		122		19:15			78		41		119	
07:30			84		57		141		19:30			48		45		93	
07:45			119	339	66	200	185	539	19:45			79	275	53	185	132	460
08:00			106		68		174		20:00			68		63		131	
08:15			81		57		138		20:15			69		91		160	
08:30			57		68		125		20:30			64		114		178	
08:45			70	314	56	249	126	563	20:45			46	247	122	390	168	637
09:00			45		42		87		21:00			58		33		91	
09:15			49		50		99		21:15			40		50		90	
09:30			69		47		116		21:30			43		25		68	
09:45			88	251	76	215	164	466	21:45			36	177	35	143	71	320
10:00			88		85		173		22:00			28		31		59	
10:15			76		55		131		22:15			17		25		42	
10:30			92		79		171		22:30			18		24		42	
10:45			97	353	86	305	183	658	22:45			14	77	32	112	46	189
11:00			55		94		149		23:00			19		17		36	
11:15			72		53		125		23:15			19		25		44	
11:30			55		67		122		23:30			17		19		36	
11:45			63	245	74	288	137	533	23:45			15	70	15	76	30	146
TOTALS				1887		1475		3362	TOTALS				2858		2618		5476
SPLIT %				56.1%		43.9%		38.0%	SPLIT %				52.2%		47.8%		62.0%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	4,745	4,093	8,838

AM Peak Hour				07:15	10:15	10:00	PM Peak Hour					17:45	20:00	17:15
AM Pk Volume				390	314	658	PM Pk Volume					415	390	666
Pk Hr Factor				0.819	0.835	0.899	Pk Hr Factor					0.887	0.799	###
7 - 9 Volume	0	0		653	449	1102	4 - 6 Volume	0	0		613	507	1120
7 - 9 Peak Hour				07:15	07:45	07:30	4 - 6 Peak Hour				17:00	16:00	17:00
7-9 Pk Volume	0	0		390	259	638	4-6 Pk Volume	0	0		357	268	596
Pk Hr Factor	0	0		0.819	0.952	0.862	Pk Hr Factor	0	0		0.769	0.957	0.851

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	314	54	44	249	12	8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (veh/h)	341	59	48	271	13	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
vC, conflicting volume			400		737	371
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		96	99
cM capacity (veh/h)			1159		370	675

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	400	318	22
Volume Left	0	48	13
Volume Right	59	0	9
cSH	1700	1159	451
Volume to Capacity	0.24	0.04	0.05
Queue Length (ft)	0	3	4
Control Delay (s)	0.0	1.6	13.4
Lane LOS		A	B
Approach Delay (s)	0.0	1.6	13.4
Approach LOS			B

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	51.7%	ICU Level of Service	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	396	12	8	240	54	44
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (veh/h)	430	13	9	261	59	48
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
vC, conflicting volume			443		715	437
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		85	92
cM capacity (veh/h)			1117		394	620

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	443	270	107
Volume Left	0	9	59
Volume Right	13	0	48
cSH	1700	1117	471
Volume to Capacity	0.26	0.01	0.23
Queue Length (ft)	0	1	22
Control Delay (s)	0.0	0.3	14.9
Lane LOS		A	B
Approach Delay (s)	0.0	0.3	14.9
Approach LOS			B

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	36.3%	ICU Level of Service	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	314	54	44	249	12	8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (veh/h)	341	59	48	271	13	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
vC, conflicting volume			400		737	371
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		96	99
cM capacity (veh/h)			1159		370	675

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	400	318	22
Volume Left	0	48	13
Volume Right	59	0	9
cSH	1700	1159	451
Volume to Capacity	0.24	0.04	0.05
Queue Length (ft)	0	3	4
Control Delay (s)	0.0	1.6	13.4
Lane LOS		A	B
Approach Delay (s)	0.0	1.6	13.4
Approach LOS			B

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	51.7%	ICU Level of Service	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	396	12	8	240	54	44
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (veh/h)	430	13	9	261	59	48
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
vC, conflicting volume			443		715	437
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		85	92
cM capacity (veh/h)			1117		394	620

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	443	270	107
Volume Left	0	9	59
Volume Right	13	0	48
cSH	1700	1117	471
Volume to Capacity	0.26	0.01	0.23
Queue Length (ft)	0	1	22
Control Delay (s)	0.0	0.3	14.9
Lane LOS		A	B
Approach Delay (s)	0.0	0.3	14.9
Approach LOS			B

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	36.3%	ICU Level of Service	A

APPENDIX D: MITIGATION MONITORING AND REPORTING PROGRAM

MITIGATION MONITORING AND REPORTING PROGRAM – GRANT UNION HIGH SCHOOL SPORTS COMPLEX PROJECT

When adopting a Mitigated Negative Declaration, the CEQA Guidelines [Section 15074(d)] require that Lead Agencies adopt a program for reporting on or monitoring the changes that it has required in the project or made a condition of approval to mitigate or avoid significant environmental effects.

This monitoring program for mitigation measures identified by the Mitigated Negative Declaration includes:

1. A list of mitigation measures with a space for the completion date,
2. The full text of the mitigation measures, and
3. Monitoring details, including: 1) agency responsible for implementation, 2) timing of implementation and monitoring, and 3) monitoring verification.

Identified Impact	Related Mitigation Measure	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
BIOLOGICAL RESOURCES						
Loss of active protected bird nesting.	***Measure BIO-1:*** Prevent Loss of Active Bird Nests. A pre-construction survey for nesting birds shall be conducted by a qualified biologist within two weeks of construction activities, if activities are to occur within nesting/breeding season of native bird species (February- August). If active nests are identified within 300 feet of construction, and would be exposed to prolonged construction-related noise above normal levels, a buffer shall be implemented around nests during the breeding season, or until a biologist determines the young have fledged. The size of the buffer and the type of construction activity will depend on multiple factors including relative change in noise and disturbance during construction activity, amount of vegetative screening between activity and nest, and sensitivity of species.	TRUSD Construction contractor	TRUSD Project Manager/Consulting Biologist	Condition of construction contract; field verify implementation prior to start of construction		
CULTURAL RESOURCES						
Potential impacts to archaeological deposits and human remains.	***Mitigation Measure CULT-1: Archaeological Deposits***. If archaeological remains are encountered during project activities, project ground disturbances at the find and immediate vicinity shall be halted immediately until a qualified archaeologist can evaluate the finds (§15064.5 [f]). The archaeologist	TRUSD Project Manager	TRUSD Project Manager	Construction contractors shall monitor during ground disturbing activities; if cultural resources are encountered, archaeologist and NAHC, as applicable, shall		

Identified Impact	Related Mitigation Measure	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
	shall examine the finds and recommend mitigation measures which may include documentation in place, avoidance, testing, and/or data recovery. Project personnel should not collect cultural resources. Native American resources include chert or obsidian flakes, projectile points, mortars, and pestles; and dark friable soil containing shell and bone dietary debris, heat-affected rock, or human burials. Historic-period resources include stone or adobe foundations or walls; structures and remains with square nails; and refuse deposits or bottle dumps, often located in old wells or privies. In addition, as a precaution, the project shall include cultural resource sensitivity training for crews involved in grading activities, as well as construction monitoring by a qualified professional archaeologist during all ground disturbing activities. ***Mitigation Measure CULT-2: Human Remains.*** California law recognizes the need to protect interred human remains, particularly Native American burials and associated items of patrimony, from vandalism and inadvertent destruction.			determine appropriate treatment for the resources.		

Identified Impact	Related Mitigation Measure	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
	The procedures for the treatment of discovered human remains are contained in California Health and Safety Code Section 7050.5 and Section 7052 and California Public Resources Code Section 5097. In accordance with the California Health and Safety Code, if human remains are uncovered during ground disturbing activities all such activities in the vicinity of the find shall be halted immediately and the District or the District's designated representative shall be notified. The District shall immediately notify the county coroner and a qualified professional archaeologist. The coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (Health and Safety Code Section 7050.5[b]). If the coroner determines that the remains are those of a Native American, he or she must contact the Native American Heritage Commission (NAHC) by phone within 24 hours of making that determination (Health and Safety Code Section 7050[c]). The responsibilities of the District for					

Identified Impact	Related Mitigation Measure	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
	acting upon notification of a discovery of Native American human remains are identified in detail in the California Public Resources Code Section 5097.9. The District or their appointed representative and the professional archaeologist will consult with a Most Likely Descendent determined by the NAHC regarding the removal or preservation and avoidance of the remains and determine if additional burials could be present in the vicinity.					
GEOLOGIC HAZARDS						
Geotechnical Hazards.	***Mitigation Measure GEO-1.*** The project's site clearing, site preparation, subgrade preparation and stabilization, fill, drainage, and any foundation systems shall be designed and constructed per the specifications set forth in the WKA Geotechnical Engineering Report (WKA 2021).	TRUSD Project Manager	TRUSD Project geotechnical engineer	Prior to submittal of final design plans to Division of the State Architect		
HYDROLOGY AND WATER QUALITY						
Impacts on Water Quality.	***Mitigation Measure HYD-1.*** Prior to the issuance of grading permits for the proposed Project, the Project engineers shall prepare a Stormwater Control Plan. The Stormwater Control Plan shall identify pollution prevention measures and practices to prevent polluted runoff from leaving the Project site.	TRUSD Project Manager	TRUSD Project Manager/ Project Civil Engineer	Prior to submittal of final design plans to Division of the State Architect		

Identified Impact	Related Mitigation Measure	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
	Mitigation Measure HYD-2. The District shall maintain in perpetuity the post- construction BMPs listed in the Low Impact Design plans developed for the project. The District shall make changes or modifications to the LID measures to ensure peak performance. The District shall be responsible for costs incurred in operating, maintaining, repairing, and replacing any stormwater quality improvements and features. The District shall conduct inspection and maintenance activities and complete annual reports.	TRUSD Project Manager	TRUSD Project Manager/ Project Civil Engineer	Prior to submittal of final design plans to Division of the State Architect		
Construction Noise impacts.	***Mitigation Measure NO-1.*** In order to minimize disruption and potential annoyance during construction, the following is recommended: • All construction equipment shall be equipped with mufflers and sound control devices (e.g., intake silencers and noise shrouds) that are in good condition and appropriate for the equipment. • Maintain all construction equipment to minimize noise emissions. • Stationary equipment shall be located on the site to maintain the greatest possible distance to the sensitive receptors. • Unnecessary idling of internal	Project Construction Manager	TRUSD Project Manager	During construction		

Identified Impact	Related Mitigation Measure	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
	combustion engines should be strictly prohibited. • The construction contractor shall provide the name and telephone number an on-site construction liaison. In the event that construction noise is intrusive to the community, the construction liaison shall investigate the source of the noise and require that reasonable measures be implemented to correct the problem.					
Public Address System Impacts	***Mitigation Measure NO-2***. In order to reduce noise from the PA system to a less-than-significant level, implement the following measures: • Design the PA system so that it does not exceed a Lmax of 70 dBA at the neighboring noise sensitive land uses (ST-1, ST-2, R1, R2, R3 and R4). This would require the installation of a distributing sound system with highly directional and carefully aimed loudspeakers around the bleachers and field. The distance between the loudspeakers and the coverage area should be minimized to reduce spill to the community. In addition, the PA system output volume should be	TRUSD Project Manager/PA System Engineer	TRUSD Project Manager	Prior to submittal of final design plans to Division of the State Architect		

Identified Impact	Related Mitigation Measure	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
	regulated by an audio processor with the ability to limit the audio output levels (e.g., compressor/limiter). • Use of the PA system must be limited to hours between 9 a.m. and 10 p.m. as per Municipal Code Section 8.68.160.B.					
Large-Capacity Events Noise.	***Mitigation Measure NO-3.*** To reduce noise from large-capacity events implement ***either*** the first or second measures below. 1) Limit full-capacity events to no more than a total of 1.5 hours in duration, ending by 7:00 PM; or, 2) Limit event duration to a maximum of four hours during the daytime and ending by 7 p.m. and construct a noise barrier around at the west perimeter of the field as shown on Figure 7. The barrier must be three feet taller than the bleacher's top row seating area. The barrier should be solid with no cracks or gaps.	TRUSD Athletics Director	TRUSD Project Manager	Prior to and during all large large-capacity events on the fild.		