APPENDIX A

CONSTRUCTION DRAWINGS FOR MONTEREY HIGH MULTI-USE FIELD
(PREPARED BY VERDE DESIGN, INC., DATED MAY 15, 2019)

CONSTRUCTION DRAWINGS FOR

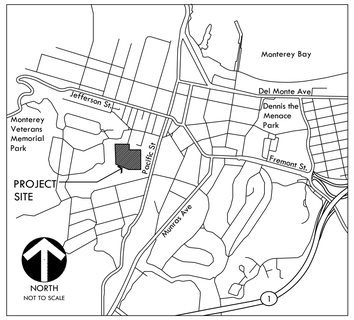
MONTEREY HIGH SCHOOL MULTI-USE FIELD

101 HERRMANN DRIVE
MONTEREY, CA 93940
CLIENT NAME PROJECT NO. XXXX
VERDE DESIGN, INC. PROJECT NO. 1814400

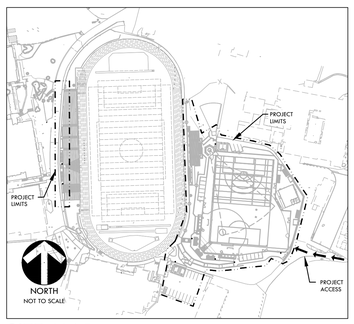
IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APPL 01-XXXXXX
REVIEWED FOR:
SS _____ FLS _____ ACS _____
DATE _____
DSA PROJECT TRACKING NO:
XXXXX-XXX
FILE XX-XX

MONTEREY HIGH SCHOOL MULTI-USE FIELD

PROJECT MAP



VICINITY MAP



SITE MAP

PREPARED BY

REGISTERED LANDSCAPE ARCHITECT
DEREK MCKEE
No. 4148
Signature
EXPIRATION DATE: DEC. 2019
STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
JEFFRY GOSAL
No. 18084
EXP. 6-30-19
ELECTRICAL
STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
DALE A. HENDSBEE
No. S3549
DP. 3-31-20
STRUCTURAL
STATE OF CALIFORNIA

VERDE DESIGN
LANDSCAPE ARCHITECTURE
CIVIL ENGINEERING
SPORT PLANNING & DESIGN
2455 The Alameda
Santa Clara, CA 95050
tel: 408.985.7200
fax: 408.985.7260
www.VerdeDesignInc.com

SALAS O'BRIEN
expect a difference
305 South 11th Street
San Jose, California 95112-2218
408.282.1500 | 408.297.2995 (f)
salasobrien.com
Bozeman | Los Angeles | Monterey
Oakland | Orange County | Sacramento
San Diego | San Luis Obispo | Seattle

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Mesiti-Miller Engineering, Inc.
Civil and Structural Engineering
224 Walnut Avenue, Suite B • Santa Cruz, CA 95060
Phone 831-426-3186 • Fax 831-426-6607

SCOPE OF WORK

SITE IMPROVEMENTS INCLUDE THE DEMOLITION OF EXISTING SOFTSCAPE AND HARDSCAPE IN AREAS DESIGNATED ON PLANS::CONTRACTOR TO COMPLETE EARTHWORK GRADING AND SITE DRAINAGE::INCLUDING THE INSTALLATION OF NEW CONCRETE AND ASPHALT PAVING::SOFTBALL AND MULTI-USE S::NTHETIC FIELD::□1::VISITOR BLEACHER::□1::PRESS BOX::□1::WEIGHT ROOM□TEAM ROOM::PATHWA::□ LIGHTING AND STADIUM SPORT LIGHTING::ACCESSIBLE PATHWA::□ TO VISITOR BLEACHERS AND COMMUNICATION AND DATA NEEDS::□ CONTRACTOR SHALL COORDINATE ALL WORK WITH THE DISTRICT'S CONSTRUCTION MANAGER::□

CONTACT INFORMATION

ORGANIZATION	NAME	PHONE
OWNER		
MONTEREY PENINSULA UNIFIED SCHOOL DISTRICT	PAUL ANDERSON	(831) 392-3989
CONSTRUCTION MANAGER		
RGM AND ASSOCIATES	RALPH CAPUTO	(925) 671-7717
	TOM MILLMAN	(408) 278-9181
LANDSCAPE ARCHITECT		
VERDE DESIGN INC.	DEREK MCKEE	(408) 850-3410
	MIKE HIDDLESON	(408) 850-3427
	JERRY JIANG	(408) 850-3409
STRUCTURAL ENGINEER		
MESITI-MILLER ENGINEERING, INC.	DALE HENDSBEE	(931) 426-3186
ELECTRICAL ENGINEER		
SALAS O'BRIEN ENGINEERS INC.	JEFFRY GOSAL	(408) 282-1500
ARCHITECT		
SALAS O'BRIEN ENGINEERS INC.	JOSEPH GONZALAS	(408) 282-1500

* THESE DRAWINGS AND/OR SPECIFICATIONS AND/OR CALCULATIONS FOR THE ITEMS LISTED BELOW HAVE BEEN PREPARED BY OTHER DESIGN PROFESSIONAL WHO ARE LICENSED AND AUTHORIZED TO PREPARE SUCH DRAWINGS IN THIS STATE. THESE DOCUMENTS HAVE BEEN EXAMINED BY ME AND HAVE BEEN FOUND TO MEET THE APPROPRIATE REQUIREMENTS OF TITLE 24, CALIFORNIA CODE OF REGULATIONS AND THE PROJECT SPECIFICATIONS PREPARED BY ME.

THE ITEMS LISTED BELOW ARE ACCEPTABLE FOR INCORPORATION INTO THE CONSTRUCTION OF THIS PROJECT FOR WHICH I AM THE INDIVIDUAL DESIGNATED TO BE IN GENERAL RESPONSIBLE CHARGE (OR FOR WHICH I HAVE BEEN DELEGATED RESPONSIBILITY FOR THIS PORTION OF THE WORK).

_____
SIGNATURE OF THE ENGINEER
NAME, STRUCTURAL ENGINEER

LICENSE #_____
EXP. DATE_____

APPLICABLE CODES

1. 2016 CBC CHAPTER 35; PROVIDE ALL THE APPLICABLE/ADOPTED STANDARDS. WHERE A PARTICULAR STANDARD IS REFERENCED IN THE CODE BUT DOES NOT APPEAR AS AN ADOPTED STANDARD IT MAY STILL BE USED. APPLY ONLY THE PORTION OF THE STANDARD THAT IS APPLICABLE TO THE CODE SECTION WHERE THE STANDARD IS REFERENCED, NOT THE ENTIRE STANDARD.

   2016 BUILDING STANDARDS ADMINISTRATIVE CODE, PART 1, TITLE 24 C.C.R.
   2016 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 C.C.R.
   (2015 INTERNATIONAL BUILDING CODE VOLUMES 1-2 AND 2015 CALIFORNIA AMENDMENTS)
   2016 CALIFORNIA ELECTRICAL CODE (CEC), PART 3, TITLE 24 C.C.R.
   (2014 NATIONAL ELECTRICAL CODE AND 2015 CALIFORNIA AMENDMENTS)
   2016 CALIFORNIA MECHANICAL CODE (CMC) PART 4, TITLE 24 C.C.R.
   (2015 UNIFORM MECHANICAL CODE AND 2015 CALIFORNIA AMENDMENTS)
   2016 CALIFORNIA PLUMBING CODE (CDC), PART 5, TITLE 24 C.C.R.
   (2015 UNIFORM PLUMBING CODE AND 2015 CALIFORNIA AMENDMENTS)
   2016 CALIFORNIA ENERGY CODE, PART 6, TITLE 24 C.C.R.
   2016 CALIFORNIA FIRE CODE, PART 9, TITLE 24 C.C.R.
   (2012 INTERNATIONAL FIRE CODE AND 2015 CALIFORNIA AMENDMENTS)
   2016 CALIFORNIA EXISTING BUILDING CODE, PART 10, TITLE 24 C.C.R.
   (2015 INTERNATIONAL EXISTING BUILDING CODE AND 2015 CALIFORNIA AMENDMENTS)
   2016 CALIFORNIA "GREEN" BUILDING REQUIREMENTS OR CAL GREEN, PART 11, TITLE 24 C.C.R.
   2016 CALIFORNIA REFERENCED STANDARDS, PART 12, TITLE 24 C.C.R.
   2016 TITLE 19 C.C.R., PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS.

   LIST OF FEDERAL CODES AND STANDARDS (IF APPLICABLE)
   AMERICANS WITH DISABILITIES ACT (ADA), TITLE II OR TITLE III
   FOR TITLE II: UNIFORM FEDERAL ACCESSIBILITY STANDARDS (UFAS) — 28 CFR 35.151(c)
   OR ADA STANDARDS FOR ACCESSIBLE DESIGN (APPENDIX A OF 28 CFR PART 36)
   FOR TITLE III: ADA STANDARDS FOR ACCESSIBLE DESIGN (APPENDIX A OF 28 CFR PART 36) — 28 CFR 36.406
   2010 AMERICANS WITH DISABILITIES ACT (ADA) STANDARDS FOR ACCESSIBLE DESIGN

   NOTE: TITLE II APPLIES TO PROJECTS FUNDED AND/OR USED BY STATE AND LOCAL GOVERNMENT SERVICES. TITLE III COVERS PUBLIC ACCOMMODATIONS AND COMMERCIAL FACILITIES. DEPENDING ON THE USE AND FUNDING, BOTH TITLE MAY APPLY TO THE PROJECT.

NFPA 13	AUTOMATIC SPRINKLER SYSTEMS	2016 EDITION
NFPA 14	STANDPIPE SYSTEMS	2016 EDITION
NFPA 17	DRY CHEMICAL EXTINGUISHING SYSTEMS	2017 EDITION
NFPA 17A	WET CHEMICAL EXTINGUISHING SYSTEMS	2017 EDITION
NFPA 20	STATIONARY FIRE PUMPS	2016 EDITION
NFPA 24	PRIVATE FIRE SERVICE MAINS	2016 EDITION
NFPA 72	NATIONAL FIRE ALARM AND SIGNALING CODE (CALIFORNIA AMENDED) (NOTE SEE UL STANDARD 1971 FOR "VISUAL DEVICES)	2016 EDITION
NFPA 253	CRITICAL RADIANT FLUX OF FLOOR COVERING SYSTEMS	2015 EDITION
NFPA 2001	CLEAN AGENT FIRE EXTINGUISHING SYSTEMS	2015 EDITION
ASME 17.1	ELEVATOR STANDARD	2016 EDITION

   REFERENCE CODE SECTIONS FOR APPLICABLE STANDARDS - 2016 CALIFORNIA BUILDING CODE (FOR SFM) REFERENCED STANDARDS CHAPTER 35

   ADA STANDARD FOR ACCESSIBLE DESIGN (APPENDIX A OF 28 CFR PART 36)

2. THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS IS THAT WORK OF THE ALTERATION, REHABILITATION OR RECONSTRUCTION IS TO BE IN ACCORDANCE WITH TITLE 24, CALIFORNIA CODE OF REGULATIONS. SHOULD ANY EXISTING CONDITIONS SUCH AS DETERIORATION OR NON-COMPLYING CONSTRUCTION BE DISCOVERED WHICH IS NOT COVERED BY THE CONTRACT DOCUMENTS WHEREIN THE FINISHED WORK WILL NOT COMPLY WITH TITLE 24, CALIFORNIA CODE OF REGULATIONS, A CHANGE ORDER, OR A SEPARATE SET OF PLANS AND SPECIFICATIONS, DETAILING AND SPECIFYING THE REQUIRED WORK SHALL BE SUBMITTED TO AND APPROVED BY THE OWNER REPRESENTATIVE BEFORE PROCEEDING WITH THE WORK.

3. ALL EXISTING FIRE EXTINGUISHING SYSTEMS ARE IN COMPLIANCE WITH UL 300, CBC 904.11, CFC 904.11.

GENERAL NOTES

1. PRIOR TO BIDDING, THE GENERAL CONTRACTOR SHALL VISIT & INSPECT THE SITE & FAMILIARIZE THEMSELVES WITH EXISTING CONDITIONS AFFECTING THE NEW WORK. THE GENERAL CONTRACTOR SHALL NOT DISPUTE, COMPLAIN OR ASSERT THAT THERE IS ANY MISUNDERSTANDING IN REGARDS TO LOCATION, EXTENT, NATURE OR AMOUNT OF WORK TO BE PERFORMED UNDER THIS CONTRACT DUE TO THE CONTRACTOR'S FAILURE TO INSPECT THE SITE. CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE OF ANY CONDITIONS, REQUIRING WORK, WHICH ARE NOT COVERED IN THE CONTRACT DOCUMENTS.
2. NO CONSTRUCTION SHALL COMMENCE WITHOUT THE OFFICIAL NOTICE TO PROCEED FROM THE OWNER.
3. THE GENERAL CONTRACTOR & SUBCONTRACTORS ARE RESPONSIBLE FOR LOCATING & VERIFYING ALL EXISTING UNDERGROUND UTILITIES IN ALL AREAS OF NEW WORK PRIOR TO COMMENCEMENT OF EXCAVATION. EXISTING UTILITIES SHOWN ON THE DRAWINGS ARE APPROXIMATE ROUTING LOCATIONS AS BEST DETERMINED FROM EXISTING DRAWINGS AND THE OWNER, BUT SHOULD NOT BE CONSTRUED TO REPRESENT ALL OF THE EXISTING UNDERGROUND UTILITIES. THE CONTRACTOR SHALL POTHOLE ALL EXISTING UTILITIES THAT MAY BE AFFECTED BY NEW FACILITIES IN THIS CONTRACT. VERIFY ACTUAL LOCATION AND DEPTH OF UTILITIES, AND REPORT POTENTIAL CONFLICTS TO THE OWNER'S REPRESENTATIVE PRIOR TO EXCAVATING FOR NEW FACILITIES.
4. CONTRACTOR SHALL TAKE ALL NECESSARY STEPS TO PROTECT ALL EXISTING UTILITIES, WHETHER SHOWN OR NOT, IN THE CONTRACT DOCUMENTS. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGES TO EXISTING UTILITIES CAUSED BY ITS OPERATIONS.
5. THE CONTRACTOR SHALL PROTECT ALL EXISTING ITEMS WITHIN SITE IMPROVEMENTS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR ALL DAMAGED AREAS TO THEIR ORIGINAL CONDITION OR BETTER AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE.
6. DIMENSIONS AND LOCATIONS OF EXISTING FACILITIES ARE APPROXIMATE AND SHALL BE FIELD VERIFIED BY CONTRACTOR. ANY DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE.
7. ALL WORK SHALL CONFORM TO THE LATEST EDITION OF THE CALIFORNIA BUILDING CODE, CALIFORNIA PLUMBING CODE, CALIFORNIA FIRE CODE AND ALL APPLICABLE STATE AND LOCAL CODES AND ORDINANCES, AS WELL AS ADAPTED STANDARDS.
8. ALL NOTES ARE FOR GENERAL REFERENCE IN CONJUNCTION WITH, AND AS A SUPPLEMENT TO, THE WRITTEN SPECIFICATIONS AND DETAILS ASSOCIATED WITH THE CONTRACT DOCUMENTS.
9. THIS DRAWING SET SHALL BE USED IN CONJUNCTION WITH THE CSI FORMAT SPECIFICATIONS PUBLISHED IN BOOK FORM. COMBINED, THEY ARE HEREIN REFERRED TO AS THE "CONTRACT DOCUMENTS".
10. DIMENSIONS ON WORKING DRAWINGS TAKE PRECEDENCE OVER MEASURED ELEMENTS. CONTRACTOR SHALL NOT SCALE DRAWINGS.
11. ALL TYPICAL DETAILS SHALL APPLY UNLESS NOTED OTHERWISE.
12. CONTRACTOR SHALL PROVIDE ADEQUATE DUST CONTROL AND KEEP MUD AND DEBRIS OFF THE PUBLIC RIGHT-OF-WAY AT ALL TIMES.
13. ALL TRENCHES AND EXCAVATIONS SHALL BE CONSTRUCTED IN STRICT COMPLIANCE WITH THE APPLICABLE SECTIONS OF CALIFORNIA AND FEDERAL O.S.H.A. REQUIREMENTS AND OTHER APPLICABLE SAFETY ORDINANCES. CONTRACTOR SHALL BEAR FULL RESPONSIBILITY FOR TRENCH SHORING DESIGN AND INSTALLATION.
14. ANY ALTERATIONS OF EXISTING FACILITIES TO ACCOMMODATE THE INSTALLATION OF NEW WORK SHALL BE REVIEWED BY THE OWNER'S REPRESENTATIVE PRIOR TO COMMENCING WORK.
15. CONTRACTOR SHALL COORDINATE ALL WORK TO AVOID DISTURBING STUDENTS OR TEACHERS DURING SCHOOL HOURS. ANY DISRUPTION OF THE UTILITIES MUST BE COORDINATED AND APPROVED BY THE OWNER'S REPRESENTATIVE AND INSPECTOR OF RECORD PRIOR TO COMMENCING WORK.
16. ALL TEMPORARY WORK SHALL BE CONSIDERED A PART OF THIS CONTRACT AND NO EXTRA CHARGES WILL BE ALLOWED. THIS SHALL INCLUDE MINOR ITEMS OF MATERIAL OR EQUIPMENT NECESSARY TO MEET THE REQUIREMENTS AND INTENT OF THE PROJECT.
17. THE PLANS AND SPECIFICATIONS DO NOT UNDERTAKE TO SHOW OR LIST EVERY ITEM TO BE PROVIDED, BUT RATHER TO DEFINE THE REQUIREMENTS FOR A FULL AND WORKING SYSTEM FROM THE STANDPOINT OF THE END USER. FOR THIS REASON, WHEN AN ITEM NOT SHOWN OR LISTED IS CLEARLY NECESSARY FOR PROPER CONTROL/OPERATION OF EQUIPMENT WHICH IS SHOWN OR LISTED, THE CONTRACTOR SHALL PROVIDE AN ITEM WHICH WILL ALLOW THE SYSTEM TO FUNCTION PROPERLY AT NO INCREASE IN PRICE.
18. ALL CONTRACTORS SHALL REMOVE TRASH AND DEBRIS STEMMING FROM THEIR WORK ON A DAILY BASIS. PROJECT SITE SHALL BE MAINTAINED IN A CLEAN AND ORDERLY CONDITION.
19. THE DETAILS REFLECT THE DESIGN INTENT FOR TYPICAL CONDITIONS. THE CONTRACTOR SHALL VERIFY ALL FIELD CONDITIONS AND SHALL INCLUDE, IN HIS SCOPE, THE COST FOR COMPLETE FINISHED INSTALLATIONS, INCLUDING ANOMALIES, OF ALL TRADES.
20. NO WORK SHALL COMMENCE WITH UNAPPROVED MATERIALS. ANY WORK DONE WITH UNAPPROVED MATERIALS AND EQUIPMENT IS AT THE CONTRACTOR'S RISK AND IS SUBJECT TO REJECTION AND REPLACEMENT. SEE SPECIFICATIONS FOR SUBMITTAL AND SUBSTITUTION REQUIREMENTS.
21. CONSTRUCTION MATERIALS STORED ON THE SITE SHALL BE PROPERLY STACKED AND PROTECTED SO AS TO PREVENT DAMAGE OR DETERIORATION UNTIL USED. FAILURE IN THIS REGARD MAY BE CAUSE FOR REJECTION OF MATERIAL AND/OR WORK.
22. ALL EQUIPMENT SHALL BE FABRICATED FROM FIELD VERIFIED DIMENSIONS AND APPROVED SHOP DRAWINGS. COORDINATE MECHANICAL, PLUMBING AND ELECTRICAL EQUIPMENT.
23. CONTRACTOR SHALL PERFORM THEIR CONSTRUCTION AND OPERATIONS IN A MANNER WHICH WILL NOT ALLOW HARMFUL POLLUTANTS TO ENTER THE STORM DRAIN SYSTEM. TO ENSURE COMPLIANCE, THE CONTRACTOR SHALL IMPLEMENT THE APPROPRIATE BEST MANAGEMENT PRACTICE (BMP) AS OUTLINED IN THE BROCHURES ENTITLED "BEST MANAGEMENT PRACTICE FOR THE CONSTRUCTION INDUSTRY" ISSUED BY THE CALIFORNIA STORM WATER QUALITY ASSOCIATION, NONPOINT SOURCE POLLUTION CONTROL PROGRAM, TO SUIT THE CONSTRUCTION SITE AND JOB CONDITION. THE CONTRACTOR SHALL PRESENT HIS PROPOSED BMP AT THE PRECONSTRUCTION MEETING FOR DISCUSSION AND APPROVAL.
24. CONTRACTOR SHALL PROVIDE TEMPORARY CONSTRUCTION FENCING PER CONTRACT DOCUMENTS TO SERVE LIMIT OF WORK AREAS. FENCING MAY BE ADJUSTED DURING CONSTRUCTION BASED ON CONSTRUCTION SEQUENCE OR THE OWNER REPRESENTATIVE'S DIRECTION.
25. OVERNIGHT PARKING OF CONSTRUCTION EQUIPMENT IN THE STREET RIGHT-OF-WAY SHALL NOT BE PERMITTED.

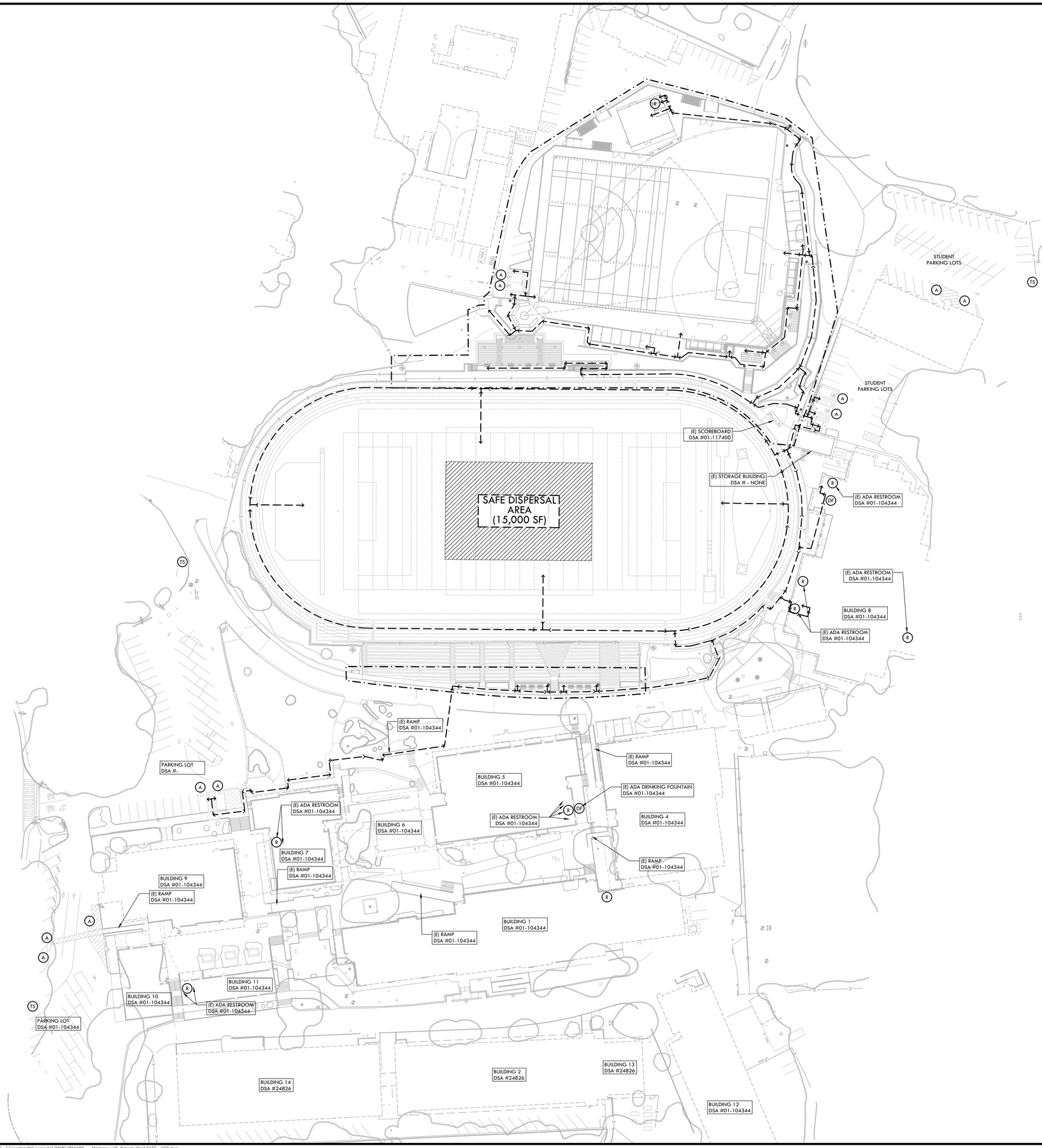
SHEET INDEX

60% SUBMITTAL - 05/15/19

C0.0
COVER SHEET

ALL IDEAS, DESIGNS, ARRANGEMENTS, AND PLANS INDICATED OR REPRESENTED BY THIS DRAWING ARE OWNED BY AND THE PROPERTY OF VERDE DESIGN, INC. AND WERE CREATED, EVOLVED, AND DEVELOPED FOR USE ON AND IN CONNECTION WITH THE SPECIFIED PROJECT. NONE OF SUCH IDEAS, DESIGNS, ARRANGEMENTS OR PLANS SHALL BE USED, DISCLOSED OR PUBLISHED BY ANY PERSON, FIRM OR CORPORATION FOR ANY PURPOSE WHATSOEVER WITHOUT WRITTEN PERMISSION OF VERDE DESIGN, INC.

DRAWING NAME: \\prodnas01\projects\2018\1814400 - Monterey HS Schem Des\CAD_CVR.dwg
PLOT DATE: 05-14-19 PLOTTED BY: station84



PARKING COUNT

ADMINISTRATION & DSA 01-104344 PARKING LOT

(CBC TABLE 11B-208.2)	
EXISTING PARKING SPACES:	80 STALLS
ACCESSIBLE PARKING SPACES REQUIRED:	4 STALLS
EXISTING PROVIDED:	
ACCESSIBLE PARKING SPACES	1 STALLS
ACCESSIBLE VAN SPACES	2 STALLS

STUDENT PARKING LOT

(CBC TABLE 11B-208.2)	
EXISTING PARKING SPACES:	82 STALLS
ACCESSIBLE PARKING SPACES REQUIRED:	4 STALLS
EXISTING PROVIDED:	
ACCESSIBLE PARKING SPACES	1 STALLS
ACCESSIBLE VAN SPACES	1 STALLS

SAFE DISPERSAL AREA

AREA	OCCUPANCY
EXISTING HOME BLEACHERS	1600
TRACK/ FOOTBALL FIELD	100

PER CBC 1008.2.1

TOTAL OCCUPANCY LOAD = 1700 PEOPLE

REQUIRED SAFE DISPERSAL AREA:
1700 X 3 SQ FT. = 5,100 SQ FT.

PROVIDED AREA = 15,000 SQ FT.

MATERIAL LEGEND

SYM	DESCRIPTION
- · - · -	LIMIT OF WORK
R	RESTROOMS
DF	DRINKING FOUNTAIN
A	ACCESSIBLE PARKING STALL

NORTH

0' 20' 40' 80' 120'

VERDE DESIGN
LANDSCAPE ARCHITECTURE
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STAMP

REGISTERED LANDSCAPE ARCHITECT
DEREK MARKE
No. 4148
Signature
EXPIRATION DATE: DEC. 2019
STATE OF CALIFORNIA

CONSULTANT

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APPL 01-XXXXXX
REVIEWED FOR:
SS _____ FLS _____ ACS _____
DATE _____
DSA PROJECT TRACKING NO:
XXXXX-XXX
FILE XX-XX

SHEET TITLE

OVERALL ACCESSIBILITY PLAN

PROJECT NAME

MONTEREY HIGH SCHOOL MULTI-USE FIELD AND STADIUM RENOVATIONS

PROJECT ADDRESS

101 HERRMANN DRIVE
MONTEREY, CA
93940

SUBMITTAL	DATE
30% SUBMITTAL	10/12/18
60% SUBMITTAL	05/03/19

NO.	REVISIONS	DATE
1		
2		
3		
4		
5		
6		

DRAWN BY	CHECKED BY
NT	DM/MH
DATE ISSUED: 05/03/2019	SCALE: 1" = 40'-0"
PROJ. NO.: 1814400	
SHEET NO.: L0.1	

OVERALL ACCESSIBILITY PLAN

ALL IDEAS, DESIGNS, ARRANGEMENTS, AND PLANS INDICATED OR REPRESENTED BY THIS DRAWING ARE OWNED BY AND THE PROPERTY OF VERDE DESIGN, INC. AND WERE CREATED, EVOLVED, AND DEVELOPED FOR USE ON AND IN CONNECTION WITH THE SPECIFIED PROJECT. NONE OF SUCH IDEAS, DESIGNS, ARRANGEMENTS OR PLANS SHALL BE USED, REPRODUCED, OR PUBLISHED BY ANY METHOD, IN WHOLE OR IN PART, OR DISCLOSED TO ANY PERSON, FIRM, OR CORPORATION FOR ANY PURPOSE WHATSOEVER WITHOUT THE PRIOR WRITTEN PERMISSION OF VERDE DESIGN, INC.

DRAWING NAME: \\prodnas01\projects\2018\1814400 – Monterey HS Schem Des\CAD_ACC.dwg
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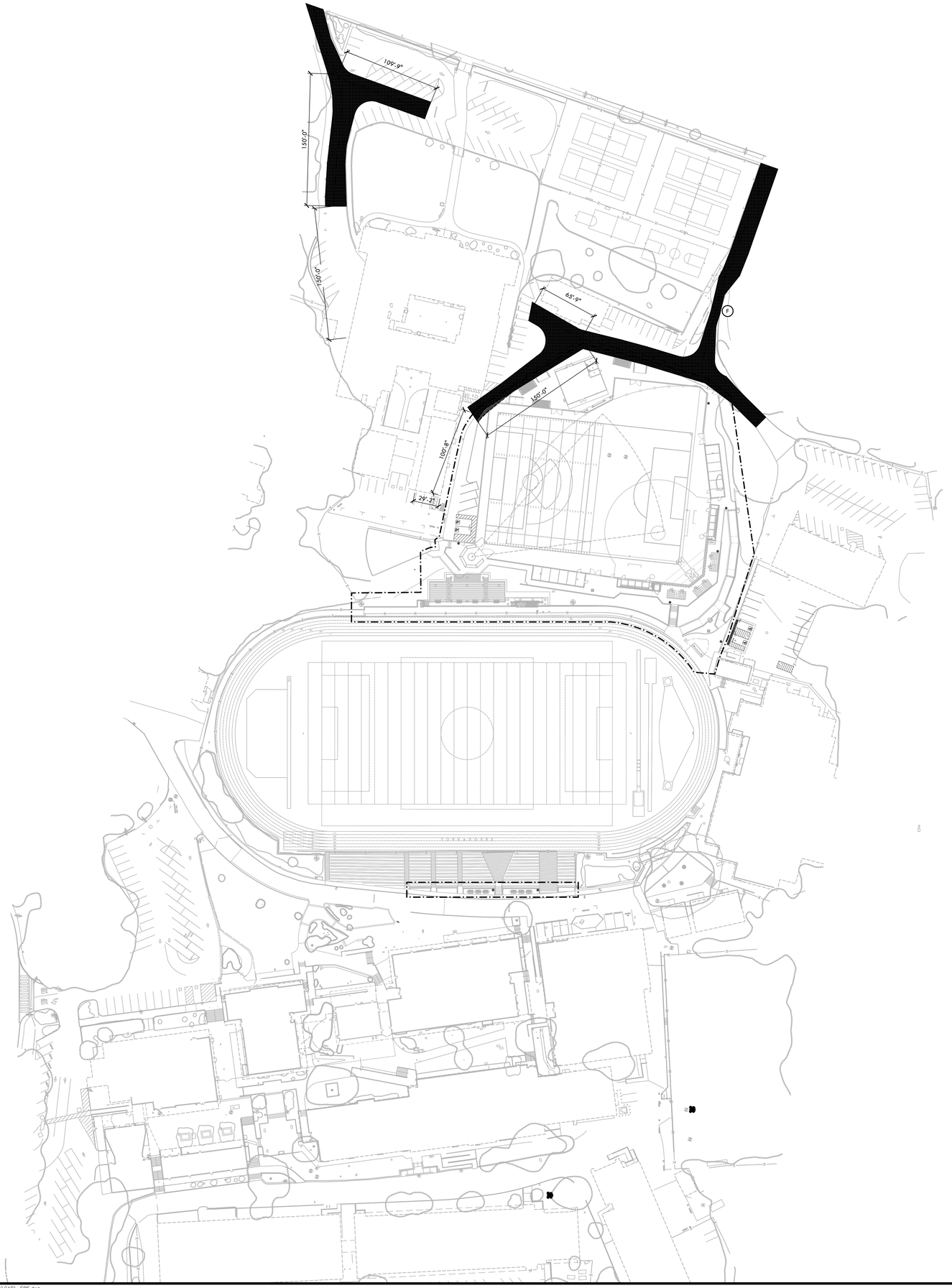

DSA 810

FIRE & LIFE SAFETY SITE CONDITIONS SUBMITTAL

To facilitate the Division of the State Architect's (DSA) fire and life safety plan review of project site conditions, DSA requires the design professional to provide the following information at time of project submittal for projects consisting of construction of a new campus, construction of new building(s), additions to existing buildings, and for site alternate design means for fire department emergency vehicle access, and fire suppression water supply.

Information associated with compliance items 1–3 below is to be provided for all project types indicated above. Information associated with items 4–7 is to be completed when an alternate means is utilized. Acknowledgement by the school district and signature from the local fire authority (LFA) is only required when an alternate design means is being requested.

Page 1 of the completed form must be imaged onto the fire access site plan. When an alternate design/means is proposed, completed pages 1 *and 2* are to be imaged on the fire access site plan.

For additional information refer to the instructions at the end of this form and DSA Policy 09-01.

PROJECT INFORMATION
School District/Owner:
Project Name/School:
Project Address:

FIRE & LIFE SAFETY INFOMATION				
1.	Has a fire hydrant flow test been performed within the past 12 months? *(If yes, provide a copy of the test data.)*	Yes ☐		No ☐
2.	Was the fire hydrant water flow test performed as part of this LFA review?	Yes ☐		No ☐
3.	Is the project located within a designated fire hazard severity zone as established by Cal-Fire? *(If yes, indicate fire hazard zone classification below)*	Yes ☐		No ☐
	Refer to the following for fire hazard zone locations: www.fire.ca.gov/fire_prevention/fire_prevention_wildland_zones_maps	Moderate ☐	High ☐	Very High ☐
	Wildland Interface Area (WIFA) *(If any designations are checked, project design must meet the requirements of CBC Chapter 7A.)*			WIFA ☐

CONDITION MEANS AND METHODS RESOLUTION		ALTERNATE ACCEPTED			
		Yes	No	N/A	N/R
4.	Emergency vehicle access roadways do not meet CFC requirements.				
4a.	**Acceptable Alternate:** Emergency vehicle and personnel access as proposed by the project architect is acceptable for providing fire suppression and protection of life and property.				
5.	**Fire Hydrants:** Number and spacing does not meet CFC requirements.				
5a.	**Acceptable Alternate:** Number of fire hydrants and spacing as proposed by the project architect is acceptable for fire suppression and protection of life and property.				
6.	**Fire Hydrants:** Water flow and pressure are less than CFC minimum.				
6a.	**Acceptable Alternate:** The available flow and pressure is acceptable for providing fire suppression and protection of life and property.				
7.	Location of fire department connection(s) serving fire sprinkler systems or standpipe systems does not meet CFC requirements.				
7a.	**Acceptable Alternate:** The location of fire department connection serving the fire sprinkler system and/or standpipe system is acceptable for providing fire suppression and protection of life and property.				

DSA 810

FIRE & LIFE SAFETY SITE CONDITIONS SUBMITTAL

School District Acceptance of Acceptable Design Alternates

By signing this form, the school district acknowledges and accepts the proposed design as an alternative to California Building Code (CBC) and California Fire Code (CFC) minimum requirements, as indicated by one or more of the conditions indicated at items 4a, 5a, 6a or 7a, for providing fire and life safety protection of life and property.

Accepted by: _____ Title: _____

Signature: _____ Date: _____

LOCAL FIRE AUTHORITY (LFA) INFORMATION
LFA Agency Name:
LFA Review Official:
Title:
Work E-mail:

FIRE ACCESS NOTES

1. KNOX BOXES OR KNOX PADLOCKS SHALL BE INSTALLED AT EMERGENCY ACCESS GATES.

FIRE ACCESS LEGEND

SYMBOL	DESCRIPTION
	LIMIT OF WORK
	EXISTING EMERGENCY ACCESS ROUTE
	PROPOSED EMERGENCY ACCESS ROUTE EXPANSION NEW ASPHALT PAVING MINIMUM 75,000LB LOAD CAPACITY
Ⓕ	FIRE HYDRANT

NORTH

0' 25' 50' 100' 150'

VERDE DESIGN
LANDSCAPE ARCHITECTURE
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2455 The Alameda
Santa Clara, CA 95050
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fax: 408.985.7260
www.VerdeDesignInc.com

STAMP

REGISTERED LANDSCAPE ARCHITECT
DEREK MARKE
No. 4148
Signature
EXPIRATION DATE: DEC. 2019
STATE OF CALIFORNIA

CONSULTANT

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APPL 01-XXXXXX
REVIEWED FOR:
SS _____ FLS _____ ACS _____
DATE _____
DSA PROJECT TRACKING NO:
XXXXX-XXX
FILE XX-XX

SHEET TITLE

OVERALL FIRE ACCESS PLAN

PROJECT NAME

MONTEREY HIGH SCHOOL MULTI-USE FIELD AND STADIUM RENOVATIONS

PROJECT ADDRESS

101 HERRMANN DRIVE
MONTEREY, CA
93940

SUBMITTAL	DATE
30% SUBMITTAL	10/12/18
60% SUBMITTAL	05/03/19

NO.	REVISIONS	DATE

DRAWN BY	CHECKED BY
LW	DM/MH
DATE ISSUED	SCALE
05/03/2019	1"=50'-0"
PROJ. NO.	
1814400	
SHEET NO.	
L0.2	

OVERALL FIRE ACCESS PLAN

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DRAWING NAME: \\prodnas01\projects\2018\1814400 – Monterey HS Schem Des\CAD_FIRE.dwg
PLOT DATE: 05-14-19 PLOTTED BY: station84

ABBREVIATIONS PER AERIAL SURVEY

AC ASPHALT
AD AREA DRAIN
AL AREA LIGHT
BC BUILDING CORNER
BL BUILDING LINE
BLCHR BLEACHER
BNCH BENCH
BOL BOLLARD
CLF CHAIN-LINK FENCE
COMM BOX COMMUNICATIONS BOX
CONC CONCRETE
COND CONDUIT
E BOX ELECTRICAL BOX
EC EDGE OF CONCRETE
EP EDGE OF PAVEMENT
FF FINISHED FLOOR ELEVATION
FL FLOW LINE
G BOX GAS BOX
GV GAS VALVE
GND GROUND SHOT
HB HOSE BIBB
ICV IRRIGATION CONTROL VALVE
LIP LIP OF GUTTER
PLNTR PLANTER
PLNTR PLANTER
PS PARKING SPACE
P.U.E. PUBLIC UTILITIES EASEMENT
RS# RECORDER'S SERIES NUMBER
RTW RETAINING WALL
RWLS RAIN WATER LEADER SURFACE RELEASE
RWLUG RAIN WATER LEADER UNDERGROUND RELEASE
S BOX SIGNAL BOX
SDCO STORM DRAIN CLEAN OUT
SSCO SANITARY SEWER CLEAN OUT
SSMH SANITARY SEWER MAN HOLE
TC TOP OF CURB
T DR TRENCH DRAIN
UNK UNKNOWN (UTILITY)
W BOX WATER BOX
WF WATER FOUNTAIN
WIF WROUGHT IRON FENCE
WM WATER METER
WS WHEEL STOP
WV WATER VALVE
BENCHMARK

LEGEND

BUILDING LINE
UNDERGROUND COMUNICATIONS
UNDERGROUND ELECTRICAL
UNDERGROUND GAS
UNDERGROUND IRRIGATION
UNDERGROUND JOINT UTILITIES
UNDERGROUND WATER
UNDERGROUND UNKNOWN
UNDERGROUND SANITARY SEWER
UNDERGROUND STORM SEWER

NOTES:

1. DATE OF SURVEY: MAY 18–MAY 24, 2017
2. SITE ADDRESS 101 HERMAN DRIVE, MONTEREY CA:
3. ALL DISTANCES ARE SHOWN IN FEET AND DECIMALS THEREOF.
4. ALL BEARINGS ARE SHOWN IN DEGREES, MINUTES AND SECONDS.
5. UNDERGROUND UTILITY LOCATIONS FROM UTILITY LOCATING SERVICE AND SURFACE OBSERVATION ONLY AND MAY NOT BE COMPLETE.

BASIS OF BEARINGS:

BEARINGS ARE BASED UPON GPS OBSERVATION = NORTH

ELEVATION DATUM:

ELEVATIONS ARE BASED UPON GPS OBSERVATION = NAVD88

CONTOUR INTERVAL = 1 FOOT

PROJECT BENCH MARK:

CEI CONTROL POINT #23 – MAG NAIL IN THE ASPHALT PARKING LOT NORTH OF THE TRACK
NAVD 88 ELEVATION =100.53

ALPHA GROUND SURVEY

SYMBOL LEGEND

BASIS OF BEARINGS:
NO BASIS OF BEARINGS WERE DETERMINED.
NO GROUND CONTROL WAS PROVIDED BY THE DISTRICT.

ALPHA SURVEYS LOCATED FEATURES SHOWN ON "CARROL" MAP AND ATTEMPTED TO MAKE A BEST FIT TO THOSE FEATURES BOTH HORIZONTALLY AND VERICALLY.

NOTES:
1. DATE OF SURVEY: DECEMBER 2017.
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AB ASPHALT BERM
AD AREA DRAIN
BFP BACK FLOW PREVENTER
BOL BOLLARD
BW BACK OF WALK
CB CATCH BASIN
COL COLUMN
COMM COMMUNICATION BOX
CC/CNC CONCRTE (SPOT ELEVATION)
COR BUILDING CORNER
CPNT CONTROL POINT
DOC. NO. DOCUMENT NUMBER
E BX ELECTIC BOX
ELEC ELECTRIC
EP EDGE OF PAVEMENT
FDC FIRE DEPARTMENT CONNECTION
FL FLOWLINE
FNC FENCE
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JP JOINT UTILITY POLE
MON MONUMENT
PL PLANTER
RWD REDWOOD TREE
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SDMH STORM DRAIN MANHOLE
SDDI STORM DRAIN INLET
SLB STREET LIGHT BOX
SQ FT SQUARE FEET
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LITE STREET LIGHT
TC TOP CURB
TYP TYPICAL
VLT VAULT (UNKOWN UTILITY)
VG VALLEY GUTTER
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DI DROP INLET
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SURVEY CONTROL POINT
SIGN
UTILITY POLE
222.03 G SPOT ELEVATION WITH DESCRIPTION
60 INDEX ELEVATION CONTOUR
59 INTERMEDIATE ELEVATION CONTOUR
WV WATER VALVE
20" TREE WITH TRUNK DIAMETER
TREE LINE

AL□□A LAND S□R□E□S□IN□□		
4444 SCOTTS VALLEY DR. #7 SCOTTS VALLEY, CA 95066 (831) 438-4453	P.O. BOX 1146 MORGAN HILL, CA 95038 (831) 438-4453	TOPOGRAPHIC MAP OF MONTEREY HIGH SCHOOL
1" = 20' DATE: JAN 2018	JOB#: 2017-XXX	

VERDE DESIGN
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CIVIL ENGINEERING
SPORT PLANNING & DESIGN
2455 The Alameda
Santa Clara, CA 95050
tel: 408.985.7200
fax: 408.985.7260
www.VerdeDesignInc.com

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CONSULTANT

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APPL 01-XXXXXX
REVIEWED FOR:
SS ______ FLS ______ ACS ______
DATE ______
DSA PROJECT TRACKING NO:
XXXXX-XXX
FILE XX-XX

SHEET TITLE
EXISTING CONDITIONS SURVEY PLAN

PROJECT NAME
MONTEREY HIGH SCHOOL MULTI-USE FIELD AND STADIUM RENOVATIONS

PROJECT ADDRESS
101 HERRMANN DRIVE
MONTEREY, CA
93940

SUBMITTAL	DATE
30% SUBMITTAL	10/12/18
60% SUBMITTAL	05/03/19

NO.	REVISIONS	DATE
△		
△		
△		
△		
△		
△		

DRAWN BY	CHECKED BY
ALPHA	DM/MH
DATE ISSUED 05/03/2019	SCALE 1"=20'-0"

PROJ. NO. 1814400

SHEET NO. L1.1

EXISTING CONDITIONS SURVEY PLAN

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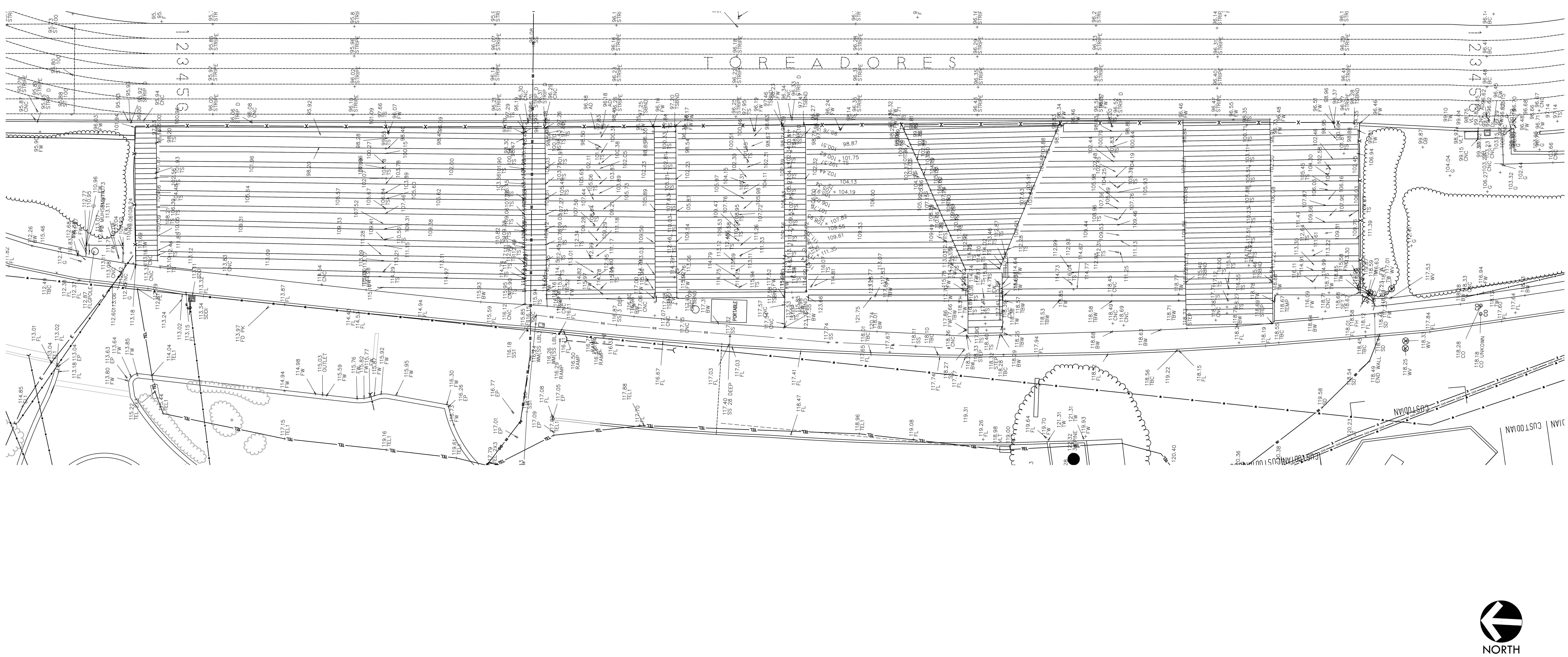
PLOT DATE: 05-14-19 PLOTTED BY: station84



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LEGEND

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1814400

SHEET NO.
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EXISTING CONDITIONS SURVEY PLAN

DRAWING NAME: \\prodnas01\projects\2018\1814400 – Monterey HS Schem Des\CAD_EXC.dwg
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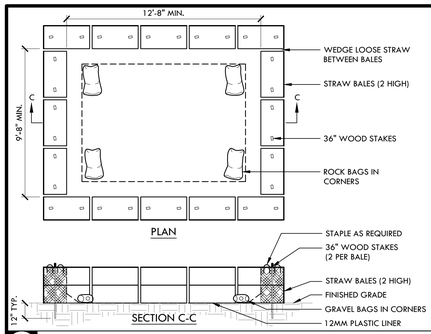
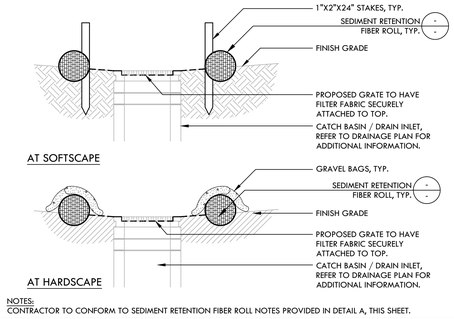
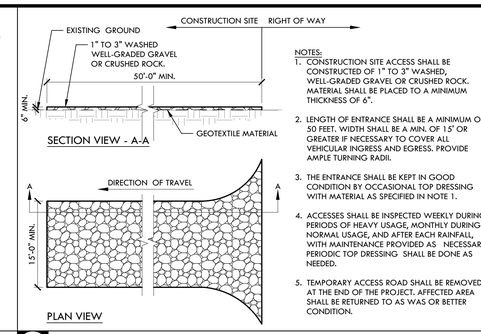


D TEMPORARY CONCRETE WASHOUT FACILITY



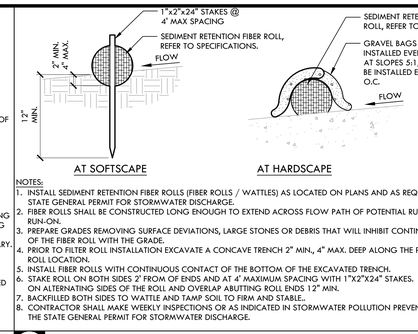
NOTES:
CONTRACTOR TO CONFORM TO SEDIMENT RETENTION FIBER ROLL NOTES PROVIDED IN DETAIL A, THIS SHEET.

C STORM DRAIN INLET FILTER FOR EXISTING AND PROPOSED STORM DRAINS NTS



NOTES:
1. CONSTRUCTION SITE ACCESS SHALL BE CONSTRUCTED OF 1" TO 3" WASHED, WELL-GRADED GRAVEL OR CRUSHED ROCK. MATERIAL SHALL BE PLACED TO A MINIMUM THICKNESS OF 6".
2. LENGTH OF ENTRANCE SHALL BE A MINIMUM OF 50 FEET. WIDTH SHALL BE A MIN. OF 15' OR GREATER IF NECESSARY TO COVER ALL VEHICULAR INGRESS AND EGRESS. PROVIDE AMPLE TURNING RADII.
3. THE ENTRANCE SHALL BE KEPT IN GOOD CONDITION BY OCCASIONAL TOP DRESSING WITH MATERIAL AS SPECIFIED IN NOTE 1.
4. ACCESSES SHALL BE INSPECTED WEEKLY DURING PERIODS OF HEAVY USAGE, MONTHLY DURING NORMAL USAGE, AND AFTER EACH RAINFALL, WITH MAINTENANCE PROVIDED AS NECESSARY. PERIODIC TOP DRESSING SHALL BE DONE AS NEEDED.
5. TEMPORARY ACCESS ROAD SHALL BE REMOVED AT THE END OF THE PROJECT. AFFECTED AREA SHALL BE RETURNED TO AS WAS OR BETTER CONDITION.

B STABILIZED CONSTRUCTION ENTRY NTS



NOTES:
1. INSTALL SEDIMENT RETENTION FIBER ROLLS (FIBER ROLLS / WATTLES) AS LOCATED ON PLANS AND AS REQUIRED PER THE STATE GENERAL PERMIT FOR STORMWATER DISCHARGE.
2. FIBER ROLLS SHALL BE CONSTRUCTED LONG ENOUGH TO EXTEND ACROSS FLOW PATH OF POTENTIAL RUN-OFF AND RUN-ON.
3. PREPARE GRADES REMOVING SURFACE DEVIATIONS, LARGE STONES OR DEBRIS THAT WILL INHIBIT CONTINUOUS CONTACT OF THE FIBER ROLL WITH THE GRADE.
4. PRIOR TO FILTER ROLL INSTALLATION EXCAVATE A CONCAVE TRENCH 2" MIN., 4" MAX. DEEP ALONG THE PROPOSED FIBER ROLL LOCATION.
5. INSTALL FIBER ROLLS WITH CONTINUOUS CONTACT OF THE BOTTOM OF THE EXCAVATED TRENCH.
6. STAKE ROLL ON BOTH SIDES 2' FROM OF ENDS AND AT 4' MAXIMUM SPACING WITH 1"X2"X24" STAKES. DRIVE STAKES IN ON ALTERNATING SIDES OF THE ROLL AND OVERLAP ABUTTING ROLL ENDS 12" MIN.
7. BACKFILLED BOTH SIDES TO WATTLE AND TAMP SOIL TO FIRM AND STABLE.
8. CONTRACTOR SHALL MAKE WEEKLY INSPECTIONS OR AS INDICATED IN STORMWATER POLLUTION PREVENTION PLAN, OR THE STATE GENERAL PERMIT FOR STORMWATER DISCHARGE.

A SEDIMENT RETENTION FIBER ROLL NTS

EROSION AND SEDIMENT CONTROL NOTES

1. EROSION AND SEDIMENT CONTROL SHALL BE CONSTRUCTED DURING FIRST WEEK OF CONSTRUCTION.
2. EROSION AND SEDIMENT CONTROL SHALL REMAIN THROUGHOUT CONSTRUCTION AND BE REMOVED AND DISPOSED OF DURING MAINTENANCE PERIOD.
3. EROSION AND SEDIMENT CONTROL MAY BE ADJUSTED THROUGH CONSTRUCTION WITH APPROVAL OR AS DIRECTED BY OWNER'S REPRESENTATIVE.
4. CONTRACTOR SHALL SWEEP STREETS AND PARKING AREAS AFFECTED BY CONSTRUCTION WITH STREET SWEEPER AS REQUIRED TO KEEP PAVING CLEAN OF CONSTRUCTION DEBRIS.

EROSION AND SEDIMENT CONTROL LEGEND

SYM	DESCRIPTION	DTL REF
1	FILTER FABRIC TO BE SECURELY ATTACHED TO DRAINAGE STRUCTURE TOP AND PERIMETER WADDLE	C - -
	LIMIT OF WORK	
	SEDIMENT RETENTION FIBER ROLL	A - -
	CONSTRUCTION WASHOUT AREA - PROVIDE A WASHOUT BIN FOR CONSTRUCTION WASHOUT AND REMOVE AT END OF CONSTRUCTION	D - -
	CONSTRUCTION STAGING AREA	
	STABILIZED CONSTRUCTION ENTRY	B - -
	DIRECTION OF SURFACE FLOW	

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STAMP

REGISTERED LANDSCAPE ARCHITECT
DEREK MARKE
No. 4148
Signature
EXPIRATION DATE: DEC. 2019
STATE OF CALIFORNIA

CONSULTANT

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DIV. OF THE STATE ARCHITECT
APPL 01-XXXXXX
REVIEWED FOR:
SS _____ FLS _____ ACS _____
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SHEET TITLE
EROSION AND SEDIMENT CONTROL PLAN

PROJECT NAME
MONTEREY HIGH SCHOOL MULTI-USE FIELD AND STADIUM RENOVATIONS

PROJECT ADDRESS
101 HERRMANN DRIVE
MONTEREY, CA
93940

SUBMITTAL	DATE
30% SUBMITTAL	10/12/18
60% SUBMITTAL	05/03/19

NO.	REVISIONS	DATE
1		
2		
3		
4		
5		
6		

DRAWN BY	CHECKED BY
JJ	DM/MH
DATE ISSUED	SCALE
05/03/2019	1" = 20'-0"
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PLOT DATE: 05-14-19 PLOTTED BY: station84

DEMOLITION LEGEND

ITEMS TO BE PROTECTED OR RELOCATED

- K — POTHOLE AND LOCATE EXISTING SANITARY SEWER LINE. EXISTING SS LINE TO REMAIN AND BE PROTECTED. RECORD SIZE, DEPTH, MATERIAL AND LOCATION OF LINE.
- L — EXISTING CONCRETE CURB TO REMAIN AND BE PROTECTED.
- M — EXISTING SYNTHETIC TRACK SURFACE TO REMAIN AND BE PROTECTED.
- N — EXISTING SHOT PUT CIRCLE TO REMAIN AND BE PROTECTED.
- O — EXISTING TREES TO REMAIN AND BE PROTECTED.
- P — EXISTING UTILITY BOX TO BE REMOVE AND RELOCATED. ADJUST BOX TO NEW GRADE ELEVATION.
- Q — EXISTING BOLLARDS TO REMAIN AND BE PROTECTED.
- R — EXISTING PAVING TO REMAIN AND BE PROTECTED.
- S — EXISTING CONCRETE STAIRS TO REMAIN AND BE PROTECTED.
- T — EXISTING ROCK FACADE WALL TO REMAIN AND BE PROTECTED.
- U — EXISTING GATE TO REMAIN AND BE PROTECTED. GATE TO BE TEMPORARY REMOVED FOR CONSTRUCTION. GATE TO BE REINSTALLED UPON COMPLETION.

- A — EXISTING UTILITY BOX TO REMAIN AND BE PROTECTED. ADJUST BOX TO NEW GRADE ELEVATION.
- B — EXISTING MANHOLE TO REMAIN AND BE PROTECTED. ADJUST MANHOLE TO NEW GRADE ELEVATION.
- C — EXISTING AREA DRAIN TO REMAIN AND BE PROTECTED. ADJUST BOX TO NEW GRADE ELEVATION.
- D — EXISTING SCOREBOARD TO REMAIN AND BE PROTECTED.
- E — EXISTING ELECTRICAL BOX TO REMAIN AND BE PROTECTED. ADJUST BOX TO NEW GRADE ELEVATION.
- F — EXISTING FENCING TO REMAIN AND BE PROTECTED.
- G — POTHOLE AND LOCATE EXISTING WATER LINE. EXISTING WATER LINE TO REMAIN AND BE PROTECTED. RECORD SIZE, DEPTH, MATERIAL AND LOCATION OF LINE.
- H — POTHOLE AND LOCATE EXISTING STORM DRAIN LINE. EXISTING STORM DRAIN LINE TO REMAIN AND BE PROTECTED. RECORD SIZE, DEPTH, MATERIAL AND LOCATION OF LINE.
- I — LOCATE EXISTING BACKFLOW PREVENTER TO REMAIN AND BE PROTECTED.
- J — EXISTING FIRE HYDRANT TO REMAIN AND BE PROTECTED. ADJUST TO NEW GRADE ELEVATION.

ITEMS TO BE DEMOLISHED AND/OR REMOVED

1. RETROFIT EXISTING 6' FENCE TO 42" FENCE BY CUTTING THE EXISTING FENCE POST HEIGHT TO 42" AND REPLACING THE FABRIC.
2. EXISTING FENCE, INCLUDING ALL FOOTINGS, FABRIC, POSTS, GATES, HARDWARE, AND FITTINGS TO BE DEMOLISHED AND REMOVED.
3. EXISTING CONCRETE STAIRS INCLUDING FOOTINGS TO BE DEMOLISHED AND REMOVED.
4. EXISTING HANDRAILS STAIRS INCLUDING FOOTINGS TO BE DEMOLISHED AND REMOVED.
5. EXISTING DISCUS CAGE INCLUDING ALL FOOTINGS AND PAD TO BE DEMOLISHED AND REMOVED.
6. EXISTING TREES TO BE REMOVED.
7. EXISTING PARKING STRIPING TO BE REMOVED.
8. EXISTING PORTABLE BUILDING TO BE DEMOLISHED AND REMOVED.
9. EXISTING TRASH RECEPTACLE INCLUDING FOOTING TO BE DEMOLISHED AND REMOVED.

SYM	DESCRIPTION
	LIMIT OF WORK / CONSTRUCTION FENCING
	EXISTING SURFACE VEGETATION TO BE REMOVED PER SPECIFICATIONS. EXISTING TOP SOIL SHALL BE REMOVED FROM SITE PER GEOTECHINCAL REPORT. REFER TO SPECIFICATIONS FOR INFORMATION. REMOVE EXCESS SOIL FROM SITE.
	EXISTING HARDSCAPE PAVING INCLUDING BASE MATERIAL TO BE DEMOLISHED AND REMOVED.
	EXISTING STONE PAVING INLUDING ALL OTHER HARDSCAPE PAVING, POSTS, AND SLEEVES TO BE DEMOLISHED AND REMOVED.
Ⓡ	TREE TO REMAIN AND BE PROTECTED AND PRUNED, REFER TO SPECIFICATIONS
	DEMOLISH AND REMOVE EXISTING FENCE, INCLUDING GATES, POSTS, FABRIC, AND FOOTINGS
	SAWCUT EXISTING ASPHALT PAVING

DEMOLITION NOTES

1. THE CONTRACTOR SHALL PERFORM ALL CLEARING, DEMOLITION, REMOVAL OF OBSTRUCTIONS AND SITE PREPARATIONS NECESSARY FOR THE PROPER EXECUTION OF ALL WORK CONTAINED IN THE CONTRACT DOCUMENTS.
2. CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING UTILITIES AND PROVIDE THE REQUIRED COORDINATION FOR THEIR TEMPORARY DISCONNECTION, PROTECTION, REMOVAL AND/OR STORAGE AS MAY BE REQUIRED DURING CONSTRUCTION. CONTRACTOR SHALL COORDINATE WITH THE OWNER TO DETERMINE WHETHER TEMPORARY SERVICES ARE NECESSARY.
3. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO BID SUBMITTAL TO DETERMINE THE EXACT EXTENT AND DEPTH OF SITE DEMOLITION REQUIRED AND VERIFY COMPLIANCE WITH DRAWINGS. THE OWNER SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES.
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5. ALL EXISTING ITEMS ARE TO REMAIN UNLESS OTHERWISE NOTED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING OR REPLACING, AT CONTRACTOR'S EXPENSE, ANY EXISTING ITEM DAMAGED OR DESTROYED BY CONSTRUCTION OPERATIONS. CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR REPAIRING OR REPLACING ANY AND ALL DAMAGES TO ADJACENT PROPERTIES. THE DAMAGED ITEMS SHALL BE RESTORED TO AN "AS-WAS" OR BETTER CONDITION OR REPLACED PER THE DISCRETION OF THE OWNER'S REPRESENTATIVE. CONTRACTOR SHALL EXERCISE EXTREME CARE TO PROTECT CELLULAR FACILITIES.
6. PRIOR TO ANY DEMOLITION WORK, CONTRACTOR SHALL PROTECT ALL EXISTING PLANT MATERIAL NOT SCHEDULED FOR REMOVAL BY INSTALLING TEMPORARY 4 FOOT HIGH "BLAZE ORANGE" CONSTRUCTION SAFETY FENCING AT THE DRIPLINE OR PERIMETER. THE FENCING SHALL BE SECURED WITH DRIVEN METAL STAKES. ALL TREE PROTECTION WORK SHALL BE SUBJECT TO THE DISCRETION OF THE DISTRICT'S REPRESENTATIVE.
8. DEMOLITION SHALL INCLUDE THE REMOVAL OF ITEM AND ANY FOUNDATION OR STRUCTURAL SUPPORT RELATED TO ITEM FOR PLANT MATERIAL THIS SHALL INCLUDE STUMPS AND ROOTS OVER 2 INCHES IN DIAMETER. DISPOSAL SHALL BE OFF-SITE IN A LEGAL MANNER ACCEPTABLE TO THE DISTRICT'S REPRESENTATIVE AND IN COMPLIANCE WITH ALL FEDERAL, STATE AND LOCAL CODES AND ORDINANCES.
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10. CONTRACTOR SHALL FLUSH OUT EXISTING AND NEW DRAINAGE SYSTEMS WITHIN THE PROJECTS LIMITS PRIOR AND TO POINT OF DISCHARGE PRIOR TO PROJECT COMPLETION.
11. REFER TO ELECTRICAL PLANS AND IRRIGATION PLANS FOR ADDITIONAL DEMOLITION RELATED INFORMATION.
12. CONTRACTOR TO SALVAGE ALL IRRIGATION HEADS, VALVES AND VALVE BOXES LOCATED WITHIN THE LIMIT OF WORK. SALVAGED EQUIPMENT WILL BE STORED FOR RETRIEVAL BY THE SCHOOL DISTRICT.
13. CONTRACTOR SHALL ADJUST AND INSTALL ALL NECESSARY IRRIGATION EQUIPMENT TO MAINTAIN AREAS BEYOND LIMIT OF WORK WHERE PROPOSED CONSTRUCTION HAVE IMPACTED EXISTING IRRIGATION SYSTEMS.
14. REFER TO DRAINAGE AND UTILITY PLANS FOR ADDITIONAL INFORMATION ON UNDERGROUND UTILITIES.
15. CONTRACTOR SHALL TEMPORARILY REMOVE EXISTING CHAIN LINK FENCE FABRIC AND POLES AS NECESSARY TO PROVIDE CONSTRUCTION ACCESS. CONTRACTOR SHALL PLACE STEEL PLATES OVER 4" DEPTH SAND OR CLASS II AGGREGATE BASE, AND TWO LAYERS OF GEOTEXTILE FABRIC OVER EXISTING SURFACE TO PROVIDE PROTECTION TO EXISTING SIDEWALK AND CURB THROUGHOUT THE ENTIRE PROJECT. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH THE CITY AND THE DISTRICT ON ANY REQUIREMENTS REQUIRED FOR THIS TEMPORARY ACCESS. CONTRACTOR SHALL REPAIR OR REPLACE FENCE, LANDSCAPING, SIDEWALK AND ALL EXISTING CONDITIONS TO AN AS-WAS OR BETTER CONDITION PRIOR TO CONSTRUCTION COMPLETION.
16. CONTRACTOR TO COORDINATE WITH DISTRICT MAINTENANCE TO MAINTAIN IRRIGATION FUNCTION TO ADJACENT BALL FIELDS, OPEN TURF AREAS AND ANY IRRIGATED AREAS IMPACTED BY THE DEMOLITION OF IRRIGATION SYSTEM WITHIN THE LIMIT OF WORK.

VERDE DESIGN
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Santa Clara, CA 95050
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REGISTERED LANDSCAPE ARCHITECT
DEREK MARKS
No. 4148
Signature
EXPIRATION DATE: DEC. 2019
STATE OF CALIFORNIA

CONSULTANT

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FILE XX-XX

SHEET TITLE
DEMOLITION PLAN

PROJECT NAME
MONTEREY HIGH SCHOOL MULTI-USE FIELD AND STADIUM RENOVATIONS

PROJECT ADDRESS
101 HERRMANN DRIVE
MONTEREY, CA
93940

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30% SUBMITTAL	10/12/18
60% SUBMITTAL	05/03/19

NO.	REVISIONS	DATE

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DRAWING NAME: \\prodnas01\projects\2018\1814400 - Monterey HS Schem Des\CAD_DEM.dwg
PLOT DATE: 05-14-19 PLOTTED BY: station84

DEMOLITION LEGEND

ITEMS TO BE PROTECTED OR RELOCATED

- K POTHOLE AND LOCATE EXISTING SANITARY SEWER LINE. EXISTING SS LINE TO REMAIN AND BE PROTECTED. RECORD SIZE, DEPTH, MATERIAL AND LOCATION OF LINE.
- L EXISTING CONCRETE CURB TO REMAIN AND BE PROTECTED.
- M EXISTING SYNTHETIC TRACK SURFACE TO REMAIN AND BE PROTECTED.
- N EXISTING SHOT PUT CIRCLE TO REMAIN AND BE PROTECTED.
- O EXISTING TREES TO REMAIN AND BE PROTECTED.
- P EXISTING UTILITY BOX TO BE REMOVE AND RELOCATED. ADJUST BOX TO NEW GRADE ELEVATION.
- Q EXISTING BOLLARDS TO REMAIN AND BE PROTECTED.
- R EXISTING PAVING TO REMAIN AND BE PROTECTED.
- S EXISTING CONCRETE STAIRS TO REMAIN AND BE PROTECTED.
- T EXISTING ROCK FACADE WALL TO REMAIN AND BE PROTECTED.
- U EXISTING GATE TO REMAIN AND BE PROTECTED. GATE TO BE TEMPORARY REMOVED FOR CONSTRUCTION. GATE TO BE REINSTALLED UPON COMPLETION.

- A EXISTING UTILITY BOX TO REMAIN AND BE PROTECTED. ADJUST BOX TO NEW GRADE ELEVATION.
- B EXISTING MANHOLE TO REMAIN AND BE PROTECTED. ADJUST MANHOLE TO NEW GRADE ELEVATION.
- C EXISTING AREA DRAIN TO REMAIN AND BE PROTECTED. ADJUST BOX TO NEW GRADE ELEVATION.
- D EXISTING SCOREBOARD TO REMAIN AND BE PROTECTED.
- E EXISTING ELECTRICAL BOX TO REMAIN AND BE PROTECTED. ADJUST BOX TO NEW GRADE ELEVATION.
- F EXISTING FENCING TO REMAIN AND BE PROTECTED.
- G POTHOLE AND LOCATE EXISTING WATER LINE. EXISTING WATER LINE TO REMAIN AND BE PROTECTED. RECORD SIZE, DEPTH, MATERIAL AND LOCATION OF LINE.
- H POTHOLE AND LOCATE EXISTING STORM DRAIN LINE. EXISTING STORM DRAIN LINE TO REMAIN AND BE PROTECTED. RECORD SIZE, DEPTH, MATERIAL AND LOCATION OF LINE.
- I LOCATE EXISTING BACKFLOW PREVENTER TO REMAIN AND BE PROTECTED.
- J EXISTING FIRE HYDRANT TO REMAIN AND BE PROTECTED. ADJUST TO NEW GRADE ELEVATION.

ITEMS TO BE DEMOLISHED AND/OR REMOVED

1. RETROFIT EXISTING 6' FENCE TO 42" FENCE BY CUTTING THE EXISTING FENCE POST HEIGHT TO 42" AND REPLACING THE FABRIC.
2. EXISTING FENCE, INCLUDING ALL FOOTINGS, FABRIC, POSTS, GATES, HARDWARE, AND FITTINGS TO BE DEMOLISHED AND REMOVED.
3. EXISTING CONCRETE STAIRS INCLUDING FOOTINGS TO BE DEMOLISHED AND REMOVED.
4. EXISTING HANDRAILS STAIRS INCLUDING FOOTINGS TO BE DEMOLISHED AND REMOVED.
5. EXISTING DISCUS CAGE INCLUDING ALL FOOTINGS AND PAD TO BE DEMOLISHED AND REMOVED.
6. EXISTING TREES TO BE REMOVED.
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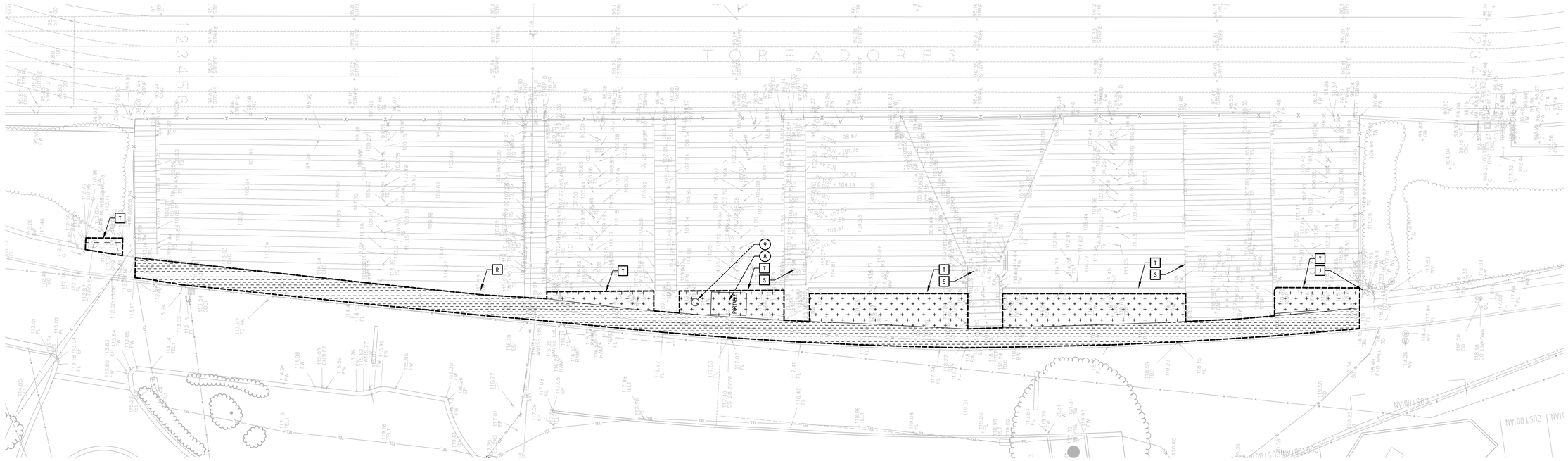

NORTH

0' 5' 10' 20' 30'

VERDE DESIGN
LANDSCAPE ARCHITECTURE
CIVIL ENGINEERING
SPORT PLANNING & DESIGN
2455 The Alameda
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REGISTERED LANDSCAPE ARCHITECT
DEREK MARKS
No. 4148
Signature
EXPIRATION DATE: DEC. 2019
STATE OF CALIFORNIA

CONSULTANT

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FILE XX-XX

SHEET TITLE
DEMOLITION PLAN

PROJECT NAME
MONTEREY HIGH SCHOOL MULTI-USE FIELD AND STADIUM RENOVATIONS

PROJECT ADDRESS
101 HERRMANN DRIVE
MONTEREY, CA
93940

SUBMITTAL	DATE
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60% SUBMITTAL	05/03/19

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DRAWING NAME: \\prodnas01\projects\2018\1814400 - Monterey HS Schem Des\CAD_DEM.dwg
PLOT DATE: 05-14-19 PLOTTED BY: stationB4

GRADING LEGEND

SYM	DESCRIPTION	SYM	DESCRIPTION
FF 99.00	FINISHED FLOOR ELEVATION	85	PROPOSED CONTOUR
TD 99.00	TOP OF TRENCH DRAIN	85	PROPOSED SUBGRADE CONTOUR
	CENTER LINE OF SWALE	FG 32.00	PROPOSED FINISH GRADE ELEVATION OF SOFTSCAPE
R	CROWN OF FIELD, OR RIDGE LINE	FT 32.00	PROPOSED ELEVATION OF TOP OF SYNTHETIC TURF INFILL
L	LOW POINT OF FIELD	FS 32.00	PROPOSED FINISH SURFACE ELEVATION OF HARDSCAPE
	CONFORM TO EXISTING GRADE	HP 32.00	HIGH POINT/ HIGH POINT OF SWALE
	LIMIT OF GRADING - CONFORM TO EXISTING GRADES AT THIS LINE	RIM 31.00	LOW POINT/ RIM ELEVATION OF DRAIN
	FLOW DIRECTION IN SOFTSCAPE	SG 32.00	PROPOSED FINISH SUGRADE ELEVATION
102	EXISTING CONTOUR	TC 32.50	TOP OF CURB
+ 102.1	EXISTING ELEVATION	TW 34.00	TOP OF WALL

GRADING NOTES

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4. ALL EXISTING DRAINAGE STRUCTURES, BOXES, UTILITY VAULTS ETC. SHALL BE BROUGHT TO FINAL FINISH GRADE PRIOR TO FINAL SURFACE TREATMENT.

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SHEET TITLE

GRADING PLAN

PROJECT NAME

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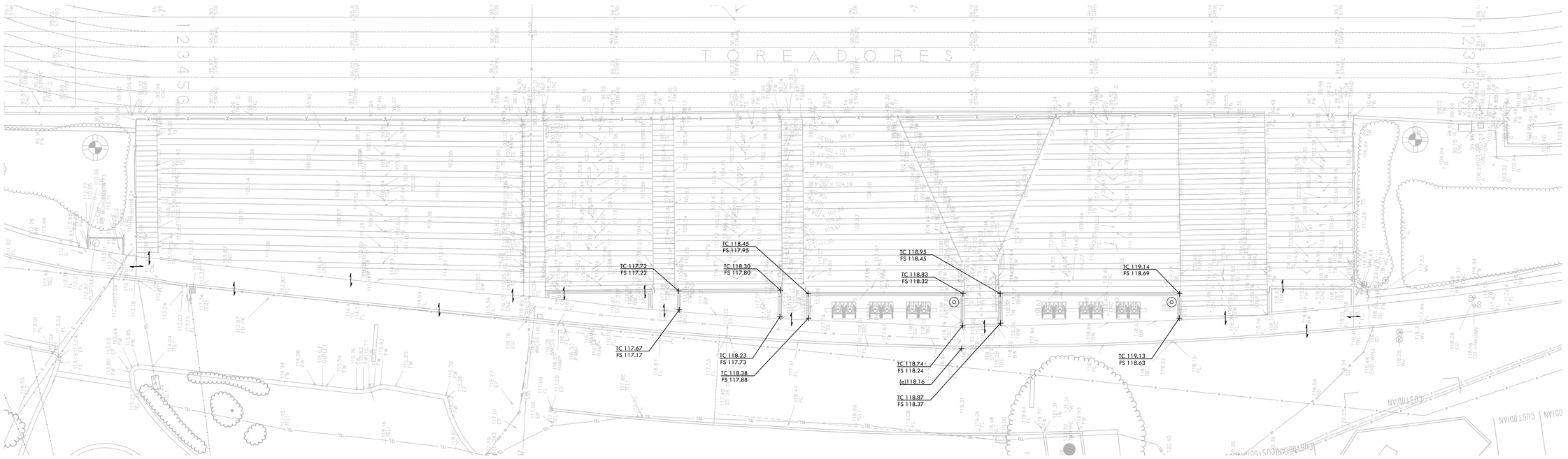
4. ALL EXISTING DRAINAGE STRUCTURES, BOXES, UTILITY VAULTS ETC. SHALL BE BROUGHT TO FINAL FINISH GRADE PRIOR TO FINAL SURFACE TREATMENT.



NORTH

0' 5' 10' 20' 30'

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REGISTERED LANDSCAPE ARCHITECT
DEREK MORSE
No. 4148
Signature
EXPIRATION DATE: DEC. 2019
STATE OF CALIFORNIA

CONSULTANT

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APPL 01-XXXXXX
REVIEWED FOR:
SS _____ FLS _____ ACS _____
DATE _____
DSA PROJECT TRACKING NO:
XXXX-XXX
FILE XX-XX

SHEET TITLE
GRADING PLAN

PROJECT NAME
MONTEREY HIGH SCHOOL MULTI-USE FIELD AND STADIUM RENOVATIONS

PROJECT ADDRESS
101 HERRMANN DRIVE
MONTEREY, CA
93940

SUBMITTAL	DATE
30% SUBMITTAL	10/12/18
60% SUBMITTAL	05/03/19

NO.	REVISIONS	DATE
1		
2		
3		
4		
5		
6		

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JJ	DM/MH
DATE ISSUED: 05/03/2019	SCALE: 1"=10'-0"
PROJ. NO.: 1814400	

SHEET NO.
L4.2

GRADING LEGEND

SYM	DESCRIPTION	SYM	DESCRIPTION
FF 99.00	FINISHED FLOOR ELEVATION	85	PROPOSED CONTOUR
TD 99.00	TOP OF TRENCH DRAIN	85	PROPOSED SUBGRADE CONTOUR
	CENTER LINE OF SWALE	FG 32.00	PROPOSED FINISH GRADE ELEVATION OF SOFTSCAPE
R	CROWN OF FIELD, OR RIDGE LINE	FT 32.00	PROPOSED ELEVATION OF TOP OF SYNTHETIC TURF INFILL
L	LOW POINT OF FIELD	FS 32.00	PROPOSED FINISH SURFACE ELEVATION OF HARDSCAPE
	CONFORM TO EXISTING GRADE	HP 32.00	HIGH POINT/ HIGH POINT OF SWALE
	LIMIT OF GRADING - CONFORM TO EXISTING GRADES AT THIS LINE	RIM 31.00	LOW POINT/ RIM ELEVATION OF DRAIN
	FLOW DIRECTION IN SOFTSCAPE	SG 32.00	PROPOSED FINISH SUGRADE ELEVATION
102	EXISTING CONTOUR	TC 32.50	TOP OF CURB
+ 102.1	EXISTING ELEVATION	TW 34.00	TOP OF WALL

GRADING NOTES

1. EXISTING GRADES ARE BASED ON INFORMATION PROVIDED BY: ALPHA SURVEYING. CONTRACTOR SHALL VERIFY EXISTING GRADES FOR ACCURACY PRIOR TO THE START OF GRADING, NOTIFY THE OWNER'S REPRESENTATIVE IMMEDIATELY SHOULD CONFLICTS ARISE AND REDIRECT WORK TO AVOID DELAY.
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L4.3

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DRAWING NAME: \\prodnas01\projects\2018\1814400 – Monterey HS Schem Des\CAD_GRD.dwg
PLOT DATE: 05-14-19 PLOTTED BY: station84

DRAINAGE & UTILITY LEGEND

SYM	DESCRIPTION	DETAIL NUMBER / SHEET NUMBER	SYM	DESCRIPTION	DETAIL NUMBER / SHEET NUMBER
A	DOWN SPOUT CLEANOUT, SIZE PER PLAN	- / -		CATCH BASIN, SIZE PER PLAN	- / -
B	TRENCH DRAIN CATCH BASIN AND CONNECTION TO STORM DRAIN LINE	- / -		JUNCTION BOX, SIZE PER PLAN	- / -
(E)	EXISTING			CLEANOUT IN SYNTHETIC TURF	- / -
CB	CATCH BASIN			CLEANOUT IN SOFTSCAPE	- / -
INV	INVERT			SHOT PUT / DISCUS DRAIN	- / -
RIM	RIM ELEVATION			SANITARY SEWER CLEANOUT	- / -
TOR	TOP OF ROCK ELEVATION			NIBCO GATE VALVES 2" AND SMALLER SHALL BE NIBCO T-113 LF. FOR VALVES ABOVE 2" IN SIZE UTILIZE NIBCO F-619 FLANGED VALVE WITH SQUARE OPERATING NUT.	- / -
LF	LINEAR FEET			DRYWELL	- / -
CO	CLEANOUT			TRENCH DRAIN	- / -
SSCO	SANITARY SEWER CLEANOUT		SD	SOLID WALL STORM DRAIN	- / -
S=0.5%	SLOPE		PERF	PERFORATED SUBDRAIN LINE	- / -
MIN.	MINIMUM		SS	SANITARY SEWER LINE	- / -
TD	TRENCH DRAIN ELEVATION		DOM	DOMESTIC WATER LINE	- / -
N, S, W EA,	NORTH, SOUTH, WEST, EAST		WD	WALL DRAIN - REFER TO SPECIFICATIONS	- / -

DRAINAGE & UTILITY NOTES

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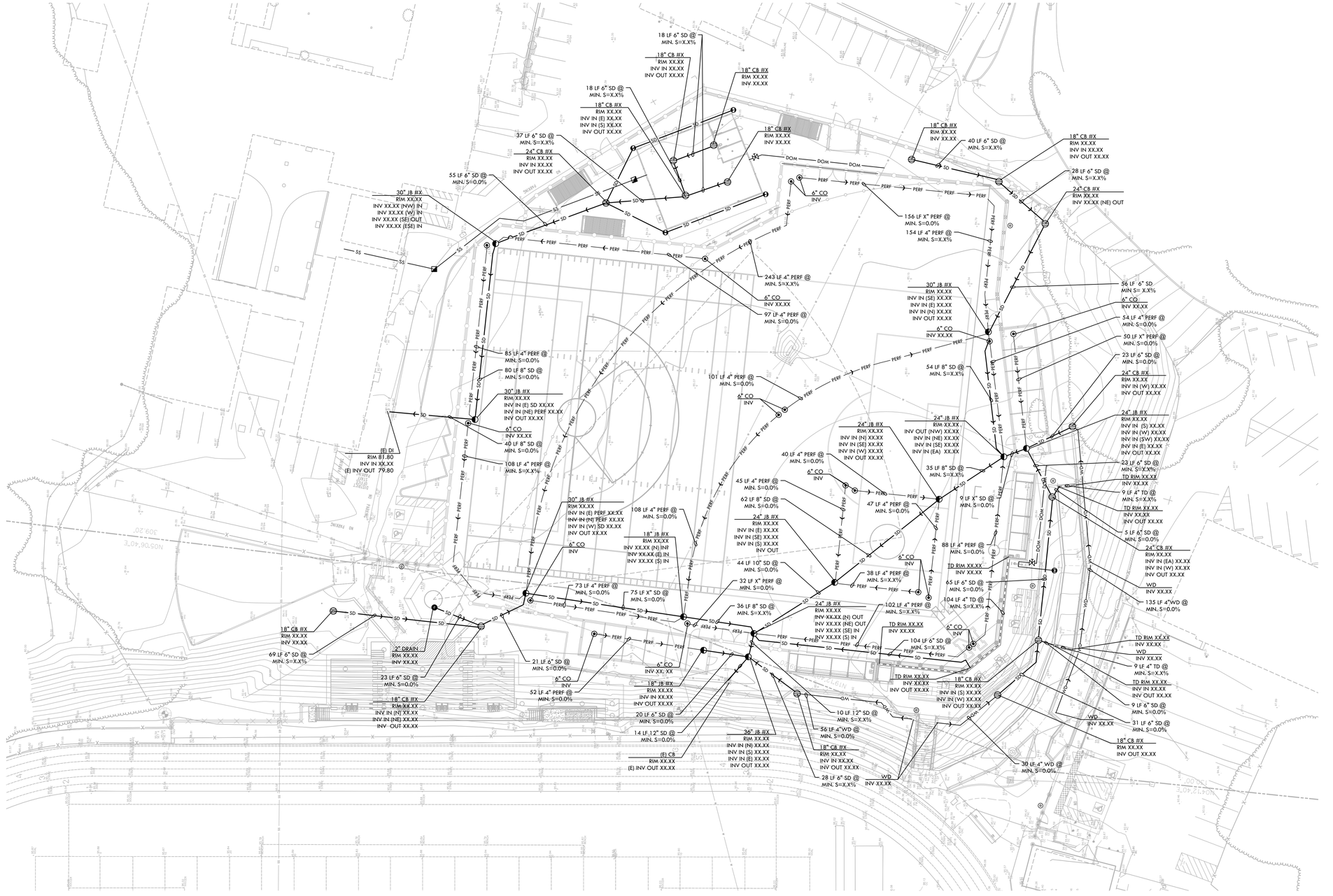
2. ALL EXISTING DRAINAGE STRUCTURES, BOXES, UTILITY VAULTS ETC. TO REMAIN, SHALL BE BROUGHT TO FINAL FINISH GRADE PRIOR TO FINAL SURFACE TREATMENT.
3. THE CONTRACTOR IS TO PROTECT DRAINAGE SYSTEM FROM DEBRIS, INCLUDING SOIL, ROCK MATERIAL, AND TRASH FROM ENTERING THE PIPE DURING CONSTRUCTION. CONTRACTOR SHALL AVOID PLACING CONSTRUCTION VEHICLES OVER INSTALLED DRAINAGE TRENCHES TO PREVENT CRUSHING OF PIPE.
4. COORDINATE ALL SLEEVING AND UTILITY LOCATIONS AS SHOWN ON THE PLANS AND DETAILS CONTAINED WITHIN THESE CONTRACT DOCUMENTS.
5. THE CONTRACTOR IS TO ENSURE THAT ALL REMAINING ACTIVE AND NEW DRAINAGE AND UTILITY LINES ARE PROTECTED AND UNDAMAGED FROM TRENCHING AND FOOTING EXCAVATIONS FOR NEW FOOTINGS, PARTICULARLY FOR NEW FENCING AND WALLS.
6. ALL ABANDONED STORM LINES SHALL REMAIN IN PLACE UNLESS IN CONFLICT WITH PROPOSED DRAINAGE, UTILITY, OR SUBGRADING OPERATIONS, IN WHICH CASE ABANDONED PIPE IN CONFLICT SHALL BE REMOVED. REMAINING ABANDONED STORM PIPE SHALL BE SEALED WITH APPROPRIATELY SIZED CONCRETE CAP (3 SACK MIX) 6" ENVELOPE OUTSIDE AND INSIDE DIAMETER OF PIPE.
7. PRIOR TO ALL DRAINAGE AND UTILITY WORK, CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL POTENTIAL DRAINAGE CONNECTIONS AND EXISTING UTILITY BY POTHOLING. IN ADDITION, ALL DOWNSTREAM CONNECTIONS TO EXISTING STRUCTURES SHALL BE THE START OF THESE OPERATIONS, AND GRADES SHALL BE VERIFIED.
8. WHEN WORK HAS TO OCCUR UNDER THE DRIPLINE OF EXISTING TREES NOT SCHEDULED FOR REMOVAL, THE CONTRACTOR SHALL USE ALL POSSIBLE CARE TO AVOID INJURY TO THE TREES AND TREE ROOTS. GRADE IN LINES RADIAL TO THE EXISTING TREES RATHER THAN TANGENTIAL. ALL PARTIAL CUTS OR TEARS THROUGH ROOTS TWO INCHES IN DIAMETER AND LARGER SHALL BE CUT CLEAN. TRENCHES ADJACENT TO TREES SHALL BE FILLED WITHIN 24 HOURS AFTER EXCAVATION, BUT WHERE THIS IS NOT POSSIBLE, THE SIDE OF THE TRENCH ADJACENT TO THE TREE, AND ANY EXPOSED ROOTS SHALL BE KEPT SHADED AND MOIST WITH DAMPENED BURLAP OR CANVAS.



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DEREK MOREE
No. 4148
Signature
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FILE XX-XX

SHEET TITLE
DRAINAGE AND UTILITY PLAN

PROJECT NAME
MONTEREY HIGH SCHOOL MULTI-USE FIELD AND STADIUM RENOVATIONS

PROJECT ADDRESS
101 HERRMANN DRIVE
MONTEREY, CA
93940

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30% SUBMITTAL	10/12/18
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DRAWN BY: LW
CHECKED BY: DM/MH
DATE ISSUED: 05/03/2019
SCALE: 1"=20'-0"
PROJ. NO.: 1814400
SHEET NO.: L5.1

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DRAWING NAME: \\prodnas01\projects\2018\1814400 - Monterey HS Schem Des\CAD_DRN.dwg
PLOT DATE: 05-14-19 PLOTTED BY: station84

NOTE:
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2. CONTROL POINT IS LOCATED AT CP SET X, ELEVATION 95.59.
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4. LAYOUT GRID IS DETERMINED BY ROTATING COUNTER CLOCKWISE 6°30'8".
5. BASELINE A IS 90° FROM BASELINE A AT POB.
6. GRID IS 100' OFFSETS FROM EACH BASELINE.

LAYOUT LEGEND

SYM	DESCRIPTION	SYM	DESCRIPTION
(COD)	CENTER OF DRAIN	POB	POINT OF BEGINNING
(COP)	CENTER OF POST		ANCHOR POINT FOR BASELINE A
(POB)	POINT OF BEGINNING FOR GRID LAYOUT	R10'	RADIUS POINT / CENTER MARK
(RAD)	RADIUS POINT	90°	PROPOSED ANGLE BETWEEN ELEMENTS
(TAN)	TANGENT POINT	ALIGN	ALIGN EDGES OF ELEMENTS
			CENTER LINES
			BASELINE
			CONTROL LINE
		N 6+21.95 E 4+97.08	NORTHING/EASTING LAYOUT COORDINATE CALLOUT

LAYOUT NOTES

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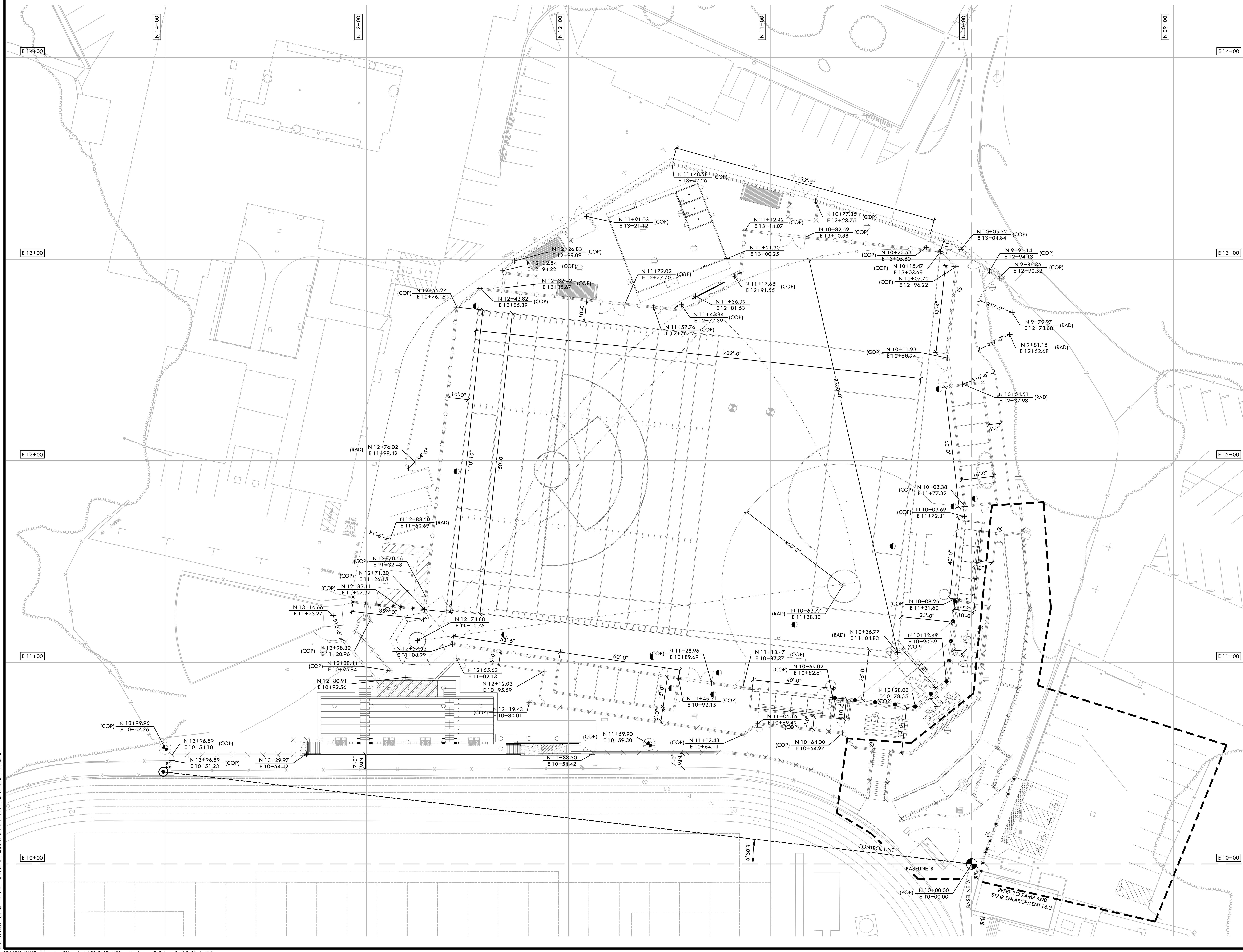

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DEREK McKEE
No. 4148
Signature
EXPIRATION DATE: DEC. 2019
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XXXXX-XXX
FILE XX-XX

SHEET TITLE

LAYOUT PLAN

PROJECT NAME

MONTEREY HIGH SCHOOL MULTI-USE FIELD AND STADIUM RENOVATIONS

PROJECT ADDRESS

101 HERRMANN DRIVE
MONTEREY, CA
93940

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LAYOUT PLAN

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PLOT DATE: 05–14–19 PLOTTED BY: station84

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LAYOUT LEGEND

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(TAN)	TANGENT POINT	ALIGN	ALIGN EDGES OF ELEMENTS
			CENTER LINES
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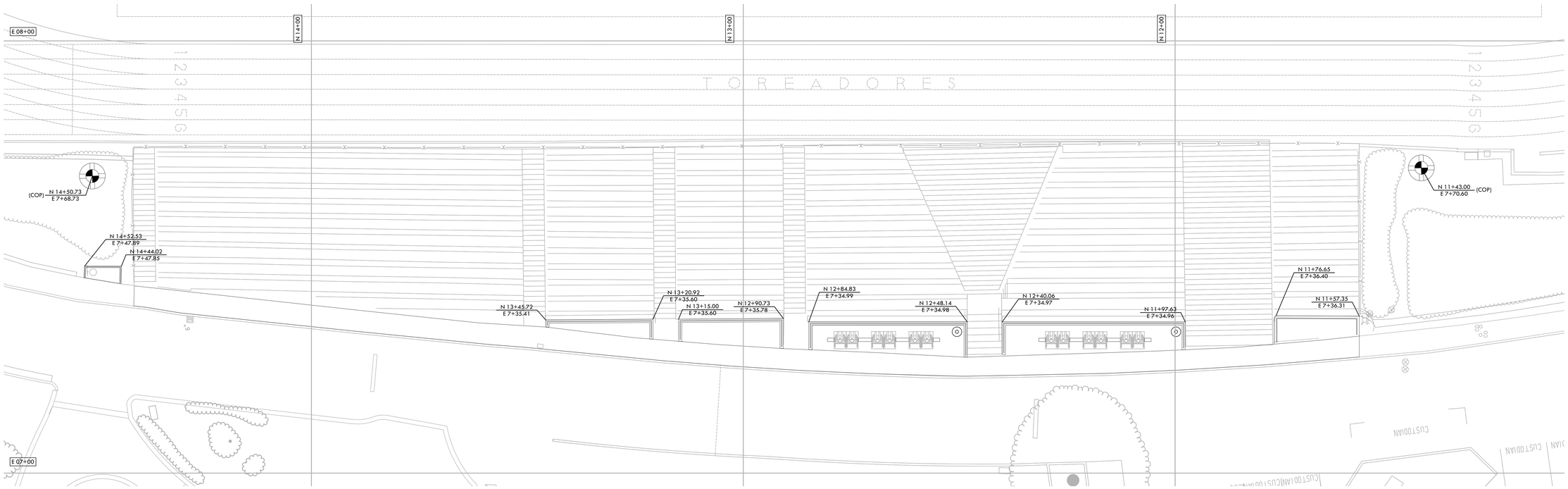

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LAYOUT PLAN

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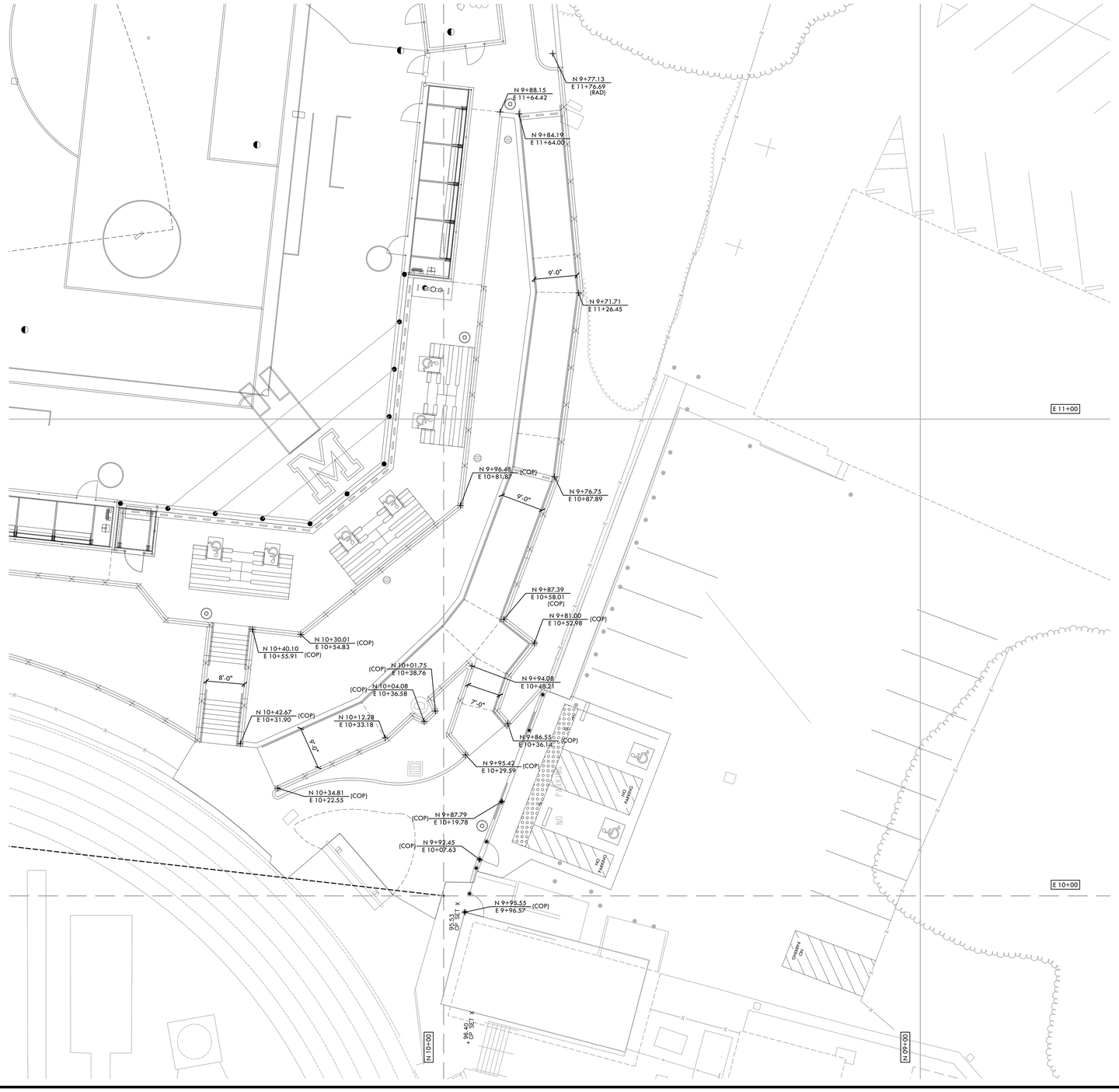

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LANDSCAPE ARCHITECTURE
CIVIL ENGINEERING
SPORT PLANNING & DESIGN
2455 The Alameda
Santa Clara, CA 95050
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www.VerdeDesigninc.com

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REGISTERED LANDSCAPE ARCHITECT
DEREK MARKE
No. 4148
Signature
EXPIRATION DATE: DEC. 2019
STATE OF CALIFORNIA

CONSULTANT

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APPL 01-XXXXXX
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SS _____ FLS _____ ACS _____
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DSA PROJECT TRACKING NO:
XXXXX-XXX
FILE XX-XX

SHEET TITLE
LAYOUT ENLARGEMENT PLAN

PROJECT NAME
MONTEREY HIGH SCHOOL MULTI-USE FIELD AND STADIUM RENOVATIONS

PROJECT ADDRESS
101 HERRMANN DRIVE
MONTEREY, CA
93940

SUBMITTAL	DATE
30% SUBMITTAL	10/12/18
60% SUBMITTAL	05/03/19

NO.	REVISIONS	DATE
1		
2		
3		
4		
5		
6		

DRAWN BY	CHECKED BY
JJ	DM/MH
DATE ISSUED	SCALE
05/03/2019	1"=10'-0"
PROJ. NO.	
1814400	

SHEET NO.
L6.3

LAYOUT ENLARGEMENT PLAN

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DRAWING NAME: \\prodnas01\projects\2018\1814400 - Monterey HS Schem Des\CAD_LAY.dwg
PLOT DATE: 05-14-19 PLOTTED BY: station84

MATERIAL LEGEND

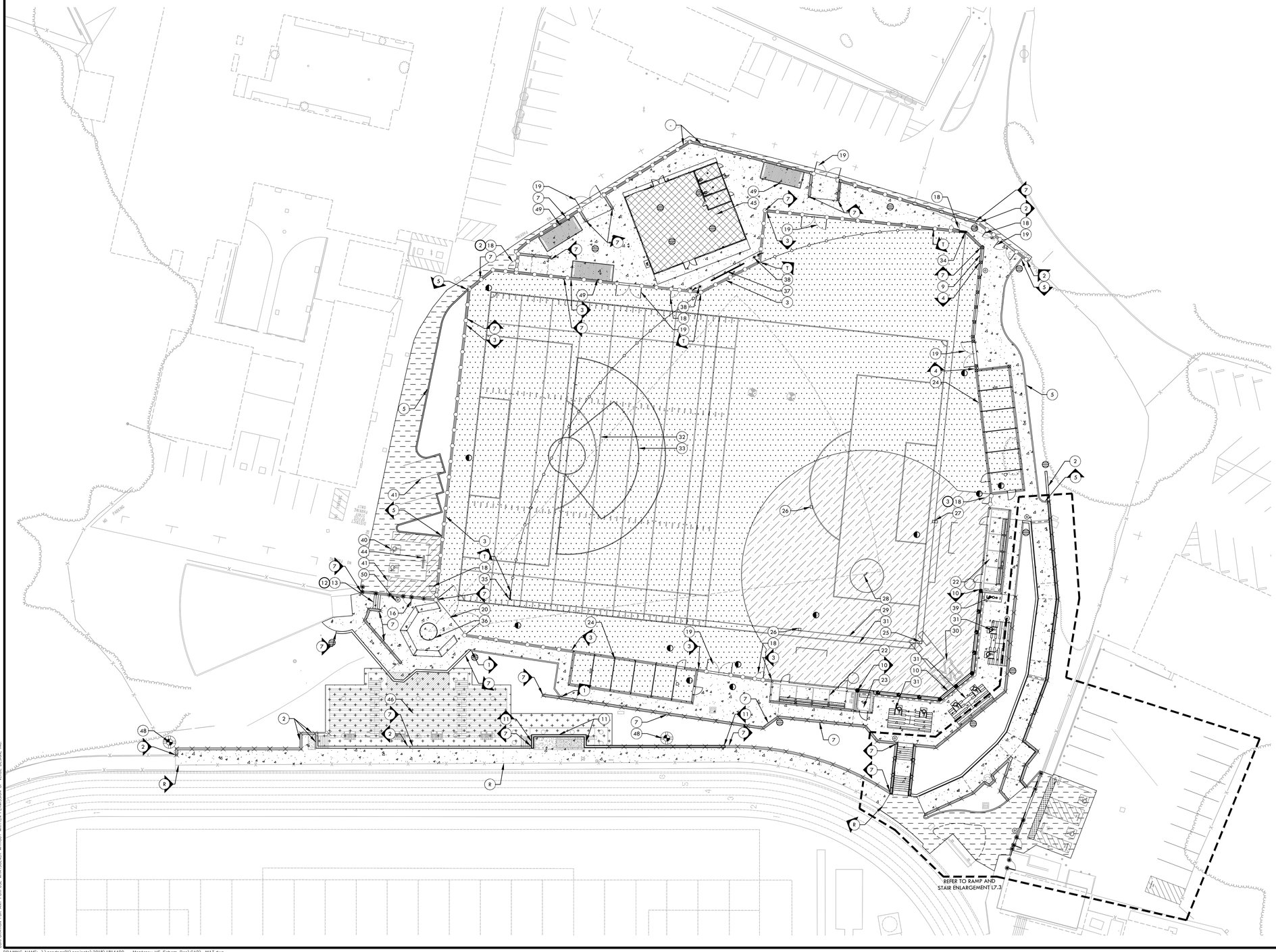
SYM	DESCRIPTION	DTL REF	SYM	DESCRIPTION	DTL REF	SYM	DESCRIPTION	DTL REF	SYM	DESCRIPTION	DTL REF	SYM	DESCRIPTION	DTL REF
44	WHEEL STOP - 6'	- -	34	FOUL POLE - PERMANENT, REFER TO SPECIFICATIONS	- -	23	SCORE KEEPER AREA	- -	12	STAIRS	- -	1	6" WIDE CONCRETE EDGEBAND	- -
45	MODULAR BUILDING - REFER TO ARCHITECTURAL PLANS		35	FOUL POLE - TEMPORARY, REFER TO SPECIFICATIONS	- -	24	BULLPEN AND BATTING CAGE (25' TALL NETTING AT 1ST BASE BULLPEN)	- -	13	HANDRAIL - STAIR	- -	2	12" WIDE CONCRETE EDGEBAND	- -
46	VISITOR BLEACHER WITH PRESS BOX - REFER TO BLEACHER PLANS		36	DISCUS CAGE	- -	25	HOMEPLATE WITH SINGLE ANCHOR BASE SLEEVE REFER TO SPECIFICATIONS	- -	14	HANDRAIL - RAMP	- -	3	12" WIDE CONCRETE EDGEBAND WITH SYNTHETIC TURF	- -
47	BLEACHER SEATING - REFER TO BLEACHER PLANS		37	SCOREBOARD - REFER TO STRUCTURAL DRAWINGS AND SPECIFICATIONS	- -	26	BASE PAD WITH SINGLE ANCHOR BASE SLEEVE REFER TO SPECIFICATIONS	- -	15	GUARDRAIL	- -	4	18" WIDE CONCRETE EDGEBAND WITH SYNTHETIC TURF	- -
48	FIELD SPORT LIGHTING - REFER TO ELECTRICAL AND LIGHTING PLANS		38	FLAG POLE - REFER TO STRUCTURAL DRAWINGS	- -	27	DOUBLE BASE PAD WITH DOUBLE ANCHOR BASE SLEEVE REFER TO SPECIFICATIONS	- -	16	6'X4' - GALVANIZED CHAIN LINK SWING GATE	- -	5	6" WIDE CONCRETE CURB	- -
49	STORAGE CONTAINER - REFER TO SPECIFICATIONS		39	DRINKING FOUNTAIN	- -	28	PITCHER'S PLATE WITH DOUBLE ANCHOR BASE SLEEVE REFER TO SPECIFICATIONS	- -	17	6'X16' - GALVANIZED CHAIN LINK DOUBLE SLIDING GATE	- -	6	9" WIDE CONCRETE CURB	- -
50	TRASH CAN - REFER TO SPECIFICATIONS		31	5 ROW BLEACHERS - REFER TO SPECIFICATIONS	- -	29	SOFTBALL FIELD STRIPING	- -	18	8'X4' - GALVANIZED CHAIN LINK SWING GATE	- -	7	12" WIDE CONCRETE TALL CURB	- -
51			40	ADA PARKING STALL	- -	30	SOFTBALL LOGO	- -	19	8'X12' - GALVANIZED CHAIN LINK DOUBLE SWING GATE	- -	8	12" WIDE CONCRETE TALL CURB WITH SYNTHETIC TURF	- -
52			41	PARKING STRIPING - REFER TO SPECIFICATIONS	- -	31	SOCCER FIELD STRIPING	- -	20	8'X22' - GALVANIZED CHAIN LINK DOUBLE SWING GATE	- -	9	18" WIDE CONCRETE TALL CURB WITH SYNTHETIC TURF	- -
53			42	TRUNCATED DOMES	- -	32	PRACTICE FOOTBALL FIELD STRIPING	- -	21	BACKSTOP	- -	10	18" WIDE CONCRETE WALL AT BACKSTOP	- -
54			43	WHEEL STOP - 4'	- -	33	PRACTICE UNIFIED LACROSSE STRIPING	- -	22	DUGOUT WITH 30'-0" TALL NETTING AND SHADE STRUCTURE	- -	11	RETAINING WALL	- -

MATERIAL NOTES

1. THE CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION ELEMENTS INCLUDING UTILITY LOCATIONS AND REQUIRED SLEEVING PRIOR TO INSTALLATION. VERIFY CRITICAL DIMENSIONS, REFERENCE POINT LOCATIONS AND CONSTRUCTION CONDITIONS PRIOR TO INITIATING CONSTRUCTION. TEMPORARY BENCHMARKS OR REFERENCE POINTS SHALL BE SET BY THE CONTRACTOR AS NECESSARY. NOTIFY THE OWNER'S REPRESENTATIVE IMMEDIATELY SHOULD DISCREPANCY ARISE AND REDIRECT WORK TO AVOID DELAYS.
2. THE INTERFACE OF ALL PROPOSED IMPROVEMENTS TO EXISTING SITE SHALL CONFORM AND BE SMOOTH AND UNIFORM.
3. ALL REINFORCING AND FORMS SHALL BE SECURED IN PLACE AND ACCEPTED BY OWNER'S REPRESENTATIVE PRIOR TO PLACING ANY CONCRETE.
4. CONCRETE FINISHES SHALL BE AS NOTED. CONTRACTOR SHALL PROVIDE 4'X4' SAMPLES OF ALL SPECIFIED FINISHES OF CONCRETE USING THE SAME MATERIALS THAT WILL BE USED IN THE ACTUAL CONSTRUCTION FOR EACH TYPE SPECIFIED. SAMPLES SHALL BE PREPARED WELL ENOUGH IN ADVANCE OF SCHEDULED CONCRETE POUR TO ALLOW FOR REVIEW AND POSSIBLE RE-POURING OF UNACCEPTABLE SAMPLES. UNACCEPTABLE SAMPLES SHALL BE RE-PREPARED UNTIL ACCEPTED BY THE OWNER'S REPRESENTATIVE. ACCEPTED SAMPLES SHALL BE PROTECTED AND REMAIN ON SITE FOR REFERENCE UNTIL FINAL ACCEPTANCE.
5. ALL FENCES AND GATES SHOWN ON PLAN ARE GRAPHIC REPRESENTATIONS; REFER TO DETAILS AND SPECIFICATIONS FOR PRECISE LOCATION.
6. ASPHALT SHALL NOT BE INSTALLED UNTIL ALL EDGES AND SITE FURNISHING PADS ARE INSTALLED.

MATERIAL LEGEND

SYM	DESCRIPTION	DTL REF
	SYNTHETIC TURF - GREEN COLOR, REFER TO SPECIFICATIONS	- -
	SYNTHETIC TURF - TAN COLOR, REFER TO SPECIFICATIONS	- -
	ASPHALT PAVING - VEHICULAR	- -
	CONCRETE PAVING - PEDESTRIAN	- -
	SHOTCRETE UNDER VISITOR BLEACHER	- -
	CONCRETE SERVICE PAD UNDER MODULAR BUILDINGS	- -
	COLORED CONCRETE PAVING - PEDESTRIAN	- -
	42" TALL GALVANIZED CHAIN LINK FENCE	- -
	6'-0" TALL GALVANIZED CHAIN LINK FENCE	- -
	8'-0" TALL GALVANIZED CHAIN LINK FENCE	- -
	8'-0" TALL GALVANIZED CHAIN LINK FENCE WITH 25'-0" TALL Nnetting	- -
	30'-0" TALL GALVANIZED CHAIN LINK FENCE AT BACKSTOP	- -
R	RETROFIT EXISTING 6' FENCE TO 42" FENCE BY CUTTING THE EXISTING FENCE POST HEIGHT TO 42" AND REPLACE THE FABRIC	- -
T	TEMPORARY OUTFIELD FENCE	- -
	EGRESS LIGHTING	- -



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PLOT DATE: 05-14-19 PLOTTED BY: station84

MATERIAL LEGEND

SYM	DESCRIPTION	DTL REF
44	WHEEL STOP - 6'	- / -
45	MODULAR BUILDING - REFER TO ARCHITECTURAL PLANS	- / -
46	VISITOR BLEACHER WITH PRESS BOX - REFER TO BLEACHER PLANS	- / -
47	BLEACHER SEATING - REFER TO BLEACHER PLANS	- / -
48	FIELD SPORT LIGHTING - REFER TO ELECTRICAL AND LIGHTING PLANS	- / -
49	STORAGE CONTAINER - REFER TO SPECIFICATIONS	- / -
50	TRASH CAN - REFER TO SPECIFICATIONS	- / -
51		- / -
52		- / -
53		- / -
54		- / -

SYM	DESCRIPTION	DTL REF
34	FOUL POLE - PERMANENT, REFER TO SPECIFICATIONS	- / -
35	FOUL POLE - TEMPORARY, REFER TO SPECIFICATIONS	- / -
36	DISCUS CAGE	- / -
37	SCOREBOARD - REFER TO STRUCTURAL DRAWINGS AND SPECIFICATIONS	- / -
38	FLAG POLE - REFER TO STRUCTURAL DRAWINGS	- / -
39	DRINKING FOUNTAIN	- / -
31	5 ROW BLEACHERS - REFER TO SPECIFICATIONS	- / -
40	ADA PARKING STALL	- / -
41	PARKING STRIPING - REFER TO SPECIFICATIONS	- / -
42	TRUNCATED DOMES	- / -
43	WHEEL STOP - 4'	- / -

SYM	DESCRIPTION	DTL REF
23	SCORE KEEPER AREA	- / -
24	BULLPEN AND BATTING CAGE (25' TALL NETTING AT 1ST BASE BULLPEN)	- / -
25	HOMEPLATE WITH SINGLE ANCHOR BASE SLEEVE REFER TO SPECIFICATIONS	- / -
26	BASE PAD WITH SINGLE ANCHOR BASE SLEEVE REFER TO SPECIFICATIONS	- / -
27	DOUBLE BASE PAD WITH DOUBLE ANCHOR BASE SLEEVE REFER TO SPECIFICATIONS	- / -
28	PITCHER'S PLATE WITH DOUBLE ANCHOR BASE SLEEVE REFER TO SPECIFICATIONS	- / -
29	SOFTBALL FIELD STRIPING	- / -
30	SOFTBALL LOGO	- / -
31	SOCCER FIELD STRIPING	- / -
32	PRACTICE FOOTBALL FIELD STRIPING	- / -
33	PRACTICE UNIFIED LACROSSE STRIPING	- / -

SYM	DESCRIPTION	DTL REF
12	STAIRS	- / -
13	HANDRAIL - STAIR	- / -
14	HANDRAIL - RAMP	- / -
15	GUARDRAIL	- / -
16	6'X4' - GALVANIZED CHAIN LINK SWING GATE	- / -
17	6'X16' - GALVANIZED CHAIN LINK DOUBLE SLIDING GATE	- / -
18	8'X4' - GALVANIZED CHAIN LINK SWING GATE	- / -
19	8'X12' - GALVANIZED CHAIN LINK DOUBLE SWING GATE	- / -
20	8'X22' - GALVANIZED CHAIN LINK DOUBLE SWING GATE	- / -
21	BACKSTOP	- / -
22	DUGOUT WITH 30'-0" TALL NETTING AND SHADE STRUCTURE	- / -

SYM	DESCRIPTION	DTL REF
1	6" WIDE CONCRETE EDGEBAND	- / -
2	12" WIDE CONCRETE EDGEBAND	- / -
3	12" WIDE CONCRETE EDGEBAND WITH SYNTHETIC TURF	- / -
4	18" WIDE CONCRETE EDGEBAND WITH SYNTHETIC TURF	- / -
5	6" WIDE CONCRETE CURB	- / -
6	9" WIDE CONCRETE CURB	- / -
7	12" WIDE CONCRETE TALL CURB	- / -
8	12" WIDE CONCRETE TALL CURB WITH SYNTHETIC TURF	- / -
9	18" WIDE CONCRETE TALL CURB WITH SYNTHETIC TURF	- / -
10	18" WIDE CONCRETE WALL AT BACKSTOP	- / -
11	RETAINING WALL	- / -

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MATERIAL LEGEND

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	SYNTHETIC TURF - TAN COLOR, REFER TO SPECIFICATIONS	- / -
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	CONCRETE PAVING - PEDESTRIAN	- / -
	SHOTCRETE UNDER VISITOR BLEACHER	- / -
	CONCRETE SERVICE PAD UNDER MODULAR BUILDINGS	- / -
	COLORED CONCRETE PAVING - PEDESTRIAN	- / -
	42" TALL GALVANIZED CHAIN LINK FENCE	- / -
	6'-0" TALL GALVANIZED CHAIN LINK FENCE	- / -
	8'-0" TALL GALVANIZED CHAIN LINK FENCE	- / -
	8'-0" TALL GALVANIZED CHAIN LINK FENCE WITH 25'-0" TALL NETTING	- / -
	30'-0" TALL GALVANIZED CHAIN LINK FENCE AT BACKSTOP	- / -
R	RETROFIT EXISTING 6' FENCE TO 42" FENCE BY CUTTING THE EXISTING FENCE POST HEIGHT TO 42" AND REPLACE THE FABRIC	- / -
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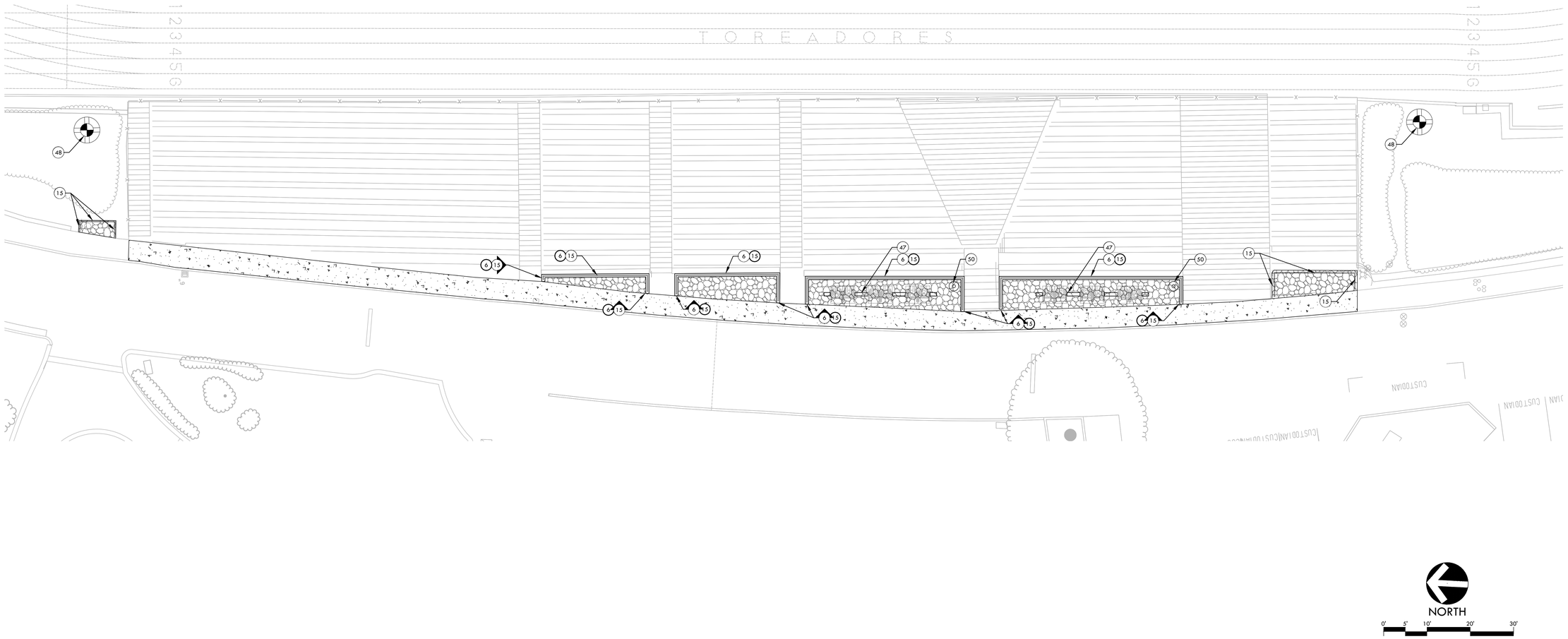

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51		- / -
52		- / -
53		- / -
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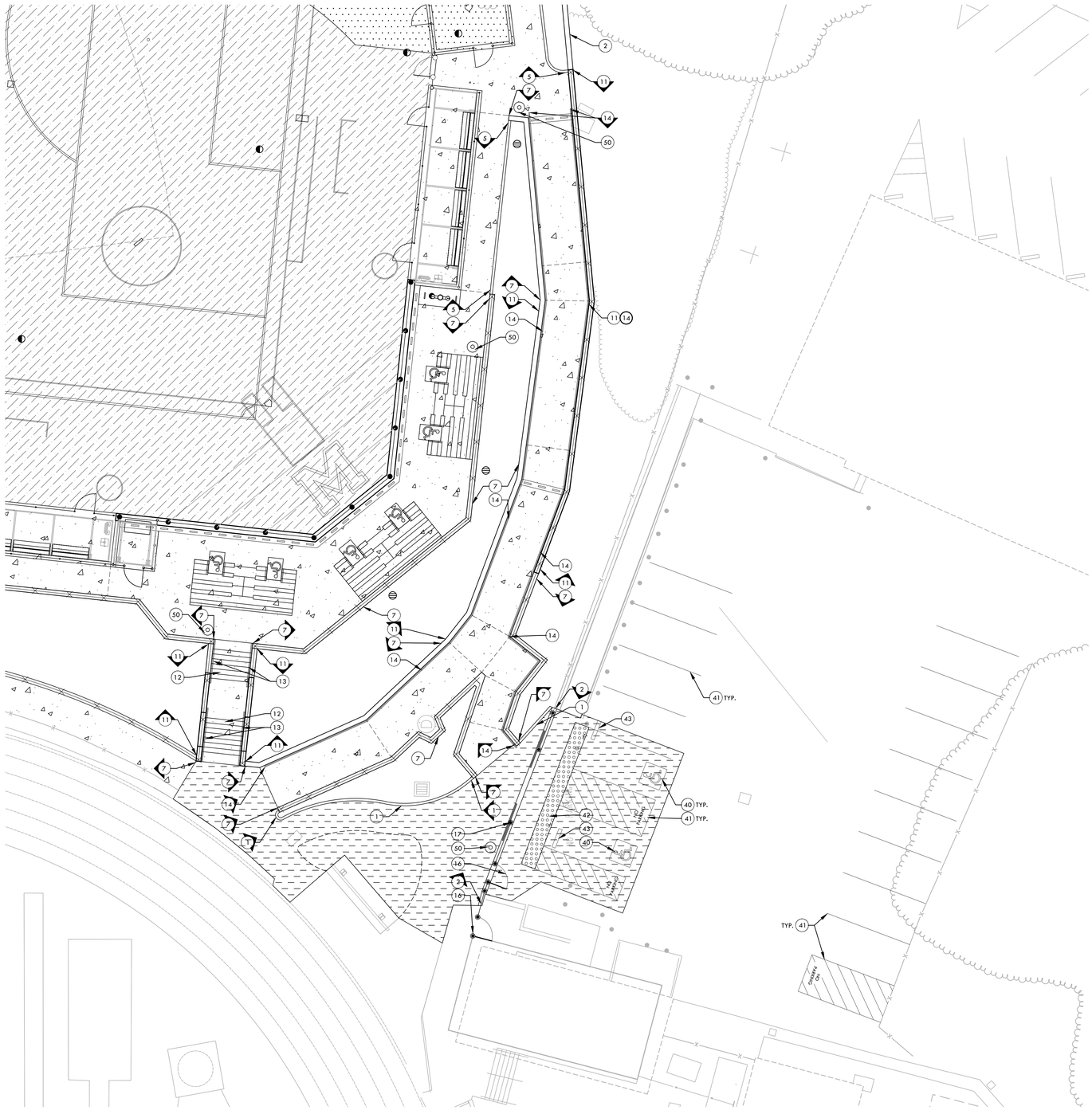
	CONCRETE SERVICE PAD UNDER MODULAR BUILDINGS	- / -
	COLORED CONCRETE PAVING - PEDESTRIAN	- / -
	42" TALL GALVANIZED CHAIN LINK FENCE	- / -
	6'-0" TALL GALVANIZED CHAIN LINK FENCE	- / -
	8'-0" TALL GALVANIZED CHAIN LINK FENCE	- / -
	8'-0" TALL GALVANIZED CHAIN LINK FENCE WITH 25'-0" TALL NETTING	- / -
	30'-0" TALL GALVANIZED CHAIN LINK FENCE AT BACKSTOP	- / -
R	RETROFIT EXISTING 6' FENCE TO 42" FENCE BY CUTTING THE EXISTING FENCE POST HEIGHT TO 42" AND REPLACE THE FABRIC	- / -
T	TEMPORARY OUTFIELD FENCE	- / -
	EGRESS LIGHTING	- / -



NORTH

0' 5' 10' 20' 30'

VERDE DESIGN
LANDSCAPE ARCHITECTURE
CIVIL ENGINEERING
SPORT PLANNING & DESIGN
2455 The Alameda
Santa Clara, CA 95050
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www.VerdeDesignInc.com

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REGISTERED LANDSCAPE ARCHITECT
DEREK MERRIE
No. 4148
Signature
EXPIRATION DATE: DEC. 2019
STATE OF CALIFORNIA

CONSULTANT

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DIV. OF THE STATE ARCHITECT
APPL 01-XXXXXX
REVIEWED FOR:
SS _____ FLS _____ ACS _____
DATE _____
DSA PROJECT TRACKING NO:
XXXXX-XXX
FILE XX-XX

SHEET TITLE

MATERIAL AND DETAIL REFERENCE PLAN

PROJECT NAME

MONTEREY HIGH SCHOOL MULTI-USE FIELD AND STADIUM RENOVATIONS

PROJECT ADDRESS

101 HERRMANN DRIVE
MONTEREY, CA
93940

SUBMITTAL	DATE
30% SUBMITTAL	10/12/18
60% SUBMITTAL	05/03/19

NO.	REVISIONS	DATE
1		
2		
3		
4		
5		
6		

DRAWN BY	CHECKED BY
HM	DM/MH
DATE ISSUED: 05/03/2019	SCALE: 1"=10'-0"
PROJ. NO.: 1814400	
SHEET NO.: L7.3	

ALL IDEAS, DESIGNS, ARRANGEMENTS, AND PLANS INDICATED OR REPRESENTED BY THIS DRAWING ARE OWNED BY AND THE PROPERTY OF VERDE DESIGN, INC. AND WERE CREATED, EVOLVED, AND DEVELOPED FOR USE ON AND IN CONNECTION WITH THE SPECIFIED PROJECT. NONE OF SUCH IDEAS, DESIGNS, ARRANGEMENTS OR PLANS SHALL BE USED, REPRODUCED, OR PUBLISHED BY ANY METHOD, IN WHOLE OR IN PART, OR DISCLOSED TO ANY PERSON, FIRM, OR CORPORATION FOR ANY PURPOSE WHATSOEVER WITHOUT THE PRIOR WRITTEN PERMISSION OF VERDE DESIGN, INC.

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PLOT DATE: 05-14-19 PLOTTED BY: station84

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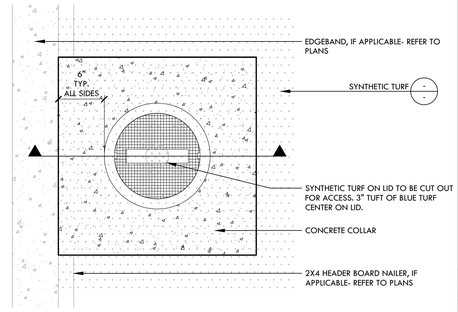
T

S

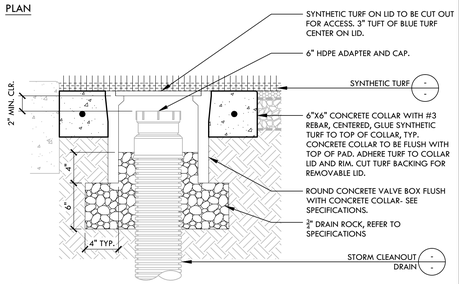
R

Q

P



PLAN

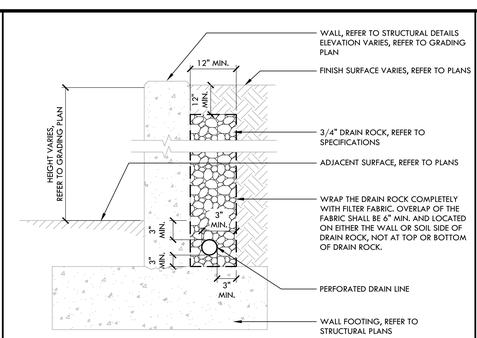


SECTION

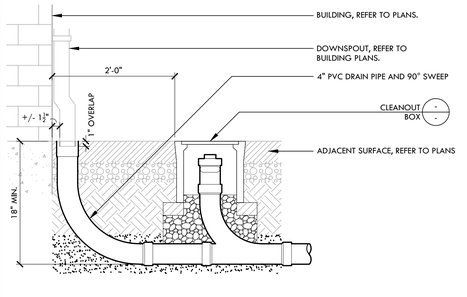
N CLEANOUT IN SYNTHETIC TURF AT CURB - ACCESSIBLE NTS

M CLEANOUT IN SYNTHETIC TURF - COVERED NTS

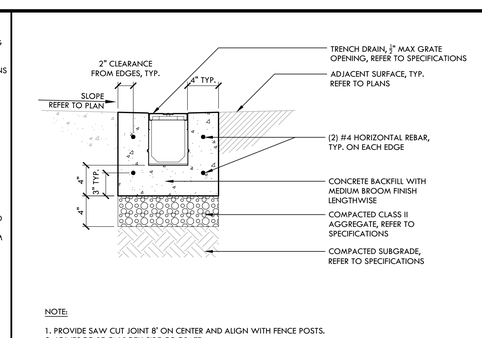
H CLEANOUT BOX NTS



J WALL DRAIN NTS

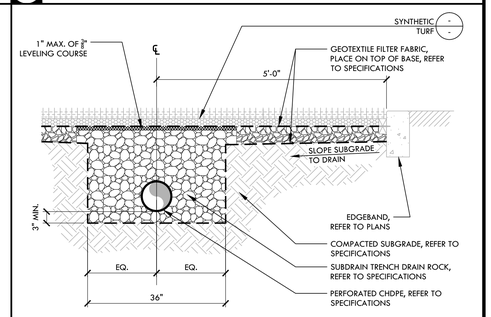


I DOWNSPOUT CONNECTION NTS

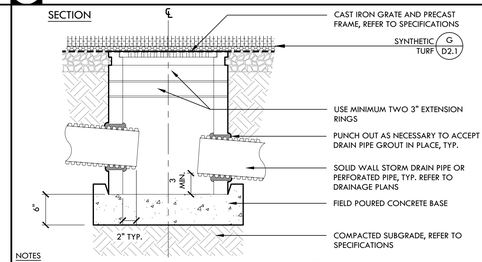


NOTE:
1. PROVIDE SAW CUT JOINT 8' ON CENTER AND ALIGN WITH FENCE POSTS.
2. JOINTS TO BE ON BOTH SIDE OF GRATE.

E TRENCH DRAIN NTS

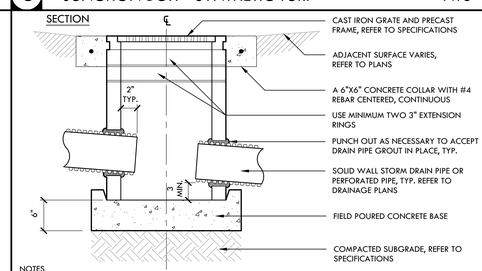


D PERFORATED SUBDRAIN NTS



NOTES
1. SET BOX COVER TO TOP OF PERMEABLE ROCK BASE ELEVATION. VERIFY EXACT LOCATION AND RIM ELEVATION PRIOR TO INSTALLATION.
2. POSITIVE DRAINAGE TO JUNCTION BOX SHALL BE VERIFIED BY CONTRACTOR.
3. ALL PIPING ENTRIES AND EXITS INTO DRAINAGE STRUCTURES SHALL BE GROUTED SMOOTH AND WATERTIGHT USING NON-SHRINK GROUT, TYP.
4. ALL RISERS AND EXTENSIONS SHALL BE CONNECTED WITH AN ADHESIVE PRODUCT (RAMNEK OR EQUIVALENT).
5. DO NOT CUT A HOLE IN TURF FOR JUNCTION BOX.

C JUNCTION BOX - SYNTHETIC TURF NTS



NOTES
1. SET CATCH BASIN RIM FLUSH WITH ADJACENT SURFACE. VERIFY EXACT LOCATION AND RIM PRIOR TO INSTALLATION.
2. POSITIVE DRAINAGE TO INLET SHALL BE VERIFIED BY CONTRACTOR.
3. ALL PIPING ENTRIES AND EXITS INTO DRAINAGE STRUCTURES SHALL BE GROUTED SMOOTH AND WATERTIGHT USING NON-SHRINK GROUT, TYP.
4. ALL RISERS AND EXTENSIONS SHALL BE CONNECTED WITH AN ADHESIVE PRODUCT (RAMNEK OR EQUIVALENT).
5. ALL GRATES SHALL BE FITTED WITH LOCK-DOWN MECHANISMS OR BOLT-DOWN COVERS.

B CATCH BASIN NTS

P DRYWELL - DRINKING FOUNTAIN NTS

SECTION - SWEEP

SECTION - 45 ELBOW

K STORM DRAIN CLEANOUT F

NOTE:
CONTRACTOR TO INSTALL SURFACING IMPROVEMENTS PER DRAWINGS. SECTIONS FOR SURFACING IMPROVEMENTS SHALL SUPERCEDE BACKFILL FOR STORM DRAINS.

A TRENCH BACKFILL - SOLID WALL STORM/SEWER NTS

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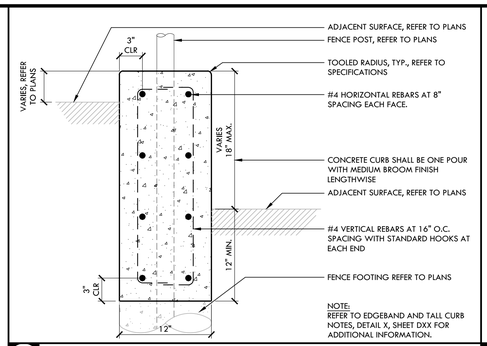
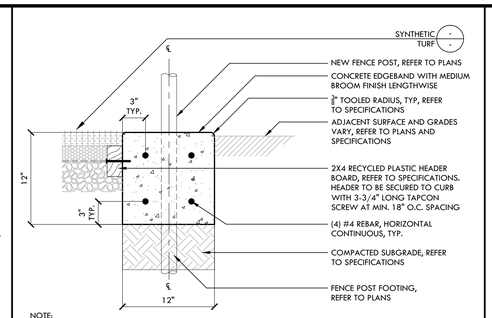


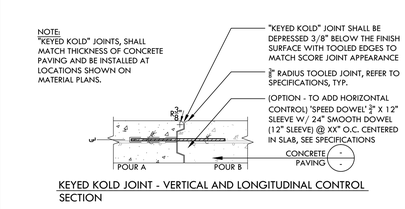
NOTE:
REFER TO EDGEBAND AND TALL CURB NOTES, DETAIL X, SHEET DXX FOR ADDITIONAL INFORMATION.

P 12" WIDE TALL CURB NTS

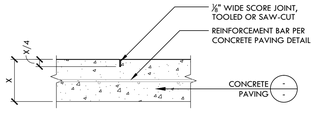


NOTE:
1. REFER TO EDGEBAND AND TALL CURB NOTES, DETAIL X, THIS SHEET FOR ADDITIONAL INFORMATION
2. ON LANDSCAPE SIDE, ADJACENT SURFACE HEIGHT VARIES - 3" MAX ONLY REFER TO GRADING PLAN.

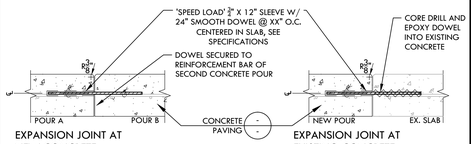
K 12" EDGEBAND AT SYNTHETIC TURF NTS



KEYED KOLD JOINT - VERTICAL AND LONGITUDINAL CONTROL SECTION

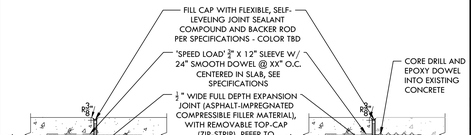


SCORE JOINT SECTION



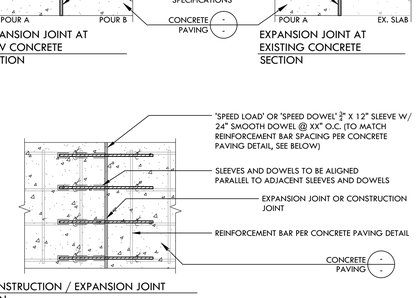
EXPANSION JOINT AT NEW CONCRETE SECTION

EXPANSION JOINT AT EXISTING CONCRETE SECTION



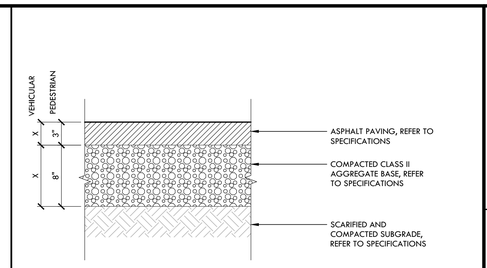
EXPANSION JOINT AT NEW CONCRETE SECTION

EXPANSION JOINT AT EXISTING CONCRETE SECTION



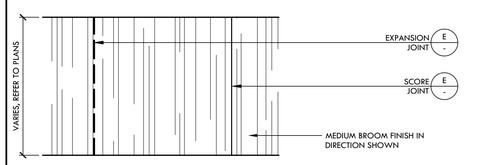
CONSTRUCTION / EXPANSION JOINT PLAN

H CONCRETE JOINTS NTS



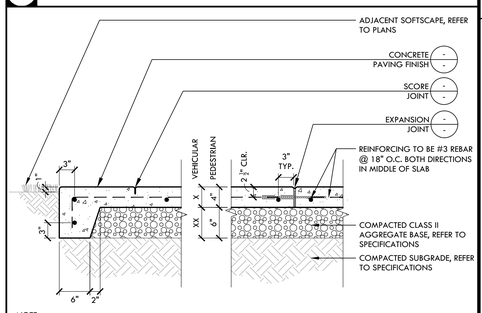
NOTES:
FOR LIME TREATED SOIL, AREAS RECEIVING LIME TREATMENT ------" BELOW SUBGRADE, USE ------" ASPHALT SECTION OVER ------" AGGREGATE BASE OVER THE LIME TREATED SUBGRADE.

E ASPHALT PAVING NTS



NOTE:
PROVIDE SCORE JOINTS 5' O.C. AND 10' O.C. FOR EXPANSION JOINT UNLESS OTHERWISE NOTED.

D CONCRETE PAVING FINISH NTS



NOTE:
PROVIDE SCORE JOINTS 5' O.C. AND 10' O.C. FOR EXPANSION JOINT UNLESS OTHERWISE NOTED.

C CONCRETE PAVING NTS

NOTES PERTAIN TO ALL DETAILS WITH SYNTHETIC TURF:

1. IDENTIFIED FINISH GRADES OF SYNTHETIC TURF SHALL BE THE TOP OF INFILL MATERIAL. INFILL MATERIAL SHALL BE ½" BELOW ADJACENT SURFACES UNLESS EDGE IS A VERTICAL CURB.
2. SOFTBALL FIELD STRIPING SHALL BE INLAID OR TUFTED 2" WIDE WHITE LINES, UNLESS NOTED OTHERWISE.
3. FOOTBALL FIELD STRIPING SHALL BE INLAID OR TUFTED 4" WIDE SILVER LINES, UNLESS NOTED OTHERWISE.
4. SOCCER FIELD STRIPING SHALL BE INLAID OR TUFTED 4" WIDE YELLOW LINES.
5. (GIRL LACROSSE, BOYS LACROSSE) STRIPING SHALL BE INLAID OR TUFTED 4" WIDE BLUE LINES.
6. CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR REVIEW AND ACCEPTANCE. ALL FIELD MARKINGS SHALL CONFORM TO CURRENT NFHS (NATIONAL FEDERATION OF STATE HIGH SCHOOL ASSOCIATIONS) AND C.I.F (CALIFORNIA INTERSCHOLASTIC FEDERATION) GUIDELINES.
7. NO MANUFACTURER, CONTRACTOR OR VENDOR LOGOS ARE TO BE INSTALLED UNLESS SPECIFIED.
8. NO CUT OUTS IN TURF SHALL BE MADE UNLESS OTHERWISE NOTED AND ESPECIALLY NO CUT OUTS IN THE FIELD OF PLAY. QUICK COUPLERS ARE THE ONLY UTILITIES TO BE CUT THROUGH TURF. QUICK COUPLERS ARE LOCATED ON THE PERIMETER AND OUT OF THE FIELD OF PLAY AREAS.

B SYNTHETIC TURF NOTES NTS

NOTES PERTAIN TO ALL EDGEBAND AND CURB DETAILS:

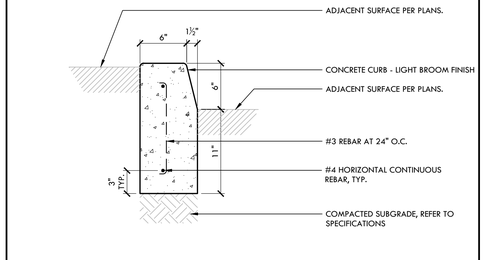
1. FOR EDGEBANDS AND CURBS WITH FENCING, INSTALL EXPANSION JOINTS AT ALL CORNERS, BEGINNINGS, AND ENDINGS OF RADII, AND AT ALL FENCE POSTS. INSTALL SCORE JOINTS AT 5' O.C. AND OR EVENLY SPACED AND CENTERED BETWEEN POSTS.
2. FOR EDGEBAND AND CURBS WITHOUT FENCING, INSTALL SCORE JOINTS AT 10' O.C. SPACING AND FIBER EXPANSION JOINTS EVERY 20' ON STRAIGHT RUNS. ON CURVED RUNS, FIBER EXPANSION JOINTS SHALL BE SPACED 10' O.C., WITH ALTERNATING SCORE JOINTS AT 5' O.C. SPACING.
3. ALL EXPANSION JOINTS SHALL BE SEALED, PER SPECIFICATIONS.

NOTES PERTAIN TO ALL TALL CURB DETAILS:

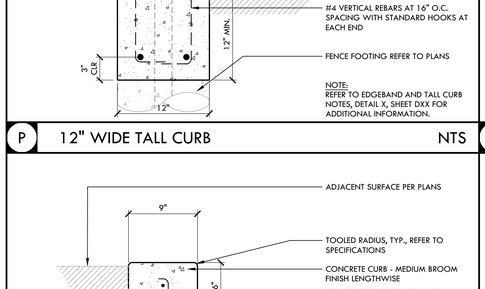
1. PROVIDE EXPANSION JOINTS AT 16' O.C. SPACING, CENTERED BETWEEN FENCE POSTS.
2. PROVIDE EXPANSION JOINTS AT EACH LOCATION WHERE AN ELEVATION STEP OCCURS BETWEEN CHANGING CURB/EDGEBAND TYPES.
3. AT EXPANSION JOINTS, PROVIDE A 24" LONG #4 DOWEL AT EACH CURB HORIZONTAL REBAR, CENTERED ON THE JOINT., AS PER DETAIL.
4. EXPANSION JOINTS SHALL BE INSTALLED WITH A ¾" CHAMFER BUILT INTO THE FORM WORK, IN ADDITION TO THE FIBER EXPANSION JOINT MATERIAL.
5. PROVIDE A CONTROL JOINT AT EACH FENCE POST. THE VERTICAL JOINT SHALL BE A ¾" CHAMFER BUILT INTO THE FORM WORK. THE HORIZONTAL JOINT, ALONG THE TOP OF CURB, SHALL BE A TOOLED SCORE JOINT, ALIGNED WITH AND MATCHING THE VERTICAL CHAMFER JOINT.
6. ALL EXPANSION JOINTS SHALL BE SEALED PER SPECIFICATION.
7. NO SCORE JOINTS ARE REQUIRED ON TALL CURBS, EXCEPT AS INDICATED AT EACH FENCE POST IN ITEM #5 ABOVE.

FINISHES
EDGEBANDS AND CURBS: MEDIUM BROOM
WALL AND TALL CURBS: MEDIUM SAND BLAST - TOP AND SIDES

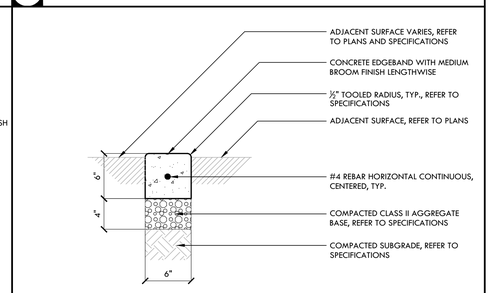
A EDGEBAND AND TALL CURB NOTES NTS



N 6" CURB NTS



O 9" CURB NTS



NOTE:
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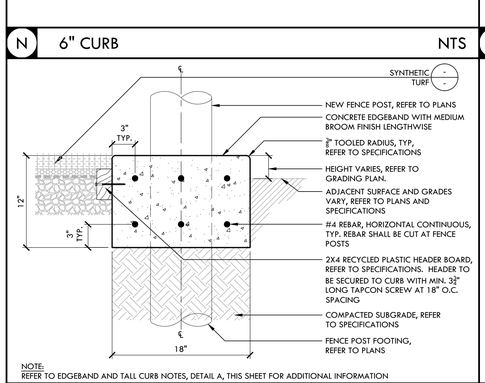
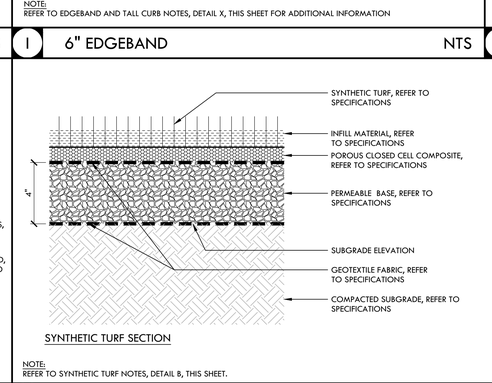
I 6" EDGEBAND NTS

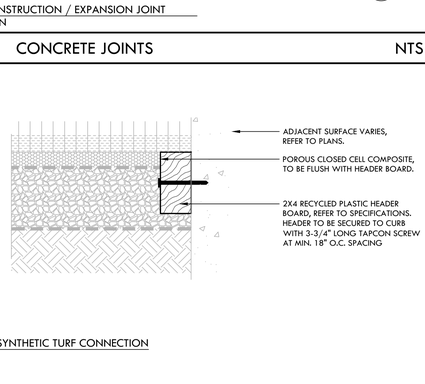


NOTE:
REFER TO EDGEBAND AND TALL CURB NOTES, DETAIL A, THIS SHEET FOR ADDITIONAL INFORMATION

M 18" EDGEBAND WITH FENCE AT SYNTHETIC TURF NTS



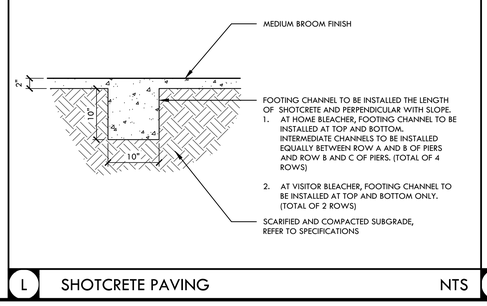
SYNTHETIC TURF SECTION



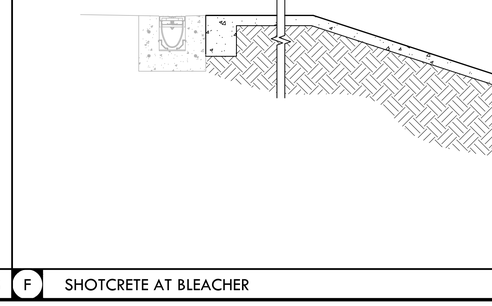
SYNTHETIC TURF CONNECTION

NOTE:
REFER TO SYNTHETIC TURF NOTES, DETAIL B, THIS SHEET.

G SYNTHETIC TURF WITH BROCK PAD NTS



L SHOTCRETE PAVING NTS



F SHOTCRETE AT BLEACHER NTS

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CONSTRUCTION DETAILS

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DRAWING NAME: \\prodnas01\projects\2018\1814400 – Monterey HS Schem Des\CAD_DTL2.1 – CON.dwg
PLOT DATE: 05–14–19 PLOTTED BY: station84

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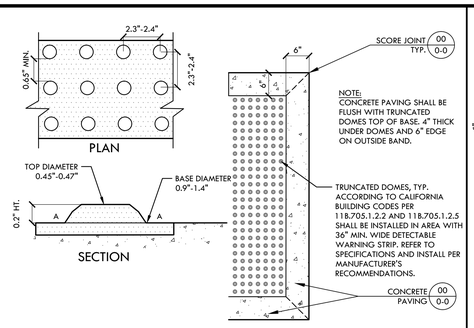
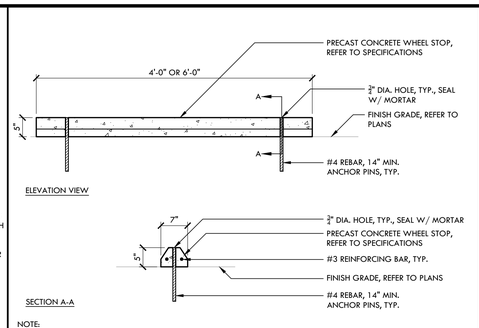
T

O TRUNCATED DOMES NTS



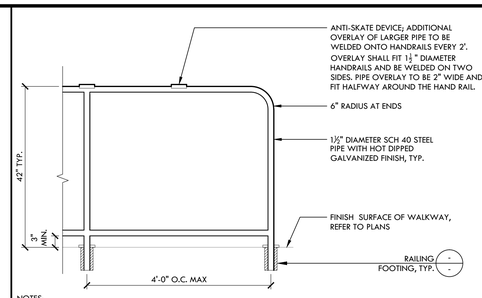
NOTES:
1. EACH ACCESSIBLE VIEWING SPACE RESERVED FOR THE DISABLED SHALL BE IDENTIFIED BY A PERMANENTLY AFFIXED REFLECTORIZED SIGN CONSTRUCTED OF PORCELAIN ON STEEL, BEADED TEST, OR EQUAL, DISPLAYING THE INTERNATIONAL SYMBOL OF ACCESSIBILITY. THE SIGN SHALL NOT BE SMALLER THAN 70 SQ. INCHES IN AREA AND SHALL BE CENTERED WITH LOGO.
2. IN ADDITION TO THE ABOVE REQUIREMENTS, THE SURFACE OF EACH ACCESSIBLE VIEWING SPACE SHALL HAVE A SURFACE IDENTIFICATION DUPLICATING THE SYMBOL OF ACCESSIBILITY IN BLUE PAINT. SYMBOL TO BE AT LEAST 3 FOOT SQUARE, AND ALIGNED WITH FRONT EDGE OF ADJACENT BLEACHER.

J PRECAST CONCRETE WHEEL STOP NTS



NOTE:
SHOP DRAWINGS REQUIRED FOR REVIEW AND APPROVAL BY OWNER REPRESENTATIVE PRIOR TO FABRICATION.

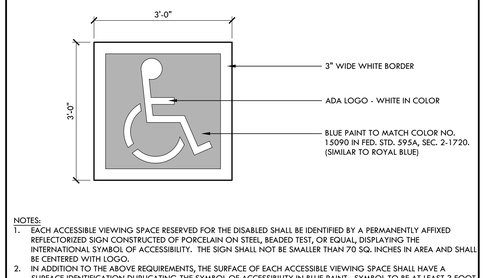
E GUARD RAIL NTS



NOTES:
1. THIS DRAWING IS FOR DESIGN INTENT ONLY. SUBMIT SHOP DRAWING TO SHOW MATERIAL, WELDS AND FASTENERS.
2. ALL PIPE TO BE SCHEDULE 40 WITH ¼" THICKNESS, & SHALL BE GALVANIZED FINISH.
3. ALL JOINTS SHALL BE FILLET WELD, GRIND SMOOTH JOINTS; TREAT ALL FINISHED WELDS WITH GALVANIZING.
4. ALL RAILINGS TO BE SHOP FABRICATED FOR FIELD INSTALLATION.

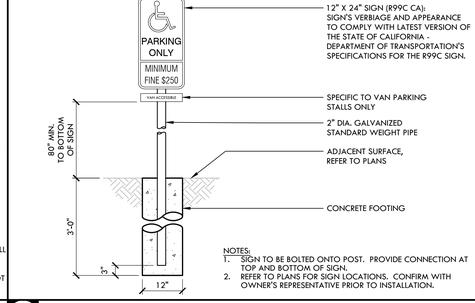
S

N ADA LOGO NTS



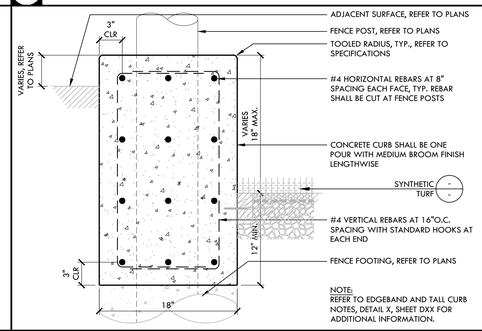
NOTES:
1. EACH ACCESSIBLE VIEWING SPACE RESERVED FOR THE DISABLED SHALL BE IDENTIFIED BY A PERMANENTLY AFFIXED REFLECTORIZED SIGN CONSTRUCTED OF PORCELAIN ON STEEL, BEADED TEST, OR EQUAL, DISPLAYING THE INTERNATIONAL SYMBOL OF ACCESSIBILITY. THE SIGN SHALL NOT BE SMALLER THAN 70 SQ. INCHES IN AREA AND SHALL BE CENTERED WITH LOGO.
2. IN ADDITION TO THE ABOVE REQUIREMENTS, THE SURFACE OF EACH ACCESSIBLE VIEWING SPACE SHALL HAVE A SURFACE IDENTIFICATION DUPLICATING THE SYMBOL OF ACCESSIBILITY IN BLUE PAINT. SYMBOL TO BE AT LEAST 3 FOOT SQUARE, AND ALIGNED WITH FRONT EDGE OF ADJACENT BLEACHER.

I ACCESSIBLE PARKING SIGN NTS



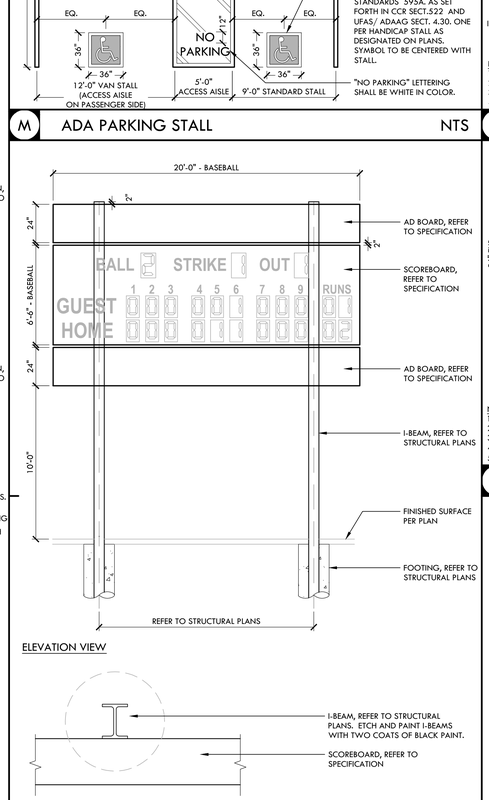
NOTES:
1. SIGN TO BE BOLTED ONTO POST. PROVIDE CONNECTION AT TOP AND BOTTOM OF SIGN.
2. REFER TO PLANS FOR SIGN LOCATIONS. CONFIRM WITH OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.

D RAILING FOOTING NTS

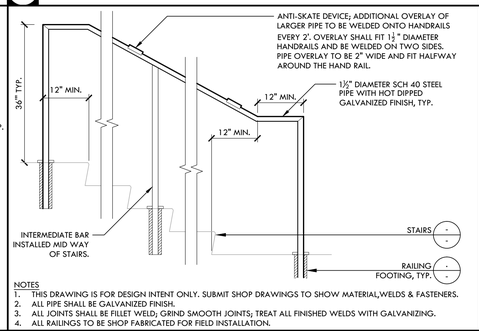


P

M ADA PARKING STALL NTS



H HANDRAIL - STAIR NTS

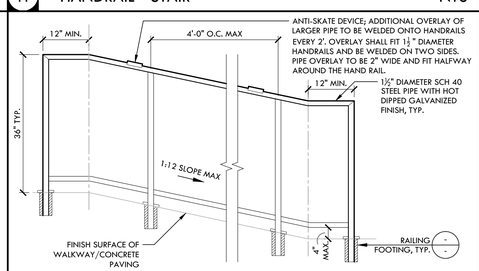


NOTES
1. THIS DRAWING IS FOR DESIGN INTENT ONLY. SUBMIT SHOP DRAWINGS TO SHOW MATERIAL,WELDS & FASTENERS.
2. ALL PIPE SHALL BE GALVANIZED FINISH.
3. ALL JOINTS SHALL BE FILLET WELD; GRIND SMOOTH JOINTS; TREAT ALL FINISHED WELDS WITH GALVANIZING.
4. ALL RAILINGS TO BE SHOP FABRICATED FOR FIELD INSTALLATION.

C 18" WIDE TALL CURB AT SYNTHETIC TURF NTS

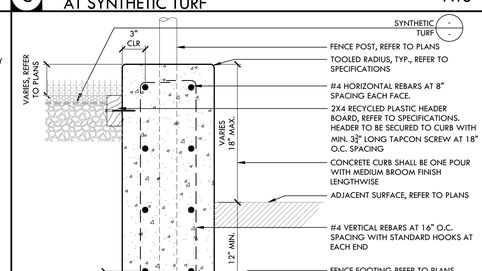
K

H HANDRAIL - RAMP NTS



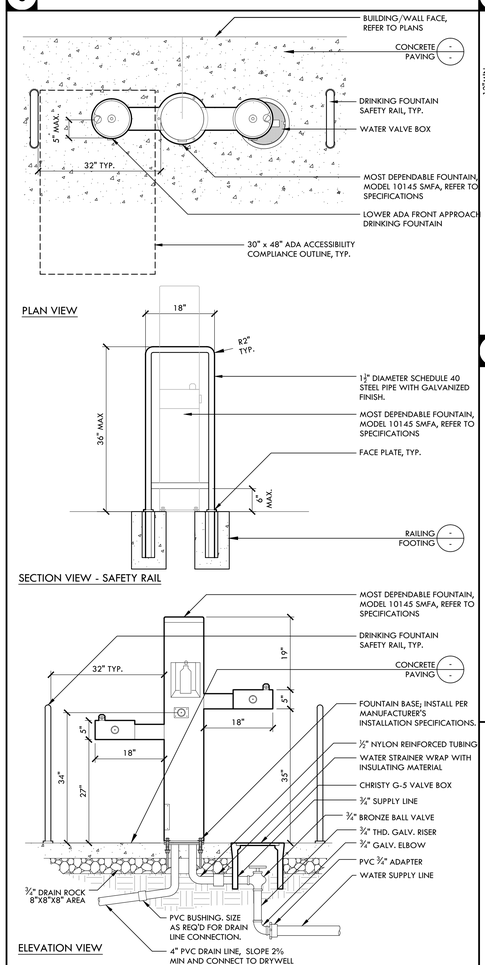
NOTES:
1. THIS DRAWING IS FOR DESIGN INTENT ONLY. SUBMIT SHOP DRAWING TO SHOW MATERIAL, WELDS AND FASTENERS.
2. ALL PIPE SHALL BE GALVANIZED FINISH.
3. ALL JOINTS SHALL BE FILLET WELD; GRIND SMOOTH JOINTS; TREAT ALL FINISHED WELDS WITH GALVANIZING.
4. ALL RAILINGS TO BE SHOP FABRICATED FOR FIELD INSTALLATION.
5. PROVIDE 1½" FROM OUTSIDE OF HANDRAIL TO CURB/WALL ADJACENT TO HANDRAIL

B 12" WIDE TALL CURB WITH SYNTHETIC TURF NTS



S

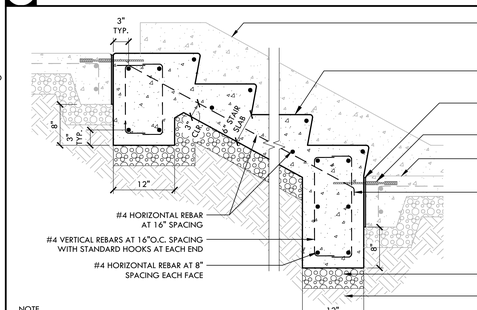
P DRINKING FOUNTAIN WITH BOTTLE FILLER NTS



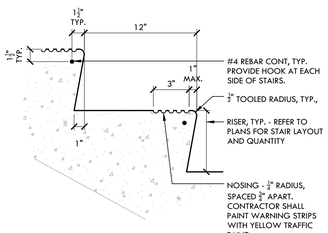
NOTES:
1. DRINKING FOUNTAIN MODEL 10145 SMFA WITH BOTTLE FILLER BY MOST DEPENDABLE FOUNTAINS, INC.
2. MEETS ADA REGULATIONS. ALL DRINKING FOUNTAINS TO BE INSTALLED CLEAR OF ACCESSIBLE PATH OF TRAVEL.
3. BOTTLE FILLER TO BE BUILT AT A FRONT APPROACH. CONTRACTOR TO COORDINATE WITH MANUFACTURER.
4. DRINKING FOUNTAIN TO HAVE POWDER COATED FINISH; COLOR: GREEN

K SCOREBOARD NTS

F STAIRS NTS



NOTE
REFER TO HAND RAILING DETAIL -----, THIS SHEET.



STAIR ENLARGEMENT

VERDE DESIGN
LANDSCAPE ARCHITECTURE
CIVIL ENGINEERING
SPORT PLANNING & DESIGN
2455 The Alameda
Santa Clara, CA 95050
tel: 408.985.7200
fax: 408.985.7260
www.VerdeDesignInc.com

STAMP

REGISTERED LANDSCAPE ARCHITECT
DEREK MOREE
No. 4148
Signature
EXPIRATION DATE: DEC. 2019
STATE OF CALIFORNIA

CONSULTANT

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APPL 01-XXXXXX
REVIEWED FOR:
SS _____ FLS _____ ACS _____
DATE _____
DSA PROJECT TRACKING NO:
XXXXX-XXX
FILE XX-XX

SHEET TITLE
CONSTRUCTION DETAILS

PROJECT NAME
MONTEREY HIGH SCHOOL MULTI-USE FIELD AND STADIUM RENOVATIONS

PROJECT ADDRESS
101 HERRMANN DRIVE
MONTEREY, CA
93940

SUBMITTAL	DATE
30% SUBMITTAL	10/12/18
60% SUBMITTAL	05/03/19

NO.	REVISIONS	DATE

DRAWN BY	CHECKED BY
VERDE	DM/MH
DATE ISSUED	SCALE
05/03/2019	AS NOTED

PROJ. NO.
1814400

SHEET NO.
D2.2

DRAWING NAME: \\prodnas01\projects\2018\1814400 - Monterey HS Schem Des\CAD_DTL2.2 - CON.dwg
PLOT DATE: 05-14-19 PLOTTED BY: station84

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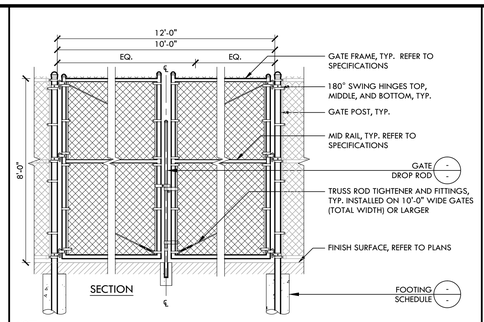
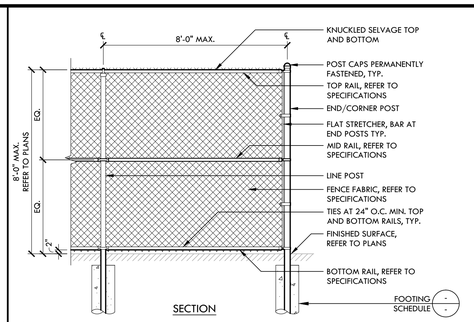
R

M 8' TALL - DOUBLE SWING GATE NTS



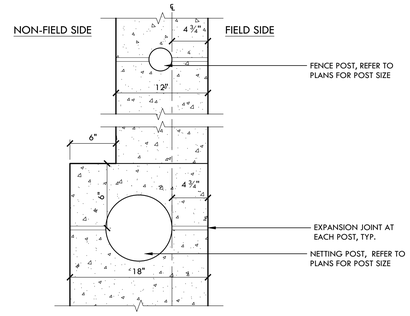
NOTE:
1. SEE GENERAL FENCE & GATE NOTES SHEET DX.X, DETAIL X.

I 8' TALL CHAIN LINK FENCE NTS



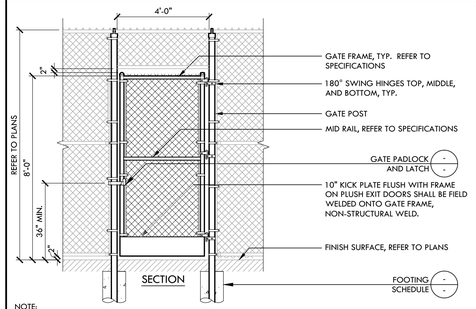
NOTE:
1. SEE GENERAL FENCE & GATE NOTES SHEET DX.X, DETAIL X.

D FENCE POST ALIGNMENT - PLAN VIEW NTS



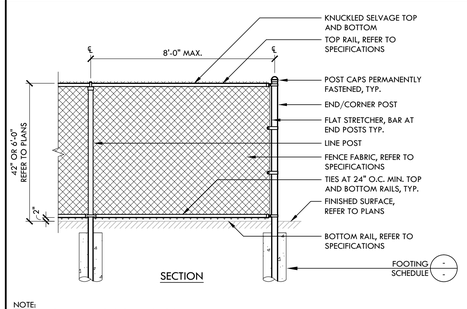
Q

L 8' TALL x 4' SWING GATE - TRANSOM NTS



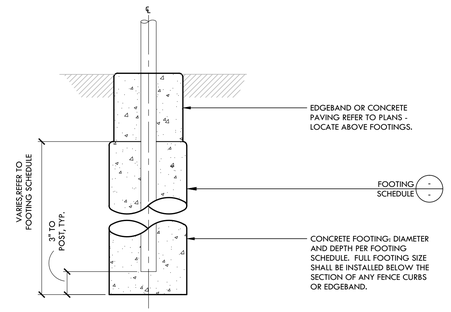
NOTE:
1. SEE GENERAL FENCE & GATE NOTES SHEET DX.X, DETAIL X.

H 42" OR 6' TALL CHAIN LINK FENCE NTS



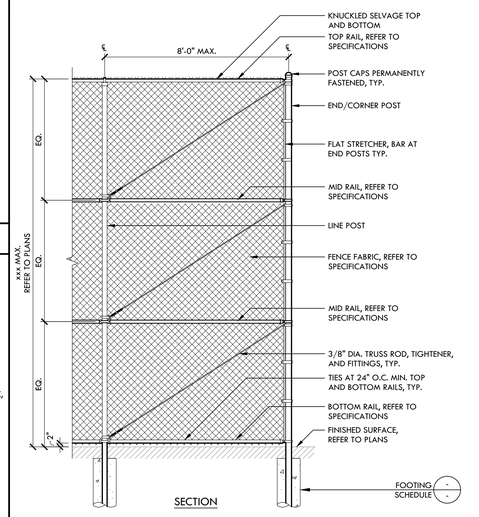
NOTE:
1. SEE GENERAL FENCE & GATE NOTES SHEET DX.X, DETAIL X.

C FENCE FOOTING NTS



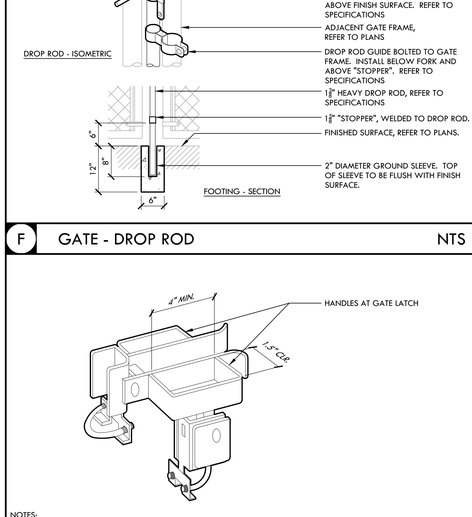
P

K 4' SWING GATE NTS



NOTE:
1. SEE GENERAL FENCE & GATE NOTES SHEET DX.X, DETAIL X.

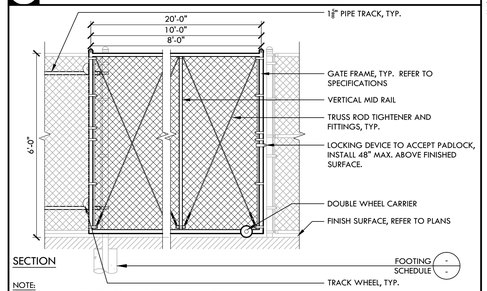
G CHAIN LINK FENCE AT CURB STEP NTS



NOTE:
1. SEE GENERAL FENCE & GATE NOTES SHEET DX.X, DETAIL X.

O

N 6' TALL - SLIDING GATE NTS



NOTE:
1. SEE GENERAL FENCE & GATE NOTES SHEET DX.X, DETAIL X.
2. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR ACCEPTANCE BY OWNER'S REPRESENTATIVE PRIOR TO FABRICATION.
3. GATES, TRACK WHEEL RAILING AND TRUSS RODS TO BE CONSTRUCTED ON THE INSIDE OF FENCE FOR SECURITY.

J 14'-16' TALL CHAIN LINK FENCE NTS

NOTE:
1. SEE GENERAL FENCE & GATE NOTES SHEET DX.X, DETAIL X.

F GATE - DROP ROD NTS

E GATE PADLOCK AND LATCH NTS

NOTES:
1. FULCRUM GATE LATCH AT HOOVER FENCE CO.
2. LATCH HANDLE MEASURED FROM INSIDE EDGE.
3. WELD HANDLE ON BOTH SIDES, MOUNT LEVER ON GATE.
4. CONTRACTOR TO REFER TO STRUCTURAL DRAWINGS FOR RECEIVING FENCE POST SIZES AND REFER TO SPECIFICATIONS FOR GATE FRAME SIZES. CONTRACTOR TO COORDINATE FABRICATION WITH MANUFACTURER FOR APPROPRIATE GATE LATCH SIZES.

B FOOTING SCHEDULE NTS

FENCE POST & FOOTING SCHEDULE

DESCRIPTION	HEIGHT	LINE POST (STD. GALV. PIPE)	CORNER/END POST (STD. GALV. PIPE)	FOOTING DIMENSIONS
CHAIN LINK FENCE	42"	2 1/2" DIA. STD.	3" DIA. STD.	X" DIA. X XX' DEEP
CHAIN LINK FENCE (WITH SLATS)	6'	2 1/2" DIA. STD.	3" DIA. STD.	STRUCTURAL PLANS
CHAIN LINK FENCE (WITH SLATS)	7'	2 1/2" DIA. STD.	3" DIA. STD.	STRUCTURAL PLANS
CHAIN LINK FENCE	8'	2 1/2" DIA. STD.	3" DIA. STD.	STRUCTURAL PLANS
CHAIN LINK FENCE (WITH SLATS)	10'	2 1/2" DIA. STD.	3" DIA. STD.	STRUCTURAL PLANS
CHAIN LINK FENCE	10'	2 1/2" DIA. STD.	3" DIA. STD.	STRUCTURAL PLANS
CHAIN LINK FENCE (AT BATTING CAGE)	14'	2 1/2" DIA. STD.	3" DIA. STD.	STRUCTURAL PLANS
CHAIN LINK FENCE (AT BATTING CAGE)	15'	2 1/2" DIA. STD.	3" DIA. STD.	STRUCTURAL PLANS
CHAIN LINK FENCE AT BACKSTOP	20'	6" DIA. STD.	-	STRUCTURAL PLANS
CHAIN LINK FENCE AT BACKSTOP	30'	6" DIA. STD.	-	STRUCTURAL PLANS
NETTING (20' OF NETTING OVER 10' CHAIN LINK)	30'	6" DIA. STD.	-	STRUCTURAL PLANS
NETTING (17' OF NETTING OVER 8' CHAIN LINK FENCE)	25'	6" DIA. STD.	-	STRUCTURAL PLANS
NETTING (11' OF NETTING OVER 14' CHAIN LINK FENCE)	25'	6" DIA. STD.	-	STRUCTURAL PLANS
FOUL POLE	20'	6" DIA. STD.	-	STRUCTURAL PLANS
FLAGPOLE	30'	6" DIA. STD.	-	STRUCTURAL PLANS
SCOREBOARD	26'	6" DIA. STD.	-	STRUCTURAL PLANS
DISCUS CAGE	26'	6" DIA. STD.	-	STRUCTURAL PLANS

GATE POST FOOTING SCHEDULE

DESCRIPTION	SIZE (H x L)	GATE POST (STD. GALV. PIPE)	FOOTING DIMENSIONS
CHAIN LINK SWING GATE	6' X 4'	3 1/2" DIA. STD.	X" DIA. X X' DEEP
CHAIN LINK SWING GATE	8' X 4'	3 1/2" DIA. STD.	X" DIA. X X' DEEP
CHAIN LINK DOUBLE SLIDING GATE	6' X 16'	3 1/2" DIA. STD.	X" DIA. X X' DEEP
CHAIN LINK DOUBLE SWING GATE	8' X 12'	3 1/2" DIA. STD.	X" DIA. X X' DEEP
CHAIN LINK DOUBLE SWING GATE	8' X 22'	3 1/2" DIA. STD.	X" DIA. X X' DEEP

NOTES:
1. REFER TO PLANS & DETAILS FOR POST LOCATIONS AND TOP OF POST FOOTING.
2. REFER TO FENCE FOOTING DETAIL, DETAIL C, THIS SHEET
3. THE PIPE SIZES INDICATED ARE FOR NPS, REFER TO SPECIFICATIONS.

A GATE AND FENCE NOTES NTS

NOTES PERTAIN TO ALL GATE AND FENCE DETAILS:

1. PLACE FENCE FABRIC ON TRACK SIDE. FENCE FABRIC ON PERIMETER FENCING IS TO BE ON FIELD SIDE.
2. BOTTOM RAIL TO BE 2" FROM FINISH GRADE, FENCE FABRIC BOTTOM EDGE TO BE 1" FROM FINISH GRADE.
3. SUBMIT SHOP DRAWINGS FOR ACCEPTANCE BY OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.
4. GATES IN PATH OF TRAVEL MUST MEET ENTRY AND EXIT DOOR REQUIREMENTS.
5. FOR PEDESTRIAN GATE , PROVIDE LOCKING DEVICE TO SECURE GATE IN OPEN POSITION.
6. ALL PEDESTRIAN SWING GATES SHALL RECEIVE A GATE LOCK. SEE DETAIL D. PEDESTRIAN GATES ARE NOTED BY HAVING A KICK PLATE ATTACHMENT.
7. REFER TO PLANS FOR EDGEBAND TYPE UNLESS OTHERWISE NOTED.
8. REFER TO DETAIL FOR FENCING WITH CURBS AND CHANGE IN ELEVATIONS.
9. FOR GATES WITH DROP BAR, PROVIDE 8" DEEP FOOTING WITH SCH. 40 STEEL PIPE SLEEVE. CANE STOP TO GO DOWN 4" INTO CONCRETE IN CLOSED POSITION AND OPEN POSITION.
10. TACK WELD HINGES TO POSTS AT GATES
11. DOUBLE SWING GATES THAT ARE INLINE WITH FENCING, GATE POSTS SHALL BE OFFSET FROM THE FENCE TO ALLOW SWING GATES TO OPEN A FULL 180° BACK AGAINST THE FENCE PER PLAN LAYOUT.
12. THE PIPE SIZES INDICATED ARE NPS FOR : STANDARD GALV. PIPE SCHEDULE 40.

VERDE DESIGN
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Santa Clara, CA 95050
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www.VerdeDesignInc.com

STAMP

REGISTERED LANDSCAPE ARCHITECT
DEREK MARKE
No. 4148
Signature
EXPIRATION DATE: DEC. 2019
STATE OF CALIFORNIA

CONSULTANT

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-XXXXXX
REVIEWED FOR:
SS _____ FLS _____ ACS _____
DATE _____
DSA PROJECT TRACKING NO:
XXXXX-XXX
FILE XX-XX

SHEET TITLE
FENCE AND GATE DETAILS

PROJECT NAME
MONTEREY HIGH SCHOOL MULTI-USE FIELD AND STADIUM RENOVATIONS

PROJECT ADDRESS
101 HERRMANN DRIVE
MONTEREY, CA
93940

SUBMITTAL	DATE
30% SUBMITTAL	10/12/18
60% SUBMITTAL	05/03/19

NO.	REVISIONS	DATE
1		
2		
3		
4		
5		
6		

DRAWN BY: VERDE
CHECKED BY: DM/MH
DATE ISSUED: 05/03/2019
SCALE: AS NOTED
PROJ. NO.: 1814400

SHEET NO.
D3.1

FENCE AND GATE DETAILS

DRAWING NAME: \\prodnas01\projects\2018\1814400 - Monterey HS Schem Des\CAD_DTL3.1 - FNCE.dwg
PLOT DATE: 05-14-19 PLOTTED BY: station84

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J

G

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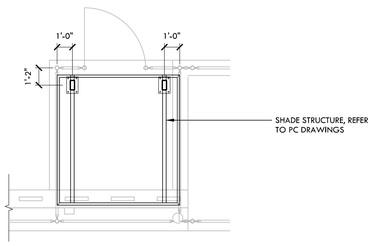
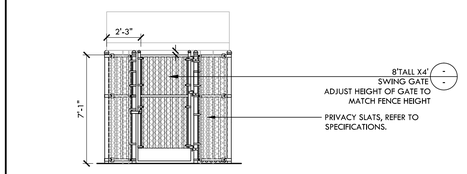
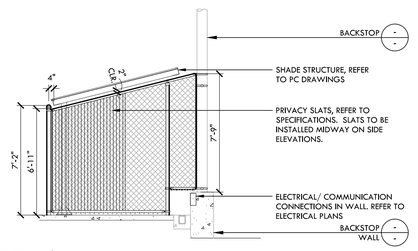


H

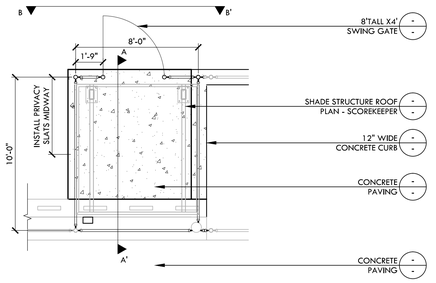
E SCOREKEEPER AREA - SHADE STRUCTURE PLAN NTS



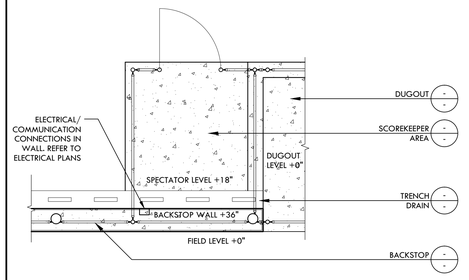
REAR ELEVATION B-B'

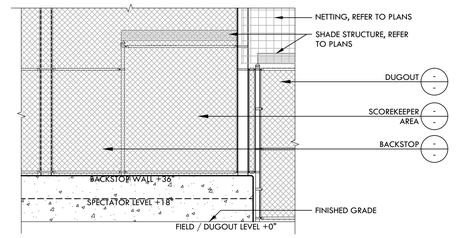


SECTION A-A'

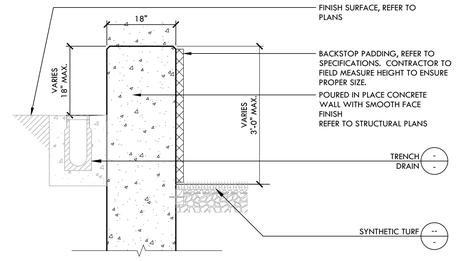


D SCOREKEEPER AREA - PLAN NTS

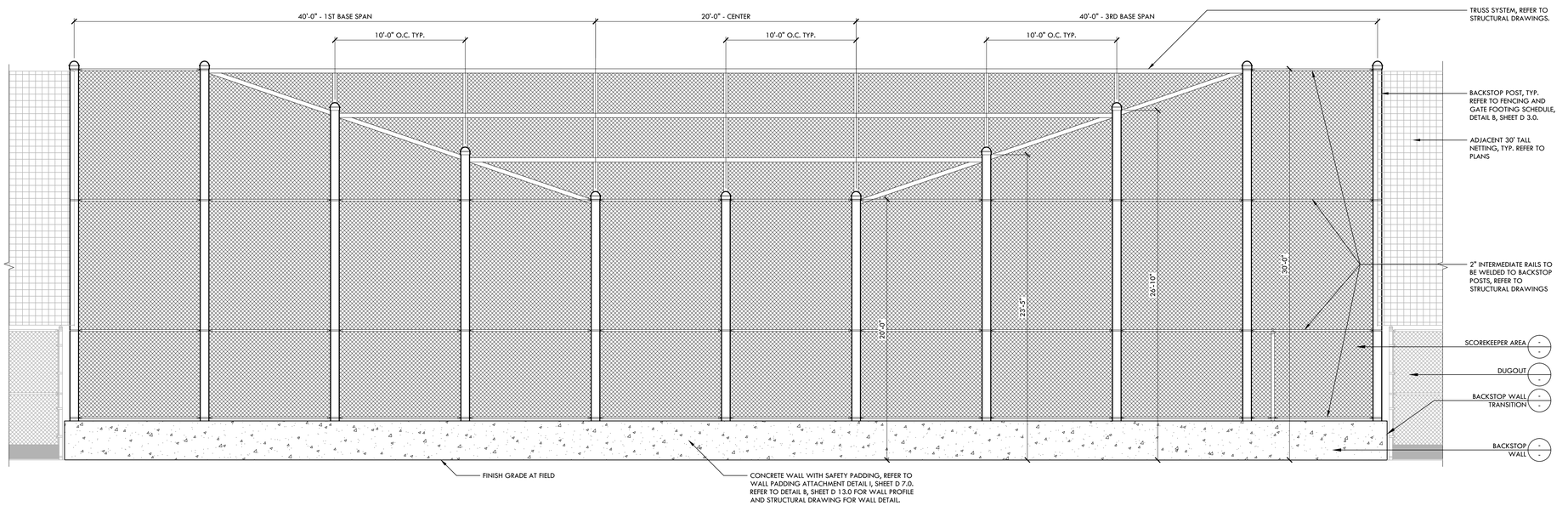




C BACKSTOP WALL - TRANSITION NTS



B BACKSTOP - WALL NTS



A BACKSTOP WITH TRUSS OVERHANG NTS

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SS _____ FLS _____ ACS _____
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DSA PROJECT TRACKING NO:
XXXXX-XXX
FILE XX-XX

SHEET TITLE
BACKSTOP DETAILS

PROJECT NAME
MONTEREY HIGH SCHOOL MULTI-USE FIELD AND STADIUM RENOVATIONS

PROJECT ADDRESS
101 HERRMANN DRIVE
MONTEREY, CA
93940

SUBMITTAL	DATE
30% SUBMITTAL	10/12/18
60% SUBMITTAL	05/03/19

NO.	REVISIONS	DATE

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VERDE	DM/MH
DATE ISSUED	SCALE
05/03/2019	AS NOTED
PROJ. NO.	
1814400	

SHEET NO.
D3.2

BACKSTOP DETAILS

DRAWING NAME: \\prodnas01\projects\2018\1814400 - Monterey HS Schem Des\CAD_DTL3.2 - BACKSTOP.dwg
PLOT DATE: 05-14-19 PLOTTED BY: station84

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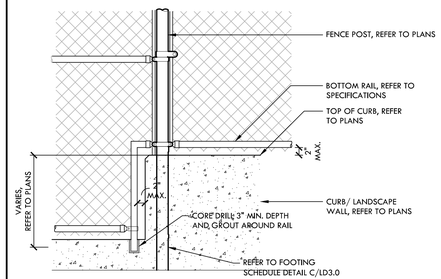
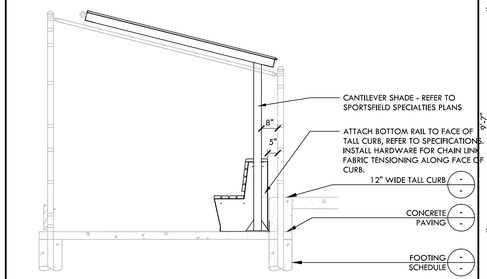


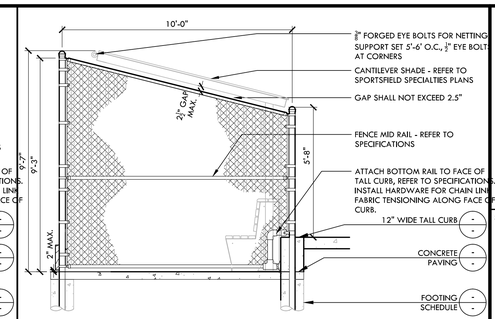
NOTE:
1. SEE GENERAL FENCE & GATE NOTES SHEET LD3.0, DETAIL A.

T CHAIN LINK FENCE AT CURB STEP - TYPE 2 NTS



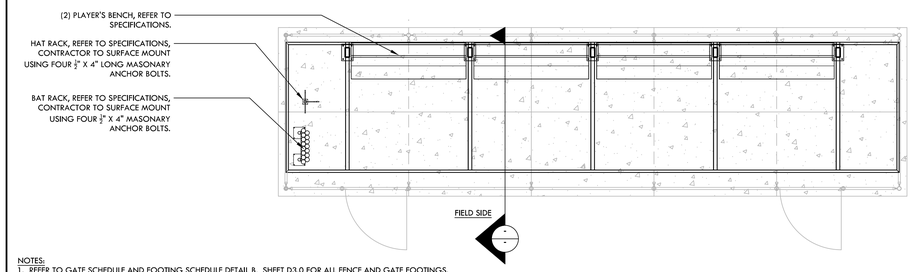
NOTES:
1. DUGOUT BACK AND SIDES TO RECEIVE SLATS, REFER TO SPECIFICATIONS.

CHAIN LINK DUGOUT - SECTION NTS



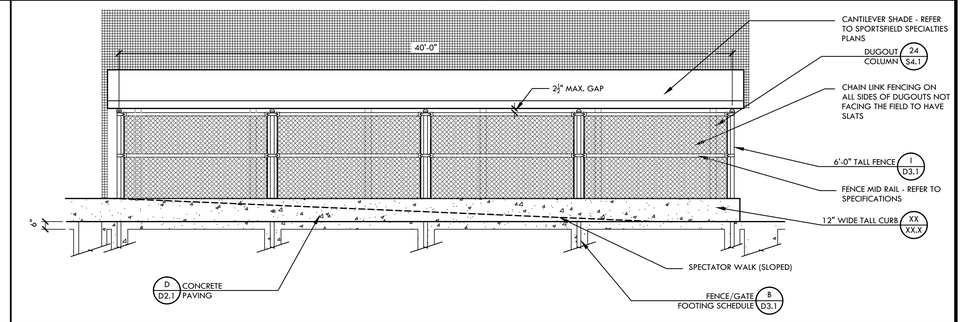
NOTES:
1. DUGOUT BACK AND SIDES TO RECEIVE SLATS, REFER TO SPECIFICATIONS.

E CHAIN LINK DUGOUT - ELEVATION NTS



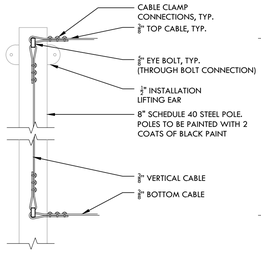
NOTES:
1. REFER TO GATE SCHEDULE AND FOOTING SCHEDULE DETAIL B, SHEET D3.0 FOR ALL FENCE AND GATE FOOTINGS.
2. ALL GATES ON FIELD SIDE SHALL OPEN TOWARD HOME PLATE.
3. DUGOUT SHOWN REFLECTS DUGOUT ON 1ST BASE LINE. CONSTRUCTION OF 3RD BASE LINE DUGOUT SHALL BE A MIRROR OF THIS DETAIL.

S SHADE STRUCTURE ROOF - PLAN NTS

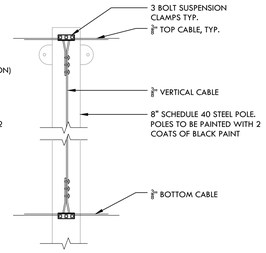


I DUGOUT - BACK ELEVATION - 1ST BASE NTS

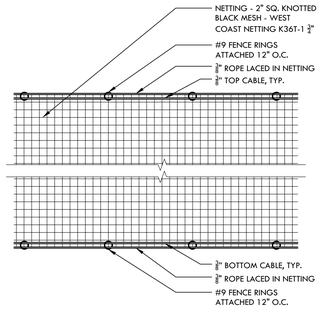
NOTES:
1. POLE = 8"DIA. X SCHED. 40 MIN YIELD STRENGTH TO BE 35KSI
2. MAX SPACING = 20' O.C.
3. STRUCTURAL STEEL = ASTM A-36
4. STEEL PIPE /TUBE = ASTM A-53 GRADE B
5. BOLTS = A-307
6. WIRE ROPE CLAMPS PER FEDERAL SPC FF-C-450, TYPE 1, CLASS 1
7. CABLE = ASTM A-603 6X19 WIRE ROPE
8. NETTING FABRICATOR WEST COAST NETTING KINGMAN, AZ



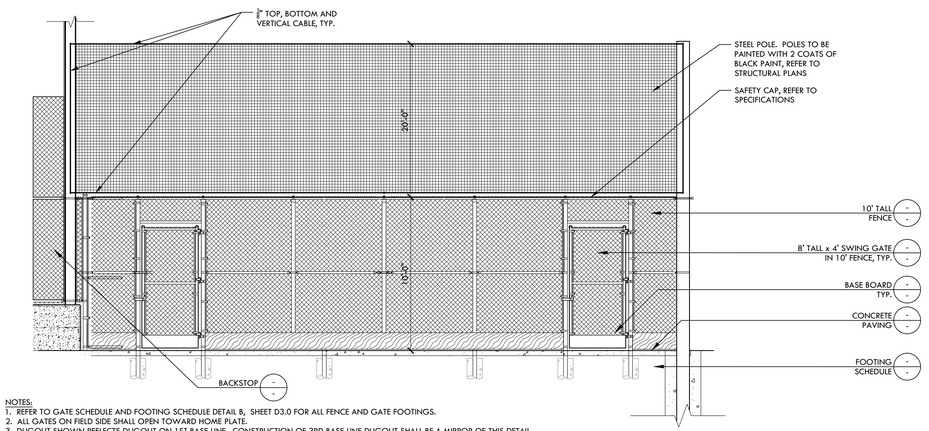
END POLES



MIDDLE POLES

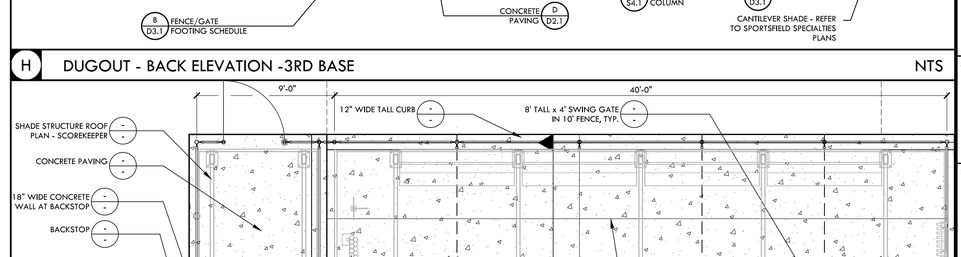


NETTING



NOTES:
1. REFER TO GATE SCHEDULE AND FOOTING SCHEDULE DETAIL B, SHEET D3.0 FOR ALL FENCE AND GATE FOOTINGS.
2. ALL GATES ON FIELD SIDE SHALL OPEN TOWARD HOME PLATE.
3. DUGOUT SHOWN REFLECTS DUGOUT ON 1ST BASE LINE. CONSTRUCTION OF 3RD BASE LINE DUGOUT SHALL BE A MIRROR OF THIS DETAIL.

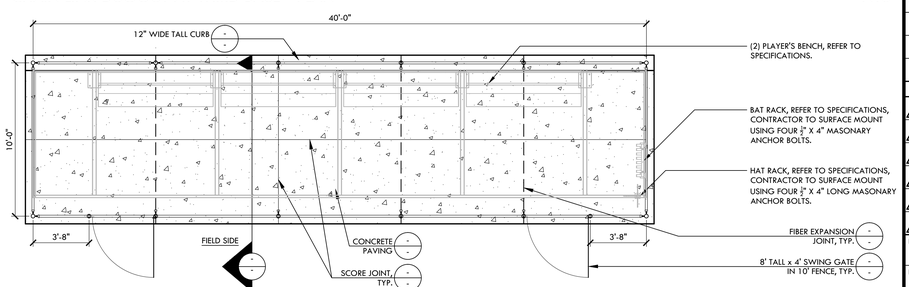
P CHAIN LINK DUGOUT - FRONT ELEVATION NTS



H DUGOUT - BACK ELEVATION -3RD BASE NTS

NOTES:
1. REFER TO GATE SCHEDULE AND FOOTING SCHEDULE DETAIL B, SHEET D3.0 FOR ALL FENCE AND GATE FOOTINGS.
2. ALL GATES ON FIELD SIDE SHALL OPEN TOWARD HOME PLATE.
3. DUGOUT SHOWN REFLECTS DUGOUT ON 1ST BASE LINE. CONSTRUCTION OF 3RD BASE LINE DUGOUT SHALL BE A MIRROR OF THIS DETAIL.

G CHAIN LINK DUGOUT AT THIRD BASE - PLAN NTS



NOTES:
1. REFER TO GATE SCHEDULE AND FOOTING SCHEDULE DETAIL B, SHEET D3.0 FOR ALL FENCE AND GATE FOOTINGS.
2. ALL GATES ON FIELD SIDE SHALL OPEN TOWARD HOME PLATE.
3. DUGOUT SHOWN REFLECTS DUGOUT ON 1ST BASE LINE. CONSTRUCTION OF 3RD BASE LINE DUGOUT SHALL BE A MIRROR OF THIS DETAIL.

F CHAIN LINK DUGOUT AT FIRST BASE - PLAN NTS

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FILE XX-XX

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DUGOUT DETAILS

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MONTEREY HIGH SCHOOL MULTI-USE FIELD AND STADIUM RENOVATIONS

PROJECT ADDRESS
101 HERRMANN DRIVE
MONTEREY, CA
93940

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60% SUBMITTAL	05/03/19

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05/03/2019	AS NOTED

PROJ. NO.
1814400

SHEET NO.
D3.3

DUGOUT DETAILS

DRAWING NAME: \\prodnas01\projects\2018\1814400 - Monterey HS Schem Des\CAD_DTL3.3 - DUG.dwg
PLOT DATE: 05-14-19 PLOTTED BY: station84

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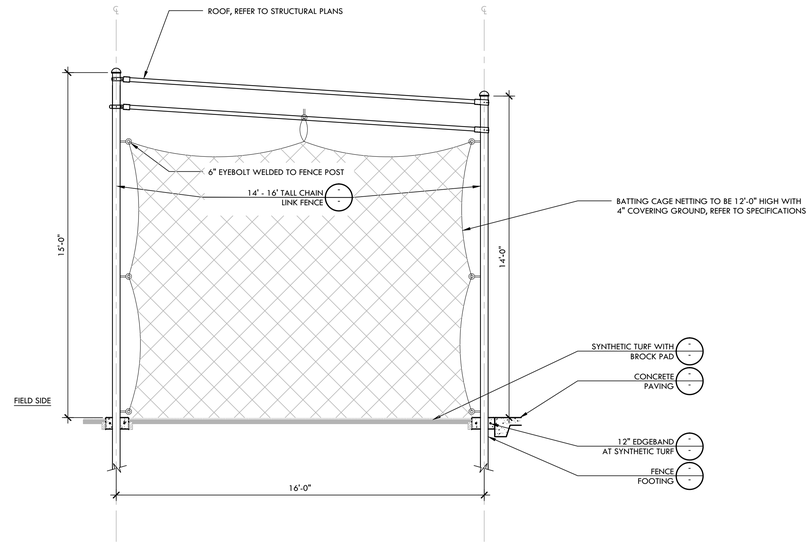
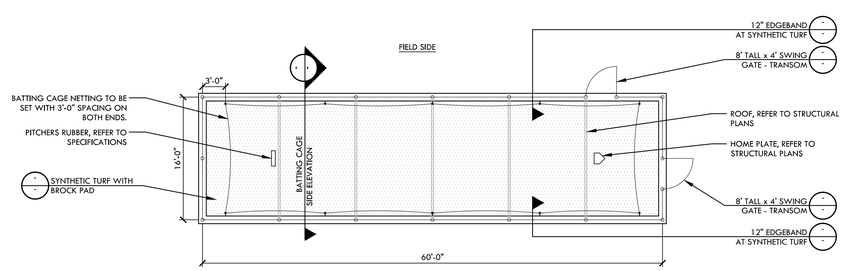
T J E D

S I C



H G B BATTING CAGE SIDE ELEVATION NTS

K F A SOFTBALL BATTING CAGE - PLAN NTS



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FILE XX-XX

SHEET TITLE
BATTING CAGE DETAILS

PROJECT NAME
MONTEREY HIGH SCHOOL MULTI-USE FIELD AND STADIUM RENOVATIONS

PROJECT ADDRESS
101 HERRMANN DRIVE
MONTEREY, CA
93940

SUBMITTAL	DATE
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60% SUBMITTAL	05/03/19

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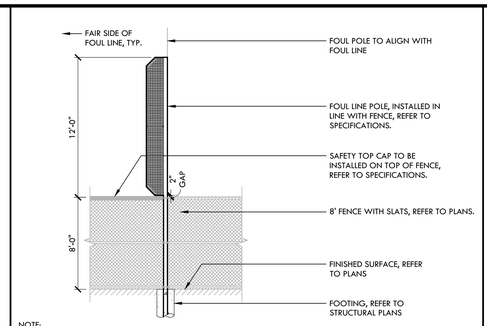
PROJ. NO.
1814400

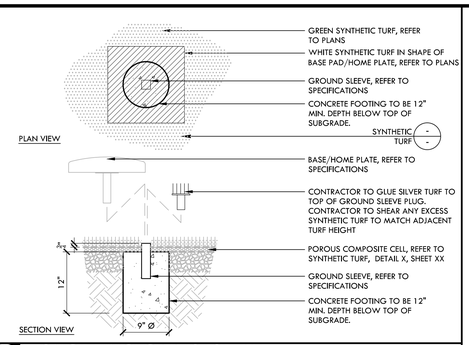
SHEET NO.
D3.4

DRAWING NAME: \\pradnas01\projects\2018\1814400 - Monterey HS Schem Des\CAD_DTL3.4 - BULLPEN.dwg
PLOT DATE: 05-14-19 PLOTTED BY: station84

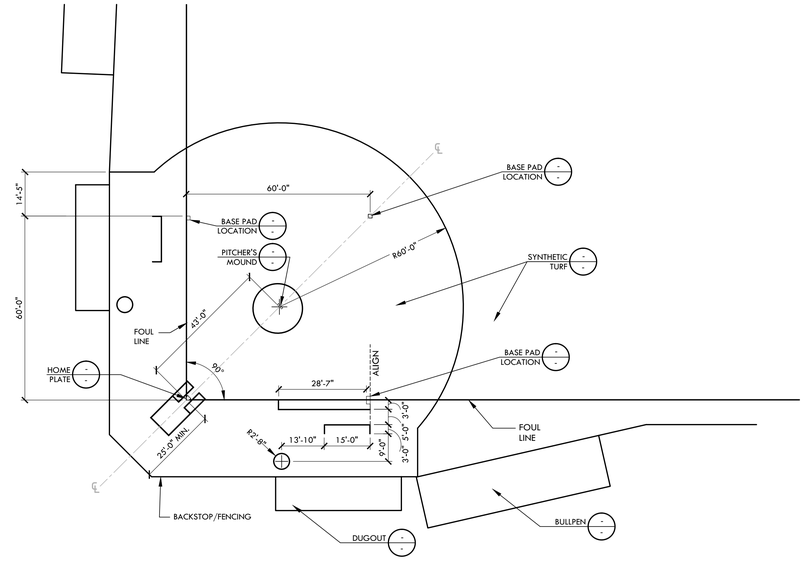


NOTE:
CONTRACTOR TO VERIFY FOUL POLE FOOTING TYPE AND INSTALL PER MANUFACTURER'S RECOMMENDATION.

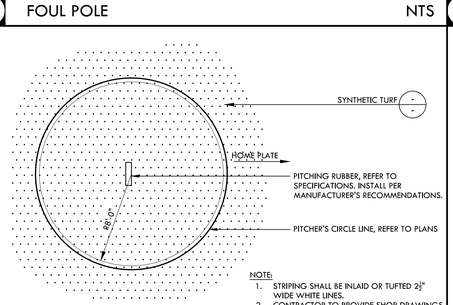
T FOUL POLE — NTS



O SINGLE ANCHOR BASE SLEEVE IN SYNTHETIC TURF — NTS

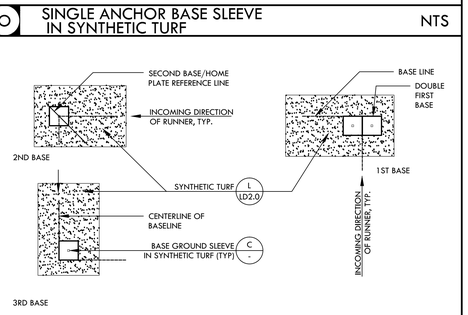


I SOFTBALL INFIELD - HS GIRLS — NTS



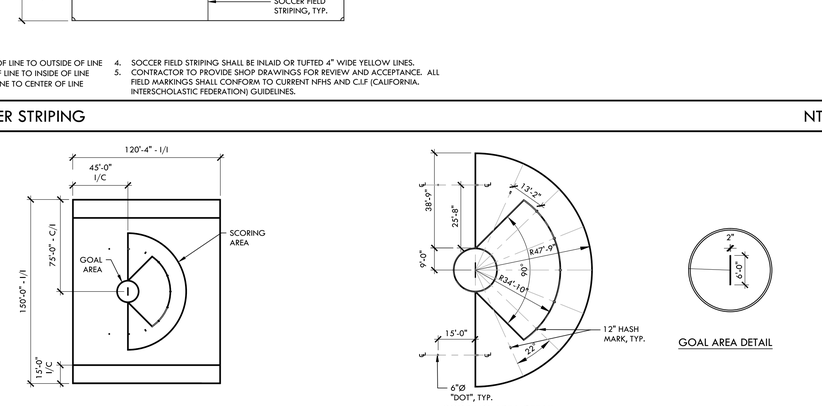
NOTE:
1. STRIPING SHALL BE INLAID OR TUFTED 2" WIDE WHITE LINES.
2. CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR REVIEW AND ACCEPTANCE. ALL FIELD MARKINGS SHALL CONFORM TO CURRENT NFHS AND CJF (CALIFORNIA. INTERSCHOLASTIC FEDERATION) GUIDELINES.

S PITCHERS STRIPING - SOFTBALL — NTS



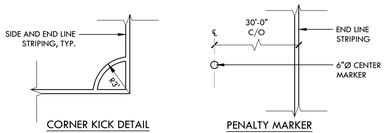
NOTES:
1. PEGS LOCATED CENTERED ON BASE, 7" FROM INTERSECTION OF BASE LINE FOR 1ST AND 3RD BASES.
2. PEGS LOCATED ON INTERSECTION OF BASE LINE FOR 2ND BASE.
3. DETAIL PROVIDED FOR LOCATION ONLY.

N BASE PAD LOCATION — NTS



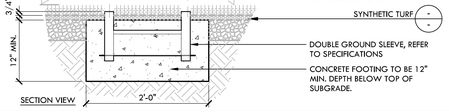
NOTES
1. O/O = OUTSIDE OF LINE TO OUTSIDE OF LINE
2. O/I = OUTSIDE OF LINE TO INSIDE OF LINE
3. O/C = OUTSIDE LINE TO CENTER OF LINE
4. SOCCER FIELD STRIPING SHALL BE INLAID OR TUFTED 4" WIDE YELLOW LINES.
5. CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR REVIEW AND ACCEPTANCE. ALL FIELD MARKINGS SHALL CONFORM TO CURRENT NFHS AND C.I.F (CALIFORNIA. INTERSCHOLASTIC FEDERATION) GUIDELINES.

H SOCCER STRIPING — NTS



CORNER KICK DETAIL

PENALTY MARKER



R DOUBLE ANCHOR BASE SLEEVE IN SYNTHETIC TURF — NTS

BATTER'S & CATCHER'S BOX STRIPING

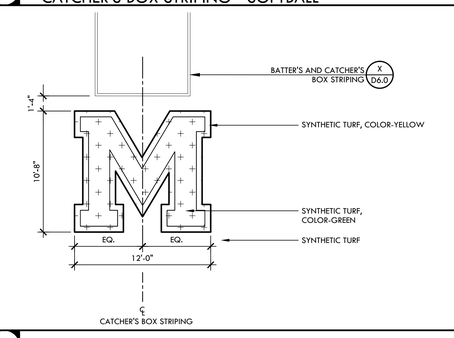
HOME PLATE ENLARGEMENT

NOTE:
1. STRIPING SHALL BE INLAID OR TUFTED 2" WIDE WHITE LINES.
2. CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR REVIEW AND ACCEPTANCE. ALL FIELD MARKINGS SHALL CONFORM TO CURRENT NFHS AND C.I.F (CALIFORNIA. INTERSCHOLASTIC FEDERATION) GUIDELINES.

M HOME PLATE, BATTER'S AND CATCHER'S BOX STRIPING - SOFTBALL — NTS

SCORING AREA DETAIL

GOAL AREA DETAIL

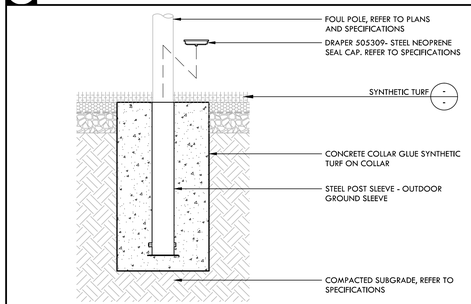


DETAILS

L SCHOOL LOGO - MONTEREY HIGH SCHOOL — NTS

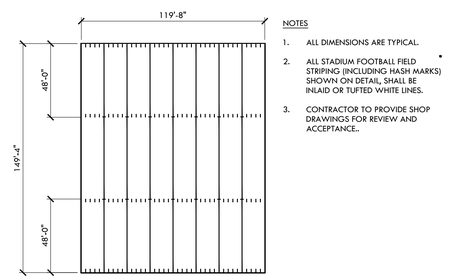
G LACROSSE STRIPING — NTS

NOTES
1. O/O = OUTSIDE OF LINE TO OUTSIDE OF LINE
2. O/I = OUTSIDE OF LINE TO INSIDE OF LINE
3. O/C = OUTSIDE LINE TO CENTER OF LINE
4. LACROSSE FIELD STRIPING SHALL BE INLAID OR TUFTED 4" WIDE BLUE LINES.
5. CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR REVIEW AND ACCEPTANCE. ALL FIELD MARKINGS SHALL CONFORM TO CURRENT NFHS AND C.I.F (CALIFORNIA. INTERSCHOLASTIC FEDERATION) GUIDELINES.



SECTION VIEW

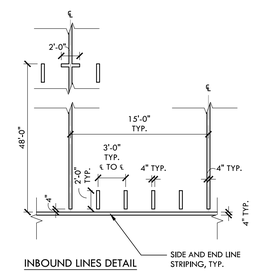
K FOUL POLE SLEEVE — NTS



FOOTBALL FIELD LAYOUT

NOTES

1. ALL DIMENSIONS ARE TYPICAL.
2. ALL STADIUM FOOTBALL FIELD STRIPING (INCLUDING HASH MARKS) SHOWN ON DETAIL, SHALL BE INLAID OR TUFTED WHITE LINES.
3. CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR REVIEW AND ACCEPTANCE..



INBOUND LINES DETAIL

P

F FOOTBALL PRACTICE FIELD STRIPING - HALF FIELD — NTS

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DATE ISSUED	SCALE
05/03/2019	AS NOTED
PROJ. NO.	
1814400	

SHEET NO.
D6.0

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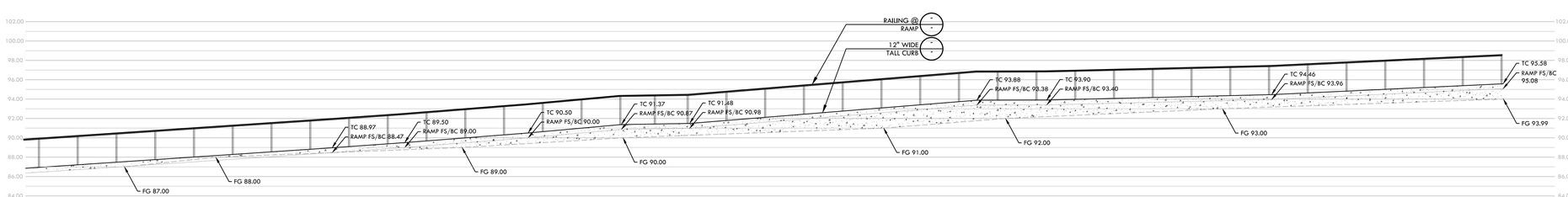
Q M I E

P L H D

O K G C

N J F B

NOTE:
1. ELEVATION LINES APPLY TO WALL, FOOTING, FINISH GRADING AND FINISH SURFACE ONLY.
2. FOR RAILING DIMENSIONS, REFER TO DETAIL SHEET D9?.



A WALL PROFILE- 1 NTS

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REGISTERED LANDSCAPE ARCHITECT
DEREK MARKE
No. 4148
Signature
EXPIRATION DATE:
DEC. 2019
STATE OF CALIFORNIA

CONSULTANT

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APPL 01-XXXXXX
REVIEWED FOR:
SS _____ FLS _____ ACS _____
DATE _____
DSA PROJECT TRACKING NO:
XXXXX-XXX
FILE XX-XX

SHEET TITLE
WALL DETAILS

PROJECT NAME
MONTEREY HIGH SCHOOL MULTI-USE FIELD AND STADIUM RENOVATIONS

PROJECT ADDRESS
101 HERRMANN DRIVE
MONTEREY, CA
93940

SUBMITTAL	DATE
30% SUBMITTAL	10/12/18
60% SUBMITTAL	05/03/19

NO.	REVISIONS	DATE
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PROJ. NO.: 1814400	

SHEET NO.
D6.0

WALL DETAILS

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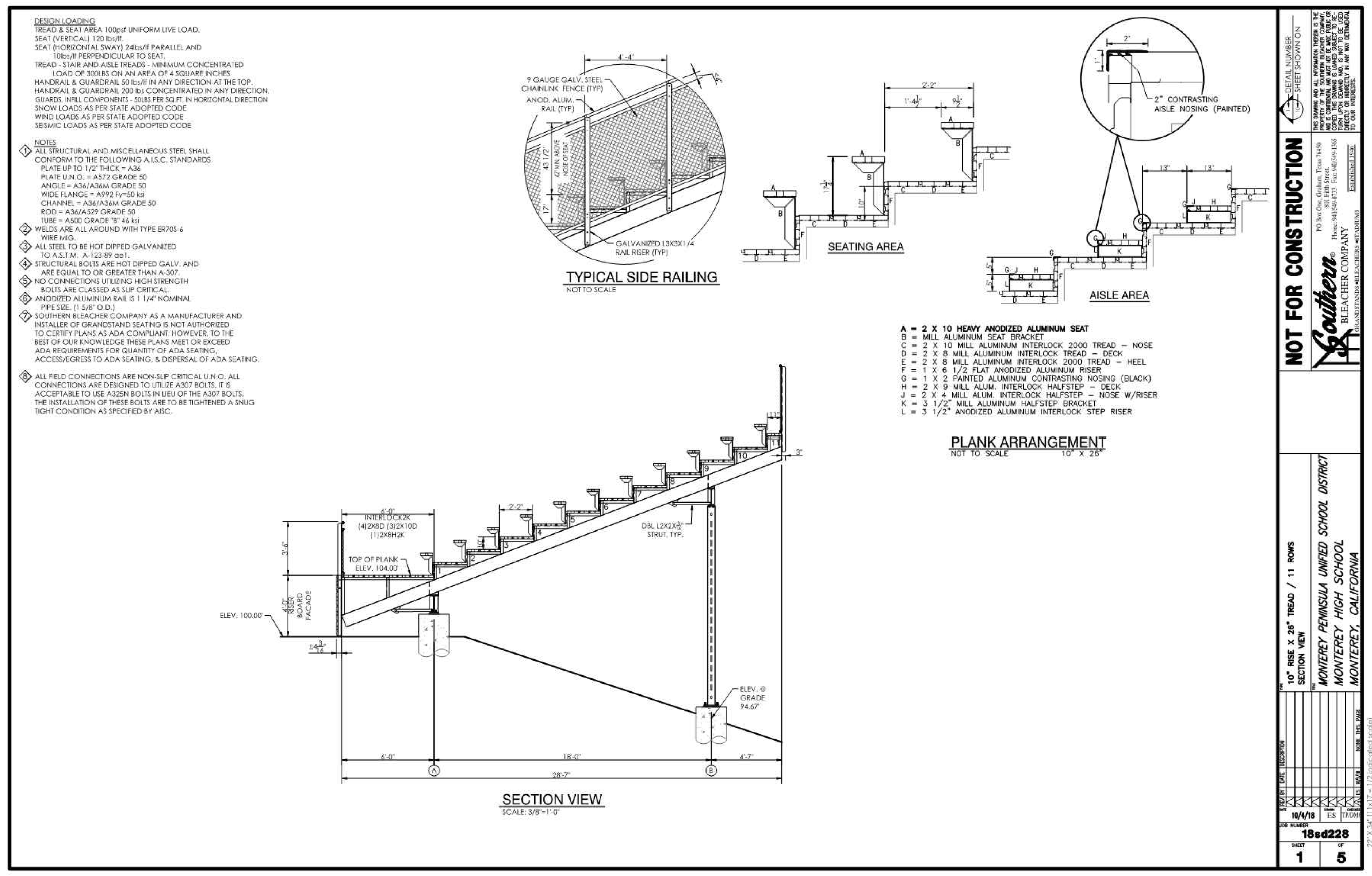

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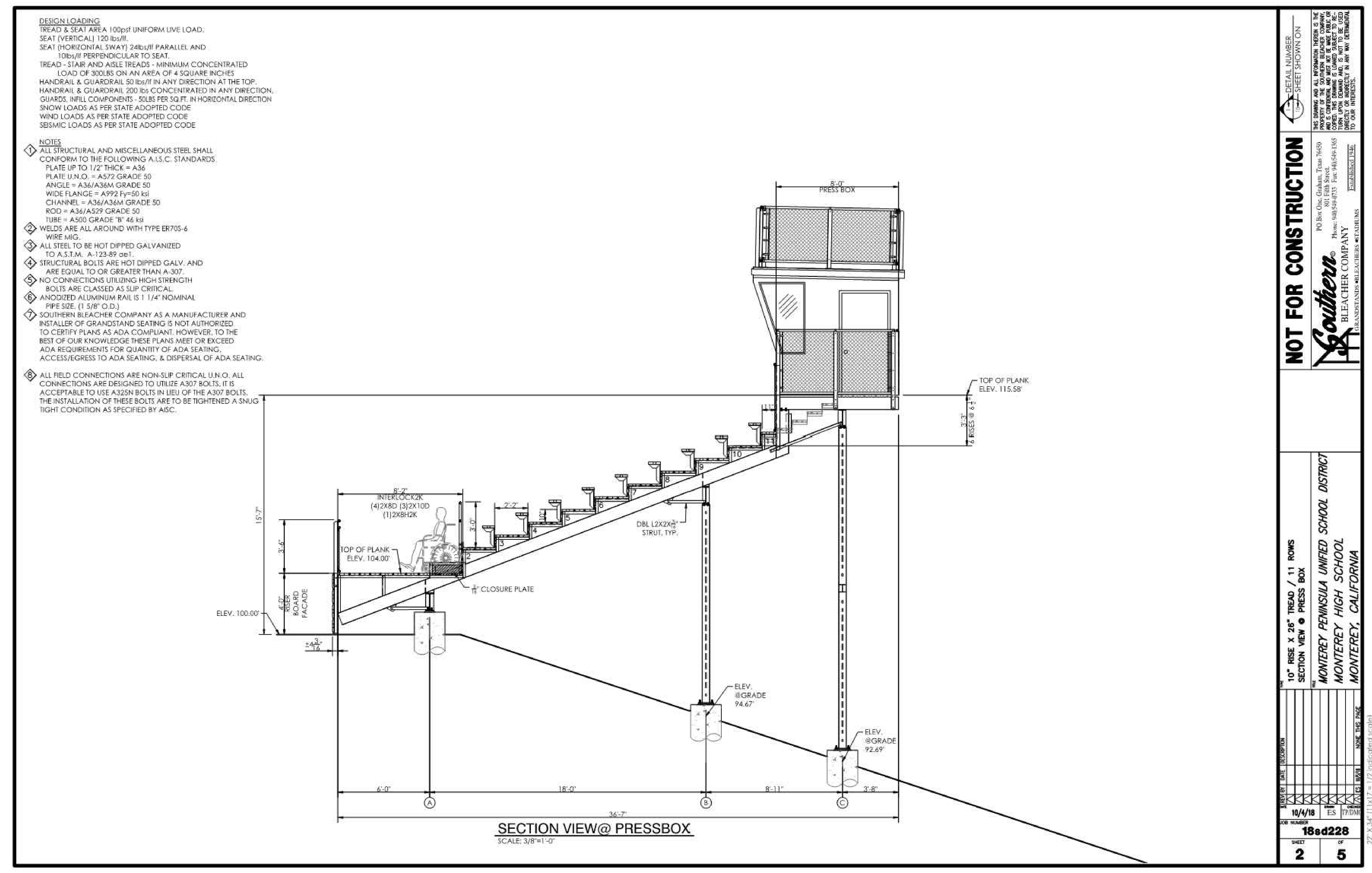

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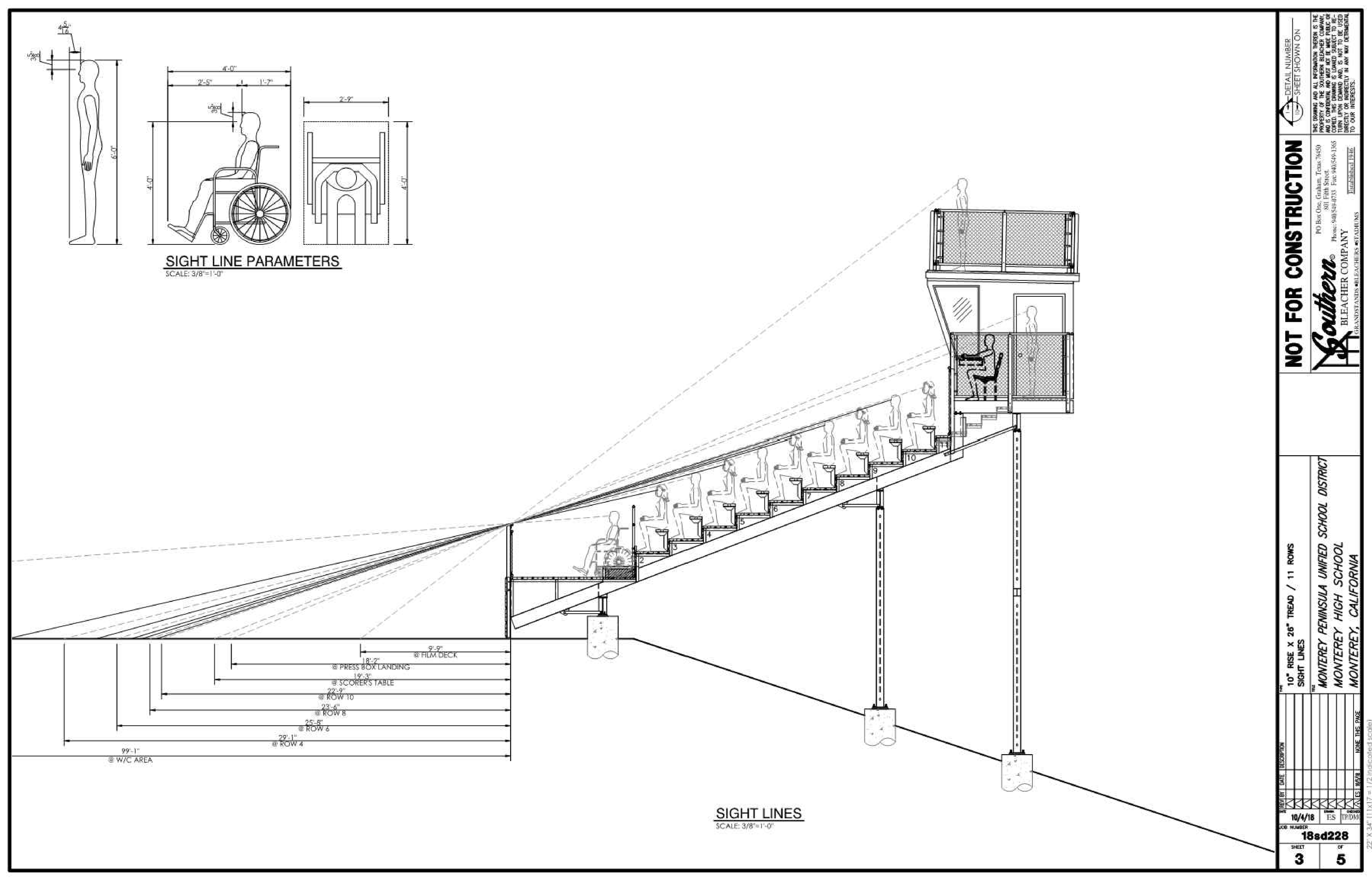

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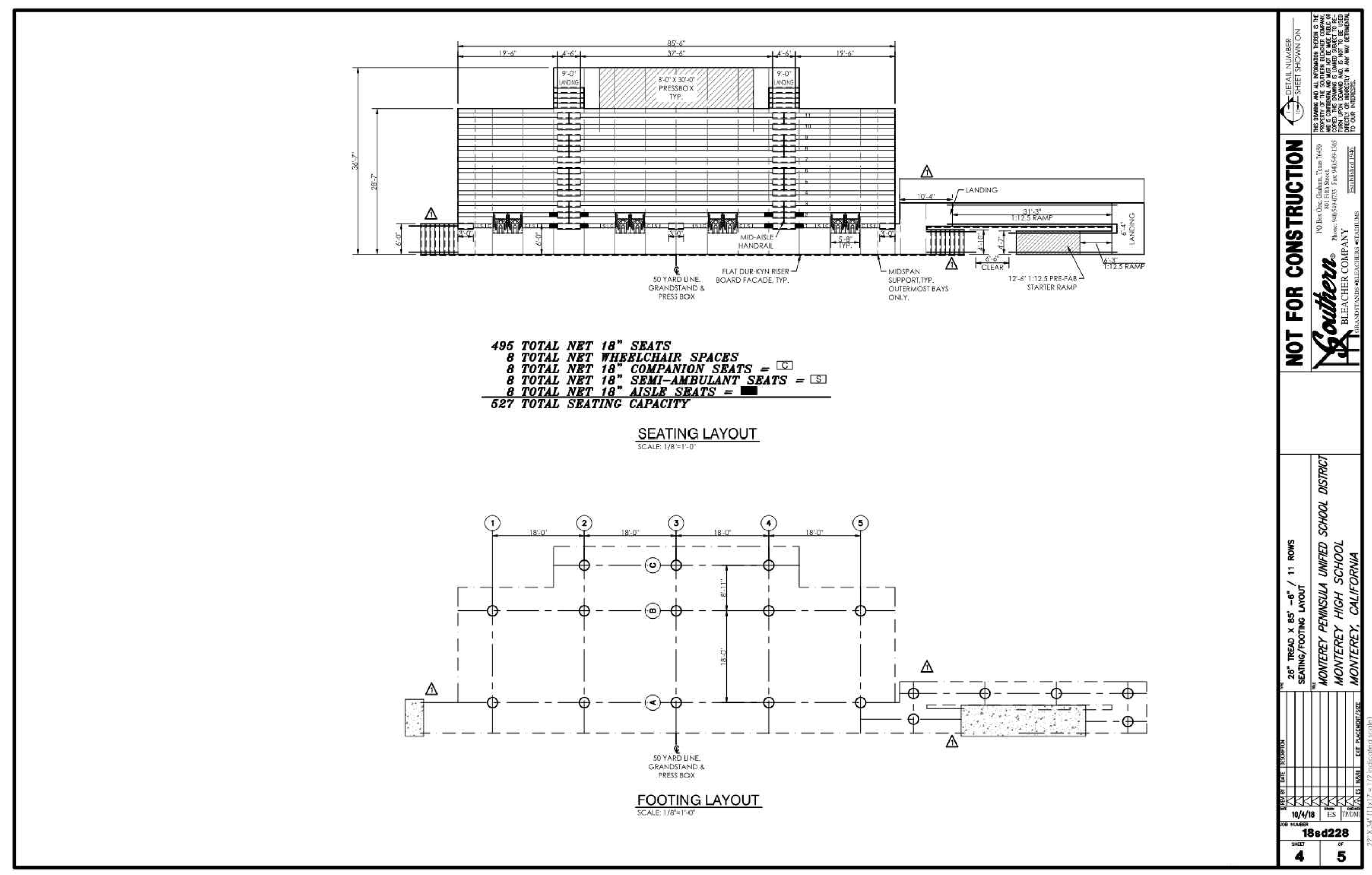

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SHEET TITLE

DRAINAGE
AND UTILITY
DETAILS

PROJECT NAME

MONTEREY HIGH SCHOOL
MULTI-USE FIELD AND
STADIUM RENOVATIONS

PROJECT ADDRESS

101 HERRMANN DRIVE
MONTEREY, CA
93940

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PROJ. NO.
1814400

SHEET NO.
D7.1

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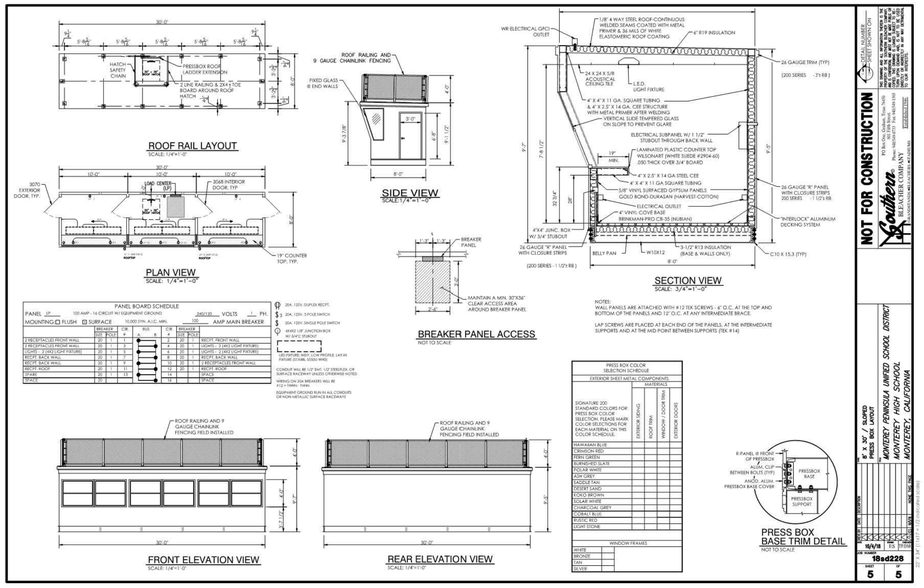

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SHEET TITLE

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AND UTILITY
DETAILS

PROJECT NAME

MONTEREY HIGH SCHOOL
MULTI-USE FIELD AND
STADIUM RENOVATIONS

PROJECT ADDRESS

101 HERRMANN DRIVE
MONTEREY, CA
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PROJ. NO.
1814400

SHEET NO.
D7.2

BLEACHER DETAILS

DRAWING NAME: \\prodnas01\projects\2018\1814400 – Monterey HS Schem Des\CAD_DTL7.2 – BLCHR.dwg
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MONTEREY HIGH SCHOOL FIELD PROJECT – MODULAR COMPANIES

ENVIROPLEX
4777 E. CARPENTER ROAD STOCKTON, CA 95215
ATTN.: GAYLENE GIVENS
PHONE: 209 466-8000
FAX: 209 461-6555
E-MAIL: GAYLENE.GIVENS@ENVIROPLEX.COM
WEBSITE: WWW.ENVIROPLEX.COM

MEEHLEIS MODULAR BUILDINGS, INC
1303 E. LODI AVENUE LODI, CA 95240
ATTN.: BILL STILLWELL
PHONE: 209 334-4637
FAX: 209 334-4726 E-MAIL: MMBI@MEEHLEIS.COM
WEBSITE: WWW.MEEHLEIS.COM

JL MODULAR, INC.
70 STONY POINT ROAD, SUITE D SANTA ROSA, CA 95401
ATTN.: JEFF LUCHETTI
PHONE: 707 527-5788
FAX: 707.542.7718
E-MAIL: INFO@JLCBUILD.COM
WEBSITE: WWW.JLCBUILD.COM

AMERICAN MODULAR SYSTEMS
787 SPRECKELS AVENUE
MANTECA, CA 95336
ATTN.: CARMEN M. O'CAMPO
PHONE: 209 825-1921
CELL: 209 263-1677
FAX: 916 404-4915
E-MAIL: CARMEN.O@AMERICANMODULAR.COM
WEBSITE: WWW.AMERICANMODULAR.COM

SILVER CREEK INDUSTRIES, INC
2830 BARRETT AVENUE
PERRIS, CA 92571
ATTN.: JOSHUA DEAN
PHONE: 951 943-5393
FAX: 951 943-2211
E-MAIL: JOSH@SILVER-CREEK.NET
WEBSITE: WWW.SILVER-CREEK.NET

DESIGNED BUILDING SYSTEMS, INC
6681 SIERRA LANE, SUITE B
DUBLIN, CA 94568
ATTN.: JOHN IVEY
PHONE: 925 556-6040
CELL: 925-895-5072

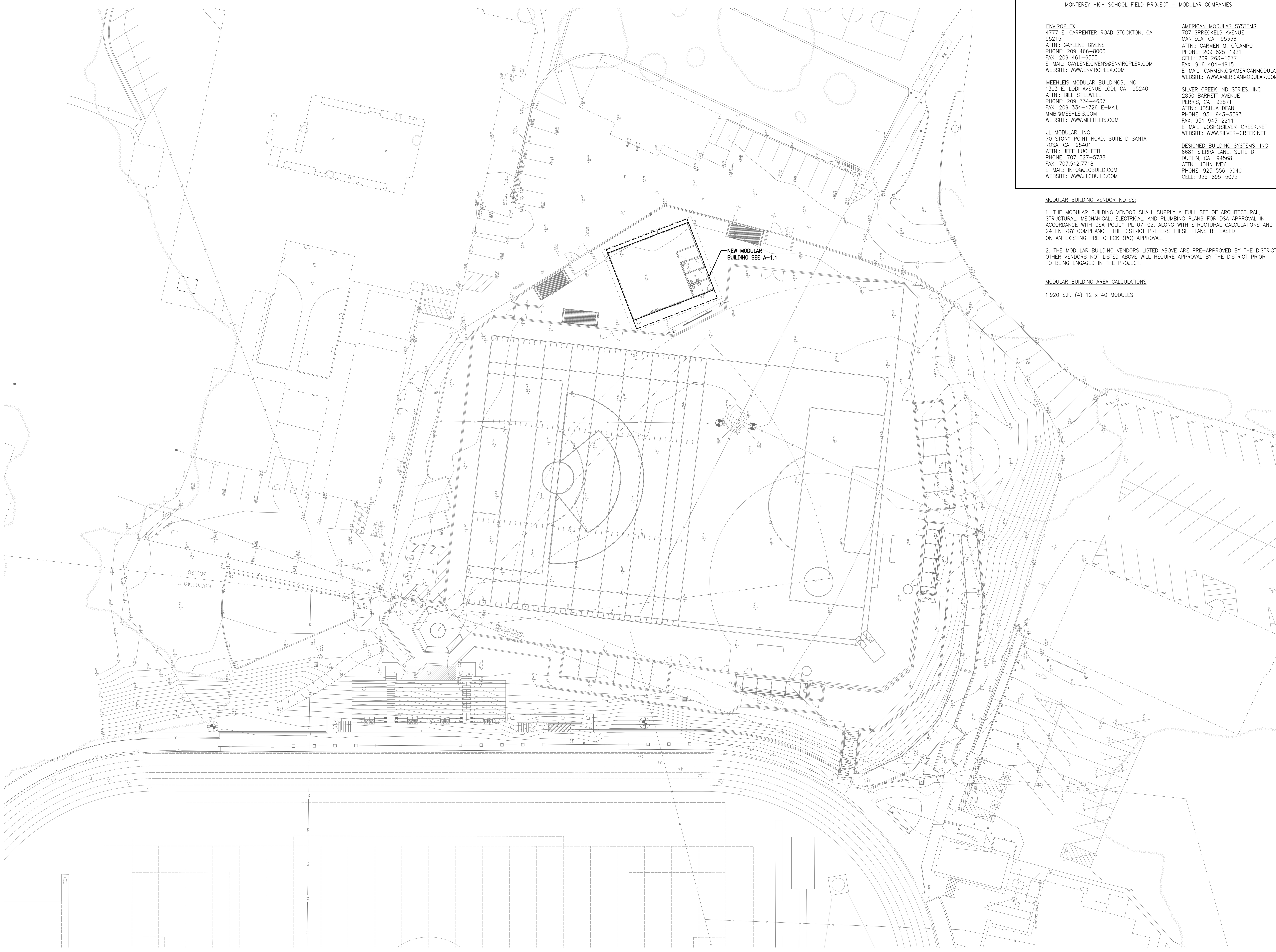
MODULAR BUILDING VENDOR NOTES:

1. THE MODULAR BUILDING VENDOR SHALL SUPPLY A FULL SET OF ARCHITECTURAL, STRUCTURAL, MECHANICAL, ELECTRICAL, AND PLUMBING PLANS FOR DSA APPROVAL IN ACCORDANCE WITH DSA POLICY PL 07-02. ALONG WITH STRUCTURAL CALCULATIONS AND TITLE 24 ENERGY COMPLIANCE. THE DISTRICT PREFERS THESE PLANS BE BASED ON AN EXISTING PRE-CHECK (PC) APPROVAL.

2. THE MODULAR BUILDING VENDORS LISTED ABOVE ARE PRE-APPROVED BY THE DISTRICT. OTHER VENDORS NOT LISTED ABOVE WILL REQUIRE APPROVAL BY THE DISTRICT PRIOR TO BEING ENGAGED IN THE PROJECT.

MODULAR BUILDING AREA CALCULATIONS

1,920 S.F. (4) 12 x 40 MODULES



1 PARTIAL SITE PLAN
SCALE: 1" = 20' - 0"

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XXXX-XX

SHEET TITLE

ARCHITECTURAL PARTIAL SITE PLAN

PROJECT NAME

MONTEREY HIGH SCHOOL MULTI-USE FIELD AND STADIUM RENOVATIONS

PROJECT ADDRESS

101 HERRMANN DRIVE
MONTEREY, CA
93940

SUBMITTAL	DATE
30% SUBMITTAL	10/12/18
60% SUBMITTAL	05/15/19

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	JM
DATE ISSUED 10/12/18	SCALE AS NOTED

PROJ. NO. 1814400 (SOBE #181409)

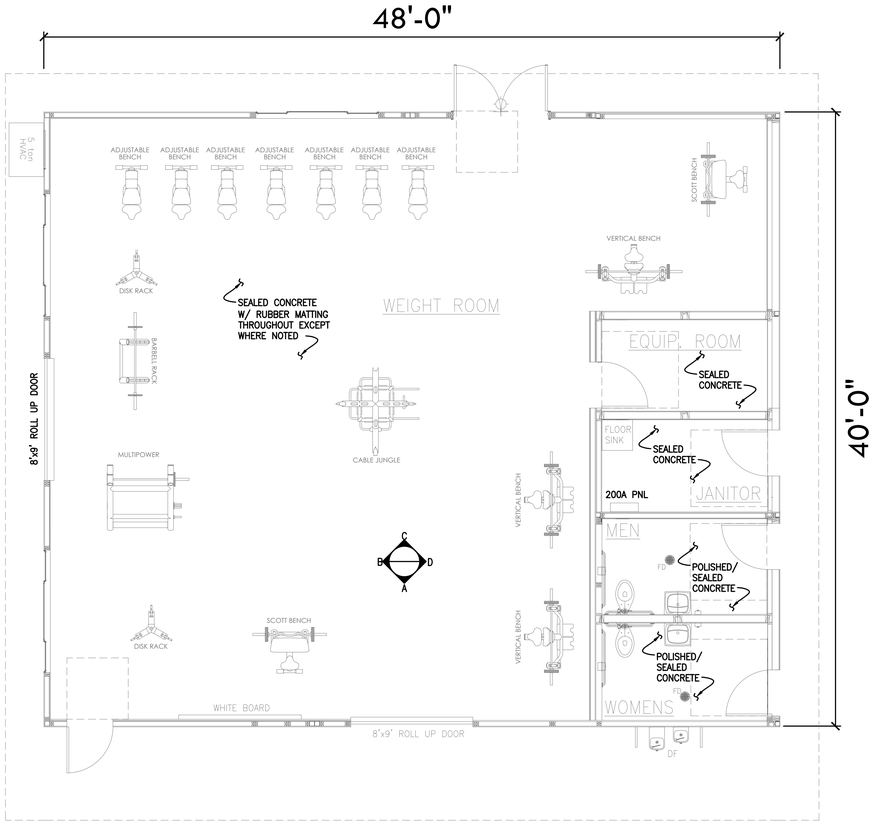
SHEET NO. A-1.0

DRAWING NAME: K:\drawings\Verde Design\181409 Monterey HS\181409A-1.0.dwg
PLOT DATE: 05-14-19 PLOTTED BY: toan.pham

OCCUPANT LAOD

MONTERREY HS – PLUMBING OCCUPANT LOAD FACTOR (CPC TABLE A)			
NO.	ROOM/SPACE	TOTAL PLUMBING OCCUPANT LOAD	REMARKS
OPTION 1	WEIGHT ROOM 36'X40'	1,584 SF/30 SF OCCUPANT = 53 = 27 MEN + 27 WOMEN	–

PLUMBING FIXTURES REQUIRED (CPC TABLE 422.1)					
TYPE OF BUILDING OCCUPANCY	WATER CLOSET (FIXTURES PER PERSON)	URINALS (FIXTURES PER PERSON)	LAVATORIES (FIXTURES PER PERSON)	DRINKING FOUNTAINS (FIXTURES PER PERSON)	OTHER
E OCCUPANCY EDUCATIONAL OCCUPANCY	MALE 1 PER 50 FEMALE 1 PER 30 THE TOTAL NUMBER OF REQUIRED WATER CLOSETS FOR FEMALES SHALL BE NOT LESS THAN THE TOTAL NUMBER OF REQUIRED WATER CLOSETS AND URINALS FOR MALES. THIS REQUIREMENT SHALLNOT APPLY WHEN SINGLE OCCUPANCY TOILET FACILITIES ARE PROVIDED FOR EACH SEX IN AN A OR E OCCUPANCY WITH AN OCCUPANT LOAD OF LESS THAN 50. EITHER (A) THE REQUIRED URINAL SHALL BE PERMITTED TO BE OMITTED OR (B) (B) IF INSTALLED, THE URINAL SHALL NOT REQUIRE A SECOND WATER CLOSET TO BE PROVIDED FOR THE FEMALE.	MALE 1 PER 100 FOR EACH URINAL ADDED IN EXCESS OF THE MINIMUM REQUIRED, ONE WATER CLOSET SHALL BE PERMITTED TO BE DEDUCTED. THE NUMBER OF WATER CLOSETS SHALL NOT BE REDUCED TO LESS THAN TWO–THIRDS OF THE MINIMUM REQUIREMENT.	MALE 1 PER 40 FEMALE 1 PER 40	1 PER 150	1 SERVICE SINK OR LAUNDRY TRAY
TOTAL PLUMBING FIXTURES REQUIRED	= 1 MALE = 1 WOMEN	= 1 MALE	= 1 MALE = 1 WOMEN	= 1 DRINKING FOUNTAINS	= 1 SERVICE SINK
TOTAL PLUMBING FIXTURES PROVIDED	= X MALE = X WOMEN	= X MALE	= X MALE = X WOMEN	TO BE DETERMINE	TO BE DETERMINE



1 **FLOOR PLANS**

SCALE: 1/4" = 1' – 0"

0 4' 8'

WEIGHT ROOM BUILDING SPECIFICATIONS

FOUNDATION

– SITE BUILT PERIMETER POURED AT GRADE CONCRETE FOUNDATION W/ 18" MIN. CRAWLSPACE
– LIGHTWEIGHT CONCRETE FLOOR
– 2'x4' ACCESS VENT WELL W/ RETAINED METAL GRATE
– 4' POLYVENT PER CODE
– 12" HIGH, 24 GA METAL FLASHING

EXTERIOR FINISHES, DOORS, AND WINDOWS

– 3 COAT STUCCO APPLIED ON SITE, 3 COAT STUCCO CONTROL JOINT, ACRYLIC COLOR STANDARD COLOR SELECTIONS, EXTERIOR PAINT IN FIELD INCLUDING SCHOOL NAME AND MASCOT GRAPHICS ON THREE SIDES OF BLDG.
– STUCCO FLANGE WELDED DOOR AND WINDOW FRAMES
–10'x10' INSULATED ROLL UP DOOR W/ WEATHER SEALS
– 3070 STEEL DOOR W/SCHLAGE D93 (CLASSROOM LOCKDOWN) LEVER HARDWARE, NORTON 7500 DOOR CLOSER WITH HOLD OPEN
– 3068 INTERIOR WOOD DOOR IN STEEL FRAME, SOLID CORE, PRE–FINISHED (OAK LEGACY, WHITE ASH OR WALNUT)
– 6020 XO OBSCURED GLASS WINDOWS – ALUMINUM BRONZE ANODIZED

ROOFING

– STANDARD BI–PITCH ROOF DESIGN, APPROXIMATELY 1.25:12 DUAL SLOPE, 5'OVERHANG IN FRONT 2'6" REAR OVERHANG
– PREFINISHED, 22GA STANDING SEAM METAL ROOF, KYNAR OR EQUAL, STANDARD COLOR OPTIONS
– METAL GUTTERS WITH SCHEDULE 40 STEEL PIPE DOWN SPOUTS CONNECTED TO STORM DRAIN

INTERIOR FINISHES

– OPEN CEILING WITH RIGID DUCT AND INSULATION WITH A COVER POLY SHEET
– INTERIOR WALL, 2X4, STANDARD FINISH (TACK BOARD) (DECOR OR EQUAL)
– INTERIOR WALL EXTENSION FROM CEILING LEVEL TO ROOF DECK
– SOUND ATTENUATION BATTS AT MODULE ROOF BEAMS
– TEXTURED AND PAINTED IMPACT RESISTANT ⅝" GYP. BOARD
– 2'x4' FIXED GRID, VINYL FACED, LAY IN PANEL CEILING SYSTEM (NO SUSPENSION WIRES)
– POLISHED AND SEALED CONCRETE
– RUBBER ATHLETIC FLOORING
– BURKE 4" TOP SET, CONTINUOUS ROLL COVE BASE
– DEDUCTIVE ALTERNATE FOR FORBO MARMOLEUM WITH WELDED SEAMS FOR RESTROOMS

INTERIOR FIXTURES

– BLOCKING FOR ALL WALL MOUNTED ACCESSORIES
– 8'x4' PORCELAIN / STEEL MARKER BOARD
– PAPER TOWEL DISPENSER, SURFACE MOUNT, BOBRICK B–262 (FOLDED TOWELS)
– TOILET PAPER DISPENSER, SURFACE MOUNT, MULTI–ROLL, BOBRICK B–2888
– LIQUID SOAP DISPENSER, SURFACE MOUNT, BOBRICK B–2112
– MIRROR, 18X30, SS FRAMED, BOBRICK B–185–1830
– GRAB BARS, ADA (SET OF 2), BOBRICK B–5806
– FIRE EXTINGUISHER W/WALL BRACKET (5LB 3A–40BC)
– ACCESSIBLE RESTROOM AND ROOM SIGNS

PLUMBING FIXTURES

– WATER HEATER, POINT OF USE, (INSTA HOT OR 2.5 GAL STORAGE)
– LAVATORY, WALL HUNG, ADA OR SPECIFIED HEIGHT, COLD ONLY
– FLOOR DRAIN WITH TRAP PRIMER
– WC FLOOR MOUNT, FLUSH VALVE, ADA / 15" HEIGHT
– HI/LO DF W/ BOTTLE FILLER ELKAY VRCTLDDWSK

ELECTRICAL AND MECHANICAL

– LED LIGHT FIXTURES WITH DIMMER CONTROL W/ 50FC AVG.
– DUPLEX RECEPTACLES
– GFI RECEPTACLES
– DEDICATED CIRCUIT
– 1" CONDUIT MIN.
– INDIVIDUAL ROOM SWITCHING
– ROUGH–IN FOR FIRE ALARM INTERIOR HORN/STROBE
– 200 AMP SINGLE–PHASE PANEL TO BE MOUNTED ON THE INTERIOR OF THE BUILDING
– 3.5 TON BARD EXTERIOR HVAC WITH DUCTED AIR AND PROGRAMMABLE T–STAT
– EXTERIOR DOOR LIGHT (LED W/ PHOTOCELL)

ADD ALTERNATIVES

– 8 SOLAR TUBES

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SHEET TITLE

ARCHITECTURAL FLOOR PLANS & SCHEDULES

PROJECT NAME

MONTEREY HIGH SCHOOL MULTI-USE FIELD AND STADIUM RENOVATIONS

PROJECT ADDRESS

101 HERRMANN DRIVE
MONTEREY, CA
93940

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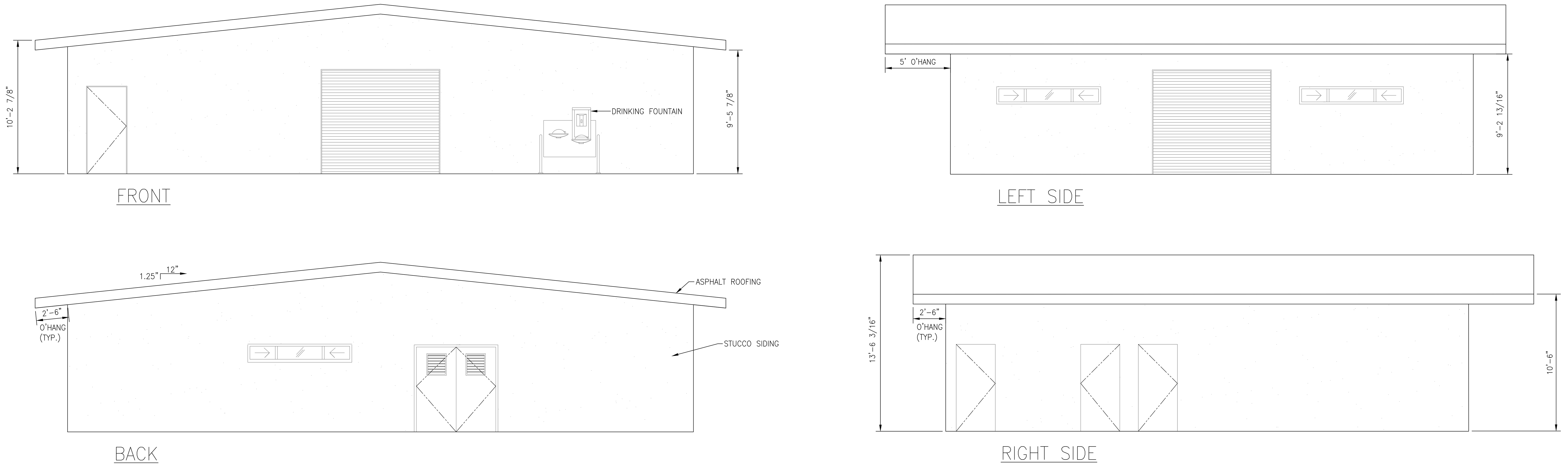
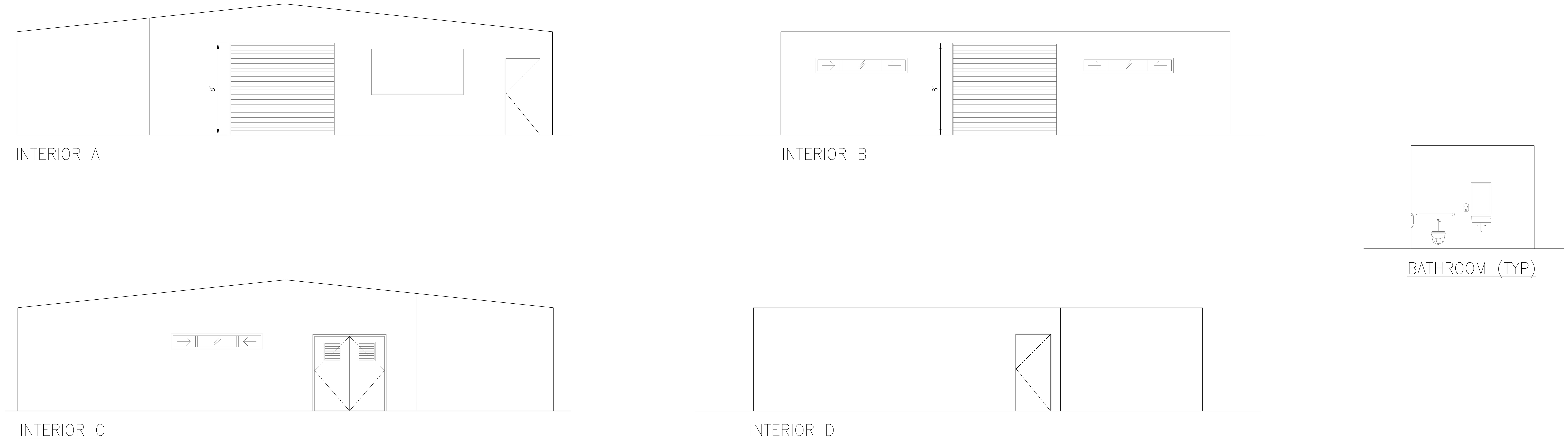


1 **EXTERIOR ELEVATIONS**
SCALE: 1/4" = 1' - 0"



2 **INTERIOR ELEVATIONS**
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SHEET TITLE
EXTERIOR AND INTERIOR ELEVATIONS

PROJECT NAME
MONTEREY HIGH SCHOOL MULTI-USE FIELD AND STADIUM RENOVATIONS

PROJECT ADDRESS
101 HERRMANN DRIVE
MONTEREY, CA
93940

SUBMITTAL	DATE
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GENERAL NOTES

1. CONTRACTOR IS RESPONSIBLE TO OBTAIN A COMPLETE SET OF CONTRACT DOCUMENTS, ADDENDA, DRAWINGS, AND SPECIFICATIONS. PRIOR TO SUBMITTING PROPOSAL, CONTRACTOR SHALL EXAMINE ARCHITECTURAL, STRUCTURAL AND MECHANICAL CONSTRUCTION DRAWINGS AND SPECIFICATIONS AND SHALL HAVE VISITED THE CONSTRUCTION SITE. HE/SHE SHALL BE FAMILIAR WITH THE EXISTING CONDITIONS UNDER WHICH HE/SHE WILL HAVE TO OPERATE AND WHICH WILL IN ANY WAY AFFECT THE WORK UNDER THIS CONTRACT. NO SUBSEQUENT ALLOWANCE WILL BE MADE IN THIS CONNECTION IN BEHALF OF THE CONTRACTOR FOR ANY ERROR OR NEGLIGENCE ON HIS/HER PART. DETERMINE THE SEQUENCE OF CONSTRUCTION THROUGHOUT THE PROJECT, INCLUDING TEMPORARY FACILITIES AND CONNECTIONS REQUIRED FOR THE DURATION OF THE PROJECT.
2. ALL TEMPORARY CONNECTIONS SHALL BE CONSIDERED PART OF THIS CONTRACT AND NO EXTRA CHARGES WILL BE ALLOWED. THIS SHALL INCLUDE MINOR ITEMS OF MATERIAL OR EQUIPMENT NECESSARY TO MEET THE REQUIREMENTS AND INTENT OF THE PROJECT.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF PERSONS AND PROPERTY AND SHALL PROVIDE INSURANCE COVERAGE AS NECESSARY FOR LIABILITY, PERSONAL, AND PROPERTY DAMAGE, TO FULLY PROTECT THE OWNER, ARCHITECT, AND ENGINEER FROM ANY AND ALL CLAIMS RESULTING FROM THIS WORK.
4. THE CONTRACTOR SHALL PROVIDE TO THE ARCHITECT A CONSTRUCTION SCHEDULE OF ALL ELECTRICAL WORK. THE CONSTRUCTION SCHEDULE SHALL IDENTIFY ALL SIGNIFICANT MILESTONES WITH COMPLETION DATES.
5. THE CONTRACTOR SHALL MAINTAIN RECORD DRAWINGS AT THE PROJECT SITE INDICATING ALL MODIFICATIONS TO ELECTRICAL SYSTEMS. THE CONTRACTOR SHALL, AT THE CONCLUSION OF THE PROJECT, PROVIDE A SET OF REPRODUCIBLE (AUTOCAD), ACCURATE AND NEAT "AS-BUILT" DRAWINGS ACCEPTABLE TO THE ARCHITECT.
6. THESE DRAWINGS DO NOT REPRESENT THE EXACT LOCATIONS, SIZES OR EXTENT OF UTILITIES ON SITE. CONTRACTOR SHALL TAKE STANDARD PRECAUTIONS FOR WORK IN EXISTING FACILITIES.
7. EXISTING ELECTRICAL WIRING WHICH WILL NOT BE MADE OBSOLETE AND WHICH WILL BE DISTURBED DUE TO CONSTRUCTION CHANGES REQUIRED BY THIS CONTRACT SHALL BE RESTORED TO OPERATING CONDITION, AS REQUIRED AND/OR DIRECTED. WHERE REQUIRED, SHOWN AND/OR DIRECTED, OUTLETS AND CONDUIT RUNS SHALL BE RELOCATED. IN SOME CASES IT MAY BE NECESSARY TO EXTEND CONDUITS AND PULL IN NEW WIRING OR INSTALL JUNCTION BOXES AND SPLICE IN NEW WIRING OR REPLACE OLD WIRING WITH NEW.
8. CERTAIN REMODELING OF ELECTRICAL FACILITIES WILL BE REQUIRED IN THE EXISTING BUILDING. EXISTING CONDUIT RUNS ARE GENERALLY NOT SHOWN, ALTHOUGH A FULL ATTEMPT HAS BEEN MADE TO SHOW SOME EXISTING CONDITIONS, OF WHICH INFORMATION HAS BEEN TAKEN FROM EXISTING RECORD DRAWINGS AND/OR LIMITED FIELD INVESTIGATIONS. THE DRAWINGS SHOWING LOCATION OF EXISTING EQUIPMENT, OUTLETS, FIXTURES, ETC., ARE APPROXIMATE ONLY (CONTRACTOR TO FIELD VERIFY).
9. ALL ELECTRICAL MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL BE LISTED AND LABELED BY A NATIONALLY RECOGNIZED TESTING LABORATORY AND SHALL BE INSTALLED AS PER LISTING OR LABELING (IE. MAXIMUM FUSE SIZE MEANS FUSE PROTECTION IS REQUIRED).
10. ALL ELECTRICAL EQUIPMENT AND INSTALLATION SHALL COMPLY WITH THE FOLLOWING REQUIREMENTS:
    a. AMERICAN STANDARD ASSOCIATION (ASA)
    b. AMERICAN NATIONAL STANDARD INSTITUTE (ANSI)
    c. AMERICAN SOCIETY OF TESTING MATERIALS (ASTM)
    d. CALIFORNIA CODE OF REGULATIONS TITLE 24 (CCR)
    e. INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE)
    f. INSULATED POWER CABLE ENGINEERS ASSOCIATIONS (IPCEA)
    g. NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATIONS (NEMA)
    h. NATIONAL FIRE PROTECTION AGENCY (NFPA)
    i. ALL LOCAL CODE HAVING JURISDICTION
11. CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS, FEES, AND INCIDENTAL COSTS NECESSARY FOR EXECUTION AND COMPLETION OF ELECTRICAL WORK, INCLUDING ALL CHARGES BY STATE, COUNTY AND LOCAL GOVERNMENTAL AGENCIES. CONTRACTOR SHALL BE RESPONSIBLE FOR THE ELECTRICAL UTILITY SYSTEM SHUT-DOWNS AND START-UP. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION REQUIRED WITH OTHER AGENCIES AND UTILITY COMPANIES.
12. CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL CROSSINGS ON NEW UTILITIES WITH THAT OF EXISTING ON SITE AND IN ADJACENT PROPERTIES. NOTIFY THE ENGINEER IMMEDIATELY OF ANY DEVIATIONS OR DISCREPANCIES FROM THIS PLAN.
13. CONTRACTOR SHALL COORDINATE HIS/HER WORK WITH OTHER TRADE ON SITE. ANY COST TO PERFORM WORK TO ACCOMPLISH SAID COORDINATION WHICH DIFFERS FROM THE WORK AS SHOWN ON THE DRAWINGS SHALL BE INCURRED BY THE CONTRACTOR. ANY DISCREPANCIES, AMBIGUITIES OR CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT DURING BID TIME FOR CLARIFICATIONS. ANY SUCH CONFLICTS NOT CLARIFIED PRIOR TO BID SHALL BE SUBJECT TO THE INTERPRETATION OF THE ARCHITECT/ENGINEER AT NO ADDITIONAL COST TO THE OWNER.
14. COORDINATE WITH OTHER TRADES AS TO THE EXACT LOCATION OF THEIR RESPECTIVE EQUIPMENT. PROVIDE POWER AND CONNECTION TO MOTORS AND EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS AS INDICATED ON ELECTRICAL DRAWINGS AND DRAWINGS OF OTHER TRADES. CONTRACTOR SHALL REVIEW DRAWINGS OF OTHER TRADES FOR CONTROL DIAGRAMS, SIZE AND LOCATION OF EQUIPMENT. DISCONNECT SWITCHES, STARTERS, AND CONDUITS FOR CONTROL WIRING FOR MECHANICAL AND PLUMBING EQUIPMENT SHALL BE PROVIDED BY ELECTRICAL CONTRACTOR. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING MANUFACTURER'S SHOP DRAWINGS PRIOR TO ROUGHING IN ALL CONDUITS TO THIS EQUIPMENT.
15. BEFORE ROUGH-IN, VERIFY ALL MOUNTING HEIGHTS AND EXACT LOCATIONS FOR ALL EQUIPMENT, ELECTRICAL CONNECTIONS, STUB-UPS, RECEPTACLES, OUTLETS, CONDUIT RUNS, ETC. WITH ARCHITECT AND OWNER. PLACE DEVICES LOCATED ABOVE COUNTERS, SHELVING, ETC. AND IN BATHROOMS SO AS NOT TO CONFLICT WITH EDGES OF WAINSCOTING, COUNTER SPLASH, SHELVING, ETC. ARCHITECTURAL DRAWINGS SHALL GOVERN. REFER TO ARCHITECTURAL ELEVATIONS FOR EXACT LOCATIONS OF ELECTRICAL DEVICES
16. MOUNTING HEIGHTS OF ALL CONTROL DEVICES TO BE USED BY OCCUPANT OF THE ROOM OR AREA SHALL BE MOUNTED AT THE FOLLOWING HEIGHTS:
    RECEPTACLES OUTLETS : +18" (TO BOTTOM OF OUTLETS)
    TELEPHONE/TV/DATA OUTLETS : +18" (TO BOTTOM OF OUTLETS)
    LIGHT SWITCHES : +44" (TO HIGHEST OPERABLE PART)
    OUTLETS ABOVE COUNTER : +44" (TO HIGHEST OPERABLE PART)
    MOUNTING HEIGHTS OF ALL DEVICES AND EQUIPMENT ARE FROM FINISHED FLOOR TO LOCATION OF DEVICE AS NOTED. EQUIPMENT INSTALLED IN LOCATIONS NOT APPROVED BY THE ARCHITECT SHALL BE RELOCATED AS DIRECTED BY THE ARCHITECT AT NO ADDITIONAL COST TO THE OWNER.
17. COORDINATE ALL OUTLET BOX INSTALLATION WITH ARCHITECTURAL WALL FINISH SCHEDULES. SPACE BETWEEN FACEPLATE AND DEVICE BOX SHALL NOT EXCEED 1/8".
18. FOR RENOVATION WORK, THE CONTRACTOR SHALL CONCEAL ALL WORK WHERE POSSIBLE. ALL EXPOSED RACEWAY AND BOXES IN OCCUPIED AREAS OR ON EXTERIOR WALLS SHALL BE PAINTED TO MATCH ADJACENT FINISHES.
19. THE CONTRACTOR SHALL BE HELD FULLY RESPONSIBLE FOR THE PROPER RESTORATION OF ALL EXISTING SURFACES REQUIRING PATCHING, PLASTERING, PAINTING AND/OR OTHER REPAIR DUE TO THE INSTALLATION OF ELECTRICAL WORK UNDER THE TERMS OF THIS SPECIFICATION. CLOSE ALL OPENINGS, REPAIR ALL SURFACES, ETC., AS REQUIRED.
20. SEAL ALL CONDUIT PENETRATIONS THROUGH FIRE RATED WALLS AND CEILINGS. FURNISH AND INSTALL FIRE RATED BACKBOXES AS REQUIRED, MAINTAINING FIRE RATING OF CEILING OR WALLS WHERE RECESSED ELECTRIC EQUIPMENT SUCH AS LIGHT FIXTURES, SWITCHES, RECEPTACLES, PANEL, ETC. ARE INSTALLED IN RATED WALL OR CEILINGS. PENETRATIONS OF FIRE RATED WALLS, CEILINGS, OR FLOORS SHALL COMPLY WITH CBC CHAPTER 7 (714) REQUIREMENTS. CONDUIT PENETRATIONS THAT ARE NOT STUBBED-OUT INSIDE THE WALL SHALL MEET F AND T RATING. ALL FIRE PROOFING METHODS SHALL BE UL APPROVED.
21. ALL EXTERIOR EQUIPMENT SHALL BE NEMA 3R RATED. ALL WALL PENETRATIONS TO EXTERIOR WALLS SHALL BE SEALED WATER TIGHT.
22. PULLING TAPES: ALL RACEWAY WITHOUT CABLE OR WIRE SHALL BE INSTALLED WITH A MINIMUM 1100 LBS. STRENGTH TEST POLYESTER PULLING TAPE. PULLING TAPES SHALL BE DETECTABLE MULE-TAPE WITH SEQUENTIAL FOOTAGE MARKING.
23. RUN NO MORE THAN 3 CURRENT CARRYING CONDUCTORS IN ANY WIREWAY UNLESS DE-RATING IS APPROVED BY ENGINEER OR SHOWN ON DRAWINGS.
24. ALL BRANCH CIRCUIT CONDUCTORS SHALL BE COPPER, #12 AWG MINIMUM, RATED FOR 600V, THHN/THWN, 75 DEGREE CELSIUS. ALL CONDUCTORS SHALL BE STRANDED, SOFT DRAWN ANNEALED COPPER WIRE 98% CONDUCTIVITY, BEARING THE UL LABEL. SYSTEM VOLTAGE SHALL BE IDENTIFIED AS TO VOLTAGE AND PHASE CONNECTIONS BY MEANS OF COLOR IMPREGNATED INSULATION OR APPROVED COLORED MARKING TAPE.
25. WHERE MULTI-HOMERUNS ARE INDICATED ON DRAWINGS INDICATING THE SAME CIRCUIT NUMBER, PROVIDE A JUNCTION BOX ABOVE THE ACCESSIBLE CEILING AND ROUTE ONE SET OF WIRES TO THE CIRCUIT BREAKER.
26. REFER TO THE SINGLE LINE DIAGRAM FOR THE CONDUIT AND CONDUCTOR SIZES HOMERUN TO ELECTRICAL PANELS. CONDUIT RUNS MAY NOT BE SHOWN ON DRAWINGS, BUT ARE PART OF THIS CONTRACT.
27. ALL CONDUIT RUNS INCLUDING STRAIGHT FEEDER AND BRANCH CIRCUIT SHALL BE PROVIDED WITH SUFFICIENT PULL BOXES OR JUNCTION BOXES TO LIMIT THE MAXIMUM LENGTH OF ANY SINGLE CABLE PULL TO 100 FEET. PULL BOXES SHALL BE SIZED PER CODE OR AS INDICATED ON DRAWINGS. LOCATIONS SHALL BE DETERMINED IN THE FIELD OR AS INDICATED ON THE DRAWINGS.
28. FINAL CONNECTIONS TO ALL EQUIPMENT SHALL BE PER MANUFACTURER'S APPROVED WIRING DIAGRAMS, DETAILS, AND INSTRUCTIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE MATERIAL AND EQUIPMENT COMPATIBLE WITH EQUIPMENT ACTUALLY SUPPLIED.
29. DO NOT COMBINE DIFFERENT SYSTEM VOLTAGES IN SAME CONDUIT (EG., 120/208V VS. 277/480V), UNLESS APPROVED BY ENGINEER OR SHOWN ON DRAWINGS.
30. ELECTRICAL SYSTEMS SHALL BE INSTALLED FOR FINAL INSPECTIONS. PROVIDE NEUTRAL TEST AND PROOF OF TORQUE DURING FINAL INSPECTION FOR ALL UNITS. FINAL TERMINATIONS OF CONDUCTORS TO ELECTRICAL EQUIPMENT AND DEVICES SHALL BE TORQUE WRENCH TIGHTENED TO THE MANUFACTURER'S RECOMMENDED SPECIFICATION, NO EXCEPTION.
31. CIRCUIT BREAKER TERMINALS IN SWITCHBOARDS AND LOAD CENTER SHALL BE UL LISTED AND APPROVED FOR USE WITH COPPER 75 DEGREE CELSIUS CONDUCTORS.
32. SIZES OF BREAKERS, SWITCHES, FUSES AND FEEDERS ARE BASED ON DESIGNED EQUIPMENT SIZES. THESE SIZES SHALL BE ADJUSTED TO SATISFY REQUIREMENTS OF ACTUAL INSTALLED OR SUBSTITUTE EQUIPMENT. UP SIZING OR DOWNSIZING OF FEEDERS SHALL BE PROVIDED WITHOUT ADDITIONAL COST TO THE OWNER.
33. AS REQUIRED ALL OVERSIZED FEEDERS THAT WERE ADJUSTED IN SIZE TO COMPENSATE FOR VOLTAGE DROP SHALL BE PROVIDED WITH ADAPTER LUGS OR SPLICE BOX. ADAPTER LUGS SHALL BE PROVIDED IF SIZE IS AVAILABLE. OTHERWISE PROVIDE CABLE SPLICES IN THE SPLICE BOX TO REDUCE CABLES TO THE MAXIMUM SIZE THAT THE BREAKER LUGS CAN ACCOMMODATE.
34. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SAW-CUTTING, TRENCHING, BACKFILLING, COMPACTION AND PATCHING OF CONCRETE AND ASPHALT AS REQUIRED TO COMPLETE WORK. USE EXTREME CAUTION WHEN TRENCHING NEAR EXISTING UNDERGROUND UTILITY LINES. CONTRACTOR SHALL PROVIDE ALL REQUIRED CUTTING, PATCHING, PAINTING, AND REPAIRS NECESSARY TO RESTORE DAMAGED SURFACES TO EQUAL OR BETTER THAN ORIGINAL CONDITIONS EXISTING AT THE START OF WORK.
35. ALL ELECTRICAL EQUIPMENT SHALL BE BRACED OR ANCHORED TO RESIST HORIZONTAL FORCE ACTING IN ANY DIRECTION IN ACCORDANCE WITH THE REQUIREMENTS OF THE LATEST EDITION OF ASCE.
36. RIGID GALVANIZED STEEL CONDUIT SHALL BE USED FOR ALL ABOVE GRADE EXTERIOR APPLICATIONS, ALL CONDUITS LARGER THAN 2" TRADE DIAMETER, AND ALL INDOOR CONDUITS BELOW EIGHT (8) FEET FROM FINISHED FLOOR.
37. ELECTRICAL METALLIC TUBING (EMT) IS ONLY ALLOWED IN INTERIOR LOCATION ABOVE EIGHT (8) FEET FROM FINISHED FLOOR AND WHEN ENTERING A PANEL FROM ABOVE.
38. CONNECTIONS TO VIBRATING EQUIPMENT (MOTOR, TRANSFORMER ENCLOSURE, ETC.) AND SEISMIC SEPARATIONS SHALL BE PROVIDED WITH LIQUID-TIGHT FLEXIBLE STEEL CONDUIT WITH WATERTIGHT CONNECTORS. MAXIMUM LENGTH OF CONDUIT SHALL BE SIX FEET, UNLESS OTHERWISE NOTED.
39. POLYVINYL CHLORIDE (PVC) SCHEDULE 40 MAY BE INSTALLED BENEATH SLAB AND UNDERGROUND INSTALLATION. INSTALL PVC COATED RIGID STEEL CONDUIT FOR TRANSITION FROM UNDERGROUND TO ABOVE GRADE INSTALLATION.
40. CONTRACTOR SHALL PROVIDE TERMINATIONS FOR ALL DATA/VOICE CABLES INDICATED AT OUTLET LOCATIONS INDICATED ON DRAWINGS.
41. CONTRACTOR SHALL PROVIDE AND INSTALL ACCESS PANELS IN NON-ACCESSIBLE CEILINGS WHERE REQUIRED TO ACCESS ELECTRICAL EQUIPMENT IN CEILING SPACE. ACCESS DOORS SHALL HAVE FIRE RATING EQUAL TO THE CEILING ASSEMBLY IN WHICH THEY ARE INSTALLED.
42. ALL FIRE LIFE SAFETY EQUIPMENT, SUCH AS FIRE ALARM CONTROL PANEL AND REMOTE POWER SUPPLIES SHALL BE PROVIDED WITH DEDICATED CIRCUITS. IDENTIFY CIRCUIT DESIGNATION AND PROVIDE PERMANENT LABELING, "FIRE ALARM CIRCUIT" ON ELECTRICAL PANEL. PROVIDE LOCKABLE CIRCUIT BREAKER.
43. CONTROL CONDUIT FOR ENERGY/BUILDING MANAGEMENT SYSTEM (E/BMS) SHALL BE PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR.
44. ROUTE CONDUIT PARALLEL AND PERPENDICULAR TO WALLS AND ADJACENT PIPING. ARRANGE CONDUIT TO MAINTAIN HEADROOM AND TO PRESENT A NEAT APPEARANCE.
45. WHEN A DISCREPANCY IN QUANTITY OR SIZE OF CONDUIT, WIRE, EQUIPMENT, CIRCUIT BREAKERS, ETC., ARISES ON THE DRAWINGS OR SPECIFICATIONS, CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ALL MATERIAL REQUIRED BY THE MOST STRINGENT CONDITIONS NOTED ON THE DRAWINGS OR IN THE SPECIFICATIONS TO PROVIDE A COMPLETE AND OPERABLE SYSTEM, OR AS DIRECTED BY ENGINEER.
46. FOR SMALL AC MOTORS NOT HAVING BUILT-IN THERMAL OVERLOAD PROTECTION, PROVIDE MANUAL MOTOR STARTERS WITH OVERLOAD HEATER ELEMENTS SIZED PER MANUFACTURER'S RECOMMENDATION. FOR SMALL AC MOTORS WITH BUILT-IN THERMAL OVERLOAD PROTECTION, PROVIDE A HORSEPOWER RATED TOGGLE DISCONNECT SWITCH.
47. DISCONNECT SAFETY SWITCHES SHALL BE HEAVY DUTY AND BE RATED FOR THE NUMBER OF POLES, VOLTAGE, CURRENT AND HORSEPOWER RATING AS REQUIRED. PROVIDE FUSE PROTECTION BASED ON THE MOTOR NAMEPLATE RATINGS.
48. PROVIDE PERMANENT IDENTIFICATION (NAMEPLATES) FOR ALL ELECTRICAL PANELS, SWITCHBOARDS, MOTOR CONTROL CENTERS, DISCONNECT SWITCHES, TRANSFORMERS, TERMINAL CABINETS, ETC.
49. ELECTRICAL CONTRACTOR IS RESPONSIBLE TO VERIFY TYPE OF CEILING SYSTEMS AND TO FURNISH APPROVED LIGHTING FIXTURES OF THE TYPE REQUIRED FOR MOUNTING IN SUBJECT CEILING. PROVIDE ALL NECESSARY MOUNTING KIT/HARDWARE TO PROVIDE A COMPLETE WORKING LIGHTING SYSTEM.
50. ALL FINAL ELECTRICAL CONNECTIONS TO OWNER FURNISHED EQUIPMENT SHALL BE MADE BY THE ELECTRICAL CONTRACTOR.
51. ALL SPLICES AND TERMINALS SHALL BE COMPRESSION TYPE, OF SEAMLESS PURE COPPER, TIN PLATED, LONG BARREL, INSPECTION WINDOW, TERMINALS WITH TWO-HOLE PAD (WITH NEMA DRILLING). CLEAN ALL SURFACES AND INSTALL WITH OXIDE INHIBITING COMPOUND BURNDY PENETROX-E OR EQUAL. APPLY COMPOUND BETWEEN BUS BAR AND LUG PAD AND BETWEEN CONDUCTOR AND LUG BARREL. INSTALL COMPRESSION CONNECTORS WITH A FULLY CIRCUMFERENTIAL COMPRESSION DIE BURNDY HYPRESS OR EQUAL.
52. LABEL ALL CONDUIT WHERE IT BEGINS, AND WHERE IT TERMINATES INTO A BOX, PANEL, DEVICE, LOAD, OR DISCONNECT. CONDUIT SHALL BE LABELED EVERY 30 FEET OR LESS. CONDUIT SHALL BE LABELED WHERE IT PENETRATES ANY WALL OR FLOOR. LABEL SHALL BE PERMANENT PRINTED LABELS (DESCRIBING SOURCE, CIRCUIT, AND LOAD) LEGIBLE FROM FLOOR WHERE POSSIBLE (STANDING POSITION).
53. CONTRACTOR'S FAILURE TO ORDER OR RELEASE ORDER FOR MATERIALS AND/OR EQUIPMENT WILL NOT BE ACCEPTED AS A REASON TO SUBSTITUTE ALTERNATE MATERIALS, EQUIPMENT OR INSTALLATION METHODS.
54. PROVIDE ARC-FLASH HAZARD WARNING LABELS ON ALL AFFECTED ELECTRICAL EQUIPMENT, INCLUDING SWITCHBOARDS, PANEL BOARDS, INDUSTRIAL CONTROL PANELS, METER SOCKET ENCLOSURES, AND MOTOR CONTROL CENTERS. MARKING SHALL BE LOCATED SO AS TO BE CLEARLY VISIBLE TO QUALIFIED PERSONS. LABEL SHALL BE FACTORY PRE-PRINTED OR MACHINE-PRINTED SELF-ADHESIVE VINYL MATERIAL; UV, CHEMICAL, WATER, HEAT AND ABRASION RESISTANT; PRODUCED USING MATERIALS RECOGNIZED BY UL 969. MINIMUM SIZE: 3.5 BY 5 INCHES.
55. UNLESS OTHERWISE NOTED, ARRANGE, PAY FOR, COORDINATE AND PROVIDE ALL PERMITS NECESSARY FOR A COMPLETE AND OPERABLE SYSTEM.
56. ALL WORK IS <N> UNLESS OTHERWISE NOTED.

DEMOLITION NOTES

1. REMOVE EXISTING EQUIPMENT IN CONFLICT WITH NEW CONDITIONS. REMOVE ALL WIRE NOT IN SERVICE AND FROM ABANDONED RACEWAYS. PROTECT EXISTING CIRCUITING PASSING THROUGH DEMOLITION AREAS. EXTEND AND/OR RELOCATE AS NECESSARY.
2. ALL ABANDONED EQUIPMENT INCLUDING LIGHT, RECEPTACLES, DATA, FIRE ALARM, ETC., SHALL BE COVERED WITH BLANK METAL PLATES AND PAINTED TO MATCH THE ADJACENT FINISH OF SURROUNDING WALLS OR CEILING TO THE SATISFACTION OF THE ARCHITECT/OWNER.
3. ELECTRICAL CONTRACTOR IS RESPONSIBLE TO DISCONNECT AND REMOVE ALL EXISTING ELECTRICAL EQUIPMENT AFFECTED BY THE PROJECT. THIS INCLUDES REROUTING OR THE EXTENSION OF EXISTING CONDUIT AND FEEDER WHERE NECESSARY TO MAINTAIN OPERATIONAL OF ANY EXISTING EQUIPMENT.
4. CIRCUIT NUMBERS AND CONDUIT HOMERUNS SHOWN ON THESE DRAWINGS WERE TAKEN FROM EXISTING RECORD DRAWINGS. ELECTRICAL CONTRACTOR IS RESPONSIBLE TO VERIFY EXISTING CIRCUITING AND CONDUIT HOMERUNS. ADJUST CIRCUIT NUMBERS ACCORDING TO THE ACTUAL CONDITIONS.
5. WHERE EXISTING CONDUIT IS TO BE ABANDONED OR DEMOLISHED, THE CONDUIT SHALL BE REMOVED IF IT IS EXPOSED, IN A CRAWL SPACE OR IN AN ACCESSIBLE CEILING. ABANDONED OR DEMOLISHED CONDUIT FEEDS UP THROUGH THE FLOOR SHALL BE CUT OFF AND PLUGGED FLUSH WITH THE FLOOR.
6. ALL ELECTRICAL EQUIPMENT INCLUDING LIGHT, RECEPTACLE, DATA, FIRE ALARM, ETC., THAT ARE TO BE REMOVED, SHALL BE REMOVED COMPLETELY, INCLUDING CONDUIT AND WIRING BACK TO THE LAST DEVICE REMAINING IN SERVICE, OR SOURCE.
7. EXISTING CIRCUITS WHICH ARE REMOVED AND NOT REUSED SHALL BE IDENTIFIED ON THE PANEL SCHEDULE AS "SPARE".
8. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE OWNER PRIOR TO REMOVAL OF EXISTING ELECTRICAL EQUIPMENT AND TURN OVER REMOVED EQUIPMENT THAT THE OWNER REQUESTS IN AN "AS-FOUND" CONDITION.
9. ALL DEMOLITION WORK SHOWN, IF ANY, WAS PREPARED FOR THE CONVENIENCE OF THE CONTRACTOR. NO REPRESENTATION HAS BEEN MADE THAT ALL ITEMS THAT MAY REQUIRE DEMOLITION HAVE BEEN SHOWN. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CAREFULLY EXAMINE THE SITE AND THE CONTRACT DOCUMENTS AND TO PERFORM ALL DEMOLITION AND RECONSTRUCTION WHICH MAY BE REQUIRED FOR THE PROPER EXECUTION AND COMPLETION OF THE WORK.
10. WHEN CALLED FOR, OR SCOPE OF WORK REQUIRES ELECTRICAL EQUIPMENT TO BE REMOVED, ALL CONDUIT, WIRE, BOXES, HANGERS, ETC. SHALL BE REMOVED COMPLETELY. ALL OPENINGS SHALL BE PATCHED, SEALED AND PAINTED TO MATCH THE ADJACENT FINISH.

ELECTRICAL SYMBOLS

- DATA/TEL OUTLET FLUSH MOUNT IN WALL W/ 1" C., UON
- DUPLEX RECEPTACLE 20A, 125V, 3WG, NEMA 5-20R
- GFI — DUPLEX GFI RECEPTACLE, +42" A.F.F.
- LEGRAND OUTDOOR POWER GROUND BOX, MODEL NO. XB814C520BK 2-GANG, 20A GFI RECEPTACLE
- LEGRAND OUTDOOR SIGNAL GROUND BOX, MODEL NO. XB814CLVBK 2-GANG, LOW VOLTAGE BOX WITH SIGNAL COMMUNICATION PORTS
- BRANCH CIRCUIT WIRING IN CONDUIT EXPOSED ON ROOF OR BUILDING EXTERIOR
- BRANCH CIRCUIT WIRING IN CONDUIT CONCEALED UNDER FLOOR OR UNDERGROUND
- BRANCH CIRCUIT HOME RUN TO PANEL. CONCEALED IN CEILING SPACE OR WHERE POSSIBLE
- CIRCUIT BREAKER
- REFERENCE SHEET NOTE
- DETAIL TAG. REFER TO DETAIL 1 ON SHEET E4.01
- ELECTRICAL PANEL
- FUSED DISCONNECT SWITCH
- PULLBOX, SEE SITE PLAN FOR SIZE
- PD — CONCRETE PEDESTAL
- CONDUIT STUBUP
- PB — UNDERGROUND POWER AND SIGNAL PULLBOX
- SPORTS FIELD LIGHTING
- TRANSFORMER
- JUNCTION BOX
- GROUND WELL; CHRISTY G05T W/GROUND ROD

APPLICABLE CODES

UNLESS OTHERWISE INDICATED OR SPECIFIED, PERFORM THE WORK IN CONFORMANCE WITH THE LATEST EDITIONS OF ALL APPLICABLE REGULATORY REQUIREMENTS, INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING:

1. CALIFORNIA BUILDING STANDARDS ADMINISTRATIVE CODE (PART 1, TITLE 24): 2016
2. CALIFORNIA BUILDING CODE (PART 2, TITLE 24): 2015 IBC WITH 2016 CA AMENDMENTS
3. CALIFORNIA ELECTRICAL CODE (PART 3, TITLE 24): 2014 NEC WITH 2016 CA AMENDMENTS
4. CALIFORNIA MECHANICAL CODE (PART 4, TITLE 24): 2015 UMC WITH 2016 CA AMENDMENTS
5. CALIFORNIA PLUMBING CODE (PART 5, TITLE 24) 2015 UPC WITH 2016 CA AMENDMENTS
6. CALIFORNIA ENERGY CODE (PART 6, TITLE 24): 2016
7. CALIFORNIA HISTORICAL BUILDING CODE, (PART 8, TITLE 24): 2016
8. CALIFORNIA FIRE CODE (PART 9, TITLE 24): 2015 IFC WITH 2016 CA AMENDMENTS
9. CALIFORNIA EXISTING BUILDING CODE (PART 10, TITLE 24): 2015 (INTERNATIONAL EXISTING BUILDING CODE WITH 2016 CA AMENDMENTS)
10. CALIFORNIA GREEN BUILDING STANDARDS CODE OR CAL GREEN (PART 11, TITLE 24): 2016
11. CALIFORNIA REFERENCED STANDARDS CODE (PART 12, TITLE 24): 2016
12. CALIFORNIA CODE OF REGULATIONS PUBLIC SAFETY (TITLE 19), STATE FIRE MARSHAL: 2016
13. NFPA 13 INSTALLATION OF SPRINKLER SYSTEMS: 2016 (CA AMENDED)
14. NFPA 14 INSTALLATION OF STANDPIPE, PRIVATE HYDRANT AND HOSE SYSTEMS: 2013 (CA AMENDED)
15. NFPA 17 DRY CHEMICAL EXTINGUISHING SYSTEM: 2013 EDITION
16. NFPA 17A TO A UL 300 FOR CLASS I HOOD FIRE SUPPRESSION SYSTEM. (WET CHEMICAL EXTINGUISHING SYSTEMS)
17. NFPA 20 INSTALLATION OF STATIONARY PUMPS FOR FIRE PROTECTION: 2016 EDITION
18. NFPA 22 WATER TANKS FOR PRIVATE FIRE PROTECTION: 2013 EDITION
19. NFPA 24 INSTALLATION OF PRIVATE FIRE SERVICE MAINS AND THEIR APPURTENANCES: 2016 EDITION (CA AMENDED)
20. NFPA 25 INSPECTION, TESTING, MAINTENANCE OF WATER-BASED FIRE PROTECTION SYSTEMS: 2013 EDITION (CA EDITION)
21. NFPA 72 NATIONAL FIRE ALARM CODE, WITH CA AMENDMENTS: 2016 EDITION (CA AMENDED)
22. NFPA 80 FIRE DOORS AND OTHER OPENING PROTECTIVE: 2016 EDITION
23. NFPA 110 EMERGENCY AND STANDBY POWER SYSTEMS: 2016 EDITION
24. NFPA 170 STANDARD FOR FIRE SAFETY AND EMERGENCY SYMBOLS: 2015 EDITION
25. NFPA 2001 CLEAN AGENT FIRE EXTINGUISHING SYSTEMS: 2015 EDITION
26. ICC 300-12 STANDARD ON BLEACHERS, FOLDING AND TELESCOPIC SEATING AND GRANDSTANDS: 2012 EDITION
27. SFM 12-10-1 POWER OPERATED EXIT DOORS
28. SFM 12-10-2 SINGLE POINT LATCHING OR LOCKING DEVICES
29. SFM 12-10-3 EMERGENCY EXIT & PANIC HARDWARE
30. ASTM STANDARD CHANGES (EXAMPLE: ASTM E648-04 STANDARD TEST METHOD FOR CRITICAL RADIANT FLUX OF FLOOR)
31. UL 38 MANUAL OPERATED SIGNAL BOXES, WITH REVISIONS 2005 AS AMENDED
32. UL 268 SMOKE DETECTORS FOR FIRE PROTECTIVE SIGNALING SYSTEMS: 2009 EDITION
33. UL 268A SMOKE DETECTORS DUCT APPLICATIONS WITH REVISIONS 2003 AS AMENDED
34. UL 300 FIRE TESTING OF FIRE EXTINGUISHING SYSTEMS FOR PROTECTION OF RESTAURANT COOKING AREAS
35. UL 305 PANIC HARDWARE
36. UL 464 AUDIBLE SIGNAL APPLIANCES: 2003 EDITION
37. UL 521 HEAT DETECTORS FOR FIRE PROTECTIVE SIGNALING SYSTEMS: 1999 EDITION
38. UL 864 CONTROL UNITS FOR FIRE PROTECTIVE SIGNALING SYSTEMS: WITH REVISION 2005 AS AMENDED

AMERICANS WITH DISABILITIES ACT (A.D.A.) FEDERAL ACCESSIBILITY STANDARDS
ACI 318, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
AISC MANUAL OF STEEL CONSTRUCTION
ASCE/SEJ 7-16, MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES
NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION

SUMMARY OF WORK

1. PROVIDE POWER, SIGNAL, ALARM AND WIFI FOR TEAM ROOM MODULAR BUILDING.
2. PROVIDE POWER, SIGNAL, ALARM, PA AND WIFI FOR PRESSBOX.
3. PROVIDE PA AND WIFI AT MULTI-FIELD BLEACHERS.
4. INSTALL EGRESS LIGHTING AND LED SPORT FIELD LIGHTING AT FOOTBALL FIELD.
5. INSTALL PEDESTRIAN PATHWAY POLE LIGHT AND PARKING LOT POLE LIGHT.
6. INSTALL POWER AND DATA COMBOX IN FOOTBALL FIELD.

ELECTRICAL ABBREVIATIONS

A	AMPS	**<N>**	**NEW (BOLD)**
AC	ALTERNATING CURRENT	NIC	NOT IN CONTRACT
AF	AMP FRAME	NTS	NOT TO SCALE
AFF	ABOVE FINISH FLOOR	OS	OCCUPANCY SENSOR
ALT	ALTERNATE	P	POWER
AT	AMP TRIP	PB	PULLBOX
AWG	AMERICAN WIRE GAUGE	PC	PATCH CORD
BC	BARE COPPER	PH	PHONE
BP	BLUE PHONE	PD	PEDESTAL
C	CONDUIT	PLTS	PATHWAY LIGHTING
CLG	CEILING	PNL	PANEL
CKT	CIRCUIT	PRKLTS	PARKING LIGHTS
C.O.	CONDUIT ONLY	PTC	POLE AT TENNIS COURT
COMM	COMMUNICATION	PV	PHOTOVOLTAIC
DC	DIRECT CURRENT	PWR	POWER
DSW	FUSED DISCONNECT SWITCH	<R>	REMOVE
<E>	EXISTING	<RRN>	REMOVE AND REPLACE WITH NEW
ELEC	ELECTRICAL	RPS	REMOTE POWER SUPPLY
EM	EMERGENCY	RR	RESTROOM
EMH	ELECTRICAL MAN-HOLE	REC	RECEPTACLE
<F>	FUTURE	S	SIGNAL
FA	FIRE ALARM	SB	SCOREBOARD
FACP	FIRE ALARM CONTROL PANEL	SEC	SECURITY CAMERA
FATC	FIRE ALARM TERMINAL CABINET	SLD	SINGLE LINE DIAGRAM
FT	FEET	SLTS	SPORTS FIELD LIGHTS
G	GROUNDING CONDUCTOR	SPK	SPEAKER
GFI	GROUND FAULT INTERRUPTER	SS	SOUND SYSTEM
GND	GROUND	SWBD	SWITCHBOARD
IDF	INTERMEDIATE DISTRIBUTION FRAME	T	TRIP
INT	INTERIOR	TB	TICKET BOOTH
INTLTS	INTERIOR LIGHTS	TC	TIME CLOCK
IPC	INTEGRATED POWER CENTER	TEL	TELECOM
IRR	IRRIGATION	TS	TIMING SYSTEM
KVA	KILOVOLT AMPS	TYP	TYPICAL
LCP	LIGHTING CONTROL PANEL	UG	UNDERGROUND
LIU	LIGHTING GUIDE INTERCONNECTION UNIT	UON	UNLESS OTHERWISE NOTED
LTG	LIGHTING	V	VOLTS
LTS	LIGHTS	VOIP	VOICE OVER INTERNET PROTOCOL
MIC	MICROPHONE	W	WIRE, WATTS
MIN	MINIMUM	WP	WEATHERPROOF
MSB	MAIN SWITCHBOARD	XFMR	TRANSFORMER
MM	MULTI MODE		

ELECTRICAL SHEET INDEX

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FILE XX-XX
AC _______ FLS _____ SS _______
DATE ___________________________
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XXXX-XX

SHEET TITLE
ELECTRICAL SYMBOLS & ABBREVIATIONS

PROJECT NAME
MONTEREY HIGH SCHOOL MULTI-USE FIELD AND STADIUM RENOVATIONS

PROJECT ADDRESS
101 HERRMANN DRIVE
MONTEREY, CA
93940

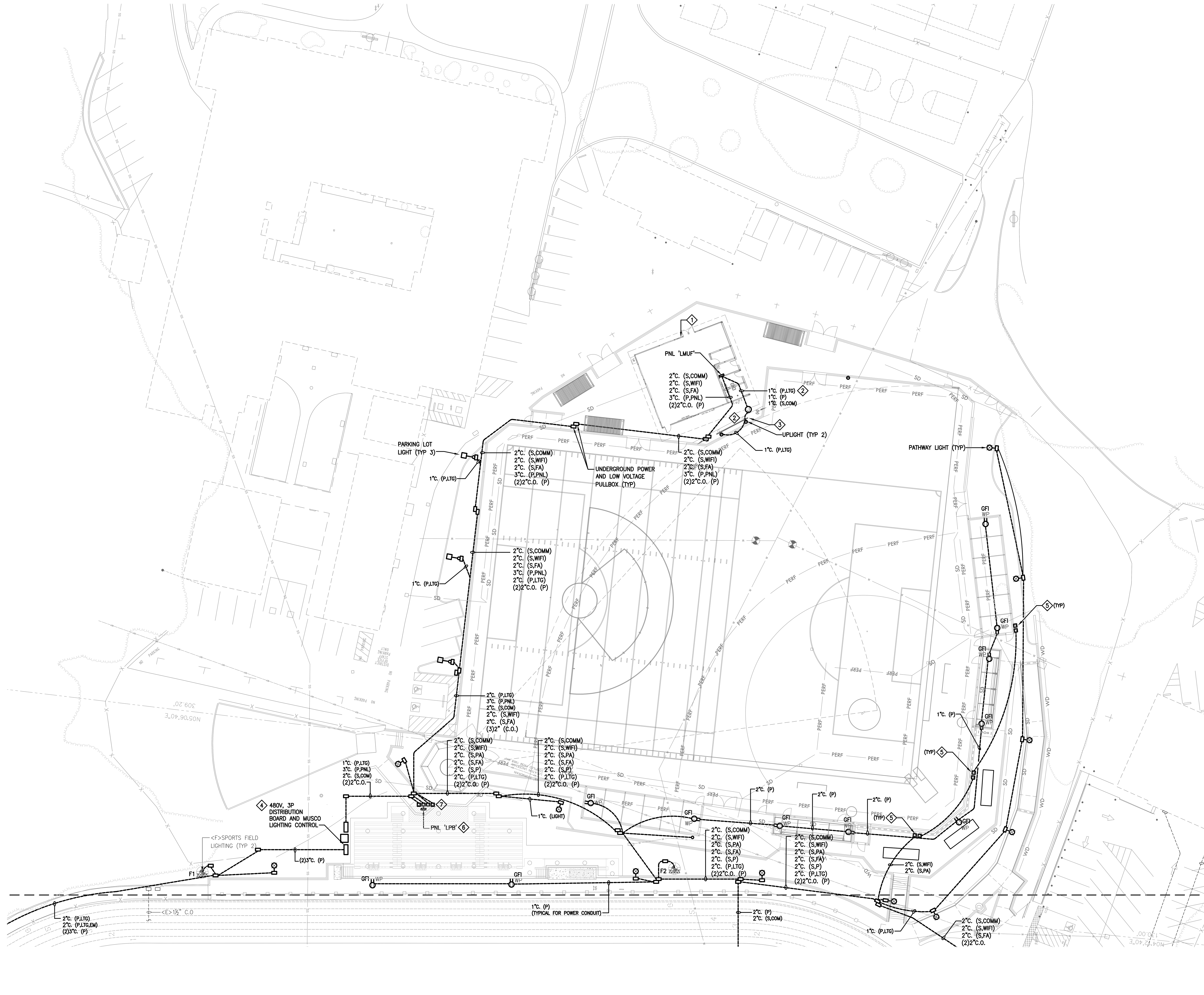
SUBMITTAL	DATE
30% SUBMITTAL	10/12/18
60% SUBMITTAL	05/15/19

NO.	REVISIONS	DATE

DRAWN BY	CHECKED BY
	JM
DATE ISSUED: 10/12/18	SCALE: AS NOTED

PROJ. NO. 1814400 (SOBE #181409)

SHEET NO. E-0.0



1 PARTIAL SITE PLAN

SCALE: 1" = 20' - 0"

GENERAL SHEET NOTES

A. CONTRACTOR SHALL PERFORM UNDERGROUND SURVEY PRIOR TO SITE EXCAVATION. IDENTIFY UTILITIES (ACTIVE AND INACTIVE). EXISTING UTILITIES AFFECTED BY ELECTRICAL WORK SHALL BE BROUGHT UP TO PROJECT ENGINEER OTHERWISE CONTRACTOR ASSUMES EXISTING CONDITION AND SHALL RECONNECT POWER AND SIGNAL. RESTORATION OF EXISTING UTILITIES SHALL NOT UTILIZE NEW PATHWAYS. CONTRACTOR SHALL PROVIDE ADDITIONAL PATHWAYS.

B. ROUTING SHOWN IS DIAGRAMMATIC. CONTRACTOR SHALL ADJUST +/-10' AT NO EXPENSE TO THE CLIENT. COORDINATE ROUTING OF ELECTRICAL CONDUITS WITH OTHER UTILITIES.

C. FIELD VERIFY SYSTEMS ROUTED IN PULLBOXES. READJUST EXISTING PULLBOXES TO FINISH GRADE. PROTECT AND PROVIDE SEALS TO CONDUITS FROM CONSTRUCTION DEBRIS. CLEAN UP PULLBOXES AFTER COMPLETION OF WORK. ENSURE THAT PULLBOXES HAVE PROPER DRAINAGE. DUCT SEAL ALL CONDUIT AND PROVIDE PULL ROPE FOR ALL SPARE CONDUIT.

D. USE 3#4 AWG MINIMUM TO WIRE EACH RECEPTACLE OUTLET AND POWER CIRCUIT. USE 1"C. MINIMUM FOR POWER AND SIGNAL CONDUITS, U.O.N.

E. UNDERGROUND POWER AND SIGNAL PULLBOX SHALL BE 17"x30" U.O.N. REFER TO ELECTRICAL DETAIL DRAWINGS.

F. ELECTRICAL DEVICES SHOWN TO BE EXISTING SHALL REMAIN AND BE PROTECTED DURING CONSTRUCTION. IF DAMAGED, CONTRACTOR SHALL RESTORE TO ITS ORIGINAL CONDITION, OR AS REQUIRED BY CITY.

G. MARK ALL CONDUIT STUB-UP WITH PULLBOX, 10"x17" MIN.

H. ALL OUTDOOR RECEPTACLE OUTLETS SHALL BE GFCI AND BE PROVIDED WITH METAL WEATHERPROOF WHILE-IN-USE COVERS.

I. REFER TO ELECTRICAL DETAIL FOR POWER AND LIGHTING WIRE SIZE.

REFERENCE SHEET NOTES

1. NEW MODULAR BUILDING
2. NEW SCOREBOARD. UNDERGROUND CONDUIT/CONDUCTORS FROM MODULAR BUILDING TO SCOREBOARD FOR POWER, LIGHTING AND SIGNAL.
3. HEAVY DUTY DISCONNECT SWITCH IN NEMA 4X ENCLOSURE INSTALL AT SCOREBOARD. ROUTE THE POWER CIRCUIT THROUGH THE DISCONNECT SWITCH.
4. APPROXIMATE LOCATION OF NEW LOAD CENTER WITH LIGHTING CONTROL CABINET, ELECTRICAL DISTRIBUTION BOARD, TRANSFORMER.
5. APPROXIMATE LOCATION OF NEMA 3R BACK BOX FOR PA & WIFI AT SOFTBALL FIELD.
6. APPROXIMATE LOCATION OF ELECTRICAL PANEL FOR PRESSBOX.
7. PULL BOXES FOR FIRE ALARM, WIFI, POWER AND SIGNAL & COMMUNICATION AT PRESSBOX.

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PARTIAL SITE PLAN

PROJECT NAME
MONTEREY HIGH SCHOOL
MULTI-USE FIELD AND
STADIUM RENOVATIONS

PROJECT ADDRESS
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1814400 (SOBE #181409)

SHEET NO.
E-1.1

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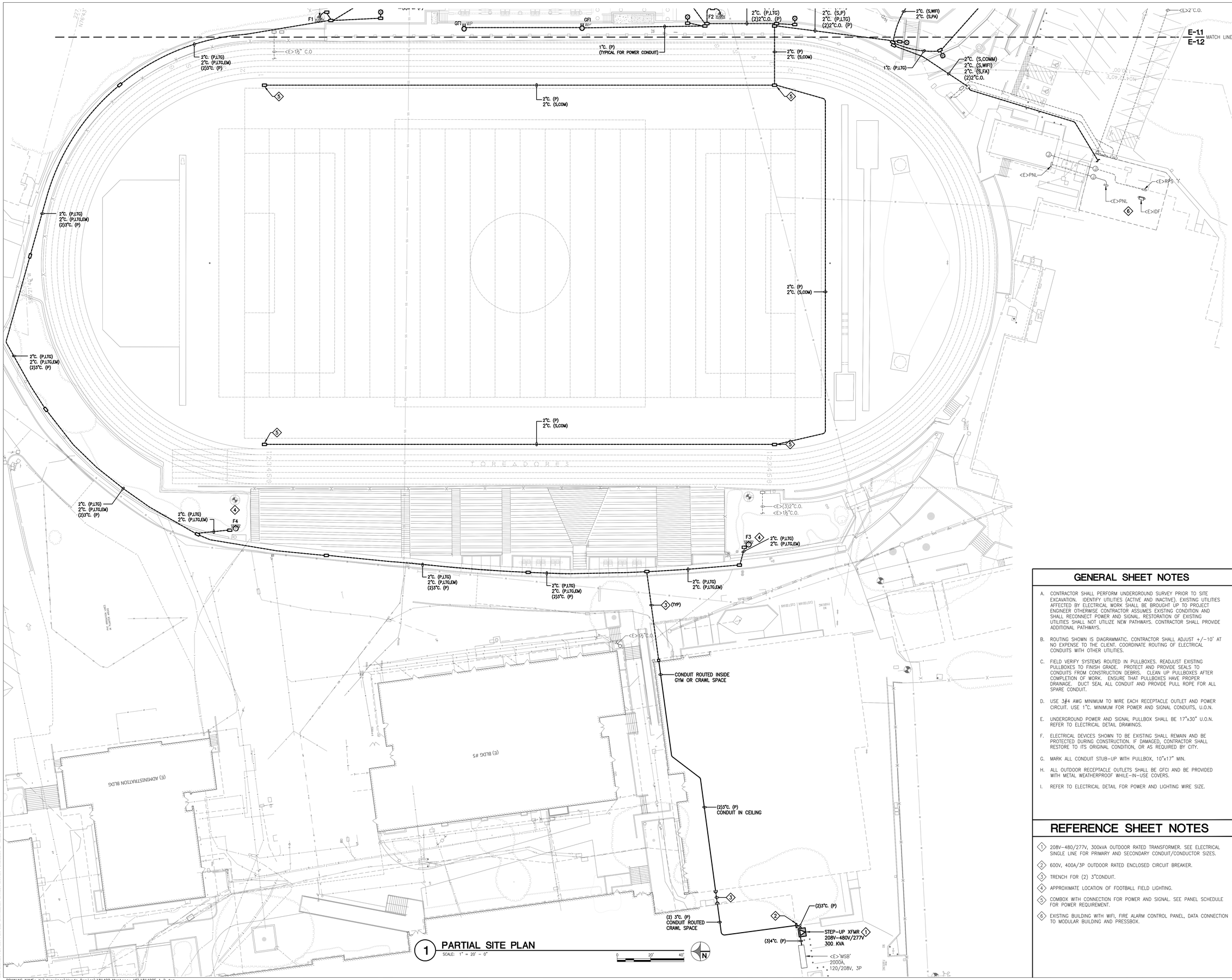

1 PARTIAL SITE PLAN

SCALE: 1" = 20' - 0"

0 20' 40'

GENERAL SHEET NOTES

A. CONTRACTOR SHALL PERFORM UNDERGROUND SURVEY PRIOR TO SITE EXCAVATION. IDENTIFY UTILITIES (ACTIVE AND INACTIVE). EXISTING UTILITIES AFFECTED BY ELECTRICAL WORK SHALL BE BROUGHT UP TO PROJECT ENGINEER OTHERWISE CONTRACTOR ASSUMES EXISTING CONDITION AND SHALL RECONNECT POWER AND SIGNAL. RESTORATION OF EXISTING UTILITIES SHALL NOT UTILIZE NEW PATHWAYS. CONTRACTOR SHALL PROVIDE ADDITIONAL PATHWAYS.

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I. REFER TO ELECTRICAL DETAIL FOR POWER AND LIGHTING WIRE SIZE.

REFERENCE SHEET NOTES

1. 208V-480/277V, 300kVA OUTDOOR RATED TRANSFORMER. SEE ELECTRICAL SINGLE LINE FOR PRIMARY AND SECONDARY CONDUIT/CONDUCTOR SIZES.
2. 600V, 400A/3P OUTDOOR RATED ENCLOSED CIRCUIT BREAKER.
3. TRENCH FOR (2) 3"CONDUIT.
4. APPROXIMATE LOCATION OF FOOTBALL FIELD LIGHTING.
5. COMBOX WITH CONNECTION FOR POWER AND SIGNAL. SEE PANEL SCHEDULE FOR POWER REQUIREMENT.
6. EXISTING BUILDING WITH WIFI, FIRE ALARM CONTROL PANEL, DATA CONNECTION TO MODULAR BUILDING AND PRESSBOX.

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PARTIAL SITE PLAN

PROJECT NAME
MONTEREY HIGH SCHOOL
MULTI-USE FIELD AND
STADIUM RENOVATIONS

PROJECT ADDRESS
101 HERRMANN DRIVE
MONTEREY, CA
93940

SUBMITTAL	DATE
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NO.	REVISIONS	DATE
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2		
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6		

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	JM
DATE ISSUED	SCALE
10/12/18	AS NOTED

PROJ. NO.
1814400 (SOBE #181409)

SHEET NO.
E-1.2

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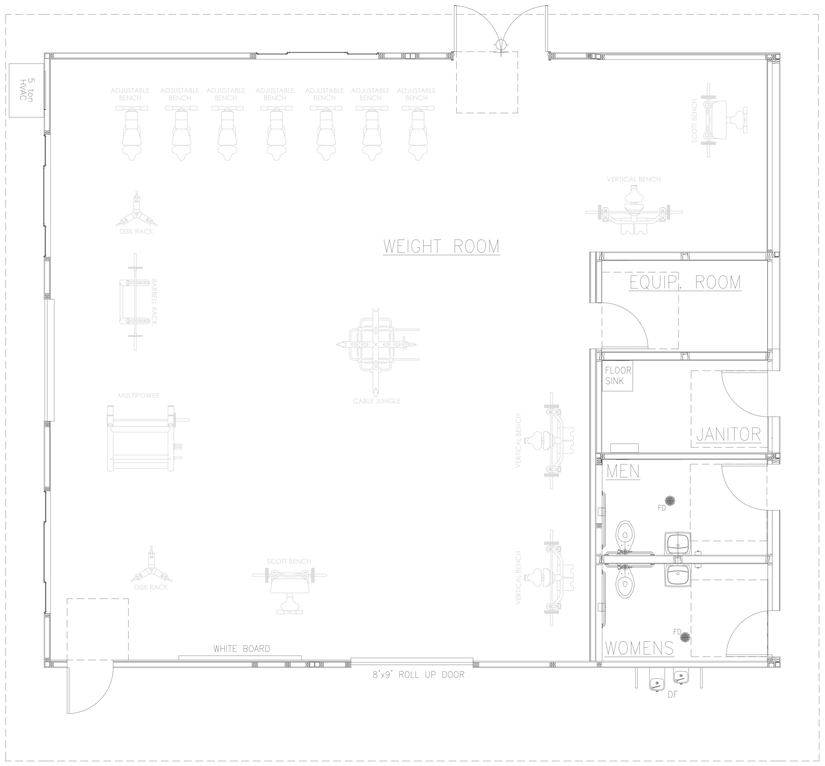
2 PRESSBOX FLOOR PLAN
SCALE: 1/4" = 1' - 0"



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

GENERAL SHEET NOTES

A. XXX

REFERENCE SHEET NOTES

1. XXX

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ELECTRICAL
FLOOR PLANS

PROJECT NAME
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MULTI-USE FIELD AND
STADIUM RENOVATIONS

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SHEET NO.
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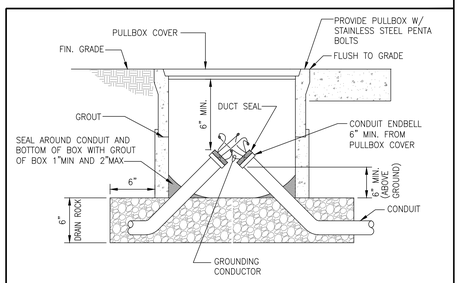
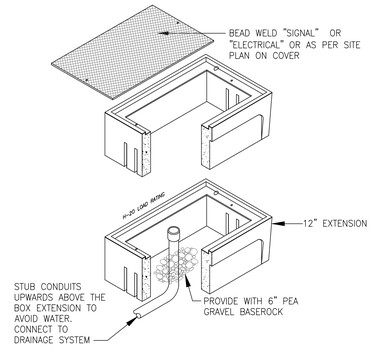


NOTES:

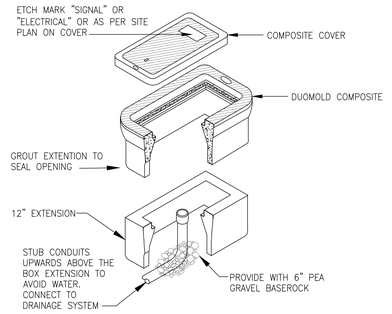
1. PROVIDE 12" SLACK OF WIRES FINISHED GRADE.
2. PROVIDE SPLICE WITH WATERPROOF AND OIL RESISTANT COATING.
3. PROVIDE DUCT SEAL TO INCOMING AND OUT GOING CONDUITS.
4. REFER TO TRENCHING DETAIL FOR DEPTH OF CONDUIT.

5 TYPICAL UNDERGROUND PULLBOX

SCALE: N.T.S.



FOR HARDSCAPED AREAS



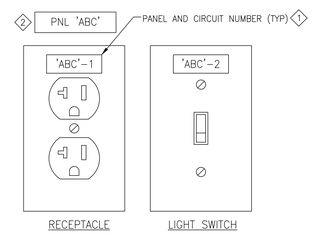
FOR LANDSCAPED AREAS

2 PULLBOX DETAIL

SCALE: N.T.S.

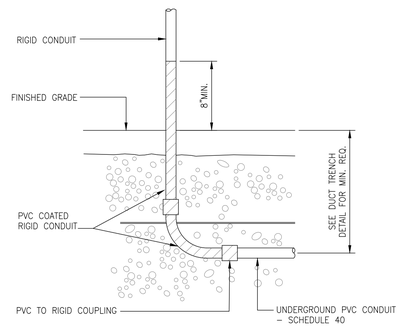
REFERENCE DETAIL NOTES:

1. LABEL ALL DEVICES AND J-BOXES USING MACHINE-PRINTED 1/2" WIDTH CLEAR TAPE WITH BLACK LETTERS.
2. LABEL ALL ELECTRICAL EQUIPMENT, AS SHOWN ON FLOOR PLAN, WITH PERMANENT BLACK BAKELITE LABELS WITH WHITE LETTERS.



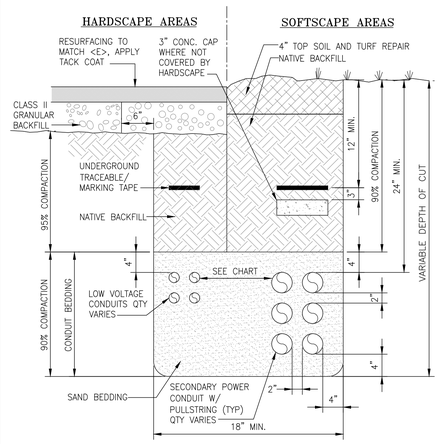
4 TYPICAL DEVICE LABELING

SCALE: N.T.S.



3 CONDUIT TRANSITION

SCALE: N.T.S.



MINIMUM CLEARANCE REQUIREMENTS (INCHES)

	PC	SC	G	TEL	TV	LV	W
PRIMARY CONDUIT (601V-22KV) (PC)	–	6	36	36	36	36	36
SECONDARY POWER CONDUIT (0-600V) (SC)	6	–	12	12	12	12	36
GAS (G)	36	12	–	12	12	12	36
TELEPHONE (TEL)	36	12	12	–	2	2	36
CATV (TV)	36	12	12	2	–	2	36
OTHER LOW VOLTAGE (LV)	36	12	12	2	2	–	36
WET UTILITIES (W)	36	36	36	36	36	36	–

TABLE ONLY APPLIES TO CONDUITS AFTER THE UTILITY POINT OF CONNECTION.

NOTES:

1. UTILITY OWNED AND END-USER CONDUITS AND TRENCH SHALL NOT BE COMBINED.
2. PROVIDE 12" SEPARATION WHEN CROSSING "WET" UTILITIES.
3. ALL DIMENSIONS ARE MINIMUM.

1 CONDUIT TRENCHING (0-600V)

SCALE: N.T.S.

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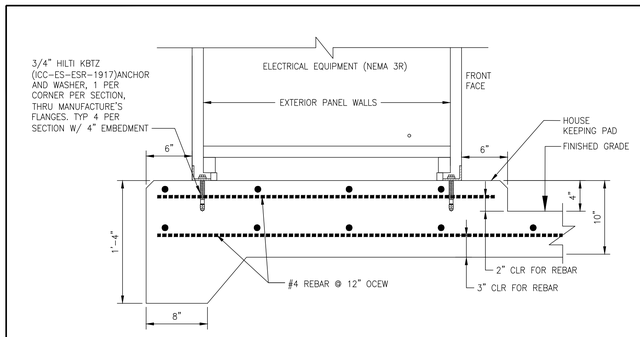

1 **EQUIPMENT PAD MOUNTING (ON NEW CONCRETE) DETAIL**
SCALE: N.T.S.

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DSA PROJECT TRACKING NO.
XXXX-XX

SHEET TITLE
ELECTRICAL DETAILS

PROJECT NAME
MONTEREY HIGH SCHOOL MULTI-USE FIELD AND STADIUM RENOVATIONS

PROJECT ADDRESS
101 HERRMANN DRIVE
MONTEREY, CA
93940

SUBMITTAL	DATE
30% SUBMITTAL	10/12/18
60% SUBMITTAL	05/15/19

NO.	REVISIONS	DATE

DRAWN BY	CHECKED BY
	JM
DATE ISSUED	SCALE
10/12/18	AS NOTED

PROJ. NO.
1814400 (SOBE #181409)

SHEET NO.
E-5.2

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PLOT DATE: 05-14-19 PLOTTED BY: toan.pham

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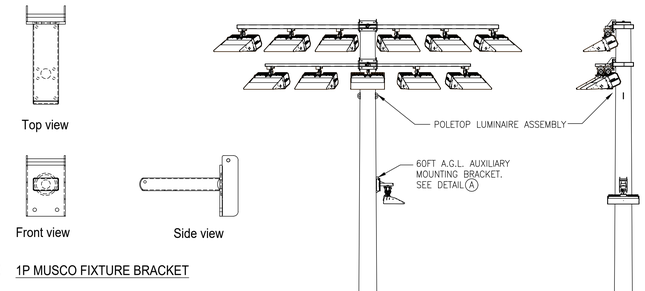
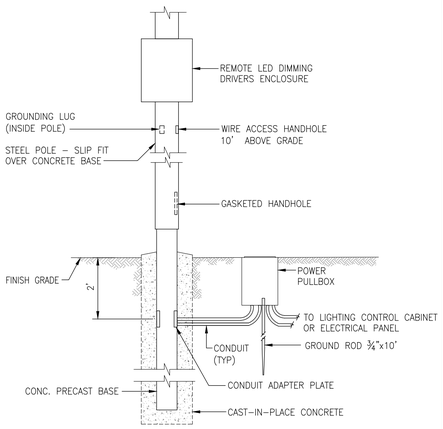


A 1P MUSCO FIXTURE BRACKET



NOTE:

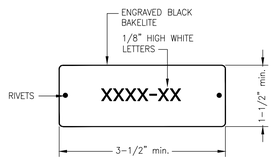
TERMINATE ALL GROUND WIRES RUN WITH POWER CIRCUITS TO BALLAST BOX GROUNDING LUG.

3 SPORTS FIELD LIGHT BASE & GROUNDING

SCALE: N.T.S.

NOTE:

LABEL TO INDICATE LIGHTING CONTROL PANEL NUMBER AND CIRCUIT BREAKER NUMBER.



2 TYPICAL LIGHT POLE TAG

SCALE: N.T.S.

1 SPORTS FIELD LIGHT POLE

SCALE: N.T.S.

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REGISTERED PROFESSIONAL ENGINEER
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No. E18084
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PROJECT ADDRESS

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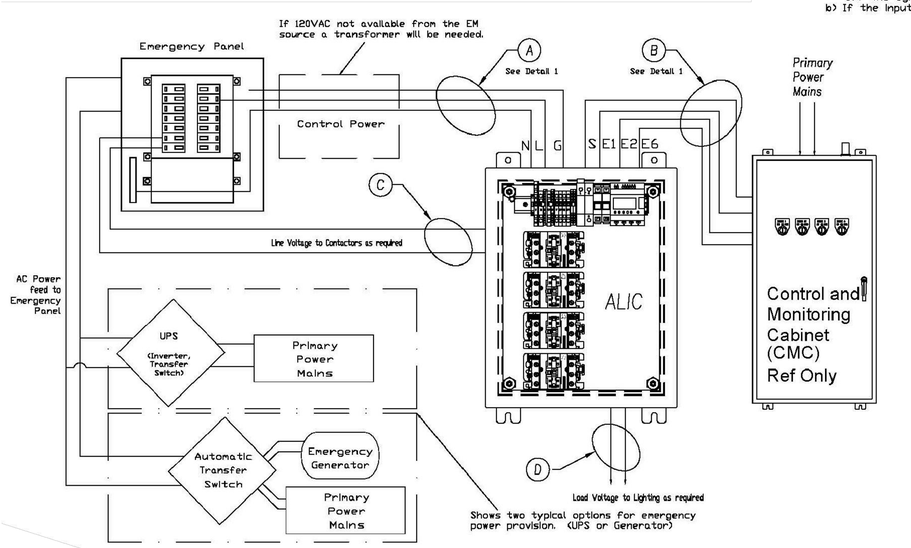
Auxiliary Lighting Interface Cabinet (ALIC)
Standard Operation and Functionality

Functionality
The ALIC (UL924) provides monitoring of Controls and Monitoring Cabinet zones and primary 120V power. For the ALIC to work correctly, it and the emergency lighting fixtures will need to be powered from an Emergency Distribution Panel. This Emergency Distribution Panel is assumed to be powered from a UPS or automatic transfer switch, whose operation is to control the power source, either the generator or the mains.

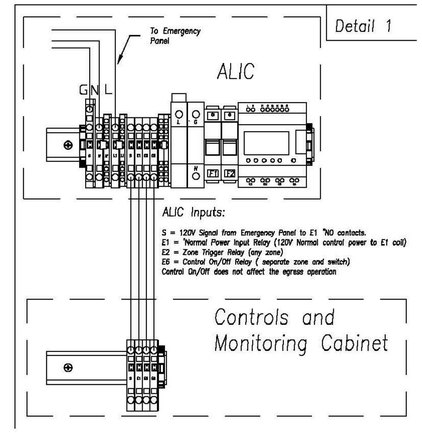
IMPORTANT: The 120 volt power (wire E1) from the Controls Monitoring Cabinet is being monitored as the mains or normal power. For best operation, the Controls and Monitoring Cabinet should be powered from the field lighting distribution panel or what is to be considered the 'main distribution panel.

Standard sequence of egress operation
1) The ALIC sends 120V over the S wire to the normally open (N.O.) contacts of the E1, E2 and E6 (if present) relays in the CMC.
   a) E1 is connected to the control circuit of the CMC to monitor Normal Power.
   b) E2 is connected to the monitored zone(s) to monitor when the zone(s) is on
   c) E6 is connected to the override zone if present. This zone can manually turn on or schedule the egress fixture. The manually override does not affect the egress operation
2) Normal power (the mains) has an interruption, either sustained or momentary.
3) E1 opens it's contacts cutting the monitored normal power input from the ALIC.
4) The ALIC checks the monitored zone input from E2.
   a) If the input was present the ALIC will output for egress. The ALIC will continue to output as long as the backup system provides power. Once normal power is restored and the ALIC receives an input from E1 the ALIC will delay off the egress output for 20min.
   b) If the input was not present the ALIC will not output for egress



Contractor Notes:

Contractor is responsible for providing (A,B,C,D) cables and installation of cables from emergency panel to ALIC and from ALIC to Controls and Monitoring Cabinet.



1 MUSCO CONTROL WIRING DIAGRAM
SCALE: N.T.S.

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SHEET NO.
E-5.4

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PANEL SCHEDULES

<N>PANEL 'HA' VOLTAGE 277/ 480 V
LOCATION MULTI FIELD TYPE NF / I-LINE FED FROM MAIN SWB @ GYM
AIC RATING 25 KAIC PHASE 3 WIRE 4

	DESCRIPTION	BRKR P	BRKR T	LCL	KVA LOAD A	KVA LOAD B	KVA LOAD C	KVA LOAD A	KVA LOAD B	KVA LOAD C	LCL	BRKR P	BRKR T	DESCRIPTION	
1	-----	-	-	X	0.0						0.0	-	-	-----	2
3	FOOTBALL FIELD - POLE LTS S1	3	60	X	0.0						0.0	3	175	XFMR "T1" - PNL "LA"	4
5	-----	-	-	X	0.0						0.0	-	-	-----	6
7	-----	-	-	X	0.0						0.0	1	30	INVERTER - EM LTG	8
9	FOOTBALL FIELD - POLE LTS S2	3	60	X	0.0						0.0	1	20	MULTI FIELD - PARKING LOT LTG	10
11	-----	-	-	X	0.0						0.0	1	20	MULTI FIELD - SCOREBOARD UP	12
13	-----	-	-	X	0.0						0.0			SPACE	14
15	FOOTBALL FIELD - POLE LTS S3	3	60	X	0.0						0.0			SPACE	16
17	-----	-	-	X	0.0						0.0			SPACE	18
19	-----	-	-	X	0.0						0.0			SPACE	20
21	FOOTBALL FIELD - POLE LTS S4	3	60	X	0.0						0.0			SPACE	22
23	-----	-	-	X	0.0						0.0			SPACE	24
25	SPACE				0.0						0.0			SPACE	26
27	SPACE				0.0						0.0			SPACE	28
29	SPACE				0.0						0.0			SPACE	30
31	SPACE				0.0						0.0			SPACE	32
33	SPACE				0.0						0.0			SPACE	34
35	SPACE				0.0						0.0			SPACE	36
37	SPACE				0.0						0.0			SPACE	38
39	SPACE				0.0						0.0			SPACE	40
41	SPACE				0.0						0.0			SPACE	42
	SUBTOTAL				0	0	0	0	0	0	0			SUBTOTAL	

MCB OR MLO: MCB
MAIN CIRCUIT BREAKER RATING: 400
BUS RATING: 600
MOUNTING: FREE STANDING
ENCLOSURE: NEMA 3R
OPTIONS

TOTAL LOAD PHASE A: 0 KVA
TOTAL LOAD PHASE B: 0 KVA
TOTAL LOAD PHASE C: 0 KVA
TOTAL LCL (NEC/CEC 215.2.A.1): 0 KVA
TOTAL PANEL LOAD (KVA): 0 KVA
TOTAL PANEL LOAD (AMPS): 0 AMPS

V.19

<N>PANEL 'INVERTER' VOLTAGE 277 V
LOCATION MULTI FIELD TYPE FED FROM PNL 'HA'
AIC RATING 25 KAIC PHASE 1 WIRE 2

	DESCRIPTION	BRKR P	BRKR T	LCL	KVA LOAD A	KVA LOAD B	KVA LOAD C	KVA LOAD A	KVA LOAD B	KVA LOAD C	LCL	BRKR P	BRKR T	DESCRIPTION	
1	FOOTBALL FIELD - EM LTS POLE	1	15	X	0.3	1.2					0.0	1	20	SPARE	2
3	FOOTBALL FIELD - EM LTS POLE	1	15	X	0.3		1.2				0.0	1	20	SPARE	4
5	FOOTBALL FIELD - EM LTS POLE	1	15	X	0.3		1.2				0.0	1	20	SPARE	6
7	FOOTBALL FIELD - EM LTS POLE	1	15	X	0.3	1.2					0.0			SPACE	8
9	MULTI FIELD - PEDESTRIAN LTG	1	20	X	0.3	1.2					0.0			SPACE	10
11	MUSCO CONTROL CABINET "ALIC"	1	15		0.0		0.5				0.0			SPACE	12
	SUBTOTAL				1	2	2	0	0	0	0			SUBTOTAL	

MCB OR MLO: MLO
MAIN CIRCUIT BREAKER RATING:
BUS RATING:
MOUNTING:
ENCLOSURE: NEMA 3R
OPTIONS

TOTAL LOAD PHASE A: 2 KVA
TOTAL LOAD PHASE B: 2 KVA
TOTAL LOAD PHASE C: 2 KVA
TOTAL LCL (NEC/CEC 215.2.A.1): 1 KVA
TOTAL PANEL LOAD (KVA): 6 KVA
TOTAL PANEL LOAD (AMPS): 16 AMPS

V.19

<N>PANEL 'LA' VOLTAGE 120/ 208 V
LOCATION MULTI FIELD TYPE FED FROM PNL 'HA' via XFMR 'T2'
AIC RATING 18 KAIC PHASE 3 WIRE 4

	DESCRIPTION	BRKR P	BRKR T	LCL	KVA LOAD A	KVA LOAD B	KVA LOAD C	KVA LOAD A	KVA LOAD B	KVA LOAD C	LCL	BRKR P	BRKR T	DESCRIPTION	
1	-----	-	-		0.0			0.7			0.0	1	20	RECEPTACLES - BATTING CAGE	2
3	PNL "LPB" - PRESSBOX	3	100		0.0				0.5		0.0	1	20	RECEPTACLES - BATTING CAGE	4
5	-----	-	-		0.0					0.7	0.0	1	20	RECEPTACLES - BATTING CAGE	6
7	PNL "LMUF" - MODULAR BLDG	1	200		0.0						0.0	1	20	SPARE	8
9	MUSCO CONTROL CABINET	1	20	X	0.1	0.5			0.7		0.0	1	20	COMBOX - FOOTBALL FIELD	10
11	SPACE				0.0					0.7	0.0	1	20	COMBOX - FOOTBALL FIELD	12
13	SPACE				0.0						0.0	1	20	SPARE	14
15	SPACE				0.0						0.0	1	20	SPARE	16
17	SPACE				0.0						0.0	1	20	SPARE	18
19	SPACE				0.0						0.0	1	20	SPARE	20
21	SPACE				0.0						0.0	1	20	SPARE	22
23	SPACE				0.0						0.0	1	20	SPARE	24
25	SPACE				0.0						0.0	1	20	SPARE	26
27	SPACE				0.0						0.0	1	20	SPARE	28
29	SPACE				0.0						0.0			SPACE	30
31	SPACE				0.0						0.0			SPACE	32
33	SPACE				0.0						0.0			SPACE	34
35	SPACE				0.0						0.0			SPACE	36
37	SPACE				0.0						0.0			SPACE	38
39	SPACE				0.0						0.0			SPACE	40
41	SPACE				0.0						0.0			SPACE	42
	SUBTOTAL				0.1	0	1	0	1	1	1 0.0			SUBTOTAL	

MCB OR MLO: MCB
MAIN CIRCUIT BREAKER RATING: 350 AMPS
BUS RATING: 400
MOUNTING: FREE STANDING
ENCLOSURE: NEMA 3R
OPTIONS

TOTAL LOAD PHASE A: 1 KVA
TOTAL LOAD PHASE B: 2 KVA
TOTAL LOAD PHASE C: 1 KVA
TOTAL LCL (NEC/CEC 215.2.A.1): 0 KVA
TOTAL PANEL LOAD (KVA): 4 KVA
TOTAL PANEL LOAD (AMPS): 11 AMPS

V.19

FIXTURE SCHEDULE

TYPE	MANUFACTURE	VOLTAGE	WATTS	DESCRIPTION	CATALOG NUMBER
10' PATHWAY LIGHT	LITHONIA	MVOLT	71W	PATHWAY LED LIGHT FIXTURE ON 10' SQUARE POLE, DARK BRONZE COLOR WITH BUILT-IN MOTION SENSOR	DSXO LED-P3-40K-T3M-MVOLT-SPA-PIR-BS-DDBXD
10' SQUARE ALUMINUM POLE	LITHONIA			10' SQUARE ALUMINUM POLE, DARK BRONZE COLOR	SSA-10-4C-FBC-DDB
20' PARKING LOT LIGHT	LITHONIA	MVOLT	102W	PARKING LOT LED LIGHT FIXTURE ON 20' SQUARE POLE, DARK BRONZE COLOR WITH BUILT-IN MOTION SENSOR	DSX1 LED-P3-40K-T3M-MVOLT-SPA-PIRH-HS-BS-DDBXD
20' SQUARE ALUMINUM POLE	LITHONIA			20' SQUARE ALUMINUM POLE, DARK BRONZE COLOR	SSA-20-4G-FBC-DDB

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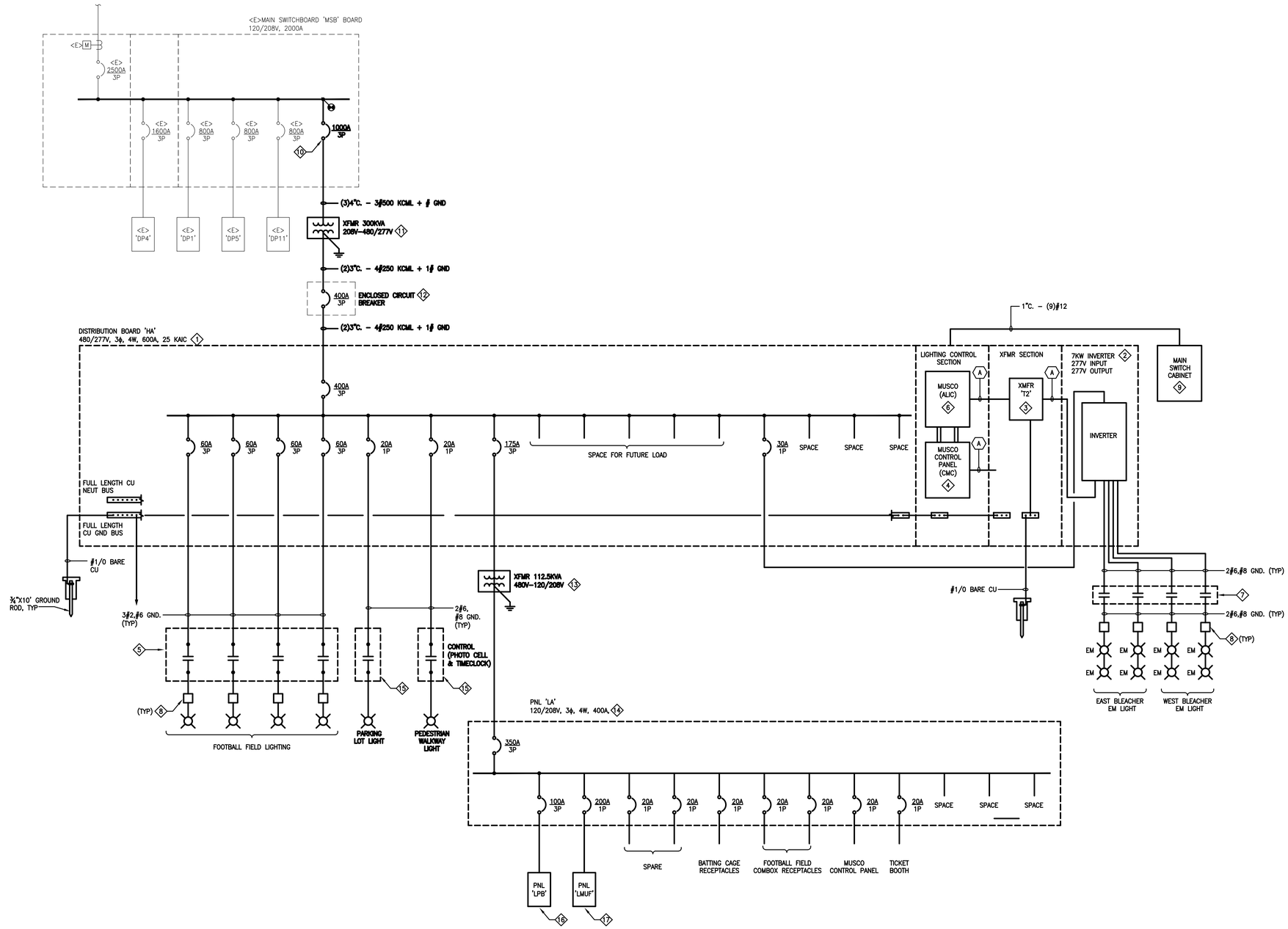

1 SINGLE LINE DIAGRAM

SCALE: SCHEMATIC

GENERAL SHEET NOTES

A. CIRCUIT BREAKER TERMINALS IN SWITCHBOARDS AND LOADCENTER SHALL BE U.L. LISTED AND APPROVED FOR USE COPPER 75 DEGREE CELSIUS CONDUCTORS.

B. FINAL TERMINATIONS OF CONDUCTORS TO ELECTRICAL EQUIPMENT AND DEVICES SHALL BE TORQUE WRENCH TIGHTENED TO THE MANUFACTURER'S RECOMMENDED SPECIFICATION, NO EXCEPTION. PROVIDE NEUTRAL TEST AND PROOF OF TORQUE DURING FINAL INSPECTION FOR ALL UNITS.

C. ELECTRICAL SERVICE DESIGN BASED ON IEM EQUIPMENT. COORDINATE AND ADJUST PER EQUIPMENT SUPPLIED.

D. SIZES OF BREAKERS, SWITCHES, FUSES AND FEEDERS ARE BASED ON DESIGNED EQUIPMENT SIZES. THESE SIZES SHALL BE ADJUSTED TO SATISFY REQUIREMENTS OF ACTUAL INSTALLED OR SUBSTITUTE EQUIPMENT. UP SIZING OR DOWNSIZING OF FEEDERS SHALL BE PROVIDED WITHOUT ADDITIONAL COST TO THE OWNER.

E. AS REQUIRED ALL OVERSIZED FEEDERS THAT WERE ADJUSTED IN SIZE TO COMPENSATE FOR VOLTAGE DROP SHALL BE PROVIDED WITH ADAPTER LUGS OR SPLICE BOX. ADAPTER LUGS SHALL BE PROVIDED IF SIZE IS AVAILABLE. OTHERWISE PROVIDE CABLE SPLICES IN THE SPLICE BOX TO REDUCE CABLES TO THE MAXIMUM SIZE THAT THE BREAKER LUGS CAN ACCOMMODATE.

F. REFER TO SHEETS E-1.1 & E-1.2 FOR CONDUIT SIZES AND COUNTS.

REFERENCE SHEET NOTES

1. NEMA 3R FREE STANDING OUTDOOR LOAD CENTER DESIGN IS BASED ON IEM WITH SIEMENS PANEL BOARD AND CIRCUIT BREAKERS. CONTACT FINN SCHENCK WITH IEM AT (510) 897 8052 OR FINN.SCHENCK@IEMFG.COM FOR MORE DETAIL OF THE EQUIPMENT.
2. 7KW INVERTER WITH 277V INPUT, 277V OUTPUT WITH 90 MINUTES RUNTIME AND OUTPUT DISTRIBUTION CENTER WITH CIRCUIT BREAKERS MANUFACTURED BY ULTRA LITE ELC.
3. 277V TO 120V, 2KVA TRANSFORMER T2 TO PROVIDE A DEDICATED EMERGENCY CIRCUIT FOR MUSCO PANEL (ALIC).
4. MUSCO CONTROL AND MONITORING CABINET (CMC). INSTALL AND MOUNT THE PANEL INSIDE LIGHTING CONTROL SECTION. PROVIDE FULL HEIGHT SEPARATION. ELECTRICAL CONTRACTOR TO CORRDINATE WITH IEM AND MUSCO FOR EXACT DIMENSION, LOCATION AND MOUNTING DETAIL.
5. ROUTE SPORT FIELD LIGHTING CIRCUIT VIA MUSCO CONTROL AND MONITORING CABINET (CMC).
6. MUSCO AUX. LIGHTING INTERFACE CABINET (ALIC) INSTALL AND MOUNT THE PANEL INSIDE LIGHTING CONTROL SECTION. CORRDINATE WITH IEM AND MUSCO FOR EXACT DIMENSION, LOCATION AND MOUNTING DETAIL.
7. ROUTE EMERGENCY LIGHTING CIRCUITS FOR EMERGENCY LIGHT FIXTURES AT SPORT FIELD BLEACHER VIA MUSCO AUX. LIGHTING INTERFACE CABINET (ALIC). SEE MUSCO DRAWING FOR WIRING REFERENCE.
8. MUSCO ELECTRICAL COMPONENT ENCLOSURE PROVIDED BY MUSCO AND TO BE MOUNTED ON NEW LIGHTING POLE. ROUTE NEW LIGHTING CONDUTORS TO THIS ENCLOSURE. SEE LIGHT POLE DETAIL ON SHEET MS1 FOR LOCATION OF THE ENCLOUSRE.
9. ONE REMOTE MANUAL SWITCH CABINET TO MANUALLY TURN ON/OFF SOCCER FIELD LIGHTS. SEE PLAN FOR PROPOSED LOCATION OF SWITCH. VERIFY FINAL LOCATION WITH OWNER PRIOR TO ROUGH IN.
10. 1000A/3P BREAKER MANUFACTURE BY SQUARE D IN EXISTING SWITCHBOARD.
11. 300kVA 208V-480/277V STEP UP TRANSFORMER WITH NEMA 3R ENCLOSURE. SEE HOUSE KEEPING PAD PER DETAIL SHEET E-5.2.
12. 400A/3P 600V RATED ENCLOSED BREAKER IN NEMA 3R ENCLOSURE.
13. 112.5kVA 488V-120/208V TRANSFORMER WITH NEMA 3R ENCLOSURE. SEE HOUSE KEEPING PAD PER DETAIL SHEET E-5.2.
14. NEW PANEL BOARD WITH NEMA 3R ENCLOSURE. SEE HOUSE KEEPING PAD PER DETAIL SHEET E-5.2.
15. PHOTOCELL AND TIME CLOCK IN NEMA 3R ENCLOSURE. ROUTE LIGHTING CIRCUIT OF POLE-MOUNT LIGHT THROUGH PHOTOCELL AND TIME CLOCK CONTROL.
16. PANEL LOCATE INSIDE PRESSBOX.
17. PANEL LOCATE INSIDE MODULAR BUILDING.

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SINGLE LINE DIAGRAM

PROJECT NAME
MONTEREY HIGH SCHOOL
MULTI-USE FIELD AND
STADIUM RENOVATIONS

PROJECT ADDRESS
101 HERRMANN DRIVE
MONTEREY, CA
93940

SUBMITTAL	DATE
30% SUBMITTAL	10/12/18
60% SUBMITTAL	05/15/19

NO.	REVISIONS	DATE

DRAWN BY	CHECKED BY
	JM
DATE ISSUED	SCALE
10/12/18	AS NOTED

PROJ. NO.
1814400 (SOBE #181409)

SHEET NO.
E-7.1

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PLOT DATE: 05-14-19 PLOTTED BY: toan.pham

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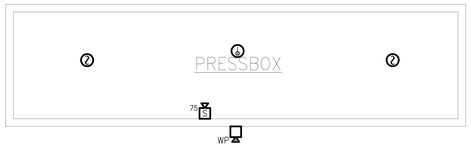
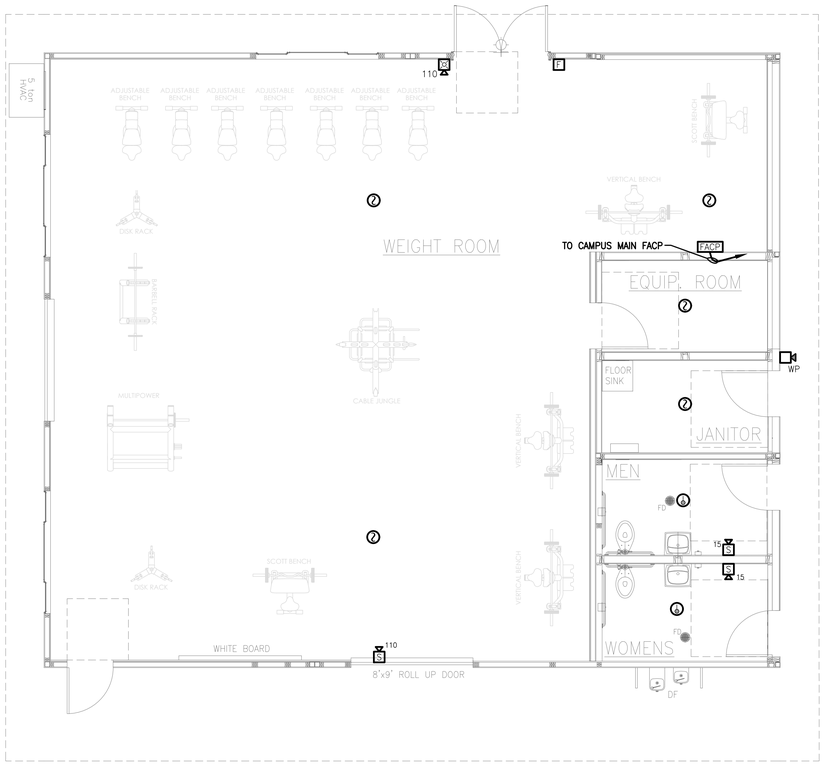


2 PRESSBOX FLOOR PLAN

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



1 MODULAR BUILDING FLOOR PLAN

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

GENERAL SHEET NOTES

A. PRIOR TO ROUGH-IN, CONTRACTOR SHALL REVIEW FIRE ALARM DEVICES LOCATIONS WITH ARCHITECTS. CONTRACTOR SHALL NOT INSTALL DEVICES UNTIL ROUGH-IN LOCATIONS HAVE BEEN APPROVED. ADJUST LOCATION +/- 10' AT NO COST.

B. FIRE ALARM DEVICES SHALL BE MOUNTED TO MEET ADA REQUIREMENTS.

C. FIRE ALARM DEVICES SHALL BE MOUNTED FLUSH TO THE CEILING AND/OR WALLS. WHERE FLUSH MOUNTING IS NOT POSSIBLE, CONTRACTOR SHALL IDENTIFY THESE AREAS AND SHALL OBTAIN APPROVAL PRIOR TO INSTALLATION.

D. FIRE ALARM CONDUIT ROUTING IS DIAGRAMMATIC. ROUTING SHOWN MINIMIZES AMOUNT OF EXPOSED RACEWAYS IN INTERIOR SPACES AND DISTANCES ARE WITHIN ALLOWABLE VOLTAGE DROPS. CONTRACTOR SHALL PLAN ROUTING IN ADVANCE AND PROVIDE ROUTING PLAN TO ENGINEER FOR REVIEW. IF PROPOSED ROUTING DIFFERS SIGNIFICANTLY FROM PLAN, CONTRACTOR SHALL PROVIDE REVISED CALCULATIONS AND REFLECT ROUTING CHANGES IN AS-BUILTS.

E. FIRE ALARM RACEWAYS SHALL BE CONCEALED. PATCH & PAINT WALL/CEILING AFFECTED. USE ¾"C. U.O.N.

F. INSTALL HEAT DETECTORS ABOVE THE CEILING, U.O.N.

REFERENCE SHEET NOTES

1. XXX

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FIRE ALARM
FLOOR PLANS

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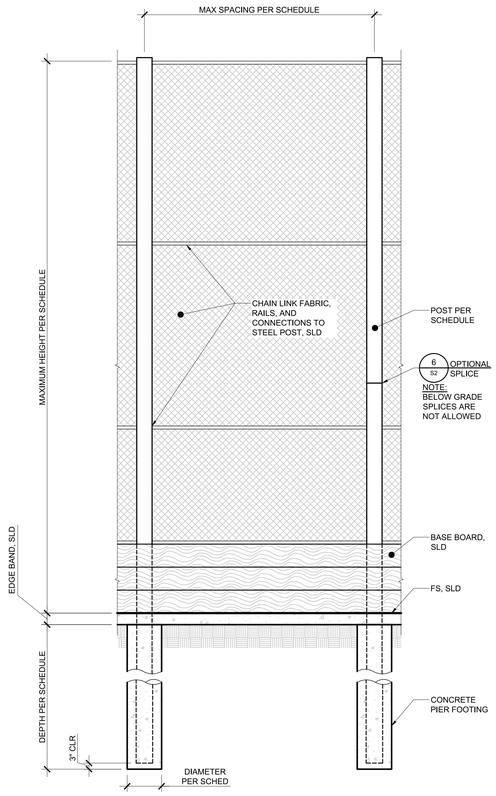
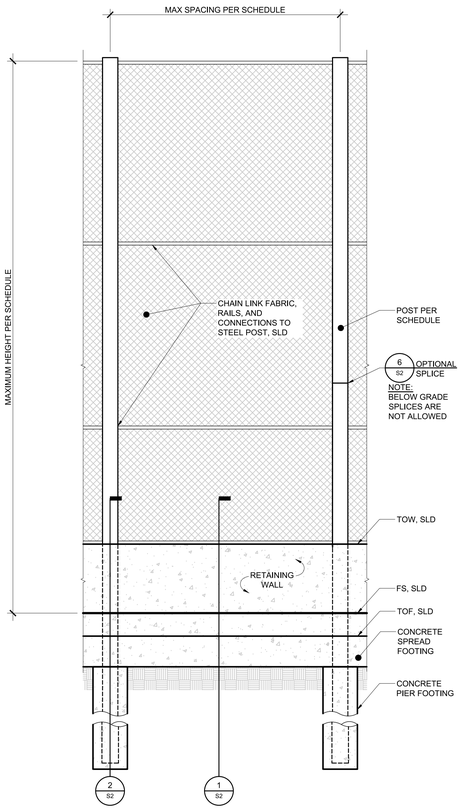


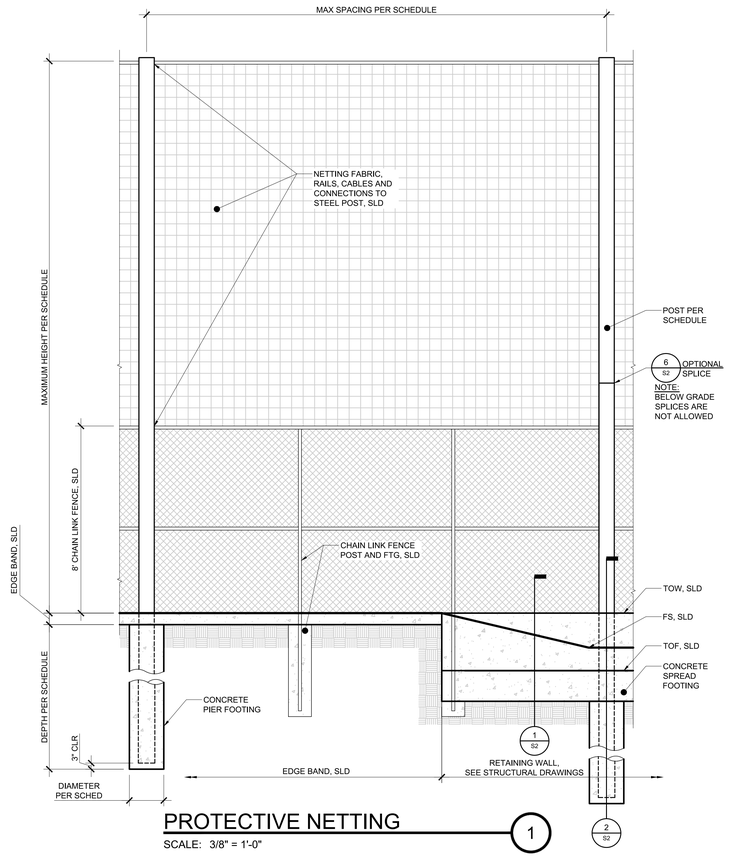
BASEBALL BACKSTOP 3

SCALE: 3/8" = 1'-0"



SOFTBALL BACKSTOP 2

SCALE: 3/8" = 1'-0"



PROTECTIVE NETTING 1

SCALE: 3/8" = 1'-0"

ABBREVIATIONS

AB	Anchor Bolt	HDR	Header
ACI	American Concrete Institute	HORIZ	Horizontal
AISC	American Institute of Steel Construction	ID	Inside Diameter
AITC	American Institute of Timber Constr.	IN	Inch
ALT	Alternate	JST(S)	Joist(s)
APA	American Plywood Association	KP	King Post
APPROX	Approximately	L	Angle
ARCH	Architect	LB	Pound
ASTM	American Society for Testing & Materials	LL	Live Load
AVG	Average	LTWT	Light Weight
BLDG	Building	MAX	Maximum
BLK(G)	Block(ing)	MB	Machine Bolt
BM	Beam	MECH	Mechanical
BN	Boundary nailing	MISC	Miscellaneous
BOT	Bottom	MIN	Minimum
BTWN	Between	MTL	Metal
BVL	Bevel	NS&FS	Near Side And Far Side
C	Channel	NTS	Not To Scale
CANT	Cantilever	OC	On Center
CB	Carriage Bolt	OD	Outside Diameter
CBC	California Building Code	P	Post
CC	Center to Center	PERT	Pre-Engineered Roof Truss
CJ	Control Joint	PJP	Partial Joint Penetration
CL	Center Line	PL	Plate
CLG	Ceiling	PLY	Plywood
CLR	Clear, Clearance	PMR	Per Manufacturers Recommendations
CMU	Concrete Masonry Unit	PSF	Pounds per Square Foot
COL	Column	PSI	Pounds per Square Inch
CJP	Complete Joint Penetration	PTDF	Preservative Treated Douglas Fir
CONC	Concrete	R	Radius
CONN	Connection	RC	Relative Compaction
CONT	Continuous	REINF	Reinforcement
CSLM	Controlled Low Strength Material	REQD	Required
CTR	Center	RET	Retaining
CVR	Cover	R&R	Remove And Replace
DBL	Double	RR	Roof Rafter
DEG	Degree	RS	Rough Sawn
DET	Detail	RWD	Redwood
DF	Douglas Fir	SAD	See Architectural Drawings
DIA	Diameter	SCH	Schedule
DIAG	Diagonal	SECT	Section
DIM	Dimension	SEL	Select
DL	Dead Load	SF	Square Foot
DN	Down	SHRWL	Shear wall
DWG	Drawing	SHTG	Sheathing
EA	Each	SIM	Similar
EF	Each Face	SLD	See Landscape Drawings
EL	Elevation	SPEC	Specifications
ELEV	Elevation	SQR	Square
EN	Edge Nail	STD	Standard
ENGR	Engineer	STL	Steel
EOR	Engineer Of Record	STRUCT	Structural
ES	Each Side	T	Tee Section
EW	Each Way	T/O	Top Of
EX	Existing	T&G	Tongue And Groove
EXT	Exterior	T&B	Top And Bottom
FG	Finish Grade	TN	Toe Nail
FJ	Floor Joist	TOC	Top Of Concrete
FLR	Floor	TOF	Top Of Footing
FN	Field nailing	TOS	Top Of Steel
FDN	Foundation	TOW	Top Of Wall
FOC	Face Of Concrete	TYP	Typical
FOS	Face Of Steel/Stud	UNO	Unless Noted Otherwise
FRMG	Framing	VERT	Vertical
FS	Finished Surface	VIF	Verify In Field
FT	Foot or Feet	W	Wide flange steel beam
FTG	Footing	W/	With
GA	Gauge	W/O	Without
GALV	Galvanized	WP	Work Point
GLB	Glulam Beam	WWF	Welded Wire Fabric
HD	Holdown		

MATERIAL SPECIFICATIONS

STRUCTURAL STEEL & MISCELLANEOUS IRON:

NETTING POSTS	ASTM A53 Gr. B
BACKSTOP POSTS	ASTM F1083
OTHER SHAPES AND PLATES	ASTM A36
WELDING ELECTRODES	E70XX

CONCRETE:

NORMAL WEIGHT, f'c = 3,500 PSI MIN
REBAR: ASTM A615, GRADE 60

SEE PROJECT SPECIFICATIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

STRUCTURAL NOTES

GENERAL

Construction and materials shall be as specified and as required by the 2016 California Building Code (CBC) and locally enforced codes and authorities. All articles, materials and equipment shall be installed, applied and connected as directed by the manufacturer's latest written specifications except where otherwise noted. Material notes on the drawings shall take precedence over these Specifications.

In the event certain features of the construction are not fully shown, their construction shall be as shown for similar features. All dimensions shall take precedence over scale shown on the Plans.

It shall be the Contractor's sole responsibility to design and provide adequate shoring, bracing and formwork as required for the protection of life and property during construction.

The Contractor shall examine and check all existing conditions, dimensions, levels and materials and notify the Engineer of any discrepancies before proceeding with the work. Should a discrepancy appear in the Specifications or Drawings, or in the work done by others from the contract documents that affect any work, notify the Landscape Architect or Engineer at once for instruction on how to proceed. If the Contractor proceeds with the work affected without instructions from the Engineer, the Contractor shall make good any resulting damage or defect to the satisfaction of the Engineer. Should a conflict occur in or between Drawings and Specifications, or where detail references on Contract Drawings have been omitted, the Contractor is deemed to have estimated the most expensive materials and construction method involved, unless a written decision of the Engineer has been obtained which describes an alternate method and/or materials.

See landscape, electrical and mechanical drawings for size and location of pipe, vent, duct and other openings and details not shown on the structural drawings. Structural drawings, details, dimensions, etc. shall be checked and verified, by the Contractor, with the landscape drawings. Discrepancies shall be brought to the attention of the Engineer for resolution before proceeding with the work.

EARTHWORK

Earthwork shall be in strict accordance with the recommendations of the Geotechnical Investigation:

Geotechnical and Geologic Hazard Investigation Measure U Facilities Improvements Project,
San Benito High School, Hollister, California
Cleary Consultants Inc., Project No. 1100.11
Dated: September 22, 2017

Minimum footing embedment shall be measured from the lowest existing adjacent soil grade.

Drilled piers shall be drilled to the diameters and depths shown on the plans unless determined otherwise by the geotechnical engineer in the field.

Contractor shall carefully excavate all materials necessary, of whatever nature, for construction of the work. Any material of an unsuitable or deleterious nature discovered below the bottoms of the foundations shall be brought to the attention of the geotechnical engineer before proceeding with the work.

Backfill shall not be placed behind retaining walls until 21 days after placing concrete or grout or until the concrete or grout has developed a compressive strength of not less than 2,000 psi, whichever occurs first. Permeable materials placed behind retaining walls shall be of the type specified on the plans. Backfill placed under paved areas shall be compacted to a relative density of 95%.

All other earthwork shall conform to the requirements of the current Building Code Chapter 33, "Safeguards During Construction" and the recommendations contained within the aforementioned report by the Geotechnical Engineer.

The Geotechnical Investigation Report shall be part of the construction documents and shall be kept at the job site at all times.

STRUCTURAL OBSERVATION BY THE ENGINEER

Structural observation is required at the following construction milestones:

Reinforcing steel placement prior to placing concrete.
Final installations prior to placing of obscuring finishes.

The structural engineer shall be notified 48 hours in advance of above milestones.

STRUCTURAL SCHEDULES

STRUCTURAL POST AND FOOTING SCHEDULE

POLE TYPE	POLE MAT'L	HEIGHT	SPACING	PIER Ø x DEPTH	VERT REINF	SPIRAL REINF	REMARKS
FOUL POLE	NOTE 4	20'-0" MAX	NOT APPLICABLE	18"Ø x 10'-0"	(6) #5	#3 @ 6" PITCH	DETAIL 1/S1
PROTECTIVE NETTING	8"Ø STD ASTM A53 Gr. B	25'-0" MAX	20'-0" MAX	18"Ø x 12'-6"	NONE	NONE	DETAIL 2/S1
SOFTBALL BACKSTOP	8"Ø ASTM F1083	25'-0" MAX	10'-0" MAX	18"Ø x 12'-6"	NONE	NONE	DETAIL 3/S1
BASEBALL BACKSTOP	8" Ø ASTM F1083	25'-0" MAX	10'-0" MAX	18"Ø x 12'-6"	NONE	NONE	DETAIL 4/S1

NOTES:
1. HEIGHT REFERS TO TOTAL HEIGHT ABOVE GRADE, SEE LANDSCAPE PLANS.
2. DEPTH REFERS TO DEPTH OF PIER BELOW GRADE.
3. REFER TO DETAILS FOR ADDITIONAL REINFORCING REQUIREMENTS
4. REFER TO MANUFACTURERS PRODUCT LITERATURE FOR MEMBER SIZES AND OTHER SPECIFIC DETAILING REQUIREMENTS.

SPECIFIED CONCRETE COVER OVER REINFORCING BARS

(USE CLEAR COVER SPECIFIED BELOW UNLESS NOTED OTHERWISE ON PLANS AND DETAILS)

USE:	CLEAR COVER:
CAST AGAINST & PERMANENTLY EXPOSED TO EARTH	3"
FORMED, EXPOSED TO EARTH OR WEATHER	2"

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STRUCTURAL ABBREVIATIONS, NOTES DESIGN CRITERIA, SCHEDULES, DETAILS

PROJECT NAME

MONTEREY HIGH SCHOOL MULTI-USE FIELD AND STADIUM RENOVATIONS

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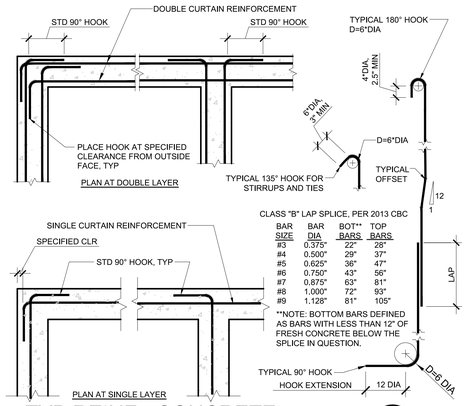

CLASS "B" LAP SPLICE, PER 2013 CBC

BAR SIZE	BAR DIA	BOT** BARS	TOP BARS
#3	0.375"	22"	28"
#4	0.500"	29"	37"
#5	0.625"	36"	47"
#6	0.750"	43"	56"
#7	0.875"	63"	81"
#8	1.000"	72"	93"
#9	1.128"	81"	105"

**NOTE: BOTTOM BARS DEFINED AS BARS WITH LESS THAN 12" OF FRESH CONCRETE BELOW THE SPLICE IN QUESTION.

TYP REINF - CONCRETE

SCALE: NTS

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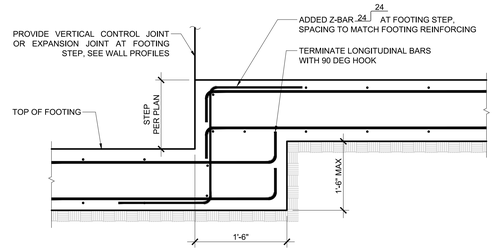

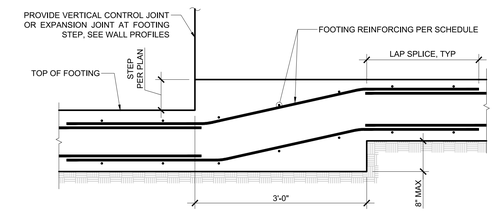

STEPPED WALL FOOTING

SCALE: NTS

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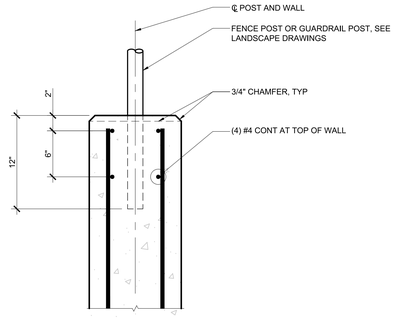


T/O WALL POST POCKET

SCALE: 1 1/2" = 1'-0"

2

WALL DIMENSIONS - LEVEL BACKFILL

HEIGHT 'H'	FOOTING WIDTH 'W'	TOE WIDTH 'T'	KEY DEPTH 'K'	FTG THICK-NESS, 'F'	MAX BACK-FILL SLOPE	DETAIL
2' MAX	2'-6"	0'-6"	NOT REQ'D	1'-0"	LEVEL	1/S2
4' MAX	2'-8"	0'-8"	0'-6"	1'-4"	LEVEL	1/S2
6' MAX	4'-0"	2'-0"	1'-4"	1'-4"	LEVEL	1/S2
8' MAX	5'-6"	3'-6"	2'-2"	1'-4"	LEVEL	1/S2

WALL DIMENSIONS - SLOPING BACKFILL

HEIGHT 'H'	FOOTING WIDTH 'W'	TOE WIDTH 'T'	KEY DEPTH 'K'	FTG THICK-NESS, 'F'	MAX BACK-FILL SLOPE	DETAIL
2' MAX	2'-6"	0'-6"	0'-6"	1'-0"	2:1	1/S2
4' MAX	3'-4"	1'-4"	1'-0"	1'-4"	2:1	1/S2
6' MAX	5'-0"	3'-0"	2'-2"	1'-4"	2:1	1/S2
8' MAX	7'-0"	5'-0"	3'-2"	1'-4"	2:1	1/S2

WALL AND FOOTING REINFORCING

HEIGHT 'H'	WALL			FOOTING		KEY
	'A' BARS	'B' BARS	'C' BARS	'D' BARS	'E' BARS	'K' BARS
2' MAX	#5 @ 16"	#4 @ 16"	#4 @ 16"	#5 @ 16"	#5 @ 16"	#5 @ 16"
4' MAX	#5 @ 16"	#4 @ 16"	#4 @ 16"	#5 @ 16"	#5 @ 16"	#5 @ 16"
6' MAX	#5 @ 16"	#4 @ 16"	#4 @ 16"	#5 @ 16"	#5 @ 16"	#5 @ 16"
8' MAX	#6 @ 12"	#4 @ 16"	#4 @ 16"	#6 @ 12"	#5 @ 16"	#6 @ 12"

NOTES

1. STRUCTURAL BACKFILL SHALL NOT BE PLACED UNTIL THE CONCRETE HAS DEVELOPED A STRENGTH OF NOT LESS THAN 2000 POUNDS PER SQUARE INCH IN COMPRESSION, OR UNTIL THE CONCRETE HAS BEEN IN PLACE FOR 14 DAYS, WHICHEVER OCCURS FIRST.
2. THE BOTTOM OF FOOTING EXCAVATIONS SHALL BE FIRM, CLEAN AND FREE OF ANY LOOSE OR YIELDING SOILS. FOOTINGS SHALL BE POURED IN NEAT EXCAVATIONS WITHOUT THE USE OF SIDE FORMS. CAST TOE/KEY CONCRETE AGAINST UNDISTURBED NATIVE MATERIAL OR PREPARED SUBGRADE EXCEPT AS APPROVED BY THE GEOTECHNICAL ENGINEER.
3. AT THEIR OPTION, THE CONTRACTOR IS PERMITTED TO USE CONTINUOUS VERTICAL BARS FROM FOUNDATION TO TOP OF WALL , WHERE FOOTING DOWELS ARE USED, ALL VERTICAL BARS SHALL BE LAP SPLICED AND FOOTING DOWELS SHALL BE OF THE SAME SIZE AND SPACING AS BARS ABOVE.
4. MINIMUM FOOTING EMBEDMENT SHALL BE MEASURED FROM THE LOWEST EXISTING ADJACENT SOIL GRADE

RETAINING WALL SCHEDULE

SCALE: NTS

NOTES:
1. FOUNDATION CONCRETE MAY BE PLACED DIRECTLY INTO NEAT EXCAVATIONS PROVIDED THE FOUNDATION TRENCH WALLS ARE STABLE AS DETERMINED BY THE GEOTECHNICAL ENGINEER SUBJECT TO THE APPROVAL OF DSA.
2. FORMWORK NOT PERMITTED BELOW GRADE.
3. STAKES NOT PERMITTED WITHIN FOOTING SECTION.

TYP FORMWORK RQMTS

SCALE: 3/4" = 1'-0"

9

TYP PIPE BELOW FOOTING

SCALE: NTS

6

VERTICAL CONTROL JOINT

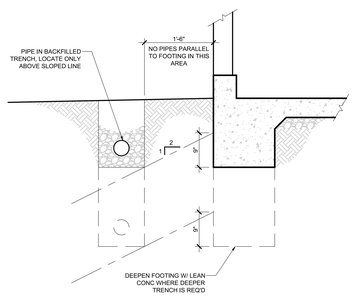
SCALE: NTS

3

SPREAD FTG RETAINING WALL WITH FENCE POSTS

SCALE: 3/4" = 1'-0"

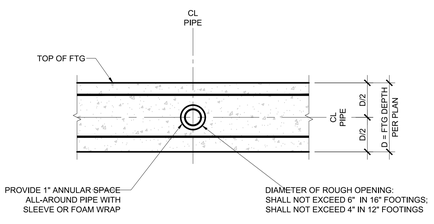
1



TRENCH ADJACENT TO FOOTING

SCALE: 3/4" = 1'-0"

10



NOTES:
1. ALL PIPES PASSING THRU FOOTINGS SHALL BE ORIENTED PERPENDICULAR TO FOOTING AT POINT OF CROSSING.
2. CROSSINGS AT AN ANGLE TO FOOTING OR PARALLEL TO FOOTING ARE NOT PERMITTED

TYP PIPE THROUGH FOOTING

SCALE: NTS

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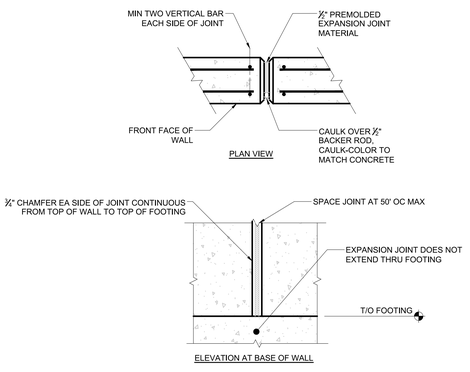

RET WALL EXPANSION JOINT

SCALE: NTS

4

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XXXXX–XXX
FILE XX–XX

SHEET TITLE

STRUCTURAL DETAILS

PROJECT NAME

MONTEREY HIGH SCHOOL MULTI–USE FIELD AND STADIUM RENOVATIONS

PROJECT ADDRESS

101 HERRMANN DRIVE
MONTEREY, CA
93940

SUBMITTAL	DATE
30% SUBMITTAL	10/12/18
60% SUBMITTAL	05/03/19

NO.	REVISIONS	DATE
1		
2		
3		
4		
5		
6		

DRAWN BY	CHECKED BY
PD	DH
DATE ISSUED: 05/03/2019	SCALE:
PROJ. NO.: 18178	
SHEET NO.: S2	

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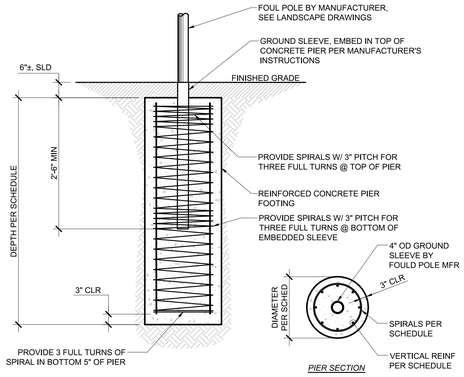
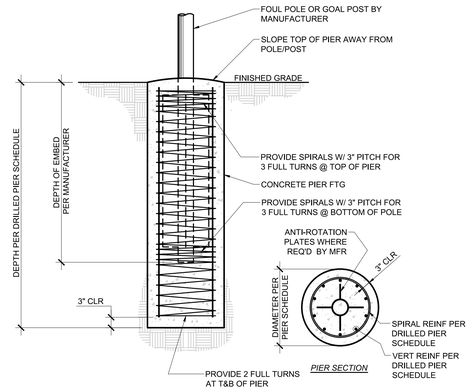


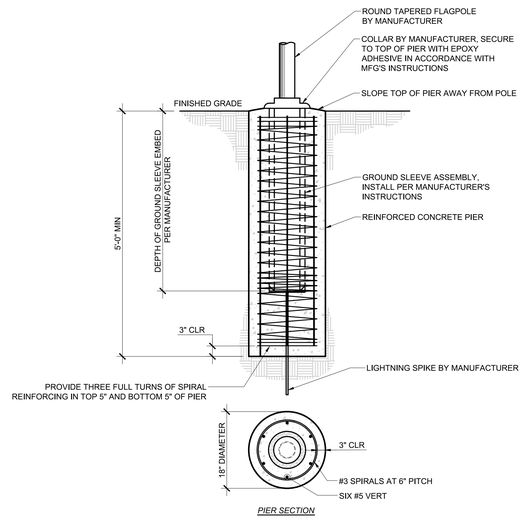
FOUL POLE FTG W/ SLEEVE 3

SCALE: 1/2" = 1'-0"



GOAL POST FTG 2

SCALE: 1/2" = 1'-0"



FLAG POLE FTG 1

SCALE: 1/2" = 1'-0"

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STAMP

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CONSULTANT

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831.426.3166 www.mme.com

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SS _____ FLS _____ ACS _____
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DATE _____
DSA PROJECT TRACKING NO:
XXXXX-XXX
FILE XX-XX

SHEET TITLE

STRUCTURAL DETAILS

PROJECT NAME

MONTEREY HIGH SCHOOL MULTI-USE FIELD AND STADIUM RENOVATIONS

PROJECT ADDRESS

101 HERRMANN DRIVE
MONTEREY, CA
93940

SUBMITTAL	DATE
30% SUBMITTAL	10/12/18
60% SUBMITTAL	05/03/19

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4		
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6		

DRAWN BY	CHECKED BY
PD	DH
DATE ISSUED: 05/03/2019	SCALE
PROJ. NO.: 18178	
SHEET NO.: S3	

APPENDIX B

MONTEREY HIGH FOOTBALL STADIUM ILLUMINATION SUMMARY
(PREPARED BY MUSCO SPORTS LIGHTING, LLC, DATED APRIL 12, 2019)

Monterey High Football

Monterey, CA

Lighting System

Pole / Fixture Summary

Pole ID	Pole Height	Mtg Height	Fixture Qty	Luminaire Type	Load	Circuit
F1-F2	80'	80'	6	TLC-LED-1500	9.00 kW	A
		15'	2	TLC-BT-575	1.15 kW	A
		50'	2	TLC-LED-600	1.16 kW	B
F3	70'	70'	7	TLC-LED-1500	10.50 kW	A
		15'	2	TLC-BT-575	1.15 kW	A
		60'	2	TLC-LED-600	1.16 kW	B
F4	80'	80'	7	TLC-LED-1500	10.50 kW	A
		15'	2	TLC-BT-575	1.15 kW	A
		68'	2	TLC-LED-600	1.16 kW	B
4			***42***		***48.24 kW***	

Circuit Summary

Circuit	Description	Load	Fixture Qty
A	Football	43.6 kW	34
B	Bleachers	4.64 kW	8

Fixture Type Summary

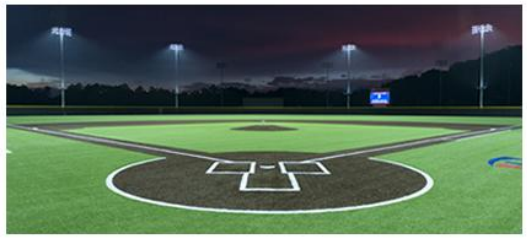
Type	Source	Wattage	Lumens	L90	L80	L70	Quantity
TLC-LED-1500	LED 5700K - 75 CRI	1500W	156,100	>81,000	>81,000	>81,000	26
TLC-LED-600	LED 5700K - 75 CRI	580W	65,600	>81,000	>81,000	>81,000	8
TLC-BT-575	LED 5700K - 75 CRI	575W	52,000	>81,000	>81,000	>81,000	8

Light Level Summary

Calculation Grid Summary

Grid Name	Calculation Metric	Illumination					Circuits	Fixture Qty
		Ave	Min	Max	Max/Min	Ave/Min		
150' Spill	Horizontal Illuminance	0.10	0	0.60	318.49		A	34
150' Spill	Max Candela (by Fixture)	3176	310	8419	27.13	10.23	A	34
150' Spill	Max Vertical Illuminance Metric	0.16	0.01	0.81	144.16	16.40	A	34
Football	Horizontal Illuminance	41.3	30	55	1.85	1.38	A	34
Home Bleachers	Horizontal	11.1	2	15	7.92	5.55	B	8
Visitor Bleachers	Horizontal	19	4	31	7.86	4.75	B	8

From Hometown to Professional



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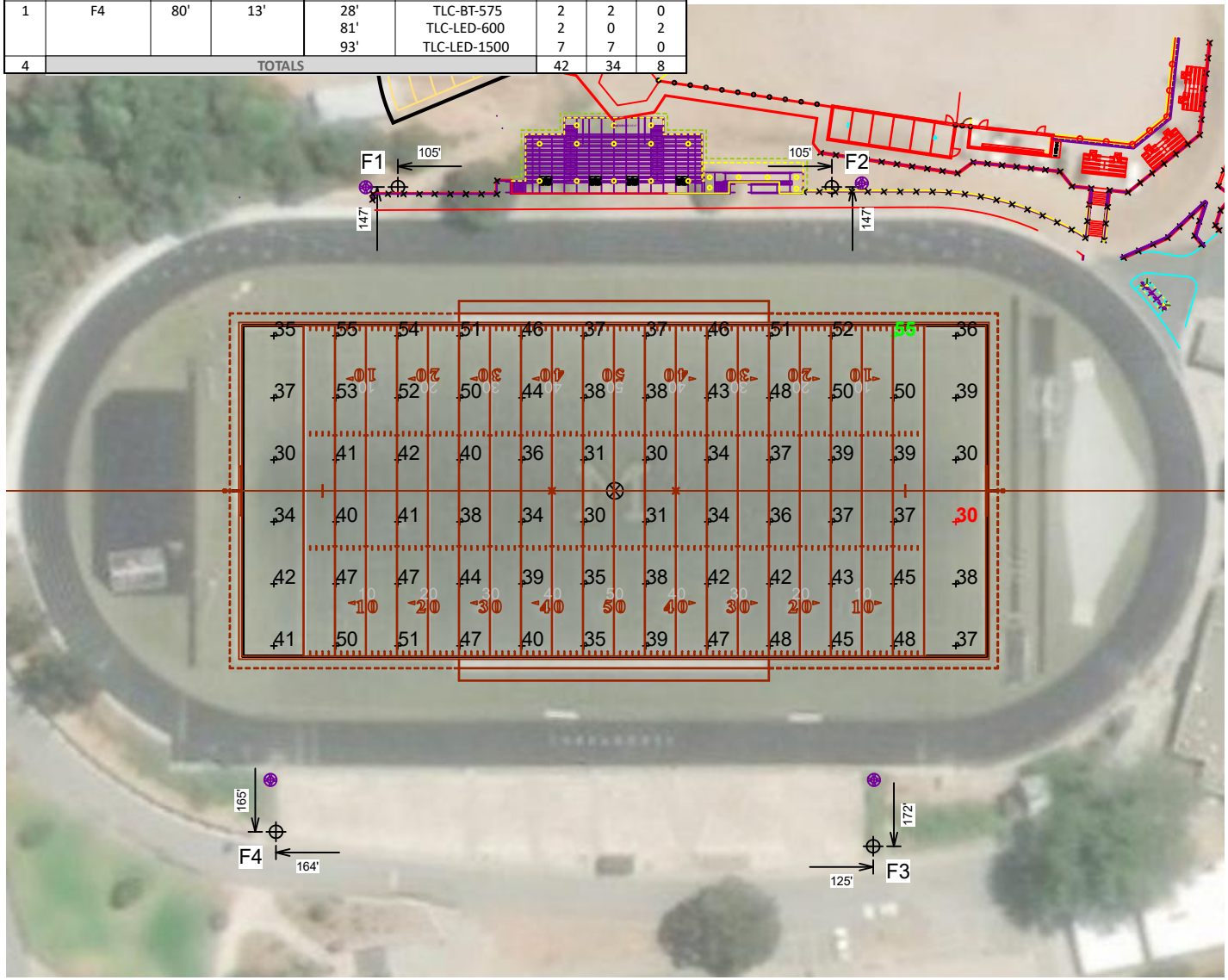
Monterey High Football

Monterey, CA

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	F1-F2	80'	-2'	13'	TLC-BT-575	2	2	0
				48'	TLC-LED-600	2	0	2
				78'	TLC-LED-1500	6	6	0
1	F3	70'	21'	36'	TLC-BT-575	2	2	0
				81'	TLC-LED-600	2	0	2
				91'	TLC-LED-1500	7	7	0
1	F4	80'	13'	28'	TLC-BT-575	2	2	0
				81'	TLC-LED-600	2	0	2
				93'	TLC-LED-1500	7	7	0
4	TOTALS					42	34	8



SCALE IN FEET 1 : 80

0' 80' 160'

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

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:	**40**
Scan Average:	41.3
Maximum:	55
Minimum:	30
Avg / Min:	1.38
Guaranteed Max / Min:	**2**
Max / Min:	1.85
UG (adjacent pts):	1.56
CU:	0.58
No. of Points:	72

LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	156,100 / 52,000 lumens
No. of Luminaires:	**34**
Total Load:	43.6 kW

Lumen Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1500	>81,000	>81,000	>81,000
TLC-BT-575	>81,000	>81,000	>81,000

Reported per TM-21-11. See luminaire datasheet for details.

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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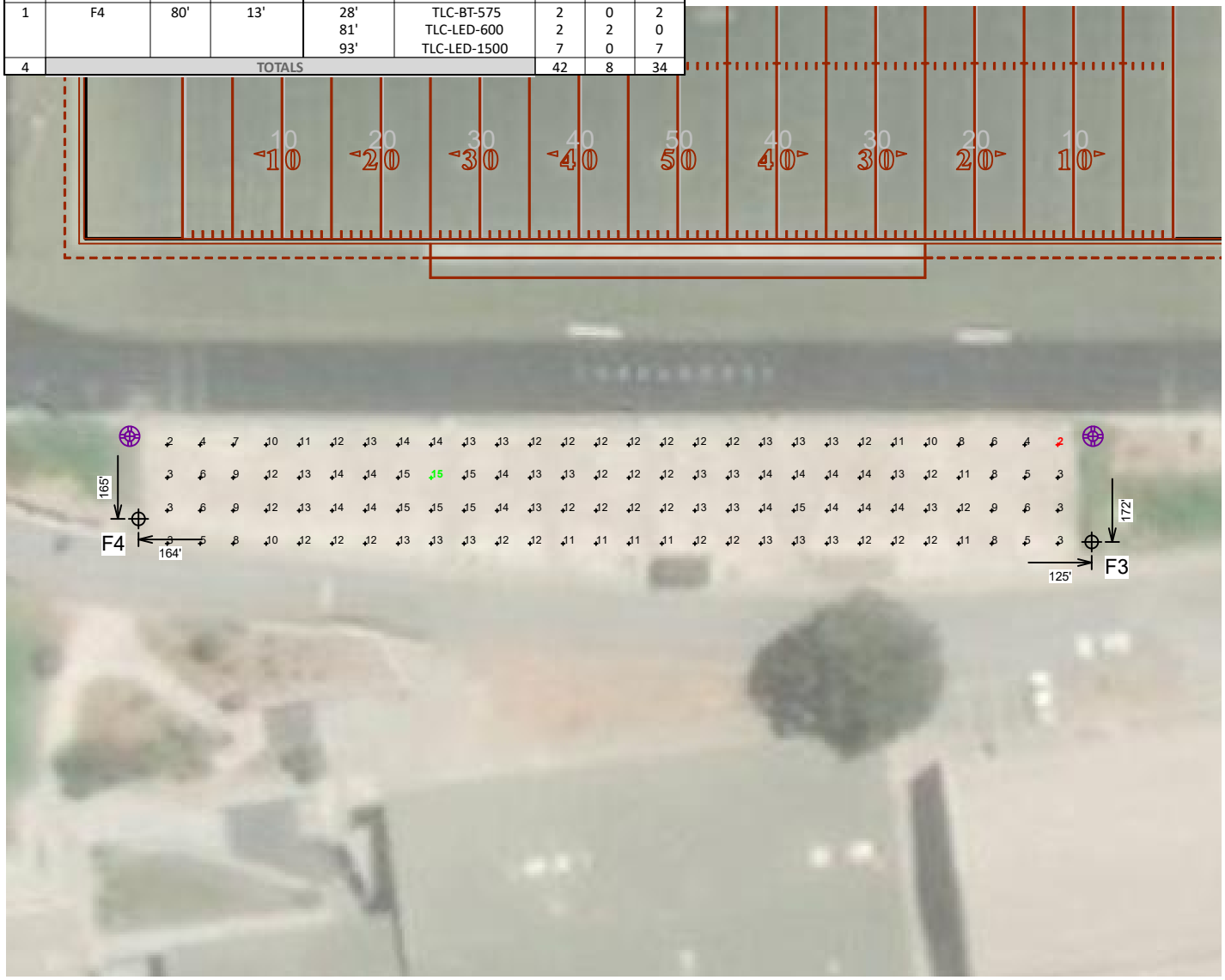
Monterey High Football

Monterey, CA

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	F1-F2	80'	-2'	13'	TLC-BT-575	2	0	2
				48'	TLC-LED-600	2	2	0
				78'	TLC-LED-1500	6	0	6
1	F3	70'	21'	36'	TLC-BT-575	2	0	2
				81'	TLC-LED-600	2	2	0
				91'	TLC-LED-1500	7	0	7
1	F4	80'	13'	28'	TLC-BT-575	2	0	2
				81'	TLC-LED-600	2	2	0
				93'	TLC-LED-1500	7	0	7
4	TOTALS					42	8	34



SCALE IN FEET 1 : 50

0' 50' 100'

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

GRID SUMMARY

Name:	**Home Bleachers**
Size:	360' x 160'
Spacing:	10.0' x 10.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

INITIAL HORIZONTAL FOOTCANDLES

	Entire Grid
Scan Average:	**11.1**
Maximum:	15
Minimum:	2
Avg / Min:	5.74
Max / Min:	**7.92**
UG (adjacent pts):	1.95
CU:	0.22
No. of Points:	112

LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	65,600 lumens
No. of Luminaires:	**8**
Total Load:	4.64 kW

Lumen Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-600	>81,000	>81,000	>81,000

Reported per TM-21-11. See luminaire datasheet for details.

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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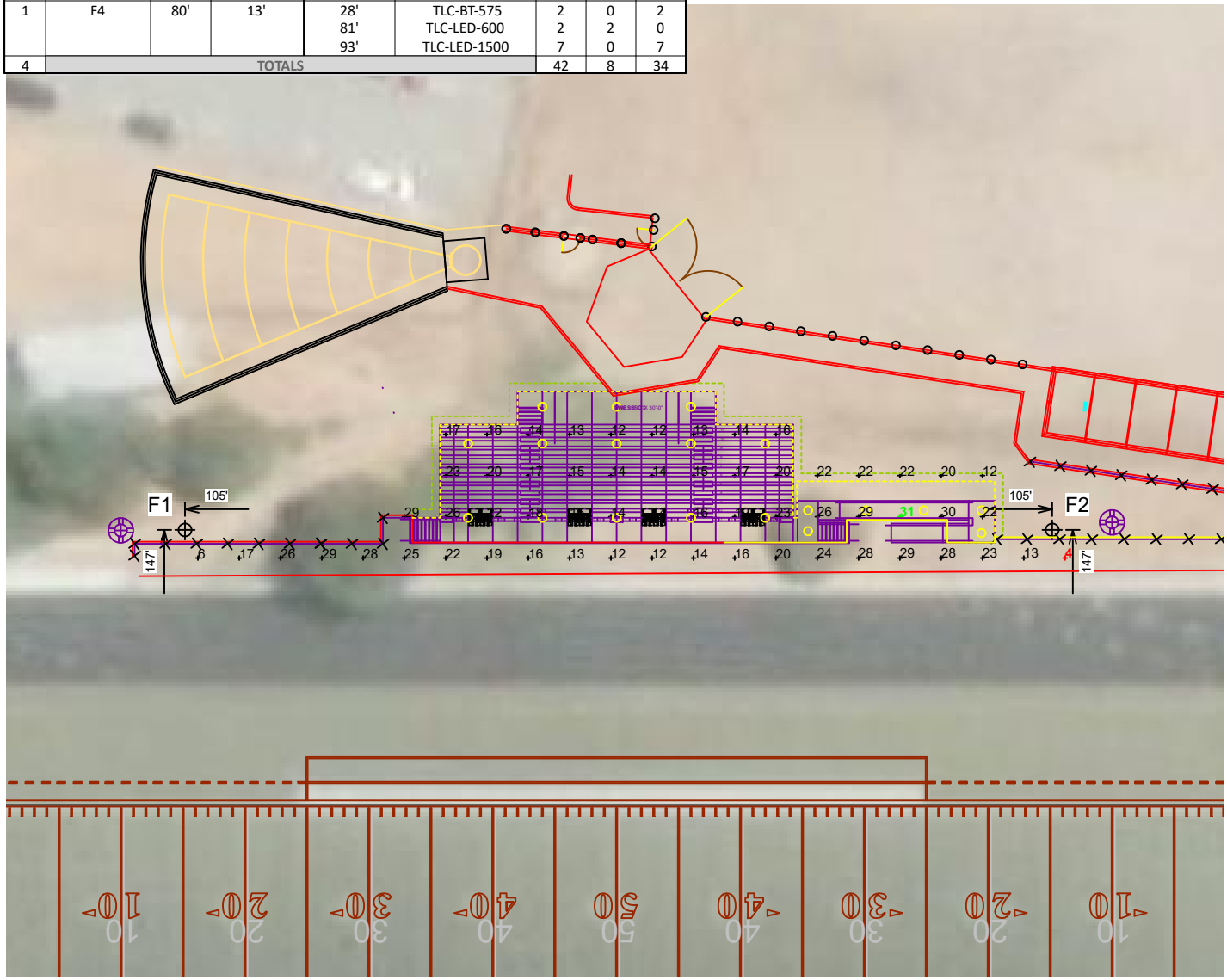
Monterey High Football

Monterey, CA

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	F1-F2	80'	-2'	13'	TLC-BT-575	2	0	2
				48'	TLC-LED-600	2	2	0
				78'	TLC-LED-1500	6	0	6
1	F3	70'	21'	36'	TLC-BT-575	2	0	2
				81'	TLC-LED-600	2	2	0
				91'	TLC-LED-1500	7	0	7
1	F4	80'	13'	28'	TLC-BT-575	2	0	2
				81'	TLC-LED-600	2	2	0
				93'	TLC-LED-1500	7	0	7
4	TOTALS					42	8	34



SCALE IN FEET 1 : 40

0' 40' 80'

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

GRID SUMMARY

Name:	**Visitor Bleachers**
Size:	360' x 160'
Spacing:	10.0' x 10.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

INITIAL HORIZONTAL FOOTCANDLES

	Entire Grid
Scan Average:	**19.0**
Maximum:	31
Minimum:	4
Avg / Min:	4.85
Max / Min:	**7.86**
UG (adjacent pts):	3.25
CU:	0.21
No. of Points:	60

LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	65,600 lumens
No. of Luminaires:	**8**
Total Load:	4.64 kW

Lumen Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-600	>81,000	>81,000	>81,000

Reported per TM-21-11. See luminaire datasheet for details.

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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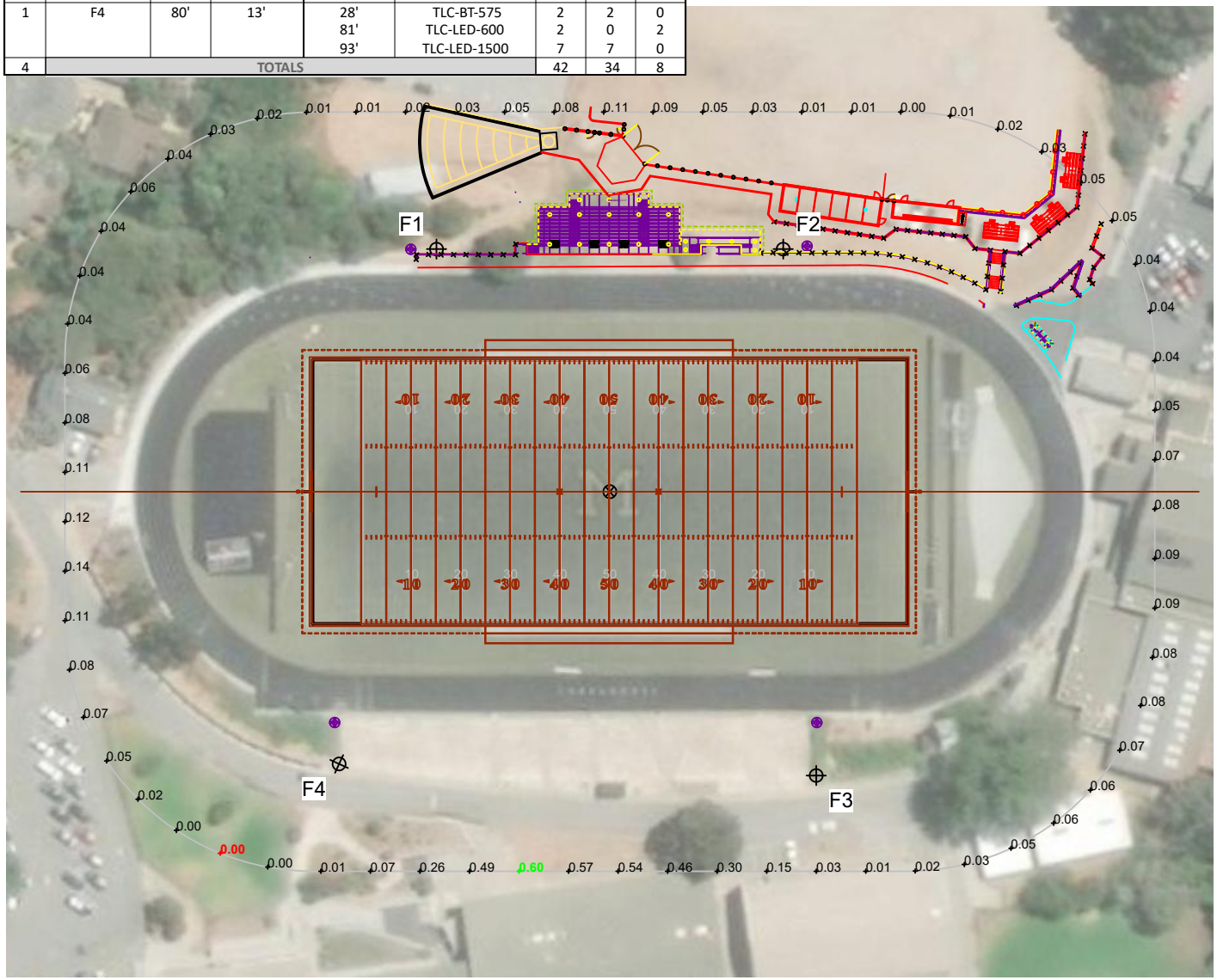
EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	F1-F2	80'	-2'	13'	TLC-BT-575	2	2	0
				48'	TLC-LED-600	2	0	2
				78'	TLC-LED-1500	6	6	0
1	F3	70'	21'	36'	TLC-BT-575	2	2	0
				81'	TLC-LED-600	2	0	2
				91'	TLC-LED-1500	7	7	0
1	F4	80'	13'	28'	TLC-BT-575	2	2	0
				81'	TLC-LED-600	2	0	2
				93'	TLC-LED-1500	7	7	0
4	TOTALS					42	34	8



SCALE IN FEET 1 : 100

0' 100' 200'

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

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Monterey High Football

Monterey, CA

GRID SUMMARY

Name:	**150' Spill**
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

HORIZONTAL FOOTCANDLES

	Entire Grid
Scan Average:	**0.095**
Maximum:	0.60
Minimum:	0.00
No. of Points:	66

LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	156,100 / 52,000 lumens
No. of Luminaires:	**34**
Total Load:	43.6 kW

Lumen Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1500	>81,000	>81,000	>81,000
TLC-BT-575	>81,000	>81,000	>81,000

Reported per TM-21-11. See luminaire datasheet for details.

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

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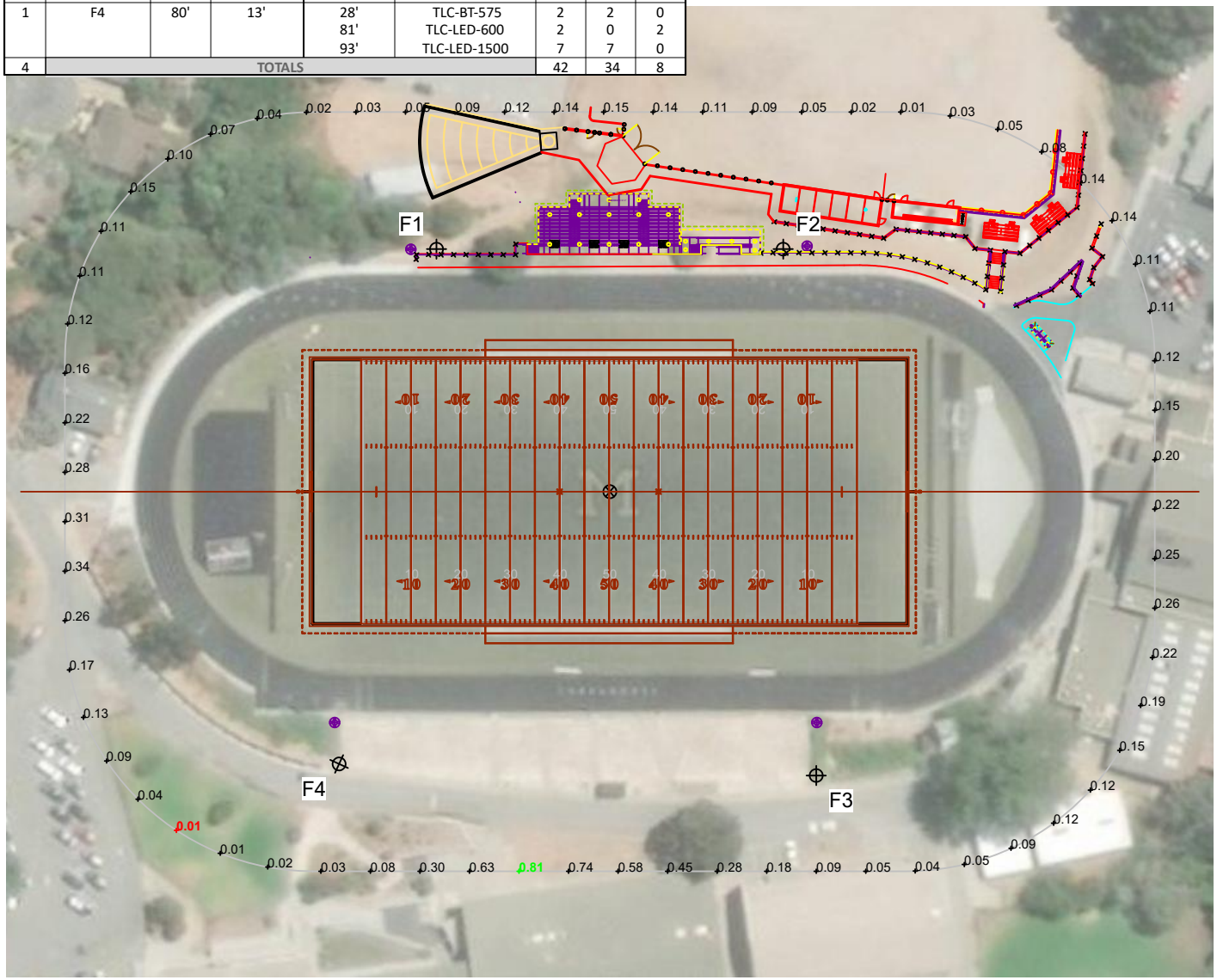
Monterey High Football

Monterey, CA

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	F1-F2	80'	-2'	13'	TLC-BT-575	2	2	0
				48'	TLC-LED-600	2	0	2
				78'	TLC-LED-1500	6	6	0
1	F3	70'	21'	36'	TLC-BT-575	2	2	0
				81'	TLC-LED-600	2	0	2
				91'	TLC-LED-1500	7	7	0
1	F4	80'	13'	28'	TLC-BT-575	2	2	0
				81'	TLC-LED-600	2	0	2
				93'	TLC-LED-1500	7	7	0
4	TOTALS					42	34	8



SCALE IN FEET 1 : 100

0' 100' 200'

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

GRID SUMMARY

Name:	**150' Spill**
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAX VERTICAL FOOTCANDLES

	Entire Grid
Scan Average:	**0.164**
Maximum:	0.81
Minimum:	0.01
No. of Points:	66

LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	156,100 / 52,000 lumens
No. of Luminaires:	**34**
Total Load:	43.6 kW

Lumen Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1500	>81,000	>81,000	>81,000
TLC-BT-575	>81,000	>81,000	>81,000

Reported per TM-21-11. See luminaire datasheet for details.

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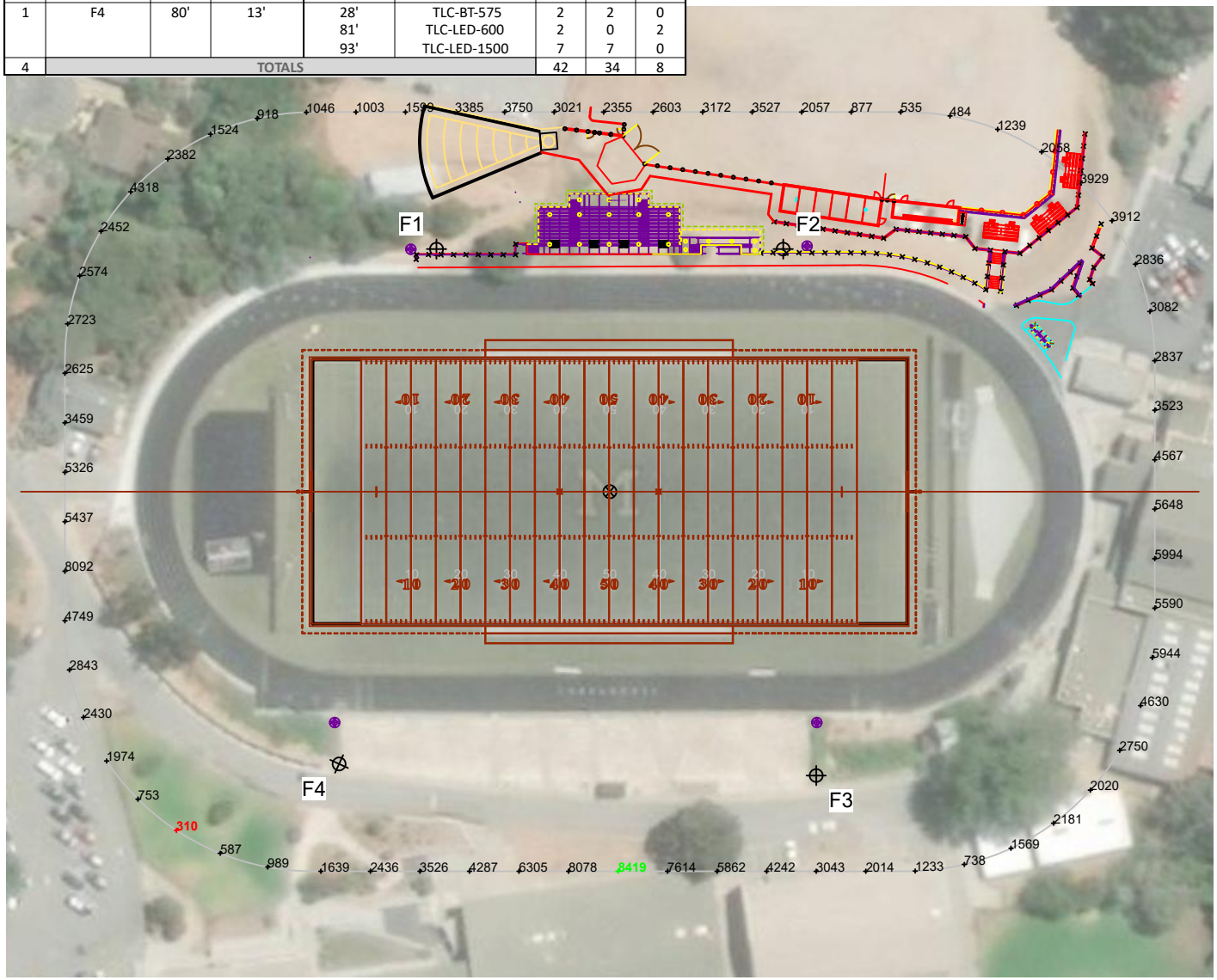
Monterey High Football

Monterey, CA

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	F1-F2	80'	-2'	13'	TLC-BT-575	2	2	0
				48'	TLC-LED-600	2	0	2
				78'	TLC-LED-1500	6	6	0
1	F3	70'	21'	36'	TLC-BT-575	2	2	0
				81'	TLC-LED-600	2	0	2
				91'	TLC-LED-1500	7	7	0
1	F4	80'	13'	28'	TLC-BT-575	2	2	0
				81'	TLC-LED-600	2	0	2
				93'	TLC-LED-1500	7	7	0
4	TOTALS					42	34	8



SCALE IN FEET 1 : 100

0' 100' 200'

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

GRID SUMMARY

Name:	**150' Spill**
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

CANDELA (PER FIXTURE)

	Entire Grid
Scan Average:	**3176.136**
Maximum:	8419.39
Minimum:	310.39
No. of Points:	66

LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	156,100 / 52,000 lumens
No. of Luminaires:	**34**
Total Load:	43.6 kW

Lumen Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1500	>81,000	>81,000	>81,000
TLC-BT-575	>81,000	>81,000	>81,000

Reported per TM-21-11. See luminaire datasheet for details.

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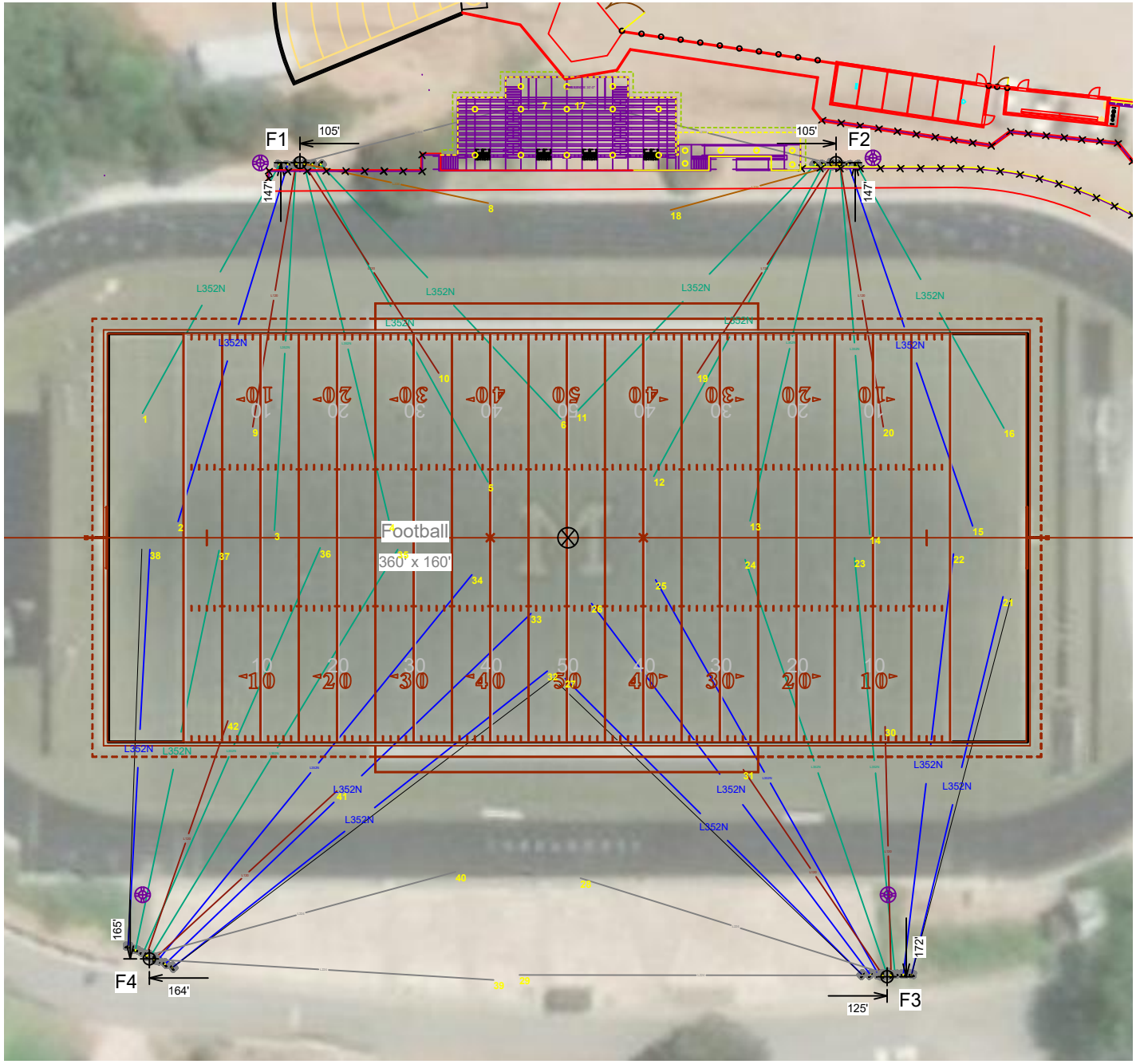

Monterey High Football

Monterey, CA

EQUIPMENT LAYOUT

INCLUDES:

· Football

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
2	F1-F2	80'	-2'	13'	TLC-BT-575	2
				48'	TLC-LED-600	2
				78'	TLC-LED-1500	6
1	F3	70'	21'	36'	TLC-BT-575	2
				81'	TLC-LED-600	2
				91'	TLC-LED-1500	7
1	F4	80'	13'	28'	TLC-BT-575	2
				81'	TLC-LED-600	2
				93'	TLC-LED-1500	7
4	TOTALS					42

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-1500	9.0	8.5	7.8	6.7	5.4	4.9	3.9
TLC-LED-600-A	3.4	3.2	3.0	2.6	2.0	1.9	1.5
TLC-BT-575	3.4	3.2	2.9	2.5	2.0	1.8	1.5

SCALE IN FEET 1 : 60

0' 60' 120'

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

ENGINEERED DESIGN By: Ryan A. Marsh, LC • File #119295R3 • 12-Apr-19

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APPENDIX C

GEOTECHNICAL ENGINEERING INVESTIGATION
PROPOSED ATHLETIC FIELD FACILITY IMPROVEMENTS, MONTEREY HIGH SCHOOL, 101 HERMANN DRIVE, MONTEREY, CALIFORNIA
(PREPARED BY MOORE TWINING ASSOCIATES, INC., DATED MAY 24, 2019)

MOORE TWINING ASSOCIATES, INC.

GEOTECHNICAL ENGINEERING INVESTIGATION
PROPOSED ATHLETIC FACILITY IMPROVEMENTS
MONTEREY HIGH SCHOOL
101 HERMANN DRIVE
MONTEREY, CALIFORNIA

Project Number: E81201.05

For:

Monterey Peninsula Unified School District
c/o Mr. Tom Millman
RGM and Associates
540 Canyon Del Rey, Suite 2
Monterey, California 93940

May 24, 2019

www.mooretwining.com

PH: 559.268.7021
FX: 559.268.7126
2527 Fresno Street
Fresno, CA 93721

MOORE TWINING ASSOCIATES, INC.

May 24, 2019 E81201.05

Monterey Peninsula Unified School District
c/o Mr. Tom Millman
RGM and Associates
540 Canyon Del Rey, Suite 2
Monterey, California 93940

Subject: Geotechnical Engineering Investigation
Proposed Athletic Facility Improvements
Monterey High School
101 Hermann Drive
Monterey, California

Dear Mr. Millman:

We are pleased to submit this geotechnical engineering investigation report conducted for the proposed athletic facility improvements at Monterey High School at 101 Hermann Drive in Monterey, California.

It is recommended that Moore Twining Associates, Inc. (Moore Twining) be retained to review those portions of the plans and specifications that pertain to earthwork, and foundations to determine if they are consistent with our recommendations. This service is not a part of this current contractual agreement, however, the client should provide these documents for our review prior to their issuance for construction bidding purposes.

In addition, it is recommended that Moore Twining be retained to provide inspection and testing services for the excavation, earthwork, and foundation phases of construction. These services are necessary to determine if the subsurface conditions are consistent with those used in the analyses and formulation of recommendations for this investigation, and if the construction complies with our recommendations. These services are not, however, part of this current contractual agreement. A representative with our firm will contact you in the near future regarding these services.

We appreciate the opportunity to be of service to Monterey Peninsula Unified School District. If you have any questions regarding this report, or if we can be of further assistance, please contact us at your convenience.

Sincerely,
MOORE TWINING ASSOCIATES, INC.
Geotechnical Engineering Division

DRAFT

Kenneth, J. Clark, CEG
Senior Engineering Geologist

PH: 559.268.7021
FX: 559.268.7126
2527 Fresno Street
Fresno, CA 93721

EXECUTIVE SUMMARY

Moore Twining Associates, Inc. (Moore Twining) was authorized to conduct this investigation by Monterey Peninsula Unified School District.

Site Conditions

The area proposed for the improvements is located in the eastern portion of the campus. This area of the campus includes the existing athletic field and track, which is situated on a relatively flat terrace. An east facing slope about 11 feet high (about 3H to 1V to 2H to 1V) borders the east side of the track and field area where the new visitor's bleachers/press box are proposed. This east facing slope descends to another relatively flat terrace area which is unimproved area with a sparse grass covering. The athletic field and a modular building are proposed on the relatively flat terrace area east of the track. It should be noted that another east facing slope about 10 feet high and 3H to 1V is located about 80 feet east of the proposed modular building. Also, an approximate 7 foot high, 1¾H to 1V north facing slope and a 10 foot high 1¾ H to 1V north facing slope are located along the south border of the athletic field site.

The east facing slope, at the location of the proposed bleachers and press box, appears to be a fill slope placed as part of previous site grading. The slope had sparse grass covering with two (2) mature trees noted in the area of the proposed bleachers. No areas of excessive erosion, slumping, or other evidence of excessive slope movement were noted on the slope, or near the top of the slope at the existing track area. The slope located south of the project also appears to be a fill slope based on the general site topography (see Section 3.2 of this report).

The proposed baseball dugouts and small bleachers are proposed to be located in the relatively flat, unimproved area with sparse grass covering. A pedestrian access ramp and stairs are to be located near the aforementioned slopes in the southern portion of the site.

A weight room/team room building is proposed to be located in a relatively flat, unimproved area with sparse grass covering, about 10 feet northeast of the proposed centerfield-outfield fence.

Based on our review of historic topographic maps of the Monterey Quadrangle, prepared by the U.S. Geological Survey, dated 1913, 1941 and 1997 (prior to and after construction of the campus and stadium), it appears that the campus was constructed on a broad, east sloping ridge. Grading likely included cutting and filling to create relatively level terraces for the buildings. Also it appears that an ephemeral creek channel formerly traversed the area of the south and east sides of the current stadium area (prior to stadium construction, sometime prior to 1941). The 48-inch diameter storm drain, described in Section 3.1 of this report, may be located in the axis of this former creek channel.

Subsurface Exploration

On October 10, 2018, six (6) test borings (B-1 through B-6) were drilled in the vicinity of the proposed improvements. On May 13, 2019, two (2) additional borings were drilled in the area of the relocated weight room/team room (borings B-5 and B-6) and two (2) borings were drilled in potential stormwater infiltration areas (borings B-7 and B-8). On May 20, 2019, an additional boring (B-9) was drilled in the area of the visitor's side bleachers to further assess the soil conditions in that area. With the exception of boring B-4, which was drilled at the previously planned press box location, the approximate boring locations are shown on the test boring location map provided as Drawing No. 2 in Appendix A. It should be noted that the location proposed for the press box (at boring B-4) was revised after the field investigation. The press box is now proposed to be located on the visitors bleachers (about 350 feet east of the original planned location). Thus, the boring B-4 is not shown on the boring location map.

EXECUTIVE SUMMARY

Subsurface Soils and Rock Encountered

The Geologic Map of the Monterey Peninsula and Vicinity (Dibblee, 1999) indicates that the site is underlain by Mesozoic-age granodiorite porphyritic basement rocks (gdp). Clark, Dupre and Rosenberg indicate the site is located on Pleistocene coastal terrace deposits overlying the granitic bedrock. However, Clark, Dupre and Rosenberg also indicate Monterey Formation siliceous mudstone outcropping in the vicinity of the site. The siltstones and claystones encountered in the borings drilled for this investigation appear to be more typical of the Monterey Formation materials. This general mapping is similar to conditions encountered within the site. However, as noted herein, colluvial soils and fills were encountered within a former drainage.

Cross sections A-A' and B-B' are presented on Drawing Nos. 3 and 4 to illustrate our interpretation of the subsurface soil/rock profile. Borings B-2, B-3, and B-9 (cross section A-A') were drilled near the axis of the former creek, in the area proposed for the bleachers and the improvements planned on the west side of the baseball field. The upper soils encountered in these borings were generally silty sand fill soils extending to depths of about 10 and 15 feet, respectively. In borings B-2 and B-3, native sandy fat clay soils (colluvial soils) were encountered below the fill soils and extended to depths of about 25 feet and 21½ feet (the maximum depth explored in boring B-3), respectively. Below a depth of 25 feet BSG in borings B-2 and B-9, the sandy fat clay soils were interbedded with poorly graded sands. Granitic rock was encountered at a depth of about 40 feet BSG in boring B-2 and drilling refusal was encountered at 41½ feet BSG.

Borings B-8, B-7, B-6 and B-5, drilled in central and east portions of the site (including the area proposed for the team room/weight room), encountered undocumented fill soils comprising sandy lean clay, clayey sand, and silty sand extending to depths of about 2 to 5 feet BSG, underlain by native sandy lean clays (siltstone) extending to the maximum depths explored in the borings of 11½ to 21½ feet BSG.

The soils encountered in hand auger borings HA-1 and HA-2, drilled at the top of the slope in the area of the proposed visitor's side bleachers, encountered silty sand fill soils extending to depths of 4 feet and 2.6 feet (the maximum depth explored in HA-2). In HA-1, sandy lean clay was encountered from 4 to 4½ feet BSG, the maximum depth explored in HA-1.

Groundwater Conditions

Groundwater was encountered in borings drilled near the axis of the former creek (B-2 and B-3) at depths of about 14 feet BSG on October 10, 2018, and in boring B-9 at a depth of about 8½ feet BSG on May 20, 2019.

A trace of perched groundwater was also encountered on October 10, 2018, in boring B-4 (west side of the existing stadium) at about 3½ feet BSG. Groundwater was not encountered in the shallow hand auger borings HA-1 and HA-2.

Given the relatively shallow depth of rock and low permeable clay soils, there is a high potential for localized shallow seasonal perched water conditions in the area of the site. In addition, shallow groundwater is anticipated along the former creek channel which was likely filled during previous grading.

EXECUTIVE SUMMARY (cont.)

Undocumented Fill Soils

Undocumented fill soils were encountered in the test borings and appear to be pervasive across the project site. The deeper fill soil thicknesses (10 to about 15 feet) were noted along the west portion of the site within the apparent former creek channel. This deep fill area appears to correspond with the areas proposed for most of the stadium improvements, including the areas proposed for the visitor's side bleachers, dugouts, retaining walls, walkways, and turf.

Fill thicknesses of about 2 to 5 feet were noted in borings drilled in areas of proposed improvements in the central and east portions of the site.

The undocumented fill soils present a high potential for excessive static settlement of the proposed improvements founded on these soils. In addition, due to the variable fill thickness from west to east across the site, there is a high potential for excessive differential settlement of improvements founded on these soils including structures, turf, pavements, etc. Thus, recommendations are provided in this report to remove the undocumented fill soils. Based on the results of our borings, it is anticipated that an over-excavation depth of up to about 4 to 5 feet would remove the majority of the fill soils in the central and eastern portions of the site (including the area of the modular building). However, deep undocumented fill soils are located within the area proposed for the visitor side bleachers, dugouts and other site improvements.

To reduce the potential for excessive settlement of the proposed improvements, it is recommended to remove the undocumented fill soils and backfill all excavations with engineered fill. However, much of this area is proximal to existing improvements including the football stadium, track and associated utilities. In addition to the existing improvements, due to the depth of fill in the area of the former creek channel, it may be impractical to remove all of the undocumented fill soils.

Thus, this report presents recommendations for insitu deep ground improvement or use of deep foundations to support the proposed visitor's side bleachers. This report also provides minimum over-excavation depths below shallow foundations for the improvements located in areas of shallower fill (outside the former creek channel) that can be over-excavated and compacted more readily to reduce the potential for settlement damage. For lightly loaded improvements, such as the dugouts which are located in the area of deep fill, it may be possible to structurally engineer the foundation using a mat or quasi-rigid foundation to accommodate the anticipated settlements. Alternatively, deep ground improvement could be conducted for the dugouts to reduce the potential impacts from static and seismic settlement. It should be noted that improvements supported on the undocumented fill soils would have a higher potential for future damage due to settlement.

Liquefaction and Seismic Settlement

In addition to the potential for excessive static settlement to impact the project, there is a potential for liquefaction and excessive seismic settlement to impact the areas of the former creek channel (does not include area of proposed modular building).

The Geologic Hazards Map application for Monterey County indicates the site is mapped in an area with a low susceptibility to liquefaction. However, areas of high susceptibility are indicated near the natural drainages located about 200 feet north and 200 feet south of the site.

EXECUTIVE SUMMARY (cont.)

Liquefaction analyses was conducted based on the soil and rock conditions encountered at the site. The analyses indicate that liquefaction would occur in three layers between depths of about 23 and 40 feet in the area of the former creek channel where the visitor's side bleachers, dugouts, flatwork, pavements, and walls are proposed. The analyses also indicate a total seismic settlement of 6 inches and a differential seismic settlement of about 4 inches in 40 feet horizontally in the area of the former creek channel. The predicted differential seismic settlement exceeds the tolerable differential settlement for the bleacher structure when considering static settlements. Therefore, foundation systems for the bleachers should include deep foundations extending below the liquefiable soils, or use of deep ground improvement methods to densify and/or reinforce the foundations to limit the liquefaction settlement to within tolerable limits for the structure design. In addition, improvements such as the dugouts, flatwork, pavements, and retaining walls proposed in the former creek channel area would be subjected to the high seismic settlements, which exceed tolerable limits that are typical for these types of improvements.

Due to the shallow depth to rock encountered in the area of the proposed weight room/team room (outside the former creek channel), liquefaction is not considered a concern for the proposed weight room/team room.

Expansive Soils

The results of expansion index (EI) tests indicated the predominant near surface sandy lean clays have a medium expansion potential. Theses expansive soils are not recommended for use as engineered fill directly below slabs on grade. This report provides recommendations for non-expansive engineered fill below floor slabs.

Soil Corrosion and Sulfate Attack

The results of one corrosion soil test indicated that the near-surface soils exhibit a "very corrosive" corrosion potential to buried metal objects. In addition, the results of soil sample analyses indicated the soils exhibit a "negligible" potential for sulfate attack to concrete.

TABLE OF CONTENTS

TABLE OF CONTENTS (Cont'd)

GEOTECHNICAL ENGINEERING INVESTIGATION
PROPOSED ATHLETIC FACILITY IMPROVEMENTS
MONTEREY HIGH SCHOOL
101 HERMANN DRIVE
MONTEREY, CALIFORNIA

Project Number: E81201.05

1.0 INTRODUCTION

We are pleased to submit this geotechnical engineering investigation report conducted for the athletic facility improvements proposed at Monterey High School in Monterey, California. Moore Twining Associates, Inc. (Moore Twining) was authorized to conduct this investigation by Monterey Peninsula Unified School District.

The contents of this report include the purpose of the investigation and the scope of services provided. The existing site features and anticipated construction are discussed. In addition, a description of the investigative procedures used and the subsequent findings obtained are presented. Finally, this report provides a summary of evaluations, general conclusions and related recommendations. The report appendices contain the drawings (Appendix A); the logs of borings (Appendix B); the results of laboratory tests (Appendix C), liquefaction and seismic settlement calculations (Appendix D), and a report of "Energy Measurement for Dynamic Penetrometers" (Appendix E).

2.0 PURPOSE AND SCOPE OF INVESTIGATION

2.1 Purpose: The purpose of this investigation was to conduct a field exploration and laboratory testing program, evaluate the data collected during the field and laboratory portions of the investigation, and provide the following:

2.1.1 A description of general subsurface soil and groundwater conditions encountered;

2.1.2 Soil profile type, site coefficients and adjusted Maximum Considered Earthquake spectral response acceleration parameters in accordance with the 2016 California Building Code;

2.1.3 Evaluation of stadium slope stability under static and seismic conditions, and recommendations to improve slope stability (visitors side) if needed;

2.1.4 Recommendations for earthwork construction, including site and subgrade preparation of new building, retaining walls, and turf areas, and recommendations for engineered fill;

2.1.5 Recommendations for temporary excavations, trench excavation, trench backfill, and excavation stability;

2.1.6 Foundation design parameters including allowable soil bearing capacity, foundation depth, coefficient of friction, active and passive soil pressures for shallow spread foundation systems;

2.1.7 Estimates of static and seismic settlement for foundation design;

2.1.8 Assessment of the potential for liquefaction and seismic settlement;

2.1.9 Recommendations for slab-on-grade floors and exterior concrete flatwork;

2.1.10 Recommendations for the design and construction of cast in drilled hole foundations (CIDH) for the athletic facility improvements such as bleachers and signage;

2.1.11 Recommendations for asphaltic concrete and Portland cement concrete (PCC) pavements; and

2.1.12 Final test boring logs and laboratory test results.

This report is provided specifically for the proposed improvements described in the Anticipated Construction section of this report. The purpose of our investigation was to provide geotechnical engineering parameters for use in design of foundations, slabs-on-grade, and preparation of related construction documents. This investigation did not include in-place density tests, an environmental investigation, or an environmental audit.

2.2 Scope: Our proposal, dated September 10, 2018, outlined the scope of our services. The actions undertaken during the investigation are summarized as follows:

2.2.1 The Geotechnical Engineering and Geologic/Seismic Hazard Investigation report for a proposed classroom facility at the Monterey High School campus, dated November 20, 2017, was reviewed.

2.2.2 An e-mail provided by Mr. Tom Millman (RGM Associates) and Mr. Mike Hiddleson (Verdi Design, Inc.), including a plan showing the areas of the campus to be improved titled "Monterey Additional Survey" transmitted by Verdi Design on August 22, 2018, was reviewed.

2.2.3 A Bleacher Plan-Sheets 1 through 5 (Not for Construction), prepared by Southern Bleacher Company, dated October 4, 2018, provided on February 15, 2019, were reviewed.

2.2.4 A Material and Detail Reference Plan (Sheet L1.1), Grading Plan (Sheet L3.3), and Drainage and Utility Plan (Sheet L4.1), for the Multi-Use Field and Stadium Improvements, dated October 12, 2018, provided on February 15, 2019, were reviewed.

2.2.5 A topographic survey (Sheets 1 and 2), revised September 2018, prepared by Alpha Land Surveys, Inc., was reviewed.

2.2.6 A site reconnaissance and subsurface exploration were conducted.

2.2.7 Laboratory tests were conducted to determine selected physical and engineering properties of the subsurface soils.

2.2.8 Mr. Tom Millman and Mr. Jesse Hildebrandt (RGM and Associates), and Mr. Mike Hiddleson (Verdi Design, Inc.) were consulted during the investigation.

2.2.9 An email from Mr. Mike Hiddleson (Verdi Design, Inc.), dated April 30, 2019 regarding the location proposed for the weight room-team room, was reviewed.

2.2.10 The data obtained from the investigation were evaluated to develop an understanding of the subsurface soil conditions and engineering properties of the subsurface soils encountered.

2.2.11 This report was prepared.

3.0 BACKGROUND INFORMATION

The site history and previous studies, site description and the anticipated construction are summarized in the following subsections.

3.1 Site Description: The Monterey High School campus is located at 101 Hermann Drive in Monterey, California (see Drawing No. 1 in Appendix A). The following site descriptions are based on our observations at the time of the field investigation (October 10, 2018) and the referenced topographic survey sheet.

The area proposed for the improvements is located in the eastern portion of the campus. This area of the campus includes the existing athletic field and track, which is situated on a relatively flat terrace. An east facing slope about 11 feet high (about 3H to 1V to 2H to 1V) borders the east side of the track and field area where the new visitor's bleachers/press box are proposed. This east facing slope descends to another relatively flat terrace area which is unimproved area with a sparse grass covering. The athletic field and a modular building are proposed on the relatively flat terrace area east of the track. It should be noted that another east facing slope about 10 feet high and 3H to 1V is located about 80 feet east of the proposed modular building. Also, an approximate 7 foot high, 1¾H to 1V north facing slope and a 10 foot high 1¾ H to 1V north facing slope are located along the south border of the athletic field site.

The east facing slope, at the location of the proposed bleachers and press box, appears to be a fill slope placed as part of previous site grading. The slope had sparse grass covering with two (2) mature trees noted in the area of the proposed bleachers. No areas of excessive erosion, slumping, or other evidence of excessive slope movement were noted on the slope, or near the top of the slope at the existing track area. The slope located south of the project also appears to be a fill slope based on the general site topography (see Section 3.2 of this report).

The proposed baseball dugouts and small bleachers are proposed to be located in the relatively flat, unimproved area with sparse grass covering. A pedestrian access ramp and stairs are to be located near the aforementioned slopes in the southern portion of the site.

A weight room/team room building is proposed to be located in a relatively flat, unimproved area with sparse grass covering, about 10 feet northeast of the proposed centerfield-outfield fence. Drawing No. 2 in Appendix A of this report shows the proposed locations of the improvements.

Details of the proposed improvements are provided in Section 3.3 of this report.

The closest existing buildings are located about 40 feet east of the location proposed for the weight room/team room building and about 40 southwest of the proposed access ramp from the upper to lower field.

According to the online satellite imagery, the proposed baseball field portion of the site is located at about 36.5950 degrees latitude and -121.8990 degrees longitude.

Elevations indicated on the referenced topographic survey sheet indicate that the existing grades in the area of the proposed baseball field and weight room/team room building slope to the northeast from about elevation 87 feet AMSL to about elevation 84 feet AMSL. An elevation of about 95 feet AMSL (similar to the football field elevations) is indicated at the west side of the proposed bleachers (approximate level of the existing stadium track).

The referenced topographic survey sheets indicate a 48-inch diameter storm drain *("location uncertain compiled from 1968 map"*) trends approximately roughly north-south below the south portion of the east facing slope between the upper football field and proposed new baseball field location. Invert elevations are not provided on the topographic map and the depth of the storm drain is not known. The alignment of the existing storm drain crosses near and below areas of the proposed baseball field improvements including stairs, bleachers, and dug-outs.

The referenced topographic survey (sheet 2) also indicates several underground water lines are located in the proposed athletic field area. Also, several underground utility lines were noted running along the top of the east facing slope, near the existing track area.

3.2 <u>Site History and Previous Studies</u>: According to the Monterey Peninsula Unified School District website, Monterey High School was founded in 1905 at the present site. The website states: "*The original site stood where the District Office is now. When the original wooden three story building burned down, the new school was built on the current site by 1915."* Based on pictures presented on the website from 1924, the original administration building was located west of the stadium.

Based on our review of aerial images available on-line, the areas proposed for the athletic field improvements have remained relatively unchanged over the past 20 years, with the exception that a large tree was removed from the slope that descends away from the stadium to the east.

Based on our review of historic topographic maps of the Monterey Quadrangle, prepared by the U.S. Geological Survey, dated 1913, 1941 and 1997 (prior to and after construction of the campus and stadium), it appears that the campus was constructed on a broad, east sloping ridge. Grading likely included cutting and filling to create relatively level terraces for the buildings. Also it appears that an ephemeral creek channel formerly traversed the area of the south and east sides of the current stadium area (prior to stadium construction, sometime prior to 1941). The 48-inch diameter storm drain, described in Section 3.1 of this report, may be located in the axis of this former creek channel.

The referenced Geotechnical Engineering and Geologic/Seismic Hazard Investigation report, dated November 20, 2017, prepared for a classroom facility proposed on the campus, was reviewed for this investigation. As part of the referenced investigation, soil borings were drilled on the west side of the campus. Considering that this report addresses the geologic and geotechnical conditions specific

to the proposed athletic field improvements, the Geologic/Seismic Hazard portion of the referenced Geotechnical Engineering and Geologic/Seismic Hazard Investigation report is considered applicable and appropriate for the currently proposed athletic field improvements, with the exception of the description of the potential for liquefaction. Thus, this report for the proposed athletic field improvements relies on the Geologic/Seismic Hazard portion of the Geotechnical Engineering and Geologic/Seismic Hazard Investigation report, but includes site specific liquefaction related hazards.

No previous other reports of geotechnical engineering investigations, geologic hazards investigations, compaction testing or environmental studies conducted for this site were provided for review during this investigation. If available, these reports should be provided for review and consideration for this project.

It is our understanding that RGM and Associates has requested documentation of the fill soils placed for the existing stadium construction and that these documents are not available.

3.3 Anticipated Construction: We understand that the planned athletic facility improvements will include a new bleacher supported press box and visitors bleachers at the east side of the existing football stadium/athletic track area. The referenced bleacher plans indicate that the bleachers will have about 11 rows of seats and cover an approximate 2,300 square foot area. The plans indicate that the bleachers and press box will be supported on pile foundations.

According to an email from Mr. Mike Hiddleson (Verdi Design, Inc.), dated April 30, 2019, an approximate 1,800 square foot weight room/team room building is proposed to be located beyond (east of) the center field area of the baseball field. It is our understanding that the weight room/team room will comprise single story modules, metal stud framed with stucco finish, with stem wall and subfloor and a lightweight concrete floor. The plans indicates Portland cement concrete flatwork, and asphaltic concrete vehicular and pedestrian paving in the vicinity of the weight room/team room.

The referenced Material and Detail Reference plan indicates that the athletic field improvements will include retaining walls and Portland cement concrete flatwork, with asphaltic concrete vehicular and pedestrian paving. A maximum retaining wall height of 5 feet is anticipated.

The referenced Material and Detail Reference plan indicates that the baseball stadium will include retaining walls, dugouts, fencing, lighting, small bleachers, and Portland cement concrete flatwork, with asphaltic concrete vehicular and pedestrian paving.

A new synthetic athletic field turf is planned on the lower field as part of the project. It is our understanding that the typical turf field section is about 2-inches thick, underlain by a composite base (1-inch polypropylene), underlain by a layer of geotextile fabric (Mirafi 140N or similar), underlain by a leveling course of stone (typically 4 inches of Class 2 permeable material), underlain by a layer of geotextile fabric (Mirafi 140N or similar), over subgrade soils.

Structural loads for the modular building were not known at the time of this investigation. It is anticipated that the modular building will be supported on continuous perimeter foundations with a load of up to 2.0 kips per lineal foot.

Based on discussion with Mr. Dave McClendon with Southern Bleachers the proposed visitor's side bleachers have a total dead plus live load of about 120 pounds per square foot, are typically founded on spread foundations with about 40 kips axial load for each footing.

4.0 INVESTIGATIVE PROCEDURES

The field exploration and laboratory testing programs conducted for this investigation are summarized in the following subsections. The field exploration, number of test borings, sampling, and laboratory testing were performed in accordance with our proposal, dated September 10, 2018.

4.1 Field Exploration: The field exploration included a site reconnaissance, drilling test borings, conducting standard penetration tests, and soil sampling.

4.1.1 Site Reconnaissance: The site reconnaissance was conducted by a Moore Twining staff geologist on October 10, 2018. The reconnaissance consisted of walking the area proposed for the classroom and noting visible surface features. The features noted are described in the "Site Description" sections of this report.

4.1.2 Drilling Test Borings: The proposed team room and weight room buildings were revised to be a single building located about 40 feet southwest of the original locations, which was near boring B-1.

On October 10, 2018, six (6) test borings (B-1 through B-6) were drilled in the vicinity of the proposed improvements. On May 13, 2019, two (2) additional borings were drilled in the area of the relocated weight room/team room (borings B-5 and B-6) and two (2) borings were drilled in potential stormwater infiltration areas (borings B-7 and B-8). On May 20, 2019, an additional boring (B-9) was drilled in the area of the visitor's side bleachers to further assess the soil conditions in that area. With the exception of boring B-4, which was drilled at the previously planned press box location, the approximate boring locations are shown on the test boring location map provided as Drawing No. 2 in Appendix A. It should be noted that the location proposed for the press box (at boring B-4) was revised after the field investigation. The press box is now proposed to be located on the visitors bleachers (about 350 feet east of the original planned location). Thus, the boring B-4 is not shown on the boring location map.

Test borings B-1 through B-9 were drilled using a CME-75 truck mounted drill rig to depths of about 21½ to 41 feet below site grade (BSG). Drilling auger refusal was encountered in granitic rock at a depth of 41 feet BSG in boring B-2. The drilling rig was equipped with 6 5/8 inch diameter hollow-stem augers. The drilling was conducted under the direction of a Moore Twining geotechnical engineer.

In addition to the drill rig borings, borings HA-1 and HA-2 were drilled using a hand auger at the top of the slope in the area proposed for the bleachers. The hand auger borings HA-1 and HA-2 were terminated in fill soils due to drilling resistance at depths of about 4.5 and 2.6 feet BSG, respectively.

The soils encountered in the test borings were logged during drilling by a representative of Moore Twining. The field soil classification was in accordance with the Unified Soil Classification System and consisted of particle size, color, and other distinguishing features. Soil samples were collected and returned to our laboratory for classification and soil mechanics testing. The presence and elevation of free water, if any, in the test borings were noted and recorded during the drilling.

Test boring locations were determined by field measurement with reference to existing site features. Elevations of the borings were not surveyed as a part of the investigation; however, they were interpolated from site topographic plans and provided on the boring logs to the nearest 0.5 foot (see Appendix B of this report). The test borings were backfilled with the soil cuttings removed during drilling, and asphaltic concrete (AC) cold patch was used to patch the surface of the holes drilled through AC pavements.

4.1.3 Soil Sampling: In the boring drilled with the rig, standard penetration tests were conducted, and both disturbed and relatively undisturbed soil samples were obtained.

The standard penetration resistance, N-value, is defined as the number of blows required to drive a standard split barrel sampler into the soil. The standard split barrel sampler (SPT) has a 2 inch O.D. and a 1-⅜ inch inside diameter (I.D.). The sampler is driven by a 140 pound weight free falling 30 inches. The sampler is lowered to the bottom of the bore hole and set by driving it an initial 6 inches. It is then driven an additional 12 inches and the number of blows required to advance the sampler the additional 12 inches is recorded as the N-value.

Relatively undisturbed soil samples for laboratory tests were obtained by driving a California modified split barrel sampler into the soil. The soil was retained in brass rings, 2.5 inches O.D. and 1 inch in height. The lower 6 inch portion of the samples were placed in close-fitting, plastic, air-tight containers which, in turn, were placed in cushioned boxes for transport to the laboratory.

In the hand auger borings, bulk soil samples were retained for laboratory tests from the materials generated at he locations and depths indicated in the borings. In addition, a relatively undisturbed sample was collected from boring HA-1 using a 10-pound hammer driving a California modified split barrel sampler.

Soil samples obtained were taken to Moore Twining's laboratory for classification and testing.

4.2 Laboratory Testing: The laboratory testing was programmed to determine selected physical and engineering properties of the samples tested. The tests were conducted on disturbed and relatively undisturbed samples considered representative of the subsurface material encountered.

The results of laboratory tests are summarized in Appendix C. These data, along with the field observations, were used to prepare the final test boring logs in Appendix B.

5.0 FINDINGS AND RESULTS

The site geologic conditions and findings and results of the field exploration and laboratory testing are summarized in the following subsections.

5.1 General Geologic Conditions: The Geologic Map of the Monterey Peninsula and Vicinity (Dibblee, 1999) indicates that the site is underlain by Mesozoic-age granodiorite porphyritic basement rocks (gdp). Clark, Dupre and Rosenberg indicate the site is located on Pleistocene coastal terrace deposits overlying the granitic bedrock. However, Clark, Dupre and Rosenberg also indicate Monterey Formation siliceous mudstone outcropping in the vicinity of the site. The siltstones and claystones encountered in the borings drilled for this investigation appear to be more typical of the Monterey Formation materials. This general mapping is similar to conditions encountered within the site. However, as noted herein, colluvial soils and fills were encountered within a former drainage.

5.2 Subsurface Profile at Site: Cross sections A-A' and B-B' are presented on Drawing Nos. 3 and 4 to illustrate our interpretation of the subsurface soil/rock profile. The subsurface profile varies greatly in the west to east direction across at the project site due to an apparent former drainage channel which was filled. The depth to rock and the thickness of existing undocumented fill soils are the greatest near the area of the axis of the former creek channel (borings B-2 and B-9). Also, loose or soft colluvial soils, noted below the undocumented fill soils at Borings B-2 and B-9, were not encountered to the east in borings B-8, B-7, B-6, and B-5. This is illustrated in Drawing No. 4 (cross section B-B') showing the depth to rock and the thickness of existing undocumented fill soils decreasing to the east across the site, and the absence of loose and soft colluvial soils in the borings to the east of boring B-2 (B-8, B-7, B-6, and B-5). The decrease in artificial fill thickness to the east is likely associated with backfilling the former north trending creek channel during grading of the campus, sometime prior to 1941. Note that only shallow fill soils were identified at the location of borings B-7 and B-8, and at the proposed location of the modular building (borings B-5 and B-6).

Based on the referenced historical topographic maps, the former ground surface, prior to backfilling the cheek channel, sloped upward rapidly to the west of the creek.

Cross section A-A' (Drawing No. 3) is located roughly perpendicular to cross section B-B' and near the axis of the former creek channel. The thicknesses of the fill soils encountered along this section (borings B-2 and B-3) are relatively uniform compared to section B-B'.

5.3 General Soil Conditions: Borings B-2, B-3, and B-9 (cross section A-A') were drilled near the axis of the former creek, in the area proposed for the bleachers and the improvements planned on the west side of the baseball field. The upper soils encountered in these borings were generally silty sand fill soils extending to depths of about 10 and 15 feet, respectively. In borings B-2 and B-3, native sandy fat clay soils (colluvial soils) were encountered below the fill soils and extended to depths of about 25 feet and 21½ feet (the maximum depth explored in boring B-3), respectively. Below a depth of 25 feet BSG in borings B-2 and B-9, the sandy fat clay soils were interbedded with poorly graded sands. Granitic rock was encountered at a depth of about 40 feet BSG in boring B-2 and drilling refusal was encountered at 41½ feet BSG.

Borings B-8, B-7, B-6 and B-5, drilled in central and east portions of the site (including the area proposed for the team room/weight room), encountered undocumented fill soils comprising sandy lean clay, clayey sand, and silty sand extending to depths of about 2 to 5 feet BSG, underlain by native sandy lean clays (siltstone) extending to the maximum depths explored in the borings of 11½ to 21½ feet BSG.

The soils encountered in hand auger borings HA-1 and HA-2, drilled at the top of the slope in the area of the proposed visitor's side bleachers, encountered silty sand fill soils extending to depths of 4 feet and 2.6 feet (the maximum depth explored in HA-2). In HA-1, sandy lean clay was encountered from 4 to 4½ feet BSG, the maximum depth explored in HA-1.

Test boring B-1 was drilled in the area formerly proposed for the team room/weight room (about 40 feet east of the current team room/weight room). The soils encountered consisted of sandy lean clay fill soils extending to a depth of about 10 feet BSG, underlain by native silty sand and lean clay (siltstone) extending to the maximum depth explored of 21½ feet BSG. The fill soils in the upper 10 feet BSG contained asphaltic concrete, brick and crushed rock material. Considering the results of borings B-5, B-6, B-7, and B-8, with only shallow fill soils, the deeper fill soils at B-1 are likely an isolated occurrence.

Boring B-4, drilled in the area formerly proposed for the press box on the west side of the stadium, encountered silty sand fill soils extending to a depth of about 3½ feet BSG, underlain by native silty sand and (sandstone) and sandy lean clay (siltstone/claystone) extending to the maximum depth explored of 21½ feet BSG). It should be noted that this boring was not drilled in the area of the currently proposed improvements.

5.4 Soil Engineering Properties: The engineering properties of the subsurface soils encountered during this investigation are summarized below.

Fill Soils - Undocumented fill soils were encountered in all of the borings to depth of up to about 15 feet BSG. The deepest fills were located in borings B-2, B-3, and B-9. The fill soils were quite variable, described as soft to hard sandy lean clay and sandy fat clay, and loose to dense silty sands and clayey sands. The moisture contents of the fill soil samples tested ranged from 1.4 to 11.1 percent. The results of testing indicated dry densities ranging from 109.6 to 124.6 pounds per cubic foot. An Atterberg limits test indicated that the sandy lean clay fill soils exhibited a high plasticity based on a liquid limit of 50, and a plasticity index of 27. The results of an expansion index test indicated that the sandy lean clay fill soils had an expansion index value of 78. The result of a consolidation test conducted on a sample of sandy lean clay fill soil collected from depths of about 3.5 to 5 feet BSG indicated about 11 percent consolidation under a load of 16 kips per square foot. The sample exhibited 1.2 percent collapse when saturated at 0.5 kips per square foot. The results of consolidation tests conducted on samples of silty sand fill soil collected from depths of about 5 to 6½ feet BSG and 2 to 3½ feet BSG indicated about 10.7 and 9.4 percent consolidation under a load of 16 kips per square foot. The same samples exhibited collapse of 1 and 1.6 percent when saturated at 0.5 and 2 kips per square foot.

Silty Sands - Very loose native silty sands were encountered below fill soils in boring B-9 in the area of the former creek channel, as indicated by a standard penetration resistance, N-value, of 2 blows per foot. Native silty sands were also encountered below the fill soils in the east portion of the site and were very dense, as indicated by standard penetration resistance, N-values, of 62 blows per foot. The moisture content of a sample tested was 10.4 percent. The results of a direct shear test conducted indicated an internal angle of friction of 40 degrees with a cohesion value of 100 pounds per square foot.

The native silty sand encountered at the surface to depth of 2 feet BSG in boring B-6 was medium dense, as indicated by a standard penetration resistance, N-value, of 12 blows per foot.

Clayey Sands - The native clayey sands encountered at the surface to depth of 3½ feet BSG in boring B-5 were loose, as indicated by a standard penetration resistance, N-value, of 5 blows per foot.

Poorly Graded Sands - The sandy fat clay soils were interbedded with poorly graded sands below a depth of 25 feet BSG in boring B-2, extending to rock at a depth of 40 feet BSG. Based on the field N-values the poorly graded sands were loose as indicated by an N-value of 9.

Lean Clay and Sandy Lean Clays - The native lean clay and sandy lean clays encountered in the central and eastern portion of the site were stiff to hard, as indicated by a standard penetration resistance, N-values of 11 to 78 blows per foot.

Very soft and soft sandy lean clays were encountered below fill soils in boring B-9 in the area of the former creek channel, as indicated by a standard penetration resistance, N-value, of 2 to 3 blows per foot.

Sandy Fat Clays - The native sandy fat clays encountered were very soft to stiff, as indicated by standard penetration resistance, N-values of 0 to 9 blows per foot. Moisture contents of the samples tested ranged from 9.5 to 13.6 percent. The moisture content of one sample tested was11.5 percent. Atterberg limits test indicated that the clays exhibited a high plasticity based on two (2) samples each with a liquid limit of 53 and a plasticity index of 30.

R-Value: The results of R-value tests conducted on near surface samples of sandy lean clay indicated R-values of 7 and 8.

Corrosion: The results of chemical tests performed on two near surface samples of sandy lean clay indicated pH values of 7.5 and 7.5; minimum resistivity values of 1,801 and 1,601 ohm-centimeter; 0.0026 and 0.0012 percent by weight concentrations of soluble sulfates, and 0.00073 and 0.0036 percent by weight concentrations of chloride.

Maximum Density and Optimum Moisture: The results of a maximum density and optimum moisture test conducted on a near surface sample of sandy lean clay indicated a maximum dry density of 126.4 pounds per cubic foot and an optimum moisture content of 8.9 percent.

5.5 Groundwater Conditions: Groundwater was encountered in borings drilled near the axis of the former creek (B-2 and B-3) at depths of about 14 feet BSG on October 10, 2018, and in boring B-9 at a depth of about 8½ feet BSG on May 20, 2019.

A trace of perched groundwater was also encountered on October 10, 2018, in boring B-4 (west side of the existing stadium) at about 3½ feet BSG. Groundwater was not encountered in the shallow hand auger borings HA-1 and HA-2.

Given the relatively shallow depth of rock and low permeable clay soils, there is a high potential for localized shallow seasonal perched water conditions in the area of the site. In addition, shallow groundwater is anticipated along the former creek channel which was likely filled during previous grading.

It should be recognized, however, that groundwater is dependent upon seasonal precipitation, irrigation, land use, and climatic conditions as well as other factors. Therefore, observations at the time of the field investigation may vary from those encountered both during the construction phase and the design life of the project. Actual groundwater levels during construction could be higher or lower than indicated in this report. The evaluation of such factors was beyond the scope of this investigation and report.

6.0 EVALUATION

The data and methodology used to develop conclusions and recommendations for project design and preparation of construction specifications are summarized in the following subsections. The evaluation was based upon the subsurface soil conditions encountered during this investigation and our understanding of the proposed construction. The conclusions obtained from the results of our evaluations are described in the Conclusions section of this report.

6.1 Geologic/Seismic Hazards: Considering that this report addresses the geologic and geotechnical conditions specific to the proposed athletic field improvements, the Geologic/Seismic Hazard portion of the referenced Geotechnical Engineering and Geologic/Seismic Hazard Investigation report is considered applicable and appropriate for the currently proposed athletic field improvements, with the exception of the description of the potential for liquefaction related hazards. Thus, this report for the proposed athletic field improvements relies on the Geologic/Seismic Hazard portion of the Geotechnical Engineering and Geologic/Seismic Hazard Investigation report, but includes site specific liquefaction and seismic settlement analyses, as well evaluation of potential lateral spreading. In addition, updated geologic cross sections are included in this report.

6.2 Undocumented Fill Soils and Excessive Static Settlement: Undocumented fill soils were encountered in the test borings and appear to be pervasive across the project site. The deeper fill soil thicknesses (10 to about 15 feet) were noted along the west portion of the site within the apparent former creek channel. This deep fill area appears to correspond with the areas proposed for most of the stadium improvements, including the areas proposed for the visitor's side bleachers, dugouts, retaining walls, walkways, and turf. The relatively deep undocumented fills are located in the area of the former creek channel and storm drain (located as approximately shown on Drawing No. 4).

Fill thicknesses of about 2 to 5 feet were noted in borings drilled in areas of proposed improvements in the central and east portions of the site.

In general, the undocumented fill soils present a high potential for differential settlement due to the variable fill thickness from west to east across the site and the weak underlying native soils below the fill. Thus, recommendations are provided in this report to remove the undocumented fill soils.

Based on the results of our borings, it is anticipated that an over-excavation depth of up to about 4 to 5 feet would remove the majority of the fill soils in the central and eastern portions of the site (including the area of the modular building). However, due to the depth of deep undocumented fill soils in the area of the former creek channel and the proximity to the existing track improvements, it may be impractical to remove all of the undocumented fill soils.

Thus, this report presents recommendations for insitu deep ground improvement or use of deep foundations to support the proposed visitor's side bleachers. This report also provides minimum over-excavation depths below shallow foundations for the improvements located in areas of shallower fill (outside the former creek channel) that can be over-excavated and compacted more readily to reduce the potential for settlement damage. For lightly loaded improvements, such as the dugouts which are located in the area of deep fill, it may be possible to structurally engineer the foundation to reduce the potential for impacts to differential settlement by use of quasi-rigid foundations. Alternatively, deep ground improvement could be conducted for improvements such as the dugouts to reduce the potential impacts from static and seismic settlement. It should be noted that

improvements supported on the undocumented fill soils would have a higher potential for future damage due to settlement.

The removal of fill soils, where implemented, should be documented by Moore Twining. Once the excavation is approved by Moore Twining, the bottom should be scarified to a depth of 8 inches and compacted in accordance with the "Engineered Fill" section of this report prior to placement of any improvements or engineered fill.

6.3 Liquefaction and Seismic Settlement: In addition to the potential for excessive static settlement to impact the project (see Section 6.2), there is a potential for liquefaction and excessive seismic settlement to impact the areas of the former creek channel (does not include area of proposed modular building).

Liquefaction and seismic settlement are conditions that can occur under seismic shaking from earthquake events. Liquefaction describes a phenomenon in which a saturated, cohesionless soil loses strength during an earthquake as a result of induced shearing strains. Lateral and vertical movements of the soil mass, combined with loss of bearing can result. Fine, well sorted, loose sand, shallow groundwater conditions, higher intensity earthquakes, and particularly long duration of ground shaking are the requisite conditions for liquefaction.

The Geologic Hazards Map application for Monterey County indicates the site is mapped in an area with a low susceptibility to liquefaction. However, areas of high susceptibility are indicated near the natural drainages located about 200 feet north and 200 feet south of the site.

Clayey soils which were generally encountered in the area of the proposed improvements are not considered susceptible to liquefaction due to the relatively high plasticity index (plasticity indices of 27, 30, and 30). Based on studies such as those by Boulanger and Idriss (Liquefaction Susceptibility Criteria for Silts and Clays, published in the Journal of Geotechnical and Geoenvironmental Engineering, November 2006), the clay soils are considered cohesive soils that would exhibit clay-like behavior and are not considered susceptible to flow type liquefaction.

Based on the soil and shallow rock conditions encountered in the area of the team room/weight room, liquefaction and seismic settlement are not considered concerns for this building. However, loose granular soils were encountered below groundwater in the area of the former creek channel where improvements such as the visitor's side bleachers, dugouts, flatwork, etc. are proposed. Liquefaction and seismic settlement analyses were conducted for this investigation using the computer program LIQUEFYPRO by Civiltech and data from borings B-2 and B-9. The analyses utilized soil parameters, such as unit weight, N-value, and fines content for the soil conditions encountered throughout the depths explored (see test boring logs, Appendix B). A hammer energy correction factor of 1.4 was applied to the field N-value results based on the results of equipment specific hammer energy calibrations. The hammer energy ratio correction was determined based on the report titled: "Energy Measurement for Dynamic Penetrometers," prepared by GRL Engineers, Inc., dated May 14, 2019. A copy of this report is attached as Appendix E.

The analyses considered a Maximum Considered Earthquake (geometric mean) peak ground acceleration adjusted for site effects (PGA_M) of 0.54g. A Maximum Considered Earthquake magnitude of 7.48 was applied in the analysis based on the modal value from deaggregation analysis, 2008 Dynamic Conterminous U.S. Edition (United State Geological Survey deaggregation website https://earthquake.usgs.gov/hazards/interactive/). A high groundwater depth of 5 feet was used for the analyses.

The liquefaction analyses indicate that liquefaction would occur in three layers between depths of about 23 and 40 feet in the area of the former creek channel where the visitor's side bleachers, dugouts, flatwork, pavements, and walls are proposed.

Based on the results of the seismic settlement analyses utilizing the data from test borings B-2 and B-9, a total seismic settlement of 6 inches and a differential seismic settlement of about 4 inches in 40 feet horizontally were estimated for the area of the former creek channel. Based on discussion with Mr. Dave McClendon with Southern Bleachers, it was reported that the proposed visitor's side bleachers can tolerate up about 2 inches of differential settlement over 18 feet. Thus, the predicted differential seismic settlement exceeds the tolerable differential settlement for the bleacher structure when considering static settlements. Therefore, foundation systems for the bleachers should include deep foundations extending below the liquefiable soils, or use of deep ground improvement methods to densify and/or reinforce the foundations to limit the liquefaction settlement to within tolerable limits for the structure design. In addition, improvements such as the dugouts, flatwork, pavements, and retaining walls proposed in the former creek channel area (refer to Drawing No. 2) would be subjected to the high seismic settlements, which exceed tolerable limits that are typical for these types of improvements.

Due to the shallow depth to rock encountered in the areas explored outside the former creek channel, liquefaction is not considered a concern for improvements located outside of the former creek channel.

The tabular output results of the liquefaction/seismic settlement analyses are included in Appendix D of this report.

6.4 Removal of Existing Site Improvements: The areas of the proposed improvements appear to be generally undeveloped. However, it should be noted that an existing storm drain and underground water lines are located at the site (see Sections 3.1 and 3.2 of this report).

Existing underground utility lines in the areas of the proposed improvements, should be located and removed, where possible. The 48 inch diameter storm drain located in the west portion of the site should be located to assess the potential impacts to the proposed overlying structures. All undocumented fill soils associated with backfill of the utilities should be removed. Once the excavations are approved by Moore Twining, the bottoms of the excavations should be scarified to a depth of 8 inches and compacted in accordance with the "Engineered Fill" section of this report prior to placement of any improvements or engineered fill.

6.5 Expansive Soils: One of the potential geotechnical hazards evaluated at this site is the expansion potential of the near surface soils. Over time, expansive soils will experience cyclic drying and wetting as the dry and wet seasons pass. Expansive soils experience volumetric changes (shrink/swell) as the moisture content of the clayey soils fluctuate. These shrink/swell cycles can impact foundations and lightly loaded slabs-on-grade when not designed for the anticipated expansive soil pressures. Expansive soils cause more damage to structures, particularly light buildings and pavements, than any other natural hazard, including earthquakes and floods (Jones and Holtz, 1973). Expansion potential may not manifest itself until months or years after construction. The potential for damage to slabs-on-grade and foundations supported on expansive soils can be reduced by placing non-expansive fill underlying foundations and slabs-on-grade.

In evaluation of the potential for expansive soils at the site, expansion index testing was performed on a representative sample of the near surface silty sand soils which are anticipated to be within the zone of influence of the planned improvements. The expansion index testing was performed in accordance with ASTM D4829 and the results are included in Appendix C of this report. The result of laboratory testing indicated that the near surface sandy lean clays have a medium expansion potential based on expansion index values of 67 and 78. Accordingly, this report recommends non-expansive engineered fill below slab-on-grade to reduce the potential for excessive heave due to the expansive soil conditions.

6.6 Lateral Spreading: Lateral spreading was evaluated considering the presence of the east facing slope in the area of the proposed bleachers and the potential for liquefaction to occur in the loose sandy soils encountered. Our investigation indicates that the loose sands occur as relatively thin interbeds within clayey colluvial soils deposited near the axis of the former creek channel. Considering that the relatively thin sand interbeds are not laterally continuous, and they are confined to the area near the axis of the former creek channel, and considering the recommendations for support of the bleacher foundations included in this report (deep foundations or use of deep ground improvement to support spread foundations), the potential for lateral spreading to impact the proposed bleachers is considered low.

6.7 New Foundations in Area of Former Creek Channel: The former creek channel area has deeper fill soils and underlying loose sandy soils which are subject to liquefaction and excessive seismic settlement. This area of deep undocumented fill (potential excessive seismic settlement) and liquefiable soils (potential excessive seismic settlement) is estimated to correspond with the areas proposed for most of the new stadium improvements, including the areas proposed for the dugouts, retaining walls, walkways, and the visitor's side bleachers. These types of improvements would typically be supported by shallow conventional foundations. However, due to the potential for liquefaction and excessive seismic settlement, structural mitigation such as a mat foundation or insitu deep ground improvement methods could be considered for support of these improvements.

The proposed visitor's side bleachers are also planned to be located in areas of deeper undocumented fill soils (on the order of 10 to 15 feet deep), and in the area of liquefiable soils encountered in the former creek channel area. The upper soils could not be relied upon for axial resistance under seismic conditions. Due to the existing conditions, either deep ground improvement (such as stone columns) or a deep foundation system extending to bedrock is recommended for support of the visitor's side bleachers. Geopier rammed aggregate pier elements or other forms of deep ground improvement such as deep cement soil mixing may also be considered to reduce the potential for excessive settlement due to liquefaction. This treatment would typically be conducted by a design-build specialty geotechnical contractor.

If deep foundation systems are considered for support of the visitor's side bleachers, it is anticipated that either cast-in-drilled-hole (CIDH) piles or driven H-beam piles (assuming ground vibration not an issue) extending to bear in granitic rock (at depths of about 45 feet BSG) could be utilized. Piles located on the existing east facing slope would need to be extended deeper. However, it should be noted that the depth to rock estimated in this report is based on only two (2) borings (B-2 and B-9) drilled at the base of the slope. Considering that the depth to rock would be anticipated to vary significantly across the visitor's side bleacher area, supplemental borings are recommended in this report to assess the depth to rock for use in more reliable estimates of foundation depth and to reduce the potential for construction change orders.

Dugouts, small bleachers, flatwork and retaining walls are also proposed in areas anticipated to have deeper undocumented fill soils and liquefiable soils (former creek channel area). Lightly loaded improvements such as the dugouts located in the area of deep fill may be possible to support on a stiffened foundation system to prevent collapse in the event of liquefaction. Thus, stiffened, interconnected gradebeam foundations, mat foundations, etc. may be possible without the use of deep ground improvement. Alternatively, deep ground improvement methods such as those noted above could be conducted for the dugouts to reduce the potential impacts from static and seismic settlement. It should be noted that improvements supported on the undocumented fill soils would have a higher potential for future damage due to settlement.

6.8 New Foundations Outside the Area of Former Creek Channel: Fill thicknesses of about 2 to 5 feet were noted in borings drilled in areas of proposed improvements in the central and east portions of the site (outside the area of the former channel). It is anticipated that existing undocumented fill soils will be removed from the area of the proposed weight room/team room and the building will be supported by conventional shallow foundations.

Provided that the existing undocumented fill soils are removed and site preparation is conducted in accordance with the recommendations of this report, new shallow foundations for the team room/weight room and other lightly loaded structures may be designed for a total static settlement of 1 inch and a differential static settlement of ½ inch, a total heave of 1 inch and a differential heave of ½ inch in 40 feet. As indicated in this report, the existing undocumented fill soils are recommended to be over-excavated and new foundations supported on engineered fill.

6.9 Asphaltic Concrete (AC) Pavements: Recommendations for onsite asphaltic concrete pavement structural sections are presented in the Section 8.14 of this report to be used for the pavement design. The structural sections were designed using the gravel equivalent method in accordance with the California Department of Transportation Highways Design Manual. The analysis was based on traffic index values ranging from 5.0 to 7.0. The appropriate paving section should be determined by the project civil engineer or applicable design professional based on the actual vehicle loading (traffic index) values. If traffic loading is anticipated to be greater than assumed, the pavement sections should be re-evaluated.

It should be noted that if the pavements are constructed prior to construction, the additional construction traffic should be considered in the selection of the traffic index value. If more frequent or heavier traffic is anticipated and higher Traffic Index values are applicable, Moore Twining should be contacted to provide additional pavement section designs.

The anticipated subgrade soils are silty sands. Based on the results of the testing conducted as part of this investigation, an R-value of 7 was used for design.

6.10 Portland Cement Concrete (PCC) Pavements: Recommendations for Portland Cement Concrete pavement structural sections are presented in Section 8.15 of this report. The structural section was based primarily on the Portland Cement Association's "Thickness Design of Highway and Street Pavements." PCC pavement sections are provided based on an average daily truck traffic value of one (1) garbage truck per day and (1) garbage truck per week. We assumed an axial load of one 20 kip single axle load and one 36 kip tandem axial load per truck. If traffic loading is anticipated to be greater than assumed, the pavement sections should be re-evaluated.

The PCC pavement sections were designed for a life of 20 years, a load safety factor of 1.1, and a modulus of rupture of 500 pounds per square inch at 28 days for concrete. The design was based on 6 inches of Caltrans Class 2 aggregate base, over 12 inches of imported non-expansive fill soils (see import fill recommendations under Section 8.4 of this report), over soils prepared as recommended under Section 8.5 of this report. A correlated k-value of 120 psi/in. at the top of the aggregate base was used in design.

6.11 Soil Corrosion: The risk of corrosion of construction materials relates to the potential for soil-induced chemical reaction. Corrosion is a naturally occurring process whereby the surface of a metallic structure is oxidized or reduced to a corrosion product such as iron oxide (i.e., rust). The metallic surface is attacked through the migration of ions and loses its original strength by the thinning of the member.

Soils make up a complex environment for potential metallic corrosion. The corrosion potential of a soil depends on numerous factors including soil resistivity, texture, acidity, field moisture and chemical concentrations. In order to evaluate the potential for corrosion of metallic objects in contact with the onsite soils, chemical testing of soil samples was performed by Moore Twining as part of this report. The test results are included in Appendix C of this report. Conclusions regarding the corrosion potential of the soils tested are included in the Conclusions section of this report based on the National Association of Corrosion Engineers (NACE) corrosion severity ratings listed in Table No. 1, below.

Table No. 1

Soil Resistivity (ohm cm)	Corrosion Potential Rating
>20,000	Essentially non-corrosive
10,000 - 20,000	Mildly corrosive
5,000 - 10,000	Moderately corrosive
3,000 - 5,000	Corrosive
1,000 - 3,000	Highly corrosive
<1,000	Extremely corrosive

The results of soil sample analyses indicate that the near-surface soils exhibit a "highly corrosive" corrosion potential to buried metal objects. Appropriate corrosion protection should be provided for buried improvements based on the "highly corrosive" corrosion potential of the soils tested. If piping or concrete are placed in contact with imported soils, these soils should be analyzed to evaluate the corrosion potential of these soils.

The soil corrosion data should be provided to the manufacturers or suppliers of materials that will be in contact with soils (pipes or ferrous metal objects, etc.) to provide assistance in selecting the protection and materials for the proposed products or materials. If the manufacturers or suppliers cannot determine if materials are compatible with the soil corrosion conditions, a professional consultant, i.e., a corrosion engineer, with experience in corrosion protection should be consulted to provide design parameters. Moore Twining does not provide corrosion engineering services.

6.12 Sulfate Attack of Concrete: Degradation of concrete in contact with soils due to sulfate attack involves complex physical and chemical processes. When sulfate attack occurs, these processes can reduce the durability of concrete by altering the chemical and microstructural nature of the cement paste. Sulfate attack is dependent on a variety of conditions including concrete quality, exposure to sulfates in soil/groundwater and environmental factors. The standard practice for geotechnical engineers in evaluation of the soils anticipated to be in contact with concrete is to perform testing to determine the sulfates present in the soils. The test results are then compared with the provisions of ACI 318, section 4.3 to provide guidelines for concrete exposed to sulfate-containing solutions. Common methods used to resist the potential for degradation of concrete due to sulfate attack from soils include, but are not limited to the use of sulfate-resisting cements, air-entrainment and reduced water to cement ratios.

7.0 CONCLUSIONS

Based on the data collected during the field and laboratory investigation, our geotechnical experience in the vicinity of the project site, and our understanding of the anticipated construction, the following conclusions are presented.

7.1 The site is considered suitable for the proposed construction with regard to support of the proposed structures, provided the recommendations contained in this report are followed. It should be noted that the recommended design consultation and observation of foundations and earthwork activities by Moore Twining are integral to this conclusion. It should be noted that areas of deep fill and liquefiable soils were encountered in the area of a former creek channel that will require special design and construction requirements for some of the improvements.

7.2 The Geologic Map of the Monterey Peninsula and Vicinity (Dibblee, 1999) indicates that the site is underlain by Mesozoic-age granodiorite porphyritic basement rocks (gdp). Clark, Dupre and Rosenberg indicate the site is located on Pleistocene coastal terrace deposits overlying the granitic bedrock. However, Clark, Dupre and Rosenberg also indicate Monterey Formation siliceous mudstone outcropping in the vicinity of the site. The siltstones and claystones encountered in the borings drilled for this investigation appear to be more typical of the Monterey Formation materials. In addition to regional geologic map information noted above, as noted in this report, colluvial soils were identified in an area of a former drainage channel.

7.3 The subsurface profile varies greatly in the west to east direction across at the project site due to an apparent former drainage channel which was filled (in the approximate area noted on Drawing No. 2 in Appendix A of this report). The depth to rock and the thickness of existing undocumented fill soils are the greatest near the area of the axis of the former creek channel (borings B-2 and B-9). Also, loose or soft colluvial soils, noted below the undocumented fill soils at Borings B-2 and B-9, were not encountered to the east in borings B-8, B-7, B-6, and B-5. This is illustrated in Drawing No. 4

(cross section B-B') showing the depth to rock and the thickness of existing undocumented fill soils decreasing to the east across the site, and the absence of loose and soft colluvial soils in the borings to the east of boring B-2 (B-8, B-7, B-6, and B-5). The decrease in artificial fill thickness to the east is likely associated with backfilling the former north trending creek channel during grading of the campus, sometime prior to 1941. Note that only shallow fill soils were identified at the location of borings B-7 and B-8, and at the proposed location of the modular building (borings B-5 and B-6).

7.4 Undocumented fill soils were encountered in the test borings and appear to be pervasive across the project site. The deeper fill soil thicknesses (10 to 15 feet) were noted along the west portion of the site within the apparent former creek channel. Fill thicknesses of about 2 to 5 feet were also noted in borings drilled in areas of proposed improvements in the central and east portions of the site. The undocumented fill soils present a high potential for excessive static settlement of the proposed improvements founded on these soils. Thus, recommendations are provided in this report to remove the undocumented fill soils in areas of shallow fill outside the former creek channel area. However, considering the relatively deep fill soils on the west portion of the site, complete removal of the undocumented fill soils in this area may not be practical due to existing improvements to remain, the shallow groundwater conditions and the presence of the existing storm drain pipe. Thus, this report presents recommendations for insitu deep ground improvement or use of deep foundations to support the proposed visitor's side bleachers. Lightly loaded improvements such as one of the dugouts which is located in the area of deep fill may be possible to structurally engineer the foundation to accommodate the anticipated settlements such as by use of mat or quasi-rigid foundations. Alternatively, deep ground improvement could be conducted for the other structures in the former channel area (such as dugouts) to reduce the potential impacts from static and seismic settlement. It should be noted that improvements supported on the undocumented fill soils would have a higher potential for future damage due to settlement.

7.5 The liquefaction analyses indicate that liquefaction would occur in three layers between depths of about 23 and 40 feet in the area of the former creek channel where the visitor's side bleachers, dugouts, flatwork, pavements, and walls are proposed. Based on the results of the seismic settlement analyses utilizing the data from test borings B-2 and B-9, a total seismic settlement of 6 inches and a differential seismic settlement of 4 inches in 40 feet horizontally were estimated for the area of the former creek channel. Therefore, foundation systems for the bleachers should include deep foundations extending below the liquefiable soils, or use of deep ground improvement methods to densify and/or reinforce the soils to limit the liquefaction settlement to within tolerable limits for the structure design. Improvements such as dugouts, flatwork, pavements, and retaining walls proposed in the former creek channel area (refer to Drawing No. 2), would be subjected to these seismic settlements, which exceed tolerable settlement limits that are typical for these types of improvements. Thus, structural mitigation using stiffened foundations or deep ground improvement are anticipated for other structures within the former creek channel area. Due to the shallow depth to rock encountered in the areas explored outside the former creek channel, liquefaction is not considered a concern for improvements located outside of the former creek channel.

7.6 The results of expansion index (EI) tests indicated the predominant near surface sandy lean clays have a medium expansion potential (expansion test results of 67 and 78). Theses expansive soils are not recommended for use as engineered fill directly below slabs on grade, nor for backfill of retaining walls.

7.7 During our October 2018 investigation, groundwater was encountered in boring s B-2 and B-3 at depths of about 14 feet BSG, and in boring B-9 at a depth of about 8½ feet BSG on May 20, 2019. This shallow groundwater appears to occur along the former ephemeral creek channel which was likely filled during grading of the stadium. A trace of perched groundwater was encountered in boring B-4 (west side of stadium) at about 3½ feet BSG. Groundwater was not encountered in the shallow hand auger borings HA-1 and HA-2. Given the relatively shallow depth of rock and low permeable clay soils, there is a high potential for localized shallow seasonal perched water conditions in the area of the site.

7.8 The results of one corrosion soil test indicated that the near-surface soils exhibit a "very corrosive" corrosion potential to buried metal objects. In addition, the results of soil sample analyses indicated the soils exhibit a "negligible" potential for sulfate attack to concrete.

7.9 The project site is not located in an Alquist-Priolo Earthquake Fault Zone. The potential for surface fault rupture at the site due to a known fault is considered low.

8.0 RECOMMENDATIONS

Based on the evaluation of the field and laboratory data and our geotechnical experience in the vicinity of the project, we present the following recommendations for use in the project design and construction. However, this report should be considered in its entirety. When applying the recommendations for design, the background information, procedures used, findings and conclusions should be considered. The recommended design consultation and construction monitoring by Moore Twining are integral to the proper application of the recommendations.

Where the requirements of a governing agency, utility agency or product manufacturer differ from the recommendations of this report, the more stringent recommendations should be applied to the project.

8.1 General

8.1.1 Moore Twining should be provided with the foundation plans for review, when available. Additional or alternative recommendations may be warranted based on review of the foundation plans.

8.1.2 It is recommended the existing 48 inch diameter storm drain located in the west portion of the site should be located to identify potential conflicts with proposed excavation, foundations and deep ground improvement. Moore Twining should be provided with the pipe location and depth to assess the potential impacts to the proposed overlying structures. If the storm drain is left in-place, there is a greater risk for future settlement. Also, it may not be practical to leave this storm drain in-place due to risk of damage from deep foundations or deep ground improvement installation.

8.1.3 Considering that the depth to rock is anticipated to vary significantly across visitor's side bleacher area, supplemental borings are recommended to assess the depth to rock at other locations, including on the upper track/field area. This will reduce the potential for construction change orders. This report includes preliminary recommendations for rock end bearing capacity. Additional borings are also needed to prepare final recommendations for the rock end bearing capacity.

8.1.4 After review of the geotechnical report and the construction documents, the Contractor(s) bidding on this project should determine if the data are sufficient for accurate bid purposes. If the data are not sufficient, the Contractor should conduct, or retain a qualified geotechnical engineer to conduct, supplemental studies and collect more data as required to prepare accurate bids.

8.1.5 It is anticipated that subgrade instability could occur if earthwork operations are conducted in wet weather or if the excavations extend to within a few feet above the groundwater table. The degree of instability will depend on the actual moisture content of the soils at the time of construction. If wet, unstable soil conditions are experienced, methods such as aeration, mixing wet soils with drier soils, chemical (i.e., cement) treatment of the soil, or over-excavation and placement of a bridge lift of aggregate base and a geotextile stabilization fabric such as Mirafi 600X, may be required to achieve a stable soil condition. The actual method employed to stabilize the bottom of the excavation or pavement subgrade should be selected at the time of construction. All stabilization of wet soils should be conducted in accordance with the project specifications.

8.1.6 A preconstruction meeting including, as a minimum, the Owner, Project Inspector, general contractor, architect, grading subcontractor, and foundation subcontractors, and Moore Twining should be scheduled at least one week prior to the start of demolition. The purpose of the meeting should be to discuss critical project issues, concerns and scheduling.

8.1.7 Appropriate construction methods and equipment, such as low vibration equipment, should be used adjacent to the existing improvements so as not to damage existing improvements which are to remain.

8.2 Site Grading and Drainage

8.2.1 Develop and maintain site grades which will drain surface and roof runoff away from foundations and floor slabs - both during and after construction. Adjacent exterior finished grades should be sloped a minimum of five percent for a distance of at least five feet away from the structures, or as necessary to establish positive drainage and preclude ponding of water adjacent to foundations, whichever is more stringent. Adjacent exterior grades which are paved should be sloped at least two (2) percent away from the foundations.

8.2.2 Landscaping after construction (if any) should direct rainfall away from foundations and to prevent ponding of water and erosion. Also, provisions should be designed to prevent surface water from flowing onto the existing slope above which the bleachers are proposed.

8.2.3 It is not recommended to place landscape or planted areas directly adjacent to the improvements. Trees should be setback from the proposed structure at least 10 feet or a distance equal to the anticipated drip line radius of the mature tree. For example, if a tree has an anticipated drip line diameter of 30 feet, the tree should be at least 15 feet away (radius) from the proposed foundations.

8.2.4 Rain gutters and roof drains should be provided, and connected directly to the site storm drain system. As an alternative, the roof drains should extend a minimum of 5 feet away from the structures and the resulting runoff directed positively away from structures and foundations. Roof drainage should not be discharged immediate to the structure or foundations.

8.2.5 In the event subsurface storm water infiltration systems, bioswales or similar designs are planned, the proposed locations and details of these features should be provided to Moore Twining for review and comment. If these types of features are required, specific measures such as deepened curbs, cutoffs, waterproof liners, etc. should be incorporated in the designs to reduce the potential for excessive settlement of adjacent improvements due to moisture and free-water migration from storm water systems. Where onsite stormwater infiltration features are required for the project by a regulatory agency, these systems should be setback as far as possible from the proposed structures and improvements which are sensitive to settlement. At a minimum, it is recommended that storm water disposal systems be setback at least 20 feet from the proposed and existing buildings and foundations.

8.3 Slopes, Drainage Protection, and Slope Maintenance

8.3.1 Where permanent slopes are required, slopes should be graded at a maximum repose of 2H to 1V, or flatter, for stability, and to reduce erosion potential. In areas where the ground surface slopes at a 5H:1V inclination or greater, fill slopes should be constructed by excavating flat benches into the underlying firm soils at a minimum vertical interval of about three (3) feet. Fill slopes higher than 5 feet are not anticipated for this project. In the event fill slopes higher than 5 feet are proposed, our firm should be notified.

8.3.2 To reduce the potential for sediment transport downslope, loose soils should not be left on finished slopes. The slopes should be constructed in a manner that includes compaction of the face of the slopes. It should be anticipated that periodic, regular maintenance will be required to clean swales and v-ditches, and repair erosion damage from the base of the slope behind the proposed retaining wall until the vegetative cover is well established.

8.3.3 It is recommended to develop and maintain site grades which will rapidly drain surface runoff away from graded or natural slopes - both during and after construction. To accomplish this, use curbs, brow ditches, berms or other measures to intercept and safely redirect flow away from the tops of slopes. Runoff shall not be allowed to drain over top of slope.

8.3.4 Exposed graded slopes should be planted and maintained with strong rooting vegetation to reduce erosion potential. In addition, the existing vegetation should remain covering slopes, if possible. If the existing vegetation is disturbed, shallow rooted ground cover, as well as deeper rooted trees or bushes, should be planted on the disturbed or reconstructed portions of the slopes to reduce the potential for erosion and aid in surficial slope stability.

8.3.5 Irrigation in the areas of manufactured slopes should be of a drip type system without surface runoff. All irrigation lines and sprinklers should be monitored for leaks. All leaks and damage should be repaired promptly.

8.3.6 If future erosion or instability in the form of slides, debris or earth flow, accelerated erosion, or other forms of slope instability occur on native or graded slopes, Moore Twining should be contacted to provide recommendations for repair, and the distressed areas should be repaired as soon as possible under the direction of Moore Twining. If instability is allowed to continue, these types of conditions could be an impact to the improvements.

8.3.7 A Moore Twining geologist should observe cuts during grading of the site to determine if the subsurface conditions are compatible with those used in our evaluation and design.

8.3.8 Foundation setback recommendations from slopes are provided in Section 8.7.7 of this report. Other, non-structural improvements placed within 6 feet of the tops of descending slopes will have a higher potential for settlement and distress.

8.4 Site Preparation

8.4.1 Stripping should be conducted to remove surface vegetation and root systems from the areas of proposed improvements. Surface vegetation and root systems should not be disced into the soils. The general depth of stripping should be sufficiently deep to remove the root systems and organic topsoils. The actual depth of stripping should be reviewed by our firm at the time of construction. Deeper stripping may be required in localized areas. Stripping and clearing of debris should extend laterally a minimum of 10 feet outside areas of planned excavation. These materials will not be suitable for use as engineered fill; however, stripped topsoil may be stockpiled and reused in landscape areas at the discretion of the owner.

8.4.2 Mature trees were noted on the east facing slope in the area of the proposed bleachers. All root balls and roots larger than ¼ inch in diameter or any accumulation of organic matter that will result in an organic content more than 3 percent by weight should be removed and not used as engineered fill. After removal of the organics and disturbed soils, the bottom of the excavation should be scarified to a minimum depth of 8 inches and compacted as engineered fill prior to backfilling operations. Areas of depressions should be excavated and backfilled with engineered fill under the observation of Moore Twining. Also, Moore Twining should be contacted to observe removal of the tree root balls and root systems.

8.4.3 The near surface soils encountered included fill soils comprised sandy lean clay and sandy fat clay with medium to high plasticity, as well as silty sands (granular soils) with low plasticity. The expansive lean and fat clay soils with an expansion index of greater than 10 are not considered suitable for use as engineered fill within the upper 24 inches below the bottom of all slabs on grade located within the building pad preparation limits (i.e. interior floor slabs and slabs on grade adjacent to the building) nor within the upper 18 inches below the bottom of concrete slabs on grade located outside the building pad preparation limits. The onsite silty sands with an expansion index of less than 10 would be suitable for use as engineered fill material, provided they are free of organics (less than 3 percent by dry weight), free of particles 3 inches in dimension and larger, and free of debris and root systems, and can be segregated from the clay soils. **However, clay soils are common at the site and due to the difficulty in selectively excavating soils, it is recommended that construction bids include costs for importing non-expansive engineered fill soils.** If the onsite, expansive clay soils become mixed with the granular soils, the mixed materials will not be allowed in areas specified to receive granular fill. Thus, the need for imported granular fill soils should be anticipated. If soils other than those considered in this report are encountered, Moore Twining should be notified to provide alternate recommendations.

8.4.4 All existing surface and subsurface improvements (if any), including foundations, slabs on grade, utilities, subsurface structures, pavements, etc., should be removed entirely and not crushed or buried in place. All utilities in building areas should be completely removed and disposed of off-site and should not be crushed and buried in-place. The resulting excavations should be cleaned of all loose, organic or disturbed soils, the exposed native soils should be scarified to a depth of 8 inches then compacted as engineered fill. The excavation should be backfilled with compacted engineered fill.

The existing storm drain pipe (estimated 48 inch diameter pipe) should be located and removed, or relocated outside areas of new improvements if possible. If the storm drain is left in-place, there is a greater risk for future settlement. Also, it may not be practical to leave this storm drain in-place due to risk of damage from deep foundations or deep ground improvement installation.

8.4.5 Undocumented fill soils containing some debris were encountered in soil borings drilled for this investigation. Prior to reuse of soil as engineered fill, deleterious materials (wood debris, plastic, concrete or brick fragments over 3 inches in diameter, etc.) should be removed.

8.4.6 It is recommended that the existing undocumented fill soils be entirely excavated and removed to expose undisturbed native soils prior to placement of engineered fill, structures, pavements, slabs, or turf. However, as indicated in Section 6.2 of this report, in the event that it is not considered feasible to remove all of the existing fill soils, the minimum over-excavation depths indicated in the following sections are recommended to provide a firm working surface and reduce, but not eliminate, the potential for excessive static settlement. It should be understood that, if the undocumented fill soils are not completely removed and replaced as engineered fill, there is a higher potential for future damage to the improvements due to settlement. Even with the recommendations below, structural mitigation would still be required for structures in the former channel area where liquefaction is a concern such as the dugouts and visitor's side bleachers (see Section 8.7.4).

8.4.7 **Over-Excavation for Foundation Areas for Walls, and other Miscellaneous Lightly Loaded Foundations (not including dugouts or team room/weight room):** After site stripping, removal of root systems and removal of existing surface and subsurface improvements, the proposed foundation areas for walls, and other miscellaneous lightly loaded foundations (not including the team room/weight room) should be excavated to a minimum depth of 24 inches below the bottom of the proposed foundations, to a minimum depth of 24 inches below the preconstruction site grade, or to a minimum of 12 inches below existing improvements to be removed, whichever is greater. The over-excavation should include the entire footing footprint and to a minimum of 3 feet beyond the foundations. After approval of the over-excavation, the exposed native soils should be scarified to a depth of 8 inches then compacted as engineered fill. The excavation should be backfilled with compacted engineered fill to a stable condition.

8.4.8 **Over-Excavation for Foundation Areas for Dugouts:** If deep ground improvement is not implemented, after site stripping, removal of root systems, and removal of existing surface and subsurface improvements, the proposed foundation areas for dugouts should be excavated to a minimum depth of 24 inches below the bottom of the proposed foundations, to a minimum depth of 24 inches below the preconstruction site grade, or to a minimum of 12 inches below existing improvements to be removed, whichever is greater.

If deep ground improvement is implemented to support shallow foundations, the proposed foundation areas for dugouts should be excavated to the depth of the proposed foundations, to a minimum depth of 24 inches below the site grade at the time of the ground improvement, to the depth required to remove disturbed soils from the ground improvement work, or to a minimum of 12 inches below existing improvements to be removed, whichever is greater.

The over-excavation should include the entire footing/dugout building footprint and to a minimum of 5 feet beyond the foundations. After approval of the over-excavation, the exposed soils should be scarified to a depth of 8 inches then compacted as engineered fill. The excavation should be backfilled with compacted engineered fill to a stable condition.

8.4.9 **Over-Excavation for Area of Visitors Side Bleachers:** If deep ground improvement is not implemented and deep foundations are used for support of the structure, after site stripping, removal of root systems, removal of existing surface and subsurface improvements, the proposed visitor's side foot print area planned to be covered with a slab on grade (if any) should be excavated to a minimum depth of 12 inches below the site grade at the time of the deep foundation installation, or to a minimum of 12 inches below existing improvements to be removed, whichever is greater.

If deep ground improvement is implemented to support shallow foundations for the bleachers, the area of the ground improvement which occurs below concrete slabs on grade should be excavated to the depth of the proposed foundations, to a minimum depth of 24 inches below the site grade at the time of the ground improvement, to the depth required to remove all soils disturbed as part of the deep ground improvement work, or to a minimum of 12 inches below existing improvements to be removed, whichever is greater. This recommendation assumes that the footing would be required to extend to be directly supported on the deep ground improvement elements.

The over-excavation should include the entire footing and slab footprint and to a minimum of 3 feet beyond the foundations. After approval of the over-excavation, the exposed soils should be scarified to a depth of 8 inches then compacted as engineered fill. The excavation should be backfilled with compacted engineered fill to a stable condition.

8.4.10 **Over-Excavation for Team Room/Weight Room Modular Building:** After site stripping, removal of root systems and removal of existing surface and subsurface improvements, and removal of all existing fill soils, the proposed building and foundation areas for the Team Room/Weight Room Modular Building should be excavated to a minimum depth of 24 inches below the bottom of the proposed foundations, to a minimum depth of 5 feet below the preconstruction site grade, to the depth to required to remove fill, or to a minimum of 12 inches below existing improvements to be removed, whichever is greater. The over-excavation should include the entire building footprint and all foundations, a minimum of 5 feet beyond the building and foundations and a minimum of 5 feet beyond all concrete flatwork adjacent to the building such as walkways, ramps, etc., whichever is greater. After excavation, an engineer or geologist from Moore Twining should confirm the removal of the fill soils and confirm that the excavation extends into undisturbed native soils. After approval of the over-excavation, the exposed native soils should be scarified to a depth of 8 inches then compacted as engineered fill. The excavation should be backfilled with compacted engineered fill to a stable condition.

8.4.11 **Over-Excavation Below Flatwork/Walkways Not Adjacent to the Team Room/Weight Room Building, Pavements, and in Turf Areas:** After site stripping, removal of root systems and removal of existing surface and subsurface improvements, the proposed flatwork areas that are not located adjacent to the team room/weight room building, and in pavement and turf areas should be excavated to a minimum depth of 12 inches below the bottom of the aggregate base section, to a minimum depth of 18 inches below the preconstruction site grade, or to a minimum of 12 inches below existing improvements to be removed, whichever is greater. The over-excavation should extend a minimum of 3 feet beyond the edge of the proposed improvements. After approval of the over-excavation, the exposed native soils should be scarified to a depth of 8 inches, then compacted as engineered fill to a stable condition. The excavation should be backfilled with compacted engineered fill. Following compaction, the turf areas should be proof rolled with a fully loaded water truck under the observation of Moore Twining. Any unstable areas with excessive deflections should be over-excavated and recompacted to achieve a stable condition. The upper 12 inches of subgrade soils below the aggregate base for pavements and turf areas should be compacted to a minimum of 95 percent of the maximum dry density of the soil according to ASTM Standard D1557.

8.4.12 After site stripping, removal of root systems and removal of existing surface and subsurface improvements, the areas to receive fill soils outside the areas detailed in Sections 8.4.7 through 8.4.11 should be over-excavated to a minimum of 12 inches below preconstruction site grade. The exposed bottom of the excavation should be scarified to a minimum of 8 inches, moisture conditioned and compacted as engineered fill to a stable condition.

8.4.13 It is recommended that extra care be taken by the contractor to ensure that the horizontal and vertical extent of the over-excavation and compaction conform to the site preparation recommendations presented in this report. Moore Twining is not responsible for measuring and verifying the horizontal and vertical extent of over-excavation and compaction. The contractor should verify in writing to the owner and Moore Twining that the horizontal and vertical over-excavation limits were completed in conformance with the recommendations of this report, the project plans, and the specifications (the most stringent applies). It is recommended that this verification be performed by a licensed surveyor. This verification should be provided prior to requesting pad certification from Moore Twining or excavating for foundations.

8.4.14 All concrete slabs on grade located within building pad preparation limits (i.e. interior floor slabs and concrete walkways adjacent to buildings), should be supported on a minimum of 6 inches of non-recycled Class 2 aggregate base over a minimum of 18 inches of non-expansive engineered fill.

8.4.15 PCC pavements and exterior concrete slabs on grade outside the building pad preparation limits should be supported on a minimum of 6 inches of Class 2 aggregate base over 12 inches of non-expansive fill.

8.4.16 All fill required to bring the site to final grades should be placed as engineered fill. In addition, all native soils over-excavated should be compacted as engineered fill.

8.4.17 The contractor should locate all on-site water wells (if any). All wells scheduled for demolition should be abandoned per state and local requirements. The contractor should obtain an abandonment permit from the local environmental health department, and issue certificates of destruction to the owner and Moore Twining upon completion. At a minimum, wells in building areas (and within 5 feet of building perimeters) should have their casings removed to a depth of at least 8 feet below preconstruction site grades or finished pad grades, whichever is deeper. In parking lot or landscape areas, the casings should be removed to a depth of at least 5 feet below site grades or finished grades. The wells should be capped with concrete and the resulting excavations should be backfilled as engineered fill.

8.4.18 The moisture content and density of the compacted soils should be maintained until the placement of concrete. If soft or unstable soils are encountered during excavation or compaction operations, our firm should be notified so the soils conditions can be examined and additional recommendations provided to address the pliant areas.

8.4.19 The Contractor should be responsible for the disposal of concrete, asphaltic concrete, soil, spoils, etc. that must be exported from the site. Individuals, facilities, agencies, etc. may require analytical testing and other assessments of these materials to determine if these materials are acceptable for the intended use by the receiving party. The Contractor is responsible to perform the tests, assessments, etc. necessary to determine the appropriate method of disposal. In addition, the Contractor is responsible for all costs to dispose of these materials in a legal manner.

8.5 Engineered Fill

8.5.1 The near surface soils encountered included fill soils comprised of sandy lean clay and sandy fat clay with medium to high plasticity, as well as silty sands (granular soils) with low plasticity. The expansive lean and fat clay soils with an expansion index of greater than 10 are not considered suitable for use as engineered fill within the upper 24 inches below the bottom of all slabs on grade located within the building pad preparation limits (i.e. interior floor slabs and slabs on grade adjacent to the building) nor within the upper 18 inches below the bottom of concrete slabs on grade located outside the building pad preparation limits. In addition, the onsite expansive clay soils are not considered suitable for use as engineered backfill above a 1 Horizontal to 1 Vertical plane extending upward from the bottom of the proposed retaining walls. The onsite silty sands with an expansion index of less than 10 would be suitable for use as engineered fill material, provided they are free of organics (less than 3 percent by dry weight), free of particles 3 inches in dimension and larger, and free of debris and root systems, and can be segregated from the clay soils. **However, due to the difficulty in segregating the excavated soils, is recommended that base bids include costs for importing non-expansive engineered fill soils.** If onsite silty sands with an

expansion index of less than 10 are to be used as non-expansive fill soils, the existing clay soils will need to be identified and selectively excavated due to the restricted use. If the onsite, expansive clay soils become mixed with the granular soils, the mixed materials will not be allowed in areas specified to receive granular fill. Thus, the need for imported granular fill soils should be anticipated. If soils other than those considered in this report are encountered, Moore Twining should be notified to provide alternate recommendations.

It should be noted that fill soils with debris, such as brick and crushed rock were encountered throughout the site. Irreducible particles of debris such as rock and brick that are greater than 3 inches in the largest dimension and deleterious materials (i.e. wood debris, plastic, etc.) should not be incorporated in engineered fill.

8.5.2 A minimum of 6 inches of aggregate base over 18 inches of granular, non-expansive fill meeting the "Non-Expansive Engineered Fill" requirements of this report is recommended below the bottom of the concrete slabs-on-grade for the building and all concrete flatwork directly adjacent to the building. Exterior slabs on grade located outside the building pad preparation limits (walkways, slabs under bleachers, etc.) should be supported on a minimum of 6 inches of aggregate base over 12 inches of imported, non-expansive fill.

8.5.3 The compactibility of the native soils is dependent upon the moisture contents, subgrade conditions, degree of mixing, type of equipment, as well as other factors. The evaluation of such factors was beyond the scope of this report; therefore, we recommend that they be evaluated by the contractor during preparation of bids and construction of the project.

8.5.4 Imported, non-expansive fill soil should be non-recycled and granular in nature with the following acceptance criteria recommended.

Percent Passing 3-Inch Sieve	100
Percent Passing No. 4 Sieve	75 - 100
Percent Passing No. 200 Sieve	15 - 40
Expansion Index (ASTM D4829)	Less than 10
Organics	Less than 3 percent by weight
Sulfates	< 0.05 percent by weight
Min. Resistivity	> 3,000 ohm-cm
Min. Angle of Internal Friction	32 Degrees*

* Required for Retaining Wall Backfill Only (see section 8.13)

8.5.5 Prior to importing fill, the Contractor shall submit test data that demonstrates that the proposed import soils comply with the recommended criteria for both geotechnical and environmental compliance. Also, prior to being transported to the site, the import material shall be certified by the Contractor and the supplier (to the satisfaction of the Inspector of Record) that the soils do not contain any environmental contaminates regulated by local, state or federal

agencies having jurisdiction. This certification shall consist of, as a minimum, analytical data specific to the source of the import material in accordance with the Department of Toxic Substances Control, "Informational Advisory, Clean Imported Fill Material," dated October 2001. The list of constituents to be tested for the fill source shall be submitted to the Owner for review and approval prior to the Contractor testing the fill.

8.5.6 Recycled materials (such as asphaltic concrete or Portland cement concrete) should not be used below the building without approval by the owner, and/or Moore Twining.

8.5.7 On-site clayey soils used for engineered fill soil should be placed in loose lifts approximately 8 inches thick or less, moisture-conditioned to between 1 and 4 percent above optimum moisture content, and compacted to a minimum of 92 percent relative compaction as determined by ASTM Test Method D1557, with exception that the upper 12 inches of pavement subgrade should be compacted to at least 95 percent of the maximum dry density as determined by ASTM Test Method D1557. Additional lifts should not be placed if the previous lift did not meet the required dry density or if soil conditions are not stable.

8.5.8 Onsite or imported, non-expansive engineered fill soil, are recommended below concrete slabs on grade for the project. The imported, non-expansive fill should be placed in loose lifts approximately 8 inches thick or less, moisture-conditioned to between optimum and three (3) percent above optimum moisture content, and compacted to a minimum of 92 percent relative compaction as determined by ASTM Test Method D1557, with exception that the upper 12 inches of pavement subgrade should be compacted to at least 95 percent of the maximum dry density as determined by ASTM Test Method D1557. Additional lifts should not be placed if the previous lift did not meet the required dry density or if soil conditions are not stable.

8.5.9 Utility trenches should be a minimum of 24 inches in width to allow for in-place density testing by traditional (nuclear density test) methods and the backfill should be compacted in accordance with the recommendations for engineered fill in Sections 8.5.7 and 8.5.8 of this report. If narrower trenches are used, they should be backfilled with controlled low strength material with a minimum of two (2) sacks of cement per cubic yard. The contractor should use appropriate equipment and methods to avoid damage to utilities and/or structures during placement and compaction of the backfill materials. Lift thickness can be increased if the contractor can demonstrate the minimum compaction requirements can be achieved.

8.5.10 Aggregate base shall comply with State of California Department of Transportation requirements for Caltrans Class 2 aggregate base, with exception that aggregate base used below the building slabs should be non-recycled. Documentation that the aggregate base to be used for the project meets the Class 2 aggregate base requirements (R-value, gradation, sand

equivalent, durability, etc.) should be provided to the Owner. All aggregate base should be compacted to a minimum of 95 percent relative compaction.

8.5.11 Open graded gravel and rock material such as ¾-inch crushed rock or ½-inch crushed rock should not be used as backfill including trench backfill. In the event gravel or rock is required by a regulatory agency for use as backfill, all open graded materials shall be fully encased in a geotextile filter fabric, such as Mirafi 140N, to prevent migration of fine grained soils into the porous material. Gravel and rock cannot be used without the written approval of Moore Twining. If the contractor elects to use crushed rock (and if approved by Moore Twining), the contractor will be responsible for slurry cut off walls at the locations directed by Moore Twining. Materials such as crushed rock should be placed in thin (less than 8 inches) lifts and each lift should be compacted with a minimum of three (3) passes with a vibratory compactor.

8.5.12 In-place density testing should be conducted in accordance with ASTM D 6938 (nuclear methods) at a the minimum frequencies indicated in Table No. 2.

Table No. 2
Minimum Compaction Testing Frequency

Area	Minimum Test Frequency
Mass Fills or Subgrade	1 test per 1,000 square feet per compacted lift, but not less than 2 tests per lift
Modular Building and Dugouts Areas	1 test per 500 square feet per compacted lift, but not less than 2 tests per lift
Exterior Slabs	1 test per 25 lineal feet of exterior slab area, but not less than 2 tests per area
Subgrade Turf Field and Pavements	1 test per 10,000 square feet per compacted lift
Utility Lines	1 test per 100 feet per lift

8.6 General Foundation Recommendations

8.6.1 The following seismic factors were developed using online data obtained from the United States Geological Survey (U.S.G.S.) based upon a latitude of 36.5950 degrees and a longitude of -121.8990 degrees. Considering the varied subgrade conditions, a Site Class D and Site Class E apply to various areas of the site. Determination of Site Class was based on the weighted field SPT - N-values, per section 1613A.5.5 of the California Building Code. The worst case values listed for Site Class D or E should be used for all structures located in the former creek channel (visitors side bleachers, dugouts, etc.). The values listed for Site Class D may be used for the modular weight room/team room building.

The reported seismic factor values are based upon Sections 1613.3.1A through 1613.3.4A of the 2016 California Building Code and were not determined based upon a ground motion hazard analysis. If a ground motion hazard analysis is required based upon the Seismic Design Category or structural detailing of the proposed structure(s), the following values will need to be updated with seismic factors determined by a ground motion hazard analysis. The designer should determine whether a ground motion hazard analysis is required for the project. If required, Moore Twining should be notified and requested to conduct the additional analysis and develop updated seismic factors for the project.

TABLE NO. 3
Seismic Design Parameters

Seismic Factor	2016 CBC Value	
Site Class	D	E
Maximum Considered Earthquake (geometric mean) peak ground acceleration adjusted for site effects (PGA_M)	0.596	0.536
Mapped Maximum Considered Earthquake (geometric mean) peak ground acceleration ASCE 7-10 (PGA)	0.596	0.596
Spectral Response At Short Period (0.2 Second), Ss	1.526	1.526
Spectral Response At 1-Second Period, S_1	0.561	0.561
Site Coefficient (based on Spectral Response At Short Period), Fa	1.0	0.9
Site Coefficient (based on spectral response at 1-second period) Fv	1.5	2.4

TABLE NO. 3
Seismic Design Parameters

Seismic Factor	2016 CBC Value	
Maximum considered earthquake spectral response acceleration for short period, S_{MS}	1.526	1.374
Maximum considered earthquake spectral response acceleration at 1 second, S_{M1}	0.841	1.346
Five percent damped design spectral response accelerations for short period, S_{DS}	1.018	0.916
Five percent damped design spectral response accelerations at 1-second period, S_{D1}	0.561	0.897

8.7 Shallow Spread Foundations

A discussion of foundation types for the various proposed improvements is provided in Sections 6.7 and 6.8 of this report. It should be noted that retaining wall foundations are discussed in Section 8.12 of this report

8.7.1 A structural engineer experienced in foundation design should recommend the thickness, design details and concrete specifications for the foundations and slabs on grade based on the recommended bearing capacity and estimated settlements.

8.7.2 Spread and continuous footings should be supported on subgrade soils compacted as engineered fill as recommended in the "Site Preparation" section of this report.

8.7.3 **Modular Team Room/Weight Room Building:** New shallow foundations for the modular team room/weight room building may be designed for a maximum allowable soil bearing pressure of 2,000 pounds per square foot for dead-plus-sustained live loads. This value may be increased to by one-third for short duration wind or seismic loads. The following settlements should be anticipated for shallow foundation design for the modular team room/weight room building: 1) a total static settlement of 1 inch; 2) a differential static settlement of ½ inch in 40 feet; 3), a total heave of 1 inch and a differential heave of ½ inch in 40 feet.

8.7.4 **Foundations in Area of Former Creek Channel (Visitor's Side Bleachers, Dugouts, Retaining Walls, and Other Lightly Loaded Structures):** Assuming ground improvement is conducted, new visitor's side bleachers and dugouts supported on deep ground improvement elements may be designed for a maximum allowable soil bearing pressure of 2,000 pounds per square foot for dead-plus-sustained live loads, or in accordance with the design build

engineer's requirements. This value may be increased to by one-third for short duration wind or seismic loads. Shallow foundations would not be suitable for these structures unless ground improvement is conducted. The following settlements should be anticipated for shallow foundation design for the modular team room/weight room building: 1) a total static settlement of 1 inch; 2) a differential static settlement of ½ inch in 40 feet; 3), a total heave of 1 inch and a differential heave of ½ inch in 40 feet. Footings supported on deep ground improvement elements should extend to the depth required by the design build engineer.

As an alternative for the dugouts, a mat or quasi-rigid foundation may be designed for the following settlements should be anticipated for shallow foundation design for the modular team room/weight room building : 1) a total static settlement of 2 inches; 2) a differential static settlement of 1 inch in 40 feet; 3), a total heave of 1 inch and a differential heave of ½ inch in 40 feet; a total seismic settlement of 6 inches; 2) a differential seismic settlement of 4 inches in 40 feet.

8.7.5 The bottom surface area of concrete footings in direct contact with engineered fill can be used to resist lateral loads. An allowable coefficient of friction of 0.30, can be used for design.

8.7.6 For foundations not located on or near slopes (see foundation setbacks in Section 8.7.7), the allowable passive resistance of the soil below a depth of 6 inches may be assumed to be equal to the pressure developed by a fluid with a density of 275 pounds per cubic foot. The upper 6 inches should be neglected in design. This value may also be used for design of non-constrained, pier type foundations.

8.7.7 New footings should have a minimum depth of 24 inches below the lowest finished adjacent grade, or top of slab, whichever is lower. In addition, the bottoms of foundations should be deepened such that the foundation bottoms are not within 6 feet horizontally from the face of any slope. Passive pressures for foundations within 6 feet horizontally from the face of any slope should be neglected.

8.7.8 Footings should have a minimum width of 12 inches.

8.7.9 The contractor should be required to preserve the stability of the prepared subgrade throughout construction activities. If disturbed, unstable soil conditions occur, our firm should be notified so the soils conditions can be examined and additional recommendations provided to address the loose areas.

8.8 Cast-in-Drilled-Hole Pile (CIDH) Foundation Design for Bleachers/Press Box

As discussed in Section 6.7 of this report, either deep ground improvement (such as stone columns, rammed aggregate piers (Geopiers) or other methods), or an end bearing deep foundation system extending to bedrock would be required to support the visitor's side bleachers due to the deep undocumented fill and liquefiable soils present in this area. Geopier rammed aggregate pier elements could be used to reduce the potential settlements for use of a shallow spread foundation. However, this treatment would be conducted by a design-build specialty geotechnical contractor and thus further discussion is not included in this report. Considering that the depth to rock is anticipated to vary significantly across visitor's side bleacher area, supplemental borings are recommended to assess the depth and quality of the rock at other locations, including on the upper track/field area. This section provides preliminary recommendations for cast-in-drilled hole foundations. However, other deep foundation systems could be considered, such as driven "H" piles, or possibly other proprietary deep foundation types.

8.8.1 A structural engineer registered in the state of California should prepare structural details for the bleacher/press box CIDH foundations to resist shear, moment, and axial (tension and compression) loads considering the recommendations of this report.

8.8.2 A structural engineer experienced in foundation design should recommend the thickness, design details and concrete specifications for the foundations based on a total static settlement of 1 inch and a differential static settlement of ½ inch between foundations.

8.8.3 Axial and lateral pile design should be based on piles extending to a minimum of 10 feet into granitic rock (estimated top of rock elevation of about 45 feet AMSL).

8.8.4 Passive resistance should be neglected to a depth of 1 foot below the ground surface at the pile, or to a depth providing a horizontal setback to a sloping ground surface of at least 6 feet, whichever is deeper.

8.8.5 For non-seismic conditions, the allowable vertical downward load capacity of the CIDH pile foundations may be preliminarily designed based on an allowable end bearing capacity of 50 kips per square foot (bearing at least 10 feet into granitic rock). This value may be increased ⅓ for short duration loading.

8.8.6 Axial pile capacity will be derived from end bearing resistance in the granitic rock. Piles should be drilled a minimum of 10 feet into the granitic rock, and to the minimum depth required to achieve the necessary lateral capacity of the pile, whichever is deeper. All loose materials should be removed from the drilled shaft excavation to expose undisturbed granitic rock prior to placement of reinforcing steel and concrete by use of a clean-out bucket or other acceptable methods to ensure removal of all loose materials.

8.8.7 Due to the liquefaction of granular soils under the design seismic event, the additional axial loads on the pile foundations due to downdrag loading from post-liquefaction settlement needs to be considered in the design in the event of liquefaction. A downdrag load of 400 pounds per square foot applied as negative skin friction to the pile foundations should be applied to the length of the pile above granitic rock.

8.8.8 For non-seismic design conditions, uplift resistance of the pile foundations may be determined based on a tension load capacity applied as skin friction of 200 pounds per square foot in soil below the neglect depth. A tension load capacity applied as skin friction of 600 pounds per square foot may be applied within the rock. The weight of the pile may also be used to resist uplift.

8.8.9 For the seismic design condition, uplift resistance of the pile foundations may be determined based on skin friction within the rock of 1,000 pounds per square foot plus the weight of the pile. Uplift resistance in the soil above the rock should be neglected for seismic design.

8.8.10 For non-seismic loading conditions (wind, etc.), the passive resistance of the CIDH pile foundations below the neglect depth and extending to elevation of 75 feet AMSL may be assumed to be equal to the pressure developed by a fluid with a density of 300 pounds per cubic foot, to a maximum of 3,000 pounds per square foot. The allowable passive resistance of the CIDH pile foundations below elevation 75 feet AMSL and extending to granitic rock (estimated to be 45 feet AMSL) may be assumed to be equal to the pressure developed by a fluid with a density of 100 pounds per cubic foot, to a maximum of 1,000 pounds per square foot.

8.8.11 For seismic loading conditions, the passive resistance of the CIDH pile foundations below the neglect depth and extending to an elevation 75 feet AMSL may be assumed to be equal to the pressure developed by a fluid with a density of 200 pounds per cubic foot, to a maximum of 2,000 pounds per square foot. The allowable passive resistance of the CIDH pile foundations below elevation 75 feet AMSL to elevation 45 feet AMSL should be neglected due to liquefaction.

8.8.12 The passive pressure for drilled pile foundations spaced at a minimum of three (3) pile diameters, may be applied over a width equal to 2 pile diameters. For example, where a passive pressure of 300 pounds per cubic foot is recommended, a passive pressure of 600 pounds per cubic foot could be applied across the pile diameter.

8.8.13 Piles should be placed no closer than three pile diameters, center-to-center. For alternate spacing, the capacity of piles in groups should be reduced using appropriate group reduction formulas.

8.9 Cast-In-Drilled-Hole Pile Construction

8.9.1 It is assumed the project structural engineer will prepare a specification for the construction of the deep foundations as part of the construction documents. The specifications should be consistent with the recommendations included in this report.

8.9.2 Concrete should be placed in the drilled shaft as soon as possible following drilling.

8.9.3 The soft and very soft soils encountered have a high potential for caving during shaft drilling operations (i.e. not stand vertical). The Contractor should address these conditions by use of temporary casing or other methods which are submitted to and approved by Moore Twining. Temporary casing used for support of drilled pile excavations during construction should be slowly removed from the shaft excavation during placement of concrete while ensuring the casing is not raised above the level of the concrete during shaft construction. The bottom of the casing should be kept at least two feet below the top of the concrete to avoid sloughing soils from mixing with the concrete.

8.9.4 Casing (where used) should be able to withstand the external pressures of the caving soils. The outside diameter of the casing should not be less than the diameter of the cast-in-drilled hole concrete pile.

8.9.5 Drilled holes for pile foundations should be drilled within 2 degrees of vertical. The rebar cage should be suspended within 2 degrees of vertical in the center of the excavation. This condition should be verified and documented during construction. Minimum concrete cover, as specified by the project design engineer, should be maintained throughout the length of the excavation.

8.9.6 In the event groundwater or freewater seepage is encountered during excavation, the concrete should be placed from the bottom of the excavation by extending the tremie pipe or pump pipe to the bottom of the excavation and maintaining the outlet of the pipe below the wet concrete to prevent entrapment of freewater or slurry in the concrete. The concrete should be placed in a continuous manner to provide a seamless deep foundation element.

8.9.7 Casing should be lifted slowly as the concrete is deposited, while the bottom of the casing is kept at least two feet below the top of the concrete.

8.9.8 Moore Twining should inspect the drilling of the shafts to verify that the materials encountered are consistent with those evaluated during our geotechnical engineering investigation. This inspection should be conducted during drilling and prior to placement of reinforcing steel and concrete.

8.9.9 Loose soils (spoils) should be removed from the drilled shaft excavations prior to placement of reinforcing steel and concrete.

8.10 Deep Ground Modification for Support of Structures

As an alternative to over-excavation of the undocumented fill soils detailed in the Site Preparation Section of these recommendations for use of a shallow spread foundation systems, a ground modification program could be considered to densify the soils and provide direct support of spread foundations for structures. If these methods are used, the details of the design would be determined by the design build geotechnical engineer. The following general recommendations are provided for this alternative approach.

8.10.1 The methods of ground modification should consider the adjacent improvements, such as the presence of the track, utilities, storm drain structure, etc. The ground modification program will be required to limit ground vibrations to prevent damage to existing adjacent improvements.

8.10.2 The ground modification details should be designed by an engineer registered in the State of California experienced in using similar designs to achieve the following settlement criteria: 1) a total settlement and heave of 1 inch, and 2) a differential settlement of ½ inch in 40 feet.

8.10.3 Since alternative site preparation, foundation, and floor slab recommendations to this report may be provided by the design build geotechnical engineer, the ground modification designer/contractor should provide details plans showing the reduction in settlement for use of the deep ground improvement design. Recommendations for post-ground improvement verification shall be provided by the design build engineer. In addition, the design build engineer should maintain the professional errors and omissions insurance required by the District.

8.10.4 Any aggregate/select fill section to facilitate load transfer from shallow foundations or slabs on grade to the ground modification elements should be specified by the design build contractor.

8.10.5 The ground modification details and plans, when available, should be provided to Moore Twining for review prior to bidding and construction. The recommendations presented in this report could change depending on the details of the ground modification.

8.11 Interior Slab on Grade Construction and Vapor Retarding Membrane

8.11.1 To provide stable, uniform support of slabs-on-grade and reduce the potential for expansion related damage, it is recommended to support interior slabs on grade on at least 6 inches of non-recycled Class 2 aggregate base (AB) compacted to 95 percent of the maximum dry density as determined by ASTM D1557, over 18 inches of non-expansive fill soils, over subgrade soils prepared as recommended in the Site Preparation section of these recommendations. The AB section will reduce disturbance of the subgrade sands during construction (which are easily disturbed).

8.11.2 The slabs and underlying subgrade should be constructed in accordance with current American Concrete Institute (ACI) standards.

8.11.3 ACI recommends that the interior slab-on-grade should be placed directly on a vapor retarder when the potential exists that the underlying subgrade could be wet or saturated prior to placement of the slab-on-grade. It is recommended that Stegowrap 15 or equivalent should be used where floor coverings, such as carpet and tile, are anticipated or where moisture could permeate into the interior and create problems. The vapor retarder is not required beneath exposed concrete floors, provided that moisture intrusion into the structure is permissible for the design life of the structure. The layer of Stegowrap 15 should overlay a minimum of 6 inches of compacted non-recycled aggregate base (95 percent relative compaction). It should be noted that placing the PCC slab directly on the vapor barrier will increase the potential for cracking and curling; however, ACI recommends the placement of the vapor retarding membrane directly below the slab to reduce the amount vapor emission through the slab-on-grade. Based on discussions with Stego Industries, L.L.C., the Stegowrap can be placed directly on the AB and the concrete can be placed directly on the Stegowrap. It is recommended that the design professional obtain written confirmation from Stego Industries that this product is suitable for the specific project application. It is recommended that the slab be moist cured for a minimum of 7 days to reduce the potential for excessive cracking.

8.11.4 The underslab membrane should have a high puncture resistance (minimum of approximately 2,400 grams of puncture resistance), high abrasion resistance, rot resistant, and mildew resistant. It is recommended that the membrane be selected in accordance with ASTM C 755, Standard Practice For Selection of Vapor Retarder For Thermal Insulation and conform to ASTM E 154 Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Waters, or as Ground Cover. It is recommended that the vapor barrier selection and installation conform to the ACI Manual of Concrete Practice, Guide for Concrete Floor and Slab Construction (302.1R), Addendum, Vapor Retarder Location and ASTM E 1643, Standard Practice for Installation of Water Vapor Retarders Used In Contact with Earth or Granular Fill Under Concrete Slabs. In addition, it is recommended that the manufacturer of the floor covering and floor covering adhesive be consulted to determine if the manufacturers have additional recommendations regarding the design and construction of the slab-on-grade, testing of the slab-on-grade, slab preparation, application of the adhesive, installation of the floor covering and maintenance requirements. It should be noted that the recommendations presented in this report are not intended to achieve a specific vapor emission rate.

8.11.5 The membrane should be installed so that there are no holes or uncovered areas. All seams should be overlapped and sealed with manufacturer approved tape continuous at the laps so they are vapor tight. All perimeter edges of the membrane, such as pipe penetrations, interior and exterior footings, joints, etc.) should be caulked per manufacturer’s recommendations.

8.11.6 Tears or punctures that may occur in the membrane should be repaired prior to placement of concrete per manufacturer's recommendations. Once repaired, the membrane should be inspected by the contractor and the owner to verify adequate compliance with manufacturer's recommendations.

8.11.7 The manufacturer's requirements vary regarding the surface and cover material around the placed membrane. Vapor retarding membranes should be installed in accordance with the manufacturers' specifications.

8.11.8 Additional measures to reduce moisture migration should be implemented for floors that will receive moisture sensitive coverings. These include: 1) constructing a less pervious concrete floor slab by maintaining a water-cement ratio of 0.52 or less in the concrete for slabs-on-grade, 2) ensuring that all seams and utility protrusions are sealed with tape to create a "water tight" moisture barrier, 3) placing concrete walkways or pavements adjacent to the structure, 4) providing adequate drainage away from the structure, 5) moist cure the slabs for at least 7 days, and 6) locating lawns, irrigated landscape areas, and flower beds away from the structure.

8.11.9 The Contractor shall test the moisture vapor transmission through the slab, the pH, internal relative humidity of the floor slab, etc., at a frequency and method as specified by the flooring manufacturer, adhesive manufacturer, underlayment manufacturer, etc. or as required by the plans and specifications, whichever is most stringent. The tests should be conducted in accordance with the applicable ASTM test methods. The results of vapor transmission tests, pH tests, internal relative humidity tests of the floor slab, ambient building conditions, etc. should be within floor manufacturer's, adhesive manufacturer's and underlayment manufacturer's specifications at the time the floor is placed. It is recommended that the floor, adhesive and underlayment manufacturers and subcontractor review and approve the test data prior to floor covering installation.

8.11.10 It should be noted that the placement and compaction of the Class 2 AB, the vapor retarding membrane installation, protection, etc., and the placement, curing, etc. of concrete should be in accordance with the project geotechnical engineering report, applicable ACI requirements, and the manufacturer's requirements.

8.11.11 If the subgrade is prepared and then disturbed by equipment workers, weather or other source, we recommend that the exposed subgrade to receive slabs be tested to verify adequate compaction. If adequate compaction is not verified, the disturbed subgrade should be over-excavated, scarified, and compacted to a minimum of 92 percent of the maximum dry density as determined by ASTM Test Method D1557. This condition should be verified prior to installation of aggregate base and prior to construction of the slabs-on-grade.

8.12 Exterior Slabs-On-Grade

The recommendations for exterior slabs provided below are not intended for use for slabs subjected to vehicular traffic, rather lightly loaded sidewalks, curbs, and planters, etc.

8.12.1 Areas to receive exterior slabs should be prepared as recommended in the "Site Preparation" recommendations section of this report. Moore Twining should observe the site preparation and conduct density testing during placement of engineered fill during grading.

8.12.2 Exterior slabs which are located directly adjacent to buildings (such as sidewalks) should be supported on 6 inches of non-recycled aggregate base over 18 inches of non-expansive fill, over subgrade soils prepared as recommended in the Site Preparation section of this report. Exterior slabs which are not located directly adjacent to buildings should be supported on 6 inches of non-recycled aggregate base over 12 inches of non-expansive fill, over subgrade soils prepared as recommended in the Site Preparation section of this report. The aggregate base will help control slab thickness during construction and reduce the potential for subgrade disturbance.

8.12.3 Since exterior sidewalks and flatwork are typically constructed at the end of the construction process, the moisture conditioning conducted during earthwork can revert to natural dry conditions. Placing aggregate base, concrete walks and finish work over dry or slightly moist subgrade should be avoided.

8.12.4 If the subgrade is prepared, and then disturbed by equipment, workers, weather or other source, we recommend that the exposed subgrade to receive slabs be tested to verify adequate compaction. If adequate compaction is not verified, the disturbed subgrade should be over-excavated, scarified, and compacted to a minimum of 92 percent of the maximum dry density as determined by ASTM Test Method D1557.

8.13 Retaining Walls

This section provides recommendations for design of site retaining walls. When final grading plans have been developed, these plans should be provided to Moore Twining for review.

8.13.1 Retaining wall plans should be reviewed by Moore Twining to evaluate the proposed construction, drainage conditions, and other design geotechnical parameters.

8.13.2 To reduce the potential for future settlement and cracking due to consolidation of undocumented fill soils and seismic settlement in the area of the former creek channel, the site retaining walls should be supported on shallow foundations reinforced considering the following settlements: 1) a total static settlement of 2 inches; 2) a differential static settlement of 1 inch in 40 feet;

3), a total heave of 1 inch and a differential heave of ½ inch in 40 feet. In addition, a total seismic settlement of 6 inches and a differential seismic settlement of 4 inches in 40 feet are anticipated for improvements in the former creek channel area under the design event.

8.13.3 It is recommended to use lighter hand operated or walk behind compaction equipment in the zone equal to one wall height behind retaining walls to reduce the potential for damage to the wall during construction. Heavier compaction equipment could cause loads in excess of design loads which could result in cracking, excessive rotation, or failure of a retaining structure. The Contractor is responsible for damage to the wall caused by improper compaction methods behind the wall.

8.13.4 Site retaining walls should be constructed with a subdrain system including perforated drain pipes surrounded by at least 1 cubic foot (per lineal foot) of Caltrans Class 2 permeable material behind the wall. The Class 2 permeable material should be compacted to a minimum of 92 percent relative compaction in accordance with ASTM D1557. As an alternative to the Class 2 permeable materials, ¾ inch crushed rock backfill fully encapsulated in Mirafi 140 N filter fabric, or equivalent, may be used. The final selection of filter fabric should be as recommended by the geotextile manufacturer for the specific site conditions. Drain pipes should be placed near the wall to adequately reduce the potential for hydrostatic pressures behind the wall. Drainage should be directed to pipes which gravity drain to closed pipes of the storm drain or subdrain system. Drain pipe outlet invert elevations should be sufficient (a bypass should be constructed if necessary) to preclude hydrostatic surcharge to the wall in the event the storm drain system did not function properly. Clean out and inspection points should be incorporated into the drain system. Drainage should be directed to the site storm drain system. The drainage system should be designed by the wall designer and detailed on the plans.

8.13.5 If open graded materials such as crushed rock are used as drain material, these materials should be fully encased in filter fabric and compacted to a non-yielding condition under the observation of Moore Twining. These materials, if used, should be placed in maximum lifts of 6 inches and compacted using vibratory equipment.

8.13.6 Waterproofing measures should be applied as determined by the design professional. Waterproofing should also be used if effervescence (discoloration of wall face) is not acceptable. The waterproofing system should be designed by a qualified professional.

8.13.7 **None of the data included in this report should be used for mechanically stabilized earth (MSE) wall design.** A design level geotechnical report should be conducted to provide wall design parameters for these types of walls, if any are planned. If the designer uses the data in this report for wall design, the designer assumes the sole risk for this data. The wall designer should perform sufficient observations of the wall construction to certify that the wall was constructed in accordance with the design plans and specifications.

8.13.8 The at-rest pressure should be used in determining lateral earth pressures against site walls which are not free to deflect. For walls which are free to deflect at least one percent of the wall height at the top, the active earth pressure may be used. The wall designer should apply the appropriate surcharges to the wall for design.

8.13.9 Site walls with level backfill consisting of **on-site soils**, and with drainage in accordance with this report section, backfill earth active pressures may be assumed to be equal to the pressures developed by fluid with densities of 53 and 85 pounds per cubic foot for level backfill and backfill slopes up to as steep as 2H to 1V, respectively. These values do not include seismic earth pressure.

8.13.10 Site walls with level backfill consisting of **imported granular soils backfill above a 1H to 1V plane extending up from the bottom of the wall** (see Section 8.5.4), and with drainage in accordance with this report section, backfill earth active pressures may be assumed to be equal to the pressures developed by fluid with densities of 40 and 59 pounds per cubic foot for level backfill and backfill slopes up to as steep as 2H to 1V, respectively. These values do not include seismic earth pressure.

8.13.11 The wall designer should determine if seismic increments are required. If seismic increments are required, Moore Twining should be contacted for recommendations for seismic geotechnical design considerations for the retaining structures.

8.13.12 The bottom surface area of concrete footings in direct contact with engineered fill can be used to resist lateral loads. An allowable coefficient of friction of 0.30, can be used for design. The allowable passive resistance of the engineered fill below a depth of 6 inches may be assumed to be equal to the pressure developed by a fluid with a density of 250 pounds per cubic foot. The upper 6 inches should be neglected in design.

8.13.13 Since the pressures recommended in this section do not include surcharges, it is recommended to use lighter hand operated or walk behind compaction equipment to avoid wall damage during construction. Heavier compaction equipment could cause loads in excess of design loads which could result in cracking, excessive rotation, or failure of a retaining structure.

8.14 Asphaltic Concrete (AC) Pavements

The following recommendations are provided for asphaltic concrete pavements anticipated in area of the building and athletic field.

8.14.1 The subgrade soils for asphaltic concrete pavements should be over-excavated and compacted as recommended in the "Site Preparation" section of the recommendations in this report.

8.14.2 An R-value of 7 was determined based on testing of the near surface soils. The structural sections provided in these recommendations were designed using the gravel equivalent method in accordance with the California Department of Transportation Highway Design Manual. The analysis was based on typical traffic index values ranging from 5.0 to 7.0. The appropriate paving section should be determined by the project civil engineer or applicable design professional based on the actual vehicle loading (traffic index) values. If traffic loading is anticipated to be greater than assumed, the pavement sections should be re-evaluated.

8.14.3 The following pavement sections are based on a design R-value of 7, a minimum asphalt concrete section of 3 inches and traffic index values ranging from 5.0 to 7.0.

TABLE No. 4
Asphaltic Concrete Pavement Sections

Traffic Index	AC thickness, inches	AB thickness, inches	Compacted Subgrade, inches
5.0	3.0	9.5	12
5.5	3.0	11.5	12
6.0	3.0	13.0	12
6.5	3.5	14.0	12
7.0	4.0	15.0	12

AC - Asphaltic Concrete should be compacted as recommended in the Site Preparation section of this report

AB - Class II Aggregate Base with minimum R-value of 78 and compacted to at least 95 percent relative compaction (ASTM D1557)

Subgrade - Subgrade soils compacted to at least 95 percent relative compaction (ASTM D1557)

8.14.4 It should be noted that if pavements are constructed prior to the building construction, the traffic index value should account for construction traffic.

8.14.5 The curbs where pavements meet irrigated landscape areas or uncovered open areas should be extended to the bottom of the aggregate base section. This should reduce subgrade moisture from irrigation and runoff from migrating into the base section and reducing the life of the pavements.

8.14.6 If the paved areas are to be used during construction, or if the type and frequency of traffic are greater than assumed in design, the pavement sections should be re-evaluated for the anticipated traffic.

8.14.7 Pavement section design assumes that proper maintenance, such as sealing and repair of localized distress, will be performed on an as needed basis for longevity and safety.

8.14.8 Pavement materials and construction method should conform to the 2018 Caltrans Standard Specifications.

8.14.9 It is recommended that the asphaltic concrete consist of a ¾ inch maximum medium gradation. The top course or wear course (if used) should consist of a ½ inch maximum medium gradation.

8.14.10 The asphaltic concrete, including the joint density, should be compacted to an average relative compaction of 93 percent, with no single test value being below a relative compaction of 91 percent and no single test value being above a relative compaction of 97 percent of the referenced laboratory density according to ASTM D2041.

8.14.11 The asphalt concrete should comply with the requirements for a Type A asphalt concrete as described in Section 39 of the 2018 State of California Department of Transportation (Caltrans) standard specifications, or the requirements of the governing agency, whichever is most stringent.

8.15 Portland Cement Concrete (PCC) Pavements

Recommendations for Portland Cement Concrete pavement structural section thickness have been prepared. The structural section was based primarily on the Portland Cement Association's "Thickness Design of Highway and Street Pavements." PCC pavement sections are provided based on an average daily truck traffic value of one (1) garbage truck per day and (1) garbage truck per week. We assumed an axial load of one 20 kip single axle load and one 35 kip tandem axial load per truck. This traffic loading approximately equates to equivalent single axle loads (ESALs) of 3,200 and 21,400 for a design life of 20 years. If traffic loading is anticipated to be greater than assumed, the pavement sections should be re-evaluated.

The PCC pavement sections were designed for a minimum flexural strength (modulus of rupture) of 500 pounds per square inch (assuming a minimum 3,500 psi concrete), a minimum life of 20 years, a concrete shoulder, and load transfer by aggregate interlock, dowels, or reinforcing bar.

The results of R-value testing were used to estimate the pavement subgrade modulus. A modulus of subgrade reaction, K-value, for the pavement section, of 120 psi/in was used for the pavement design based on the native subgrade overlain by 6 inches of aggregate base and 12 inches of granular soil (EI<10) below the aggregate base. Joints should be detailed on the plans.

8.15.1 The subgrade soils for Portland cement concrete pavements should be over-excavated and compacted as recommended in the "Site Preparation" section of the recommendations in this report. The PCC pavements should be underlain by 6 inches of aggregate base, underlain by 12 inches of granular soil (EI<10) below the aggregate base. The moisture content and the relative compaction of the subgrade soils should be confirmed in writing by in-situ moisture tests and density tests just prior (within 48 hours) to placement of the aggregate base. The Contractor should obtain written confirmation of in-situ moisture density test results from Moore Twining prior to placing the aggregate base (or pouring the slab). The PCC pavement sections in Table No. 5 are provided considering the recommended subgrade preparation.

TABLE No. 5
Portland Cement Concrete Pavement Section Thicknesses

ADTT (Truck/day)	PCC thickness (inches)	Aggregate Base[1] (inches)	Imported Granular Soil (EI<10)	Compacted Subgrade[2] (inches)
0.15	6.5	6.0	12.0	12.0
1.0	7.0	6.0	12.0	12.0

1 - Caltrans Class 2 Aggregate Base compacted to at least 95 percent relative compaction (ASTM D-1557)

2 - Subgrade granular soils (EI<10) compacted to at least 95 percent relative compaction (ASTM D-1557), underlain by subgrade soils compacted to at least 92 percent relative compaction (ASTM D-1557).

8.15.2 The PCC pavement should be constructed in accordance with American Concrete Institute requirements or the requirements of the project plans and specifications, whichever is the most stringent. The pavement design engineer should include appropriate construction details and specifications for construction joints, contraction joints, joint filler, concrete specifications, curing methods, etc.

8.15.3 Other than load transfer at joints, there are no special geotechnical engineering design requirements for reinforcement of exterior concrete slabs. However, the use of temperature and shrinkage steel may be desirable to reduce the potential for shrinkage cracking in areas of PCC paving which are also used as paths of travel for pedestrians. The final design details and specifications should be determined by the applicable design consultant.

8.15.4 Concrete used for PCC pavements shall possess a minimum flexural strength (modulus of rupture) of 500 pounds per square inch. A minimum compressive strength of 3,500 pounds per square inch, or greater as required by the pavement designer, is recommended. Specifications for the concrete to reduce the effects of excessive shrinkage, such as maximum water requirements for the concrete mix, allowable shrinkage limits, contraction joint construction requirements, curing methods, etc. should be provided by the designer of the PCC slabs.

8.15.5 The pavement section thickness design provided above assumes the design and construction will include sufficient load transfer at construction joints. The joint details should be detailed by the pavement design engineer and provided on the plans.

8.15.6 Exposed contraction and construction joints should include a joint filler/sealer to prevent migration of water into the subgrade soils. The type of joint filler should be specified by the pavement designer. The joint sealer and filler material should be maintained throughout the life of the pavement.

8.15.7 Contraction joints should have a depth of at least one-fourth the slab thickness, e.g., 1.5-inch for a 6-inch slab. Specifications for contraction joint spacing, timing and depth of sawcuts should be included in the plans and specifications.

8.15.8 Stresses are anticipated to be greater at the edges and construction joints of the pavement section. A thickened edge is recommended on the outside of slabs subjected to wheel loads.

8.15.9 Joint spacing should be in accordance with an accepted standard such as the ACI Concrete Manual of Concrete Practice. Regardless of slab thickness, joint spacing should not exceed 15 feet.

8.15.10 Lay out joints to form square panels. When this is not practical, rectangular panels can be used if the long dimension is no more than 1.5 times the short.

8.15.11 Isolation (expansion) joints should extend the full depth and should be used only to isolate fixed objects abutting or within paved areas.

8.15.12 Pavement section design assumes that proper maintenance such as sealing and repair of localized distress will be performed on a periodic basis.

8.16 Temporary Excavations and Shoring

8.16.1 It is the responsibility of the Contractor to provide safe working conditions with respect to excavation slope stability. The Contractor is responsible for site slope safety, and classification of materials for excavation purposes, and maintaining slopes in a safe manner during construction. The grades classification and height recommendations presented for temporary slopes are for consideration in preparing budget estimates and evaluating construction procedures. Temporary excavations should be constructed in accordance with CAL OSHA requirements.

8.16.2 In no case should non-shored excavations extend below a 2H to 1V zone below existing foundations, floor slabs or utilities which are to be protected or remain after construction. Excavations which are required to be advanced below the 2H to 1V envelope, should be supported by continuous engineered shoring.

8.16.3 Excavation and construction activities shall be performed to limit disturbance to the adjacent soils. Where soil disturbance occurs, disturbed soils should be over-excavated and compacted as engineered fill, or replaced with a controlled density fill with a minimum of two sacks of cement per cubic yard.

8.16.4 Excavation stability should be monitored by the Contractor. Slope gradient estimates provided in this report do not relieve the Contractor of the responsibility for excavation safety. In the event that tension cracks or distress to the structure occurs, during or after excavation, the owners and Moore Twining should be notified immediately and the Contractor should take appropriate actions to minimize further damage or injury.

8.17 Corrosion Protection

8.17.1 Based on the National Association of Corrosion Engineers (NACE) corrosion severity ratings and the analytical results of soil samples, the soils are “highly corrosive” to ferrous alloy pipes, as indicated by a resistivity values of 1,601 and 1,801 ohm-centimeter and pH values of 7.5 and 7.5. Buried metal objects should be protected in accordance with the manufacturer’s recommendations based on the “highly corrosive” corrosion potential of the soil. The evaluation was limited to the effects of soils to metal objects; corrosion due to other potential sources, such as stray currents and groundwater, was not evaluated.

8.17.2 Corrosion of concrete due to sulfate attack is “negligible” as indicated by the a 0.0026 and 0.0021 percent by weight concentrations of sulfate. According to the California Building Code, the concentration of sulfates

falls in the negligible classification (0.00 to 0.10 percent by weight) for concrete. Therefore, restrictions are not required regarding the type, water-to-cement ratio, or strength of the concrete used for foundation and slabs due to the sulfate content. However, a low water to cement ratio of 0.52 lb./lb. or less in the concrete for slabs-on-grade is recommended to reduce the potential for shrinkage cracking and curling of slabs.

8.17.3 These soil corrosion data should be provided to the manufacturers or suppliers of materials that will be in contact with soils (pipes or ferrous metal objects, etc.) to provide assistance in selecting the protection and materials for the proposed products or materials. If the manufacturers or suppliers cannot determine if materials are compatible with the soil corrosion conditions, a professional consultant, i.e., a corrosion engineer, with experience in corrosion protection should be consulted to design parameters. Moore Twining is not a corrosion engineer; thus, we do not provide recommendations for mitigation of corrosive soil conditions. It is recommended that a corrosion engineer be consulted for the site specific conditions.

9.0 DESIGN CONSULTATION

9.1 Moore Twining should be retained to review those portions of the contract drawings and specifications that pertain to earthwork and foundations prior to finalization to determine whether they are consistent with our recommendations. This service is not part of this current contractual agreement.

9.2 If Moore Twining is not retained for review, we assume no liability for the misinterpretation of our conclusions and recommendations. This review is documented by a formal plan/specification review report provided by Moore Twining.

9.3 It is the client's responsibility to provide plans and specification documents for our review prior to their issuance for construction bidding purposes.

10.0 CONSTRUCTION MONITORING

10.1 It is recommended that Moore Twining be retained to observe the excavation, earthwork, and foundation phases of work to determine that the subsurface conditions are compatible with those used in the analysis and design. This service is not, however, part of this current contractual agreement.

11.0 NOTIFICATION AND LIMITATIONS

11.1 The conclusions and recommendations presented in this report are based on the information provided regarding the proposed construction, and the results of the field and laboratory investigation, combined with interpolation of the subsurface conditions.

11.2 If variations or undesirable conditions are encountered during construction, Moore Twining should be notified promptly so that these conditions can be reviewed and our recommendations reconsidered where necessary. It should be noted that unexpected conditions frequently require additional expenditures for proper construction of the project.

11.3 If the proposed construction is relocated or redesigned, or if there is a substantial lapse of time between the submission of our report and the start of work (more than 12 months) at the site, or if conditions have changed due to natural cause or construction operations at or adjacent to the site, the conclusions and recommendations contained in this report should be considered invalid unless the changes are reviewed and our conclusions and recommendations modified or approved in writing.

11.4 Changed site conditions, or relocation of proposed structure(s), may require additional field and laboratory investigations to determine if our conclusions and recommendations are applicable considering the changed conditions or time lapse.

11.5 The conclusions and recommendations contained in this report are valid only for the project discussed in the Anticipated Construction section of this report. The use of the information and recommendations contained in this report for structure on this site not discussed herein is not recommended. The entity or entities that use or cause to use this report or any portion thereof for another structure or site not covered by this report shall hold Moore Twining, its officers and employees harmless from any and all claims and provide Moore Twining's defense in the event of a claim.

11.6 This report is issued with the understanding that it is the responsibility of the client to transmit the information and recommendations of this report to developers, owners, buyers, architects, engineers, designers, contractors, subcontractors, and other parties having interest in the project so that the steps necessary to carry out these recommendations in the design, construction and maintenance of the project are taken by the appropriate party.

11.7 This report presents the results of a geotechnical engineering investigation only and should not be construed as an environmental audit or study.

11.8 Our professional services were performed, our findings obtained, and our recommendations prepared in accordance with generally-accepted engineering principles and practices. This warranty is in lieu of all other warranties either expressed or implied.

11.9 Reliance on this report by a third party (i.e., that is not a party to our written agreement) is at the party's sole risk. If the project and/or site are purchased by another party, the purchaser must obtain written authorization and sign an agreement with Moore Twining in order to rely upon the information provided in this report for design or construction of the project.

12.0 CLOSING

We appreciate the opportunity to be of service to Monterey Peninsula Unified School District. If you have any questions regarding this report, or if we can be of further assistance, please contact us at your convenience.

Sincerely,

MOORE TWINING ASSOCIATES, INC.
Geotechnical Engineering Division

DRAFT

Kenneth J. Clark, CEG
Senior Engineering Geologist

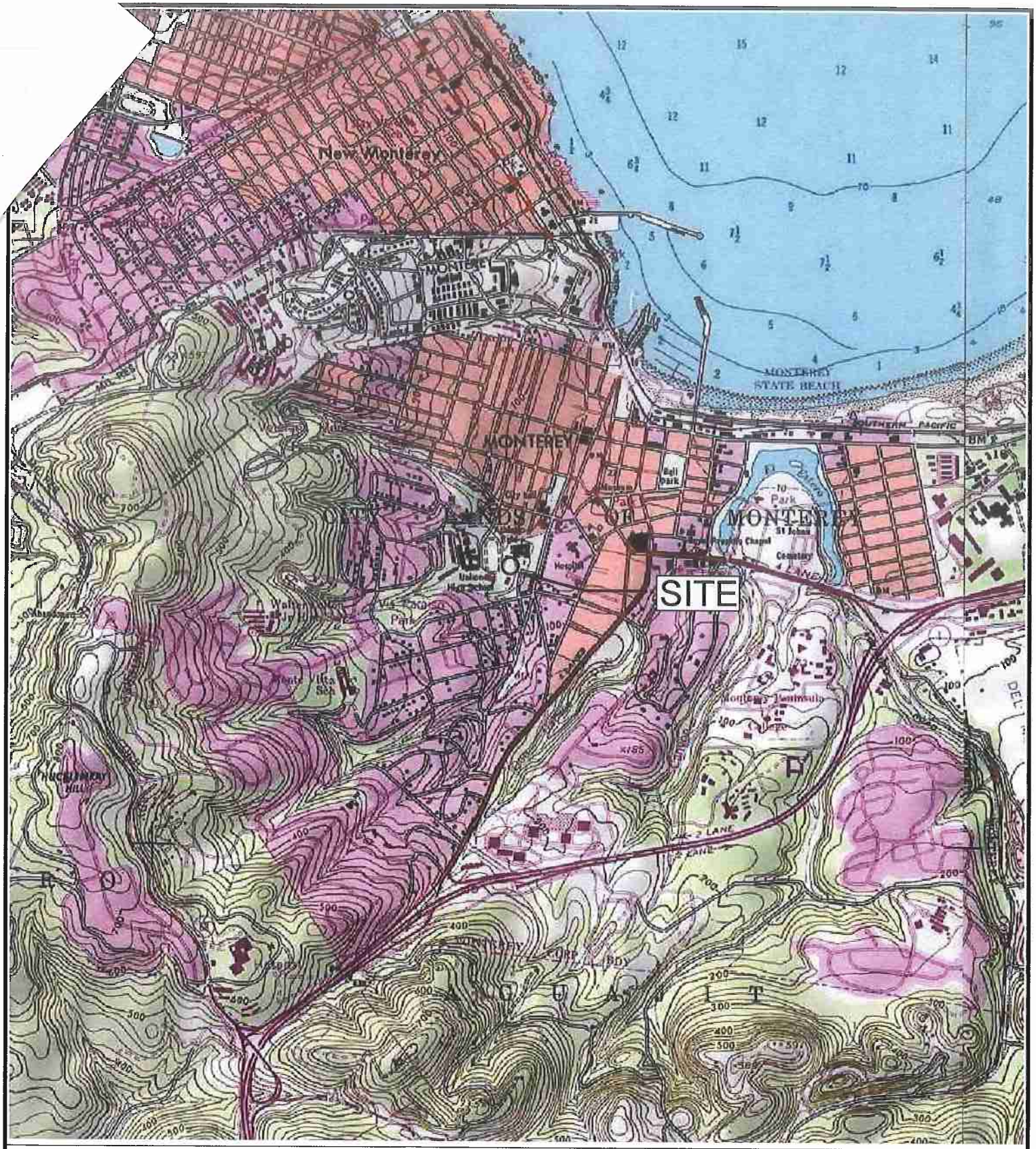
DRAFT

Read L. Andersen, RGE
Manager

APPENDIX A

DRAWINGS

Drawing No. 1 - Site Location Map
Drawing No. 2 - Test Boring Location Map
Drawing No. 3 - Cross Section A-A’
Drawing No. 4 - Cross Section B-B’



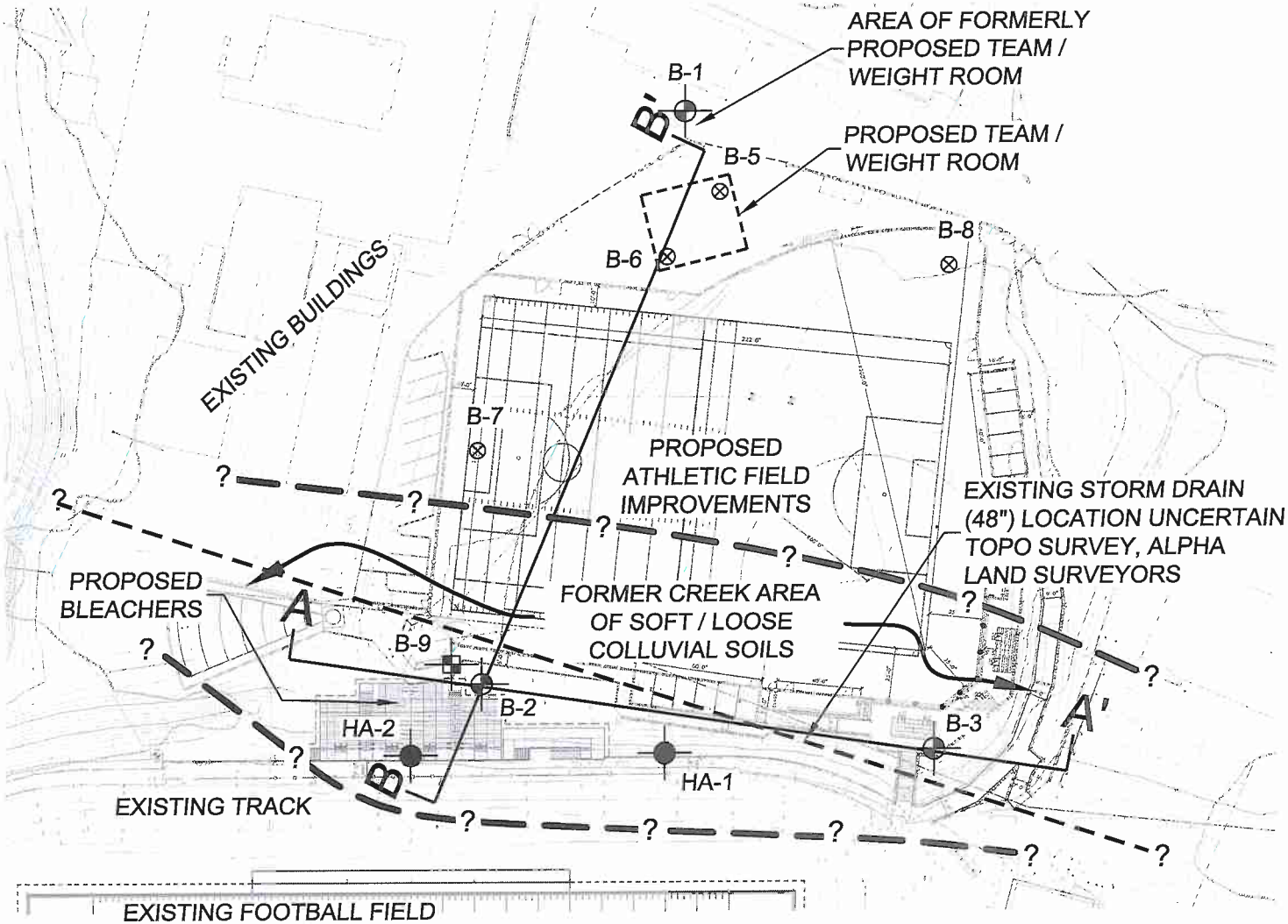
SOURCE: U.S.G.S. TOPOGRAPHIC MAP, 7 ½ MINUTE SERIES
MONTEREY, CALIFORNIA QUADRANGLE 1978, PHOTOREVISED 1983

0 2000
APPROXIMATE SCALE
IN FEET

SITE LOCATION MAP
PROPOSED ATHLETIC FACILITY IMPROVEMENTS
MONTEREY HIGH SCHOOL
101 HERMANN DRIVE
MONTEREY, CALIFORNIA

FILE NO.:	DATE:
81201-05-01	05/13/19
DRAWN BY: RM	APPROVED BY:
PROJECT NO. E81201.05	DRAWING NO. 1

MOORE TWINING ASSOCIATES, INC.



ROUGH ESTIMATED AREA OF LOOSE AND SOFT CREEK CHANNEL COLLUVIAL SOILS

A A' APPROXIMATE LOCATION OF CROSS-SECTION (SEE DRAWINGS NO. 3 & 4)

NOTE: BORING B-4 (NOT SHOWN) IS LOCATED ABOUT 350 WEST OF HA-2

APPROXIMATE TEST BORING LOCATION DRILLED MAY 20, 2019

APPROXIMATE TEST BORING LOCATION DRILLED MAY 13, 2019

APPROXIMATE TEST BORING LOCATION DRILLED OCTOBER 10, 2018

APPROXIMATE HAND AUGER LOCATION DRILLED OCTOBER 10, 2018

N

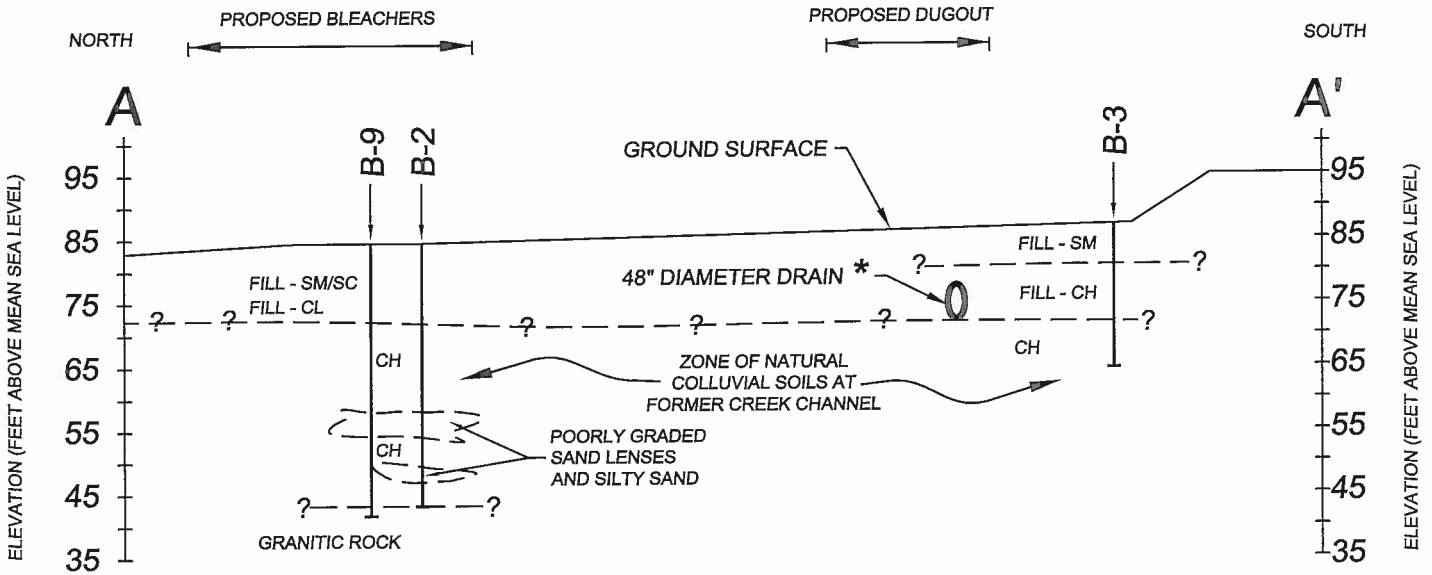
0 80

APPROXIMATE SCALE IN MILES

TEST BORING LOCATION MAP
PROPOSED ATHLETIC FACILITY IMPROVEMENTS
MONTEREY HIGH SCHOOL
101 HERMANN DRIVE
MONTEREY, CALIFORNIA

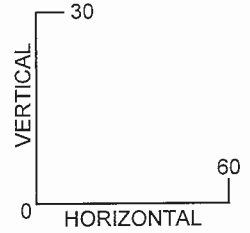
FILE NO. 81201-05-02	DATE DRAWN: 05/13/19
DRAWN BY: RM	APPROVED BY:
PROJECT NO. E81201.05	DRAWING NO. 2

MOORE TWINING ASSOCIATES, INC.



* ROUGH ESTIMATED LOCATION OF STORM DRAIN (APPROXIMATE)

FILL:	UNDOCUMENTED FILL SOIL
SM:	SILTY SAND
SC:	CLAYEY SAND
CH:	SANDY FAT CLAY
CL:	SANDY LEAN CLAY
GRANTIC ROCK:	CRETACEOUS GRANODIONITE

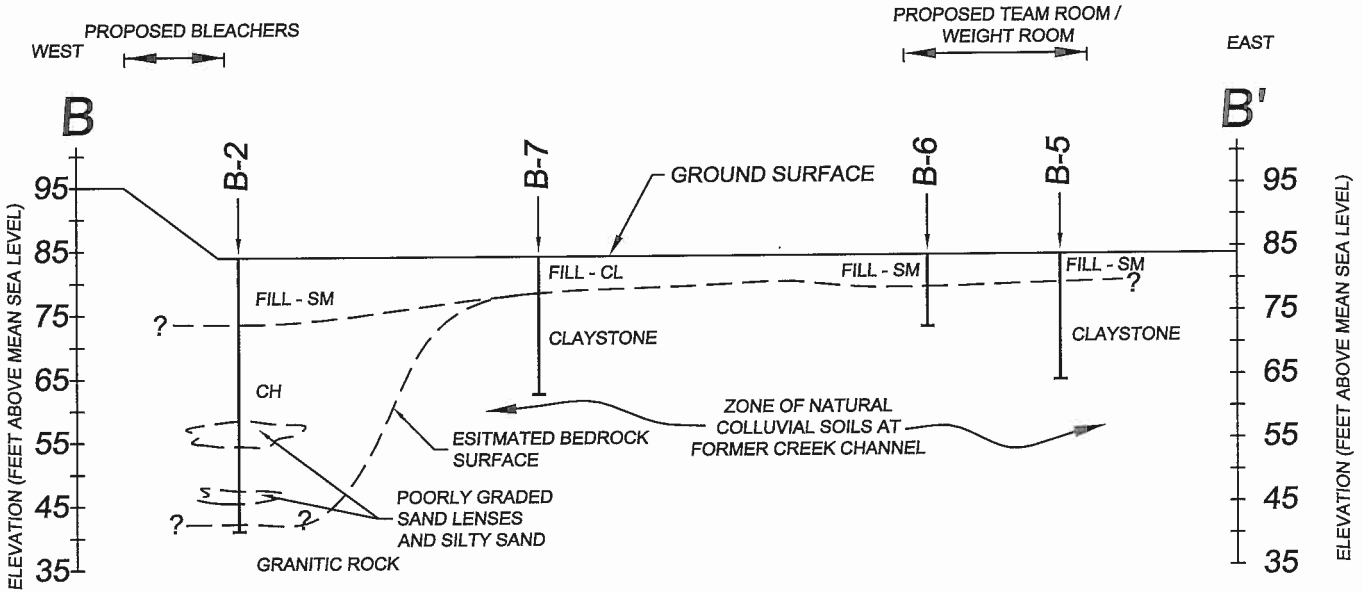


APPROXIMATE SCALE IN FEET

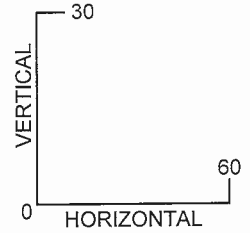
CROSS SECTION A-A'
PROPOSED ATHLETIC FACILITY IMPROVEMENTS
MONTEREY HIGH SCHOOL
101 HERMANN DRIVE
MONTEREY, CALIFORNIA

FILE NO. 81201-05-02	DATE DRAWN: 05/22/19
DRAWN BY: RM	APPROVED BY:
PROJECT NO. E81201.05	DRAWING NO. 3

MOORE TWINING ASSOCIATES, INC.



FILL:	UNDOCUMENTED FILL SOIL
SM:	SILTY SAND
SC:	CLAYEY SAND
CH:	SANDY FAT CLAY
CL:	SANDY LEAN CLAY
CLAYSTONE:	MIOCENE MONTEREY FORMATION
GRANTIC ROCK:	CRETACEOUS GRANODIONITE



APPROXIMATE SCALE IN FEET

CROSS SECTION B-B'
PROPOSED ATHLETIC FACILITY IMPROVEMENTS
MONTEREY HIGH SCHOOL
101 HERMANN DRIVE
MONTEREY, CALIFORNIA

FILE NO. 81201-05-02	DATE DRAWN: 05/22/19
DRAWN BY: RM	APPROVED BY:
PROJECT NO. E81201.05	DRAWING NO. 4

MOORE TWINING ASSOCIATES, INC.

APPENDIX B

LOG OF TEST BORINGS

This appendix contains the final boring logs. The logs represents our interpretation of the contents of the field logs and the results of the field and laboratory tests.

The logs and related information depict subsurface conditions only at these locations and at the particular time designated on the logs. Soil conditions at other locations may differ from conditions occurring at the test boring locations. Also, the passage of time may result in changes in the soil conditions.

In addition, an explanation of the abbreviations used in the preparation of the logs and a description of the Unified Soil Classification System are provided at the end of Appendix B.

MOORE TWINING ASSOCIATES, INC.

Test Boring: B-1

Project: Proposed Athletic Field Improvements

Project Number: E81201.05

Drilled By: JT

Drill Type: CME-75

Auger Type: 6-5/8 hollow stem

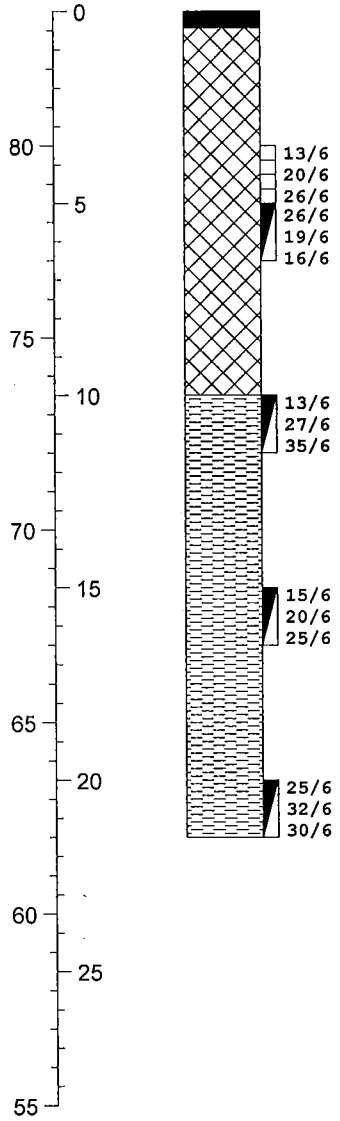
Hammer Type: 140 lb auto-trip

Logged By: JC

Date: October 10, 2018

Elevation: 83.5 feet AMSL (Approx.)

Depth to Groundwater First Encountered During Drilling: N/E



ELEVATION/ DEPTH (feet)	USCS	Soil Description	Remarks	N-Values blows/ft.	Moisture Content %
		AC=3.75 inches over 1 inch of AB			
	FILL	FILL: Sandy Lean Clay: moist, high plasticity, light brown, trace gravel, trace asphalt and brick debris	At 2 to 4' BSG: -#200=69.8% SAND=30.0% +#4=0.2% EI=78		
		hard: moist, iron oxide staining	SR=1,801 ohm-cm	46	6.3
		Crushed rock debris, dark brown and light brown	SS=0.0026% CL=0.00073% pH=7.5 R=8 LL=50 PI=27 DD=124.6 pcf	35	10.3
	ROCK	Siltstone-(Silty Sand): very dense, moist, trace of clay, brown, iron oxide staining, weak cementation		62	10.4
		Siltstone (Lean Clay): hard, very moist, low plasticity, dark brown, iron oxide staining		45	
		dark gray to black		62	
		Bottom of boring at 21.5 feet BSG			

Notes: *Boring B-1 drilled at formerly proposed location for team room/weight room.*

Figure Number

MOORE TWINING ASSOCIATES, INC.

Test Boring: B-2

Project: Proposed Athletic Field Improvements

Project Number: E81201.05

Drilled By: JT

Drill Type: CME-75

Auger Type: 6-5/8 hollow stem

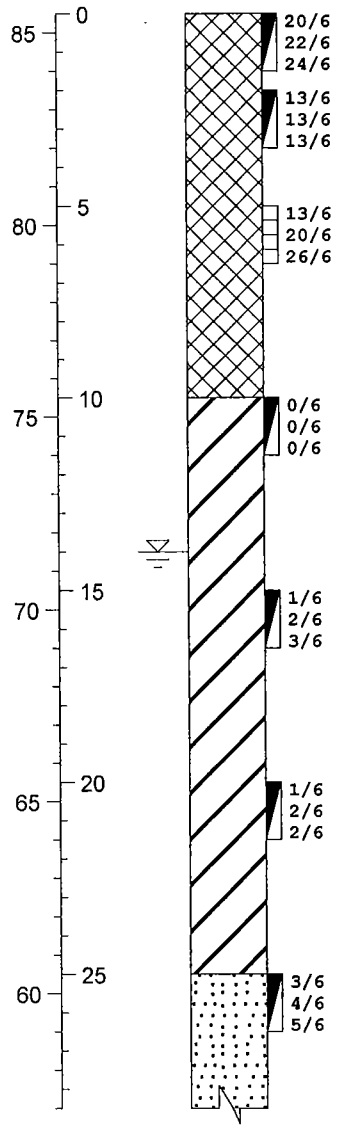
Hammer Type: 140 lb auto-trip

Logged By: JC

Date: October 10, 2018

Elevation: 85.5 feet AMSL (Approx.)

Depth to Groundwater First Encountered During Drilling: 14 feet BSG



ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	Remarks	N-Values blows/ft.	Moisture Content %
		FILL	FILL: Silty Sand: dense, damp, fine grained, gray, trace gravel		46	3.2
			medium dense, light brown		26	5.2
			moist, dark brown, with clay	DD=109.6 pcf	46	11.1
		CH	Sandy Fat Clay: very soft, very moist, high plasticity, black, with rootlets	LL=53 PI=30	0	12.1
			medium stiff, 2 inch thick silty sand lense, wet		5	
			soft		4	
		SP	Poorly Graded Sand, loose, wet, fine grained, black		9	

Notes:

Figure Number

MOORE TWINING ASSOCIATES, INC.

Test Boring: B-2

Project: Proposed Athletic Field Improvements

Project Number: E81201.05

Drilled By: JT

Drill Type: CME-75

Auger Type: 6-5/8 hollow stem

Hammer Type: 140 lb auto-trip

Logged By: JC

Date: October 10, 2018

Elevation: 85.5 feet AMSL (Approx.)

Depth to Groundwater First Encountered During Drilling: 14 feet BSG

ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	Remarks	N-Values blows/ft.	Moisture Content %
55 / 30	1/6, 1/6, 1/6	CH	Sandy Fat Clay: very soft, wet, high plasticity	LL=53 PI=30	2	
50 / 35	2/6, 1/6, 1/6	SP	Poorly Graded Sand: very loose, wet, fine-grained, dark gray/black	AT 35 to 36' BSG: -#200=66.7% SAND=32.9% +#4=0.4%	2	
45 / 40	50/4	ROCK	Granitic Rock, very dense, white to light green			
			Drilling refusal at 41 feet BSG			
40 / 45						
35 / 50						
30 / 55						

Notes:

Figure Number

MOORE TWINING ASSOCIATES, INC.

Test Boring: B-3

Project: Proposed Athletic Field Improvements

Project Number: E81201.05

Drilled By: JT

Drill Type: CME-75

Auger Type: 6-5/8 hollow stem

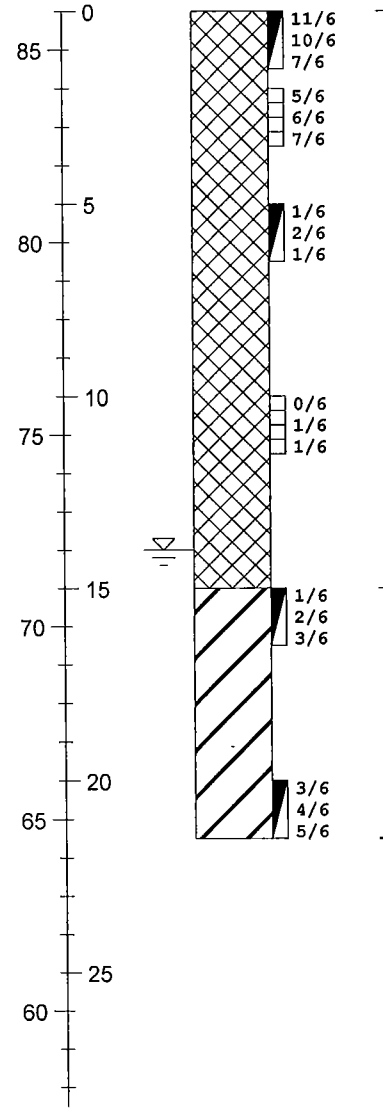
Hammer Type: 140 lb auto-trip

Logged By: JC

Date: October 10, 2018

Elevation: 86.0 feet AMSL (Approx.)

Depth to Groundwater First Encountered During Drilling: 14 feet BSG



ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	Remarks	N-Values blows/ft.	Moisture Content %
		FILL	FILL: Silty Sand: medium dense, damp, fine grained, brown		17	2.5
			small clods of clay within the silty sand matrix	DD=111.8 pcf	13	6.8
		FILL	FILL: Sandy Fat Clay: soft moist, high plasticity, dark brown, iron oxide staining		3	9.5
			light gray to black with trace of gravel		2	10.7
		CH	Sandy Fat Clay: medium stiff, wet, black, small pieces of wood debris		5	13.6
			stiff		9	
			Bottom of boring at 21.5 feet BSG			

Notes:

Figure Number

MOORE TWINING ASSOCIATES, INC.

Test Boring: B-4

Project: Proposed Athletic Field Improvements

Project Number: E81201.05

Drilled By: JT

Drill Type: CME-75

Auger Type: 6-5/8 hollow stem

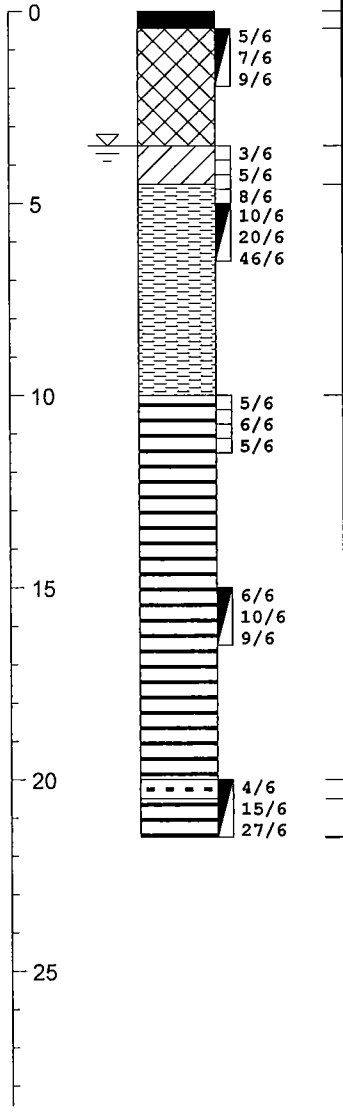
Hammer Type: 140 lb auto-trip

Logged By: JC

Date: October 10, 2018

Elevation: N/A

Depth to Groundwater First Encountered During Drilling: 3.5 feet BSG*



ELEVATION/ DEPTH (feet)	USCS	Soil Description	Remarks	N-Values blows/ft.	Moisture Content %
	FILL	AC=2.5 inches over 3 inch of AB	At 2 to 4' BSG: EI=67 SR=1,601 ohm-cm SS=0.0012% Cl=0.0036% pH=7.5 R=7 DD=114.1 pcf	16	1.4
		Silty Sand: medium dense, damp, fine grained, brown, with clay clods in matrix of silty sand			
	CL	Sandy Lean Clay: stiff, moist,		13	7.1
	ROCK	medium plasticity, dark brown (outside of sampler was wet*)		66	11.3
		Siltstone (Silty Sand): very dense, moist, fine grained, light brown, low fines content, weak cementation			
	ROCK	Claystone (Sandy Lean CLay): stiff, moist, high plasticity, brown, iron oxide staining		11	11.7
		very stiff		19	12.2
	ROCK	Sandstone, dense		42	13.0
	ROCK	Claystone, hard, low plasticity, brown			13.8
		Bottom of boring at 21.5 feet BSG			

Notes: ** Trace of perched water at 3.5 feet BSG. Boring B-4 located at formerly proposed press box location, on the west side of the existing stadium.*

Figure Number

MOORE TWINING ASSOCIATES, INC.

Test Boring: HA-1

Project: Proposed Athletic Field Improvements

Project Number: E81201.05

Drilled By: JT

Drill Type: CME-75

Auger Type: 6-5/8 hollow stem

Hammer Type: 140 lb auto-trip

Logged By: JC

Date: October 10, 2018

Elevation: 95 feet AMSL (Approx.)

Depth to Groundwater First Encountered During Drilling: N/E

ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	Remarks	N-Values blows/ft.	Moisture Content %
95 / 0		FILL	FILL: Silty Sand: damp, fine grained, brown, moderate resistance to hand auger drilling moist At 2': Trace of gravel, with clay At 3':Black/dark brown with small wood debris fragments At 4': FILL: Sandy Lean Clay: moist, medium plasticity, dark brown, trace of gravel and wood debris			
90 / 5			Hand auger refusal at 4.5 feet BSG			
85 / 10						
80 / 15						
75 / 20						
70 / 25						

Notes:

Figure Number

MOORE TWINING ASSOCIATES, INC.

Test Boring: HA-2

Project: Proposed Athletic Field Improvements

Project Number: E81201.05

Drilled By: JT

Drill Type: CME-75

Auger Type: 6-5/8 hollow stem

Hammer Type: 140 lb auto-trip

Logged By: JC

Date: October 10, 2018

Elevation: 95 feet AMSL (Approx.)

Depth to Groundwater First Encountered During Drilling: N/E

ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	Remarks	N-Values blows/ft.	Moisture Content %
95 — 0		FILL	FILL: Silty Sand: damp, fine grained, brown, moderate resistance to hand auger drilling, trace of gravel At 1.5': moist At 2.5': light brown, with clay clods in matrix of silty sand			
90 — 5			Hand auger refusal at 2.6 feet BSG			
85 — 10						
80 — 15						
75 — 20						
70 — 25						

Notes:

Figure Number

MOORE TWINING ASSOCIATES, INC.

Test Boring: B-5

Project: Proposed Athletic Field Improvements

Project Number: E81201.05

Drilled By: JC

Drill Type: CME-75

Auger Type: 6-5/8 hollow stem

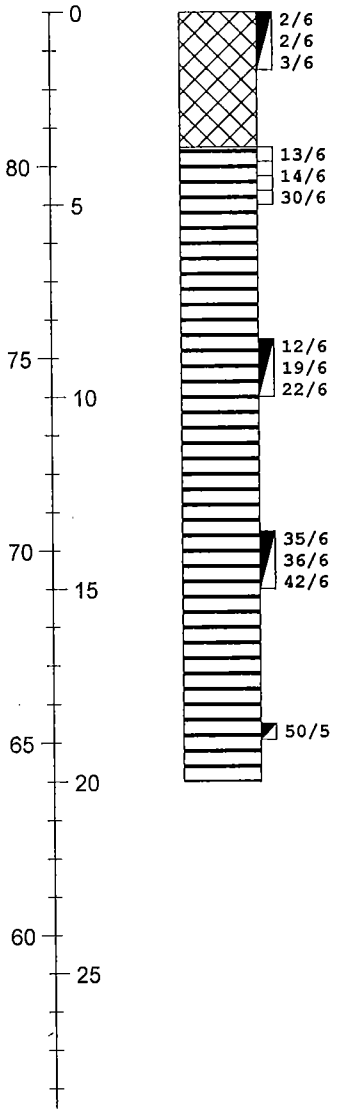
Hammer Type: 140 lb auto-trip

Logged By: JC

Date: May 13, 2019

Elevation: 84.0 feet AMSL (Approx.)

Depth to Groundwater First Encountered During Drilling: N/E



ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	Remarks	N-Values blows/ft.	Moisture Content %
		FILL	FILL: Clayey Sand: loose, moist, fine to medium grained, dark brown, trace of rootlets, trace of siltstone fragments		5	
		CL	Claystone (Sandy Lean Clay): very stiff, moist, medium plasticity, light brown to brown, trace of siltstone fragments		44	
			hard, brown with iron oxide laminations, weakly cemented		41	
			light brown to dark brown		78	
			black		>50	
			Bottom of boring at 20 feet BSG			

Notes:

Figure Number

MOORE TWINING ASSOCIATES, INC.

Test Boring: B-6

Project: Proposed Athletic Field Improvements

Project Number: E81201.05

Drilled By: JC

Drill Type: CME-75

Auger Type: 6-5/8 hollow stem

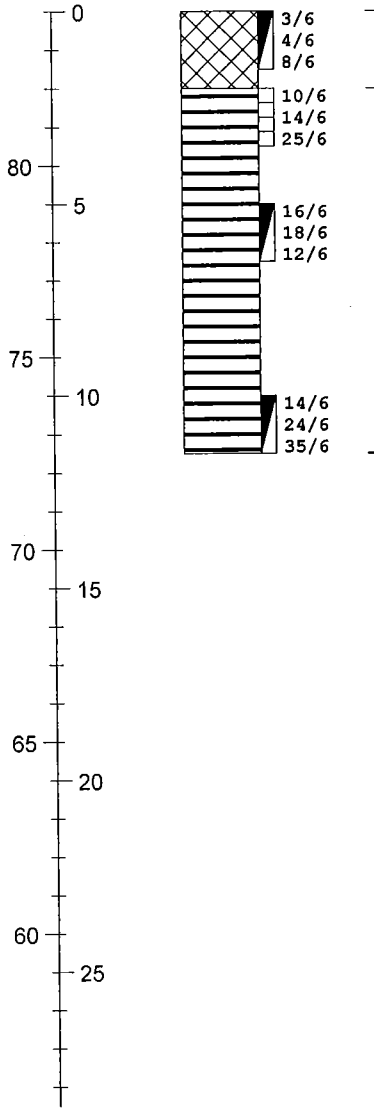
Hammer Type: 140 lb auto-trip

Logged By: JC

Date: May 13, 2019

Elevation: 84.0 feet AMSL (Approx.)

Depth to Groundwater First Encountered During Drilling: N/E



ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	Remarks	N-Values blows/ft.	Moisture Content %
		FILL	FILL: Silty Sand: medium dense, moist, fine to medium grained, dark brown, trace of rootlets		12	
		ROCK	Claystone (Sandy Lean Clay): very stiff, moist, medium plasticity, dark brown		39	
			At 5': light brown with iron oxide staining, less weathered		30	
			hard, light brown to brown		59	
			Bottom of boring at 11.5 feet BSG			

Notes:

Figure Number

MOORE TWINING ASSOCIATES, INC.

Test Boring: B-7

Project: Proposed Athletic Field Improvements

Project Number: E81201.05

Drilled By: JC

Drill Type: CME-75

Auger Type: 6-5/8 hollow stem

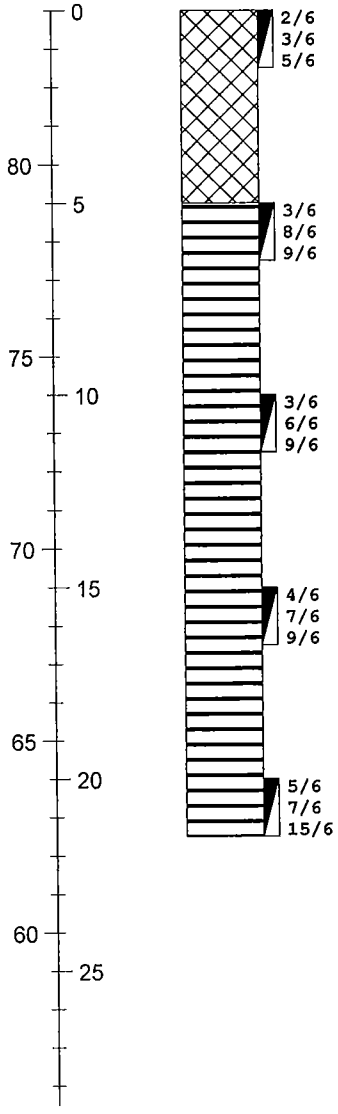
Hammer Type: 140 lb auto-trip

Logged By: JC

Date: May 13, 2019

Elevation: 84.0 feet AMSL (Approx.)

Depth to Groundwater First Encountered During Drilling: N/E



ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	Remarks	N-Values blows/ft.	Moisture Content %
		FILL	FILL: Sandy Lean Clay: medium stiff, moist, medium to high plasticity, dark brown		8	
		ROCK	Claystone (Sandy Lean Clay): very stiff, moist, medium plasticity, light brown to brown		17	
			stiff, brown to dark brown		15	
			very stiff, dark brown		16	
			slight increase in sand content, gray laminations		22	
			Bottom of boring at 21.5 feet BSG			

Notes:

Figure Number

MOORE TWINING ASSOCIATES, INC.

Test Boring: B-8

Project: Proposed Athletic Field Improvements

Project Number: E81201.05

Drilled By: JC

Drill Type: CME-75

Auger Type: 6-5/8 hollow stem

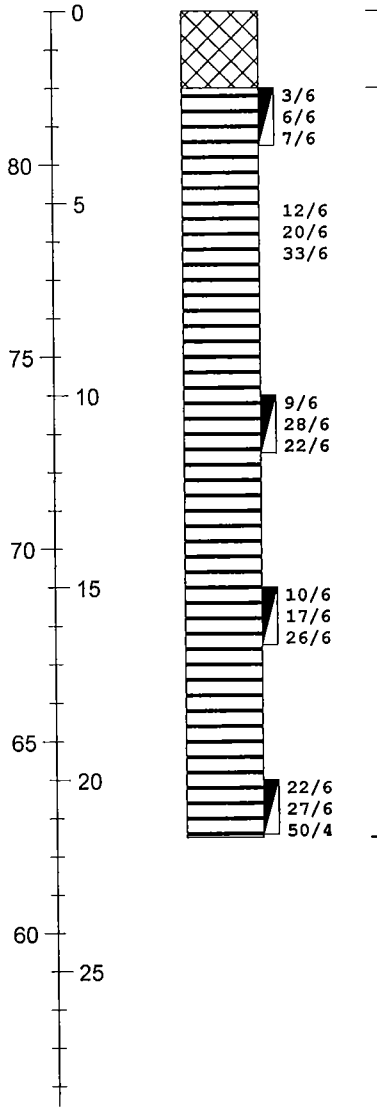
Hammer Type: 140 lb auto-trip

Logged By: JC

Date: May 13, 2019

Elevation: 84.0 feet AMSL (Approx.)

Depth to Groundwater First Encountered During Drilling: N/E



ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	Remarks	N-Values blows/ft.	Moisture Content %
		FILL	FILL: Sandy Lean Clay: moist, medium to high plasticity, brown to dark brown		13	
		ROCK	Claystone (Sandy Lean Clay): stiff, moist, medium plasticity, brown to dark brown		53	
			hard, dark brown, weakly cemented		50	
			dark brown and black		43	
			dark brown		22	
			Bottom of boring at 21.5 feet BSG			

Notes:

Figure Number

MOORE TWINING ASSOCIATES, INC.

Test Boring: B-9

Project: Proposed Athletic Field Improvements

Project Number: E81201.05

Drilled By: JC

Drill Type: CME-75

Auger Type: 6-5/8 hollow stem

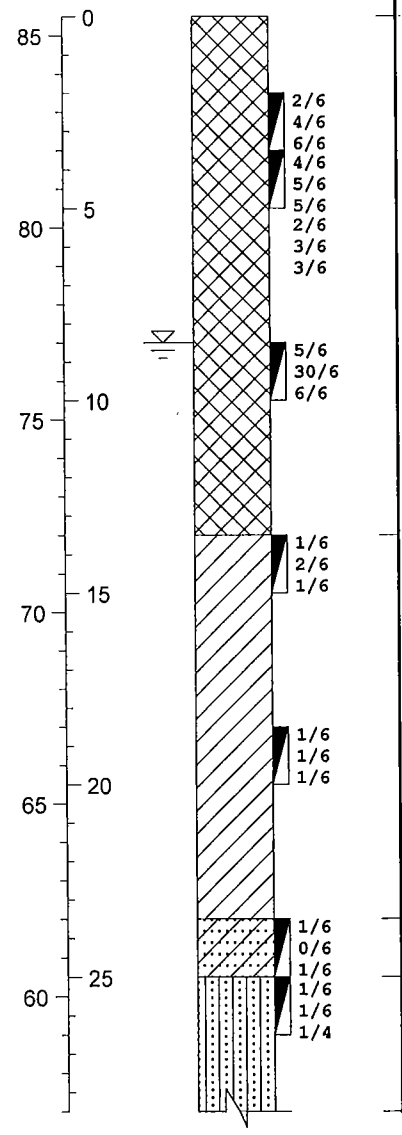
Hammer Type: 140 lb auto-trip

Logged By: JC

Date: May 20, 2019

Elevation: 85.5 feet AMSL (Approx.)

Depth to Groundwater First Encountered During Drilling: 8.5 feet



ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	Remarks	N-Values blows/ft.	Moisture Content %
		FILL	FILL: Silty Sand Sand: moist, fine to medium grained, dark brown			
			loose, plastic debris, trace gravel		10	
		FILL	FILL: Clayey Sand: moist, fine to medium grained, light brown, trace of gravel		10	
			At 3.5': loose, increase in sand with depth, 3 inch thick seam of clay at 3.75'		6	
			very moist to moist			
		FILL	FILL: Sandy Lean Clay, wet, low plasticity, gray, thin seams of sand, trace gravel		*	
		CL	Sandy Lean Clay: very soft, wet, medium plasticity, dark brown, trace rootlets thin seams of sand		3	
			soft		2	
		SC	Clayey Sand: very loose, wet, fine to coarse grained, dark brown, trace rootlets		1	
		SM	Silty Sand: very loose, wet, fine to coarse grained, dark brown, trace rootlets, 5 inch clay seam in middle		2	

Notes: * *sampler encountered cobble*

Figure Number

MOORE TWINING ASSOCIATES, INC.

Test Boring: B-9

Project: Proposed Athletic Field Improvements

Project Number: E81201.05

Drilled By: JC

Drill Type: CME-75

Auger Type: 6-5/8 hollow stem

Hammer Type: 140 lb auto-trip

Logged By: JC

Date: May 20, 2019

Elevation: 85.5 feet AMSL (Approx.)

Depth to Groundwater First Encountered During Drilling: 8.5 feet

ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	Remarks	N-Values blows/ft.	Moisture Content %
55 / 30	1/6 1/6 1/6	CH	of sampler		2	
	3/6 3/6 4/6	SM	Sandy Fat Clay: very soft, wet, medium plasticity, dark gray, with seams of sand		7	
			Silty Sand: loose, wet, medium to coarse grained, dark brown			
50 / 35	12/6 12/6 11/6				23	
			Medium Dense. Could not obtain sample due to heaving conditions			
45 / 40			Could not obtain sample due to heaving conditions			
		ROCK	Interpreted rock at 41 feet based on drilling resistance. Could not obtain sample due to heaving conditions			
40 / 45			Bottom of boring at 42 feet BSG			
35 / 50						
30 / 55						

Notes: * *sampler encountered cobble*

Figure Number

KEY TO SYMBOLS

Symbol	Description
Strata symbols	
	Asphaltic Concrete
	Fill
	Siltstone
	Fat clay
	Poorly graded sand
	Granite
	Lean clay
	Mudstone
	Sandstone
	Clayey sand
	Silty sand

Notes:

+1. Exploratory borings were dilled on October 10, 2018, May 13, 2019, and May 20, 2019, using a CME-75 drill rig equipped with 6-5/8 inch dia. hollow-stem auger, and October 10, 2018 using hand auger equipment.

2. Groundwater was encountered in some of the borings as indicated on the logs.

3. Boring locations were located by using a steel tape or pacing.

4. These logs are subject to the limitations, conclusions, and recommendations in this report.

5. The "N-value" reported for the California Modified Split Barrel Sampler is the uncorrected field blow count. This value should not be interpreted as an equivalent N-value.

6. Results of tests conducted on samples recovered are reported on the logs. Abbreviations used are:

DD =	Natural dry density (pcf)	LL =	Liquid Limit (%)
UC =	Unconfined compression (psf)	PI =	Plasticity Index (%)
-4 =	Percent passing #4 sieve (%)	pH =	Soil pH
-200 =	Percent passing #200 sieve (%)	SS =	Soluble sulfates (%)
SR	Soil resistivity (ohm-cm)	Cl =	Soluble chlorides (%)
c =	Cohesion (psf)	ø =	Angle of internal friction (degrees)
N/A =	Not applicable		
pcf =	pounds per cubic foot	N/E =	Not encountered
psf =	pounds per square foot	AMSL =	Above Mean Sea Level
O.D. =	Outside Diameter		

KEY TO SYMBOLS

Symbol Description

Strata symbols

CH fraction

Misc. Symbols

Water table during drilling

Boring continues

Soil Samplers

California Modified split barrel ring sampler

Standard penetration test

Bulk/Grab sample

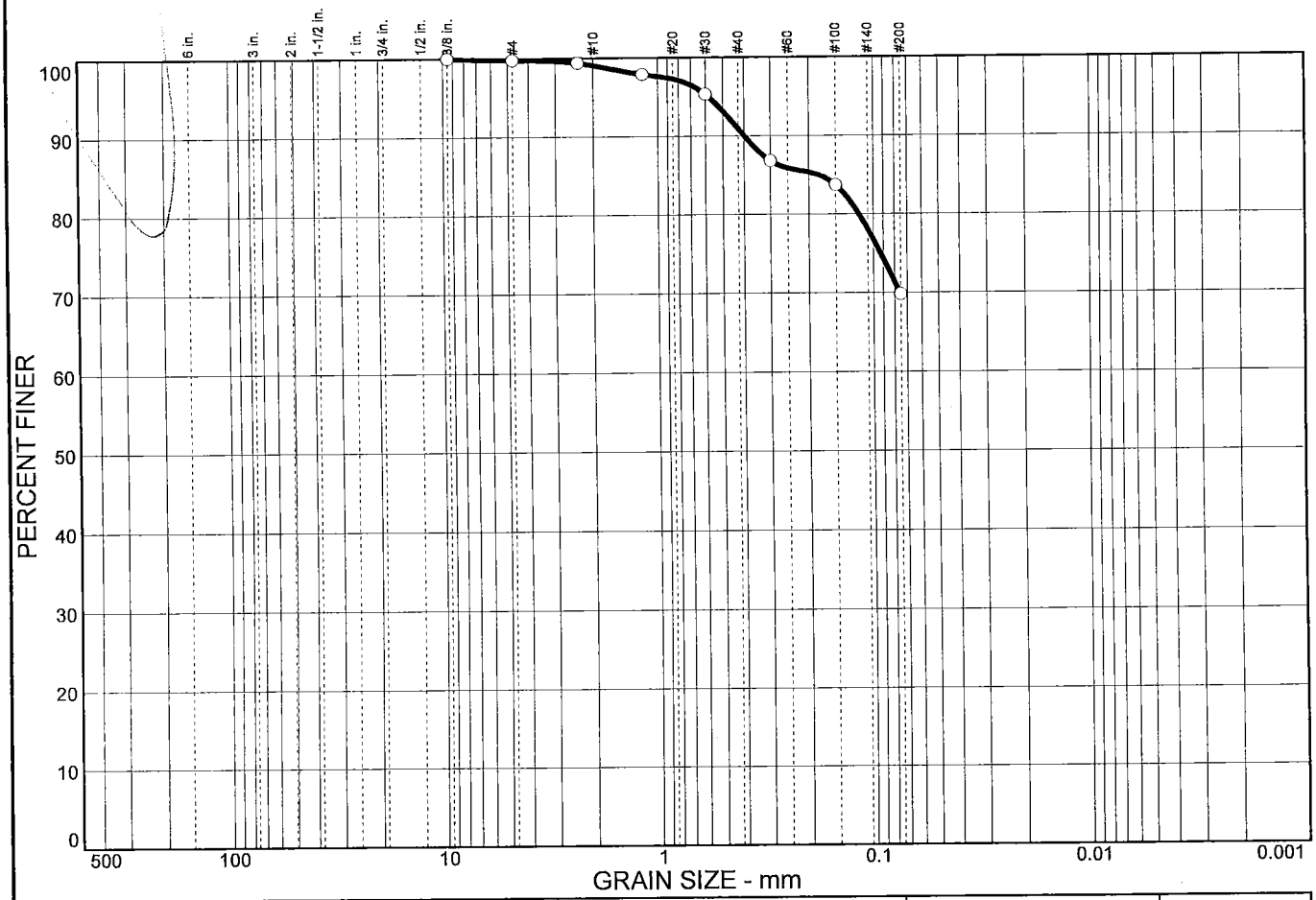
APPENDIX C

RESULTS OF LABORATORY TESTS

This appendix contains the individual results of the following tests. The results of the moisture content and dry density tests are included on the test boring logs in Appendix B. These data, along with the field observations, were used to prepare the final test boring logs in Appendix B.

These Included:	To Determine:
Moisture Content (ASTM D2216)	Moisture contents representative of field conditions at the time the sample was taken.
Dry Density (ASTM D2216)	Dry unit weight of sample representative of in-situ or in-place undisturbed condition.
Grain-Size Distribution (ASTM D422)	Size and distribution of soil particles, i.e., sand, gravel and fines (silt and clay).
Atterberg Limits (ASTM D4318)	Determines the moisture contents where the soil behaves as a viscous material (liquid limit) and the moisture content at which the soil reaches a plastic state (plastic limit)
Direct Shear (ASTM D3080)	Soil shearing strength under varying loads and/or moisture conditions.
Consolidation (ASTM D2435)	The amount and rate at which a soil sample compresses when loaded, and the influence of saturation on its behavior.
Sulfate Content (ASTM D4327)	Percentage of water-soluble sulfate as (SO4) in soil samples. Used as an indication of the relative degree of sulfate attack on concrete and for selecting the cement type.
Expansion Index (ASTM D4829)	Swell potential of soil with increases in moisture content.
Moisture-Density Relationship (ASTM D698)	The optimum (best) moisture content for compacting soil and the maximum dry unit weight (density) for a given compactive effort.
R-Value (ASTM D2844)	The capacity of a subgrade or subbase to support a pavement section designed to carry a specified traffic load.
Chloride Content (ASTM D4327)	Percentage of soluble chloride in soil. Used to evaluate the potential attack on encased reinforcing steel.
Minimum Resistivity (ASTM G187)	The minimum resistivity in ohm-centimeters of a soil. Used to determine the corrosion potential for buried metal objects
pH (ASTM D4972)	The acidity or alkalinity of subgrade material.

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.2	30.0	69.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8 in.	100.0		
#4	99.8		
#8	99.4		
#16	97.9		
#30	95.3		
#50	86.8		
#100	83.7		
#200	69.8		

* (no specification provided)

Material Description

Sandy Lean Clay

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.181 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Sample No.: B-1 **Source of Sample:** **Date:** 10/10/18
Location: **Elev./Depth:** 2-4'

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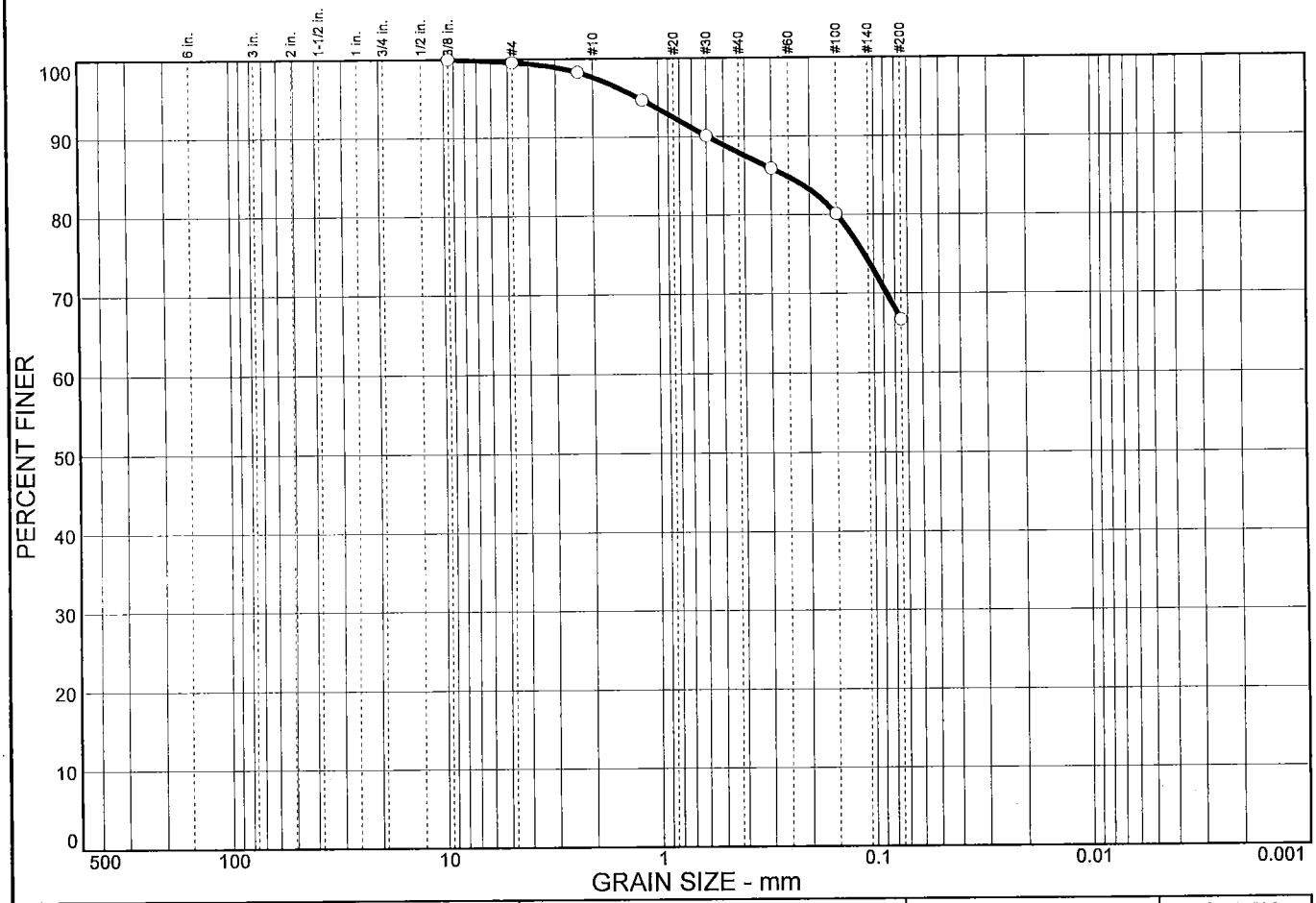
Fresno, CA

Client:
Project: Proposed Athletic Facility Improvements, Monterey, CA

Project No: E81201.05 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.4	32.9	66.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8 in.	100.0		
#4	99.6		
#8	98.3		
#16	94.7		
#30	90.1		
#50	85.9		
#100	80.1		
#200	66.7		

* (no specification provided)

Material Description

Sandy Fat Clay

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.257 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Sample No.: B-2 **Source of Sample:** **Date:** 10/10/18
Location: **Elev./Depth:** 35-36'

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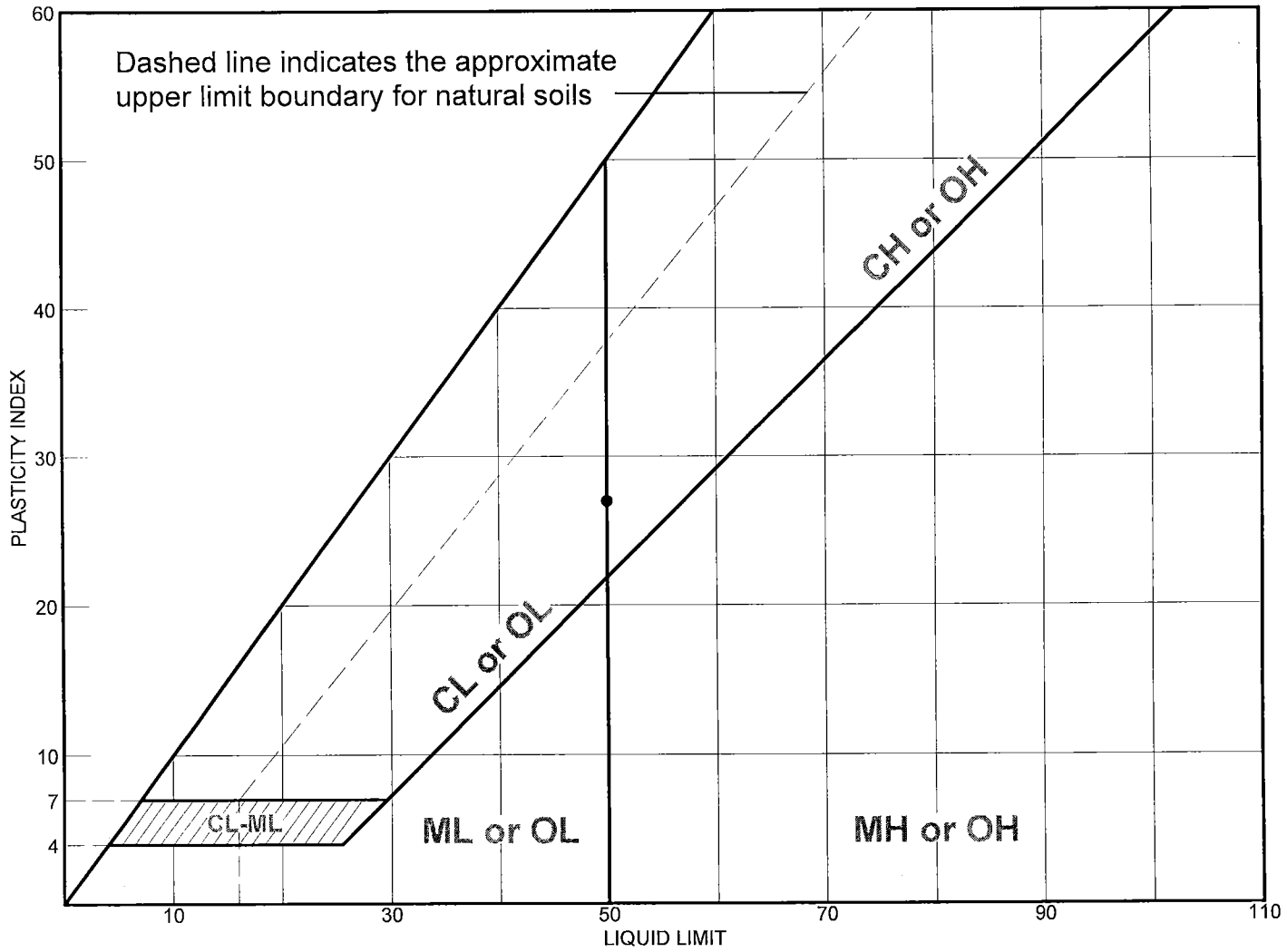
Fresno, CA

Client:
Project: Proposed Athletic Facility Improvements, Monterey, CA
Project No: E81201.05 **Figure**

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Sandy Lean Clay	50	23	27			

Project No. E81201.05 **Client:**

Project: Proposed Athletic Facility Improvements, Monterey, CA

● **Source:** **Sample No.:** B-1 **Elev./Depth:** 3.5-5'

Remarks:

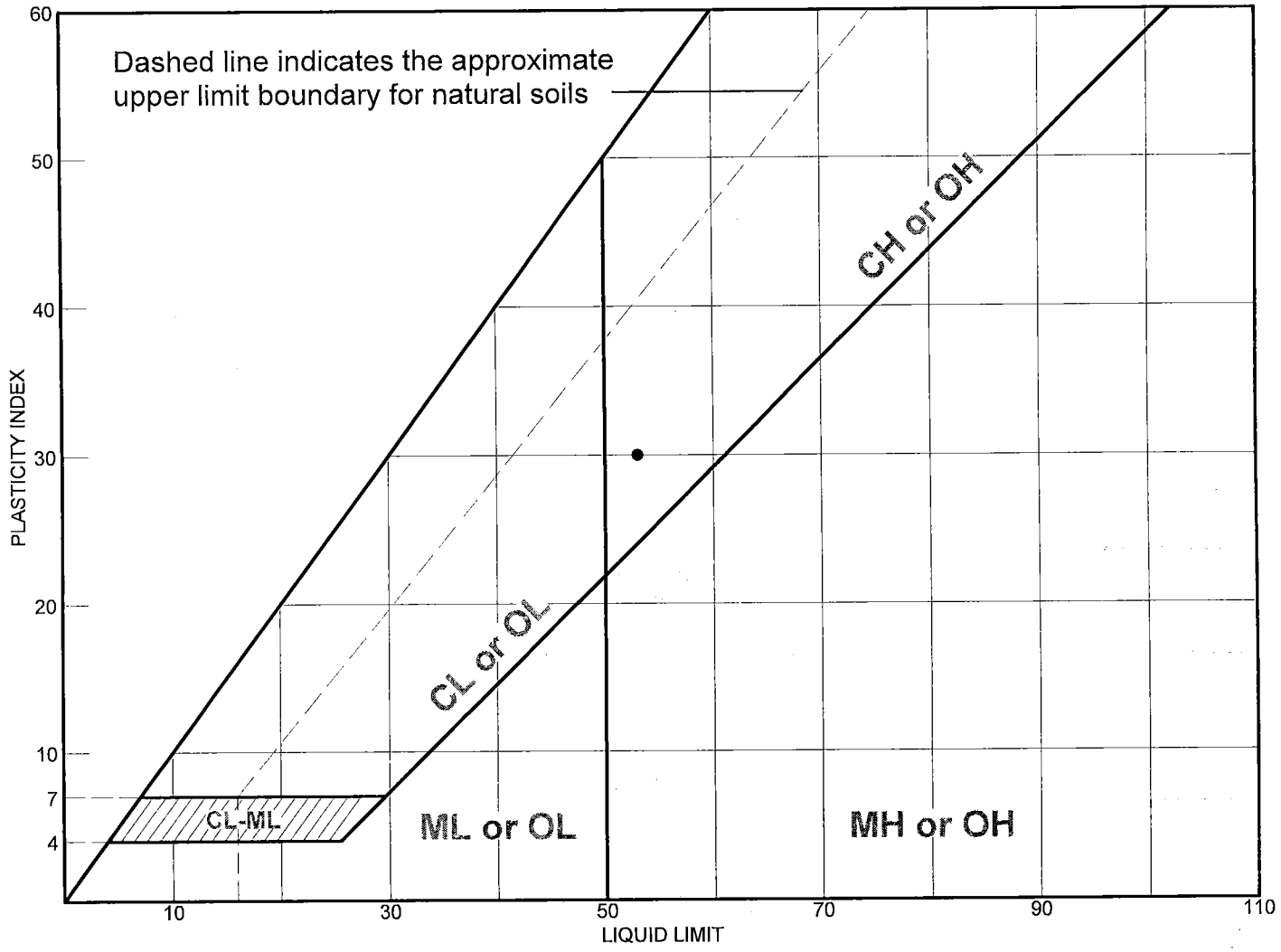
●

Moore Twining Associates, Inc.

Fresno, CA

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Sandy Fat Clay	53	23	30			

Project No. E81201.05 **Client:**

Project: Proposed Athletic Facility Improvements, Monterey, CA

● **Source:** **Sample No.:** B-2 **Elev./Depth:** 10-11.5'

Remarks:

●

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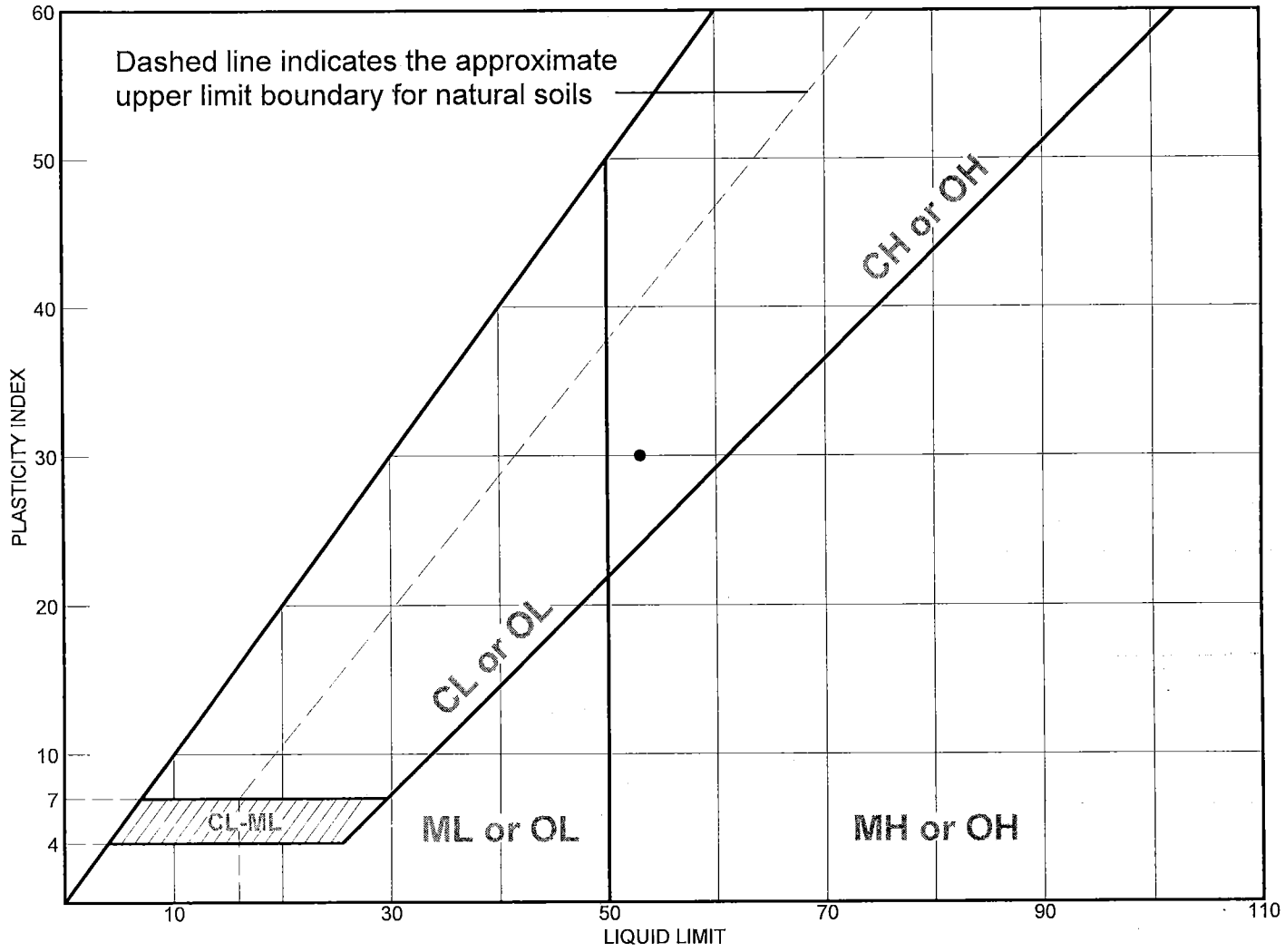
Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Sandy Fat Clay	53	23	30			

Project No. E81201.05 **Client:**

Project: Proposed Athletic Facility Improvements, Monterey, CA

● **Source:** **Sample No.:** B-2 **Elev./Depth:** 30-31.5'

Remarks:

●

Moore Twining Associates, Inc.
Fresno, CA

Figure

MOORE TWINING ASSOCIATES, INC.

EXPANSION INDEX TEST, ASTM D4829

MTA PROJECT NAME:	Proposed Athletic Facility Improvements, Monterey, CA	REPORT DATE:	11/19/2018
		TEST DATE:	11/17/2018
MTA PROJECT NO.:	E81201.05		
SAMPLE I.D.:	B-1 @ 2-4'		
SAMPLED BY:	JC		
SAMPLE DATE:	10/10/2018	TESTED BY:	TD
MATERIALS DESCRIPTION.	Sandy Lean Clay		
% PASSING # 4 SIEVE	100		

Initial Moisture Determination:		Final Moisture Determination:	
Pan + Wet Soil Wt., gm	250.0	Wet Soil Wt., lbs	0.9785
Pan + Dry Soil Wt., gm	229.8	Dry Soil Wt., lbs	0.8385
Pan Wt., gm	0.0		
Initial % Moisture Content	8.8	Final % Moisture Content	16.7

Initial Expansion Data:		**Final Expansion Data:**	
Ring + Sample Wt., lbs	0.9122	Ring + Sample Wt., lbs	0.9785
Ring Wt., lbs	0.0000	Ring Wt., lbs	0.0000
Remolded Wt., lbs	0.9122	Remolded Wt., lbs	0.9785
Remolded Wet Density, pcf	125.4	Remolded Wet Density, pcf	124.8
Remolded Dry Density, pcf	115.3	Remolded Dry Density, pcf	107.0

Expansion Data:		Initial Volume	Final Volume
Initial Gage Reading, in:	0.0500	0.00727222	0.007839
Final Gage Reading, in:	0.1280		
Expansion, in:	0.0780		
Expansion Index	78	**Comments:**	**Medium Low Expansion Potential**

Classification of Expansive Soils. (Table No.1 From ASTM D4829)

Expansion Index	Potential Expansion
0-20	Very Low
21-50	Low
51-90	Medium
91-130	High
>130	Very High

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FX: 559.268.7126
2527 Fresno Street
Fresno, CA 93721

MOORE TWINING ASSOCIATES, INC.

EXPANSION INDEX TEST, ASTM D4829

MTA PROJECT NAME:	Proposed Athletic Facility Improvements, Monterey, CA	REPORT DATE:	11/19/2018
		TEST DATE:	11/17/2018
MTA PROJECT NO.:	E81201.05		
SAMPLE I.D.:	B-4 @ 2-4'		
SAMPLED BY:	JC		
SAMPLE DATE:	10/10/2018	TESTED BY:	TD

MATERIALS DESCRIPTION: Sandy Lean Clay

% PASSING # 4 SIEVE: 100

Initial Moisture Determination:

Pan + Wet Soil Wt., gm	250.0
Pan + Dry Soil Wt., gm	230.2
Pan Wt., gm	0.0
Initial % Moisture Content	8.6

Final Moisture Determination:

Wet Soil Wt., lbs	0.9836
Dry Soil Wt., lbs	0.8406
Final % Moisture Content	17.0

Initial Expansion Data:

Ring + Sample Wt., lbs	0.9129
Ring Wt., lbs	0.0000
Remolded Wt., lbs	0.9129
Remolded Wet Density, pcf	125.5
Remolded Dry Density, pcf	115.6

Final Expansion Data:

Ring + Sample Wt., lbs	0.9836
Ring Wt., lbs	0.0000
Remolded Wt., lbs	0.9836
Remolded Wet Density, pcf	126.8
Remolded Dry Density, pcf	108.4

Expansion Data:

Initial Gage Reading, in:	0.0500
Final Gage Reading, in:	0.1166
Expansion, in:	0.0666
Expansion Index	67

Initial Volume	Final Volume
0.00727222	0.007757

Comments: **Medium Low Expansion Potential**

Classification of Expansive Soils. (Table No.1 From ASTM D4829)

Expansion Index	Potential Expansion
0-20	Very Low
21-50	Low
51-90	Medium
91-130	High
>130	Very High

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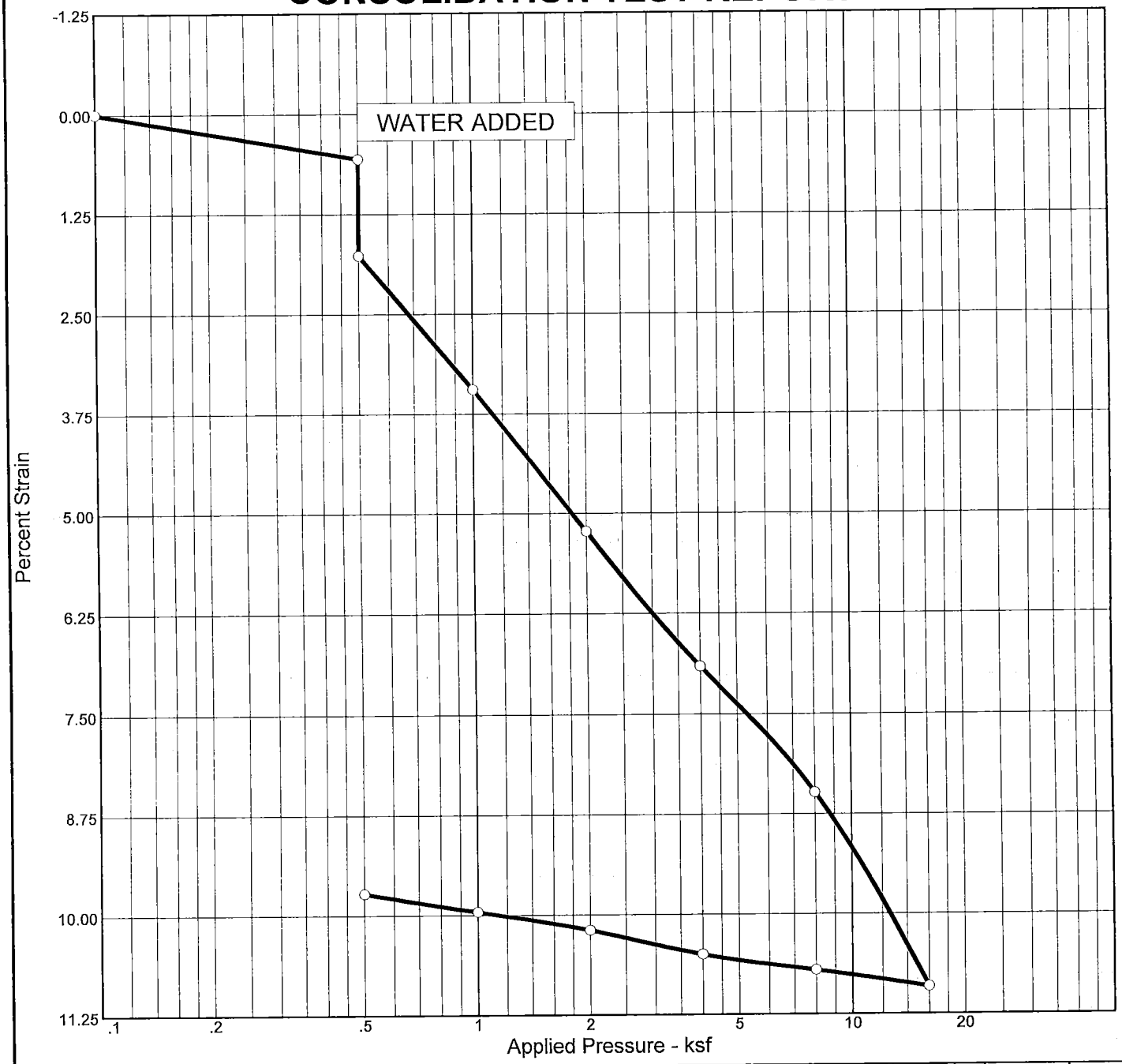
CONSOLIDATION TEST REPORT



Natural Sat.	Natural Moist.	Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_s	Swell Press. (ksf)	Clpse. %	e_o
48.8 %	6.1 %	124.4	50	27	2.65		8.44	0.11	0.01		1.2	0.330

MATERIAL DESCRIPTION	USCS	AASHTO
Sandy Lean Clay		

Project No. E81201.05 **Client:**

Project: Proposed Athletic Facility Improvements, Monterey, CA

Source: **Sample No.:** B-1 **Elev./Depth:** 3.5-5'

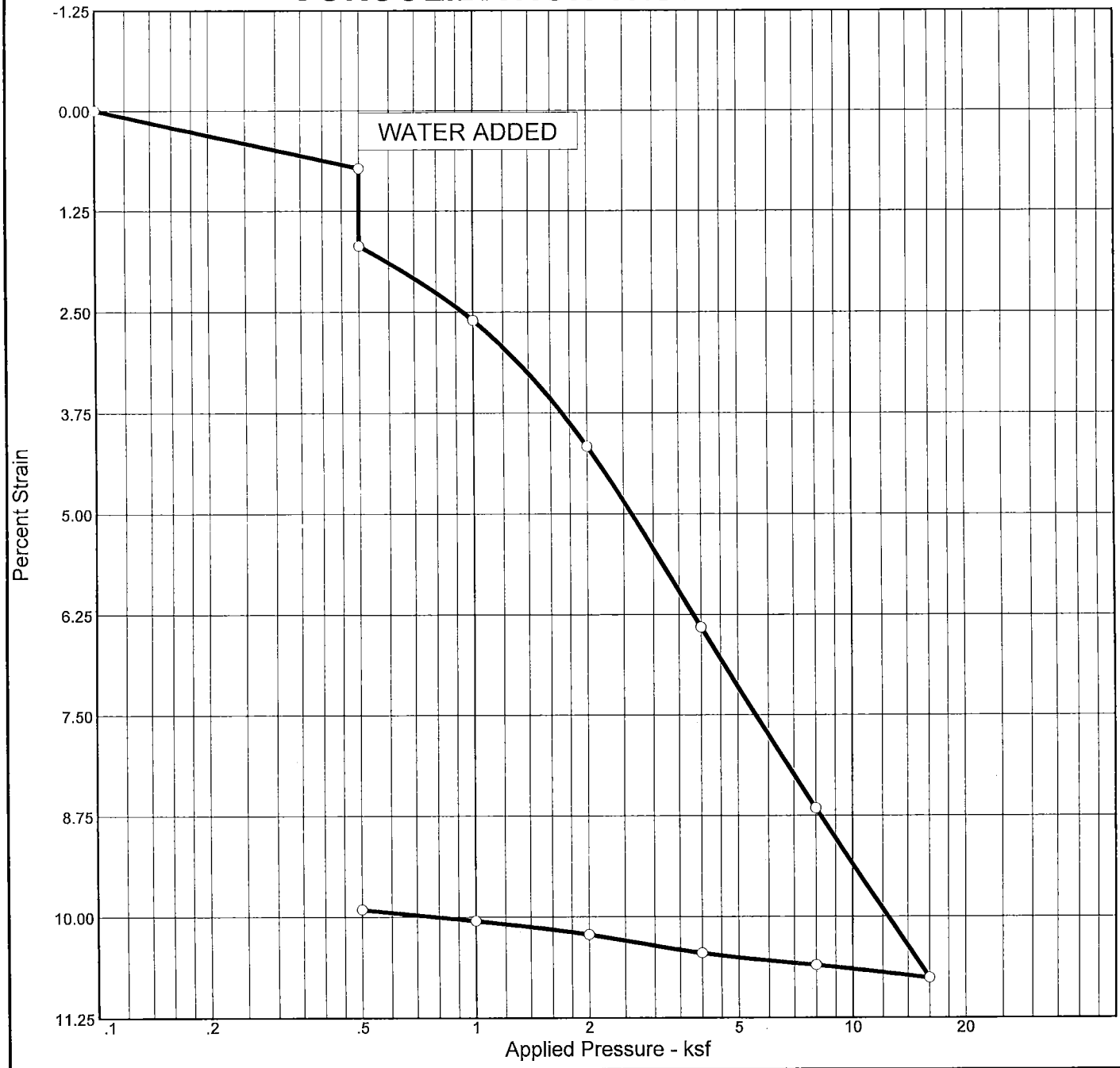
Moore Twining Associates, Inc.

Fresno, CA

Remarks:

Figure

CONSOLIDATION TEST REPORT



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_s	Swell Press. (ksf)	Clpse. %	e_o
Sat.	Moist.											
60.5 %	11.2 %	111.1			2.65		1.10	0.10	0.01		1.0	0.489

MATERIAL DESCRIPTION	USCS	AASHTO
Silty Sand		

Project No. E81201.05 **Client:**

Project: Proposed Athletic Facility Improvements, Monterey, CA

Source: **Sample No.:** B-2 **Elev./Depth:** 5-6.5'

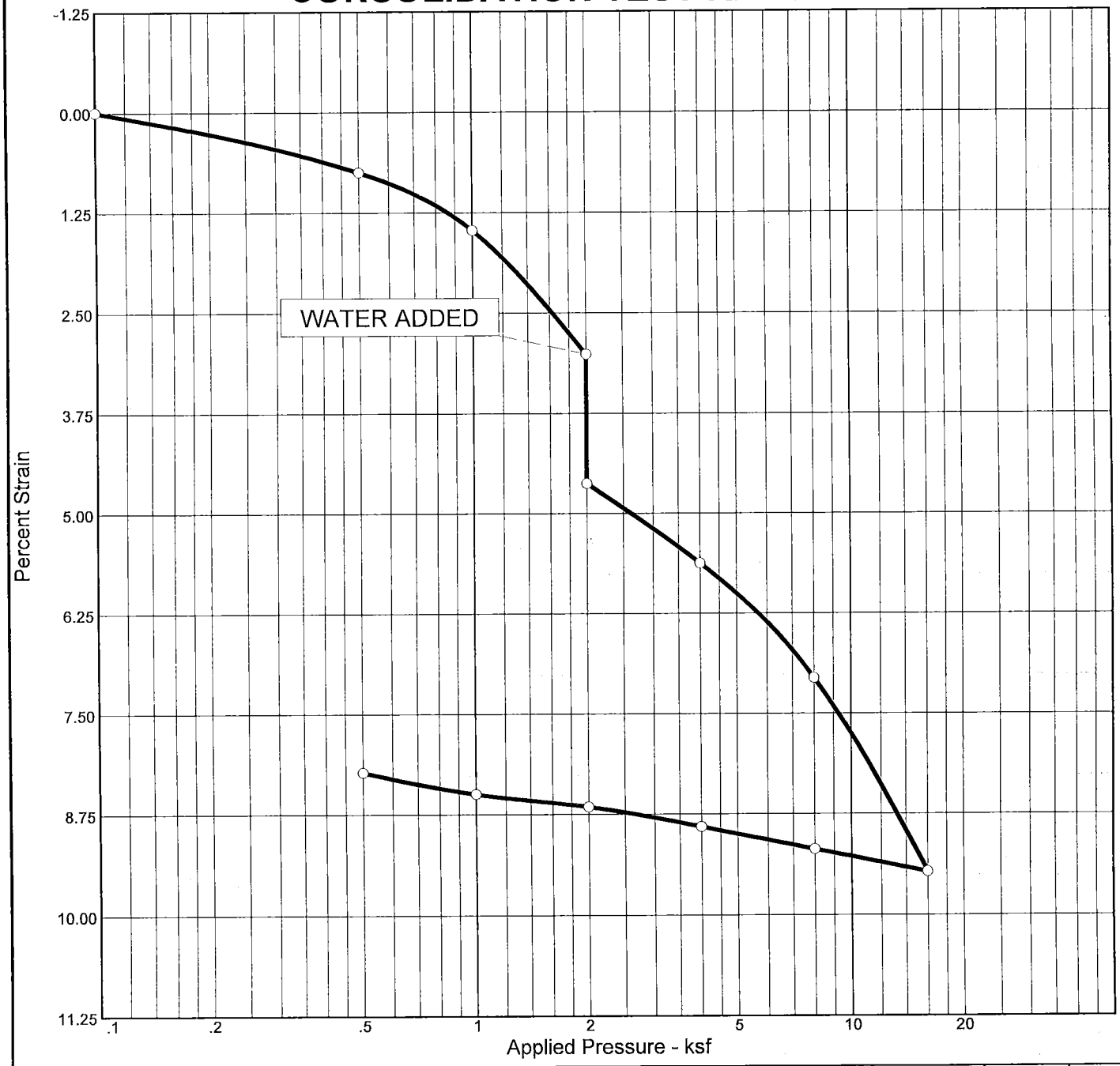
Moore Twining Associates, Inc.

Fresno, CA

Remarks:

Figure

CONSOLIDATION TEST REPORT



Natural		Dry Dens.	LL	PI	Sp.	Overburden	P_c	C_c	C_s	Swell Press.	Clpse.	e_o
Sat.	Moist.	(pcf)			Gr.	(ksf)	(ksf)			(ksf)	%	
38.7 %	7.1 %	111.4			2.65		2.03	0.12	0.01		1.6	0.485

MATERIAL DESCRIPTION	USCS	AASHTO
Silty Sand		

Project No. E81201.05 **Client:**

Project: Proposed Athletic Facility Improvements, Monterey, CA

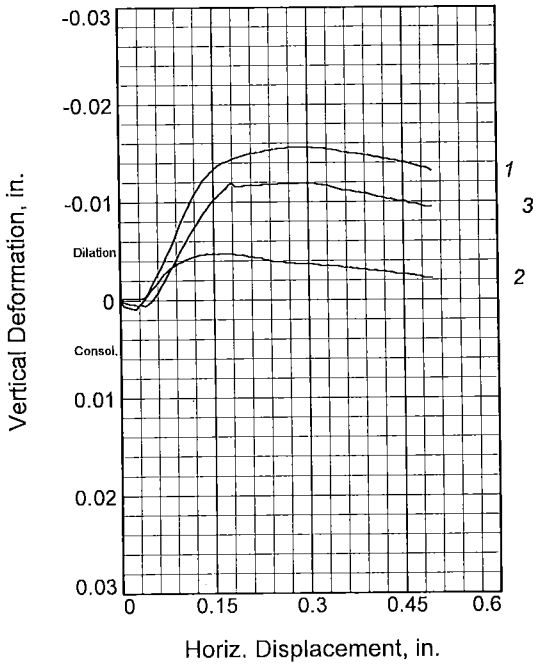
Source: **Sample No.:** B-3 **Elev./Depth:** 2-3.5'

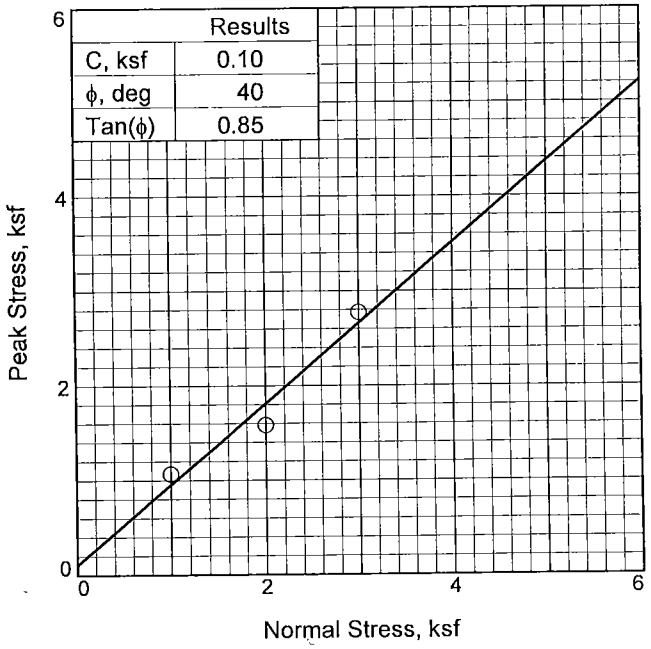
Moore Twining Associates, Inc.

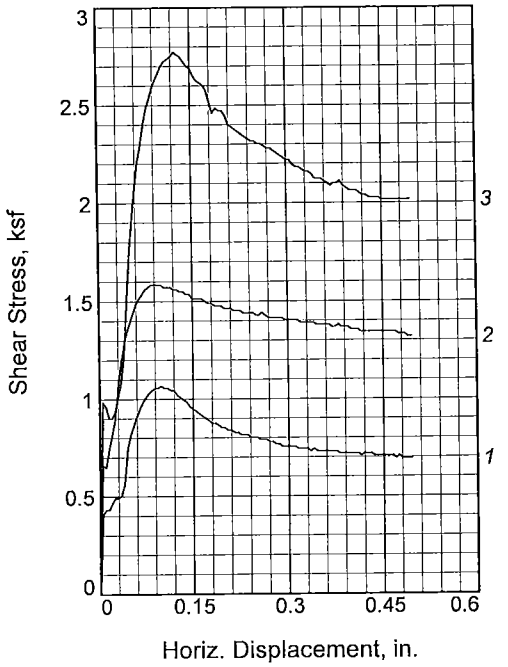
Fresno, CA

Remarks:

Figure







Sample No.		1	2	3
Initial	Water Content, %	7.2	7.2	7.0
	Dry Density, pcf	115.1	114.7	116.7
	Saturation, %	43.7	43.0	44.3
	Void Ratio	0.4374	0.4426	0.4181
	Diameter, in.	2.42	2.42	2.42
	Height, in.	1.00	1.00	1.00
At Test	Water Content, %	15.0	15.1	13.9
	Dry Density, pcf	116.6	116.8	120.3
	Saturation, %	95.1	96.3	98.2
	Void Ratio	0.4186	0.4168	0.3750
	Diameter, in.	2.42	2.42	2.42
	Height, in.	0.99	0.98	0.97
Normal Stress, ksf		1.00	2.00	3.00
Peak Stress, ksf		1.07	1.58	2.77
Displacement, in.		0.10	0.09	0.13
Residual Stress, ksf				
Displacement, in.				
Strain at peak, %		4.1	3.5	5.2

Sample Type:
Description: Siltstone

Specific Gravity= 2.65
Remarks:

Figure _____

Client:

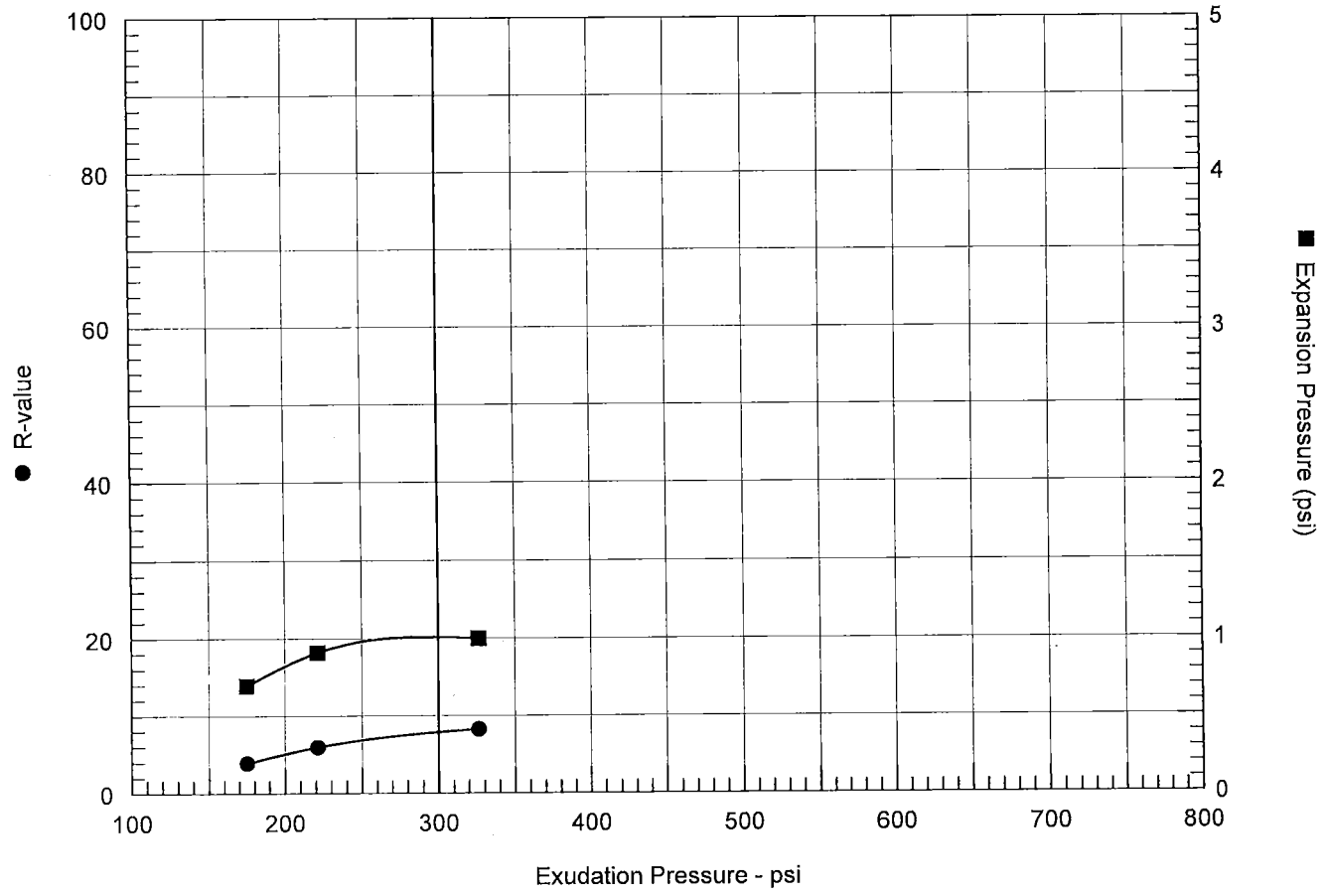
Project: Proposed Athletic Facility Improvements, Monterey, CA

Sample Number: B-4 **Depth:** 4.5-5.0'

Proj. No.: E81201.05 **Date Sampled:** 10/10/18

DIRECT SHEAR TEST REPORT
Moore Twining Associates, Inc.
Fresno, CA

R-VALUE TEST REPORT



Resistance R-Value and Expansion Pressure - ASTM D 2844

No.	Compact. Pressure psi	Density pcf	Moist. %	Expansion Pressure psi	Horizontal Press. psi @ 160 psi	Sample Height in.	Exud. Pressure psi	R Value	R Value Corr.
1	30	113.8	15.3	1.00	133	2.64	326	8	8
2	30	110.8	17.6	0.70	145	2.55	175	4	4
3	30	110.3	17.1	0.91	138	2.58	221	6	6

Test Results	Material Description
R-value at 300 psi exudation pressure = 8 **Exp. pressure at 300 psi exudation pressure =** 1.01 psi	Sandy Lean Clay

Project No.: E81201.05
Project: Proposed Athletic Facility Improvements, Monterey, CA
Sample Number: B-1 **Depth:** 2-4'

Date: 11/19/2018

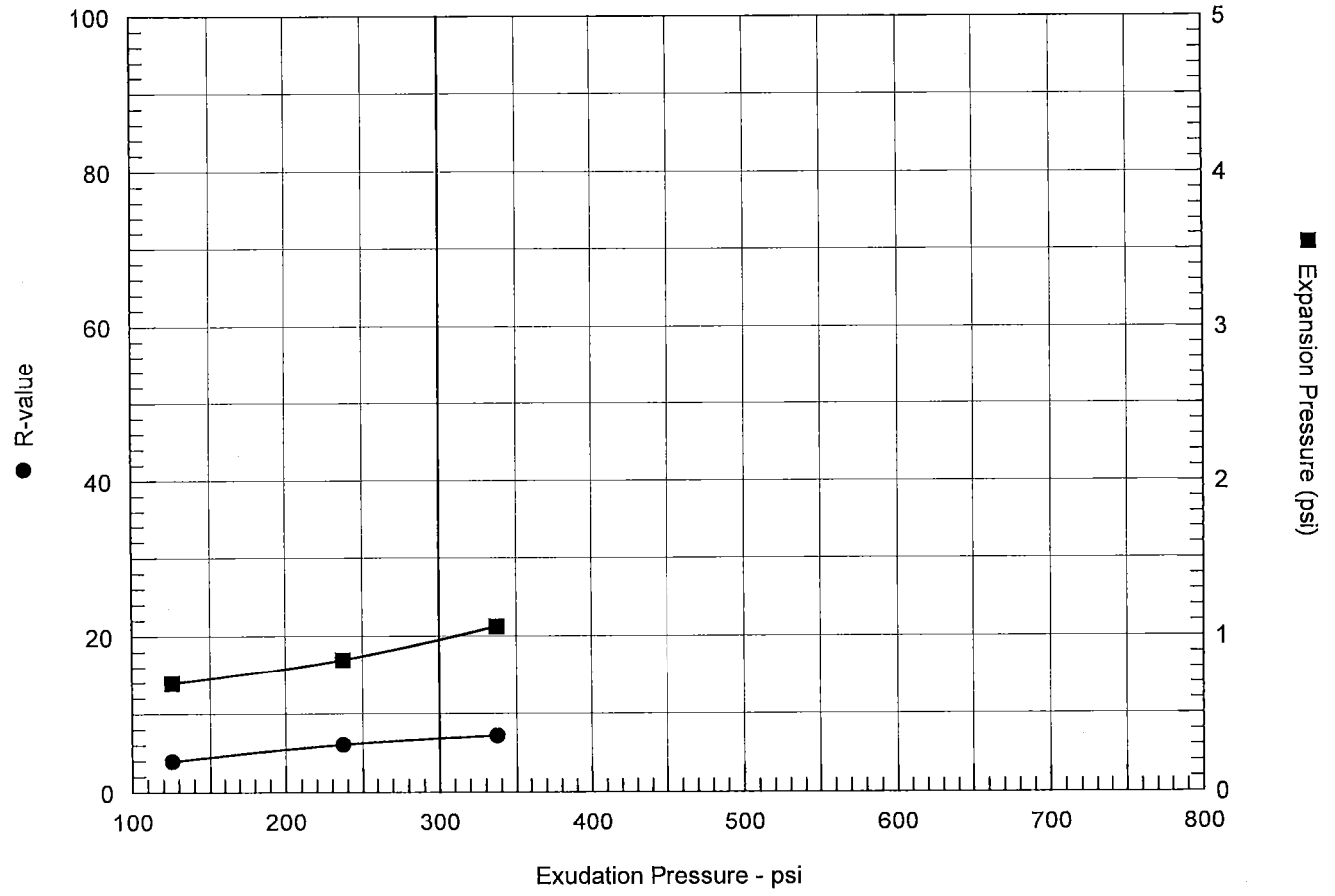
Tested by:
Checked by:
Remarks:

R-VALUE TEST REPORT

Moore Twining Associates, Inc.

Figure ____

R-VALUE TEST REPORT



Resistance R-Value and Expansion Pressure - ASTM D 2844

No.	Compact. Pressure psi	Density pcf	Moist. %	Expansion Pressure psi	Horizontal Press. psi @ 160 psi	Sample Height in.	Exud. Pressure psi	R Value	R Value Corr.
1	30	109.7	16.2	1.06	135	2.61	337	7	7
2	30	107.7	17.2	0.85	139	2.65	237	6	6
3	30	106.5	18.3	0.70	145	2.69	126	4	4

Test Results	Material Description
R-value at 300 psi exudation pressure = 7 **Exp. pressure at 300 psi exudation pressure =** 0.98 psi	Sandy Lean Clay

Project No.: E81201.05
Project: Proposed Athletic Facility Improvements, Monterey, CA
Sample Number: B-4 **Depth:** 2-4'

Date: 11/19/2018

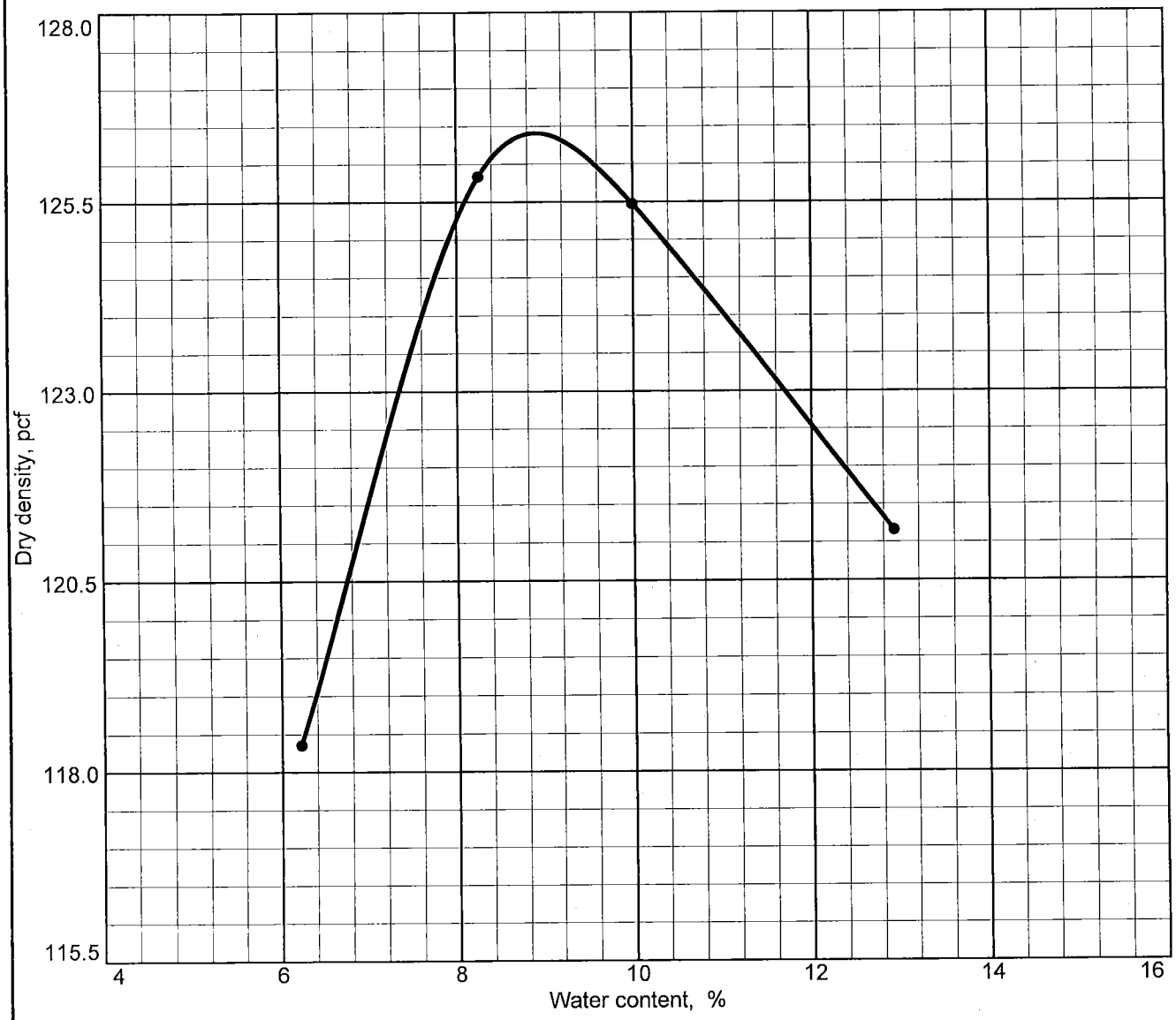
Tested by:
Checked by:
Remarks:

R-VALUE TEST REPORT

Moore Twining Associates, Inc.

Figure _____

COMPACTION TEST REPORT



Test specification: ASTM D 1557-12 Method A Modified

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > No.4	% < No.200
	USCS	AASHTO						
2-4'							0.2	69.8

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 126.4 pcf Optimum moisture = 8.9 %	Sandy Lean Clay

Project No. E81201.05 **Client:**

Project: Proposed Athletic Facility Improvements, Monterey, CA

Remarks:

● **Source:** **Sample No.:** B-1 **Elev./Depth:** 2-4'

Moore Twining Associates, Inc.

Fresno, CA

Figure

MOORE TWINING ASSOCIATES, INC.

Project Name:	Proposed Athletic Facility Improvements, Monterey, CA	Report Date:	11/19/2018
Project Number:	E81201.05	Sample Date:	10/10/2018
		Sampled By:	JC
Subject:	Minimum Resistivity, ASTM G187	Tested By:	TD
Material Description:	Sandy Lean Clay	Test Date:	11/18/2018
Location:	B-1 @ 2-4'		

Laboratory Test Results, Minimum Resistivity - ASTM G187

Total Water Added, mls	Resistivity, Ohm-cm
50 mls	5,469
100 mls	2,735
150 mls	1,801
200 mls	1,868
250 mls	2,201

Remarks: Min. Resistivity is 1,801 Ohm-cm

www.moorelwining.com
PH: 800.268.7021
FX: 559.268.7126
2527 Fresno Street
Fresno, CA 93721

MOORE TWINING ASSOCIATES, INC.

Project Name:	Proposed Athletic Facility Improvements, Monterey, CA	Report Date:	11/19/2018
		Sample Date:	10/10/2018
Project Number:	E81201.05		
		Sampled By:	JC
Subject:	Minimum Resistivity, ASTM G187	Tested By:	TD
Material Description:	Sandy Lean Clay	Test Date:	11/18/2018
Location:	B-4 @ 2-4		

Laboratory Test Results, Minimum Resistivity - ASTM G187

Total Water Added, mls	Resistivity, Ohm-cm
50 mls	8,004
100 mls	5,803
150 mls	3,068
200 mls	1,601
250 mls	1,601
300 mls	1,934

Remarks: Min. Resistivity is 1,601 Ohm-cm

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FX: 559.268.7126
2527 Fresno Street
Fresno, CA 93721

MOORE TWINING ASSOCIATES, INC.
California ELAP Certificate #1371

2527 Fresno Street
Fresno, CA 93721
(559) 268-7021 Phone
(559) 268-0740 Fax

November 19, 2018

Work Order #: **EK14066**

Ken Clark
MTA Geotechnical Division
2527 Fresno Street
Fresno, CA 93721

RE: Proposed Athletic Facility Improvement Monterey CA

Enclosed are the analytical results for samples received by our laboratory on **11/14/18** . For your reference, these analyses have been assigned laboratory work order number **EK14066.**

All analyses have been performed according to our laboratory's quality assurance program. All results are intended to be considered in their entirety, Moore Twining Associates, Inc. (MTA) is not responsible for use of less than complete reports. Results apply only to samples analyzed.

If you have any questions, please feel free to contact us at the number listed above.

Sincerely,

Moore Twining Associates, Inc.

Susan Federico
Client Services Representative

MOORE TWINING ASSOCIATES, INC.
California ELAP Certificate #1371

2527 Fresno Street
Fresno, CA 93721
(559) 268-7021 Phone
(559) 268-0740 Fax

MTA Geotechnical Division 2527 Fresno Street Fresno CA, 93721	**Project:** Proposed Athletic Facility Improvement Monterey CA **Project Number:** E81201.05 **Project Manager:** Ken Clark	**Reported:** 11/19/2018

Analytical Report for the Following Samples

Sample ID	Notes	Laboratory ID	Matrix	Date Sampled	Date Received
B-1 @ 2 - 4		EK14066-01	Soil	11/14/18 00:00	11/14/18 15:53
B-4 @ 2 - 4		EK14066-02	Soil	11/14/18 00:00	11/14/18 15:53

MOORE TWINING ASSOCIATES, INC.
California ELAP Certificate #1371

2527 Fresno Street
Fresno, CA 93721
(559) 268-7021 Phone
(559) 268-0740 Fax

MTA Geotechnical Division 2527 Fresno Street Fresno CA, 93721	**Project:** Proposed Athletic Facility Improvement Monterey CA **Project Number:** E81201.05 **Project Manager:** Ken Clark	**Reported:** 11/19/2018

B-1 @ 2 - 4

EK14066-01 (Soil) Sampled: 11/14/18 00:00

Analyte	Flag	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Inorganics									
Chloride		**7.3**	6.0	mg/kg	3	U8K1511	11/15/18	11/17/18	ASTM D4327-84
Chloride		**0.00073**	0.00060	% by Weight	3	[CALC]	11/17/18	11/17/18	ASTM D4327-84
Sulfate as SO4		**0.0026**	0.00060	% by Weight	3	[CALC]	11/17/18	11/17/18	ASTM D4327-84
pH		**7.5**	0.30	pH Units	3	U8K1511	11/15/18	11/17/18	ASTM D4972-89 Mod
Sulfate as SO4		**26**	6.0	mg/kg	3	U8K1511	11/15/18	11/17/18	ASTM D4327

B-4 @ 2 - 4

EK14066-02 (Soil) Sampled: 11/14/18 00:00

Analyte	Flag	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Inorganics									
Chloride		**12**	6.0	mg/kg	3	U8K1511	11/15/18	11/17/18	ASTM D4327-84
Chloride		**0.0012**	0.00060	% by Weight	3	[CALC]	11/17/18	11/17/18	ASTM D4327-84
Sulfate as SO4		**0.0036**	0.00060	% by Weight	3	[CALC]	11/17/18	11/17/18	ASTM D4327-84
pH		**7.5**	0.30	pH Units	3	U8K1511	11/15/18	11/17/18	ASTM D4972-89 Mod
Sulfate as SO4		**36**	6.0	mg/kg	3	U8K1511	11/15/18	11/17/18	ASTM D4327

Notes and Definitions

DUP1	A high RPD was observed between a sample and this sample's duplicate.
µg/L	micrograms per liter (parts per billion concentration units)
mg/L	milligrams per liter (parts per million concentration units)
mg/kg	milligrams per kilogram (parts per million concentration units)
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference

Analysis of pH, filtration, and residual chlorine is to take place immediately after sampling in the field. If the test was performed in the laboratory, the hold time was exceeded. **(for aqueous matrices only)**

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

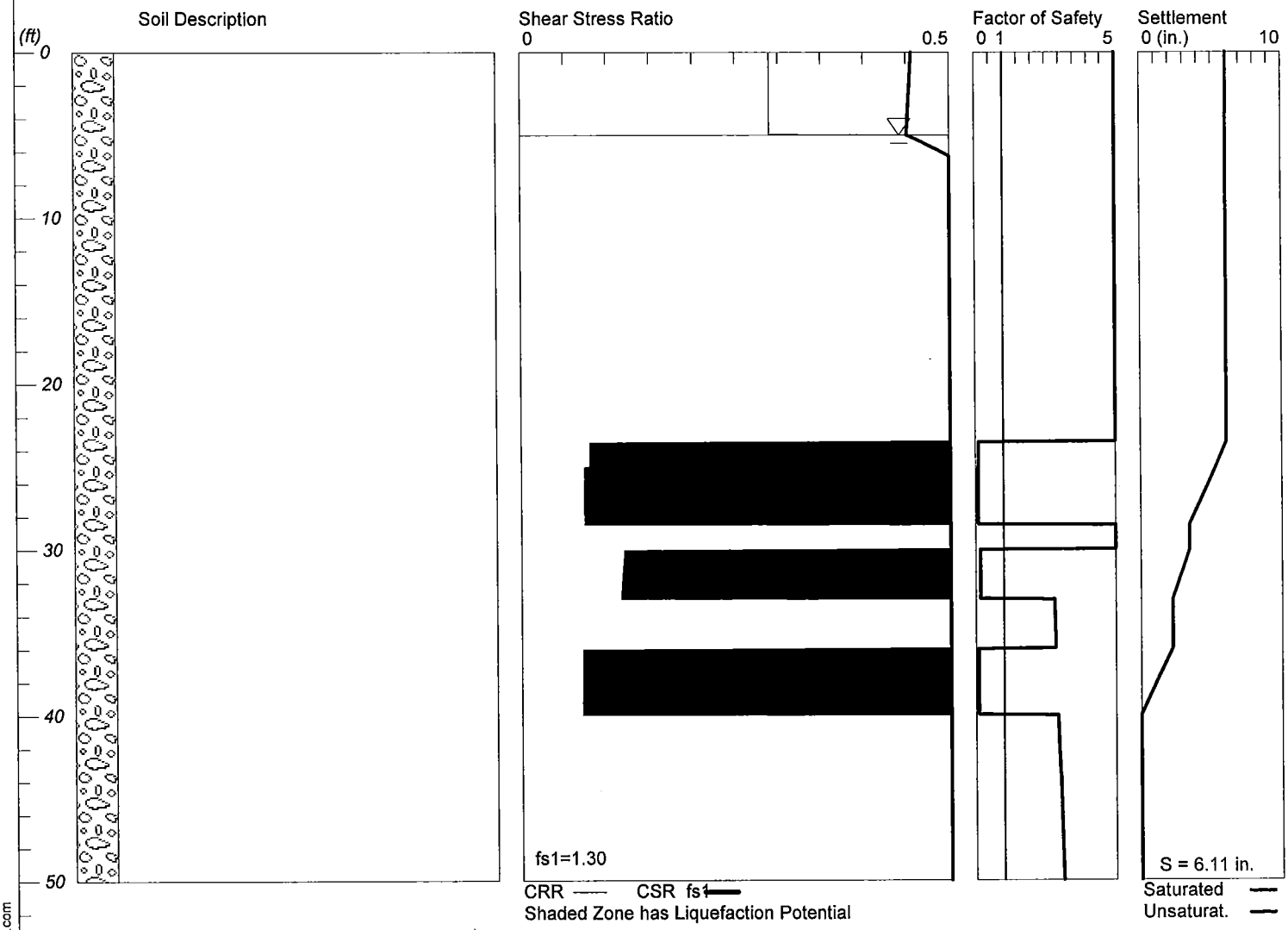
APPENDIX D
RESULTS OF LIQUEFACTION/SEISMIC SETTLEMENT CALCULATIONS

LIQUEFACTION ANALYSIS

MHS B-9

Hole No.=B-9 Water Depth=5 ft Surface Elev.=85.5

Magnitude=7.48
Acceleration=0.54g



LiquefyPro CivilTech Software USA www.civiltech.com

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LIQUEFACTION ANALYSIS CALCULATION DETAILS
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Font: Courier New, Regular, Size 8 is recommended for this report.
Licensed to , 5/21/2019 3:45:21 PM

Input File Name: F:\ENG\Geotech\E81201.05 Monterey High School\B-9 B-2..liq
Title: MHS B-9
Subtitle:

Input Data:
Surface Elev.=85.5
Hole No.=B-9
Depth of Hole=50.00 ft
Water Table during Earthquake= 5.00 ft
Water Table during In-Situ Testing= 8.50 ft
Max. Acceleration=0.54 g
Earthquake Magnitude=7.48
No-Liquefiable Soils: CL, OL are Non-Liq. Soil
1. SPT or BPT Calculation.
2. Settlement Analysis Method: Ishihara / Yoshimine
3. Fines Correction for Liquefaction: Idriss/Seed
4. Fine Correction for Settlement: During Liquefaction*
5. Settlement Calculation in: All zones*
6. Hammer Energy Ratio, Ce = 1.4
7. Borehole Diameter, Cb= 1
8. Sampling Method, Cs= 1.2
9. User request factor of safety (apply to CSR) , User= 1.3
Plot one CSR curve (fs1=User)
10. Average two input data between two Depths: No
* Recommended Options

In-Situ Test Data:

Depth ft	SPT	Gamma pcf	Fines %
0.00	10.00	125.00	16.00
5.00	6.00	125.00	NoLiq
13.00	3.00	125.00	NoLiq
14.50	3.00	125.00	NoLiq
18.50	2.00	125.00	NoLiq
23.50	1.00	125.00	45.00
25.00	2.00	125.00	16.00
28.50	2.00	125.00	NoLiq
30.00	7.00	125.00	2.00
33.00	23.00	125.00	16.00
36.00	2.00	125.00	16.00
40.00	50.00	125.00	50.00
50.00	50.00	125.00	50.00

Output Results:
Calculation segment, dz=0.050 ft
User defined Print Interval, dp=1.00 ft

Peak Ground Acceleration (PGA), a_max = 0.54g

CSR Calculation:

Depth ft	gamma pcf	sigma atm	gamma' pcf	sigma' atm	rd	mZ g	a(z) g	CSR	x fs1	=CSRfs
0.00	125.00	0.000	125.00	0.000	1.00	0.000	0.540	0.35	1.30	0.46
1.00	125.00	0.059	125.00	0.059	1.00	0.000	0.540	0.35	1.30	0.46
2.00	125.00	0.118	125.00	0.118	1.00	0.000	0.540	0.35	1.30	0.45
3.00	125.00	0.177	125.00	0.177	0.99	0.000	0.540	0.35	1.30	0.45
4.00	125.00	0.236	125.00	0.236	0.99	0.000	0.540	0.35	1.30	0.45
5.00	125.00	0.295	62.60	0.295	0.99	0.000	0.540	0.35	1.30	0.45
6.00	125.00	0.354	62.60	0.325	0.99	0.000	0.540	0.38	1.30	0.49
7.00	125.00	0.413	62.60	0.355	0.98	0.000	0.540	0.40	1.30	0.52
8.00	125.00	0.473	62.60	0.384	0.98	0.000	0.540	0.42	1.30	0.55
9.00	125.00	0.532	62.60	0.414	0.98	0.000	0.540	0.44	1.30	0.57
10.00	125.00	0.591	62.60	0.443	0.98	0.000	0.540	0.46	1.30	0.59
11.00	125.00	0.650	62.60	0.473	0.97	0.000	0.540	0.47	1.30	0.61
12.00	125.00	0.709	62.60	0.502	0.97	0.000	0.540	0.48	1.30	0.63

13.00	125.00	0.768	62.60	0.532	0.97	0.000	0.540	0.49	1.30	0.64
14.00	125.00	0.827	62.60	0.562	0.97	0.000	0.540	0.50	1.30	0.65
15.00	125.00	0.886	62.60	0.591	0.97	0.000	0.540	0.51	1.30	0.66
16.00	125.00	0.945	62.60	0.621	0.96	0.000	0.540	0.51	1.30	0.67
17.00	125.00	1.004	62.60	0.650	0.96	0.000	0.540	0.52	1.30	0.68
18.00	125.00	1.063	62.60	0.680	0.96	0.000	0.540	0.53	1.30	0.68
19.00	125.00	1.122	62.60	0.709	0.96	0.000	0.540	0.53	1.30	0.69
20.00	125.00	1.181	62.60	0.739	0.95	0.000	0.540	0.53	1.30	0.70
21.00	125.00	1.240	62.60	0.769	0.95	0.000	0.540	0.54	1.30	0.70
22.00	125.00	1.300	62.60	0.798	0.95	0.000	0.540	0.54	1.30	0.70
23.00	125.00	1.359	62.60	0.828	0.95	0.000	0.540	0.55	1.30	0.71
24.00	125.00	1.418	62.60	0.857	0.94	0.000	0.540	0.55	1.30	0.71
25.00	125.00	1.477	62.60	0.887	0.94	0.000	0.540	0.55	1.30	0.72
26.00	125.00	1.536	62.60	0.917	0.94	0.000	0.540	0.55	1.30	0.72
27.00	125.00	1.595	62.60	0.946	0.94	0.000	0.540	0.55	1.30	0.72
28.00	125.00	1.654	62.60	0.976	0.93	0.000	0.540	0.56	1.30	0.72
29.00	125.00	1.713	62.60	1.005	0.93	0.000	0.540	0.56	1.30	0.72
30.00	125.00	1.772	62.60	1.035	0.93	0.000	0.540	0.56	1.30	0.73
31.00	125.00	1.831	62.60	1.064	0.92	0.000	0.540	0.56	1.30	0.72
32.00	125.00	1.890	62.60	1.094	0.91	0.000	0.540	0.55	1.30	0.72
33.00	125.00	1.949	62.60	1.124	0.91	0.000	0.540	0.55	1.30	0.72
34.00	125.00	2.008	62.60	1.153	0.90	0.000	0.540	0.55	1.30	0.71
35.00	125.00	2.067	62.60	1.183	0.89	0.000	0.540	0.55	1.30	0.71
36.00	125.00	2.126	62.60	1.212	0.88	0.000	0.540	0.54	1.30	0.71
37.00	125.00	2.186	62.60	1.242	0.87	0.000	0.540	0.54	1.30	0.70
38.00	125.00	2.245	62.60	1.272	0.86	0.000	0.540	0.54	1.30	0.70
39.00	125.00	2.304	62.60	1.301	0.86	0.000	0.540	0.53	1.30	0.69
40.00	125.00	2.363	62.60	1.331	0.85	0.000	0.540	0.53	1.30	0.69
41.00	125.00	2.422	62.60	1.360	0.84	0.000	0.540	0.53	1.30	0.68
42.00	125.00	2.481	62.60	1.390	0.83	0.000	0.540	0.52	1.30	0.68
43.00	125.00	2.540	62.60	1.419	0.82	0.000	0.540	0.52	1.30	0.67
44.00	125.00	2.599	62.60	1.449	0.82	0.000	0.540	0.51	1.30	0.67
45.00	125.00	2.658	62.60	1.479	0.81	0.000	0.540	0.51	1.30	0.66
46.00	125.00	2.717	62.60	1.508	0.80	0.000	0.540	0.51	1.30	0.66
47.00	125.00	2.776	62.60	1.538	0.79	0.000	0.540	0.50	1.30	0.65
48.00	125.00	2.835	62.60	1.567	0.78	0.000	0.540	0.50	1.30	0.65
49.00	125.00	2.894	62.60	1.597	0.78	0.000	0.540	0.49	1.30	0.64
50.00	125.00	2.953	62.60	1.627	0.77	0.000	0.540	0.49	1.30	0.64

CSR is based on water table at 5.00 during earthquake

CRR Calculation from SPT or BPT data:

Depth ft	SPT	Cebs	Cr	sigma' atm	Cn	(N1)60	Fines %	d(N1)60	(N1)60f	CRR7.5
0.00	10.00	1.68	0.75	0.000	1.70	21.42	16.00	3.92	25.34	0.29
1.00	10.00	1.68	0.75	0.059	1.70	21.42	16.00	3.92	25.34	0.29
2.00	10.00	1.68	0.75	0.118	1.70	21.42	16.00	3.92	25.34	0.29
3.00	10.00	1.68	0.75	0.177	1.70	21.42	16.00	3.92	25.34	0.29
4.00	10.00	1.68	0.75	0.236	1.70	21.42	16.00	3.92	25.34	0.29
5.00	6.00	1.68	0.75	0.295	1.70	12.85	NoLiq	7.57	20.42	0.22
6.00	6.00	1.68	0.75	0.354	1.68	12.70	NoLiq	7.54	20.24	0.22
7.00	6.00	1.68	0.75	0.413	1.56	11.76	NoLiq	7.35	19.11	0.21
8.00	6.00	1.68	0.75	0.473	1.45	11.00	NoLiq	7.20	18.20	0.20
9.00	6.00	1.68	0.85	0.517	1.39	11.92	NoLiq	7.38	19.30	0.21
10.00	6.00	1.68	0.85	0.546	1.35	11.59	NoLiq	7.32	18.91	0.20
11.00	6.00	1.68	0.85	0.576	1.32	11.29	NoLiq	7.26	18.55	0.20
12.00	6.00	1.68	0.85	0.606	1.28	11.01	NoLiq	7.20	18.21	0.20
13.00	3.00	1.68	0.85	0.635	1.25	5.38	NoLiq	6.08	11.45	0.12
14.00	3.00	1.68	0.85	0.665	1.23	5.25	NoLiq	6.05	11.31	0.12
15.00	3.00	1.68	0.95	0.694	1.20	5.75	NoLiq	6.15	11.90	0.13
16.00	3.00	1.68	0.95	0.724	1.18	5.63	NoLiq	6.13	11.75	0.13
17.00	3.00	1.68	0.95	0.754	1.15	5.52	NoLiq	6.10	11.62	0.13
18.00	3.00	1.68	0.95	0.783	1.13	5.41	NoLiq	6.08	11.49	0.12
19.00	2.00	1.68	0.95	0.813	1.11	3.54	NoLiq	5.71	9.25	0.10
20.00	2.00	1.68	0.95	0.842	1.09	3.48	NoLiq	5.70	9.17	0.10
21.00	2.00	1.68	0.95	0.872	1.07	3.42	NoLiq	5.68	9.10	0.10
22.00	2.00	1.68	0.95	0.901	1.05	3.36	NoLiq	5.67	9.03	0.10
23.00	2.00	1.68	0.95	0.931	1.04	3.31	NoLiq	5.66	8.97	0.10
24.00	1.00	1.68	0.95	0.961	1.02	1.63	45.00	5.33	6.95	0.08
25.00	1.00	1.68	0.95	0.990	1.00	1.60	45.00	5.32	6.92	0.08
26.00	2.00	1.68	0.95	1.020	0.99	3.16	16.00	2.94	6.10	0.07
27.00	2.00	1.68	0.95	1.049	0.98	3.12	16.00	2.94	6.05	0.07
28.00	2.00	1.68	1.00	1.079	0.96	3.23	16.00	2.94	6.18	0.07
29.00	2.00	1.68	1.00	1.109	0.95	3.19	NoLiq	5.64	8.83	0.10
30.00	2.00	1.68	1.00	1.138	0.94	3.15	NoLiq	5.63	8.78	0.10
31.00	7.00	1.68	1.00	1.168	0.93	10.88	2.00	0.00	10.88	0.12
32.00	7.00	1.68	1.00	1.197	0.91	10.75	2.00	0.00	10.75	0.12
33.00	7.00	1.68	1.00	1.227	0.90	10.62	2.00	0.00	10.62	0.12

34.00	23.00	1.68	1.00	1.256	0.89	34.47	16.00	4.63	39.10	2.00
35.00	23.00	1.68	1.00	1.286	0.88	34.07	16.00	4.61	38.68	2.00
36.00	23.00	1.68	1.00	1.316	0.87	33.69	16.00	4.59	38.27	2.00
37.00	2.00	1.68	1.00	1.345	0.86	2.90	16.00	2.92	5.82	0.07
38.00	2.00	1.68	1.00	1.375	0.85	2.87	16.00	2.92	5.79	0.07
39.00	2.00	1.68	1.00	1.404	0.84	2.84	16.00	2.92	5.76	0.07
40.00	2.00	1.68	1.00	1.434	0.84	2.81	16.00	2.92	5.72	0.07
41.00	50.00	1.68	1.00	1.463	0.83	69.44	50.00	18.89	88.32	2.00
42.00	50.00	1.68	1.00	1.493	0.82	68.74	50.00	18.75	87.49	2.00
43.00	50.00	1.68	1.00	1.523	0.81	68.07	50.00	18.61	86.69	2.00
44.00	50.00	1.68	1.00	1.552	0.80	67.42	50.00	18.48	85.91	2.00
45.00	50.00	1.68	1.00	1.582	0.80	66.79	50.00	18.36	85.15	2.00
46.00	50.00	1.68	1.00	1.611	0.79	66.17	50.00	18.23	84.41	2.00
47.00	50.00	1.68	1.00	1.641	0.78	65.57	50.00	18.11	83.69	2.00
48.00	50.00	1.68	1.00	1.671	0.77	64.99	50.00	18.00	82.99	2.00
49.00	50.00	1.68	1.00	1.700	0.77	64.42	50.00	17.88	82.31	2.00
50.00	50.00	1.68	1.00	1.730	0.76	63.87	50.00	17.77	81.64	2.00

CRR is based on water table at 8.50 during In-Situ Testing

Factor of Safety, - Earthquake Magnitude= 7.48:

Depth ft	sigC' atm	CRR7.5	X Ksig	=CRRv	X MSF	=CRRm	CSRfs	F.S.=CRRm/CSRfs
0.00	0.00	0.29	1.00	0.29	1.01	0.29	0.46	5.00
1.00	0.04	0.29	1.00	0.29	1.01	0.29	0.46	5.00
2.00	0.08	0.29	1.00	0.29	1.01	0.29	0.45	5.00
3.00	0.12	0.29	1.00	0.29	1.01	0.29	0.45	5.00
4.00	0.15	0.29	1.00	0.29	1.01	0.29	0.45	5.00
5.00	0.19	0.22	1.00	0.22	1.01	2.00	0.45	5.00 ^
6.00	0.23	0.22	1.00	0.22	1.01	2.00	0.49	5.00 ^
7.00	0.27	0.21	1.00	0.21	1.01	2.00	0.52	5.00 ^
8.00	0.31	0.20	1.00	0.20	1.01	2.00	0.55	5.00 ^
9.00	0.34	0.21	1.00	0.21	1.01	2.00	0.57	5.00 ^
10.00	0.36	0.20	1.00	0.20	1.01	2.00	0.59	5.00 ^
11.00	0.37	0.20	1.00	0.20	1.01	2.00	0.61	5.00 ^
12.00	0.39	0.20	1.00	0.20	1.01	2.00	0.63	5.00 ^
13.00	0.41	0.12	1.00	0.12	1.01	2.00	0.64	5.00 ^
14.00	0.43	0.12	1.00	0.12	1.01	2.00	0.65	5.00 ^
15.00	0.45	0.13	1.00	0.13	1.01	2.00	0.66	5.00 ^
16.00	0.47	0.13	1.00	0.13	1.01	2.00	0.67	5.00 ^
17.00	0.49	0.13	1.00	0.13	1.01	2.00	0.68	5.00 ^
18.00	0.51	0.12	1.00	0.12	1.01	2.00	0.68	5.00 ^
19.00	0.53	0.10	1.00	0.10	1.01	2.00	0.69	5.00 ^
20.00	0.55	0.10	1.00	0.10	1.01	2.00	0.70	5.00 ^
21.00	0.57	0.10	1.00	0.10	1.01	2.00	0.70	5.00 ^
22.00	0.59	0.10	1.00	0.10	1.01	2.00	0.70	5.00 ^
23.00	0.61	0.10	1.00	0.10	1.01	2.00	0.71	5.00 ^
24.00	0.62	0.08	1.00	0.08	1.01	0.08	0.71	0.11 *
25.00	0.64	0.08	1.00	0.08	1.01	0.08	0.72	0.11 *
26.00	0.66	0.07	1.00	0.07	1.01	0.07	0.72	0.10 *
27.00	0.68	0.07	1.00	0.07	1.01	0.07	0.72	0.10 *
28.00	0.70	0.07	1.00	0.07	1.01	0.07	0.72	0.10 *
29.00	0.72	0.10	1.00	0.10	1.01	2.00	0.72	5.00 ^
30.00	0.74	0.10	1.00	0.10	1.01	2.00	0.73	5.00 ^
31.00	0.76	0.12	1.00	0.12	1.01	0.12	0.72	0.16 *
32.00	0.78	0.12	1.00	0.12	1.01	0.12	0.72	0.16 *
33.00	0.80	0.12	1.00	0.12	1.01	0.12	0.72	0.16 *
34.00	0.82	2.00	1.00	2.00	1.01	2.01	0.71	2.82
35.00	0.84	2.00	1.00	2.00	1.01	2.01	0.71	2.84
36.00	0.86	2.00	1.00	2.00	1.01	2.01	0.71	2.85
37.00	0.87	0.07	1.00	0.07	1.01	0.07	0.70	0.10 *
38.00	0.89	0.07	1.00	0.07	1.01	0.07	0.70	0.10 *
39.00	0.91	0.07	1.00	0.07	1.01	0.07	0.69	0.10 *
40.00	0.93	0.07	1.00	0.07	1.01	0.07	0.69	0.10 *
41.00	0.95	2.00	1.00	2.00	1.01	2.01	0.68	2.95
42.00	0.97	2.00	1.00	2.00	1.01	2.01	0.68	2.97
43.00	0.99	2.00	1.00	2.00	1.01	2.01	0.67	2.99
44.00	1.01	2.00	1.00	2.01	1.01	2.02	0.67	3.03
45.00	1.03	2.00	1.00	2.00	1.01	2.02	0.66	3.04
46.00	1.05	2.00	1.00	2.00	1.01	2.01	0.66	3.06
47.00	1.07	2.00	1.00	1.99	1.01	2.00	0.65	3.07
48.00	1.09	2.00	0.99	1.99	1.01	2.00	0.65	3.09
49.00	1.11	2.00	0.99	1.98	1.01	1.99	0.64	3.11
50.00	1.12	2.00	0.99	1.97	1.01	1.99	0.64	3.13

* F.S.<1: Liquefaction Potential Zone. (If above water table: F.S.=5)
^ No-liquefiable Soils or above Water Table.
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

CPT convert to SPT for Settlement Analysis:
Fines Correction for Settlement Analysis:

Depth ft	Ic	qc/N60	qc1 atm	(N1)60	Fines %	d(N1)60	(N1)60s
0.00	-	-	-	25.34	16.00	0.00	25.34
1.00	-	-	-	25.34	16.00	0.00	25.34
2.00	-	-	-	25.34	16.00	0.00	25.34
3.00	-	-	-	25.34	16.00	0.00	25.34
4.00	-	-	-	25.34	16.00	0.00	25.34
5.00	-	-	-	20.42	NoLiq	0.00	20.42
6.00	-	-	-	20.24	NoLiq	0.00	20.24
7.00	-	-	-	19.11	NoLiq	0.00	19.11
8.00	-	-	-	18.20	NoLiq	0.00	18.20
9.00	-	-	-	19.30	NoLiq	0.00	19.30
10.00	-	-	-	18.91	NoLiq	0.00	18.91
11.00	-	-	-	18.55	NoLiq	0.00	18.55
12.00	-	-	-	18.21	NoLiq	0.00	18.21
13.00	-	-	-	11.45	NoLiq	0.00	11.45
14.00	-	-	-	11.31	NoLiq	0.00	11.31
15.00	-	-	-	11.90	NoLiq	0.00	11.90
16.00	-	-	-	11.75	NoLiq	0.00	11.75
17.00	-	-	-	11.62	NoLiq	0.00	11.62
18.00	-	-	-	11.49	NoLiq	0.00	11.49
19.00	-	-	-	9.25	NoLiq	0.00	9.25
20.00	-	-	-	9.17	NoLiq	0.00	9.17
21.00	-	-	-	9.10	NoLiq	0.00	9.10
22.00	-	-	-	9.03	NoLiq	0.00	9.03
23.00	-	-	-	8.97	NoLiq	0.00	8.97
24.00	-	-	-	6.95	45.00	0.00	6.95
25.00	-	-	-	6.92	45.00	0.00	6.92
26.00	-	-	-	6.10	16.00	0.00	6.10
27.00	-	-	-	6.05	16.00	0.00	6.05
28.00	-	-	-	6.18	16.00	0.00	6.18
29.00	-	-	-	8.83	NoLiq	0.00	8.83
30.00	-	-	-	8.78	NoLiq	0.00	8.78
31.00	-	-	-	10.88	2.00	0.00	10.88
32.00	-	-	-	10.75	2.00	0.00	10.75
33.00	-	-	-	10.62	2.00	0.00	10.62
34.00	-	-	-	39.10	16.00	0.00	39.10
35.00	-	-	-	38.68	16.00	0.00	38.68
36.00	-	-	-	38.27	16.00	0.00	38.27
37.00	-	-	-	5.82	16.00	0.00	5.82
38.00	-	-	-	5.79	16.00	0.00	5.79
39.00	-	-	-	5.76	16.00	0.00	5.76
40.00	-	-	-	5.72	16.00	0.00	5.72
41.00	-	-	-	88.32	50.00	0.00	88.32
42.00	-	-	-	87.49	50.00	0.00	87.49
43.00	-	-	-	86.69	50.00	0.00	86.69
44.00	-	-	-	85.91	50.00	0.00	85.91
45.00	-	-	-	85.15	50.00	0.00	85.15
46.00	-	-	-	84.41	50.00	0.00	84.41
47.00	-	-	-	83.69	50.00	0.00	83.69
48.00	-	-	-	82.99	50.00	0.00	82.99
49.00	-	-	-	82.31	50.00	0.00	82.31
50.00	-	-	-	81.64	50.00	0.00	81.64

(N1)60s has been fines corrected in liquefaction analysis, therefore d(N1)60=0.
Fines=NoLiq means the soils are not liquefiable.

Settlement of Saturated Sands:
Settlement Analysis Method: Ishihara / Yoshimine

Depth ft	CSRsf	/ MSF*	=CSRm	F.S.	Fines %	(N1)60s	Dr %	ec %	dsz in.	dsp in.	S in.
49.95	0.64	1.00	0.64	3.12	50.00	81.68	100.00	0.000	0.0E0	0.000	0.000
49.00	0.64	1.00	0.64	3.11	50.00	82.31	100.00	0.000	0.0E0	0.000	0.000
48.00	0.65	1.00	0.65	3.09	50.00	82.99	100.00	0.000	0.0E0	0.000	0.000
47.00	0.65	1.00	0.65	3.07	50.00	83.69	100.00	0.000	0.0E0	0.000	0.000
46.00	0.66	1.00	0.66	3.06	50.00	84.41	100.00	0.000	0.0E0	0.000	0.000
45.00	0.66	1.00	0.66	3.04	50.00	85.15	100.00	0.000	0.0E0	0.000	0.000
44.00	0.67	1.00	0.67	3.03	50.00	85.91	100.00	0.000	0.0E0	0.000	0.000
43.00	0.67	1.00	0.67	2.99	50.00	86.69	100.00	0.000	0.0E0	0.000	0.000
42.00	0.68	1.00	0.68	2.97	50.00	87.49	100.00	0.000	0.0E0	0.000	0.000
41.00	0.68	1.00	0.68	2.95	50.00	88.32	100.00	0.000	0.0E0	0.000	0.000
40.00	0.69	1.00	0.69	0.10	16.00	5.72	39.01	4.621	2.8E-2	0.028	0.028

39.00	0.69	1.00	0.69	0.10	16.00	5.76	39.10	4.612	2.8E-2	0.554	0.582
38.00	0.70	1.00	0.70	0.10	16.00	5.79	39.20	4.602	2.8E-2	0.553	1.134
37.00	0.70	1.00	0.70	0.10	16.00	5.82	39.30	4.592	2.8E-2	0.552	1.686
36.00	0.71	1.00	0.71	2.85	16.00	38.27	100.00	0.000	0.0E0	0.523	2.209
35.00	0.71	1.00	0.71	2.84	16.00	38.68	100.00	0.000	0.0E0	0.000	2.209
34.00	0.71	1.00	0.71	2.82	16.00	39.10	100.00	0.000	0.0E0	0.000	2.209
33.00	0.72	1.00	0.72	0.16	2.00	10.62	51.99	3.376	2.0E-2	0.020	2.229
32.00	0.72	1.00	0.72	0.16	2.00	10.75	52.30	3.354	2.0E-2	0.404	2.633
31.00	0.72	1.00	0.72	0.16	2.00	10.88	52.61	3.332	2.0E-2	0.401	3.034
30.00	0.73	1.00	0.73	5.00	NoLiq	8.78	47.52	0.000	0.0E0	0.379	3.413
29.00	0.72	1.00	0.72	5.00	NoLiq	8.83	47.65	0.000	0.0E0	0.000	3.413
28.00	0.72	1.00	0.72	0.10	16.00	6.18	40.36	4.487	2.7E-2	0.296	3.709
27.00	0.72	1.00	0.72	0.10	16.00	6.05	39.99	4.525	2.7E-2	0.543	4.252
26.00	0.72	1.00	0.72	0.10	16.00	6.10	40.13	4.511	2.7E-2	0.542	4.794
25.00	0.72	1.00	0.72	0.11	45.00	6.92	42.53	4.270	2.6E-2	0.539	5.333
24.00	0.71	1.00	0.71	0.11	45.00	6.95	42.61	4.261	2.6E-2	0.512	5.845
23.00	0.71	1.00	0.71	5.00	NoLiq	8.97	48.00	0.000	0.0E0	0.230	6.075
22.00	0.70	1.00	0.70	5.00	NoLiq	9.03	48.16	0.000	0.0E0	0.000	6.075
21.00	0.70	1.00	0.70	5.00	NoLiq	9.10	48.34	0.000	0.0E0	0.000	6.075
20.00	0.70	1.00	0.70	5.00	NoLiq	9.17	48.51	0.000	0.0E0	0.000	6.075
19.00	0.69	1.00	0.69	5.00	NoLiq	9.25	48.70	0.000	0.0E0	0.000	6.075
18.00	0.68	1.00	0.68	5.00	NoLiq	11.49	53.99	0.000	0.0E0	0.000	6.075
17.00	0.68	1.00	0.68	5.00	NoLiq	11.62	54.27	0.000	0.0E0	0.000	6.075
16.00	0.67	1.00	0.67	5.00	NoLiq	11.75	54.56	0.000	0.0E0	0.000	6.075
15.00	0.66	1.00	0.66	5.00	NoLiq	11.90	54.88	0.000	0.0E0	0.000	6.075
14.00	0.65	1.00	0.65	5.00	NoLiq	11.31	53.57	0.000	0.0E0	0.000	6.075
13.00	0.64	1.00	0.64	5.00	NoLiq	11.45	53.89	0.000	0.0E0	0.000	6.075
12.00	0.63	1.00	0.63	5.00	NoLiq	18.21	67.30	0.000	0.0E0	0.000	6.075
11.00	0.61	1.00	0.61	5.00	NoLiq	18.55	67.91	0.000	0.0E0	0.000	6.075
10.00	0.59	1.00	0.59	5.00	NoLiq	18.91	68.57	0.000	0.0E0	0.000	6.075
9.00	0.57	1.00	0.57	5.00	NoLiq	19.30	69.28	0.000	0.0E0	0.000	6.075
8.00	0.55	1.00	0.55	5.00	NoLiq	18.20	67.28	0.000	0.0E0	0.000	6.075
7.00	0.52	1.00	0.52	5.00	NoLiq	19.11	68.93	0.000	0.0E0	0.000	6.075
6.00	0.49	1.00	0.49	5.00	NoLiq	20.24	70.97	0.000	0.0E0	0.000	6.075
5.00	0.45	1.00	0.45	5.00	NoLiq	20.42	71.30	0.000	0.0E0	0.000	6.075

Settlement of Saturated Sands=6.075 in.
qc1 and (N1)60 is after fines correction in liquefaction analysis
dsz is per each segment, dz=0.05 ft
dsp is per each print interval, dp=1.00 ft
S is cumulated settlement at this depth

Settlement of Unsaturated Sands:

Depth ft	sigma' atm	sigC' atm	(N1)60s	CSRsf	Gmax atm	g*Ge/Gm	g_eff	ec7.5 %	Cec	ec %	dsz in.	dsp in.	S in.
4.95	0.29	0.19	25.34	0.45	572.07	2.3E-4	0.0533	0.0385	1.05	0.0405	4.86E-4	0.000	0.000
4.00	0.24	0.15	25.34	0.45	514.25	2.1E-4	0.0412	0.0297	1.05	0.0313	3.75E-4	0.008	0.008
3.00	0.18	0.12	25.34	0.45	445.36	1.8E-4	0.0428	0.0309	1.05	0.0325	3.90E-4	0.011	0.020
2.00	0.12	0.08	25.34	0.45	363.64	1.5E-4	0.0285	0.0206	1.05	0.0217	2.60E-4	0.006	0.026
1.00	0.06	0.04	25.34	0.46	257.14	1.0E-4	0.0214	0.0154	1.05	0.0162	1.95E-4	0.004	0.030
0.00	0.00	0.00	25.34	0.46	3.35	1.4E-6	0.0010	0.0007	1.05	0.0008	9.26E-6	0.002	0.033

Settlement of Unsaturated Sands=0.033 in.
dsz is per each segment, dz=0.05 ft
dsp is per each print interval, dp=1.00 ft
S is cumulated settlement at this depth

Total Settlement of Saturated and Unsaturated Sands=6.108 in.
Differential Settlement=3.054 to 4.031 in.

Units: Unit: qc, fs, Stress or Pressure = atm (1.0581tsf); Unit Weight = pcf; Depth = ft; Settlement = in.

1 atm (atmosphere) = 1.0581 tsf(1 tsf = 1 ton/ft2 = 2 kip/ft2)
1 atm (atmosphere) = 101.325 kPa(1 kPa = 1 kN/m2 = 0.001 Mpa)
SPT Field data from Standard Penetration Test (SPT)

BPT	Field data from Becker Penetration Test (BPT)
qc	Field data from Cone Penetration Test (CPT) [atm (tsf)]
fs	Friction from CPT testing [atm (tsf)]
Rf	Ratio of fs/qc (%)
gamma	Total unit weight of soil
gamma'	Effective unit weight of soil
Fines	Fines content [%]
D50	Mean grain size
Dr	Relative Density
sigma	Total vertical stress [atm]
sigma'	Effective vertical stress [atm]
sigC'	Effective confining pressure [atm]
rd	Acceleration reduction coefficient by Seed
a_max.	Peak Ground Acceleration (PGA) in ground surface
mZ	Linear acceleration reduction coefficient X depth
a_min.	Minimum acceleration under linear reduction, mZ
CRRv	CRR after overburden stress correction, CRRv=CRR7.5 * Ksig
CRR7.5	Cyclic resistance ratio (M=7.5)
Ksig	Overburden stress correction factor for CRR7.5
CRRm	After magnitude scaling correction CRRm=CRRv * MSF
MSF	Magnitude scaling factor from M=7.5 to user input M
CSR	Cyclic stress ratio induced by earthquake
CSRfs	CSRfs=CSR*fs1 (Default fs1=1)
fs1	First CSR curve in graphic defined in #9 of Advanced page
fs2	2nd CSR curve in graphic defined in #9 of Advanced page
F.S.	Calculated factor of safety against liquefaction F.S.=CRRm/CSRsf
Cebs	Energy Ratio, Borehole Dia., and Sampling Method Corrections
Cr	Rod Length Corrections
Cn	Overburden Pressure Correction
(N1)60	SPT after corrections, (N1)60=SPT * Cr * Cn * Cebs
d(N1)60	Fines correction of SPT
(N1)60f	(N1)60 after fines corrections, (N1)60f=(N1)60 + d(N1)60
Cq	Overburden stress correction factor
qc1	CPT after Overburden stress correction
dqc1	Fines correction of CPT
qc1f	CPT after Fines and Overburden correction, qc1f=qc1 + dqc1
qc1n	CPT after normalization in Robertson's method
Kc	Fine correction factor in Robertson's Method
qc1f	CPT after Fines correction in Robertson's Method
Ic	Soil type index in Suzuki's and Robertson's Methods
(N1)60s	(N1)60 after settlement fines corrections
CSRm	After magnitude scaling correction for Settlement calculation CSRm=CSRsf / MSF*
CSRfs	Cyclic stress ratio induced by earthquake with user inputed fs
MSF*	Scaling factor from CSR, MSF*=1, based on Item 2 of Page C.
ec	Volumetric strain for saturated sands
dz	Calculation segment, dz=0.050 ft
dsz	Settlement in each segment, dz
dp	User defined print interval
dsp	Settlement in each print interval, dp
Gmax	Shear Modulus at low strain
g_eff	gamma_eff, Effective shear Strain
g*Ge/Gm	gamma_eff * G_eff/G_max, Strain-modulus ratio
ec7.5	Volumetric Strain for magnitude=7.5
Cec	Magnitude correction factor for any magnitude
ec	Volumetric strain for unsaturated sands, ec=Cec * ec7.5
NoLiq	No-Liquefy Soils

References:

1. NCEER Workshop on Evaluation of Liquefaction Resistance of Soils. Youd, T.L., and Idriss, I.M., eds., Technical Report NCEER 97-0022.
SP117. Southern California Earthquake Center. Recommended Procedures for Implementation of DMG Special Publication 117, Guidelines for
Analyzing and Mitigating Liquefaction in California. University of Southern California. March 1999.
2. RECENT ADVANCES IN SOIL LIQUEFACTION ENGINEERING AND SEISMIC SITE RESPONSE EVALUATION, Paper No. SPL-2, PROCEEDINGS: Fourth
International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics, San Diego, CA, March 2001.
3. RECENT ADVANCES IN SOIL LIQUEFACTION ENGINEERING: A UNIFIED AND CONSISTENT FRAMEWORK, Earthquake Engineering Research Center,
Report No. EERC 2003-06 by R.B Seed and etc. April 2003.

Note: Print Interval you selected does not show complete results. To get complete results, you should select 'Segment' in Print Interval (Item 12, Page C).

APPENDIX E

ENERGY MEASUREMENT FOR DYNAMIC PENETROMETERS, PREPARED BY GRL ENGINEERS, INC., DATED MAY 14, 2019












Job No. 198075-1

Report on:
Energy Measurement for Dynamic Penetrometers – Standard Penetration Test
Truck 60126U1 CME 75 Drill Rig Calibration
Fresno, CA

Prepared for Moore Twining Associates, Inc.
By Camilo Alvarez, PE & William Chambers

May 14, 2019

GRL engineers, inc.

Dynamic Measurements and Analyses

May 14, 2019

Allen Bushey
Moore Twining Associates, Inc

Re: Energy Measurement for Dynamic Penetrometers
Standard Penetration Test (SPT) on Truck 60126U1 CME 75 drill rig
Fresno, CA. GRL Job No. 198075-1

Dear Mr. Allen Bushey:

This report transmits our findings from energy measurements and related data analysis conducted by GRL Engineers, Inc. (GRL) for your Truck 60126U1 mounted CME 75 drill rig located Fresno, CA. One automatic hammer and penetrometer system was monitored during Standard Penetration Test (SPT) of the test borehole BH2. Dynamic testing summarized in this report was conducted on May 10, 2019.

The purpose in collecting the SPT energy measurements was to compute the energy transfer efficiency for a single SPT hammer. To meet this objective, an 8G Model, Pile Driving Analyzer® (PDA) utilizing the SPT Analyzer feature was used to acquire and process the dynamic test data. Additional information regarding the testing equipment and analytical procedures is provided in Appendix A.

Test Sequence

Using an instrumented AW-J rod for a Truck 60126U1 mounted CME 75 drill rig at test borehole BH2, energy measurements were made at four sample depths for the drill rig. From BH2, the dynamic measurements were obtained from sample depths of 15, 18, 20 and 23 ft. Each sample depth consisted of energy measurements of 18 inches of driving.

Energy Transfer Measurements

A Model 8G Pile Driving Analyzer was used to take measurements of strain and acceleration. The strain and acceleration signals were conditioned and converted to forces and velocities by the PDA. The PDA interprets the measured dynamic data according to the Case Method equations. Force and velocity records from the PDA were also viewed graphically on an LCD screen to evaluate data quality. All force and velocity records were also digitally stored for subsequent analysis.

The maximum energy transferred to the rod (EMX) was calculated by integrating both the force and velocity records over time as follows:

$$EMX = \int F(t)V(t)dt$$

Where: $F(t)$ = the force at time t
$V(t)$ = the velocity at time t

The energy transfer ratio or efficiency is computed by dividing EMX by the theoretical SPT hammer energy of 350 lb-ft (computed from the product of the hammer weight, assumed to be the standard 140 lbs, and the fall height, assumed to be 2.5 ft). The SPT N values can then be corrected for a nominal 60% transfer efficiency, $N_{60,}$ as follows:

$$N_{60} = (e_m / 60)\, N_m$$

Where: e_m = the measured transfer ratio (ETR)
N_m = the measured SPT "N" value

Conclusions

Table 1 in Appendix B presents a summary of the average transferred energy and the energy transfer ratio for the single drill rig at each sample depth calculated using the *EMX* equation. Included in Table 1 are also average values of the hammer operating rate, maximum impact force and maximum velocity of the rod. The overall performance, which represents the average of data from all sample depths for each rig/rod type is also shown. Complete data, including the maximum, minimum and standard deviation for each sampling depth, is included in Appendix B.

For the Truck 60126U1 mounted CME 75 drill rig at BH2, the average energy transfer ratio from individual sample depths ranged from 85.0 to 87.0%.

The average, overall transfer ratio (for all sampling depths weighted by N-values for each sample) were as follows:

SPT Rig (*Serial Number*)	Overall Transfer Efficiency	Hammer Operating Rate (BPM)
Truck 60126U1 CME 75 drill rig at BH2	**86.4%**	**52.3**

Presented N_{60} values, provided in the Table 1 in Appendix B, does not account for any required corrections such as those for overburden or sampling spoon.

We appreciate the opportunity to be of assistance to you. Please do not hesitate to contact us if you have any questions regarding this report, or if we may be of further service.

Respectfully,

GRL Engineers, Inc.

Camilo Alvarez, P.E. William Chambers, CPEng RPEQ

APPENDIX A
AN INTRODUCTION INTO SPT DYNAMIC PILE TESTING

The following has been written by GRL Engineers, Inc. and may only be copied with its written permission.

1. BACKGROUND

The Standard Penetration Test is frequently conducted as an in-situ assessment of soil strength. This test requires that a 140 lb weight is dropped 30 inches onto a drive rod at whose bottom a sampler is usually installed. The sampler is driven for 18 inches; the number of blows required for the last 12 inches of driving is the so-called N-value. The N-value may be used as a strength indicator for foundation design or as a means of assessing the liquefaction potential of soils.

Obviously, the SPT hammer efficiency is an important consideration when using the N-values for design purposes. Measurements have indicated that the energy in the drive rod is sometimes only 30% and and may reach 90% of the potential or rated energy of the SPT hammer (E-rated = 0.35 kip-ft or 0.475 kJ). The type of hammer used to drive the rod is the main reason for these variations. On the average, the energy in the drive rod is 60% of the standard rated energy.

Because of the variability of energy, methods based on N-values are considered unreliable. However, measurements during SPT testing using the Case Method can be done on a routine basis and these measurements yield the transferred energy values. With measured energy, EMX, known, an adjustment of the measured N-value, N_m, can be made as follows.

$$N_{60} = N_m [E_m / (0.6E_r)] \quad (1)$$

Thus, if the measured energy value is equal to the normally expected transferred energy of 60% of E-rated then the adjusted and measured N-values are identical. On the other hand, if the measured energy is only 30% then the adjusted blow count will be reduced by 50%.

2. DYNAMIC TESTING AND ANALYSIS METHODS APPLIED TO SPT

The Case Method of dynamic pile testing, named after the Case Institute of Technology where it was developed between 1964 and 1975, requires that a substantial ram mass (e.g. a pile driving hammer) impacts the pile top such that the pile undergoes at least a small permanent set. Thus, the method is also referred to as a “High Strain Method”. The Case Method requires dynamic measurements on the pile or shaft under the ram impact and then a calculation of various quantities. Conveniently, for SPT applications, the measurements and analyses are done by a single piece of equipment: the SPT Analyzer. The Pile Driving Analyzer® (PDA) is also suitable to perform these measurements and data processing.

A related analysis method is the “Wave Equation Analysis” which calculates a relationship between bearing capacity, pile stresses, transferred energy and field blow count. The GRLWEAP™ program performs this analysis and provides a complete set of helpful information and input data. This program can be used very effectively to simulate the SPT driving process.

3. MEASUREMENTS

GRL uses equipment manufactured by Pile Dynamics, Inc. The system includes either an SPT-Analyzer™ (SPTA) or a Pile Driving Analyzer® (PDA), an instrumented rod section and two accelerometers. SPT energy testing is very closely related to and borrows procedures from dynamic pile testing. Those interested in the basis of the SPT energy testing method may obtain extensive literature on dynamic pile testing from GRL Engineers, Inc.

3.1 SPT Analyzer or Pile Driving Analyzer

The basis for the results calculated by the SPTA or PDA are strain and acceleration measured in an instrumented rod section. These signals are converted to rod top force, F(t), and rod top velocity, v(t). The SPTA or PDA conditions, calibrates and displays these signals and immediately computes average pile force and velocity thereby eliminating bending effects. The product of these two

measurements is then integrated over time which yields the energy transferred to the instrumented section as a function of time (see Section 4.1).

For convenience and accuracy, strain measurements are usually taken on an instrumented section of SPT drive rod. Ideally, the section properties of the instrumented rod and those of the drive rod are the same, however, using subs, other sections can also be utilized.

For the instrumented section, PDI provides a force calibration in such a way that the output of the instrumented rod is directly calculated without the need for an accurate elastic modulus or cross sectional area of the rod section.

The acceleration measurements are often demanding in the SPT environment, because of high frequency and high acceleration motion components. An experienced measurement engineer, therefore, has to evaluate the quality of this data before final conclusions are drawn from the numerical results calculated by SPTA or PDA.

SPTA or PDA records are taken while the standard N-value is acquired in the conventional manner. This then allows a direct correlation between N-value and average transferred energy.

3.2 HPA

The SPT hammer's ram velocity may be directly obtained using radar technology in the Hammer Performance Analyzer™. The impact velocity results can be automatically processed with a PC or recorded on a strip chart. HPA measurements yield a hammer kinetic energy, but not the energy transferred to the drive rod.

4 RECORD EVALUATION BY SPTA OR PDA

4.1 HAMMER PERFORMANCE

The PDA calculates the energy transferred to the pile top from:

$$E(t) = {}_0\int^t F(\tau)v(\tau)\, d\tau \qquad (2)$$

The maximum of the E(t) curve is often called **ENTHRU or EMX;** it is the most important quantity for an overall evaluation of the performance of a hammer and driving system. **EMX** allows for a classification of the hammer's performance when presented as, e_T, the rated transfer efficiency, also called energy transfer ratio (**ETR**) or global efficiency.

$$e_T = EMX/E_R \qquad (3)$$

where E_R is the hammer manufacturer's rated energy value or 0.35 kip-ft (0.475 kJ) in the case of the SPT hammer.

Often in the SPT literature one finds also reference to the EF2 energy. This evaluation is based on assumed proportionality between force and velocity (see also Section 5):

$$v(t) = F(t) / Z \qquad (4)$$

where Z = EA/c is the pile impedance, E is the elastic modulus, A is the cross sectional area and c is the speed of the stress wave in the pile material..

Combining equations 2 and 4 leads to

$$EF(t) = {}_0\int^t F(\tau)^2 / Z\, d\tau \qquad (5)$$

The EF2 transferred energy value is the EF-value at the time t = 2L/c, where L is the drive rod length and c is the stress wave speed in steel (16,800 ft/s or 5,124 m/s). Since the force is easier to measure than both force and velocity, Equation 5 is preferred by some test engineers. However, the EF method is fraught with errors and certain correction factors have to be applied to make it approximately correct. Among the error sources are the following:

- Proportionality is often violated prior to time 2L/c. The proportionality between force and velocity in a downward traveling wave only holds if the wave does not encounter a disturbance prior to reflecting off the pile toe. Such disturbances include a change in cross sectional area, an open or loose splice or joint, or resistance along the shaft.

- Using only one force measurement precludes a data quality check based on the proportionality between force and velocity. Thus, a force measurement that is for some reason in error may not be detectable, which will lead to errors in the EF2 value. Data quality checks will be discussed further in Section 5.

The use if EF2 is therefore not recommended but it is often included in result presentations for the sake of completeness.

4.2 STRESSES

During SPT monitoring, it is also of interest to monitor compressive stresses at both the top of the drive rod and at its bottom.

At the pile top (location of sensors) the maximum compression stress averaged over the rod's cross section, **CSX**, is directly obtained from the measurements. Note that this stress value refers to the instrumented section. If the rod has a different cross sectional area then the stress in the rod will be different from CSX.

The SPTA or PDA can also calculate, in an approximate manner, the force at the rod bottom, **CFB**. To obtain the corresponding stress, this force value should be divided by the appropriate cross sectional area, e.g. by the rod area just above the sampler or by the sampler area itself. Of course, non-uniform stress components as they might occur at the sampler tip due to a sloping rock are not considered in this calculation.

5. DATA QUALITY CHECKS

Quality data is the first and foremost requirement for accurate dynamic testing results. It is therefore important that the measurement engineer performing SPTA or PDA tests has the experience necessary to recognize measurement problems and take appropriate corrective action should problems develop. Fortunately, dynamic pile testing allows for certain data quality checks because two independent measurements are taken that have to conform to the so-called proportionality relationship.

As long as there is only a wave traveling in one direction, as is the case during impact when only a downward traveling wave exists in the rod, force and velocity measured at its top are proportional

$$F = v\,Z \qquad (5)$$

where Z is again the pile impedance, Z = EA/c. This relationship can also be expressed in terms of stress

$$\sigma = F/A = v\,(E/c) \qquad (6)$$

or strain

$$\epsilon = \sigma/E = v / c \qquad (7)$$

This means that the early portion of strain times wave speed must be equal to the velocity unless the proportionality is affected by high friction near the pile top or by a pile cross sectional change not far below the sensors. Checking the proportionality is an excellent means of assuring meaningful measurements but is only truly meaningful for perfectly uniform rods. Open or loose splices, for example, will lead to a non-proportionality. For SPT rods it is fortunate that usually no soil resistance acts along the shaft and for that reason, proportionality can exist until the stress wave returns from sampler top or rod bottom unless connectors are not sufficiently tightened or have a significant mass.

Velocity data quality can also be checked by looking at the final displacement, DFN, which is calculated from the acceleration by double integration. If the calculated final displacement is much higher or lower than indicated by the N-value, the accelerometer attachment may be loose or the sensor may be faulty. If major drift in the velocity is observed, the EMX value may be in error, even though proportionality from impact to time 2L/c exists. In this case, it may be useful to evaluate the energy transferred to the drill rod at time 2L/c, which is calculated by the PDA or SPTA as the E2E quantity.

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Appendix B

SPT Analyses Results

Summary of SPT Test Results

Project: TRUCK 60126U1, Test Date: 5/10/2019

FMX: Maximum Force
VMX: Maximum Velocity
BPM: Blows/Minute

EFV: Maximum Energy
ETR: Energy Transfer Ratio - Rated

Instr. Length ft	Blows Applied /6"	**N Value**	**N60 Value**	Average FMX kips	Average VMX ft/s	Average BPM bpm	Average EFV ft-lb	Average ETR %
18.00	**5-7-8**	**15**	**21**	23	17.7	49.4	299	85.5
23.00	**1-5-11**	**16**	**23**	28	17.5	54.4	304	87.0
23.00	**7-18-20**	**38**	**54**	27	15.4	51.8	303	86.4
28.00	**4-6-9**	**15**	**21**	26	14.3	54.3	302	86.4
		Overall Average Values:		26	16.0	52.3	302	86.4
		Standard Deviation:		2	1.4	1.8	8	2.3
		Overall Maximum Value:		29	18.5	54.7	319	91.0
		Overall Minimum Value:		21	13.2	49.2	281	80.3

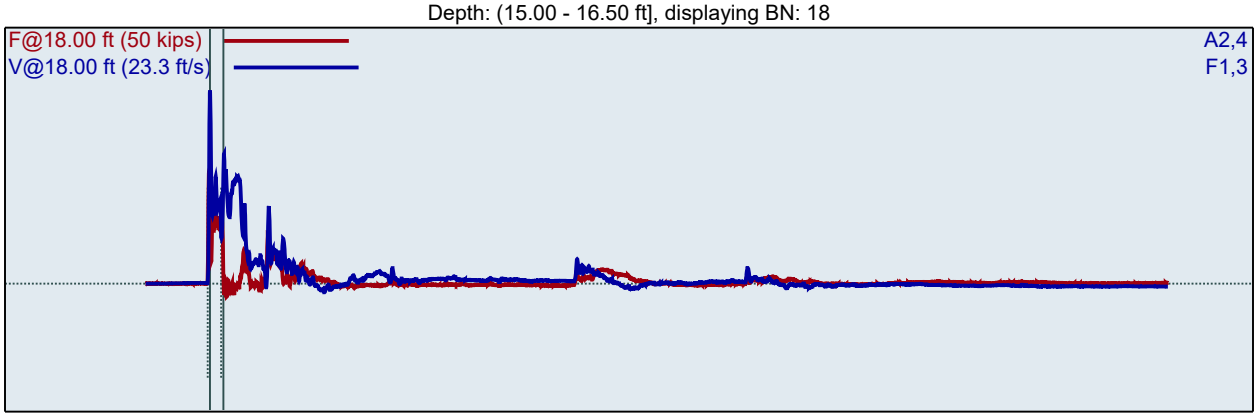
TRUCK 60126U1
GRL CA
BH2

CME75 15FT
Test date: 5/10/2019

AR: 1.20 in^2
LE: 18.00 ft
WS: 16807.9 ft/s

SP: 0.492 k/ft3
EM: 30000 ksi

Depth: (15.00 - 16.50 ft], displaying BN: 18



F1 : [217AWJ1] 214 PDICAL (1) FF6
F3 : [217AWJ2] 214.53 PDICAL (1) FF6

A2 (PR): [K0025] 478 mv/6.4v/5000g (1) VF6
A4 (PR): [K1388] 384 mv/6.4v/5000g (1) VF6

FMX: Maximum Force
VMX: Maximum Velocity
BPM: Blows/Minute

EFV: Maximum Energy
ETR: Energy Transfer Ratio - Rated

BL#	BC /6"	FMX kips	VMX ft/s	BPM bpm	EFV ft-lb	ETR %
1	5	24	18.4	1.9	291	83.2
2	5	25	18.4	49.1	300	85.6
3	5	25	18.9	49.3	302	86.2
4	5	25	18.5	49.2	300	85.6
5	5	24	18.3	49.4	305	87.2
6	7	25	18.5	49.2	304	86.8
7	7	23	18.4	49.5	295	84.3
8	7	23	17.9	49.4	303	86.7
9	7	23	17.9	49.3	304	86.9
10	7	23	17.6	49.2	308	88.1
11	7	22	17.7	49.4	310	88.6
12	7	23	17.9	49.5	298	85.3
13	8	22	17.1	49.3	302	86.2
14	8	23	18.0	49.8	294	83.9
15	8	22	17.4	49.4	292	83.5
16	8	22	17.3	49.3	294	83.9
17	8	23	17.4	49.2	294	83.9
18	8	22	17.6	49.3	300	85.8
19	8	21	17.2	49.6	295	84.4
20	8	22	17.5	49.5	294	83.9
	Average	23	17.7	49.4	299	85.5
	Std Dev	1	0.4	0.2	6	1.6
	Maximum	25	18.5	49.8	310	88.6
	Minimum	21	17.1	49.2	292	83.5

N-value: 15

Sample Interval Time: 23.09 seconds.

TRUCK 60126U1 - CME75 15FT BH2
OP: GRL CA Date: 10-May-2019

AR: 1.20 in² SP: 0.492 k/ft³
LE: 18.00 ft EM: 30,000 ksi
WS: 16,807.9 f/s JC: 0.90

FMX: Maximum Force
VMX: Maximum Velocity
EMX: Maximum Energy
ETR: Energy Transfer Ratio - Rated
BPM: Blows/Minute
EFV: Maximum Energy
RAT: Length Ratio for SPT

BL#	Depth ft	BLC bl/6in	TYPE	FMX kips	VMX f/s	EMX k-ft	ETR (%)	BPM bpm	EFV k-ft	RAT
5	15.50	5	AV4	26	19.1	301.3	86.1	49.3	301.3	1.1
			STD	1	0.3	2.7	0.8	0.1	2.7	0.0
			MAX	28	19.5	305.4	87.3	49.4	305.4	1.1
			MIN	25	18.8	298.3	85.2	49.1	298.3	1.1
12	16.00	7	AV7	24	18.4	303.7	86.8	49.3	303.7	1.2
			STD	1	0.4	5.1	1.4	0.1	5.1	0.0
			MAX	26	19.1	310.9	88.8	49.5	310.9	1.2
			MIN	23	18.0	294.6	84.2	49.2	294.6	1.1
20	16.50	8	AV8	23	17.8	295.6	84.5	49.4	295.6	1.2
			STD	1	0.3	3.7	1.0	0.2	3.7	0.0
			MAX	25	18.4	302.8	86.5	49.8	302.8	1.2
			MIN	22	17.4	292.3	83.5	49.2	292.3	1.2
			Average	24	18.3	299.8	85.7	49.4	299.8	1.2
			Std. Dev.	2	0.6	5.5	1.6	0.2	5.5	0.0
			Maximum	28	19.5	310.9	88.8	49.8	310.9	1.2
			Minimum	22	17.4	292.3	83.5	49.1	292.3	1.1

Total number of blows analyzed: 19

BL# Sensors

2-20 F1: [217AWJ1] 214.0 (1.00); F3: [217AWJ2] 214.5 (1.00); A2: [K0025] 478.0 (1.00); A4: [K1388] 384.0 (1.00)

Time Summary

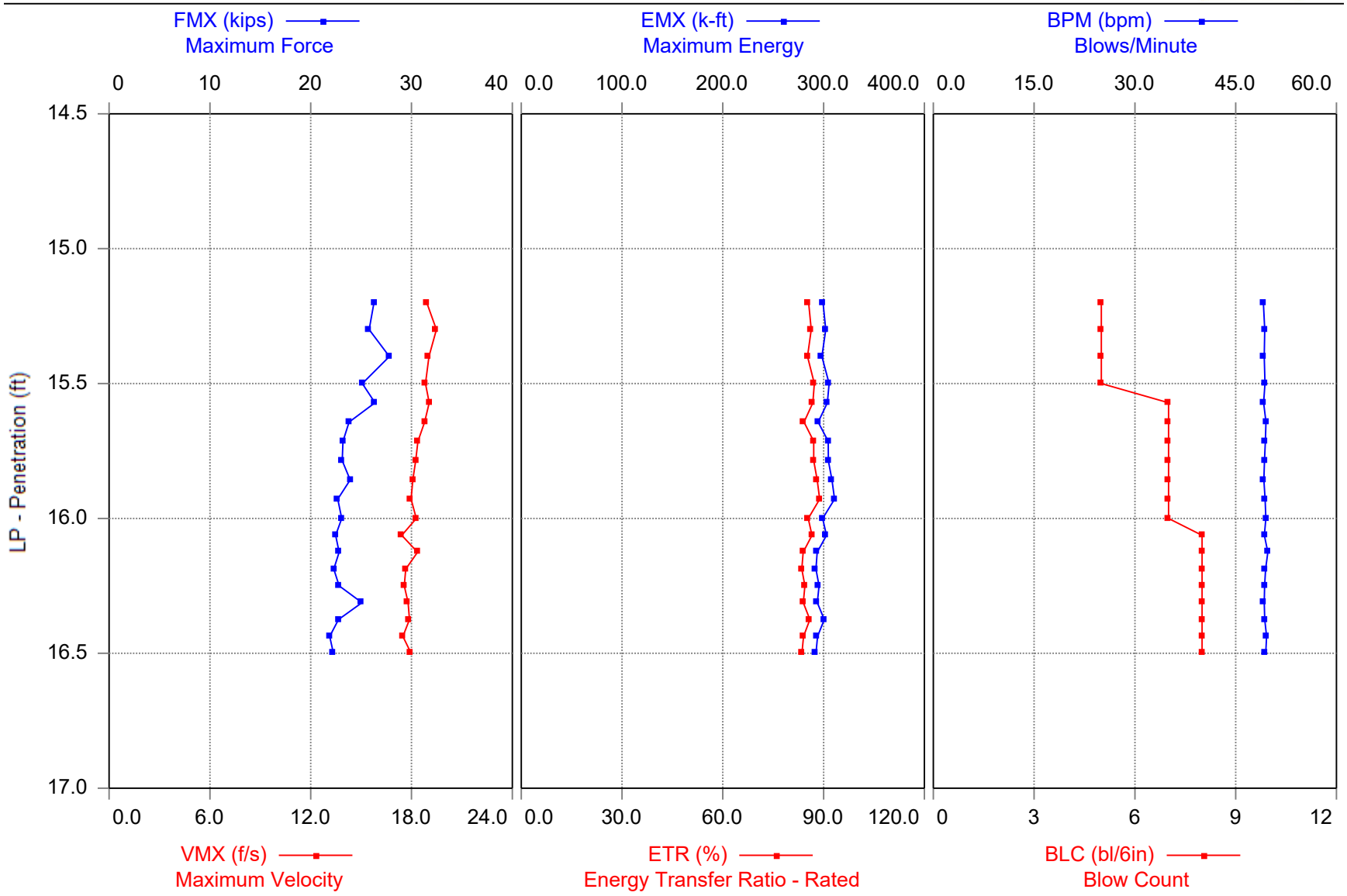
Drive 23 seconds 8:30 AM - 8:30 AM BN 1 - 20

GRL Engineers, Inc. - PDIPLOT2 Ver 2017.2.58.5 - Case Method & iCAP® Results

Printed: 13-May-2019

Test started: 10-May-2019

TRUCK 60126U1 - CME75 15FT



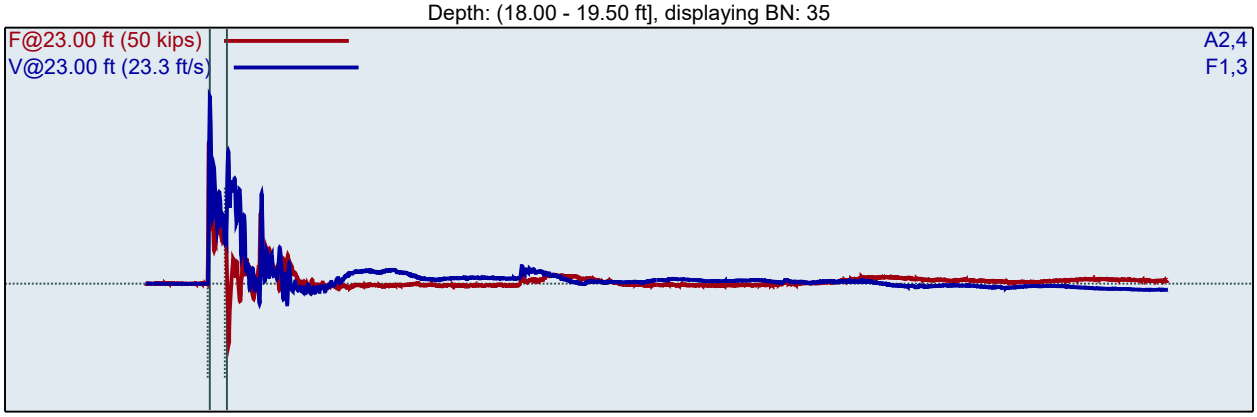
TRUCK 60126U1
GRL CA
BH2

CME75 15FT
Test date: 5/10/2019

AR: 1.20 in^2
LE: 23.00 ft
WS: 16807.9 ft/s

SP: 0.492 k/ft3
EM: 30000 ksi

Depth: (18.00 - 19.50 ft], displaying BN: 35



F1 : [217AWJ1] 214 PDICAL (1) FF6
F3 : [217AWJ2] 214.53 PDICAL (1) FF6

A2 (PR): [K0025] 478 mv/6.4v/5000g (1) VF6
A4 (PR): [K1388] 384 mv/6.4v/5000g (1) VF6

BL#	BC /6"	FMX kips	VMX ft/s	BPM bpm	EFV ft-lb	ETR %
21	1	27	17.0	1.9	306	87.4
22	5	27	17.3	53.4	297	84.9
23	5	29	17.5	54.2	296	84.7
24	5	28	17.7	54.5	309	88.3
25	5	28	17.8	54.3	305	87.0
26	5	26	17.2	54.4	311	88.8
27	11	29	17.5	54.6	290	82.7
28	11	28	17.9	54.4	285	81.4
29	11	29	17.6	54.4	300	85.7
30	11	29	17.6	54.3	309	88.3
31	11	27	17.4	54.5	312	89.1
32	11	29	17.7	54.4	303	86.7
33	11	29	17.7	54.7	302	86.2
34	11	29	17.6	54.3	319	91.0
35	11	28	17.1	54.6	314	89.7
36	11	28	17.1	54.3	311	88.8
37	11	29	17.2	54.5	308	88.0
Average		28	17.5	54.4	304	87.0
Std Dev		1	0.3	0.3	9	2.5
Maximum		29	17.9	54.7	319	91.0
Minimum		26	17.1	53.4	285	81.4

N-value: 16

Sample Interval Time: 17.66 seconds.

TRUCK 60126U1 - CME75 18FT BH2
OP: GRL CA Date: 10-May-2019

AR: 1.20 in² SP: 0.492 k/ft³
LE: 23.00 ft EM: 30,000 ksi
WS: 16,807.9 f/s JC: 0.90

FMX: Maximum Force
VMX: Maximum Velocity
EMX: Maximum Energy
ETR: Energy Transfer Ratio - Rated
BPM: Blows/Minute
EFV: Maximum Energy
RAT: Length Ratio for SPT

BL#	Depth	BLC	TYPE	FMX	VMX	EMX	ETR	BPM	EFV	RAT
	ft	bl/6in		kips	f/s	k-ft	(%)	bpm	k-ft	
6	19.00	5	AV6	29	18.0	303.8	86.8	45.5	303.8	1.1
			STD	1	0.3	5.5	1.6	19.5	5.5	0.0
			MAX	30	18.4	310.0	88.6	54.5	310.0	1.1
			MIN	27	17.5	295.4	84.4	1.9	295.4	1.1
17	19.50	11	AV11	30	18.0	304.6	87.0	54.5	304.6	1.1
			STD	1	0.2	9.7	2.8	0.1	9.7	0.0
			MAX	31	18.5	317.3	90.6	54.7	317.3	1.1
			MIN	27	17.7	285.1	81.5	54.3	285.1	1.1
			Average	29	18.0	304.3	86.9	51.3	304.3	1.1
			Std. Dev.	1	0.3	8.5	2.4	12.3	8.5	0.0
			Maximum	31	18.5	317.3	90.6	54.7	317.3	1.1
			Minimum	27	17.5	285.1	81.5	1.9	285.1	1.1

Total number of blows analyzed: 17

BL# Sensors

1-17 F1: [217AWJ1] 214.0 (1.00); F3: [217AWJ2] 214.5 (1.00); A2: [K0025] 478.0 (1.00); A4: [K1388] 384.0 (1.00)

Time Summary

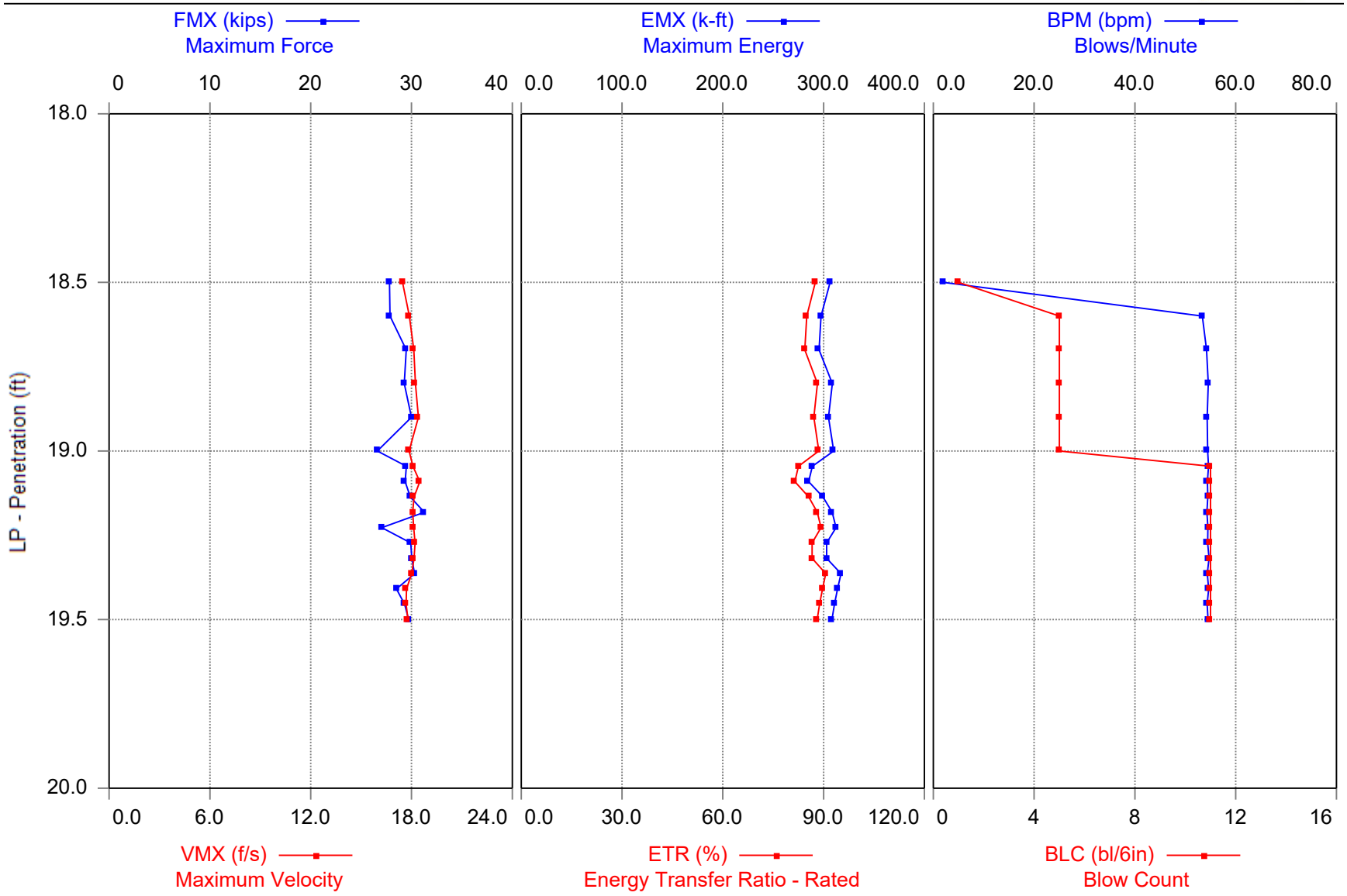
Drive 17 seconds 8:36 AM - 8:36 AM BN 1 - 17

GRL Engineers, Inc. - PDIPLOT2 Ver 2017.2.58.5 - Case Method & iCAP® Results

Printed: 13-May-2019

Test started: 10-May-2019

TRUCK 60126U1 - CME75 18FT



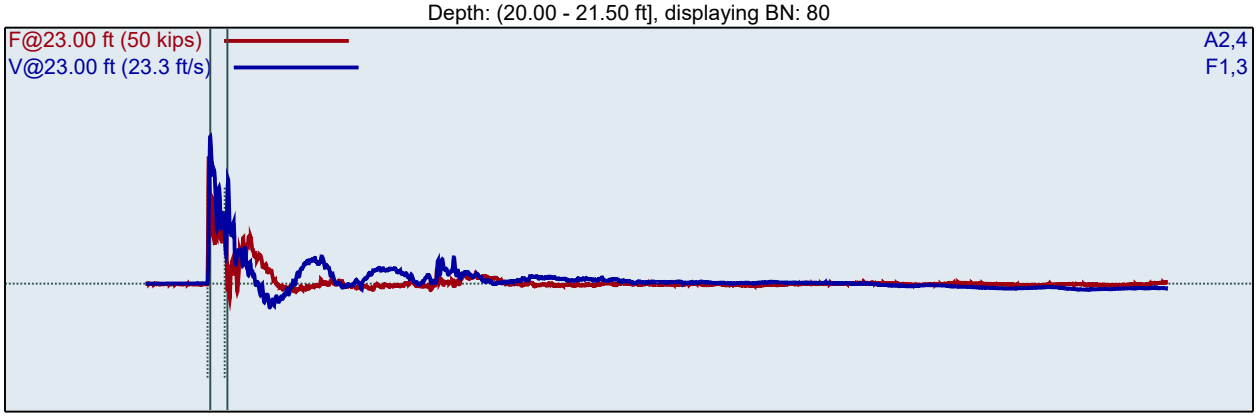
TRUCK 60126U1
GRL CA
BH2

CME75 15FT
Test date: 5/10/2019

AR: 1.20 in^2
LE: 23.00 ft
WS: 16807.9 ft/s

SP: 0.492 k/ft3
EM: 30000 ksi

Depth: (20.00 - 21.50 ft], displaying BN: 80



F1 : [217AWJ1] 214 PDICAL (1) FF6
F3 : [217AWJ2] 214.53 PDICAL (1) FF6

A2 (PR): [K0025] 478 mv/6.4v/5000g (1) VF6
A4 (PR): [K1388] 384 mv/6.4v/5000g (1) VF6

BL#	BC /6"	FMX kips	VMX ft/s	BPM bpm	EFV ft-lb	ETR %
38	7	28	16.7	1.9	295	84.3
39	7	26	16.8	51.4	307	87.8
40	7	27	16.7	51.7	303	86.5
41	7	26	16.7	51.6	297	84.8
42	7	27	16.8	51.7	305	87.0
43	7	28	16.3	51.5	292	83.4
44	7	28	16.5	51.9	293	83.6
45	18	27	16.1	51.4	302	86.4
46	18	26	15.8	51.9	307	87.8
47	18	28	16.2	51.8	295	84.4
48	18	27	16.2	51.8	309	88.4
49	18	27	16.0	51.8	304	86.9
50	18	29	16.3	51.7	295	84.3
51	18	27	16.4	52.1	309	88.2
52	18	28	16.2	51.7	302	86.4
53	18	29	16.6	51.7	293	83.7
54	18	27	17.0	51.8	316	90.2
55	18	28	16.2	52.0	298	85.1
56	18	27	16.3	51.7	307	87.7
57	18	27	16.2	51.7	307	87.8
58	18	27	15.7	52.0	306	87.6
59	18	28	16.1	51.8	302	86.2
60	18	26	16.1	51.4	305	87.2
61	18	27	16.1	51.7	296	84.6
62	18	27	16.0	52.0	303	86.7
63	20	27	15.3	51.8	303	86.5
64	20	26	15.4	52.0	302	86.4
65	20	27	15.3	51.9	281	80.3
66	20	28	15.5	52.0	284	81.1
67	20	26	15.3	52.0	304	86.9
68	20	26	14.9	52.2	303	86.6

69	20	26	14.8	51.9	298	85.2
70	20	26	14.7	52.0	298	85.1
71	20	26	15.0	52.0	310	88.6
72	20	26	15.1	51.9	306	87.5
73	20	27	15.0	51.8	284	81.1
74	20	26	15.3	51.8	312	89.0
75	20	26	14.9	51.7	313	89.3
76	20	25	14.8	51.9	304	86.9
77	20	26	14.2	51.5	308	88.1
78	20	25	14.0	51.8	287	81.9
79	20	24	13.9	51.7	307	87.6
80	20	25	13.4	51.8	308	88.0
81	20	25	13.8	51.7	312	89.1
82	20	25	13.7	51.8	316	90.4
	Average	27	15.4	51.8	303	86.4
	Std Dev	1	0.9	0.2	8	2.4
	Maximum	29	17.0	52.2	316	90.4
	Minimum	24	13.4	51.4	281	80.3

N-value: 38

Sample Interval Time: 50.96 seconds.

TRUCK 60126U1 - CME75 20FT BH2
OP: GRL CA Date: 10-May-2019

AR: 1.20 in² SP: 0.492 k/ft³
LE: 23.00 ft EM: 30,000 ksi
WS: 16,807.9 f/s JC: 0.90

FMX: Maximum Force
VMX: Maximum Velocity
EMX: Maximum Energy
ETR: Energy Transfer Ratio - Rated
BPM: Blows/Minute
EFV: Maximum Energy
RAT: Length Ratio for SPT

BL#	Depth ft	BLC bl/6in	TYPE	FMX kips	VMX f/s	EMX k-ft	ETR (%)	BPM bpm	EFV k-ft	RAT
7	20.50	7	AV6	28	17.1	298.1	85.2	51.6	298.1	1.1
			STD	1	0.3	6.0	1.7	0.1	6.0	0.0
			MAX	29	17.4	306.2	87.5	51.9	306.2	1.1
			MIN	27	16.7	290.2	82.9	51.4	290.2	1.1
25	21.00	18	AV18	29	16.7	302.4	86.4	51.8	302.4	1.1
			STD	1	0.3	6.1	1.7	0.2	6.1	0.0
			MAX	31	17.5	315.1	90.0	52.1	315.1	1.1
			MIN	27	16.2	291.6	83.3	51.4	291.6	1.1
45	21.50	20	AV20	27	15.1	301.7	86.2	51.9	301.7	1.1
			STD	1	0.7	10.2	2.9	0.2	10.2	0.0
			MAX	30	15.9	315.6	90.2	52.2	315.6	1.1
			MIN	26	13.6	280.7	80.2	51.5	280.7	1.1
			Average	28	16.0	301.5	86.1	51.8	301.5	1.1
			Std. Dev.	1	1.0	8.3	2.4	0.2	8.3	0.0
			Maximum	31	17.5	315.6	90.2	52.2	315.6	1.1
			Minimum	26	13.6	280.7	80.2	51.4	280.7	1.1

Total number of blows analyzed: 44

BL# Sensors

2-45 F1: [217AWJ1] 214.0 (1.00); F3: [217AWJ2] 214.5 (1.00); A2: [K0025] 478.0 (1.00); A4: [K1388] 384.0 (1.00)

Time Summary

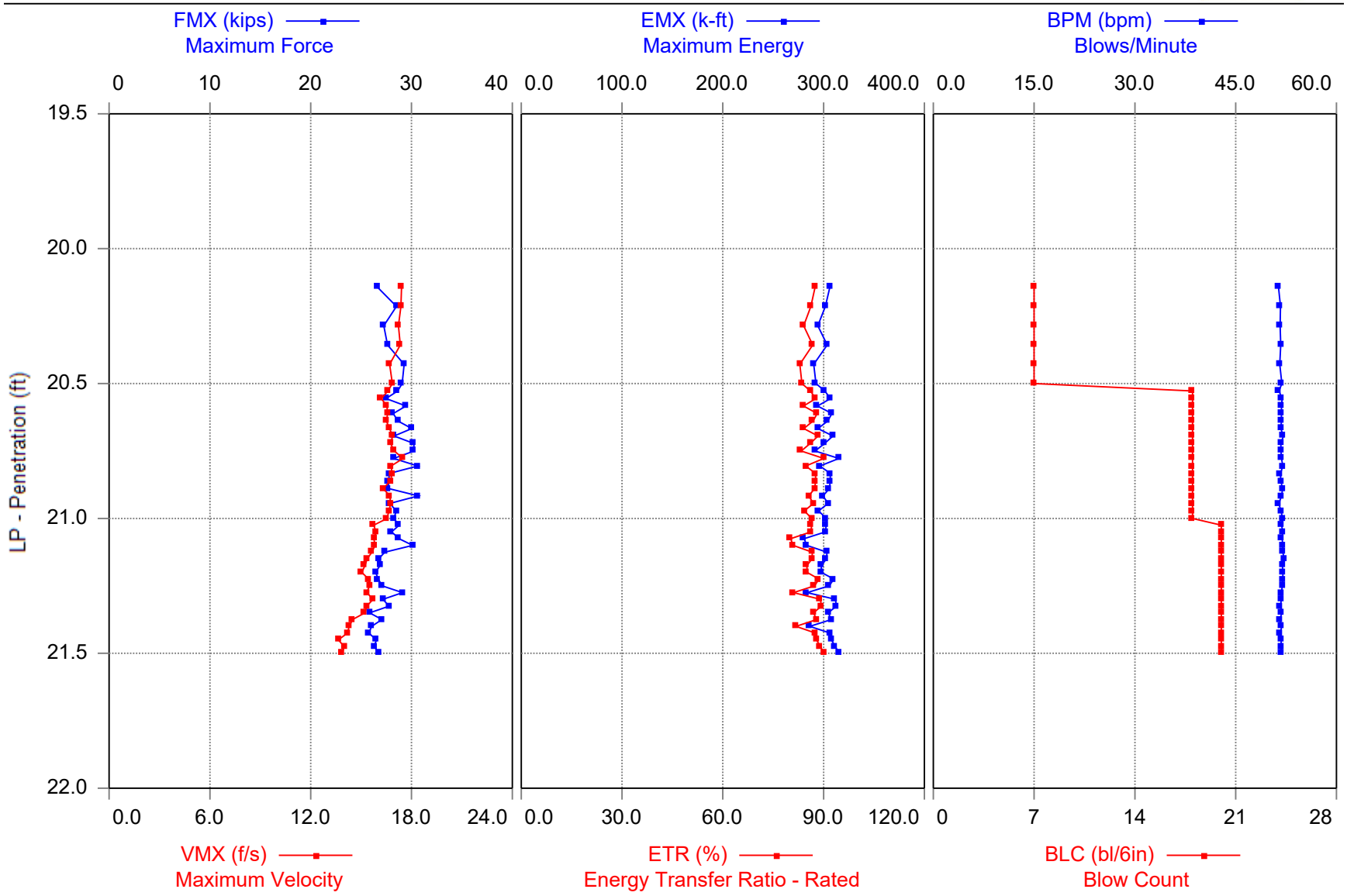
Drive 50 seconds 8:41 AM - 8:42 AM BN 1 - 45

GRL Engineers, Inc. - PDIPLOT2 Ver 2017.2.58.5 - Case Method & iCAP® Results

Printed: 13-May-2019

Test started: 10-May-2019

TRUCK 60126U1 - CME75 20FT



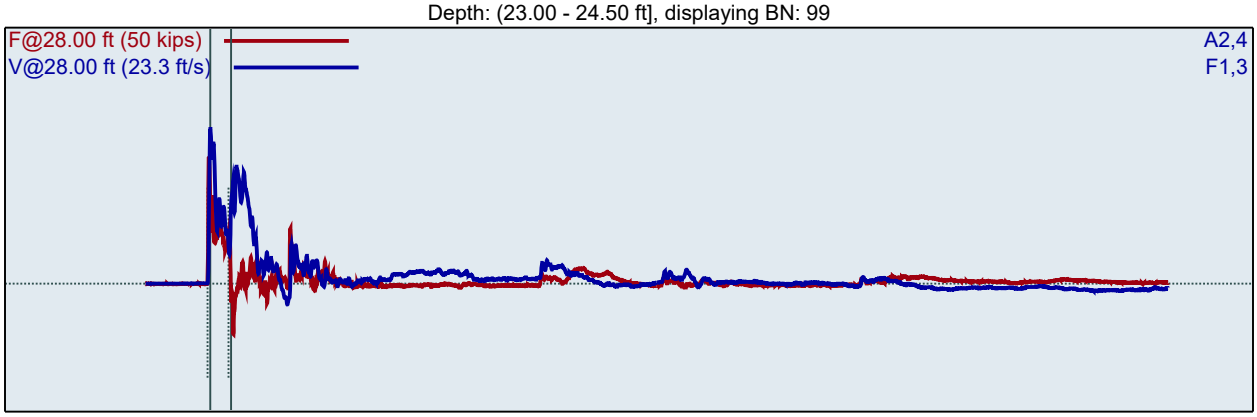
TRUCK 60126U1
GRL CA
BH2

CME75 15FT
Test date: 5/10/2019

AR: 1.20 in^2
LE: 28.00 ft
WS: 16807.9 ft/s

SP: 0.492 k/ft3
EM: 30000 ksi

Depth: (23.00 - 24.50 ft], displaying BN: 99



F1 : [217AWJ1] 214 PDICAL (1) FF6
F3 : [217AWJ2] 214.53 PDICAL (1) FF6

A2 (PR): [K0025] 478 mv/6.4v/5000g (1) VF6
A4 (PR): [K1388] 384 mv/6.4v/5000g (1) VF6

BL#	BC /6"	FMX kips	VMX ft/s	BPM bpm	EFV ft-lb	ETR %
83	4	29	16.0	5.8	282	80.5
84	4	28	16.3	54.0	299	85.4
85	4	28	15.8	54.0	293	83.7
86	4	28	15.3	54.1	297	84.9
87	6	28	14.9	54.3	289	82.5
88	6	29	15.1	54.4	290	82.8
89	6	28	15.0	54.2	292	83.6
90	6	26	14.8	54.2	306	87.5
91	6	27	14.2	54.2	303	86.7
92	6	26	13.7	54.5	297	84.8
93	9	27	14.7	54.1	302	86.3
94	9	26	14.6	54.3	304	86.8
95	9	26	13.4	54.4	295	84.3
96	9	25	13.6	54.2	309	88.3
97	9	26	13.2	54.6	304	86.8
98	9	25	14.3	54.2	309	88.3
99	9	25	14.1	54.4	315	90.1
100	9	25	13.8	54.5	307	87.6
101	9	24	14.2	54.3	314	89.7
Average		26	14.3	54.3	302	86.4
Std Dev		1	0.6	0.1	8	2.3
Maximum		29	15.1	54.6	315	90.1
Minimum		24	13.2	54.1	289	82.5

N-value: 15

Sample Interval Time: 19.91 seconds.

TRUCK 60126U1 - CME75 23T BH2
OP: GRL CA Date: 10-May-2019

AR: 1.20 in² SP: 0.492 k/ft³
LE: 28.00 ft EM: 30,000 ksi
WS: 16,807.9 f/s JC: 0.90

FMX: Maximum Force
VMX: Maximum Velocity
EMX: Maximum Energy
ETR: Energy Transfer Ratio - Rated
BPM: Blows/Minute
EFV: Maximum Energy
RAT: Length Ratio for SPT

BL#	Depth ft	BLC bl/6in	TYPE	FMX kips	VMX f/s	EMX k-ft	ETR (%)	BPM bpm	EFV k-ft	RAT
4	23.50	4	AV3	29	16.1	294.5	84.1	54.0	294.5	1.1
			STD	0	0.5	2.4	0.7	0.1	2.4	0.0
			MAX	30	16.8	296.2	84.6	54.1	296.2	1.1
			MIN	29	15.7	291.1	83.2	54.0	291.1	1.1
10	24.00	6	AV6	29	14.9	295.5	84.4	54.3	295.5	1.1
			STD	1	0.6	7.0	2.0	0.1	7.0	0.0
			MAX	31	15.6	307.4	87.8	54.5	307.4	1.1
			MIN	27	13.9	288.1	82.3	54.2	288.1	1.1
19	24.50	9	AV9	27	14.3	305.7	87.3	54.4	305.7	1.1
			STD	1	0.4	5.8	1.7	0.1	5.8	0.0
			MAX	28	14.9	314.2	89.8	54.6	314.2	1.1
			MIN	25	13.7	294.9	84.3	54.1	294.9	1.1
			Average	28	14.8	300.4	85.8	54.3	300.4	1.1
			Std. Dev.	2	0.8	7.9	2.2	0.2	7.9	0.0
			Maximum	31	16.8	314.2	89.8	54.6	314.2	1.1
			Minimum	25	13.7	288.1	82.3	54.0	288.1	1.1

Total number of blows analyzed: 18

BL# Sensors

2-19 F1: [217AWJ1] 214.0 (1.00); F3: [217AWJ2] 214.5 (1.00); A2: [K0025] 478.0 (1.00); A4: [K1388] 384.0 (1.00)

Time Summary

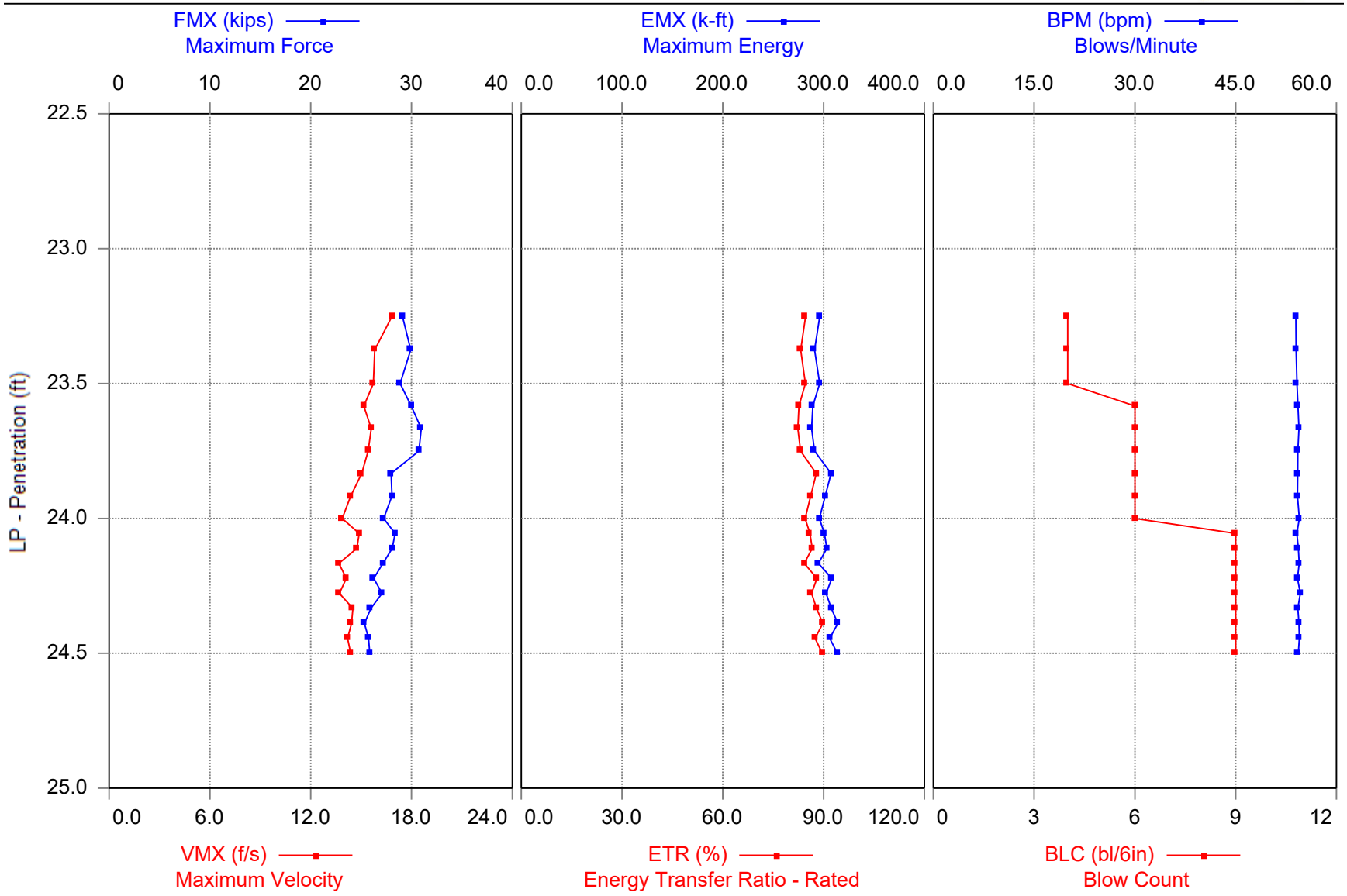
Drive 19 seconds 8:48 AM - 8:48 AM BN 1 - 19

GRL Engineers, Inc. - PDIPLOT2 Ver 2017.2.58.5 - Case Method & iCAP® Results

Printed: 13-May-2019

Test started: 10-May-2019

TRUCK 60126U1 - CME75 23T



APPENDIX D

SACRED LANDS RECORD REQUEST RESULTS

NATIVE AMERICAN HERITAGE COMMISSION
Cultural and Environmental Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
Phone: (916) 373-3710
Email: nahc@nahc.ca.gov
Website: http://www.nahc.ca.gov

May 17, 2019

Gail Bellenger
EMC Planning Group

VIA Email to: bellenger@emcplanning.com

RE: **Monterey High Athletic Field Improvements Project**, City of Monterey; Monterey USGS Quadrangle, Monterey County, California.

Dear Ms. Bellenger:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. The absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify the NAHC. With your assistance, we can assure that our lists contain current information. If you have any questions or need additional information, please contact me at my email address: gayle.totton@nahc.ca.gov.

Sincerely,

Gayle Totton

Gayle Totton, B.S., M.A., Ph.D.
Associate Governmental Program Analyst

Attachment

Native American Heritage Commission
Native American Contact List
Monterey County
5/17/2019

Amah MutsunTribal Band
Valentin Lopez, Chairperson
P.O. Box 5272
Galt, CA, 95632
Phone: (916) 743 - 5833
vlopez@amahmutsun.org
Costanoan
Northern Valley Yokut

Amah MutsunTribal Band of Mission San Juan Bautista
Irenne Zwierlein, Chairperson
789 Canada Road
Woodside, CA, 94062
Phone: (650) 851 - 7489
Fax: (650) 332-1526
amahmutsuntribal@gmail.com
Costanoan

Costanoan Ohlone Rumsen-Mutsun Tribe
Patrick Orozco, Chairman
644 Peartree Drive
Watsonville, CA, 95076
Phone: (831) 728 - 8471
yanapvoic97@gmail.com
Costanoan

Costanoan Rumsen Carmel Tribe
Tony Cerda, Chairperson
244 E. 1st Street
Pomona, CA, 91766
Phone: (909) 629 - 6081
Fax: (909) 524-8041
rumsen@aol.com
Costanoan

Esselen Tribe of Monterey County
Tom Nason, Chairman
P. O. Box 95
Carmel Valley, CA, 93924
Phone: (831) 659 - 2153
TribalChair@EsselenTribe.com
Costanoan
Esselen

Indian Canyon Mutsun Band of Costanoan
Ann Marie Sayers, Chairperson
P.O. Box 28
Hollister, CA, 95024
Phone: (831) 637 - 4238
ams@indiancanyon.org
Costanoan

Ohlone/Costanoan-Esselen Nation
Christanne Arias, Vice Chairperson
519 Viejo Gabriel
Soledad, CA, 93960
Phone: (831) 235 - 4590
Costanoan
Esselen

Ohlone/Costanoan-Esselen Nation
Louise Miranda-Ramirez, Chairperson
P.O. Box 1301
Monterey, CA, 93942
Phone: (408) 629 - 5189
ramirez.louise@yahoo.com
Costanoan
Esselen

Salinan Tribe of Monterey, San Luis Obispo Counties
Fredrick Segobia, Tribal Representative
7070 Morro Road, Suite A
Atascadero, CA, 93422
Phone: (831) 385 - 1490
info@salinantribe.com
Salinan

Xolon-Salinan Tribe
Karen White, Chairperson
P. O. Box 7045
Spreckels, CA, 93962
Phone: (831) 238 - 1488
xolon.salinan.heritage@gmail.com
Salinan

Xolon-Salinan Tribe
Donna Haro, Tribal Headwoman
P. O. Box 7045
Spreckels, CA, 93962
Phone: (925) 470 - 5019
dhxolonaakletse@gmail.com
Salinan

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Monterey High Athletic Field Improvements Project, Monterey County.

E M C

Planning for Success.

May 21, 2019 Sent via email

Christanne Arias, Vice Chairperson
Ohlone/Costanoan-Esselen Nation
519 Viejo Gabriel
Soledad, CA 93960

Re: Native American Heritage Commission Sacred Lands File
Monterey High School Athletic Field Improvements

Dear Ms. Arias:

EMC Planning Group has been contracted to prepare an archaeological survey report for proposed athletic field improvements at Monterey High School at 101 Herrmann Drive in Monterey, CA.

According to the Native American Heritage Commission, the file search results were negative; however they provided a list of local tribes to contact for additional information. We would appreciate receiving any comments you may have regarding cultural resources or sacred site issues within the immediate project area.

If you could provide your comments in writing to the address below, via email, or a phone call to me, we will make sure the comments are incorporated into our report. We would appreciate a response at your earliest convenience, should you have information relative to this request. I am including a site map for your convenience. I can be reached at (831) 649-1799 ext. 221 or via email at bellenger@emcplanning.com.

Sincerely,

Gail Bellenger, MA, RPA
Registered Professional Archaeologist

EMC PLANNING GROUP INC.
A LAND USE PLANNING & DESIGN FIRM
301 Lighthouse Avenue Suite C Monterey California 93940 Tel 831-649-1799 Fax 831-649-8399
www.emcplanning.com

E M C

Planning for Success.

May 17, 2019 Sent via email

Tony Cerda, Chairperson
Costanoan Rumsen Carmel Tribe
244 E. 1st Street
Pomona, CA 91766

Re: Native American Heritage Commission Sacred Lands File
Monterey High School Athletic Field Improvements

Dear Mr. Cerda:

EMC Planning Group has been contracted to prepare an archaeological survey report for proposed athletic field improvements at Monterey High School at 101 Herrmann Drive in Monterey, CA.

According to the Native American Heritage Commission, the file search results were negative; however they provided a list of local tribes to contact for additional information. We would appreciate receiving any comments you may have regarding cultural resources or sacred site issues within the immediate project area.

If you could provide your comments in writing to the address below, via email, or a phone call to me, we will make sure the comments are incorporated into our report. We would appreciate a response at your earliest convenience, should you have information relative to this request. I am including a site map for your convenience. I can be reached at (831) 649-1799 ext. 221 or via email at bellenger@emcplanning.com.

Sincerely,

Gail Bellenger, MA, RPA
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EMC PLANNING GROUP INC.
A LAND USE PLANNING & DESIGN FIRM
301 Lighthouse Avenue Suite C Monterey California 93940 Tel 831-649-1799 Fax 831-649-8399
www.emcplanning.com

E M C

Planning for Success.

May 21, 2019 Sent via email

Donna Haro, Tribal Headwoman
Xolon-Salinan Tribe
P.O. Box 7045
Spreckels, CA 93962

Re: Native American Heritage Commission Sacred Lands File
Monterey High School Athletic Field Improvements

Dear Ms. Haro:

EMC Planning Group has been contracted to prepare an archaeological survey report for proposed athletic field improvements at Monterey High School at 101 Herrmann Drive in Monterey, CA.

According to the Native American Heritage Commission, the file search results were negative; however they provided a list of local tribes to contact for additional information. We would appreciate receiving any comments you may have regarding cultural resources or sacred site issues within the immediate project area.

If you could provide your comments in writing to the address below, via email, or a phone call to me, we will make sure the comments are incorporated into our report. We would appreciate a response at your earliest convenience, should you have information relative to this request. I am including a site map for your convenience. I can be reached at (831) 649-1799 ext. 221 or via email at bellenger@emcplanning.com.

Sincerely,

Gail Bellenger, MA, RPA
Registered Professional Archaeologist

EMC PLANNING GROUP INC.
A LAND USE PLANNING & DESIGN FIRM
301 Lighthouse Avenue Suite C Monterey California 93940 Tel 831-649-1799 Fax 831-649-8399
www.emcplanning.com

E M C

Planning for Success.

May 17, 2019 Sent via email

Valentin Lopez, Chairperson
Amah Mutsun Tribal Band
P.O. Box 5272
Galt, CA 95632

Re: Native American Heritage Commission Sacred Lands File
Monterey High School Athletic Field Improvements

Dear Mr. Lopez:

EMC Planning Group has been contracted to prepare an archaeological survey report for proposed athletic field improvements at Monterey High School at 101 Herrmann Drive in Monterey, CA.

According to the Native American Heritage Commission, the file search results were negative; however they provided a list of local tribes to contact for additional information. We would appreciate receiving any comments you may have regarding cultural resources or sacred site issues within the immediate project area.

If you could provide your comments in writing to the address below, via email, or a phone call to me, we will make sure the comments are incorporated into our report. We would appreciate a response at your earliest convenience, should you have information relative to this request. I am including a site map for your convenience. I can be reached at (831) 649-1799 ext. 221 or via email at bellenger@emcplanning.com.

Sincerely,

Gail Bellenger, MA, RPA
Registered Professional Archaeologist

EMC PLANNING GROUP INC.
A LAND USE PLANNING & DESIGN FIRM

301 Lighthouse Avenue Suite C Monterey California 93940 Tel 831-649-1799 Fax 831-649-8399
www.emcplanning.com

E M C

Planning for Success.

May 17, 2019 Sent via email

Louise Miranda-Ramirez
Ohlone/Costanoan-Esselen Nation
P.O. Box 1301
Monterey, CA 93942

Re: Native American Heritage Commission Sacred Lands File
Monterey High School Athletic Field Improvements

Dear Ms. Miranda-Ramirez:

EMC Planning Group has been contracted to prepare an archaeological survey report for proposed athletic field improvements at Monterey High School at 101 Herrmann Drive in Monterey, CA.

According to the Native American Heritage Commission, the file search results were negative; however they provided a list of local tribes to contact for additional information. We would appreciate receiving any comments you may have regarding cultural resources or sacred site issues within the immediate project area.

If you could provide your comments in writing to the address below, via email, or a phone call to me, we will make sure the comments are incorporated into our report. We would appreciate a response at your earliest convenience, should you have information relative to this request. I am including a site map for your convenience. I can be reached at (831) 649-1799 ext. 221 or via email at bellenger@emcplanning.com.

Sincerely,

Gail Bellenger, MA, RPA
Registered Professional Archaeologist

EMC PLANNING GROUP INC.
A LAND USE PLANNING & DESIGN FIRM
301 Lighthouse Avenue Suite C Monterey California 93940 Tel 831-649-1799 Fax 831-649-8399
www.emcplanning.com

E M C

Planning for Success.

May 17, 2019 Sent via email

Tom Nason, Chairman
Esselen Tribe of Monterey County
P.O. Box 95
Carmel Valley, CA 93924

Re: Native American Heritage Commission Sacred Lands File
Monterey High School Athletic Field Improvements

Dear Mr. Nason:

EMC Planning Group has been contracted to prepare an archaeological survey report for proposed athletic field improvements at Monterey High School at 101 Herrmann Drive in Monterey, CA.

According to the Native American Heritage Commission, the file search results were negative; however they provided a list of local tribes to contact for additional information. We would appreciate receiving any comments you may have regarding cultural resources or sacred site issues within the immediate project area.

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May 17, 2019 Sent via email

Patrick Orozco, Chairman
Costanoan Ohlone Rumsen-Mutsun Tribe
644 Peartree Drive
Watsonville, CA 95076

Re: Native American Heritage Commission Sacred Lands File
Monterey High School Athletic Field Improvements

Dear Mr. Orozco:

EMC Planning Group has been contracted to prepare an archaeological survey report for proposed athletic field improvements at Monterey High School at 101 Herrmann Drive in Monterey, CA.

According to the Native American Heritage Commission, the file search results were negative; however they provided a list of local tribes to contact for additional information. We would appreciate receiving any comments you may have regarding cultural resources or sacred site issues within the immediate project area.

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May 21, 2019 Sent via email

Ann Marie Sayers, Chairperson
Indian Canyon Mutsun Band of Costanoan
P.O. Box 28
Hollister, CA 95024

Re: Native American Heritage Commission Sacred Lands File
Monterey High School Athletic Field Improvements

Dear Ms. Sayers:

EMC Planning Group has been contracted to prepare an archaeological survey report for proposed athletic field improvements at Monterey High School at 101 Herrmann Drive in Monterey, CA.

According to the Native American Heritage Commission, the file search results were negative; however they provided a list of local tribes to contact for additional information. We would appreciate receiving any comments you may have regarding cultural resources or sacred site issues within the immediate project area.

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May 21, 2019 Sent via email

Fredrick Segobia, Tribal Representative
Salinan Tribe of Monterey, San Luis Obispo Counties
7070 Morro road, Suite A
Atascadero, CA 93422

Re: Native American Heritage Commission Sacred Lands File
Monterey High School Athletic Field Improvements

Dear Mr. Segobia:

EMC Planning Group has been contracted to prepare an archaeological survey report for proposed athletic field improvements at Monterey High School at 101 Herrmann Drive in Monterey, CA.

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May 21, 2019 Sent via email

Karen White, Chairperson
Xolon-Salinan Tribe
P.O. Box 7045
Spreckels, CA 93962

Re: Native American Heritage Commission Sacred Lands File
Monterey High School Athletic Field Improvements

Dear Ms. White:

EMC Planning Group has been contracted to prepare an archaeological survey report for proposed athletic field improvements at Monterey High School at 101 Herrmann Drive in Monterey, CA.

According to the Native American Heritage Commission, the file search results were negative; however they provided a list of local tribes to contact for additional information. We would appreciate receiving any comments you may have regarding cultural resources or sacred site issues within the immediate project area.

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May 21, 2019 Sent via email

Irenne Zwierlein, Chairperson
Amah Mutsun Tribal Band of Mission San Juan Bautista
789 Canada Road
Woodside, CA 94062

Re: Native American Heritage Commission Sacred Lands File
Monterey High School Athletic Field Improvements

Dear Mr. Zwierlein:

EMC Planning Group has been contracted to prepare an archaeological survey report for proposed athletic field improvements at Monterey High School at 101 Herrmann Drive in Monterey, CA.

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