PROJECT MANUAL

BID NUMBER: 104

REDWOOD HIGH SCHOOL GHILOTTI FIELD SITE IMPROVEMENTS PROJECT REBID

TAMALPAIS UNION HIGH SCHOOL DISTRICT

BIDS April 30, 2025

SEALS PAGE

DOCUMENT 00 01 02

REDWOOD HIGH SCHOOL GHILOTTI FIELD SITE IMPROVEMENTS

AT

REDWOOD HIGH SCHOOL, LARKSPUR, CALIFORNIA

FOR

TAMALPAIS UNION HIGH SCHOOL DISTRICT

SCHOOL DISTRICT
Mike Woolard
Senior Director of Facilities Planning
Tamalpais Union High School District
395 Doherty Drive, Larkspur, CA 94939
w: tamdistrict.org e: mwoolard@tamdistrict.org
Phone 415.945.1056

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-121720 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/7/2024

LANDSCAPE ARCHITECT
Carducci Associates
555 Beach Street, Fourth Floor
San Francisco, CA 94133
Direct 415.902.3786

LICENSED LANDSCAPE ARCHITECT
WILLIAM E. FEE
2537
Signature
12.31.2024
Renewal Date
09.11.2024
Date
STATE OF CALIFORNIA

BY:_____
William E. Fee, 2537

STRUCTURAL ENGINEER
DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE

ZFA Structural Engineers
1212 Fourth Street, Suite Z
Santa Rosa, CA 95404
Phone 707.526.0992

BY:_____
Chris S. Warner, S4613

Table of Contents

Project Title Page
Seal Page
Table of Contents
List of Drawings
Notice to Bidders
Instructions to Bidders

Bidder Information and Forms

00 41 13	Bid Form and Proposal
00 43 13	Bid Bond
00 43 36	Designated Subcontractors List
00 45 01	Site Visit Certification
00 45 19	Non-Collusion Declaration
00 45 19.01	Iran Contracting Act Certification
00 45 26	Workers' Compensation Certification
00 45 46.01	Prevailing Wage and Related Labor Requirements Certification
00 45 46.02	Disabled Veteran Business Enterprise Participation Certification
00 45 46.03	Drug-Free Workplace Certification
00 45 46.04	Tobacco-Free Environment Certification
00 45 46.05	Drug and Alcohol-Free Schools Certification
00 45 46.06	Workplace Violence Prevention Plan Certification
00 45 46.07	Hazardous Materials Certification
00 45 46.08	Lead-Based Materials Certification
00 45 46.09	Imported Materials Certification
00 45 46.10	Criminal Background Investigation/Fingerprinting Certification
00 45 49	Registered Subcontractors List

Notice to Award
Agreement for Construction Services (Small Projects)
Exhibit "A" (Scope of Work)
Notice to Proceed
Performance Bond
Payment Bond
Guarantee Form
Summary of Work

Division 2 - Existing Conditions

02 40 00	Demolition, Removal, Abandonments
02 41 00	Site Preparation & Plant Protection

Division 7 – Thermal & Moisture Protection

07 92 00	Joint Sealants

Division 12 - Furnishings

12 93 05	Site Furnishings

Division 13 – Special Construction

13 12 50	Frame-Type Bleacher

Division 31 – Earthwork

31 00 00	Earthwork
31 25 00	Erosion Control
31 63 29	Drilled Piers

Division 32 - Exterior Improvements

32 11 13	Subgrade Preparation & Base Material
32 11 15	Synthetic Composite Underlayment
32 13 13	Landscape Concrete
32 17 20	Site Signs
32 18 13	Synthetic Turf Playing Field
32 18 15	Synthetic Landscape Turf
32 90 00	Planting

Division 33 - Utilities

33 40 10	Storm Drainage

Appendices

Appendix A — Miller Pacific Engineering Group, Inc. Geotechnical Engineers and Geologists, "Geotechnical Investigation (REV1) Redwood High School – 2023 Improvements Larkspur, California" for the Tamalpais Union High School District, December 7, 2023.

Appendix B — Geotechnical Engineer Supplemental Letter

Appendix C

Addendum #2 dated February 20, 2025
Addendum #3 dated March 19, 2025

List of Drawings

SHEET NUMBER	DESCRIPTION
G00.01	COVER
G00.02	SHEET INDEX, GENERAL NOTES
G00.04	SITE PLAN
G00.05	SCOPE OF WORK
L01.00	DEMOLITION AND EROSION CONTROL LEGEND
L01.01	DEMOLITION AND EROSION CONTROL LEGEND AND PLAN
L01.02	DEMOLITION AND EROSION CONTROL DETAILS
L02.00	GRADING LEGEND AND PLAN
L04.00	LAYOUT LEGEND AND PLAN
L05.00	MATERIALS LEGEND AND PLAN
L06.01	DETAILS
L06.02	DETAILS - FIELD OVERLAY AND SIGNAGE
L06.03	DETAILS - DRINKING FOUNTAIN AND UTILITY
L06.04	DETAILS - EXISTING RESTROOM AND SIGNAGE
L06.05	DETAILS – EXISTING BLEACHERS
L06.06	DETAILS – EXISTING BLEACHERS
L06.07	DETAILS – EXISTING BLEACHERS
L06.08	DETAILS – EXISTING BLEACHERS
L06.09	DETAILS – PROPOSED BLEACHERS
L06.10	DETAILS – PROPOSED BLEACHERS
L06.11	DETAILS – PROPOSED BLEACHERS
L06.12	DETAILS – PROPOSED BLEACHERS
L06.13	DETAILS – PROPOSED BLEACHERS
SFS-1	GENERAL NOTES, ABBREVIATIONS AND SYMBOLS
SFS-2	DETAILS

DOCUMENT 00 11 16
NOTICE TO BIDDERS

1. Notice is hereby given that the governing board ("Board") of the Tamalpais Union High School District ("District") will receive sealed bids for the following project, **Bid No. 104** ("Project" or "Contract"):

   REDWOOD HIGH SCHOOL GHILOTTI FIELD SITE IMPROVEMENTS PROJECT REBID

2. The Project consists of:

   The Redwood High School Ghilotti Field Site Improvements consists of replacement and addition of concrete curbs and flatwork, safety netting, 5-row non-elevated bleachers and stormwater mitigation. Included in the scope of work will also be improvements to the accessible / egress routes and improvements to the existing field.

   To bid on this Project, the Bidder is required to possess one or more of the following State of California contractors' license(s)**: A – General Engineering or B – General Building.**

   The Bidder's license(s) must remain active and in good standing throughout the term of the Contract.

3. To bid on this Project, the Bidder is required to be registered as a public works contractor with the Department of Industrial Relations pursuant to the Labor Code.

4. Contract Documents will be available on or after April 2, 2025, for review by contacting Brenda Parella, Greystone West at brenda@greystonewest.com for an electronic set of plans; or visiting the District Facilities Planning office at 333 Doherty Drive, Larkspur, California to review a hard copy of the plans; or may be downloaded from the District's website at: https://www.tamdistrict.org/administration/maintenance-operations/rfprfq-bid-information, using the "**Notices Inviting Bids**" link.

5. Sealed bids will be received until **2:00 p.m., April 30, 2025**, at the District Facilities Planning Office, 333 Doherty Drive, Larkspur, California 94939, at or after which time the bids will be opened and publicly read aloud. Any bid that is submitted after this time shall be nonresponsive and returned to the bidder. Any claim by a bidder of error in its bid must be made in compliance with section 5104 et seq. of the Public Contract Code.

6. All bids shall be on the form provided by the District. Each bid must conform and be responsive to all pertinent Contract Documents, including, but not limited to, the Instructions to Bidders.

7. A bid bond by an admitted surety insurer on the form provided by the District, a cashier's check or a certified check, drawn to the order of the Tamalpais Union High School District, in the amount of ten percent (10%) of the total bid price shall accompany the Bid Form and Proposal, as a guarantee that the Bidder will, within seven (7) calendar days after the date of the Notice of Award, enter into a contract with the District for the performance of the services as stipulated in the bid.

8. A **mandatory** pre-bid conference and site visit will be held on **Tuesday, April 8, 2025, at 2:00 p.m.** at Ghilotti Field – all interested participants shall meet at the District Office entrance at 395 Doherty Drive, Larkspur, California, and can park in the East Parking Lot in open visitor parking spaces. All participants are required to sign-in before the site visit begins, District staff will escort all participants from the District Office to Ghilotti Field for the site tour. The site visit is expected to take approximately 30 minutes. Failure to attend or tardiness will render bid ineligible.

9. The successful Bidder shall be required to furnish a 100% Performance Bond and a 100% Payment Bond if it is awarded the Contract for the Work.

10. The successful Bidder may substitute securities for any monies withheld by the District to ensure performance under the Contract, in accordance with the provisions of section 22300 of the Public Contract Code.

11. The successful Bidder will be required to certify that it either meets the Disabled Veteran Business Enterprise ("DVBE") goal of three percent (3%) participation or made a good faith effort to solicit DVBE participation in this Contract if it is awarded the Contract for the Work.

12. The Contractor and all Subcontractors under the Contractor shall pay all workers on all Work performed pursuant to this Contract not less than the general prevailing rate of per diem wages and the general prevailing rate for holiday and overtime work as determined by the Director of the Department of Industrial Relations, State of California, for the type of work performed and the locality in which the work is to be performed within the boundaries of the District, pursuant to section 1770 et seq. of the California Labor Code. Prevailing wage rates are also available from the District or on the Internet at: <http://www.dir.ca.gov>.

13. This Project is subject to labor compliance monitoring and enforcement by the Department of Industrial Relations pursuant to Labor Code section 1771.4 and subject to the requirements of Title 8 of the California Code of Regulations. The successful Bidder shall comply with all requirements of Division 2, Part 7, Chapter 1, Articles 1-5 of the Labor Code.

14. The District shall award the Contract, if it awards it at all, to the lowest responsive responsible bidder based on the **base bid amount only.**

15. The Board reserves the right to reject any and all bids and/or waive any irregularity in any bid received. If the District awards the Contract, the security of unsuccessful bidder(s) shall be returned within sixty (60) days from the time the award is made. Unless otherwise required by law, no bidder may withdraw its bid for ninety (90) days after the date of the bid opening.

END OF DOCUMENT

DOCUMENT 00 21 13
INSTRUCTIONS TO BIDDERS

Bidders shall follow the instructions in this document, and shall submit all documents, forms, and information required for consideration of a bid.

Tamalpais Union High School District ("District") will evaluate information submitted by the apparent low Bidder and, if incomplete or unsatisfactory to District, Bidder's bid may be rejected at the sole discretion of District.

1. Bids are requested for a general construction contract, or work described in general, for the following project ("Project" or "Contract"):

   Redwood High School Ghilotti Field Site Improvements Project Rebid

2. A Bidder and its subcontractors must possess the appropriate State of California contractors' license and must maintain the license throughout the duration of the project. Bidders must also be registered as a public works contractor with the Department of Industrial Relations pursuant to the Labor Code. Bids submitted by a contractor who is not properly licensed or registered shall be deemed nonresponsive and will not be considered.

3. The District has prequalified bidders pursuant to Public Contract Code section 20111.5. Only prequalified bidders will be eligible to submit a bid for this Project. Any bid submitted by a bidder who is not prequalified shall be deemed nonresponsive and will not be considered. **N/A**

4. District will receive sealed bids from bidders as stipulated in the Notice to Bidders.

   a. All bids must be sealed in an envelope, marked with the name and address of the Bidder, name of the Project, the Project Number and/or bid number, and time of bid opening.

   b. Bids must be submitted to the District Office by date and time shown in the Notice to Bidders.

   c. Bids must contain all documents as required herein.

5. Bidders are advised that on the date that bids are opened, telephones will not be available at the District Offices for use by bidders or their representatives.

6. Bids will be opened at or after the time indicated for receipt of bids.

7. Bidders must submit bids on the documents titled Bid Form and Proposal and must submit all other required District forms. Bids not submitted on the District's required forms shall be deemed nonresponsive and shall not be considered. Additional sheets required to fully respond to requested information are permissible.

8. Bidders shall not modify the Bid Form and Proposal or qualify their bids. Bidders shall not submit to the District a re-formatted, re-typed, altered, modified, or otherwise recreated version of the Bid Form and Proposal or other District-provided document.

9. Bids shall be clearly written and without erasure or deletions. District reserves the right to reject any bid containing erasures, deletions, or illegible contents.

10. Bidders must supply all information required by each Bid Document. Bids must be full and complete. District reserves the right in its sole discretion to reject any bid as nonresponsive as a result of any error or omission in the bid. Bidders must complete and submit all of the following documents with the Bid Form and Proposal:

    a. Bid Bond on the District's form, or other security.

    b. Designated Subcontractors List.

    c. Site Visit Certification, if a site visit was required.

    d. Non-Collusion Declaration.

    e. Iran Contracting Act Certification, if contract value is $1,000,000 or more.

11. Bidders must submit with their bids a cashier's check or a certified check payable to District, or a bid bond by an admitted surety insurer of not less than ten percent (10%) of amount of Base Bid, plus all additive alternates ("Bid Bond"). If Bidder chooses to provide a Bid Bond as security, Bidder must use the required form of corporate surety provided by District. The Surety on Bidder's Bid Bond must be an insurer admitted in the State of California and authorized to issue surety bonds in the State of California. Bids submitted without necessary bid security will be deemed nonresponsive and will not be considered.

12. If Bidder to whom the Contract is awarded fails or neglects to enter into the Contract and submit required bonds, insurance certificates, and all other required documents, within **TEN (10)** calendar days after the date of the Notice of Award, District may deposit Bid Bond, cashier's check, or certified check for collection, and proceeds thereof may be retained by District as liquidated damages for failure of Bidder to enter into Contract, in the sole discretion of District. It is agreed that calculation of damages District may suffer as a result of Bidder's failure to enter into the Contract would be extremely difficult and impractical to determine and that the amount of the Bidder's required bid security shall be the agreed and conclusively presumed amount of damages.

13. Bidders must submit with the bid the Designated Subcontractors List for those subcontractors who will perform any portion of Work, including labor, rendering of service, or specially fabricating and installing a portion of the Work or improvement according to detailed drawings contained in the plans and specifications, in excess of one half of one percent (0.5%) of total bid. Failure to submit this list when required by law shall result in bid being deemed nonresponsive and the bid will not be considered.

14. All of the listed subcontractors are required to be registered as a public works contractor with the Department of Industrial Relations pursuant to the Labor Code.

    a. An inadvertent error in listing the California contractor license number on the Designated Subcontractors List shall not be grounds for filing a bid protest or grounds for considering the bid nonresponsive if the correct contractor's

license number is submitted to the District within 24 hours after the bid opening and the corrected number corresponds with the submitted name and location for that subcontractor.

b. An inadvertent error listing an unregistered subcontractor shall not be grounds for filing a bid protest or grounds for considering the bid nonresponsive provided that any of the following apply:

(1) The subcontractor is registered prior to the bid opening.

(2) The subcontractor is registered and has paid the penalty registration fee within 24 hours after the bid opening.

(3) The subcontractor is replaced by another registered subcontractor pursuant to Public Contract Code section 4107.

15. If a mandatory pre-bid conference and site visit ("Site Visit") is required as referenced in the Notice to Bidders, then Bidders must submit the Site Visit Certification with their Bid. District will transmit to all prospective Bidders of record such Addenda as District in its discretion considers necessary in response to questions arising at the Site Visit. Oral statements shall not be relied upon and will not be binding or legally effective. Addenda issued by the District as a result of the Site Visit, if any, shall constitute the sole and exclusive record and statement of the results of the Site Visit.

16. Bidders shall submit the Non-Collusion Declaration with their bids. Bids submitted without the Non-Collusion Declaration shall be deemed nonresponsive and will not be considered.

17. The Contractor and all Subcontractors under the Contractor shall pay all workers on all work performed pursuant to the Contract not less than the general prevailing rate of per diem wages and the general prevailing rate for holiday and overtime work as determined by the Director of the Department of Industrial Relations, State of California, for the type of work performed and the locality in which the work is to be performed within the boundaries of the District, pursuant to sections 1770 et seq. of the California Labor Code. Copies of the general prevailing rates of per diem wages for each craft, classification, or type of worker needed to execute the Contract, as determined by Director of the Department of Industrial Relations, are available upon request at the District's principal office. Prevailing wage rates are also available on the internet at http://www.dir.ca.gov.

18. Submission of bid signifies careful examination of Contract Documents and complete understanding of the nature, extent, and location of Work to be performed. Bidders must complete the tasks listed below as a condition to bidding, and submission of a bid shall constitute the Bidder's express representation to District that Bidder has fully completed the following:

a. Bidder has visited the Site, if required, and has examined thoroughly and understood the nature and extent of the Contract Documents, Work, Site, locality, actual conditions, as-built conditions, and all local conditions and federal, state and local laws, and regulations that in any manner may affect cost, progress, performance, or furnishing of Work or that relate to any

aspect of the means, methods, techniques, sequences, or procedures of construction to be employed by Bidder and safety precautions and programs incident thereto;

b. Bidder has conducted or obtained and has understood all examinations, investigations, explorations, tests, reports, and studies that pertain to the subsurface conditions, as-built conditions, underground facilities, and all other physical conditions at or contiguous to the Site or otherwise that may affect the cost, progress, performance, or furnishing of Work, as Bidder considers necessary for the performance or furnishing of Work at the Contract Sum, within the Contract Time, and in accordance with the other terms and conditions of Contract Documents, including specifically the provisions of the General Conditions; and no additional examinations, investigations, explorations, tests, reports, studies, or similar information or data are or will be required by Bidder for such purposes;

c. Bidder has correlated its knowledge and the results of all such observations, examinations, investigations, explorations, tests, reports, and studies with the terms and conditions of the Contract Documents;

d. Bidder has given the District prompt written notice of all conflicts, errors, ambiguities, or discrepancies that it has discovered in or among the Contract Documents and the actual conditions, and the written resolution(s) thereof by the District is/are acceptable to Bidder;

e. Bidder has made a complete disclosure in writing to the District of all facts bearing upon any possible interest, direct or indirect, that Bidder believes any representative of the District or other officer or employee of the District presently has or will have in this Contract or in the performance thereof or in any portion of the profits thereof;

f. Bidder must, prior to bidding, perform the work, investigations, research, and analysis required by this document and that Bidder represented in its Bid Form and Proposal and the Agreement that it performed prior to bidding. Contractor under this Contract is charged with all information and knowledge that a reasonable bidder would ascertain from having performed this required work, investigation, research, and analysis. Bid prices must include entire cost of all work "incidental" to completion of the Work.

g. Conditions Shown on the Contract Documents: Information as to underground conditions, as-built conditions, or other conditions or obstructions, indicated in the Contract Documents, e.g., on Drawings or in Specifications, has been obtained with reasonable care, and has been recorded in good faith. However, District only warrants, and Bidder may only rely, on the accuracy of limited types of information.

(1) As to above-ground conditions or as-built conditions shown or indicated in the Contract Documents, there is no warranty, express or implied, or any representation express or implied, that such information is correctly shown or indicated. This information is verifiable by independent investigation and Bidder is required to make such verification as a condition to bidding. In submitting its Bid,

Bidder shall rely on the results of its own independent investigation. In submitting its Bid, Bidder shall not rely on District-supplied information regarding above-ground conditions or as-built conditions.

(2) As to any subsurface condition shown or indicated in the Contract Documents, Bidder may rely only upon the general accuracy of actual reported depths, actual reported character of materials, actual reported soil types, actual reported water conditions, or actual obstructions shown or indicated. District is not responsible for the completeness of such information for bidding or construction; nor is District responsible in any way for any conclusions or opinions that the Bidder has drawn from such information; nor is the District responsible for subsurface conditions that are not specifically shown (for example, District is not responsible for soil conditions in areas contiguous to areas where a subsurface condition is shown).

h. Conditions Shown in Reports and Drawings Supplied for Informational Purposes: Reference is made to the document entitled Geotechnical Data, and the document entitled Existing Conditions, for identification of:

(1) Subsurface Conditions: Those reports of explorations and tests of subsurface conditions at or contiguous to the Site that have been utilized by Architect in preparing the Contract Documents; and

(2) Physical Conditions: Those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site that has been utilized by Architect in preparing the Contract Documents.

(3) These reports and drawings are **not** Contract Documents and, except for any "technical" data regarding subsurface conditions specifically identified in Geotechnical Data and Existing Conditions, and underground facilities data, Bidder may not in any manner rely on the information in these reports and drawings. Subject to the foregoing, Bidder must make its own independent investigation of all conditions affecting the Work and must not rely on information provided by District.

19. Bids shall be based on products and systems specified in Contract Documents or listed by name in Addenda. Whenever in the Specifications any materials, process, or article is indicated or specified by grade, patent, or proprietary name, or by name of manufacturer, that Specification shall be deemed to be followed by the words "or equal." Bidder may, unless otherwise stated, offer any material, process, or article that shall be substantially equal or better in every respect to that so indicated or specified. The District is not responsible and/or liable in any way for a Contractor's damages and/or claims related, in any way, to that Contractor's basing its bid on any requested substitution that the District has not approved in advance and in writing. Contractors and materials suppliers who submit requests for substitutions prior to the award of the Contract must do so in writing and in compliance with Public Contract Code section 3400. All requests must comply with the following:

a. District must receive any notice of request for substitution of a specified item

a minimum of **TEN (10)** calendar days prior to bid opening. The Successful Bidder will not be allowed to substitute specified items unless properly noticed.

b. Within 35 days after the date of the Notice of Award, the Successful Bidder shall submit data substantiating the request(s) for all substitution(s) containing sufficient information to assess acceptability of product or system and impact on Project, including, without limitation, the requirements specified in the Special Conditions and the Specifications. Insufficient information shall be grounds for rejection of substitution.

c. Approved substitutions, if any, shall be listed in Addenda. District reserves the right not to act upon submittals of substitutions until after bid opening.

d. Substitutions may be requested after Contract has been awarded only if indicated in and in accordance with requirements specified in the Special Conditions and the Specifications.

20. Bidders may examine any available "as-built" drawings of previous work by giving District reasonable advance notice. District will not be responsible for accuracy of "as-built" drawings. The document entitled Existing Conditions applies to all supplied "as-built" drawings.

21. All questions about the meaning or intent of the Contract Documents are to be directed via email to Greystone West, Jason Cave, jason@greystonewest.com and Brenda Parella, brenda@greystonewest.com and cc the District to Mike Woolard, mwoolard@tamdistrict.org. Interpretations or clarifications considered necessary by the District in response to such questions will be issued in writing by Addenda and emailed or delivered to all parties recorded by the District as having received the Contract Documents or posted on the District's website at https://www.tamdistrict.org/administration/maintenance-operations/rfprfq-bidinformation. Questions received less than **SEVEN (7)** calendar days prior to the date for opening bids may not be answered. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

22. Addenda may also be issued to modify other parts of the Contract Documents as deemed advisable by the District.

23. Each Bidder must acknowledge each Addendum in its Bid Form and Proposal by number or its Bid shall be considered non-responsive. Each Addendum shall be part of the Contract Documents. A complete listing of Addenda may be secured from the District.

24. This Contract may include alternates. Alternates are defined as alternate products, materials, equipment, systems, methods, or major elements of the construction that may, at the District's option and under terms established in the Contract and pursuant to section 20103.8 of the Public Contract Code, be selected for the Work.

25. The District shall award the Contract, if it awards it at all, to the lowest responsive responsible bidder based on the criteria as indicated in the Notice to Bidders. In the event two or more responsible bidders submit identical bids, the District shall select the Bidder to whom to award the Contract by lot.

26. Discrepancies between written words and figures, or words and numerals, will be resolved in favor of figures or numerals.

27. Bidders in contention for contract awards shall be required to attend a Post-Bid interview, which will be set within three (3) calendar days following bid opening. A duly authorized representative of the apparent low bidder is required to attend the Post Bid Interview, in person. The apparent low bidder's authorized representative(s) must have (1) knowledge of how the bid submitted was prepared, (2) the person responsible for supervising performance of the Work, and (3) the authority to bind the apparent low bidder. Failure to attend the Post Bid Interview as scheduled will be considered just cause for the District to reject the Bid as nonresponsive.

28. Any bid protest by any Bidder regarding any other bid must be submitted in writing to the District, before 5:00 p.m. of the **THIRD (3rd)** business day following bid opening.

    a. Only a Bidder who has actually submitted a bid, and who could be awarded the Contract if the bid protest is upheld, is eligible to submit a bid protest. Subcontractors are not eligible to submit bid protests. A Bidder may not rely on the bid protest submitted by another Bidder.

    b. A bid protest must contain a complete statement of any and all bases for the protest and all supporting documentation. Materials submitted after the bid protest deadline will not be considered.

    c. The protest must refer to the specific portions of all documents that form the basis for the protest.

        (1) Without limitation to any other basis for protest, an inadvertent error in listing the California contractor's license number on the Designated Subcontractors List shall not be grounds for filing a bid protest or grounds for considering the bid nonresponsive if the correct contractor's license number is submitted to the District within 24 hours after the bid opening and the corrected number corresponds with the submitted name and location for that subcontractor.

        (2) Without limitation to any other basis for protest, an inadvertent error listing an unregistered subcontractor shall not be grounds for filing a bid protest or grounds for considering the bid nonresponsive provided that any of the following apply:

            (i) The subcontractor is registered prior to the bid opening.

            (ii) The subcontractor is registered and has paid the penalty registration fee within 24 hours after the bid opening.

            (iii) The subcontractor is replaced by another registered subcontractor pursuant to Public Contract Code section 4107.

    d. The protest must include the name, address and telephone number of the person representing the protesting party.

e. The party filing the protest must concurrently transmit a copy of the protest and any attached documentation to all other parties with a direct financial interest that may be adversely affected by the outcome of the protest. Such parties shall include all other bidders or proposers who appear to have a reasonable prospect of receiving an award depending upon the outcome of the protest.

f. The procedure and time limits set forth in this paragraph are mandatory and are each bidder's sole and exclusive remedy in the event of bid protest. Failure to comply with these procedures shall constitute a waiver of any right to further pursue the bid protest, including filing a Government Code Claim or legal proceedings.

29. The Bidder to whom Contract is awarded shall execute and submit the following documents by 5:00 p.m. of the **TENTH (10th)** calendar day following the date of the Notice of Award. Failure to properly and timely submit these documents entitles District to reject the bid as nonresponsive.

a. Agreement: To be executed by successful Bidder. District may require Contractor to submit up to three (3) copies, each bearing an original signature.

b. Performance Bond (100%): On the form provided in the Contract Documents and fully executed as indicated on the form.

c. Payment Bond (Contractor's Labor and Material Bond) (100%): On the form provided in the Contract Documents and fully executed as indicated on the form.

d. Insurance Certificates and Endorsements as required.

e. Workers' Compensation Certification.

f. Prevailing Wage and Related Labor Requirements Certification.

g. Disabled Veteran Business Enterprise Participation Certification.

h. Drug-Free Workplace Certification.

i. Tobacco-Free Environment Certification.

j. Drug and Alcohol-Free Schools Certification.

k. Workplace Violence Prevention Plan Certification.

l. Hazardous Materials Certification.

m. Lead-Based Materials Certification.

n. Imported Materials Certification.

o. Criminal Background Investigation/Fingerprinting Certification.

p. Registered Subcontractors List: Must include Department of Industrial Relations (DIR) registration number of each subcontractor for all tiers.

30. Time for Completion: District may issue a Notice to Proceed within **NINETY (90)** days from the date of the Notice of Award. Once Contractor has received the Notice to Proceed, Contractor shall complete the Work within the period of time indicated in the Contract Documents.

a. In the event that the District desires to postpone issuing the Notice to Proceed beyond this 90-day period, it is expressly understood that with reasonable notice to the Contractor, the District may postpone issuing the Notice to Proceed.

b. It is further expressly understood by Contractor that Contractor shall not be entitled to any claim of additional compensation as a result of the postponement of the issuance of the Notice to Proceed beyond a 90-day period. If the Contractor believes that a postponement of issuance of the Notice to Proceed will cause a hardship to the Contractor, the Contractor may terminate the Contract. Contractor's termination due to a postponement beyond this 90-day period shall be by written notice to District within **TEN (10)** calendar days after receipt by Contractor of District's notice of postponement.

c. It is further understood by the Contractor that in the event that Contractor terminates the Contract as a result of postponement by the District, the District shall only be obligated to pay Contractor for the Work that Contractor had performed at the time of notification of postponement and which the District had in writing authorized Contractor to perform prior to issuing a Notice to Proceed.

d. Should the Contractor terminate the Contract as a result of a notice of postponement, District shall have the authority to award the Contract to the next lowest responsive responsible bidder.

31. District reserves the right to reject any or all bids, including without limitation the right to reject any or all nonconforming, nonresponsive, unbalanced, or conditional bids, to re-bid, and to reject the bid of any bidder if District believes that it would not be in the best interest of the District to make an award to that bidder, whether because the bid is not responsive or the bidder is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by District. District also reserves the right to waive any inconsequential deviations or irregularities in any bid. For purposes of this paragraph, an "unbalanced bid" is one having nominal prices for some work items and/or enhanced prices for other work items.

32. It is the policy of the District that no qualified person shall be excluded from participating in, be denied the benefits of, or otherwise be subjected to discrimination in any consideration leading to the award of contract, based on race, religious creed, color, national origin, ancestry, physical disability, mental disability, reproductive health decision-making, medical condition, genetic information, marital status, sex, gender, gender identity, gender expression, age, sexual orientation, or veteran or military status. The Successful Bidder and its subcontractors shall comply with applicable federal and state laws, including, but not limited to the California Fair Employment and Housing Act, beginning with Government Code section 12900, and Labor Code section 1735.

33. Prior to the award of Contract, District reserves the right to consider the responsibility of the Bidder. District may conduct investigations as District deems necessary to assist in the evaluation of any bid and to establish the responsibility, including, without limitation, qualifications and financial ability of Bidders, proposed subcontractors, suppliers, and other persons and organizations to perform and furnish the Work in accordance with the Contract Documents to District's satisfaction within the prescribed time.

END OF DOCUMENT

DOCUMENT 00 21 13.1

BIDDER INFORMATION AND FORMS

[INTENTIONALLY LEFT BLANK UNLESS PROVIDED IN SPECIAL CONDITIONS – SEPARATE PREQUALIFICATION PROCESS RECOMMENDED]

END OF DOCUMENT

DOCUMENT 00 41 13
BID FORM AND PROPOSAL

To: Governing Board of the Tamalpais Union High School District ("District" or "Owner")

From:

_____

(Proper Name of Bidder)

The undersigned declares that Bidder has read and understands the Contract Documents, including, without limitation, the Notice to Bidders and the Instructions to Bidders, and agrees and proposes to furnish all necessary labor, materials, and equipment to perform and furnish all work in accordance with the terms and conditions of the Contract Documents, including, without limitation, the Drawings and Specifications of **Bid No. 104**, for the following project known as:

Redwood High School Ghilotti Field Site Improvements Project Rebid

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

_____dollars $ _____

BASE BID

Bidder acknowledges and agrees that the Base Bid accounts for any and all Allowance(s).

Additive/Deductive Alternates: N/A

Descriptions of alternates are primarily scope definitions and do not necessarily detail the full range of materials and processes needed to complete the construction.

Unit Prices. The Bidder's Base Bid includes the following unit prices, which the Bidder must provide and the District may, at its discretion, utilize in valuing additive and/or deductive change orders (Unit Prices shall include all labor, materials, services, profit, overhead, insurance, bonds, taxes, and all other incidental costs of Contractor, subcontractors, and suppliers): **N/A**

Allowance. The Bidder's Base Bid **shall** include the following Allowances for the Tasks/Work as noted here: **N/A**

The Allowance Value for an Allowance Item includes the direct cost of labor, materials, equipment, transportation, taxes and insurance associated with the applicable Allowance Item. All other costs, including Contractor's overall project management and general conditions costs, overhead and fee, are deemed to be included in the Base Bid.

The District shall have sole discretion to authorize all expenditures from the Allowances. The District shall process expenditures from the Allowances in the form of an Allowance Expenditure Directive ("AED"). Any unused Allowance or unused portion thereof shall be deducted from the Contract Price to the benefit of the District.

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

2. The undersigned has notified the District in writing of any discrepancies or omissions or of any doubt, questions, or ambiguities about the meaning of any of the Contract Documents and has contacted the Construction Manager before bid date to verify the issuance of any clarifying Addenda.

3. The undersigned agrees to commence work under this Contract on the date established in the Contract Documents and to complete all work within the time specified in the Contract Documents.

4. The liquidated damages clause of the General Conditions and Agreement is hereby acknowledged.

5. It is understood that the District reserves the right to reject this bid and that the bid shall remain open to acceptance and is irrevocable for a period of ninety (90) days.

6. The following documents are attached hereto:

   - Bid Bond on the District's form or other security
   - Designated Subcontractors List
   - Site Visit Certification
   - Non-Collusion Declaration
   - Iran Contracting Act Certification

7. Receipt and acceptance of the following Addenda is hereby acknowledged:

No. _____, Dated _____	No. _____, Dated _____
No. _____, Dated _____	No. _____, Dated _____
No. _____, Dated _____	No. _____, Dated _____

8. Bidder acknowledges that the license required for performance of the Work is a **C-53** license.

9. Bidder hereby certifies that Bidder is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the Work.

10. Bidder specifically acknowledges and understands that if it is awarded the Contract, that it shall perform the Work of the Project while complying with all requirements of the Department of Industrial Relations.

11. Bidder hereby certifies that its bid includes sufficient funds to permit Bidder to comply with all local, state or federal labor laws or regulations during the Project, including payment of prevailing wage, and that Bidder will comply with the provisions of Labor Code section 2810(d) if awarded the Contract.

12. Bidder represents that it is competent, knowledgeable, and has special skills with respect to the nature, extent, and inherent conditions of the Work to be performed. Bidder further acknowledges that there are certain peculiar and inherent conditions existent in the construction of the Work that may create, during the Work, unusual or peculiar unsafe conditions hazardous to persons and property.

13. Bidder expressly acknowledges that it is aware of such peculiar risks and that it has the skill and experience to foresee and to adopt protective measures to adequately and safely perform the Work with respect to such hazards.

14. Bidder expressly acknowledges that it is aware that if a false claim is knowingly submitted (as the terms "claim" and "knowingly" are defined in the California False Claims Act, Gov. Code, § 12650 et seq.), the District will be entitled to civil remedies set forth in the California False Claim Act. It may also be considered fraud and the Contractor may be subject to criminal prosecution.

15. The undersigned Bidder certifies that it is, at the time of bidding, and shall be throughout the period of the Contract, licensed by the State of California to do the type of work required under the terms of the Contract Documents and registered as a public works contractor with the Department of Industrial Relations. Bidder further certifies that it is regularly engaged in the general class and type of work called for in the Contract Documents.

[SIGNATURE ON FOLLOWING PAGE]

Bidder hereby certifies to the District that all representations, certifications, and statements made by Bidder, as set forth in this bid form, are true and correct and are made under penalty of perjury.
Dated this _____day of _____2025

Name of Bidder: _____

Type of Organization: _____

Signature: _____

Print Name: _____

Title: _____

Address of Bidder: _____

Taxpayer Identification No. of Bidder: _____

Telephone Number: _____

Fax Number: _____

E-mail: _____ Web Page: _____

Contractor's License No(s): No.: _____Class: _____Expiration Date: _____

No.: _____Class:_____Expiration Date: _____

No.: _____Class:_____Expiration Date: _____

Public Works Contractor Registration No.: _____

END OF DOCUMENT

DOCUMENT 00 43 13
BID BOND

(Note: If Bidder is providing a bid bond as its bid security, Bidder must use this form, NOT a surety company form.)

KNOW ALL PERSONS BY THESE PRESENTS:
That the undersigned,_____, as Principal ("Principal"),

and _____, as Surety ("Surety"), a corporation organized and existing under and by virtue of the laws of the State of California and authorized to do business as a surety in the State of California, are held and firmly bound unto the Tamalpais Union High School District ("District") of Marin County, State of California, as Obligee, in an amount equal to **ten percent (10%) of the Base Bid** plus alternates, for the payment of which sum well and truly to be made, we, and each of us, bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that whereas the Principal has submitted a bid to the District for all Work specifically described in the accompanying bid for the following project: **Redwood High School Ghilotti Field Site Improvements Project Rebid** ("Project" or "Contract").
NOW, THEREFORE, if the Principal is awarded the Contract and, within the time and manner required under the Contract Documents, after the prescribed forms are presented to Principal for signature, enters into a written contract, in the prescribed form in accordance with the bid, and files two bonds, one guaranteeing faithful performance and the other guaranteeing payment for labor and materials as required by law, and meets all other conditions to the Contract between the Principal and the Obligee becoming effective, or if the Principal shall fully reimburse and save harmless the Obligee from any damage sustained by the Obligee through failure of the Principal to enter into the written contract and to file the required performance and labor and material bonds, and to meet all other conditions to the Contract between the Principal and the Obligee becoming effective, then this obligation shall be null and void; otherwise, it shall be and remain in full force and effect. The full payment of the sum stated above shall be due immediately if Principal fails to execute the Contract within ten (10) days of the date of the District's Notice of Award to Principal.

Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or the call for bids, or to the work to be performed thereunder, or the specifications accompanying the same, shall in any way affect its obligation under this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or the call for bids, or to the work, or to the specifications.

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

If the District awards the bid, the security of unsuccessful bidder(s) shall be returned within sixty (60) days from the time the award is made. Unless otherwise required by law, no bidder may withdraw its bid for ninety (90) days after the date of the bid opening.
IN WITNESS WHEREOF, this instrument has been duty executed by the Principal and Surety above named, on the _____day of _____, 2025.

_____
Principal

_____
By

_____
Surety

_____
By

_____
Name of California Agent of Surety

_____
Address of California Agent of Surety

_____
Telephone Number of California Agent of Surety

Bidder must attach Power of Attorney and Certificate of Authority for Surety and a Notarial Acknowledgment for all Surety's signatures. The California Department of Insurance must authorize the Surety to be an admitted Surety Insurer.

END OF DOCUMENT

DOCUMENT 00 43 36
DESIGNATED SUBCONTRACTORS LIST
(Public Contact Code Sections 4104-4114)

PROJECT: **Redwood High School Ghilotti Field Site Improvements Project Rebid**

Bidder acknowledges and agrees that it must clearly set forth below the name, location and California contractor license number of each subcontractor who will perform work or labor or render service to the Bidder in or about the construction of the Work or who will specially fabricate and install a portion of the Work according to detailed drawings contained in the plans and specifications in an amount in excess of one-half of one percent (0.5%) of Bidder's total Base Bid and the kind of Work that each will perform. Vendors or suppliers of materials only do not need to be listed.

Bidder acknowledges and agrees that, if Bidder fails to list as to any portion of Work, or if Bidder lists more than one subcontractor to perform the same portion of Work, Bidder must perform that portion itself or be subjected to penalty under applicable law. In case more than one subcontractor is named for the same kind of Work, state the portion of the kind of Work that each subcontractor will perform.

If alternate bid(s) is/are called for and Bidder intends to use subcontractors different from or in addition to those subcontractors listed for work under the Base Bid, Bidder must list subcontractors that will perform Work in an amount in excess of one half of one percent (0.5%) of Bidder's total Base Bid plus alternate(s).
If further space is required for the list of proposed subcontractors, attach additional copies of page 2 showing the required information, as indicated below.

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____
DIR Registration #: _____

Portion of Work: _____

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

DIR Registration #: _____

Portion of Work: _____

(Provide additional sheets as needed to document all Subcontractors used on project).

Date: _____

Proper Name of Bidder: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

DOCUMENT 00 45 01
SITE VISIT/JOB WALK CERTIFICATION

TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID
(ONLY IF SITE VISIT/JOB WALK WAS MANDATORY)

PROJECT: Redwood High School Ghilotti Field Site Improvements Project Rebid

Check option that applies:

_____ I certify that I visited the Site of the proposed Work, received the attached _____ pages of information, and became fully acquainted with the conditions relating to construction and labor. I fully understand the facilities, difficulties, and restrictions attending the execution of the Work under contract.

_____ I certify that _____(Bidder's representative) visited the Site of the proposed Work, received the attached _____pages of information, and became fully acquainted with the conditions relating to construction and labor. The Bidder's representative fully understood the facilities, difficulties, and restrictions attending the execution of the Work under contract.

Bidder fully indemnifies the Tamalpais Union High School District, its Architect, its Engineers, its Construction Manager, and all of their respective officers, agents, employees, and consultants from any damage, or omissions, related to conditions that could have been identified during my visit and/or the Bidder's representative's visit to the Site.

I certify under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Date: _____

Proper Name of Bidder: _____

Signature: _____

Print Name: _____

Title: _____

ATTACHMENTS:

1.

2.

3.

END OF DOCUMENT

DOCUMENT 00 45 19
NON-COLLUSION DECLARATION
(Public Contract Code Section 7106)

The undersigned declares:

I am the _____ of _____, the party making the foregoing bid.
[Title] [Name of Firm]

The bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation. The bid is genuine and not collusive or sham. The bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid. The bidder has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or to refrain from bidding. The bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder. All statements contained in the bid are true. The bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof, to effectuate a collusive or sham bid, and has not paid, and will not pay, any person or entity for such purpose.

Any person executing this declaration on behalf of a bidder that is a corporation, partnership, joint venture, limited liability company, limited liability partnership, or any other entity, hereby represents that he or she has full power to execute, and does execute, this declaration on behalf of the bidder.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that this declaration is executed on _____,
[Date]

at _____, _____.
[City] [State]

Date: _____

Proper Name of Bidder: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

DOCUMENT 00 45 19.01
IRAN CONTRACTING ACT CERTIFICATION
(Public Contract Code Sections 2202-2208)

BID NO.: 104 between the Tamalpais Union High School District ("District") and _____ _____ ("Contractor" or "Bidder") ("Contract" or "Project").

Prior to bidding on or submitting a proposal for a contract for goods or services of $1,000,000 or more, the bidder/proposer must submit this certification pursuant to Public Contract Code section 2204.

The bidder/proposer must complete **ONLY ONE** of the following two options. To complete OPTION 1, check the corresponding box **and** complete the certification below. To complete OPTION 2, check the corresponding box, complete the certification below, and attach documentation demonstrating the exemption approval.

☒ **OPTION 1.** Bidder/Proposer is not on the current list of persons engaged in investment activities in Iran created by the California Department of General Services ("DGS") pursuant to Public Contract Code section 2203(b), and we are not a financial institution extending twenty million dollars ($20,000,000) or more in credit to another person, for 45 days or more, if that other person will use the credit to provide goods or services in the energy sector in Iran and is identified on the current list of persons engaged in investment activities in Iran created by DGS.

☐ **OPTION 2.** Bidder/Proposer has received a written exemption from the certification requirement pursuant to Public Contract Code sections 2203(c) and (d). *A copy of the written documentation demonstrating the exemption approval is included with our bid/proposal.*

CERTIFICATION:
I, the official named below, CERTIFY UNDER PENALTY OF PERJURY, that I am duly authorized to legally bind the bidder/proposer to the OPTION selected above. This certification is made under the laws of the State of California.

Vendor Name/Financial Institution (Printed)	*Federal ID Number (or n/a)*
By (Authorized Signature)	
Printed Name and Title of Person Signing	*Date Executed*

END OF DOCUMENT

DOCUMENT 00 45 26
WORKERS' COMPENSATION CERTIFICATION

BID NO.: 104 between the Tamalpais Union High School District ("District") and _____ _____ ("Contractor" or "Bidder") ("Contract" or "Project").

Labor Code section 3700, in relevant part, provides:

Every employer except the State shall secure the payment of compensation in one or more of the following ways:

a. By being insured against liability to pay compensation by one or more insurers duly authorized to write compensation insurance in this state; and/or

b. By securing from the Director of Industrial Relations a certificate of consent to self-insure, which may be given upon furnishing proof satisfactory to the Director of Industrial Relations of ability to self-insure and to pay any compensation that may become due to his employees.

I am aware of the provisions of section 3700 of the Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self- insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the Work of this Contract.

Date: _____

Proper Name of Contractor: _____

_____

Signature:

Print Name: _____

Title: _____

(In accordance with Labor Code sections 1860 and 1861, the above certificate must be signed and filed with the awarding body prior to performing any Work under this Contract.)

END OF DOCUMENT

DOCUMENT 00 45 46.01
PREVAILING WAGE AND
RELATED LABOR REQUIREMENTS CERTIFICATION

BID NO.: 104 between the Tamalpais Union High School District ("District") and _____ _____ ("Contractor" or "Bidder") ("Contract" or "Project").

I hereby certify that I will conform to the State of California Public Works Contract requirements regarding prevailing wages, benefits, on-site audits with 48-hours' notice, payroll records, and apprentice and trainee employment requirements, for all Work on the above Project including, without limitation, labor compliance monitoring and enforcement by the Department of Industrial Relations.

Date: _____

Proper Name of Contractor: _____

_____

Signature:

Print Name: _____

Title: _____

END OF DOCUMENT

DOCUMENT 00 45 46.02

DISABLED VETERAN BUSINESS ENTERPRISE PARTICIPATION CERTIFICATION

BID NO.: 104 between the Tamalpais Union High School District ("District") and _____ _____ ("Contractor" or "Bidder") ("Contract" or "Project").

GENERAL INSTRUCTIONS

Section 17076.11 of the Education Code requires school districts using, or planning to use, funds allocated pursuant to the State of California School Facility Program ("Program") for the construction and/or modernization of school buildings to have a participation goal for disabled veteran business enterprises ("DVBE") of at least three percent (3%) per year of the overall dollar amount expended each year by the school district on projects that receive state funding. Therefore, the lowest responsive responsible Bidder awarded the Contract must submit this document to the District with its executed Agreement, identifying the steps contractor took to solicit DVBE participation in conjunction with this Contract. **Do not submit this form with your bids.**

PART I – Method of Compliance with DVBE Participation Goals. Check the appropriate box to indicate your method of committing the contract dollar amount.

YOUR BUSINESS ENTERPRISE IS:	**AND YOU WILL**	**AND YOU WILL**
A. ☐ Disabled veteran owned and your forces will perform at least 3% of this Contract	Include a copy of your DVBE letter from Office of Small Business and Disabled Veterans Business Enterprise Services ("OSDS")*	Complete Part 1 of this form and the Certification
B. ☐ Disabled veteran owned but is unable to perform 3% of this Contract with your forces	Use DVBE subcontractors /suppliers to bring the Contract participation to at least 3%	Include a copy of each DVBE's letter from OSDS (including yours, if applicable), and complete Part 1 of this form and the Certification
C. ☐ **NOT** disabled veteran owned	Use DVBE subcontractors /suppliers for at least 3% of this Contract	
D. ☐ Unable to meet the required participation goals after good faith efforts	Make good faith efforts, including contacts, advertisement and DVBE solicitation	Complete all of this form and the Certification

* A DVBE letter from OSDS is obtained from the participating DVBE.

You must complete the following table to show the dollar amount of DVBE participation:

	TOTAL CONTRACT PRICE
A. Prime Bidder, if DVBE (own participation)	$
B. DVBE Subcontractor or Supplier	
1.	
2.	
3.	
4.	
C. Subtotal (A & B)	
D. Non-DVBE	
E. Total Bid	

PART II – Contacts. To identify DVBE subcontractors/suppliers for participation in your contract, you must contact each of the following categories. You should contact several DVBE organizations.

CATEGORY	**TELEPHONE NUMBER**	**DATE CONTACTED**	**PERSON CONTACTED**
1. The District, if any			*
2. OSDS, provides assistance locating DVBEs at https://caleprocure.ca.gov/pages/PublicSearch/supplier-search.aspx	(916) 375-4940		*
3. DVBE Organization (List)			*

*Write "recorded message" in this column, if applicable.

PART III – Advertisement. You must advertise for DVBE participation in both a trade and focus paper. List the advertisement you place to solicit DVBE participation. Advertisements should be published at least fourteen (14) days prior to bid/proposal opening; if you cannot advertise fourteen (14) days prior, advertisements should be published as soon as possible. Advertisements must include that your firm is seeking DVBE participation, the project name and location, and your firm's name, your contact person, and telephone number. Attach copies of advertisements to this form.

FOCUS/TRADE PAPER NAME	**CHECK ONE**		**DATE OF ADVERTISEMENT**
	TRADE	**FOCUS**	

PART IV – DVBE Solicitations. List DVBE subcontractors/suppliers that were invited to bid. Use the following instructions to complete the remainder of this section (read the three columns as a sentence from left to right). If you need additional space to list DVBE solicitations, please use a separate page and attach to this form.

IF THE DVBE…..	**THEN…..**	**AND…..**
was selected to participate	Check "YES" in the "SELECTED" column	include a copy of their DVBE letter(s) from OSDS
was **NOT** selected to participate	Check "NO" in the "SELECTED" column	state why in the "REASON NOT SELECTED" column
did not respond to your solicitation	Check the "NO RESPONSE" column.	

DVBE CONTACTED	**SELECTED**		**REASON NOT SELECTED**	**NO RESPONSE**
	YES	**NO**		

A copy of this form must be retained by you and may be subject to a future audit.

CERTIFICATION

I, _____, certify that I am the bidder's _____ and that I have made a diligent effort to ascertain the facts with regard to the representations made herein. In making this certification, I am aware of section 12650 et seq. of the Government Code providing for the imposition of treble damages for making false claims.

Date: _____

Proper Name of Contractor: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

DOCUMENT 00 45 46.03
DRUG-FREE WORKPLACE CERTIFICATION

BID NO.: 104 between the Tamalpais Union High School District ("District") and _____ _____ ("Contractor" or "Bidder") ("Contract" or "Project").

This Drug-Free Workplace Certification form is required from the successful Bidder pursuant to Government Code section 8350 et seq., the Drug-Free Workplace Act of 1990. The Drug-Free Workplace Act of 1990 requires that every person or organization awarded a contract or grant for the procurement of any property or service from any state agency must certify that it will provide a drug-free workplace by doing certain specified acts. In addition, the Act provides that each contract or grant awarded by a state agency may be subject to suspension of payments or termination of the contract or grant, and the contractor or grantee may be subject to debarment from future contracting, if the contracting agency determines that specified acts have occurred.

The District is not a "state agency" as defined in the applicable section(s) of the Government Code, but the District is a local agency and public school district under California law and requires all contractors on District projects to comply with the provisions and requirements of the Drug-Free Workplace Act of 1990.
Contractor must also comply with the provisions of Health & Safety Code section 11362.3 which prohibits the consumption or possession of cannabis or cannabis products in any public place, including school grounds, and specifically on school grounds while children are present.
Contractor shall certify that it will provide a drug-free workplace by doing all of the following:

a. Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance is prohibited in the person's or organization's workplace and specifying actions which will be taken against employees for violations of the prohibition.

b. Establishing a drug-free awareness program to inform employees about all of the following:

   (1) The dangers of drug abuse in the workplace.

   (2) The person's or organization's policy of maintaining a drug-free workplace.

   (3) The availability of drug counseling, rehabilitation, and employee-assistance programs.

   (4) The penalties that may be imposed upon employees for drug abuse violations.

c. Requiring that each employee engaged in the performance of the contract or grant be given a copy of the statement required above, and that, as a condition of employment on the contract or grant, the employee agrees to abide by the terms of the statement.

I, the undersigned, agree to fulfill the terms and requirements of Government Code section 8355 listed above and will publish a statement notifying employees concerning (a) the prohibition of controlled substance at the workplace, (b) establishing a drug-free awareness program, and (c) requiring that each employee engaged in the performance of the Contract be given a copy of the statement required by section 8355(a), and requiring that the employee agree to abide by the terms of that statement.

I also understand that if the District determines that I have either (a) made a false certification herein, or (b) violated this certification by failing to carry out the requirements of section 8355, that the Contract awarded herein is subject to termination, suspension of payments, or both. I further understand that, should I violate the terms of the Drug-Free Workplace Act of 1990, I may be subject to debarment in accordance with the requirements of the aforementioned Act.

I acknowledge that I am aware of the provisions of and hereby certify that I will adhere to the requirements of the Drug-Free Workplace Act of 1990 and Health and Safety Code section 11362.3.

Date: _____

Proper Name of Contractor: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

DOCUMENT 00 45 46.04
TOBACCO-FREE ENVIRONMENT CERTIFICATION

BID NO.: 104 between the Tamalpais Union High School District ("District") and _____ _____ ("Contractor" or "Bidder") ("Contract" or "Project").

This Tobacco-Free Environment Certification form is required from the successful Bidder.

Pursuant to, without limitation, 20 U.S.C. section 6083, Labor Code section 6400 et seq., Health & Safety Code section 104350 et seq., Business and Professions Code section 22950 et seq., and District Board policies, all District sites, including the Project site, are tobacco-free environments. Smoking and the use of tobacco products by all persons is prohibited on or in District property. District property includes school buildings, school grounds, school-owned vehicles and vehicles owned by others while on District property. The prohibition on smoking includes the use of any electronic smoking device that creates an aerosol or vapor, in any manner or in any form, and the use of any oral smoking device for the purpose of circumventing the prohibition of tobacco smoking. Further, Health & Safety Code section 11362.3 prohibits the smoking or use of cannabis or cannabis products in any place where smoking tobacco is prohibited.

I acknowledge that I am aware of the District's policy regarding tobacco-free environments at District sites, including the Project site and hereby certify that I will adhere to the requirements of that policy and not permit any of my firm's employees, agents, subcontractors, or my firm's subcontractors' employees or agents, to use tobacco and/or smoke on the Project site.

Date: _____

Proper Name of Contractor: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

DOCUMENT 00 45 46.05
DRUG AND ALCOHOL-FREE SCHOOLS CERTIFICATION

BID NO.: 104 between the Tamalpais Union High School District ("District") and _____ _____ ("Contractor" or "Bidder") ("Contract" or "Project").

Pursuant to, without limitation, District Board policies, all District sites, including the Project site, are drug and alcohol-free schools. Possession, use, or dale of drugs and alcohol is prohibited at any time in district-owned or leased buildings, on district property, and in district vehicles unless otherwise permitted by law.
I acknowledge that I am aware of the District's policy regarding drug and alcohol-free schools, including the Project site and hereby certify that I will adhere to the requirements of that policy and not permit any of my firm's employees, agents, subcontractors, or my firm's subcontractors' employees or agents, to possess, use or sell:

1. Any substance which may not lawfully be possessed, used, or sold in California.

2. Cannabis or cannabis products (Health and Safety Code, § 11362.3; 21 USC §§ 812, 844).

3. Alcohol beverages, unless approved by the Superintendent or designee for limited purposes specified in Business and Professions Code section 25608.

Date: _____

Proper Name of Contractor: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

DOCUMENT 00 45 46.06
WORKPLACE VIOLENCE PREVENTION PLAN CERTIFICATION

BID NO.: 104 between the Tamalpais Union High School District ("District") and _____

_____

_____

_____ ("Contractor" or "Bidder") ("Contract" or "Project").

California Labor Code section 6401.9 requires covered employers to adopt a comprehensive workplace violence prevention plan, which shall be in writing and shall be available and easily accessible to the District's employees. To the extent that it may apply to Contractor's employees, the District's Workplace Violence Prevention Plan ("Prevention Plan") can be found here: https://simbli.eboardsolutions.com/Meetings/Attachment.aspx?S=36030468&AID=842333&MID=31098 or is available at the District Office.

In light of Section 6401.9 of the California Labor Code, Contractor certifies that Contractor has ascertained that the personnel (including the entity's employees and Subcontractors) providing site services on the District's Project have (1) received comprehensive Prevention Plan training and (2) access to the Prevention Plan.

Contractor understands that the Project site will need to comply with the Prevention Plan requirements for its employees and Subcontractors. Personnel who have not received comprehensive Prevention Plan training and do not have access to the Prevention Plan or decline to state if they received such training and have access to the Prevention Plan will be treated as not receiving comprehensive Prevention Plan Training and not having access to the Prevention Plan.

Contractor agrees to compensate the District for any civil penalties and expenses (including attorney's fees) it accrues pursuant to the California Labor Code, including but not limited to, California Labor Code section 6401.9(g), for any California Labor Code violations stemming from Contractor's Project work.

I acknowledge that I am aware of the provisions of and hereby certify that I will adhere to the requirements of the California Labor Code section 6401.9.

Date: _____
Proper Name of Contractor: _____

Signature: _____

_____

Print Name:

Title: _____

END OF SECTION

DOCUMENT 00 45 46.07
HAZARDOUS MATERIALS CERTIFICATION

BID NO.: 104 between Tamalpais Union High School District ("District") and _____ _____ ("Contractor" or "Bidder") ("Contract" or "Project").

1. Contractor hereby certifies that no asbestos, or asbestos-containing materials, polychlorinated biphenyl (PCB), or any material listed by the federal or state Environmental Protection Agency or federal or state health agencies as a hazardous material, or any other material defined as being hazardous under federal or state laws, rules, or regulations, ("New Hazardous Material"), shall be furnished, installed, or incorporated in any way into the Project or in any tools, devices, clothing, or equipment used to affect any portion of Contractor's work on the Project for District.

2. Contractor further certifies that it has instructed its employees with respect to the above-mentioned standards, hazards, risks, and liabilities.

3. Asbestos and/or asbestos-containing material shall be defined as all items containing but not limited to chrysotile, crocidolite, amosite, anthophyllite, tremolite, and actinolite. Any or all material containing greater than one-tenth of one percent (0.1%) asbestos shall be defined as asbestos-containing material.

4. Any disputes involving the question of whether or not material is New Hazardous Material shall be settled by electron microscopy or other appropriate and recognized testing procedure, at the District's determination. The costs of any such tests shall be paid by Contractor if the material is found to be New Hazardous Material.

5. All Work or materials found to be New Hazardous Material or Work or material installed with equipment containing New Hazardous Material will be immediately rejected and this Work will be removed at Contractor's expense at no additional cost to the District.

6. Contractor has read and understood the document titled, "Hazardous Materials Procedures & Requirements" and shall comply with all the provisions outlined therein.

7. Contractor certifies that it is knowledgeable of, and shall comply with, all laws applicable to the Work including, but not limited to, all federal, state, and local laws, statutes, standards, rules, regulations, and ordinances applicable to the Work.

Date: _____

Proper Name of Contractor: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

DOCUMENT 00 45 46.08
LEAD-BASED MATERIALS CERTIFICATION

BID NO.: 104 between the Tamalpais Union High School District ("District") and _____ _____ ("Contractor" or "Bidder") ("Contract" or "Project").

This certification provides notice to the Contractor that:

(1) Contractor's work may disturb lead-containing building materials.

(2) Contractor shall notify the District if any work may result in the disturbance of lead-containing building materials.

(3) Contractor shall comply with the Renovation, Repair and Painting Rule, if lead-based paint is disturbed in a six-square-foot or greater area indoors or a 20-square-foot or greater area outdoors.

1. Lead as a Health Hazard

Lead poisoning is recognized as a serious environmental health hazard facing children today. Even at low levels of exposure, much lower than previously believed, lead can impair the development of a child's central nervous system, causing learning disabilities, and leading to serious behavioral problems. Lead enters the environment as tiny lead particles and lead dust disburses when paint chips, chalks, peels, wears away over time, or is otherwise disturbed. Ingestion of lead dust is the most common pathway of childhood poisoning; lead dust gets on a child's hands and toys and then into a child's mouth through common hand-to-mouth activity.
Exposures may result from construction or remodeling activities that disturb lead paint, from ordinary wear and tear of windows and doors, or from friction on other surfaces.

Ordinary construction and renovation or repainting activities carried out without lead-safe work practices can disturb lead-based paint and create significant hazards. Improper removal practices, such as dry scraping, sanding, or water blasting painted surfaces, are likely to generate high volumes of lead dust.
Because the Contractor and its employees will be providing services for the District, and because the Contractor's work may disturb lead-containing building materials, CONTRACTOR IS HEREBY NOTIFIED of the potential presence of lead-containing materials located within certain buildings utilized by the District. All school buildings built prior to 1978 are presumed to contain some lead-based paint until sampling proves otherwise.

2. Overview of California Law

Education Code section 32240 et seq. is known as the Lead-Safe Schools Protection Act. Under this act, the Department of Health Services is to conduct a sample survey of schools in the State of California for the purpose of developing risk factors to predict lead contamination in public schools. (Ed. Code, § 32241.)

Any school that undertakes any action to abate existing risk factors for lead is required to utilize trained and state-certified contractors, inspectors, and workers. (Ed. Code, § 32243, subd. (b).) Moreover, lead-based paint, lead plumbing, and solders, or other potential sources of lead contamination, shall not be utilized in the construction of any new school facility or the modernization or renovation of any existing school facility. (Ed. Code, § 32244.)
Both the Federal Occupational Safety and Health Administration ("Fed/OSHA") and the California Division of Occupational Safety and Health ("Cal/OSHA") have implemented safety orders applicable to all construction work where a contractor's employee may be occupationally exposed to lead.

The OSHA Regulations apply to all construction work where a contractor's employee may be occupationally exposed to lead. The OSHA Regulations contain specific and detailed requirements imposed on contractors subject to those regulations. The OSHA Regulations define construction work as work for construction, alteration, and/or repair, including painting and decorating. Regulated work includes, but is not limited to, the following:

a. Demolition or salvage of structures where lead or materials containing lead are present;

b. Removal or encapsulation of materials containing lead;

c. New construction, alteration, repair, or renovation of structures, substrates, or portions thereof, that contain lead, or materials containing lead;

d. Installation of products containing lead;

e. Lead contamination/emergency cleanup;

f. Transportation, disposal, storage, or containment of lead or materials containing lead on the site or location at which construction activities are performed; and

g. Maintenance operations associated with the construction activities described in the subsection.

Because it is assumed by the District that all painted surfaces (interior as well as exterior) within the District contain some level of lead, it is imperative that the Contractor, its workers and subcontractors fully and adequately comply with all applicable laws, rules and regulations governing lead-based materials (including title 8, California Code of Regulations, section 1532.1).

Contractor shall notify the District if any Work may result in the disturbance of lead-containing building materials. Any and all Work that may result in the disturbance of lead-containing building materials shall be coordinated through the District. A signed copy of this Certification shall be on file prior to beginning Work on the Project, along with all current insurance certificates.

3. Renovation, Repair and Painting Rule, Section 402(c)(3) of the Toxic Substances Control Act

The EPA requires lead safe work practices to reduce exposure to lead hazards created by renovation, repair and painting activities that disturb lead-based paint. Pursuant to the Renovation, Repair and Painting Rule (RRP), renovations in homes, childcare facilities, and schools built prior to 1978 must be conducted by certified renovations firms, using renovators with training by a EPA-accredited training provider, and fully and adequately complying with all applicable laws, rules and regulations governing lead-based materials, including those rules and regulations appearing within title 40 of the Code of Federal Regulations as part 745 (40 CFR 745).

The RRP requirements apply to all contractors who disturb lead-based paint in a six- square-foot or greater area indoors or a 20-square-foot or greater area outdoors. If a DPH-certified inspector or risk assessor determines that a home constructed before 1978 is lead-free, the federal certification is not required for anyone working on that particular building.

4. Contractor's Liability

If the Contractor fails to comply with any applicable laws, rules, or regulations, and that failure results in a site or worker contamination, the Contractor will be held solely responsible for all costs involved in any required corrective actions, and shall defend, indemnify, and hold harmless the District, pursuant to the indemnification provisions of the Contract, for all damages and other claims arising therefrom.

If lead disturbance is anticipated in the Work, only persons with appropriate accreditation, registrations, licenses, and training shall conduct this Work.

It shall be the responsibility of the Contractor to properly dispose of any and all waste products, including, but not limited to, paint chips, any collected residue, or any other visual material that may occur from the prepping of any painted surface. It will be the responsibility of the Contractor to provide the proper disposal of any hazardous waste by a certified hazardous waste hauler. This company shall be registered with the Department of Transportation (DOT) and shall be able to issue a current manifest number upon transporting any hazardous material from any school site within the District.

The Contractor shall provide the District with any sample results prior to beginning Work, during the Work, and after the completion of the Work. The District may request to examine, prior to the commencement of the Work, the lead training records of each employee of the Contractor.

THE CONTRACTOR HEREBY ACKNOWLEDGES, UNDER PENALTY OF PERJURY, THAT IT:

1. HAS RECEIVED NOTIFICATION OF POTENTIAL LEAD-BASED MATERIALS ON THE OWNER'S PROPERTY;

2. IS KNOWLEDGEABLE REGARDING AND WILL COMPLY WITH ALL APPLICABLE LAWS, RULES, AND REGULATIONS GOVERNING WORK WITH, AND DISPOSAL, OF LEAD.

THE UNDERSIGNED WARRANTS THAT HE/SHE HAS THE AUTHORITY TO SIGN ON BEHALF OF AND BIND THE CONTRACTOR. THE DISTRICT MAY REQUIRE PROOF OF SUCH AUTHORITY.

Date: _____

Proper Name of Contractor: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

DOCUMENT 00 45 46.09

IMPORTED MATERIALS CERTIFICATION

BID NO.: 104 between the Tamalpais Union High School District ("District") and _____ _____ ("Contractor" or "Bidder") ("Contract" or "Project").

This form shall be executed by all entities that, in any way, provide or deliver and/or supply any soils, aggregate, or related materials ("Fill") to the Project Site and shall be provided to the District at least ten (10) days before delivery. All Fill shall satisfy all requirements of any environmental review of the Project performed pursuant to the statutes and guidelines of the California Environmental Quality Act, section 21040 et seq. of the Public Resources Code ("CEQA"), and all requirements of section 17210 et seq. of the Education Code, including requirements for a Phase I environmental assessment acceptable to the State of California Department of Education and Department of Toxic Substances Control.

Certification of: □ Delivery Firm/Transporter □ Supplier □ Manufacturer
□ Wholesaler □ Broker □ Retailer
□ Distributor □ Other _____

Type of Entity □ Corporation □ General Partnership
□ Limited Partnership □ Limited Liability Company
□ Sole Proprietorship □ Other _____

Name of firm ("Firm"): _____

Mailing address: _____

Addresses of branch office used for this Project: _____

If subsidiary, name and address of parent company: _____

_____

By my signature below, I hereby certify that I am aware of section 25260 of the Health and Safety Code and the sections referenced therein regarding the definition of hazardous material. I further certify on behalf of the Firm that all soils, aggregates, or related materials provided, delivered, and/or supplied or that will be provided, delivered, and/or supplied by this Firm to the Project Site are free of any and all hazardous material as defined in section 25260 of the Health and Safety Code. I further certify that I am authorized to make this certification on behalf of the Firm.

Date: _____

Proper Name of Firm: _____

Signature: _____

Print Name: _____

Title: _____ END OF DOCUMENT

DOCUMENT 00 45 46.10
CRIMINAL BACKGROUND INVESTIGATION/
FINGERPRINTING CERTIFICATION

BID NO.: 104 between the Tamalpais Union High School District ("District") and _____ _____ ("Contractor" or "Bidder") ("Contract" or "Project").

The undersigned does hereby certify to the District that I am a representative of the Contractor currently under contract with the District; that I am familiar with the facts herein certified; and that I am authorized and qualified to execute this certificate on behalf of Contractor.
Contractor certifies that it has taken at least one of the following actions (check all that apply):

☐ Pursuant to Education Code section 45125.2(a), Contractor has installed or will install, prior to commencement of Work, a physical barrier at the Work Site, that will limit contact between Contractor's employees, Subcontractors or suppliers and District pupils at all times; and/or

☐ Pursuant to Education Code section 45125.2(a), Contractor certifies that all employees will be under the continual supervision of, and monitored by, an employee of the Contractor who the California Department of Justice ("DOJ") has ascertained, or as described below, will ascertain, has not been convicted of a violent or serious felony. The name and title of the employee who will be supervising Contractor's and its subcontractors' or suppliers' employees is:

Name: _____

Title: _____

NOTE: If Contractor is a sole proprietor, and elects the above option, Contractor must have the above-named employee's fingerprints prepared and submitted by District for submission to the DOJ, in accordance with Education Code section 45125.1(h). No work shall commence until such determination by DOJ has been made.

☐ Pursuant to Education Code section 45125.2(a), the District will take appropriate steps to protect the safety of any pupils that may come in contact with Contractor's employees, subcontractors or suppliers so that the fingerprinting and criminal background investigation requirements of Education Code section 45125.2 shall not apply to Contractor under the Contract.

☐ The Work on the Contract is either (i) at an unoccupied school site and no employee of Contractor and/or subcontractor or supplier of any tier of the Contract shall come in contact with the District pupils or (ii) if Contractor's employees or any subcontractor or supplier of any tier of the Contract interacts with pupils, such interaction shall only take place under the immediate supervision and control of the pupil's parent or guardian or a school employee, so that the fingerprinting and criminal background investigation requirements of Education Code section 45125.1 shall not apply to Contractor under the Contract.

☐ The Contractor, who is not a sole proprietor, has complied with the fingerprinting requirements of Education Code section 45125.1 with respect to all Contractor's employees and all of its Subcontractors' employees who may have contact with District pupils in the course of providing services pursuant to the Contract, and the DOJ has determined (A) that none of those employees has been convicted of a felony, as that term is defined in Education Code section 45122.1 and/or (B) that the prohibition does not apply to an employee as provided by Education Code section 45125.1(e)(2) or (3). When the Contractor performs the criminal background check, it shall immediately provide any subsequent arrest and conviction information it receives to the District pursuant to the subsequent arrest service. No work shall commence until the Department of Justice ascertains that Contractor's employees and any subcontractors' employees have not been convicted of a felony as defined in Education Code Section 45122.1.

A complete and accurate list of Contractor's employees and of all of its subcontractors' employees who may come in contact with District pupils during the course and scope of the Contract is attached hereto as ATTACHMENT "A;" and

☐ The Contractor is a sole proprietor and intends to comply with the fingerprinting requirements of Education Code section 45125.1(h) with respect to all Contractor's employees who may have contact with District pupils in the course of providing services pursuant to the Contract, and hereby agrees to the District's preparation and submission of fingerprints such that the DOJ may determine (A) that none of those employees has been convicted of a felony, as that term is defined in Education Code section 45122.1 and/or (B) that the prohibition does not apply to an employee as provided by Education Code section 45125.1(e)(2) or (3). No work shall commence until the Department of Justice ascertains that Contractor's employees and any subcontractors' employees have not been convicted of a felony as defined in Education Code Section 45122.1.

Contractor's responsibility for background clearance extends to all of its employees, Subcontractors or suppliers, and employees of Subcontractors or suppliers coming into contact with District pupils regardless of whether they are designated as employees or acting as independent contractors of the Contractor.

Date: _____

Proper Name of Contractor: _____

Signature: _____

Print Name: _____

Title: _____

[CONTINUED ON NEXT PAGE]

ATTACHMENT "A"

List of Employees/Subcontractors

Name/Company: _____

Name/Company: _____

Name/Company: _____

Name/Company: _____

Name/Company: _____

Name/Company: _____

Name/Company: _____

Name/Company: _____

Name/Company: _____

Name/Company: _____

Name/Company: _____

Name/Company: _____

Name/Company: _____

Name/Company: _____

Name/Company: _____

Name/Company: _____

Name/Company: _____

Name/Company: _____

Name/Company: _____

Name/Company: _____

Name/Company: _____

Name/Company: _____

If further space is required for the list of employees/subcontractors, attach additional copies of this page.

END OF DOCUMENT

DOCUMENT 00 45 49
REGISTERED SUBCONTRACTORS LIST
(Labor Code Section 1771.1)

PROJECT: **Redwood High School Ghilotti Field Site Improvements Project Rebid**

Date Submitted (for Updates): _____

Contractor acknowledges and agrees that it must clearly set forth below the name and Department of Industrial Relations (DIR) registration number of each subcontractor **for all tiers** who will perform work or labor or render service to Contractor or its subcontractors in or about the construction of the Work **at least two (2) weeks before the subcontractor is scheduled to perform work**. This document is to be updated as all tiers of subcontractors are identified.

Contractor acknowledges and agrees that, if Contractor fails to list as to any subcontractor of any tier who performs any portion of Work, the Contract is subject to cancellation and the Contractor will be subjected to penalty under applicable law.
If further space is required for the list of proposed subcontractors, attach additional copies of page 2 showing the required information, as indicated below.

Subcontractor Name: _____

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name: _____

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name:

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name:

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name:

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name:

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name:

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name:

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name:

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name:

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name:

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name:

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name:

DIR Registration #: _____

Portion of Work: _____

Date: _____

Name of Contractor: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

TAMALPAIS UNION HIGH
SCHOOL DISTRICT

NOTICE OF AWARD

Contractor: ***Contractor Name*** *(Contractor Address))*

Project: **Redwood High School Ghilotti Field Site Improvements Project Rebid – (Project #)**

Contractor has been awarded the Contract for the above-referenced Project on ***Date of Award***, by action of the District's Board of Trustees at the public Board meeting held on ***Date of Board Approval*** (if needed).

The Contract Price is ***Contract Price – spelled out ($xxx,xxx,xxx)***.

You are required to execute the Contract and furnish the required documents listed below within **ten (10) calendar days** from the date of issuance of this Notice of Award (as signed and dated below):

a. *Agreement:* To be executed by successful Bidder; submit three (3) copies, each bearing an original signature.

b. *Escrow Bid Documentation:* includes all required documentation – see *Escrow Bid Documentation* section for more information.

c. *Performance Bond (100%):* On the form provided in the Contract Documents and fully executed as indicated on the form.

d. *Payment Bond (Contractor's Labor & Material Bond) (100%):* On the form provided in the Contract Documents and fully executed as indicated on the form.

e. *Insurance Certificates and Endorsements:* As required.

f. *Workers' Compensation Certification*.

g. *Prevailing Wage and Related Labor Requirements Certification*.

h. *Disabled Veteran Business Enterprise Participation Certification:* As required.

i. *Drug-Free Workplace Certification:* As required.

j. *Tobacco-Free Workplace Certification:* As required.

k. *Drug & Alcohol-Free Schools Certification*: As required.

l. *Workplace Violence Prevention Plan Certification*

m. *Hazardous Materials Certification:* As required.

n. *Lead-Based Materials Certification:* As required.

o. *Imported Materials Certification:* As required.

p. *Criminal Background Investigation/Fingerprinting Certification*.

q. *Registered Subcontractors List: Must include Department of Industrial Relations (DIR) registration number of each subcontractor for all tiers.*

Failure to comply with these conditions within the time specified will entitle the District to consider your bid abandoned, to annul this Notice of Award, and to declare your Bid Security forfeited, as well as any other rights the District may have against the Contractor.

You are required to return an acknowledged copy of this Notice of Award to the District, attention to Mike Woolard, Senior Director of Facilities Planning. After you comply with these conditions, the District will provide one fully-signed original of the Agreement.

SIGNATURE

Dated: _____

By: _____

Mike Woolard
Senior Director of Facilities Planning

Contractor to sign and date this NOA to acknowledge acceptance.

Contractor's Acknowledgement of Acceptance for Notice of Award:

Receipt of this Notice of Award is hereby acknowledged by **Contractor Name**

_____ _____

Authorized Company Representative ***Date***

_____

Title

AGREEMENT FOR CONSTRUCTION SERVICES (SMALL PROJECTS)

AGREEMENT NUMBER 104

THIS AGREEMENT is made and entered into this _____ day of _____ _____, 2025, by and between _____ ("Contractor") and Tamalpais Union High School District ("District") ("Contract").

1. The Contractor shall furnish to the District for a total price of _____ _____ Dollars ($_____) ("Contract Price"), the following services ("Services" or "Work"):

   _____

   Contractor's duties and services under this Contract shall not include preparing or assisting the District with any portion of the District's preparation of a request for proposals, request for qualifications, or any other solicitation regarding a subsequent or additional contract with the District. The District shall at all times retain responsibility for public contracting, including with respect to any subsequent phase of this Project. Contractor's participation in the planning, discussions, or drawing of project plans or specifications shall be limited to conceptual, preliminary, or initial plans or specifications. Contractor shall cooperate with the District to ensure that all bidders for a subsequent contract on any subsequent phase of this Project have access to the same information, including all conceptual, preliminary, or initial plans or specifications prepared by Contractor pursuant to this Contract.

2. Payment for the Work shall be made in accordance with the Terms and Conditions.

3. Contractor shall perform the Work at Redwood High School, 395 Doherty Drive, Larkspur, CA ("Site"). The Project is the scope of Work performed at the Site.

4. Work shall be completed within Forty (40) consecutive calendar days ("Contract Time") from the date specified in the District's Notice to Proceed, unless terminated earlier by the District for cause or for convenience.

   It is understood and agreed that the Work shall be performed and completed as required in the Contract Documents (as defined herein) including, without limitation, the Drawings and Specifications and submission of all documents required to secure funding or by the Division of the State Architect ("DSA") for close-out of the Project, under the direction and supervision of, and subject to the approval of, the District or its authorized representative.

5. Contractor agrees that if the Work is not completed within the Contract Time and/or pursuant to the completion schedule, construction schedule, or project milestones developed pursuant to provisions of the Contract, it is understood, acknowledged, and agreed that the District will suffer damage which is not capable of being calculated. Pursuant to Government Code section 53069.85, Contractor shall pay to the District, as fixed and liquidated damages for these incalculable damages, the sum of One Thousand Dollars ($1,000) per day for each and every calendar day of delay beyond the Contract Time or beyond any completion schedule, construction schedule, or project milestones established pursuant to the Contract.

[REMAINDER OF PAGE LEFT BLANK INTENTIONALLY]

6. This Contract incorporates by this reference the Contract Documents attached hereto. Contractor, by executing this Contract, agrees to comply with all obligations set forth in the Contract Documents. The Contract Documents include only the following documents, as indicated:

__X__ Notice to Bidders
__X__ Instructions to Bidders
__X__ Bid Form and Proposal
__X__ Bid Bond
__X__ Designated Subcontractors List
__X___ Site Visit/Job Walk Certification
__X__ Noncollusion Declaration
__X__ Iran Contracting Act Certification
__X__ Workers' Compensation Certification
__X__ Prevailing Wage Certification
__X_ Disabled Veterans' Business Enterprise Participation Certification
__X_ Drug-Free Workplace Certification
__X_ Tobacco-Free Environment Certification
__X__ Drug & Alcohol-Free Schools Certification
__X_ Workplace Violence Prevention Plan Certification
__X_Hazardous Materials Certification
__X__ Lead-Product(s) Certification
__X_ Imported Materials Certification
__X__ Criminal Background Investigation / Fingerprinting Certification
__X__ Registered Subcontractor List
__X_ Notice to Award
__X__ Agreement Form
__X__ Exhibit "A" ("Scope of Work")
__X__ Notice of Proceed
__X__ Performance Bond
__X__ Payment Bond
__X___ Guarantee Form
__X__ Insurance Certificates and Endorsements
__X__ Specifications
__X__ Plans
__X__ Apendix A, B, C

7. Contractor shall not commence the Work under this Contract until the Contractor has submitted and the District has approved the performance bond, payment (labor and material) bond, the certificate(s) and the endorsement(s) of insurance required under the Terms and Conditions and the District has issued a Notice to Proceed.

8. The Design Professional In General Responsible Charge for the Project is Carducci Associates ("Architect"), the construction manager on the Project is Greystone West Company ("Construction Manager"), and the project inspector on the Project is _____TBD_____ ("Project Inspector"). Contractor hereby acknowledges that the Architect, the Construction Manager, the Project Inspector, and the Division of the State Architect have authority to approve and/or suspend Work if the Contractor's Work does not comply with the requirements of the Contract Documents, Title 24 of the California Code of Regulations, and all applicable laws. No work shall be carried on except with the knowledge and under the inspection of said Project Inspector. Project Inspector shall have free access to any or all parts of work at any time. Contractor shall furnish Project Inspector reasonable opportunities for obtaining such information as may be necessary to keep Project Inspector fully informed respecting progress, manner of work, and character of materials. The Contractor shall be liable for any delay caused by its non-compliant Work or its failure to provide proper notification for inspection.

9. Inspection and acceptance of the Work shall be performed by Mike Woolard of the Planning Department of the District.

10. Any notice required or permitted to be given under this Contract shall be deemed to have been given, served, and received if given in writing and either personally delivered or deposited in the United States mail, registered or certified mail, postage prepaid, return receipt required, or sent by overnight delivery service, or facsimile or email, addressed as follows:

District	**Contractor**
Tamalpais Union High School District	Name: _____
ATTN: Mike Woolard	ATTN: _____
333 Doherty Drive, Larkspur, CA	[ADDRESS]
mwoolard@tamdistrict.org	[EMAIL]

Any notice personally given or sent by facsimile or email shall be effective upon receipt. Any notice sent by overnight delivery service shall be effective the business day next following delivery to the overnight delivery service. Any notice given by mail shall be effective three (3) days after deposit in the United States mail.

11. Contractor shall guarantee all labor and material used in the performance of this Contract for a period of one (1) year from the date of the District's written approval of the Work.

12. This Contract incorporates by this reference the Terms and Conditions attached hereto. Contractor, by executing this Contract, agrees to comply with all the Terms and Conditions.

13. Each exhibit attached hereto is hereby incorporated herein by reference.

14. Each party has the full power and authority to enter into and perform this Contract, and the person signing this Contract on behalf of each party has been properly authorized and empowered to enter into this Contract.

15. This Contract may be executed in one or more counterparts, and all counterparts together shall be construed as one document. A facsimile or electronic signature shall be deemed to be the equivalent of the actual original signature. All counterparts so executed shall constitute one Contract binding all the Parties hereto.

16. By signing this Contract, Contractor certifies, under penalty of perjury, that all the information provided in the Contract Documents is true, complete, and correct.

[SIGNATURES ON FOLLOWING PAGE]

ACCEPTED AND AGREED on the date indicated below:

Dated: _____, 2025

Tamalpais Union High School District

Signature: _____

Print Name: Mike Woolard

Print Title: Senior Director of Facilities Planning

Address: 333 Doherty Drive, Larkspur, CA

Telephone: 415-945-1083

E-Mail: mwoolard@tamdistrict.org

Dated: _____, 2025

Contractor: _____

Signature: _____

Print Name: _____

Print Title: _____

License No.: _____

Registration No.: _____

Address: _____

Telephone: _____

Facsimile: _____

E-Mail: _____

Information regarding Contractor:

Type of Business Entity:
_____ Individual
_____ Sole Proprietorship
_____ Partnership
_____ Limited Partnership
_____ Corporation, State: _____
_____ Limited Liability Company
_____ Other: _____

_____:
Employer Identification and/or Social Security Number

NOTE: Section 6041 of the Internal Revenue Code (26 U.S.C. 6041) and Section 1.6041-1 of Title 26 of the Code of Federal Regulations (26 C.F.R. 1.6041-1) requires the recipients of $600.00 or more to furnish their taxpayer information to the payer. In order to comply with these requirements, the District requires the Contractor to furnish the information requested in this section.

[REMAINDER OF PAGE LEFT BLANK INTENTIONALLY; TERMS AND CONDITIONS FOLLOW]

TERMS AND CONDITIONS TO CONTRACT

1. NOTICE TO PROCEED: District shall provide a Notice to Proceed to Contractor pursuant to the Contract at which time Contractor shall proceed with the Work.

2. STANDARD OF CARE: Contractor shall perform, diligently prosecute and complete the Work in a good and workmanlike manner within the Contract Time, and in strict conformity with all Contract Documents.

3. SITE EXAMINATION: Contractor has examined the Site and certifies that it accepts all measurements, specifications and conditions affecting the Work to be performed at the Site. By submitting its quote, Contractor warrants that it has made all Site examination(s) that it deems necessary as to the condition of the Site, its accessibility for materials, workers and utilities, and Contractor's ability to protect existing surface and subsurface improvements. No claim for allowance of time or money will be allowed as to any other undiscovered condition on the Site.

4. PERMITS, LICENSES AND REGISTRATION: Contractor and all of its employees, agents, and subcontractors shall secure and maintain in force, at Contractor's sole cost and expense, all licenses, registration and permits as are required by law, in connection with the furnishing of materials, supplies, or services herein listed.

5. PROJECT INSPECTION CARD: Contractor shall verify that forms DSA 152 Project Inspection Card (or current version) are issued for the Project prior to commencement of construction.

6. NOTIFICATION: Contractor shall notify the Architect and Project Inspector, in writing, of the commencement and completion of construction of each and every aspect of the work at least 48 hours in advance by submitting form DSA 156 (or current version) to the Project Inspector. Forms are available on the DSA's website at: http://www.dgs.ca.gov/dsa/Forms.aspx.

7. LABOR, MATERIALS AND EQUIPMENT: Contractor shall furnish all tools, equipment, apparatus, facilities, transportation, labor, and material necessary to furnish the services herein described, the services to be performed at such times and places as directed by and subject to the approval of the authorized District representative indicated in the Work specifications attached hereto. Unless otherwise specified, all materials shall be new and previously unused, and of the manufacturer's latest model or the best of their respective kinds and grades as noted or specified, and workmanship shall be of good quality.

8. SUBSTITUTIONS: No substitutions of material from those specified in the Work Specifications shall be made without the prior written approval of the District. Contractor shall be responsible for any re-design costs occasioned by District's acceptance and/or approval of any substitute, as well as any costs that the District incurs for professional services, including DSA fees. District may deduct those costs from any amounts owing to Contractor for the review of the request for substitution, even if the request for substitution is not approved. Contractor shall, in the event that a substitute is less costly than that specified, credit the District with one-hundred percent (100%) of the net difference between the substitute and the originally specified material.

9. INDEPENDENT CONTRACTOR: Contractor represents and warrants that Contractor is an independent contractor or business entity that is: (i) free from the control and direction of the District in connection with the performance of the Services, (ii) performing Services that are outside the usual course of the District's business, and (iii) customarily engaged in an independently established trade, occupation, or business of the same nature as that involved in the Services performed, District being interested only in the results obtained. Contractor understands and agrees that it and all of its employees shall not be considered officers, employees, agents, partner, or joint venture of the District, and are not entitled to benefits of any kind or nature normally provided employees of the District and/or to which District's employees are normally entitled, including, but not limited to, State Unemployment Compensation or Worker's Compensation. Contractor shall assume full responsibility for payment of all federal, state, and local taxes or contributions, including unemployment insurance, social security, and income taxes with respect to Consultant's employees.

10. CONTRACTOR SUPERVISION: Contractor shall provide competent supervision of personnel employed on the job Site, use of equipment, and quality of workmanship.

11. WORKERS: Contractor shall at all times enforce strict discipline and good order among its employees and the employees of its subcontractors and shall not employ or work any unfit person or anyone not skilled in work assigned to him or her. Any person in the employ of the Contractor or a

subcontractor whom the District may deem incompetent or unfit shall be dismissed from the Site and shall not again be employed at Site without written consent from the District.

12. SUBCONTRACTORS: Subcontractors, if any, engaged by the Contractor for any Service or Work under this Contract shall be subject to the approval of the District. Contractor agrees to bind every subcontractor by the terms of the Contract as far as such terms are applicable to subcontractor's work, including, without limitation, all registration, indemnification, insurance, bond, and warranty requirements. If Contractor shall subcontract any part of this Contract, Contractor shall be fully responsible to the District for acts and omissions of its subcontractor and of persons either directly or indirectly employed by itself. Nothing contained in the Contract Documents shall create any contractual relations between any subcontractor and the District.

13. SAFETY AND SECURITY: Contractor is responsible for maintaining safety in the performance of this Contract. Contractor shall be responsible to ascertain from the District the rules and regulations pertaining to safety, security, and driving on school grounds, particularly when children are present.

14. RESERVED:

15. RESERVED:

16. LEAD-BASED PAINT: Pursuant to the Lead-Safe Schools Protection Act (Education Code section 32240 et seq.) and other applicable law, no lead-based paint, lead plumbing and solders, or other potential sources of lead contamination shall be utilized on this Project, and only trained and state-certified contractors, inspectors and workers shall undertake any action to abate existing risk factors for lead. Pursuant to the Renovation, Repair and Painting Rule (title 40 of the Code of Federal Regulations part 745 (40 CFR 745)), all contractors who disturb lead-based paint in a six-square-foot area or greater indoors or a 20-square-foot area or greater outdoors must be trained by an EPA-accredited provider and certified by the EPA. Contractor must execute the Lead-Based Paint Certification, if applicable.

17. RESERVED:

18. CLEAN UP: Debris shall be removed from the Site. The Site shall be in order at all times when work is not actually being performed and shall be maintained in a reasonably clean condition.

19. PROTECTION OF WORK AND PROPERTY: Contractor shall erect and properly maintain at all times, as required by conditions and progress of the Work, all necessary safeguards, signs, barriers, lights, and security persons for protection of workers and the public, and shall post danger signs warning against hazards created by the Work. In an emergency affecting life and safety of life or of Work or of adjoining property, Contractor, without special instruction or authorization from District, is permitted to act at his discretion to prevent such threatened loss or injury.

20. FORCE MAJEURE: "Force Majeure" means any event or circumstance unknown at the time of contracting that is beyond the parties' control and makes performance of the contract impractical or impossible. The Party seeking to have its performance obligation(s) excused must demonstrate that there was such an insuperable interference occurring without the party's intervention as could not have been prevented by the exercise of prudence, diligence, and care, by providing prompt notice to the other Party, including full particulars of such event, of its inability to perform its obligations due to such event, following commencement of the claiming Party's inability to so perform its obligations. To the extent satisfying these conditions, Force Majeure events include the following: acts of God, war, civil unrest, epidemic, fire, smoke, volcanic eruption, earthquake, strike, unusually severe weather, flood, or shortage of transportation facilities, lock out, or commandeering of materials, product, plant, or facilities by the government. Force Majeure shall not be based on a Party's financial inability to perform under this Agreement unless there exists extreme and unreasonable difficulty, expense, injury, or loss involved. A Force Majeure event does not include an act of negligence or intentional wrongdoing by a Party. Any Party claiming a Force Majeure event shall use reasonable diligence to remove the condition that prevents performance and shall not be entitled to suspend performance of its obligations in any greater scope or for any longer duration than is required by the Force Majeure event. Each Party shall use its best efforts to mitigate the effects of such Force Majeure event, remedy its inability to perform, and resume full performance of its obligations hereunder. Costs imposed by the government on sales or importation of goods or materials including, without limitation, tariffs or taxes, are not Force Majeure.

21. CORRECTION OF ERRORS: Contractor shall perform, at its own cost and expense and without reimbursement from the District, any work necessary to correct errors or omissions that are caused by the Contractor's failure to comply with the approved plans and specifications and the standard of care required herein. Schedule delays resulting from unauthorized work shall be Contractor's responsibility.

22. NO RELIEF FROM OBLIGATIONS BASED ON REVIEW BY OTHER PERSONS: Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents by act or omission of the District, Architect, Construction Manager, Project Inspector, or DSA or other entities having jurisdiction including, but not limited to, administration of the Contract, review of submittals, or by tests, observation, inspection, or permit/interconnection approvals.

23. DISTRICT'S RIGHT TO PERFORM WORK: If the Contractor should neglect to prosecute the Work properly or fail to perform any provisions of this Contract, the District, after **FORTY-EIGHT (48)** hours' written notice to the Contractor, may make good such deficiencies, without prejudice to any other remedy it may have, including but not limited to the District hiring its own forces or another contractor to replace the Contractor's nonconforming Work, in which case the District shall either issue a deductive Change Order, a Construction Change Directive, or invoice the Contractor for the cost of that work. Contractor shall pay any invoices within thirty (30) days of receipt of same or District may withhold those amounts from payment(s) otherwise due to Contractor.

24. ACCESS TO WORK: District representatives, Architect, and Project Inspector shall at all times have access to the Work wherever it is in preparation or in progress. Contractor shall provide safe and proper facilities for such access.

25. OCCUPANCY: District reserves the right to occupy buildings at any time before formal Contract completion and such occupancy shall not constitute final acceptance or approval of any part of the Work covered by this Contract, nor shall such occupancy extend the date specified for completion of the Work.

26. PAYMENT: On a monthly basis, Contractor shall submit an application for payment based upon the estimated value for materials delivered or services performed under the Contract as of the date of submission ("Application for Payment"). Within thirty (30) days after District's approval of the Application for Payment, Contractor shall be paid a sum equal to ninety-five percent (95%) of the value of the Work performed (as verified by Architect and Inspector and certified by Contractor) up to the last day of the previous month, less the aggregate of previous payments and amount to be withheld. The District may withhold or deduct from any payment an amount necessary to protect the District from loss because of: (1) liquidated damages which have accrued as of the date of the application for payment; (2) any sums expended by the District in performing any of Contractor's obligations under the Contract which Contractor has failed to perform or has performed inadequately; (3) defective Work not remedied; (4) stop payment notices as allowed by state law; (5) reasonable doubt that the Work can be completed for the unpaid balance of the Total Contract price or by the scheduled completion date; (6) unsatisfactory prosecution of the Work by Contractor; (7) unauthorized deviations from the Contract; (8) failure of the Contractor to maintain or submit on a timely basis proper and sufficient documentation as required by the Contract or by District during the prosecution of the Work; (9) erroneous or false estimates by the Contractor of the value of the Work performed; (10) any sums representing expenses, losses, or damages, as determined by the District, incurred by the District for which Contractor is liable under the Contract; and (11) any other sums which the District is entitled to recover from Contractor under the terms of the Contract or pursuant to state law, including section 1727 of the California Labor Code. The failure by the District to deduct any of these sums from a progress payment shall not constitute a waiver of the District's right to such sums. The District shall retain five percent (5%) from all amounts owing as retention. Retention shall be paid pursuant to Public Contract Code sections 7107, 7200 and 7201.

27. AUDIT. Contractor shall establish and maintain books, records, and systems of account, in accordance with generally accepted accounting principles, reflecting all business operations of Contractor transacted under this Contract. Contractor shall retain these books, records, and systems of account during the Term of this Contract and for five (5) years thereafter. Contractor shall permit District, its agent, other representatives, or an independent auditor to audit, examine, and make excerpts, copies, and transcripts from all books and records, and to make audit(s) of all billing statements, invoices, records, and other data related to the Work covered by this Contract. Audit(s) may be performed at any time, provided that District shall give reasonable prior notice to Contractor and shall conduct audit(s) during Contractor's normal business hours, unless Contractor otherwise consents.

28. CHANGE IN SCOPE OF WORK:

28.1. Changes in Scope of Work. Any change in the scope of the Work, method of performance, nature of materials or price thereof, or any other matter materially affecting the performance or nature of the Work shall not be paid for or accepted unless such change, addition, or deletion is approved in advance and in writing by a valid change order executed by the District. Contractor

specifically understands, acknowledges, and agrees that the District shall have the right to request any alterations, deviations, reductions, or additions to the Project or Work, and the cost thereof shall be added to or deducted from the amount of the Contract Price by fair and reasonable valuations. Contractor shall include maximums of ten percent (10%) mark-up for all tiers of subcontractors, five percent (5%) for overhead and profit, and two and one-half percent (2.5%) for bonds and insurance. Contractor also agrees to provide the District with all information requested to substantiate the cost of the change order and to inform the District whether the Work will be done by the Contractor or a subcontractor. In addition to any other information requested, Contractor shall submit, prior to approval of the change order, its request for a time extension (if any), as well as all information necessary to substantiate its belief that such change will delay the completion of the Work. If Contractor fails to submit its request for a time extension or the necessary supporting information, it shall be deemed to have waived its right to request such extension.

28.2. Allowances. If there is an Allowance, then Contractor shall not bill for or be due any portion of an Allowance unless Owner has identified specific work, Contractor has submitted a price for that work or Owner has proposed a price for that work, Owner has accepted the cost for that work, and Owner has executed an Allowance Expenditure Directive incorporating that work. Allowance Expenditure Directives shall be based on Contractor's costs, without overhead and profit, for products, delivery, installation, labor, insurance, payroll, taxes, bonding and equipment rental will be included in Allowance Expenditure Directive authorizing expenditure of funds from the Allowance. No overhead and profit shall be added to the Allowance Expenditure Directive.

29. INDEMNIFICATION:

29.1. To the furthest extent permitted by California law, Contractor shall indemnify and hold harmless the District and its Governing Board, agents, representatives, employees, consultants, and volunteers (the "Indemnified Parties") from any and all demands, damages, injuries, losses, expenses, liabilities, claims, suits, and actions (the "Claims") of any kind, nature, and description, including, but not limited to, attorneys' fees and costs, directly or indirectly arising from, arising out of, connected with, or resulting from the performance of this Contract unless the claims are caused by the active negligence or willful misconduct of the Indemnified Parties and/or defects in design furnished by the Architect, as found by a court or arbitrator of competent jurisdiction, in which case the Contractor's indemnification and hold harmless obligation shall be reduced by the proportion of the Indemnitees' and/or Architect's liability.

29.2. Contractor shall also, to the furthest extent permitted by California law, defend the Indemnified Parties at Contractor's own expense, including attorneys' fees and costs, from any and all claims directly or indirectly arising from, arising out of, connected with, or resulting from the performance of this Contract unless the claims are caused by the active negligence or willful misconduct of the Indemnified Parties and/or defects in design furnished by the Architect, as found by a court or arbitrator of competent jurisdiction, in which case, without impacting Contractor's obligation to provide an immediate and ongoing defense of the Indemnified Parties, the Contractor's defense obligation shall be retroactively reduced by the proportion of the Indemnitees' and/or Architect's liability. The District shall have the right to accept or reject any legal representation that Contractor proposes to defend the District.

29.3. Pursuant to Public Contract Code section 9201, the District shall provide timely notification to Contractor of the receipt of any third-party claim relating to this Contract. The District shall be entitled to recover its reasonable costs incurred in providing said notification.

29.4. If the Indemnitees provide their own defense due to failure to timely respond to tender of defense, rejection of tender of defense, or conflict of interest of proposed counsel, Contractor shall reimburse Indemnitees for any expenditures, including reasonable attorney's fees and costs.

29.5. The District may retain so much of the moneys due the Contractor as shall be considered necessary, until disposition of any such suit, claims or actions for damages or until the District has received written agreement from the Contractor that it will unconditionally defend the Indemnified Parties, and pay any damages due by reason of settlement or judgment.

29.6. The Contractor's defense and indemnification obligations hereunder shall survive the completion of Work, including the warranty/guarantee period, and/or the termination of the Contract.

30. PAYMENT BOND AND PERFORMANCE BOND: Contractor shall not commence the Work until it has provided to the District, in a form acceptable to the District, a Payment (Labor and Material) Bond and a Performance Bond, each in an amount equivalent to one hundred percent (100%) of the Contract Price issued by a surety admitted to issue bonds in the State of California and otherwise acceptable to the District.

31. CONTRACTOR'S INSURANCE:

31.1. The Contractor shall procure and maintain at all times it performs any portion of the Services the following insurance with minimum limits not less than the amount indicated below. If Contractor normally carries insurance in an amount greater than the minimum amounts required by District, that greater amount shall become the minimum required amount of insurance for purposes of the Contract. Therefore, Contractor hereby acknowledges and agrees that all insurance carried by it shall be deemed liability coverage for all actions it performs in connection with the Contract.

Type of Coverage		**Minimum Requirement**
Commercial General Liability	Product Liability and Completed Operations, Fire Damage Liability – Split Limit	$1,000,000 per occurrence; $2,000,000 aggregate
Automobile Liability	Any Auto – Combined Single Limit	$1,000,000
Workers' Compensation		Statutory limits pursuant to State law
Employers' Liability		$1,000,000 per accident for bodily injury or disease
Builder's Risk (Course of Construction)		Full replacement value for scope of Work
Pollution Liability		$1,000,000 per claim; $2,000,000 aggregate

31.1.1. Commercial General Liability and Automobile Liability Insurance. Commercial General Liability Insurance and Any Auto Automobile Liability Insurance that shall protect the Contractor, the District, and the State from all claims of bodily injury, property damage, personal injury, death, advertising injury, and medical payments arising performing any portion of the Services. (Form CG 0001 and CA 0001, or forms substantially similar, if approved by the District.)

31.1.2. Workers' Compensation and Employers' Liability Insurance. Workers' Compensation Insurance and Employers' Liability Insurance for all of its employees performing any portion of the Services. In accordance with provisions of section 3700 of the California Labor Code, the Contractor shall be required to secure workers' compensation coverage for its employees. If any class of employee or employees engaged in performing any portion of the Services under this Contract are not protected under the Workers' Compensation Statute, adequate insurance coverage for the protection of any employee(s) not otherwise protected must be obtained before any of those employee(s) commence performing any portion of the Services.

31.2. Proof of Insurance. The Contractor shall not commence performing any portion of the Services until all required insurance has been obtained and certificates indicating the required

coverage have been delivered in duplicate to the District and approved by the District. Certificates and insurance policies shall include the following:

31.2.1. Language stating in particular those insured, extent of insurance, location and operation to which insurance applies, expiration date, to whom cancellation notice will be sent, and length of notice period.

31.2.2. A clause stating: "This policy shall not be canceled until notice has been mailed to the District, stating date of cancellation. Date of cancellation shall not be less than thirty (30) days after date of mailing notice."

31.2.3. An endorsement stating that the District and its Governing Board, agents, representatives, employees, consultants, and volunteers are named additional insured under all policies except Workers' Compensation Insurance, and Employers' Liability Insurance.

31.2.4. All policies except the Workers' Compensation Insurance, and Employers' Liability Insurance Policies shall be written on an occurrence form.

31.2.5. An endorsement stating that Contractor's insurance policies shall be primary to any insurance or self-insurance maintained by District.

31.2.6. An endorsement stating that there shall be a waiver of any subrogation.

31.2.7. Contractor's insurance limit shall apply separately to each insured against whom a claim is made or suit is brought.

31.3. Acceptability of Insurers. Insurance is to be placed with insurers with a current A.M. Best's rating of no less than A: VII, unless otherwise acceptable to the District.

32. WARRANTY/QUALITY: Unless a longer warranty is called for elsewhere in the Contract Documents, the Contractor, manufacturer, or their assigned agents shall guarantee the workmanship, product or service performed against defective workmanship, defects or failures of materials for a minimum period of one (1) year from filing the Notice of Completion with the county in which the Site is located. All workmanship and merchandise must be warranted to be in compliance with applicable California energy, conservation, environmental, and educational standards.

33. CONFIDENTIALITY: The Contractor shall maintain the confidentiality of any student, parent, personnel, and/or disciplinary information that Contractor encounters while performing the Work. This requirement shall be ongoing and shall survive the expiration or termination of this Contract.

34. LIMITATION OF DISTRICT LIABILITY: District's financial obligations under this Contract shall be limited to the payment of the compensation provided in this Contract. Notwithstanding any other provision of this Contract, in no event shall District be liable, regardless of whether any claim is based on contract or tort, for any special, consequential, indirect or incidental damages, including, but not limited to, lost profits or revenue, or lost bonding capacity, arising out of or in connection with this Contract for the services performed in connection with this Contract.

35. COMPLIANCE WITH LAWS: Contractor shall give all notices and comply with all laws, ordinance, rules and regulations bearing on conduct of the Work as indicated or specified. If Contractor observes that any of the Work required by this Contract is at variance with any such laws, ordinance, rules or regulations, Contractor shall notify the District, in writing, and, at the sole option of the District, any necessary changes to the scope of the Work shall be made and this Contract shall be appropriately amended in writing, or this Contract shall be terminated effective upon Contractor's receipt of a written termination notice from the District. If Contractor performs any work that is in violation of any laws, ordinances, rules or regulations, without first notifying the District of the violation, Contractor shall bear all costs arising therefrom.

36. LABOR CODE REQUIREMENTS: Contractor represents that Contractor and all Subcontractors shall not be presently debarred, suspended, proposed for disbarment, declared ineligible or excluded. Contractor shall comply with all applicable provisions of the California Labor Code, Division 2, Part 7, Chapter 1, Articles 1 – 5, including, without limitation, the payment of the general prevailing per diem wage rates for public work projects of more than one thousand dollars ($1,000). Copies of the prevailing rate of per diem wages are on file with the District or available online at http://www.dir.ca.gov/. In addition, the Contractor and each subcontractor shall comply with Section 1735 forbidding discrimination and Sections 1777.5 and 1777.6 concerning the employment of apprentices by Contractor or subcontractors.

36.1. Registration: Contractor and its subcontractor(s) shall be registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5 and in accordance with Labor Code section 1771.1.

36.2. Registered Subcontractor List: Within 30 days of the award of contract or prior to commencing the Work under this Contract, whichever occurs first, Contractor shall provide District all information required by Labor Code section 1773.3, as amended by Stats. 2017, Ch. 28, Sec. 21, for Company and all tiers of Subcontractors to enable District to provide notice to the Department of Industrial Relations (DIR) of the Contract (PWC-100 form). Contractor shall submit and maintain an updated Registered Subcontractor List including all Subcontractors of any tier furnishing labor, material, or equipment to the Project.

36.3. Certified Payroll Records: Contractor and its subcontractor(s) shall upload certified payroll records ("CPR") electronically using California Department of Industrial Relations' (DIR) eCPR System by uploading the CPRs by electronic XML file or entering each record manually using the DIR's iform (or current form) online directly to the DIR on no less than every 30 days while Work is being performed and within 30 days after the final day of Work performed on the Project, and within ten (10) days of any request by the District or Labor Commissioner at http://www.dir.ca.gov/Public-Works/Certified-Payroll-Reporting.html or current application and URL, showing the name, address, social security number, work classification, straight time, and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker, or other employee employed by the Contractor and/or each subcontractor in connection with the Work.

36.4. Labor Compliance: Contractor shall perform the Work of the Project while complying with all the applicable regulations, including section 16000, et seq., of Title 8 of the California Code of Regulations and is subject to labor compliance monitoring and enforcement by the Department of Industrial Relations.

37. ANTI-DISCRIMINATION: Contractor herein agrees to comply with the provisions of the California Fair Employment and Housing Act as set forth in part 2.8 of division 3 of the California Government Code, commencing at section 12900; the Federal Civil Rights Act of 1964, as set forth in Public Law 88-352, and all amendments thereto; Executive Order 11246; and all administrative rules and regulations found to be applicable to Contractor and all of its subcontractors. In addition, the Contractor agrees to require like compliance by all its subcontractor(s).

38. DISABLED VETERAN BUSINESS ENTERPRISES: Section 17076.11 of the Education Code requires school districts using funds allocated pursuant to the State of California School Facility Program for the construction or modernization of a school building (SFP Funds) to have a participation of at least three percent (3%), per year, of the overall dollar amount expended each year by the school district, for disabled veteran business enterprises (DVBE). If this Contract uses SFP Funds, Contractor must submit, with its executed Contract, appropriate documentation to the District identifying the steps Contractor has taken to solicit DVBE participation in conjunction with this Contract.

39. ANTI-TRUST CLAIM: Contractor and its subcontractor(s) agree to assign to the District all rights, title, and interest in and to all causes of action they may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the Cartwright Act (Chapter 2 (commencing with Section 16700) of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, services, or materials pursuant to the Contract or a subcontract. This assignment shall be made and become effective at the time the District tenders final payment to the Contractor, without further acknowledgment by the parties.

40. CONTRACTOR CLAIMS: In the event of any demand by Contractor for (A) a time extension, including, without limitation, for relief from damages or penalties for delay assessed by the District under the Contract, (B) payment by the District of money or damages arising from work done by, or on behalf of, the Contractor pursuant to the Contract and payment of which is not otherwise expressly provided for or to which Contractor is not otherwise entitled to, or (C) an amount of payment disputed by the District, the parties shall attempt to resolve the dispute by those procedures set forth in Public Contract Code section 9204 and/or Article 1.5 (commencing with section 20104) of Chapter 1, Part, 3, Division 2, of the Public Contract Code, if applicable, the provisions of which are each attached hereto and incorporated herein by this reference. If a claim, or any portion thereof, remains in dispute upon satisfaction of all applicable dispute resolution requirements, the Contractor shall comply with all claims presentation requirements as provided in Chapter 1 (commencing with section 900) and Chapter 2 (commencing with section 910) of Part 3 of Division 3.6 of Title 1 of Government Code as a condition

precedent to the Contractor's right to bring a civil action against the District. For purposes of those provisions, the running of the time within which a claim must be presented to the District shall be tolled from the time the Contractor submits its written claim until the time the claim is denied, including any time utilized by any applicable meet and confer process. Pending resolution of the dispute, Contractor and its subcontractors shall continue to perform the Work under the Contract and shall not cause a delay of the Work, including the disputed work, during any dispute, claim, negotiation, mediation, or arbitration proceeding, except by written agreement of the District.

41. ATTORNEY FEES/COSTS: Should litigation be necessary to enforce any terms or provisions of this Contract, then each party shall bear its own litigation and collection expenses, witness fees, court costs and attorney's fees.

42. TERMINATION:

42.1. If Contractor fails to perform the Services and Contractor's duties to the satisfaction of the District, or if Contractor fails to fulfill in a timely and professional manner Contractor's obligations under this Contract, or if Contractor violates any of the terms or provisions of this Contract, District shall have the right to terminate this Contract and/or Contractor's right to perform the Work of the Contract for cause effective immediately upon the District giving written notice thereof to Contractor. Contractor and its performance bond surety, if any, shall be liable for all damages caused to the District by reason of Contractor's failure to perform and complete the Contract. In the event termination for cause is determined to have not been for cause, the termination shall be deemed to have been a termination for convenience effective as of the same date as the purported termination for cause.

42.2. District shall also have the right in its sole discretion to terminate the Contract and/or Contractor's right to perform the Work of the Contract for its own convenience upon District giving three (3) days' written notice thereof to the Contractor. In case of a termination for convenience, Contractor shall be paid for the actual cost for labor, materials, and services performed including, without limitation, Contractor's and its subcontractor(s)' mobilization and/or demobilization costs, that is unpaid and can be documented through timesheets, invoices, receipts, or otherwise. If Contractor objects to the termination for convenience, including disagreement on the actual cost, the District retains the right to all the options available to the District under a termination for cause.

42.3. Termination shall have no effect upon any of the rights and obligations of the parties arising out of any transaction occurring prior to the effective date of termination.

43. ASSIGNMENT OF CONTRACT: Contractor shall not assign or transfer in any way any or all of its rights, burdens, duties, or obligations under this Contract without the prior written consent of the District.

44. TIME IS OF THE ESSENCE: Time is of the essence in the performance of and compliance with each of the provisions and conditions of this Contract.

45. CALCULATION OF TIME: For the purposes of this Contract, "days" refers to calendar days unless otherwise specified.

46. GOVERNING LAW: This Contract shall be governed by and construed in accordance with the laws of the State of California with venue of any action in a County in which the District administration office is located.

47. BINDING CONTRACT: This Contract shall be binding upon the parties hereto and upon their successors and assigns, and shall inure to the benefit of said parties and their successors and assigns.

48. DISTRICT WAIVER: District's waiver of any term, condition, covenant or waiver of a breach of any term, condition or covenant shall not constitute the waiver of any other term, condition or covenant or the waiver of a breach of any other term, condition or covenant.

49. CAPTIONS AND INTERPRETATIONS: Paragraph headings in this Contract are used solely for convenience, and shall be wholly disregarded in the construction of this Contract. No provision of this Contract shall be interpreted for or against a party because that party or its legal representative drafted such provision, and this Contract shall be construed as if jointly prepared by the parties.

50. INVALID TERM: If any provision of this Contract is declared or determined by any court of competent jurisdiction to be illegal, invalid or unenforceable, the legality, validity or enforceability of the

remaining parts, terms and provisions shall not be affected thereby, and said illegal, unenforceable or invalid part, term or provision will be deemed not to be a part of this Contract.

51. PROVISIONS REQUIRED BY LAW DEEMED INSERTED: Each and every provision of law and clause required by law to be inserted in this Contract shall be deemed to be inserted herein and this Contract shall be read and enforced as though it were included therein.

52. ENTIRE CONTRACT: This Contract sets forth the entire agreement between the parties hereto and fully supersedes any and all prior agreements, understandings, written or oral, between the parties hereto pertaining to the subject matter thereof.

53. NO ORAL MODIFICATIONS: No oral agreement or conversation with any officer, agent, or employee of District, either before or after execution of Contract, shall affect or modify any of the terms or obligations contained in any of the documents comprising the Contract.

[REMAINDER OF PAGE LEFT BLANK INTENTIONALLY]

Public Contract Code section 9204

(a) The Legislature finds and declares that it is in the best interests of the state and its citizens to ensure that all construction business performed on a public works project in the state that is complete and not in dispute is paid in full and in a timely manner.

(b) Notwithstanding any other law, including, but not limited to, Article 7.1 (commencing with Section 10440) of Chapter 1 of Part 2, Chapter 10 (commencing with Section 19100) of Part 2, and Article 1.5 (commencing with Section 20104) of Chapter 1 of Part 3, this section shall apply to any claim by a contractor in connection with a public works project.

(c) For purposes of this section:

(1) "Claim" means a separate demand by a contractor sent by registered mail or certified mail with return receipt requested, for one or more of the following:

(A) A time extension, including, without limitation, for relief from damages or penalties for delay assessed by a public entity under a contract for a public works project.

(B) Payment by the public entity of money or damages arising from work done by, or on behalf of, the contractor pursuant to the contract for a public works project and payment for which is not otherwise expressly provided or to which the claimant is not otherwise entitled.

(C) Payment of an amount that is disputed by the public entity.

(2) "Contractor" means any type of contractor within the meaning of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code who has entered into a direct contract with a public entity for a public works project.

(3) (A) "Public entity" means, without limitation, except as provided in subparagraph (B), a state agency, department, office, division, bureau, board, or commission, the California State University, the University of California, a city, including a charter city, county, including a charter county, city and county, including a charter city and county, district, special district, public authority, political subdivision, public corporation, or nonprofit transit corporation wholly owned by a public agency and formed to carry out the purposes of the public agency.

(B) "Public entity" shall not include the following:

(i) The Department of Water Resources as to any project under the jurisdiction of that department.

(ii) The Department of Transportation as to any project under the jurisdiction of that department.

(iii) The Department of Parks and Recreation as to any project under the jurisdiction of that department.

(iv) The Department of Corrections and Rehabilitation with respect to any project under its jurisdiction pursuant to Chapter 11 (commencing with Section 7000) of Title 7 of Part 3 of the Penal Code.

(v) The Military Department as to any project under the jurisdiction of that department.

(vi) The Department of General Services as to all other projects.

(vii) The High-Speed Rail Authority.

(4) "Public works project" means the erection, construction, alteration, repair, or improvement of any public structure, building, road, or other public improvement of any kind.

(5) "Subcontractor" means any type of contractor within the meaning of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code who either is in direct contract with a contractor or is a lower tier subcontractor.

(d) (1) (A) Upon receipt of a claim pursuant to this section, the public entity to which the claim applies shall conduct a reasonable review of the claim and, within a period not to exceed 45 days, shall provide the claimant a written statement identifying what portion of the claim is disputed and what portion is undisputed. Upon receipt of a claim, a public entity and a contractor may, by mutual agreement, extend the time period provided in this subdivision.

(B) The claimant shall furnish reasonable documentation to support the claim.

(C) If the public entity needs approval from its governing body to provide the claimant a written statement identifying the disputed portion and the undisputed portion of the claim, and the governing body does not meet within the 45 days or within the mutually agreed to extension of time following receipt of a claim sent by registered mail or certified mail, return receipt requested, the public entity shall have up to three days following the next duly publicly noticed meeting of the governing body after the 45-day period, or extension, expires to provide the claimant a written statement identifying the disputed portion and the undisputed portion.

(D) Any payment due on an undisputed portion of the claim shall be processed and made within 60 days after the public entity issues its written statement. If the public entity fails to issue a written statement, paragraph (3) shall apply.

(2) (A) If the claimant disputes the public entity's written response, or if the public entity fails to respond to a claim issued pursuant to this section within the time prescribed, the claimant may demand in writing an informal conference to meet and confer for settlement of the issues in dispute. Upon receipt of a demand in writing sent by registered mail or certified mail, return receipt requested, the public entity shall schedule a meet and confer conference within 30 days for settlement of the dispute.

(B) Within 10 business days following the conclusion of the meet and confer conference, if the claim or any portion of the claim remains in dispute, the public entity shall provide the claimant a written statement identifying the portion of the claim that remains in dispute and the portion that is undisputed. Any payment due on an undisputed portion of the claim shall be processed and made within 60 days after the public entity issues its written statement. Any disputed portion of the claim, as identified by the contractor in writing, shall be submitted to nonbinding mediation, with the public entity and the claimant sharing the associated costs equally. The public entity and claimant shall mutually agree to a mediator within 10 business days after the disputed portion of the claim has been identified in writing. If the parties cannot agree upon a mediator, each party shall select a mediator and those mediators shall select a qualified neutral third party to mediate with regard to the disputed portion of the claim. Each party shall bear the fees and costs charged by its respective mediator in connection with the selection of the neutral mediator. If mediation is unsuccessful, the parts of the claim remaining in dispute shall be subject to applicable procedures outside this section.

(C) For purposes of this section, mediation includes any nonbinding process, including, but not limited to, neutral evaluation or a dispute review board, in which an independent third party or board assists the parties in dispute resolution through negotiation or by issuance of an evaluation. Any mediation utilized shall conform to the timeframes in this section.

(D) Unless otherwise agreed to by the public entity and the contractor in writing, the mediation conducted pursuant to this section shall excuse any further obligation under Section 20104.4 to mediate after litigation has been commenced.

(E) This section does not preclude a public entity from requiring arbitration of disputes under private arbitration or the Public Works Contract Arbitration Program, if mediation under this section does not resolve the parties' dispute.

(3) Failure by the public entity to respond to a claim from a contractor within the time periods described in this subdivision or to otherwise meet the time requirements of this section shall result in the claim being deemed rejected in its entirety. A claim that is denied by reason of the public entity's failure to have responded to a claim, or its failure to otherwise meet the time requirements of this section, shall not constitute an adverse finding with regard to the merits of the claim or the responsibility or qualifications of the claimant.

(4) Amounts not paid in a timely manner as required by this section shall bear interest at 7 percent per annum.

(5) If a subcontractor or a lower tier subcontractor lacks legal standing to assert a claim against a public entity because privity of contract does not exist, the contractor may present to the public entity a claim on behalf of a subcontractor or lower tier subcontractor. A subcontractor may request in writing, either on their own behalf or on behalf of a lower tier subcontractor, that the contractor present a claim for work which was performed by the subcontractor or by a lower tier subcontractor on behalf of the subcontractor. The subcontractor requesting that the claim be presented to the public entity shall furnish reasonable documentation to support the claim. Within 45 days of receipt of this written request, the contractor shall notify the subcontractor in writing as to whether the contractor presented the claim to the public entity and, if the original contractor did not present the claim, provide the subcontractor with a statement of the reasons for not having done so.

(e) The text of this section or a summary of it shall be set forth in the plans or specifications for any public works project that may give rise to a claim under this section.

(f) A waiver of the rights granted by this section is void and contrary to public policy, provided, however, that (1) upon receipt of a claim, the parties may mutually agree to waive, in writing, mediation and proceed directly to the commencement of a civil action or binding arbitration, as applicable; and (2) a public entity may prescribe reasonable change order, claim, and dispute resolution procedures and requirements in addition to the provisions of this section, so long as the contractual provisions do not conflict with or otherwise impair the timeframes and procedures set forth in this section.

(g) This section applies to contracts entered into on or after January 1, 2017.

(h) Nothing in this section shall impose liability upon a public entity that makes loans or grants available through a competitive application process, for the failure of an awardee to meet its contractual obligations.

(i) This section shall remain in effect only until January 1, 2027, and as of that date is repealed, unless a later enacted statute that is enacted before January 1, 2027, deletes or extends that date.

Public Contract Code sections 20104 – 20104.6

§ 20104.

(a) (1) This article applies to all public works claims of three hundred seventy-five thousand dollars ($375,000) or less which arise between a contractor and a local agency.

(2) This article shall not apply to any claims resulting from a contract between a contractor and a public agency when the public agency has elected to resolve any disputes pursuant to Article 7.1 (commencing with Section 10440) of Chapter 1 of Part 2.

(b) (1) "Public work" means "public works contract" as defined in Section 1104 but does not include any work or improvement contracted for by the state or the Regents of the University of California.

(2) "Claim" means a separate demand by the contractor for (A) a time extension, (B) payment of money or damages arising from work done by, or on behalf of, the contractor pursuant to the contract for a public work and payment of which is not otherwise expressly provided for or the claimant is not otherwise entitled to, or (C) an amount the payment of which is disputed by the local agency.

(c) The provisions of this article or a summary thereof shall be set forth in the plans or specifications for any work which may give rise to a claim under this article.

(d) This article applies only to contracts entered into on or after January 1, 1991.

§ 20104.2.

For any claim subject to this article, the following requirements apply:

(a) The claim shall be in writing and include the documents necessary to substantiate the claim. Claims must be filed on or before the date of final payment. Nothing in this subdivision is intended to extend the time limit or supersede notice requirements otherwise provided by contract for the filing of claims.

(b) (1) For claims of less than fifty thousand dollars ($50,000), the local agency shall respond in writing to any written claim within 45 days of receipt of the claim, or may request, in writing, within 30 days of receipt of the claim, any additional documentation supporting the claim or relating to defenses to the claim the local agency may have against the claimant.

(2) If additional information is thereafter required, it shall be requested and provided pursuant to this subdivision, upon mutual agreement of the local agency and the claimant.

(3) The local agency's written response to the claim, as further documented, shall be submitted to the claimant within 15 days after receipt of the further documentation or within a period of time no greater than that taken by the claimant in producing the additional information, whichever is greater.

(c) (1) For claims of over fifty thousand dollars ($50,000) and less than or equal to three hundred seventy-five thousand dollars ($375,000), the local agency shall respond in writing to all written claims within 60 days of receipt of the claim, or may request, in writing, within 30 days of receipt of the claim, any additional documentation supporting the claim or relating to defenses to the claim the local agency may have against the claimant.

(2) If additional information is thereafter required, it shall be requested and provided pursuant to this subdivision, upon mutual agreement of the local agency and the claimant.

(3) The local agency's written response to the claim, as further documented, shall be submitted to the claimant within 30 days after receipt of the further documentation, or within a period of time no greater than that taken by the claimant in producing the additional information or requested documentation, whichever is greater.

(d) If the claimant disputes the local agency's written response, or the local agency fails to respond within the time prescribed, the claimant may so notify the local agency, in writing, either within 15 days of receipt of the local agency's response or within 15 days of the local agency's failure to respond within the time prescribed, respectively, and demand an informal conference to meet and confer for settlement of the issues in dispute. Upon a demand, the local agency shall schedule a meet and confer conference within 30 days for settlement of the dispute.

(e) Following the meet and confer conference, if the claim or any portion remains in dispute, the claimant may file a claim as provided in Chapter 1 (commencing with Section 900) and Chapter 2 (commencing with Section 910) of Part 3 of Division 3.6 of Title 1 of the Government Code. For purposes of those provisions, the running of the period of time within which a claim must be filed shall be tolled from the time the claimant submits his or her written claim pursuant to subdivision (a) until the time that claim is denied as a result of the meet and confer process, including any period of time utilized by the meet and confer process.

(f) This article does not apply to tort claims and nothing in this article is intended nor shall be construed to change the time periods for filing tort claims or actions specified by Chapter 1 (commencing with Section 900) and Chapter 2 (commencing with Section 910) of Part 3 of Division 3.6 of Title 1 of the Government Code.

§ 20104.4.

The following procedures are established for all civil actions filed to resolve claims subject to this article:

(a) Within 60 days, but no earlier than 30 days, following the filing or responsive pleadings, the court shall submit the matter to nonbinding mediation unless waived by mutual stipulation of both parties. The mediation process shall provide for the selection within 15 days by both parties of a disinterested third person as mediator, shall be commenced within 30 days of the submittal, and shall be concluded within 15 days from the commencement of the mediation unless a time requirement is extended upon a good cause showing to the court or by stipulation of both parties. If the parties fail to select a mediator within the 15-day period, any party may petition the court to appoint the mediator.

(b) (1) If the matter remains in dispute, the case shall be submitted to judicial arbitration pursuant to Chapter 2.5 (commencing with Section 1141.10) of Title 3 of Part 3 of the Code of Civil Procedure, notwithstanding Section 1141.11 of that code. The Civil Discovery Act (Title 4 (commencing with Section 2016.010) of Part 4 of the Code of Civil Procedure) shall apply to any proceeding brought under this subdivision consistent with the rules pertaining to judicial arbitration.

(2) Notwithstanding any other provision of law, upon stipulation of the parties, arbitrators appointed for purposes of this article shall be experienced in construction law, and, upon stipulation of the parties, mediators and arbitrators shall be paid necessary and reasonable hourly rates of pay not to exceed their customary rate, and such fees and expenses shall be paid equally by the parties, except in the case of arbitration where the arbitrator, for good cause, determines a different division. In no event shall these fees or expenses be paid by state or county funds.

(3) In addition to Chapter 2.5 (commencing with Section 1141.10) of Title 3 of Part 3 of the Code of Civil Procedure, any party who after receiving an arbitration award requests a trial de novo but does not obtain a more favorable judgment shall, in addition to payment of costs and fees under that chapter, pay the attorney's fees of the other party arising out of the trial de novo.

(c) The court may, upon request by any party, order any witnesses to participate in the mediation or arbitration process.

§ 20104.6.

(a) No local agency shall fail to pay money as to any portion of a claim which is undisputed except as otherwise provided in the contract.

(b) In any suit filed under Section 20104.4, the local agency shall pay interest at the legal rate on any arbitration award or judgment. The interest shall begin to accrue on the date the suit is filed in a court of law.

EXHIBIT "A"

SCOPE OF WORK

Contractor's entire Proposal is **not** made part of this Agreement.

TAMALPAIS UNION HIGH
SCHOOL DISTRICT

NOTICE TO PROCEED (NTP)

Contractor: **NAME**
Address Line 1
Adress Line 2

Project: **Redwood High School Ghilotti Field Site Improvements Project Rebid – (Project #)**

You are hereby notified to commence work in accordance with the signed Agreement dated **Date of Award**, between Tamalpais Union High School District (TUHSD) and **Contractor Name** on or before ***Date to Proceed*****.** In accordance with this signed Agreement, the official contract time and project completion is **Number of calendar days for the Work (40)** ***consecutive calendar days*** from the date of this NTP (**NTP Date**); all project work must be completed by **Final Date**.

You must submit the following documents within 10 calendar days following the NTP:

a. Contractor's preliminary Schedule of Construction;
b. Contractor's preliminary Schedule of Values for all of the Work;
c. Contractor's preliminary Schedule of Submittals, including Shop Drawings, Product Data and Samples submittals;
d. Contractor's Safety Plan specifically adapted for this Project;
e. Registered Subcontractor's List – a complete subcontractors list for all tiers, including the name, Department of Industrial Relations registration number and portion of work.

You are required to return an acknowledged copy of this **NTP** to the District. Please send either a hardcopy to TUHSD, attention Mike Woolard (Sr. Director of Facilities Planning) to *333 Doherty Drive, Larkspur, CA 94939.*

or scan/e-mail a copy electronically to mwoolard@tamdistrict.org.

Dated: Date

By: _____
Mike Woolard
Sr. Director of Facilities Planning

Receipt of this Notice to Proceed is hereby acknowledged by **Contractor Name:**

_____ _____
Authorized Company Representative Date

_____
Title

DOCUMENT 00 61 13.13
PERFORMANCE BOND
(100% of Contract Price)

(Note: Contractor must use this form, NOT a surety company form.)

KNOW ALL PERSONS BY THESE PRESENTS:
WHEREAS, the governing board ("Board") of the Tamalpais Union High School District, ("District") and _____("Principal") have entered into a contract for the furnishing of all materials and labor, services and transportation, necessary, convenient, and proper to perform the following project:

Redwood High School Ghilotti Field Site Improvements Project Rebid

("Project" or "Contract") which Contract dated _____, 2025, and all of the Contract Documents attached to or forming a part of the Contract, are hereby referred to and made a part hereof; and

WHEREAS, said Principal is required under the terms of the Contract to furnish a bond for the faithful performance of the Contract.

NOW, THEREFORE, the Principal and _____
_____("Surety") are held and firmly bound unto the Board of the District in the penal sum of

_____

Dollars ($_____), lawful money of the United States, for the payment of which sum well and truly to be made we bind ourselves, our heirs, executors, administrators, successors, and assigns jointly and severally, firmly by these presents, to:

- Promptly perform all the work required to complete the Project; and

- Pay to the District all damages the District incurs as a result of the Principal's failure to perform all the Work required to complete the Project.

Or, at the District's sole discretion and election, the Surety shall obtain a bid or bids for completing the Contract in accordance with its terms and conditions, and upon determination by the District of the lowest responsible bidder, arrange for a contract between such bidder and the District and make available as Work progresses sufficient funds to pay the cost of completion less the "balance of the Contract Price," and to pay and perform all obligations of Principals under the Contract, including, without limitation, all obligations with respect to warranties, guarantees and the payment of liquidated damages. The term "balance of the Contract Price," as used in this paragraph, shall mean the total amount payable to Principal by the District under the Contract and any modifications thereto, less the amount previously paid by the District to the Principal, less any withholdings by the District allowed under the Contract. District shall not be required or obligated to accept a tender of a completion contractor from the Surety for any or no reason.

The condition of the obligation is such that, if the above bound Principal, its heirs, executors, administrators, successors, or assigns, shall in all things stand to and abide by, and well and truly keep and perform the covenants, conditions, and agreements in the Contract and any alteration

thereof made as therein provided, on its part to be kept and performed at the time and in the intent and meaning, including all contractual guarantees and warrantees of materials and workmanship, and shall indemnify and save harmless the District, its trustees, officers and agents, as therein stipulated, then this obligation shall become null and void, otherwise it shall be and remain in full force and virtue.

Surety expressly agrees that the District may reject any contractor or subcontractor proposed by Surety to fulfill its obligations in the event of default by the Principal. Surety shall not utilize Principal in completing the Work nor shall Surety accept a Bid from Principal for completion of the Work if the District declares the Principal to be in default and notifies Surety of the District's objection to Principal's further participation in the completion of the Work.

As a condition precedent to the satisfactory completion of the Contract, the above obligation shall hold good for a period equal to the warranty and/or guarantee period of the Contract, during which time Surety's obligation shall continue if Contractor shall fail to make full, complete, and satisfactory repair and replacements and totally protect the District from loss or damage resulting from or caused by defective materials or faulty workmanship. The obligations of Surety hereunder shall continue so long as any obligation of Contractor remains. Nothing herein shall limit the District's rights or the Contractor or Surety's obligations under the Contract, law or equity, including, but not limited to, California Code of Civil Procedure section 337.15.

The Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration, or addition to the terms of the contract or to the work to be performed thereunder or the specifications accompanying the same shall in any way affect its obligation on this bond. The Surety also stipulates and agrees that it shall not be exonerated or released from the obligation of this bond by any overpayment or underpayment by the District that is based upon estimates approved by the Architect. The Surety does hereby waive notice of any such change, extension of time, alteration, or addition to the terms of the Contract or to the work or to the specifications.

IN WITNESS WHEREOF, two (2) identical counterparts of this instrument, each of which shall for all purposes be deemed an original thereof, have been duly executed by the Principal and Surety above named, on the _____day of _____, 2025.

Principal	Surety
By	By
	Name of California Agent of Surety
	Address of California Agent of Surety
	Telephone No. of California Agent of Surety

Contractor must attach a Notarial Acknowledgment for all Surety's signatures and a Power of Attorney and Certificate of Authority for Surety. The California Department of Insurance must authorize the Surety to be an admitted surety insurer.

END OF DOCUMENT

DOCUMENT 00 61 13.16
PAYMENT BOND
Contractor's Labor & Material Bond (100%
Of Contract Price)

(Note: Contractor must use this form, NOT a surety company form.)
KNOW ALL PERSONS BY THESE PRESENTS:

WHEREAS, the governing board ("Board") of the Tamalpais Union High School District, ("District") and _____, ("Principal") have entered into a contract for the furnishing of all materials and labor, services and

Redwood High School Ghilotti Field Site Improvements Project Rebid

("Project" or "Contract") which Contract dated _____, 2025, and all of the Contract Documents attached to or forming a part of the Contract, are hereby referred to and made a part hereof; and

WHEREAS, pursuant to law and the Contract, the Principal is required, before entering upon the performance of the work, to file a good and sufficient bond with the body by which the Contract is awarded in an amount equal to one hundred percent (100%) of the Contract price, to secure the claims to which reference is made in sections 9000 through 9510 and 9550 through 9566 of the Civil Code, and division 2, part 7, of the Labor Code.

NOW, THEREFORE, the Principal and_____
_____("Surety")
are held and firmly bound unto all laborers, material men, and other persons referred to in said statutes in the sum of _____
Dollars ($_____), lawful money of the United States, being a sum not less than the total amount payable by the terms of Contract, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, or assigns, jointly and severally, by these presents.

The condition of this obligation is that if the Principal or any of its subcontractors, or their heirs, executors, administrators, successors, or assigns of any, all, or either of them shall fail to pay for any labor, materials, provisions, or other supplies, used in, upon, for or about the performance of the work contracted to be done, or for any work or labor thereon of any kind, or for amounts required to be deducted, withheld, and paid over to the Employment Development Department from the wages of employees of the Principal or any of his or its subcontractors of any tier under Section 13020 of the Unemployment Insurance Code with respect to such work or labor, that the Surety will pay the same in an amount not exceeding the amount herein above set forth, and also in case suit is brought upon this bond, will pay a reasonable attorney's fee to be awarded and fixed by the court, and to be taxed as costs and to be included in the judgment therein rendered.

It is hereby expressly stipulated and agreed that this bond shall inure to the benefit of any and all persons, companies, and corporations entitled to file claims under section 9104 of the Civil Code, so as to give a right of action to them or their assigns in any suit brought upon this bond.

Should the condition of this bond be fully performed, then this obligation shall become null and void; otherwise it shall be and remain in full force and affect.

And the Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration, or addition to the terms of Contract or the specifications accompanying the same shall in any manner affect its obligations on this bond, and it does hereby waive notice of any such change, extension, alteration, or addition.

IN WITNESS WHEREOF, two (2) identical counterparts of this instrument, each of which shall for all purposes be deemed an original thereof, have been duly executed by the Principal and Surety above named, on the _____day of _____, 2025.

Principal	Surety
By	By
	Name of California Agent of Surety
	Address of California Agent of Surety
	Telephone No. of California Agent of Surety

Contractor must attach a Notarial Acknowledgment for all Surety's signatures and a Power of Attorney and Certificate of Authority for Surety. The California Department of Insurance must authorize the Surety to be an admitted surety insurer.

END OF DOCUMENT

DOCUMENT 00 65 36
GUARANTEE FORM

_____("Contractor") hereby agrees that the _____

_____("Work" of Contractor) which Contractor has installed for the Tamalpais Union High School District ("District") for the following project:

PROJECT: **Redwood High School Ghilotti Field Site Improvements Project Rebid**

("Project" or "Contract") has been performed in accordance with the requirements of the Contract Documents and that the Work as installed will fulfill the requirements of the Contract Documents.

The undersigned agrees to repair or replace any or all of such Work that may prove to be defective in workmanship or material together with any other adjacent Work that may be displaced in connection with such replacement within a period of _____ year(s) from the date of completion as defined in Public Contract Code section 7107, subdivision (c), ordinary wear and tear and unusual abuse or neglect excepted. The date of completion is _____, 2025.

In the event of the undersigned's failure to comply with the above-mentioned conditions within a reasonable period of time, as determined by the District, but not later than seven

(7) days after being notified in writing by the District, the undersigned authorizes the District to proceed to have said defects repaired and made good at the expense of the undersigned. The undersigned shall pay the costs and charges therefor upon demand.

Date: _____

Proper Name of Contractor: _____

Signature: _____

Print Name: _____

Title: _____

Representatives to be contacted for service subject to terms of Contract:

Name: _____

Address: _____

Phone No.: _____

Email: _____

END OF DOCUMENT

SECTION 01 11 00

SUMMARY OF WORK

PART 1 - GENERAL

1.1 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of this Contract for Redwood High School – Ghilotti Field Site Improvements Project and other items not specifically mentioned herein. The Work of this Contract consists of the following:

The Redwood High School Ghilotti Field Site Improvements consists of replacement and addition of concrete curbs and flatwork, safety netting, 5- row non-elevated bleachers and stormwater mitigation. Included in the scope of work will also be improvements to the accessible /egress routes and improvements to the existing field.

B. The work includes but is not limited to all work as shown by these drawings and specifications.

C. The Work shall include all the work as shown and specified except work indicated "N.I.C." or "Not in Contract" or "Future."

1.2 CONTRACTS

A. The Work will be under a single lump sum contract.

B. The Work indicated "N.I.C." or "Not in Contract" will be provided by the Owner directly or under separate contract.

END OF SECTION

SECTION 02 40 00

DEMOLITION, REMOVALS, AND/OR ABANDONMENTS

PART 1 - GENERAL

1.1 WORK INCLUDED

A. Demolition, removal, or abandonment of existing artificial materials such as structures, vaults and foundations, fences, asphalt concrete, concrete, curbs, walks, piping, poles, etc.

B. Dust alleviation and control.

C. Cleanup and disposal of demolished or removed materials.

1.2 QUALITY ASSURANCE

A. All demolition, removals, and/or abandonments shall meet with the approval of the Project Inspector and the District.

B. Use of explosives for demolition will not be permitted.

C. Backfill density testing shall be performed in accordance with Section 31 00 00 titled Earthwork.

D. Contractor shall coordinate with the Owners of the specific utility regarding proper demolition, removal or abandonment procedure required by the Owner of each utility.

PART 2 - PRODUCTS

2.1 BACKFILL MATERIAL

A. Backfill material shall be as specified in Section 31 00 00 titled Earthwork.

PART 3 - EXECUTION

3.1 LOCATION

A. The location of removals shall be as shown on the drawings either by identifying specified items or by indicating an area within which demolition, removals and abandonments shall be accomplished.

3.2 SURFACE FACILITIES

A. Remove all obstructions including existing fences, debris, asphalt concrete or concrete surfacing such as paving, curbs, gutters, dikes, etc. where so designated on the plans.

3.3 UNDERGROUND FACILITIES

A. Existing abandoned underground structures below new structures or new roadways shall be removed entirely. In all other areas, existing structures or portions of structures below

grade shall be removed to a depth of at least 3 feet below finish grade and broken in a manner that will prevent entrapment of water.

B. Existing abandoned pipelines below new structures or new roadways shall be removed entirely. In all other areas, abandoned pipelines within 3 feet of finish grade shall be removed entirely. Existing abandoned pipelines, or portions thereof, 3 feet below finish grade shall be sealed with a 6” minimum thick tight fitting plug of concrete or a tight brick wall not less then 8” thick with cement mortar joints.

C. If asbestos cement pipe is encountered during the course of the work, it shall be properly handled and disposed of offsite in accordance with all applicable laws and regulations dealing with hazardous materials.

3.4 DISPOSAL OF DEMOLISHED OR REMOVED MATERIALS

A. Removed pavements and other asphalt concrete and Portland cement concrete may be used as fill provided it is broken up to meet the size requirements for structural fill in Section 31 00 00 titled Earthwork and is approved by the Geotechnical Engineer. The broken up material shall be mixed with other native and/or imported fill as directed by the Geotechnical Engineer.

B. All other demolished or removed materials not acceptable for use as fill material shall become the property of the Contractor and shall be lawfully disposed of off the project site by the Contractor.

C. Holes resulting from the removal of underground obstructions extending below the proposed finish grade shall be cleared and backfilled with suitable material compacted to the requirements of Section 31 00 00 titled Earthwork.

END OF SECTION

SECTION 02 41 00

SITE PREPARATION & PLANT PROTECTION

PART 1 - GENERAL

1.1 DESCRIPTION

A. Protecting existing trees, electrical equipment, electrical and communication conduits, water lines, irrigation mainline and quick coupling valves, fencing, storm drainage system, sanitary sewer system, utilities, improvements, bleachers, dugouts, paving and vegetation to remain.

B. Removal of, fencing, concrete, asphalt, retaining walls, and other materials.

C. Salvage materials, as noted on the drawings, for reuse as part of the project or for Owner's separate use.

D. Clearing and grubbing.

E. Preserve and protect adjoining properties and school property during removal work, site preparation work and construction.

F. Provide video record of existing storm drainage facilities and utilities within and connected to the area within the limit of work prior to commencing work. Provide record information of existing storm drainage facilities including lines, material, condition, cleanliness, sizes, invert elevations, rim elevations and utilities to remain prior to commencing work.

G. Clean and flush existing storm drainage facilities to remain prior to commencing work.

1.2 RELATED SECTIONS

A. Section 00 31 19 Existing Conditions

B. Section 00 31 32 Geotechnical Data

C. Section 01 11 00 Summary of Work

D. Section 01 50 13 Construction Waste Management

E. Section 01 56 16 Dust Control

F. Section 01 56 19 Noise Control

G. Section 01 71 23 Field Engineering

H. Section 26 00 10 General Electrical Requirements

I. Section 31 00 00 Earthwork

J. Section 31 25 00 Erosion Control

K. Section 32 11 13 Subgrade Preparation and Base Material

L. Section 32 13 13 Landscape Concrete

1.3 QUALITY ASSURANCE

A. Stipulations

1. Plant Protection:

a. References and Standards: American National Standard for Tree Care Operations; ANSI Z133.1-1988 International Society of Arboriculture l (ISA).

b. Protect trees against cutting, breaking, skinning and bruising of bark; permit no traffic or stockpiling within drip line.

c. Do not change earth surface within drip line of trees.

d. Do not park vehicles or store materials, supplies and construction equipment within drip line of trees.

e. Install a temporary 6-foot high metal chain link fence at the "drip line" of the tree(s) as directed by the Landscape Architect.

f. Obtain specific instruction from Landscape Architect for pruning of trees, or disturbance of soil within spread of tree branches and for removal of roots.

g. Any trenching required within the root zone shall be done by hand and as directed by the Landscape Architect.

h. Protect existing athletic field. Do not park cars or vehicles, or store materials or equipment on athletic field. Allow school district access to field. Keep field irrigation system fully operable.

2. Plant Replacement

a. Contractor shall replace any damaged planting in kind using "specimen" plants as follows and at no cost to Owner:

1) Trees: Any protected trees that perish during construction or lost during the maintenance period, shall be replaced by contractor. Tree value shall be determined by school district using formula adopted by the "Guide For Plant Appraisal", Latest Edition, International Society Of Arboriculture. An International Society of Arboriculture or National Arborist's Association qualified tree surgeon may be retained by the school district to determine the condition of trees in question as to their ability to survive.

2) Shrubs, 15-gallon can size.

3) Lawn, sand-based athletic field quality Bayside Blend sod from West Coast Turf.

b. Coordinate shutoff of irrigation, water, electrical, communication and storm drainage systems with the Owner and be responsible for any damage caused to adjacent landscaping by Contract work.

3. Site Preparation and Demolition

a. Work shall be executed in accordance with the Drawings and Specifications and includes but is not necessarily limited to the following:

1) Clearing and grubbing.

2) Identification and protection of vegetation indicated to remain.

3) Removal of existing site improvements, such as, paving and bases, concrete curbs, fences, footings, foundations, irrigation system, overhead utilities, underground pipes and utilities and structures.

b. Locate and identify existing utility services and protect or disconnect, remove and cap as required for new work.

c. Remove, clean, store and protect all items designated and directed to be salvaged to Owner.

d. Remove, store and protect all items designated and directed to be reinstalled.

e. Obtain and pay for permits required for execution of this work.

1.4 SUBMITTALS

A. Photographs or videotape, sufficiently detailed, of existing conditions of adjacent streets, adjacent parking areas, trees and plantings, adjoining construction, and site improvements that might be misconstrued as damage caused by site demolition.

B. Provide video record of existing storm drainage facilities and utilities where noted on drawings prior to commencing work.

C. Provide record drawings of existing storm drainage facilities and utilities to remain prior to commencing work.

1.5 PROJECT CONDITIONS

A. Notify the Underground Service Alert Center (usanorth811.org) 48 hours in advance of performing any excavation work by calling 811.

B. Before proceeding with work, field verify the materials, sizes and elevations of existing storm drainage facilities and utilities to remain and be connected to. Perform specified tree protection work before commencing site preparation, excavation, trenching and construction.

C. Coordination: Coordinate this work with the work of other Sections to avoid delay and interference with other work.

D. Nuisances: Keep dirt, dust, noise and other objectionable nuisance to a minimum. Use temporary enclosures, coverings and sprinkling, and combinations thereof, as necessary to limit dust to lowest practicable level, except do not use water to the extent that it causes flooding or contaminated run-off.

E. Traffic: Conduct work to ensure minimum interference with vehicular and pedestrian traffic, and to permit unencumbered access to the school property located outside of the project areas.

1. Do not close or obstruct streets, sidewalks, or other public passageways without permission from authorities having jurisdiction.

2. If required, by governing authorities, provide alternate routes around closed and obstructed traffic ways.

F. Dispose of cleared, grubbed and removed material that will not be salvaged or recycled on site. Burning on site is prohibited.

G. Salvable Improvements: Carefully remove items indicated to be salvaged and store where designed by Owner. Avoid damaging salvage material. Photograph prior to removal.

H. Protections:

1. Prevent movement and settlement of adjacent structures. Install temporary barriers, fences, guard rails, enclosures, shoring, bracing, planking, warning signs and other protections required to protect structures, utilities, landscaping and other items that are to remain in place.

2. Protect benchmarks, monuments and reference points from displacement and damage; and if displaced or damaged, replace at no cost to the Owner.

3. Install and maintain required bracing, shoring and supports when removing structural elements and be responsible for safety and support of structure. If safety of structure appears to be endangered, cease operations and immediately notify the Owner. Do not resume operations until safety is restored.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Construction/Tree Protection Fence: Minimum of a temporary fence 6-foot high metal chain link fence. Refer to drawings.

B. References and Standards: American National Standard for Tree Care Operations; ANSI Z133.1-1988 International Society of Arboriculture I (ISA).

2.2 SOILS MATERIALS

A. Satisfactory Soil Materials. See Section 31 00 00, Earthwork for satisfactory soil material for backfilling excavations and depressions resulting from site clearing.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas in which work is to be performed. Report in writing to the Owner's Representative all prevailing conditions that will adversely affect satisfactory execution of work. Do not proceed with work until unsatisfactory conditions have been corrected.

B. Starting work constitutes acceptance of the existing conditions and the Contractor shall then, at his expense, be responsible for correcting all unsatisfactory and defective work encountered.

C. For the duration the project, provide a construction fence at the perimeter of project (s) as required to secure the project from trespass and provide a safe construction site. Field verify the perimeter and gate locations with the Construction Manager. The fence location may be adjusted as the project progresses based on the approval of the Construction Manager.

3.2 GEOTECHNICAL REQUIREMENTS

A. Any existing foundations, underground utilities, tree root bulbs, as well as any other site improvements which are to be removed should be cleared from the proposed construction areas. Any below grade obstructions, such as buried tanks or old foundations, should then be removed to their full depth and extent and hauled from the site. The building sites and other improvement areas should then be stripped to a sufficient depth to remove any remaining organic laden topsoil. Any areas of loose or soft materials that are exposed during the grading should also be removed or recompacted, as determined by the geotechnical representative.

B. Holes resulting from the removal of underground obstructions (such as abandoned utilities or tree root bulbs) that extend below the planned finished grade should be cleared of loose soil and debris, then backfilled with suitable material compacted to the requirements for engineered fill.

3.2 CLEARING

A. Prior to commencing work, meet with Owner's Representative and identify and mark all existing trees that are within the construction zone and are likely to require protection measures as specified herein.

B. Perform work in accordance to applicable section of the standard specifications.

3.3 GRUBBING

A. Remove organic materials and debris. When indicated, such materials as topsoil and leaf mold, or other organic materials above the ground surface suitable for use as mulch or topsoil, shall be salvaged and stockpiled.

B. Grass and their roots: Remove completely. Dispose of at a green waste composting facility.

C. Existing Infield soil in Existing Baseball Bullpens: To the extent practical, strip and reuse existing soil from the existing baseball (not softball) bullpens for the new bullpens. The visitor bullpen is being relocated, so the soil would need to be stripped and stockpiled for reuse. The home bullpen will be renovated in place and expanded.

3.5 UTILITIES

A. Contractor's attention is directed to Section 8-1.10 "Utility - Non-Highway Facilities", of the Standard Specifications and these Specifications.

B. Contact local utility companies 48 hours minimum prior to start of demolition work. Confirm verbal notices and written notices. Verify locations of all utilities entering site and their locations on site.

C. Cooperate with the Owner's Representative, utility companies, adjacent property owners, and other building trades in maintaining, protecting, re-routing or extending utilities passing through work areas which serve structures located on project site and on adjacent properties.

D. Verify that utilities that are to be removed, capped or abandoned are turned off, or are disconnected, or are re-routed to new locations before starting demolition.

E. Utilities may be abandoned in place in many cases provided that low strength cement grout completely fills any void in the utility.

3.6 REMOVAL

A. General:

1. Remove materials in an orderly and careful manner.

2. Repair or replace all removal work performed in excess to that required at no cost to the Owner. Repair or replacement shall match and equal construction, condition and finish existing at time of award of Contract.

3. Backfill voids from removed materials with clean fill as defined in Section 31 00 00 Earthwork.

B. Remove following from locations to the extent required or directed for new construction.

1. Clear all structures, concrete slabs, asphalt pavement, over-size debris and organic matter.

2. Fencing, including posts, and footings. Be careful of soil caving.

3. Electric underground wires and conduits occurring within removal areas except those shown as reused or protected on Drawings.

5. Miscellaneous structural elements that interfere with the new construction and as directed.

6. Underground pipes and utilities.

7. Other items noted on the drawings and required to be removed to install the new improvements.

8. Rocks or concrete pieces larger than 6 inches encountered during demolition shall be removed from the site.

9. Natural turf: Remove and dispose of complete, including irrigation system.

C. Cutting asphalt, concrete curbs and concrete pavement:

1. Sawcut paving where required.

2 All lines shall be marked and accepted by Owner's Representative before the cutting operation.

3. Cut edges of pavement at 90-degree angle to the surface in a true and straight line in accordance with dimensions shown on the Drawings. Make cuts with a concrete saw, to a 1-1/2" minimum depth.

D. Backfill and compact areas excavated and open pits and holes resulting from removal operations. Comply with requirements specified in Section 31 00 00 for backfill materials, compaction and installation methods.

E. Rough grade site within removal areas to meet adjacent contours and to provide positive drainage. Leave site in clean condition acceptable for performance of subsequent construction operations.

3.7 CLEANUP AND DISPOSAL, per General Conditions.

A. Transport trash, rubbish and debris daily from site and legally dispose of:

1. Demolished and waste materials encountered.

2. Remove and promptly dispose of contaminated, vermin-infested and dangerous materials encountered.

3. Do not burn or bury materials on site.

B. Clean excess soil may be distributed on site as accepted by the Geotechnical Engineer, if it does not adversely affect specified finish grades. Coordinate with Section 31 00 00 Earthwork, List of Drawings 00 01 15 and Section 32 11 13 Subgrade Preparation & Base Material.

C. Excess soil may need to be legally disposed of off-site. Refer to Section 00 31 19 Existing Conditions. Coordinate with Section 31 00 00 Earthwork, List of Drawings 00 01 15 and Section 32 11 13 Subgrade Preparation & Base Material.

D. Upon completion of work under this Section, remove all tools, equipment and temporary enclosures and structures.

END OF SECTION

SECTION 07 92 00

JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Urethane joint sealants.

1.3 ACTION SUBMITTALS

A. Product Data: For each joint-sealant product indicated.

B. Sustainable Design Submittals:

1. Product Data: For sealants, indicating VOC content.

2. Laboratory Test Reports: For sealants, indicating compliance with requirements for low-emitting materials.

C. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.

D. Samples for Verification: For each kind and color of joint sealant required, provide Samples with joint sealants in 1/2-inch- (13-mm-) wide joints formed between two 6-inch- (150-mm-) long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.

E. Joint-Sealant Schedule: Include the following information:

1. Joint-sealant application, joint location, and designation.

2. Joint-sealant manufacturer and product name.

3. Joint-sealant formulation.

4. Joint-sealant color.

1.4 INFORMATIONAL SUBMITTALS

A. Product Certificates: For each kind of joint sealant and accessory, from manufacturer.

B. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, indicating that sealants comply with requirements.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.

B. Source Limitations: Obtain each kind of joint sealant from single source from single manufacturer.

1.6 PROJECT CONDITIONS

A. Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer.

2. When joint substrates are wet.

3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.

4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.

B. VOC Content: Sealants and sealant primers shall comply with the following:

1. Architectural sealants shall have a VOC content of 250 g/L or less.

2. Sealants and sealant primers for nonporous substrates shall have a VOC content of 250 g/L or less.

3. Sealants and sealant primers for nonporous substrates shall have a VOC content of 775 g/L or less.

4. Sealant shall comply with the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

C. Liquid-Applied Joint Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied joint sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.

D. Stain-Test-Response Characteristics: Where sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.

E. Suitability for Contact with Food: Where sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.2600.

F. Colors of Exposed Joint Sealants: Match Architect's samples.

2.2 URETHANE JOINT SEALANTS

A. Multicomponent, Nonsag, Urethane Joint Sealant: ASTM C 920, Type M, Grade NS, Class 25, for Use NT.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

a. BASF Building Systems; Sonolastic NP 2.

b. May National Associates, Inc.; Bondaflex PUR 2 NS.

c. Pecora Corporation; Dynatred.

d. Sika Corporation, Construction Products Division; Sikaflex - 2c NS.

e. Tremco Incorporated; Vulkem 227.

2.3 JOINT SEALANT BACKING

A. General: Provide sealant backings of material that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), Type B (bicellular material with a surface skin) or any of the preceding types, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint. Provide self-adhesive tape where applicable.

2.4 MISCELLANEOUS MATERIALS

A. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.

B. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:

    a. Unglazed surfaces of ceramic tile.

    b. Cement plaster.

3. Remove laitance and form-release agents from concrete.
4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:

    a. Metal.

    b. Glass.

    c. Porcelain enamel.

    d. Glazed surfaces of ceramic tile.

B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or

by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

C. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of sealant backings.

2. Do not stretch, twist, puncture, or tear sealant backings.

3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact and fully wet joint substrates.

2. Completely fill recesses in each joint configuration.

3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

1. Remove excess sealant from surfaces adjacent to joints.

2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.

3. Provide concave joint profile per Figure 8A in ASTM C 1193, unless otherwise indicated.

G. Acoustical Sealant Installation: At sound-rated assemblies and elsewhere as indicated, seal construction at perimeters, behind control joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C 919 and with manufacturer's written recommendations.

3.4 CLEANING

A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.5 PROTECTION

A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

3.6 JOINT-SEALANT SCHEDULE

A. Joint-Sealant Application: Exterior joints in vertical surfaces and horizontal non-traffic surfaces.

1. Joint Locations:

    a. Joints between metal panels.

    b. Joints between different materials listed above.

    c. Perimeter joints between materials listed above and frames of doors, windows and louvers.

    d. Control and expansion joints in ceilings and other overhead surfaces.

    e. Other joints as indicated.

2. Urethane Joint Sealant: Multicomponent, nonsag, Class 25.

3. Joint-Sealant Color: Match Architect's samples.

B. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal non-traffic surfaces.

1. Joint Locations:

    a. Control and expansion joints on exposed interior surfaces of exterior walls.

    b. Perimeter joints of exterior openings where indicated.

    c. Perimeter joints between interior wall surfaces and frames of interior doors and windows.

    d. Other joints as indicated.

2. Joint Sealant: Multicomponent, nonsag, Class 25.

3. Joint-Sealant Color: Match Architect's samples.

C. Joint-Sealant Application: Mildew-resistant interior joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Sealant Location:

   a. Joints between plumbing fixtures and adjoining walls, floors, and counters.

   b. Tile control and expansion joints where indicated.

   c. Other joints as indicated.

2. Joint Sealant: Mildew resistant, single component, acid curing, Silicone.

3. Joint-Sealant Color: Match Architect's samples.

END OF SECTION

SECTION 12 93 05

SITE FURNISHINGS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Furnish and install all manufactured items shown on drawings and specified.

B. Scope of work: The general extent of work contained in this section is shown on the Drawings and can include, but may not be limited to, installation of the following:

1. Items specified here in and shown on the drawings

C. Related sections can include, but may not be limited to the following:

1. Section 00 31 19 Existing Conditions
2. Section 00 31 32 Geotechnical Data
3. Section 01 11 00 Summary of Work
4. Section 02 41 00 Site Preparation and Plant Protection
5. Section 31 00 00 Earthwork
6. Section 32 11 13 Subgrade Preparation and Base Material
7. Section 32 18 13 Synthetic Turf Playing Field
8. Section 32 18 15 Synthetic Landscape Turf
9. Section 33 40 10 Storm Drainage

1.2 REFERENCES AND REGULATORY REQUIREMENTS

A. State of California Department of Transportation Standard Specifications, current edition.

B. Perform all work in accordance with all applicable laws, codes, and regulations required by State of California and the City of San Mateo and County of San Mateo.

1.3 SUBMITTALS

A. Conform to applicable specifications, General Conditions and/or Special Provisions.

B. Product Data: Submit catalog “cut sheets” and installation instructions of all materials and equipment proposed to be furnished and/or installed under this portion of the work. Include the manufacturers and distributors name, sub-contractor as applicable. Insure that the “cut sheets” clearly describe the specific product by catalog number and that additional non-specified products that may appear on the same “cut sheet” are cross out where applicable.

C. Samples: Submit samples of colors and finishes for all applicable products and furnishings for selection by District. Submit sample of sand.

D. Shop Drawings: Submit complete shop drawings for all materials or furnishings requiring field or shop fabrication. Provide complete drawings for sand catchers.

1.4 QUALITY ASSURANCE

A. All Site Furnishings sub-contractors bidding on this project must have a California license and be experienced in the installation, in Northern California, of synthetic track surfacing, athletic field installation and synthetic turf systems for at least 5 years and have completed five (5) projects in Northern California of comparable size, type and complexity, in the past three (3) years.

B. Review: All equipment shall be reviewed for conformance with the intent of the Contract Documents and accepted by the contractor prior to installation. All site furnishings shall be in a new, “first-class” condition, per the discretion of the District’ Representative, prior to Final Acceptance.

1.5 DELIVERY, STORAGE AND HANDLING

A. The contractor is responsible for coordination of the delivery, acceptance, handling and storage of all site furnishings.

B. Store and handle site furnishings as acceptable to the Construction Manager and so that work or access of others is not impeded.

C. The contractor shall protect all site furnishings from theft or damage at all times until the District’s Representative has accepted such items.

1.6 SOILS REPORT

A. A soil investigation reports has been prepared for the project. See Section 00 31 32 Geotechnical Data.

B. The reports are available in the office of the Landscape Architect and the Construction Manager for inspection by the Contractor. Unless otherwise specified, it is intended that all work be performed in accordance with the provisions of these reports.

C. Drilled piers may encounter ground water. Excavations for drilled piers may require casings and installation of concrete by means of pumping under the direction of the Geotechnical Engineer.

1.7 SOILS BORINGS

A. Subsurface soils investigations have been made at the site and logs of the test holes are available with the Soils Report. Such investigations have been made for the purposes of design only, and neither the Landscape Architect, the Owner, nor the Soils Engineers guarantee adequacy or accuracy of the data, or that data are representative of all conditions to be encountered. Such information is made available for general information only and shall not relieve the Contractor of the responsibility for making his own investigations.

PART 2 - MATERIALS

2.1 SITE FURNISHINGS

A. Distributor / Contact Information:

1. Sportsfield Specialties, Alex Fletcher: (408) 728-0482 or (888) 975-3343.

Description	Mfr,	Model No.	Finish/Color	Distributor/ Contact
Field Net Posts	Sports Field Specialties or Gill Athletics	Ball safety system. BSS210 (TFBSS210P) 10' ball safety system	NA	Sports Field Specialties or Gill Athletics

2.2 OTHER EQUIPMENT

A. As shown on drawings or accepted equal.

2.3 LOCKS and KEYS

A. All lock keys shall be keyed alike. Provide locks keyed alike to what the school uses.

PART 3 - EXECUTION

3.1 SEQUENCING AND SCHEDULING

A. Coordinate construction timing of installation of site furnishings in conformance with all other work.

3.2 INSTALLATION

A. Install as shown in Drawings and per manufacture's requirements unless noted otherwise.

B. Equipment:

1. Conform to layout shown on Drawings.

2. Erect site furnishings in strict conformance with details, accepted Shop Drawings, and manufacturer's instructions. If specified equipment and/or materials are revised, plans and Drawings are subject to revisions based on manufactures.

3. If specified equipment and/or materials are revised, plan and Drawings are subject to revisions based on manufacturers' recommendations.

C. Install manufactured items in accordance with the manufacturer's instruction and as shown in the drawings and as specified herein.

D. Set all work true and square, plumb and level.

E. Size bolts to fit flush with nuts. Countersink nuts and bolts as detailed. Vandal proof bolts as directed by Project Inspector.

F. Securely fasten and/or anchor all equipment with bolts, angles, plates, flanges, concrete footings and/or other items required for proper and complete installation and/or erection of the units.

G. Supply all miscellaneous metal units and install as specified herein.

H. Install all equipment in strict conformance with the manufacturer's specifications and/or as accepted by the Landscape Architect.

I. Set all equipment, etc., level as recommended by manufacturer.

J. Transport, store and handle precast units and manufactured items in a manner to avoid hairline cracks, staining or other damage. Store units free of the ground and protected from mud or rain splashes. Cover units, secure covers firmly, and protect the units from dust, dirt or other staining material.

3.3 FIELD QUALITY CONTROL

A. All site furnishings shall be inspected and accepted upon delivery by the Contractor. Final acceptance of site furnishings and locations of site furnishings shall be per the discretion of the Landscape Architect.

3.4 CLEANUP: Per General Conditions.

A. During construction, protect work from damage by accident, staining or otherwise.

B. Upon completion, repair or replace broken, damaged or defective parts.

C. Remove all surplus materials and debris from the premises.

D. All work shall be left in a condition satisfactory to the Landscape Architect.

3.5 CLOSEOUT

A. Include manufacture’s cut sheets and maintenance instructions of specified items in Operations and Maintenance Manual.

B. Include manufacturer’s warranty information of specified items with warranties.

END OF SECTION

SECTION 13 12 50

FRAME-TYPE BLEACHER
NON-ELEVATED CLOSED DECK SYSTEM

PART 1 - GENERAL

1.01 SYSTEM DESCRIPTION

A. Provide labor, material, equipment, and supervision necessary to complete installation of permanent steel grandstand, including the following:

1. Steel Substructure
2. Decking System
3. Concrete Foundation (provided by others)

1.02 QUALITY ASSURANCE

A. Manufacturer Qualifications: Manufacturer must have ten years of experience in the manufacture of bleachers and grandstands; welders must be AWS certified.

B. Source Quality Control: Mill Test Certification.

1.03 BUILDING CODES

A. Must meet or exceed all State and Local applicable codes and in compliance with the California Building Code 2022, Title 24, and ICC 300.

1.04 WARRANTY

Manufacturer warrants its frame-type bleacher to be free from defect in material and workmanship while manufacturing for a period of one year beginning at Date of Substantial Completion for Projects installed by manufacturer. This warranty excludes defects resulting from abnormal use, accidental or intentional damage, or any occurrences beyond manufacturer's control.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Basis of Design: Southern Bleacher Company-Graham TX 1 (800) 433-0912

1. Alternate manufacturers seeking to be pre-approved to bid must submit product literature and references (with contact names/numbers) to the Owner/architect, 14 days prior to bid date, for five (5) similar sized DSA approved projects completed within the past two years.

2. Each manufacturer is required to develop and submit their own submittal drawings and calculations if required. Southern Bleacher's information is for their exclusive usage.

3. Alternate manufacturers shall be responsible for obtaining DSA approval for their product and all costs associated (including additional Architect and DSA fees) shall be borne by the manufacturer/contractor, and not by the Owner or Design Team.

4. No time extensions to the schedule will be granted awaiting DSA approval of submittals and liquidated damages apply per the contract documents.

2.02 FRAME-TYPE BLEACHERS

A. Product Description

1. Silver Edition 5 Row Non-Elevated, Closed deck, Frame-type Bleachers:
   a. Rise and Depth Dimensions: Vertical rise and horizontal depth per row: 8” x 24”. Seat is 17 1/4” above its respective tread.
   b. Framework: Prefabricated angle bleacher frames are spaced at 6-foot (max.) intervals and connected by cross-braces. Galvanized steel frames, aluminum frames are not acceptable.
   c. Seats: Nominal 2 x10” clear anodized aluminum plank with 2 x 10” anodized end caps.
   d. Treads: Nose, deck, and heel tongue and groove plank with anodized end caps to create 26” tread depth condition. Shot-blast anodized for increased slip resistance.
   e. Risers: Nominal 1 x 6-1/2 clear anodized aluminum riser plank. Shot blast anodized for increased slip resistance.
   f. Intermediate aisle steps: fully closed constructed with interlocking deck extrusions.
   g. Aisle: Aisle to be provided with 34” high handrail and intermediate rail at approximately 22” above tread. Handrails with rounded ends are discontinuous to allow access to seating through a 24” wide space. Aluminum tread nosing of contrasting color on aisle steps.

2. Wheelchair Area:
   a. Wheelchair area to be 5’ 8” wide for two wheelchairs (34" each) and 36" for single.

B. Materials/Finishes

1. Framework:
   a. Galvanized Steel: Structural fabrication with ASTM-A529 steel. Shop connections are seal welded. After fabrication, all steel is hot-dipped galvanized to ASTM-A123 specification.

2. Extruded Aluminum:
   a. Seat Planks, Riser Planks, Step Risers: Extruded aluminum alloy 6063-T6, clear anodized 204R1, AA-M10C22A31, Class II, and a wall thickness of .094”.
   b. Tread Planks: Extruded aluminum alloy 6063-T6, mill finish and wall thickness of .094”.

3. Accessories:
   a. Channel End Caps: Aluminum alloy 6063-T6, clear anodized 204R1, AA-M10C22A31, Class II.
   b. Hardware:
      (1) Bolts, Nuts: Galvanized or plated.
      (2) Hold-Down Clip Assembly: Aluminum alloy 6061-T6.
      (3) 3/8” Stainless Steel Hilti KBTZ Anchors to secure frames to concrete structural slab where indicated on drawings.
   c. Guard railing: None. Unit is enclosed by concrete walls
   d. Cross-braces: Extruded aluminum angle alloy 6061-T6, mill finish.

e. Aisle Nose: Aluminum alloy, 6063-T6, black powder-coat finish.

C. Manufactured Units: One (1) - 5 Row Model w/Wheelchair Areas
1. 33’ length overall
2. 24” tread depth
3. 8” rise per row
4. Closed deck system
5. 4 total net 34” wheelchair spaces
6. 66 total net 18” seats

D. Fabrication
1. Design Load:
a. Live Load: 100 psf gross horizontal projection
b. Lateral Sway Load: 24 plf seat plank
c. Perpendicular Sway Load: 10 plf seat plank
d. Live Load of Seat and Tread Plank: 120 plf
e. Guardrail: 100 plf vertical and 50 plf horizontal.

2. All connections made in shop to be shop welded.
a. Manufactured by certified welders conforming to AWS Standards.

PART 3 - EXECUTION

3.01 INSTALLATION

A. All work performed by technicians experienced in bleacher seating installation.

B. Project as per approved shop drawings.

3.02 FIELD QUALITY CONTROL

A. Foundation: Structural slab to support the bleacher shall provide enough bearing area at bottom to support all loads. Depth and design of footings shall be determined by Owner supplied soil test. Hot-dipped galvanized anchor bolts shall be secured in the concrete footings. Concrete shall attain working strength of 3,000 psi.

3.03 CLEAN-UP

A. Clean up all debris caused by work of this section. Stand to be left broom clean.

B. Owner, Architect and Contractor acknowledge and accept that mill finish aluminum as specified will have water stains present from transportation and storage during installation. Removal of these stains is not part of this contract. Stand to be left broom cleaned at completion of installation.

SECTION 31 00 00

EARTHWORK

PART 1 - GENERAL

1.1 DESCRIPTION

A. Provide earthwork complete, including removal work and clearing, grading, excavating, soil treatment and fill, and dewatering.

B. Related work specified elsewhere includes:

1. Section 00 31 19 Existing Conditions
2. Section 00 31 32 Geotechnical Data
3. Section 01 11 00 Summary of Work
4. Section 01 45 00 Quality Control
5. Section 01 71 23 Field Engineering
6. Section 01 56 16 Dust Control
7. Section 01 56 19 Noise Control
8. Section 02 41 00 Site Preparation & Plant Protection
9. Section 31 25 00 Erosion Control
10. Section 32 11 13 Subgrade Preparation & Base Material
11. Section 32 13 13 Landscape Concrete

1.2 QUALITY ASSURANCE

A. Qualifications

1. All general contractors, performing all sub-base preparation, grading and drainage infrastructure work should be experienced in the installation of public site works for at least five (5) years. Failure to meet the requisite qualifications may result in the general contractors and sub-contractors being rejected as non-responsible.

B. Reference standards

1. Perform work in compliance with the rules and regulations of the Division of Industrial Safety and other local and State agencies having jurisdiction. Nothing contained herein shall be construed as permitting work that is contrary to such rules, regulations and codes.
2. Work shall conform to local codes and regulations.
3. References to "Standard Specifications" shall mean the Standard Specifications of the State of California, Business and Transportation Agency, Department of Transportation, CALTRANS.

4. ASTM Standards.

5. Perform all grading with hydraulically laser-controlled grading machinery.

6. The grading contractor shall visit the site prior to bidding the project.

7. The contractors shall always comply with the recommendations of the Geotechnical Engineer.

8. If unforeseen circumstances are encountered during the grading operations, the Construction Manager shall be contacted immediately for additional recommendations from the Geotechnical Engineer.

9. No deviations from the project specifications shall be made except upon written approval from the Geotechnical Engineer or Landscape Architect.

10. All existing surface and subsurface structures that will not be incorporated in the final development shall be removed prior to any grading operations.

1.3 SUBMITTALS, per General Conditions.

A. Submit a list of grading equipment to be used.

B. Submit an analysis of physical and chemical properties and certificate of compliance of environmental clearance for import soil, if any.

C. Before the grading operation is underway, submit a letter identifying the approximate quantities and type of soil required to be imported and exported in order to accomplish a balance of the earthwork materials without additional compensation.

1.4 TESTING

A. Testing and Inspection: Testing shall be performed by a qualified independent testing laboratory under the supervision of a registered professional engineer, specializing in soils engineering.

B. The Owner will direct, provide and pay for initial testing and inspection during earthwork operations.

C. Provide and pay for re-testing and inspection during earthwork operations. Laboratory and inspection service shall be acceptable to the Owner.

D. Where reference is made to relative compaction, it shall be the in-place dry density of soil expressed as a percentage of the maximum dry density of the same material, determined by the ASTM D1557 laboratory test procedure. Optimum moisture is the water content that corresponds to the maximum dry density.

E. For structural fills under footings, slabs or pavements, determine moisture-density relationships in accordance with ASTM D1557.

F. Plasticity Index: ASTM 4318-98.

1.5 PROJECT CONDITIONS

A. Protect excavations by shoring, bracing, sheeting, underpinning, or other methods as required to prevent cave-ins or loose dirt from entering excavations. Barricade open excavations and post warning lights at work adjacent to public streets and walks.

B. Underpin adjacent structure(s), including utility service lines, which may be damaged by excavation operations.

C. Promptly repair damage to adjacent facilities caused by earthwork operations. Cost of repair at Contractor's expense.

D. Promptly notify the Inspector of unexpected subsurface conditions.

1.6 FIELD QUALITY CONTROL

A. Contractor shall provide adequate notice, cooperate with, provide access to the work, and assist testing agency and their representatives in execution of their function.

B. The Soil Engineer shall be notified at least two days, prior to commencement of any grading operations so that he may coordinate the work in the field with the contractor.

C. When, during the progress of work, field tests indicate that installed compacted materials do not meet specified requirements, provide additional compaction until specified density is achieved, or remove and replace defective materials with new materials as directed by the Inspector. Cost of additional labor, materials, and testing to attain specified density at Contractor's expense.

1.7 EXISTING CONDITIONS

A. A topographic survey of the property has been included in the drawings for reference only. Upon beginning the earthwork, Contractor represents that he has inspected the site and satisfied himself as to actual grades and levels and the true conditions under which the work is to be performed.

1.8 SOILS REPORT

A. A soil investigation report has been prepared for the project. See Section 00 31 32, Geotechnical Data.

B. The report is available in the Project Manual for inspection by the Contractor. Unless otherwise specified, it is intended that all work be performed in accordance with the provisions of this report.

C. Drilled piers may encounter ground water. Excavations for drilled piers may require casings and installation of concrete by means of pumping under the direction of the Geotechnical Engineer.

1.9 SOILS BORINGS

A. Subsurface soils investigations have been made at the site and logs of the test holes are available with the Soils Report. Such investigations have been made for the purposes of design only, and neither the Landscape Architect, the Owner, nor the Soils Engineers guarantee adequacy or accuracy of the data, or that data are representative of all conditions to be encountered. Such information is made available for general information only and shall not relieve the Contractor of the responsibility for making his own investigations

1.10 PROTECTION

A. Furnish, place and maintain all supports, shoring and sheet piling which may be required for the sides of the excavation or for the protection of adjacent existing improvements.

B. Maintain all benchmarks, monuments, and other reference points. If disturbed or destroyed, replace as directed.

C. Adequate protection measures shall be provided to protect workmen, passers-by, and the site. Streets and adjacent property shall be fully protected throughout the operations.

D. In accordance with generally accepted construction practices, the Contractor shall be solely and completely responsible for working conditions on the job site, including safety of all persons and property during performance of the work. This requirement shall apply continuously and not be limited to normal working hours.

E. Any construction review of the Contractor's performance conducted by the Inspector is not intended to include review of the adequacy of the Contractor's safety measures in, on, or near the construction site.

F. Adjacent streets, sidewalks, and property shall be kept free of mud, dirt, or similar nuisances resulting from earthwork operations.

G. Provide for surface drainage during the period of construction in a manner to avoid creating a nuisance to adjacent areas.

H. Water as required to suppress dust nuisance.

I. Protection of Existing Improvements: Provide barricades, covering, or other types of protection necessary to prevent damage to existing improvements indicated to remain in place. Protect improvements on adjoining properties. Repair damaged existing improvements to original condition as approved by authority having jurisdiction.

J. Provide erosion control measures as required.

1.11 UTILITY TRENCHING

A. Contractor shall conduct operations and schedule cleanup in a manner to cause the least possible obstruction and inconvenience to traffic, pedestrians, and any adjacent property owners or tenants.

B. Contractor shall protect open excavations, trenches and such with covers, railings, and fences as required together with signs, lights, and other warning devices sufficient to protect and maintain safe pedestrian, bicycle, or vehicular traffic through the work.

C. Contractor shall conduct operations in such a manner that existing facilities and utilities that are to remain in place will not be damaged. Excavation, trenching and other work under or adjacent to existing pipelines, conduit runs, or structures of any kind, shall be prosecuted in such a manner as to not interfere with the safe operation and use of such installations. Contractor, at his expense, shall furnish and install sheet piling, cribbing, shoring, or whatever means may be necessary to adequately support material carrying such facilities or to support the facilities themselves and shall maintain such supports until they are no longer needed. The installation and removal of such supports shall be performed in a manner that does not disturb the line, grade or operation of the facilities or utilities being installed or adjacent to the installation. Should any damage to existing facilities or structures be incurred during the operations of the Contractor, he shall immediately notify the proper owners or authorities, and shall arrange for the immediate repair of the facilities at his own expense. Temporary pavements, facilities, utilities, and other installations shall also be protected until they are no longer required. When temporary supports and other protective means are no longer required, they shall be removed and disposed of by the Contractor.

D. During trenching operations, the Contractor shall furnish, install, and operate adequate pumps or other devices as may be necessary to remove any seepage, storm water, or sewage that may be encountered during the progress of the work. All excavations shall be kept free from water during bedding, pipe laying, backfilling and when concrete is being placed, and thereafter until such water will do no damage to the work.

E. Damage resulting from movement of the sides or bottom of trenches or other excavations, whether sides are braced or not, and any portions of the area and work affected by such movement, shall be repaired or restored by the Contractor at his expense to the satisfaction of the Geotechnical Consultant and the Owner.

F. Contractor shall protect all existing facilities.

PART 2 - MATERIALS

2.1 FILL

A. Structural Fill Materials: Inert subsoil material free of organic matter, rubbish, debris and rocks greater than 3" diameter, and meeting the following requirements:

1. Plastic index of not more than 12 - ASTM D424.

2. Resistance R-Value: Not less than 25.

3. Liquid Limit: 30% or less.

4. Expansion Index: 20% or less.

5. Percent Passing #200 Sieve: between 10 and 20%.

6. Minimum laboratory dry weight at optimum moisture content of 110 pounds per cubic foot.

7. Fill soil to be used under planting areas shall be capable of sustaining healthy plant life and shall have a pH value of between 6.0 and 7.5, a boron concentration of the saturation extract of less than 1 ppm, salinity of the saturation extract at 25 degrees C of less than 4.0 millimoles, and a Sodium Absorption Rate (SAR) of less than 8.

8. Provide imported fill material as required to complete the work. Obtain rights and pay all cost for imported materials.

9. Proposed fill material shall be inspected, tested, and laboratory report issued prior to use in the work.

10. Suitable excavated material removed to accommodate new construction may be used as fill material subject to inspection and approval.

11. All fill material is subject to testing and inspection.

2.2 TOPSOIL

A. Topsoil is defined as on-site surface soil. Satisfactory topsoil shall be free of subsoil, clay, lumps, stones and other objects over 1" in diameter, and without weeds, roots and other objectionable material.

B. If herbicide contamination is suspected, then a radish/ryegrass growth trial must be performed. Consult with Inspector prior to decision to test or not.

C. Herbicide contamination is suspected in areas of topsoil that show no or poor of vegetative ground cover or grass. Do not use topsoil from these areas for use in the planting areas.

2.3 UTILITY TRENCH BACKFILL

A. Sand bedding, native soil and permeable material per Section 33 40 10, Storm Drainage.

2.4 CLASS 2 AGGREGATE BASEROCK

A. Class 2 aggregate baserock should have an R-value of at least 78 and conform to the requirements of Section 26-1.02A of the State of California, CALTRANS Standard Specifications, latest edition.

2.5 CLASS 2 PERMEABLE ROCK

A. Class 2 permeable rock should have an R-value of at least 78 and conform to the requirements of Section 68 of the State of California, CALTRANS Standard Specifications, latest edition.

PART 3 - EXECUTION

3.1 PREPARATION

A. Establish extent of grading and excavation by area and elevation. Designate and identify datum elevation and project engineering reference points. Set required lines, levels and elevations.

B. Do not cover or enclose work of this Section before obtaining required inspections, tests, approvals and location recording.

3.2 EXISTING UTILITIES

A. Notify the Underground Service Alert (U.S.A.) Center 48 hours in advance of performing any excavation work by calling 811. Verify the grade and location of existing utilities prior to any work where conflicts may arise by careful hand digging. Be responsible for the protection of all existing utilities. Be responsible for the protection of all existing survey monuments.

B. Before starting grading and excavation, establish the location and extent of underground utilities in the work area. Exercise care to protect existing utilities during earthwork operations. Perform excavation work near utilities by hand and provide necessary shoring, sheeting and supports as the work progresses.

C. Maintain, protect, relocate, or extend as required, existing utility lines which pass through the work area. Pay costs for this work, except as covered by the applicable utility companies.

D. Protect active utility services uncovered by excavation.

E. Remove abandoned utility service lines from areas of excavation. Cap, plug or seal abandoned lines and identify termination points at grade level with markers.

F. Accurately locate and record abandoned and active utility lines rerouted or extended on project record documents.

G. The holes, left by the removal of subsurface structures shall be cleaned of all debris, backfilled with clean on site soil, and compacted to not less than 90% relative compaction, using ASTM D1557 test procedure. This backfill must be structural fill and the operation must be conducted under the supervision of the Soil Engineer.

3.3 STRIPPING AND SITE PREPARATION FOR PAVED AREAS

A. The improvement areas should then be stripped to a sufficient depth to remove any remaining organic laden topsoil. Any areas of loose or soft materials or undocumented fills that are exposed during the grading should also be removed or re-compacted, as directed by the geotechnical engineer.

B. Holes resulting from the removal of underground obstructions (such as old foundations, abandoned utilities or tree root bulbs) that extend below the planned finished grade should be cleared of loose soil and debris, then backfilled with suitable material compacted to the requirements for engineered fill.

C. The subgrade should be ripped and cross ripped a minimum depth of 12 inches and statically rolled with a heavy, smooth drum roller to provide a smooth firm surface. Any unstable or pumping subgrade areas should be ripped and cross ripped a minimum depth of 12 inches, or subexcavated, plugged with baserock and overlain with a stabilizing fabric such as Mirafi 600X Fabric installation should be performed in accordance with the manufacturer's recommendations. The method and extent of any required preparation work should be evaluated by the geotechnical engineer.

3.4 FILL PLACEMENT AND COMPACTION FOR PAVEMENTS

A. Existing soils having an organic content of less than three percent by volume, and which are free of construction debris, can be used as engineered fill. Fill material should not, however, contain rocks or lumps greater than six inches in greatest dimension with not more than 15 percent larger than 2.5 inches. Imported fill used to raise grades should be predominantly granular with a maximum plasticity index of 12.

B. Engineered fill should be compacted to at least 90 percent relative compaction, as determined by ASTM Test Designation Dl557. Fill material should be spread and compacted in lifts not exceeding eight inches in uncompacted thickness. The moisture content of both on-site and imported soils utilized as fill should be adjusted at least two percent above their optimum moisture content.

C. In order to achieve satisfactory compaction in the subgrade and fill soils, it may be necessary to adjust the soil moisture content at the time of soil reworking. This may require that water be added and thoroughly mixed into any soils which are too dry or that scarification and aeration be performed in any soils which are too wet. The subgrade will require rescarification and recompaction if it is allowed to dry out and crack prior to placing the required non-expansive material section.

3.5 SLOPE GRADIENTS AND FILL PLACEMENT OVER EXISTING SLOPES

A. New permanent cut slopes, and any fill slopes, should be no steeper than 3:1 (horizontal to vertical). Fill placed on slopes steeper than 6:1 (horizontal to vertical) should be benched a minimum of two feet horizontally for every two vertical feet of new fill. Any undocumented fill material encountered in new slope construction should be removed and replaced as properly engineered fill

3.6 TEMPORARY CUTSLOPES AND SHORING

A. Temporary slope excavations for the walls in the soils encountered during the site investigation are anticipated to be reasonably stable at an inclination of 1.5:1 (horizontal to vertical), and should be benched every five feet vertical.

B. There are a number of factors which can influence the stability of temporary excavations, some of which the contractor can control. The contractor, therefore, should be solely responsible for designing and constructing stable temporary excavations and should shore, slope or bench the excavations as required to maintain their stability and comply with all applicable safety standards, including CAL-OSHA requirements. The temporary shoring system design and performance should be the responsibility of the contractor.

3.7 UTILITY TRENCHES

A. The presently available subsurface information indicates that the required utility trenches can be excavated with conventional and/or heavy-duty backhoe equipment. Trenches deeper than five feet should be properly braced or sloped in accordance with the current requirements of CAL-OSHA or the local governmental agency, whichever is more stringent.

B. Utility trenches should be backfilled with engineered fill placed in lifts not exceeding eight inches in uncompacted thickness, except thicker lifts may be used with the approval of the soil engineer provided satisfactory compaction is achieved. If on-site soil is used, the material should be compacted to at least 90 percent relative compaction by mechanical means only. Imported sand can also be used for backfilling trenches provided it is compacted to at least 90 percent relative compaction. In building, slab, and pavement areas, the upper three feet of trench backfill should be compacted to at least 90 percent relative compaction for on-site soils, and 95 percent where imported clean sand backfill is used. In addition, the upper six inches of all trench backfill materials under pavement areas should be compacted to at least 95 percent relative compaction.

C. Water jetting to achieve the required level of backfill compaction should not be permitted.

3.8 SURFACE DRAINAGE

A. Positive surface gradients should be maintained on new surfaces to prevent ponding of water.

3.9 CONSTRUCTION OBSERVATION

A. Grading and earthwork should be observed and tested by the geotechnical engineer for conformance with the project plans/specifications and the geotechnical engineer recommendations. This work includes site preparation, selection of satisfactory fill materials, and placement and compaction of the sub grades and fills. Sufficient notification prior to commencement of earthwork is essential to make certain that the work will be properly observed.

3.11 SITE GRADING

A. Perform grading with in contract limits, including adjacent transition areas, to new elevations, levels, profiles and contours indicated. Provide subgrade surfaces parallel to finished surface grades. Provide uniform levels and slopes between new elevations and existing grades.

B. Grade surfaces to assure areas drain away from structures and to prevent ponding and pockets of surface drainage. Provide subgrade surfaces free from irregular surface changes and as follows:

1. Rough Grading: Plus or minus 0.10 ft. subgrade tolerance. Finish required will be that ordinarily obtained from a laser controlled blade-grader or scraper operations.

2. Provide subgrade surface free of exposed boulders or stones exceeding 3" in greatest dimension in paved areas.

3. Granular Base: Grade subgrade surface smooth and even, free of voids to the required subgrade elevation. Provide compacted subgrade suitable to receive granular base materials. Tolerance 1/2" in 10'-0". Refer to Section 32 11 13 and for Subgrade Preparation and Base Material.

4. Drainage Swales: Grade as shown on drawings.

3.12 EXCAVATING

A. Excavate for structures to elevations and dimensions shown. Extend excavation a sufficient distance from foundations to permit placing and removal of formwork, installation of materials, services and inspection. Hand trim foundation excavations to final grade just before concrete is placed. Remove loose, soft materials, and all organic matter. Footings shall bear on approved undisturbed bearing soil.

B. Obtain inspection and testing of foundation excavations by Inspector before base rock is placed.

C. Excavate for structures and paving to cross-sections, elevations and grades indicated. Allow for base material.

D. Extra Excavation: Excavate unsatisfactory soil materials extending below required elevations to depth as directed. Such extra excavation will be paid for as a change in work. Obtain Construction Manager’s written authorization before performing extra excavation work.

E. Unauthorized Excavation: Backfill and fill all overexcavation to proper grades. Fill overexcavation at footings with 1,500 psi concrete. Additional labor and material for unauthorized excavation and remedial work at Contractor's expense.

F. Shore, sheet or brace excavations as required to maintain them secure. Remove shoring and bracing as backfilling progresses, when banks are safe against caving.

G. Do not excavate footings or slabs to the full depth when freezing temperature may be expected, unless footings or slabs are placed immediately after the excavation has been completed. Protect excavation bottoms from freezing when the placing of concrete is delayed.

H. Rock Excavating:

1. Rock: Material which cannot be removed with 3/4 cu. yd. capacity power shovel without drilling or solid boulders with a volume of more than 1/2 cu. yd.

2. Rock Excavation: Material excavation of buried boulders and rock in excess of 1/2 cu. yd. that requires continuous systematic drilling or continuous use of ripper or other special equipment. All other excavation shall be classified as earth excavation.

3. Contractor will be paid cost of rock excavation as a change in work. Obtain Inspector's written authorization prior to performing rock excavation work.

3.14 DRAINAGE

A. Provide necessary pumps and drainage lines and maintain excavations, including footings and pits, free from water (ice and snow) during excavating and subsequent work operations.

B. Provide drainage of the working area at all times.

3.15 FILLING, BACKFILLING AND COMPACTING

A. Obtain inspection and approval of subgrade surfaces by Inspector prior to filling operations. Scarify, dry and compact soft and wet areas; remove and replace unsuitable subgrade materials with an approved compacted fill material. Take corrective measures before placing fill materials.

B. No fill placement shall be made without the approval of the Geotechnical Engineer.

C. For voids resulting from the removal of existing subsurface pipes and structures, the bottom of the excavation shall be scarified to a depth of 12 inches (if required), moisture conditioned and then compacted to a minimum of 90% relative compaction. Additional fill material placed in the trenches shall be benched into the supporting material (to minimize differential settlement) with 2:1 criteria (horizontal to vertical) and compacted a minimum of 90% relative compaction.

D. Subgrade Preparation for paving:

1. Topsoil is not permitted as fill or backfill material under paved areas. Remove existing topsoil to the complete satisfaction of the Geotechnical Engineer. Fill holes with approved backfill satisfaction of the Geotechnical Engineer.

3. Prepare subgrade free of any depressions, voids and irregularities to achieve a uniform condition as required and compacted a minimum of 90% relative compaction.

4. If additional fill is required, spread approved engineered fill material uniformly in layers not greater than 8" of loose thickness over entire fill area prior to compaction.

6. Lift thickness requirements may be modified by Inspector to suit equipment and materials or other conditions when required to assure satisfactory compaction.

7. Moisture-condition fill material by aerating or watering and thoroughly mix material to obtain moisture content permitting proper compaction.

8. Place and compact each layer of fill to indicated density before placing additional fill material. Repeat filling until proposed grade, profile or contour is attained.

9. Suspend fill operations when satisfactory results cannot be obtained because of environmental or other unsatisfactory site conditions. Do not use muddy (or frozen) fill materials. Do not place fill material on muddy (or frozen) subgrade surface.

10. Maintain surface conditions which permit adequate drainage of rainwater and prevent ponding of surface water in pockets. When fill placement is interrupted by rain, remove wet surface materials or permit to dry before placing additional fill material.

E. Place backfill materials in uniform layers not greater than 8" loose thickness over entire backfill area.

1. Use hand tampers at foundation retaining walls and similar locations. Do not use large rolling equipment adjacent to retaining walls.

2. Do not backfill against retaining walls until walls for bearing surfaces have reached design strength or are properly braced, and backfilling operations approved. Provide clean backfill materials or granular materials as required. Compact in maximum 8" layers.

F. Fill all areas of settlement to proper grade before subsequent construction operations are performed.

G. Compaction under paved areas:

1. Provide minimum and maximum compaction control for all fill and backfill.

2. Engineered Fill

a. Compact top 12" of subgrade and each layer of engineered fill or backfill material at paved area to 90% relative compaction. Extend compaction at t least 3'-0" beyond paved area, structures, slabs and pavements.

b. Compact top 12" of subgrade and each layer of engineered fill or backfill material at foundations, slabs-on-grade, retaining walls, concrete borders, mow bands, curbs, valley gutters, trench drains, concrete, asphalt, and paved areas to 90% relative compaction. Extend compaction at least 5'-0" at both sides of foundations and retaining walls and at least 3'-0" beyond slabs-on-grade and paving.

3. Water settling, puddling and jetting of fill and backfill materials as a compaction method is not acceptable.

4. Maintain moisture content of materials during compaction operations within required moisture range to obtain indicated compaction density.

5. Provide proper equipment to achieve consistent and uniform compaction of fill and backfill materials.

H. Maintenance of Finish Grades:

1. Protect finish graded areas from traffic and erosion. Keep free of trash and debris. Repair and re-establish grades in settled, eroded and damaged areas.

2. Where completed areas are disturbed by construction operations or adverse weather, scarify, reshape and compact or scarify to achieve required density.

3.16 FIELD QUALITY CONTROL

A. The owner will provide and pay for field quality control soils testing and inspection during earthwork operations. Provide a minimum of 48 hours' notice.

B. Contractor shall provide adequate notice, cooperate with, provide access to the work, obtain samples, and assist testing agency and their representatives in execution of their function.

C. Fill Materials: The owner will test proposed materials to verify suitability for use, gradation of material, moisture-density relation, design bearing value, and percent of organic materials.

D. Subgrade Surfaces: Based on visual examination at the site, the owner will provide and pay for bearing tests as required to verify subgrade surfaces are adequate and meet or exceed design bearing values.

1. Paved Areas: Make at least one test for each 2,000 sq. ft. of paved area.

E. Compaction Operations: The owner will provide and pay for inspection and testing during paved area filling and compaction operations. Test each lift of fill to verify compaction meets specified requirements. The owner will provide and pay for periodic inspection and testing during site area filling and compaction operations.

F. When, during progress of work, field tests indicate that installed compacted materials do not meet specified requirements, provide additional compaction until specified density is achieved, or remove and replace defective materials with new materials as directed by the Inspector. Cost of additional labor, materials, and testing to attain specified density is at Contractor's expense.

3.17 TRENCHING AND EXCAVATION

A. Where utility trenches are required in existing asphalt concrete or Portland cement concrete roadways, the existing asphalt concrete or Portland cement concrete shall be full depth sawcut a minimum of 12" beyond the edge of the trench, unless otherwise directed by the Construction Manager.

B. Trenches may be excavated either by hand, or by machine. For gravity systems, excavation shall begin at the outlet end and proceed upgrade. Trench sides shall be parallel to and at equal distance from the centerline of the pipe.

C. Pipe trenches shall be excavated below the bottom of the pipe to provide for pipe bedding material.

D. Where a trench has been excavated below the designed grade, the bottom of the trench shall be refilled with approved bedding material, compacted in place in an approved manner and to the satisfaction of the Geotechnical Consultant and the Construction Manager at no additional cost to the Owner.

E. Trenches shall not be left open overnight in existing public street areas. In other areas the Geotechnical Consultant and the Construction Manager shall have the right to limit the amount of trench which is opened or partially opened at any one time, and also to limit the amount of trench left without backfill, at any one time.

F. The bottom of trenches shall be free of loose material at the bottom of the trenches compacted and tested by the assigned Field Engineer to a minimum of 90% relative compaction, prior to placement of the liner or pipes in the trenches.

3.18 CONTROL OF GROUND WATER

A. Contractor shall be solely responsible for dewatering trenches and excavations and subsequent control of ground water. Contractor shall provide and maintain such pumps or other equipment as may be necessary to control ground water and seepage until backfilling is completed.

3.19 BRACING AND SHORING

A. All work shall be in conformance with California and Federal OSHA requirements.

B. The Contractor shall furnish, place, and maintain such bracing and shoring as may be required to support the sides of the excavations for the proper protection of workmen; to facilitate the work; to prevent damage to the pipes and appurtenances being constructed; and to prevent damage to adjacent structures or facilities. Upon completion of the work, all bracing and shoring shall be removed.

C. The Contractor shall be solely responsible for all bracing and shoring for excavations five feet or more in depth, and shall, if requested by the Project Inspector, submit details and calculations to the Project Inspector for an adequate shoring system. The Project Inspector may forward the submittal to the Geotechnical Engineer, the Construction Manager and/or the California Division of Industrial Safety for their review. The Contractor's submittal shall include the basic design, assumed soils conditions, and estimation of forces to be resisted, together with plans and specifications of the materials and methods to be used, and shall be prepared by a Civil Engineer or Structural Engineer registered in California. No excavations in trench section or around structures shall precede a response to the submittal by the Project Inspector.

D. The Contractor is solely responsible for installing and extracting the shoring in a manner, which will not disturb the line, grade, compaction, or operation of the utility being installed or adjacent utilities and facilities.

3.20 PIPE BEDDING

A. Bedding material, from bottom of trench to bottom of pipe, shall be accurately shaped to the line and grade called for on the plans. Bedding material shall be carefully placed and compacted under the haunches of the pipe. Bedding material shall be compacted to at least 90 percent relative compaction. Jetting or ponding of bedding material will not be permitted.

B. Upon completion of bedding operations and prior to the installation of pipe, Contractor shall notify the Geotechnical Engineer, who will then inspect the bedding layer. Pipe laying shall not commence until the Geotechnical Engineer and the Project Inspector representative have approved the bedding.

3.21 BACKFILLING

A. Initial backfill, from top of bedding to 12” above top of pipe, shall be carefully brought up simultaneously on both sides of the pipe, so as to prevent any displacement of the pipe from its true alignment. Initial backfill shall continue to be carefully placed and compacted under the haunches of the pipe. The initial backfill shall be compacted in layers not more than eight (8) inches in uncompacted thickness and in a manner that will preclude moving the pipe. Compaction shall be to at least 90 percent relative compaction. Jetting or ponding of backfill material will not be permitted.

B. Subsequent backfill, from top of initial backfill to pavement structural section subgrade, shall be placed in loose lifts not exceeding eight (8) inches in thickness before compaction, and compacted by the use of pneumatic tampers or other mechanical means approved by the Geotechnical Engineer. Each layer shall be moisture conditioned to 2 to 5 percent of optimum moisture content. Compaction equipment or methods that produce horizontal or vertical earth pressures that may cause excessive displacement or may damage the pipeline will not be permitted. Lifts of subsequent backfill material shall be compacted to 90 percent relative compaction, except that in planted areas compaction may be reduced to 85% of relative compaction. Jetting or ponding of backfill material will not be permitted.

C. Utility backfill shall be inspected and tested by the Geotechnical Engineer during placement. Contractor shall cooperate with the Geotechnical Engineer and shall provide working space for such tests in his operations. Backfill not compacted in accordance with these specifications shall be recompacted or removed as necessary and replaced to meet the specified requirements, all to the satisfaction of the Geotechnical Engineer and the Project Inspector, prior to proceeding with the Work.

3.22 DUST ALLEVIATION AND CONTROL

A. Contractor shall be responsible for and shall provide pollution and dust abatement and control measures satisfactory to the Project Inspector continuously during the course of the work.

3.23 DISPOSAL OF WASTE MATERIALS

A. Perform work in accordance to Section 7, 1.13 “Disposal of Materials Outside the Highway Right of Way” of the Standard Specifications.

B. Stockpile, haul from site, and legally dispose of export and waste materials, including trash, excess soil and debris.

C. Maintain disposal route clear, clean and free of debris.

D. Clean excess soil may be distributed on site as accepted by the Geotechnical Engineer, if it does not adversely affect specified finish grades. Coordinate with Drawings and Section 32 11 13, Subgrade Preparation & Base Material Section 32 11 14 and 32 11 15.

E. Excess soil may need to be legally disposed of off-site. Refer to Section 00 31 19, Existing Conditions. Coordinate with Drawings and Section 32 11 13 Subgrade Preparation & Base Material, Section 32 11 14, and 32 11 15.

3.24 CLEANUP

A. Upon completion of utility earthwork all lines, manholes, catch basins, inlets, utility boxes and other structures shall be thoroughly cleaned of dirt, rubbish, debris, and obstructions of any kind. The entire work site shall be cleaned of all waste, rubbish, and construction debris of any nature.

B. Other surplus materials, including soil, remaining upon completion of the work shall become the property of the Contractor unless otherwise specified herein or noted on the plans, and shall be removed from the work site by the Contractor and disposed of outside the project limits in a lawful manner.

C. Upon completion of earthwork operation, clean areas within contract limits, remove tools and equipment. Provide a clear, clean site, free of debris and suitable for site work operations.

3.25 **CLOSEOUT**, per General Conditions.

A. The Contractor shall engage a California Registered Civil Engineer or licensed Land Surveyor to perform a conformance survey at completion of the project and provide a hard copy of the survey and an AutoCAD copy of the survey as part of the closeout documents.

END OF SECTION

SECTION 31 25 00

EROSION CONTROL

PART 1 - GENERAL

1.1 SCOPE OF WORK

A. General: Provide all materials, equipment, and labor necessary to place and maintain straw wattle barriers and other erosion control measures and supplement with additional straw wattle barriers and other erosion control measures as required. Before completion of the project remove or modify straw wattle barriers and other erosion control measures that are no longer required to be in place. Verify extent of removal and modification with Landscape Architect beforehand.

B. Permit: Because the work is likely to occur between April 18 and October 12, the District will be responsible for hiring a third-party consultant who will prepare an Erosivity Waiver and file it with the State Water Resources Control Board.

C. The Contractor shall tailor the Contractor's operations, methods, and equipment and comply with State Water Resources Control Board, the City of Larkspur and the County of Marin requirements and control erosion, sediment and pollution from the Contractor's operations, methods, and equipment.

D. The District, or “owner”, will pay all necessary fees required for certification.

E. The contractor is required to implement Best Management Practices, and to provide all materials, equipment, and labor necessary to place and maintain straw wattle barriers and other erosion and pollution control measures as required.

F. The name of the person responsible for the daily maintenance of these facilities shall be on record along with a phone number where they can be reached 24 hours a day with the District. These facilities shall control and contain erosion-caused silt deposits and provide for the safe discharge of silt-free storm water into existing storm drain facilities. Design of these must be approved and updated each year prior to September 30.

1.2 SUMMARY

A. This Section includes the following:

1. Permanent and temporary erosion control.

B. Related Sections include the following:

1. Section 01 11 00 Summary of Work

2. Section 31 00 00 Earthwork.

3. Section 32 11 13 Subgrade Preparation and Base Material

4. Section 33 40 10 Storm Drainage

1.3 QUALITY ASSURANCE

A. General: Comply with governing codes and regulations.

1. Perform all work in accordance with all applicable laws, codes and regulations required by the State of California, City of Larkspur and the County of Marin.

1.4 SUBMITTALS, per General Conditions

A. Submit a list of materials with manufacturer's product literature, installation instructions and specifications to be used.

B. Before the grading operation is underway, submit a letter identifying the approximate quantities and type of soil required to be imported and exported in order to accomplish a balance of the earthwork materials without additional compensation.

1.5 PROJECT CONDITIONS

A. Coordination: Coordinate this work with the work of other Sections to avoid delay and interference with other work.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Straw Wattles: Straw Wattles shall be manufactured from rice straw and be wrapped in a tubular plastic netting. The netting shall have a strand thickness of 0.03 inch, and a knot thickness of 0.055 and a weight of 0.35 ounce per foot (each +/- 10%) and shall be made from 85% high-density polyethylene, 14% ethyl vinyl acetate and 1% color for UV inhibition. Straw Wattles shall be nine inches in diameter (+/- one inch), twenty-five feet long (+/- 0.5 feet) and weigh approximately 35 pounds (+/- 10%).

B. Fiber rolls shall conform to the details shown on the Drawings and to the Specifications.

C. Stakes shall be fir or pine and shall be a minimum of one-inch x one-inch (nominal) and 18 inches in length.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Water Pollution Control Program: The Program shall be provided by the Contractor. The Contractor shall as a minimum address:

1. Cut and fill operations.

2. Temporary stockpiles.

3. Vehicle and equipment storage, maintenance, and fueling operations. Coordinate truck routes with Construction Manager.

4. Concrete disposal.

5. Dust control.

6. Noise control.

7. Tracking of dirt, mud on off-site streets and on school property.

8. Pipe flushing.

9. Protection of adjacent drainage systems from damage due to the operations of this project.

B. Straw Wattles: Straw Wattles shall be installed as shown on the drawings and according to manufacturer's specifications. Individual rolls shall be placed with adjacent ends butted firmly to each other to create a continuous linear roll. They shall be placed on contour and staked with 18 or 24-inch wood stakes at four feet on center. Drive stakes to a depth of approximately two-inches above the roll. The ends of adjacent Straw Wattles shall be abutted to each other snugly. Construct furrows at a slight angle to the slope contour shown on the plans, to a depth of 3 inches, and at a sufficient width to hold the fiber rolls.

3.2 SWPPP AND MONITORING PROGRAM CHECKLIST (USE AS APPLICABLE)

SECTION A: STORM WATER POLLUTION PREVENTION PLAN (SWPPP)				
CHECK IF ADDRESSED N/A IF NOT APPLICABLE	**SWPPP Section**	**ITEM**	**GENERAL PERMIT REF.**	**COMMENTS IMPLEMENTATION DATE**
		Site History (narrative; if possible, indicate location(s) on the Water Pollution Control Drawings)		
		Nature of fill material and data describing the soil. Description of toxic materials treated, stored, disposed, spilled or leaked on site		
		BMPs that minimize contact of contaminants with storm water		
		Location of Areas Designated for:		
		Vehicle storage & service		
		Equipment storage, cleaning, maintenance		
		Soil or waste storage		
		Construction material loading, unloading, storage and access		
		Areas outside of Owners right-of-way (yards, borrow areas, etc.)		
		BMP Locations or Descriptions for:		
		Waste handling and disposal areas		
		On-site storage and disposal of construction materials and waste		
		Minimum exposure of storm water to construction materials, equipment, vehicles, waste		
		Post Construction BMPs		
		Listing or Description of Post-construction BMPs		
		Location of post-construction BMPs		
		Parties responsible for long-term maintenance		

		Additional Information		
		Description of other pollutant sources and BMPs		
		Pre-construction control practices		
		Inventory of materials and activities that may pollute storm water		
		BMPs to reduce/eliminate potential pollutants listed in the inventory		
		Runoff coefficient (before & after)		
		Percent impervious (before & after)		
		Copy of the NOC		
		Construction activity schedule		
		Contact information		
		SOIL STABILIZATION (EROSION CONTROL)		
		The SWPPP shall include:		
		Areas of vegetation on site		
		Areas of soil disturbance that will be stabilized during rainy season		
		Areas of soil disturbance which will be exposed during any part of the rainy season		
		Implementation schedule for erosion control measures		
		BMPs for erosion control		
		BMPs to control wind erosion		
		SEDIMENT CONTROL		
		Description/Illustration of BMPs to prevent increase of sediment load in discharge		
		Implementation schedule for sediment control measures		
		BMPs to control sediment tracking		
		NON-STORM WATER MANAGEMENT		
		Description of non-storm water discharges to receiving waters		
		Locations of discharges		
		Description of BMPs		
		Name and phone number of person responsible for non-storm water management		
		POST-CONSTRUCTION		
		Description of post-construction BMPs		

		Operation/Maintenance of BMPs after project completion (including short-term funding, long-term funding and responsible party)		

		MAINTENANCE, INSPECTIONS, AND REPAIR		
		Name and phone number of person(s) responsible for inspections		
		Complete inspection checklist: date, weather, inadequate BMPs, visual observations of BMPs, corrective action, inspector's name, title, signature		
		OTHER REQUIREMENTS		
		Documentation of all training		
		List of Contractors/Subcontractors		
SECTION B: MONITORING AND REPORTING REQUIREMENTS				
CHECK IF ADDRESSED N/A IF NOT APPLICABLE	**SWPPP Section**	**ITEM**	**GENERAL PERMIT REF.**	**COMMENTS IMPLEMENTATION DATE**
	600.1	Description of Site Inspection Plans		
	100.3	Compliance certification (annually 6/15)		
	600.2	Discharge reporting		
	600.3	Keep records of all inspections, compliance certifications, and noncompliance reports on site for a period of at least three years		
	600.4	Sampling and Analysis Plan for Sediment		
	600.5	Sampling and Analysis Plan for Non-Visible Pollutants		
SECTION C: STANDARD PROVISIONS FOR CONSTRUCTION ACTIVITIES				
CHECK IF ADDRESSED N/A IF NOT APPLICABLE	**SWPPP Section**	**ITEM**	**GENERAL PERMIT REF.**	**COMMENTS IMPLEMENTATION DATE**
	100.1	Signed SWPPP Certification		

3.3 MAINTENANCE AND REMOVAL

A. General: Maintain and repair erosion control facilities throughout the construction period. Remove silt buildup at straw wattles as needed. Repair damage to earth slopes and banks.

B. Before completion of the project remove or modify straw wattle barriers and other erosion control measures that are no longer required to be in place. Verify extent of removal and modification with Construction Manager beforehand.

C. Cleaning: Keep area clean of debris.

END OF SECTION

SECTION 31 63 29

DRILLED PIERS

PART 1 - GENERAL

1.1 WORK INCLUDED

A. This specification covers requirements for drilled pier construction.

B. The provisions of this specification shall govern unless otherwise specified in the contract documents. In case of conflicting requirements, the contract documents shall govern.

1.2 RELATED WORK

A. Section 00 31 32 Geotechnical Data

B. Section 12 93 05 Site Furnishings

C. Section 32 11 13 Subgrade Preparation and Base Material

D. Section 32 13 13 Site Concrete

1.3 REFERENCES

A. ASTM Standards (Latest Edition)

A82 – Standard specification for cold dawn steel wire for concrete reinforcement.

A615 – Standard specification for deformed and plain billet-steel bars for concrete reinforcement.

C33 – Concrete Aggregates.

C39 – Standard Specification for Compressive Strength of Cylindrical Concrete Specimens.

C94 – Ready Mixed Concrete.

C150 – Portland Cement.

E329 – Standard Recommended Practice for Inspection and Testing Agencies for Concrete, Steel, and Bituminous Materials as Used in Construction

B. ACI Standards

301 – Specifications for Structural Concrete for Buildings.

318 – Building Code Requirements for Reinforced Concrete.

C. AWS Standards

01.1– Structural Welding Code.

012.1 – Reinforcing Steel Welding Code.

A5.1- Mild Steel Covered Arc-Welding Electrodes

D1.4- Reinforcing Steel Welding Code

D. ICBO International Conference of Building Officials

CBC- California Building Code

1.4 QUALITY ASSURANCE

A. Testing and inspection services will be retained by the owner at his own expense except that when tests or inspections reveal failure of materials to meet Contract requirements, costs for subsequent tests and inspections will be deducted from moneys due to Contractor. Excessive inspection time required by Contractor's failure to provide sufficient workmen or to properly pursue the progress of the work shall likewise be deducted from moneys due to the Contractor.

1. Geotechnical Engineer: Will observe all phases of drilled pier construction.

   Drilling of piers. Final pier depths will be determined and recorded by the Geotechnical Engineer prior to placing concrete. Prior to placing concrete, bottom of each pier will be inspected by Geotechnical Engineer to ensure that proper conditions existing to permit the placement of concrete. No concrete shall be placed until each hole and it's reinforcing steel have been observed and approved. Contractor shall notify the Geotechnical Engineer at least two (2) working days prior to commencing operations to allow for proper scheduling of construction observation.

2. Testing Laboratory: Will provide services conforming to the requirements of ASTM D329, for sampling, testing, inspection, and reporting with respect to reinforcing and concrete.

   One set of four cylinders per day of operation but not less than required by ACI 318 and CBC section 1903A & 1905A. Test one sample at 7 days and two at 28 days; keep one sample in reserve for testing in the event of a low break.

3. Surveyor: Contractor shall provide the services of a qualified surveyor for performing all surveys and layouts and to determine vertical and horizontal alignments. Contractor shall protect reinforcing steel from contamination.

1.5 SOILS REPORT

A. A soil investigation report has been prepared for the project. See Section 00 31 32, Geotechnical Data.

B. The report is available in the office of the Landscape Architect and the Construction Manager for inspection by the Contractor. Unless otherwise specified, it is intended that all work be performed in accordance with the provisions of these reports.

C. Drilled piers may encounter ground water. Excavations for drilled piers may require casings and installation of concrete by means of pumping under the direction of the Geotechnical Engineer.

1.6 SOILS BORINGS

A. Subsurface soils investigations have been made at the site and logs of the test holes are available with the Soils Report. Such investigations have been made for the purposes of

design only, and neither the Landscape Architect, the Owner, nor the Soils Engineers guarantee adequacy or accuracy of the data, or that data are representative of all conditions to be encountered. Such information is made available for general information only and shall not relieve the Contractor of the responsibility for making his own investigations

1.7 SUBMITTALS

Contractor shall submit the following:

A. List of products to be used.

B. Concrete Mix designs

C. Reinforcing steel shop drawings.

1. Fully detailed Shop Drawings for pier reinforcement shall be submitted to the Architect for review. Shop Drawings shall show placing and details, and size, spacing and location of reinforcing steel.

2. Reinforcing steel shall not be fabricated or placed before the Shop Drawings have been reviewed by the Architect and returned to the Contractor. Review of Shop Drawings by the Architect will not relieve the Contractor of responsibility for errors or for failure in accuracy and complete placing of the work.

D. Certified mill test reports for reinforcing steel.

E. Evidence that proposed materials and mix designs conform to all requirements of "Specifications for structural Concrete for Buildings (ACI 301)", except as modified by these specifications.

F. Details procedures for casing removal, if any.

G. Detailed procedures for tremie concrete, if any.

H. Notification to Engineer to permit in-place inspection of reinforcing steel prior to placing concrete.

I. Reports of actual location, alignment, elevations, and dimensions of drilled piers.

J. Reports of material quantities.

1. Submit ticket for each batch of concrete delivered to job site. Ticket shall bear the following information:

a. Design Mix Number.

b. Signature or initials of ready mix representative.

1.8 CONSTRUCTION TOLERANCES

A. Maximum permissible variation of location – 1/24th of shaft diameter or 3 inches, whichever is less.

B. Pier and reinforcing cage, as set, shall not vary from a straight line drawn between the center of the pier hole at the top and at the bottom by more than 3" at any point.

C. Concrete shafts out of plumb. Not more than 1.5 percent of the length nor exceeding 12.5 percent of shaft diameter or 15 inches, whichever is less.

D. Concrete Cover on Reinforcing Steel: Clear distance between reinforcing steel and the pier hole sidewall shall not be less than 3".

E. Projecting reinforcing steel and anchor bolts shall be set by template and firmly anchored. Allowable deviation shall be +/- ¼"

F. Concrete cutoff elevation tolerances – plus 1 inch to minus 3 inches.

G. Hole diameter: Diameters shall be as shown on Drawings for each individual pier. Diameters shown shall be the diameter of the drilling bucket or auger bit.

H. If the tolerances above are exceeded, furnish and pay for corrective design and construction that may be required.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Steel casing, if required – ASTM A252, Grade 2, or ASTM A36, as specified. Furnish 100 percent penetration welds for vertical joints in non-corrugated permanent casings.

B. Reinforced steel – ASTM A615, A616, A617, or A706, as specified, or as shown on the contract drawings.

C. Concrete: Concrete work shall conform to requirements of "Specifications for Structural Concrete for Buildings (ACI 301)" and Specifications of Division 03000.

PART 3 - EXECUTION

3.1 EXCAVATION

A. Excavate drilled piers to dimensions and required elevations shown on contract drawings. Maintain sidewall stability during drilling. Closely spaced piers shall be drilled and concrete placed alternately with adjacent holes.

B. Determine suitability of supporting materials for drilled piers, as follows:

1. If directed by the Geotechnical Engineer, explore bearing stratum to depth equal to the diameter of the bearing area below the bottom of the drilled pier with probe hole.

2. Inspection of the bottom of each pier will be by the Geotechnical Engineer.

3. Excavate for drilled pier bells (if required) immediately upon confirmation by the Geotechnical Engineer.

4. If the stratum is not capable of providing the required load bearing, notify the Engineer for a determination of adjustments to be made. These may include, but not be limited to, advancing the shaft length as directed by the Geotechnical Engineer and repeating the above steps, or enlarging the bell diameter as determined by the Engineer for appropriate bearing pressure as determined by the Geotechnical Engineer.

C. Provide gas testing equipment, protective cage, or temporary casing of proper diameter, length, and thickness and other safety equipment called for by law for inspection or testing of drilled piers and to protect workmen during hand belling or other operations necessitating entry into shaft.

D. Check each drilled pier for toxic and explosive gases prior to personnel entering. If gas is found, ventilate with forced air until safe for entry.

E. Remove from bottom of drilled piers, loose material or free water in quantities sufficient to cause settlement or affect concrete strength as determined by the Geotechnical Engineer. Excavate pier bottoms to a level plane. If bottoms are sloping rock, excavate to a level plan or step with maximum step height less than one-quarter the width or diameter of the bearing area.

F. Remove excavated material from site or as otherwise directed by the Owner.

3.2 STEEL CASING

A. Provide steel casing for shaft excavation where subsurface water is encountered and causes caving of overburdened soils or as required by Geotechnical Engineer. Provide casing of sufficient strength to withstand handling stresses, concrete pressure, and surround earth and/or fluid pressure. Make diameter of excavation in relation to diameter of casing, such as to create a minimum of void space outside of casing. Provide permanent casing, if required, with minimum outside diameter equal to nominal outside diameter of shaft.

B. Hole may be drilled as deep as it will stand prior to setting casing, thus allowing maximum casing length sections. Hole shall not, however, be drilled ahead of casing any further than hole will stand with out sloughing. At any time that soughing occurs, holes shall be cased to the bottom of the sloughing area immediately and prior to drilling deeper in hole.

C. Inside casing diameter shall be not less that required pier diameter.

D. Casing may be removed at option of Contractor unless otherwise specified. If casing is removed during or after concreting, follow special requirements specified in Article 3.4.

3.3 DEWATERING

A. Dewater drilled pier excavation prior to placing concrete. Perform pumping a manner that will not create ground loss problems that might adversely affect this and existing adjacent structures as determined by the Geotechnical Engineer. If during pumping, excessive water inflow is noted, use alternative means to reduce inflow such as extending casing, outside deep wells, or grouting, or other acceptable means. If water seepage still is considered by the Geotechnical Engineer to be excessive for safe removal, follow procedure as specified:

1. Holes shall be dewatered and poured dry where such dewatering does not cause instability of hole and is feasible with respect to quantity of seepage flow.

2. No more that 6” of water is allowable in the bottom of the hole at the beginning of the pouring. If there is more that 6” but less than 18” of water in the hole at the time the pour is begun, dry, neat cement shall be dropped down the hole in the amount of one sack for each 6 gallons of water in excess of the 6” allowable depth, just prior to pouring

3. If the depth of the water in the hole exceeds 18” the pour shall not be made until the hole is either dewatered to within the specified limits or the hole is poured by the tremie method.

4. If the rate of flow of seepage of water into the hole at the time of pouring is such that the volume of water which will enter the hole during the time of pouring exceeds ½ gallon per sack of cement in the concrete poured, then cement shall be added to the concrete in the mixer in the amount of one sack for each 5 gallons of water in excess of the above limit. If the seepage rate at the time of pour exceeds 2 gallons of water per sack of cement in the concrete to be poured, the hole shall be poured by the tremie method.

3.4 REINFORCING STEEL

A. Place reinforcement for drilled piers in accordance with the contract documents.

B. Use reinforcement at time of placement, which is free of mud, oil, or other coatings that adversely affect bond.

C. Reinforcement with rust, scale, or a combination of both may be used provided the minimum dimensions, including height of deformations and weight of wire brushed specimens, are not less than required by applicable ASTM specifications. Engineer will determine acceptability of such reinforcement.

D. Use metal reinforcement without kinks or non-specified bends. Straighten or repair bars in a manner that will not damage the bars or adjacent construction.

E. Place bars as shown on contract drawings with cover of not less than 3-inches where exposed to soil.

F. Make splices in reinforcement as shown on contract drawings, unless otherwise accepted.

G. Provide clear distance between bars of not less than one and one-half times the bar diameter, nor one and one-half times the maximum aggregate size.

H. Adequately tie and brace cages as required to retain shape. Furnish bracing and spacers required for accurate centering of cages whether shown on drawing or not.

3.5 CONCRETE

A. Obtain permission of Engineer prior to placing concrete.

B. Place concrete immediately after completion of excavation and after Geotechnical Engineer has verified bearing capacity. Do not leave uncased or belled excavations open overnight.

C. Sloughage or other loose material shall be removed from the hole prior to pouring.

D. Free fall concrete may be used provided it is directed through a hopper, or equivalent, such that fall is vertical down center of shaft without hitting sides or reinforcing. Vibrate top 5-feet of concrete, but only after casing has been pulled or when casing is permanent.

E. Place concrete in pier in one continuous operation. If a construction joint is unavoidable, level, roughen, and clean surface prior to re-commencement of concrete placement. Provide reinforcing dowels for uplift piles or a shear key when required by Engineer.

F. If casing is withdrawn, the Geotechnical Engineer will provide inspection during the removal of casing and placing of concrete. Withdraw casing only as shaft is filled with concrete. Maintain adequate head of concrete to balance outside soil and water pressure above the bottom of the casing at all times during withdrawal. Specific procedures that the Contractor will follow to accomplish this objective shall be submitted for approval.

G. If casing is left in place, fill void space between casing and shaft excavation with concrete or fluid grout by means of grout pipe and pump pressure, as required.

H. For placing concrete under water, where permitted, use tremie pipe or concrete pumping with special procedures, as specified or accepted.

I. The pouring of any pier shall be completed in one (1) hour. This means that the elapsed time from the beginning of pouring until completion of pouring shall not exceed one (1) hour. In any case where the time of the pouring of the pier exceeds one (1) hour, it will be assumed that the pier is defective and has a reduced or zero load capacity, and the Contractor shall remove these piers and construct additional piers, as found necessary by the Geotechnical Engineer to remedy the deficiency, at the expense of the Contractor.

J. Pouring shall not be started in any hole until enough concrete to complete the pier is on the job waiting to be poured. Concrete trucks for any pier shall not be ordered with staggered arrival times, but shall be on the job when pouring commences.

3.6 TREMIE POUR

A. Should any pier holes have an excessive amount of water and the dewatering procedure is not capable of achieving or maintaining the specific maximum water depth, then the concrete shall be placed with the tremie method in accordance with placement techniques detailed below.

B. Tremie pouring shall be performed by pumping the concrete to the tremie pipe, using concrete pumping equipment capable of pumping at least 50 cubic yards per hour against a head of concrete of 20” under job conditions. Tremie pouring using a hopper and milking the tremie pipe into the hole is not acceptable.

C. A special concrete mix shall be used for tremie pours, unless otherwise directed by the Geotechnical Engineer. Requirements for compressive strength of the concrete shall be determined by the Geotechnical Engineer. Mixes for concrete being placed in dry excavations shall be designed for a 4” to 6” slump. For concrete placed below the water level, slump shall be 6” to 8”.

D. Tremie pipe shall be rigid steel pipe with tight couplings. The tremie pipe shall be straight within ½” in 10”, and crooked or bent tremie pipe shall not be acceptable. Pipe shall be at least 4” diameter, but not more than half of the inside diameter of the reinforcing cage. Only rigid steel pipe shall be used in the hole; using hose in the hole is not acceptable.

E. Tremie pipe shall be lowered through the center of the cage, with caution, to within 1” of the bottom of the excavation.

F. Hose and tremie pipe shall be slicked with Portland cement slurry on clay. Bentonite or other material except Portland cement is permitted unless approved by Geotechnical Engineer.

G. Pumping of concrete shall commence after setting the reinforcing cage and tremie pipe in hole. The tremie pipe shall not be raised until the surface of the concrete in the hole is at least 10’ above the bottom of the tremie pipe, unless otherwise approved by the Geotechnical Engineer. The bottom of the tremie pipe shall be kept at least 5’ below the

top of the concrete until the pour is complete, including removal of muck, laitance and unsuitable concrete.

3.7 UNDERMINING FOUNDATION SOIL

A. Contractor shall take necessary precautions to prevent caving or soughing of a hole, which may endanger load capacity of adjoining pier or piers. The Geotechnical Engineer will make determination of loss of load bearing capacity of adjoining piers.

B. Contractor will be required to provide additional piers at his own expense wherever sloughing or caving in a hole endangers load-bearing capacity of adjoining piers. The Geotechnical Engineer will make determination of loss of load bearing capacity of adjoining piers.

3.8 CLEANING

A. Contractor shall keep the site as free of debris and rubbish as possible at all times. At the completion of his work, he shall remove all materials and apparatus from the premises and streets, scrape all drippings, and leave the entire work clean and free of debris.

END OF SECTION

SECTION 32 11 13

SUBGRADE PREPARATION & BASE MATERIAL

PART 1 - GENERAL

1.1 DESCRIPTION

A. Provide subgrade preparation and the base material installation complete, including clearing, grading, excavation, filling and compaction and dewatering.

B. Subgrade is that area on which concrete, aggregate base, synthetic turf playing field porous base or layer of any other non-organic material is to be placed.

1.2 QUALITY ASSURANCE

A. Reference Standards

1. Perform all work in accordance with all applicable laws, codes and regulations required by the Town of San Anselmo.

2. Perform work in accordance to applicable sections of the Standard Specifications.

3. Reference to "Standard Specifications" shall mean the Standard Specifications of the State of California, Business and Transportation Agency, Department of Transportation, CALTRANS.

B. Related work specified elsewhere includes:

1. Section 01 11 00 Summary of Work

2. Section 01 45 00 Quality Control

3. Section 01 71 23 Field Engineering

4. Section 32 11 13 Landscape Concrete

5. Section 33 40 10 Storm Drainage

C. Stipulations

1. The finished surface of the subgrade, at any point, shall not vary more than 0.05' above or below the elevation indicated on the drawings.

D. ASTM Standards.

1.3 SUBMITTALS

A. Provisions: Comply with the General Conditions.

B. Material list and product data of all items proposed to be provided under this Section.

C. Certificates (certified analysis of certificate of compliance) signed by the material producer.

1.4 PROJECT CONDITIONS

A. Coordination: Coordinate this work with the work of other Sections to avoid delay and interference with other work.

B. Refer to Soil & Foundation Investigations referred to below.

1.5 SOILS REPORT

A. A soils investigation report has been prepared for the project. See Section 00 31 32, Geotechnical Data.

B. The report is available in the office of the Landscape Architect and the Construction Manager for inspection by the Contractor. Unless otherwise specified, it is intended that all work be performed in accordance with the provisions of these reports.

C. Drilled piers may encounter ground water. Excavations for drilled piers may require casings and installation of concrete by means of pumping under the direction of the Geotechnical Engineer.

1.6 GENERAL REQUIREMENTS

A. When rain is forecast, temporary measures to protect areas of the exposed subgrade from saturation by rainfall or runoff shall be taken. These include, but are not limited to, covering grading and sloping of subgrade surfaces to prevent ponding, sealing disturbed, uneven subgrade, surfaces with a smooth drum roller, grading and excavating diversionary swales, trenches or detention basins.

B. Failure by the Contractor to comply with the above requirements to take reasonable and adequate measures or exercise sound engineering and construction practices to protect the work from damage. All repair work shall be performed at no additional cost to the Owner.

PART 2 - MATERIALS

2.1 AGGREGATE BASE - CLASS II

A. Imported aggregate base shall be virgin, Class II, and free from vegetable matter or other deleterious substances. The percentage composition by weight of aggregate base shall conform to Section 26 of the Standard Specifications.

PART 3 - EXECUTION

3.1 SUBGRADE PREPARATION

A. Refer to Section 31 00 00 Earthwork.

B. The finished subgrade surface shall be firm and unyielding under the weight of a loaded water truck traveling over the surface.

3.2 AGGREGATE BASE

A. Deliver to site as a uniform mixture and spread each layer in one operation without segregation.

B. Class 2 Aggregate Base shall be readily compacted and spread with equipment that will provide a uniform layer conforming to the planned section, and as specified in Section 26 of the Standard Specifications.

C. The aggregate base shall be compacted to at least 92 percent relative compaction.

D. Proof roll and mark “soft spots” for additional compaction or correction. Proof rolling operations must be performed in the presence of a Geotechnical Engineer.

E. Unsatisfactory material shall be removed and repaired to the satisfaction of the Geotechnical Engineer.

3.4 CLEANUP per General Conditions.

END OF SECTION

SECTION 32 11 15

SYNTHETIC COMPOSITE UNDERLAYMENT

PART 1 - GENERAL

1.1 SCOPE OF WORK

This work provided via separate CMAS contract.

This document defines requirements for the installation and operating performance of a resilient athletic base underlay material needed for a professional grade synthetic turf field. Defined are the primary system requirements for insuring optimum safety of the playing surface (impact attenuation/surface playability) and high capacity subsurface drainage of the installed playing field.

All specifications listed are defined per applicable ASTM standard test methods, unless no ASTM standard exists. All other specifications and tolerances listed shall be defined under standard ANSI and/or ISO drawing and specification rules.

This specification requires prior installation of stabilized subsurface base. Included is a perimeter foundation-grade concrete curb and high capacity trenched storm drain system.

1.2 RELATED SECTIONS

A. Section 01 11 00, Summary of Work

B. Section 31 00 00, Earthwork

C. Section 32 11 13, Subgrade Preparation and Base Material

D. Section 32 13 13, Landscape Concrete

E. Section 32 18 13, Synthetic Turf Playing Field

F. Section 32 18 15, Synthetic Landscape Turf

PART 2 - TESTING REFERENCES

American Society for Testing and Materials (ASTM) Organization (ISO), European Committee for Standardization (EN), German Institute for Standardization (DIN), Cradle to Cradle Products Innovation Institute (C2CPII), Environmental Protection Agency (EPA):

ASTM D3574	Standard Specification for Flexible Materials - Tensile Strength, Tensile Strength, Tensile Elongation
ASTM D3575	Flexible cellular polymeric materials - Determination of Compression Strength
ASTM D4716	Test Method for Determining the (in-plane) Flow Rate per Unit Width and Hydraulic Transmissivity of a Geosynthetic Using Constant Head – TRI procedure using characteristic flow equation
ASTM D4716	Test Method for Determining In-Plane Flow Rate
ASTM D696	Determination of Coefficient of Linear Thermal Expansion

ASTM F0355	Standard Test Method for Shock-Absorbing Properties of Playing Surface Systems and Materials
ASTM F0925	Test Method for Resistance to Chemicals of Resilient Flooring
ASTM F0970	Test Method for Static Load Limit
ASTM F1551	Test Method for Comprehensive Characterization of Synthetic Turf System Surfaces and Materials
ASTM F1936	Standard Specification for Impact Attenuation of Turf Playing Systems as Measured in the Field
ASTM F2333	Standard Test Method for Traction Characteristics of Athletic Shoe-Sports Surface Interface
ASTM F2898	Water Permeability of Synthetic Turf Systems and Permeable Bases
ASTM F3146	Standard Test Method for Impact Attenuation of Turf Playing Surface Systems Designated for Rugby
ASTM F3189	Standard Method for Measuring Force Reduction, Vertical Deformation, Energy Restitution of Synthetic Turf Systems Using the Advanced Artificial Athlete
ASTM G21-96	Determining Resistance of Synthetic Materials to Fungi
ASTM G22-76	Determining the Resistance of Plastics to Bacteria
C2CPII	Cradle to Cradle
EN 12616	Water Infiltration Rate
EN 14030:2010	Resistance to Acid and Alkaline Liquids
EN 14808:2005	Surfaces for Sports Areas. Determination of Shock Absorption
EN 14809:2005	Surfaces for Sports Areas. Determination of Vertical Deformation
EN12616	Water Infiltration Rate
EPA 6010B 7470A, 7471A	Heavy Metals, Mercury
EPA 8260B	Volatile Organics
EPA 8270C	Semi-Volatile Organics
ISO 1798	Standard Specification for Flexible Materials-Tensile Strength
ISO 14001:2004	Environmental Management Systems
ISO 62:2008 DIN 53 428	Standard Test Method for Water Absorption of Plastics
ISO 8301	Thermal Resistance
ISO 9001	Quality Management Systems

PART 3 - SYSTEM DESCRIPTION

3.1 General Requirements – An impact energy absorbing sub-base drainage material designed specifically for use with synthetic turf is required. The specified material must have both impact absorption and drainage properties that meet the following typical performance requirement:

3.1.1 Minimum material nominal thickness 25mm – material thickness must be within ± 1.5mm

3.1.2 Tensile Strength >80 psi (ASTM D3574-08 Test E)

3.1.3 Tensile Elongation >30% (ASTM D3574-08 Test E)

3.1.4 Compression Strength >20psi @ 25% strain (ASTM 3575-08 Test D)

3.1.5 Linear Thermal Expansion < 0.10 mm /m /° C (ASTM D696)

3.1.6 Water Absorption ≤1% after 24 hrs (ISO 62:2008 / DIN 52 438)

3.1.7 Water Permeability >500”/hr (ASTM 1551 DIN 18-035, Part 6)

3.1.8 Lateral Transmissivity at 0.005 gradient ≥ 0.50 gpm/ft (ASTM D4716 – TRI Environmental method using characteristic flow equation)

3.1.9 Head Injury Criterion <1000 from a 1.2m drop height and <700 from a 1.0m drop height (ASTM F3146-18, Procedure A)

3.1.10 Gmax <90 G's (ASTM 355-16, missile A)

3.1.11 Shock Absorption >60% (ASTM F3189-17 / EN 14808:2005)

3.1.12 Vertical Deformation <7.0mm (EN 14809:2005)

3.1.13 Resistance to Chemicals ≤ 2 (ASTM F925)

3.1.14 Resistance to Acid and Alkaline Liquids 0% tensile strength loss after 100-year model (EN 14030:2010 / ISO 12960:1998)

3.1.15 Resistance to Accelerated Aging (Oxidation) <10% tensile strength loss after 100-year model of 56 days at 110°C (ISO 13438:2004)

3.1.16 Resistance to Bacteria - no growth (ASTM G22)

3.1.17 Resistance to Fungi - no growth (ASTM G21)

Impact Safety Requirements for installed Surface System of Infilled Synthetic Turf and Underlayment:

3.1.18 Surface system must provide average HIC <700 from a 1.3m drop height upon initial testing of installed field. (ASTM F3146-18, Procedure A)

3.1.19 Surface system must provide maximum average Gmax of <100 g upon initial testing of installed field (ASTM F1936-10)

3.1.20 Surface system must provide maximum average Gmax of field of 120 g during warranty period of artificial turf. (ASTM F1936-10)

PART 4 - QUALITY ASSURANCE

4.1 Product must be made in ISO accredited facility in the United States of America according to the Federal Trade Commission Made in USA Standard.

4.2 Material must be manufactured in an ISO 9000:2008 certified facility.

4.3 Product must be of a homogenous material composition, with a documented chain of custody of all raw materials. Variable content material will not be accepted.

4.4 Manufacturer must provide documentation of material content and pre-approved standard OSHA MSDS sheet.

4.5 Manufacturer must demonstrate successful athletic field installation in the United States of at least 40 million square feet (approx. 500 fields) over a minimum period of 10 years.

4.6 Material must be covered by a pre-approved and binding 25-year limited product and performance warranty issue by a company in the United States of America.

Warranty shall include the provision that manufacturer will deliver to the Owner and install new panels to replace the non-conforming panels. The installation shall include the temporary removal and repair or replacement of the artificial turf and infill over the affected area.

4.7 Warranty must specify static and dynamic load limits in pounds and pounds per square inch. Warranty must not specify monetary limits of liability. Warranty must allow owner a notice period of at least 30 days for non-compliance claims.

4.8 Warranty must include guarantee for surface system HIC <700 from a 1.3m drop height according to ASTM F3148-18 upon initial testing of installed field.

4.9 Warranty must include guarantee for surface system Gmax <120 g according to ASTM F1936-10 for warranty period of artificial turf.

4.10 System seams should be mechanically locked into place by hand without cutting, splicing, use of additional materials, glue, fasteners, or secondary processes and equipment.

4.11 Material must be installed according to manufacturer's instructions, without exceptions.

4.12 Manufacturer must provide written procedures to selected turf supplier or contractor for the installation of turf on top of underlayment.

4.13 Product is to be shipped as flat panels on pre-packaged pallets.

4.14 Prior to installation, manufacturer must provide an endorsed certificate as proof of at least $1,000,000 product liability insurance stipulated in the United States of America with field owner named as the certificate holder. The insurance certificate must specify the name and address of the field facility at which the specified product will be installed.

Part 5: Environmental Compatibility

5.1 Material must be manufactured in an ISO 14001:2004 certified facility.

5.2 Product must be Cradle to Cradle™ Certified by the Cradle to Cradle Products Innovation Institute.

5.3 Product must not contain concentrations of metals, volatile organic compounds (VOCs), or semi-volatile organic compounds (SVOCs) at concentrations greater than EPA Regional Screening Levels or Department of Toxic Substances Control Human Health Risk Assessment (HHRA) Note 3 thresholds. (EPA 60108, EPA 7470A EPA 7471A, EPA 8260B, EPA 8270C).

5.4 Product must not contain leachable concentrations of metals, VOCs, or SVOCs (using the synthetic precipitation leaching procedure) greater than maximum contaminant levels (MCLs) or Regional Water Quality Control Board Environmental Screening Levels for groundwater and surface water - fresh water

aquatic habitat. (EPA 60108, EPA 7470A EPA 7471A, EPA 8260B, EPA 8270C).

5.5 Manufacturer must provide a product lifetime recycle / reuse program within the United States of America. Down-cycling and/or energy production not acceptable.

Additional Requirements for California:

5.6 Product must not contain a chemical on the current California Proposition 65 Safe Drinking Water and Toxic Enforcement Act of 1986 - Update effective 06 JUNE 2014

5.7 Product must not contain concentrations of substances at hazardous waste levels per California Code of Regulations, Title 22, Division 4.5, Chapter 11 – Identification and Listing of Hazardous Waste.

Part 6: Submittals

6.1 General: Bidding contractor must identify performance base system with bid package. If a non-specified product is identified, the proposed alternate product must be submitted and pre-approved by the design architect/engineer 10 days prior to the bid opening. If bidding contractor does not identify a manufacturer, the Township/School District will assume that the specified product is included in the bid package and will not consider substitutions.

6.2 Product Data: Submit 8” x 12” product sample and typical properties sheet.

6.3 Shop Drawings: Submit cross-sectional view showing product installation in relation to sub-base and synthetic turf (including edge attachment).

6.4 Test Data: Submit all applicable test data for compliance to specifications. All testing to be performed following applicable ASTM or other internationally recognized standards and procedures.

6.5 Installation: Submit copy of product installation instructions. Submit copy installation recommendations.

6.6 Warranty: Submit copy of product 25 -Year warranty coverage as specified in 4.6 – 4.8.

6.7 Insurance: Submit copy of endorsed insurance certificate as specified in 4.13.

Part 7: Products

7.1 Description: Resilient Molded Expanded Polypropylene Base System

7.2 Product: Brock PowerBase YSR or pre-approved equal

7.3 Contact Information:
Brock USA LLC

3090 Sterling Circle
Boulder, CO 80301
Telephone: (303) 544-5800 Fax: 866-850-9421
www.brockusa.com

7.4 Manufacturing/Ordering Information:
Brock USA LLC
3090 Sterling Circle
Boulder, CO 80301
Telephone: (303) 544-5800
Fax: 866-850-9421

7.5 Product format: Interlocking panels
Size: approximately 73.5 x 49.0 inches (1867 x 1245 mm) overall dimensions
Area: Net coverage per panel 24.15 ft^2 (2.24 m^2)
Thickness: 1.00" (25.4mm) ± .08"
Panel Weight: approximately 5.2 lbs / panel

Part 8: Product Substitutions

8.1 Product substitutions are allowed only in accordance with pre-bid substitution request procedures outlined in the contract documents. No substitutions will be allowed after the bid date. Bidding contractor must identify performance base system with bid package. If a non-specified product is identified, the proposed alternate product must be submitted and pre-approved by the design architect/engineer 10 days prior to the bid opening. If bidding contractor does not identify a manufacturer, the Township/School District will assume that the specified product is included in the bid package and will not consider substitutions.

Part 9: Installation

9.1 Per manufacturer's recommendation - obtain written installation instructions and procedures from the manufacturer.

Part 10: Surplus Material

10.1 Surplus materials to be determined by the Owner prior to order and delivery of product to the installation site. Surplus quantities to be identified in writing by the General Contractor at the time of order placement.

Part 11: Project Completion

11.1 Upon completion of installation, a walk-through will be conducted to inspect the quality of work and ensure all details meet specifications.

11.2 A punch list of unacceptable or incomplete items will be documented and agreed uponfor completion prior to final project closeout and acceptance.

Part 12: Approvals

12.1 Finished synthetic base installation workmanship must be approved in advance by the turf manufacturer. Approvals to be based on a physical inspection performed at the site prior to installation of any synthetic turf material.

12.2 Any approvals sought after turf installation will be declined. Any associated repair or replacement costs associated with rework of the synthetic base will be the responsibility of the turf supplier/installer.

END OF SECTION

THIS SHEET IS INTENTIONALLY LEFT BLANK

SECTION 32 13 13

LANDSCAPE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. Provide Portland cement concrete site work complete, including the following principal items:

1. Footings for fencing, foundations, site furnishings.
2. Pavements, including aggregate bases.
3. Curbs, borders, footings for site work, pads, curbs ramps, bands, and utility collars.

B. Related Sections include:

1. Section 00 31 19 Existing Conditions
2. Section 00 31 32 Geotechnical Data
3. Section 01 11 00 Summary of Work
4. Section 01 45 00 Quality Control
5. Section 01 56 16 Dust Control
6. Section 01 56 19 Noise Control
7. Section 01 71 23 Field Engineering
8. Section 02 41 00 Site Preparation & Plant Protection
9. Section 12 93 05 Site Furnishings
10. Section 31 25 00 Erosion Control
11. Section 32 11 13 Subgrade Preparation & Base Material

1.2 SUBMITTALS

A. Section 01 – Submittals: Submittal procedures.

B. The Contractor's Testing Laboratory's certificate of compliance.

C. The Contractor shall submit:

1. Certified copies of mix designs for each concrete class specified including compressive strength test reports.
2. Certification that materials meet requirements specified.

3. Certification from vendor that samples originate from and are representative of each lot proposed for use.

4. Weight master Certificates for concrete delivered to the site and used for improvements.

5. Mill certifications for reinforcing steel.

6. Product literature and samples of truncated dome pavers.

7. Items required under Waiver of Batch Plant Inspection specified herein.

8. Items required by Form DSA-103 Testing & Inspection Sheet.

9. Shop drawings showing reinforcing steel.

D. The Owner's Testing Agency will submit reports on tests and inspections performed to the Owner, the Landscape Architect, the Contractor, and the Division of the State Architect.

E. Schedule of placing for the Construction Manager's review before starting Work.

F. Mock-ups of all materials under this Division shall be supplied for testing as requested by the Project Inspector.

G. Provide mock up of all concrete finishes, color and joints (with curing compound if any to be used) indicated on the drawings. Accepted mock-ups shall be kept at the job site to serve as a prerequisite for all finishes.

1.3 QUALITY ASSURANCE

A. Reference and Standards:

1. Requirements of GENERAL CONDITIONS and DIVISION NO. 1 applies to all Work in this Section.

2. Perform work in accordance with all applicable laws, codes and regulations require by Town of San Anselmo and the State of California.

3. Reference to "Standard Specifications" shall mean the current Standard Specifications of the State of California, Business and Transportation Agency, Department of Transportation, CALTRANS.

4. The American Concrete Institute (ACI): "Manual of Concrete Practice," Parts 1, 2 and 3.

5. California Code of Regulations. Title 24, Current edition, also known as California Building Code (CBC).

6. American Society for Testing and Materials (ASTM).

B. Stipulations:

1. Finish Surface Tolerance: 1/4-inch maximum variation in 10 feet.

2. At no point shall paving surface fail to drain.

3. The finish surface of concrete paving along accessible routes of travel shall be at least as slip resistant as medium broom finish perpendicular to the path of travel for slopes under 6%, and slip resistant heavy broom finish perpendicular to the path of travel at slopes 6% or greater. See the landscape drawings for specified finishes. Ground and floor finishes shall be stable, firm and slip resistant and shall comply with CBC 11B-302.

4. Contractor to provide conformance survey showing the finished grade of concrete paving is in conformance with the designed grades.

5. The Contractor shall be responsible for quality of concrete in place color and finish and control of cracking and spalling. All exposed concrete shall have a consistent color and finish and be free from uncontrolled cracking and spalling.

6. The Contractor shall be responsible for quality of concrete in place and shall bear burden of proof that concrete meets minimum requirements. Use the same mix design for all exposed concrete.

7. Placing of concrete by means of pumping will be an acceptable method of placement providing that the Contractor can demonstrate that:

   a. Specified concrete strengths will be met.

   b. Equipment has a record of satisfactory performance under similar conditions and using a similar mix.

   c. Trial batches have been made.

1.4 TESTS

A. The Project Inspector will select a qualified testing laboratory to take samples for testing during the course of the work as considered necessary. The Owner will pay costs for such tests. Contractor shall cooperate in making tests and shall be responsible for notifying the designated laboratory in sufficient time to allow taking of samples at time of pour.

B. Should tests show that concrete is below specified strength, Contractor shall remove all such concrete, as directed by the Project Inspector. Full cost of removal of low strength concrete, its replacement with concrete of proper specified strength and testing, shall be borne by Contractor.

C. The Contractor's Testing Laboratory Qualifications: The Contractor's Testing Laboratory shall be under direction of a Civil Engineer registered in the State of California, shall have operated successfully for four years prior to this work, and shall conform to requirements of ASTM E329.

1.5 SOILS REPORT

A. A soil investigation report has been prepared for the project.

B. The report is available in the office of the Architect and the Construction Manager for inspection by the Contractor. Unless otherwise specified, it is intended that all work be performed in accordance with the provisions of the report.

C. Drilled piers may encounter ground water. Excavations for drilled piers may require casings and installation of concrete by means of pumping under the direction of the Geotechnical Engineer.

PART 2 - PRODUCTS

2.1 FORMWORK MATERIALS

A. Forms shall be wood, except curbs may be formed with accepted metal form systems.

1. Plywood: 5/8-inch thickness minimum. Use overlaid plywood complying with U.S. Product Standard PS-1 "A-C or B-B High Density Overlaid Concrete Form", Class 1. Panels to receive specified form sealer to ensure uniform finish of exposed surfaces.

2. Lumber: Douglas fir, "Standard" grade or better (grade marks not required).

B. Form Coatings: Knox-Crete, or equal.

C. Form Ties: Burke "Penta-Tie," or equal, cone and rod type with 1-inch break-back or product similar to appropriately sized Simpson Strong Tie WT, or equal. Do not use form ties in forms for concrete seat wall and sculpture table.

2.2 REINFORCING MATERIALS

A. Bar Reinforcement ASTM A615.

1. #3 and smaller: Grade 40.

2 #4 and larger: Grade 60.

B. Smooth Dowels: Aztec Concrete Accessories “Speed Dowels,” or equal product 800-531-3355.

2.3 CONCRETE CLASSES

CLASS	STRENGTH	AGGREGATE	WEIGHT	SLUMP
A	3000	3/4	145	4

A. Class: Identifies all concrete as specified.

B. Strength: Compressive strength in psi after 28-days when tested in accordance with ASTM C39. All concrete shall develop compression strength specified in 28-days. To meet above requirements, mix shall be designed such that average compressive strength will exceed specified 28-day strength by an amount as specified by ACI 318.

C. Aggregate: Maximum size in inches.

D. Weight: Pounds per cubic foot, air dry.

E. Slump: In inches when tested in accordance with ASTM C143.

2.4 CONCRETE MATERIALS

A. General Requirements:

1. Cement and aggregates shall have proven history of successful use with one another. Sources of cement and aggregate shall remain unchanged throughout work unless the Landscape Architect approves request for change made at least 10-days prior to anticipated date of casting.

2. Ready-mixed concrete shall meet requirements of ASTM C94.

3. Deviations in properties of materials tested by the Owner's Testing Agency shall be cause for their rejection pending additional test results and redesign of mix by the Contractor's Testing Laboratory.

4. No frozen aggregates will be permitted.

B. Cements:

1. ASTM C150, Type V or Type II (modified). Use one brand of cement throughout project unless otherwise acceptable to Landscape Architect.

C. Fly Ash: ASTM C618, Type F. Fly ash as a replacement for Portland cement use no less than 15% if used, and no more than 25%.

D. Aggregates:

1. Coarse: ASTM C33. Coarse aggregate shall consist of a clean, hard, fine grained, sound crushed rock, or washed gravel or a combination of both. It shall be free from oil, organic matter or other deleterious substances and shall not contain more than two percent by weight of shale or cherty material. "Cleanness value shall not be less than 75 when tested per MM Test Method, 227 and conforming to CBC.

2. Fines: ASTM C33. Sand equivalent shall be not less than 75 when tested as per ASTM D2419.

3. Provide aggregates from a single source for exposed concrete.

E. Water: Clean and potable, free from impurities detrimental to concrete.

F. Water-Reducing Admixture: Must be compatible with color pigments where required. ASTM C494, Type A, that do not contain non-lignin sulfonate. Same as Grace Construction Materials' "WRDA" with Hycol; Master Builders "Pozzolith" 322N; or equal product substituted per Section 01630.

G. Air Entraining Admixture: Must be compatible with color pigments where required. ASTM C260, certified by manufacturer to be compatible with other products. Same as

W.R. Grace's "Daravair", Master Builders' "Micro-Air", Sika Corp.'s "Sika Aer", or equal product substituted per Section 01630.

H. Other Admixtures: Only as approved by the Landscape Architect.

I. Non-Shrink Grout: Premixed high strength grout requiring only addition of water at the site. Same as Master Builder's "Masterflow 928 Grout"; Burke's "Non-Ferrous, Non-Shrink Grout", or equal product substituted per Section 01630.

J. Curing Materials:

1. Curing Compound: ASTM C309. Water loss – not more than 0.55 kg/m^2 in 72 hours; Light Reflectance – not less than 60%. Same as Grace Construction Materials' "Horn Clear Seal"; Grimes Co.'s "Sealcrete"; Master Builders' "Masterseal W", or equal product substituted per Section 01630.

2. Apply to slabs-on-grade at 150 percent of manufacturer's recommended coverage rate.

K. Epoxy Adhesive: Two component material suitable for anchoring rebar into dry or damp concrete. Same as Burke's "Burk Epoxy MV", Covert's "CIA-Gel 7000", Hilti's "HIT C-100" or equal product substituted per Section 01630.

L. Lamp Black: As supplied by batch plant.

2.5 CONCRETE MIXES

A. Concrete mixes shall be accepted and shall be in accordance with CalTrans Standard Specifications Section 90. Unless otherwise noted, mix shall be Class "A," 3,000 psi, Type II Portland cement and 3/4-inch maximum aggregate.

B. Lamp Black: Concrete for paving shall be darkened by the addition of accepted agents at the mixer. The proportion of lampblack or other accepted colorant, to a great extent dependent on the color of the cement used in the mix, shall be that required to properly darken the concrete to reduce glare, and shall be subject to the approval of the Project Inspector or as required by Landscape Architect. Provide mock-ups with a ratio of one pound of lamp black for each cubic yard of concrete or as otherwise approved. Use Davis Colors or equal pigment as required to meet lamp black requirement.

2.6 ANCILLARY MATERIALS

A. Aggregate Base:

1. Class 2 aggregate base conforming to Section 26 of the Standard Specifications.

2. All base rock under concrete paving or curbs or concrete borders shall be virgin rock.

B. Expansion Joint Material:

1. Fiber Expansion Joint: A non-extruding resilient filler, saturated with high quality bituminous materials having preserving characteristics. W. R. Meadows or accepted equal. Conform to ASTM-D1751-83. Include Joint Sealant.

C. Concrete Sealer: Use sealer compatible with pigments in concrete. Scofield Selectseal-W as manufactured by L. M. Scofield Co. or silicone-based, non-staining product such as

Consolideck® SingleStep™ acrylic-siloxane blend that meets Type I, Class A requirements of ASTM C 1315 and as accepted by Landscape Architect.

D. Joint Sealant: Use joint sealant compatible with pigments in concrete "Sonolastic Sealant Two-Part" as manufactured by Sonneborn-Contech, Building Products Division, Contech, Inc.; or Sikaflex-1a elastomeric joint sealant available from Sika Corporation, Hayward (510) 487-2294. or approved equal. Joint caps or bond breaker tape to be as recommended by sealant manufacturer. Color shall be as selected by Architect.

E. Curing Compound: ASTM C309, Water-base type, free of permanent color, oil or wax, or accepted equal. Curing compound shall be compatible with color pigments

F. Combination Curing Compound Concrete Sealer: Scofield Cureseal-W as manufactured by L. M. Scofield Co. or W. R. Meadows Vocomp-20, (800-342-5976) or accepted equal. Combination Curing Compound. Combination Curing Compound Concrete Sealer shall be compatible with color pigments.

G. Color of Concrete: Pigments for integral colored concrete as manufactured by Davis Colors, 800-356-4848, applied at manufacturer's specified rates of application, or accepted equal.

H. Color of Concrete: Pigments for stained concrete as manufactured by L. M. Scofield, 800-800-9900, applied at manufacturer's specified rates of application, or accepted equal.

I. Precast Truncated Dome Pavers: as shown on the Drawings and per manufactures' specifications.

2.7 MIXES

A. General Requirements:

1. The Contractor shall perform tests or assemble the necessary data indicating conformance with specifications.

2. For each mix submit data showing that proposed mix will attain the required strength in accordance with requirements of CBC.

3. The Contractor shall instruct Laboratory to base mix design on use of materials tested and approved by the Owner's Testing Agency.

4. Mix design shall include compression strength test reports per CBC Section 1905A.3.

5. Mix shall be designed, tested, and adjusted if necessary in ample time before first concrete is scheduled to be placed. Laboratory data and strength test results for revised mix design shall be submitted to Landscape Architect prior to using in project.

6. Ensure mix designs will produce concrete to strengths specified and of uniform density without segregation.

7. If mix yield exceeds 1-cubic yard, modify mix design to no more than one cubic yard without changing cement content.
8. The Contractor's mix designs shall be subject to review by the Landscape Architect and by the Owner's Testing Agency.

9. Introduction of calcium chloride will not be permitted.

10. Unspecified admixtures will not be permitted unless the Landscape Architect reviews, the Contractor modifies mix designs as necessary, and modifications are accepted by the Owner's Testing Agency.

B. Slab-on-Grade and Concrete Paving Mix requirements:

1. Maximum water/cement ratio: 0.45.

2. Use of Water-Reducing admixture is required. Use High Range Water-Reducing admixture (super plasticizer) when required to maintain workability and pumpability.

C. Patching Mortar: Mix in proportions by volume of one part cement to two parts fine sand.

D. Concrete Fill: Mix in proportions by volume of one part cement, two parts fine aggregate, one part coarse aggregate (3/8- inch); with as little water as necessary to make stiff workable plastic mix.

E. Non-Shrink Grout: Follow approved manufacturer's printed instructions and recommendations.

2.8 MIXING

A. Batching Plant Conditions:

1. Ensure equipment and plant will afford accurate weighing, minimize segregation and will efficiently handle all materials to satisfaction of the Landscape Architect and the Owner's Testing Agency.

2. Replace at no additional expense equipment the Landscape Architect and the Owner's Testing Agency deem inadequate or unsuitable.

3. Use approved moisture meter capable of determining moisture content of sand.

B. General Requirements:

1. Thoroughly clean concrete equipment before use for Architectural concrete mixes to avoid contamination.

2. Mix cement, fine and coarse aggregates, admixtures and water to exact proportions of mix designs. Method of mixing shall comply with CBC Section 1905A.8.

3. Measure fine and coarse aggregates separately according to approved method which provides accurate control and easy checking.

4. Adjust grading to improve workability; do not add water unless otherwise directed.

5. Maintain proportions, values, or factors of approved mixes throughout work.

6. Mix concrete in transit mixers five minutes immediately prior to discharge in addition to mixing as called for by ACI 304 and ASTM C94.

C. Admixtures: Use automatic metering dispenser to introduce admixture into mix. Dispenser shall be recommended and calibrated by admixture manufacturer.

2.9 SOURCE QUALITY CONTROL

A. The Owner's Testing Agency will:

1. Review mix designs, certificates of compliance, and samples of materials the Contractor proposes to use

.

2. Test and inspect materials, as necessary, in accordance with ACI 318 and CBC Chapter 19A for compliance with requirements

3. Take samples as required from the Contractor's designated sources.

4. Take one grab sample for each 100 tons of Portland cement except that, when used in bulk loading ready-mix plants where separate bins for pre-tested cement are not available, take grab samples for each shipment of cement placed in bin with not less than one sample being taken for each day's pour and subsequently test such samples if required by the Landscape Architect who may be so advised by the Division of the State Architect (DSA).

5. Test both coarse and fine aggregate by use of solution of sodium or magnesium sulfate, or both whenever in the judgment of the Landscape Architect such tests are necessary to determine quality of material. Perform such tests in accordance with ASTM C88. Loss shall not exceed 6-percent of either fine or coarse aggregate. Aggregate failing to comply with this requirement may be used in the Work provided it contains less than 2- percent of shale and other deleterious particles and shows a loss in soundness test of not more than 10-percent when tested in the sodium sulphate solution. Test aggregates as required by CBC Section 1903A.3.

6. Test for sand equivalent of fine aggregate in accordance with California Test 217.

7. Test for cleanness value of coarse aggregate in accordance with California Test 227.

8. Inspect plant prior to any work to verify following:

   a. Plant is equipped with approved metering devices for determining moisture content of fine aggregate.

   b. Other plant quality controls are adequate.

9. Continuously inspect quality and quantity of materials used in transit mixed concrete, in batched aggregates and ready-mixed concrete at mixing plant or other location per CBC Chapter 19A where other materials are measured.

B. Waiver of Batch Plant Inspection:

1. Continuous batch plant inspection may be waived in accordance with CBC Chapter 19A if the plant complies with ASTM C94 and has been certified by an agency acceptable to DSA to comply with the requirements of the National Ready Mix Concrete Association.

2. When batch plant inspection is waived, the following requirements shall apply:

a. Testing Agency shall check the first batching at the start of work and furnish mix proportions to the licensed Weighmaster.

b. Licensed Weighmaster shall identify material quantities and certify each load by a ticket.

c. Project Inspector shall collect truck mix tickets with load identification and maintain a daily record of placement. Trucks without a load ticket identifying the mix shall be rejected. Copies of daily placement record shall be submitted to DSA.

d. At the end of the project, the Weighmaster shall submit an affidavit to DSA certifying that all concrete supplied conforms to proportions established by mix designs.

2.10 GEOCOMPOSITE MATERIAL (Enkadrain)

A. Drainage Composite 3811R geocomposite drainage mat available from Sika.

B. Waterproofing System: MFM Subseal 60 Sheet Membrane Prime-A-Seal Primer and Mastic+Plus available from MFM Building Products, Coshocton, OH, (800) 882-7663, http://www.mfmbp.com/watermem.html, Local representative: Don Lambrecht & Associates, Inc., Rocklin, CA. 95677, 916-632-2059.

PART 3 - EXECUTION

3.1 GENERAL REQUIREMENTS

A. Install all concrete work true to line and grade as indicated on the drawings.

B. Correct irregularities to the satisfaction of the Landscape Architect.

3.2 PREPARATION

A. Take every precaution to obtain a subgrade of uniform bearing power by compaction to provide a firm base.

B. Subgrade shall be kept moist and shall not be allowed to dry out before placement of concrete. Place no material on muddy subgrade.

C. Aggregate base, where indicated, shall be placed and compacted in conformance with CalTrans Standard Specifications 26-1.04 and 26-1.05.

D. Obtain acceptance of subgrade from Project Inspector prior to placing steel and concrete.

3.3 FORMS

A. Forms shall be constructed in accordance with ACI 347 and shall be of sufficient strength and sufficiently tight to prevent visible distortion or leakage of mortar and fines.

B. Forms for exposed surfaces shall be designed to protect intended finish. Deflection of facing material between studs shall not exceed 0.0025 of the span. Facing material and pattern of joints shall be as accepted by the Project Inspector.

C. For vertical surface of wall footings below grade, clean-cut trench may be used in lieu of form if character of soil will permit installation without sluffing and width of concrete is increased at least 1 inch beyond indicated dimension of each face poured against earth.

D. Curb, mow band and pavement edge forms shall extend full depth of concrete. Curves shall be formed with flexible metal or wood made up of thin laminations. Curve forms shall extend one stake space straight beyond tangent point.

E. Maintain forms within the following tolerances.

1. Top of Form: Plus or minus 1/8 inch in 10 feet and no abrupt variations; at required elevation to plus 3/8 inch.

2. Face of Form: Plus or minus 1/4 inch in 10 feet longitudinal and no abrupt variations; perpendicular to surface plus or minus 1/8 inch.

F. Obtain approval of formwork from Project Inspector prior to placing concrete.

G. Forms may be reused upon cleaning and coating with parting compound to ensure separation from concrete without damage.

H. After concrete is placed, the following minimum times shall elapse before removal of forms.

1. Footing sides: 24 hours.

2. Walls and benches: 48 hours.

3. Curbs: 1 hour.

3.4 REINFORCEMENT

A. All concrete shall be steel reinforced unless specifically noted to be "not reinforced." If no reinforcement is shown, reinforce in same manner as that shown in similar places.

B. Fabricate and place reinforcement as indicated on the Drawings and in accordance with ACI "Detailing Manual" SP-66. No reinforcement shall be placed prior to distribution of the accepted shop drawings.

C. Secure reinforcement in position by suitable supports and by wiring at intersections with tie wire. Supports shall be of sufficient number and strength to resist crushing or displacement under full load. Metal shall not extend to surface of concrete.

D. At time of placing concrete, reinforcing shall be free of excessive rust, mill scale, or other bond reducing matter. Immediately before placing concrete, check and adjust position, support and anchorage.

3.5 PLACING CONCRETE

A. The Inspector of Record, Architect, Structural Engineer, Testing Laboratory and DSA shall be notified at least 48 hours before placing concrete.

B. Place concrete in accordance with ACI 304, CBC Sections 1905A.9 and 1905A.10 and as specified.

C. Place concrete in cycles as a continuous operation to permit proper and thorough integration and to complete scheduled placement. Place no concrete where sun, wind, heat, or facilities prevent proper finishing and curing.

D. Convey concrete as rapidly and directly as practicable to preserve quality and to prevent separation from rehandling and flowing; do not deposit concrete initially set. Cast concrete within ninety (90) minutes after adding water unless otherwise noted. Retempering of concrete which has partially set will not be permitted.

E. Take precautions to avoid damage to under-slab moisture barrier and displacement of reinforcement and formwork.

F. Deposit concrete vertically in its final position. Avoid free falls in excess of six feet where reinforcement will cause segregation and in typical conditions unless the Architect approves otherwise.

G. Keep forms and reinforcement clean above pour line by removing clinging concrete with wire brush before casting next lift. Also remove leakage through forms.

H. Interruption in casting longer than 60-minutes shall be cause for discontinuing casting for remainder of day. In this event, cut back concrete and provide construction joints as the Architect directs; clean forms and reinforcement as necessary to receive concrete at a later time.

I. Hot Weather Concreting: Conform to ACI 305 and following requirements when mean daily temperature rises above 75 degrees Fahrenheit.

1. An upper temperature limit of concrete mixes shall be established by the Contractor for each class of concrete. Concrete temperature during placing shall not be so high as to cause difficulty from loss of slump, flash set, or cold joints, and shall not exceed 90°F. Other project climatic conditions detrimental to concrete quality such as relative humidity, wind velocity, and solar radiation shall also be considered.

2. Trial batches of concrete for each mix design shall be made at the limiting mix temperature selected. In lieu of trial batches, compression strength test reports (20 minimum) at the limiting temperature for each proposed mix shall be submitted to the Owner's testing laboratory for review.

3. Practices to maintain concrete below maximum limiting temperature shall be in accordance with ACI 305. Concrete ingredients may be cooled before mixing, or flake ice or well-crushed ice of a size that will melt completely during mixing may be substituted for part of the mixing water.

4. Practices to avoid the potential problems of hot weather concreting shall be employed by the Contractor in accordance with ACI 305.

5. When the temperature of the reinforcing steel or steel deck forms is greater than 120°F, reinforcing and forms shall be sprayed with water just prior to placing the concrete.

J. Cold Weather Concreting:

1. No placement of concrete will be allowed at temperatures below 20 degrees Fahrenheit or if mean daily temperature for curing period is anticipated to be below 20 degrees Fahrenheit.

2. No concrete placement will be allowed on frozen subgrade.

3. Conform to ACI 306 and following requirements when mean daily temperature falls below 40 degrees Fahrenheit.

    a. Reinforcement, forms or ground to receive concrete shall be completely free from frost.

    b. Concrete at time of placement for footings shall have temperature no lower than 50 degrees Fahrenheit, for all other concrete this minimum temperature at time of placement shall be 60 degrees Fahrenheit. Maximum temperature shall be 90 degrees Fahrenheit.

    c. Concrete shall be maintained at temperature no lower than 50 degrees Fahrenheit for minimum 7-day period after placement by means of blanket insulation, heaters, or other methods as approved by the Landscape Architect.

    d. Use of calcium chloride or admixtures containing calcium chloride as accelerators will not be permitted.

    e. The Contractor shall keep a record of concrete surface temperature for first 7-days after each pour. This record shall be open to inspection by the Inspector.

K. Consolidating:

1. Use vibrators for thorough consolidation of concrete.

2. Provide vibrators for each location during simultaneous placing to ensure timely consolidation around reinforcement, embedded items and into corners of forms; ensure availability of spare vibrators in case of failures. Vibrate through full depth of freshly placed concrete.

3. Do not place vibrators against reinforcement, attach to forms, or use to spread concrete.

4. Exposed Concrete: Vibrate with rubber type heads and, in addition, spade along forms with flat strap or plate.

L. Construction Joints:

1. Verify location and conformance with typical details; provide only where designated or approved by the Landscape Architect. Comply with CBC Section 1906A.4.

2. All horizontal and vertical construction joints to be thoroughly sandblasted to clean and roughen entire surface to minimum 1/4-inch relief exposing clean coarse aggregate solidly embedded in mortar matrix.

3. Just prior to depositing concrete, the surface of the construction joint shall be thoroughly wetted.

M. Walls and Other Formed Elements:

1. Space points of deposit to eliminate need for lateral flow. Placing procedures of concrete in forms permitting escape of mortar, or flow of concrete itself, will not be permitted.

2. Level top surface upon stopping work.

3. Take special care to fill each part of the forms by depositing concrete directly as near final position as possible, and to force concrete under and around reinforcement, embedded items, without displacement.

4. After concrete has taken its initial set, care shall be exercised to avoid jarring forms or placing any strain on ends of projecting reinforcement.

5. Where backfill is placed against a wall, it shall be adequately shored until it has attained design strength.

N. Precast Truncated Dome Pavers:

1. Install as shown on the Drawings and per manufactures' specifications and consistent with the accepted mock up.

2. Space joints consistently and as acceptable to the architect.

3. Clean and seal pavers as specified by manufacturer.

3.6 JOINTS AND GROOVES

A. Plane of joints shall be perpendicular to surface. Where new pavements join existing, joints shall align.

B. Score Joints: Form in the fresh concrete using a jointer to cut the groove so that a smooth uniform impression is obtained to 1" depth unless shown otherwise. All joints shall be struck before and after brooming. Tool concrete both sides of joint.

C. Expansion Joints and Edging: Provided at the location and intervals as shown on the drawings, and at all locations where concrete paving abuts buildings, walls, pillars, curbs or other structures. Fiber joint material shall be placed with top edge 1/2" below the paved surface to allow space for sealant, and shall be securely held in place to prevent movement. Metal key joint material shall be placed flush with top edge of the paved surface, and shall be securely held in place to prevent movement. Joint and other edges shall be formed in the fresh concrete using an edging tool to provide a smooth uniform impression. All edges shall be struck before and after brooming.

D. Sealed Joints: After the curing period, fiber expansion joints shall be carefully cleaned and filled with accepted joint sealant to just below adjacent paved surface in such a manner as to avoid spilling on paved surfaces or overflowing from joint.

E. Construction Joints: Place construction joints at the end of pours and at locations where placement operations are stopped for a period of more than one half hour, except where such pours terminate at expansion joints.

1. Construction joints shall be keyed with formed tongue and groove.

2. Tool concrete edge both sides of construction joint.

3.7 FINISHING

A. Flatwork and Curbs:

1. The finish surface of concrete paving along accessible routes of travel shall be at least as slip resistant as medium broom finish perpendicular to the path of travel for slopes under 6%, and slip resistant heavy broom finish perpendicular to the path of travel at slopes 6% or greater. See the landscape drawings for specified finishes.

2. Surface Finishes:

a. Float Finish (typical preliminary finishing for slabs to receive other finishes): The surface of the slab shall be screeded and all surface water and laitance removed. Floating shall be started as soon as the screeded surface has stiffened sufficiently. Floating shall be performed by hand using a wood float and shall be the minimum necessary to produce a relatively smooth, level, even-textured surface.

b. Medium Broom Finish: After the slab has been float finished as described above, the surface shall be uniformly directional textured by coarse stable broom to match accepted mock up. Non-slip finish compliant with ADA requirements. Apply on concrete paving perpendicular to the path of travel.

c. Heavy Broom Finish: After the slab has been float finished as described above, the surface shall be uniformly directional textured by coarse stable broom to match accepted mock up. Non-slip finish compliant with ADA requirements perpendicular to the path of travel.

d. Medium Brush Finish (typical for curbs): After the front form is removed, exposed surface shall be toweled smooth and then given a uniform light texture with fine brush parallel to line of curb, to match accepted mock up.

3.8 CURING

A. General Requirements:

1. Take curing measures immediately after casting and for measures other than application of curing compound, extend for seven days. The Architect may recommend longer periods based upon prevailing temperature, wind and relative humidity. Comply with CBC Section 1905A.11.

2. Avoid alternate wetting and drying and fluctuations of concrete temperature.

3. Protect fresh concrete from direct rays of sun, rain, freezing, drying winds, soiling, and damage.

4. Do not permit curing method to affect adversely finishes or treatments applied to finish concrete.

B. Curing Method, Typical: Obtain the Landscape Architect's approval of alternate measures.

1. Keep forms and concrete surfaces moist during period forms are required to remain in place.

2. Apply curing compound per manufacturers' recommendations.

C. Cure exposed concrete in accordance with CalTrans Standard Specifications Section 90.

D. Only water or curing compounds that impart no permanent color or gloss shall be used for curing concrete.

3.9 CONCRETE SEALING

A. Seal all exposed surfaces according to manufacturer’s specifications.

3.10 FIELD QUALITY CONTROL

A. The Owner's Testing Agency will:

1. Perform testing in accordance with ACI 318 and CBC Section 1903A and 1905A.

2. Review concrete mix designs.

3. Inspect concrete and grout placement continuously.

4. Test concrete to control slumps according to ASTM C143.

5. Continuously monitor concrete temperature as it arrives on the site.

6. Test concrete for required compressive strength in accordance with CBC Section 1905A.6:

a. Make and cure three specimen cylinders according to ASTM C31 for each 50 cubic yards, or fraction thereof, of each class poured at site each day.

b. Retain one cylinder for 7-day test and two for the 28-day test.

c. Number each cylinder 1A, 1B, 1C, 2A, 2B, 2C, etc; date each set; and keep accurate record of pour each set represents.

d. Transport specimen cylinders from job to laboratory after cylinders have cured for 24-hours on site. Cylinders shall be covered and kept at air temperatures between 60 and 80 degrees Fahrenheit.

e. Test specimen cylinders at age 7-days and age 28-days for specified strength according to ASTM C39.

f. Base strength value on average of two cylinders taken for 28-day test.

7. Test and inspect materials, as necessary, in accordance with ACI 318, MM Test Method 227 (Coarse Aggregates) and MM Test Method 217 (Fine Aggregates), for compliance with requirements specified in this section.

B. The Contractor shall:

1. Submit ticket for each batch of concrete delivered to job site. Ticket shall bear the following information:

a. Design mix number.

b. Signature or initials of ready mix representative.

c. Time of batching.

d. Weight of cement, aggregates, water and admixtures in each batch with maximum aggregate size.

e. Total volume of concrete in each batch.

f. Notation to indicate equipment was checked for contaminants prior to batching.

2. Pay the Owner's Testing Agency for taking core specimens of hardened structure and testing specimen according to ASTM C88 and C42 when laboratory tests of specimen cylinders show compressive strengths below specified minimum.

3.11 CLEANING, PATCHING AND DEFECTIVE WORK

A. Where concrete is under strength, out of line, level or plumb, or shows objectionable cracks, honeycombing, rock pockets, voids, spalling, exposed reinforcement, signs of freezing or is otherwise defective, and, in the Architect's judgment, these defects impair proper strength or appearance of the work, the Landscape Architect will require its removal and replacement at the Contractor's expense.

B. Immediately after stripping and before concrete is thoroughly dry, patch minor defects, form-tie holes, honeycombed areas, etc., with patching mortar. Patch shall match finish of adjacent surface unless otherwise noted. Remove ledges and bulges.

C. Compact mortar into place and neatly file defective surfaces to produce level, true planes. After initial set, dress surfaces of patches mechanically or manually to obtain same texture as surrounding surfaces.

D. Rock Pockets:

1. Cut out to full solid surface and form key.

2. Thoroughly wet before casting mortar.

3. Where the Landscape Architect deems rock pocket too large for satisfactory mortar patching as described, cut out defective section to solid surface, key and pack solid with concrete to produce firm bond and match adjacent surface.

E. Cleaning

1. Ensure removal of bituminous materials, form release agents, bond breakers, curing compounds if permitted and other materials employed in work of concreting which would otherwise prevent proper application of sealants, liquid waterproofing, and other delayed finishes and treatments.

2. Where cleaning is required, take care not to damage surrounding surfaces or leave residue from cleaning agents.

3.12 PROTECTION

A. Protect concrete from injurious action of the elements and defacement of any nature during construction operations.

B. Protect exposed corners of concrete from traffic or use which will damage them in any way.

C. Make provisions to keep all exposed concrete free from laitance caused by spillage or leaking forms or other contaminants. Do not allow laitance to penetrate, stain, or harden on surfaces which have been textured.

D. Remove and replace pavement that does not comply with requirements in this Section.

E. Protect pavement from damage. Do not permit construction traffic on concrete pavement. Exclude other traffic from pavement for at least 28 days after placement.

F. Maintain pavement free of stains, discoloration, dirt, and other foreign material. Sweep pavement not more than two days before date scheduled for Substantial Completion inspections.

3.13 PAVEMENT TOLERANCES

A. Comply with the following tolerances:

1. Elevation: 1/4 inch.

2. Thickness: Plus 3/8 inch minus 1/4 inch.

3. Surface: Gap below 10-foot-long, unleveled straightedge not to exceed 1/4 inch.

4. Lateral Alignment and Spacing of Dowels: 1 inch.

5. Vertical Alignment of Dowels: 1/4 inch.

6. Alignment of Dowel-Bar End Relative to Line Perpendicular to Pavement Edge: Length of dowel 1/4 inch per 12 inches.

7. Joint Spacing: 3 inches.

8. Contraction Joint Depth: Plus 1/4 inch, no minus.

9. Joint Width: Plus 1/8 inch, no minus.

3.14 DEFECTIVE CONCRETE

A. If any concrete work is not formed as indicated, is under strength concrete, is concrete is out of line, level or plumb, or showing objectionable cracks, honeycomb, rock pockets,

voids, spalling or exposed reinforcing, it shall be removed, repaired or replaced as directed by the Landscape Architect.

B. The Contractor shall be responsible for quality of concrete in place color and finish and control of cracking and spalling. All exposed concrete shall have a consistent color and finish and be free from uncontrolled cracking and spalling. If any concrete work is not consistent color and finish and be free from uncontrolled cracking and spalling it shall be removed, repaired or replaced as directed by the Landscape Architect.

3.15 GEOCOMPOSITE MATERIAL

A. Apply waterproofing geocomposite material conforming to the manufacturer's specifications to a minus 2 inches below finished soil grade on soil side of retaining walls, deepened concrete curbs retaining bio-retention basins and planters.

B. Install MFM Subseal 60 Sheet Membrane Prime-A-Seal Primer and Mastic+Plus where shown on drawings and as required by geotechnical engineer. Request review of installation of Membrane by geotechnical engineer before covering with soil.

3.16 CLEANING

A. Section 01 77 00 – Contract Closeout & Final Cleaning.

B. During construction, wash off work as quickly as possible when stains or splotches are unavoidable.

C. Upon completion, clean exposed surfaces carefully. Brushing and cleaning solution, if used, must be preceded and followed with a through rinsing of clear water. No sandblasting will be allowed to clean surfaces.

D. Remove from premises; equipment, debris and surplus material needed for, or resulting from, this work. Remove all concrete waste from planting areas and legally dispose of it.

E. All work shall be left in a condition satisfactory to the Landscape Architect.

F. Perform Work under this Section to keep affected portions of building site neat, clean, and orderly. Remove, immediately upon completion of Work under this Section, surplus materials, rubbish, and equipment associated with or used in performance. Be aware that failure to perform clean-up operations within 24 hours of notice by Landscape Architect will be considered adequate grounds for having work done by others at no added expense to the Owner

END OF SECTION

THIS SHEET IS INTENTIONALLY LEFT BLANK

SECTION 32 17 20

SITE SIGNS

PART 1 - GENERAL

1.1 SCOPE

A. Provide all labor, material and equipment for installation of signs as shown on the drawings.

1.2 REQUIREMENTS AND STANDARDS

A. The Contractor shall furnish and install signs to comply with the drawings.

B. All accessories shall be installed as recommended by Manufacturer.

PART 2- MATERIALS

2.1 SIGNS

A. Provide and install vandal-resistant attachments. Refer to drawings and coordinate with Owner's Representative.

B. Regulatory Sign: As shown on drawings. Refer to drawings and coordinate with Owner's Representative. Submit Manufacturer's data. Final text as approved by owner. Provide quantity of signs as required on drawings.

C. No Dog Sign: As shown on drawings. Refer to drawings and coordinate with Owner's Representative. Submit Manufacturer's data. Final text as approved by owner. Provide quantity of signs as required on drawings.

E. Local Supplier: Interstate Traffic Control, 1700 Industrial Rd., Suite B, San Carlos, CA, telephone: 650-591-2300 or fax 650-591-8200; Thomas-Swan Sign Co, 1117 Howard Street, San Francisco, CA 94103. Phone: 415-621-1511 Fax: 415-621-0481 or approved equal.

F. Materials: 0.080 aluminum substrate signs are digital print on 3M AEG vinyl, coated with 3M ™ Premium Protective Overlay Film Series 1160i graffiti film, or approved equal with 0.25-inch mounting holes as shown on drawings.

PART 3 - EXECUTION

3.1 INSTALLATION OF SIGNS

A. Confirm location with Owner's Representative before installing. Install per drawings and manufacturer's data. Use vandal-resistant attachments.

B. Coordinate installation with graffiti-resistant coatings.

C. Install Graffiti-resistance coatings per manufacturer’s specifications.

3.2 CLOSEOUT

A. Clean up per General Conditions.

B. Include copies of the material submittals and manufactured material suppliers and installers name and telephone number in the Operations and Maintenance manuals as part of the closeout documents.

C. Include manufacturer's warranty information of specified items with warranties.

END OF SECTION

SYNTHETIC TURF PLAYING FIELD

SECTION 32 18 13

PART 1 - GENERAL

1.1 SUMMARY

A. This work provided via separate CMAS contract.

B. Ground and floor finishes shall be stable, firm and slip resistant and shall comply with CBC 11B-302.

C. All general contractors, synthetic turf field sub-contractors and all turf field subcontractors performing all sub base preparation, grading and drainage infrastructure work must be experienced in the installation of synthetic turf systems for at least five (5) years. Failure to meet the requisite qualifications may result in the general contractors and sub-contractors being rejected as non-responsible.

D. All general contractors, synthetic turf field sub-contractors and all turf field subcontractors performing all sub base preparation, grading and drainage infrastructure work should have completed within the last (5) five years, five (5) synthetic turf field projects in Northern California greater than 80,000 square feet per field. Failure to meet the requisite qualifications may result in the general contractors and sub-contractors being rejected as non-responsible.

E. It shall be the responsibility of the successful Contractor to provide all labor, materials, equipment and tools necessary for the complete installation of a synthetic turf playing field system. The system shall consist of, but not necessarily be limited to, the following:

1. A permeable grass-like polyethylene pile blended fibers woven into a high strength composite backing.

2. A resilient sand and cork infill system and a resilient sand and olive core infill system.

3. High quality assurance provided by evidence of submittals, samples, testing, inspections, coordination with other work, 8-year warranty, maintenance manual, maintenance equipment, annual inspections and annual maintenance for the life of the warranty.

4. A maximum of G-max rating of 165 for the life of the warranty.

F. Coordinate with related work specified elsewhere includes:

1. Section 01 11 00 Summary of Work

2. Section 01 33 00 Submittals

3. Section 01 50 13 Construction Waste Management and Disposal

4. Section 01 56 16 Dust Control

5. Section 01 56 19 Noise Control

6. Section 01 71 23 Field Engineering

7. Section 01 77 00 Contract Closeout and Final Cleaning

8. Section 02 41 00 Site Preparation & Protection

9. Section 31 00 00 Earthwork

10. Section 31 25 00 Erosion Control

11. Section 32 11 13 Subgrade Preparation and Base Material

12. Section 32 13 13 Landscape Concrete

1.2 QUALIFICATIONS AND PRODUCT SUBSTITUTIONS

A. Approved synthetic turf products are listed in Article 2.1 of this section. Only pre-qualified Contractors approved by the manufacturer(s) as an installer of one or more of these products, or who subcontracts with a contractor approved by the manufacturer(s) as an installer of one or more of these products, may bid on the Project.

B. If a Contractor wishes to request a product substitution for the District's consideration in lieu of the synthetic turf product(s) listed in Article 2.1 of this section shall do so and show a product equal to the product specified in Article 2.1 and include submittals conforming to Article 1.3 B.1 through 1.3. B.9.

C. Request for deviations or substitutions from the specifications must be made in writing seven days prior to the bid date. Alternatives will be allowed only by addendum.

D. All Synthetic Turf sub-contractors bidding on this project must have a California license and be experienced in the installation, in Northern California, of synthetic turf systems for at least 5 years and have completed five (5) projects in Northern California of comparable size, type and complexity, in the past five (5) years.

1.3 SUBMITTALS

A. Comply with General Conditions.

B. Within 35 days of the Notice to Proceed, the Contractor shall submit:

1. Qualifications of project manager and installation personnel.

2. Manufacturer's specifications for materials and installation including height of exposed fiber, depth of infill, physical properties of infill, weight of infill, designated proportions of infill, seaming method and installation methods.

3. Manufacturer's data and MSDS data on synthetic turf system seam adhesives.

4. Schedule of installation for the District's review before starting.

5. A currently valid certificate of compliance for the approved synthetic turf system from an independent laboratory such as Testing Services, Inc of Dalton, GA (706-226-1400) or other laboratory, pre-approved by the District, showing the following data:

a. Pile Height, Face or Pile Weight and Total Fabric Weight, ASTM D5823 or D5848

b. Total Backing Weight, ASTM D5848

c. Grab Tear Strength, ASTM D5034

6. Certification of quantities of infill and source of infill for the field.

7. Certification from the Contractor, its listed turf contractor and the manufacturer to hold the District, Landscape Architect, and Architect harmless from infringement of any current patent issued for the synthetic turf system, fibers, backing, installation methods and vertical draining characteristics.

8. Submit manufacturer's data, photographs, maintenance manuals and operating instructions for synthetic turf maintenance equipment.

9. Samples:

a. Synthetic Turf

(1) Two (2) boxed fabric samples, minimum 7"x11", infilled to the proper depth.

(2) Two (2) fabric only samples, minimum approximately 18" by 24" with seam joint, backing and perforations and a tufted-in white and yellow stripes, 4-inches wide.

(3) Two (2) fabric only samples, minimum approximately 18" by 24" with seam joint, backing and perforations and an inlaid stripes of all contrasting colors to be used on the field including logo and text if applicable, 4-inches wide.

b. Submit one-quart sample of infill material(s) and corresponding sieve analysis from a testing laboratory.

c. Seam filament: 10-feet (if applicable).

10. Shop Drawings:

a. Shop Drawings shall be prepared and contain all pertinent information regarding installation. PDF copies of these drawings shall be submitted to the District for approval prior to the manufacture and shipment of materials to the job site.

b. Submit Drawings for:

(1) Field Layout.

(2) Field Marking Plan and Composite Striping Plan, layouts and details for soccer, baseball and softball showing field lines, markings, goals and bases and boundaries per project drawings. Show baseball and softball bases as white turf. Show soccer as yellow and blue turf.

(3) Roll/Seaming Layout.

(4) Methods of attachment, field openings and perimeter conditions.

11. Provide a copy of the 8-year, prepaid, non-prorated, third-party insured warranty and insurance policy information.

12. Provide a copy of a published independent safety study of the turf system.

C. The District's Testing Agency will submit reports on tests and inspections performed for the District, the Landscape Architect and the Contractor.

D. Prior to starting the installation of the approved synthetic turf, the Contractor shall submit a certification signed by the Contractor, its listed turf subcontractor, synthetic composite underlayment manufacturer's representative and drainage system installer, that installed base stone and drainage materials conform to specified requirements and system was successfully checked and tested prior to covering with the synthetic turf playing field.

E. Prior to shipment of the synthetic turf materials to the job site, at least 10% of the synthetic turf rolls shall be randomly sampled from the same lot and tested by a testing laboratory experienced in testing synthetic turf materials. The testing laboratory should be completely independent with no ties to the turf or component manufacturer. The testing shall include relevant tests such as Pile Composition, Pile Weight, Total Weight, Pile Height, Drainage Capacity, Tuft Bind (without infill), Grab/Tear Strength and UV resistance. The Contractor shall pay the costs of these tests. Submit copies of the test results to the District for review before shipping.

F. Prior to Final Acceptance, the Contractor shall submit to the District an executed copy of the Warranty documents and three (3) copies of Maintenance Manuals, which will include all necessary instructions for the proper care and preventative maintenance of the synthetic turf system, including, but not limited to, minor seam repairs and top-dressing with additional infill materials.

G. Prior to Final Acceptance, the Contractor shall submit to the District, a field information kit containing:

1. Turf sample from the specific manufacturing lot used with the manufacturer's lot reference number and tracking information.

2. Sand and cork samples with supplier product and contact information.

3. Seaming fabric and adhesive sample.

4. One (1) gallon of an industrial strength cleaning solution and cleaning instructions so that the District can safely clean the field of grease and oil.

H. Prior to Final Acceptance, the Contractor shall submit to the District, extra sand and cork in dry containers for top dressing and field maintenance.

1.4 QUALITY ASSURANCE

A. Reference and Standards.

1. General Conditions.

2. Perform work in accordance to all applicable laws, codes and regulations required by the Town of San Anselmo and County of Marin and the State of California

3. Reference to “Standard Specifications” shall mean the current Standard Specifications of the State of California, Business and Transportation Agency, Department of Transportation, CalTrans

4. California Code of Regulations, Title 24, current edition, also known as California Building Code (CBC)

5. ASTM D1335 - Standard Test Method for Tuft Bind of Pile Yarn Floor Coverings

6. ASTM D1557 - Test Method for Laboratory Compaction Characteristics of Soil

7. ASTM D1577 - Standard Test Method for Linear Density of Textile Fiber

8. ASTM D1682 - Standard Method of Test for Breaking Load and Elongation of Textile Fabrics

9. ASTM D2859 - Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering

10. ASTM D418 - Standard Test Method for Testing Pile Yarn Floor Covering Construction

11. ASTM D4491 - Standard Test Methods for Water Permeability of Geotextiles by Permittivity

12. ASTM D5034 - Standard Test Method of Breaking Strength and Elongation of Textile Fabrics (Grab Test)

13. ASTM D5848 - Standard Test Method for Mass Per Unit Area of Pile Yarn Floor Covering

14. ASTM D5874 - Standard Test Method for Determination of the Impact Value (IV) of a Soil

15. ASTM F355 - Standard Test Method for Shock-Absorbing Properties of Playing Surfaces

16. ASTM F1015 - Standard Test Method for Relative Abrasiveness of Synthetic Turf Playing Surfaces

17. ASTM F1936 - Standard Test Method for Shock-Absorbing Properties of North American Football Field Playing Systems as Measured in the Field

18. ASTM F1702 - Standard Test Method for Measuring Shock-Attenuation Characteristics of Natural Playing Surface Systems Using Lightweight Portable Apparatus

19. Most recent Rules and Interpretations of National Federation of High School Rules, American Youth Soccer Association (AYSO) and Little League Baseball, as applicable.

B. Stipulations:

1. Finish Surface Tolerance: 3/16-inch maximum variation in 10 feet.

2. All visible lines shall be square and true.

3. Seams shall not be visible and shall be seamed complete.

4. Infill shall be evenly distributed and a uniform depth.

5. Fibers of inlaid carpet pieces shall be flush with the rest of the carpet fibers and free of depressions, bumps or shadows.

6. The Contractor and its listed turf subcontractor shall review and accept the quality of the synthetic turf playing field sub-base and the drainage in place.

7. The Contractor and its listed turf subcontractor shall observe the installation of the base and drainage and shall comment on any problems or conflicts that may be discovered including:

    a. Review and accept the submittals for the synthetic turf base stone base and the drainage materials.

    b. Review planarity of the compacted turf subgrade and stone base.

    c. Submit certification signed by the Contractor and its listed turf subcontractor and drainage system installer that installed stone base and drainage materials conform to specified requirements and system was successfully checked and tested prior to covering with the synthetic turf playing field.

C. The Contractor and its listed turf subcontractor shall employ only qualified, experienced supervisors and technicians skilled in the installation of the synthetic turf system as specified herein.

D. The turf manufacturer for this installation must certify supervisory personnel for this project in writing.

E. The turf manufacturer must verify that their representative has inspected the installation and that the work conforms to the manufacturer's requirements.

F. Warranty: The Contractor and its listed turf subcontractor shall submit its Manufacturer's and Installation Warranty and shall warrant the usability and playability of the synthetic turf system for its intended uses for an eight (8) year period commencing with the date of formal project acceptance by the District's governing board. The warranty coverage shall not be pro-rated nor limited to the amount of the usage. The warranty shall be in the form attached to this section.

1. General: The warranty submitted must have the following characteristics:

    a. Must provide full coverage for eight (8) years from the date of formal project acceptance by the District's governing board.

    b. Must warrant materials and workmanship.

    c. Must warrant that the materials installed meet or exceed the product specifications stated herein.

d. Must have a provision to either make a cash refund or to repair or replace such portion of the installed materials that are no longer serviceable in order to maintain a serviceable and completely playable surface.

e. The warranty shall not be prorated.

f. Must be a warranty from a single source covering workmanship and all self-manufactured or procured materials.

g. Contractor shall warrant defects in installation and workmanship for a period of eight (8) years from the date of formal project acceptance by the District's governing board.

G. Ongoing Tests & Inspections:

1. Contractor and Manufacturer shall examine the synthetic turf playing field(s) in regards to any claim made by the District.

2. Contractor and Manufacturer shall provide an annual report to the District notifying the District of all maintenance and warranty issues and recommending maintenance practices consistent with the warranty.

3. Contractor and Manufacturer shall be allowed access to inspect any claims made under this warranty. Any tests associated with a claim shall be done with notice to the District and results of said test shall be forwarded to the District.

1.5 DISTRICT TESTS

A. The District will select a qualified testing laboratory to take samples for testing during the course of the work as considered necessary. The District will pay costs for such tests. Contractor shall cooperate in taking tests and shall be responsible for notify the designated laboratory in sufficient time to allow taking of samples.

1.6 COORDINATION

A. Coordinate items of other trades. Contractor shall accept the synthetic turf playing field sub-base; and coordinate all accessories embedded in the synthetic turf playing field sub-base and for the provision of connections to adjacent materials necessary to the execution of the work of the trades.

1.7 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Ensure storage facilities are weather tight and dry.

B. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use.

1.8 SHOCK ABSORBENCY OF THE SYNTHETIC TURF SYSTEM

A. The synthetic turf system installation may be periodically tested by the owner for shock attenuation (G-max) properties in accordance with ASTM F1936 and F355, Method A, and G-max compliance standards.

B. Test locations: The installed system will be tested for G-max at locations defined in ASTM F1936 as modified within two (2) additional locations for the soccer field. At one (1) soccer goalmouth and at one (1) corner of a penalty box. All test locations will be offset approximately 12-inches from any fabric seam and all subsequent re-testing will be performed at the exact same locations as previous test locations for comparisons.

C. Test Frequency and G-max. The synthetic turf contracting party shall arrange and pay for an independent test lab to test the synthetic turf field for G-max compliance. At Project Acceptance, not to exceed 135 G's. In no event shall the G-max for the field exceed 165 during the warranty period.

1.9 MAINTENANCE DURING WARRANTY PERIOD

A. The maintenance during the warranty period shall be pre-paid as part of the construction contract.

B. Provide 16 visits to the site on an as needed basis to maintain the field during the warranty period. At each visit, certified technicians execute these procedures:
   1. Address any migration of infill.
   2. Take multiple infill depth measurements to verify surface planarity.
   3. Make minor warranted seam and inlay repairs.
   4. Add light infill to high traffic areas.
   5. Power clean field perimeter.
   6. Provide an annual written Pre and Post-Session field report.

C. During the last half of the warranty period provide care for grooming and fiber rejuvenation.

WARRANTY

District: Tamalpais Union High School District

Project Name: REDWOOD HIGH SCHOOL GHILOTTI FIELD SITE IMPROVEMENTS

Warranty: Contractor and Manufacturer warrant the synthetic turf playing field surface at

REDWOOD HIGH SCHOOL GHILOTTI FIELD SITE IMPROVEMENTS

for a period of eight (8) years from the date of formal project acceptance by the District's governing board against defects in materials and/or workmanship, including:

Ultra-violet degradation, fading greater than twenty percent (20%) of the original color, seam rupture or dislodgment or unusual shape or distortion in the field, either vertical or horizontal, due to dimensional instability of turf materials used, decrease in pile height by more than twenty percent (20%), decrease in face weight (without infill) by more than thirty percent (30%).

The system shall adhere firmly and completely to the perimeter anchoring system.

The system shall vertically drain a minimum of forty (40) inches per hour for a maximum of 24 hours continuously, without visible surface ponding.

Contractor and Manufacturer also guarantee that the G-Max level of its field will not exceed 165 for the duration of the warranty. If the reading does exceed 165 during the warranty period, the Contractor, its listed turf subcontractor and Manufacturer will take whatever measures necessary, at no cost to the District, to achieve G-Max test results to, or below, 165.

Contractor and Manufacturer will repair or replace, as it deems necessary, those materials, which exhibit such defects resulting from materials or workmanship, at no cost to the District.

This is a non-prorated material and labor warranty.

The synthetic turf playing field(s) shall be warranted for the designated uses as follows:

Discus
Field Hockey
Football
Jogging
Lacrosse
Marching band
Pedestrian traffic and other similar uses
Physical Education
Physical Exercises
Pneumatic rubber-tired maintenance and service equipment
Rugby
Soccer
Softball and Baseball

Limitations: The recommendations for proper maintenance of the surface as outlined in the

Maintenance Manuals provided by the Contractor and Manufacturer shall be considered in determining neglect or proper maintenance of the synthetic turf and shall be considered an integral part of this warranty.

Contractor and Manufacturer do not warrant against normal wear and tear, as determined by an independent lab specializing in synthetic turf. Contractor and Manufacturer also does not warrant against damage caused by improper use, neglect, vandalism, earthquakes, and floods, changes in water table or other acts of God. Home plate area, base paths and pitcher's mound which shall be 2 years instead of 8 years and there is no third-party insurance.

Inspection and Tests: Contractor and Manufacturer shall examine the synthetic turf playing field(s) at least once per year, beginning no longer than thirty (30) days from the one (1) year anniversary date of the formal project acceptance by the District's governing board.

Contractor and Manufacturer shall also examine the synthetic turf playing field(s) in regards to any claim made by the District.

Contractor and Manufacturer shall be allowed access to inspect any claims made under this warranty. Any tests associated with a claim shall be done with notice to the District and results of said test shall be forwarded to the District.

The Contractor and Manufacturer shall have shock attenuation tests conducted at their expense annually by an independent testing laboratory properties in accordance with ASTM F1936 and F355, Method A and deliver the test results to the District within sixty (60) days of the testing.

Claims: Contractor and Manufacturer shall repair or replace all or any portion of the surface, which may be determined to be defective.

In the event of the failure by the Contractor and Manufacturer to comply with the above mentioned conditions within fourteen (14) days after being notified in writing by the District, the Contractor and Manufacturer both hereby authorize the District to proceed to have such defective work repaired or replaced and made good at the Contractor and Manufacturer 's expense and the Contractor and Manufacturer shall honor and pay the costs and charges therefore within fourteen (14) days of the District's demand, without voiding this warranty.

Date of Acceptance: _____

Manufacturer	Synthetic Turf Contractor
By:	By:
Title:	Title:
Address:	Address:
	License Number:
Date:	Date:

PART 2 - MATERIALS

2.1 SYNTHETIC TURF SYSTEM

A. The synthetic turf system materials shall be in accordance with the following:

1. The acceptable product(s) for the synthetic turf system are summarized as follows:

a. The synthetic turf system infill shall be cork and dust free, rounded, silica sand.

b. The District has determined that the following synthetic turf system product meets or exceeds the specifications and is approved and acceptable:

(1) For Areas noted as Vertex on the Field: Synthetic Turf shall be FieldTurf Vertex Prime, Model: FTVTP-2-PureFill (cork) or pre-approved as manufactured by FieldTurf Tarkett. The product is a permeable in-filled synthetic grass that provides the look, the feel, and the playability of natural grass with respect to ball speed and bounce and maximum safety to athletes supplied by FieldTurf, International, 707-586-8873. NO KNOWN EQUAL.

PROPERTY	VALUE	UNIT	STANDARD
Code	FTVTP-50-PureFill	NA	NA
Yarn Structure 1	Ridged Monofilament / Field Green	Denier	D1.77
Yarn Denier 1 (Yarn linear density)	14,500	Denier	NA
Yarn Structure 2	Slit Film Summergreen	Denier	D1.77
Yarn Denier 2 (Yarn linear density)	5000	Denier	D1.77
Pile height (1)	2.0	Inches	D5823
Pile weight (Face weight)	39	0Z/SY	D5848
Primary backing weight	7+	0Z/SY	D5848
Secondary backing weight (Finger Unit)	14+	0Z/SY	D5848
Total weight	60	0Z/SY	D5848
Stitch gauge (tuff spacing)	3/4	Inches OC	D5793
Tuff bind	8+	Lbs/Force	D1335
Pill burn test	Pass		D2859
Water Permeability	>40	Inches/Hour	DIN 18-035
PureFill cork infill (1)	1.1	Lbs/SF	
Sand infill (1)	4.5	Lbs/SF	
Total infill (1)	5.6	Lbs/SF	
Depth of infill (1)	1.25 (+/- 0.125)	Inches	
Exposed height of fiber (1)	0.75	Inches	
UV Performance	>80% retained tensile strength after 5,000 hours	NA	NA
UV warranty	8 years	Watts	ISO 4892-2

(2) For Areas noted as Vintage on the Warning Tracks and Home Plate Area: Synthetic Turf shall be FieldTurf

Vintage 40 Baseball, Model: Vintage 40 - PureSelect Olive Infill (olive cores) or pre-approved as manufactured by FieldTurf Tarkett. The product is a permeable in-filled synthetic grass that provides the look, the feel, and the playability of natural grass with respect to ball speed and bounce and maximum safety to athletes supplied by FieldTurf, International, 707-586-8873. NO KNOW EQUAL.

PROPERTY	VALUE	UNIT	STANDARD
Code	Vintage-40-PureSelect	NA	NA
Yarn Structure 1	Slit Film	Denier	D1.77
Yarn Denier 1 (Yarn linear density)	10,000+	Denier	NA
Yarn Structure 2	Texturized Thatch	Denier	D1.77
Yarn Denier 2 (Yarn linear density)	5000	Denier	D1.77
Pile height (1)	1.6	Inches	D5823
Pile weight (Face weight)	50	0Z/SY	D5848
Primary backing weight	8+	0Z/SY	D5848
Secondary backing weight (Finger Unit)	20	0Z/SY	D5848
Total weight	78	0Z/SY	D5848
Stitch gauge (tuff spacing)	3/8	Inches OC	D5793
Tuff bind	8+	Lbs/Force	D1335
Pill burn test	Pass		D2859
Water Permeability	>40	Inches/Hour	DIN 18-035
PureSelect Olive Infill olive infill (1)	1.5	Lbs/SF	
Sand infill (1)	3.5	Lbs/SF	
Total infill (1)	5.0	Lbs/SF	
Depth of infill (1)	0.875 (+/- 0.125)	Inches	
Exposed height of fiber (1)	0.75	Inches	
UV Performance	>80% retained tensile strength after 5,000 hours	NA	NA
UV warranty	8 years	Watts	ISO 4892-2

(Footnote 1) Per manufacturer's specifications and as approved through submittal process.

(4) Or approved equal in conformance with Article 1.2 of this section. Contractors shall only bid on the project based on a District-approved product stated above or identified by the District in an addendum as an approved equal.

c. The following yarn, carpet and system properties are minimums. The Contractor and its listed turf subcontractor may exceed these minimum properties subject to acceptance of the Landscape Architect and no other deviations from this section. A variation of +/- 5% listed property values is within normal manufacturing tolerances.

d. A complete synthetic grass system, consisting of not less than 2 inch long, with rows spaced no less than ¾" apart in Vertex and 3/8" apart in Vintage, tufted into a double primary porous backing and a micro-porous secondary coating, with no holes punched in the backings.

e. A resilient infill system, consisting of a graded dust-free silica sand on the bottom; and a layer of cork or olive cores on top, designed to provide

the look, feel, and safety of optimally maintained natural grass. The infill shall be filled so that there is a void of ¾" to the top of the fiber.

f. The carpet's primary backing shall be a double-layered polypropylene fabric treated with UV inhibitors. The secondary backing shall consist of an application of porous, heat-activated urethane to permanently lock the fiber tufts in place. Perforated carpet backing shall not be acceptable. Perforation—backed carpet, (that is, a carpet fully coated and drained by means of melted, burned or punched holes), shall not be acceptable.

g. Cork must be natural cork ranging in size from 1 to 3 mm and have a bulk density of 300 kg/m3 (+/- 15%).

h. Sand must be dust free, rounded, silica sand; any other sand will not be accepted.

i. Thread for sewing seams of turf shall be as recommended by the synthetic turf manufacturer.

j. Glue for inlaying lines and markings shall be as recommended by the synthetic turf manufacturer. Seams between turf panels must be sewn. Inlaid markings may not be installed by means of cutting through the fabric and adhering the colored turf to a separate reinforcing tape or cloth. Rather, inlaid markings (that cannot be tufted into the fabric), shall be installed by means of shearing out the existing green fiber and laying in a new piece of colored fabric into a bed of suitable "hot melt" adhesive placed directly on the original turf backing material. Systems that cut through the turf fabric for inlaid lines are not acceptable due to the fact that such a procedure shall weaken the structural integrity of the turf fabric backing.

p. The carpet shall be installed with a 3/4" fiber exposure.

q. The carpet shall be delivered in nominal 15-foot wide rolls. The rolls shall be of sufficient length to go from touchline to touchline. Head seams, between the touchlines, will not be acceptable.

r. All fields of play lines for soccer, baseball, softball, lacrosse and other designations shall be inlaid or tufted to permanently lock the fiber tufts in place. The lines, and marks for baseball and softball shall be white and the lines for soccer shall be yellow, and blue. The field shall be predominately green.

s. Lines and markings shall be as shown on the approved submittal drawings (mandate) and also conform to NFHS rules and be tufted or inlaid so as to be permanently marked.

t. All components and their installation method shall be designed and manufactured for use on outdoor athletic fields. The materials shall be able to withstand full climatic exposure in the San Francisco Bay Area and be resistant to water, insect infestation, rot, fungus, and mildew; to ultra-violet light and heat degradation, and shall have the basic characteristic of flow through vertical drainage allowing free movement of surface run-off through turf where such water may flow to the permeable sub-base and into the field's underground drainage system.

u. The finished playing surface shall appear as mowed grass with no irregularities and shall afford excellent traction for conventional non-metallic athletic shoes of all types. The finished surfaces shall resist abrasion and cutting from normal use with conventional athletic shoes of all types. The system shall be ideal for soccer, softball, football, baseball, rugby, lacrosse, intramural, PE classes and recreational use.

v. Turf seams shall be carefully constructed to minimize long-term maintenance requirements. Seams shall be custom cut on site using suitable equipment and proven installation techniques. Seams shall be sewn or glued per manufacturer's recommendations.

w. Seaming filament: Thread for sewing seams of turf shall be as recommended by the Synthetic Turf Manufacturer.

2.2 SYNTHETIC TURF MAINTENANCE EQUIPMENT

A. Field Sweeper: the Sweep-Right. Groomer: Groom-Right or equivalent (Phone 1-800-724-2969), at the discretion of the Manufacturer.

B. Submit manufacturer's data, photographs, maintenance manuals and operating instructions.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Verify that all sub-base, drainage, grading and leveling is complete prior to installation.

B. The surface to receive the synthetic turf must be inspected by the Installer, and prior to the beginning of installation, the Installer must accept the sub-base in writing. The acceptance will depend on the owner providing the installer with test results indicating that compaction, planarity and permeability are in compliance with the synthetic turf manufacturer's specifications. The surface must be perfectly clean as installation commences and shall be maintained in that condition throughout the process. Acceptance shall be for tolerance to grade (1/4 inch in 10 feet in all directions and 0-1/2" from design grade). Installer shall be responsible for verifying the planarity of the base.

C. The Contractor and its listed turf subcontractor shall strictly adhere to the installation procedures provided by the manufacturer. Any variance from these requirements must be accepted in writing by the manufacturer's onsite representative and submitted to the District, verifying that the changes do not in any way affect the warranty.

1. The Contractor and its listed turf subcontractor shall coordinate his work with other and concurrent work and participate in pre-construction and pre-installation conferences.

2. The Contractor and its listed turf subcontractor shall field verify the dimensions and layout of the synthetic turf playing field. The surface tolerance shall not exceed 1/4 inch over 10 feet.

3. Verify final elevations using a "string line" method: lengths of 100' pulled taught with high/low spots marked and hand-dressed prior to importation of the synthetic composite underlayment.

4. The turf manufacturer and contractor must accept the rock base and drainage in writing prior to the installation of the synthetic grass system. The surface tolerance shall not exceed 1/4 inch over 10 feet. The synthetic grass system is to be installed directly over the properly prepared rock base. Extreme care should be taken to avoid disturbing the rock base, both in regard to compaction and planarity. It is suggested that a 2-5 ton static roller is on site and available to repair and properly compact any disturbed areas of the aggregate base.

5. The full width rolls of turf shall be laid out across the field. The seams shall be sewn or glued as per manufacturer's specifications and head seams, other than at sidelines, shall not be acceptable. All seams in the soccer field shall be perpendicular to the length of the field. Seams shall be flat, tight, and permanent with no separation or fraying. At seams, the gap between the fibers should not exceed the gauge of the tufting. Permanent playing lines and markings shall be laid out and incorporated in the turf as shown on the drawings.

6. Carefully measure and install sides seams, complete corners and cut in inlaid lines and patterns as required per manufacturer's specifications and approved submittals.

7. Carefully measure and install edge at edge of field.

8. Before permanently fastening the synthetic turf to its edges, check for uniform planarity, square and make corrections to deformities as required.

9. Secure the synthetic turf playing field to the recycled plastic lumber perimeter attachment with a nail gun, as per manufacturer's specifications, at maximum one-foot (1') intervals.

10. Install the infill system per manufacturer's specifications with uniform mechanical properties, including density, compliance and thickness to provide a consistently smooth grass-like surface without dips or humps or other irregularities that are rejected by the Landscape Architect.

11. The completed synthetic turf field shall be uniformly brushed with a motorized nylon rotary broom and the infill material immediately and uniformly installed with a minimum four-foot (4') width drop spreader. The infill shall be applied in multiple lifts as per manufacturer's specifications to the depth and quantity lifts as per manufacturer's specifications and approved submittal. Brush the infilled area between each lift as per manufacturer's specifications.

12. Neatly trim, dress and install the synthetic turf around boxes and items that are installed in the turf surface. Provide approved surface treatment for removable caps in the synthetic turf as required.

3.2 CLEAN UP

A. Contractor shall provide the labor, supplies and equipment as necessary for final cleaning of surfaces and installed items.

B. All usable remnants of new material shall become the property of the District.

C. The Contractor shall keep the area clean throughout the project and clear of debris.

D. Surfaces, recesses, enclosures, etc. shall be cleaned as necessary to leave the work

area in a clean, immaculate condition ready for immediate occupancy and use by the District.

3.3 PROJECT CLOSEOUT

A. The Contractor and its listed turf subcontractor shall provide the following, or the Contractor shall ensure that the turf manufacturer provides the following:

1. The Contractor and its listed turf subcontractor shall provide the required testing data to the District to show that the finished field meets or exceeds the required shock attenuation.

2. The Contractor and its listed turf subcontractor shall provide grooming and sweeping once per month for the first three months after acceptance of the turf and the make required adjustments to the infill system after the first seasonal rains to adjust for settling.

3. The turf manufacturer and Contractor shall inspect the existing synthetic turf maintenance equipment and make recommendations for adjustments for optimum maintenance.

4. The Contractor and its listed turf subcontractor shall train the District's personnel how to use sweeper and groomer to, remove debris, remove foreign substances, and maintain the synthetic turf. After synthetic turf installation is complete, the Contractor shall arrange for a demonstration performed by the synthetic turf manufacturer's representative and the equipment representative to train the District's personnel in the operation and maintenance of the equipment. The District's personnel shall provide the vehicle (golf cart or tractor) to pull the sweeper for demonstration purposes. Scheduling of demonstration shall be at the convenience of the District's personnel within three (3) months after completion of the installation process.

5. The turf manufacturer and contractor shall provide the warranty to the District as specified in this section.

6. Prior to final payment for the synthetic turf, the Contractor shall submit to owner notification in writing that the field is officially added to the annual policy coverage, guaranteeing the warranty to the Owner. The insurance policy must be underwritten by an "AM Best" A rated carrier and must reflect the following values:

    a. Pre-Paid 8-year insured warranty.

    b. Insured Warranty coverage must be provided in the form of one (1) single policy.

    c. No maximum per claim coverage amount.

    d. Minimum of twenty million dollars ($20,0000,000) annual aggregate

    e. Must cover full 100% replacement value of total square footage installed, minimum of $8.00 per sq ft. in 2022 dollars (in case of complete product failure, which will include removal and disposal of the existing surface)

    f. Policies that include self insurance or self retention clauses shall not be considered.

g. Policy cannot include any form of deductible amount.

h. Sample policy must be provided at time of bid to prove that policy is in force. A letter from an agent or a sample Certificate of Insurance will not be acceptable.

7. The turf manufacturer and Contractor shall provide maintenance manuals to the District as specified in this section.

8. The turf manufacturer and Contractor shall provide a field information kit to the District as specified in this section.

9. The turf manufacturer and Contractor shall provide one-gallon of an industrial strength cleaning solution and cleaning instructions so that the District can safely clean the field of organics, grease and oil.

10. The turf manufacturer and Contractor shall provide extra sand and cork and olive cores infill in dry containers for top dressing and field maintenance.

END OF SECTION

THIS SHEET IS INTENTIONALLY LEFT BLANK

SECTION 32 18 15
SYNTHETIC LANDSCAPE TURF

PART 1 - GENERAL

1.01 DESCRIPTION

A. Provide synthetic turf system and the base material installation complete.

1.02 SUSTAINABLE DESIGN REQUIREMENTS

A. Sustainable Design Requirements:

The Owner requires the Contractor to implement practices and procedures to meet the Project's environmental and wellness performance goals, which include achieving LEED v4 Core and Shell and WELL v2 Core certifications. Refer to Section 018113 – Sustainable Design Requirements for the Project's target certification levels and specific LEED and WELL requirements.

The Contractor shall ensure that the requirements related to the Project's sustainability and wellness design goals are implemented to the fullest extent. Substitutions, or other changes to the work proposed by the Contractor or their Subcontractors, shall not be allowed if such changes compromise the Project's sustainability and wellness goals or LEED and WELL certifications.

1.03 SUBMITTALS

A. Provisions: Comply with Division 1 Requirements.

B. Material list, product data and samples of all items proposed to be provided under this Section.

C. Certificates (certified analysis of certificate of compliance) signed by the material producer.

D. Certificates (certified analysis of certificate of compliance) signed by the material producer stating that the product is free of lead and in compliance with US Consumer Product Safety Commission requirements.

E. Prior to starting the installation of the approved synthetic turf, the Contractor shall submit a certification signed by the Contractor, its listed turf subcontractor and drainage system installer, that installed base stone and drainage materials conform to specified requirements and system was successfully checked and tested prior to covering with the synthetic turf system.

F. Conformance Surveying: The Contractor shall perform a conformance survey on a 20-foot grid after subgrade is complete and prior to placement of stone base. Submit copy of Conformance Survey to Architect.

G. Conformance Surveying: The Contractor shall perform a conformance survey on a 20-foot grid after stone base is complete and prior to placement of Underlayment and Synthetic Turf. Submit copy of Conformance Survey to Architect.

H. Permeability testing: submit a report showing permeability of existing field base stone per ASTM F 2898, Standard Test Method for Permeability of Synthetic Turf Sports Field Base Stone and Surface System by Non-confined Area Flood test Method. Testing shall be provided for every 10,000 SF of Synthetic Turf surface.

1.04 QUALITY ASSURANCE

A. Reference Standards

1. Perform all work in accordance with all applicable laws, codes and regulations required by the Federal Government, State of California, City of South San Francisco, and San Mateo County.

2. Perform work in accordance to applicable sections of the Caltrans Standard Specifications.

3. Reference to "Caltrans Standard Specifications" shall mean the Standard Specifications of the State of California, Business and Transportation Agency, Department of Transportation, CALTRANS.

B. Related work specified elsewhere includes:

1. Section 01 45 00 Quality Control

2. Section 31 00 00 Earthwork

3. Section 32 13 13 Landscape Concrete

4. Section 32 40 10 Storm Drainage

C. Stipulations

1. The finished surface of the subgrade, at any point, shall not vary more than 0.05' above or below the elevation indicated on the drawings.

2. Finish Surface Tolerance: 1/4-inch maximum variation in 10 feet.

D. ASTM Standards.

1.05 PROJECT CONDITIONS

A. Coordination: Coordinate this work with the work of other Sections to avoid delay and interference with other work.

1.06 SOILS REPORT

A. A soil investigation report has been prepared for the project.

B. This report is available in the office of the Architect and the Construction Manager for inspection by the Contractor. Unless otherwise specified, it is intended that all work be performed in accordance with the provisions of this report.

1.07 SOILS BORINGS

A. Subsurface soils investigations have been made at the site and logs of the test holes are available with the soils report. Such investigations have been made for the purposes of design only, and neither the Landscape Architect, the Owner, nor the Soils Engineers guarantee adequacy or accuracy of the data, or that data are representative of all conditions to be encountered. Such information is made available for general information only and shall not relieve the Contractor of the responsibility for making his own investigations

1.08 PROJECT CONDITIONS

I. Coordination: Coordinate this work with the work of other Sections to avoid delay and interference with other work.

J. Protect excavations by shoring, bracing, sheeting, underpinning, or other methods as required to prevent cave-ins or loose dirt from entering excavations. Barricade open excavations and post warning lights at work adjacent to public streets and walks.

K. Underpin adjacent structure(s), including utility service lines, which may be damaged by excavation operations.

L. Promptly repair damage to adjacent facilities caused by operations. Cost of repair at Contractor's expense.

M. Promptly notify the Inspector of unexpected subsurface conditions.

N. If during the course of operations, an area of pumping or otherwise unstable soil is encountered, the contractor shall immediately modify his operations in such a way as to limit the frequency and weight of vehicles traveling over the area and promptly notify the Inspector who will contact the Geotechnical Engineer for an evaluation.

1.09 EXISTING CONDITIONS

A. A topographic survey of the property has been included in the drawings for reference only. Upon beginning the work, Contractor represents that he has inspected the site and satisfied himself as to actual grades and levels and the true conditions under which the work is to be performed.

1.10 PROTECTION

A. Furnish, place and maintain all supports, shoring and sheet piling which may be disturbed by earthwork operations.

B. Maintain all benchmarks, monuments, and other reference points. If disturbed or destroyed, replace as directed.

C. Adequate protection measures shall be provided to protect workmen, passers-by, and the site. Streets and adjacent property shall be fully protected throughout the operations.

D. In accordance with generally accepted construction practices, the Contractor shall be solely and completely responsible for working conditions on the job site, including safety of all persons and property during performance of the work. This requirement shall apply continuously and not be limited to normal working hours.

E. Any construction review of the Contractor's performance conducted by the Inspector is not intended to include review of the adequacy of the Contractor's safety measures in, on, or near the construction site.

F. Adjacent streets, sidewalks, and property shall be kept free of mud, dirt, or similar nuisances resulting from earthwork operations.

G. Provide for surface drainage during the period of construction in a manner to avoid creating a nuisance to adjacent areas.

H. Water as required to suppress dust nuisance.

I. Protection of Existing Improvements

1. Provide barricades, covering, or other types of protection necessary to prevent damage to existing improvements indicated to remain in place. Protect improvements on adjoining properties. Repair damaged existing improvements to original condition as approved by authority having jurisdiction.

J. Provide erosion control measures as required.

K. Protection of Other Property: Excavation and other work over, under and adjacent to existing pipelines, cables, conduit runs or structures of any kind shall be procured in such a manner as not to interfere with the safe operation and use of such installations. Should any damage be incurred to existing facilities during the Contractor's operations, the Contractor shall immediately notify the Owner's Representative and authorities, and shall arrange for the immediate repair of same at his own expense.

L. Underground Obstruction: The locations of existing underground utilities and structures, insofar as they are known from information furnished by the respective utility companies and agencies, have been shown on the drawings. The Owner assumes no responsibility for the accuracy or completeness of said data, which is offered solely for the convenience of the Contractor.

M. Control of Water: Take measures as may be required and furnish, install and operate such pumps or other devices as may be necessary to remove any seepage, storm water or sewage that may be found or may accumulate in the excavations during the progress of the work. Keep excavations entirely free from water at all times during the construction of the work, and until the Geotechnical Engineer gives permission to cease pumping.

N. Pavement Restoration: Pavement, bases and compacted subgrade disturbed by trenching operations shall be replaced in an acceptable manner with materials equal to the adjacent compacted subgrade, bases and pavement for a minimum distance of 12" on each side of the trench, and shall conform to the requirements of these Specifications or to local ordinances governing such replacement.

1.11 FIELD QUALITY CONTROL

A. Contractor shall provide adequate notice, cooperate with, provide access to the work, and assist testing agency and their representatives in execution of their function.

B. When, during the progress of work, field tests indicate that installed compacted materials do not meet specified requirements, provide additional compaction until specified density is achieved, or remove and replace defective materials with new materials as directed by the Inspector. Cost of additional labor, materials, and testing to attain specified density at Contractor's expense.

C. The Contractor shall engage a California Registered Civil Engineer or licensed Land Surveyor to perform field engineering.

1.12 TESTING

A. Testing and Inspection: Testing shall be performed by a qualified independent testing laboratory under the supervision of a registered professional engineer, specializing in soils engineering.

B. The Owner will direct, provide and pay for initial testing and inspection during operations.

C. Provide and pay for re-testing and inspection during operations. Laboratory and inspection service shall be acceptable to the Owner.

D. Where reference is made to relative compaction, it shall be the in-place dry density of soil expressed as a percentage of the maximum dry density of the same material, determined by the ASTM D1557 laboratory test procedure. Optimum moisture is the water content that corresponds to the maximum dry density.

E. Plasticity Index: ASTM 4318-98.

1.13 GENERAL REQUIREMENTS

A. When rain is forecast, temporary measures to protect areas of the exposed subgrade from saturation by rainfall or runoff shall be taken. These include, but are not limited to, covering grading and sloping of subgrade surfaces to prevent ponding, sealing disturbed, uneven subgrade, surfaces with a smooth drum roller, grading and excavating diversionary swales, trenches or detention basins.

B. Failure by the Contractor to comply with the above requirements to take reasonable and adequate measures or exercise sound engineering and construction practices to protect the work from damage. All repair work shall be performed at no additional cost to the Owner.

PART 2 - PRODUCTS

2.01 SUSTAINABILITY PERFORMANCE REQUIREMENTS

A. For all permanently installed products and materials related to the work of this Section, provide products and materials that meet the Project's LEED and WELL performance criteria as outlined in PART 2 - PRODUCTS of Section 01 81 13 – Sustainable Design Requirements.

2.02 SYNTHETIC TURF SYSTEM

A. Synthetic Turf for surfacing, GreenFields IRONTURF Ultra Green, the recyclable version of IRONTURF, certified lead free by independent laboratory testing available from Joshua Sarratt, ASC TURF, 209-914-9131, jsarratt@ascturf.com as follows:

Properties	
Model #	IRONTURF Ultra Green
Turf Content	U.V. resistant XWRD Extreme monofilaments blended with XPS Plus - Each matrix group is built with a total of 80,000□denier (4 bundles of 12,000/6 MS XWR Diamond at 365-microns thick with 4 each 8,000/1 XPS Plus tapes (36 fibrils)) woven with a unique blend of U.V. stable PP and PE fibers for the base structure
Color	Green (Submit samples)
Total Weight	91 ounce per square yard
Tufted Face Weight	59 ounce per square yard
Pile Height	2”
Fiber	Polyethylene
Stability Coating	Recyclable Duraflo polyolefin permeable coating; 16.0 oz/yd
Roll Width	15’
Color Fastness to Light	8-year warranty

Water Permeability	Greater than or equal to 13.2 gal/yd2/min
Holes for Drainage	¼" diameter holes on 4" on center grid.
Infill	A resilient, dust free, rounded, silica sand and Brock Fill infill system. (Submit cut sheets, MSDS and samples)

B. Base Stone: 1/4" x Dust Crushed Rock from Clayton/Basalt #4402/SMARA #91-07-0004, available from Cemex, Clayton, CA 925-580-2792 or accepted equal having the following properties:

U. S. Sieve		Percent Passing
3/8"	(9.5 mm)	100
#4	(4.75 mm)	88 +/- 8
#8	(2.36 mm)	60 +/- 9
#16	(1.18 mm)	41 +/- 8
#30	(600 um)	29 +/- 6
#50	(300 um)	21 +/- 4
#100	(150 um)	15 +/- 3
#200	(75 um)	12 +/- 2

Sand Equivalent = 48 +/- 11

Specific Gravity = 2.81

Absorption = 1.0%

C. Flexible Perforated Drain Pipe: Size as noted on the drawings, and manufactured to meet ASTM 405, or accepted equal.

D. Drain Inlets & Clean Outs: By Christy, 800-486-7070; Central Precast, 707-546-5016; Hanson Concrete Products, Pleasanton, CA, 925-426-4933 or accepted equal.

E. Geotextile Liner: Mirafi 140N, or accepted equal.

2.03 CONCRETE CURBING/BORDER

A. Provide concrete border as indicated on drawings.

B. Concrete to comply with provisions of Section 32 13 13.

2.04 SYNTHETIC TURF ADHESIVE

A. Turf Bond Adhesive and Tape, Woodstock, GA 770-926-0004 or Nordot Adhesive System, Scotch Plains, NJ 908-233-6844 or approved equal.

2.05 OTHER MATERIALS

A. Provide all other materials, not specifically described but required for complete and proper installation of this work, as selected by the contractor and subject to the approval of the Architect.

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS

A. Inspection

1. Prior to work of this section, carefully inspect previously installed work. Verify all such work is complete to the point where this installation may properly commence.
2. Provide sub grade surfaces acceptable to manufacturer: compacted base material.
3. Verify that proper drainage is provided.
4. Verify that work of this section may be installed in strict accordance with the original design, all pertinent codes and regulations, and all pertinent portions of the referenced standards, including but not limited to, U.S. Consumer Product Safety Guidelines and ASTM Standards 1487-11 and 1292-09.
5. In the event of discrepancy, immediately notify the Architect.
6. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

3.02 CONCRETE CURB INSTALLATION:

A. Preparation

1. Verify sub-grade, base material, conduit, and all other embedded items are properly located. Secure all embedded items against displacement during pour.
2. Verify all grades for pitch and fall prior to pouring pavements.
3. Verify that all cross-fall and ramp criteria comply with all accessibility regulations. Including Title 24 requirements.
4. Verify existing sub grade complies with criteria specified in Section 32 11 13.
5. Notify inspector 48 hours prior to placing. Obtain inspectors approval of subgrade, forming and embedded items prior to placing.

B. Forming

1. Install forms in accordance with specified tolerances.
2. Stake rigidly in place at maximum intervals of 4 feet on center. Secure so as to prevent displacement during pouring and finishing process.
3. Install stretched wires or other device to provide form displacement indication.
4. Thoroughly clean forms. Remove debris. coatings and foreign matter. Coat forms with approved bond breaker.

3.03 AGGREGATE SUB BASE INSTALLATION

A. Install base stone and compact.

3.04 SYNTHETIC TURF SYSTEM INSTALLATION

A. Manufacturer's Instructions: Comply with the instructions and recommendations of the manufacturer.

B. Examination:

1. Site Verification of Conditions: Verify that substrate conditions are suitable for installation of the synthetic turf system.

2. Do not proceed with installation until unsuitable conditions are corrected. Proper drainage is critical to the longevity of the surfacing system.

C. Preparation:

1. Surface Preparation: Ensure that the substrate meets the slope and drainage requirements.

D. Installation:

1. Do not proceed with synthetic turf system installation until all applicable site work, including substrate preparation, and other relevant work, has been completed.

2. Carpet Stretching:
After seams are glued and cured, stretch the carpet to eliminate slack in the carpet so that the surface is free of irregularities.

3. Borders:

a. Secure border as detailed.

E. Field Quality Control:

1. Installations shall be completed under the supervision of a certified synthetic turf installer following manufacturer's installation procedures and confirming conformity to the installation procedures by completing manufacturer's documentation.

2. Tolerances

a. Smoothness: 3/16 inch plus or minus, at any point, measured along a 10 foot straight edge.

b. Adjacent surfaces: 1/8 inch maximum difference at any point between adjacent surfaces.

3.05 PROTECTION

A. Protect finished installation under provisions of the General Conditions.

B. Do not permit traffic over finished surfaces for timeframe specified by manufacturer.

C. Protect the surface from damage resulting from subsequent construction activity on the site.

3.06 MAINTENANCE

A. Provide direction and training to Owners staff by factory representative, on cleaning, repair, and resurfacing procedures.

B. Provide recommended list of maintenance products for Owner.

END OF SECTION

SECTION 32 90 00

PLANTING

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Furnish labor, material and equipment for the installation of the planting work and the maintenance as shown on the drawings and as specified**.**

1.2 RELATED SECTIONS

A. Section 00 31 19 Existing Conditions

B. Section 00 31 32 Geotechnical Data

C. Section 01 11 00 Summary of Work

D. Section 02 41 00 Site Preparation & Plant Protection

E. Section 31 00 00 Earthwork

F. Section 31 25 00 Erosion Control

G. Section 32 11 13 Subgrade Preparation and Base Material

H. Section 32 13 13 Landscape Concrete

1.3 QUALITY ASSURANCE

A. Qualifications:

1. Experience: Assign a full-time employee to the job as foreman for the duration of the Contract with a minimum of four (4) years experience in landscape installation and maintenance supervision, with experience or training in turf management, entomology, pest control, soils, fertilizers and plant identification.

2. Labor Force: Provide a landscape installation and maintenance force thoroughly familiar with, and trained in, the work to be accomplished to perform the task in a competent, efficient manner acceptable to the Project Inspector.

B. Requirements:

1. Supervision: The foreman shall directly supervise the work force at all times and be present during the entire installation. Notify Project Manager of all changes in supervision.

2. Identification: Provide proper identification at all times for landscape maintenance firm's vehicles and a labor force uniformly dressed in a manner satisfactory to Project Inspector.

C. Reference Standards:

1. Manufacturer's specifications.

2. "Sunset Western Garden Book," Lane Publishing Co., Menlo Park, California; current edition.

3. "American Standards for Nursery Stock," American Association of Nurseryman, 230 Southern Building, Washington, D.C. 20005.

4. Geotechnical Report: (Included for reference in Appendices of the Project Manual).

5. Weed Control Methods Handbook, The Nature Conservancy, Tu, M., Hurd, C. & J.M. Randall. 2001. http://tncweeds.ucdavis.edu.

D. Plant Material Standards:

1. Quality and Size of Plants: Conform to the State of California Grading Code of Nursery Stock, No. 1 grade. Use only nursery-grown stock that is free from insect pests and diseases.

2. Comply with federal and state laws requiring inspection for plant diseases and infestations. Submit inspection certificates required by law with each shipment of plants, and deliver certificates to the Project Inspector. Obtain clearance from the County Agricultural Commissioner as required by law, before planting plants delivered from outside the County in which planted.

3. Certification from nursery (s) and seed company at the time the contract is initiated and later, if there are any updates, provide certification to identify who will be letting the nursery contract to provide plant material and seed.

E. Testing Agency:

1. Waypoint Analytical, Anaheim, CA.

2. Sam Ferro, Turf Diagnostics & Design, Inc., 613 E. 1st Street, Linwood, KS 66052, (913) 723-3700, Fax: (913) 723-3701.

3. Wallace Laboratories, El Segundo, CA.

1.4 SUBMITTALS

A. Product Data: Manufacturer's current catalog cuts and specifications of the following.

1. Hydroseed materials

2. Seed Mixes

3. Mycorrhiza

4. Fertilizers

B. Samples:

1. Seed Mixes: Submit 1-pound labeled samples.

C. Certificates of Compliance for the following:

3. For grass seed--prior to seeding, provide a letter of certification, original Association of Official Seed Analysts (AOSA) seed test results.

1.5 PROJECT/SITE CONDITIONS

A. Site Visit: At beginning of work, visit and walk the site with the Project Inspector to clarify scope of work and understand existing project/site conditions.

PART 2 - PRODUCTS

2.1 PLANTS

A. Seed shall be in conformance with the California State Seed Law of the Department of Agriculture. Each seed bag shall be delivered to the site sealed and clearly marked as to species, purity, percent germination, dealer's guarantee, and dates of test. Prior to seeding at the request of the Architect, the Contractor shall provide a letter of certification, original Association of Official Seed Analysts (AOSA) seed test results.

B. Seed shall be a minimum 97% pure & Minimum 85 % germination. Crop seed less than 1.25 % & weed seed less than .75%. No Noxious weeds.

2.2 FERTILIZERS

A. Commercial fertilizer, pelleted or granular form, conform to the requirements of Chapter 7, Article 2, of the Agricultural Code of the State of California for fertilizing materials as follows:

Potassium Sulfate (0-0-50)

Soil Sulfur: Tiger Organic 0-0-0-90 Sulfur

Treble Superphosphate: 0-48-0

Gypsum

Biosol 7-2-1 fertilizer

AM120 inoculant

If commercial fertilizer having this analysis is not obtainable, other similar commercial fertilizer may be used providing it meets the acceptance of the Architect.

2.3 GRASSES

A. Seed Mix For turf seeding

1. Fescue Blend (or approved equal) .

10 lbs/1,000 sq. ft.

30% Rambler Tall Fescue

60% 2nd Millennium Dwarf Fescue

10% Midnight Kentucky Blue

a. Supplier shall be Pacific Coast Seed, Livermore, CA, 800-733-3462 or approved equal.
b. Provide extra seed for top seeding as required during the plant establishment period.

2.4 ON-SITE TOPSOIL

A. Protect existing topsoil in place. Refer to drawings for extent.

B. Satisfactory topsoil shall be free of subsoil, clay, lumps, stones and other objects over 1" in diameter, and without weeds, roots and other objectionable material.

C. If herbicide contamination is suspected, then a radish/ryegrass growth trial must be performed. Consult with Inspector prior to decision to test or not.

2.5 HYDROSEED MULCH

A. Fiber Mulch: EcoFibre or approved equal. Green colored, fibrous, wood cellulose containing no growth or germination inhibiting factors and manufactured in such a manner that after addition and agitation in slurry tanks with fertilizer, seed, water and other approved additives, the fibers in the material become uniformly suspended to form a homogeneous slurry; and that when hydraulically sprayed on the ground, the material forms a blotter-like ground cover impregnated uniformly with seed; and which, after application, allows the absorption of moisture and rainfall to percolate to the underlying soil.

B. Cellulose: Certified to indicate that the laboratory and field testing of the product has been accomplished and that it meets all of the foregoing requirements based on testing. Weight specifications of this material from suppliers and for all applications refer only to air dry weight content.

C. Absolute air dry weight is based on the normal standards of the Technical Association of the Pulp and Paper Industry for wood cellulose and considered equivalent to 10% moisture. Supply packages of the cellulose fiber marked by the manufacturer to show the air-dry weight content.

2.6 HYDROSEED STABILIZING AGENT

A. A mixture of 100% organic water soluble alginic acids derived from cold-water kelps, such as M-binder or approved equal.

2.7 HYDROSEED MIX

A. Incorporate the following seed uniformly in hydromulch at the specified rates per acre. Provide seed of the latest crop, labeled in accordance with the California Food Agricultural Code with the following ingredients per acre:

Wood Fiber: 2,000 lbs/acre
Stabilizer: 100 lbs/acre
Treble Superphosphate (0-48-0): 130 lbs/acre
Potassium Sulfate (0-0-50): 200 lbs/acre
Soil Sulfur: 300 lbs/acre
Biosol 7-2-1 fertilizer: 1000 lbs/acre
AM120 inoculant p60 lbs/acre.
Seed rate as specified

2.8 MYCORRHIZA PLANTING BACKFILL

A. MycoApply® All Purpose Granular available from Mycorrhizal Applications, Inc www.mycorrhizae.com, PO Box 1181 Grants Pass, OR 97528, Telephone 866-476-7800, or 541.476.3985 fax, 541.476.1581.

2.9 SAND (ANGULAR WASHED SAND AND SAND GROWING MEDIUM)

A. Sand backfill and sand for top dressing shall be medium angular coarse washed USGA Sand, free of mica and meet or exceed recommended values:

B. A total silt and clay of no more than 4%.

C. Shall be naturally angled sand. No rounded silica sand.

D. Sand shall meet or exceed the following values of USGA sand particle distribution:

Sieve Size	USGA Spec Individual Percent Retained
#4	0
#10	0-3%
#18	0-7%
#35	Minimum 60%
#60	Combined
#100	20% Maximum
#270	5% Maximum

E. Sand shall be from one of the following sources or approved equal:

1. Top Dressing Sand available from Tim Smith of Brown Sand Inc. 209-234-1200.

2. G8 Sand available from TMT Enterprises 408-432-9040-Matt.

PART 3 - EXECUTION

3.1 EXAMINATION

A. General: Verify that existing site conditions are as specified and indicated before beginning work under this section.

1. Grades: Inspect to verify grade of planting areas.

B. Unsatisfactory Conditions: Report in writing to Owner's Representative.

C. Acceptance: Beginning of installation means acceptance of existing conditions by installer.

D. Coordination: Coordinate with other trades so that adequate, healthy, friable and acceptable topsoil is provided consistent with this section.

3.2 PREPARATION

A. Protection:

1. Locate sewer, water, irrigation, gas, electric, phone and other pipelines or conduits and equipment prior to commencing work.
2. Be responsible for proper repair to utilities, walls, pavements and other site improvements damaged by operations under this section.
3. Pay for repairs made by contractor(s) designated by Owner.
4. Protect existing woody roots, shrubs and trees to remain.
5. Protect existing soil and slopes that exceed 3:1 slope. Do not disturb grade of slopes steeper than 3:1

B. Grass Mowing: Mow existing grass as short as possible to remove weeds and expose surface grade.

C. Surface Grade: Remove, weeds, debris and rocks larger than 1". Dispose of accumulated debris. Scarify existing soil to relieve compaction from construction operations.

D. Topdressing: Top dress with Angular Washed Sand to fill low spots and depressions and provide positive drainage and a smooth surface.

E. Runoff: Take measures and furnish equipment and labor necessary to control the flow, drainage, and accumulation of water to run off the grounds as is intended by the grades.

F. Erosion Control: Take measures and furnish equipment and labor necessary to control and prevent soil erosion, blowing soil and accumulation of wind-deposited material on the site throughout duration of work.

G. Irrigation System: coordinate repair of existing system to the exent that it exists.

3.3 WEED REMOVAL

A. Inspect planting areas and remove and dispose of all invasive weeds, base rock and other foreign material, including soils contaminated with cement or other materials or debris, including the following invasive weeds. Request photographs of invasive weeds if

required for identification. Refer to Weed Control Methods Handbook, The Nature Conservancy, Tu, M., Hurd, C. & J.M. Randall. 2001. https://www.invasive.org/gist/products/handbook/methods-handbook.pdf

Botanical Name	**Common Name**
TREES	
Acacia spp.	acacia
Ailanthus altissima	tree of heaven
Eucalyptus spp.	gum
Ficus carica	fig
Fraxinus uhdei	ash, evergreen
Juglans regia, Juglans californica var. hindsii	walnut, English or black
Myoporum laetum	Myoporum
Olea europaea	olive
Pinus radiata	Monterey pine
Platanus acerifolia	London plane tree
Populus nigra 'Italica'	Lombardy poplar
Prunus dulcis	almond
Prunus spp.	flowering plum, fruitful varieties
Quercus ilex	holly oak
Robinia pseudoacacia	black locust
Schinus spp.	pepper trees
Tamarix spp.	tamarisk, salt cedar
Ulmus spp.	elm
SHRUBS	
Acacia spp	acacia
Arundinaria, Chimonobambusa, Phyllostachys, etc.	bamboo, running types
Arundo donax	giant reed
Cortaderia selloana, C. jubata	pampas grass, jubata grass
Cotoneaster spp.	cotoneaster
Cytisus scoparius	broom, Scotch
Digitalis purpurea	foxglove
Genista monspessulana, previously Cytisus monspessulanus	broom, French
Ligustrum lucidum	glossy privet
Melissa officinalis	lemon balm
Pennisetum setaceum; purple variety "Cupreum" is sterile and acceptable	fountain grass
Pyracantha spp.	Pyracantha
Rubus discolor	Himalayan blackberry
Spartium junceum	broom, Spanish
Ulex europaea	gorse
GROUNDCOVERS, VINES	
Acacia spp	acacia
Arctotheca calendula	Cape weed
Carpobrotus edulis, C. chilensis, Mesembryanthemum spp.)	ice plants
Cotoneaster spp.	Cotoneaster
Delairea odorata, previously Senecio mikanioides	ivy, Cape

Hedera canariensis	ivy, Algerian
Hedera helix	ivy, English
Mentha spp.	mint, any kind including pennyroyal, peppermint, spearmint
Pennisetum clandestinum	kikuyu grass
Pyracantha spp.	Pyracantha
Source: Santa Clara Valley Water District, May 2001	UPDATE LIST?
OTHERS (2007)	
Centaurea solstitialis	yellow star thistle
Conium maculatum	poison-hemlock
Cynodon dactylon	Bermuda grass
Echium Candicans (fastuosum)	pride-of-Madeira
Elaeagnus angustifolia.	Russian-olive
Foeniculum vulgare	fennel
Raphanus sativus	radish
Tropaeolum majus	garden nasturtium
Urtica Dioica	stinging nettle
Zantedeschia Aethiopica	calla lily

B. Clear the planting areas of all objectionable plant material, to include roots, snags, brush, weeds, and similar undesirable vegetation and any other debris found at the site not specified as improvements to be included as part of this project. All such materials shall be removed from the site and disposed of in an acceptable manner.

C. Remove rocks over one inch (1") in size. Said material shall be removed from the site and disposed of in an acceptable manner.

D. Dispose offsite, any site soils from areas on which are growing any noxious weeds such as Fennel, Morning Glory, Sorrel, or Bermuda grass.

3.4 TOPDRESSIING

A. Topdress with Angular Washed Sand to fill. Low spot, depressions and provide a smooth surface.:

J. Drag to a smooth, even surface. Grade to form all swales, pitch to drain to ensure uniform surface drainage. Areas requiring grading include adjacent transition areas which shall be uniformly level or sloped between finish elevations.

K. Roll, scarify, rake and level as necessary to obtain true, even planting surfaces. Remove rocks, sticks and debris 1 inch or larger. Secure acceptance of the grade by the Landscape Architect before any planting.

L. Scarify all planting areas that become compacted prior to planting.

3.5 GRASS SEED PLANTING

A. Before proceeding with the work: carefully inspect all areas and verify all dimensions and quantities. Immediately inform the Landscape Architect of any discrepancy between the drawings and specifications and actual conditions and secure approval to proceed.

B. Planting operations shall be performed only during periods when beneficial results can be obtained. When excessive moisture or other unsatisfactory conditions prevail, the work shall be stopped until conditions are satisfactory.

C. Thoroughly wet down the planting areas to settle the soil and confirm irrigation coverage and operation. Allow soil to dry so as to be workable.

D. Drag to a smooth, even surface. Grade to form all swales, pitch to catch basins, streets, curb, etc., to ensure uniform surface drainage. Areas requiring grading include adjacent transition areas, which shall be uniformly level or sloped between finish elevations.

E. Hold finish grade and/or mulch surface in planting areas below adjacent pavement surfaces, tops of curbs, manholes, etc., as shown on the drawings.

F. Soil shall be in a loose, friable condition prior to planting. Scarify all planting areas that become compacted prior to planting. The key to success is to ensure the seed has contact with the soil. Scratching the soil with steel rakes or dragging a bar with nails or spikes is key to making sure the seed lands on the soil surface.

G. Drill seed may be used in lieu of hydroseeding for areas that are generally flat and accessible for drill seeding.

H. Broadcast Mycorrhiza at a rate of 2 pounds per 1,000 square feet on the soil surface that is to receive seed. Broadcast when it will not be disturbed by wind.

I. Hydraulic Equipment: use a commercial-type hydroseeder with a built-in agitation system and an operating capacity sufficient to agitate, suspend and homogeneously mix slurry. Use distribution lines large enough to provide even distribution of the slurry over the ground. Pump must be capable of exerting up to 150 psi at the nozzle and the slurry tank have a minimum capacity of 1,000 gallons and be mounted on a traveling unit to place the slurry tank and spray nozzles within sufficient proximity to the areas to be seeded in order to provide uniform distribution without waste.

J. Mixing: mix the slurry preparation on site. Begin by adding water to the tank when the engine is at half throttle. When the water level has reached the height of the agitator shaft, establish good re-circulation and add seed, then fertilizer, followed by wood pulp mulch. Add the wood pulp mulch only after the seed and when the tank is at least 1/3 filled with water. Open engine throttle to full speed when the tank is half filled with water. Add all wood pulp mulch by the time the tank is 2/3 to 3/4 full. Spray immediately when the tank is full with a uniform, visible coat, using the green color of the wood pulp as a guide.

K. Application:

1. Secure approval of area to be hydroseeded from Inspector prior to application.

2. Install per manufacturer’s specifications.

3. Use experienced operators of hydromulching equipment for application and apply slurry mix in sweeping motion to form a uniform mat at specified rate, keeping hydromulch within areas designated.

4. Do not use slurry mixture that has not been applied within four hours of mixing, and remove from site.

5. After application, do not operate any equipment over the covered area.

L. Watering: Water from natural rainfall.

M. Maintenance broadcasting: during seed establishment period scarify soil and reseed and water bare areas to establish a full stand of grass.

3.6 WATERING

A. Irrigate and provide supplement water as required to establish a full stand of grass.

3.7 DITCHES AND SWALES

A. Construct ditches and swales in the areas designated to convey storm water to the storm drainage facilities.

3.8 MAINTENANCE OF PLANT MATERIAL

A. Maintain plants from time of delivery to site until final acceptance of project.

3.9 PRE-MAINTENANCE PERIOD REVIEW AND APPROVAL OF PLANTING

A. Receive approval of the installed planting prior to commencement of planting establishment maintenance period. Notify the Project Manager a minimum of seven (7) days prior to requested review. Before the review, complete the following:

1. Complete all construction work.

2. Present all areas neat and clean with all weeds removed.

3. Complete all turf areas.

4. No partial approvals will be given.

3.10 PLANTING ESTABLISHMENT MAINTENANCE

A. General Requirements:

1. Use Bay-Friendly Landscape Maintenance practices to minimize waste, protect air and water quality, conserve energy and water, and protect natural ecosystems (refer to Bay-Friendly Landscape Guidelines, www.BayFriendly.org).

2. The planting establishment maintenance period required shall be 60 calendar days and start after certification of the project as substantially complete per Section 01 77 00. Refer to drawings for planting sequence requirements.

3. A longer period may be required if the plant material is not acceptably maintained during the maintenance period. The maintenance period may be suspended at any time upon written notice to the Contractor that the landscaping is not being acceptably maintained, and the day count suspended until the landscape is brought up to acceptable standards as determined by the Project Inspector.

4. Planting establishment maintenance immediately follows, coincides with, and is continuous with the planting operations, and continues after all planting is complete and accepted; or longer where necessary to establish acceptable stands of thriving plants.

5. Protect all areas against damage, including erosion and trespass, and provide proper safeguards. Maintain and keep all temporary barriers erected to prevent trespass.

6. Keep all walks and paved areas clean. Keep the site clear of debris resulting from landscape work or maintenance.

7. Repair all damaged planted areas, and replace plants and reseed or re-sod immediately upon discovery of damage or loss. Broadcast seed grasses to supplement sparse areas and areas the have been damaged or have eroded.

8. Check sprinkler systems at each watering; adjust coverage and clean heads immediately. Adjust timing of sprinkler controller to prevent flooding.

9. Maintain adequate moisture depth in soil to insure vigorous growth.

10. Keep Contract areas free from weeds by cultivating, hoeing or hand pulling. Use of chemical weed killers will not relieve the Contractor of the responsibility of keeping areas free of weeds over 1-inch high at all times.

B. Seed Maintenance:

1. Maintain during the entire establishment period.

2. Seed shall be well established, free of bare spots and weeds, and of a “sod-like” quality to the satisfaction of the Landscape Architect prior to Final Acceptance.

3. Maintain constant moisture to a depth of eight inches (8").

4. Keep seed areas free of undesirable weeds and grasses by the application of suitable selective weed killers or hand pulling. Use Integrated Pest Management practices that use the least toxic practices.

5. Re-seed all damaged areas as soon as evident.

6. Repair any hollow, settled or eroded areas by filling, rolling and reseeding or re-seeding.

3.11 FINAL PLANTING REVIEW AND ACCEPTANCE, PER SECTION 01 77 00

A. At the conclusion of the planting establishment period, schedule a final review. On such date, all project improvements and all corrective work shall have been completed. If all project improvements and corrective work are not completed, continue the planting establishment, at no additional cost to the Owner, until all work has been completed. This condition will be waived by the Owner under such circumstances wherein the Owner has granted an extension of time to permit the completion of a particular portion of the work beyond the time of completion set forth in the Agreement.

B. Submit written notice-requesting review at least 10 days before the anticipated review.

C. Prior to review, weed and rake all planted areas, repair plant basins, mow and edge turf, clear the site of all debris and present in a neat, orderly manner.

D. Acceptance of Seeded Areas: Final acceptance will follow final approval of the punch list and the following criteria:

1. Satisfactory Seeded Area: At end of Maintenance Period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 square feet.

3.12 WARRANTY AND REPLACEMENT

A. Warrant all seeding to be in a healthy thriving condition until the end of the maintenance period; and deciduous trees beyond that time until active growth is evident.

B. Replace all dead plants and plants not in a vigorous condition immediately as directed by the Landscape Architect at Contractor's expense. Install replacement plants before the final acceptance at the size specified.

C. Warrant all plant material for a period of one year after final acceptance by the district of the maintenance work against defects in the plant prior to installation. In General: Maintenance period will start at the substantial completion, per Section 01 77 00. Project acceptance and warranty period will occur at the conclusion of the Maintenance and District Acceptance of the project.

D. Warrant plant installation and maintenance by Contractor against defects for a period of one year from date of final acceptance by District.

END OF SECTION

SECTION 33 40 10

STORM DRAINAGE

PART 1 - GENERAL

1.1 DESCRIPTION

A. Provide all labor, materials and equipment for installation of all storm drainage systems as indicated on the drawings.

B. Related work specified elsewhere includes:

1. Section 00 31 19 Existing Conditions
2. Section 00 31 32 Geotechnical Data
3. Section 01 11 00 Summary of Work
4. Section 01 45 00 Quality Control
5. Section 01 71 23 Field Engineering
6. Section 02 41 00 Site Preparation & Plant Protection
7. Section 12 93 05 Site Furnishings
8. Section 31 00 00 Earthwork
9. Section 31 25 00 Erosion Control
10. Section 32 11 13 Subgrade Preparation and Base Material
11. Section 32 11 15 Synthetic Composite Underlayment
12. Section 32 13 13 Landscape Concrete
13. Section 32 18 13 Synthetic Turf Playing Field

1.2 REFERENCE AND STANDARDS

A. All general contractors, synthetic turf field sub-contractors and all turf field subcontractors performing all sub base preparation, grading and drainage infrastructure work should be experienced in the installation of synthetic turf systems for at least five (5) years. Failure to meet the requisite qualifications may result in the general contractors and sub-contractors being rejected as non-responsible.

C. All general contractors, synthetic turf field sub-contractors and all turf field subcontractors performing all sub base preparation, grading and drainage infrastructure work to have completed within the last (5) five years, five (5) synthetic turf field projects in Northern California greater than 80,000 square feet per field. Failure to meet the requisite qualifications may result in the general contractors and sub-contractors being rejected as non-responsible.

D. Perform work in accordance with all applicable laws, codes and regulations required by the State Water Resources Control Board, City of Larkspur and County of Marin.

E. Reference to "Standard Specifications" shall mean the Standard Specifications of the State of California, Business and Transportation Agency, Department of Transportation, CALTRANS.

F. When the Specifications call for materials and construction of a better quality or larger sizes than required by the ordinances, the provisions of the Specifications shall take precedence over the requirements of said ordinances.

G. Relative compaction refers to the in-place dry density of soil expressed as a percentage of the maximum dry density of the same material, as determined by the ASTM D1557 laboratory compaction procedure.

H. Construction Safety Orders of the State of California.

I. Trench Safety Provision, Section 6705, California Labor Code.

1.3 SOILS REPORT

A. A soil investigation report has been prepared for the project. See Section 00 31 32, Geotechnical Data.

B. The report is available in the office of the Landscape Architect and the Construction Manager for inspection by the Contractor. Unless otherwise specified, it is intended that all work be performed in accordance with the provisions of these reports.

C. Drilled piers may encounter ground water. Excavations for drilled piers may require casings and installation of concrete by means of pumping under the direction of the Geotechnical Engineer.

1.4 SOILS BORINGS

A. Subsurface soils investigations have been made at the site and logs of the test holes are available with the Soils Report. Such investigations have been made for the purposes of design only, and neither the Landscape Architect, the Owner, nor the Soils Engineers guarantee adequacy or accuracy of the data, or that data are representative of all conditions to be encountered. Such information is made available for general information only and shall not relieve the Contractor of the responsibility for making his own investigations

1.5 PROJECT CONDITIONS

A. Before proceeding with work, field verify the materials, sizes and elevations of existing storm drainage facilities to remain and be connected to.

B. Before proceeding with work, clean and flush the existing storm drainage facilities to remain and be connected to within the limit of work.

C Protect excavations by shoring, bracing, sheeting, underpinning, or other methods as required to prevent cave-ins or loose dirt from entering excavations. Barricade open excavations and post warning lights at work adjacent to public streets and walks.

D. Underpin adjacent structure(s), including utility service lines, which may be damaged by excavation operations.

E. Promptly repair damage to adjacent facilities caused by earthwork operations. Cost of repair at Contractor's expense.

F. Promptly notify the Inspector of unexpected subsurface conditions.

G. Trench Excavations and Sidewall Support: Trenching, both in fill soils and residual soil and weathered rock, can be performed using standard rubber-tire or track-mounted backhoes or excavators. Trenching to depths greater than 4.5 feet will require trench shields or shoring per OSHA regulations. Trenches or excavations around manholes or in areas that cannot be easily shored may require laying slopes back per OSHA recommendations and procedures. In areas beneath paved parking lots, trenches with saw-cut pavement on flat ground would provide the most stable conditions with respect to possible trench wall caving or sloughing. Trenches dug parallel to slopes will be the least stable.

H. Trench Stabilization and Dewatering Considerations: In instances where excessive caving or unstable wall conditions are encountered, the Geotechnical Engineer may recommend that trench shields be used both for worker safety and to maintain integrity of the trench. Minimizing the length of trench open at one time will also minimize trench instability. If there is a significant risk of side wall sloughing and bottom heaving, the Geotechnical Engineer may recommend that a crushed rock-working surface be placed. This working surface shall be built by overexcavating the soil beneath the trench at least 12-inches, shoring established, then replacing with at least 12-inches of 1-1/2-inch maximum, crush rock (3/4-inch by ¼-inch would be ideal). The crushed rock shall be underlain with filter fabric (MIRAFI 140N or equal). Also, for this condition, the Geotechnical Engineer recommends the need to keep trenches open as short a time as if possible before backfilling. The risk of trench wall squeezing and bottom heave increases with time.

1.6 GENERAL REQUIREMENTS

A. Sheeting and Shoring: Furnish, place and maintain such sheeting, bracing and shoring as may be required to support the sides of the excavations for the proper protection of workmen, to facilitate the work, and to prevent damage to the pipes and structures or facilities. Upon completion of the work, all bracing and shoring shall be removed, unless otherwise directed by the Inspector.

B. Protection of Other Property: Excavation and other work over, under and adjacent to existing pipelines, cables, conduit runs or structures of any kind shall be procured in such a manner as not to interfere with the safe operation and use of such installations. Should any damage be incurred to existing facilities during the Contractor's operations, the Contractor shall immediately notify the Owner's Representative and authorities, and shall arrange for the immediate repair of same at his own expense.

C. Underground Obstruction: The locations of existing underground utilities and structures, insofar as they are known from information furnished by the respective utility companies and agencies, have been shown on the drawings. The Owner assumes no responsibility for the accuracy or completeness of said data, which is offered solely for the convenience of the Contractor.

D. Control of Water: Take measures as may be required and furnish, install and operate such pumps or other devices as may be necessary to remove any seepage, storm water or sewage that may be found or may accumulate in the excavations during the progress of the work. Keep excavations entirely free from water at all times during the construction of the work, and until the Geotechnical Engineer gives permission to cease pumping.

E. Pavement Restoration: Pavement, bases and compacted subgrade disturbed by trenching operations shall be replaced in an acceptable manner with materials equal to the adjacent compacted subgrade, bases and pavement for a minimum distance of 12" on each side of the trench, and shall conform to the requirements of these Specifications or to local ordinances governing such replacement.

1.7 COORDINATION

A. Examine the site and familiarize all conditions.

B. Coordinate this work with the work of other Sections to avoid delay and interference with other work.

C. Layout of equipment, accessories and piping system is generally diagrammatic, unless specifically dimensioned. Drawings and details shall be checked for interferences before installing the work. The right is reserved to make any reasonable change in location of piping shown on the drawings without increase in Contract price.

D. Keep an accurate dimensioned record of as-built location and depth, as referred to accepted based datum, on all lines, drop inlets, etc. Keep record drawings up-to-date as the job progresses and available for inspection. Prior to final acceptance and approval of the work, deliver a copy of this record to the Inspector in neat and legible form.

1.8 SUBMITTALS

A. Comply with General Conditions.

B. Product Literature:

1. Pipe & fittings.

2. Filter fabric.

3. Drop inlets, Area drains.

4. Angular washed sand.

C. Certificate of Letter of Compliance:

1. Sand backfill with sieve analysis.

2. Permeable backfill.

3. Certified copies of test reports demonstrating conformance to applicable pipe specifications prior to installation of any pipe.

4. Before beginning demolition of underground storm drainage system, provide a map and DVD of video of storm drain system showing location, pipe size, inverts and condition of existing storm drain system to remain as noted on drawings.

D. Samples:

1. Filter fabric.

2. Sand backfill.

3. Permeable backfill.

4. Angular washed sand

1.9 FIELD QUALITY CONTROL

A. Contractor shall provide adequate notice, cooperate with, provide access to the work, and assist testing agency and their representatives in execution of their function.

B. When, during the progress of work, field tests indicate that installed compacted materials do not meet specified requirements, provide additional compaction until specified density is achieved, or remove and replace defective materials with new materials as directed by the Inspector. Cost of additional labor, materials, and testing to attain specified density at Contractor's expense.

C. The Contractor shall engage a California Registered Civil Engineer or licensed Land Surveyor to perform field engineering.

D. The Contractor shall engage a California Registered Civil Engineer or licensed Land Surveyor to perform a conformance survey at completion of storm drainage.

E. The Contractor shall engage a California Registered Civil Engineer or licensed Land Surveyor to perform a conformance survey at completion of the project and provide a hard copy of the survey and an AutoCAD copy of the survey as part of the closeout documents.

PART 2 - MATERIALS

2.1 STORM DRAINAGE PIPE

A. Corrugated High Density Polyethylene (CHDPE) may be substituted for Polyvinyl Chloride (PVC) Pipe where PVC pipe is noted on the drawings.

B. Polyvinyl Chloride (PVC) Pipe: PVC pipe and fittings shall meet the extra strength minimum of SDR-35 of the requirements of ASTM Specification D3034. Joints shall be rubber ring for Storm Drainage Pipe. Manufactured by J-M Manufacturing, Stockton, CA, (1-800-621-4404), or accepted equal.

1. PVC Smooth Wall Perforated Drain Pipe: Size as noted on the drawings, and manufactured to meet CALTRANS Standard Specification Section 68 and AASHTO M278, or accepted equal. Color, White.

2. Storm Drain Pipe: SDR-35. Size as noted on the drawings and manufactured to meet Caltrans standard specifications. Color, White.

C. Corrugated High Density Polyethylene (CHDPE) Storm Drain Pipe: CHDPE solid wall pipe and fittings shall be N-12 drainage pipe with N-12 IB WT pipe joint assembly as manufactured by Advanced Drainage Systems, 800-821-6710. Inc., or accepted equal. Local sales representative: Jim Winslow, 510-913-2211.

D. Corrugated High Density Polyethylene (CHDPE) Perforated Drain Pipe: Perforated CHDPE pipe and fittings shall be N-12 Series 65 WT Corrugated HDPE Pipe and fittings as manufactured by Advanced Drainage Systems, 800-821-6710. Inc., or accepted equal. Local sales representative: Jim Winslow, 510-913-2211.

2.2 STRUCTURES

A. By Christy, Model No. as shown on the drawings. Christy, 1-800-486-7070, Central Precast, 707-546-5016, Hanson Concrete Products, Pleasanton, CA, 925-846-8800, Old Castle Precast Inc., 800-486-7070, Jensen Precast, 916-992-8312, or accepted equal with precast or wet set concrete bottom as required.

1. Refer to Drawings.

2.3 PERMEABLE BACKFILL (Drain Rock)

A. All permeable backfill (permeable material and drain rock) used in subsurface drain installations must come from one supplier only.

B. Refer to Section 32 11 15 for Permeable backfill.

2.4 IMPORTED BACKFILL

A. Import backfill, where required, shall meet the requirements of Fill in Section 31 00 00 Earthwork.

2.5 FILTER FABRIC

A. Polypropylene non-woven filter fabric with uniform fiber distribution by "Mirafi, Inc." #140N, or accepted equal.

2.6 PIPE BEDDING (SAND BEDDING)

A. Pipe bedding material shall consist of permeable material where called for on drawings.

B. Pipe bedding material where not required to be permeable material shall consist of sand or granular materials naturally produced by the disintegration of rock and shall be sufficiently free of organic material, mica, loam, clay and other deleterious substances with 90 to 100 percent of particles passing the No. 4 sieve and no more than of 5 percent finer than the No. 200 sieve. The bedding shall be at 3 to 6 inches below the pipe and 12 inches above the pipe.

2.7 TRENCH BACKFILL

A. Trench backfill shall consist of permeable material where called for on drawings.

B. Intermediate backfill (above the bedding material and below any pavement section) where not required to be permeable material may consist of on-site soils, provided the material has no organic material, no rocks larger than 3 inches, have a liquid limit equal to or less than 40, and a plasticity index equal to or less than 15 and is moisture conditioned and placed in thin lifts and compacted to at least 95 percent in structural areas and engineered fills and 85 percent in non-structural areas.

C. The underground utility trenches located in the synthetic turf field shall be backfilled with permeable material where called for on drawings or native material or base rock or quarry fines or cement slurry all the way up to the required subgrade elevation as acceptable the geotechnical engineer.

D. Trenches shall not be backfilled with pea gravel or crushed rock, except as a part of bedding material.

E. All the underground utility trenches located in the synthetic turf field, expect perimeter drains, shall be backfilled with native material or base rock or quarry fines or cement slurry all the way up to the required subgrade elevation. The material shall be placed in (12) inch un-compacted lifts and each lift shall be compacted to minimum of 95% relative compaction. The material shall be moisture conditioned properly, prior to placement in the trenches.

F. Trenches shall not be backfilled with pea gravel or crushed rock, except as a part of bedding material and no jetting will be allowed / permitted at any time during the backfill of the material. If trenches are deeper than five (5) feet, shoring is required and shall be installed in accordance with O.S.H.A. regulations

2.8 SAND (ANGULAR WASHED SAND AND SAND GROWING MEDIUM)

A. Sand backfill and sand for top dressing shall be medium angular coarse washed USGA Sand, free of mica and meet or exceed recommended values:

B. A total silt and clay of no more than 4%.

C. Shall be naturally angled sand. No rounded silica sand.

D. Sand shall meet or exceed the following values of USGA sand particle distribution:

Sieve Size	USGA Spec Individual Percent Retained
#4	0
#10	0-3%
#18	0-7%
#35	Minimum 60% Combined
#60	
#100	20% Maximum
#270	5% Maximum

E. Sand shall be from one of the following sources or approved equal:

1. Top Dressing Sand available from Tim Smith of Brown Sand Inc. 209-234-1200.

2. G8 Sand available from TMT Enterprises 408-432-9040-Matt.

PART 3 - EXECUTION

3. 1 GENERAL REQUIREMENTS

A. Lay storm drains true to line and grade by accurate and accepted methods, beginning at the outlet and proceeding upgrade. Storm lines shall slope uniformly between elevations given.

B. Pipe, fittings, precast sections, drain inlets, trench drains, clean outs, frames and covers shall be carefully handled at all times.

C. No pipe shall be laid which is cracked, checked, spalled or damaged. All damaged, cracked, checked or spalled sections shall be removed from the site.

D. Chain slings are not permitted. Support pipe loaded on trucks or stacked one upon another with wooden blocking. Pipe handled or skidways shall not be skidded or rolled against pipe already on the ground.

E. Install all pipes in the approximate locations shown and of size indicated on the drawings.

F. All pipeline and fittings shall be kept clean and closed during construction.

G. Install piping pitch down in direction of flow at minimum 0.5 percent, except where indicated otherwise.

H. Place bell ends of piping facing upstream. Install gasket seals, sleeves and couplings in accordance with manufacturer's recommendations for use of lubricants, cements, and other installation requirements. Maintain swab or drag in line and pull past each joint as it is completed.

3.2 TRENCH EXCAVATION

A. All utility trenches shall be excavated in accordance with current OSHA excavation and trench safety trench safety standards. The contractor shall be solely responsible for the design and construction of all excavation and trench safety.

B. The bottom of trenches shall be free of loose material at the bottom of the trenches compacted and tested by the assigned Field Engineer to a minimum of 95% relative compaction, prior to placement of the liner or pipes in the trenches.

C. Storm drain line bedding material shall consist of specified bedding. The bedding shall extend from the bottom of the trench to 1-foot above the top of the pipe. Sand bedding shall be placed in a trench free of standing water, and mechanically compacted to a dense condition (as verified by the Geotechnical Engineer).

D. Trench backfill above the pipe bedding shall meet the criteria for fill in Section 31 00 00, Earthwork. The Geotechnical Engineer shall evaluate any proposed imported soil sample prior to it use as trench backfill. Trench backfill shall be placed in uniform layers not exceeding 8-inches in loose thickness, moisture-conditioned to near-optimum moisture content, and compacted. Backfill shall be compacted to at least 95 percent relative compaction in paved, synthetic turf, structural areas and engineered fills and 85 percent in planted areas. Jetting shall not be permitted for any backfill compaction.

E. Any groundwater infiltrating into utility trenches shall be pumped out prior to backfilling.

F. Unless otherwise shown on the drawings, the width of trenches at any point below the top of the pipe shall not be greater than the outside diameter of the pipe plus 16" for pipe diameters 33" or less. Sheeting and bracing, where required, shall be placed within the trench width.

G. Do not over-excavate. Remove stones necessary to avoid point bearing. Pipes shall be bedded in accordance with backfill herein, and additionally where rock, hardpan or other unyielding foundation material is encountered in trenches at the grade or the bottom of the pipe. The hard unyielding material shall be excavated to a minimum depth of 6" below the bottom of the pipe bell or coupling, and such overdepths shall be backfilled with materials specified, for backfill and for backfilling the lower portion of trenches, compacted to a relative compaction of not less than 90%.

H. Unsatisfactory material such as mud, quicksand or other unsuitable materials encountered below the grades shown or specified which are directed or specified to be removed shall be replaced with selected materials, compacted to a relative compaction of not less than 90%.

I. In the event of excavation exceeding the trench width specified, furnish higher strength pipe or other construction methods (i.e., improved bedding), as accepted by the Inspector, to provide for the resultant increased loading. The Geotechnical Engineer shall have the right to limit the amount of trench that is opened or partially opened at any one time, and to limit the amount of trench left without backfill at any one time.

J. All materials, regardless of character and subsurface condition, shall be excavated to the depths indicated or specified. During excavation, material suitable for backfilling shall be piled in an orderly manner a sufficient distance from the banks of the trench to avoid

overloading and to prevent slides or cave-ins, or shall be separately stockpiled as required. Dispose of excess excavated material or unsalvageable material off of the property.

3.3 EXCAVATION FOR STRUCTURES AND APPURTENANCES

A. Excavation for inlets and similar structures shall be sufficient to provide at least 12" in the clear between the outer surfaces and the adjacent earth or timber that may be used to hold and protect the banks. Any overdepth excavation below such appurtenances that has not been directed will be considered unauthorized and shall be refilled with sand, selected materials, gravel or concrete, as directed and at the expense of the Contractor. Unsatisfactory material such as mud, quicksand or other unsuitable materials encountered below the grades shown or specified for structure foundations, when directed shall be removed and replaced as specified in Trench Excavation above.

3.4 DROP INLETS

A. Install plumb, level and square to adjacent structure or paving or as otherwise directed by Inspector.

B. Place mortar to slope bottom of inlet 1/4"/ft. for drain inlets.

C. Bolt grate to concrete drain box or secure with a chain to secure grate from vandals and allow for maintenance access; length as required. Anchor chain in concrete and fasten to grate as accepted. Submit sample.

D. Connect Drop Inlet directly to storm drainpipe and make a complete watertight connection.

E. Wrap exposed grates in triple layer of ¼” mesh galvanized hardware cloth. Provide mock up for acceptance.

3.5 SAND BACKFILL (PIPE BEDDING)

A. Pipe shall have sand bedding in accordance with the requirements specified herein.

B. The pipe shall be bedded in compacted granular material placed on a flat trench bottom. The bedding shall be at 3 to 6 inches below the pipe and 12 inches above the pipe.

C. Bedding shall be placed and compacted in thin lifts (8-inch maximum loose thickness) and compacted in-place.

3.6 SUBSURFACE DRAINS

A. Install subsurface drains where indicated on the drawings and backfill with permeable material as specified. Provide not less than 3" of permeable material under pipe. Bell and spigot, and tongue and groove concrete pipe shall be laid without mortar in the joints, and lengths shall be pressed firmly together to prevent infiltration of fine material. Lay all pipe perforations down. Where subsurface drains connect to storm drainage systems, verify inverts of connections and lay pipe accordingly to drain.

3.7 DITCHES AND SWALES

A. Construct ditches and swales as detailed and in the areas designated to convey storm water to the storm drainage facilities.

3.8 BACKFILLING

A. Do not backfill trenches until all required tests are performed and inspections made. Remove sheeting, bracing and shoring. Backfill trench with selected material suitable for the specified compaction. Trenches improperly backfilled shall be reopened to the depth required for proper compaction, then refilled and compacted as specified.

B. Compact granular material bedding by mechanical tampers to the specified relative compaction. Bedding and backfill materials as applicable shall be carefully compacted below the springline of the pipe, and shall be brought up simultaneously on both sides to the full specified depth so as to obviate any displacement of the pipe from its true alignment. Special care shall be taken not to damage the coating or wrapping of pipes.

C. Backfilling for Structures: Backfill material, placement and compaction for manholes and similar structures shall conform to the requirements stipulated above for the trench using 6” - 8" uniform layers.

3.9 RELATIVE COMPACTION

A. Each layer of bedding material and backfill over and around pipes, and each layer of backfill around and adjacent to structures, shall be compacted at the proper moisture content to 95% relative compaction.

B. Allow sufficient time to perform the necessary testing to assure that the backfill is being properly compacted. Backfill operations shall be scheduled in such manner as to permit making necessary control tests for each backfill lift prior to the placing of subsequent lifts. Field density tests will be performed in sufficient number to ensure that the specified density is being obtained.

3.10 DAMAGE BY LEAKS

A. The Contractor shall be responsible for all damage to any part of the premises caused by leaks or breaks in pipes, connections or appurtenances furnished and installed under this Specification for a period of one (1) year after date of acceptance of the project by the Owner.

3.11 CLOSING OF UNINSPECTED WORK

A. Do not allow any of the work installed to be covered up or enclosed before it has been inspected and accepted by the Inspector. Any work enclosed or covered before it has been accepted or directed to be covered shall be uncovered by the Contractor, at his expense, and replaced as directed.

3.12 FIELD QUALITY CONTROL

A. Per General Conditions.

B. Request inspection prior to and immediately after placing cover over pipe.

C. Compaction testing will be performed in accordance with the Standard Specifications.

D. Exfiltration Test, Deflection Test, and Pressure Test: Test in accordance with Standard Specifications.

E. If tests indicate Work does not meet specified requirements, remove Work, replace and retest.

3.13 CARE AND CLEANING: Per General Conditions

A. During construction, protect work from damage by accident, staining or otherwise. Upon completion, repair or replace broken, damaged or defective parts. All work shall be left in a condition satisfactory to the Owner. Remove all surplus materials and debris from the premises.

B. At completion, flush and clean out installed piping systems.

3.14 IDENTIFICATION

A. Underground Type Plastic Line Makers: The manufacturer's standard permanent, bright colored, continuous plastic tape intended for direct-burial services not less than 6-inches wide x 4-mils thick. Provide green tape with black printing reading "CAUTION STORM DRAIN LINE BURIED BELOW".

B. Tape markers shall be of detection type with foil backing.

C. Install continuous plastic underground warming tape during back-filling of trench. Locate 12" directly above piping.

3.15 CLOSEOUT

A. Before project acceptance demonstrate that installed piping system is flushed and clean.

B. The Contractor shall engage a California Registered Civil Engineer or licensed Land Surveyor to perform a conformance survey at completion of the project and provide a hard copy of the survey and an AutoCAD copy of the survey as part of the closeout documents.

C. Demonstrate to the Owner's personnel where the drains and perimeter drain cleanouts are located and how to open and clean them.

D. Mark the location s of the perimeter drain cleanouts on adjacent concrete surface.

E. Include copies of the storm drain material submittals in the Operations and Maintenance manuals as part of the closeout documents.

END OF SECTION

Redwood High School Ghilotti Field Site Improvements

Tamalpais Union High School District

APPENDIX A

CARDUCCI
ASSOCIATES

MILLER PACIFIC ENGINEERING GROUP

GEOTECHNICAL INVESTIGATION (REV[1])
REDWOOD HIGH SCHOOL –
2023 IMPROVEMENTS
LARKSPUR, CALIFORNIA

December 7, 2023

Project 867.193

Prepared For:
Tamalpais Union High School District
395 Doherty Drive
Larkspur, California 94939

Attn: Mr. Michael Woolard
Sr. Director of Facilities Planning

CERTIFICATION

Revisions:

1. Original report issued September 18, 2023

This document is an instrument of service, prepared by or under the direction of the undersigned professionals, in accordance with the current ordinary standard of care. The service specifically excludes the investigation of radon, asbestos or other hazardous materials. The document is for the sole use of the client and consultants on this project. No other use is authorized. If the project changes, or more than two years have passed since issuance of this report, the findings and recommendations must be reviewed by the undersigned.

MILLER PACIFIC ENGINEERING GROUP (a California corporation)

Benjamin S. Pappas
Geotechnical Engineer 2786
(Expires 9/30/24)

REVIEWED BY

Michael F. Jewett
Engineering Geologist 2610
(Expires 1/31/25)

MILLER PACIFIC ENGINEERING GROUP

GEOTECHNICAL INVESTIGATION
REDWOOD HIGH SCHOOL –
2023 IMPROVEMENTS
LARKSPUR, CALIFORNIA

TABLE OF CONTENTS

1.0 INTRODUCTION 1
2.0 PROJECT DESCRIPTION 1
3.0 SITE CONDITIONS 1
3.1 Regional Geology 2
3.2 Seismicity 2
3.6.1 Historic Fault Activity 2
3.6.2 Probability of Future Earthquakes 3
3.3 Surface Conditions 3
3.4 Subsurface Exploration and Laboratory Testing 3
3.5 Subsurface Conditions 4
4.0 GEOLOGIC HAZARDS EVALUATION 5
4.1 Fault Surface Rupture 5
4.2 Seismic Shaking 5
4.2.1 Deterministic Seismic Hazard Analysis 5
4.2.2 Probabilistic Seismic Hazard Analysis 7
4.3 Liquefaction Potential and Related Impacts 7
4.3.1 Liquefaction Evaluation 8
4.3.2 Post Liquefaction Settlement 8
4.4 Seismically Induced Ground Settlement 9
4.5 Cyclic Softening and Related Impacts 9
4.6 Lurching and Ground Cracking 10
4.7 Erosion 10
4.8 Flooding 10
4.9 Seiche and Tsunami 10
4.10 Dam Failure Inundation 11
4.11 Expansive Soil 11
4.12 Settlement/Subsidence 11
4.13 Slope Instability/Bearing Failure 13
4.14 Soil Corrosion 13
4.15 Radon-222 Gas 13
4.16 Volcanic Eruption 14
4.17 Naturally Occurring Asbestos (NOA) 14
4.18 Hazardous Materials 14
5.0 CONCLUSIONS AND RECOMMENDATIONS 15
5.1 Seismic Design 15
5.2 Site Preparation and Grading 18
5.2.1 Lightweight Fill 18
5.2.2 Site Preparation 19
5.2.3 Materials 19
5.2.4 Excavations 19
5.3 Foundation Design 20

5.4 Site and Foundation Drainage 24
5.5 Concrete Slabs-On-Grade 24
5.6 Asphalt Pavement 24
5.7 Utility Trench Excavations and Backfills 25
5.8 Wintertime Construction 26
6.0 SUPPLEMENTAL GEOTECHNICAL SERVICES 26
7.0 LIMITATIONS 27
8.0 LIST OF REFERENCES 28

FIGURES

Site Location Map ..... Figure 1
Site Plan and Geologic Map 2
Regional Geologic Map 3
Active Fault Map 4
Historic Earthquake Map 5
Simplified Geologic Cross Sections 6
Simplified Geologic Cross Sections 7
Liquefaction Susceptibility Map 8
Liquefaction Analysis 9
Liquefaction Analysis Plot 10
CPT-1 Liquefaction Analysis Results 11
CPT-2 Liquefaction Analysis Results 12
FEMA Flood Map 13
Tsunami Evacuation Zone Map 14
1:2 Foundation Stress Distribution 15

APPENDIX A – Subsurface Exploration (Soil Borings)
APPENDIX B – Subsurface Exploration (Cone Penetration Testing)
APPENDIX C – Previous Subsurface Exploration and Laboratory Testing
APPENDIX D – Risk Targeted MCE_R Ground Motion Hazard Analysis

GEOTECHNICAL INVESTIGATION
REDWOOD HIGH SCHOOL –
2023 IMPROVEMENTS
LARKSPUR, CALIFORNIA

1.0 INTRODUCTION

This report summarizes our geotechnical investigation for the proposed 2023 Improvements at Redwood High School. The site located at 395 Doherty Drive in Larkspur, California as shown on the Site Location Map, Figure 1. Our work was performed in accordance with our Agreement for Professional Services, dated June 15, 2023. The purpose of our services is to evaluate site conditions and provide geotechnical recommendations for the proposed improvements. We are providing our services in three phases: 1) Geotechnical Investigation, 2) Geotechnical Consultation and 3) Geotechnical Construction Observation and Testing. This report concludes our Phase 1 services and includes:

- Review of readily available published geologic maps and subsurface data previously collected at the site;
- Exploration of subsurface conditions with two borings and two cone penetration tests (CPTs);
- Laboratory testing of collected soil samples;
- Evaluation of geologic hazards relevant to site development;
- Development of geotechnical design recommendations for the project; and,
- Preparation of this report summarizing our findings.

2.0 PROJECT DESCRIPTION

Based on our discussions with the design team, we understand the project includes renovating/converting the existing kitchen and cafeteria building into a student commons space; constructing a new approximate 11,000 square foot, one-story music; constructing an approximate 8,000 square-foot ceramics building; and constructing an approximate 12,600 square-foot, one-story cafeteria and kitchen building with an art studio occupying the upper level. We anticipate ancillary improvements including flatwork, site utilities and landscaping. A Site Plan indicating the locations of the proposed improvements is presented on Figure 2.

The new improvements will require demolishing existing classroom space. The loss of classroom space will be supplemented with approximately 5,500 square feet of temporary portable classrooms for use during construction of the proposed improvements. The temporary classrooms will be constructed on an existing, asphalt paved pedestrian area, and we understand the structures are planned to be used for approximately five years.

3.0 SITE CONDITIONS

The project site is located in the Coast Ranges geomorphic province of California, which is typified by generally northwest-trending ridges and intervening valleys formed as a result of movement along a group of northwest-trending fault systems, including the San Andreas Fault. Bedrock geology within Marin County is dominated by sedimentary, igneous, and metamorphic rocks of the Jurassic-Cretaceous age Franciscan Complex. Sandstone and shale comprise the majority of Franciscan rock types, while less common rocks include chert, serpentinite, basalt, greenstone, and exotic low- to high-grade metamorphic rocks, including phyllite, schist, and eclogite.

3.1 Regional Geology

As shown on Figure 3, regional geologic mapping (Smith, Rice, and Strand, 1976) indicates the site is underlain by artificial fill placed over Bay Mud (map symbol Qaf/Qm). This unit generally consists of highly variable deposits of rock, soil, and debris placed by man overlying marsh deposits locally known as Bay Mud. Bay Mud is described as a soft, highly compressible silt and clay marine marsh deposit. Franciscan sandstone and shale (map symbol Ks) are mapped on the northern end of the campus as well as to the west and southwest. The Franciscan sandstone and shale unit is generally described as variably interbedded medium- to coarse-grained sandstone and well-bedded siltstone shale.

3.2 Seismicity

The project site is located within a seismically active region that includes the Central and Northern Coast Mountain Ranges. Several active faults are present in the area including the San Andreas, San Gregorio, Hayward/Rodgers Creek, among others. An “active” fault is defined as one that shows displacement within the last 11,000 years and, therefore, is considered more likely to generate a future earthquake than a fault that shows no evidence of recent rupture. The California Department of Conservation, California Geologic Survey, formerly the Division of Mines and Geology, has mapped various active and inactive faults throughout California. Active faults located near the project site are shown on the Active Fault Map, Figure 4. The San Andreas Fault is the nearest known active fault and is located approximately 13.1-kilometers (8.2-miles) southwest of the site (www.usgs.gov/programs/earthquake-hazards/google-earthtmkml-files, accessed 2023).

3.6.1 Historic Fault Activity

Numerous earthquakes have occurred in the region within historic times. Earthquakes (magnitude 2.0 and greater) that have occurred in the San Francisco Bay Area between 1985 and 2023 have been plotted on a map shown on Figure 5. The three most significant earthquakes to have occurred in recent history that have impacted the greater Marin County area, including Larkspur, are outlined below:

1906 San Francisco Earthquake – The April 18, 1906, magnitude 8.3 earthquake occurred on the northern segment of the San Andreas Fault. The earthquake resulted in catastrophic damage throughout the greater Bay Area. Significant damage, including complete structural collapses, and 498 deaths were reported in San Francisco.

1969 Rodgers Creek/Healdsburg Fault Earthquake – Two earthquakes of magnitudes 5.6 and 5.7 originated on the Rodgers Creek and Healdsburg Faults. The resulting damage was concentrated in Santa Rosa with partial and near structural collapses. No loss of life was reported.

1989 Loma Prieta Earthquake – The magnitude 6.9 earthquake was a result of a rupture along the San Andreas Fault in the Santa Cruz Mountains. Significant damage was reported throughout the Bay Area, with a majority occurring in San Francisco, Oakland, and Santa Cruz in the form of structural collapses and loss of life. Significant damage was not reported in the Larkspur area.

3.6.2 Probability of Future Earthquakes

The site will likely experience moderate to strong ground shaking from future earthquakes originating on any of several active faults in the San Francisco Bay region. The historical records do not directly indicate either the maximum credible earthquake or the probability of such a future event. To evaluate earthquake probabilities in California, the USGS has assembled a group of researchers into the "Working Group on California Earthquake Probabilities" (USGS 2003 & 2008; Field et al 2015) to estimate the probabilities of earthquakes on active faults. These studies have been published cooperatively by the USGS, CGS, and Southern California Earthquake Center (SCEC) as the Uniform California Earthquake Rupture Forecast, Versions 1, 2, and 3 (aka UCERF, UCERF2, and UCERF3, respectively). In these studies, potential seismic sources were analyzed considering fault geometry, geologic slip rates, geodetic strain rates, historic activity, micro-seismicity, and other factors to arrive at estimates of earthquakes of various magnitudes on a variety of faults in California.

The 2003 study (UCERF) specifically analyzed fault sources and earthquake probabilities for the seven major regional fault systems in the Bay Area region of northern California. The 2008 study (UCERF2) applied many of the analyses used in the 2003 study to the entire state of California and updated some of the analytical methods and models. The most recent 2015 study (UCERF3) further expanded the database of faults considered and allowed for consideration of multi-fault ruptures, among other improvements.

Conclusions from the most recent UCERF3 indicate the highest probability of an M>6.7 earthquake on any of the active faults in the San Francisco Bay region by 2045 is assigned to the Hayward/Rodgers Creek Fault, located approximately 15.5 kilometers northeast of the site, at 33%. The San Andreas Fault, located approximately 12.7 kilometers southwest of the project site, assigned a probability of 22% for a M>6.7 earthquake by 2045. Additional studies by the USGS regarding the probability of large earthquakes in the Bay Area are ongoing. These current evaluations include data from additional active faults and updated geological data.

3.3 Surface Conditions

The project site is located in a mostly residential area of eastern Larkspur. The approximate 64-acre campus site is bounded to the north and northeast by Doherty Drive, to the south and east by undeveloped marshlands, and to the west by Corte Madera Creek and single-family residential developments. The campus is currently developed with one- and two-story classrooms and administrative structures, sports fields, concrete and asphalt pedestrian areas, and asphalt parking lots. Surface elevations within the campus range from a minimum of approximately +5 feet to +10. The campus structures appear to be performing well with no significant indications of distress. Additionally, we did not observe any significant cracking within the asphalt or concrete pavements.

3.4 Subsurface Exploration and Laboratory Testing

We explored subsurface conditions in the general vicinity of the planned improvements on July 18th and 19th, 2023 with two soil borings drilled with track-mounted equipment to maximum explored depths between about 25.0- and 40.5-feet below the ground surface. The borings were logged in the field by our geologist and soil samples were collected at select intervals for laboratory testing. Brief explanations of the terms and methodology used in classifying earth materials are provided

on the attached Soil and Rock Classification Charts, Figures A-1 and A-2, respectively. Boring Logs are shown on Figures A-3 through A-6.

Laboratory testing of select soil samples recovered from our soil boring included determination of moisture content, dry density, unconfined compressive strength, plasticity index, 1-D consolidation, and corrosion potential in general accordance with ASTM, Caltrans, EPA, and/or other applicable standards. The results of the moisture content, dry density, and unconfined compressive strength tests are presented on the Boring Logs. The results of the plasticity index, 1-D consolidation and corrosion potential tests are presented on Figures A-7 through A-9. The laboratory testing program is discussed in further detail in Appendix A.

We also performed two Cone Penetration Tests (CPTs) pushed to maximum depths between 41.8- and 45.3-feet below the ground surface. Shear wave velocities were also recorded during the CPT exploration. Our CPT subsurface exploration program is discussed in more detail in Appendix B. A description of the CPT instrument and exploratory CPT logs are presented on Figures B-1 through B-3. Additionally, the results of the shear wave velocity testing and the calculated V_{S30} value are presented on Figure B-4.

Additionally, we previously explored subsurface conditions with a combination of auger drilling and CPT equipment in the general vicinity of the proposed improvements in 2010 (MPEG, 2010), 2017 (MPEG, 2017) and 2023 (MPEG, 2023). The approximate locations of these data points are shown on Figure 2, with the results presented in Appendix C.

3.5 Subsurface Conditions

The results of our subsurface exploration are somewhat consistent with the regionally-mapped geologic conditions at the site. The subsurface conditions in the area of the proposed music building, cafeteria, and student commons structures in the eastern part of the site consist of roughly 5- to 12-feet of artificial fill; consisting of interbedded layers of low to medium plasticity, medium stiff sandy clay and medium dense silty sand, overlying roughly 13- to 35-feet of highly plastic, soft, compressible Bay Mud. The Bay Mud deposits locally overlie approximately 8- to 10-feet of old alluvial deposits consisting of medium stiff to very stiff sandy and silty clays and/or medium dense to dense silty and clayey sands. These old alluvial deposits were not observed in Borings 1 or 2 (2023) or CPT 6 (2014). Weathered sandstone bedrock was observed approximately 20- to 50-feet below the ground surface.

The results of our previous exploration in the general vicinity of the proposed temporary classrooms in the southern part of the site indicate that conditions in this area generally consist of 5- to 6-feet of artificial fill; consisting of interbedded layers of low to medium plasticity, medium stiff sandy clay and medium dense silty sand, overlying 15- to 25-feet of medium stiff sandy and silty clay alluvium. Weathered sandstone bedrock was observed roughly 20- to 27-feet below the ground surface. We interpreted the subsurface conditions to develop idealized cross sections presented on Figures 6 and 7.

Groundwater has been encountered at depths between 5- and 11-feet below the ground surface during our various investigations at the site. We performed pore a pressure dissipation test for this project at CPT-01 to determine a stabilized ground water level. The results of the dissipation test indicate groundwater levels were approximately 6.5- to 7.0 feet below the ground surface.

We also researched the State of California's Sustainable Groundwater Management Act (SGMA) database (https://sgma.water.ca.gov/) to identify any existing onsite or neighboring ground water data. The results of our search did not identify any existing groundwater wells in the immediate vicinity of the project site.

Therefore, based on the aggregated data, we anticipate the highest historic groundwater level at the project site to be 5-feet below the ground surface. Groundwater levels may fluctuate seasonally, with higher levels expected during the late winter and early spring months. Additionally, given the high school campus' close proximity to Corte Madera Creek and the San Francisco Bay, we anticipate the groundwater levels will be influenced by the tide.

4.0 GEOLOGIC HAZARDS EVALUATION

The principal geologic hazards which could potentially affect the project site are strong seismic shaking from future earthquakes in the San Francisco Bay Region, liquefaction, long term settlement, seiche inundation and flooding. Other hazards are not considered significant at the site. Geologic hazards, their impacts, and recommended mitigation measures are discussed below.

4.1 Fault Surface Rupture

Under the Alquist-Priolo Earthquake Fault Zoning Act, the California Geological Survey (CGS, 2007) produced 1:24,000 scale maps showing all known active faults and defining zones within which special fault studies are required. Based on currently available published geologic information, the project site is not located within an Alquist-Priolo Earthquake Fault Zone. Additionally, we did not observe any indications of active or historic faulting during our site reconnaissance. Therefore, the potential for fault surface rupture on the project site is considered to be very low.

Evaluation: *No significant impact.*
Mitigation: *No mitigation measures are required.*

4.2 Seismic Shaking

The site will likely experience seismic ground shaking from future earthquakes in the San Francisco Bay Area. Earthquakes along several active faults in the region, as shown on Figure 4, could cause moderate to strong ground shaking at the site.

4.2.1 Deterministic Seismic Hazard Analysis

Deterministic Seismic Hazard Analysis (DSHA) predicts the intensity of earthquake ground motions by analyzing the characteristics of nearby faults, distance to the faults and rupture zones, earthquake magnitudes, earthquake durations, and site-specific geologic conditions. Empirical relations (Abrahamson, Silva & Kamai, Boore, Stewart, Seyhan & Atkinson, Campbell & Borzognia, and Chiou & Youngs, (2014)) were used to provide approximate estimates of median peak site accelerations. Based on the shear wave

velocity profile, as shown on Figure B-4, we calculated a Vs_{30} value of 417 ft/s (127 m/s) for use in estimation of peak ground accelerations. A summary of the principal active faults affecting the site, their closest distance, moment magnitude of characteristic earthquake, probable median accelerations and plus one standard deviation (+1σ), peak ground accelerations (PGA) for earthquakes on faults near the site are shown in Table A.

TABLE A
DETERMINISTIC PEAK GROUND ACCELERATION
2023 Improvements –
Redwood High School
Larkspur, California

Fault Rupture Scenario	Fault Distance[1]	Moment Magnitude[2]	Median PGA[3,4]	+1σ PGA[3]
San Andreas Fault: SAO+SAN+SAP+SAS	12.7 km	8.0	0.28 g	0.43 g
San Gregorio Fault	14.4 km	7.4	0.25 g	0.39 g
Hayward Fault: RC+HN+HS+HE	15.5 km	7.6	0.25 g	0.39 g
West Napa	34.7 km	7.0	0.15 g	0.24 g

Notes:

1. Values derived from USGS Quaternary Fault and Fold Database, https://www.usgs.gov/programs/earthquake-hazards/faults, accessed 2023.
2. Values determined using USGS Earthquake Scenario Map (BSSC 2014), accessed 2023.
3. Values determined using V_{S30} = 127 m/s for "Site Class E". See Section 5.1 of this report for additional discussion regarding site classification.
4. Abrahamson, Silva and Kamai (2014); Boore, Stewart, Seyhan and Atkinson (2014); Campbell and Borzognia (2014); and Chiou and Youngs (2014).

Key:

RC – Rodgers Creek – Healdsburg Fault
HN – Hayward Fault, Northern Section
HS – Hayward Fault, Southern Section
HE – Hayward Fault, Southern Extension
SAO – San Andreas Fault, Offshore
SAN – San Andreas Fault, North Coast
SAP – San Andreas Fault, Peninsula
SAS – San Andreas Fault, Santa Cruz Mountains

4.2.2 Probabilistic Seismic Hazard Analysis

Probabilistic Seismic Hazard Analysis (PSHA) analyzes all possible earthquake scenarios while incorporating the probability of each individual event to occur. The probability is determined in the form of the recurrence interval, which is the average time for a specific earthquake acceleration to be exceeded. The design earthquake is not solely dependent on the fault with the closest distance to the site and/or the largest magnitude, but rather the probability of given seismic events occurring on both known and unknown faults.

We calculated the PGA for two separate probabilistic conditions, the 2% chance of exceedance in 50 years (2,475-year statistical return period), and the 10% chance of exceedance in 50 years (475-year statistical return period), utilizing the USGS Uniform Hazard Tool (USGS, accessed 2023). The results of the probabilistic analyses are presented below in Table B.

TABLE B
PROBABILISTIC SEISMIC HAZARD ANALYSES
2023 Improvements –
Redwood High School
Larkspur, California

	Statistical Return Period	Magnitude	PGA
2% in 50 years	2,475 years	7.9	0.71 g
10% in 50 years	475 years	7.9	0.45 g

Reference: USGS – Unified Hazard Tool (2023)

The potential for strong seismic shaking at the project site is high. Due to their proximity and probability of future rupture, the San Andreas and Hayward Faults present the highest potential for strong ground shaking. The most significant adverse impact associated with strong seismic shaking is potential damage to structures and improvements.

Evaluation: *Less than significant with mitigation.*
Mitigation: *Minimum mitigation measures should include designing the structures and foundations in accordance with the most recent version (2022) of the California Building Code.*

4.3 Liquefaction Potential and Related Impacts

Liquefaction refers to the sudden, temporary loss of soil shear strength during strong ground shaking. Liquefaction-related phenomena include liquefaction-induced settlement, flow failure, and lateral spreading. These phenomena can occur within saturated, loose, granular deposits. Recent advances in liquefaction studies (Idriss & Boulanger, 2008 & 2010) indicate that liquefaction can occur in granular materials with a high fines content (35 to 50% clay and silt particles that pass the #200 sieve) provided the fines exhibit a plasticity index (PI) less than 7. As shown on Figure 8, a majority of the campus is mapped within a zone of “very high” susceptibility

to liquefaction by the Association of Bay Area Governments (ABAG). A small zone in the northern part of the campus, which is underlain by shallow sandstone, is mapped in a zone of "very low" liquefaction susceptibility.

4.3.1 Liquefaction Evaluation

To evaluate soil liquefaction, the seismic energy from an earthquake is compared with the ability of the soil to resist pore pressure generation, known as the Cyclic Resistance Ratio (CRR). Earthquake energy is termed the cyclic stress ratio (CSR) and is a function of the maximum considered earthquake peak ground acceleration (PGA) and depth. Soil resistance to liquefaction is based on its relative density, and the amount and plasticity of the fines (silts and clays). The relative density of cohesionless soil is correlated with the Standard Penetration Test (SPT) blow count data measured in the field and corrected for hammer efficiency, overburden, and percent fines to determine the $(N_1)_{60,CS}$ value. Cone Penetration Test data, corrected for overburden, can also be utilized to determine the relative density of a soils and subsequently its resistance to liquefaction.

We analyzed the potential for liquefaction utilizing our current and previous subsurface boring data and the liquefaction analysis procedures outlined by Idriss and Boulanger (2008, 2010 and 2014). We modeled a design seismic event consisting of a magnitude 8.0 earthquake producing a PGA of 0.64 g, which corresponds to the PGA_M value as defined in ASCE 7-16 for "Site Class E". The results of this analysis are presented on Figures 9 and 10, and indicate that granular layers within the fill and some of the older alluvial deposits underlying the bay mud are potentially liquefiable.

Additionally, we analyzed liquefaction potential utilizing the data from our CPTs, the design earthquake parameters discussed above, CLiq 3.0 (v.3.5.2.8, 2006) computer software, and the procedures outlined by Idriss and Boulanger (2008). The results of our liquefaction analyses are presented on Figures 11 and 12 and indicate thin layers within the fill and old alluvial soil layers would liquefy during a strong seismic event.

4.3.2 Post Liquefaction Settlement

We predicted the amount of post liquefaction settlement utilizing the procedures outlined by Idriss and Boulanger (2008, 2010). Post liquefaction settlement can occur in soils that exhibit a factor of safety against liquefaction of 2.0 or less.

The results of the CPT-based analysis indicate between 0.25 and 0.50-inches of total and up to 0.25-inches of differential (over a 30-foot span) of post liquefaction settlement is possible. However, our SPT-based analyses indicate between 0.5-inches and 3.0-inches of total and 0.25 to 1.5-inches of differential (over a 30-foot span) post liquefaction settlement may occur during the design seismic event. However, because the brings were not sampled continuously, they likely over-estimate the true thickness of liquefiable strata. Therefore, we judge it is appropriate to assign more weight to the CPT-based results than the results from the soil boring data. We recommend utilizing 1.0-inch of total and 0.5-inches of differential (over a 30-foot span) settlement for design purposes.

Additionally, we utilized the procedures outlined by Ozocak and Sert (2010) to calculate the Liquefaction Potential Index (LPI), which is a gauge to determine if liquefiable layers will impact the ground surface. LPI is a function of the thickness, depth, and factor of safety against liquefaction in the individual layers within a soil column. The resulting LPI value

corresponds to a relative potential for surface deformation impacting the ground surface. Typically, an LPI value of zero indicates the liquefiable layer will not impact the ground surface; while a value less than 5 has a low probability, value between 5 and 15 have a moderate probability and an LPI value greater than 15 have a high probability of surface impact. The results of our liquefaction analyses indicate LPI values of 16 or less, suggesting a moderate to high probability of liquefaction effects (i.e., sand boils) at the ground surface.

Evaluation: *Less than significant with mitigation.*
Recommendations: *The foundations for the proposed improvements should be designed to withstand at least 1.0- inches of total post liquefaction settlement and 0.5-inches of differential settlement, over a 30-foot span. The recommendations provided in the foundation section of this report should be followed.*

4.4 Seismically Induced Ground Settlement

Seismic ground shaking can induce settlement of unsaturated, loose, clean, granular soils. Settlement occurs as the loose soil particles rearrange into a denser configuration when subjected to seismic ground shaking. Varying degrees of settlement can occur throughout a deposit, resulting in differential settlement of structures founded on such deposits. Clean, loose, granular soils were not observed above the historic high groundwater level; therefore, the risk of seismically induced ground settlement is low.

Evaluation: *No significant impact.*
Mitigation: *No mitigation measures are required.*

4.5 Cyclic Softening and Related Impacts

Cyclic softening refers to a loss of shear strength within a sensitive, cohesive, fine-grained soil (silt and clay) as excess pore pressures are generated during a seismic event. The effects of cyclic softening can result in a reduction of the soil undrained shear strength that subsequently can cause a significant loss of bearing capacity or slope failures. Significant deposits of soft clay (Bay Mud) soils were encountered in the eastern part of the site; therefore, the risk of cyclic softening at the project site is moderate to high in these areas. The risk of cyclic softening at the location of the proposed temporary structures, which is underlain by stiffer/denser alluvial soils, is low.

Evaluation: *Less than significant with mitigation.*
Recommendations: *Mitigation measures include supporting the proposed structures on a shallow foundation system; provided the site has been load balanced with lightweight fill or the subsurface soils have been improved. Alternatively, a deep foundation system may be utilized to support the structures which gain support from the stiff clayey soils and weathered bedrock underlying the soft Bay Mud. Additional discussions of these foundation types, along with recommendations and design criteria, is provided in the Foundation Design section of this report.*

4.6 Lurching and Ground Cracking

Lurching and associated ground cracking can occur during strong ground shaking. The ground cracking generally occurs along the tops of slopes where stiff soils are underlain by soft deposits, or along steep slopes or channel banks. These conditions generally do not exist at the site, and the risk of lurching or ground cracking impacting the structures is very low.

Evaluation: *No significant impact.*
Mitigation: *No mitigation measures are required.*

4.7 Erosion

Sandy soils on moderate slopes or clayey soils on steep slopes are susceptible to erosion when exposed to concentrated water runoff. The high school campus is relatively flat and covered in vegetation, hardscaped surfaces and structures. Therefore, the risk of erosion due to surface water runoff is low. However, the risk of erosion will increase during construction when the surficial soils are exposed.

Evaluation: *Less than significant with mitigation.*
Mitigation: *The project Civil Engineer is typically responsible for site drainage design. Erosion control during and after construction should conform to a site-specific Stormwater Pollution Prevention Plan (SWPPP) prepared by the project Civil Engineer and the guidelines of the most recent edition of the Marin County Stormwater Pollution Prevention Program (2015).*

4.8 Flooding

As shown on Figure 13, the campus is mapped within a FEMA 100-year and 500-year flood zone. Therefore, widespread flooding may be considered a significant geologic hazard at the project site. Additionally, as with all development sites, localized ponding/flooding is possible due to changes in the natural drainage patterns. The project Civil Engineer is responsible for site drainage and should evaluate localized flooding potential and provide appropriate mitigation.

Evaluation: *Less than significant with mitigation.*
Mitigation: *The project Civil Engineer or Architect should locate finished floor elevations above flood levels and provide appropriate storm drain design for the maximum credible rainfall event.*

4.9 Seiche and Tsunami

Seiche and tsunami are short duration, earthquake-generated water waves in large, enclosed bodies of water and the open ocean, respectively. The extent and severity of a tsunami or seiche would be dependent upon ground motions and fault offset from nearby active faults. The project site is located adjacent to the San Francisco Bay and, as shown on Figure 14, is located within a mapped Tsunami Inundation Zone (ABAG, 2023). Therefore, seiche and tsunami are considered significant geologic hazards at the project site.

According to data from the National Oceanic and Atmospheric Administration (NOAA), approximately 77 credible seiche or tsunami have been recorded or observed within the San Francisco Bay area since 1700. Of these, the only waves to cause damage in eastern Marin County resulted from the 1960 Chile earthquake (Magnitude 9.5) and the 1964 Alaska earthquake

(Magnitude 9.2). The 1964 tsunami was the most damaging historic event, with a maximum wave height of 1.22-meters recorded at San Rafael (NOAA 2014b).

There have been eight credible local seiche events observed in San Francisco Bay between 1854 and 1906, six of which are attributed to earthquake activity and two to landslides. The Mare Island earthquake caused the largest seiche with 0.6-meter amplitude waves near Benicia, and is attributed to slip on the Rodgers Creek fault. No confirmed seiche have been recorded in San Francisco Bay since 1906. In light of the recorded history of seiche in San Francisco Bay, we judge that the risk of seiche or tsunami in excess of the height observed in 1964 (approximately 3.5-feet) is low.

Evaluation: *Less than significant with mitigation.*
Mitigation: *Mitigation should consist of raising finished floor elevations above predicted inundation levels. We judge that other mitigation measures, such as a new floodwall or other barrier, are likely neither warranted nor cost-effective for a project of this scale. The project Civil Engineer and Architect should anticipate inundation in the event of a seiche and consider this hazard during design of site grades, new structures, and site drainage improvements.*

4.10 Dam Failure Inundation

Based on our review of the Department of Water Resources, Division of Safety of Dams, Dam Breach Inundation Map Web Publisher (https://fmds.water.ca.gov/maps/damim/, accessed 2023), the Redwood High School campus is not located within a dam failure inundation zone. Therefore, the threat of inundation of the site from dam failure is judged to be low.

Evaluation: *No significant Impact.*
Mitigation: *No mitigation measures are required.*

4.11 Expansive Soil

Expansive soils will shrink and swell with fluctuations in moisture content and are capable of exerting significant expansion pressures on building foundations, interior floor slabs and exterior flatwork. Distress from expansive soil movement can include cracking of brittle wall coverings (stucco, plaster, drywall, etc.), racked door and/or window frames, and uneven floors and cracked slabs. Flatwork, pavements, and concrete slabs-on-grade are particularly vulnerable to distress due to their low bearing pressures. We did not encounter expansive soils within the upper 3-feet during our subsurface exploration, therefore, the risk of expansive soil affecting the proposed improvements is low.

Evaluation: *No significant impact.*
Mitigation: *No mitigation measures are required.*

4.12 Settlement/Subsidence

Significant settlement can occur when new loads are placed at sites due to consolidation of soft compressible clays (i.e., Bay Mud) or compression of loose granular soils. As previously discussed, the lower elevations of the project site are underlain with up to 50-feet of soft, compressible Bay Mud. Based on the results of our subsurface exploration, we developed estimated Bay Mud deposit thicknesses throughout the site and presented them as contours on the Site Plan, Figure 2. We performed a one-dimensional consolidation test of a sample of Bay

Mud collected during our subsurface exploration to determine its consolidation properties for future analysis. The results of our consolidation test is presented in Appendix A and summarized below on Table C.

TABLE C
1-D CONSOLIDATION TEST RESULTS SUMMARY
2023 Improvements –
Redwood High School
Larkspur, California

Consolidation Property	Value
Consolidation Index, $C_{C\varepsilon}$	0.27
Reconsolidation Index, $C_{R\varepsilon}$	0.01
Coefficient of Consolidation, C_V	10 ft^2/yr
Over Consolidation Ratio, OCR	1.0

The site was most likely filled in the 1950's when significant development occurred in Larkspur. We performed settlement analyses utilizing the laboratory data information summarized above and the assumption of 10-feet of artificial fill placed in 75-years ago. The results of our analysis indicate the Bay Mud has likely fully consolidated due to the placement of the artificial fill in the 1950's within the proposed improvement areas. However, areas where Bay Mud thicknesses exceed approximately 40-feet, roughly 1.5 to 2.0-inches of additional consolidation may be expected due to the original fill placement. These thicker Bay Mud deposits are located predominately in the northeastern parking lot adjacent to the existing creek and not in the proposed improvements area.

New structural and/or fill loads created due to the proposed site improvements will cause the underlying Bay Mud to consolidate further, resulting in additional surface settlements. The amount of settlement is proportional to the degree of loading, thickness of Bay Mud and site history. We do not anticipate significant site grading will be required to develop the project site. However, surficial foundation loads will result in surface settlements and differential settlements of the structure. We can provide a detailed estimate of predicted site settlements and time rate predictions given grading plans and anticipated building loads.

Mitigation measures include supporting the proposed structures on a shallow foundation system; provided the site has been load balanced with lightweight fill or the subsurface soils have been improved. Alternatively, a deep foundation system (i.e., auger-cast-piles, torque down piles, drilled piers, etc.) may be utilized to support the structures which extend through the Bay Mud, embedding into the stiff clayey soils and weathered bedrock. Additional discussions of these foundation types, along with recommendations and design criteria, is provided in the Foundation Design section of this report.

Evaluation: *Less than significant with mitigation.*
Mitigation: *Mitigation measures include supporting the proposed structures on a shallow foundation system; provided the site has been load balanced with lightweight fill or*

the subsurface soils have been improved. Alternatively, a deep foundation system (i.e., auger-cast-piles, torque down piles, drilled piers, etc.) may be utilized to support the structures which extend through the Bay Mud, embedding into the stiff clayey soils and weathered bedrock. Additional discussions of these foundation types, along with recommendations and design criteria, is provided in the Foundation Design section of this report.

4.13 Slope Instability/Bearing Failure

Slope instability generally occurs on relatively steep slopes and/or on slopes underlain by weak materials. The project site consists of relatively flat topography and traditional (hillside) slope instability is not considered a hazard. However, the Bay Mud exhibits relatively low strength and instability due to bearing failure under the new fill and seismic loads may pose a significant hazard. Generally, the risk of instability is highest immediately following fill placement and reduces over time as the Bay Mud consolidates and gains strength.

Evaluation: *Less than significant with mitigation.*
Mitigation: *Mitigation measures generally consist of limiting the thickness of the new fills as required to maintain adequate factors of safety against instability. Incorporating ground improvement or geosynthetic reinforcing materials into the project design could also be considered to improve stability. We should be consulted when a grading plan is finalized to determine if a bearing failure would occur based on the planned fill and structural loads.*

4.14 Soil Corrosion

Corrosive soil can damage buried metallic structures, cause concrete spalling, and deteriorate rebar reinforcement. Laboratory testing was performed on representative samples of the near-surface site soils to evaluate pH, electrical resistivity, chloride, and sulfate contents. These laboratory test results are presented in Appendix A.

The results of our corrosivity testing indicate the upper soil layers have a pH of 8.42, a chloride concentration of 83 parts per million (ppm), and sulfate concentration of 96 ppm. Per Caltrans Corrosion Guidelines (2003) a soil is considered corrosive if the pH level is less than 5.5, the chloride concentration is greater than 500 ppm, and/or the sulfate concentration is 2,000 ppm or greater. Based on the results of the laboratory testing corrosive soil is not considered a significant geologic hazard at the project site.

Evaluation: *No significant impact.*
Mitigation: *No mitigation measures are required.*

4.15 Radon-222 Gas

Radon-222 is a product of the radioactive decay of uranium-238 and raduim-226, which occur naturally in a variety of rock types, mainly phosphatic shales, but also in other igneous, metamorphic, and sedimentary rocks. While low levels of radon gas are common, very high levels, which are typically caused by a combination of poor ventilation and high concentrations of uranium and radium in the underlying geologic materials, can be hazardous to human health.

The project site is located in Marin County, California, which is mapped in radon gas Zone 3 by the United States Environmental Protection Agency (USEPA, 2023). Zone 3 is classified by the EPA as exhibiting a “low” potential for Radon-222 gas with average predicted indoor screening levels less than 2 pCi/L. Therefore, the potential for hazardous levels of radon at the project site is low.

Evaluation: *No significant impact.*
Mitigation: *No mitigation measures are required.*

4.16 Volcanic Eruption

Several active volcanoes with the potential for future eruptions exist within northern California, including Mount Shasta, Lassen Peak, and Medicine Lake in extreme northern California, the Mono Lake-Long Valley Caldera complex in east-central California, and the Clear Lake Volcanic Field, located in Lake County approximately 76-miles north of the project site. The most recent volcanic eruption in northern California was at Lassen Peak in 1917, while the most recent eruption at the nearest volcanic center to the project site, the Clear Lake Volcanic Field, was about 10,000 years ago. All of northern California’s volcanic centers are currently listed under “normal” volcanic alert levels by the USGS California Volcano Observatory (USGS, 2023a). While the aforementioned volcanic centers are considered “active” by the USGS, the likelihood of damage to the proposed improvements due to volcanic eruption is generally low.

Evaluation: *No significant impact.*
Mitigation: *No mitigation measures are required.*

4.17 Naturally Occurring Asbestos (NOA)

Naturally occurring asbestos is commonly found in association with serpentinite and associated ultramafic rock types. These rocks are a major constituent of the Franciscan Complex, which underlies vast portions of the greater San Francisco Bay Area. The site is underlain by relatively thick native alluvial soils, and while it lies in a region dominated in part by Franciscan Complex bedrock, no evidence suggesting the presence of serpentinite or related rock types was observed during our exploration. Therefore, the likelihood that significant deposits of naturally-occurring asbestos will be encountered at the site is low.

Evaluation: *No significant impact.*
Mitigation: *No mitigation measures are required.*

4.18 Hazardous Materials

Hazardous materials were not observed during our subsurface exploration. While environmental testing for hazardous materials was beyond the scope of our services, we did observe enclosures that contain HVAC units and other industrial equipment that has the potential for creating hazardous materials. Therefore, we judge the potential for hazardous materials being present on the project site, currently or in the future, is moderate.

Evaluation: *Less than significant with mitigation.*
Mitigation: *The campus should comply with all local, state, and federal guidelines to minimize the exposure to hazardous materials. If a possible hazardous material spill occurs on campus, a qualified environmental specialist should be consulted.*

5.0 CONCLUSIONS AND RECOMMENDATIONS

Based on our review of readily available geologic data, and experience with similar projects, it is our professional opinion that the proposed improvements are geotechnically feasible at the project site. The primary geotechnical issues to be considered during project development and design include appropriate seismic design, flooding, tsunami inundation, liquefaction and long-term settlement. Geotechnical recommendations and development guidelines to address the geotechnically pertinent hazards and other issues are discussed in more detail below.

5.1 Seismic Design

The project site is located in a seismically active area of Northern California. Therefore, structures should be designed in conformance with the seismic provisions of the California Building Code (CBC, 2022) and ASCE 7-16 to mitigate the potential effects of strong seismic ground shaking to the proposed improvements. The goal of the building code is protection of life safety, some structural damage may still occur during strong ground shaking.

Saturated granular soil layers prone to liquefaction were observed within the artificial fill overlying the Bay Mud deposits; therefore, we judge the site should be classified as “Site Class F” per the 2022 California Building Code (CBC). Per the 2022 CBC, an equivalent linear site-specific response analysis, per ASCE 21.1, is required on sites classified as “Site Class F”. However, per section 20.3.1 of the ASCE 7-16, an equivalent linear site-specific response analysis (i.e., SHAKE, DeepSoil, etc.) is not required if the proposed structure has a fundamental period less than 0.5 seconds. We anticipate the proposed improvements will have a fundamental period less than 0.5-seconds; therefore, based on the shear wave velocity profiles, we recommend classifying the site as a “Site Class E”.

Per ASCE 7-16 Section.11.4.8, a Site-Specific Ground Motion shall be developed for S_S values greater than 1.0 g for Site Class E sites. The S_s value for the site conditions and location is 1.50 g; therefore, we performed a Site-Specific Ground Motion Hazard Analysis as described in Appendix D with the results summarized on Table D.

TABLE D
Site-Specific Ground Motion Hazard Analysis
ASCE 7-16 / 2022 CBC FACTORS
2023 Improvements –
Redwood High School
Larkspur, California

Factor Name	Coefficient	2022 CBC Site Specific Value
Site Class[1]	$S_{A,B,C,D,E, or F}$	S_E
Spectral Response (short)	S_{MS}	1.58 g
Spectral Response (1-sec)	S_{M1}	3.24 g
Design Spectral Response (short)	S_{DS}	1.05 g
Design Spectral Response (1-sec)	S_{D1}	2.16 g
MCE_G[2] PGA adjusted for Site Class	PGA_M	0.67 g

Notes:

1. Site Class E Description: Soft soil profile with shear wave velocities less than 600 ft/sec (180 m/s), standard blow counts less than 15 blows per foot, and undrained shear strength less than 1,000 psf.
2. Maximum Considered Earthquake Geometric Mean.

However, per ASCE 7-16 Supplement 3; Ground Motion Hazard Analysis is not required if the equivalent lateral force procedure is used for design and the value of Cs is determined by Eq. (12.8-2) for all values of T, or where the value of Sa_i is determined by Eq. (15.7-7) for all values of T_i and the value of the parameter S_{D1} is replaced with $1.5xS_{D1}$ in Eq. (15.7-10) and Eq. (15.7-11). If the Project Structural Engineer utilizes this exception the seismic design values summarized on Table E below should be utilized.

TABLE E
ASCE 7-16 / 2022 CBC FACTORS
2023 Improvements –
Redwood High School
Larkspur, California

Factor Name	Coefficient	2022 CBC Site Specific Value
Site Class[1]	$S_{A,B,C,D,E, or F}$	S_E
Spectral Acc. (short)	S_S	1.50 g
Spectral Acc. (1-sec)	S_1	0.60 g
Site Amplification Factor at 0.2 sec.	F_a	1.2
Site Amplification Factor at 1.0 sec.	F_v	2.0
Spectral Response (short)	S_{MS}	1.80 g
Spectral Response (1-sec)	S_{M1}	1.20 g
Design Spectral Response (short)	S_{DS}	1.20 g
Design Spectral Response (1-sec)[2]	S_{D1}	1.20 g
MCE_G[3] PGA adjusted for Site Class	PGA_M	0.76 g

Notes:

1. Site Class E Description: Soft soil profile with shear wave velocities less than 600 ft/sec (180 m/s), standard blow counts less than 15 blows per foot, and undrained shear strength less than 1,000 psf.
2. SD_1 value includes a 50% increase to the value determined by ASCE 7-16 Equation 11.4-2.
3. Maximum Considered Earthquake Geometric Mean.

The project includes converting and renovating the existing kitchen and cafeteria building into a student commons building. Renovating the kitchen and cafeteria building will include constructing seismic upgrades to the existing structure. The seismic code for existing structures utilizes ASCE 41-17 to develop a design spectrum. ASCE 41-17 code gives the engineer the option to design the retrofit of an existing structure with seismic forces for a new building, BSE-2N and BSE-1N, or with lower performance objectives for existing structures.

Based on our discussion with the design team, we understand the project structural engineer will utilize BSE-2N and BSE-1N values to design the seismic upgrades for existing structures. We utilized the SEAOC Design Maps website application (https://www.seismicmaps.org/, accessed 2023) to determine the BSE-2N and BSE-1N seismic parameter coefficients for a Site Class E. The BSE-2N and BSE-1N seismic parameter coefficients given on Table F should be utilized for design of structural upgrades to existing campus structures.

TABLE F
ASCE 41-17 Seismic Design Coefficients
2023 Improvements –
Redwood High School
Larkspur, California

Factor Name	Coefficient	2022 CBC Site Specific Value
Site Class[1]	$S_{A,B,C,D,E, or F}$	S_E
Spectral Acc. (short)	S_S	1.50 g
Spectral Acc. (1-sec)	S_1	0.60 g
Site Amplification Factor at 0.2 sec.	F_a	1.3
Site Amplification Factor at 1.0 sec.	F_v	4.2
Basic Safety Earthquake BSE-2N		
Spectral Response Parameter (Short Period, 0.2-sec)	S_{XS}	1.95 g
Spectral Response Parameter (Long Period, 1.0-sec)	S_{X1}	2.52 g
Basic Safety Earthquake BSE-1N		
Spectral Response Parameter (Short Period, 0.2-sec)	S_{XS}	1.30 g
Spectral Response Parameter (Long Period, 1.0-sec)	S_{X1}	1.68 g

Notes:
1. Site Class E Description: Soft soil profile with shear wave velocities less than 600 ft/sec (180 m/s), standard blow counts less than 15 blows per foot, and undrained shear strength less than 1,000 psf.

5.2 Site Preparation and Grading

The general grading recommendations presented below are appropriate for construction in the late spring through fall months. From winter through the early spring months, on-site soils may be saturated due to rainfall and may be difficult to compact without drying by aeration or the addition of lime and/or cement (or a similar product) to dry the soils. Site preparation and grading should conform to the recommendations and criteria outlined below. General recommendations for wintertime construction are provided later in this report.

5.2.1 Lightweight Fill

As previously discussed, the area of the proposed permanent structures is underlain by roughly 5- to 11-feet of fill overlying up to 40-feet of soft, compressible, Bay Mud which will consolidate under new surface loads (i.e., foundation and/or fill). To reduce or eliminate consolidation of the Bay Mud soils associated with new fill placement, we recommend using light weight fill (unit weight between 30 and 60 pcf) which weighs less than “regular” fill (unit weight of 120 pcf) to raise grades. Existing fill should be removed and

replaced with lightweight fill to theoretically “balance” the loads. An additional volume of existing soil may be removed and replaced with lightweight fill to balance anticipated building loads. Light weight fill may consist of lava rock (~60 pcf) or cell-crete (~30 pcf). Due to the proximity of the project site to the San Francisco Bay and the risk of widespread flooding, we do not recommend utilizing Geofoam blocks to raise grades without a “hold-down” system (i.e. integrated in a deep foundation system), as the geofoam may become buoyant. We should provide more detailed settlement analyses at the site as the structural and civil engineering plans are being prepared and the structural loads and site grading plans are better developed.

5.2.2 Site Preparation

Clear pavements, foundations, over-sized debris, and organic material from areas to be graded. Excavated areas (i.e., excavations for foundation removal) should be restored with properly moisture conditioned and compacted fill as described in the following sections. Any loose soil or rock at subgrade will need to be excavated to expose firm natural soils or bedrock. Debris, rocks larger than six inches and vegetation are not suitable for structural fill and should be removed from the site. Alternatively, vegetation strippings may be used in landscape areas.

Where fills or other structural improvements are planned on level ground, the subgrade surface should be scarified to a depth of about eight inches, moisture conditioned to near the optimum moisture content, and compacted to a minimum of 90% relative compaction (ASTM D-1557) and should be increased to a minimum of 95% where new asphalt pavements are planned. Relative compaction refers to the ratio, in percent, of the in-situ dry density to the maximum laboratory density of the soil. If soft, wet, or otherwise unsuitable materials are encountered at the subgrade elevation during construction, we will provide supplemental recommendations/field directives to address the specific condition.

5.2.3 Materials

Based on our laboratory testing, onsite fill soils may be suitable for use as fill. On-site and, if required, imported fill shall consist of soil and rock mixtures that: (1) are free of organic material, (2) have a Liquid Limit less than 40 and a Plasticity Index of less than 15, (3) consist of at least 50% material retained on the #200 sieve, and (4) have a maximum particle size of 4-inches. Any imported soil shall be tested to determine its suitability for use as fill material.

5.2.4 Excavations

Excavations in the area of the new permanent buildings will encounter between about 5- and 11-feet of clayey sand fill over soft bay mud, while excavations in the area of the proposed temporary classrooms will encounter similar fills over sandy clay alluvial soils. We anticipate onsite soils may be excavated with standard equipment (i.e., excavators, dozers, scrapers, etc.) and should be considered Cal OSHA Type “C”. Excavations having a depth of five-feet or more and which will be entered by workers must be sloped, braced, or shored in accordance with current Cal/OSHA regulations. All excavations can result in collapse of sidewalls, slopes and/or bottom that could result in injury or death of workers. Therefore, excavations should be evaluated by the Contractor’s

safety officer and designated competent person prior to workers entering in accordance with current Cal/OSHA regulations.

5.3 Foundation Design

A majority of the campus is underlain by 5- to 11-feet of fill overlying upwards of 50-feet of soft compressible Bay Mud which will consolidate under new fill and structural loads. Additionally, isolated layers of liquefiable soils are present within the artificial fill, and deeper alluvial soils underlying the Bay Mud which could result in 1.0-inch of total and 0.5-inches of differential settlement (over a 30-foot span) of post liquefaction settlement. There are several alternative approaches by which mitigation for total and differential settlements (both as a result of structural loading, site grading and liquefaction) and uniform foundation support for permanent structures may be provided. These alternatives include utilization of a deep foundation system (i.e. drilled piers, auger cast piles, torque down piles, etc.), specialized ground-improvement techniques, or a “zero net load” in conjunction with shallow foundations or deep foundation system. Each option is discussed in greater detail below:

Shallow Foundations with “Zero Net Loading”

To reduce total and differential settlement to acceptable levels, the weight of the structures may be effectively offset by over-excavating and removing an equivalent weight of soil; roughly 120 pcf, by creating a deepened crawl space or basement. Alternatively, the building footprints could be over-excavated and backfilled with a low-density material such as cellcrete; roughly 25 pcf, or lava rock; roughly 60 pcf. The depth of the required over-excavation would be dependent on the building weight and new fill thickness to create a net “zero” load after the structure has been constructed. Relatively shallow groundwater at the site is expected to complicate construction of below-grade facilities. Additionally, heavier structures will require deeper over-excavations that could encroach upon the underlying Bay Mud. Over-excavating and replacing with lightweight fill would reduce the total and differential settlement but would not completely eliminate it. Some settlements, including the settlement continuing due to the original fill placement, will occur. Additionally, this approach will not eliminate the liquefaction potential hazard; therefore, the structure should be designed to withstand the predicted total and differential post liquefaction settlements. We should be consulted if the design team is contemplating utilizing lightweight fill and shallow foundations to support the structure to determine the depth of over-excavation and further evaluate its feasibility. If this option is chosen to support the temporary classroom structures the project structural engineer should utilize the shallow design criteria on Table G.

TABLE G
SHALLOW FOUNDATION DESIGN CRITERIA
2023 Improvements
Redwood High School
Larkspur, California

Minimum embedment below existing grade:	18-inches
Minimum width[1]:	
One-story:	12 inches
Two-story:	15-inches
Allowable bearing pressure[2]:	
Dead plus live loads:	2,500 psf
Total including wind and seismic	3,300 psf
Base friction coefficient:	0.40
Lateral passive resistance[3,4]:	350 pcf

Notes:
1. Design shallow foundations to similar bearing pressures, i.e. size footing widths to maintain uniform bearing loads. Maintain above optimum moisture contents until concrete slabs are completed.
2. Bearing pressures given are for foundations gaining support from imported lava rock or cell-crete.
3. May increase design values by 1/3 for total design loads including wind and seismic.
4. Neglect upper 6-inches unless confined by concrete. Equivalent Fluid Pressure, not to exceed 3,500 psf.

Ground Improvement with Shallow Foundations

Another option for foundations and liquefaction/settlement mitigation is to couple subsurface improvements that increase soil bearing capacity with a shallow foundation system. Drill Displacement Columns (DDC) involve drilling to design depths and injecting Controlled Low Strength Material (CLSM) under pressure, which creates large diameter, well-defined compaction columns and effectively increases soil strength. DDC does not structurally connect to the foundation; as such, structures would need to incorporate shallow foundations. Other ground-improvement options include deep soil-cement mixing (DSCM), whereby Portland cement is mixed continuously with soil to create overlapping columns if increased strength, and “geopiers” or stone columns, where columns of dense aggregate are created by “vibro-replacement”, which reinforces soft native soils.

Based on our experience with similar projects, we judge that, given the scope of the proposed development, it is likely that settlement can be mitigated by implementation of one of the above ground-improvement techniques and bearing capacities for the shallow foundation system would be on the order of 5,000 psf. If additional information or design criteria for ground improvement techniques are desired, we recommend consulting with a ground improvement, design-build contractor, i.e., Keller North America, Malcolm Drilling, Ferrell Design-Build, etc.

Shallow Foundation Stress Distribution

An equivalent 1:2 (horizontal:vertical) stress method may be utilized to determine the foundation stress distribution foundation with depth. The 1:2 (horizontal:vertical) empirical method assumes the area over which the load acts increases with depth, at the aforementioned ratio, to a maximum depth of 3 times the foundation width, as shown on Figure 15. Since the same vertical force is spread over a larger area with depth, the stress also decreases with depth.

Deep Foundations

A deep foundation system which gains support in firm material beneath any compressible and liquefiable soils and provides good long-term performance with minimal anticipated settlement. There are several alternative deep foundation systems which may be considered for the project, including traditional cast-in-drilled-hole (CIDH) concrete piers, auger-cast concrete piers (ACP), driven concrete or steel piles, and “torque-down” piles (TDP). While each system should provide comparable performance and settlement mitigation, variations in cost and constructability should be considered during selection of the “preferred” system.

Traditional CIDH pier excavations will likely need to be cased and de-watered to avoid collapse given the relatively shallow water table and potential for unpredictable zones of very soft soils susceptible “squeezing” and/or collapse. Additionally, CIDH pier construction will result in the need for off haul and disposal of drilling spoils which will incur additional transport and disposal costs. Auger-cast pile (ACP) construction avoids this complexity by effectively using the hollow drill auger as temporary casing and pumping concrete directly into the excavation as the auger is withdrawn but requires the use of specialized equipment. ACP construction will still result in some soil spoils requiring off haul; however, the quantity will be less than CIDH. The project Structural Engineer should utilize the design criteria on Table I below to design CIDH or ACP. The values provided in Table H were determined utilizing the procedures outlined by Reese & O’Neill (1988).

TABLE H
DRILLED PIER FOUNDATION DESIGN CRITERIA
2023 Improvements
Redwood High School
Larkspur, California

Minimum diameter:		18-inches
Minimum bedrock embedment:		5-feet
Allowable skin friction[1,2]:		
	Seismic Loading	Static Loading
Artificial Fill	300 psf	300 psf
Bay Mud:	50 psf	100 psf
Weathered Bedrock:	1,000 psf	1,000 psf
Lateral passive resistance[1,4]:		
	Seismic Loading	Static Loading
Upper 5 feet:	Neglect	Neglect
Artificial Fill	200 pcf	200 pcf
Bay Mud:	50 pcf	100 pcf
Weathered Bedrock:	750 psf	750 psf
Down-drag load[5,6]:		150 psf

Notes:
1. May increase design values by 1/3 for total design loads including wind and seismic.
2. Uplift capacity is equal to 80% of the skin friction resistance.
3. Neglect upper 24-inches unless confined by concrete. Equivalent Fluid Pressure, not to exceed 3,000 psf.
4. Apply over 2-pier diameters.
5. Apply to the portion of the pier above the bedrock contact.
6. Downdrag loads are loads that should be utilized to size the pier. Downdrag loads should not be considered as an additional vertical structural load to be resisted by the pier.

Driven piles, which do not require spoils off haul or stabilization of excavations, have been successfully utilized on projects of similar scale in the area. However, it may be difficult to acquire permits for given the site's location in a central residential district and the noise, vibration, and general disturbance inherent to the pile-driving process. Additionally, driven piles require the use of specialty equipment which, like ACP equipment, will be very large and potentially cost-prohibitive for a project of this scale. We can provide additional design criteria for other deep foundation options once the design team determines the appropriate foundation system.

Temporary Classroom Foundations

The project includes constructing temporary classroom structures which will remain in place for approximately 5-years during the construction of the planned improvements. We anticipate these structures will consist of prefabricated, lightweight, portable buildings founded on pressure treated timber foundations bearing on the existing asphalt surface. Provided the structures are temporary, it is our opinion timber foundations may be utilized to support the portable structures.

5.4 Site and Foundation Drainage

The site is relatively flat and there is a possibility that new grading could result in adverse drainage patterns and water ponding around buildings. Careful consideration should therefore be given to design of finished grades at the site. We recommend that landscaped areas adjoining new structures be sloped downward at least 0.25 feet for 5 feet (5%) from the perimeter of building foundations. Where hard surfaces, such as concrete or asphalt adjoin foundations, slope these surfaces at least 0.10 feet in the first 5 feet (2%). Roof gutter downspouts may discharge onto the pavements but should not discharge onto any landscaped areas. Provide area drains for landscape planters adjacent to buildings and parking areas and collect downspout discharges into a tight pipe collection system. Site drainage improvements should be connected into the existing campus storm drainage system.

5.5 Concrete Slabs-On-Grade

We generally recommend that interior concrete slabs have a minimum thickness of 5-inches and be reinforced with steel reinforcing bars (not mesh). Slabs should be placed on a moist subgrade as previously described above. To reduce (i.e., improve) interior moisture conditions, a minimum of four inches of clean, free draining, ¾-inch angular gravel should be placed beneath interior concrete slabs to form a capillary moisture break. The drain rock must be placed on a properly moisture conditioned and compacted subgrade that has been approved by the Geotechnical Engineer. A 15-mil, or thicker, vapor barrier should be placed over the compacted drain rock. The vapor barrier shall meet the ASTM E 1745 Class A requirements and be installed per ASTM E 1643. Eliminating the capillary moisture break and/or plastic visqueen may result in excess moisture intrusion through the floor slabs resulting in poor performance of floor coverings, mold growth, or other adverse conditions.

The industry standard approach to floor slab moisture control, as discussed above, does not assure that floor slab moisture transmission rates will meet the building use requirements or that indoor humidity levels will be low enough to inhibit mold growth. Building design, construction, and intended use have a significant role in moisture problems and should be carefully evaluated by the owner, designer, and builder in order to meet the project requirements.

Exterior concrete slabs should be at least 5-inches thick and reinforced with steel bars (not wire mesh). Additionally, contraction joints should be incorporated in the concrete slab in both directions, no greater than 10 feet on center and the reinforcing bars should extend through these control joints. For improved performance, exterior concrete slabs may be underlain with at least 4-inches of Caltrans Class 2 Aggregate Base compacted to at least 92% relative compaction.

5.6 Asphalt Pavement

Typically, asphalt pavement sections are designed utilizing two variables, the R-Value (a measure of the subgrade resistance) and the Traffic Index (a measure of the amount of daily traffic). Based on the subsurface conditions we judge an R-Value of 5 is appropriate for the site. The project Civil Engineer should select an appropriate Traffic Index for the driveway, or the existing section could be “matched”. Based on this assumed R-value, we calculated pavement sections for a range of Traffic Indexes in accordance with Caltrans procedures for flexible pavement design (2006). The results of our analyses are presented on Table I.

TABLE I
PAVEMENT DESIGN CRITERIA
2023 Improvements –
Redwood High School
Larkspur, California

Traffic Index	Asphalt Concrete	Aggregate Baserock
4.0	2.5 inches	8.0 inches
5.0	3.0 inches	10.0 inches
6.0	3.5 inches	13.0 inches

Note:

To reduce the section thickness, the general rule of thumb of 2-inches of Class 2 Aggregate Baserock is equivalent to 1-inch od asphalt may be applied.

Preparation of the existing subgrade soils should be performed per the recommendations in Section 5.2, including removal of existing vegetation, scarifying to a depth of about eight inches, moisture conditioning to above optimum, and compacting the finished subgrade to at least 95% relative compaction (ASTM D1557). The base rock should consist of Class 2 Aggregate Base (Caltrans, 2016), compacted to at least 95 percent relative compaction. Asphalt concrete should be placed to conform to the 2016 Caltrans Standard Specifications.

5.7 Utility Trench Excavations and Backfills

Excavations for utilities will most likely extend into medium dense to dense granular soils. Trench excavations having a depth of five feet or more that will be entered by workers must be sloped, braced, or shored in accordance with current Cal/OSHA regulations. On-site soils appear to be Type C. All excavations where collapse of excavation sidewall, slope or bottom could result in injury or death of workers, should be evaluated by the contractor's safety officer and designated competent person prior to entering in accordance with current Cal/OSHA regulations.

Excavations which run parallel to existing structures should consider the potential "zone of influence" of adjacent structures. The "zone of influence" may be taken as a projected 1:1 (horizontal:vertical) line from the bottom of the existing footing and extending down at least 3 times the foundation width. Any proposed trenches which intersect this projected line will undermine the adjacent structure. To mitigate potential undermining trenches may be relocated away from the "zone-of-influence", the existing structure may be underpinned, or the trench may be excavated in 10-foot segments and backfilled prior to constructing additional trench segments.

Bedding materials for utility pipes should be well graded sand with 90 to 100% of particles passing the No. 4 sieve and no more than 5% finer than the No. 200 sieve. Provide the minimum bedding beneath the pipe in accordance with the manufacturer's recommendation, typically 3 to 6 inches. Trench backfill may consist of on-site soils, moisture conditioned to within 2% of the optimum moisture content, placed in thin lifts and compacted to a minimum of 90% relative compaction. Backfill for trenches within pavement areas should consist of non-expansive granular fill. Use

equipment and methods that are suitable for work in confined areas without damaging utility conduits. Where utility lines cross under or through perimeter footings, they should be sealed to reduce moisture intrusion into the areas under the slabs and/or footings.

5.8 Wintertime Construction

Wintertime/wet weather site work is feasible during the construction phase of this project, provided that weather conditions do not adversely impact the planned grading and proper erosion control measures are implemented to prevent excessive silt and mud from entering the storm drain system. High soil moisture contents and muddy site conditions may impact placing fills, compacting subgrades, and excavating foundation trenches. Several alternatives may be considered to improve the site conditions to allow site work to proceed in rainy conditions:

- Prior to the onset of winter rains, maintain a drier site by covering the work area and any stockpiled materials with plastic visqueen sheeting or other impermeable membrane. Where asphalt pavements, other hardscape or drainage improvements currently exist in work areas, consider leaving these improvements in place until the last possible moment to maintain a drier subgrade condition.

- Cement treat the subgrade soils when site work commences to "weatherproof" the site. The disadvantage to this alternative is that future landscaping will likely require excavation and replacement of the treated soils for acceptable plant growth.

- Finally, imported, drier fill materials could be used to stabilize the site. Soft or wet on-site materials could be excavated to firm materials and drier (preferably granular) soils with good drainage characteristics would be imported to restore site grades. This alternative might also require future excavation and replacement of landscaping soils.

If construction occurs relatively early in the winter, we judge the first option (covering the site prior to winter rains) could be an effective method of maintaining a workable site. When the construction schedule and weather conditions are known, we can meet with the project team to further discuss alternatives to continuing wintertime construction.

6.0 SUPPLEMENTAL GEOTECHNICAL SERVICES

We should review the plans and specifications for the structures when they are nearing completion to confirm that the intent of our geotechnical recommendations has been incorporated and to provide supplemental recommendations, if needed. During construction, we must observe the site preparation, grading, and foundation preparation to confirm that the subsurface conditions are as expected and to adjust foundation depths, if required. We also must test compaction of new fill, backfill, pavement subgrade and aggregate baserock.

7.0 LIMITATIONS

This report has been prepared in accordance with generally accepted geotechnical engineering practices in Marin County at the time the report was prepared. This report has been prepared for the exclusive use of Tamalpais Union High School District and/or their assignees specifically for this project. No other warranty, expressed or implied, is made. Our evaluations and recommendations are based on the data obtained during our subsurface exploration program and our experience with soils in this geographic area.

Our approved scope of work did not include an environmental assessment of the site. Consequently, this report does not contain information regarding the presence or absence of toxic or hazardous wastes.

The evaluations and recommendations do not reflect variations in subsurface conditions that may exist between boring locations or in unexplored portions of the site. Should such variations become apparent during construction, the general recommendations contained within this report will not be considered valid unless MPEG is given the opportunity to review such variations and revise or modify our recommendations accordingly. No changes may be made to the general recommendations contained herein without the written consent of MPEG.

We recommend that this report, in its entirety, be made available to project team members, contractors, and subcontractors for informational purposes and discussion. We intend that the information presented within this report be interpreted only within the context of the report as a whole. No portion of this report should be separated from the rest of the information presented herein. No single portion of this report shall be considered valid unless it is presented with and as an integral part of the entire report.

8.0 LIST OF REFERENCES

Aagaard, B.T.; Blair, J.L.; Boatwright, J.; Garcia, S.H.; Harris, R.A.; Michael, A.J.; Schwartz, D.P.; and DiLeo, J.S., "Earthquake Outlook for the San Francisco Bay Region 2014-2043", U.S. Geological Survey Fact Sheet 2016-3020

Abrahamson, Silva and Kamai, "Summary of the ASK14 Ground Motions Relation for Active Crustal Regions," Earthquake Engineering Research Institute, Spectra Vol 30 Issue 3, August 2014.

American Society of Civil Engineers, "Minimum Design Loads for Buildings and Other Structures," (ASCE 7), 2016.

American Society for Testing and Materials, "2017 Annual book of ASTM Standards, Section 4, Construction, Volume 4.08, Soil and Rock; Dimension Stone; Geosynthetics," ASTM, Philadelphia, 2017.

Association of Bay Area Governments (ABAG), Geographic Information System, http://quake.abag.ca.gov/mitigation/, 2023.

Boore, Stewart, Seyhan and Atkinson, "NGA-West2 Equations for Predicting PGA, PGV and 5% Damped PSA for Shallow Crustal Earthquakes," Earthquake Engineering Research Institute, Spectra Vol 30 Issue 3, August 2014.

California Building Code, 2022 Edition, California Building Standards Commission, Sacramento, California.

California Department of Transportation (Caltrans), "Standard Specifications," May 2018.

Campbell and Borzognia, "NGA-West2 Ground Motion Model for the Average Horizontal Components of PGA, GV and 5% Damped Linea Acceleration Response Spectra," Earthquake Engineering Research Institute, Spectra Vol 30 Issue 3, August 2014.

Chiou and Youngs, "Update of the Chiou and Youngs NGA Model for the Average Horizontal Component of Peak Ground Motion and Response Spectra," Earthquake Engineering Research Institute, Spectra Vol 30 Issue 3, August 2014.

Department of Conservation, California Geologic Survey, "Fault Rupture Hazard Zones in California, Alquist Priolo Earthquake Fault Zoning Act with Index to Earthquake Fault Zones Maps" Special Publication 42, 2007.

Field, E.H., Biasi, G.P., Bird, P., Dawson, T.E., Felzer, K.R., Jackson, D.D., Johnson, K.M., Jordan, T.H., Madden, C., Michael, A.J., Milner, K.R., Page, M.T., Parsons, T., Powers, P.M., Shaw, B.E., Thatcher, W.R., Weldon, R.J., II, and Zeng, Y., 2015, Uniform California earthquake rupture forecast, version 3 (UCERF3) – The 2015 time-independent model: U.S. Open-File Report 2013–1165, 97 p., California Geological Survey Special Report 228, and Southern California Earthquake Center Publication 1792, http://pubs.usgs.gov/of/2013/1165/.

Idriss, I.M. & Boulanger, R.W. “Soil Liquefaction during Earthquakes”, Earthquake Engineering Research Institute Monograph 12, 2008

Idriss, I.M. & Boulanger, R.W. “SPT-Based Liquefaction Triggering Procedures” Department of Civil and Environmental Engineering, College of Engineering, University of California at Davis, UCD/GCM-10/02, December 2010

Idriss, I.M. & Boulanger, R.W. “SPT-Based Liquefaction Triggering Procedures” Department of Civil and Environmental Engineering, College of Engineering, University of California at Davis, UCD/GCM-14/01, December 2014

Marin County Stormwater Pollution Prevention Program “Construction Erosion and Sediment Control Plan Applicant Package”, November 2015.

Miller Pacific Engineering Group, “TUHSD Solar Parking Structures, Redwood High School, Larkspur, California,” January 13, 2023.

Miller Pacific Engineering Group, “Redwood High School Modular Classrooms, Tamalpais Union High School District, Larkspur, California,” June 23, 2017.

Miller Pacific Engineering Group, “Redwood High School, Solar Parking Structures, Larkspur, California,” January 29, 2015.

Miller Pacific Engineering Group, “Redwood High School, Fine Arts Classroom, Larkspur, California,” June 21, 2010.

Smith, T.C., Rice, S.J., and Strand, R.G. (1976), 'Geology of the Lower Ross Valley, Corte Madera, Homestead Valley, Tamalpais Valley, Tennessee Valley, and Adjacent Areas, Marin County, California', Department of Conservation, California Division of Mines and Geology (California Geological Survey), OFR 76-2 S.F., Plate 1D, Scale 1:12,000.

Southern California Earthquake Center, “Recommended Procedures for Implementation of DMG Special Publication 117, Guidelines for Analyzing and Mitigating Liquefaction Hazards in California,” University of Southern California, March 1999.

Tokimatsu, K. and Seed, H.B. “Simplified Procedures for the Evaluation of Settlements in Clean Sands,” Earthquake Engineering Research Center, Report No. UCB/EERC-84/16, October 1984

United States Geologic Survey, “Documentation for the 2008 Update of the United States National Seismic Hazard Maps,” Open-File-Report 2008-1128, 2008.

United States Geological Survey (USGS), “Earthquake Probabilities in the San Francisco Bay Region, 2002 to 2031 – A Summary of Finding,” The Working Group on California Earthquake Probabilities, Open File Report 99-517, 2003.

United States Geological Survey (USGS), “National Seismic Hazards Map Program,” Version 5.0.9, October 06, 2008.

United States Geological Survey (2003), “Summary of Earthquake Probabilities in the San Francisco Bay Region, 2002 to 2032,” The 2003 Working Group on California Earthquake Probabilities, 2003.

United States Geological Survey (2008), “The Uniform California Earthquake Rupture Forecast, Version 2,” The 2007 Working Group on California Earthquake Probabilities, Open File Report 2007-1437, 2008.

United States Geological Survey, “The Working Group on Northern California Earthquake Potential, Open File Report 96-705”, 1996.

SITE COORDINATES
LAT. 37.93793°
LON. -122.52411°

SITE LOCATION

N.T.S.

NORTH

REFERENCE: Google Earth, 2023

MILLER PACIFIC ENGINEERING GROUP
504 Redwood Blvd.
Suite 220
Novato, CA 94947
T 415 / 382-3444
F 415 / 382-3450
www.millerpac.com

A CALIFORNIA CORPORATION, © 2022, ALL RIGHTS RESERVED

FILENAME: 867.193 Figures.dwg

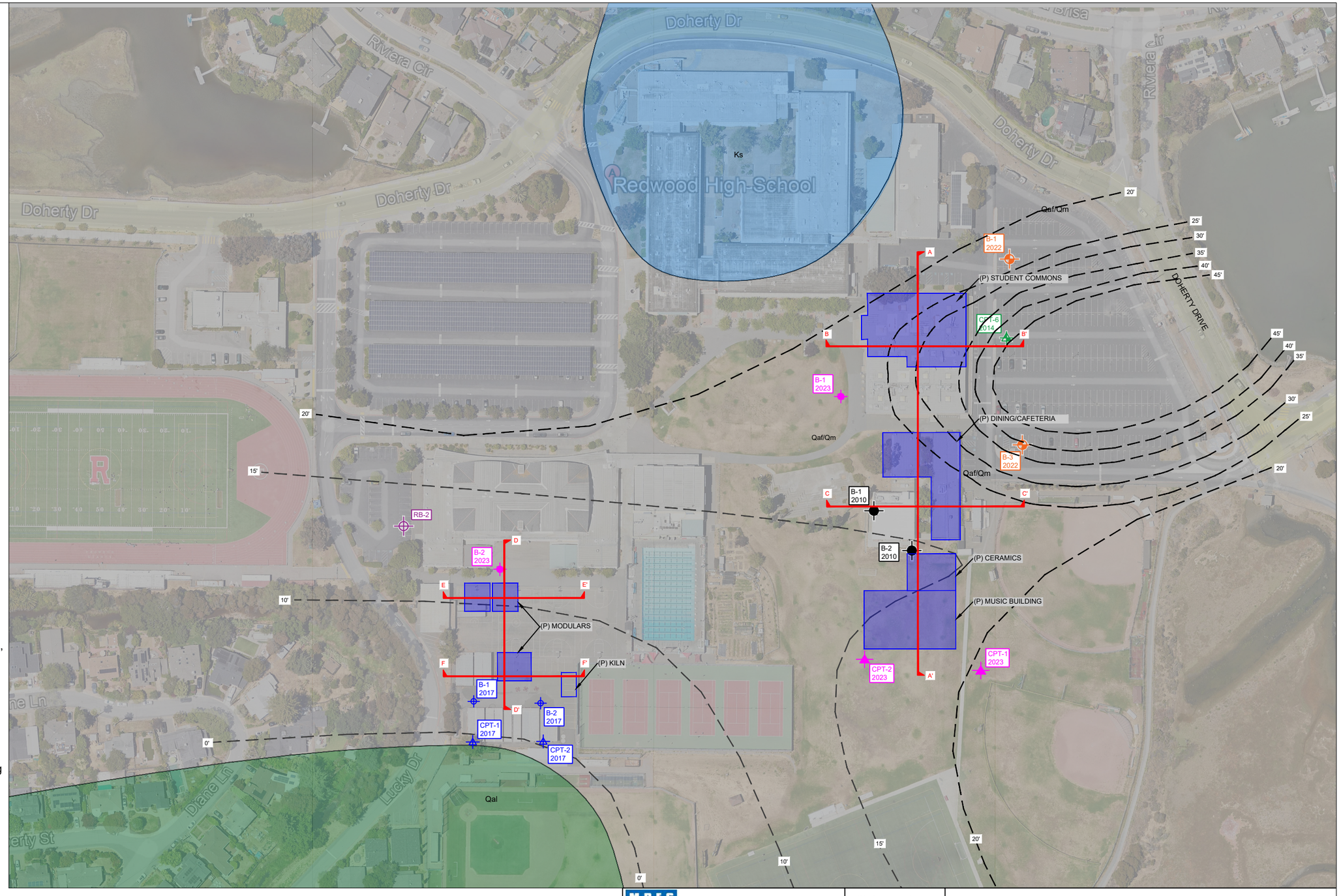
SITE LOCATION MAP

TUHSD Redwood High School
2023 Improvements
Larkspur, California

Project No. 867.193 Date: 10/18/2023

Drawn EIC
Checked

1
FIGURE



- Approximate location of boring completed by MPEG, 2023
- Approximate location of CPT completed by MPEG, 2023
- Approximate location of boring completed by MPEG, 2022
- Approximate location of boring completed by MPEG, 2017
- Approximate location of CPT completed by MPEG, 2017
- Approximate location of boring completed by MPEG, 2010
- Approximate location of boring completed by MACTEC, 2001
- Approximate location of CPT completed by MPEG, 2014
- Simplified geologic cross sections, see Figures 6 and 7
- Estimated Bay Mud Thickness Contours
- Proposed structures

Geologic Legend:

- Qaf/Qm — Artifical Fill/Bay Mud - Consisting of artificial fill placed over highly compressible bay mud.
- Qal — Alluvium
- Ks — Sandstone and shale
- Inferred geologic contact

Approximate location of boring completed by MPEG, 2023

SCALE

0 70 140 280 FEET

NORTH

REFERENCE: Google Earth, 2023.

MPEG MILLER PACIFIC ENGINEERING GROUP
504 Redwood Blvd.
Suite 220
Novato, CA 94947
T 415 / 382-3444
F 415 / 382-3450
www.millerpac.com

A CALIFORNIA CORPORATION, © 2022, ALL RIGHTS RESERVED

FILE: 867.193 Figures.dwg

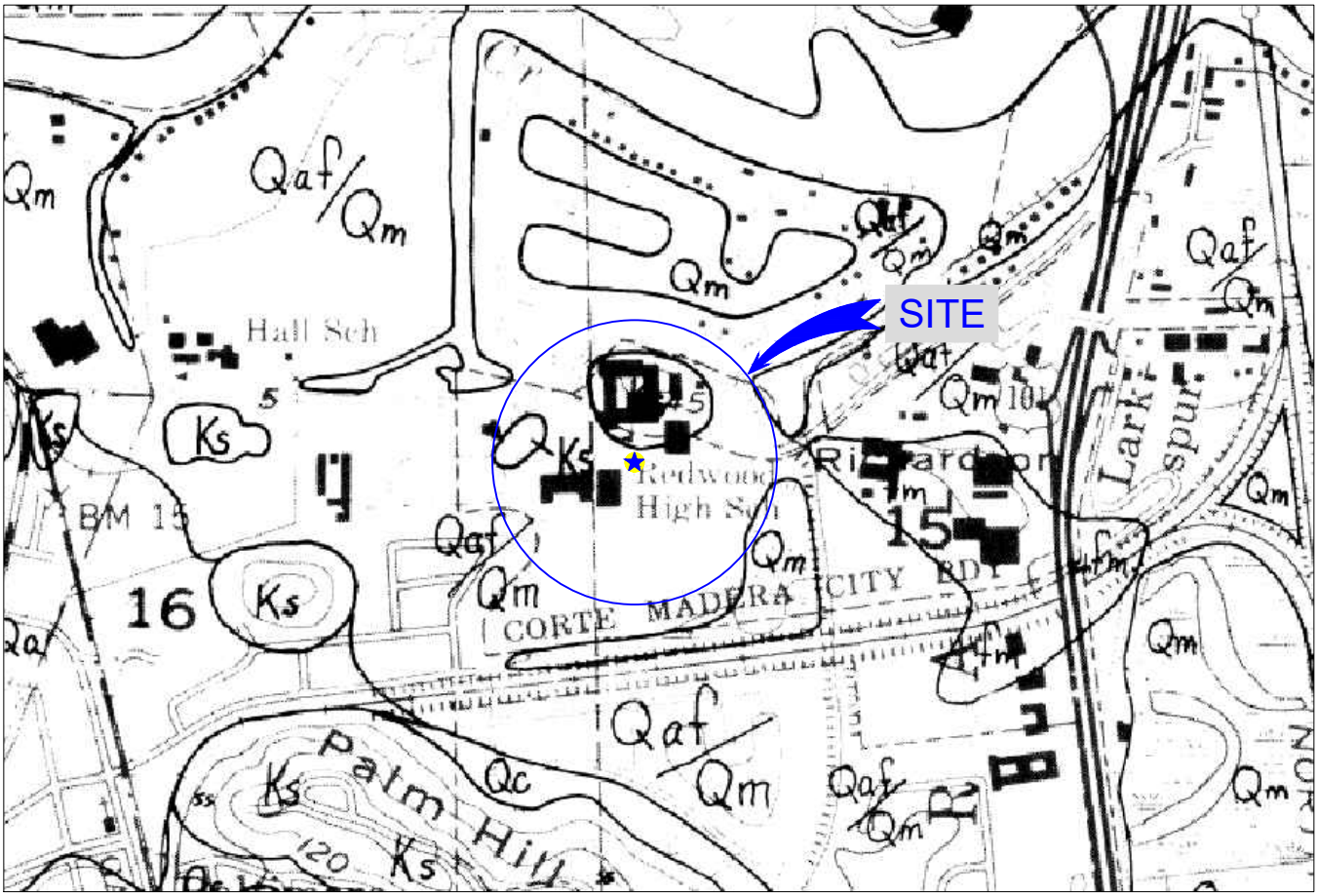
SITE PLAN AND GEOLOGIC MAP

TUHSD Redwood High School
2023 Improvements
Larkspur, California

Project No. 867.193 Date: 10/18/2023

Designed MMC
Drawn MMC
Checked BSP

2
FIGURE



REGIONAL GEOLOGIC MAP

NORTH

LEGEND

Qaf **Artificial Fill** [Quaternary] - Deposits of rock, soil, garbage and trash, or bay mud placed by man upon natural surfaces, mostly for engineering purposes. Highly variable as to composition, degree of compaction, etc. **Qaf/Qm** indicates artificial fill placed on bay mud.

Qm **Bay Mud** [Quaternary] - Thick deposits of unconsolidated, low-density, semi-fluid, highly compressible, highly impermeable silty clay. Contains lenses of peat and likely contains lenses of sand in many areas.

Qa **Alluvium** [Quaternary] - Unconsolidated deposits of clay, silt, sand, and gravel underlying the bottom lands of the main stream valleys, consisting of materials transported and deposited by the streams.

Qc **Colluvium** [Quaternary] - Unconsolidated and unsorted soil material and weathered rock fragments accumulated on or at the base of slopes by natural gravitational or slope wash processes. Derived by weathering and decomposition of bedrock materials underlying the slopes.

Ks **Sandstone and Shale** [Cretaceous] - Sandstone (**ss**) is mainly thick bedded, medium- to coarse-grained arkose and arkose-wacke, light gray where fresh, but buff to almost white in typical weathered exposures. Shale (**sh**) is gnerally well-bedded siltstone, dark gray where fresh, light gray, buff, or stained brown by iron oxides where weathered. Sandstone and shale (**ssh**) composed of thin beds of light gray, fine-grained sandstone that grade upward into and alternate rhythmically with, thin beds of gray to black shale.

fm **Franciscan Melange** [Jurassic-Cretaceous] - A tectonic mixture consisting of small to large masses of resistant rock types, principally of sandstone (**ss**), greenstone (**gs**), chert (**ch**) and serpentine (**sp**), but including various exotic metamorphic rock types, embedded in a matrix of pervasively sheared or pulverized rock material.

MILLER PACIFIC ENGINEERING GROUP
504 Redwood Blvd.
Suite 220
Novato, CA 94947
T 415 / 382-3444
F 415 / 382-3450
www.millerpac.com

A CALIFORNIA CORPORATION, © 2022, ALL RIGHTS RESERVED

FILENAME: 867.193 Figures.dwg

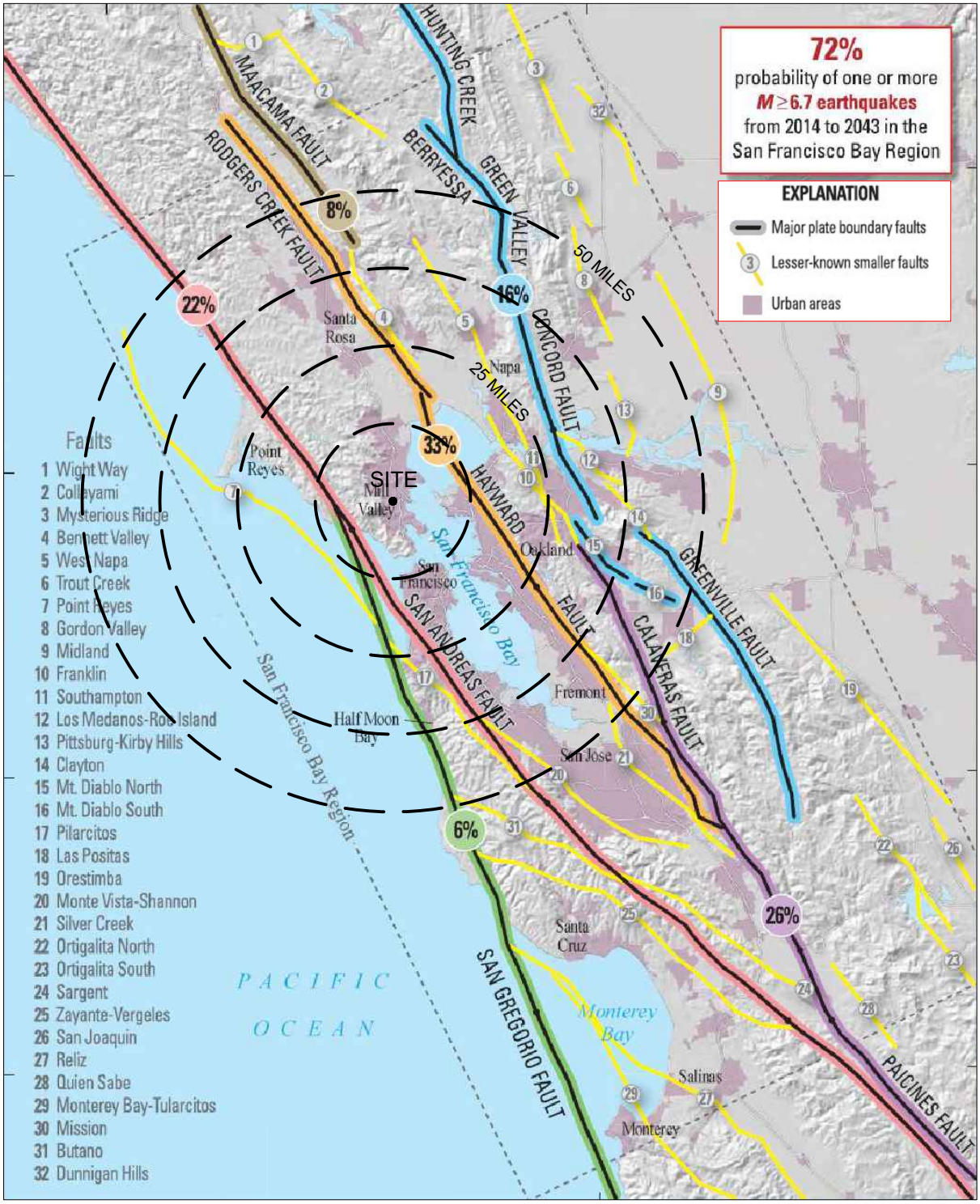
REGIONAL GEOLOGIC MAP

TUHSD Redwood High School
2023 Improvements
Larkspur, California

Project No. 867.193 Date: 10/18/2023

Drawn EIC
Checked

3
FIGURE



SITE COORDINATES
LAT. 37.93793°
LON. -122.52411°

SCALE
0 12.5 25 50 MILES

NORTH

DATA SOURCE:
1) U.S. Geological Survey, U.S. Department of the Interior, "Earthquake Outlook for the San Francisco Bay Region 2014-2043", Map of Known Active Faults in the San Francisco Bay Region, Fact Sheet 2016-3020, Revised August 2016 (ver. 1.1).

MILLER PACIFIC ENGINEERING GROUP
504 Redwood Blvd.
Suite 220
Novato, CA 94947
T 415 / 382-3444
F 415 / 382-3450
www.millerpac.com

A CALIFORNIA CORPORATION, © 2022, ALL RIGHTS RESERVED

FILENAME: 867.193 Figures.dwg

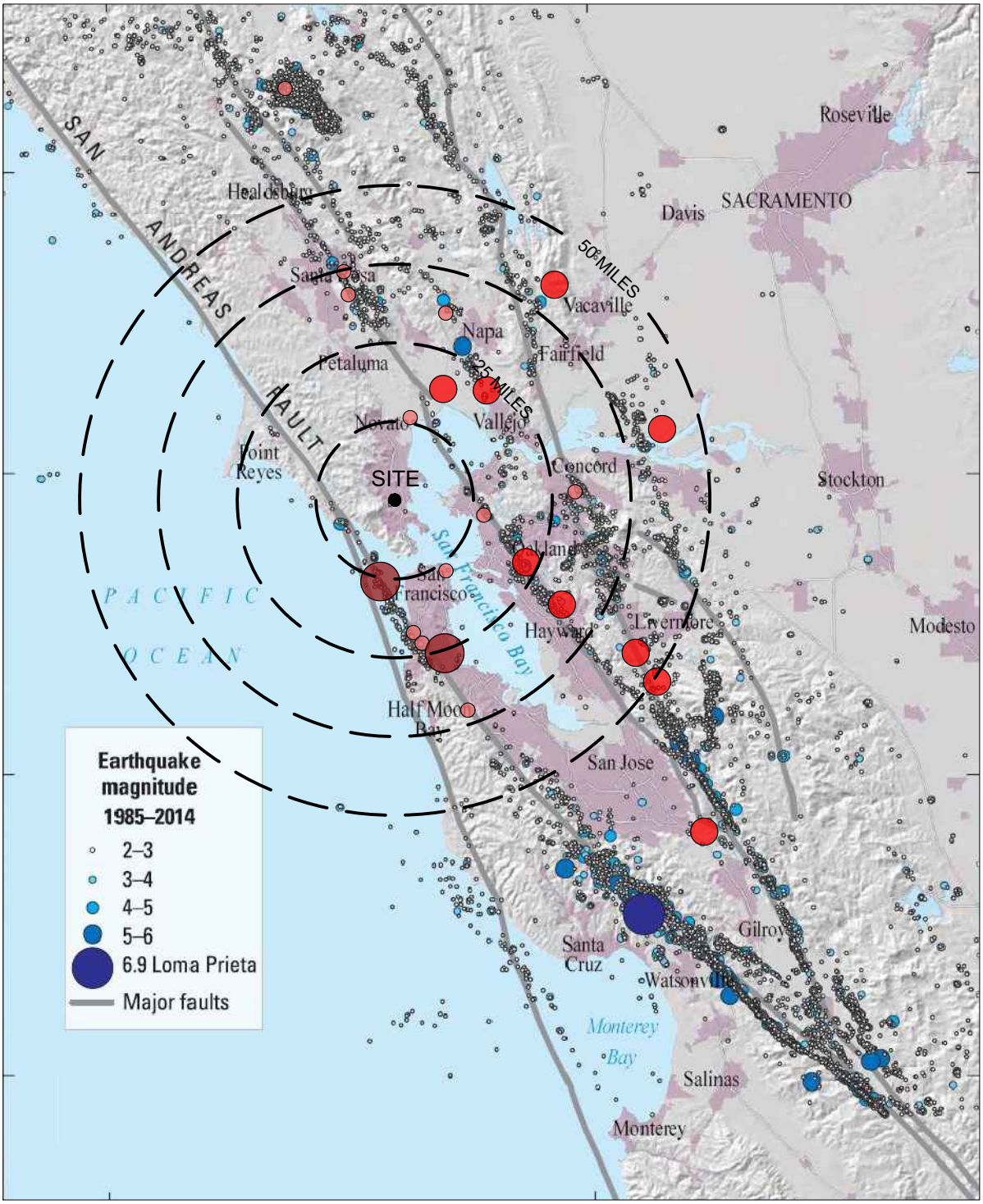
ACTIVE FAULT MAP

TUHSD Redwood High School
2023 Improvements
Larkspur, California

Project No. 867.193 Date: 10/18/2023

Drawn EIC
Checked

4
FIGURE



SITE COORDINATES
LAT. 37.93793°
LON. -122.52411°

SCALE
0 12.5 25 50 MILES

NORTH

LEGEND & DATA SOURCE:

See legend above. U.S. Geological Survey, U.S. Department of the Interior, "Earthquake Outlook for the San Francisco Bay Region 2014-2043", Map of Known Active Faults in the San Francisco Bay Region, Fact Sheet 2016-3020, Revised August 2016 (ver. 1.1). Large circles indicate earthquakes M>7.0, medium circles indicate 6.0<M<7.0 and small circles indicate 5.0<M<6.0 .U.S. Geological Survey, Earthquake Catalog Search, https://earthquake.usgs.gov/earthquakes/search/. Earthquakes between 1830 and 2021.

MILLER PACIFIC ENGINEERING GROUP
504 Redwood Blvd.
Suite 220
Novato, CA 94947
T 415 / 382-3444
F 415 / 382-3450
www.millerpac.com

A CALIFORNIA CORPORATION, © 2022, ALL RIGHTS RESERVED

FILENAME: 867.193 Figures.dwg

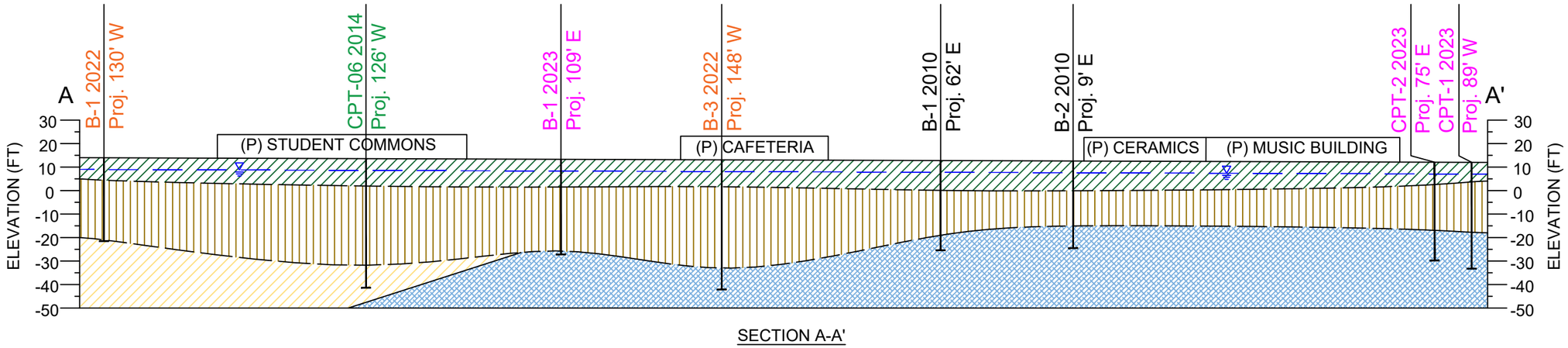
HISTORIC EARTHQUAKE MAP

TUHSD Redwood High School
2023 Improvements
Larkspur, California

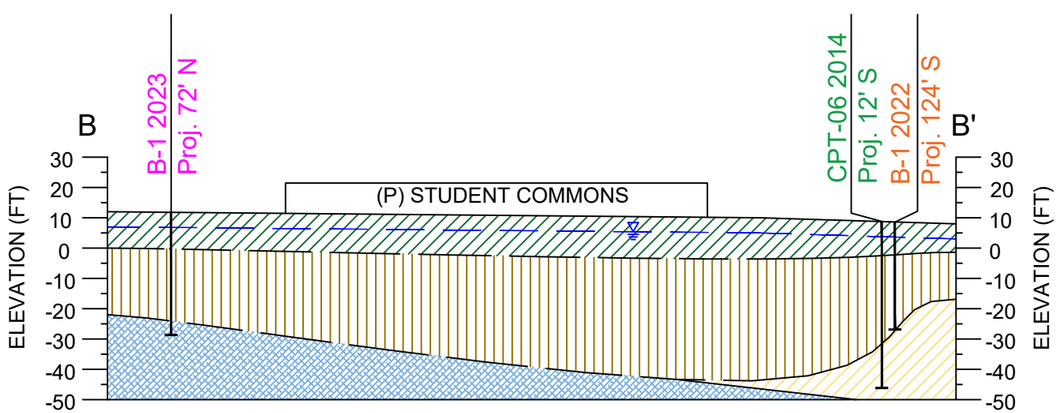
Project No. 867.193 Date: 10/18/2023

Drawn EIC
Checked

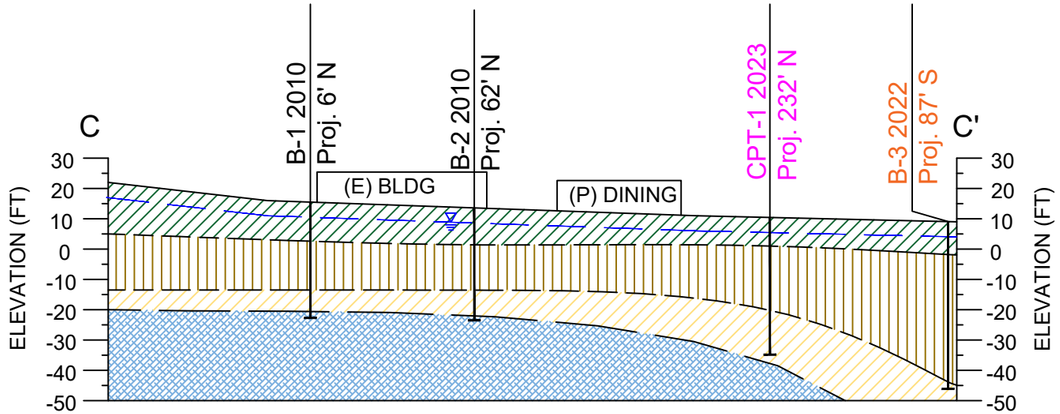
5
FIGURE



SECTION A-A'



SECTION B-B'



SECTION C-C'

LEGEND:

- Inferred Geologic Contact
- Assumed Highest Historic Groundwater Level
- Sandy CLAY (CL) [Fill]
- Silty CLAY (CH) [Bay Mud]
- Sandy CLAY (CL) [Alluvium]
- Sandstone [Bedrock]

SCALE

0 25 50 100 FEET

MILLER PACIFIC ENGINEERING GROUP
A CALIFORNIA CORPORATION, © 2022, ALL RIGHTS RESERVED
FILE: 867.193 Figures.dwg

504 Redwood Blvd.
Suite 220
Novato, CA 94947
T 415 / 382-3444
F 415 / 382-3450
www.millerpac.com

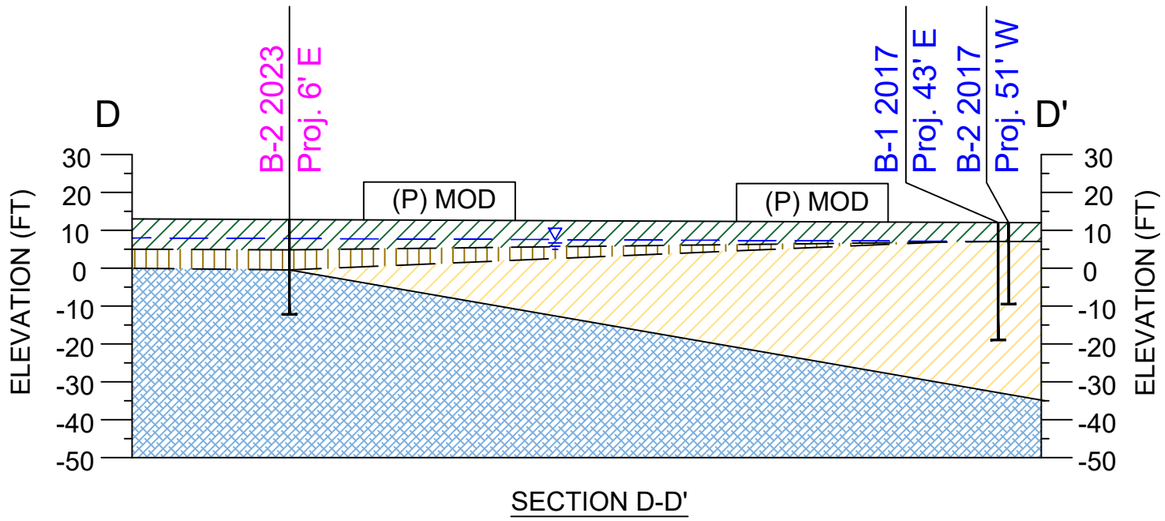
SIMPLIFIED GEOLOGIC CROSS SECTIONS

TUHSD Redwood High School
2023 Improvements
Larkspur, California

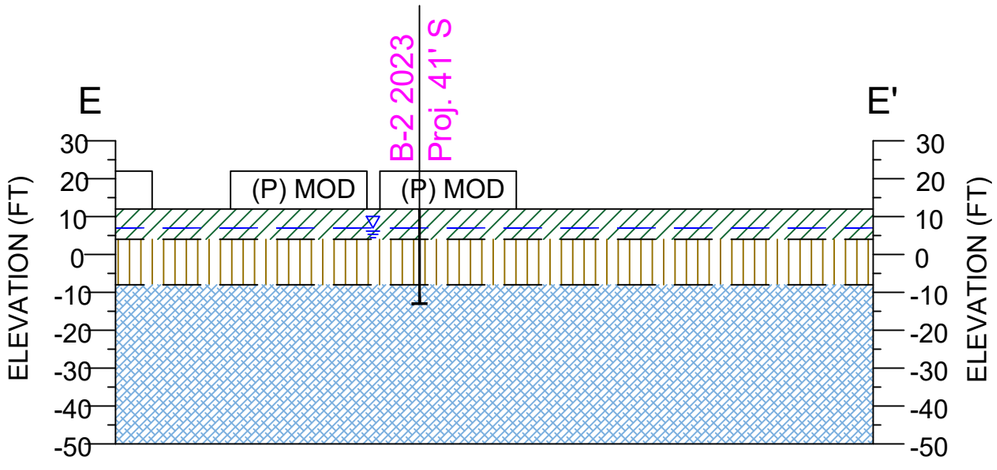
Project No. 867.193 Date: 10/18/2023

Designed MMC
Drawn MMC
Checked BSP

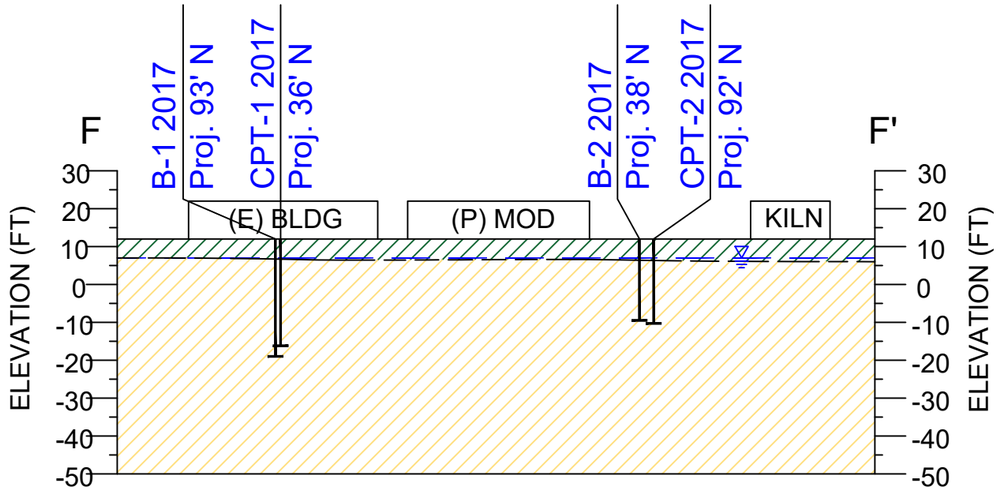
FIGURE 6



SECTION D-D'



SECTION E-E'



SECTION F-F'

LEGEND:

- Inferred Geologic Contact
- Assumed Highest Historic Groundwater Level
- Sandy CLAY (CL) [Fill]
- Silty CLAY (CH) [Bay Mud]
- Sandy CLAY (CL) [Alluvium]
- Sandstone [Bedrock]

SCALE

0 20 40 80 FEET

MILLER PACIFIC ENGINEERING GROUP
504 Redwood Blvd.
Suite 220
Novato, CA 94947
T 415 / 382-3444
F 415 / 382-3450
www.millerpac.com

A CALIFORNIA CORPORATION, © 2022, ALL RIGHTS RESERVED

FILE: 867.193 Figures.dwg

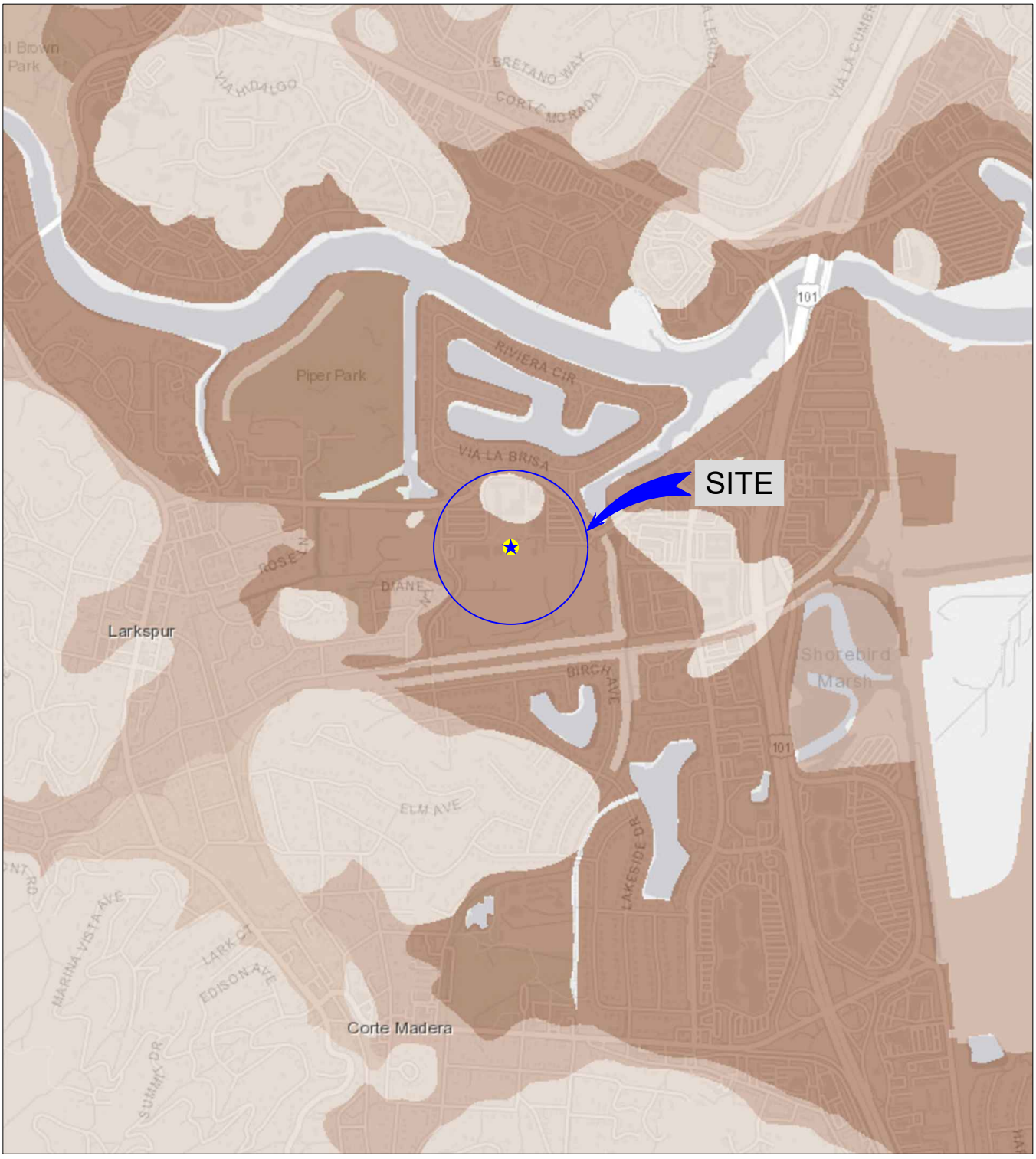
SIMPLIFIED GEOLOGIC CROSS SECTIONS

TUHSD Redwood High School
2023 Improvements
Larkspur, California

Project No. 867.193 Date: 10/18/2023

Designed MMC
Drawn MMC
Checked BSP

7
FIGURE



REFERENCE: ABAG Hazard Viewer Map, 2023

MILLER PACIFIC ENGINEERING GROUP
504 Redwood Blvd.
Suite 220
Novato, CA 94947
T 415 / 382-3444
F 415 / 382-3450
www.millerpac.com

A CALIFORNIA CORPORATION, © 2022, ALL RIGHTS RESERVED

FILENAME: 867.193 Figures.dwg

LIQUEFACTION SUSCEPTIBILITY MAP

TUHSD Redwood High School
2023 Improvements
Larkspur, California

Project No. 867.193 Date: 10/18/2023

Drawn EIC
Checked

8
FIGURE

Liquefaction Analysis Utilizing
Standard Penetration Test Data

Project: TUHSD - RWHS 2023 Improvements
Job No: 867.193

Analyzed by: BSP
Date: 9/19/2023

Soil & Seismic Properties

Magnitude, M_w: 8.0
PGA, g: 0.76
GW Depth, ft: 5.0

Layer	UCS Type	γ_d, pcf	ω%	Depth, ft Upper	Depth, ft Lower	γ_t, pcf	Thickness, ft
1	Qaf	120	10%	0	10	132	10
2	MH (Bay Mud)	45	100%	10	30	90	19.9
3	Qal	115	20%	30	40	138	10.1

Cyclic Resistance Ratio (CRR)

MC to SPT: 0.6
Borehole Dia: 6.0
Hammer Eff: 0.8

Sample	Depth, ft	N_{FIELD}, bpf	Fines Cont., %	Sampler Type	Liner Correction	UCS Type	σ, psf	σ', psf	Sampler Corr.	N_{COR}, bpf
B1, 2023	5.0	25	20	MC	NO	Qaf	660	660	0.6	15.0
B1, 2023	10.0	12	18	MC	NO	Qaf	1320	1008	0.6	7.2
B2, 2023	5.0	20	30	MC	NO	Qaf	660	660	0.6	12.0
B3, 2022	10.0	4	20	SPT	NO	Qaf	1320	1008	1.0	4.0
B1, 2010	8.0	26	15	MC	NO	Qaf	1056	869	0.6	15.6
B1, 2010	30.0	15	23	MC	NO	Qal	3144	1584	0.6	9.0

Sample	Depth (ft)	C_E	C_B	C_R	C_S	C_N	N_{60}, bpf	$(N_1)_{60}$, bpf	$\Delta(N_1)_{60}$, bpf	$(N_1)_{60CS}$, bpf	$CRR_{M=7.5,\sigma'=1}$
B1, 2023	5.0	1.33	1.05	0.75	1.00	1.52	**20.0**	**23.9**	**4.5**	**28**	**0.40**
B1, 2023	10.0	1.33	1.05	0.80	1.00	1.39	**9.6**	**11.2**	**4.1**	**15**	**0.16**
B2, 2023	5.0	1.33	1.05	0.75	1.00	1.56	**16.0**	**19.6**	**5.4**	**25**	**0.29**
B3, 2022	10.0	1.33	1.05	0.80	1.00	1.44	**5.3**	**6.4**	**4.5**	**11**	**0.12**
B1, 2010	8.0	1.33	1.05	0.75	1.00	1.39	**20.8**	**22.7**	**3.3**	**26**	**0.32**
B1, 2010	30.0	1.33	1.05	0.95	1.00	1.11	**12.0**	**13.3**	**4.9**	**18**	**0.19**

Cyclic Stress Ratio Induced by Earthquake (CSR)

Sample	Depth, ft	σ, psf	σ', psf	r_d	C_σ	K_σ	MSF_{MAX}	MSF	$CSR_{M,\sigma'}$	$CSR_{M=7.5,\sigma'=1}$	F.S.
B1, 2023	5	660	660	1.00	0.19	1.10	1.90	0.88	**0.49**	**0.51**	**0.78**
B1, 2023	10	1320	1008	0.99	0.11	1.08	1.33	0.88	**0.64**	**0.68**	**0.23**
B2, 2023	5	660	660	1.00	0.16	1.10	1.72	0.88	**0.49**	**0.51**	**0.57**
B3, 2022	10	1320	1008	0.99	0.10	1.07	1.21	0.88	**0.64**	**0.69**	**0.18**
B1, 2010	8	1056	869	0.99	0.17	1.10	1.77	0.88	**0.60**	**0.62**	**0.51**
B1, 2010	30	3144	1584	0.94	0.12	1.03	1.42	0.88	**0.92**	**1.02**	**0.18**

Post Liquefaction Settlement Analysis

Sample	Depth, ft	$(N_1)_{60CS}$, bpf	F.S.	γ_{LIM}	F_α	γ_{MAX}	ε_v	Thickness, ft	Settlement, in
B1, 2023	5	28	0.78	0.06	0.02	0.06	**1.2%**	**5.0**	**0.7**
B1, 2023	10	15	0.23	0.27	0.74	0.27	**2.8%**	**1.0**	**0.3**
B2, 2023	5	25	0.57	0.09	0.23	0.09	**1.9%**	**4.0**	**0.9**
B3, 2022	10	11	0.18	0.43	0.89	0.43	**3.5%**	**1.5**	**0.6**
B1, 2010	8	26	0.51	0.08	0.17	0.08	**1.8%**	**6.0**	**1.3**
B1, 2010	30	18	0.18	0.19	0.61	0.19	**2.5%**	**6.0**	**1.8**

Liquefaction Potential Index (LPI)

Boring	Depth (ft)	Depth (m)	F.S.	Fi	Thickness (ft)	Thickness (m)	w(i)	LPI(i)	LPI
B1, 2023	5	1.52	0.78	0.22	5.0	1.52	9.24	3.1	5.1
B1, 2023	10	3.05	0.23	0.77	1.0	0.30	8.48	2.0	
B2, 2023	5	1.52	0.57	0.43	4.0	1.22	9.24	4.9	4.9
B3, 2022	10	3.05	0.18	0.82	1.5	0.46	8.48	3.2	3.2
B1, 2010	8	2.44	0.51	0.49	6.0	1.83	8.78	7.9	16.0
B1, 2010	30	9.14	0.18	0.82	6.0	1.83	5.43	8.1	

Liquefaction Severity asa function of Liquefaction Potential Index (LPI)

Severity	Little to none	Minor	Moderate	Major
LPI	LPI = 0	0 < LPI < 5	5 < LPI < 15	15 < LPI

Liquefaction damage appears typically when LPI > 5

Soil Liquefaction During Earthquakes, Idriss, I.M. & Boulanger, R.W., Earthquake Engineering Research Institute, MNO-12, 2008
SPT-Based Liquefaction Triggering Procedures, Idriss, I.M. & Boulanger, R.W., UC Davis, UCD/CGM-10/02, 2010
CPT and SPT Based Liquefaction Triggering Procedures, Boulanger, R.W. & Idriss, I.M., UC Davis, UCD/CGM-14/01, 2014
Dixit, Dewaikar, & Jangid 2012 and Ozocak & Sert 2010

MILLER PACIFIC ENGINEERING GROUP
504 Redwood Blvd.
Suite 220
Novato, CA 94947
T 415 / 382-3444
F 415 / 382-3450
www.millerpac.com

A CALIFORNIA CORPORATION, © 2022, ALL RIGHTS RESERVED

FILENAME: 867.193 Figures.dwg

LIQUEFACTION ANALYSIS

TUHSD Redwood High School
2023 Improvements
Larkspur, California

Project No. 867.193 Date: 10/18/2023

Drawn EIC
Checked

9
FIGURE

DSA 103-22: LISTING OF STRUCTURAL TESTS & SPECIAL INSPECTIONS, 2022 CBC

General

Application Number: 01-121720	**School Name:** Redwood HS	**School District:** Tamalpais Union High School District
DSA File Number: 21-H2	**Increment Number:**	**Date Created:** 2024-08-09 13:57:17

IMPORTANT: This form is only a summary list of structural tests and some of the special inspections required for the project. Generally, the structural tests and special inspections noted on this form are those that will be performed by the Geotechnical Engineer of Record, Laboratory of Record, or Special Inspector. The actual complete test and inspection program must be performed as detailed on the DSA approved documents. The appendix at the bottom of this form identifies work NOT subject to DSA requirements for special inspection or structural testing. The project inspector is responsible for providing inspection of all facets of construction, including but not limited to, special inspections not listed on this form such as structural wood framing, high-load wood diaphragms, cold-formed steel framing, anchorage of non-structural components, etc., per Title 24, Part 2, Chapter 17A (2022 CBC).

****NOTE:** Undefined section and table references found in this document are from the CBC, or California Building Code.

KEY TO COLUMNS

1. TYPE	2. PERFORMED BY
Continuous – Indicates that a continuous special inspection is required **Periodic –** Indicates that a periodic special inspection is required **Test –** Indicates that a test is required	**GE (Geotechnical Engineer) –** Indicates that the special inspection shall be performed by a registered geotechnical engineer or his or her authorized representative. **LOR (Laboratory of Record) –** Indicates that the test or special inspection shall be performed by a testing laboratory accepted in the DSA Laboratory Evaluation and Acceptance (LEA) Program. See CAC Section 4-335. **PI (Project Inspector) –** Indicates that the special inspection may be performed by a project inspector when specifically approved by DSA. **SI (Special Inspection) –** Indicates that the special inspection shall be performed by an appropriately qualified/approved special inspector.

DSA 103-22: LISTING OF STRUCTURAL TESTS & SPECIAL INSPECTIONS (SOILS), 2022 CBC

Table 1705A.6, Table 1705A.7, Table 1705A.8

Application Number:	**School Name:**	**School District:**
01-121720	Redwood HS	Tamalpais Union High School District
DSA File Number:	**Increment Number:**	**Date Created:**
21-H2		2024-08-09 13:57:17

Geotechnical Reports: Project has a geotechnical report, or CDs indicate soils special inspection is required by GE

	S1. GENERAL:			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☑	a. Verify that: •Site has been prepared properly prior to placement of controlled fill and/or excavations for foundations. •Foundation excavations are extended to proper depth and have reached proper material. •Materials below footings are adequate to achieve the design bearing capacity.	**Periodic**	**GE***	* By geotechnical engineer or his or her qualified representative. (See Appendix (end of this form) form for exemptions.)

	S2. SOIL COMPACTION AND FILL:			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☐	**a.** Perform classification and testing of fill materials.	**Test**	**LOR***	* Under the supervision of the geotechnical engineer.
☐	**b.** Verify use of proper materials, densities and inspect lift thicknesses, placement and compaction during placement of fill.	**Continuous**	**GE***	* By geotechnical engineer or his or her qualified representative. (Refer to specific items identified in the Appendix (end of this form) form for exemptions where soils SI and testing may be conducted under the supervision of a geotechnical engineer or LOR's engineering manager. In such cases, the LOR's form DSA 291 shall satisfy the soil SI and test reporting requirements for the exempt items.)
☐	**c.** Compaction testing.	**Test**	**LOR***	* Under the supervision of the geotechnical engineer. (Refer to specific items identified in the Appendix (end of this form) for exemptions where soils testing may be conducted under the supervision of a geotechnical engineer or LOR's engineering manager. In such cases, the LOR's form DSA 291 shall satisfy the soil test reporting requirements for the exempt items.)

DSA 103-22: LISTING OF STRUCTURAL TESTS & SPECIAL INSPECTIONS (SOILS), 2022 CBC

Table 1705A.6, Table 1705A.7, Table 1705A.8

Application Number:	**School Name:**	**School District:**
01-121720	Redwood HS	Tamalpais Union High School District
DSA File Number:	**Increment Number:**	**Date Created:**
21-H2		2024-08-09 13:57:17

	S3. DRIVEN DEEP FOUNDATIONS (PILES):			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☐	**a.** Verify pile materials, sizes and lengths comply with the requirements.	**Continuous**	**GE***	* By geotechnical engineer or his or her qualified representative.
☐	**b.** Determine capacities of test piles and conduct additional load tests as required.	**Test**	**LOR***	* Under the supervision of the geotechnical engineer.
☐	**c.** Inspect driving operations and maintain complete and accurate records for each pile.	**Continuous**	**GE***	* By geotechnical engineer or his or her qualified representative.
☐	**d.** Verify locations of piles and their plumbness, confirm type and size of hammer, record number of blows per foot of penetration, determine required penetrations to achieve design capacity, record tip and butt elevations and record any pile damage.	**Continuous**	**GE***	* By geotechnical engineer or his or her qualified representative.
☐	**e.** Steel piles.	Provide tests and inspections per STEEL section below.		
☐	**f.** Concrete piles and concrete filled piles.	Provide tests and inspections per CONCRETE section below.		
☐	**g.** For specialty piles, perform additional inspections as determined by the registered design professional in responsible charge.	*	*	* As defined on drawings or specifications.

	S4. CAST-IN-PLACE DEEP FOUNDATIONS (PIERS):			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Note**
☑	**a.** Inspect drilling operations and maintain complete and accurate records for each pier.	**Continuous**	**GE***	* By geotechnical engineer or his or her qualified representative. (See Appendix (end of this form) for exemptions.)

DSA 103-22: LISTING OF STRUCTURAL TESTS & SPECIAL INSPECTIONS (SOILS), 2022 CBC

Table 1705A.6, Table 1705A.7, Table 1705A.8

Application Number:	**School Name:**	**School District:**
01-121720	Redwood HS	Tamalpais Union High School District
DSA File Number:	**Increment Number:**	**Date Created:**
21-H2		2024-08-09 13:57:17

	Test or Special Inspection	**Type**	**Performed By**	**Code References and Note**
☑	**b.** Verify pier locations, diameters, plumbness, bell diameters (if applicable), lengths and embedment into bedrock (if applicable); record concrete or grout volumes.	**Continuous**	**GE***	* By geotechnical engineer or his or her qualified representative. (See Appendix (end of this form) for exemptions.)
☑	**c.** Confirm adequate end strata bearing capacity.	**Continuous**	**GE***	* By geotechnical engineer or his or her qualified representative. (See Appendix (end of this form) for exemptions.)
☑	**d.** Concrete piers.	Provide tests and inspections per CONCRETE section below.		

	S5. RETAINING WALLS:			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☐	**a.** Placement, compaction and inspection of backfill.	**Continuous**	**GE***	**1705A.6.1.** * By geotechnical engineer or his or her qualified representative. (See section S2 above).
☐	**b.** Placement of soil reinforcement and/or drainage devices.	**Continuous**	**GE***	* By geotechnical engineer or his or her qualified representative.
☐	**c.** Segmental retaining walls; inspect placement of units, dowels, connectors, etc.	**Continuous**	**GE***	* By geotechnical engineer or his or her qualified representative. See DSA IR 18-2.
☐	**d.** Concrete retaining walls.	Provide tests and inspections per CONCRETE section below.		
☐	**e.** Masonry retaining walls.	Provide tests and inspections per MASONRY section below.		

DSA 103-22: LISTING OF STRUCTURAL TESTS & SPECIAL INSPECTIONS (SOILS), 2022 CBC

Table 1705A.6, Table 1705A.7, Table 1705A.8

Application Number:	**School Name:**	**School District:**
01-121720	Redwood HS	Tamalpais Union High School District
DSA File Number:	**Increment Number:**	**Date Created:**
21-H2		2024-08-09 13:57:17

	S6. OTHER SOILS:			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☐	**a.** Soil Improvements	**Test**	**GE***	Submit a comprehensive report documenting final soil improvements constructed, construction observation and the results of the confirmation testing and analysis to CGS (California Geological Survey) for final acceptance. * By geotechnical engineer or his or her qualified representative.
☐	**b.** Inspection of Soil Improvements	**Continuous**	**GE***	* By geotechnical engineer or his or her qualified representative.
☐	**c.**			

DSA 103-22: LISTING OF STRUCTURAL TESTS & SPECIAL INSPECTIONS (CONCRETE), 2022 CBC

Table 1705A.3; ACI 318-19 Sections 26.12 & 26.13

Application Number:	**School Name:**	**School District:**
01-121720	Redwood HS	Tamalpais Union High School District
DSA File Number:	**Increment Number:**	**Date Created:**
21-H2		2024-08-09 13:57:17

	C1. CAST-IN-PLACE CONCRETE			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☑	**a.** Verify use of required design mix.	**Continuous**	**SI**	**Table 1705A.3 Item 5, 1910A.1.**
☑	**b.** Identifiy, sample, and test reinforcing steel.	**Test**	**LOR**	**1910A.2;** ACI 318-19 Ch.20 and Section 26.6.1.2; DSA IR 17-10. (See Appendix (end of this form) for exemptions.)
☑	**c.** During concrete placement, fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of the concrete.	**Test**	**LOR**	**Table 1705A.3 Item 6**; ACI 318-19 Sections 26.5 & 26.12.
☑	**d.** Test concrete (f'_c).	**Test**	**LOR**	**1905A.1.17;** ACI 318-19 Section 26.12.
☑	**e.** Batch plant inspection: **Periodic**	**See Notes**	**SI**	Default of **'Continuous'** per **1705A.3.3**. If approved by DSA, batch plant inspection may be reduced to **'Periodic'** subject to requirements in Section **1705A.3.3.1,** or not required per **1705A.3.3.2.** See IR 17-13. (See Appendix (end of this form) for exemptions.)
☐	**f.** Welding of reinforcing steel.	Provide special inspection per STEEL, Category S/A4(d) & (e) and/or S/A5(g) & (h) below.		

	C2. PRESTRESSED / POST-TENSIONED CONCRETE (IN ADDITION TO SECTION C1):			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☐	**a.** Sample and test prestressing tendons and anchorages.	**Test**	**LOR**	**1705A.3.4, 1910A.3**
☐	**b.** Inspect placement of prestressing tendons.	**Periodic**	**SI**	**1705A.3.4, Table 1705A.3 Items 1 & 9.**

	Test or Special Inspection	Type	Performed By	Code References and Notes
☐	**c.** Verify in-situ concrete strength prior to stressing of post-tensioning tendons.	**Periodic**	**SI**	**Table 1705A.3 Item 13.** Special inspector to verify specified concrete strength test prior to stressing.
☐	**d.** Inspect application of post-tensioning or prestressing forces and grouting of bonded prestressing tendons.	**Continuous**	**SI**	**1705A.3.4, Table 1705A.3 Item 9;** ACI 318-19 Section 26.13

	C3. PRECAST CONCRETE (IN ADDITION TO SECTION C1):			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☐	**a.** Inspect fabrication of precast concrete members.	**Continuous**	**SI**	ACI 318-19 Section 26.13, and PCI MNL-128 and -130.
☐	**b.** Inspect erection of precast concrete members.	**Periodic**	**SI***	**Table 1705A.3 Item 10.** * May be performed by PI when specifically approved by DSA.
☐	**c.** For precast concrete diaphragm connections or reinforcement at joints classified as moderate or high deformability elements (MDE or HDE) in structures assigned to Seismic Design Category D, E or F, inspect such connections and reinforcement in the field for: 1. Installation of the embedded parts 2. Completion of the continuity of reinforcement across joints. 3. Completion of connections in the field.	**Continuous**	**SI**	Table 1705A.3; ACI 318-19 Section 26.13.1.3; ACI 550.5
☐	**d.** Inspect installation tolerances of precast concrete diaphragm connections for compliance with ACI 550.5.	**Periodic**	**SI**	Table 1705A.3; ACI 318-19 Section 26.13.1.3; ACI 550.5

	C4. SHOTCRETE (IN ADDITION TO SECTION C1):			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☐	**a.** Inspect shotcrete placement for proper application techniques.	**Continuous**	**SI**	**1705A.3.9, Table 1705A.3 Item 7, 1908A.1, 1908A.2, 1908A.3.** See ACI 506.2-13 Section 3.4, ACI 506R-16.
☐	**b.** Sample and test shotcrete (f'_c).	**Test**	**LOR**	**1908A.2, 1705A.3.9**

	C5. POST-INSTALLED ANCHORS:			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☑	**a.** Inspect installation of post-installed anchors	**See Notes**	**SI***	**1617A.1.19, Table 1705A.3 Item 4a (Continuous) & 4b (Periodic), 1705A.3.8** (See Appendix (end of this form) for exemptions). ACI 318-19 Section 26.13. * May be performed by the project inspector when specifically approved by DSA.
☑	**b.** Test post-installed anchors.	**Test**	**LOR**	**1910A.5.** (See Appendix (end of this form) for exemptions.)

	C6. OTHER CONCRETE:			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☐	**a.**			

DSA 103-22: LISTING OF STRUCTURAL TESTS & SPECIAL INSPECTIONS (STEEL AND ALUMNINUM), 2022 CBC

1705A.2.1, Table 1705A.2.1; AISC 303-16, AISC 341-16, AISC 358-16, AISC 360-16; AISI S100-20; RCSC 2014; AWS D1.1, AWS D1.2, AWS D1.3, AWS D1.4, AWS D1.8

Application Number:	**School Name:**	**School District:**
01-121720	Redwood HS	Tamalpais Union High School District
DSA File Number:	**Increment Number:**	**Date Created:**
21-H2		2024-08-09 13:57:17

	S/A1. STRUCTURAL STEEL, COLD-FORMED STEEL AND ALUMINUM USED FOR STRUCTURAL PURPOSES			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☑	**a.** Verify identification of all materials and: • Mill certificates indicate material properties that comply with requirements. •Material sizes, types and grades comply with requirements.	**Periodic**	*	**Table 1705A.2.1 Item 3a–3c.** 2202A.1**;** AISI S100-20 Section A3.1 & A3.2, AISI S240-20 Section A3 & A5, AISI S220-20 Sections A4 & A6. * By special inspector or qualified technician when performed off-site.
☑	**b.** Test unidentified materials	**Test**	**LOR**	**2202A.1.**
☑	**c.** Examine seam welds of HSS shapes	**Periodic**	**SI**	DSA IR 17-3.
☑	**d.** Verify and document steel fabrication per DSA-approved construction documents.	**Periodic**	**SI**	Not applicable to cold-formed steel light-frame construction, except for trusses (**1705A.2.4**).
☐	**e.** Buckling restrained braces.	**Test**	**LOR**	Testing and special inspections in accordance with IR 22-4.

	S/A2. HIGH-STRENGTH BOLTS:			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☐	**a.** Verify identification markings and manufacturer's certificates of compliance conform to ASTM standards specified in the DSA-approved documents.	**Periodic**	**SI**	**Table 1705A.2.1 Items 1a & 1b, 2202A.1;** AISC 360-16 Section A3.3, J3.1, and N3.2; RCSC 2014 Section 1.5 & 2.1; DSA IR 17-8 & DSA IR 17-9.
☐	**b.** Test high-strength bolts, nuts and washers.	**Test**	**LOR**	**Table 1705A.2.1 Item 1c, 2213A.1**; RCSC 2014 Section 7.2; DSA IR 17-8.
☐	**c.** Bearing-type ("snug tight") connections.	**Periodic**	**SI**	**Table 1705A.2.1 Item 2a, 1705A.2.6, 2204A.2**; AISC 360-16 J3.1, J3.2, M2.5 & N5.6; RCSC 2014 Section 9.1; DSA IR 17-9.
☐	**d.** Pretensioned and slip-critical connections.	*	**SI**	**Table 1705A.2.1 Items 2b & 2c, 1705A.2.6, 2204A.2;** AISC 360-16 J3.1, J3.2, M2.5 & N5.6; RCSC 2014 Sections 9.2 & 9.3; DSA IR 17-9. *"Continuous" or "Periodic" depends on the tightening method used.

DSA 103-22: LISTING OF STRUCTURAL TESTS & SPECIAL INSPECTIONS (STEEL AND ALUMNINUM), 2022 CBC

1705A.2.1, Table 1705A.2.1; AISC 303-16, AISC 341-16, AISC 358-16, AISC 360-16; AISI S100-20; RCSC 2014; AWS D1.1, AWS D1.2, AWS D1.3, AWS D1.4, AWS D1.8

Application Number:	**School Name:**	**School District:**
01-121720	Redwood HS	Tamalpais Union High School District
DSA File Number:	**Increment Number:**	**Date Created:**
21-H2		2024-08-09 13:57:17

	S/A3. WELDING:			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☐	**a.** Verify weld filler material identification markings per AWS designation listed on the DSA-approved documents and the WPS.	**Periodic**	**SI**	**1705A.2.5, Table 1705A.2.1 Items 4 & 5**; AWS D1.1 and AWS D1.8 for structural steel; AWS D1.2 for Aluminum; AWS D1.3 for cold-formed steel; AWS D1.4 for reinforcing steel; DSA IR 17-3.
☐	b. Verify weld filler material manufacturer's certificate of compliance.	**Periodic**	**SI**	DSA IR 17-3.
☐	**c.** Verify WPS, welder qualifications and equipment.	**Periodic**	**SI**	DSA IR 17-3.

	S/A4. SHOP WELDING (IN ADDITION TO SECTION S/A3):			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☐	**a.** Inspect groove welds, multi-pass fillet welds, single pass fillet welds > 5/16", plug and slot welds.	**Continuous**	**SI**	**Table 1705A.2.1 Items 5a.1–4;** AISC 360-16 (and AISC 341-16 as applicable); DSA IR 17-3.
☐	b. Inspect single-pass fillet welds ≤ 5/16", floor and roof deck welds.	**Periodic**	**SI**	**1705A.2.2, Table 1705A.2.1 Items 5a.5 & 5a.6;** AISC 360-16 (and AISC 341-16 as applicable); DSA IR 17-3.
☐	**c.** Inspect welding of stairs and railing systems.	**Periodic**	**SI**	**1705A.2.1**; AISC 360-16 (and AISC 341-16 as applicable); AWS D1.1 & D1.3; DSA IR 17-3.
☐	**d.** Verification of reinforcing steel weldability other than ASTM A706.	**Periodic**	**SI**	**1705A.3.1**; AWS D1.4; DSA IR 17-3. Verify carbon equivalent reported on mill certificates.
☐	**e.** Inspect welding of reinforcing steel.	**Continuous**	**SI**	**Table 1705A.2.1 Item 5b, 1705A.3.1, Table 1705A.3 Item 2, 1903A.8;** AWS D1.4; DSA IR 17-3.

DSA 103-22: LISTING OF STRUCTURAL TESTS & SPECIAL INSPECTIONS (STEEL AND ALUMNINUM), 2022 CBC

1705A.2.1, Table 1705A.2.1; AISC 303-16, AISC 341-16, AISC 358-16, AISC 360-16; AISI S100-20; RCSC 2014; AWS D1.1, AWS D1.2, AWS D1.3, AWS D1.4, AWS D1.8

Application Number: 01-121720	**School Name:** Redwood HS	**School District:** Tamalpais Union High School District
DSA File Number: 21-H2	**Increment Number:**	**Date Created:** 2024-08-09 13:57:17

	Test or Special Inspection	Type	Performed By	Code References and Notes
	S/A5. FIELD WELDING (IN ADDITION TO SECTION S/A3):			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☐	**a.** Inspect groove welds, multi-pass fillet welds, single pass fillet welds > 5/16", plug and slot welds.	**Continuous**	**SI**	**Table 1705A.2.1 Items 5a.1–4;** AISC 360-16 (AISC 341-16 as applicable); DSA IR 17-3.
☐	b. Inspect single-pass fillet welds ≤ 5/16".	**Periodic**	**SI**	**Table 1705A.2.1 Item 5a.5;** AISC 360-16 (AISC 341-16 as applicable); DSA IR 17-3.
☐	**c.** Inspect end-welded studs (ASTM A-108) installation (including bend test).	**Periodic**	**SI**	**2213A.2**; AISC 360-16 (AISC 341-16 as applicable); AWS D1.1; DSA IR 17-3.
☐	**d.** Inspect floor and roof deck welds.	**Periodic**	**SI**	**1705A.2.2, Table 1705A.2.1 Item 5a.6;** AISC 360-16 (AISC 341-16 as applicable); AWS D1.3; DSA IR 17-3.
☐	**e.** Inspect welding of structural cold-formed steel.	**Periodic**	**SI***	**1705A.2.5; AWS D1.3; DSA IR 17-3.** The quality control provisions of AISI S240-20 Chapter D shall also apply. * May be performed by the project inspector when specifically approved by DSA.
☐	**f.** Inspect welding of stairs and railing systems.	**Periodic**	**SI***	**1705A.2.1;** AISC 360-16 (AISC 341-16 as applicable); AWS D1.1 & D1.3; DSA IR 17-3. * May be performed by the project inspector when specifically approved by DSA.
☐	**g.** Verification of reinforcing steel weldability.	**Periodic**	**SI**	**1705A.3.1**; AWS D1.4; DSA IR 17-3. Verify carbon equivalent reported on mill certificates.
☐	**h.** Inspect welding of reinforcing steel.	**Continuous**	**SI**	**Table 1705A.2.1 Item 5b, 1705A.3.1, Table 1705A.3 Item 2, 1903A.8;** AWS D1.4; DSA IR 17-3.

DSA 103-22: LISTING OF STRUCTURAL TESTS & SPECIAL INSPECTIONS (STEEL AND ALUMNINUM), 2022 CBC

1705A.2.1, Table 1705A.2.1; AISC 303-16, AISC 341-16, AISC 358-16, AISC 360-16; AISI S100-20; RCSC 2014; AWS D1.1, AWS D1.2, AWS D1.3, AWS D1.4, AWS D1.8

Application Number:	**School Name:**	**School District:**
01-121720	Redwood HS	Tamalpais Union High School District
DSA File Number:	**Increment Number:**	**Date Created:**
21-H2		2024-08-09 13:57:17

	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
	S/A6. NONDESTRUCTIVE TESTING:			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☐	**a.** Ultrasonic	**Test**	**LOR**	**1705A.2.1, 1705A.2.5;** AISC 341-16 J6.2, AISC 360-16 N5.5; AWS D1.1, AWS D1.8; DSA IR 17-2.
☐	**b.** Magnetic Particle	**Test**	**LOR**	**1705A.2.1, 1705A.2.5;** AISC 341-16 J6.2, AISC 360-16 N5.5; AWS D1.1, AWS D1.8; DSA IR 17-2.
☐	**c.**	**Test**	**LOR**	

	S/A7. STEEL JOISTS AND TRUSSES:			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☐	**a.** Verify size, type and grade for all chord and web members as well as connectors and weld filler material; verify joist profile, dimensions and camber (if applicable); verify all weld locations, lengths and profiles; mark or tag each joist.	**Continuous**	**SI**	**1705A.2.3, Table 1705A.2.3;** AWS D1.1; DSA IR 22-3 for steel joists only. **1705A.2.4;** AWS D1.3 for cold-formed steel trusses.

Application Number: 01-121720	**School Name:** Redwood HS	**School District:** Tamalpais Union High School District
DSA File Number: 21-H2	**Increment Number:**	**Date Created:** 2024-08-09 13:57:17

	Test or Special Inspection	Type	Performed By	Code References and Notes
	S/A8. SPRAYED FIRE-RESISTANT MATERIALS:			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☐	**a.** Examine structural steel surface conditions, inspect application, take samples, measure thickness and verify compliance of all aspects of application with DSA-approved documents.	**Periodic**	**SI**	**1705A.15, 1705A.15.1, 1705A.15.2, 1705A.15.3, 1705A.15.4, 1705A.15.5, 1705A.15.6.**
☐	**b.** Test density.	**Test**	**LOR**	**1705A.15.1, 1705A.15.5, ASTM E605**
☐	**c.** Bond strength adhesion/cohesion.	**Test**	**LOR**	**1705A.15.1, 1705A.15.6, ASTM E736**

	Test or Special Inspection	Type	Performed By	Code References and Notes
	S/A9. ANCHOR BOLTS AND ANCHOR RODS:			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☐	**a.** Anchor Bolts and Anchor Rods	**Test**	**LOR**	Identify, sample and test anchor bolts and anchor rods **not** meeting exemptions identified in Section 1 of IR 17-11.
☐	**b.** Threaded rod not used for foundation anchorage.	**Test**	**LOR**	Identify, sample and test threaded rods **not** meeting exemptions identified in Section 1 of IR 17-11.

	Test or Special Inspection	Type	Performed By	Code References and Notes
	S/A10. STORAGE RACK SYSTEMS:			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☐	**a.** Materials used, to verify compliance with one or more of the material test reports in accordance with the approved construction documents.	**Periodic**	**SI**	Table 1705A.13.7
☐	**b.** Fabricated storage rack elements.	**Periodic**	**SI**	1704A.2.5; Table 1705A.13.7

Application Number:	**School Name:**	**School District:**
01-121720	Redwood HS	Tamalpais Union High School District
DSA File Number:	**Increment Number:**	**Date Created:**
21-H2		2024-08-09 13:57:17

	Test or Special Inspection	Type	Performed By	Code References and Notes
☐	**c.** Storage rack anchorage installation.	**Periodic**	**SI**	ANSI/MH16.1 Section 7.3.2; Table 1705A.13.7
☐	**d.** Completed storage rack system to indicate compliance with the approved construction documents.	**Periodic**	**SI***	Table 1705A.13.7; * May be preformed by the project inspector when specifically approved by DSA.

	S/A11. Other Steel			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☐	**a.**			

DSA 103-22: LISTING OF STRUCTURAL TESTS & SPECIAL INSPECTIONS (OTHER), 2022 CBC

Application Number:
01-121720

School Name:
Redwood HS

School District:
Tamalpais Union High School District

DSA File Number:
21-H2

Increment Number:

Date Created:
2024-08-09 13:57:17

	X1. OTHER:			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☐	**a.** Load test for identified product(s):	**Test**	**LOR**	**1709A.2, 1709A.3**. Testing is not required for: 1) a product with a valid evaluation service report per DSA IR A-5, or 2) a product that can be justified by structural calculation.
☐	**b.** Installation torque for non-HS bolts	**Continuous**	**SI***	Applicable to communication towers identified as Essential Service Facility Projects (ESFP). Calibrated wrench use required, verified by SI during installation. DSA Policy PL 18-01: Communication Towers, Poles and Buildings Utilized by State Agencies for Essential Services Communications.*EXCEPTION: Non-ESFP may use PI without need for notification to DSA.
☐	**c.**			

Appendix: Work Exempt from DSA Requirements for Structural Tests / Special Inspections

Application Number:	School Name:	School District:
01-121720	Redwood HS	Tamalpais Union High School District
DSA File Number:	**Increment Number:**	**Date Created:**
21-H2		2024-08-09 13:57:17

Exempt items given in DSA IR A-22 or the 2022 CBC (including DSA amendments) and those items identified below with a check mark by the design professional are NOT subject to DSA requirements for the structural tests **/** special inspections noted. **Items marked as exempt shall be identified on the approved construction documents**. The project inspector shall verify all construction complies with the approved construction documents.

	SOILS:
☐	1. Deep foundations acting as a cantilever footing with a design based on minimum allowable pressures per CBC Table 1806A.2 and without a geotechnical report for the following cases: A) free standing sign or scoreboard, B) cell or antenna towers and poles less than 35'-0" tall (e.g., lighting poles, flag poles, poles supporting open mesh fences, etc.), C) single-story structure with dead load less than 5 psf (e.g., open fabric shade structure), or D) covered walkway structure with an apex height less than 10'-0" above adjacent grade.
☐	2. Shallow foundations, etc. are exempt from special inspections and testing by a Geotechnical Engineer for the following cases: A) buildings without a geotechnical report and meeting the exception item #1 criteria in CBC Section 1803A.2 supported by native soil (any excavation depth) or fill soil (not exceeding 12" depth per CBC Section 1804A.6), B) soil scarification/recompaction not exceeding 12" depth, C) native or fill soil supporting exterior non-structural flatwork (e.g., sidewalks, site concrete ramps, site stairs, parking lots, driveways, etc.), D) unpaved landscaping and playground areas, or E) utility trench backfill with depth not exceeding 12".

	CONCRETE/MASONRY:
☐	1. Post-installed anchors for the following: A) exempt non-structural components (e.g., mechanical, electrical, plumbing equipment - see item 7 for "Welding" in the Appendix below) given in CBC Section 1617A.1.18 (which replaces ASCE 7-16, Section 13.1.4) or B) interior nonstructural wall partitions meeting criteria listed in exempt item 3 for "Welding" in the Appendix below
☐	2. Concrete batch plant inspection is not required for items given in CBC Section 1705A.3.3.2 subject to the requirements and limitations in that section.
☐	3. Non-bearing non-shear masonry walls may be exempt from certain DSA masonry testing and special inspection items as allowed per DSA IR 21-1. Refer to construction documents for specific exemptions accordingly for each applicable wall condition shown in Appendix A of IR 21-1.
☐	4. Epoxy shear dowels in site flatwork and/or other non-structural concrete.

Appendix: Work Exempt from DSA Requirements for Structural Tests / Special Inspections

Application Number:	School Name:	School District:
01-121720	Redwood HS	Tamalpais Union High School District
DSA File Number:	**Increment Number:**	**Date Created:**
21-H2		2024-08-09 13:57:17

	CONCRETE/MASONRY:
☐	5. Testing of reinforcing bars is not required for items given in CBC Section 1910A.2 subject to the requirements and limitations in that section.

	WELDING:
☐	1. Solid-clad and open-mesh fences, gates with maximum leaf span of 10', and gates with a maximum rolling section of 10' all having an apex height less than 8'-0" above lowest adjacent grade. When located above circulation or occupied space below, these gates/fences are not located within 1.5x gate/fence height (max 8'-0") to the edge of floor or roof.
☐	2. Handrails, guardrails, and modular or relocatable ramps associated with walking surfaces less than 30" above adjacent grade (excluding post base connections per the 'Exception' language in Section 1705A.2.1); fillet welds shall not be ground flush.
☐	3. Non-structural interior cold-formed steel framing spanning less than 15'-0", such as in interior partitions, interior soffits, etc. supporting only self weight and light-weight finishes or adhered tile, masonry, stone, or terra cotta veneer no more than 5/8" thickness and apex less than 20'-0" in height and not over an exit way. Maximum tributary load to a member shall not exceed the equivalent of that occurring from a 10'x10' opening in a 15' tall wall for a header or king stud.
☐	4. Manufactured support frames and curbs using hot rolled or cold-formed steel (i.e., light gauge) for mechanical, electrical, or plumbing equipment weighing less than 2000# (equipment only) (connections of such frames to superstructure elements using welding will require special inspection as noted in selected item(s) for Sections S/A3, S/A4 and/or S/A5 of listing above).
☐	5. Manufactured components (e.g., Tolco, B-Line, Afcon, etc.) for mechanical, electrical, or plumbing hanger support and bracing (connections of such components to superstructure elements using welding will require special inspection as noted in selected item(s) for Sections S/A3, S/A4 and/or S/A5 of listing above).
☐	6. TV Brackets, projector mounts with a valid listing (see DSA IR A-5) and recreational equipment (e.g., playground structures, basketball backstops, etc.) (connections of such elements to superstructure elements using welding will require special inspection as noted in selected item(s) for sections S/A3, S/A4 and/or S/A5 located in the Steel/Aluminum category of listing above).

Appendix: Work Exempt from DSA Requirements for Structural Tests / Special Inspections

Application Number:	School Name:	School District:
01-121720	Redwood HS	Tamalpais Union High School District
DSA File Number:	**Increment Number:**	**Date Created:**
21-H2		2024-08-09 13:57:17

	WELDING:
☐	7. Any support for exempt non-structural components given in CBC Section 1617A.1.18 (which replaces ASCE 7-16, Section 13.1.4) meeting the following: A) when supported on a floor/roof, <400# and resulting composite center of mass (including component's center of mass) ≤4' above supporting floor/roof, B) when hung from a wall or roof/floor, <20# for discrete units or <5 plf for distributed systems.

DSA 103-22: LISTING OF STRUCTURAL TESTS & SPECIAL INSPECTIONS(SIGNATURE), 2022 CBC

Application Number:
01-121720

School Name:
Redwood HS

School District:
Tamalpais Union High School District

DSA File Number:
21-H2

Increment Number:

Date Created:
2024-08-09 13:57:17

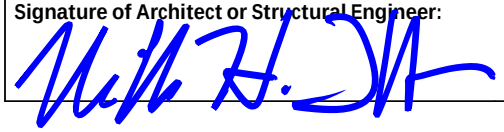
Name of Architect or Engineer in general responsible charge:

Chris Warner

Name of Structural Engineer (When structural design has been delegated):

William H. Thorpe

Signature of Architect or Structural Engineer:



Date:

8/9/24

Note: To facilitate DSA electronic mark-ups and identification stamp application, DSA recommends against using secured electronic or digital signatures.

DSA STAMP

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-121720 INC:
REVIEWED FOR
SS ☑ FLS ☐ ACS ☐
DATE: 10/7/2024

DSA 103-22: LIST OF REQUIRED VERIFIED REPORTS, CBC 2022

Application Number:	School Name:	School District:
01-121720	Redwood HS	Tamalpais Union High School District
DSA File Number:	**Increment Number:**	**Date Created:**
21-H2		2024-08-09 13:57:17

1. Soils Testing and Inspection: Geotechnical Verified Report Form DSA 293
2. Structural Testing and Inspection: Laboratory Verified Report Form DSA 291
3. Concrete Batch Plant Inspection: Laboratory Verified Report Form DSA 291
4. Post-installed Anchors: Laboratory Verified Report Form DSA 291, or, for independently contracting SI, Special Inspection Verified Report Form DSA 292
5. Shop Welding Inspection: Laboratory Verified Report Form DSA 291, or, for independently contracting SI, Special Inspection Verified Report Form DSA 292

Redwood High School Ghilotti Field Site Improvements

Tamalpais Union High School District

APPENDIX B

CARDUCCI
ASSOCIATES

MILLER PACIFIC
ENGINEERING GROUP

September 12, 2024
File: 867.193dltr(Rev).doc

Tamalpais Union High School District
325 Doherty Drive
Larkspur, California 94977

Attn: Mr. Michael Woolard,
Sr. Director of Facilities Planning

Re: Ghilotti Field – Redwood High School
2023 Improvements
Mill Valley, California

Introduction

We understand new protective netting will be constructed around portions of the existing Ghilotti Field at Redwood High School located in Larkspur, California. The netting will be attached to 10-foot-tall steel posts which are supported on reinforced concrete drilled piers. We do not have existing subsurface data in this area of the high school campus; however, we performed extensive subsurface explorations on the northern portion of campus. The most recent subsurface exploration was performed in 2023 and was summarized in a Geotechnical Investigation Report dated December 7, 2023.

Anticipated Subsurface Conditions & Recommendations

Based on our experience on the Redwood High School campus and surrounding areas, we anticipate the subsurface conditions will consist of roughly 10- to 15-feet of fill overlying 5- to 25-feet of soft, compressible silty clay, locally known as Bay Mud. Stiff alluvial soil and/or weathered bedrock likely underly the Bay Mud. As discussed, preliminary plans indicate the safety netting will be supported on a drilled pier foundation system. We recommend the drilled piers obtain vertical and lateral support from the fill soils. Extending the piers within the Bay Mud should be avoided; unless the piers extend entirely through the Bay Mud layer and into the underlying stiffer soils and/or weathered bedrock. The foundation design values given in our December 7th, 2023 investigation report may be used for design. However, because the posts supporting the netting are not inhabited structures, the upper 5-foot zone of soil which should be neglected for lateral support of structures may be reduced to 2-feet.

We do not have subsurface data in the general vicinity of the planned safety netting; therefore, we recommend the contractor drill exploratory holes to confirm the subsurface conditions are consistent with our recommendations prior to construction. The exploratory borings should extend through the fill soils and into the Bay Mud to confirm the layer thickness. If the subsurface conditions vary from what is anticipated, we will provide additional recommendations.

We hope this provides you with the information you require at this time. Please do not hesitate to contact us with any questions.

Sincerely,
MILLER PACIFIC ENGINEERING GROUP

Benjamin S. Pappas
Geotechnical Engineer No. 2786
(Expires 9/30/26)

TAMALPAIS UNION HIGH SCHOOL DISTRICT

Redwood High School Ghilotti Field Site Improvements Project Rebid

Appendix C

Addendum #2 dated February 20, 2025
Addendum #3 dated March 19, 2025

Tamalpais Union High School District
Redwood High School Ghilotti Field Site Improvements Project – BID #101

Addendum No. 02

February 20, 2025

Owner:
Tamalpais Union High School District
395 Doherty Drive
Larkspur, CA 94939

This addendum shall supersede all previously issued specifications, addenda, and drawings wherein this addendum contradicts previously issued documents. All other conditions remain unchanged. The following changes, modifications, corrections, clarifications, and / or additions as set forth herein shall apply to the above documents and shall be made a part thereof and shall be subject to all the requirements thereof as though originally specified and / or shown. This addendum must be acknowledged on the bid form.

General:

1. Will the district and A&E look at other synthetic turf system options besides Fieldturf? Shaw Sports Turf would love to be in the mix, and I wanted to see what I can do on my end to make that happen. Please let me know.

    - The synthetic turf replacement of the athletic field is not part of the bid package.

2. Question on drawings. It subject is T2 synthetic turf connections. Looking at drawing L05.00 the T2 turf goes on south side and west side. I see the connection when it ties into net wall on west side but on south side it connects to detail L06.01 detail 03. What does turf connect to on side towards creek.

    - Attach turf to existing concrete border (Fence Edgeband).
    - Refer to T2 - SYNTHETIC TURF WITH SAND INFILL detail 03/L06.01.
    - Refer to Existing Fence Edgeband detail H/D2.0 (ATTACHED)

- Note that the intention of the turf is to have a cross slope of less than 2% at path of travel shown plan. The slope may be steeper where needed at drain inlets. The elevation of the nailer should reflect this proposed condition.

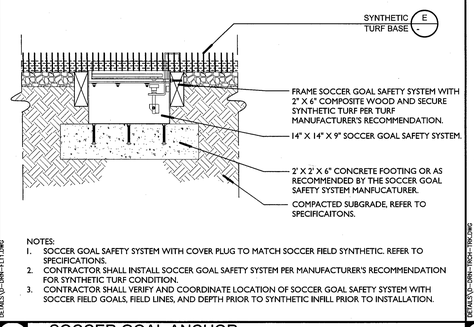
This Addendum consists of Three (3) pages including attachment.

Attachment: D2.0 - CONSTRUCTION DETAILS (Reference Document)

621 W Spain Street • Sonoma, CA 95476
707-933-0624 • Fax 707-996-8390

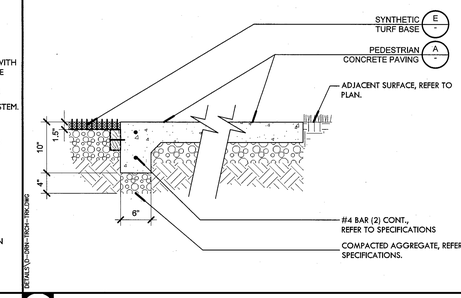
End of Addendum No. 2

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 WRITTEN PERMISSION OF VERDE DESIGN, INC.

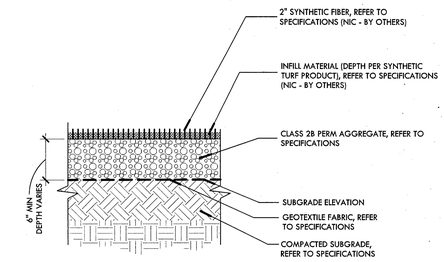


NOTES:
1. SOCCER GOAL SAFETY SYSTEM WITH COVER PLUG TO MATCH SOCCER FIELD SYNTHETIC. REFER TO SPECIFICATIONS.
2. CONTRACTOR SHALL INSTALL SOCCER GOAL SAFETY SYSTEM PER MANUFACTURER'S RECOMMENDATION FOR SYNTHETIC TURF CONDITION.
3. CONTRACTOR SHALL VERIFY AND COORDINATE LOCATION OF SOCCER GOAL SAFETY SYSTEM WITH SOCCER FIELD GOALS, FIELD LINES, AND DEPTH PRIOR TO SYNTHETIC INFILL PRIOR TO INSTALLATION.

O SOCCER GOAL ANCHOR (ADDITIVE ALTERNATE NO.2) NTS

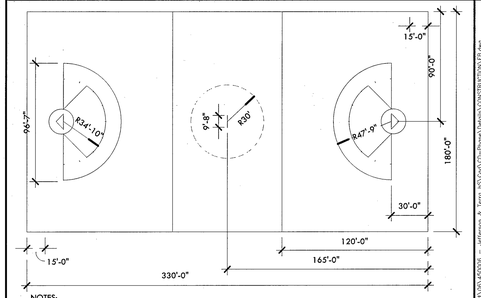


J WALKWAY @ SYNTHETIC TURF NTS



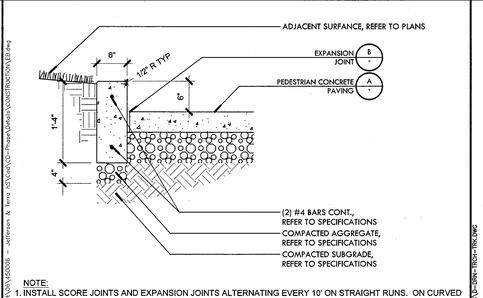
NOTE:
1. IDENTIFIED FINISH GRADES OF SYNTHETIC TURF SHALL BE THE TOP OF INFILL MATERIAL. INFILL MATERIAL SHALL BE ½" BELOW ADJACENT SURFACES UNLESS EDGE IS A VERTICAL CURB.

E SYNTHETIC TURF BASE NTS



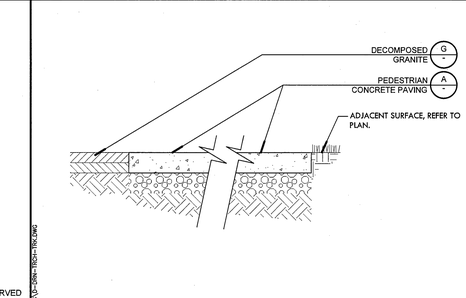
NOTES:
1. REFER TO SYNTHETIC TURF NOTES DETAIL THIS PAGE.
2. DASHED LINES TO BE SOCCER LINE COLOR, REFER TO SOCCER FIELD STRIPING DETAIL.

R LACROSSE STRIPING - GIRLS (NIC) NTS

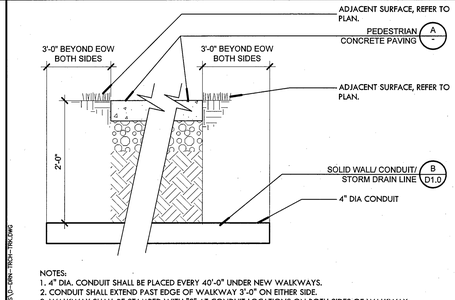


NOTE:
1. INSTALL SCORE JOINTS AND EXPANSION JOINTS ALTERNATING EVERY 10' ON STRAIGHT RUNS. ON CURVED RUNS, EXPANSION JOINTS AND SCORE JOINTS SHALL BE INSTALLED ALTERNATING @ 5' O.C. SPACING.

N ALTERNATE 6" CURB NTS

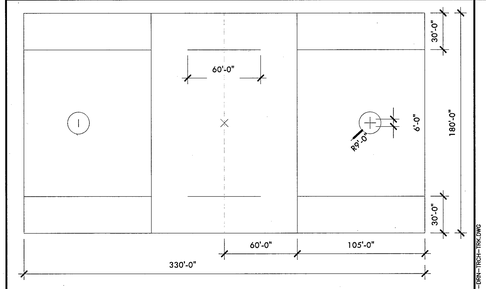


I WALKWAY @ DECOMPOSED GRANITE NTS



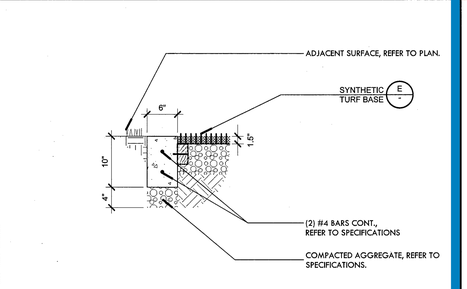
NOTES:
1. 4" DIA. CONDUIT SHALL BE PLACED EVERY 40'-0" UNDER NEW WALKWAYS.
2. CONDUIT SHALL EXTEND PAST EDGE OF WALKWAY 3'-0" ON EITHER SIDE.
3. WALKWAY SHALL BE STAMPED WITH "S" AT CONDUIT LOCATIONS ON BOTH SIDES OF WALKWAY.
4. CONDUIT SHALL BE CAPPED WITH DUCT TAPE ON BOTH SIDES.

D FUTURE CONDUIT NTS

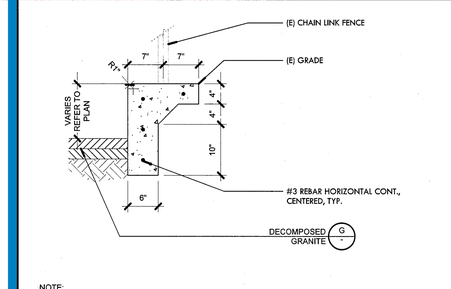


NOTES:
1. REFER TO SYNTHETIC TURF NOTES DETAIL THIS PAGE.
2. DASHED LINE TO BE SOCCER FIELD COLOR, REFER TO SOCCER FIELD STRIPING.

Q LACROSSE STRIPING - BOYS (NIC) NTS

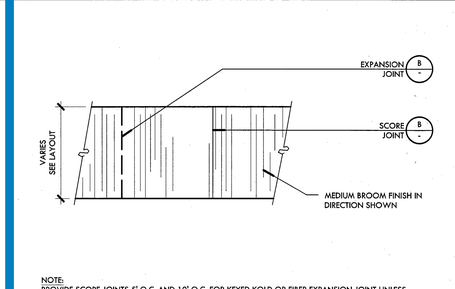


M EDGE BAND @ SYNTHETIC TURF NTS



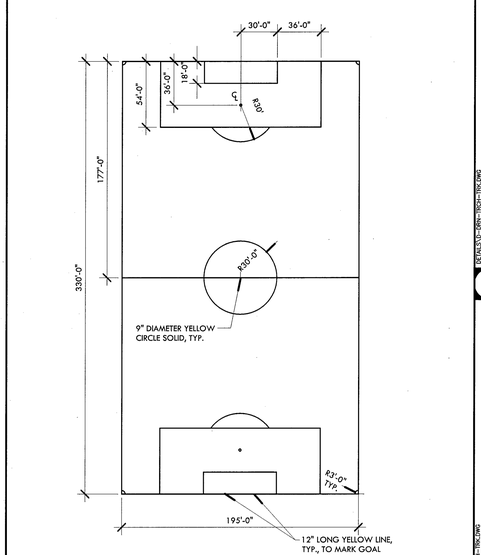
NOTE:
1. INSTALL SCORE JOINTS AND EXPANSION JOINTS ALTERNATING EVERY 10' ON STRAIGHT RUNS. ON CURVED RUNS, EXPANSION JOINTS AND SCORE JOINTS SHALL BE INSTALLED ALTERNATING @ 5' O.C. SPACING.

H (E) FENCE EDGEBAND NTS



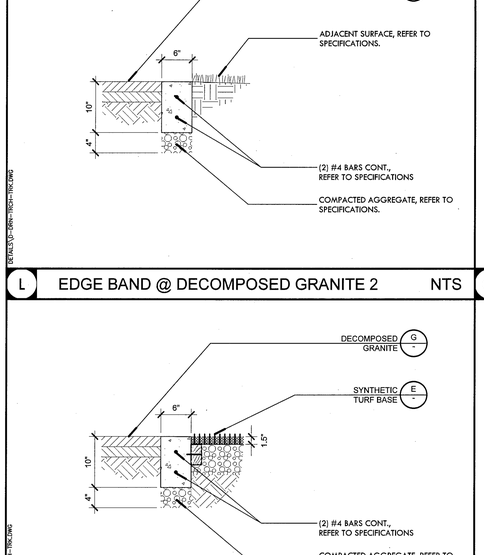
NOTE:
PROVIDE SCORE JOINTS 5' O.C. AND 10' O.C. FOR KEYED KOLD OR FIBER EXPANSION JOINT UNLESS OTHERWISE NOTED.

C CONCRETE PAVING FINISH NTS

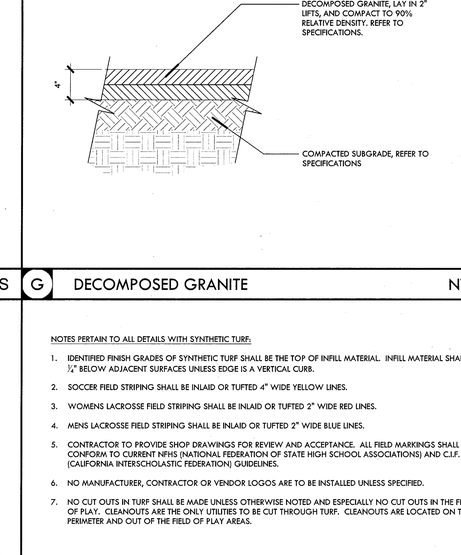


NOTES
1. SOCCER FIELD STRIPING SHALL BE INLAID OR TUFTED 4" WIDE YELLOW LINES.
2. REFER TO SYNTHETIC TURF NOTES DETAIL THIS PAGE.

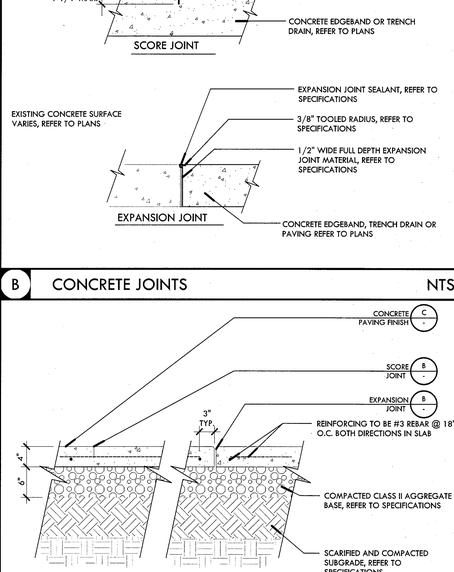
P SOCCER FIELD STRIPING (NIC - BY OTHERS) NTS



L EDGE BAND @ DECOMPOSED GRANITE 2 NTS



G DECOMPOSED GRANITE NTS



B CONCRETE JOINTS NTS

K EDGE BAND @ DECOMPOSED GRANITE 1 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. SOCCER FIELD STRIPING SHALL BE INLAID OR TUFTED 4" WIDE YELLOW LINES.
3. WOMENS LACROSSE FIELD STRIPING SHALL BE INLAID OR TUFTED 2" WIDE RED LINES.
4. MENS LACROSSE FIELD STRIPING SHALL BE INLAID OR TUFTED 2" WIDE BLUE LINES.
5. 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.
6. NO MANUFACTURER, CONTRACTOR OR VENDOR LOGOS ARE TO BE INSTALLED UNLESS SPECIFIED.
7. NO CUT OUTS IN TURF SHALL BE MADE UNLESS OTHERWISE NOTED AND ESPECIALLY NO CUT OUTS IN THE FIELD OF PLAY. CLEANOUTS ARE THE ONLY UTILITIES TO BE CUT THROUGH TURF. CLEANOUTS ARE LOCATED ON THE PERIMETER AND OUT OF THE FIELD OF PLAY AREAS.

F SYNTHETIC TURF NOTES NTS

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

A PEDESTRIAN CONCRETE PAVING NTS

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 PROFESSIONAL ENGINEER
DEVIN CONRAD
No. C-56494
Signature
EXPIRATION DATE: June 30, 2013
STATE OF CALIFORNIA

CONSULTANT

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APPL 01-113319
FILE 21-H2
AC NA FLS NA SS NA
DATE 7-3-13
DSA PROJECT TRACKING NO:
65482-51

SHEET TITLE
CONSTRUCTION DETAILS

PROJECT NAME
REDWOOD HIGH SCHOOL

PROJECT ADDRESS
395 DOHERTY DR
LARKSPUR, CA
94939

SUBMITTAL	DATE
DSA SUBMITTAL	04/19/13
DSA BACK-CHECK	07/03/13

NO.	REVISIONS	DATE

DRAWN BY	CHECKED BY
HM	TW
DATE ISSUED	SCALE
07/03/13	AS NOTED

PROJ. NO.
1301600-1291

SHEET NO.
D2.0
10 OF 10 SHEETS

CONSTRUCTION DETAILS

DRAWING NAME: L:\2013\1301600-1291 - Tamalpais HS Synthetic Baseball Field\CAD_DTL-CONST-R.dwg
PLOT DATE: 06-26-13 PLOTTED BY: station21

ADDENDUM 03

DATE:	March 19, 2025
TO:	Jason Cave
COMPANY:	Greystone West Company
PROJECT NAME:	Redwood High School Ghilotti Field Site Improvements
DSA APP #:	01-121720
PROJECT NUMBER:	TAM23-01
FROM:	Peter Stanley (Carducci), Tim Skinner (Carducci), & William Fee (Carducci)
CC:	Mike Woolard (Tamalpais Union High School District)
RE:	Addendum 03

The Redwood High School Ghilotti Field Site Improvements Project Addendum 03 focuses on value engineering measures aimed to cut the costs of previous bid amounts. Receipt of this addendum must be acknowledged on the bid form. The established Bid Date is: April 30, 2025, 2:00 PM.

Clarifications

1. **BID DATE: April 30, 2025, 2:00 PM.**
2. The district will now provide the bleacher system shown on sheets L06.09-L06.13.
3. Synthetic Turf (T2) has been removed from this project and has been replaced with pedestrian asphalt and Streetbond pavement coating or approved equal.
4. Existing restroom improvements will be made by the district.

Attachments

Specifications:

- 32 12 16 Asphalt Concrete Paving
- 32 17 24 Non-Textured Asphalt Pavement Coating Application

drawings:

- G00.04 SITE PLAN
- G00.05 SCOPE OF WORK
- L02.00 GRADING LEGEND AND PLAN
- L05.00 MATERIALS LEGEND AND PLAN
- L06.01 DETAILS
- L06.02 DETAILS – FIELD OVERLAY AND SECTION
- L06.04 DETAILS – EXISTING RESTROOM AND SIGNAGE – BY DISTRICT
- L06.09 DETAILS – PROPOSED BLEACHERS – BY DISTRICT
- L06.10 DETAILS – PROPOSED BLEACHERS – BY DISTRICT
- L06.11 DETAILS – PROPOSED BLEACHERS – BY DISTRICT
- L06.12 DETAILS – PROPOSED BLEACHERS – BY DISTRICT
- L06.13 DETAILS – PROPOSED BLEACHERS – BY DISTRICT

Please direct inquiries regarding the content or files to (Jason Cave, Greystone West Company).

CARDUCCI ASSOCIATES
555 BEACH STREET FOURTH FLOOR
SAN FRANCISCO CA 94133
415.674.0990 (t)

SECTION 32 12 16

ASPHALT CONCRETE PAVING

PART 1 - GENERAL

1.1 DESCRIPTION

A. Provide asphalt concrete paving complete.

B. Related requirements specified elsewhere include:

1. Section 00 31 32, Geotechnical Data
2. Section 01 11 00, Summary of Work
3. Section 02 41 00, Site Preparation & Plant Protection
4. Section 12 93 05, Site Furnishings
5. Section 31 00 00, Earthwork
6. Section 32 11 13, Subgrade Preparation and Base Material
7. Section 32 13 13, Site Concrete
8. Section 33 40 10, Storm Drainage

1.2 QUALITY ASSURANCE

A. Qualifications

1. All Asphalt Concrete Paving sub-contractors bidding on this project must have a California license.

B. Reference Standards

1. Perform all work in accordance with all applicable laws, codes and regulations required by the State of California, the City of Larkspur and the County of Marin.
2. Reference to "Standard Specifications" shall mean the Standard Specifications of the State of California, Business and Transportation Agency, Department of Transportation, CalTrans.

C. Tolerances

1. Planarity: The finished asphalt shall not vary, plus or minus, under a 10 feet straight edge greater than 1/8". It is the responsibility of the paving contractor to water flood the surface with the use of a water truck. If, after 30 minutes on a 70 degree F day, "bird baths" are evident in a depth more than 1/8" the paving contractor, track surfacing contractor and the Construction Manager will determine the best method of correction.
2. Thickness: Tolerances for thickness shall be ¼ inch, plus or minus.

3. Test in-place asphalt concrete courses for compliance with requirements for thickness and surface smoothness. Repair or remove and replace unacceptable paving as directed by Construction Manager.

4. Contractor to provide conformance survey showing the finished grade of asphalt paving is in conformance with the designed grades.

D. Stipulation: At no point shall surface fail to drain.

E. Certifications: Certify that materials comply with specified requirements.

F. Corrective Measures: It is the general contractor's responsibility to determine if the planarity, cross slopes, and general specifications have been met. If all of the conditions have been met the general contractor must notify the Construction Manager in writing of the acceptance of the asphalt paving.

G. Weather Limitations: Construct asphalt concrete surface course when temperatures exceed 40 degrees F and when the base is dry.

H. Grade Control: Establish and maintain required lines and elevations.

I. Finished surface planarity shall conform to CBC requirements for Path of Travel.

J. All edges of asphalt concrete paving shall be bordered by concrete or a wood header.

1.3 SUBMITTALS: Per Section General Conditions.

A. Material List and product Data of all items proposed to be provided in this section.

B. Provide copies of materials certificates signed by material producer and Contractor, certifying that each material item complies with, or exceeds, specified requirements.

C. Certification of the acceptance of the paving by the track surfacing contractor.

D. The Contractor is to submit a letter with the relevant material submittals certifying that the products used by the Contractor are consistent with the Environmental Safety Policy of the Tamalpais Union High School District.

E. The Contractor is to submit a letter with the relevant material submittals certifying that the products used by the Contractor are consistent with the Integrated Pest Management Policy of the Tamalpais Union High School District. The policy includes the following: Only class three herbicides are allowed, posting 72 hours prior to spraying and if the spraying takes place during the school year, notification of all parties on the "I want to be notified" list 72 hours prior to spray.

1.4 TESTING AND INSPECTION

A. Per Section 01 45 00 Quality Control. The Owner's Representative will make tests and observe paving operations periodically. Give at least 48 hours notice before required field observations and testing.

B. Perform Flood Test in the presence of the Construction Manager. Flood the entire paved area by use of tank trunk or hoses. If depression is found where water ponds more than 1/8" in ten feet, fill or otherwise correct to provide proper drainage.

PART 2 - MATERIALS

2.1 AGGREGATE BASE

A. Crushed aggregate, R-78 minimum, 3/4-inch maximum, conforming to Standard Specification 26.1.02B, Class 2.

B. All base rock under asphalt paving shall be virgin rock.

2.2 PAINT BINDER

A. Asphaltic emulsion, Type SS1 or SS1h, Standard Specifications 94.

2.3 ASPHALT CONCRETE

A. Steam refined paving asphalt AR4000, conforming to Standard Specifications 39-2.02 for Type B, using 1/2-inch maximum aggregate.

PART 3 - EXECUTION

3.1 PREPARATION

A. Cut edges of existing paving shall be straight, sharp, vertical and sound.

B. After underground piping and raceways have been laid, fill and tamp all traces of utility trenches. Relative compaction of not less than 95 percent shall be obtained for a depth of 8 inches or more. Take every precaution to obtain a subgrade of uniform bearing power by compaction to provide a firm base and in accordance with Sections 31 00 00 Earthwork and 32 11 13 Subgrade Preparation & Base Material of these Specifications.

C. Check for proper installation, correct elevation and position of utility and drainage structures located in areas to be paved, and make or have made any necessary adjustments.

D. Proof roll prepared sub-base surface to check for unstable areas and areas requiring additional compaction.

E. Notify Construction Manager of unsatisfactory conditions. Do not begin paving work until deficient sub-base areas have been corrected.

F. Moisten subgrade before paving operation. Place no material on muddy subgrade. Place no material during rain.

G. Herbicide: Spread weed killer over the subgrade in accordance with manufacturer's recommendations and consistent with the Environmental Safety Policy of the School District.

3.2 INSTALLATION

A. Paving

1. Spread aggregate for the base in layers, not to exceed 6 inches, and in conformance with Standard Specifications 26-1.04.

2. Compact each layer of aggregate base to 95 percent relative compaction in conformance with Standard Specifications 26-1.05.

3. Spread and compact asphalt concrete in accordance with Standard Specifications 39-5 and 39-6.

B. Finish Adjustment

1. Flood pavement with water and allow to run off. Conform to quality assurance requirements for planarity in this Section.

2. Any areas of ponding shall be filled with asphalt and fine aggregate, feathered out to conform to unfilled surface without visible edge.

3.3 GRADE TOLERANCES

A. Contractor shall verify Finish Surface Grades on a 20-foot grid using laser-operation survey equipment. Grades shall be within ¼" plus or minus from the elevations shown on the plans.

3.4 SURVEYING

A. Construction Surveying: The Contractor shall be responsible for all construction surveying required for the proper location of all work covered hereunder.

B. Conformance Surveying: The Construction Manager may perform a conformance survey after finish grading is complete. The Contractor shall give at least 48 hours notice to the Construction Manager for conformance survey. The Construction Manager will require 48 hours to complete the survey.

3.5 PROTECTION

A. Protect from traffic during all operations. Do not open to use until asphalt is fully cured and will not pick up under traffic, but not less than 72 hours after finished surface has dried completely.

3.6 CLEAN UP

A. Contractor shall provide the labor, supplies and equipment as necessary for final cleaning of surfaces and installed items.

B. The Contractor shall keep the area clean throughout the project and clear of debris.

C. Upon completion of the work of this section, clean surfaces of excess or spilled asphalt materials as approved by the Construction Manager or District Representative.

END OF SECTION

SECTION 32 17 24

NON-TEXTURED ASPHALT PAVEMENT COATING APPLICATION

PART 1 - GENERAL

1.1 DESCRIPTION

A. Asphalt pavement coatings are suitable for application to most asphalt pavement applications including entranceways, parking lots, bike lanes, bus lanes, residential streets and driveways, sidewalks, plazas, medians, and cross-walks. See plans for location and color specifications.

B. Asphalt pavement is considered a “flexible” pavement. Therefore, asphalt pavement coatings are scientifically formulated and designed specifically for use on asphalt pavement. Because of this flexibility, it is highly likely that paints and/or coatings that are not designed specifically for application to asphalt pavement will eventually fail if applied to asphalt pavement.

C. Only use high quality asphalt pavement coatings that have the optimal balance of performance properties to provide a durable, long lasting color and texture to asphalt pavement surfaces. Some of these performance properties include wear and crack resistance, color retention, adhesion, minimal water absorption and increased friction properties.

D. It is important that the coating used has a proven record of success in the application to asphalt pavement and that there be a written specification posted on a public web-site that ensures the coating is certified for use on asphalt pavement.

E. This specification provides the recommended minimum ASTM performance properties for the asphalt pavement coating. These results must be backed up by a Certificate of Analysis from an independent laboratory or equal document that certifies these properties.

F. An asphalt pavement coating with a proven SRI value ≥ 29 can be used to help LEED projects qualify for LEED points in the Sustainable Sites category of some of the LEED rating systems.

G. Only use a contractor or applicator that has Accreditation or written approval from the coating supplier in the application of this coating.

1.2 REFERENCES

A. ASTM D-4541 Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Tester.

B. ASTM D-4060 Test Method for Abrasion Resistance of Organic Coatings by the Taber Abrasion.

C. ASTM D522-93A Standard Test Method for Mandrel Bend Test of Attached Organic Coatings.

D. ASTM G-155 QUV Accelerated Weathering Environment. Standard Practice for Operating Fluorescent Light Apparatus for UV Exposure of Nonmetallic Materials.

E. ASTM D-2486 MEK rub test for chemical resistance.

F. ASTM D-570 Standard Test Method for water absorption of plastics.

G. ASTM E-303 British Pendulum test for friction.

H. EPA 24 ASTM D3960-05 Volatile Organic Compounds.

1.3 DEFINITIONS

A. "Accredited Applicator" is an applicator who is accredited by the coating supplier to apply the asphalt pavement coating.

B. "The Work" is the application of the coating to the surface.

C. "Owner" means the Owner and refers to the representative person who has decision making authority for the Work.

1.4 REQUIRED BID SUBMITTAL DOCUMENTS

The following documents are required at bid submission:

A. A copy of the current year accreditation certificate available from the Accredited Applicator or written verification from the coating supplier that the contractor is qualified to perform this Work.

B. Written and published specification for the application of the selected asphalt pavement coating.

C. Confirmation of coating color(s).

D. Proof of coating performance through a Certificate of Analysis or equal document as provided by the Accredited Applicator or the coating supplier.

E. Provide at least 5 reference sites that have been in use for 2 years or more where the coating proposed has been applied in a similar intended use as the Work contemplated here.

F. For projects where pre-existing asphalt pavement will receive coating, a separate price for the application of primer is to be provided.

PART 2 - PRODUCTS

2.1 MATERIALS – COATING PERFORMANCE PROPERTIES

A. StreetBondSR system (StreetBond SB150 coating and StreetBond Colorant), no-know equal. Materials and certified applicators are available GAF.

B. The following table outlines minimum performance properties of a typical asphalt pavement coating. These properties are to be backed up by Certificates of Analysis produced by an independent qualified testing facility.

TABLE 1:
Minimum Recommended Performance Properties of pavement coating.

Characteristic	**Test Specification**	**Measured result**
Durability: Taber Abrasion resistance	ASTM D-4060 7 day cure, H-10 wheel (wet test)	< 5.0 g/1000
Water sensitivity	ASTM D570 Water absorption after 9 days: Remaining absorption after 1 hour of recovery:	< 10% < 1.0%
Color stability	ASTM G-155 QUV 2,000 hours (CIE units)	Brick color $\Delta E < 1.5$
Flexibility: Mandrel Bend	ASTM D522-93A Flexibility as measured by Mandrel bend 0.5mm thick sample passes 10 mm at 21˚C 0.5mm thick sample passes 125mm at -18˚C	
Chemical resistance	ASTM D-2486 Modified MEK scrubs 16 dry mils, number of scrubs until 50% substrate exposed	>5000
Adhesion to Asphalt	ASTM D-4541	Substrate Failure
Friction Wet	ASTM E-303 British Pendulum Tester	>55
Environmental Sensitivity	EPA 24 ASTM D3960-05 Volatile Organic Compounds	VOC < 150

2.2 EQUIPMENT

A. The Accredited Applicator is required to use the proper equipment in the application of the asphalt pavement coating as per the recommendation of the coating supplier.

PART 3 - EXECUTION

3.1 GENERAL

A. There are a number of factors that will affect the quality of the application of the asphalt pavement coating. These are as follows:

3.2 PRE-CONDITIONS

A. Pavement:

1. Asphalt pavement must be stable, well compacted and generally in excellent condition for the application of the asphalt pavement coating to be successful.

2. The Owner shall make the final determination as to the suitability of the existing asphalt pavement.

B. Asphalt Pavement Marking Removal:

1. Pavement markings may be removed by sandblasting, water-blasting, grinding, or other approved mechanical methods. The removal methods should, to the fullest extent possible, cause no significant damage to the pavement surface.
2. The Owner shall determine if the removal of the markings is satisfactory for the application of the asphalt pavement coating. Work shall not proceed until this approval is granted.

3.3 APPLICATION OF ASPHALT PAVEMENT COATING

A. Surface Preparation

1. The asphalt pavement surface shall be dry and free from all foreign matter, including but not limited to dirt, dust, de-icing materials, and chemical residue.

2. The Accredited Applicator or the coating supplier can advise if primer is required on pre-existing asphalt pavement or not.

3. For application of the asphalt pavement coating to other surfaces, it is recommended to test the application of the coating to a section of the surface before proceeding with the Work.

B. Application of coating

1. Only employ an Accredited Applicator to complete the Work. Should the Owner choose a contractor who has not been properly accredited to perform this Work, the contractor must receive the proper training from the coating supplier.

2. Asphalt pavement coating shall only be applied in accordance with the supplier's instructions paying special attention to number of recommended passes, recommended coating coverage and achieved dry film thickness. The Owner may request the Accredited Applicator to provide proof that the coating was applied in this manner.

3. Only apply the asphalt pavement coating in the correct environmental conditions as instructed by the coating supplier.

3.4 OPENING TO TRAFFIC

A. Refer to the instructions provided by the coating supplier for when the Work is ready to be open to traffic. Wait time is typically a function of dry rate of the coating and climate conditions.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. The measured area is the actual area of asphalt pavement that has received the asphalt pavement coating, measured in place. No deduction will be made for the area(s)

occupied by manholes, inlets, drainage structures, bollards or by any public utility appurtenances within the area.

B. If requested by the Owner, the applicator is to provide proof that the correct amount of coating is applied in accordance with the coating supplier's specification.

4.2 PAYMENT

A. Payment will be full compensation for all work completed as per conditions set out in the contract. For unit price contracts, the payment shall be calculated using the measured area as determined above.

END OF SECTION

ACCESSIBLE ROUTE NOTES

1. BARRIER FREE ACCESSIBLE ROUTE WITH FOLLOWING CHARACTERISTICS:
   - A. LESS THAN 1:20 MAXIMUM SLOPE WITHOUT RAMP.
   - B. LESS THAN 1:48 MAXIMUM CROSS SLOPE.
   - C. 48" MIN CLEAR IN WIDTH.
   - D. NON-SLIP SURFACE OF CONCRETE OR ASPHALT.
   - E. ACCESSIBLE PATH SHALL HAVE NO ABRUPT VERTICAL CHANGES EXCEEDING 1/4" VERTICAL OR 1/4" VERTICAL WITH AN ADDITIONAL 1/4" AT1:2 MAXIMUM SLOPE, OR A TOTAL OF 1/2" AT 1:2 MAXIMUM SLOPE.
2. CONSTRUCT ALL PAVED AREAS TO DRAIN
3. CONFORMANCE SURVEYING OF ACCESSIBLE ROUTE: THE CONTRACTOR SHALL PERFORM A CONFORMANCE SURVEY OF THE ACCESSIBLE ROUTE SHOWING CROSS SLOPES, LONGITUDINAL SLOPES AND SPOT ELEVATIONS ON A 10-FOOT GRID AFTER FINISH GRADING AND FINISH SURFACING IS COMPLETE. CORRECT ANY IRREGULARITIES FOUND AND RESURVEY CORRECTED AREAS TO DOCUMENT CONFORMANCE. SUBMIT CONFORMANCE SURVEYING OF ACCESSIBLE ROUTE TO ARCHITECT AND INCLUDE AS PART OF RECORD DRAWINGS
4. PROVIDE MINIMUM 24" WIDE, 2% MAX BENCH AT TOP OF SLOPE ADJACENT TO PAVING, TYP.
5. ACCESSIBLE ROUTE SHALL BE MAINTAINED FREE OF OVERHANGING OBSTRUCTIONS TO 80" MINIMUM AND FREE OF OBJECTS PROTRUDING MORE THAN 4" FROM THE WALL, ABOVE 27" AND LESS THAN 80" ABOVE THE FLOOR. ARCHITECT SHALL VERIFY THAT THERE ARE NO BARRIERS IN THE ACCESSIBLE ROUTE.

DSA PR 15-01: REQUIRED INFORMATION FOR ACCESSIBLE ROUTE UPGRADES ON CONSTRUCTION DOCUMENTS

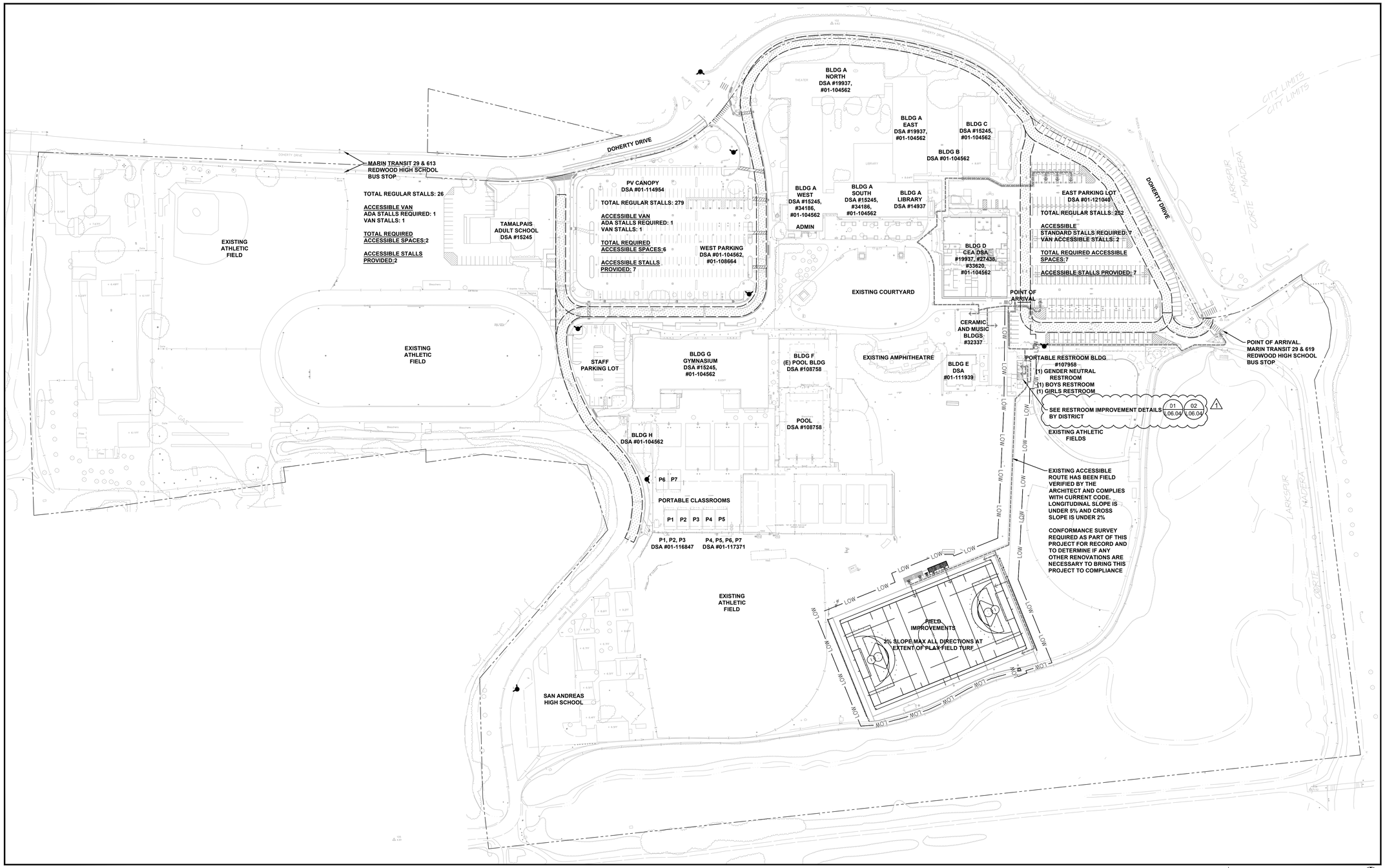
DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE STATEMENT:

THE ACCESSIBLE ROUTE IDENTIFIED IN THESE CONSTRUCTION DOCUMENTS MEETS THE REQUIREMENTS OF THE CURRENT APPLICABLE CALIFORNIA BUILDING CODE (CBC) ACCESSIBILITY PROVISIONS FOR ACCESSIBLE ROUTE REQUIREMENTS FOR ALTERATIONS, ADDITIONS AND STRUCTURAL REPAIRS. AS PART OF THE DESIGN OF THIS PROJECT, THE ACCESSIBLE ROUTE WAS EXAMINED AND ANY ELEMENTS, COMPONENTS OR PORTIONS OF THE ACCESSIBLE ROUTE THAT WERE DETERMINED TO BE NON-COMPLIANT WITH THE CBC HAVE BEEN IDENTIFIED AND THE CORRECTIVE WORK NECESSARY TO BRING THEM INTO COMPLIANCE HAS BEEN INCLUDED WITHIN THE SCOPE OF THIS PROJECT'S WORK THROUGH DETAILS, DRAWINGS AND SPECIFICATIONS INCORPORATED INTO THESE CONSTRUCTION DOCUMENTS.
ANY NONCOMPLIANT ELEMENTS, COMPONENTS OR PORTIONS OF THE ACCESSIBLE ROUTE THAT WILL NOT BE CORRECTED BY THIS PROJECT BASED ON VALUATION THRESHOLD LIMITATIONS OR A FINDING OF UNREASONABLE HARDSHIP ARE INDICATED IN THESE CONSTRUCTION DOCUMENTS.
DURING CONSTRUCTION , IF ACCESSIBLE ROUTE ITEMS WITHIN THE SCOPE OF THE PROJECT REPRESENTED AS CBC COMPLIANT ARE FOUND TO BE NONCONFORMING BEYOND REASONABLE CONSTRUCTION TOLERANCES, THE ITEMS SHALL BE BROUGHT INTO COMPLIANCE WITH THE CBC AS A PART OF THE PROJECT BY MEANS OF A CONSTRUCTION CHANGE DOCUMENT.

NOTE: BASED ON PREVIOUS DSA SUBMITTALS, FIRE ACCESS WITHIN AND BEYOND THE LIMIT OF WORK IS NOT AFFECTED BY THESE IMPROVEMENTS. SCOPE OF WORK WILL MAINTAIN AND/OR PROVIDE FIRE LANES PER CFC SEC 503; 13'-6" MIN HEIGHT AND 20'-0" MIN WIDTH SHALL BE MAINTAINED.

SITE LEGEND

SYMBOL	DESCRIPTION
	PROPERTY LINE
LOW	LIMIT OF WORK
	(E) CONDITIONS, SEE TOPOGRAPHIC SURVEY
	(E) FIRE HYDRANT
	EXISTING ACCESSIBLE ROUTE
EMERGENCY VEHICLE ACCESS	(E) EMERGENCY VEHICLE ACCESS LANE 20'-00" MINIMUM A#01-117371



PLAN 0 80 160 FEET NORTH

811 Know what's below. Call 811 before you dig.

ON THE ORIGINAL BOND MYLAR COPY OF THIS DRAWING CONSTITUTES CARDUCCI & ASSOCIATES, INC. PROFESSIONAL WORK PRODUCT. ELECTRONIC COPIES DO NOT. CARDUCCI & ASSOCIATES, INC. WILL NOT BE RESPONSIBLE FOR ANY MODIFICATIONS MADE TO THIS DRAWING ELECTRONIC OR OTHERWISE. THIS IS NOT SIGNED BY CARDUCCI & ASSOCIATES, INC.

IF THE CONTRACTOR ENCOUNTERS ERRORS OR DISCREPANCIES ON THE DRAWINGS, OR SITE CONDITIONS WHICH PREVENT OR DELAY THE COMPLETION OF WORK AS INDICATED, THE CONTRACTOR SHALL NOTIFY THE OWNER AND LANDSCAPE ARCHITECT BY THE TIME OF BID OF ALL SUCH ERRORS, DISCREPANCIES AND OMISSIONS. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE LANDSCAPE ARCHITECT AND THE OWNER HARMLESS IF AFTER CONTRACTING FOR THE WORK HE HAS MONEY PAY DAMAGE BECAUSE OF SITE CONDITIONS, ERRORS, DISCREPANCIES OR OMISSIONS AT THE TIME OF BID.

Peter Stanley 3/19/2025 5:14 PM

ARCHITECT/ ENGINEER
ZFA STRUCTURAL ENGINEERS
1212 fourth street | suite z zfa.com
santa rosa ca 95404 707.526.0992
zfa job no. 20400

copyright © 2025

STAMP

DESIGN TEAM

CARDUCCI ASSOCIATES
555 BEACH STREET FOURTH FLOOR
SAN FRANCISCO, CA 94133
www.carducciassociates.com

© 2025 CARDUCCI ASSOCIATES, INC.

STAMP

OWNER
TAMALPAIS UNION HIGH SCHOOL DISTRICT

PROJECT
REDWOOD HIGH SCHOOL GHILOTTI FIELD SITE IMPROVEMENTS
395 DOHERTY DRIVE
LARKSPUR, CA 94939

CONTEXT MAP

#	DESCRIPTION	DATE
1	ADDENDUM 003	03.18.2025

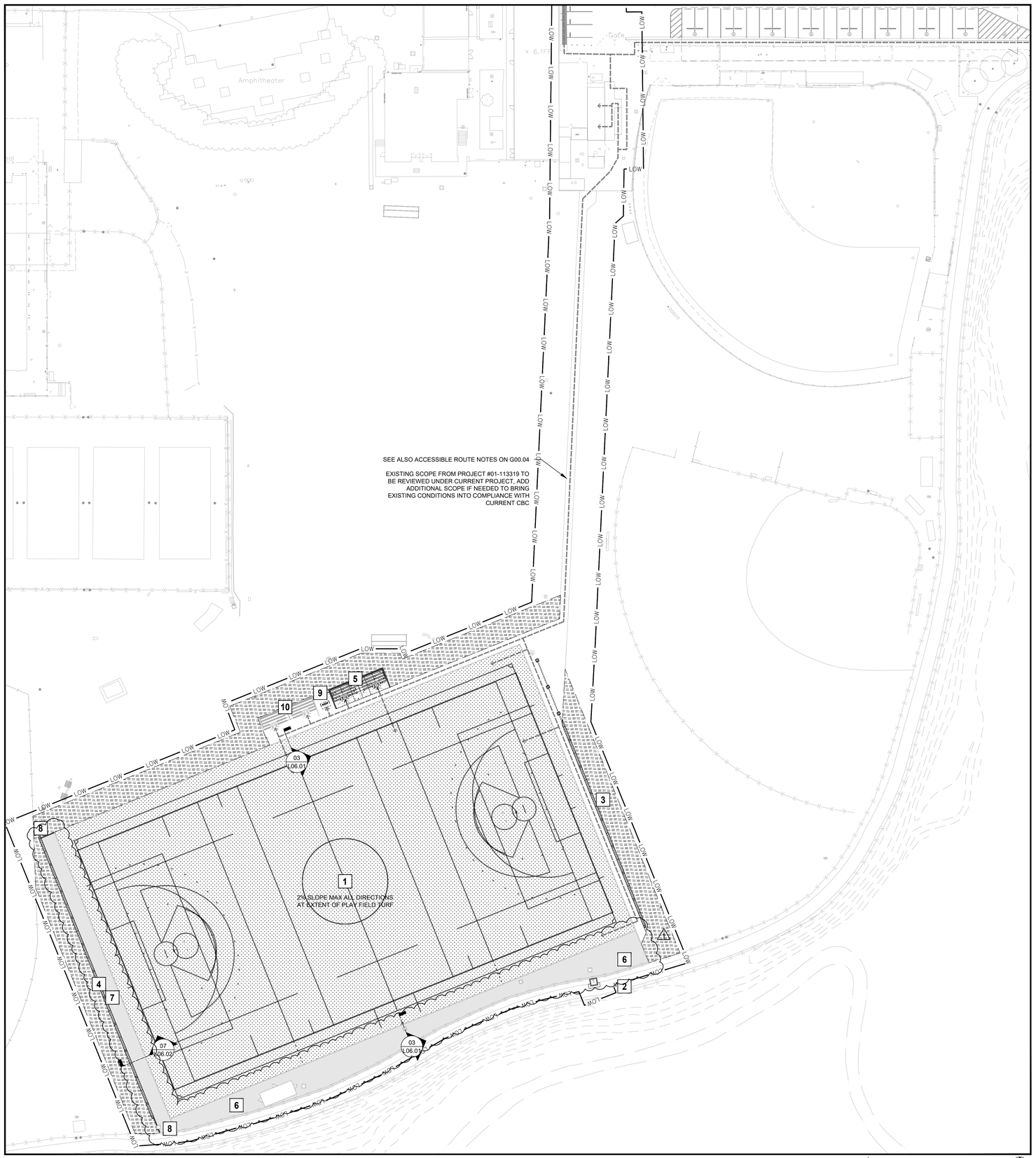
ADDENDUM 3

FILE NUMBER 21-H2
DSA APP NUMBER
01-121720

DATE: 03.19.2024
SCALE: N/A
PROJECT NO: TAM23-01

SHEET TITLE
SITE PLAN

SHEET NUMBER
G00.04



SITE LEGEND

SYMBOL	DESCRIPTION
LOW	LIMIT OF WORK
	(E) CONDITIONS, SEE TOPOGRAPHIC SURVEY
	EXISTING ACCESSIBLE ROUTE

SCOPE OF WORK

KEY	DESCRIPTION
1	VIA CMAS PROCUREMENT, REPLACE EXISTING SYNTHETIC TURF FIELD WITH NEW FIELDTURF SYSTEM, INCLUDING, FIELD PERMEABILITY TESTING, BROCK POWER BASE YSR 4 PAD, AND OLIVE CORE AND SAND INFILL. ADD WHITE STRIPING FOR FIELD HOCKEY. GMAX TESTING.
2	ADD NEW CHECK VALVE (DUCKBILL) AT EXISTING DRAIN INLET TO DETER STORMWATER BACKFLOW FROM ADJACENT MARSH INTO THE SUBSURFACE DRAINAGE SYSTEM UNDER THE FIELD. THIS MAY BE A SEPARATE SMALL PROJECT FOR DISTRICT TO PROCURE AS A MAINTENANCE PROJECT.
3	10' HIGH BALL SAFETY NET IN CONCRETE BORDER AT EDGE OF EXISTING PATH. ADJUST EXISTING IRRIGATION SYSTEM AS REQUIRED. (1 SFS-2) (2 SFS-2) (02 L06.01)
4	10' HIGH BALL SAFETY NET IN CONCRETE BORDER (1 SFS-2) (2 SFS-2) (02 L06.01)
5	CONCRETE SLAB ON GRADE FOR PROPOSED BLEACHER. BLEACHERS PROVIDED BY DISTRICT SEE SHEETS L06.09, L06.10, L06.11, L06.12, AND L06.13 (1)
6	REPLACE EXISTING DECOMPOSED GRANITE PAVING WITH ASPHALT. (1)
7	REPLACE EXISTING WEEDY LANDSCAPE WITH ASPHALT. (1)
8	6" WIDE CONCRETE BORDER (05 L06.01)
9	DRINKING FOUNTAIN (03 L06.03)
10	EXISTING BLEACHERS ARE TO BE INCLUDED AS SCOPE AND REVIEWED BY DSA AS PART OF THIS PROJECT. SEE SHEETS L06.05, L06.06, L06.07, AND L06.08

ORIGINAL ACCESSIBILITY SCOPE OF WORK FROM UNCERTIFIED PROJECT 01-113319

CONSTRUCTION OF ACCESSIBLE SYNTHETIC TURF ATHLETIC FIELD AND CONCRETE SIDEWALK CONNECTING FIELD TO NEAREST ACCESSIBLE PARKING. (INCLUDED IN THIS PROJECT FOR DSA REVIEW AND APPROVAL)

EXISTING CONDITIONS NOTES

CONTRACTOR WILL BE RESPONSIBLE FOR VERIFICATION OF THE LOCATION OF UNDERGROUND UTILITIES IN THE FIELD.

REDWOOD HIGH SCHOOL
395 DOHERTY DRIVE
LARKSPUR, CALIFORNIA

FIELD WORK WAS COMPLETED ON MARCH 2013 BY CSW/STUBER-STROEH ENGINEERING GROUP, INC. FROM NOVATO, CALIFORNIA.

DISTANCES AND ELEVATIONS SHOWN ARE IN FEET AND DECIMALS THEREOF.

HORIZONTAL DATUM IS CALIFORNIA COORDINATE SYSTEM 83, ZONE 3.

THE VERTICAL DATUM FOR THIS PROJECT IS THE NGS G108 BRONZE DISK IN LARKSPUR, AT 552 MAGNOLIA AVENUE, IN THE CONCRETE CURB OF THE LOADING PLATFORM OF THE ABANDONED NORTHERN PACIFIC RAILROAD STATION, 17.7 FEET NORTH OF THE EAST CORNER OF THE BUILDING, 11.5 FEET SOUTHEAST OF THE EXTENDED CENTER OF THE ENTRANCE, AND 1 FOOT ABOVE THE GROUND SURFACE. ELEVATION IS 17.57' NAVD 88.

FIELD IMPROVEMENTS CONSTRUCTION DRAWINGS FOR REDWOOD HIGH SCHOOL DSA PROJECT 01-113319 DATED 7/3/2013 ARE AVAILABLE FROM THE CONSTRUCTION MANAGER

IF THE CONTRACTOR ENCOUNTERS ERRORS OR DISCREPANCIES ON THE DRAWINGS, OR SITE CONDITIONS WHICH PREVENT OR DELAY THE COMPLETION OF WORK AS INDICATED, THE CONTRACTOR SHALL NOTIFY THE OWNER AND LANDSCAPE ARCHITECT BY THE TIME OF BID OF ALL SUCH ERRORS, DISCREPANCIES AND OMISSION. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE LANDSCAPE ARCHITECT AND THE OWNER HARMLESS IF AFTER CONTRACTING FOR THE WORK HE HAS MORE PAY DAMAGE BECAUSE OF SITE CONDITIONS, ERRORS, OMISSIONS OR DISCREPANCIES AT THE TIME OF BID.

ON ALTHE (ORIGINAL, SIGNED HARD COPY OF THIS DRAWING CONSTITUTES CARDUCCI & ASSOCIATES, INC. PROFESSIONAL WORK PRODUCT, ELECTRONIC COPIES DO NOT. CARDUCCI & ASSOCIATES, INC. WILL NOT BE RESPONSIBLE FOR ANY MODIFICATIONS MADE TO THIS DRAWING ELECTRONIC OR OTHERWISE THAT IS NOT OWNED BY CARDUCCI & ASSOCIATES, INC.

Peter Stanley 3/19/2025 5:14 PM

ARCHITECT/ ENGINEER
ZFA STRUCTURAL ENGINEERS
1212 fourth street | suite z zfa.com
santa rosa ca 95404 707.526.0992
zfa job no. 20400
copyright © 2025

STAMP

DESIGN TEAM
CARDUCCI ASSOCIATES
555 BEACH STREET FOURTH FLOOR
SAN FRANCISCO, CA 94133
www.carducciassociates.com
© 2025 CARDUCCI ASSOCIATES, INC.

STAMP

OWNER
TAMALPAIS UNION HIGH SCHOOL DISTRICT

PROJECT
REDWOOD HIGH SCHOOL GHILOTTI FIELD SITE IMPROVEMENTS
395 DOHERTY DRIVE
LARKSPUR, CA 94939

CONTEXT MAP

#	DESCRIPTION	DATE
1	ADDENDUM 003	03.18.2025

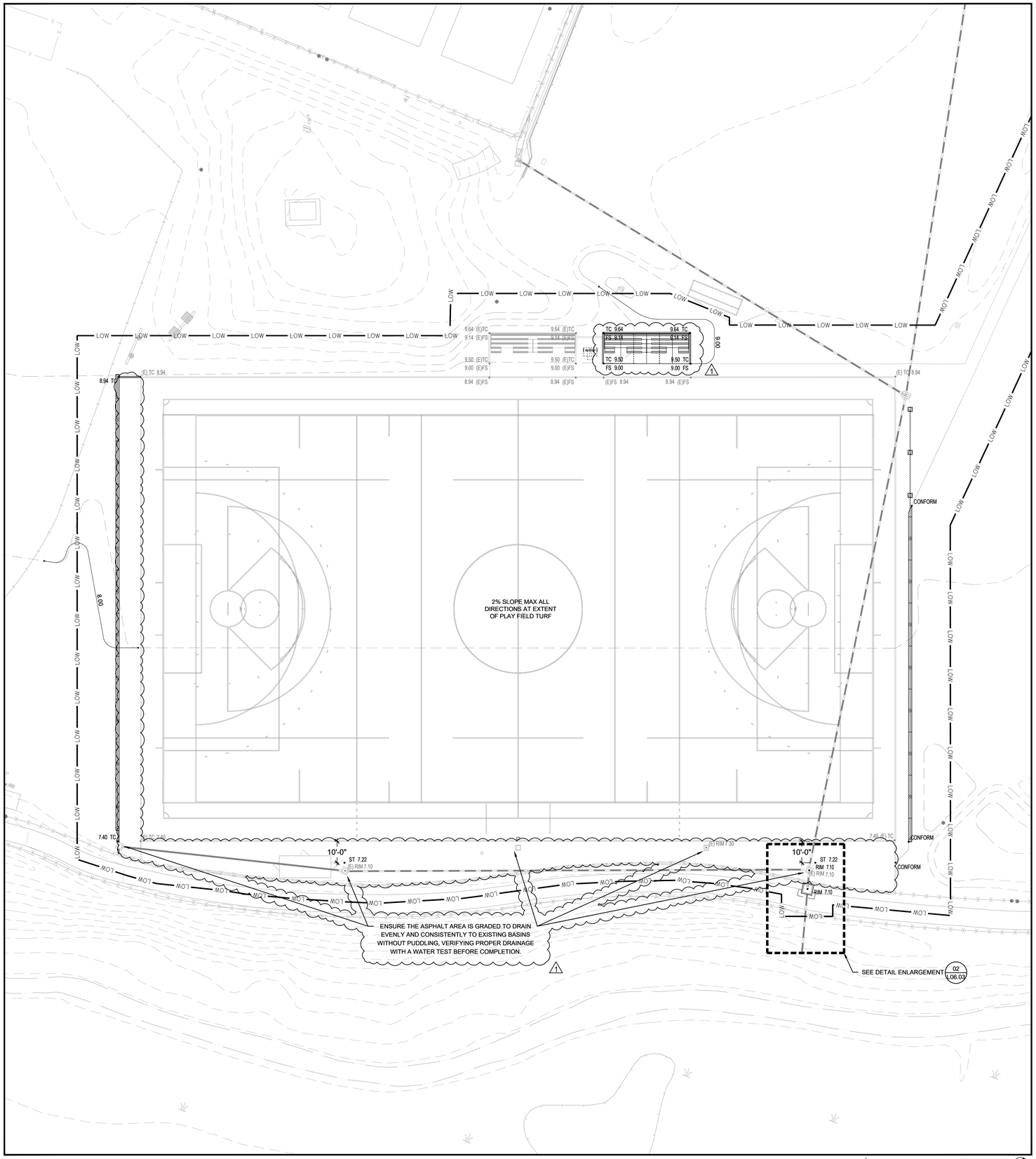
ADDENDUM 3

FILE NUMBER 21-H2
DSA APP NUMBER
01-121720

DATE: 03.19.2024
SCALE: N/A
PROJECT NO: TAM23-01

SHEET TITLE
SCOPE OF WORK

SHEET NUMBER
G00.05



PLAN 0 20 40 FEET NORTH

SITE LEGEND

SYMBOL	DESCRIPTION
LOW	LIMIT OF WORK
	(E) CONDITIONS, SEE TOPOGRAPHIC SURVEY
	ENLARGEMENT

LANDSCAPE GRADING LEGEND

SYMBOL	DESCRIPTION
(E)XX 160.43	EXISTING SPOT ELEVATION
	(E) CONTOUR
421 / 420	FINISH CONTOUR
XX 160.43	SPOT ELEVATION
CONFORM	CONFORM TO EXISTING GRADE
FS	FINISH SURFACE ELEVATION OF HARDSCAPE
TC	TOP OF CURB ELEVATION
RIM	RIM ELEVATION
INV	INVERT ELEVATION
ST	SYNTHETIC TURF ELEVATION

ACCESSIBLE ROUTE NOTES

1. BARRIER FREE ACCESS ROUTE WITH FOLLOWING CHARACTERISTICS:
   - A. LESS THAN 1:20 MAXIMUM SLOPE WITHOUT RAMP
   - B. LESS THAN 1:50 MAXIMUM CROSS SLOPE
   - C. NO ABRUPT CHANGES IN LEVEL
   - D. 48" MIN CLEAR IN WIDTH
   - E. NON-SLIP SURFACE
   - F. ACCESSIBLE ROUTE SHALL HAVE NO ABRUPT VERTICAL CHANGES EXCEEDING 1/2" AT 1:2 MAXIMUM SLOPE, EXCEPT THAT LEVEL CHANGES DO NOT EXCEED 1/4".
   - G. CONTRACTOR TO VERIFY THAT ALL BARRIERS IN THE ACCESSIBLE ROUTE HAVE BEEN REMOVED OR WILL BE REMOVED IN THIS PROJECT, & THAT ACCESSIBLE ROUTE COMPLIES WITH CBC 1133B.
2. CONSTRUCT ALL PAVED AREAS TO DRAIN
3. CONFORMANCE SURVEYING OF ACCESSIBLE ROUTE: THE CONTRACTOR SHALL PERFORM A CONFORMANCE SURVEY OF THE ACCESSIBLE ROUTE SHOWING CROSS SLOPES, LONGITUDINAL SLOPES AND SPOT ELEVATIONS ON A 10-FOOT GRID AFTER FINISH GRADING AND FINISH SURFACING IS COMPLETE. CORRECT ANY IRREGULARITIES FOUND AND RESURVEY CORRECTED AREAS TO DOCUMENT CONFORMANCE. SUBMIT CONFORMANCE SURVEYING OF ACCESSIBLE ROUTE TO ARCHITECT AND INCLUDE AS PART OF RECORD DRAWINGS.

EXISTING CONDITIONS NOTES

CONTRACTOR WILL BE RESPONSIBLE FOR VERIFICATION OF THE LOCATION OF UNDERGROUND UTILITIES IN THE FIELD.

REDWOOD HIGH SCHOOL
395 DOHERTY DRIVE
LARKSPUR, CALIFORNIA

FIELD WORK WAS COMPLETED ON MARCH 2013 BY CSW/STUBER-STROEH ENGINEERING GROUP, INC. FROM NOVATO, CALIFORNIA.

DISTANCES AND ELEVATIONS SHOWN ARE IN FEET AND DECIMALS THEREOF.

HORIZONTAL DATUM IS CALIFORNIA COORDINATE SYSTEM 83, ZONE 3.

THE VERTICAL DATUM FOR THIS PROJECT IS THE NGS G108 BRONZE DISK IN LARKSPUR, AT 552 MAGNOLIA AVENUE, IN THE CONCRETE CURB OF THE LOADING PLATFORM OF THE ABANDONED NORTHERN PACIFIC RAILROAD STATION, 17.7 FEET NORTH OF THE EAST CORNER OF THE BUILDING, 11.5 FEET SOUTHEAST OF THE EXTENDED CENTER OF THE ENTRANCE, AND 1 FOOT ABOVE THE GROUND SURFACE. ELEVATION IS 17.57' NAVD 88.

FIELD IMPROVEMENTS CONSTRUCTION DRAWINGS FOR REDWOOD HIGH SCHOOL DSA PROJECT 01-113319 DATED 7/3/2013 ARE AVAILABLE FROM THE CONSTRUCTION MANAGER

ONLY THE ORIGINAL, SIGNED HARD COPY OF THIS DRAWING CONSTITUTES CARDUCCI & ASSOCIATES, INC.' PROFESSIONAL WORK PRODUCT. ELECTRONIC COPIES OF DRAWINGS ARE FOR INFORMATIONAL PURPOSES ONLY AND MAY NOT BE USED OR RELIED UPON FOR ANY PURPOSE WHATSOEVER. ANY MODIFICATIONS MADE TO THESE DRAWING ELECTRONICS OR OTHERWISE THAT IS NOT SIGNED BY CARDUCCI & ASSOCIATES, INC.

IF THE CONTRACTOR ENCOUNTERS ERRORS OR DISCREPANCIES ON THE DRAWINGS, OR SITE CONDITIONS WHICH PREVENT, OR DELAY THE COMPLETION OF WORK AS INDICATED, THE CONTRACTOR SHALL NOTIFY THE OWNER AND LANDSCAPE ARCHITECT BY THE TIME OF BID OF ALL DISCREPANCIES OR OMISSIONS AT THE TIME OF BID. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTION OF SHALL, HOWEVER, PROTOCOLS THE LANDSCAPE ARCHITECT AND THE OWNER HARMLESS IF ATTEMPTING TO CORRECT ON SITE CONDITIONS WHICH ARE DISCREPANCIES OR OMISSIONS AT THE TIME OF BID.

ARCHITECT/ ENGINEER
ZFA STRUCTURAL ENGINEERS
1212 fourth street | suite z zfa.com
santa rosa ca 95404 707.526.0992
zfa job no. 20400 copyright © 2025

STAMP

DESIGN TEAM

CARDUCCI
ASSOCIATES
555 BEACH STREET FOURTH FLOOR
SAN FRANCISCO, CA 94133
www.carducciassociates.com
© 2025 CARDUCCI ASSOCIATES, INC.

STAMP

OWNER
TAMALPAIS UNION HIGH SCHOOL DISTRICT

PROJECT
REDWOOD HIGH SCHOOL GHILOTTI FIELD SITE IMPROVEMENTS
395 DOHERTY DRIVE
LARKSPUR, CA 94939

CONTEXT MAP

#	DESCRIPTION	DATE
1	ADDENDUM 003	03.18.2025

ADDENDUM 3

FILE NUMBER 21-H2
DSA APP NUMBER
01-121720

DATE:	03.19.2024
SCALE:	N/A
PROJECT NO:	TAM23-01

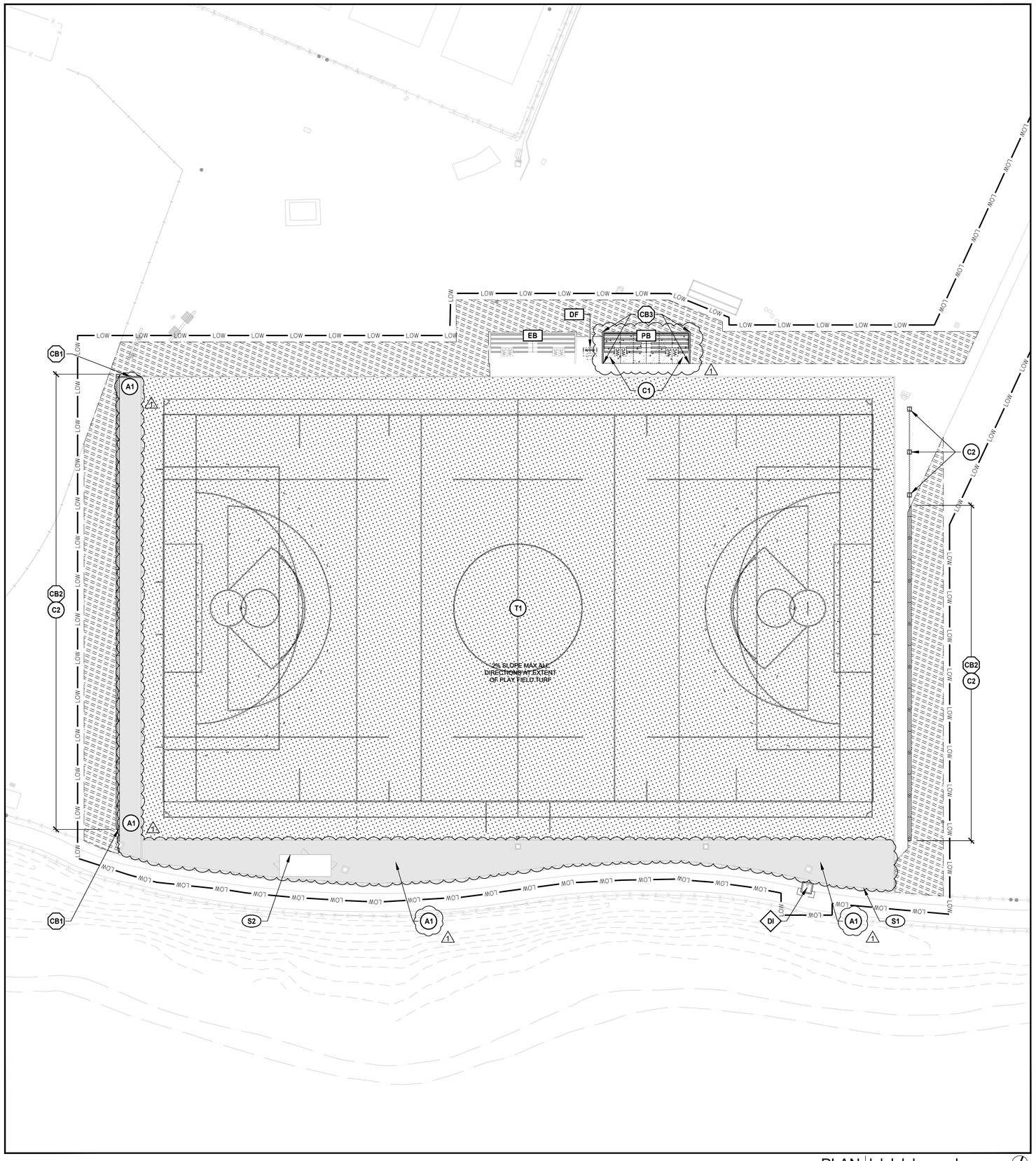
SHEET TITLE

GRADING LEGEND AND PLAN

SHEET NUMBER

L02.00

Peter Stanley 3/19/2025 5:14 PM



PLAN 0 20 40 FEET NORTH

SITE LEGEND

SYMBOL	DESCRIPTION
LOW	LIMIT OF WORK
	(E) CONDITIONS, SEE TOPOGRAPHIC SURVEY

MATERIALS LEGEND

SYMBOL	KEY	DESCRIPTION
		SIGN AND GATE SCHEDULE - **PROVIDED BY DISTRICT**
	S1	REGULATORY SIGN - NO DOGS 08/L06.04 QUANTITY: 1
	S2	MAINTENANCE ONLY SIGN 07/L06.04 QUANTITY: 1
		CONCRETE PAVING SERIES
	C1	CONCRETE PAVING TYPE C1 COLOR: NATURAL W/ LAMP BLACK 01/L06.01 FINISH: MEDIUM BROOM FINISH
	C2	CONCRETE TYPE C2: STRUCTURAL 2/SFS-2 CONCRETE NET POSTS
		CONCRETE CONTROL JOINT SERIES
		CONCRETE PAVING
		EXPANSION JOINT (EJ)
		CONTROL JOINTS (CJ)
		EDGE OF PAVING
		SYNTHETIC TURF
	T1	CARPET: VERTEX INFILL: OLIVE PIT & SAND 03/L06.01 01/L06.02 02/L06.02 03/L06.02 04/L06.02 05/L06.02 06/L06.02 COLOR: GREEN
		ASPHALT
	A1	AC PAVING TYPE A1 (PEDESTRIAN RATED) 07/L06.01 PAVEMENT COATING STREETBOND SB 120 V COLOR: NY RED
		CONCRETE BORDER AND HEADER
	CB1	6" WIDE CONCRETE BORDER 05/L06.01
	CB2	1'-6" WIDE CONCRETE BORDER WITH 10' H SAFETY NETTING 02/L06.01 1/SFS-2 2/SFS-2 3/SFS-2 BSS210 SPORTSFIELD SPECIALTIES
	CB3	6" WIDE RAISED CONCRETE CURB 06/L06.01
		UTILITY
	DI	DRAIN INLET WITH CHECK VALVE 6/L01.02 01/L06.03
		SITE FURNISHING
	DF	DRINKING FOUNTAIN. MODEL 3612 HAWS ADA 08/L06.02 03/L06.03 04/L06.03 05/L06.03 VANDAL-RESISTANT OUTDOOR STAINLESS STEEL BOTTLE FILLER AND DRINKING FOUNTAIN WITH RAILS
	EB	EXISTING BLEACHER SYSTEM. 5-TIER WITH WHEELCHAIR AREA AND COMPANION SEATING L06.05 L06.06 L06.07 L06.08
	PB	PROPOSED BLEACHER SYSTEM. 5-TIER WITH WHEELCHAIR AREA AND COMPANION SEATING BY SOUTHERN BLEACHERS. SURFACE MOUNT PER MANUFACTURERS RECOMMENDATION. MATCH EXISTING BLEACHERS **PROVIDED BY DISTRICT** L06.09 L06.10 L06.11 L06.12 L06.13
		PLANTING
		HYDRO SEED AREAS THAT NEED REPAIR WHEN FIELD INSTALLATION IS COMPLETE. SEE DEMOLITION PLAN FOR ADDITIONAL AREAS OF REPAIR

ONLY THE ORIGINAL, SIGNED HARD COPY OF THIS DRAWING CONSTITUTES CARDUCCI & ASSOCIATES, INC. PROFESSIONAL WORK PRODUCT. ELECTRONIC CORES DO NOT. CARDUCCI & ASSOCIATES, INC. WILL NOT BE RESPONSIBLE FOR ANY MODIFICATIONS MADE TO THIS DRAWING ELECTRONIC OR OTHERWISE. THAT WORK SHALL BE CARDUCCI & ASSOCIATES, INC.

IF THE CONTRACTOR ENCOUNTERS ERRORS OR DISCREPANCIES ON THE DRAWINGS, OR SITE CONDITIONS WHICH PREVENT, OR RELATE TO THE CORRECTION OF WORK AS INDICATED, THE CONTRACTOR SHALL NOTIFY THE OWNER AND LANDSCAPE ARCHITECT BY THE TIME OF BID OF ALL SUCH ERRORS, DISCREPANCIES AND OMISSIONS. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE LANDSCAPE ARCHITECT AND THE OWNER HARMLESS IF AFTER COMMENCEMENT OF WORK THE CONTRACTOR DISCOVERS ANY ERRORS, DISCREPANCIES OR OMISSIONS AT THE SITE OF BID

ARCHITECT/ ENGINEER
ZFA STRUCTURAL ENGINEERS
1212 fourth street | suite z zfa.com
santa rosa ca 95404 707.526.0992
zfa job no. 20400
copyright © 2025

STAMP

DESIGN TEAM

CARDUCCI
ASSOCIATES
555 BEACH STREET FOURTH FLOOR
SAN FRANCISCO, CA 94133
www.carducciassociates.com
© 2025 CARDUCCI ASSOCIATES, INC.

STAMP

OWNER
TAMALPAIS UNION HIGH SCHOOL DISTRICT

PROJECT
REDWOOD HIGH SCHOOL GHILOTTI FIELD SITE IMPROVEMENTS
395 DOHERTY DRIVE
LARKSPUR, CA 94939

CONTEXT MAP

#	DESCRIPTION	DATE
1	ADDENDUM 003	03.18.2025

ADDENDUM 3

FILE NUMBER 21-H2
DSA APP NUMBER
01-121720

DATE:	03.19.2024
SCALE:	N/A
PROJECT NO:	TAM23-01

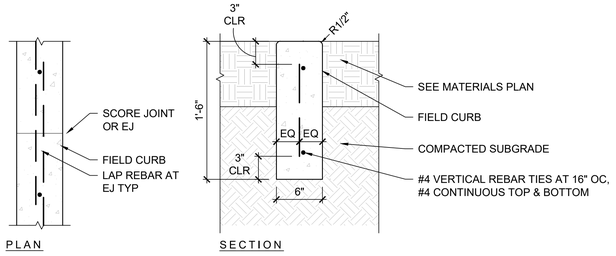
SHEET TITLE

MATERIALS LEGEND AND PLAN

SHEET NUMBER

L05.00

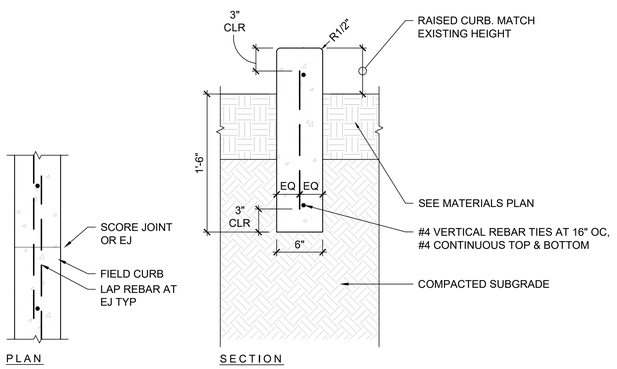
Peter Stanley 3/19/2025 5:15 PM



PLAN SECTION

NOTES:
1. SCORE JOINTS A MAX OF 10' OC, EQUALLY SPACED.
2. LOCATE EXPANSION JOINTS A MAXIMUM OF 20' OC AND EQUALLY SPACED.

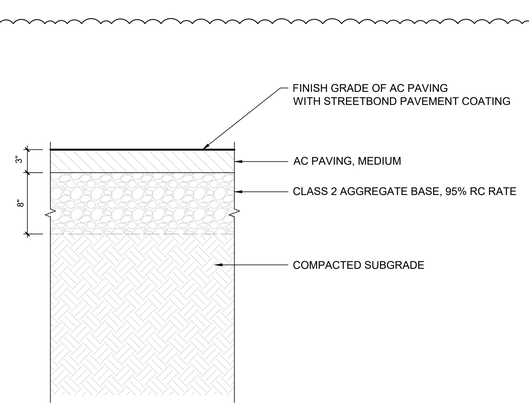
05 CONCRETE CURB - CB1
SCALE: 1 1/2" = 1'



PLAN SECTION

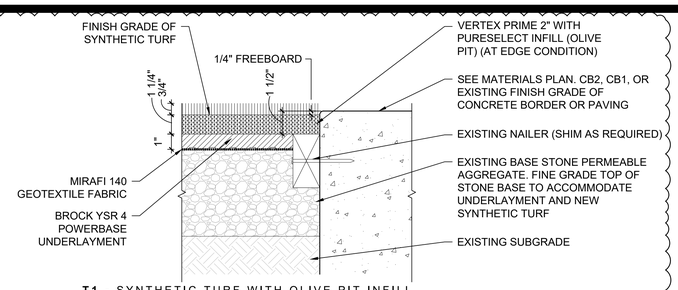
NOTES:
1. SCORE JOINTS A MAX OF 10' OC, EQUALLY SPACED.
2. LOCATE EXPANSION JOINTS A MAXIMUM OF 20' OC AND EQUALLY SPACED.

06 CONCRETE CURB - CB3
SCALE: 1 1/2" = 1'



NOTES:
1. SEE MATERIALS FOR OTHER EDGE CONDITIONS.
2. PROVIDE MOCK-UP FOR APPROAL

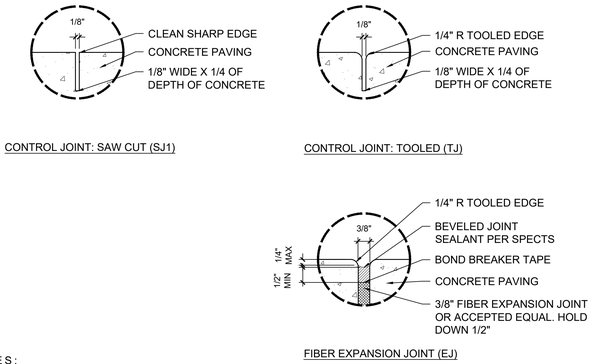
07 PAVING-AC
SCALE: 1 1/2" = 1'



T1 - SYNTHETIC TURF WITH OLIVE PIT INFILL

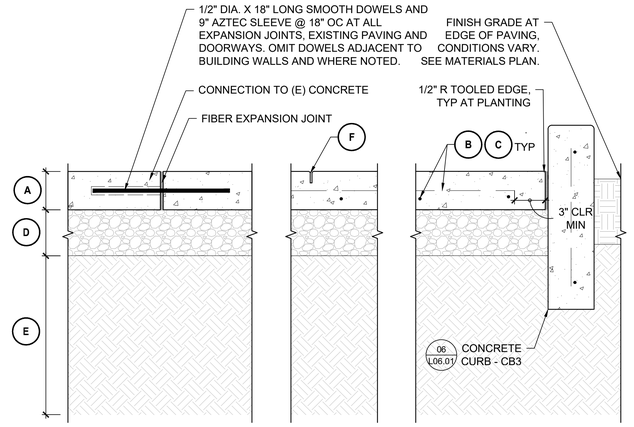
WHEELCHAIR STRAIGHT PROPULSION & TURN TEST RESULTS:		
FIELD	14.33#	11.36#
TURNING	10.14#	7.39#
TEST CONSISTENT WITH REQUIREMENTS OF ASTM F-1951-99		

03 SYNTHETIC TURF - T1
SCALE: 3" = 1'



NOTES:
1. MOCK UP JOINTS WITH CONC PAVING MOCKUP FOR REVIEW AND ACCEPTANCE

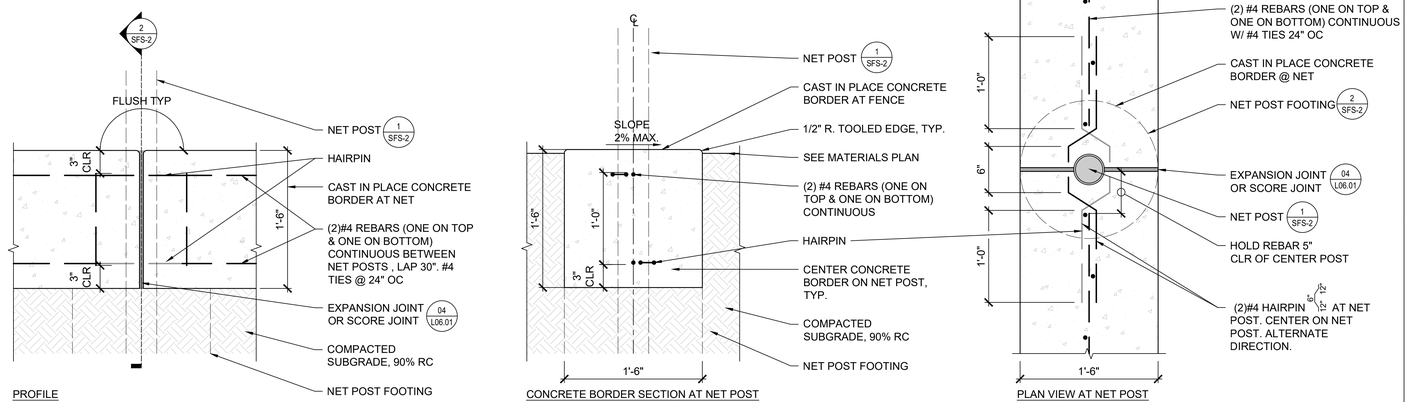
04 PAVING - CONCRETE JOINTS
SCALE: 6" = 1'



NOTE:
1. COLOR AND FINISH MEDIUM BROOM NON-SLIP, SEE MATERIALS PLANS FOR COLOR, UNLESS OTHERWISE NOTED.
2. CONTROL JOINTS SHALL BE PLACED AS SHOWN ON PLANS.
3. EJ'S SHALL BE PLACED AS SHOWN ON PLANS.
4. 2% MAX CROSS SLOPE IN ALL AREAS WITHIN PATH OF TRAVEL. IF FIELD CONDITIONS CREATE MORE THAN 2% CROSS SLOPE DO NOT PLACE CONCRETE WITH OUT APPROVAL BY INSPECTOR.
5. PROVIDE ON SITE MOCK-UP OF PAVING AND JOINTS FOR REVIEW AND APPROVAL.

		CONCRETE PAVING
A	CAST-IN-PLACE CONCRETE THICKNESS	0'-6"
B	REBAR	#4
C	REBAR SPACING	12" EACH WAY, CENTERED IN SLAB
D	COMPACTED CLASS II AGG. BASE	0'-6"
E	COMPACTED SUBGRADE	12" DEPTH MIN / 92% RC
F	CONTROL JOINT DEPTH	0'-1.25000"

01 PAVE - CONCRETE
SCALE: 1 1/2" = 1'



NOTES:
1. PROVIDE 5' LONG ON-SITE SAMPLE OF CONCRETE BORDER FOR REVIEW & ACCEPTANCE
2. PLACE CONCRETE BORDER FLUSH WITH ADJACENT PAVING
3. PLACE JOINTS CENTERED ON NET POSTS
4. EJ @ EVERY OTHER NET POST SEE DETAIL 1/SFS-2 FOR POST SPACING
5. MATCH FINISH OF CONCRETE PAVING

NOTE
PER DSA IR A-22 SECTION 2.1.2.1: THIS PROJECT ELEMENT IS NOT A PART OF THE DSA STRUCTURAL APPROVAL SYSTEM BUT IS A PART OF THE DSA ACCESSIBILITY AND FIRE LIFE SAFETY APPROVAL SYSTEM.

02 CONCRETE BORDER WITH NET FOOTING - CB2
SCALE: 1 1/2" = 1'

ONLY THE ORIGINAL, SIGNED HARD COPY OF THIS DRAWING CONSTITUTES CARDUCCI & ASSOCIATES, INC. PROFESSIONAL WORK PRODUCT. ELECTRONIC COPIES DO NOT. CARDUCCI & ASSOCIATES, INC. WILL NOT BE RESPONSIBLE FOR ANY MODIFICATIONS MADE TO THIS DRAWING ELECTRONICALLY OR OTHERWISE THAT IS NOT SIGNED BY CARDUCCI & ASSOCIATES, INC.

IF THE CONTRACTOR ENCOUNTERS ERRORS OR DISCREPANCIES, THE CONTRACTOR SHALL NOTIFY THE OWNER AND LANDSCAPE ARCHITECT BY THE TIME OF BID OF ALL SUCH ERRORS, DISCREPANCIES AND OMISSIONS. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE LANDSCAPE ARCHITECT AND THE OWNER HARMLESS IF AFTER CONTRACTING FOR THE WORK HE HAS MORE FAIT DAMAGE BECAUSE OF SITE CONDITIONS, ERRORS, OMISSIONS OR DISCREPANCIES AT THE TIME OF BID.

BY THE COMPLETION OF WORK AS INDICATED, THE CONTRACTOR SHALL NOTIFY THE OWNER AND LANDSCAPE ARCHITECT BY THE TIME OF BID OF ALL SUCH ERRORS, DISCREPANCIES AND OMISSIONS. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE LANDSCAPE ARCHITECT AND THE OWNER HARMLESS IF AFTER CONTRACTING FOR THE WORK HE HAS MORE FAIT DAMAGE BECAUSE OF SITE CONDITIONS, ERRORS, OMISSIONS OR DISCREPANCIES AT THE TIME OF BID.

ARCHITECT/ ENGINEER
ZFA STRUCTURAL ENGINEERS
1212 fourth street | suite z zfa.com
santa rosa ca 95404 707.526.0992
zfa job no. 20400
copyright © 2025

STAMP

DESIGN TEAM

CARDUCCI ASSOCIATES
555 BEACH STREET FOURTH FLOOR
SAN FRANCISCO, CA 94133
www.carducciassociates.com
© 2025 CARDUCCI ASSOCIATES, INC.

STAMP

OWNER
TAMALPAIS UNION HIGH SCHOOL DISTRICT

PROJECT
REDWOOD HIGH SCHOOL GHILOTTI FIELD SITE IMPROVEMENTS
395 DOHERTY DRIVE
LARKSPUR, CA 94939

CONTEXT MAP

#	DESCRIPTION	DATE
1	ADDENDUM 003	03.18.2025

ADDENDUM 3

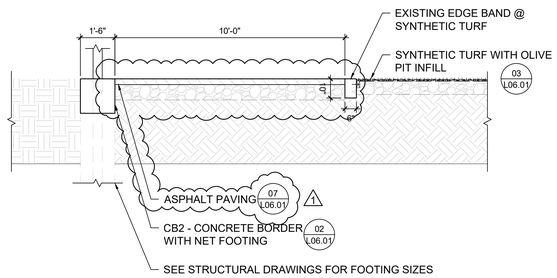
FILE NUMBER 21-H2
DSA APP NUMBER
01-121720

DATE: 03.19.2024
SCALE: N/A
PROJECT NO: TAM23-01

SHEET TITLE
DETAILS

SHEET NUMBER
L06.01

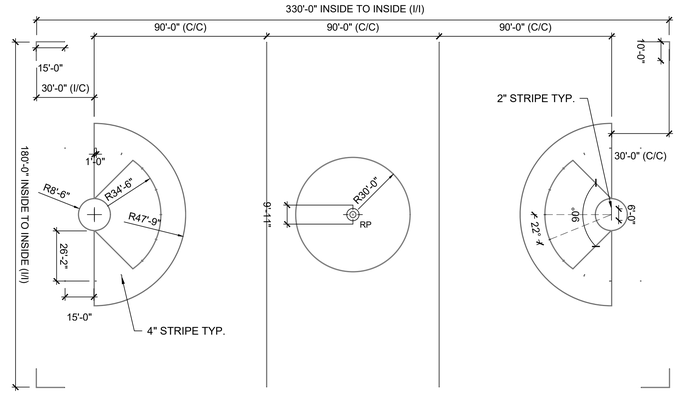
Peter Stanley 3/19/2025 5:15 PM



SECTION

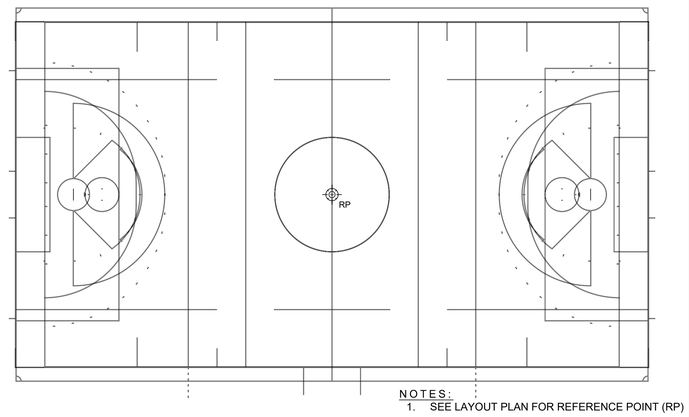
NOTES:
1. MEDIUM BROOM FINISH ALL EXPOSED SURFACES
2. PROVIDE EXPANSION JOINTS AT 20' OC, SCORE JOINTS MAX OF 10' OC
3. DOWEL AT EJ'S & ADJACENT CONC PAVING

07 SYNTHETIC TURF FIELD SECTION
SCALE: 3/8" = 1'



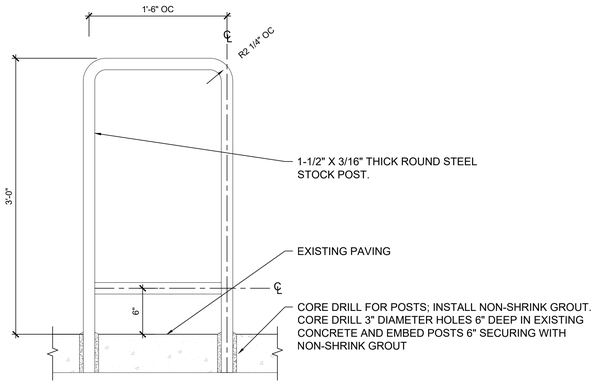
NOTES:
1. SEE LAYOUT PLAN FOR REFERENCE POINT (RP)

04 GIRLS LACROSSE STRIPING DIAGRAM
SCALE: 1/32" = 1'



NOTES:
1. SEE LAYOUT PLAN FOR REFERENCE POINT (RP)

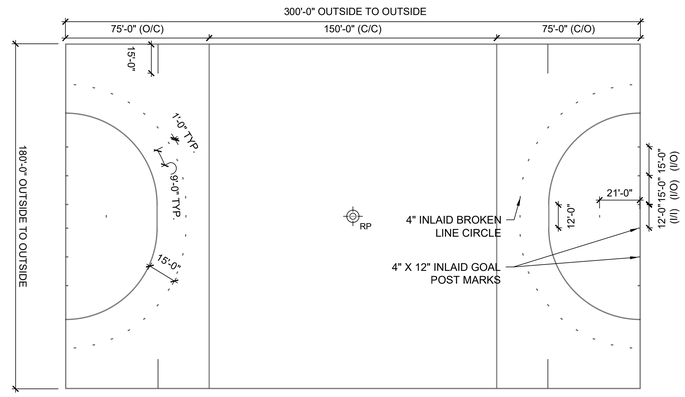
01 FIELD COMPOSITE OVERVIEW
SCALE: 1/32" = 1'



SECTION

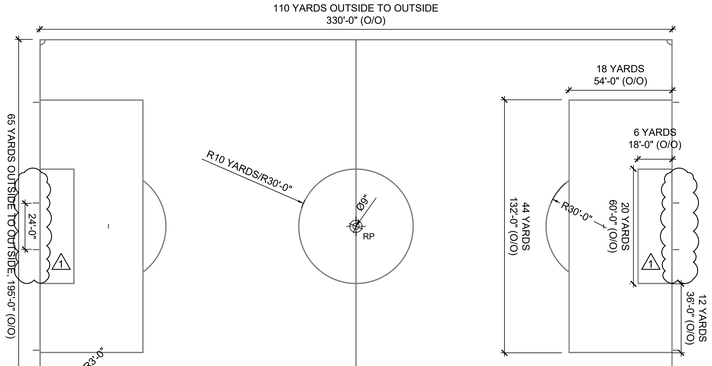
NOTES:
1. RAILING FINISH: HOT DIPPED GALVANIZED.

08 RAILING FOR DF
SCALE: 1 1/2" = 1'



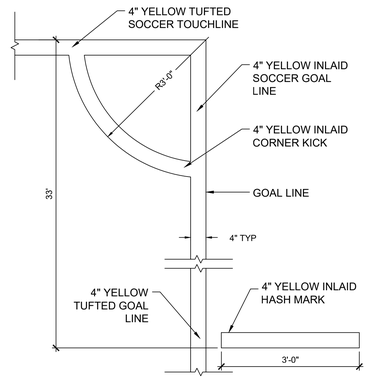
NOTES:
1. SEE LAYOUT PLAN FOR REFERENCE POINT (RP)

05 FIELD HOCKEY STRIPING DIAGRAM
SCALE: 1/32" = 1'



NOTES:
1. SEE LAYOUT PLAN FOR REFERENCE POINT (RP)

02 SOCCER STRIPING DIAGRAM
SCALE: 1/32" = 1'

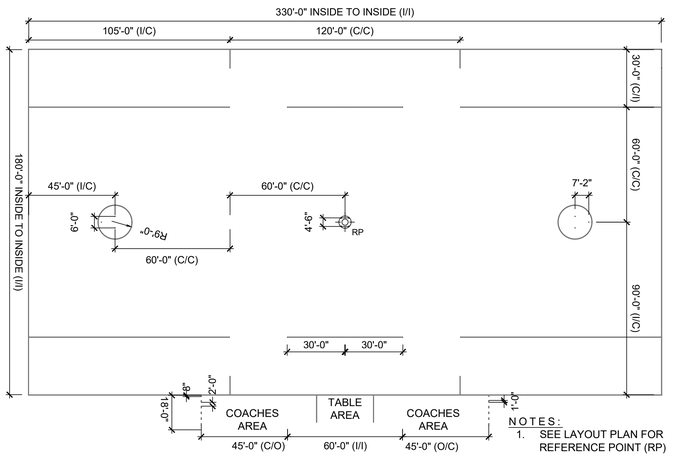


NOTES:
1. ORIENTATION VARIES AT EACH CORNER. VERIFY ORIENTATION IN FIELD.

STRIPE COLORS:
1. SOCCER: CANARY YELLOW
2. BOY'S LACROSSE: REFLEX BLUE
3. GIRL'S LACROSSE: RED
4. FIELD HOCKEY: ORANGE

1

06 SOCCER CORNER KICK
SCALE: 3/4" = 1'



NOTES:
1. SEE LAYOUT PLAN FOR REFERENCE POINT (RP)

03 BOYS LACROSSE STRIPING DIAGRAM
SCALE: 1/32" = 1'

ONLY THAT DRAWING, SIGNED HARD COPY OF THIS DRAWING CONSTITUTES CARDUCCI & ASSOCIATES, INC. PROFESSIONAL WORK PRODUCT. ELECTRONIC COPIES DO NOT. CARDUCCI & ASSOCIATES, INC. WILL NOT BE RESPONSIBLE FOR ANY MODIFICATIONS MADE TO THIS DRAWING ELECTRONIC OR OTHERWISE. THAT HAVE BEEN MADE BY CARDUCCI & ASSOCIATES, INC.

IF THE CONTRACTOR ENCOUNTERS ERRORS OR DISCREPANCIES IN THE DRAWINGS OR IN THE CONDITIONS WHICH PREVENT OR DELAY THE CONSTRUCTION OF WORK AS INDICATED, THE CONTRACTOR SHALL NOTIFY THE OWNER AND LANDSCAPE ARCHITECT BY THE TIME OF BID OF ALL SUCH ERRORS, DISCREPANCIES AND OMISSIONS. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE LANDSCAPE ARCHITECT AND THE OWNER HARMLESS FOR CONSTRUCTION PERFORMED AFTER CONTRACTOR'S DISCOVERY OF SUCH ERRORS, DISCREPANCIES OR OMISSIONS AT THE TIME OF BID.

Peter Stanley 3/19/2025 5:15 PM

ARCHITECT/ ENGINEER
ZFA STRUCTURAL ENGINEERS
1212 fourth street | suite z — zfa.com
santa rosa ca 95404 — 707.526.0992
zfa job no. 20400
copyright © 2025

STAMP

DESIGN TEAM

CARDUCCI ASSOCIATES
555 BEACH STREET FOURTH FLOOR
SAN FRANCISCO, CA 94133
www.carducciassociates.com
© 2025 CARDUCCI ASSOCIATES, INC.

STAMP

OWNER
TAMALPAIS UNION HIGH SCHOOL DISTRICT

PROJECT
REDWOOD HIGH SCHOOL GHILOTTI FIELD SITE IMPROVEMENTS
395 DOHERTY DRIVE
LARKSPUR, CA 94939

CONTEXT MAP

#	DESCRIPTION	DATE
1	ADDENDUM 003	03.18.2025

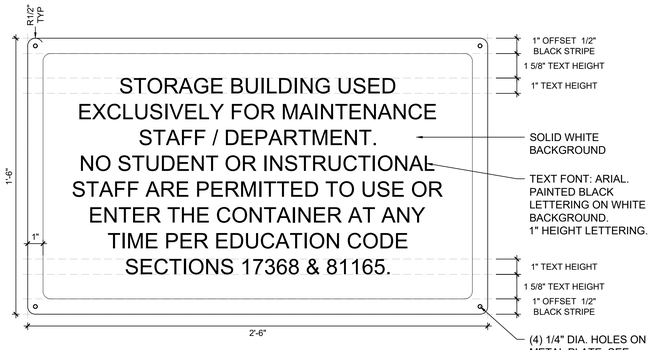
ADDENDUM 3

FILE NUMBER 21-H2
DSA APP NUMBER
01-121720

DATE: 03.19.2024
SCALE: N/A
PROJECT NO: TAM23-01

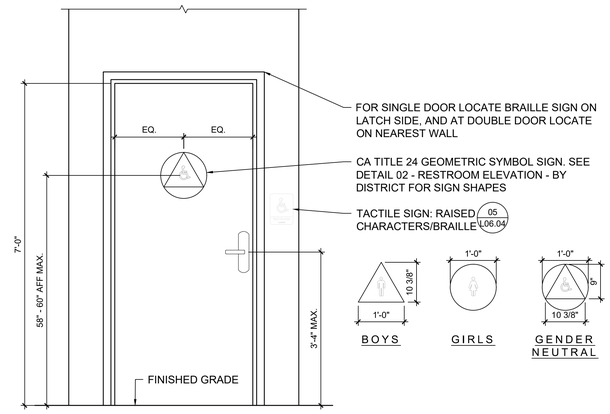
SHEET TITLE
DETAILS - FIELD OVERLAY AND SECTION

SHEET NUMBER
L06.02



NOTES:
1. METAL SIGNS ARE DIGITAL PRINT ON 3M ADVANCED ENGINEER GRADE VINYL, COATED WITH 3M 1160i GRAFFITI FILM, APPLIED TO 0.080 ALUMINUM SUBSTRATE. LETTERING PER PLAN SPECIFICATIONS, 0.25 INCH MOUNTING HOLES.
2. SEE PLAN FOR QUANTITY & LOCATION INFO.
3. SECURE WITH NON-RUSTING, VANDAL-RESISTANT FASTENERS COMPLETE.
4. SUBMIT SHOP DRAWINGS FOR REVIEW. TEXT SHOWN FOR BID PURPOSES ONLY. FINAL TEXT TO BE PROVIDED BY DISTRICT.

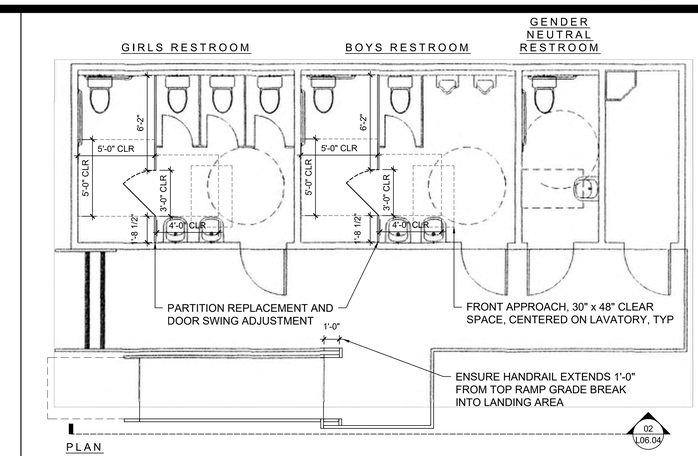
07 MAINTANANCE ONLY SIGN - S2 - BY DISTRICT ⚠1
SCALE: 3" = 1'



ELEVATION

NOTES:
1. REFER TO CBC 11B-703
2. SIGN MOUNTED TO SURFACE WITH 1/16" THICK DOUBLE FACE TAPE
3. CALIFORNIA RESTROOM SYMBOLS (CIRCLE/TRIANGLE) INSTALLED ON DOOR LEAFS
4. INCLUDE ISA IF RESTROOM IS WHEELCHAIR ACCESSIBLE
5. ALL SIGNS BLUE

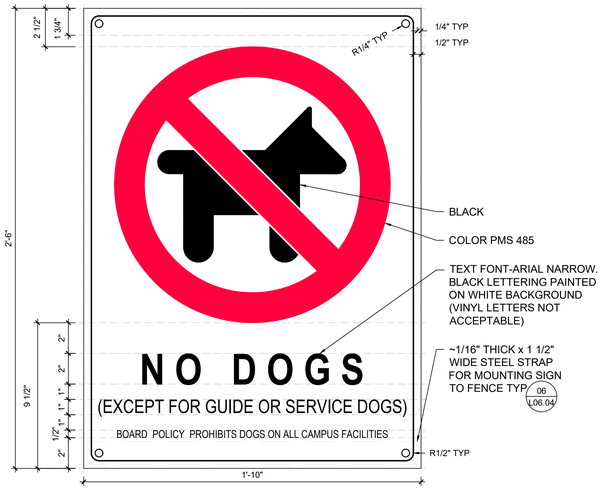
04 RESTROOM DOOR SIGNAGE - BY DISTRICT ⚠1
SCALE: 3/4" = 1'



PLAN

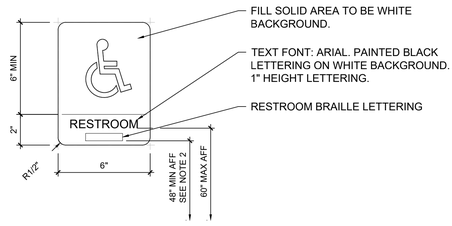
NOTES:
1. REMOVE AND REINSTALL ACCESSIBLE STALL DOORS TO SWING INWARD
2. LENGHTEN PARTITION WALLS AS NESSECARY FOR DOOR RELOCATION
3. EXTEND HAND RAIL AT TOP OF RAMP LANDING

01 RESTROOM FLOORPLAN - BY DISTRICT ⚠1
SCALE: 1/4" = 1'



NOTES:
1. METAL SIGNS ARE DIGITAL PRINT ON 3M ADVANCED ENGINEER GRADE VINYL, COATED WITH 3M 1160i GRAFFITI FILM, APPLIED TO 0.080 ALUMINUM SUBSTRATE. LETTERING PER PLAN SPECIFICATIONS, 0.25 INCH MOUNTING HOLES.
2. SEE PLAN FOR QUANTITY & LOCATION INFO.
3. SECURE WITH NON-RUSTING, VANDAL-RESISTANT FASTENERS COMPLETE.
4. SUBMIT SHOP DRAWINGS FOR REVIEW. TEXT SHOWN FOR BID PURPOSES ONLY. FINAL TEXT TO BE PROVIDED BY DISTRICT.

08 NO DOGS SIGN - S1 - BY DISTRICT ⚠1
SCALE: 3" = 1'



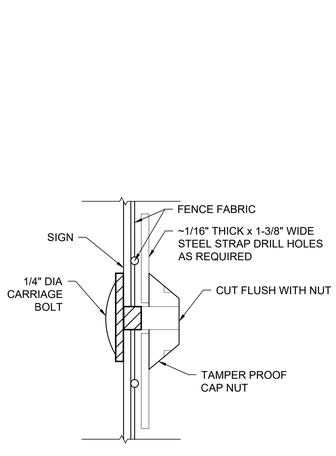
NOTES:
1. APPLY GRAFFITI RESISTANT COATING TO EXPOSED SIDES OF SIGN.
2. REFER TO CBC 11B-703. 60" MAX AFF TO BASELINE OF HIGHEST RAISED CHARACTERS AND 48" MIN AFF TO BASELINE OF LOWEST BRAILLE

05 RESTROOM SIGNAGE - BY DISTRICT ⚠1
SCALE: 3" = 1'

ELEVATION

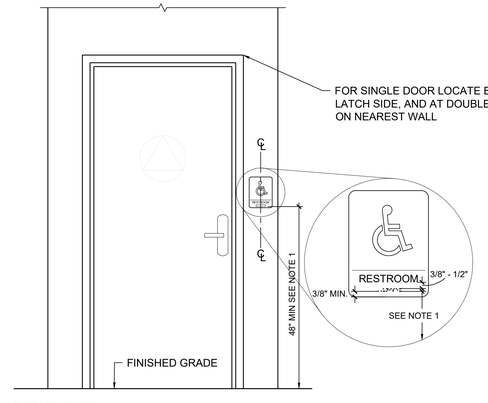
NOTES:
1. REMOVE AND INSTALL RESTROOM SIGNAGE PER DSA BU 17-1
2. SEE DETAIL 01/L06.04 FOR ADDITIONAL IMPROVEMENTS
3. ALL SIGNS BLUE

02 RESTROOM ELEVATION - BY DISTRICT ⚠1
SCALE: 1/4" = 1'



SECTION

06 SIGN MOUNTING ON FENCE - BY DISTRICT ⚠1
SCALE: 1' = 1'



ELEVATION

NOTES:
1. REFER TO CBC 11B-703. 60" MAX AFF TO BASELINE OF HIGHEST RAISED CHARACTERS AND 48" MIN AFF TO BASELINE OF LOWEST BRAILLE
2. SIGN MOUNTED TO SURFACE WITH 1/16" THICK DOUBLE FACE TAPE
3. RESTROOM IDENTIFICATION SIGN ON WALL SHALL INCLUDE RAISED LETTERS AND CALIFORNIA GRADE 2 BRAILLE
4. INCLUDE ISA IF RESTROOM IS WHEELCHAIR ACCESSIBLE
5. ALL SIGNS BLUE

03 BRAILLE RESTROOM SIGNAGE - BY DISTRICT ⚠1
SCALE: 3/4" = 1'

ONLY THE ORIGINAL, SIGNED HARD COPY OF THIS DRAWING CONSTITUTES CARDUCCI & ASSOCIATES, INC. PROFESSIONAL WORK PRODUCT. ELECTRONIC COPIES DO NOT. CARDUCCI & ASSOCIATES, INC. WILL NOT BE RESPONSIBLE FOR ANY MODIFICATIONS MADE TO THIS DRAWING ELECTRONIC OR OTHERWISE THAT IS NOT CARRIED OUT UNDER CARDUCCI & ASSOCIATES, INC.

IT IS THE CONTRACTOR'S DUTY AND RESPONSIBILITY TO NOTIFY THE OWNER AND LANDSCAPE ARCHITECT BY THE TIME OF BID OF ALL SUCH ERRORS, DISCREPANCIES AND OMISSIONS. THE CONTRACTOR SHALL ASSUMERY AND HOLD THE LANDSCAPE ARCHITECT AND THE OWNER HARMLESS IF ANY DISCREPANCIES OR OMISSIONS AT THE TIME OF BID.

COPYRIGHT OF WORK AS INDICATED, THE CONTRACTOR'S FINAL NOTIFY THE OWNER AND LANDSCAPE ARCHITECT BY THE TIME OF BID OF ALL

Peter Stanley 3/19/2025 5:25 PM

ARCHITECT/ ENGINEER
ZFA STRUCTURAL ENGINEERS
1212 fourth street | suite z — zfa.com
santa rosa ca 95404 — 707.526.0992
zfa job no. 20400 — copyright © 2025

STAMP

DESIGN TEAM

CARDUCCI ASSOCIATES
555 BEACH STREET FOURTH FLOOR
SAN FRANCISCO, CA 94133
www.carducciassociates.com

© 2025 CARDUCCI ASSOCIATES, INC.

STAMP

OWNER
TAMALPAIS UNION HIGH SCHOOL DISTRICT

PROJECT
REDWOOD HIGH SCHOOL GHILOTTI FIELD SITE IMPROVEMENTS
395 DOHERTY DRIVE
LARKSPUR, CA 94939

CONTEXT MAP

#	DESCRIPTION	DATE
1	ADDENDUM 003	03.18.2025

ADDENDUM 3

FILE NUMBER 21-H2
DSA APP NUMBER
01-121720

DATE: 03.19.2024
SCALE: N/A
PROJECT NO: TAM23-01

SHEET TITLE
DETAILS - EXISTING RESTROOM AND SIGNAGE - BY DISTRICT ⚠1

SHEET NUMBER
L06.04

TAMALPAIS UNION H.S. DISTRICT
REDWOOD HIGH SCHOOL
LARKSPUR, CALIFORNIA

SHEET TITLE	PAGE #
COVER PAGE	B1 OF B5
SECTION VIEW	B2 OF B5
PLAN VIEWS	B3 OF B5
ANGLE FAB/GUARDRAIL DETAILS	B4 OF B5
ALUMINUM PLANK DETAILS	B5 OF B5

REGISTERED PROFESSIONAL ENGINEER
BRIAN T. DEAN
S 6087
STRUCTURAL
STATE OF CALIFORNIA
S&S
05/28/24
PRINCIPAL

OWNER/REPRESENTATIVE/ARCHITECTURAL REVIEW

PLEASE REVIEW THE DRAWINGS FOR COMPLIANCE WITH YOUR ORDER. PLEASE INDICATE ANY CHANGES OR COMMENTS ON THE DRAWINGS.

☐ APPROVED — SIGNATURE

☐ APPROVED AS NOTED — TITLE

☐ REVISE AND RE-SUBMIT — DATE

AWS CWF CERTIFIED WELDING FABRICATOR®

AISC CERTIFIED FABRICATOR

Southern® BLEACHER COMPANY
GRANDSTANDS ▪ BLEACHERS ▪ STADIUMS

PO Box One, Graham, Texas 76450
801 Fifth Street.
Phone: 940/549-0733 Fax: 940/549-1365

Established 1946

GENERAL INFORMATION

	RISE	TREAD	ROWS	LENGTH	SEAT COUNT
HOME	8"	24"	5	39'-0"	102

DATE: 5/28/24
JOB # 24172
TAMALPAIS UNION H.S. DISTRICT
REDWOOD HIGH SCHOOL
LARKSPUR, CALIFORNIA

SHEET B1 OF B5

REF:

NOTE
PER DSA IR A-22 SECTION 2.1.2.1: THIS PROJECT ELEMENT IS NOT A PART OF THE DSA STRUCTURAL APPROVAL SYSTEM BUT IS A PART OF THE DSA ACCESSIBILITY AND FIRE LIFE SAFETY APPROVAL SYSTEM.

ONLY THE ORIGINAL, SIGNED HARD COPY OF THIS DRAWING CONSTITUTES ZFA|CCO & ASSOCIATES, INC. PROFESSIONAL WORK PRODUCT. ELECTRONIC COPIES DO NOT. ZFA|CCO & ASSOCIATES, INC. SHALL NOT BE RESPONSIBLE FOR ANY MODIFICATIONS MADE TO THIS DRAWING ELECTRONIC OR OTHERWISE. IN NO WAY SHALL ZFA|CCO & ASSOCIATES, INC.

IF THE CONTRACTOR KNOWINGLY PERFORMS WORK ON DISCREPANCIES ON THE DRAWINGS, OR SITE CONDITIONS WHICH PREVENT OR DELAY THE COMPLETION OF WORK AS INDICATED, THE CONTRACTOR SHALL INDEMNIFY THE OWNER AND LANDSCAPE ARCHITECT BY THE TIME OF BID OF ALL SUCH ERRORS, DISCREPANCIES AND OMISSIONS. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE LANDSCAPE ARCHITECT AND THE OWNER HARMLESS IF AFTER CONTRACT AWARD THE CONTRACTOR DISCOVERS ERRORS, DISCREPANCIES OR OMISSIONS AT THE TIME OF BID

ARCHITECT/ ENGINEER
ZFA STRUCTURAL ENGINEERS
1212 fourth street | suite z
santa rosa ca 95404
zfa job no. 20400
zfa.com
707.526.0992
copyright © 2025

STAMP

DESIGN TEAM
CARDUCCI ASSOCIATES
555 BEACH STREET FOURTH FLOOR
SAN FRANCISCO, CA 94133
www.carducciassociates.com
© 2025 CARDUCCI ASSOCIATES, INC.

STAMP

LANDSCAPE ARCHITECT — 2537 — 12.31.2026 — 03.19.2025 — STATE OF CALIFORNIA

OWNER
TAMALPAIS UNION HIGH SCHOOL DISTRICT

PROJECT
REDWOOD HIGH SCHOOL GHILOTTI FIELD SITE IMPROVEMENTS
395 DOHERTY DRIVE
LARKSPUR, CA 94939

CONTEXT MAP

#	DESCRIPTION	DATE

ADDENDUM 3

FILE NUMBER 21-H2
DSA APP NUMBER
01-121720

DATE: 03.19.2024
SCALE: N/A
PROJECT NO: TAM23-01

SHEET TITLE
DETAILS - PROPOSED BLEACHERS - BY DISTRICT

SHEET NUMBER
L06.09

Peter Stanley 3/19/2025 5:15 PM

ITEM DESCRIPTION

1. L 1 1/2 X 1 1/2 X 3/16 GALV. A36/A572 GRADE 50
2. L 2 X 1 1/2 X 3/16 GALV. A36/A572 GRADE 50
3. L 2 X 2 X 3/16 GALV. A36/A572 GRADE 50
4. L 2 1/2 X 2 X 3/16 GALV. A36/A572 GRADE 50
5. L 3 X 3 X 1/4 GALV. A36/A572 GRADE 50
6. ANODIZED ALUMINUM RAIL (SEE NOTE) (17 B5)
7. 9 GAUGE CHAIN LINK FENCE (2" SQUARE MESH)
8. L 2 X 1 1/2 X 3/16 ALUMINUM (6061-T6 ALLOY)
9. L 2 X 2 X 3/16 ALUMINUM (6061-T6 ALLOY)
10. 1 5/8 SCH. 40 ANODIZED ALUMINUM PIPE (6061-T6 ALLOY) (6 B5)
11. 3/8Ø STAINLESS STEEL CONCRETE WEDGE ANCHOR (18 B5)

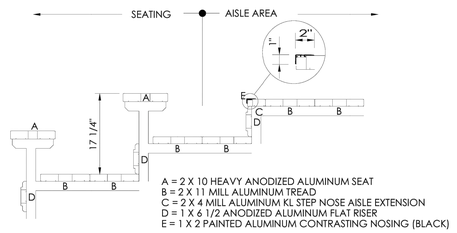
DESIGN LOADING

TREAD & SEAT AREA (GROSS AREA) 100psf.
SEAT (PERPENDICULAR SWAY) 10 lbs/lf.
SEAT (PARALLEL SWAY) 24lbs/lf.
HANDRAILS (PERPENDICULAR) 50 lbs/lf.
HANDRAILS (VERTICAL) 100 lbs/lf.
SEAT & TREAD 120 lbs/lf.

NOTES

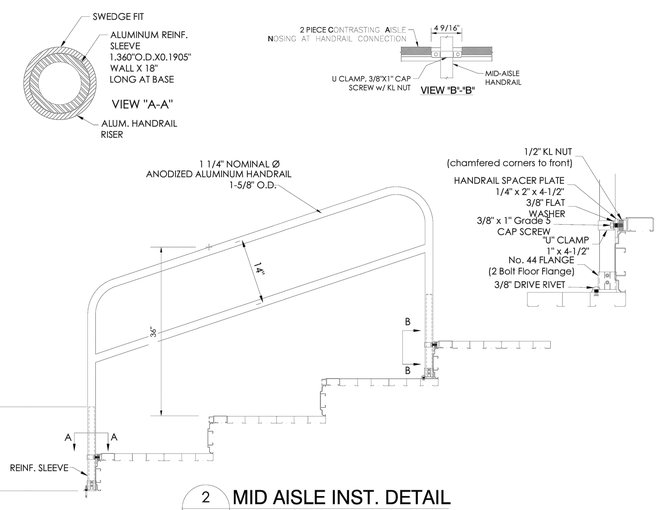
1. STRUCTURAL SHAPES MEET ONE OF THE FOLLOWING ASTM SPECIFICATIONS: A572 GRADE 50, A529-50, OR A500 GRADE B.
2. WELDS ARE ALL AROUND WITH TYPE ER70S-6 WIRE MIG.
3. ALL STEEL TO BE HOT DIPPED GALVANIZED TO A.S.T.M. A-123-89 ae1.
4. STRUCTURAL BOLTS ARE HOT DIPPED GALV. AND ARE EQUAL TO OR GREATER THAN A-307.
5. ANODIZED ALUMINUM RAIL IS 1 1/4" NOMINAL PIPE SIZE. (17 B5)
6. ANODIZED ALUMINUM SCH. 40 PIPE IS 1 1/4" NOMINAL PIPE SIZE. (6 B5)

NOTE: 5 ROW NON-ELEVATED BLEACHERS ARE EXEMPT FROM DSA STRUCTURAL REVIEW PER DSA IR A-22 SECTION 1.2.1 AND APPENDIX-CONSTRUCTION PROJECTS AND ITEMS ELIGIBLE FOR EXEMPTION

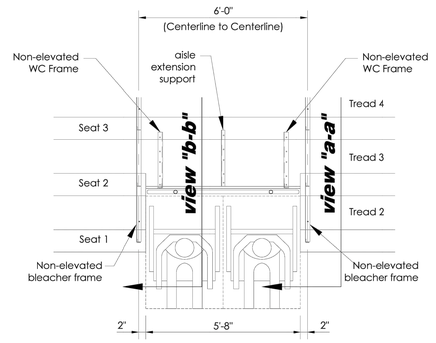


A = 2 X 10 HEAVY ANODIZED ALUMINUM SEAT
B = 2 X 11 MILL ALUMINUM TREAD
C = 2 X 4 MILL ALUMINUM KL STEP NOSE AISLE EXTENSION
D = 1 X 6 1/2 ANODIZED ALUMINUM FLAT RISER
E = 1 X 2 PAINTED ALUMINUM CONTRASTING NOSING (BLACK)

1 B2 PLANK ARRANGEMENT
NOT TO SCALE 8" X 24"

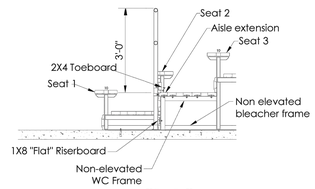


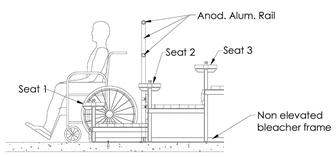
2 B2 MID AISLE INST. DETAIL
N.T.S.

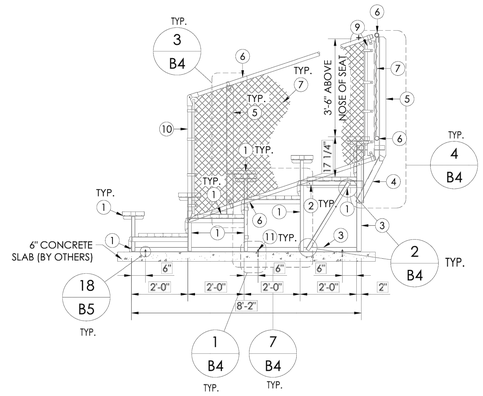


NOTE: DOUBLE WHEELCHAIR AREA SHOWN, SINGLE WHEELCHAIR AREA SIMILAR.

3 B2 DOUBLE NON-ELEVATED WHEELCHAIR AREA DETAIL
SCALE:NONE







4 B2 SIDE VIEW: 5 ROW NON-ELEVATED
SCALE:1/2"=1'-0"

STRUCTURAL ENGINEERS
CORONA Ph. (909) 279-7787
COVINA Ph. (626) 967-7667
555 S. Cedar Ave. Pasadena, CA 91101

TAYLOR&SYFAN
Southern BLEACHER COMPANY
GRANDSTANDS •BLEACHERS •STADIUMS
PO Box One, Graham, Texas 76450
801 Fifth Street.
Phone: 940/549-0733 Fax: 940/549-1365
Established 1946

REGISTERED PROFESSIONAL ENGINEER BRIAN T. DEAN S 6087 STRUCTURAL STATE OF CALIFORNIA
S&S 05/28/24
PRINCIPAL

DETAIL NUMBER / SHEET NUMBER

THE DRAWING AND ALL INFORMATION THEREIN IS THE PROPERTY OF TAYLOR & SYFAN, INC. AND SHALL NOT BE USED, LOANED OR REPRODUCED IN ANY MANNER WHATSOEVER WITHOUT THE WRITTEN CONSENT OF TAYLOR & SYFAN, INC. THIS DRAWING IS LOANED SUBJECT TO RETURN UPON DEMAND AND IS TO BE USED ONLY FOR THE PROJECT SPECIFIED HEREON AND NOT FOR ANY OTHER WORK DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO OUR INTERESTS.

#	DESCRIPTION	DATE
	SECTION VIEW 8" RISE X 24" TREAD / 39"-0" (5 ROWS)	

TAMALPAIS UNION H.S. DISTRICT
REDWOOD HIGH SCHOOL
LARKSPUR, CALIFORNIA

REV BY	DATE	DRAWN	CHECKED
	5/28/24	MG	DMC

JOB NUMBER #24172

SHEET B2 OF B5

22" X 34" (1:1x17 = 1/2 indicated scale)

NOTE
PER DSA IR A-22 SECTION 2.1.2.1: THIS PROJECT ELEMENT IS NOT A PART OF THE DSA STRUCTURAL APPROVAL SYSTEM BUT IS A PART OF THE DSA ACCESSIBILITY AND FIRE LIFE SAFETY APPROVAL SYSTEM.

ONLY THE ORIGINAL, SIGNED HARD COPY OF THIS DRAWING CONSTITUTES CARDUCCI & ASSOCIATES, INC. PROFESSIONAL WORK PRODUCT. ELECTRONIC COPIES DO NOT. CARDUCCI & ASSOCIATES, INC. WILL NOT BE RESPONSIBLE FOR ANY MODIFICATIONS MADE TO THIS DRAWING ELECTRONIC OR OTHERWISE. DO NOT SCALE DRAWINGS. ALL NOTES ARE MANDATORY.

IF THE CONTRACTOR ENCOUNTERS ERRORS OR DISCREPANCIES ON THE DRAWINGS, OR SITE CONDITIONS WHICH MODIFY OR RELATE TO SUCH ERRORS, DISCREPANCIES AND OMISSIONS, THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE LANDSCAPE ARCHITECT AND THE OWNER HARMLESS IF AFTER CONTRACTING FOR THE WORK HE HAS MORE PAY, DAMAGE BECAUSE OF SITE CONDITIONS, ERRORS, OMISSIONS OR DIMENSIONS AT THE SAME TIME.

ARCHITECT/ ENGINEER
ZFA STRUCTURAL ENGINEERS
1212 fourth street | suite z zfa.com
santa rosa ca 95404 707.526.0992
zfa job no. 20400

copyright © 2025

STAMP

DESIGN TEAM

CARDUCCI ASSOCIATES
555 BEACH STREET FOURTH FLOOR
SAN FRANCISCO, CA 94133
www.carducciassociates.com

© 2025 CARDUCCI ASSOCIATES, INC.

STAMP

OWNER
TAMALPAIS UNION HIGH SCHOOL DISTRICT

PROJECT
REDWOOD HIGH SCHOOL GHILOTTI FIELD SITE IMPROVEMENTS
395 DOHERTY DRIVE
LARKSPUR, CA 94939

CONTEXT MAP

#	DESCRIPTION	DATE
1	ADDENDUM 3	

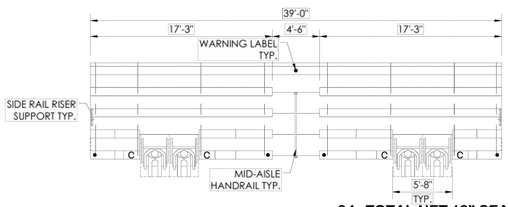
FILE NUMBER 21-H2
DSA APP NUMBER
01-121720

DATE: 03.19.2024
SCALE: N/A
PROJECT NO: TAM23-01

SHEET TITLE
DETAILS - PROPOSED BLEACHERS - BY DISTRICT

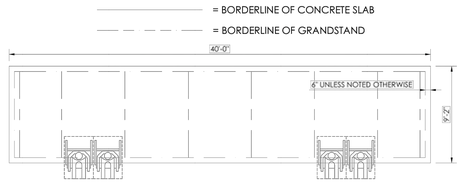
SHEET NUMBER
L06.10

Peter Stanley 3/19/2025 5:16 PM

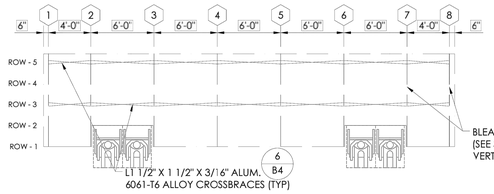


1 / B3 SEATING LAYOUT
SCALE:3/16"=1'-0"

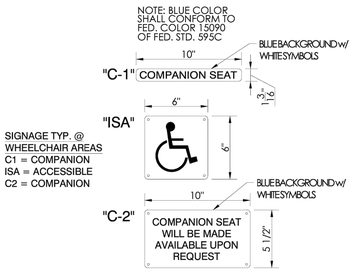
94 TOTAL NET 18" SEATS
4 TOTAL 18" COMPANION SEATS
4 TOTAL NET 33" WHEELCHAIR SPACES
102 TOTAL SEATING CAPACITY



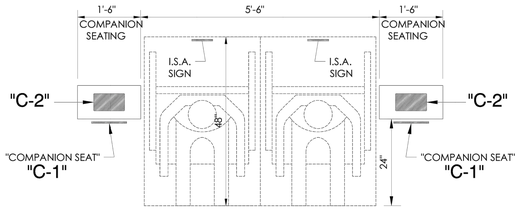
2 / B3 CONCRETE LAYOUT
SCALE:3/16"=1'-0"



3 / B3 CROSSBRACING LAYOUT
SCALE: 3/16"=1'-0"



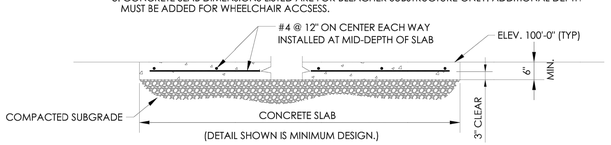
4 / B3 SIGNAGE & SEAT TYPE LEGEND
NOT TO SCALE



ICC/ANSI A117.1 CHAPTER 8
FRONT OR REAR ACCESS 48" MIN.
SIDE ACCESS 60" MIN.

5 / B3 WHEELCAIR AREA SIGNAGE DETAIL
NOT TO SCALE

NOTE: 1. CONCRETE SLAB DESIGN/DETAIL LISTED IS THE MINIMUM REQUIREMENTS FOR ANGLE FRAME BLEACHER INSTALLATION. ALL CONCRETE WORK IS BY OTHERS & NOT BY BLEACHER MANUFACTURER.
2. CONCRETE SLAB ON GRADE TO BE LEVEL. BLEACHERS ARE DESIGNED FOR INSTALLATION ON UNIFORM, LEVEL SURFACE.
3. CONCRETE SLAB DIMENSIONS LISTED ARE FOR BLEACHER SUBSTRUCTURE ONLY. ADDITIONAL DEPTH MUST BE ADDED FOR WHEELCHAIR ACCSESS.



6 / B3 CONCRETE SLAB DETAIL
SCALE:NONE

NOTE: 5 ROW NON-ELEVATED BLEACHERS ARE EXEMPT FROM DSA STRUCTURAL REVIEW PER DSA IR A-22 SECTION 1.2.1 AND APPENDIX-CONSTRUCTION PROJECTS AND ITEMS ELIGIBLE FOR EXEMPTION

NOTE
PER DSA IR A-22 SECTION 2.1.2.1: THIS PROJECT ELEMENT IS NOT A PART OF THE DSA STRUCTURAL APPROVAL SYSTEM BUT IS A PART OF THE DSA ACCESSIBILITY AND FIRE LIFE SAFETY APPROVAL SYSTEM.

DETAIL NUMBER / SHEET NUMBER

THE DRAWING AND ALL INFORMATION THEREIN IS THE PROPERTY OF TAYLOR & SYFAN BLEACHER COMPANY AND MUST BE RETURNED UPON REQUEST. IT SHALL NOT BE COPIED, USED OR LOANED SUBJECT TO RESTRICTIONS AGREED TO AND SHALL NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO OUR INTERESTS.

STRUCTURAL ENGINEERS
CORDIA Inc. (626) 792-7787
CORDIA Fax (626) 792-7487
CORDIA 553 S. Oak Knoll Ave., Pasadena, CA 91101

TAYLOR & SYFAN
Southern BLEACHER COMPANY
GRANDSTANDS • BLEACHERS • STADIUMS
PO Box One, Graham, Texas 76450
801 Fifth Street,
Phone: 940/549-1733 Fax: 940/549-1365
Established 1946

REGISTERED PROFESSIONAL ENGINEER
BRIAN T. DEAN
S 6087
STRUCTURAL
STATE OF CALIFORNIA
S&S 05/28/24
PRINCIPAL

PLAN VIEWS
8" RISE X 24" TREAD / 39'-0" (5 ROWS)

TAMALPAIS UNION H.S. DISTRICT
REDWOOD HIGH SCHOOL
LARKSPUR, CALIFORNIA

REV BY	DATE	DESCRIPTION

DATE	DRAWN	CHECKED
5/28/24	MG	DMC

JOB NUMBER #24172

SHEET B3 OF B5

22" X 34" (1:1x17 = 1/2 indicated scale)

ONLY THE ORIGINAL, SIGNED HARD COPY OF THIS DRAWING CONSTITUTES CARDUCCI & ASSOCIATES, INC. PROFESSIONAL WORK PRODUCT. ELECTRONIC COPIES DO NOT. CARDUCCI & ASSOCIATES, INC. WILL NOT BE RESPONSIBLE FOR ANY MODIFICATIONS MADE TO THIS DRAWING ELECTRONIC OR OTHERWISE. DO NOT REMOVE © CARDUCCI & ASSOCIATES, INC.

IF THE CONTRACTOR KNOWINGLY ERRORS OR OMISSIONS ON THE DRAWINGS OR IN THE CONDITION WHICH PREVENT OR DELAY THE COMPLETION OF WORK AS INDICATED, THE CONTRACTOR SHALL NOTIFY THE OWNER AND LANDSCAPE ARCHITECT BEFORE PROCEEDING WITH SUCH ERRORS, DISCREPANCIES AND OMISSIONS. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE LANDSCAPE ARCHITECT AND THE OWNER HARMLESS IF AFTER CONTRACTING FOR THE WORK HE HAS MORE PAY DAMAGE BECAUSE OF SITE CONDITIONS, ERRORS, DISCREPANCIES OR OMISSIONS AT THE TIME OF BID.

ARCHITECT/ ENGINEER
ZFA STRUCTURAL ENGINEERS
1212 fourth street | suite z zfa.com
santa rosa ca 95404 707.526.0992
zfa job no. 20400
copyright © 2025

STAMP

DESIGN TEAM

CARDUCCI ASSOCIATES
555 BEACH STREET FOURTH FLOOR
SAN FRANCISCO, CA 94133
www.carducciassociates.com
© 2025 CARDUCCI ASSOCIATES, INC.

STAMP

OWNER
TAMALPAIS UNION HIGH SCHOOL DISTRICT

PROJECT
REDWOOD HIGH SCHOOL GHILOTTI FIELD SITE IMPROVEMENTS
395 DOHERTY DRIVE
LARKSPUR, CA 94939

CONTEXT MAP

#	DESCRIPTION	DATE

ADDENDUM 3

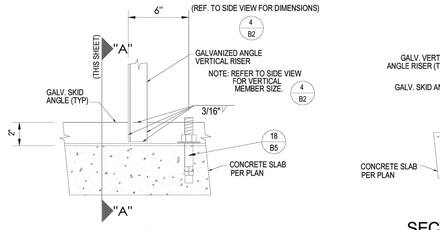
FILE NUMBER 21-H2
DSA APP NUMBER
01-121720

DATE: 03.19.2024
SCALE: N/A
PROJECT NO: TAM23-01

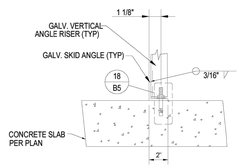
SHEET TITLE
DETAILS - PROPOSED BLEACHERS - BY DISTRICT

SHEET NUMBER
L06.11

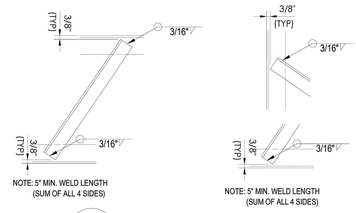
Peter Stanley 3/19/2025 5:16 PM



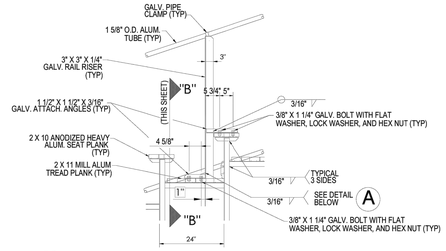
1 VERTICAL ANGLE ATTACH. TO SKID ANGLE
B4 NO SCALE



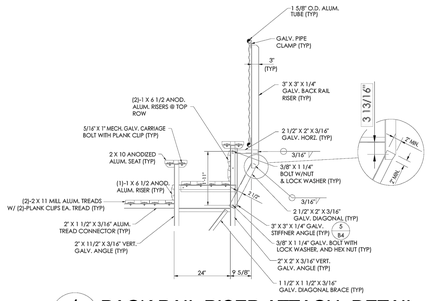
SECTION "A"-"A"
NO SCALE



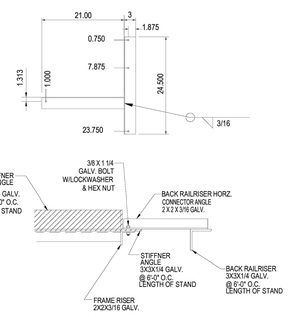
2 ATTACHMENT DETAIL
B4 NO SCALE



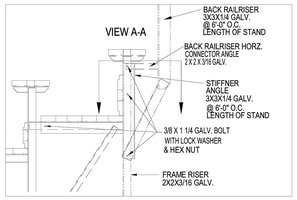
3 SIDE RAILRISER ATTACHMENT
B4 NO SCALE



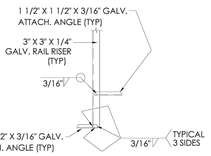
4 BACK RAIL RISER ATTACH. DETAIL
B4 NO SCALE



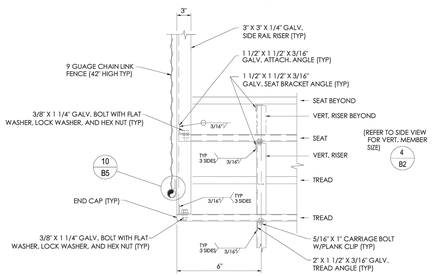
VIEW A-A



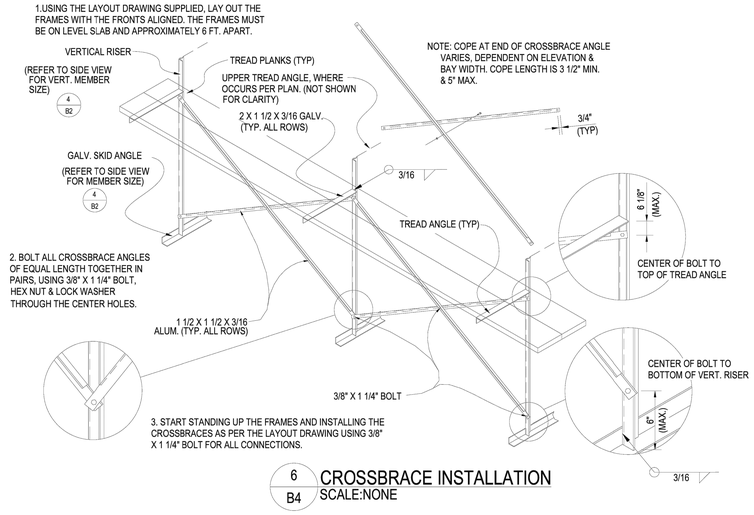
5 STIFFNER ANGLE DETAIL
B4 SCALE: NONE



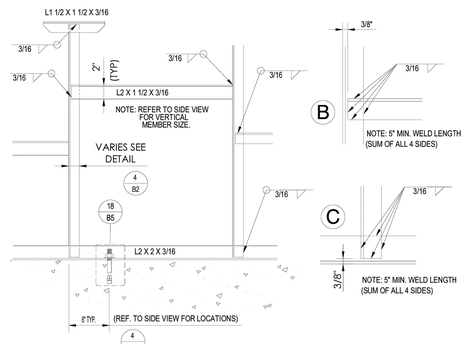
A WELD DETAIL
NO SCALE



SECTION "B"-"B"
NO SCALE



6 CROSSBRACE INSTALLATION
B4 SCALE:NONE



7 ANGLE FAB DETAIL
B4 SCALE: NONE

NOTE
PER DSA IR A-22 SECTION 2.1.2.1: THIS PROJECT ELEMENT IS NOT A PART OF THE DSA STRUCTURAL APPROVAL SYSTEM BUT IS A PART OF THE DSA ACCESSIBILITY AND FIRE LIFE SAFETY APPROVAL SYSTEM.

1 DETAIL NUMBER
1 SHEET NUMBER

THE DRAWING AND ALL INFORMATION THEREIN IS THE PROPERTY OF TAYLOR & SYFAN / SOUTHERN BLEACHER COMPANY. THESE DRAWINGS ARE NOT TO BE COPIED. THIS DRAWING IS LOANED SUBJECT TO RETURN UPON DEMAND AND SUBJECT TO THE AGREEMENT THAT IT SHALL NOT BE COPIED, USED OR DISCLOSED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO OUR INTERESTS.

STRUCTURAL ENGINEERS
CORDEN, PENA, GOETZ
555 S. Oak Knoll Ave., Pasadena, CA 91101
Tel: (626) 792-7787
Fax: (626) 792-7487

TAYLOR & SYFAN
Southern BLEACHER COMPANY
GRANDSTANDS • BLEACHERS • STADIUMS
Established 1946

PO Box One, Graham, Texas 76450
801 Fifth Street,
Phone: 940/549-0733 Fax: 940/549-1365

REGISTERED PROFESSIONAL ENGINEER
BRIAN T. DEMPSEY
S 6087
STRUCTURAL
STATE OF CALIFORNIA
S&S
05/28/24
PRINCIPAL

NO.	DESCRIPTION	DATE
1	ANGLE FAB/GUARDRAIL DETAILS	5/28/24
2	8" RISE X 24" TREAD / 39"-0" (5 ROWS)	MG
		DMC

JOB NUMBER #24172
SHEET B4 OF B5
22" X 34" (11x17 = 1/2 indicated scale)

TAMALPAIS UNION H.S. DISTRICT
REDWOOD HIGH SCHOOL
LARKSPUR, CALIFORNIA

ONLY THE ORIGINAL, SIGNED HARD COPY OF THIS DRAWING CONSTITUTES CARDUCCI & ASSOCIATES, INC. PROFESSIONAL WORK PRODUCT. ELECTRONIC COPIES DO NOT. CARDUCCI & ASSOCIATES, INC. WILL NOT BE RESPONSIBLE FOR ANY MODIFICATIONS MADE TO THIS DRAWING ELECTRONIC OR OTHERWISE THAT HAVE NOT BEEN APPROVED BY CARDUCCI & ASSOCIATES, INC.

IF THE CONTRACTOR ENCOUNTERS ERRORS OR DISCREPANCIES ON THE DRAWINGS, OR SITE CONDITIONS WHICH PREVENT OR DELAY THE COMPLETION OF WORK AS INDICATED, THE CONTRACTOR SHALL NOTIFY THE OWNER AND LANDSCAPE ARCHITECT BY THE TIME OF BID OF ALL SUCH ERRORS, DISCREPANCIES AND OMISSIONS. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE LANDSCAPE ARCHITECT AND THE OWNER HARMLESS IF AFTER CONSTRUCTION AT THE TIME OF BID OR OTHERWISE OR DIRECTION AT THE TIME OF BID.

Peter Stanley 3/19/2025 5:16 PM

ARCHITECT/ ENGINEER
ZFA STRUCTURAL ENGINEERS
1212 fourth street | suite z zfa.com
santa rosa ca 95404 707.526.0992
zfa job no. 20400
copyright © 2025

STAMP

DESIGN TEAM

CARDUCCI ASSOCIATES
555 BEACH STREET FOURTH FLOOR
SAN FRANCISCO, CA 94133
www.carducciassociates.com
© 2025 CARDUCCI ASSOCIATES, INC.

STAMP

REGISTERED PROFESSIONAL ENGINEER
BRIAN T. DEMPSEY
No. 6087
STRUCTURAL
STATE OF CALIFORNIA
12.31.2026
03.19.2025

OWNER
TAMALPAIS UNION HIGH SCHOOL DISTRICT

PROJECT
REDWOOD HIGH SCHOOL GHILOTTI FIELD SITE IMPROVEMENTS
395 DOHERTY DRIVE
LARKSPUR, CA 94939

CONTEXT MAP

#	DESCRIPTION	DATE

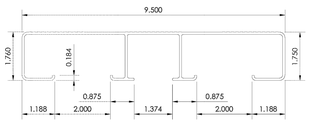
ADDENDUM 3

FILE NUMBER 21-H2
DSA APP NUMBER
01-121720

DATE: 03.19.2024
SCALE: N/A
PROJECT NO: TAM23-01

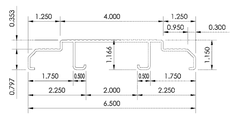
SHEET TITLE
DETAILS - PROPOSED BLEACHERS - BY DISTRICT
1

SHEET NUMBER
L06.12



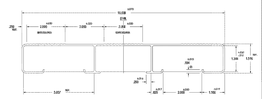
2X10 HEAVY ALUMINUM PLANK
.075 WALL , 1.769#/FT.
1. Ix = .843 IN. 4=4
2. MATERIAL - 6063 T-6
3. MIN. MAT. PROP. - 25000 PSI
4. E = 10,000,000 PSI
5. C = 1.10 IN.

1 B5 — 2 X 10 HEAVY ALUMINUM PLANK DETAIL
NOT TO SCALE



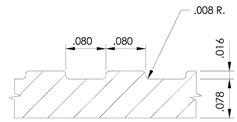
1X6 1/2 ALUMINUM FLAT RISER PLANK
.075 WALL , 1.081#/FT.
1. Ix = .131 IN. 4=4
2. MATERIAL - 6063 T-6
3. MIN. MAT. PROP. - 25000 PSI
4. E = 10,000,000 PSI
5. C = .740 IN.

2 B5 — 1 X 6.5 ALUMINUM RISER PLANK DETAIL
NOT TO SCALE



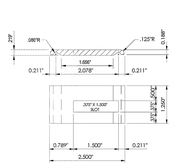
2X12 ALUMINUM PLANK
.078 WALL , 2.029#/FT.
1. Ix = .591 IN. 4=4
2. MATERIAL - 6063 T-6
3. MIN. MAT. PROP. - 25000 PSI
4. E = 10,000,000 PSI
5. C = 1.01 IN.

3 B5 — 2 X 11 ALUMINUM PLANK DETAIL
NOT TO SCALE

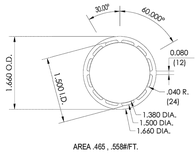


NOTE: TYPICAL FOR ALL PLANKS.

4 B5 — FLUTED SURFACE DETAIL
NOT TO SCALE

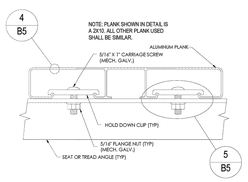


5 B5 — HOLD DOWN CLIP DETAIL
NOT TO SCALE

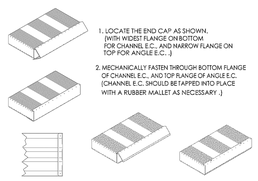


AREA .465 , .558#/FT.
MATERIAL - 6063 T-6

6 B5 — 1 5/8" O.D. ALUMINUM RAIL DETAIL
NOT TO SCALE



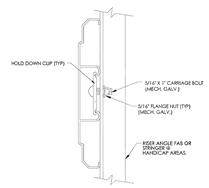
7 B5 — PLANK INSTALLATION DETAIL
NOT TO SCALE



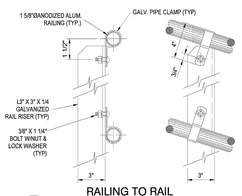
1. LOCATE THE END CAP AS SHOWN. (WITH WIDEST FLANGE ON BOTTOM FOR CHANNEL E.C., AND NARROW FLANGE ON TOP FOR ANGLE E.C. .)

2. MECHANICALLY FASTEN THROUGH BOTTOM FLANGE OF CHANNEL E.C., AND TOP FLANGE OF ANGLE E.C. (CHANNEL E.C. SHOULD BE TAPPED INTO PLACE WITH A RUBBER MALLET AS NECESSARY .)

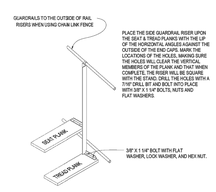
8 B5 — ENDCAP INSTALLATION DETAIL
NOT TO SCALE



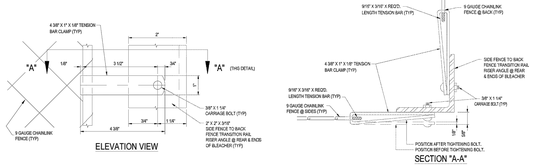
9 B5 — RISER PLANK INSTALLATION DETAIL
NOT TO SCALE



RAILING TO RAIL
10 B5 — RISER ATTACHMENT DETAIL
NOT TO SCALE



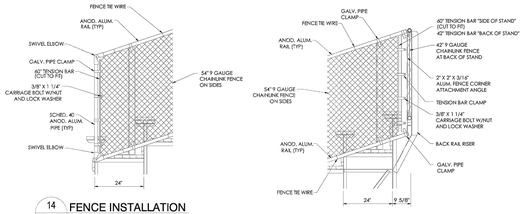
11 B5 — SIDE GUARDRAIL RISER INSTALLATION
NOT TO SCALE



12 B5 — TENSION BAR CLAMP INSTALLATION DETAIL
SCALE: NONE

2X4 KL ALUMINUM STEPNOSE PLANK
.078 WALL , 0.828#/FT.
1. Ix = 0.7219 in 4
2. MATERIAL - 6063 T-6
3. MIN. MAT. PROP. - 25000 PSI
4. E = 10,000,000 PSI
5. C = 0.6943 in

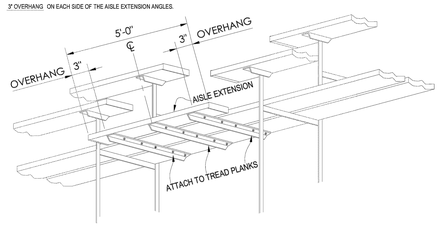
13 B5 — 2X4 KL ALUMINUM STEPNOSE PLANK DETAIL
NOT TO SCALE



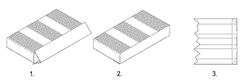
14 B5 — FENCE INSTALLATION
NOT TO SCALE

1. ATTACH 1 1/2" X 1 1/2" X 3/16" AISLE EXTENSION ANGLE BRACES TO THE TREAD PLANKS WITH 5/16" X 1" CARRIAGE BOLTS AND HOLD-DOWN CLIPS.

2. CENTER AISLE EXTENSION PLANK ON THE ANGLES AND ATTACH WITH 5/16" BOLTS AND CLIPS AS ABOVE. THERE SHOULD BE ABOUT A 3" OVERHANG ON EACH SIDE OF THE AISLE EXTENSION ANGLES.



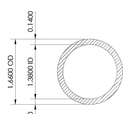
15 B5 — AISLE EXTENSION INSTALLATION
NOT TO SCALE



1. LOCATE THE END CAP AS SHOWN. (WITH NARROW ANGLE ON BOTTOM)

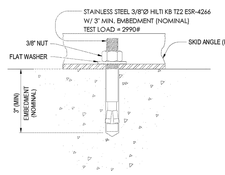
2. MECHANICALLY FASTEN THROUGH BOTTOM OF END CAP WITH 5/32 POP RIVETS.

16 B5 — ANGLE END CAP INSTALLATION @ SIDE RAIL RISER
NOT TO SCALE



1. MATERIAL - 6063 T-6

17 B5 — SCHED. 40 ALUMINUM PIPE DETAIL
NOT TO SCALE



18 B5 — WEDGE ANCHOR DETAIL
NO SCALE

NOTE
PER DSA IR A-22 SECTION 2.1.2.1: THIS PROJECT ELEMENT IS NOT A PART OF THE DSA STRUCTURAL APPROVAL SYSTEM BUT IS A PART OF THE DSA ACCESSIBILITY AND FIRE LIFE SAFETY APPROVAL SYSTEM.

DETAIL NUMBER / SHEET NUMBER

THE DRAWING AND ALL INFORMATION THEREIN IS THE PROPERTY OF TAYLOR & SYFAN AND SOUTHERN BLEACHER COMPANY. THEY ARE NOT TO BE USED, LOANED, COPIED, THIS DRAWING AS LOANED SUBJECT TO RETURN UPON DEMAND AND AGREES NOT TO USE THE INFORMATION DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO OUR INTERESTS.

STRUCTURAL ENGINEERS
OFFICES
CHICAGO
555 S. Cole Road, Boise, Idaho
Ph: (208) 375-7435
Fax: (208) 375-7457
TAYLOR & SYFAN
Southern BLEACHER COMPANY
GRANDSTANDS • BLEACHERS • STADIUMS
PO Box One, Graham, Texas 76450
801 Fifth Street,
Phone: 940-549-0733 Fax: 940-549-1365
Established 1946

REGISTERED PROFESSIONAL ENGINEER
BRIAN T. DEMPSEY
S 6087
STRUCTURAL
STATE OF CALIFORNIA
S&S
05/28/24
PRINCIPAL

REV	DATE	DESCRIPTION
1	5/28/24	ADDENDUM 003

DRAWN: MG
CHECKED: DMC
JOB NUMBER #24172
SHEET B5 OF B5

ALUMINUM PLANK DETAILS
8" RISE X 24" TREAD / 39"-0" (5 ROWS)
TAMALPAIS UNION H.S. DISTRICT
REDWOOD HIGH SCHOOL
LARKSPUR, CALIFORNIA

22" X 34" (1 1x17 = 1/2 indicated scale)

ONLY THE ORIGINAL, SIGNED HARD COPY OF THIS DRAWING CONSTITUTES CARDUCCI & ASSOCIATES, INC. PROFESSIONAL WORK PRODUCT. ELECTRONIC COPIES DO NOT. CARDUCCI & ASSOCIATES, INC. WILL NOT BE RESPONSIBLE FOR ANY MODIFICATIONS MADE TO THIS DRAWING ELECTRONIC OR OTHERWISE. THIS IS NOT SIGNED BY CARDUCCI & ASSOCIATES, INC.

IT THE CONTRACTOR KNOWINGLY ERRORS OR DISCREPANCIES ON THE DRAWINGS, OR SITE CONDITIONS WHICH PREVENT OR DELAY THE CORRECTION OF WORK AS INDICATED, THE CONTRACTOR SHALL NOTIFY THE OWNER AND LANDSCAPE ARCHITECT IN WRITING OF SUCH ERRORS, DISCREPANCIES AND OMISSIONS. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE LANDSCAPE ARCHITECT AND THE OWNER HARMLESS IF AFTER CONTRACTING FOR THE WORK HE HAS MORE THAN DAMAGE BECAUSE OF SITE CONDITIONS, ERRORS, OMISSIONS OR DISCREPANCIES AT THE TIME OF BID.

ARCHITECT/ ENGINEER
ZFA STRUCTURAL ENGINEERS
1212 fourth street | suite z
santa rosa ca 95404
zfa job no. 20400
zfa.com
707.526.0992
copyright © 2025

STAMP

DESIGN TEAM

CARDUCCI ASSOCIATES
555 BEACH STREET FOURTH FLOOR
SAN FRANCISCO, CA 94133
www.carducciassociates.com
© 2025 CARDUCCI ASSOCIATES, INC.

STAMP

REGISTERED PROFESSIONAL ENGINEER
BRIAN T. DEMPSEY
NO. S 6087
STRUCTURAL
STATE OF CALIFORNIA
12.31.2026
03.19.2025

OWNER
TAMALPAIS UNION HIGH SCHOOL DISTRICT

PROJECT
REDWOOD HIGH SCHOOL GHILOTTI FIELD SITE IMPROVEMENTS
395 DOHERTY DRIVE
LARKSPUR, CA 94939

CONTEXT MAP

#	DESCRIPTION	DATE
1	ADDENDUM 003	03.18.2025

ADDENDUM 3

FILE NUMBER 21-H2
DSA APP NUMBER
01-121720

DATE: 03.19.2024
SCALE: N/A
PROJECT NO: TAM23-01

SHEET TITLE
DETAILS - PROPOSED BLEACHERS - BY DISTRICT

SHEET NUMBER
L06.13

Peter Stanley 3/19/2025 5:17 PM

REDWOOD HIGH SCHOOL GHILOTTI FIELD SITE IMPROVEMENTS

395 DOHERTY DRIVE, LARKSPUR, CA 94939

DSA SUBMITTAL
AUGUST 2024

THE CERTIFICATION OF THIS PROJECT IS CONTINGENT ON THE CERTIFICATION OF THE SOLAR PARKING PROJECT 01-121040

PROJECT TEAM

OWNER
TAMALPAIS UNION HIGH SCHOOL DISTRICT
395 DOHERTY DRIVE
LARKSPUR, CA 94939

DISTRICT REPRESENTATIVE:
MIKE WOOLARD
MAIN: (415) 945-1000
FAX: (415) 945-1020
EMAIL: MWOOLARD@TAMDISTRUCT.ORG

CONSTRUCTION MANAGER
GREYSTONE WEST COMPANY
621 WEST SPAIN STREET
SONOMA, CA 95476

CONSTRUCTION MANAGER:
JASON CAVE
MAIN: (707) 933-0624
MOBILE: (650) 477-8512
FAX: (707) 996-8390
EMAIL: JASON@GREYSTONEWEST.COM

CIVIL ENGINEER
BOHLEY CONSULTING
111 NORTH MARKET STREET, SUITE 300
SAN JOSE, CA 95113

CIVIL ENGINEER:
CRAIG OVERBO
MAIN: (408) 265-1600
EMAIL: CRAIG@BOHLEYCONSULTING.COM

LANDSCAPE ARCHITECT
CARDUCCI ASSOCIATES
555 BEACH STREET 4TH FLOOR
SAN FRANCISCO, CA 94133

PRINCIPAL
WILLIAM FEE
SAN FRANCISCO, CA 94133
MAIN: (415) 902-3786
EMAIL: BILL@CARDUCCIASSOCIATES.COM

DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE
ZFA ENGINEERS
1212 FOURTH STREET, SUITE Z
SANTA ROSA, CA 95404

STRUCTURAL ENGINEER:
CHRIS WARNER
MAIN: (707) 526-0992
MOBILE: (707) 478-3741
EMAIL: ChrisW@ZFA.com

Peter Stanley 9/9/2024 4:11 PM

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-121720 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/7/2024

ARCHITECT/ ENGINEER
ZFA STRUCTURAL ENGINEERS
1212 fourth street | suite z zfa.com
santa rosa ca 95404 707.526.0992
zfa job no. 20400 copyright © 2024

STAMP

DESIGN TEAM
CARDUCCI ASSOCIATES
555 BEACH STREET FOURTH FLOOR
SAN FRANCISCO, CA 94133
www.carducciassociates.com
© 2024 CARDUCCI ASSOCIATES, INC.

STAMP

OWNER
TAMALPAIS UNION HIGH SCHOOL DISTRICT

PROJECT
REDWOOD HIGH SCHOOL GHILOTTI FIELD SITE IMPROVEMENTS
395 DOHERTY DRIVE
LARKSPUR, CA 94939

CONTEXT MAP

#	DESCRIPTION	DATE

DSA SUBMITTAL

FILE NUMBER 21-H2
DSA APP NUMBER
01-121720

DATE: 09.11.2024
SCALE: N/A
PROJECT NO: TAM23-01

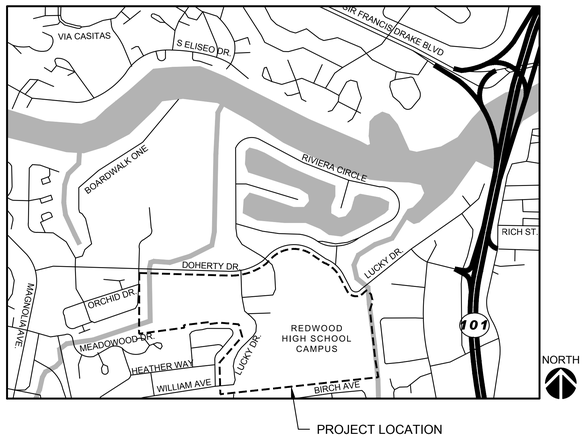
SHEET TITLE
COVER

SHEET NUMBER
G00.01

ABBREVIATIONS

@	AT
AC	ASPHALT CONCRETE
ADA	AMERICANS WITH DISABILITIES ACT
ADJ	ADJACENT
BJB	BURIED JUNCTION BOX
CL	CENTER LINE
CLF	CHAIN LINK FENCE
CLR	CLEAR
COM	COMMUNICATIONS BOX
CONC.	CONCRETE
DI	DRAIN INLET
DSA	DIVISION OF STATE ARCHITECT
(E)	EXISTING
EP	EXISTING PAVING
EQ	EQUAL
EXIST	EXISTING
FG	FINISH GRADE
HP	HIGH POINT
INV	INVERT
LOW	LIMIT OF WORK
MAX	MAXIMUM
MH	MAN HOLE
ML	MAIN LINE (IRRIGATION)
PB	PULL BOX
PD	PERIMETER DRAIN
PP	PERF PIPE
POT	PATH OF TRAVEL
QCV	QUICK COUPLER VALVE
RC	RELATIVE COMPACTION
RIM	RIM ELEVATION
SCD	SEE CIVIL DRAWINGS
SSD	SEE STRUCTURAL DRAWINGS
SD	STORM DRAIN
SDMH	STORM DRAIN MAN HOLE
ST	SYNTHETIC TURF (FINISH GRADE)
SWPPP	STORM WATER POLLUTION PREVENTION PLAN
TCB	TRENCH DRAIN CATCH BASIN
TP	TOP OF PAVING
TPZ	TREE PROTECTION ZONE
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
UON	UNLESS OTHERWISE NOTED
VIF	VERIFY IN FIELD
W/	WITH

VICINITY MAP



STATEMENT OF GENERAL CONFORMANCE

FOR ARCHITECTS/ENGINEERS WHO UTILIZE PLANS, INCLUDING BUT NOT LIMITED TO SHOP DRAWINGS, PREPARED BY OTHER LICENSED DESIGN PROFESSIONALS AND/OR CONSULTANTS

- ☒ THE 'L' SERIES SHEETS AND 'SFS' SERIES SHEETS
- ☐ THE DRAWING, PAGE OF SPECIFICATIONS/CALCULATIONS

HAVE BEEN PREPARED BY OTHER DESIGN PROFESSIONALS OR CONSULTANTS WHO ARE LICENSED AND/OR AUTHORIZED TO PREPARE SUCH DRAWINGS IN THIS STATE. IT HAS BEEN EXAMINED BY ME FOR:

1. DESIGN INTENT AND APPEARS TO MEET THE APPROPRIATE REQUIREMENTS OF TITLE 24, CALIFORNIA CODE OF REGULATIONS AND THE PROJECT SPECIFICATIONS PREPARED BY ME AND
2. COORDINATION WITH MY PLANS AND SPECIFICATION AND IS ACCEPTABLE FOR INCORPORATION INTO THE CONSTRUCTION OF THIS PROJECT.

THE STATEMENT OF GENERAL CONFORMANCE "SHALL NOT BE CONSTRUED AS RELIEVING ME OF MY RIGHTS, DUTIES, AND RESPONSIBILITIES UNDER SECTIONS 17302 AND 81138 OF THE EDUCATION CODE AND SECTIONS 4-336, 4-341 AND 4-344 OF TITLE 24, PART 1. (TITLE 24, PART 1, SECTION 4-317 [B])

I FIND THAT:

- ☒ THE 'L' SERIES SHEETS AND 'SFS' SERIES SHEETS
- ☐ THIS DRAWING OR PAGE

- ☒ IS / ARE IN GENERAL CONFORMANCE WITH THE PROJECT DESIGN INTENT, AND
- ☒ HAS / HAVE BEEN COORDINATED WITH THE PROJECT PLANS AND SPECIFICATIONS

09-10-2024
SIGNATURE DATE

ARCHITECT OR ENGINEER DESIGNATED TO BE IN GENERAL RESPONSIBLE CHARGE

CHRIS WARNER
PRINT NAME

S4613 12-31-2025
LICENSE NUMBER EXPIRATION DATE

STRUCTURAL ENGINEER: DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE

ZFA ENGINEERS
1212 FOURTH STREET, SUITE Z
PHONE: 707-526-0992
EMAIL: CHRISW@ZFA.COM

DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE STATEMENT

THESE DRAWINGS FOR THE ITEMS LISTED BELOW HAVE BEEN PREPARED BY OTHER DESIGN PROFESSIONALS LICENSED IN THIS STATE. THESE DOCUMENTS HAVE BEEN EXAMINED BY ME, AND COORDINATED FOR DESIGN INTENT AND HAVE BEEN FOUND TO MEET THE APPROPRIATE REQUIREMENTS OF TITLE 24, CALIFORNIA CODE OF REGULATIONS AND ARE ACCEPTABLE FOR INCORPORATION INTO THE CONSTRUCTION OF THIS PROJECT FOR WHICH I AM THE INDIVIDUAL DESIGNATED TO BE IN GENERAL RESPONSIBLE CHARGE:

1. 'L' SERIES SHEETS	WILLIAM FEE, CARDUCCI ASSOCIATES
2. 'SFS' SERIES SHEETS	BILL THORPE, KPFF ENGINEERS

SCOPE OF WORK

ADDITION OF CONCRETE FLATWORK, SAFETY NETTING, AND STORM WATER MITIGATION.
SYNTHETIC TURF REPLACEMENT. DRINKING FOUNTAIN AND 5 TIER BLEACHERS.

APPLICABLE CODES

2022 CALIFORNIA ADMINISTRATIVE CODE (CAC), PART 1, TITLE 24 CCR*
2022 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 CCR
(2021 INTERNATIONAL BUILDING CODE, VOL. 1 & 2, AND 2022 CALIFORNIA AMENDMENTS)
2022 CALIFORNIA ELECTRICAL CODE (CEC), PART 3, TITLE 24 CCR
(2020 NATIONAL ELECTRICAL CODE AND 2022 CALIFORNIA AMENDMENTS)
2022 CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24 CCR
(2021 IAPMO UNIFORM MECHANICAL CODE AND 2022 CALIFORNIA AMENDMENTS)
2022 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24 CCR
(2021 IAPMO UNIFORM PLUMBING CODE AND 2022 CALIFORNIA AMENDMENTS)
2022 CALIFORNIA ENERGY CODE (CEC), PART 6, TITLE 24 CCR
2022 CALIFORNIA FIRE CODE (CFC), PART 9, TITLE 24 CCR
(2021 INTERNATIONAL FIRE CODE AND 2022 CALIFORNIA AMENDMENTS)
2022 CALIFORNIA EXISTING BUILDING CODE (CEBC), PART 10, TITLE 24 CCR
(2021 INTERNATIONAL EXISTING BUILDING CODE AND 2022 CALIFORNIA AMENDMENTS)
2022 CALIFORNIA GREEN BUILDING STANDARDS CODE (CALGREEN), PART 11, TITLE 24 CCR
2022 CALIFORNIA REFERENCED STANDARDS CODE, PART 12, TITLE 24 CCR
TITLE 19 CCR, PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS
2016 ASME A17.1/CSA B44-16 SAFETY CODE FOR ELEVATORS AND ESCALATORS (PER 2022 CBC PART 2 CH 35)
NOTE: CAL/OSHA ELEVATOR UNIT ENFORCES CCR TITLE 8 AND USES THE 2004 ASME A17.1 BY ADOPTION.

GOVERNING AGENCY

DIVISION OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
REGION 1 OFFICE
1515 CLAY STREET, SUITE 1201
OAKLAND, CA 94612
PH: (510) 622-3140
FAX: (510) 622-3101

1. THIS PROJECT IS A DSA PROJECT AND AS A RESULT AN INSPECTOR EMPLOYED BY THE DISTRICT (OWNER) AND APPROVED BY THE DIVISION OF STATE ARCHITECT SHALL PROVIDE CONTINUOUS INSPECTION OF THE WORK. THE DUTIES OF THE INSPECTOR ARE DEFINED IN SECTION 4 - 342, PART 1, TITLE 24, CCR.
2. ALL WORK SHALL CONFORM TO 2022 TITLE 24, CALIFORNIA CODE OF REGULATIONS (CCR).

GENERAL NOTES

1. DAMAGE TO AREAS OUTSIDE OF LIMIT OF WORK CAUSED BY WORK UNDER THIS CONTRACT SHALL BE REPAIRED BY CONTRACTOR AT NO ADDITIONAL COST.
2. UTILITIES: ALL UNDERGROUND UTILITIES SHOWN ON THESE PLANS ARE FOR INFORMATION ONLY. NO REPRESENTATION IS MADE AS TO THE ACCURACY OR COMPLETENESS OF SAID INFORMATION. NOTIFY CONSTRUCTION MANAGER OF ANY FOUND DISCREPANCIES.
3. CARDUCCI & ASSOCIATES IS NOT RESPONSIBLE FOR THE EXACT LOCATION OF UTILITY LINES SHOWN HEREON; NOR FOR ANY DAMAGES BY ANY CONSTRUCTION OR EXCAVATION ON OR NEAR SAID UTILITIES.
4. CALL UNDERGROUND SERVICE ALERT 811, A MINIMUM OF 48 HOURS BEFORE ANY CONSTRUCTION OR EXCAVATION IN THIS AREA.
5. PRIOR TO COMMENCING WORK, CONTRACTOR MUST FIELD LOCATE ALL EXISTING UTILITIES INCLUDING: TYPE OF UTILITY AND FACILITY THAT IT SERVICES, SIZE, LOCATION, AND DEPTH. NOTIFY DISTRICT 72 HOURS BEFORE CONSTRUCTION, EXCAVATION AND ANY UTILITIES SHUT DOWN.
6. A COPY OF TITLE 24 PARTS 1-5 SHALL BE KEPT ON THE JOB SITE AT ALL TIMES
7. IN ACCORDANCE WITH TITLE 24, PART 1 CHAPTER 4: THE ADMINISTRATIVE REGULATIONS FOR THE DIVISION OF STATE ARCHITECT STRUCTURAL SAFETY (DSA/SS)
   - ALL CONSTRUCTION CHANGE DOCUMENTS AND ADDENDA SHALL BE SIGNED BY THE ARCHITECT AND THE DISTRICT AND APPROVED BY DSA. CONSTRUCTION CHANGE DOCUMENTS NOT VALID UNTIL APPROVED BY DSA (4-338).
   - ALL TESTS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 4-335 AND APPROVED T & I SHEET.
   - TESTS OF MATERIALS AND TESTING LAB SHALL BE IN ACCORDANCE WITH SECTION 4-335 AND THE DISTRICT SHALL EMPLOY AND PAY THE LAB. COSTS OF RE-TESTS SHALL BE BACK-CHARGED TO THE CONTRACTOR.
   - DSA SHALL BE NOTIFIED AT THE START OF CONSTRUCTION AND PRIOR TO PLACEMENT OF CONCRETE (4-331)
   - INSPECTOR SHALL BE APPROVED BY DSA. INSPECTION SHALL BE IN ACCORDANCE WITH SECTION 4-333(B). THE DUTY OF THE INSPECTOR SHALL BE IN ACCORDANCE WITH WITH SECTION 4-342.
   - SUPERVISION OF CONSTRUCTION BY DSA SHALL BE IN ACCORDANCE WITH SECTION 4-334.
   - VERIFIED REPORTS SHALL BE SUBMITTED BY CONTRACTORS. INSPECTORS (DSA-6) AND ARCHITECTS AND ENGINEERS (DSA-6AE) IN ACCORDANCE WITH SECTIONS 4-336 AND 4-353.
   - THE ARCHITECT SHALL PERFORM THEIR DUTIES IN ACCORDANCE WITH SECTIONS 4-333(A) AND 4-341.
   - THE CONTRACTOR SHALL PERFORM THEIR DUTIES IN ACCORDANCE WITH SECTION 4-343.
8. THE INTENT OF THE DRAWINGS AND SPECIFICATIONS IS THAT THE WORK OF ALTERATION, REHABILITATION, OR RECONSTRUCTION IS TO BE IN ACCORDANCE WITH TITLE 24, C.C.R. SHOULD ANY EXISTING CONDITIONS BE DISCOVERED WHICH IS NOT COVERED BY THE CONTRACT DOCUMENTS WHEREIN THE FINISHED WORK WILL NOT COMPLY WITH SAID TITLE 24 C.C.R., A CONSTRUCTION CHANGE DOCUMENTS DETAILING AND SPECIFYING THE REQUIRED REPAIR WORK SHALL BE SUBMITTED TO AND APPROVED BY DSA BEFORE PROCEEDING WITH THE REPAIR WORK. (SECTION 4-317C, PART 1, TITLE 24).
9. DSA IS NOT SUBJECT TO ARBITRATION.
10. WORK SHALL COMPLY WITH THE PROVISIONS OF CHAPTER 33 OF THE CBC & CFC, "FIRE SAFETY DURING CONSTRUCTION AND DEMOLITION".
11. THERE ARE NO DEFERRED SUBMITTAL ITEMS FOR THIS PROJECT.
12. GRADING PLANS, DRAINAGE IMPROVEMENTS, ROAD AND ACCESS REQUIREMENTS AND ENVIRONMENTAL HEALTH CONSIDERATIONS SHALL COMPLY WITH ALL LOCAL ORDINANCES.

SFPUC NOTES:

1. THE CITY AND COUNTY OF SAN FRANCISCO ACTING BY AND THROUGH ITS PUBLIC UTILITIES COMMISSION, WATER SUPPLY AND TREATMENT DIVISION ("SFPUC") OWNS AND OPERATES TWO WATER AQUEDUCTS THAT CROSS THE PROJECT ALIGNMENT. THE CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICES ALERT (USA) 48 HOURS BEFORE ANY CONSTRUCTION IN THE VICINITY OF THE SFPUC AQUEDUCTS. IN ADDITION, THE CONTRACTOR SHALL NOTIFY THE SFPUC CONSTRUCTION INSPECTOR, MR. ALBERT HAO, AT (650) 871-3015, AT LEAST TEN (10) CALENDAR DAYS PRIOR TO THE START OF ON-SITE CONSTRUCTION IN THE VICINITY OF THE SFWD ROW. IN THE EVENT OF EMERGENCY INVOLVING SFPUC FACILITIES, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY SFPUC BY CALLING SFPUC MILLBRAE DISPATCH AT 650-872-5900.
2. NO MECHANICAL EXCAVATION IS ALLOWED WITHIN 24 INCHES OF SFPUC PIPELINES. DIGGING WITH 24 INCHES OF PIPELINE MUST BE DONE WITH HAND TOOL. NO VIBRATORY COMPACTION EQUIPMENT SHALL BE USED WITHOUT PRIOR WRITTEN APPROVAL OF THE SFPUC.
3. CONTRACTOR SHALL OBTAIN CONSENT FROM THE SFPUC TO POTHOLE SFPUC PIPELINE TO DETERMINE THE PIPE DEPTH PRIOR TO ANY EXCAVATION. THE POTHOLING SHALL BE CARRIED OUT BY SOIL VACUUM EXTRACTION METHOD.
4. MAXIMUM EXTERNAL LOADING OVER SFPUC PIPELINE IS AASHTO H-10 LOADING WITH A MINIMUM OF 3 FEET SOIL COVER (OR H-20 LOADING WITH A MINIMUM OF 4 FEET SOIL COVER). IF LOADING CONDITION EXCEEDS ABOVE, ENGINEERING CALCULATIONS AS SHOWN IN AWWA, M9 MUST BE SUBMITTED TO THE SFPUC TO SHOW THAT PROPOSED CONDITION WOULD IMPOSE A LOAD OF LESS THAN 500 PSF ONTO THE PIPELINE.

CONSTRUCTION ACCESS AND COORDINATION NOTES

1. SECURE SITE WITH CONSTRUCTION FENCE AS REQUIRED.
   CONTRACTOR SHALL REPAIR AND REPLACE ANY BROKEN OR DAMAGED CONSTRUCTION FENCE.
2. COORDINATE WORK WITH DISTRICT, CONSTRUCTION MANAGER, AND OTHER WORK ON SITE.
3. CONTRACTOR TO REPLACE ANY BROKEN OR CRACKED PAVING CAUSED BY THE ACTIVITIES RELATED TO THE FIELD REFURBISHMENT PROJECT. CONTRACTOR IS ALSO RESPONSIBLE FOR PROTECTING THE EXISTING CONDITIONS AND EXISTING UTILITIES THAT ARE REMAINING.

DSA NOTES

1. NO CHANGES OR REVISIONS SHALL BE MADE FOLLOWING WRITTEN APPROVAL WHICH AFFECT ACCESS COMPLIANCE ITEMS, UNLESS SUCH CHANGES OR REVISIONS ARE SUBMITTED TO THE DSA FOR APPROVAL.
2. SUBSTITUTIONS AFFECTING DSA REGULATED ITEMS SHALL BE SUBMITTED AS A CONSTRUCTION CHANGE DOCUMENT OR ADDENDA AND SHALL BE APPROVED BY DSA PRIOR TO FABRICATION AND INSTALLATION
3. CONSTRUCTION CHANGE DOCUMENTS MUST BE SIGNED BY THE FOLLOWING:
   - 3.1. ARCHITECT OR ENGINEER OF RECORD
   - 3.2. STRUCTURAL ENGINEER (WHEN APPLICABLE)
   - 3.3. DELEGATED PROFESSIONAL ENGINEER
   - 3.4. DSA
4. MATERIALS AND THEIR INSTALLATION SHALL COMPLY WITH APPLICABLE CODES, STANDARDS AND MANUFACTURER'S RECOMMENDATIONS.

SHEET INDEX

SHEET SEQUENCE	SHEET NUMBER	SHEET TITLE
1	G00.01	COVER
2	G00.02	SHEET INDEX AND GENERAL NOTES
3	G00.04	SITE PLAN
4	G00.05	SCOPE OF WORK
5	L01.00	DEMOLITION AND EROSION CONTROL LEGEND
6	L01.01	DEMOLITION AND EROSION CONTROL LEGEND AND PLAN
7	L01.02	DEMOLITION AND EROSION CONTROL DETAILS
8	L02.00	GRADING LEGEND AND PLAN
9	L04.00	LAYOUT LEGEND AND PLAN
10	L05.00	MATERIALS LEGEND AND PLAN
11	L06.01	DETAILS
12	L06.02	DETAILS - FIELD OVERLAY AND SECTION
13	L06.03	DETAILS - DRINKING FOUNTAIN AND UTILITY
14	L06.04	DETAILS - EXISTING RESTROOM AND SIGNAGE
15	L06.05	DETAILS - EXISTING BLEACHERS
16	L06.06	DETAILS - EXISTING BLEACHERS
17	L06.07	DETAILS - EXISTING BLEACHERS
18	L06.08	DETAILS - EXISTING BLEACHERS
19	L06.09	DETAILS - PROPOSED BLEACHERS
20	L06.10	DETAILS - PROPOSED BLEACHERS
21	L06.11	DETAILS - PROPOSED BLEACHERS
22	L06.12	DETAILS - PROPOSED BLEACHERS
23	L06.13	DETAILS - PROPOSED BLEACHERS
24	SFS-1	GENERAL NOTES, ABBREVIATIONS AND SYMBOLS
25	SFS-2	DETAILS
25	TOTAL SHEETS	

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-121720 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/7/2024

ARCHITECT/ ENGINEER
ZFA STRUCTURAL ENGINEERS
1212 fourth street | suite z zfa.com
santa rosa ca 95404 707.526.0992
zfa job no. 20400

copyright © 2024

STAMP

DESIGN TEAM

CARDUCCI ASSOCIATES
555 BEACH STREET FOURTH FLOOR
SAN FRANCISCO, CA 94133
www.carducciassociates.com

© 2024 CARDUCCI ASSOCIATES, INC.

STAMP

OWNER
TAMALPAIS UNION HIGH SCHOOL DISTRICT

PROJECT
REDWOOD HIGH SCHOOL GHILOTTI FIELD SITE IMPROVEMENTS
395 DOHERTY DRIVE
LARKSPUR, CA 94939

CONTEXT MAP

#	DESCRIPTION	DATE

DSA SUBMITTAL

FILE NUMBER 21-H2
DSA APP NUMBER
01-121720

DATE:	09.11.2024
SCALE:	N/A
PROJECT NO:	TAM23-01

SHEET TITLE

SHEET INDEX AND GENERAL NOTES

SHEET NUMBER

G00.02

ONLY THE ORIGINAL, SIGNED HARD COPY OF THIS DRAWING CONSTITUTES CARDUCCI & ASSOCIATES, INC. PROFESSIONAL WORK PRODUCT. ELECTRONIC COPIES DO NOT. CARDUCCI & ASSOCIATES, INC. WILL NOT BE RESPONSIBLE FOR ANY MODIFICATIONS MADE TO THIS DRAWING ELECTRONICALLY OR OTHERWISE. USE OF UNSIGNED CARDUCCI & ASSOCIATES, INC.

IF THE CONTRACTOR ENCOUNTERS ERRORS OR DISCREPANCIES ON THE DRAWINGS, OR SITE CONDITIONS WHICH PREVENT OR DELAY THE COMPLETION OF WORK AS INDICATED, THE CONTRACTOR SHALL NOTIFY THE OWNER AND LANDSCAPE ARCHITECT BY THE TIME OF BID OF ALL SUCH ERRORS, DISCREPANCIES AND OMISSIONS. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE LANDSCAPE ARCHITECT AND THE OWNER HARMLESS IF AFTER CONTRACTING FOR THE WORK HE HAS MORE PAY DAMAGE BECAUSE OF SITE CONDITIONS, ERRORS, OMISSIONS OR DRAWINGS AT THE TIME OF BID.

Peter Stanley 9/9/2024 4:11 PM

ACCESSIBLE ROUTE NOTES

1. BARRIER FREE ACCESSIBLE ROUTE WITH FOLLOWING CHARACTERISTICS:

   A. LESS THAN 1:20 MAXIMUM SLOPE WITHOUT RAMP.
   B. LESS THAN 1:48 MAXIMUM CROSS SLOPE.
   C. 48" MIN CLEAR IN WIDTH.
   D. NON-SLIP SURFACE OF CONCRETE OR ASPHALT.
   E. ACCESSIBLE PATH SHALL HAVE NO ABRUPT VERTICAL CHANGES EXCEEDING 1/4" VERTICAL OR 1/4" VERTICAL WITH AN ADDITIONAL 1/4" AT1:2 MAXIMUM SLOPE, OR A TOTAL OF 1/2" AT 1:2 MAXIMUM SLOPE.

2. CONSTRUCT ALL PAVED AREAS TO DRAIN

3. CONFORMANCE SURVEYING OF ACCESSIBLE ROUTE: THE CONTRACTOR SHALL PERFORM A CONFORMANCE SURVEY OF THE ACCESSIBLE ROUTE SHOWING CROSS SLOPES, LONGITUDINAL SLOPES AND SPOT ELEVATIONS ON A 10-FOOT GRID AFTER FINISH GRADING AND FINISH SURFACING IS COMPLETE. CORRECT ANY IRREGULARITIES FOUND AND RESURVEY CORRECTED AREAS TO DOCUMENT CONFORMANCE. SUBMIT CONFORMANCE SURVEYING OF ACCESSIBLE ROUTE TO ARCHITECT AND INCLUDE AS PART OF RECORD DRAWINGS

4. PROVIDE MINIMUM 24" WIDE, 2% MAX BENCH AT TOP OF SLOPE ADJACENT TO PAVING, TYP.

5. ACCESSIBLE ROUTE SHALL BE MAINTAINED FREE OF OVERHANGING OBSTRUCTIONS TO 80" MINIMUM AND FREE OF OBJECTS PROTRUDING MORE THAN 4" FROM THE WALL, ABOVE 27" AND LESS THAN 80" ABOVE THE FLOOR. ARCHITECT SHALL VERIFY THAT THERE ARE NO BARRIERS IN THE ACCESSIBLE ROUTE.

DSA PR 15-01: REQUIRED INFORMATION FOR ACCESSIBLE ROUTE UPGRADES ON CONSTRUCTION DOCUMENTS

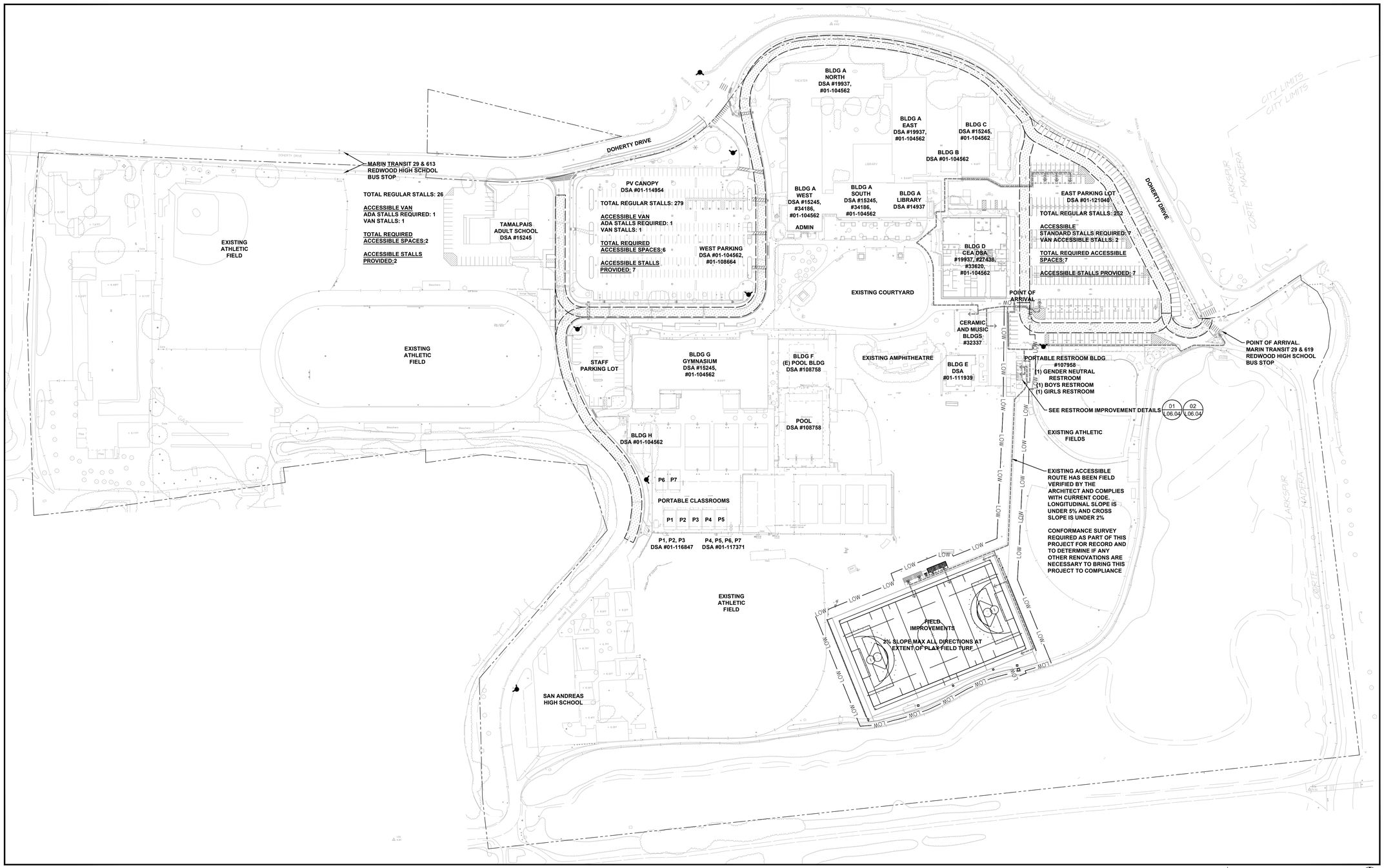
DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE STATEMENT:

THE ACCESSIBLE ROUTE IDENTIFIED IN THESE CONSTRUCTION DOCUMENTS MEETS THE REQUIREMENTS OF THE CURRENT APPLICABLE CALIFORNIA BUILDING CODE (CBC) ACCESSIBILITY PROVISIONS FOR ACCESSIBLE ROUTE REQUIREMENTS FOR ALTERATIONS, ADDITIONS AND STRUCTURAL REPAIRS. AS PART OF THE DESIGN OF THIS PROJECT, THE ACCESSIBLE ROUTE WAS EXAMINED AND ANY ELEMENTS, COMPONENTS OR PORTIONS OF THE ACCESSIBLE ROUTE THAT WERE DETERMINED TO BE NON-COMPLIANT WITH THE CBC HAVE BEEN IDENTIFIED AND THE CORRECTIVE WORK NECESSARY TO BRING THEM INTO COMPLIANCE HAS BEEN INCLUDED WITHIN THE SCOPE OF THIS PROJECT'S WORK THROUGH DETAILS, DRAWINGS AND SPECIFICATIONS INCORPORATED INTO THESE CONSTRUCTION DOCUMENTS.
ANY NONCOMPLIANT ELEMENTS, COMPONENTS OR PORTIONS OF THE ACCESSIBLE ROUTE THAT WILL NOT BE CORRECTED BY THIS PROJECT BASED ON VALUATION THRESHOLD LIMITATIONS OR A FINDING OF UNREASONABLE HARDSHIP ARE INDICATED IN THESE CONSTRUCTION DOCUMENTS.
DURING CONSTRUCTION , IF ACCESSIBLE ROUTE ITEMS WITHIN THE SCOPE OF THE PROJECT REPRESENTED AS CBC COMPLIANT ARE FOUND TO BE NONCONFORMING BEYOND REASONABLE CONSTRUCTION TOLERANCES, THE ITEMS SHALL BE BROUGHT INTO COMPLIANCE WITH THE CBC AS A PART OF THE PROJECT BY MEANS OF A CONSTRUCTION CHANGE DOCUMENT.

NOTE: BASED ON PREVIOUS DSA SUBMITTALS, FIRE ACCESS WITHIN AND BEYOND THE LIMIT OF WORK IS NOT AFFECTED BY THESE IMPROVEMENTS. SCOPE OF WORK WILL MAINTAIN AND/OR PROVIDE FIRE LANES PER CFC SEC 503; 13'-6" MIN HEIGHT AND 20'-0" MIN WIDTH SHALL BE MAINTAINED.

SITE LEGEND

SYMBOL	DESCRIPTION
	PROPERTY LINE
LOW	LIMIT OF WORK
	(E) CONDITIONS, SEE TOPOGRAPHIC SURVEY
	(E) FIRE HYDRANT
	EXISTING ACCESSIBLE ROUTE
FIRE LANE	(E) EMERGENCY VEHICLE ACCESS LANE 20'-00" MINIMUM A#01-117371



PLAN 0 80 160 FEET NORTH

811 Know what's below. Call 811 before you dig.

Peter Stanley 10/2/2024 10:59 AM

ON THE ORIGINAL BONDED HARD COPY OF THIS DRAWING CONSTITUTES CARDUCCI & ASSOCIATES, INC. PROFESSIONAL WORK PRODUCT. ELECTRONIC COPIES DO NOT. CARDUCCI & ASSOCIATES, INC. WILL NOT BE RESPONSIBLE FOR ANY MODIFICATIONS MADE TO THIS DRAWING ELECTRONIC OR OTHERWISE. THIS IS NOT OWNED BY OWNER OR ASSOCIATES, INC.

IF THE CONTRACTOR DISCOVERS ERRORS OR DISCREPANCIES ON THE DRAWINGS, OR SITE CONDITIONS WHICH PREVENT DELAY THE COMPLETION OF WORK AS DIRECTED, THE CONTRACTOR SHALL NOTIFY THE OWNER AND LANDSCAPE ARCHITECT BY THE TIME OF BID OF ALL SUCH ERRORS, DISCREPANCIES AND OMISSION. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE LANDSCAPE ARCHITECT AND THE OWNER HARMLESS IF AFTER CONTRACTING FOR THE WORK HE HAS MONEY PAY DAMAGE BECAUSE OF SITE CONDITIONS, ERRORS, DISCREPANCIES OR OMISSION AT THE TIME OF BID.

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-121720 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/7/2024

ARCHITECT/ ENGINEER
ZFA STRUCTURAL ENGINEERS
1212 fourth street | suite z zfa.com
santa rosa ca 95404 707.526.0992
zfa job no. 20400

copyright © 2024

STAMP

CHRIS S. WARREN — STRUCTURAL — ACTIVE — STATE OF CALIFORNIA

DESIGN TEAM

CARDUCCI ASSOCIATES
555 BEACH STREET FOURTH FLOOR
SAN FRANCISCO, CA 94133
www.carducciassociates.com

© 2024 CARDUCCI ASSOCIATES, INC.

STAMP

PETER J. STANLEY — LANDSCAPE ARCHITECT — 2537 — 12.31.2024 — 09.11.2024 — STATE OF CALIFORNIA

OWNER
TAMALPAIS UNION HIGH SCHOOL DISTRICT

PROJECT
REDWOOD HIGH SCHOOL GHILOTTI FIELD SITE IMPROVEMENTS
395 DOHERTY DRIVE
LARKSPUR, CA 94939

CONTEXT MAP

#	DESCRIPTION	DATE

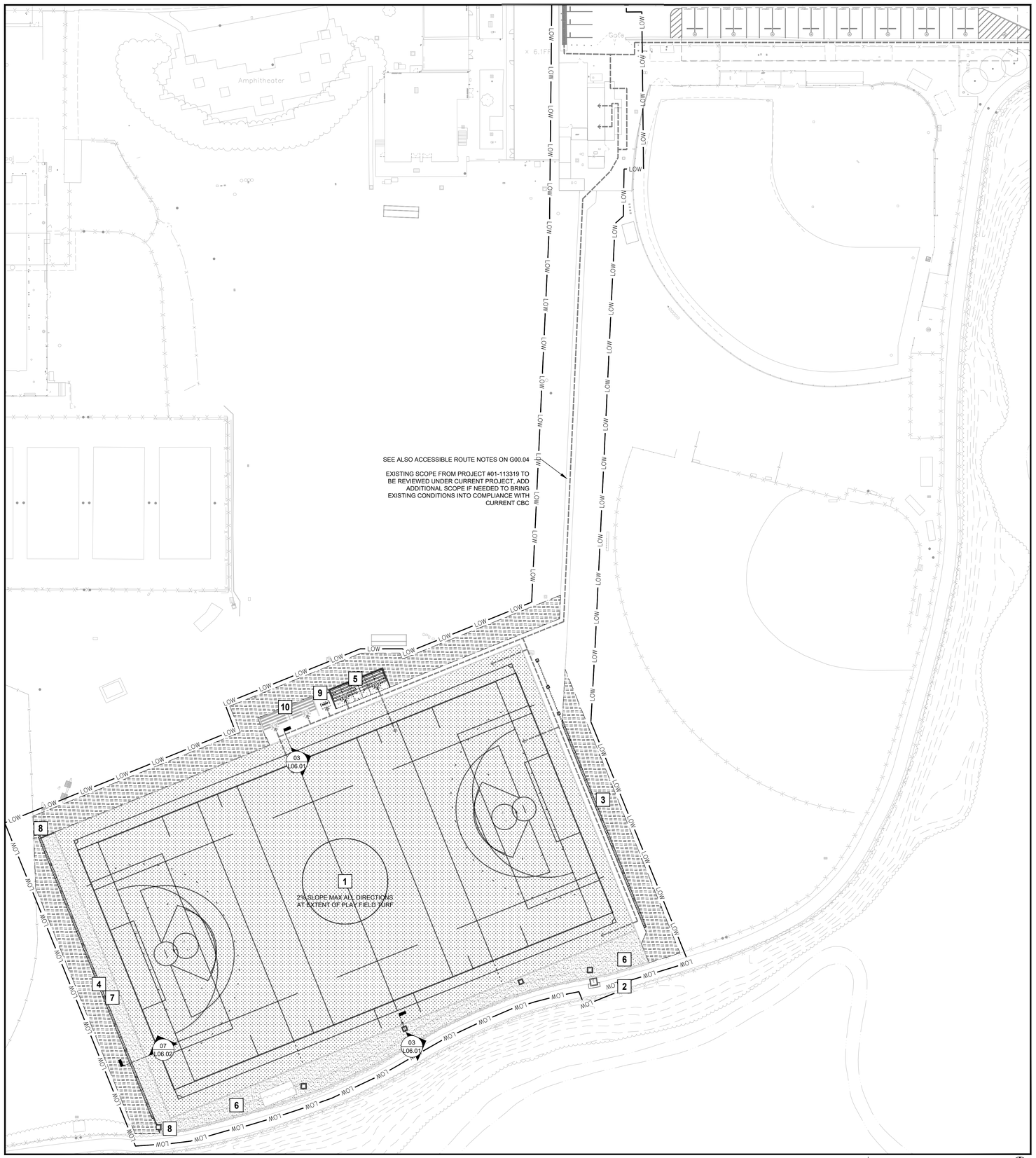
DSA SUBMITTAL

FILE NUMBER 21-H2
DSA APP NUMBER
01-121720

DATE: 09.11.2024
SCALE: N/A
PROJECT NO: TAM23-01

SHEET TITLE
SITE PLAN

SHEET NUMBER
G00.04



PLAN 0 30 60 FEET NORTH

SITE LEGEND

SYMBOL	DESCRIPTION
LOW	LIMIT OF WORK
	(E) CONDITIONS, SEE TOPOGRAPHIC SURVEY
	EXISTING ACCESSIBLE ROUTE

SCOPE OF WORK

KEY	DESCRIPTION
1	VIA CMAS PROCUREMENT, REPLACE EXISTING SYNTHETIC TURF FIELD WITH NEW FIELDTURF SYSTEM, INCLUDING, FIELD PERMEABILITY TESTING, BROCK POWER BASE YSR 4 PAD, AND OLIVE CORE AND SAND INFILL. ADD WHITE STRIPING FOR FIELD HOCKEY. GMAX TESTING.
2	ADD NEW CHECK VALVE (DUCKBILL) AT EXISTING DRAIN INLET TO DETER STORMWATER BACKFLOW FROM ADJACENT MARSH INTO THE SUBSURFACE DRAINAGE SYSTEM UNDER THE FIELD. THIS MAY BE A SEPARATE SMALL PROJECT FOR DISTRICT TO PROCURE AS A MAINTENANCE PROJECT.
3	10' HIGH BALL SAFETY NET IN CONCRETE BORDER AT EDGE OF EXISTING PATH. (1/SFS-2) (2/SFS-2) (02/L06.01) ADJUST EXISTING IRRIGATION SYSTEM AS REQUIRED.
4	10' HIGH BALL SAFETY NET IN CONCRETE BORDER (1/SFS-2) (2/SFS-2) (02/L06.01)
5	CONCRETE SLAB ON GRADE FOR PROPOSED BLEACHER. SEE SHEETS L06.09, L06.10, L06.11, L06.12, AND L06.13
6	REPLACE EXISTING DECOMPOSED GRANITE PAVING WITH LANDSCAPE QUALITY SYNTHETIC TURF WITH SAND INFILL.
7	REPLACE EXISTING WEEDY LANDSCAPE WITH LANDSCAPE QUALITY SYNTHETIC TURF WITH SAND INFILL.
8	6" WIDE CONCRETE BORDER (05/L06.01)
9	DRINKING FOUNTAIN (03/L06.03)
10	EXISTING BLEACHERS ARE TO BE INCLUDED AS SCOPE AND REVIEWED BY DSA AS PART OF THIS PROJECT. SEE SHEETS L06.05, L06.06, L06.07, AND L06.08

ORIGINAL ACCESSIBILITY SCOPE OF WORK FROM UNCERTIFIED PROJECT 01-113319

CONSTRUCTION OF ACCESSIBLE SYNTHETIC TURF ATHLETIC FIELD AND CONCRETE SIDEWALK CONNECTING FIELD TO NEAREST ACCESSIBLE PARKING. (INCLUDED IN THIS PROJECT FOR DSA REVIEW AND APPROVAL)

EXISTING CONDITIONS NOTES

CONTRACTOR WILL BE RESPONSIBLE FOR VERIFICATION OF THE LOCATION OF UNDERGROUND UTILITIES IN THE FIELD.

REDWOOD HIGH SCHOOL
395 DOHERTY DRIVE
LARKSPUR, CALIFORNIA

FIELD WORK WAS COMPLETED ON MARCH 2013 BY CSW/STUBER-STROEH ENGINEERING GROUP, INC. FROM NOVATO, CALIFORNIA.

DISTANCES AND ELEVATIONS SHOWN ARE IN FEET AND DECIMALS THEREOF.

HORIZONTAL DATUM IS CALIFORNIA COORDINATE SYSTEM 83, ZONE 3.

THE VERTICAL DATUM FOR THIS PROJECT IS THE NGS G108 BRONZE DISK IN LARKSPUR, AT 552 MAGNOLIA AVENUE, IN THE CONCRETE CURB OF THE LOADING PLATFORM OF THE ABANDONED NORTHERN PACIFIC RAILROAD STATION, 17.7 FEET NORTH OF THE EAST CORNER OF THE BUILDING, 11.5 FEET SOUTHEAST OF THE EXTENDED CENTER OF THE ENTRANCE, AND 1 FOOT ABOVE THE GROUND SURFACE. ELEVATION IS 17.57' NAVD 88.

FIELD IMPROVEMENTS CONSTRUCTION DRAWINGS FOR REDWOOD HIGH SCHOOL DSA PROJECT 01-113319 DATED 7/3/2013 ARE AVAILABLE FROM THE CONSTRUCTION MANAGER

IF THE CONTRACTOR ENCOUNTERS ERRORS OR DISCREPANCIES IN THE DRAWINGS, OR SITE CONDITIONS WHICH PREVENT OR DELAY THE COMPLETION OF WORK AS INDICATED, THE CONTRACTOR SHALL NOTIFY THE OWNER AND LANDSCAPE ARCHITECT BY THE TIME OF BID OF ALL SUCH ERRORS, DISCREPANCIES AND OMISSION. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE LANDSCAPE ARCHITECT AND THE OWNER HARMLESS IF AFTER CONTRACTING FOR THE WORK HE HAS MORE PAY DAMAGE BECAUSE OF SITE CONDITIONS, ERRORS, DISCREPANCIES OR OMISSION IN THE DRAWINGS.

ON ALTHE (ORIGINAL, BOND) HARD COPY OF THIS DRAWING CONSTITUTES CARDUCCI & ASSOCIATES, INC. PROFESSIONAL WORK PRODUCT, ELECTRONIC COPIES DO NOT. CARDUCCI & ASSOCIATES, INC. WILL NOT BE RESPONSIBLE FOR ANY MODIFICATIONS MADE TO THIS DRAWING ELECTRONIC OR OTHERWISE THAT IS NOT OVERSEEN BY CARDUCCI & ASSOCIATES, INC.

Peter Stanley 10/2/2024 9:35 AM

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-121720 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/7/2024

ARCHITECT/ ENGINEER
ZFA STRUCTURAL ENGINEERS
1212 fourth street | suite z zfa.com
santa rosa ca 95404 707.526.0992
zfa job no. 20400 copyright © 2024

STAMP

CHRIS S. WARDEN — STRUCTURAL — STATE OF CALIFORNIA

DESIGN TEAM
CARDUCCI ASSOCIATES
555 BEACH STREET FOURTH FLOOR
SAN FRANCISCO, CA 94133
www.carducciassociates.com
© 2024 CARDUCCI ASSOCIATES, INC.

STAMP

CALIFORNIA LANDSCAPE ARCHITECT — 2537 — 12.31.2024 — 09.11.2024 — STATE OF CALIFORNIA

OWNER
TAMALPAIS UNION HIGH SCHOOL DISTRICT

PROJECT
REDWOOD HIGH SCHOOL GHILOTTI FIELD SITE IMPROVEMENTS
395 DOHERTY DRIVE
LARKSPUR, CA 94939

CONTEXT MAP

#	DESCRIPTION	DATE

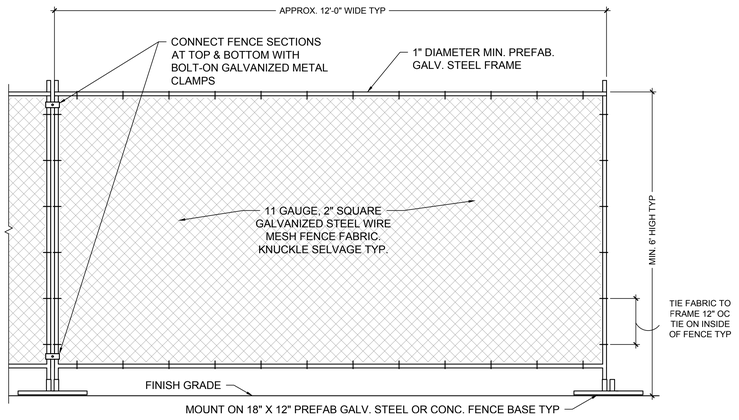
DSA SUBMITTAL

FILE NUMBER 21-H2
DSA APP NUMBER
01-121720

DATE:	09.11.2024
SCALE:	N/A
PROJECT NO:	TAM23-01

SHEET TITLE
SCOPE OF WORK

SHEET NUMBER
G00.05



NOTES:

1. LOCATE FENCE WHERE SHOWN ON PLAN. LOCATION MAY BE ADJUSTED SUBJECT TO APPROVAL OF PROJECT INSPECTOR. REMOVE FENCE UPON PROJECT ACCEPTANCE.
2. CONTRACTOR MAY USE CONTINUOUS CHAIN LINK FENCE FABRIC WITH SUPPORT POSTS DRIVEN INTO THE GROUND AS ACCEPTED BY LANDSCAPE ARCHITECT.
3. LOCATE GATES WHERE APPROVED BY PROJECT INSPECTOR.

01 CONSTRUCTION & TREE PROTECTION FENCE

SCALE: 3/4" = 1'

SITE LEGEND

SYMBOL	DESCRIPTION
	(E) FIRE HYDRANT
	(E) CONDITIONS, SEE TOPOGRAPHIC SURVEY

EROSION CONTROL NOTES

1. THIS PLAN MAY NOT COVER ALL THE SITUATIONS THAT ARISE DURING CONSTRUCTION DUE TO UNANTICIPATED FIELD CONDITIONS. IN GENERAL, THE CONTRACTOR IS RESPONSIBLE FOR KEEPING SEDIMENT STORM RUN OFF FROM LEAVING THE SITE. FIBER ROLLS, STRAW WATTLES, AND SILT FENCES SHALL BE USED BY THE CONTRACTOR ON AN AS NEEDED BASIS TO INHIBIT SILT FROM LEAVING THE SITE AND ENTERING THE STORM DRAIN SYSTEM.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL DAMAGES TO PUBLIC AND/OR PRIVATELY OWNED AND MAINTAINED ROADS CAUSED BY THE CONTRACTOR'S GRADING ACTIVITIES, AND SHALL BE RESPONSIBLE FOR THE CLEANUP OF ANY MATERIAL SPILLED ON ANY PUBLIC ROAD ON THE HAUL ROUTE. ADJACENT PUBLIC ROADS SHALL BE CLEANED DURING ALL GRADING AND EXCAVATION ACTIVITIES.
3. EROSION CONTROL FACILITIES SHALL BE MAINTAINED DAILY. THE NAME OF THE PERSON RESPONSIBLE FOR THE DAILY MAINTENANCE OF THESE FACILITIES SHALL ON RECORD WITH THE PROJECT MANAGER ALONG WITH A PHONE NUMBER WHERE THEY CAN BE REACHED 24 HOURS A DAY. THESE FACILITIES SHALL CONTROL AND CONTAIN EROSION-CAUSED SILT DEPOSITS AND PROVIDE FOR THE SAFE DISCHARGE OF SILT-FREE STORM WATER INTO EXISTING AND PROPOSED STORM DRAIN FACILITIES. DESIGN OF THESE FACILITIES MUST BE APPROVED AND UPDATED EACH YEAR.
4. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ALL SUB- CONTRACTORS, AND SUPPLIERS ARE AWARE OF ALL STORM WATER QUALITY MEASURES & IMPLEMENT SUCH MEASURES. FAILURE TO COMPLY WITH THE APPROVED CONSTRUCTION WILL RESULT IN THE ISSUANCE OF CORRECTION NOTICES, CITATIONS AND/OR A PROJECT STOP ORDER.
5. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE OPERABLE YEAR AROUND OR UNTIL VEGETATION IS ESTABLISHED ON SLOPED SURFACES.
6. EXPOSED EARTHEN AREAS TO BE STABILIZED SHALL BE SEEDED AND MULCHED IMMEDIATELY AFTER EACH AREA HAS BEEN GRADED. CONTRACTOR SHALL BE RESPONSIBLE FOR INITIAL WATERING OF AREAS TO ESTABLISH GROWTH AND STABILIZE THE SLOPES OF THE THE GRADED AREAS WITH VEGETATION, AND TO RE-SEED ANY AREAS IN WHICH VEGETATION DOES NOT INITIAL TAKE HOLD.
7. DURING THE RAINY SEASON, ALL PAVED AREAS ARE TO BE KEPT CLEAR OF EARTH MATERIAL AND DEBRIS. THE SITE IS TO BE MAINTAINED SO AS TO MINIMIZE SEDIMENT RUNOFF TO ANY STORM DRAIN SYSTEM.
8. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INSPECT ALL EROSION CONTROL FACILITIES DAILY AND REPAIR ANY DAMAGED FACILITIES IMMEDIATELY.
9. BORROW AND TEMPORARY STOCKPILES SHALL BE PROTECTED WITH APPROPRIATE EROSION CONTROL MEASURES (TARPS, FIBER ROLLS, STRAW WATTLES, SILT FENCES ETC.) TO ENSURE SILT DOES NOT LEAVE THE SITE OR ENTER THE STORM DRAIN SYSTEM. REFER TO EROSION CONTROL AND SEDIMENT CONTROL FIELD MANUAL, 3RD EDITION, PREPARED BY THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, SAN FRANCISCO BAY REGION.
10. ALL TRUCK TIRES SHALL BE CLEANED PRIOR TO EXITING THE SITE.
11. ALL DIRT PILES/STOCKPILES AND HAUL TRUCKS SHALL BE COVERED.
12. THE CONTRACTOR SHALL IMPLEMENT EROSION AND SEDIMENT CONTROL PRACTICES DETAILED IN THE EROSION CONTROL AND SEDIMENT CONTROL FIELD MANUAL, 3RD EDITION.
13. DURING PERIODS WHEN STORMS ARE FORECAST:
    A. EXCAVATED SOILS SHOULD NOT BE PLACED IN STREETS OR ON PAVED AREAS.
    B. ANY EXCAVATED SOILS SHOULD BE REMOVED FROM THE STREET BY THE END OF THE DAY.
    C. WHERE STOCKPILING IS NECESSARY, USE A TARPAULIN OR SURROUND THE STOCKPILED MATERIAL WITH FIBER ROLLS, STRAW WATTLES, GRAVEL SEDIMENT BARRIER, SILT FENCE, OR OTHER RUNOFF CONTROLS.
    D. USE INLET CONTROLS AS NEEDED (DRAINAGE INLET PROTECTION) FOR STORM DRAIN ADJACENT TO THE PROJECT SITE OR STOCKPILED SOIL.
    E. THOROUGHLY SWEEP ALL PAVED AREAS EXPOSED TO SOIL EXCAVATION AND PLACEMENT.
14. DURING PERIODS WHEN STORMS ARE NOT FORECAST:
    A. PREVENT STOCKPILED MATERIAL FROM ENTERING THE STORM DRAIN SYSTEM.
    B. THOROUGHLY REMOVE LOOSE SOIL VIA SWEEPING FOLLOWING REMOVAL OF DIRT.
15. DUST CONTROL SHOULD BE PRACTICED ON ALL CONSTRUCTION SITES WITH EXPOSED SOILS AS NEEDED. IT IS IMPORTANT IN WINDY OR WIND-PRONE AREAS. DUST CONTROL IS CONSIDERED A TEMPORARY MEASURE AND AS AS INTERMEDIATE TREATMENT BETWEEN SITE DISTURBANCE AND CONSTRUCTION, PAVING, OR REVEGETATION. REFER TO EROSION CONTROL AND SEDIMENT CONTROL FIELD MANUAL, 3RD EDITION, PREPARED BY THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, SAN FRANCISCO BAY REGION.

DRAINAGE INLET SEDIMENT BARRIERS

1. DRAINAGE INLET SEDIMENT BARRIERS SHALL BE INSTALLED AS SOON AS THE STORM DRAINAGE SYSTEM IS INSTALLED.
2. PRIOR TO PAVING, FIBER ROLLS AND STRAW WATTLES SHALL BE INSTALLED AROUND EACH DROP INLET. AFTER PAVING IS COMPLETE AROUND EACH DROP INLET, BLOCK AND GRAVEL BAG SEDIMENT BARRIERS SHALL BE INSTALLED AROUND THE DROP INLETS UNTIL ALL EXPOSED EARTHEN AREAS HAVE BEEN STABILIZED AND THE PROJECT SITE FACILITIES ARE OPERATIONAL, AT WHICH TIME THESE FACILITIES SHALL BE REMOVED.
3. CONTRACTOR SHALL AFFIX STORM DRAIN MARKER TO ALL STORM DRAIN INLET STRUCTURES.

GENERAL REQUIREMENTS

1. DAMAGE TO EXISTING IMPROVEMENTS TO REMAIN AND AREAS OUTSIDE OF LIMIT OF WORK CAUSED BY WORK WITHIN LIMIT OF WORK SHALL BE REPAIRED BY CONTRACTOR AT NO ADDITIONAL COST.
2. STORAGE SHALL BE ON-SITE AND AS APPROVED BY THE OWNER'S REPRESENTATIVE.
3. PROTECT AND VERIFY LOCATION AND DEPTH OF (E) UTILITIES TO REMAIN (6 L01.02)

ONLY THE ORIGINAL, SIGNED HARD COPY OF THIS DRAWING CONSTITUTES CARDUCCI & ASSOCIATES, INC. PROFESSIONAL WORK PRODUCT. ELECTRONIC COPIES DO NOT. CARDUCCI & ASSOCIATES, INC. SHALL NOT BE RESPONSIBLE FOR ANY MODIFICATIONS MADE TO THIS DRAWING ELECTRONIC OR OTHERWISE. THIS IS NOT A PART OF CARDUCCI & ASSOCIATES, INC.

IF THE CONTRACTOR FINDS ANY INTERFERENCES, ERRORS OR OMISSIONS ON THE DRAWINGS, OR SITE CONDITIONS WHICH PREVENT OR DELAY THE COMPLETION OF WORK AS INDICATED, THE CONTRACTOR SHALL NOTIFY THE OWNER AND LANDSCAPE ARCHITECT BY THE TIME OF BID OF ALL SUCH ERRORS, DISCREPANCIES AND OMISSIONS. IF THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE LANDSCAPE ARCHITECT AND THE OWNER HARMLESS IF AFTER CONTRACTING FOR THE WORK HE HAS MONEY ANY DAMAGE BECAUSE OF SITE CONDITIONS, ERRORS, DISCREPANCIES OR OMISSIONS AT THE TIME OF BID.

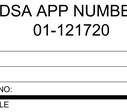
IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-121720 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/7/2024

ARCHITECT/ ENGINEER
ZFA STRUCTURAL ENGINEERS
1212 fourth street | suite z zfa.com
santa rosa ca 95404 707.526.0992
zfa job no. 20400 copyright © 2024

STAMP

DESIGN TEAM
CARDUCCI ASSOCIATES
555 BEACH STREET FOURTH FLOOR
SAN FRANCISCO, CA 94133
www.carducciassociates.com
© 2024 CARDUCCI ASSOCIATES, INC.

STAMP



OWNER
TAMALPAIS UNION HIGH SCHOOL DISTRICT

PROJECT
REDWOOD HIGH SCHOOL GHILOTTI FIELD SITE IMPROVEMENTS
395 DOHERTY DRIVE
LARKSPUR, CA 94939

CONTEXT MAP

#	DESCRIPTION	DATE

DSA SUBMITTAL

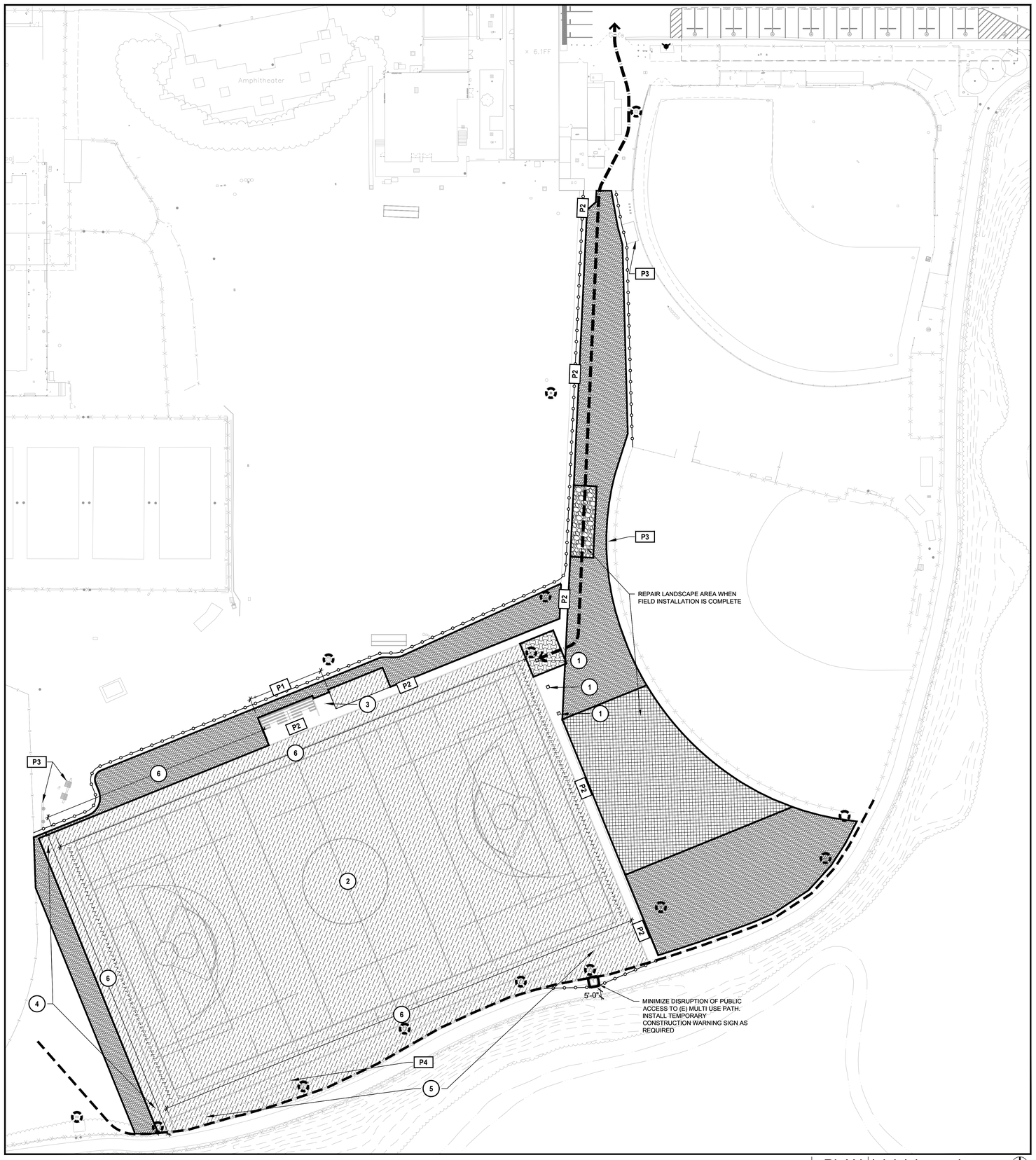
FILE NUMBER 21-H2
DSA APP NUMBER
01-121720

DATE:	09.11.2024
SCALE:	N/A
PROJECT NO:	TAM23-01

SHEET TITLE
DEMOLITION AND EROSION CONTROL LEGEND

SHEET NUMBER
L01.00

Peter Stanley 10/1/2024 5:08 PM



NOTE: SEE SHEET L01.00 AND L01.02 FOR ADDITIONAL NOTES

PLAN 0 30 60 FEET NORTH

SITE LEGEND

SYMBOL	DESCRIPTION
	(E) FIRE HYDRANT
	(E) CONDITIONS, SEE TOPOGRAPHIC SURVEY

DEMOLITION LEGEND

SYMBOL	DESCRIPTION
	CONSTRUCTION FENCE TO REMAIN IN PLACE FOR THE DURATION OF CONSTRUCTION AND MAINTENANCE PERIOD. PLACE GATES APPROVED BY PROJECT MANAGER. ADJUST LOCATION AS REQUIRED. (01 / L01.00)
	PRIMARY CONSTRUCTION VEHICLE ACCESS
	REPAIR (E) IRRIGATION SYSTEM TO MATCH EXISTING CONDITIONS, MOW (E) GRASS, TOP DRESS WITH ANGULAR WASHED SAND AND FINE GRADE SMOOTH, TOP SEED OR HYDROSEED AND MAINTAIN FOR 60 DAYS. AREA SHOWN IS APPROXIMATE.
	STABILIZED CONSTRUCTION ENTRANCE. REFER TO DETAIL (6 / L01.02)
	POSSIBLE STAGING AREA, COORDINATE WITH PROJECT MANAGER. SQUARE FOOTAGE OF FIELD x 0.12
	25' x 25' INFILL MIXING AREA
	DEMOLITION AREA
	FIBER ROLL, STRAW WATTLE OR COMPOST SOCK (3 / L01.02)
	EXISTING INLET (1 / L01.02) (5 / L01.02)
	PROTECT PROPOSED INLET (1 / L01.02) (5 / L01.02)
	DEMO EXISTING NET AND NET POSTS

PROTECTION NOTES

SYMBOL	DESCRIPTION
P1	PROTECT (E) CONCRETE BAND
P2	PROTECT (E) CONCRETE PAVING
P3	PROTECT (E) SCOREBOARD
P4	PROTECT (E) SHED

DEMOLITION NOTES

SYMBOL	DESCRIPTION
1	SAWCUT & REMOVE EXISTING CONCRETE PAVING AS REQUIRED FOR NET POST
2	REMOVE EXISTING SYNTHETIC TURF SYSTEM AND DISPOSE. PROVIDE PERMEABILITY TESTING: SUBMIT A REPORT SHOWING PERMEABILITY OF EXISTING FIELD BASE STONE PER ASTM F 2898, STANDARD TEST METHOD FOR PERMEABILITY OF SYNTHETIC TURF SPORTS FIELD BASE STONE AND SURFACE SYSTEM BY NON-CONFINED AREA FLOOD TEST METHOD. TESTING SHALL BE PROVIDED FOR EVERY 10,000 SF OF SYNTHETIC TURF SURFACE
3	REMOVE EXISTING DRINKING FOUNTAIN. PROTECT EXISTING EMBEDDED BOLTS, WATER LINE AND DRAIN CONNECTIONS. MARK WATER AND WASTE CONNECTION FOR DRINKING FOUNTAIN REPLACEMENT (04 / L06.05)
4	REMOVE & CAP EXISTING IRRIGATION SYSTEM, IF PRESENT. REMOVE AND DISPOSE OF ORGANIC MATERIAL AS REQUIRED TO PLACE SYNTHETIC TURF (ST2). GRADE SUBGRADE PER GRADING PLAN AND PREPARE AND COMPACT SUBGRADE. PROVIDE AND INSTALL FINE GRADE IMPORT STONE BASE AS SPECIFIED.
5	REMOVE (E) ORGANIC MATERIAL, SALVAGE (E) DECOMPOSED GRANITE PAVING IF PRACTICAL, OTHERWISE PROVIDE, INSTALL AND FINE GRADE IMPORT STONE BASE AS SPECIFIED
6	REMOVE AND GRUB ORGANIC MATERIAL, INCLUDING ROOTS THAT ARE IN AREAS OF SYNTHETIC TURF. RESTORE GRADE OF GRAVEL SUB-BASE AFTER REMOVE OF ORGANIC MATERIAL AS REQUIRED

ON ALTHE ORIGINAL, SIGNED HARD COPY OF THE DRAWING CONSTITUTES CARDUCCI & ASSOCIATES, INC. PROFESSIONAL WORK PRODUCT. ELECTRONIC COPIES DO NOT. CARDUCCI & ASSOCIATES, INC. WILL NOT BE RESPONSIBLE FOR ANY MODIFICATIONS MADE TO THIS DRAWING ELECTRONIC OR OTHERWISE THAT IS NOT CARRIED BY CARDUCCI & ASSOCIATES, INC.

IF THE CONTRACTOR ENCOUNTERS ERRORS OR DISCREPANCIES ON THE DRAWINGS, OR SITE CONDITIONS WHICH PREVENT OR DELAY THE COMPLETION OF WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE LANDSCAPE ARCHITECT AND THE OWNER'S REPRESENTATIVE IN WRITING. THE CONTRACTOR SHALL NOT TAKE ADVANTAGE OF SUCH ERRORS, DISCREPANCIES AND OMISSIONS. THE CONTRACTOR SHALL INSTALL ALL WORK AS SHOWN ON THE DRAWINGS AND SHALL BE RESPONSIBLE FOR CORRECTING ANY WORK INSTALLED IN CONFLICT WITH THE DRAWINGS OR CONDITIONS AT THE SITE AT NO EXTRA COST TO THE OWNER.

Peter Stanley, 10/1/2024 5:09 PM

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-121720 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/7/2024

ARCHITECT/ ENGINEER

ZFA STRUCTURAL ENGINEERS
1212 fourth street | suite z zfa.com
santa rosa ca 95404 707.526.0992
zfa job no. 20400
copyright © 2024

STAMP

DESIGN TEAM

CARDUCCI ASSOCIATES
555 BEACH STREET FOURTH FLOOR
SAN FRANCISCO, CA 94133
www.carducciassociates.com
© 2024 CARDUCCI ASSOCIATES, INC.

STAMP

OWNER
TAMALPAIS UNION HIGH SCHOOL DISTRICT

PROJECT
REDWOOD HIGH SCHOOL GHILOTTI FIELD SITE IMPROVEMENTS
395 DOHERTY DRIVE
LARKSPUR, CA 94939

CONTEXT MAP

#	DESCRIPTION	DATE

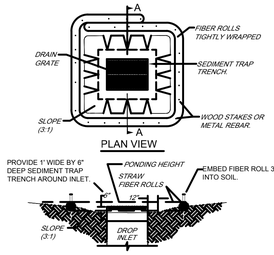
DSA SUBMITTAL

FILE NUMBER 21-H2
DSA APP NUMBER
01-121720

DATE:	09.11.2024
SCALE:	N/A
PROJECT NO:	TAM23-01

SHEET TITLE
DEMOLITION AND EROSION CONTROL LEGEND AND PLAN

SHEET NUMBER
L01.01



NOTES:
1. PLACE FIBER ROLLS AROUND THE INLET CONSISTENT WITH BASIN SEDIMENT BARRIER DETAIL ON THIS SHEET. FIBER ROLLS ARE TUBES MADE FROM STRAW BOUND W/ PLASTIC NETTING. THEY ARE APPROX. 8" DIA. AND 20 - 30 FT. LONG.

2. FIBER ROLL INSTALLATION REQUIRES THE PLACEMENT AND SECURE STAKING OF THE FIBER ROLL IN A TRENCH, 3" DEEP, DUG ON CONTOUR. RUNOFF MUST NOT BE ALLOWED TO RUN UNDER OR AROUND FIBER ROLL.

3. THE TOP OF THE STRUCTURE (PONDING HEIGHT) MUST BE WELL BELOW THE GROUND ELEVATION DOWNSLOPE TO PREVENT RUNOFF FROM BY-PASSING THE INLET. EXCAVATION OF A BASIN ADJACENT TO THE DROP INLET OR A TEMPORARY DIKE ON THE DOWNSLOPE OF THE STRUCTURE MAY BE NECESSARY.

4. IN PAVED AREAS, SURROUND DRAIN INLETS WITH TIGHTLY STACKED SANDBAGS INSTEAD OF FIBER ROLLS, OVERLAPPING ONTO ADJACENT CURB AROUND CURB INLETS. LEAVE A ONE SANDBAG GAP IN THE TOP ROW TO PROVIDE A SPILLWAY FOR OVERFLOW. SANDBAGS OF EITHER BURLAP OR WOVEN GEOTEXTILE FABRIC, ARE FILLED WITH GRAVEL, LAYERED AND PACKED TIGHTLY.

1 STRAW WATTLE OR FIBER ROLL DROP INLET SEDIMENT BARRIER
NO SCALE

Construction Best Management Practices (BMPs)

Construction projects are required to implement the stormwater best management practices (BMP) on this page, as they apply to your project, all year long.

Materials & Waste Management

Non-Hazardous Materials
- ❑ Berm and cover stockpiles of sand, dirt or other construction material with tarps when rain is forecast or if not actively being used within 14 days.
- ❑ Use (but don't overuse) reclaimed water for dust control.

Hazardous Materials
- ❑ Label all hazardous materials and hazardous wastes (such as pesticides, paints, thinners, solvents, fuel, oil, and antifreeze) in accordance with city, county, state and federal regulations.
- ❑ Store hazardous materials and wastes in water tight containers, store in appropriate secondary containment, and cover them at the end of every work day or during wet weather or when rain is forecast.
- ❑ Follow manufacturer's application instructions for hazardous materials and be careful not to use more than necessary. Do not apply chemicals outdoors when rain is forecast within 24 hours.
- ❑ Arrange for appropriate disposal of all hazardous wastes.

Waste Management
- ❑ Cover waste disposal containers securely with tarps at the end of every work day and during wet weather.
- ❑ Check waste disposal containers frequently for leaks and to make sure they are not overfilled. Never hose down a dumpster on the construction site.
- ❑ Clean or replace portable toilets, and inspect them frequently for leaks and spills.
- ❑ Dispose of all wastes and debris properly. Recycle materials and wastes that can be recycled (such as asphalt, concrete, aggregate base materials, wood, gyp board, pipe, etc.)
- ❑ Dispose of liquid residues from paints, thinners, solvents, glues, and cleaning fluids as hazardous waste.

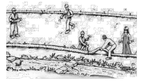
Construction Entrances and Perimeter
- ❑ Establish and maintain effective perimeter controls and stabilize all construction entrances and exits to sufficiently control erosion and sediment discharges from site and tracking off site.
- ❑ Sweep or vacuum any street tracking immediately and secure sediment source to prevent further tracking. Never hose down streets to clean up tracking.

Equipment Management & Spill Control

Maintenance and Parking
- ❑ Designate an area, fitted with appropriate BMPs, for vehicle and equipment parking and storage.
- ❑ Perform major maintenance, repair jobs, and vehicle and equipment washing off site.
- ❑ If refueling or vehicle maintenance must be done onsite, work in a bermed area away from storm drains and over a drip pan big enough to collect fluids. Recycle or dispose of fluids as hazardous waste.
- ❑ If vehicle or equipment cleaning must be done onsite, clean with water only in a bermed area that will not allow rinse water to run into gutters, streets, storm drains, or surface waters.
- ❑ Do not clean vehicle or equipment onsite using soaps, solvents, degreasers, steam cleaning equipment, etc.

Spill Prevention and Control
- ❑ Keep spill cleanup materials (rags, absorbents, etc.) available at the construction site at all times.
- ❑ Inspect vehicles and equipment frequently for and repair leaks promptly. Use drip pans to catch leaks until repairs are made.
- ❑ Clean up spills or leaks immediately and dispose of cleanup materials properly.
- ❑ Do not hose down surfaces where fluids have spilled. Use dry cleanup methods (absorbent materials, cat litter, and/or rags).
- ❑ Sweep up spilled dry materials immediately. Do not try to wash them away with water, or bury them.
- ❑ Clean up spills on dirt areas by digging up and properly disposing of contaminated soil.
- ❑ Report significant spills immediately. You are required by law to report all significant releases of hazardous materials, including oil. To report a spill: 1) Dial 911 or your local emergency response number, 2) Call the Governor's Office of Emergency Services Warning Center, (800) 852-7550 (24 hours).

Earthwork & Contaminated Soils



Erosion Control
- ❑ Schedule grading and excavation work for dry weather only.
- ❑ Stabilize all denuded areas, install and maintain temporary erosion controls (such as erosion control fabric or bonded fiber matrix) until vegetation is established.
- ❑ Seed or plant vegetation for erosion control on slopes or where construction is not immediately planned.

Sediment Control
- ❑ Protect storm drain inlets, gutters, ditches, and drainage courses with appropriate BMPs, such as gravel bags, fiber rolls, berms, etc.
- ❑ Prevent sediment from migrating offsite by installing and maintaining sediment controls, such as fiber rolls, silt fences, or sediment basins.
- ❑ Keep excavated soil on the site where it will not collect into the street.
- ❑ Transfer excavated materials to dump trucks on the site, not in the street.

Contaminated Soils
- ❑ If any of the following conditions are observed, test for contamination and contact the Regional Water Quality Control Board:
  - ■ Unusual soil conditions, discoloration, or odor.
  - ■ Abandoned underground tanks.
  - ■ Abandoned wells
  - ■ Buried barrels, debris, or trash.

Paving/Asphalt Work

- ❑ Avoid paving and seal coating in wet weather, or when rain is forecast before fresh pavement will have time to cure.
- ❑ Cover storm drain inlets and manholes when applying seal coat, tack coat, slurry seal, fog seal, etc.
- ❑ Collect and recycle or appropriately dispose of excess abrasive gravel or sand. Do NOT sweep or wash it into gutters.
- ❑ Do not use water to wash down fresh asphalt concrete pavement.

Sawcutting & Asphalt/Concrete Removal
- ❑ Completely cover or barricade storm drain inlets when saw cutting. Use filter fabric, catch basin inlet filters, or gravel bags to keep slurry out of the storm drain system.
- ❑ Shovel, absorb, or vacuum saw-cut slurry and dispose of all waste as soon as you are finished in one location or at the end of each work day (whichever is sooner!).
- ❑ If sawcut slurry enters a catch basin, clean it up immediately.

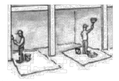
Concrete, Grout & Mortar Application

- ❑ Store concrete, grout and mortar under cover, on pallets and away from drainage areas. These materials must never reach a storm drain.
- ❑ Wash out concrete equipment/trucks offsite or in a contained area, so there is no discharge into the underlying soil or onto surrounding areas. Let concrete harden and dispose of as garbage.
- ❑ Collect the wash water from washing exposed aggregate concrete and remove it for appropriate disposal offsite.

Dewatering

- ❑ Effectively manage all run-on, all runoff within the site, and all runoff that discharges from the site. Divert run-on water from offsite away from all disturbed areas or otherwise ensure compliance.
- ❑ When dewatering, notify and obtain approval from the local municipality before discharging water to a street gutter or storm drain. Filtration or diversion through a basin, tank, or sediment trap may be required.
- ❑ In areas of known contamination, testing is required prior to reuse or discharge of groundwater. Consult with the Engineer to determine whether testing is required and how to interpret results. Contaminated groundwater must be treated or hauled off-site for proper disposal.

Painting & Paint Removal



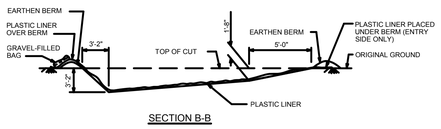
Painting cleanup
- ❑ Never clean brushes or rinse paint containers into a street, gutter, storm drain, or surface waters.
- ❑ For water-based paints, paint out brushes to the extent possible. Rinse to the sanitary sewer once you have gained permission from the local wastewater treatment authority. Never pour paint down a drain.
- ❑ For oil-based paints, paint out brushes to the extent possible and clean with thinner or solvent in a proper container. Filter and reuse thinners and solvents. Dispose of residue and unusable thinner/solvents as hazardous waste.

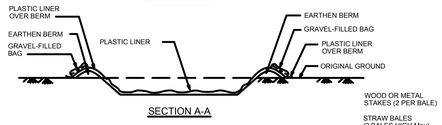
Paint removal
- ❑ Chemical paint stripping residue and chips and dust from marine paints or paints containing lead or tributyltin must be disposed of as hazardous waste.
- ❑ Paint chips and dust from non-hazardous dry stripping and sand blasting may be swept up or collected in plastic drop cloths and disposed of as trash.

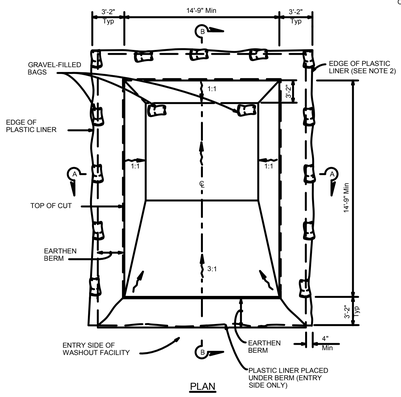
Landscape Materials

- ❑ Contain stockpiled landscaping materials by storing them under tarps when they are not actively being used.
- ❑ Stack erodible landscape material on pallets. Cover or store these materials when they are not actively being used or applied.
- ❑ Discontinue application of any erodible landscape material within 2 days before a forecast rain event or during wet weather.

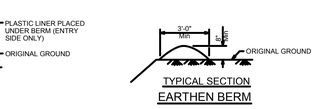
Storm drain polluters may be liable for fines of up to $10,000 per day!



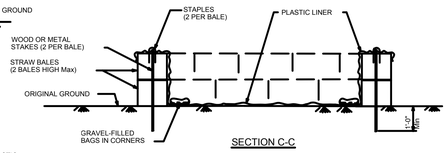


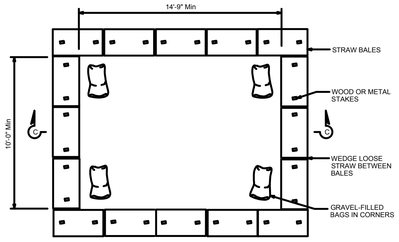


TEMPORARY CONCRETE WASHOUT FACILITY
(Below Grade)



TYPICAL SECTION
EARTHEN BERM





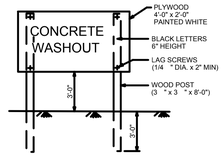
TEMPORARY CONCRETE WASHOUT FACILITY
(On Grade)

2 TEMPORARY CONCRETE WASHOUT FACILITY
NO SCALE

2010 STANDARD PLAN T59
7-13-09

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

NOTES:
1. The concrete washout sign shall be installed within 32'-10" of the temporary concrete washout facility.
2. Plastic liner shall be anchored with gravel-filled bags for below grade concrete washout facility.



CONCRETE WASHOUT SIGN DETAIL

STAPLE DETAIL

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TEMPORARY WATER POLLUTION CONTROL DETAILS (TEMPORARY CONCRETE WASHOUT FACILITY)

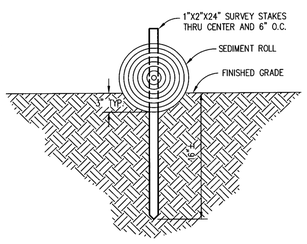
NO SCALE

EROSION CONTROL NOTES

1. CONTRACTOR SHALL FOLLOW ALL REQUIREMENTS OF THE PROJECT STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND SHALL UPDATE THE SWPPP AS NECESSARY. A COPY OF THE SWPPP SHALL REMAIN ON-SITE THROUGHOUT CONSTRUCTION.
2. THIS PLAN MAY NOT COVER ALL THE SITUATIONS THAT ARISE DURING CONSTRUCTION DUE TO UNANTICIPATED FIELD CONDITIONS. IN GENERAL, THE CONTRACTOR IS RESPONSIBLE FOR KEEPING SEDIMENT STORM RUN OFF FROM LEAVING THE SITE. FIBER ROLLS AND SILT FENCES SHALL BE USED BY THE CONTRACTOR ON AN AS NEEDED BASIS TO INHIBIT SILT FROM LEAVING THE SITE AND ENTERING THE STORM DRAIN SYSTEM.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL DAMAGES TO PUBLIC AND/OR PRIVATELY OWNED AND MAINTAINED ROADS CAUSED BY THE CONTRACTOR'S GRADING ACTIVITIES, AND SHALL BE RESPONSIBLE FOR THE CLEANUP OF ANY MATERIAL SPILLED ON ANY PUBLIC ROAD ON THE HAUL ROUTE. ADJACENT PUBLIC ROADS SHALL BE CLEANED DURING ALL GRADING AND EXCAVATION ACTIVITIES.
4. EROSION CONTROL FACILITIES SHALL BE MAINTAINED DAILY. THE NAME OF THE PERSON RESPONSIBLE FOR THE DAILY MAINTENANCE OF THESE FACILITIES SHALL BE ON RECORD WITH THE CITY. ALONG WITH A PHONE NUMBER WHERE HE OR SHE CAN BE REACHED 24 HOURS A DAY. THESE FACILITIES SHALL CONTROL AND CONTAIN EROSION-CAUSED SILT DEPOSITS AND PROVIDE FOR THE SAFE DISCHARGE OF SILT-FREE STORM WATER INTO EXISTING AND PROPOSED STORM DRAIN FACILITIES. DESIGN OF THESE FACILITIES MUST BE APPROVED AND UPDATED EACH YEAR AND SHALL BE SIGNED BY THE CITY ENGINEER.
5. THE APPLICANT IS RESPONSIBLE FOR ENSURING THAT ALL CONTRACTORS, SUBCONTRACTORS, AND SUPPLIERS ARE AWARE OF, AND IMPLEMENT ALL STORM WATER QUALITY MEASURES. FAILURE TO COMPLY WITH THE APPROVED CONSTRUCTION BMPS WILL RESULT IN THE ISSUANCE OF CORRECTION NOTICES, CITATIONS AND/OR A PROJECT STOP ORDER.
6. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE OPERABLE YEAR AROUND OR UNTIL VEGETATION IS ESTABLISHED ON SLOPED SURFACES.
7. EXPOSED EARTHEN AREAS TO BE STABILIZED SHALL BE SEEDED AND MULCHED IMMEDIATELY AFTER EACH AREA HAS BEEN GRADED. CONTRACTOR SHALL BE RESPONSIBLE FOR INITIAL WATERING OF AREAS TO ESTABLISH GROWTH AND STABILIZE THE SLOPES OF THE GRADED AREAS WITH VEGETATION, AND TO RE-SEED ANY AREAS IN WHICH VEGETATION DOES NOT INITIAL TAKE HOLD.
8. DURING THE RAINY SEASON, ALL PAVED AREAS ARE TO BE KEPT CLEAR OF EARTH MATERIAL AND DEBRIS. THE SITE IS TO BE MAINTAINED SO AS TO MINIMIZE SEDIMENT RUNOFF TO ANY STORM DRAIN SYSTEM.
9. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INSPECT ALL EROSION CONTROL FACILITIES DAILY AND REPAIR ANY DAMAGED FACILITIES IMMEDIATELY.
10. BORROW AND TEMPORARY STOCKPILES SHALL BE PROTECTED WITH APPROPRIATE EROSION CONTROL MEASURES (TARPS, FIBER ROLLS, SILT FENCES ETC.) TO ENSURE SILT DOES NOT LEAVE THE SITE OR ENTER THE STORM DRAIN SYSTEM. REFER TO THE EROSION CONTROL AND SEDIMENT CONTROL FIELD MANUAL, 4TH EDITION, PREPARED BY THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, SAN FRANCISCO BAY REGION.
11. ALL TRUCK TIRES SHALL BE CLEANED PRIOR TO EXITING THE SITE.
12. ALL DIRT PILES / STOCKPILES AND HAUL TRUCKS SHALL BE COVERED.
13. THE CONTRACTOR SHALL IMPLEMENT EROSION AND SEDIMENT CONTROL PRACTICES DETAILED IN THE EROSION CONTROL AND SEDIMENT CONTROL FIELD MANUAL, 4TH EDITION.
14. DURING PERIODS WHEN STORMS ARE FORECAST -
    14.1. EXCAVATED SOILS SHOULD NOT BE PLACED IN STREETS OR ON PAVED AREAS.
    14.2. ANY EXCAVATED SOILS SHOULD BE REMOVED FROM THE STREET BY THE END OF THE DAY.
    14.3. WHERE STOCKPILING IS NECESSARY, USE A TARPAULIN OR SURROUND THE STOCKPILED MATERIAL WITH FIBER ROLES, GRAVEL SEDIMENT BARRIER, SILT FENCE, OR OTHER RUNOFF CONTROLS.
    14.4. USE INLET CONTROLS AS NEEDED (E.G. BLOCK & GRAVEL SEDIMENT BARRIER) FOR STORM DRAIN ADJACENT TO THE PROJECT SITE OR STOCKPILED SOIL.
    14.5. THOROUGHLY SWEEP ALL PAVED AREAS EXPOSED TO SOIL EXCAVATION AND PLACEMENT.
15. DURING PERIODS WHEN STORMS ARE NOT FORECAST -
    15.1. PREVENT STOCKPILED MATERIAL FROM ENTERING THE STORM DRAIN SYSTEM.
    15.2. THOROUGHLY REMOVE LOOSE SOIL VIA SWEEPING FOLLOWING REMOVAL OF DIRT.
16. DUST CONTROL SHOULD BE PRACTICED ON ALL CONSTRUCTION SITES WITH EXPOSED SOILS AS NEEDED. IT IS IMPORTANT IN WINDY OR WIND-PRONE AREAS. DUST CONTROL IS CONSIDERED A TEMPORARY MEASURE AND AS INTERMEDIATE TREATMENT BETWEEN SITE DISTURBANCE AND CONSTRUCTION, PAVING, OR REVEGETATION. REFER TO THE EROSION CONTROL AND SEDIMENT CONTROL FIELD MANUAL, 4TH EDITION.
17. STORM DRAIN MARKER &/L01.04 SHALL BE APPLIED TO ALL CATCH BASINS.

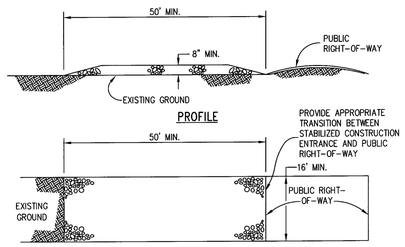
DRAINAGE INLET SEDIMENT BARRIERS

1. DRAINAGE INLET SEDIMENT BARRIERS SHALL BE INSTALLED AS SOON AS THE STORM DRAINAGE SYSTEM IS INSTALLED.
2. PRIOR TO PAVING FIBER ROLLS SHALL BE INSTALLED AROUND EACH DROP INLET PER DETAIL 1. AFTER PAVING IS COMPLETE AROUND EACH DROP INLET, BLOCK AND GRAVEL BAG SEDIMENT BARRIERS SHALL BE INSTALLED AROUND THE DROP INLETS PER CD-703 UNTIL ALL EXPOSED EARTHEN AREAS HAVE BEEN STABILIZED AND THE PROJECT SITE FACILITIES ARE OPERATIONAL, AT WHICH TIME THESE FACILITIES SHALL BE REMOVED.



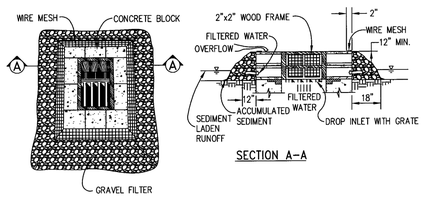
NOTES:
1. WATTLES SHALL BE PLACED IN A ROW WITH ENDS TIGHTLY ABUTTING.
2. EACH BALE SHALL BE EMBEDDED IN THE SOIL A MINIMUM OF 3 INCHES.
3. WATTLES SHALL BE SECURELY ANCHORED IN PLACE BY TWO STAKES OR RE-BARS DRIVEN THROUGH THE WATTLES. THE FIRST STAKE IN EACH BALE SHALL BE DRIVEN TOWARD THE PREVIOUSLY LAID BALE TO FORCE WATTLES TOGETHER.
4. THE DIKE SHALL BE INSPECTED AFTER EACH STORM, AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
5. WATTLES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR PURPOSE SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

3 STRAW WATTLE
NO SCALE

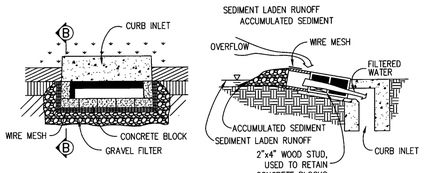


NOTES:
1. THE MATERIAL FOR CONSTRUCTION OF THE PAD SHALL BE 3 TO 4 INCH STONE.
2. THE THICKNESS OF THE PAD SHALL NOT BE LESS THAN 8 INCHES.
3. THE WIDTH OF THE PAD SHALL NOT BE LESS THAN THE FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS.
4. THE LENGTH OF THE PAD SHALL BE AS REQUIRED, BUT NOT LESS THAN 50 FEET.
5. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND, AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY SHALL BE REMOVED IMMEDIATELY.
6. WHEN NECESSARY, WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE THROUGH USE OF SAND BAGS, GRAVEL, BOARDS OR OTHER APPROVED METHODS.

4 STABILIZED CONSTRUCTION ENTRANCE
NO SCALE



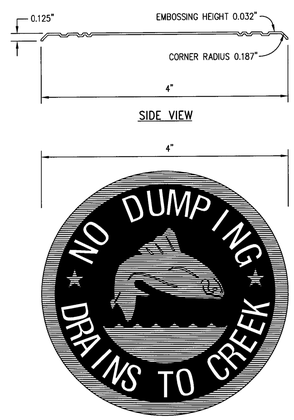
BLOCK AND GRAVEL DROP INLET PROTECTION (TYPE C)



CURB INLET PROTECTION BLOCK AND GRAVEL (TYPE D)

GENERAL NOTES:
1. FOR GRAVEL FILTERS USE 2"-3" DIAMETER COARSE AGGREGATE.
2. USE WIRE MESH WITH 1/2"x1/2" OPENINGS.

5 DRAINAGE INLET PROTECTION
NO SCALE



NOTE:
1. STORM DRAIN MARKER TO BE CONSTRUCTED OF 304 ANNEALED STAINLESS STEEL WITH BLUE, UV BAKED ENAMEL BACKGROUND ("ALMETECK" [1-800-248-2080] OR EQUAL).

6 STORM DRAIN MARKER
NO SCALE

01 EROSION CONTROL DETAILS
SCALE: 1' = 1'

Peter Stanley 10/1/2024 5:10 PM

ONLY THE ORIGINAL, SIGNED HARD COPY OF THIS DRAWING CONSTITUTES CARDUCCI & ASSOCIATES, INC. PROFESSIONAL WORK PRODUCT. ELECTRONIC COPIES DO NOT. CARDUCCI & ASSOCIATES, INC. WILL NOT BE RESPONSIBLE FOR ANY MODIFICATIONS MADE TO THIS DRAWING IS ELECTRONIC OR OTHERWISE. USE OF SIGNED AT CARDUCCI & ASSOCIATES, INC.

IF THE CONTRACTOR ENCOUNTERS ERRORS OR DISCREPANCIES ON THE DRAWINGS, OR SITE CONDITION INCONSISTENT OR DELAY THE COMPLETION OF WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER AND LANDSCAPE ARCHITECT. FAILURE TO DO SO CONSTITUTES AN ACCEPTANCE BY THE CONTRACTOR OF RESPONSIBILITY FOR CORRECTION OF ANY AND ALL RESULTING CONFLICTS, ERRORS OR DISCREPANCIES AND ANY ADDITIONAL COSTS INCURRED BY THE OWNER. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE LANDSCAPE ARCHITECT AND THE OWNER HARMLESS IF AFTER CONTRACTING FOR THE WORK HE HAS MONEY PAY DAMAGE BECAUSE OF SITE CONDITIONS, ERRORS, OMISSIONS OR DISCREPANCIES IN THE CONTRACT DOCUMENTS.

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-121720 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/7/2024

ARCHITECT/ ENGINEER
ZFA STRUCTURAL ENGINEERS
1212 fourth street | suite z zfa.com
santa rosa ca 95404 707.526.0992
zfa job no. 20400 copyright © 2024

STAMP

DESIGN TEAM

CARDUCCI ASSOCIATES
555 BEACH STREET FOURTH FLOOR
SAN FRANCISCO, CA 94133
www.carducciassociates.com
© 2024 CARDUCCI ASSOCIATES, INC.

STAMP

REGISTERED LANDSCAPE ARCHITECT
PETER STANLEY
No. 2537
12.31.2024
09.11.2024
STATE OF CALIFORNIA

OWNER
TAMALPAIS UNION HIGH SCHOOL DISTRICT

PROJECT
REDWOOD HIGH SCHOOL GHILOTTI FIELD SITE IMPROVEMENTS
395 DOHERTY DRIVE
LARKSPUR, CA 94939

CONTEXT MAP

#	DESCRIPTION	DATE

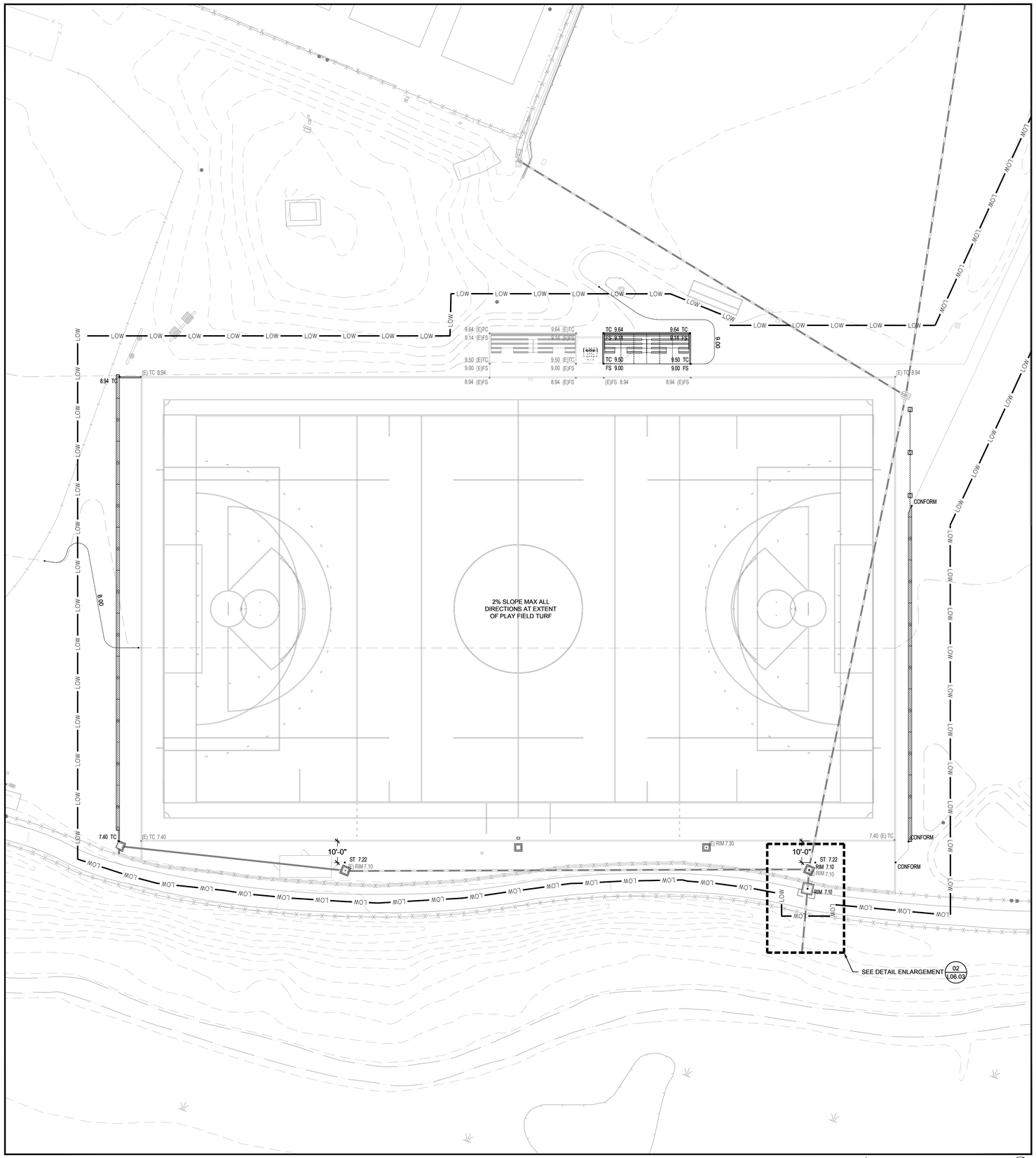
DSA SUBMITTAL

FILE NUMBER 21-H2
DSA APP NUMBER
01-121720

DATE: 09.11.2024
SCALE: N/A
PROJECT NO: TAM23-01

SHEET TITLE
DEMOLITION AND EROSION CONTROL DETAILS

SHEET NUMBER
L01.02



SITE LEGEND

SYMBOL	DESCRIPTION
LOW	LIMIT OF WORK
	(E) CONDITIONS, SEE TOPOGRAPHIC SURVEY
	ENLARGEMENT

LANDSCAPE GRADING LEGEND

SYMBOL	DESCRIPTION
(E)XX 160.43	EXISTING SPOT ELEVATION
	(E) CONTOUR
421 / 420	FINISH CONTOUR
XX 160.43	SPOT ELEVATION
CONFORM	CONFORM TO EXISTING GRADE
FS	FINISH SURFACE ELEVATION OF HARDSCAPE
TC	TOP OF CURB ELEVATION
RIM	RIM ELEVATION
INV	INVERT ELEVATION
ST	SYNTHETIC TURF ELEVATION

ACCESSIBLE ROUTE NOTES

1. BARRIER FREE ACCESS ROUTE WITH FOLLOWING CHARACTERISTICS:
   - A. LESS THAN 1:20 MAXIMUM SLOPE WITHOUT RAMP
   - B. LESS THAN 1:50 MAXIMUM CROSS SLOPE
   - C. NO ABRUPT CHANGES IN LEVEL
   - D. 48" MIN CLEAR IN WIDTH
   - E. NON-SLIP SURFACE
   - F. ACCESSIBLE ROUTE SHALL HAVE NO ABRUPT VERTICAL CHANGES EXCEEDING 1/2" AT 1:2 MAXIMUM SLOPE, EXCEPT THAT LEVEL CHANGES DO NOT EXCEED 1/4".
   - G. CONTRACTOR TO VERIFY THAT ALL BARRIERS IN THE ACCESSIBLE ROUTE HAVE BEEN REMOVED OR WILL BE REMOVED IN THIS PROJECT, & THAT ACCESSIBLE ROUTE COMPLIES WITH CBC 1133B.
2. CONSTRUCT ALL PAVED AREAS TO DRAIN
3. CONFORMANCE SURVEYING OF ACCESSIBLE ROUTE: THE CONTRACTOR SHALL PERFORM A CONFORMANCE SURVEY OF THE ACCESSIBLE ROUTE SHOWING CROSS SLOPES, LONGITUDINAL SLOPES AND SPOT ELEVATIONS ON A 10-FOOT GRID AFTER FINISH GRADING AND FINISH SURFACING IS COMPLETE. CORRECT ANY IRREGULARITIES FOUND AND RESURVEY CORRECTED AREAS TO DOCUMENT CONFORMANCE. SUBMIT CONFORMANCE SURVEYING OF ACCESSIBLE ROUTE TO ARCHITECT AND INCLUDE AS PART OF RECORD DRAWINGS.

EXISTING CONDITIONS NOTES

CONTRACTOR WILL BE RESPONSIBLE FOR VERIFICATION OF THE LOCATION OF UNDERGROUND UTILITIES IN THE FIELD.

REDWOOD HIGH SCHOOL
395 DOHERTY DRIVE
LARKSPUR, CALIFORNIA

FIELD WORK WAS COMPLETED ON MARCH 2013 BY CSW/STUBER-STROEH ENGINEERING GROUP, INC. FROM NOVATO, CALIFORNIA.

DISTANCES AND ELEVATIONS SHOWN ARE IN FEET AND DECIMALS THEREOF.

HORIZONTAL DATUM IS CALIFORNIA COORDINATE SYSTEM 83, ZONE 3.

THE VERTICAL DATUM FOR THIS PROJECT IS THE NGS G108 BRONZE DISK IN LARKSPUR, AT 552 MAGNOLIA AVENUE, IN THE CONCRETE CURB OF THE LOADING PLATFORM OF THE ABANDONED NORTHERN PACIFIC RAILROAD STATION, 17.7 FEET NORTH OF THE EAST CORNER OF THE BUILDING, 11.5 FEET SOUTHEAST OF THE EXTENDED CENTER OF THE ENTRANCE, AND 1 FOOT ABOVE THE GROUND SURFACE. ELEVATION IS 17.57' NAVD 88.

FIELD IMPROVEMENTS CONSTRUCTION DRAWINGS FOR REDWOOD HIGH SCHOOL DSA PROJECT 01-113319 DATED 7/3/2013 ARE AVAILABLE FROM THE CONSTRUCTION MANAGER

ONLY THE ORIGINAL, SIGNED HARD COPY OF THIS DRAWING CONSTITUTES CARDUCCI & ASSOCIATES, INC. PROFESSIONAL WORK PRODUCT. ELECTRONIC COPIES DO NOT. CARDUCCI & ASSOCIATES, INC. WILL NOT BE RESPONSIBLE FOR ANY MODIFICATIONS MADE TO THIS DRAWING ELECTRONICALLY OR OTHERWISE. USE IS NOT GRANTED BY CARDUCCI & ASSOCIATES, INC.

IF THE CONTRACTOR ENCOUNTERS ERRORS OR DISCREPANCIES ON THE DRAWINGS, OR SITE CONDITIONS WHICH PREVENT OR DELAY THE COMPLETION OF WORK AS INDICATED, THE CONTRACTOR SHALL NOTIFY THE OWNER AND LANDSCAPE ARCHITECT BY THE TIME OF BID OF ALL SUCH ERRORS, DISCREPANCIES AND OMISSIONS. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE LANDSCAPE ARCHITECT AND THE OWNER HARMLESS IF AFTER CONTRACTING FOR THE WORK HE HAS MORE PAY, DAMAGE BECAUSE OF SITE CONDITIONS, ERRORS, DISCREPANCIES OR OMISSIONS AT THE TIME OF BID.

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-121720 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/7/2024

ARCHITECT/ ENGINEER
ZFA STRUCTURAL ENGINEERS
1212 fourth street | suite z zfa.com
santa rosa ca 95404 707.526.0992
zfa job no. 20400 copyright © 2024

STAMP

DESIGN TEAM

CARDUCCI
ASSOCIATES
555 BEACH STREET FOURTH FLOOR
SAN FRANCISCO, CA 94133
www.carducciassociates.com
© 2024 CARDUCCI ASSOCIATES, INC.

STAMP

OWNER
TAMALPAIS UNION HIGH SCHOOL DISTRICT

PROJECT
REDWOOD HIGH SCHOOL GHILOTTI FIELD SITE IMPROVEMENTS
395 DOHERTY DRIVE
LARKSPUR, CA 94939

CONTEXT MAP

#	DESCRIPTION	DATE

DSA SUBMITTAL

FILE NUMBER 21-H2
DSA APP NUMBER
01-121720

DATE:	09.11.2024
SCALE:	N/A
PROJECT NO:	TAM23-01

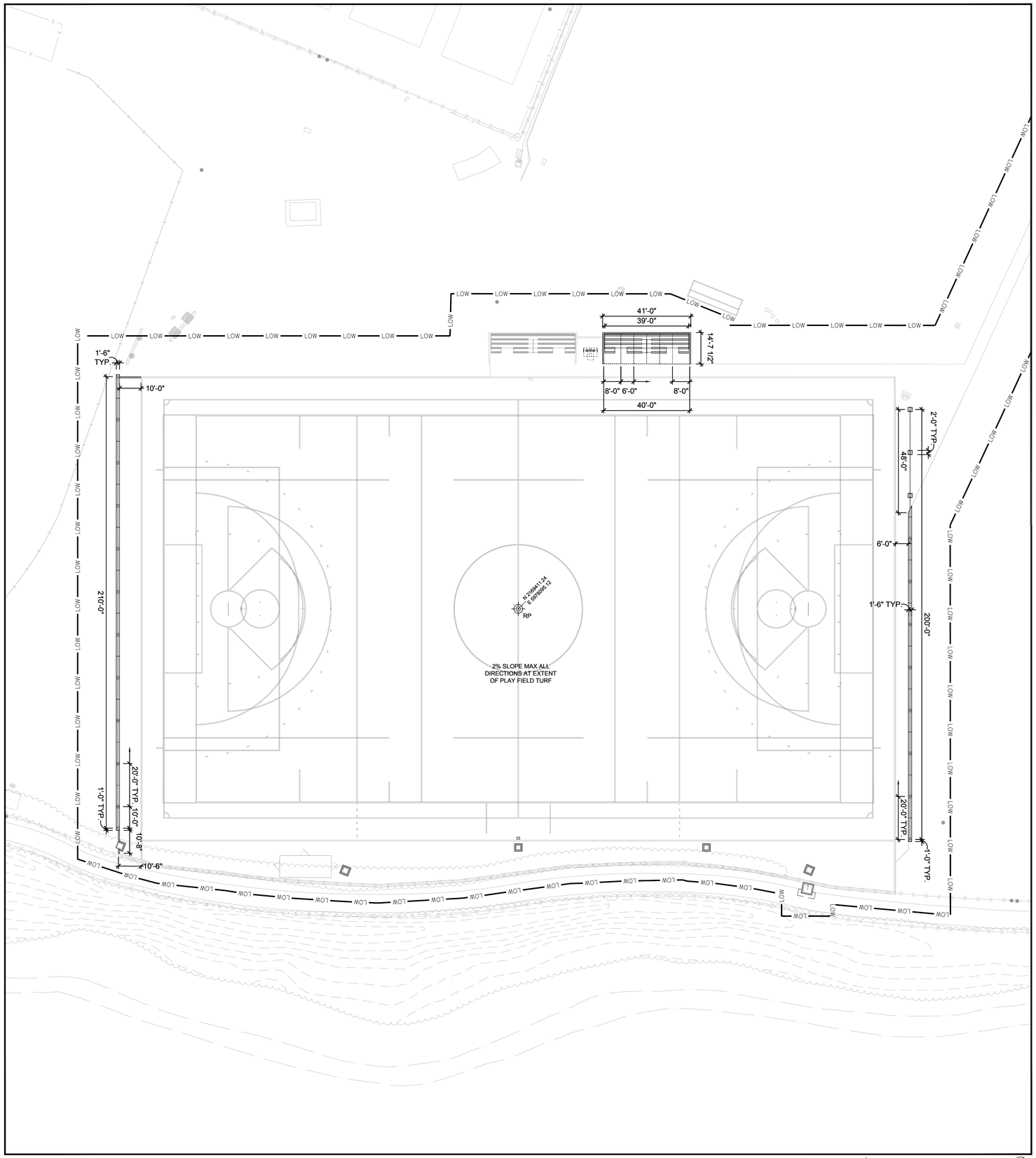
SHEET TITLE

GRADING LEGEND AND PLAN

SHEET NUMBER

L02.00

Peter Stanley 10/1/2024 5:11 PM



SITE LEGEND

SYMBOL	DESCRIPTION
LOW	LIMIT OF WORK
	(E) CONDITIONS, SEE TOPOGRAPHIC SURVEY

LAYOUT LEGEND

SYMBOL	DESCRIPTION
N 2167267.52 E 5979335.70	COORDINATES
RP	REFERENCE POINT

LAYOUT NOTES

1. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER OF ANY DISCREPANCIES PRIOR TO CONTINUANCE OF WORK.
2. DO NOT SCALE OFF OF PLANS.
3. FIELD VERIFY LOCATIONS OF THE UNDERGROUND UTILITIES, CALL 811 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO ALL EXISTING FACILITIES SHOWN TO REMAIN, INCLUDING ROADS AND OTHER STREET IMPROVEMENTS.
5. ALL ANGLES 90° UON
6. SEE DETAIL SHEETS AND SPECIFICATIONS FOR MORE INFORMATION.
7. SURVEY FOR (E) CONDITIONS SEE FIELD IMPROVEMENTS CONSTRUCTION DRAWINGS FOR REDWOOD HIGH SCHOOL, DSA PROJECT NUMBER 01-113319 DATED 7/3/2013 ARE AVAILABLE FROM THE CONSTRUCTION MANAGER
8. PLAN DIMENSIONS ARE ROUNDED TO NEAREST 1/4 INCH.
9. LANDSCAPE ARCHITECT WILL MAKE CAD FILES AVAILABLE FOR USE BY FIELD ENGINEER.

ACCESSIBLE ROUTE NOTES

1. BARRIER FREE ACCESS ROUTE WITH FOLLOWING CHARACTERISTICS:
   - A. LESS THAN 1:20 MAXIMUM SLOPE WITHOUT RAMP.
   - B. LESS THAN 1:50 MAXIMUM CROSS SLOPE.
   - C. 48" MIN CLEAR IN WIDTH.
   - D. NON-SLIP SURFACE.
   - E. ACCESSIBLE PATH SHALL HAVE NO ABRUPT VERTICAL CHANGES EXCEEDING 1/4" VERTICAL OR 1/4" VERTICAL WITH AN ADDITIONAL 1/4" AT 2:1 MAXIMUM SLOPE, OR A TOTAL OF 1/2" AT 2:1 MAXIMUM SLOPE.
   - F. CONTRACTOR TO VERIFY THAT ALL BARRIERS IN THE PATH OF TRAVEL HAVE BEEN REMOVED OR WILL BE REMOVED IN THIS PROJECT, & THAT PATH OF TRAVEL COMPLIES WITH CBC 11B.
2. CONSTRUCT ALL PAVED AREAS TO DRAIN
3. CONFORMANCE SURVEYING OF ACCESSIBLE ROUTE: THE CONTRACTOR SHALL PERFORM A CONFORMANCE SURVEY OF THE ACCESSIBLE ROUTE SHOWING CROSS SLOPES, LONGITUDINAL SLOPES AND SPOT ELEVATIONS ON A 10-FOOT GRID AFTER FINISH GRADING AND FINISH SURFACING IS COMPLETE. CORRECT ANY IRREGULARITIES FOUND AND RESURVEY CORRECTED AREAS TO DOCUMENT CONFORMANCE. SUBMIT CONFORMANCE SURVEYING OF ACCESSIBLE ROUTE TO ARCHITECT AND INCLUDE AS PART OF RECORD DRAWINGS.

ONLY THE ORIGINAL, SIGNED HARD COPY OF THIS DRAWING CONSTITUTES CARDUCCI & ASSOCIATES, INC. PROFESSIONAL WORK PRODUCT. ELECTRONIC COPIES DO NOT. CARDUCCI & ASSOCIATES, INC. WILL NOT BE RESPONSIBLE FOR ANY MODIFICATIONS MADE TO THIS DRAWING ELECTRONICALLY OR OTHERWISE. USE IS NOT GRANTED BY CARDUCCI & ASSOCIATES, INC.

IF THE CONTRACTOR ENCOUNTERS ERRORS OR DISCREPANCIES ON THE DRAWINGS, OR SITE CONDITIONS WHICH PREVENT OR DELAY THE COMPLETION OF WORK AS INDICATED, THE CONTRACTOR SHALL NOTIFY THE OWNER AND LANDSCAPE ARCHITECT BY THE TIME OF BID OF ALL SUCH ERRORS, DISCREPANCIES AND OMISSIONS. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE LANDSCAPE ARCHITECT AND THE OWNER HARMLESS IF AFTER CONTRACTING FOR THE WORK HE HAS MORE PAY, DAMAGE BECAUSE OF SITE CONDITIONS, ERRORS, DISCREPANCIES OR OMISSIONS AT THE TIME OF BID.

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-121720 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/7/2024

ARCHITECT/ ENGINEER
ZFA STRUCTURAL ENGINEERS
1212 fourth street | suite z zfa.com
santa rosa ca 95404 707.526.0992
zfa job no. 20400
copyright © 2024

STAMP

DESIGN TEAM

CARDUCCI
ASSOCIATES
555 BEACH STREET FOURTH FLOOR
SAN FRANCISCO, CA 94133
www.carducciassociates.com
© 2024 CARDUCCI ASSOCIATES, INC.

STAMP

OWNER
TAMALPAIS UNION HIGH SCHOOL DISTRICT

PROJECT
REDWOOD HIGH SCHOOL GHILOTTI FIELD SITE IMPROVEMENTS
395 DOHERTY DRIVE
LARKSPUR, CA 94939

CONTEXT MAP

#	DESCRIPTION	DATE

DSA SUBMITTAL

FILE NUMBER 21-H2
DSA APP NUMBER
01-121720

DATE:	09.11.2024
SCALE:	N/A
PROJECT NO:	TAM23-01

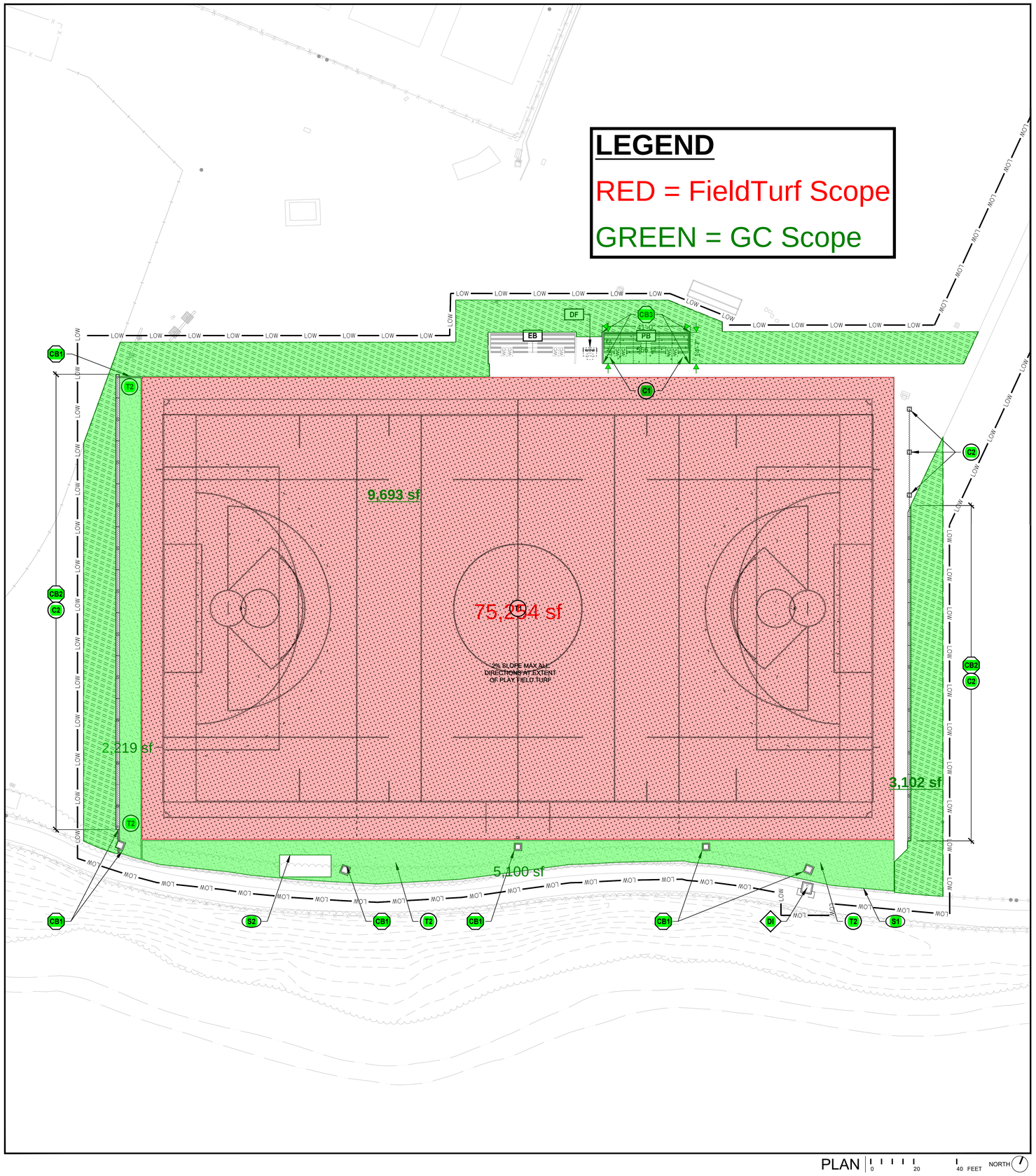
SHEET TITLE

LAYOUT LEGEND AND PLAN

SHEET NUMBER

L04.00

Peter Stanley 10/1/2024 5:12 PM



PLAN 0 20 40 FEET NORTH

SITE LEGEND

SYMBOL	DESCRIPTION
LOW	LIMIT OF WORK
	(E) CONDITIONS, SEE TOPOGRAPHIC SURVEY

MATERIALS LEGEND

SYMBOL	KEY	DESCRIPTION
		SIGN AND GATE SCHEDULE
	S1	REGULATORY SIGN - NO DOGS QUANTITY: 1 — 08 L06.04
	S2	MAINTENANCE ONLY SIGN QUANTITY: 1 — 07 L06.04
		CONCRETE PAVING SERIES
	C1	CONCRETE PAVING TYPE C1 COLOR: NATURAL W/ LAMP BLACK FINISH: MEDIUM BROOM FINISH — 01 L06.01
	C2	CONCRETE TYPE C2: STRUCTURAL CONCRETE NET POSTS — 2 SFS-2
		CONCRETE CONTROL JOINT SERIES
		EXPANSION JOINT (EJ)
		SYNTHETIC TURF
	T1	CARPET: VERTEX INFILL: OLIVE PIT & SAND COLOR: GREEN — 03 L06.01, 01 L06.02, 02 L06.02, 03 L06.02, 04 L06.02, 05 L06.02, 06 L06.02
	T2	CARPET: COMMANDER INFILL: SAND COLOR: GREEN — 03 L06.01
		CONCRETE BORDER AND HEADER
	CB1	6" WIDE CONCRETE BORDER — 05 L06.01
	CB2	1'-6" WIDE CONCRETE BORDER WITH 10' H SAFETY NETTING BSS210 SPORTSFIELD SPECIALTIES — 02 L06.01, 1 SFS-2, 2 SFS-2, 3 SFS-2
	CB3	6" WIDE RAISED CONCRETE CURB — 06 L06.01
		UTILITY
	DI	DRAIN INLET WITH CHECK VALVE — 6 L01.02, 01 L06.03
		SITE FURNISHING
SIM	DF	DRINKING FOUNTAIN, MODEL 3612 HAWS ADA VANDAL-RESISTANT OUTDOOR STAINLESS STEEL BOTTLE FILLER AND DRINKING FOUNTAIN WITH RAILS — 08 L06.02, 03 L06.03, 04 L06.03, 05 L06.03
	EB	EXISTING BLEACHER SYSTEM. 5-TIER WITH WHEELCHAIR AREA AND COMPANION SEATING BY SOUTHERN BLEACHERS — L06.05, L06.06, L06.07, L06.08
	PB	PROPOSED BLEACHER SYSTEM. 5-TIER WITH WHEELCHAIR AREA AND COMPANION SEATING BY SOUTHERN BLEACHERS. SURFACE MOUNT PER MANUFACTURERS RECOMMENDATION. MATCH EXISTING BLEACHERS — L06.09, L06.10, L06.11, L06.12, L06.13
		PLANTING
		HYDRO SEED AREAS THAT NEED REPAIR WHEN FIELD INSTALLATION IS COMPLETE. SEE DEMOLITION PLAN FOR ADDITIONAL AREAS OF REPAIR

ONLY THE ORIGINAL, SIGNED HARD COPY OF THIS DRAWING CONSTITUTES ZAPOUSCO & ASSOCIATES, INC. PROFESSIONAL WORK PRODUCT. ELECTRONIC COPIES DO NOT. ZAPOUSCO & ASSOCIATES, INC. WILL NOT BE RESPONSIBLE FOR ANY MODIFICATIONS MADE TO THIS DRAWING ELECTRONIC OR OTHERWISE. © THE FIRM OF ZAPOUSCO & ASSOCIATES, INC.

IF THE CONTRACTOR ENCOUNTERS ERRORS OR INCONSISTANCIES IN THE DRAWINGS OR IN THE EXISTING CONDITIONS HE SHALL NOTIFY THE OWNER AND LANDSCAPE ARCHITECT BY THE TIME OF BID OF ALL SUCH ERRORS, DISCREPANCIES AND OMISSIONS. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE LANDSCAPE ARCHITECT AND THE OWNER HARMLESS IF AFTER CONTRACT FOR THE WORK HE HAS MONETARY DAMAGE BECAUSE OF SITE CONDITIONS, ERRORS, DISCREPANCIES OR OMISSIONS AT THE TIME OF BID.

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-121720 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/7/2024

ARCHITECT/ ENGINEER
ZFA STRUCTURAL ENGINEERS
1212 fourth street | suite z
santa rosa ca 95404
zfa job no. 20400
zfa.com
707.526.0992
copyright © 2024

STAMP

DESIGN TEAM

CARDUCCI ASSOCIATES
555 BEACH STREET FOURTH FLOOR
SAN FRANCISCO, CA 94133
www.carducciassociates.com
© 2024 CARDUCCI ASSOCIATES, INC.

STAMP

OWNER
TAMALPAIS UNION HIGH SCHOOL DISTRICT

PROJECT
REDWOOD HIGH SCHOOL GHILOTTI FIELD SITE IMPROVEMENTS
395 DOHERTY DRIVE
LARKSPUR, CA 94939

CONTEXT MAP

#	DESCRIPTION	DATE

DSA SUBMITTAL

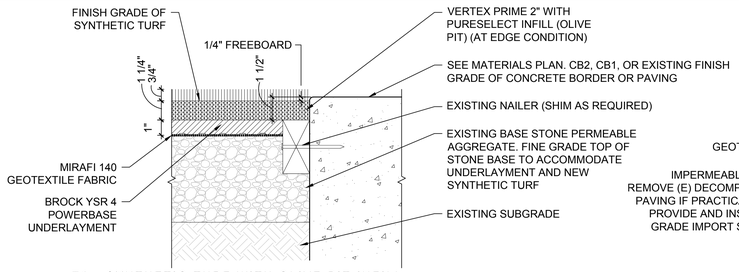
FILE NUMBER 21-H2
DSA APP NUMBER
01-121720

DATE: 09.11.2024
SCALE: N/A
PROJECT NO: TAM23-01

SHEET TITLE
MATERIALS LEGEND AND PLAN

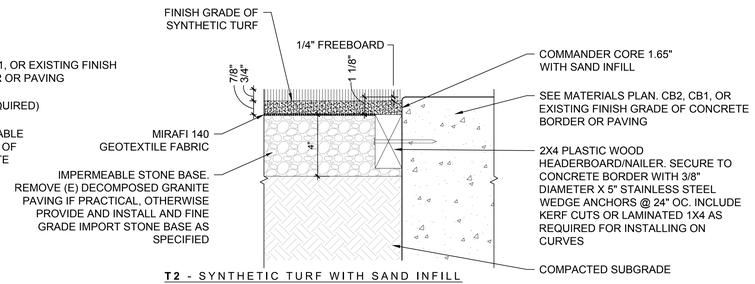
SHEET NUMBER
L05.00

Peter Stanley 10/2/2024 9:38 AM



T1 - SYNTHETIC TURF WITH OLIVE PIT INFILL

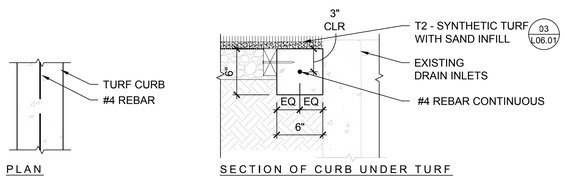
WHEELCHAIR STRAIGHT PROPULSION & TURN TEST RESULTS:		
FIELD	14.33#	11.36#
TURNING	10.14#	7.39#
TEST CONSISTENT WITH REQUIREMENTS OF ASTM F-1951-99		

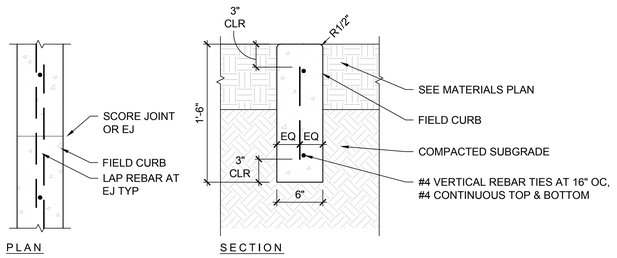


T2 - SYNTHETIC TURF WITH SAND INFILL

WHEELCHAIR STRAIGHT PROPULSION & TURN TEST RESULTS:		
FIELD	14.33#	11.36#
TURNING	10.14#	7.39#
TEST CONSISTENT WITH REQUIREMENTS OF ASTM F-1951-99		

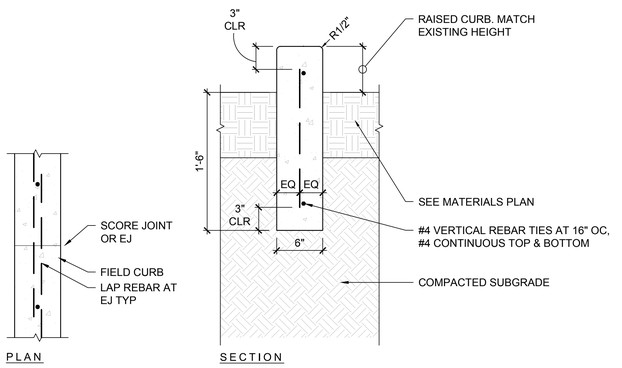
03 SYNTHETIC TURF - T1 & T2
SCALE: 3" = 1'





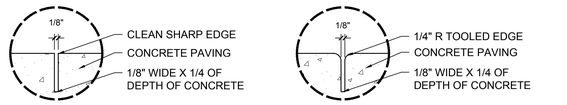
NOTES:
1. SCORE JOINTS A MAX OF 10' OC, EQUALLY SPACED.
2. LOCATE EXPANSION JOINTS A MAXIMUM OF 20' OC AND EQUALLY SPACED.

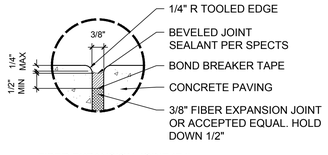
05 CONCRETE CURB - CB1
SCALE: 1 1/2" = 1'



NOTES:
1. SCORE JOINTS A MAX OF 10' OC, EQUALLY SPACED.
2. LOCATE EXPANSION JOINTS A MAXIMUM OF 20' OC AND EQUALLY SPACED.

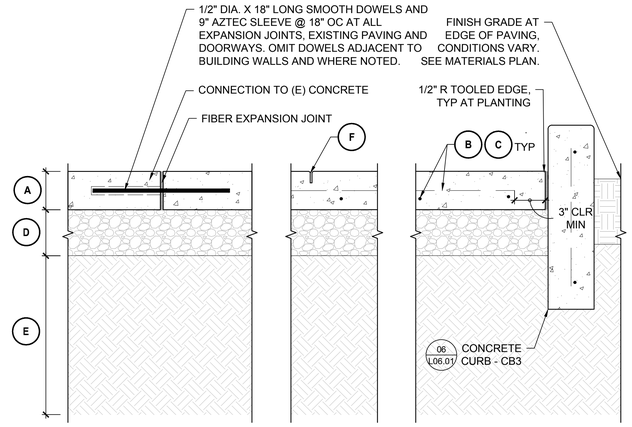
06 CONCRETE CURB - CB3
SCALE: 1 1/2" = 1'





NOTES:
1. MOCK UP JOINTS WITH CONC PAVING MOCKUP FOR REVIEW AND ACCEPTANCE

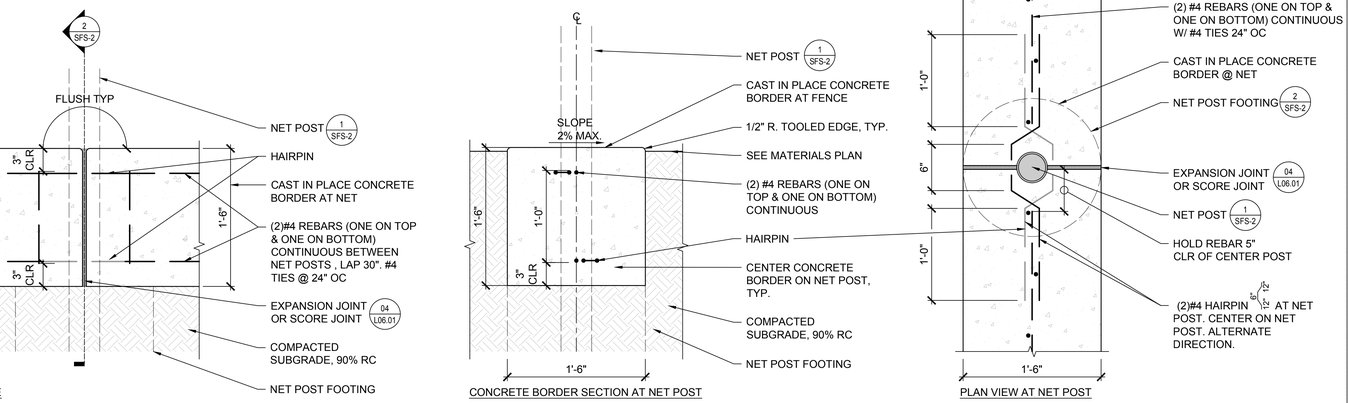
04 PAVING - CONCRETE JOINTS
SCALE: 6" = 1'



NOTE:
1. COLOR AND FINISH MEDIUM BROOM NON-SLIP, SEE MATERIALS PLANS FOR COLOR, UNLESS OTHERWISE NOTED.
2. CONTROL JOINTS SHALL BE PLACED AS SHOWN ON PLANS.
3. EJ'S SHALL BE PLACED AS SHOWN ON PLANS.
4. 2% MAX CROSS SLOPE IN ALL AREAS WITHIN PATH OF TRAVEL. IF FIELD CONDITIONS CREATE MORE THAN 2% CROSS SLOPE DO NOT PLACE CONCRETE WITH OUT APPROVAL BY INSPECTOR.
5. PROVIDE ON SITE MOCK-UP OF PAVING AND JOINTS FOR REVIEW AND APPROVAL.

		CONCRETE PAVING
A	CAST-IN-PLACE CONCRETE THICKNESS	0'-6"
B	REBAR	#4
C	REBAR SPACING	12" EACH WAY, CENTERED IN SLAB
D	COMPACTED CLASS II AGG. BASE	0'-6"
E	COMPACTED SUBGRADE	12" DEPTH MIN / 92% RC
F	CONTROL JOINT DEPTH	0'-1.25000"

01 PAVE - CONCRETE
SCALE: 1 1/2" = 1'



NOTES:
1. PROVIDE 5' LONG ON-SITE SAMPLE OF CONCRETE BORDER FOR REVIEW & ACCEPTANCE
2. PLACE CONCRETE BORDER FLUSH WITH ADJACENT PAVING
3. PLACE JOINTS CENTERED ON NET POSTS
4. EJ @ EVERY OTHER NET POST SEE DETAIL 1/SFS-2 FOR POST SPACING
5. MATCH FINISH OF CONCRETE PAVING

NOTE
PER DSA IR A-22 SECTION 2.1.2.1: THIS PROJECT ELEMENT IS NOT A PART OF THE DSA STRUCTURAL APPROVAL SYSTEM BUT IS A PART OF THE DSA ACCESSIBILITY AND FIRE LIFE SAFETY APPROVAL SYSTEM.

02 CONCRETE BORDER WITH NET FOOTING - CB2
SCALE: 1 1/2" = 1'

ONLY THE ORIGINAL, SIGNED HARD COPY OF THIS DRAWING CONSTITUTES CARDUCCI ASSOCIATES, INC. PROFESSIONAL WORK PRODUCT. ELECTRONIC COPIES DO NOT. CARDUCCI ASSOCIATES, INC. WILL NOT BE RESPONSIBLE FOR ANY MODIFICATIONS MADE TO THIS DRAWING ELECTRONIC OR OTHERWISE. USE OF SAME BY CARDUCCI ASSOCIATES, INC.

AT THE COMPLETION OF WORK AS INDICATED, THE CONTRACTOR SHALL NOTIFY THE OWNER AND LANDSCAPE ARCHITECT BY THE TIME OF BID OF ALL SUCH ERRORS, DISCREPANCIES AND OMISSIONS. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE LANDSCAPE ARCHITECT AND THE OWNER HARMLESS IF AFTER CONTRACTING FOR THE WORK HE HAS MONEY PAY DAMAGE BECAUSE OF SITE CONDITIONS, ERRORS, DISCREPANCIES OR OMISSIONS AT THE TIME OF BID.

Peter Stanley 10/1/2024 2:37 PM

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-121720 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/7/2024

ARCHITECT/ ENGINEER
ZFA STRUCTURAL ENGINEERS
1212 fourth street | suite z zfa.com
santa rosa ca 95404 707.526.0992
zfa job no. 20400 copyright © 2024

STAMP

DESIGN TEAM

CARDUCCI ASSOCIATES
555 BEACH STREET FOURTH FLOOR
SAN FRANCISCO, CA 94133
www.carducciassociates.com
© 2024 CARDUCCI ASSOCIATES, INC.

STAMP

OWNER
TAMALPAIS UNION HIGH SCHOOL DISTRICT

PROJECT
REDWOOD HIGH SCHOOL GHILOTTI FIELD SITE IMPROVEMENTS
395 DOHERTY DRIVE
LARKSPUR, CA 94939

CONTEXT MAP

#	DESCRIPTION	DATE

DSA SUBMITTAL

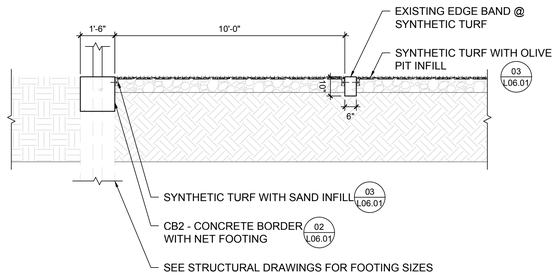
FILE NUMBER 21-H2
DSA APP NUMBER
01-121720

DATE: 09.11.2024
SCALE: N/A
PROJECT NO: TAM23-01
SHEET TITLE

DETAILS

SHEET NUMBER

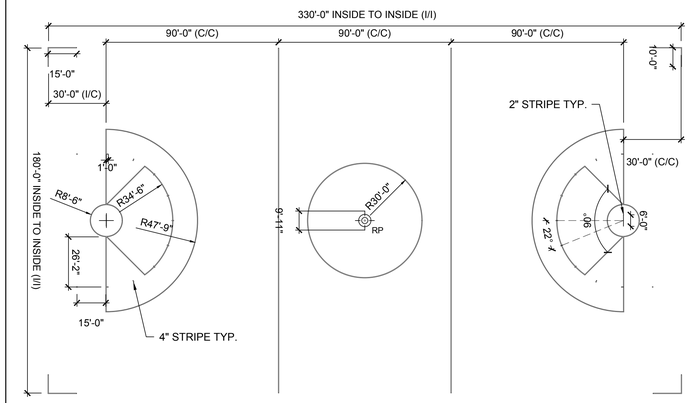
L06.01



SECTION

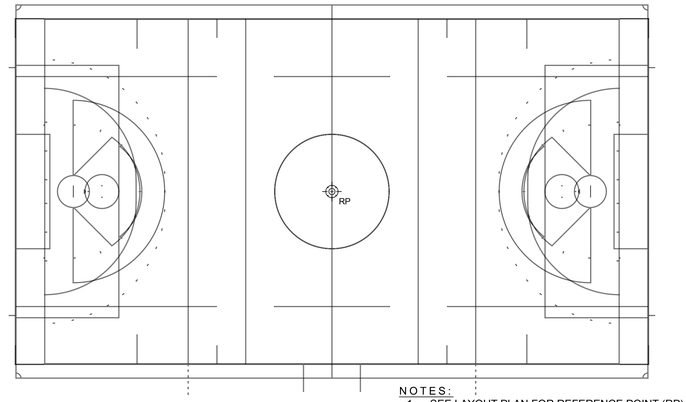
NOTES:
1. MEDIUM BROOM FINISH ALL EXPOSED SURFACES
2. PROVIDE EXPANSION JOINTS AT 20' OC, SCORE JOINTS MAX OF 10' OC
3. DOWEL AT EJ'S & ADJACENT CONC PAVING

07 SYNTHETIC TURF FIELD SECTION
SCALE: 3/8" = 1'



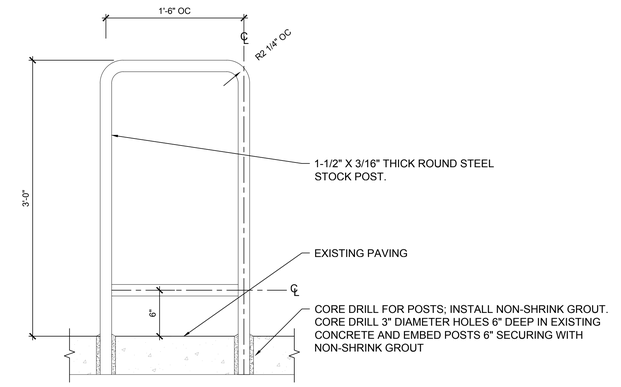
NOTES:
1. SEE LAYOUT PLAN FOR REFERENCE POINT (RP)

04 GIRLS LACROSSE STRIPING DIAGRAM
SCALE: 1/32" = 1'



NOTES:
1. SEE LAYOUT PLAN FOR REFERENCE POINT (RP)

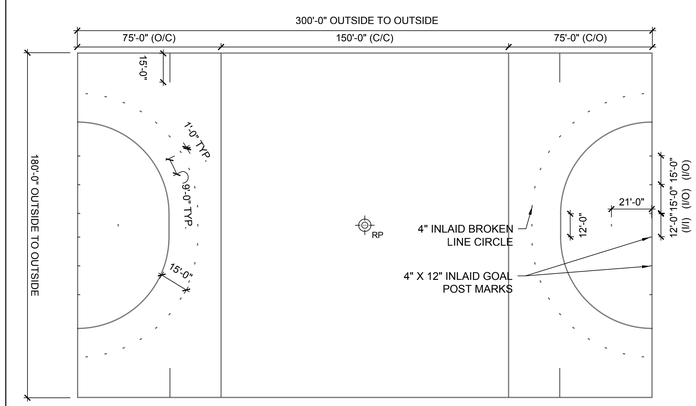
01 FIELD COMPOSITE OVERVIEW
SCALE: 1/32" = 1'



SECTION

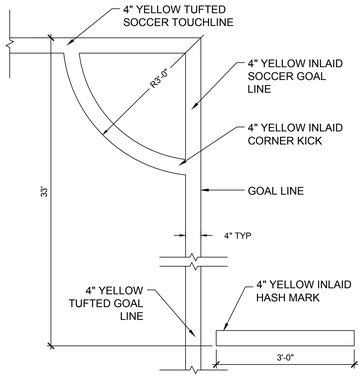
NOTES:
1. RAILING FINISH: HOT DIPPED GALVANIZED.

08 RAILING FOR DF
SCALE: 1 1/2" = 1'



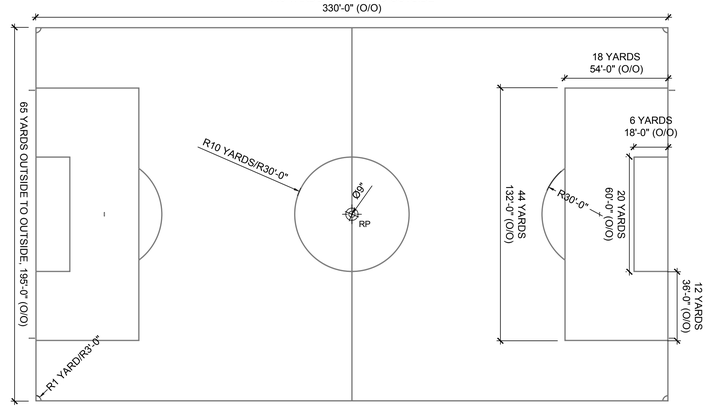
NOTES:
1. SEE LAYOUT PLAN FOR REFERENCE POINT (RP)

05 FIELD HOCKEY STRIPING DIAGRAM
SCALE: 1/32" = 1'



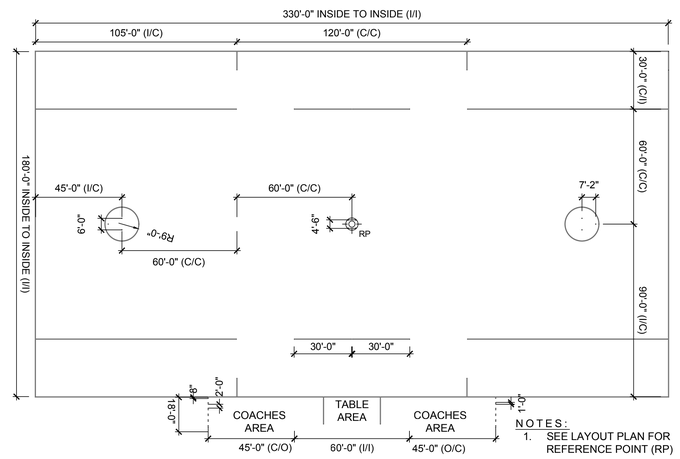
NOTES:
1. ORIENTATION VARIES AT EACH CORNER. VERIFY ORIENTATION IN FIELD.

06 SOCCER CORNER KICK
SCALE: 3/4" = 1'



NOTES:
1. SEE LAYOUT PLAN FOR REFERENCE POINT (RP)

02 SOCCER STRIPING DIAGRAM
SCALE: 1/32" = 1'



NOTES:
1. SEE LAYOUT PLAN FOR REFERENCE POINT (RP)

03 BOYS LACROSSE STRIPING DIAGRAM
SCALE: 1/32" = 1'

ONLY THE ORIGINAL, SIGNED HARD COPY OF THIS DRAWING CONSTITUTES CARDUCCI & ASSOCIATES, INC. PROFESSIONAL WORK PRODUCT. ELECTRONIC COPIES DO NOT. CARDUCCI & ASSOCIATES, INC. WILL NOT BE RESPONSIBLE FOR ANY MODIFICATIONS MADE TO THIS DRAWING ELECTRONIC OR OTHERWISE. IN THE EVENT OF CARDUCCI & ASSOCIATES, INC.

IF THE CONTRACTOR ENCOUNTERS ERRORS OR DISCREPANCIES ON THE DRAWINGS, OR IS IN CONFUSION WHICH PREVENTS OR DELAYS THE COMPLETION OF WORK AS INDICATED, THE CONTRACTOR SHALL NOTIFY THE OWNER AND LANDSCAPE ARCHITECT BY THE TIME OF BID OF ALL SUCH ERRORS, DISCREPANCIES AND OMISSIONS. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE LANDSCAPE ARCHITECT AND THE OWNER HARMLESS IF THE CONTRACTOR FAILS TO NOTIFY AS STATED ABOVE.

Peter Stanley 10/1/2024 2:38 PM

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-121720 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/7/2024

ARCHITECT/ ENGINEER
ZFA STRUCTURAL ENGINEERS
1212 fourth street | suite z zfa.com
santa rosa ca 95404 707.526.0992
zfa job no. 20400
copyright © 2024

STAMP

DESIGN TEAM

CARDUCCI ASSOCIATES
555 BEACH STREET FOURTH FLOOR
SAN FRANCISCO, CA 94133
www.carducciassociates.com
© 2024 CARDUCCI ASSOCIATES, INC.

STAMP

OWNER
TAMALPAIS UNION HIGH SCHOOL DISTRICT

PROJECT
REDWOOD HIGH SCHOOL GHILOTTI FIELD SITE IMPROVEMENTS
395 DOHERTY DRIVE
LARKSPUR, CA 94939

CONTEXT MAP

#	DESCRIPTION	DATE

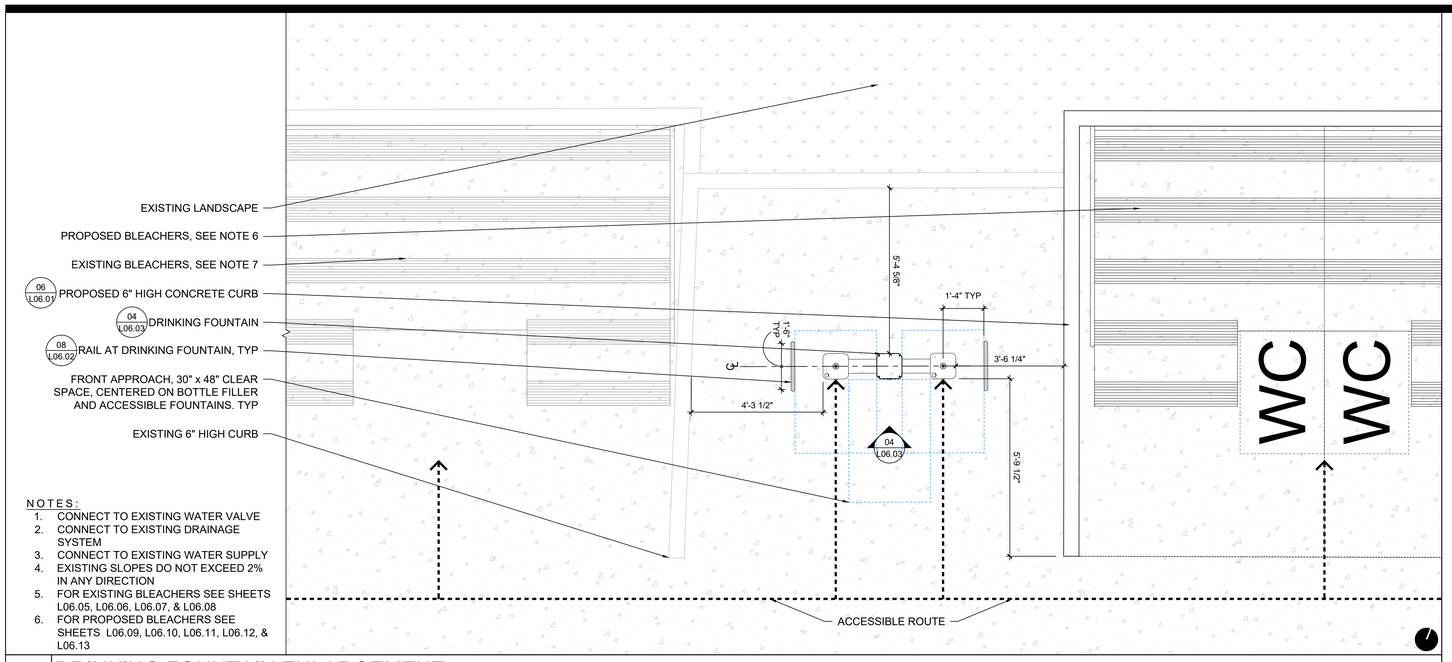
DSA SUBMITTAL

FILE NUMBER 21-H2
DSA APP NUMBER
01-121720

DATE: 09.11.2024
SCALE: N/A
PROJECT NO: TAM23-01

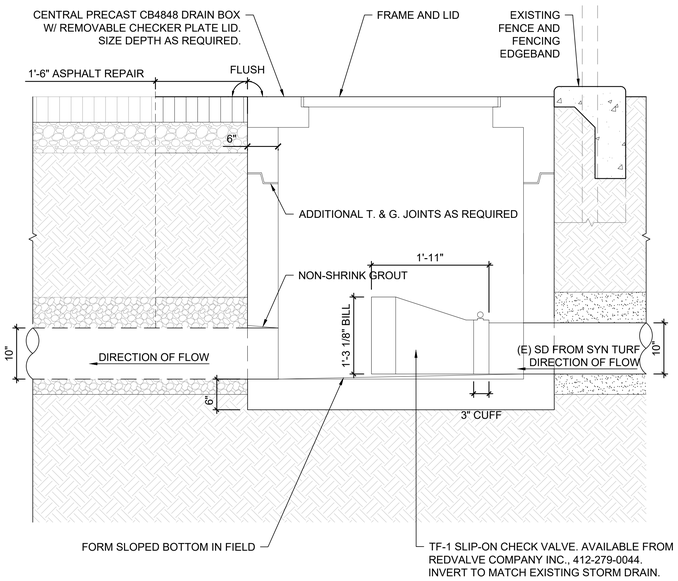
SHEET TITLE
DETAILS - FIELD OVERLAY AND SECTION

SHEET NUMBER
L06.02



NOTES:
1. CONNECT TO EXISTING WATER VALVE
2. CONNECT TO EXISTING DRAINAGE SYSTEM
3. CONNECT TO EXISTING WATER SUPPLY
4. EXISTING SLOPES DO NOT EXCEED 2% IN ANY DIRECTION
5. FOR EXISTING BLEACHERS SEE SHEETS L06.05, L06.06, L06.07, & L06.08
6. FOR PROPOSED BLEACHERS SEE SHEETS L06.09, L06.10, L06.11, L06.12, & L06.13

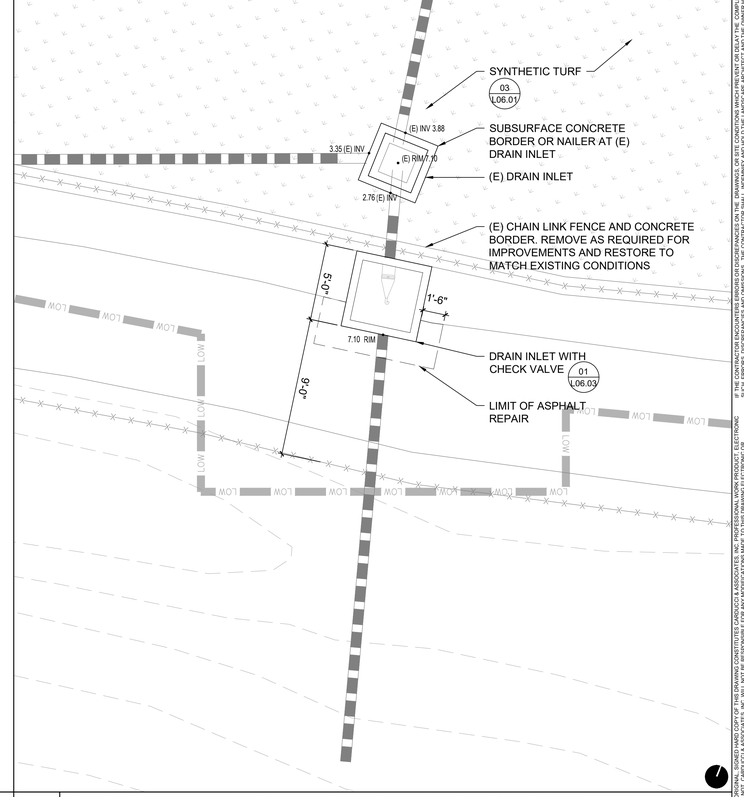
03 DRINKING FOUNTAIN ENLARGEMENT
SCALE: 1/2" = 1'



NOTES:
1. FRAMES AND GRATES SHALL BE H20 LOADING AND BICYCLE PROOF, WITH GRATE LOCKING DEVICE. CLOSED-MESH GRATES OR CAST IRON FRAME AND GRATES ARE AVAILABLE ON REQUEST.
2. DRAINAGE GRATE IN THE PATH OF TRAVEL - OPENINGS IN FLOOR OR GROUND SURFACES IN THE PEDESTRIAN WAY SHALL NOT ALLOW PASSAGE OF A SPHERE MORE THAN 1/2" DIAMETER. WHEN OPENINGS ARE OBLONG, THE LONG DIMENSION SHALL BE PLACED PERPENDICULAR TO THE DOMINANT DIRECTION OF TRAVEL. (FOR COURTYARDS OR OPEN PAVED AREAS WITH NO CLEAR DIRECTION OF TRAVEL, OPENINGS SHALL BE 1/2" MAXIMUM IN ALL DIRECTIONS.)

NOTE
PER DSA IR A-22 SECTION 2.1.2.1: THIS PROJECT ELEMENT IS NOT A PART OF THE DSA STRUCTURAL APPROVAL SYSTEM BUT IS A PART OF THE DSA ACCESSIBILITY AND FIRE LIFE SAFETY APPROVAL SYSTEM.

01 DRAIN INLET WITH CHECK VALVE
SCALE: 1" = 1'



ONLY THE PRINTED AND SIGNED COPY OF THIS DRAWING CONSTITUTES CARDUCCI & ASSOCIATES, INC. PROFESSIONAL WORK PRODUCT. ELECTRONIC COPIES DO NOT. CARDUCCI & ASSOCIATES, INC. WILL NOT BE RESPONSIBLE FOR ANY MODIFICATIONS MADE TO THIS DRAWING ELECTRONIC OR OTHERWISE. USE OF NON-SIGNED CARDUCCI & ASSOCIATES, INC.

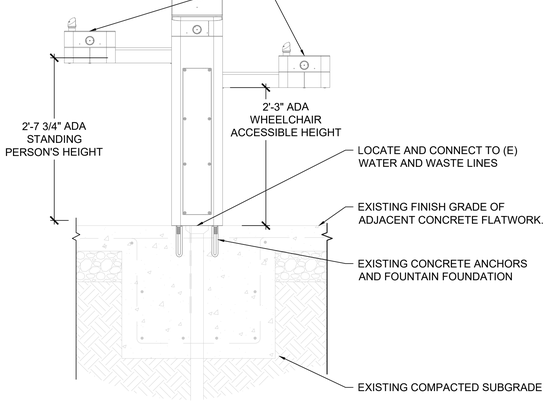
BY THE CONTRACTOR ENCOMPASSED ON OR INDICATED ON THE DRAWINGS, OR SITE CONDITIONS PRIOR TO OR DURING THE COURSE OF CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE OWNER AND LANDSCAPE ARCHITECT BY THE TIME OF BID OF ALL SUCH ERRORS, DISCREPANCIES AND OMISSIONS. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE LANDSCAPE ARCHITECT AND THE OWNER HARMLESS IF AFTER CONTRACTING FOR THE WORK HE HAS MORE THAN DAMAGE BECAUSE OF SITE CONDITIONS, ERRORS, OMISSIONS OR DRAWINGS AT THE TIME OF BID.

NOTES:
1. MEETS ADA REGULATIONS.
2. STAINLESS STEEL SURFACE CARRIER IS REQUIRED.
3. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
4. DO NOT SCALE DRAWING.
5. ALL INFORMATION CONTAINED HEREIN WAS CURRENT AT THE TIME OF DEVELOPMENT BUT MUST BE REVIEWED AND APPROVED BY THE PRODUCT MANUFACTURER TO BE CONSIDERED ACCURATE.

ACCESSIBILITY NOTES:
1. DRINKING FOUNTAIN SHALL COMPLY WITH CBC SECTIONS 11B-307 AND 11B-602.
2. HIGH AND LOW DRINKING FOUNTAINS SHALL BE PROVIDED.
3. THE FLOW OF WATER SHALL BE ACTIVATED BY A MANUALLY OPERATED SYSTEM THAT IS FRONT-MOUNTED OR SIDE-MOUNTED AND LOCATED WITHIN 6" OF THE FRONT EDGE OF THE FOUNTAIN OR AN AUTOMATIC ELECTRONICALLY-CONTROLLED DEVICE.
4. SPOUT OUTLETS SHALL BE 36" MAX ABOVE THE FINISH FLOOR OR GROUND.
5. SPOUT SHALL PROVIDE A FLOW OF WATER 4" HIGH MIN AND SHALL BE LOCATED 5" MAX FROM THE FRONT OF THE UNIT. THE ANGLE OF THE WATER STREAM SHALL BE MEASURED HORIZONTALLY RELATIVE TO THE FRONT FACE OF THE UNIT.
6. SPOUTS SHALL BE LOCATED LESS THAN 3" OF THE FRONT OF THE UNIT. THE ANGLE OF WATER STREAM SHALL BE 30 DEGREES MAX.
7. WHERE SPOUTS ARE LOCATED BETWEEN 3" AND 5" MAX FROM THE FRONT OF THE UNIT, THE ANGLE OF THE WATER STREAM SHALL BE 15 DEGREES MAX.
8. SPOUT OUTLETS OF DRINKING FOUNTAINS FOR STANDING PERSONS SHALL BE 38" MIN AND 43" MAX ABOVE FINISH FLOOR OR GROUND.

NOTE
PER DSA IR A-22 SECTION 2.1.2.1: THIS PROJECT ELEMENT IS NOT A PART OF THE DSA STRUCTURAL APPROVAL SYSTEM BUT IS A PART OF THE DSA ACCESSIBILITY AND FIRE LIFE SAFETY APPROVAL SYSTEM.

05 DRINKING FOUNTAIN - HAWS
SCALE: 1' = 1'



SECTION

NOTES:
1. MEETS ADA/TITLE 24 REGULATIONS.
2. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
3. SEE INSTALLATION INSTRUCTIONS, MATERIALS PLANS, DEMOLITION PLAN, ELARGEMENT DETAIL 03/L06.03 AND UTILITY PLAN FOR CONNECTIONS AND NOTES.
4. SUBMIT SHOP DRAWINGS.
5. CHLORINATE DRINKING FOUNTAIN & SUPPLY LINE IMPACTED BY INSTALLATION, CONFIRM COMPLETE WITH PROJECT INSPECTOR PRIOR TO FIRST JOB PUNCH WALK

NOTE
PER DSA IR A-22 SECTION 2.1.2.1: THIS PROJECT ELEMENT IS NOT A PART OF THE DSA STRUCTURAL APPROVAL SYSTEM BUT IS A PART OF THE DSA ACCESSIBILITY AND FIRE LIFE SAFETY APPROVAL SYSTEM.

04 DRINKING FOUNTAIN - FREESTANDING
SCALE: 1" = 1'

02 DRAIN INLET WITH CHECK VALVE ENLARGEMENT
SCALE: 1/4" = 1'

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-121720 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/7/2024

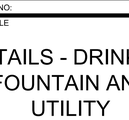
ARCHITECT/ ENGINEER
ZFA STRUCTURAL ENGINEERS
1212 fourth street | suite z zfa.com
santa rosa ca 95404 707.526.0992
zfa job no. 20400
copyright © 2024

STAMP

DESIGN TEAM

CARDUCCI ASSOCIATES
555 BEACH STREET FOURTH FLOOR
SAN FRANCISCO, CA 94133
www.carducciassociates.com
© 2024 CARDUCCI ASSOCIATES, INC.

STAMP



OWNER
TAMALPAIS UNION HIGH SCHOOL DISTRICT

PROJECT
REDWOOD HIGH SCHOOL GHILOTTI FIELD SITE IMPROVEMENTS
395 DOHERTY DRIVE
LARKSPUR, CA 94939

CONTEXT MAP

#	DESCRIPTION	DATE

DSA SUBMITTAL

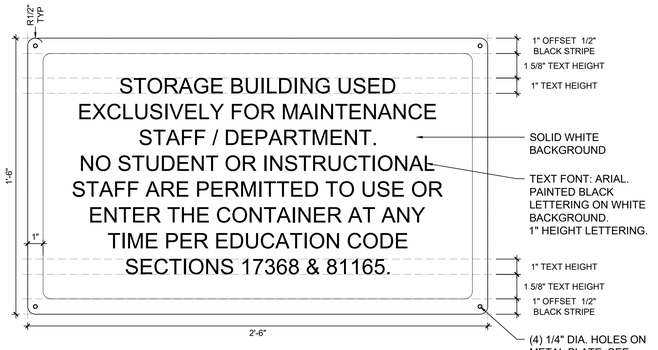
FILE NUMBER 21-H2
DSA APP NUMBER
01-121720

DATE:	09.11.2024
SCALE:	N/A
PROJECT NO:	TAM23-01

SHEET TITLE
DETAILS - DRINKING FOUNTAIN AND UTILITY

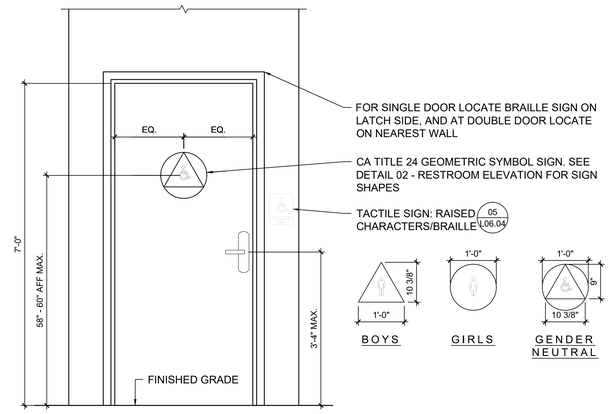
SHEET NUMBER
L06.03

Peter Stanley 10/2/2024 8:59 AM



NOTES:
1. METAL SIGNS ARE DIGITAL PRINT ON 3M ADVANCED ENGINEER GRADE VINYL, COATED WITH 3M 1160i GRAFFITI FILM, APPLIED TO 0.080 ALUMINUM SUBSTRATE. LETTERING PER PLAN SPECIFICATIONS, 0.25 INCH MOUNTING HOLES.
2. SEE PLAN FOR QUANTITY & LOCATION INFO.
3. SECURE WITH NON-RUSTING, VANDAL-RESISTANT FASTENERS COMPLETE.
4. SUBMIT SHOP DRAWINGS FOR REVIEW. TEXT SHOWN FOR BID PURPOSES ONLY. FINAL TEXT TO BE PROVIDED BY DISTRICT.

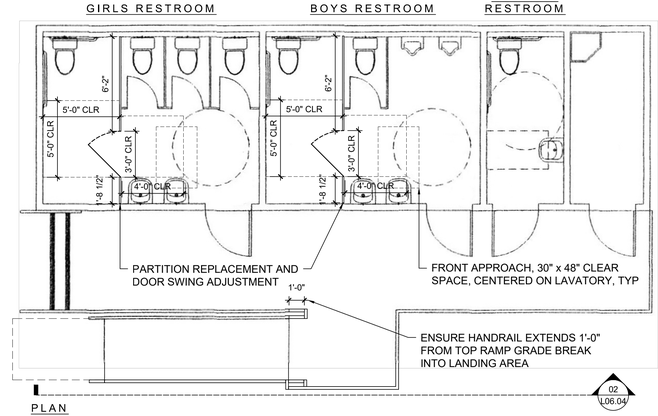
07 MAINTANANCE ONLY SIGN - S2
SCALE: 3" = 1'



ELEVATION

NOTES:
1. REFER TO CBC 11B-703
2. SIGN MOUNTED TO SURFACE WITH 1/16" THICK DOUBLE FACE TAPE
3. CALIFORNIA RESTROOM SYMBOLS (CIRCLE/TRIANGLE) INSTALLED ON DOOR LEAFS
4. INCLUDE ISA IF RESTROOM IS WHEELCHAIR ACCESSIBLE
5. ALL SIGNS BLUE

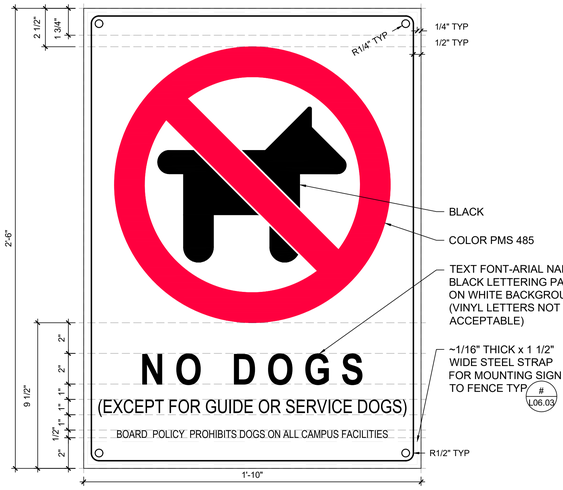
04 RESTROOM DOOR SIGNAGE
SCALE: 3/4" = 1'



PLAN

NOTES:
1. REMOVE AND REINSTALL ACCESSIBLE STALL DOORS TO SWING INWARD
2. LENGHTEN PARTITION WALLS AS NESSECARY FOR DOOR RELOCATION
3. EXTEND HAND RAIL AT TOP OF RAMP LANDING

01 RESTROOM FLOORPLAN
SCALE: 1/4" = 1'

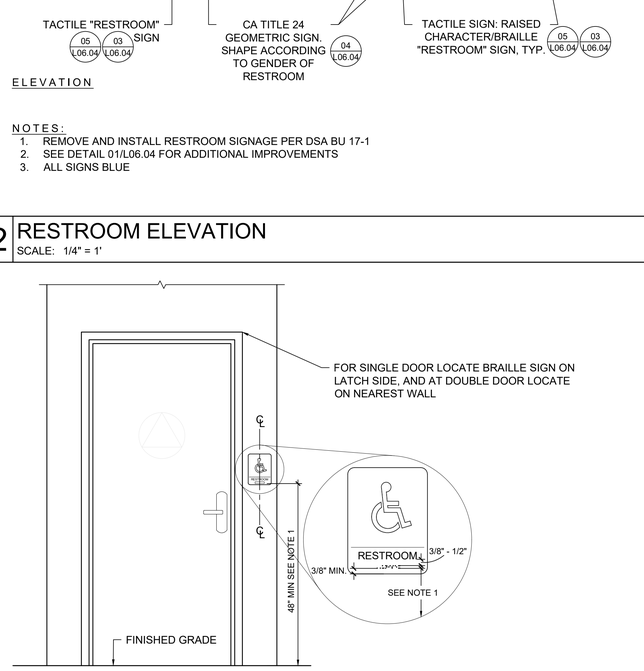


NOTES:
1. METAL SIGNS ARE DIGITAL PRINT ON 3M ADVANCED ENGINEER GRADE VINYL, COATED WITH 3M 1160i GRAFFITI FILM, APPLIED TO 0.080 ALUMINUM SUBSTRATE. LETTERING PER PLAN SPECIFICATIONS, 0.25 INCH MOUNTING HOLES.
2. SEE PLAN FOR QUANTITY & LOCATION INFO.
3. SECURE WITH NON-RUSTING, VANDAL-RESISTANT FASTENERS COMPLETE.
4. SUBMIT SHOP DRAWINGS FOR REVIEW. TEXT SHOWN FOR BID PURPOSES ONLY. FINAL TEXT TO BE PROVIDED BY DISTRICT.

08 NO DOGS SIGN - S1
SCALE: 3" = 1'

NOTES:
1. APPLY GRAFFITI RESISTANT COATING TO EXPOSED SIDES OF SIGN.
2. REFER TO CBC 11B-703. 60" MAX AFF TO BASELINE OF HIGHEST RAISED CHARACTERS AND 48" MIN AFF TO BASELINE OF LOWEST BRAILLE

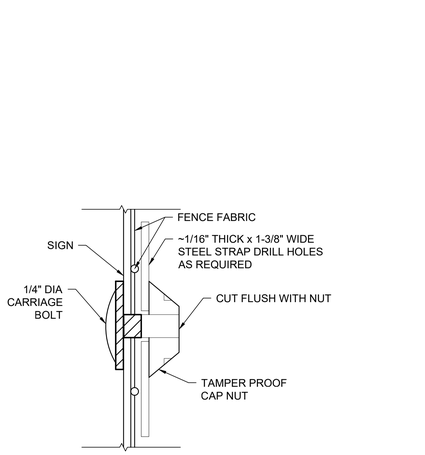
05 RESTROOM SIGNAGE
SCALE: 3" = 1'



ELEVATION

NOTES:
1. REMOVE AND INSTALL RESTROOM SIGNAGE PER DSA BU 17-1
2. SEE DETAIL 01/L06.04 FOR ADDITIONAL IMPROVEMENTS
3. ALL SIGNS BLUE

02 RESTROOM ELEVATION
SCALE: 1/4" = 1'



SECTION

06 SIGN MOUNTING ON FENCE
SCALE: 1' = 1'

ELEVATION

NOTES:
1. REFER TO CBC 11B-703. 60" MAX AFF TO BASELINE OF HIGHEST RAISED CHARACTERS AND 48" MIN AFF TO BASELINE OF LOWEST BRAILLE
2. SIGN MOUNTED TO SURFACE WITH 1/16" THICK DOUBLE FACE TAPE
3. RESTROOM IDENTIFICATION SIGN ON WALL SHALL INCLUDE RAISED LETTERS AND CALIFORNIA GRADE 2 BRAILLE
4. INCLUDE ISA IF RESTROOM IS WHEELCHAIR ACCESSIBLE
5. ALL SIGNS BLUE

03 BRAILLE RESTROOM SIGNAGE
SCALE: 3/4" = 1'

ONLY THE ORIGINAL, SIGNED HARD COPY OF THIS DRAWING CONSTITUTES CARDUCCI & ASSOCIATES, INC. PROFESSIONAL WORK PRODUCT. ELECTRONIC COPIES DO NOT. CARDUCCI & ASSOCIATES, INC. WILL NOT BE RESPONSIBLE FOR ANY MODIFICATIONS MADE TO THIS DRAWING ELECTRONIC OR OTHERWISE THAT IS NOT CARRIED OUT UNDER CARDUCCI & ASSOCIATES, INC.'S SUPERVISION.

COMPLETION OF WORK AS INDICATED, THE CONTRACTOR SHALL NOTIFY THE OWNER AND LANDSCAPE ARCHITECT BY THE TIME OF BID OF ALL DISCREPANCIES OR OMISSIONS IN THE DRAWINGS OR SITE CONDITIONS WHICH PREVENT IN WHOLE OR IN PART THE SUCCESSFUL COMPLETION OF THE WORK AS INTENDED. IF THE CONTRACTOR ENCOUNTERS ERRORS OR DISCREPANCIES ON THE DRAWINGS, OR SITE CONDITIONS WHICH PREVENT IN WHOLE OR IN PART THE SUCCESSFUL COMPLETION OF THE WORK AS INTENDED, THE CONTRACTOR SHALL IMMEDIATELY AND HOLD THE LANDSCAPE ARCHITECT AND THE OWNER HARMLESS IF SUCH SUCH ERRORS, DISCREPANCIES AND OMISSIONS. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE LANDSCAPE ARCHITECT AND THE OWNER HARMLESS IF SUCH DISCREPANCIES OR OMISSIONS ARE DISCOVERED AFTER THE END OF BID.

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-121720 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/7/2024

ARCHITECT/ ENGINEER
ZFA STRUCTURAL ENGINEERS
1212 fourth street | suite z zfa.com
santa rosa ca 95404 707.526.0992
zfa job no. 20400 copyright © 2024

STAMP

DESIGN TEAM
CARDUCCI ASSOCIATES
555 BEACH STREET FOURTH FLOOR
SAN FRANCISCO, CA 94133
www.carducciassociates.com
© 2024 CARDUCCI ASSOCIATES, INC.

STAMP

OWNER
TAMALPAIS UNION HIGH SCHOOL DISTRICT

PROJECT
REDWOOD HIGH SCHOOL GHILOTTI FIELD SITE IMPROVEMENTS
395 DOHERTY DRIVE
LARKSPUR, CA 94939

CONTEXT MAP

#	DESCRIPTION	DATE

DSA SUBMITTAL

FILE NUMBER 21-H2
DSA APP NUMBER
01-121720

DATE: 09.11.2024
SCALE: N/A
PROJECT NO: TAM23-01

SHEET TITLE
DETAILS - EXISTING RESTROOM AND SIGNAGE

SHEET NUMBER
L06.04

Peter Stanley 10/2/2024 10:54 AM

DESIGN LOADING

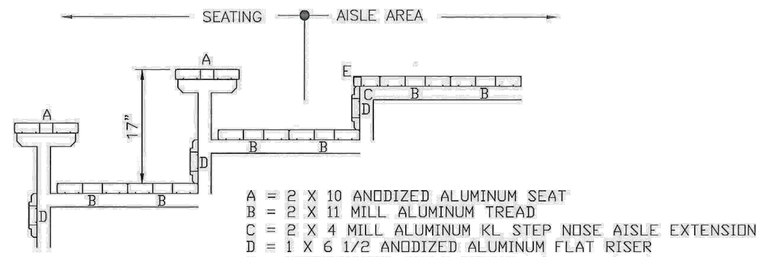
TREAD & SEAT AREA (GROSS AREA) 100psf.
SEAT (PERPENDICULAR SWAY) 10 lbs/lf.
SEAT (PARALLEL SWAY) 24lbs/lf.
HANDRAILS (PERPENDICULAR) 50 lbs/lf.
HANDRAILS (VERTICAL) 100 lbs/lf.
SEAT & TREAD 120 lbs/lf.

NOTES

1. ANODIZED ALUMINUM RAIL IS 1 1/4" NOMINAL PIPE SIZE.

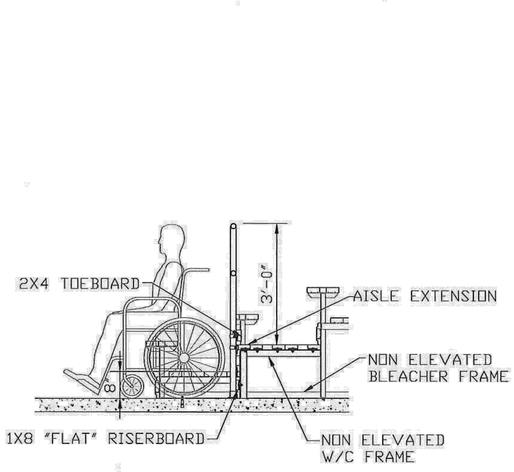
ITEM DESCRIPTION

1. L 1 1/2 X 1 1/2 X 3/16 GALV.
2. L 2 X 1 1/2 X 3/16 GALV.
3. L 2 X 2 X 3/16 GALV.
4. L 2 1/2 X 2 X 3/16 GALV.
5. L 3 X 3 X 1/4 GALV.
6. 1 5/8 O.D. ANODIZED ALUMINUM RAIL
7. 9 GAUGE GALV. CHAIN LINK FENCE
8. L 2 X 1 1/2 X 3/16 ALUMINUM
9. L 2 X 2 X 3/16 ALUMINUM
10. 1 5/8 O.D. Sch.40 ANODIZED ALUMINUM PIPE
11. 3/8 X 3 STAINLESS STEEL CONCRETE WEDGE ANCHOR
12. L 3 X 2 X 3/16 GALV.

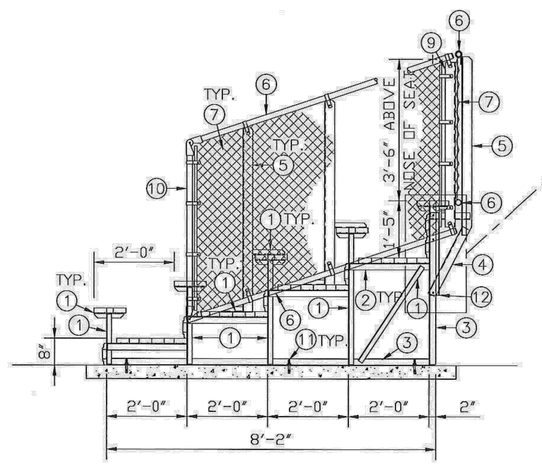


A = 2 X 10 ANODIZED ALUMINUM SEAT
B = 2 X 11 MILL ALUMINUM TREAD
C = 2 X 4 MILL ALUMINUM KL STEP NOSE AISLE EXTENSION
D = 1 X 6 1/2 ANODIZED ALUMINUM FLAT RISER
E = CONTRASTING AISLE NOSING

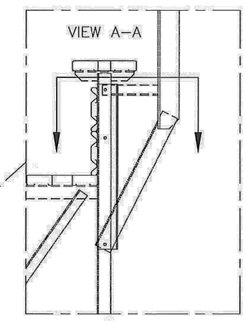
3 / 1 1 PLANK ARRANGEMENT
NOT TO SCALE 8" X 24"

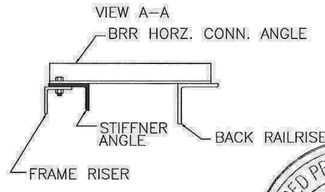


2 / 2 1 SECTION VIEW @ W/C AREA
SCALE:3/4"=1'-0"



1 / 2 1 SECTION VIEW @ W/C AREA
SCALE:3/4"=1'-0"





NOTE
PER DSA IR A-22 SECTION 2.1.2.1: THIS PROJECT ELEMENT IS NOT A PART OF THE DSA STRUCTURAL APPROVAL SYSTEM BUT IS A PART OF THE DSA ACCESSIBILITY AND FIRE LIFE SAFETY APPROVAL SYSTEM.

REGISTERED PROFESSIONAL ENGINEER
GALORD R. RANSOM
No. S2336
EXPIRES
3-31-18
STRUCTURAL
STATE OF CALIFORNIA

No

DETAIL NUMBER 2 / 1 SHEET SHOWN ON

THIS DRAWING AND ALL INFORMATION HEREON IS THE PROPERTY OF BROOKS RANSOM, INC. AND SHALL NOT BE USED IN WHOLE OR IN PART NOR NOT BE COPIED OR REPRODUCED WITHOUT PRIOR WRITTEN CONSENT OF BROOKS RANSOM ASSOCIATES INC. OR SOUTHERN BLEACHER COMPANY. THE DESIGNS SHOWN HEREON ARE PROTECTED UNDER U.S. AND INTERNATIONAL COPYRIGHT LAW.

BROOKS RANSOM ASSOCIATES
ENGINEERING CONSULTANTS
7415 N. PALM AVENUE SUITE 104 • FRESNO, CALIFORNIA
PH#: (559)449-2444 • FAX: (559)449-2404
PO Box Otec, Graham, Texas 76450
Phone: 940-549-1733 Fax: 940-549-1365
Transmitted Hard
Southern BLEACHER COMPANY
GRANDSTANDS • BLEACHERS • STADIUMS

#	DESCRIPTION	DATE

SIDE VIEW
8" RISE X 24" TREAD / 5 ROWS

TAMALPAIS UNION H.S. DISTRICT
REDWOOD HIGH SCHOOL
LARKSPUR, CALIFORNIA

JOB NO.	DATE	DRAWN	CHKD
	6/23/16	TDW	DMC

JOB NUMBER 16190
SHEET 1 OF 4

22" X 34" (11x17 = 1/2 indicated scale)

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-121720 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/7/2024

ARCHITECT/ ENGINEER
ZFA STRUCTURAL ENGINEERS
1212 fourth street | suite z
santa rosa ca 95404
zfa job no. 20400
zfa.com
707.526.0992
copyright © 2024

STAMP

DESIGN TEAM

CARDUCCI ASSOCIATES
555 BEACH STREET FOURTH FLOOR
SAN FRANCISCO, CA 94133
www.carducciassociates.com
© 2024 CARDUCCI ASSOCIATES, INC.

STAMP

OWNER
TAMALPAIS UNION HIGH SCHOOL DISTRICT

PROJECT
REDWOOD HIGH SCHOOL GHILOTTI FIELD SITE IMPROVEMENTS
395 DOHERTY DRIVE
LARKSPUR, CA 94939

CONTEXT MAP

#	DESCRIPTION	DATE

DSA SUBMITTAL

FILE NUMBER 21-H2
DSA APP NUMBER
01-121720

DATE: 09.11.2024
SCALE: N/A
PROJECT NO: TAM23-01

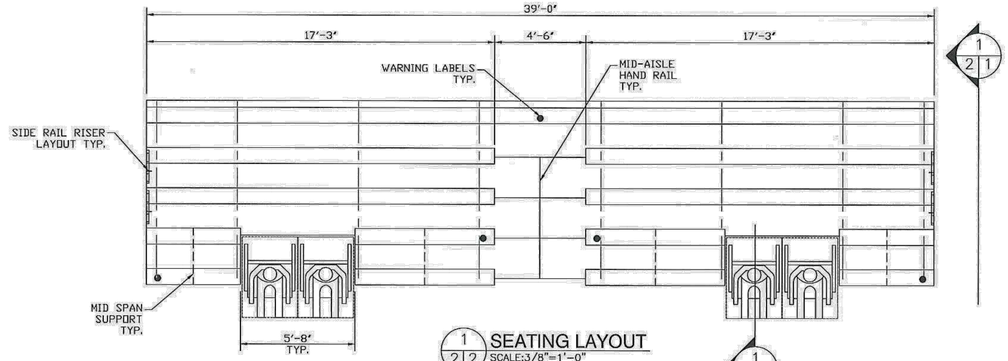
SHEET TITLE
DETAILS - EXISTING BLEACHERS

SHEET NUMBER
L06.05

ONLY THE ORIGINAL, SIGNED HARD COPY OF THIS DRAWING CONSTITUTES CARDUCCI & ASSOCIATES, INC. PROFESSIONAL WORK PRODUCT. ELECTRONIC COPIES DO NOT. CARDUCCI & ASSOCIATES, INC. WILL NOT BE RESPONSIBLE FOR ANY MODIFICATIONS MADE TO THIS DRAWING ELECTRONIC OR OTHERWISE THAT IS NOT SIGNED BY CARDUCCI & ASSOCIATES, INC.

IF THE CONTRACTOR ENCOUNTERS ERRORS OR DISCREPANCIES ON THE DRAWINGS, OR SITE CONDITIONS THAT PREVENT OR DELAY THE COMPLETION OF WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY AND BEFORE PROCEEDING WITH THE WORK, NOTIFY THE LANDSCAPE ARCHITECT AND THE OWNER. FAILURE TO DO SO SHALL MAKE THE CONTRACTOR RESPONSIBLE FOR SUCH ERRORS, DISCREPANCIES AND OMISSIONS. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE LANDSCAPE ARCHITECT AND THE OWNER HARMLESS IF AFTER CONTRACTING FOR THE WORK, THE CONTRACTOR PROCEEDS WITH CONSTRUCTION KNOWING THAT ERRORS, DISCREPANCIES OR OMISSIONS EXIST IN THE CONTRACT DOCUMENTS.

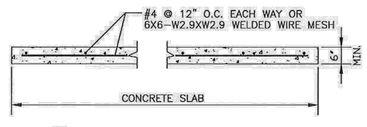
Peter Stanley 10/1/2024 2:39 PM



1/2/1 SEATING LAYOUT
SCALE:3/8"=1'-0"

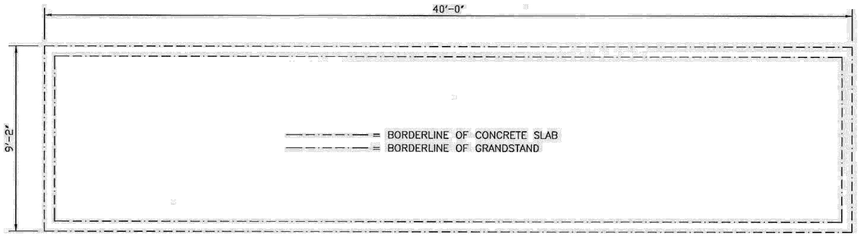
98 TOTAL NET 18" SEATS
4 TOTAL NET 33" WHEELCHAIR SPACES
102 TOTAL SEATING CAPACITY

ANGLE FRAME UNITS MUST BE ANCHORED TO RESIST WIND LOADS, AS PRESCRIBED BY BUILDING CODE.



3/2/2 CONCRETE SLAB DETAIL
NOT TO SCALE

NOTE: SLAB DIMENSIONS LISTED ARE FOR BLEACHER ONLY. ADDITIONAL DEPTH FOR WHEELCHAIR ACCESS MUST BE MADE.



NOTE: CONCRETE SLAB NOT BY BLEACHER MANUFACTURER

2/2/2 CONCRETE SLAB LAYOUT
SCALE:3/8"=1'-0"

REGISTERED PROFESSIONAL ENGINEER
GAYLORD R. RANSOM
No. S2386
EXPIRES
3.31.18
STRUCTURAL
STATE OF CALIFORNIA

1/2/1 DETAIL NUMBER
2/1/2 SHEET SHOWN IN

THIS DRAWING AND ALL INFORMATION THEREIN AS THE PROPERTY OF BROOKS RANSOM MC. AND SHALL NOT BE USED BY ANY PERSON FOR ANY PURPOSE NOT BE COPIED OR REPRODUCED WITHOUT PRIOR WRITTEN CONSENT OF BROOKS RANSOM ASSOCIATES INC. OR SOUTHERN BLEACHER COMPANY. THE DESIGNS SHOWN HEREIN ARE PROTECTED UNDER U.S. AND INTERNATIONAL COPYRIGHT LAWS

BROOKS RANSOM ASSOCIATES
PLANNING ENGINEERING ARCHITECTURE
7415 N. PALM AVENUE SUITE 105 • FRESNO, CALIFORNIA
PH: (559)244-2444 • FAX: (559)447-8404

Southern BLEACHER COMPANY
GRANDSTANDS •BLEACHERS •STADIUMS
PO Box Otis, Graham, Texas 76450
801 Millwood Street
Phone: 940/549-2733 Fax: 940/549-1365
Established 1946

NO.	DESCRIPTION	DATE	DRAWN	CHECKED
1		6/23/16	TDW	DMC

TITLE: SEATING LAYOUT / CONCRETE SLAB LAYOUT
39'-0" X 5 ROWS / 24" TREAD

JOB: TAMALPAIS UNION H.S. DISTRICT
REDWOOD HIGH SCHOOL
LARKSPUR, CALIFORNIA

JOB NUMBER 16190
SHEET 2 OF 4

22" X 34" (11x17 = 1/2 indicated scale)

NOTE
PER DSA IR A-22 SECTION 2.1.2.1: THIS PROJECT ELEMENT IS NOT A PART OF THE DSA STRUCTURAL APPROVAL SYSTEM BUT IS A PART OF THE DSA ACCESSIBILITY AND FIRE LIFE SAFETY APPROVAL SYSTEM.

No

ONLY THE ORIGINAL, SIGNED HARD COPY OF THIS DRAWING CONSTITUTES CARDUCCI & ASSOCIATES, INC. PROFESSIONAL WORK PRODUCT. ELECTRONIC COPIES DO NOT. CARDUCCI & ASSOCIATES, INC. WILL NOT BE RESPONSIBLE FOR ANY MODIFICATIONS MADE TO THIS DRAWING ELECTRONICALLY OR OTHERWISE. USE OF CARDUCCI & ASSOCIATES, INC.

IF THE CONTRACTOR DISCOVERS ANY ERRORS OR DISCREPANCIES ON THE DRAWINGS, OR SITE CONDITIONS THAT DIFFER FROM SUCH, ERRORS, DISCREPANCIES AND OMISSIONS, THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE LANDSCAPE ARCHITECT AND THE OWNER HARMLESS IF WORK IS PERFORMED OR DRAWINGS ARE USED BY THE CONTRACTOR OR THE CONTRACTOR'S AGENTS AFTER SUCH DISCOVERY, AND FAILS TO NOTIFY THE LANDSCAPE ARCHITECT AND THE OWNER IMMEDIATELY, OR IF THE CONTRACTOR PROCEEDS WITH ANY PORTION OF THE WORK KNOWING IT TO BE INCORRECT, UNTIL THE ERRORS, DISCREPANCIES OR OMISSIONS HAVE BEEN RESOLVED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS INCURRED BY THE OWNER HARMLESS IF WORK IS PERFORMED OR DRAWINGS ARE USED BY THE CONTRACTOR OR THE CONTRACTOR'S AGENTS AFTER SUCH DISCOVERY, AND FAILS TO NOTIFY THE LANDSCAPE ARCHITECT AND THE OWNER IMMEDIATELY, OR IF THE CONTRACTOR PROCEEDS WITH ANY PORTION OF THE WORK KNOWING IT TO BE INCORRECT, UNTIL THE ERRORS, DISCREPANCIES OR OMISSIONS HAVE BEEN RESOLVED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS INCURRED BY THE OWNER AS A RESULT OF THE CONTRACTOR'S FAILURE TO COMPLY WITH THESE REQUIREMENTS.

Peter Stanley 10/1/2024 2:39 PM

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-121720 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/7/2024

ARCHITECT/ ENGINEER
ZFA STRUCTURAL ENGINEERS
1212 fourth street | suite z zfa.com
santa rosa ca 95404 707.526.0992
zfa job no. 20400 copyright © 2024

STAMP

DESIGN TEAM

CARDUCCI ASSOCIATES
555 BEACH STREET FOURTH FLOOR
SAN FRANCISCO, CA 94133
www.carducciassociates.com
© 2024 CARDUCCI ASSOCIATES, INC.

STAMP

REGISTERED LANDSCAPE ARCHITECT
TIMOTHY A. CARDUCCI
No. 2537
12.31.2024
09.11.2024
STATE OF CALIFORNIA

OWNER
TAMALPAIS UNION HIGH SCHOOL DISTRICT

PROJECT
REDWOOD HIGH SCHOOL GHILOTTI FIELD SITE IMPROVEMENTS
395 DOHERTY DRIVE
LARKSPUR, CA 94939

CONTEXT MAP

#	DESCRIPTION	DATE

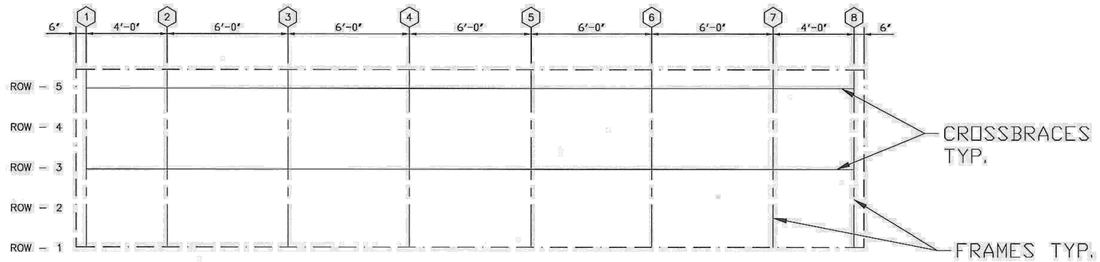
DSA SUBMITTAL

FILE NUMBER 21-H2
DSA APP NUMBER
01-121720

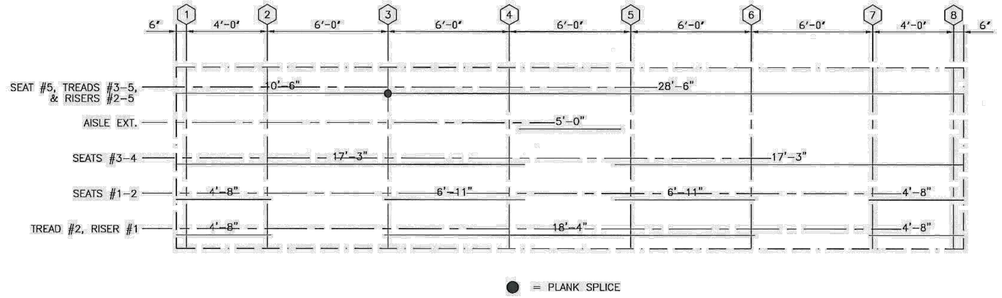
DATE: 09.11.2024
SCALE: N/A
PROJECT NO: TAM23-01

SHEET TITLE
DETAILS - EXISTING BLEACHERS

SHEET NUMBER
L06.06



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



● = PLANK SPLICE

PLANK LEGEND

SEATS 1–5 = 1–2 X 10 ANODIZED ALUMINUM SEAT
TREADS 2–5 = 2–2 X 11 MILL ALUMINUM TREADS
RISERS 1–4 = 1–1 X 6 1/2 ANODIZED ALUMINUM RISER
RISER 5 = 2–1 X 6 1/2 ANODIZED ALUMINUM RISERS
AISLE EXTENSIONS = 1–2 X 4 MILL ALUMINUM STEP NOSE
ALUMINUM CONTRASTING AISLE NOSING

2/3/3 PLANK LAYOUT
SCALE:3/8"=1'-0"

5'-8" TOEBOARD & AISLE EXT.
5'-7 1/2" RISER
DOUBLE WHEELCHAIR PLANK

REGISTERED PROFESSIONAL ENGINEER
GAYLORD R. RANSOM
No. S2386
EXPIRES
3-31-18
STRUCTURAL
STATE OF CALIFORNIA

NOTE
PER DSA IR A-22 SECTION 2.1.2.1: THIS PROJECT ELEMENT IS NOT A PART OF THE DSA STRUCTURAL APPROVAL SYSTEM BUT IS A PART OF THE DSA ACCESSIBILITY AND FIRE LIFE SAFETY APPROVAL SYSTEM.

No

DETAIL NUMBER 2/3 SHEET SHOWN ON

THIS DRAWING AND ALL INFORMATION THEREIN IS THE PROPERTY OF BROOKS RANSOM MC. AND SOUTHERN BLEACHER COMPANY, AND MAY NOT BE COPIED OR REPRODUCED WITHOUT PRIOR WRITTEN CONSENT OF BROOKS RANSOM ASSOCIATES MC. OR SOUTHERN BLEACHER COMPANY. THE DRAWING IS LOANED SUBJECT TO THE AGREEMENT UPON DEMAND. DRAWING IS PROTECTED UNDER U.S. AND INTERNATIONAL COPYRIGHT LAWS.

BROOKS RANSOM ASSOCIATES
MULTIMEDIA ASSOCIATES
7415 N. PALM AVENUE SUITE 105 • FRESNO, CALIFORNIA
PH: (559) 449-2644 • FAX: (559) 449-8404
PO Box Clute, Graham, Texas 76450
(817) 559-8787 Voice
Phone: 940/549-0723 Fax: 940/549-1565
Southern BLEACHER COMPANY Established 1946
GRANDSTANDS • BLEACHERS • STADIUMS

TITLE	CROSSBRACE LAYOUT / PLANK LAYOUT 39'-0" X 5 ROWS / 24" TREAD
PROJECT	TAMALPAIS UNION H.S. DISTRICT REDWOOD HIGH SCHOOL LARKSPUR, CALIFORNIA
ISSUED	6/23/16
DRAWN	TDW
CHECKED	DMC
JOB NUMBER	16190
SHEET	3
OF	4

22" X 34" (11x17 = 1/2 indicated scale)

#	DESCRIPTION	DATE

IF THE CONTRACTOR ENCOUNTERS ERRORS OR INCONSISTENCIES ON THE DRAWINGS, OR SITE CONDITIONS WHICH PREVENT, OR DELAY THE COMPLETION OF WORK AS INDICATED, THE CONTRACTOR SHALL NOTIFY THE OWNER AND LANDSCAPE ARCHITECT BY THE TIME OF BID OF ALL SUCH ERRORS, DISCREPANCIES AND OMISSIONS. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE LANDSCAPE ARCHITECT AND THE OWNER HARMLESS IF AFTER CONTRACTING FOR THE WORK HE HAS MONETARY DAMAGE BECAUSE OF SITE CONDITIONS, ERRORS, OMISSIONS OR DISCREPANCIES AS FOUND IN THE TIME OF BID.

ON ALL THE ORIGINAL, SIGNED HARD COPY OF THIS DRAWING CONSTITUTES CARDUCCI & ASSOCIATES, INC. PROFESSIONAL WORK PRODUCT. ELECTRONIC COPIES DO NOT. CARDUCCI & ASSOCIATES, INC. WILL NOT BE RESPONSIBLE FOR ANY MODIFICATIONS MADE TO THIS DRAWING ELECTRONIC OR OTHERWISE THAT IS NOT SIGNED BY CARDUCCI & ASSOCIATES, INC.

Peter Stanley 10/1/2024 2:39 PM

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-121720 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/7/2024

ARCHITECT/ ENGINEER

ZFA STRUCTURAL ENGINEERS
1212 fourth street | suite z
santa rosa ca 95404
zfa job no. 20400
zfa.com
707.526.0992
copyright © 2024

STAMP

DESIGN TEAM

CARDUCCI
ASSOCIATES
555 BEACH STREET FOURTH FLOOR
SAN FRANCISCO, CA 94133
www.carducciassociates.com
© 2024 CARDUCCI ASSOCIATES, INC.

STAMP

LICENSED LANDSCAPE ARCHITECT
No. 2537
12.31.2024
09.11.2024
STATE OF CALIFORNIA

OWNER
TAMALPAIS UNION HIGH SCHOOL DISTRICT

PROJECT
REDWOOD HIGH SCHOOL GHILOTTI FIELD SITE IMPROVEMENTS
395 DOHERTY DRIVE
LARKSPUR, CA 94939

CONTEXT MAP

#	DESCRIPTION	DATE

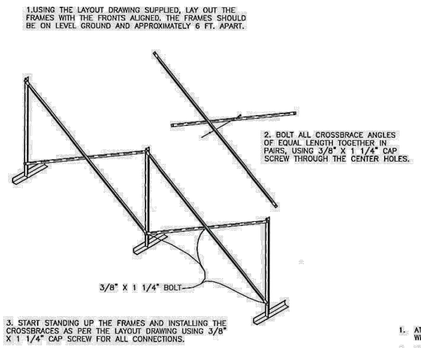
DSA SUBMITTAL

FILE NUMBER 21-H2
DSA APP NUMBER
01-121720

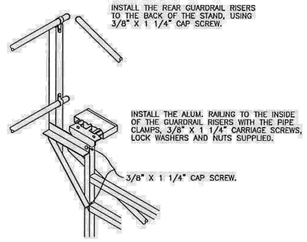
DATE: 09.11.2024
SCALE: N/A
PROJECT NO: TAM23-01

SHEET TITLE
DETAILS - EXISTING BLEACHERS

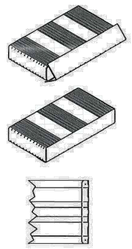
SHEET NUMBER
L06.07



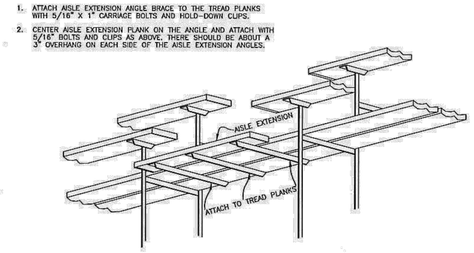
1/4/4 CROSSBRACE INSTALLATION
SCALE:NONE



2/4/4 REAR GUARDRAIL RISER INSTALLATION
SCALE:NONE

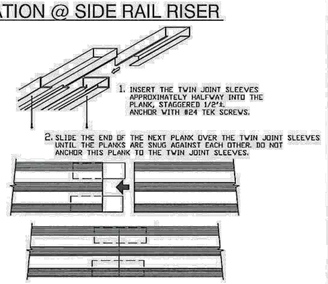


3/4/4 ANGLE END CAP INSTALLATION @ SIDE RAIL RISER
SCALE:NONE

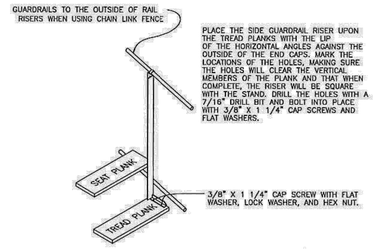


5/4/4 AISLE EXTENSION INSTALLATION
SCALE:NONE

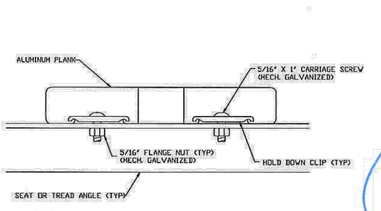
6/4/4 END CAP INSTALLATION
SCALE:NONE



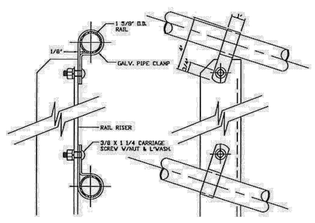
7/4/4 JOINT SLEEVE INSTALLATION DETAIL
SCALE:NONE



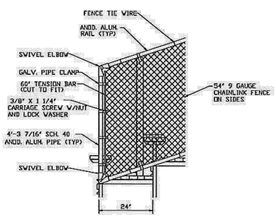
4/4/4 SIDE GUARDRAIL RISER INSTALLATION
SCALE:NONE



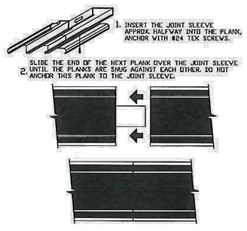
11/4/4 PLANK INSTALLATION
SCALE:NONE



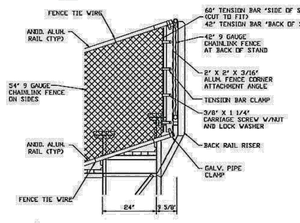
8/4/4 GUARDRAIL INSTALLATION
SCALE:NONE



9/4/4 FENCE INSTALLATION (FRONT)
SCALE:NONE



10/4/4 RISER JOINT SLEEVE INSTALLATION DETAIL
SCALE:NONE



12/4/4 FENCE INSTALLATION (REAR)
SCALE:NONE

NOTE
PER DSA IR A-22 SECTION 2.1.2.1: THIS PROJECT ELEMENT IS NOT A PART OF THE DSA STRUCTURAL APPROVAL SYSTEM BUT IS A PART OF THE DSA ACCESSIBILITY AND FIRE LIFE SAFETY APPROVAL SYSTEM.

No

DETAIL NUMBER 2/L6.08
SHEET SHOWN ON

THE DRAWING AND ALL INFORMATION THEREIN ARE THE PROPERTY OF BROOKS RANSOM ASSOCIATES, INC. AND SHALL NOT BE USED IN WHOLE OR IN PART, NOT BE COPIED OR REPRODUCED WITHOUT PRIOR WRITTEN CONSENT OF BROOKS RANSOM ASSOCIATES, INC. OR SOUTHERN BLEACHER COMPANY. THE DRAWING AND ALL INFORMATION THEREIN ARE PROTECTED UNDER U.S. AND INTERNATIONAL COPYRIGHT LAWS.

BROOKS RANSOM ASSOCIATES
STRUCTURAL ENGINEERS
7415 N. PALM AVENUE SUITE 105 • FRESNO, CALIFORNIA
PH: (559) 292-2444 • FAX: (559)244-9404
PO Box Otis, Graham, Texas 76450
Phone: 940-549-1733 Fax: 940-549-1365
Established 1946

Southern BLEACHER COMPANY
GRANDSTANDS • BLEACHERS • STADIUMS

DETAIL SHEET
TAMALPAIS UNION H.S. DISTRICT
REDWOOD HIGH SCHOOL
LARKSPUR, CALIFORNIA

NO	DATE	DESCRIPTION	DRAWN	DESIGNED
	6/23/16		TDW	DMC

JOB NUMBER 16190
SHEET 4 OF 4

22" X 34" (11x17 = 1/2 indicated scale)

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-121720 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/7/2024

ARCHITECT/ ENGINEER
ZFA STRUCTURAL ENGINEERS
1212 fourth street | suite z zfa.com
santa rosa ca 95404 707.526.0992
zfa job no. 20400
copyright © 2024

STAMP

DESIGN TEAM

CARDUCCI ASSOCIATES
555 BEACH STREET FOURTH FLOOR
SAN FRANCISCO, CA 94133
www.carducciassociates.com
© 2024 CARDUCCI ASSOCIATES, INC.

STAMP

OWNER
TAMALPAIS UNION HIGH SCHOOL DISTRICT

PROJECT
REDWOOD HIGH SCHOOL GHILOTTI FIELD SITE IMPROVEMENTS
395 DOHERTY DRIVE
LARKSPUR, CA 94939

CONTEXT MAP

#	DESCRIPTION	DATE

DSA SUBMITTAL

FILE NUMBER 21-H2
DSA APP NUMBER
01-121720

DATE: 09.11.2024
SCALE: N/A
PROJECT NO: TAM23-01

SHEET TITLE
DETAILS - EXISTING BLEACHERS

SHEET NUMBER
L06.08

ONLY THE ORIGINAL, SIGNED HARD COPY OF THIS DRAWING CONSTITUTES BROOKS & ASSOCIATES, INC. PROFESSIONAL WORK PRODUCT. ELECTRONIC COPIES DO NOT. BROOKS & ASSOCIATES, INC. WILL NOT BE RESPONSIBLE FOR ANY MODIFICATIONS MADE TO THIS DRAWING ELECTRONIC OR OTHERWISE THAT ARE NOT PERFORMED BY BROOKS & ASSOCIATES, INC.

IF THE CONTRACTOR ENCOUNTERS ERRORS OR DISCREPANCIES ON THE DRAWINGS, OR SITE CONDITIONS WHICH PREVENT, OR RELATE TO THE COMPLETION OF WORK AS INDICATED, THE CONTRACTOR SHALL NOTIFY THE OWNER AND LANDSCAPE ARCHITECT IMMEDIATELY. FAILURE TO DO SO CONSTITUTES ACCEPTANCE OF SUCH ERRORS, DISCREPANCIES AND OMISSIONS. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE LANDSCAPE ARCHITECT AND THE OWNER HARMLESS IF ANY DISCREPANCIES OR OMISSIONS AT THE TIME OF BID.

Peter Stanley 10/1/2024 2:39 PM

TAMALPAIS UNION H.S. DISTRICT
REDWOOD HIGH SCHOOL
LARKSPUR, CALIFORNIA

SHEET TITLE	PAGE #
COVER PAGE	B1 OF B5
SECTION VIEW	B2 OF B5
PLAN VIEWS	B3 OF B5
ANGLE FAB/GUARDRAIL DETAILS	B4 OF B5
ALUMINUM PLANK DETAILS	B5 OF B5

REGISTERED PROFESSIONAL ENGINEER BRIAN T. DEAN S 6087 STRUCTURAL STATE OF CALIFORNIA
S&S 05/29/24
PRINCIPAL

OWNER/REPRESENTATIVE/ARCHITECTURAL REVIEW
PLEASE REVIEW THE DRAWINGS FOR COMPLIANCE WITH YOUR ORDER. PLEASE INDICATE ANY CHANGES OR COMMENTS ON THE DRAWINGS.

- [ ] APPROVED
- [ ] APPROVED AS NOTED
- [ ] REVISE AND RE-SUBMIT

SIGNATURE
TITLE
DATE

AWS CWF CERTIFIED WELDING FABRICATOR®
AISC CERTIFIED FABRICATOR

Southern® BLEACHER COMPANY
GRANDSTANDS ▪ BLEACHERS ▪ STADIUMS

PO Box One, Graham, Texas 76450
801 Fifth Street.
Phone: 940/549-0733 Fax: 940/549-1365
Established 1946

GENERAL INFORMATION

	RISE	TREAD	ROWS	LENGTH	SEAT COUNT
HOME	8"	24"	5	39'-0"	102

DATE: 5/28/24
JOB # 24172
TAMALPAIS UNION H.S. DISTRICT
REDWOOD HIGH SCHOOL
LARKSPUR, CALIFORNIA

SHEET B1 OF B5

REF:

NOTE
PER DSA IR A-22 SECTION 2.1.2.1: THIS PROJECT ELEMENT IS NOT A PART OF THE DSA STRUCTURAL APPROVAL SYSTEM BUT IS A PART OF THE DSA ACCESSIBILITY AND FIRE LIFE SAFETY APPROVAL SYSTEM.

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-121720 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/7/2024

ARCHITECT/ ENGINEER
ZFA STRUCTURAL ENGINEERS
1212 fourth street | suite z zfa.com
santa rosa ca 95404 707.526.0992
zfa job no. 20400 copyright © 2024

STAMP

DESIGN TEAM
CARDUCCI ASSOCIATES
555 BEACH STREET FOURTH FLOOR
SAN FRANCISCO, CA 94133
www.carducciassociates.com
© 2024 CARDUCCI ASSOCIATES, INC.

STAMP
LICENSED LANDSCAPE ARCHITECT BELLHAM E. LEE 2537 12.31.2024 09.11.2024 STATE OF CALIFORNIA

OWNER
TAMALPAIS UNION HIGH SCHOOL DISTRICT

PROJECT
REDWOOD HIGH SCHOOL GHILOTTI FIELD SITE IMPROVEMENTS
395 DOHERTY DRIVE
LARKSPUR, CA 94939

CONTEXT MAP

#	DESCRIPTION	DATE

DSA SUBMITTAL

FILE NUMBER 21-H2
DSA APP NUMBER
01-121720

DATE: 09.11.2024
SCALE: N/A
PROJECT NO: TAM23-01

SHEET TITLE
DETAILS - PROPOSED BLEACHERS

SHEET NUMBER
L06.09

ONLY THE ORIGINAL SIGNED HARD COPY OF THIS DRAWING CONSTITUTES CARDUCCI & ASSOCIATES, INC. PROFESSIONAL WORK PRODUCT. ELECTRONIC SUCH ERRORS, DISCREPANCIES AND OMISSIONS. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE LANDSCAPE ARCHITECT AND THE OWNER HARMLESS IF AFTER CONTRACTING FOR THE WORK HE HAS MONETARY DAMAGE BECAUSE OF SITE CONDITIONS, ERRORS, OTHERWISE THAN IS NOT SIGNED BY CARDUCCI & ASSOCIATES, INC. WILL NOT BE RESPONSIBLE FOR ANY MODIFICATIONS MADE TO THIS DRAWING ELECTRONIC OR DISCREPANCIES OR OMISSIONS AT THE TIME OF BID.
IF THE CONTRACTOR ENCOUNTERS ERRORS OR DISCREPANCIES ON THE DRAWINGS, OR SITE CONDITIONS WHICH PREVENT OR DELAY THE COMPLETION OF WORK AS INDICATED, THE CONTRACTOR SHALL NOTIFY THE OWNER AND LANDSCAPE ARCHITECT BY THE TIME OF BID OF ALL

Peter Stanley 10/1/2024 2:40 PM

ITEM DESCRIPTION

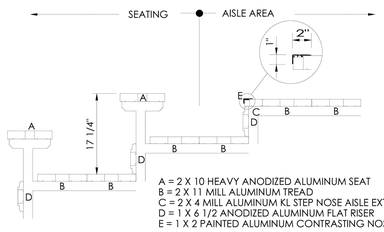
1. L 1 1/2 X 1 1/2 X 3/16 GALV. A36/A572 GRADE 50
2. L 2 X 1 1/2 X 3/16 GALV. A36/A572 GRADE 50
3. L 2 X 2 X 3/16 GALV. A36/A572 GRADE 50
4. L 2 1/2 X 2 X 3/16 GALV. A36/A572 GRADE 50
5. L 3 X 3 X 1/4 GALV. A36/A572 GRADE 50
6. ANODIZED ALUMINUM RAIL (SEE NOTE) (17 B5)
7. 9 GAUGE CHAIN LINK FENCE (2" SQUARE MESH)
8. L 2 X 1 1/2 X 3/16 ALUMINUM (6061-T6 ALLOY)
9. L 2 X 2 X 3/16 ALUMINUM (6061-T6 ALLOY)
10. 1 5/8 SCH. 40 ANODIZED ALUMINUM PIPE (6061-T6 ALLOY) (6 B5)
11. 3/8Ø STAINLESS STEEL CONCRETE WEDGE ANCHOR (18 B5)

DESIGN LOADING

TREAD & SEAT AREA (GROSS AREA) 100psf.
SEAT (PERPENDICULAR SWAY) 10 lbs/lf.
SEAT (PARALLEL SWAY) 24lbs/lf.
HANDRAILS (PERPENDICULAR) 50 lbs/lf.
HANDRAILS (VERTICAL) 100 lbs/lf.
SEAT & TREAD 120 lbs/lf.

NOTES

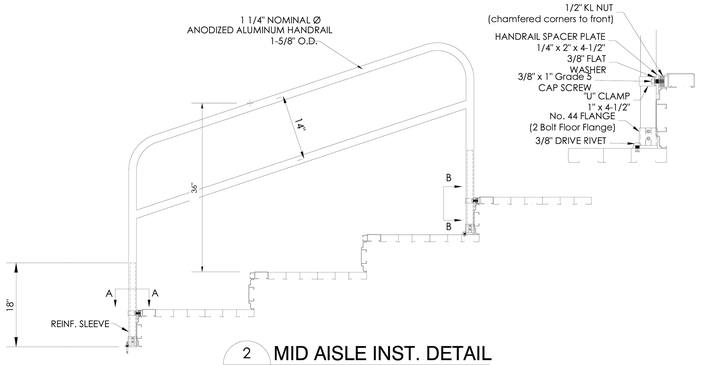
1. STRUCTURAL SHAPES MEET ONE OF THE FOLLOWING ASTM SPECIFICATIONS: A572 GRADE 50, A529-50, OR A500 GRADE B.
2. WELDS ARE ALL AROUND WITH TYPE ER70S-6 WIRE MIG.
3. ALL STEEL TO BE HOT DIPPED GALVANIZED TO A.S.T.M. A-123-89 ae1.
4. STRUCTURAL BOLTS ARE HOT DIPPED GALV. AND ARE EQUAL TO OR GREATER THAN A-307.
5. ANODIZED ALUMINUM RAIL IS 1 1/4" NOMINAL PIPE SIZE. (17 B5)
6. ANODIZED ALUMINUM SCH. 40 PIPE IS 1 1/4" NOMINAL PIPE SIZE. (6 B5)



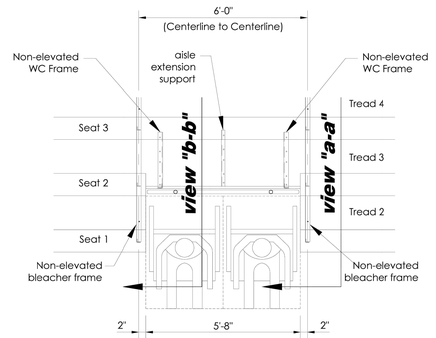
A = 2 X 10 HEAVY ANODIZED ALUMINUM SEAT
B = 2 X 11 MILL ALUMINUM TREAD
C = 2 X 4 MILL ALUMINUM KL STEP NOSE AISLE EXTENSION
D = 1 X 6 1/2 ANODIZED ALUMINUM FLAT RISER
E = 1 X 2 PAINTED ALUMINUM CONTRASTING NOSING (BLACK)

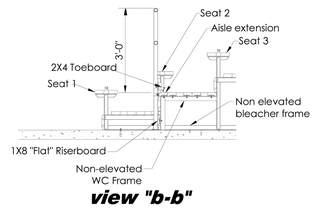
1 B2 PLANK ARRANGEMENT
NOT TO SCALE 8" X 24"

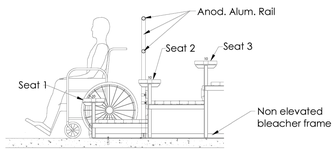
NOTE: 5 ROW NON-ELEVATED BLEACHERS ARE EXEMPT FROM DSA STRUCTURAL REVIEW PER DSA IR A-22 SECTION 1.2.1 AND APPENDIX-CONSTRUCTION PROJECTS AND ITEMS ELIGIBLE FOR EXEMPTION



2 B2 MID AISLE INST. DETAIL
N.T.S.

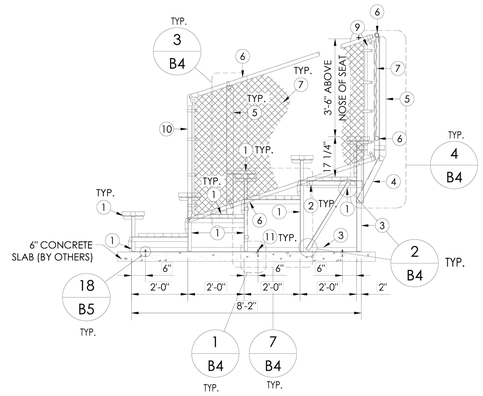






NOTE: DOUBLE WHEELCHAIR AREA SHOWN, SINGLE WHEELCHAIR AREA SIMILAR.

3 B2 DOUBLE NON-ELEVATED WHEELCHAIR AREA DETAIL
SCALE:NONE



4 B2 SIDE VIEW: 5 ROW NON-ELEVATED
SCALE:1/2"=1'-0"

NOTE
PER DSA IR A-22 SECTION 2.1.2.1: THIS PROJECT ELEMENT IS NOT A PART OF THE DSA STRUCTURAL APPROVAL SYSTEM BUT IS A PART OF THE DSA ACCESSIBILITY AND FIRE LIFE SAFETY APPROVAL SYSTEM.

DETAIL NUMBER / SHEET NUMBER

THIS DRAWING AND ALL INFORMATION THEREIN IS THE PROPERTY OF TAYLOR & SYFAN AND SOUTHERN BLEACHER COMPANY. IT IS NOT TO BE USED, REPRODUCED, LOANED, COPIED, THIS DRAWING AS LOANED SUBJECT TO RETURN UPON DEMAND. ALL RIGHTS RESERVED. NO PART OF THIS DRAWING MAY BE REPRODUCED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO OUR INTERESTS.

STRUCTURAL ENGINEERS
CENTRAL Ph. (530) 272-7267
COAST Fax (805) 773-2487
555 S. Oak Knoll Ave., Pasadena, CA 91101

TAYLOR & SYFAN
Southern BLEACHER COMPANY
GRANDSTANDS • BLEACHERS • STADIUMS
PO Box One, Graham, Texas 76450
801 Fifth Street,
Phone: 940-549-0733 Fax: 940-549-1365
Established 1946

REGISTERED PROFESSIONAL ENGINEER
BRIAN T. DEAN
S 6087
STRUCTURAL
STATE OF CALIFORNIA
S&S 05/29/24
PRINCIPAL

REV BY	DATE	DESCRIPTION

5/28/24 MG DMC

JOB NUMBER #24172

SHEET B2 OF B5

22" X 34" (1:1x17 = 1/2 indicated scale)

TAMALPAIS UNION H.S. DISTRICT
REDWOOD HIGH SCHOOL
LARKSPUR, CALIFORNIA

SECTION VIEW
8" RISE X 24" TREAD / 39"-0" (5 ROWS)

IF THE CONTRACTOR ENCOUNTERS ERRORS OR DISCREPANCIES ON THE DRAWINGS, OR SITE CONDITIONS WHICH MODIFY OR RELATE TO THE DRAWINGS, SUCH ERRORS, DISCREPANCIES AND OMISSIONS, THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE LANDSCAPE ARCHITECT AND THE OWNER HARMLESS IF AFTER CONTRACTING FOR THE WORK HE HAS MORE THAN DAMAGE BECAUSE OF SITE CONDITIONS, ERRORS, OMISSIONS OR DISCREPANCIES AT THE TIME OF BID.

ONLY THE ORIGINAL, SIGNED HARD COPY OF THIS DRAWING CONSTITUTES CARDUCCI & ASSOCIATES, INC. PROFESSIONAL WORK PRODUCT. ELECTRONIC COPIES DO NOT. CARDUCCI & ASSOCIATES, INC. WILL NOT BE RESPONSIBLE FOR ANY MODIFICATIONS MADE TO THIS DRAWING ELECTRONIC OR OTHERWISE. DO NOT SCALE DRAWINGS. © CARDUCCI & ASSOCIATES, INC.

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-121720 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/7/2024

ARCHITECT/ ENGINEER

ZFA STRUCTURAL ENGINEERS
1212 fourth street | suite z zfa.com
santa rosa ca 95404 707.526.0992
zfa job no. 20400 copyright © 2024

STAMP

DESIGN TEAM

CARDUCCI ASSOCIATES
555 BEACH STREET FOURTH FLOOR
SAN FRANCISCO, CA 94133
www.carducciassociates.com
© 2024 CARDUCCI ASSOCIATES, INC.

STAMP

REGISTERED LANDSCAPE ARCHITECT
PAUL A. CARDUCCI
No. 2537
12.31.2024
09.11.2024
STATE OF CALIFORNIA

OWNER

TAMALPAIS UNION HIGH SCHOOL DISTRICT

PROJECT

REDWOOD HIGH SCHOOL GHILOTTI FIELD SITE IMPROVEMENTS
395 DOHERTY DRIVE
LARKSPUR, CA 94939

CONTEXT MAP

#	DESCRIPTION	DATE

DSA SUBMITTAL

FILE NUMBER 21-H2
DSA APP NUMBER
01-121720

DATE: 09.11.2024
SCALE: N/A
PROJECT NO: TAM23-01

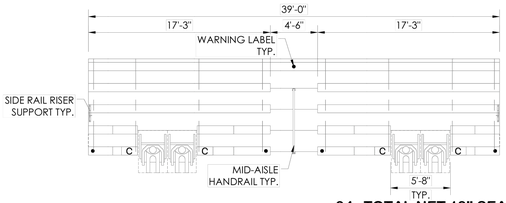
SHEET TITLE

DETAILS - PROPOSED BLEACHERS

SHEET NUMBER

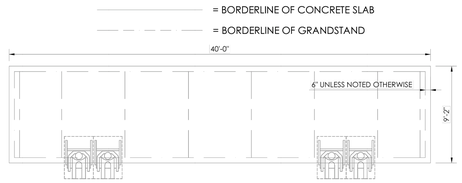
L06.10

Peter Stanley 10/1/2024 2:40 PM

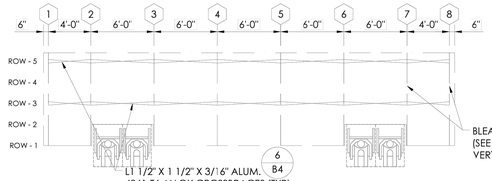


1 / B3 SEATING LAYOUT
SCALE:3/16"=1'-0"

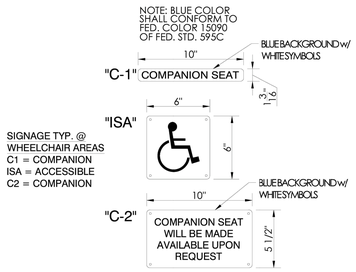
94 TOTAL NET 18" SEATS
4 TOTAL 18" COMPANION SEATS
4 TOTAL NET 33" WHEELCHAIR SPACES
102 TOTAL SEATING CAPACITY



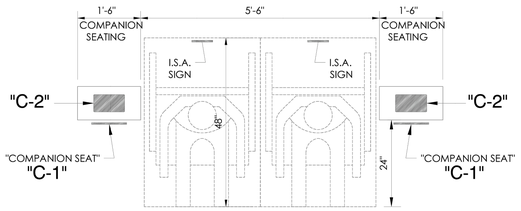
2 / B3 CONCRETE LAYOUT
SCALE:3/16"=1'-0"



3 / B3 CROSSBRACING LAYOUT
SCALE: 3/16"=1'-0"



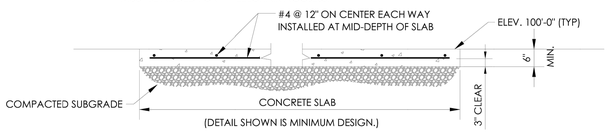
4 / B3 SIGNAGE & SEAT TYPE LEGEND
NOT TO SCALE



ICC/ANSI A117.1 CHAPTER 8
FRONT OR REAR ACCESS 48" MIN.
SIDE ACCESS 60" MIN.

5 / B3 WHEELCAIR AREA SIGNAGE DETAIL
NOT TO SCALE

NOTE: 1. CONCRETE SLAB DESIGN/DETAIL LISTED IS THE MINIMUM REQUIREMENTS FOR ANGLE FRAME BLEACHER INSTALLATION. ALL CONCRETE WORK IS BY OTHERS & NOT BY BLEACHER MANUFACTURER.
2. CONCRETE SLAB ON GRADE TO BE LEVEL. BLEACHERS ARE DESIGNED FOR INSTALLATION ON UNIFORM, LEVEL SURFACE.
3. CONCRETE SLAB DIMENSIONS LISTED ARE FOR BLEACHER SUBSTRUCTURE ONLY. ADDITIONAL DEPTH MUST BE ADDED FOR WHEELCHAIR ACCSESS.



6 / B3 CONCRETE SLAB DETAIL
SCALE:NONE

NOTE: 5 ROW NON-ELEVATED BLEACHERS ARE EXEMPT FROM DSA STRUCTURAL REVIEW PER DSA IR A-22 SECTION 1.2.1 AND APPENDIX-CONSTRUCTION PROJECTS AND ITEMS ELIGIBLE FOR EXEMPTION

NOTE
PER DSA IR A-22 SECTION 2.1.2.1: THIS PROJECT ELEMENT IS NOT A PART OF THE DSA STRUCTURAL APPROVAL SYSTEM BUT IS A PART OF THE DSA ACCESSIBILITY AND FIRE LIFE SAFETY APPROVAL SYSTEM.

DETAIL NUMBER / SHEET NUMBER

THE DRAWING AND ALL INFORMATION THEREIN IS THE PROPERTY OF TAYLOR & SYFAN BLEACHER COMPANY. TAYLOR & SYFAN BLEACHER CONFIDENTIAL AND MUST NOT BE DISCLOSED, COPIED, USED, DRAWING AS LOANED SUBJECT TO RECALL UPON REQUEST AND NOT TO BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO OUR INTERESTS.

STRUCTURAL ENGINEERS
CENTRA Inc. (626) 792-7400
555 E. Colo. Blvd. Suite 600 Pasadena, CA 91101
TAYLOR & SYFAN Southern BLEACHER COMPANY
GRANDSTANDS • BLEACHERS • STADIUMS
PO Box One, Graham, Texas 76450 Phone: 940/549-1733 Fax: 940/549-1365
801 Fifth Street. Established 1946

REGISTERED PROFESSIONAL ENGINEER
BRIAN T. DEAN
S 6087
STRUCTURAL
STATE OF CALIFORNIA
S&S 05/29/24
PRINCIPAL

PLAN VIEWS
8" RISE X 24" TREAD / 39'-0" (5 ROWS)

TAMALPAIS UNION H.S. DISTRICT
REDWOOD HIGH SCHOOL
LARKSPUR, CALIFORNIA

DEV. BY	DATE	DESCRIPTION

DATE	DRAWN	CHECKED
5/28/24	MG	DMC

JOB NUMBER #24172

SHEET B3 OF B5

22" X 34" (1 1x17 = 1/2 indicated scale)

ONLY THE ORIGINAL, SIGNED HARD COPY OF THIS DRAWING CONSTITUTES A BID/CONTRACT ASSOCIATES, INC. PROFESSIONAL WORK PRODUCT. ELECTRONIC COPIES DO NOT CONSTITUTE A BID/CONTRACT DOCUMENT. CARDUCCI & ASSOCIATES, INC. SHALL NOT BE RESPONSIBLE FOR ANY MODIFICATIONS MADE TO THIS DRAWING ELECTRONIC OR OTHERWISE. THIS IS NOT A PART OF CARDUCCI & ASSOCIATES, INC.

IF THE CONTRACTOR KNOWINGLY PERFORMS ERRORS OR DISCREPANCIES ON THE DRAWINGS OR SITE CONDITIONS WHICH PREVENT OR DELAY THE CORRECTION OF WORK AS INDICATED, THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE LANDSCAPE ARCHITECT AND THE OWNER HARMLESS IF AFTER CONTRACTOR'S EXPERIENCE OR DISCREPANCIES AT THE TIME OF BID OF SUCH ERRORS, DISCREPANCIES AND OMISSIONS. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE LANDSCAPE ARCHITECT AND THE OWNER HARMLESS IF AFTER CONTRACTING FOR THE WORK HE HAS MORE THAN DAMAGE BECAUSE OF SITE CONDITIONS, ERRORS, OMISSIONS OR DISCREPANCIES.

Peter Stanley 10/1/2024 2:40 PM

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-121720 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/7/2024

ARCHITECT/ ENGINEER

ZFA STRUCTURAL ENGINEERS
1212 fourth street | suite z zfa.com
santa rosa ca 95404 707.526.0992
zfa job no. 20400

copyright © 2024

STAMP

DESIGN TEAM

CARDUCCI ASSOCIATES
555 BEACH STREET FOURTH FLOOR
SAN FRANCISCO, CA 94133
www.carducciassociates.com

© 2024 CARDUCCI ASSOCIATES, INC.

STAMP

LANDSCAPE ARCHITECT
BRIAN T. DEAN
LA 2537
12.31.2024
09.11.2024
REGISTERED LANDSCAPE ARCHITECT
STATE OF CALIFORNIA

OWNER
TAMALPAIS UNION HIGH SCHOOL DISTRICT

PROJECT
REDWOOD HIGH SCHOOL GHILOTTI FIELD SITE IMPROVEMENTS
395 DOHERTY DRIVE
LARKSPUR, CA 94939

CONTEXT MAP

#	DESCRIPTION	DATE

DSA SUBMITTAL

FILE NUMBER 21-H2
DSA APP NUMBER
01-121720

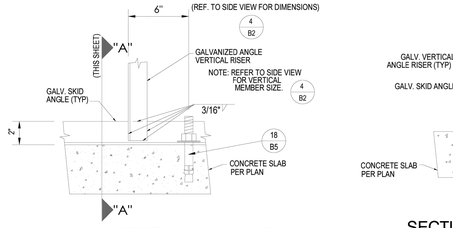
DATE: 09.11.2024
SCALE: N/A
PROJECT NO: TAM23-01

SHEET TITLE

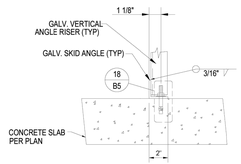
DETAILS - PROPOSED BLEACHERS

SHEET NUMBER

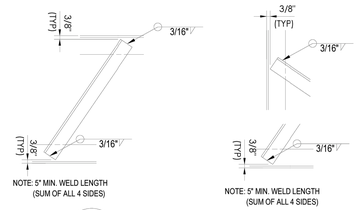
L06.11



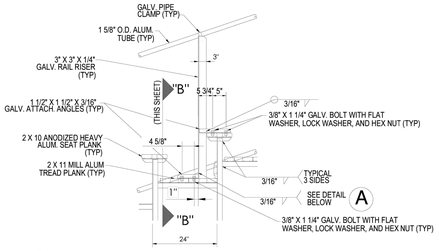
1 B4 VERTICAL ANGLE ATTACH. TO SKID ANGLE
NO SCALE



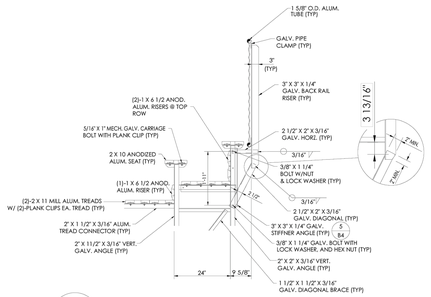
SECTION "A"-"A"
NO SCALE



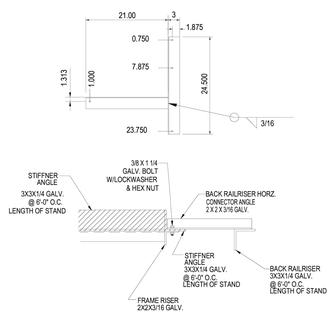
2 B4 ATTACHMENT DETAIL
NO SCALE



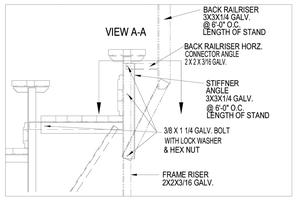
3 B4 SIDE RAILRISER ATTACHMENT
NO SCALE



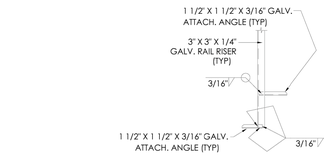
4 B4 BACK RAIL RISER ATTACH. DETAIL
NO SCALE



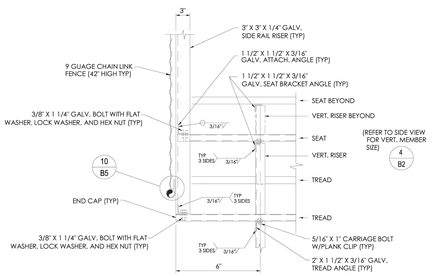
VIEW A-A



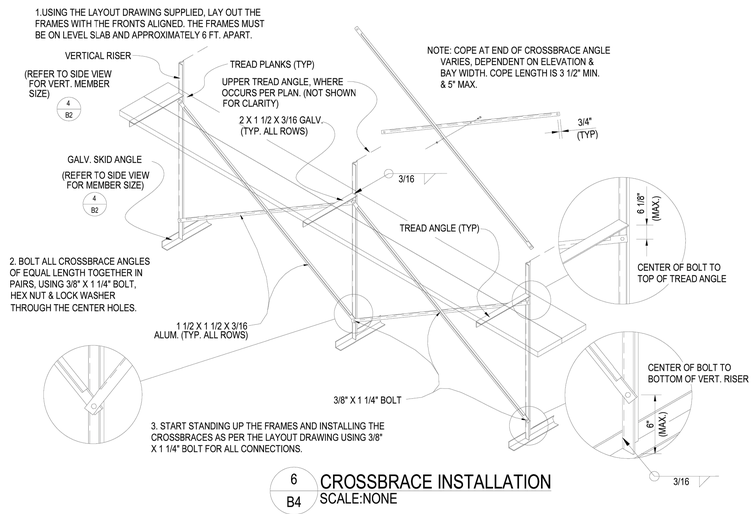
5 B4 STIFFNER ANGLE DETAIL
SCALE: NONE



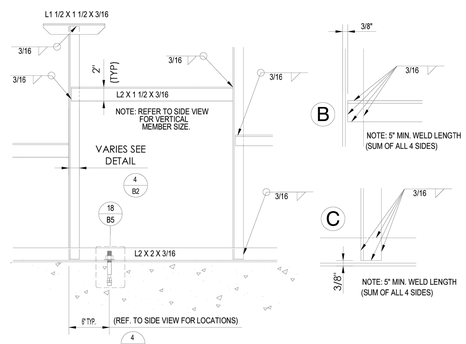
A WELD DETAIL
NO SCALE



SECTION "B"-"B"
NO SCALE



6 B4 CROSSBRACE INSTALLATION
SCALE:NONE



7 B4 ANGLE FAB DETAIL
SCALE: NONE

NOTE
PER DSA IR A-22 SECTION 2.1.2.1: THIS PROJECT ELEMENT IS NOT A PART OF THE DSA STRUCTURAL APPROVAL SYSTEM BUT IS A PART OF THE DSA ACCESSIBILITY AND FIRE LIFE SAFETY APPROVAL SYSTEM.

1 DETAIL NUMBER / 1 SHEET NUMBER

THE DRAWING AND ALL INFORMATION THEREIN IS THE PROPERTY OF CARDUCCI & ASSOCIATES, INC. AND MAY NOT BE USED OR COPIED. THIS DRAWING AS LOANED SUBJECT TO RETURN UPON DEMAND AND IS NOT TO BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO OUR INTERESTS.

STRUCTURAL ENGINEERS
OFFICES
CORDTA
CORCE
555 S. Oak Knoll Ave., Pasadena, CA 91101
Ph. (626) 792-7400
Fax (626) 792-7401

TAYLOR & SYFAN
Southern BLEACHER COMPANY
GRANDSTANDS • BLEACHERS • STADIUMS
Established 1946
PO Box One, Graham, Texas 76450
801 Fifth Street,
Phone: 940/549-0733 Fax: 940/549-1365

REGISTERED PROFESSIONAL ENGINEER
BRIAN T. DEMPSEY
S 6087
STRUCTURAL
STATE OF CALIFORNIA
S&S
05/28/24
PRINCIPAL

REV	BY	DATE	DESCRIPTION
1	MG	5/28/24	ANGLE FAB/GUARDRAIL DETAILS
			8" RISE X 24" TREAD / 39"-0" (5 ROWS)

JOB NUMBER #24172
SHEET B4 OF B5
22" X 34" (1 1/2 indicated scale)

TAMALPAIS UNION H.S. DISTRICT
REDWOOD HIGH SCHOOL
LARKSPUR, CALIFORNIA

ONLY THE ORIGINAL, SIGNED HARD COPY OF THIS DRAWING CONSTITUTES CARDUCCI & ASSOCIATES, INC. PROFESSIONAL WORK PRODUCT. ELECTRONIC COPIES DO NOT. CARDUCCI & ASSOCIATES, INC. WILL NOT BE RESPONSIBLE FOR ANY MODIFICATIONS MADE TO THIS DRAWING ELECTRONIC OR OTHERWISE THAT HAVE BEEN MADE BY CARDUCCI & ASSOCIATES, INC.

IF THE CONTRACTOR ENCOUNTERS ERRORS OR DISCREPANCIES ON THE DRAWINGS, OR SITE CONDITIONS WHICH PREVENT OR DEVIATE THE COMPLETION OF WORK AS INDICATED, THE CONTRACTOR SHALL NOTIFY THE OWNER AND LANDSCAPE ARCHITECT BY THE TIME OF BID OF ALL SUCH ERRORS, DISCREPANCIES AND OMISSIONS. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE LANDSCAPE ARCHITECT AND THE OWNER HARMLESS IF AFTER CONSTRUCTION AT THE TIME OF BID.

Peter Stanley 10/1/2024 2:40 PM

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-121720 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/7/2024

ARCHITECT/ ENGINEER
ZFA STRUCTURAL ENGINEERS
1212 fourth street | suite z zfa.com
santa rosa ca 95404 707.526.0992
zfa job no. 20400 copyright © 2024

STAMP

DESIGN TEAM

CARDUCCI ASSOCIATES
555 BEACH STREET FOURTH FLOOR
SAN FRANCISCO, CA 94133
www.carducciassociates.com

© 2024 CARDUCCI ASSOCIATES, INC.

STAMP

REGISTERED PROFESSIONAL ENGINEER
BRIAN T. DEMPSEY
NO. 2537
CIVIL
12.31.2024
09.11.2024
STATE OF CALIFORNIA

OWNER
TAMALPAIS UNION HIGH SCHOOL DISTRICT

PROJECT
REDWOOD HIGH SCHOOL GHILOTTI FIELD SITE IMPROVEMENTS
395 DOHERTY DRIVE
LARKSPUR, CA 94939

CONTEXT MAP

#	DESCRIPTION	DATE

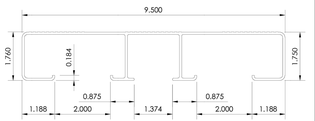
DSA SUBMITTAL

FILE NUMBER 21-H2
DSA APP NUMBER
01-121720

DATE: 09.11.2024
SCALE: N/A
PROJECT NO: TAM23-01

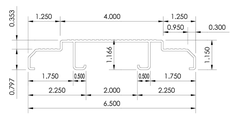
SHEET TITLE
DETAILS - PROPOSED BLEACHERS

SHEET NUMBER
L06.12



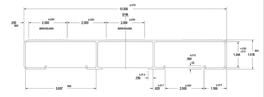
2X10 HEAVY ALUMINUM PLANK
.075 WALL , 1.769#/FT.
1. Ix = .843 IN. 4=4
2. MATERIAL - 6063 T-6
3. MIN. MAT. PROP. - 25000 PSI
4. E = 10,000,000 PSI
5. C = 1.10 IN.

1 B5 — 2 X 10 HEAVY ALUMINUM PLANK DETAIL
NOT TO SCALE



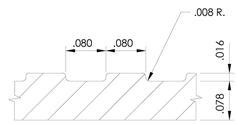
1X6 1/2 ALUMINUM FLAT RISER PLANK
.075 WALL , 1.081#/FT.
1. Ix = .131 IN. 4=4
2. MATERIAL - 6063 T-6
3. MIN. MAT. PROP. - 25000 PSI
4. E = 10,000,000 PSI
5. C = .740 IN.

2 B5 — 1 X 6.5 ALUMINUM RISER PLANK DETAIL
NOT TO SCALE



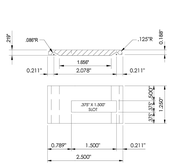
2X12 ALUMINUM PLANK
.078 WALL , 2.029#/FT.
1. Ix = .591 IN. 4=4
2. MATERIAL - 6063 T-6
3. MIN. MAT. PROP. - 25000 PSI
4. E = 10,000,000 PSI
5. C = 1.01 IN.

3 B5 — 2 X 11 ALUMINUM PLANK DETAIL
NOT TO SCALE

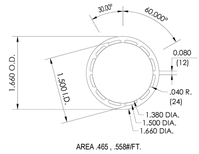


NOTE: TYPICAL FOR ALL PLANKS.

4 B5 — FLUTED SURFACE DETAIL
NOT TO SCALE

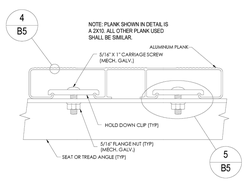


5 B5 — HOLD DOWN CLIP DETAIL
NOT TO SCALE

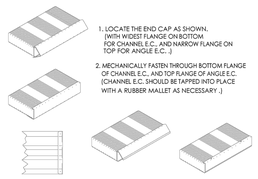


AREA .465 , .558#/FT.
MATERIAL - 6063 T-6

6 B5 — 1 5/8" O.D. ALUMINUM RAIL DETAIL
NOT TO SCALE



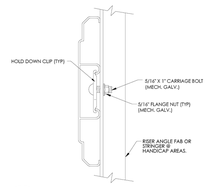
7 B5 — PLANK INSTALLATION DETAIL
NOT TO SCALE



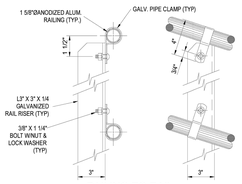
1. LOCATE THE END CAP AS SHOWN. (WITH WIDEST FLANGE ON BOTTOM FOR CHANNEL E.C., AND NARROW FLANGE ON TOP FOR ANGLE E.C.)

2. MECHANICALLY FASTEN THROUGH BOTTOM FLANGE OF CHANNEL E.C., AND TOP FLANGE OF ANGLE E.C. (CHANNEL E.C. SHOULD BE TAPPED INTO PLACE WITH A RUBBER MALLET AS NECESSARY .)

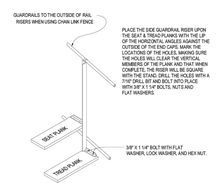
8 B5 — ENDCAP INSTALLATION DETAIL
NOT TO SCALE



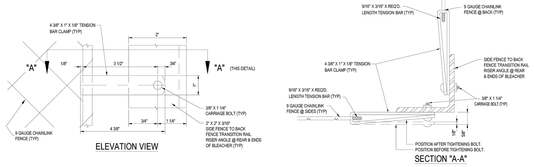
9 B5 — RISER PLANK INSTALLATION DETAIL
NOT TO SCALE



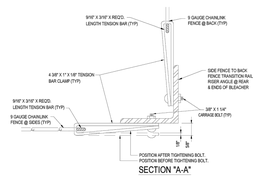
10 B5 — RAILING TO RAIL RISER ATTACHMENT DETAIL
NOT TO SCALE



11 B5 — SIDE GUARDRAIL RISER INSTALLATION
NOT TO SCALE

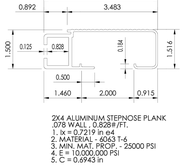


ELEVATION VIEW



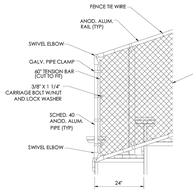
SECTION "A-A"

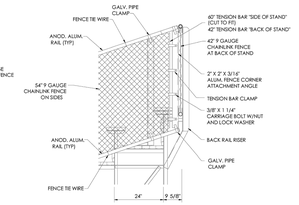
12 B5 — TENSION BAR CLAMP INSTALLATION DETAIL
SCALE: NONE



2X4 ALUMINUM STEPNOSE PLANK
.078 WALL , 0.828#/FT.
1. Ix = 0.7219 in 4=4
2. MATERIAL - 6063 T-6
3. MIN. MAT. PROP. - 25000 PSI
4. E = 10,000,000 PSI
5. C = 0.6943 in

13 B5 — 2X4 KL ALUMINUM STEPNOSE PLANK DETAIL
NOT TO SCALE

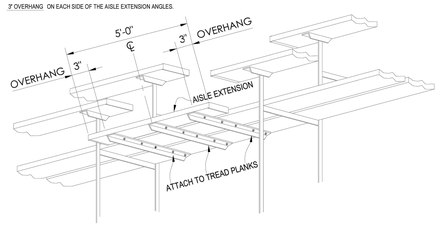




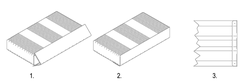
14 B5 — FENCE INSTALLATION
NOT TO SCALE

1. ATTACH 1 1/2" X 1 1/2" X 3/16" AISLE EXTENSION ANGLE BRACES TO THE TREAD PLANKS WITH 5/16" X 1" CARRIAGE BOLTS AND HOLD-DOWN CLIPS.

2. CENTER AISLE EXTENSION PLANK ON THE ANGLES AND ATTACH WITH 5/16" BOLTS AND CLIPS AS ABOVE. THERE SHOULD BE ABOUT A 3" OVERHANG ON EACH SIDE OF THE AISLE EXTENSION ANGLES.



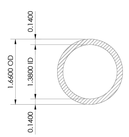
15 B5 — AISLE EXTENSION INSTALLATION
NOT TO SCALE



1. LOCATE THE END CAP AS SHOWN. (WITH NARROW ANGLE ON BOTTOM)

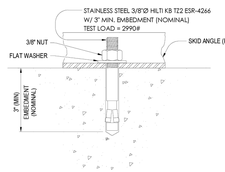
2. MECHANICALLY FASTEN THROUGH BOTTOM OF END CAP WITH 5/32 POP RIVETS.

16 B5 — ANGLE END CAP INSTALLATION @ SIDE RAIL RISER
NOT TO SCALE



1. MATERIAL - 6063 T-6

17 B5 — SCHED. 40 ALUMINUM PIPE DETAIL
NOT TO SCALE



18 B5 — WEDGE ANCHOR DETAIL
NO SCALE

NOTE
PER DSA IR A-22 SECTION 2.1.2.1: THIS PROJECT ELEMENT IS NOT A PART OF THE DSA STRUCTURAL APPROVAL SYSTEM BUT IS A PART OF THE DSA ACCESSIBILITY AND FIRE LIFE SAFETY APPROVAL SYSTEM.

DETAIL NUMBER / SHEET NUMBER

THE DRAWING AND ALL INFORMATION THEREIN IS THE PROPERTY OF TAYLOR & SYFAN BLEACHER COMPANY. TAYLOR & SYFAN BLEACHER COMPANY MATERIAL MAY NOT BE COPIED. THIS DRAWING IS LOANED SUBJECT TO RETURN UPON DEMAND AND IS NOT TO BE USED IN WHOLE OR IN PART FOR ANY WORK NOT EXECUTED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO OUR INTERESTS.

STRUCTURAL ENGINEERS
CIDEM & CIDEM
555 S. Oak Knoll Ave., Pasadena, CA 91101
Ph. (626) 792-7282
Fax (626) 792-7287

TAYLOR & SYFAN
Southern BLEACHER COMPANY
GRANDSTANDS • BLEACHERS • STADIUMS
Established 1946

PO Box One, Graham, Texas 76450
801 Fifth Street,
Phone: 940-549-1733 Fax: 940-549-1365

REGISTERED PROFESSIONAL ENGINEER
BRIAN T. DEMPSEY
S 6087
STRUCTURAL
STATE OF CALIFORNIA
S&S
05/29/24
PRINCIPAL

REV BY	DATE	DESCRIPTION

ALUMINUM PLANK DETAILS
8" RISE X 24" TREAD / 39"-0" (5 ROWS)

TAMALPAIS UNION H.S. DISTRICT
REDWOOD HIGH SCHOOL
LARKSPUR, CALIFORNIA

DATE	DRAWN	CHECKED
5/28/24	MG	DMC

JOB NUMBER #24172

SHEET B5 OF B5

22" X 34" (1 1x17 = 1/2 indicated scale)

ONLY THE ORIGINAL, SIGNED HARD COPY OF THIS DRAWING CONSTITUTES ZFA|DOCO & ASSOCIATES, INC. PROFESSIONAL WORK PRODUCT. ELECTRONIC COPIES DO NOT. ZFA|DOCO & ASSOCIATES, INC. WILL NOT BE RESPONSIBLE FOR ANY MODIFICATIONS MADE TO THIS DRAWING ELECTRONIC OR OTHERWISE. THAT IS NOT SIGNED BY ZFA|DOCO & ASSOCIATES, INC.

IF THE CONTRACTOR ENCOUNTERS ERRORS OR DISCREPANCIES ON THE DRAWINGS, OR SITE CONDITIONS WHICH PREVENT OR RELATE TO THE CORRECTION OF WORK AS INDICATED, THE CONTRACTOR SHALL NOTIFY THE OWNER AND LANDSCAPE ARCHITECT IN WRITING OF SUCH ERRORS, DISCREPANCIES AND OMISSIONS. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE LANDSCAPE ARCHITECT AND THE OWNER HARMLESS IF AFTER CONTRACTING FOR THE WORK HE HAS MORE THAN DIMAGE BECAUSE OF SITE CONDITIONS, ERRORS, OMISSIONS OR DISCREPANCIES AT THE TIME OF BID.

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-121720 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/7/2024

ARCHITECT/ ENGINEER

ZFA STRUCTURAL ENGINEERS
1212 fourth street | suite z zfa.com
santa rosa ca 95404 707.526.0992
zfa job no. 20400 copyright © 2024

STAMP

DESIGN TEAM

CARDUCCI ASSOCIATES
555 BEACH STREET FOURTH FLOOR
SAN FRANCISCO, CA 94133
www.carducciassociates.com
© 2024 CARDUCCI ASSOCIATES, INC.

STAMP

REGISTERED PROFESSIONAL ENGINEER
BRIAN T. DEMPSEY
S 6087
STRUCTURAL
STATE OF CALIFORNIA
12.31.2024
09.11.2024

OWNER
TAMALPAIS UNION HIGH SCHOOL DISTRICT

PROJECT
REDWOOD HIGH SCHOOL GHILOTTI FIELD SITE IMPROVEMENTS
395 DOHERTY DRIVE
LARKSPUR, CA 94939

CONTEXT MAP

#	DESCRIPTION	DATE

DSA SUBMITTAL

FILE NUMBER 21-H2
DSA APP NUMBER
01-121720

DATE: 09.11.2024
SCALE: N/A
PROJECT NO: TAM23-01

SHEET TITLE

DETAILS - PROPOSED BLEACHERS

SHEET NUMBER

L06.13

Peter Stanley 10/1/2024 2:41 PM

ABBREVIATIONS AND SYMBOLS

ABBREVIATIONS

&	AND
@	AT
A	AREA (IN^2)
AB	ANCHOR BOLT
ABV	ABOVE
ADDL	ADDITIONAL
ADJ	ADJACENT
AFF	ABOVE FINISH FLOOR
AGGR	AGGREGATE
ALT	ALTERNATE
ALUM	ALUMINUM
ANCH	ANCHOR
APPVD	APPROVED
APROX	APPROXIMATELY
ARCH	ARCHITECTURAL; ARCHITECT
(B)	BOTTOM
BD	BOARD
BLDG	BUILDING
BLK	BLOCK
BLKG	BLOCKING
BM	BEAM
BN	BOUNDARY NAIL
BOF	BOTTOM OF FOOTING
BOT OR B/	BOTTOM
BRCG	BRACING
BRG	BEARING
BSMT	BASEMENT
BS	BOUNDARY SCREW
BTW	BETWEEN
CALCS	CALCULATIONS
CANT	CANTILEVER
CBC	CALIFORNIA BUILDING CODE
CF	CUBIC FOOT
CG	CENTER OF GRAVITY
CIP	CAST IN PLACE
CJ	CONSTRUCTION JOINT; CONTROL JOINT
CJP	COMPLETE JOINT PENETRATION
CL	CENTER LINE
CLG	CEILING
CLR	CLEARANCE; CLEAR
CMU	CONCRETE MASONRY UNIT
CO	COMPANY
COL	COLUMN
COMP	COMPRESSION
CONC	CONCRETE
CONN	CONNECT; CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUE; CONTINUOUS
CONTR	CONTRACTOR
CP	COMPLETE PENETRATION
CTR	CENTER
CTSK	COUNTERSINK; COUNTERSUNK
d	PENNY (NAIL OR d_b)
db	BAR DIAMETER
DBL	DOUBLE
DEMO	DEMOLITION
DEPT	DEPARTMENT
DET	DETAIL
DF/L	DOUGLAS FIR/LARCH
DIA OR Ø	DIAMETER
DIAG	DIAGONAL
DIAPH	DIAPHRAGM
DIM	DIMENSION
DIR	DIRECTION
DIST	DISTANCE
DL	DEAD LOAD
DN	DOWN
DO	DITTO
DWG	DRAWING
DWL	DOWEL
(E) OR EXIST	EXISTING
e.g.	FOR EXAMPLE
EA	EACH
EF	EACH FACE
EJ	END JACK; EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRICAL
ELEV	ELEVATION; ELEVATOR
EMB	EMBED
EN	EDGE NAIL
ENGR	ENGINEER
EOR	ENGINEER OF RECORD
EOS	EDGE OF SLAB
EQ	EQUAL
EQUIP	EQUIPMENT
EQUIV	EQUIVALENT
ES	EACH SIDE
ETC	ET CETERA
EW	EACH WAY
EXT	EXTERIOR
F'c	CONCRETE COMPRESSION STRENGTH
F'm	MASONRY COMPRESSION STRENGTH
F/	FACE OF
Fb	ALLOWABLE BENDING STRESS
FD	FLOOR DRAIN
FDN	FOUNDATION
FF	FINISH FLOOR
FIN	FINISH
FLR	FLOOR
FN	FIELD NAIL
FP	FIREPROOF; FULL PENETRATION
FRMG	FRAMING
FS	FULL SIZE; FAR SIDE
FT	FOOT; FEET
FTG	FOOTING
Fy	YIELD STRENGTH
GA	GAUGE
GALV	GALVANIZED
GB	GRADE BEAM
GC	GENERAL CONTRACTOR
GEN	GENERAL
GLB	GLUED LAMINATED BEAM
GR	GRADE
(H)	HORIZONTAL
H OR HORIZ	HORIZONTAL
HCAI	DEPARTMENT OF HEALTHCARE ACCESS AND INFORMATION
HD	HOLDOWN
HDR	HEADER
HGR	HANGER
HI	HIGH
HP	HEAVY PILING
HR	HARD ROCK
HS	HIGH STRENGTH
HT	HEIGHT
I	MOMENT OF INERTIA
i.e.	THAT IS
IBC	INTERNATIONAL BUILDING CODE
ID	INSIDE DIAMETER
IF	INSIDE FACE
IN	INCH
INCL	INCLUDE, INCLUDING
INFO	INFORMATION
INSP	INSPECTION, INSPECTOR
INT	INTERIOR
INTERM	INTERMEDIATE
INV	INVERT
JST	JOIST
JT	JOINT
k OR KIP	1,000 POUNDS
KO	KNOCK-OUT
KP	KING POST
KSF	KIPS PER SQUARE FOOT
KSI	KIPS PER SQUARE INCH

# OR LBS	POUND
(L)	LONGITUDINAL
LAB	LABORATORY
Ld	DEVELOPMENT LENGTH
LDGR	LEDGER
Ldh	STANDARD HOOK DEVELOPMENT LENGTH
LF	LINEAL FOOT
LG	LONG
LIN	LINEAL; LINEAR
LL	LIVE LOAD
LLBB	LONG LEGS BACK-TO-BACK
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LOCS	LOCATIONS
LONGIT	LONGITUDINAL
LP	LOW POINT
Lst	TENSION LAP SPLICE LENGTH
LTWT	LIGHTWEIGHT
LVL	LEVEL
MAS	MASONRY
MAT	MATERIAL
MAX	MAXIMUM
MB	MACHINE BOLT
MDF	MEDIUM DENSITY FIBERBOARD
MECH	MECHANICAL
MEZZ	MEZZANINE
MFR	MANUFACTURER
MID	MIDDLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MTL	METAL
# OR NO.	NUMBER
(N)	NEW
N	NORTH
NAT	NATURAL
NF	NEAR FACE
NIC	NOT IN CONTRACT
NS	NEAR SIDE
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
OH	OPPOSITE HAND
OPNG	OPENING
OPP	OPPOSITE
OSB	ORIENTED STRAND BOARD
//	PARALLEL
PC	PRECAST
PCF	POUNDS PER CUBIC FOOT
PCI	POUNDS PER CUBIC INCH
PDF	POWDER DRIVEN FASTENERS
PE	POLYETHYLENE, PROFESSIONAL ENGINEER
PERP OR ⊥	PERPENDICULAR
PI	PLYWOOD INDEX
PL	PLATE; PROPERTY LINE
PLF	POUNDS PER LINEAL FOOT
PJP	PARTIAL JOINT PENETRATION
PLY	PLYWOOD
PP	PARTIAL PENETRATION
PREFAB	PREFABRICATED
PRKG	PARKING
PROJ	PROJECT
PROP	PROPERTY
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PTFE	POLYTETRAFLUORETHYLENE (TEFLON)
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
R OR RAD	RADIUS
RD	ROOF DRAIN
REF	REFERENCE
REG	REGULAR
REINF	REINFORCE; REINFORCING
REQ	REQUIRED
RET	RETAINING
REV	REVISION
RF	ROOF
RM	ROOM
RO	ROUGH OPENING
S	ELASTIC SECTION MODULUS
SAD	SEE ARCHITECTURAL DRAWINGS
SCHD;SCHED	SCHEDULE
SECT	SECTION
SEL	SELECT
SEP	SEPARATION
SFRS	SEISMIC FORCE RESISTING SYSTEM
SHT	SHEET
SHTG	SHEATHING
SIM	SIMILAR
SJ	SEISMIC JOINT, SIDE JACK
SLBB	SHORT LEGS BACK-TO-BACK
SMS	SHEET METAL SCREWS
SPCG	SPACING
SPCL	SPECIAL
SPCS	SPACES
SPECS	SPECIFICATIONS
SQ	SQUARE
SS	SELECT STRUCTURAL
SSH	SHORT SLOTTED HOLES
STAGG	STAGGER
STD	STANDARD
STIFF	STIFFENER
STL	STEEL
STRUCT	STRUCTURAL
SW	SHEAR WALL
SYM	SYMMETRICAL
Σ	SUM
(T) OR T	TOP
(T)	TRANSVERSE
T&B	TOP & BOTTOM
T&G	TONGUE & GROOVE
T/	TOP OF
TB	TIE BEAM
TEMP	TEMPERATURE, TEMPORARY
THK	THICK
THRU	THROUGH
TL	TOTAL LOAD
TN	TOE NAIL
TOF	TOP OF FOOTING
TOGB	TOP OF GRADE BEAM
TOL	TOP OF LEDGER
TOS	TOP OF STEEL
TOSH	TOP OF SHEAR WALL
TOSL	TOP OF SLAB
TOW	TOP OF WALL
TRANSV	TRANSVERSE
TSG	TAPERED STEEL GIRDER
TYP	TYPICAL
UL	UNDERWRITERS' LABORATORY, INC.
UNO	UNLESS NOTED OTHERWISE
UT	ULTRASONIC TEST
(V)	VERTICAL
VERT OR V	VERTICAL
VIF	VERIFY IN FIELD
W/	WITH
W/C	WATER-CEMENT RATIO
W/O	WITHOUT
WF	WIDE FLANGE
WHT	WEIGHT
WP	WORK POINT
WWF	WELDED WIRE FABRIC

STRUCTURAL STEEL SHAPES

C	STD CHANNEL
HP	HP SHAPES
HSS	HOLLOW STRUCTURAL STEEL
L	ANGLES
M	M SHAPES
MC	MISC CHANNEL
PIPE#-STD	STANDARD PIPE
PIPE#-XSTRONG	EXTRA STRONG PIPE
PIPE#-XXSTRONG	DOUBLE EXTRA STRONG PIPE
S	S SHAPES
TS	TUBE SECTION
W	W SHAPES
WT, ST, MT	STRUCT TEES CUT FROM W, S, M SHAPES

INSTITUTIONS

ACI	AMERICAN CONCRETE INSTITUTE
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
AISI	AMERICAN IRON AND STEEL INSTITUTE
AITC	AMERICAN INSTITUTE OF TIMBER CONSTRUCTION
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APA	AMERICAN PLYWOOD ASSOCIATION
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AWPB	AMERICAN WOOD PRESERVERS BUREAU
AWS	AMERICAN WELDING SOCIETY
CRSI	CONCRETE REINFORCING STEEL INSTITUTE
DSA	DIVISION OF THE STATE ARCHITECT
ICBO	INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS
ICC	INTERNATIONAL CODE COUNCIL
ICC-ER	ICC-ES LEGACY REPORT
ICC-ES	ICC EVALUATION SERVICE
ICC-ESR	ICC-ES REPORT
PCI	PRE-CAST CONCRETE INSTITUTE
PTI	POST-TENSION CONCRETE INSTITUTE
SJI	STEEL JOIST INSTITUTE
TPI	TRUSS PLATE INSTITUTE

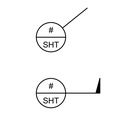
SYMBOLS

DETAIL NUMBER

SHEET NUMBER

DETAIL REFERENCE

SECTION REFERENCE

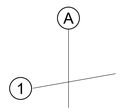


WALL ELEVATION

DATUM ELEVATION

REVISION & CLOUD

GRID SYSTEM



CONCRETE

1. ALL CONCRETE CONSTRUCTION SHALL CONFORM WITH CHAPTER 19A OF THE CODE AND WITH THE PROVISIONS OF ACI 318, LATEST EDITION.
2. REINFORCED CONCRETE IS DESIGNED BY THE "ULTIMATE STRENGTH DESIGN METHOD".
3. CONCRETE MIXES SHALL BE DESIGNED BY THE APPROVED TESTING LABORATORY AND APPROVED BY THE STRUCTURAL ENGINEER. THE COMPRESSIVE STRENGTH OF THE CONCRETE SHALL BE PROPORTIONED BASED ON CHAPTER 19A OF THE CODE.
4. SCHEDULE OF STRUCTURAL CONCRETE 28-DAY STRENGTH AND TYPES:

LOCATION IN STRUCTURE	STRENGTH (PSI)	DENSITY (PCF)	MAX W/C RATIO
ALL CONCRETE FOOTINGS, PILES, PILE CAPS	4000	150	0.50

5. PORTLAND CEMENT SHALL CONFORM TO ASTM C 150, TYPE II.
6. AGGREGATE FOR HARDROCK CONCRETE SHALL CONFORM TO ALL REQUIREMENTS AND TESTS OF ASTM C 33 AND PROJECT SPECIFICATIONS. EXCEPTIONS MAY BE USED ONLY WITH PERMISSION OF THE STRUCTURAL ENGINEER.
7. CONCRETE MIXING OPERATION, ETC. SHALL CONFORM TO ASTM C 94.
8. PLACEMENT OF CONCRETE SHALL CONFORM TO CODE SECTION 1905A AND PROJECT SPECIFICATIONS. CLEAN AND ROUGHEN TO 1/4" AMPLITUDE ALL CONCRETE SURFACES AGAINST WHICH NEW CONCRETE IS TO BE PLACED.
9. ALL REINFORCING BARS, ANCHOR BOLTS AND OTHER CONCRETE INSERTS SHALL BE WELL SECURED IN POSITION PRIOR TO PLACING CONCRETE.

CABLE SYSTEM

1. WIRE ROPE CLIPS SHALL BE GALVANIZED AND MEET FEDERAL SPECIFICATION FF-C-450, TYPE 1, CLASS I.
2. WIRE ROPE THIMBLES SHALL BE GALVANIZED HEAVY PATTERN AND MEET FEDERAL SPECIFICATION FF-T-276b TYPE III.
3. TURNBUCKLES SHALL BE FORGED GALVANIZED-STEEL AND MEET ASTM F1145-92 AND FEDERAL SPECIFICATION FF-T-791b, TYPE 1, FORM 1.
4. ALL CABLES SHALL BE PRESTRETCHED ZING COATED STRUCTURAL STEEL WIRE ROPE COMPLYING WITH ASTM A 603 WITH A MINIMUM MODULS OF ELASTICITY OF 20,000ksi.

REINFORCING STEEL (FOR CONCRETE)

1. REINFORCING BARS SHALL CONFORM TO THE REQUIREMENTS OF CHAPTER 19A OF THE CODE, ASTM A615, GRADE 60 UNO. WHEN WELDING OF REINFORCING BARS OCCURS, BARS SHALL BE ASTM A706, GRADE 60 UNO.
2. BARS SHALL BE CLEAN OF RUST, GREASE, OR OTHER MATERIALS LIKELY TO IMPAIR BOND. ALL REINFORCING BAR BENDS SHALL BE MADE COLD.
3. REINFORCING BAR SPLICES SHALL BE MADE AS INDICATED ON THE DRAWINGS. LAP ALL HORIZONTAL BARS AT CORNERS AND INTERSECTIONS. STAGGER ALL SPLICES UNLESS NOTED OTHERWISE ON PLANS.
4. ALL BARS SHALL BE MARKED SO THEIR IDENTIFICATION CAN BE MADE WHEN THE FINAL IN-PLACE INSPECTION IS MADE.
5. REINFORCING STEEL SHALL BE DETAILED IN ACCORDANCE WITH THE "A.C.I. MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", LATEST EDITION.
6. MILL TEST REPORTS FOR GRADE 60 BARS SHALL BE SUBMITTED TO THE PROJECT INSPECTOR PRIOR TO PLACEMENT OF CONCRETE.
7. CONTINUOUS INSPECTION OF CONCRETE SHALL INCLUDE INSPECTION DURING INSTALLATION OF REINFORCING STEEL.
8. ALL GRADE 60 REINFORCING STEEL SHALL BE CLEARLY MARKED TO DIFFERENTIATE THEM FROM GRADE 40 REINFORCING STEEL IF CONCURRENTLY ON SITE.
9. CONCRETE PROTECTION FOR REINFORCEMENT

CAST-IN-PLACE CONCRETE (NON-PRESTRESSED). THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCEMENT:

	MINIMUM COVER, IN.
A. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH	3
B. CONCRETE EXPOSED TO EARTH OR WEATHER:	
NO. 6 THROUGH NO. 18 BAR	2
NO. 5 BAR, W31 OR D31 WIRE & SMALLER	1 1/2

ALUMINUM

1. STRUCTURAL ALUMINUM SHALL BE FABRICATED, ASSEMBLED, AND ERECTED IN ACCORDANCE WITH ALUMINUM DESIGN MANUAL 2020.
2. ALL WELDING OF ALUMINUM SHALL CONFORM WITH AWS D1.2.
3. ALUMINUM ALLOY GRADE SHALL BE AS FOLLOW;

NETTING POLES	6061-T6

4. DISSIMILAR METALS SHALL BE ISOLATED OR COATED TO INHIBIT GALVANIC CORROSION. WHERE IN CONTACT WITH ALUMINUM, STEEL GROUND PLATES AND STEEL BOLTS, NUTS, AND WASHERS SHALL BE HOT-DIP GALVANIZED (ASTM A123/ ASTM A153).
5. ALUMINUM SHALL BE COATED OR COVERED TO PREVENT ALUMINUM-CONCRETE REACTION AND ELCTROLYTIC ACTION BETWEEN ALUMINUM AND STEEL.

FOUNDATION

1. ALLOWABLE SOIL PRESSURE AND LATERAL EARTH PRESSURE BASED ON GEOTECHNICAL INVESTIGATION NO. 867.193 BY MILLER PACIFIC ENGINEERING GROUP, DATED DEC. 7, 2023.
2. FOOTING ARE DESIGNED BASED ON THE FOLLOWING INFORMATION:

ALLOWABLE BEARING **
ISOLATED FTGS = 2500 PSF (D+L)

PASSIVE EARTH PRESSURE**:
PASSIVE EARTH PRESSURE = 0 PCF (UPPER 2 FT)
50 PCF (BAY MUD)
200 PCF (ARTIFICIAL FILL)
750 PCF (WEATHERED BEDROCK)

** INDICATES THAT DESIGN VALUES MAY BE INCREASED BY 1/3 FOR WIND AND SEISMIC DEMAND LOADS.

3. CONTRACTOR TO PROVIDE FOR DE-WATERING OF EXCAVATIONS FROM EITHER SURFACE WATER, GROUND WATER OR SEEPAGE, IF REQUIRED.
4. CONTRACTOR SHALL PROVIDE FOR DESIGN AND INSTALLATION OF ALL CRIBBING, SHEATHING AND SHORING REQUIRED AND SHALL BE SOLELY RESPONSIBLE FOR ALL EXCAVATION PROCEDURES INCLUDING LAGGING, SHORING AND PROTECTION OF ADJACENT PROPERTY, STRUCTURES, STREETS AND UTILITIES IN ACCORDANCE WITH ALL NATIONAL, STATE AND LOCAL SAFETY ORDINANCES.
5. EXCAVATION FOR FOOTINGS SHALL BE APPROVED BY THE INSPECTOR PRIOR TO PLACING THE CONCRETE AND REINFORCING. CONTRACTOR TO NOTIFY THE INSPECTOR WHEN INSPECTION OF EXCAVATION IS READY. INSPECTOR TO SUBMIT LETTER OF COMPLIANCE.
6. ALL EXCAVATIONS SHALL BE PROPERLY BACKFILLED. DO NOT PLACE BACKFILL BEHIND RETAINING WALLS BEFORE CONCRETE OR GROUT HAS ATTAINED FULL DESIGN STRENGTH. CONTRACTORS SHALL BRACE OR PROTECT ALL BUILDING AND PIT WALLS BELOW GRADE FROM LATERAL LOADS UNTIL ATTACHING FLOORS ARE COMPLETELY IN PLACE AND HAVE ATTAINED FULL STRENGTH. CONTRACTOR SHALL PROVIDE FOR DESIGN, PERMITS, AND INSTALLATION OF SUCH BRACING.
7. FOUNDATIONS SHALL BE PLACED ACCORDING TO DEPTHS SHOWN ON DRAWINGS. SHOULD SOIL ENCOUNTERED AT THESE DEPTHS NOT BE APPROVED BY THE INSPECTOR, FOUNDATION ELEVATIONS WILL BE ALTERED BY CHANGE ORDER.
8. FOOTING BACKFILL AND UTILITY TRENCH BACKFILL WITHIN BUILDING AREA SHALL BE MECHANICALLY COMPACTED IN LAYERS IN ACCORDANCE WITH THE SOILS REPORT AND APPROVED BY THE SOILS ENGINEER. FLOODING WILL NOT BE PERMITTED. ALL FILLS USED TO SUPPORT FOUNDATIONS SHALL BE INSPECTED PER CODE SECTION 1705A.6 AND TABLE 1705A.6
9. ALL ABANDONED FOOTINGS, UTILITIES, ETC., SHALL BE REMOVED UNLESS NOTED OTHERWISE. NEW FOOTINGS MUST EXTEND INTO UNDISTURBED SOILS.
10. REFER TO GEOTECHNICAL INVESTIGATION REPORT FOR DEEP FOUNDATION NOTES FOR CAST-IN-DRILLED-HOLE AND AUGER-CAST PIER FOUNDATIONS.

STRUCTURAL NOTES

DESIGN CRITERIA

1. ALL WORK SHALL CONFORM TO THE MINIMUM STANDARDS OF THE FOLLOWING CODES:

2022 CALIFORNIA BUILDING CODE (CBC) AND LATEST REVISIONS REFERRED TO HERE AS "THE CODE", AND ANY OTHER REGULATING AGENCIES WHICH HAVE AUTHORITY OVER ANY PORTION OF THE WORK, INCLUDING THE STATE OF CALIFORNIA DIVISION OF THE STATE ARCHITECT, AND THOSE CODES & STANDARDS LISTED IN THESE NOTES AND SPECIFICATIONS.

2. WIND ANALYSIS PER CHAPTER 16A OF THE CODE

RISK CATEGORY	=	II
BASIC WIND SPEED	=	92 mph
WIND EXPOSURE	=	C

4. SEISMIC ANALYSIS PER CHAPTER 16A OF THE CODE UTILIZING THE FOLLOWING PROCEDURE:
- THE EQUIVALENT LATERAL FORCE ANALYSIS

RISK CATEGORY	= II
IMPORTANCE FACTOR	= 1.00
	S_S = 1.500
	S_1 = 0.600
SITE CLASS	= E
	S_{DS} = 1.200
	S_{D1} = 1.200
SEISMIC DESIGN CATEGORY	= D

GENERAL

1. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO STARTING CONSTRUCTION. THE ARCHITECT SHALL BE NOTIFIED OF ANY DISCREPANCIES OR INCONSISTENCIES.
2. ALL DRAWINGS ARE CONSIDERED TO BE A PART OF THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REVIEW AND COORDINATION OF ALL DRAWINGS AND SPECIFICATIONS PRIOR TO THE START OF CONSTRUCTION. ANY DISCREPANCIES THAT OCCUR SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO START OF CONSTRUCTION SO THAT A CLARIFICATION CAN BE ISSUED. ANY WORK PERFORMED IN CONFLICT WITH THE CONTRACT DOCUMENTS OR ANY CODE REQUIREMENTS SHALL BE CORRECTED BY THE CONTRACTOR AT THEIR OWN EXPENSE AND AT NO EXPENSE TO THE OWNER OR ARCHITECT.
3. NOTES AND DETAILS ON DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE GIVEN, CONSTRUCTION SHALL BE AS SHOWN FOR SIMILAR WORK.
4. THE CONTRACT STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, SHORING FOR LOADS DUE TO CONSTRUCTION EQUIPMENT, ETC. OBSERVATION VISITS TO THE SITE BY THE STRUCTURAL ENGINEER SHALL NOT INCLUDE INSPECTION OF THE ABOVE ITEMS.
5. ASTM SPECIFICATIONS ON THE DRAWINGS SHALL BE OF THE LATEST REVISION.
6. CONTRACTOR SHALL INVESTIGATE SITE DURING CLEARING AND EARTHWORK OPERATIONS FOR FILLED EXCAVATIONS OR BURIED STRUCTURES, SUCH AS CESSPOOLS, CISTERNS, FOUNDATIONS, ETC. IF ANY SUCH STRUCTURES ARE FOUND, STRUCTURAL ENGINEER SHALL BE NOTIFIED IMMEDIATELY.
7. THE LOCATION OF EXISTING UNDERGROUND UTILITIES SHOWN ON THE DRAWINGS, IF ANY, ARE APPROXIMATE. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL EXISTING UNDERGROUND UTILITIES AND COORDINATING WITH THE REQUIREMENTS OF THIS PROJECT. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION IN EXCAVATING AND TRENCHING ON THE SITE. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT IF ANY CONDITIONS ARE DISCOVERED THAT REQUIRES FURTHER COORDINATION.

THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE THAT OCCURS DUE TO NOT FULLY LOCATING EXISTING UTILITIES.

8. ALL INFORMATION SHOWN ON THE DRAWINGS RELATIVE TO EXISTING CONDITIONS IS BASED ON AVAILABLE KNOWLEDGE OF EXISTING STRUCTURE. CONTRACTOR SHALL VERIFY IN FIELD ALL EXISTING CONDITIONS RELATIVE TO THE SCOPE OF THIS PROJECT. WHERE ACTUAL CONDITIONS ARE NOT IN ACCORDANCE WITH THE DRAWINGS PROVIDED, THE ARCHITECT SHALL BE NOTIFIED IMMEDIATELY. CONTRACTOR SHALL ALIGN FOR SUFFICIENT BUDGET AND SCHEDULE CONTINGENCY TO ADDRESS EXISTING HIDDEN CONDITIONS.
9. ALL DEMOLITION SHALL BE PERFORMED IN SUCH A WAY AS NOT TO DAMAGE THE EXISTING STRUCTURAL ELEMENTS THAT ARE TO REMAIN IN THE FINISHED STRUCTURE. ANY PORTIONS OF STRUCTURE TO REMAIN THAT ARE DAMAGED DURING DEMOLITION SHALL BE REPLACED AT NO ADDITIONAL COST. EXISTING STRUCTURAL ELEMENTS SHALL BE PROTECTED TO THE FULLEST EXTENT POSSIBLE, IN ORDER TO MITIGATE DAMAGE. CONTRACTOR IS RESPONSIBLE FOR REMOVAL AND REPLACEMENT OF ALL EXISTING STRUCTURAL ELEMENTS THAT ARE NECESSARY FOR THE COMPLETION OF ALL NEW WORK.

SHEET INDEX

SFS-1	GENERAL NOTES ABBREVIATIONS AND SYMBOLS
SFS-2	DETAILS

TOTAL OF 2 SHEETS

Project Specific Approval

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-121720 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/7/2024

GHILOTTI FIELD
REDWOOD HIGH SCHOOL

395 DOHERTY DR, LARKSPUR, CA 94939

Owner

SPORTSFIELD SPECIALTIES
WWW.SPORTSFIELDSPECIALTIES.COM

41155 State Highway 10,
PO Box 231 Delhi, NY 13753

Issue/Revision

Issue No.	Rev. No.	Description	Date
		DSA SUBMITTAL	03/22/2024

kpff
18400 Von Karman Ave., Suite 600
Irvine, CA 92612
O: 949.252.1022
F: 949.252.8082
www.kpff.com

Seal/Signature

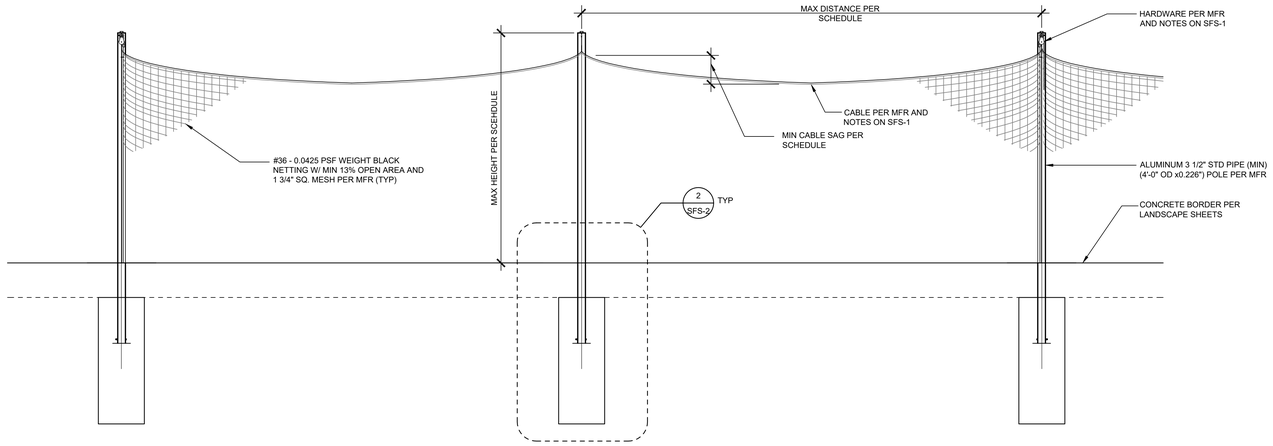
Sheet Title:

GENERAL NOTES, ABBREVIATIONS AND SYMBOLS

Designed By: CA	Project Number: 2400124
Drawn By: FJC	Scale:
Checked By: WT	Sheet Number: SFS-1
Date: 2024-03-22	

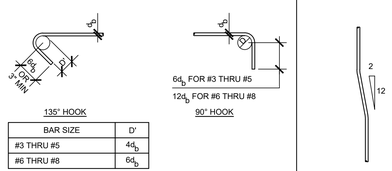
Date: Aug 26, 2024, 3:12pm - Drawing: D:\Dimension ZX\PFF-Redwood HS Sportsfield\Project #2400124.00\SFS-1.dwg - Layout: SFS-1 - Printed By: RTR - Profile: KPFF-ARIAL - Job Name: SACRED HEART Sportsfield - PM: JS - PD: ELG

POLE HEIGHT	MAX DISTANCE BTW POLES	CABLE SAG
10'-0"	20'-0"	1'-0"



NETTING POLE DETAIL

3/8" = 1'-0" | 1

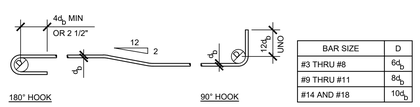


BAR SIZE	D'
#3 THRU #5	$4d_b$
#6 THRU #8	$6d_b$

D' = BEND DIAMETER

TIES & STIRRUPS HOOKS ONLY

TYPICAL COLUMN BAR OFFSET

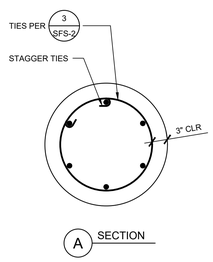


BAR SIZE	D
#3 THRU #8	$6d_b$
#9 THRU #11	$8d_b$
#14 AND #18	$10d_b$

D = BEND DIAMETER

REINFORCING BAR BENDING SCHEDULE

NTS | 3

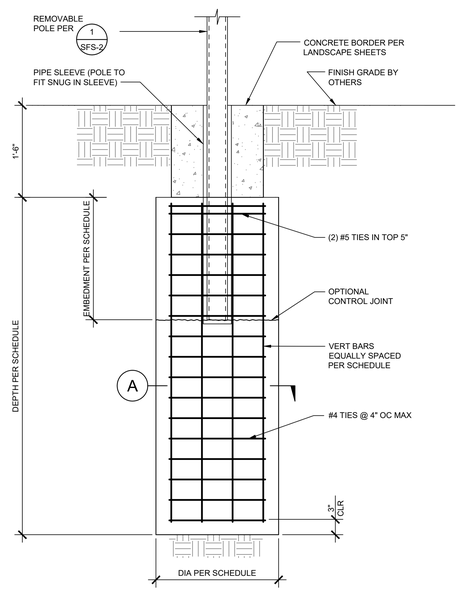


NOTE:

1. POLE FOOTINGS TO BE LOCATED ONLY WITHIN COMPACTED FILL. NOTIFY SEOR AND GEOTECHNICAL ENGINEER IMMEDIATELY IF POLE IS LOCATED WITHIN NATIVE BAY MUD.

2. USE CASINGS AS REQUIRED TO PREVENT SOIL CAVING. IF GROUND WATER IS ENCOUNTERED NOTIFY SEOR AND GEOTECHNICAL ENGINEER IMMEDIATELY.

3. PROVIDE EXPLORATORY BORING AT POLE FOOTING LOCATIONS AS REQUIRED PER GEOTECHNICAL REPORT.



COMPONENT	PILE DIAMETER	MIN POLE EMBEDMENT	PILE DEPTH	VERT BAR QUANTITY
10'-0" HIGH NETTING POLES	2'-0"	2'-0"	5'-6"	(6) #6

FOOTING DETAIL

1" = 1'-0" | 2

Project Specific Approval

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-121720 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/7/2024

GHILOTTI FIELD
REDWOOD HIGH SCHOOL

395 DOHERTY DR, LARKSPUR, CA 94939

Owner

SPORTSFIELD SPECIALTIES
WWW.SPORTSFIELDSPECIALTIES.COM

41155 State Highway 10,
PO Box 231 Delhi, NY 13753

Issue/Revision

Issue No.	Rev. No.	Description	Date
		DSA SUBMITTAL	03/22/2024

kpff
18400 Von Karman Ave., Suite 600
Irvine, CA 92612
O: 949.252.1022
F: 949.252.8082
www.kpff.com

Seal/Signature

PROFESSIONAL ENGINEER
STRUCTURAL
STATE OF CALIFORNIA
Exp. 3-31-26

Sheet Title:

DETAILS

Designed By: CA	Project Number: 2400124
Drawn By: FJC	Scale:
Checked By: WT	Sheet Number: SFS-2
Date: 2024-03-22	

Date: Aug 26, 2024, 3:14pm - Drawing: D:\Dimension Z\KPFF\Redwood HS Sportsfield\Project #2400124.00\SFS-2.dwg - Layout: SFS-2 - Printed By: RTR - Profile: KPFF-ARIAL - Job Name: SACRED HEART Sportsfield - PM: JS - PD: ELG
XRefs: 2400124_TB.dwg