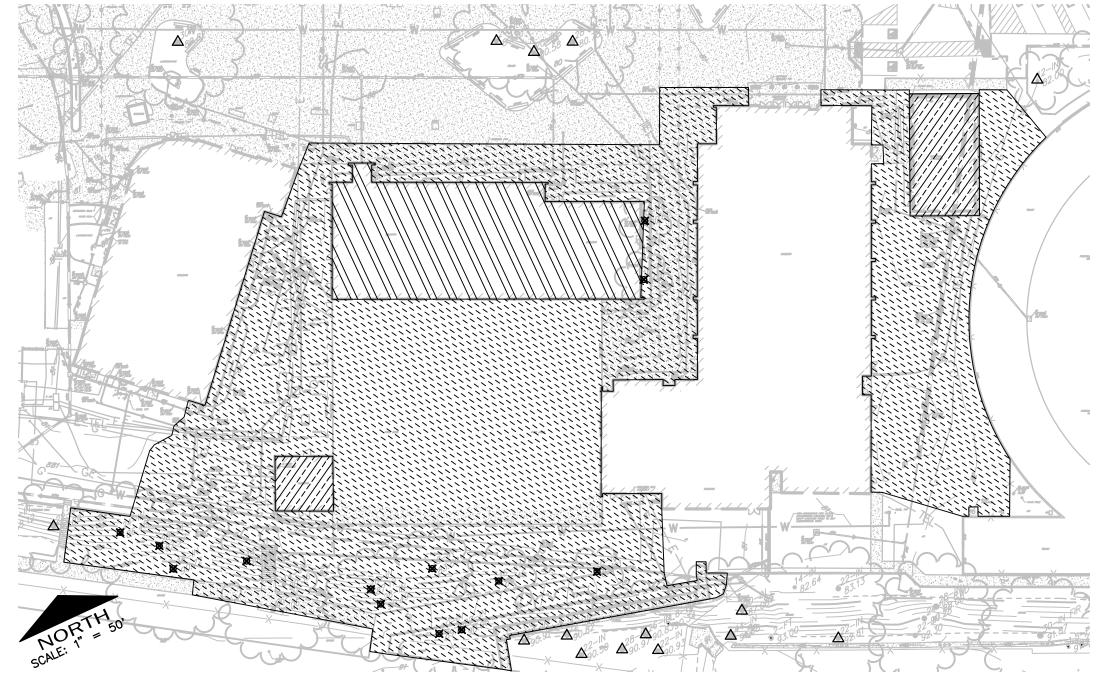


Brelje & Race 475 Aviation Boulevard, Suite 120 Santa Rosa, CA 95403 v: 707-576-1322 f: 707-576-0469 www.brce.com



NOT FOR CONSTRUCTION





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MARY NOT FOR CONSTRUCTION 05-10-23

DEMOLITION LEGEND



EXISTING BUILDING TO BE DEMOLISHED.



REMOVE ALL EXISTING SURFACE MATERIALS OR FEATURES

EXISTING BUILDING TO BE MODERNIZED AS DESCRIBED IN THE ARCHITECTURAL SECTION OF THE SCHEMATIC DESIGN NARRATIVE. PROVIDE SEPARATE LINE ITEM FOR BUILDING' FULL DEMOLITION.



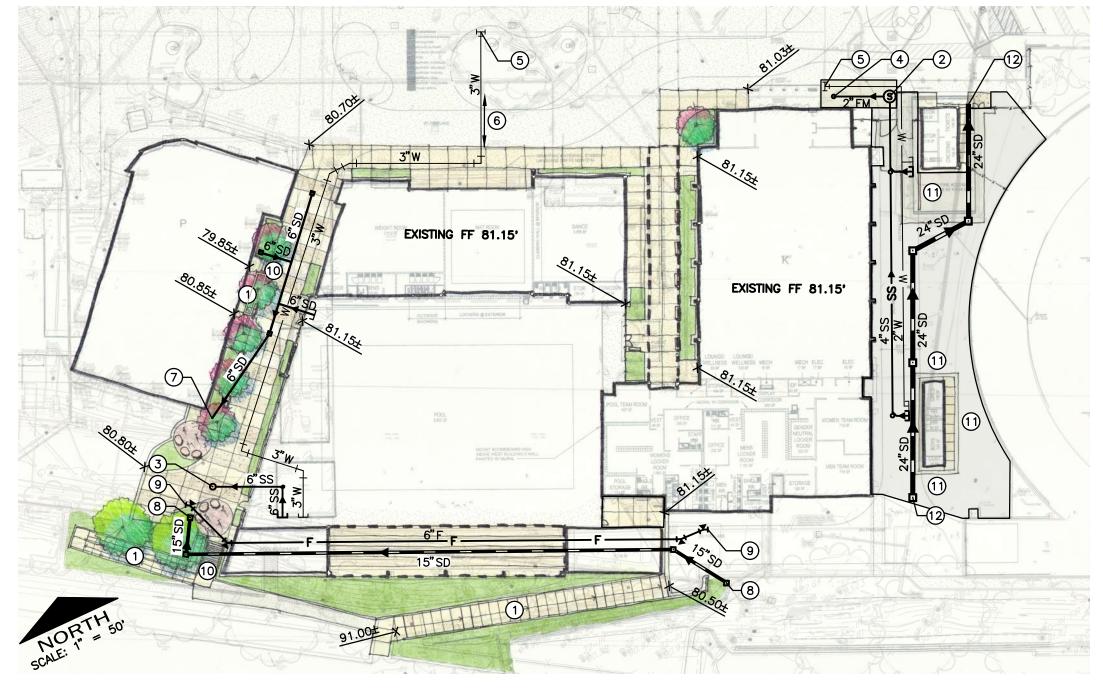
TREE TO BE REMOVED.

Δ

TREE TO BE SAVED.

ALL EXISTING VEGETATION, INCLUDING GRASS, PLANTS, SHRUBS AND TREES SHALL BE REMOVED AND DISPOSED OF IN ACCORDANCE WITH LOCAL REGULATIONS, UNLESS OTHERWISE NOTED TO BE PROTECTED.

STRIP TOP 6"-12" OF EXISTING TOPSOIL AND STOCKPILE FOR REUSE AS PLANTING SOIL.





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PRELIMINARY NOT FOR CONSTRUCTION DATE ___________

GRADING AND DRAINAGE NOTES

- (1) INSTALL NEW RAMP AND ASSOCIATED HANDRAILS.
- (2) INSTALL NEW SANITARY SEWER LIFT STATION.
- 3 connect new 6" sanitary sewer to existing 6" sanitary sewer with sanitary sewer manhole.
- (4) CONNECT NEW 2" SANITARY SEWER FORCE MAIN (FM) TO EXISTING 4" SANITARY SEWER WITH CLEANOUT.
- (5) CONNECT NEW WATER TO EXISTING WITH NECESSARY FITTINGS.
- (6) INSTALL NEW 4" WATER UNDER EXISTING IMPROVEMENTS TO REMAIN WITH HORIZONTAL DIRECTIONAL DRILLING.
- (7) CONNECT NEW 6" STORM DRAIN TO EXISTING DRAINAGE INLET.
- (8) CONNECT NEW 15" STORM DRAIN TO EXISTING 12" STORM DRAIN WITH DRAINAGE INLET.
- (9) REROUTE 6" FIRE AND CONNECT TO EXISTING 6" FIRE WHERE SHOWN ON PLANS.
- (1) INSTALL STAIRS AND ASSOCIATED HANDRAILS.
- (1) INSTALL CONCRETE SITE RETAINING WALL (2.5' MAXIMUM HEIGHT).
- (2) CONNECT NEW 24" STORM DRAIN TO EXISTING STORM DRAIN.

PORTLAND CEMENT CONCRETE ASPHALT CONCRETE ASPHALT CONCRETE STORM DRAIN W DOMESTIC WATER FIRE WATER SANITARY SEWER

PRELIMINARY GRADING & UTILITY C-201 PLAN

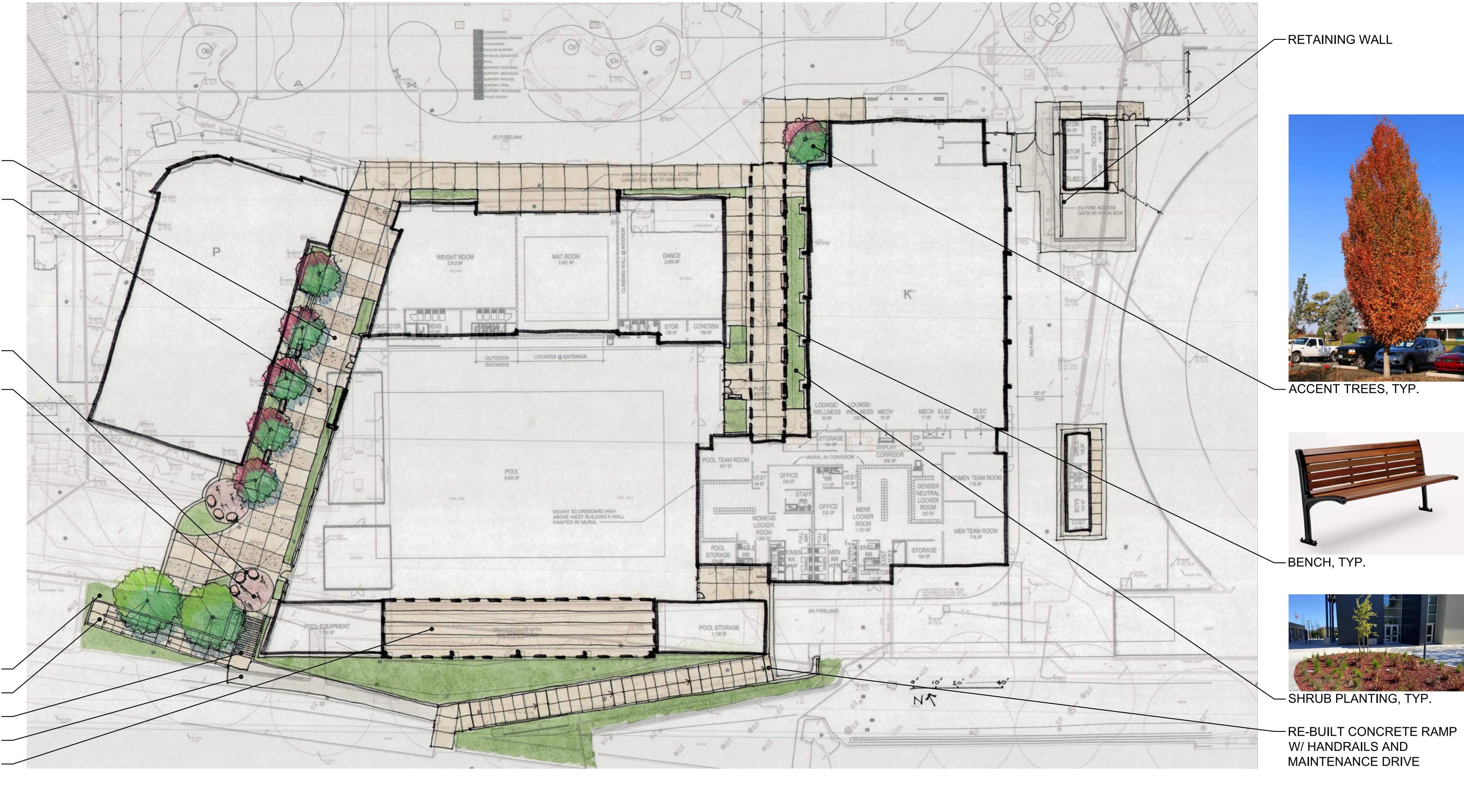


CONCRETE PAVING, BROOM FINISH, NATURAL COLOR, TYP. CONCRETE PAVING, BROOM FINISH, INTEGRAL COLOR, TYP.



"PEBBLE" BENCH SEATING, TO MATCH CAMPUS ENTRY PLAZA, TYP. PAVERS, TO MATCH CAMPUS ENTRY PLAZA, TYP.

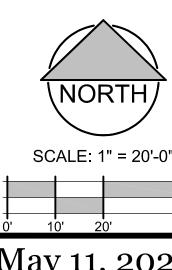


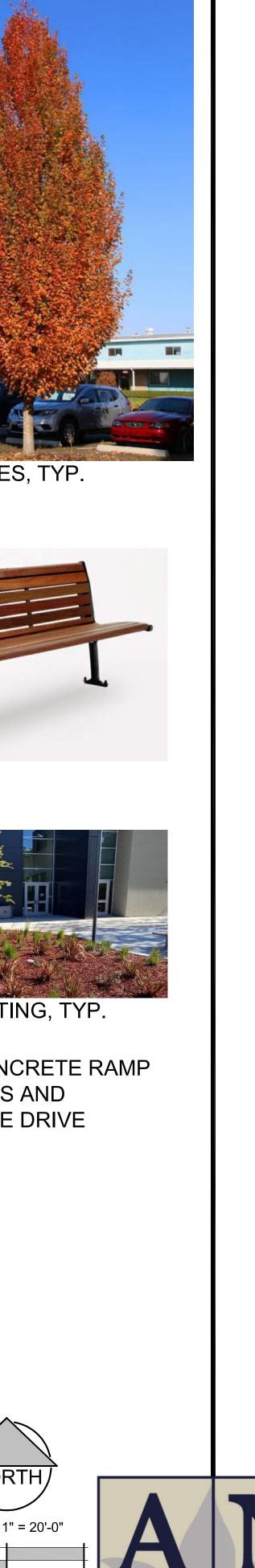


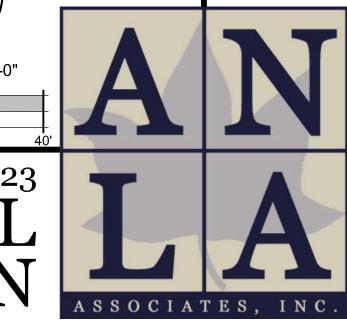
CONCEPTUAL LANDSCAPE PLAN

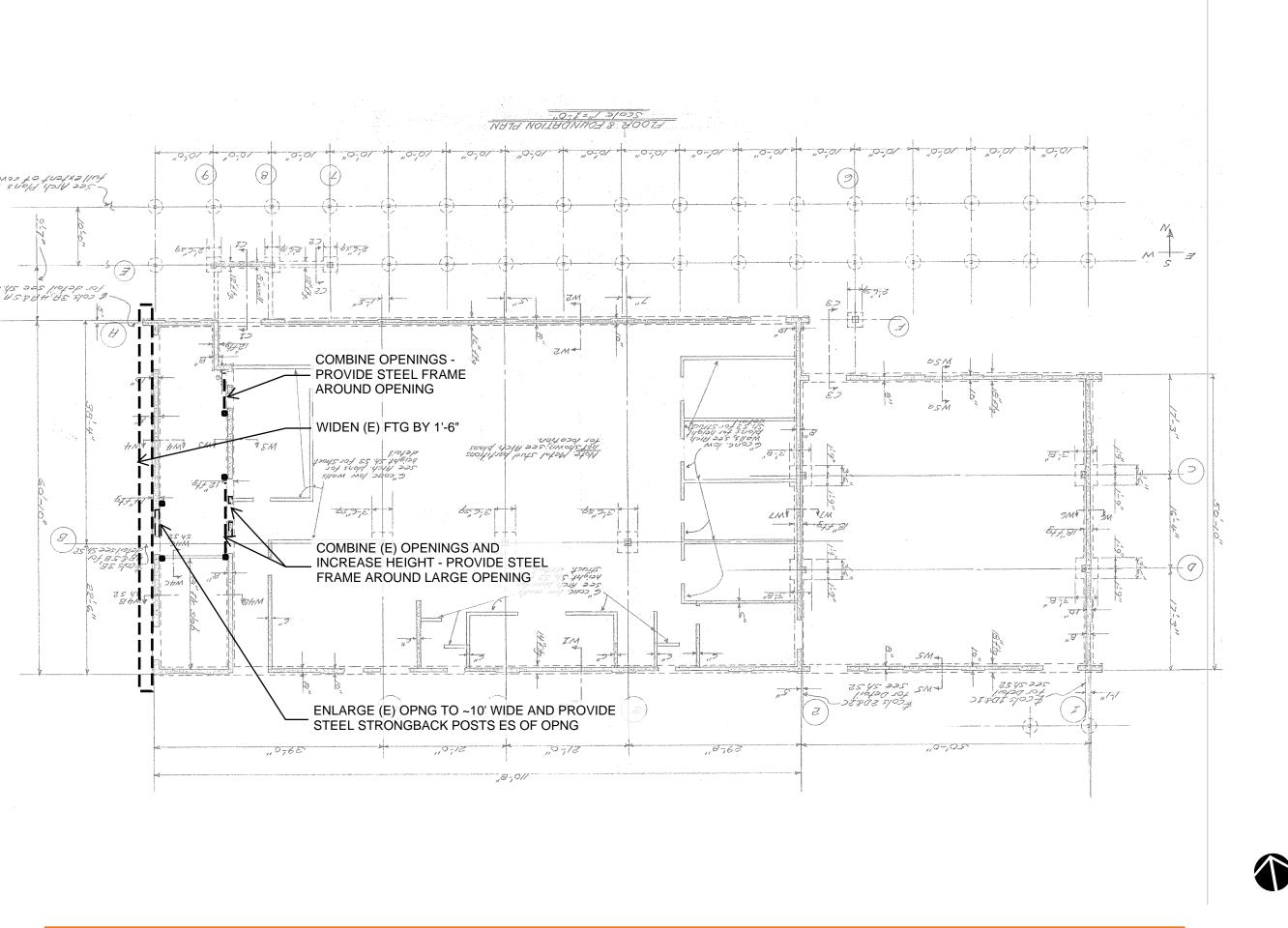


May 11, 2023 TERRA LINDA HIGH SCHOOL NEW AQUATICS & PE RENOVATION



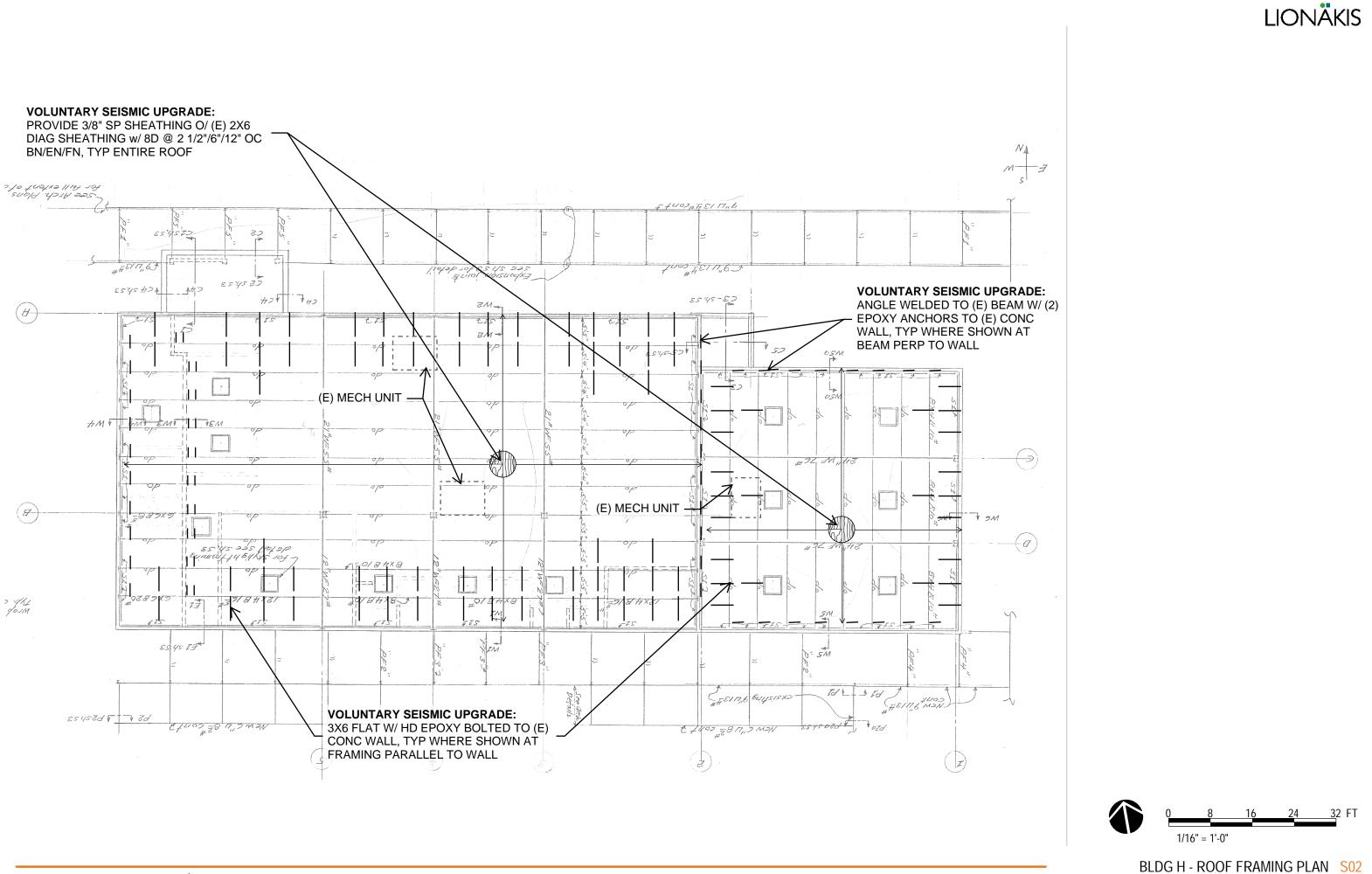




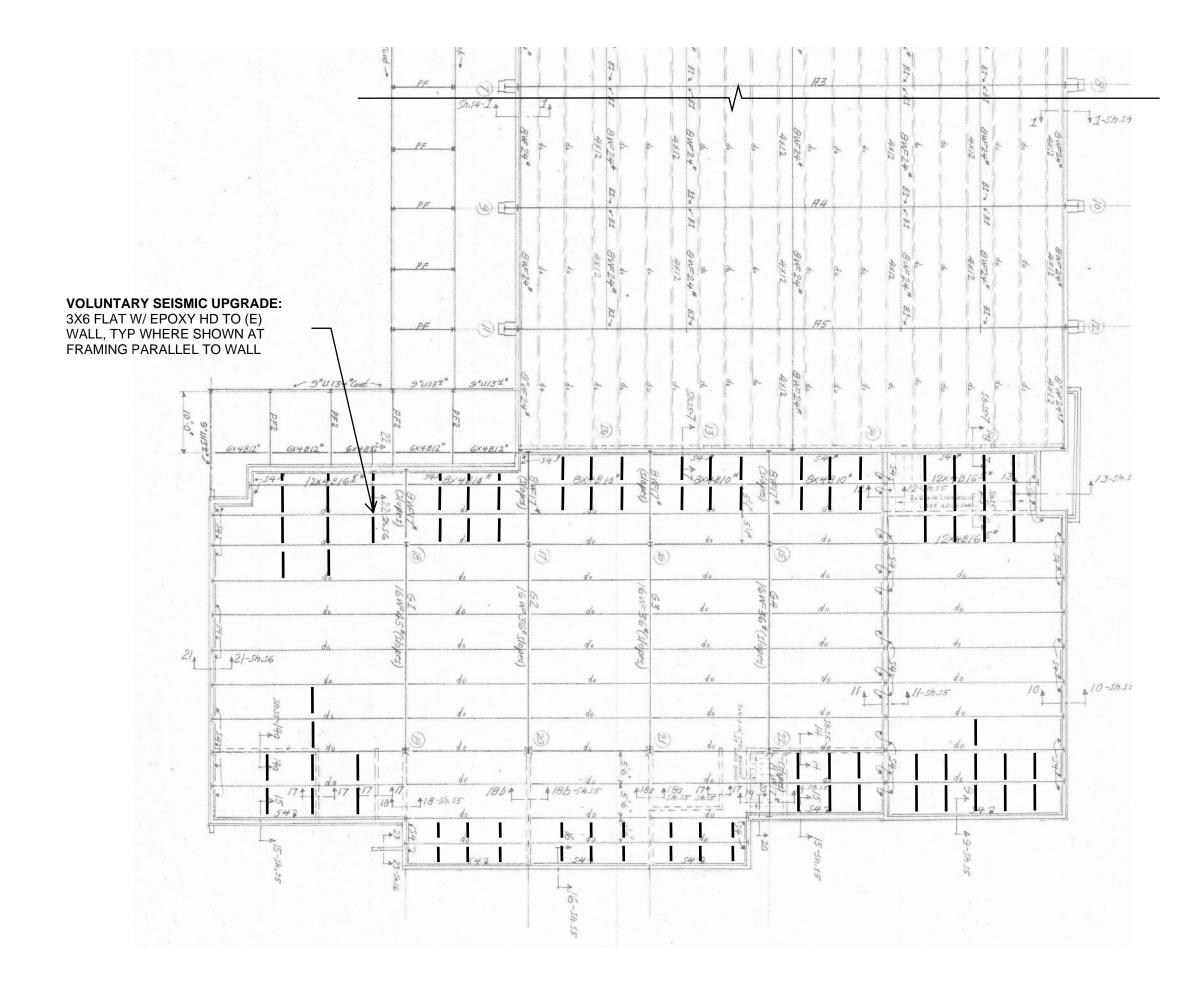




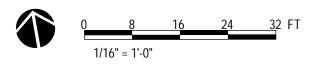




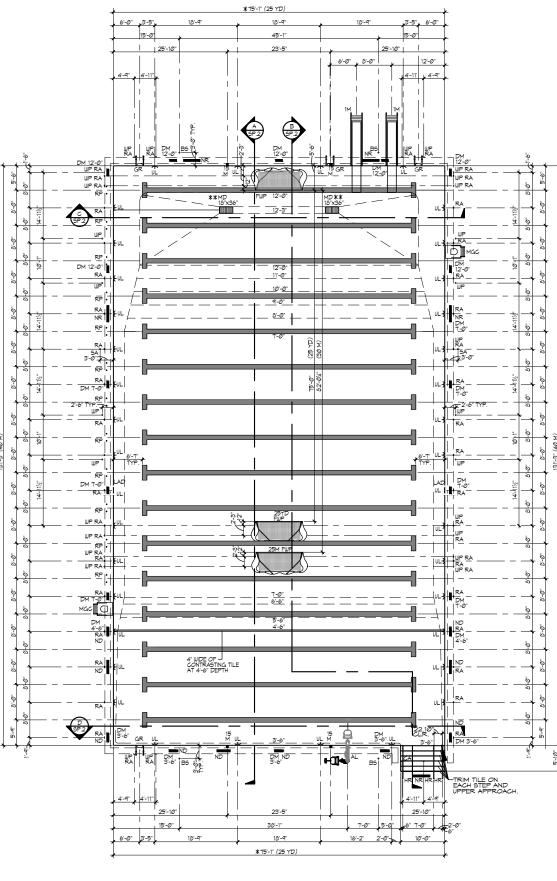
BLDG H - ROOF FRAMING PLAN SO: (OPTION A)







BLDG K - ROOF FRAMING PLAN S03 (OPTION A AND B)



SWIMMING POOL DATA		
SURFACE AREA	=	9,913 SQ. FT.
PERIMETER	=	424 FT.
DEPTH	=	3-6" TO 12'-3"

=

=

553,630 GAL.

1,538 GPM

VOLUME

6 HR TURNOVER

LEGE	ND	
* MD	=	MAIN DRAIN
GR	=	GRABRAIL
DM	=	DEPTH MARKER
NR	=	'NO RUNNING'
ND	=	'NO DIVING'
RA	=	ROPE ANCHOR
RP	=	RACING PLATFORM
BS	=	BACKSTROKE STANCHION
WP	=	WATER POLO GOAL (STATIONARY)
UL	=	UNDERWATER LIGHT
MGC	=	MOVEABLE GUARD CHAIR
AL	=	ACCESSIBLE LIFT
SA	=	STANCHION ANCHOR
FWP	=	FLOATING WATER POLO GOALS
LAD	=	LADDER
HR	=	HANDRAIL
15M	=	15 METER MARKER
CA	=	CUP ANCHOR
1M	=	ONE METER DIVE STAND

CERTIFICATION REQUIREMENTS

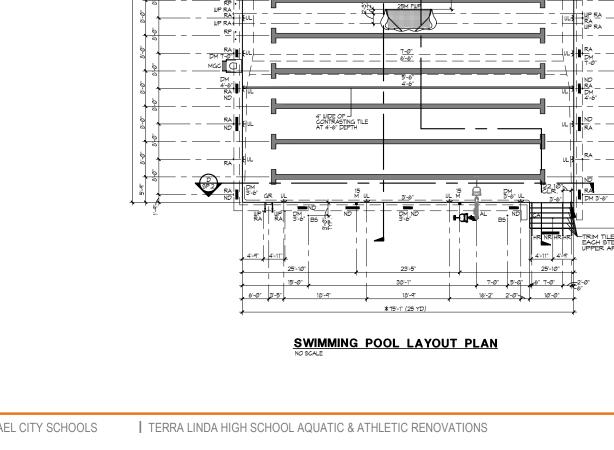
* THE CONTRACTOR SHALL RETAIN AN INDEPENDENT LICENSED SURVEYOR TO PROVIDE PROOF OF COMPLIANCE FOR REQUIRED POOL LENGTHS AS FOLLOUS: (RECOMMEND PATRELL ENG, GROUP (626) 335-4362)

SHORT COURSE-25YDS: (ALLOUS FOR TOUCH PADS AT ONE END) 15'-0 5/16" MIN.: 15'-1 3/16" MAX.

TOLERANCE AGAINST LENGTH SHALL EXTEND IN A VERTICAL PLANE 0.3M (12") ABOVE AND 0.5M. (2"1%") BELIOW THE SUPERACE OF THE WATER AT ALL POINTS OF BOTH END WALLS TYP. OF ALL COURSES.

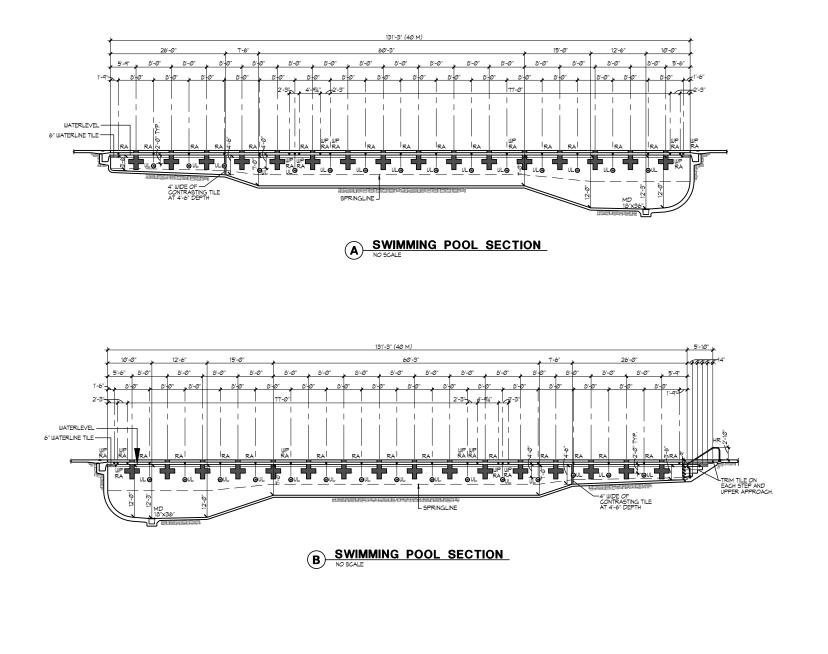
THE INDEPENDENT LICENSED SURVEYOR SHALL FILL OUT, NOTARIZE AND FILE OFFICIAL CERTIFICATION FORM(S) WITH USA SWIMMING.

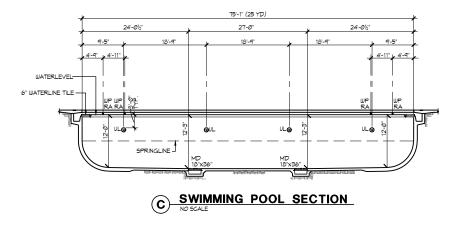
**CONTRACTOR SHALL RETAIN A LICENSED ENGINEER TO CERTIFY THE FIELD BUILT MAIN DRAIN SYSTEMS AS V.G.B. COMPLIANT.

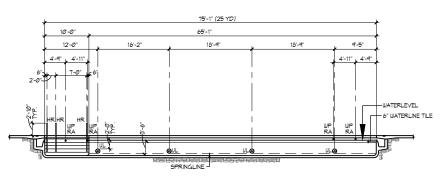


LIONÄKIS





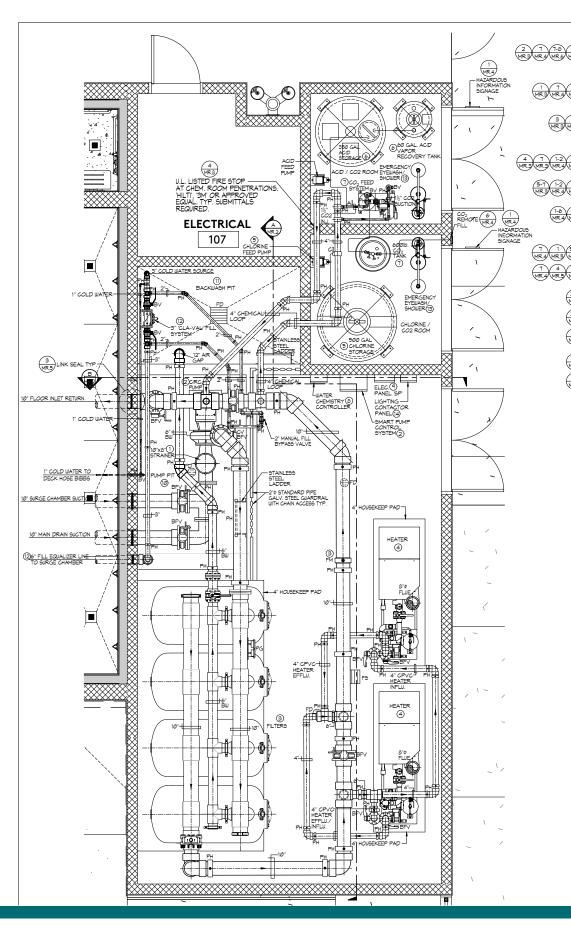




D SWIMMING POOL SECTION



SWIMMING POOL SECTIONS SP-2



EQUIPMENT LIST

EQUIPMENT LIST

 Summing POOL STRANES: MER-MADE F.O. SERES FRF REDUCING BACKET STRAINER: ONE (1) 10 YAD
 STANDARD, UTIL CARTLL LO NAD TUD (2) STANLESS STELL STRAINERS EA. (1580bs.)

 USA (100 pm, 1105 RPOOL CRCULATION PUMP; PACO #6015-1, 6X3 X151 TYPE LC END SUCTION CENTRIPUGAL
 PUMP; 1105 RPOOL CRCULATION PUMP; PACO #6015-1, 6X3 X151 TYPE LC END SUCTION CENTRIPUGAL
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 PUMP; 105 RPOOL CRCULATION PUMP; PACO #6015-1, 6X3 X151 TYPE LC END SUCTION CONTENT
 AUXAITAIN DEGRED ECLARANCES,
 400 Y SH, (11T Ibs)
 SUMMING POOL FLITERS; EXO 3 YSTEMS GEN 2 #ECO-42210-1006-T-4 AUTOMATIC FLITER CONTROL (AFC) FULLY
 AUTOMATIC FLARET EPRAMADE GEN 2 #ECO-42210-1006-T-4 AUTOMATIC FLITER CONTROL (AFC) FULLY
 AUTOMATIC FLARET EPRAMADE GEN 2 FILO SUBMING FOOL FLATING
 GENVER SUCH AND ELCO FLANE VED STEMS GEN 2 OR EDAIL. FROMUNCL (AND FULLY
 AUTOMATIC FLARET EPRAMADE GEN 2 FILO SUBMING FOOL HAITING 10 CONTEND FACANCE EPROVIDE SUGET MK-515
 FUNCS LONDENGM MODULATING BOLLER, TITANUM PLATE AND FRAME HEAT EXCHALGER UNIT HOUSE
 CONNECTIONS, PLATER CONNECT FREM POOL HEATING 12 CACACEE SYSTEM; AUXAIS CREST UNIT SMARTTOCH
 CONNECTIONS, PLATER CONNECT FREM POOL HEATING PLACKAGE ENVIRED FLATING PLATER
 SUMMING FOOL HEATING 10 DUERT TO LEARTING LACACHECH TITANGEN THAN MUT, 1116
 EPFICIENT, FROVOE CHANTER MONTHOUS AUTOMATICA ACACE SYSTEM; AUXAIS CREST UNIT S

 FED PUMP SHALL BE LIMI SD43-08P-KSt, 200 GPD # 15 F91 WITH FRP SHELF BRACKETS. HARD PIPE TO POINT OF NETTON.

 Statistics
 ACID STORAGE/FEED SYSTEM: PROVIDE CHEM-TAINER' 350 GALLON #TOS2560C; DUAL STORAGE/CONTAINENT TAIK WITH LID SEISMCALLY RESTRANDED; OPERATING WEIGHT ±2(315 lbs). COMPLES WITH FED. REG #40CFR-264-193. PROVIDE 60 GALLON ACID VAPOR RECOVERY SYSTEM. OR (1) TOTAL.

 Image: Statistics
 CARBON DIOXIDE STORAGE FEED SYSTEM: PROVIDE 60 GALLON ACID VAPOR RECOVERY SYSTEM. OR (1) TOTAL.

 Image: Statistics
 CARBON DIOXIDE STORAGE FEED SYSTEM. PROVIDE 60 GALLON ACID VAPOR RECOVERY SYSTEM. OR (1) TOTAL.

 Image: Statistics
 CARBON DIOXIDE STORAGE FEED SYSTEM. PROVIDE 100 DIS. (5) STORAGENIC LIQUID CO2 STORAGE TAIK WITH REMOTE FILL PORT. 594 LIQUID Ibs., (5) STORE FEED GRADENIC CARECOLOR TO 160 SOCH FEED CARACET TO BOSTEM PROVIDE INGESTOR. FLOUMETER, RELATS AND ACID FEED ALXALINITY CONTROL. ONE (1) SYSTEM TOTAL (2016 EA) PROVIDE HARD WIRED THALKALINITY CONTROL. 0 TO 160 SOCH FEED CARACELARE. RECH CHEMISTRY CONTROL. ONE (1) SYSTEM TOTAL (2016 EA) PROVIDE HARD WIRED THALXAL STAPI KIT CO2 DETECTOR WITH AUDIEL AND VISIAL LARKIN IN EACH CHEMICAL ROOM, UI 11 STANDARD LISTED, ONE (1) TOTAL.

 Image: Statistics
 WIRES OF RUMETER SYSTEM CONTROL RECH CONTROL RECOVERS SYSTEM ENTER CHEMISTRY CONTROLE. ROOVIDE CONFLETE SYSTEM CONTROL RECOVER SYSTEM SYSTEM CONTROL RECKLY PROVIDE THERE SYSTEM CONTROL RECKLY BEDES SYSTEM CONTROL CHEMICAL RECKLY WIRES APPROVED ED CAN.

 Image: Statistics
 MITH CHEMISTRY CONTROL ALL RECK ON RULL PROVIDE THERE SYSTEM CONTROL TARCE/SYSTEME CONTROL CHEMISTRY CONTROLER RECKLY PROVIDE ENTER CONTROL RECKLY BESTEMENT IN TRACCARACET AND RECKLY AND CONTROL RECKLY R

ADDITIONAL NFC. WEB DITIONAL NFC. PROVIDE UNITERPROVING BY SPECIFICATIONS. ACCESS LADDER TO BE FIBERGRATE DYNARALL FRP OR EQUAL.

(23) THP OR EQUAL. (NS:6) BACKWACH PTI: 6'-0' X 10'-0' X 5'-0' DEEP WITH 0'0 P-TRAP OUTLET TO SEWER. PROVIDE WATERPROOFING PER SPECIFICATIONS. COORDINATE WITH STRUCTURAL AND PLIMBING PLANS.

PILI SYSTEM 5" CLAVAL FILL SYSTEM TO INCLIDE 5" CLAVAL SOLENOD CONTROL VALVE #186-01BY, 5" DICT RCN. EPOXY COATED BODY III'H CAST IRCN DISC SETAINER AND DIAPHRACM WASHES BRCIZE TRM, FLANCED GLOBE PATTERN, 120 VAT 66/L SOLENOD WIRNS SHALL BE WIRED TO WARE CHEMISTRY CONTROLLER. RROVIDE 6" AR GAP AT FILL PONT. TEURAHSHOULER. HAUS MOBIL TEURAHSHOULER. THAUS MOBIL TEURAHSHOULER. HAUS MOBIL TEURAH

TWO (2) TOTAL TIJO (2) TOTAL. (URB) (URB)

- MIN ¼" PER FOOT TO A DRAIN PER CBC 3122B. SEE
- ARCHITECTURAL SHEETS FOR SPOT ELEVATIONS AND SLOPES.

HEATER/GAS PIPING INSTALLED ON A CAS SUPPLY SYSTEM UTILIZING A 2 PSI CAS FRED PCOL HEATER(S) INSTALLED ON A CAS SUPPLY SYSTEM UTILIZING A 2 PSI OR 5 PSI SUPPLY CAS PRESENTER SHALL RECOVER A REGULATOR TO REDUCE THE SUPPLY PRESSURE A PROPERLY SIZED AND INSTALLED LOCK-UP. TYPE HIGH GAS PRESSURE REGULATOR (HGPR) SHALL BE USED TO REDUCE THE GAS PRESSURE AT THE UNIT INLET TO A MINIMUM OF 4" TO A MAXIMUM OF 11" WATER COLUMN.

LOCHINVAR' RECOMMENDS THAT ANY REQUIRED LINE LOCK-UP-TYPE HIGH GAS PRESSURE REGULATOR BE INSTALLED WITH A MINIMUM OF & FEET TO 100 FEET OF PIPE FROM TIS DISCHARGE TO THE UNT'S GAS MLET. IF A STRIGHT DISTANCE OF GAS PIPE IS NOT AVAILABLE THE ADDITION OF A VERTICAL UN IT HE GAS PING DOUR STREAM FROM THE HIGHR' GAN BE USED TO ACHEVE THE & FEET TO 100 FEET OF DISTANCE.

CONTRACTOR IS RESPONSIBLE FOR HEATER VENTING, EXHAUST DUCTING, FLUE TERMINUS AND PENETRATION(S) THROUGH BUILDING STRUCTURE

MEP COMPONENT ANCHORAGE NOTE ALL MECHANICAL, PLUMBING, AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA - APPROVED CONSTRUCTION DOCUMENTS. THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED FOR MEET THE FORCE AND DSPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2019 CEC SECTIONS 1617A.1.10 THROUGH 1617A.1.26 AND ASCE T-16 CHAPTERS 13, 26 AND 30.

- 1. ALL PERMANENT EQUIPMENT AND COMPONENTS.

- ALL PERMANENT EXCIPTION TAND COMPONENTS.
 TEMPORARY, MOVABLE OR MOBILE EQUIPMENT THAT IS
 TEMPORARY, MOVABLE OR MOBILE EQUIPMENT THAT IS
 TERMINATELY ATTACHED (E.G. HARD WRED) TO THE BUILDING UTLITY
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 PLICS FOR 100/20 VIDE ALL LECTRIC WARD EXCEPT
 PLICS FOR 100/20 VIDE ALL LECTRIC WARD EXCEPT
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 TEMPORARY MOVABLE OR MOBILE EXCIPTIONE
 MORE ABOVE THE ADJACONT FLIDOR OR ROOT
 THAS 100 FUNCTIONE A COMPONENT IS RECIPTED A FLEXIBLE
 ADDITIONE ON A MANURE APPROVED BY DSA
 COMPONENT DE EXTERNAL
 COMPONENT DE MORE
 COMPONENT DE MORE
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 COMPONENT DE EXTERNAL
 COMPONENT DE EXTERNAL
 COMPONENT DE EXTERNAL
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 COM
- RESTRAINED IN A MANER APPROVED BY DSA. THE FOLLOWING MECHANOLA AND ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE, BUT NEED NOT DEMONSTRATE DEGIGI COMPLIANCE WITH THE REFERENCES NOTED ABOVE THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT NOT ASSOCIATED DUCTURER, PIPING, AND CONDUIT, FLEXIBLE CONNECTIONS MUST ALLOW MOVEMENT IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTIONS
- A UDIRAL DIRECTIONS: COMPONENTS WEIGHING LESS THAN 400 POUNDS AND HAVING A CENTER OF MASS LOCATED 4 FEET OR LESS ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT
- FLOOK OK ROOT LEVEL INHIG LESS THAN 28 DONTOK IT HE COMPONENTS IS COMPONENTS BIESCHNIG LESS THAN 28 POUNDS PER FOOT A BALL SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A BALL SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A BALL THE ANCHORAGE OF ALL MECHANICAL ELECTRICAL AND PLIMEING COMPONENTS HALL BE SUBJECT TO THE APPROVAL OF DESIGN FROTESSIONAL IN GENERAL RESPONSIBILET VARIAGE OR STRUCTURAL BIGANER DELEGATED REPONSIBILITY AND ACCEPTINGE BY DBA THE PROZECT INSPECTOR BILL VERTIFY AND ACCEPTINGE BY DBA THE PROZECT INSPECTOR BILL VERTIFY THAT ALL COMPONENTS AND EQUIPMENTS.

TEST 50% OF ANCHORS PER ONE OF THE FOLLOWING METHODS AND IN ACCORDANCE WITH THE VALUES SHOWN IN THE TABLE:

WEDGE OR EXPANSION ANCHOR EMBEDMENT DEPTH AND TEST LOAD

		ANCHORS IN CONCRETE (HILTI KB TZ)		ANCHORS IN MASONRY (HILTI KB 3)	
SIZE	MIN. EMBED	TENSION LOAD (LBS)	TORQUE LOAD (FT-LBS)	TENSION LOAD (LBS)	TORQUE LOAD (FT-LBS)
14" DIA.	2"	200	10	300	10
%" DIA.	2"	1,500	25	500	30
½" DIA.	3%"	3,000	40	1,000	35
%" DIA.	4"	4,900	60	1,250	55
%" DIA.	4张"	6,300	11Ø	1,700	120

SP-3: EXAMPLE POOL EQUIPMENT ROOM **TERRA LINDA HIGH SCHOOL AQUATIC & ATHLETIC RENOVATIONS**

MAY 30, 2023

- LEGEND BV = BALL VALVE
- BFV = BUTTERFLY VALVE CV = CHECK VALVE FM = FLOWMETER
- BW = BACKWASH = FLOOR SINK FS AI = ACID INJECTION
- = CHLORINE INJECTION PH = PIPE HANGER PG/VG= VACUUM / PRESSURE GAUGE -
- FD = FLOOR DRAIN

NOTE ALL ELECTRICAL CONDUITS WITHIN MECHANICAL ROOM AND CHEMICAL ROOMS SHALL BE RIDGID NEMA 3R SUITABLE FOR CORROSIVE

THREE PHASE MOTOR LOADS AT 460V

GENERAL NOTES

- THE PIPING SYSTEM SHALL HAVE DIRECTION OF FLOW ARROUG INDICATED ON THE PIPES.
 PIBLIC POOLS SHALL HAVE A FLOW DUACRAM OF THE POOLS PIPING SYSTEM WITH OPERATION INSTRUCTIONS.
 THE FLOW DUACRAM AND INSTRUCTIONS SHALL BE AVAILABLE ON THE RESINGES TALL TIME
 4. ALL MECHANICAL ROOM FLOORS SHALL BE SLOPED A VANILY REPORT ON A VOID UNDIRE OF COMP.



PIPING, DUCTWORK, AND ELECTRICAL DISTRBUTION SYSTEM BRACING NOTE PRING, DUCTWORK, MD ELECTRICAL DOITINGTON STITMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DELIXIONED THE RESORTED N ADDE T- 16 SECTION 13 AS DEFINED IN ASCE T- 16 SECTION 13 BAS, 13 6, 6, 13 6, 13 8, 6, MO 201 GC, CECTIONS 10 FAIL 24, 16TA1 12, 8 16TA1 12, 8 THE WETHOD OF SHOULING BRACING, AND ATTACHMENTS TO THE STRUCTURE FOR THE EDRIFTED DISTRBUTION SYSTEM ARE AS NOTED BELLINGIN BRACING AND ATTACHMENTS ARE BASED ON A PREAPROVED INSTALLATION GUIDE (EG, GUPPO D'PH FOR 2011 GC, COR LATER, COPRE OF THE BRACING SYSTEM INSTALLATION GUIDE OR MANAL, SHALL BE AVAILABLE ON THE JOBBITE PRINCT TO THE STRUCT FOR AD DURING THE HANGING AND BRACING OF THE DISTRBUTION SYSTEMS. THE STRUCTURE TO SUPPORT THE HANGING AND BRACING SYSTEM INSTALLATION EDITION THE TARGET ON SUPPORT THE HANGING AND BRACING OF THE DISTRBUTION SYSTEMS. THE STRUCTURE TO SUPPORT THE HANGING AND BRACING BRACE LOADS.

MECHANICAL PIPING (MP), MECHANICAL DUCTS (MD), PLIMBING PIPING (PP), ELECTRICAL DISTRIBUTON SYSTEMS (E); MP ⊠ MD □ PP ⊠ EC□ 1.5HLL COMPLY UMTH THE APPLICABLE OSHPD PRE-APPROVAL (OPM #) OPM #0043-13 & #0052-13.

MECHANICAL ANCHORAGE 1. EVANSION OR LIEDGE ANCHORS INTO CONCRETE: HILTI KB TZ (CC ESSR-1917) OR SIMPSON STRONG BOLT (CC ESR-1711) TO BE INSTALLED IN ACCORDANCE WITH ICG REPORT AND MANURACTURERS RECOMPLICATIONS.

INSULAD INCLUSINGLAMING INTO EXPANSION ON UEDCE ANCHORS INTO MASONRY; HILTI KB 3 (ICC ESR-1385) OR SIMPSON UEDGE-ALL (ICC ESR-1396) TO BE INSTALLED IN ACCORDANCE WITH ICC REPORT AND MANUFACTURENS RECOMMENDATIONS.

MANUFACTURER'S RECOMMENDATIONS. 3. UNDERCUT ANCHORS INTO CONCRETE: HILT HDA (ICC ESR-1546) TO BE INSTALLED IN ACCORDANCE UTHIFIC CREGORT AND MANIFACTURER'S RECOMMENDATIONS. 4. HEAVY DUTY SLEEVE ANCHORS INTO CONCRETE: HILT H5L-3 (ICC ESR-1545) TO BE INSTALLED IN ACCORDANCE WITH ICC REPORT AND MANUFACTURER'S RECOMMENDATIONS.

REGOMMENDATION OF THE STANLESS STEEL FOR EXTERIOR USE OR WHEN EXPOSED TO WEATHER, FROVIDE GALVANIZED CARBON STEEL ANCHORS AT OTHER LOCATIONS, UNLESS OTHERWISE NOTED.

UNLESS OTHERWEE NOTED. IF REVIEWORKNET IS EXCONTREED DURING DRULING, ABANDON AND SHIT THE HOLE LOCATION TO ANOD THE REINFORCEMENT, PROVIDE A MINIMU OF 2 MICHOR DIMETERS OR 1 NOW, HUNFURE'R IS LARGER, OF SOMD CONCRETE ERFLICENT THE DOLLE, MOT THE ABANDONED HOLE FILL THE ABANDONED HOLE WITH NOW-SHRINK GROIT. IF THE ANCHOR OR DOLLE MAY NOT BE SHITTED AS NOTED ABOVE, THE STRUCTURAL ENGINEER WILL DETERMINE A NEU LOCATION.

LIGHT REPORT OF THE AD CONFIRM FINAL ANCHOR LOCATIONS PRIOR TO PARAMENT PLATES, MERGERS, OR OTHER STELL ASSEMBLES ATTACHED WITH ANCHORS HALL BE PROFILESED BY QUIRER'S TESTING AND INSPECTION AGENCY. 4. TEST ANCHORS NO SOCIESE THAN 24 HOURS AFTER INSTALLATION.

TED ANCHORS NO SOCIEST THAT 24 HOURS AFTER INSTALLATION.
 APPLY TED LOAD BY ANY METHOD THAT UILL EFFECTIVELY MEASURE THE TENSION OF THE ANCHOR SUCH AS DIRECT PULL WITH A HYDRAULC JACK, TORGUE WERSUCH, OR CALERATED SPRING LOADING SPRUCES, ETC.
 REACTION LOADS FROM TEST FIXTURES MAY BE APPLED CLOSE TO THE ANCHOR BEING TESTED, PROVIDED THE ANCHOR IS NOT RETAINED FROM WITHORAUMS BY A BASE PLATE OR OTHER INTERCE F RESTRANCT IS FOUND. LOOSEN AND SHAN OR REMOVE THE INTERCENT OF THE RESTRANT IS FOUND. LOOSEN AND SHAN OR REMOVE THE INTERCENT OF THE RESTRANT OF OUT OF MANNE ADERDIDENT OF MANY CALMAND AS EXCLUDING.

12. UNLESS OTHERWISE NOTED, PROVIDE MINIMUM EMBEDMENT OF ANCHORS AS SHOWN IN TABLES BELOW

WHORKLOWN IN IS VALUE SHOWN IN E INDEE IN HORKLICK RAM METHOD. APPLY RECOFT EST LOAD WITHOUT REMOVING THE NJT. IF IT IS NOT POSSIBLE TO TEST WITH THE NIT INSTALLED, REPLACE THE NIT WITH A THREADED COPIER TO THE LOAD, MCNER IS ACCEPTABLE IN NO MOVEMIT IS OSSERVED AT THE TEST LOAD, MOVEMENT MAY BE DETERMINED WHEN THE WASHER WORK THE NIT BECOMES ACCEPT

LUCOSE. B. TORQUE WRENCH METHOD: TEST ANCHORS TO THE TORQUE LOAD INDICATED IN THE TABLE WITH ONE-HALF TURK OF THE NUT. 14. IF ANY INCOME FALS TESTING, REPLACE ANCHOR AND TEST ADDITIONAL ANCHORS OF THE BANE CATEGORY NOT PREVIOUSLY TESTED INTIL TWENTY (20) CONSECUTIVE TESTE PAGS, THEN RESUME INTIL TESTING REQUENCY.



San Rafael City Schools Swimming Pool Modernization Presentation

January 31, 2023

Dennis Berkshire, ADG and Daniel Zaich, SRCS





San Rafael City Schools Pool Tour



Marin Academy

Tamalpais High

College of Marin





Pool Survey Results

RATING	MEAN AVERAGE	1.0 COMPETITIVE PROGRAMS	
5s	None	None	
4s	4.3 4	Short Course (25-yard) Swimming Floating Goal 25-Yard Water Polo Field of Play	
35	3.8 3.8 3.5 3.5 3.5 3.5 3.3 3.2 3.1	Long Course (50-meter) Swimming Floating Goal 25-Meter Water Polo Field of Play Physical Education Classes Deep Water Physical Education Classes Shallow Water Springboard 1-Meter Diving Short Course (25-Meter) Swimming Wall Goal Water Polo Field of Play Springboard 3-Meter Diving	
2s	None	None	
1s	None	None	
Write-Ins	5 5 5	Deep Water for Water Polo Field of Play Moveable Blocks 7' Minimum Deep Water for Water Polo Field of Play	





Pool Survey Results

RATING	MEAN AVERAGE	2.0 INSTRUCTIONAL PROGRAMS	
5s	None	None	
4s	None	None	
3s	3.5	Age Group Lessons	
2s	2.8 2.8 2.2	Disabled and Special Needs Water Safety / Red Cross Certification Water Aerobics / Water Walking	
1s	1.7	Scuba Certification	
Write-Ins	4.7	Club Water Polo	

RATING	MEAN AVERAGE	3.0 RECREATION PROGRAMS	
5s	None	None	
4s	None	None	
3s	3.5 3.5	Masters Swimming Lap / Fitness Swimming	
2s	2.8 2	Open Recreation Swimming Water Games (water volleyball / basketball)	
1s	1.5 1.5	Waterslide(s) Wet Playground	
Write-Ins	5	Masters Water Polo Learn-to-Swim Program	





Pool Survey Results

RATING	MEAN AVERAGE	4.0 BUILDING INFRASTRUCTURE	
5s	None	None	
4s	4.8 4.5 4	Site Lighting Scoreboard Timing System Spectator Seating	
3s	3.4 3.4 3	Shade Public Address System Family / Disabled Changing Room (s)	
2s	2.5 2.4 2	Community Use Lockers Food Concession Community Use Meeting Room (s)	
1s	None	None	
Write-Ins	5 5 4.5 None	Top Notch Heating and Filter Systems Team Locker Rooms Bathrooms / Locker Rooms Proper Sizes for Restrooms / Showers / Changing Rooms	





Typical Area High School Programs

- Competitive Swimming
- Water Polo
- A Physical Education
- Local Swim Teams
- Community Uses



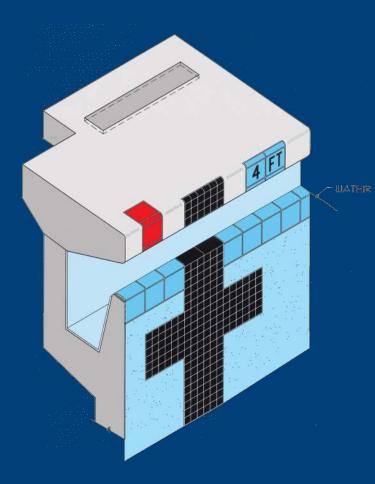


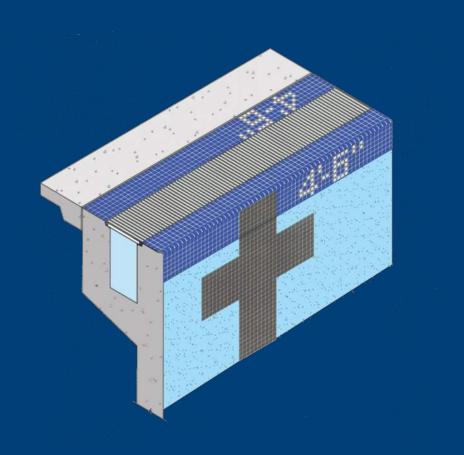
Pool Design Considerations

- Pool Size
- Water Depths
- Gutter Configuration
- Deck Area Requirements
- Outdoor Storage Spaces
- Indoor Storage Spaces
- Ancillary Buildings Code Requirement of Bathrooms within 300-feet of Pool









Cantilever Gutter

Rim-Flow Gutter





FEATURE	33-Meter	35-Meter	40-Meter	50-Meter
Length	108'	115'	131'	164'
Surface Area (Sq. Ft.)	8,118	8,669	9,900	12,350
Number of 7' Lanes	15	16	18	23
Max Swimmers 7' Lanes	90	96	108	138
Number of 8' Lanes	13	14	16	20
Max Swimmers 8' Lanes	78	84	96	120
Maximum Occupancy	405	433	495	617
Wall Goal H ₂ O Polo	1	2	2	3
Shallow Water 3.5' – 4.5'	10'	10' – 17'	10' – 43'	10' – 66'





33-M Pool Annual Utility Operating Cost \$ 176,000

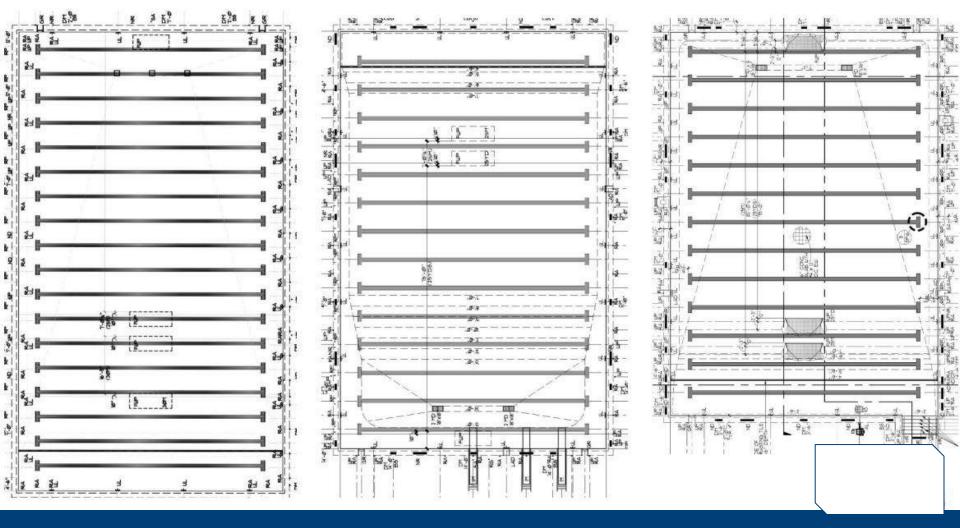
35-M Pool Annual Utility Operating Cost \$ 185,000

40-M Pool Annual Utility Operating Cost \$ 215,000

50-M Pool Annual Utility Operating Cost \$ 265,000







40-Meter 171' Footprint 35-Meter 155' Footprint

33-Meter 148' Footprint





Terra Linda High School Swimming Pool



Pool Deck 140' x 100' Maximum Pool Size 33-Meters Footprint from building to face of other building 181'





San Rafael High School Swimming Pool



Pool Deck 116' x 114' Maximum Pool Perpendicular Size 40-Meters Footprint from building to edge of track 191'





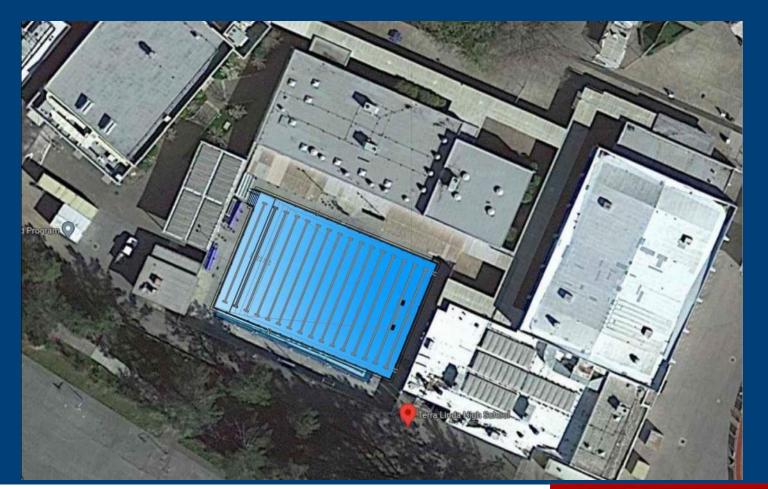
Terra Linda High School 33-Meter Swimming Pool







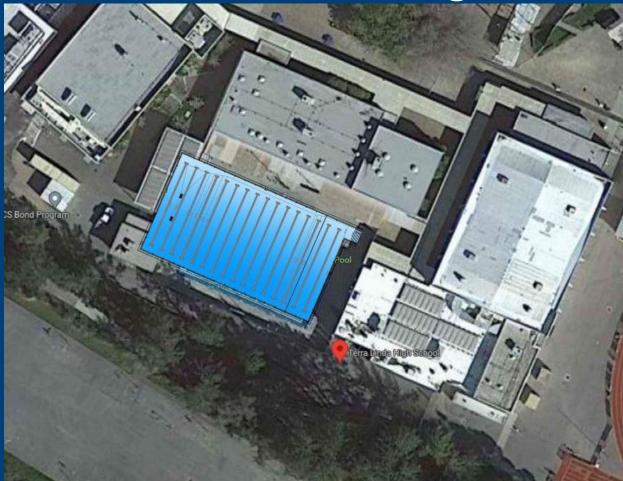
Terra Linda High School 35-MeterSwimming Pool







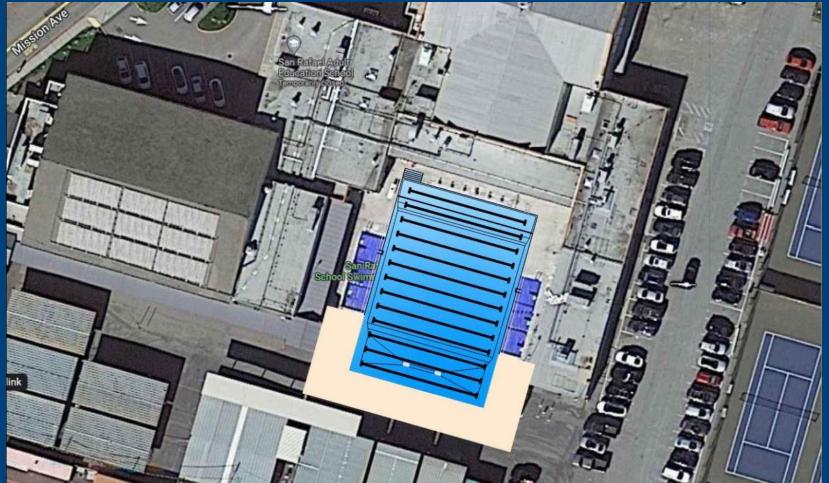
Terra Linda High School 40-Meter Swimming Pool







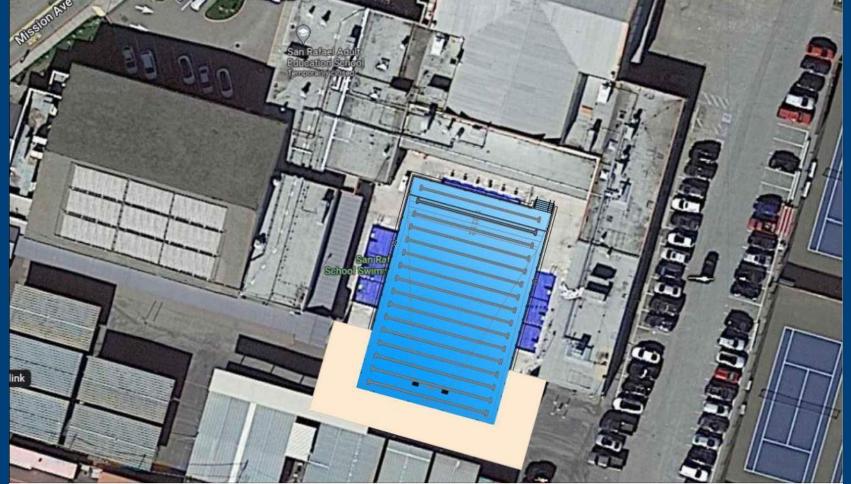
San Rafael High School 33-Meter Swimming Pool







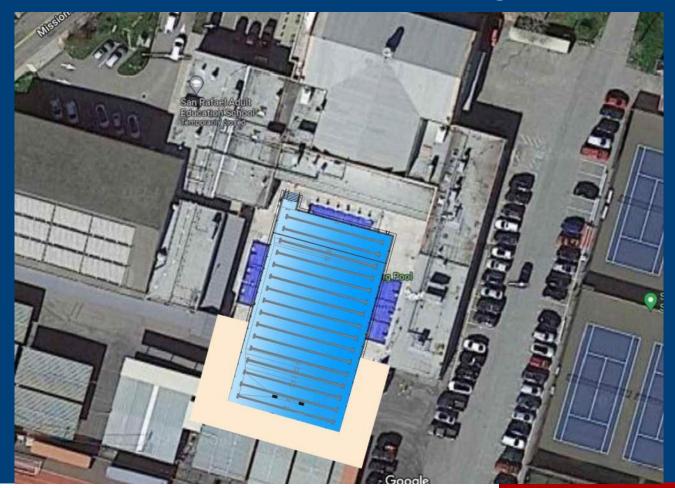
San Rafael High School 35-Meter Swimming Pool





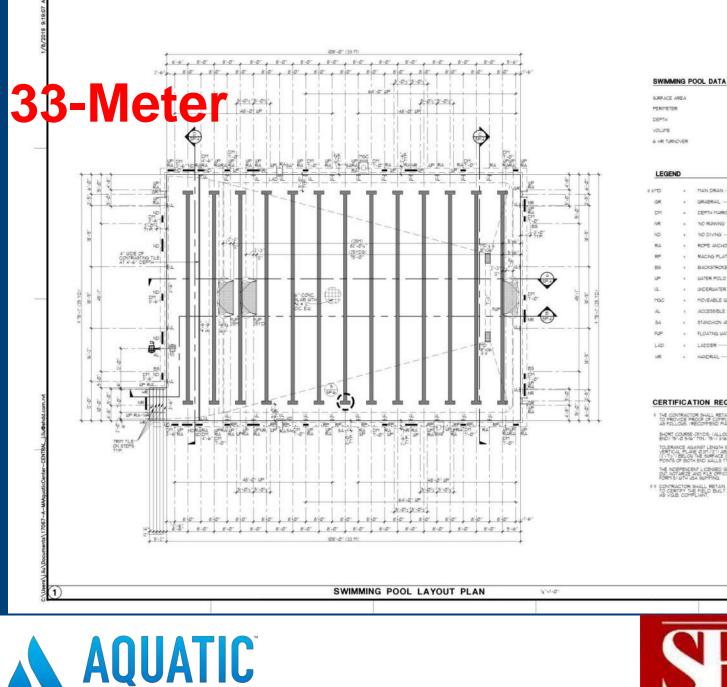


San Rafael High School 40-Meter Swimming Pool









DESIGN GROUP



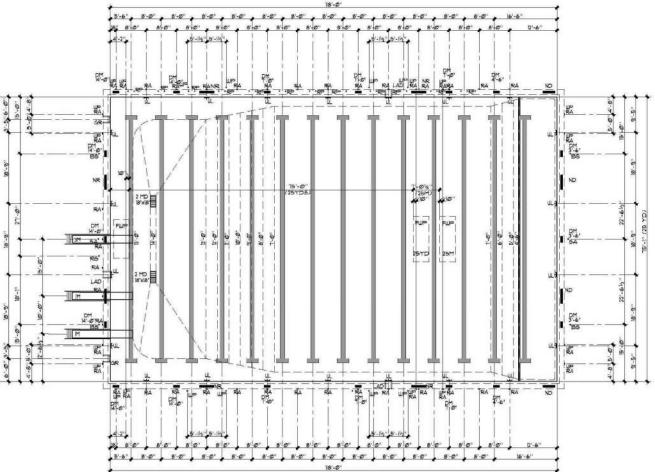
MARIN





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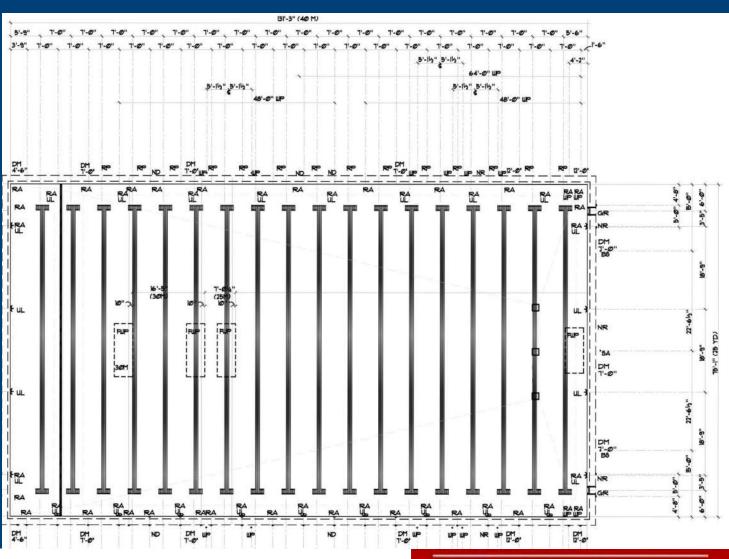
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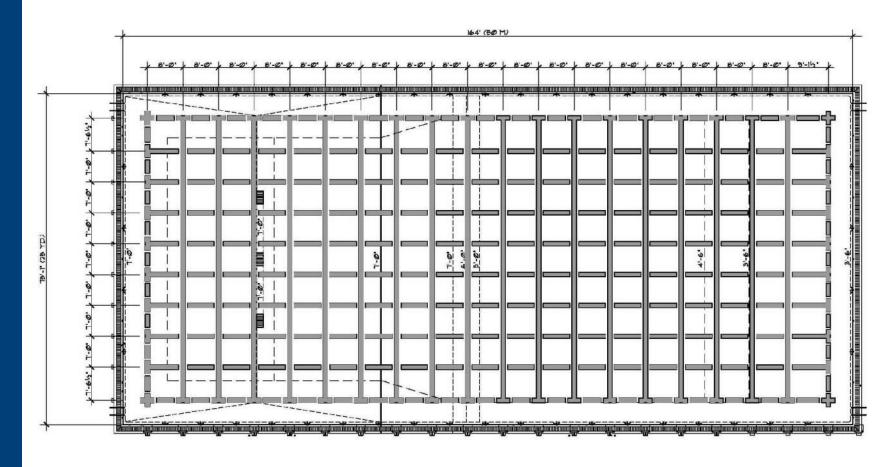
40-Meter







50-Meter







Thank You !

TERRA LINDA HIGH SCHOOL

CONSULTANT SCHEMATIC DESIGN NARRATIVES

SECTION 1

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ACKNOWLEDGEMENTS

These narratives were prepared for Lionakis from the consultant team listed below.

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CIVIL ENGINEERING NARRATIVE

DESIGN CODES AND REGULATIONS

- 1. California Building Code, 2022
- 2. Americans with Disabilities Act (ADA), Title II, ADAAG
- 3. California Plumbing Code, 2022
- 4. California Fire Code, 2022

BUILDING DEMOLITION

As part of the option A project scope for this project, existing portable building Q is being demolished. Refer to Architect's portions of the schematic design narrative for additional demolition requirements. Additionally, there is a retaining wall that was installed around the perimeter of the building that will also be removed as part of the demolition of building Q. Its height varies from 0' (flush) along the west elevation of the building to 2.5' along the east elevation of the building.

As part of the option B project scope for this project, existing portable building Q and building H are being demolished. Refer to Architect's portions of the schematic design narrative for additional demolition requirements.

SITE DEMOLITION

All existing exterior site improvements (i.e. concrete, asphalt, base material, stairs, site retaining walls, vegetation, etc.) shall be removed to allow for the pool and building pad preparation, as well as subgrade preparation related to associated site improvements.

The existing walkway canopy, including footings, located north and east of building of H will be demolished.

The entirety of the existing pool, including the surrounding concrete deck and associated utilities, will be demolished. Refer to Pool consultant's portions of the schematic design narrative for additional demolition requirements.

The entirety of the existing pool equipment room, including the associated pumps, backwash filters, piping, etc., will be demolished. Refer to Pool consultant's portions of the schematic design narrative for additional demolition requirements.

The existing shade structure, including footings, located west of the pool shall be demolished in its entirety.

The existing rubberized track area is designated to remain and shall be protected in place.

Strip existing turf and organic vegetation areas to a depth of approximately 4".

Consider grinding and stockpiling of existing asphalt and base materials for reuse as class 2 aggregate base under new hardscape. Backfill and compact any resulting trenches with material as recommended by the project Soils Investigation Report.

SITE CLEARING

All existing trees located in the central courtyard /plaza area north of building H are to be retained and protected in place. Tree protection fencing should be installed along the tree driplines as a first order of work.

Several existing trees along the sloped area south of the pool will be removed. Existing trees to be removed to 2 feet below grade, including all roots greater than 2".

Temporary chain-link fencing shall be installed to completely surround and secure the work area.

Existing site wet utility systems (sewer, water, storm drain) shall be protected in place, or, where that is not possible, rerouted through the construction area to minimize service disruptions to the existing buildings. Cap and remove portions of the existing site wet utility systems that conflict with the proposed improvements.

Refer to the Landscape Architectural elements of the SD narrative for demolition, protection and/or relocation requirements of the existing irrigation system.

Refer to the Electrical elements of the SD narrative for demolition, protection and/or relocation requirements of the existing power, communication/data, etc. systems.

Refer to the Plumbing elements of the SD narrative for demolition, protection and/or relocation requirements of the existing gas systems.

SITE EARTHWORK

The site is relatively flat with the pool deck and proposed buildings being set very close to existing ground (within 1'+/-). There is sloping terrain south of the pool deck that is as steep as 3:1. Currently, there is not a Geotechnical Investigation available for the proposed project site. However, for cost estimating purposes, it is recommended to follow the Geotechnical recommendations of the recently completed gymnasium project located immediately north of the proposed project site.

The previous project Geotechnical recommendations required removal and replacement of the upper 1.5'+/- of weak, highly expansive native soils within the building pad areas. Within the exterior concrete

and asphalt pavement areas, the previous project geotechnical recommendations required removal and replacement of the upper 1'+/- of weak, highly expansive native soils.

In general, the excavated soils, to the extent they may be available, will be suitable for reuse as compacted fill within exterior concrete and asphalt pavement areas only. Within the building and pool pad areas, imported, low expansive select fill is required to replace the excavated, native materials.

All grading activities shall be completed in accordance with the project Geotechnical Investigation when it is available.

All subgrade in new paved vehicular pavement areas to be compacted to 95% relative compaction.

All subgrade in new pedestrian concrete areas to be compacted to 90% relative compaction.

Based on the schematic design building and site drawings, it appears that the project will disturb more than 1 acre of land, thus, the project will be required to file a Notice of Intent (NOI) with the State of California Water Resources Control Board. This will also subject the project to implementation of a project Storm Water Pollution Prevention Plan, including storm water monitoring, sampling and testing. The contractor will be responsible to implement and maintain erosion and sediment control measures shown on the final drawings during of the building and site work construction.

PEDESTRIAN ASPHALT AREAS

Assuming an R-value of 5, an asphalt pavement section of 0.21' asphalt over 0.50' class 2 aggregate base shall be used in pedestrian areas. Within defined fire lane areas, an asphalt pavement section of 0.25' asphalt over 0.75' class 2 aggregate base shall be used.

Asphalt pavements should be Type A, 1/2" maximum, medium, per Caltrans Standards.

Class 2 aggregate base should be $\frac{3}{4}$ " maximum per Caltrans Standards or recycled materials from onsite or offsite meeting the gradation and strength requirements of virgin material.

PEDESTRIAN CONCRETE WALKWAYS & SITE CONCRETE

A concrete structural section of 0.42' of concrete reinforced with #4 rebars at 18" on center each way over 0.33' class 2 aggregate base shall be used in pedestrian areas. Within defined fire lane areas, a concrete structural section of 0.50' of concrete reinforced with #4 rebars at 12" on center each way over 0.50' class 2 aggregate base over shall be used. Landscape drawings will specify type and location of decorative concrete, including color, finish, and score pattern.

Concrete mix shall have a minimum compressive strength of 3,000 psi and shall comply with the applicable provisions of Section 90 " Concrete" of the Caltrans Standard Specifications for Section 90-2 "Minor Concrete".

Class 2 aggregate base should be ³/₄" maximum per Caltrans Standards or recycled materials from onsite or offsite meeting the gradation and strength requirements of virgin material.

Concrete pavement adjacent to landscape areas shall be bound by a 9" wide x 9" deep thickened concrete edge.

Concrete curbs (flush, vertical and with gutter) shall be installed adjacent to asphalt paving that abuts landscape/planting areas.

DOMESTIC WATER SYSTEM

The site is currently served potable water by the Marin Municipal Water District. There is an existing 4" private domestic water line to the north located within the existing courtyard/plaza area that can provide domestic water service to the proposed pool equipment room. A new 3" water service to the pool equipment room will be installed.

A portion of the new water line installation will require sawcutting and replacement of existing concrete/asphalt. The replaced concrete/asphalt sections shall meet the specification as addressed above.

To avoid having to sawcut, trench and patch through the recently completed hardscape in the central courtyard/plaza area, a portion of the new water line shall be directionally drilled.

Static pressure is anticipated to be around 70 psi.

For any replacement and/or new piping, we recommend the use of PVC SCH 80 with solvent weld joints. All fittings shall be PVC SCH 80.

Where pipe will be directionally drilled, we recommend the use of fused HDPE, DR11 pipe.

All valves shall be bronze body ball valves centered in a concrete utility valve box with PVC riser.

FIRE PROTECTION WATER SYSTEM

The site is currently served potable water by Marin Municipal Water District. There is an existing 6" private fire protection line immediately south of the existing pool deck that will need to be relocated under the proposed pool equipment building and terraced seating area.

Water piping for the site fire protection system will be PVC C900, DR 14, with gasketed joints. The portion of piping located underneath the buildings and terraced seating shall be bed and backfilled with controlled density fill (CDF).

All fittings shall be epoxy-coated ductile iron restrained as required.

All valves shall be epoxy-coated, ductile iron, resilient wedge gate valves centered in a concrete utility valve box with PVC riser.

SANITARY SEWER SYSTEM

The site is currently served sanitary sewer by the Las Gallinas Valley Sanitary District. There is an existing private 6" sanitary sewer line located to the west of the proposed pool deck that can provide sanitary sewer service to the proposed pool equipment room. There is an existing private 4" sanitary sewer line located to the north of existing building K that can provide sanitary sewer service to the proposed building Q and restrooms.

At all changes in direction, a cleanout will be installed centered in a concrete utility valve box.

New sanitary sewer manholes shall be 4' diameter, precast concrete structures.

Due to the shallow depth of the existing 4" sanitary sewer line located north of existing building Q, a new sanitary sewer lift station will be required to be installed. The sanitary sewer system shall be a package system with duplex 2 hp, 3 phase pumps in a fiberglass basin (3' diameter x 7' deep). The basin will be accessed by a 6' diameter concrete closure slab with a 3' square, double-hinged, traffic-rated hatch casted into the closure slab.

For any replacement and/or new gravity sanitary sewer piping, we recommend PVC SDR 35 with gasketed joints.

For any replacement and/or new force/pressure sanitary sewer piping, we recommend PVC SCH 80 with solvent-weld joints.

A portion of the new sanitary sewer line installation will require sawcutting and replacement of existing concrete/asphalt. The replaced concrete/asphalt sections shall meet the specification as addressed above.

STORM DRAIN SYSTEM

The proposed project site is served by an existing 12" storm drain to the north; an existing 6" storm drain to the west; an existing 12" storm drain to the south; as well as an existing 6" storm drain to the east.

The existing 12" storm drain to the south of the existing pool deck will need to be relocated under the proposed pool equipment building and terraced seating area.

All building downspouts will be connected to the proposed storm drain system via small, 4" diameter storm drain pipe.

At all changes in direction of storm drain pipe 8" and larger, a square precast concrete drainage inlet will be installed or storm drain manhole. At all changes in direction of storm drain pipe 6" and smaller, a cleanout will be installed.

Storm drain system pipe materials 6" in diameter and smaller shall be PVC SDR 35 with gasketed joints compatible to the pipe material. Storm drain system pipe materials 8" in diameter and larger shall be PVC SDR 35 with gasketed joints compatible to the pipe material or HDPE, Type S, with smooth interior wall

and water-tight, gasketed joints. The portion of piping located underneath the buildings and terraced seating shall be DIP, pressure class 250, with gasketed, bell joints and bed and backfilled with controlled density fill (CDF).

Storm drain structures are anticipated to be precast concrete boxes in sizes ranging from 12 inch square to 24 inch square, with standard opening, standard-duty bolt-down grates in landscaped areas, and ADA-compliant (1/2" maximum) opening, heavy-duty bolt-down grates in vehicular and pedestrian pavement areas. Smaller area drains installed on vertical pipe risers may be used in planting areas.

LANDSCAPE NARRATIVE

HARDSCAPE

Concrete paving:

- Assume 'pedestrian' profiles at all non-fire lane occurrences.
- Assume 'vehicular' profiles at all fire lanes.
- Assume pedestrian slabs to be 4" deep and vehicular slabs to be 6" deep.
- Assume all slabs will have #4 rebar at 24" O.C. both ways.
- Assume all slabs sit on compacted sub-grade (prepared per Geotech recommendations) and 6" of compacted Class II AB.
- All slabs to have thickened edges.
- Expansion joints will be $\frac{1}{2}$ " asphaltic impregnated felt with joint filler.
- Control joints to be tooled with ½" radius edges. Joints to be 1" deep.
- Finish to be medium broom.
- Color to be natural with bands of integral color per plan.

Concrete stepped seating:

- Assume same mix design as pedestrian concrete paving.
- Assume 12" risers.
- Assume Wooster Supergrit nosing.

Pavers:

- 60 mm pavers to be installed in radial pattern, similar to pavers at front of school.
- Type of paver to match those at front of school.

Walls:

- 8" wide cast-in-place walls.
- Skateboard deterrent "notch" to occur 3'-6" O.C. max. when a railing is not centered in wall.

Site Furnishings:

- Pre-cast concrete 'pebble' bench to match those at front of school.
- DuMor benches to compliment existing DuMor tables on campus.

LANDSCAPING

Irrigation:

- No new irrigation controller. Extend 2-wire connections Control wires stubbed out in sloped planting south of track.
- Existing mainline stubbed out in sloped planting south of track. Extension to provide irrigation.
- Shrubs will be irrigated with (1) bubbler per shrub.
- Trees will be valved separately and irrigated with (2) bubblers in drain tubes per tree.

Planting:

- Trees shall be 24" box size. They will be planted to conform to CalGreen's "Shade Tree" requirements. This includes shading 50% of parking areas and 20% of both hardscape and landscape areas, within 15 years.
- Planting shall consist of native and climate appropriate, water conserving ground covers, shrubs and perennials, low litter, native grasses, and other low-profile native plantings. Shrubs and perennials shall be 75% five-gallon and 25% one-gallon. Ground cover shall be one-gallon.
- Jute netting shall be installed on all slopes 3:1 and greater.
- All non-bioretention planting areas shall be topped with a 3" minimum depth of Republic Service's "Pro-Chip" material.
- All bioretention areas shall be topped with 3" minimum depth of Shredded Cedar mulch available from Pacific Landscape Supply.
- All non-bioretention planting areas shall have amended topsoil that promotes plant growth to a minimum 12" depth from adjacent paving.
- Bioretention planting areas shall have L.H. Voss' "Lennox Blend" manufactured soil installed to a minimum depth of 18".

Landscape Maintenance:

- The planting establishment maintenance period required shall be 90-calendar days after all planting is complete and installation accepted.
- 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 Landscape Architect.

STRUCTURAL ENGINEERING NARRATIVE

BUILDING H

Option A

This option includes the renovation of the existing Building H structure to accommodate the new program. This renovation includes structural modifications of two existing concrete walls on the western end of the building to provide enlarged openings in the existing concrete walls. As these existing walls are bearing/shear walls, the scope of the modifications is limited. To reinforce the area at the enlarged openings, this project will require the addition of steel headers/strong-backs around the enlarged openings, as well as enlarged footing areas on the exterior wall. This work is shown on the provided foundation plan.

After review of the existing construction documents, there are portions of the existing building that exhibit known seismic deficiencies. Considering the investment in this building and extent of proposed scope, it is recommended that voluntary seismic upgrades be included in this project. These upgrades include the additional of plywood over the entire roof to strengthen the existing diagonally sheathed diaphragm, and to upgrade the out-of-plane connections of the concrete walls at the roof level. See the included structural roof framing plan for additional clarification of this scope. As this structure is not expected to be within 50 feet of an active fault, the costs of these voluntary upgrades are not required to be included in the construction cost when determining whether a full seismic rehabilitation is required (see Per DSA IR EB-4, section 2.2.2).

Note that should a seismic rehabilitation of the existing structure be required, the scope of structural remediation would be increased significantly from what is described in this narrative and would require further structural evaluation.

Option **B**

Option B includes the removal of the existing Building H and associated covered walkways so that a new structure can more adequately address the desired functions of the building. Preliminary information about the expected construction of the proposed building is provided below.

As durability is a primary concern, this building will be constructed with 8" fully grouted CMU exterior walls, with 12" CMU walls where walls are expected to be taller than 16'. The roof framing will consist of un-topped 1 $\frac{1}{2}$ " x 18 ga B36 steel decking supported by open web steel joists (24K8 at 6' oc), with additional steel framing and light gage framing to support overhangs. The typical joists will be supported by the CMU walls, which will also provide act as shear walls, providing lateral support for the building. The walls will be supported at the ground level as required by the geotechnical engineer. While no geotechnical report was available at the time of this writing, it is expected that the CMU walls will be supported by shallow continuous footings, with an expected size of 2' wide by 2' deep at all CMU walls. The interior slab on grade will be 6" thick with #4 @ 16" to support the weight equipment, underlain with a

15-mil vapor retarder and 6" crushed rock, subject to any additional recommendations by the geotechnical report.

In addition to other deferred approvals that may be required for this project, the open web joists will be considered a deferred approval item. This means the joist manufacturer will need to provide project specific drawings and calculations for submittal to DSA during construction. During the full design, other framing options such as traditional steel WF beams may be utilized to eliminate the need for this deferred approval.

BUILDING K

Options A and B

Building K includes the locker room and team room areas, as well as a gymnasium space, which are all seismically connected. The scope of work for this project is only in the locker room/team room area, and will be the same scope of work for both Option A and B.

Only minor structural work is expected as required to accommodate architectural revisions, with no modifications to the existing lateral system expected. This work might include slab trenching for underground utilities, as well as removal and reconfiguration of curbs at lockers. Like Building H, it is recommended to perform some voluntary seismic upgrades at this building. To help limit the impact of these updates, the addition of plywood over the existing roof is not included as a voluntary upgrade at this building. However, if significant roofing work was to be added to the scope, it is recommended to add plywood sheathing over the existing diagonal sheathing at the roof. The scope of these proposed upgrades is shown on the included roof framing plan.

POOL STORAGE/EQUIPMENT

Option A

In this option, the pool equipment and restroom facilities are to be constructed at the southwest corner of the aquatics area, with the pool equipment room set partially into the existing slope. The walls of the building will also serve as retaining walls holding back the adjacent soil. These walls are expected to be constructed of 10" thick reinforced concrete, along with additional 8" thick concrete retaining walls serving to create the required surge tanks and pump pits for the pool equipment. The building walls at the restroom/storage/concession area beyond the pool equipment area are proposed to be constructed to fully grouted 8" CMU walls that will serve as bearing/shear walls.

The roof framing over the pool equipment area will be wide flange beams supported on channel ledgers at the exterior walls. Due to the significant soil load supported by the building walls and imparted into the building structure, the roof diaphragm will be constructed of concrete filled steel deck. This will also provide more flexibility to support pool equipment that is required to be suspended from the structure above.

The concrete and CMU walls will be supported at the ground level as required by the geotechnical engineer. While no geotechnical report was available at the time of this writing, it is expected that the walls will be supported by shallow continuous footings, with an expected size of 8' wide by 2'-6" deep at three sides of the pool equipment room at the concrete retaining walls, and 2' wide x 2' deep at other concrete walls, and at the CMU walls in the restroom/concession area. The interior slab on grade will be

6" thick with #4 @ 16" to support the pool equipment, underlain with a 15-mil vapor retarder and 6" crushed rock, subject to any additional recommendations by the geotechnical report.

Option B

Option B is very similar to Option A, with the pool storage and equipment areas being provided as two separate structures. The pool storage room on the western end of the grandstands will require concrete retaining walls and a concrete roof similar to what is described for Option A. At the pool equipment room on the eastern end, the amount of soil retained adjacent to the buildings is significantly less. This building will be constructed with CMU walls like the restroom/storage/concession area of Option A.

GRANDSTANDS

Options A and B

The grandstands with solar PV cover will be constructed into the existing hillside, utilizing cast-in-place concrete for the stepped seating and structural steel framing for the solar PV cover. The structural steel frame is expected to be constructed with HSS frames constructed with cantilevered columns and tapered girders. There will be additional HSS purlins spanning between these frames to support the PV panels. It is expected that the PV panels will be supported directly on the HSS purlins without needing any supplemental roof decking. As this system will not have a typical diaphragm, lateral support of the framing will be provided by diagonal rod bracing in the plane of the PV panels.

At the foundation level, two footings options will be considered based on final geotechnical recommendations. The first option will utilize drilled piers provided at each column. The second option will use shallow concrete spread footings integrated into the stepped seating. The exact configuration of these elements will be determined after receiving geotechnical information.

AQUATIC COMPONENTS NARRATIVE

GENERAL

The following description is the basis of design for the aquatic's components of the Terra Linda High School swimming pool project.

SWIMMING POOL DESIGN GUIDELINES AND REQUIREMENTS

- A. Pool Construction
 - 1. The pool shall be constructed with concrete and shotcrete in accordance with an approved geotechnical engineering report.
 - 2. The pool will have a plaster and tile finish. The plaster shall be an upgraded plaster with a five-year warranty.
 - 3. The pool shall have a continuous perimeter concrete gutter with a concrete modulating balance tank. The gutter and balance tank shall be water proofed with an approved material other than plaster.
 - 4. The pool contactor may use soil as a form for the shotcrete installation providing that the soil conditions allow. If not, then the pool contractor shall be responsible to form the pool shell for shotcrete installation.
 - 5. The pool shall be constructed with hydrostatic relief valves in the bottoms of the pool main drains.
 - 6. The pool shall have floor inlets in accordance with California Building Code Chapter 31B.
 - 7. The pool shall have a minimum of two main drains that are compliant with the Federal Virginia Graeme Baker Pool and Spa Safety Act and California Assembly Bill 1020.
 - 8. The pool and pool deck layout shall be provided to support the following needs:
 - a. Crowd control.
 - b. Swim meet management.
 - c. Water Polo matches.
 - d. Swim practices.
 - e. Water Polo practices.
 - f. Physical Education classes.

- g. Sun and wind control for bathers and spectators.
- B. Pool Configuration
 - 1. The pool shall be 40-meters long and 25-yards wide, with walk-out stairs on the shallow end of the pool. The pool dimensions shall allow for the use of touch pad timing systems and be compliant with USA Swimming guidelines.
 - 2. The pool shall be configured to comply with the following governing body regulations:
 - a. USA Swimming
 - b. National Federation of State High Schools (CIF)
 - c. NCAA
 - d. FINA
 - 3. The pool shall be measured and certified by a licensed surveyor or engineer for its compliance with the above governing bodies configuration and sizes. This certification shall be submitted by the contractor to USA Swimming for registration of the short course (25-yards) lanes. The lanes shall be certified for both the length of the lanes and the depths of the water from 12.5-feet to 7-feet.
 - 4. The pool gutter shall be a deep competition gutter with the pool deck cantilevered over the top. The gutter shall have a minimum one drain on each side of the pool.
 - 5. The depth shall be 12.5-feet at the deep end and 3.5-feet deep at the opposing end.
 - 6. The pool shall have a minimum of 10-feet of walk-out stairs at the 3'-6" end of the pool.
 - 7. The pool shall have an ADA compliant battery-operated lift capable of lifting up to 400pounds as a primary means of access. A double set of handrails at the walk-out stairs shall provide the code required secondary means of ADA access.
 - 8. Recessed steps and in-pool ladders shall be provided around the pool to provide egress as required by California Building Code Chapter 31B.
 - 9. The swimming pool shall be equipped with underwater lights suitable for night swimming and night competitions.
 - 10. The eight-foot-wide pool lane configurations shall be marked with twelve-inch-wide markings using non-slip floor tile in the 25-yard direction throughout the entire pool. Lane markings must comply with the competitive regulatory bodies listed above for both swimming and water polo.
 - 11. The pool shall have an expected operating water temperature of 80 to 82 degrees Fahrenheit.
 - 12. The pool shall have infrastructure, conduits, junction boxes and electrical circuits to support both swimming and water polo timing systems and scoreboard.
 - 13. The swimming pool shall have concrete pedestal diving boards.

14. The competition pool shall be equipped with a timing system and score board capable of serving both the long course and short course competitive lanes. The timing system shall be capable to support touch pads, scoreboard, water polo shot clocks for a complete system to support swim meets and water polo games.

POOL DECK DESIGN GUIDELINES AND REQUIREMENTS

- A. The pool deck shall be a natural-colored concrete with a medium broom finish. Deck samples shall be constructed to demonstrate a medium broom finish for the County to review and approve. Such samples shall remain at the job site to serve as a quality control verification.
- B. The pool deck concrete shall have a minimum 4,000 psi rating and shall incorporate a water proofing additive to protect against chloride intrusion.
- C. The pool deck shall have steel reinforcing and be engineered to support maintenance trucks and other traffic. The deck shall be provided with adequate expansion joints and control joints.
- D. The pool deck shall slope away from the pool with a 1% to 2% slope to appropriate slot drain systems in accordance with California Building Code, Chapter 31B. The deck slopes shall also be complaint with ADA path of travel requirements.
- E. The deck slot drain shall be constructed to prevent closing of the slot and shall provide cleanouts at all changes of directions.
- F. The pool deck shall have anchors for deck equipment as required to meet all programmatic needs.
- G. The pool deck shall have tiled depth and safety markers as required by CBC, Chapter 31B.
- H. The pool deck area shall be provided with safety signs as required by CBC, Chapter 31B.
- I. The pool deck shall be provided with domestic water hose bibbs as required by CBC, Chapter 31B.
- J. The pool deck shall be provided with convenience-electrical outlets on all four sides of the pool minimum.
- K. The pool area shall be enclosed with an approved fencing in compliance with CBC, Chapter 31B.
 - 1. Pool equipment safety signs as required by code.
 - 2. A robotic pool cleaner suitable for 40-meter pool applications.
 - 3. A portable vacuum with commercial pool vacuum head.
 - 4. Twelve (12) Racing Platforms, KDI Paragon, Competitor style track start racing platforms.
 - 5. Racing lane reels suitable for a complete set of lanes lines for both pools, swimming and water polo fields of play.
 - 6. Racing lane reel covers.

- 7. Pool covers systems complete with reels and reel covers. Pool covers shall have a maximum panel width of 15-feet. Pool cover reels shall have a maximum two 75-foot panels per tube.
- 8. Backstroke pennants suitable for the 25-yard course. An intermediate 25-yard system shall be provided to allow for the simultaneous use of the diving boards and the 25-yard lanes without obstructions.
- 9. Two (2) Guard chairs six feet tall.

SWIMMING POOL EXCAVATION

A. The swimming pools shall be machine excavated and hand trimmed, where permitted by soil conditions. If soil conditions are not suitable for using the excavation as a form, pool shall be over excavated and formed (refer to requirements of Section 131102, Swimming Pool Concrete). All excavation, trenching and backfilling shall conform to OSHA and applicable local safety requirements.

SWIMMING POOL CONCRETE

- A. In addition to complying with all local codes and regulations, concrete formwork will comply with pertinent recommendations contained in "Recommended Practice for Concrete Formwork," Publication ACI 347-78 of the American Concrete Institute.
- B. In addition to complying with all local codes and regulations, concrete reinforcement will comply with pertinent recommendations contained in "Manual of Standard Practice for Detailing Reinforced Concrete Structures," Publication ACI 315-74 of the American Concrete Institute.
- C. In addition to complying with all local codes and regulations, cast-in-place concrete will comply with pertinent recommendations contained in "Structural Concrete for Buildings," Publication ACI 301-72 of the American Concrete Institute. Compressive strength shall be 3,000-PSI minimum at 28 days.
- D. The swimming pool deck shall be a natural-colored concrete with a minimum a medium broom finish. The deck concrete shall be a minimum 4,000-psi concrete and provided with a waterproof additive.

SWIMMING POOL SHOTCRETE

A. In addition to complying with all local codes and regulations, pneumatically placed concrete will comply with American Concrete Institute Standard ACI 406, and recommendations contained in "Gunite and Shotcrete," brochure G-84 as published by the Gunite Contractors Association, Sylmar, CA. Compressive strength shall be 3,000-PSI minimum at 28 days. Both pools shall have deep competition gutters with the pool deck cantilevered over the top of the gutter.

SWIMMING POOL CERAMIC TILE

- A. In addition to complying with all local codes and regulations, installation of ceramic tile will comply with pertinent recommendations contained in "2021 Handbook for Ceramic Tile Installation," of the Tile Council of America. Swimming Pool tile requirements shall include the following:
 - a. Waterline Face Tile:
 - i. Material: All waterline face tile shall be glazed ceramic tile (Group III standard).
 - ii. Size: 6 x 6 inches.
 - iii. Color: 'Sky Blue'.
 - b. Gutter Cap Tile:
 - i. Material: All gutter cap tile shall be glazed ceramic tile (Group III standard).
 - ii. Size: 2-1/2 x 6 inches
 - iii. Color: 'Sky Blue'.
 - c. Lane Line / Target Tile / 4'-6" Depth Tile:
 - i. Material: Group 3 quality, frost proof unglazed ceramic mosaic tile with absorption rate of less than 1%.
 - ii. Size: 1 x 1 inches.
 - iii. Color: 'Black'.
 - d. Depth Marker Tile (At Cantilever Deck Face):
 - i. Material: All depth marker tile shall be glazed ceramic tile.
 - ii. Size: 4-1/4 x 4-1/4 inches.
 - iii. Color: 'Sky Blue' with Black silk screen numbers.
 - iv. Trim: Furnish trim pieces as indicated on the Drawings.
 - e. Depth / Caution Marker Tile (at pool deck):
 - i. Material: Group 3 quality, frost proof unglazed ceramic mosaic tile with absorption rate of less than 1%.
 - ii. Size: 1 x 1 inches.
 - iii. Color: 'Black' letters and numbers on, 'White Field'.
 - f. Trim Tile (on underwater steps and benches):
 - i. Material: Group 3 quality, frost proof unglazed ceramic mosaic tile with absorption rate of less than 1%.
 - ii. Size: 1 x 1 inches, with S-812 quarter round. Color: 'Black'.
 - iii. Size: 2 x 6 with integral quarter round. Color: Black, non-slip.
 - g. "No Diving" Tile (at pool deck):
 - i. Material: Frost proof unglazed non-slip ceramic mosaic tile with absorption rate of less than 1% as manufactured by Dal-Tile or approved equal.
 - ii. Size: 6 x 6 inches.
 - iii. Color: International "No Diving" symbol over white background. I 'White' field.

SWIMMING POOL PLASTER

A. Swimming pool plaster shall be designed to comply with the published standards of State and Local Health Departments, as well as conforming with requirements of applicable portions of most current edition of the "Technical Manual," National Plasterers Council, Mission Viejo, California. The swimming pool plaster shall be an upgraded plaster with a five-year warranty.

- a. Color
 - i. All swimming pool plaster shall be white in color. Wet Edge Technologies shall be Luna Quartz® "Polar White". Wet Edge Technologies shall be Altima® "White". Pebble Technology shall be Pebble-Fina® "Classico". Contractor to obtain written approval on selected pebble color from the local Health Department prior to installation. Submit cut sheet, color sample and written approval for review by Architect and Owner
- b. Water
 - i. Water for swimming pool plaster shall be clean and free from injurious amounts of acid, alkali, and organics.

SWIMMING POOL EQUIPMENT

- A. All equipment must be NSF listed and in accordance with the requirements of the county environmental health department.
- B. Safety equipment, maintenance equipment, pool fittings, decks and recreation equipment shall be installed in strict accordance with California Building Code, Chapter 31B, California Health and Safety Code, Title 22, and as required by Los Angeles County Environmental Health Department regulations and the manufacturer's published recommendations, anchoring firmly and securely for long life under hard use.
- C. Swimming pool mechanical equipment shall be installed in strict accordance with pertinent codes and regulations and the manufacturer's published recommendations. Swimming pool mechanical equipment shall not be sole-sourced requiring the staff to only work with a single supplier. Mechanical equipment shall conform to the following design criteria:
 - a. Circulation pumps shall be horizontally mounted end suction centrifugal pumps, bronze fitted, stainless steel shaft, fuse coat epoxy on all wetted surfaces. Motors shall be open drip proof, high efficiency (75-80% minimum), 1,740 or 1,140 RPM. The circulation pump motors shall be controlled with variable speed drive systems. A Danfos brand VFD is preferred by the staff. Circulation pump shall be sized to provide not less than a 6-hour turnover of pool water volume with a dirty filter.
 - b. Filtration system shall be hi-rate sand with a flow rate not to exceed 15 GPM per square foot of filter area. Filtration systems shall be sized to meet or exceed local health department requirements for turnover of pool volume. Filtration systems shall incorporate the use of microprocessor control for automated backwashing based upon pressure differential, with digital readouts for water temperature and flow rate.
 - c. Pool water heating system shall incorporate the use of Lochinvar or Raypak natural gas fired pool heaters, and shall be furnished with electronic ignition, integral recirculating pump, and cupro-nickel heat exchanger. The pool heaters shall be condensing boilers with up to 98% thermal efficiency.
 - d. Chemical treatment system shall utilize sodium hypochlorite as the primary oxidant. The oxidant feed system shall be capable of providing a constant in-pool chlorine residual of 1 10 PPM. The pH shall be controlled to a reading of 7.2 7.4 through the utilization of carbon dioxide and muriatic acid. Both chemical feed systems shall be automatically controlled by a single chemical controller with the capacity of monitoring and continually adjusting ORP, PPM, and pH. Chemicals shall be stored in double-contained polyethylene tanks with vapor-proof connections and seismic restraints.

e. The pool mechanical and chemical systems shall be controlled by an integrated filter/chemical controller with remote ethernet capabilities. The staff prefers the Becs System 7 controller. An independent controller is required for each pool.

SWIMMING POOL MECHANICAL

- A. Mechanical piping work shall be performed in accordance with the applicable editions of all National, State and local codes, laws, regulations and ordinances, including the following: Chapter 31B of the California Building Code (CBC); Uniform Plumbing Code (UPC); Uniform Mechanical Code (UMC); Occupational Safety and Health Administration (OSHA); American National Standards Institute (ANSI); American Society for Testing and Materials (ASTM); American Waterworks Association (AWWA); and the American Welding Society (AWS).
- B. PVC pool piping shall be Schedule 40 for underground use and Schedule 80 for above ground use.

SWIMMING POOL ELECTRICAL

- A. Electrical work shall be performed in accordance with the applicable editions of all National, State and local codes, laws, regulations and ordinances, including Chapter 31B of California Building Code (CBC); National Electrical Code (NEC), National Fire Protection Association (NFPA), and the Occupational Safety and Health Administration (OSHA).
- B. Electrical equipment shall be rated at required by code for use in swimming pool mechanical rooms and chemical rooms.

MECHANICAL / PLUMBING / FIRE SPRINKLER NARRATIVE

OPTION A

This option consists of the following scope of work:

- Renovation of existing Building H (9,455 sqft).
- Renovation of existing Building K Locker Room Area (8,624 sqft).
- New construction of Buildings Q & R (modular construction), containing stadium ticket booth, stadium concessions and associated storage spaces, and stadium toilet room spaces (1,000 sqft).
- New construction of Building S, containing aquatics toilet rooms, aquatics concessions and associated storage, and aquatics pool equipment spaces (2,241 sqft).

Option A - Mechanical

- Existing Building H
 - Replace (3) existing 7.5 ton rooftop packaged gas/elec AC Units with new, in like kind, at existing locations. Existing ductwork below roof, exposed in conditioned spaces, shall remain in place for re-use. New packaged heat pump units shall include economizers with modulating power exhaust modules.
 - Add (1) new 1.5 ton ductless split system heat pump unit to provide conditioning for new 265 sqft Office/Conference space.
 - Add (4) new roof exhaust fans to provide mechanical ventilation for new Weight Storage, Pool Storage, Wrestling Storage, and Cheer Storage spaces.
 - Provide and install new DDC controls for all new mechanical equipment.
- Existing Building K Locker Room Area
 - Replace (1) existing 5 ton rooftop packaged gas/elec AC Unit with (2) new 3 ton rooftop packaged gas/elec AC Units, to provide conditioning for new enlarged team room floor plan layout. Existing ductwork shall be removed in its entirety. Install new ductwork and diffusers/grilles for (2) new 3 ton AC Units. New packaged heat pump units shall include economizers with modulating power exhaust modules.
 - Replace (2) existing 400 mbh input rooftop gas fired Heat/Vent Units with new, in like kind, at existing locations. Existing ductwork below roof, exposed in conditioned spaces, shall remain in place for re-use.
 - Replace (2) existing 4700 cfm roof mounted Exhaust Fans with new, in like kind, at existing locations. Existing ductwork below roof, exposed in conditioned spaces, shall remain in place for re-use.
 - o Add (2) new roof mounted exhaust fans for new single toilet room floor plan layout.
 - Add (2) new 1.5 ton ductless split system heat pump units to provide conditioning for new Lounge/Wellness spaces.
 - o Provide and install new DDC controls for all new mechanical equipment.

- New Buildings Q & R
 - Provide and install (1) 1.5 ton ductless split system heat pump unit to provide conditioning for stadium ticket booth space.
 - Provide and install (1) 2.5 ton multi-zone ductless split system heat pump unit to provide conditioning for stadium concessions space, and associated storage space.
 - Provide and install (2) 450 cfm roof mounted exhaust fans to provide mechanical ventilation for stadium gang toilet rooms.
 - o Provide and install DDC controls for all mechanical equipment.
- New Building S
 - Provide and install (1) 2 ton multi-zone ductless split system heat pump unit to provide conditioning for aquatics concessions space, and associated storage space.
 - Provide and install (2) 350 cfm roof mounted exhaust fans to provide mechanical ventilation for aquatics gang toilet rooms.
 - Provide and install (2) 70 cfm roof mounted exhaust fans to provide mechanical ventilation for aquatics single toilet rooms.
 - Provide and install DDC controls for all mechanical equipment.

Option A – Plumbing

- Existing Building H
 - Disconnect and reconnect existing gas and condensate piping for (3) new 7.5 ton rooftop packaged gas/elec AC Units, at existing locations.
 - Provide and install condensate piping for (1) new 1.5 ton ductless split system heat pump unit, at new location.
- Existing Building K Locker Room Area
 - Disconnect and reconnect exiting gas and condensate piping for (1) new 3 ton rooftop packaged gas/elec AC Unit, at existing demo'd 5 ton AC Unit location.
 - Provide and install new gas and condensate piping for (1) new 3 ton rooftop packaged gas/elec AC Unit, at new location.
 - Disconnect and reconnect existing gas piping for (2) new 400 mbh input rooftop gas fired Heat/Vent Units, at existing locations.
 - Provide and install condensate piping for (2) new 1.5 ton ductless split system heat pump units, at new locations.
 - Demo all existing toilet room plumbing fixtures and piping in their entirety at Southeast corner of building. Cap and abandon existing piping behind new architectural finishes to remain.
 - Demo all existing locker room gang toilet room and shower plumbing fixtures and piping in their entirety. Prepare for new gang toilet room layout at this location.
 - o Provide and install new plumbing fixtures and piping for new gang toilet room layout.
 - Demo all existing locker room modular lavatory fixtures in their entirety. Prepare for new single toilet room layout at this location.
 - o Provide and install new plumbing fixtures and piping for new single toilet room layout.
- New Buildings Q & R
 - Provide and install condensate piping for (1) 1.5 ton ductless split system heat pump unit.
 - Provide and install condensate piping for (1) 2.5 ton multi-zone ductless split system heat pump unit.
 - Provide and install plumbing fixtures and piping for concessions, toilet rooms, and custodial layout.

- Provide and install point-of-use instantaneous electric domestic water heater(s) at concessions space.
- Provide and install electric storage tank type domestic water heating system for toilet room and custodial spaces.
- New Building S
 - Provide and install condensate piping for (1) 2 ton multi-zone ductless split system heat pump unit.
 - Provide and install electric storage tank type domestic water heating system for aquatics exterior showers layout.
 - Provide and install plumbing fixtures and piping for aquatics toilet rooms, aquatics custodial, and aquatics exterior showers layout.
 - Provide and install sanitary sewer piping as required for pool equipment room layout.

Option A – Fire Sprinklers

- Existing Buildings H & K
 - Per the matterport model, these existing buildings are currently un-sprinklered, and therefore no fire sprinkler scope of work would be required as part of our renovations.
- New Buildings Q, R & S
 - Provide and install a wet pipe automatic fire sprinkler system for each new building, with each building having its own dedicated fire sprinkler riser.

OPTION B

This option consists of the following scope of work:

- Complete demolition of existing Building H (9,455 sqft).
- New construction of replacement Building H, containing weight room, wrestling room, dance room, aquatics toilet rooms, and aquatics concessions and associated storage spaces (9,242 sqft).
- Renovation of existing Building K Locker Room Area (8,624 sqft).
- New construction of Buildings Q & R (modular construction), containing stadium ticket booth, stadium concessions and associated storage spaces, and stadium toilet room spaces (1,000 sqft).
- New construction of Buildings S & T, containing aquatics pool equipment, and aquatics pool storage spaces (2,510 sqft).

Option B - Mechanical

- New Building H
 - Provide and install (3) 10 ton rooftop packaged heat pump units, to provide conditioning for weight room, wrestling room, and dance room spaces. Packaged heat pump units shall include economizers with modulating power exhaust modules.
 - Provide and install (1) 2 ton multi-zone ductless split system heat pump unit to provide conditioning for aquatics concessions space, and associated storage space.
 - Provide and install (2) 350 cfm roof mounted exhaust fans to provide mechanical ventilation for aquatics gang toilet rooms.
 - Provide and install (2) 70 cfm roof mounted exhaust fans to provide mechanical ventilation for aquatics single toilet rooms.

- Provide and install DDC controls for all mechanical equipment.
- Existing Building K Locker Room Area
 - Same as Option A.
- New Buildings Q & R
 - Same as Option A.
- New Buildings S & T
 - Provide and install roof exhaust fan to provide mechanical ventilation for pool storage space.

Option B - Plumbing

- New Building H
 - Provide and install condensate piping for (3) 10 ton rooftop packaged heat pump units.
 - Provide and install condensate piping for (1) 2 ton multi-zone ductless split system heat pump unit.
 - Provide and install electric storage tank type domestic water heating system for aquatics exterior showers layout.
 - Provide and install plumbing fixtures and piping for aquatics concessions, aquatics toilet rooms, aquatics custodial, and aquatics exterior showers layout.
- Existing Building K Locker Room Area
 - Same as Option A.
- New Buildings Q & R
 - Same as Option A.
- New Buildings S & T
 - o Provide and install sanitary sewer piping as required for pool equipment room layout.

Option B – Fire Sprinklers

- New Building H
 - Provide and install a wet pipe automatic fire sprinkler system, with its own dedicated fire sprinkler riser.
- Existing Building K Locker Room Area
 - Per the matterport model, this existing building is currently un-sprinklered, and therefore no fire sprinkler scope of work would be required as part of our renovations.
- New Buildings Q, R, S & T
 - Provide and install a wet pipe automatic fire sprinkler system for each new building, with each building having its own dedicated fire sprinkler riser.

ELECTRICAL ENGINEERING NARRATIVE

ELECTRICAL SYSTEMS - GENERAL

All electrical, lighting, and signal systems shall be designed in accordance with all applicable regulations, codes and standards, including the latest edition of the National Electrical Code, State of California Title 24, local municipal codes and regulations, local utility company regulations and requirements, and the latest District Standards. These include:

2022 California Building Code 2022 California Electric Code 2022 California Energy Code (Title 24, part 6) 2022 California Fire Code 2022 California Green Building Code Americans with Disabilities Act (ADA) San Rafael City Schools District Standards

GENERAL SCOPE OF ELECTRICAL WORK

Two options are being explored for the renovation / reconstruction of the Aquatic facility:

- Option A: Replace Pool. Full renovation of buildings H and south portion of building K. Replacement of the Pool Equipment building. Addition of Restroom / Concessions buildings. New Pool Storage and Pool Equipment buildings.
- Option B: Replace Pool. Demo and all new building H. Renovation of south portion of building K. Addition of Restroom / Concessions buildings.

New Pool Storage and Pool Equipment buildings.

For both options, the Aquatic facility shall be served from the existing recently upgraded main campus 2500A, 480V electric service located just West of the project area.

Existing campus telecom, clock/speaker, and fire alarm system connections shall be extended from the existing systems at the main building I to the Aquatic facility, to tie-in each system to the existing campus systems.

Electrical demo work will be required at the pool equipment building, as well as buildings H and K (for full renovation) or complete demo of building H (for option B).

As part of the general scope items listed above, the overall scope of the electrical work for the facility shall include all materials, labor, equipment, services, and incidentals necessary to install the electrical work complete, including but not limited to the following:

- 1. New 400A, 277/480V, 3-Phase, 4-Wire indoor rated Distribution Panel and feeder at the Pool Equipment room. The new distribution board shall feed all Pool related loads and Building H loads.
- 2. Existing 225A, 277/480V, 3-Phase, 4-Wire feeder to existing building K, to remain. This will also serve the renovated portion of building K.
- 3. Low Voltage system extensions:
 - a. Telecommunications System (fiber and copper from MDF).
 - b. Clock/Speaker System (copper from MDF).
 - c. Fire Alarm System (fiber from main Siemens FA system at Building I.
- New interior and exterior LED lighting and controls, including exterior lighting for the Pool Deck. All Pool Deck lighting shall be by Musco or similar, to be powered from the new 400A pool distribution system.
- 5. Mechanical and pool equipment power connections, including fuses, motor rated switches, motor starters (where required) and disconnects.

ELECTRICAL DISTRIBUTION SYSTEM

Remove the existing 100A, 480V feeder to the existing Pool Equipment building (from the campus main electric service).

Remove the existing 225A, 480V feeder to the existing Building H (from the campus main electric service).

Maintain the existing 225A, 480V feeder to the existing Building K (from the campus main electric service).

Provide a new 400A, 277/480V, 3-Phase, 4-Wire feeder and Distribution Panel at the Pool Equipment building (fed from the campus main electric service).

Additional branch distribution equipment required for the project will include:

Pool Equipment Building:

480V, 3-Phase, 40HP pool pump connection (52 Amps).

- (1) 75 kVA dry-type transformer for 120/208V loads at Pool.
- (1) 225 Amp panel (120/208V, 3-Phase, 4-Wire) Misc. Pool power loads.
- (1) 100 Amp branch panel (120/208V, 3-Phase, 4-Wire) Lighting loads (Pool Deck).
- (1) 225 Amp panel (120/208V, 3-Phase, 4-Wire) Pool Equipment 120V loads.

Building H:

- (1) 225 Amp panel (277/480V, 3-Phase, 4-Wire) Building H (fed from 400A Pool DP).
- (1) 75 kVA dry-type transformer for 120/208V loads.

(1) 225 Amp panel (120/208V, 3-Phase, 4-Wire) – Misc. power loads.

Solar and Battery System tie-in, as listed under Photovoltaic System and Battery Energy Storage System below.

Modular Restroom / Concessions:

(1) 150 Amp (120/208V, 3-Phase, 4-Wire) – Modular building single point feeder connections (for power panel by modular manufacturer).

Power for all loads shall be fed from the above noted branch panel boards with conduit and wire homeruns and branch runs. No MC cable.

All pool related electrical connections (in-pool lighting, chemical controllers, pool pump(s), scoring systems, etc) shall be designed as part of the pool design drawings. The site contractor shall provide feeder connections to the Pool Panel and pumps as required for proper service.

PHOTOVOLTAIC (PV) SYSTEM

Per California Title 24, for new construction of School buildings, the new building H option will require a roof mounted solar photovoltaic (PV) power system. The new photovoltaic system will be tied-in at the new building, on the load side of the 225A, 480V building panel.

The PV system will not be required or included if building H is renovated (not required by code).

Assuming the new building option, the <u>minimum</u> kW system size of the PV system shall be based on the 2022 Title 24 Energy Code section 140.10(a) for solar photovoltaic requirements for school occupancies, based on the square footage size of the building design.

Based on a preliminary new construction area of 9,300sf, the <u>minimum</u> required PV system size will be 15.5 kW. This would require roughly 1,200sf of roof area (based on 14 watts/sf coverage).

The PV system shall include roof mounted solar PV modules (minimum 420 watt per module), with microinverters or string inverters. Provide edge of roof set-backs of at least 4 feet and at least 3 feet from any peaks. System size may be higher than the minimum required by code (to be determined in design development phase).

BATTERY ENERGY STORAGE SYSTEM (BESS)

Per California Title 24, for new construction of School buildings, the new building H option will require a BESS system. The new BESS will be tied-in at the new building, on the load side of the 225A, 480V building panel.

The BESS shall be grid-connected to provide energy arbitrage each day (i.e. store energy generated by solar or purchased from the grid at non-peak times and used from the batteries at peak times – to avoid grid purchase).

The BESS will not be configured for microgrid operation (not required by code).

The <u>minimum</u> kWH battery energy storage size shall be based on the 2022 Title 24 Energy Code section 140.10(b) for battery storage system requirements for School occupancies, based on the minimum PV system kW requirements noted above.

This minimum kWH storage size is a required system for new construction by the CA Energy Code and is not provisions only.

Per Title 24 Energy Code, the minimum BESS system size shall be 7 kW / 30 kWH for the new building H occupancy.

The BESS shall include a grid-forming inverter to monitor and control the energy storage functions.

SIGNAL DISTRIBUTION SYSTEM

The Aquatic facility shall be fed with new underground telecom and clock/speaker system raceways to (2) new IDF's (from the existing sources at Admin. Building I and Classroom Building M):

IDF-H (at new or renovated building H).

IDF-K (at renovated building K).

The new IDF's shall include wall mounted, 4' high, fully enclosed, swing-out style telecom cabinets to house network equipment and workstation patch panels for outgoing station cabling in each building.

See Data / Voice System and Clock / Speaker System sections below for additional information.

LIGHTING

New interior and exterior lighting shall utilize LED lamp sources. The lighting shall be designed in accordance with California Title 24, Part 6, architectural design criteria, and the recommendations of The Illuminating Engineering Society (IES) of North America.

Restrooms shall be lit with linear LED extruded aluminum fixtures mounted in continuous rows on walls and ceilings, with U.V.-stabilized opal white polycarbonate wrap-around lens, providing general lighting.

Locker Rooms shall be lit with surface mounted, high impact resistant, lensed LED fixtures, mounted in rows to illuminate locker and bench.

Team, Weight, Mat, Wrestling, Cheer, and Dance Rooms, shall be lit with LED linear pendant mounted luminaires, in continuous rows to provide even illumination.

Storage, mechanical, electrical, and telecom rooms shall have surface or chain mounted LED strip lighting provided with protective wire guards.

The building entries shall have wall or canopy mounted LED fixtures to match the recent adjacent Gymnasium building.

Pool Deck lighting and controls shall be LED and as designed and provided by Musco or similar. The site contract shall include power to each pole, through a control cabinet provided by Musco.

All exterior and pole mounted lighting to be sharp cut-off and aimed away from the property lines. All spill light across the property lines shall be limited per CA Title 24 requirements.

EMERGENCY LIGHTING

Emergency lighting shall be provided as part of the Pool Deck lighting design at the Pool Deck for the bleachers and pool deck path of egress.

Power for emergency fixtures shall be fed from a central battery inverter power supply, to provide 90 minutes of emergency egress lighting. The inverter shall be located in Pool Equipment building (minimum 3 kVA rating).

Additional emergency designated fixtures in new or renovated rooms with higher than 49 occupant load shall be controlled with UL924 rated control modules, to switch the EM designated fixtures in parallel with the normal designated fixtures. UL 924 modules shall serve to automatically energize the EM designated fixtures to full light output upon loss of the normal power system.

LED exit signs shall be provided at all rooms or areas (i.e. Pool Deck) that require (2) exits by code (with more than 49 persons).

LIGHTING CONTROLS

The lighting control system products shall be as manufactured by nLight, to match existing campus lighting controls.

All interior spaces shall utilize wall or ceiling mounted dual technology (infrared and ultra-sound) digital occupancy motion sensors to provide Title 24 required automatic lighting shut-off.

The electric room and pool utility room shall <u>not</u> utilize occupancy motion sensors due to the inherent danger of accidental lighting turn-offs in a room where detailed repair work may be carried out. These spaces shall have regular switches only.

Each space with motion sensors shall be provided with local digital switches and lighting system digital room controllers to allow for local and Title 24 required control.

Other small office, storage, and misc. use rooms, under 250 square feet, shall be provided with wall switch type occupancy sensors with dual level control per Title 24.

All exterior lighting shall be on a dedicated relay panel with astro-dial timeclock controls, per CA Title 24. This excludes the Pool Deck lighting, which will be controlled manually by the Pool Deck Lighting system.

Exterior wall mounted luminaires rated over 30 watts and pole mounted luminaires rated over 75 watts shall be provided with additional motion sensing controls to reduce the light output when no motion is sensed nearby (per CA Title 24 requirements). This requirement shall not apply to the pool deck lighting, as this system is for dedicated sports use and does not need automatic energy savings reduction.

DATA / VOICE SYSTEM

As noted under Signal Distribution System above, the buildings shall be provided with new telecom cabinets for telecom equipment and fiber and copper patch panels.

New voice and data communications system infrastructure shall be provided for building H and K, fed from the existing campus MDF at Classroom Building M.

The voice and data systems shall support voice over copper, as well as Voice over IP capabilities. Data system transmissions will be rated to handle up to 10GB data communications over single-mode fiber, with Category 6A UTP rated copper station cabling for all local wall and wi-fi jack connections.

All wi-fi equipment shall be POE (power over Ethernet) and will not require additional electrical outlets adjacent to the jack locations.

All fiber to be fully terminated on fiber patch panels (connectors to match existing District standard). Copper to be fully terminated on 110 style blocks, with protection blocks at building entry point.

The District shall furnish all active components, including hubs, routers, switches, servers, projectors, wi-fi routers, and the connection and configuration of the computers and telephone hand-sets to the voice/data system wiring infrastructure.

The entire voice/data system shall be installed and tested to meet EIA/TIA Category 6A UTP requirements.

New individual voice/data outlets and Category 6A UTP station cables shall be routed from each voice/data jack location to the new IDF cabinets. All station cables to be terminated on modular Category 6A UTP patch panels for cross-connecting to the District network systems.

All data cabling to be run in conduit (within walls) or above accessible ceilings on j-hangars (in concealed areas). Minimum 1" conduits to be provided from wall boxes up to nearest accessible ceilings with bushed ends.

Fire rated sleeves to be provided above ceilings at all fire rated partitions. Conduit to be provided to bridge any inaccessible locations.

CLOCK / SPEAKER SYSTEM

The campus has an existing Bogen Clock/Speaker system. All new devices shall be compatible with the existing system head-end equipment located at the Admin Building.

Two new 25-pair backbone multi-pair copper cables shall be extended from the existing head-end equipment at Classroom Building L to Building H and K IDF's.

New clock /speaker terminal cabinets shall be provided at the new IDF's.

New clock branch wiring (3#12) and speaker wiring (2#16 shielded) to be extended from the new terminal cabinet to the new device locations in the new and renovated areas.

New wall mounted clocks and speaker shall be provided in the new and renovated areas in combination enclosures.

Clocks shall be 12" round analog (white background with black lettering).

Speakers to be 8" round with flat baffle.

New locations shall utilize flush mounted combination enclosures at each location.

FIRE ALARM SYSTEM

The existing campus fire alarm system is a Siemens XLS system with voice capability. The system shall be extended to the new and renovated areas with a remote Siemens XLSRV voice amplifier.

The system shall be fully automatic with speaker/strobe alarm notification devices and pre-recorded message capability.

The system shall be provided with a Fire Alarm Power Expander panel for strobe notification circuits.

All new Fire Alarm System components shall be State and Local Fire Marshal approved and shall match the existing campus system.

All notification wiring shall be Class B throughout with full emergency battery backup as required by code.

Duct detectors shall be provided for any supply fans rated 2,000 CFM and above, installed by Mechanical, connected complete by Electrical.

Connections for fire sprinkler flow switches, valve supervisory switches, and any new PIV valves (provided and installed by the Sprinkler Installer) shall be provided by Electrical.

All fire alarm system wiring shall be in conduit, 3/4" minimum.

Speaker notification devices shall be installed throughout each area to provide audible fire alarm voice notification in all areas as required by code, including exterior pool deck areas.

Strobe light notification devices shall be installed in all areas as required by code, including activity spaces (team rooms, dance, weight, etc.), restrooms, and any common areas.

Smoke detectors shall be provided for complete building area coverage in all spaces, minimum one in each room or space and at least (1) per 900 square feet in larger areas.

If the spaces above new accessible ceilings contain combustible materials and these spaces are NOT provided with fire sprinkler coverage (above ceilings), additional above ceiling heat detectors shall be provided in these areas as required by code.



SRCS Terra Linda HS Aquatics/PE Support 023030 Core Committee

Meeting Number: 1 Meeting Date: March 13, 2023

Attendees:Alexander Chapman (Dean of Stdnt), SRCSMarOscar Gomez (Teacher/Coach), SRCSLauErik Schoengart (Teacher), SRCSLauKaty Dunlap (Principal), SRCSBriaSteve Farbstein (Athletic Dir), SRCS

Mark Lubamersky (Teacher/Coach), SRCS Lauren Inman (Asst Principal), SRCS Laura Knauss, Lionakis Brian Bell, Lionakis

* attended via conference call

Item No.	Action	Subject/Comment
1.1	INFO	Presentation Materials are provided as an attachment to these meeting minutes.
1.2	INFO	Reference Projects Lionakis shared several reference projects to inspire the conversation with committee members.
1.3	INFO	Terra Linda Preliminary Design Lionakis shared the preliminary design work that was presented as part of the project interview to begin discussion about design direction.
1.4	LIONAKIS	Terra Linda Site Pool Feedback from the committee relative to the site layout included:
		 Lionakis received pool design standards Interested in bleacher/amphitheater seating at south end of pool deck. Would like to see this pushed as far south as possible to increase pool deck area. Would like to ensure shaded seating at bleacher area. Shade on deck should be temporary type. Entrance to pool comes from covered walkway at northeast corner of pool deck; if "Athlete's Way" at west end is developed, it will need to be activated. Significant utilities exist in proposed Athlete's Way Discussion regarding fire access road that is at south of current pool area. Lionakis to meet with local fire to confirm path of revised access road. Would like to see new pool equipment room to include restrooms for direct access from pool deck, along with small concession space.
1.5	LIONAKIS	Athletics Building: Program The committee provided the following on the Athletics Building. There was discussion about renovation versus replacement of the existing building; the three primary program elements are: Weight Room, Wrestling Room and Dance/Cheer space.
		 Weight Room should be a focal point. Discussion to place Weight Room at west end of building with stacking glass doors that open onto Athlete's Way. Wrestling Room provides for a relatively small extracurricular program. Should be designed around wrestling mat size, but also to allow for future school-day use.

Item No.	Action	Subject/Comment
		 Dance/Cheer Currently no dance program on campus; space is predominantly cheer, requiring high ceilings and integrated mat or spring floor.
1.6	LIONAKIS	Existing Athletics Building Group discussed potential acceptable changes to existing building if it remains. Lionakis to evaluate the existing structure to determine structural implications of proposed program.s
		 Fenced Storage at south of building can be removed Boiler room can be reclaimed Restrooms would be desirable near these athletic spaces.
1.7	LIONAKIS	Locker Rooms Renovation of existing locker rooms was discussed, with the following thoughts:
		 Existing locker "quantity" is acceptable, with 100 dress lockers as targets. Suggestion to reclaim room labeled "Fitness" and adjacent restrooms as two equal team rooms. This will allow removal of team rooms in existing locker room for expansion of locker rooms Showers are not needed in either locker room Private changing rooms are desirable. Committee liked some of the graphics to improve the aesthetic quality of the locker rooms
1.8	LIONAKIS	Next Steps Design team to conduct technical site visit to evaluate the existing buildings and site.

These notes represent Lionakis' understanding of the discussion and events of the meeting. These notes form the basis of future work. Should there be any incomplete or inaccurate information contained herein, please notify this office immediately for appropriate action. This report, if not corrected within five (5) days of receipt, shall be acknowledged as an accurate report of the events that took place at this meeting.



SRCS Terra Linda HS Aquatics/PE Support 023030 Core Committee

Meeting Number: 2 Meeting Date: April 18, 2023

Attendees: Alexander Chapman (Dean of Stdnt), SRCS Patti Bender (Parent), SRCS Jacyln Loberg (Water Polo), SRCS Geoff Peters (Water Polo), SRCS Erik Schoengart (Teacher), SRCS Katy Dunlap (Principal), SRCS Steve Farbstein (Athletic Dir), SRCS Barbara Snekkevik (Parent), SRCS Kristin Erickson (Parent, Aquatics), SRCS Nathan Adrian (Local Swim Team) Bill Savidge, K12 School Facilities Will McManus, Greystone West Laura Knauss, Lionakis Claire Seger, Lionakis Dennis Berkshire, Aquatics Design Group

* attended via conference call

Item No.	Action	Subject/Comment
2.1	INFO	Presentation Materials are provided as an attachment to these meeting minutes.
2.2	INFO	Terra Linda Preliminary Design Lionakis shared the preliminary design work that was presented at Core Committee meeting #1
2.3	LIONAKIS	Terra Linda Existing Conditions Lionakis shared the existing site and building constraints, which included:
		 A structural analysis of existing Building H revealed that there a is little opportunity to open up the existing building with roll-up doors as the Committee wanted By routing the fire lane between existing Buildings P & H, the 20' clear requirement is not met. Lionakis to verify with local fire if this is an acceptable means of routing. Existing covered walkways are housing conduit runs and challenges to work around Lionakis presented Matterport 3D scan of existing campus conditions Existing basketball courts at the top of the hill are largely unused. There is a plan for a solar farm to go up there, and the area is a challenge for the site staff to monitor
2.4	LIONAKIS	 Terra Linda Site Discussion Feedback from the committee relative to the site layout included: Committee liked opportunity for restroom/concession building at stadium. Project may need to be separate/faster package to get through DSA as needed for stadium improvement project as well. If there was enough money, could be a good opportunity to resurface courts and/or change 1-3 courts to tennis, which would leave a minimum of 3 basketball courts. Could envision picnic tables at space between Buildings K and H Committee liked idea of perforated metal panel instead of mural to tie into new gym; likely would be more on the north side of Building H so that more of public could see it. New lighting system at pool will likely require CEQA

Item No.	Action	Subject/Comment
2.5	LIONAKIS	Proposed Options Lionakis presented site/floor plans and 3D model of the two proposed options. The committee provided the following feedback:
		 Restroom/lockers/shower configurations on both options met the goals of the committee Committee responded well to proposed wellness/lounge areas, team rooms, and gender neutral locker room in Building K Cheer requires 20' head clearance in the Building H replacement Committee likes outdoor connection and visibility of the weight room in Option B
2.6	LIONAKIS	Next Steps
		 Design team to refine design and get cost estimate on both options Next Committee meeting on May 30 Design and costs to go to board meeting on June 12th or 14th

These notes represent Lionakis' understanding of the discussion and events of the meeting. These notes form the basis of future work. Should there be any incomplete or inaccurate information contained herein, please notify this office immediately for appropriate action. This report, if not corrected within five (5) days of receipt, shall be acknowledged as an accurate report of the events that took place at this meeting.

MEETING MINUTES



Project:	Terra Linda High School Aquatics & PE Support
Project #:	023030
Date:	May 3 rd , 2023
Time:	2:00PM
Location:	GoogleMeet
Attendees:	Greystone: John Dilena, Will McManus
	San Rafael City Schools: Tracy Brawdy
	K12 School Facilities: Bill Savidge
	Lionakis: Laura Knauss, Brian Bell, Claire Seger

Time

Item

2:00 Grevst

Greystone / K12 School Facilities / Lionakis Check-In Meeting #1

Logistics:

- Lease Leaseback delivery method
 - Advertising by mid August, so that contractor on board by October 2023
- Single Package, no increments
- Schedule
 - o SD: May 31, 2023
 - o DD: July 31, 2023
 - o CD/DSA Submittal: October 31, 2023
 - o DSA approval by March 2024
 - Bidding by May 2024
 - Construction to begin June 2024
- Concessions/Restrooms (Building Q) to be separate package
 - **Greystone to send over Modular footprint/drawings** from San Rafael HS Track project
 - Lionakis to send proposal to Greystone for project
 - o Intended to be DSA-approved prior to Aquatics project
- Topographic & utility Surveys going to board on 5/8
- Geotech Report
 - Greystone sent Lionakis boring locations after meeting to be verified with aquatics consultant and structural engineer
- Greystone to schedule PG&E meeting
 - Lionakis to send over site plan CAD ASAP with preferred rerouting of PG&E line between Building P and pool deck/Building H
 - Lionakis sent current site CAD to begin conversation

Design Items:

- Preferable to have equipment room to the west due to chemical drop-off
 - Lionakis to discuss with Dennis (ADG) about delivery process/timing
- Need no-climb fencing around entirety of pool area
- Concessions/toilets for stadium may want to be further south to better serve the baseball field as well

Time Item

Next Steps:

- Prep for 5/30 Committee Meeting, where site scheme will be determined
 - Prepare both options with cost estimates
 - Will go to board meeting on June 12th or 14th
- Check-In Meetings: every other Wednesday @ 2PM