Pierce Joint Unified School District

P.O. Box 239 • Arbuckle CA 95912 • (530) 476-2892 • Fax (530) 476-2289

Carol Geyer, Superintendent

ADDENDUM #1

PN PHS023-03RB1 – New Competition Pool at Pierce HS

August 15, 2023

TO ALL BIDDERS:

The following changes, omissions, and/or additions to the Proposal shall apply to proposals made for and to the execution of the various parts of the work affected thereby, and all other conditions shall remain the same.

All parties of interest shall take careful note of the addendum so that the proper allowances may be made in strict accordance with the Addendum.

Bidder shall acknowledge receipt of this addendum by signing and attaching this form to the Consultant Proposal. Failure to do so may subject Bidder to disqualification.

In case of conflict between bid documents and this addendum, this addendum shall govern.

MISCELLANEOUS INFORMATION

1. The link to the geotechnical addendum letter was incorrect and has now been corrected. If you downloaded the file previously, please disregard. Correct letter is attached to this addendum.
2. Where geotechnical recommendations exceed what is indicated on the drawings the geotechnical recommendations shall apply. For example, civil drawings show pool deck to be 6" concrete over 4" aggregate base, but the geotechnical recommendation is to over-excavate 12" and provide structural fill material. The geotechnical recommendation shall apply.
3. Pool Equipment Budget is attached.

SPECIFCATION ADDS/CHANGES

1. Added model for diaper changing station to be Koala Kare KB300-SS.
2. Delete old version of Div 13 specs (dated 11/11/22).
3. Added 321313 Concrete Paving.

PLANS

1. Civil:
    a. Expected spoils is 700 CY. The District will allow for the field north of the pool site to be raised approximately 18 inches. Any additional spoils must be removed from the site by the contractor.
    b. Added pool deck construction, sheet C301. Concrete for pool deck shall be 4,000 psi min. w/ a slip-resistant, non-abrasive finish.
2. Architectural:
    a. Chain Link Fencing: Revised Details 1, 2 & 3 to include maximum post spacing and increased footing depths. Reduced fabric gauge from 6 Ga. to 9 Ga.
    b. Added signage to exterior elevation, 7/A3.1.
    c. Revised Detail 1/A9.1. Diaper Changing Station requires (6) screws, not (4).
    d. Change wall stops to floor stop at doors 101A, 102A & 104A. Add floor stop at door 103A. Delete wall stop at doors 101B, 105A, 106A & 107A. Floor stops shall be Trimco 1258M or approved equal.

Clarification Questions:

1. Where are the spec sections for divisions 310000, 320000 & 330000? Looks like they're missing from Project Manual, please provide.
    a. The Civil engineer feels that they do not need specifications. All necessary information for their work is shown on their drawings.
2. There are two spec sections for swimming pools, assuming we're to bid per the one dated 7/11/23 not the one dated 11/11/22. Please advise.
    a. Correct. Use the most recent version. Delete the older version.
3. Are all permits by owner?
    a. Permits will be paid by the Contractor as noted in the specifications.
4. Does the existing shade structure remain? Plans call for us to protect it.
    a. The existing shade structure is outside of the project scope and should not require special protection during construction activities.
5. Will you consider changing the GC change order markup on subs to 10%? 5% even doesn't cover GC general conditions.
    a. Markup will remain unchanged.
6. Is there any Landscaping included in this project?
    a. No.
7. "Hammerhead fire apparatus access road turnaound" as shown on page A1.1, isn't shown on Civil pages. Please provide civil details.
    a. Hammerhead turnaround has been removed.
8. Confirm there are to be no lock protectors, thresholds or weatherstrips at any of the exterior doors. We usually do see thresholds & weatherstrips at exterior doors.
    a. The project does not currently include lock protectors. Weatherstrip and door bottoms are called out on A2.0 and are to be provided for all exterior doors. Roll up door shall also include full perimeter weatherstripping and bottom door seal. Saddle thresholds are not shown on the door hardware schedule because doors have angle thresholds as shown in 4/A8.1.
9. Openings 105B, 106A & 107A will need some kind of astragal for these pairs of doors. Confirm these openings to have astragals.
    a. Provide Pemko 357SP with S88 and tamper-resistant through-bolt astragal or equal at each door pair.

Attachments

- Geotechnical Addendum Letter
- Pool Equipment Budget
- Spec Section 321313 Concrete Paving
- Sheet C301
- Sheet A1.4, (revised chain link fencing details)
- Sheet A3.1, (added dimensional lettering sign)

Please Note: Bidders who "no bid" items understand this is an "All or Nothing Bid." This bid will be awarded using the "Blind Bid Format" (i.e. Base bid only or base bid plus alternates).

Please confirm receipt of this addendum by date, signature this form and on bid proposal form. Contact the undersigned for any additional questions at e-mail address gparker@pjusd.com or by fax to (530) 476-2289

George Parker
Capital Projects Manager for Pierce Jt. USD

_____

Company Name

_____ _____

Signature **Date**

PIERCE HIGH SCHOOL EQUIPMENT BUDGET 06/26/2023

OWNER: PIERCE JOINT UNIFIED SCHOOL DISTRICT

ARCHITECT: SYNTHESIS PARTNERS, LLC

AQUATICS CONSULTANT: H2 ENGINEERS, INC

SECTION	QTY	DESCRIPTION	PRICE EACH	EXTENDED TOTAL
Lights	20	J & J F3W Underwater white LED pool light (120 volt, 100' cord) with Jandy large stainless steel light niche with 1" rear hub	$737.00	$14,740.00
Pool Covers	1	Thermal pool cover system, with measured panels, stainless steel storage reels and vinyl blanket protectors	$36,563.00	$36,563.00
Pump Strainer	1	Fluidtrol 8" x 5" FRP reducing pump strainer with two stainless steel baskets	$3,892.00	$3,892.00
Circ Pump	1	Paco 40957 LC end suction bronze fitted centrifugal pump close coupled to a premium efficient, TEFC 1,760 RPM, 230/460 volt, 3 phase, 20 HP motor rated at 1,000 GPM @ 60' TDH; with ScotchKote 134 fusion bonded epoxy on all interior and exterior wetted surfaces	$12,465.00	$12,465.00
VFD	1	Circulation pump variable frequency drive model SPCS020EF_ for use with BECSys7 mechanical room control system	$13,090.00	$13,090.00
Filters	1	Eko3 Systems Gen2 high rate sand filtration system with four (4) 15.7 square foot fiberglass (FRP) tanks, 8" x 6" preassembled Schedule 80 PVC influent/effluent and backwash piping manifolds, backwash sightglass with throttling valve, diaphragm backwash valves, hardware, tubing, fittings and pressure amplification system)	$72,087.00	$72,087.00
Filter Media	4	Activated Filter Media (AFM); antibacterial, water saving activated glass media	$1,120.00	$4,480.00
Heater Option #1	2	Lochinvar AQUAS APO1000N natural gas indirect fired swimming pool heating system: skid mounted 1m Btu boiler package with 1m Btu titanium heat exchanger, primary boiler water circulating pump, CPVC pool water connections and Smart System Controls; factory tested and certified ASME constructed. Includes equpment commissioning and operator training.	$53,347.00	$106,694.00
Chlorine Tank	1	ChemTainer TC5971DC 500 gallon dual wall chlorine tank with bulkhead fittings, 90 degree cam action coupler with cap and VaporLok kit	$2,580.00	$2,580.00
Chlorine Feed Pump	1	LMI SD43-88P-KSI motor driven chlorine feed pump	$3,546.00	$3,546.00
Acid Tank	1	ChemTainer TC5256DC 350 gallon dual wall acid tank with bulkhead fittings, 90 degree cam action coupler with cap and VaporLok kit	$2,306.00	$2,306.00
Acid Feed Pump	1	LMI B121-392SI acid feed pump	$1,241.00	$1,241.00
AVRS	1	Eko3 Systems model AVRS vapor recovery system: 55 gallon acid neutralization tank with fittings for PVC pipe/fittings to connect to acid storage tank; U-vent, ball valve, Vaporlok kit and hose connector. Acid storage tank pricing includes level indicator and bulkhead. Contractor to supply other piping and fittings required for connection to acid storage tank	$2,578.00	$2,578.00
Controller	1	BECSys7 mechanical room controller with HRR/ORP, pH chemical probes, temperature sensor and safety flowswitch mounted in lighted LED flowcell; LUI Ethernet communication board with EZ Connect module for BECSys LIVE! remote monitoring, mounted on a PVC backplate; Signet digital blue cap flowsensor with 8" pipe saddle and surge suppressor	$15,948.00	$15,948.00
MFV	1	EPD 8" modulating float valve	$1,419.00	$1,419.00
Fill Valve	1	ClaVal 136-01 3" fill system with ductile iron body and bronze trim, solenoid control, globe type, flanged, epoxy coated	$3,843.00	$3,843.00
Lane Lines	6	Recreonics 4-inch 75-ft with hardware kit	$551.00	$3,306.00
Lane Line Reel	1	Competitor Swim Classic Plus Stor-Lane Reel	$1,921.00	$1,921.00
Springboards	2	Duraflex 16' Maxiflex - Model B with 1-Meter Stand	$17,490.00	$34,980.00
Starting Blocks	6	Spectrum Growler Rear Step single post with anchor	$3,619.50	$21,717.00
Starting Block Covers	6	Spectrum Soft Platform cover	$412.00	$2,472.00
		GRAND TOTAL		$361,868.00

50 Goldenland Court, Suite 100
Sacramento, CA 95834
P (916) 246-5093
Terracon.com

May 19, 2023

Pierce Joint Unified School District
540-A 6th Street
Arbuckle, CA 95912

Attn: George Parker
P: (530) 788-3533
E: gparker@pjusd.com

Re: Geotechnical Engineering Report and Geologic Hazards – Addendum Letter
Pierce HS Pool Complex
966 Wildwood Road
Arbuckle, CA 95912
Terracon Project No. NB225033

Dear Mr. Parker:

Terracon prepared a Geotechnical Engineering Report and Geologic Hazards Evaluation dated January 11, 2023 (Project No. NB225033) for the subject project. Our report presented the findings of the subsurface exploration and provided geotechnical recommendations concerning earthwork and the design and construction of the proposed pool, foundations, and floor slabs for the proposed project.

We understand the California Division of the State Architect (DSA) is requesting a letter from the Geotechnical Engineer commenting on the applicable allowable soil values for use in design considering the specific project location is in a flood zone other than Zone X. The allowable soil values provided in our original report were not intended for flood conditions. Furthermore, we understand the project will now include a shade canopy supported by drilled shafts. Recommendations for the design and construction of drilled shafts were not included as part of our original scope of work. Subsequently, this letter provides updated shallow foundation design parameters and drilled shaft recommendations, both considering FEMA flood conditions. All other recommendations provided in our January 11, 2023 report are still valid and should be followed.

Project Description

Our initial understanding of the project was provided in our report. A period of collaboration has transpired since the project was initiated, and the following additional information has been provided:

- Email sent by Jaycen Russell with Synthesis Partners, Inc. on May 11, 2023, providing current plan set 02-120972_DWG_V1.5 dated May 1, 2023:
  - A shade canopy is to be constructed adjacent to the east side of the pool building. The canopy will cover 1,440 square feet. The canopy will be constructed of steel and HSS steel columns will be supported on drilled shafts. The drilled shafts are initially proposed to be embedded 1 foot below grade, 6 feet in length, and 2 feet in diameter.
  - A topographic survey of the project site indicates the existing elevation of the tennis courts is approximately 144 feet with a proposed finished floor elevation of 144.43 and base flood elevation of 142.5 feet.
- Email sent by Teri Baughman with Bevier Structural Engineering, Inc. on May 11, 2023, providing anticipated canopy design loads:
  - Vertical DL = 1,705 pounds
  - Vertical LL = 3,210 pounds
  - Lateral (seismic) V = 2,130 pounds at h = 10’ (this includes Ωo)

FEMA Flood Hazard

The site is not located within a potential inundation zone for seismically-induced dam/reservoir failure. No large water storage facilities are known to exist in the area of the site. Therefore, there is no potential for seismically-induced flooding due to dam failure.

As indicated in our original report, based on a review of the Federal Emergency Management Agency (FEMA) National Flood Hazard Layer (NFHL)[1], the project site is located within the mapped 100-year flood zone. The project site is in an area with a FEMA Flood Zone AH designation, based on a 1% annual chance flood (100-year flood) with flood depths of 1 to 3 feet and a base flood elevation of 142.5 feet. See the attached National Flood Hazard Layer FIRMette Map for the Zone AH boundary area and BFE line locations.

Shallow Foundations

The proposed restroom/storage building may be supported by spread footings. If the site has been prepared in accordance with the requirements noted in **Earthwork**, the following design parameters are applicable for shallow foundations considering the project site is located within a FEMA Flood Zone AH.

Design Parameters – Compressive Loads

Item	Description
Maximum Net Allowable Bearing Pressure [1, 2, 8]	1,750 psf
Required Bearing Stratum [3]	Firm native soil
Minimum Foundation Dimensions	Per CBC 1809.7
Maximum Foundation Dimensions	Columns: 5 feet Continuous: 3 feet
Passive Resistance[4, 8] **(equivalent fluid pressures)**	160 pcf
Sliding Resistance [5]	130 psf allowable cohesion (native clay)
Minimum Embedment below Finished Grade [6]	18 inches
Estimated Total Settlement from Structural Loads [2]	Less than about 1 inch
Estimated Differential Settlement [2, 7]	About ½ of total settlement

1. The maximum net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the footing base elevation. This bearing pressure can

[1]FEMA; National Flood Hazard Layer FIRMette; Basemap: USGSNational Map: Orthoimagery: Data refreshed October, 2020; map was exported on 4/25/2023.

Item	Description

be increased by 1/3 for transient loads unless those loads have been factored to account for transient conditions. Values assume that exterior grades are no steeper than 20% within 10 feet of structure.

2. Values provided are for maximum loads noted in **Project Description**. Additional geotechnical consultation will be necessary if higher loads are anticipated.
3. Unsuitable or soft soils should be over-excavated and replaced per the recommendations presented in **Earthwork**.
4. Use of passive earth pressures require the sides of the excavation for the spread footing foundation to be nearly vertical and the concrete placed neat against these vertical faces or that the footing forms be removed and compacted structural fill be placed against the vertical footing face. Accounts for hydrostatic pressure.
5. Can be used to compute sliding resistance where foundations are placed on suitable soil/materials. For fine-grained materials, lateral resistance using cohesion should not exceed ½ the dead load.
6. Embedment necessary to minimize the effects of seasonal water content variations. For sloping ground, maintain depth below the lowest adjacent exterior grade within 5 horizontal feet of the structure.
7. Differential settlements are noted for equivalent-loaded foundations and bearing elevation as measured over a span of 50 feet.
8. The project site is in an area with a FEMA Flood Zone AH designation, based on a 1% annual chance flood (100-year flood) with flood depths of 1 to 3 feet and a base flood elevation of 142.5 feet. Design parameters have been reduced accordingly to account for the following flood hazard condition.

Deep Foundations

The proposed shade canopy may be supported by a deep foundation system consisting of drilled shafts. The drilled shaft recommendations have considered a base flood elevation of 142.5 feet.

Based on our field exploration and the site stratigraphy, recommended design parameters for the western half of the canopy are based on the subgrade conditions encountered in Boring B-2, whereas the recommended design parameters for the eastern half of the canopy are based on the subgrade conditions encountered in Boring B-3.

Drilled Shaft Design Parameters

Soil design parameters for the vertical design of drilled shafts are provided in the following **Drilled Shaft Design Summary** table. The values presented for allowable side friction include a factor of safety. We recommend that the deep foundation system

be designed to develop axial compression through skin friction only, and end-bearing should be neglected.

The following tables provide design parameters for the design of the western half and eastern half of the canopy, respectively.

Drilled Shaft Design Summary [1]

Western Half of Canopy			
Elevation (feet)	**Stratigraphy** [2]		**Allowable Skin Friction (psf)** [3]
	GeoModel No.	**Material**	
144 – 142.5[4]	2	Sandy Lean Clay	--
142.5 – 141[4]	2	Sandy Lean Clay	220
141 – 137	3	Poorly Graded Sand with Clay	190
137 – 135	2	Sandy Lean Clay	365
135 - 129	4	Clayey Sand	350
Eastern Half of Canopy			
Elevation (feet)	**Stratigraphy** [2]		**Allowable Skin Friction (psf)** [3]
	GeoModel No.	**Material**	
144 – 142.5[4]	2	Sandy Lean Clay	--
142.5 – 135[4]	2	Sandy Lean Clay	340
135 – 132.5	4	Clayey Sand	320
132.5 – 129	2	Sandy Lean Clay	825

1. Design capacities are dependent upon the method of installation and quality control parameters. The values provided are estimates and should be verified when installation protocol has been finalized.
2. See Subsurface Profile in the **Geotechnical Characterization** section of our original report for more details on stratigraphy.
3. Applicable for compressive loading only. Reduce to 2/3 of values shown for uplift. The effective weight of the shaft can be added to uplift load resistance to the extent permitted by the CBC.
4. Skin friction should not be used along the upper 2 feet of the shaft.

Shafts should be adequately reinforced as designed by the Structural Engineer for both tension and shear to sufficient depths. Buoyant unit weights of the soil and concrete should be used in the calculations below the highest anticipated groundwater elevation.

The shaft foundation shall be designed to distribute the weight of the structure solely on the shafts. Drilled shafts should have a minimum (center-to-center) spacing of three diameters. Closer spacing may require a reduction in axial load capacity. Axial capacity reduction can be determined by comparing the allowable axial capacity determined from the sum of individual piles in a group versus the capacity calculated using the perimeter and base of the pile group acting as a unit. The lesser of the two capacities should be used in design.

A minimum shaft diameter of 24 inches should be used. Drilled shafts should have a minimum length of 7½ feet.

Post-construction settlements of drilled shafts designed and constructed as described in this report are estimated to be ½ inch or less. Differential settlement between individual shafts is expected to be ½ to ⅔ of the total settlement.

Drilled Shaft Lateral Loading

The following table lists input values for use in LPILE analyses. Modern versions of LPILE provide estimated default values of k_h and E_{50} based on strength and are recommended for the project. Since deflection or a service limit criterion will most likely control lateral capacity design, no safety/resistance factor is included with the parameters.

Western Half of Canopy								
Stratigraphy[1]		L-Pile Soil Model	S_u (psf)[2]	ϕ[2]	γ' (pcf)[2]	ε_{50}	K (pci)	
Elevation (feet)	GeoModel No.						Static	Cyclic
144 – 142.5[3]	2	Stiff Clay with Free Water	980	---	125	Use Default Value		
142.5 – 141[3]	2	Stiff Clay w/o Free Water	980	---	63	Use Default Value		
141 – 137	3	Sand (Reese)	---	38°	57	Use Default Value		
137 – 135	2	Stiff Clay w/o Free Water	1,670	---	76	Use Default Value		
135 - 129	4	Sand (Reese)	---	42°	60	Use Default Value		

Eastern Half of Canopy								
Stratigraphy[1]		L-Pile Soil Model	S_u (psf)[2]	ϕ[2]	γ' (pcf)[2]	ε_{50}	K (pci)	
Elevation (feet)	GeoModel No.						Static	Cyclic
144 – 142.5[3]	2	Stiff Clay with Free Water	980	---	128	Use Default Value		
142.5 – 135[3]	2	Stiff Clay w/o Free Water	1,670	---	67	Use Default Value		
135 – 132.5	4	Sand (Reese)	---	42°	83	Use Default Value		
132.5 – 129	2	Stiff Clay w/o Free Water	4,000	---	65	Use Default Value		

1. See Subsurface Profile in the **Geotechnical Characterization** section of our original report for more details on Stratigraphy.
2. Definition of Terms:
   S_u: Undrained shear strength, ϕ: Internal friction angle, γ': Effective unit weight
3. The upper 2 feet of the drilled shaft should be neglected from design.

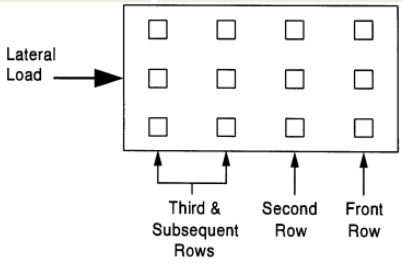
The load capacities provided herein are based on the stresses induced in the supporting soil strata. The structural capacity of the shafts should be checked to assure they can safely accommodate the combined stresses induced by axial and lateral forces. Lateral deflections of shafts should be evaluated using an appropriate analysis method, and will depend upon the shaft's diameter, length, configuration, stiffness and "fixed head" or "free head" condition. We can provide additional analyses and estimates of lateral deflections for specific loading conditions upon request. The load-carrying capacity of shafts may be increased by increasing the diameter and/or length.

When shafts are used in groups, the lateral capacities of the shafts in the second, third, and subsequent rows of the group should be reduced as compared to the capacity of a single, independent shaft. Guidance for applying p-multiplier factors to the p values in the p-y curves for each row of shaft foundations within a shaft group are as follows:

Center to Center Shaft Spacing [1,2]	P-Multiplier, P_m [3]		
	Front Row	Second Row	Third and Subsequent Rows
3B	0.8	0.4	0.3
4B	0.9	0.65	0.5
5B	1.0	0.85	0.7

Center to Center Shaft Spacing [1,2]	P-Multiplier, P_m [3]		
	Front Row	Second Row	Third and Subsequent Rows
6B	1.0	1.0	1.0

1. Spacing in the direction of loading. B = shaft diameter
2. For the case of a single row of shafts supporting a laterally loaded grade beam, group action for lateral resistance of shafts would need be considered when spacing is less than three shaft diameters (measured center-to-center).
3. See adjacent figure for definition of front, second and third rows.



Spacing closer than 3D (where D is the diameter of the shaft) is not recommended without additional geotechnical consultation due to potential for the installation of a new shaft disturbing an adjacent installed shaft likely resulting in axial capacity reduction.

In lieu of using the provided L-Pile parameters; the proposed drilled shafts may be designed laterally using the passive earth pressures listed in the following table.

Ultimate Passive Lateral Earth Pressures

Western Half of Canopy				
Approximate Elevation (feet)	Stratigraphy [1]		Effective Unit Weight (pcf)	Passive Lateral Earth Pressure (Equivalent Fluid Pressure) (pcf) [2,3]
	GeoModel No.	Material		
144 – 142.5[3]	2	Sandy Lean Clay	125	--
142.5 – 141[3]	2	Sandy Lean Clay	63	75
141 – 137	3	Poorly Graded Sand with Clay	57	365
137 – 135	2	Sandy Lean Clay	76	80
135 – 129	4	Clayey Sand	60	440

Eastern Half of Canopy				
Approximate Elevation (feet)	Stratigraphy [1]		Effective Unit Weight (pcf)	Passive Lateral Earth Pressure (Equivalent Fluid Pressure) (pcf) [2,3]
	GeoModel No.	Material		
144 – 142.5[3]	2	Sandy Lean Clay	128	--
142.5 – 135[3]	2	Sandy Lean Clay	67	80
135 – 132.5	4	Clayey Sand	83	445
132.5 – 129	2	Sandy Lean Clay	65	90

1. See Subsurface Profile in the **Geotechnical Characterization** section of our original report for more details on stratigraphy.
2. If the canopy is not adversely affected by a ½-inch motion at the ground surface due to short-term lateral load, the canopy may be permitted to be designed using lateral earth pressures equal to two times the tabular passive pressure values.
3. The upper 2 feet of the drilled shaft should be neglected from design.
4. Values are only applicable for drilled shafts that extend 15 feet or less below grade.

Once the depth of a drilled shaft is known, the passive pressure values with respect to depth can be averaged based on the weighted increment of pressure within each depth range. The depth below ground surface indicated in the previous tables is referenced from the existing site surface at the time of the field exploration. If fill is placed to raise the site grades, the depths shown in the tables must be increased by the thickness of fill placed. The required depths of shaft embedment should also be determined for design lateral loads and overturning moments to determine the most critical design condition.

Lateral load design parameters are valid within the elastic range of the soil. The passive pressure values are ultimate values; therefore, appropriate factors of safety should be applied in the shaft design or deflection limits should be applied to the design.

It should be noted that the loaded capacities provided herein are based on the stresses induced in the supporting soils. The structural capacity of the shafts should be checked to assure that they can safely accommodate the combined stresses induced by axial and lateral forces. Furthermore, the response of the drilled shaft foundations to lateral loads is dependent upon the soil/structure interaction as well as the shaft's actual diameter, length, stiffness and "fixity" (fixed or freehead condition).

Drilled Shaft Construction Considerations

The drilling contractor should be experienced in the subsurface conditions observed at the site, and the excavations should be performed with equipment capable of providing a clean bearing surface. The drilled straight-shaft foundation system should be installed in general accordance with the procedures presented in "Standard Specification for the Construction of Drilled Shafts", ACI Publication No. 336.1-01.

The contractor is generally expected to use conventional “dry” techniques for installation of the drilled shaft. Subsurface water was not encountered in our borings during the drilling activities. Subsurface water levels are influenced by seasonal and climatic conditions, which result in fluctuations in subsurface water elevations. Additionally, it is common for water to be present after periods of significant rainfall. Casing or slurry drilling procedures could be required in soils zones of higher sand content (such as was observed in Model Layers 3 and 4 of the borings) to reduce the potential for excavation sidewall collapse.

Weak soils as well as relatively shallow groundwater from flooding with may be encountered. To prevent collapse of the sidewalls and/or to control groundwater seepage, the use of temporary steel casing and/or slurry drilling procedures may be required for construction of the drilled shaft foundations. Significant seepage could occur in case of excavations penetrating water-bearing sandy soil layers. The drilled shaft contractor and foundation design engineer should be informed of these risks.

The use of temporary steel casing and/or slurry drilling procedures should be anticipated at this site during drilled shaft construction to reduce the potential for collapse of the sidewalls within sand seams and layers and control groundwater seepage. If casing is removed during concrete placement, care should be exercised to maintain concrete inside the casing at a sufficient level to resist earth and hydrostatic pressures present on a casing exterior. Water or loose soil should be removed from the bottom of the drilled shafts prior to placement of the concrete.

Care should be taken to not disturb the sides and bottom of the excavation during construction. The bottom of the shaft excavation should be free of loose material before concrete placement. Concrete should be placed as soon as possible after the foundation excavation is completed, to reduce potential disturbance of the bearing surface.

While withdrawing casing, care should be exercised to maintain concrete inside the casing at a sufficient level to resist earth and hydrostatic pressures acting on the casing exterior. Arching of the concrete, loss of seal and other problems can occur during casing removal and result in contamination of the drilled shaft. These conditions should be considered during the design and construction phases. Placement of loose soil backfill should not be permitted around the casing prior to removal.

Formation of mushrooms or enlargements at the tops of shafts should be avoided during shaft drilling. If mushrooms develop at the tops of the shafts during drilling, sono-tubes should be placed at the shaft tops to help isolate the shafts.

The drilled shaft installation process should be performed under the observation of the Geotechnical Engineer. The Geotechnical Engineer should document the shaft installation process including soil and groundwater conditions observed, consistency with expected conditions, and details of the installed shaft. As indicated, the drilled shaft recommendations were developed based on the subgrade conditions encountered in Borings B-2 and B-3. If subgrade conditions encountered in the drilled shaft excavations vary from those encountered in Borings B-2 and B-3 our recommendations and the drilled shaft design may require revision.

General Comments

Our analysis and opinions are based upon our understanding of the project, the geotechnical conditions in the area, and the data obtained from our previous site exploration. Variations will occur between exploration point locations or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. Terracon should be retained as the Geotechnical Engineer, where noted in this report, to provide observation and testing services during pertinent construction phases. If variations appear, we can provide further evaluation and supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.

Our Scope of Services does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials, or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

Our services and any correspondence are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted geotechnical engineering practices with no third-party beneficiaries intended. Any third-party access to services or correspondence is solely for information purposes to support the services provided by Terracon to our client. Reliance upon the services and any work product is limited to our client and is not intended for third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made.

Site characteristics as provided are for design purposes and not to estimate excavation cost. Any use of our report in that regard is done at the sole risk of the excavating cost estimator as there may be variations on the site that are not apparent in the data that could significantly affect excavation cost. Any parties charged with estimating excavation costs should seek their own site characterization for specific purposes to obtain the specific level of detail necessary for costing. Site safety and cost estimating including excavation support and dewatering requirements/design are the responsibility of others. Construction and site development have the potential to affect adjacent properties. Such impacts can include damages due to vibration, modification of groundwater/surface water flow during construction, foundation movement due to undermining or subsidence from excavation, as well as noise or air quality concerns. Evaluation of these items on nearby properties are commonly associated with contractor means and methods and are not addressed in this letter. The owner and contractor should consider a preconstruction/precondition survey of surrounding development. If changes in the nature, design, or location of the project are planned, our conclusions and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing. This letter should not be used after 3 years without written authorization from Terracon.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this letter or if we may be of further service, please contact us.

Sincerely,
Terracon Consultants, Inc.

Staysha P. Delgado, E.I.T.
Group Manager

Noah T. Smith, P.E., G.E.
Principal

Cu[illegible], C.E.G.
Proje[illegible]ogist

Attachments

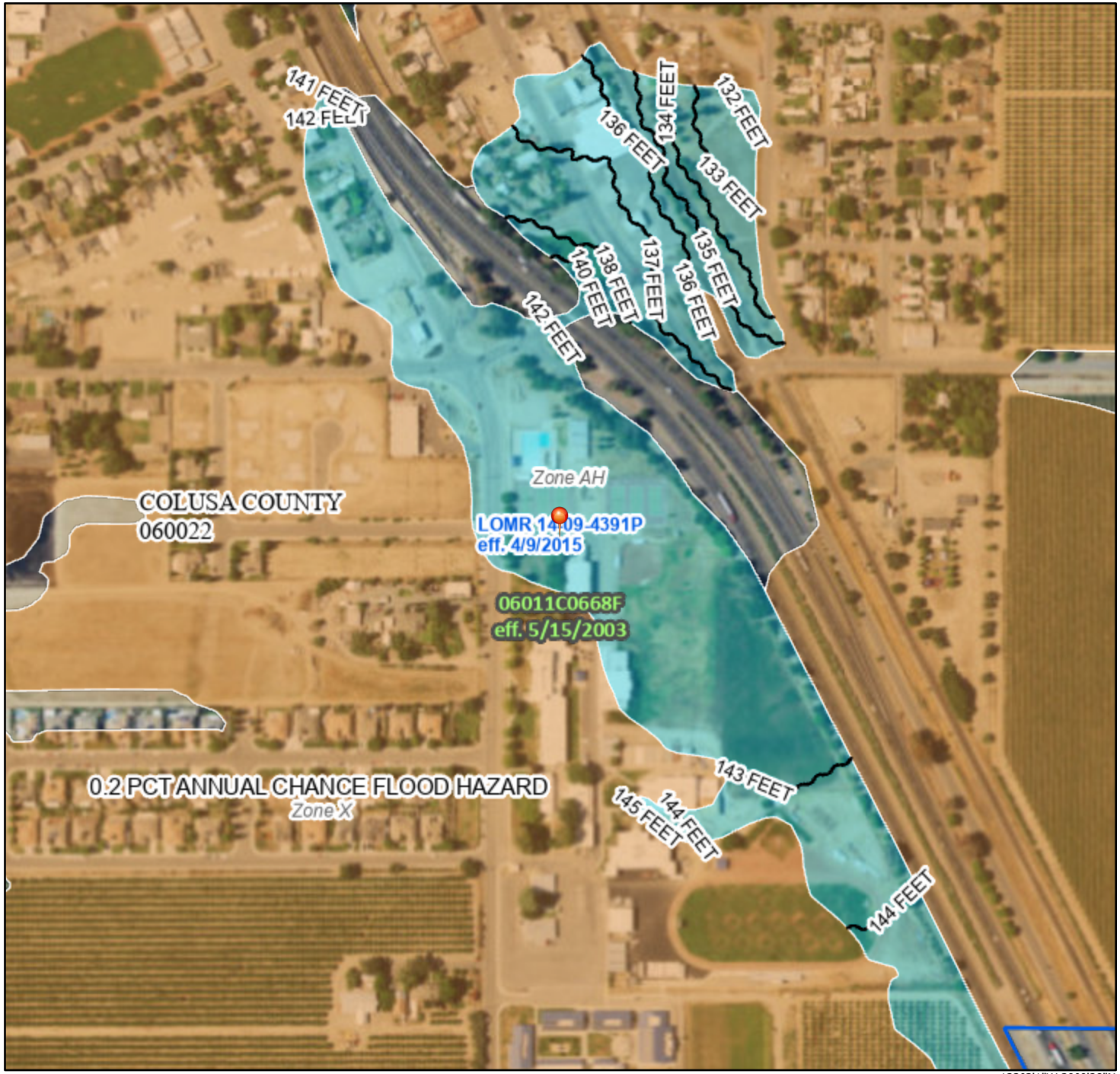
Contents:

Note: All attachments are one page unless noted above

National Flood Hazard Layer FIRMette

FEMA

122°3'38"W 39°0'56"N



122°3'1"W 39°0'28"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

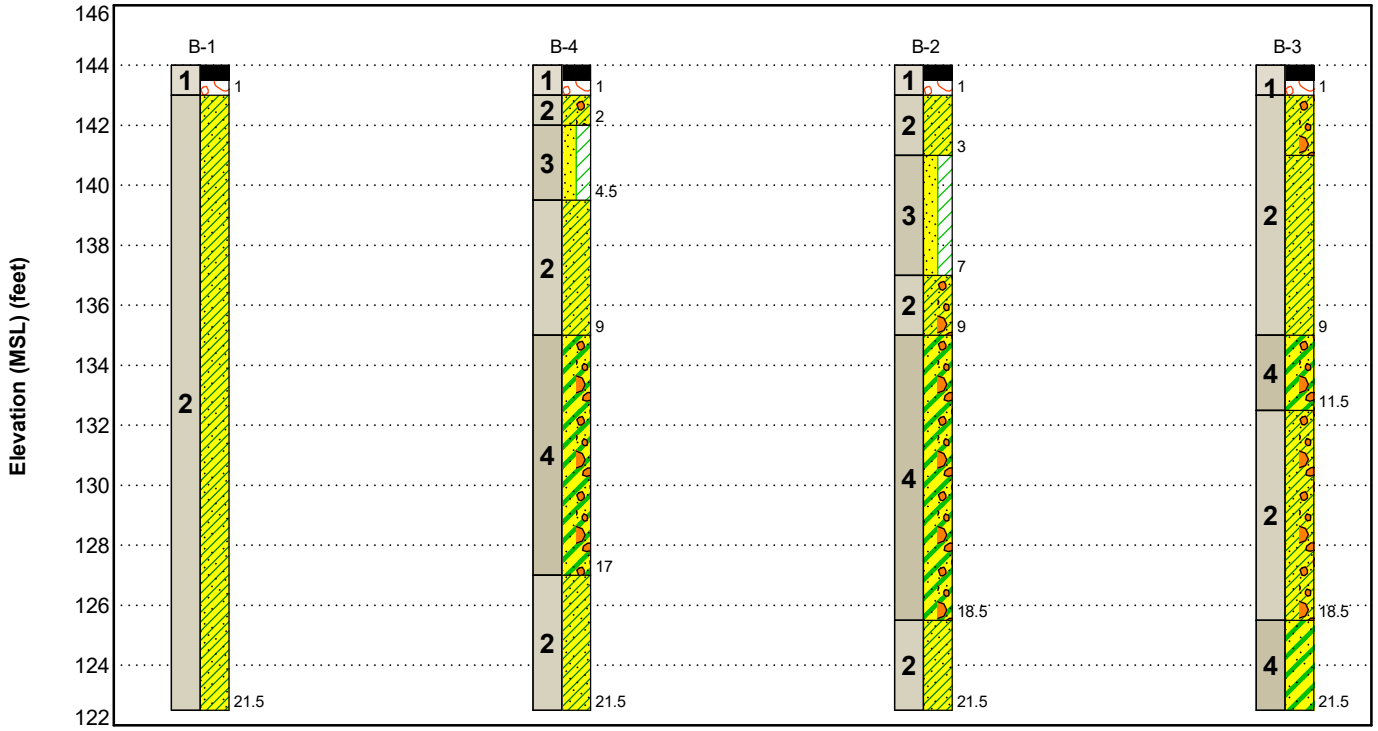
The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 4/25/2023 at 2:28 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Pierce HS Pool Complex
960 Wildwood Road | Arbuckle, CA
Terracon Project No. NB225033

Terracon
50 Golden Land Ct Ste 100
Sacramento, CA

GeoModel



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer	Layer Name	General Description
1	Surfacing	Approximately 6 inches of asphalt overlying 6 inches of aggregate base course.
2	Sandy Lean Clay	Medium plasticity, stiff to hard sandy lean clay with variable amounts of gravel. Gravel up to 2 inches in dimension.
3	Poorly Graded Sand with Clay	Medium dense poorly graded sand with clay with variable amounts of gravel. Gravel up to 1.5 inches in dimension.
4	Clayey Sand	Medium dense to dense clayey sand with variable amounts of gravel. Gravel up to 2 inches in dimension.

LEGEND

- Asphalt
- Aggregate Base Course
- Sandy Lean Clay
- Poorly-graded Sand with Clay
- Sandy Lean Clay with Gravel
- Clayey Sand with Gravel
- Clayey Sand

NOTES:
Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project. Numbers adjacent to soil column indicate depth below ground surface.

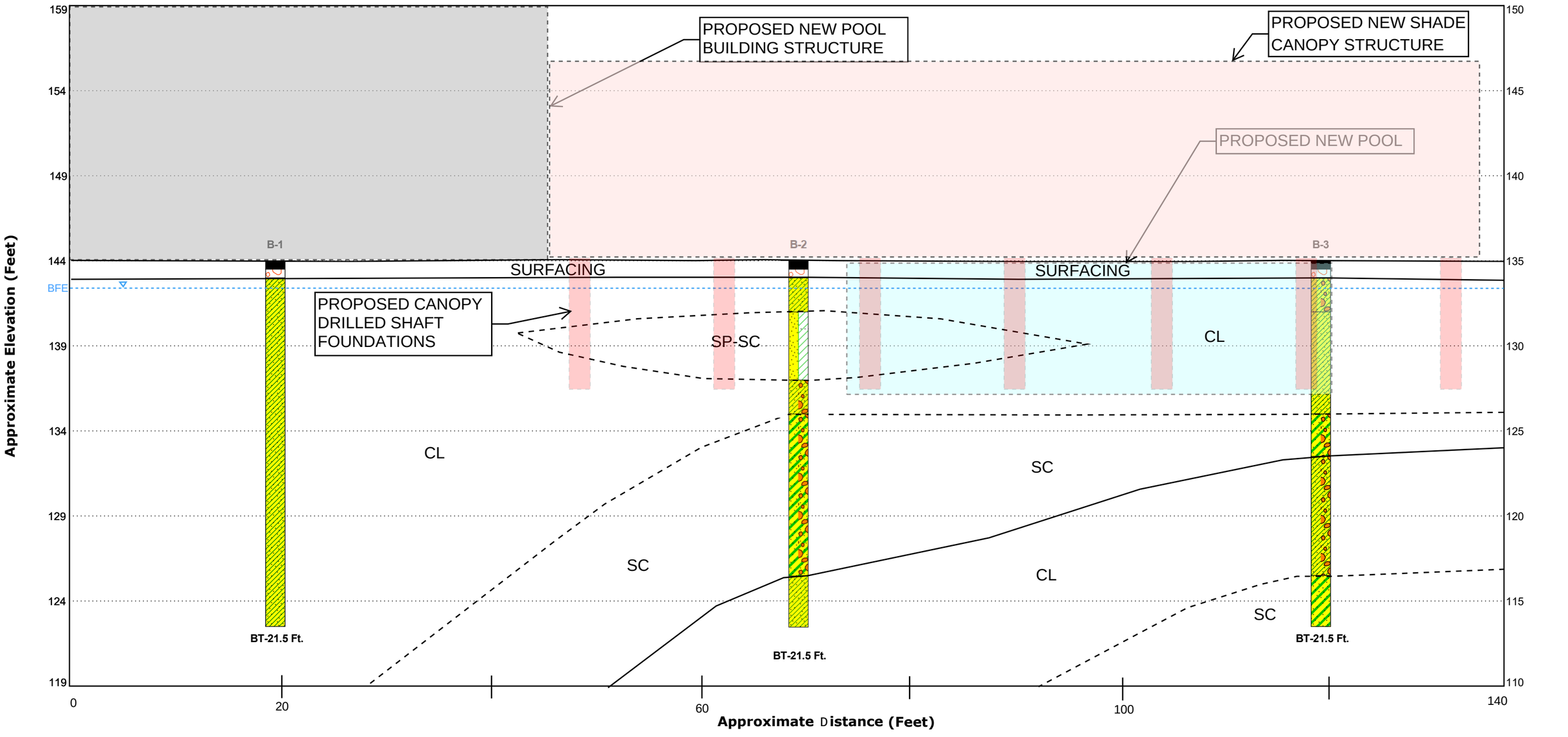
Pierce HS Pool Complex
960 Wildwood Road | Arbuckle, CA
Terracon Project No. NB225033

Subsurface Profile

Section A-A'

Terracon
50 Golden Land Ct Ste 100
Sacramento, CA

A ◄ ► A'



Notes	Water Level Observations	Explanation
See Exploration Plan for orientation of soil profile. See General Notes in Supporting Information for symbols and soil classifications. Soils profile provided for illustration purposes only. Soils between borings may differ AR - Auger Refusal BT - Boring Termination	Water Level Reading at time of drilling. FEMA base flood elevation of 142.5 feet.	B-1 — Borehole Number Moisture Content — %w — LL PL — Liquid and Plastic Limits Sampling (See General Notes) — Borehole Lithology AR / BT — Borehole Termination Type

Material Legend

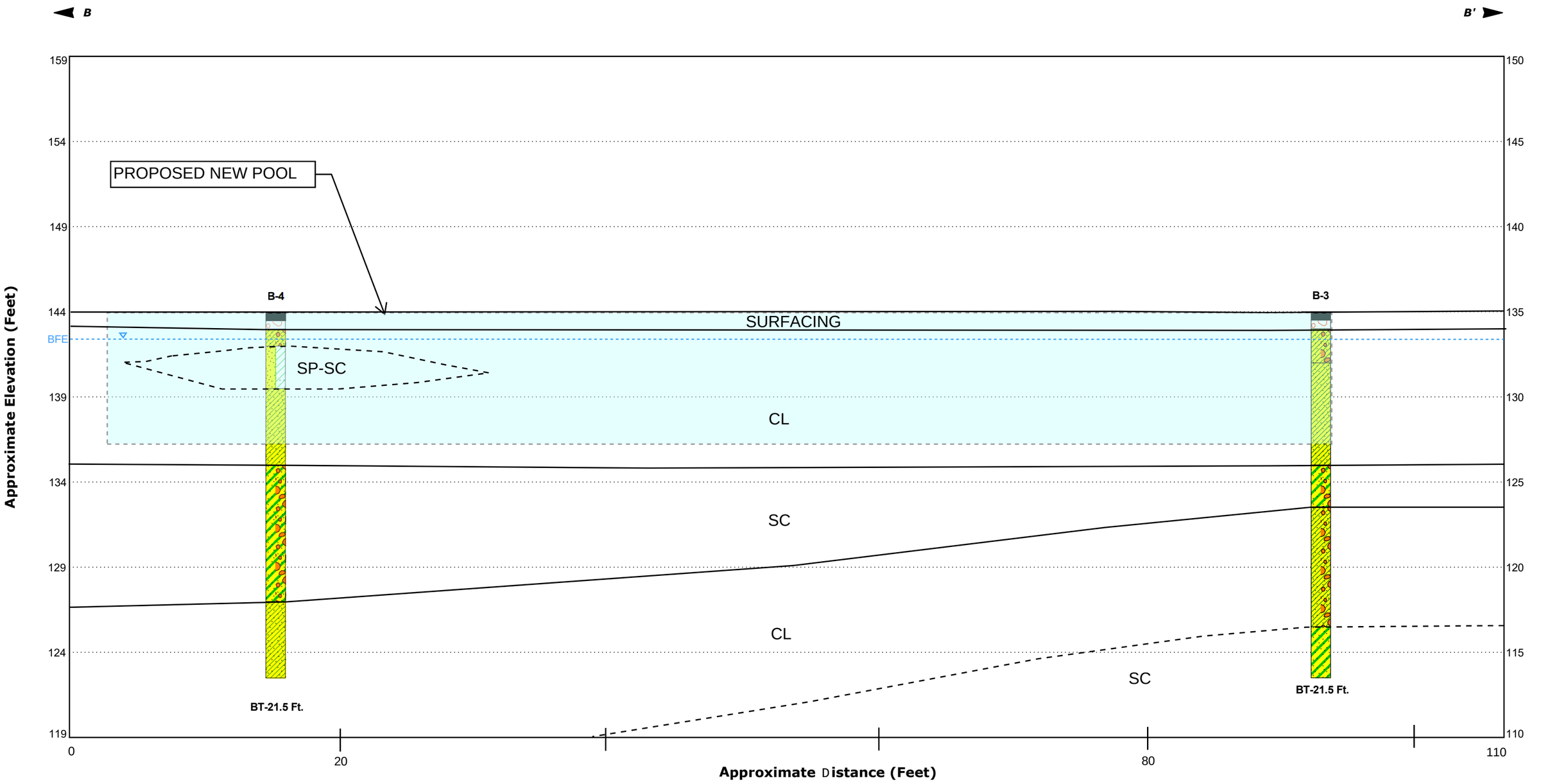
- Asphalt
- Aggregate Base Course
- Sandy Lean Clay
- Poorly-graded Sand with Clay
- Sandy Lean Clay with Gravel
- Clayey Sand with Gravel
- Clayey Sand
- Uncertainty regarding location of geologic contact
- Confidence regarding location of geologic contact

Pierce HS Pool Complex
960 Wildwood Road | Arbuckle, CA
Terracon Project No. NB225033

Subsurface Profile

Section B-B'

Terracon
50 Golden Land Ct Ste 100
Sacramento, CA



Notes	Water Level Observations	Explanation
See Exploration Plan for orientation of soil profile. See General Notes in Supporting Information for symbols and soil classifications. Soils profile provided for illustration purposes only. Soils between borings may differ AR - Auger Refusal BT - Boring Termination	Water Level Reading at time of drilling. FEMA base flood elevation of 142.5 feet.	B-3 — Borehole Number Moisture Content — %w LL PL — Liquid and Plastic Limits Sampling (See General Notes) Borehole Lithology AR / BT — Borehole Termination Type

Material Legend

Asphalt
Aggregate Base Course
Sandy Lean Clay with Gravel
Sandy Lean Clay
Clayey Sand with Gravel
Clayey Sand
Poorly-graded Sand with Clay
Uncertainty regarding location of geologic contact
Confidence regarding location of geologic contact

Pierce HS Pool Complex
960 Wildwood Road | Arbuckle, CA
Terracon Project No. NB225033

Terracon
50 Golden Land Ct Ste 100
Sacramento, CA

Boring Log No. B-1

Location: See Exploration Plan

Latitude: 39.0120° Longitude: -122.0558°

Model Layer	Depth (Ft.)	Elevation: 144 (Ft.) +/-	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	HP (tsf)	Unconfined Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1	0.5	**ASPHALT**, approximately 6 inches in thickness 143.5										
	1.0	**AGGREGATE BASE COURSE**, approximately 6 inches in thickness 143										
2		**SANDY LEAN CLAY (CL)**, trace gravel up to 1.5 inches in dimension, subrounded, dark brown to light brown, very stiff				8-10-10			11.3	115		
						12-14-17	4.5 (HP)		9.7	120		
			5			11-13-20	4.5 (HP)		10.3	116		
						6-9-13	3.0 (HP)		11.0	121		
			10			8-12-21	4.5 (HP)		15.7	107		
			15			7-15-21	4.0 (HP)		18.4	108		
			20			8-15-21	3.0 (HP)		17.2	109		
	21.5	122.5										
		Boring Terminated at 21.5 Feet										

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations
Groundwater not encountered

Notes
Elevation Reference: Elevations were interpolated from a topographic site plan.

Advancement Method
4" Solid Stem Auger

Abandonment Method
Boring backfilled with neat cement grout
Surface capped with asphalt

Drill Rig
CME 75

Hammer Type
Automatic

Driller
H1 Drilling Co.

Logged by
Nick Jamison

Boring Started
11-22-2022

Boring Completed
11-22-2022

Pierce HS Pool Complex
960 Wildwood Road | Arbuckle, CA
Terracon Project No. NB225033

Terracon
50 Golden Land Ct Ste 100
Sacramento, CA

Boring Log No. B-2

Location: See Exploration Plan

Latitude: 39.0120° Longitude: -122.0556°

Model Layer	Graphic Log	Depth (Ft.)	Elevation: 144 (Ft.) +/-	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	HP (tsf)	Unconfined Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.5	**ASPHALT**, approximately 6 inches in thickness 143.5										
		1.0	**AGGREGATE BASE COURSE**, approximately 6 inches in thickness 143										
2		3.0	**SANDY LEAN CLAY (CL)**, trace gravel up to 1 inch in dimension, subrounded, brown, stiff 141				4-5-8		0.98	14.8	109	29-15-14	51
3		7.0	**POORLY GRADED SAND WITH CLAY (SP-SC)**, trace gravel up to 1 inch in dimension, fine to coarse grained, subrounded, brown, medium dense 137	5			10-10-9			9.4	110		
							11-10-11			4.5	112		7
2		9.0	**SANDY LEAN CLAY WITH GRAVEL (CL)**, brown, stiff, gravel up to 1 inch in dimension, subrounded 135				6-8-13		1.67	12.7	123		
4		18.5	**CLAYEY SAND WITH GRAVEL (SC)**, fine to coarse grained, brown, dense, gravel up to 2 inches in dimension, subrounded 125.5	10			16-27-27			6.8	115		
				15			14-23-22			6.0	117		
2		21.5	**SANDY LEAN CLAY (CL)**, trace gravel up to 1 inch in dimension, subrounded, brown, very stiff 122.5	20			17-16-20	3.5 (HP)		14.9	113		
			Boring Terminated at 21.5 Feet										

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations
Groundwater not encountered

Notes
Elevation Reference: Elevations were interpolated from a topographic site plan.

Advancement Method
4" Solid Stem Auger

Abandonment Method
Boring backfilled with neat cement grout
Surface capped with asphalt

Drill Rig
CME 75

Hammer Type
Automatic

Driller
H1 Drilling Co.

Logged by
Nick Jamison

Boring Started
11-22-2022

Boring Completed
11-22-2022

Pierce HS Pool Complex
960 Wildwood Road | Arbuckle, CA
Terracon Project No. NB225033

Terracon
50 Golden Land Ct Ste 100
Sacramento, CA

Boring Log No. B-3

Location: See Exploration Plan

Latitude: 39.0119° Longitude: -122.0555°

Model Layer	Graphic Log	Depth (Ft.)	Elevation: 144 (Ft.) +/-	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	HP (tsf)	Unconfined Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.5	**ASPHALT**, approximately 6 inches in thickness 143.5										
		1.0	**AGGREGATE BASE COURSE**, approximately 6 inches in thickness 143										
2			**SANDY LEAN CLAY WITH GRAVEL (CL)**, brown, stiff, gravel up to 1 inch in dimension, subrounded				5-7-8			14.4	111		
							8-7-7			12.9	114		
		3.0	141										
			SANDY LEAN CLAY (CL), trace gravel up to 1 inch in dimension, subangular, brown, stiff	5									
							8-10-8	2.25 (HP)		6.3	113		
							4-6-10	2.0 (HP)		15.6	112	28-16-12	67
		9.0	135										
4			**CLAYEY SAND WITH GRAVEL (SC)**, fine to coarse grained, brown, dense, gravel up to 1 inch in dimension, subrounded	10									
							23-27-25			6.0	139		
		11.5	132.5										
2			**SANDY LEAN CLAY WITH GRAVEL (CL)**, brown, hard, gravel up to 2 inches in dimension, subrounded	15									
							15-29-17	4.5 (HP)		5.6	120		
		18.5	125.5										
4			**CLAYEY SAND (SC)**, fine grained, brown, medium dense	20									
							7-13-22			17.7	109		
		21.5	122.5										
			Boring Terminated at 21.5 Feet										

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations
Groundwater not encountered

Notes
Elevation Reference: Elevations were interpolated from a topographic site plan.

Advancement Method
4" Solid Stem Auger

Abandonment Method
Boring backfilled with neat cement grout
Surface capped with asphalt

Drill Rig
CME 75

Hammer Type
Automatic

Driller
H1 Drilling Co.

Logged by
Nick Jamison

Boring Started
11-22-2022

Boring Completed
11-22-2022

Pierce HS Pool Complex
960 Wildwood Road | Arbuckle, CA
Terracon Project No. NB225033

Terracon
50 Golden Land Ct Ste 100
Sacramento, CA

Boring Log No. B-4

Location: See Exploration Plan

Latitude: 39.0118° Longitude: -122.0557°

Model Layer	Graphic Log	Depth (Ft.)	Elevation: 144 (Ft.) +/-	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	HP (tsf)	Unconfined Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		0.5	**ASPHALT**, approximately 6 inches in thickness 143.5										
		1.0	**AGGREGATE BASE COURSE**, approximately 6 inches in thickness 143										
2		2.0	**SANDY LEAN CLAY WITH GRAVEL (CL)**, brown to dark brown, stiff, gravel up to 1 inch in dimension, subrounded 142				5-6-8			13.7	113		
3		4.5	**POORLY GRADED SAND WITH CLAY (SP-SC)**, trace gravel up to 1.5 inch in dimension, fine to coarse grained, subrounded, brown, medium dense 139.5				6-7-7			14.2	110		
2		9.0	**SANDY LEAN CLAY (CL)**, trace gravel up to 1 inch in dimension, subrounded, brown, stiff 135	5			11-8-5	1.5 (HP)		3.6	115		
							4-7-13		0.88	17.9	111	34-16-18	
4		17.0	**CLAYEY SAND WITH GRAVEL (SC)**, fine to coarse grained, light brown, medium dense, gravel up to 1 inch in dimension, subrounded 127	10			7-10-13			15.2	115		47
				15			7-16-26			7.0	120		
2		21.5	**SANDY LEAN CLAY (CL)**, brown, very stiff 122.5	20			8-13-19	3.75 (HP)		14.8	108		
			Boring Terminated at 21.5 Feet										

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations
Groundwater not encountered

Notes
Elevation Reference: Elevations were interpolated from a topographic site plan.

Advancement Method
4" Solid Stem Auger

Abandonment Method
Boring backfilled with neat cement grout
Surface capped with asphalt

Drill Rig
CME 75

Hammer Type
Automatic

Driller
H1 Drilling Co.

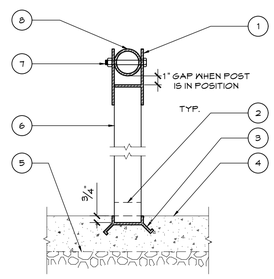
Logged by
Nick Jamison

Boring Started
11-22-2022

Boring Completed
11-22-2022

NOT USED SCALE: NONE 16

NOT USED SCALE: NONE 12



D1B-REMOVABLE MULLION

1	2"x6"x1/4" THK. GALV. STL. PLATE @ EA. SIDE
2	BOTTOM OF GATE BEYOND
3	BASE ANCHOR - 1/4" GAL. STL. POCKET SIZED TO FIT REMOVABLE MULLION w/(2) - 4" A.B.
4	FIN. PAVING
5	HARDSCAPE PAVING S.L.D.
6	3"x3" REMOVABLE MULLION
7	REMOVABLE 1/2"Øx4" BOLT w/LOCK WASHER
8	3" Ø HEAD RAIL

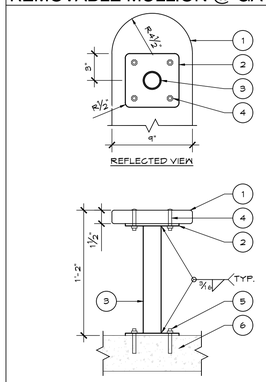
REMOVABLE MULLION @ GATE SCALE: 1 1/2" = 1'-0" 8

1	POST CAP, TYP.
2	PANIC HARDWARE ON ADJUSTABLE MOUNTING PLATE w/ INTERGAL LOCK GUARD & LEVER HANDLE ON OPPOSITE SITE
3	4"Ø HINGE POST, TYP.
4	WELD JOINTS, TYP.
5	12"Ø CONC. PIER
6	GATE SWING & MOUNTING HARDWARE
7	SMOOTH MTL. SURFACE FLUSH w/GATE FRAME, BOTH SIDES - TYP. OF EA. LEAF
8	TENSION BAR, TYP. ALL (4) SIDES OF GATE
9	1.660"Ø GATE FRAME, TYP. ALL (4) SIDES
10	9 GA. CHAIN LINK FABRIC
11	INVERTED CHANNEL WELDED BETWEEN KICKPLATES
12	3"Ø HEAD RAIL
13	3"x3" REMOVABLE MULLION - SEE DTL. 8/A1.4

NOTE:
SPECIAL TESTS AND INSPECTIONS IS NOT REQUIRED FOR WELDING OF CHAIN LINK FENCING OR GATES

NOT USED SCALE: NONE 15

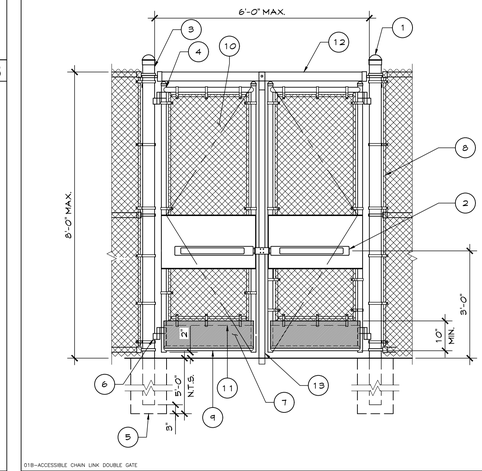
NOT USED SCALE: NONE 11



D4E-LOCKER ROOM BENCH

1	VINYL COVERED MTL. SEAT
2	6"x6"x¼" PLATE WELDED TO PIPE
3	2"Ø GI. PIPE STANDARD AT 4'-0" O.C. MAX.
4	(4) ⅜"Ø CARRIAGE BOLTS
5	⅜"Ø HILTI KB-TZ WITH 2" MIN. EMBEDMENT
6	CONC. FLOORING

BENCH SCALE: 1 1/2"=1'-0" 7

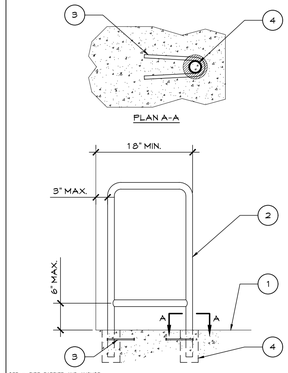


D1B-ACCESSIBLE CHAIN LINK DOUBLE GATE

ACCESSIBLE CHAIN LINK SINGLE GATE SCALE: 1/2" = 1'-0" 3

NOT USED SCALE: NONE 14

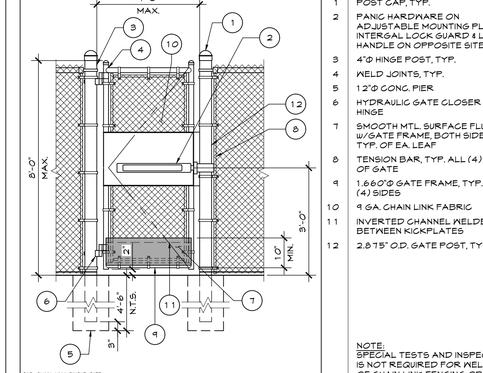
NOT USED SCALE: NONE 10



03E - PIPE BARRIER AND ANCHOR

1	GONG. WALKWAY
2	1½"Ø GALV. STEEL BARRIER
3	#4 HAIR PIN w/ 6" MIN. LEGS AT POSTS, TYP.
4	STL. POST SET IN WET CONC. OR CORE AND SET IN NON-SHRINK GROUT w/ 8" MIN. EMBEDMENT, TYP. w/ ½" MIN. GROUT ALL AROUND

PIPE BARRIER AND ANCHOR SCALE: 3/4" = 1'-0" 6



D1B-CHAIN LINK SINGLE GATE

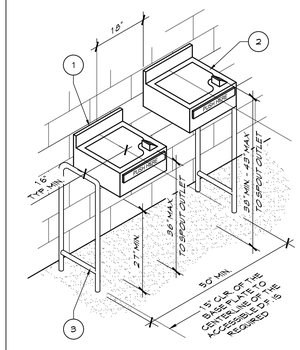
1	POST CAP, TYP.
2	PANIC HARDWARE ON ADJUSTABLE MOUNTING PLATE w/ INTERGAL LOCK GUARD & LEVER HANDLE ON OPPOSITE SITE
3	4"Ø HINGE POST, TYP.
4	WELD JOINTS, TYP.
5	12"Ø CONC. PIER
6	HYDRAULIC GATE CLOSER AND HINGE
7	SMOOTH MTL. SURFACE FLUSH w/GATE FRAME, BOTH SIDES - TYP. OF EA. LEAF
8	TENSION BAR, TYP. ALL (4) SIDES OF GATE
9	1.660"Ø GATE FRAME, TYP. ALL (4) SIDES
10	9 GA. CHAIN LINK FABRIC
11	INVERTED CHANNEL WELDED BETWEEN KICKPLATES
12	2.875" O.D. GATE POST, TYP.

NOTE:
SPECIAL TESTS AND INSPECTIONS IS NOT REQUIRED FOR WELDING OF CHAIN LINK FENCING OR GATES

ACCESSIBLE CHAIN LINK SINGLE GATE SCALE: 1/2" = 1'-0" 2

NOT USED SCALE: NONE 13

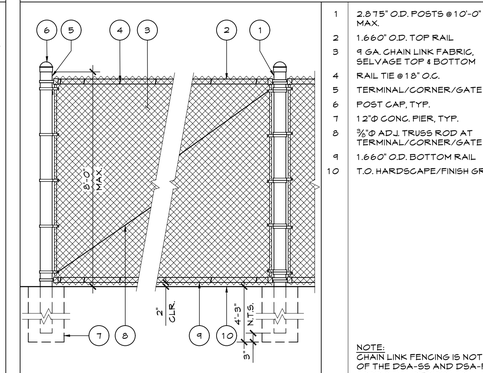
NOT USED SCALE: NONE 9



D1A-Drinking Fountain ISO

1	LOW DRINKING FOUNTAIN
2	HIGH DRINKING FOUNTAIN
3	PIPE BARRIER EA. SIDE - SEE DTL. 6/A1.4

ACCESSIBLE WALL MOUNTED D.F. SCALE: 1/2" = 1'-0" 5



D1B-CHAIN LINK FENCE

1	2.875" O.D. POSTS @10'-0" O.C. MAX.
2	1.660" O.D. TOP RAIL
3	9 GA. CHAIN LINK FABRIC, SELVAGE TOP & BOTTOM
4	RAIL TIE @18" O.C.
5	TERMINAL/CORNER/GATE POST
6	POST CAP, TYP.
7	12"Ø CONC. PIER, TYP.
8	⅜"Ø ADJ. TRUSS ROD AT TERMINAL/CORNER/GATE POSTS
9	1.660" O.D. BOTTOM RAIL
10	T.O. HARDSCAPE/FINISH GRADE

NOTE:
CHAIN LINK FENCING IS NOT PART OF THE DSA-SS AND DSA-FLS APPROVAL PER DSA IR A-22, PART 2.1.2.1

C.L. FENCE SCALE: 1/2" = 1'-0" 1

APPROVALS

PO Box 1900
Yuba City, CA 95992-1900
530.298.7298
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SYNTHESIS PARTNERS, LLC
Managers • Architects

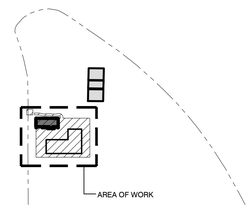
OWNER

Pierce Joint Unified School District
540A 6th Street
Arbuckle, CA 95912

PROJECT

NEW SWIMMING POOL
at
Pierce High School
960 Wildwood Road
Arbuckle, CA 95912

KEY PLAN



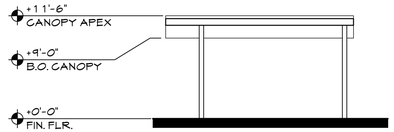
LICENSED ARCHITECT
MICHAEL ONEIL FABRIS
C-19752
STATE OF CALIFORNIA

NO.	REVISION DESCRIPTION	DATE

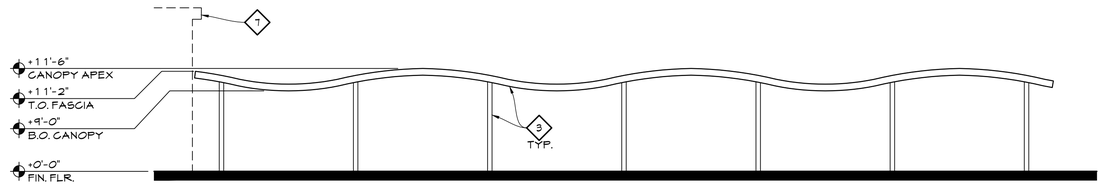
SITE DETAILS

DATE	2023-08-09
PROJECT NO.	21-P03-03

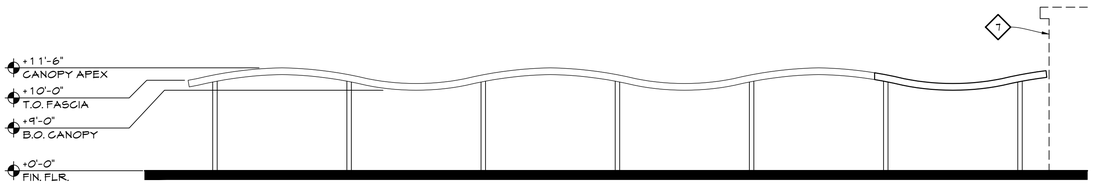
A1.4



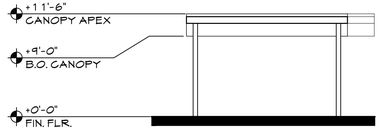
WEST ELEVATION - CANOPY SCALE: 1/8" = 1'-0" | 8



SOUTH ELEVATION - CANOPY SCALE: 1/8" = 1'-0" | 4



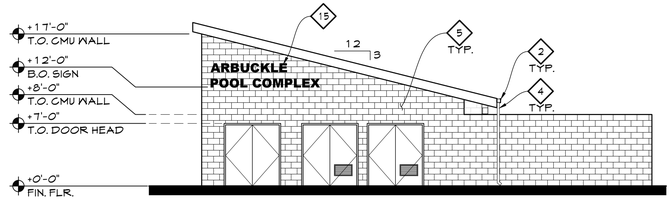
NORTH ELEVATION - CANOPY SCALE: 1/8" = 1'-0" | 5



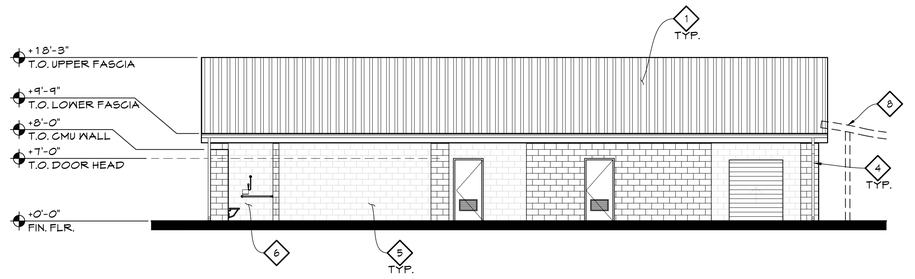
EAST ELEVATION - CANOPY SCALE: 1/8" = 1'-0" | 3

KEYNOTES

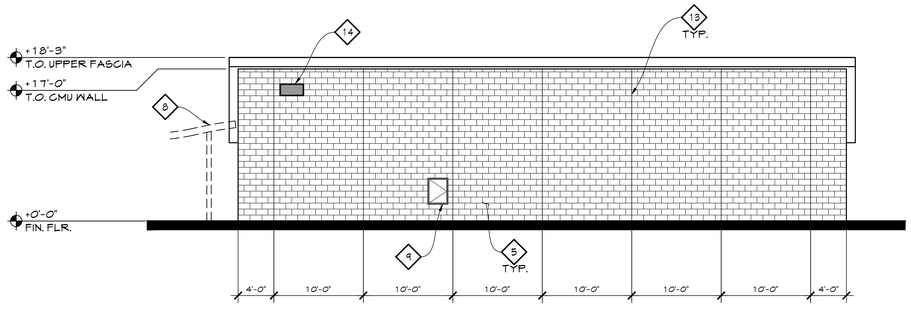
1	CLASS "A" STANDING SEAM METAL ROOF
2	GUTTER - SEE DTL. 10/A8.1
3	CANOPY - SEE STRUCT. DWG's
4	DS - SEE DTL. 9/A8.1
5	8"x8"x16" CMU WALL W/ ANTI-GRAFFITI COATING
6	ACC. SHOWER - SEE DTL. 7/A8.1
7	OUTLINE OF POOL BUILDING
8	OUTLINE OF CANOPY
9	24"x30" EXT. ACCESS DOOR
10	THREE STATION WALL SHOWERS - SEE PLUMB. DWG's.
11	SINGLE WALL MTD. SHOWER HEAD - SEE PLUMB. DWG's.
12	SLIDING WINDOW - SEE WDW. SCHEDULE
13	CONTROL JOINTS
14	LOUVER - SEE DTL. 15/A8.1
15	12" HIGH SIGN LETTERS



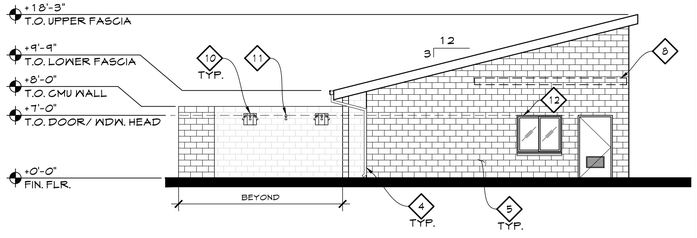
WEST ELEVATION SCALE: 1/8" = 1'-0" | 7



SOUTH ELEVATION SCALE: 1/8" = 1'-0" | 2



NORTH ELEVATION SCALE: 1/8" = 1'-0" | 6



EAST ELEVATION SCALE: 1/8" = 1'-0" | 1

SHEET NOTES

1. ALL EXT. EXPOSED MTL. (INCLUDES DOORS, TRIM, GUTTERS, DOWNSPOUTS, CANOPY,) SHALL BE FACTORY FINISHED OR FIELD PAINTED. COLORS TBD BY THE ARCHITECT. ASSUME 2 COLORS.

APPROVALS

PO Box 1900
Yuba City, CA 95992-1900
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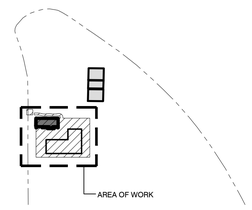


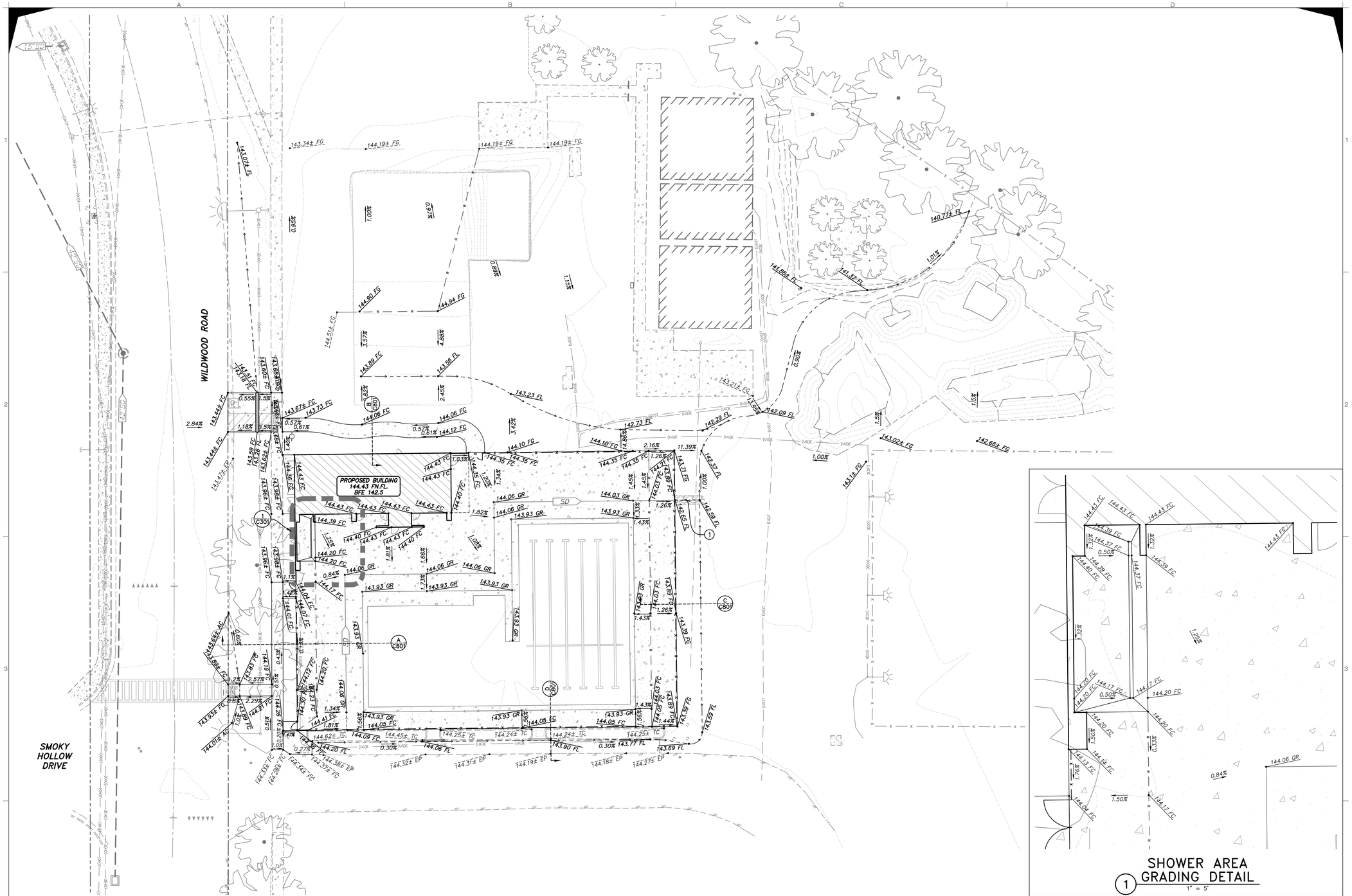
LICENSED ARCHITECT
MICHAEL ONEIL RUSSELL
EXPIRES 8-31-24
C-19722
STATE OF CALIFORNIA

NO.	REVISION DESCRIPTION	DATE

EXTERIOR ELEVATIONS

DATE	2023-08-09
PROJECT NO.	21-P03-03

A3.1



GENERAL GRADING NOTES:

A. ALL EARTHWORK ACTIVITIES, INCLUDING EXCAVATION, GRADING, SCARIFYING, MOISTURIZING, FILL PLACEMENT, COMPACTION, ETC., SHALL BE PERFORMED IN ACCORDANCE WITH THE RECOMMENDATIONS CONTAINED IN THE PROJECT GEOTECHNICAL ENGINEERING REPORT AND IN CONFORMANCE WITH THE CITY STANDARD SPECIFICATIONS, CALIFORNIA BUILDING CODE (C.B.C.), AND WITH THE GRADING PLAN.

B. THE GEOTECHNICAL ENGINEER SHALL OBSERVE THE GRADING ACTIVITIES AND PERFORM COMPACTION TESTING FOR THIS PROJECT. THE CONTRACTOR SHALL PROVIDE AT LEAST 24 HOURS NOTICE TO THE GEOTECHNICAL ENGINEER OF THE NEED FOR OBSERVATION AND TESTING SERVICES. THE PROJECT OWNER WILL PAY FOR THE COST OF PROVIDING THESE SERVICES; HOWEVER, IF SAMPLES OF MATERIALS ARE SUBMITTED WHICH FAIL TO PASS THE SPECIFIED TESTS OR IF WORK IS PERFORMED WHICH FAILS TO MEET THESE SPECIFICATIONS, THE CONTRACTOR SHALL PAY FOR ALL SUBSEQUENT RE-TESTS AND RE-INSPECTIONS.

C. EARTHWORK SHALL INCLUDE ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY TO CONSTRUCT THE SITE TO THE GRADES SHOWN. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR THE DISPOSAL OF EXCESS EXCAVATION OR FOR THE IMPORT OF MATERIAL.

D. TO ACCOMMODATE TRENCH AND FOUNDATION SPOILS, THE CONTRACTOR'S GRADING SHALL INCLUDE UNDERCUTTING OF PAVED AREAS AS APPROPRIATE, OR SOME OTHER METHOD APPROVED BY THE ENGINEER. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR THE DISPOSAL OF EXCESS EXCAVATION OR FOR THE IMPORT OF MATERIAL.

E. CONTRACTOR SHALL OVEREXCAVATE LANDSCAPE AREAS TO ACCOMMODATE SITE STRIPPINGS. STRIPPINGS ARE NOT ALLOWED IN PAVING OR BUILDING AREAS.

F. ALL CUT SLOPES SHALL BE ROUNDED AT THE "BREAK" SO THAT THEY BLEND WITH THE NATURAL GROUND CONTOUR.

GRADING NOTES:

B1. THERE ARE NO PLANNED PERMANENT GRADING SPOILS AREAS PLANNED FOR THE SITE.

B2. ALL TEMPORARY GRADING SPOILS AREAS REQUIRED FOR THE CONSTRUCTION OF THE SITE SHALL BE MAINTAINED UTILIZING BMP'S WHICH WILL BE REQUIRED WITH THE PROJECT SWPPP.

B3. PRIOR TO FINISHED GRADING AND LANDSCAPE WORK, CONTRACTOR SHALL SCHEDULE A SITE WALK WITH THE ENGINEER TO VERIFY CRITICAL GRADING ISSUES.

CONSTRUCTION NOTES

(1) INSTALL COBBLE RIP-RAP PER DETAIL 4, SHEET C702.

0 10 20 40
LM
SCALE: 1"=20'

APPROVALS

674 Shasta Street
Yuba City, CA 95991
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Managers Architects

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OWNER

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PROJECT

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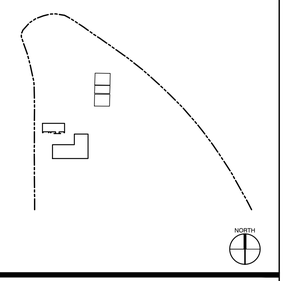
KEY PLAN



REGISTERED PROFESSIONAL ENGINEER
BRYAN P. BOMING
No. 41804
CIVIL
STATE OF CALIFORNIA

100% PLANS

NO.	REVISION DESCRIPTION	DATE

GRADING & DRAINAGE PLAN

SHEET 6 OF 13

DATE	07/20/2023
PROJECT NO.	21-P03-03

C301

SECTION 321313 - CONCRETE PAVING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Walks.
2. Pool Deck.

B. Related Sections:

1. Section 033000 "Cast-in-Place Concrete" for general building applications of concrete.

1.2 DEFINITIONS

A. Cementitious Materials: Portland cement alone or in combination with one or more of blended hydraulic cement, fly ash and other pozzolans, and ground granulated blast-furnace slag.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

B. Other Action Submittals:

1. Design Mixtures: For each concrete paving mixture. Include alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

1.4 INFORMATIONAL SUBMITTALS

A. Material Certificates: For the following, from manufacturer:

1. Cementitious materials.
2. Steel reinforcement and reinforcement accessories.
3. Admixtures.
4. Curing compounds.
5. Bonding agent or epoxy adhesive.
6. Joint fillers.

B. Material Test Reports: For each of the following:

1. Aggregates.

1.5 QUALITY ASSURANCE

A. Ready-Mix-Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

B. ACI Publications: Comply with ACI 301 unless otherwise indicated.

1.6 PROJECT CONDITIONS

A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.

PART 2 - PRODUCTS

2.1 FORMS

A. Form Materials: Plywood, metal, metal-framed plywood, or other approved panel-type materials to provide full-depth, continuous, straight, and smooth exposed surfaces.

B. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and that will not impair subsequent treatments of concrete surfaces.

2.2 STEEL REINFORCEMENT

A. Plain-Steel Welded Wire Reinforcement: ASTM A 185/A 185M, fabricated from steel wire into flat sheets.

B. Deformed-Steel Welded Wire Reinforcement: ASTM A 497/A 497M, flat sheet.

C. Reinforcing Bars: ASTM A 615/A 615M, Grade 60; deformed.

D. Tie Bars: ASTM A 615/A 615M, Grade 60, deformed.

E. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars, welded wire reinforcement, and dowels in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete of greater compressive strength than concrete specified, and as follows:

1. Equip wire bar supports with sand plates or horizontal runners where base material will not support chair legs.

F. Zinc Repair Material: ASTM A 780.

2.3 CONCRETE MATERIALS

A. Cementitious Material: Use the following cementitious materials, of same type, brand, and source throughout Project:

1. Portland Cement: ASTM C 150, portland cement Type II/V. Supplement with the following:

a. Fly Ash: ASTM C 618, Class C or Class F.

B. Normal-Weight Aggregates: ASTM C 33, uniformly graded. Provide aggregates from a single source.

1. Maximum Coarse-Aggregate Size: 3/4 inch.

2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

C. Water: Potable and complying with ASTM C 94.

D. Air-Entraining Admixture: ASTM C 260.

E. Chemical Admixtures: Admixtures certified by manufacturer shall comply with ASTM C 494 and be compatible with other admixtures and to contain not more than 0.1 percent water-soluble chloride ions by mass of cementitious material.

2.4 RELATED MATERIALS

A. Joint Fillers: ASTM D 1751, asphalt-saturated cellulosic fiber or ASTM D 1752, cork or self-expanding cork in preformed strips.

2.5 WHEEL STOPS

A. Wheel Stops: Precast, air-entrained concrete, 2500-psi minimum compressive strength, 4-1/2 inches high by 9 inches wide by 72 inches long. Provide chamfered corners and drainage slots on underside and holes for anchoring to substrate.

1. Dowels: Galvanized steel, 3/4 inch in diameter, 10-inch minimum length.

2.6 CONCRETE MIXTURES

A. Prepare design mixtures, proportioned according to ACI 301, for each type and strength of normal-weight concrete, and as determined by either laboratory trial mixtures or field experience.

1. Use a qualified independent testing agency for preparing and reporting proposed concrete design mixtures for the trial batch method.

2. When automatic machine placement is used, determine design mixtures and obtain laboratory test results that meet or exceed requirements.

B. Proportion mixtures to provide normal-weight concrete with the following properties:

1. Compressive Strength (28 Days): Per geotechnical report and plans.

2. Slump Limit: 4 inches, plus or minus 1 inch.

2.7 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M. Furnish batch certificates for each batch discharged and used in the Work.

1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

B. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M. Mix concrete materials in appropriate drum-type batch machine mixer.

1. For concrete batches of 1 cu. yd. or smaller, continue mixing at least 1-1/2 minutes, but not more than 5 minutes after ingredients are in mixer, before any part of batch is released.

2. For concrete batches larger than 1 cu. yd., increase mixing time by 15 seconds for each additional 1 cu. yd.

3. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mixture type, mixing time, quantity, and amount of water added.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine exposed subgrades and subbase surfaces for compliance with requirements for dimensional, grading, and elevation tolerances.

A. Proof-roll prepared subbase surface below concrete paving to identify soft pockets and areas of excess yielding.

1. Completely proof-roll subbase. Limit vehicle speed to 3 mph.

2. Proof-roll with a pneumatic-tired and loaded, 10-wheel, tandem-axle dump truck weighing not less than 15 tons, or pneumatic-tired construction equipment with equivalent weight.

3. Correct subbase with soft spots and areas of pumping or rutting exceeding depth of 1/2 inch according to requirements in Division 31 Section "Earth Moving."

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

3.2 PREPARATION

A. Remove loose material from compacted subbase surface immediately before placing concrete.

3.3 EDGE FORMS AND SCREED CONSTRUCTION

A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.

B. Clean forms after each use and coat with form-release agent to ensure separation from concrete without damage.

3.4 STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

B. Clean reinforcement of loose rust and mill scale, earth, ice, or other bond-reducing materials.

C. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement. Maintain minimum cover to reinforcement.

D. Install welded wire reinforcement in lengths as long as practicable. Lap adjoining pieces at least one full mesh, and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.

E. Zinc-Coated Reinforcement: Use galvanized-steel wire ties to fasten zinc-coated reinforcement. Repair cut and damaged zinc coatings with zinc repair material.

F. Epoxy-Coated Reinforcement: Use epoxy-coated steel wire ties to fasten epoxy-coated reinforcement. Repair cut and damaged epoxy coatings with epoxy repair coating according to ASTM D 3963/D 3963M.

G. Install fabricated bar mats in lengths as long as practicable. Handle units to keep them flat and free of distortions. Straighten bends, kinks, and other irregularities, or replace units as required before placement. Set mats for a minimum 2-inch overlap of adjacent mats.

3.5 JOINTS

A. General: Form construction, isolation, and contraction joints and tool edges true to line, with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline unless otherwise indicated.

1. When joining existing paving, place transverse joints to align with previously placed joints unless otherwise indicated.

B. Construction Joints: Set construction joints at side and end terminations of paving and at locations where paving operations are stopped for more than one-half hour unless paving terminates at isolation joints.

1. Continue steel reinforcement across construction joints unless otherwise indicated. Do not continue reinforcement through sides of paving strips unless otherwise indicated.

2. Provide tie bars at sides of paving strips where indicated.

3. Butt Joints: Use bonding agent at joint locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.

4. Keyed Joints: Provide preformed keyway-section forms or bulkhead forms with keys unless otherwise indicated. Embed keys at least 1-1/2 inches into concrete.

5. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or coat with asphalt one-half of dowel length to prevent concrete bonding to one side of joint.

C. Isolation Joints: Form isolation joints of preformed joint-filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, other fixed objects, and where indicated.

1. Locate expansion joints at intervals of 30 feet unless otherwise indicated.

2. Extend joint fillers full width and depth of joint.

3. Terminate joint filler not less than 1/2 inch or more than 1 inch below finished surface if joint sealant is indicated.

4. Place top of joint filler flush with finished concrete surface if joint sealant is not indicated.

5. In pool deck area, joint sealant shall be provided at all isolation joints.

6. Furnish joint fillers in one-piece lengths. Where more than one length is required, lace or clip joint-filler sections together.

7. During concrete placement, protect top edge of joint filler with metal, plastic, or other temporary preformed cap. Remove protective cap after concrete has been placed on both sides of joint.

D. Contraction Joints: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of the concrete thickness, as follows:

1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint with grooving tool to a 1/4-inch radius. Repeat grooving of contraction joints after applying surface finishes. Eliminate grooving-tool marks on concrete surfaces.

a. Tolerance: Ensure that grooved joints are within 3 inches either way from centers of dowels.

2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before developing random contraction cracks.

a. Tolerance: Ensure that sawed joints are within 3 inches either way from centers of dowels.

3. Doweled Contraction Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or coat with asphalt one-half of dowel length to prevent concrete bonding to one side of joint.

E. Edging: After initial floating, tool edges of paving, gutters, curbs, and joints in concrete with an edging tool to a 1/4-inch radius. Repeat tooling of edges after applying surface finishes. Eliminate edging-tool marks on concrete surfaces.

3.6 CONCRETE PLACEMENT

A. Before placing concrete, inspect and complete formwork installation, steel reinforcement, and items to be embedded or cast-in.

B. Remove snow, ice, or frost from subbase surface and steel reinforcement before placing concrete. Do not place concrete on frozen surfaces.

C. Moisten subbase to provide a uniform dampened condition at time concrete is placed. Do not place concrete around manholes or other structures until they are at required finish elevation and alignment.

D. Comply with ACI 301 requirements for measuring, mixing, transporting, and placing concrete.

E. Do not add water to concrete during delivery or at Project site. Do not add water to fresh concrete after testing.

F. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.

G. Consolidate concrete according to ACI 301 by mechanical vibrating equipment supplemented by hand spading, rodding, or tamping.

1. Consolidate concrete along face of forms and adjacent to transverse joints with an internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Use only square-faced shovels for hand spreading and consolidation. Consolidate with care to prevent dislocating reinforcement dowels and joint devices.

H. Screed paving surface with a straightedge and strike off.

I. Commence initial floating using bull floats or darbies to impart an open-textured and uniform surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading surface treatments.

J. Curbs and Gutters: Use design mixture for automatic machine placement. Produce curbs and gutters to required cross section, lines, grades, finish, and jointing.

K. Slip-Form Paving: Use design mixture for automatic machine placement. Produce paving to required thickness, lines, grades, finish, and jointing.

1. Compact subbase and prepare subgrade of sufficient width to prevent displacement of slip-form paving machine during operations.

L. Cold-Weather Placement: Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing, or low temperatures. Comply with ACI 306.1 and the following:

1. When air temperature has fallen to or is expected to fall below 40 deg F, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F and not more than 80 deg F at point of placement.

2. Do not use frozen materials or materials containing ice or snow.

3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in design mixtures.

M. Hot-Weather Placement: Comply with ACI 301 and as follows when hot-weather conditions exist:

1. Cool ingredients before mixing to maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated in total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.

2. Cover steel reinforcement with water-soaked burlap so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.

3. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

3.7 FINISHING

A. General: Do not add water to concrete surfaces during finishing operations.

B. Float Finish: Begin the second floating operation when bleed-water sheen has disappeared and concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes. Cut down high spots and fill low spots. Refloat surface immediately to uniform granular texture.

1. Medium-to-Coarse-Textured Broom Finish: Provide a coarse finish by striating float-finished concrete surface 1/16 to 1/8 inch deep with a stiff-bristled broom, perpendicular to line of traffic.

3.8 CONCRETE PROTECTION AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.

B. Comply with ACI 306.1 for cold-weather protection.

C. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete but before float finishing.

D. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.

E. Curing Methods: Cure concrete by moisture curing, moisture-retaining-cover curing, curing compound, or a combination of these as follows:

1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:

a. Water.
b. Continuous water-fog spray.
c. Absorptive cover, water saturated and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.

2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover, placed in widest practicable width, with sides and ends lapped at least 12 inches and sealed by waterproof tape or adhesive. Immediately repair any holes or tears occurring during installation or curing period using cover material and waterproof tape.

3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas that have been subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating, and repair damage during curing period.

3.9 PAVING TOLERANCES

A. Comply with tolerances in ACI 117 and as follows:

1. Elevation: 3/4 inch.

2. Thickness: Plus 3/8 inch, minus 1/4 inch.

3. Surface: Gap below 10-foot- long, unleveled straightedge not to exceed 1/2 inch.

4. Alignment of Tie-Bar End Relative to Line Perpendicular to Paving Edge: 1/2 inch per 12 inches of tie bar.

5. Lateral Alignment and Spacing of Dowels: 1 inch.

6. Vertical Alignment of Dowels: 1/4 inch.

7. Alignment of Dowel-Bar End Relative to Line Perpendicular to Paving Edge: 1/4 inch per 12 inches of dowel.

8. Joint Spacing: 3 inches.

9. Contraction Joint Depth: Plus 1/4 inch, no minus.

10. Joint Width: Plus 1/8 inch, no minus.

3.10 WHEEL STOPS

A. Install wheel stops in bed of adhesive applied as recommended by manufacturer.

B. Securely attach wheel stops to paving with not less than two galvanized-steel dowels located at one-quarter to one-third points. Install dowels in drilled holes in the paving and bond dowels to wheel stop. Recess head of dowel beneath top of wheel stop.

3.11 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

B. Testing Services: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:

1. Testing Frequency: Obtain at least one composite sample for each 100 cu. yd. or fraction thereof of each concrete mixture placed each day.

    a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.

2. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.

3. Air Content: ASTM C 231, pressure method; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.

4. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 deg F and below and when it is 80 deg F and above, and one test for each composite sample.

5. Compression Test Specimens: ASTM C 31/C 31M; cast and laboratory cure one set of three standard cylinder specimens for each composite sample.

6. Compressive-Strength Tests: ASTM C 39/C 39M; test one specimen at seven days and two specimens at 28 days.

    a. A compressive-strength test shall be the average compressive strength from two specimens obtained from same composite sample and tested at 28 days.

C. Strength of each concrete mixture will be satisfactory if average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.

D. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.

E. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.

F. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect.

G. Concrete paving will be considered defective if it does not pass tests and inspections.

H. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

I. Prepare test and inspection reports.

3.12 REPAIRS AND PROTECTION

A. Remove and replace concrete paving that is broken, damaged, or defective or that does not comply with requirements in this Section. Remove work in complete sections from joint to joint unless otherwise approved by Architect.

B. Drill test cores, where directed by Architect, when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory paving areas with portland cement concrete bonded to paving with epoxy adhesive.

C. Protect concrete paving from damage. Exclude traffic from paving for at least 14 days after placement. When construction traffic is permitted, maintain paving as clean as possible by removing surface stains and spillage of materials as they occur.

D. Maintain concrete paving free of stains, discoloration, dirt, and other foreign material. Sweep paving not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION 321313