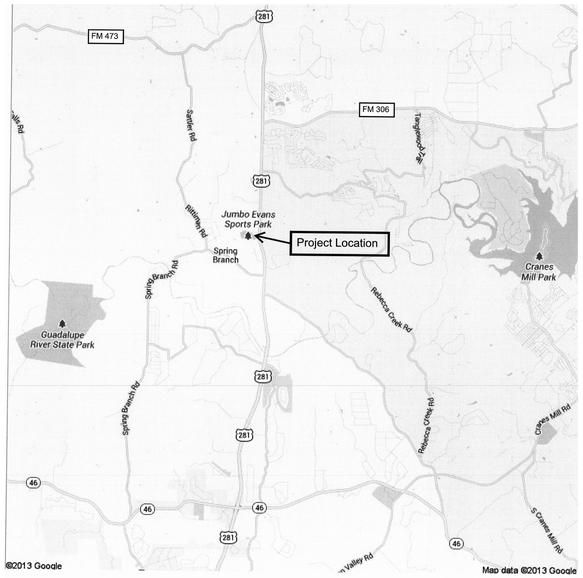
CONSTRUCTION DOCUMENTS
FOR
NEW TENNIS COURT NOS. 5 & 6
AT THE JUMBO EVANS SPORTS PARK

101 Jumbo Evans Boulevard

Comal County

Spring Branch, Texas

SLAB, FENCING AND LIGHTING PACKAGE



Project Location Map

COMAL COUNTY TEXAS

September, 2016

INDEX OF DRAWINGS

PKA

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POST-TENSIONED CONCRETE TENNIS COURT SLAB STRUCTURAL NOTES AND SPECIFICATIONS

QUALIFICATIONS

THE WORK DESCRIBED IN THESE DRAWINGS SHALL BE PERFORMED BY A CONTRACTOR THAT SPECIALIZES IN THE CONSTRUCTION OF TENNIS AND SPORT COURTS AND THAT HAS A MINIMUM OF 5 YEARS OF EXPERIENCE IN THE CONSTRUCTION OF POST-TENSIONED CONCRETE TENNIS AND SPORT COURTS. THE CONTRACTOR SHALL SUBMIT, WITH HIS OR HER BID, A LIST OF ALL TENNIS COURT PROJECTS, INCLUDING PROJECT NAME, LOCATION AND DESCRIPTION, PERFORMED WITHIN THE LAST 5 YEARS AND A LIST OF REFERENCES (MINIMUM OF 7), INCLUDING THE NAME OF THE OWNER AND NAME OF A CONTACT PERSON WITH THE CONTACT PERSON'S ADDRESS, TELEPHONE NUMBER AND E-MAIL ADDRESS.

BID ALTERNATES

ADD ALTERNATE NO. 1 CONSISTS OF THE COURT LIGHTING FIXTURES, LIGHT POLES AND FOUNDATIONS, CONDUITS, CONDUCTORS AND ELECTRICAL GEAR OUTSIDE THE LIMITS OF THE COURT SLAB. REFER TO THE ELECTRICAL DRAWINGS.

ADD ALTERNATE NO. 2 CONSISTS OF THE CONCRETE FLATWORK BETWEEN THE EXISTING COURT NO. 4 AND THE NEW COURT NO. 5, INCLUDING EXCAVATION OF THE SURFICIAL SOILS AND SUBGRADE PREPARATION TO ACCOMMODATE THE FLATWORK. REFER TO SHEET S-4 AND THE SECTIONS AND DETAILS.

CONTRACTOR'S REQUIREMENTS

1 THE CONTRACTOR SHALL BID THIS PROJECT WITH THE UNDERSTANDING THAT IT ENTAILS THE CONSTRUCTION OF TWO NEW TENNIS COURTS ON A SINGLE SLAB AT AN EXISTING TENNIS CENTER AT THE COMAL COUNTY JUMBO EVANS SPORTS PARK. THE PARK IS LOCATED IN SPRING BRANCH ON JUMBO EVANS BOULEVARD, JUST OFF OF US HIGHWAY 281. THE PROJECT INCLUDES, BUT IS NOT NECESSARILY LIMITED TO:

A FINE GRADING OF THE EXISTING SELECT FILL COURT SLAB PAD AND EARTHWORK AROUND THE NEW COURTS SLAB AS NECESSARY TO REPAIR AND/OR RESTORE THE EXISTING GRADING.

B FURNISHING AND INSTALLATION OF A COURT LIGHTING SYSTEM.

1) CONSTRUCTION OF COURT LIGHT POLE FOUNDATIONS.

2) INSTALLATION OF CONDUIT AND WIRING FROM THE POWER POLE TO THE SWITCHES AND FROM THE SWITCHES TO THE POLES AND FIXTURES.

3) FURNISHING AND INSTALLATION OF COURT LIGHTING POLES, ANCHOR BOLTS AND FIXTURES.

4) FURNISHING AND INSTALLATION OF COURT LIGHTING SWITCHES.

5) THE LIGHT POLE FOUNDATIONS OUTSIDE THE LIMITS OF THE SLAB, ALL LIGHT FIXTURES, ALL LIGHT POLES, CONDUITS AND CONDUCTORS OUTSIDE THE LIMITS OF THE SLAB AND ELECTRICAL SWITCHES AND EQUIPMENT ARE CONSIDERED TO BE PART OF ADD ALTERNATE NO. 2.

C FORMWORK, POST-TENSIONING SYSTEM, CONCRETE AND CURING FOR THE NEW COURTS SLAB.

D COURT SURFACING AND STRIPING.

E FENCING, INCLUDING FENCE POST FOUNDATIONS AND WIND SCREENS.

F SEALING OF ISOLATION AND EXPANSION JOINTS.

G THE SELECT FILL PAD THAT SUPPORTS THE NEW POST-TENSIONED CONCRETE COURTS SLAB AND THE GRADING OF AND AROUND THE PAD HAS BEEN CONSTRUCTED UNDER A SEPARATE CONSTRUCTION CONTRACT.

2 THESE DOCUMENTS ARE BASED ON THE INFORMATION AVAILABLE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE SCOPE OF THE WORK AND CONFIRM ALL EXISTING CONDITIONS, DIMENSIONS, ELEVATIONS, LOCATIONS OF EXISTING FEATURES TO REMAIN AND DETAILS PRIOR TO BEGINNING EARTHWORK OPERATIONS OR ANY FABRICATION OR CONSTRUCTION OF PROJECT COMPONENTS. ANY SIGNIFICANT VARIATIONS OR DISCREPANCIES BETWEEN THE EXISTING CONDITIONS AND THESE DRAWINGS SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION WITHIN 48 HOURS OF DISCOVERY.

3 THE CONTRACTOR SHALL PROTECT ALL EXISTING STRUCTURES, COURTS, FENCING, LIGHT POLES AND FOUNDATIONS, FEATURES, WALKWAYS, DRIVEWAYS, PARKING AREAS, CURBS, UTILITIES SEPTIC SYSTEMS AND OTHER PERMANENT ELEMENTS TO REMAIN FROM DAMAGE DURING CONSTRUCTION. THE PROJECT AREA SHALL BE INSPECTED WITH AN OWNER'S REPRESENTATIVE TO INSPECT AND DOCUMENT EXISTING CONDITIONS PRIOR TO CONSTRUCTION. ANY DAMAGE TO EXISTING FACILITIES THAT ARE TO REMAIN OR TO BE REUSED SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR OR REPLACE AT NO ADDITIONAL COST TO THE OWNER.

4 JOB SITE SAFETY SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL, AS A MINIMUM, ADHERE TO THE REQUIREMENTS OF THE OCCUPATIONAL HEALTH AND SAFETY (OSHA) REGULATIONS. THE CONTRACTOR SHALL ALSO TAKE PRECAUTIONS TO PROTECT EXISTING FACILITIES, EQUIPMENT, PERSONNEL, STAFF AND PARK USERS IN AND AROUND THE WORK AREAS FROM DAMAGE OR HARM. ALL SAFETY EXPOSURES, VIOLATIONS OR HAZARDS SHALL BE CORRECTED BY THE CONTRACTOR IMMEDIATELY UPON NOTIFICATIONS.

5 ALL CHEMICALS OR CHEMICAL COMPOUNDS PROPOSED FOR USE, INCLUDING, BUT NOT LIMITED TO, PAINT, THINNERS, SOLVENTS, EPOXIES, ADHESIVES, ETC. SHALL BE PRE-APPROVED. SUBMIT MATERIAL SAFETY DATA SHEETS, PROPOSED QUANTITIES AND THE PRODUCT MANUFACTURER'S INSTALLATION OR USE INSTRUCTIONS AND PROCEDURES TO THE OWNER OR OWNER'S REPRESENTATIVE PRIOR TO BRINGING SUCH MATERIALS ONTO THE PARK PREMISES.

EARTHWORK

1 ALL EXISTING VEGETATION, IF PRESENT, SHALL BE REMOVED WITHIN THE NEW COURT SLAB AREA.

2 FOLLOWING REMOVAL OF EXISTING VEGETATION, EXCAVATE OR PLACE FINE GRADING MATERIALS, CONSISTING OF COMPACTABLE CRUSHED LIMESTONE FINES, SCREENINGS OR BASE MATERIAL, AS NECESSARY TO ADJUST THE EXISTING PAD ELEVATIONS TO THE REQUIRED BOTTOM OF SLAB ELEVATIONS. FINE GRADING MATERIAL SHALL BE FIRMLY TAMPED OR COMPACTED INTO PLACE. THE USE OF SAND FOR FINE GRADING WILL NOT BE PERMITTED.

3 THE TOLERANCE ON TOP OF PAD/SUBGRADE ELEVATION SHALL BE +0 / -3/4 INCH MEASURED FROM THE BOTTOM OF SLAB ELEVATION.

4 THE FINAL TOP SURFACE OF THE PAD SHALL BE SMOOTH AND FREE OF RIDGES, RUTS OR SHARP OR ABRUPT SURFACE IRREGULARITIES. USE A STEEL WHEELED ROLLER FOR FINAL SURFACE ROLLING.

5 PERIMETER SLAB EDGES SHALL BE EXCAVATED AND SHAPED TO THE PROFILE SHOWN ON THE DRAWINGS THROUGHOUT THEIR LENGTH.

6 THE PREPARED SUBGRADE PAD SHALL BE COVERED WITH 2 PLYS OF 10 MIL POLYOLEFIN SHEETING. THE SECOND PLY SHALL BE PLACED PERPENDICULAR TO THE FIRST. ALL JOINTS SHALL BE TAPED OR SEALED. CONTRACTOR SHALL TAKE CARE TO ENSURE THAT ALL POLYETHYLENE SHEETING IS SMOOTH AND LEVEL UNDER BEAMS AND SLABS. THE BUNCHING OF SHEETING WILL NOT BE PERMISSIBLE AND SHALL BE CORRECTED PRIOR TO PLACEMENT OF CONCRETE. SHEETING SHALL EXTEND BELOW ALL THICKENED EDGES TO THE EDGE OF SLAB.

7 EXCAVATIONS FOR THICKENED SLAB EDGES AND NET AND POLE FOOTINGS SHALL BE NEAT AND FREE OF TRASH, DEBRIS AND LOOSE MATERIAL PRIOR TO PLACEMENT OF THE CONCRETE. CONTRACTOR SHALL USE CARE TO AVOID CAVE-INS OR SLOUGHING DUE TO TRAFFIC FROM WORKMEN AND EQUIPMENT.

8 UTILITY TRENCHES - EXCAVATIONS OF UTILITY TRENCHES WITHIN THE COURT SLAB CONSTRUCTION AREA SHALL BE BACKFILLED WITH PROPERLY COMPACTED SELECT STRUCTURAL FILL CONSISTING OF CRUSHED LIMESTONE BASE MATERIAL OR THE MATERIAL EXCAVATED FROM THE COURT PAD.

9 ALL SURFACES AROUND AND OUTSIDE OF THE COURT SLAB SHALL BE REPAIRED AS NECESSARY TO REPAIR ANY DAMAGE RESULTING FROM THE COURT SLAB CONSTRUCTION AND TO RESTORE THE EXISTING GRADES AS SHOWN ON THESE DRAWINGS. COMPACT AS NECESSARY TO A MINIMUM OF 95 PERCENT OF MAXIMUM DENSITY IN ACCORDANCE WITH TxDOT TEST METHOD TEX-115-E. MAXIMUM SLOPES SHALL NOT EXCEED 4H:1V.

POLYOLEFIN SHEETING

1 THE SURFACE OF THE FILL AND, WHERE THE OVERLAY CONCRETE WILL BE IN CONTACT, THE EXISTING SLAB SHALL BE COVERED WITH 2 PLYS OF 10 MIL POLYOLEFIN SHEETING. THE SECOND PLY SHALL BE PLACED PERPENDICULAR TO THE FIRST. ALL JOINTS SHALL BE LAPPED A MINIMUM OF 6 INCHES AND SHALL BE SEALED WITH PRESSURE SENSITIVE PLASTIC TAPE. THE CONTRACTOR SHALL TAKE CARE TO ENSURE THAT THE POLYETHYLENE SHEETING IS SMOOTH AND LEVEL OVER THE EXISTING SLAB SURFACE. BUNCHING OF SHEETING WILL NOT BE PERMISSIBLE AND SHALL BE CORRECTED PRIOR TO PLACEMENT OF CONCRETE. ANY TEARS OR DAMAGE TO THE SHEETING SHALL BE REPAIRED PRIOR TO PLACEMENT OF CONCRETE.

2 SURFACES OF THE SHEETING SHALL BE CLEAN AND FREE OF DEBRIS PRIOR TO PLACEMENT OF CONCRETE.

3 ACCEPTABLE PRODUCTS ARE STEGO WRAP 10 (10 MIL THICKNESS) AS MANUFACTURED BY STEGO INDUSTRIES, LLC, SAN JUAN CAPISTRANO, CALIFORNIA; OR GRIFFOLYN 10 (10 MIL THICKNESS) VAPOR BARRIER BY REEF INDUSTRIES, HOUSTON, TEXAS; OR AN APPROVED ALTERNATE. SHEETING SHALL BE SMOOTH AND FREE OF DEFORMATIONS OR REINFORCEMENT. THE MINIMUM TAPE WIDTH SHALL BE 4 INCHES. ACCEPTABLE TAPE PRODUCTS ARE STEGO TAPE AS MANUFACTURED BY STEGO INDUSTRIES, LLC OF SAN JUAN CAPISTRANO, CALIFORNIA; GRIFFOLYN PRESSURE SENSITIVE TAPE, BY REEF INDUSTRIES OF HOUSTON, TEXAS; OR AN ALTERNATE APPROVED BY THE ENGINEER.

POST-TENSIONING SYSTEM

1 TENDONS SHALL BE 1/2 INCH DIAMETER, SEVEN WIRE, LOW RELAXATION STRAND CONFORMING TO ASTM A416, INCLUDING THE SUPPLEMENT FOR LOW RELAXATION STRAND, WITH A GUARANTEED MINIMUM ULTIMATE STRENGTH OF 270 KSI.

2 TENDONS SHALL BE UNBONDED.

3 STRAND SHALL BE COATED WITH A RUST PREVENTIVE LUBRICANT AND ENCASED IN AN EXTRUDED PLASTIC SLIPPAGE SHEATHING. TO PROVIDE INCREASED RESISTANCE TO DAMAGE DURING HANDLING AND CONSTRUCTION, THE SHEATHING THICKNESS SHALL BE A MINIMUM OF 0.050 INCHES (50 MILS). TORN OR DAMAGED SHEATHING SHALL BE REPAIRED BY COATING THE STRAND WITH GREASE AND WRAPPING WITH PLASTIC PRIOR TO PLACEMENT OF CONCRETE. SMALL NICKS MAY BE REPAIRED BY REMOVING ANY GREASE ON THE EXTERIOR OF THE SHEATHING AND WRAPPING THE DAMAGED AREA SECURELY WITH PLASTIC TAPE.

4 UNLESS OTHERWISE NOTED, ALL COMPONENTS OF THE POST-TENSIONING SYSTEM SHALL MEET THE REQUIREMENTS OF THE "GUIDE SPECIFICATIONS FOR POST-TENSIONING MATERIALS" OF THE POST-TENSIONING INSTITUTE'S POST-TENSIONING MANUAL.

5 GROMMETS OR POCKET FORMERS SHALL BE PROVIDED AT ALL STRESSING ANCHORAGES. POCKET FORMERS SHOULD BE COATED WITH FORM RELEASE AGENT PRIOR TO INSTALLATION FOR EASY REMOVAL.

6 APPROPRIATE ANCHORAGES SHOULD BE PROVIDED FOR DEAD END AND STRESSING END ANCHORS.

POST-TENSIONING SYSTEM INSTALLATION

1 UNLESS OTHERWISE NOTED, THE POST-TENSIONING SYSTEM, INCLUDING SHIPPING, HANDLING, STORAGE, PLACEMENT OF TENDONS AND ANCHORAGES, STRESSING AND FINISHING SHALL BE IN ACCORDANCE WITH THE "CONSTRUCTION AND MAINTENANCE PROCEDURES MANUAL FOR POST-TENSIONED SLAB-ON-GROUND CONSTRUCTION," 2ND EDITION, OF THE POST-TENSIONING INSTITUTE.

TENDON FABRICATION, SHIPPING, DELIVERY AND STORAGE

1 TENDONS SHALL BE FABRICATED WITH SUFFICIENT LENGTH BEYOND THE EDGE FORMS TO ALLOW STRESSING. A MINIMUM LENGTH OF 18 INCHES FROM EACH STRESSING END IS REQUIRED.

2 TENDONS THAT ARE TO BE STRESSED FROM ONE END ONLY SHALL HAVE FIXED-END ANCHORAGES ATTACHED TO ONE END PRIOR TO SHIPMENT.

3 TENDONS SHALL BE CLEARLY IDENTIFIED, AS REQUIRED ON THE PLACING DRAWING, FOR EASY AND PROPER PLACEMENT.

4 EACH TENDON SHIPMENT SHALL BE ACCOMPANIED BY A TENDON FABRICATION ORDER INDICATING THE NUMBER OF TENDONS, THEIR LENGTH, IDENTIFICATION NUMBERS, AND THE TOTAL NUMBER OF ANCHORAGES, WEDGES AND GROMMETS OR POCKET FORMERS SHIPPED.

5 CONTRACTOR SHALL PROPERLY UNLOAD TENDONS UPON ARRIVAL AT THE JOB SITE. THE USE OF A NYLON SLING IS RECOMMENDED TO PREVENT DAMAGE TO SHEATHING. CONTRACTOR SHALL SATISFACTORILY PROTECT TENDONS AT THE JOB SITE FROM CORROSION PRIOR TO PLACEMENT, WITH PARTICULAR ATTENTION PAID TO THE EXPOSED ENDS OF THE TENDONS. NO CUTTING TORCH OPERATIONS SHALL BE PERMITTED IN THE AREA WHERE TENDONS ARE STORED.

PLACEMENT OF TENDONS AND ANCHORAGES

1 LOCATE THE CENTERLINES OF THE TENDONS AT THE EDGE FORMS AS SHOWN ON THE TENDON LAYOUT DRAWINGS. LOCATE AND MARK ANCHORAGE CENTERLINES ON THE EDGE FORMS SUCH THAT ANCHORAGES AND CENTER OF GRAVITY OF THE TENDONS ARE IN ACCORDANCE WITH THE DRAWINGS. AT STRESSING ENDS, CONTRACTOR SHALL DRILL A 3/4 INCH DIAMETER HOLE IN THE EDGE FORMS.

2 AT STRESSING LOCATIONS, NAIL THE ANCHORAGES WITH GROMMETS OR POCKET FORMERS SECURELY IN PLACE TO THE EDGE FORMS USING RING SHANK NAILS.

3 LAY BOTTOM PERIMETER MILD REINFORCING BARS ALONG THE EDGES OF THE SLAB AT ANCHORAGES. MILD REINFORCING BARS SHALL BE PROVIDED AT ALL EDGES OF SLABS AT BOTH DEAD ENDS AND AT STRESSING ENDS OF TENDONS.

4 PLACE TENDONS ACCORDING TO THE TENDON LAYOUT DRAWINGS. UNCOIL TENDONS STARTING AT THE EDGE FORM, PLACING THE 18 INCH TAIL AT THE STRESSING EDGE. AT STRESSING ENDS, REMOVE SHEATHING FLUSH WITH THE INSIDE OF THE ANCHORAGE. TAKE EXTRA CARE TO ENSURE THAT NO SHEATHING CAN REMAIN IN THE ANCHORAGE. WHERE EXCESSIVE SHEATHING IS REMOVED, SECURELY WRAP THE EXPOSED TENDON WITH PLASTIC AND PLASTIC TAPE TO THE BACK OF THE ANCHORAGE. ENSURE THAT NO PLASTIC OR SHEATHING EXTENDS INTO THE ANCHORAGE.

5 NAIL, TIE OR OTHERWISE SECURE DEAD END ANCHORAGES TO THE EDGE FORMS AT THE SPECIFIED LOCATION. LOOSE PLACEMENT OF DEAD END ANCHORAGES WILL NOT BE PERMITTED.

6 AT STRESSING ENDS, PASS TENDONS THROUGH THE ANCHORAGES AND EDGE FORMS.

7 PLACE CHAIRS AT THE INTERSECTIONS OF ALL TENDONS AND SECURELY TIE TENDONS TOGETHER AND TO THE CHAIRS. PLACE TENDONS SUCH THAT TENDONS ARE STRAIGHT AND LEVEL. VERTICAL PLACEMENT TOLERANCE SHALL BE WITHIN 1/2" OF THE SPECIFIED TENDON LOCATION. EXCESSIVE CURVATURE, EITHER VERTICALLY OR HORIZONTALLY, IN THE JUDGEMENT OF THE ENGINEER OR TESTING LABORATORY REPRESENTATIVE, SHALL BE CORRECTED PRIOR TO CONCRETE PLACEMENT. PROVIDE AND INSTALL ADDITIONAL CHAIRS FOR SUPPORT OF TENDONS IF NECESSARY TO PROVIDE STRAIGHT, LEVEL AND SECURE TENDON INSTALLATIONS. TENDONS SHALL BE TIED AND SUPPORTED SECURELY TO PREVENT MOVEMENT OR DISPLACEMENT OF TENDONS DURING CONCRETE PLACEMENT. CHAIRS SHALL BE HEAVY DUTY TYPE WITH "SAND BASE" TYPE BASES TO PROVIDE STABLE, STURDY SUPPORT FOR TENDONS. CHAIRS SHALL BE GTI INTERSECTIONAL CHAIRS WITH SAND PLATES AS MANUFACTURED BY GENERAL TECHNOLOGIES, INC. OF STAFFORD, TEXAS, TEL. (281) 240-0550, AZTEC POST-TENSION CABLE INTERSECTIONAL CHAIR - PPT, AS MANUFACTURED BY DAYTON SUPERIOR, OR AN ALTERNATE APPROVED BY THE ENGINEER. TO AVOID AND PREVENT DAMAGE TO TENDON SHEATHING, CARE SHALL BE USED TO NOT OVERTIGHTEN TIE WIRES AT THE INTERSECTIONS OF TENDONS AND BETWEEN TENDONS AND CHAIRS. FOR THIS PROJECT, THE CHAIR HEIGHT SHALL BE 2 INCHES.

8 LAY TOP MILD REINFORCEMENT ALONG EDGES OF THE SLAB AT ANCHORAGES. SECURE TOP AND BOTTOM REINFORCING BARS. INSTALL CORNER BARS AS SHOWN AT CORNERS OF SLAB. INSTALL REINFORCING BARS AT SLAB PENETRATIONS AS REQUIRED.

9 AT PENETRATIONS OF THE SLABS, SUCH AS AT FENCE POSTS, NET POSTS, NET ANCHOR SLEEVES, ETC., TENDONS SHALL, IF NECESSARY, BE SMOOTHLY CURVED AROUND THE PENETRATIONS. THE LENGTH OF CURVE SHALL BE EQUAL TO A MINIMUM OF 12 TIMES THE LATERAL DISPLACEMENT OF THE TENDON. TENDON SHALL HAVE A MINIMUM STRAIGHT LENGTH OF 2'-0" IN FRONT OF OR ADJACENT TO THE PENETRATION. DO NOT CURVE TENDON ADJACENT TO PENETRATIONS. SEE DETAIL 4/S-9.

IN THE EVENT THAT THE PROPOSED TENDON LOCATIONS CONFLICT WITH FENCE POSTS OR OTHER OBSTRUCTIONS, TENDON LOCATIONS MAY BE SHIFTED TO CLEAR THE POST OR OBSTRUCTION. MOVE ONLY AS REQUIRED TO CLEAR THE OBSTRUCTION AND RELOCATE TENDON FOR THE ENTIRE LENGTH OF SLAB IN THE DIRECTION INSTALLED.

10 AFTER INSTALLATION OF THE TENDONS AND PRIOR TO PLACEMENT OF CONCRETE, CAREFULLY INSPECT THE CONDITION OF THE PLASTIC SHEATHING OF ALL TENDONS THROUGHOUT THEIR LENGTHS. ANY NICKS, CUTS, TEARS, RUPTURES OR ANY TYPE OF DAMAGE THAT PENETRATES THE SHEATHING AND EXPOSES THE GREASE OR STEEL STRAND OF THE TENDON SHALL BE REPAIRED PRIOR TO PLACEMENT OF CONCRETE. EXAMINE LOCATIONS WHERE TENDONS ARE TIED TO CHAIRS TO ENSURE THAT TIE WIRE HAS NOT CUT, PENETRATED OR DAMAGED THE SHEATHING. GREASE ON THE OUTSIDE SURFACE OF THE SHEATHING SHALL BE REMOVED. THE OBSERVANCE OF UNREPAIRED DAMAGE TO TENDON SHEATHING OR GREASE ON THE OUTSIDE OF THE SHEATHING BY THE ARCHITECT, ENGINEER, TESTING LAB REPRESENTATIVE OR INSPECTOR PRIOR TO A SCHEDULED CONCRETE POUR WILL BE GROUNDS FOR CANCELLATION OF THE POUR. EXTREME CARE MUST BE UTILIZED TO PROTECT AND REPAIR TENDON SHEATHING TO PREVENT THE APPEARANCE OF GREASE SPOTS AT THE SURFACE OF THE COURTS AFTER CONSTRUCTION. THE APPEARANCE OF GREASE SPOTS AT THE SURFACE OF THE COMPLETED TENNIS COURTS SHALL BE CONSIDERED GROUNDS FOR REJECTION OF THE CONSTRUCTION.

FENCE POST FOUNDATIONS AND PENETRATIONS

1 THE TOPS OF THE FENCE POST FOUNDATIONS BELOW THE OVERLAY SLABS SHALL BE FINISHED SMOOTH AND LEVEL AND SHALL HELD DOWN A MINIMUM OF 2 INCHES BELOW THE PROPOSED BOTTOM OF SLAB ELEVATION, AS APPROPRIATE TO THE LOCATION. FILL SHALL BE FIRMLY TAMPED OVER THE TOP OF THE POST FOUNDATION AND POLYETHYLENE SHEETING INSTALLED OVER THE POST FOUNDATION. INSURE THAT FENCE POSTS ARE INSTALLED PROPERLY ALIGNED AND PLUMB.

2 COMPRESSIBLE EXPANSION JOINT MATERIAL OR FILLER WITH A MINIMUM THICKNESS OF 1 INCH SHALL BE WRAPPED AROUND THE FENCE POSTS AND LIGHT POLE FOUNDATIONS FOR THE FULL DEPTH OF THE PENETRATIONS THROUGH THE COURT SLAB. THE MATERIAL MUST BE CAPABLE OF MAINTAINING THE MINIMUM 1 INCH DIMENSION DURING CONCRETE PLACEMENT. DO NOT USE EXTRUDED OR EXPANDED POLYSTYRENE (STYROFOAM) AS COMPRESSIBLE FILLER.

3 ISOLATION OF THE FENCE POSTS, NET POSTS AND ANY OTHER PENETRATIONS FROM THE SLAB IS CRITICAL TO PROPER PERFORMANCE OF THE COURT SLABS. THE CONTRACTOR SHALL USE EXTREME CARE TO VERIFY THAT THE ISOLATION IS PROVIDED AS SHOWN AND SPECIFIED IN THESE DRAWINGS.

CONCRETE

1 CONCRETE CONSTRUCTION SHALL BE IN ACCORDANCE WITH ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE" AND THE PTI "CONSTRUCTION AND MAINTENANCE PROCEDURES MANUAL FOR POST-TENSIONED SLAB-ON-GROUND CONSTRUCTION", 2ND EDITION.

2 NORMAL WEIGHT CONCRETE, WITH THE SPECIFIED 28 DAY COMPRESSIVE STRENGTHS, SHALL BE USED AS FOLLOWS:

POST-TENSIONED CONCRETE COURT SLAB MAXIMUM WATER/CEMENT RATIO = 0.46 (SEE NOTE 3 BELOW)	4000 PSI
DRILLED SHAFT FOUNDATIONS MAXIMUM WATER/CEMENT RATIO = 0.53 (SEE NOTE 4 BELOW)	3000 PSI
CONCRETE FLATWORK MAXIMUM WATER/CEMENT RATIO = 0.53 (SEE NOTE 5 BELOW)	3000 PSI

3 THE CONCRETE FOR THE POST-TENSIONED CONCRETE COURT SLAB SHALL BE MIXED USING A MID-RANGE OR HIGH RANGE WATER REDUCING ADMIXTURE TO PROVIDE THE REQUIRED COMPRESSIVE STRENGTH AT A SLUMP IN THE RANGE OF 6" TO 8". UNDER NO CIRCUMSTANCES SHALL THE SPECIFIED OR APPROVED WATER/CEMENT RATIO BE EXCEEDED. IF A HIGH-RANGE WATER REDUCING ADMIXTURE IS USED, IT SHALL BE A POLYCARBOXYLATE BASED ADMIXTURE.

THE CONCRETE MIX SHALL BE DESIGNED TO MINIMIZE SHRINKAGE BY LIMITING THE WATER AND CEMENT CONTENT AND BY USING WELL-GRADED COARSE AGGREGATE WITH THE LARGEST AGGREGATE SIZE OF 1 1/2 INCHES. AGGREGATE SHALL CONFORM TO THE REQUIREMENTS OF ASTM C 33.

DO NOT USE FLY ASH IN THE CONCRETE UNLESS SPECIFICALLY PERMITTED BY THE MANUFACTURER OF THE PROPOSED COURT SURFACING PRODUCTS.

4 CONCRETE FOR THE DRILLED SHAFT FOUNDATIONS SHALL BE MIXED USING A MID-RANGE OR HIGH RANGE WATER REDUCING ADMIXTURE TO PROVIDE THE REQUIRED COMPRESSIVE STRENGTH AT A SLUMP IN THE RANGE OF 7" TO 9". UNDER NO CIRCUMSTANCES SHALL THE SPECIFIED OR APPROVED WATER/CEMENT RATIO BE EXCEEDED. FLY ASH MAY BE USED, IF DESIRED, BUT SHALL BE CLASS F AND SHALL NOT EXCEED 30% OF THE TOTAL WEIGHT OF THE CEMENT PLUS FLY ASH.

5 CONCRETE FOR FLATWORK SHALL BE MIXED TO PROVIDE THE REQUIRED COMPRESSIVE STRENGTH AT A SLUMP IN THE RANGE OF 4" TO 6". A MID-RANGE WATER REDUCING ADMIXTURE MAY BE USED TO PROVIDE THE SPECIFIED SLUMP. FLY ASH MAY BE USED, IF DESIRED, BUT SHALL BE CLASS F AND SHALL NOT EXCEED 30% OF THE TOTAL WEIGHT OF THE CEMENT PLUS FLY ASH.

6 CONCRETE PLACEMENT SHALL NOT BEGIN UNTIL THE TENDON, REBAR AND FORMWORK INSTALLATIONS HAVE BEEN REVIEWED BY THE TESTING LABORATORY REPRESENTATIVE AND THE ENGINEER.

7 CONCRETE SHALL BE MIXED AND PLACED IN ACCORDANCE WITH ASTM C94 "STANDARD SPECIFICATION FOR READY-MIXED CONCRETE" AND ACI 304 "RECOMMENDED PRACTICE FOR MEASURING, MIXING AND PLACING CONCRETE."

8 TENDONS SHALL BE PLACED IN THEIR FINAL POSITIONS PRIOR TO CONCRETE PLACEMENT OPERATIONS. CARE SHOULD BE USED DURING CONCRETE PLACEMENT TO AVOID DISPLACEMENT, SHIFTING OR MOVEMENT OF THE TENDONS AND DAMAGE TO TENDON SHEATHING. THE USE OF PLACEMENT OPERATIONS THAT REQUIRE INSTALLATION AND STRAIGHTENING OF TENDONS, INCLUDING CHAIRING, TYING AND STRAIGHTENING, DURING AND AS PART OF THE CONCRETE PLACEMENT AND SCREEDING OPERATIONS WILL NOT BE PERMITTED.

9 EXTRA CARE SHOULD BE USED TO CONSOLIDATE CONCRETE AT THE ANCHORAGES.

10 CONCRETE SHALL BE CURED USING MOIST CURING METHODS, SUCH AS ABSORPTIVE MATS OR FABRICS KEPT CONTINUOUSLY WET, BY PONDING, SPRINKLING OR MISTING, OR BY USE OF FOGGING WITH POLYETHYLENE SHEETING. USE OF A MEMBRANE FORMING SPRAY-ON CHEMICAL COMPOUND WILL NOT BE PERMITTED. CURING SHALL BEGIN IMMEDIATELY UPON COMPLETION OF FINISHING AND CONTINUE FOR A MINIMUM OF 7 DAYS.

11 CONCRETE SURFACES SHALL BE FINISHED AS REQUIRED BY THE COURT SURFACING MANUFACTURER. TROWELING OPERATIONS SHALL BE CAREFULLY PLANNED AND COORDINATED. GENERALLY, THE SLAB SURFACE WILL BE READY FOR MACHINE FLOATING WHEN THE CONCRETE WILL SUPPORT A FINISHER ON FOOT WITHOUT CAUSING AN INDENTATION OF MORE THAN 1/4 INCH AND THE MACHINE WILL NEITHER DIG INTO OR DISRUPT THE LEVELNESS OF THE SURFACE. THE SURFACE WILL BE READY FOR HAND FLOATING WHEN THE SURFACE WILL SUPPORT A FINISHER ON KNEE BOARDS WITHOUT CAUSING AN INDENTATION OF MORE THAN 1/8 INCH. WETTING OF THE SURFACE OF THE CONCRETE BY THE APPLICATION OF WATER BY MACHINE, BRUSH OR OTHER MEANS DURING FINISHING WILL NOT BE PERMITTED. DO NOT BEGIN FINISHING WHILE BLEED WATER IS PRESENT AT THE SURFACE OF THE SLAB OR IS COMING TO THE SURFACE. IF NECESSARY, BLEED WATER SHALL BE DRAWN OFF WITH SQUEEGEES OR BY DRAGGING A RUBBER HOSE OVER THE SURFACE.

STRESSING SEQUENCE

1 STRESSING OPERATIONS MUST BE PERFORMED UNDER THE SUPERVISION OF A PERSON EXPERIENCED IN THIS WORK. THIS SUPERVISOR SHALL EXERCISE STRICT CONTROL AND CHECKING OF ALL ASPECTS OF THE STRESSING OPERATIONS. INITIAL STRESSING OPERATIONS MUST NOT COMMENCE UNTIL THE CONCRETE HAS ATTAINED A COMPRESSIVE STRENGTH OF 1500 PSI, BUT SHALL BE ACCOMPLISHED AS SOON AS POSSIBLE ONCE THIS STRENGTH HAS BEEN ATTAINED, AND IN NOT MORE THAN 3 DAYS. FINAL STRESSING OPERATIONS MUST NOT COMMENCE UNTIL THE CONCRETE HAS ATTAINED A COMPRESSIVE STRENGTH OF 2250 PSI, BUT SHALL BE ACCOMPLISHED AS SOON AS POSSIBLE AFTER THIS STRENGTH HAS BEEN ATTAINED, AND IN NOT MORE THAN 7 DAYS. CONCRETE STRENGTHS ARE TO BE DEMONSTRATED BY CYLINDERS TAKEN AND CURED UNDER THE SAME CONDITIONS AS THS SLAB.

2 TENDONS SHALL BE STRESSED USING MATCHED JACKS AND GAUGES CALIBRATED WITHIN 90 DAYS OF THE TIME OF STRESSING. A CALIBRATION CHART SHALL ACCOMPANY EACH JACK AND GAUGE. TO MINIMIZE TENDON SEATING LOSSES, JACKS SHALL BE EQUIPPED WITH A WEDGE SEATING DEVICE, EITHER SPRING OR HYDRAULICALLY ACTUATED. THE USE OF JACKS WITHOUT WEDGE SEATING DEVICES WILL NOT BE PERMITTED.

3 AT THE COMMENCEMENT OF FINAL STRESSING OPERATIONS, ELONGATION MEASUREMENTS FOR THE FIRST FEW TENDONS SHALL BE COMPARED TO THE REQUIRED COMPUTED ELONGATIONS. IF ACTUAL MEASURED ELONGATIONS ARE WITHIN 7% OF THE REQUIRED COMPUTED ELONGATIONS, STRESSING OPERATIONS MAY PROCEED. SHOULD ELONGATION MEASUREMENTS VARY MORE THAN 7% FROM THE REQUIRED, STRESSING OPERATIONS SHOULD BE SUSPENDED AND THE ENGINEER NOTIFIED. STRESSING OPERATIONS SHOULD NOT RECOMMENCE UNTIL ELONGATION VARIANCES ARE RECONCILED BY THE CONTRACTOR.

4 STRESSING PROCEDURES

A REMOVE GROMMETS OR POCKET FORMERS AT STRESSING ENDS. CHECK INSIDE EACH POCKET TO MAKE SURE THAT THE ANCHORAGES ARE FREE FROM CEMENT PASTE. IF NOT, REMOVE PASTE FROM ANCHORAGE.

B INSERT WEDGES SIDE BY SIDE BY HAND INTO EACH ANCHORAGE.

C MARK THE TENDON WITH SPRAY PAINT AT A CONSTANT REFERENCE DIMENSION FROM THE SLAB EDGE. IF TENDONS ARE TO BE STRESSED FROM BOTH ENDS, IT IS IMPERATIVE THAT BOTH ENDS BE MARKED BEFORE STRESSING COMMENCES. USE CARE TO AVOID OVERSPRAY WHICH COULD AFFECT THE ACCURACY OF MEASUREMENTS.

D FOR INITIAL PRESTRESSING, STRESS EACH TENDON TO A FORCE OF 10 KIPS. FOR FINAL PRESTRESSING, STRESS EACH TENDON TO A FORCE OF 33 KIPS. STRESS TENDONS FROM ONE END. INITIAL AND FINAL PRESTRESSING SHALL BE PROVIDED AS SOON AS POSSIBLE FOLLOWING CONFIRMATION OF ATTAINMENT THE REQUIRED CONCRETE COMPRESSIVE STRENGTH, BUT INITIAL STRESSING SHALL BE COMPLETED WITHIN 3 DAYS OF THE TIME OF CONCRETE PLACEMENT AND FINAL STRESSING SHALL BE COMPLETED WITHIN 7 DAYS OF THE TIME OF CONCRETE PLACEMENT.

FOR FINAL PRESTRESSING, TENDONS SHALL BE STRESSED FROM ONE END. THE ELONGATION AFTER STRESSING AT EACH END MUST BE WITHIN 7% OF THE CALCULATED REQUIRED ELONGATION SPECIFIED.

E STRESS TENDONS TO THE SPECIFIED JACKING FORCE. FOR FINAL STRESSING, HOLD THE JACKING FORCE FOR A MINIMUM OF ONE MINUTE, OR UNTIL NO BLEED OFF OF JACK PRESSURE OCCURS. SEAT WEDGES USING THE SEATING DEVICE BUILT INTO THE JACK. THIS PROCEDURE IS PARTICULARLY IMPORTANT WHEN STRESSING TENDONS WITH LENGTHS GREATER THAN 100 FEET FROM ONE END.

F REMOVE THE JACK.

G MEASURE THE DISTANCE FROM THE MARK TO THE EDGE OF THE SLAB. ALL MEASUREMENTS SHALL BE MADE BY THE SAME PERSON AND THE MEASUREMENTS RECORDED ON THE POST-TENSIONING STRESSING RECORD FORMS.

H TENDON ELONGATION MEASUREMENTS SHALL BE TAKEN AND RECORDED BY THE TESTING LABORATORY. THE TESTING LABORATORY REPRESENTATIVE SHALL BE PRESENT DURING THE STRESSING OPERATIONS. THE CONTRACTOR SHALL NOTIFY THE TESTING LABORATORY A MINIMUM OF 48 HOURS PRIOR TO BEGINNING STRESSING OPERATIONS.

5 ELONGATIONS

ELONGATIONS ARE BASED ON THE FOLLOWING FORMULA AND ASSUMPTIONS:

ELONGATION = PL/AE - (FRICTION LOSS) - (ANCHOR SET)

L = TENDON LENGTH (INCLUDING TAILS)
A = TENDON AREA = 0.153 SQUARE INCHES
E = MODULUS OF ELASTICITY = 28500 KSI
P = JACKING FORCE = 33.05 KIPS
μ = 0.07 (COEFFICIENT OF ANGULAR FRICTION)
K = 0.0014 (WOBBLE COEFFICIENT)
ANCHOR SET = 1/4"

ESTIMATED REQUIRED FINAL ELONGATIONS:

120'-0"	10 INCHES
115'-1½"	9 5/8 INCHES
114'-2½"	9 1/2 INCHES
114'-0"	9 1/2 INCHES
109'-8"	9 1/8 INCHES
108'-10"	9 1/8 INCHES
108'-4"	9 INCHES
102'-10"	8 5/8 INCHES

NOTE: FINAL ELONGATION COMPUTATIONS WILL BE BASED ON THE ACTUAL PHYSICAL PROPERTIES OF THE TENDONS FURNISHED TO THE PROJECT, AS SHOWN IN THE MILL CERTIFICATES. MILL CERTIFICATES SHALL BE SUBMITTED TO THE ENGINEER A MINIMUM OF 48 HOURS PRIOR TO INITIATION OF STRESSING OPERATIONS FOR VERIFICATION OR RECALCULATION, AS NECESSARY, OF REQUIRED TENDON ELONGATIONS.

6 STRESSING RECORDS - FOLLOWING COMPLETION OF FINAL STRESSING, THE STRESSING RECORDS SHALL BE SUBMITTED PROMPTLY TO THE ENGINEER FOR REVIEW. NO TENDON TAILS SHALL BE CUT UNTIL THE RECORDS HAVE BEEN REVIEWED.

7 NOTE: STRESSING MAY BE PERMITTED AT LESSER STRENGTHS THAN THOSE SPECIFIED PROVIDED THAT DATA IS SUBMITTED TO THE ENGINEER FOR REVIEW TO INDICATE THAT THE DESIGN OF THE POST-TENSIONING ANCHORAGES AND SYSTEM IS COMPATIBLE WITH THE LESSER STRENGTHS.

SEALING ANCHORAGE STRESSING POCKETS

1 AFTER STRESSING HAS BEEN COMPLETED AND THE STRESSING RECORDS APPROVED, TENDONS SHALL BE CUT AS FAR INSIDE THE STRESSING POCKET AS POSSIBLE.

2 INSTALL A FLARED PLASTIC PROTECTION CAP OVER THE CUT END OF THE TENDON INSIDE THE STRESSING POCKET AND FILL THE POCKET FLUSH WITH THE OUTSIDE FACE OF THE NON-METALLIC, NON-SHRINK GROUT MIXED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. GROUT SHALL COMPLETELY FILL THE STRESSING POCKET. POCKETS OBSERVED TO HAVE VOIDS OR CRACKS SHALL BE REGROUTED AT THE CONTRACTOR'S EXPENSE. PLASTIC CAPS SHALL BE MANUFACTURED SPECIFICALLY FOR PROTECTION OF POST-TENSIONING TENDON ENDS, AND SHALL HAVE A MINIMUM LENGTH OF 1 INCH.

PENETRATIONS OF POST-TENSIONED SLABS

1 ANY PENETRATION OF THE TENNIS COURT SLABS BY OBJECTS NOT INTEGRAL OR MONOLITHIC WITH THE SLAB, SUCH AS LIGHT POLES, LIGHT POLE FOUNDATIONS, FENCE POSTS OR NET POSTS SHALL BE PROVIDED WITH 1 INCH EXPANSION JOINT MATERIAL AND SEALANT ALL AROUND. ISOLATION OF THE COURT SLAB FROM SUCH PENETRATIONS IS CRITICAL FOR SATISFACTORY PERFORMANCE OF THE COURT SLAB.

ANCHORAGE LEGEND

STRESSING END

DEAD END

NO.	REVISION	BY	DATE

STATE OF TEXAS
D. GARY PICKETT
46275
REGISTERED PROFESSIONAL ENGINEER
9/16/2016

PROJECT NO. 001-4298
DESIGNED BY: DGP
DRAWN BY: KCH
CHECKED BY: DGP/DMC
APPROVED BY: DGP
DATE: 9/16/2016

Pickett, Kelm & Associates, Inc.
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JUMBO EVANS SPORTS PARK TENNIS COURTS 5 & 6
SLAB, FENCING & LIGHTING PACKAGE

COMAL COUNTY

STRUCTURAL NOTES AND SPECIFICATIONS

SHEET NO.
S-1

POST-TENSIONED CONCRETE TENNIS COURT SLAB
STRUCTURAL NOTES AND SPECIFICATIONS (CONT'D)

NON-SHRINK GROUT

1 NON-SHRINK GROUT SHALL CONSIST OF A HIGH STRENGTH GROUT CAPABLE OF PROVIDING A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 8000 PSI. GROUT SHALL BE A NON-FERROUS MATERIAL BLENDED OF CAREFULLY GRADED SILICA AGGREGATE, SELECT PORTLAND CEMENT AND EXPANSIVE AGENTS OR ADMIXTURES.

2 PRODUCT SHALL BE SUITABLE FOR USE AT CONSISTENCIES RANGING FROM FLUID TO PLASTIC WITHOUT SEGREGATION.

3 GROUT SHALL BE MIXED, PLACED AND CURED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. PLACEMENT SHALL BE IN A MANNER AS TO PREVENT OR AVOID AIR POCKETS OR VOIDS.

SAFETY

1 CAUTION SHOULD BE USED AT ALL TIMES DURING THE STRESSING OPERATIONS. WORKMEN SHOULD NOT BE PERMITTED TO STAND BEHIND STRESSING EQUIPMENT, OR BETWEEN STRESSING EQUIPMENT AND THE EDGE OF SLAB.

2 JOB SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL, AS A MINIMUM, ADHERE TO OCCUPATIONAL, SAFETY AND HEALTH (OSHA) REGULATIONS TO PROTECT PERSONNEL AT THE JOB SITE.

3 ALL EQUIPMENT USED FOR HANDLING AND PLACING TENDONS MUST BE SUCH THAT DAMAGE OR DETERIORATION TO PRESTRESSING STRANDS, ANCHORAGES OR SHEATHING IS AVOIDED.

SEALANT

1 JOINT SEALANT AT COURT FENCE POSTS, LIGHT POLE FOUNDATIONS, NET POSTS AND EXPANSION JOINTS OR OTHER PENETRATIONS SHALL CONSIST OF A PRECOMPRESSED, SELF-EXPANDING, POLYURETHANE, OPEN CELL FOAM SEALANT WITH ADHESIVE AT SIDES DESIGNED TO SEAL AGAINST WEATHER AND MOISTURE. ACCEPTABLE PRODUCTS ARE WILLSEAL 600, AS MANUFACTURED BY WILLSEAL, INC., 34 EXECUTIVE DRIVE, HUDSON, NEW HAMPSHIRE, (800) 274-2813; COLORSEAL, AS MANUFACTURED BY EMSEAL JOINT SYSTEMS, LTD, 25 BRIDLE LANE, WESTBOROUGH, MASSACHUSETTS, (508) 836-0280; OR AN ALTERNATE APPROVED BY THE ENGINEER. SEALANT TAPE WIDTH SHALL BE TWICE THE JOINT WIDTH.

2 JOINT SEALANT SHALL BE INSTALLED IN STRICT CONFORMANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS. JOINTS SHALL BE THOROUGHLY AND PROPERLY CLEANED PRIOR TO INSTALLATION OF THE SEALANT.

3 CONTRACTOR SHALL TAKE CARE TO FORM THE DEPTH OF THE JOINT TO THE SEALANT THICKNESS OR DEPTH, AND TO CUT SEALANT TAPE TO THE PROPER LENGTH AT CIRCULAR ISOLATION JOINTS AT FENCE POSTS.

COURT SURFACING SYSTEM

1 THE COURT SURFACING SYSTEM SHALL BE A MULTIPLE LAYER COATING SYSTEM SPECIFICALLY DESIGNED AND MANUFACTURED FOR USE AS A TENNIS COURT SURFACE COATING. THE SYSTEM SHALL INCLUDE PREPARER, BINDER AND/OR PRIMER, AS NECESSARY, TWO COATS OF ACRYLIC SURFACER AND 3 COATS OF TEXTURED COLOR SURFACING, AND TEXTURED LINE MARKINGS AS INDICATED. ALL COMPONENTS OF THE SURFACING SYSTEM SHALL BE FURNISHED BY A SINGLE MANUFACTURER. APPROVED PRODUCTS ARE "PLEXIPAVE" BY CALIFORNIA PRODUCTS; LAYKOLD RECREATIONAL SPORTS SURFACING SYSTEM, BY ADVANCED POLYMER TECHNNOLOGY CORPORATION; TPS 5000 COURT SURFACING SYSTEM, AS MANUFACTURED BY HELLAS CONSTRUCTION, INC.; OR AN ALTERNATE APPROVED BY THE ENGINEER.

2 COLOR WITHIN THE BOUNDS OF THE 78 FOOT COURTS SHALL BE BLUE. THE OUT OF BOUNDS AREAS SHALL BE GREEN. THE EXACT COLORS SHALL BE SELECTED BY THE OWNER FROM THE MANUFACTURER'S AVAILABLE COLORS.

LINE MARKINGS FOR THE 78 FOOT COURT SHALL BE TEXTURED WHITE. THE TEN AND UNDER LINE MARKINGS SHALL BE TEXTURED LINE PAINT WITHIN THE SAME FAMILY AS THE 78 FOOT COURT COLOR. SEE SHEETS S-10 AND S-11 FOR STRIPING DIAGRAMS.

3 ALL MATERIALS TO BE USED FOR THE COURT SURFACING SHALL NOT HAVE BEEN FORMULATED OR IN STORAGE FOR MORE THAN 3 MONTHS PRIOR TO DELIVERY TO THE PROJECT. MATERIALS SHALL BE STORED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND INSTRUCTIONS IN THEIR ORIGINAL, TIGHTLY SEALED CONTAINERS OR UNOPENED PACKAGES, AND SHALL BE CLEARLY LABELED WITH THE MANUFACTURER'S NAME, PRODUCT DESCRIPTION, BATCH NUMBER, STOCK NUMBER, FORMULATION AND PACKAGING DATE, AND INSTRUCTIONS FOR APPLICATION.

4 SAND USED IN THE SURFACING SYSTEM SHALL BE 98% PURE SILICA SAND WITH A ROUNDED PARTICLE SHAPE. USE 60 - 80 MESH SAND FOR THE FILLER COAT AND 80 - 100 MESH SAND FOR THE TEXTURED COLOR SURFACE COAT.

5 ALL MATERIALS SHALL BE COMPLETELY FREE OF ASBESTOS.

6 THE SURFACE COATING SHALL BE INSTALLED BY SKILLED, TRAINED PERSONNEL WHO HAVE BEEN TRAINED AND ARE EXPERIENCED IN THE APPLICATION OF ACRYLIC SPORTS COATINGS AND ARE SPECIFICALLY APPROVED BY THE SURFACING MANUFACTURER TO APPLY THE SURFACING COATINGS. ALL SURFACE PREPARATION EQUIPMENT AND METHODS OF INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS. UPON COMPLETION AND ACCEPTANCE OF THE PROJECT, THE CONTRACTOR SHALL FURNISH THE OWNER WITH A 1 YEAR WARRANTY COVERING MATERIALS, WORKMANSHIP AND LABOR. ANY DEFICIENCIES NOTED BY THE OWNER WITHIN THE 1 YEAR WARRANTY PERIOD SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL CHARGE OR EXPENSE TO THE OWNER.

7 DO NOT BEGIN APPLICATION OF THE SURFACING SYSTEM UNTIL THE CONCRETE HAS CURED A MINIMUM OF 28 DAYS. POWER CLEAN THE SURFACE OF THE CONCRETE TO THOROUGHLY REMOVE ALL DIRT, DUST, MUD, OIL AND FOREIGN MATTER PRIOR TO BEGINNING THE INSTALLATION OF THE SURFACING SYSTEM.

8 AFTER CLEANING, ETCH THE CONCRETE SURFACE WITH A PREPARER SOLUTION. AFTER DRYING, ALL LATENT MATERIAL SHALL BE REMOVED FROM THE SURFACE.

9 AFTER THE SURFACE PREPARER HAS DRIED, FLOOD THE SURFACE OF THE CONCRETE COURTS SLABS. DEPRESSIONS THAT POND WATER DEEPER THAN THE THICKNESS OF A NICKEL COIN 10 MINUTES AFTER THE WATER HAS BEEN CUT OFF SHALL BE OUTLINED AND PATCHED. PRIME THE SURFACE WITH A PATCH BINDER PRIOR TO PATCHING. RETEST THE SURFACE WITH WATER AFTER PATCHING. REPEAT UNTIL NO WATER IS OBSERVED STANDING DEEPER THAN THE THICKNESS OF A NICKEL COIN. STAINS DUE TO PONDING WATER SHALL BE CLEANED WITH BLEACH AND ALGAECIDE.

10 AFTER PATCHING, PRIME THE REMAINING SURFACES.

11 AFTER PATCHING AND PRIMING, APPLY TWO COATS OF RESURFACER USING A STIFF RUBBER BLADED SQUEEGEE. AFTER EACH COAT HAS DRIED THOROUGHLY, SCRAPE OFF ALL RIDGES AND ROUGH SPOTS.

12 APPLY THREE TEXTURED SURFACE COATS. APPLY THE 2ND AND 3RD COATS PERPENDICULAR TO THE LAST USING A SOFT BLADED SQUEEGEE AND IN A MANNER SO AS TO MINIMIZE SQUEEGEE PATTERNS IN THE SURFACE. APPLICATION IN STRAIGHT LINES IS PREFERRED. DO NOT USE CIRCULAR MOTIONS. THE TOP FINISH COAT SHALL BE APPLIED PERPENDICULAR TO THE LONG DIMENSIONS OF THE COURTS. DO NOT LEAVE RIDGES WHERE ADJOINING APPLICATIONS OVERLAP.

13 TENNIS COURT LINES SHALL BE INSTALLED ON ALL TENNIS COURTS. LAYOUT LINES USING REFERENCE POINTS AFTER REFERENCE POINTS HAVE BEEN ESTABLISHED. CHALK LINES SHALL BE SNAPPED BETWEEN REFERENCE POINTS AND THE OVERALL CHECKED CAREFULLY PRIOR TO INSTALLATION OF THE PAINTED LINES.

14 APPLY LINES BY MASKING THE COURT SURFACE AND APPLYING THE TEXTURED STRIPING PAINT TO A CLEAN, DRY SURFACE. USE CARE TO ENSURE THAT NO PAINT IS SPATTERED OR DRIPPED OUTSIDE OF THE MASKED AREAS.

FENCING

1 FENCING IS DESIGNED FOR A BASIC WIND SPEED, WITH WINDSCREENS, OF 90 MPH.

2 THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, ACCESSORIES AND APPURTENANCES NECESSARY FOR THE INSTALLATION OF A COMPLETE GALVANIZED CHAIN LINK FENCING SYSTEM. SEE 1/S-6 FOR FENCING PLAN AND 2/S-6 FOR GATE AND FENCING ELEVATION.

3 THE FENCING AT THE NEW COURTS IS TO BE 10 FEET IN HEIGHT.

4 REFERENCE STANDARDS

ASTM A392 - STANDARD SPECIFICATION FOR ZINC-COATED STEEL CHAIN-LINK FENCE FABRIC
ASTM F567 - STANDARD PRACTICE FOR INSTALLATION OF CHAIN LINK FENCE
ASTM F626 - STANDARD SPECIFICATION FOR FENCE FITTINGS
ASTM F668 - POLY VINYL CHLORIDE (PVC) AND OTHER ORGANIC POLYMER-COATED STEEL CHAIN LINK FENCE FABRIC
ASTM F900 - STANDARD SPECIFICATION FOR INDUSTRIAL AND COMMERCIAL SWING GATES
ASTM F969 - STANDARD PRACTICE FOR CONSTRUCTION OF CHAIN-LINK TENNIS COURT FENCE
ASTM F1043 - STANDARD SPECIFICATION FOR STRENGTH AND PROTECTIVE COATINGS ON STEEL INDUSTRIAL FENCE FRAMEWORK
ASTM F1083 - STANDARD SPECIFICATION FOR PIPE, STEEL, HOT-DIPPED ZINC-COATED (GALVANIZED) WELDED, FOR FENCE STRUCTURES
CLF-PM0610 CHAIN LINK FENCE MANUFACTURERS INSTITUTE PRODUCT MANUAL (REVISED JANUARY, 2012)

6 CHAIN LINK FABRIC SHALL BE GALVANIZED STEEL, 2" MESH, 9 GAGE COATED WIRE DIAMETER, CONFORMING TO ASTM A393, WITH KNUCKLED SELVAGE AT BOTTOM AND KNUCKLED TO TWISTED SELVAGE AT THE TOP.

7 COMPONENTS OF THE FENCE FRAMEWORK, INCLUDING GATE POSTS, SHALL BE ROUND POSTS OR MEMBERS MANUFACTURED FROM HIGH STRENGTH STEEL PIPE COLD FORMED AND WELDED TO CONFORM TO THE REQUIREMENTS OF ASTM F1043, GROUP IC, WITH A MINIMUM YIELD STRENGTH OF 50 KSI. ALL POSTS AND RAILS SHALL HAVE AN EXTERNAL ZINC COATING. COATING SHALL BE TYPE B ZINC WITH A MINIMUM OF 0.9 OZ PER SQUARE FOOT, OR TYPE D, 81% NOMINAL ZINC PIGMENTED COATING, WITH A MINIMUM THICKNESS OF 0.3 MILS.

8 LINE, CORNER AND GATE POSTS - LINE, CORNER AND GATE POSTS SHALL HAVE AN OUTSIDE DIAMETER OF 4.000" AND A MINIMUM WALL THICKNESS OF 0.237" (3 1/2 INCH SCHEDULE 40). LINE POST SPACING SHALL NOT EXCEED 10'-0". RAILS AND OTHER COMPONENTS SHALL BE AS SHOWN IN THE DRAWINGS.

9 FITTINGS AND APPURTENANCES SHALL CONSIST OF GALVANIZED PRESSED STEEL OR MALLEABLE OR CAST STEEL AS SPECIFIED IN ASTM F626 AND FEDERAL SPECIFICATION RR-F-191.

10 SWING GATES SHALL BE FABRICTED AND COATED TO MEET THE REQUIREMENTS OF ASTM F900 AND FEDERAL SPECIFICATION RR-F-191. PAD LOCKABLE FULCRUM LATCHES AND STRIKE PLATES SHALL BE FURNISHED AND INSTALLED AT EACH GATE. GATES SHALL BE FABRICATED AND INSTALLED TO MEET THE REQUIREMENTS FOR ACCESSIBILITY OF THE AMERICANS WITH DISABILITIES ACT.

11 CHAIN LINK FENCING SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM F567.

TENNIS COURT ACCESSORIES

1 NET POSTS - SEE 4/S-6 AND 6/S-9.

A NET POSTS SHALL BE MANUFACTURED FROM HEAVY DUTY STEEL, ROUND, WITH AN OUTSIDE DIAMETER OF 3 INCHES.

B POSTS SHALL BE FURNISHED WITH GALVANIZED STEEL GROUND ANCHOR SLEEVES MANUFACTURER SPECIFICALLY FOR THE NET POSTS TO FIT TIGHTLY TO THE POSTS BUT ALLOW FOR POST REMOVAL AND REPLACEMENT AS NEEDED.

C POSTS FOR EACH COURT SHALL BE FURNISHED WITH A NET WINDER OR TENSIONER. THE TENSIONING MECHANISM SHALL BE OF HEAVY DUTY BRASS CONSTRUCTION WITH A LOCKING MECHANISM TO ENSURE PROPER NET TENSION.

D POSTS SHALL BE PAINTED OR POWDER COATED IN BLACK OR DARK FOREST GREEN.

2 TENNIS NETS

A COURT NETS SHALL BE CONSTRUCTED OF TWISTED BLACK POLYETHYLENE NETTING. THE MINIMUM THICKNESS OF THE NETTING STRANDS SHALL BE 2.5 MILLIMETERS.

B THE HEADBAND SHALL BE QUADRUPLE STITCHED HEAVY DUTY DOUBLE THICKNESS WITH A MINIMUM 1/8 INCH DIAMETER VINYL COATED STEEL CABLE.

C A MINIMUM OF THE TOP FIVE ROWS OF NETTING SHALL BE DOUBLE MESH. THE SIDES AND BOTTOM EDGES OF THE NET SHALL BE FURNISHED WITH HEAVY DUTY BLACK SYNTHETIC TAPE.

D SEE 5/S-9 FOR NET CENTER STRAP ANCHOR.

4 INSTALL POSTS AND NETS IN CONFORMANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS AND PER THE DETAIL STANDARDS OF THE UNITED STATES TENNIS ASSOCIATION.

SUBMITTALS

THE FOLLOWING SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW.

1 TEST DATA AND MIX DESIGNS FOR CONCRETE.

2 EVIDENCE THAT THE POST-TENSIONING SYSTEM TO BE INSTALLED MEETS THE SPECIFIED REQUIREMENTS. SUBMITTAL SHALL BE MADE PRIOR TO INSTALLATION OF POST-TENSIONING SYSTEM COMPONENTS.

3 MILL CERTIFICATES CERTIFYING THE PHYSICAL PROPERTIES OF THE TENDONS TO BE USED IN CONTRUCTION OF THE PROJECT. CERTIFICATES SHALL BE PREPARED BY AN INDEPENDENT TESTING LABORATORY LOCATED IN THE UNITED STATES. CERTIFICATES SHALL SHOW THE MANUFACTURER'S NAME AND THE LOCATION OF THE MILL. CERTIFICATES SHALL BE SUBMITTED PRIOR TO STRESSING OF TENDONS. IF TENDONS USED FOR THE PROJECT ARE FROM DIFFERENT HEATS OR MILL RUNS, THEN THE SUBMITTAL SHALL CLEARLY INDICATED THE LOCATIONS WITHIN THE SLABS OF THE TENDONS FROM EACH HEAT OR MILL RUN.

4 SHOP DRAWINGS FOR THE POST-TENSIONING SYSTEM INCLUDING TENDON LAYOUTS, ANCHORAGE LOCATIONS AND DETAILS NECESSARY FOR SYSTEM INSTALLATION.

5 POST-TENSIONING JACK CALIBRATION REPORTS.

6 PROVIDE CERTIFICATION THAT THE JACK TO BE USED FOR STRESSING IS EQUIPPED WITH A WEDGE SEATING DEVICE.

7 POST-TENSIONING STRESSING RECORDS.

8 PROPOSED METHOD OF CURING.

9 NON-SHRINK GROUT PRODUCT DATA.

10 SEALANT PRODUCT DATA.

11 PRODUCT DATA FOR ALL COURT ACCESSORIES.

12 PRODUCT DATA FOR ALL FENCING MATERIALS AND COMPONENTS.

13 PRODUCT DATA FOR COURT SURFACING AND STRIPING.

14 SOIL DATA, INCLUDING CLASSIFICATION, GRADATION, LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX (PI) FOR PROPOSED FINE GRADING MATERIAL.

TESTING LABORATORY SERVICES

THE OWNER SHALL SECURE THE SERVICES OF A COMMERCIAL TESTING LABORATORY TO PERFORM ALL MATERIALS TESTS AND INSPECTIONS, AS REQUIRED BY THESE DRAWINGS. TESTING, INSPECTIONS AND SPECIAL INSPECTIONS SHALL BE PERFORMED UNDER THE SUPERVISION OF A PROFESSIONAL ENGINEER CURRENTLY LICENSED IN THE STATE OF TEXAS.

1 ONE SET OF CONCRETE TEST CYLINDERS SHALL BE OBTAINED FOR EVERY 50 CUBIC YARDS OF CONCRETE PLACED, OR ANY PORTION THEREOF PLACED IN A SINGLE DAY, AS FOLLOWS:

A FIVE (5) CONCRETE TEST CYLINDERS SHALL BE MOLDED FROM EACH SAMPLE AND CURED ACCORDING TO ASTM C 31. COMPRESSIVE TESTS SHALL BE PERFORMED ON ONE CYLINDER AT 7 DAYS AND THREE CYLINDERS AT 28 DAYS. THE FIFTH CYLINDER SHALL BE RETAINED FOR 56 DAYS AND TESTED ONLY IF THE AVERAGE STRENGTH OF THE 28 DAYS TESTS DO NOT MEET THE MINIMUM REQUIRED COMPRESSIVE STRENGTH.

B A SLUMP TEST AND TEMPERATURE MEASUREMENT SHALL BE PERFORMED FOR EACH SAMPLE.

C COMPUTATION OF WATER/CEMENT RATIO, AS REQUIRED OR DIRECTED BY THE ENGINEER.

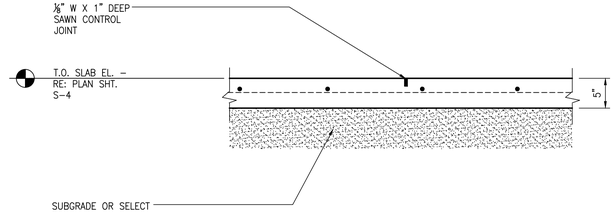
2 ADDITIONAL CYLINDERS MAY BE MADE AND TESTED, AS NECESSARY, FOR STRESSING OF TENDONS TO VERIFY THAT NECESSARY STRENGTHS HAVE BEEN ATTAINED. SUCH CYLINDERS SHALL MADE AT THE CONTRACTOR'S EXPENSE.

3 OBSERVE AND INSPECT PLACEMENT OF REINFORCING STEEL AND POST-TENSIONING TENDONS.

4 OBSERVE AND MONITOR THE STRESSING OF POST-TENSIONING TENDONS, MARK TENDONS AND RECORD ELONGATION MEASUREMENTS DURING STRESSING FOR EACH TENDON. COMPILE STRESSING RECORDS AND SUBMIT TO THE OWNER AND ENGINEER FOR REVIEW.

5 THE CONTRACTOR SHALL COOPERATE AND COORDINATE FULLY WITH THE TESTING LABORATORY.

6 IN THE EVENT THAT CONCRETE ELEMENTS OR MEMBERS DO NOT ACHIEVE THE SPECIFIED MINIMUM COMPRESSIVE STRENGTHS, THE ENGINEER MAY REQUIRE ADDITIONAL ANALYSIS, TESTING OR REMOVAL AND REPLACEMENT OF MEMBERS. ANY AND ALL SUCH ADDITIONAL ANALYSIS OR TESTING SHALL BE AT THE CONTRACTOR'S EXPENSE, WHETHER SUCH ANALYSIS OR TESTING DEMONSTRATES ADEQUATE STRENGTH OR NOT. REPLACEMENT OF ANY MEMBERS DEEMED QUESTIONABLE OR INADEQUATE BY THE ENGINEER SHALL BE AT THE CONTRACTOR'S EXPENSE.



NOTE:
CONTROL JOINTS SHALL BE SAWN WITH A SOFT-CUT SAW AS SOON AS POSSIBLE FOLLOWING COMPLETION OF SLAB FINISHING, BUT SHALL BEGIN NOT MORE THAN 2 HOURS AFTER FINISHING.

1 SLAB CONTROL JOINT – ADD ALT. BID NO. 1
TYPICAL DETAIL
NTS

NO.	REVISION	BY	DATE

STATE OF TEXAS · D. GARY PICKETT · 46275 · LICENSED PROFESSIONAL ENGINEER · 9/16/2016

PROJECT NO.: 001-4298
DESIGNED BY: DGP
DRAWN BY: KCH
CHECKED BY: DGP/DMC
APPROVED BY: DGP
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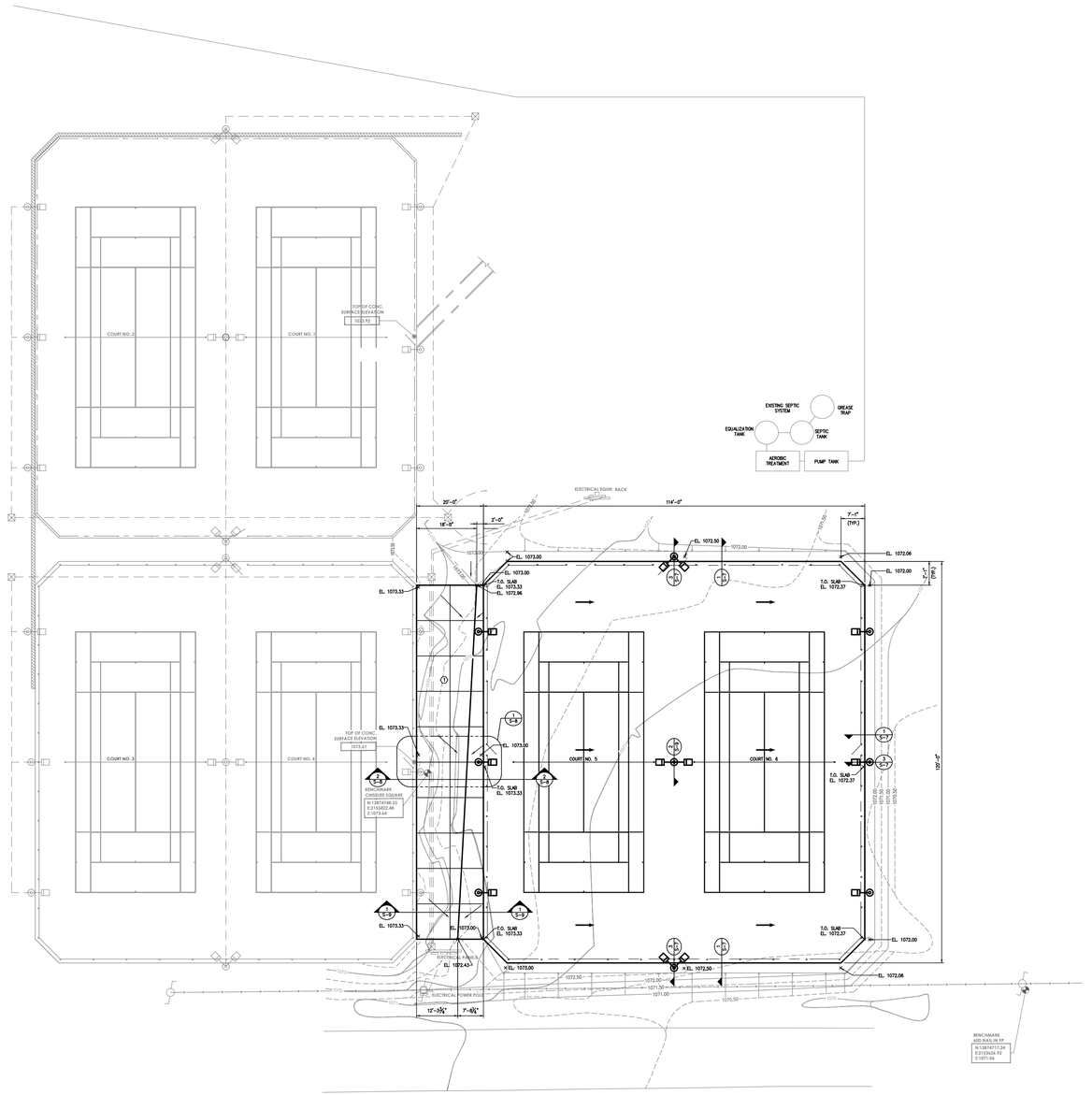
JUMBO EVANS SPORTS PARK TENNIS COURTS 5 & 6
SLAB, FENCING & LIGHTING PACKAGE

COMAL COUNTY

STRUCTURAL NOTES AND SPECIFICATIONS

SHEET NO.
S-2



N

1 OVERALL SITE PLAN
1"=20'

KEY NOTES:

1. CONCRETE FLAT WORK BETWEEN COURT NOS. 4 AND 5 IS BID ADD ALTERNATE NO. 2. IF NOT ACCEPTED, ELEVATIONS SHOWN WILL BE TOP OF GROUND ELEVATIONS.

NO.	REVISION	BY	DATE

STATE OF TEXAS
D. GARY PICKETT
46275
LICENSED PROFESSIONAL ENGINEER
9/16/2016

PROJECT NO.: 001-4298
DESIGNED BY: DGP
DRAWN BY: KCH
CHECKED BY: DGP/DMC
APPROVED BY: DGP
DATE: 9/16/2016

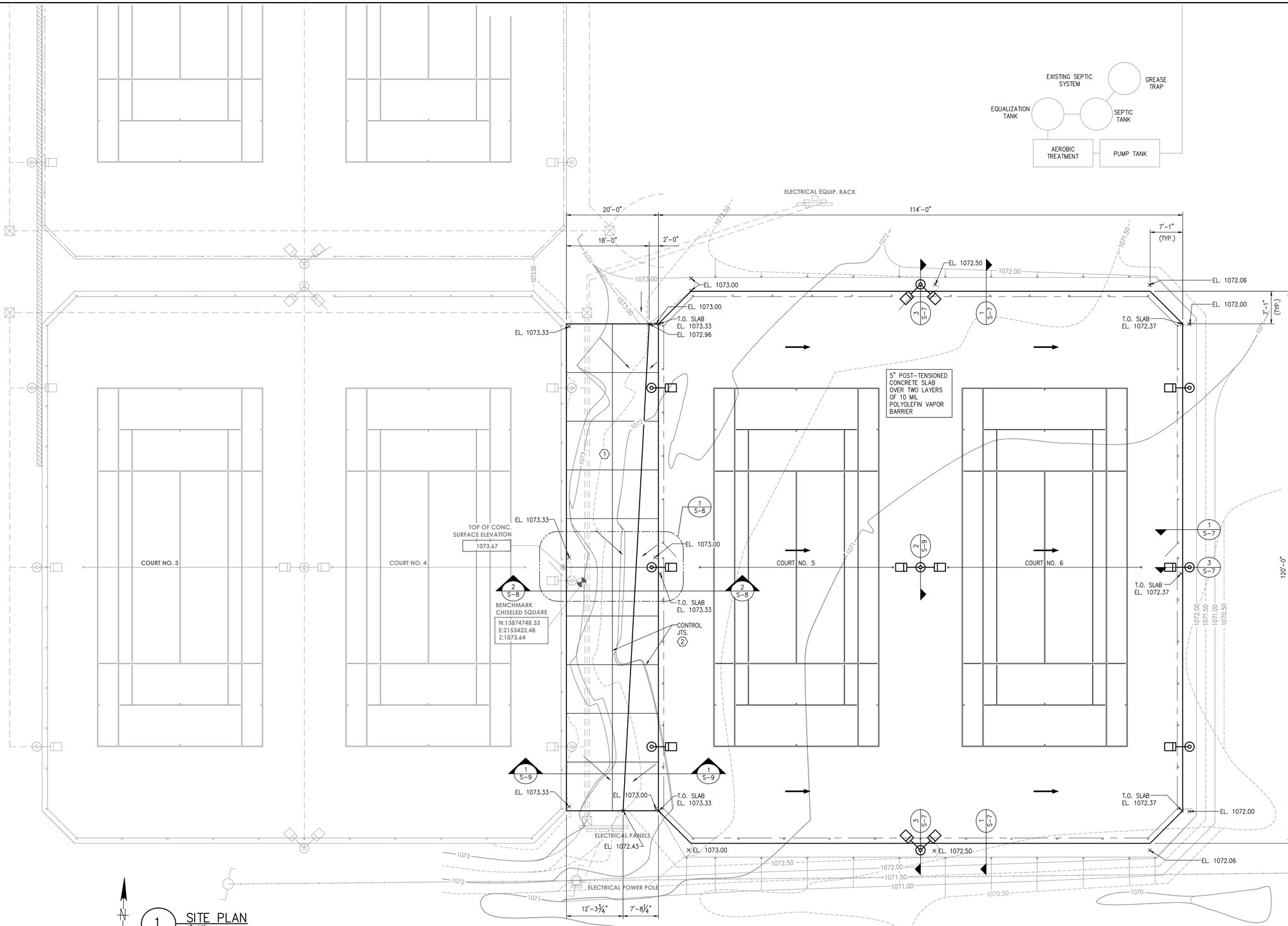
Pickett, Kelm & Associates, Inc.
Consulting Structural Engineers
Texas Registration No. F-1491
4100 Duval Road, Bldg. 4, Suite 103
Austin, Texas 78759 Phone 512-345-5538

JUMBO EVANS SPORTS PARK TENNIS COURTS 5 & 6
SLAB, FENCING & LIGHTING PACKAGE

COMAL COUNTY

OVERALL SITE PLAN

SHEET NO.
S-3



1 SITE PLAN
1"=10'

KEY NOTES:

⟨1⟩ 5" THICK REINFORCED CONCRETE FLAT WORK BETWEEN COURT NOS. 4 AND 5 IS BID ADD ALTERNATE NO.2. IF NOT ACCEPTED, ELEVATIONS SHOWN WILL BE TOP OF GROUND ELEVATIONS.

⟨2⟩ CONTROL JOINTS – SEE 1/S-2

PLAN NOTES:

1 EXCEPT FOR THE POLE FOUNDATION AT THE CENTER OF THE COURTS AND THE UNDERSLAB CONDUIT, COURT LIGHTING AND ELECTRICAL ARE BID ALTERNATE NO. 1. REFER TO THE SECTIONS AND DETAILS AND THE ELECTRICAL DRAWINGS.

NO.	REVISION	BY	DATE

STATE OF TEXAS · D. GARY PICKETT · 46275 · REGISTERED PROFESSIONAL ENGINEER · 9/16/2016

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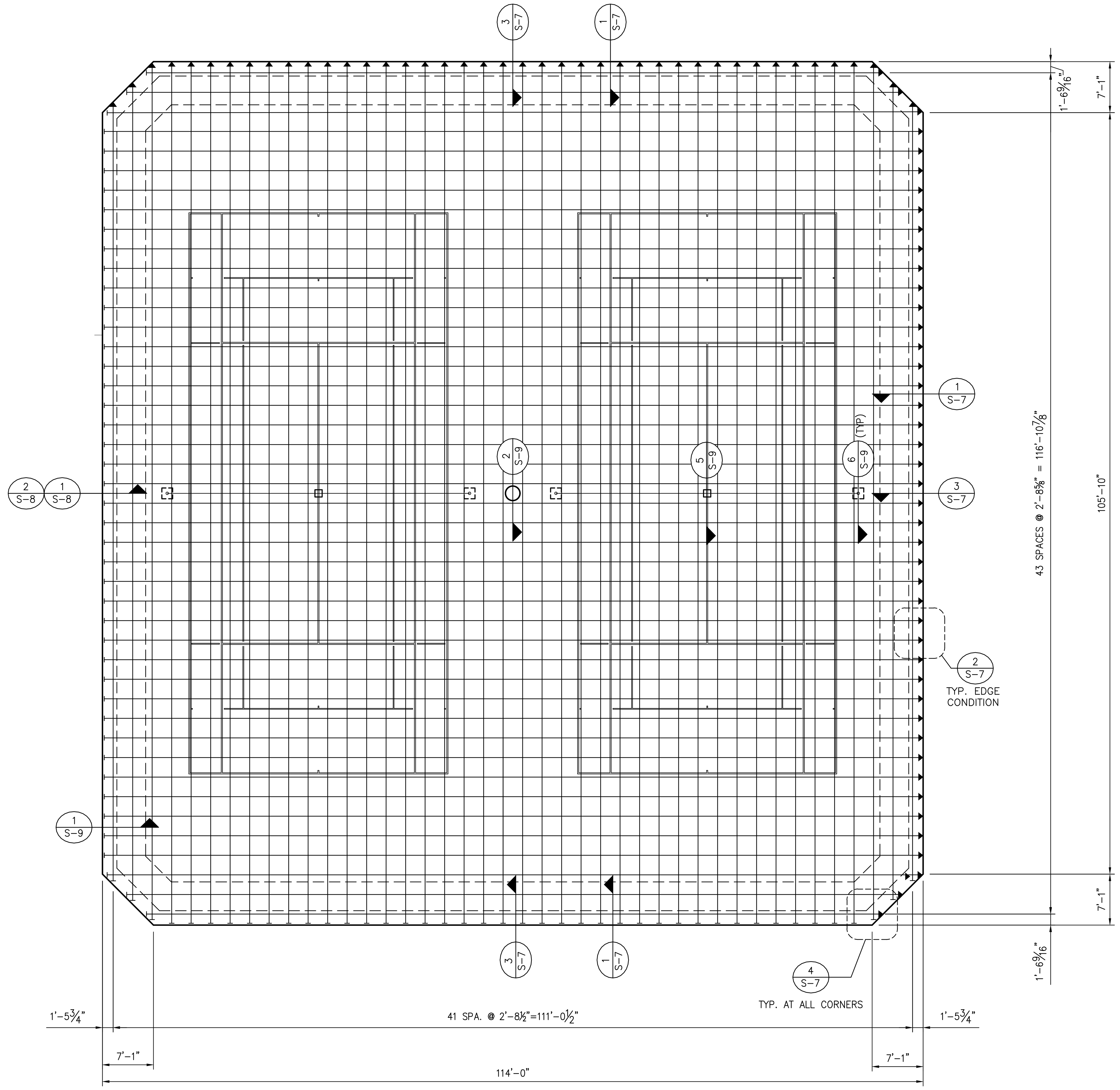
JUMBO EVANS SPORTS PARK TENNIS COURTS 5 & 6
SLAB, FENCING & LIGHTING PACKAGE

COMAL COUNTY

SITE PLAN

SHEET NO.
S-4



1 NEW SLAB TENDON LAYOUT PLAN

1"=10'-0"

NOTES:

1 CURVE TENDONS HORIZONTALLY AS REQUIRED AT FENCE POSTS, NET POSTS, NET ANCHOR AND LIGHT POLE FOUNDATION – SEE NOTES ON SHEET S-1 AND DETAIL 4/S-9.
2 ALL TENDONS SHALL BE STRESSED FROM ONE END.
3 ANY EAST-WEST KEYED JOINTS REQUIRED FOR SCREEDING OR TOP OF SLAB ELEVATION CONTROL SHALL BE ALIGNED WITH THE NET POSTS/NET LINE. NORTH-SOUTH KEYED JOINTS SHALL BE LOCATED AT THE MIDPOINT BETWEEN COURTS. KEYED JOINTS SHALL CONSIST OF GALVANIZED METAL WITH CONTINUOUS KEYWAYS. TENDONS SHALL BE CONTINUOUS THROUGH KEYED JOINTS.

ANCHORAGE LEGEND

◀—— STRESSING END

|—— DEAD END

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STATE OF TEXAS
D. GARY PICKETT
46275
REGISTERED PROFESSIONAL ENGINEER
[illegible] 9/16/2016

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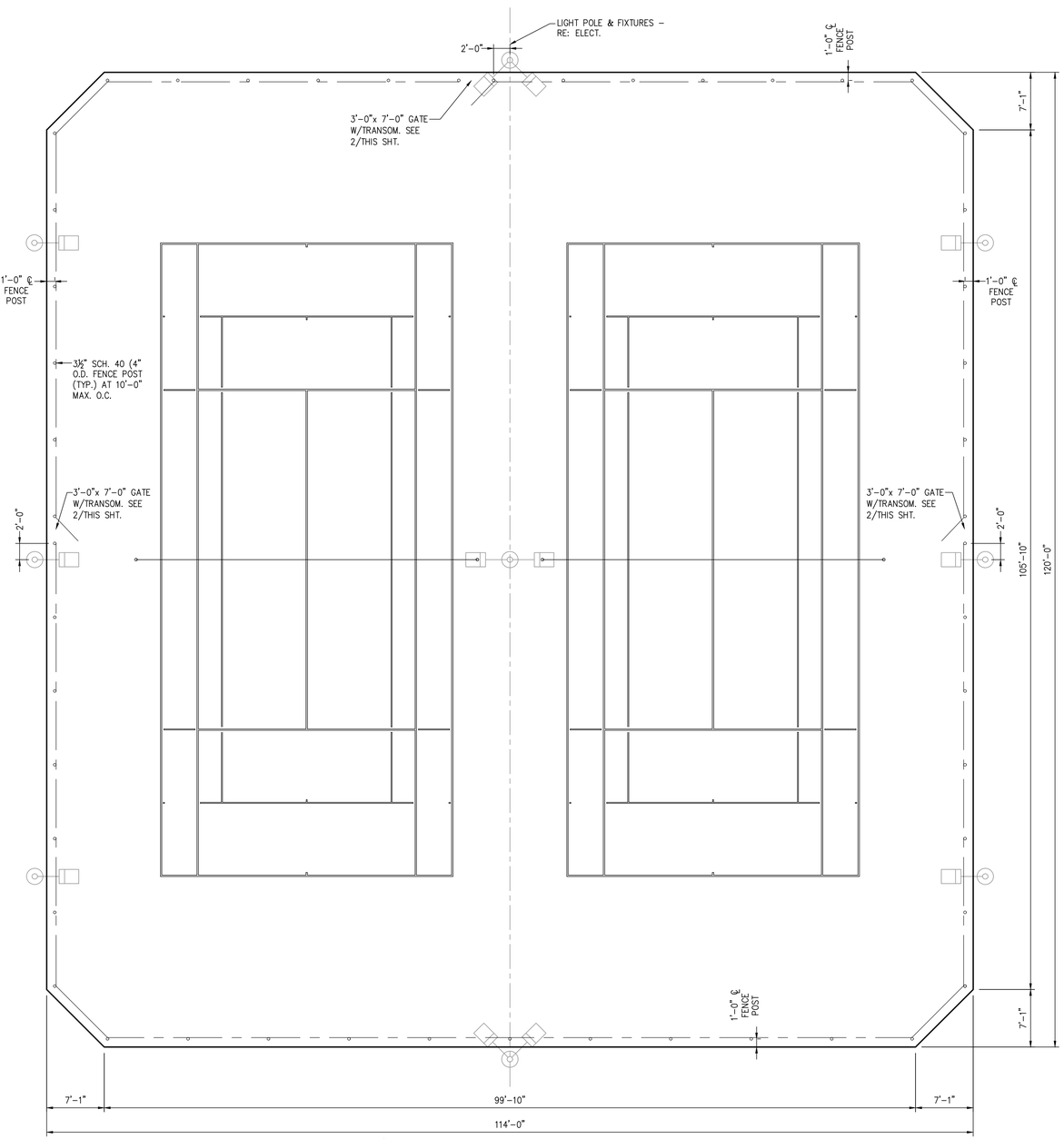
JUMBO EVANS SPORTS PARK TENNIS COURTS 5 & 6
SLAB, FENCING & LIGHTING PACKAGE

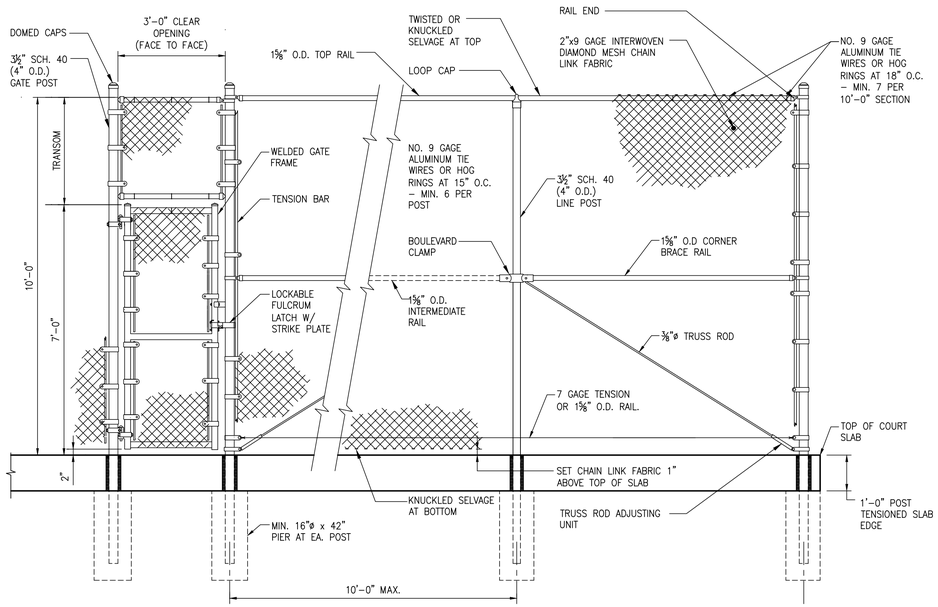
COMAL COUNTY

COURT SLAB TENDON LAYOUT PLAN

SHEET NO.
S-5

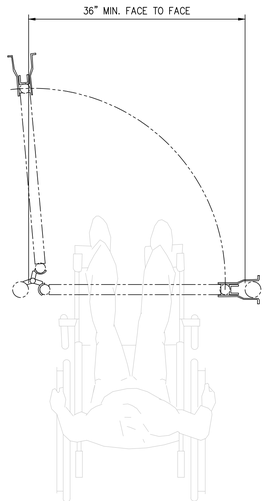


1 FENCING LAYOUT PLAN
1/8"=1'-0"

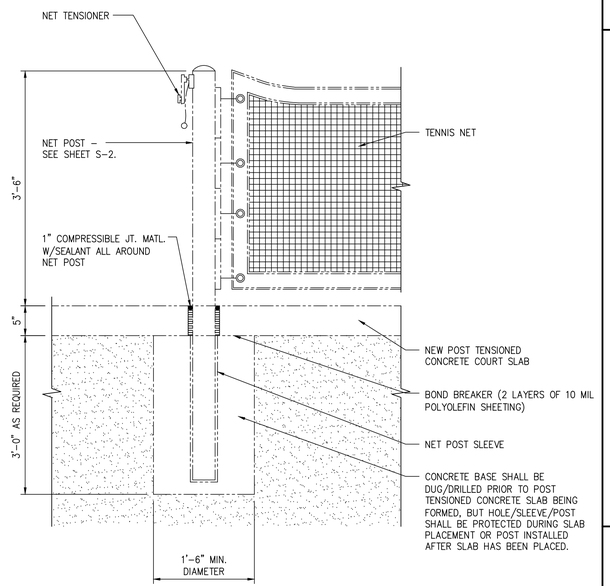


NOTE: ALL FENCING AND FENCING COMPONENTS SHALL BE HOT DIP GALVANIZED. SEE NOTES AT SHEET S-2.

2 FENCE AND GATE ELEVATION
NTS



3 GATE PLAN
NTS



4 NET POST DETAIL
NTS

NOTE: USE EXTREME CARE TO SET ELEVATIONS OF TOP OF NET POST FOUNDATION AT OR BELOW BOTTOM OF SLAB ELEVATION.

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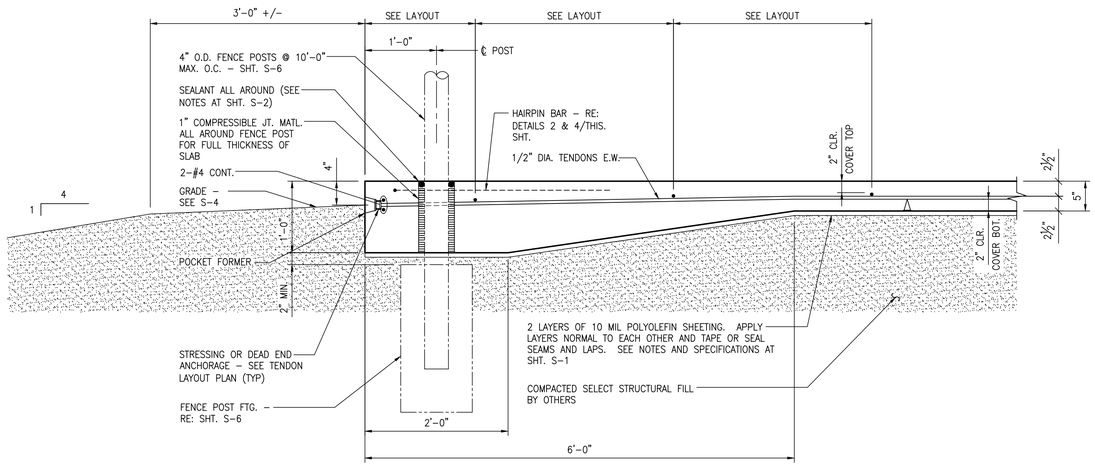
JUMBO EVANS SPORTS PARK TENNIS COURTS 5 & 6
SLAB, FENCING & LIGHTING PACKAGE

COMAL COUNTY

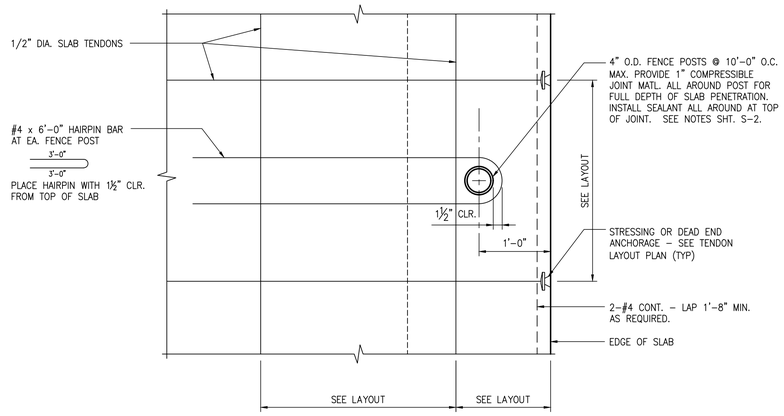
FENCING PLAN, ELEVATION AND DETAILS

SHEET NO.
S-6

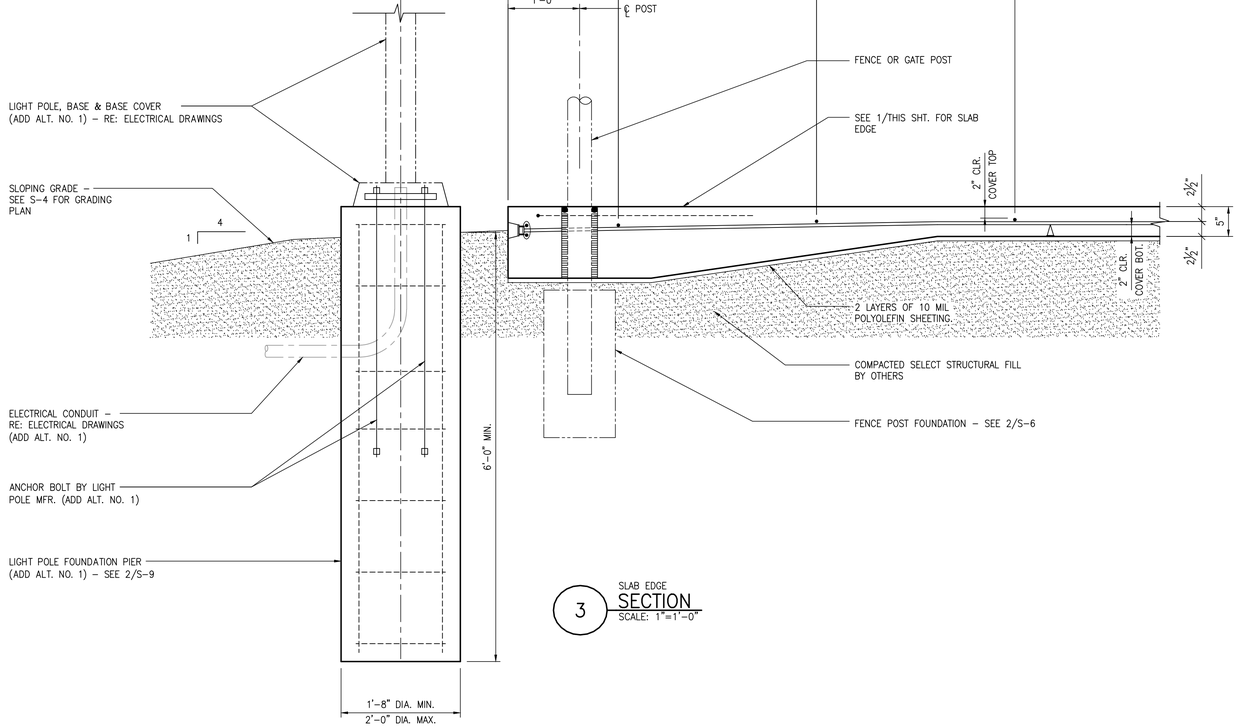


NOTE: CONTRACTOR SHALL USE EXTREME CARE IN PLACING CONCRETE FOR FENCE POST FOOTINGS. TOP OF FOOTING SHALL BE SMOOTH AND LEVEL AND PLACED A MINIMUM OF 2" BELOW BOTTOM OF SLAB THICKENED EDGE. TAMP FILL OVER FOOTING AND COVER WITH 2 LAYERS OF 10 MIL POLYETHYLENE SHEETING. SLAB MUST BE ISOLATED FROM FOOTING AND POST. WRAP POSTS WITH 1" MIN. THICKNESS COMPRESSIBLE JOINT MATERIAL FOR FULL DEPTH OF SLAB.

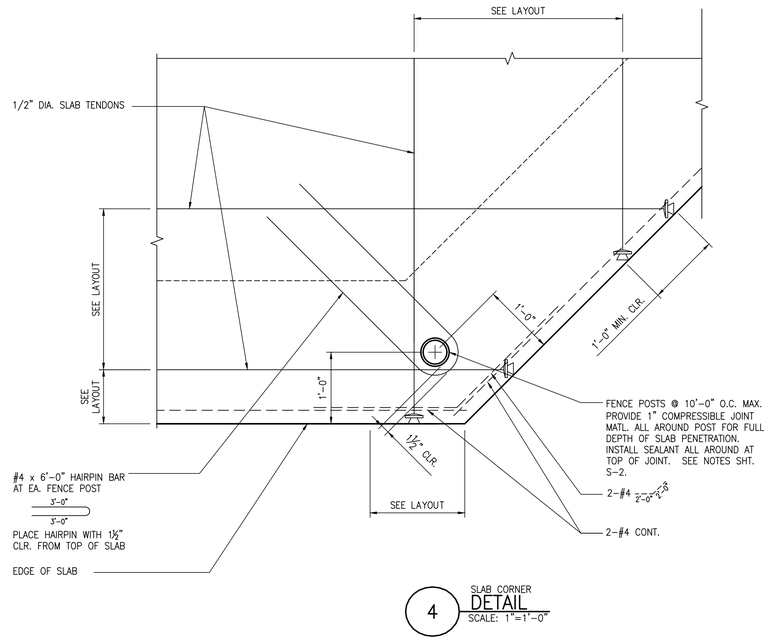
1 SLAB EDGE SECTION
SCALE: 1"=1'-0"



2 SLAB EDGE DETAIL
SCALE: 1"=1'-0"



3 SLAB EDGE SECTION
SCALE: 1"=1'-0"



4 SLAB CORNER DETAIL
SCALE: 1"=1'-0"

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STATE OF TEXAS · D. GARY PICKETT · 46275 · REGISTERED PROFESSIONAL ENGINEER · 9/16/2016

PROJECT NO.: 001-4298
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DRAWN BY: KCH
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APPROVED BY: DGP
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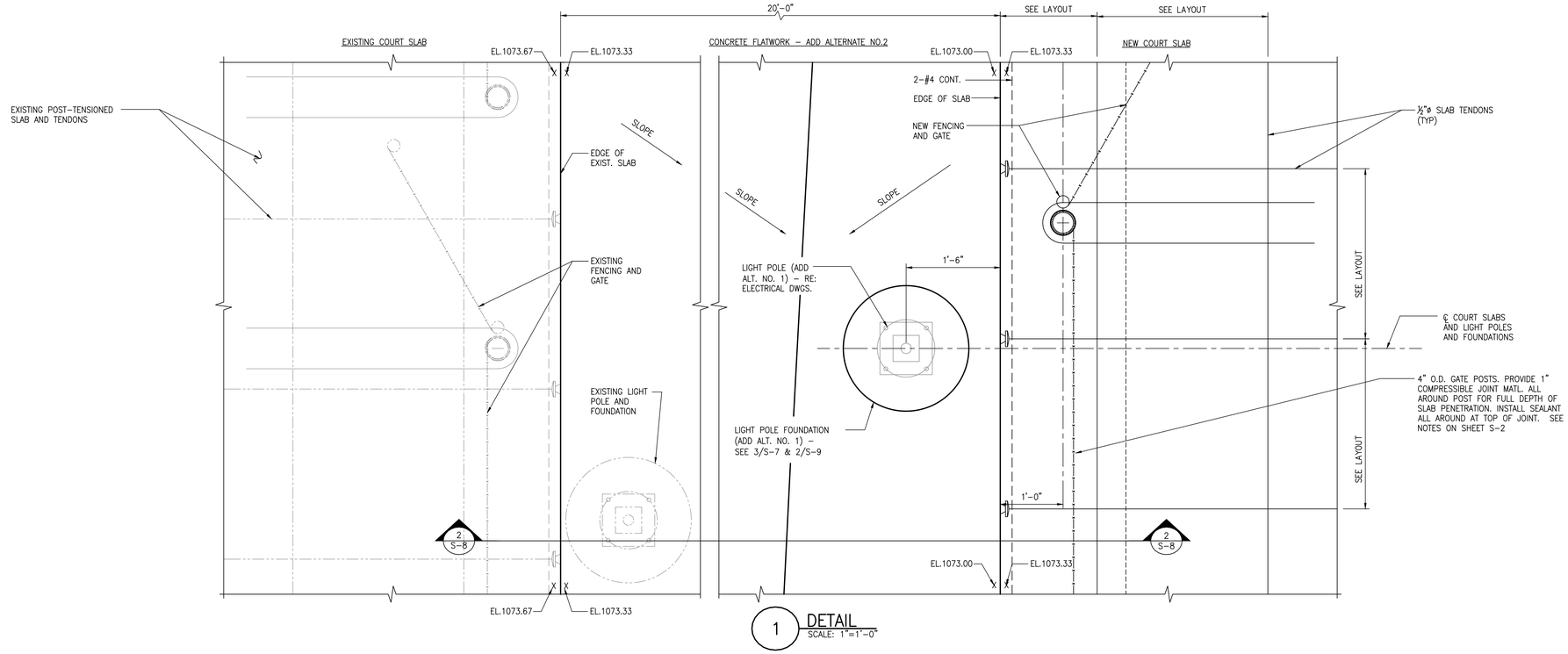
JUMBO EVANS SPORTS PARK TENNIS COURTS 5 & 6
SLAB, FENCING & LIGHTING PACKAGE

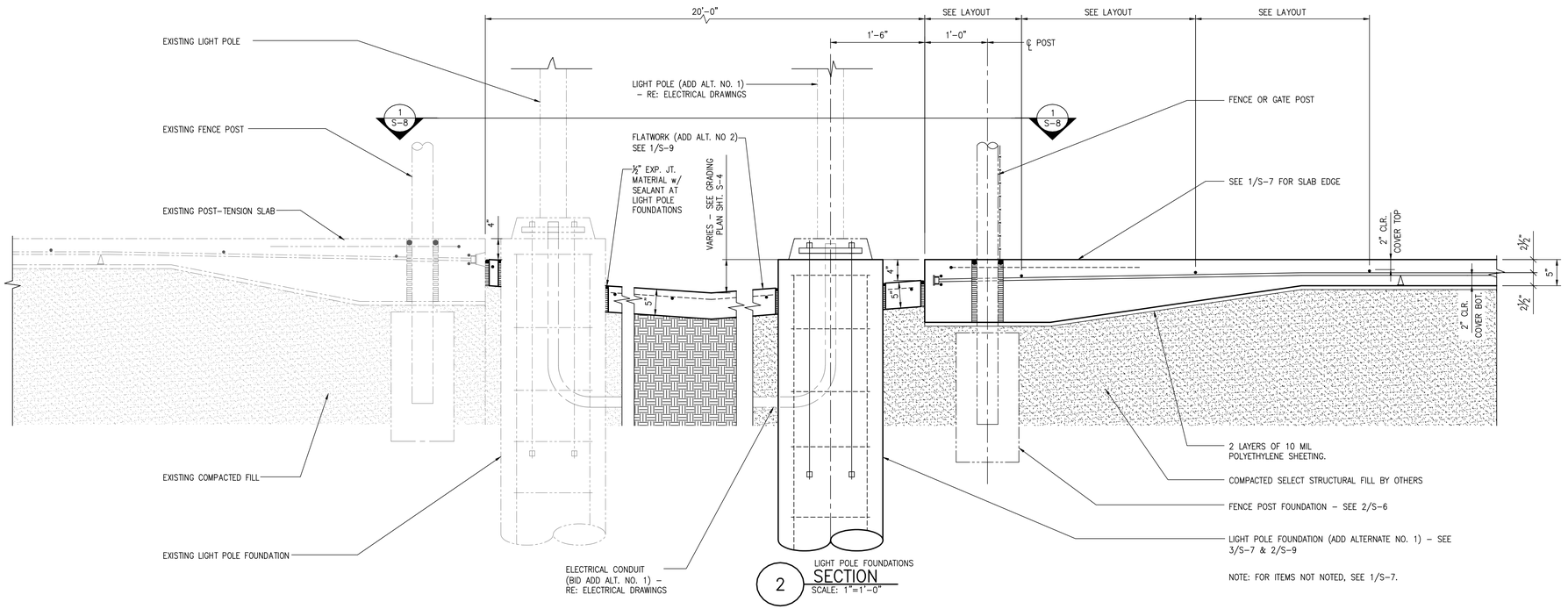
COMAL COUNTY

STRUCTURAL SECTIONS AND DETAILS

SHEET NO.
S-7



1 DETAIL
SCALE: 1"=1'–0"



2 LIGHT POLE FOUNDATIONS SECTION
SCALE: 1"=1'–0"

NO.	REVISION	BY	DATE

STATE OF TEXAS · D. GARY PICKETT · 46275 · REGISTERED PROFESSIONAL ENGINEER
9/16/2016

PROJECT NO. 001-4298
DESIGNED BY: DDP
DRAWN BY: KCH
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APPROVED BY: DDP
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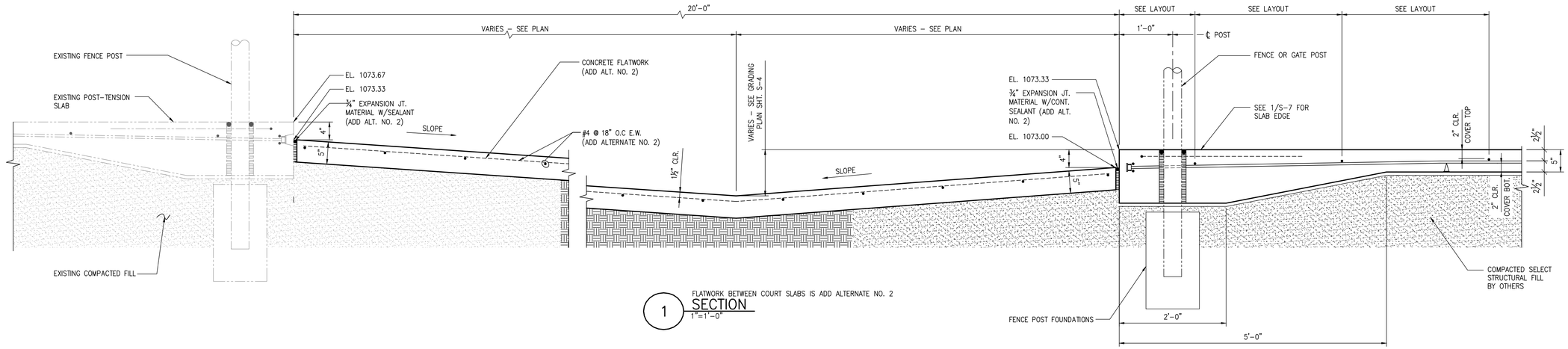
JUMBO EVANS SPORTS PARK TENNIS COURTS 5 & 6
SLAB, FENCING & LIGHTING PACKAGE

COMAL COUNTY

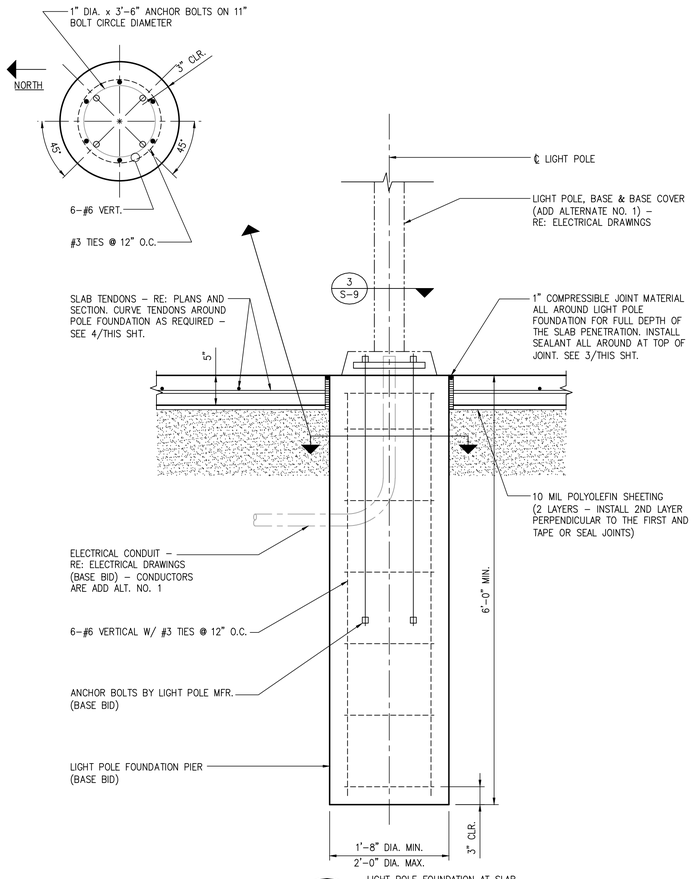
STRUCTURAL SECTIONS AND DETAILS

SHEET NO.
S–8

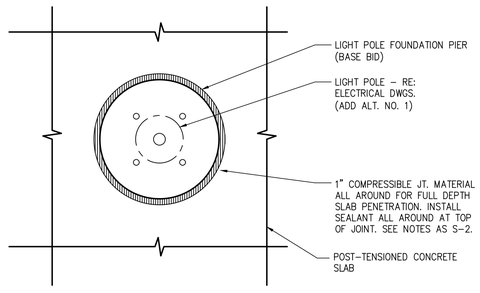


1 SECTION
1"=1'-0"

FLATWORK BETWEEN COURT SLABS IS ADD ALTERNATE NO. 2

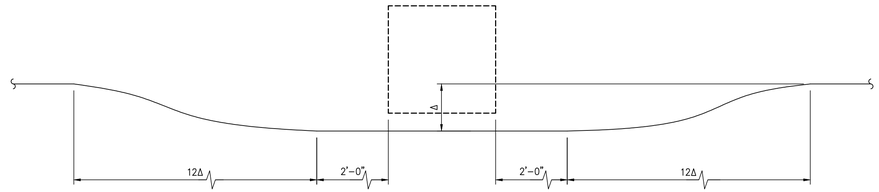


2 LIGHT POLE FOUNDATION AT SLAB SECTION
SCALE: 1"=1'-0"

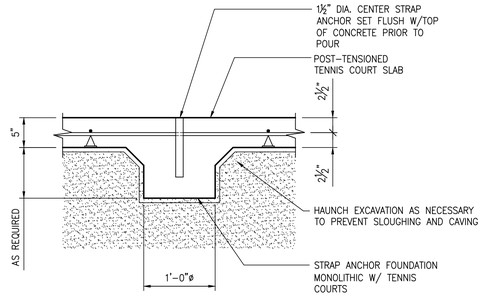


CURVE TENDONS AROUND LIGHT POLE FOUNDATION PIER AS REQUIRED. SEE TENDON LAYOUT PLAN SHEET AS S-5, DETAIL 4/THIS SHT. AND NOTES AND SPECIFICATIONS ON SHEETS S-1 & S-2.

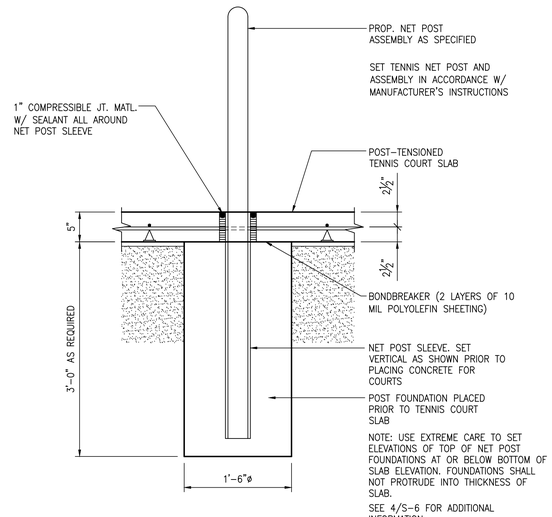
3 EXPANSION/ISOLATION JOINT AT LIGHT POLE IN TENNIS COURT SLAB DETAIL
SCALE: 1"=1'-0"



4 CURVATURE OF TENDONS AT PENETRATIONS DETAIL
SCALE: 1"=1'-0"



5 CENTER STRAP ANCHOR SECTION
SCALE: 1"=1'-0"



6 NET POST FOUNDATION SECTION
SCALE: 1"=1'-0"

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D. GARY PICKETT
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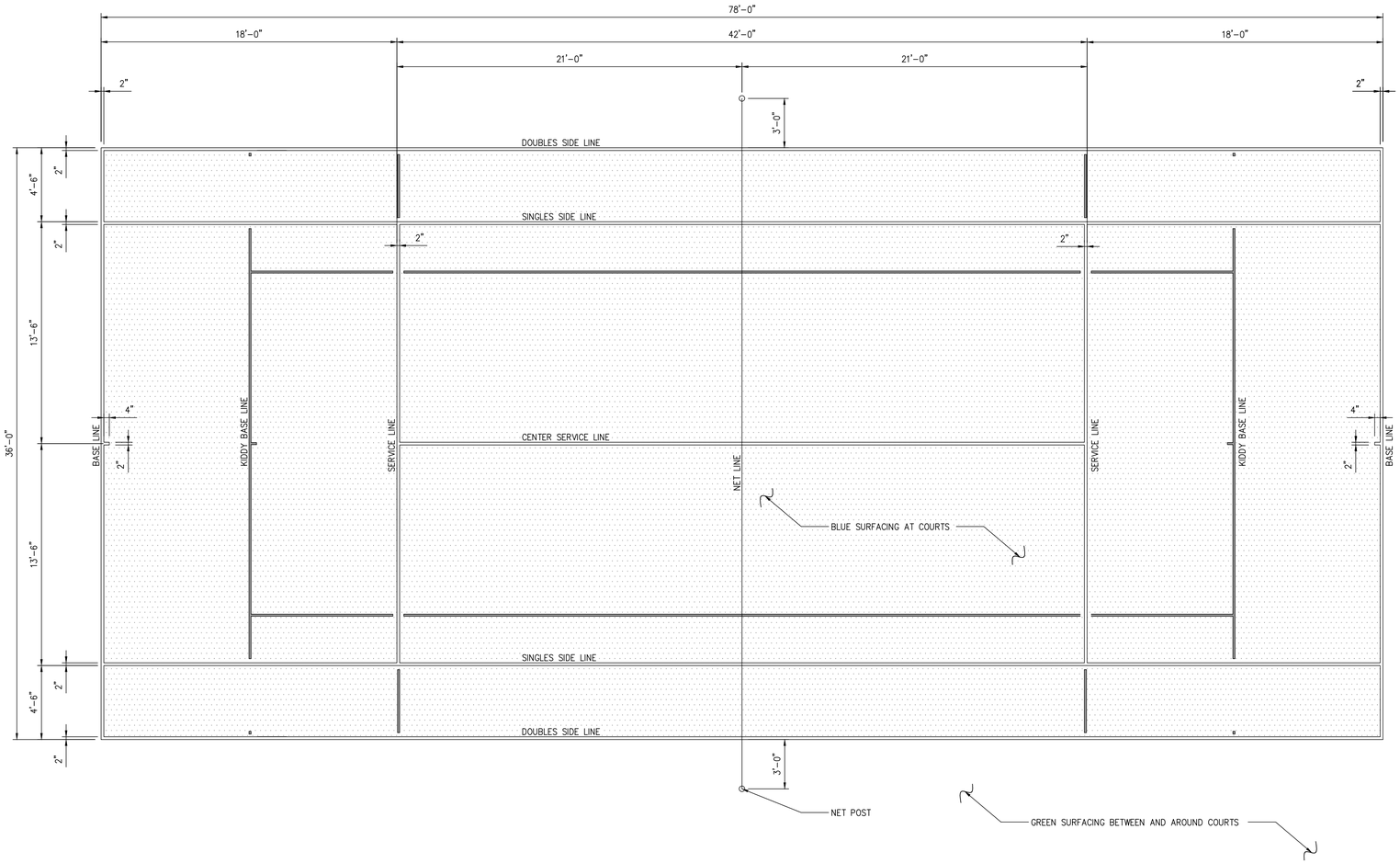
JUMBO EVANS SPORTS PARK TENNIS COURTS 5 & 6
SLAB, FENCING & LIGHTING PACKAGE

COMAL COUNTY

STRUCTURAL SECTIONS AND DETAILS

SHEET NO.
S-9



1 TYPICAL 78' COURT STRIPING PLAN W/ 36' AND 60' BLENDED LINES

1/4"=1'-0"

NOTES:

1 SURFACING WITHIN THE COURT LINES SHALL BE BLUE. SURFACING OUTSIDE OF THE COURT LINES SHALL BE GREEN. EXACT COLORS WILL BE SELECTED BY THE OWNER FROM THE SURFACING MANUFACTURER'S AVAILABLE COLORS.

2 LINES FOR THE 78 FOOT COURT SHALL BE TEXTURED AND WHITE IN COLOR AND 2 INCHES IN WIDTH.

3 THE CENTER MARK FOR THE 36 FOOT COURT SHALL BE SET 2 INCHES OFF THE 78 FOOT COURT DOUBLES SIDELINE AND SHALL BE 2 INCHES LONG BY 1½" WIDE.

4 FOR TEN AND UNDER COURT LINES SEE 1/S-11

NO.	REVISION	BY	DATE

STATE OF TEXAS · D. GARY PICKETT · 46275 · LICENSED PROFESSIONAL ENGINEER · 9/16/2016

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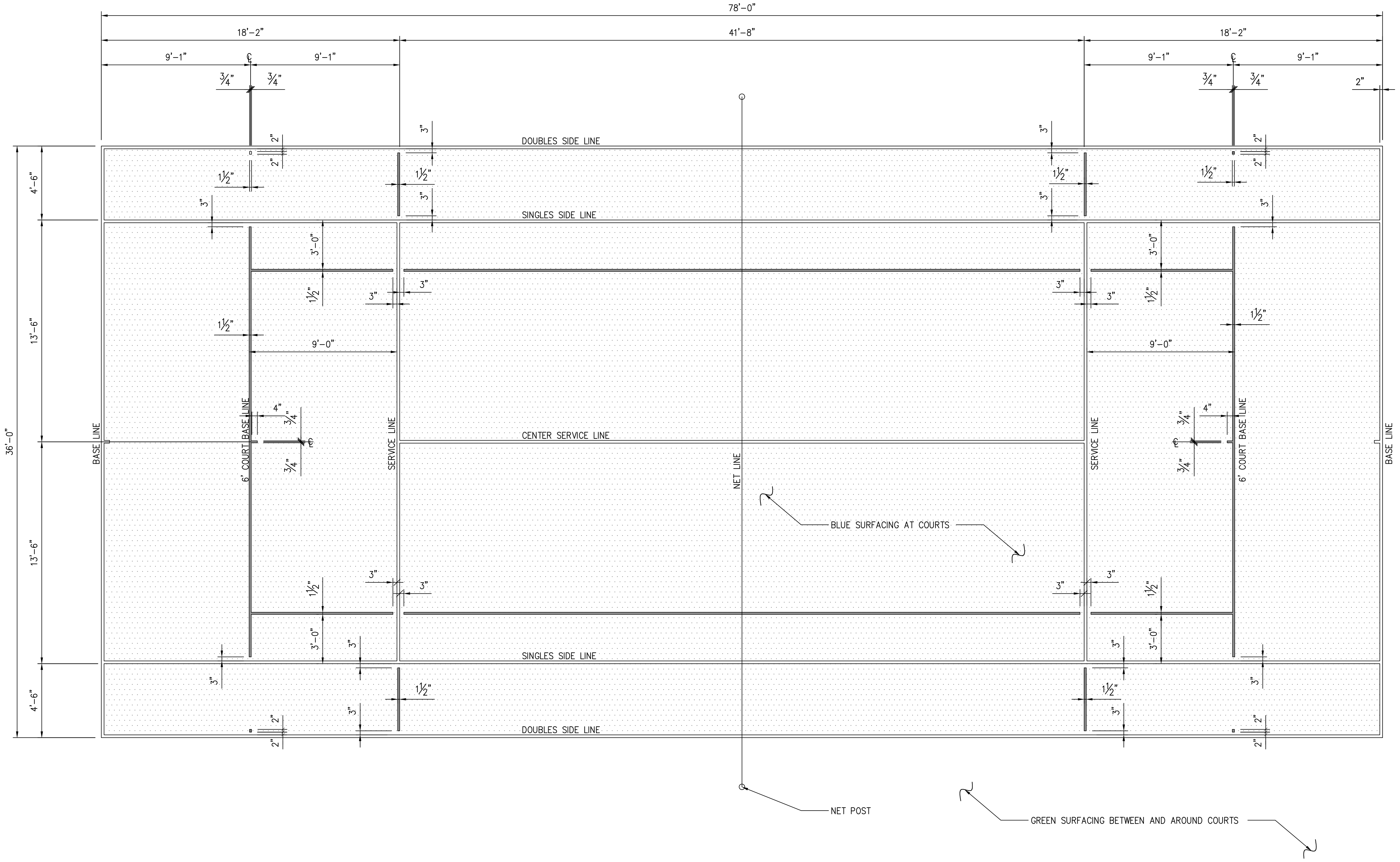
JUMBO EVANS SPORTS PARK TENNIS COURTS 5 & 6
SLAB, FENCING & LIGHTING PACKAGE

COMAL COUNTY

TYPICAL 78' TENNIS COURT STRIPING PLAN

SHEET NO.
S-10



1 TYPICAL UNDER TEN COURT STRIPING PLAN

1/4"=1'–0"

NOTES:

1 SURFACING WITHIN THE 78 FOOT COURT LINES SHALL BE BLUE. SURFACING OUTSIDE OF THE COURT LINES SHALL BE GREEN. EXACT COLORS WILL BE SELECTED BY THE OWNER FROM THE SURFACING MANUFACTURER'S AVAILABLE COLORS.

2 TEN AND UNDER COURT LINES SHALL BE TEXTURED LINE PAINT WITHIN THE SAME COLOR FAMILY (BLUE) AS THE 78 FOOT COURT COLOR.

3 ALL TEN AND UNDER COURT LINES SHALL BE 1½" IN WIDTH. ALL TEN AND UNDER COURT LINES SHALL TERMINATE 3" FROM THE 78 FOOT COURT LINES.

4 ALL TEN AND UNDER COURT LINES SHALL BE MEASURED OUT TO OUT, WITH THE EXCEPTION OF THE CENTER LINES WHICH SHALL BE MEASURED OUT TO CENTER.

NO.	REVISION	BY	DATE

STATE OF TEXAS
D. GARY PICKETT
46275
REGISTERED
PROFESSIONAL ENGINEER
[illegible] 9/16/2016

PROJECT NO. 001–4298
DESIGNED BY: DGP
DRAWN BY: KCH
CHECKED BY: DGP/DMC
APPROVED BY: DGP
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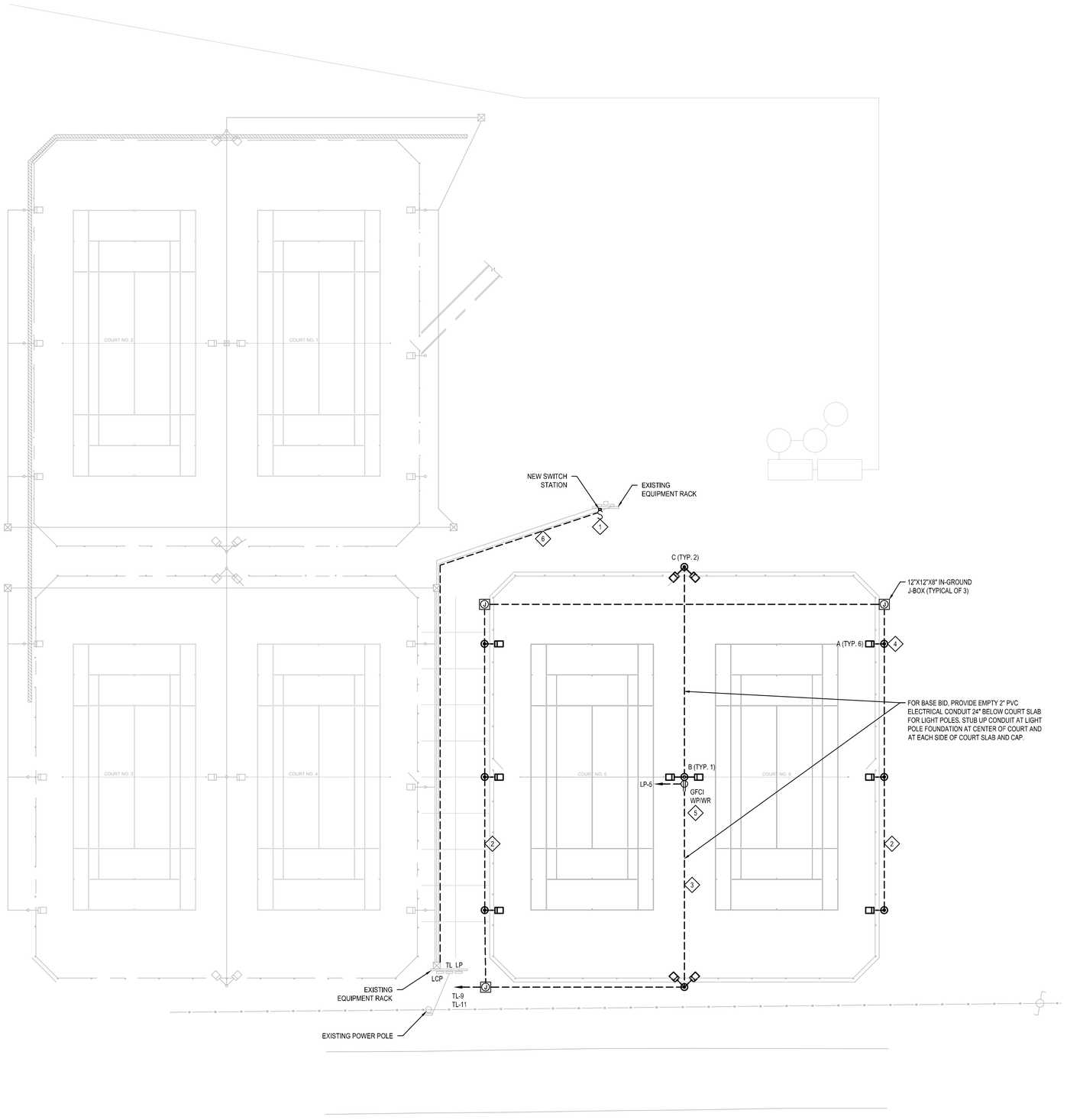
JUMBO EVANS SPORTS PARK TENNIS COURTS 5 & 6
SLAB, FENCING & LIGHTING PACKAGE

COMAL COUNTY

TYPICAL UNDER 10 COURT STRIPING PLAN

SHEET NO.
S–11



1 ELECTRICAL SITE PLAN - ADD ALTERNATE NO.1

SCALE: 1/16" = 1'-0"

GENERAL NOTES

1. PRIOR TO ROUGHING IN ELECTRICAL SERVICE, OBTAIN AND COMPLY WITH UTILITY COMPANY ENGINEERING DRAWINGS AND SPECIFICATIONS.
2. ALL CONDUITS INSTALLED UNDERGROUND SHALL BE MINIMUM SIZE OF 1" UNLESS OTHERWISE NOTED.
3. ALL CONDUIT INSTALLED UNDERGROUND SHALL BE TYPE SCHEDULE 40 PVC UNLESS OTHERWISE NOTED.
4. ALL METAL LIGHT POLES SHALL BE BONDED TO GROUND WITH AN EQUIPMENT GROUNDING CONDUCTOR SIZED NOT SMALLER THAN THE LARGEST BRANCH CIRCUIT CONDUCTOR ENCLOSED WITHIN THE SAME LIGHT POLE.
5. PROVIDE MINIMUM COVER AS REQUIRED BY NEC FOR ALL UNDERGROUND CONDUIT UNLESS OTHERWISE NOTED.
6. FOR COURTS 5 & 6 PROVIDE (6) CXLS-A ASSEMBLIES, (1) CXLS-B ASSEMBLIES, AND (2) CXLS-C ASSEMBLIES. ALL LUMINARIES MANUFACTURED BY LSI INDUSTRIES, CONTRACTOR TO VERIFY FIXTURE SPECIFICATION WITH OWNER.

KEYED NOTES

1. INSTALL NEW LC&D DIGITAL SWITCH (CAT# SBOLT-HD) SUITABLE FOR WET LOCATION FOR COURT 5,6 LIGHTS. PROVIDE COVER PLATE TO MATCH EXISTING.
2. INSTALL 2#8, #8GND, 1-1/4"C FOR EXTERIOR SINGLE HEAD LIGHTING FIXTURES FOR COURTS 5 & 6.
3. INSTALL 2#8, #8GND, 1-1/4"C FOR INTERIOR DUAL HEAD LIGHTING FIXTURES FOR COURTS 5 & 6.
4. INSTALL FIXTURE "A" ON NEW 20' POLE THAT MATCHES EXISTING TENNIS COURTS LIGHTING POLES. SEE DETAIL 2/ SHEET E2. SEE SHEET E3 FOR FIXTURE TYPE, POLE TYPE AND FIXTURE INFORMATION.
5. RUN SEPARATE 3/4"C FOR 120V CIRCUIT LP-5 TO POLE MOUNTED RECEPTACLE. INSTALL RECEPTACLE TO BE AT SAME HEIGHT OF EXISTING RECEPTACLES ON COURTS 1-4.
6. PROVIDE CAT5 CONTROL CABLE RUNNING FROM LIGHTING CONTROL PANEL TO SWITCH LOCATION. USE EXISTING CONDUIT. REFER TO LIGHTING CONTROL WIRING DIAGRAM, DETAIL 3/ SHEET E2.

LIGHTING FIXTURE SCHEDULE

TYPE	MANUFACTURER & MODEL NUMBER	LAMPS	VA	VOLTAGE	DESCRIPTION	NOTES
A	LSI #CXLS-A-1000-MT-AB-20-410-BLK	1-1000W MH 1000		277	RECTANGULAR SINGLE HEAD LUMINAIRE. CWA TYPE BALLAST WITH STANDARD CLEAR BT-56 ENVELOPE. POLE TO BE 20' TALL 7GA. 5" ROUND STRAIGHT STEEL. DRILLED FOR NUMBER OF FIXTURES INDICATED. SEE EXISTING POLES ON SITE.	
B	LSI #CXLS-B-1000-MT-AB-20-410-BLK	1-1000W MH 1000		277	RECTANGULAR DUAL HEAD 180° LUMINAIRE. CWA TYPE BALLAST WITH STANDARD CLEAR BT-56 ENVELOPE. POLE TO BE 20' TALL 7GA. 5" ROUND STRAIGHT STEEL. DRILLED FOR NUMBER OF FIXTURES INDICATED. SEE EXISTING POLES ON SITE.	
C	LSI #CXLS-C-1000-MT-AB-20-410-BLK	1-1000W MH 1000		277	RECTANGULAR DUAL HEAD 70° LUMINAIRE. CWA TYPE BALLAST WITH STANDARD CLEAR BT-56 ENVELOPE. POLE TO BE 20' TALL 7GA. 5" ROUND STRAIGHT STEEL. DRILLED FOR NUMBER OF FIXTURES INDICATED. SEE EXISTING POLES ON SITE.	

LEGEND

	LIGHTS AT TENNIS COURT
GFCI WP/WR	20A DUPLEX RECEPTACLE GROUND FAULT CIRCUIT INTERRUPTER. FOR OUTDOOR INSTALLATION, PLACE IN WATERPROOF HOUSING WHEN MARKED WITH 'WP'.
S	SWITCH
J	JUNCTION BOX
	HOMERUN
	CONDUIT RUN EXPOSED OR HIDDEN ABOVE GROUND
	CONDUIT RUN IN/UNDER SLAB OR UNDERGROUND

NO.	REVISION	BY	DATE

STATE OF TEXAS
MICHAEL B. GREEN
91421
REGISTERED
PROFESSIONAL ENGINEER

PROJECT NO. 001-4298
DESIGNED BY: BJG
DRAWN BY: BJG
CHECKED BY: MBG
APPROVED BY: MBG
DATE: 9/16/2016

PKA
Pickett, Kelm & Associates, Inc.
Consulting Structural Engineers
Texas Registration No. F-1491
4100 Duval Road, Bldg. 4, Suite 103
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JUMBO EVANS SPORTS PARK TENNIS COURTS 5 & 6
SLAB, FENCING & LIGHTING PACKAGE

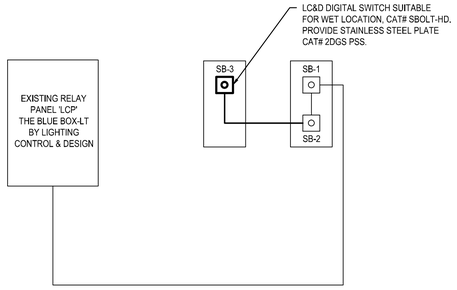
COMAL COUNTY

ELECTRICAL SITE PLAN ADD ALT. NO.1

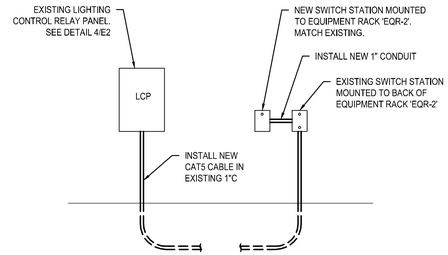
SHEET NO. E1

MEP ENGINEERING, INC.
TBPE Registered Engineering Firm F-342
9830 Colonnade Blvd. Suite 230 San Antonio, TX 78230 (210) 349-1400
1120 Capital of Texas Hwy. South Building 1, Suite 150 Austin, TX 78746 (512) 306-9650

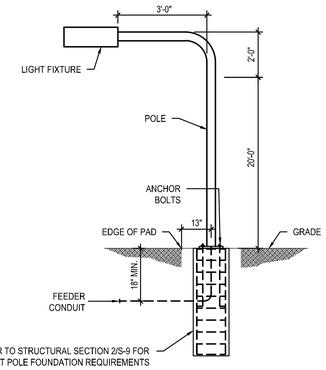
P:\1 PROJECTS – D\13104 JUMBO EVANS SPORTS COMPLEX\1 DWGS\13104 ELEC SITE PLAN.DWG



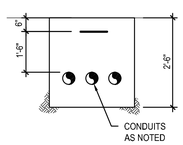
4 CONTROLS WIRING DIAGRAM
SCALE: N.T.S.



3 LIGHT CONTROL RISER
SCALE: N.T.S.



2 LIGHT POLE DETAIL
SCALE: N.T.S.



1 TRENCH DETAIL
SCALE: N.T.S.

KEYED NOTES

1. INSTALL NEW 30A2P BREAKER IN PANEL TL FOR COURTS 5 & 6 EXTERIOR LIGHTING.
2. INSTALL NEW 20A1P BREAKER IN PANEL LP FOR POLE MOUNTED RECEPTACLE.
3. NEW SWITCH TO BE INSTALLED. SEE DETAIL4/ SHEET E2.
4. INSTALL NEW RELAYS FOR LIGHTING ON COURTS 5 & 6. INCLUDE ALL NECESSARY SUPPLIES AND WORK TO HAVE A COMPLETE FUNCTIONING SYSTEM.

NO.	REVISION	BY	DATE

STATE OF TEXAS
MICHAEL B. GREEN
91421
REGISTERED PROFESSIONAL ENGINEER

PROJECT NO. 001-4298
DESIGNED BY: BJG
DRAWN BY: BJG
CHECKED BY: MBG
APPROVED BY: MBG
DATE: 9/16/2016

Pickett, Kelm & Associates, Inc.
Consulting Structural Engineers
Texas Registration No. F-1491
4100 Duval Road, Bldg. 4, Suite 103
Austin, Texas 78759 Phone 512-345-5538

JUMBO EVANS SPORTS PARK TENNIS
COURTS 5 & 6
SLAB, FENCING & LIGHTING PACKAGE

COMAL COUNTY

ELECTRICAL
SCHEDULES
ADD ALT. NO.1

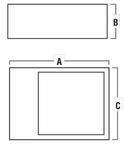
SHEET NO.
E2

TBPE Registered Engineering Firm F-342
MEP ENGINEERING, INC.
9830 Colonnade Blvd. Suite 250 San Antonio, TX 78230 (210) 349-1400
1120 Capital of Texas Hwy, South Building 1, Suite 150 Austin, TX 78746 (512) 330-9650

P:\1 PROJECTS - D\13104 JUMBO EVANS SPORTS COMPLEX\1 DWGS\13104 ELEC SCHEDULES.DWG

COURTSIDER® XL

DIMENSIONS



	A	B	C
CXL	737mm / 29'	254mm / 10'	533mm / 21'

LUMINAIRE EPA* CHART - Courtsider XL

		CXL
→	Single	4.8
←→	D180°	9.7
⌐	D70°	8.0
✕	Q90°	16.4

Note: House Side Shield adds to fixture EPA. Consult factory. *includes upsweep brackets

SHIPPING WEIGHTS - Courtsider XL

Catalog Number	Est. Weight (kg/lbs.)	Length (mm/in.)	Width (mm/in.)	Height (mm/in.)
CXL	27 / 59	775 / 30.5	565 / 22.25	451 / 17.75

HOUSING - The housing is one-piece, formed aluminum, rectangular in shape with square corners. Corners are welded and finished to produce a clean, sharp appearance while increasing housing strength and ensuring weather-tight construction.

DOOR FRAME – Recessed aluminum door frame with two captive stainless steel fasteners to provide secure closure. The door frame features a one-piece continuous gasket for maximum sealing to the housing.

LENS / GASKET – The clear, flat, tempered glass lens is sealed to the door frame with EPDM gasketing.

SOCKET – Porcelain mogul-base socket with spring reinforced contacts. Sockets are pulse-rated.

LIGHT SOURCES – The 1000W Metal Halide lamp utilizes the standard clear BT-56 envelope. The 875W and 750W Pulse-Start Metal Halide lamps utilize the reduced clear BT-37 envelope.

BALLAST – High-power factor CWA type ballast. All ballasts are designed for -20°F (-29°C) operation, and are mounted to the housing reinforcing plate. Lamp ignitor included where required.

REFLECTOR – The high performance reflector consists of a combination of specular and hammertone aluminum. The reflector provides uniform Forward Throw (FT) distribution with sharp backlight cutoff. An integral lamp grip device is provided to insure proper lamp positioning. Photometric data is tested in accordance with IESNA guidelines.

FINISHES – Each fixture is finished with LSI's DuraGrip® Polyester powder finishing process. The DuraGrip finish withstands extreme weather changes without cracking or peeling, and is guaranteed for five full years. Standard colors include black, green, bronze, platinum plus, metallic silver, buff, white, and graphite.

MOUNTING HARDWARE – The fixture is furnished with installed stainless steel, threaded mounting studs protruding from the rear of the housing. Stainless steel nuts and washers used to secure the fixture to the bracket are also included.

c UL us LISTED wet location

Project Name_____ Fixture Type _____

Catalog #_____

05/02/16

COURTSIDER® XL

LUMINAIRE ORDERING INFORMATION

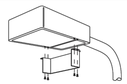
TYPICAL ORDER EXAMPLE: **CXLS FT 1000 MH F MT BLK**

Luminaire Prefix	Distribution	Lamp Wattage	Light Source	Lens	Line Voltage	Finish
CXLS	FT - Forward Throw 3 - Type III[1]	1000 875 750	MH – Metal Halide 1000 Watt PSMH – Pulse-Start Metal Halide 750, 875 Watt	F - Flat Clear Tempered Glass	MT - Multi-Tap[2] 480 220/240V 50HZ[3]	BLK - Black GRN - Green BRZ - Bronze PLP - Platinum Plus BUF - Buff WHT - White GPT - Graphite MSV - Metallic Silver

ACCESSORY ORDERING INFORMATION (Accessories are field installed)

Description	Order Number
HSS - House Side Shield[4]	122521BLK+

+Black only



House Side Shield (HSS)

FOOTNOTES:

1 - The Type III (3) reflector is supplied on fixtures for the Quad 90 assembly only

2 - **MT – Multi Tap** consists of 120V, 208V, 240V and 277V and is prepared for highest voltage. Alternate voltages will require field adjustment.

3 - For international applications where 50hz power is standard (e.g. Europe & Asia).

4 - Under normal use, the Courtsider XL fixture produces acceptable light cutoff. For highly sensitive applications, the optional external rear cutoff shield is available.

ELECTRICAL REQUIREMENTS

	1000W	875W	750W
120V	9.2 amps	7.8 amps	6.8 amps
208V	5.3 amps	4.5 amps	3.9 amps
240V	4.6 amps	3.9 amps	3.4 amps
277V	4 amps	3.4 amps	2.9 amps
347V	3.1 amps	2.7 amps	2.3 amps
480V	2.3 amps	2 amps	1.7 amps

Project Name_____ Fixture Type _____

Catalog #_____

SPECIFICATIONS

SECTION 26050 ELECTRICAL GENERAL PROVISIONS

1. WORK MUST COMPLY W/ THE LATEST RULES & REGULATION OF THE NATIONAL ELECTRIC CODE, & ALL LOCAL, STATE & FEDERAL CODES, ORDINANCES & REGULATIONS.
2. ALL MATERIALS SHALL BE UL LISTED AND/OR LABELED.
3. DURING CONSTRUCTION, PROTECT ALL EXISTING ELEC. EQUIP. & MATERIALS FROM CONSTRUCTION DEBRIS, MOISTURE ABSORPTION & METALLIC CORROSION.
4. COOPERATE W/ ALL TRADES PERFORMING WORK.
5. MARK ALL MAJOR PIECES OF ELEC. EQUIP. W/ ENGRAVED NAMEPLATES. FURNISH RED NAMEPLATES FOR EQUIP. CONNECTED TO EMERGENCY CIRCUITS.
6. SUBMIT SHOP DRAWINGS & PRODUCT DATA FOR ALL MATERIALS & EQUIP. TO THE ARCH./ENGINEER.
7. SUBMIT OPERATION & MAINTENANCE MANUALS TO THE ARCH./ENGINEER.
8. SUBMIT PROJECT RECORD DOCUMENTS TO THE ARCH./ENGINEER.
9. INSTALL ALL PRODUCTS AND MATERIALS PER MANUFACTURERS RECOMMENDATIONS.

SECTION 260526 GROUNDING AND BONDING

1. FURNISH AND INSTALL A SYSTEM GROUND AS REQUIRED BY NEC ARTICLE 250.
2. FURNISH AND INSTALL AN EQUIPMENT GROUND AS REQUIRED BY NEC ARTICLE 250.
3. SIZE GROUNDING AND BONDING CONDUCTORS PER NEC TABLES 250.66 AND 250.122.
4. INSTALL AN EQUIPMENT GROUNDING CONDUCTOR IN ALL FEEDERS AND BRANCH CIRCUITS.

SECTION 260519 600 VOLT INSULATED CONDUCTORS

1. FURNISH AND INSTALL SOLID COPPER WIRE WITH THHN/THWN INSULATION FOR NO. 12 AND 10 AWG CONDUCTORS. MINIMUM CONDUCTOR SIZE IS NO. 12 AWG UON.
2. FURNISH AND INSTALL STRANDED COPPER WIRE WITH THHN/THWN INSULATION FOR NO. 8 AWG AND LARGER CONDUCTORS.
3. COLOR CODE ALL WIRING.

SECTION 260533 RACEWAYS

1. FURNISH AND INSTALL ELECTRICAL METALLIC TUBING (EMT) WITH STEEL COMPRESSION FITTINGS IN INTERIOR LOCATIONS. MINIMUM RACEWAY SIZE IS 3/4" UON.
2. FURNISH AND INSTALL RIGID NON-METALLIC CONDUIT ENCASED IN CONCRETE WHERE INSTALLED BELOW GRADE.
3. FURNISH AND INSTALL RIGID STEEL CONDUIT IN ALL OTHER APPLICATIONS.
4. FURNISH AND INSTALL WIREWAYS PER NEC ARTICLE 376.
5. FLEXIBLE METAL CONDUIT, IN LENGTHS NOT EXCEEDING 60", MAY BE USED TO CONNECT LIGHT FIXTURES TO BRANCH CIRCUIT WIRING.

SECTION 260533.11 ELECTRICAL BOXES

1. FURNISH AND INSTALL 4" SQUARE GALVANIZED STEEL DEVICE BOXES.
2. FURNISH AND INSTALL MASONRY BOXES IN MASONRY WALLS.
3. FURNISH AND INSTALL GALVANIZED STEEL JUNCTION, PULL AND SPLICE BOXES CONFORMING TO NEC ARTICLE 314.

SECTION 262726 WIRING DEVICES

1. FURNISH AND INSTALL NEMA 5-20R BACK AND SIDE WIRED RECEPTACLES CONFORMING TO UL 498; HUBBELL #5362 OR EQUIVALENT.
2. FURNISH AND INSTALL 20A-120/277V BACK AND SIDE WIRED WALL SWITCHES CONFORMING TO UL 20; HUBBELL #122x OR EQUIVALENT.
3. DEVICE PLATES SHALL BE SMOOTH NYLON OR HIGH-IMPACT THERMOPLASTIC; HUBBELL "P SERIES" OR EQUIVALENT.

SECTION 262816.10 ENCLOSED SAFETY SWITCHES

1. FURNISH AND INSTALL HEAVY DUTY, QUICK-MAKE, QUICK-BREAK SAFETY SWITCHES.

SECTION 262813 FUSES - 600 VOLT AND BELOW

1. FURNISH AND INSTALL UL CLASS RK-5 TIME DELAY CURRENT LIMITING FUSES.

SECTION 265100 LIGHTING FIXTURES AND LAMPS

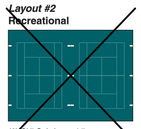
1. LIGHTING SYSTEM (FIXTURES AND POLES) SHALL BE COURTSIDEER XL SYSTEM IN A LAYOUT #5 NARROW COURT RECREATIONAL CONFIGURATION (6 - CXLS - A ASSEMBLIES, 2 - CXLS-C ASSEMBLIES AND 1 - CXLS - B ASSEMBLY) AS SHOWN ON THIS SHEET. POLES SHALL BEFURNISHED WITH ANCHOR BOLT BASES. FIXTURES, POLES AND BASES SHALL BE FURNISHED IN A GREEN FINISH TO MATCH THE EXISTING COURT LIGHTING SYSTEM.

STANDARD LAYOUTS

Layout #1
Recreational

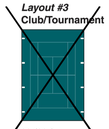
(6) CXLS-A Assemblies

Layout #2
Recreational



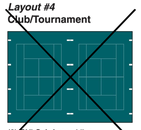
(6) CXLS-A Assemblies
(3) CXLS-B Assemblies

Layout #3
Club/Tournament



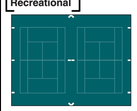
(8) CXLS-A Assemblies

Layout #4
Club/Tournament



(6) CXLS-A Assemblies
(4) CXLS-B Assemblies

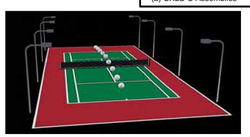
Layout #5
Narrow Court Recreational



(6) CXLS-A Assemblies
(1) CXLS-B Assemblies
(2) CXLS-C Assemblies

Layout #6
Narrow Court Club/Tournament

(6) CXLS-A Assemblies
(2) CXLS-C Assemblies
(1) CXLS-D Assemblies



A properly designed tennis lighting system should do more than light the surface of the court. More importantly, the system should effectively light the ***tennis ball*** in its flight path across the court. The proper quantity and location of poles and fixtures will insure this objective is achieved.

CONFIGURATIONS

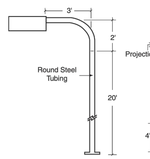
Single
CXLS-A Assemblies
(1) Courtsider XL Fixture
(1) Single Upsweep Bracket
(1) Round Steel Pole

D180
CXLS-B Assemblies
(2) Courtsider XL Fixtures
(1) Twin 180° Upsweep Bracket
(1) Round Steel Pole

D70
CXLS-C Assemblies
(2) Courtsider XL Fixtures
(1) Twin 70° Upsweep Bracket
(1) Round Steel Pole

Q90
CXLS-D Assemblies
(4) Courtsider XL Fixtures
(1) Quad Upsweep Bracket
(1) Round Steel Pole

POLE AND BRACKET SPECIFICATION



POLES (Straight Round Steel Poles)

- Pole shafts are electro-welded ASTM-A513 round steel tubing.
- Tenon is 2-3/8" O.D. high strength pipe. Tenon is 4-3/4" in length.
- Poles are furnished with Galvanized anchor bolts. Anchor bolts conform with ASTM-A36 with a minimum yield strength of 36,000 PSI.
- Base is ASTM-A36 hot-rolled steel plate with a minimum yield strength of 36,000 PSI.
- 3" x 6" oval hand-hole is 12" above pole base.
- Ground lug is standard.
- Ground fault circuit interrupter is optional.
- Four-inch diameter bracket slipfits pole tenon. Hardware to level the bracket is internally threaded, concealing it from view for a cleaner appearance. One through-bolt secures bracket.
- 4" O.D. 10 Ga. steel tubing is approximately 6 lbs. per ft.
- 5" O.D. 11 Ga. steel tubing is approximately 7 lbs. per ft.
- 5" O.D. 07 Ga. steel tubing is approximately 10 lbs. per ft.
- Two-piece fabricated aluminum base cover is standard for anchor base poles.

ORDERING CHART

	Assembly Type	Luminaire Wattage	Luminaire Voltage	Pole Type	Pole Height[4]	Pole Material	Assembly Finish
6 - 1 - 2 -	CXLS-A (single) CXLS-B (twin 180°) CXLS-C (twin 70°) CXLS-D (quad)	1000 - 1000 Watt Metal Halide 875 - 875 Watt Pulse-Start Metal Halide 750 - 750 Watt Pulse-Start Metal Halide	MT - Multi Tap[1] 480V 220/240V 50HZ[2]	AB -Anchor Base[3] DB - Direct Burial	18 20 22 24 26 28	410 - 4" o.d. 10 Ga. Steel[5] 511 - 5" o.d. 11 Ga. Steel 507 - 5" o.d. 7 Ga. Steel[6]	BLK - Black GRN - Green BRZ - Bronze PLP - Platinum Plus BUF - Buff WHT - White GPT - Graphite MSV - Metallic Silver

EXAMPLE OF A TYPICAL ORDER **CXLS-A - 1000 - MT - AB - 20 - 410 - BLK**

Luminaire Options	Pole Options
HSS - House Side Shield[7] PLS - Polycarbonate Shield[8]	GFI - Weatherproof Duplex Receptacle w/ GFCI protection[9] LAB - Less Anchor Bolts

1 - MT (multi-tap ballasts include taps for 120V, 208V, 240V, or 277V)
2 - For international applications where 50hz power is standard (e.g. Europe & Asia).
3 - All anchor base assemblies are supplied with galvanized anchor bolts and base covers.
4 - For anchor base assemblies, the heights shown are the pole length. The fixture mounting height will be 2' higher than the pole height using the upsweep bracket (e.g. with a 20' pole the fixture mounting height is 22'). For direct burial assemblies, the height shown is the above grade section. Direct burial poles will also include a 4' below grade section (e.g. a 20' direct burial pole is 24' overall length). Direct burial poles are limited to maximum 24' above grade height.
5 - 4" poles are available only up to 22' height.
6 - The quad assembly (CXLS-D) is only available with a 5" o.d., 7 gauge pole.
7 - Under normal use, the Courtsider XL fixture produces acceptable light cutoff. For highly sensitive applications, the optional external rear cutoff shield is available.
8 - Use only for high vandalism areas. This add-on shield will discolor over time due to UV exposure from the metal halide lamp.
9 - The GFI receptacle installs in the standard handhole location 12" above the pole base.

c UL us LISTED wet location

FINISHES

Black | Green | Bronze | Platinum Plus
Buff | White | Graphite | Metallic Silver

LSI Courtsider Sports Lighting
10000 Alliance Road, Cincinnati, Ohio 45242
Phone: (800) 794-3448 • Fax: (800) 373-9998
E-mail: courtsider@lsi-industries.com • www.courtsider.com

NO.	REVISION	BY	DATE

STATE OF TEXAS
MICHAEL B. GREEN
85142
LICENSED
PROFESSIONAL ENGINEER

PROJECT NO. 001-4298
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P:\1 PROJECTS – D\13104 JUMBO EVANS SPORTS COMPLEX\1 DWGS\13104 ELEC SCHEDULES.DWG