



Administrative Services

Purchasing Division

**CITY OF FORT COLLINS
INVITATION TO BID
BID #5750
TENNIS COURT LIGHTING AT MARTINEZ PARK**

Sealed bids will be received and publicly opened at the office of the Director Of Purchasing and Risk Management, PO Box 580, 215 North Mason St., 2nd floor, Fort Collins, Colorado 80524, at the time and date noted on the bid proposal and/or contract documents. If delivered, they are to be delivered to 215 North Mason Street, 2nd Floor, Fort Collins, Colorado 80524. If mailed, the address is P.O. Box 580, Fort Collins, 80522-0580.

Bids must be received at the Purchasing Office prior to 3:00 p.m. (our clock), DECEMBER 2, 2002.

Special Instructions

All bids must be properly signed by an authorized representative of the company with the legal capacity to bind the company to the agreement. Bids may be withdrawn up to the date and hour set for closing. Once bids have been accepted by the City and closing has occurred, failure to enter into contract or honor the purchase order will be cause for removal of supplier's name from the City of Fort Collins' bidders list for a period of twelve months from the date of the opening. The City may also pursue any remedies available at law or in equity. Bid prices must be held firm for a period of forty-five (45) days after bid openings.

Submission of a bid is deemed as acceptance of all terms, conditions and specifications contained in the City's specifications initially provided to the bidder. Any proposed modification must be accepted in writing by the City prior to award of the bid.

Only bids properly received by the Purchasing Office will be accepted. All bids should be clearly identified by the bid number and bid name contained in the bid proposal.

No proposal will be accepted from, or any purchase order awarded, to any person, firm or corporation in default on any obligation to the City.

Bids must be furnished exclusive of any federal excise tax, wherever applicable.

Bidders must be properly licensed and secure necessary permits wherever applicable.

Bidders not responding to this bid will be removed from our automated vendor listing for the subject commodities.

The City may elect where applicable, to award bids on an individual item/group basis or on a total bid basis, whichever is most beneficial to the City. The City reserves the right to accept or reject any and all bids, and to waive any irregularities or informalities.

Sales prohibited/conflict of interest: no officer, employee, or member of City Council, shall have a financial interest in the sale to the City of any real or personal property, equipment, material, supplies or services where such officer or employee exercises directly or indirectly any decision-making authority concerning such sale or any supervisory authority over the services to be rendered. This rule also applies to subcontracts with the City. Soliciting or accepting any gift,

gratuity, favor, entertainment, kickback or any items of monetary value from any person who has or is seeking to do business with the City of Fort Collins is prohibited.


Freight terms: unless otherwise noted, all freight is F.O.B. Destination, Freight Prepaid. All freight charges must be included in prices submitted on proposal.

Discounts: any discounts allowed for prompt payment, etc., must be reflected in bid figures and not entered as separate pricing on the proposal form.

Purchasing restrictions: your authorized signature of this bid assures your firm's compliance with the City's purchasing restrictions. A copy of the resolutions are available for review in the Purchasing Office or the City Clerk's Office. Request Resolution 91-121 for cement restrictions.

Collusive or sham bids: any bid deemed to be collusive or a sham bid will be rejected and reported to authorities as such. Your authorized signature of this bid assures that such bid is genuine and is not a collusive or sham bid.

Bid results: for information regarding results for individual bids send a self-addressed, self-stamped envelope and a bid tally will be mailed to you. Bid results will be posted in our office 7 days after the bid opening.


James B. O'Neill II, CPPO, FNIGP
Director of Purchasing and Risk Management

BID PROPOSAL
BID #5750
TENNIS COURT LIGHTING AT MARTINEZ PARK

BID OPENING: DECEMBER 2 , 2002, 3:00p.m., (our clock)

WE HEREBY ENTER OUR BID FOR THE CITY OF FORT COLLINS REQUIREMENTS FOR **TENNIS COURT LIGHTING AT MARTINEZ PARK** PER THE BID INVITATION AND ANY REFERENCED SPECIFICATIONS AND DRAWINGS:

The City of Fort Collins Parks Department is requesting bids for the tennis court lighting at Martinez Park. The work will consist of installing new poles, lights, conduit, wires and electrical connections for a complete job. Old poles and lights will be removed by the Parks Department.

Contract must be completed 90 days after notice to proceed is issued. Substantial completions must be completed by March 14, 2003 with final completion by March 21. The successful bidder must enter into the attached services agreement (sample) and supply proof of insurance "Exhibit B" as requested. Substantial completion means all poles, lights, wiring, and other components must be installed. Final completion means everything must be energized and working and the site is cleaned of any debris.

Any technical questions should be directed to Eileen Scholl, Project Manager at (970) 416-2062. Any purchasing questions should be directed to John Stephen, CPPB, Senior Buyer at (970) 221-6775.

A prebid meeting will be held at Martinez Park, 600 N. Sherwood, Ft. Collins at 10:00 a.m. on November 18, 2002.

BID SCHEDULE TENNIS COURT LIGHTING AT MARTINEZ PARK

The contractor shall furnish all labor and material for tennis court lighting at Martinez Park per specification, including installing new poles, lights, wires and electrical connections for a complete job.

LUMP SUM \$ _____

Firm Name _____
(Are you a corporation, DBA, Partnership, LLC, PC)

Signature _____ **PRINTED NAME** _____

Title _____

Address _____

Phone/Fax _____

Qualifications of Bidder:

- A. Qualified bidder must be doing business under the present business name for the past three consecutive years.
- B. Qualified bidder will supply with bid, 3 references specific to tennis lighting installation. References must include contact name, date when work was completed and type of work.
- C. Qualified bidder shall have sufficient manpower and equipment to accomplish said work in required time. This includes the ability to bore holes and trench through asphalt or frost.
- D. The Owner may make such investigation as it deems necessary to determine the ability of the bidder to perform the work and the bidder shall furnish to the Owner all such information and data as is reasonably required for this purpose. The Owner reserves the right to disqualify any bid if the evidence resulting from the Owners investigation shows, in the opinion of the Owner, that the bidder is not properly qualified to prosecute the work described herein.
- E. Failure to meet the agreed upon milestones, place order for light system within 5 days, or fully complete the work by March 21, 2003 shall result in damages assessed against the Contractor. Since this complex is one of five lighted tennis courts, the work needs to be completed in a timely manner. At the City's option, liquidated damages in the amount of \$100.00 per day may be retained from any monies due the Contractor, or the City may retain an additional contractor(s) to complete the work, or portion thereof, and retain any costs incurred above and beyond the bid prices of the Contractor from any monies due the Contractor in lieu of liquidated damages.

SCOPE OF WORK

- A. The contractor shall place the order for the light system within five (5) working days after receiving notice to proceed by the Project Manager or as approved by the Project Manager. Written notification of placement of the order from the light manufacturer shall be given to the Project Manager. Work must commence within 7 days after receipt of light system. Mutually acceptable milestones indicating working days shall be determined by the City and the Contractor. Any extensions of the time limits set forth above must be agreed upon in writing by the parties hereto.
- B. The Contractor shall be solely responsible for cleaning the job site at the end of each working day and at work completion.
- C. The Contractor shall be solely responsible for making sure the work area is left in a safe condition or fenced to keep the area safe.
- D. The City may order changes within the scope of the work without invalidating this agreement. If such changes alter the amount due under the contract documents or the time required for the performance of the work, such alteration shall be approved by the parties in writing in the form of a change order.

UNIT WORK ITEMS:

- A. Receiving and unloading shipment.
- B. Setting of light poles.
- C. Trenching for conduit.
- D. Electrical hookup.

SPECIFICATIONS:

Lighting system is to be installed is Spaulding Cordova System. It will consist of four single fixture assemblies and six double fixture assemblies. They will be 25'square straight steel poles with direct side mount. The catalogue # for the single fixture is CVS-PM-M400PS-IV-347-DBZ-25-SQS-511-SGL-DBZ. The catalogue # for the double fixtures is CVS-PM-M400PS-IV-347-DBZ-25-SQS-511-DBL-DBZ. The performance criteria shall be 13.9 footcandles initial and 10.01 footcandles maintained. New conduit and wiring will need to be trenched in to new poles. New 24 volt activator buttons with warning buzzers will need to be installed. Contractor will be responsible for receiving and unloading shipment. Care must be taken not to damage court surface, with plans to use plywood if necessary. No cement trucks will be allowed on the courts.

LIGHT STRUCTURE SYSTEM SPECIFICATIONS

A. Playability Specifications

- A.1. *Initial Light Levels
The average initial levels for the entire court area shall be 13.9 footcandles.
- A.2. *Target Light Levels
The average target (maintained) light levels for the entire court area shall be 10 footcandles.
- A.3. *Light Loss Factor
The light loss factor used to determine the target light levels shall be a maintenance factor of .72.
- A.4. *Uniformities
The uniformities of the playing field shall be measured by comparing the maximum reading to the minimum reading. The ratio shall not exceed 2.49:1 maximum to minimum for the entire court area.
- A.5. *Structural Strength
To prevent misalignment of any luminaires or damage to the crossarms or its components, the crossarm, reflector, and its attachment to the pole shall be able to structurally withstand winds of 100 mph with a 1.3 gust factor.
- A.6. *Mounting Heights
To ensure proper aiming angles for reduced glare and to provide better playability, the pole mounting heights from the playing field surface shall be 25 feet.

B. Maintenance Ease

B.1. Electrical Enclosure Fusing

To prevent multiple failures, an individual fuse shall be provided for each ballast conductor except neutral conductors.

C. Durability

C.1. Enclosed Wiring

To protect from deterioration from exposure to the elements, all wiring shall be contained inside the crossarms or pole.

C.2. Materials and Coatings

To facilitate adequate heat dissipation from the ballasts, the electrical enclosure shall be fabricated of heavy gauge aluminum. The electrical enclosure shall be further coated with a TGIF thermoset polyester powder paint finish to provide protection from oxidation of the aluminum.

C.3. Internal Wire Rating

To ensure longer durability, internal wiring shall be routed away from ballast cores, rated for at least 90 degrees C, suitable for the voltage and amperage involved. Luminaire manufacturer shall supply U.L. temperature test of electrical enclosure.

C.4. Weather Proof Enclosure

To provide protection against weather-related elements, it shall be UL and CSA rated to wet locations.

C.5. Pole Material

For added durability, the poles shall be high strength low alloy tapered tubular steel meeting ASTM-A595 standards, and shall have a TGIC thermoset polyester powder paint finish.

D. Safety

D.1. UL Listing

To provide independent assessment of equipment and system safety, the lighting and electrical equipment shall have a U.L. listing. This listing shall be based upon U.L. testing and evaluation of the compatibility of the structures, enclosures and the components for use in combination with this application in addition to the individual components being U.L. listed or recognized.

D.2. Grounding Lug within Electrical Enclosure

For the safety of personnel and protection of the equipment, one grounding lug shall be supplied within the electrical enclosure, which is rigidly fastened to the enclosure, sized to accept up to a 1/0 conductor.

D.3. Enclosed Wiring

Because the additional structures often required to support overhead wiring systems can present safety hazards for players and spectators, all wiring shall be contained inside the crossarms or the pole. Since the overhead is exposed to wind, lightning, and other elements causing deterioration over time, underground

wiring, supplied by the installer, shall be enclosed within the pole and concrete base.

D.4. Compliance to Specified Codes

The lightning equipment shall comply with the codes as specified including, but not limited to:

National Fire Protection Asso (NFPA) 780 Lightning Protection
National Electrical Codes
Underwriter's Laboratory (UL)
National Electrical Manufacturers Asso (NEMA) Standard 250-1991 Enclosures for Electrical Equipment

D.5. Lightning Protection Meeting NFPA 780 Code

For added protection against lightning, all structures shall be equipped with lightning protection meeting standards established by NFPA 780 (National Fire Protection Asso.)

At each structure, the contractor shall provide at least one copper-clad steel ground rod of not less than 5/8 inches in diameter and not less than 8 feet in length.

The ground rods shall be connected to the structure by a copper main down conductor. This conductor shall be not less than a #2 conductor.

For steel poles, the main down conductor shall extend from the base of the steel pole to the ground rods and shall be bonded to the steel pole and the equipment ground. All metal components on the pole shall be bonded to the pole

All main down conductors and all bonding conductors shall maintain a horizontal or downward coursing path, free from "U" or "V" (down and back up) pockets.

Such pockets, often formed by metal components mounted below the pole top bond location, shall be provided with a down conductor from the base of the component to ground or to an adjacent main down conductor.

No bend of any conductor shall form an included angle of less than 90 degrees nor shall it have a radius bend of less than 8 inches.

E. Energy Usage

E.1. Lamp Type

Pulse start Lamps shall be 400 watt metal halide and shall meet ANSI standards.

E.2. Lumens per Lamp

Manufacturers shall supply computer generated point-by-point light scans based on 40,000 lumens per lamp.

E.3. Meeting Specifications

To ensure compliance with the specifications, at the completion of the project, actual light performance meter reading shall be taken and verified.

Inspection and Testing Procedures

F.4.1. All testing will be done with the entire facility illuminated.

- F.4.2. Horizontal footcandle readings shall be taken with the meter positioned horizontal 36 inches above grade.
- F.4.3. Testing equipment for measurement of footcandle levels shall be a calibrated Gossen Panalux Electronic 2 or an approved equal.
- F.4.4. For final approval of the project, the manufacturer shall provide a final report from the test results that shall provide the following items:
 - a. Identification and location of test stations.
 - b. Actual horizontal footcandle readings taken at each test station
 - c. Number of hours of operation.

Point by Point Analysis

Measurements of light shall be demonstrated on a computer generated model which consists of a grid of a specified number of points covering a stated area on an equally spaced grid. See the below chart for the exact specifications of points, areas and grid spacing for each field.

Area of Lighting	Each Court Area
# of Points	50
Size of Area to be Covered	36' x 78'
Grid Spacing	8' x 8'

- E.5. **Beam Control Fixtures**
In order to turn wasted spill light into useable light on the field resulting in lower energy consumption, that the reflector system design of the approved lighting fixture shall place more than 60% of the total light output below the maximum candlepower point and thereby onto the field to be illuminated.

F. Accountability

- F.7. **Delivery Timeframe for Sports Lighting Equipment**
The equipment must be on-site 4-6 weeks from the receipt of signed purchase order, acceptance of order and receipt of complete order information.
- F.8. **Pole Strength**
To ensure proper pole stress allowance, the pole analysis and design will be based on the American Association of State Highway and Transportation Officials (AASHTO) design criteria.
- F.10. **Manufacturer Name and Model Number**
The approved lighting/pole manufacturer is Spaulding Lighting. Approval must be obtained 10 days prior to bid date for all substitutions.
- F.11. **10 Day Prior Approval for all Manufacturers**
All bidders must use an approved product. Approval must be obtained by each equipment manufacturer 10 days prior to the bid date.

FOUNDATION SPECIFICATIONS

The foundation pier shall be 24" in diameter and 8' in length. See Attachment "A" for all specifications. The geotechnical engineering report from Terracon will be available upon request. See Attachments "B1", "B2", and "B3" for soil profiles. Contractor may need to

use dewatering procedures. Cement trucks will not be allowed on tennis court surface due to potential damage to court.

CONDUIT TRENCHING

Trenching depth will be determined by City code. Trenches will be backfilled and compacted to a minimum of 95%. Asphalt patch will match depth of existing asphalt. Color coat surface will be done by others. If the trench is deeper than 12", it will be backfilled and compacted in one foot lifts. The asphalt will be sawcut prior to trenching to minimize damage to tennis surface. Maximum sawcut width will be 12". Trenching will follow trenching diagram. See Attachment "C".

GENERAL ELECTRICAL

General Requirements

- A. Codes and Regulations: Comply with all applicable state and local codes, regulations and ordinances and the latest applicable requirements of the National Electrical Code as interpreted by the local inspection authority who shall have final jurisdiction.
- B. Permits and Fees: Secure and pay for all permits, fees, taxes, royalties, licenses and inspections in connection with the electrical work. Upon completion of work, furnish to the Project Manager a Certificate of Inspection indicating final approval by the local inspection authority.
- C. Examination of Premises: Examine the premises prior to bidding and become fully familiar with existing conditions.

Materials

2.0 GENERAL

- A. All materials and equipment shall be manufactured, tested and installed in accordance with the following:
 - 1. National Electrical Code (NEC).
 - 2. Underwriters' Laboratory (UL).
 - 3. National Electrical Manufacturer's Association (NEMA).
 - 4. American National Standards Institute (ANSI).
 - 5. Illuminating Engineering Society (IES).
- B. The Contractor shall submit proof, if requested by the Project Manager, that the materials, equipment or devices that he installs under this contract meet the requirements of the Underwriters' Laboratories, Inc. in regard to fire and casualty hazards.
- C. All electrical material shall display a UL label.

2.1 RACEWAYS - ACCEPTABLE CLASSES

- A. Description of System.
 - 1. Provide raceways as required below for raceway systems.
 - 2. Conduit sizes not noted on Drawings shall be in accordance with NEC requirements for the quantities and size of wire installed therein.

3. Where nonmetallic raceways are utilized, size as required to conform with the grounding conductor considered as an insulated additional conductor.
4. Where metallic raceways are used, they must establish positive low-resistance paths to ground and effectively isolate conductors so that any short-circuit arcs will be confined.
5. Reference Section 16450, Grounding.

B. Acceptable Classes.

1. Electrical Metallic Tubing (EMT).
 - a. Install 2" and smaller for all exposed branch circuit wiring.
 - b. Fittings.
 - 1) Compression connectors.
 - c. Comply with Underwriters' Laboratories Standard UL 797 and USA Standards Institute C80-3.
2. Poly-Vinyl Chloride (PVC) Plastic Conduit.
 - a. Provide in the following locations.
 - 1) In or below slabs on grade.
 - 2) In earth or gravel.
 - b. Schedule 80 Heavy Wall, 90 degrees Celsius, UL listed for above ground and underground uses.
 - c. Conform to NEMA TC-2 and UL-651 standards.
 - d. UL listed in conformity with Article 347 of the Nation Electric Code.
 - e. 1-1/2" and larger shall conform to NEMA Publications No. TC-1-1965.
3. Surface Metal Wireway.
 - a. Provide surface metal wireway of a dimension permitting the number of conductors and splices installed. NEMA 1 enclosure.
 - b. The raceway shall meet all NEW Article 352A requirements and shall be UL listed.
 - c. Provide with appropriate boxes and fittings by same manufacturer.

2.2 WIRES AND CABLES

A. Description of System.

1. Provide a complete system of conductors in raceway systems with minimum wire size to be No. 12, unless shown otherwise on Drawings.
2. Unless otherwise indicated, wire sizes noted on Drawings are to be extended for the entire length of a circuit including taps and risers.
3. 120-volt branch circuits shall be No. 10 or larger where the distance to the first outlet exceeds 75 feet.

B. Conductor Material.

1. Copper conductors shall be high conductivity tin coated annealed copper in accordance with ASTM B-33.
 - a. Use copper conductors for all wiring.

C. Insulation.

1. THHN Cu conductors - Use for all branch circuit conductors installed in conduit.

- a. UL Type THHN, suitable for operation at 600 volts in wet or dry locations at conductor temperatures not to exceed 75° C.
- b. Poly-vinyl chloride insulation that is UL defined as heat, abrasion, moisture and oil resistant.

2.3 JUNCTION BOXES

- A. General Requirements.
 1. Provide all covers of same gauge metal and include screws.
- B. Concealed Junction Boxes.
 1. Provide code gauge sheet metal boxes located and sized as required with suitable covers and trims.
 - a. Make of material resistant to corrosion or suitably protected, both internally and externally, by galvanizing.
 - b. Boxes installed in damp or wet locations shall be UL approved for the purpose.
 - c. Comply with UL Standard 50.
 - d. Metal boxes to meet NEC construction specifications.
- C. Exposed Junction Boxes.
 1. Boxes exposed or surface mounted shall be die-cast or permanent-mold cast aluminum body with threaded external hub and cast over.

2.4 WIRE CONNECTORS AND DEVICES

- A. Description of System.
 1. Provide wire connectors, crimp terminals, splice connectors, mechanical lugs, compression lugs, pin connectors, split bolt connectors and associated insulating devices for a complete wiring connection system suitable for specified cables furnished.
 2. Connectors shall be in accordance with NEC, state and local requirements for size and color installed therein.
 3. Connectors and devices shall be installed in accordance with manufacturers and U.L. standard requirements for tightening torques. Use proper torquing tools to achieve accurate values.

OTHER COMPONENTS

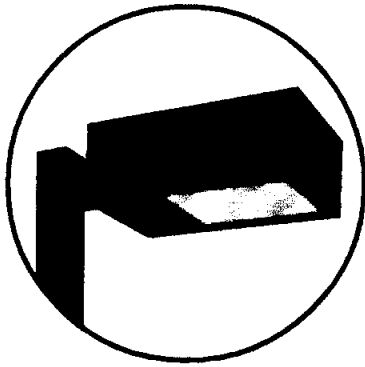
New light controllers with a 30 to 90 minute time delay shall be installed. They must have a signaling device to warn of time outs. Control voltage for user activation device shall be no more than 24 volts. The activation buttons shall be mounted on each of the four courts (See Attachment "C").

The connection from the ground rods to the grounding conductors shall be exothermic connections instead of the manufacturer supplied connectors.

All components shall be UL Approved.

CORDOVA

SMALL/MEDIUM/LARGE



Specification rectilinear luminaire for parking areas, auto dealerships, office parks, schools, walkways, and parks.

Catalog Number

Type

Features

- Formed and welded aluminum housing with optional embossed decorative band. Optional color vinyl trim stripe available.
- Formed aluminum door with clear, flat tempered glass lens, fully gasketed to housing. Hinged door secured with two captive screws.
- Specular, anodized aluminum reflectors for horizontal lamp, provide Type II, III, IV, or V square light patterns. **Cordova medium (CVM) Type II and Type III reflectors feature unique, multi-faceted design - patent pending.** Cordova large (CVL) Type IV reflector field rotatable.
- Extruded aluminum arm provided for pole mount. Cast aluminum wall bracket.
- Mogul porcelain socket, pulse rated, with spring loaded, nickel plated center contact and reinforced lamp grip screw shell. Medium base for ED-17 lamp.
- CWA type ballast, HPF, starting rated at -20°F (-40°F for HPS). Cordova small (CVS) features hinged ballast panel.
- TGIC thermoset polyester powder paint finish with choice of six standard, and four premium standard colors.
- UL and CSA listed for wet locations.

Ordering Information

Order No. **1** **2** **3** **4** **5** **6** **7** **8**
 Example CVL - PM - M1000 - III - MT - EDB - DBZ - NCS

1 Model

CVS - 100w-400w
 CVM - 100w-400w
 CVL - 1000w

2 Mounting Mode

PM - arm mount
 std-6" arm for CVS and CVM
 std-10" arm for CVL
 WB - wall bracket

3 Lamp Types/Watts

CVS

METAL HALIDE

M175 (ED-28)
 M250 (ED-28)
 M400 (ED-28)

SUPER METAL HALIDE

M175MS (ED-28)
 M250MS (ED-28)
 M400MS (ED-37)

PULSE START METAL HALIDE

M100PS (ED-17) M250PS (ED-28)
 M125PS (ED-17) M320PS (ED-37)
 M150PS (ED-28) M350PS (ED-37)
 M200PS (ED-28) M400PS (ED-37)

HIGH PRESSURE SODIUM

S100 (ED-23¹/₂)
 S150 (ED-23¹/₂)
 S250 (ED-18)
 S400 (ED-18)

CVM

METAL HALIDE

M175 (ED-28)
 M250 (ED-28)
 M400 (ED-28)

SUPER METAL HALIDE

M175MS (ED-28)
 M250MS (ED-28)
 M400MS (ED-28)

PULSE START METAL HALIDE

M100PS (ED-17) M250PS (ED-28)
 M125PS (ED-17) M320PS (ED-28)
 M150PS (ED-28) M350PS (ED-28)
 M200PS (ED-28) M400PS (ED-28)

HIGH PRESSURE SODIUM

S100 (ED-23¹/₂) S250 (ED-18)
 S150 (ED-23¹/₂) S400 (ED-18)

CVL

METAL HALIDE

M1000 (BT-56)

SUPER METAL HALIDE

M1000MS (BT-56)

HIGH PRESSURE SODIUM

S1000 (E-25)

4 Reflector

II - narrow asymmetric¹
 III - asymmetric
 IV - forward throw
 VS - symmetric square

5 Voltage

MT - multi-tap²
 (120/208/240/277v)
 347 480³

6 Options

PR - photo receptacle (less cell)
 PRC - photo receptacle with cell
 PE - photoelectric button cell (120-277v)
 FS - fusing (specify voltage)
 QZ - quartz standby time delay
 (D.C. bayonet base lamp included)
 VG - polycarbonate vandal guard
 CS - internal house-side cutoff shield
 EDB - embossed decorative band

7 Color

STANDARD

DBZ - dark bronze
 SGB - black
 SWT - white
 PRG - gray
 PLS - platinum silver
 FGP - forest green

PREMIUM STANDARD

MBZ - medium bronze
 BGE - beige
 LIV - light ivory
 CMB - burgundy

8 Stripe Color (requires EDB option)

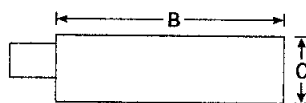
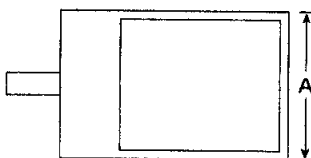
WCS - white
 BCS - black
 OCS - other (consult factory)
 NCS - none

¹Available with CVM only.

²Factory wired for 277 volt unless specified.

³Not available with 100w Pulse Start Metal Halide.

Dimensions



	A	B	C	EPA	Wt./lbs.
CVS	14.3"	23.3"	8.25"	1.9	38
CVM	17.75"	24"	10"	2.4	54
CVL	21.4"	29.4"	11"	2.9	77

SPAULDING

SQUARE STRAIGHT STEEL POLES

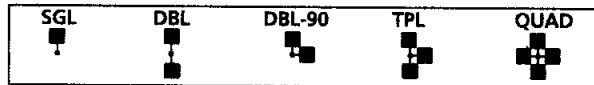
Catalog Number	Type
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SQUARE STRAIGHT STEEL - DIRECT SIDE MOUNT

Nom. Height	Order Number	Allowable EPA Wind Velocity w/1.3 gust				Shaft Size Sq.in.	Anchor Bolt Size Ga.	Wt./Lbs.	
		70	80	90	100				
10'	10-SQS-411-*	38	28.5	22	17	4	11	¾ x15	91
10'	10-SQS-511-*	60	46	36	28	5	11	¾ x15	106
12'	12-SQS-411-*	28	21	15	12	4	11	¾ x15	104
12'	12-SQS-511-*	45	33	25	20	5	11	¾ x15	122
14'	14-SQS-411-*	23	17	12.5	9.5	4	11	¾ x15	116
14'	14-SQS-407-*	34.5	25.5	20	15	4	7	¾ x15	158
14'	14-SQS-511-*	38	28.5	21.5	16.5	5	11	¾ x15	138
16'	16-SQS-411-*	19.5	14	10.5	7.5	4	11	¾ x15	128
16'	16-SQS-407-*	29.5	21.5	16	12	4	7	¾ x15	176
16'	16-SQS-511-*	32	23.5	17.5	13.5	5	11	¾ x15	153
16'	16-SQS-507-*	47.5	35.5	27	21.5	5	7	¾ x15	214
18'	18-SQS-411-*	16.5	11.5	8.5	6	4	11	¾ x30	147
18'	18-SQS-407-*	25.5	18	13.5	10.5	4	7	¾ x30	201
18'	18-SQS-511-*	27.5	20	14	11	5	11	¾ x30	175
18'	18-SQS-507-*	42	31	23.5	18	5	7	¾ x30	243
20'	20-SQS-411-*	13.5	9.5	6.5	4.5	4	11	¾ x30	173
20'	20-SQS-407-*	22	16	11.5	8.5	4	7	¾ x30	160
20'	20-SQS-511-*	23.5	17	12	9	5	11	¾ x30	191
20'	20-SQS-507-*	36.5	27	20	15.5	5	7	¾ x30	266
20'	20-SQS-607-*	51	38	28.5	22	6	7	¾ x30	312
25'	25-SQS-411-*	8.5	5	3	1.5	4	11	1x36	238
25'	25-SQS-407-*	14.5	10	6.5	4.5	4	7	1x36	266
25'	25-SQS-511-*	15	10.5	6.5	4	5	11	1x36	231
25'	25-SQS-507-*	25	18	12.5	8.5	5	7	1x36	324
25'	25-SQS-525-*	36.5	26	19	14	5	25	1x36	437
25'	25-SQS-607-*	38.5	28	20.5	15	6	7	1x36	404
30'	30-SQS-407-*	6.5	4.5	2.5	1.5	4	7	1x36	313
30'	30-SQS-411-*	7.5	5.5	2.5	NR	5	11	1x36	274
30'	30-SQS-507-*	18	12	8	4.5	5	7	1x36	398
30'	30-SQS-525-*	22	16	13	8	5	25	1x36	537
30'	30-SQS-607-*	30	20	14	9	6	7	1x36	467
30'	30-SQS-625-*	42	30	22	16	6	25	1¼ x48	630
35'	35-SQS-607-*	20.5	13	8	4.5	6	7	1x36	538
35'	35-SQS-625-*	26	18	12	7.5	6	25	1¼ x48	726
40'	40-SQS-607-*	11	8	3.5	NR	6	7	1x36	614
40'	40-SQS-625-*	14	10.5	5.5	2.5	6	25	1¼ x48	802

NOTE: Specify Configuration and Color.

*CONFIGURATION - SUFFIX



SQUARE STRAIGHT STEEL - PAD MOUNT

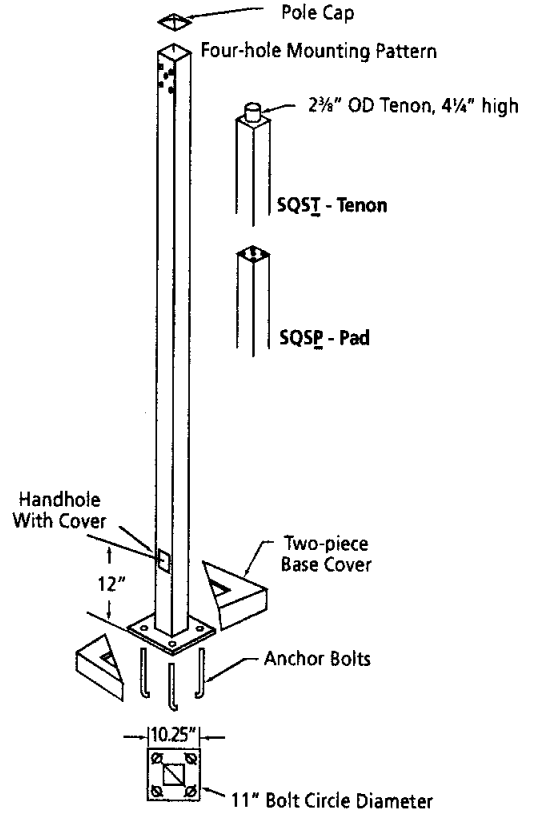
Nom. Height	Order Number	Allowable EPA Wind Velocity w/1.3 gust				Shaft Size Sq.in.	Anchor Bolt Size Ga.	Wt./Lbs.	
		70	80	90	100				
20'	20-SQSP-511	20.5	14.5	10.5	7.5	5	11	¾ x30	191
20'	20-SQSP-507	32	23	17.5	13	5	7	¾ x30	266
20'	20-SQSP-607	48	35	27	20.5	6	7	¾ x30	312
25'	25-SQSP-511	13.5	9	5.5	3.3	5	11	1x36	231
25'	25-SQSP-507	22.5	15.5	10.5	7.5	5	7	1x36	324
25'	25-SQSP-525	32	23	16.5	12.5	5	25	1x36	437
25'	25-SQSP-607	34.5	25	18	13.5	6	7	1x36	404
30'	30-SQSP-511	6.5	4.5	1.9	NR	5	11	1x36	274
30'	30-SQSP-507	16	11	7	3.5	5	7	1x36	398
30'	30-SQSP-525	19	14.5	11.5	7	5	25	1x36	537
30'	30-SQSP-607	26	18	12.5	8	6	7	1x36	467
30'	30-SQSP-625	38.5	27	19.5	14.5	6	25	1¼ x48	630
35'	35-SQSP-607	18.5	11.5	7	3.5	6	7	1x36	538
35'	35-SQSP-625	23	16	10.5	6.5	6	25	1¼ x48	726
40'	40-SQSP-607	9.5	7	3	NR	6	7	1x36	614
40'	40-SQSP-625	12.5	9	4.8	1.9	6	25	1¼ x48	802

NOTE: Specify Color.

All poles provided with TGIC thermoset polyester powder paint finish.

All poles furnished with anchor bolts, double nuts, and base cover.

Luminaire EPA computed at 2' above top of pole, pad mount at 3' above top of pole. For luminaires above 2', consult factory.



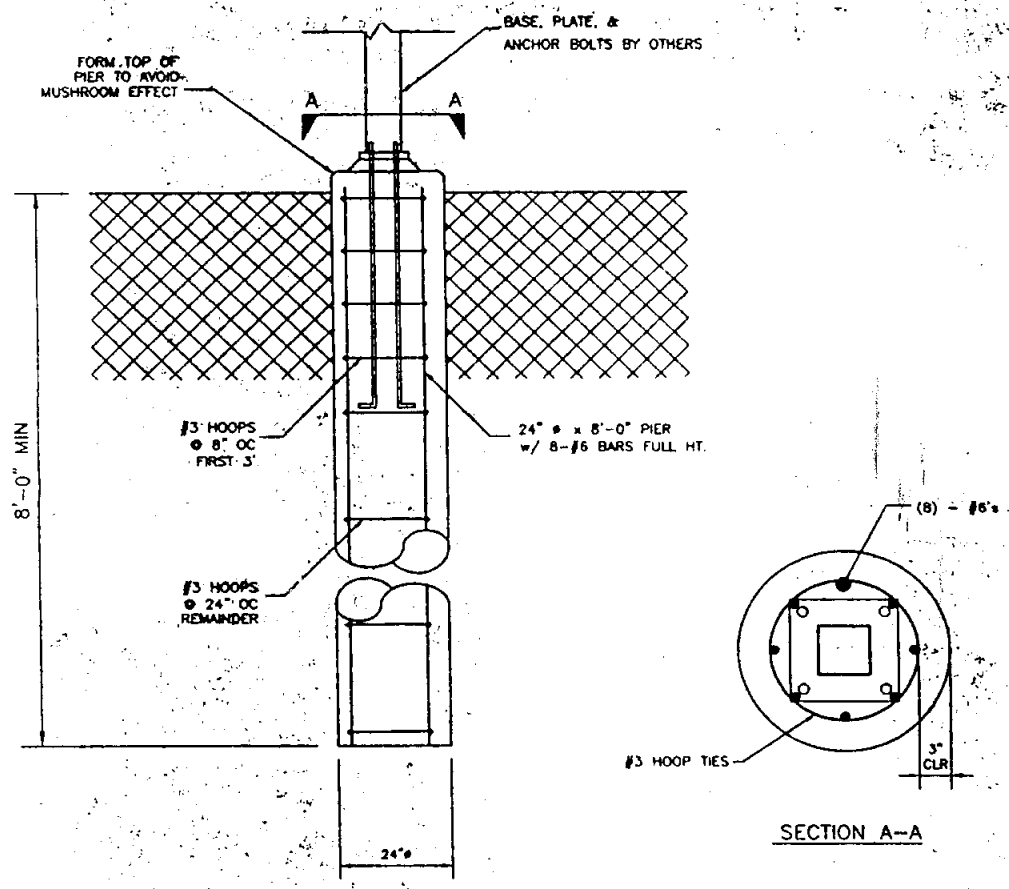
SQUARE STRAIGHT STEEL - TENON MOUNT

Nom. Height	Order Number	Allowable EPA Wind Velocity w/1.3 gust				Shaft Size Sq. in.	Anchor Bolt Size Ga.	Wt./Lbs.	
		70	80	90	100				
10'	10-SQST-411	32	24	18.5	14.5	4	11	¾ x15	91
10'	10-SQST-511	50	39	30	24	5	11	¾ x15	106
12'	12-SQST-411	24	18	13.5	10.5	4	11	¾ x15	104
12'	12-SQST-511	39.5	29.5	22.5	18	5	11	¾ x15	122
14'	14-SQST-411	20.5	15	11	8.5	4	11	¾ x15	116
14'	14-SQST-407	30.5	22.5	17.5	13.5	4	7	¾ x15	158
14'	14-SQST-511	33.5	25	19	14.5	5	11	¾ x15	138
16'	16-SQST-411	17.5	12.5	9	7	4	11	¾ x15	128
16'	16-SQST-407	26.5	19	14	11	4	7	¾ x15	176
16'	16-SQST-511	29	21	16	12	5	11	¾ x15	153
16'	16-SQST-507	43	32	24.5	19.5	5	7	¾ x15	214
18'	18-SQST-411	15	10.5	7.5	5.5	4	11	¾ x30	147
18'	18-SQST-407	23	16.5	12.5	9.5	4	7	¾ x30	201
18'	18-SQST-511	25	18	13	10	5	11	¾ x30	175
18'	18-SQST-507	38	28	21.5	16.5	5	7	¾ x30	243
20'	20-SQST-411	12.5	8.5	6	4	4	11	¾ x30	173
20'	20-SQST-407	20	14.5	10.5	7.5	4	7	¾ x30	160
20'	20-SQST-511	21.5	15.5	11	8	5	11	¾ x30	191
20'	20-SQST-507	33.5	24.5	18.5	14	5	7	¾ x30	266
20'	20-SQST-607	51	37	28.5	21.5	6	7	¾ x30	312
25'	25-SQST-411	8	4.5	2.5	1.3	4	11	1x36	238
25'	25-SQST-407	13.5	9	6	4	4	7	1x36	266
25'	25-SQST-511	14	9.5	6	3.5	5	11	1x36	231
25'	25-SQST-507	23.5	16.5	11	8	5	7	1x36	324
25'	25-SQST-525	33.5	24	17.5	13	5	25	1x36	437
25'	25-SQST-607	36	26	19	14	6	7	1x36	404
30'	30-SQST-407	6	4	2	1.2	4	7	1x36	313
30'	30-SQST-511	7	5	2	NR	5	11	1x36	274
30'	30-SQST-507	17	11.5	7.5	4	5	7	1x36	398
30'	30-SQST-525	20	15	12	7.5	5	25	1x36	537
30'	30-SQST-607	27	19	13	8.5	6	7	1x36	467
30'	30-SQST-625	40	28	20.5	15	6	25	1¼ x48	630
35'	35-SQST-607	19.5	12	7.5	4	6	7	1x36	538
35'	35-SQST-625	24	16.5	11	7	6	25	1¼ x48	726
40'	40-SQST-607	11	8	3.5	NR	6	7	1x36	614
40'	40-SQST-625	13	9.5	5	2	6	25	1¼ x48	802

NOTE: Specify Color.

SPALDING

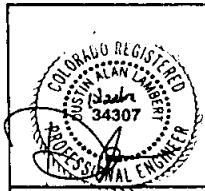
A FOUNDATION EXCAVATION OBSERVATION SHALL BE PERFORMED BY TERRACON, PRIOR TO CONCRETE PLACEMENT TO VERIFY THAT THE SOILS CONDITIONS ENCOUNTERED AT THE SITE ARE SIMILAR TO THOSE ENCOUNTERED IN THE GEOTECHNICAL INVESTIGATION.



PIER DETAIL
SCALE: NTS

ATTACHMENT A1

DESIGN SUPPORT FOR CORDOVA CVS LIGHT FIXTURE SINGLE AND DOUBLE CONFIGURATION MOUNTED ON 25 FOOT TALL 5"x5" 11 GAGE POST, ANCHORED TO PIER WITH (4) - 1" x 36" ANCHOR BOLTS (ALL BY OTHERS).



PIER DETAILS
FOR
CITY OF FORT COLLINS
TENNIS COURT LIGHTING SUPPORT
LEE MARTINEZ PARK, FT. COLLINS, CO.

Terracon
301 N. Hines St, Fort Collins, CO 80521
Tel: (970) 484-0358 Fax: (970) 484-0454

DESIGNED BY	TLS	REVISION	10/21/02: Pier size and embed revision	DATE	OCTOBER 7, 2002
DRAWN BY	TLS	PROJECT NUMBER			

TERRACON GENERAL NOTES AND SPECIFICATIONS

ATTACHMENT A2

SCOPE OF SERVICES

1. Scope of work: Terracon has performed the structural design for limited portions of this structure, including the foundation below grade.
2. Terracon did not evaluate the capacity and servicibility of the light fixture, supporting steel pole, base plate and anchor bolts.
3. In addition to our design, the structure must be constructed in accordance with the applicable building codes, including minimum requirements for concrete construction, columns, etc.

CODE REFERENCE

1. AASHTO Standard Specification for Structural Supports for Highway Signs, Luminaries and Traffic Signals, 4th Edition 2001 with 2002 Interim.
2. 1997 Uniform Building Code.
3. ACI 318-95 Building Code Requirements for Structural Concrete.

FOUNDATIONS

1. This foundation has been designed in general conformance to the "Geotechnical Engineering Report" conducted by Terracon (Proj #20995121) for the City of Fort Collins Parks Division.

DESIGN LOADS

Design Loads:

- Snow and Ice = 33 psf
- Wind: 100 mph, Exposure C
- Fixture: 35 lbs. each
- Support Pole: 235 lbs

CONCRETE

1. All concrete shall have a minimum 28 day f'c 3000 psi; minimum of 5-1/2 sacks of Type I-II Portland cement per cubic yard; air entrained with 5% + 1% air. All concrete should be placed and cured in accordance with ACI 306.
2. Reinforcing bars shall be deformed bars and shall conform to ASTM A615, Grade 60, except as noted. All stirrups and column ties shall conform to ASTM A615, Grade 40.
3. Bar bending details and placing drawings shall be in accordance with the "Manual of Standard Practice for Detailing Concrete Structures" (ACI 315, latest edition).
4. Provide bar supports and spacers to place all bars in proper locations, and wire adequately at intersections to hold firmly in position while concrete is being placed.
5. Continuous bars shall lap 30 bar diameters where spliced, but not less than 12 inches.
6. Concrete cover for reinforcement (unless otherwise noted):e

Concrete poured against earth.....3"

Concrete poured in forms (not exposed to weather or earth)
#5 bars or smaller.....1-1/2"

Slabs and walls.....3/4"

REINFORCING STEEL

1. Reinforcing shall be domestic new billet steel conforming to ASTM A615, Grade 60, except that reinforcing which is required to be welded shall conform to ASTM A706
2. Development lengths and lap splices shall be in accordance with ACE 318-95 Chapter 12 as indicated below and as indicated on the drawings. Where splices are not called out on the drawings, use Class 'B', but in no case shall any splice be less than 12 inches.

Compression dowel embedment: 22 bar diameters

Compression lap splices: 30 bar diameters

Tension Splices (minimum, inches)

Bar	Top Bars		Other Bars		Hook Embedment
	A	B	A	B	
#6	32	42	15	19	9

For spacing between bars less than 3 bar diameters or concrete cover less than 2 bar diameters, multiply above values by 2.

3. A Class 'B' splice is required wherever all bars crossing a section are spliced

CONSTRUCTION

1. The contractor shall check and verify all dimensions shown on this plan prior to concrete placement.
2. The requirements of the latest edition of 'OSHA Construction Standards' shall be complied with by all contractors, fabricators and suppliers.
3. The contractor shall be responsible for temporary bracing to withstand all loads to which the structure may be subjected, including lateral loads, stockpiles of materials and equipment. Bracing shall be left in place as long as required for safety.
4. The structural drawings are intended to be used in conjunction with the drawings of the architect and other consultants and trades. It is the contractors responsibility for coordinating the various requirements.
5. All things which, in the opinion of the contractor, appear to be deficiencies, omissions, contradictions or ambiguities in the drawings or specifications shall be brought to the attention of Terracon. Corrections or written interpretations shall be issued before affected work may proceed.
6. Contractor is responsible for coordinating all dimensions shown on these drawings. Inconsistencies on these drawings or between these drawings and other contract, shop fabrication, or other drawings or information shall be brought to the attention of Terracon prior to proceeding with affected work.
9. Do not scale these drawings. Use dimensions shown.

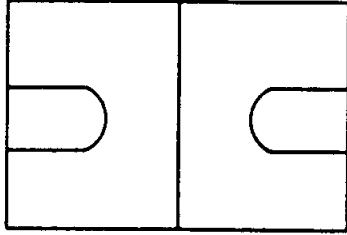
MISCELLANEOUS

1. Subgrade soils to support footings should be observed by a representative of Terracon.
2. All pre-manufactured structural elements (joist hangers, holdowns, etc.) to be installed per manufacturer specifications.

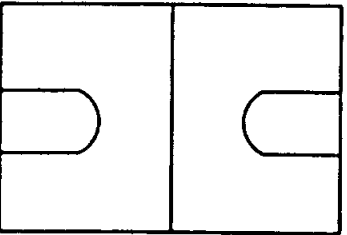
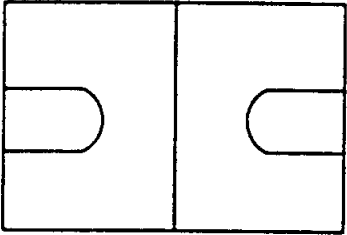
ATTACHMENT B1



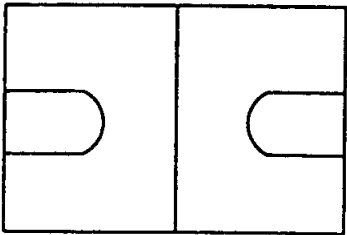
NO.1



BASKETBALL
COURTS



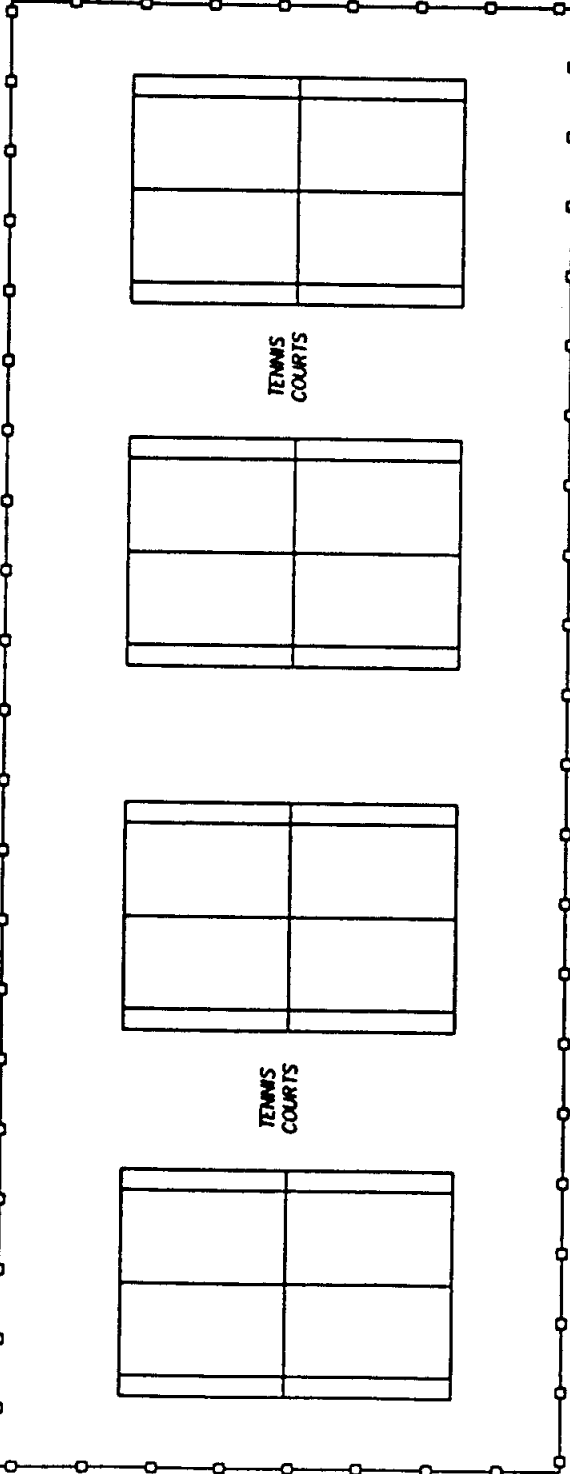
BASKETBALL
COURTS



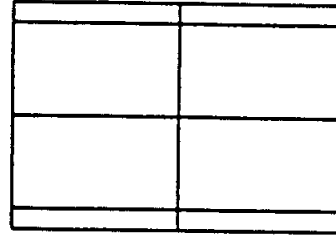
NO.2

TBM: MANHOLE COVER
ELEVATION = 100.0'

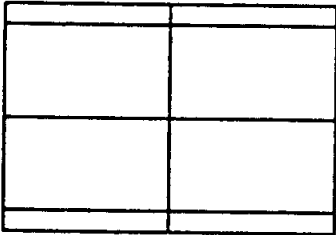
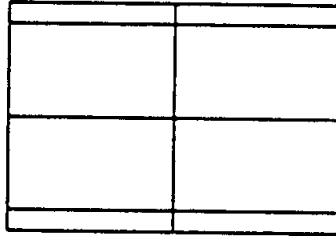
NO.3



NO.4



TENNIS
COURTS



TENNIS
COURTS

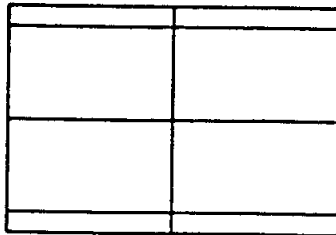


FIGURE 1: SITE PLAN
LEE MARTINEZ PARK
CHERRY STREET
FORT COLLINS, COLORADO

Project Mgr:	DAR	Project No.	20995121
Designed By:	DAR	Scale:	NOT TO SCALE
Checked By:	RTS	Date:	8-2-99
Approved By:	DAR	Drawn By:	MLS
File Name:	121SLD	Figure No.:	1

Terracon

301 N. HOWES STREET
FORT COLLINS, COLORADO 80521

DIAGRAM IS FOR GENERAL LOCATION ONLY,
AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES.

LOG OF TEST BORING NO. 3

CLIENT City of Fort Collins Parks Division		ARCHITECT / ENGINEER								
SITE Lee Martinez Park, Basketball & Tennis Courts Fort Collins, Colorado		PROJECT New Lighting System								
GRAPHIC LOG	DESCRIPTION	DEPTH (FT.)	USCS SYMBOL	SAMPLES			TESTS			
				NUMBER	TYPE	RECOVERY	SPT - N BLOWS / FT.	MOISTURE, %	DRY DENSITY PCF	UNCONFINED STRENGTH PSF
	Approx. Surface Elev.: 97.4 ft.									
	FILL Topsoil and Sandy Lean Clay Brown, moist, stiff	1.5 95.9	CL	1	SS	18"	10	7		
	SANDY LEAN CLAY Brown, moist, medium	4.0 93.4		2	ST	12"		16	110	1760
	CLAYEY SAND Brown, moist, loose, fine to medium sand	6.0 91.4		3	SS	12"	9	21		
	SILTY SAND with GRAVEL and COBBLES Brown, wet, dense, 5" max cobbles typical			4	SS	12"	32	7		
		17.0 80.4								
	WEATHERED CLAYSTONE/SILTSTONE Dark grey, moist, moderately hard	18.0 79.4								
	COMPETENT CLAYSTONE/SILTSTONE BEDROCK Dark grey, moist, hard BOTTOM OF BORING	19.5 77.9		6	SS	6"	50/5	16		

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS		BORING STARTED		7-14-99	
WL	6.3' 7/14/99	6.0' 7/15/99	BORING COMPLETED		7-14-99
WL			RIG	CME-75	FOREMAN RTS
WL			APPROVED	DAR	JOB # 20995121



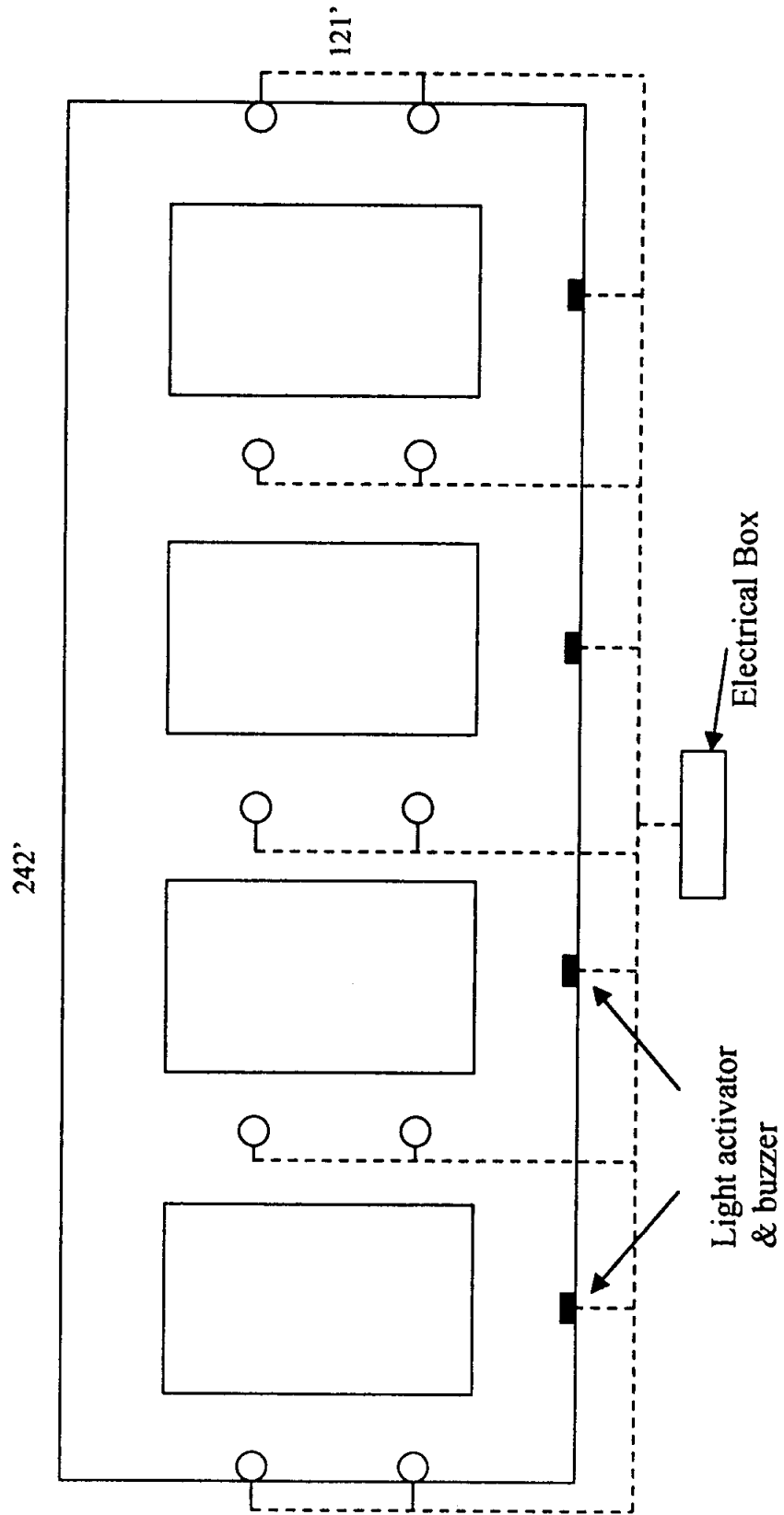
LOG OF TEST BORING NO. 4

CLIENT		ARCHITECT / ENGINEER										
City of Fort Collins Parks Division												
SITE		PROJECT										
Lee Martinez Park, Basketball & Tennis Courts Fort Collins, Colorado		New Lighting System										
GRAPHIC LOG	DESCRIPTION	DEPTH (FT.)	USCS SYMBOL	SAMPLES				TESTS				
				NUMBER	TYPE	RECOVERY	SPT - N BLOWS / FT.	MOISTURE, %	DRY DENSITY PCF	UNCONFINED STRENGTH PSF	% WATER SOLUBLE SULFATES	
	Approx. Surface Elev.: 99.8 ft.											
	0.5 <u>TOPSOIL</u>	99.3										
	<u>SANDY LEAN CLAY</u> Brown, moist, medium		CL	1	SS	18"	6	13				
	3.0	96.8										
	<u>CLAYEY SAND</u> Brown, rust. light grey, moist, very loose to medium dense		SC	2	ST	12"		11	113	770	.0004	
				3	SS	12"	4	23				
	8.5	91.3										
	<u>SILTY SAND with GRAVEL and COBBLES</u> Brown, rust, wet, medium dense, 5" max cobbles typical											
	19.5	80.3										
	<u>WEATHERED CLAYSTONE/SILTSTONE</u> Dark grey, moist, moderately hard											
	20.0	79.8										
	<u>BOTTOM OF BORING</u>											

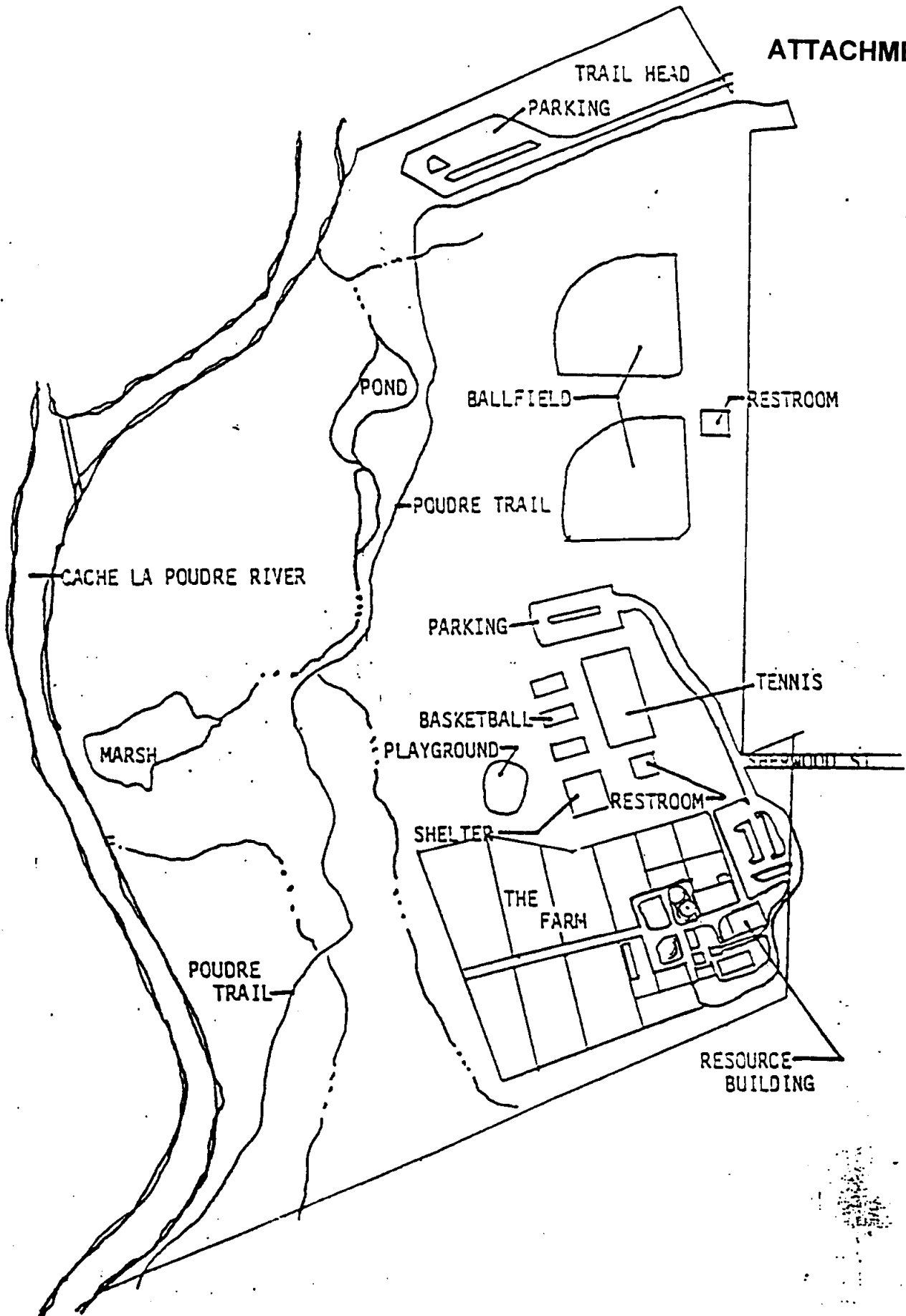
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS				Terracon	BORING STARTED		7-14-99		
WL	9.9'	7/14/99	7.3'		7/15/99	BORING COMPLETED		7-14-99	
WL						RIG	CME-75	FOREMAN	RTS
WL						APPROVED	DAR	JOB #	20995121

Martinez Park tennis courts
Trenching diagram



ATTACHMENT D



89.56
YEAR OBTAINED
197

PARK NAME **LEE MARTINEZ**

ATTACHMENT E

10	13.7	14.0	12.3	10.0	9.8	12.7	13.7	13.8	11.3
0.5	13.0	13.4	11.8	9.6	9.4	11.4	13.9	13.1	11.0
0.5	13.7	14.0	11.8	9.4	9.2	11.4	13.7	14.1	11.0
3.4	17.0	17.4	15.0	12.8	12.1	14.6	17.9	17.3	14.0
5.5	19.7	19.9	17.0	13.2	12.9	16.6	19.6	20.0	16.2
2.7	15.9	16.2	14.2	11.7	11.6	13.9	16.3	16.1	13.2
0.3	14.0	14.2	11.5	9.4	9.1	11.1	13.9	14.4	10.9
1.8	14.5	14.9	13.3	10.8	10.7	12.9	14.9	14.7	12.3
4.7	18.4	18.8	16.3	13.3	12.9	15.8	18.5	18.7	15.4
4.2	17.7	18.0	15.7	12.8	12.7	15.3	17.9	17.9	14.8
1.2	14.1	14.5	12.5	10.0	9.8	12.1	14.8	14.3	11.7
0.6	14.0	14.2	11.9	9.5	9.3	11.5	14.3	14.4	11.2
2.4	17.1	17.5	15.1	12.3	12.2	14.6	17.9	17.4	14.1
16.7	21.9	21.9	18.2	13.4	13.1	17.5	21.8	22.4	17.3
5.4	19.6	19.9	17.0	13.2	12.9	16.5	19.5	20.0	16.2
2.6	15.8	16.1	14.2	11.6	11.6	13.8	16.3	16.8	13.1
0.1	13.7	13.8	11.3	9.2	9.0	11.0	13.6	14.0	10.7
0.8	12.8	13.2	12.1	10.1	9.9	11.7	13.3	12.9	11.2
0.9	13.6	13.9	12.2	9.7	9.4	11.9	13.7	13.7	11.3

ATTACHMENT F

○ CVS-M400MS-IV
 400W SMH
 2 luminaires per location, candela file 'L3707.IES'
 1 lamp(s) per luminaire, 40000 initial lumens per lamp
 Light Loss Factor = 1.000
 Outreach (from mounting axis to photometric center)= 24 in
 mounting height= 25 ft
 number locations= 6

○ CVS-M400MS-IV
 400W SMH
 candela file 'L3707.IES'
 1 lamp(s) per luminaire, 40000 initial lumens per lamp
 Light Loss Factor = 1.000
 Outreach (from mounting axis to photometric center)= 24 in
 mounting height= 25 ft
 number locations= 4

PLAYING GRID

190 points at z=3, spacing 8ft by 8ft
 HORIZONTAL FOOTCANDLES

Average	13.9
Maximum	22.4
Minimum	9.0
Avg:Min	1.54
Max:Min	2.49

Footcandle levels shown are calculated from the luminaire laboratory test data listed.
 Laboratory tests are made under optimum conditions, with lamp output at rated value,
 and in accordance with Illuminating Engineering Society approved methods.

Actual footcandle levels may differ due to variance in lamp lamp output, lamp life
 factor, ambient average output, the voltage of ballast, reflector efficiency, lamp lumen
 depreciation, and luminaire dirt depreciation. Light Loss Factor (LLF), if less than 1.0,
 indicates the anticipated effect of factors other than variable field conditions.

SITE LIGHTING FOR:	
MARTINEZ PARK TENNIS COURTS	
400W LAYOUT	
SPAULDING LIGHTING INC.	