



Purchasing Division

## ADDENDUM NO. 1

**DATE:** April 2, 2019  
**FROM:** City of Grand Junction Purchasing Division  
**TO:** All Offerors  
**RE:** Riverside Park Improvements and Bike Path IFB-4621-19-DH

Offerors responding to the above referenced solicitation are hereby instructed that the requirements have been clarified, modified, superseded and supplemented as to this date as hereinafter described.

Please make note of the following clarifications:

1. Q. Can you please tell me if there is any soil stabilization in this project? More specifically, soil nails or micropiles?

A. No. Please see the provided plan set in the solicitation documents.

2. Q. Per the above mentioned project and pay item #33 "Post Tension Basketball Court" it states to include all appurtenances. Can you provide a list of appurtenances?

A. Yes. All appurtenances shall include, but not be limited to, all materials necessary to install the post-tension concrete slab. Stamped plans by a licensed Engineer are required. See attached post-tension tennis court slab plans as an example, which includes the tendon/reinforcement layout, slab section details and construction notes and specifications. 8" of class 6 aggregate base course installed under the slab shall be incidental to the slab cost, and will not be paid for separately. The appurtenances shall also include materials for the two (2) basketball hoop posts (to be installed within the extents of the post-tension slab), backboards, rims, and any other materials necessary to construct the basketball hoops. The City is only responsible for striping the court. Please note that the dimensions (45'Wx75'L) for the post-tension basketball court slab meet regulation size for Junior High School basketball courts.

3. Q. Who is responsible for SWMP application and fees, and who is responsible for maintaining the stormwater management plan living document?

A. The City will pay the State SWMP application fee. However, the Contractor will be responsible for filling out and paying the 5-2-1 Drainage Authority Stormwater application fee. *Note that it was stated during the pre-bid meeting that the Contractor would be responsible for paying the application fee for the state application, but the City will now cover this fee.*

4. Q. Will the proposed construction at the corner of Fairview and Riverside Park Drive require a temporary closure for through traffic?

A. Yes. It is anticipated that once the proposed construction begins at the intersection of Fairview Avenue and Riverside Park Drive, Riverside Park Drive will no longer be able to route through-traffic. Additionally, temporary road closures and provided detours will be needed for the alleyway on the east side of Riverside Park, as well as for the improvements at the south end of Park Avenue. The Contractor has the discretion to phase temporary road closures and detours, depending on which areas of the Project they wish to work on first. Once the Project has been awarded the Contractor shall submit a construction phasing schedule and associated traffic control plan to the Project Engineer for review and approval prior to beginning construction.

5. The hours of operation adjacent to residential areas (shall be 8am to 5pm, Monday through Friday. Once the contract has been awarded, the Contractor may submit a revised working hour schedule request to extend working hours for those areas that are adjacent to the intersection of Hale Avenue and Riverside Park Drive.

The original solicitation for the project noted above is amended as noted.

All other conditions of subject remain the same.



Respectfully,

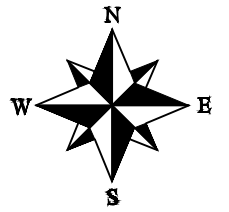
A handwritten signature in black ink, appearing to read "Duane Hoff Jr.", written in a cursive style.

Duane Hoff Jr., Senior Buyer  
City of Grand Junction, Colorado

**STREET LIGHTING GENERAL NOTES:**

1. THIS PROJECT WILL BE BID FOR THE INSTALLATION OF THE PEDESTRIAN, AND STREET LIGHTING. BASE PROJECT: COMPLETE THE MAIN PATH PEDESTRIAN LIGHTING ALONG RIVERSIDE PARK TRAIL.
2. THIS PROJECT CONSISTS OF WORK TO INSTALL ALL WIRING, CONDUIT, PULL BOXES, AND POWER PANEL. REFERENCE SCHEDULE OF LIGHTING DEVICES AND SUMMARY OF QUANTITIES DRAWING E2.
3. TYPES "SA & SB" LIGHT STANDARD & LUMINARIES (PEDESTRIAN AND STREET LIGHT), SHALL INCLUDE THE FOLLOWING ITEMS FROM VISUAL INTEREST LIGHTING LOCATED AT 3444 BRIGHTON BLVD, DENVER, CO 80216, 303.861.8448.
4. TYPE "SA" PHILLIP GARDCO GL13-2-70LA-6435-NW-UNV-BLP-LF , PROVIDE COLLISION BREAK AWAY CONNECTORS. FIXTURE TO BE 15' ABOVE FINISHED GRADE TO BOTTOM OF LIGHT. POLE - #401-4011-15-AB BK BREAKAWAY COUPLINGS(GARDCO, LYTEP)
5. TYPE "SB" PHILLIP GARDCO GL18-1-2-230LA-9680-NW-UNV-BLP-LF-PC-RPA2, PROVIDE COLLISION BREAK AWAY CONNECTORS. FIXTURE TO BE 27' ABOVE FINISHED GRADE TO BOTTOM OF LIGHT. POLE - #G18 BLP 401-5011-27-D1-AB-TBK(GARDCO BLACK) BAC-.75-SET(GARDCO.LYTEP) MOUNTING TO 5" ROUND STRAIGHT POLE.
6. PROVIDE ONE NEW MILL BANK PANEL (PP1, 240V, 1PH, 3W 100A, #CP3B11213A1OC5XC1 LOCATED AS SHOWN IN DRAWINGS.
7. ALL PEDESTRIAN LIGHTING FIXTURES(TYPE "SA") INSTALLED ON THE PROJECT WILL BE CONTROLLED WITH A ELECTRICAL CONTRACTOR SUPPLIED PHOTO CELL TO BE LOCATED IN EACH NEW MILBANK POWER PEDESTALS IN SWITCHED SECTION OF PANEL. ORIENT PANEL PHOTOCCELL WINDOW SO THAT PHOTOCCELL WILL BE ORIENTED TO NORTH, TYPICAL.
8. ALL STREET LIGHTING FIXTURES(TYPE "SB") WILL EACH BE ORDERED WITH THEIR OWN PHOTOCCELL INSTALLED IN THE FIXTURE, AND POWERED WITH NEW 240 VOLT 1-PHASE MILBANK POWER PEDESTAL ON UN-SWITCHED SECTION.
9. ELEVATIONS SHOWN IN THE SCHEDULE OF LIGHTING DEVICES ON THE PLANS SHEETS REPRESENT THE DESIGN FINISHED GRADE OR THE EXISTING GROUND FINISHED GRADE. THESE ELEVATIONS DO NOT INDICATE THE TOP ELEVATION OF THE LUMINARIES (PEDESTRIAN) FOUNDATION. PEDESTRIAN LIGHTING FOUNDATIONS SHALL BE CONSTRUCTED PER THE MANUFACTURERS RECOMMENDATIONS.
10. PULL BOXES FOR LIGHT STANDARD (PEDESTRIAN AND STREET) WILL BE TYPE 1 CDOT PULL BOXES 11"X18"X12".
11. PULL BOXES WILL BE INSTALLED IN GRADES WITHOUT CONCRETE WHERE POSSIBLE.
12. ALL ELECTRICAL CONDUIT SHALL BE SCHEDULE 80 PVC UNLESS NOTED OTHERWISE, TYPICAL.
13. UNLESS OTHERWISE NOTED, THE WORK DESCRIBED ON THE PLANS SHALL INCLUDE PROVIDING ALL LABOR AND MATERIALS NECESSARY FOR A COMPLETE AND OPERATIONAL ELECTRICAL SYSTEM. FURNISH ALL REQUIRED ITEMS WHETHER SUCH ARE SPECIFICALLY SHOWN OR NOT.
14. INFORMATION SHOWN ON DRAWINGS IS DIAGRAMMATIC ONLY AND SHALL NOT BE SCALED. OBTAIN VERIFY EXACT LOCATIONS, MEASUREMENTS, LEVELS, SPACE REQUIREMENTS, POTENTIAL CONFLICTS AMONG TRADES AND FOR ADJUSTING THE WORK REQUIRED BY THE ACTUAL CONDITIONS OF THE PROJECT. CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UNDER GROUND OBSTRUCTIONS AND MAKING ALLOWANCES FOR FIELD ADJUSTMENT OF LOCATION OF LUMINARIES TO AVOID SHUT DOWN OF ANY SERVICES OR SYSTEMS THAT ARE TO REMAIN.
15. BEFORE SUBMITTING THE BID ELECTRICAL CONTRACTOR SHALL VISIT AND EXAMINE THE PREMISES AND/OR JOB SITE SO AS TO ASCERTAIN THE EXISTING CONDITIONS IN WHICH THE CONTRACTOR WILL BE OBLIGED TO OPERATE IN PERFORMING HIS PART OF THE CONTRACT TO ANTICIPATE ANY POSSIBLE SPACE RESTRICTIONS OR CONSTRAINTS THAT COULD AFFECT THE TIMELY COMPLETION OF THE ELECTRICAL WORK IN ACCORDANCE WITH THE INTENT OF THE SPECIFICATIONS AND DRAWINGS. THE ELECTRICAL CONTRACTOR SHALL REPORT TO THE THE PROJECT ENGINEER OR GENERAL CONTRACTOR ANY CONDITIONS THAT MIGHT PREVENT THE SPECIFIED ELECTRICAL WORK FROM BEING PERFORMED IN THE MANNER INTENDED. NO CONSIDERATION OR ALLOWANCE WILL BE GRANTED TO THE ELECTRICAL CONTRACTOR FOR FAILURE TO VISIT THE PROJECT SITE, OR FOR ANY ALLEGED MISUNDERSTANDING OF THE MATERIALS TO BE FURNISHED OR WORK TO BE DONE..
16. THE ELECTRICAL CONTRACTOR SHALL EXAMINE THE DRAWINGS OF ALL TRADES WHOSE WORK RELATES TO OR IS DEPENDENT ON ELECTRICAL WORK TO BECOME FULLY INFORMED OF THE EXTENT AND CHARACTER OF THEIR SPECIFIED WORK AND BE ABLE TO COORDINATE WITH OTHER TRADES WHILE AVOIDING POSSIBLE INTERFERENCE WITH THE ELECTRICAL WORK.
17. THE CONTRACTOR SHALL USE CONDUIT PLUGS AND SEALING PLUGS FOR SEALING ALL EMPTY CONDUITS AND CONDUITS OCCUPIED WITH CABLING, RESPECTIVELY, INSTALLED UNDER THIS CONTRACT. CONDUIT PLUGS SHALL BE MANUFACTURED FROM HIGH-IMPACT PLASTIC COMPONENTS, COMBINED WITH DURABLE ELASTIC GASKETS. THEY SHALL BE CORROSION PROOF AND APPROPRIATE FOR USE AS EITHER A LONG-TERM OR TEMPORARY SEAL. CONDUIT PLUGS SHALL BE REMOVABLE AND REUSABLE. THEY SHALL BE BOTH WATERTIGHT AND AIRTIGHT TO PREVENT THE FLOW OF WATER AND BUILDUP OF SEDIMENTATION WITHIN THE CONDUIT. EACH CONDUIT PLUG SHALL BE EQUIPPED WITH A ROPE TIE DEVICE TO ALLOW THE SECURING OF PULL ROPE TO THE PLUG'S BACK COMPRESSION PLATE. THE CONTRACTOR SHALL ATTACH THE PULL ROPE TO THE BACK COMPRESSION PLATE OF THE PLUG AND STORE EXCESS SLACK PULL ROPE BEHIND THE PLUG WITHIN THE CONDUIT FOR FUTURE USE.

- PP1-X ELECTRICAL CIRCUIT NUMBER (REFER TO PANEL SCHEDULES)
- UB  HEAVY DUTY, TRAFFIC RATED, FLUSH-TO-GRADE POLYMER CONCRETE SPLICE BOX WITH HEAVY DUTY, TRAFFIC RATED, BOLTED COVER. 11"X18"X12" TYPE 1.
-  UNDER GROUND BURIED RACEWAY (2#6 THWN CU AND 1#8 GND) IN 2" PVC CONDUIT (UNLESS NOTED OTHERWISE ON PLANS) IN 24" DEEP TRENCH, BURY AND COMPACTED BACKFILL TO CITY STANDARDS.
-  INSTALL SINGLE ARM PEDESTRIAN STANDARD OR STREET STANDARD AS SPECIFIED.



**PRELIMINARY  
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Know what's below.  
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**ACM CONSULTING**  
ELECTRICAL DESIGN, CONSULTING  
ENGINEERS; PH: 970-245-7292  
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REVISION Δ			AJM	3-11-2019
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**PUBLIC WORKS  
ENGINEERING DIVISION**

**RIVERSIDE PARK TRAIL  
COVER SHEET PLAN**

Schedule of Lighting Devices							
DESCRIPTION				LUMINAIRE LED PEDESTRIAN (70 WATT) TYPE SA EACH	FOUNDATION SPECIAL EACH	See note 2 LUMINAIRE LED STREET (250 WATT) TYPE SB EACH	NOTES
SHEET NO.	TYPE	NORTH	EAST	PLAN	PLAN	PLAN	
E3	SA-1	34158.99	87634.41	1	1		1
E3	SA-2	34248.46	87605.09	1	1		1
E3	SA-3	34332.72	87588.72	1	1		1
E3	SA-4	34399.76	87530.57	1	1		1
E3	SA-5	34472.89	87506.97	1	1		1
E4	SA-6	34557.03	87469.87	1	1		1
E4	SA-7	34628.95	87421.71	1	1		1
E4	SA-8	34718.71	87414.34	1	1		1
E4	SA-9	34835.72	87365.53	1	1		1
E5	SA-10	34875.72	87279.17	1	1		1
E5	SA-11	34924.78	87221.43	1	1		1
E5	SA-12	35009.87	87181.83	1	1		1
E5	SA-13	35085.85	87138.97	1	1		1
E6	SA-14	35172.22	87113.89	1	1		1
E6	SA-15	35225.92	87067.47	1	1		1
E6	SA-16	35287.22	87039.87	1	1		1
E6	SA-17	35373.80	87001.76	1	1		1
E4	SB-1	34780.69	87417.10		1	1	2
TABLE TOTALS				17	18	1	

Tabulation of Approximate Quantities(BASE PROJECT)					
ITEM NO.	REF. NO.	CONSTRUCTION NOTE DESCRIPTION	QUANTITY	UNIT	NOTES
1		2 INCH ELECTRICAL CONDUIT (PLASTIC)	1685	LF	
2		TYPE ONE PULL BOX	18	EA	
3		WIRING	1	LS	
4		LIGHT STANDARD AND LUMINAIRE (STREET)	1	EA	
5		LIGHT STANDARD AND LUMINAIRE (PEDESTRIAN)	17	EA	
6		LIGHT STANDARD FOUNDATION (SPECIAL)	18	EA	
		LIGHTING CONTROL CENTER (SPECIAL)	1	EA	
SUMMARY NOTES:					

STREET LIGHTING GENERAL NOTES:

- EACH LIGHT TO HAVE A "PULL BOX "UB", REFERENCE ELECTRICAL SHEETS.

SCHEDULE OF LIGHTING DEVICES NOTES:

- FOUNDATION TOP HEIGHT EQUAL TO ADJACENT SIDEWALK
- FOUNDATION TOP HEIGHT AT 2'6" AS SHOWN IN DETAIL.

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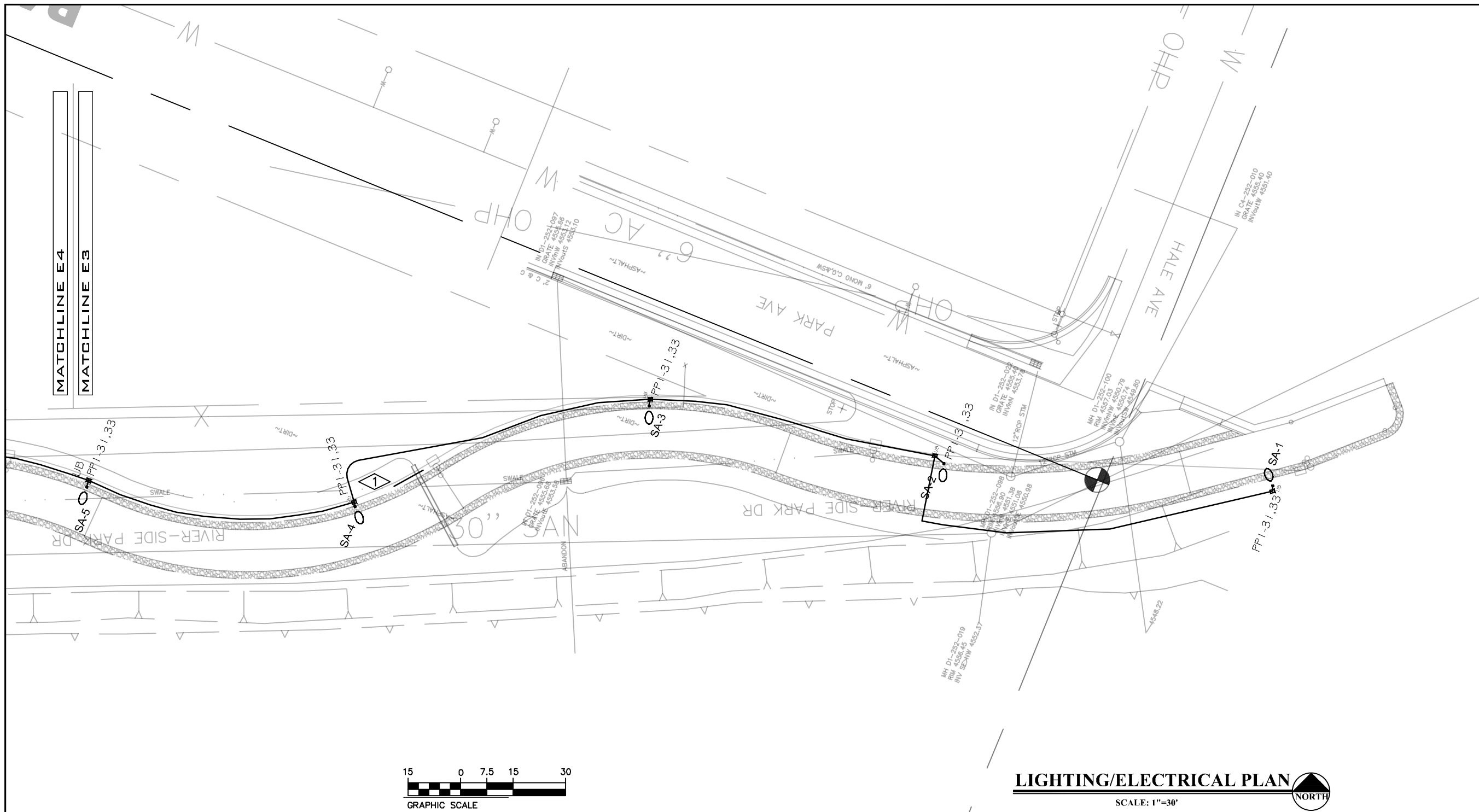
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REVISION Δ			DESIGNED BY <u>AJM</u>	DATE <u>3-11-2019</u>
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RIVERSIDE PARK TRAIL  
LIGHTING SCHEDULES



FLAG NOTES:

① ROUTE CONDUIT AROUND SWALE AND CASING PIPE.

GENERAL NOTES:

1. POWER CIRCUIT AS SHOWN ON DRAWING, TYPICAL.
2. LIGHT TO BE ORIENTED TO BE PERPENDICULAR TO ROADWAY AND SHINE ON ROADWAY, TYPICAL.
3. PROVIDE 2-#6 THWN + #8GND IN 2" PVC SCHEDULE 80 CONDUIT BETWEEN PULL BOXES UNLESS SHOWN OTHERWISE, TYPICAL.

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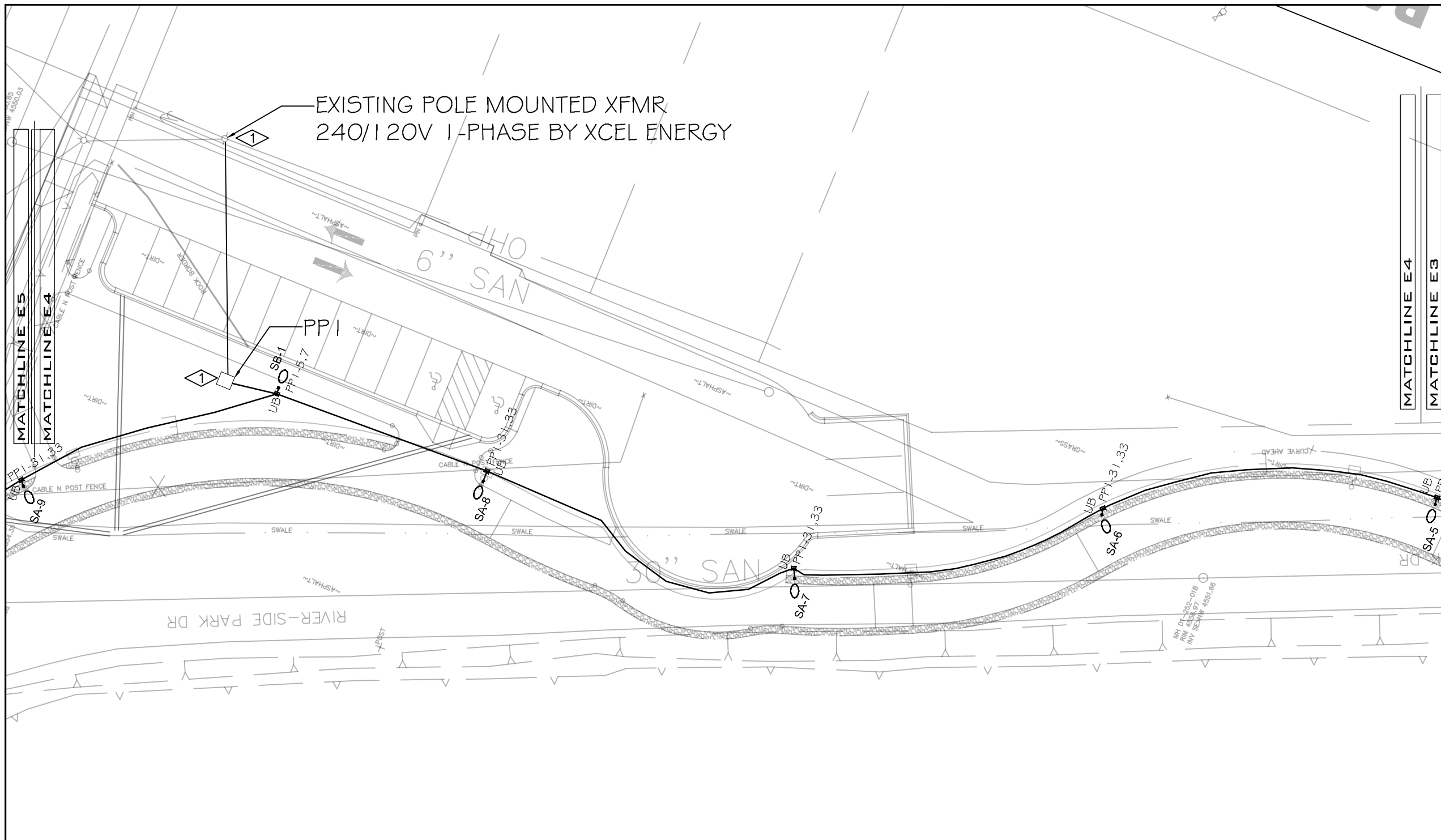
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RIVERSIDE PARK TRAIL  
COMPOSITE UTILITY PLAN



GENERAL NOTES:

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2. LIGHT TO BE ORIENTED TO BE PERPENDICULAR TO ROADWAY AND SHINE ON ROADWAY, TYPICAL.
3. PROVIDE 2 #6 THWN + #8GND IN 2" PVC SCHEDULE 80 CONDUIT BETWEEN PULL BOXES UNLESS SHOWN OTHERWISE, TYPICAL.

FLAG NOTES:

- ◊ COORDINATE CONNECTIONS TO EXISTING POLE MOUNTED TRANSFORMER, METER AND PEDESTAL PANEL WITH XCEL ENERGY PRIOR TO ROUGH-IN. RETURN EXISTING BIKE PATH TO AS NEW CONDITION AFTER TRENCHING.

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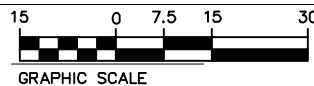
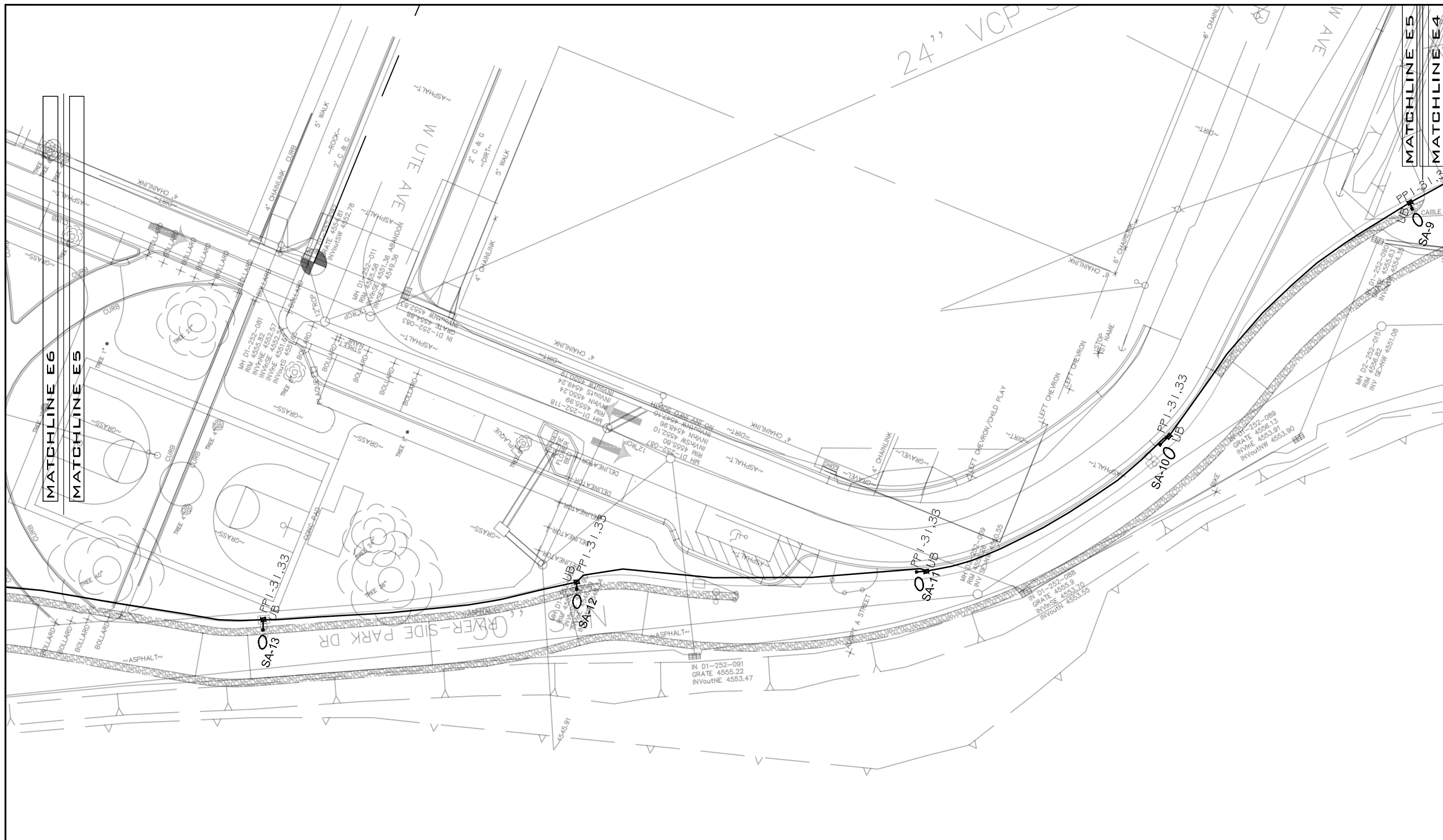
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ENGINEERING DIVISION

RIVERSIDE PARK TRAIL  
COMPOSITE UTILITY PLAN



**LIGHTING/ELECTRICAL PLAN**  
SCALE: 1"=30'



**GENERAL NOTES:**

1. POWER CIRCUIT AS SHOWN ON DRAWING, TYPICAL.
2. LIGHT TO BE ORIENTED TO BE PERPENDICULAR TO ROADWAY AND SHINE ON ROADWAY, TYPICAL.
3. PROVIDE 2 #6 THWN + #8GND IN 2" PVC SCHEDULE 80 CONDUIT BETWEEN PULL BOXES UNLESS SHOWN OTHERWISE, TYPICAL.

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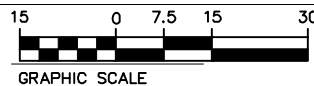
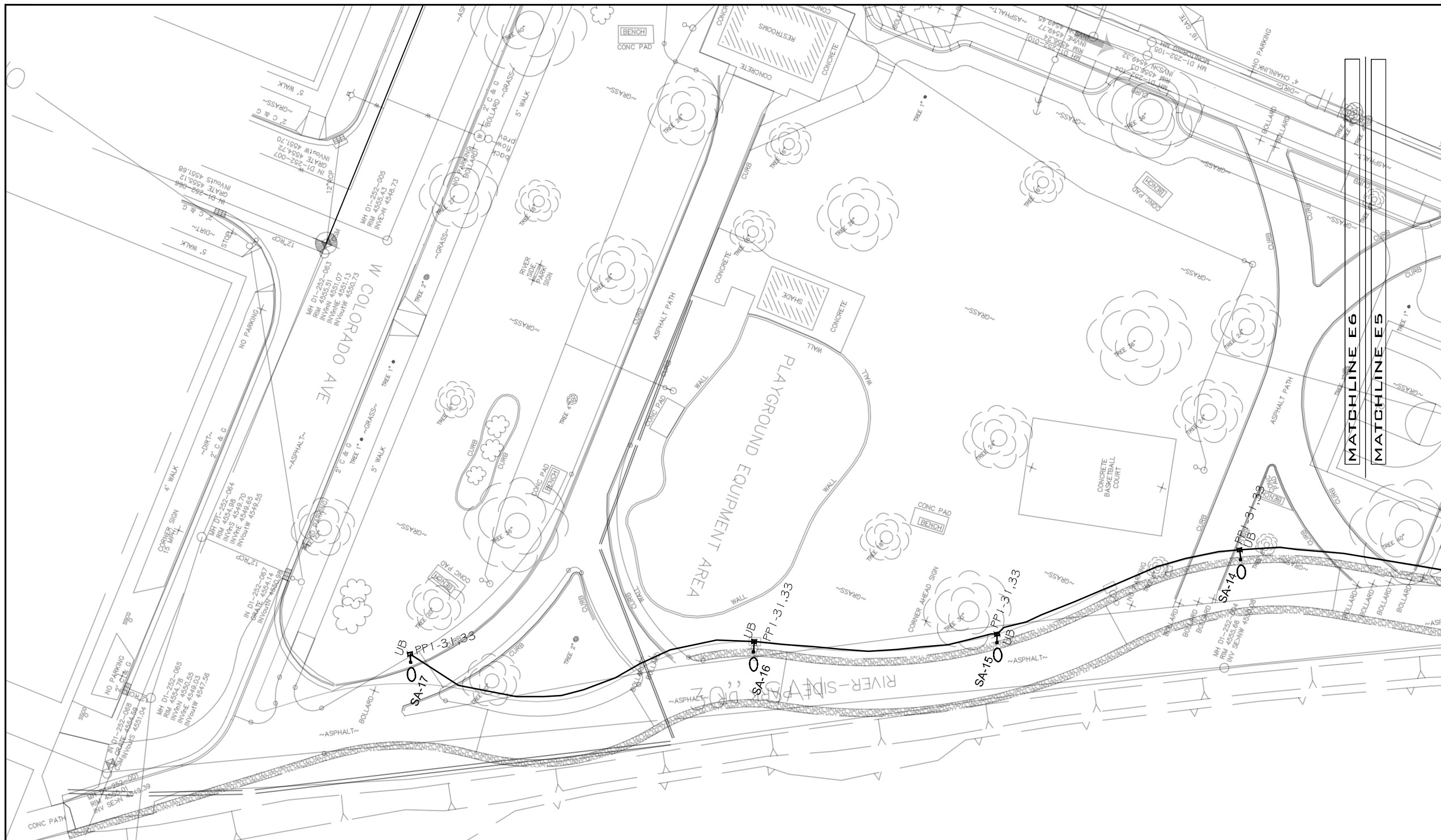
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ENGINEERING DIVISION**

**RIVERSIDE PARK TRAIL  
COMPOSITE UTILITY PLAN**



**LIGHTING/ELECTRICAL PLAN**  
SCALE: 1"=30'  
NORTH

**GENERAL NOTES:**

1. POWER CIRCUIT AS SHOWN ON DRAWING, TYPICAL.
2. LIGHT TO BE ORIENTED TO BE PERPENDICULAR TO ROADWAY AND SHINE ON ROADWAY, TYPICAL.
3. PROVIDE 2-#6 THWN + #8GND IN 2" PVC SCHEDULE 80 CONDUIT BETWEEN PULL BOXES UNLESS SHOWN OTHERWISE, TYPICAL.

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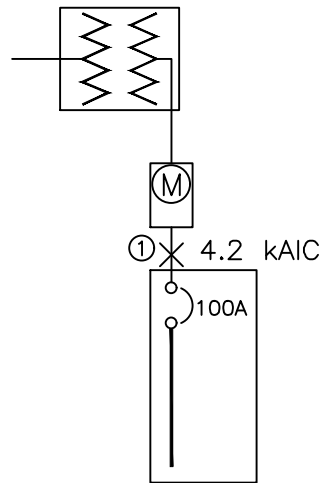


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**RIVERSIDE PARK TRAIL  
COMPOSITE UTILITY PLAN**



EXISTING POLE MOUNTED TRANSFORMER  
50KVA 240/120 VOLT,  
1PH 3W  
BY XCEL



PP1 100A MCB MILBANK PEDESTAL  
CP3B11213A10CSXC1, 24  
UNSWITCHED/12 SWITCHED CKTS  
240/120V 1PH, 3W  
10 KAIC

① 1 SET(S)[2" PVC  
SCHED. 80  
(3#3(CU,THWN)+1#8(CU)GND]

**ONE-LINE DIAGRAM**  
A  
1  
NOT TO SCALE

GENERAL NOTES:

1. IN AS MUCH AS DESIGN REQUIRES THAT CERTAIN ASSUMPTIONS BE MADE REGARDING EXISTING CONDITIONS, AND BECAUSE SOME OF THESE ASSUMPTIONS CANNOT BE VERIFIED. FIELD COORDINATION DURING CONSTRUCTION SERVICES IS IMPERATIVE. CONTRACTORS BIDDING THIS WORK MUST MAKE REASONABLE ALLOWANCES FOR UNFORESEEN CONTINGENCIES.
2. THE SERVING ELECTRICAL ASSOCIATION SHALL ADVISE THE OWNER/ENGINEER PRIOR TO SERVICE MODIFICATION REQUIRING COST TO THE OWNER.
3. REFERENCE CIVIL, LANDSCAPE AND IRRIGATION DRAWING PLANS FOR COORDINATION AND LOCATION OF ALL UNDER GROUND SYSTEMS.
4. ALL WORK SHALL BE COORDINATED WITH OTHER TRADES AS REQUIRED: REFERENCE CIVIL LANDSCAPE AND IRRIGATION DRAWINGS.
5. ALL WIRING IS SHOWN DIAGRAMMATICALLY ON DRAWINGS, FIELD VERIFY ALL CONDITIONS PRIOR TO ROUGH-IN.
6. ALL ELECTRICAL WORK SHALL COMPLY WITH THE LATEST EDITION OF NATIONAL ELECTRICAL CODE AND ALL APPLICABLE LOCAL CODES.
7. ALL WIRE TO BE #6 UNLESS NOTED OTHERWISE.
8. CONDUCTOR COUNT IS SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL ENSURE THAT ANY AND ALL DEVICES AND EQUIPMENT ARE CIRCUITED PROPERLY. CONTRACTOR SHALL ENSURE THAT NO EQUIPMENT OR DEVICES ARE COMBINED OTHER THAN WHAT IS DEPICTED.
9. FIELD VERIFY ALL DIMENSIONS, DO NOT SCALE DRAWINGS.
10. COORDINATE INSTALLATION OF METER AND ELECTRICAL REQUIREMENTS WITH XCEL ENERGY.
11. PEDESTAL MUST MEET ALL XCEL ENERGY REQUIREMENTS I.E. COLD SEQUENCE PADLOCK SLIP LATCH ON METER COVER, HOLD OPEN BAR ON METER HOOD.

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PUBLIC WORKS  
ENGINEERING DIVISION

RIVERSIDE PARK TRAIL  
ONE-LINE DIAGRAMS

Panel Schedule PP1										
Circuit			Protection			Conductor				
Information::			Information::			Information::				
Circuits: 12 UNSWITCHED/12 SWITCHED			Frame Size: 100A			Conductor: 3				
Voltage: 120 / 240			Load (A): 21			Neutral: 3				
System: 1Ø,			NEMA: Type 3R			Ground: 1-2 ga.				
Hertz: 60			OCPD Size: 100A			Insulation: THWN				
			10 Kaic			Material: Copper				
UN-SWITCHED CIRCUIT DIRECTORY			Raceway: 2 in. - PVC SCHED 80							
Ct#	Load Description	OCPD Size / Ø	Load - kVA		Load - kVA		OCPD Size / Ø	Load Description	Ct#	
	BØ		AØ	BØ	L	BØ	AØ	BØ		
1	MAIN	100A / 2			L1		0.18	15A / 2	CONTROL POWER	2
3	---				L2	0.18	0.3	60A / 2	SWITCHED LC CONTROL	4
5	STREET LIGHTS	20A / 2	0.096		L1	0.3			---	6
7	---	20A / 2		0.096	L2					8
9	SPARE(FUTURE)	20A / 2			L1			20A / 1	SPARE(FUTURE)	10
11	SPARE(FUTURE)	20A / 2			L2			20A / 1	SPARE(FUTURE)	12
SWITCHED CIRCUIT DIRECTORY										
Ct#	Load Description	OCPD Size / Ø	Load - kVA		Load - kVA		OCPD Size / Ø	Load Description	Ct#	
	BØ		AØ	BØ	L	BØ	AØ	BØ		
13	PATHWAY LIGHTS	20A / 2	0.72		L1			20A / 2	SPARE(FUTURE)	14
15	---			0.72	L2				---	16
17	SPARE(FUTURE)	20A / 2			L3				SPARE(FUTURE)	18
19	---				L1					20
21					L2					22
23					L3					24
Phase Totals - kVA:			0.816	0.816		0.48	0.3			
Load Totals							Amps:	kVA:		
							6.7	2.412		

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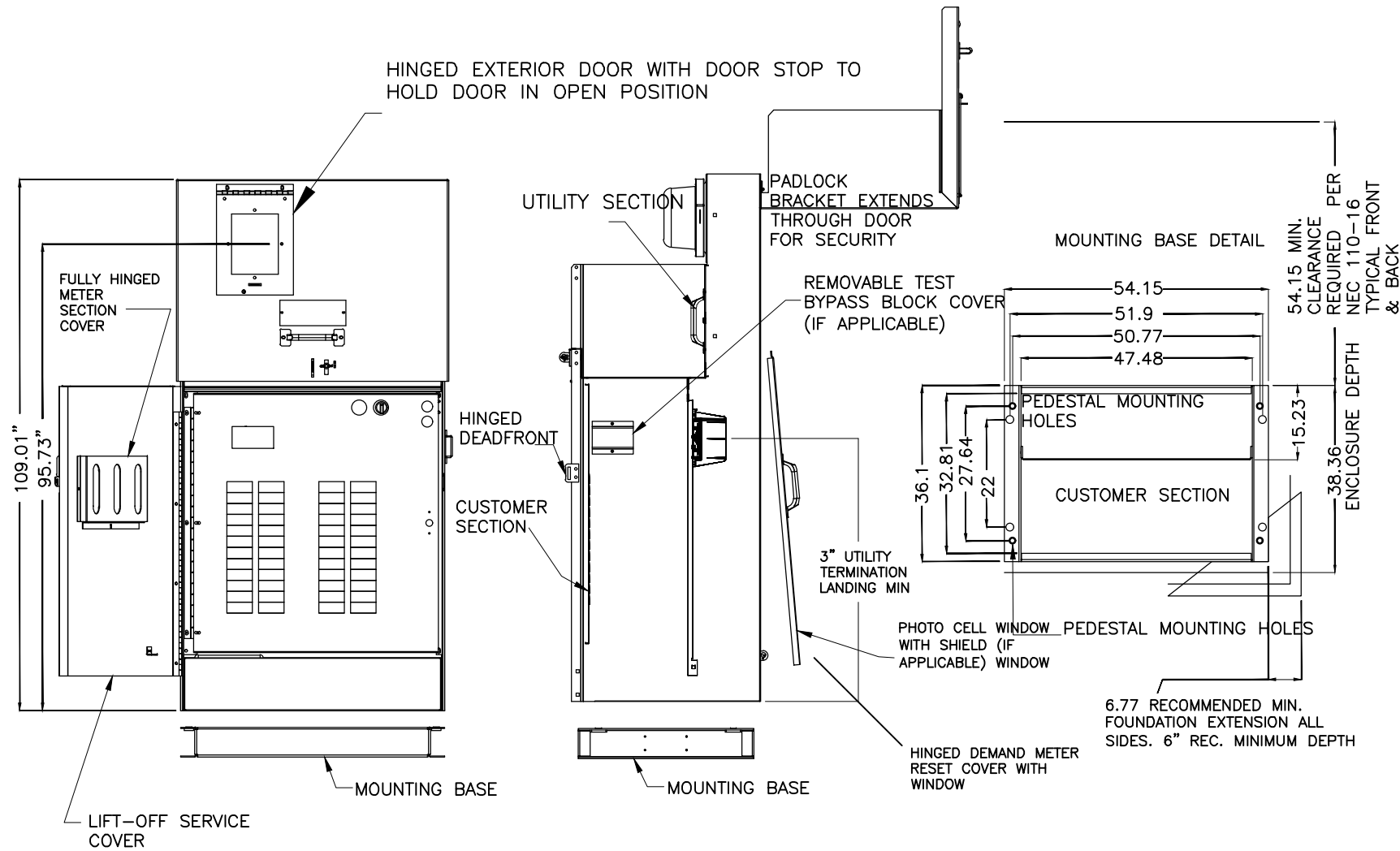
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REVISION Δ		7-24-18	AJM	3-11-2019
REVISION Δ			AJM	3-11-2019
REVISION Δ			AJM	3-11-2019
REVISION Δ			BH	3-11-2019



PUBLIC WORKS  
ENGINEERING DIVISION

RIVERSIDE PARK TRAIL  
PANEL SCHEDULES

**24" COMMERCIAL PEDESTAL**



**B** TYPICAL 1-PHASE POWER PEDESTAL/LIGHTING CONTROL CENTER PLAN  
**1** NOT TO SCALE

**NOTES**

1. COORDINATE EXACT INSTALATION REQUIREMENTS WITH PROVIDER PRIOR TO ROUGH-IN OR TRENCHING. CONTROL CABINET SHALL BE U/L LISTED "INDUSTRIAL CONTROL PANEL" PER UL 508.
2. CONSTRUCTION SHALL BE NEMA 3R. 12 GA. A60 STEEL POWDER COATED MINT GREEN WITH PHOTO ELECTRIC CELL IN SERVICE CABINET. ELECTRICAL CONTRACTOR TO PROVIDE PHOTOCELL.
3. VOLTAGE RATINGS OF SERVICE EQUIPMENT SHALL CONFORM TO THE SERVICE VOLTAGES INDICATED ON THE PLANS.
4. SERVICE EQUIPMENT ENCLOSURE AND METERING EQUIPMENT SHALL MEET THE REQUIREMENTS OF THE SERVING UTILITY. WHEN THE SERVING UTILITY PROVIDES BOTH METERED AND UNMETERED CIRCUITS, A SEPARATE BUS SHALL BE PROVIDED FOR EACH CIRCUIT. THE METER AREA SHALL HAVE A SEALING, LOCKABLE, RAIN TIGHT COVER THAT CAN BE REMOVED WITHOUT THE USE OF TOOLS.
5. SERVICE EQUIPMENT SHALL BE FACTORY WIRED AND CONFORM TO NEMA STANDARDS.
6. THE EXTERIOR DOOR SHALL HAVE PROVISIONS FOR PADLOCKING. THE PADLOCK HOLE SHALL BE A MINIMUM DIAMETER OF 11mm.
7. ALL TERMINALS FOR INCOMING SERVICE CONDUCTORS SHALL BE COMPATIBLE WITH EITHER COPPER OR ALUMINUM CONDUCTORS SIZED TO SUIT THE CONDUCTORS SHOWN ON THE PLAN. TERMINAL LUGS SHALL BE COPPER OR TIN-PLATED ALUMINUM. SOLID NEUTRAL TERMINAL STRIP SHALL BE RATED 200A UNLESS OTHERWISE SPECIFIED AND FOR USE WITH COPPER OR ALUMINUM CONDUCTORS. THE TERMINAL SHOULD INCLUDE BUT NOT BE LIMITED TO:
  - A) INCOMING TERMINALS (LANDING LUGS)
  - B) NEUTRAL LUGS
  - C) SOLID NEUTRAL TERMINAL STRIP.
  - D) TERMINAL STRIPS FOR CONDUCTORS WITHIN THE ENCLOSURE.
8. CIRCUIT BREAKER SPACES (20mm NOMINAL) SHALL BE PROVIDED FOR BRANCH CIRCUITS. CIRCUIT BREAKER INTERIORS SHALL BE COPPER. INTERIORS SHALL ACCEPT PLUG-IN OR CABLE-IN/ CABLE-OUT CIRCUIT BREAKERS.
9. PLUG-IN CIRCUIT BREAKERS MAY BE MOUNTED IN THE VERTICAL OR HORIZONTAL POSITION. CABLE-IN/ CABLE-OUT CIRCUIT BREAKERS SHALL BE MOUNTED IN THE VERTICAL POSITION.
10. FASTENERS ON THE EXTERIOR OF THE ENCLOSURE SHALL BE VANDAL RESISTANT AND SHALL NOT BE REMOVABLE FROM THE EXTERIOR. ALL NUTS, BOLTS, SCREWS, WASHERS, AND HINGES SHALL BE STAINLESS STEEL.
11. PHENOLIC NAME PLATES SHALL BE PROVIDED AS REQUIRED.
12. A PLASTIC COVERED WIRING DIAGRAM SHALL BE ATTACHED TO THE INSIDE OF THE FRONT DOOR.
13. FOUNDATION SHALL EXTEND 50mm MINIMUM BEYOND EDGE OF ENCLOSURE.
14. PANEL WILL ADHERE TO XCEL ENERGY REQUIREMENT FOR COLD SEQUENCE DISCONNECTION.

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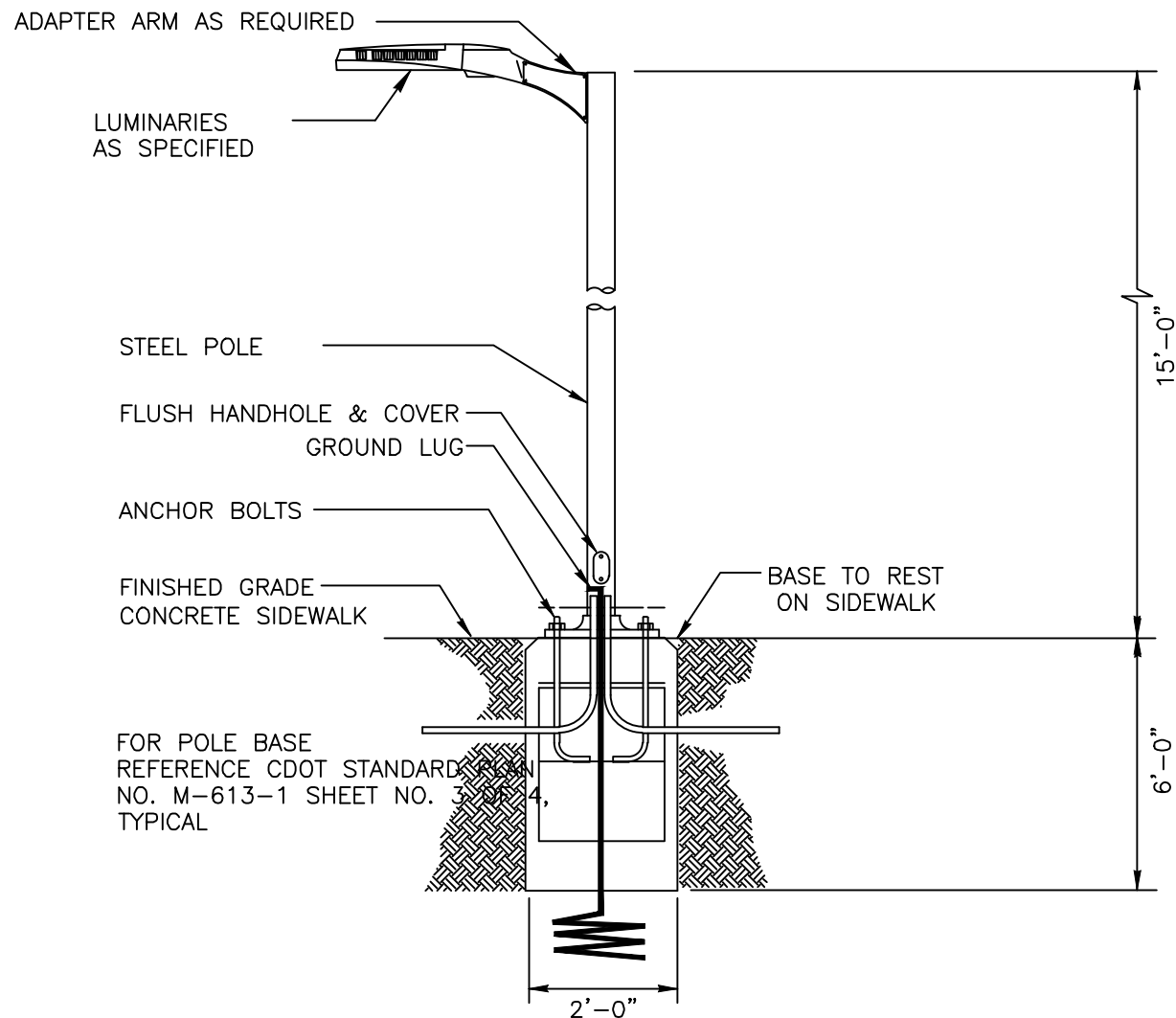
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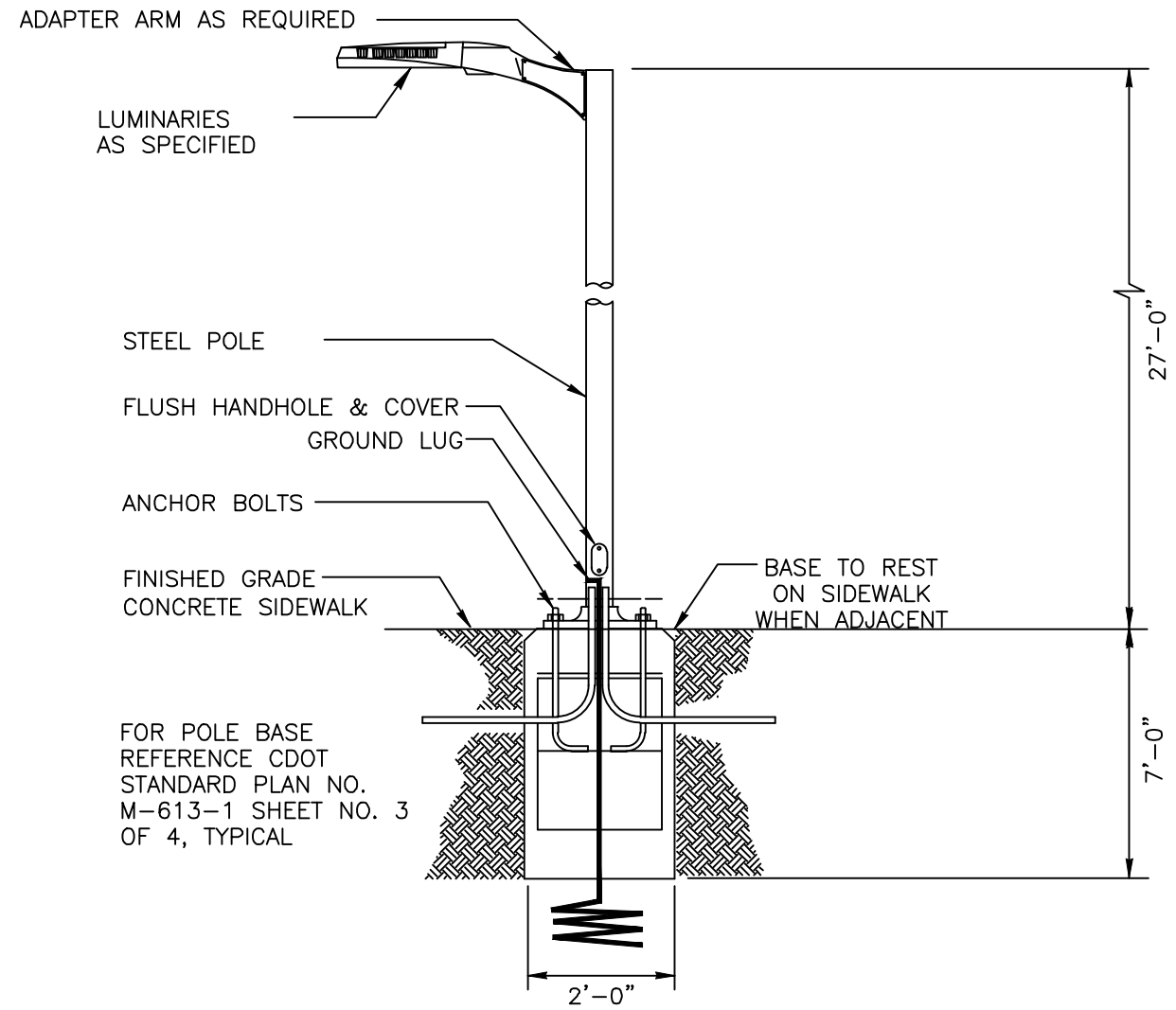
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RIVERSIDE PARK TRAIL  
PEDESTAL DETAILS



**TYPICAL SA LIGHT DETAIL**

NOT TO SCALE



**TYPICAL SB LIGHT DETAIL**

NOT TO SCALE

**GENERAL NOTES:**

1. ELECTRICAL CONTRACTOR TO ORDER ALL REQUIRED HARDWARE FOR MOUNTING OF EACH LUMINARIES.
2. VERIFY THE BURY DEPTH AND DIAMETER OF THE SONOTUBE FOR POLE LUMINARIES WITH THE CIVIL ENGINEER PRIOR TO PURCHASING THE EQUIPMENT. DEPTH WILL DEPEND ON SOIL CONDITIONS. TYPICAL CONCRETE DEPTH IS SHOWN IN DETAIL. VERIFY DEPTH WITH CIVIL ENGINEER.
3. ELECTRICAL CONTRACTOR TO VERIFY THAT ALL FIXTURES TO COMPLY WITH LIGHT TRESPASS AND DARK SKY CODES.
4. NOTIFY ENGINEER OF ANY OBSTRUCTIONS TO POLE PLACEMENT IMMEDIATELY BEFORE PROCEEDING.
5. VERIFY REQUIRED VOLTAGE OF FOR EACH LUMINARIES WITH AVAILABLE VOLTAGES PRIOR TO ORDERING.
6. REFERENCE CDOT STANDARD PLAN NO. M-613-1 SHEET NO. 3 OF 4, TYPICAL

TYPE	MANUFACTURER MODEL NUMBER	APPROVAL	LUMINAIRE SCHEDULE		
			VOLTAGE MOUNTING # OF LAMPS	BALLAST LAMPE TYPE LAMP CAT #	DESCRIPTION
SA	PHILIPS GARDCO GL13-2-70LA-6435-NW-UNV-BLP-LF	OWNER	UNV POLE	ELECTRONIC LED	PEDESTRIAN LUMINAIRE, ARM MOUNTED, LED, CUTOFF, ORDER ROUND STEEL POLE SO THAT LAMP HEIGHT IS 15' AFG MEASURED AT BOTTOM OF LUMINAIRE. COLOR OF POLE AND ARM TO MATCH, BOTH BLACK. POLE#401-4011-15-AB BK BREAKAWAY COUPLINGS(GARDCO, LYTEP)
		REQUESTED	1	50 W	
SB	PHILIPS GARDCO GL18-1-2-230LA-9680-NW-UNV-BLP-LF-PC-RPA2	OWNER	UNV POLE	ELECTRONIC LED	STREET SIDE LUMINAIRE, ARM MOUNTED, LED, CUTOFF, ROUND STEEL POLE TO BE 27' SO THAT TOTAL HEIGHT AFG TO BOTTOM OF FIXTURE IS 27'. COLOR OF POLE AND ARM TO MATCH, BOTH BLACK. POLE #G18 BLP 401-5011-27-D1-AB-TBK(GARDCO BLACK) BAC-75-SET(GARDCO,LYTEP) MOUNTING TO 5" ROUND STRAIGHT POLE.
		REQUESTED	1	230 W	

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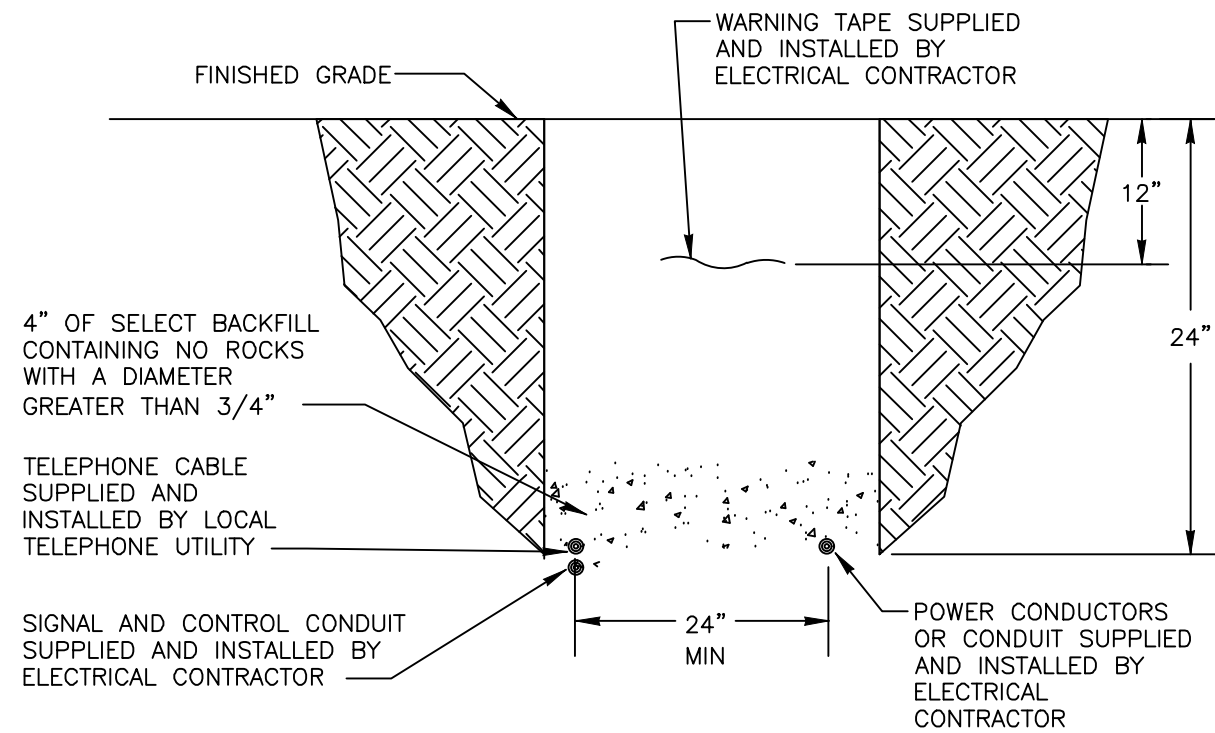
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PUBLIC WORKS  
ENGINEERING DIVISION

RIVERSIDE PARK TRAIL  
LIGHTING DETAILS



## TYPICAL SECONDARY ELECTRICAL TRENCH DETAIL

NOT TO SCALE

GENERAL NOTES:

1. TRENCH WIDTH WILL BE 30".
2. STEEL GAS PIPE OR STEEL DUCT IS NOT ALLOWED IN TRENCH CONSTRUCTION.
3. WHERE UNDERGROUND UTILITIES CROSS OR ENCR OACH INTO CITY STREETS THEY SHALL BE INSTALLED TO A DEPTH PROVIDING 3' MINIMUM COVER BELOW FINISHED GRADE.

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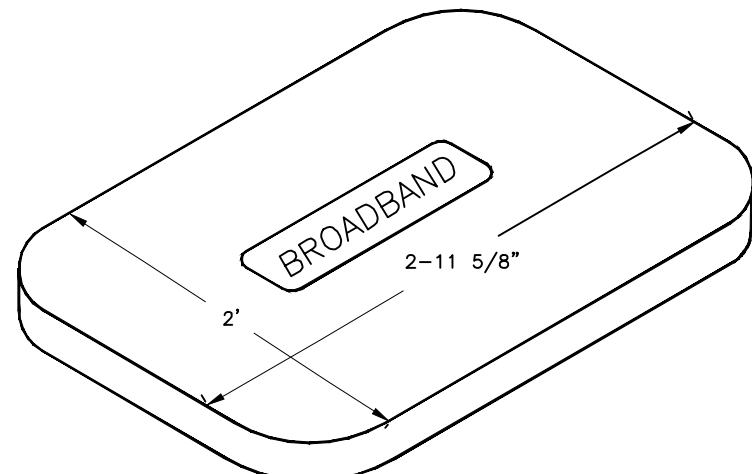
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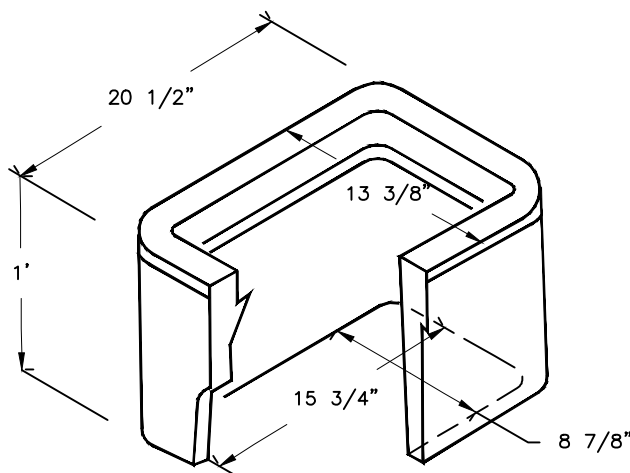
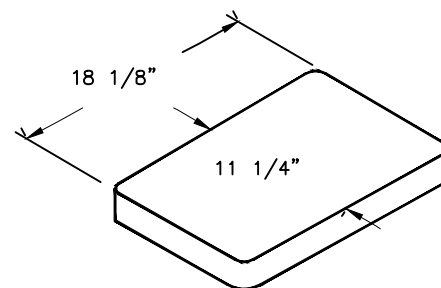
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RIVERSIDE PARK TRAIL  
UTILITY DETAILS DETAILS



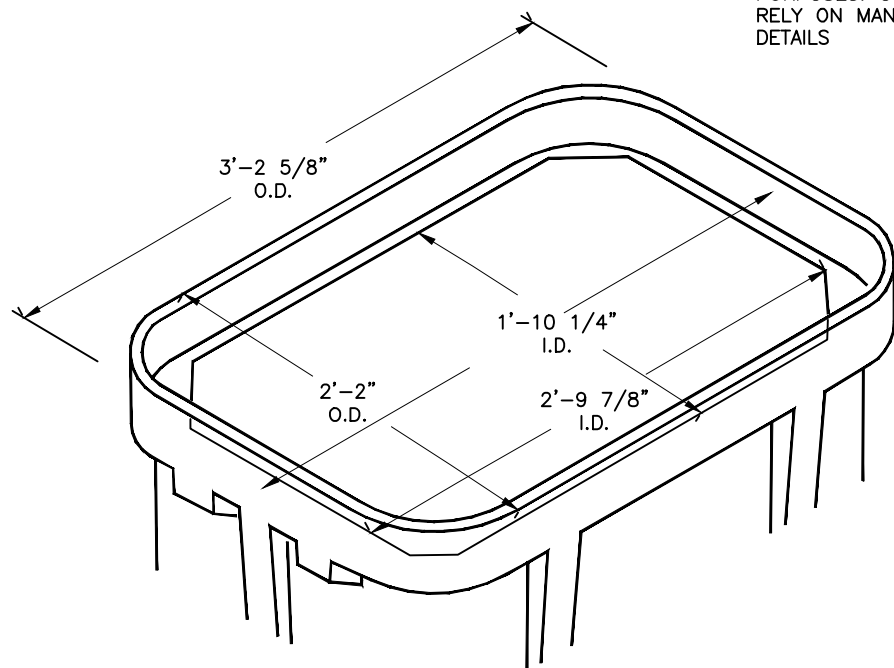
COVER

BROADBAND PULL BOX (HUBBEL QUAZITE BOX) (BOX PART NO PG2436BA30) COVER PART NO PG2436HA00) OR ENGINEER APPROVED EQUAL DIMENSIONS SHOWN HERE FOR LAYOUT AND PLANNING PURPOSES. CONTRACTOR SHALL RELY ON MANUFACTURER DETAILS



STREET LIGHT AND PEDESTRIAN LIGHT PULL BOX

DIMENSIONS SHOWN HERE FOR LAYOUT AND PLANNING PURPOSES. CONTRACTOR SHALL RELY ON MANUFACTURER DETAILS



BOX

BROADBAND PULL BOX DIMENSIONS SHOWN HERE FOR LAYOUT AND PLANNING PURPOSES. CONTRACTOR SHALL RELY ON MANUFACTURER DETAILS

GENERAL NOTES:

- PULL BOXES, PULL BOX COVERS AND EXTENSIONS SHALL BE MADE OF FIBERGLASS REINFORCED POLYMER CONCRETE. PULL BOXES SHALL BE VERIFIED BY 3RD PARTY NATIONALLY RECOGNIZED INDEPENDENT TESTING LABORATORY AS MEETING ALL TEST PROVISIONS OF THE LATEST ANSI/SCTE 77 SPECIFICATION FOR UNDERGROUND ENCLOSURE INTEGRITY, TIER 22 RATING. CERTIFICATION DOCUMENTS SHALL BE SUBMITTED WITH MATERIALS SUBMITTALS. THE PULL BOX SHALL HAVE A DETACHABLE COVER WITH A SKID RESISTANT SURFACE AND HAVE THE WORDS ELECTRICAL CAST INTO THE SURFACE. FADING THE WORDS SHALL NOT BE ACCEPTED. MARKINGS SHOWING THE TIER 22 RATING MUST BE LABELED OR STENCILED ON THE INSIDE AND OUTSIDE OF THE BOX AND THE ON UNDER SIDE OF THE COVER. THE COVER SHALL BE ATTACHED TO THE PULL BOX BODY BY MEANS OF A MINIMUM 3/8-7 UNIFIED NATIONAL COURSE (UNC) STAINLESS STEEL PENTA HEAD BOLTS SHALL HAVE TWO LIFT SLOTS TO AIDE IN THE REMOVAL OF THE LID.
- PULL SLOTS SHALL BE RATED FOR A MINIMUM PULL OUT OF 3,000 POUNDS. MAGNESIUM CHLORIDE TESTS SHOULD BE PERFORMED IN ACCORDANCE WITH THE LATEST ANSI/SCTE 77 SPECIFICATION FOR UNDERGROUND ENCLOSURE INTEGRITY, TIER 22 RATING.

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TYPICAL PULLBOX DETAIL

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PUBLIC WORKS  
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RIVERSIDE PARK TRAIL  
UTILITY DETAILS DETAILS

**GENERAL NOTES**

**PRESTRESSING STEEL**

- 1.1 PRESTRESSING STEEL SHALL BE 1/2" DIAMETER 7-WIRE LOW-RELAXATION STRAND FOR PRE-STRESSED CONCRETE MANUFACTURED IN ACCORDANCE WITH ASTM A416, GRADE 270 (LATEST REVISION) AND SHALL HAVE A MINIMUM ULTIMATE TENSILE STRENGTH OF 41,300 lbs.

NOMINAL AREA	0.153 SQ. IN.
MODULUS OF ELASTICITY (ASSUMED)	28,500 KSI
ULTIMATE STRENGTH	41.3 KIPS
MAX. JACKING FORCE	33.0 KIPS

- 1.2 STRAND IS COATED WITH A CORROSION PREVENTATIVE LUBRICATING GREASE MEETING PTI RECOMMENDATIONS AND ENCASED IN A CONTINUOUSLY EXTRUDED SEAMLESS, POLYETHYLENE PLASTIC SHEATHING OF 50 MILS MINIMUM THICKNESS. TORN OR DAMAGED SHEATHING SHALL BE REPAIRED PRIOR TO CONCRETE PLACING. SMALL TEARS OR SHEATHING FREE SECTIONS OF CABLE LESS THAN 6" IN LENGTH MAY BE REPAIRED WITH TAPE.

**ANCHORAGES**

- 2.1 ALL ANCHORING HARDWARE SHALL MEET THE MINIMUM REQUIREMENTS SET FORTH IN ACI "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (ACI 318-95, CHAPTER 18) - ALONG WITH PTI SPECIFICATIONS FOR UNBONDED SINGLE STRAND TENDONS IN A NON-AGGRESSIVE ENVIRONMENT.

**TENDON FABRICATION**

- 3.1 TENDONS SHALL BE FABRICATED TO PREDETERMINED LENGTH AS SHOWN ON THE PLACING DRAWINGS. THE LENGTH SHALL BE SUFFICIENT TO ALLOW A MINIMUM OF 18" AT EACH STRESSING END.
- 3.2 TENDONS WHICH ARE STRESSED FROM ONE END ONLY SHALL HAVE FIXED-END ANCHORAGES ATTACHED PRIOR TO SHIPMENT. TENDONS WHICH ARE INTERMEDIATELY STRESSED SHALL HAVE THE INTERMEDIATE ANCHORAGE(S) PLACED BEHIND THE FIXED-END ANCHORAGE, OR WITH NO FIXED-END ANCHORAGE, PLACED NEAR THE END OF THE TENDON COIL.

- 3.3 TENDONS SHALL BE CLEARLY IDENTIFIED BY COLOR CODE AS CALLED OUT ON THE PLACING DRAWINGS FOR EASE OF INSTALLATION. COLOR CODE SHALL BE MARKED ON THE FIXED-END ANCHORAGE CASTINGS AND/OR ON THE STRAND SHEATHING.
- 3.4 EACH TENDON SHIPMENT SHALL BE ACCOMPANIED BY A TENDON FABRICATION ORDER INDICATING THE NUMBER OF TENDONS, THEIR LENGTH, COLOR CODE AND TOTAL NUMBER OF ANCHORAGE CASTINGS, WEDGES, GROMMETS AND SUPPORT CHAIRS (WHERE APPLICABLE) SHIPPED.

- 3.5 TENDONS WILL BE FABRICATED IN SUCH SEQUENCE AND QUANTITY AS TO ALLOW SHIPPING IN FULL TRUCKLOADS. UPON ARRIVAL, PURCHASER SHALL INSPECT THE SHIPMENT PRIOR TO UNLOADING AND SHALL NOTE ANY DAMAGE OR QUANTITY VARIATIONS ON THE CARRIER'S BILL OF LADING. VSL SHALL HAVE NO LIABILITY WHATSOEVER WITH RESPECT TO ANY DAMAGE OR VARIATIONS NOT SO NOTED.

- 3.6 PURCHASER SHALL PROPERLY UNLOAD TENDONS; THE USE OF A NYLON SLING IS RECOMMENDED FOR UNLOADING TENDONS TO PREVENT DAMAGE TO THE SHEATHING. PURCHASER SHALL SATISFACTORILY PROTECT TENDONS AND OTHER MATERIALS AT THE JOB SITE FROM CORROSION AND OTHER PERILS PRIOR TO PLACEMENT.

**TENDON PLACEMENT**

- 4.1 LOCATE THE CENTER LINES OF THE BUNDLES AT THE EDGE FORMS AS SHOWN ON THE PLACING DRAWINGS. LOCATE AND MARK THE INDIVIDUAL ANCHORAGE CENTERLINES. AT STRESSING ENDS, THE CONTRACTOR SHALL DRILL 3/4" DIAMETER HOLES IN THE EDGE FORMS. AT INTERMEDIATE STRESSING JOINTS, NOTCHED OR SPLIT FORMS SHALL BE PROVIDED TO FACILITATE TENDON PLACING.
- 4.2 AT STRESSING ENDS, NAIL ANCHORAGES WITH GROMMETS SECURELY IN PLACE AGAINST EDGE FORMS. VSL RECOMMENDS USING RING SHANK NAILS.
- 4.3 LAY BOTTOM BACK-UP BARS ALONG EDGES OF SLAB, INTERMEDIATE STRESSING JOINTS, AND ADDED TENDON FIXED ENDS.
- 4.4 PLACE SUPPORT BARS AND TENDONS ACCORDING TO VSL PLACING DRAWINGS. REVIEW DETAILS AND NOTES SHOWING PLACING SEQUENCE IN CRITICAL AREAS. PLACEMENT OF REBAR MUST BE COORDINATED WITH PLACEMENT OF TENDONS. IN CASE OF CONFLICT, TENDON LOCATION GOVERNS.

- 4.5 AT STRESSING ENDS, REMOVE SHEATHING FLUSH WITH BACK SIDE OF ANCHORAGE CASTING. THE LENGTH FROM INSIDE FACE OF EDGE FORM TO STRAND END MUST BE AT LEAST 18". PASS TENDONS THROUGH ANCHORAGES.
- 4.6 AT INTERMEDIATE STRESSING JOINTS, SLIDE ANCHORAGE CASTING TO APPROXIMATE JOINT LOCATION. REMOVE JUST ENOUGH SHEATHING TO INSURE PROPER STRESSING. NO SHEATHING CAN REMAIN IN ANCHORAGE CASTING. PLACE TENDON THROUGH EDGE FORM AND NAIL ANCHORAGE CASTING AND SPLIT GROMMETS AGAINST THE INSIDE.

- 4.7 LAY TOP BACK-UP BARS ALONG EDGES OF SLAB, INTERMEDIATE STRESSING JOINTS AND ADDED TENDON FIXED ENDS; THE BOTTOM AND TOP BACK-UP BARS TO ANCHORAGES OR TENDONS AS SHOWN ON SHOP DRAWINGS.
- 4.8 CHAIR UP SUPPORT BARS ACCORDING TO TENDON PROFILES SHOWN. PLACE TENDONS WITH SMOOTH HORIZONTAL CURVES AT ANCHORAGES AND AROUND OPENINGS AS SHOWN. FOR UNIFORM TENDONS, PLACE ONE CHAIR AT EACH INTERSECTION OF TENDON GROUP AND BAR. FOR BANGED TENDONS, PLACE ONE CHAIR AT EVERY OTHER INTERSECTION OF TENDON GROUP AND BAR (UNLESS NOTED OTHERWISE ON PLACING DRAWINGS). TIE CHAIR, TENDON GROUP AND BAR TOGETHER. BEAM TENDONS SHALL BE TIED DIRECTLY TO BEAM SUPPORT BARS IN BUNDLES AS SHOWN IN BEAM DETAILS.

- 4.9 CONCRETE SHALL BE PLACED IN SUCH A MANNER AS NOT TO DISTURB THE TENDON PROFILES. WORKERS MUST BE CAUTIONED AGAINST WALKING ON TENDONS OR SUPPORT BARS. ANY TENDON DISPLACED DURING CONCRETE PLACEMENT MUST BE RESTORED TO ITS ORIGINAL PROFILE BEFORE CONCRETE SETS.

**TENDON STRESSING**

- 5.1 THE STRESSING OPERATION MUST BE UNDER THE IMMEDIATE CONTROL OF A PERSON EXPERIENCED IN THIS TYPE OF WORK. THIS PERSON MUST MAINTAIN A CLOSE CHECK AND RIGID CONTROL OF ALL OPERATIONS.
- 5.2 THE STRESSING MUST NOT COMMENCE UNTIL CONCRETE TEST CYLINDERS, CURED UNDER JOB SITE CONDITIONS, HAVE BEEN TESTED AND INDICATE THAT THE CONCRETE HAS REACHED A MINIMUM STRENGTH OF 2500 P.S.I., BUT WITHIN 96 HOURS OF CONCRETE PLACEMENT.

- 5.3 ALL PRE STRESSING STEEL SHALL BE STRESSED BY MEANS OF VSL HYDRAULIC JACKS, EQUIPPED WITH HYDRAULIC PRESSURE GAUGES CALIBRATED EVERY 6 MONTHS. A CALIBRATION CHART SHALL ACCOMPANY EACH JACK AND GAUGE COMBINATION. HYDRAULIC JACKS AND GAUGES ARE CALIBRATED AS A UNIT, DO NOT INTERCHANGE.
- 5.4 THE STRESSING SEQUENCE SHALL BE AS FOLLOWS:

- 5.4.1 SLAB ON GRADE: STRESS ALL NORTH-SOUTH UNIFORM TENDONS; STRESS ALL EAST-WEST UNIFORM TENDONS.

**5.5 THE PROCEDURE FOR STRESSING SHALL BE AS FOLLOWS:**

- 5.5.1 REMOVE GROMMETS AT STRESSING ENDS AND COLLECT FOR RE-USE. INSPECT THE CASTING TAPER VOID TO INSURE THAT CEMENT PASTE OR OTHER DEBRIS IS NOT PRESENT IN ANCHORAGE. REMOVE IF PRESENT.
- 5.5.2 REMOVE EXCESS GREASE AND DIRT FROM STRAND TAIL BY USING RAGS. IT IS NOT NECESSARY TO THOROUGHLY CLEAN THE TAILS OR GREASE, ONLY TO REMOVE EXCESS SURFACE MATERIALS.
- 5.5.3 INSTALL PERMANENT WEDGES IN A SIDE-BY-SIDE (NOT OVER-AND-UNDER) POSITION, AND HAND SEAT IN ANCHORAGE CASTING USING HAND SEATING TOOL.

- 5.5.4 USING A DEVICE TO ESTABLISH A CONSTANT REFERENCE DIMENSION FROM THE FACE OF THE CONCRETE, MARK WITH A QUIK DRY SPRAY PAINT. (DO NOT USE LUMBER CRAYON) TO ESTABLISH A REFERENCE POINT FOR ELONGATION MEASUREMENTS. DO NOT OVER SPRAY; MARK SHOULD BE CLEAR AND NOT SMEARED OR SPREAD OUT OR AN ACCURATE MARKING WILL NOT BE ACHIEVED.

- 5.5.5 INSPECT JACK FOR LOOSE SCREWS, FITTINGS OR CONNECTIONS, AND TIGHTEN AS NECESSARY. CHECK JACK GRIPPERS TO INSURE THEY ARE CLEAN AND ALIGNED PROPERLY.
- 5.5.6 SEAT THE NOSEPIECE OF JACK CONCENTRICITY AGAINST THE ANCHORAGE CASTING AND CLOSE JACK GRIPPER JAWS EVENLY AGAINST STRAND. FAILURE TO DO SO MAY RESULT IN BROKEN OR DAMAGED STRANDS.

- 5.5.7 STRESS TENDONS TO 80% OF ULTIMATE STRENGTH OF STRAND, I.E. 33 KIPS (SEE JACK CALIBRATION CURVE FOR GAUGE PRESSURE).
- 5.5.8 PERMANENTLY SEAT THE WEDGES IN THE ANCHORAGE USING THE HYDRAULIC SEATING DEVICE BUILT INTO THE JACK.
- 5.5.9 REMOVE THE STRESSING JACK.

- 5.5.10 MEASURE FINAL ELONGATION AND RECORD. PLACE THE MARKING DEVICE AGAINST THE CONCRETE SURFACE AND MEASURE THE DISTANCE FROM MARKING DEVICE TO PAINT MARK. THIS DISTANCE WILL BE THE TENDON ELONGATION. ALL INFORMATION MUST BE FILLED IN ON THE STRESSING RECORDS.

- 5.6 THE POST-TENSIONING OPERATION SHALL BE CONDUCTED SO THAT ACCURATE ELONGATION OF THE PRE STRESSING STEEL CAN BE RECORDED AND COMPARED WITH CALCULATED ELONGATIONS. RECORDS SHALL BE KEPT OF ALL JACKING FORCES AND ELONGATIONS AND SUBMITTED PROMPTLY TO THE STRUCTURAL ENGINEER FOR HIS REVIEW. IF INCONSISTENCIES EXCEEDING ± 7% OCCUR BETWEEN CALCULATED AND MEASURED ELONGATION, THE CAUSE OF THE INCONSISTENCY SHALL BE DETERMINED AND RESOLVED.

- 5.7 TENDONS STRESSED FROM ONE END ONLY SHALL BE SO INDICATED ON THE PLACING DRAWINGS. TENDONS THAT ARE STRESSED FROM BOTH ENDS NEED NOT BE STRESSED FROM BOTH ENDS SIMULTANEOUSLY. THESE TENDONS MAY HAVE MORE ELONGATION AT ONE END THEN THE OPPOSITE END; ELONGATIONS FROM BOTH ENDS ARE ADDED AND THAT TOTAL COMPARED TO THE CALCULATED ELONGATION SHOWN.

- 5.8 SAFE OPERATING PROCEDURES SHOULD ALWAYS BE FOLLOWED:
- 5.8.1 READ CAUTION LABELS ON EQUIPMENT.
- 5.8.2 ALL EQUIPMENT SHOULD BE KEPT THOROUGHLY CLEAN AND IN A WORKING CONDITION. PRIOR TO COMMENCING THE STRESSING OPERATIONS, ALL NUTS, SCREWS, AND FITTINGS (ON THE JACKS), SHALL BE CHECKED TO INSURE THAT THEY ARE TIGHT. ALL PRESSURE FITTINGS AND HOSES SHOULD BE CHECKED FOR LEAKS. AFTER COMPLETING EACH DAY'S STRESSING OPERATION, THE EQUIPMENT SHALL BE THOROUGHLY CLEANED, INCLUDING GRIPPER ASSEMBLIES, AND STORED SO AS TO PREVENT DAMAGE WHILE EQUIPMENT IS NOT IN USE.

- 5.8.3 JACKS AND PUMPS SHALL BE SECURED TO A FIXED OBJECT BY MEANS OF SAFETY LINE TO PREVENT EQUIPMENT FROM BEING THROWN OFF BUILDING SHOULD TENDON, EQUIPMENT OR HYDRAULIC LINE FAIL DURING STRESSING.
- 5.8.4 ALL PERSONNEL NOT DIRECTLY INVOLVED IN THE STRESSING OR RECORDING OPERATION ARE TO REMAIN CLEAR OF THE STRESSING AND DEAD END AREAS UNTIL THE STRESSING OPERATION IS COMPLETE.

- 5.8.5 PERSONNEL DIRECTLY INVOLVED IN THE STRESSING OPERATIONS ARE TO REMAIN CLEAR OF THE TENDON BEING STRESSED AT ALL TIMES. NEVER PERMIT ANYONE TO STAND DIRECTLY BEHIND OVER, OR BESIDE THE TENDON OR JACK WHEN LOAD IS BEING APPLIED. EQUIPMENT OPERATOR SHOULD ALWAYS USE REMOTE CONTROL SWITCH PROVIDED WITH UNIT, MAINTAINING SIX (6) FEET CLEAR FROM UNIT; DO NOT STAND BETWEEN JACK AND PUMP UNIT. DO NOT ALLOW PERSONNEL TO BECOME ENTANGLED IN THE HYDRAULIC HOSES DURING STRESSING OPERATIONS.

- 5.8.6 ELONGATION MEASUREMENTS ARE NEVER TO BE TAKEN WHILE JACK IS UNDER LOAD. REMOVE JACK FROM STRAND PRIOR TO TAKING READINGS. PERSONNEL INVOLVED IN ELONGATION RECORDINGS ARE TO FOLLOW SAME SAFETY RULES AS EQUIPMENT OPERATORS.
- 5.8.7 NEVER ATTEMPT TO ADJUST POSITION OF JACK, EITHER BY STRIKING OR PUSHING, AFTER LOAD HAS BEEN APPLIED. RELEASE LOAD, REMOVE JACK AND REPOSITION IF NECESSARY.

- 5.8.8 DO NOT ALTER ANY EQUIPMENT SUPPLIED BY VSL. ANY DEFECTIVE PARTS ARE TO BE REPLACED ONLY BY QUALIFIED VSL PERSONNEL USING VSL SUPPLIED PARTS UNLESS INSTRUCTED OTHERWISE BY VSL. THIS INCLUDES THE COMPLETE TENSIONING UNIT INCLUDING PUMP, HOSES, FITTINGS, JACKS, COUPLERS AND GAUGES.
- 5.8.9 WHEN EQUIPMENT IS BEING MOVED BETWEEN FLOORS OR ADJACENT FLOORS BY MEANS OF HOISTING EQUIPMENT, GAUGES SHOULD BE REMOVED AND HAND CARRIED. DO NOT ATTEMPT TO TRANSPORT EQUIPMENT WHILE GAUGE IS STILL ATTACHED TO PUMP UNIT.

- 6.1 AFTER STRESSING IS COMPLETED, ELONGATION'S VERIFIED, AND STRUCTURAL ENGINEER HAS GIVEN APPROVAL, CUT OFF EXCESS TENDON STRAND APPROXIMATELY 1" AWAY FROM THE FACE OF THE ANCHORAGE. COAT EXPOSED TENDON AND ANCHORAGE WITH A RUST INHIBITOR.

- 6.2 A BONDING AGENT SHOULD BE APPLIED TO BLOCK OUT AND ANCHORAGE. THEN THE EXPOSED ANCHORAGE BLOCK OUT SHOULD BE FILLED. IT IS SUGGESTED THAT A NONMETALLIC, NON-SHRINK EPOXY MIX BE USED FOR THIS PURPOSE. PATCHING MATERIAL MUST BE NON-CORROSIVE TO TENDON ELEMENTS AND CONTAIN NO CHLORIDES, SULFATES, OR NITRATES.

- 7.1 ALL THE EQUIPMENT USED FOR HANDLING AND PLACING TENDONS MUST NOT DAMAGE OR DETERIORATE THE PRE STRESSING STEEL OR THE ANCHORAGES.
- 7.2 BURNING AND WELDING IN THE VICINITY OF THE TENDONS IS DISCOURAGED. CARE MUST BE TAKEN TO INSURE THAT TENDONS ARE NOT SUBJECT TO HIGH TEMPERATURES, WELDING SPARKS OR GROUND CURRENTS.

- 7.3 VSL PLACING DRAWINGS ARE INTENDED FOR TENDON AND SUPPORT BAR PLACEMENT ONLY. SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR EXACT LOCATION OF EDGE FORMS, OPENING, CHANGES OF LEVEL AND FINAL FINISHED CONCRETE ELEVATIONS OF SLABS AND BEAMS.
- 7.4 ALL INSERTS FOR SUSPENDED MECHANICAL AND ARCHITECTURAL WORK MUST BE CAST-IN-PLACE. IF ADDITIONAL FASTENERS ARE REQUIRED, POWER-DRIVEN FASTENERS WILL BE PERMITTED ONLY WHERE THEY WILL NOT SPALL THE CONCRETE AND NOT DAMAGE THE TENDONS. CONTRACTORS MUST LOCATE TENDONS AT THE SURFACE OF THE SLAB BEFORE DRIVING FASTENERS.

- 7.5 ALL POCKETS AND CLOSURE STRIPS REQUIRED FOR ANCHORAGES MUST BE ADEQUATELY REINFORCED SO AS NOT TO DECREASE THE STRENGTH OF THE STRUCTURE.
- 7.6 WHEN 6 OR MORE STRANDS ARE SPACED AT LESS THAN 12" O.C. HAIRPINS MUST BE USED AT THE ANCHORAGES AS SHOWN IN DETAIL OR AS SPECIFIED BY THE STRUCTURAL ENGINEER.

- 7.7 THESE STRESSING SAFETY GUIDELINES APPLY TO ALL STRAND AND HIGH STRENGTH BAR TENDONS BUT ARE NOT INTENDED TO BE COMPLETE GUIDELINES ADDRESSING ALL CONSIDERATIONS REQUIRED TO MAINTAIN SAFETY. IT IS THE RESPONSIBILITY OF THE PLACER (THE CONTRACTOR PERFORMING STRESSING OPERATIONS) TO HAVE THE TRAINING AND EXPERIENCE IN ALL EQUIPMENT OPERATIONS AND SAFETY REQUIREMENTS NECESSARY TO PREVENT PROPERTY DAMAGE AND MAINTAIN THE SAFETY OF JOBSITE PERSONNEL AND THE GENERAL PUBLIC.
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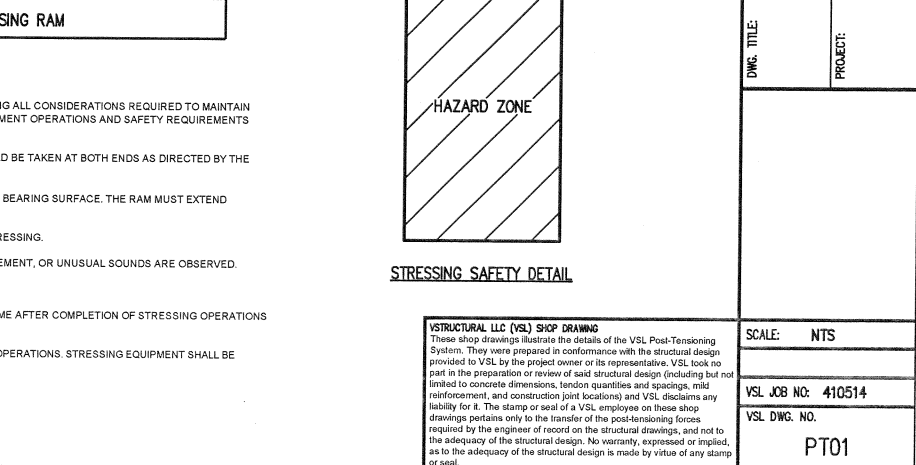
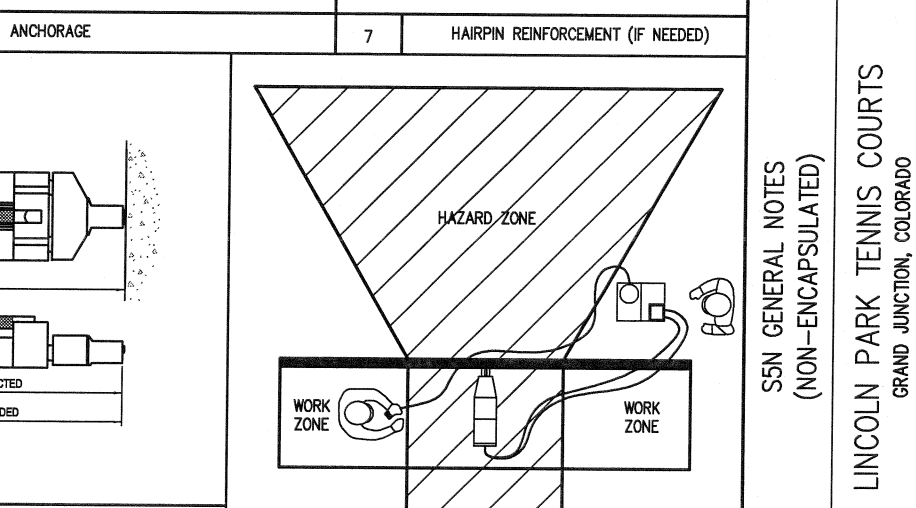
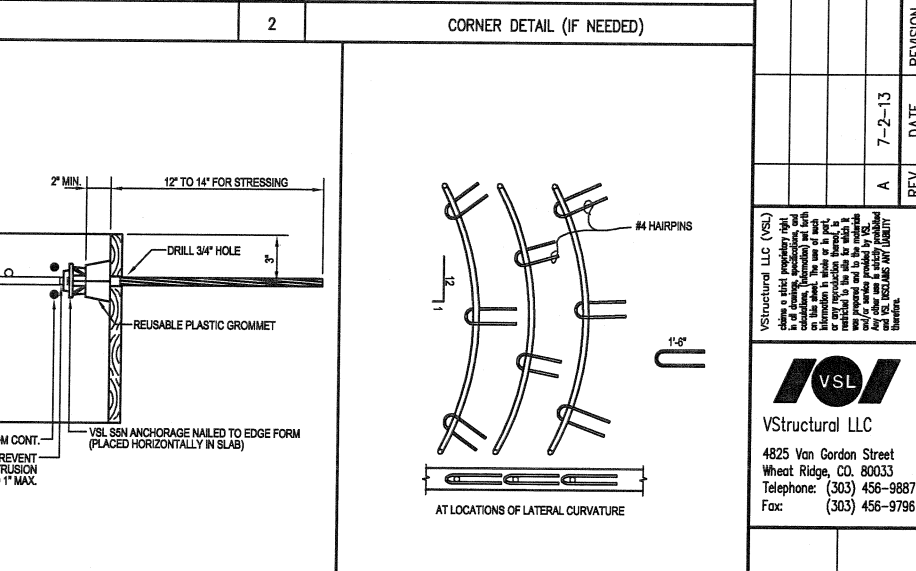
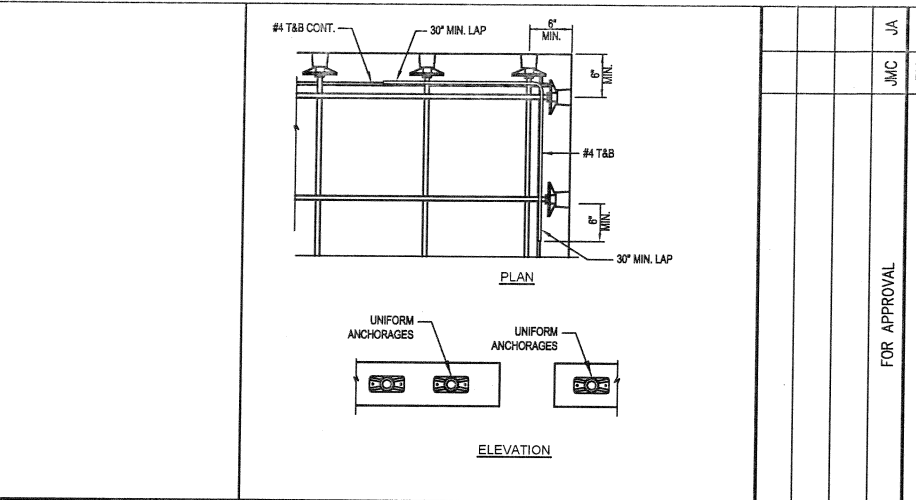
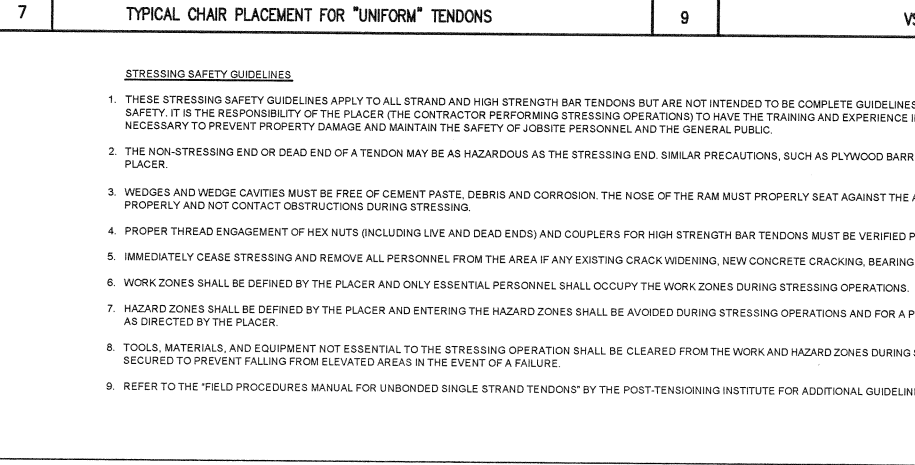
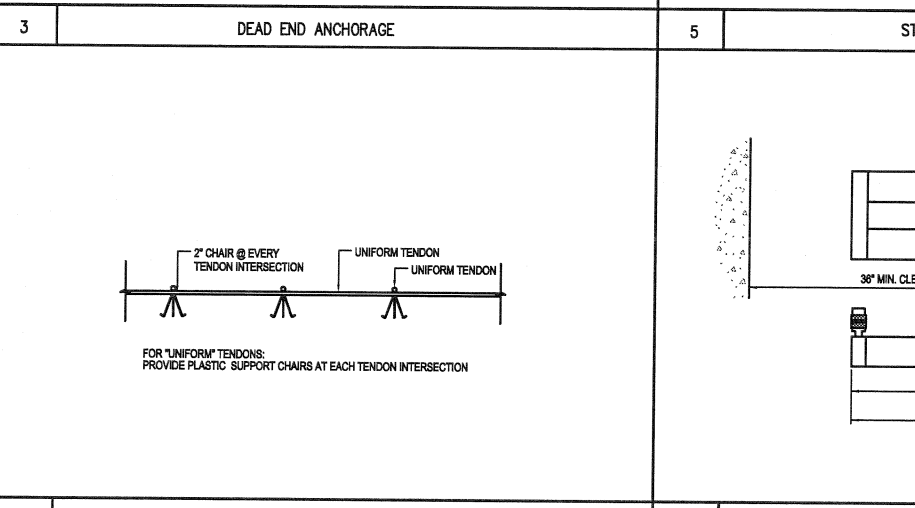
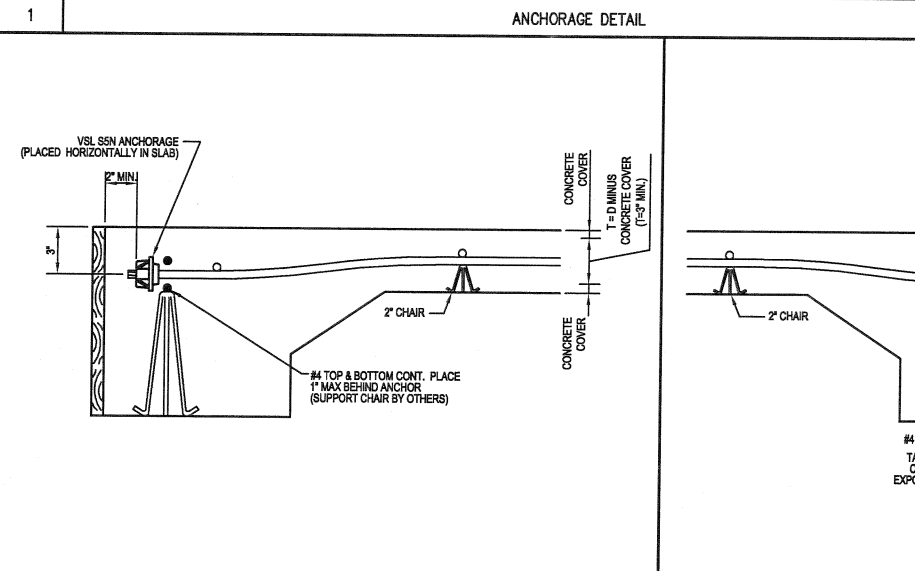
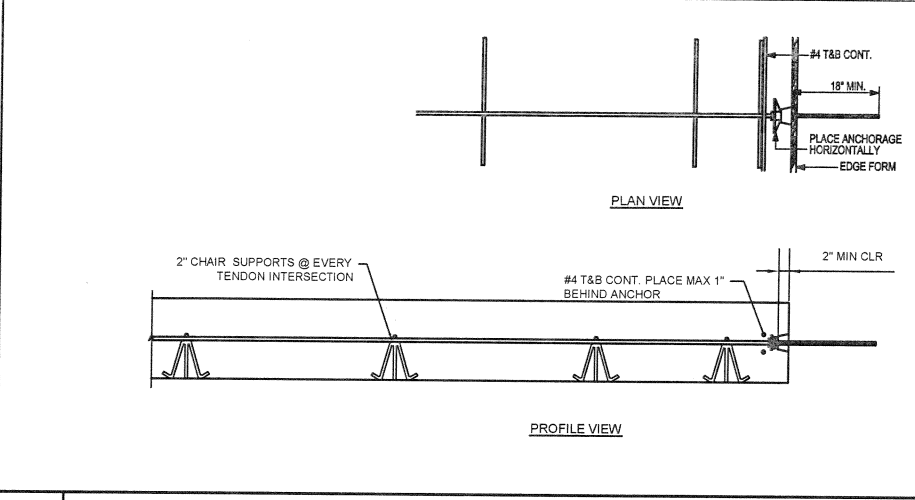
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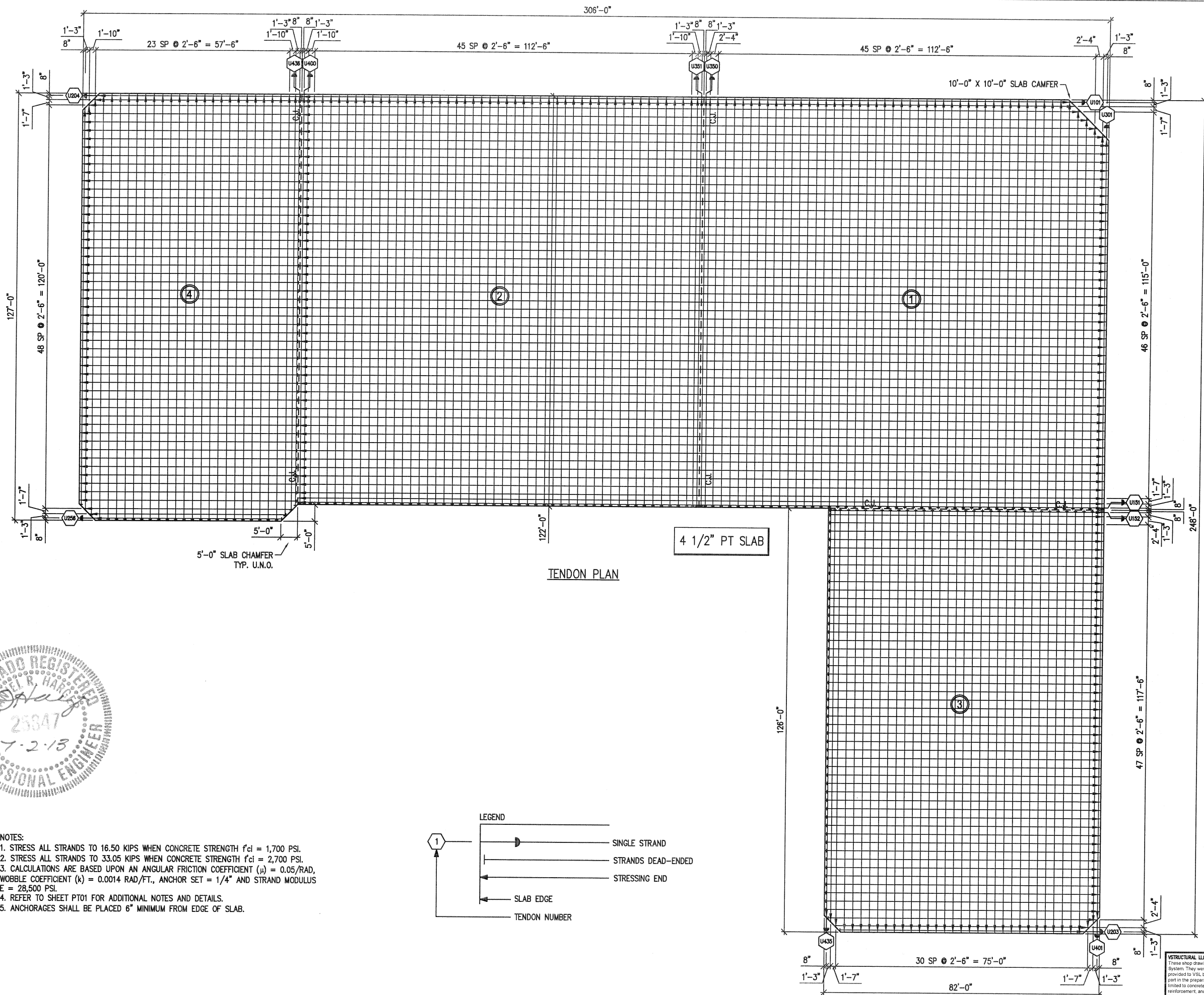
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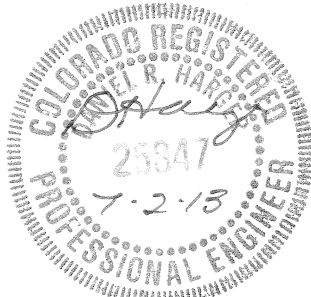
DATE	7-2-13
REV.	A
FOR APPROVAL	JMC
BY	CHK
REVISION	
<p>VStructural LLC (Vsl) designs a steel proprietary post-tensioning system for concrete structures. The use of such a system is subject to the approval of the local building authority and the local building department. The use of such a system is subject to the approval of the local building authority and the local building department. The use of such a system is subject to the approval of the local building authority and the local building department.</p>	
<p><b>VSL</b> VStructural LLC 4825 Van Gordon Street Wheat Ridge, CO. 80033 Telephone: (303) 456-9887 Fax: (303) 456-9796</p>	
<p>SSN GENERAL NOTES (NON-ENCAPSULATED)</p>	
<p>PROJECT: LINCOLN PARK TENNIS COURTS GRAND JUNCTION, COLORADO</p>	
SCALE:	NTS
VSL JOB NO:	410514
VSL DWG. NO.	PT01



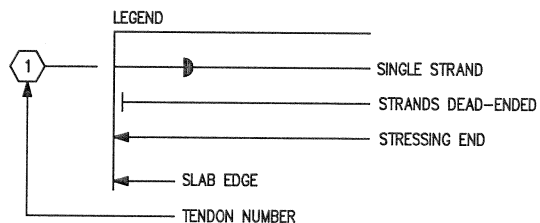
TENDON PLAN

4 1/2" PT SLAB

5'-0" SLAB CHAMFER  
TYP. U.N.O.



- NOTES:
1. STRESS ALL STRANDS TO 16.50 KIPS WHEN CONCRETE STRENGTH  $f'_{ci} = 1,700$  PSI.
  2. STRESS ALL STRANDS TO 33.05 KIPS WHEN CONCRETE STRENGTH  $f'_{ci} = 2,700$  PSI.
  3. CALCULATIONS ARE BASED UPON AN ANGULAR FRICTION COEFFICIENT  $(\mu) = 0.05/\text{RAD}$ , WOBBLE COEFFICIENT  $(k) = 0.0014 \text{ RAD/FT.}$ , ANCHOR SET =  $1/4"$  AND STRAND MODULUS  $E = 28,500$  PSI.
  4. REFER TO SHEET PT01 FOR ADDITIONAL NOTES AND DETAILS.
  5. ANCHORAGES SHALL BE PLACED 6" MINIMUM FROM EDGE OF SLAB.



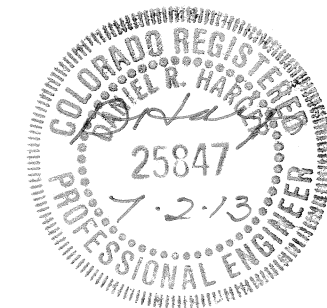
VSTRUCTURAL LLC (VSL) SHOP DRAWING  
These shop drawings illustrate the details of the VSL Post-Tensioning System. They were prepared in conformance with the structural design provided to VSL by the project owner or its representative. VSL took no part in the preparation or review of said structural design (including but not limited to concrete dimensions, tendon quantities and spacings, mild reinforcement, and construction joint locations) and VSL disclaims any liability for it. The stamp or seal of a VSL employee on these shop drawings pertains only to the transfer of the post-tensioning forces required by the engineer of record on the structural drawings, and not to the adequacy of the structural design. No warranty, expressed or implied, as to the adequacy of the structural design is made by virtue of any stamp or seal.

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TENDON SCHEDULE							
TENDON(S)	POUR	QUANTITY	STRAND LENGTH (FT)	KIND	TYPE	CONCRETE LENGTH (FT)	ELONG1 (IN)
U101	1	1	233	UNIFORM	<----->	229.67	18.80
U102	1	1	234	UNIFORM	<----->	230.92	18.89
U103	1	1	236	UNIFORM	<----->	232.50	19.01
U104	1	1	238	UNIFORM	<----->	235.00	19.21
U105	1	1	241	UNIFORM	<----->	237.50	19.40
U106	1	1	243	UNIFORM	<----->	240.00	19.59
U107-U151	1	45	244	UNIFORM	<----->	241.00	19.67
U152-U200	3	49	84	UNIFORM	----->	82.00	6.80
U201	3	1	82	UNIFORM	----->	80.50	6.67
U202	3	1	78	UNIFORM	----->	75.83	6.29
U203	3	1	75	UNIFORM	----->	73.33	6.09
U204	4	1	63	UNIFORM	----->	60.67	5.04
U205	4	1	64	UNIFORM	----->	61.92	5.14
U206	4	1	65	UNIFORM	----->	63.50	5.28
U207-U253	4	47	67	UNIFORM	----->	65.00	5.40
U254	4	1	64	UNIFORM	----->	62.00	5.15
U255	4	1	61	UNIFORM	----->	58.83	4.89
U256	4	1	58	UNIFORM	----->	56.33	4.68
U301	1	1	113	UNIFORM	----->	110.67	9.07
U302	1	1	114	UNIFORM	----->	111.92	9.17
U303	1	1	116	UNIFORM	----->	114.25	9.35
U304	1	1	119	UNIFORM	----->	116.75	9.55
U305	1	1	121	UNIFORM	----->	119.25	9.74
U306	1	1	124	UNIFORM	----->	121.75	9.93
U307-U350	1	44	124	UNIFORM	----->	122.00	9.95
U351-U400	2	50	124	UNIFORM	----->	122.00	9.95
U401	3	1	124	UNIFORM	----->	121.67	9.92
U402	3	1	125	UNIFORM	----->	122.92	10.02
U403	3	1	126	UNIFORM	----->	124.50	10.14
U404-U432	3	29	128	UNIFORM	----->	126.00	10.26
U433	3	1	126	UNIFORM	----->	124.50	10.14
U434	3	1	125	UNIFORM	----->	122.92	10.02
U435	3	1	124	UNIFORM	----->	121.67	9.92
U436	4	1	125	UNIFORM	----->	122.67	10.00
U437	4	1	126	UNIFORM	----->	123.92	10.10
U438	4	1	128	UNIFORM	----->	125.75	10.24
U439-U460	4	22	129	UNIFORM	----->	127.00	10.33
U461	4	1	126	UNIFORM	----->	124.50	10.14
U462	4	1	123	UNIFORM	----->	120.83	9.86
U463	4	1	120	UNIFORM	----->	118.33	9.67

STRAND AND ANCHOR SUMMARY					
POUR	TOTAL QUANTITY	TOTAL STRAND LENGTH (FT)	S5N		
			DE	SO	SE
1	101	18,568	50	0	152
2	50	6,200	50	0	50
3	87	8,813	87	0	87
4	81	7,110	81	0	81
TOTALS:	319	40,691	268	0	370

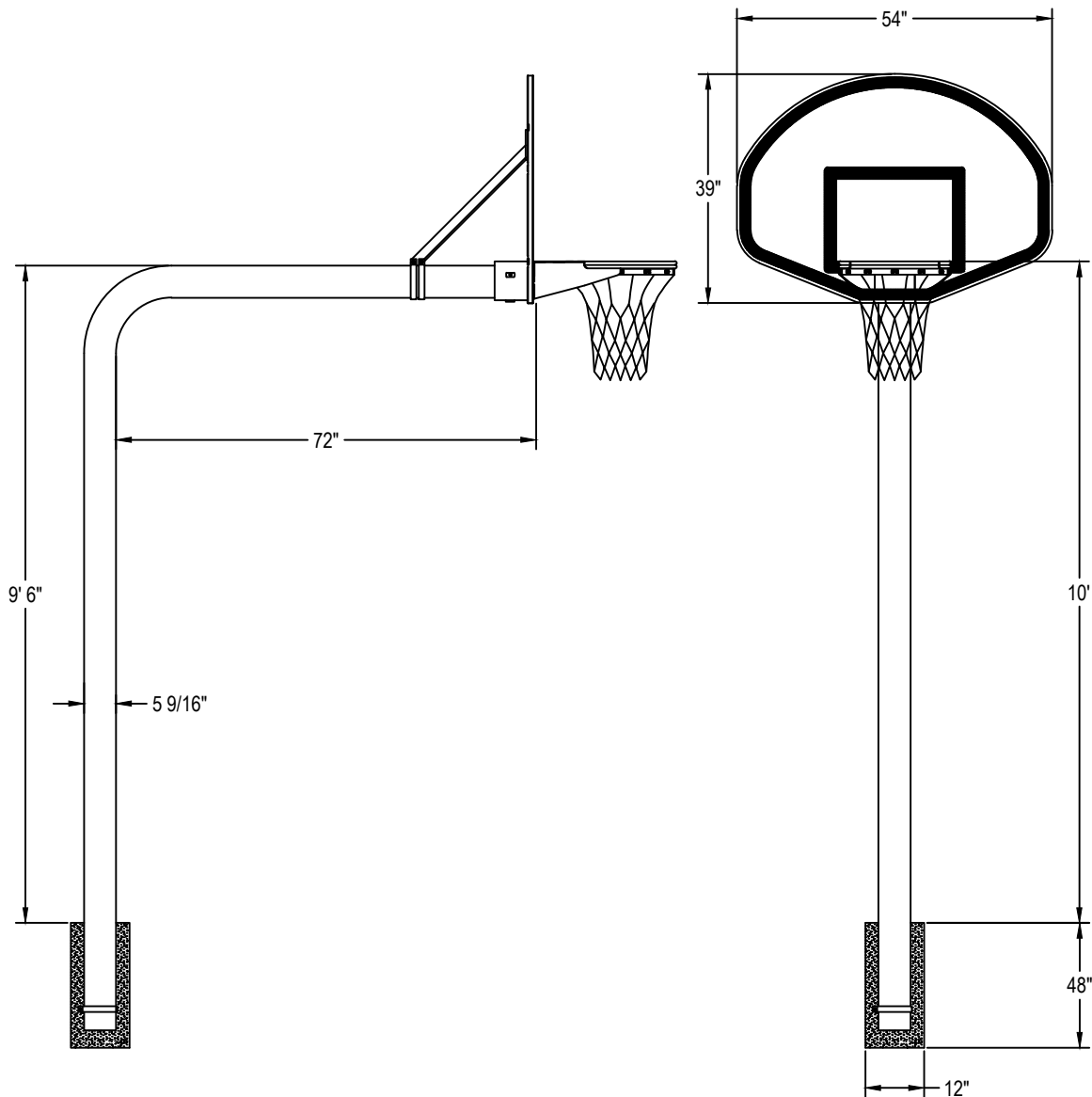


<p><b>TENDON SCHEDULE</b></p> <p><b>LINCOLN PARK TENNIS COURTS</b> GRAND JUNCTION, COLORADO</p>	<p>FOR APPROVAL</p> <p>REVISION</p>
<p>REV. A</p> <p>DATE 7-2-13</p>	<p>BY JMC</p> <p>CHK JA</p>
<p>VStructural LLC (VSL) shop drawings illustrate the details of the VSL Post-Tensioning System. They were prepared in conformance with the structural design provided to VSL by the project owner or its representative. VSL took no part in the preparation or review of said structural design (including but not limited to concrete dimensions, tendon quantities and spacings, mild reinforcement, and construction joint locations) and VSL disclaims any liability for it. The stamp or seal of a VSL employee on these shop drawings pertains only to the transfer of the post-tensioning forces required by the engineer of record on the structural drawings, and not to the adequacy of the structural design. No warranty, expressed or implied, as to the adequacy of the structural design is made by virtue of any stamp or seal.</p>	
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SCALE: SCALE

VSL JOB NO: JOB\_NO

VSL DWG. NO. PT03



Pole shall be constructed of 5 9/16" outside diameter schedule 40 structural pipe and have a hot dipped galvanized finish. Design shall be a bent gooseneck style and allow for a 48" bury into the ground and a 72" extension from the front of the pole to the face of the backboard. Two 1 5/8" diameter, 13 ga. flow coated galvanized tubular braces shall support the top of the backboard and connect directly to the pole. Pole shall be designed so that the rim mounts directly to the horizontal pole section through the backboard to eliminate stress on the backboard during play. Pole systems without backboard support braces shall not be considered equal. Pole shall carry a limited lifetime warranty. Backboard shall be constructed of formed and welded steel with a 39" x 54" fan-shaped playing surface. Skin shall be 12 ga. mild steel and support structure shall be 7 ga. and 10 ga. All skin edges shall be formed to create a 1 1/2" lip to add strength. The backboard shall be coated with a white polyester powder coated finish and have an official orange shooter's square and border. Backboard shall accept rims with a 5"x 5" hole pattern and be manufactured in the USA. Backboard shall carry a minimum 10-year limited warranty. Rim shall consist of two 5/8" diameter AISI 1018 cold drawn carbon steel rings welded together at a minimum of six places. Back and side plates shall be 3/16" thick and be continuously welded. The net attachment system shall be of a continuous type constructed of 3/16" x 1" steel with punched net attachment slots suitable for nylon ( included ) or chain ( optional ) nets. Individual or continuous wire formed netlocks are not an acceptable equal. Rim shall be punched to mount on any front mount backboard, have an unconditional lifetime warranty and orange powder coated finish. Mounting hardware shall be included. Rim shall be made in the USA. Installation to be completed in accordance with manufacturer's instructions. Do not scale drawings. Entire system shall weigh approximately 405#.



## PRODUCT SPECIFICATION

PR76 MEGA-DUTY STEEL FAN GOOSENECK PLAYGROUND SYSTEM

REVISED 7/1/17