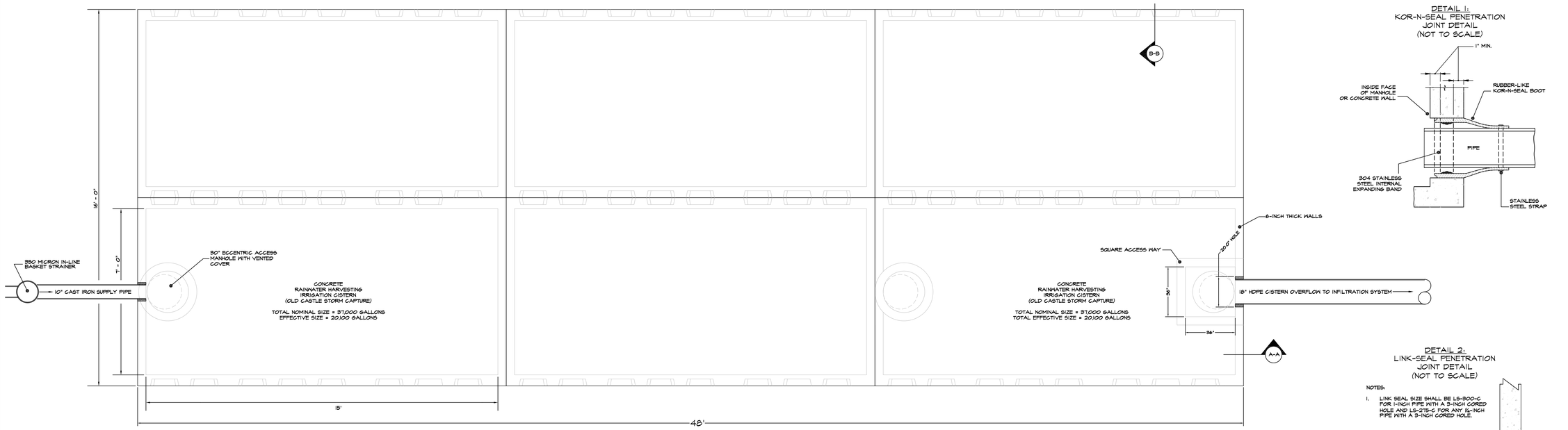
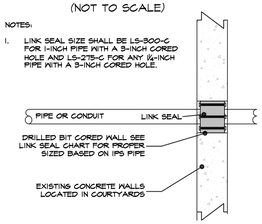


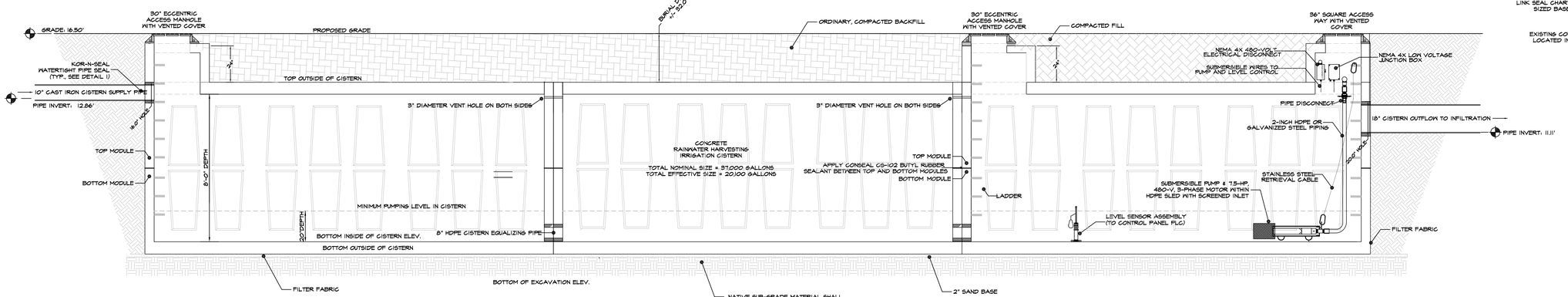
CISTERN PLAN VIEW

DETAIL 1:
KOR-N-SEAL PENETRATION JOINT DETAIL
(NOT TO SCALE)

DETAIL 2:
LINK-SEAL PENETRATION JOINT DETAIL
(NOT TO SCALE)

NOTES:
1. LINK SEAL SIZE SHALL BE LS-300-C FOR 1-INCH PIPE WITH A 3-INCH CORED HOLE AND LS-275-C FOR ANY 1¼-INCH PIPE WITH A 3-INCH CORED HOLE.





SECTION A-A

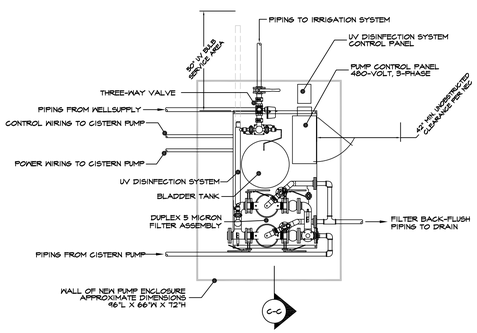
IRRIGATION CISTERN AND PUMPING NOTES

INSTALLATION NOTES

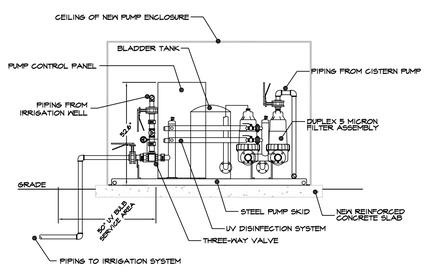
1. INSTALLATION OF CISTERN MODULES SHALL BE INSTALLED IN ACCORDANCE WITH ASTM C891-40, INSTALLATION OF UNDERGROUND PRECAST UTILITY STRUCTURES.
2. VERTICAL WALLS AND THE BOTTOM OF CISTERN SHALL BE COVERED BY A NON-WOVEN 6XD-TEXTILE FILTER FABRIC.
3. ALL EXTERIOR SYSTEM JOINTS SHALL BE COVERED WITH A 6-INCH JOINT WRAP PER APPROVAL OF MANUFACTURER.
4. BACKFILLING OF CISTERN SHALL BE IN 12-INCH LIFTS WITH PROPER COMPACTION BETWEEN LIFTS.
5. BACKFILL MATERIAL SHALL BE COMPACTED TO 95% STANDARD PROCTOR DENSITY.
6. EXPANSIVE SOIL MATERIAL SHALL NOT BE USED AS BACKFILL AROUND CISTERN AND RISERS.
7. DE-WATERING IS REQUIRED WITHIN EXCAVATED AREA. CONTRACTOR SHALL PROVIDE ALL NECESSARY PUMPS AND APPURTENANCES TO MAINTAIN A DRY EXCAVATED AREA FOR THE DURATION OF THE INSTALLATION PROCESS.
8. CISTERN SUB-GRADE SHALL BE COMPACTED TO A MINIMUM BEARING CAPACITY OF 2500PSF. SUB-GRADE MUST BE LEVEL AND COMPACTED PRIOR TO PLACEMENT OF CISTERN MODULES.
9. ALL CISTERN AND MANHOLE WALL CONDUIT AND PIPE PENETRATIONS SHALL BE WATERTIGHT.
10. CONTRACTOR SHALL PROVIDE ALL NECESSARY CONDUITS AND PENETRATIONS.
11. ALL WIRING SHALL BE DONE IN STRICT ACCORDANCE WITH ALL LOCAL, STATE AND NATIONAL ELECTRIC CODE.
12. CONTRACTOR SHALL PROVIDE SUBMERSIBLE LEVEL TRANSMITTER WITH ENOUGH FACTORY PROVIDED CABLE TO ATTACH DIRECTLY TO THE PUMP CONTROL PANEL. NO SPLICES ARE ALLOWED BETWEEN TRANSMITTER AND CONTROL PANEL. CABLE SHALL BE VENTED DEPTH CABLE, SHIELDED.
13. PUMP CONTROL SYSTEM ENCLOSURES AT THE CISTERN SHALL BE NEMA 4X AND SHALL BE LARGE ENOUGH TO CONTAIN ALL SPECIFIED AND REQUIRED COMPONENTS.
14. POWER SUPPLY FOR SUBMERSIBLE IRRIGATION PUMP SHALL BE 480-VOLT, 3-PHASE ORIGINATING FROM PUMP CONTROL PANEL WITHIN NEW PUMP SYSTEM ENCLOSURE.
15. CONTRACTOR MUST SUBMIT SHOP DRAWINGS AS PER THE WRITTEN SPECIFICATIONS TO THE ENGINEER FOR APPROVAL PRIOR TO ORDERING MATERIAL AND BEGINNING WORK.
16. ONCE APPROVED SUBMITTALS HAVE BEEN RETURNED TO THE CONTRACTOR, WORK MAY BEGIN. THE ENGINEER MUST BE NOTIFIED A MINIMUM OF 7-DAYS IN ADVANCE OF THE START OF WORK TO COORDINATE ON-SITE SUPERVISION AND ADMINISTRATION.

AFTER CONSTRUCTION

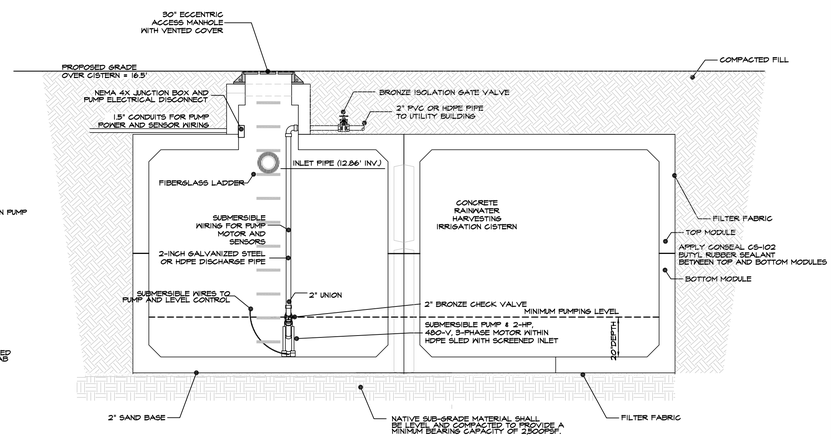
1. PERIODICALLY CHECK INSIDE CISTERN FOR PERFORMANCE AND OPERATION.
2. SERVICE PUMP BY DISCONNECTING UNIONS AND PULLING TO SERVICE WITH CHAIN.
3. SUGGESTED CISTERN MAINTENANCE INCLUDES SPRING AND FALL CLEANING BY VACUUM TRUCK.
4. ONLY OSHA-CERTIFIED PERSONNEL SHALL ENTER CISTERN (CONFINED SPACE)



PUMP CONTROL SKID PLAN VIEW



SECTION C-C



SECTION B-B

Project:

CITY OF SOMERVILLE

LINCOLN PARK
290 Washington Street
Somerville, MA 02143

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Weston&Sampson's DESIGN STUDIO
85 Devonshire Street, 3rd Floor
Boston, MA 02109
(617) 412-4480 (800) Sampson
www.westonandsampson.com

Consultants:
Weston&Sampson
Irrigation Consulting, Inc.
SITE DESIGN GROUP, INC.

North:

Revisions:

Rev	Date	Description
1	03/07/16	ADDENDUM #1

Seal:

Jeffrey R. Bowman — Certified Irrigation Designer — 003634 — Commercial Golf Course

CONSTRUCTION DOCUMENTS

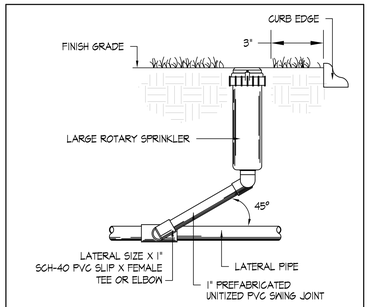
Date:	02.24.2016
Scale:	NONE
Drawn By:	JB/GBL
Reviewed By:	JB/GBL
Checked By:	JB/GBL
Approved By:	JB

Drawing Title:

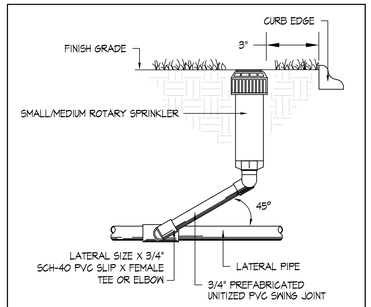
IRRIGATION WATER SUPPLY DETAILS

Sheet Number:

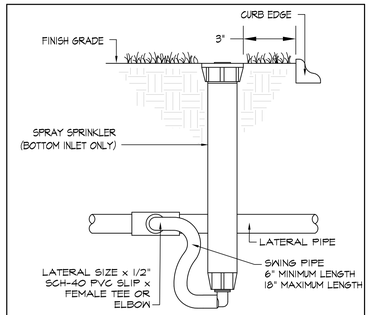
I2.02



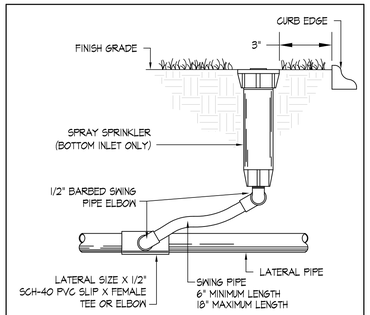
1 LARGE ROTARY SPRINKLER DETAIL
NO SCALE



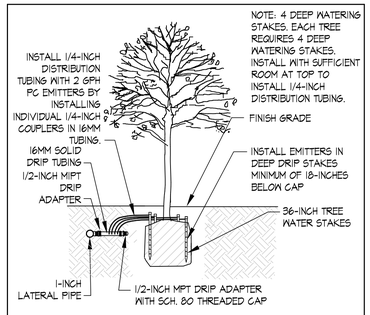
2 ROTARY SPRINKLER DETAIL
NO SCALE



3 12" POP-UP SPRAY SPRINKLER DETAIL
NO SCALE

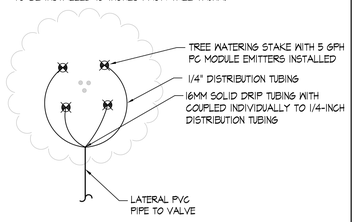


4 SPRAY SPRINKLER DETAIL
NO SCALE

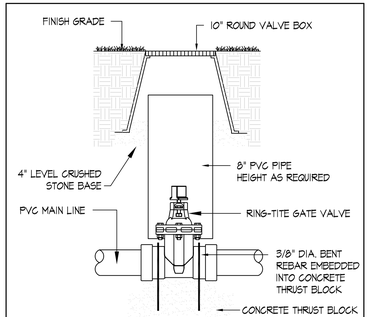


5 36-INCH TREE WATERING STAKE
NO SCALE

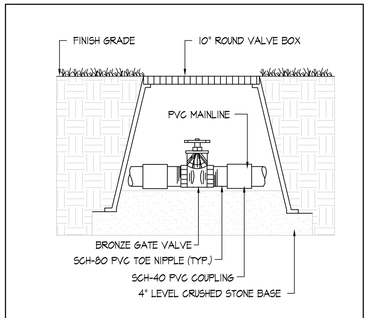
NOTE: TREE WATERING STAKES SHALL BE DRIVEN INTO THE ROOT BALL WITH ONLY THE CAP ABOVE GRADE. 1/4" DISTRIBUTION TUBING SHALL BE CONNECTED TO THE 16 MM SOLID TUBING. 1/4 INCH TUBING SHALL BE INSTALLED BELOW GRADE AND INSERTED INTO THE TREE STAKE INLET. TREES SHALL RECEIVE 2 GPH PC-MODULE EMITTERS. TREE STAKES TO BE INSTALLED 18-INCHES FROM TREE TRUNK.



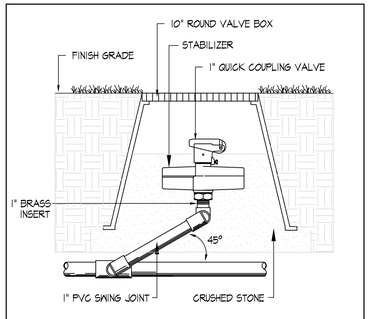
6 TREE PIT WATERING STAKE- PLAN VIEW
NO SCALE



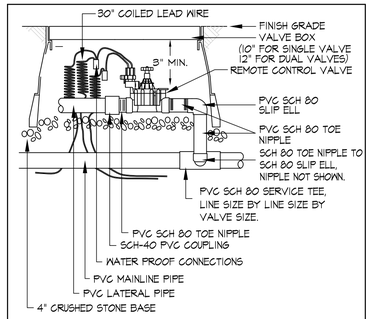
7 ISOLATION GATE VALVE DETAIL
NO SCALE (3 INCH)



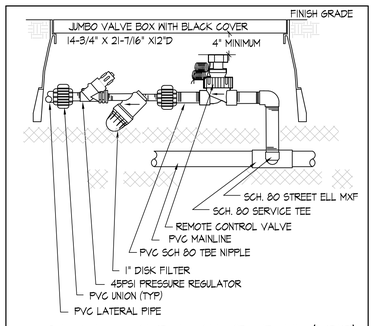
8 ISOLATION GATE VALVE DETAIL
NO SCALE (2-1/2" AND SMALLER)



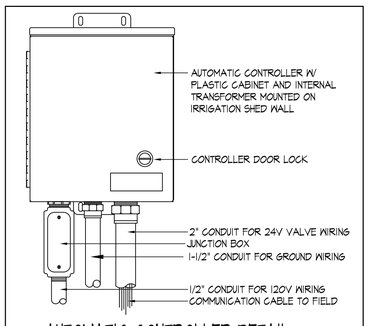
9 QUICK COUPLING VALVE DETAIL
NO SCALE



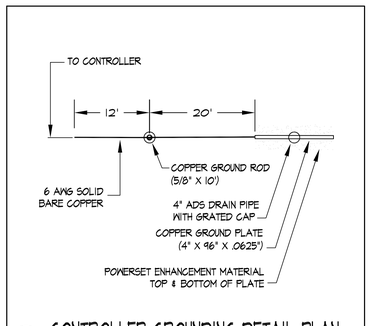
10 24 VOLT ELECTRIC VALVE DETAIL
NO SCALE



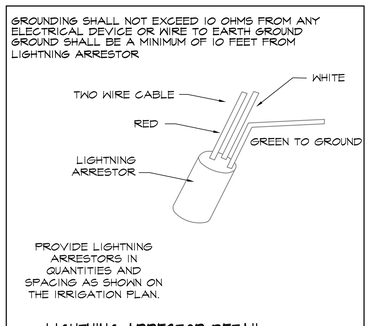
11 24-VOLT CONTROL VALVE DETAIL (DRIP)
NO SCALE PVC PIPING



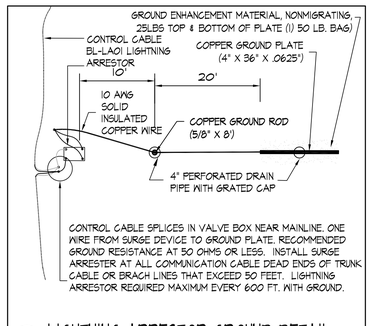
12 AUTOMATIC CONTROLLER DETAIL
NO SCALE



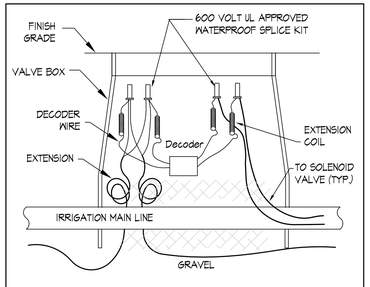
13 CONTROLLER GROUNDING DETAIL-PLAN
NO SCALE



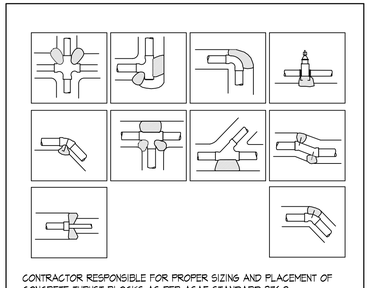
14 LIGHTNING ARRESTOR DETAIL
NO SCALE



15 LIGHTNING ARRESTOR GROUND DETAIL
NO SCALE

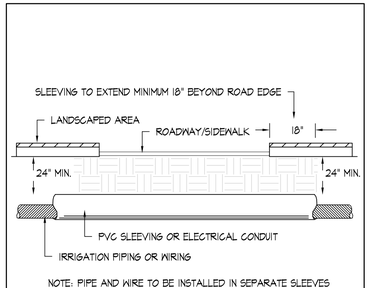


16 DECODER IN VALVE BOX DETAIL
NO SCALE



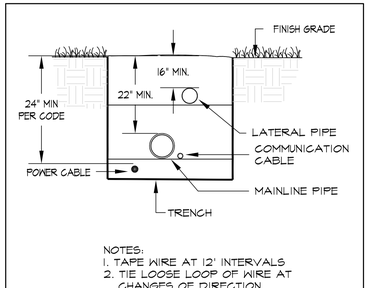
CONTRACTOR RESPONSIBLE FOR PROPER SIZING AND PLACEMENT OF CONCRETE THRUST BLOCKS AS PER ASAE STANDARD 376.2 THRUST BLOCKS REQUIRED ON BELL & GASKET PIPE AND FITTINGS ONLY.

17 THRUST BLOCKING DETAIL
NO SCALE



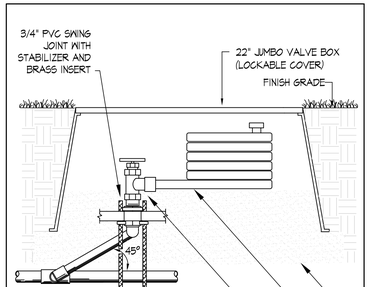
NOTE: PIPE AND WIRE TO BE INSTALLED IN SEPARATE SLEEVES ADJACENT TO EACH OTHER.

18 PIPE AND WIRE SLEEVE DETAIL
NO SCALE



NOTES:
1. TAPE WIRE AT 12' INTERVALS
2. TIE LOOSE LOOP OF WIRE AT CHANGES OF DIRECTION

19 TRENCH AND WIRE DETAIL
NO SCALE



20 HOSE BIB/VALVE BOX DETAIL
NO SCALE

Project:

CITY OF SOMERVILLE

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Consultants:

Weston&Sampson
Irrigation Consulting, Inc.
SITE DESIGN GROUP, INC.

North:

Revisions:

Rev	Date	Description
1	03/07/16	ADDENDUM #1

Seal:

JEFFREY R. BOWMAN
CERTIFIED IRRIGATION DESIGNER
003634
COMMERCIAL GOLF COURSE

CONSTRUCTION DOCUMENTS

Date:	02.24.2016
Scale:	NONE
Drawn By:	JW
Reviewed By:	JB
Checked By:	JB
Approved By:	JB

Drawing Title:

IRRIGATION DETAILS

Sheet Number:

I-2.01

Lincoln Park Skate Park - 290 Washington St. Somerville, MA 02143

skate park general construction notes

1. GENERAL

1.1 CONSIDER GENERAL NOTES AS APPLYING TO ALL DRAWINGS.

1.2 NOTIFY SKATE PARK DESIGNER OF ANY DISCREPANCIES IN THESE PLANS.

1.3 PERFORM ALL WORK IN ACCORDANCE WITH ALL APPLICABLE NATIONAL, STATE AND/OR LOCAL BUILDING CODES.

1.4 THE SKATE PARK DESIGNER SHALL HAVE NO CONTROL OR CHARGE OF, NOR BE RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, OR PROCEDURES, SAFETY PRECAUTIONS, AND PROGRAMS IN CONNECTION WITH THE WORK, THE ACTS OR OMISSIONS OF THE CONTRACTOR, SUBCONTRACTOR, OR ANY PERSONS PERFORMING ANY OF THE WORK OR FOR THE FAILURE OF ANY OF THEM TO CARRY OUT THE WORK IN CONFORMANCE WITH THE CONTRACT DOCUMENTS.

1.5 THE CONTRACTOR SHALL WARRANTY ALL OF THEIR WORK DURING CONSTRUCTION AND A MINIMUM OF ONE YEAR AFTER THE PROJECT IS COMPLETED.

1.6 THE METRIC EQUIVALENT "[ ]" DIMENSIONS ARE SHOWN FOR REFERENCE ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY THEIR ACCURACY.

2. DESIGN CRITERIA

2.1 CODE: COMPLY WITH 2012 INTERNATIONAL BUILDING CODE, AS AMENDED BY THE CITY.

2.2 SEISMIC:

SEISMIC DESIGN CATEGORY "B"
SPECTRAL RESPONSE: Ss = 0.2194 S1 = 0.0698
Sds = 0.234 Sd1 = 0.112
SITE CLASS "D"

2.3 WIND:

3-SECOND GUST WIND SPEED 130 M.P.H. (ULT) / 100 M.P.H. (ASD)
IMPORTANCE FACTOR I = 1.0
WIND EXPOSURE "C"

3. FOUNDATIONS

3.1 THE SKATE PARK DESIGNER AND IT'S ENGINEERS ARE NOT RESPONSIBLE FOR ANY GEOTECHNICAL DESIGN ASPECTS OF THIS PROJECT. THE CONTRACTOR SHALL EMPLOY A REGISTERED GEOTECHNICAL ENGINEER TO PERFORM NECESSARY TESTING AND QUALITY CONTROL INSPECTIONS TO ENSURE THAT THE REQUIREMENTS OF THE SOILS REPORT ARE COMPLIED WITH. ALL EARTHWORK SHALL BE INSPECTED AND APPROVED BY THE GEOTECHNICAL ENGINEER.

3.2 PER NINYO & MOORE GEOTECHNICAL EVALUATION REPORT NO.: S2042, DATED SEPTEMBER 21, 2012. SPREAD OR CONTINUOUS FOOTINGS (IF APPLICABLE) SHALL BEAR ON FIRM UNDISTURBED SOIL AT 1'-6" MINIMUM BELOW LOWEST ADJACENT GRADE. FOOTINGS MAY BE DESIGNED USING A NET ALLOWABLE BEARING PRESSURE OF UP TO 3,000 POUNDS PER SQUARE FOOT (PSF) FOR STATIC CONDITIONS.

4. CONCRETE & REINFORCEMENT WORK

4.1 CONCRETE MIXES SHALL BE DESIGNED BY A TESTING LABORATORY AND APPROVED BY THE SKATE PARK DESIGNER. MIXES SHALL CONFORM TO APPLICABLE BUILDING CODE REQUIREMENTS, REGARDLESS OF OTHER MINIMUM REQUIREMENTS SPECIFIED HEREIN OR ON THE DRAWINGS. MIX DESIGNS SHALL BE SUBMITTED TO THE SKATE PARK DESIGNER FOR APPROVAL BEFORE USE. DESIGNS SHALL SHOW PROPORTIONS OF CEMENT, FINE AND COARSE AGGREGATES AND WATER, AND GRADATION OF COMBINED AGGREGATES.

4.2 CEMENT: ASTM C150. TYPE II. CEMENT SHALL BE OF SAME BRAND, TYPE AND SOURCE THROUGHOUT PROJECT. WHERE AGGREGATES ARE POTENTIALLY REACTIVE, USE LOW ALKALI CEMENT.

4.3 AGGREGATES SHALL CONFORM TO ASTM C33.

4.4 NO ADMIXTURES WITHOUT APPROVAL. ADMIXTURES CONTAINING CHLORIDES SHALL NOT BE USED. CONCRETE SHALL NOT BE IN CONTACT WITH ALUMINUM.

4.5 CONCRETE MIX DESIGN:

4.5.1. PROVIDE MIX DESIGNS THAT WILL MEET THE MINIMUM REQUIREMENTS LISTED BELOW. INCREASE CEMENT CONTENT OVER THAT SHOWN, IF REQUIRED TO OBTAIN THE COMPRESSIVE STRENGTH:

MIN. 28-DAY COMPRESSIVE STRENGTH (PSI)	MIN. CEMENT CONTENT (POUNDS)	MAX. SLUMP (INCHES)	MAX. AGGREGATE SIZE (INCHES)	MAX. AIR ENTRAINING (PERCENT)	CONCRETE TYPE
4000 [27.56MPa]	480 [217.72kg]	4" [10.16cm]	1" [2.54cm]	5 - 6 %	II

4.6 SHOTCRETE MIX DESIGN:

4.6.1 ACI STANDARD 506, LATEST EDITION, "SPECIFICATION FOR MATERIALS, PROPORTIONING AND APPLICATION OF SHOTCRETE" AND ACI 506.2, LATEST EDITION, "RECOMMENDED PRACTICES FOR SHOTCRETE" SHALL BE FOLLOWED.

4.6.2 MIX DESIGNS FOR SHOTCRETE CONTAINING FLY ASH SHALL BE BY AN INDEPENDENT TESTING LABORATORY. ONLY ASTM C618 CLASS F FLY ASH SHALL BE USED. THE AMOUNT OF FLY ASH USED SHALL NOT EXCEED 20 PERCENT BY WEIGHT OF THE COMBINED WEIGHT OF FLY ASH PLUS CEMENT.

4.6.3 PROVIDE MIX DESIGNS THAT WILL MEET THE MINIMUM REQUIREMENTS LISTED BELOW. INCREASE CEMENT CONTENT OVER THAT SHOWN, IF REQUIRED TO OBTAIN THE COMPRESSIVE STRENGTH:

MIN. 28-DAY COMPRESSIVE STRENGTH (PSI)	MIN. CEMENT CONTENT (POUNDS)	MAX. SLUMP (INCHES)	MAX. AGGREGATE SIZE (INCHES)	MAX. AIR ENTRAINING (PERCENT)	CONCRETE TYPE
4000 [27.56MPa]	600 [272.16kg]	2" [5.08cm]	3/8" [0.95cm]	5 - 6 %	II

4.6.4 SURFACE PREPARATION: EXPOSED EXISTING CONCRETE SHALL BE SANDBLASTED CLEAN. SURFACES SHALL BE FOLLOWED BY WETTING AND DAMP DRYING JUST PRIOR TO SHOTCRETE APPLICATION.

4.6.5 ANY REBOUND OR ACCUMULATED LOOSE AGGREGATE SHALL BE REMOVED FROM THE SURFACES TO BE COVERED PRIOR TO PLACING THE INITIAL OR ANY SUCCEEDING LAYERS OF SHOTCRETE. REBOUND SHALL NOT BE REUSED AS AGGREGATE.

4.6.6 JOINTS IN WALL POURS ARE PERMISSIBLE. AT JOINTS, SHOTCRETE SHALL BE SLOPED TO A THIN EDGE. BEFORE PLACING ADDITIONAL MATERIAL, ALL SURFACES SHALL BE THOROUGHLY CLEANED AND WETTED AND ALL REINFORCING STEEL SHALL BE BRUSHED FREE OF LATENT SHOTCRETE MATERIAL.

4.6.7 ANY IN-PLACE SHOTCRETE MATERIAL WHICH EXHIBITS SAGS OR SLOUGHS, SEGREGATION, HONEYCOMBING, SAND POCKETS OR OTHER OBVIOUS DEFECTS SHALL BE REMOVED AND REPLACED.

4.6.8 TESTING AND INSPECTION OF IN-PLACE SHOTCRETE SHALL BE IN ACCORDANCE WITH 2003 IBC.

4.7 CONCRETE SHALL BE PLACED WITHIN 90 MINUTES OF BATCHING AND SHALL NOT EXCEED A TEMPERATURE OF 90°F [32°C] UNLESS PRE-APPROVED BY THE SKATE PARK DESIGNER.

4.8 CONCRETE CYLINDERS SHALL BE TAKEN AND TESTED PER THE CODE BY AN INDEPENDENT TESTING LABORATORY FOR STRUCTURAL POURS OVER 50 CUBIC YARDS [38m³] OF CONCRETE. HISTORICAL DATA SHALL BE SUBMITTED AND APPROVED PRIOR TO THE POUR IF NO TEST SAMPLES ARE TAKEN FOR POURS LESS THAN 50 CUBIC YARDS [38m³].

4.9 DURING THE CURING PERIOD, CONCRETE SHALL BE MAINTAINED AT A TEMPERATURE ABOVE 40°F [4°C] AND IN MOIST CONDITION. FOR INITIAL CURING, CONCRETE SHALL BE KEPT CONTINUOUSLY MOIST FOR 24 HOURS AFTER PLACEMENT IS COMPLETE. FINAL CURING SHALL CONTINUE FOR SEVEN DAYS AFTER PLACEMENT AND SHALL CONSIST OF APPLICATION OF CURING COMPOUND PER ASTM C309. APPLY AT A RATE SUFFICIENT TO RETAIN MOISTURE, BUT NOT LESS THAN 1 GALLON [4.55l] PER 200 SQUARE FEET [18.58m²]. COVER CONCRETE WITH POLYETHYLENE PLASTIC TO MAINTAIN TEMPERATURE IF NECESSARY. LAP SEAMS IN THE PLASTIC 6" [15.24cm] AND TAPE, WEIGHT DOWN THE PLASTIC AS NEEDED.

4.10 THE CONTRACTOR SHALL FIX ALL CRACKS AND DISPLACEMENTS LARGER THAN 1/16" [1.59mm].

4.11 ALL CONCRETE WHICH DURING THE LIFE OF THE STRUCTURE WILL BE SUBJECTED TO FREE□ING TEMPERATURES WHILE WET, SHALL HAVE A WATER CEMENT RATIO NOT EXCEEDING 0.53 BY WEIGHT AND SHALL CONTAIN ENTRAINED AIR AS PER ACI 301. SUCH CONCRETE SHALL INCLUDE EXTERIOR SLABS, PERIMETER FOUNDATIONS, EXTERIOR CURBS AND GUTTERS, ETC.

4.12 EXPOSED CONCRETE SLABS ON GRADE AND SLABS ON METAL DECK THAT ARE TO REMAIN EXPOSED, GROUND, POLISHED, OR SEALED SHALL CONSIDER PROPER MIX DESIGN AND CURING TO AVOID CRACKING. LIMIT SHRINKAGE TO 0.04% (400 MICRO STRAIN) OR LESS. CONSIDER SLOW MOIST CURE, LOW WATER CEMENT RATIO, WATER REDUCING OR SHRINKAGE REDUCING ADMIXTURES, CRACKS THAT APPEAR IN EXPOSED CONCRETE TO BE REPLACED WITH EQUIVALENT AGGREGATE APPEARANCE.

4.13 CONDUITS, PIPES, AND SLEEVES EMBEDDED IN CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF IBC SECTION 1906.

4.14 USE INTERMEDIATE GRADE ASTM A615, GRADE 60 FOR ALL REINFORCING. USE ASTM A706, GRADE 60 FOR ALL REINFORCING THAT IS TO BE WELDED. USE A108, GRADE 60, FOR ALL WELDED ANCHORS REFER TO AWS SPEC FOR WELDING WITHOUT PREHEAT. WELDING OF REINFORCING BARS TO BE IN ACCORDANCE WITH ALL BUILDING CODES.

4.15 ALL WELDED WIRE FABRIC REINFORCING SHALL BE ASTM A185 GRADE 65. LAP OF AT LEAST TWO CROSS WIRES.

4.16 OBSERVE FOLLOWING REINFORCEMENT CLEARANCES:
3" [7.62cm] AT SURFACES POURED AGAINST EARTH
2" [5.08cm] AT FORMED SURFACES EXPOSED TO EARTH OR WEATHER 1-1/2"
[3.81cm] AT OTHER SURFACES, EXCEPT WHERE SHOWN OTHERWISE.

4.17 SECURE REINFORCING REBAR, ANCHOR BOLTS, INSERTS, ETC. RIGIDLY IN PLACE PRIOR TO POURING CONCRETE OR GROUT.

4.18 SUPPORT HORI□ONTAL REINFORCING ON GALVANI□ED CHAIRS OR OTHER APPROVED METHOD (MORTAR BLOCKS ARE ACCEPTABLE/ APPROVED METHOD) OF SUPPORT FOR FOOTINGS AND SLABS ON GRADE.

4.19 REMOVE FORMS AT FOLLOWING MINIMUM TIMES AFTER POURING: AT SLAB EDGES - 24 HOURS□AT WALLS LESS THAN 4'-0" [1.22m] HIGH - 36 HOURS.

4.20 MAKE HOOKS ACI 318-99 STANDARD HOOKS UNLESS OTHERWISE NOTED. PROVIDE 135 DEGREE MINIMUM TURN, PLUS 4" [10.16cm] EXTENSION AT FREE ENDS OF COLUMN PILASTER TIES.

4.21 MAKE LAPS CONTACT SPLICES, DEVELOPMENT LENGTHS, HOOK EMBEDMENT PER ACI 318-99, UNLESS OTHERWISE NOTED. STAGGER LAP SPLICES WHERE POSSIBLE.

4.22 ALL REBAR SHALL BE COLD BENT.

4.23 WHERE REINFORCING IS SHOWN CONTINUOUS THRU CONSTRUCTION JOINTS, LENTON FORM SAVERS DOWEL BAR SPLICE DEVICES AS MANUFACTURED BY ERICO PRODUCTS, INC. (ICC - ER #3967) OR EQUIVALENT MAY BE USED. SI□ES AND TYPES SHALL BE SELECTED TO DEVELOP THE FULL TENSION STRENGTH OF THE BAR PER ICC-ER RESEARCH REPORT.

4.24 MINIMUM CLEARANCE BETWEEN PARALLEL REINFORCEMENT BARS SHALL BE 2-1/2" [6.35cm]. LAP SPLICES IN REINFORCING BARS SHALL BE BY THE NON-CONTRACT LAP SPLICE METHOD WITH AT LEAST 2" [5.08cm] CLEARANCE BETWEEN BARS.

4.25 AGGREGATE BASE COURSE TO BE 8" OF COMPACTED 1" [2.54cm] CLEAN FREE DRAINAGE CRUSHED ROCK AND SUBGRADE TO BE COMPACTED NATIVE SOIL AND/OR ENGINEERED FILL. IF THESE GUIDELINES CONFLICT WITH THE GEO-TECHNICAL REPORT, THE CONTRACTOR TO FOLLOW THE MORE STRINGENT OF THE TWO GUIDELINES.

5. REHABILITATION OF CAST IN PLACE CONCRETE (Cast in Place or Shotcrete)

5.1 DO NOT APPLY FRP REINFORCEMENT MATERIALS IF RAINING, SNOWING, OR DEW CONDENSATION IS EXPECTED OR EXISTING CONCRETE SURFACE IS WET OR IF THE AMBIENT OR SURFACE TEMPERATURE ARE BELOW 40° F (4°C).

5.2 THE AMBIENT TEMPERATURE AND TEMPERATURE OF THE EPOXY COMPONENTS SHALL BE BETWEEN 50° F (10°C) AND 80° F (27°C) AT THE TIME OF MIXING. SEE APPROPRIATE TECHNICAL DATA SHEETS FOR MORE SPECIFIC INSTRUCTIONS.

5.3 PRECAUTIONS SHOULD BE TAKEN TO AVOID DAMAGE TO ANY SURFACE NEAR THE WORK □ONE DUE TO MIXING AND HANDLING OF THE SPECIFIED MATERIAL.

5.4 THE CONTRACTOR IS SOLELY RESPONSIBLE FOR FUME CONTROL AND SHALL TAKE NECESSARY PRECAUTIONS AGAINST INJURY TO INSTALLER PERSONNEL OR ADJACENT BUILDING OCCUPANTS DURING APPLICATION OF PRIMER AND RESIN, ETC. CONTRACTOR PERSONNEL SHALL USE PROTECTIVE EQUIPMENT AND AREA SHALL BE WELL VENTED TO THE OUTSIDE. AS A MINIMUM, INSTALLER MUST TAKE THE FOLLOWING PRECAUTIONS:
1. CONTRACTOR TO LOCATE AND PROTECT BUILDING AIR INTAKE DURING APPLICATION.
2. CONTRACTOR TO FOLLOW ALL STATE, FEDERAL, AND LOCAL SAFETY REGULATIONS.
3. CONTRACTOR TO FOLLOW ALL MANUFACTURERS' SAFETY REQUIREMENTS AS INDICATED ON APPROPRIATE MSDS SHEETS.

5.5 INSPECT SURFACES TO RECEIVE THE WORK AND REPORT IMMEDIATELY IN WRITING TO THE ENGINEER AS REQUIRED IN THE GENERAL CONDITIONS AND DEFICIENCIES IN THE SURFACE THAT RENDER IF UNSUITABLE FOR PROPER EXECUTION OF THIS WORK.

5.6 PROTECT VEHICLES, CONCRETE, AND OTHER ITEMS SURROUNDING WORK AREA FROM DUST OR DAMAGE DUE TO WORK OF THIS SECTION.

5.7 SUBSTRATE MUST BE CLEAN, SOUND AND FREE OF SURFACE MOISTURE. REMOVE DUST, LAITANCE, GREASE, OILS, CURING COMPOUNDS, WAXES, IMPREGNATIONS, FOREIGN PARTICLES, COATINGS AND DISINTEGRATED MATERIALS BY MECHANICAL MEANS (I.E. SHOT BLASTING, SANDBLASTING, ETC.). FOR BEST RESULTS, SUBSTRATE SHOULD BE DRY. SURFACES PREPARED BY LOW PRESSURE WATER CLEANING OR HIGH PRESSURE WATER JETTING METHODS SHOULD BE ALLOWED TO DRY FOR 24HRS. MINIMUM [AT 73°F (23°C)]. SURFACE MUST BE CLEAN, DRY AND SOUND. REMOVE DUST FROM CRACK BY BRUSHING OR BY BLOWING CLEAN WITH OIL FREE COMPRESSED AIR OR A VACUUM/ SHOP VACUUM.

5.8 TO GRAVITY FEED CRACKS:
5.8.1 APPLY TO HORI□ONTAL SURFACES BY FLAT SQUEEGEE OR BROOM. SPREAD MATERIAL OVER AREA AND ALLOW TO POND OVER CRACKS. LET MATERIAL PENETRATE INTO CRACKS AND SUBSTRATE. REMOVE EXCESS EPOXY WITH ROLLER LEAVING NO VISIBLE SURFACE FILM. FOR CRACKS GREATER THAN 1/8 IN. (3 MM) WIDE, FILL CRACK WITH OVEN-DRIED SAND BEFORE APPLYING PRODUCT. SEAL CRACKS FROM UNDERSIDE, WHEN ACCESSIBLE, TO PREVENT LEAKAGE. A SECOND TREATMENT MAY BE REQUIRED ON VERY POROUS SUBSTRATES. APPLY SECOND TREATMENT BEFORE BROADCASTING. AFTER TREATMENT, WAIT AT LEAST 20 MINUTES AT 73°F (23°C). COVER WITH BROADCAST OF AN OVEN-DRIED 20/40 SILICA SAND OR SIMILAR SAND. DISTRIBUTE EVENLY OVER THE SURFACE TO EXCESS AT A RATE OF 30-40 LBS./100 SQ. FT.. ALLOW TO CURE 6 HOURS MINIMUM AT 73°F (23°C). REMOVE ANY LOOSE SAND AND OPEN TO TRAFFIC ONCE EPOXY HAS CURED.

5.9 TO INJECT CRACKS:
5.9.1 SET APPROPRIATE INJECTION PORTS. SEAL PORTS AND SURFACE OF CRACK WITH SIKADUR ANCHOR FIX-3, SIKADUR 31, HI-MOD GEL OR SIKADUR 33 OR EQUIVALENT. WHEN THE EPOXY ADHESIVE SEAL HAS CURED, INJECT SIKADUR CRACK FIX OR EQUIVALENT WITH SLOW STEADY PRESSURE. CONSULT TECHNICAL SERVICE FOR ADDITIONAL INFORMATION.

5.10 MINIMUM SUBSTRATE AND AMBIENT TEMPERATURE 40°F (4°C). MAXIMUM SUBSTRATE TEMPERATURE IS 95°F (35°C).
5.10.1 MINIMUM AGE OF CONCRETE MUST BE 21-28 DAYS, DEPENDING ON CURING AND DRYING CONDITIONS.
5.10.2 DO NOT APPLY OVER WET, GLISTENING SURFACE.
5.10.3 NOT FOR INJECTION OF CRACKS SUBJECTED TO OSMOTIC OR HYDROSTATIC PRESSURE DURING APPLICATION.
5.10.4 DO NOT INJECT CRACKS GREATER THAN IN. (6 MM) CONSULT TECHNICAL SERVICE AT 1-800-933-SIKA.

5.11 CURING:
1. PROTECT CONCRETE SURFACES AGAINST RAPID DRYING. KEEP SEALED WITH CURE AGENT FOR NECESSARY AMOUNT OF TIME TO REACH CONCRETE STRENGTH AND INHIBIT MOISTURE LOSS AFTER PLACING PER MANUFACTURER'S RECOMMENDATION.
2. APPLY TO EXPOSED SURFACE OF CONCRETE AS SOON AS MANUFACTURER RECOMMENDS WITH AN AIRLESS SPRAYER.
3. APPLY TO SIDES OF CONCRETE PAVING UPON REMOVAL OF FORM BOARDS.
4. MEET REQUIREMENTS OF MANUFACTURER'S CURRENT PRINTED APPLICATION INSTRUCTIONS.
5. UNIFORMLY APPLY 2 COATS AND APPLY THE SECOND COAT AT A RIGHT ANGLE TO THE FIRST COAT.
6. APPLY COMPOUND TO FORM A CONTINUOUS, UNIFORM, COHERENT FILM THAT WILL NOT CHECK, CRACK, OR PEEL.
7. DO NOT APPLY TO CONCRETE THAT IS STILL BLEEDING, OR HAS A VISIBLE WATER SHEEN ON THE SURFACE.
8. PROTECT PAVING SURFACES FROM FOOT TRAFFIC WITH SCUFF-PROOF PAPER.
9. IMMEDIATELY RE-COAT DAMAGED AREAS OF CURING COMPOUND.
10. PROTECT SURFACE FROM WATER, ADJACENT SHOTCRETE WORK AND DEBRIS.

5.12 CONTRACTOR TO REMOVE ALL CURE AGENT FROM CONCRETE SURFACE WITH POWER WASHING EQUIPMENT AND SOFT BRUSH NOT CAUSING ABRASION TO FINISH WORK SURFACE PRIOR TO FINAL INSPECTION. NO CURE AGENT SHALL BE PRESENT ON ANY SURFACES FOR FINAL INSPECTION ACCEPTANCE. REMOVE DEBRIS AND TRASH RESULTING FROM SPECIFIED WORK.

6. STRUCTURAL STEEL

6.1 ASTM A-36 FOR C, MC, ANGLES, AND PLATES.

6.2 ASTM A-53 GRADE B OR A-501 FOR STEEL PIPES

6.3 ASTM A-500 GRADE B, FY=46 KSI FOR TS/HSS TUBE STEEL FOR SI□ES UP TO 5/8" [15.88mm] THICK.

6.4 ASTM A-307 OR A-36 PLAIN ANCHOR BOLTS

7. WELDING

7.1 ALL CONSTRUCTION AND TESTING PER AMERICAN WELDING SOCIETY CODES AND RECOMMENDATIONS. ALL WELDING SHALL BE BY WELDERS HOLDING CURRENT CERTIFICATES VALIDATED BY AN INDEPENDENT LAB & HAVING CURRENT EXPERIENCE IN TYPE OF WELD CALLED FOR. THE CONTRACTOR SHALL SUBMIT WELDING CERTIFICATES FOR EACH WELDER PRIOR TO COMMENCING THE WORK.

7.2 WELDING RODS TO BE LOW HYDROGEN TYPE, E70 SERIES, PER AWS D1.1 TYPICALLY EXCEPT E-6010 SERIES FOR STEEL SHEET METAL PER AWS D1.3 AND REINFORCING WELDMENTS PER AWS D1.4. USE E80 SERIES WELDING RODS FOR A706 REBAR.

7.3 FIELD INDICATED WELDS MAY BE DONE IN SHOP & SHOP INDICATED WELDS MAY BE DONE IN FIELD ONLY IF SUBMITTED AND APPROVED PRIOR TO CONSTRUCTION.

8. ANCHORS

8.1 REINFORCING OR THREADED RODS DRILLED AND EPOXIED INTO EXISTING CONCRETE AS DETAILED ON THE DRAWINGS SHALL BE ONE OF THE FOLLOWING OR APPROVED EQUIVALENT:

8.1.1 SIMPSON "SET-XP" ICC REPORT ESR-2508

8.1.2 HILTI "RE-500 SD" ICC REPORT ESR-2322

8.1.3 POWERS "PE1000□" ICC REPORT ESR-2583

8.2 INSTALLATION OF EPOXIED DOWELS SHALL FOLLOW THE STRICT RECOMMENDATIONS OF THE MANUFACTURER AND THE APPLICABLE ICC REPORT AND HAVE A MINIMUM 9 DIAMETERS EMBEDMENT

8.3 INSTALLATION SHALL FOLLOW THE STRICT RECOMMENDATIONS OF THE MANUFACTURER AND THE APPLICABLE ICC ER REPORT. CONTRACTOR SHALL HAVE APPROPRIATE ICC ER REPORT ON-SITE DURING ALL INSTALLATIONS.

8.4 ANY ENGINEERING DESIGN PROVIDED BY CONTRACTOR OR OTHERS AND SUBMITTED FOR REVIEW SHALL BE BY AN INSURED REGISTERED STRUCTURAL ENGINEER WITH CONTINUOUS FIVE YEARS OF EXPERIENCE IN THE TYPE OF DESIGN SUBMITTED.

9. SPECIAL INSPECTION

9.1 PROVIDE SPECIAL STRUCTURAL INSPECTION AS REQUIRED BY BUILDING CODES FOR THE FOLLOWING ITEMS:

9.1.1 CONCRETE: DURING THE TAKING OF TEST SPECIMENS & PLACING OF REINFORCED CONCRETE WHERE F'C □ 2,500 PSI [17.23MPa], EXCEPT SLABS ON GRADE.

9.1.2 BOLTS INSTALLED IN CONCRETE: DURING INSTALLATION OF EMBEDDED BOLTS IN CONCRETE AND DURING INSTALLATION OF EXPANSION BOLTS & EPOXY BOLTS / REBAR INTO EXISTING CONCRETE.

9.1.3 REINFORCING STEEL: DURING PLACING OF REINFORCING STEEL, FOR ALL CONCRETE REQUIRED TO HAVE SPECIAL INSPECTION BY THE CONCRETE SECTION ABOVE AND PLACING REINFORCING STEEL IN EPOXIED HOLES PER ABOVE.

9.1.4 SHOTCRETE: DURING THE TAKING OF TEST SPECIMENS AND PLACING OF ALL SHOTCRETE.

9.2 SCHEDULING OF SPECIAL STRUCTURAL INSPECTIONS:

9.2.1 THE CONTRACTOR SHALL ALLOW A MINIMUM OF 24 HOURS NOTIFICATION FOR THE SCHEDULING OF SPECIAL STRUCTURAL INSPECTIONS.

10. SUPPLEMENTARY NOTES

10.1 THESE CONTRACT DOCUMENTS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE, WORKERS, AND OTHER PERSONS DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, MEANS AND METHODS, BRACING, SHORING, FORMS, SCAFFOLDING, GUYING OR OTHER MEANS TO AVOID EXCESSIVE STRESSES AND TO HOLD STRUCTURAL ELEMENTS IN PLACE DURING CONSTRUCTION. OBSERVATION VISITS TO THE SITE BY THE STRUCTURAL ENGINEER OR STRUCTURAL OBSERVERS SHALL NOT INCLUDE INSPECTION OF THE ABOVE ITEMS.

10.2 ANY ENGINEERING DESIGN PROVIDED BY CONTRACTOR OR OTHERS AND SUBMITTED FOR REVIEW SHALL BE BY AN INSURED REGISTERED STRUCTURAL ENGINEER WITH CONTINUOUS FIVE YEARS OF EXPERIENCE IN THE TYPE OF DESIGN SUBMITTED.

skate park sheet index

SITE DESIGN GROUP, INC.

Project:

CITY OF SOMERVILLE

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SITE DESIGN GROUP, INC.

North:

Revisions:

Rev	Date	Description

Seal:

COMMONWEALTH OF MASSACHUSETTS
JAMES M. SPURR
No. 40969
REGISTERED PROFESSIONAL ENGINEER

CONSTRUCTION DOCUMENTS

Date: 02.24.2016

Scale:

Drawn By:

Reviewed By:

Checked By:

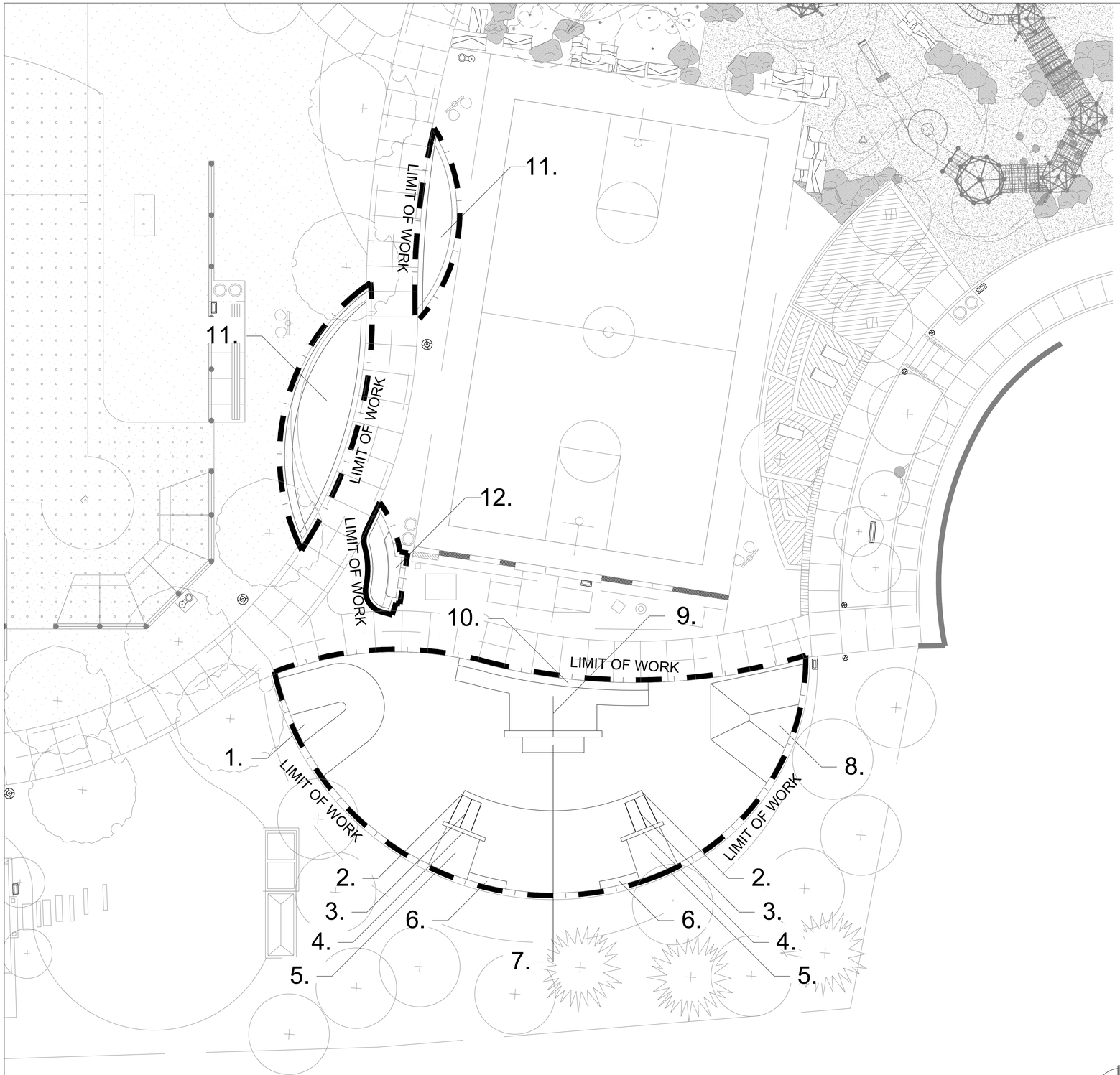
Approved By:

Drawing Title:

SKATE PARK GENERAL NOTES

Sheet Number: 01

SK-0.0



features

1. TRANI HIP
2. CURVED LEDGE
3. THREE STAIR
4. HUBBA LEDGE
5. BANK
6. BUMP TO LEDGE
7. MANUAL PAD
8. BANK HIP
9. A-FRAME WITH HUBBA LEDGES
10. TRANI LEDGE
11. TACO BANK
12. TRANI POCKET

10'-0" 0'-0" 20'-0"
5'-0" 10'-0"
Scale: 1" = 10'-0"

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STRUCTURAL
No. 40569
REGISTERED PROFESSIONAL ENGINEER

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Date: 02.24.2016

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Checked By:

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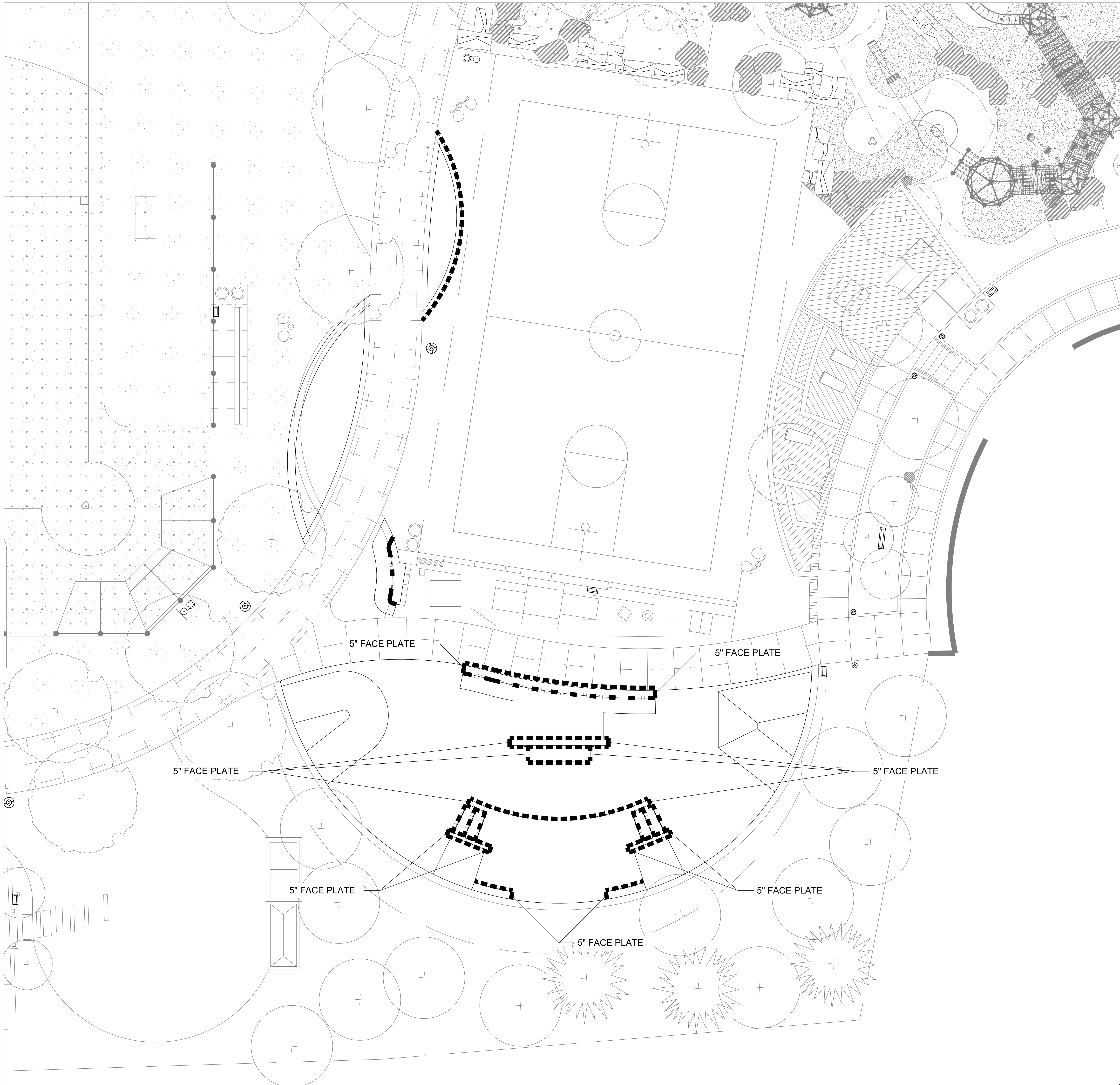
SKATE PARK FEATURE PLAN

Sheet Number: 02

SK-1.0



metal fabrication legend

CONCRETE EDGE TREATMENT (COPING)

- 2" [5.08cm] ROUND STEEL COPING
  REFER TO DETAIL 8 & 9 / SK-3.2
- 5" [12.7cm] C-CHANNEL
  REFER TO DETAIL 7 / SK-3.2
- 5" [12.7cm] PROTECTIVE STEEL FACE PLATE
  REFER TO DETAIL 6 / SK-3.2

NOTE: ALL EXPOSED CONCRETE AND SHOTCRETE SURFACES TO BE NATURAL GRAY IN COLOR & SMOOTH TROWEL FINISH UNLESS OTHERWISE NOTED.

RECOMMENDED TRANSITION CONSTRUCTION SEQUENCE:

1. INSTALL METAL COPING AND FORMS
2. INSTALL SHOTCRETE, USING THE COPING AND FORMS TO GUIDE PLACEMENT AND SHAPING
3. INSTALL FLATBOTTOM AND TOP DECKS.

skate park specialty construction:

THE FOLLOWING ITEMS HAVE BEEN DEEMED AS SPECIALTY CONSTRUCTION WORK WITHIN THE CONTRACT DOCUMENTS:

SHOTCRETE APPLICATION, CUTTING, SCULPTING AND FINISH.

COPING/RAIL INSTALLATION CONSISTING OF SETTING TO HORI□ONTAL LOCATIONS AND VERTICAL ELEVATIONS.

GRIND LEDGE INSTALLATION CONSISTING OF SETTING TO HORI□ONTAL LOCATIONS AND VERTICAL ELEVATIONS.

ALL WORK RELATED TO THE SPECIALTY CONSTRUCTION OF THE SKATE PARK SHALL BE COORDINATED WITH. THE SKATE PARK DESIGNER, AND THE QUALIFIED SKATE PARK SPECIALTY CONTRACTOR, PRIOR TO THE START OF CONSTRUCTION.

steel shapes chart

NOTE: ALL HOLLOW STRUCTURAL SECTIONS (HSS) TO BE ASTM A-500 GRADE B STEEL.

Imperial

Round		Square		Rectangular	
Nominal Si□e	Actual Si□e	Nominal Si□e	Actual Si□e	Nominal Si□e	Actual Si□e
2"	HSS 2.375 □0.1875	2" X 2"	HSS 2.000 □2.000 □0.1875	2" X 3"	HSS 2.000 □3.000 □0.1875
2-1/2"	HSS 2.875 □0.1875	3" X 3"	HSS 3.000 □3.000 □0.1875	2" X 6"	HSS 2.000 □6.000 □0.1875
3"	HSS 3.500 □0.1875	3-1/2" X 3-1/2"	HSS 3.500 □3.400 □0.1875	2" X 8"	HSS 2.000 □8.000 □0.1875
3-1/2"	HSS 4.000 □0.1875	4" X 4"	HSS 4.000 □4.000 □0.1875	2-1/2" X 4"	HSS 2.500 □4.000 □0.1875
4"	HSS 4.500 □0.1875			3" X 5"	HSS 3.000 □5.000 □0.1875

Metric

Round		Square		Rectangular	
Nominal Si□e	Actual Si□e	Nominal Si□e	Actual Si□e	Nominal Si□e	Actual Si□e
2"	6.03cm □4.76mm	2" X 2"	5.08cm □5.08cm □4.76mm	2" X 3"	5.08cm □7.62cm □4.76mm
2-1/2"	7.30cm □4.76mm	3" X 3"	7.62cm □7.62cm □4.76mm	2" X 6"	5.08cm □15.24cm □4.76mm
3"	8.89cm □4.76mm	3-1/2" X 3-1/2"	8.89cm □8.89cm □4.76mm	2" X 8"	5.08cm □20.32cm □4.76mm
3-1/2"	10.16cm □4.76mm	4" X 4"	10.16cm □10.16cm □4.76mm	2-1/2" X 4"	6.35cm □10.16cm □4.76mm
4"	11.43cm □4.76mm			3" X 5"	7.62cm □12.70cm □4.76mm

10'-0" 0'-0" 20'-0"
5'-0" 10'-0"
Scale: 1" = 10'-0"

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Approved By:

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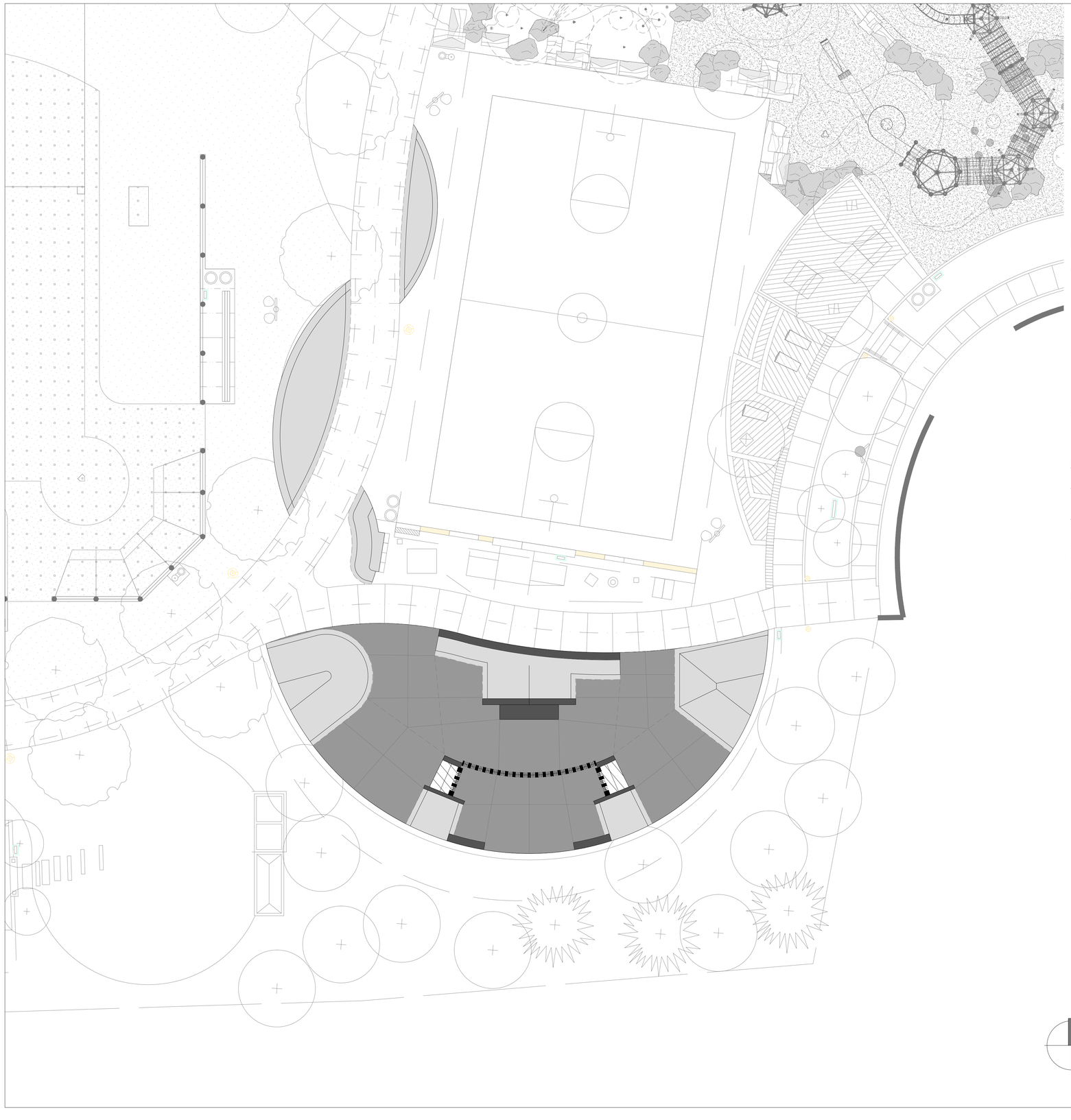
SKATE PARK
METAL MATERIALS PLAN

Sheet Number: 03

SK-1.1



concrete material legend

SKATE PARK FLATWORK

6" [15.24cm] TOP DECK CONCRETE SLAB
REFER TO DETAILS 5 / SP-3.1

CONCRETE STAIRS
REFER TO DETAIL 8 / SK-3.1

SKATE PARK SHOTCRETE

6" [15.24cm] SHOTCRETE TRANSITIONS & BANKS
REFER TO DETAIL 1, 2, 3, & 4 / SK-3.1

SKATE PARK LEDGES & WALLS

GRIND LEDGES
REFER TO DETAILS 4 & 5 / SK-3.2

TURNDOWN WALL
REFER TO DETAIL 7 / SK-3.1

NOTE: ALL EXPOSED CONCRETE AND SHOTCRETE SURFACES TO BE NATURAL GRAY IN COLOR & SMOOTH TROWEL FINISH UNLESS OTHERWISE NOTED.

RECOMMENDED TRANSITION CONSTRUCTION SEQUENCE:
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skate park specialty construction:

THE FOLLOWING ITEMS HAVE BEEN DEEMED AS SPECIALTY CONSTRUCTION WORK WITHIN THE CONTRACT DOCUMENTS:

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COPING/RAIL INSTALLATION CONSISTING OF SETTING TO HORI□ONTAL LOCATIONS AND VERTICAL ELEVATIONS.

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notes

THESE LENGTHS APPLY TYPICALLY UNLESS NOTED OTHERWISE ON PLANS AND/OR DETAILS.

CLEAR SPACING BETWEEN PARALLEL BARS MUST BE AT LEAST ONE BAR DIAMETER BUT NOT LESS THAN 1" [2.54cm].

TOP BARS: HORI□ONTAL BARS PLACED SO THAT MORE THAN 12" OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW.

LIGHTWEIGHT CONCRETE: MULTIPLY VALUES IN TABLE BY 1.3.

CLASS B SPLICE: ld □1.3 LAP LENGTH. STAGGER SPLICES MIN. OF 24" [60.96cm].

rebar development lengths

Normal Weight Concrete							
Rebar Size		3000psi			4000psi		ldh
English	Metric	Top Bars ld	Bot. Bars ld	ldh	Top Bars ld	Bot. Bars ld	7" [17.78cm] 9" [22.86cm]
#3	#10	21" [53.34cm]	16" [40.64cm]	8" [20.32cm]	18" [45.72cm]	14" [35.56cm]	12" [30.48cm]
#4	#13	28" [71.12cm]	22" [55.88cm]	11" [27.94cm]	25" [63.50cm]	19" [48.26cm]	14" [35.56cm]
#5	#16	36" [91.44cm]	27" [68.58cm]	14" [35.56cm]	31" [78.74cm]	24" [60.96cm]	17" [43.18cm]
#6	#19	43" [109.22cm]	33" [83.82cm]	16" [40.64cm]	37" [93.98cm]	28" [71.12cm]	19" [48.26cm]
#7	#22	62" [157.48cm]	48" [121.92cm]	19" [48.26cm]	54" [137.16cm]	42" [106.68cm]	21" [53.34cm]
#8	#25	71" [180.34cm]	55" [139.70cm]	22" [55.88cm]	62" [157.48cm]	47" [119.38cm]	24" [60.96cm]
#9	#29	80" [203.20cm]	62" [157.48cm]	25" [63.50cm]	69" [175.26cm]	53" [134.62cm]	26" [66.04cm]
#10	#32	89" [226.06cm]	68" [172.72cm]	27" [68.58cm]	77" [195.58cm]	59" [149.86cm]	
#11	#36	98" [248.92cm]	75" [190.50cm]	30" [76.20cm]	85" [215.90cm]	65" [165.10cm]	

10'-0" 0'-0" 20'-0"
5'-0" 10'-0"
Scale: 1" = 10'-0"

SITE DESIGN GROUP, INC.

Project:

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North:

Revisions:

Rev	Date	Description

Seal:

COMMONWEALTH OF MASSACHUSETTS
JAMES M. LAMB
STRUCTURAL
No. 40969
REGISTERED PROFESSIONAL ENGINEER

CONSTRUCTION DOCUMENTS

Date: 02.24.2016

Scale:

Drawn By:

Reviewed By:

Checked By:

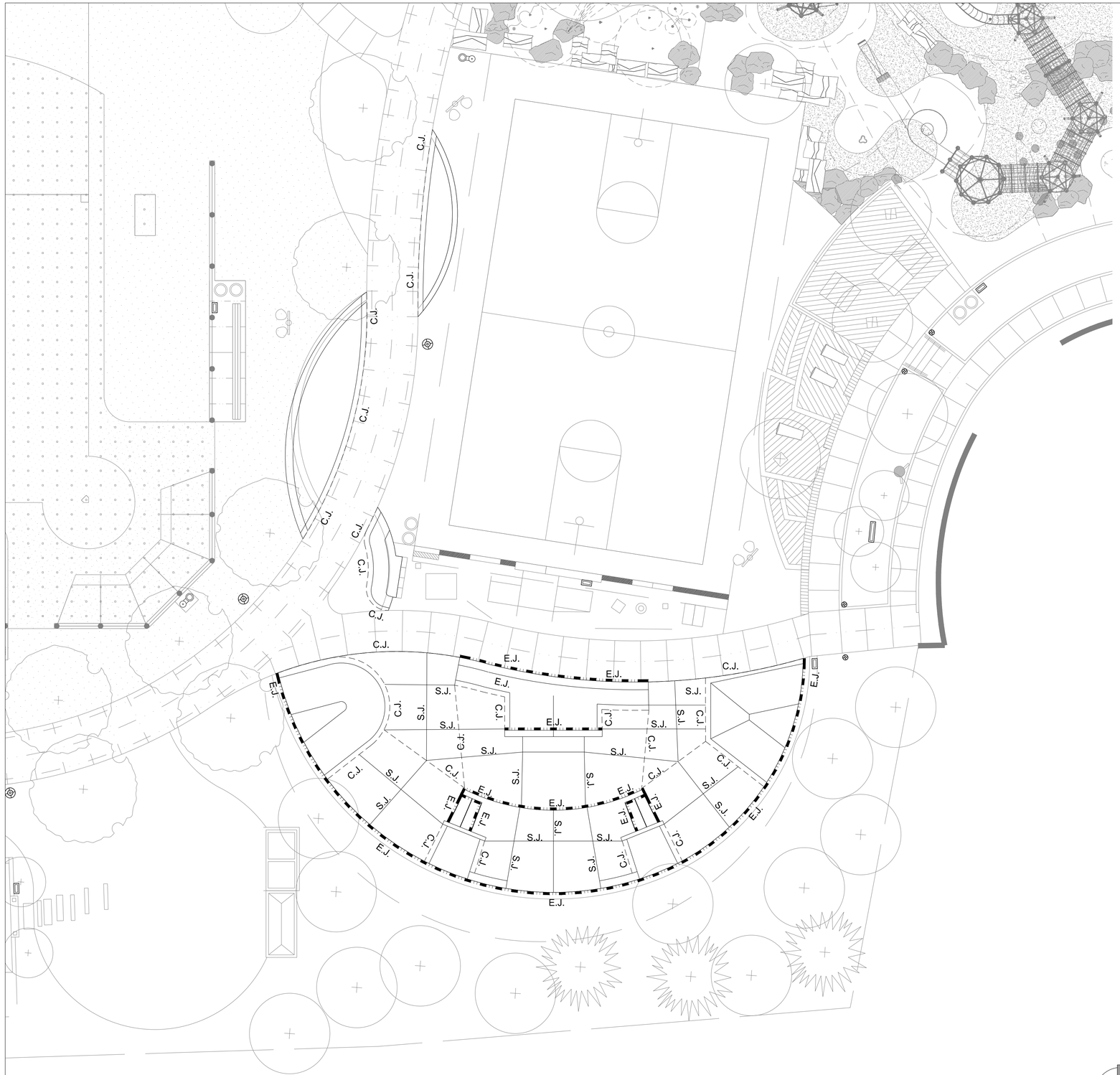
Approved By:

Drawing Title:

SKATE PARK CONCRETE MATERIALS PLAN

Sheet Number: 04

SP-1.2



jointing legend

- C.J. - COLD JOINT, REFER TO DETAILS 1 / SK-3.2
- E.J. - EXPANSION JOINT, REFER TO DETAIL 3 / SK-3.2
- S.J. - SAWCUT JOINT, REFER TO DETAIL 2 / SK-3.2

jointing notes

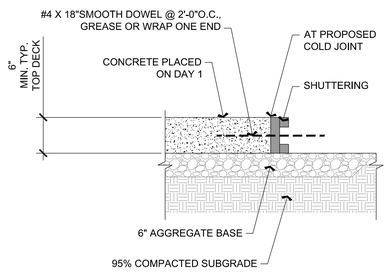
1. JOINTING PLAN IS DIAGRAMATIC ONLY. CONTRACTOR TO SNAP CHALK LINES FOR ALL SAW-CUT JOINTS AND SET ALL OTHER JOINT FORMS FOR REVIEW BY THE SKATE PARK DESIGNER AND/ OR OWNER.

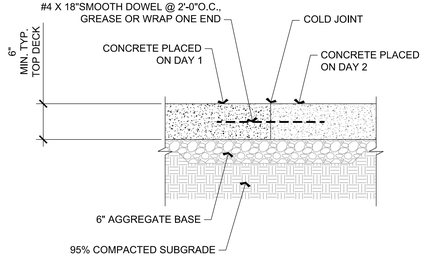
2. ONLY EXPANSION JOINTS ARE TO BE USED BETWEEN VERTICAL SURFACES & ADJACENT CONCRETE SLAB, PER THIS PLAN UNLESS OTHERWISE SPECIFIED BY THE PARK DESIGNER. SLOPED SURFACES AND BOWL AREA□ SAW CUT JOINTS ARE TO BE PERFORMED WITH ONE OF THE TWO FOLLOWING: WORM-DRIVE CIRCULAR SAW WITH A MASONRY DIAMOND BLADE, AND OR A HANDHELD GRINDER WITH A MASONRY DIAMOND BLADE FOR THE TOP AND BOTTOM OF THE SAW .

3. SAW-CUT JOINTS TOLERANCE TO BE $\frac{1}{4}$ OF THE SLAB MINIMUM, AND $\frac{1}{3}$ OF THE SLAB MAXIMUM.

4. THE CONTRACTOR SHALL RECEIVE APPROVAL FROM THE SKATE PARK DESIGNER FOR ANY PROPOSED JOINTING DEVIATIONS PRIOR TO CONSTRUCTION THROUGH SUBMITTED SHOP DRAWINGS.

5. END OF DAY WORKING / CONSTRUCTION VERTICAL JOINT DETAIL:





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CONSTRUCTION DOCUMENTS

Date: 02.24.2016

Scale:

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Reviewed By:

Checked By:

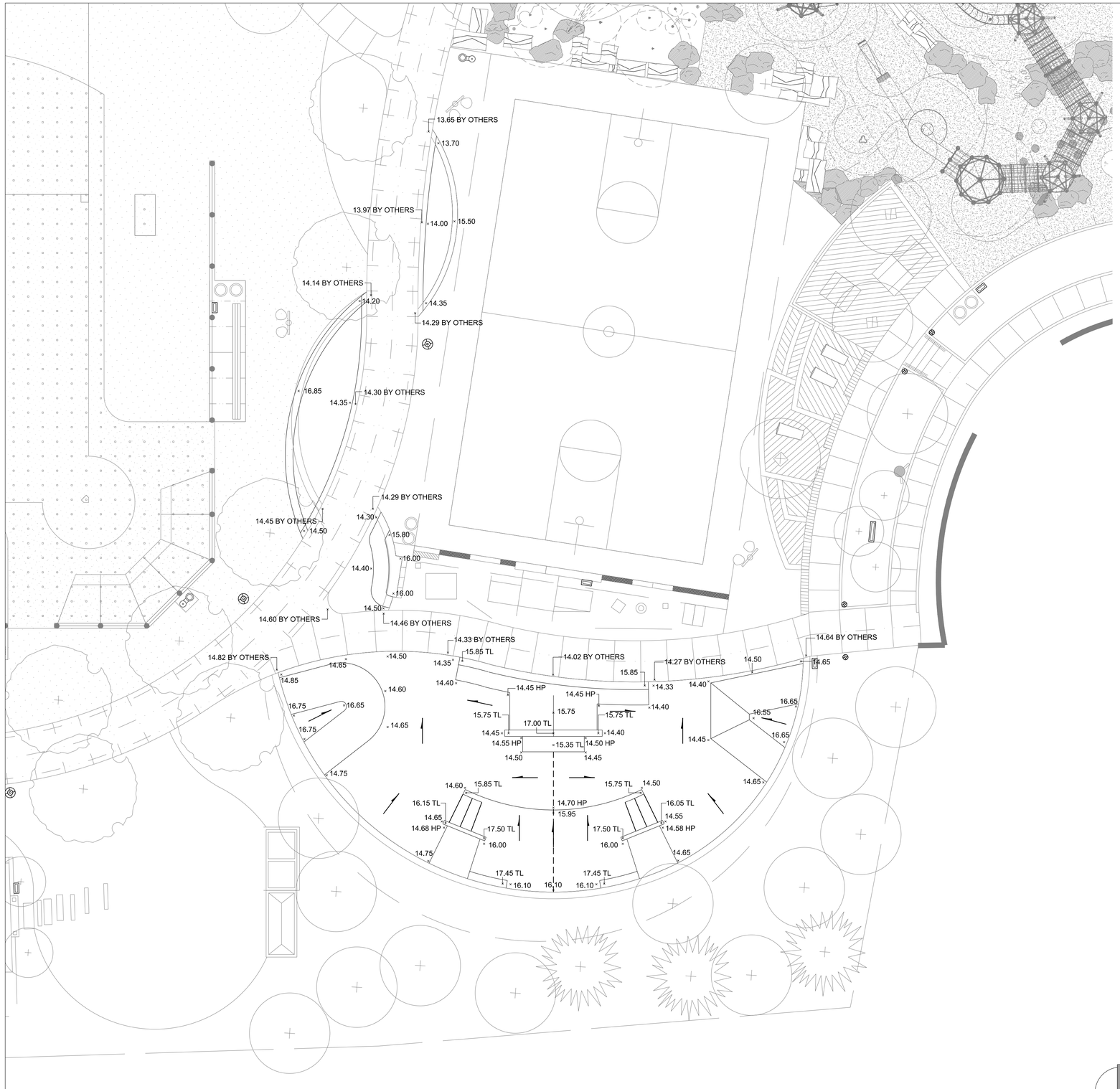
Approved By:

Drawing Title:

SKATE PARK JOINTING PLAN

Sheet Number: 05

SK-1.3



grading legend

×100.00	SPOT GRADE ELEVATION
——►	DIRECTION OF FLOW
HP	HIGHPOINT OF SWALE
TL	TOP OF LEDGE
- - - - - - -	BREAK IN GRADE

notes to contractor

FINAL DEPTH AND SHAPE OF EXCAVATION TO BE DETERMINED BY THE PROJECT MANAGER IN THE FIELD.

ALL AREAS DISTURBED BY GRADING OPERATIONS TO BE FINE GRADED SOILS.

VERIFY LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO COMMENCING WORK.

VERIFY HEIGHTS WITH THE VERTICAL REFERENCE AND SECTIONS/PROFILES, NOTIFY SKATE PARK DESIGNER OF ANY DISCREPANCIES.

MATCH ALL CENTER LINES OF PIPE.

ALL SPOT ELEVATIONS ARE TOP OF CONCRETE UNLESS OTHERWISE NOTED.

CONTRACTOR TO PROTECT ALL EXCAVATIONS FROM SOIL EROSION AND WATER SATURATION USING APPROPRIATE CONSTRUCTION METHODS.

survey notes

LOCATE ALL SURVEY MARKS, INCLUDING BENCH MARKS AND PROPERTY LINES IN ORDER THAT THE EXACT LINES OF CONSTRUCTION LIMITS AND GRADES MAY BE DETERMINED.

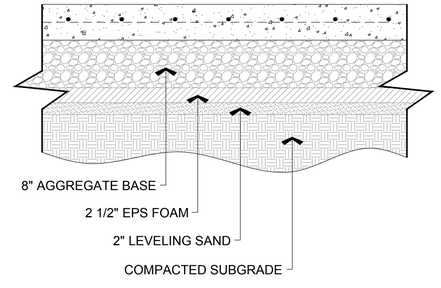
VERIFY ENTIRE LAYOUT PRIOR TO START OF CONSTRUCTION WITH THE SKATE PARK DESIGNER AND THE OWNER'S REPRESENTATIVE.

LOCATE AND PROTECT CONTROL POINTS PRIOR TO STARTING SITE WORK AND PRESERVE ALL PERMANENT REFERENCE POINTS DURING CONSTRUCTION. REPLACE PROJECT CONTROL POINTS WHICH MAY BE LOST OR DESTROYED.

finish grade note:

IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE ACTUAL FINISH GRADE OF THE PROPOSED SKATE PARK.

subgrade preparation typical detail



1 **subgrade prep typ. detail**
scale: 1" = 1'-0"

WARNING !
BEFORE YOU DIG
CONTRACTOR SHALL
FIELD LOCATE ALL EXISTING
UNDERGROUND IMPROVEMENTS
IN PROJECT AREA

10'-0" 0'-0" 20'-0"
5'-0" 10'-0"
Scale: 1" = 10'-0"

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Date: 02.24.2016
Scale:
Drawn By:
Reviewed By:
Checked By:
Approved By:

Drawing Title:

SKATE PARK GRADING PLAN

Sheet Number: 06

SK-1.4

note:

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BECAUSE OF THE SCALE OF THIS DRAWING AND PROXIMITY OF FEATURES TO EACH OTHER, THE LOCATION OF SOME OR THE POINTS MAY BE OBSCURED. REFER TO THE LAYOUT DATA FOR THE ACTUAL LOCATIONS FOR ALL POINTS.

POINTS	NORTHING	EASTING	POINTS	NORTHING	EASTING
P1	9404.74	9580.99	P36	9369.87	9545.47
P2	9394.80	9579.85	P37	9369.17	9545.75
P3	9388.32	9577.84	P38	9365.31	9557.45
P4	9379.77	9573.35	P39	9362.93	9547.72
P5	9393.09	9571.70	P40	9361.44	9541.34
P6	9400.94	9561.98	P41	9359.96	9541.60
P7	9388.60	9562.00	P42	9361.44	9523.37
P8	9400.17	9550.83	P43	9359.96	9523.12
P9	9398.67	9550.86	P44	9362.93	9517.00
P10	9394.67	9550.95	P45	9369.17	9518.97
P11	9394.80	9541.79	P46	9369.87	9519.25
P12	9390.76	9541.86	P47	9371.05	9516.32
P13	9389.51	9541.86	P48	9371.91	9514.18
P14	9389.51	9538.36	P49	9372.77	9512.04
P15	9386.51	9538.36	P50	9372.46	9510.81
P16	9389.51	9532.36	P51	9373.16	9511.09
P17	9386.51	9526.36	P52	9365.25	9507.24
P18	9389.51	9526.36	P53	9378.27	9514.74
P19	9389.51	9522.86	P54	9379.17	9515.18
P20	9390.76	9522.86	P55	9377.43	9516.56
P21	9397.26	9522.86	P56	9376.69	9518.41
P22	9399.54	9513.11	P57	9381.21	9488.33
P23	9403.47	9513.86	P58	9390.83	9499.39
P24	9404.94	9514.14	P59	9389.33	9483.29
P25	9403.52	9520.07	P60	9395.34	9491.03
P26	9402.07	9519.69	P61	9392.87	9481.65
P27	9379.17	9549.54	P62	9401.93	9478.74
P28	9377.43	9548.16	P63	9404.92	9489.39
P29	9376.69	9546.30	P64	9414.08	9500.20
P30	9378.31	9549.96	P65	9422.79	9497.29
P31	9373.16	9553.63	P66	9434.23	9498.13
P32	9372.46	9553.91	P67	9428.03	9483.58
P33	9372.77	9552.68	P68	9476.12	9495.96
P34	9371.91	9550.54	P69	9471.31	9505.99
P35	9371.05	9548.40	P70	9507.76	9508.79

10'-0" 0'-0" 20'-0"
5'-0" 10'-0"
Scale: 1" = 10'-0"

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JAMES M. LANG
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No. 40969
REGISTERED PROFESSIONAL ENGINEER

CONSTRUCTION DOCUMENTS

Date: 02.24.2016

Scale:

Drawn By:

Reviewed By:

Checked By:

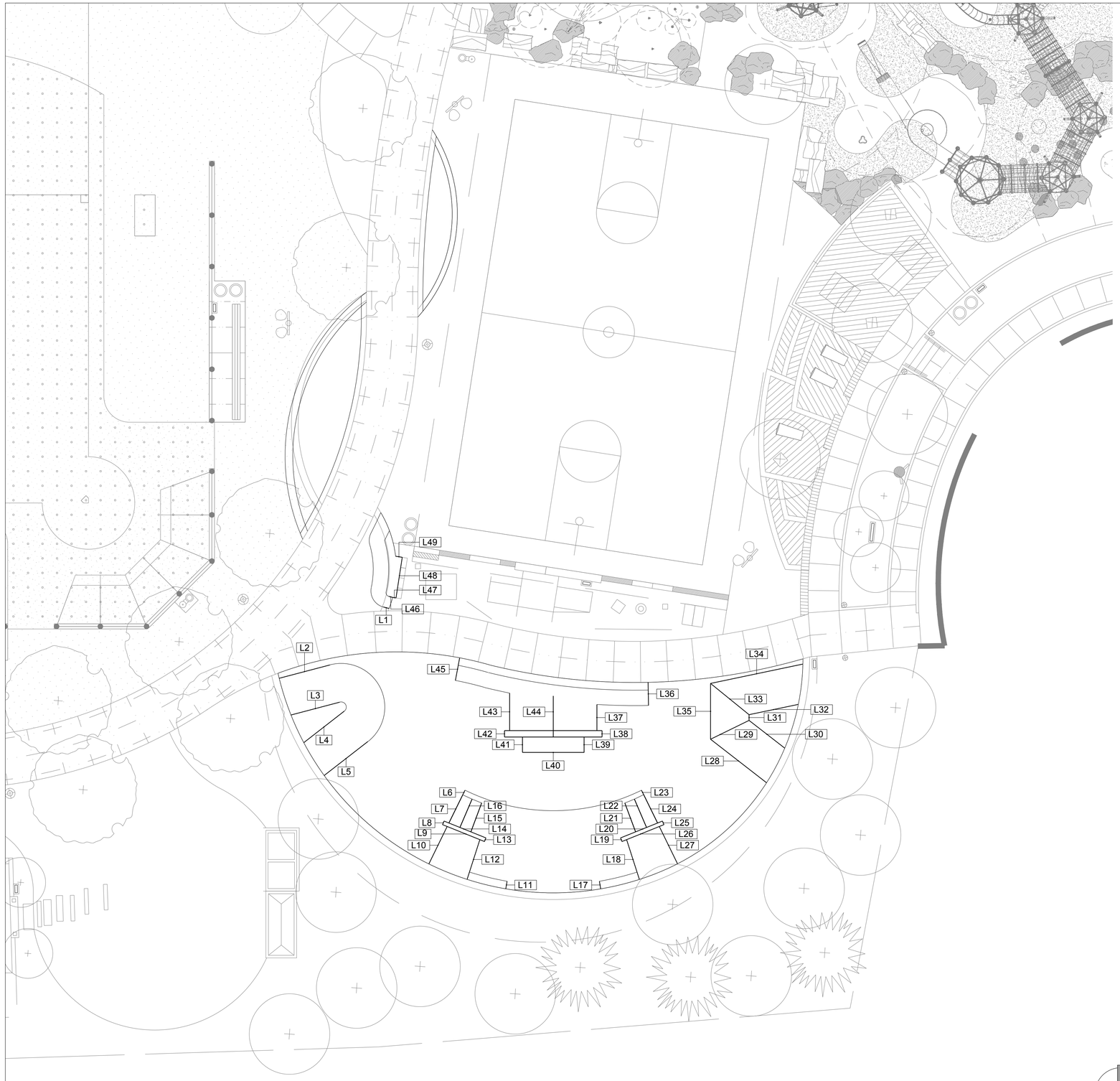
Approved By:

Drawing Title:

SKATE PARK CONTROL POINTS PLAN

Sheet Number: 07

SP-1.5



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LINES	BEARINGS	DISTANCE (IN FEET)
L1	N75°07'59"W	1.15'
L2	S75°13'31"W	10.23'
L3	S75°13'31"W	9.83'
L4	N52°07'55"E	9.99'
L5	N52°07'55"E	10.78'
L6	S26°08'19"W	1.00'
L7	S26°08'19"W	6.12'
L8	S21°56'45"W	0.75'
L9	N68°03'15"W	8.80'
L10	S26°08'19"W	8.12'
L11	S09°40'08"W	1.50'
L12	S17°45'11"W	8.12'
L13	N21°56'45"E	0.75'
L14	N68°03'15"W	8.80'
L15	S20°24'08"W	6.02'
L16	S23°16'05"W	6.01'
L17	S09°40'08"E	1.50'
L18	S17°45'11"E	8.12'
L19	N21°56'45"W	0.75'
L20	N68°03'15"E	8.80'
L21	S20°24'08"E	6.02'
L22	S23°16'05"E	6.01'
L23	S26°08'19"E	0.95'
L24	S26°08'19"E	6.17'
L25	S21°56'45"E	0.75'
L26	N68°03'15"E	8.80'
L27	S26°08'19"E	8.08'
L28	S52°07'55"E	13.80'
L29	S63°56'02"W	8.35'
L30	S52°07'55"E	8.79'
L31	SOUTH	1.11'
L32	N78°10'50"E	9.79'
L33	N50°54'35"W	9.66'
L34	N78°10'50"E	18.36'
L35	NORTH	10.87'
L36	N01°15'02"W	4.50'
L37	SOUTH	5.09'
L38	SOUTH	1.25'
L39	SOUTH	3.00'
L40	WEST	12.00'
L41	SOUTH	3.00'
L42	SOUTH	1.25'
L43	SOUTH	7.31'
L44	SOUTH	6.75'
L45	N10°45'41"E	4.50'
L46	N75°07'59"W	0.76'
L47	S81°10'35"E	0.66'
L48	N08°49'25"E	8.00'
L49	N81°10'35"W	1.32'

10'-0" 0'-0" 20'-0"
5'-0" 10'-0"
Scale: 1" = 10'-0"

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Date: 02.24.2016

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Reviewed By:

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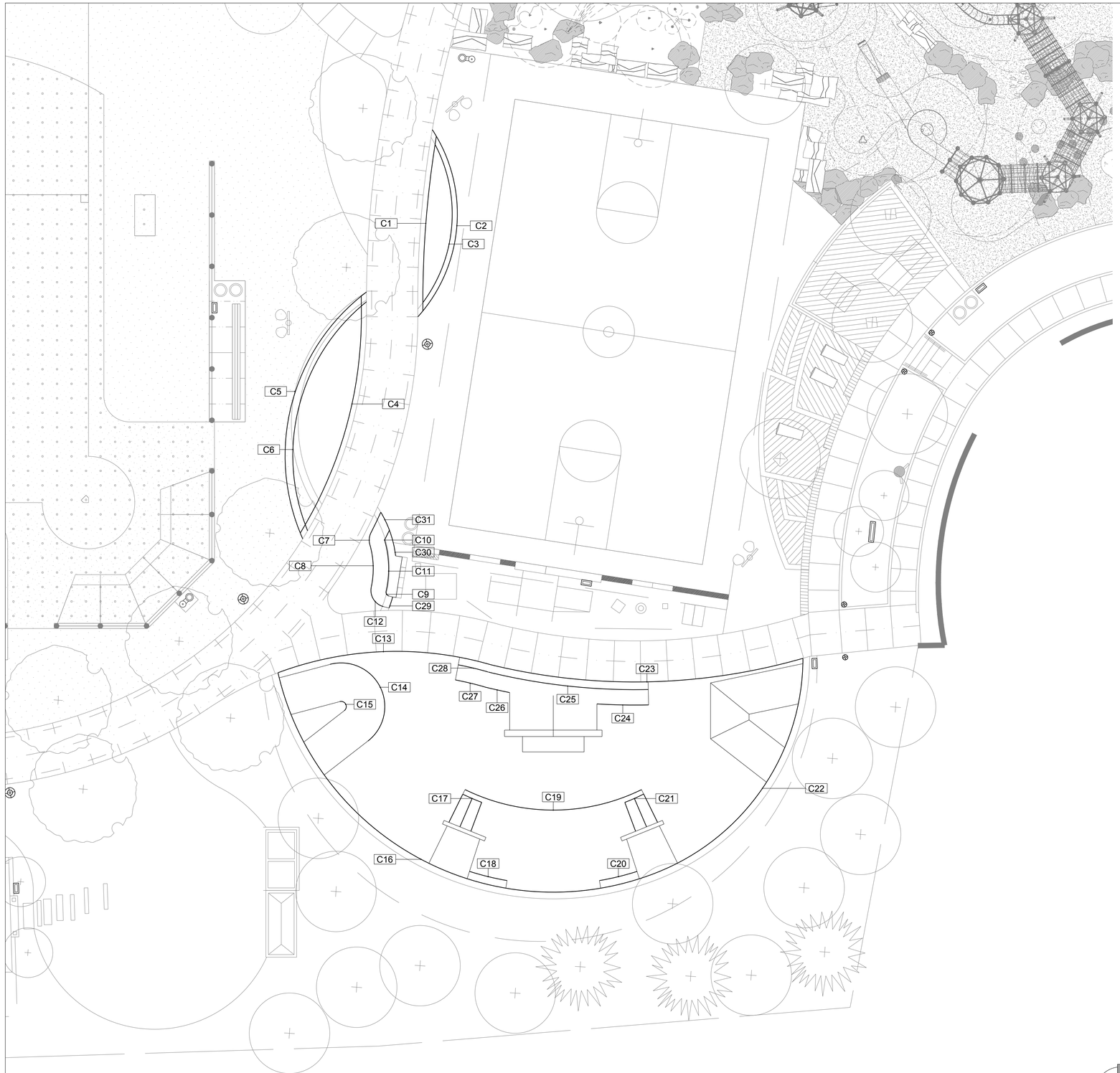
Drawing Title:

SKATE PARK CONTROL LINES PLAN

Sheet Number: 08

SK-1.6



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CURVE	RADIUS	LENGTH	DELTA	TANGENT	CHORD	BEARING
C1	0.75	1.15	87d55'34"	0.72	1.04	N 31°10'12" W
C2	30.00	39.31	75d4'42"	23.05	36.56	N 4°23'38" E
C3	29.00	32.58	64d21'41"	18.25	30.89	N 4°24'37" E
C4	81.00	45.55	32d13'9"	23.39	44.95	N 15°21'27" E
C5	40.00	53.57	76d44'23"	31.67	49.66	N 14°28'00" E
C6	38.50	49.38	73d28'59"	28.74	46.06	N 14°24'12" E
C7	3.25	2.44	42d55'40"	1.28	2.38	N 5°30'48" E
C8	16.98	8.31	28d2'6"	4.24	8.22	N 1°55'59" W
C9	0.75	1.15	87d55'34"	0.72	1.04	N 31°10'12" W
C10	0.25	0.19	42d55'40"	0.10	0.18	N 5°30'48" E
C11	19.98	10.02	28d44'37"	5.12	9.92	N 1°34'44" W
C12	3.25	4.95	87d13'3"	3.10	4.48	N 31°31'28" W
C13	66.00	42.07	36d31'23"	21.78	41.36	N 87°47'46" E
C14	8.50	23.28	156d54'24"	41.61	16.66	N 26°19'17" W
C15	1.00	2.74	156d54'24"	4.89	1.96	N 26°19'17" W
C16	55.00	94.46	98d24'27"	63.73	83.27	N 62°04'01" W
C17	40.00	4.00	5d44'11"	2.00	4.00	N 66°43'46" W
C18	53.50	7.55	8d5'2"	3.78	7.54	N 76°17'21" W
C19	39.00	35.58	52d16'39"	19.14	34.36	WEST
C20	53.50	7.55	8d5'2"	3.78	7.54	S 76°17'21" W
C21	30.00	3.40	6d29'20"	1.70	3.40	S 65°29'05" W
C22	45.00	53.86	68d34'48"	30.69	50.70	S 34°26'21" W
C23	118.75	61.62	29d43'42"	31.52	60.93	S 88°51'17" W
C24	123.25	10.07	4d40'52"	5.04	10.07	N 88°54'35" W
C25	120.25	31.42	14d58'9"	15.80	31.33	N 83°45'57" W
C26	123.25	4.97	2d18'44"	2.49	4.97	N 77°26'14" W
C27	63.26	5.87	5d18'55"	2.94	5.87	S 76°32'39" E
C28	64.50	5.96	5d17'47"	2.98	5.96	S 76°35'25" E
C29	21.48	2.27	6d3'46"	1.14	2.27	S 17°53'54" W
C30	21.48	5.15	13d44'26"	2.59	5.14	S 13°32'48" E
C31	21.48	3.89	10d22'6"	1.95	3.88	S 25°36'04" E

10'-0" 0'-0" 20'-0"
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Reviewed By:

Checked By:

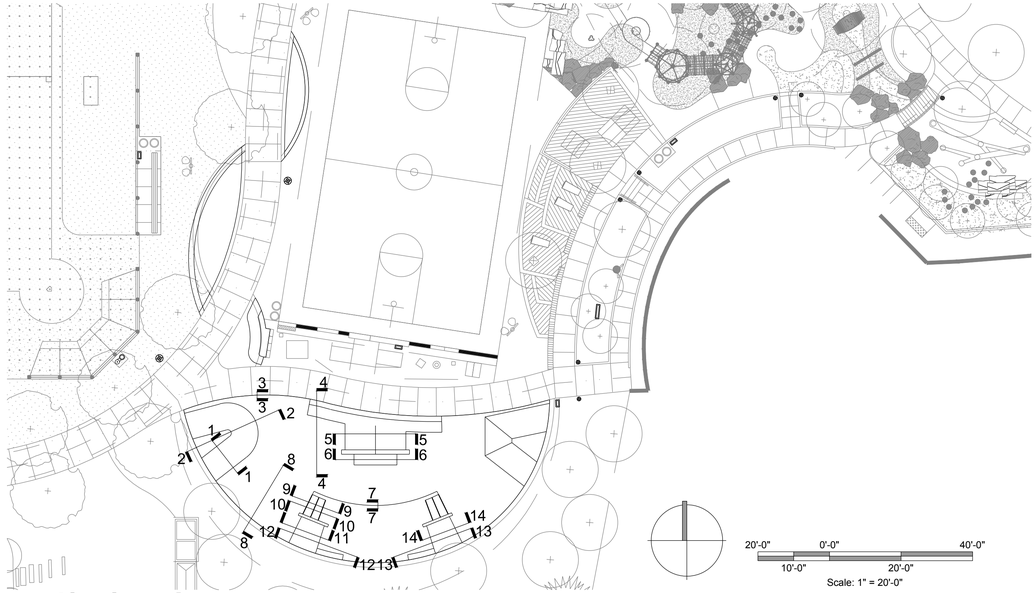
Approved By:

Drawing Title:

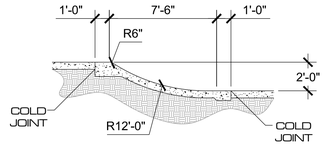
SKATE PARK CONTROL CURVES PLAN

Sheet Number: 09

SK-1.7



section key plan



section 1

section notes

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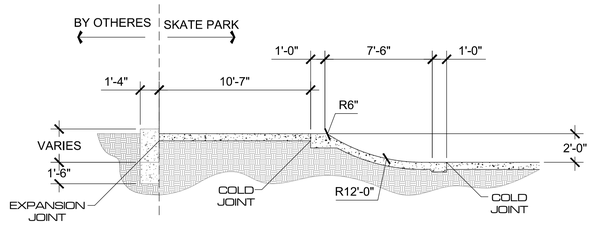

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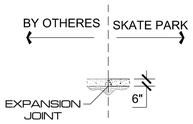

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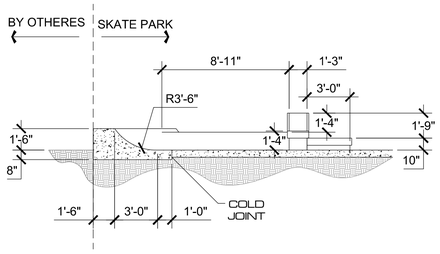

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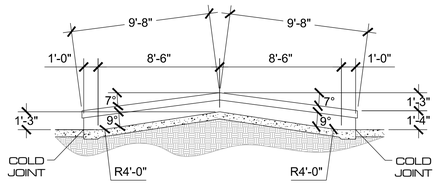

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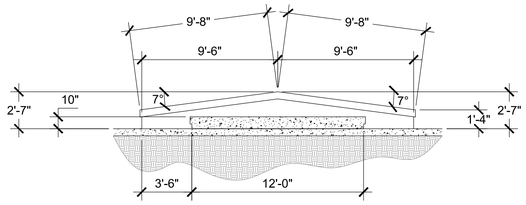

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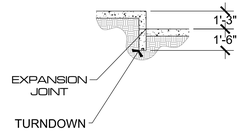

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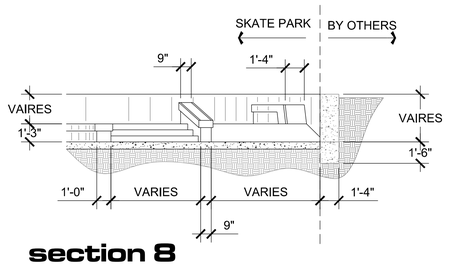

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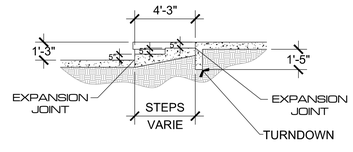

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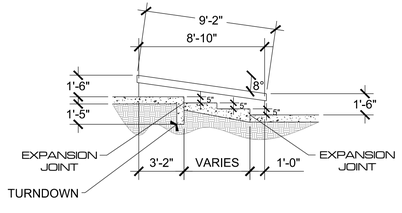

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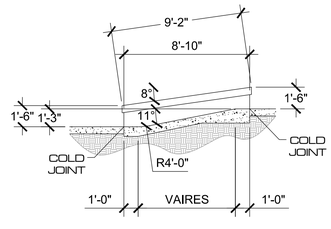

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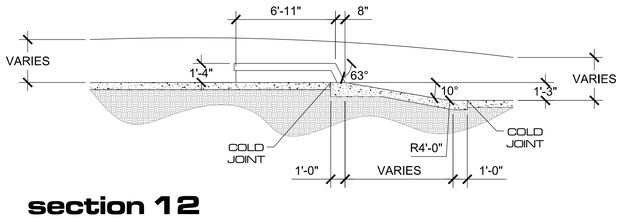

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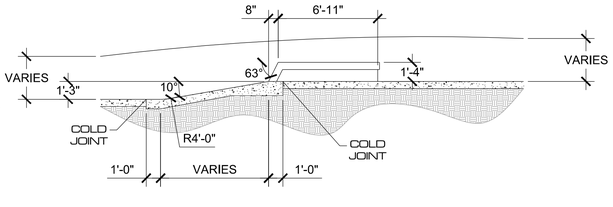

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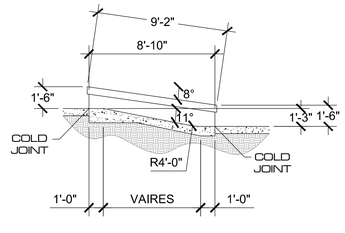

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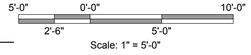

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North:

Revisions:

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Seal:

COMMONWEALTH OF MASSACHUSETTS
JAMES M. LAMB
STRUCTURAL
No. 40969
REGISTERED PROFESSIONAL ENGINEER

CONSTRUCTION DOCUMENTS

Date: 02.24.2016

Scale:

Drawn By:

Reviewed By:

Checked By:

Approved By:

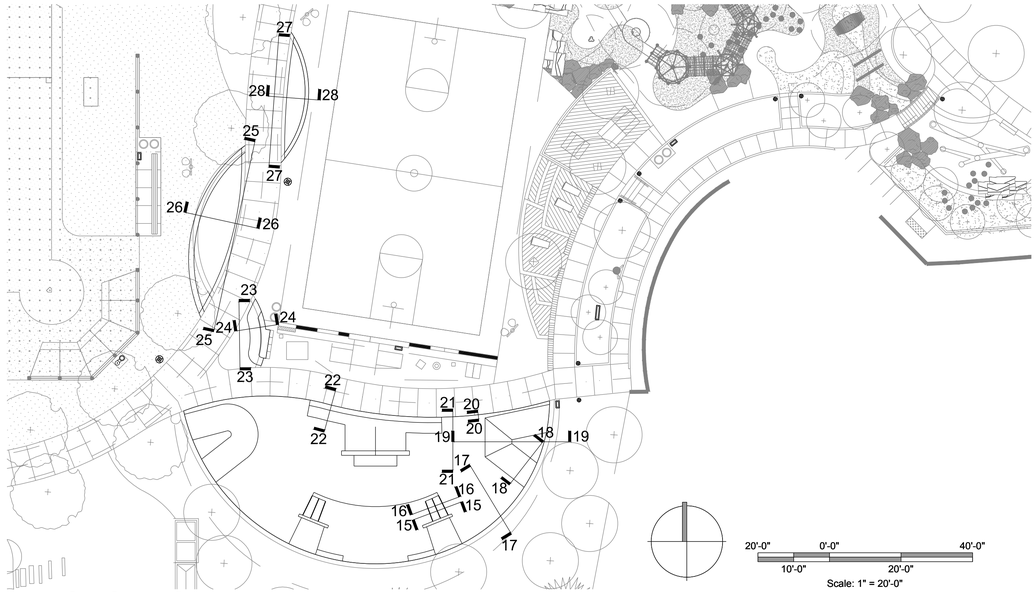
Drawing Title:

SKATE PARK SECTIONS & PROFILES

Sheet Number: 10

SK-2.0

SITE DESIGN GROUP, INC.



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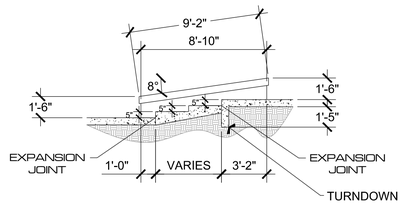
10'-0" 20'-0"
Scale: 1" = 20'-0"

section key plan



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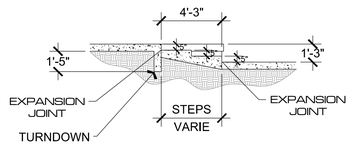

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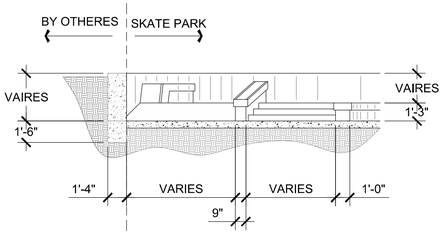

section 17

section notes

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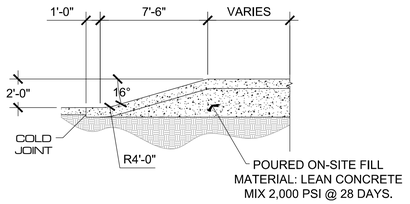

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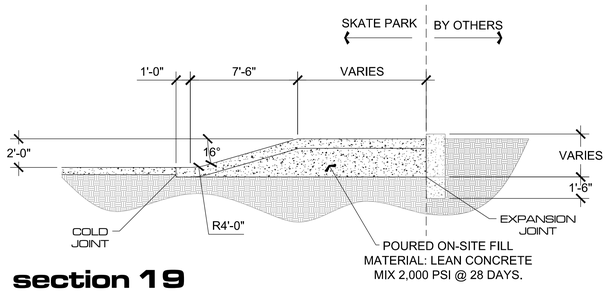

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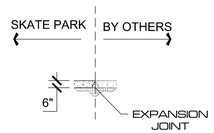

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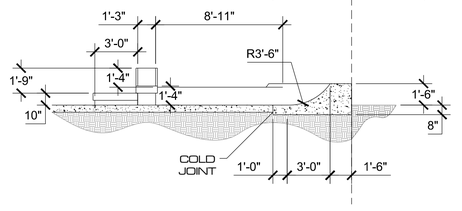

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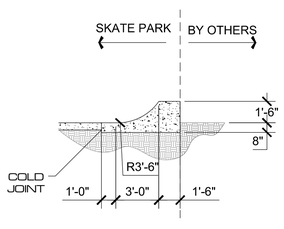

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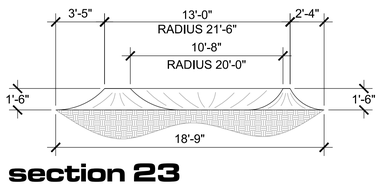

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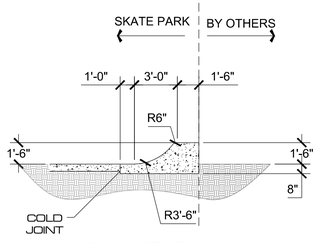

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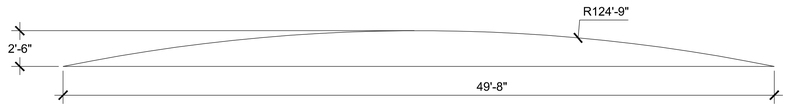

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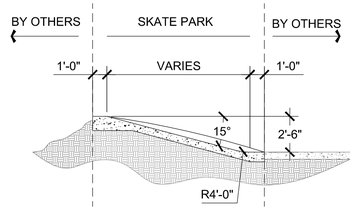

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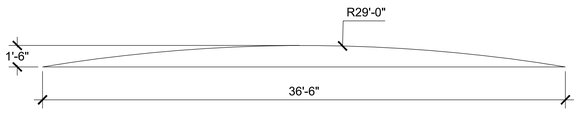

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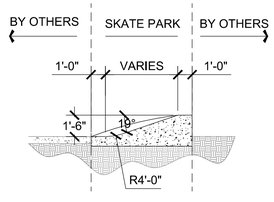

section 28

5'-0" 0'-0" 10'-0"
2'-6" 5'-0"
Scale: 1" = 5'-0"

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Drawing Title:

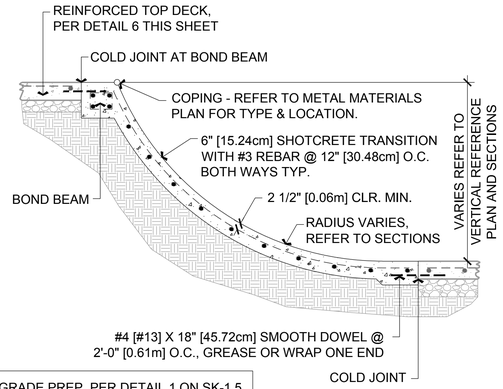
SKATE PARK SECTIONS & PROFILES

Sheet Number: 11

SK-2.1

special note:

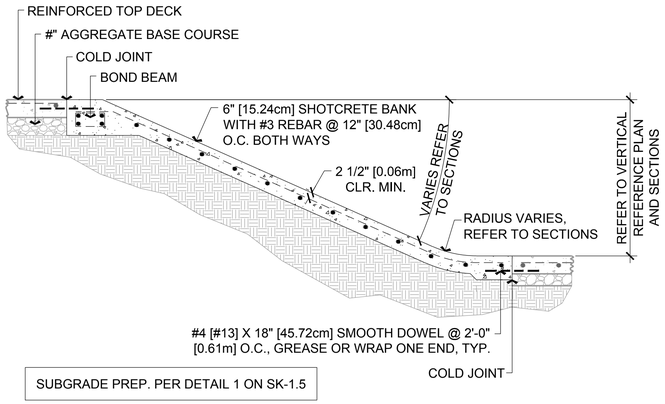
ALL TRANSITIONS (RADIAL WALLS) AND BANKS (EMBANKMENT WALLS) SHALL BE CUT, SCREEDED AND INSPECTED WITH TEMPLATES CUT TO THE SPECIFIED RADIUS/ ANGLE. CONTRACTOR IS TO SUBMIT SHOP DRAWINGS FOR TEMPLATE SIZE, MATERIAL AND LOCATION TO BE USED FOR APPROVAL BY CITY ENGINEER AND SKATE PARK DESIGNER. ALL SHOTCRETE TRANSITIONS AND BANKS TO BE POURED AND INSPECTED PRIOR TO ALL CONCRETE FLATWORK. CONTRACTOR IS TO SUBMIT POUR SCHEDULE BY LOCATION AND SEQUENCE FOR REVIEW BY CITY ENGINEER AND SKATE PARK DESIGNER.



SUBGRADE PREP. PER DETAIL 1 ON SK-1.5

1 typical concrete bowl - section

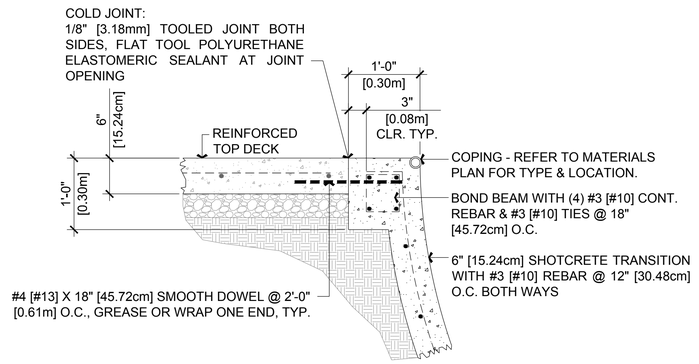
scale: 1/2" = 1'-0"



SUBGRADE PREP. PER DETAIL 1 ON SK-1.5

2 typical concrete bank - section

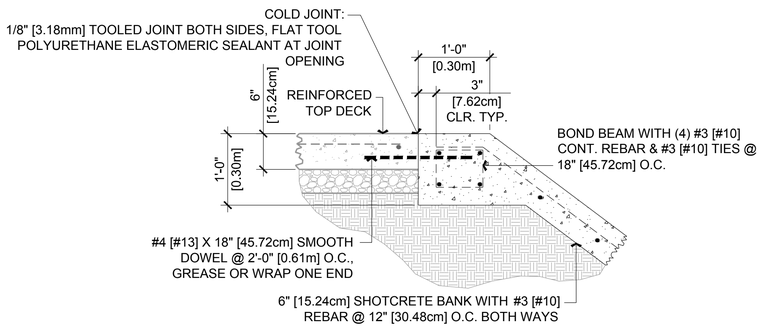
scale: 1/2" = 1'-0"



SUBGRADE PREP. PER DETAIL 1 ON SK-1.5

3 typical transition bond beam

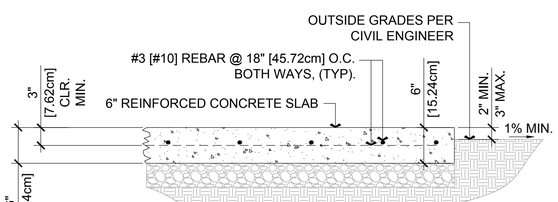
scale: 1" = 1'-0"



SUBGRADE PREP. PER DETAIL 1 ON SK-1.5

4 typical bank bond beam

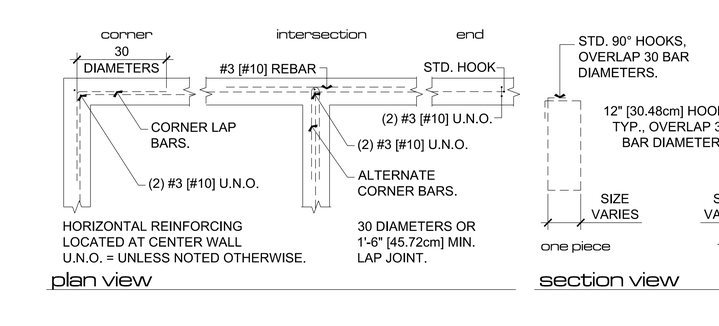
scale: 1" = 1'-0"



SUBGRADE PREP. PER DETAIL 1 ON SK-1.5

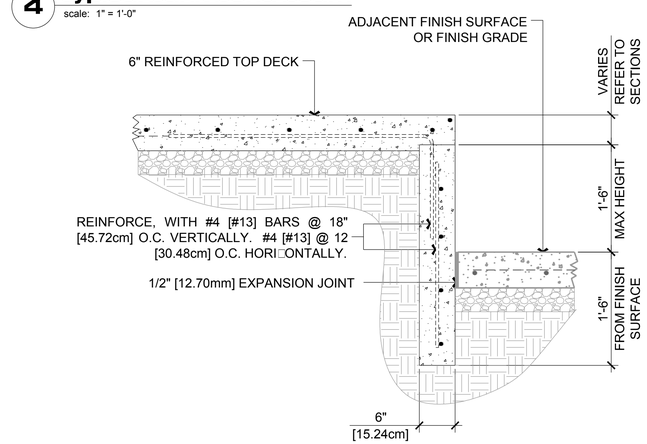
5 6" reinforced top deck

scale: 1" = 1'-0"

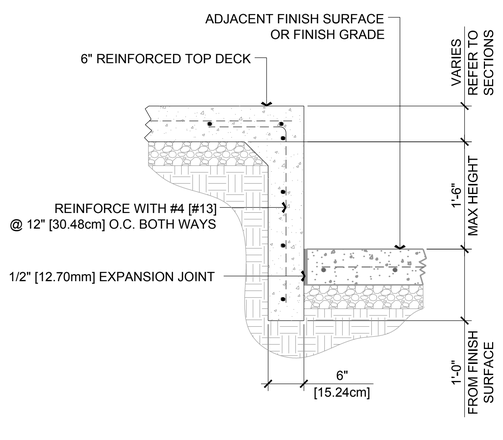


6 concrete reinforcement detail

scale: 1/2" = 1'-0"



SEPERATE POUR TURNDOWN STEM WALL - OPTION 1

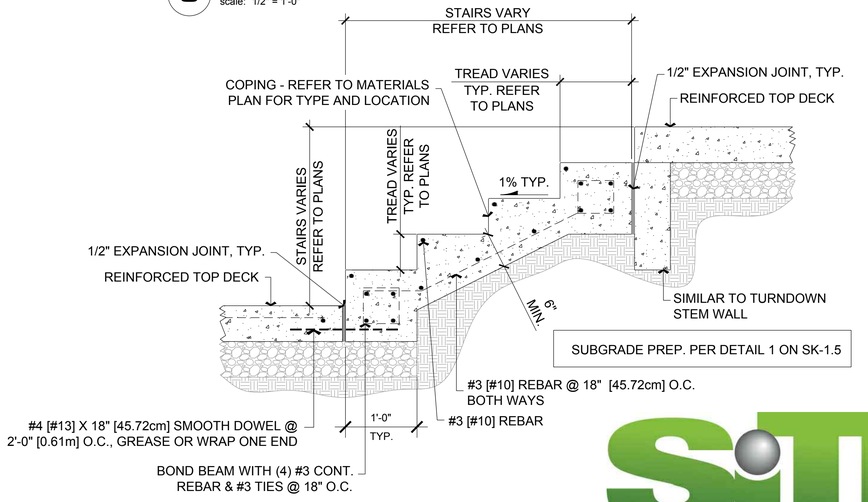


MONOLITHIC POUR TURNDOWN STEM WALL - OPTION 2

SUBGRADE PREP. PER DETAIL 1 ON SK-1.5

7 turndown wall

scale: 1" = 1'-0"



SUBGRADE PREP. PER DETAIL 1 ON SK-1.5

8 concrete stairs

scale: 1" = 1'-0"

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COMMONWEALTH OF MASSACHUSETTS JAMES M. LAMB STRUCTURAL No. 40969 REGISTERED PROFESSIONAL ENGINEER

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Drawn By:

Reviewed By:

Checked By:

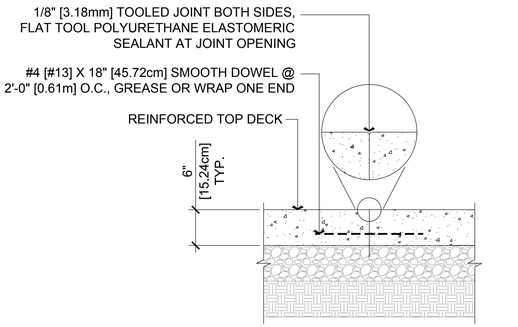
Approved By:

Drawing Title:

SKATE PARK CONSTRUCTION DETAILS

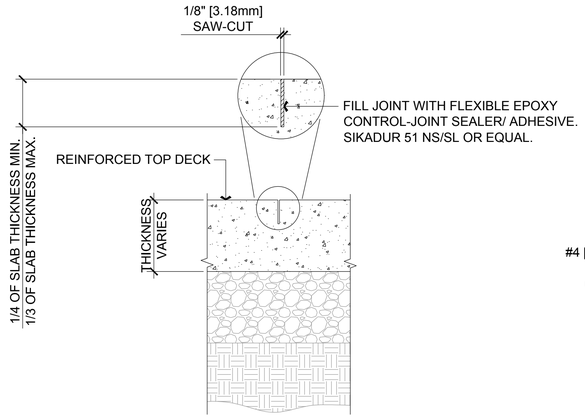
Sheet Number: 12

SK-3.1



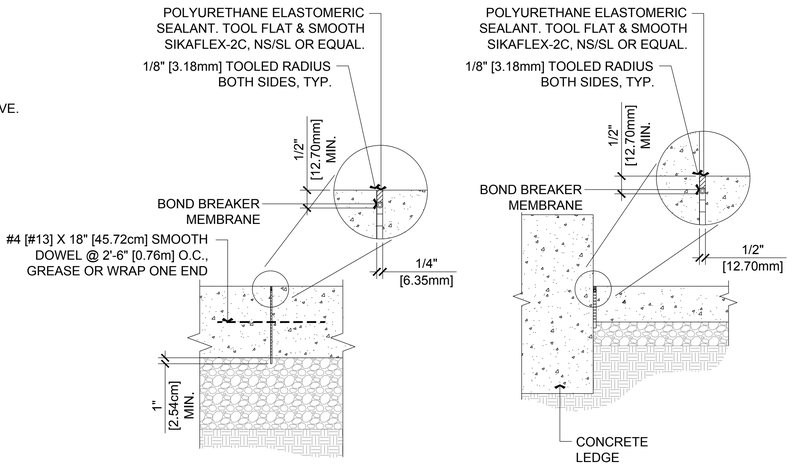
SUBGRADE PREP. PER DETAIL 1 ON SK-1.5

1 cold joint at deck
scale: 1" = 1'-0"



SUBGRADE PREP. PER DETAIL 1 ON SK-1.5

2 saw-cut joint
scale: 1" = 1'-0"

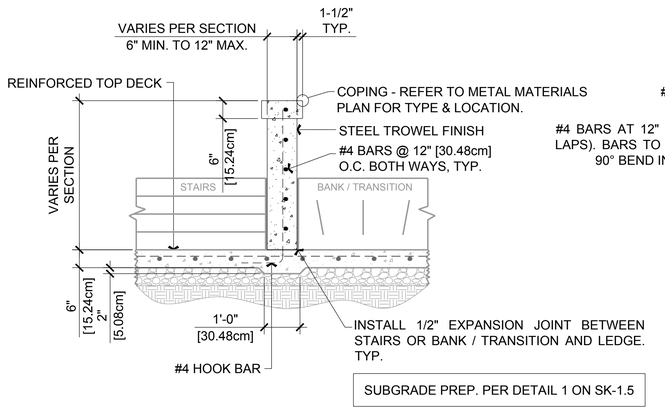


note:
MINIMUM CAULKING THICKNESS WITH BOND BREAKER IN PLACE IS 1/4" [6.35mm]
1/4" expansion joint at flatwork

note:
MINIMUM CAULKING THICKNESS WITH BOND BREAKER IN PLACE IS 1/2" [12.70mm]
1/2" expansion joint at concrete ledge

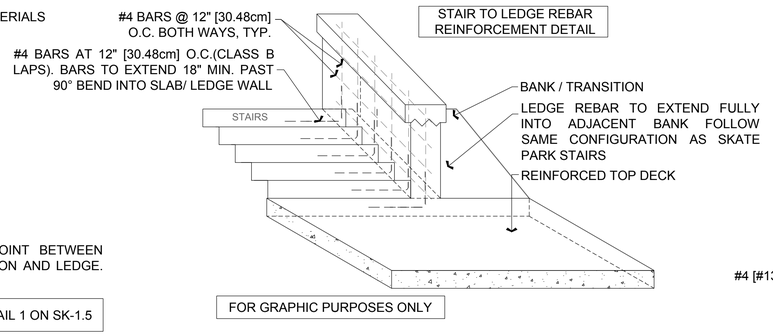
SUBGRADE PREP. PER DETAIL 1 ON SK-1.5

3 expansion joint
scale: 1" = 1'-0"

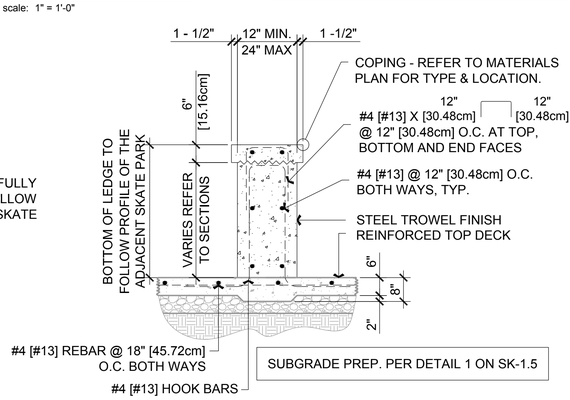


SUBGRADE PREP. PER DETAIL 1 ON SK-1.5

4 small grind ledge
scale: 1/2" = 1'-0"

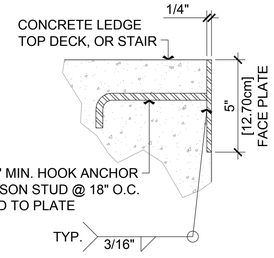


FOR GRAPHIC PURPOSES ONLY

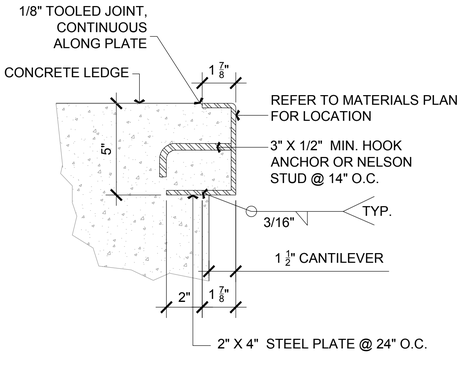


SUBGRADE PREP. PER DETAIL 1 ON SK-1.5

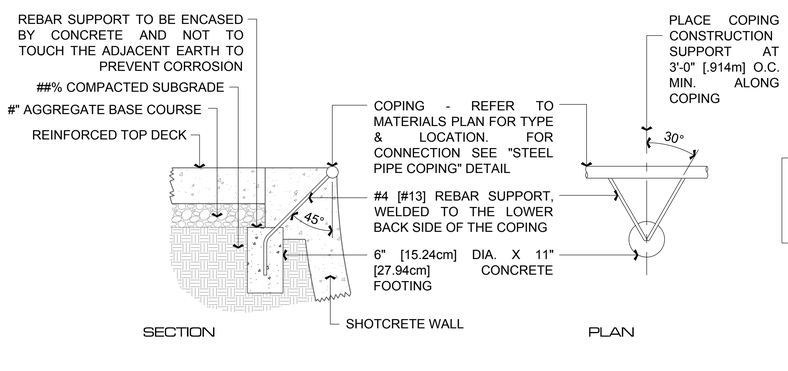
5 medium grind ledge
scale: 1/2" = 1'-0"



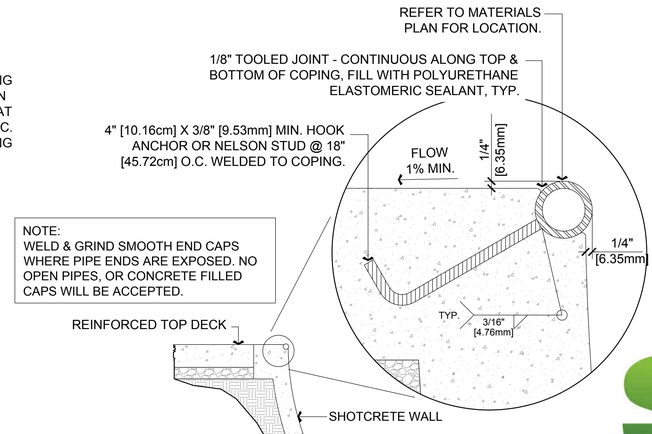
6 5" protective steel face plate
scale: 1/4" = 1'-0"



7 5" C-Channel
scale: 1/4" = 1'-0"



8 coping construction support
scale: 1" = 1'-0"



9 2" round steel coping detail
scale: 1" = 1'-0"

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North:

Revisions:

Rev	Date	Description

Seal:

COMMONWEALTH OF MASSACHUSETTS
JAMES M. LAPE
STRUCTURAL
No. 40969
REGISTERED PROFESSIONAL ENGINEER

CONSTRUCTION DOCUMENTS

Date: 02.24.2016

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Reviewed By:

Checked By:

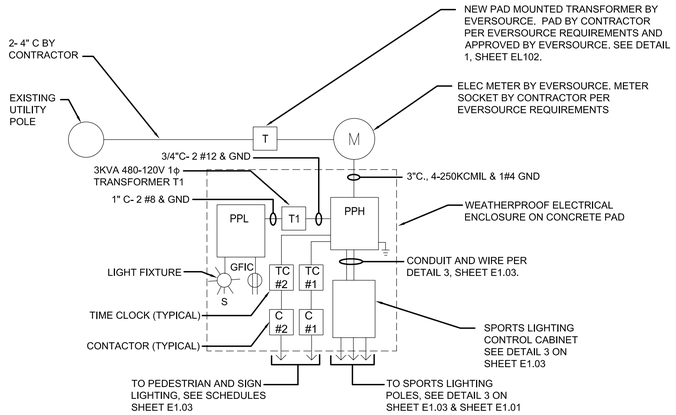
Approved By:

Drawing Title:

SKATE PARK CONSTRUCTION DETAILS

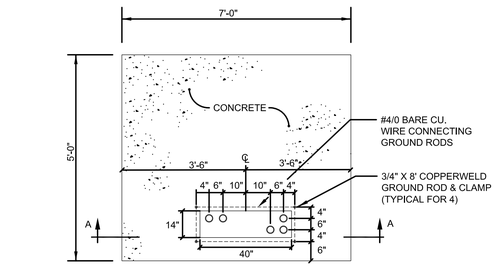
Sheet Number: 13

SK-3.2



1 ONE LINE DIAGRAM

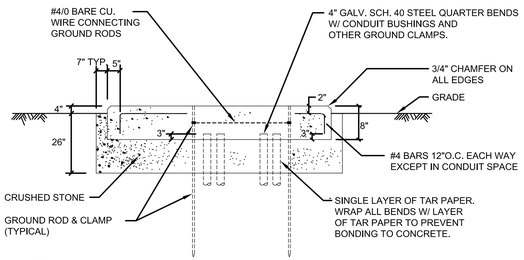
SCALE: N.T.S.



PLAN

NOT TO SCALE

NOTE:
CONTRACTOR SHALL COORDINATE ALL TRANSFORMER PAD DIMENSIONS AND REQUIREMENTS WITH EVERSOURCE ELECTRIC PRIOR TO INSTALLATION.



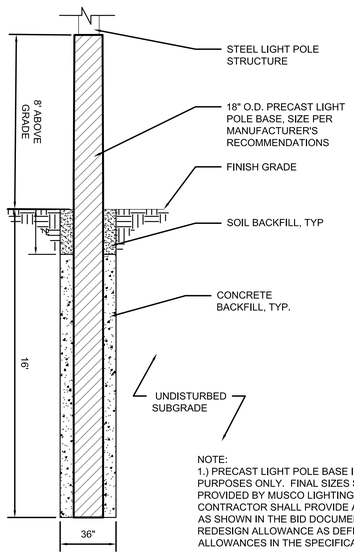
NOTE:
PRIMARY AND SECONDARY CONDUITS SHALL BE 4" RIGID GALVANIZED STEEL.

SECTION "A-A"

NOT TO SCALE

5 TRANSFORMER PAD DETAIL

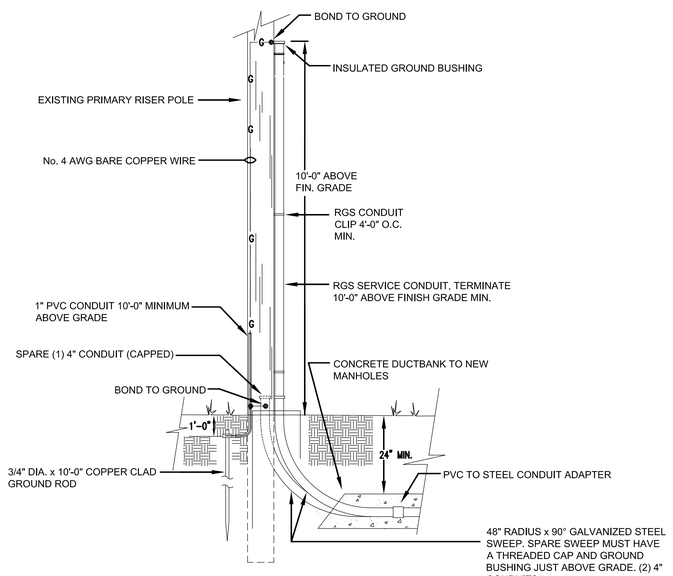
SCALE: N.T.S.



NOTE:
1.) PRECAST LIGHT POLE BASE IS SIZED FOR BIDDING PURPOSES ONLY. FINAL SIZES SHALL BE DESIGNED AND PROVIDED BY MUSCO LIGHTING FOR CONSTRUCTION. CONTRACTOR SHALL PROVIDE A PRICE FOR FOOTINGS AS SHOWN IN THE BID DOCUMENTS IN ADDITION TO THE REDESIGN ALLOWANCE AS DEFINED IN SECTION 01 21 00 ALLOWANCES IN THE SPECIFICATIONS.

2 LIGHT POLE FOUNDATIONS

SCALE: N.T.S.



3 TYPICAL RISER POLE DETAIL

SCALE: N.T.S.

GENERAL ELECTRICAL NOTES :

1. DRAWINGS ARE DIAGRAMMATIC ONLY. THE EXACT LOCATION, MOUNTING HEIGHTS, SIZE OF EQUIPMENT AND ROUTING OF RACEWAYS SHALL BE COORDINATED AND DETERMINED IN THE FIELD.
2. WORK SHALL CONFORM TO THE MASSACHUSETTS ELECTRICAL CODE AND MASSACHUSETTS BUILDING CODE AND REQUIREMENTS OF LOCAL AUTHORITIES HAVING JURISDICTION.
3. THE WORD "CONTRACTOR" AS USED IN THE "ELECTRICAL WORK" SHALL MEAN THE ELECTRICAL SUBCONTRACTOR.
4. CONTRACTOR SHALL PAY FOR ALL PERMITS, INSURANCE AND TESTS, AND SHALL PROVIDE LABOR AND MATERIAL TO COMPLETE THE ELECTRICAL WORK SHOWN.
5. CONTRACTOR SHALL PAY ELECTRIC UTILITY COMPANY BACKCHARGES AND PROVIDE COORDINATION WITH SAME.
6. EXCEPT AS OTHERWISE NOTED, THE ELECTRICAL WORK SHALL INCLUDE PANELBOARDS, CIRCUIT BREAKERS, FEEDERS, WIRING, RACEWAYS, LIGHTING FIXTURES, DEVICES, SAFETY SWITCHES, MOUNTING AND WIRING, TRANSFORMERS AND CONNECTIONS NECESSARY TO OPERATE ALL EQUIPMENT.
7. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY LIGHTING AND POWER AND PAY ALL ENERGY CHARGES.
8. DURING CONSTRUCTION, THE ELECTRICAL CONTRACTOR SHALL KEEP HIS PORTION OF THE WORK NEAT, CLEAN AND ORDERLY.
9. ALL SYSTEMS SHALL BE TESTED FOR SHORT CIRCUIT AND GROUNDS PRIOR TO ENERGIZING AND ANY DEFECTS SHALL BE CORRECTED.
10. ALL CUTTING AND PATCHING REQUIRED FOR ELECTRICAL WORK SHALL BE INCLUDED AS PART OF THIS SECTION.
11. COMPLETE SHOP DRAWINGS SHALL BE SUBMITTED FOR ELECTRICAL EQUIPMENT. WHERE SPECIFIED, ELECTRICAL EQUIPMENT IS SUBSTITUTED. THE ELECTRICAL CONTRACTOR SHALL SUBMIT COMPLETE SPECIFICATIONS ON THE SUBSTITUTE AS WELL AS THE ITEM ORIGINALLY SPECIFIED.
12. MATERIALS SHALL BE SPECIFICATION GRADE AND UL LISTED.
13. WHERE MATERIAL IS CALLED OUT IN THE LEGEND BY MANUFACTURER, TYPE OR CATALOG NUMBER, SUCH DESIGNATIONS ARE TO ESTABLISH STANDARDS OR DESIRED QUALITY. ACCEPTANCE OR REJECTIONS OF PROPOSED SUBSTITUTIONS SHALL BE SUBJECT TO THE APPROVAL OF THE OWNER.
14. WORK SHALL BE COORDINATED WITH THAT OF OTHER TRADES TO ELIMINATE INTERFERENCES.
15. ELECTRICAL WORK SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM DATE OF WHICH SYSTEM IS PUT INTO SERVICE.
16. WORK SHALL BE GROUNDED IN ACCORDANCE WITH CODE REQUIREMENTS. COMPLETE EQUIPMENT (INSULATED GREEN WIRE) GROUNDING SYSTEM SHALL BE INSTALLED.
17. WIRE SHALL BE TYPE "THHN/THWN" INSULATED FOR 600 VOLTS, MINIMUM SIZE #12 AWG COPPER UNLESS SPECIFICALLY NOTED OTHERWISE.
18. WIRING METHODS:
    A. BELOW GRADE WIRING SHALL BE SCHEDULE 80 PVC.
19. PANELBOARDS SHALL BE DEAD FRONT, THERMAL MAGNETIC BOLT-ON CIRCUIT BREAKER TYPE, DESIGNED FOR SURFACE MOUNTING AS INDICATED ON PLAN, AND HAVING CONNECTIONS TO 277/480 VOLT, 3 PHASE, 4 WIRE SERVICE. ALL BUS BARS SHALL BE COPPER. CABINETS SHALL BE MADE OF CODE GAUGE GALVANIZED SHEET STEEL, WITH A MINIMUM OF 4 INCH GUTTERS, DOOR IN DOOR CONSTRUCTION, LOCKED DOOR, AND FLUSH HINGES. TYPEWRITTEN INDEX SHALL BE MOUNTED ON DOOR INSIDE TRANSPARENT COVER INDICATING LOAD SERVED. PANELS SHALL INCLUDE SEPARATE EQUIPMENT GROUND BUS.
20. CONDUIT RUNS AS SHOWN ON THE PLANS ARE DIAGRAMMATIC ONLY; EXACT LOCATION AND METHOD OF SUPPORT SHALL BE DETERMINED IN THE FIELD.
21. CONTRACTOR SHALL CHECK EXISTING CONDITIONS TO DETERMINE EXACT EXTENT OF WORK TO BE PERFORMED PRIOR TO BIDDING. DIMENSIONS RELEVANT TO EXISTING WORK SHALL BE VERIFIED IN THE FIELD.
22. PROVIDE AS-BUILT "CADD" DRAWINGS AT THE COMPLETION OF THE PROJECT.

ELECTRICAL SYMBOL LIST

RECEPTACLES

- DUPLEX CONVENIENCE OUTLET RATED 20A, 125V, U-SLOT GROUNDED TYPE, ALL OTHER MOUNTING HEIGHTS SHALL BE AS NOTED ADJACENT TO THE SYMBOL. REFER TO RECEPTACLE ABBREVIATIONS FOR SPECIAL PURPOSE RECEPTACLES
- GFIC — DUPLEX RECEPTACLE WITH INTERGRAL GROUND FAULT INTERRUPTER

RACEWAY AND WIRING

- PP-1,3 — -HOMERUN TO PANELBOARD, NUMBER OF SLASH MARKS INDICATES NUMBER OF #12 AWG CONDUCTORS IN MINIMUM 3/4" CONDUIT. NO SLASH MARKS INDICATE 2#12 & 1#12G, 3/4"C UNLESS OTHERWISE NOTED
  -GREEN GROUND CONDUCTOR IS NOT INDICATED BUT SHALL BE INCLUDED IN EACH RACEWAY, SIZE SHALL BE #12 UNLESS INDICATED OTHERWISE.
  -HOMERUNS TO PANELBOARDS SHALL HAVE A MAXIMUM OF THREE PHASE CONDUCTORS (ONE PER PHASE) PLUS NEUTRAL AND GROUND CONDUCTOR IN EACH CONDUIT.
- NEW UNDERGROUND ELECTRIC LINE
- EXISTING UNDERGROUND ELECTRIC LINE
- EXISTING UNDERGROUND ELECTRIC LINE TO BE REMOVED

MISCELLANEOUS

- J — JUNCTION BOX WITH BLANK COVERPLATE, SIZE AS REQUIRED BY N.E.C.
- TC — TIME CLOCK
- C — CONTACTOR
- M — ELECTRIC UTILITY BILLING METER
- 5/8"x10' COPPER GROUND ROD
- XM — EXISTING TO REMAIN
- XR — EXISTING TO BE REMOVED
- PB — PULL BOX/HANDHOLE SEE DETAIL 1 DRAWING EL103

POWER DISTRIBUTION EQUIPMENT

- HH — HAND HOLE
- 200/3 — CIRCUIT BREAKER 200AMP-3 POLE

LIGHTING

- C1 / S1 — SPORTS LIGHT POLE - 'S1' INDICATES POLE NUMBER 'C1' INDICATES CONTACTOR OR CONTRACTORS CONTROLLING POLE MOUNTED FIXTURES
- PEDESTRIAN LIGHTING

ABBREVIATIONS

A	AMPERE	NTS	NOT TO SCALE
AF	AMPERE FRAME	PNL	PANELBOARD
AC	ALTERNATING CURRENT	PH	PHASE
AT	AMPERE TRIP	FL	FLOOR
ATS	AUTOMATIC TRANSFER SWITCH	FLA	FULL LOAD AMPERE
BKR	BREAKER	GC	GENERAL CONTRACTOR
C	CONDUIT	GFI	GROUND FAULT INTERRUPTER
CKT	CIRCUIT	GND	GROUND
CB	CIRCUIT BREAKER	IG	ISOLATED GROUND
EC	ELECTRICAL CONTRACTOR	JB	JUNCTION BOX
EMT	ELECTRIC METALLIC TUBING	KVA	KILOVOLT AMPERES
KW	KILOWATT	PVC	POLYVINYL CHLORIDE CONDUIT
MCB	MAIN CIRCUIT BREAKER	RSC	RIGID GALVANIZED STEEL CONDUIT
MLO	MAIN LUGS ONLY	XFMR	TRANSFORMER
MC	MECHANICAL CONTRACTOR	V	VOLTS
MTD	MOUNTED	W	WATTS OR WIRE
MTG	MOUNTING	WP	WEATHERPROOF
NMC	NON-METALLIC CONDUIT		
NA	NOT APPLICABLE		
NIC	NOT IN CONTRACT		

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Revisions:

Rev	Date	Description
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Seal:

2/24/2016

CONSTRUCTION DOCUMENTS

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Drawn By:	MS
Reviewed By:	RM
Checked By:	RM
Approved By:	RM

Drawing Title:

ELECTRICAL LEGEND, GENERAL NOTES AND DETAILS

Sheet Number:

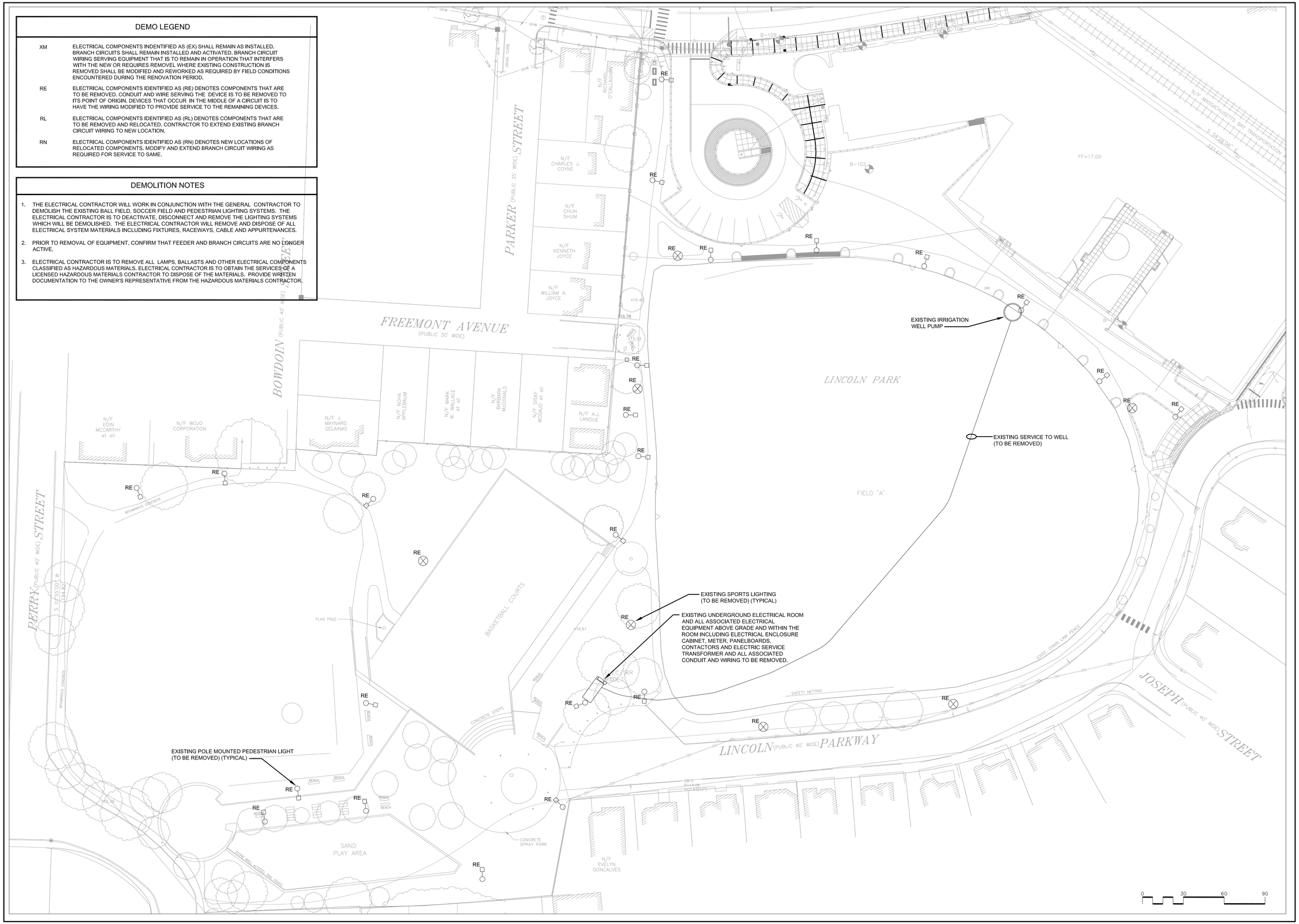
E0.01

DEMO LEGEND

XM	ELECTRICAL COMPONENTS INDENTIFIED AS (EX) SHALL REMAIN AS INSTALLED. BRANCH CIRCUITS SHALL REMAIN INSTALLED AND ACTIVATED. BRANCH CIRCUIT WIRING SERVING EQUIPMENT THAT IS TO REMAIN IN OPERATION THAT INTERFERS WITH THE NEW OR REQUIRES REMOVEL WHERE EXISTING CONSTRUCTION IS REMOVED SHALL BE MODIFIED AND REWORKED AS REQUIRED BY FIELD CONDITIONS ENCOUNTERED DURING THE RENOVATION PERIOD.
RE	ELECTRICAL COMPONENTS IDENTIFIED AS (RE) DENOTES COMPONENTS THAT ARE TO BE REMOVED. CONDUIT AND WIRE SERVING THE DEVICE IS TO BE REMOVED TO ITS POINT OF ORIGIN. DEVICES THAT OCCUR IN THE MIDDLE OF A CIRCUIT IS TO HAVE THE WIRING MODIFIED TO PROVIDE SERVICE TO THE REMAINING DEVICES.
RL	ELECTRICAL COMPONENTS IDENTIFIED AS (RL) DENOTES COMPONENTS THAT ARE TO BE REMOVED AND RELOCATED. CONTRACTOR TO EXTEND EXISTING BRANCH CIRCUIT WIRING TO NEW LOCATION.
RN	ELECTRICAL COMPONENTS IDENTIFIED AS (RN) DENOTES NEW LOCATIONS OF RELOCATED COMPONENTS. MODIFY AND EXTEND BRANCH CIRCUIT WIRING AS REQUIRED FOR SERVICE TO SAME.

DEMOLITION NOTES

1. THE ELECTRICAL CONTRACTOR WILL WORK IN CONJUNCTION WITH THE GENERAL CONTRACTOR TO DEMOLISH THE EXISTING BALL FIELD, SOCCER FIELD AND PEDESTRIAN LIGHTING SYSTEMS. THE ELECTRICAL CONTRACTOR IS TO DEACTIVATE, DISCONNECT AND REMOVE THE LIGHTING SYSTEMS WHICH WILL BE DEMOLISHED. THE ELECTRICAL CONTRACTOR WILL REMOVE AND DISPOSE OF ALL ELECTRICAL SYSTEM MATERIALS INCLUDING FIXTURES, RACEWAYS, CABLE AND APPURTENANCES.
2. PRIOR TO REMOVAL OF EQUIPMENT, CONFIRM THAT FEEDER AND BRANCH CIRCUITS ARE NO LONGER ACTIVE.
3. ELECTRICAL CONTRACTOR IS TO REMOVE ALL LAMPS, BALLASTS AND OTHER ELECTRICAL COMPONENTS CLASSIFIED AS HAZARDOUS MATERIALS. ELECTRICAL CONTRACTOR IS TO OBTAIN THE SERVICES OF A LICENSED HAZARDOUS MATERIALS CONTRACTOR TO DISPOSE OF THE MATERIALS. PROVIDE WRITTEN DOCUMENTATION TO THE OWNER'S REPRESENTATIVE FROM THE HAZARDOUS MATERIALS CONTRACTOR.



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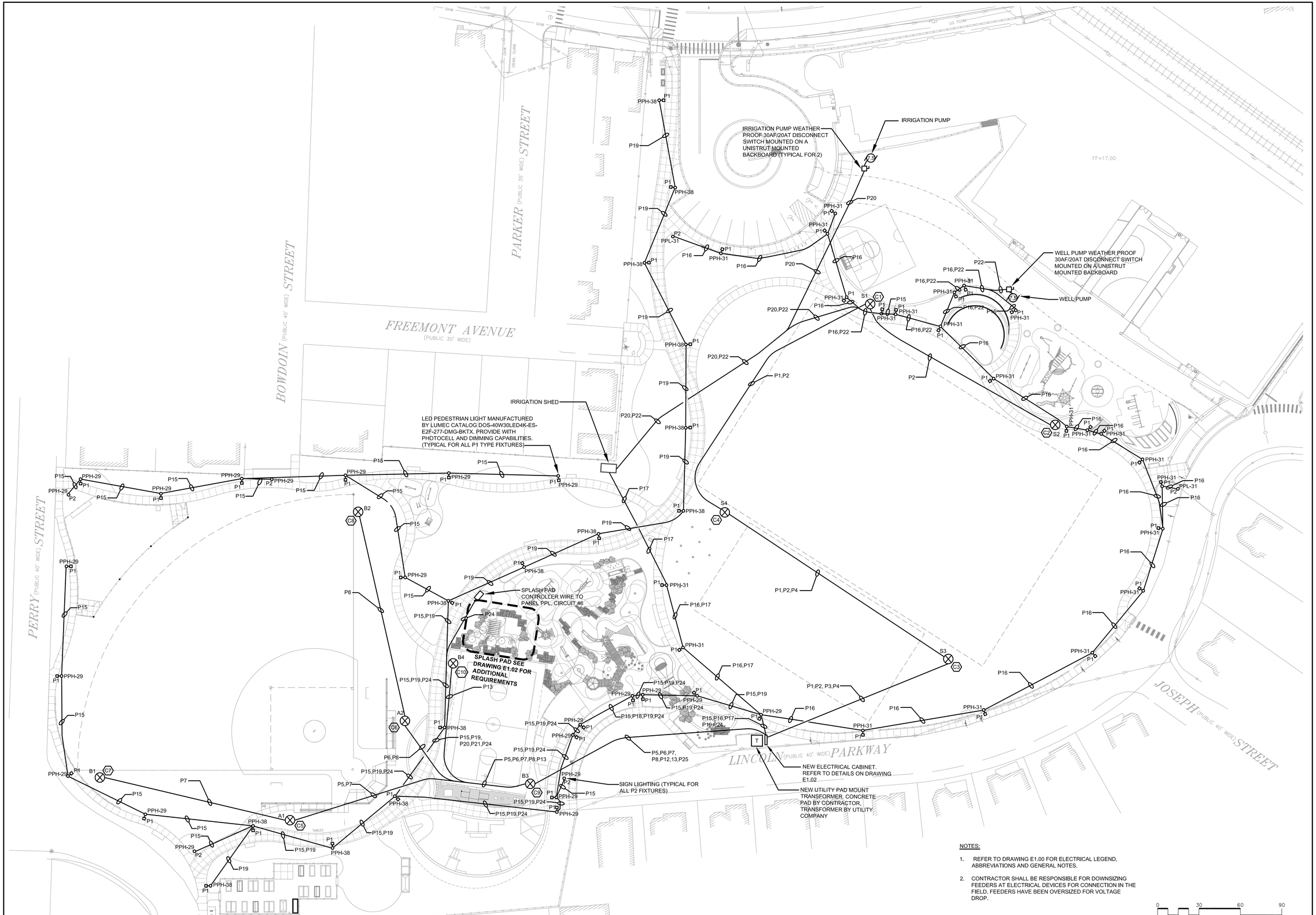
Reviewed By:	RFM
Checked By:	RFM
Approved By:	RFM

Drawing Title:

ELECTRICAL SITE EXISTING CONDITIONS/ DEMOLITION PLAN

Sheet Number:

E1.00



NOTES:

1. REFER TO DRAWING E1.00 FOR ELECTRICAL LEGEND, ABBREVIATIONS AND GENERAL NOTES.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR DOWNSIZING FEEDERS AT ELECTRICAL DEVICES FOR CONNECTION IN THE FIELD. FEEDERS HAVE BEEN OVERSIZED FOR VOLTAGE DROP.

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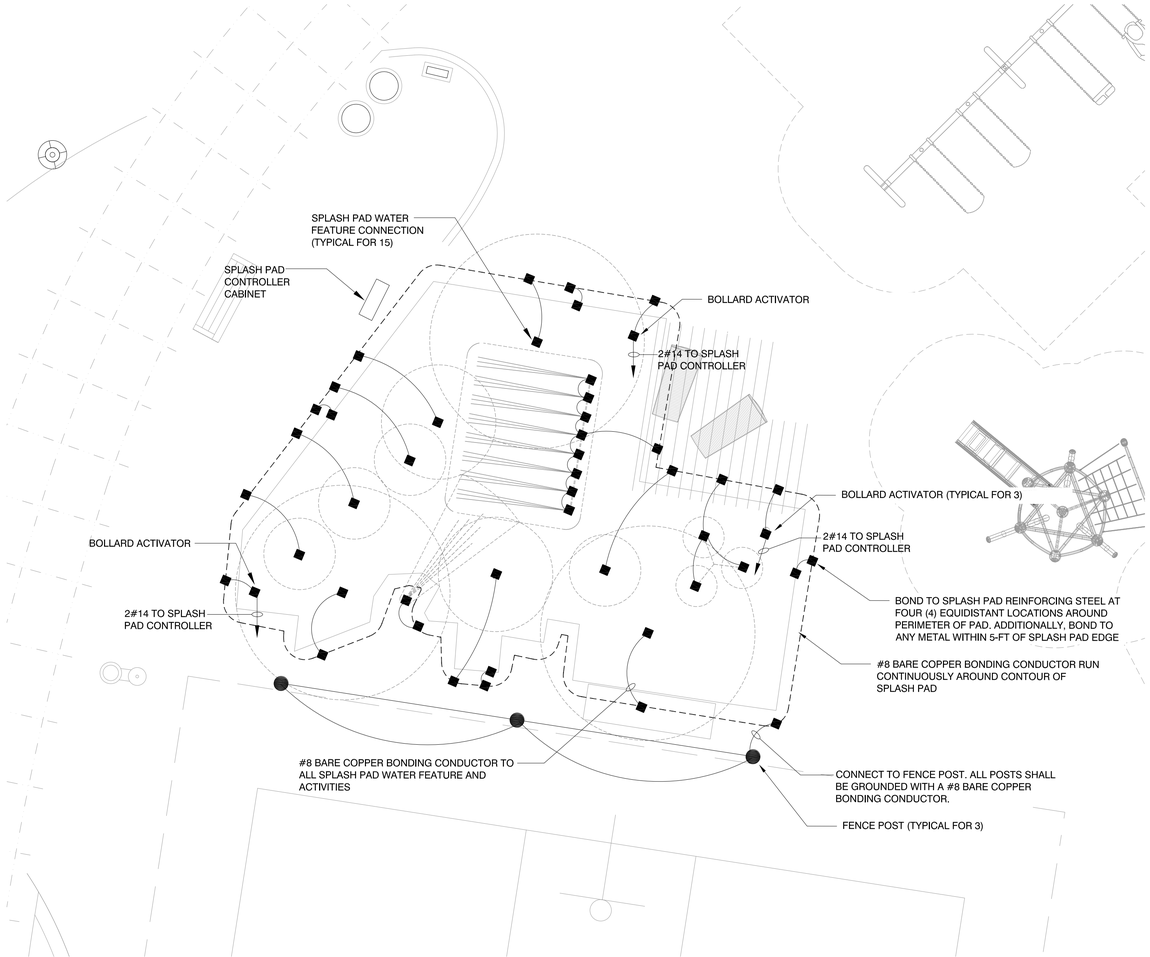
Drawing Title:

ELECTRICAL SITE PLAN

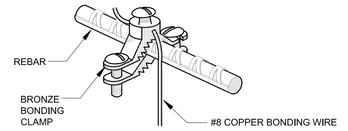
Sheet Number:

E1.01



ELECTRICAL SITE BONDING PLAN

SCALE: 1" = 5'-0"



BONDING DETAIL

SCALE: NTS

EQUIPOTENTIAL BONDING GRID

REFER TO NEC ARTICLE 680.26

EQUIPOTENTIAL BONDING GRID TO RUN CONTINUOSULY AROUND THE CONTOUR OF THE SPLASH PAD EXTENDING 18" TO 24" FROM THE OUTSIDE WALLS OF THE SPLASH PAD. THE 4"-6" BELOW GRADE GRID PATTERN SHALL BE SECURED WITHIN OR UNDER THE SPLASH PAD DECK MEDIA. THE GRID SHALL BE CONSTRUCTED OF MINIMUM #8 AWG BARE SOLID COPPER CONDUCTORS.

EQUIPOTENTIAL BONDING CONDUCTOR SHALL COMPLY WITH NEC 2014 ARTICLE 680.26.

SPLASH PAD BONDING NOTES :

1. ALL METALLIC PARTS OF THE SPLASH PAD STRUCTURES, INCLUDING THE REINFORCING METAL OF THE PAD, FOUNTAINS AND ALL OTHER METALLIC COMPONENTS AS REQUIRED BY CODE SHALL BE BONDED PER THE REQUIREMENTS OF THE CURRENT ELECTRICAL CODE.
2. SOLID COPPER BONDING CONDUCTORS SHALL NOT BE SMALLER THAN NO. 8 AWG AND SHALL BE LARGER WHERE INDICATED.
3. FURNISH AND INSTALL ANY REQUIRED GROUNDING RODS.
4. PROVIDE AND INSTALL BONDING CONDUCTORS THROUGHOUT THE BONDING SYSTEM WITH CONNECTION TO EACH ITEM OF THE SPLASH PAD.
5. BONDING CONDUCTORS SHALL BE CONTINUOUS.
6. INSULATE ANY SPLICES WITH APPROVED INSULATION KIT AND MAKE WATER TIGHT TO PROTECT FROM CORROSION AND MAINTAIN THE INTEGRITY OF THE SPLICE.
7. PROVIDE RED MARKING TAPE BURIED 6" TO 10" BELOW SURFACE INDICATING ANY BURIED BOND WIRES BELOW THAT EXTEND BEYOND THE PERIMETER OF THE SPLASH PAD.
8. COORDINATE INSTALLATION OF GROUNDING/BONDING AT THE BEGINNING OF THE PROJECT. ELECTRICIAN MUST BE PRESENT TO PERFORM HIS WORK BEFORE THE CONCRETE IS APPLIED.
9. COORDINATE FOR CONNECTION OF ALL POOL REBAR, REINFORCING STEEL, AND EQUIPMENT BONDS BEFORE CONCRETE IS POURED.

DRAWING NOTES :

1. REFER TO DRAWING E1.00 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.

0 30 60 90

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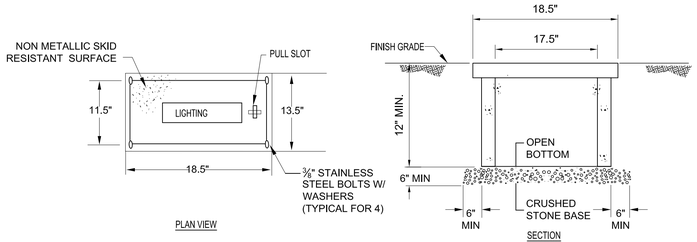
ELECTRICAL SITE AND BONDING PLAN

Sheet Number:

E1.02



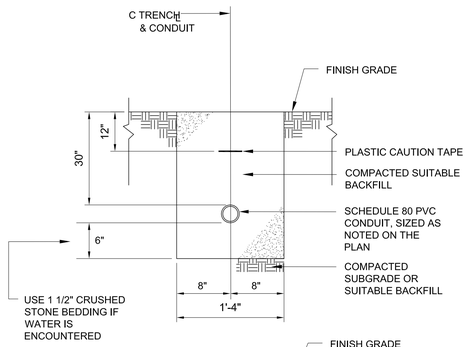
NOTES:

1. THIS HANDHOLE IS INTENDED FOR NON-DELIBERATE VEHICULAR TRAFFIC ONLY.

2. HANDHOLE SHALL BE PREFABRICATED POLYMER CONCRETE AGGREGATE EQUAL TO QUAZITE OR EQUAL PRE CAST CONCRETE CONSTRUCTION.

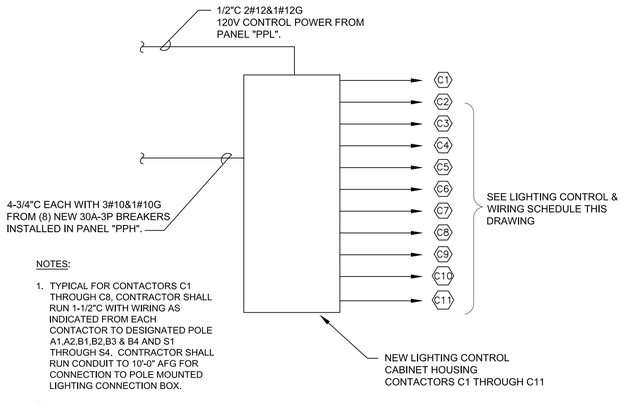
1 TYPICAL PREFABRICATED HANDHOLE DETAIL

SCALE: N.T.S.



2 TYPICAL ELECTRIC CONDUIT TRENCH

SCALE: N.T.S.

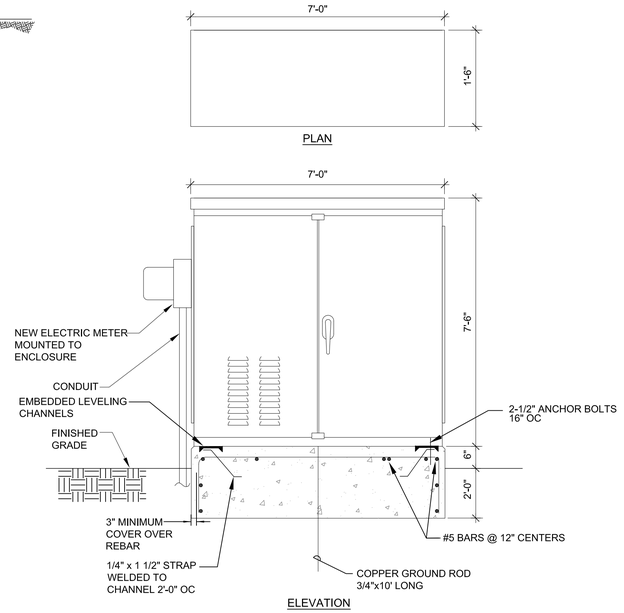


NOTES:

1. TYPICAL FOR CONTACTORS C1 THROUGH C8, CONTRACTOR SHALL RUN 1-1/2"C WITH WIRING AS INDICATED FROM EACH CONTACTOR TO DESIGNATED POLE A1,A2,B1,B2,B3 & B4 AND S1 THROUGH S4. CONTRACTOR SHALL RUN CONDUIT TO 10'-0" AFG FOR CONNECTION TO POLE MOUNTED LIGHTING CONNECTION BOX.

3 SPORTS LIGHTING CONTROL DIAGRAM

SCALE: N.T.S.



NOTE: FINAL CABINET SIZE SHALL BE DETERMINED BASED ON ACTUAL EQUIPMENT AND LAYOUT OF EQUIPMENT

4 PAD MOUNTED ELECTRICAL ENCLOSURE

SCALE: N.T.S.

PANELBOARD SCHEDULE

PANELBOARD NO.: PPL — SERVICE: 120V, 1ϕ, 40A MCB
LOCATION: ELECTRICAL ENCLOSURE — BUS BARS: 100A
MOUNTING: SURFACE — AIC: 10,000 — TOTAL NO. OF POLES: 12

CKT. No.	DESCRIPTION OF LOAD	CIRCUIT BREAKERS TRIP	POLES		TRIP	DESCRIPTION OF LOAD	CKT. No.
1	ENCLOSURE RECEPTACLE	20	1	1	20	ENCLOSURE LIGHT	2
3	SPORTS LIGHTING CONTROL	20	1	1	20	SPARE	4
5	SPARE	20	1	1	20	SPLASH PAD CONTROLLER	6
7	SPARE	20	1	1	20	SPARE	8
9	SPACE					SPACE	10
11	SPACE					SPACE	12
	–					–	
	–					–	

* PROVIDE PANELBOARD WITH A GROUND BUS

PANELBOARD SCHEDULE

PANELBOARD NO.: PPH — SERVICE ENTRANCE RATED — SERVICE: 277/480V, 3ϕ, 4W/250A MCB
LOCATION: ELECTRICAL ENCLOSURE — BUS BARS: 250A
MOUNTING: SURFACE — AIC: 22,000 — TOTAL NO. OF POLES: 42

CKT. No.	DESCRIPTION OF LOAD	CIRCUIT BREAKERS TRIP	POLES		TRIP	DESCRIPTION OF LOAD	CKT. No.
1	–	–	–	–	–	–	2
3	SITE LIGHTING S1/C1	30	3	3	30	SITE LIGHTING S2/C2	4
5	–	–	–	–	–	–	6
7	–	–	–	–	–	–	8
9	SITE LIGHTING S3/C3	30	3	3	30	SITE LIGHTING S4/C4	10
11	–	–	–	–	–	–	12
13	–	–	–	–	–	–	14
15	SITE LIGHTING A1/C5	30	3	3	30	SITE LIGHTING A2/C6	16
17	–	–	–	–	–	–	18
19	–	–	–	–	–	–	20
21	SITE LIGHTING B1/C7	30	3	3	30	SITE LIGHTING B2/C8	22
23	–	–	–	–	–	–	24
25	TRANSFORMER T1	15	2	–	–	–	26
27	–	–	–	3	30	SITE LIGHTING B3/C9/C11	28
29	PEDESTRIAN LIGHTING	20	1	–	–	–	30
31	PEDESTRIAN LIGHTING	20	1	–	–	–	32
33	–	–	–	3	30	SITE LIGHTING B4/C10	34
35	IRRIGATION CONTROLLER	100	3	–	–	–	36
37	–	–	–	1	20	PEDESTRIAN SECURITY LIGHTING	38
39	SPARE	20	1	1	20	SPARE	40
41	SPARE	20	1	1	20	SPARE	42

* PROVIDE PANELBOARD WITH A GROUND BUS

CONDUIT & WIRING SCHEDULE

CONDUIT	FEEDER	FROM	TO	FIXTURES	LOAD	REMARKS
P1	1-1/2"C., 3#10 & 1#10G	LIGHTING CONTROL PANEL CONTACTOR C1	FIXTURE S1	6 @ 597W	5.9A	DIRECT BURIED
P2	1-1/2"C., 3#10 & 1#10G	LIGHTING CONTROL PANEL CONTACTOR C2	FIXTURE S2	6 @ 597W	5.9A	DIRECT BURIED
P3	1-1/2"C., 3#10 & 1#10G	LIGHTING CONTROL PANEL CONTACTOR C3	FIXTURE S3	6 @ 597W	5.9A	DIRECT BURIED
P4	1-1/2"C., 3#10 & 1#10G	LIGHTING CONTROL PANEL CONTACTOR C4	FIXTURE S4	6 @ 597W	5.9A	DIRECT BURIED
P5	1-1/2"C., 3#10 & 1#10G	LIGHTING CONTROL PANEL CONTACTOR C5	FIXTURE A1	4 @ 597W 1 @ 394W	8.0A	DIRECT BURIED
P6	1-1/2"C., 3#10 & 1#10G	LIGHTING CONTROL PANEL CONTACTOR C6	FIXTURE A2	4 @ 597W 1 @ 394W	8.0A	DIRECT BURIED
P7	1-1/2"C., 3#10 & 1#10G	LIGHTING CONTROL PANEL CONTACTOR C7	FIXTURE B1	7 @ 597W 2 @ 394W	11.4A	DIRECT BURIED
P8	1-1/2"C., 3#10 & 1#10G	LIGHTING CONTROL PANEL CONTACTOR C8	FIXTURE B2	7 @ 597W 2 @ 394W	11.4A	DIRECT BURIED
P9	NOT USED					
P10	NOT USED					
P11	NOT USED					
P12	NOT USED					
P13	1-1/2"C., 3#10 & 1#10G	LIGHTING CONTROL PANEL CONTACTOR C9 AND C11	FIXTURE B3	5 @ 394W	3.11A	DIRECT BURIED
P14	1-1/2"C., 3#10 & 1#10G	LIGHTING CONTROL PANEL CONTACTOR C10	FIXTURE B4	3 @ 394W	3.7A	DIRECT BURIED
P15	1-1/2"C., 3#10 & 1#10G	PANEL PPH-29 VIA TIME CLOCK AND CONTACTOR #2	PEDESTRIAN LIGHT FIXTURE P1	40W	-	DIRECT BURIED
P16	1-1/2"C., 3#10 & 1#10G	PANEL PPH-31 VIA TIME CLOCK AND CONTACTOR #1	PEDESTRIAN LIGHT FIXTURE P1	40W	-	DIRECT BURIED
P17	1-1/2"C., 3#10 & 1#10G	PANEL PPH-33,35,37	IRRIGATION CONTROL BOX	-	100A	DIRECT BURIED
P18	NOT USED					
P19	1-1/2"C., 3#10 & 1#10G	PANEL PPH-38 VIA TIME CLOCK AND CONTACTOR #2	PEDESTRIAN LIGHT FIXTURE P1	40W	-	DIRECT BURIED
P20	1-1/2"C., 3#12 & 1#12G	VFD IN IRRIGATION CONTROL BOX	IRRIGATION PUMP	7.5 HP	-	DIRECT BURIED
P21	NOT USED					
P22	1-1/2"C., 3#10 & 1#10G	VFD IN IRRIGATION CONTROL BOX	WELL PUMP	7.5 HP	-	DIRECT BURIED
P23	NOT USED					
P24	1-1/2"C., 3#10 & 1#10G	PANEL PPL-6	SPLASH PAD CONTROLLER	-	-	DIRECT BURIED
P25	1-1/2"C., 3#10 & 1#10G	LIGHTING CONTROL PANEL CONTACTOR C11	FIXTURE B3	2 @ 394W	0.95A	DIRECT BURIED

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SITE DESIGN GROUP, INC.

North:

Revisions:

Rev	Date	Description
1	03/07/16	ADDENDUM #1

Seal:

1 2/24/2016

CONSTRUCTION DOCUMENTS

Date:	02.24.2016
Scale:	N.T.S.
Drawn By:	MS
Reviewed By:	RM
Checked By:	RM
Approved By:	RM

Drawing Title:

ELECTRICAL SCHEDULES AND DETAILS

Sheet Number:

E1.03