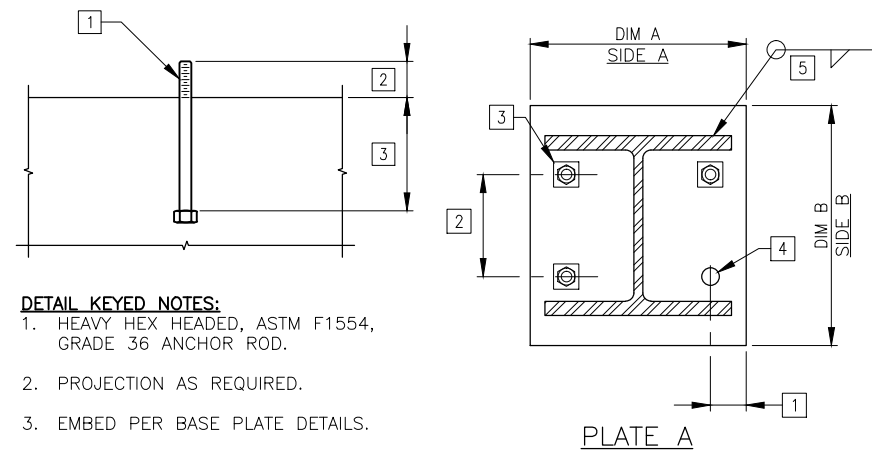


KEYED NOTES:

1. (12) #5 TOP \square BARS EQUALLY SPACED.
2. (12) #5 BOT \sqcup BARS EQUALLY SPACED.
3. (9) #6 BOT \sqcup BARS EQUALLY SPACED.
4. (9) #6 TOP \square BARS EQUALLY SPACED.
5. PILE CAP \odot .
6. CONCRETE MICROPILE BELOW.
7. \odot PILE CAP AND CONCRETE MICROPILE BELOW.
8. 4'-0" DEEP PC-2 PILE CAP.
9. SEE SECTIONS ON S-301 FOR MICROPILES SPACING.
10. (3) #5 SIDE BARS WITH STD ACI 90° HOOKS AT EACH END.
11. EXTEND TYPICAL REINFORCING INTO PILE CAP OR MAT FOUNDATION A FULL EMBEDMENT LENGTH FOR COMPRESSION. EMBEDMENT LENGTH MAY BE REDUCED IF A STD ACI 90° HOOK IS PROVIDED.
12. SPACE TOP BARS TO CLEAR COLUMN ANCHOR RODS.
13. SPACE BOTTOM BARS TO CLEAR MICROPILE REINFORCING.

C1 PILE CAP PG-2 PLAN AND SECTION
NTS

BASE PLATE SCHEDULE													
MARK	SIZE AxB (INxIN)	STEEL YIELD (KSI)	THICK (IN)	NUMBER BOLTS "A" SIDE	NUMBER BOLTS "B" SIDE	BOLT DIAMETER (IN)	BOLT EDGE DISTANCE (IN)	BOLT GAGE (IN)	BOLT EMBED LENGTH (IN)	BOLT HOLE DIAMETER (IN)	WASHER SIZE (INxIN)	WASHER THICK (IN)	WELD SIZE (IN)
A	18x20	36	1	2	2	7/8	3	8 1/2	16	1 1/8	2 1/2 x 2 1/2	3/16	3/16



DETAIL KEYED NOTES:

1. HEAVY HEX HEADED, ASTM F1554, GRADE 36 ANCHOR ROD.
2. PROJECTION AS REQUIRED.
3. EMBED PER BASE PLATE DETAILS.
4. J-TYPE AND L-TYPE ANCHOR RODS ARE NOT ALLOWED.

A1 ANCHOR ROD DETAIL
NTS

DETAIL KEYED NOTES:

1. TYPICAL BOLT EDGE DISTANCE. SEE SCHEDULE FOR DIMENSION.
2. BOLT GAGE DISTANCE. SEE SCHEDULE FOR DIMENSION.
3. ADDITIONAL SQUARE PLATE WASHER AT EACH BOLT. SEE SCHEDULE FOR SIZE AND THICKNESS.
4. OVER SIZED HOLE DIAMETER IN BASE PLATE. SEE SCHEDULE FOR HOLE DIAMETER.
5. ALL-AROUND FILLET WELD. SEE SCHEDULE FOR SIZE.

A2 TYPICAL BASE PLATE DETAIL AND SCHEDULE
NTS

DRILLED SHAFTS NOTES:

1. ALL DRILLED SHAFTS SHALL BEAR ON APPROVED VERY STIFF TO SOUND BEDROCK BEARING STRATA AS INSPECTED AND CERTIFIED BY A QUALIFIED SOIL TESTING FIRM.
2. THE PROCEDURE AND CONSTRUCTION SEQUENCES RELATED TO PLACING CONCRETE, OR GROUT AND STEEL LINER WITHDRAWAL SHALL BE REVIEWED AND APPROVED BY THE ENGINEER OF RECORD.
3. THE CONTRACTOR SHALL REVIEW ALL EXISTING SITE CONDITIONS AND THE GEOTECHNICAL EXPLORATION REPORTS, PROVIDED BY THE CONTRACTOR'S GEOTECHNICAL TESTING AGENCY, AND ESTABLISH SPECIFIC CONSTRUCTION PROCEDURES AND SEQUENCES FOR THE INSTALLATION OF THE DRILLED SHAFTS AND SUBMIT THESE FOR REVIEW AND APPROVAL BY THE ENGINEER OF RECORD. THE CONTRACTOR'S PROCEDURES AND METHODS OF DRILLED SHAFT INSTALLATION SHALL MINIMIZE SETTLEMENT OF ADJACENT CONSTRUCTION AND THE CONTRACTOR SHALL HAVE THE RESPONSIBILITY FOR ALL REMEDIAL WORK RESULTING FROM SUCH SETTLEMENT.
4. THE BOTTOM OF EACH DRILLED SHAFT SHALL BE THOROUGHLY CLEANED OF ALL LOOSE MATERIALS.
5. NO CONCRETE SHALL BE PLACED INTO A DRILLED SHAFT CONTAINING FREE WATER WITHOUT THE STRUCTURAL ENGINEER'S REVIEW AND APPROVAL.
6. THE DRILLED SHAFT CONCRETE SHALL BE PLACED USING A HOPPER AND CHUTE PIPE AT THE TOP OF EACH DRILLED SHAFT EXCAVATION AND SHALL BE PLACED IMMEDIATELY AFTER CLEANING AND AFTER APPROVAL OF BEARING SURFACE IS OBTAINED. EXCAVATION SHALL NOT BE LEFT OPEN OVER NIGHT.
7. ALL LAITANCE MATERIAL SHALL BE REMOVED FROM THE TOP OF EACH DRILLED SHAFT PRIOR TO FURTHER CONSTRUCTION.
8. THE ANNULAR VOID AROUND THE STEEL LINER OF EACH DRILLED SHAFT SHALL BE FILLED PRIOR TO FURTHER CONSTRUCTION.
9. ALL DRILLED SHAFT CONCRETE SHALL BE STONE CONCRETE (150 PCF) WITH MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4,000 PSI (U.N.O.).
10. PROVIDE ALTERNATE CONCRETE DESIGN FOR TREMIE CONCRETE PLACEMENT.

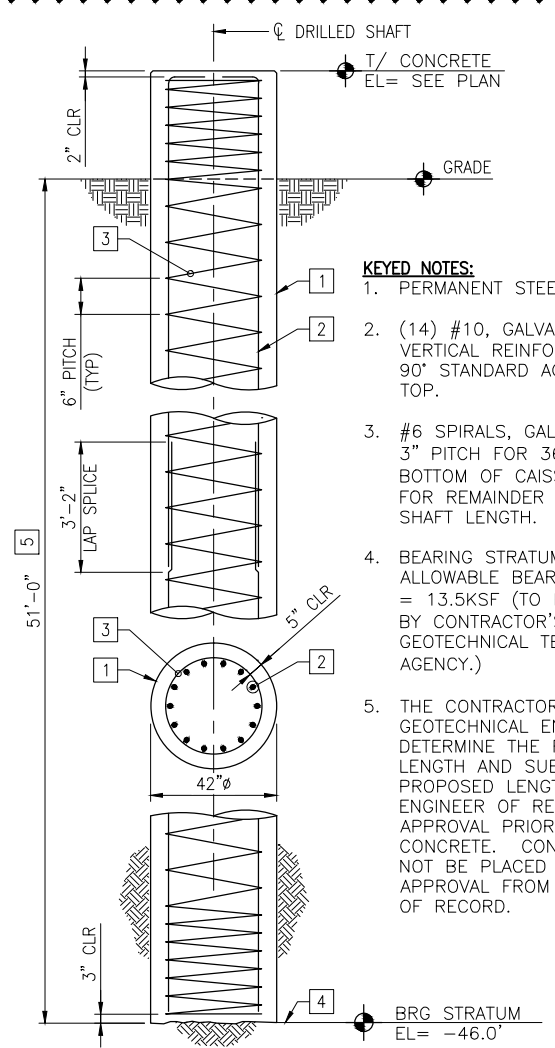
POST-INSTALLED ANCHORS:

1. REFERENCE STANDARD: ACI 318-05, APPENDIX D.
2. INSTALL ONLY WHERE SPECIFICALLY SHOWN IN THE PROJECT DETAILS.
3. ALL POST-INSTALLED ANCHOR TYPES SHALL BE APPROVED BY THE ENGINEER OF RECORD AND SHALL HAVE A CURRENT ICC-ESR THAT PROVIDES RELEVANT DESIGN VALUES TO VALIDATE THE AVAILABLE STRENGTH.
4. INSTALL ALL ANCHORS IN STRICT ACCORDANCE TO THE ICC-ESR AND MANUFACTURER'S INSTRUCTIONS.
5. SPECIAL INSPECTIONS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS INDICATED IN THE SCHEDULE OF SPECIAL INSPECTIONS UNDER 1704.4 CONCRETE CONSTRUCTION.
6. USE COMPRESSED AIR TO THOROUGHLY CLEAN THE ANCHOR HOLES.
7. PROVIDE EPOXY ADHESIVE TYPE ANCHORS WITH THE FOLLOWING MINIMUM ALLOWABLE CAPACITIES AND MINIMUM EMBEDMENTS.

ANCHOR DIA (IN)	EMB (IN)	CONCRETE		CMU	
		TENSIO N (KIP)	SHEAR (KIP)	TENSIO N (KIP)	SHEAR (KIP)
0.375	3.375	3.06	4.46	0.880	1.13
0.500	4.500	4.98	7.93	1.06	1.74
0.625	5.625	8.41	12.4	1.37	2.12
0.750	6.750	9.98	17.8	1.58	2.20
1.000	9.000	14.8	24.3	-	-

NOTES:
1. ANCHOR DIAMETERS AND EMBEDMENTS ARE IN INCHES.
2. ALLOWABLE CAPACITIES ARE IN KIPS.
3. ALLOWABLE CAPACITIES ARE BASED ON MINIMUM ALLOWABLE EDGE DISTANCES, MINIMUM SPACINGS, F'c = 4,000 PSI AND F'm = 1,500 PSI.

8. ALL ANCHORS EMBEDDED IN CONCRETE OR MASONRY SHALL BE PROPORTIONED TO EXCEED THE STRENGTH OF THE CONNECTED HARDWARE. ALL ANCHORS SHALL BE SHOWN TO BE IN COMPLIANCE WITH ACI 318 APPENDIX D. MECHANICAL EXPANSION FASTENERS SHALL NOT BE USED IN CONDITIONS WHERE THEY WILL SEE TENSILE LOADS. POWDER DRIVEN ANCHORS SHALL NOT BE USED IN CONCRETE OR MASONRY.



KEYED NOTES:

1. PERMANENT STEEL CASING.
2. (14) #10, GALVANIZED, VERTICAL REINFORCING WITH A 90° STANDARD ACI HOOK AT TOP.
3. #6 SPIRALS, GALVANIZED, AT 3" PITCH FOR 36" AT TOP AND BOTTOM OF CAISSON, 6" PITCH FOR REMAINDER OF DRILLED SHAFT LENGTH.
4. BEARING STRATUM FOR NET ALLOWABLE BEARING PRESSURE = 13.5KSF (TO BE VERIFIED BY CONTRACTOR'S GEOTECHNICAL TESTING AGENCY.)
5. THE CONTRACTOR'S GEOTECHNICAL ENGINEER SHALL DETERMINE THE FINAL DESIGN LENGTH AND SUBMIT THE PROPOSED LENGTH TO THE ENGINEER OF RECORD FOR APPROVAL PRIOR TO PLACING CONCRETE. CONCRETE SHALL NOT BE PLACED WITHOUT APPROVAL FROM THE ENGINEER OF RECORD.

A3 42" DIAMETER DRILLED SHAFT
NTS

HAZARDOUS WORK CONDITIONS:

1. THE CONTRACTOR IS WARNED OF THE PRESENCE OF AN ELECTRIFIED CONTACT RAIL (600 VOLTS DC) AND MOVING TRAINS ON THE CTA TRACKS AND SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT INJURY TO PERSONEL OR DAMAGE TO PROPERTY THROUGH CONTACT WITH THE ELECTRICAL OR OPERATION SYSTEMS.
2. THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE FACT THAT CONTACT WITH THE ELECTRIFIED CONTACT RAIL, CTA POWER CABLES OR TRAINS MAT RESULT IN A SEVERE BURN OR DEATH.
3. ELEVATED STRUCTURES IS AT NEGATIVE RAIL POTENTIAL, AVOID CONTACT BETWEEN STRUCTURE AND EARTH GROUNDED OBJECTS. I.E. EDISON GROUNDS, WATER, PIPES, ETC.