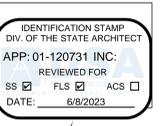


MERRITT COLLEGE - REPLACEMENT OF SECOND POWER SUBSTATION C

12500 CAMPUS DRIVE
OAKLAND, CA 94619
PROJECT NO.: 01-120731



DIRECTORY

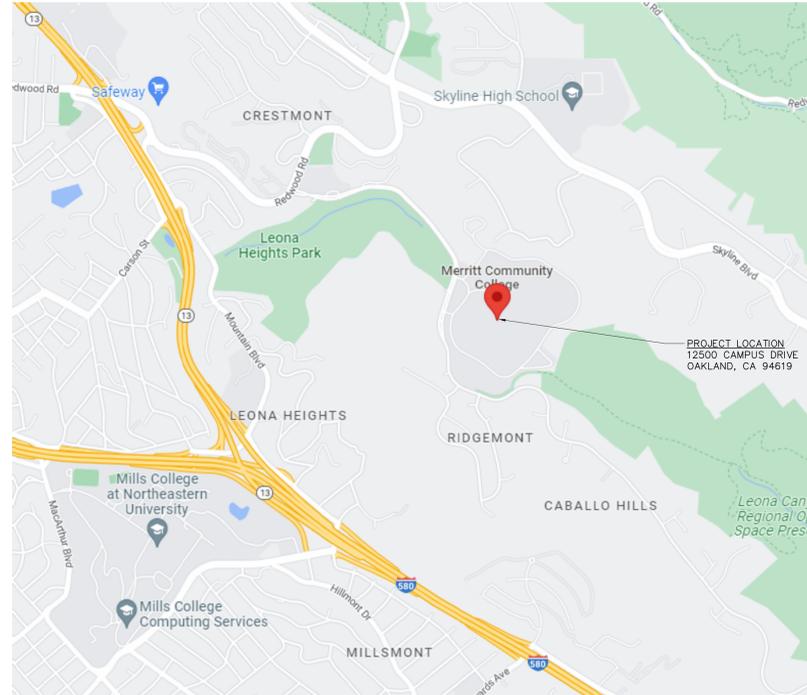
CLIENT
KITCHELL
405 14ST, SUITE 1000
OAKLAND, CA 94612
P: 510 847 7418
CONTACT: ERIN GRIFFIN

ELECTRICAL ENGINEER
INTERFACE ENGINEERING
1999 HARRISON STREET, SUITE 550
OAKLAND, CA 94612
P: 415 489 7240
CONTACT: THOMAS JUN, PE

CIVIL ENGINEER
KPFF
45 FREMONT ST, 28TH FLOOR
SAN FRANCISCO, CA 94105-2209
P: 415 268 1095
CONTACT: RYAN BEATON

STRUCTURAL ENGINEER
KPFF
45 FREMONT ST, 28TH FLOOR
SAN FRANCISCO, CA 94105-2209
P: 415 989 1004
CONTACT: BRIAN BIEHL

VICINITY MAP



SHEET INDEX

23 SHEETS

GENERAL

- G0.1 COVER SHEET

CIVIL

- C1.0 EXISTING CONDITIONS & DEMO PLAN
- C2.0 SITE LAYOUT PLAN
- C3.0 DETAILS
- C4.0 SPECIFICATIONS
- C4.1 SPECIFICATIONS
- C5.0 CAMPUS ACCESS PLAN

STRUCTURAL

- S0.1 TITLE PAGE & SHEET INDEX
- S1.1 GENERAL NOTES
- S1.2 GENERAL NOTES
- S2.1 DEMOLITION PLAN
- S2.2 FOUNDATION PLAN
- S3.1 SECTIONS & DETAILS

ELECTRICAL

- E0.1 SYMBOLS LIST, GENERAL NOTES AND SHEET INDEX
- E0.2 LUMINAIRE SCHEDULE AND TITLE 24 - ELECTRICAL
- E1.1 MEDIUM VOLTAGE SITE PLAN - ELECTRICAL
- ED2.1 DEMO SUB-STATION 'C' PLANS - ELECTRICAL
- ED3.1 DEMO MEDIUM VOLTAGE SINGLE LINE DIAGRAM - ELECTRICAL
- E2.1 SUB-STATION 'C' PLANS - ELECTRICAL
- E2.2 ENLARGED SUB-STATION 'C' PLANS - ELECTRICAL
- E3.1 NEW MEDIUM VOLTAGE SINGLE LINE DIAGRAM - ELECTRICAL
- E4.1 DETAILS - ELECTRICAL
- E4.2 DETAILS - ELECTRICAL

DEFERRED SUBMITTALS

NONE

PROJECT DESCRIPTION

THE MERRITT COMMUNITY COLLEGE CAMPUS HAS AN EXISTING 12KV SYSTEM. A PORTION OF THE EXISTING ELECTRICAL EQUIPMENT ARE IN NEED OF AN UPGRADE OR REPLACEMENT. AT SUBSTATION 'C', THE INTENT IS TO DESIGN A REPLACEMENT WHILE THE CURRENT SYSTEM REMAINS ACTIVE TO REDUCE THE AMOUNT OF DOWN TIME. ONCE THE EQUIPMENT HAS BEEN INSTALLED AND POWER HAS BEEN TRANSFERRED, THE OLD EXISTING EQUIPMENT WILL BE DEMOLISHED.

CODE REFERENCE

2019 CALIFORNIA BUILDING CODE
2019 CALIFORNIA ELECTRICAL CODE
2019 CALIFORNIA ENERGY CODE
2019 CALIFORNIA FIRE CODE
2019 CALIFORNIA GREEN BUILDING STANDARDS CODE

THE CONTRACTOR IS REQUIRED TO COMPLY WITH THE ABOVE CODES AND REGULATIONS AND ALL OTHER CODES OR ZONING REQUIREMENTS. ADVISE ENGINEER AND CLIENT OF ANY NON-COMPLIANCE IN THE CONSTRUCTION DOCUMENTS PRIOR TO PROCEEDING WITH WORK.

ALL WORK SHALL CONFORM TO 2019 TITLE 24, CALIFORNIA CORE OF REGULATIONS (CCR).

LIST OF APPLICABLE CODES

- 2022 CALIFORNIA ADMINISTRATIVE CODE (CAC), PART 1, TITLE 24 CCR
- 2019 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 CCR
- 2019 CALIFORNIA ELECTRICAL CODE (CEC), PART 3, TITLE 24 CCR
- 2019 CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24 CCR
- 2019 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24 CCR
- 2019 CALIFORNIA ENERGY CODE, PART 6, TITLE 24 CCR
- 2019 CALIFORNIA FIRE CODE (CFC), PART 9, TITLE 24 CCR
- 2019 CALIFORNIA EXISTING BUILDING CODE (CEBC), PART 10, TITLE 24 CCR
- 2019 CALIFORNIA GREEN BUILDING STANDARDS CODE (CALGREEN), PART 11, TITLE 24 CCR
- 2019 CALIFORNIA REFERENCED STANDARDS CODE, PART 12, TITLE 24 CCR
- TITLE 19 CCR, PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS
- SAFETY DURING DEMOLITION AND CONSTRUCTION MUST COMPLY WITH CFC CHAPTER 33

APPLICABLE STANDARDS

FOR A LIST OF APPLICABLE STANDARDS, INCLUDING CALIFORNIA AMENDMENTS TO THE NFPA STANDARDS, REFER TO CBC CHAPTER 35 AND CFC CHAPTER 80.

GENERAL CONFORMANCE STATEMENT

APPLICATION NUMBER: 01-120731

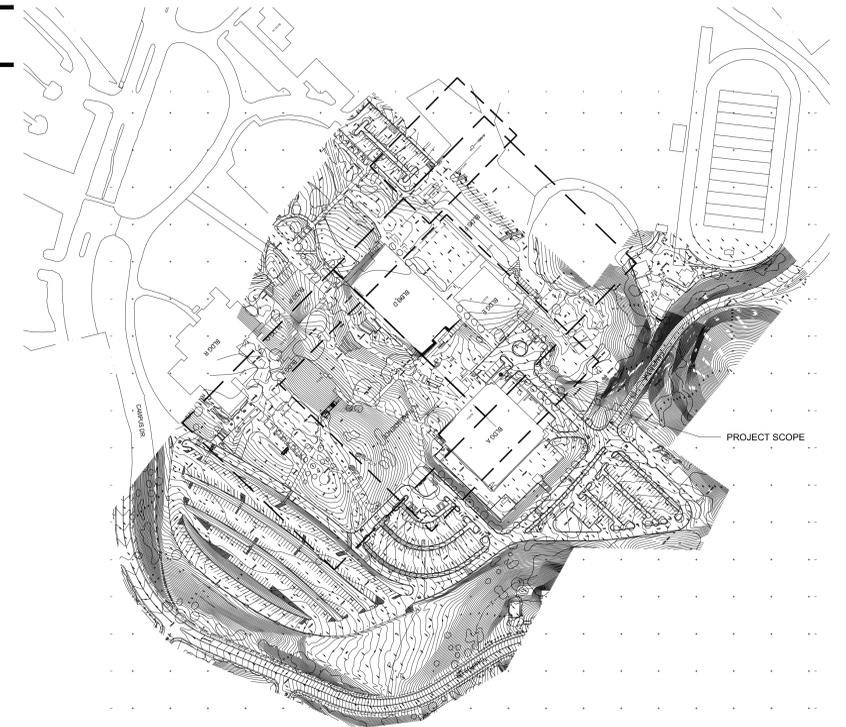
STATEMENT OF GENERAL CONFORMANCE:

THE DRAWINGS OR SHEETS LISTED IN THE INDEX ON THIS SHEET HAVE BEEN PREPARED BY OTHER DESIGN PROFESSIONALS OR CONSULTANTS WHO ARE LICENSED AND/OR AUTHORIZED TO PREPARE SUCH DRAWINGS IN THIS STATE. IT HAS BEEN EXAMINED BY ME FOR:

1. DESIGN INTENT AND APPEARANCE TO MEET THE APPROPRIATE REQUIREMENTS OF TITLE 24, CALIFORNIA CODE OF REGULATIONS, AND THE PROJECT SPECIFICATIONS PREPARED BY ME.
2. COORDINATION WITH MY PLANS AND SPECIFICATIONS AND IS ACCEPTABLE FOR INCORPORATION INTO THE CONSTRUCTION OF THE PROJECT.

THIS STATEMENT OF GENERAL CONFORMANCE "SHALL" NOT BE CONSTRUED AS RELIEVING ME OF MY RIGHTS, DUTIES, AND RESPONSIBILITIES UNDER SECTION 17302 AND 81138 OF THE EDUCATION CODE AND SECTION 4-336, 4-341, AND 4-344 OF TITLE 24, PART 1 (TITLE 24, PART 1 SECTION 4-317 (B))

I CERTIFY THAT ALL DRAWINGS OR SHEETS LISTED IN THE INDEX ON THIS SHEET (CIVIL, ELECTRICAL, STRUCTURAL) ARE IN GENERAL CONFORMANCE AND HAVE BEEN COORDINATED.



MERRITT COLLEGE CAMPUS MAP

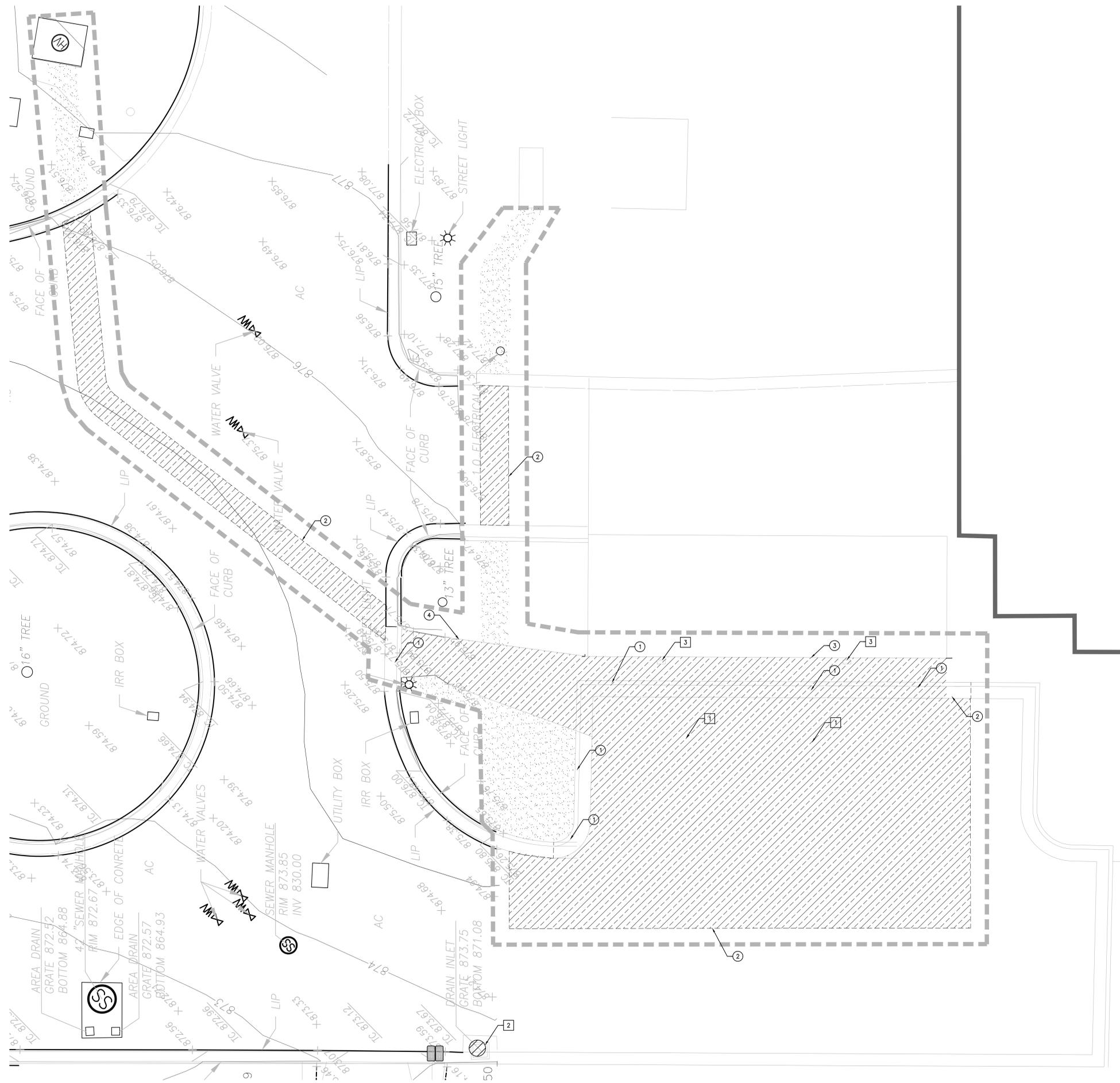
MERRITT COLLEGE - REPLACEMENT OF SECOND POWER SUBSTATION C

SHEET TITLE
COVER SHEET

REVISIONS	
50% PRICING SET	09/30/2022
100% CD SET	10/24/2022
DSA SUBMITTAL	12/01/2022
DSA RESUBMITTAL 1	04/14/2023
DSA RESUBMITTAL 2	05/25/2023

DRAWN BY	KB
CHECKED BY	RK
JOB NO.	2022-0586
DATE	05/25/2023
SHEET NUMBER	

G0.1



DEMOLITION AND EROSION CONTROL LEGEND:

- LIMIT OF WORK
- - - SAWCUT
- ⊗ INLET PROTECTION - SEE DETAIL 3, SHEET C3.0
- ▣ GRAVEL FILTER BAG - SEE DETAIL 4, SHEET C3.0
- ▨ ASPHALT HARDSCAPE REMOVAL
- ░ CLEAR AND GRUB

PROTECT IN PLACE:

- 1 ELECTRIC PULL BOX, ADJUST TO GRADE
- 2 CURB INLET
- 3 GROUND WELL

REMOVE/DEMOLISH:

- 1 DEMOLISH CURB WHERE NECESSARY
- 2 SAWCUT WHERE NECESSARY
- 3 DEMOLISH CONCRETE WALL - SEE STRUCTURAL DRAWINGS
- 4 ASPHALT WALKWAY

GENERAL DEMOLITION NOTES:

1. CONTRACTOR TO CLEAR PROJECT SITE AREA WITHIN THE CONFINES OF THE DEMOLITION LIMIT LINE. THE CONTRACTOR SHALL DEMOLISH AND REMOVE FROM THE SITE ALL EXISTING UTILITIES, STRUCTURES, PLANTERS, TREES, AND ALL OTHER SITE FEATURES, UNLESS OTHERWISE NOTED ON THE PLAN.
2. REMOVAL OF LANDSCAPING SHALL INCLUDE ROOTS AND ORGANIC MATERIALS.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY AND ALL PERMITS AND SHALL PAY ALL FEES NECESSARY FOR ENCROACHMENT, GRADING, DEMOLITION AND DISPOSAL OF SAID MATERIALS AS REQUIRED BY PRIVATE, LOCAL AND STATE JURISDICTIONS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR A SITE INSPECTION TO FULLY ACKNOWLEDGE THE EXTENT OF THE DEMOLITION WORK.
5. THE CONTRACTOR SHALL VERIFY AND LOCATE ALL EXISTING ABOVE AND UNDERGROUND UTILITIES. LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND ARE SHOWN FOR GENERAL INFORMATION ONLY.
6. DAMAGE TO ANY EXISTING UTILITIES AND SERVICES TO REMAIN SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. CONTRACTOR SHALL REPAIR AND/OR REPLACE IN KIND.
7. EROSION CONTROL MEASURES SHALL BE IMPLEMENTED TO PREVENT DEBRIS AND UNSUITABLE MATERIALS FROM ENTERING STORM DRAINS, SANITARY SEWERS AND STREETS.
8. DUST CONTROL SHALL BE IMPLEMENTED DURING DEMOLITION.
9. DEMOLITION IS LIMITED TO WITHIN DEMOLITION LIMIT LINE UNLESS NOTED OTHERWISE.

ISA STAMP

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-120731 INC.
REVIEWED FOR: SS FLS ACS
DATE: 6/8/2023

kpff
45 Fremont Street, 28th Floor
San Francisco, CA 94105
415.989.1004 | kpff.com

05/25/2023
DATE SIGNED

MERRITT COLLEGE - REPLACEMENT OF SECOND POWER SUBSTATION C

12500 Campus Dr,
Oakland, CA 94619

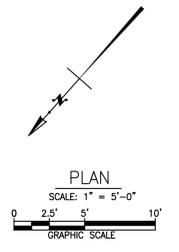
SHEET TITLE
**EXISTING
CONDITIONS &
DEMO PLAN**

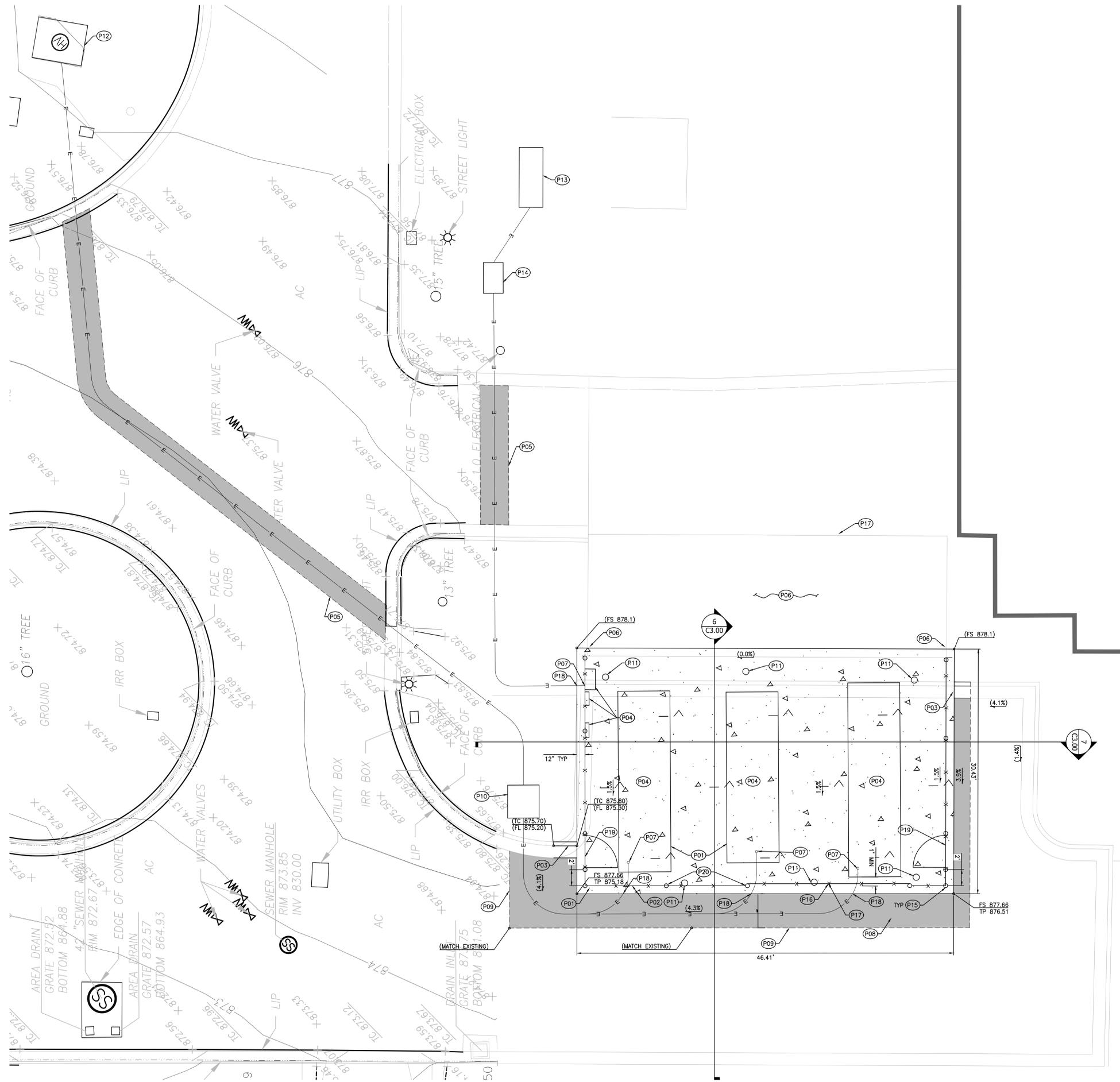
REVISIONS

100% CD	11/01/22
DSA SUBMITTAL	11/23/22
DSA RESUBMITTAL 1	04/14/23
DSA RESUBMITTAL 2	05/25/23

DRAWN BY: CC
CHECKED BY: RB
JOB NO.: 2022-0586
DATE: 05/25/2023
SHEET NUMBER

C1.0





ABBREVIATIONS:

FL	FLOW LINE
FS	FINISHED SURFACE
TC	TOP OF CURB
TP	TOP OF PAVEMENT

GRADING GENERAL NOTES:

1. PROVIDE STRAIGHT LINE GRADING BETWEEN SPOT ELEVATIONS AND CONTOUR LINES.
2. SURFACE CROSS SLOPES OF SIDEWALKS SHALL NOT EXCEED 2%.
3. COORDINATE WITH ARCHITECT/LANDSCAPE ARCHITECT PLAN FOR SIDEWALK FINISH.
4. ELEVATIONS SHOWN ARE TO TOP OF PAVEMENT, UNLESS NOTED OTHERWISE.
5. ADJUST ALL UTILITY VAULTS AND LIDS WITHIN THE WORK AREA TO MATCH THE NEW PAVEMENT AND FINISHED GRADE ELEVATIONS AND SLOPES.
6. FOR EXTERIOR LANDINGS, SEE WATERPROOFING DRAWINGS, SEE ARCHITECTURE DRAWINGS.
7. UNLESS OTHERWISE SPECIFIED, THE NOMINAL SPECIFIED HEIGHT OF CURB MEASURED FROM GUTTER TO TOP OF CURB SHALL BE 6".

SITE LAYOUT NOTES:

- (P01) NEW CONCRETE EQUIPMENT SLAB - SEE STRUCTURAL DRAWINGS.
- (P02) NEW 8.5FT HIGH FENCE SEE STRUCTURAL DRAWINGS.
- (P03) REBUILD CONCRETE CURB AND GUTTER AS NECESSARY - SEE DETAIL 1, SHEET C3.0.
- (P04) NEW ELECTRICAL EQUIPMENT, SHOWN FOR REFERENCE ONLY - SEE ELECTRICAL DRAWINGS
- (P05) TRENCH, AND PATCH PAVE AS NEEDED FOR NEW ELECTRICAL CONDUIT. - SEE DETAIL 5, SHEET C3.0. SEE ELECTRICAL DRAWINGS FOR ALIGNMENT
- (P06) CONTRACTOR TO CONFIRM ELEVATION OF EXISTING SLAB. NOTIFY ENGINEER OF RECORD OF ANY DISCREPANCIES.
- (P07) CONDUIT SLAB PENETRATION - SEE DETAIL 3, SHEET E4.1
- (P08) ASPHALT PAVING - SEE DETAIL 2, SHEET C3.0
- (P09) SAWCUT AS NECESSARY
- (P10) UNDERGROUND VAULT - SEE ELECTRICAL DRAWINGS
- (P11) GROUND WELL - SEE DETAIL 6, SHEET E4.1. SET RIM 2" ABOVE TOP OF CURB.
- (P12) EXISTING ELECTRICAL MANHOLE
- (P13) EXISTING ELECTRICAL GENERATOR
- (P14) PROPOSED PULLBOX - SEE DETAIL 4, SHEET E4.1. SET RIM 2" ABOVE ADJACENT GRADE.
- (P15) FENCE POST - SEE DETAIL 8, SHEET C3.0
- (P16) 20' WIDE ROLLING GATE - SEE DETAIL 9, SHEET C3.0
- (P17) MOUNT DANGER HIGH VOLTAGE SIGN ON GATE - SEE DETAIL 10, SHEET C3.0
- (P18) CONDUIT THICKENED EDGE PENETRATION - SEE DETAIL 4, SHEET S3.1
- (P19) 4' WIDE SWING GATE - SEE DETAIL 11, SHEET C3.0
- (P20) 10.5' TALL, STD PIPE 6 GATE POST FOR LIGHT MOUNTING - SEE ELECTRICAL DRAWINGS

SITE LAYOUT LEGEND

	ASPHALT PAVING - SEE DETAIL 2, SHEET C1.02.
	FENCE
	CURB/CURB & GUTTER
	PROPOSED ELEVATION
	EXISTING ELEVATION
	PROPOSED SLOPE
	EXISTING SLOPE
	ELECTRICAL CONDUIT - SEE ELECTRICAL PLANS

DSA STAMP

IDENTIFICATION STAMP
 DIV. OF THE STATE ARCHITECT
 APP: 01-120731 INC.
 REVIEWED FOR: SS FLS ACS
 DATE: 6/8/2023

kpff
 45 Fremont Street, 28th Floor
 San Francisco, CA 94105
 415.989.1004 | kpff.com

Professional Engineer Seal for Alan J. Bialik, No. 82786, State of California, Civil, Exp. 12/31/2023. Date: 05/25/2023, Title: SUREY.

MERRITT COLLEGE - REPLACEMENT OF SECOND POWER SUBSTATION C

12500 Campus Dr,
 Oakland, CA 94619

SHEET TITLE

SITE LAYOUT PLAN

REVISIONS

100% CD	11/01/22
DSA SUBMITTAL	11/23/22
DSA RESUBMITTAL 1	04/14/23
DSA RESUBMITTAL 2	05/25/23

DRAWN BY: CC
 CHECKED BY: RB
 JOB NO.: 2022-0586
 DATE: 05/25/2023
 SHEET NUMBER

C2.0



05/25/2023
DATE SURET

MERRITT COLLEGE - REPLACEMENT OF SECOND POWER SUBSTATION C

12500 Campus Dr,
Oakland, CA 94619

SHEET TITLE

SPECIFICATIONS

REVISIONS		
100% CD		11/01/22
DSA SUBMITTAL		11/23/22
DSA RESUBMITTAL 1		04/14/23
DSA RESUBMITTAL 2		05/25/23

DRAWN BY	CC	
CHECKED BY	RB	
JOB NO.	2022-0586	
DATE	05/25/2023	
SHEET NUMBER		

C4.0

100% Construction Documents

**SECTION 31 2000
EARTH MOVING**

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes the following:

- Preparing subgrades.
- Excavating and backfilling for buildings and structures.
- Excavating and backfilling for utility trenches.
- Base course for concrete walks and pavements.
- Base course for asphalt paving.

1.02 SUBMITTALS

A. Product Data: All soil materials. Include technical data and tested physical and performance properties.

1.03 DEFINITIONS

A. Backfill: Soil material used to fill an excavation.

- Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
- Final Backfill: Backfill placed over initial backfill to fill a trench.

B. Base Course: Course placed between subgrade and hot-mix asphalt or concrete paving.

C. Bedding Course: Course placed over the excavated subgrade in a trench before laying pipe.

D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.

E. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.

- Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Architect. Authorized additional excavation and replacement material will be paid for according to Contract provisions changes in the Work.
- Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, shall be without additional compensation.

F. Fill: Soil materials used to raise existing grades.

DSA Application No. November 14, 2022 31 2000 - 1 Merritt College Substation C EARTH MOVING

100% Construction Documents

PART 2 - NOT USED

PART 3 - EXECUTION

3.01 PREPARATION

A. Protect and maintain benchmarks and survey control points from disturbance during construction.

B. Locate and clearly flag trees and vegetation to remain or to be relocated.

C. Protect existing site improvements to remain from damage during construction.

- Restore damaged improvements to their original condition, as acceptable to Owner.

3.02 TEMPORARY EROSION AND SEDIMENTATION CONTROL

A. Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to sediment and erosion control Drawings and the requirements of authorities having jurisdiction.

B. Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.

C. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.03 TREE PROTECTION

A. Erect and maintain temporary fencing around tree protection zones before starting site clearing. Remove fence when construction is complete.

B. Do not excavate within tree protection zones, unless otherwise indicated.

C. Repair or replace trees and vegetation indicated to remain that are damaged by construction operations, in a manner approved by Architect.

3.04 UTILITIES

A. Locate, identify, disconnect, and seal or cap-off utilities indicated to be abandoned in place.

- Arrange with utility companies to shut off indicated utilities.
- Utilities 8 inches in diameter or less indicated to be demolished may be plugged and abandoned in place, except under proposed building footprints.

DSA Application No. November 14, 2022 31 1000 - 2 Merritt College Substation C SITE CLEARING

100% Construction Documents

3.04 EXCAVATION FOR STRUCTURES

A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch. If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.

- Excavations for Footings and Foundations. Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.

3.05 EXCAVATION FOR WALKS AND PAVEMENTS

A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

3.06 EXCAVATION FOR UTILITY TRENCHES

A. Excavate trenches to indicated gradients, lines, depths, and elevations.

B. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches higher than top of pipe or conduit, unless otherwise indicated.

C. Trench Bottoms: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench subgrade.

- Excavate trenches 3 inches deeper than elevation to allow for bedding course. Hand excavate for bell of pipes.
- Excavate utility structures to provide 9 inches clearance (enlarge as needed) to allow for compaction of backfill material.

3.07 SUBGRADE INSPECTION

A. Proof-roll subgrade before filling or placing aggregate with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.

B. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Architect, without additional compensation.

3.08 UNAUTHORIZED EXCAVATION

A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill, with 28-day compressive strength of 2500 psi, may be used when approved by Architect.

DSA Application No. November 14, 2022 31 2000 - 4 Merritt College Substation C EARTH MOVING

100% Construction Documents

**SECTION 31 1000
SITE CLEARING**

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes the following:

- Removing existing trees and other vegetation.
- Removing above- and below-grade site improvements.
- Disconnecting and capping or sealing site utilities.
- Temporary erosion and sedimentation control measures.

1.02 MATERIAL OWNERSHIP

A. Except for materials indicated to remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site and disposed of properly.

B. Historic items, relics, and other items of interest or value to the Owner encountered during site clearing shall remain the Owner's property. Contact Architect for direction without moving objects.

1.03 PROJECT CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.

- Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
- Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.

B. Salvable Improvements: Carefully remove items indicated to be salvaged and store on Owner's premises where indicated.

C. Utility Locator Service: Notify public utility locator service for area where Project is located a minimum of 48 hours prior to site clearing.

D. Do not commence site clearing operations until temporary erosion and sedimentation control measures are in place.

DSA Application No. November 14, 2022 31 1000 - 1 Merritt College Substation C SITE CLEARING

100% Construction Documents

H. In-Water Fill Material: Natural or artificially well graded angular rock with nominal maximum size of a 6 inches and having less than 5 percent passing the a 1/4-inch sieve.

I. Filter Fabric: Nonwoven geotextile, specifically manufactured as a drainage geotextile; made from polyesters, nylons, polypropylenes, or a combination thereof; per Caltrans Standard Specifications, Section 88-1.03 for underdrains.

PART 3 - EXECUTION

3.01 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, freezing temperatures or frost, and other hazards created by earthwork operations. Provide protective insulating materials as necessary.

B. Preparation of subgrade for earthwork operations including removal of vegetation, topsoil, debris, obstructions, and deleterious materials from ground surface is specified in Section 31 10 00 "Site Clearing."

C. Protect and maintain erosion and sedimentation controls during earthwork operations.

D. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.

E. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.

3.02 EXPLOSIVES

A. Explosives: Do not use explosives.

3.03 EXCAVATION

A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions.

- If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.
- Earth excavation includes excavating pavements and obstructions visible on the surface; underground structures, utilities, and other items indicated to be removed, together with soil, boulders, and other materials not classified as rock or unauthorized excavation.

DSA Application No. November 14, 2022 31 2000 - 3 Merritt College Substation C EARTH MOVING

100% Construction Documents

G. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appliances, or other man-made stationary features constructed above or below the ground surface.

H. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials.

I. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.04 PROJECT CONDITIONS

A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Architect and then only after arranging to provide temporary utility services according to requirements indicated.

B. Site Information: Research public utility records and verify existing utility locations prior to ordering any material. Notify the Architect immediately if any discrepancies are found in the project survey.

PART 2 - PRODUCTS

2.01 SOIL MATERIALS

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

B. Satisfactory Soils: Imported soil that is free or organic matter, contain no rocks or lumps larger than three inches in greatest dimension, have a liquid limit less than 40 and plasticity index less than 12.

C. Unsatisfactory Soils: Soil Classification Groups GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D 2487, or a combination of these groups.

- Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.

D. Base Course: California Standard Specifications, Class 2 Aggregate Base for 3/4-inch aggregate. Aggregate may include up to 50 percent reclaimed material by volume.

E. Engineered Fill: See Satisfactory Soils.

F. Bedding Course: Sand that meets gradation of: 90%-100% passing a #4 sieve, and 0%-15% passing a #200 sieve.

G. Backfill and Fill:

- Satisfactory soil materials.
- Initial Trench Backfill: Bedding Course.
- Final Trench Backfill: Engineered Fill.

DSA Application No. November 14, 2022 31 2000 - 2 Merritt College Substation C EARTH MOVING



05/25/2023
DATE SURETY

MERRITT COLLEGE - REPLACEMENT OF SECOND POWER SUBSTATION C

12500 Campus Dr,
Oakland, CA 94619

100% Construction Documents

- 3.12 SOIL FILL**
 - A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.
 - B. Place and compact fill material in layers to required elevations as follows:
 1. Under grass and planted areas, use satisfactory soil material.
 2. Under walks and pavements, use satisfactory soil material.
 3. Under steps and ramps, use engineered fill.
 4. Under building slabs, use engineered fill.
 5. Under footings and foundations, use engineered fill.
 6. Under and around utility structures, use engineered fill.
- 3.13 SOIL MOISTURE CONTROL**
 - A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to at least 4 percent above optimum moisture content.
 1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
- 3.14 COMPACTION OF SOIL BACKFILLS AND FILLS**
 - A. Place backfill and fill soil materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.
 - B. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.
 - C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 1557:
 1. Under mat slab, scarify, lime treat, and recompact top 18 inches of existing subgrade and each layer of backfill or fill soil material at 87 to 92 percent.
 2. Under walkways, scarify and recompact top 12 inches below subgrade and compact each layer of backfill or fill soil material at 90 percent.
 3. Under lawn or unpaved areas, scarify and recompact compact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 95 percent.
 4. For utility trenches, compact each layer of initial and final backfill soil material at 95 percent.
- 3.15 GRADING**
 - A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
 - B. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:

DSA Application No. November 14, 2022 31 2000 - 6 Merritt College Substation C EARTH MOVING

100% Construction Documents

- 1. Lawn or Unpaved Areas: Plus or minus 1/4 inch.
- 2. Walks: Plus or minus 1/2-inch.
- 3. Pavements: Plus or minus 1/2-inch.
- C. Grading Inside Building Lines: Finish subgrade to a tolerance of 1/2-inch when tested with a 10-foot straightedge.
- 3.16 BASE COURSE**
 - A. Place base course on subgrades free of mud, frost, snow, or ice.
 - B. On prepared subgrade, place base course under pavements and walks as follows:
 1. Shape base course to required crown elevations and cross-slope grades.
 2. Compact base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of density according to ASTM D 1557.
- 3.17 FIELD QUALITY CONTROL**
 - A. Testing Agency: Contractor will engage a qualified independent geotechnical engineering testing agency to perform field quality-control testing.
 - B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.
 - C. Footing Subgrade: At footing subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Architect.
 - D. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable. Tests will be performed at the following locations and frequencies:
 1. Paved and Building Slab Areas: At subgrade and at each compacted fill and backfill layer, at least one test for every 2000 square feet or less of paved area or building slab, but in no case fewer than three tests.
 2. Foundation Wall Backfill: At each compacted backfill layer, at least one test for each 100 feet or less of wall length, but no fewer than two tests.
 3. Trench Backfill: At each compacted initial and final backfill layer, at least one test for each 150 feet or less of trench length, but no fewer than two tests.
 - E. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; recompact and retest until specified compaction is obtained.

DSA Application No. November 14, 2022 31 2000 - 7 Merritt College Substation C EARTH MOVING

100% Construction Documents

- 3.18 PROTECTION**
 - A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.
 - B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.
 - C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.
 1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.
 - 3.19 DISPOSAL OF SURPLUS AND WASTE MATERIALS**
 - A. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.
- END OF SECTION

DSA Application No. November 14, 2022 31 2000 - 8 Merritt College Substation C EARTH MOVING

100% Construction Documents

- SECTION 32 1216
ASPHALT PAVING**
- PART 1 - GENERAL**
 - 1.01 SUMMARY**
 - A. Section Includes:
 1. Hot-mix asphalt paving.
 2. Hot-mix asphalt patching.
 3. Pavement-marking paint.
 - B. Related Sections:
 1. Division 31 Section "Earth Moving" for aggregate subbase and base courses and for aggregate pavement shoulders.
 - 1.02 SUBMITTALS**
 - A. Product Data: For each type of product indicated. Include technical data and tested physical and performance properties.
 1. Job-Mix Designs: Certification of conformance for each job mix proposed for the Work.
 - B. Material Certificates: For each paving material, from manufacturer.
 - 1.03 QUALITY ASSURANCE**
 - A. Manufacturer Qualifications: A paving-mix manufacturer registered with and approved by authorities having jurisdiction or Caltrans.
 - B. Regulatory Requirements: Comply with materials, workmanship, and other applicable requirements of Section 39 of the 2015 Caltrans Standard Specifications for asphalt paving work.
 1. Measurement and payment provisions and safety program submittals included in the Caltrans Standard Specifications do not apply to this Section.
 - 1.04 PROJECT CONDITIONS**
 - A. Environmental Limitations: Do not apply asphalt materials if subgrade is wet or excessively damp, if rain is imminent or expected before time required for adequate cure, or if the following conditions are not met:
 1. Tack Coat: Minimum surface temperature of 60 deg F.
 2. Asphalt Base Course: Minimum surface temperature of 60 deg F and rising at time of placement.
 3. Asphalt Surface Course: Minimum surface temperature of 60 deg F at time of placement.
 - B. Pavement-Marking Paint: Proceed with pavement marking only on clean, dry surfaces and at a minimum ambient or surface temperature of 55 deg F for water-based materials, and not exceeding 95 deg F.

DSA Application No. November 14, 2022 32 1216 - 1 Merritt College Substation C ASPHALT PAVING

100% Construction Documents

- PART 2 - PRODUCTS**
- 2.01 AGGREGATES**
 - A. Conform to requirements of Section 39-2-02 Type "B" Aggregate of the 2015 Caltrans Standard Specifications for Construction.
- 2.02 ASPHALT MATERIALS**
 - A. Asphalt Binder: Conform to requirements of Section 92 Grade 64-10 of the 2015 Caltrans Standard Specifications.
 - B. Tack Coat: Conform to requirements of Section 94 "Asphaltic Emulsions" of the 2015 Caltrans Standard Specifications.
- 2.03 MIXES**
 - A. Hot-Mix Asphalt: Dense, hot-laid, hot-mix asphalt plant mixes approved by authorities having jurisdiction and complying with the following requirements:
 1. Provide mixes conforming to Section 39 of the 2015 Caltrans Standard Specifications.
 2. Surface Course: Section 39 Type "A" of the Caltrans Standard Specification.
 3. Include a minimum of 15% Recycled Asphalt Pavement (RAP) in mix design.
- 2.04 AUXILIARY MATERIALS**
 - A. Pavement-Marking Paint: Latex, waterborne emulsion, lead and chromate-free, ready mixed, complying with FS-TT-P-1932D, with drying time of less than 15 minutes.
 1. Color: White and Yellow: Caltrans Spec. No. 8010-20B
Blue: Federal Standard 595b, Color No. 35180
 - B. Glass Beads: AASHTO M 247, Type 1.
 - C. Wheel Stops: Precast, air-entrained concrete, 2500-psi minimum compressive strength, a maximum of 5.25 inches high by 9 inches wide by 72 inches long. Provide chamfered corners, drainage slots on underside, and holes for anchoring to substrate.
 1. Dowels: Galvanized steel, 3/4-inch diameter, 18-inch minimum embedment length.
- PART 3 - EXECUTION**
- 3.01 EXAMINATION**
 - A. Proof-roll subgrade below pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.
 - B. Proceed with paving only after unsatisfactory conditions have been corrected.
- 3.02 PATCHING**
 - A. Hot-Mix Asphalt Pavement: Saw cut perimeter of patch and excavate existing pavement section to sound base. Excavate rectangular or trapezoidal patches, extending 12 inches into adjacent sound pavement, unless otherwise indicated. Saw-cut excavation faces vertically.

DSA Application No. November 14, 2022 32 1216 - 2 Merritt College Substation C ASPHALT PAVING

100% Construction Documents

- Remove excavated material. Recompact existing unbound-aggregate base course to form new subgrade.
- B. Tack Coat: Apply uniformly to vertical surfaces abutting or projecting into new, hot-mix asphalt paving at a rate of 0.05 to 0.15 gal./sq. yd.
 1. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
 2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.
- C. Patching: Fill excavated pavements with hot-mix asphalt mix for full thickness of patch and, while still hot, compact flush with adjacent surface.
- 3.03 SURFACE PREPARATION**
 - A. General: Immediately before placing asphalt materials, remove loose and deleterious material from substrate surfaces. Ensure that prepared subgrade is ready to receive paving.
 - B. Tack Coat: Apply uniformly to surfaces of existing pavement at a rate of 0.05 to 0.15 gal./sq. yd.
 1. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
 2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.
- 3.04 HOT-MIX ASPHALT PLACING**
 - A. Machine place hot-mix asphalt on prepared surface, spread uniformly, and strike off. Place asphalt mix by hand to areas inaccessible to equipment in a manner that prevents segregation of mix. Place each course to required grade, cross section, and thickness when compacted.
 1. Spread mix at minimum temperature of 250 deg F.
 2. Regulate paver machine speed to obtain smooth, continuous surface free of pulls and tears in asphalt-paving mat.
 - B. Place paving in consecutive strips not less than 10 feet wide unless infill edge strips of a lesser width are required.
 - C. Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hot-mix asphalt to prevent segregation of mix; use suitable hand tools to smooth surface.
- 3.05 JOINTS**
 - A. Construct joints to ensure a continuous bond between adjoining paving sections. Construct joints free of depressions, with same texture and smoothness as other sections of hot-mix asphalt course.
 1. Clean contact surfaces and apply tack coat to joints.
 2. Offset longitudinal joints, in successive courses, a minimum of 6 inches.
 3. Offset transverse joints, in successive courses, a minimum of 24 inches.
 4. Construct transverse joints at each point where paver ends a day's work and resumes work at a subsequent time. Construct these joints using either "bulthead" or "papered" method according to AI MS-22, for both "Ending a Lane" and "Resumption of Paving Operations."

DSA Application No. November 14, 2022 32 1216 - 3 Merritt College Substation C ASPHALT PAVING

100% Construction Documents

- 3.06 COMPACTION**
 - A. General: Begin compaction as soon as placed hot-mix paving will bear roller weight without excessive displacement. Compact hot-mix paving with hot, hand tampers or with vibratory-plate compactors in areas inaccessible to rollers.
 1. Complete compaction before mix temperature cools to 185 deg F.
 - B. Breakdown Rolling: Complete breakdown or initial rolling immediately after rolling joints and outside edge. Examine surface immediately after breakdown rolling for indicated crown, grade, and smoothness. Correct laydown and rolling operations to comply with requirements.
 - C. Intermediate Rolling: Begin intermediate rolling immediately after breakdown rolling while hot-mix asphalt is still hot enough to achieve specified density. Continue rolling until hot-mix asphalt course has been uniformly compacted to the following density:
 1. Average Density: 92 percent of reference maximum theoretical density according to ASTM D 2041, but not less than 90 percent nor greater than 96 percent.
 - D. Finish Rolling: Finish roll paved surfaces to remove roller marks while hot-mix asphalt is still warm.
 - E. Edge Shaping: While surface is being compacted and finished, trim edges of pavement to proper alignment. Bevel edges while asphalt is still hot; compact thoroughly.
 - F. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.
 - G. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.
- 3.07 INSTALLATION TOLERANCES**
 - A. Pavement Thickness: Compact each course to produce the thickness indicated within the following tolerances:
 1. Base Course: Plus or minus 1/2 inch.
 2. Surface Course: Plus 1/4 inch, no minus.
 - B. Pavement Surface Smoothness: Compact each course to produce a surface smoothness within the following tolerances as determined by using a 10-foot straightedge applied transversely or longitudinally to paved areas:
 1. Base Course: 1/4 inch.
 2. Surface Course: 1/8 inch.
 3. Crowned Surfaces: Test with crowned template centered and at right angle to crown. Maximum allowable variance from template is 1/4 inch.
- 3.08 PAVEMENT MARKING**
 - A. Do not apply pavement-marking paint until layout, colors, and placement have been verified with Architect.
 - B. Allow paving to age for 30 days before starting pavement marking.

DSA Application No. November 14, 2022 32 1216 - 4 Merritt College Substation C ASPHALT PAVING

100% Construction Documents

- C. Sweep and clean surface to eliminate loose material and dust.
 - D. Apply paint with mechanical equipment to produce pavement markings, of dimensions indicated, with uniform, straight edges. Apply at manufacturer's recommended rates to provide a minimum wet film thickness of 5 mils.
 1. Broadcast glass beads uniformly into wet pavement markings at a rate of 6 lb/gal.
 - 3.09 WHEEL STOPS**
 - A. Install wheel stops in bed of adhesive as recommended by manufacturer.
 - B. Securely attach wheel stops to pavement with not less than two galvanized-steel dowels embedded at one-quarter to one-third points. Securely install dowels into pavement and bond to wheel stop. Recess head of dowel beneath top of wheel stop.
 - 3.10 FIELD QUALITY CONTROL**
 - A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.
 - B. Replace and compact hot-mix asphalt where core tests were taken.
 - C. Remove and replace or install additional hot-mix asphalt where test results or measurements indicate that it does not comply with specified requirements.
 - 3.11 DISPOSAL**
 - A. Excavated materials from the Project site to be recycled on-site to the extent practical. Excess excavated materials from Project site shall be legally disposed of off-site.
- END OF SECTION

DSA Application No. November 14, 2022 32 1216 - 5 Merritt College Substation C ASPHALT PAVING

SHEET TITLE

SPECIFICATIONS

REVISIONS	
100% CD	11/01/22
DSA SUBMITTAL	11/23/22
DSA RESUBMITTAL 1	04/14/23
DSA RESUBMITTAL 2	05/25/23

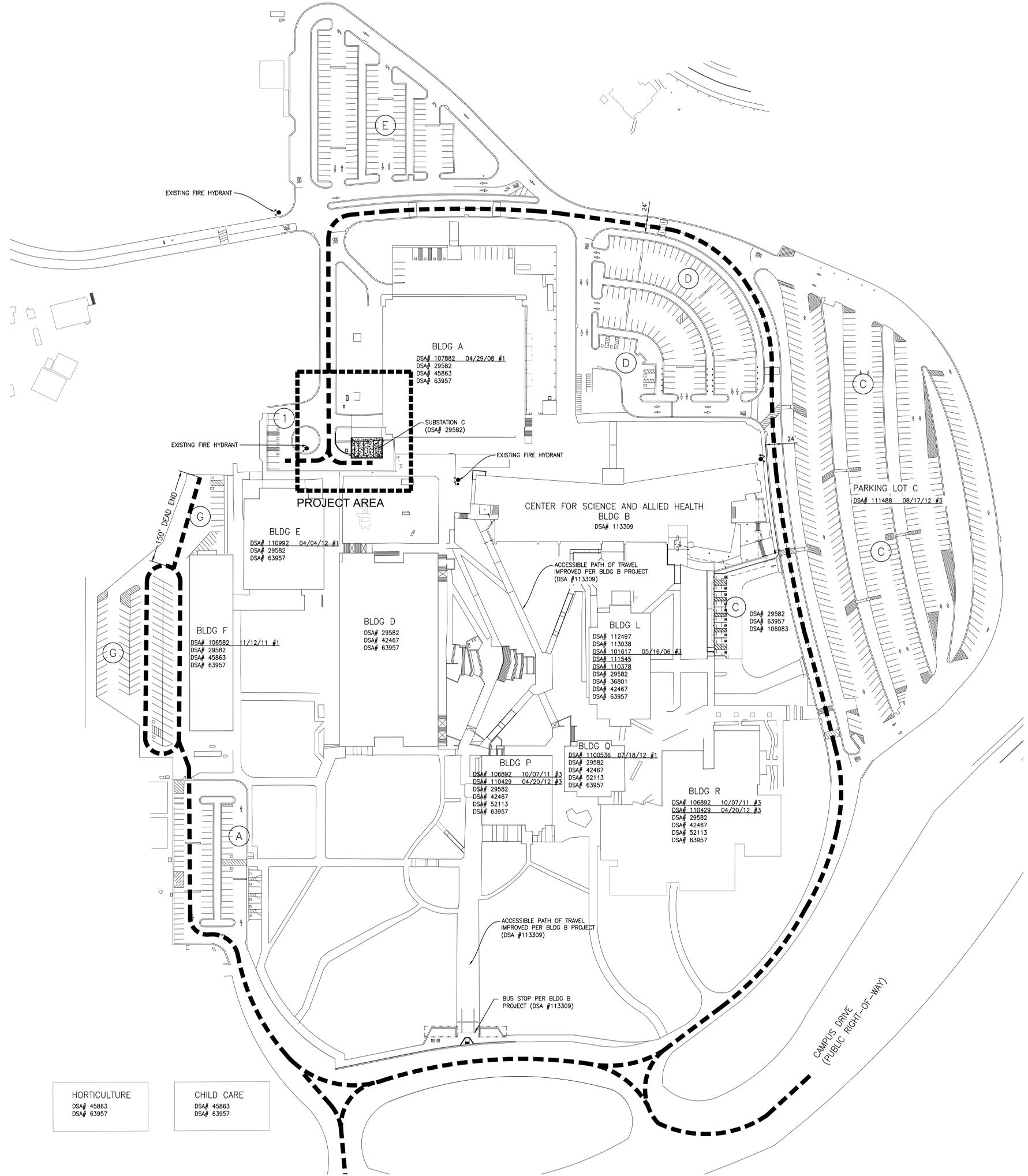
DRAWN BY **CC**

CHECKED BY **RB**

JOB NO. 2022-0586

DATE 05/25/2023

SHEET NUMBER



LEGEND

- FIRE ACCESS ROUTE
- FIRE HYDRANT

GENERAL NOTES:

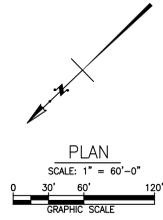
1. PROJECTS SUBMITTED TO DSA ON OR AFTER 11/12/97 ARE UNDERLINED WITH PROJECT CLOSEOUT DATES AND LETTERTYPE INDICATED

CAMPUSWIDE IMPROVEMENTS

DSA#	113074		
DSA#	106947	03/03/08	#3
DSA#	102079	09/14/07	#3
DSA#	102524	10/30/12	#1
DSA#	106083	06/21/06	#3
DSA#	110711	09/06/12	#3
DSA#	110042	06/12/09	#1
DSA#	112497		
DSA#	112534		
DSA#	112724		
DSA#	63957		

Parking Counts		
Lot	User	Count
(A)	ALL	62 STANDARD 7 ACCESSIBLE
(C)	ALL	354 STANDARD 21 ACCESSIBLE 3 MOTORCYCLE
(D)	STUDENTS	123 STANDARD 9 ACCESSIBLE 35 MOTORCYCLE
(E)	STUDENTS	107 STANDARD 0 ACCESSIBLE
(F)	NOT USED	NOT USED
(G)	STAFF	75 STANDARD 4 ACCESSIBLE
(1)	VISITORS	6 STANDARD 4 ACCESSIBLE

HORTICULTURE DSA# 45863 DSA# 63957	CHILD CARE DSA# 45863 DSA# 63957
--	--



DSA STAMP

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-120731 INC.
REVIEWED FOR:
SS FLS ACS
DATE: 6/8/2023

kpff

45 Fremont Street, 28th Floor
San Francisco, CA 94105
415.989.1004 | kpff.com



MERRITT COLLEGE - REPLACEMENT OF SECOND POWER SUBSTATION C

12500 Campus Dr,
Oakland, CA 94619

SHEET TITLE

CAMPUS ACCESS PLAN

REVISIONS	
100% CD	11/01/22
DSA SUBMITTAL	11/23/22
DSA RESUBMITTAL 1	04/14/23
DSA RESUBMITTAL 2	05/25/23

DRAWN BY	CC
CHECKED BY	RB
JOB NO.	2022-0586
DATE	05/25/2023
SHEET NUMBER	

C5.0

MERRITT COLLEGE REPLACEMENT OF SECOND POWER SUBSTATION C

12500 CAMPUS DR
OAKLAND, CA 94619

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-120731 INC:
REVIEWED FOR
SS FLS ACS
DATE: 6/8/2023

INTERFACE
ENGINEERING
1999 Harrison Street, Suite 550
Oakland, CA 94612
415-489-7240
www.interfaceengineering.com

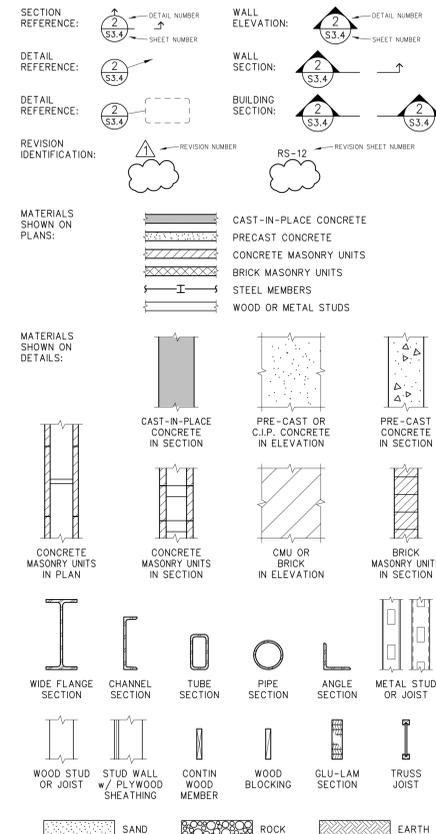
kpff
45 Fremont Street, 28th Floor
San Francisco, CA 94105
415-989.1004 | kpff.com



ABBREVIATIONS

A.B. Anchor Bolt	GA Gage	R Radius
ACI American Concrete Institute	GALV Galvanized	R.D. Roof Drain
A.D. Area Drain	G.B. Grade Beam	RDWD Redwood
ADOL Additional	GLB Glued Laminated Beam	REF Reference
ADJ Adjacent	GLC Glued Laminated Column	REINF Reinforcing
A.F.F. Above Finish Floor	GR Gypsum	REQD Required
AISC American Institute of Steel Construction	HDR Header	REV Revision
ALT Alternate	HGR Hanger	RF Roof
APPROX Approximately	HK Hook	RM Room
ARCH Architect or Architectural	HORIZ Horizontal	R.O. Rough Opening
ASPH Asphalt	H.P. High Point	S Section Modulus
ASTM American Society of Testing and Materials	H.R. Hard Rock	S.A.D. See Architectural Drawings
A.C. Asphaltic Concrete, Air Condition	HSS Hollow Steel Structure	S.C.D. See Civil Drawings
BAL Balance	HT Height	SCHED Schedule
B.L. Bottom Lower	I Moment of Inertia	S.E.D. See Electrical Drawings
BLDG Building	I.D. Inside Diameter	SF Square Feet
BLK Block	I.F. Inside Face	SHT Sheet
BLKG Blocking	INFO Information	SHTG Sheathing
BM Beam	INSUL Insulation	SM Similar
B.O. Bottom of	INT Interior	S.J. Shrinkage Joint, Seismic Joint or Slip Joint
BOT Bottom	JST Joist	S.L.D. See Landscape Drawings
B.P. Break Point	JT Joint	S.M.D. See Mechanical Drawings
BRD Board	KIP 1000 Pounds	S.M.F. Special Moment Frames
BRG Bearing	KSF KIPS Per Square Foot	S.M.S. Sheet Metal Screw
BRKT Bracket	L Angle	S.O.G. Slab On Grade
BTWN Between	LBS Pounds	SP Space or Spacing
B.U. Bottom Upper	LL Live Load	S.P.D. See Plumbing Drawings
C Channel	LLH Long Leg Horizontal	SPEC Specification
CBC California Building Code	LLV Long Leg Vertical	SQ Square
C.I.P. Cast In Place	LONGIT Longitudinal	S.S.D. See Structural Drawings
C.J. Construction or Control Joint	L.P. Low Point	STAGG Staggered
CLG Ceiling	L.S. Low Shrinkage	STD Standard
CLR Center Line	LSL Laminated Strand Lumber	STIFF Stiffener
CMU Concrete Masonry Unit	LT Light	STL Steel
COL Column	LVL Laminated Veneer Lumber	STRUCT Structural
CONC Concrete	LWT Light Weight	SYM Symmetric
CONN Connection	MACH Machine	T & B Top and Bottom
CONSTR Construction	MAS Masonry	T & G Tongue and Groove
CONTIN Continuous	MATL Material	T.B. Tie Beam
C.J.P. Complete Joint Penetration	MAX Maximum	THK Thick
CTR Center	M.B. Machine Bolt	THRU Through
CTRD Centered	MC Miscellaneous Channel	T.L. Top Lower
CTRSNK Countersink	M.D. Mid-depth	T.O. Top Of
d Penny weight	MECH Mechanical	T.O. CONC Top of Concrete
DBL Double	M.F. Moment Frame	T.O. PAR Top of Parapet
DEPR Depression	MFR Manufacturer	T.O. PLY Top of Plywood
D.F. Douglas Fir	MIN Minimum	T.O. PL Top of Plate
DIA or ø Diameter	MISC Miscellaneous	T.O. SLAB Top of Slab
DIAG Diagonal	MTL Metal	T.O. STL Top of Steel
DIM Dimension	(N) New	T.O. WALL Top of Wall
DL Dead Load	N.A. Not Applicable	TRANS Transverse
DN Down	N.I.C. Not In Contract	TS Tube/Steel
do Ditto	NO. Number	T.U. Top Upper
D.W.F. Deformed Wire Fabric	N.P. No Profile	TYP Typical
DWG Drawing	N.S. Near Side	UBC Uniform Building Code
(E) Existing	N.T.S. Not To Scale	U.N.O. Unless Noted Otherwise
EA Each	o.c. On Center	V.B. Vapor Barrier
E.F. Each Face	O.D. Outside Diameter	VENT Ventilation
E.J. Expansion Joint	OD. Outside Face	VERT Vertical
EL Elevation	O.F. Opposite Hand	V.F. Verify in Field
ELEC Electrical	OPNG Opening	W Wide Flange
ELEV Elevator	OPP Opposite	w/ Without
EMBED Embedment	OSB Oriented Strand Board	WD Wood
E.N. Edge Nail	O.S.G. Open Web Steel Girder	WF Wide Flange
ENCL Enclosure	O.W.S.J. Open Web Steel Joist	W.P. Work Point
ENGR Engineer	PAR Parapet	W.P.J. Weakened Plane Joint
E.O. Edge of	PC Piece	WT Weight or Structural T
E.O. MAS Edge of Masonry	P/C Precast	W.W.F. Welded Wire Fabric
E.O. PL Edge of Plate	P/CF Pounds per Cubic Foot	
E.O. SLAB Edge of Slab	P.D.F. Powder Driven Fastener	
EQ Equal	P.D.P. Powder Driven Pin	
EQUIP Equipment	PL Plate	
E.W. Each Way	PLF Pounds per Linear Foot	
EXP Expansion	PLY Plywood	
EXT Exterior	PLYWD Plywood	
F.D. Floor Drain	P.P. Partial Joint Penetration	
FDN Foundation	PSF Pounds per Square Foot	
F.F. Finish Floor	PSI Pounds per Square Inch	
FIN Finish	PSL Parallel Strand Lumber	
FLR Floor	P/T Post-Tensioned	
F.O. Face of	P.T. Pressure Treated	
F.O. CONC Face of Concrete	P.T.D.F. Pressure Treated Douglas Fir	
F.O. MAS Face of Masonry		
F.O. STUD Face of Stud		
FRM Framing		
F.S. Far Side		
FT Foot or Feet		
FTG Footing		

SYMBOLS



SHEET INDEX

SHEET INDEX		ISSUE LOG				
#	TITLE	ISSUED AS PART OF A SET	ISSUED AS PART OF A SET	ISSUED FOR INFORMATION ONLY	DATE	DATE
S0.1	TITLE PAGE & SHEET INDEX	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	06/08/23	06/08/23
S1.1	GENERAL NOTES	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	06/08/23	06/08/23
S1.2	GENERAL NOTES	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	06/08/23	06/08/23
S2.1	DEMOLITION PLAN	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	06/08/23	06/08/23
S2.2	FOUNDATION PLAN	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	06/08/23	06/08/23
S3.1	SECTIONS & DETAILS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	06/08/23	06/08/23

MERRITT COLLEGE - REPLACEMENT OF SECOND POWER SUBSTATION C

12500 Campus Dr,
Oakland, CA 94619

SHEET TITLE
TITLE PAGE & SHEET INDEX

REVISIONS	DATE
50% PRICING SET	09/30/2022
100% CD SET	10/24/2022
DSA SUBMITTAL	12/01/2022
DSA SUBMITTAL 1	04/14/2023
DSA SUBMITTAL 2	05/25/2023

DRAWN BY: **KB**
CHECKED BY: **RK**
JOB NO.: 2022-0586
DATE: 05/25/2023
SHEET NUMBER

S0.1

GENERAL NOTES

GENERAL

Dimensions refer to rough concrete surfaces, face of studs, face of concrete block, top of sheathing, or top of slab, unless otherwise indicated. The Contractor shall verify all dimensions prior to the start of construction. The Architect shall be notified of any discrepancies or inconsistencies.

All drawings are considered to be a part of the contract documents. The Contractor shall be responsible for the review and coordination of all drawings and specifications prior to the start of construction. Any discrepancies that occur shall be brought to the attention of the Architect prior to the start of construction so that a clarification can be issued. Any work performed in conflict with the contract documents or any code requirements shall be corrected by the Contractor at their own expense and at no expense to the owner or Architect.

Notes and details on the structural drawings shall take precedence over general notes and typical details. Where no details are given, construction shall be as shown for similar work.

All work shall conform to the minimum standards of the following codes:

2019 California Building Code, which comprises Title 24, Part 2 of the California Code of Regulations, as adopted by the California Building Standards Commission referred to here as "The California Building Code, 2022 Edition" or "the code", and any other regulating agencies which have authority over any portion of the work, including the State of California Division of Industrial Safety, and those additional codes and standards including, but not limited to, the following incorporated codes listed below, and in these structural notes and specifications.

American Society of Civil Engineers: ASCE 7-16 with Supplement 1, Minimum Design Loads for Buildings and Other Structures Including Supplement No. 1 and 2.

American Concrete Institute (ACI): ACI 318-19 Bldg. Code Requirements for Structural Concrete and Requirements for Structural Concrete and Commentary

American Institute of Steel Construction (AISC): Steel Construction Manual 15th Edition

American Iron and Steel Institute (AISI): AISI S100-16(2020) w/ S2-20 North American Specification for the Design of Cold-formed Steel Structural Members, 2016 Edition (Reaffirmed 2020) with Supplement 2, 2020 Edition

American Iron and Steel Institute (AISI): AISI S202-20 Code of Standard Practice for Cold-formed Steel Structural Framing, 2020

American Welding Society: AWS D1.1:2020 Structural Welding Code - Steel

ASTM specifications on the structural drawings shall be of the latest version, unless otherwise noted.

Refer to the architectural drawings for the following:

Dimensions not shown on the structural drawings.
Size and location of all floor and roof openings, except as noted.
Size and location of all concrete curbs, equipment pads, pits, floor drains, slopes, depressed areas, change in level, chamfers, grooves, inserts, etc.

Refer to the mechanical, plumbing, and electrical drawings for the following:

Pipe runs, sleeves, hangers, trenches, wall and slab openings, etc., except as noted.
Electrical conduit runs, boxes, and outlets in walls and slabs.
Concrete inserts for electrical, mechanical, or plumbing fixtures.
Size and location of machine or equipment bases or anchor bolts for motor mounts.

The contract structural drawings 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 during construction. Such measures shall include, but not be limited to, bracing and shoring for loads due to construction equipment, etc. Observation visits to the site by the Engineer shall not include inspection of the aforementioned items.

Contractor shall investigate the site, during clearing and earthwork operations, for filled excavations or buried structures, such as cesspools, cisterns, foundations, etc. If any such structures are found, the Engineer shall be notified immediately.

Openings, pockets, etc., larger than 6" shall not be placed in concrete slabs, decks, or walls, unless specifically detailed on the structural drawings. Notify the Engineer when drawings by others show openings, pockets, etc., larger than 6" not shown on the structural drawings, but which are located in structural members. For any further restrictions on openings in structural elements, see applicable sections below.

Construction material shall be spread out if placed on framed roof or floor. Load shall not exceed the design live load per square foot. Provide adequate shoring and/or bracing where the structure has not attained the design strength.

Specifications and detailing of all waterproofing and drainage items, although sometimes indicated on the structural drawings for general information purposes only, are solely the design responsibility of others.

Shop drawings, special inspections, and material sampling and testing, when required, are specified in their respective tables in the general notes and in the specifications.

DESIGN

Design conforms to the California Building Code, 2022 Edition

Design conforms to the San Francisco City and County Building Code, 2022 Edition

Wind Analysis:
Basic wind speed, V/35 (CBC Figure 1609A.3) V/ULT = 92 mph
Exposure (CBC Section 1609A.4.3) = B
Internal Pressure Coefficient, GC/P1 ... (ASCE Table 26.13-1) GC/P1 = +0.18

Interior Wall Condition (psf): +20/-25
Corner Wall Condition (psf): +25/-30

(+) Pressures indicate pressure towards wall
(-) Pressures indicate pressure away from wall
Corner conditions - extent of wall from building corner as defined by ASCE

Seismic Analysis:
Seismic Importance Factor, I (ASCE Table 1.5-2) I = 1.0
Risk Category (CBC Table 1604A.5) = II

Site Location, Latitude 37.79041°
Site Location, Longitude -122.164597°
Spectra Accel., Short Period, S/S (CBC Figure 1613.2.1(1)&(2)) S/S = 2.493 g
Spectra Accel., Long Period, S/1 (CBC Figure 1613.2.1(3)&(4)) S/1 = 0.953 g
Site Classification (CBC Section 1613A.2.2) = D
Design Response, Short Period, S/DS (CBC Section 1613A.2.4) S/DS = 1.662 g
Design Response, Long Period, S/D1 (CBC Section 1613A.2.4) S/D1 = 0.635 g
Seismic Design Category (CBC Section 1613A.2.5) = E

Component: Generators, batteries, inverters, motors, transformers, and other electrical components constructed of high-deformability materials
Component Amplification Factor: ap = 1
Component Response Modification Factor: Rp = 2.5
Component Overstrength Factor: Ro = 2.0
Component Importance Factor: Ip = 1.0

EXISTING CONSTRUCTION

The removal, cutting, drilling, etc., of existing work shall be performed with great care and small tools in order not to jeopardize the structural integrity of the building. If existing structural members that are not indicated for removal interfere with the new work, the Engineer shall be notified immediately, and approval obtained, before removal of the existing members.

FOUNDATIONS

Foundation design conforms to California Building Code Chapter 18A. The presumptive load-bearing values provided in CBC Table 1806A.2 for Clay, Sandy Clay class of material shall be used for foundation design.

Maximum soil pressure = 1500 psf DL + LL
Lateral bearing pressure = 100 pcF
Lateral slitting resistance = 130 psf

Engineered Fill

Engineered fill below footings shall be compacted to 90% relative compaction as determined by the ASTM D1557 compaction test method and under the observation of the Geotechnical Engineer.

Slabs On Grade

At areas under unoccupied slabs on grade, provide 4"/6" compacted Caltrans Class 2 Aggregate Base. Aggregate base shall be rolled to a smooth surface.

REINFORCING STEEL

Reinforcing Steel detailing, fabrication, and placement shall conform to the "California Building Code," Chapter 19; the "Manual of Standard Practice of the Concrete Reinforcing Steel Institute," latest edition; and the "Building Code Requirements for Structural Concrete and Commentary," ACI 318-19; unless otherwise noted.

Standards:
Reinforcing steel shall conform to the following standards:

Deformed Bars, #3 ASTM A615, Grade 40
Deformed Bars, #4 and larger ASTM A615, Grade 60

Placing: All steel reinforcement shall be securely tied in place so as to maintain their exact position before and during the placement of concrete. Reinforcing steel shall be securely tied in place with #16 annealed iron wire. Bars in beams and slabs shall be supported on well-cured concrete blocks or approved plastic tipped metal chairs, as specified by CRSI Manual of Standard Practice, MSP-1. Accessories for epoxy-coated reinforcing, where shown on plans, shall be as noted in the Specifications. Wire fabric in slabs shall be securely fastened to supporting devices to maintain their position during concrete placement.

Lap bars 5/8 diameters, laps shall be staggered, for #3 to #6 bars unless otherwise noted
Lap bars 7/8 diameters, laps shall be staggered, for #7 to #11 bars unless otherwise noted
Lap wire fabric 6" minimum.
Lap circular hoop reinforcement 48 bar diameters, 12" minimum.
Lap spiral reinforcement 2 turns.

Clear distances, steel to forms, unless noted otherwise:

Slabs not exposed to weather, joists, interior wall surfaces 3/4"
.....
Exterior wall surfaces, slabs exposed to weather, #5 and smaller 1-1/2"
.....
Exterior wall surfaces, slabs exposed to weather, #6 and larger 2"
.....
Column Ties, Beam Ties 1-1/2"
.....
Clear distance between bars 2"
.....
Formed surfaces in contact with earth 2"
.....
Slabs on rolled grade 1-1/2"
.....
Unformed surfaces in contact with earth 3"
.....

Shop drawings shall be submitted to the Architect for review prior to fabrication. Shop drawings shall include elevations of all beams and columns showing bar and lap locations. See Shop Drawing Submittal Requirements elsewhere in General Notes. Submit mill certificates for reinforcing steel prior to rebar placement.

CONCRETE WORK

Forms shall be properly constructed conforming to concrete surfaces as shown on the drawings, sufficiently tight to prevent leakage, sufficiently strong, and braced to maintain their shape and alignment until no longer needed to support the concrete. Forms for exposed concrete shall be plywood, using sheets as large as possible, with all joints tightly fitted and blocked, and shall produce a finished concrete surface which is smooth, true, and free from blemishes according to accepted standards for architectural concrete.

Refer to architectural, electrical, and mechanical drawings for details at door and window openings, floor type hinges, etc., and for location of sleeves, pipes, and other embedded items. Openings through slabs or walls not shown on the structural drawings which would interrupt reinforcing bars shall not be made without approval of the Architect.

Debris should be entirely removed from forms prior to concrete placement.

Horizontal construction joints shall be located as shown on the structural drawings, and the hardened concrete surfaces shall be cleaned by sand-blasting or other approved means to expose firmly embedded aggregates prior to pouring additional concrete in contact with these surfaces. Vertical construction joints through beams or slabs shall be located only as shown on structural drawings.

Forms and shoring shall not be removed until the concrete has attained sufficient strength to withstand all loads to be imposed without excessive stress, creep, or deflection. See specifications for shoring requirements.

Concrete shall be ready mixed conforming to ASTM C94. Cement shall be Portland Cement Type II, conforming to ASTM C150. All hardrock (H.R.) concrete used in suspended slabs and slabs on grade shall be designed for low shrinkage (L.S.). Acceptable coarse aggregates for low shrinkage concrete include Kaiser Clayton, Granite Rock, Limestone, Sechelt, or Orcas aggregates. Fine aggregates acceptable for low shrinkage concrete include Sechelt, Orcas, or Granite Rock sands. Alternative aggregates may be submitted provided they provide a concrete mix with a shrinkage limitation of 0.040% after 28 days of drying. Submit test data to Architect for review.

Use maximum size aggregate as noted below.

Use 3/8" maximum aggregate where necessary for proper placing, such as in thin or congested sections, etc. Superplasticizers may be used to improve workability in thin or congested sections. Incorporate superplasticizers into concrete mix designs.

Flyash shall consist of pozzolanic admixtures conforming to ASTM C618, Class F, and shall be used in quantities noted below. See specifications for additional requirements.

Admixtures used in concrete shall conform to the following ASTM standards, shall be used in dosages recommended by the manufacturer, and shall not contain more chloride than is found in the municipal drinking water supply. Liquid volume in ASTM C494, Type C admixtures shall be added to water content and water cement ratio calculations.

Water reducers ASTM C494, Type A
Mid-range water reducers ASTM C494, Type A/F
High-range water reducers ASTM C494, Type F
Hydration Stabilizers (Retarders) ASTM C494, Type B and D
Accelerators ASTM C494, Type C
Air Entraining Agents ASTM C260
Corrosion Inhibitors ASTM C494, Type C
Shrinkage Reducing Admixtures ASTM C494, Type F
Viscosity Modifying Admixtures ASTM C494, Type S
Silica Fume ASTM C1240
Crystalline Waterproofing No ASTM standard
Post-Industrial, recycled CO₂ ASTM C494, Type S

Cementitious Material (CM) content includes all cement and Supplemental Cementitious Materials (SCM)

Contractor shall submit for review of the Architect the concrete mixes proposed for use, designed by the concrete supplier and reviewed by an approved testing laboratory.

Concrete shall have the following characteristics:

Concrete Location	Max Aggregate	Strength @ 28 days (psi)	Min Slump ¹ (in)	Min CM Content (Sacks)	Min CM Content (9als)	Max Water Content ¹ (gals)	Max Water/Cement Ratio	Flyash Content, Min, Max (%)
Footings	1-1/2"	3000	3.5	5.0	36	0.60	20.35	
Slab on grade/Pads	1"x4"	3000	3.5	5.0	33	0.45	15.25	

NOTES:

¹ Slump shall be the minimum consistent with proper placing. Achieve slump with water reducing admixtures (ASTM C-494 Type A, F, or A/F) for desired workability.
² Use high range water reducing admixture (superplasticizer) as needed.
³ Use water reducing admixtures or mid-range water reducing admixtures for desired workability.

Pipes other than electrical conduits shall not be embedded in structural concrete except where specifically approved by the Engineer. Electrical conduits embedded in concrete shall not exceed 1-1/4" O.D., without approval of the Engineer.

Conduit, when embedded in concrete slabs, shall be spaced with one conduit diameter clear (larger conduit) or 1 inch clear, whichever is greater, between adjacent conduits or rebar. Conduit shall not be located directly over and parallel to rebar. Embedded conduit can be tied to rebar when oriented perpendicular to them, provided the location of rebar is not affected by the conduit. Conduit without clearance noted above shall be submitted to the architect for review prior to installation. Added trim reinforcement will be required where clearances cannot be met, such as electric panel rooms.

Sleeves, when installed in concrete, shall be spaced with one sleeve diameter (larger sleeve) clear between adjacent sleeves, rebar, or 1 inch, whichever is greater. Sleeves may not touch rebar or other support hardware. Provide clearance between sleeves and reinforcing for typical slab edge conditions. Added trim reinforcement is required per the typical slab opening detail when sleeves exceed 12" diameter or are placed in groups where the out-to-out dimension exceeds 12" in any direction. Sleeve placement shall not interfere with the rebar placement without the approval of the Engineer.

A Sleeve/Penetration Slab Shop drawing shall be submitted for review prior to fabrication. Shop drawings shall include all concrete sleeves, penetrations, and openings, from all disciplines, coordinated, dimensioned and located on plan. See Shop Drawing Submittal Requirements elsewhere in General Notes.

The Contractor shall inform the Architect at least 3 days prior to pouring any structural concrete so that the Architect may have the opportunity of reviewing the work prior to concrete placement.

All concrete except slabs on grade 6" thick or less shall be mechanically vibrated so as to completely fill the forms without causing undue segregation.

For 28 day strengths and 4" diameter x 8" long cylinders:
5 test cylinders from each 50 yards, or fraction thereof, poured in any one day, shall be secured and tested by an independent testing agency; one to be tested at 7 days for information, three at 28 days for acceptance, and hold one in reserve. For post-tensioned concrete secure 5 cylinders per 50 yards, or fraction thereof, poured in any one day, two sets minimum. Test one at 96 hours for stressing, three at 28 days for acceptance, and hold one in reserve.

The Contractor shall remove and replace any concrete which fails to attain specified strength in 28 days if so directed by the Architect. Any defects in the hardened concrete shall be satisfactorily repaired or the hardened concrete shall be replaced.

STRUCTURAL STEEL AND MISCELLANEOUS IRON

Structural Steel and Miscellaneous Metal shall be detailed, fabricated, and erected in accordance with AISC 325. Fabricators and Erectors shall be AISC Certified.

Standards:

All Structural Steel shall conform to the following ASTM designations, U.N.O.
HSS Rectangular and Square A500, Grade C (Fy = 50 ksi)
Other Steel Plates and Bars A36

Unless otherwise shown or noted stiffener plates shall be 3/8" thick minimum.

All structural steel surfaces that are encased in concrete, masonry, spray on fireproofing, or are encased by building finishes shall be left unpainted except as required for designation of protected zones, unless noted otherwise.

All steel elements exposed to weather shall be galvanized, galvanize according to ASTM A123, hot dip process.

Erection clips, temporary bracing, and shoring required by the Contractor are not shown. Contractor shall comply with all OSHA requirements.

Additional miscellaneous metal items such as embeds, railings, and supports for interior finishes may be shown on drawings prepared by others. See architectural drawings.

Shop drawings shall be submitted to the architect for review prior to fabrication

The testing agency shall send copies of Structural Testing and Inspection Reports directly to the Engineer of Record.

Welded Connections:

All welded connections shall be welded in accordance with the "Structural Welding Code - Steel" (AWS-D1.1). All welding shall be done with electrodes having a minimum tensile strength of 70 ksi, unless noted otherwise. Shielded metal arc welding (SMAW) electrodes shall be low-hydrogen type. Unless otherwise noted.

- All welders shall be qualified in accordance with AWS D1.1 for all welds they will be performing.
- The weld lengths called for on the structural drawings are the net effective length required. Where fillet weld symbol is given without indication of size, use the minimum size welds as specified in AISC 360, Section JF.2b.
- All welding shall be performed in conformance with a written welding procedure specification (WPS). Submit all WPS's applicable to the project for review listing specific electrodes to be used. The submittal shall include an index of all procedures, shall identify the actual electrode to be used for each procedure, and shall include electrode data sheets describing the products, the limitations of use, the recommended welding parameters, and storage and exposure requirements. For WPS's that are not pre-qualified per AWS D1.1, submit procedure qualification record with WPS.
- Run-off tabs per AWS D1.1 are required for Complete Joint Penetration (C.J.P.) groove welds. All welds are to be started and completed on the run-off tabs as much as practicable. Do not end welds at cope hole locations. Use of weld dams is not allowed.
- The minimum preheat and interpass temperatures of AWS D.1 Section 3.5 must be followed.
- All C.J.P. groove welds in members and connections shall be made with a filler metal having a minimum Charpy V-Notch toughness of 20 FT-LBS at 40 degrees F as determined by AWS classification or manufacturer's certification.
- All butt welds are complete joint penetration welds.
- Complete penetration welds and partial penetration welds shall be examined by Ultrasonic Testing. All testing and inspection shall conform to CBC requirements. Refer to the specifications for additional information.

EPOXY FOR CONCRETE

Epoxy shall be HIT-HY 200 as manufactured by Hilti, Inc. (ICC Evaluation Report ESR-3187). All drilled holes shall be sized according to the manufacturer's recommendations.

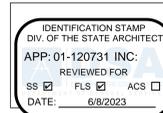
EXPANSION ANCHORS

Expansion anchors shall be KB-T22 as manufactured by Hilti, Inc. (ICC Evaluation Report ESR-4266) or approved equal with a current ICC report. All drilled holes shall be sized according to the manufacturer's recommendations.

Anchor diameter refers to the thread size of the the wedge anchor. All drilled holes shall be sized according to the manufacturer's recommendations. Expansion anchors shall be installed in accordance with the manufacturer's recommendations.

Expansion anchors shall not be used to resist vibratory or shock loads.

Minimum expansion anchor embedment shall be indicated on the drawings. Minimum embedment indicated on the drawings is the minimum effective embedment unless otherwise indicated.



INTERFACE
ENGINEERING

1999 Harrison Street, Suite 550
Oakland, CA 94612
Tel: 415-485-7240
www.interfaceengineering.com

kpff

45 Fremont Street, 28th Floor
San Francisco, CA 94105
415.989.1004 | kpff.com



MERRITT COLLEGE - REPLACEMENT OF SECOND POWER SUBSTATION C

12500 Campus Dr.,
Oakland, CA 94619

SHEET TITLE
GENERAL NOTES

REVISIONS

NO.	DESCRIPTION	DATE
50% PRICING SET		09/30/2022
100% CD SET		10/24/2022
DSA SUBMITTAL		12/01/2022
DSA RESUBMITTAL 1		04/14/2023
DSA RESUBMITTAL 2		05/25/2023

DRAWN BY
KB

CHECKED BY
RK

JOB NO.
2022-0586

DATE
05/25/2023

SHEET NUMBER

S1.1

GENERAL NOTES

POST-INSTALLED ANCHOR TESTING

The Owner's testing agency shall perform tension load tests on anchors installed in hardened concrete. L.V.P.s are not required to be tested. Refer to the tables below for test load values.

Post-installed anchors used for structural applications shall be tested at a frequency of 100%. Anchors used for nonstructural applications such as equipment anchorage shall be tested at a frequency of 50% or alternate bolts in a group including at least one half the anchors in each group. Anchors used for sill track bolting shall be tested at a frequency of 10%. If any anchor fails testing, all anchors of the same type shall be tested, which are installed by the same trade, not previously tested until 20 consecutive anchors pass, then resume initial testing frequency.

Test expansion anchors and screw anchors with the torque wrench method.

The Owner's testing agency shall develop and utilize an effective method of field marking locations of passed and failed anchor tests.

Test equipment including torque wrenches are to be calibrated by an approved testing laboratory in accordance with the standard recognized procedures.

The following criteria apply for the acceptance of installed anchors:

HYDRAULIC RAM METHOD:

The anchor shall maintain the test load for a minimum of 15 seconds and shall exhibit no observable movement at the applicable test load.

Reaction loads from test fixtures may be applied close to the anchor being tested provided the anchor is not restrained from withdrawing by the fixture(s).

Tension test loads in the tables below are based on the minimum of 125 percent of the maximum design strength of the dowel provided in the ICC Report, but not to exceed 80 percent of the yield strength of the dowel.

The tension values listed in the tables below are only applicable when the anchors are installed with special inspection as set forth in section 1701A of the code.

Drilled adhesive dowel capacities listed in the table below assume maximum short-term temperatures of 130 degrees F and maximum long-term temperatures of 110 degrees F. Short-term temperatures are those that occur over brief intervals such as a result of diurnal cycling. Long-term temperatures are roughly constant over significant periods of time.

EPOXY DOWEL TESTING REQUIREMENTS (ICC REPORT ESR-3187)

HILTI HY200 DOWEL IN NORMAL WEIGHT CONCRETE					
DOWEL SIZE	MINIMUM EMBEDMENT	MINIMUM THICKNESS	TENSION TEST LOAD (lbs)	TENSION CAPACITY (STRENGTH) (lbs)	MIN f'c (psi)
3/4"	8"	9 3/4"	8,397	9,797	3000.000000

TORQUE WRENCH METHOD:

The applicable test torque must be reached within the following limits. For wedge or sleeve type anchors: one-half turn of the nut. For 3/8 inch sleeve type anchors and all screw anchors: one-quarter turn of the nut.

If the manufacturer's recommended installation torque is less than the test torque noted in the table, the manufacturer's recommended installation torque should be used in lieu of the tabulated values.

EXPANSION ANCHOR TESTING REQUIREMENTS (ICC REPORT ESR-1917)

NORMAL WEIGHT CRACKED CONCRETE SLAB - STAINLESS STEEL ANCHOR					
ANCHOR DIAMETER (INCHES)	EMBED DEPTH (INCHES)	MIN CONC THICKNESS (INCHES)	TORQUE TEST LOAD (LBS)	REQUIRED EDGE DISTANCE (INCHES)	REQUIRED SPACING (INCHES)
1/2	2	4	40	5 3/4	4 1/2
1/2	3 1/4	6	40	5 1/4	3 1/4
5/8	3 1/8	6	60	5 1/2	4 1/8

SHOP DRAWING SUBMITTALS

When indicated with a "x", the following items shall have either a) shop drawings or b) certificates of conformance or c) shop drawings, calculations, and details submitted to the architect for review and approval prior to fabrication. When shop drawings, calculations, and details are required, submittals (drawings and calculations) must be signed and stamped by a Civil or Structural Engineer registered in the State of California. For additional information on the contents of the submittals, refer to the project specifications and the specific general notes sections. Submit two prints or an electronic (PDF copy) of calculations (where indicated) and shop drawings to the Architect for review.

Item	Shop Drawings	Certificate ¹	Shop Dwg. calcs, and Details	Remarks
Statement of Special Inspections		x		See Special Inspection Notes. Do not submit KPFF Drawings.
Concrete reinforcing	x			
Concrete, mixes	x			
Concrete, cement		x		
Concrete, fine aggregates		x		
Concrete, coarse aggregates		x		
Concrete, admixtures		x		
Expansion Anchors	x			
Epoxy for Bolts or Rebar	x			
Screw Anchors	x			

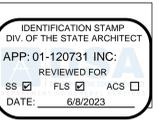
(1) Certificates shall be dated within 3 months of the submittal.

MATERIAL SAMPLING AND TESTING

See DSA Form 103 for material sampling and testing requirement.

SPECIAL INSPECTION

See DSA Form 103 for special inspection requirements.



MERRITT COLLEGE - REPLACEMENT OF SECOND POWER SUBSTATION C

12500 Campus Dr., Oakland, CA 94619

SHEET TITLE	
GENERAL NOTES	
REVISIONS	
50% PRICING SET	09/30/2022
100% CD SET	10/24/2022
DSA SUBMITTAL	12/01/2022
DSA RESUBMITTAL 1	04/14/2023
DSA RESUBMITTAL 2	05/25/2023
DRAWN BY	
KB	
CHECKED BY	
RK	
JOB NO.	
2022-0586	
DATE	
05/25/2023	
SHEET NUMBER	
S1.2	

I:\2200070-00\2200070-00_S2.1.dwg
 Plotted Monday, May 15, 2023 2:50pm by kbrlmer

IDENTIFICATION STAMP
 DIV. OF THE STATE ARCHITECT
 APP: 01-120731 INC:
 REVIEWED FOR
 SS FLS ACS
 DATE: 6/8/2023

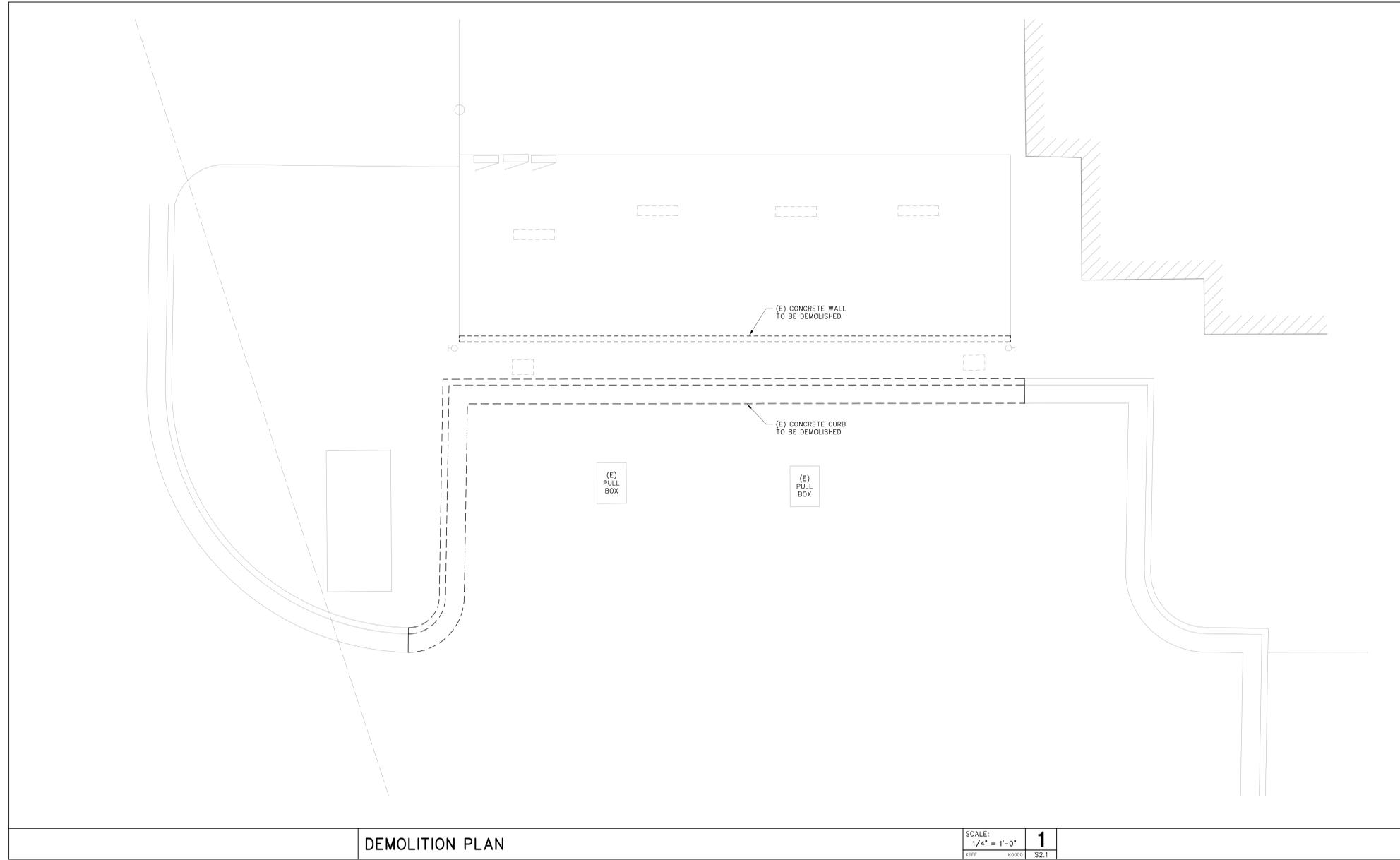
INTERFACE
 ENGINEERING
 1999 Harrison Street, Suite 550
 Oakland, CA 94612
 TEL: 415.489.7340
 www.interfaceengineering.com

kpff
 45 Fremont Street, 28th Floor
 San Francisco, CA 94105
 415.989.1004 | kpff.com

DAVID J. ROSE
 No. 4127
 25 MAY 2023
 DATE SIGNED

MERRITT COLLEGE - REPLACEMENT OF SECOND POWER SUBSTATION C

12500 Campus Dr,
 Oakland, CA 94619



SHEET TITLE
DEMOLITION PLAN

REVISIONS

50% PRICING SET	09/30/2022
100% CD SET	10/24/2022
DSA SUBMITTAL	12/01/2022
DSA RESUBMITTAL 1	04/14/2023
DSA RESUBMITTAL 2	05/25/2023

DRAWN BY **KB**
 CHECKED BY **RK**
 JOB NO. 2022-0586
 DATE 05/25/2023
 SHEET NUMBER

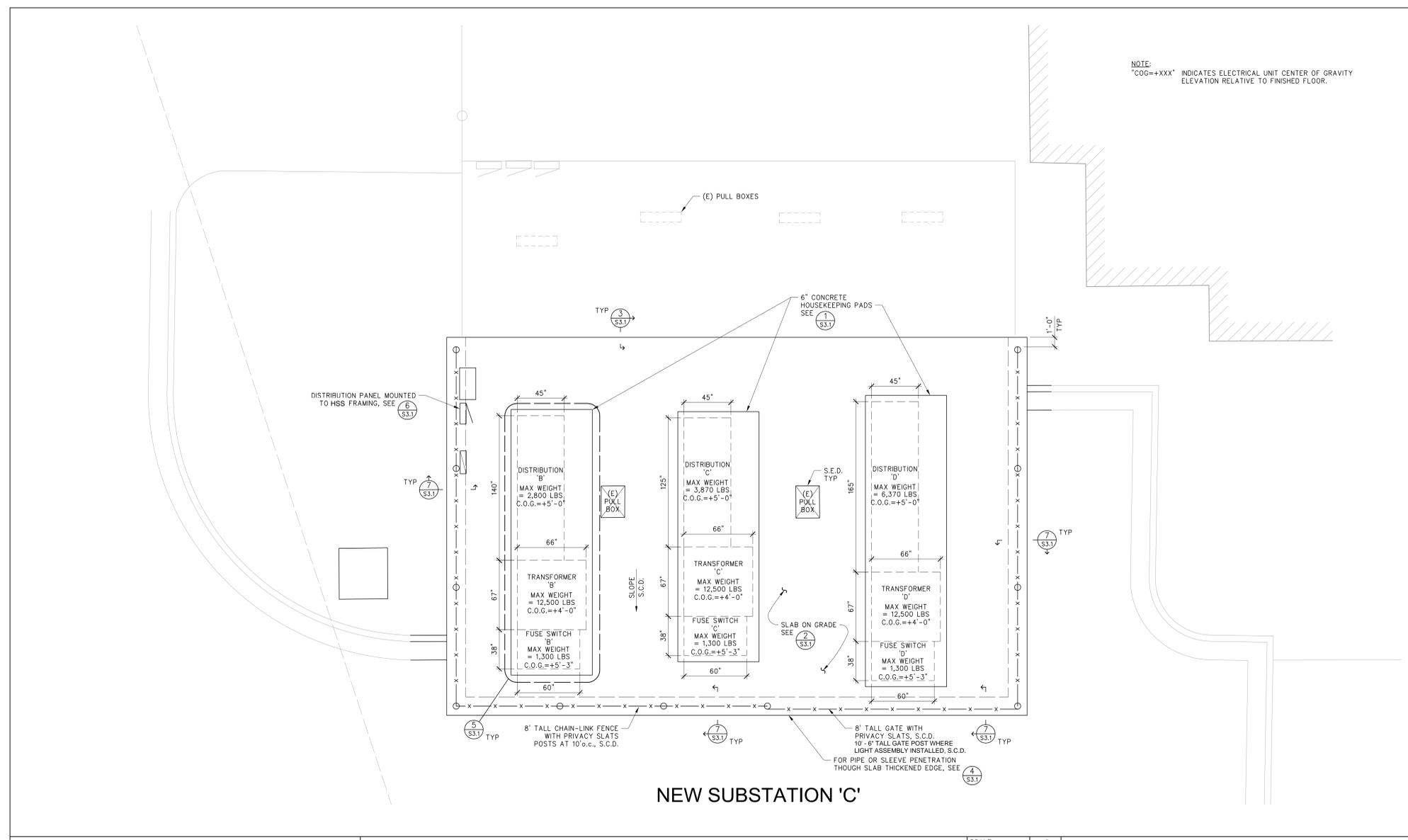
S2.1

DEMOLITION PLAN

SCALE:
 1/4" = 1'-0"
 KPFF K0000 S2.1

MERRITT COLLEGE - REPLACEMENT OF SECOND POWER SUBSTATION C

12500 Campus Dr.,
Oakland, CA 94619



FOUNDATION PLAN

SCALE:
 1/4" = 1'-0"
 1
 KPFF K0000 S2.2

SHEET TITLE
FOUNDATION PLAN

REVISIONS

NO.	DESCRIPTION	DATE
1	50% PRICING SET	09/30/2022
2	100% CD SET	10/24/2022
3	DSA SUBMITTAL	12/01/2022
4	DSA RESUBMITTAL 1	04/14/2023
5	DSA RESUBMITTAL 2	05/25/2023

DRAWN BY: **KB**

CHECKED BY: **RK**

JOB NO.: 2022-0586

DATE: 05/25/2023

SHEET NUMBER

S2.2

ELECTRICAL SYMBOL LIST

NOTE: This is a standard symbol list and not all items listed may be used.

Abbreviations

(A)	ABANDON IN PLACE
(E)	EXISTING
(N)	NEW
(R)	RELOCATE
(X)	DEMOLISH
A	AMPERES, AMBER
AC	ALTERNATING CURRENT, AIR CONDITIONER
ADJ	ADJUSTABLE
AHJ	AUTHORITY HAVING JURISDICTION
AIC	AVAILABLE INTERRUPTING CAPACITY
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
B	BLUE
BAS	BUILDING AUTOMATION SYSTEM
BB	BASE BOARD HEATER
BC	BARE COPPER
C	CONDUIT, CLOSE, CONTROL
CA	CABLE
CB	CIRCUIT BREAKER
CFCI	CONTRACTOR FURNISHED CONTRACTOR INSTALLED
CFOI	CONTRACTOR FURNISHED OWNER INSTALLED
COM	COMMUNICATION
COORD	COORDINATE
CPT	CONTROL POWER TRANSFORMER
CR	CONTROL RELAY
CT	CURRENT TRANSFORMER
CU	COPPER
DIA	DIAMETER
DIM	DIMENSION
DIV	DIVISION
EMT	ELECTRICAL METALLIC TUBING
ENT	ELECTRICAL NON-METALLIC TUBING
ESD	ELECTROSTATIC DISCHARGE
FT	FOOT, FEET
G, GND	GROUND
G	GREEN
GE	GROUNDING EQUALIZER
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFI	GROUND FAULT INTERRUPTER
GFP	GROUND FAULT PROTECTION
HH	HANDHOLE
I	INTERLOCK
ID	IDENTIFICATION
IEEE	INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS
IG	ISOLATED GROUND
IMC	INTERMEDIATE METAL CONDUIT
IN	INCH, INCHES
INST	INSTANTANEOUS
ISO	ISOLATION, INTERNATIONAL ORGANIZATION FOR STANDARDIZATION
ISR	INTRINSICALLY SAFE RELAY
KV	KILOVOLT
KVA	KILOVOLT AMPERES
KW	KILOWATT
LV	LOW VOLTAGE
M	MOTOR
MCA	MINIMUM CIRCUIT AMPS
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MDB	MAIN DISTRIBUTION BOARD
MDP	MAIN DISTRIBUTION PANEL
MH	MANHOLE, MAINTENANCE HOLE
MIN	MINIMUM

MISC	MISCELLANEOUS
MSB	MAIN SWITCHBOARD
MT, MTD	MOUNT, MOUNTED
MT	EMPTY CONDUIT WITH NYLON PULL CORD
MTS	MANUAL TRANSFER SWITCH
N.I.C.	NOT IN CONTRACT
N/A	NOT APPLICABLE
N	NEUTRAL
NA	NON AUTOMATIC
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRIC CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NESC	NATIONAL ELECTRICAL SAFETY CODE
NO	NORMALLY OPEN
NP	NAMEPLATE
NTS	NOT TO SCALE
O	OPEN
OC	ON CENTER
OCA	OPEN-CLOSE-AUTO
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED, OWNER INSTALLED
OSP	OUTSIDE PLANT
PB	PUSHBUTTON, PULLBOX
PH	PHASE
PID	PROPORTIONAL - INTEGRAL - DERIVATIVE
PNL	PANEL
PWR	POWER
QTY	QUANTITY
RC	REVERSING CONTACTOR
REF	REFERENCE
REQD	REQUIRED
RFI	REQUEST FOR INFORMATION
RMC	RIGID METAL CONDUIT
SDP	SUB DISTRIBUTION PANEL
SPD	SURGE PROTECTION DEVICE
SS	SURGE SUPPRESSOR
SS-1	SELECTOR SWITCH 1
ST	SHUNT TRIP
STD	STANDARD
SWBD	SWITCHBOARD
TBD	TO BE DETERMINED
TDD, TDE	TIME DELAY RELAY
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
TYP	TYPICAL
UG	UNDERGROUND
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTIBLE POWER SUPPLY
V	VOLTS, VOLTAGE
VM	VOLTMETER
VS	VOLTMETER SWITCH
W	WITH
W/O	WITHOUT
W	WIRE, WHITE
WH	WATER HEATER
WP	WEATHERPROOF
XFMR	TRANSFORMER

Connections / Equipment

	UTILITY METER BASE
	WALL-MOUNTED JUNCTION BOX

General

	DEMOLISH
--	----------

	DETAIL NUMBER AND SHEET LOCATION
	EXISTING WORK
	KEYED NOTE
	NEW WORK
	SECTION NUMBER AND SHEET LOCATION

Lighting

	WALL MOUNTED LUMINAIRE
--	------------------------

Miscellaneous

	AUTOMATIC TRANSFER SWITCH
	BRANCH PANEL
	CIRCUIT BREAKER
	CIRCUIT BREAKER WITH CURRENT LIMITING FUSES
	CURRENT TRANSFORMER
	DIGITAL TYPE METER WITH VOLTMETER, AMMETER, KW METER, KVA METER, KVAR METER, AND %THD METER
	DRY TYPE TRANSFORMER
	FUSE
	FUSED DISCONNECT SWITCH OR SWITCH/FUSE IN SWITCHBOARD
	GROUND BAR
	GROUND ROD BONDED TO BARE COPPER GROUND CONDUCTOR
	GROUNDING BUS BAR
	GROUNDING INSIDE PULLBOX/GROUND WELL
	GROUNDING POINT
	LANDING LUG
	MAIN DISTRIBUTION PANEL / SUB DISTRIBUTION PANEL
	METER WITH CONNECTION
	SURFACE MOUNT EQUIPMENT ENCLOSURE AS NOTED
	SURGE PROTECTION DEVICE
	SWITCH
	DEADBREAK ELBOW

Raceways

	CONDUIT CONCEALED IN WALL OR CEILING SPACE
	CONDUIT ELLED DOWN
	CONDUIT ELLED UP
	CONDUIT ROUTED BELOW FLOOR / GRADE
	CONDUIT WIRING CONTINUATION
	CONDUIT WIRING STUBBED OUT WITH END CAP OR INSULATED PLASTIC BUSHING
	FLEXIBLE CONDUIT
	HANDHOLE WITH ID NUMBER
	PULL BOX

Switches and Receptacles

	SINGLE POLE SWITCH
	W = WEATHERPROOF SWITCH

GENERAL ELECTRICAL NOTES

- DO NOT COMMENCE INSTALLATION OF ELECTRICAL SYSTEMS AND EQUIPMENT WITHOUT RELATED SHOP DRAWING APPROVALS.
- ELECTRICAL CIRCUITS SHALL BE INTERRUPTED ONLY WITH PRIOR WRITTEN CONSENT. SUCH INTERRUPTIONS SHALL BE PRECEDED BY ALL POSSIBLE PREPARATIONS BY THE CONTRACTOR WHICH ARE NECESSARY TO KEEP THE ELECTRICAL CIRCUITS OFF FOR A MINIMUM PERIOD IN AN EXPEDITIOUS MANNER PURSUANT WITH GOOD WORKMANSHIP. THIS INCLUDES CIRCUIT TRACING TO IDENTIFY THE ELECTRICAL LOAD BEING SERVED AND THE ORIGIN OF THE CIRCUIT.
- COORDINATE WITH OWNER SO THAT WORK CAN BE SCHEDULED NOT TO INTERRUPT OPERATIONS, NORMAL ACTIVITIES, BUILDING ACCESS, ACCESS TO DIFFERENT AREAS. THE OWNER WILL COOPERATE TO THE BEST OF THEIR ABILITY TO ASSIST IN A COORDINATED SCHEDULE, BUT WILL REMAIN THE FINAL AUTHORITY AS TO TIME OF WORK PERMITTED.
- COORDINATE THE EXACT LOCATION OF EXISTING UTILITIES AND EQUIPMENT PRIOR TO COMMENCEMENT OF WORK. COMPENSATE THE OWNER FOR DAMAGES CAUSED BY THE FAILURE TO LOCATE AND PRESERVE UTILITIES. REPLACE DAMAGED ITEMS WITH NEW MATERIAL TO MATCH EXISTING.
- PROVIDE TEMPORARY SUPPORT FOR ELECTRICAL SYSTEMS THAT REMAIN IN PLACE.
- REMOVE ABANDONED WIRING TO LEAVE SITE CLEAN.
- MAINTAIN ACCESS TO EXISTING ELECTRICAL INSTALLATIONS WHICH REMAIN ACTIVE. MODIFY INSTALLATION OR PROVIDE ACCESS PANEL AS APPROPRIATE.
- WHERE DRAWINGS INDICATE EXISTING ELECTRICAL EQUIPMENT OR DEVICES TO BE RELOCATED AND/OR REUSED, REFINISH THEM THOROUGHLY CLEAN SUCH ITEMS. NOTIFY ARCHITECT OF ANY DEFECTS IN SUCH INSTALLATIONS. REPAIR ANY DAMAGE CAUSED BY DEMOLITION OR CONSTRUCTION PERFORMED UNDER THIS CONTRACT.
- PROVIDE UPDATED PANEL SCHEDULES AND DIRECTORIES THAT IDENTIFY EXISTING CIRCUITS AND NUMBER OF SPARE CIRCUITS AVAILABLE UPON COMPLETION OF DEMOLITION WORK.
- OFFER REMOVED PANELBOARDS AND EQUIPMENT TO THE OWNER. IF OWNER CHOOSES TO RETAIN THESE ITEMS, RETURN SUCH ITEMS TO OWNER. CAREFULLY REMOVE AND DISPOSE OF ITEMS REJECTED BY OWNER FROM PROJECT SITE AND IN A LEGAL MANNER.
- PROVIDE SUITABLE ANCHORAGE AND SUPPORT FOR ELECTRICAL EQUIPMENT IN RATED WALLS, SLABS AND CEILINGS. MOUNT DEVICES AND RACEWAYS IN ACCORDANCE WITH ESTABLISHED CODES AND SPECIFICATIONS.
- REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- DRAWINGS AND SPECIFICATIONS COMPLEMENT EACH OTHER. REQUIREMENT BY EITHER INFERS REQUIREMENT BY BOTH.
- CONNECT EQUIPMENT AND DEVICES FURNISHED UNDER OTHER DIVISIONS OF THIS CONTRACT, BY OWNER OR BY OTHER CONTRACTS.
- BRACE ELECTRICAL EQUIPMENT TO RESIST A HORIZONTAL FORCE THAT ACT IN ANY DIRECTION. COMPLY WITH TITLE 24 REQUIREMENTS.
- INSTALL COMPLETE SYSTEM OF CONDUCTORS IN RACEWAY SYSTEM THROUGHOUT BUILDING FOR FEEDERS, BRANCH CIRCUITS, ETC.
- ALL WORK ON SERVICE CONDUCTORS, FEEDERS, AND OTHER SUCH EQUIPMENT SHALL BE DONE ONLY WHEN SUCH CONDUCTORS, FEEDERS, AND EQUIPMENT ARE DE-ENERGIZED. THE CONTRACTOR SHALL HAVE AN "ELECTRICAL SAFETY AND LOCK-OUT/TAG-OUT PROCEDURE" IN PLACE PRIOR TO COMMENCEMENT OF WORK.
- ALL AIC RATINGS SHOWN ARE MINIMUM REQUIREMENTS. COORDINATE AND UPGRADE RATINGS FOR ALL DISTRIBUTION EQUIPMENT AS PER SHORT CIRCUIT ANALYSIS RECOMMENDATION.
- PENETRATIONS THROUGH EXISTING WALLS SHALL BE 4 INCH MAX DIAMETER. AT CONCRETE AND MASONRY WALLS, WHERE OCCUR, DO NOT DAMAGE EXISTING STUDS OR PLATES.
- HIRE THIRD PARTY TESTING AGENCY TO PERFORM THE FOLLOWING, AS PART OF A DEFERRED SUBMITTAL IN CONSTRUCTION FOR REVIEW AND APPROVAL BY THE ENGINEER OF RECORD.
 - SHORT CIRCUIT STUDY, ARC FLASH STUDY & LABELS, AND OVERCURRENT PROTECTIVE STUDY.
 - ACCEPTANCE TESTING IN ACCORDANCE WITH SPECIFICATIONS.
- PROVIDE TESTING REPORTS TO ENGINEER FOR REVIEW UPON COMPLETION OF INSTALLATION FOR THE FOLLOWING, AS PART OF A DEFERRED SUBMITTAL IN CONSTRUCTION FOR REVIEW AND APPROVAL BY THE ENGINEER OF RECORD.
 - INSULATION RESISTANCE (MEGGER) TEST REPORTS PRIOR TO CONDUCTOR TERMINATION AND EQUIPMENT ENERGIZATION.
 - TORQUE TEST REPORTS PRIOR TO EQUIPMENT ENERGIZATION.

DSA COMPONENT ANCHORAGE NOTES

- ALL MECHANICAL, PLUMBING, AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA APPROVED CONSTRUCTION DOCUMENTS. WHERE NO DETAIL IS INDICATED, THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2019 CBC SECTIONS 1617A.1.18 THROUGH 1617A.1.26, AND ASCE 7-16 CHAPTER 13, 26 AND 30.
 - ALL PERMANENT EQUIPMENT AND COMPONENTS.
 - TEMPORARY OR MOVABLE EQUIPMENT THAT IS PERMANENTLY ATTACHED (E.G. HARD WIRED) TO THE BUILDING UTILITY SERVICES SUCH AS ELECTRICITY, GAS OR WATER.
 - TEMPORARY, MOVABLE OR MOBILE EQUIPMENT WHICH IS HEAVIER THAN 400 POUNDS OR HAS A CENTER OF MASS LOCATED 4 FEET OR MORE ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT IS REQUIRED TO BE RESTRAINED IN A MANNER APPROVED BY DSA.
- THE FOLLOWING MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE BUT NEED NOT DEMONSTRATE DESIGN COMPLIANCE WITH THE REFERENCES NOTED ABOVE. THE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING AND CONDUIT. FLEXIBLE CONNECTIONS MUST ALLOW MOVEMENT IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTIONS:
 - COMPONENTS WEIGHING LESS THAN 400 POUNDS AND HAVE A CENTER OF MASS LOCATED 4 FEET OR LESS ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT.
 - COMPONENTS WEIGHING LESS THAN 20 POUNDS, OR IN THE CASE OF DISTRIBUTED SYSTEMS, LESS THAN 5 POUNDS PER FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL.
- THE ANCHORAGE OF ALL MECHANICAL, ELECTRICAL AND PLUMBING COMPONENTS SHALL BE SUBJECT TO THE APPROVAL OF THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE OR STRUCTURAL ENGINEER DELEGATED RESPONSIBILITY AND ACCEPTANCE BY DSA. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE BEEN ANCHORED IN ACCORDANCE WITH THE ABOVE REQUIREMENTS.

SCOPE OF WORK

INTENT OF PROJECT IS TO REPLACE MEDIUM VOLTAGE SUBSTATION 'C' AND PROVIDE POWER TO NEW CHILD DEVELOPMENT CENTER BUILDING.

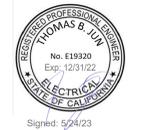
- FURNISH AND INSTALL MEDIUM VOLTAGE INFRASTRUCTURE FOR NEW SUBSTATION 'C' WHILE OLD SUBSTATION 'C' REMAINS ACTIVE. INFRASTRUCTURE SHALL INCLUDE BUT IS NOT LIMITED TO SUBSTATIONS SPACE, MEDIUM VOLTAGE JUNCTION BARS, EQUIPMENT, CONDUCTORS, PULL BOXES, AND UNDERGROUND CONCRETE ENCASED DUCT BANKS.
- TRANSFER ALL EXISTING POWER TO NEW INFRASTRUCTURE PRIOR TO DEMOLITION OF ANY EQUIPMENT.
- DEMOLITION SUBSTATION 'C' AND PREPARE UNDERGROUND PULL BOXES TO EXTENT LOW VOLTAGE FEEDERS TO NEW SUBSTATION 'C' LOCATION. DEMOLITION SHALL INCLUDE REMOVAL OF ALL MEDIUM VOLTAGE EQUIPMENT AND CONDUCTORS. EXISTING MEDIUM VOLTAGE UNDERGROUND CONDUIT SHALL BE CUT, CAPPED AND ABANDONED IN PLACE.
- PROVIDE POWER TO NEW CHILD DEVELOPMENT CENTER BUILDING.
- POWER TO BUILDINGS SHALL BE MAINTAINED DURING CONSTRUCTION. CONTRACTOR SHALL PROVIDE TEMPORARY POWER.

SHEET INDEX

E0.1	SYMBOL LIST, GENERAL NOTES, AND SHEET INDEX
E0.2	LUMINAIRE SCHEDULE AND TITLE 24 - ELECTRICAL
E1.1	MEDIUM VOLTAGE SITE PLAN - ELECTRICAL
ED2.1	DEMO SUB-STATION 'C' PLANS - ELECTRICAL
ED3.1	DEMO MEDIUM VOLTAGE SINGLE LINE DIAGRAM - ELECTRICAL
E2.1	SUB-STATION 'C' PLANS - ELECTRICAL
E2.2	ENLARGED SUB-STATION 'C' PLANS - ELECTRICAL
E3.1	NEW MEDIUM VOLTAGE SINGLE LINE DIAGRAM - ELECTRICAL
E4.1	DETAILS - ELECTRICAL
E4.2	DETAILS - ELECTRICAL



1999 Harrison Street, Suite 550
Oakland, CA 94612
TEL: 415-489-7240
www.interfaceengineering.com



Signed: 5/24/23

MERRITT COLLEGE - REPLACEMENT OF SECOND POWER SUBSTATION C

12500 Campus Dr,
Oakland, CA 94619

SHEET TITLE
SYMBOL LIST, GENERAL NOTES, SHEET INDEX

REVISIONS	DATE
100% CD	11/01/22
DSA SUBMITTAL	11/23/22
PLAN CHECK RESPONSE 1	04/14/23
PLAN CHECK RESPONSE 2	05/25/23

DRAWN BY	EM
CHECKED BY	THOMAS JUN
JOB NO.	2022-0586
DATE	11/23/2022
SHEET NUMBER	

E0.1

STATE OF CALIFORNIA
Outdoor Lighting
 NRCCLD-4 CALIFORNIA ENERGY COMMISSION
 CERTIFICATE OF COMPLIANCE NRCCLD-4
 Project Name: MERRITT COLLEGE - REPLACEMENT OF SECOND POWER SUBSTATION (Report Page: Page 1 of 7)
 Project Address: 12500 CAMPUS DR (Date Prepared: 11/11/2023)

A. GENERAL INFORMATION

01 Project Location (City)	OAKLAND		
02 Climate Zone	3		
03 Outdoor Lighting Zone per Title 24 Part 1 §10.1.16, or as designated by Authority Having Jurisdiction (AHJ):	<input type="checkbox"/> L-0: Very Low - Undeveloped Parkland <input type="checkbox"/> L-2: Moderate - Rural Areas <input checked="" type="checkbox"/> L-3: Low - Developed Parkland <input type="checkbox"/> L-4: High - Must be reviewed by CA Energy Commission for Approval <input type="checkbox"/> L-5: Moderately High - Urban Areas		

B. PROJECT SCOPE

This table includes outdoor lighting systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in §10.7 or §10.8, for alterations.

My Project Consists of:

01 New Lighting System	Must Comply with Allowances from §10.7		
02 Altered Lighting System	Is your alteration increasing the connected lighting load (Watts)?		
03 % of Existing Luminaires Being Altered*	04 Sum Total of Luminaires Being Added or Altered	05 Calculation Method	
<input type="checkbox"/> < 20%	<input type="checkbox"/> 20% and < 50%	<input type="checkbox"/> >= 50%	

Please proceed to Table 6, Outdoor Lighting Fixture Schedule to define the project's luminaires.

* FOOTNOTES: % of Existing Luminaires Being Altered = (Sum Total of Luminaires Being Added or Altered / Existing Luminaires within the Scope of the Permit Application) x 100.

Registration Number: Registration Date/Time: Registration Provider: Energysoft
 CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance Report Version: 2019.1.003 Report Generated: 2022-11-01 16:24:05
 Schema Version: rev 20200601

STATE OF CALIFORNIA
Outdoor Lighting
 NRCCLD-4 CALIFORNIA ENERGY COMMISSION
 CERTIFICATE OF COMPLIANCE NRCCLD-4
 Project Name: MERRITT COLLEGE - REPLACEMENT OF SECOND POWER SUBSTATION (Report Page: Page 2 of 7)
 Project Address: 12500 CAMPUS DR (Date Prepared: 11/11/2023)

C. COMPLIANCE RESULTS

Results in this table are automatically calculated from data input and calculations in Tables F through J. Note: If any cell on this table says "COMPLIES with Exceptional Conditions" refer to Table D, Exceptional Conditions for guidance or see applicable Table referenced below.

Calculations of Total Allowed Lighting Power (Watts) §10.7 or §10.8(b)(2)					Compliance Results			
01	02	03	04	05	06	07	08	09
General Hardship Allowance §10.7(d)(1) (See Table I)	Per Application §10.7(d)(2) (See Table J)	Sales Frontage Allowance §10.7(d)(3) (See Table K)	Ornamental Area Allowance §10.7(d)(4) (See Table L)	Per Specific Area Allowance §10.7(d)(5) (See Table M)	OR Existing Power Allowance §10.8(b)(2)	Total Allowed (Watts)	Total Actual (Watts)	07 must be >= 08
387.86	---	---	---	---	OR ---	387.86	234	COMPLIES

Control Compliance (See Table G for Details): N/A
 Controls Compliance (See Table H for Details): COMPLIES with Exceptional Conditions

D. EXCEPTIONAL CONDITIONS

This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.

E. ADDITIONAL REMARKS

This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

Registration Number: Registration Date/Time: Registration Provider: Energysoft
 CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance Report Version: 2019.1.003 Report Generated: 2022-11-01 16:24:05
 Schema Version: rev 20200601

STATE OF CALIFORNIA
Outdoor Lighting
 NRCCLD-4 CALIFORNIA ENERGY COMMISSION
 CERTIFICATE OF COMPLIANCE NRCCLD-4
 Project Name: MERRITT COLLEGE - REPLACEMENT OF SECOND POWER SUBSTATION (Report Page: Page 3 of 7)
 Project Address: 12500 CAMPUS DR (Date Prepared: 11/11/2023)

F. OUTDOOR LIGHTING FIXTURE SCHEDULE

For new or altered lighting systems demonstrating compliance with §10.7, all new luminaires being installed and any existing luminaires remaining or being moved within the spaces covered by the permit application are included in the table below. For altered lighting systems using the Existing Power method per §10.8(b)(2), only new luminaires being installed and replacement luminaires being installed as part of the project scope are included (i.e., existing luminaires remaining or existing luminaires being moved are not included).

Designated Wattage:

01	02	03	04	05	06	07	08	09	10
Name or Item Tag	Complete Luminaire Description	Watts per luminaire(s)*	How is Wattage determined	Total number of luminaires*	Luminaire Status*	Excluded per §10.8(b)(3)	Design Watts	Cutoff Req. > 6,200 Initial Lumens output §10.8(b)(3)†	Field Inspector Pass/Fail
WALLPACK LED	WALLPACK LED <input type="checkbox"/> Linear	39	Mfr. Spec	6	New	<input type="checkbox"/>	234	NA - < 6200 lumens	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
							Total Design Watts:	234	

* NOTES: Selections with a "*" require a note in the space below explaining how compliance is achieved.
 † For luminaires with a cutoff angle of 15 degrees or less, EXCEPTION 2 of §10.8(b)(3).
 ‡ FOOTNOTES: Authority Having Jurisdiction may ask for Luminaire cut sheets to confirm wattage used for compliance per §10.8(b)(2).
 § For linear luminaires, wattage should be indicated as W/L instead of Watts/Luminaire. Total linear feet should be indicated in column 05 instead of number of luminaires.
 ¶ Select "New" for new luminaires in a new outdoor lighting project, or for added luminaires in an alteration. Select "Altered" for replacement luminaires in an alteration. Select "Existing to Remain" for existing luminaires within the project scope that are not being altered and are remaining. Select "Existing to be Replaced" for existing luminaires which are being removed and reinstalled as part of the project scope.
 ** Compliance with mandatory cutoff requirements is required for luminaires with initial lumen output >= 6,200 unless exempted by §10.8(b)(3).

G. CUTOFF REQUIREMENTS (BUG)

This section does not apply to this project.

Registration Number: Registration Date/Time: Registration Provider: Energysoft
 CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance Report Version: 2019.1.003 Report Generated: 2022-11-01 16:24:05
 Schema Version: rev 20200601

STATE OF CALIFORNIA
Outdoor Lighting
 NRCCLD-4 CALIFORNIA ENERGY COMMISSION
 CERTIFICATE OF COMPLIANCE NRCCLD-4
 Project Name: MERRITT COLLEGE - REPLACEMENT OF SECOND POWER SUBSTATION (Report Page: Page 4 of 7)
 Project Address: 12500 CAMPUS DR (Date Prepared: 11/11/2023)

H. LIGHTING POWER ALLOWANCE (per §10.7.1)

This table includes areas using allowance calculations per §10.7.1. General Hardship Allowance is per Table 140.7-A with "Use it or lose it" allowances are per Table 140.7-B. Indicate which allowances are being used to expand sections for user input. Luminaires that qualify for one of the "Use it or lose it" allowances shall not qualify for another "Use it or lose it" allowance.

General Hardship Allowance (per Table 140.7-A)		"Use it or lose it" Allowance (select all that apply) (select all that apply)	
01	02	03	04
<input checked="" type="checkbox"/> General Hardship Allowance (Table 1 (below))	<input type="checkbox"/> Per Application Table 1	<input type="checkbox"/> Sales Frontage Table 6	<input type="checkbox"/> Ornamental Table 1
Calculated General Hardship Lighting Power Allowance per Table 140.7-A (L2, L3 & L4)		Calculated General Hardship Lighting Power Allowance per Table 140.7-A (L2, L3 & L4)	
Area Description	Surface Type	Area Wattage Allowance (AWA) (Watts)	Area Wattage Allowance (AWA) (Watts)
EXTERIOR LIGHTING	Concrete	1262	0.03
Initial Wattage Allowance for Entire Site (Watts):		350	
Total General Hardship Allowance (Watts):		388	

I. LIGHTING ALLOWANCE: PER APPLICATION

This section does not apply to this project.

J. LIGHTING ALLOWANCE: SALES FRONTAGE

This section does not apply to this project.

K. LIGHTING ALLOWANCE: ORNAMENTAL

This section does not apply to this project.

L. LIGHTING ALLOWANCE: PER SPECIFIC AREA

This section does not apply to this project.

Registration Number: Registration Date/Time: Registration Provider: Energysoft
 CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance Report Version: 2019.1.003 Report Generated: 2022-11-01 16:24:05
 Schema Version: rev 20200601

STATE OF CALIFORNIA
Outdoor Lighting
 NRCCLD-4 CALIFORNIA ENERGY COMMISSION
 CERTIFICATE OF COMPLIANCE NRCCLD-4
 Project Name: MERRITT COLLEGE - REPLACEMENT OF SECOND POWER SUBSTATION (Report Page: Page 5 of 7)
 Project Address: 12500 CAMPUS DR (Date Prepared: 11/11/2023)

M. EXISTING CONDITIONS POWER ALLOWANCE (alterations only)

This section does not apply to this project.

N. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Selections have been made based on information provided in this document. If any selection have been changed by permit applicant, an explanation should be included in Table E, Additional Remarks. These documents must be provided to the building inspector during construction and can be found online at https://www.energy.ca.gov/title24/2019standards/2019_compliance_documents/Nonresidential_Documents/NRCCLD-4

Form/Title	Field Inspector	
	Pass	Fail
NRCCLD-01-E - Must be submitted for all buildings	<input type="checkbox"/>	<input type="checkbox"/>
NRCCLD-02-E - Must be submitted for a lighting control system, or for an Energy Management Control System (EMCS), to be recognized for compliance.	<input type="checkbox"/>	<input type="checkbox"/>

O. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

Selections have been made based on information provided in this document. If any selection have been changed by permit applicant, an explanation should be included in Table E, Additional Remarks. These documents must be provided to the building inspector during construction and must be completed through an Acceptance Test Technician Certification Provider (ATTC). For more information visit: <http://www.energy.ca.gov/title24/ettp/providers.html>

Form/Title	System/Spaces To Be Field Verified	Field Inspector	
		Pass	Fail
NRCCLD-02-A - Must be submitted for all outdoor lighting controls except for alterations where controls are added to existing luminaires.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Registration Number: Registration Date/Time: Registration Provider: Energysoft
 CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance Report Version: 2019.1.003 Report Generated: 2022-11-01 16:24:05
 Schema Version: rev 20200601

STATE OF CALIFORNIA
Outdoor Lighting
 NRCCLD-4 CALIFORNIA ENERGY COMMISSION
 CERTIFICATE OF COMPLIANCE NRCCLD-4
 Project Name: MERRITT COLLEGE - REPLACEMENT OF SECOND POWER SUBSTATION (Report Page: Page 6 of 7)
 Project Address: 12500 CAMPUS DR (Date Prepared: 11/11/2023)

P. DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: THOMAS JUN
 Signature Date: 2022-11-01
 Address: 1999 HARRISON STREET, SUITE 500 OAKLAND CA 94612
 Phone: 4154897240

Documentation Author Signature: [Signature]
 Responsible Designer Name: THOMAS JUN
 Signature Date: 2022-11-01
 Address: 1999 HARRISON STREET, SUITE 500 OAKLAND CA 94612
 Phone: 4154897240
 Responsible Designer Signature: [Signature]

Registration Number: Registration Date/Time: Registration Provider: Energysoft
 CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance Report Version: 2019.1.003 Report Generated: 2022-11-01 16:24:05
 Schema Version: rev 20200601

STATE OF CALIFORNIA
Outdoor Lighting
 NRCCLD-4 CALIFORNIA ENERGY COMMISSION
 CERTIFICATE OF COMPLIANCE NRCCLD-4
 Project Name: MERRITT COLLEGE - REPLACEMENT OF SECOND POWER SUBSTATION (Report Page: Page 7 of 7)
 Project Address: 12500 CAMPUS DR (Date Prepared: 11/11/2023)

Q. LIGHTING POWER ALLOWANCE (per §10.7.1)

This table includes areas using allowance calculations per §10.7.1. General Hardship Allowance is per Table 140.7-A with "Use it or lose it" allowances are per Table 140.7-B. Indicate which allowances are being used to expand sections for user input. Luminaires that qualify for one of the "Use it or lose it" allowances shall not qualify for another "Use it or lose it" allowance.

General Hardship Allowance (per Table 140.7-A)		"Use it or lose it" Allowance (select all that apply) (select all that apply)	
01	02	03	04
<input checked="" type="checkbox"/> General Hardship Allowance (Table 1 (below))	<input type="checkbox"/> Per Application Table 1	<input type="checkbox"/> Sales Frontage Table 6	<input type="checkbox"/> Ornamental Table 1
Calculated General Hardship Lighting Power Allowance per Table 140.7-A (L2, L3 & L4)		Calculated General Hardship Lighting Power Allowance per Table 140.7-A (L2, L3 & L4)	
Area Description	Surface Type	Area Wattage Allowance (AWA) (Watts)	Area Wattage Allowance (AWA) (Watts)
EXTERIOR LIGHTING	Concrete	1262	0.03
Initial Wattage Allowance for Entire Site (Watts):		350	
Total General Hardship Allowance (Watts):		388	

R. LIGHTING ALLOWANCE: PER APPLICATION

This section does not apply to this project.

S. LIGHTING ALLOWANCE: SALES FRONTAGE

This section does not apply to this project.

T. LIGHTING ALLOWANCE: ORNAMENTAL

This section does not apply to this project.

U. LIGHTING ALLOWANCE: PER SPECIFIC AREA

This section does not apply to this project.

Registration Number: Registration Date/Time: Registration Provider: Energysoft
 CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance Report Version: 2019.1.003 Report Generated: 2022-11-01 16:24:05
 Schema Version: rev 20200601

LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	HOUSING	SHIELDING	MOUNTING	FINISH	UL/IP RATING	DRIVER/ POWER SUPPLY	LIGHT SOURCE	INPUT WATTS	VOLTAGE	MFG/CATALOG #	NOTES
F1	WALLPACK LED			WALL MOUNTED	ARCHITECT TO SELECT	DAMP	INTEGRAL	3140 LUMENS, 3000K, 70CRI, LED	39W	120V	HOLOPHANE W4GLD 10C1000 30K T3M MVOLT SPD OR APPROVED EQUIVALENT	

NOTES:

- THIS LUMINAIRE SCHEDULE IS NOT COMPLETE WITHOUT A COPY OF THE PROJECT MANUAL CONTAINING THE ELECTRICAL SPECIFICATIONS.
- DIMMING CONTROL PROTOCOOL (0-10VDC, LINE VOLTAGE, DALI, ETC.) COMPATIBLE WITH LIGHTING CONTROL SYSTEM AS SPECIFIED AND SHOWN ON DRAWINGS.
- COORDINATE ALL CEILING TYPES WITH LUMINAIRE LOCATIONS PRIOR TO ORDERING LUMINAIRES. COORDINATE INSTALLATION WITH REFLECTED CEILING PLAN.
- SPECIFIED MANUFACTURERS ARE APPROVED TO SUBMIT BID. INCLUSION DOES NOT RELIEVE MANUFACTURER FROM SUPPLYING PRODUCT AS DESCRIBED.
- PROVIDE SUBMITTALS THAT INCLUDE THE LUMINAIRE, LAMP AND DIMMABLE LED DRIVER INFORMATION OF EACH LUMINAIRE, WITH APPLICABLE OPTIONS CLEARLY CHECKED OR HIGHLIGHTED. SUBMITTALS NOT INCLUDING THIS INFORMATION WILL BE RETURNED AS REJECTED BY THE ENGINEER OF RECORD.
- REMOTE DRIVERS: UL LISTED FOR THEIR APPLICATION. DRIVERS MARKED AS UL RECOGNIZED COMPONENT BUT NOT UL LISTED ARE SUBJECT TO REMOVAL AND REPLACEMENT AT NO COST TO OWNER.
- REFER TO FLOOR PLANS FOR LOCATION, CIRCUITING, AND SWITCH LEG FOR EACH REMOTE DRIVER. LABEL ALL REMOTE DRIVERS TO SHOW LUMINAIRE TYPE IDENTIFICATION AND SOURCE CIRCUIT. PROVIDE WIRING BETWEEN REMOTE DRIVER AND LUMINAIRE AS RECOMMENDED BY MANUFACTURER. DO NOT EXCEED MAXIMUM DISTANCE RECOMMENDED BY MANUFACTURER BETWEEN DRIVER AND FURTHEST LUMINAIRE.
- PROVIDE COMMISSIONING OF THE LIGHTING AND LIGHTING CONTROLS IN ACCORDANCE WITH CALIFORNIA TITLE 24 LIGHTING COMMISSIONING REQUIREMENTS.

STATE OF CALIFORNIA
Outdoor Lighting
 NRCCLD-4 CALIFORNIA ENERGY COMMISSION
 CERTIFICATE OF COMPLIANCE NRCCLD-4
 Project Name: MERRITT COLLEGE - REPLACEMENT OF SECOND POWER SUBSTATION (Report Page: Page 8 of 7)
 Project Address: 12500 CAMPUS DR (Date Prepared: 11/11/2023)

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: THOMAS JUN
 Signature Date: 2022-11-01
 Address: 1999 HARRISON STREET, SUITE 500 OAKLAND CA 94612
 Phone: 4154897240

Documentation Author Signature: [Signature]
 Responsible Designer Name: THOMAS JUN
 Signature Date: 2022-11-01
 Address: 1999 HARRISON STREET, SUITE 500 OAKLAND CA 94612
 Phone: 4154897240
 Responsible Designer Signature: [Signature]

Registration Number: Registration Date/Time: Registration Provider: Energysoft
 CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance Report Version: 2019.1.003 Report Generated: 2022-11-01 16:24:05
 Schema Version: rev 20200601

STATE OF CALIFORNIA
Outdoor Lighting
 NRCCLD-4 CALIFORNIA ENERGY COMMISSION
 CERTIFICATE OF COMPLIANCE NRCCLD-4
 Project Name: MERRITT COLLEGE - REPLACEMENT OF SECOND POWER SUBSTATION (Report Page: Page 9 of 7)
 Project Address: 12500 CAMPUS DR (Date Prepared: 11/11/2023)

Q. LIGHTING POWER ALLOWANCE (per §10.7.1)

This table includes areas using allowance calculations per §10.7.1. General Hardship Allowance is per Table 140.7-A with "Use it or lose it" allowances are per Table 140.7-B. Indicate which allowances are being used to expand sections for user input. Luminaires that qualify for one of the "Use it or lose it" allowances shall not qualify for another "Use it or lose it" allowance.

General Hardship Allowance (per Table 140.7-A)		"Use it or lose it" Allowance (select all that apply) (select all that apply)	
01	02	03	04
<input checked="" type="checkbox"/> General Hardship Allowance (Table 1 (below))	<input type="checkbox"/> Per Application Table 1	<input type="checkbox"/> Sales Frontage Table 6	<input type="checkbox"/> Ornamental Table 1
Calculated General Hardship Lighting Power Allowance per Table 140.7-A (L2, L3 & L4)		Calculated General Hardship Lighting Power Allowance per Table 140.7-A (L2, L3 & L4)	
Area Description	Surface Type	Area Wattage Allowance (AWA) (Watts)	Area Wattage Allowance (AWA) (Watts)
EXTERIOR LIGHTING	Concrete	1262	0.03
Initial Wattage Allowance for Entire Site (Watts):		350	
Total General Hardship Allowance (Watts):		388	

R. LIGHTING ALLOWANCE: PER APPLICATION

This section does not apply to this project.

S. LIGHTING ALLOWANCE: SALES FRONTAGE

This section does not apply to this project.

T. LIGHTING ALLOWANCE: ORNAMENTAL

This section does not apply to this project.

U. LIGHTING ALLOWANCE: PER SPECIFIC AREA

This section does not apply to this project.

Registration Number: Registration Date/Time: Registration Provider: Energysoft
 CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance Report Version: 2019.1.003 Report Generated: 2022-11-01 16:24:05
 Schema Version: rev 20200601

STATE OF CALIFORNIA
Outdoor Lighting
 NRCCLD-4 CALIFORNIA ENERGY COMMISSION
 CERTIFICATE OF COMPLIANCE NRCCLD-4
 Project Name: MERRITT COLLEGE - REPLACEMENT OF SECOND POWER SUBSTATION (Report Page: Page 10 of 7)
 Project Address: 12500 CAMPUS DR (Date Prepared: 11/11/2023)

Q. LIGHTING POWER ALLOWANCE (per §10.7.1)

This table includes areas using allowance calculations per §10.7.1. General Hardship Allowance is per Table 140.7-A with "Use it or lose it" allowances are per Table 140.7-B. Indicate which allowances are being used to expand sections for user input. Luminaires that qualify for one of the "Use it or lose it" allowances shall not qualify for another "Use it or lose it" allowance.

General Hardship Allowance (per Table 140.7-A)		"Use it or lose it" Allowance (select all that apply) (select all that apply)	
01	02	03	04
<input checked="" type="checkbox"/> General Hardship Allowance (Table 1 (below))	<input type="checkbox"/> Per Application Table 1	<input type="checkbox"/> Sales Frontage Table 6	<input type="checkbox"/> Ornamental Table 1
Calculated General Hardship Lighting Power Allowance per Table 140.7-A (L2, L3 & L4)		Calculated General Hardship Lighting Power Allowance per Table 140.7-A (L2, L3 & L4)	
Area Description	Surface Type	Area Wattage Allowance (AWA) (Watts)	Area Wattage Allowance (AWA) (Watts)
EXTERIOR LIGHTING	Concrete	1262	0.03
Initial Wattage Allowance for Entire Site (Watts):		350	
Total General Hardship Allowance (Watts):		388	

R. LIGHTING ALLOWANCE: PER APPLICATION

This section does not apply to this project.

S. LIGHTING ALLOWANCE: SALES FRONTAGE

This section does not apply to this project.

T. LIGHTING ALLOWANCE: ORNAMENTAL

This section does not apply to this project.

U. LIGHTING ALLOWANCE: PER SPECIFIC AREA

This section does not apply to this project.

Registration Number: Registration Date/Time: Registration Provider: Energysoft
 CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance Report Version: 2019.1.003 Report Generated: 2022-11-01 16:24:05
 Schema Version: rev 20200601

STATE OF CALIFORNIA
Outdoor Lighting
 NRCCLD-4 CALIFORNIA ENERGY COMMISSION
 CERTIFICATE OF COMPLIANCE NRCCLD-4
 Project Name: MERRITT COLLEGE - REPLACEMENT OF SECOND POWER SUBSTATION (Report Page: Page 11 of 7)
 Project Address: 12500 CAMPUS DR (Date Prepared: 11/11/2023)

Q. LIGHTING POWER ALLOWANCE (per §10.7.1)

This table includes areas using allowance calculations per §10.7.1. General Hardship Allowance is per Table 140.7-A with "Use it or lose it" allowances are per Table 140.7-B. Indicate which allowances are being used to expand sections for user input. Luminaires that qualify for one of the "Use it or lose it" allowances shall not qualify for another "Use it or lose it" allowance.

General Hardship Allowance (per Table 140.7-A)		"Use it or lose it" Allowance (select all that apply) (select all that apply)	
01	02	03	04
<input checked="" type="checkbox"/> General Hardship Allowance (Table 1 (below))	<input type="checkbox"/> Per Application Table 1	<input type="checkbox"/> Sales Frontage Table 6	<input type="checkbox"/> Ornamental Table 1
Calculated General Hardship Lighting Power Allowance per Table 140.7-A (L2, L3 & L4)		Calculated General Hardship Lighting Power Allowance per Table 140.7-A (L2, L3 & L4)	
Area Description	Surface Type	Area Wattage Allowance (AWA) (Watts)	Area Wattage Allowance (AWA) (Watts)
EXTERIOR LIGHTING	Concrete	1262	0.03
Initial Wattage Allowance for Entire Site (Watts):		350	
Total General Hardship Allowance (Watts):		388	

R. LIGHTING ALLOWANCE: PER APPLICATION

This section does not apply to this project.

S. LIGHTING ALLOWANCE: SALES FRONTAGE

This section does not apply to this project.

T. LIGHTING ALLOWANCE: ORNAMENTAL

This section does not apply to this project.

U. LIGHTING ALLOWANCE: PER SPECIFIC AREA

This section does not apply to this project.

Registration Number: Registration Date/Time: Registration Provider: Energysoft
 CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance Report Version: 2019.1.003 Report Generated: 2022-11-01 16:24:05
 Schema Version: rev 20200601

STATE OF CALIFORNIA
Outdoor Lighting
 NRCCLD-4 CALIFORNIA ENERGY COMMISSION
 CERTIFICATE OF COMPLIANCE NRCCLD-4
 Project Name: MERRITT COLLEGE - REPLACEMENT OF SECOND POWER SUBSTATION (Report Page: Page 12 of 7)
 Project Address: 12500 CAMPUS DR (Date Prepared: 11/11/2023)

Q. LIGHTING POWER ALLOWANCE (per §10.7.1)

This table includes areas using allowance calculations per §10.7.1. General Hardship Allowance is per Table 140.7-A with "Use it or lose it" allowances are per Table 140.7-B. Indicate which allowances are being used to expand sections for user input. Luminaires that qualify for one of the "Use it or lose it" allowances shall not qualify for another "Use it or lose it" allowance.

General Hardship Allowance (per Table 140.7-A)		"Use it or lose it" Allowance (select all that apply) (select all that apply)	
01	02	03	04
<input checked="" type="checkbox"/> General Hardship Allowance (Table 1 (below))	<input type="checkbox"/> Per Application Table 1	<input type="checkbox"/> Sales Frontage Table 6	<input type="checkbox"/> Ornamental Table 1
Calculated General Hardship Lighting Power Allowance per Table 140.7-A (L2, L3 & L4)		Calculated General Hardship Lighting Power Allowance per Table 140.7-A (L2, L3 & L4)	
Area Description	Surface Type	Area Wattage Allowance (AWA) (Watts)	Area Wattage Allowance (AWA) (Watts)
EXTERIOR LIGHTING	Concrete	1262	0.03
Initial Wattage Allowance for Entire Site (Watts):		350	
Total General Hardship Allowance (Watts):		388	

R. LIGHTING ALLOWANCE: PER APPLICATION

This section does not apply to this project.

S. LIGHTING ALLOWANCE: SALES FRONTAGE

This section does not apply to this project.

T. LIGHTING ALLOWANCE: ORNAMENTAL

This section does not apply to this project.

U. LIGHTING ALLOWANCE: PER SPECIFIC AREA

This section does not apply to this project.

Registration Number: Registration Date/Time: Registration Provider: Energysoft
 CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance Report Version: 2019.1.003 Report Generated: 2022-11-01 16:24:05
 Schema Version: rev 20200601

STATE OF CALIFORNIA
Outdoor Lighting
 NRCCLD-4 CALIFORNIA ENERGY COMMISSION
 CERTIFICATE OF COMPLIANCE NRCCLD-4
 Project Name: MERRITT COLLEGE - REPLACEMENT OF SECOND POWER SUBSTATION (Report Page: Page 13 of 7)
 Project Address: 12500 CAMPUS DR (Date Prepared: 11/11/2023)

Q. LIGHTING POWER ALLOWANCE (per §10.7.1)

This table includes areas using allowance calculations per §10.7.1. General Hardship Allowance is per Table 140.7-A with "Use it or lose it" allowances are per Table 140.7-B. Indicate which allowances are being used to expand sections for user input. Luminaires that qualify for one of the "Use it or lose it" allowances shall not qualify for another "Use it or lose it" allowance.

General Hardship Allowance (per Table 140.7-A)		"Use it or lose it" Allowance (select all that apply) (select all that apply)	
01	02	03	04
<input checked="" type="checkbox"/> General Hardship Allowance (Table 1 (below))	<input type="checkbox"/> Per Application Table 1	<input type="checkbox"/> Sales Frontage Table 6	<input type="checkbox"/> Ornamental Table 1
Calculated General Hardship Lighting Power Allowance per Table 140.7-A (L2, L3 & L4)		Calculated General Hardship Lighting Power Allowance per Table 140.7-A (L2, L3 & L4)	
Area Description	Surface Type	Area Wattage Allowance (AWA) (Watts)	Area Wattage Allowance (AWA) (Watts)
EXTERIOR LIGHTING	Concrete	1262	0.03
Initial Wattage Allowance for Entire Site (Watts):		350	
Total General Hardship Allowance (Watts):		388	

R. LIGHTING ALLOWANCE: PER APPLICATION

This section does not apply to this project.

S. LIGHTING ALLOWANCE: SALES FRONTAGE

This section does not apply to this project.

T. LIGHTING ALLOWANCE: ORNAMENTAL

This section does not apply to this project.

U. LIGHTING ALLOWANCE: PER SPECIFIC AREA

This section does not apply to this project.

Registration Number: Registration Date/Time: Registration Provider: Energysoft
 CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance Report Version: 2019.1.003 Report Generated: 2022-11-01 16:24:05
 Schema Version: rev 20200601

STATE OF CALIFORNIA
Outdoor Lighting
 NRCCLD-4 CALIFORNIA ENERGY COMMISSION
 CERTIFICATE OF COMPLIANCE NRCCLD-4
 Project Name: MERRITT COLLEGE - REPLACEMENT OF SECOND POWER SUBSTATION (Report Page: Page 14 of 7)
 Project Address: 12500 CAMPUS DR (Date Prepared: 11/11/2023)

Q. LIGHTING POWER ALLOWANCE (per §10.7.1)

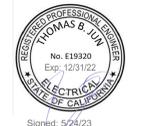
This table includes areas using allowance calculations per §10.7.1

GENERAL SHEET NOTES

A. HIRE THIRD PARTY UNDERGROUND LOCATING CONTRACTOR TO SURVEY ALL UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION.



1999 Harrison Street, Suite 550
Oakland, CA 94612
Tel: 415-489-7240
www.interfaceengineering.com



MERRITT COLLEGE - REPLACEMENT OF SECOND POWER SUBSTATION C

12500 Campus Dr,
Oakland, CA 94619



1 OVERALL MEDIUM VOLTAGE SITE PLAN - ELECTRICAL
SCALE: 1"=80'-0"

SHEET TITLE
SITE PLAN - ELECTRICAL

REVISIONS	DATE
100% CD	11/01/22
DSA SUBMITTAL	11/23/22
PLAN CHECK RESPONSE 1	04/14/23
PLAN CHECK RESPONSE 2	05/25/23

DRAWN BY
EM

CHECKED BY
THOMAS JUN

JOB NO.
2022-0586

DATE
11/23/2022

SHEET NUMBER
E1.1

GENERAL SHEET NOTES

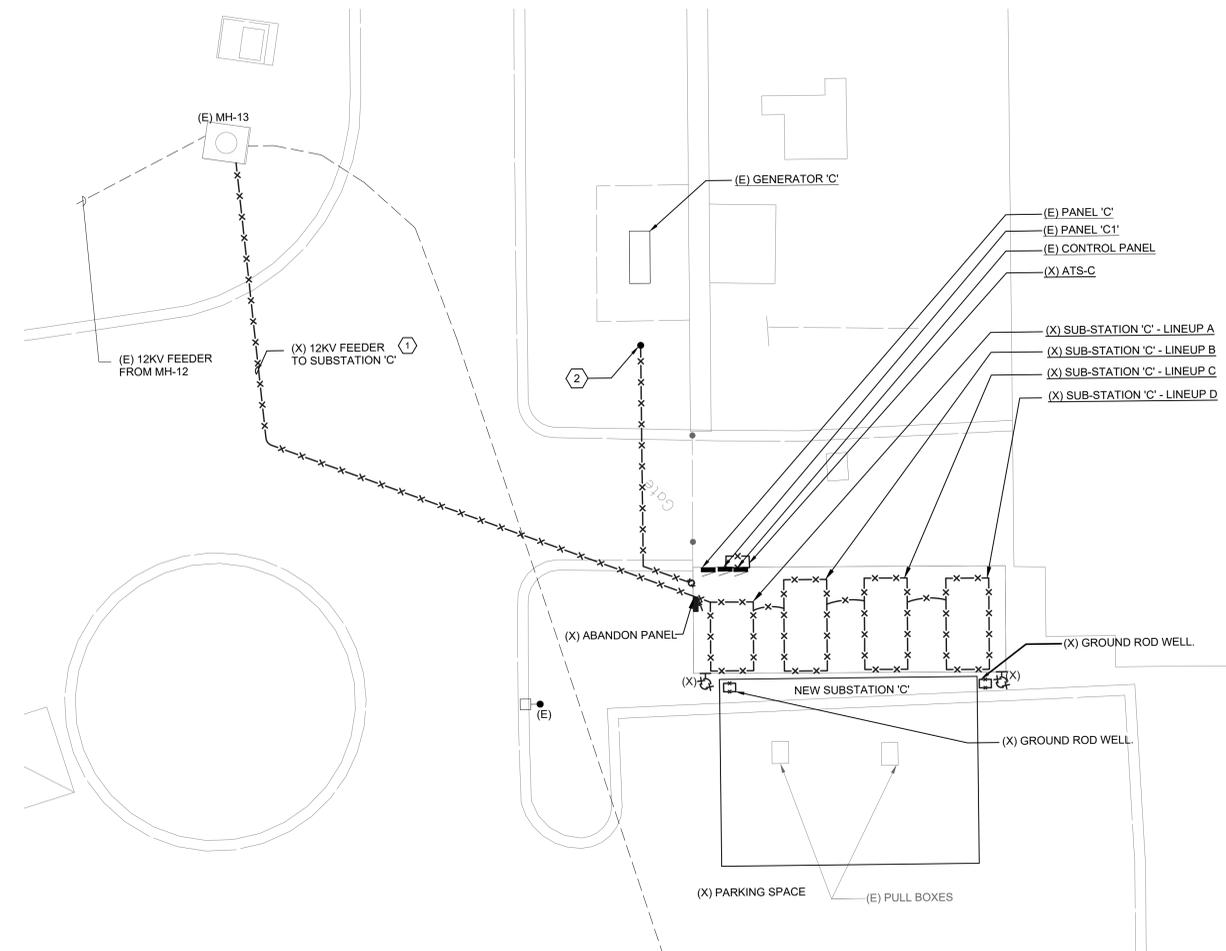
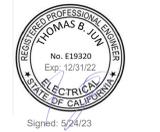
- A. REFER TO STRUCTURAL AND CIVIL DRAWINGS FOR ADDITIONAL REQUIREMENTS.
- B. DESIGN INTENT IS TO INSTALL ALL NEW INFRASTRUCTURE PRIOR TO DEMOLITION, IN ORDER TO MINIMIZE DOWNTIME DURING SWITCHOVER.

SHEET KEYNOTES

1. REMOVE ALL CONDUCTORS ASSOCIATED WITH SUBSTATION 'C'. CUT, CAP AND ABANDON CONDUIT IN PLACE.
2. DISCONNECT AND TERMINATE BACK TO GENERATOR. REFER TO E2.1 AND NEW SINGLE LINE DIAGRAM FOR ADDITIONAL INFORMATION.



1999 Harrison Street, Suite 550
Oakland, CA 94612
TEL: 415-489-7240
www.interfaceengineering.com



1 SUB-STATION C DEMO PLAN - ELECTRICAL
SCALE: 1"=10'-0"

MERRITT COLLEGE - REPLACEMENT OF SECOND POWER SUBSTATION C

12500 Campus Dr,
Oakland, CA 94619

SHEET TITLE
DEMO SUB-STATION 'C' PLANS - ELECTRICAL

REVISIONS	DATE
100% CD	11/01/22
DSA SUBMITTAL	11/23/22
PLAN CHECK RESPONSE 1	04/14/23
PLAN CHECK RESPONSE 2	05/25/23

DRAWN BY
EM

CHECKED BY
THOMAS JUN

JOB NO.
2022-0586

DATE
11/23/2022

SHEET NUMBER

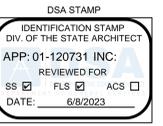
ED2.1

GENERAL SHEET NOTES

- A. INFORMATION SHOWN ON THIS SINGLE-LINE-DIAGRAM HAS BEEN COMPILED FROM MULTIPLE AS-BUILT DRAWINGS. FIELD VERIFY INFORMATION SHOWN AND REPORT TO ENGINEER ANY DISCREPANCIES
- B. DESIGN INTENT IS TO REDUCE AMOUNT OF DOWNTIME DURING THE REPLACEMENT OF SUBSTATION C. FIRST, INSTALL NEW ELECTRICAL EQUIPMENT PRIOR TO START OF DEMOLITION OF ELECTRICAL EQUIPMENT. THEN TRANSFER ALL EXISTING POWER TO NEW ELECTRICAL INFRASTRUCTURE, FINALLY, DEMOLITION OF ELECTRICAL EQUIPMENT CAN BEGIN.

SHEET KEYNOTES

- 1 CONDUIT TO BE ABANDONED IN PLACE AND CAPPED OFF
- 2 LOCATE UNDERGROUND PULL BOX INSIDE OF EXISTING SUBSTATION C. SPACE UTILIZED TO EXTEND LOW VOLTAGE FEEDERS FROM EXISTING SUBSTATION 'C' TO NEW SUBSTATION 'C-B', 'C-C' AND 'C-D'.
- 3 DISCONNECT AND TERMINATE BACK TO GENERATOR. REFER TO ED2.1, E2.1 AND E3.1 FOR ADDITIONAL INFORMATION.



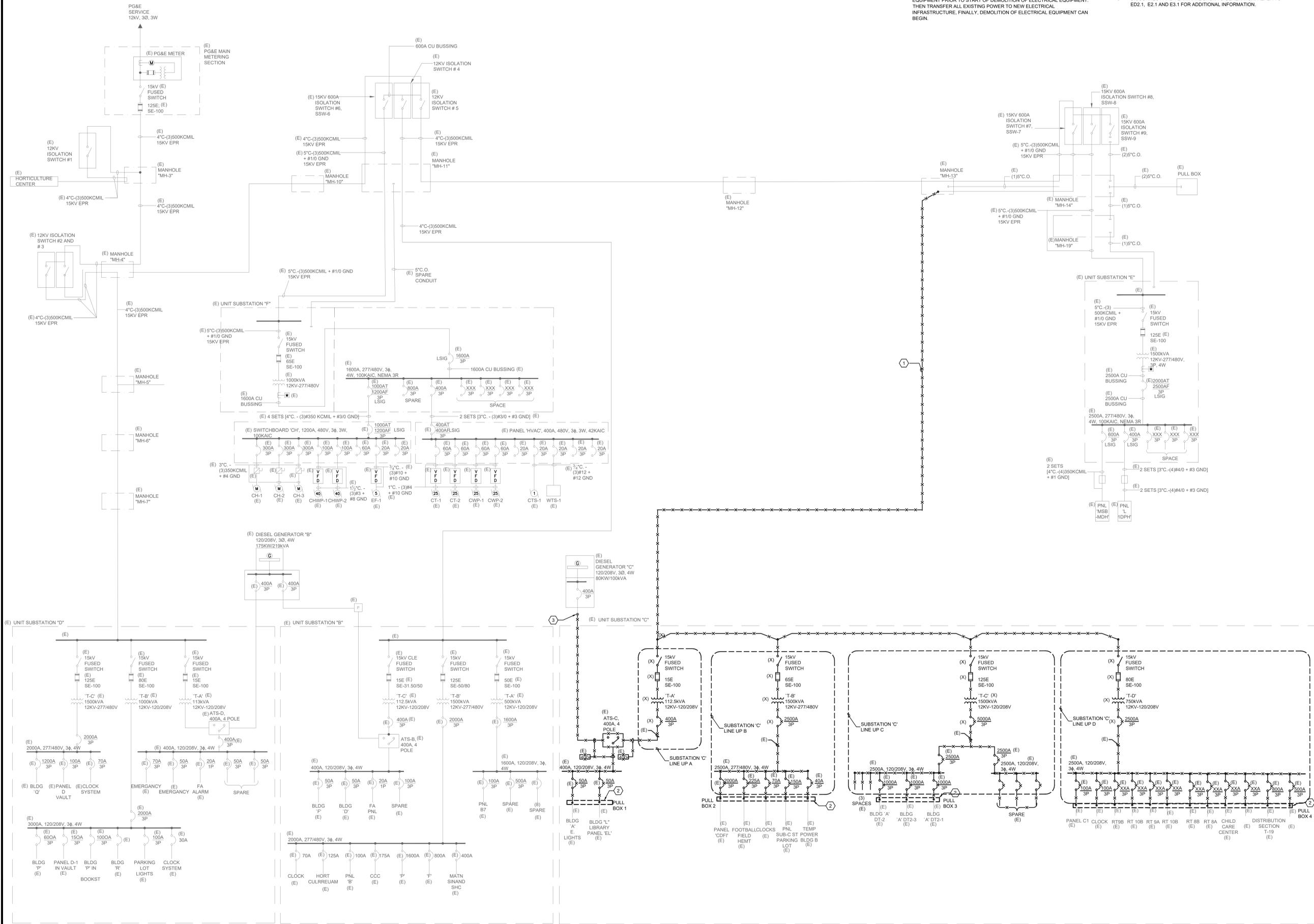
INTERFACE ENGINEERING

1999 Harrison Street, Suite 550
Oakland, CA 94612
TEL: 415.489.7240
www.interfaceengineering.com



MERRITT COLLEGE - REPLACEMENT OF SECOND POWER SUBSTATION C

12500 Campus Dr,
Oakland, CA 94619



1 MEDIUM VOLTAGE SINGLE LINE DIAGRAM - DEMO

NO SCALE

DEMO MEDIUM VOLTAGE SINGLE LINE DIAGRAM - ELECTRICAL

REVISIONS	DATE
100% CD	11/01/22
DSA SUBMITTAL	11/23/22
PLAN CHECK RESPONSE 1	04/14/23
PLAN CHECK RESPONSE 2	05/25/23

DRAWN BY: EM
CHECKED BY: THOMAS JUN
JOB NO.: 2022-0586
DATE: 11/23/2022
SHEET NUMBER

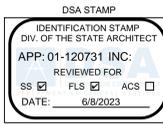
ED3.1

GENERAL SHEET NOTES

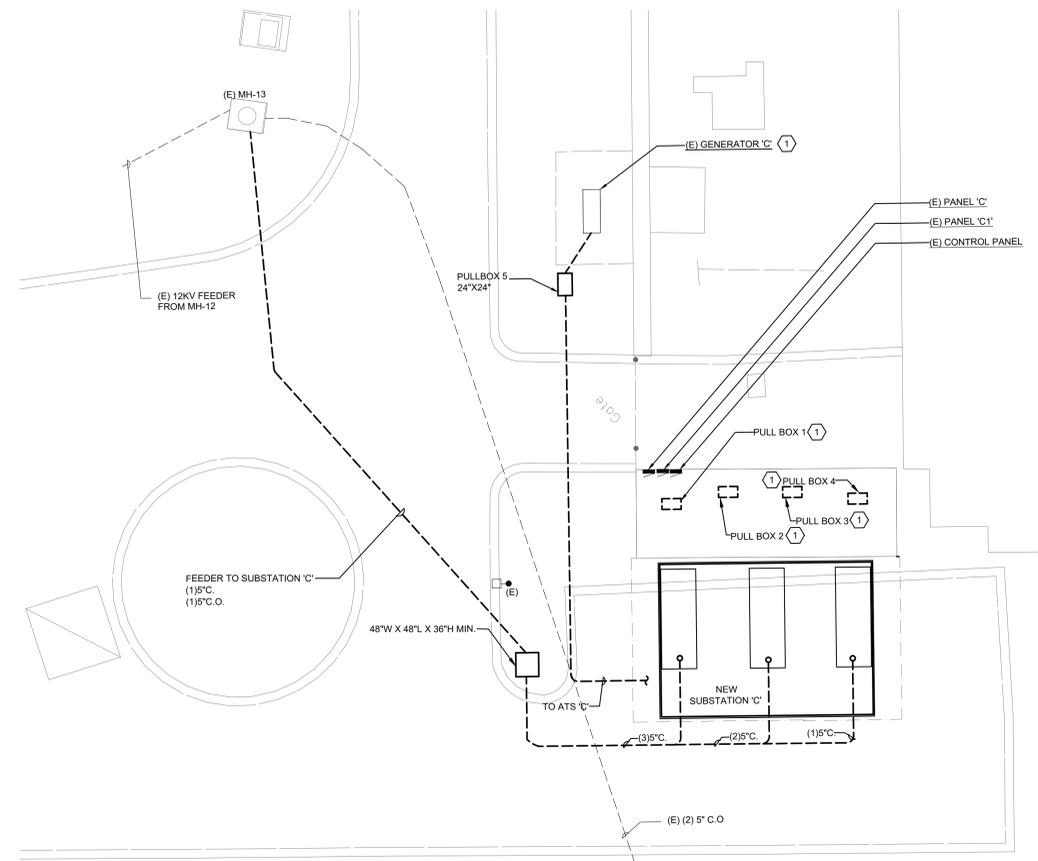
- A. REFER TO STRUCTURAL AND CIVIL DRAWINGS FOR ADDITIONAL REQUIREMENTS.
- B. DESIGN INTENT IS TO INSTALL ALL NEW INFRASTRUCTURE PRIOR TO DEMOLITION, IN ORDER TO MINIMIZE DOWNTIME DURING SWITCHOVER.

SHEET KEYNOTES

- 1. PROVIDE PULLBOX AFTER THE REMOVAL OF OLD SUBSTATIONS.
- 2. RECONNECT EXISTING GENERATOR TO THE NEW SUBSTATION C. REFER TO SINGLE LINE DIAGRAM FOR ADDITIONAL INFORMATION.



1999 Harrison Street, Suite 550
Oakland, CA 94612
TEL: 415-489-7240
www.interfaceengineering.com



2 SUB-STATION C NEW PLAN - ELECTRICAL
 0 10' 20'
 SCALE: 1"=10'-0"

MERRITT COLLEGE - REPLACEMENT OF SECOND POWER SUBSTATION C

12500 Campus Dr,
Oakland, CA 94619

SHEET TITLE
SUB-STATION 'C' PLANS - ELECTRICAL

REVISIONS	DATE
100% CD	11/01/22
DSA SUBMITTAL	11/23/22
PLAN CHECK RESPONSE 1	04/14/23
PLAN CHECK RESPONSE 2	05/25/23

DRAWN BY
EM

CHECKED BY
THOMAS JUN

JOB NO.
2022-0586

DATE
11/23/2022

SHEET NUMBER

E2.1

GENERAL SHEET NOTES

- A. REFER TO STRUCTURAL AND CIVIL DRAWINGS FOR ADDITIONAL REQUIREMENTS.
- B. DESIGN INTENT IS TO INSTALL ALL NEW INFRASTRUCTURE PRIOR TO DEMOLITION, IN ORDER TO MINIMIZE DOWNTIME DURING SWITCHOVER.

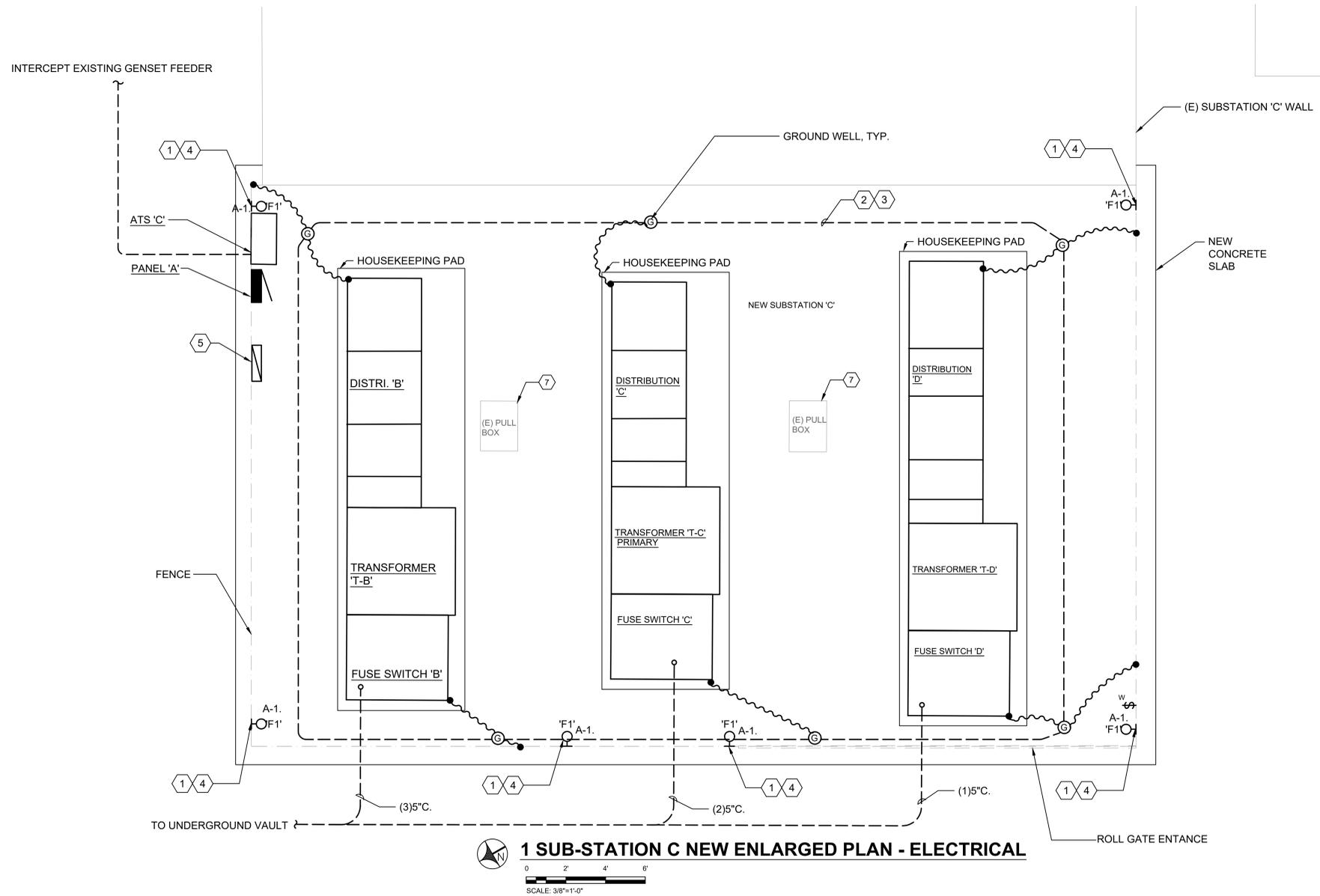
SHEET KEYNOTES

- 1. MOUNT FLOOD LIGHT ON FENCE POLE. COORDINATE EXACT LOCATION AND MOUNTING HEIGHT WITH ENGINEER PRIOR TO INSTALLATION. REFER TO 8/E4.2 FOR MOUNTING DETAIL.
- 2. PROVIDE CONNECTION BETWEEN EQUIPMENT PAD REBAR AND #2 BARE COPPER WIRE. REFER TO DETAIL 8/E4.1 FOR ADDITIONAL INFORMATION.
- 3. PROVIDE #2 BARE COPPER WIRE.
- 4. PROVIDE NEW LUMINAIRE AND HOMERUN 3/4"C, 2#12, 1#12 GND. TO PANEL 'A'. IF MOUNTED ON CHAIN LINK FENCE, FURNISH POLE MOUNTED BRACKET TO INSTALL LUMINAIRE. OTHERWISE, LUMINAIRE SHALL BE SURFACE MOUNTED AT 8' A.F.F.
- 5. PROVIDE NEMA-3R ENCLOSURE WITH PROGRAMMABLE ASTRONOMICAL TIME CLOCK AND PHOTO CELL FOR SITE LIGHTING.
- 6. REFER TO STRUCTURAL DETAIL 7/S3.1 FOR MOUNTING INFORMATION.
- 7. REFER TO DETAIL 7/E4.1 FOR EXISTING PULLBOX DETAIL.

Panel 'A'											
120/208V, 3 Ph, 4 W, 400A Bus with Main Lug Only Surface Mounted Panelboard with an Available Fault Current of 9966A RMS											
Ckt. No.	Description / Location	Load (VA) Type			C.B. A/Pole Note Ph. Note			C.B. Load (VA) Type Description / Location			
		234	L	20/1	A	B	C	A/Pole	50/3	4,798	G
1	PERIMETER LIGHTING										2
3	SPARE			100/3				B		4,798	4
5								C		4,798	6
7								A		6,717	8
9	SPARE			100/3				1 B		6,717	10
11								C		6,717	12
13								A			14
15	SPARE			100/3				1 B			16
17								C			18
19								A			20
21								B			22
23								C			24
25								A			26
27								B			28
29								C			30
31								A			32
33								B			34
35								C			36
37								A			38
39								B			40
41								C			42

Total Connected Load:	Ph. A	11,748 VA	96 Amps	Panel Connected Load:	11.7 KVA	32.6 Amps
Total Connected Load:	Ph. B	11,515 VA	96 Amps	Sub-Fed Connected Load:	0.0 KVA	0.0 Amps
Total Connected Load:	Ph. C	11,515 VA	96 Amps	Total Demand Load:	11.8 KVA	32.8 Amps

Notes:
 1. ADJUSTABLE
 2.
 3.
 4.
 5.



1 SUB-STATION C NEW ENLARGED PLAN - ELECTRICAL
 SCALE: 3/8"=1'-0"

DSA STAMP
 IDENTIFICATION STAMP
 DIV. OF THE STATE ARCHITECT
 APP: 01-120731 INC.
 REVIEWED FOR:
 SS FLS ACS
 DATE: 6/8/2023

INTERFACE ENGINEERING
 1999 Harrison Street, Suite 550
 Oakland, CA 94612
 TEL: 415.489.7240
 www.interfaceengineering.com

THOMAS B. JON
 No. E19320
 Exp: 12/31/22
 ELECTRICAL
 STATE OF CALIFORNIA
 Signed: 5/24/23

MERRITT COLLEGE - REPLACEMENT OF SECOND POWER SUBSTATION C

12500 Campus Dr,
Oakland, CA 94619

SHEET TITLE
ENLARGED SUB-STATION 'C'
PLANS - ELECTRICAL

REVISIONS	DATE
100% CD	11/01/22
DSA SUBMITTAL	11/23/22
PLAN CHECK RESPONSE 1	04/14/23
PLAN CHECK RESPONSE 2	05/25/23

DRAWN BY: EM
 CHECKED BY: THOMAS JON
 JOB NO.: 2022-0586
 DATE: 11/23/2022
 SHEET NUMBER

E2.2

FEEDER SCHEDULE

Key

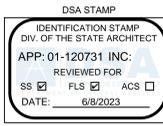
- A, C, S, X A = Aluminum
 C = Conduit only
 S = Service secondary
 X = Separately derived system
- 4004 (4 500 kcmil CU, 1 1/0 CU GND., IN 3" C.)

GENERAL SHEET NOTES

- INFORMATION SHOWN ON THIS SINGLE-LINE DIAGRAM HAS BEEN COMPILED FROM MULTIPLE AS-BUILT DRAWINGS. FIELD VERIFY INFORMATION SHOWN AND REPORT TO ENGINEER ANY DISCREPANCIES
- DESIGN INTENT IS TO REDUCE AMOUNT OF DOWNTIME DURING THE REPLACEMENT OF SUBSTATION C. FIRST, INSTALL NEW ELECTRICAL EQUIPMENT PRIOR TO START OF DEMOLITION OF ELECTRICAL EQUIPMENT. THEN TRANSFER ALL EXISTING POWER TO NEW ELECTRICAL INFRASTRUCTURE. FINALLY, DEMOLITION OF ELECTRICAL EQUIPMENT CAN BEGIN.

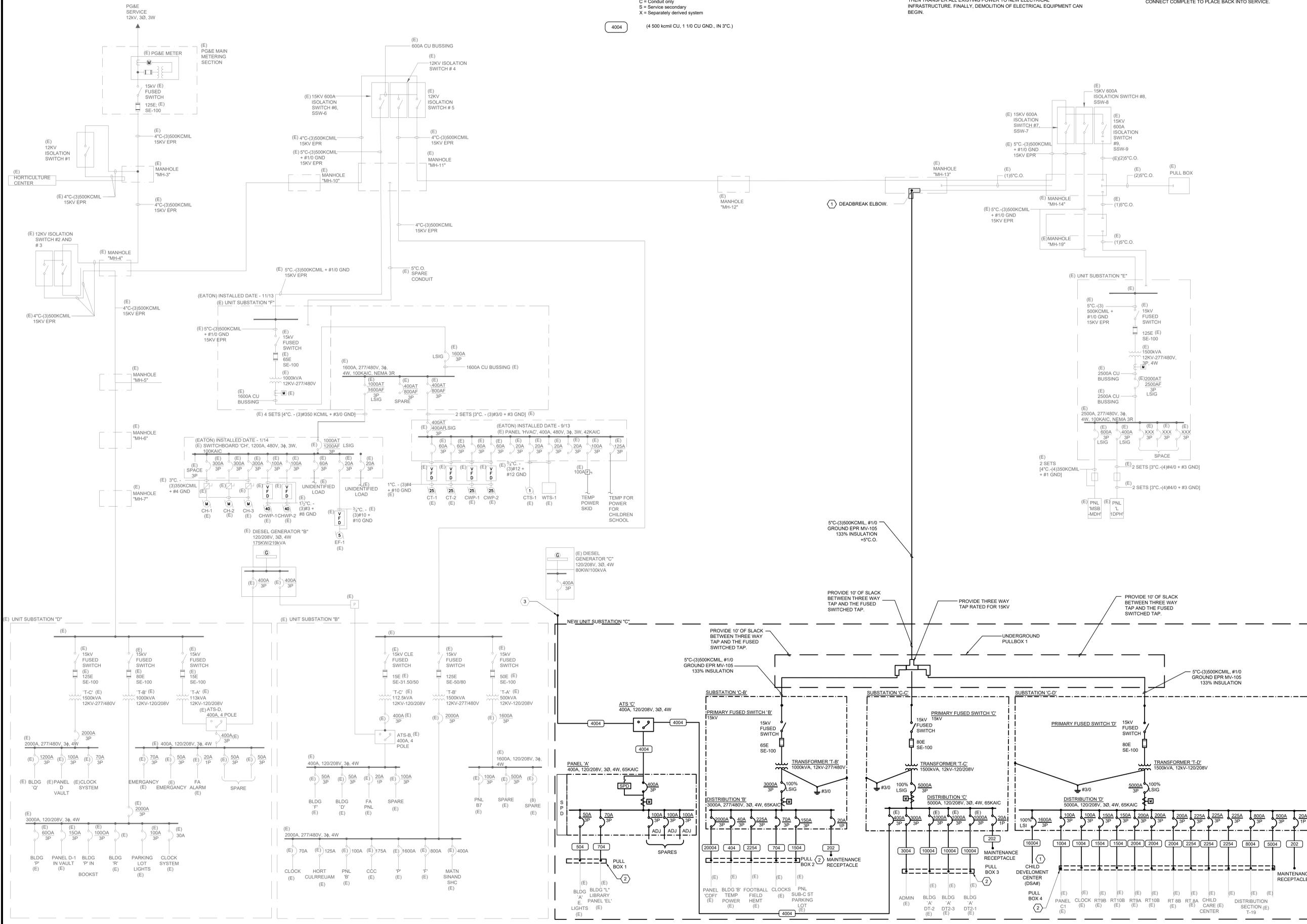
SHEET KEYNOTES

- POWER PROVISION TO CHILD DEVELOPMENT CARE BUILDING.
- LOCATE UNDERGROUND PULL BOX INSIDE OF EXISTING SUBSTATION 'C' SPACE, UTILIZED TO EXTEND LOW VOLTAGE FEEDERS FROM EXISTING SUBSTATION 'C' TO NEW SUBSTATION 'C-B', 'C-C' AND 'C-D'.
- INTERCEPT EXISTING FEEDER OUTSIDE OF GENERATOR SET AND CONNECT COMPLETE TO PLACE BACK INTO SERVICE.



INTERFACE ENGINEERING

1999 Harrison Street, Suite 550
 Oakland, CA 94612
 TEL: 415-489-7240
 www.interfaceengineering.com



1 NEW MEDIUM VOLTAGE SINGLE LINE DIAGRAM - NEW

NO SCALE

MERRITT COLLEGE - REPLACEMENT OF SECOND POWER SUBSTATION C

12500 Campus Dr., Oakland, CA 94619

SHEET TITLE

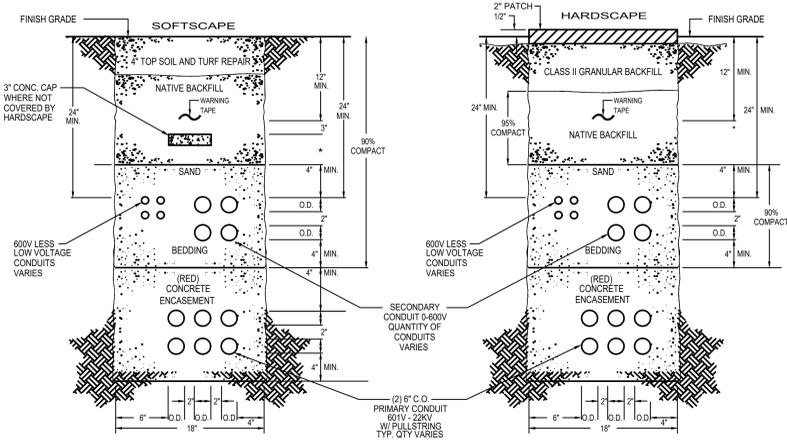
NEW MEDIUM VOLTAGE SINGLE LINE DIAGRAM - ELECTRICAL

REVISIONS	DATE
100% CD	11/01/22
DSA SUBMITTAL	11/23/22
PLAN CHECK RESPONSE 1	04/14/23
PLAN CHECK RESPONSE 2	05/25/23

DRAWN BY: EM
 CHECKED BY: THOMAS JUN
 JOB NO.: 2022-0586
 DATE: 11/23/2022
 SHEET NUMBER

REVISIONS	DATE
100% CD	11/01/22
DSA SUBMITTAL	11/23/22
PLAN CHECK RESPONSE 1	04/14/23
PLAN CHECK RESPONSE 2	05/25/23

DRAWN BY	EM
CHECKED BY	THOMAS JUN
JOB NO.	2022-0586
DATE	11/23/2022
SHEET NUMBER	

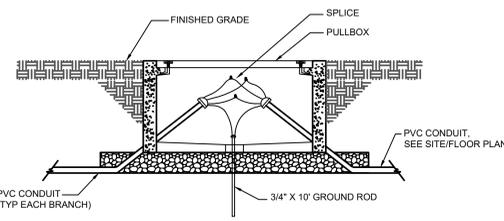


MINIMUM CLEARANCE REQUIREMENTS (INCHES)

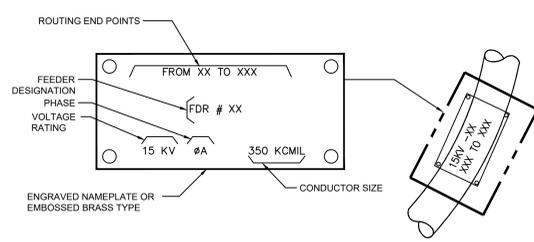
	PC	SC
PRIMARY CONDUIT (601V-22KV) (PC)	-	6
SECONDARY POWER CONDUIT (0-600V) (SC)	6	-

- TABLE ONLY APPLIES TO CONDUITS AFTER THE UTILITY POINT OF CONNECTION.
- NOTES:
- DETAIL FOR REFERENCE ONLY. REFER TO CIVIL DRAWING.
 - ALL TRENCHES MUST CONFORM TO D.S.H.A. REQUIREMENTS.
 - PROVIDE 12" SEPARATION WHEN CROSSING "WET" UTILITIES. IF SEPARATION CANNOT BE CONTAINED ENCASE IN CONCRETE.
 - UTILITY OWNED AND END-USER CONDUIT AND TRENCH SHALL NOT BE COMBINED.
 - CRUSHED GRAVEL MATERIAL REQUIRES 95% COMPACTION MINIMUM.
 - OPTIONAL AREA - CAN BE FILLED WITH EITHER CRUSHED GRAVEL OR SAND BEDDING MATERIAL.

1 UTILITY CONDUITS 0-600V AND 601V-22KV TRENCHING
 NO SCALE

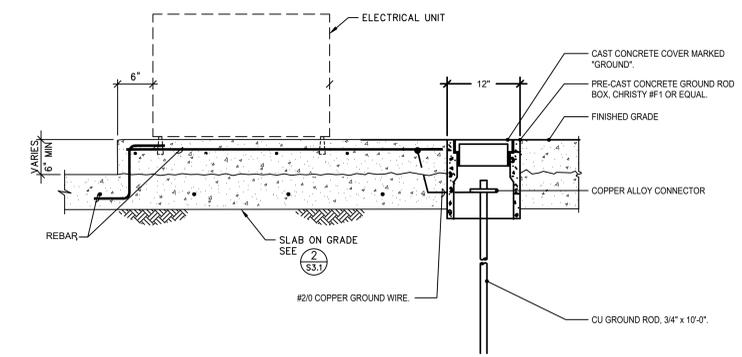


4 UNDERGROUND PULLBOX DETAIL
 NO SCALE

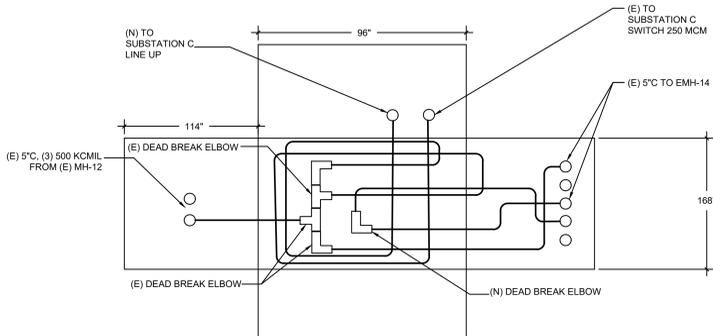


- NOTE:
- INSTALL NAMEPLATE ABOVE CABLE OR VISIBLE FROM MANHOLE COVER
 - FEEDER COLOR BAND SCHEDULE
- PHASE A - YELLOW 1 BAND FOR FDR #5
 PHASE B - RED 2 BANDS FOR FEEDER #6
 PHASE C - BLUE

5 FEEDER NAMEPLATE
 NO SCALE

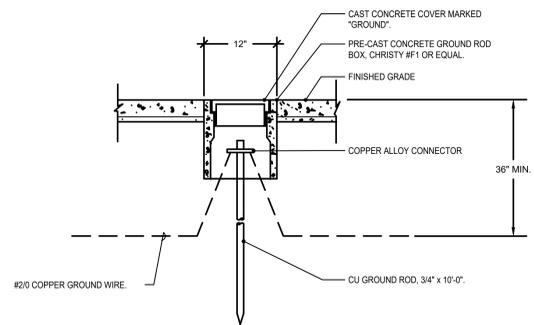


8 HOUSE KEEPING PAD GROUND DETAIL
 NO SCALE

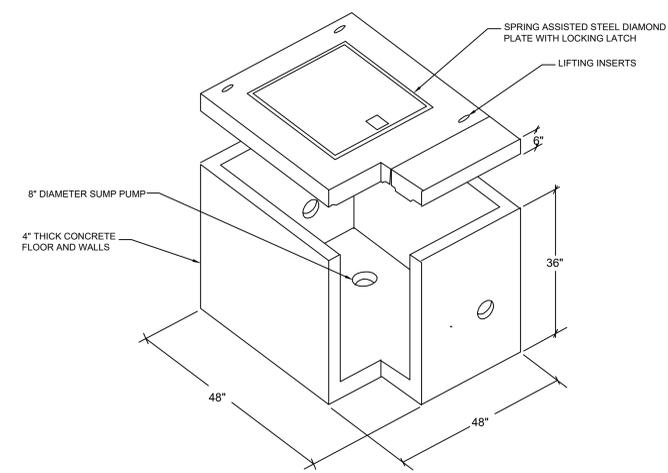


- NOTES:
- JUNCTION ELBOWS PER PHASE 15KV, 600A DEAD BREAK (TYP)
 - FURNISH AND INSTALL NEW CABLE RACKS AS NECESSARY.

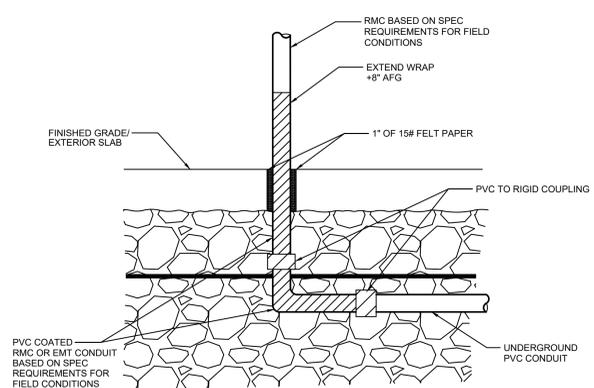
2 (E) MANHOLE DETAIL (MH-13)
 NO SCALE



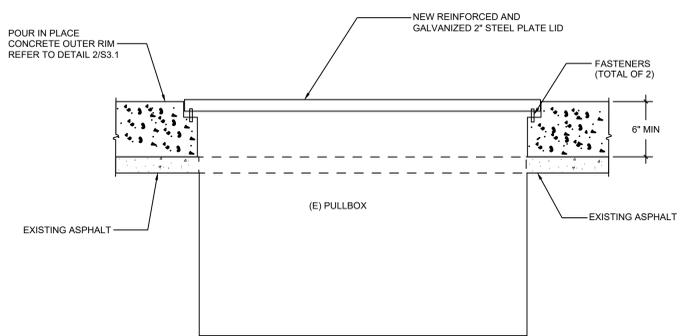
6 GROUND ROD IN WELL
 NO SCALE



9 ELECTRICAL VAULT ISOMETRIC DETAIL
 NO SCALE



3 CONDUIT TRANSITION DETAIL
 NO SCALE



7 NEW LID ON EXISTING PULLBOX DETAIL
 NO SCALE

