

HUMBOLDT BAY MUNICIPAL WATER DISTRICT

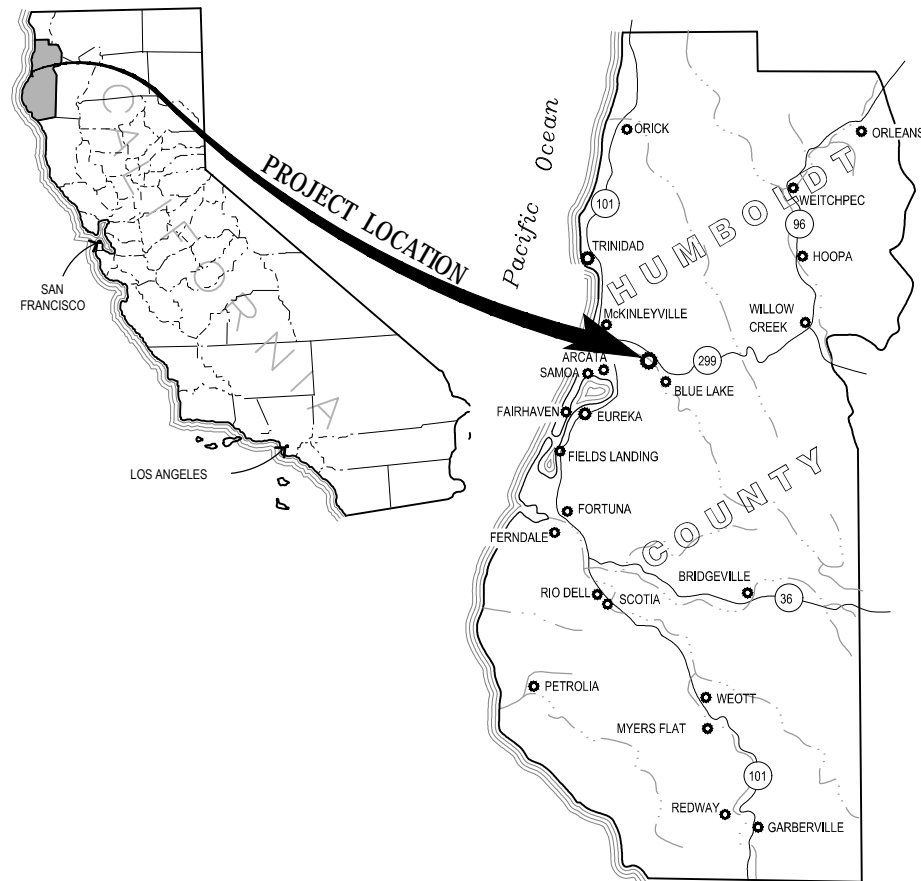
12 kV SWITCHGEAR RELOCATION PROJECT

NOVEMBER 2019

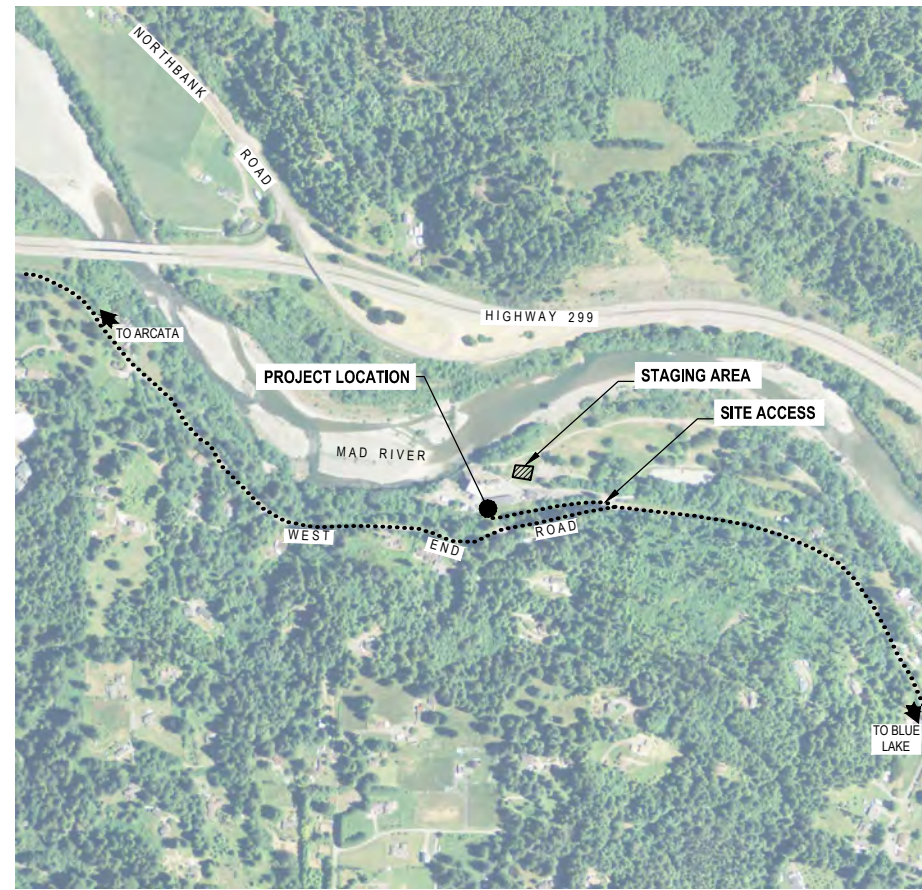
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AREA MAP



LOCATION MAP



APPROVALS

BID DOCUMENTS APPROVED BY THE BOARD OF DIRECTORS OF THE HUMBOLDT BAY MUNICIPAL WATER DISTRICT, COUNTY OF HUMBOLDT, STATE OF CALIFORNIA, THIS 10TH DAY OF OCTOBER, 2019.

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SHEET INDEX:

| GENERAL | | | ELECTRICAL | | |
|-------------------|-------|---|------------|-------|----------------------------------|
| 1 | G-001 | COVER SHEET | 11 | E-102 | ELECTRICAL SITE PLAN |
| 2 | G-002 | ABBREVIATIONS, SYMBOLS, AND GENERAL NOTES | 12 | E-201 | SWITCHGEAR PANEL ELEVATION |
| CIVIL | | | 13 | E-401 | ENLARGED SWITCHGEAR PLAN |
| 3 | C-101 | CIVIL SITE PLAN | 14 | E-501 | ELECTRICAL DETAILS |
| 4 | C-501 | CIVIL DETAILS | 15 | E-601 | SINGLE LINE DIAGRAM - DEMOLITION |
| STRUCTURAL | | | 16 | E-602 | SINGLE LINE DIAGRAM - NEW |
| 5 | S-001 | STRUCTURAL NOTES | 17 | E-603 | ELECTRICAL NETWORK DIAGRAM |
| 6 | S-101 | STRUCTURAL FOUNDATION PLAN | 18 | E-604 | ELECTRICAL SCHEDULES |
| 7 | S-301 | STRUCTURAL SECTIONS AND DETAILS | 19 | E-701 | CUMMINS REFERENCE DRAWING - 1 |
| 8 | S-501 | STRUCTURAL DETAILS | 20 | E-702 | CUMMINS REFERENCE DRAWING - 2 |
| ELECTRICAL | | | 21 | E-703 | CUMMINS REFERENCE DRAWING - 3 |
| 9 | E-001 | ELECTRICAL SYMBOLS LEGEND, ABBREVIATIONS, AND GENERAL NOTES | 22 | E-704 | CUMMINS REFERENCE DRAWING - 4 |
| 10 | E-101 | ELECTRICAL SITE PLAN - DEMOLITION | 23 | E-705 | CUMMINS REFERENCE DRAWING - 5 |
| | | | 24 | E-706 | CUMMINS REFERENCE DRAWING - 6 |

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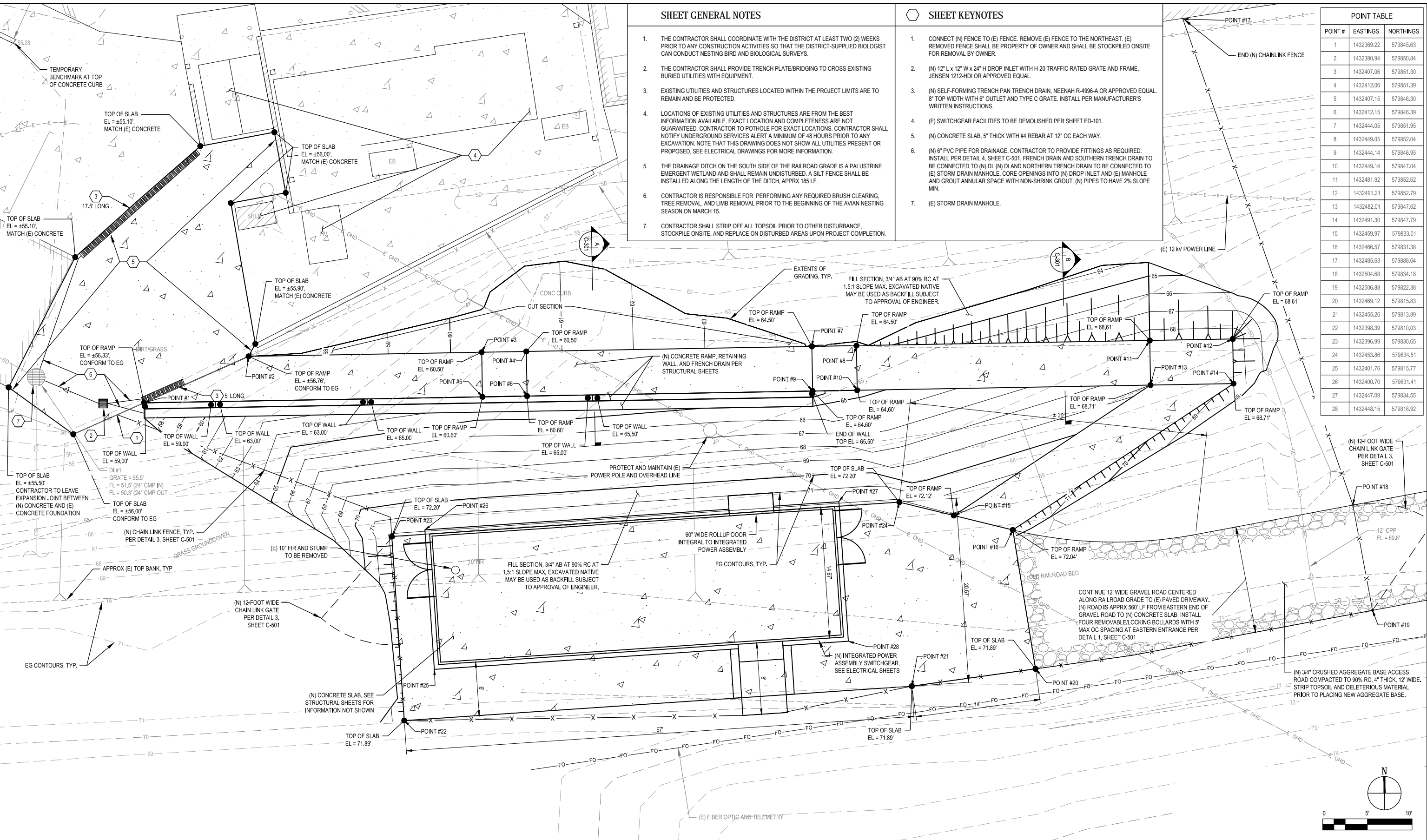
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| Drafting Check | P. KASPARI | Design Check | P. KASPARI |
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| Client | HUMBOLDT BAY MUNICIPAL WATER DISTRICT | | |
| Project | 12 kV SWITCHGEAR RELOCATION | | |
| Title | COVER SHEET | | |
| Project No. | 11186675 | | |
| Original Size | ANSI D | Sheet No. | G-001 |
| | | Sheet | 1 of 24 |

| SYMBOLS | | | ABBREVIATIONS | | | | | | | | | | GENERAL SITE NOTES | | | | | |
|------------------|-----|-----|---------------|-----|-----|-----|-----|----------|-----|-------------|-----|-----|--------------------|----------|-----|-------------|-----|--|
| SITE/TOPOGRAPHIC | | | UTILITY | | | NEW | | EXISTING | | DESCRIPTION | | NEW | | EXISTING | | DESCRIPTION | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING SITE CONDITIONS PRIOR TO THE COMMENCEMENT OF WORK AND REPORT ANY DISCREPANCIES TO THE OWNER'S REPRESENTATIVE. CONTRACTOR IS RESPONSIBLE FOR VISITING THE SITE AND BECOMING FAMILIAR WITH THE SITE CONDITIONS PRIOR TO BIDDING. |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 2. IT IS EXPECTED THAT THE ACTUAL LOCATION OF EXISTING UTILITIES MAY VARY FROM THAT SHOWN ON THE PLANS. VARIATIONS IN LOCATION AND DEPTH SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER IMMEDIATELY SO THAT THE LOCATION OF UTILITIES MAY BE CHECKED WITH THE PROPOSED DESIGN. CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT PRIOR TO WORK COMMENCING FOR ANY EXCAVATION OR POTHOLING. |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 3. UPON COMPLETION OF THE CONSTRUCTION PROJECT, THE CONTRACTOR SHALL LEAVE THE PROJECT AREA FREE OF DEBRIS AND UNUSED MATERIAL. ALL DAMAGE CAUSED BY THE CONTRACTOR SHALL BE RESTORED TO AN "AS GOOD OR BETTER" CONDITION. |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 4. CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL PROJECT PERMITS AND ALL APPLICABLE STATE AND FEDERAL REGULATIONS. |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 5. ANY PUMPS, FUEL-DRIVEN MOTORS (GENERATOR, ETC.) USED ON-SITE SHALL BE PLACED ON ABSORBENT PADS. THE CONTRACTOR SHALL HAVE CONTAINMENT MATERIALS LOCATED AT THE SITE, WITH OPERATORS TRAINED IN SPILL CONTROL PROCEDURES. |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 6. CONTRACTOR SHALL DEVELOP A SPILL PREVENTION AND CONTROL PLAN COVERING THE USE AND FUELING OF ANY PETROLEUM FUELED EQUIPMENT. SEE SPECIFICATIONS FOR SPILL PREVENTION REQUIREMENTS. |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 7. CONTRACTOR TO PROVIDE NECESSARY WATER AND ELECTRICAL FACILITIES FOR PERFORMANCE OF WORK. |

| GENERAL SYMBOLS | | SURVEY NOTES | | GRADING NOTES | | UTILITY NOTES | | EROSION PREVENTION & SEDIMENT CONTROL NOTES | |
|-----------------|---------------|---|---|---|--|--|---|---|--|
| --- | CENTERLINE | 1. TOPOGRAPHIC DATA SHOWN HEREON WAS OBTAINED FROM A FIELD SURVEY BY GUTIERREZ LAND SURVEYING CONDUCTED ON JANUARY 25, 2019. | 1. CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF ALL CONSTRUCTION. ADEQUATE SCAFFOLDING, SHORING, BRACING, TIES, AND SUPPORTS SHALL BE USED TO PROVIDE PROPER TEMPORARY INTEGRITY DURING ALL PHASES OF CONSTRUCTION. | 1. LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE PLOTTED FROM RECORD DRAWINGS OR INTERPOLATION OF PHYSICAL EVIDENCE ON THE SITE AND ARE SUBJECT TO FIELD VERIFICATION BY THE CONTRACTOR. SEE GENERAL SITE NOTES 1 AND 2. | 1. THE OWNER IS OBTAINING A GRADING PERMIT FROM HUMBOLDT COUNTY FOR THE WORK. CONTRACTOR SHALL PERFORM EROSION PREVENTION AND SEDIMENT CONTROL IN ACCORDANCE WITH THE GRADING PERMIT AND HUMBOLDT COUNTY REGULATIONS. | 1. DISCHARGES OF POTENTIAL POLLUTANTS FROM CONSTRUCTION SITES SHALL BE PREVENTED USING SOURCE CONTROLS TO THE MAXIMUM EXTENT PRACTICABLE. POTENTIAL POLLUTANTS INCLUDE BUT ARE NOT LIMITED TO: SEDIMENT, TRASH, NUTRIENTS, PATHOGENS, PETROLEUM HYDROCARBONS, METALS, CONCRETE, CEMENT, ASPHALT, LIME, PAINT, STAINS, GLUES, WOOD PRODUCTS, PESTICIDES, HERBICIDES, CHEMICALS, HAZARDOUS WASTE, SANITARY WASTE, VEHICLE OR EQUIPMENT WASH WATER AND CHLORINATED WATER. | 10. SOIL AND MATERIAL STOCKPILES SHALL BE PROPERLY PROTECTED TO MINIMIZE SEDIMENT AND POLLUTANT TRANSPORT FROM THE CONSTRUCTION SITE. | | |
| --- | WATER SURFACE | 2. ALL UTILITIES SHOWN HEREON WERE TAKEN FROM ABOVE GROUND VISUAL STRUCTURES. NO UTILITY RESEARCH WAS CONDUCTED FOR THIS SURVEY. LOCATION OF ALL UNDERGROUND UTILITIES SHOWN HEREON IS APPROXIMATE. | 2. ALL EXISTING LANDSCAPED AND UNPAVED AREAS WHICH ARE DISTURBED BY CONSTRUCTION OR EARTHWORK OPERATIONS SHALL BE RAKED SMOOTH, RE-SEDED, MULCHED, AND RETURNED TO ORIGINAL EXISTING CONDITIONS. | 2. ALL LOCATIONS FOR WORK SHALL BE CHECKED AND COORDINATED WITH EXISTING CONDITIONS IN THE FIELD BEFORE BEGINNING CONSTRUCTION. | 2. PROJECT IMPLEMENTATION SHALL CONFORM WITH THE EROSION PREVENTION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES CONTAINED IN THE LATEST EDITIONS OF THE FOLLOWING PUBLICATIONS OR AN EQUIVALENT BEST MANAGEMENT PRACTICE: <u>CONSTRUCTION SITE BEST MANAGEMENT PRACTICES MANUAL</u> BY CALTRANS. <u>STORMWATER BEST MANAGEMENT PRACTICE HANDBOOK</u> BY THE CALIFORNIA STORMWATER QUALITY ASSOCIATION. | 8. ENTRANCE(S) TO THE CONSTRUCTION SITE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF POTENTIAL POLLUTANTS OFFSITE. POTENTIAL POLLUTANTS DEPOSITED ON PAVED AREAS SUCH AS ROADWAYS AND SIDEWALKS, SHALL BE PROPERLY DISPOSED OF AT THE END OF EACH WORKING DAY OR MORE FREQUENTLY AS NECESSARY. | 11. SOLID WASTE, SUCH AS TRASH AND DEBRIS, SHALL BE PLACED IN DESIGNATED COLLECTION AREAS OR CONTAINERS. THE CONSTRUCTION SITE SHALL BE CLEARED OF SOLID WASTE DAILY, OR AS NECESSARY, AND REGULAR REMOVAL AND PROPER DISPOSAL SHALL BE ARRANGED. | | |
| --- | | 3. NO TREES WERE LOCATED BY THIS SURVEY. | 3. ALL DITCHES, SWALES, GUTTERS, ETC. SHOULD BE CONSIDERED ACTIVE STORM CONVEYANCES UNLESS OTHERWISE INDICATED. CONTRACTOR IS RESPONSIBLE FOR ADDRESSING STORM WATER DRAINAGE AND DEWATERING OF WORK AREAS DURING CONSTRUCTION. | 3. THE WORKING DRAWINGS ARE GENERALLY DIAGRAMMATIC. THEY DO NOT SHOW EVERY OFFSET, BEND OR ELBOW REQUIRED FOR INSTALLATION IN THE SPACE PROVIDED. THEY DO NOT SHOW EVERY DIMENSION, COMPONENT PIECE, OR FITTING REQUIRED TO COMPLETE THE PROJECT. CONTRACTOR IS RESPONSIBLE FOR PROVIDING A COMPLETE AND WORKING SYSTEM. | 3. IF DISCREPANCIES OCCUR BETWEEN THESE NOTES, MATERIAL REFERENCED HEREIN OR MANUFACTURER'S RECOMMENDATIONS, THEN THE MOST PROTECTIVE SHALL APPLY. | 9. SEED APPLICATION SHALL BE BROADCAST MECHANICALLY OR MANUALLY AT THE RATES SPECIFIED IN THE TABLE BELOW. <u>MATERIALS</u> <u>SEED MIX</u> POA PRATENSIS (KENTUCKY BLUE GRASS) - 30% BROMIUS HORDEACEUS (BLANDO BROME) - 20% FESTUCA ARUNDINACEA (REED FESCUE) - 20% LOLIUM PERENNE (PERENNIAL RYEGRASS) - 20% TRIFOLIUM REPENS (WHITE CLOVER) - 10% | 12. PROPER APPLICATION, CLEANING AND STORAGE OF POTENTIALLY HAZARDOUS MATERIALS, SUCH AS PAINTS AND CHEMICALS, SHALL BE CONDUCTED TO PREVENT THE DISCHARGE OF POLLUTANTS. | | |
| --- | | 4. BASIS OF BEARINGS: THIS SURVEY IS BASED ON CONTROL POINT NUMBERS 301 AND 399 AS SHOWN ON THE "CROSS SECTION INDEX" MAP PREPARED BY POINTS WEST SURVEYING COMPANY, DATED SEPTEMBER 12, 2017. CALIFORNIA COORDINATE SYSTEM - ZONE 1 (NAD 27). | 4. DURING WET WEATHER PERIODS, CONTRACTOR IS RESPONSIBLE FOR SEQUENCING CONSTRUCTION IN A MANNER TO MINIMIZE IMPACT ON OPEN EARTHWORK AND COMPACTION OPERATIONS. | 4. CONTRACTOR SHALL COORDINATE A UTILITY LOCATE 48 HOURS PRIOR TO BEGINNING ANY UTILITY CONSTRUCTION FOR LOCATION MARK-UP OF ALL EXISTING UTILITIES. CONTRACTOR SHALL COORDINATE THE UTILITY LOCATE WITH THE OWNER FOR ALL UTILITY WORK. INFORM OWNER IMMEDIATELY IF LOCATE INDICATES THAT EXISTING UTILITIES ARE DIFFERENT THAN SHOWN ON DRAWINGS. | 4. PRESERVATION OF EXISTING VEGETATION SHALL OCCUR TO THE MAXIMUM EXTENT PRACTICABLE. | | 13. CONTRACTOR SUPPLIED TEMPORARY RESTROOMS AND SANITARY FACILITIES ARE REQUIRED AND SHALL BE LOCATED AND MAINTAINED TO PREVENT THE DISCHARGE OF POLLUTANTS. | | |
| --- | | 5. BASIS OF ELEVATIONS: POINT #301 AS SHOWN ON THE " CROSS SECTION INDEX" MAP PREPARED BY POINTS WEST SURVEYING COMPANY DATED SEPTEMBER 12, 2017. ELEVATION = 39.59 FEET. | 5. COMPLETELY COVER ANY SOIL STOCKPILES WITH 6 MIL BLACK PLASTIC AND PROVIDE RESTRAINTS TO HOLD PLASTIC IN PLACE. MONITOR PLASTIC COVER AS PART OF CONTINUOUS EROSION CONTROL PLAN. PLACE SILT FENCE COMPLETELY AROUND STOCKPILE. | 5. CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO UTILITIES, FEATURES, AND STRUCTURES LOCATED ON THE SITE. LOCATE, PROTECT, AND AVOID DISRUPTION OF ALL ABOVE AND BELOW GRADE UTILITIES DURING CONSTRUCTION. | 5. CONTRACTOR SHALL CONFORM TO THE REQUIREMENTS OF THE OWNER'S HABITAT CONSERVATION PLAN, GRADING PERMIT, AND ALL OTHER APPLICABLE RULES AND REGULATIONS. | | 14. APPROPRIATE VEHICLE STORAGE, FUELING, MAINTENANCE AND CLEANING AREAS SHALL BE DESIGNATED AND MAINTAINED TO PREVENT DISCHARGE OF POLLUTANTS. | | |
| --- | | 6. THE RAILROAD RIGHT OF WAY SHOWN HEREON WAS DERIVED FROM PHYSICAL GROUND FEATURES LOCATED DURING THIS SURVEY AND ACCEPTED AS THE BEST EVIDENCE OF THE ORIGINAL RAILROAD BED. A BOUNDARY SURVEY WAS NOT CONDUCTED BY GUTIERREZ LAND SURVEYING TO LOCATE THIS RIGHT OF WAY. ALL RAILROAD TRACKS AND TIES HAVE BEEN REMOVED. THE WIDTH OF THE RIGHT OF WAY (85') WAS TAKEN FROM THE DEED TO THE ARCATO AND MAD RIVER RAIL ROAD CO. DATED FEBRUARY 2, 1888, FILED IN BOOK 25 OF DEEDS, PAGE 218, HUMBOLDT COUNTY RECORDS. THE LOCATION OF THE RAILROAD RIGHT OF WAY ACCORDING TO THIS DEED IS AS FOLLOWS: "SAID RIGHT OF WAY TO BE NO LESS THAN 35 FEET IN WIDTH AND TO FOLLOW THE COUNTY ROAD AS NEAR AS PRACTICABLE". | | 6. THE OWNER IS OBTAINING A PERMIT FROM PG&E FOR THE WORK. CONTRACTOR SHALL BE RESPONSIBLE FOR ADHERING TO PROVISIONS OF THE PERMIT. | 6. EROSION PREVENTION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED BY THE CONTRACTOR BEFORE FORECASTED STORM EVENTS AND AFTER ACTUAL STORM EVENTS TO ENSURE MEASURES ARE FUNCTIONING PROPERLY. EROSION PREVENTION AND SEDIMENT CONTROL MEASURES THAT HAVE FAILED OR ARE NO LONGER EFFECTIVE SHALL BE PROMPTLY REPLACED. EROSION PREVENTION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED UNTIL DISTURBED AREAS ARE STABILIZED. | | | | |
| --- | | 7. A BOUNDARY SURVEY WAS NOT CONDUCTED BY GUTIERREZ LAND SURVEYING AS PART OF THIS SURVEY. | | | | | | | |
| --- | | 8. TEMPORARY BENCHMARK: TOP OF CONCRETE CURB AT END LOCATED WEST OF SWITCHGEAR ENCLOSURE, ELEVATION = 55.28'. | | | | | | | |

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| <p>1 ISSUE FOR BID</p> | | | | <p>N.S. P.K. 11/5/2019</p> | | | | <p>Drafting Check P. KASPARI Design Check P. KASPARI</p> | | | | <p>Project Manager P. KASPARI Date 11/5/2019</p> | | <p>Project No. 11186675 Original Size ANSIC Sheet No. G-002</p> | | | | | |
| <p>No. Issue Drawn Approved Date</p> | | | | | | | | | | | | <p>This document shall not be used for construction unless signed and sealed for construction.</p> | | <p>Scale NONE</p> | | <p>Sheet 2 of 24</p> | | | |



SHEET GENERAL NOTES

1. THE CONTRACTOR SHALL COORDINATE WITH THE DISTRICT AT LEAST TWO (2) WEEKS PRIOR TO ANY CONSTRUCTION ACTIVITIES SO THAT THE DISTRICT-SUPPLIED BIOLOGIST CAN CONDUCT NESTING BIRD AND BIOLOGICAL SURVEYS.
2. THE CONTRACTOR SHALL PROVIDE TRENCH PLATE/BRIDGING TO CROSS EXISTING BURIED UTILITIES WITH EQUIPMENT.
3. EXISTING UTILITIES AND STRUCTURES LOCATED WITHIN THE PROJECT LIMITS ARE TO REMAIN AND BE PROTECTED.
4. LOCATIONS OF EXISTING UTILITIES AND STRUCTURES ARE FROM THE BEST INFORMATION AVAILABLE. EXACT LOCATION AND COMPLETENESS ARE NOT GUARANTEED. CONTRACTOR TO POHOLE FOR EXACT LOCATIONS. CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICES ALERT A MINIMUM OF 48 HOURS PRIOR TO ANY EXCAVATION. NOTE THAT THIS DRAWING DOES NOT SHOW ALL UTILITIES PRESENT OR PROPOSED. SEE ELECTRICAL DRAWINGS FOR MORE INFORMATION.
5. THE DRAINAGE DITCH ON THE SOUTH SIDE OF THE RAILROAD GRADE IS A PALUSTRINE EMERGENT WETLAND AND SHALL REMAIN UNDISTURBED. A SILT FENCE SHALL BE INSTALLED ALONG THE LENGTH OF THE DITCH, APPROX 185 LF.
6. CONTRACTOR IS RESPONSIBLE FOR PERFORMING ANY REQUIRED BRUSH CLEARING, TREE REMOVAL, AND LIMB REMOVAL PRIOR TO THE BEGINNING OF THE AVIAN NESTING SEASON ON MARCH 15.
7. CONTRACTOR SHALL STRIP OFF ALL TOPSOIL PRIOR TO OTHER DISTURBANCE, STOCKPILE ONSITE, AND REPLACE ON DISTURBED AREAS UPON PROJECT COMPLETION.

SHEET KEYNOTES

1. CONNECT (N) FENCE TO (E) FENCE. REMOVE (E) FENCE TO THE NORTHEAST. (E) REMOVED FENCE SHALL BE PROPERTY OF OWNER AND SHALL BE STOCKPILED ONSITE FOR REMOVAL BY OWNER.
2. (N) 12" L x 12" W x 24" H DROP INLET WITH H-20 TRAFFIC RATED GRATE AND FRAME, JENSEN 1212-HDI OR APPROVED EQUAL.
3. (N) SELF-FORMING TRENCH PAN TRENCH DRAIN, NEENAH R-4996-A OR APPROVED EQUAL. 6" TOP WIDTH WITH 6" OUTLET AND TYPE C GRATE. INSTALL PER MANUFACTURER'S WRITTEN INSTRUCTIONS.
4. (E) SWITCHGEAR FACILITIES TO BE DEMOLISHED PER SHEET ED-101.
5. (N) CONCRETE SLAB, 5" THICK WITH #4 REBAR AT 12" OC EACH WAY.
6. (N) 6" PVC PIPE FOR DRAINAGE. CONTRACTOR TO PROVIDE FITTINGS AS REQUIRED. INSTALL PER DETAIL 4, SHEET C-501. FRENCH DRAIN AND SOUTHERN TRENCH DRAIN TO BE CONNECTED TO (N) DI. (N) DI AND NORTHERN TRENCH DRAIN TO BE CONNECTED TO (E) STORM DRAIN MANHOLE. CORE OPENINGS INTO (N) DROP INLET AND (E) MANHOLE AND GROUT ANNULAR SPACE WITH NON-SHRINK GROUT. (N) PIPES TO HAVE 2% SLOPE MIN.
7. (E) STORM DRAIN MANHOLE.

POINT TABLE

| POINT # | EASTINGS | NORTHINGS |
|---------|------------|-----------|
| 1 | 1432369.22 | 579845.63 |
| 2 | 1432380.94 | 579850.84 |
| 3 | 1432407.06 | 579851.30 |
| 4 | 1432412.06 | 579851.39 |
| 5 | 1432407.15 | 579846.30 |
| 6 | 1432412.15 | 579846.39 |
| 7 | 1432444.05 | 579851.95 |
| 8 | 1432449.05 | 579852.04 |
| 9 | 1432444.14 | 579846.95 |
| 10 | 1432449.14 | 579847.04 |
| 11 | 1432481.92 | 579852.62 |
| 12 | 1432491.21 | 579852.79 |
| 13 | 1432482.01 | 579847.62 |
| 14 | 1432491.30 | 579847.79 |
| 15 | 1432459.97 | 579833.01 |
| 16 | 1432466.57 | 579831.38 |
| 17 | 1432485.63 | 579888.64 |
| 18 | 1432504.68 | 579834.18 |
| 19 | 1432506.88 | 579822.38 |
| 20 | 1432469.12 | 579815.83 |
| 21 | 1432455.26 | 579813.89 |
| 22 | 1432398.39 | 579810.03 |
| 23 | 1432396.99 | 579830.65 |
| 24 | 1432453.86 | 579834.51 |
| 25 | 1432401.76 | 579815.77 |
| 26 | 1432400.70 | 579831.41 |
| 27 | 1432447.09 | 579834.55 |
| 28 | 1432448.15 | 579818.92 |

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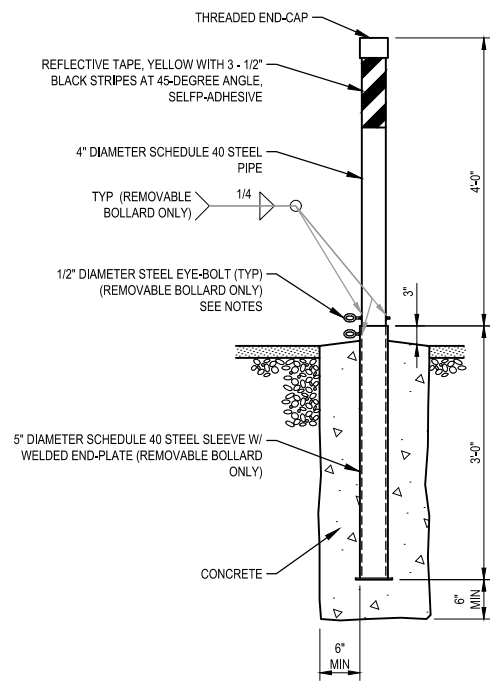
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| Drafting Check | P. KASPARI | Design Check | P. KASPARI |
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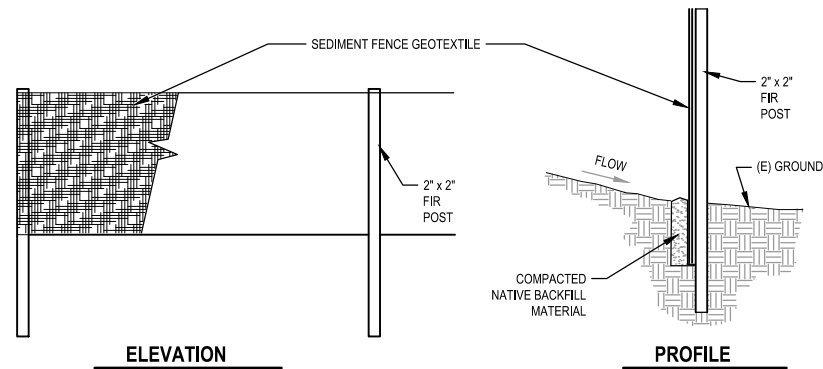
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|---------------|---------------------------------------|-----------|----------|
| Client | HUMBOLDT BAY MUNICIPAL WATER DISTRICT | | |
| Project | 12 kV SWITCHGEAR RELOCATION | | |
| Title | CIVIL SITE PLAN | | |
| Project No. | 11186675 | | |
| Original Size | ANSI D | Sheet No. | C-101 |
| | | Scale | AS SHOWN |
| | | Sheet | 3 of 24 |



NOTES:

1. DRILL 5/8" DIAMETER HOLE THROUGH 4" DIAMETER PIPE AND INSERT EYE-BOLT. WELD EYE-BOLT IN PLACE ON BOTH SIDES OF PIPE (REMOVABLE TRAIL-CENTER BOLLARD ONLY).
2. CUT SECOND EYE-BOLT AND WELD EYE TO 5" DIAMETER SLEEVE (REMOVABLE TRAIL-CENTER BOLLARD ONLY).
3. EYE-BOLTS SHALL BE NO MORE THAN 1/2" APART TO PERMIT PAD LOCKING (REMOVABLE TRAIL-CENTER BOLLARD ONLY).
4. HOT DIP GALVANIZE ALL STEEL AFTER FABRICATION.

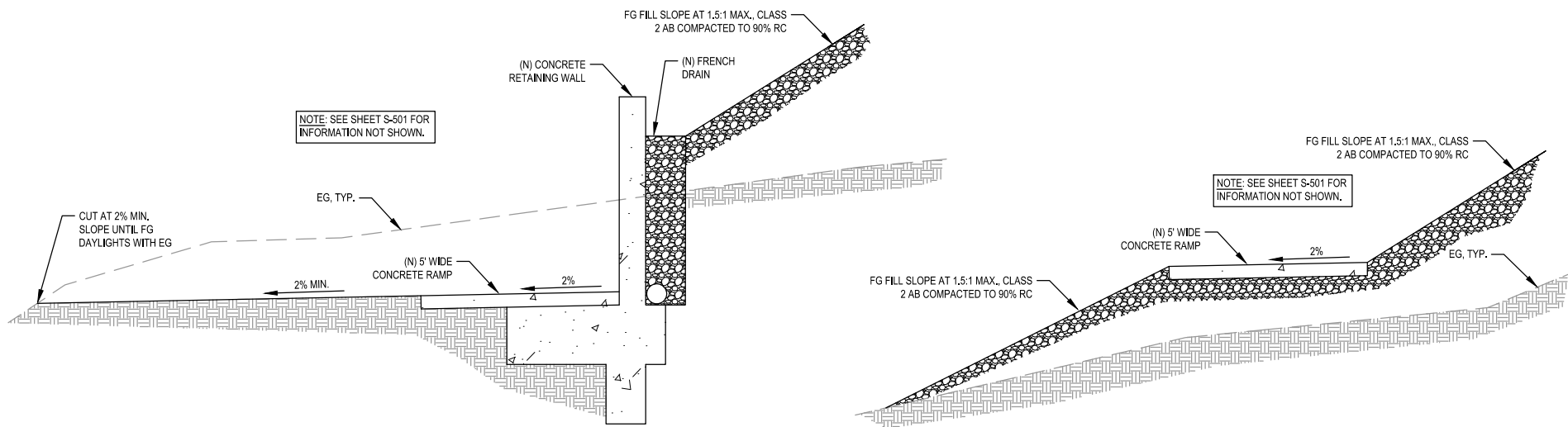
1 BOLLARD DETAIL
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NOTES:

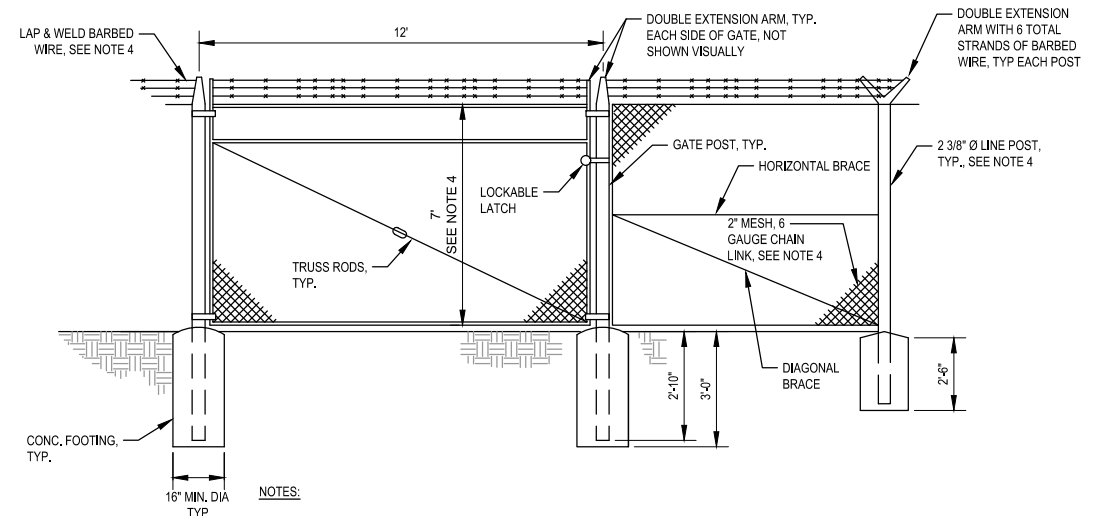
1. FILTER FABRIC SHALL BE INSTALLED IN A CONTINUOUS ROLL TO AVOID THE USE OF JOINTS. WHERE JOINTS ARE NECESSARY SPLICE FABRIC TOGETHER ONLY AT A SUPPORT POST WITH A MINIMUM 6" OVERLAP. SECURELY FASTEN BOTH ENDS TO THE POST.
1. POSTS SHALL BE SPACED A MAXIMUM OF 6' APART AND DRIVEN SECURELY INTO THE GROUND A MINIMUM OF 12'.
2. A TRENCH SHALL BE EXCAVATED APPROXIMATELY 4" WIDE AND 6" DEEP ALONG THE LINE OF POSTS UPHILL FROM THE BARRIER. TRENCH SHALL FOLLOW THE CONTOUR.
3. TRENCH SHALL BE BACKFILLED WITH NATIVE MATERIAL.
4. INSPECT AND REPAIR AFTER EACH RAINFALL. INSPECT DAILY DURING PROLONGED RAINFALL.
5. REMOVE SEDIMENT WHEN IT REACHES APPROXIMATELY ONE THIRD THE HEIGHT ABOVE GROUND PORTION OF THE FENCE.
6. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE FILTER FENCE IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM WITH THE EXISTING GRADE AND SEEDED.
7. POSTS TO OVERLAP AND FENCE FABRIC TO FOLD AROUND EACH POST ONE FULL TURN, SECURE FABRIC WITH (4) STAPLES FOR EACH POST.
8. A MINIMUM OF (4) 1-INCH WIDE STAPLES SHALL BE INSTALLED PER POST.
9. FOR EACH END POST, FENCE FABRIC SHALL BE FOLDED AROUND TWO POSTS ONE FULL TURN AND SECURED WITH (4) STAPLES.
10. SILT FENCE SHALL BE REMOVED UPON PROJECT COMPLETION.

2 SILT FENCE DETAIL
SCALE: NTS



A RAMP CUT SECTION
SCALE: NTS

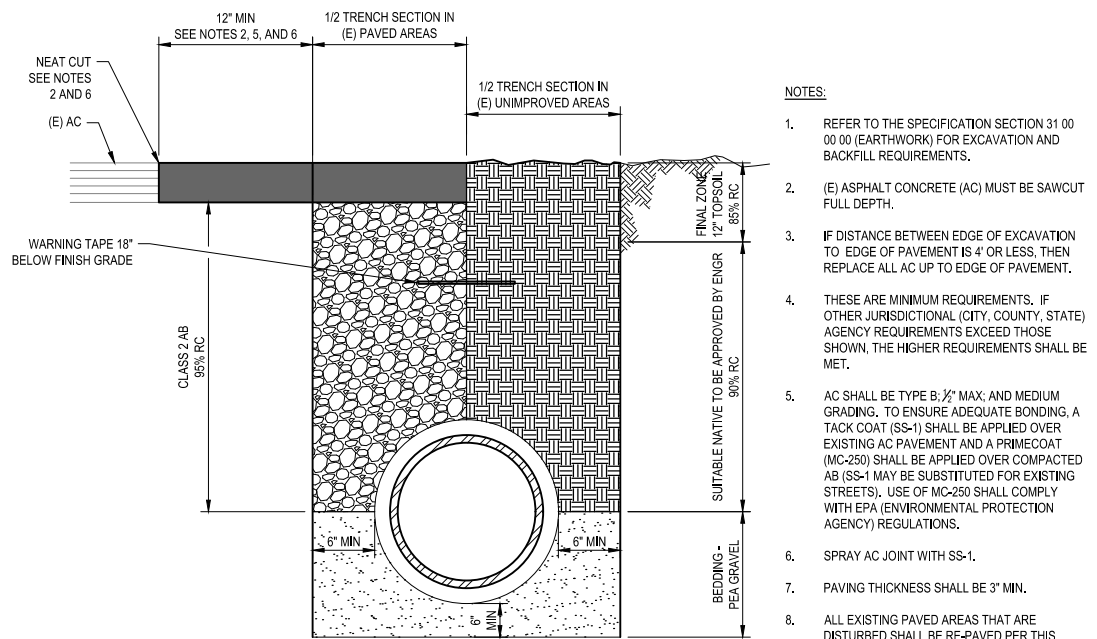
B RAMP FILL SECTION
SCALE: NTS



NOTES:

1. LATCHES SHALL BE ARRANGED FOR LOCKING. ALL GATES SHALL HAVE KEEPERS CONSISTING OF A MECHANICAL DEVICE FOR SECURING THE FREE END OF THE GATE WHEN IT IS IN FULL OPEN POSITION.
2. BRACE POSTS ARE TO BE WELDED TO GATE POST AND LINE POSTS, TYP. BOTH SIDES OF GATE
3. ALL FENCING AND GATE MATERIALS SHALL BE GALVANIZED STEEL.
4. THE INFORMATION PRESENTED IN THIS DETAIL SHALL BE USED FOR THE CONTRACTOR'S BASE BID FOR THE SECURITY FENCE AND GATES. FOR THE ADDITIVE BID ITEM, RAZOR WIRE SHALL BE INSTALLED AT THE TOP OF THE FENCING IN ALL LOCATIONS IN ADDITION TO BARBED WIRE, MESH SHALL BE 3/8", POSTS SHALL BE 4"Ø, AND THE FENCE SHALL BE 8' TALL INSTEAD OF 7'.

3 SECURITY FENCE AND GATE DETAIL
SCALE: NTS



NOTES:

1. REFER TO THE SPECIFICATION SECTION 31 00 00 00 (EARTHWORK) FOR EXCAVATION AND BACKFILL REQUIREMENTS.
2. (E) ASPHALT CONCRETE (AC) MUST BE SAWCUT FULL DEPTH.
3. IF DISTANCE BETWEEN EDGE OF EXCAVATION TO EDGE OF PAVEMENT IS 4' OR LESS, THEN REPLACE ALL AC UP TO EDGE OF PAVEMENT.
4. THESE ARE MINIMUM REQUIREMENTS. IF OTHER JURISDICTIONAL (CITY, COUNTY, STATE) AGENCY REQUIREMENTS EXCEED THOSE SHOWN, THE HIGHER REQUIREMENTS SHALL BE MET.
5. AC SHALL BE TYPE B, 1/2" MAX. AND MEDIUM GRADING. TO ENSURE ADEQUATE BONDING, A TACK COAT (SS-1) SHALL BE APPLIED OVER EXISTING AC PAVEMENT AND A PRIME COAT (MC-250) SHALL BE APPLIED OVER COMPACTED AB (SS-1) MAY BE SUBSTITUTED FOR EXISTING STREETS). USE OF MC-250 SHALL COMPLY WITH EPA (ENVIRONMENTAL PROTECTION AGENCY) REGULATIONS.
6. SPRAY AC JOINT WITH SS-1.
7. PAVING THICKNESS SHALL BE 3" MIN.
8. ALL EXISTING PAVED AREAS THAT ARE DISTURBED SHALL BE RE-PAVED PER THIS DETAIL.

4 TYPICAL TRENCH SECTIONS IN IMPROVED AND UNIMPROVED AREAS
SCALE: NTS

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| Drafting Check | P. KASPARI | Design Check | P. KASPARI |
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|---------------|---------------------------------------|-----------|-------|
| Client | HUMBOLDT BAY MUNICIPAL WATER DISTRICT | | |
| Project | 12 kV SWITCHGEAR RELOCATION | | |
| Title | CIVIL DETAILS | | |
| Project No. | 11186675 | | |
| Original Size | ANSI D | Sheet No. | C-501 |

GENERAL STRUCTURAL NOTES

- GENERAL**
1. DESIGN CRITERIA:
- 2016 CALIFORNIA BUILDING CODE (2016 CBC)
 AMERICAN CONCRETE INSTITUTE (ACI)
 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI 318-14) AND COMMENTARY
 AMERICAN SOCIETY OF CIVIL ENGINEERS
 MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES (ASCE 7-10)
- SEISMIC LOADS:
- RISK CATEGORY: IV
 COMPONENT IMPORTANCE FACTOR: $I_p = 1.50$
 MAPPED SPECTRAL RESPONSE ACCELERATIONS: $S_s = 2.925\text{ g}$ $S_1 = 1.157\text{ g}$
 SITE CLASS: D
 SPECTRAL RESPONSE COEFFICIENTS: $S_{DS} = 1.95\text{ g}$ $S_{D1} = 1.157\text{ g}$
 SEISMIC DESIGN FORCE: $F_p = 0.88 W_p$
 SEISMIC DESIGN CATEGORY: F

2. UNLESS NOTED OTHERWISE, REFER TO DRAWINGS OTHER THAN STRUCTURAL FOR SLOPES, DEPRESSIONS, STAIRS, RAMPS, TRENCHES, EQUIPMENT AND LOCATIONS AND EXTENT OF SUCH CONDITIONS.
3. CONTRACTOR TO COORDINATE ALL NEW WORK WITH EXISTING SITE CONDITIONS AND REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO CONSTRUCTION.
4. DETAILS OR CONDITIONS NOT FULLY DEVELOPED ON STRUCTURAL DOCUMENTS ARE SIMILAR TO DEVELOPED DETAILS.
5. SEE CIVIL AND ELECTRICAL DRAWINGS FOR WATERPROOFING, DAMP-PROOFING, AND DRAINAGE REQUIREMENTS.
6. REFER TO FOUNDATIONS NOTES FOR ASSUMED SITE CONDITIONS, ALERT ENGINEER OF RECORD IF SUBBASE COMPACTION CANNOT BE ACHIEVED.
7. ALL BUILDING FOUNDATION PLANS TO BE COORDINATED WITH GENERAL NOTES AND TYPICAL DETAILS AS APPLICABLE.
8. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO FOLLOW ALL APPLICABLE SAFETY CODES AND REGULATIONS DURING ALL PHASES OF CONSTRUCTION.

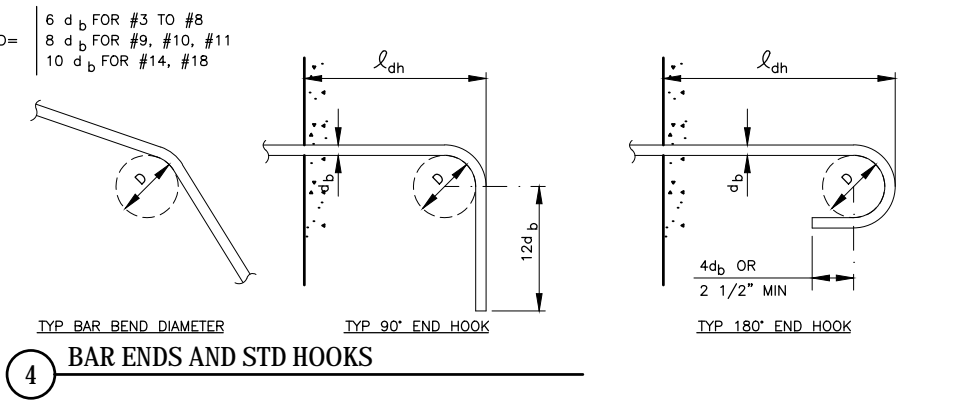
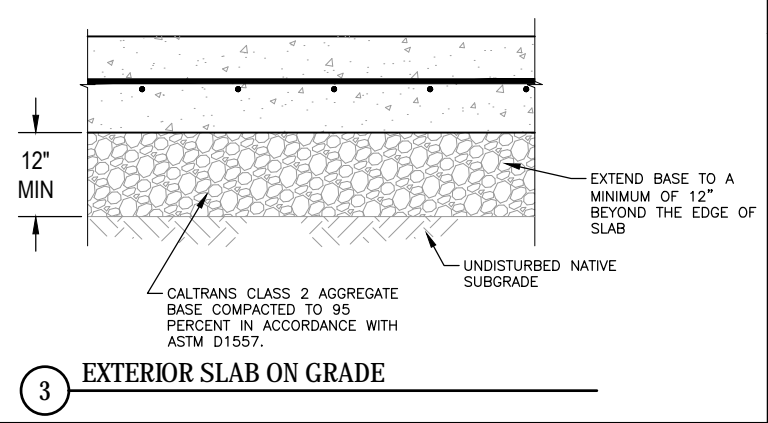
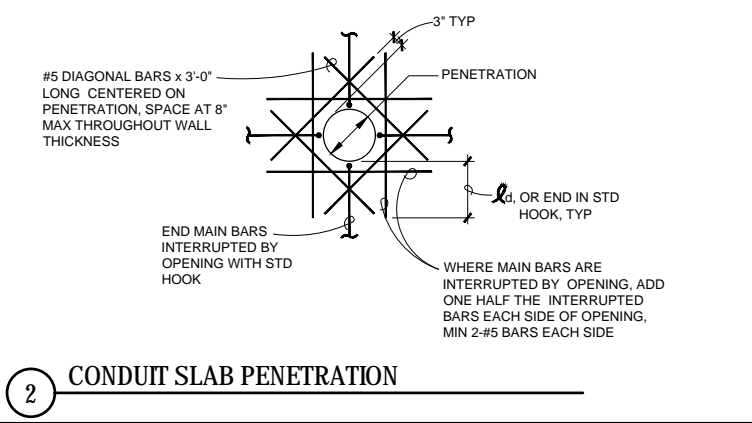
- CONCRETE**
1. ALL CONCRETE SHALL BE NORMAL WEIGHT, WITH A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS.
2. CONCRETE REINFORCING COVER SHALL BE AS FOLLOWS:
- CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: 3 INCHES
 CONCRETE EXPOSED TO EARTH OR WEATHER:
 NO. 6 OR LARGER BARS: 2 INCHES
 NO. 5 OR SMALLER BARS: 1.5 INCHES
 CONCRETE NOT EXPOSED TO EARTH OR IN CONTACT WITH GROUND:
 SLABS OR WALLS: 0.75 INCHES

3. ALL CONCRETE DIMENSIONS SHOWN ARE MINIMUM DIMENSIONS. CONTRACTOR TO REVIEW FORMING, REINFORCING DETAILS AND ANY EMBEDDED ITEMS AND DETERMINE PRIOR TO FABRICATION OF ANY REINFORCING, PLACEMENT REQUIREMENTS AND CLEARANCES.

- REINFORCING**
1. ALL CONCRETE REINFORCING SHALL BE ASTM A615, $F_y = 60\text{ KSI}$, UNLESS NOTED OTHERWISE.
2. REINFORCING SHALL EXTEND CONTINUOUS FOR THE DIMENSION SHOWN.
3. NO WELDING OF ANY REINFORCING IS PERMITTED, UNLESS SPECIFICALLY STATED ON THE PLANS. REINFORCEMENT TO BE WELDED TO MEET THE REQUIREMENTS OF ASTM A706.
4. LOCATE ALL REINFORCING AS SHOWN ON DRAWINGS AND FASTEN SECURELY.
5. ALL REINFORCING TO TERMINATE WITH STANDARD HOOKS AS SHOWN ON PLANS. ALL STIRRUPS AND TIES TO BE CLOSED WITH 135 DEGREE BENDS.

- FOUNDATIONS**
1. FOUNDATION DESIGN IS BASED GEOTECHNICAL INVESTIGATION BY GHD INC. FOR HUMBOLDT BAY MUNICIPAL WATER DISTRICT DATED AUGUST 2019.
- VERTICAL FOUNDATION PRESSURE: 3,000 PSF
 LATERAL RESISTANCE: COEFFICIENT OF FRICTION = 0.30
 LATERAL BEARING = 300 PSF/FT

- EQUIPMENT ANCHORAGE**
1. CONTRACTOR TO COORDINATE EQUIPMENT ANCHORAGE WITH LOCATIONS OF ALL REINFORCING STEEL IN SLAB.



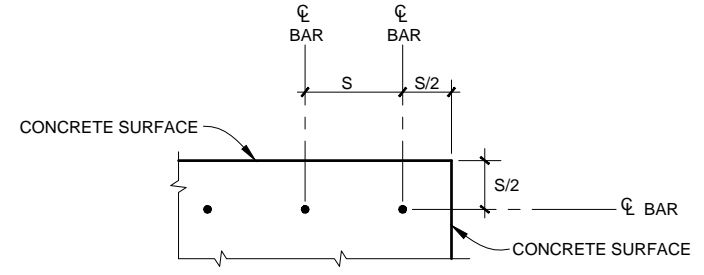
| BAR SIZE | NORMAL WEIGHT CONCRETE, f'_c PSI | | | |
|----------|------------------------------------|------|------|------|
| | 3000 | 4000 | 5000 | 6000 |
| #3 | 6 | 6 | 6 | 6 |
| #4 | 8 | 7 | 6 | 6 |
| #5 | 10 | 9 | 8 | 7 |
| #6 | 12 | 10 | 9 | 9 |
| #7 | 14 | 12 | 11 | 10 |
| #8 | 16 | 14 | 12 | 11 |
| #9 | 18 | 15 | 14 | 13 |
| #10 | 20 | 17 | 16 | 14 |
| #11 | 22 | 19 | 17 | 16 |
| #14 | 38 | 33 | 29 | 27 |
| #18 | 50 | 43 | 39 | 35 |

1) FACTORS HAVE BEEN REDUCED PER ACI 318-08 SECTION 12.5.3 (a). INCREASE MINIMUM TENSION EMBEDMENT LENGTHS BY 1.4 WHEN CONCRETE COVER IS LESS THAN $2d_b$.

| BAR SIZE | 3000 PSI CONC (f_c) | | | | | | | | | | | | 4000 PSI CONC (f_c) | | | | | | | | | | | | 5000 PSI CONC (f_c) | | | | | | | | | | | |
|----------|-------------------------|----------|-------------|----------|-------------|----------|-------------|----------|-------------|----------|-------------|----------|-------------------------|----------|-------------|----------|-------------|----------|--|--|-------|--|--|--|-------------------------|--|--|--|--|--|--|--|--|--|--|--|
| | TOP | | | | OTHER | | | | TOP | | | | OTHER | | | | TOP | | | | OTHER | | | | | | | | | | | | | | | |
| | $s \geq 6"$ | $s < 6"$ | $s \geq 6"$ | $s < 6"$ | $s \geq 6"$ | $s < 6"$ | $s \geq 6"$ | $s < 6"$ | $s \geq 6"$ | $s < 6"$ | $s \geq 6"$ | $s < 6"$ | $s \geq 6"$ | $s < 6"$ | $s \geq 6"$ | $s < 6"$ | $s \geq 6"$ | $s < 6"$ | | | | | | | | | | | | | | | | | | |
| #3 | 13 | 22 | 12 | 17 | 12 | 19 | 12 | 15 | 12 | 17 | 12 | 13 | 13 | 22 | 12 | 17 | 12 | 13 | | | | | | | | | | | | | | | | | | |
| #4 | 18 | 29 | 14 | 22 | 15 | 25 | 12 | 19 | 14 | 23 | 12 | 17 | 17 | 28 | 13 | 22 | 12 | 17 | | | | | | | | | | | | | | | | | | |
| #5 | 22 | 36 | 17 | 28 | 19 | 31 | 15 | 24 | 17 | 28 | 13 | 22 | 22 | 36 | 17 | 28 | 13 | 22 | | | | | | | | | | | | | | | | | | |
| #6 | 26 | 43 | 20 | 33 | 23 | 37 | 18 | 29 | 20 | 34 | 16 | 26 | 26 | 43 | 20 | 33 | 16 | 26 | | | | | | | | | | | | | | | | | | |
| #7 | 38 | 63 | 29 | 48 | 33 | 54 | 25 | 42 | 29 | 49 | 23 | 38 | 38 | 63 | 29 | 48 | 23 | 38 | | | | | | | | | | | | | | | | | | |
| #8 | 43 | 72 | 33 | 55 | 37 | 62 | 29 | 48 | 34 | 56 | 26 | 43 | 43 | 72 | 33 | 55 | 26 | 43 | | | | | | | | | | | | | | | | | | |
| #9 | 49 | 81 | 37 | 62 | 42 | 70 | 33 | 54 | 38 | 63 | 29 | 48 | 48 | 81 | 37 | 62 | 29 | 48 | | | | | | | | | | | | | | | | | | |
| #10 | 56 | 89 | 43 | 69 | 49 | 78 | 38 | 60 | 44 | 69 | 34 | 54 | 54 | 89 | 43 | 69 | 34 | 54 | | | | | | | | | | | | | | | | | | |
| #11 | 68 | 98 | 52 | 76 | 59 | 85 | 45 | 66 | 53 | 76 | 41 | 59 | 59 | 98 | 52 | 76 | 41 | 59 | | | | | | | | | | | | | | | | | | |

| BAR SIZE | 3000 PSI CONC (f_c) | | | | 4000 PSI CONC (f_c) | | | | 5000 PSI CONC (f_c) | | | |
|----------|-------------------------|----------|-------------|----------|-------------------------|----------|-------------|----------|-------------------------|----------|-------------|----------|
| | TOP | | OTHER | | TOP | | OTHER | | TOP | | OTHER | |
| | $s \geq 6"$ | $s < 6"$ | $s \geq 6"$ | $s < 6"$ | $s \geq 6"$ | $s < 6"$ | $s \geq 6"$ | $s < 6"$ | $s \geq 6"$ | $s < 6"$ | $s \geq 6"$ | $s < 6"$ |
| #3 | 17 | 28 | 16 | 22 | 16 | 25 | 16 | 19 | 16 | 22 | 16 | 17 |
| #4 | 23 | 38 | 18 | 29 | 20 | 33 | 16 | 25 | 18 | 29 | 16 | 23 |
| #5 | 28 | 47 | 22 | 36 | 25 | 41 | 19 | 31 | 22 | 36 | 17 | 28 |
| #6 | 34 | 56 | 26 | 43 | 29 | 49 | 23 | 38 | 26 | 44 | 20 | 34 |
| #7 | 49 | 82 | 38 | 63 | 43 | 71 | 33 | 55 | 38 | 63 | 30 | 49 |
| #8 | 56 | 93 | 43 | 72 | 49 | 81 | 38 | 62 | 44 | 72 | 34 | 56 |
| #9 | 63 | 105 | 49 | 81 | 55 | 91 | 42 | 70 | 49 | 81 | 38 | 63 |
| #10 | 73 | 116 | 56 | 90 | 63 | 101 | 49 | 78 | 57 | 90 | 44 | 70 |
| #11 | 88 | 128 | 68 | 99 | 76 | 111 | 59 | 85 | 68 | 99 | 53 | 76 |

- NOTES:**
- LENGTHS SHOWN ARE FOR GRADE 60 UNCOATED BARS.
 - LENGTHS SHOWN ARE IN INCHES.
 - INCREASE LENGTHS 30% FOR LIGHT WEIGHT CONCRETE
 - TOP BARS: HORIZONTAL BARS WITH MORE THAN 12" OF FRESH CONCRETE CAST BELOW THEM.
 - THE QUANTITY 's' IS LIMITED TO NO LESS THAN 3d_b AND IS DEFINED AS SHOWN IN GRAPHIC:



5 BAR DEVELOPMENT AND LAP SPLICE LENGTHS FOR CONCRETE

| | | | | |
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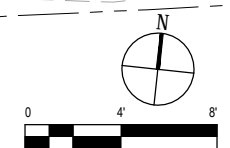
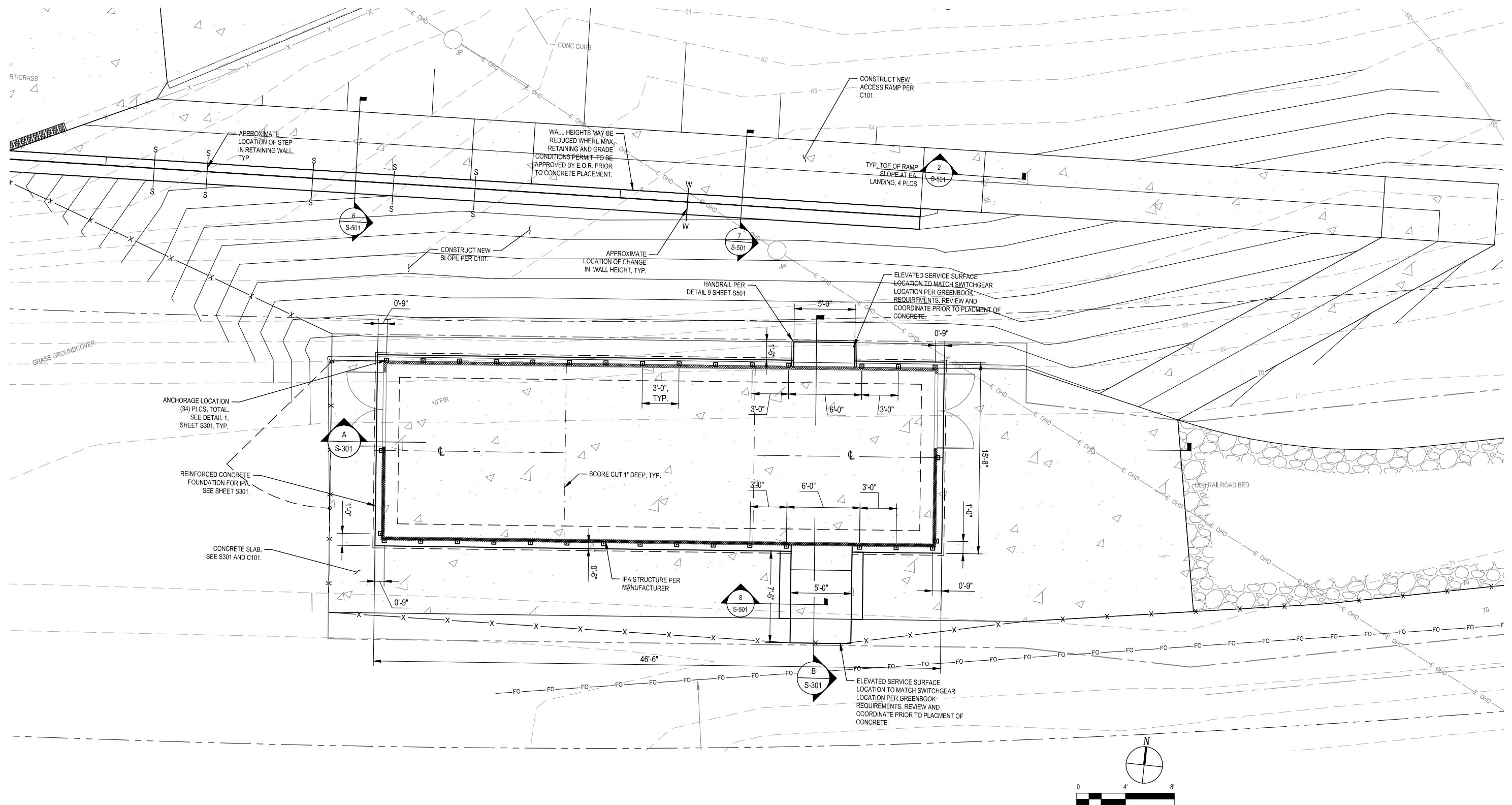
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| Project | 12 kV SWITCHGEAR RELOCATION | | |
| Title | STRUCTURAL NOTES | | |
| Project No. | 11186675 | | |
| Original Size | ANSI D | Sheet No. | S-001 |
| Scale | AS SHOWN | Sheet | 5 of 24 |

SHEET GENERAL NOTES

1. SEE SHEET S-001 FOR CONCRETE, REINFORCEMENT, AND ANCHOR NOTES AND TYPICAL DETAILS.
2. SEE SHEET C-101 FOR CONTROL POINTS FOR RAMP AND SLAB LAYOUT.
3. SEE CIVIL AND ELECTRICAL SHEETS FOR OTHER INFORMATION NOT SHOWN.



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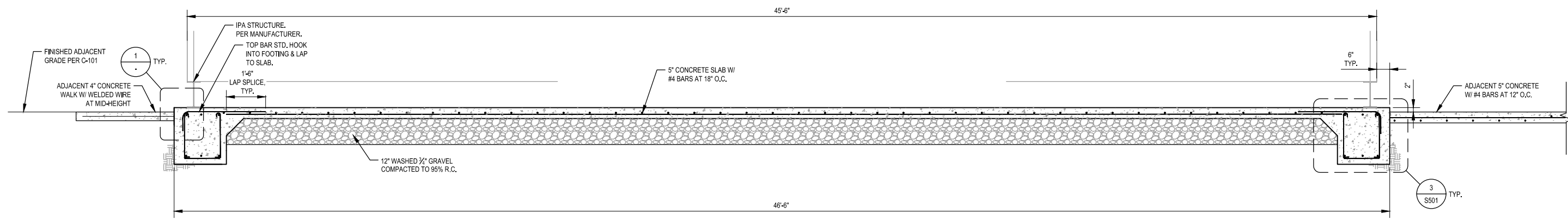
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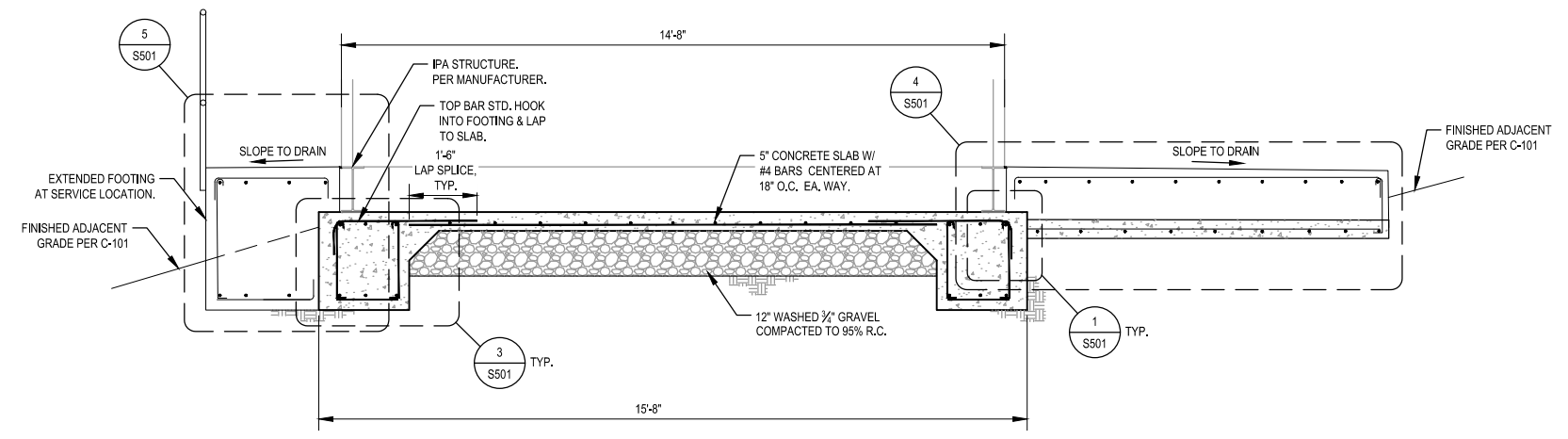
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| Title | STRUCTURAL FOUNDATION PLAN | | |
| Project No. | 11186675 | | |
| Original Size | ANSI D | Sheet No. | S-101 |
| | | Sheet | 6 of 24 |



A SLAB AND FOOTING SECTION
SCALE: 1/2" = 1'-0"



B SLAB AND FOOTING SECTION
SCALE: 1/2" = 1'-0"

| | | | | |
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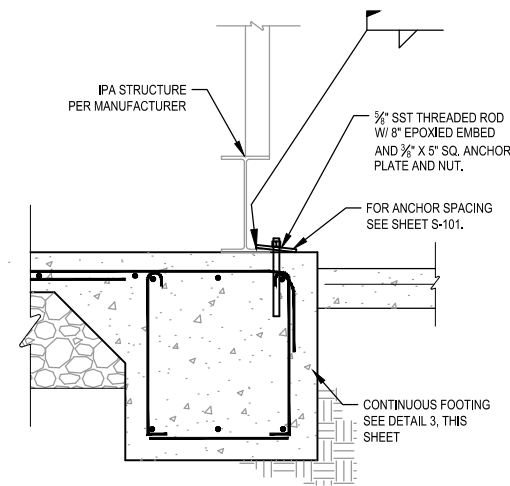
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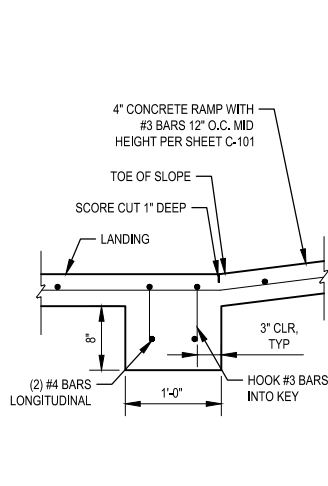
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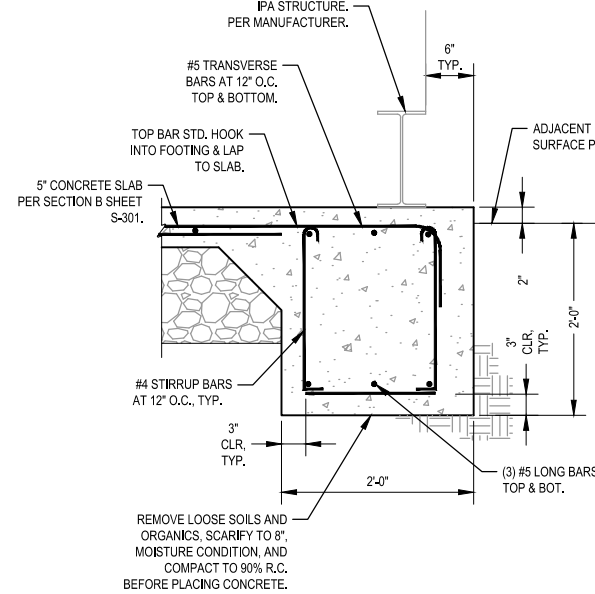
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| Project | 12 kV SWITCHGEAR RELOCATION | | |
| Title | STRUCTURAL SECTIONS AND DETAILS | | |
| Project No. | 11186675 | | |
| Original Size | ANSI D | Sheet No. | S-301 |
| | | Sheet | 7 of 24 |



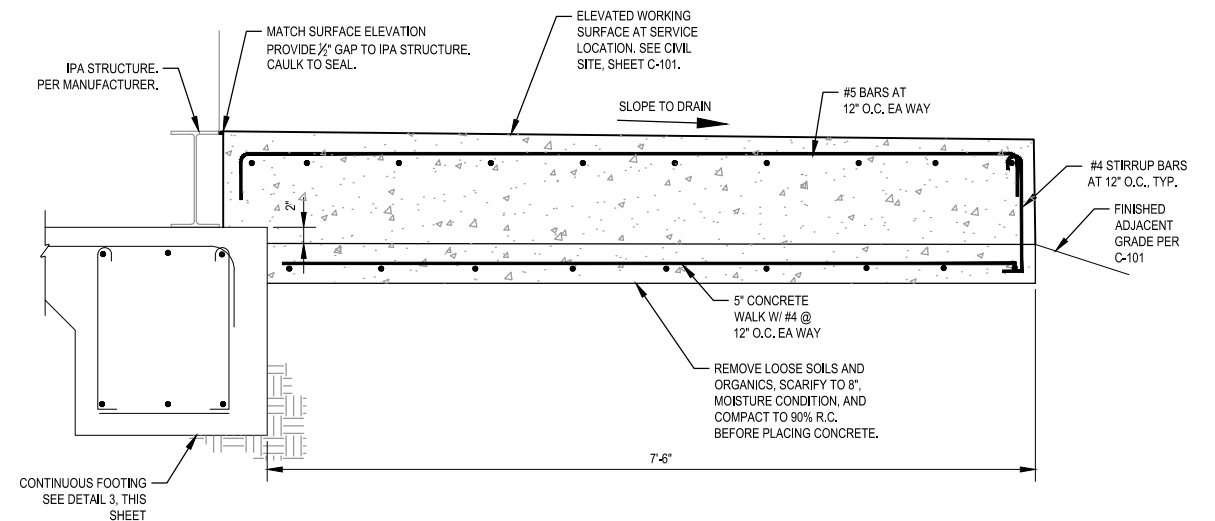
1 ANCHOR DETAIL
SCALE: 1" = 1'-0"



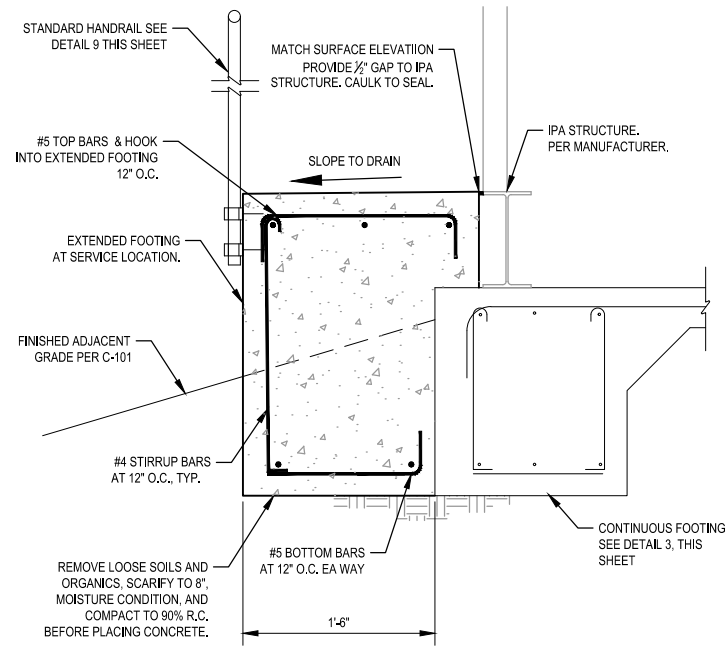
2 RAMP KEY DETAIL
SCALE: 1" = 1'-0"



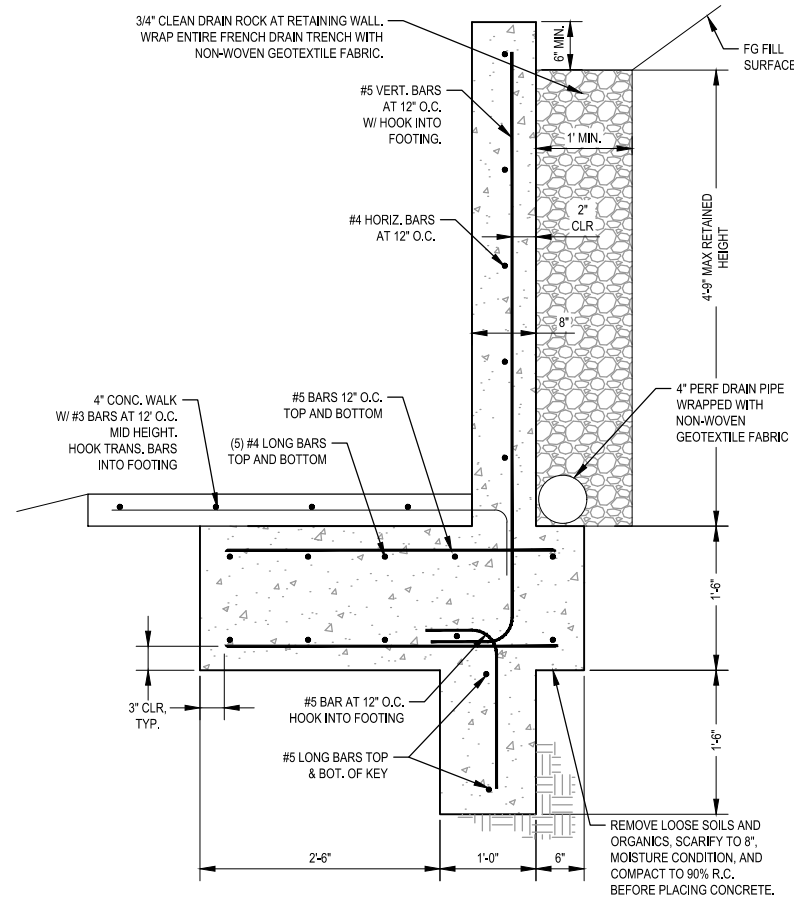
3 CONTINUOUS FOOTING
SCALE: 1" = 1'-0"



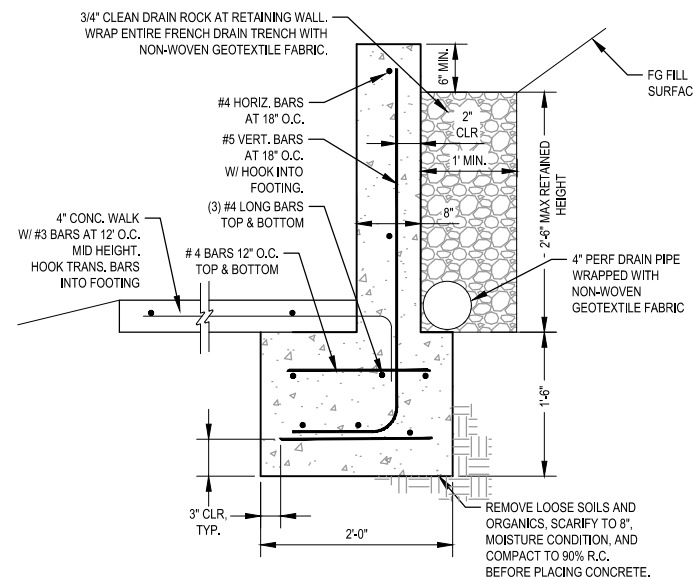
4 8'-0" WORKING SURFACE
SCALE: 1" = 1'-0"



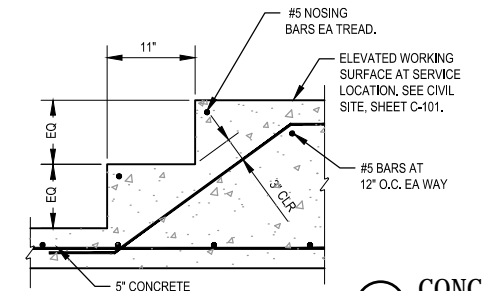
5 2' WORKING SURFACE
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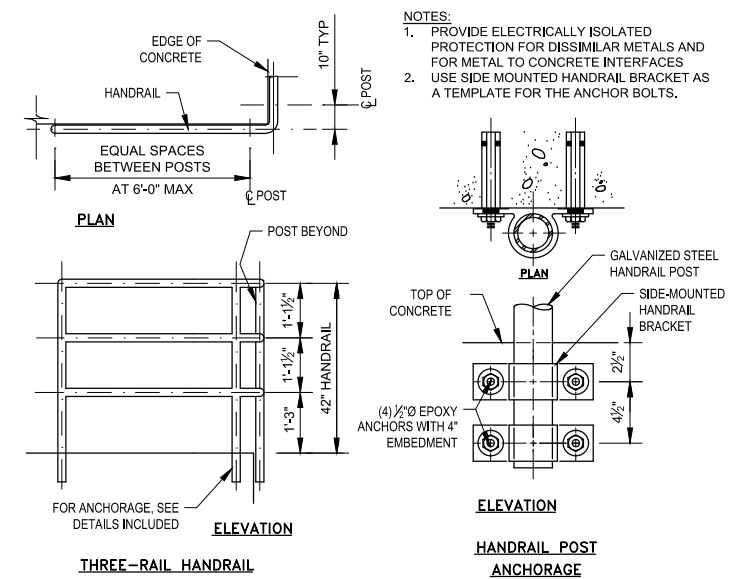
6 4'-9" RETAINING WALL AND FRENCH DRAIN
SCALE: 1" = 1'-0"



7 2'-6" RETAINING WALL AND FRENCH DRAIN
SCALE: 1" = 1'-0"



8 CONC. STEP
SCALE: 1" = 1'-0"



9 HANDRAIL
SCALE: NTS

- NOTES:
1. PROVIDE ELECTRICALLY ISOLATED PROTECTION FOR DISSIMILAR METALS AND FOR METAL TO CONCRETE INTERFACES.
 2. USE SIDE MOUNTED HANDRAIL BRACKET AS A TEMPLATE FOR THE ANCHOR BOLTS.

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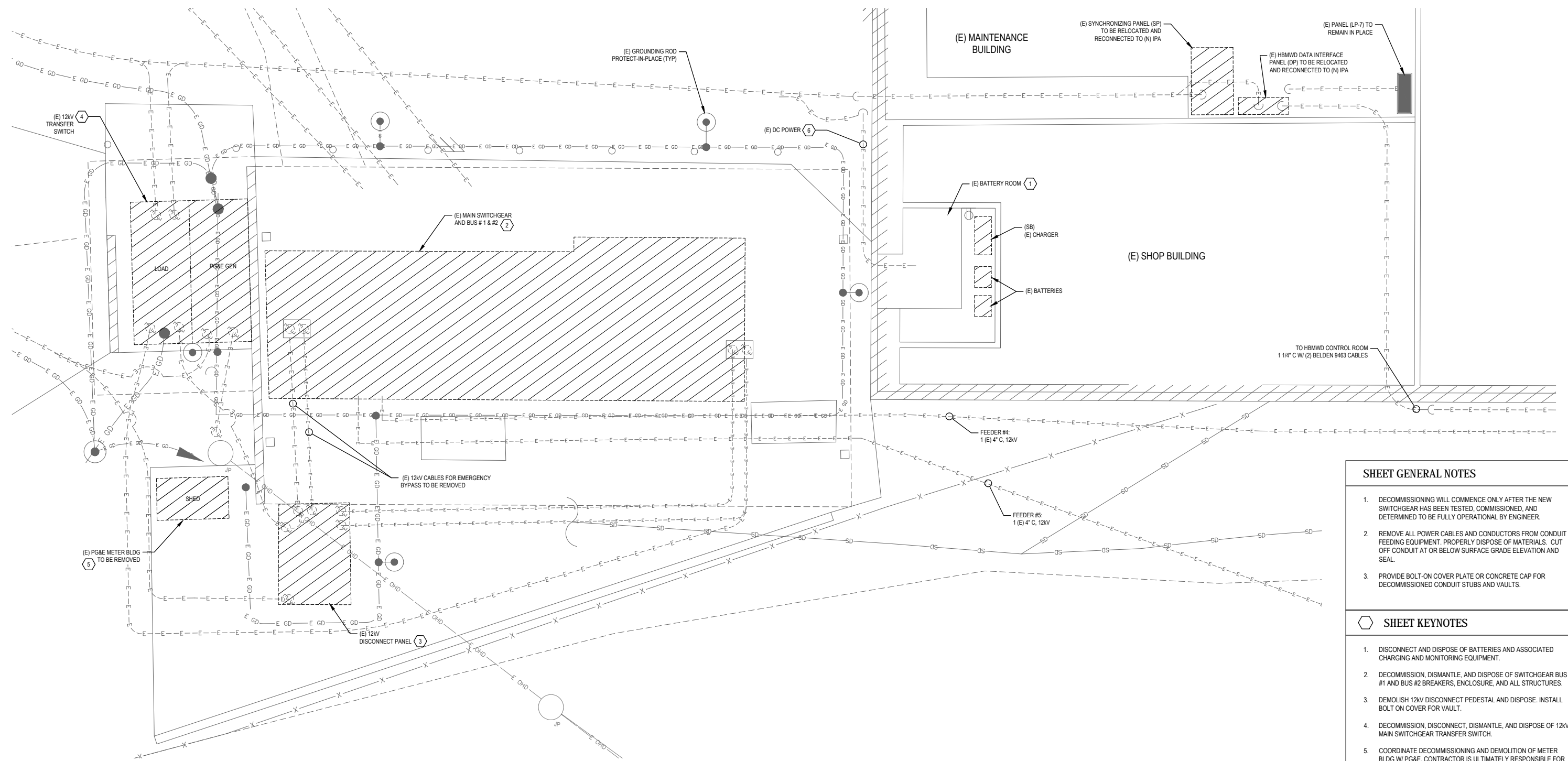
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| Project No. | 11186675 | | |
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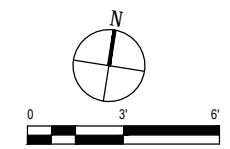
| ABBREVIATIONS: | | DIAGRAM | | ELECTRICAL SYMBOLS LEGEND | | POWER | | GENERAL ELECTRICAL NOTES | |
|--|--|---------|--|---------------------------|---|-------|--|--|--|
| (D) DEMOLISH (E) EXISTING (F) FUTURE (N) NEW | | | ALARM, INDICATING LIGHT, SIGNAL LIGHT OR STROBE | | MAIN SWITCHBOARD | | DUPLEX RECEPTACLE, 20A 125V 2P 3W, GROUNDING TYPE, MOUNTING HEIGHT: +18" AFF UON ↑ DENOTES HEIGHT IN INCHES AFF (INTERIOR) AFG (EXTERIOR) | 1. AL WORK SHALL CONFORM TO THE LATEST ADOPTED VERSION OF THE CALIFORNIA ELECTRICAL CODE (CEC). | |
| A AMPERES AF ALTERNATING CURRENT AF AMP FRAME AFF ABOVE FINISHED FLOOR AFG ABOVE FINISHED GRADE AHU AIR HANDLING UNIT AIC AMPS INTERRUPTING CAPACITY ANN ANNUNCIATOR AWG AMERICAN WIRE GAUGE | | | CIRCUIT BREAKER - SIZE AND TYPE AS INDICATED | | DISTRIBUTION PANEL BOARD | | POWER POLE: P=POWER, T=TELEPHONE, D=DATA, C=COMBINATION | 2. THE CONTRACTOR IS RESPONSIBLE TO MAINTAIN ALL EQUIPMENT IN A SAFE AND RESPONSIBLE MANNER. KEEP DEAD FRONT EQUIPMENT IN PLACE WHILE EQUIPMENT IS ENERGIZED. CONDUCT ALL CONSTRUCTION OPERATIONS IN A SAFE MANNER FOR EMPLOYEES AS WELL AS OTHER WORK PERSONS OR ANYONE VISITING THE JOB SITE. PROVIDE BARRIERS, FLAGS, TAPE, ETC. AS REQUIRED TO MAINTAIN SAFETY. | |
| BAT BATTERY BFG BELOW FINISH GRADE | | | CIRCUIT BREAKER IN NEMA ENCLOSURE SIZE AND TYPE AS INDICATED | | COMBINATION METER/MAIN SERVICE PANEL | | TEST PORT | 3. PRIOR TO COMMENCING WORK ON EXISTING SYSTEMS OR WHERE EXISTING SYSTEMS REQUIRE TEMPORARY SHUT DOWNS, COORDINATE WITH OWNERS REPRESENTATIVE. WHERE DISCONNECTING, MODIFYING OR WORKING ON EXISTING EQUIPMENT OR SYSTEMS, PROVIDE A WRITTEN METHOD OF PROCEDURE OUTLINING DATES, TIMES, DURATION AND DESCRIPTION OF PROPOSED WORK FOR APPROVAL PRIOR TO COMMENCING WORK. WORK ON EXISTING EQUIPMENT SHALL NOT COMMENCE UNTIL WRITTEN AUTHORIZATION IS GIVEN BY THE OWNERS REPRESENTATIVE. | |
| CATV CABLE TELEVISION C CONDUIT CB CIRCUIT BREAKER CCTV CLOSED CIRCUIT TELEVISION CO CONDUIT ONLY CP CONTROL PANEL CPT CONTROL POWER TRANSFORMER CT CURRENT TRANSFORMER CU COPPER | | | THERMAL OVERLOAD RELAY | | BRANCH CIRCUIT PANEL BOARD, SURFACE OR FLUSH MOUNTED | | GROUND ROD | 4. ALL EQUIPMENT SHALL BE LISTED AND LABELED PER RECOGNIZED ELECTRICAL TESTING LABORATORY AND INSTALLED PER THE LISTING REQUIREMENTS AND THE MANUFACTURERS INSTRUCTIONS. | |
| DC DIRECT CURRENT | | | COMBINATION MOTOR CONTROLLER, STARTER, CIRCUIT BREAKER TYPE | | LIGHTING CONTROL PANEL | | GUY WIRE AND ANCHOR | 5. ALL EQUIPMENT SHALL BE GROUNDED PER THE REQUIREMENTS OF CEC ARTICLES 250. EQUIPMENT GROUNDING CONDUCTORS SHALL BE INSTALLED IN ALL POWER SYSTEM RACEWAYS. | |
| EF EXHAUST FAN EMT ELECTRICAL METALLIC TUBING ENT ELECTRICAL NON-METALLIC TUBING EP EXPLOSION PROOF | | | SHUNT TRIP | | SIGNAL TERMINAL CABINET OR CONTROL PANEL SURFACE OR FLUSH MOUNTED | | THERMOSTAT, COORDINATE MOUNTING HEIGHT | 6. APPROVED CONDUIT FOR THIS PROJECT SHALL BE AS FOLLOWS: (A) PVC SCHEDULE 40 - UNDERGROUND AND BELOW / IN SLAB. (B) PVC COATED RIGID GALVANIZED STEEL (RGS) - UNDERGROUND ELBOW / RISER TO ABOVE GRADE AND WHERE CONDUIT IS EXPOSED. (C) ELBOW TRANSITION FROM UNDERGROUND - RIGID GALVANIZED STEEL (RGS). (D) MINIMUM CONDUIT SIZE: 3/4" | |
| FU FUSE | | | DRAW-OUT TYPE CONNECTION | | SIGNAL TERMINAL BACKBOARD | | | 7. PULLROPES: ALL RACEWAYS WITHOUT CONDUCTORS SHALL BE INSTALLED WITH MINIMUM 200 POUND TEST PULL LINE. | |
| GND GROUND GFCI GROUND FAULT CIRCUIT INTERRUPTER GFI GROUND FAULT INTERRUPTER GFR GROUND FAULT RELAY | | | DISCONNECT SWITCH WITH FUSE | | CONCRETE UNDERGROUND HAND HOLE (NUMBER DENOTES CHRISTY SIZE) | | | 8. USE HUMBOLDT BAY MUNICIPAL WATER DISTRICT APPROVED LOCK-OUT TAG-OUT (LOTO) PROCEDURES. | |
| HID HIGH INTENSITY DISCHARGE HOA "HAND-OFF-AUTO" SWITCH HP HORSEPOWER HPS HIGH PRESSURE SODIUM HVAC HEATING, VENTILATION & AIR-CONDITIONING | | | FUSE - SIZE AS INDICATED | | TRANSFORMER | | | | |
| IG ISOLATED GROUND | | | INTERLOCK, ELECTRICAL | | TRANSFORMER, PAD MOUNT | | | | |
| JB JUNCTION BOX | | | METER, ELECTRICAL | | TRANSFORMER, DRY TYPE | | | | |
| KAIC KILO-AMPS INTERRUPTING CAPACITY KV KILOVOLT KVA KILOVOLT-AMP KVAR KILOVOLT-AMP REACTIVE KW KILOWATT KWH KILOWATT-HOUR | | | MOTOR - SIZE AS INDICATED | | POTENTIAL TRANSFORMER WITH FUSE | | | | |
| LPS LOW PRESSURE SODIUM LV LOW VOLTAGE | | | TRANSFER SWITCH, ATS: AUTOMATIC, MTS: MANUAL | | CURRENT TRANSFORMER | | | | |
| MCB MAIN CIRCUIT BREAKER MCC MOTOR CONTROL CENTER MCP MOTOR CIRCUIT PROTECTOR MFR MANUFACTURER MH METAL HALIDE MLO MAIN LUGS ONLY MV MEDIUM VOLTAGE | | | GENERATOR UNIT - RATED AS INDICATED | | SURGE/LIGHTNING ARRESTOR | | | | |
| NF NON FUSED NIC NOT IN CONTRACT NTS NOT TO SCALE NC NORMALLY CLOSED NO NORMALLY OPEN | | | TRANSFORMER, PAD MOUNT | | GROUNDING ELECTRODE OR CONNECTION | | | | |
| OC ON CENTER OH OVERHEAD | | | TRANSFORMER, DRY TYPE | | 15 kV STRESS CONE | | | | |
| PA PUBLIC ADDRESS PT POTENTIAL TRANSFORMER PVC POLYVINYL CHLORIDE PB PULL BOX, ELECTRICAL | | | POTENTIAL TRANSFORMER WITH FUSE | | POWER TRANSFORMER | | | | |
| RECPT RECEPTACLE, OUTLET RGS RIGID GALVANIZED STEEL (CONDUIT) RVSS REDUCED VOLTAGE SOFT START RTU REMOTE TERMINAL UNIT | | | POTENTIAL TRANSFORMER | | STAR CONNECTION | | | | |
| SWGR SWITCHGEAR | | | CAPACITOR | | CONTACTOR NORMALLY OPEN | | | | |
| TVSS TRANSIENT VOLTAGE SURGE SUPPRESSOR | | | CONTACTOR NORMALLY OPEN | | AMMETER SWITCH | | | | |
| UG UNDERGROUND UON UNLESS OTHERWISE NOTED UPS UNINTERRUPTIBLE POWER SUPPLY | | | AMMETER | | VOLTMETER SWITCH | | | | |
| V VOLT VA VOLT-AMP VFD VARIABLE FREQUENCY DRIVE | | | VOLTMETER | | RESISTOR | | | | |
| WP WEATHERPROOF WPI WEATHERPROOF IN USE | | | DELTA CONNECTION | | DELTA CONNECTION | | | | |
| XFMR TRANSFORMER | | | STAR CONNECTION | | STAR CONNECTION | | | | |
| | | | 30 FUSED PF CAPACITOR W/ RESISTOR DISCHARGE | | PROTECTIVE RELAYS A-B-C PHASE | | | | |
| | | | CONTACTOR NORMALLY CLOSED | | KILOWATT METER | | | | |
| | | | FUSED SWITCH | | KILOWATT HOUR METER | | | | |
| | | | GROUND DETECTOR | | KILOVAR METER | | | | |
| | | | POWER MONITOR | | GROUND DETECTOR | | | | |
| | | | POWER MONITOR | | POWER MONITOR | | | | |

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| 1 ISSUE FOR BID S.D. P.K. 11/5/2019 | | | | | | Project Manager P. KASPARI Date 11/5/2019 | | Scale NONE | | Original Size ANSID Sheet No. E-001 | |
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- SHEET GENERAL NOTES**
1. DECOMMISSIONING WILL COMMENCE ONLY AFTER THE NEW SWITCHGEAR HAS BEEN TESTED, COMMISSIONED, AND DETERMINED TO BE FULLY OPERATIONAL BY ENGINEER.
 2. REMOVE ALL POWER CABLES AND CONDUCTORS FROM CONDUIT FEEDING EQUIPMENT. PROPERLY DISPOSE OF MATERIALS. CUT OFF CONDUIT AT OR BELOW SURFACE GRADE ELEVATION AND SEAL.
 3. PROVIDE BOLT-ON COVER PLATE OR CONCRETE CAP FOR DECOMMISSIONED CONDUIT STUBS AND VAULTS.

- SHEET KEYNOTES**
1. DISCONNECT AND DISPOSE OF BATTERIES AND ASSOCIATED CHARGING AND MONITORING EQUIPMENT.
 2. DECOMMISSION, DISMANTLE, AND DISPOSE OF SWITCHGEAR BUS #1 AND BUS #2 BREAKERS, ENCLOSURE, AND ALL STRUCTURES.
 3. DEMOLISH 12KV DISCONNECT PEDESTAL AND DISPOSE. INSTALL BOLT ON COVER FOR VAULT.
 4. DECOMMISSION, DISCONNECT, DISMANTLE, AND DISPOSE OF 12KV MAIN SWITCHGEAR TRANSFER SWITCH.
 5. COORDINATE DECOMMISSIONING AND DEMOLITION OF METER BLDG W/ PG&E. CONTRACTOR IS ULTIMATELY RESPONSIBLE FOR REMOVAL.
 6. DISCONNECT DC POWER.



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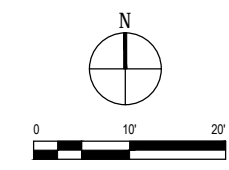
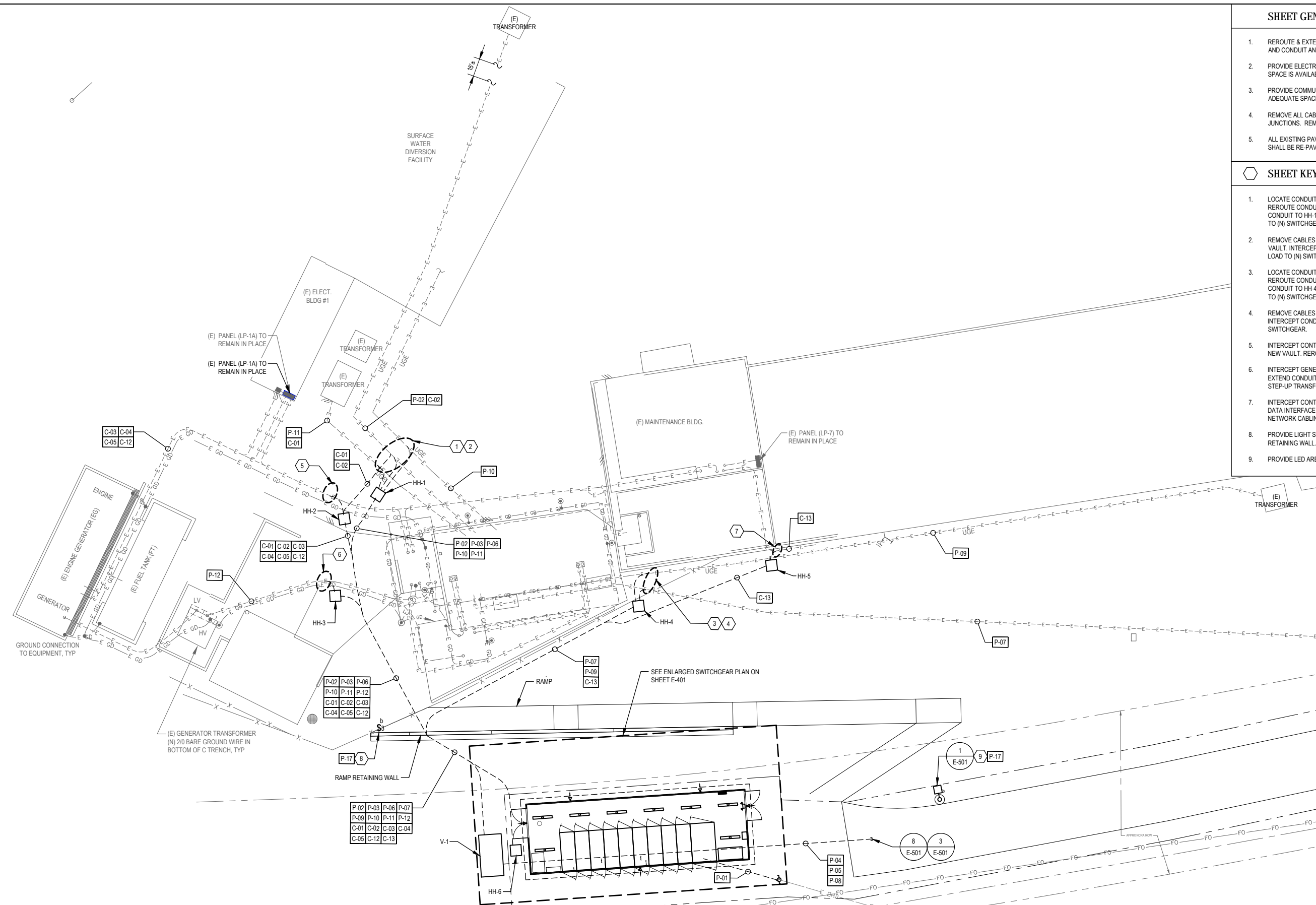
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| Project | 12 kV SWITCHGEAR RELOCATION | | |
| Title | ELECTRICAL SITE PLAN - DEMOLITION | | |
| Project No. | 11186675 | | |
| Original Size | ANSI D | Sheet No. | E-101 |
| | | Sheet | 10 of 24 |

SHEET GENERAL NOTES

1. REROUTE & EXTEND CONDUITS IN NEW TRENCH (SEE TRENCH DETAILS ON SHEET E-501 AND CONDUIT AND CABLE SCHEDULE ON SHEET E-604).
2. PROVIDE ELECTRICAL VAULTS 102" X 54" X 72" DEEP. VERIFY IN FIELD THAT ADEQUATE SPACE IS AVAILABLE FOR INSTALLATION.
3. PROVIDE COMMUNICATION VAULTS 48" X 30" X 36" DEEP. VERIFY IN FIELD THAT ADEQUATE SPACE IS AVAILABLE FOR INSTALLATION.
4. REMOVE ALL CABLES ABANDONED BY THIS PROJECT. REMOVE ABANDONED 15KV JUNCTIONS. REMOVE ABOVE-GROUND POWERGLAS ENCLOSURE.
5. ALL EXISTING PAVED AREAS THAT ARE REMOVED OR DAMAGED DURING CONSTRUCTION SHALL BE RE-PAVED TO MATCH EXISTING CONDITIONS PER DETAIL 4, SHEET C-501.

SHEET KEYNOTES

1. LOCATE CONDUIT FOR (E) FEEDER #1. PULL (E) CABLES BACK FROM (E) SWITCHGEAR, REROUTE CONDUIT TO NEW VAULT HH-1, AND EXTEND (E) CABLES THROUGH NEW CONDUIT TO HH-1. CUT (E) CABLES TO WORKABLE LENGTH, AND SPLICE TO NEW CABLES TO (N) SWITCHGEAR.
2. REMOVE CABLES FOR FEEDERS #3 & #7 FROM LOAD TO (E) SWITCHGEAR. INSTALL NEW VAULT. INTERCEPT CONDUITS AND REROUTE TO VAULT. PROVIDE CABLES FROM (E) LOAD TO (N) SWITCHGEAR.
3. LOCATE CONDUIT FOR (E) FEEDER #5. PULL (E) CABLES BACK FROM (E) SWITCHGEAR, REROUTE CONDUIT TO NEW VAULT HH-4, AND EXTEND (E) CABLES THROUGH NEW CONDUIT TO HH-4. CUT (E) CABLES TO WORKABLE LENGTH, AND SPLICE TO NEW CABLES TO (N) SWITCHGEAR.
4. REMOVE CABLES FOR FEEDER #4 FROM LOAD TO (E) SWITCHGEAR. INSTALL NEW VAULT. INTERCEPT CONDUIT AND REROUTE TO VAULT. PROVIDE CABLES FROM (E) LOAD TO (N) SWITCHGEAR.
5. INTERCEPT CONTROL TO GENERATOR CONDUITS. SEE CONDUIT SCHEDULE. INSTALL NEW VAULT. REROUTE & EXTEND TO (N) SWITCHGEAR.
6. INTERCEPT GENERATOR FEEDERS TO (E) SWITCHGEAR. INSTALL VAULT, REROUTE & EXTEND CONDUITS TO (N) SWITCHGEAR. PROVIDE NEW CABLES FROM GENERATOR STEP-UP TRANSFORMER TO (N) SWITCHGEAR.
7. INTERCEPT CONTROL CONDUIT, INSTALL BOX AND EXTEND TO RELOCATED HUMGEN DATA INTERFACE PANEL IN SWITCHGEAR ENCLOSURE. SEE NETWORK DIAGRAM FOR NETWORK CABLING.
8. PROVIDE LIGHT SWITCH, 3-WAY, MOUNTING HEIGHT, +44" AFG. MOUNT ON RAMP RETAINING WALL.
9. PROVIDE LED AREA LIGHT, CREE XSPMD SERIES, MOUNTING HEIGHT 10-FT AFG.



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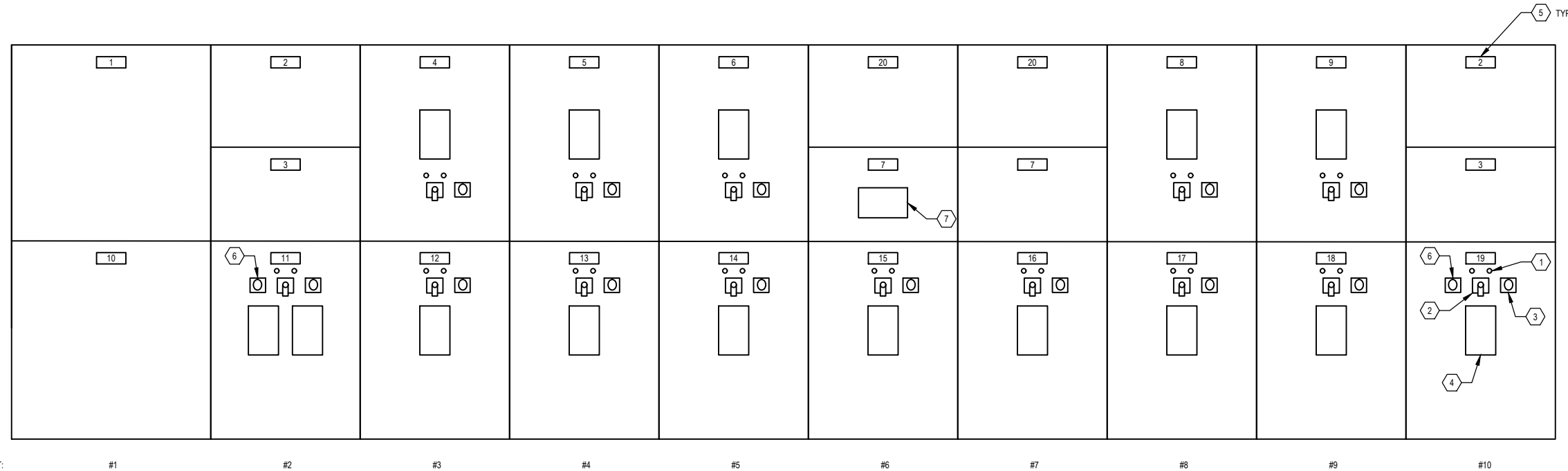
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| Project | 12 kV SWITCHGEAR RELOCATION | | |
| Title | ELECTRICAL SITE PLAN | | |
| Project No. | 11186675 | | |
| Original Size | ANSI D | Sheet No. | E-102 |
| | | Sheet | 11 of 24 |

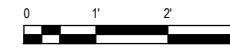
SHEET KEYNOTES

1. OPEN/CLOSE INDICATING LIGHTS (TYP).
2. OPEN/CLOSE CONTROL SWITCH (TYP).
3. LOCKOUT ("86") RELAY (TYP).
4. MULTIFUNCTION PROTECTION RELAY (TYP).
5. ENGRAVED NAMEPLATE. SEE NAMEPLATE SCHEDULE.
6. AUTO-MANUAL CONTROL SWITCH.
7. PANEL VIEW GRAPHIC TERMINAL.



COMPARTMENT: #1 #2 #3 #4 #5 #6 #7 #8 #9 #10

1 SWITCHGEAR PANEL ELEVATION - FRONT VIEW
SCALE: 3/4" = 1'-0"



| NAMEPLATE SCHEDULE | |
|--------------------|---------------------------------------|
| TAG | FIRST LINE |
| 1 | PG&E UTILITY METERING |
| 2 | CONTROL POWER TRANSFORMER |
| 3 | LINE POTENTIAL TRANSFORMER |
| 4 | INDUSTRIAL WATER PUMPS 6.4, 6.5, 6.6 |
| 5 | FUTURE COLLECTOR #2 UNDERGROUND |
| 6 | FUTURE CHLORINE BUILDING UNDERGROUND |
| 7 | INSTRUMENT COMPARTMENT |
| 8 | SPARE: BUS #1 |
| 9 | COLLECTOR #1 |
| 10 | UTILITY METERING TRANSFORMER |
| 11 | 52-U UTILITY MAIN BREAKER |
| 12 | SPARE: BUS #2 |
| 13 | FUTURE COLLECTOR #3, 4, 5 UNDERGROUND |
| 14 | COLLECTOR #2, 3, 4 |
| 15 | TIE BREAKER: BUS #2 |
| 16 | TIE BREAKER: BUS #1 |
| 17 | ESSEX MAINTENANCE |
| 18 | INDUSTRIAL WATER PUMPS 6.1, 6.2, 6.3 |
| 19 | 52-G GENERATOR MAIN BREAKER |
| 20 | BUS POTENTIAL TRANSFORMER |

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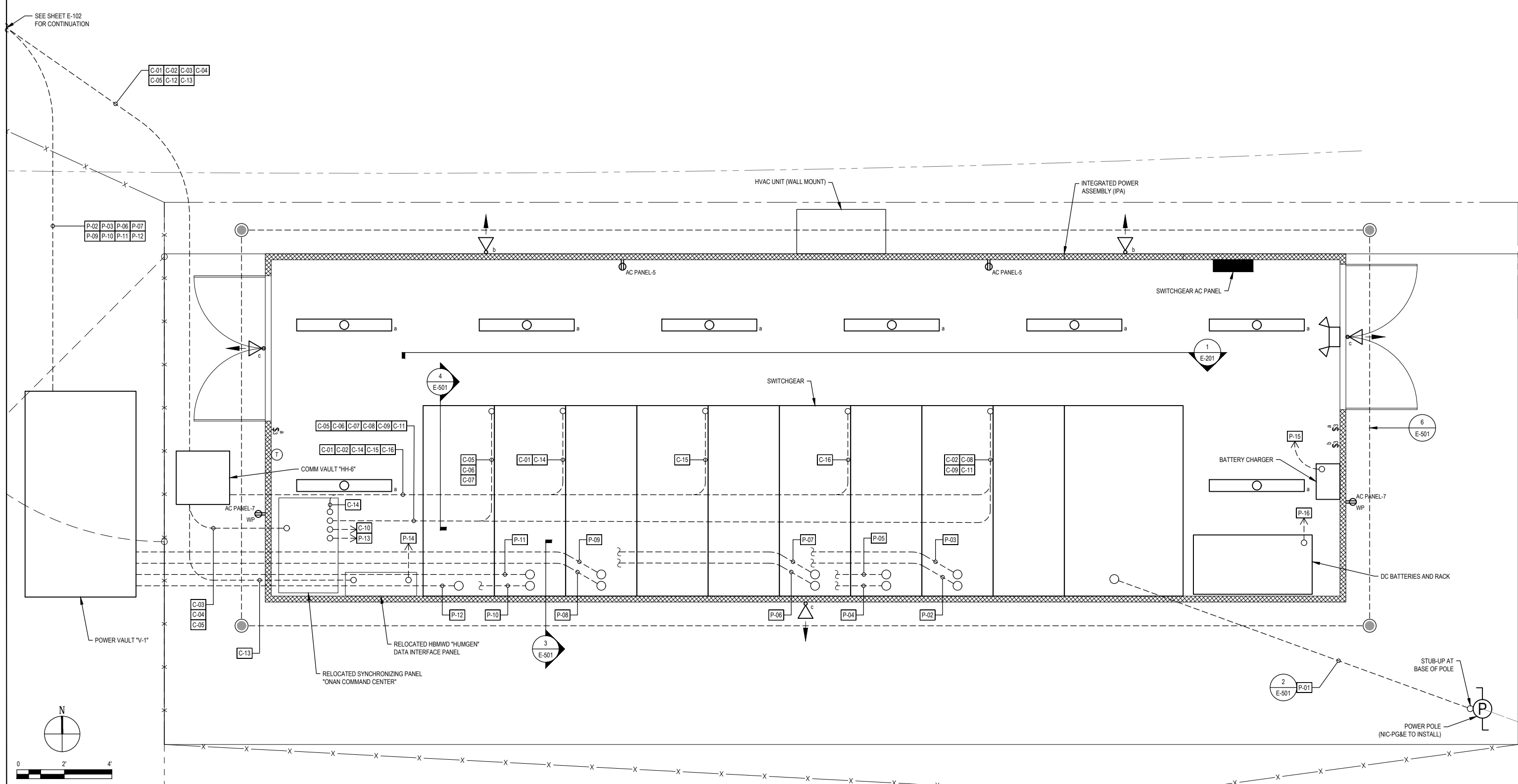
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| Title | SWITCHGEAR PANEL ELEVATION - FRONT VIEW | | |
| Project No. | 11186675 | | |
| Original Size | ANSI D | Sheet No. | E-201 |
| | | Sheet | 12 of 24 |

SHEET GENERAL NOTES

1. SEE CUMMINS REFERENCE DRAWINGS FOR CONNECTIONS BETWEEN SWITCHGEAR, ONAN COMMAND CENTER, AND (E) GENERATOR ON SHEETS E-701 THRU E-706.
2. SWITCHGEAR INSTALLATION SHALL MEET THE REQUIREMENTS PER PG&E GREENBOOK.



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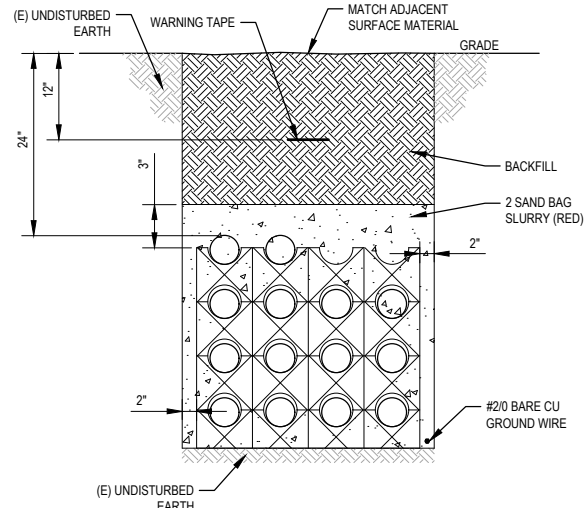
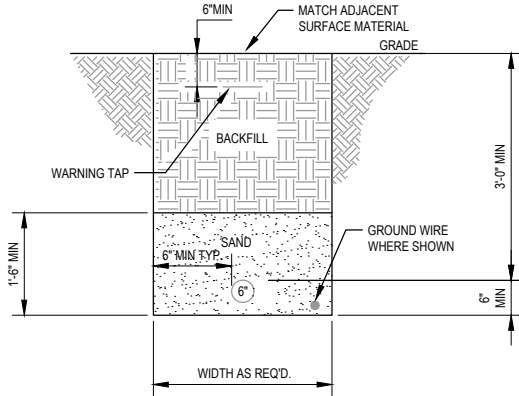
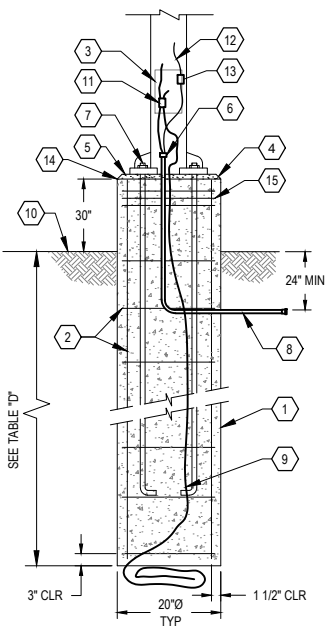
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| Project | 12 kV SWITCHGEAR RELOCATION | | |
| Title | ENLARGED SWITCHGEAR PLAN | | |
| Project No. | 11186675 | | |
| Original Size | ANSI D | Sheet No. | E-401 |
| | | Sheet | 13 of 24 |

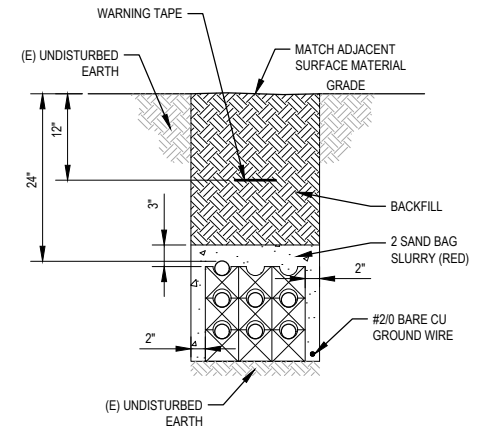
| TABLE "D" | |
|---------------|----------------------------|
| POLE HEIGHT | POLE BASE DEPTH (MIN) |
| 0 FT - 10 FT | 48-INCH |
| 10 FT - 25 FT | 60-INCH |
| 25 FT - 35 FT | 60-INCH |
| 35 FT + | REQUIRES STRUCTURAL DESIGN |

NOTES:

- 1 POURED IN PLACE ROUND CONCRETE SUPPORT BASE.
- 2 4- NO. 6 VERTICAL BARS WITH NO. 3 TIES @ 8-INCH O.C. SEE NOTE 18.
- 3 ACCESS HAND-HOLE.
- 4 3/4-INCH - 45° CHAMFER ALL AROUND.
- 5 GROUT IN ALL AROUND BETWEEN BOTTOM OF POLE BASE FOLLOWING POLE ERECTION AND FINAL LEVELING.
- 6 STUB CONDUIT UP INTO POLE BASE WIRING CAVITY. (IF RGS TERMINATE WITH GROUNDING BUSHING.)
- 7 PROVIDE SUPPORT AND LEVELING NUTS ON TOP AND BOTTOM OF POLE BASE MOUNTING PLATE. MOUNTING PLATE AND MOUNTING BOLTS SHALL BE PER MANUFACTURERS BOLT PATTERN. LENGTH SHALL BE PER MANUFACTURERS SPECIFICATIONS.
- 8 TYPICAL PVC CONDUIT, 3/4-INCH MIN, WITH CONDUCTORS AS INDICATED ON DRAWINGS.
- 9 (1) #4 AWG BARE COPPER GROUND. COIL 30-INCH AT BOTTOM OF FOUNDATION.
- 10 TOP OF FINISHED GRADE.
- 11 BOLTED TYPE WIRE GROUND CONNECTOR.
- 12 WIRING TO LIGHT FIXTURE. CONNECT COMPLETE.
- 13 WATERPROOF IN-LINE FUSES.
- 14 TOP OF POLE BASE SHOWN AT 30-INCHES. ADJUST HEIGHT OF CONCRETE BASE TO MATCH EXISTING. MAINTAIN MINIMUM EMBEDMENT DEPTH.
- 15 LATERAL REINFORCEMENT SHALL BE DISTRIBUTED WITHIN 5-INCHES OF THE TOP OF THE COLUMN AND SHALL CONSIST OF 2-NO. 4 OR 3-NO. 3 BARS. (PER ACI318 - 7.10.5.6)



NOTE:
DUCT SPACING & DIMENSIONS
BASED ON DIMENSIONS FOR
CARLON CONDUIT & SPACERS.



NOTE:
DUCT SPACING & DIMENSIONS
BASED ON DIMENSIONS FOR
CARLON CONDUIT & SPACERS.

1 RAISED LIGHT POLE FOUNDATION

NOT TO SCALE

2 PG&E TRENCH SECTION

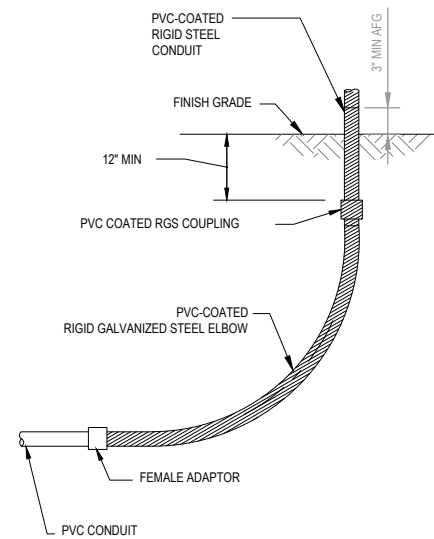
NOT TO SCALE

3 TYPICAL POWER TRENCH SECTION

NOT TO SCALE

4 TYPICAL COMM SECTION

NOT TO SCALE

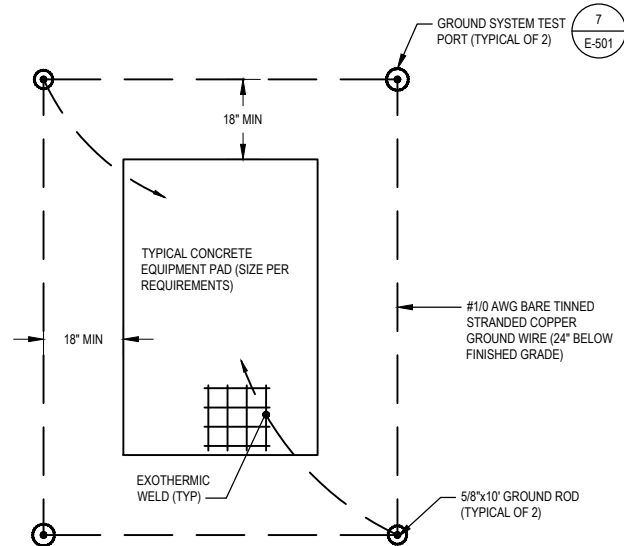


5 TYPICAL CONDUIT STUB-UP

NOT TO SCALE

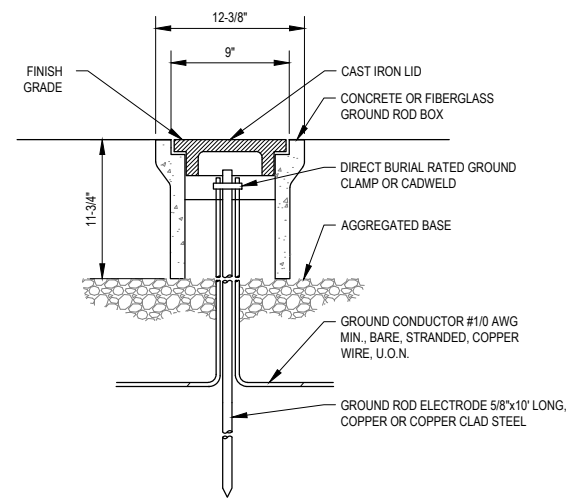
6 EQUIPMENT PAD GROUNDING

NOT TO SCALE



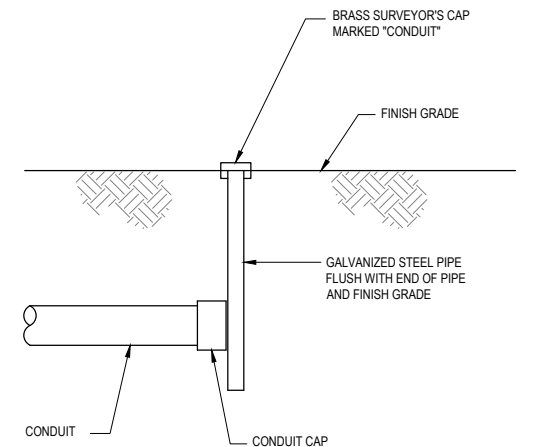
7 TYPICAL GROUND ROD TEST WELL

NOT TO SCALE



8 TYPICAL CONDUIT CAP AND STAKE

NOT TO SCALE



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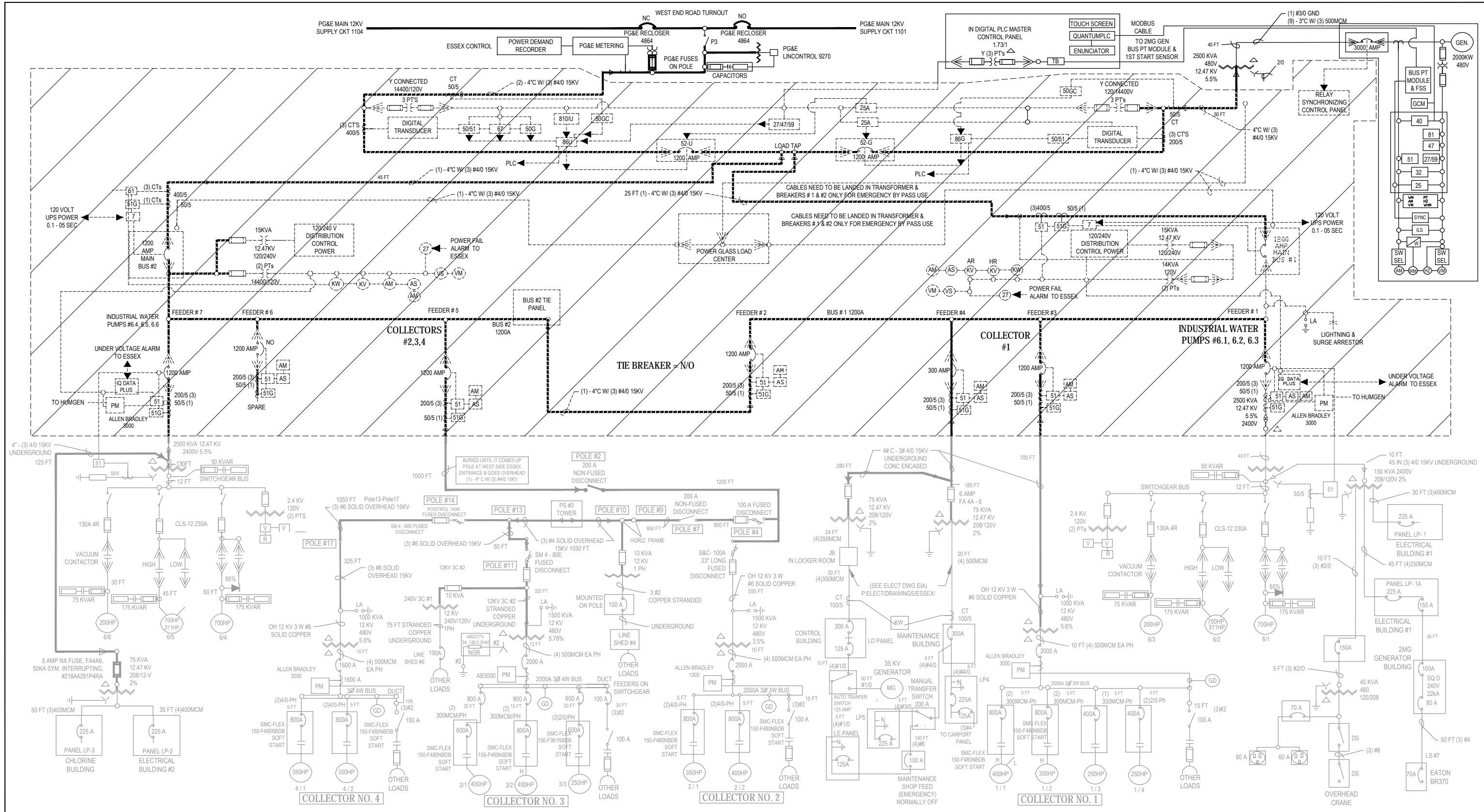


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Client HUMBOLDT BAY MUNICIPAL WATER DISTRICT
Project 12 kV SWITCHGEAR RELOCATION
Title ELECTRICAL DETAILS

Project No. 11186675
Original Size ANSID
Sheet No. E-501



SHEET GENERAL NOTES

- HATCHED COMPONENTS TO BE REMOVED & REPLACED WITH NEW UPGRADED EQUIPMENT AND ADDITIONAL FUNCTIONALITY.

| | | | | |
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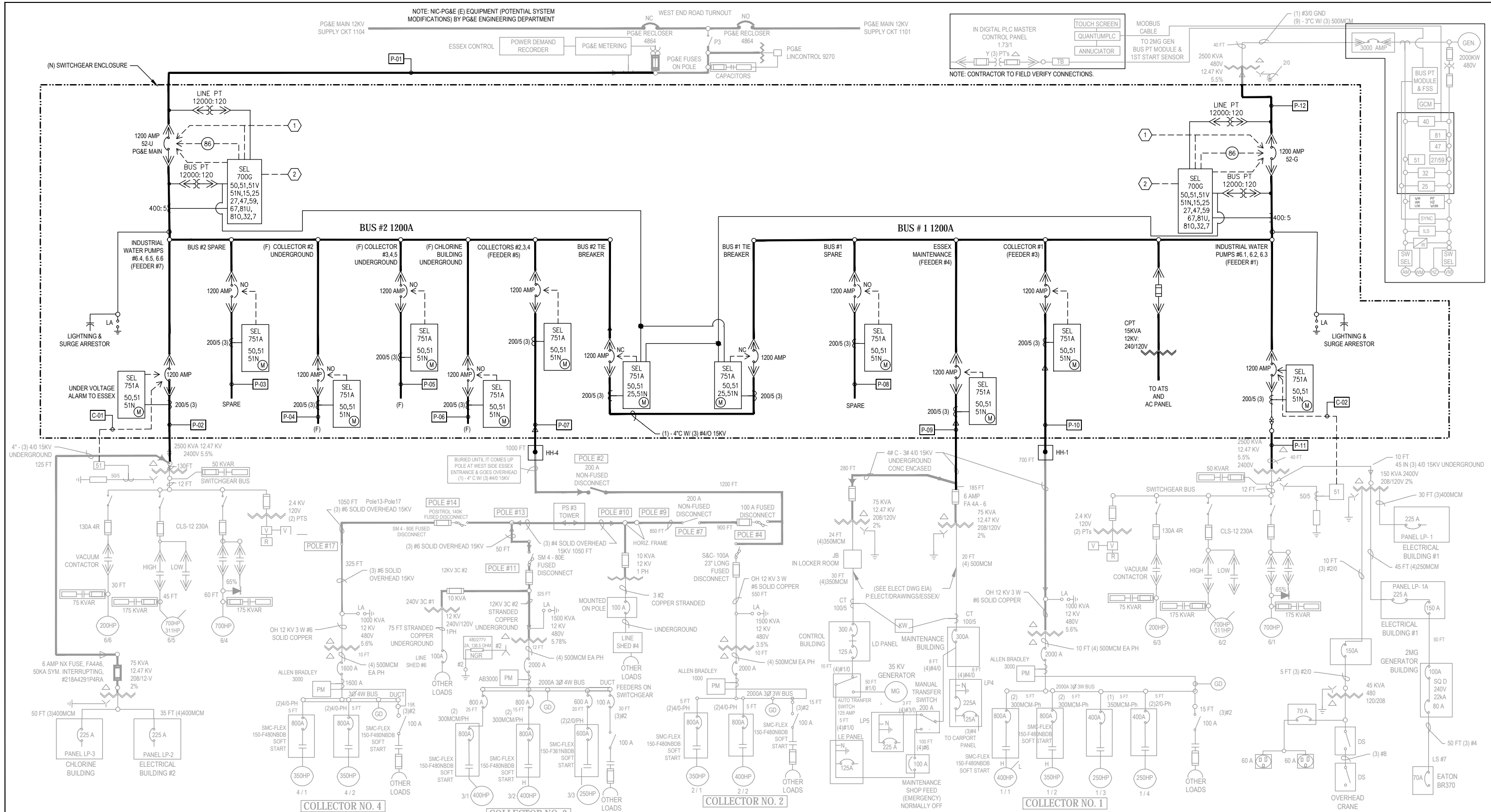
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| Client | HUMBOLDT BAY MUNICIPAL WATER DISTRICT | | |
| Project | 12 kV SWITCHGEAR RELOCATION | | |
| Title | SINGLE LINE DIAGRAM - DEMOLITION | | |
| Project No. | 11186675 | | |
| Original Size | ANSI D | Sheet No. | E-601 |
| Scale | NONE | | |
| Sheet | 15 of 24 | | |



- SHEET KEYNOTES**
- TRIP/CLOSE SIGNAL FROM CUMMINS PARALLELING CONTROLLER.
 - NETWORK CONNECTION FOR METERING/MONITORING, INCLUDING UNDER VOLTAGE ALARM TO ESSEX

| | | | | |
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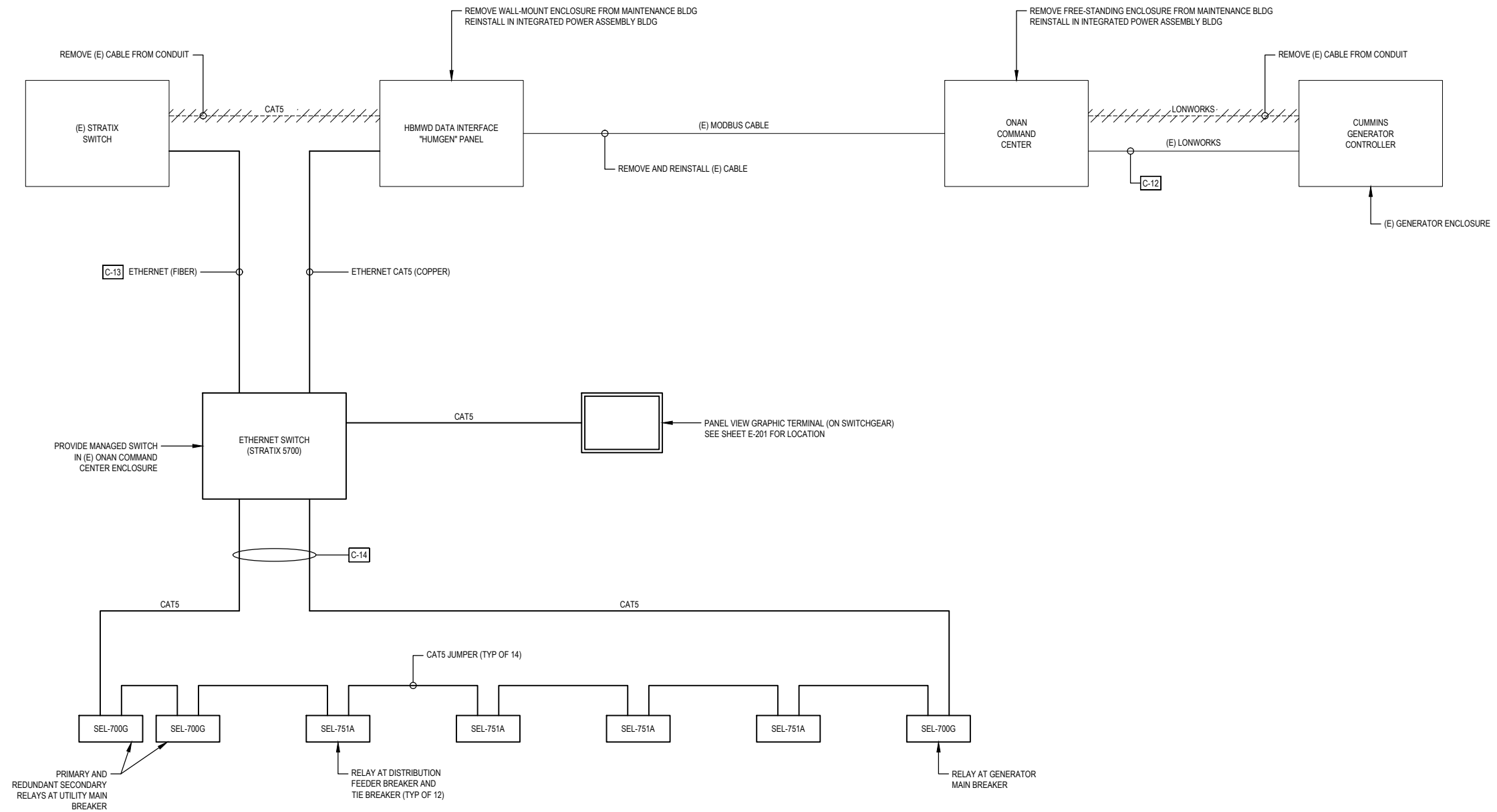
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| Project | 12 kV SWITCHGEAR RELOCATION | | |
| Title | SINGLE LINE DIAGRAM - NEW | | |
| Project No. | 11186675 | | |
| Original Size | ANSI D | Sheet No. | E-602 |
| Scale | NONE | | |
| Sheet | 16 of 24 | | |



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| Design Check | R. GUGGIANA |
| Date | 11/5/2019 |
| Scale | NONE |

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|---------------|---------------------------------------|
| Client | HUMBOLDT BAY MUNICIPAL WATER DISTRICT |
| Project | 12 kV SWITCHGEAR RELOCATION |
| Title | ELECTRICAL NETWORK DIAGRAM |
| Project No. | 11186675 |
| Original Size | ANSI D |
| Sheet No. | E-603 |

| CONDUIT AND CABLE SCHEDULE | | | | | | |
|----------------------------|--|-------------------------------|--------------------------------|--------------|--------------------------|-----------------------------|
| CKT# | DESCRIPTION | FROM | TO | CONDUIT SIZE | CABLE SIZE | REMARKS |
| P-01 | PG&F 12 KV SFRMCE | PG&F RISER POLE | PG&F SWITCHGEAR COMPARTMENT 1 | 6" | BY PG&F | |
| P-02 | 12KV FEEDER INDUSTRIAL WATER PUMPS 6 4 6 5 6 6 | SWITCHGEAR COMPARTMENT 3 | (C) TRANSFORMER 2 | 4" | (3) #4C AWG CU 15KV | |
| P-03 | SPARE BUS #2 | SWITCHGEAR COMPARTMENT 3 | WALL H-1 | 4" | PULL STR NG ONLY | |
| P-04 | 12KV FEEDER FUTURE COLLECTOR 2 UNDERGROUND | SWITCHGEAR COMPARTMENT 4 | WALL V | 4" | PULL STR NG ONLY | CONDUIT FOR FUTURE/SPARE |
| P-05 | 12KV FEEDER FUTURE COLLECTOR 3 4 5 UNDERGROUND | SWITCHGEAR COMPARTMENT 4 | WALL W | 4" | PULL STR NG ONLY | CONDUIT FOR FUTURE/SPARE |
| P-06 | 12KV FEEDER FUTURE CHLORINE BUILDING | SWITCHGEAR COMPARTMENT 5 | WALL H-1 | 4" | PULL STR NG ONLY | |
| P-07 | 12KV FEEDER COLLECTOR 2 3 4 | SWITCHGEAR COMPARTMENT 5 | COLLECTOR 2 3 4 POLE #2 | 4" | (3) #4C AWG CU 15KV | |
| P-08 | SPARE BUS #1 | SWITCHGEAR COMPARTMENT 8 | WALL W | 4" | PULL STR NG ONLY | CONDUIT FOR FUTURE/SPARE |
| P-09 | 12KV FEEDER ESSEX MAINT EVANCE BUILDING | SWITCHGEAR COMPARTMENT 8 | MAIN BLDG FUSE CENTER | 4" | (3) #4C AWG CU 15KV | |
| P-10 | 12KV FEEDER COLLECTOR 1 | SWITCHGEAR COMPARTMENT 9 | COLLECTOR 1 0-4XFMR | 4" | (3) #4C AWG CU 15KV | |
| P-11 | 12KV FEEDER INDUSTRIAL WATER PUMPS 6 1 6 2 6 3 | SWITCHGEAR COMPARTMENT 9 | (E) TRANSFORMER 1 | 4" | (3) #4C AWG CU 15KV | |
| P-12 | GENERATOR FEEDER | GENERATOR X FMR | SWITCHGEAR COMPARTMENT 10 | 4" | (3) #4C AWG CU 15KV | |
| P-13 | SYNCHRONIZING PANEL AUX POWER | SWITCHGEAR AC PANEL | ONAN MASTER CONTROL | .. | (2) # 2 AWG (1) #12 GND | |
| P-14 | DATA INTERFACE PANEL CONTROL POWER | SWITCHGEAR AC PANEL | DATA INTERFACE PANEL | ..18" | (2) # 2 AWG (1) #12 GND | |
| P-15 | SWITCHGEAR BATTERY CHARGER AC POWER | SWITCHGEAR AC PANEL | BATTERY CHARGER | ..34" | (2) # 2 AWG (1) #12 GND | |
| P-16 | SWITCHGEAR BATTERY DC POWER | SWITCHGEAR BATTERY | SWITCHGEAR | .. | (2) # 2 AWG | |
| P-17 | EXTERIOR AREA LIGHT | SWITCHGEAR AC PANEL | RAMP LIGHT | .. | (4) # 2 AWG (1) #12 GND | WIRE THROUGH 3-WAY SWITCHES |
| C-01 | TRANSFORMER SECONDARY NEUTRAL OVERCURRENT TRIP | (E) TRANSFORMER 1 5TH RELAY | SWITCHGEAR (COMPARTMENT 9) | ..34" | (2) # 2 AWG | |
| C-02 | TRANSFORMER SECONDARY NEUTRAL OVERCURRENT TRIP | (E) TRANSFORMER 2 5TH RELAY | SWITCHGEAR (COMPARTMENT 3) | ..34" | (2) # 2 AWG | |
| C-03 | EXTERNAL LOAD SET KW | ONAN MASTER CONTROL | (F) GENERATOR | .. | (1) # 6 TSP | |
| C-04 | GENERATOR CONTROL (DC) | ONAN MASTER CONTROL | (C) GENERATOR | .. | (18) #14 AWG | |
| C-05 | SPARE | ONAN MASTER CONTROL | (E) GENERATOR | .. | PULL STR NG ONLY | |
| C-06 | GENERATOR BUS SENSING (AC) | ONAN MASTER CONTROL | SWITCHGEAR (GENERATOR BREAKER) | .. | (10) #14 AWG | |
| C-07 | GENERATOR BREAKER (52-C) CONTROL (DC) | ONAN MASTER CONTROL | SWITCHGEAR (GENERATOR BREAKER) | .. | (24) #14 AWG | |
| C-08 | UTILITY BREAKER (52-U) CONTROL (DC) | ONAN MASTER CONTROL | SWITCHGEAR (UTILITY BREAKER) | ..18" | (37) #14 AWG | |
| C-09 | UTILITY BUS SENSING (AC) | ONAN MASTER CONTROL | SWITCHGEAR (UTILITY BREAKER) | .. | (10) #14 AWG | |
| C-10 | DC CONTROL POWER | ONAN MASTER CONTROL | DC BATTERY | .. | (2) # 2 AWG | |
| C-11 | SPARE | ONAN MASTER CONTROL | SWITCHGEAR | .. | PULL STR NG ONLY | |
| C-12 | LOW VOLTAGE CONNECTION | ONAN MASTER CONTROL | (E) GENERATOR | .. | (1) CAT 5 | |
| C-13 | HBMWD NETWORK CONNECTION | "HUMGEN" DATA INTERFACE PANEL | (E) HBMWD CONTROL ROOM SWITCH | 2" | 4 STANDARD OPTICAL FIBER | |
| C-14 | PROTECTIVE RELAY NETWORKING | ONAN MASTER CONTROL | SWITCHGEAR (RELAYS) | .. | (2) CAT 5 | |
| C-15 | SPARE | WALL H-6 | SWITCHGEAR | 2" | PULL STR NG ONLY | |
| C-16 | SPARE | WALL H-6 | SWITCHGEAR | 2" | PULL STR NG ONLY | |

| PANEL SCHEDULE | | | | | | | | | | | | | | | | | | |
|---------------------|-----|-------------------------------|------------|-------------------|----------|--------------------------------|------------------|----------------|----------------------|----------------|------------------|-----------|---|---------|----------|------------------------|-----|---------|
| PANEL NAME AC PANEL | | VOLTAGE 240/120 | | FEMA RATING 1 | | MOUNTING SURFACE | | NOTES | | | | | | | | | | |
| MAILS RATING 10C | | PHASE 1 | | AIC RATING 10,000 | | LOCATION SWITCHGEAR BLDG (IPA) | | | | | | | | | | | | |
| BLS RATING 10C | | WIRE 3 | | DEMAND FACTOR STD | | | | | | | | | | | | | | |
| CKT NO. | USE | DESCRIPTION | BKR SIZE | CKT KVA | CKT AMPS | WIRE SIZE | WIRE LENGTH (FT) | VOLTAGE DROP % | PHASE | VOLTAGE DROP % | WIRE LENGTH (FT) | WIRE SIZE | CKT AMPS | CKT KVA | BKR SIZE | DESCRIPTION | USE | CKT NO. |
| 1 | L | INDOOR LIGHTING | 201 | 0.44 | 3.67 | 12 | 20 | 0.20 | A | 0.38 | 20 | 12 | 13.00 | 1.96 | 202 | DC BATTERY CHARGER | O | 2 |
| 3 | L | OUTDOOR LIGHTING | 201 | 0.99 | 8.73 | 12 | 20 | 0.04 | B | 0.38 | 20 | 12 | 13.00 | 1.96 | 202 | DC BATTERY CHARGER | O | 4 |
| 5 | R | INDOOR RECEP'S | 201 | 0.72 | 6.00 | 12 | 20 | 0.33 | A | 0.48 | 20 | 12 | 6.33 | 1.00 | 204 | 15KV SWGR SPACE HEATER | H | 6 |
| 7 | R | OUTDOOR RECEP'S | 201 | 0.54 | 4.50 | 12 | 20 | 0.25 | B | 0.48 | 20 | 12 | 6.33 | 1.00 | 204 | 15KV SWGR SPACE HEATER | H | 8 |
| 9 | F | HEAT PUMP | 502 | 2.50 | 20.83 | 12 | 20 | 0.60 | A | | | | | | 201 | SPARE | | 10 |
| 11 | F | HEAT PUMP | 502 | 2.50 | 20.83 | 12 | 20 | 0.60 | B | | | | | | 201 | SPARE | | 12 |
| 13 | F | EXHAUST FAN | 201 | 0.55 | 4.17 | 12 | 20 | 0.42 | A | | | | | | 201 | SPARE | | 14 |
| 15 | C | NETWORK SWITCH | 201 | 0.55 | 4.17 | 12 | 20 | 0.24 | B | | | | | | 201 | SPARE | | 16 |
| 17 | C | PANEL VIEW | 201 | 0.55 | 4.17 | 12 | 20 | 0.24 | A | | | | | | 201 | SPARE | | 18 |
| 19 | C | ONAN COMMAND CENTER | 201 | 0.55 | 4.17 | 12 | 20 | 0.24 | B | | | | | | 201 | SPARE | | 20 |
| 21 | C | "HUMGEN" DATA INTERFACE PANEL | 201 | 0.15 | 1.25 | 12 | 30 | 0.11 | A | | | | | | 201 | SPARE | | 22 |
| 23 | | SPACE | | | | | | | | | | | | | | SPACE | | 24 |
| 25 | | SPACE | | | | | | | | | | | | | | SPACE | | 26 |
| 27 | | SPACE | | | | | | | | | | | | | | SPACE | | 28 |
| 29 | | SPACE | | | | | | | | | | | | | | SPACE | | 30 |
| CONNECTED KVA | | | DEMAND KVA | | | DEMAND AMPS | | | USE LEGEND | | | | VOLTAGE DROP CALCULATION | | | | | |
| PHASE A 7.4 | | | 7.5 | | | 62.3 | | | LOAD TYPE ASSUMED PF | | | | VOLTAGE DROP IS BASED ON THE IEEE RED BOOK AND IEEE CHAPTER 9 TABLE 9 FORMULA | | | | | |
| PHASE B 6.7 | | | 6.7 | | | 55.9 | | | HVAC 0.85 | | | | ASSUMPTIONS POWER FACTOR VARIES BY LOAD TYPE | | | | | |
| | | | | | | | | | LIGHTING 0.80 | | | | CIRCUIT TYPE RGS | | | | | |
| | | | | | | | | | MOTOR 0.85 | | | | WIRE WATER PL CU | | | | | |
| | | | | | | | | | RECEPTACLE 0.80 | | | | WITH AN ADDITIONAL MULTIPLIER OF 2 FOR SINGLE PHASE AND 1.732 FOR 3-PHASE LOADS | | | | | |
| | | | | | | | | | PANEL 0.85 | | | | R AND X VALUES ARE TAKEN FROM 2011 IEEE CHAPTER 9 TABLE 9 LENGTHS 1111000 FT | | | | | |
| | | | | | | | | | OTHER 0.85 | | | | | | | | | |

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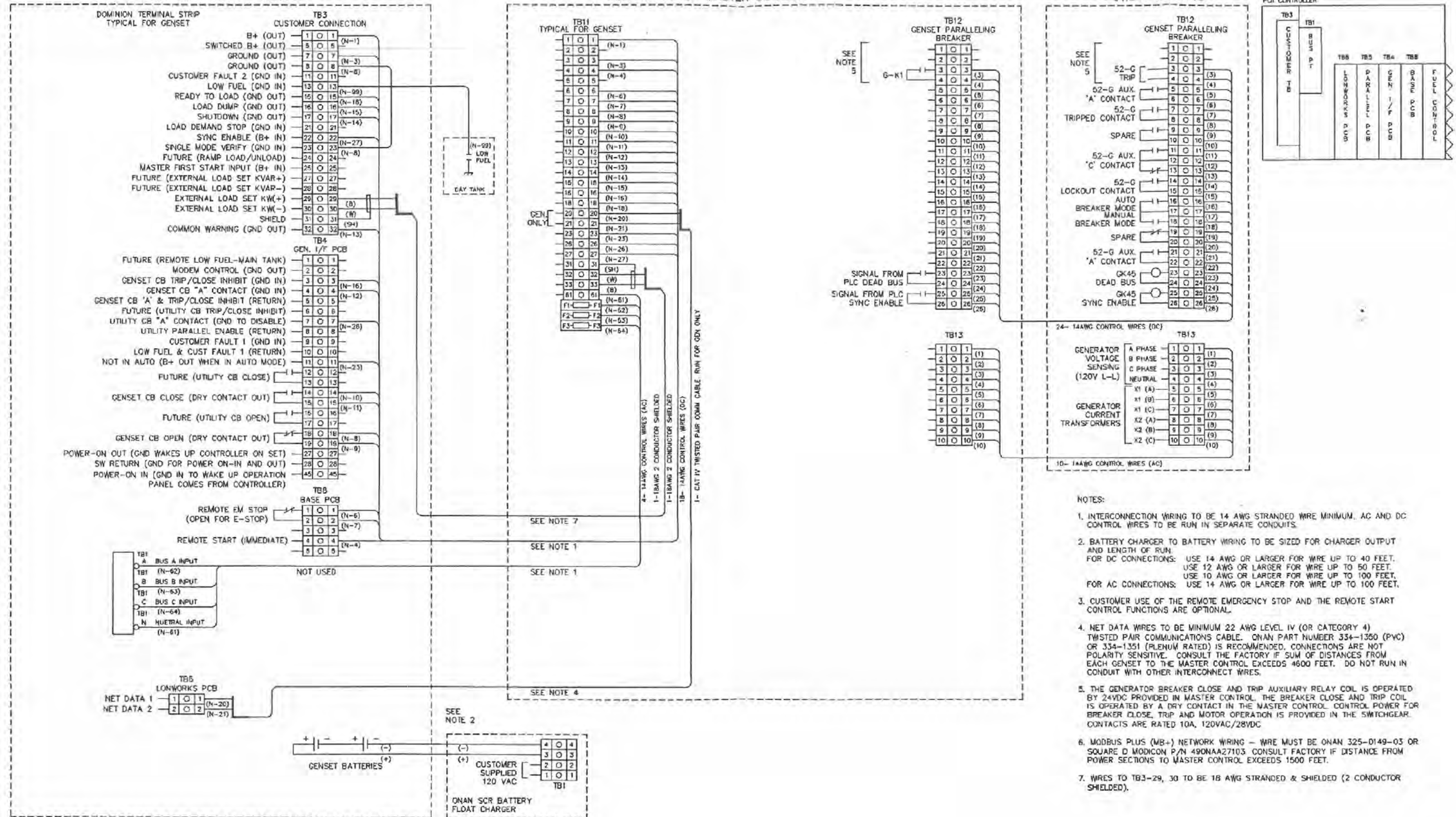
GENERATOR AND PARALLELING BUS CONNECTIONS

PowerCommand™ II GENSET

PowerCommand™ MASTER CONTROL

POWER SECTIONS

POI CONTROLLER



- NOTES:
- INTERCONNECTION WIRING TO BE 14 AWG STRANDED WIRE MINIMUM. AC AND DC CONTROL WIRES TO BE RUN IN SEPARATE CONDUITS.
 - BATTERY CHARGER TO BATTERY WIRING TO BE SIZED FOR CHARGER OUTPUT AND LENGTH OF RUN.
FOR DC CONNECTIONS: USE 14 AWG OR LARGER FOR WIRE UP TO 40 FEET.
USE 12 AWG OR LARGER FOR WIRE UP TO 50 FEET.
USE 10 AWG OR LARGER FOR WIRE UP TO 100 FEET.
FOR AC CONNECTIONS: USE 14 AWG OR LARGER FOR WIRE UP TO 100 FEET.
 - CUSTOMER USE OF THE REMOTE EMERGENCY STOP AND THE REMOTE START CONTROL FUNCTIONS ARE OPTIONAL.
 - NET DATA WIRES TO BE MINIMUM 22 AWG LEVEL IV (OR CATEGORY 4) TWISTED PAIR COMMUNICATIONS CABLE. ONAN PART NUMBER 334-1350 (PVC) OR 334-1351 (PLENUM RATED) IS RECOMMENDED. CONNECTIONS ARE NOT POLARITY SENSITIVE. CONSULT THE FACTORY IF SUM OF DISTANCES FROM EACH GENSET TO THE MASTER CONTROL EXCEEDS 4600 FEET. DO NOT RUN IN CONDUIT WITH OTHER INTERCONNECT WIRES.
 - THE GENERATOR BREAKER CLOSE AND TRIP AUXILIARY RELAY COIL IS OPERATED BY 24VDC PROVIDED IN MASTER CONTROL. THE BREAKER CLOSE AND TRIP COIL IS OPERATED BY A DRY CONTACT IN THE MASTER CONTROL. CONTROL POWER FOR BREAKER CLOSE, TRIP AND MOTOR OPERATION IS PROVIDED IN THE SWITCHGEAR. CONTACTS ARE RATED 10A, 120VAC/28VDC.
 - MODBUS PLUS (MB+) NETWORK WIRING - WIRE MUST BE ONAN 325-0149-03 OR SQUARE D MODICON P/N 490NAA27103. CONSULT FACTORY IF DISTANCE FROM POWER SECTIONS TO MASTER CONTROL EXCEEDS 1500 FEET.
 - WIRES TO TB3-29, 30 TO BE 18 AWG STRANDED & SHIELDED (2 CONDUCTOR SHIELDED).

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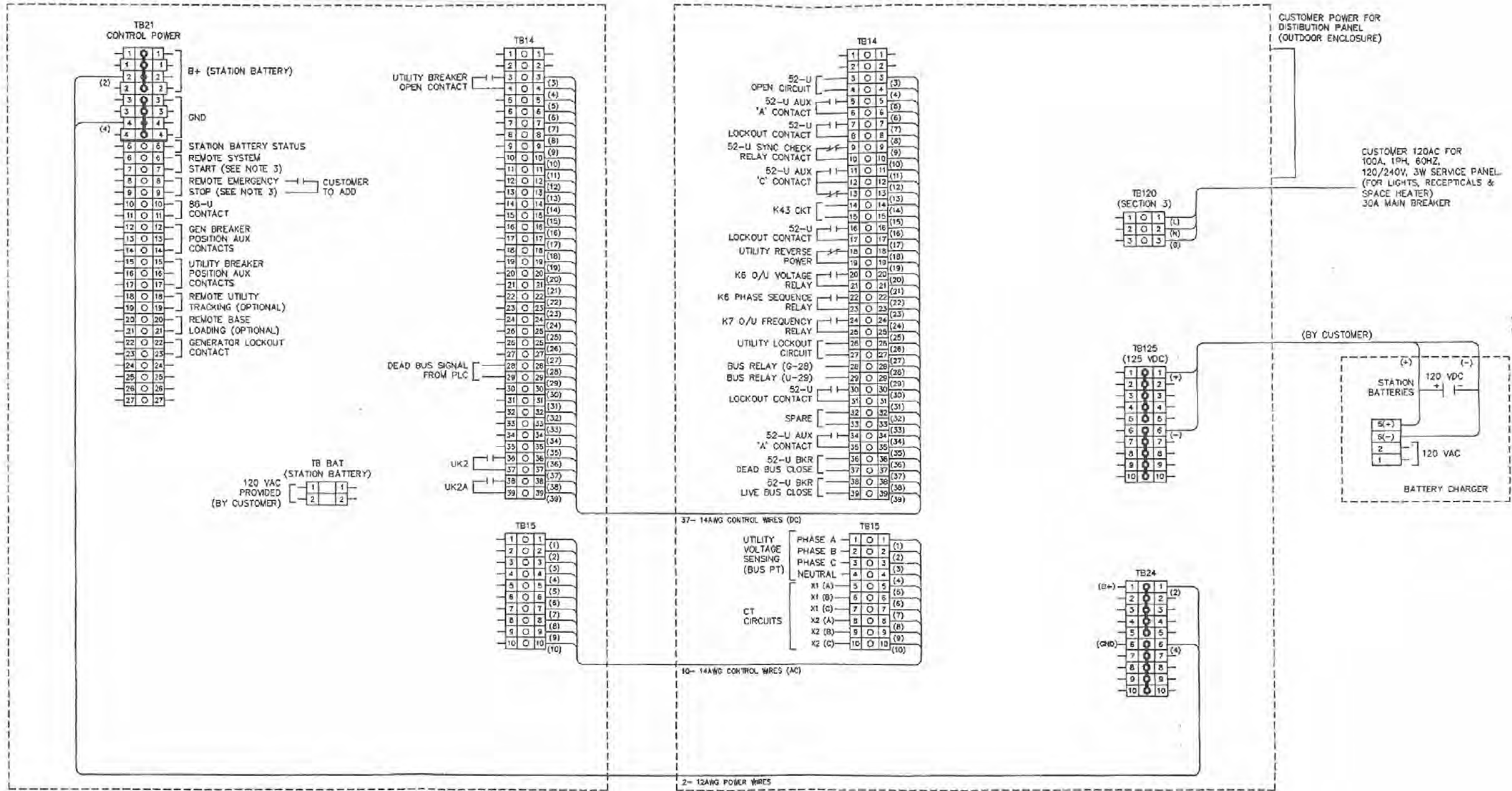


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| Project | 12 kV SWITCHGEAR RELOCATION | | |
| Title | CUMMINS REFERENCE DRAWING - 1 | | |
| Project No. | 11186675 | | |
| Original Size | ANSI D | | |
| Sheet No. | E-701 | | |
| Sheet | 19 of 24 | | |

PowerCommand™ MASTER CONTROL

POWER SECTION



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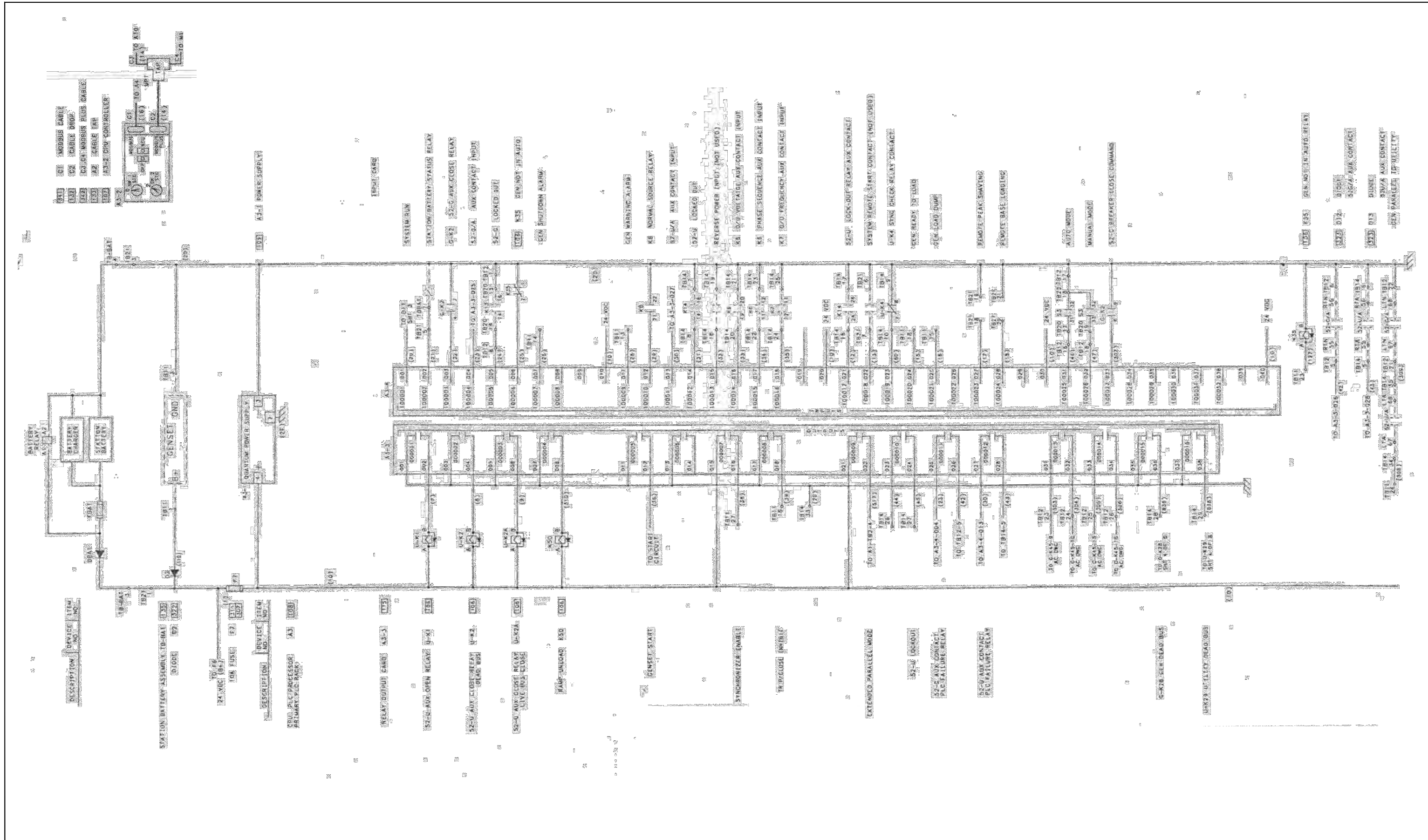
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| Client | HUMBOLDT BAY MUNICIPAL WATER DISTRICT | | |
| Project | 12 kV SWITCHGEAR RELOCATION | | |
| Title | CUMMINS REFERENCE DRAWING - 2 | | |
| Project No. | 11186675 | | |
| Original Size | ANSI D | | |
| Sheet No. | E-702 | | |



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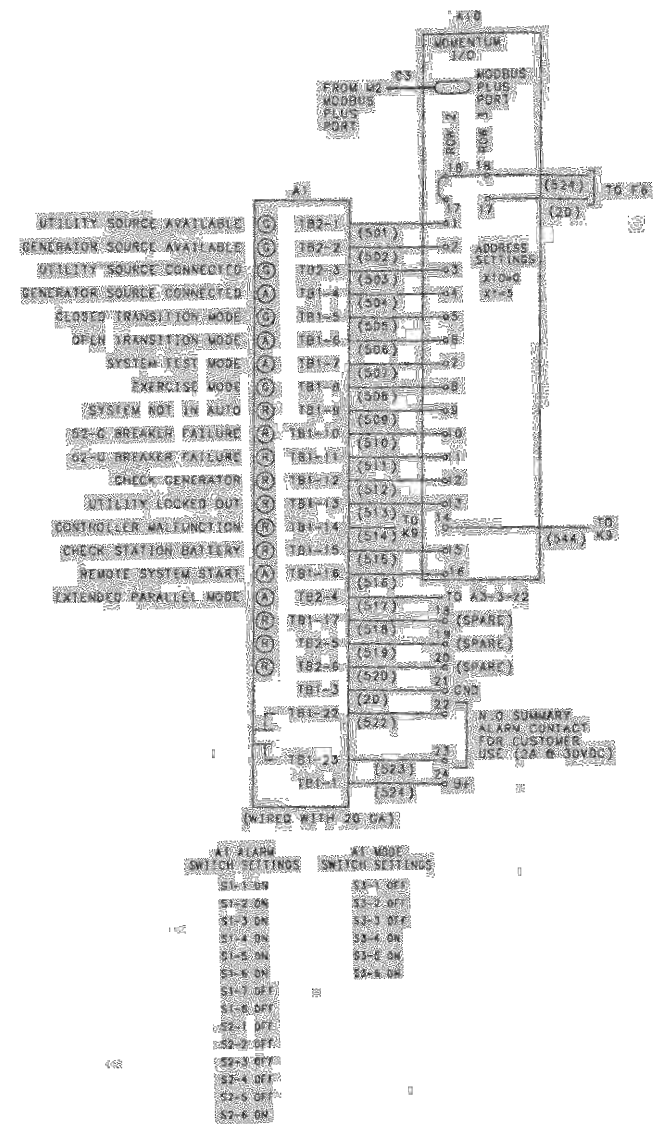
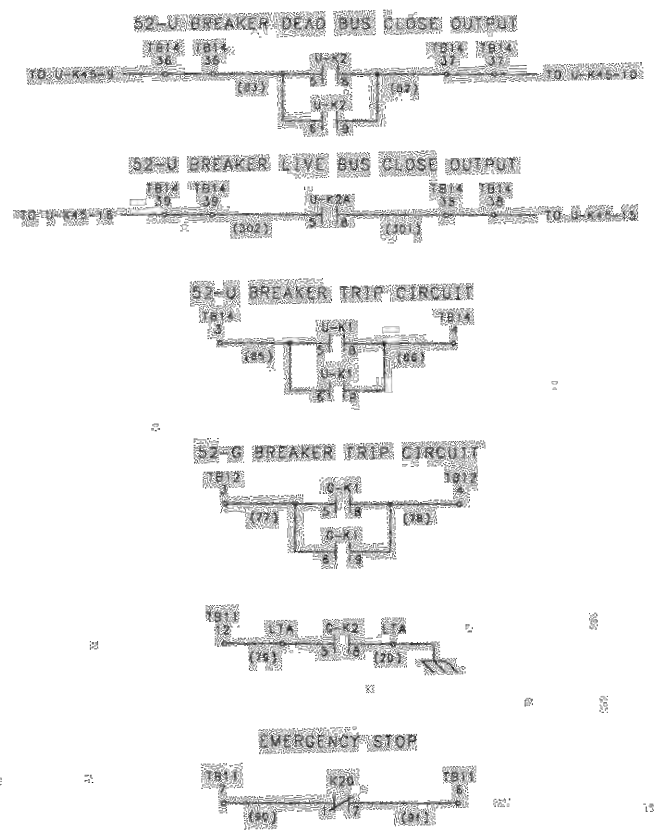
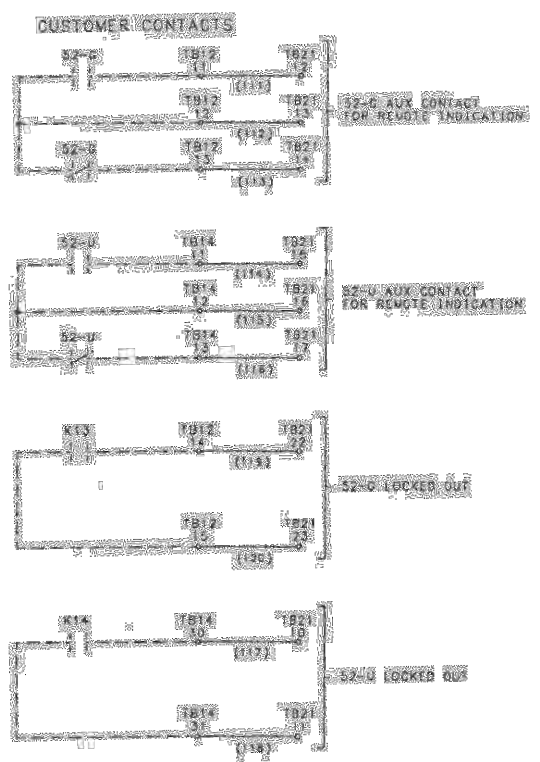
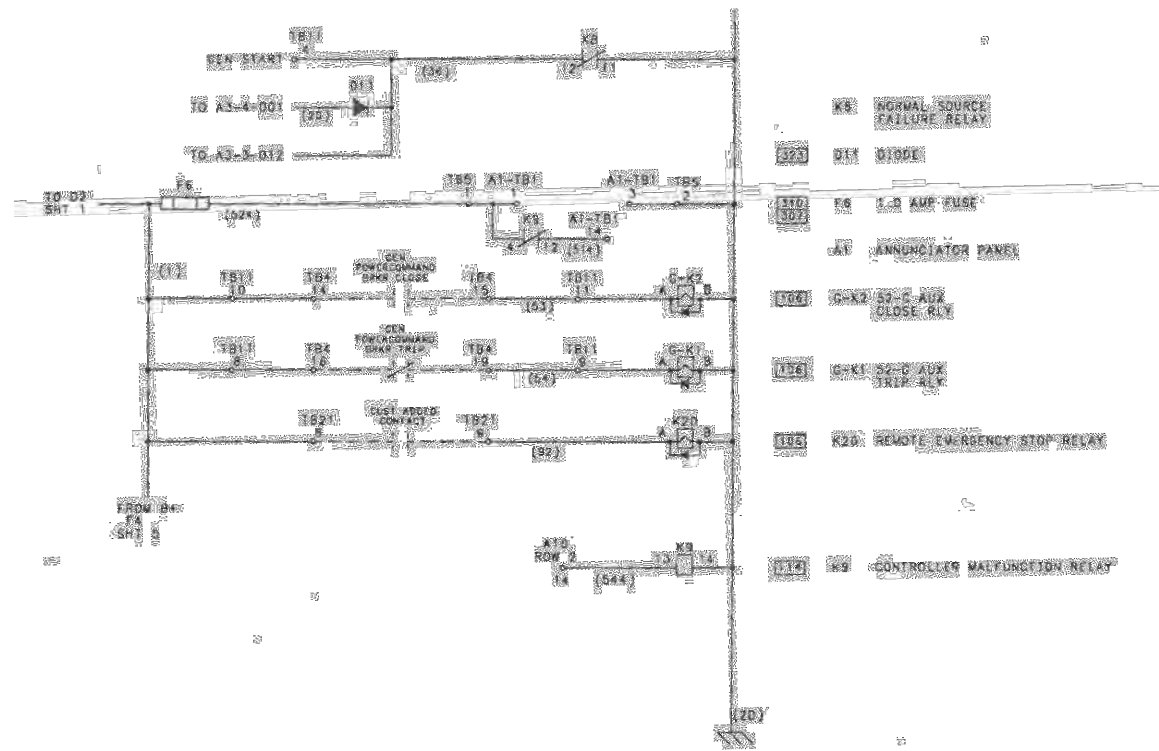
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| Project | 12 kV SWITCHGEAR RELOCATION | | |
| Title | CUMMINS REFERENCE DRAWING - 3 | | |
| Project No. | 11186675 | | |
| Original Size | ANSI D | Sheet No. | E-703 |
| Sheet | 21 | of | 24 |



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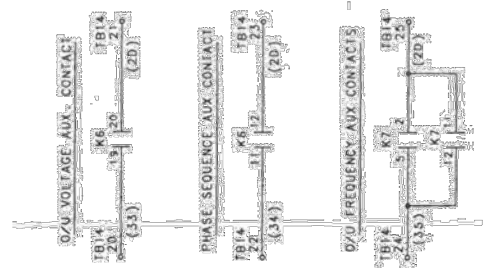
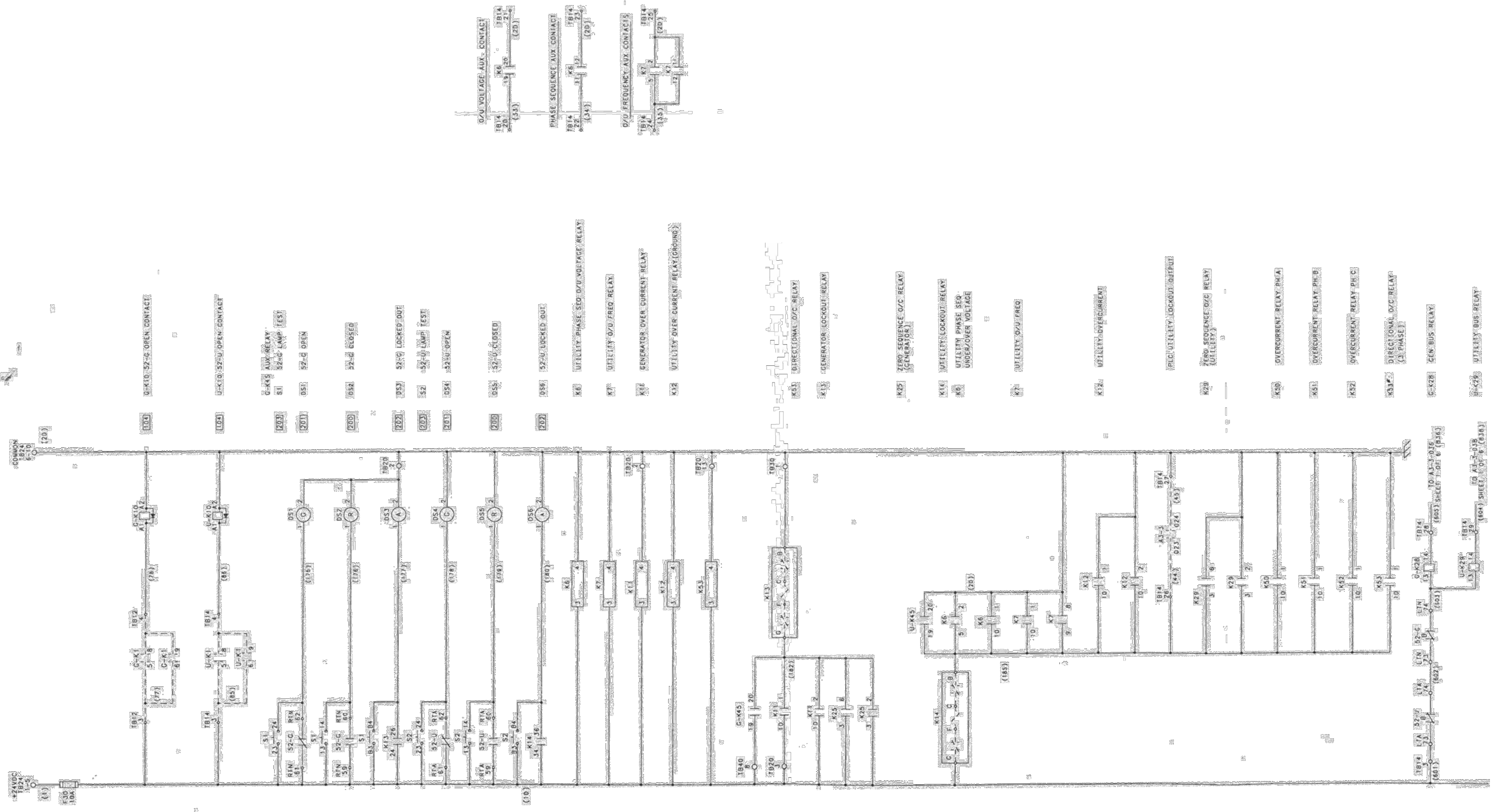
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| Project | 12 kV SWITCHGEAR RELOCATION | | |
| Title | CUMMINS REFERENCE DRAWING - 4 | | |
| Project No. | 11186675 | | |
| Original Size | ANSI D | Sheet No. | E-704 |



- 100 9-K10-52-C OPEN CONTACT
- 103 0-K10-52-U OPEN CONTACT
- 203 G-K45 AUX RELAY
- 203 S1 52-C LAMP ES
- 201 0S1 52-B OPEN
- 200 0S2 52-B CLOSED
- 202 0S3 52-0 LOCKED OUT
- 203 0S2 52-0 LAMP ES
- 201 0S4 52-U OPEN
- 200 0S5 52-U CLOSED
- 202 0S6 52-U LOCKED OUT
- K6 UTILITY PHASE SEQ. O/U VOLTAGE RELAY
- K7 UTILITY O/U FREQ RELAY
- K11 GENERATOR OVER CURRENT RELAY
- K12 UTILITY OVER CURRENT RELAY GROUND
- K51 DIRECTIONAL O/C RELAY
- K13 GENERATOR LOCKOUT RELAY
- K25 ZERO SEQUENCE O/C RELAY (GENERATOR)
- K14 UTILITY LOCKOUT RELAY
- K6 UTILITY PHASE SEQ. UNDER/OVER VOLTAGE
- K7 UTILITY O/U FREQ
- K12 UTILITY OVERCURRENT
- K28 PLC UTILITY LOCKOUT OUTPUT
- K29 ZERO SEQUENCE O/C RELAY (UTILITY)
- K50 OVERCURRENT RELAY PHA
- K51 OVERCURRENT RELAY PH B
- K52 OVERCURRENT RELAY PH C
- K53 DIRECTIONAL O/C RELAY (3 PHASE)
- G-K28 GEN BUS RELAY
- U-K28 UTILITY BUS RELAY

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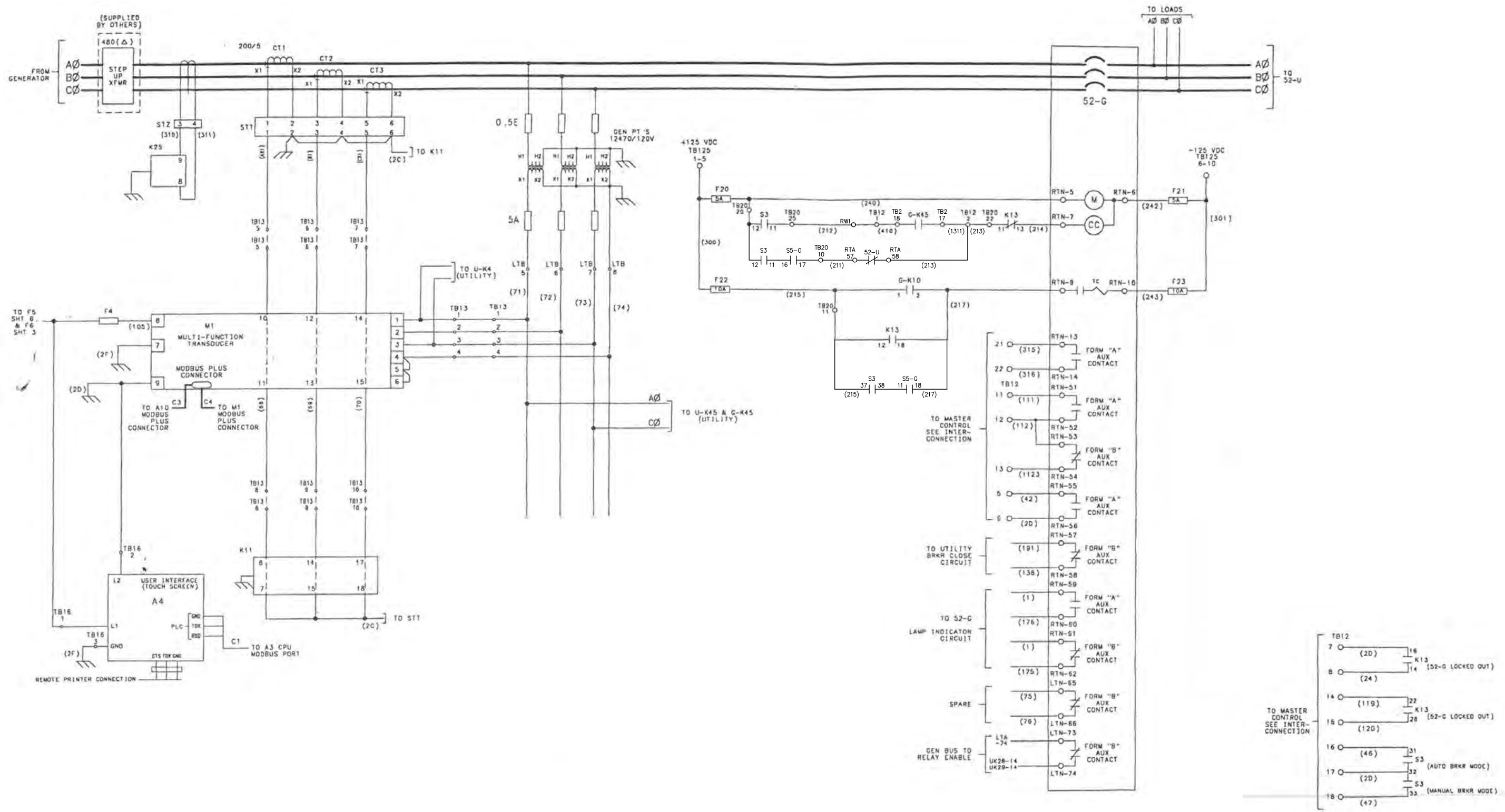
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| Title | CUMMINS REFERENCE DRAWING - 5 | |
| Project No. | 11186675 | |
| Original Size | ANSI D | Sheet No. E-705 |
| Sheet | 23 | of 24 |



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| Project | 12 kV SWITCHGEAR RELOCATION | | |
| Title | CUMMINS REFERENCE DRAWING - 6 | | |
| Project No. | 11186675 | | |
| Original Size | ANSI D | Sheet No. | E-706 |
| Scale | NONE | Sheet | 24 of 24 |