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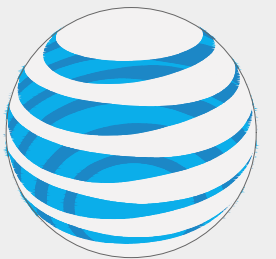
LAWLER

FA#: 10125275

USID: 95137

38925 170TH AVENUE
MCGREGOR, MN 55760

GENERATOR UPGRADE



at&t

GENERAL DYNAMICS
Wireless Services
12906 SHELBYVILLE ROAD, STE. 230
LOUISVILLE, KY 40243
502-653-6963

BENCHMARK SERVICES, INC.
Consulting Engineers
Land Surveyors
PO Box 5 318 North Main Street
Huntingburg, Indiana 47542
Phone: (812) 683-3049

SITE INFORMATION

GOVERNING CODE: IBC & NEC
 SITE ADDRESS: 38935 170TH AVENUE
 MCGREGOR, MN 55760
 COUNTY: AITKIN
 PROPERTY OWNER: AMERICAN TOWER
 PROPERTY OWNER CONTACT: 1-877-518-6937
 APPLICANT: AT&T MOBILITY
 930 NATIONAL PKWY, 4TH FLOOR
 SCHAUMBURG, IL 60173
 SCOPE OF WORK: INSTALL NEW DIESEL GENERATOR WITH SUBBASE FUEL TANK ON NEW CONCRETE PAD. INTEGRATE EXISTING ALARM AND ELECTRICAL CONNECTIONS WITH NEW GENERATOR.
 UTILITY INFORMATION: THE PLANS SHOW SOME KNOWN SUBSURFACE STRUCTURE, ABOVE GROUND STRUCTURES AND/OR EXISTING UTILITIES BELIEVED TO BE IN THE WORKING AREA. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL UTILITIES, PIPELINES AND OTHER STRUCTURES SHOWN OR NOT SHOWN ON THESE PLANS. THE CONTRACTOR SHALL VERIFY STATE AND LOCAL UTILITY NOTIFICATION SERVICES BEFORE DIGGING OR DRILLING. ANY DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED TO THE SATISFACTION OF THE OWNER AND ENGINEER AT THE CONTRACTOR'S EXPENSE.
 GENERAL SITE INFORMATION: (1) FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION.
 (2) HANDICAP ACCESS IS NOT REQUIRED.
 (3) FACILITY HAS NO PLUMBING OR PARKING.
 (4) NO GRADING WILL BE REQUIRED FOR THIS SITE.

APPROVALS

AT&T CONSTRUCTION MANAGER DATE _____

GENERAL DYNAMICS CONSTR. MGR DATE _____

PROPERTY OWNER DATE _____

SITE ACQUISITION DATE _____

CONTRACTOR DATE _____

CONTRACTOR DATE _____

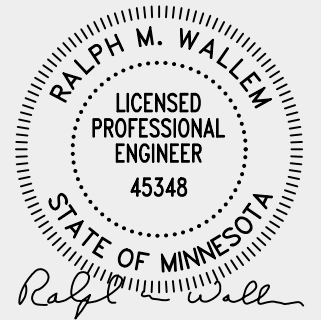
CONTRACTOR DATE _____

SHEET INDEX

SHT. NO.	DESCRIPTION	REV. NO.
T-1	TITLE SHEET	0
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DRAWING REVISIONS

REV.	DESCRIPTION	DATE	BY
0	100% CDs	7-14-19	MCB



AREA MAP



PROJECT TEAM

ENGINEER:
BENCHMARK SERVICES, INC.
GARY VAN WINKLE
PO BOX 318 NORTH MAIN STREET
HUNTINGBURG, IN 47542
TEL: 812-683-3049
WWW.BENCHMARKSERVICESINC.BIZ

MARKET LEAD:
ROBERT BRENNAN
GENERAL DYNAMICS
WIRELESS SERVICES
821 ULRICH AVE.
LOUISVILLE, KY 40219
OFFICE 502-653-4608

VICINITY MAP



DRIVING DIRECTIONS

TOWER COORDINATES
 LATITUDE: 46.57694444 LONGITUDE: -93.20305556

DRIVING DIRECTIONS
 FROM HWY 210 AND HWY 65 SOUTH, GO SOUTH ON HWY 65 SOUTH 2-3 MILES SOUTH OF MCGREGOR TURN LEFT ONTO CD RD 30 AND GO EAST TO 170TH AVE AND TURN LEFT SITE WILL BE TO THE LEFT OR WEST SIDE OF ROAD.

LAWLER

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GENERATOR UPGRADE

CONTRACTOR SHALL VERIFY ALL PLANS & EXISTING DIMENSIONS & CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

SHEET NAME:

TITLE SHEET

SHEET NO.:

T-1

REVISION NUMBER

0

NOTES TO CONTRACTOR:

- THE GENERAL CONTRACTOR MUST VERIFY ALL DIMENSIONS, CONDITIONS AND ELEVATIONS BEFORE STARTING WORK. ALL DISCREPANCIES SHALL BE RESOLVED BEFORE PROCEEDING WITH THE WORK. ALL WORK SHALL BE PERFORMED IN A WORKMANLIKE MANNER IN ACCORDANCE WITH ACCEPTED CONSTRUCTION PRACTICES.
- IT IS THE INTENTION OF THESE DRAWINGS TO SHOW THE COMPLETED INSTALLATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY BRACING, SHORING, TIES, FORM WORK, ETC. IN ACCORDANCE WITH ALL NATIONAL, STATE AND LOCAL ORDINANCES TO SAFELY EXECUTE ALL WORK AND SHALL BE RESPONSIBLE FOR SAME. ALL WORK SHALL BE IN ACCORDANCE WITH LOCAL CODES.
- THE CONTRACTOR SHALL USE ADEQUATE NUMBER OF SKILLED WORKMAN WHO ARE THOROUGHLY TRAINED AND EXPERIENCED IN THE NECESSARY CRAFTS AND WHO ARE COMPLETELY FAMILIAR WITH THE SPECIFIED REQUIREMENTS AND METHOD NEEDED FOR PROPER PERFORMANCE OF THE WORK.
- CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING THE SAFETY OF ALL PERSONS AND PROPERTY. THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS AND CONSTRUCTION CONTRACTOR FURTHER AGREES TO INDEMNIFY AND HOLD DESIGN ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED. IN CONNECTION WITH PERFORMANCE OF WORK ON THIS PROJECT.
- SITE GROUNDING SHALL COMPLY WITH AT&T MOBILITY WIRELESS SERVICES TECHNICAL SPECIFICATIONS FOR FACILITY GROUNDING FOR CELL SITE STANDARDS, LATEST EDITION, AND COMPLY WITH AT&T MOBILITY TOWERS GROUNDING CHECKLIST, LATEST VERSION. WHEN NATIONAL AND LOCAL GROUNDING CODES ARE MORE STRINGENT, THEY SHALL GOVERN.
- ALL WORK SHALL COMPLY WITH OSHA AND STATE SAFETY REQUIREMENTS. PROCEDURES FOR THE PROTECTION OF EXCAVATIONS, EXISTING CONSTRUCTION AND UTILITIES SHALL BE ESTABLISHED PRIOR TO FOUNDATION INSTALLATION. IF FAA LIGHTING AND MARKING IS PRESENT ON SITE AND IS POWERED BY ELECTRICAL SERVICE THAT IS TO BE INTERRUPTED, IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN THE NECESSARY LIGHTS AND NOTIFY THE PROPER AUTHORITIES IN THE EVENT OF A PROBLEM.
- ALL WORK SHALL BE ACCOMPLISHED IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL CODES OR ORDINANCES. THE MOST STRINGENT CODE WILL APPLY IN THE CASE OF DISCREPANCIES OR DIFFERENCES IN THE CODE REQUIREMENTS.
- ANY DAMAGE TO THE ADJACENT PROPERTIES WILL BE CORRECTED AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE LANDOWNER AND THE ENGINEER.
- THE COMPLETE BID PACKAGE INCLUDES THESE CONSTRUCTION DRAWINGS ALONG WITH THE SPECIFICATIONS. CONTRACTOR IS RESPONSIBLE FOR REVIEW OF TOTAL BID PACKAGE PRIOR TO BID SUBMITTAL.
- CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING UTILITIES WITHIN CONSTRUCTION LIMITS PRIOR TO CONSTRUCTION.
- THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING POSITIVE DRAINAGE ON THE SITE AT ALL TIME. SILT FENCE AND EROSION CONTROL SHALL BE MAINTAINED ON THE DOWNSTREAM SIDE OF THE SITE AT ALL TIMES. ANY DAMAGE TO ADJACENT PROPERTIES WILL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
- PERMITS: THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND INCURRING THE COST OF ALL REQUIRED PERMITS, INSPECTIONS, CERTIFICATES, ETC.
- RECORD DRAWINGS: MAINTAIN A RECORD OF ALL CHANGES, SUBSTITUTIONS BETWEEN WORK AS SPECIFIED AND INSTALLED. RECORD CHANGES ON A CLEAN SET OF CONTRACT DRAWING WHICH SHALL BE TURNED OVER TO THE CONSTRUCTION MANAGER UPON COMPLETION OF THE PROJECT.
- RECORD PHOTOS: INCLUDE TIME/DATE STAMPED PHOTOS WITH TAPE MEASURE DEPTH VERIFICATION.
- ALL MATERIAL SHALL BE FURNISHED AND WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY DAMAGE CAUSED BY THE CONSTRUCTION OPERATION.
- CONTRACTOR SHALL REMOVE ALL TRASH AND DEBRIS FROM THE SITE ON A DAILY BASIS.
- INFORMATION SHOWN ON THESE DRAWINGS WAS OBTAINED FROM DRAWINGS PROVIDED BY THE SITE OWNER. CONTRACTOR SHALL NOTIFY GENERAL DYNAMICS WIRELESS SERVICES OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
- CLEARING OF TREES AND VEGETATION ON THE SITE SHOULD BE HELD TO A MINIMUM. ONLY THE TREES NECESSARY FOR CONSTRUCTION OF THE FACILITIES SHALL BE REMOVED. ANY DAMAGE TO THE PROPERTY OUTSIDE THE LEASED PROPERTY SHALL BE REPAIRED BY THE CONTRACTOR AT HIS OWN EXPENSE.
- ALL SUITABLE MATERIAL FOR BACK FILL OF THE SITE SHALL BE INCLUDED IN THE BID EXCESS TOPSOIL AND UNSUITABLE MATERIAL SHALL BE DISPOSED OF OFF SITE AT LOCATION APPROVED BY GOVERNING AGENCIES PRIOR TO DISPOSAL.

- SEEDING AND MULCHING OF THE SITE SHALL BE ACCOMPLISHED AS SOON AS POSSIBLE AFTER COMPLETION OF THE SITE DEVELOPMENT. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND MAINTAINING AN ADEQUATE COVER OF VEGETATION OVER THE SITE FOR A MINIMUM PERIOD OF ONE YEAR.
- GENERAL NOTES:**
- THIS PROPOSAL IS FOR THE ADDITION OF A NEW GENERATOR ON A CONCRETE PAD TO AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY.
 - THE PROPOSED FACILITY WILL BE UNMANNED AND DOES NOT REQUIRE POTABLE WATER OR SEWER SERVICE.
 - THE PROPOSED FACILITY IS UNMANNED AND IS NOT FOR HUMAN HABITATION. NO HANDICAP ACCESS IS REQUIRED.
 - OCCUPANCY IS LIMITED TO PERIODIC MAINTENANCE AND INSPECTION, APPROXIMATELY 2 TIMES PER MONTH BY AT&T TECHNICIANS.
 - OUTDOOR STORAGE AND SOLID WASTE CONTAINERS ARE NOT PROPOSED.
 - ALL MATERIAL SHALL BE FURNISHED AND WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
 - CONTRACTOR SHALL REMOVE ALL TRASH AND DEBRIS FROM THE SITE ON A DAILY BASIS.
 - INFORMATION SHOWN ON THESE DRAWINGS WAS OBTAINED FROM DRAWINGS PROVIDED BY THE SITE OWNER. CONTRACTOR SHALL NOTIFY AT&T OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.

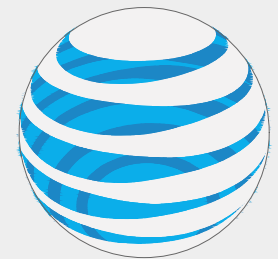
ELECTRICAL NOTES:

A. GENERAL

- COORDINATE LOCATION AND PROPER REQUIREMENTS OF ALL EQUIPMENT WITH AT&T MOBILITY AND EQUIPMENT SUPPLIES PRIOR TO INSTALLATION.
- COORDINATE LOCATION AND REQUIREMENTS FOR ELECTRICAL SERVICE WITH THE PROPERTY REPRESENTATIVE, AT&T MOBILITY AND UTILITY COMPANIES. ROUTING OF CONDUITS MAY BE MODIFIED TO MEET SITE REQUIREMENTS. EXACT CONDUIT ROUTING TO BE DETERMINED IN THE FIELD.
- ALL WIRING AND EQUIPMENT SHOWN ON ELECTRICAL SHEETS SHALL BE FURNISHED AND INSTALLED UNDER ELECTRICAL PORTION OF CONTRACT UNLESS OTHERWISE NOTED.
- UNINTERRUPTED ELECTRICAL SERVICE FOR EXISTING EQUIPMENT SHALL BE MAINTAINED DURING THE INSTALLATION OF THE WORK DESCRIBED UNDER THESE DOCUMENTS. TEMPORARY EQUIPMENT, CABLES AND WHATEVER ELSE IS NECESSARY SHALL BE PROVIDED BY CONTRACTOR AS REQUIRED TO MAINTAIN ELECTRICAL SERVICE. TEMPORARY SERVICE FACILITIES, IF REQUIRED AT ANY TIME, SHALL NOT BE DISCONNECTED OR REMOVED UNTIL NEW SERVICE EQUIPMENT IS IN PROPER OPERATION. IF ANY SERVICE OR SYSTEM MUST BE INTERRUPTED, THE CONTRACTOR SHALL REQUEST PERMISSION IN WRITING STATING THE DATE, TIME, ETC. THE SERVICE WILL BE INTERRUPTED AND THE AREAS AFFECTED. THIS REQUEST SHALL BE MADE IN SUFFICIENT TIME FOR PROPER ARRANGEMENTS TO BE MADE. WRITTEN PERMISSION SHALL BE OBTAINED FROM THE OVNWER BEFORE INTERRUPTING ELECTRICAL SERVICE.
- COORDINATE NEW WORK WITH OTHER TRADES AND VERIFY EXISTING CONDITIONS TO AVOID INTERFERENCE. IN CASE OF INTERFERENCE, AT&T MOBILITY'S REPRESENTATIVE WILL DECIDE WHICH WORK IS TO BE RELOCATED, REGARDLESS OF WHICH WAS FIRST INSTALLED.
- THE INSTALLATION MUST COMPLY WITH NEC AND ALL FEDERAL, STATE AND LOCAL RULES AND REGULATIONS.
- THE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS AND EQUIPMENT UNLESS OTHERWISE DEFINED BY DIMENSIONS OR DETAILS. EXACT EQUIPMENT LOCATIONS AND RACEWAY ROUTING SHALL BE GOVERNED BY ACTUAL FIELD CONDITIONS AND/OR DIRECTIONS FROM AT&T MOBILITY'S REPRESENTATIVE.
- CONTRACTOR SHALL PAY ALL PERMITS AND FEES REQUIRED.
- ALL MATERIALS SHALL BE FURNISHED AND WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE APPLICABLE SECTIONS OF THE STANDARDS REFERENCED BELOW:
 - ANSI (AMERICAN NATIONAL STANDARDS INSTITUTE)
 - ASTM (AMERICAN SOCIETY FOR TESTING MATERIALS)
 - ETL (ELECTRICAL TESTING LABORATORY)
 - ICEA (INSULATED CABLE ENGINEERS ASSOCIATION)
 - IEEE (INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS)
 - NBFJ (NATIONAL BOARD OF FIRE UNDERWRITERS)
 - NESC (NATIONAL ELECTRICAL SAFETY CODE)
 - NEMA (NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION)
 - NFPA (NATIONAL FIRE PROTECTION ASSOCIATION)
 - UL (UNDERWRITERS LABORATORY)
- CONTRACTOR SHALL REVIEW PLANS, DETAILS AND SPECIFICATIONS IN DETAIL AND ADJUST WORK TO CONFIRM WITH ACTUAL SITE CONDITIONS SO THAT ELECTRICAL DEVICES AND EQUIPMENT WILL BE PROPERLY LOCATED AND READILY ACCESSIBLE. QUANTITIES LISTED IN MATERIAL LISTS ON THE DRAWINGS ARE FOR INFORMATION ONLY. THE CONTRACTOR SHALL PROVIDE HIS OWN TAKEOFF FOR MATERIAL QUANTITY AND TYPES BASED ON ACTUAL SITE CONDITIONS. IN ADDITION, CONTRACTOR SHALL PROVIDE ALL NECESSARY MATERIALS TO INSTALL EQUIPMENT FURNISHED BY AT&T MOBILITY OR ITS SUPPLIERS. ALL ITEMS NOT SPECIFICALLY MENTIONED HEREIN OR SHOWN ON THE CONTRACT DRAWINGS, BUT WHICH ARE OBVIOUSLY NECESSARY TO MAKE A COMPLETE WORKING INSTALLATION, SHALL BE INCLUDED.
- THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) AT&T MOBILITY'S REPRESENTATIVE OF ANY CONFLICTS PRIOR TO THE SUBMISSION OF CONTRACTOR'S PROPOSAL OR PERFORMANCE OF WORK. IN THE EVENT OF DISCREPANCIES THE CONTRACTOR SHALL PRICE THE MORE COSTLY OR EXTENSIVE WORK, UNLESS DIRECTED IN WRITING OTHERWISE.
- ALL FLOORS WHERE PENETRATIONS ARE REQUIRED IN BUILDING ARE TO BE CORE DRILLED AND THEN FIREPROOFED.

B. WIRING/CONDUIT

- PROVIDE PULL BOXES AND JUNCTION BOXES WHERE SHOWN OR AS REQUIRED BY CODE SUCH THAT NO MORE THAN THE EQUIVALENT OF FOUR QUARTER BENDS (360 DEGREES TOTAL) EXIST IN/ON CONDUIT RUN.
 - ALL POWER AND CONTROL/INDICATION WIRING SHALL BE TYPE THHN/THWN 800V RATED 75 DEGREES CELSIUS, UNLESS NOTED OTHERWISE.
 - CONDUIT BENDS SHALL BE MADE IN ACCORDANCE WITH NEC TABLE 346-10. NO RIGHT ANGLE DEVICE OTHER THAN STANDARD CONDUIT ELBOWS WITH 12" MINIMUM INSIDE SWEEPS FOR ALL CONDUITS 2" OR LARGER.
 - POWER WIRING SIZE SHALL NOT BE SMALLER THAN #12 AWG.
 - ALL WIRING SHALL BE COPPER. ALUMINUM WILL NOT BE ACCEPTABLE. ALL POWER CIRCUITS SHALL CONTAIN A GROUND WIRE.
 - PHASE MARKINGS TO BE USED AT POWER CONDUCTOR TERMINATIONS.
 - CONTRACTOR SHALL ENSURE INTEGRITY IS MAINTAINED WHEN INSTALLING CONDUIT AND WIRING.
 - INSTALL PULL STRING IN ALL CONDUIT.
 - FOR ROOFTOP INSTALLS AND BUILD-OUTS, CONDUITS INSIDE BUILDING AND ON ROOF SHALL BE RGS, UNLESS OTHERWISE NOTED. FOR RAW LAND SITES AND CO-LOCATES, PVC SCHEDULE 80 SHALL BE UTILIZED UNLESS NOTED OTHERWISE.
 - MAINTAIN MINIMUM 1'-0" VERTICAL AND 1'-0" HORIZONTAL SEPARATION FROM ANY MECHANICAL GAS PIPING.
 - ALL WIRING ROUTED IN PLENUM TO BE PLENUM RATED OR IN METALLIC FLEX (LIQUIDTITE) CONDUIT.
 - INSPECTION WINDOWS ARE REQUIRED ON ALL INDOOR LUGS.
- C. EQUIPMENT**
- EQUIPMENT/PARTS CONNECTED TO EXISTING PANELS, DUCTS, ETC. SHALL MATCH THE CHARACTERISTICS (A/C, V, A) OF THAT EQUIPMENT.
 - ALL ELECTRICAL EQUIPMENT OUTSIDE SHALL BE NEMA OR 3R RATED.
- D. GROUNDING**
- ALL GROUND CONNECTIONS TO BUILDING SHALL BE MADE USING TWO-HOLE CONNECTORS. PROVIDE STAINLESS STEEL BOLTS AND LOCK WASHERS ON ALL MECHANICAL GROUND CONNECTIONS.
 - ALL EQUIPMENT SURFACES TO BE BONDED TO GROUNDING SYSTEM SHALL BE STRIPPED OF ALL PAINT AND DIRT. CONNECTIONS TO VARIOUS METALS SHALL BE OF A TYPE AS TO NOT CAUSE A GALVANIC OR CORROSIVE REACTION. AREA SHALL BE REPAINTED WITH COLD GALVANIZE SPRAY FOLLOWING BONDING.
 - ANY METALLIC ITEM WITHIN 6' OF GROUND CONDUCTORS MUST BE CONNECTED TO THE GROUNDING SYSTEM.
 - EXTERIOR, ABOVE GRADE GROUND CONNECTIONS SHALL BE FURNISHED WITH A LIBERAL PROTECTIVE COATING OF ANTI-OXIDE COMPOUND.
 - ALL MATERIALS AND LABOR REQUIRED FOR THE GROUNDING SYSTEM AS INDICATED ON THE PLANS AND DETAILS, AND AS DESCRIBED HEREIN SHALL BE FURNISHED BY THIS CONTRACTOR UNLESS OTHERWISE NOTED.
 - EXACT LOCATION OF GROUND CONNECTION POINTS SHALL BE DETERMINED IN FIELD. ADJUST LOCATIONS INDICATED ON THE PLANS ACCORDING TO ACTUAL EQUIPMENT LOCATIONS TO KEEP THE GROUND CONNECTIONS CABLES AS SHORT AS POSSIBLE. USE EXISTING GROUNDING LOCATION ON ATS IF AVAILABLE.
 - PROVIDE ALL ELECTRICAL SYSTEM AND EQUIPMENT GROUNDS AS REQUIRED BY THE CURRENT EDITION OF THE NATIONAL ELECTRICAL CODE AND THE CURRENT EDITION OF THE NATIONAL ELECTRICAL SAFETY CODE. BONDING JUMPERS WITH APPROVED GROUND FITTINGS SHALL BE INSTALLED AT ALL RACEWAYS, EQUIPMENT ENCLOSURES, PULL BOXES, ETC. TO MAINTAIN GROUND CONTINUITY WHERE REQUIRED BY CODE.
 - ALL EQUIPMENT GROUND CONDUCTORS SHALL BE TIN COATED, #2 AWG COPPER UNLESS NOTED OTHERWISE ON THE DRAWINGS.
- E. INSPECTION/DOCUMENTATION**
- INCLUDE TIME/DATE STAMPED PHOTOS WITH TAPE MEASURE VERIFICATION FOR ALL BURIED CONDUIT.
 - THE CONTRACTOR, UPON COMPLETION OF HIS WORK, SHALL PROVIDE AS-BUILT DRAWINGS. INFORMATION SHOULD BE GIVEN TO THE GENERAL CONTRACTOR FOR INCLUSION IN FINAL AS BUILT SURVEY DOCUMENTS TO BE GIVEN TO THE OWNER.
 - CONTRACTOR SHALL SUPPLY DOCUMENTATION ATTESTING TO THE COMPLETE GROUND SYSTEM'S RESISTIVITY (MAX. 5 OHMS).
 - AN ELECTRICAL INSPECTION SHALL BE MADE BY AN INSPECTING AGENCY APPROVED BY AT&T MOBILITY'S REPRESENTATIVE. CONTRACTOR SHALL COORDINATE ALL INSPECTIONS AND OBTAIN POWER COMPANY APPROVAL.
 - CONTRACTOR SHALL HAVE ATS AND GENERATOR RELAY INSTALLATION AND CONNECTIONS INSPECTED BY OTHERS TO ENSURE THAT UL LISTING FOR THAT EQUIPMENT IS NOT VOIDED.



at&t

GENERAL DYNAMICS

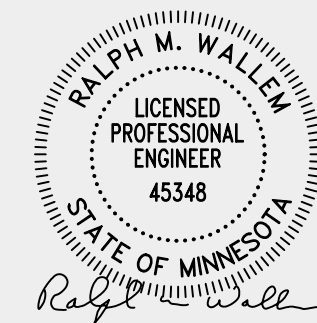
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SHEET NAME:

GENERAL NOTES

SHEET NO.:

SP-1

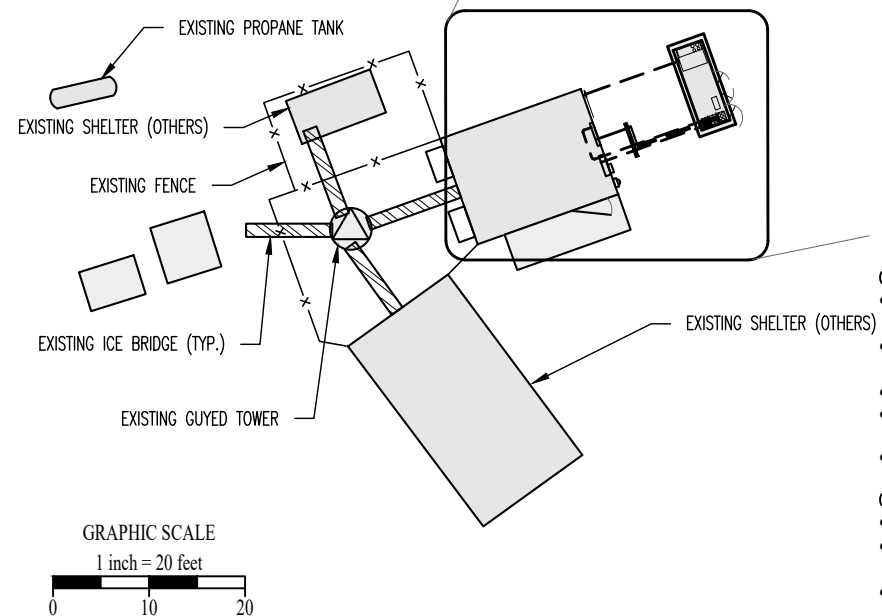
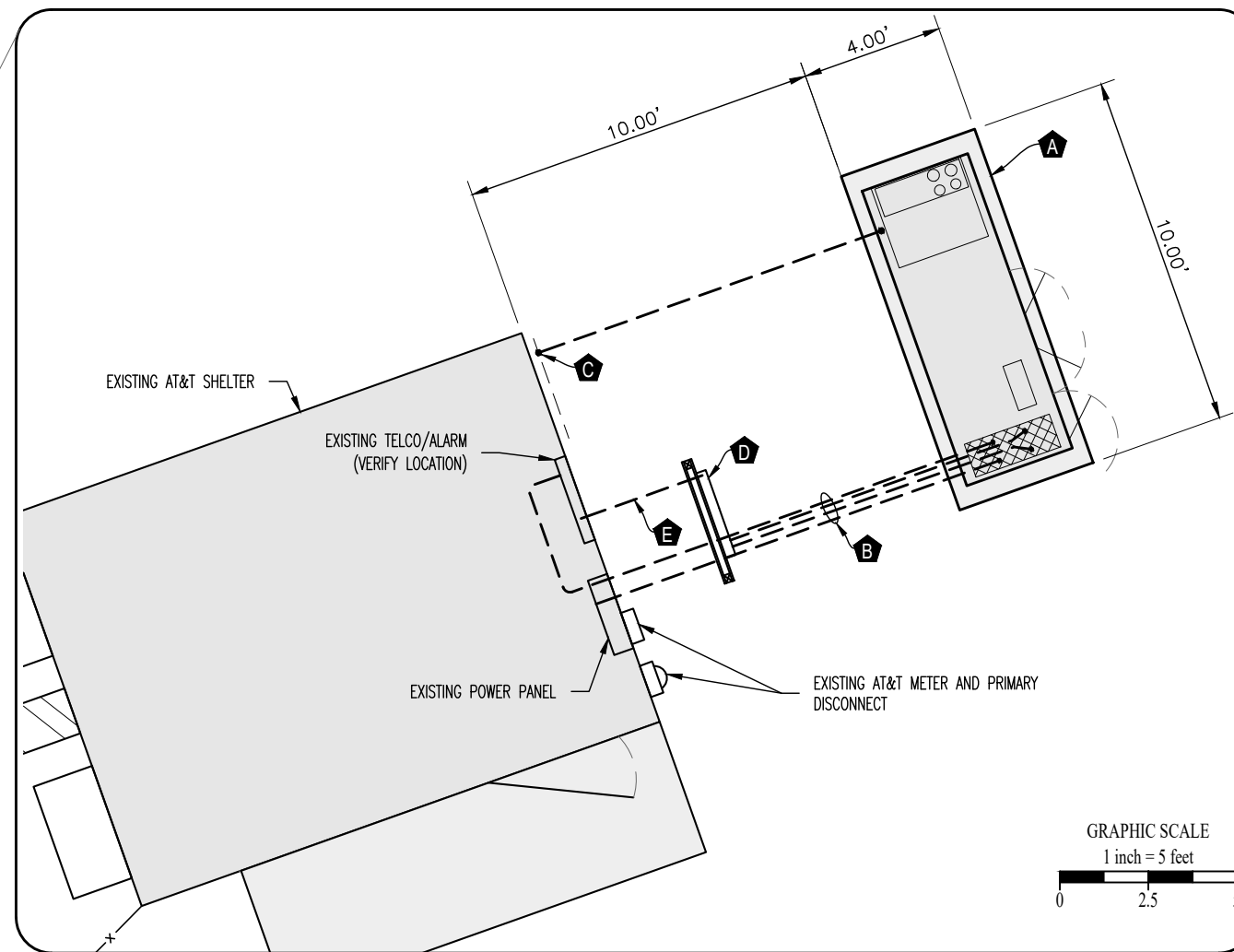
REVISION NUMBER

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CONSTRUCTION LEGEND

- A. INSTALL NEW DIESEL GENERATOR PER MANUFACTURERS SPECIFICATIONS IN LEASE AREA.
- B. PROPOSED AT&T UNDERGROUND ELECTRICAL SERVICE & CONTROLS FROM GENERATOR TO EQUIPMENT INSIDE SHELTER, SEE SHEET E-1. FIELD LOCATE EXISTING UTILITIES & GROUND RING.
- C. 1 - #2 AWG BARE TINNED GROUND WIRE TO EXISTING SITE GROUND RING. GROUND GENERATOR PER MANUFACTURERS RECOMMENDATIONS.
- D. INSTALL AUTOMATIC TRANSFER SWITCH
- E. CONNECT PROPOSED ATS TO EXISTING ALARM/TELCO



SCOPE OF WORK NOTES

GENERAL:

- NEW DIESEL GENERATOR PROVIDED BY GENERAL DYNAMICS AND INSTALLED ON CONCRETE PAD (SEE S-1) BY GENERAL CONTRACTOR.
- NEW AUTOMATIC TRANSFER SWITCH PROVIDED BY GENERAL DYNAMICS AND INSTALLED BY CONTRACTOR (AS REQUIRED)
- CONTRACTOR TO VERIFY ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
- CONTRACTOR SHALL RESTORE AND REPAIR ANY DAMAGED AREAS CAUSED BY CONSTRUCTION TO ORIGINAL OR BETTER CONDITION.
- FIELD VERIFY LOCATION OF ALL EQUIPMENT

CONDUITS:

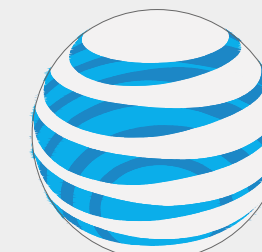
- INSTALL PULL STRING IN EACH CONDUIT.
- (1) NEW 2" CONDUIT WITH CONDUCTORS TO RUN FROM NEW GENERATOR TO NEW ATS. CONDUIT PROVIDED AND INSTALLED BY GENERAL CONTRACTOR. SEE E-1
- (1) NEW 1" CONDUIT WITH CONDUCTORS TO RUN FROM NEW GENERATOR TO AC PANEL FOR GENERATOR BLOCK HEATER AND BATTERY HEATER/CHARGER. CONDUIT PROVIDED AND INSTALLED BY GENERAL CONTRACTOR. SEE E-1
- (2) NEW 1" CONDUITS FOR START CIRCUIT AND ALARM CABLING. CONDUIT PROVIDED AND INSTALLED BY GENERAL CONTRACTOR. SEE E-1

GROUNDING:

- NEW EXOTHERMIC CONNECTION FROM EXISTING GROUND RING TO NEW MECHANICAL CONNECTION AT GENERATOR CHASSIS. GENERAL CONTRACTOR TO VERIFY LOCATION IN FIELD. LOCATE GROUND RODS NO MORE THAN 16'-0" APART.

H-FRAME:

- PROVIDE NEW H-FRAME IF REQUIRED, MATCH EXISTING H-FRAME MATERIAL FOR CONSTRUCTION OF NEW H-FRAME.
- USE ALL GALVANIZED COMPONENTS, WHITE PLASTIC CAPS ON UNI-STRUTS, WEATHER CAPS ON TOPS OF PIPE AND CONCRETE.
- SUPPORTS BELOW FROST LINE.
- TOP OF FOOTING SHOULD BE AT LEAST 2" ABOVE EXISTING GROUND LEVEL.
- SLOPE THE GROUND AWAY FROM THE H-FRAME FOR POSITIVE WATER DRAINAGE OFF OF THE FORM.



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SHEET NAME:

SITE PLAN

SHEET NO.:

A-1

REVISION NUMBER

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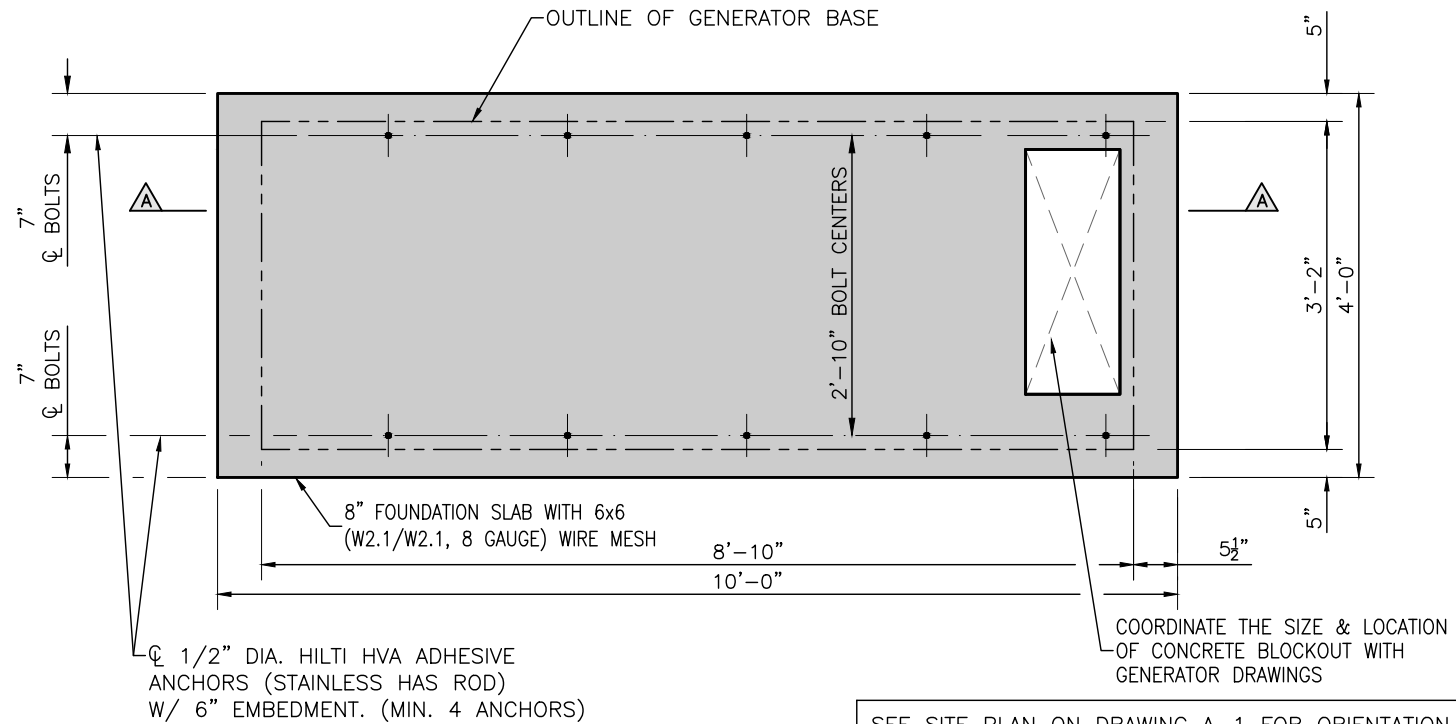
STRUCTURAL GENERAL NOTES

- 1.0 GENERAL CONDITIONS
- 1.1 DESIGN AND CONSTRUCTION OF ALL WORK SHALL CONFORM TO LOCAL BUILDING CODES, ACI 318-11. IN CASE OF CONFLICT BETWEEN THE CODES, STANDARDS, REGULATIONS, SPECIFICATIONS, GENERAL NOTES AND/OR MANUFACTURER'S REQUIREMENTS, USE THE MOST STRINGENT PROVISIONS.
- 1.2 IT IS THE EXPRESS INTENT OF PARTIES INVOLVED IN THIS PROJECT THAT THE CONTRACTOR OR SUBCONTRACTOR OR INDEPENDENT CONTRACTOR OR THE RESPECTIVE EMPLOYEES SHALL EXCULPATE THE ARCHITECT, THE ENGINEER, TECH. CONSTRUCTION MANAGER, THE OWNER, AND THEIR AGENTS FROM ANY LIABILITY WHATSOEVER AND HOLD THEM HARMLESS AGAINST LOSS, DAMAGES, LIABILITY OR ANY EXPENSE ARISING IN ANY MATTER FROM THE WRONGFUL OR NEGLIGENT ACT, OR FAILURE TO CARRY METHODS, TECHNIQUES OR PROCEDURES OR FAILURE TO CONFORM TO THE STATE SCAFFOLDING ACT IN CONNECTION WITH THE WORK.
- 1.3 DO NOT SCALE DRAWINGS.
- 1.4 VERIFY ALL EQUIPMENT MOUNTING DIMENSIONS PER MANUFACTURER DRAWINGS
- 1.5 DESIGN LOAD: 250 PSF DISTRIBUTED LIVE LOAD
- 2.0 FOR DESIGN AND ANALYSIS OF THE FOUNDATION, THE MINIMUM NET SOIL BEARING CAPACITY SHALL BE ASSUMED TO BE 2000 PSF.
- 3.0 CONCRETE
- 3.1 MEET OR EXCEED THE FOLLOWING CODES AND STANDARDS:
- DESIGN: ACI 318-11
 - CONSTRUCTION: ACI 301
 - DETAILING: CRSI MANUAL OF STANDARD PRACTICE
 - REINF. STEEL: ASTM A1064
 - MIXING: ASTM C 94. READY MIX CONCRETE
 - AIR ENTRAINMENT: ACI 318 AND ASTM C-260
 - AGGREGATE: ASTM C 33 AND C 330 (FOR LIGHT WEIGHT)
- 3.2 CONCRETE STRENGTH AT 28 DAYS SHALL BE 4000 PSI MINIMUM.
- 3.3 PROVIDE AIR ENTRAINMENT CONCRETE WITH AIR CONTENT OF 5 TO 7% FOR ALL CONCRETE EXPOSED TO EARTH OR WEATHER.
- 3.4 MAXIMUM AGGREGATE SIZE: 3/4"
- 3.5 DO NOT USE IN ADMIXTURE, WATER OR OTHER CONSTITUENTS OF CONCRETE WHICH HAS CALCIUM CHLORIDE.
- 3.6 MINIMUM COVER FOR REINFORCING STEEL SHALL BE AS SHOWN ON PLAN.
- 4.0 FOUNDATION AND EXCAVATION NOTES
- 4.1 SLAB SHALL BE CONSTRUCTED UPON UNDISTURBED, NATURAL SUBGRADE OR COMPACTED GRANULAR FILL WITH AN ASSUMED MINIMUM NET ALLOWABLE BEARING CAPACITY OF 2000 PSF.
- 4.2 ALL ORGANIC AND / OR OTHER UNSUITABLE MATERIAL SHALL BE REMOVED FROM FOUNDATION AND SLAB SUBGRADE AND BACKFILL AREAS, AND THEN BACKFILLED WITH ACCEPTABLE GRANULAR FILL COMPACTED TO 95 PERCENT OF MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT (ASTM D1557).
- 4.3 THE CONTRACTOR SHALL PROVIDE ALL NECESSARY MEASURES TO PREVENT ANY WATER, FROST, OR ICE FROM PENETRATING ANY FOOTING OR STRUCTURAL SUBGRADE BEFORE AND AFTER PLACING OF CONCRETE, AND UNTIL SUCH CONCRETE HAS FULLY CURED.

DOUBLE WALL FUEL TANK BASE SPECIFICATION

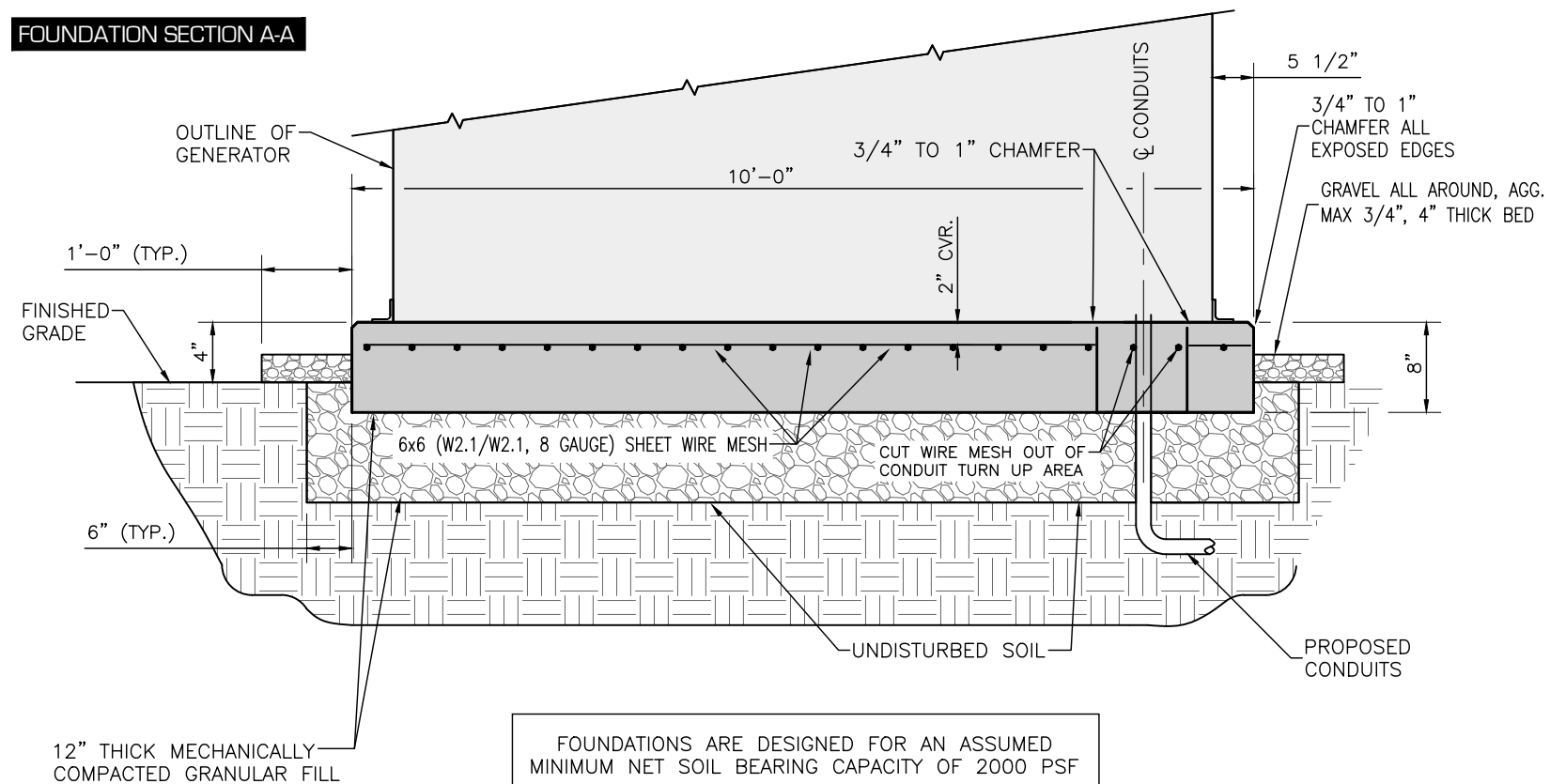
- U.L. 142 DOUBLE WALL FUEL TANK BASE SPECIFICATION
- FUEL TANK BASE CONSTRUCTION:
- BE CONSTRUCTED IN ACCORDANCE WITH UNDERWRITERS LABORATORIES STANDARD UL-142. BE CONSTRUCTED IN ACCORDANCE WITH FLAMMABLE AND COMBUSTIBLE LIQUIDS CODE, NFPA 30; THE STANDARD FOR INSTALLATION AND USE OF STATIONARY COMBUSTIBLE ENGINE AND GAS TURBINES, NFPA 37; AND THE STANDARD FOR EMERGENCY AND STANDBY POWER SYSTEMS, NFPA 110.
 - ANCHORS MINIMUM (4) @ 5/8" FOR GEN-SET MOUNTING
 - SUB BASE TANK TESTING: PRIMARY TANK AND SECONDARY CONTAINMENT BASIN SECTIONS SHALL BE PRESSURIZED AT 3-5 PSI AND LEAK-CHECKED TO ENSURE INTEGRITY OF SUB BASE WELD SEAMS PER UL-142 STANDARDS
 - FUEL FILL:
 - 5 GALLON SPILL CONTAINMENT WITH ALARM
 - 40% REMAINING FOR ALARM
 - 20% REMAINING FOR SHUT-DOWN
 - FACTORY PRE-SET AT 95% FULL FOR ALARM
 - FUEL CONTAINMENT BASIN: SUB BASE TANK SHALL INCLUDE A WELDED STEEL CONTAINMENT BASIN, SIZED AT A MINIMUM OF 110% OF THE TANK CAPACITY TO PREVENT ESCAPE OF FUEL INTO THE ENVIRONMENT IN THE EVENT OF A TANK RUPTURE. A FUEL CONTAINMENT BASIN LEAK DETECTOR SWITCH SHALL BE PROVIDED.

FOUNDATION PLAN VIEW

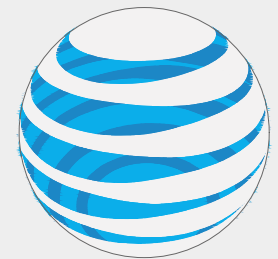


SEE SITE PLAN ON DRAWING A-1 FOR ORIENTATION OF GENERATOR SLAB / CONDUIT STUB-UPS

FOUNDATION SECTION A-A



FOUNDATIONS ARE DESIGNED FOR AN ASSUMED MINIMUM NET SOIL BEARING CAPACITY OF 2000 PSF



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Land Surveyors
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Phone: (812) 683-3049

DRAWING REVISIONS

REV.	DESCRIPTION	DATE	BY
0	100% CDs	7-14-19	MCB



LAWLER
FA#: 10125275
USID: 95137
38935 170TH AVENUE
MCGREGOR, MN 55760
GENERATOR UPGRADE

CONTRACTOR SHALL VERIFY ALL PLANS & EXISTING DIMENSIONS & CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

SHEET NAME: FOUNDATION DETAILS	
SHEET NO.: S-1	REVISION NUMBER: 0

DIAGRAM CIRCUIT SCHEDULE							Pair #	Colors	AT&T Nomenclature	GenDyn cards nomenclature
NO.	FROM	TO	WIRES	GROUND	CONDUIT SIZE	FUNCTION				
1	METER/PRIMARY DISCONNECT	PROPOSED ATS	(3) 3/0	(1) #4	2"	POWER FEED	1	Blue White White	RBS Generator Rupture Basin	Critical Failure
2	PROPOSED ATS	PROPOSED GENERATOR	(2) #14	(1) #14	1"	START CIRCUIT	2	Orange White White	RBS Generator Overfill	Fuel Leak/Overflow
3	PROPOSED GENERATOR	PROPOSED ATS	(3) #1	(1) #4	2"	POWER FEED	3	Green White White	RBS Generator Running	Generator Running
4	PROPOSED ATS	EXISTING AC PANEL	(3) 3/0	(1) #4	2"	POWER FEED	4	Brown White White	RBS Generator Low Fuel	Low Fuel
5	EXISTING AC PANEL	PROPOSED GENERATOR	(2) #12 (2) #12	(1) #12 (1) #12	1"	2-20 AMP CIRCUITS FOR (1) GENERATOR BLOCK HEATER & (2) BATTERY HEATER/CHARGER	5	Slate White White	RBS Generator Shutdown	Major Fault
6	PROPOSED ATS	EXISTING TELCO BOARD/ALARM	4-PAIR 24 AWG	N/A	1"	ALARM CABLES FROM ATS. PROVIDE 10' OF SLACK CABLE. FINAL PUNCH DOWN IS BY AT&T TECH. LABEL ALL WIRES. INSULATION FOR ALARM WIRING MUST BE RATED AT 600V IF INSTALLED IN CONDUITS WITH CONDUCTORS.	6	Red Blue Red	RBS Generator Common	Minor Fault
7	PROPOSED GENERATOR	EXISTING TELCO BOARD/ALARM	12-PAIR 24 AWG	N/A	1"	ALARM CABLES FROM ATS. PROVIDE 10' OF SLACK CABLE. FINAL PUNCH DOWN IS BY AT&T TECH. LABEL ALL WIRES. INSULATION FOR ALARM WIRING MUST BE RATED AT 600V IF INSTALLED IN CONDUITS WITH CONDUCTORS.	7	FROM ATS TO 66 BLOCK Blue White/White white	Commercial Power Fail Commercial Power Fail	Commercial Power Fail Commercial Power Fail
8	EXISTING AC PANEL	PROPOSED ATS	(2) #12	(1) #12	1"	20 AMP CIRCUIT FOR ATS POWER				



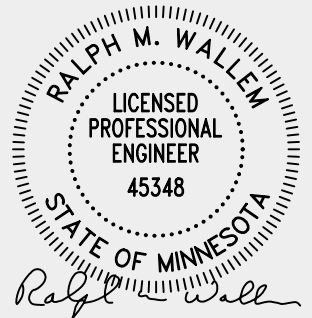
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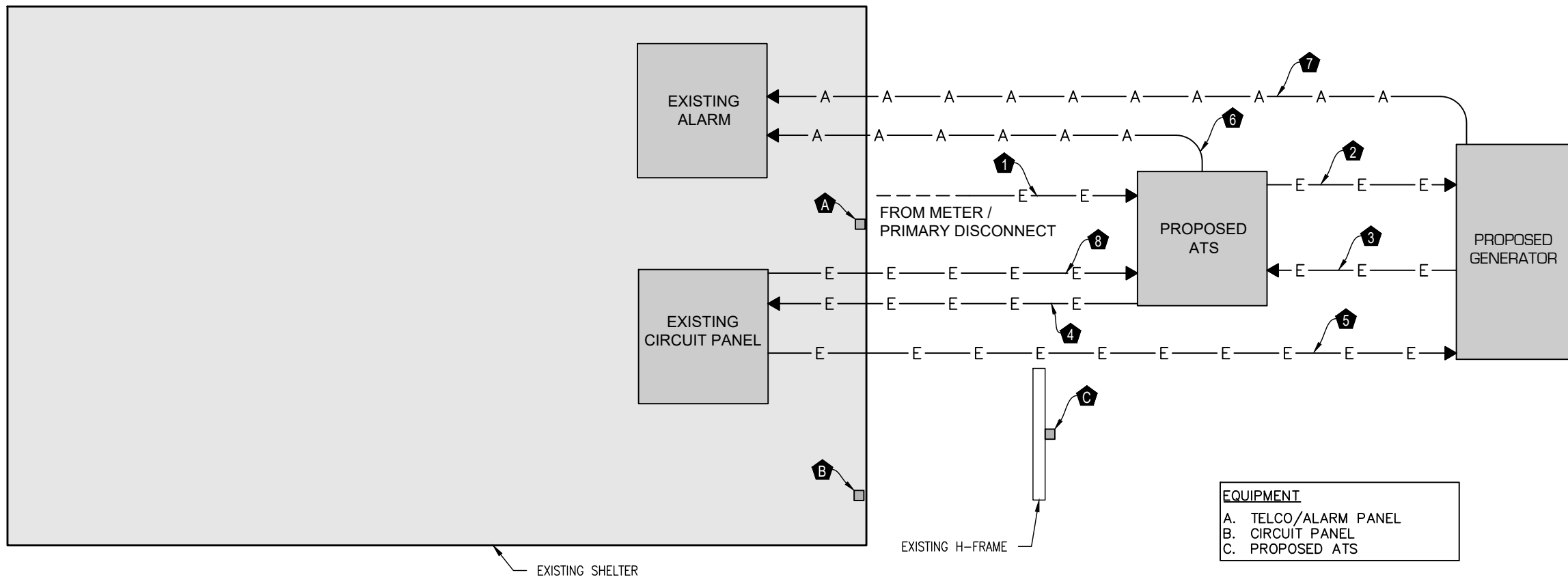


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FA#: 10125275
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GENERATOR UPGRADE

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SHEET NAME:
WIRING DETAILS

SHEET NO.: **E-1** REVISION NUMBER: **0**



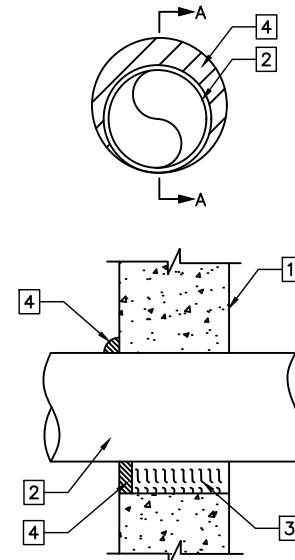
NOTE:
FIELD VERIFY LOCATION OF ALL EQUIPMENT

NOTE:
CONTRACTOR TO FOLLOW MANUFACTURER'S ALARM RECOMMENDATIONS

1 PROPOSED WIRING DIAGRAM
SCALE: NONE

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U.L. SYSTEM NO. C-AJ-1150
 CONDUIT THROUGH BEARING WALL SIMILAR TO U.L. DESIGN NO. U902
 F RATING = 3 HR
 T RATING = 0 HR



SECTION A-A

- FLOOR OR WALL ASSEMBLY : MINIMUM 4-1/2" THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF) CONCRETE. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS*. MAX DIAMETER OF OPENING IS 4". SEE CONCRETE BLOCKS (CATZ) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.
- THROUGH PENETRATIONS : ONE METALLIC PIPE OR CONDUIT TO BE INSTALLED WITHIN THE FIRESTOP SYSTEM. PIPE OR CONDUIT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY. THE ANNULAR SPACE SHALL BE MINIMUM 0". (POINT CONTACT) TO MAXIMUM 1-3/8". THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES OR CONDUITS MAY BE USED:
 - A. STEEL PIPE-NOMINAL 6" DIAMTER (OR SMALLER) SCHEDULE 40 (OR HEAVIER) STEEL PIPE.
 - B. IRON PIPE-NOMINAL 6" DIAMETER (OR SMALLER) CAST OR DUCTILE IRON PIPE.
 - C. CONDUIT-NOMINAL 4" DIAMETER (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING OR NOMINAL 3-1/2" DIAMETER (OR SMALLER) STEEL CONDUIT.
- PACKING MATERIAL: MINIMUM 6" THICKNESS OF MIN 4.0 PCF MINERAL WOOL BATTING INSULATION FIRMLY PACKED INTO OPENING AS A PERMANENT FORM. PACKING MATERIAL TO BE RECESSED FROM TOP SURFACE OF FLOOR OR FROM BOTH SURFACES OF WALL AS REQUIRED TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL.
- FILL, VOID, OR CAVITY MATERIAL*: SEALANT: MINIMUM 1/4" THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH TOP SURFACE OF FLOOR AND WITH BOTH SURFACES OF WALL. AT THE POINT CONTACT LOCATION BETWEEN PIPE AND CONCRETE, A MINIMUM 1/2" DIAMETER BEAD OF FILL MATERIAL SHALL BE APPLIED AT THE CONCRETE/PIPE INTERFACE ON THE TOP SURFACE OF FLOOR AND ON BOTH SURFACES OF WALL. W RATING APPLIES ONLY WHEN CP601S OR CP604 SEALANT IS USED.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC. : CP601S, CP604, CP606, OR FS-ONE SEALANT.

* BEARING THE UL CLASSIFICATION MARK

NOTE:
 IF EXISTING CONSTRUCTION VARIES FROM THIS DETAIL, AN EQUAL 3-HOUR U.L. PENETRATION APPROPRIATE FOR THE EXISTING 2-WALL TYPE SHALL BE CONSTRUCTED

NOTE:
 GC SHALL USE NON-SHRINKING CAULK TO WEATHERSEAL ALL PENETRATIONS INTO OR THRU SHELTER WALL



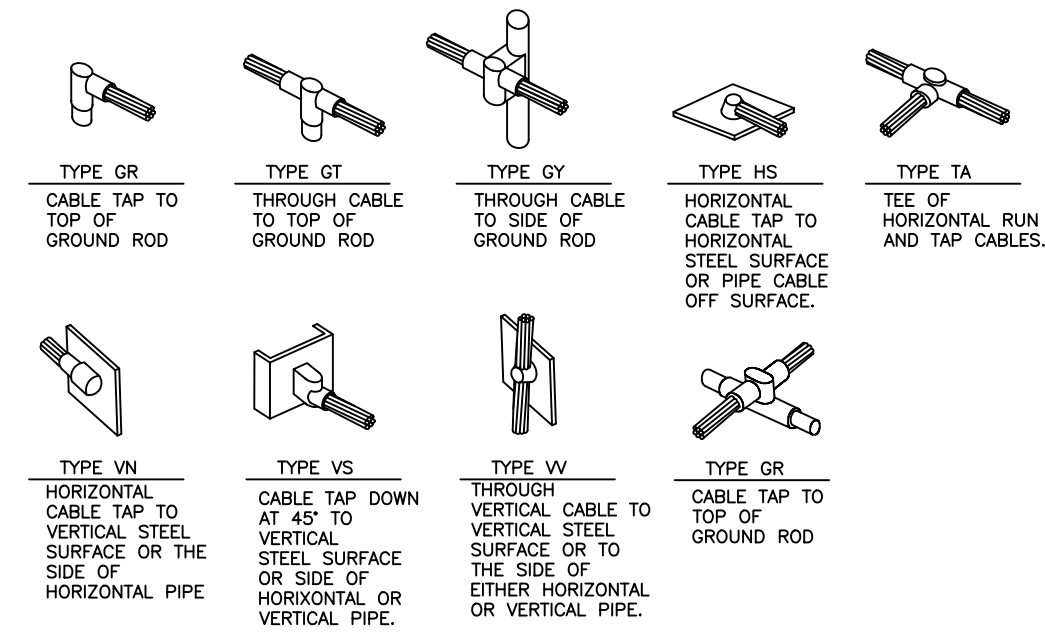
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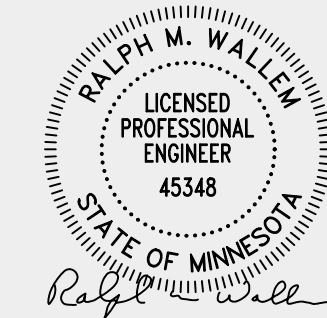
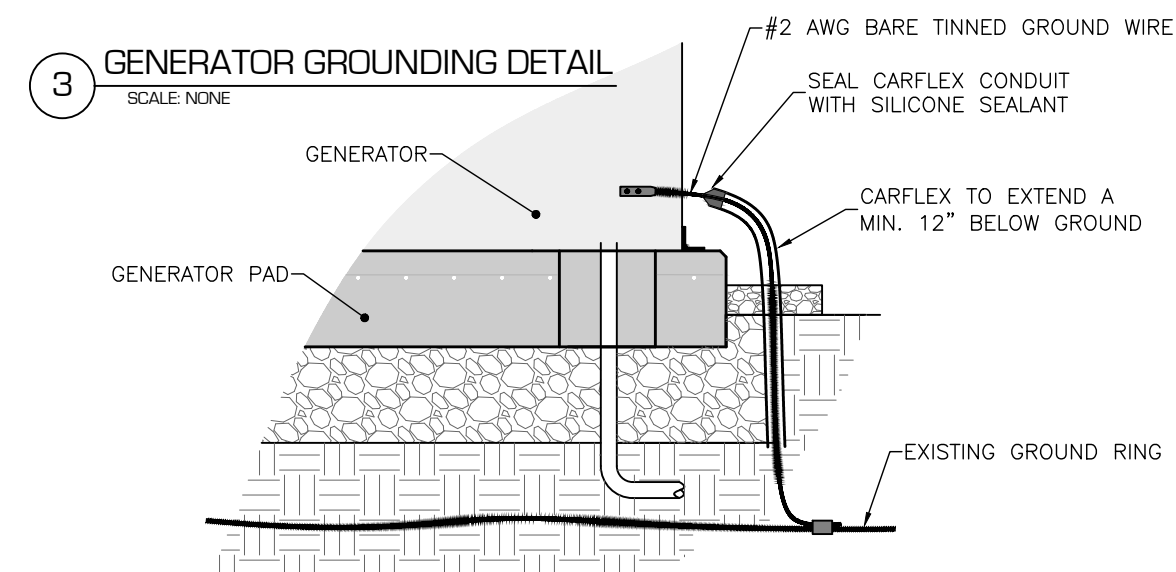
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1 OUTER WALL PENETRATION DETAIL (IF APPLICABLE)
 SCALE: NONE



2 CADWELD DETAILS
 SCALE: NONE



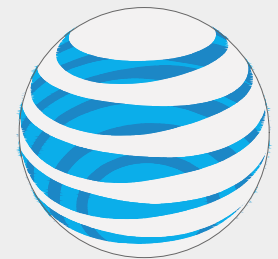
LAWLER
 FA#: 10125275
 USID: 95137
 38935 170TH AVENUE
 MCGREGOR, MN 55760
 GENERATOR UPGRADE

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SHEET NAME:
PANEL & PENETRATION DETAILS

SHEET NO.:	REVISION NUMBER
D-1	0

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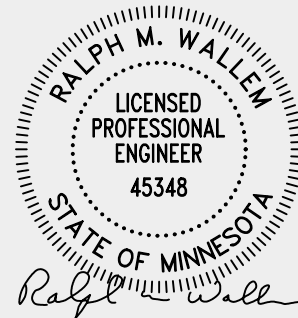
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SHEET NAME:
PANEL & PENETRATION DETAILS

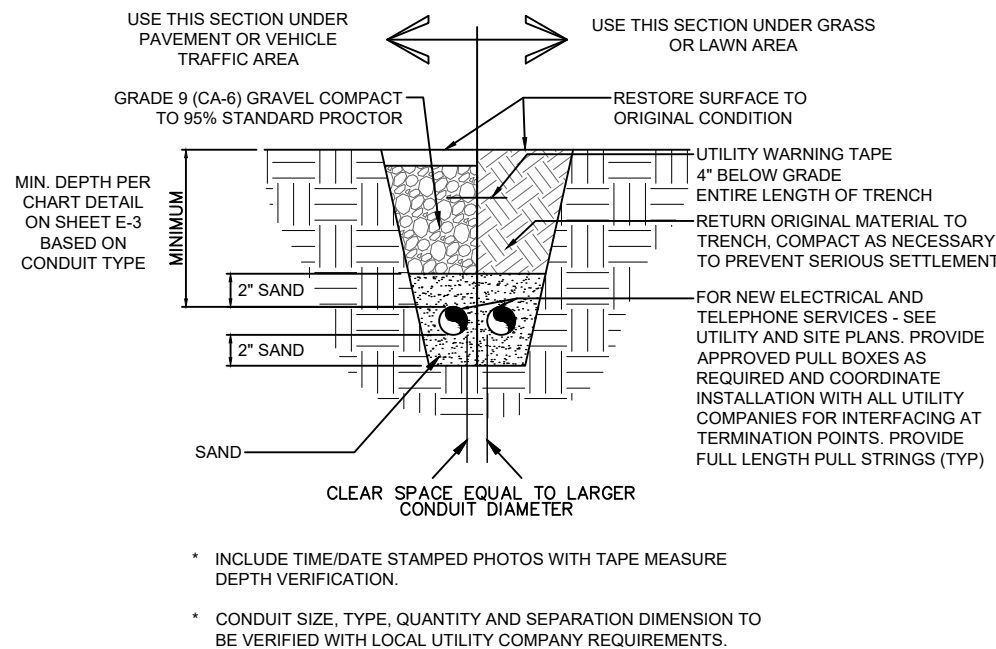
SHEET NO.:	REVISION NUMBER
D-2	0

MINIMUM COVER REQUIREMENTS, 0 TO 600 VOLTS, NOMINAL, BURIAL IN INCHES		
TYPE OF WIRING METHOD OR CIRCUIT		
LOCATION OF WIRING METHOD OR CIRCUIT	DIRECT BURIAL CABLES OR CONDUCTORS	RIGID METAL CONDUIT OR INTERMEDIATE METAL CONDUIT
ALL LOCATIONS NOT SPECIFIED BELOW	24 INCHES	6 INCHES
IN TRENCH BELOW 2 INCH THICK CONCRETE OR EQUIVALENT	18 INCHES	6 INCHES
UNDER STREETS OR HIGHWAYS	24 INCHES	24 INCHES
CROWN COMPOUNDS	30 INCHES	30 INCHES

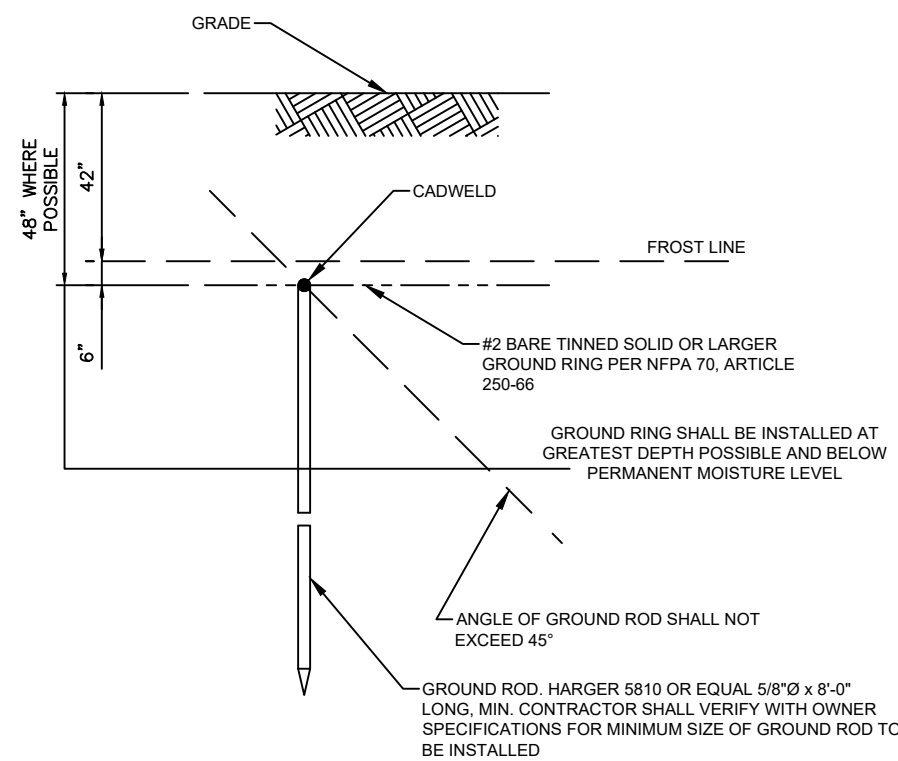
COVER IS DEFINED AS THE SHORTEST DISTANCE IN INCHES MEASURED BETWEEN A POINT ON THE TOP SURFACE OF ANY DIRECT-BURIED CONDUCTOR, CABLE, CONDUIT, OR OTHER RACEWAY AND THE TOP SURFACE OF FINISHED GRADE, CONCRETE, OR SIMILAR COVER.

INSTALL WARNING TAPE 4" BELOW GRADE FOR THE ENTIRE LENGTH OF TRENCH.

PROVIDE AT LEAST 2" OF SAND BED ABOVE CONDUIT AND 2" OF SAND BED BELOW THE CONDUIT.



2 CONDUCTOR BURIAL REQUIREMENTS
SCALE: NONE



3 GROUND ROD DETAIL
SCALE: NONE

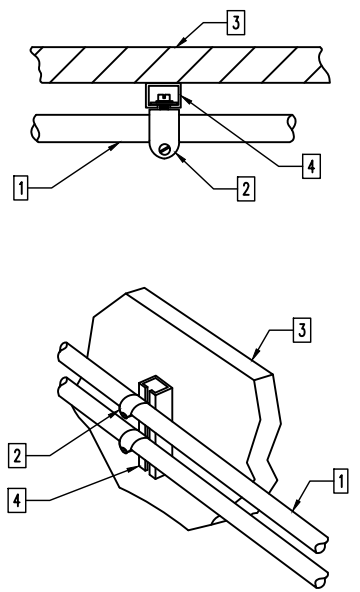
- NOTE: GROUND RODS MAY BE:
-COPPER CLAD STEEL
-SOLID COPPER
- NOTE: GROUND RODS SHALL HAVE A MAXIMUM SPACING TWICE THE LENGTH OF ROD
- NOTE: SEE RESISTIVITY REPORT FOR VERIFICATION AS AVAILABLE
- NOTE: A LARGER CONDUCTOR SHALL BE REQUIRED IN AREAS HIGHLY PRONE TO LIGHTNING AND/OR AREAS WITH HIGHLY ACIDIC SOIL
- NOTE: GROUND RODS INSTALLED WITHIN CLOSE PROXIMITY TO TOWER OR WHEN SOIL IS AT OR BELOW 2,000 OHM-CM, SHALL BE GALVANIZED TO PREVENT GALVANIC CORROSION OF TOWER, (SEE ANSI/TIA-EIA-222-G)

- 1 CONDUIT (TYP)
- 2 BUTTERFLY CLAMP AS REQUIRED
- 3 EXISTING WALL / CEILING
- 4 VERTICAL "UNISTRUT" P1000 'T' SERIES LENGTH BASED ON NUMBER OF CONDUIT TO BE MOUNTED

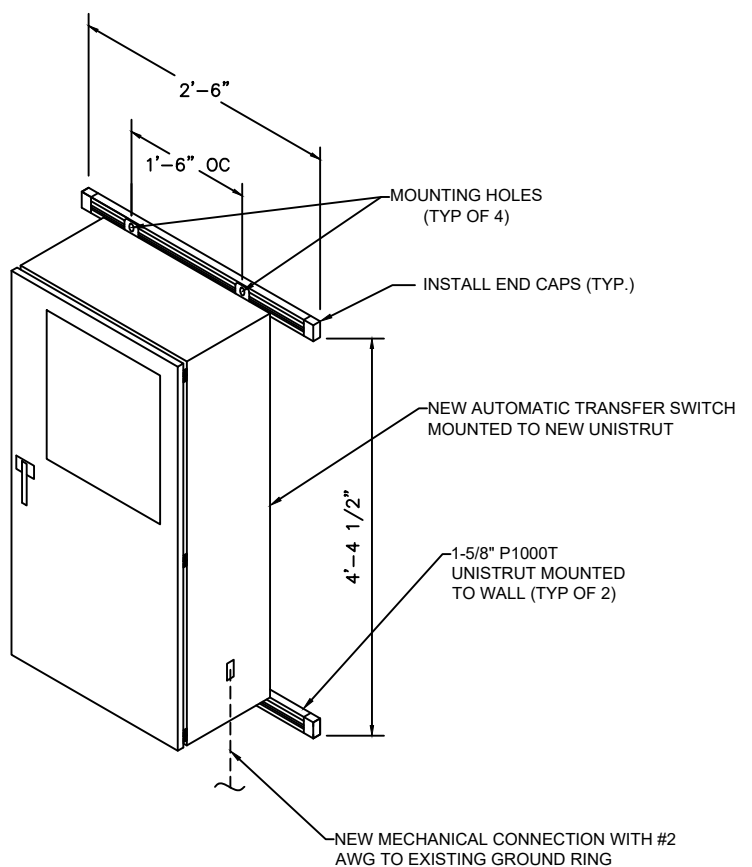
UNISTRUT MOUNTING CHART	
WALL CONSTRUCTION TYPE	USE
HOLLOW	3/8"Ø TOGGLE BOLT
HOLLOW, AT STUD	3/8"Ø LAG SCREW
CONCRETE BLOCK(HOLLOW)	3/8"Ø HILTI HY-20 WITH SCREEN, MIN. EMBEDMENT 2-1/2"
CONCRETE (SOLID)	3/8"Ø HILTI HY-150 WITH SCREEN, MIN. EMBEDMENT 2-1/2"

NOTE: USE GALVANIZED OR STAINLESS STEEL HARDWARE FOR WALL MOUNT AND CONNECTIONS OF CHANNELS SPACE UNITS @ 5'-0" O.C. LENGTH OF RUN

1 CONDUIT WALL MOUNT
SCALE: NONE



UNISTRUT MOUNTING CHART	
WALL CONSTRUCTION TYPE	USE
HOLLOW	3/8"Ø TOGGLE BOLT
HOLLOW, AT STUD	3/8"Ø LAG SCREW
CONCRETE BLOCK(HOLLOW)	7/16"Ø HILTI HY-20 WITH SCREEN MINIMUM EMBEDMENT 2-1/2"
CONCRETE (SOLID)	7/16"Ø HILTI HY-150 WITH SCREEN MINIMUM EMBEDMENT 2-1/2"



4 INTERSECT ATS MOUNTING DETAIL
SCALE: NONE

- NOTE: USE GALVANIZED OR STAINLESS STEEL HARDWARE FOR WALL MOUNT AND CONNECTION OF CHANNELS
- NOTE: GC SHALL USE NON-SHRINKING CAULK TO WEATHER SEAL ALL PENETRATIONS INTO OR THROUGH SHELTER WALL

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SD030 | 2.4L | 30 kW
INDUSTRIAL DIESEL GENERATOR SET
 EPA Certified Stationary Emergency



STANDBY POWER RATING
 30 kW, 38 kVA, 60 Hz

PRIME POWER RATING*
 27 kW, 34 kVA, 60 Hz

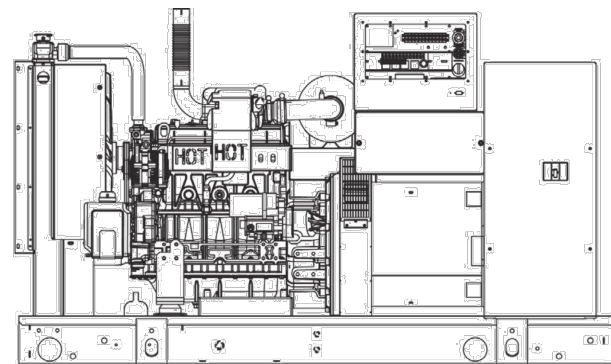


Image used for illustration purposes only



*Built in the USA using domestic and foreign parts

*EPA Certified Prime ratings are not available in the U.S. or its Territories.

**Certain options or customization may not hold certification valid.

CODES AND STANDARDS

Generac products are designed to the following standards:

UL2200, UL508, UL142, UL498

NFPA70, 99, 110, 37

NEC700, 701, 702, 708

ISO9001, 8528, 3046, 7637, Pluses #2b, 4

NEMA ICS10, MG1, 250, ICS6, AB1

ANSI C62.41

POWERING AHEAD

For over 50 years, Generac has led the industry with innovative design and superior manufacturing.

Generac ensures superior quality by designing and manufacturing most of its generator components, including alternators, enclosures and base tanks, control systems and communications software.

Generac's gensets utilize a wide variety of options, configurations and arrangements, allowing us to meet the standby power needs of practically every application.

Generac searched globally to ensure the most reliable engines power our generators. We choose only engines that have already been proven in heavy-duty industrial application under adverse conditions.

Generac is committed to ensuring our customers' service support continues after their generator purchase.

SD030 | 2.4L | 30 kW
INDUSTRIAL DIESEL GENERATOR SET
 EPA Certified Stationary Emergency



STANDARD FEATURES

ENGINE SYSTEM

General

- Oil Drain Extension
- Air Cleaner
- Fan Guard
- Stainless Steel flexible exhaust connection
- Critical Exhaust Silencer (enclosed only)
- Factory Filled Oil
- Radiator Duct Adapter (open set only)

Fuel System

- Fuel lockoff solenoid
- Primary fuel filter

Cooling System

- Closed Coolant Recovery System
- UV/Ozone resistant hoses
- Factory-Installed Radiator
- Radiator Drain Extension
- 50/50 Ethylene glycol antifreeze
- 120 VAC Coolant Heater

Engine Electrical System

- Battery charging alternator
- Battery cables
- Battery tray
- Solenoid activated starter motor
- Rubber-booted engine electrical connections

ALTERNATOR SYSTEM

- UL2200 GENprotect™
- 12 leads (3-phase, non 600 V)
- Class H insulation material
- Vented rotor
- 2/3 pitch
- Skewed stator
- Auxiliary voltage regulator power winding
- Amortisseur winding
- Brushless Excitation
- Sealed Bearings
- Automated manufacturing (winding, insertion, lacing, varnishing)
- Rotor dynamically spin balanced
- Full load capacity alternator
- Protective thermal switch

GENERATOR SET

- Internal Genset Vibration Isolation
- Separation of circuits - high/low voltage
- Separation of circuits - multiple breakers
- Silencer Heat Shield
- Wrapped Exhaust Piping
- Silencer housed in discharge hood (enclosed only)
- Standard Factory Testing
- 2 Year Limited Warranty (Standby rated Units)
- 1 Year Limited Warranty (Prime rated Units)
- Silencer mounted in the discharge hood (enclosed only)

ENCLOSURE (IF SELECTED)

- Rust-proof fasteners with nylon washers to protect finish
- High performance sound-absorbing material
- Gasketed doors
- Stamped air-intake louvers
- Air discharge hoods for radiator-upward pointing
- Stainless steel lift off door hinges
- Stainless steel lockable handles
- Rhino Coat™ - Textured polyester powder coat

TANKS (IF SELECTED)

- UL 142
- Double wall
- Vents
- Sloped top
- Sloped bottom
- Factory pressure tested (2 psi)
- Rupture basin alarm
- Fuel level
- Check valve in supply and return lines
- Rhino Coat™ - Textured polyester powder coat
- Stainless hardware

CONTROL SYSTEM



Control Panel

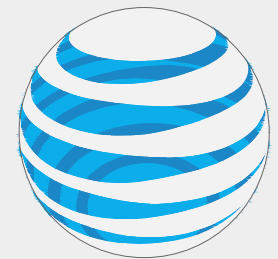
- Digital H Control Panel - Dual 4x20 Display
- Programmable Crank Limiter
- 7-Day Programmable Exerciser
- Special Applications Programmable PLC
- RS-232/485
- All-Phase Sensing DVR
- Full System Status
- Utility Monitoring
- Low Fuel Pressure Indication
- 2-Wire Start Compatible
- Power Output (kW)

- Power Factor
- kW Hours, Total & Last Run
- Real/Reactive/Apparent Power
- All Phase AC Voltage
- All Phase Currents
- Oil Pressure
- Coolant Temperature
- Coolant Level
- Engine Speed
- Battery Voltage
- Frequency
- Date/Time Fault History (Event Log)
- Isochronous Governor Control
- Waterproof/sealed Connectors
- Audible Alarms and Shutdowns
- Not In Auto (Flashing Light)
- Auto/Off/Manual Switch
- E-Stop (Red Mushroom-Type)
- NFPA110 Level I and II (Programmable)
- Customizable Alarms, Warnings, and Events
- Modbus protocol
- Predictive Maintenance algorithm
- Sealed Boards
- Password parameter adjustment protection

- Single point ground
- 15 channel data logging
- 0.2 msec high speed data logging
- Alarm information automatically comes up on the display

Alarms

- Oil Pressure (Pre-programmable Low Pressure Shutdown)
- Coolant Temperature (Pre-programmed High Temp Shutdown)
- Coolant Level (Pre-programmed Low Level Shutdown)
- Low Fuel Pressure Alarm
- Engine Speed (Pre-programmed Over speed Shutdown)
- Battery Voltage Warning
- Alarms & warnings time and date stamped
- Alarms & warnings for transient and steady state conditions
- Snap shots of key operation parameters during alarms & warnings
- Alarms and warnings spelled out (no alarm codes)



at&t

GENERAL DYNAMICS
 Wireless Services

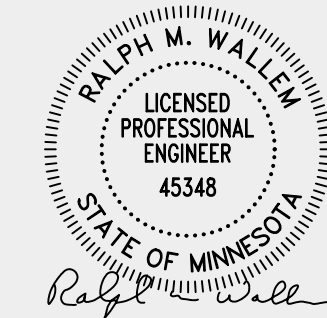
12906 SHELBYVILLE ROAD, STE. 230
 LOUISVILLE, KY 40243
 502-653-6963

BENCHMARK SERVICES, INC.

*Consulting Engineers
 Land Surveyors*
 PO Box 5 318 North Main Street
 Huntingburg, Indiana 47542
 Phone: (812) 683-3049

DRAWING REVISIONS

REV.	DESCRIPTION	DATE	BY
0	100% CDs	7-14-19	MCB



LAWLER

FA#: 10125275
 USID: 95137

38935 170TH AVENUE
 MCGREGOR, MN 55760

GENERATOR UPGRADE

CONTRACTOR SHALL VERIFY ALL PLANS & EXISTING DIMENSIONS & CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

SHEET NAME:
GENERATOR DETAILS

SHEET NO.:	REVISION NUMBER
G-1	0

SPEC SHEET
1 OF 6

SPEC SHEET
2 OF 6

SD030 | 2.4L | 30 kW
INDUSTRIAL DIESEL GENERATOR SET
 EPA Certified Stationary Emergency



CONFIGURABLE OPTIONS

ENGINE SYSTEM

General

- Oil Heater
- Industrial Exhaust Silencer

Fuel System

- Flexible fuel lines
- Primary fuel filter

Engine Electrical System

- 10A UL battery charger
- 2.5A UL battery charger
- Battery Warmer

ALTERNATOR SYSTEM

- Alternator Upsizing
- Anti-Condensation Heater
- Tropical coating
- Permanent Magnet Excitation

ENGINEERED OPTIONS

ENGINE SYSTEM

- Coolant heater ball valves
- Block Heaters
- Fluid containment pans

ALTERNATOR SYSTEM

- 3rd Breaker Systems

CONTROL SYSTEM

- Spare inputs (x4) / outputs (x4) - H Panel Only
- Battery Disconnect Switch

RATING DEFINITIONS

Standby - Applicable for a varying emergency load for the duration of a utility power outage with no overload capability.

Prime - Applicable for supplying power to a varying load in lieu of utility for an unlimited amount of running time. A 10% overload capacity is available for 1 out of every 12 hours. The Prime Power option is only available on International applications. Power ratings in accordance with ISO 8528-1, Second Edition

CIRCUIT BREAKER OPTIONS

- Main Line Circuit Breaker
- 2nd Main Line Circuit Breaker
- Shunt Trip and Auxiliary Contact
- Electronic Trip Breaker

GENERATOR SET

- Gen-Link Communications Software (English Only)
- 8 Position Load Center
- 2 Year Extended Warranty
- 5 Year Warranty
- 5 Year Extended Warranty

ENCLOSURE

- Weather Protected
- Level 1 Sound Attenuation
- Level 2 Sound Attenuation
- Steel Enclosure
- Aluminum Enclosure
- 150 MPH Wind Kit
- 12 VDC Enclosure Lighting Kit
- 120 VAC Enclosure Lighting Kit
- AC/DC Enclosure Lighting Kit
- Door Alarm Switch

GENERATOR SET

- Special Testing
- IBC Seismic Certification

ENCLOSURE

- Motorized Dampers
- Door switched for intrusion alert
- Enclosure ambient heaters

TANKS (Size on last page)

- Electrical Fuel Level
- Mechanical Fuel Level
- 54 Gal (204.4 L) Usable Capacity
- 132 Gal (499.7 L) Usable Capacity
- 211 Gal (798.7 L) Usable Capacity
- 300 Gal (1135.6 L) Usable Capacity
- 8" Fill Extension
- 13" Fill Extension
- 19" Fill Extension

CONTROL SYSTEM

- 21-Light Remote Annunciator
- Remote Relay Panel (8 or 16)
- Oil Temperature Sender with Indication Alarm
- Remote E-Stop (Break Glass-Type, Surface Mount)
- Remote E-Stop (Red Mushroom-Type, Surface Mount)
- Remote E-Stop (Red Mushroom-Type, Flush Mount)
- Remote Communication - Modem
- Remote Communication - Ethernet
- 10A Run Relay
- Ground Fault Indication and Protection Functions

TANKS

- Overfill Protection Valve
- UL2085 Tank
- UL3 S-601 Tank
- Stainless Steel Tank
- Special Fuel Tanks (MIDEQ and FL DEP/DERM, etc.)
- Vent Extensions

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APPLICATION AND ENGINEERING DATA

ENGINE SPECIFICATIONS

General

Make	Generac
EPA Emissions Compliance	Stationary Emergency
EPA Emissions Reference	See Emissions Data Sheet
Cylinder #	4
Type	In-Line
Displacement - L (cu In)	2.4 (146.46)
Bore - mm (in)	90 (3.54)
Stroke - mm (in)	94 (3.70)
Compression Ratio	21.3:1
Intake Air Method	Turbocharged
Cylinder Head Type	Cast Iron
Piston Type	Aluminium

Engine Governing

Governor	Electronic Isochronous
Frequency Regulation (Steady State)	+/- 0.25%

Lubrication System

Oil Pump Type	Gear
Oil Filter Type	Full Flow
Crankcase Capacity - L (qts)	6.2 (6.52)

Cooling System

Cooling System Type	Closed Recovery
Water Pump	Pre-Lubed, Self Sealing
Fan Type	Pusher
Fan Speed (rpm)	2698
Fan Diameter mm (in)	560 (22)
Coolant Standard Wattage	1500
Coolant Heater Standard Voltage	120 VAC

Fuel System

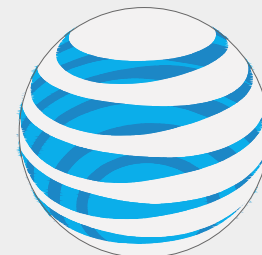
Fuel Type	Ultra Low Sulfur Diesel Fuel
Fuel Specifications	ASTM
Fuel Filtering (microns)	5
Fuel Injection	Distribution Injection Pump
Fuel Pump Type	Engine Driven Gear
Injector Type	Mechanical
Fuel Supply Line mm (in)	7.94 (0.31)
Fuel Return Line mm (in)	7.94 (0.31)

Engine Electrical System

System Voltage	12 VDC
Battery Charging Alternator	Std
Battery Size	See Battery Index 0161970SBY
Battery Voltage	12 VDC
Ground Polarity	Negative

ALTERNATOR SPECIFICATIONS

Standard Model	390	Standard Excitation	Synchronous
Poles	4	Bearings	Single Sealed Cartridge
Field Type	Revolving	Coupling	Direct, Flexible Disc
Insulation Class - Rotor	H	Load Capacity - Standby	100%
Insulation Class - Stator	H	Prototype Short Circuit Test	Yes
Total Harmonic Distortion	<5%	Voltage Regulator Type	Digital
Telephone Interference Factor (TIF)	<50	Number of Sensed Phases	All
		Regulation Accuracy (Steady State)	±0.25%



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GENERAL DYNAMICS

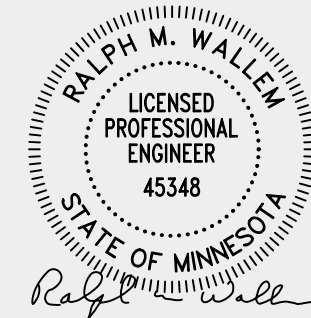
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GENERATOR DETAILS

SHEET NO.:	REVISION NUMBER
G-2	0

SPEC SHEET
3 OF 6

SPEC SHEET
4 OF 6

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SD030 | 2.4L | 30 kW
INDUSTRIAL DIESEL GENERATOR SET
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OPERATING DATA

POWER RATINGS

	Standby
Single-Phase 120/240 VAC @1.0pf	30 kW Amps: 125
Three-Phase 120/208 VAC @0.8pf	30 kW Amps: 104
Three-Phase 120/240 VAC @0.8pf	30 kW Amps: 90
Three-Phase 277/480 VAC @0.8pf	30 kW Amps: 46
Three-Phase 346/600 VAC @0.8pf	30 kW Amps: 36

STARTING CAPABILITIES (sKVA)

Alternator	kW	480 VAC						208/240 VAC					
		10%	15%	20%	25%	30%	35%	10%	15%	20%	25%	30%	35%
Standard	35	24	36	48	60	72	84	18	27	36	45	54	63
Upsize 1	40	27	41	54	68	81	95	20	31	41	51	61	71
Upsize 2	50	34	52	69	86	103	120	26	39	52	65	77	90

FUEL CONSUMPTION RATES*

Fuel Pump Lift - ft (m)	Percent Load	Diesel - gph (lph)
3 (1)	25%	0.92 (3.5)
	50%	1.45 (5.5)
Total Fuel Pump Flow (Combustion + Return)	75%	1.96 (7.4)
4.5 gph	100%	2.74 (10.4)

* Fuel supply installation must accommodate fuel consumption rates at 100% load.

COOLING

	Standby
Coolant Flow per Minute	gpm (lpm) 10 (38)
Coolant System Capacity	gal (L) 2.8 (10.95)
Heat Rejection to Coolant	BTU/hr 111,000
Inlet Air	cfm (m3/hr) 4,500 (7647)
Max. Operating Radiator Air Temp	F° (C°) 122 (50)
Max. Ambient Temperature (before derate)	F° (C°) 104 (40)
Maximum Radiator Backpressure	in H ₂ O 0.5

COMBUSTION AIR REQUIREMENTS

	Standby
Flow at Rated Power	cfm (m3/min) 90 (2.55)

ENGINE

	Standby
Rated Engine Speed	rpm 1800
Horsepower at Rated kW**	hp 49
Piston Speed	ft/min (m/min) 1110 (338)
BMEP	psi 153

EXHAUST

	Standby
Exhaust Flow (Rated Output)	cfm (m ³ /min) 230 (391)
Max. Backpressure (Post Silencer)	inHg (Kpa) 1.5 (5.1)
Exhaust Temp (Rated Output)	°F (°C) 850 (454)
Exhaust Outlet Size (Open Set)	mm (in) 63.5 (2.5)

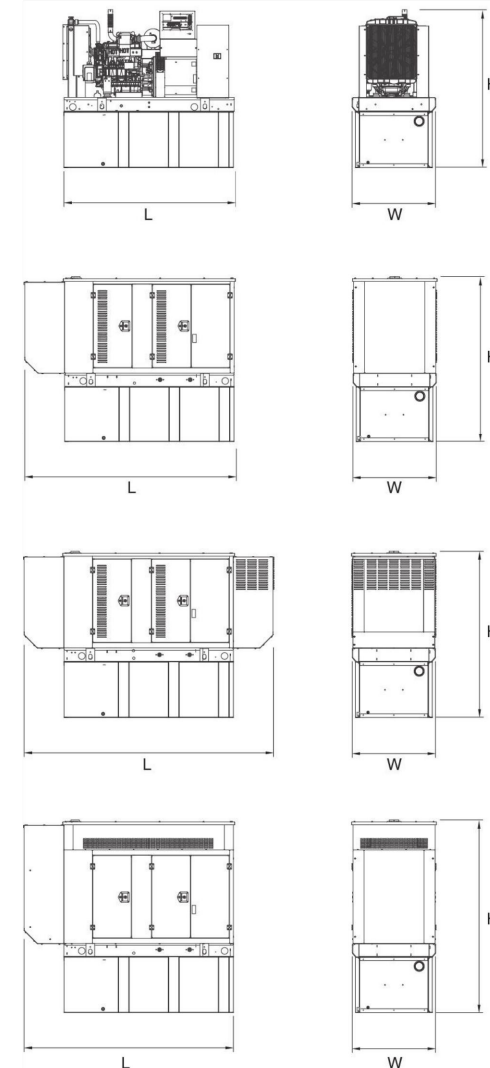
** Refer to "Emissions Data Sheet" for maximum bHP for EPA and SCAQMD permitting purposes.

Deration - Operational characteristics consider maximum ambient conditions. Derate factors may apply under atypical site conditions. Please consult a Generac Power Systems Industrial Dealer for additional details. All performance ratings in accordance with ISO3046, BS5514, ISO8528 and DIN6271 standards.

SD030 | 2.4L | 30 kW
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DIMENSIONS AND WEIGHTS*



OPEN SET

RUN TIME HOURS	USABLE CAPACITY GAL (L)	L x W x H in (mm)	WT lbs (kg) - Tank & Open Set
NO TANK	-	76 (1930.4) x 37.4 (949.9) x 42.2 (1072.1)	2060 (934)
19	54 (204.4)	76 (1930.4) x 37.4 (949.9) x 55.2 (1402.1)	2540 (1152)
48	132 (499.7)	76 (1930.4) x 37.4 (949.9) x 67.2 (1706.9)	2770 (1257)
77	211 (798.7)	76 (1930.4) x 37.4 (949.9) x 79.2 (2011.7)	2979 (1351)
109	300 (1135.6)	92.9 (2360) x 37.4 (949.9) x 82.7 (2100.6)	3042 (1380)

STANDARD ENCLOSURE

RUN TIME HOURS	USABLE CAPACITY GAL (L)	L x W x H in (mm)	WT lbs (kg) - Enclosure Only	
			Steel	Aluminum
NO TANK	-	94.8 (2408.9) x 38 (965.2) x 49.5 (1258.1)		
19	54 (204.4)	94.8 (2408.9) x 38 (965.2) x 62.5 (1587.5)	302 (137)	191 (87)
48	132 (499.7)	94.8 (2408.9) x 38 (965.2) x 74.5 (1892.3)		
77	211 (798.7)	94.8 (2408.9) x 38 (965.2) x 86.5 (2197.1)		
109	300 (1135.6)	94.8 (2408.9) x 38 (965.2) x 90 (2286)		

LEVEL 1 ACOUSTIC ENCLOSURE

RUN TIME HOURS	USABLE CAPACITY GAL (L)	L x W x H in (mm)	WT lbs (kg) - Enclosure Only	
			Steel	Aluminum
NO TANK	-	112.5 (2857.1) x 38 (965.2) x 49.5 (1258.1)		
19	54 (204.4)	112.5 (2857.1) x 38 (965.2) x 62.5 (1587.5)	455 (206)	288 (131)
48	132 (499.7)	112.5 (2857.1) x 38 (965.2) x 74.5 (1892.3)		
77	211 (798.7)	112.5 (2857.1) x 38 (965.2) x 86.5 (2197.1)		
109	300 (1135.6)	112.5 (2857.1) x 38 (965.2) x 90 (2286)		

LEVEL 2 ACOUSTIC ENCLOSURE

RUN TIME HOURS	USABLE CAPACITY GAL (L)	L x W x H in (mm)	WT lbs (kg) - Enclosure Only	
			Steel	Aluminum
NO TANK	-	94.8 (2408.9) x 38 (965.2) x 62 (1573.9)		
19	54 (204.4)	94.8 (2408.9) x 38 (965.2) x 75 (1905)	460 (209)	291 (132)
48	132 (499.7)	94.8 (2408.9) x 38 (965.2) x 87 (2209.8)		
77	211 (798.7)	94.8 (2408.9) x 38 (965.2) x 99 (2514.6)		
109	300 (1135.6)	94.8 (2408.9) x 38 (965.2) x 102.5 (2603.5)		

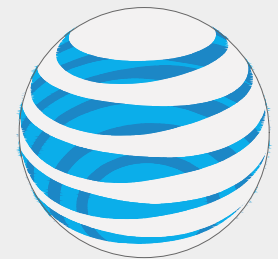
*All measurements are approximate and for estimation purposes only. Sound dBA can be found on the sound data sheet. Enclosure Only weight is added to Tank & Open Set weight to determine total weight.

YOUR FACTORY RECOGNIZED GENERAC INDUSTRIAL DEALER

Specification characteristics may change without notice. Dimensions and weights are for preliminary purposes only. Please consult a Generac Power Systems Industrial Dealer for detailed installation drawings.

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Part No 0K5085
 Rev. D 08/19/15



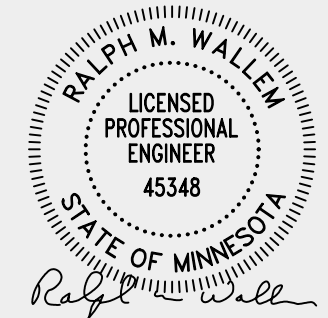
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SHEET NAME:

GENERATOR DETAILS

SHEET NO.:

G-3

REVISION NUMBER

0

SPEC SHEET

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SPEC SHEET

6 OF 6