**Equipment Requirement Table**

<table>
<thead>
<tr>
<th>Circuit Size</th>
<th>Min. Amps</th>
<th>Demand Load</th>
<th>Breaker Size</th>
<th>Min. Wire</th>
<th>Min. Neutral</th>
<th>Min. Ground</th>
<th>Min. Equipment Ground</th>
<th>Required Equipment Ground</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 5A</td>
<td>20</td>
<td>20</td>
<td>20 A</td>
<td>20 AWG CU</td>
<td>20 AWG</td>
<td>20 AWG</td>
<td>20 AWG</td>
<td>20 AWG</td>
</tr>
<tr>
<td>5A to 20A</td>
<td>20</td>
<td>20</td>
<td>25 A</td>
<td>20 AWG CU</td>
<td>20 AWG</td>
<td>20 AWG</td>
<td>20 AWG</td>
<td>20 AWG</td>
</tr>
<tr>
<td>20A to 40A</td>
<td>20</td>
<td>20</td>
<td>25 A</td>
<td>20 AWG CU</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40A to 60A</td>
<td>20</td>
<td>20</td>
<td>30 A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table Notes**

1. All conductor sizes are based upon copper wire or cable. 
2. Amps are for use on loads only. 
3. Conductor ampacity is based upon copper wire and terminations. 
4. Equipment size is based upon a maximum of 5 current-carrying conductors in a cable or raceway. 
5. Conductors are sized based upon a minimum conductor temperature of 100°F (37°C). 
6. Conductors are to be parallel. 
7. Use of copper is not permitted. 
8. Manufacturer's listing requirements are those that are more restrictive.

**Minimum Conductor Length Table**

<table>
<thead>
<tr>
<th>Conductor Size</th>
<th>Minimum Conductor Length</th>
<th>Available Path Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 AWG CU</td>
<td>150</td>
<td>250</td>
</tr>
<tr>
<td>20 AWG CU</td>
<td>150</td>
<td>250</td>
</tr>
<tr>
<td>20 AWG CU</td>
<td>150</td>
<td>250</td>
</tr>
</tbody>
</table>

**Scope of Work**

The scope of work is limited to the installation of an electric service only. The specific equipment to be used is at the discretion of the Project Engineer.

**Note**

The electric service equipment shall comply with the applicable standards.

**Keyed Notes**

- [ ] Keyed Notes

**One-Line Diagram**

[Diagram of wiring connections and equipment setup]
### Fault Current Calculations

<table>
<thead>
<tr>
<th>Part 16</th>
<th>Part 18</th>
</tr>
</thead>
<tbody>
<tr>
<td>( L )</td>
<td>20,188</td>
</tr>
<tr>
<td>( E )</td>
<td>294</td>
</tr>
<tr>
<td>( \times )</td>
<td>( \times )</td>
</tr>
<tr>
<td>( f )</td>
<td>2,334</td>
</tr>
<tr>
<td>( m )</td>
<td>( m )</td>
</tr>
<tr>
<td>( h )</td>
<td>4,945</td>
</tr>
</tbody>
</table>

\( \text{CALCULATIONS} \)

\( \text{E-2} \)

\( \text{DO NOT USE - FOR REGULATORY APPROVAL ONLY} \)

---

### One-Line General Notes

1. The electrical equipment shall be sized to carry the maximum current that may be transferred at the operating voltage at the point of connection.
2. The equipment shall be sized to carry the maximum current that may be transferred at the operating voltage at the point of connection.
3. The equipment shall be sized to carry the maximum current that may be transferred at the operating voltage at the point of connection.
4. The equipment shall be sized to carry the maximum current that may be transferred at the operating voltage at the point of connection.
5. The equipment shall be sized to carry the maximum current that may be transferred at the operating voltage at the point of connection.

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### Service Equipment Rating Information

- **Series Rated System:** 21,188 Amps available
- **Indicated Replacement Components Required:**

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**CAUTION:**

This proposed addition/alteration will not cause the existing system to become unsafe or create an unsafe or overloaded condition.

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**Note:**

- **CALCULATIONS**
- **PROPERTY ADDRESS**
- **BCAS #18**

**DO NOT USE - FOR REGULATORY APPROVAL ONLY**
RESIDENTIAL LOAD CALCULATION
USING THE OPTIONAL METHOD PER NEC 220.82

LIGHTING CALCULATION (LOAD 1):

LIVING AREA SQUARE FOOTAGE OF THE HOME: [ ]

[ ] BATHROOMS
[ ] KITCHEN
[ ] EXTERIOR
[ ] RECREATION
[ ] GARAGE

[ ] CEILING FANS (5 WATTS EACH)
[ ] CEILING FIXTURE WITH LIGHT (30 WATTS EACH)
[ ] OTHER

TOTAL LIGHTING LOAD: [ ] VA (kVA)

APPLIANCE OR CIRCUIT NUMBER OF UNITS (X) VA (kVA) TOTAL VA
[ ] SMALL APPLIANCE CIRCUIT 1.20
[ ] DISHWASHER 1.20
[ ] DISPOSAL 1.20
[ ] MICROWAVE 1.20
[ ] OVEN/REFRIGERATOR 1.20
[ ] LAUNDRY CIRCUIT 1.20
[ ] WATER HEATER 4.20
[ ] COOKTOP
[ ] WASHING MACHINE
[ ] DEDICATED REFRIGERATOR CIRCUIT
[ ] DEDICATED DISHWASHER CIRCUIT
[ ] POOL HEATER
[ ] POOL LIGHT

TOTAL OF ALL LOADS FROM ABOVE:

FINAL LIGHTING LOAD CALCULATION

FIRST SQUARE VA OF THE ABOVE LIGHTING LOAD @ 100%
REMAINDER OF THE ABOVE LIGHTING LOAD @ 40%
TOTAL LIGHTING LOAD (LOAD 1): [ ] VA (kVA)

HEATING/AIR CONDITIONING (LOAD 2):

NOTE:
APPLIANCE OR CIRCUIT NUMBER OF UNITS (X) VA (kVA) TOTAL VA
[ ] SMALL APPLIANCE CIRCUIT 1.20
[ ] DISHWASHER 1.20
[ ] DISPOSAL 1.20
[ ] MICROWAVE 1.20
[ ] OVEN/UNDER-RANGE 1.20
[ ] AIR HEATER 1.20
[ ] FAN 1.20
[ ] OTHER

TOTAL OF HEATING/COOLING LOAD (LOAD 2): [ ] VA (kVA)

OTHER LOADS (LOAD 3):

NOTE:
OTHER LOADS NOT SHOWN ABOVE AT 100%
NUMBER OF UNITS (X) VA (kVA) TOTAL VA
[ ] OTHER (X)
[ ] OTHER (X)
[ ] OTHER (X)
[ ] OTHER (X)
[ ] OTHER (X)

TOTAL OF OTHER LOADS (LOAD 3): [ ] VA (kVA)

TOTAL LOADS (LOAD 1 + LOAD 2 + LOAD 3):

FOOTNOTES (X):

(1) USE THE TOTAL VA RATING IN WATTS NOT THE KVA RATING.
(2) EACH HOME WILL HAVE A MINIMUM OF TWO SMALL APPLIANCE CIRCUITS BUT MAY HAVE MORE THAN TWO.
(3) IF ACTUAL APPLIANCE VA RATING OR VA RATING MORE THAN TWO.
(4) IF A GIZED APPLIANCE, PLEASE MARK AS "GIZED" IN CALCULATION TO ADD TO THE TOTAL LOAD.
(5) WASHING MACHINE OR DRYER VA RATING AS "NOT GIZED" IN THE PLAN REVIEW PROCESS.
(6) THE ABOVE LOAD CALCULATION SHOULD BE ADJUSTED WHERE THIS OCCURS.
(7) USE THE WATTAGE RATING OF EACH UNIT FOR THE CALCULATIONS UNLESS A TOTAL AMPS LOAD IS LISTED.
Submittal Package Instructions

The MAG Model Plan may be used to assist your Customer or Electrical Contractor in obtaining proper permits for a legal and safe installation of a Level 2 Electrical Charger in a single family home.

PROVIDE THE FOLLOWING:

1. MAG Model Plan – Utilize the Model plan to evaluate your existing electrical service and to perform the load calculation required by the building department of the jurisdiction where the single family home is located.

2. EV Charger Installation Documents – Provide the installation documents from the charger you intend to install.

3. Provide the correct square footage of the existing home per the Maricopa County Assessors website: Maricopa County Assessor’s Office

4. Provide a plot plan showing the property with a simple floor plan. Use this to show:
   a. Location of Service Entrance Section (SES)
   b. Route of conduit from SES to location of EV Charger.
   c. Note conduit length from SES to location of EV Charger.
   d. Note conductor size selection.
   e. Note height of charger between 15” min. and 48” max. above the finish floor.

5. Provide contractor license info and homeowner information.