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***EE/CprE/SE 492 BIWEEKLY REPORT 11***

***03/15/2021 – 03/29/2021***

***Group number: SDMAY21-04***

***Project title: 138kV Cyclone Substation Design***

***Client &/Advisor: Burns & McDonnell***

***Team Members/Role: Chandler Cox (Meeting Facilitator), Owen Swanberg (Scribe), Zachary Lewis (Report Manager), Aladdin Adam (QA/Qc Manager), Mohammad Habib (Report Manager), Joseph Miller (Head Engineer)***

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**Bi-Weekly Summary**

In this past reporting period, the team continued progress on the schematics. To date we have work underway for all of the breakers, the transformer, and both line differential drawings. We have made contact with Burns & McDonnell to review one of schematics to see how we are progressing. We also spoke with our advisor to get his feedback on the project to make sure that we were moving along well in the project. Our work on the schematics has been moving quickly as we try to shift our focus onto panel layouts so that we can begin the wiring phase of the project. Three of our team members have begun work on panel layouts for the substation.

**Past reporting period accomplishments**

- Chandler Cox – Revised breaker DC scheme per comments received from Burns and McDonnell. Chandler also began work on the panel layouts, taking lead on this portion of the project.
- Owen Swanberg – Completed the majority of the relaying schematic for breaker 1.
- Zachary Lewis – Worked on breaker 4 DC schemes
- Aladdin Adam – Completed line relaying schematics for the Des Moines line.
- Mohammad Habib – Completed line relaying schematics for the Cedar Falls line. Incorporated comments from Joe based on initial draft.
- Joseph Miller – Reviewed Cedar Falls line relaying, began work on panel layouts, revised breaker 3 schematics per comments from Burns and McDonnell.

## Completed work documented with pictures

We show in this section some of our completed work since the last report. We have been working diligently on the schematics which are reflected in the following screen shots:

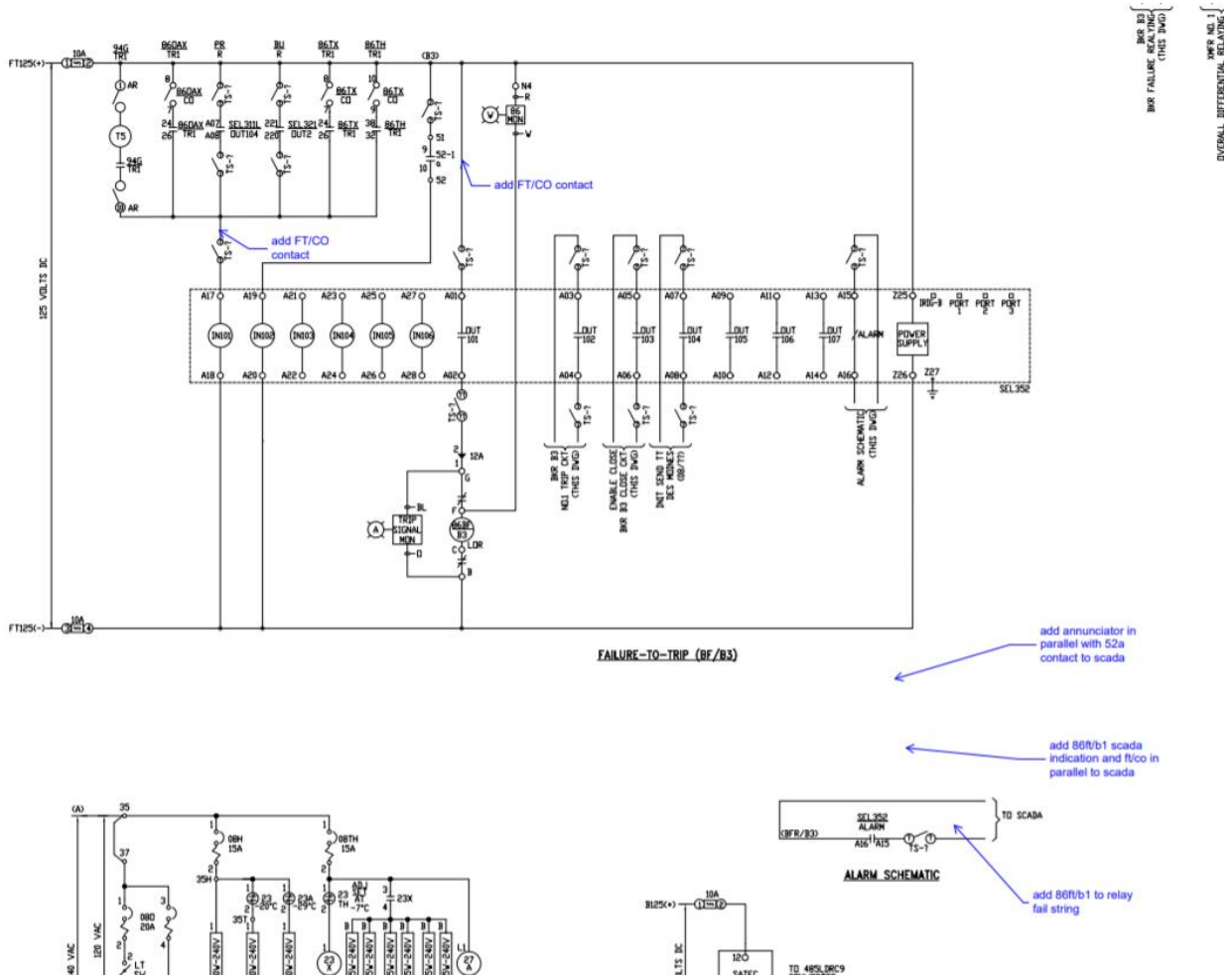


Figure 1 – Comments received from Burns & McDonnell regarding breaker schematics

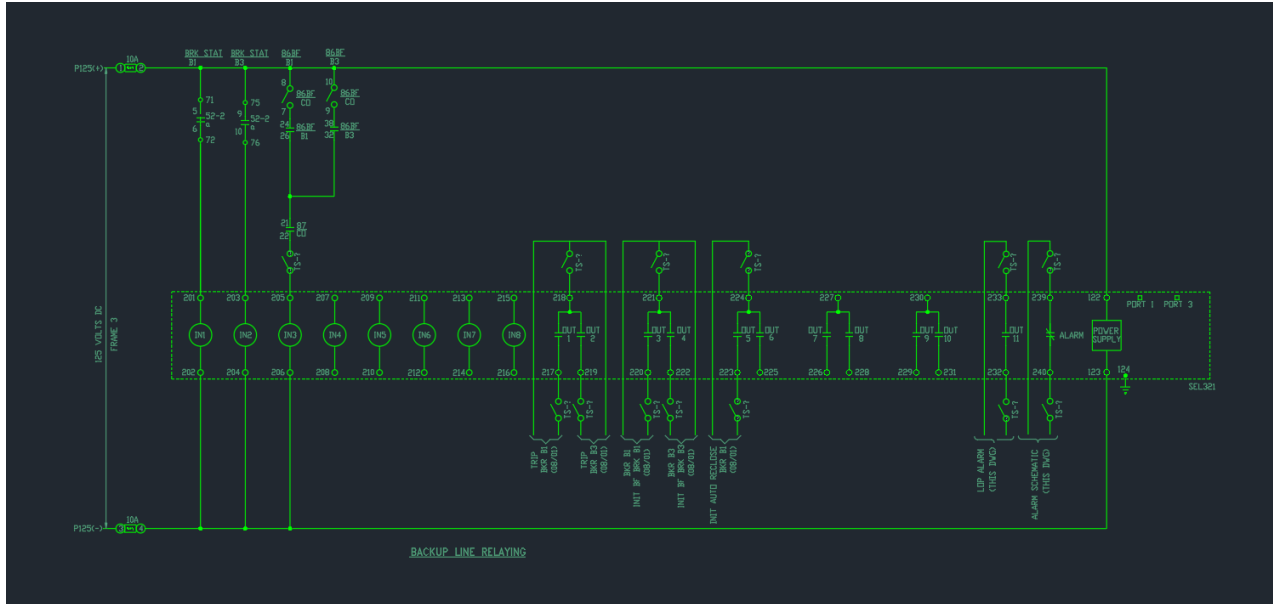


Figure 2 – Initial draft of DC line relaying for the Des Moines line (backup relaying)

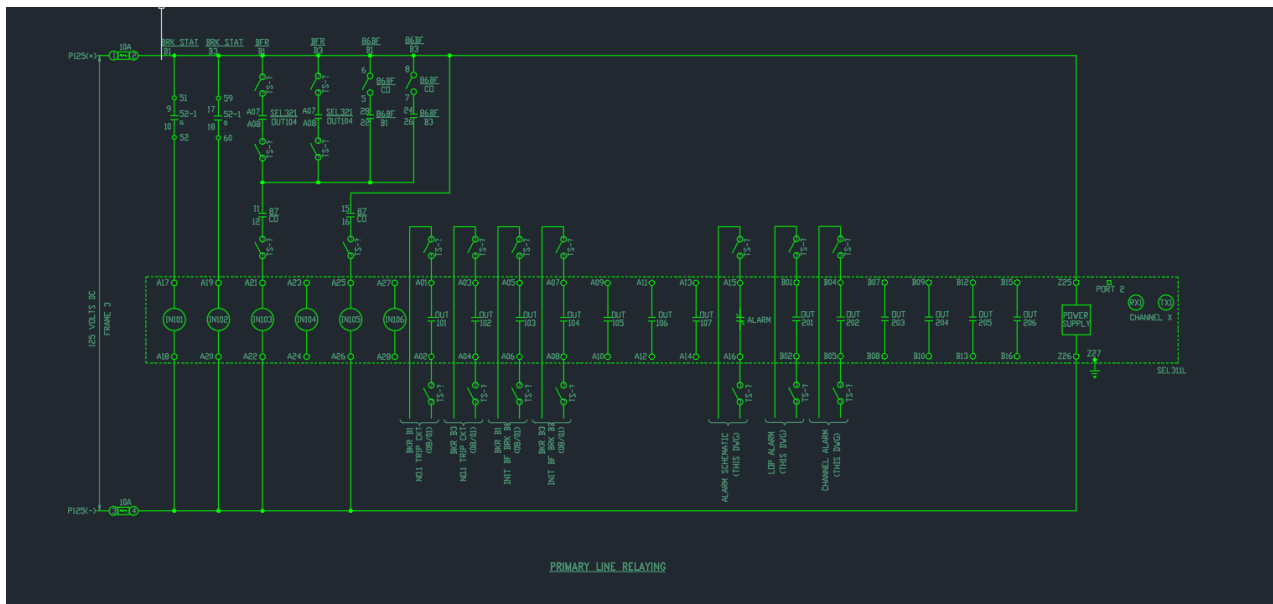


Figure 3 – Initial draft of DC line relaying for the Des Moines line (primary relaying)

## Pending issues

- We need to discuss with Burns & McDonnell the following items:
  - How should we short CTs from an output on lock out relays
  - Breaker failure relaying on breaker 4 does not appear in protection specification and attempts to correct this have not resolved the issue
  - Creation of SCADA drawings is not clearly defined as a deliverable
    - How do we define the SCADA contacts on drawings?

### **Individual contributions**

<b>Name</b>	<b>Individual Contributions</b>	<b>Hours this period</b>	<b>Semester Hours</b>
Chandler Cox	Schematics	12	51
Owen Swanberg	Schematics	10	50
Zachary Lewis	Schematics	9	41
Aladdin Adam	Grounding Study	10	49
Mohammad Habib	Grounding Study	11	50
Joseph Miller	Schematics	14	55

### **Plans for the upcoming period**

- Chandler Cox – Continue to make progress on panel layouts and assist in quality control for breaker DC schemes
- Owen Swanberg – Finalize breaker 1 schematics and begin work on panel layouts
- Zachary Lewis – Finalize breaker 4 schematics and begin work on panel layouts
- Aladdin Adam – Finalize line relaying schematics for Des Moines and begin work on panel layouts
- Mohammad Habib – Finalize line relaying schematics for Cedar Falls and begin work on panel layouts
- Joseph Miller – Perform quality reviews on schematics and continue work on panel layouts