
EE/CprE/SE 492 BIWEEKLY REPORT 10

03/02/2021 – 03/15/2021

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)

Bi-Weekly Summary

In this past reporting period, we focused on completing our grounding study and moving forward with DC schemes. We are in the review stages of our grounding study and plan to issue this report later in the week of 03/01/2021. We spent some time getting our feet wet with DC schemes and understanding the breaker tripping and closing logic. We currently have large portions of the breaker and transformer schemes completed. We will begin work on the DC line relaying in the coming reporting period to round out the work needed for the schemes.

Past reporting period accomplishments

- Chandler Cox – Created DC scheme for breaker B2 and assisted in any drafting work that other members of the team had.
- Owen Swanberg – Completed the AC scheme for the Des Moines line and began work on the DC scheme for breaker B1.
- Zachary Lewis – Completed the AC scheme for the Cedar Falls line and began work on the DC scheme for breaker B4.
- Aladdin Adam – Created the grounding study and associated grounding plan for the substation.
- Mohammad Habib – Created the grounding study and associated grounding plan for the substation.
- Joseph Miller – Created the DC scheme for breaker B3 and created DC schemes for the transformer.

Completed work documented with pictures

We show in this section some of our completed work since the last report. We start out our relaying schemes by doing a hand sketch as shown in Figure 1 and then transform them into a finalized drawing as seen in Figure 2. We worked mostly on finishing the AC relaying schemes (Figure 1 and 2) and then worked on the DC schemes for the breakers (Figure 3).

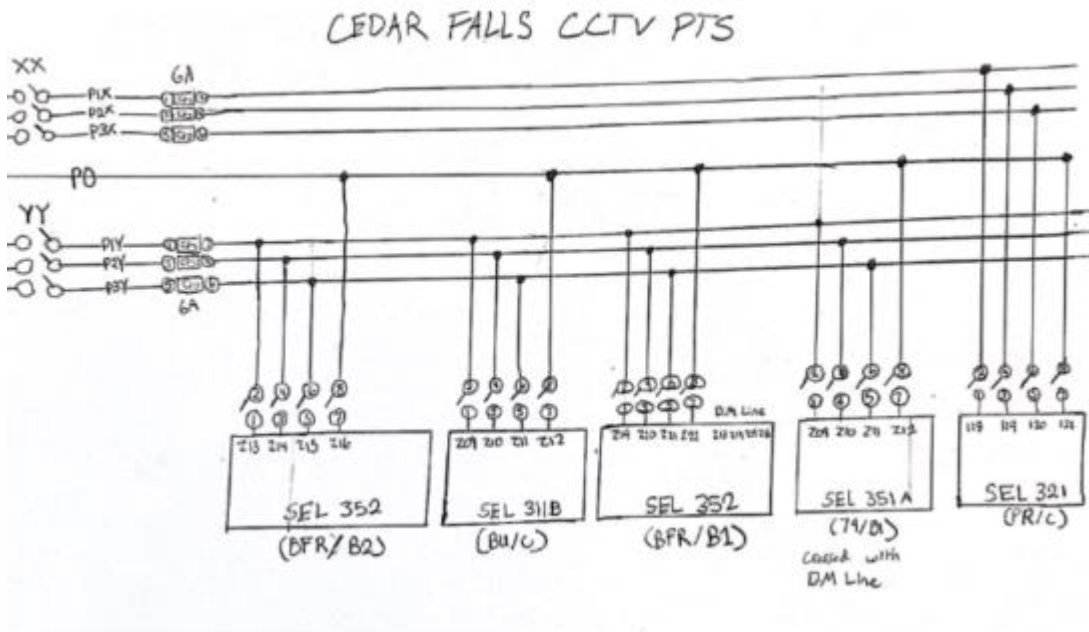


Figure 1 - Initial sketch of the AC relaying for the Cedar Falls line

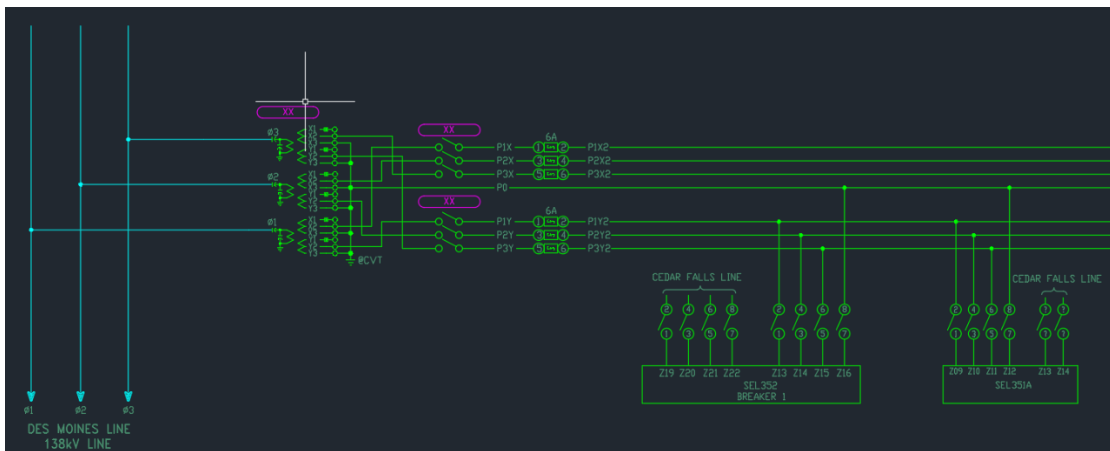


Figure 2 - Partial AC of Des Moines Line

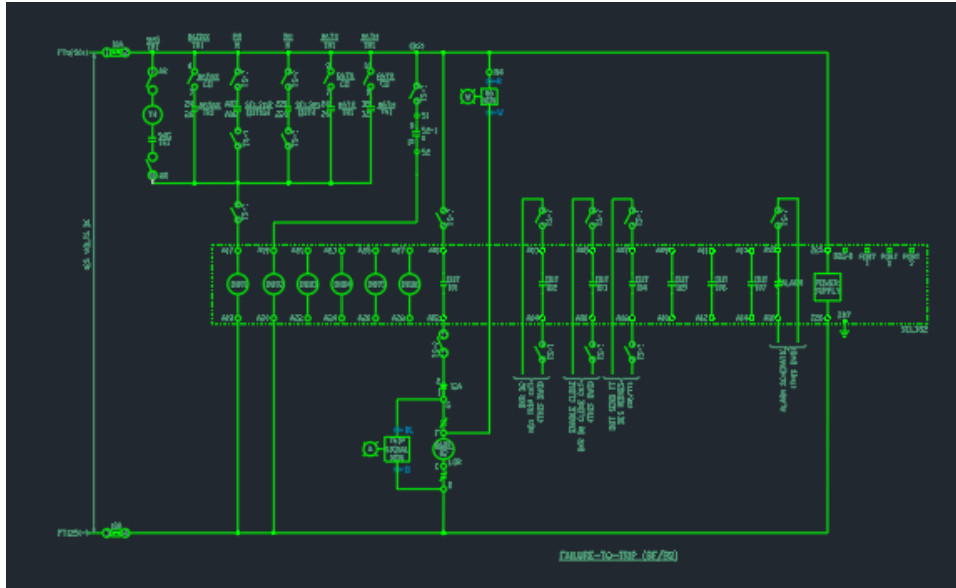


Figure 3 - Breaker failure relaying at breaker B2

Pending issues

- We need to discuss with Burns & McDonnell the following items:
 - Any comments regarding our first DC scheme so that we can correct all other schemes
 - How to design the panel layouts
 - Any comments on any deliverables submitted this semester
 - How to de-energize transformer fans

Individual contributions

Name	Individual Contributions	Hours this period	Semester Hours
Chandler Cox	Schematics	14	39
Owen Swanberg	Schematics	15	40
Zachary Lewis	Schematics	10	32
Aladdin Adam	Grounding Study	12	29
Mohammad Habib	Grounding Study	14	39
Joseph Miller	Schematics	14	41

Plans for the upcoming period

- Chandler Cox – Review schematics produced and continue to assist in drafting work
- Owen Swanberg – Finalize DC scheme for breaker B1 and move onto designing relay panel fronts
- Zachary Lewis – Finalize DC scheme for breaker B4 and move onto designing relay panel fronts
- Aladdin Adam – Work on line relaying DC schemes
- Mohammad Habib – Work on line relaying DC schemes
- Joseph Miller – Assist in DC scheme creation and relaying panel fronts