

CE 4312/5332 – Design Project Reporting Guidelines Spring 2020

Project Requirements

- Project must meet or exceed the AASHTO 2011 (6th Ed.) Green Book Requirements.
- Projects should be done individually.
- **You should choose either project 1 or project 2.**

Deliverables

- Project report is due on Wednesday, May 6, 2020.
- Drawing can be hand written. If you do the drawings by AutoCAD or Civil3D, you can earn 10% extra credit. If you would like to take the advantage of extra credit, you need to send out the AutoCAD or Civil3D file to the TA. He will collect the drawing files.
- The main file of the term project should be submitted through canvas in PDF format.
- Project reports must, as a minimum, include the following:
 - a. Title sheet (Project 1 or Project 2, your name, student ID)
 - b. Description of solution approach including all design assumptions made, mention AASHTO Figures and Tables used, and sample calculations conducted.
 - c. Please include your drawings in your project report.
 - e. Short narratives for describing the project is sufficient.

PROJECT 1 - MAKING THE RIGHT MOVE

At an urban intersection, the northbound right turn (the north to east maneuver, with $\Delta=90^\circ$) is to be channelized for a large school bus (S-Bus-40) at a 10-mph design speed. The PI is at station 80+00. The channelized section is to include provisions for passing a stalled vehicle of the same type.

Prepare a plan view centerline drawing and the associated table of deflection angles and chord lengths to stake out the curve from the PC to the PT at 25' (every 1/4 station) intervals.

PROJECT 2 - THE TRACK BENEATH

The approach tangent to an equal tangent vertical curve has a slope of +3%. The slope of the departure tangent is -2%. The two tangents intersect at station 26+00 and elevation 231.00 ft. A set of subway rails passes below and perpendicular to the curve at station 28+50 on the departure side. The elevation of the rails at that point is 195.00 ft. The minimum required clearance between the rails and the curve is 26 ft.

Given the above, determine the vertical curve that can be constructed which offers the highest design speed possible and still meets the vertical clearance and stopping sight distance requirements. Provide the stake out table and the associated elevation profile drawing for laying out the curve from the PVC to the PVT in 50-ft intervals.

