



October 10, 2019

TO: Mike Cotten, NWR Administrator  
Mike Gribner, ER Administrator  
John Wynands, OR Administrator  
Carley Francis, SWR Administrator  
Craig Stone, Puget Sound Gateway  
Administrator

Dave Bierschbach, NCR Administrator  
Denise Cieri, SR 520/AWV Administrator  
Todd Trepanier, SCR Administrator  
Kim Henry, I-405/SR 167 Administrator  
Dave Sowers, Director of Terminal  
Engineering, WSF

FROM: Kevin Dayton, P.E. Chief Engineer  
360-705-7032

SUBJECT: Reporting Engineering Errors on Highway Contracts

This Memorandum is an update to a similar memorandum dated April 1, 2015, which established the requirements of RCW 47.01.490 titled Reporting Engineering Errors on Highway Construction Projects - Requirements. This RCW requires WSDOT to submit reports to the Transportation Committees of the Legislature providing specific details for reporting each engineering error costing in excess of \$500,000.

This memorandum provides requirements and assigns responsibilities for the reporting of engineering errors on highway construction projects as required by RCW. I will send a memorandum to the appointing authority of the office responsible for the administration of the construction contract when a qualifying error occurs. The appointing authority shall oversee the process and make sure a report is submitted which is complete, accurate and timely. The report shall be in compliance with the attached instructions and template.

The public expects and deserves a return on the investment they have made in our transportation system. WSDOT will continue to be transparent and accountable by reporting on the results of the services it provides. The reporting of engineering errors provides this transparency and accountability to the legislature from project launch through completion. Additionally, it provides the opportunity for WSDOT to improve our business model by taking these lessons learned and identifying opportunities to avoid these errors in the future.

KD:CM

Attachments: Draft Memo: Chief Engineer to Appointing Authority  
Reporting Engineering Errors Instructions  
Engineering Error Reporting Coversheet Template

cc: Amy Scarton, Assistant Secretary WSF  
Julie Meredith, Deputy Assistant Secretary Mega Project  
Chris Christopher, State Construction Engineer,  
Steve Roark, State Design Engineer

*Date - Placeholder*

TO: *Appointing Authority - Placeholder*  
*Mail-Stop - Placeholder*

FROM: Kevin Dayton  
Chief Engineer  
360-705-7032

SUBJECT: Engineering Error  
Contract < *number* >  
Change Order < *number* >

It has been determined that a change order resulting in part or whole from an engineering error has been executed for a contract administered under your authority. Further, the error directly increased the cost of the contract in excess of five hundred thousand dollars. You are hereby directed to manage the process described in the attached documents which shall result in the submission of the described report within sixty days of execution of the noted change order.

For your information this contract was administered in < *name's* > Project Engineer's Office, the increase in cost due to the error is estimated to be < *dollars* > and the change order execution date is < *##/##/20XX* >.

Please contact the Deputy State Construction Engineer immediately if clarification or new information becomes available during report preparation that you believe changes the situation such that reporting under RCW 47.01.490 is no longer appropriate.

Thank you in advance for your attention to this effort.

KD: *Placeholder*

Attachment: Reporting Engineering Errors Instructions  
Engineering Error Reporting Coversheet Template

cc: Deputy State Construction Engineer  
Deputy State Design Engineer  
*Project Engineer - Placeholder*

# Reporting Engineering Errors Instructions and Responsibilities

These instructions provide procedures and assign responsibilities to ensure compliance with Revised Code of Washington 47.01.490 which reads as follows:

## **Reporting engineering errors on highway construction projects—Requirements.**

*(1) The department shall submit a report to the Transportation Committees of the legislature detailing engineering errors on highway construction projects resulting in project cost increases in excess of five hundred thousand dollars. The department must submit a full report within ninety days of the negotiated change order resulting from the engineering error.*

*(2) The department's full report must include an assessment and review of:*

*(a) How the engineering error happened;*

*(b) The department of the employee or employees responsible for the engineering error, without disclosing the name of the employee or employees;*

*(c) What corrective action was taken?*

*(d) The estimated total cost of the engineering error and how the department plans to mitigate that cost;*

*(e) Whether the cost of the engineering error will impact the overall project financial plan; and*

*(f) What action the secretary has recommended to avoid similar engineering errors in the future.*

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## Basic Procedures

1. Initially a determination is made by the project engineer office in consultation with the Assistant State Construction Engineer (ASCE) that the cost of a change order increased in excess of \$500,000 due to an engineering error as defined in the report section of this document.
2. This determination triggers the requirement for an Engineering Error report.
3. The Project Engineer Office shall draft and send an Engineering Error memorandum with the change order package to the ASCE.
4. The ASCE shall proceed with execution as appropriate.
5. The ASCE and Assistant State Design Engineer (ASDE) shall review and discuss the change order package with the Lead Construction Engineer - Projects and Deputy State Construction Engineer. The parties shall approve the content of the package as complete and accurate or return it for corrections.
6. The draft Engineering Error memorandum is sent to the Chief Engineer to be finalized and routed to the appointing authority.
7. The appointing authority shall manage the effort to produce the report, sign the report and submit the report to the Chief Engineer with a copy to the Deputy State Construction Engineer and the Deputy State Design Engineer within sixty days of execution of the change order.
8. The Deputy State Construction Engineer and the Deputy State Design Engineer shall review the report and provide a recommendation to the Director of the Construction Division with regard to the accuracy and content of the report.

9. The Director of Construction in turn advises the Chief Engineer based on the recommendation within seventy-five days of execution of the change order.
10. The Chief Engineer shall submit the report to the Transportation Committees of the Legislature within ninety days of execution of the change order.
11. The Chief Engineer shall follow up on; “(c) *What corrective action was taken?*” and “(f) *What action the secretary has recommended to avoid similar engineering errors in the future?*” as they are described in the report.

## Identifying an Error

All change orders in excess of \$500,000 shall be evaluated first, to determine if an engineering error contributed to the cost and second, did the error directly increase the cost in excess of \$500,000.

At the time that change approval is requested from the Assistant State Construction Engineer the requester shall be prepared to discuss what error codes they believe are appropriate and whether they believe an engineering error contributed to the change.

Typically the following error codes suggest an engineering error.

- EE - CONSTRUCTION ENGINEER ERROR
  - A state employee made a mistake that created a need for a repair, modification or cost adjustment
- PI - PLAN ERROR – INFO
  - Plans contain an mistake that resulted from the designer working with insufficient information
- PM - PLAN ERROR MISTAKE
  - Plans contain a mistake that given the information available to the designer should not have been made
- SU - DESIGN SURVEY OR BASE MAP ERROR
  - Initiated to pay for extra costs resulting from contracting agency survey or base map error
- UP - UTILITY PLAN ERRORS
  - Initiated to correct omission or conflict on plans related to utilities

## Engineering Error Report Guidance

Use the enclosed report cover sheet which includes the Appointing Authority’s signature.

The department's full report must be submitted within ninety days of execution of the change order and include an assessment and review of:

- (a) How the engineering error occurred;
  - a. Provide a full account of the error including the genesis, evolution and resolution of the change order.

- b. Identify if the error was the result of a failure to follow WSDOT policy and procedures in the development or during administration of the contract.
  - c. Describe extenuating circumstances, if any.
  - d. Describe the applicability of the quality control process and whether it was followed.
- (b) Identify the department of the employee or employees responsible for the engineering error, without disclosing the name of the employee or employees;
- a. Disclose the department or consultant firm that is directly responsible for the error and whether additional offices played a role.
    - i. The “department” may be the Project Engineer office, the State Construction office any of the support offices or consultant firms that assisted in the administration of the contract or the development of the design.
  - b. If consultants are involved is it appropriate to claim damages against the errors and omissions insurance? If not, why not?
- (c) What corrective action(s) was/were taken?
- a. Is corrective action appropriate? If not, why not?
  - b. For each department and consultant firm listed a corrective action must be considered. There must be at least one corrective action implemented.
- (d) Provide the value of the cost increase caused by the engineering error and how the department mitigated that cost;
- a. The cost of the engineering error is defined as the increase in the change order cost attributed specifically to the error. For example leaving work out of the contract would result in an impact of the difference in price for negotiating the price through change order instead of competitively bidding the Work.
  - b. Errors typically increase costs through time delays, rework or necessary changes in work methods
  - c. Describe how the cost of the error was mitigated.
- (e) Indicate whether the cost of the engineering error will impact the overall project financial plan
- a. How was the financial plan modified?
- (f) Describe what actions have been taken to avoid similar engineering errors in the future.
- a. This would be a lessons learned exercise. Actions may include training, policy changes, procedural changes, adding checks and balances or similar.
  - b. Provide a brief implementation timeline and plan for the changes.

# Engineering Error Highway Construction Project

## Report to the Transportation Committees

RCW 47.01.490

Region: \_\_\_\_\_

Project Title: \_\_\_\_\_

Contact Number: \_\_\_\_\_

Change Order Number: \_\_\_\_\_

Report Date: \_\_\_\_\_

As indicated by my signature below I attest that to the best of my knowledge that this report is an accurate accounting of the described events and the actions taken are appropriate for the circumstances.

Date \_\_\_\_\_

Title \_\_\_\_\_

Appointing Authority Signature \_\_\_\_\_