



NATIONAL SOCIETY OF
PROFESSIONAL ENGINEERS

BOARD of ETHICAL REVIEW

CASE REVIEW

Excess Stormwater Runoff

Case No. 23-2
June 17, 2024

NSPE.ORG



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Facts

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A new subdivision is planned in City C, located in State Q. Developer G retains Firm BWJ (an engineering and surveying firm), under the direction of Principal Engineer R, to develop plans for the subdivision. The plans were administratively reviewed for conformance with City C policy and approved by City Engineer J and are released for bidding and construction. City Engineer J was formerly a principal at Firm BWJ.

City C's subdivision regulations require that post-development 25-year recurrence interval peak stormwater flows must be equal to or less than pre-development conditions.

After the subdivision is completed, properties in the vicinity of the subdivision experience flooding. Property owners complain that the flooding damage caused water damage to their

homes, and because of these complaints, City C engaged a third-party engineering firm (IBM) to review the subdivision design.

Property owners also complain that City Engineer J is ethically compromised because of his former employment with Firm BWJ.

After performing independent modeling and analysis, Firm IBM found storm runoff flows to be substantially larger for the 25-year, two-hour storm event after the subdivision was completed. One of the complaining property owner's driveway culverts was determined to have insufficient capacity for a 25-year storm event. Construction of extensive paved areas and a large outbuilding by one of the property owners was also determined to have exacerbated flooding potential.

Questions

1. Was it ethical for City Engineer J to review and approve plans prepared by Firm BWJ, given that City Engineer J formerly worked for Firm BWJ?
2. What are Principal Engineer R's ethical responsibilities under the facts?

NSPE Code of Ethics References

- I.1** Hold paramount the safety, health and welfare of the public.
- I.4** Act for each employer or client as faithful agents or trustees.
- I.6** Conduct themselves honorably, responsibly, ethically and lawfully so as to enhance the honor, reputation and usefulness of the profession.
- II.4.a** "... disclose conflicts of interest that could influence or appear to influence their judgment or the quality of their services."
- III.1.a** Engineers shall acknowledge their errors and shall not distort or alter the facts.
- III.2.d** Engineers are encouraged to adhere to the principles of sustainable development in order to protect the environment for future generations.
- III.8** Engineers shall accept personal responsibility for their professional activities, provided, however, that engineers may seek indemnification for services arising out of their practice for other than gross negligence, where the engineer's interests cannot otherwise be protected.

BER Cases: 93-8, 95-5, 14-8, and 16-7

Discussion

This case presents the Board of Ethical Review with two matters for review. First, members of the public perceive the City Engineer J' former employment with the BWJ presents a conflict of interest, and they make their concerns broadly known through the community. The Board is asked to decide if City Engineer J is ethically compromised. The second issue involves apparent design errors by Principal Engineer R. Prior to construction, adjacent property has not flooded, and an independent analysis of the design seems to show stormwater runoff flows

are larger after construction (in conflict with the City's requirements for peak flows being less than or equal to pre-development conditions).

The first ethical issue has to do with whether City Engineer J can ethically review and approve design documents submitted to the City by the former employer, Firm BWJ. BER Case 14-8 provides a backdrop to consider City Engineer J's situation. In [BER Case 14-8](#), Engineer A worked for a private company and stamped a water rights analysis for a client, and that analysis was working its way through the court system.

During the legal review, Engineer A resigned from the firm and went to work for the State – the State was an objector to the analysis A prepared. The Board was asked to weigh in on A's ethical obligations. The BER case discussion noted Engineer A's ongoing duty both to the former employer and the private client. Engineer A would not have been able to disclose, participate or represent the state's interest in connection with this proceeding unless Engineer A first obtains the permission/consent of Engineer A's former private firm employer and the client.

This discussion reveals a significant question for the present case, namely, when Engineer J left Firm BWJ and joined the City C. Unlike BER Case 14-8 where the transition literally happened in the midst of the project for which the Board was rendering an opinion, in the present case the transition is implied to have been earlier, possibly many years ago. If so, the Board finds no issue with Engineer J having worked for Firm BWJ back in the day. However, if Engineer J's transition from BWJ to City C was recent (i.e., less than one year ago), ethical questions may arise. The BER will assume Engineer J left Firm BWJ at least a year before the subdivision work was under contract.

The second ethical issue has to do with Principal Engineer R's actions in view of the assertion of an error in the stormwater flow calculations by Firm IBM. We turn to [BER Case 16-7](#) for guidance; the case discusses Engineer A's work providing forensic engineering services for attorneys in connection with pending litigation.

Before a legal settlement is reached and while negotiations are underway, Engineer A discovers that data their report was based on is inaccurate and that if more accurate data had been used, Engineer A's conclusions would be different.

The Board reviewed these facts, and used them, in conjunction with a similar fact set in

[BER Case 95-5](#) to conclude that once Engineer A discovered that the data upon which the report was based was inaccurate, there is an affirmative obligation to step forward and advise their client about the inaccurate data and the new conclusions.

Principal Engineer R should consider obligation III.1a and acknowledge the runoff problem – actual flooding experience and IBM's modeling show the subdivision created an issue. Professional obligation III.8 affirms that professionals are responsible for their professional activities, professional obligation III.1a affirms that professional engineers must acknowledge errors.

Although dealing with unethical use of an overbroad indemnification clause, [BER Case 93-8](#) provides context for addressing errors:

A basic tenet of ethical conduct relates to the obligation of the engineer to accept responsibility for professional services that the engineer renders. This tenet is based upon the view that as a member of a learned profession, an engineer possesses skill, knowledge and expertise and is expected to use those attributes for the betterment of mankind.

In the present case, both actual flood damage and IBM's modeling suggests that the subdivision design failed to comply with City C's regulatory requirement that post-development runoff not exceed pre-development runoff.

After reviewing and verifying IBM's analysis and checking that analysis against R's own work, Engineer R of BWJ should consider obligations III.1a and III.8, acknowledge the runoff problem, and bring the BWJ risk management team together to address the runoff flow problem. There may be a determination / allocation of fault by all parties involved. Ultimately a workable design must be identified, designed, and constructed that serves the citizens of City C.



Conclusions

1. Given the facts, the Board interprets that Engineer J's transition from the private sector to the public sector was not recent and there does not appear to be a conflict between J's former work at BWJ and their current work for City C.
2. Although flood damage and independent consultant Firm IBM's analysis show larger flows, Principal Engineer R and Principal Engineers R's firm should confirm whether an error exists – essentially, they should re-review Firm IBM's analysis. If Firm BWJ determines they made a mistake, Principal Engineer R is responsible to acknowledge errors.

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