
***California Underground Facilities Safe Excavation Board
("Dig Safe Board")***

September 14, 2020

Agenda Item No. 18 (Information Item) – Staff Report

*Discussion on Reasonable Care Standards Development for Trenchless
Excavation Techniques*

PRESENTER

Jeff McClenahan, Policy Analyst

SUMMARY

Following discussion at the August 2020 Board meeting, staff and the Reasonable Care Committee held a workshop on trenchless excavation and released a survey to develop a better understanding of the practices used in this field of excavation. Participation in both the workshop and survey was strong among operators and operator-excavators, however participation from trenchless excavation contractors and subcontractors was limited. To ensure that the crucial stakeholder group of trenchless excavators are involved in the discussions which will drive future standards development, staff plan to conduct a direct outreach campaign with this group, continue the online survey, and to hold a second workshop at the end of October. Staff requests that all of those involved in excavation safety whether as operators, contractors, subcontractors, or in some other role spread the word about the survey and workshop to those contacts they have in the field of trenchless excavation to ensure that all have a chance to participate.

STRATEGIC PLAN

2020 Strategic Objective:	Improve Excavation and Location Practice Safety
Strategic Activity:	Reasonable Care Standards

BACKGROUND

Statute

Government Code § 4216.18¹ requires the Board to “develop a standard or set of

¹ CA Government Code § 4216.18

https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?sectionNum=4216.18&lawCode=GOV

standards relevant to safety practices in excavating around subsurface installations and procedures and guidance in encouraging those practices.” These standards are “not intended to replace other relevant standards... but are to inform areas currently without established standards.”

Board Meetings and Workshop

The Board relaunched the discussion of Reasonable Care Standards at the July 13, 2020² Board meeting after having previously discussed it in 2018 and 2019. At the August 10, 2020³, Board meeting staff announced a workshop and survey on reasonable care standards in the field of trenchless excavation. Staff designed these information gathering items as complements to one another, with the workshop open to wide ranging discussion around trenchless excavation projects and the survey focused on discovery of answers to specific questions that would drive the Board’s approach to these standards.

DISCUSSION

Excavator Participation

Contributions in the workshop and survey were largely from operator and operator-excavator perspectives. These contributors have significant experience with trenchless excavation, however in order to create and evaluate an effective set of standards the Board must hear from more excavation contractors who use trenchless methods in their daily work, specifically from subcontractors who specialize in this field.

The Board has an ongoing obstacle in growing participation among excavation contractors as discussed in the September 10th, 2019 Education and Outreach meeting. The Board’s 2019 Education and Outreach Survey Results identified that contractors and subcontractors are difficult and important groups to reach as only about 7% of the responses received were from excavation contractors.⁴

Staff has planned an outreach campaign to build greater engagement with contractors who specialize in trenchless excavation via email and phone calls directly inviting them to participate in the workshop and survey. A list of potential stakeholders has been created using publicly available information from industry trade publications, other regulator websites, and other available sources. Staff believe that this direct outreach would also have the benefit of

² July 13-14, 2020, Agenda Item No. 7, *Discussion on Reasonable Care Standards Development*, <https://digsafe.fire.ca.gov/media/2432/item-7-discussion-on-reasonable-care-standards-development.pdf>

³ August 10-11, 2020, Agenda Item No. 6, *Discussion of Reasonable Care Standards Workshop*, <https://digsafe.fire.ca.gov/media/2441/august-10-2020-item-6-discussion-of-reasonable-care-standards-workshop.pdf>

⁴ September 10th, 2019. Agenda Item No. 5: *Education and Outreach Survey Results*, esp. pages 5, 8, and 9. <https://digsafe.fire.ca.gov/media/2239/item-5-education-outreach-survey-results.pdf>

building relationships and drive an increase in awareness of, and participation in Board activities. With a further workshop at the end of October and six weeks for outreach, staff will be able to use its limited resources to the greatest effect. During this time, staff also propose to continue to solicit feedback through the online survey as means of providing an engagement opportunity for those who are unable to attend the workshop.

The Board and staff will also proceed with new strategies such as variations in meeting times, a campaign of direct outreach, and greater engagement with repeated meeting attendees in order to drive participation in development of reasonable care standards.

Preliminary Results

The workshop on the afternoon of August 27th gathered 33 attendees and the survey received 28 submissions in the run time of August 24th through September 3rd. The workshop gathered mainly operators and operator-excavators of which a majority have previously engaged with the Board. The survey asked respondents for their organization and while 6 respondents remained anonymous, remaining responses were also largely from the operator perspective, of which a majority noting association with the communications industry. There were 4 excavator contractors that have responded to the survey so far.

There are a few general trends to report in the responses between both the survey and the workshop. These preliminary results are presented as background information only, following conclusion of the survey and second workshop, staff will present a detailed report of results and analysis at a future Board Meeting. Trends identified from the survey and first workshop include:

- There are several responses to leave pothole windows open to visually inspect a drill head or monitor the pipeline where conditions allow and there are tolerance zone conflicts.
- Problematic soil conditions can be identified in advance of excavation.
- A wide range of soil types are reported as possibly leading to deviations from design plans and in bore path in installation of the facility. To reduce deviation from a design plan or bore, best practices evaluate drill heads, slurry mixes, soil returns to the surface, and equipment data.
- Several responses identify the importance of calibrating drill head locating equipment prior to beginning excavation to ensure accuracy.

Further Questions

There are several outstanding topics to learn more about and solicit feedback on as the Board continues engagement with stakeholders and grows its knowledge of the practices used in trenchless excavation techniques, which will drive the Board's development of standards in this field. Staff hopes the extended survey and additional workshop will provide answers in the following

areas:

- How can different bore profiles, that cross or parallel facilities in the vertical or horizontal dimension, affect best practices?
- What training is available or required prior to renting or using trenchless excavation equipment?
- To what extent are abandoned lines an issue in trenchless excavation? Answers received on the survey question are mixed so far.
- Best practices in ensuring crossbore safety and conflict avoidance around sewer lines warrants additional discussion.
- There are widely divergent scales in the size of projects that use methods of trenchless excavation that may impact standardization. Learning more about how individual methods vary based on factors of size and scope may help to ensure that standards account for such variations.

CONCLUSION

As the Board proceeds with development of reasonable care standards in the field of trenchless excavation, the viewpoint of excavation contractors which specialize in these excavation techniques is vital to understanding the practices used in the field around which standards will be developed. As this group has been underrepresented in the survey and previous workshop, staff is extending the survey, preparing a second workshop, and conducting an outreach campaign via email and phone calls to solicit more involvement with this industry group. Staff urges all stakeholders involved in safe excavation to reach out to their contacts who specialize in the field of trenchless excavation and let them know about the upcoming opportunities to participate and provide feedback.

RECOMMENDATION

Staff recommends that the Board reiterate the role that all parties involved in excavation safety have in increasing involvement in Board activities and encourage stakeholders to contact those they have worked with on projects involving the use of trenchless excavation techniques about the upcoming workshop and survey as their feedback is vital to successful development of standards in this field.

ATTACHMENTS

A: Reasonable Care Trenchless Excavation Survey Questions

ATTACHMENT A

Reasonable Care – Trenchless Excavation Survey Questions

- 1) What methods of trenchless excavation do you have experience with?
(Select all that apply)

Pneumatic piercing tools/Impact moling
Horizontal directional drilling
Mini-HDD/Guided boring
Boring
Auger & casing boring
Micro-tunneling
Other

- 2) What are the pre-work steps that you engage in to plan for a trenchless excavation project?

Text box for answer

- 3) What actions do you take to determine that a trenchless excavation will avoid all existing facilities?

Text box for answer

- 4) In your experience, what may cause a drill head to deviate from its planned path?

Text box for answer

- 5) What practices have you used to track the drill head over its path?
(Select all that apply)

Monitor with instruments on drilling rig
Drill locator following the drill head above ground
Paint markings along the bore path on the ground surface
Recorded log of geographic positioning information of drill head
Visual inspection through potholes
Other:

- 6) In general, how much space do you aim to leave between the drill head and known utilities?

Text box for answer

- 7) Do any of the following features cause you to add extra space between the drill head and known utilities? (Select all that apply)

Diameter of installation
Soil conditions
Type of existing utilities/underground structures nearby
Accuracy of drill head location information
Other

8) If conditions allow, do you pothole or excavate borehole windows to visually inspect or follow the drill head along the bore path?

Yes

No

9) If conditions do allow you to visually follow the drill head, how do you determine the intervals between potholes or the points at which to pothole?

Text box for answer

10) Are there any conditions in which you would not visually inspect or follow the drill head?

Text box for answer

11) In general, would you recommend potholing at known facility crossings?

Yes

No

12) Are there any conditions in which you would not pothole at a known facility crossing?

Text box for answer

13) Have you experienced any conditions on a trenchless project for which potholing was burdensome or impossible?

Yes

No

14) Could you explain those conditions?

Text box for answer

15) How often do you encounter unmarked abandoned lines while using trenchless techniques?

Very Often

Sometimes

Rarely

Never

16) In your experience, can soil conditions cause a deviation from the pilot bore in reaming or the pull back of the installation?

Yes

No

17) In your experience, if you have seen this happen under what soil conditions did this occur?

Text box for answer

18) Are there any ways in which you have modified your practices based on the soil composition?

Text box for answer

19) Have you been able to identify problematic soil conditions in soil samples or during the pilot bore?

Yes

No

20) Could you explain your process for the identification of these soil conditions?

Text box for answer

21) What do you pay attention to in pull back of a drill head or facility installation? (Select all that apply)

Speed of pull back

Resistance to pull back

Pressure in bore hole

Other:

22) Is there anything else you would like to share (ideas, best practices, hazards, other information)?

Text box for answer

23) Name and Organization

Text box for answer

24) Email

Text box for answer