



# Critical Thinking Skills for Managing Contract Changes (Participant Workbook Version)

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# Why Are You Here?

## ❖ Better understand how to:

- ✓ Identify & manage risk in the design and pre-construction phases to minimize/control disputes and changes during construction
- ✓ Understand how and why a contractor interprets your contract differently than you do
- ✓ Utilize General Contract Provisions to consistently address legitimate disputes and changes during construction
- ✓ Recognize that managing disputes & adhering to contract provisions is a risk-based effort that must be balanced against working relationships and expected confusion due to low-bid contracting

# Agenda

## Day 1

Part 1 Introduction

Part 2 Design / Pre-  
Construction Phase

Part 3  
Construction Phase

## Day 2

Part 3  
Construction Phase

## Day 3

Part 3  
Construction Phase

Part 4  
Scenarios

# Course Materials

**YOUR** Agency Standard Specifications



Participant Workbook

Electronic File (.pdf)

# Introductions

- Name
- Agency / Job Title
- Experience with highway contract administration
- Primary course goal
- Favorite activity / hobby

# Ground Rules

- Participate
  - Share responsibility for training
  - Respect the opinions and attitudes of others (you may ask for one exception)  
😊
  - Cell phones & Laptops on vibrate
  - ***THERE ARE NO INTERRUPTIONS!!!***
- Break Time (BT):
    - $BT < \text{or} = N + 5$  where  $N =$  stated length of break in minutes
      - If unstated, assume  $N = 10$  minutes
    - Liquidated Damages may be assessed beginning at  $N + 6$  min and may result in a possible lunch hour reduction unless:
      - 1) The break extension is expressly approved by Management prior to commencement, or;
      - 2) The extended break results in the “breekee” returning with “snack food and beverages” for class-wide distribution, at which point all will be forgiven, or;
      - 3) The break extension is used for a naturally occurring bodily process when the process has advanced to the point where there is an elevated risk of the participant “losing substantial control” over said process 😞

# Questions Before we Dig In?





# Part 1: Basic Contract Terminology



## ❖ Basic understanding of the terms:

- ✓ “Contract”
- ✓ “Low Bidder”
- ✓ “Change”
- ✓ “Risk”
- ✓ “Claim”

# What is a Contract?

*A contract is an agreement between parties creating legally enforceable obligations. Several essential elements are required for a binding contract: offer, acceptance, mutual assent “meeting of minds,” consideration, capacity, and legality. Contracts are typically signed and in writing to confirm these elements are present.*

What is a “meeting of the minds” and how does low bid contracting limit a contractor’s ability to reach a “meeting of the minds” when interpreting your plans and specs?

Let’s take a look...

# Meeting of the Minds Example #1

- *A contractor bidding low-bid contract to paint house. Bid document includes following:  
“Prior to painting exterior, prepare surface by pressure washing to remove dirt & loose paint”*
- *How does homeowner interpret this language?*
- *What is contractor’s interpretation & why?*
- *Pressure washing doesn’t remove all dirt or loose paint, does contractor have to remove it at no addl. cost or should they be paid to do so & why?*
- *Pressure washing creates more loose paint or damages siding, is contractor entitled to more \$\$ to address or is this contractor’s problem?*

## Meeting of the Minds Example #2

- *Contractor bidding on low-bid contract to mow yard. The bid document includes standard landscape language:  
“Mowing includes cutting grass, picking up clippings & disposing, edging along all concrete and general clean up”*
- *How does homeowner interpret this language?*
- *How does contractor interpret & why?*
- *Contractor arrives to mow, and grass is 10” tall, do they have to honor bid price?*
- *Contractor arrives to mow, and grass is soaking wet from watering, do they have to honor bid price?*

# Low Bidder

- ❖ If low bid process used same procedures as Roman Gladiators, how would you know who low bidder was and how is this analogy important to understand a bidder's perspective vs. DOT's perspective?

# Change

## ❖ What is a contract change?

The difference between level of effort **understood** (*by the Gladiator during bid*) in the bid documents and the level of effort **required** (*from the Gladiator*) during the contract

Whose “understanding” of the bid documents do you think carries more weight when considering a change, the owner’s, the contractor’s or are they both of equal weight? Why do you think so?

- ❖ How do you define risk in a contract with specific focus on avoiding disputes and changes?

What is the likelihood the contractor's "understanding" of bid documents [*intended to help them become low bidder*] is **significantly** different than the owner's intent when preparing the bid documents?

What do you expect a contractor to do if there is potential risk in the bid documents?

How should contractors balance risk of excess cost if not bidding risk with risk of losing low bid if they decide to price risk into bid?

# Claim

## ❖ What is a Claim?

An unresolved change or dispute resulting in a demand for additional cost, time, or both based on 3 primary components:

- ✓ Entitlement – Why is payment under the contract inadequate? (i.e. is there a justifiable reason?)
- ✓ Impact – How did the justifiable reason affect your work activities?
- ✓ Cost – How much did the justifiable reason impact your direct costs?

# End Part 1





# Part 2

## Pre-Construction Phase



# Topics

- ❖ What can be done to identify & manage risk in the pre-construction phase of a highway project, including:
  - ✓ Design
  - ✓ Pre-Bid Meetings
  - ✓ Bid Questions
  - ✓ Unbalanced Bidding



# Design





# *Spearin Doctrine* (impact on design)

# *Spearin Doctrine*

- ❖ U.S. Supreme Court (SCOTUS) 1918 decision in ***United States v. Spearin*** (248 U.S. 132)
  - ✓ The owner impliedly warrants the constructability of the plans and specifications provided to a contractor. The contractor is not liable for loss or damage due to defects in the plans and specifications

# Excerpt of SCOTUS Majority Opinion

- The general rules of law applicable to these facts are well \*136 settled. Where one agrees to do, for a fixed sum, a thing possible to be performed, he will not be excused or become entitled to additional compensation, because unforeseen difficulties are encountered. *Day v. United States*, 245 U.S. 159; *Phoenix Bridge Co. v. United States*, 211 U.S. 188. Thus one who undertakes to erect a structure upon a particular site, assumes ordinarily the risk of subsidence of the soil. *Simpson v. United States*, 172 U.S. 372; *Dermott v. Jones*, 2 Wall. 1. But if the contractor is bound to build according to plans and specifications prepared by the owner, the contractor will not be responsible for the consequences of defects in the plans and specifications. *MacKnight Flintic Stone Co. v. The Mayor*, 160 N.Y. 72; *Filbert v. Philadelphia*, 181 Pa. St. 530; *Bentley v. State*, 73 Wisconsin, 416. See *Sundstrom v. New York*, 213 N.Y. 68. This responsibility of the owner is not overcome by the usual clauses requiring builders to visit the site, to check the plans, and to inform themselves of the requirements of the work, as is shown by *Christie v. United States*, 237 U.S. 234; *Hollerbach v. United States*, 233 U.S. 165, and *United States v. Utah &c. Stage Co.*, 199 U.S. 414, 424, where it was held that the contractor should be relieved, if he was misled by erroneous statements in the specifications.

In the case at bar, the sewer, as well as the other structures, was to be built in accordance with the plans and specifications furnished by the Government. The construction of the sewer constituted as much an integral part of the contract as did the construction of any part of the dry-dock proper. It was as necessary as any other work in the preparation for the foundation. It involved no separate contract and no separate consideration. The contention of the Government that the present case is to be distinguished from the *Bentley Case*, *supra*, and other similar cases, on the ground that the contract with reference to the sewer is purely collateral, is clearly without \*137 merit. The risk of the existing system proving adequate might have rested upon Spearin, if the contract for the dry-dock had not contained the provision for relocation of the 6-foot sewer. But the insertion of the articles prescribing the character, dimensions and location of the sewer imported a warranty that, if the specifications were complied with, the sewer would be adequate. This implied warranty is not overcome by the general clauses requiring the contractor, to examine the site,<sup>[1]</sup> to check up the plans,<sup>[2]</sup> and to assume responsibility for the work until completion and acceptance.<sup>[3]</sup> The obligation to examine the site did not impose upon him the duty of making a diligent enquiry into the history of the locality with a view to determining, at his peril, whether the sewer specifically prescribed by the Government would prove adequate. The duty to check plans did not impose the obligation to pass upon their adequacy to accomplish the purpose in view. And the provision concerning contractor's responsibility cannot be construed as abridging rights arising under specific provisions of the contract.

# *Spearin Doctrine* Refined

- ❖ *Spearin Doctrine* encompasses 2 specific warranties from Fed/State court rulings:
  - 1) Plans and specifications are accurate
  - 2) Plans and specifications are suitable for their intended use
  
- ❖ Attempting to avoid *Spearin* liability by minimizing the amount of information provided in the contract documents might not work. Why not?

# *Spearin Doctrine* Case Study

- ❖ Project-Specific Case Study (SR 520 Floating Bridge in Bellevue, WA)
  - ✓ Design-Build project for a floating bridge (1 of 9 in the world at the time it was constructed)
  - ✓ WSDOT gave most design responsibility to the design-build contractor, but retained responsibility for the floating pontoon design
  - ✓ What was the warranty implied by *Spearin* with respect to the floating pontoon design?

# *Spearin Doctrine* Case Study



Cracks developed in the pontoons...does the *Spearin Doctrine* help define who owns the responsibility? If so, how?



# *Spearin* Scenario

How might the *Spearin Doctrine* affect the design for a deteriorated structure repair such as the Umauma Bridge in Hilo, Hawaii?



# *Spearin* Scenario

New pavement rutting, contractor mix design, although DOT required ½" aggregate size & PG64-22 asphalt binder

Is it possible to have an issue related to the *Spearin Doctrine* for this failure...why or why not?

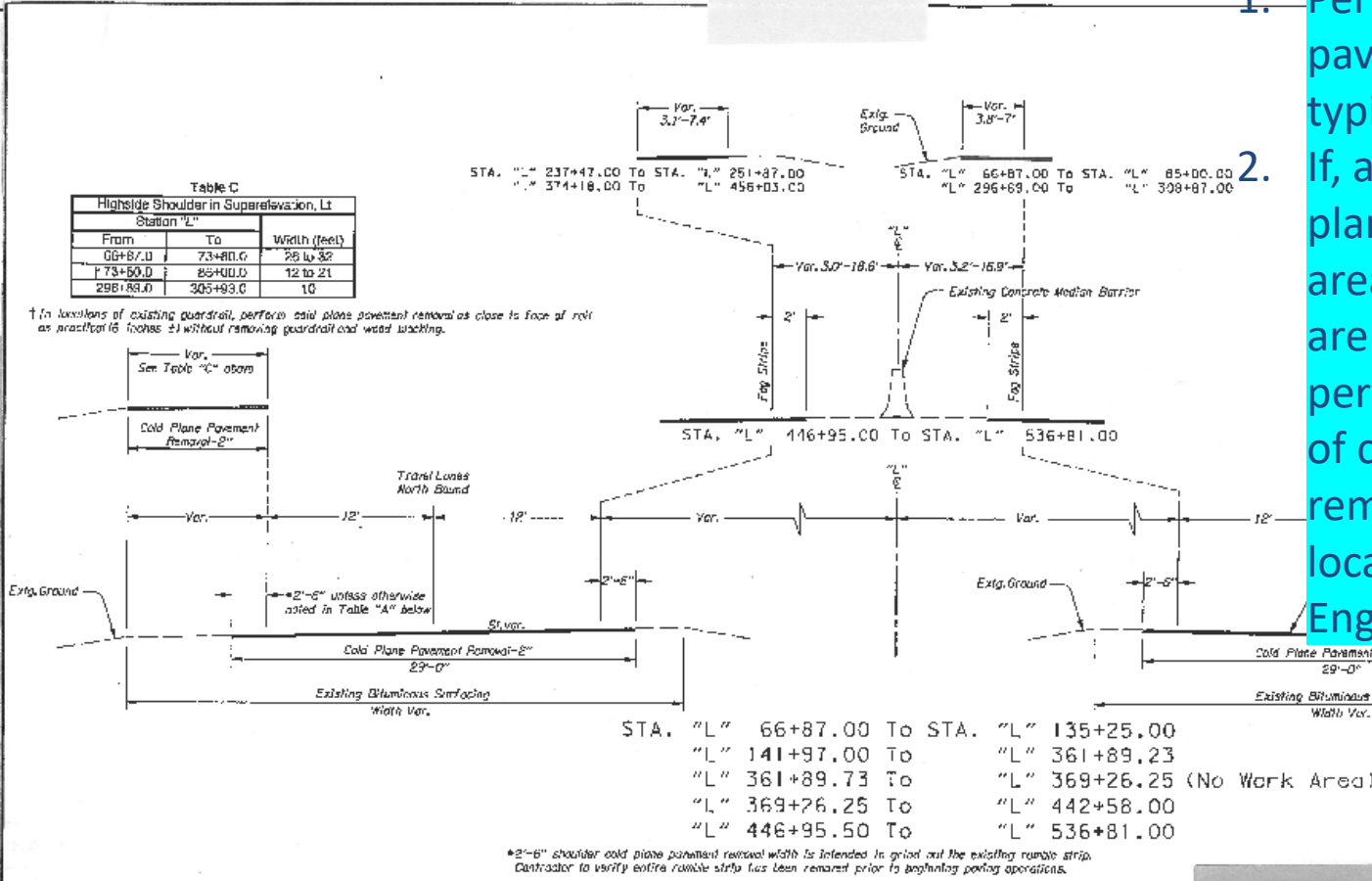


# Identifying and Managing Risk in Design

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**Bid Item: 6" Asphalt Concrete Pavement Repair (paid by SY)**  
 >> includes grinding, sweeping, tack coat, and 6" HMA  
 (different HMA mix than mainline placed in 2 – 3" lifts)

1. Perform 2" cold plane pavement removal per typical sections.
2. If, after initial 2" cold plane pavement removal, areas of failing pavement are discovered, then perform an additional 6" of cold plane pavement removal. (width and locations as directed by Engineer)



**Table C**  
 Highside Shoulder in Superelevation, Lt

Station "L"		Width (feet)
From	To	
06+87.0	73+80.0	28 to 32
73+50.0	85+00.0	12 to 21
295+88.0	305+93.0	10

† In sections of existing guardrail, perform cold plane pavement removal as close to face of rail as practicable (within 3') without removing guardrail and weed wacking.

Transit Lanes North Bound

\*2'-6" unless otherwise noted in Table "A" below

\*2'-6" unless otherwise noted in Table "B" below

STA. "L" 66+87.00 To STA. "L" 135+25.00  
 "L" 141+97.00 To "L" 361+89.23  
 "L" 361+89.73 To "L" 369+26.25 (No Work Area)  
 "L" 369+26.25 To "L" 442+58.00  
 "L" 446+95.50 To "L" 536+81.00

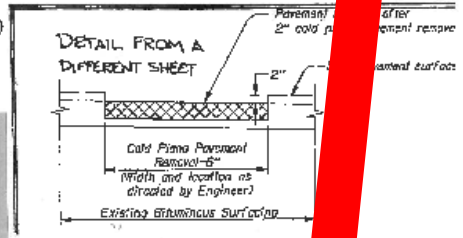
\*2'-6" shoulder cold plane pavement removal width is intended to grind out the existing rumble strip. Contractor to verify entire rumble strip has been removed prior to beginning paving operations.

**Table A**  
 North Bound Speed Change Lanes

Station "L" (Lt)		Width (feet)
From	To	
05+05.0	05+04.9	14.8 to 37.7
176+22.3	321+02.1	42.8 to 2.5
271+31.4	265+00.0	2.5 to 37.7
308+83.0	310+03.8	43.1 to 2.5
345+27.8	358+04.9	2.5 to 34.7
374+70.2	390+00.9	39.2 to 2.5

**Table B**  
 South Bound Speed Change Lanes

Station "L" (Rt)		Width (feet)
From	To	
03+33.0	08+85.0	2.5 to 34.8
120+57.6	128+09.9	34.3 to 2.5
271+37.2	279+18.1	2.5 to 43.4
300+86.1	314+09.2	42.4 to 2.5
369+78.0	374+07.1	2.5 to 32.3
382+04.0	394+00.0	47.8 to 2.5
427+09.4	533+76.5	2.5 to 46.3



- Order of Work:
1. Perform 2" cold plane pavement removal per typical sections.
  2. If, after initial 2" cold plane pavement removal, areas of failing pavement are discovered, then perform an additional 6" of cold plane pavement removal.

**6" ASPHALT CONCRETE PAVEMENT REPAIR**

# ❖ How could you reduce the risk with the previous detail for additional grinding and paving we just discussed?

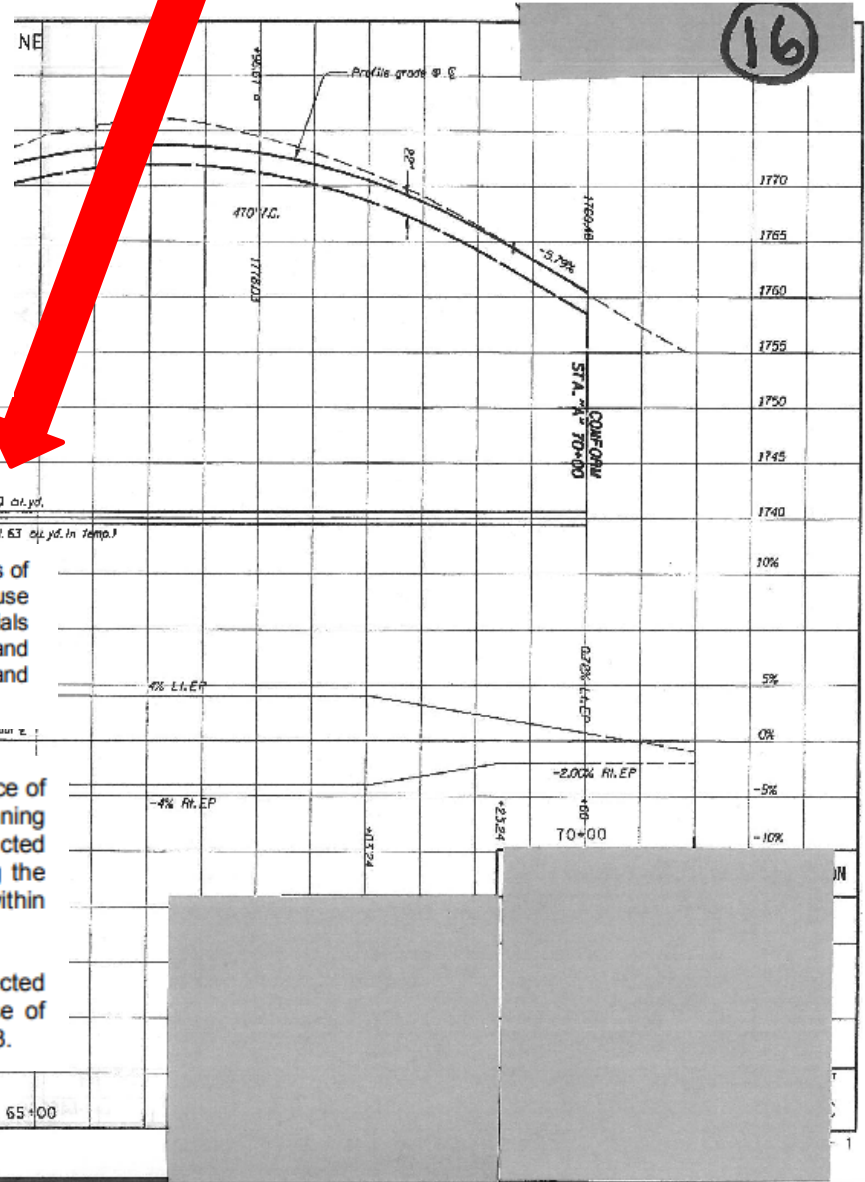
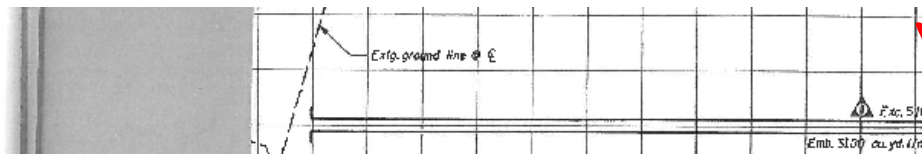
- ✓ Minimum width to help with grinder selection
- ✓ Minimum length to help identify appropriate repair process
- ✓ Location table to understand mobilization requirements and to estimate impact on mainline paving production and required HMA production for repair areas

**00330.41 Excavations** - Perform excavation of earthwork as directed and according to the following:

**(a) General:**

- (1) Selection and Sorting of Excavated Materials** - All materials available from excavations, including Borrow Materials, are subject to selection and separate handling for their best utilization in various parts of the Work. Select the types of materials to be used according to 00330.42, 00330.44, 00330.45, 00330.47, the Special Provisions, and as directed. Select and sort excavated materials, as necessary, to meet Contract requirements.
- (2) Selected Topsoil** - Stockpile and place selected Topsoil according to 01040.43.
- (3) Unsuitable Materials** - Unsuitable Materials encountered in required excavations shall be classed as waste material and disposed of according to 00330.41(a)(5).
- (4) Excess Materials** - If the quantities of excavated materials are greater than required to construct embankments and to do all filling and backfilling, the remaining materials shall be classed as waste materials and be disposed of according to 00330.41(a)(5).
- (5) Waste Materials** - Unless otherwise specifically allowed and subject to the requirements of 00280.05, dispose of materials, classed as waste materials in 00330.41(a)(3) and 00330.41(a)(4), outside and beyond the limits of the Project and Agency-controlled property and according to 00290.20. Do not dispose of materials on Wetlands, either public or private, or within 300 feet of rivers or streams.

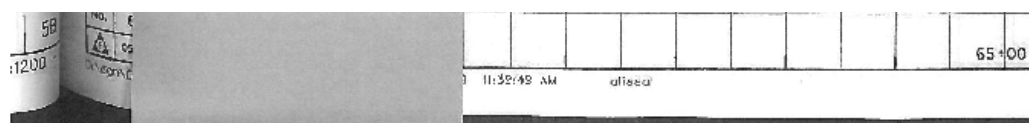
Exc. 50,000 cu.yd.  
Emb. 50,000 cu. yd.



**00330.42 Embankment, Fills, and Backfills** - Consider the nature, characteristics, and qualities of the materials to be selected before performing embankment, fill, and backfill Work. Select and use excavated materials in various parts of the Work according to 00330.41(a). Use all materials originating from required excavations, as far as practicable, in the formation of embankments and Subgrade, and for bedding, backfilling and other purposes shown on the Plans, as directed, and according to the following:

**(7) Embankment Construction at Bridge Ends** - At the ends of Bridges and for a distance of at least 100 feet from the Bridge, place and compact the embankments before beginning Bridge construction, unless otherwise directed. Unless the embankment is constructed according to 00330.42(c)(8), provide and place selected stone backfill material, meeting the requirements of 00330.15 when such is available from excavations, in all embankments within 100 feet of Bridges, or as directed.

**(8) Engineered Fills** - In areas designated on the Plans as "Engineered Fills", place selected stone backfill material in maximum 8-inch Lifts from the existing ground up to the base of granular structure backfill. Compact to 95 percent maximum density according to 00330.43.



## ❖ How could you reduce risk associated with balanced earthwork project as discussed?

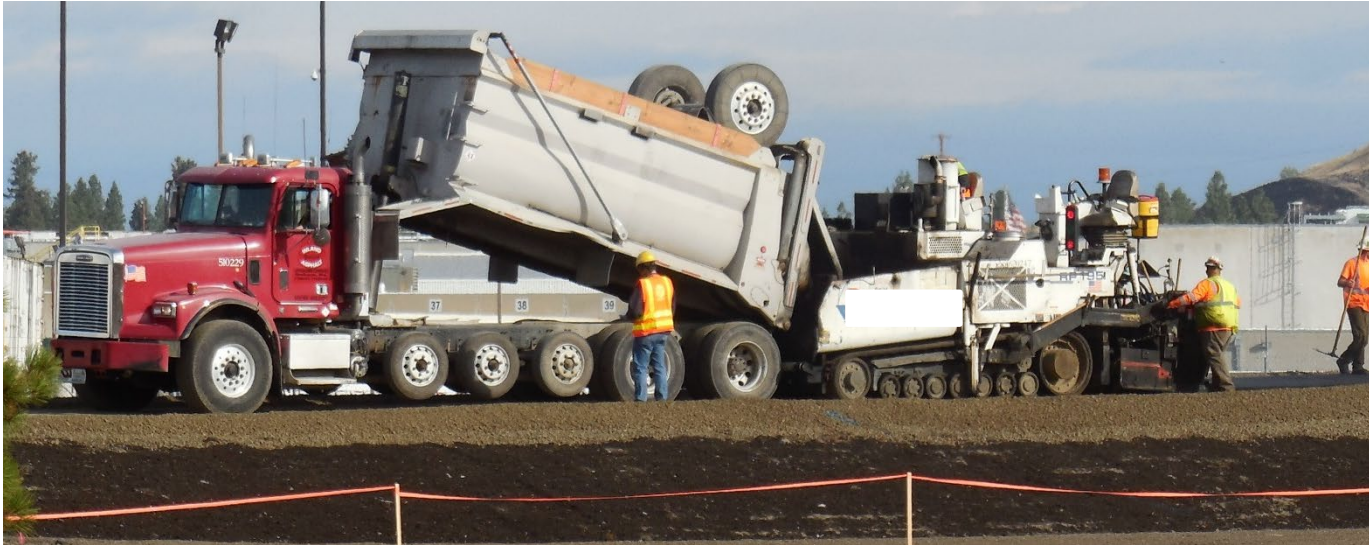
- ✓ Unbalance the project by providing unsuitable material criteria from existing excavations (e.g. 50% unsuitable)
- ✓ Require a portion of the embankment material to be of a quality that requires importing (e.g. top 3' granular)
- ✓ Provide notice that subgrade may require in-place treatment if it cannot be compacted to a firm, unyielding condition

# Situation: Chips Ahoy

- ❖ Chip seal  
rock paid by volume in haul truck.  
Often excess rock is used,  
broomed off roadway



- ❖ How could you address this risk?
  - ✓ Modify payment method from volume to surface area
- ❖ What new risks come with making this change?



- ❖ How could you reduce risk of high bid price for HMA item that includes both mainline and driveway paving?
  - ✓ Add separate bid item per ton for driveway paving
  - ✓ Add separate lump sum bid item for each driveway
- ❖ What challenges do you face in adding bid items?

# Modify Documents to Manage Risk

- ❖ 4 ways to modify contract documents to limit risk
  1. Change contract plans
  2. Change contract special provisions
  3. Change method of contract payment for existing bid item
  4. Add bid item

# Constructability Review

- ❖ A review of construction processes during late-design phase to identify potential risks and identify significant issues in contract documents
  - ✓ In its simplest form, a constructability review is an organized search for construction risk
  - ✓ At what point in the project design and why?
- ❖ What issues would likely be discussed for work shown in the following photos?















# Pre-Bid Meetings

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# Bid Questions





# Unbalanced Bidding

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# Unbalanced Bid Types

- ❖ Two types of unbalanced bids
  - ✓ Mathematically unbalanced bid
    - Bid item prices do not reflect actual cost, but awarding contract as bid will likely result in lowest total cost to owner
  - ✓ Materially unbalanced bid
    - Bid item prices do not reflect actual cost, and there is a legitimate concern whether awarding contract as bid will result in lowest total cost to owner due to the unbalancing
- ✓ How can DOT identify material unbalancing?

# Why Contractors Unbalance Bids Relative to the Engineer's Estimate?

## ❖ Contractors unbalance bids to:

- ✓ Take advantage of items with inaccurate bid quantity
- ✓ Position themselves for bid item changes/challenges
- ✓ Increase potential bonus or escalation
- ✓ Generate early \$\$ to limit credit usage (line-of-credit)
- ✓ Remove mark-up to improve chance as lowest bidder
- ✓ Capture increased subcontractor cost (including DBE)
- ✓ Shift \$\$ from unit price into lump sum items to guarantee revenue regardless of final quantities

# Unbalanced Bidding Example

- ❖ A contractor believes the hot mix asphalt (HMA) bid item is low and the flagging bid item is high?
  - ✓ Owner estimates 3 weeks of paving plus 3 weeks of related work (20,000 tons HMA & 2,500 hours flagging)
  - ✓ Contractor estimates 4 weeks total paving and related work
  - ✓ Contractor estimates using 1,000 of 2,500 flagging hours
  - ✓ Contractor estimates small HMA overrun (21,000 vs. 20,000 tons) based on rock densities and the amount of required ride correction
  
- ❖ Let's take a look...

# Unbalanced Bidding Example

Item	Traditional Bid	Unbalanced Bid	Difference
HMA	\$50 per ton	\$55 per ton	> \$5 per ton
Flagging	\$40 per hour	\$1 per hour	< \$39 per hour
Bid quantities	\$50 x 20,000 = \$1.0 M	\$55x 20,000 = \$1.1 M	HMA
Bid quantities	\$40 x 2,500 = \$100,000	\$1 x 2,500 = \$2,500	flagging
Actual quantities Anticipated	\$50 x 21,000 = \$1.05 M	\$55 x 21,000 = \$1.155 M	HMA
Actual quantities Anticipated	\$40 x 1,000 = \$40,000	\$1 x 1,000 = \$1,000	flagging
Bid total	\$1.1 M	\$1.102 M	same "effective" bid
Revenue total	\$1.09 M	\$1.156 M	6% higher revenue

# Unbalanced Bidding Question

- ❖ Why might each of the following work items in the photos below be susceptible to an unbalanced bid?



# Risk Identification & Mitigation Group Exercise



- ❖ Group activity
  - ✓ Identify as many risks as you can find
  - ✓ How might you address risks determined using any of the 4 methods of modifying the identified risks
  - ✓ Which items might be susceptible to unbalanced bidding and why

## Risk Identification Scenario

*Part of dispute avoidance is understanding risk in a contract. Risks may be associated with site conditions, method of payment, estimated quantities, constructability, contractor-State coordination, etc. Participants will discuss which items below carry dispute risk or performance risk and form an opinion of impact magnitude. Groups will share opinions with the class. This will allow the participants to apply their experience and knowledge of local contracts, environments, and construction methods.*

### **Background**

A highway project plans to straighten and widen an existing 2-lane road with several dangerous curves to allow better sight distance and more passing opportunities, including a short new passing lane segment. Project site is narrow canyon paralleling a river with steep terrain. The general approach is for the new roadway to follow the existing roadway but depart the existing alignment in several sharp curves in order to flatten the curves. In one location, a new structure will be built to span over the river and eliminate a tight, hairpin curve with a history of serious crashes. The existing road contains 2-12-foot travel lanes and 2-foot paved shoulders. The proposed roadway contains 2-12-foot travel lanes and 8-foot paved shoulders (6-foot wide where 8-foot wide shoulders are not practical). Traffic control will require a flagger and pilot car when either of the existing 2 travel lanes are impacted.

### **Schedule**

The project is planned to open bids about January 1, 2022 and must be completed by November 1, 2023. The work site is generally unsuitable for roadway construction between mid-November and early-March due to frozen ground and winter roadway operations.

## **Project Site Features:**

**Utilities:** The project is in a relatively narrow river canyon, so most project utilities parallel the roadway. Electrical lines (both distribution and transmission) are present within the project limits. Electrical distribution lines parallel the roadway on wood poles with guy wires. Electrical transmission lines run on a separate, independent straight alignment that passes through the project limits. These transmission poles cross over the river at the same location as the intended structure to eliminate the hair pin turn. Several years ago, a fiber optic line was cut into the bottom of the roadside ditch and was supposed to be placed a minimum of 4-feet below ground level according to the permit.

**Railroad:** A single at-grade railroad line crossing with drop arms and signal lights crosses the roadway within the project limits. There is no significant work intended in the railroad vicinity except for shoulder widening and one large, multi-post permanent sign, so it is hoped that railroad coordination will be limited. However, some concern was expressed by the public for improving the roughness of the at-grade crossing by replacing the pavement immediately adjacent to the track crossing. There is no option to change to a grade-separated crossing. The permanent sign is not on railroad right-of-way but is within about 30-40 feet of the tracks and is large enough to require a small crane to install.

**Right-of-Way:** There are multiple Right-of-Way agreements with adjacent public and private landowners in conjunction with the curve realignments. In order to flatten several curves, slopes will need to be laid back. The slope catches at the top of the cuts are landing outside of the highway right-of-way. Agreements consist of various obligations including maintaining access, noise disturbance limitations, protection of private trees and landscaping, and construction of new approaches.

**Environmental:** The State will obtain all permits needed to work in the corridor, and the Contractor must sign on as a co-permittee upon contract award. The project corridor has environmentally sensitive features including an active river, wetlands, and protected species. There are listed fish species in the river that allow in-water work only during an in-water-work period (IWWP) from June 15<sup>th</sup> to September 1<sup>st</sup>. In-water work outside the IWWP can only be allowed on a case-by-case basis based on precipitation forecast and fish movement and can only be approved at the time the request is made...it cannot be pre-approved by the regulatory agencies since it is dependent on weather and actual fish migration.

**Tribal Requirements:** This project sits partially within designated Native American tribal lands. As a result, the specifications will include specific tribal hiring preferences and required coordination both with the Tribal Natural Resources Office and with the Tribal Employment Rights Office (TERO).

## Major items of work include:

**Structure:** As noted above, a new structure will be added to eliminate a short section of roadway with a hair pin curve that has been the site of multiple serious injury and fatal crashes over the years. The new structure will be built on a heavy skew to accommodate the roadway geometry and will be in a curve requiring superelevation. The structure type recommended is a steel girder superstructure with a large drilled shaft foundation for the single cast-in-place concrete pier. The abutments will be founded on driven pile on either side of the river crossing. The structure will span over a large “eddy” in the river where a tributary creek enters the river and circular currents have created a wide spot in the river that necessitated the hair pin curve to circumvent the area and avoid significant roadway washout. An existing culvert that passes the creek under the roadway in the hair pin curve will be removed after the new structure is complete. The new structure will end up near the electrical transmission lines that pass through the project and cross the river eddy in the same location.

**Asphalt Roadway Widening:** To widen existing shoulders, the edge of pavement will be sawcut to allow a vertical edge to pave against. Existing shoulder materials will be excavated to allow for 8” of base aggregate under the new shoulder asphalt. No subsurface field testing was done in the shoulder widening areas, so it is unknown what type of subgrade conditions exist. The widening will typically range from 4-6 feet from the sawcut edge of pavement, except in areas where the roadway is being realigned. Where the existing roadway remains, the asphalt pavement will be milled to a 2” depth followed by 4” of new asphalt. There are many maintenance blade patches of various depths and widths over the existing pavement.

**High-Friction Surface Treatment (HFST):** To help improve safety in the multiple sharp curves, high-friction surface treatments will be constructed to improve macro-texture and reduce the potential for run-off-the-road accidents, particularly during heavy rain events.

**Subgrade Stabilization:** The design includes a “Subgrade Stabilization” item for removing unsuitable subgrade material to a variable depth of between 12” and 36” below top of subgrade as directed by the Engineer. A subgrade geotextile will be directed if certain subgrade soil types are encountered. The unsuitable material becomes the contractor’s property at the point of excavation. “Subgrade Stabilization” is measured and paid by the cubic yard as directed by the Engineer and includes excavation and haul-off, geotextile, backfill and compaction.

**Earthwork:** A limited amount of embankment will be required, primarily for some areas of shoulder widening, in some of the curve realignments, and for the passing lane section. An estimated 15,000-20,000 cubic yards of embankment are anticipated. Several of the slope cuts required to realign the curves are anticipated to generate about 20,000 cubic yards of excavated materials. Excavation will be paid by the cubic yard based on the surveyed original ground and a survey of the final slope. There are two bid items for excavation – an unclassified excavation item with a quantity of 17,500 cubic yards and a rock excavation item with a quantity of 2,500 cubic yards. Embankment is considered incidental and will not be paid for. A series of boreholes in the required slope cuts indicate anything from a dense, conglomerate soil to a competent rock. Notes in the grading plan sheets indicate the required final slope will be based on the type of material encountered and will be directed by the Engineer. The slope shown in the plan sheets represents a “worst case” condition (flattest slope) to ensure there is adequate right-of-way to capture the slope catch. The final slope could vary from the 1 vertical: 1 horizontal (flattest) all the way to ¼ vertical: 1 horizontal (steepest).

**Aggregate base:** Aggregate base will be placed at 8” depth between subgrade and the asphalt mat in the widening areas and in any areas requiring full-depth repair. It must be compacted and graded prior asphalt paving. The State must inspect and approve the surface for grade and compaction once notified by the contractor.

**Asphalt Paving:** The Contractor will place 4” of new asphalt pavement over the existing roadway after milling, 6” of new asphalt pavement over the aggregate base material in the shoulder widening, and 8” of new asphalt pavement over the aggregate base material for new, realigned roadway sections and reconstructed sections of roadway. The contract includes a material incentive/disincentive clause. The Contractor can receive up to a 5% bonus for a statistically determined high quality asphalt mixture, and an additional 5% bonus for smoothness of the final pavement mat. The Quality Assurance plan requires both testing for acceptance by the State and Quality Control testing by the contractor. Asphalt is paid by the ton placed. The contract does not include any material commodity escalation clauses (asphalt, steel, or fuel). In addition to the asphalt wearing course, a high-friction surface treatment (HFST) will be placed on the asphalt wearing course in designated curves. The HFST specifications require placement on top of the asphalt wearing course and temperature requirements that limit placement during cool weather.

**Permanent Striping:** Permanent striping for the roadway will consist of a durable extruded thermoplastic material. In order to place the thermoplastic striping material, the asphalt pavement wearing course must be allowed to cure for two weeks and the pavement cannot have received moisture within the 48-hours prior to striping placement.

**Roadway/Roadside Safety Features:** Several safety features will be installed within this section of roadway. Centerline rumble strips will be added along with proper striping and signing in “no passing” zones. The rumble strips must be installed prior to final permanent striping. Guardrail will be installed in several new locations in the roadway in addition to the replacement of existing guardrail in multiple curves and other areas with steep roadside slopes. According to the specifications, sections requiring guardrail cannot be left unprotected for more than 24-hours from the time the existing guardrail is removed until the time the new guardrail is installed.

**Re-vegetation:** In areas where a new slope is created that is not considered “rock,” revegetation of the slope will be required. The revegetation process will consist of placement of topsoil followed by either seeded ground cover, landscaping, or both as shown in the plan sheets. There are two bid items for topsoil – one for new topsoil and one for recycled topsoil (i.e. topsoil from onsite activities). The specification for topsoil indicates recycled topsoil should be used to the maximum extent possible before new topsoil is used [END]

# End Part 2





# Part 3

# Construction



# Topics

- ❖ When managing a possible construction contract change, the following questions need to be answered simultaneously:
  - 1) What does the contract say, including what is stated and what is unstated but implied?
  - 2) What does the contract mean, that is, what is the intent of the contract?
  - 3) What does a “fair and equitable” decision look like given the challenges of bidding risk into a low bid (design-bid-build) contract?
  - 4) How will the final decision affect the critical working relationship between the owner and the contractor?

# Key Skills for Managing Contracts

DOT Administration Staff

Critical Thinking

Construction Problems  
(Force fed if necessary)

Unbiased Intake

Empathy

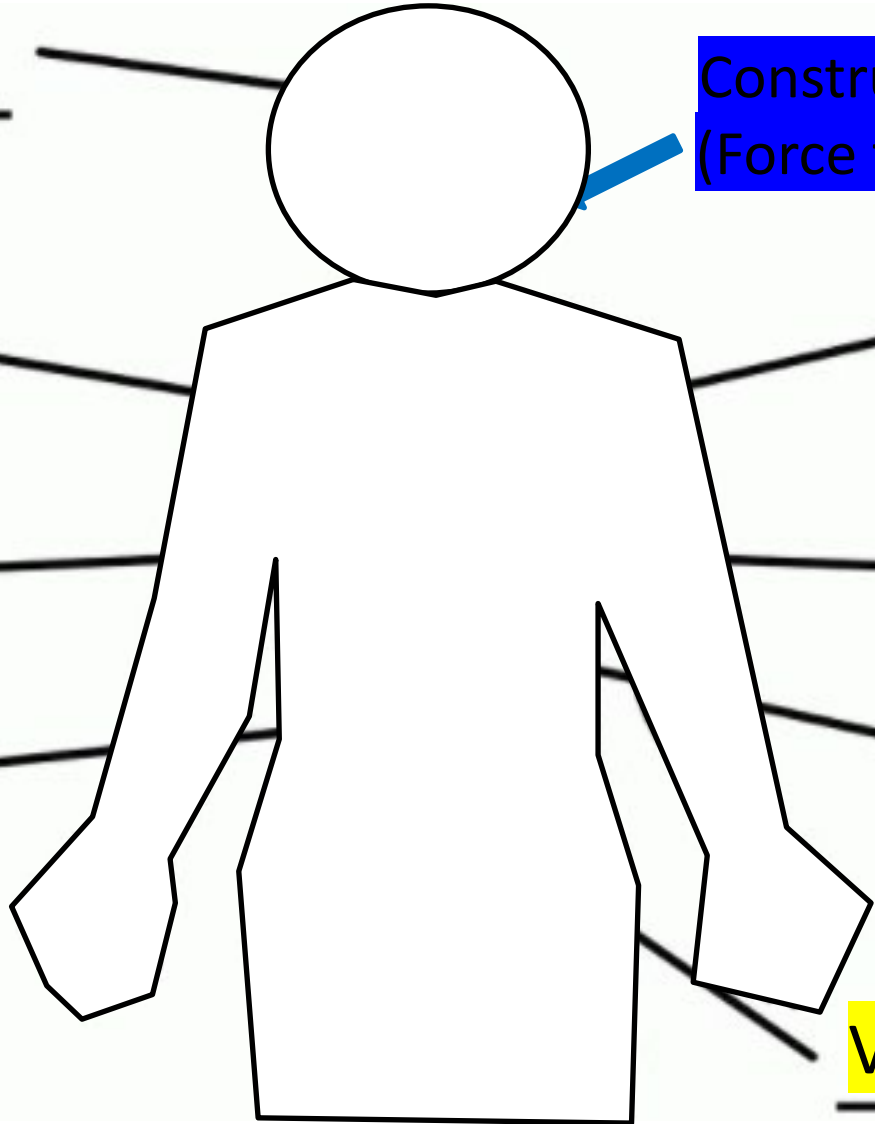
Alcohol Mgmt.

Strong Stomach

Efficient Waste  
Removal System

Filter for Truth

Value Extraction





Question 1: What does the contract say, including what is stated and what is unstated but implied?

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# Explicit Contract Clauses Affecting Changes (What is Stated)

- ❖ Explicit concepts that affect contract changes
  1. Notice
  2. 3 Standardized Changed Conditions Clauses
    - ✓ Significant Change in the Character of Work
    - ✓ Differing Site Conditions
    - ✓ Suspensions of Work Ordered by the Engineer
  3. Deletion of Work
  4. Damage to Work
  5. Delays & Disruptions

# Notice

❖ Notice requirements are the single most important for you to enforce...why???

# Notice

- ❖ If contractor believes a contract requirement or your direction constitutes a change, and requests modification to payment, contract time, or both, notice must be given to allow YOU an opportunity to:
  - ✓ Investigate, Mitigate & Document
- ❖ Failure to give proper notice risks allowing contractor to “prejudice the owner’s right to mitigate”
  - ✓ Notice is a window into the health of the working relationship between owner and contractor
  - ✓ Notice is mostly about timing and accuracy

# Notice Rules to Live By 😊

1. Expectations for proper notice should always be discussed at the pre-construction conference...why?
2. Contractor should always be encouraged to provide early notice and to be conservative with respect to overall impact...why?
3. Inadequate/improper notice should almost always cost the contractor time, \$\$, or both...why?

# FHWA- Required Standardized Changed Conditions Clauses



- ❖ 23 CFR 635.109 Standardized changed condition clauses:
  1. (a)(1) Differing site conditions
  2. (a)(2) Suspensions of work ordered by the engineer
  3. (a)(3) Significant changes in the character of work
  
- ❖ (b)(1) says if state law does not permit a clause, state law will prevail & clause is not required
  
- ❖ (b)(2) says if DOT already developed/implemented clause, it may be used in lieu of reqd. clauses if it is consistent with 23 CFR & approved by DA as part of PS&E approval

# Change in Character of Work

- ❖ Origins of Change in Character of Work Clause
  - Originated in 1987 by Congress in Surface Transportation and Uniform Relocation Assistance Act (STURAA) in amended 23 USC 112(e)(1)
  - Intended to “equitably address” ... “material changes in the scope of work specified in the contract”
  - Government only pays for necessary changes as defined but is allowed to change contract without invalidating it
  - Contractor bids based on desired means and methods and character of work as represented in contract documents and required changes will be eligible for compensation

# Contract Without Changes Clause

If you choose “Version A” can the builder deliver any version since it is the same floor plan?

Can the builder change any detail unilaterally?

Why or why not?

# Significant Change in the Character of Work

- ❖ Serves as a “Changes Clause” for Federal-aid projects
- ❖ What is a “Changes Clause?”
  - ✓ Gives the owner the right to modify the contract within the scope of the original contract without invalidating the contract or releasing the surety
  - ✓ Provides for continuation of work as contractor is required to perform the work as altered and sets up clear system for implementing changes
- ❖ Where is this clause in your specifications?

# Current Change Clause Language

- (3) *Significant changes in the character of the work*
- (i) The engineer reserves the right to make, in writing, at any time during the performance of the work, such changes in quantities and such alterations in the work as are necessary to satisfactorily complete the project. Such changes in quantities and alterations shall not invalidate the contract nor release the surety, and the contractor agrees to perform the work as altered.

# Current Change Clause Language

- (ii) If the alterations or changes in quantities significantly change the character of the work under the contract, whether such alterations or changes are in themselves significant changes to the character of the work or by affecting other work cause such other work to become significantly different in character, an adjustment, excluding loss of anticipated profits, will be made to the contract. The basis for the adjustment shall be agreed upon prior to the performance of the work. If a basis cannot be agreed upon, then an adjustment will be made either for or against the contractor in such amount as the engineer may determine to be fair and equitable.

# Current Change Clause Language

- (iii) If the alterations or changes in quantities do not significantly change the character of the work to be performed under the contract, the altered work will be paid for as provided elsewhere in the contract.
- (iv) The term "significant change" shall be construed to apply only to the following circumstances:

# Current Change Clause Language

- (A) When the character of the work as altered differs materially in kind or nature from that involved or included in the original proposed construction or
- (B) When a major item of work, as defined elsewhere in the contract, is increased in excess of 125 percent or decreased below 75 percent of the original contract quantity. Any allowance for an increase in quantity shall apply only to that portion in excess of 125 percent of original contract item quantity, or in case of a decrease below 75 percent, to the actual amount of work performed.

# Why is Establishing a Change So Important

- ❖ Recall the 3 parts of a claim -
  - ✓ Entitlement, Impact, and Cost
- ❖ Establishing a root cause of (and responsibility for) a change provides a basis of entitlement to additional costs and/or time associated with an impact from the change. If there is no basis of entitlement for a change, then the contractor has already been paid through the original contract items and there is no justification for additional cost or time... *(that's all for significant changes...final thoughts...???)*

# Differing Site Conditions (DSC)

## ❖ Origins of DSC Clause

- Originated in 1926-1927 by Federal Govt. for Federal contracts
- Intended to limit risk for bidding contractors
- Government only pays for unexpected conditions
- Contractor can bid based on represented conditions and reasonably anticipated (typical) conditions

## ❖ What would happen if there was no DSC clause?

# Current DSC Clause Language

- ❖ (1) *Differing site conditions.* (i) During the progress of the work, if subsurface or latent physical conditions are encountered at the site differing materially from those indicated in the contract or if unknown physical conditions of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in the work provided for in the contract, are encountered at the site, the party discovering such conditions shall promptly notify the other party in writing of the specific differing conditions before the site is disturbed and before the affected work is performed.

# Current DSC Clause Language

- ❖ (ii) Upon written notification, the engineer will investigate the conditions, and if it is determined that the conditions materially differ and cause an increase or decrease in the cost or time required for the performance of any work under the contract, an adjustment, excluding anticipated profits, will be made and the contract modified in writing accordingly. The engineer will notify the contractor of the determination whether or not an adjustment of the contract is warranted.
- ❖ (iii) No contract adjustment which results in a benefit to the contractor will be allowed under this clause for any effects caused on unchanged work. (optional provision)
- ❖ (iv) No contract adjustment will be allowed under this clause for any effects caused on unchanged work.(optional provision)

# Type I DSC Exculpatory Language

No Responsibility or Warranty by the Agency. Soil classifications have been made from laboratory tests of soil samples extracted and/or collected. Rock and soil descriptions, engineering properties, or classifications are from visual inspection and tests of rock cores and/or soil samples. Observed water levels and/or water conditions indicated are as recorded at the time of exploration and may vary considerably with time according to the prevailing rainfall and other factors.

The information provided may not represent existing conditions. The Agency is not responsible for the information. The Agency does not warrant in any way the completeness or accuracy of the information. Disclosure of the information is not a substitute for personal investigations, interpretations, and/or judgments by each prospective bidder. It is the responsibility of each prospective bidder and/or Subcontractor to satisfy itself, through its own independent investigations, concerning the conditions and materials to be encountered.

# Establishing a Type I DSC

## ❖ Summary of Key Conditions Required

- 1) The contract affirmatively represented subsurface conditions
- 2) Contractor was reasonable & prudent in interpreting
- 3) Contractor relied upon subsurface conditions to bid
- 4) Actual subsurface conditions differed materially
- 5) Subsurface conditions reasonably unforeseeable
- 6) Claims for excess cost solely attributable to conditions

Information from Trauner Consulting Services, Inc. article “Differing Site Conditions: To Be or Not to Be”  
by Mark Nagata and Neil Mutschler

Based on Maryland State Board of Appeals in its decision regarding Richard F. Kline, Inc., MSBCA 2092, 5 MSBCA PP479 (2000) at pp. 10-11, citing Weeks Dredging & Construction, Inc. v. United States, 13 Ct. Cl. 193, 218-219 (1987)

## ❖ Key Conditions Required

- 1) Contractor reasonable & prudent in identifying recognized subsurface conditions ordinarily encountered on project
- 2) Contractor relied upon ordinary subsurface conditions in bid
- 3) Actual subsurface conditions differed materially from those reasonably anticipated
- 4) Subsurface conditions must be reasonably unforeseeable
- 5) Claims for excess cost solely attributable to cond.
- 6) Conditions would not have been discovered in reasonable site investigation, [own experience, off-site info (website), or study of contract docs] [*additional considerations*]

Information from Trauner Consulting Services, Inc. article “Differing Site Conditions: To Be or Not to Be”  
by Mark Nagata and Neil Mutschler

# Establishing a DSC

## ❖ Key Conditions Required for Both Types

- 1) Was timely notice of the DSC given?
- 2) Did contractor perform a reasonable site inspection?
- 3) Did the DSC submittal meet all contract requirements?

*(that's all for differing site conditions...final thoughts...???)*

## ❖ Origins of Suspensions of Work Clause

- Originated in 1987 by Congress in Surface Transportation and Uniform Relocation Assistance Act (STURAA) in amended 23 USC 112(e)(1)
- Intended to formalize owner's right to suspend contract work without breaching the contract
- Limits additional costs borne by an owner for an ordered suspension and avoids costs based on "breach of contract"

# Current Suspensions Clause Language

## *(2) Suspensions of work ordered by the engineer*

*(i) If the performance of all or any portion of the work is suspended or delayed by the engineer in writing for an unreasonable period of time (not originally anticipated, customary, or inherent to the construction industry) and the contractor believes that additional compensation and/or contract time is due as a result of such suspension or delay, the contractor shall submit to the engineer in writing a request for adjustment within 7 calendar days of receipt of the notice to resume work. The request shall set forth the reasons and support for such adjustment.*

# Current Change Clause Language

- *(ii) Upon receipt, the engineer will evaluate the contractor's request. If the engineer agrees that the cost and/or time required for the performance of the contract has increased as a result of such suspension and the suspension was caused by conditions beyond the control of and not the fault of the contractor, its suppliers, or subcontractors at any approved tier, and not caused by the weather, the engineer will make an adjustment (excluding profit) and modify the contract in writing accordingly. The contractor will be notified of the engineer's determination whether or not an adjustment of the contract is warranted.*

# Current Change Clause Language

- *(iii) No contract adjustment will be allowed unless the contractor has submitted the request for adjustment within the time prescribed.*
- *(iv) No contract adjustment will be allowed under this clause to the extent that performance would have been suspended or delayed by any other cause, or for which an adjustment is provided or excluded under any other term or condition of this contract.*

# DOT Modified Language Examples

- ❖ *108.10 “...the Contractor shall immediately submit to the Engineer in writing a Notice of Delay. The Notice of Delay shall set forth the reasons and potential impacts to the work and the schedule. The Contractor must submit a Request for Adjustment to the Contract, to include additional costs and schedule impacts with all supporting documentation to the Engineer within 7 Calendar Days of receipt of the Notice to Resume Work or the Conclusion of the Delay and not thereafter.”*
- ❖ *108.06 “The Engineer has the authority to suspend The Work wholly or in part, for as long as he may deem necessary, because of unsuitable weather, or other conditions considered unfavorable for continuing The Work, or for as long as he may deem necessary by reason of failure of the Contractor to carry out orders given...No additional compensation will be paid the Contractor because of the suspension. If it becomes necessary to stop the Work for an indefinite period, the Contractor shall store all materials in such a way that they will not impede the traveling public unnecessarily...The Work shall be resumed when conditions are favorable...and as ordered by the Engineer in writing. The Contractor shall not stop The Work without authority.”*

# Suspension of Work Ordered by the Engineer

- ❖ Where is this clause located in your standard specifications?
- ❖ A qualifying Suspension of Work must be:
  - ✓ In writing and for an unreasonable period of time
    - How is this term defined when administering a contract?
  - ✓ An activity not anticipated, customary, or inherent
    - Give some examples of customary or inherent activities
  - ✓ Not caused by the weather...why not?
  - ✓ Due to no fault of contractor's or sub's actions, and
  - ✓ Contractor must be impacted and request additional compensation or contract time due to the suspension

# Act of God

- ❖ A natural event or hazard beyond human control which prevents a contractor from fulfilling contract responsibilities and forms basis for an excusable delay preventing contract completion on time
- ❖ Examples include hurricanes, tornados, forest fires, earthquakes, severe rain & wind storms, and as of 2020 – a global pandemic known as COVID-19
- ❖ Act of God is generally considered an “excusable delay” meaning the only allowable recourse is an extension of contract time to account for the duration of the delay or duration of project impact

# Other Clauses – Deletion of Work

- ❖ Changes clause gives you the right to modify the contract...does this include deletion of quantities and deletion of entire bid items?
  - ✓ Does your contract specifications address deletion of quantities and deletion of entire items beyond the scope of the standardized changed condition clause? If so, where is it covered and how have you used it in the past?
  - ✓ What type of costs are typically incurred in your state for deleted quantities or items not covered by the standardized changed condition clause?
  - ✓ Is deletion of a work item with a high bid price (mathematically unbalanced) and/or replacement with another item reasonable in your opinion? Let's take a look...

# Other Clauses – Damage to Work

- ❖ Does your contract specification address damage to work? If so, does it differentiate between work in progress and work completed?
  - ✓ When does a contractor’s responsibility for damage to work begin? (Contract award, NTP, start of onsite work, etc.)
  - ✓ Does your contract specification discuss damage to previously existing facilities, and does the contract define the term “existing facility” as opposed to newly constructed facilities?

# Responsibility for Work

- ❖ Does your Standard Specification detail to what extent the contractor is responsible for all constructed work?
- ✓ At what point is the contractor released from responsibility for newly constructed work?

# Damage to Existing Work Examples

- ❖ How would your spec address the following:
  - ✓ Collapsed section of existing drain pipe and unclear whether contractor damaged pipe driving on subgrade or it was already damaged
  - ✓ Contractor begins driving pile for a new structure adjacent to an existing structure and cracks begin widening and/or spalling in the existing substructure
  - ✓ Existing guardrail end terminal damaged by traffic and needs replacement, contract includes bid item for guardrail but schedule shows later in contract



# Delays & Disruptions





U.S. Department of Transportation  
Federal Highway Administration



# Delays

# What is a Delay?

- ❖ A delay is a period of contract time that has either:
  - ✓ Been extended due to the actions of either party or both parties and was not anticipated or explicitly provided for in the contract
  - ✓ Been rendered unusable due to the actions of either party or both parties and was not anticipated or explicitly provided for in the contract
    - The contract time rendered unusable could be for controlling work items or non-controlling work items...does this distinction matter, and if so, why?

# What are Delay Damages?

*Delay damages refer to damages “arising out of delayed completion, suspension, acceleration or disrupted performance”; these damages compensate the contracting party that is injured when a project takes longer than the construction contract specified.*

- Excerpt from article by Matthew DeVries [Burr & Forman LLP] on June 1, 2016, titled *One Awesome Case Discussing The Difference Between Delay and Disruption Damages*
- Quotation within article taken from *Bruner & O'Connor on Construction Law*

# Responsibility for Delays

- ❖ Delays classified by Responsible Party:
  - 1) Contractor-caused: Responsibility of contractor or subs, suppliers, etc. within contractor's control
  - 2) Owner-caused: Responsibility of owner or owner's designer or other party within owner's control
  - 3) Third-Party-caused: Responsibility of third party not controlled by owner or contractor such as railroad or utility
  - 4) Non-Party-caused: Responsibility of no party but caused by natural weather event or public traffic

- ❖ Delays generally fall into one of four categories:
  - 1) Non-Excusable: Fault of contractor, responsibility for time & cost impacts borne by contractor
  - 2) Excusable: Beyond control of & without fault of contractor or owner, no compensation allowed, only additional contract time (e.g. adverse weather)
  - 3) Compensable: Owner's responsibility, so delay damages (cost) are eligible in addition to contract time (e.g. design error)
  - 4) Concurrent: Multiple delays by multiple parties simultaneously, resulting in contractor eligibility for contract time only and not delay compensation

# Concurrent Delays

- ❖ Concurrent delays fall into one of three combinations:
  - 1) Non-Excusable Delay concurrent with Excusable Delay
  - 2) Compensable Delay concurrent with Excusable Delay
  - 3) Compensable Delay concurrent with Non-Excusable Delay

Let's look at each combination individually...

# (1) Non-Excusable/Excusable Delays

- ❖ Excusable delay is responsibility of neither party, therefore additional contract time is only remedy
- ❖ Non-Excusable delay is responsibility of contractor, therefore no additional time or compensation justified
- ❖ Typical Spec: Non-excusable delay supersedes the excusable delay, and therefore, neither additional time nor compensation is warranted
- ❖ Situation: Contractor builds ADA ramps incorrectly and must reconstruct, while reconstructing, gas company line adjustment conflicts with ramp work and delays ADA ramp reconstruction work...what do you do for period of “concurrency” until gas line is completed?

## (2) Compensable/Excusable Delays

- ❖ Excusable delay is responsibility of neither party, so additional contract time is only remedy
- ❖ Compensable delay is responsibility of owner, therefore additional contract time & compensation is justified
- ❖ Typical Spec: Excusable (non-compensable) delay supersedes compensable delay, and therefore, only additional time is warranted for period of concurrency
- ❖ Situation: Owner issues change order modifying intersection finish grades. While trying to complete subgrade work, unusually wet weather causes significant re-work and delayed progression, how do you handle period of adverse weather concurrency with design change re-work?

## (3) Compensable/Non-Excusable Delays

- ❖ Non-Excusable delay is responsibility of contractor, so no additional compensation or contract time justified
- ❖ Compensable delay is responsibility of owner, therefore additional contract time & compensation is justified
- ❖ Typical Spec: Non-excusable delay supersedes all other delays, so neither time nor compensation is justified
- ❖ Alternate Approach: Treat like “offsetting penalties” in football...what result would this approach yield?
- ❖ Situation: Contractor builds ADA ramps incorrectly, but owner details incorrect ADA ramp “type” in plans, so ramps need to be rebuilt, but as a different “type.” How do you deal with cost and time impacts?

# Challenges to Concurrency Claims

- ❖ Primacy of Delay – Principle that if one activity is initial cause of a delay, then this activity and this delay creates “float” for other work items, so other delays should be considered use of project float instead of concurrent delays

Example: Contractor is delayed in receiving fabricated structural steel. During delay, owner issues contract change that modifies structural steel erection sequence and timing. Project delay leads to liquidated damages for delayed completion, but contractor challenges LD assessment due to contract change. Owner believes LD assessment appropriate due to primacy of delay from contractor’s delayed fabrication

# Challenges to Concurrency Claims



- ❖ Pacing Delay – Owner-caused delay prevents contractor from meeting schedule milestone, so contractor intentionally slows down and “paces” progress to match delay...considered by some as appropriate use of project float rather than a concurrent delay or improper work slowdown

Example: Owner-provided signal poles delayed; contractor slows down electrical conduit/cabinet work to “pace” work to match delayed pole delivery even though this puts electrical signal work behind contractor’s approved schedule. Owner challenges payment of delay damages due to delayed electrical work resulting in concurrent delay not compensable delay

# Delay Damages

- ❖ Delay damages are different than additional direct costs due to added, changed, or modified work
  
- ❖ Delay damages include things like:
  - Extended Field Overhead
  - Unabsorbed Home Office Overhead
  - Idle Labor & Equipment Costs
  - Labor & Material Cost Escalation
  - Additional Material Storage
  - Liquidated Damages

# Direct versus Indirect Costs

- ❖ Direct Costs: Cost on / directly attributable to project
  - ✓ Includes labor, equipment, and materials used on the project
  - ✓ Examples include carpenter labor costs, excavator equipment rental and operating costs, and asphalt material production
  
- ❖ Indirect Costs: Costs not directly attributable to project
  - ✓ Categories include general and administrative overhead
  - ✓ Examples include headquarters office building, administrative staff, and business advertising

# Direct or Indirect Cost?

- ❖ Carpenter wages on project
- ❖ Vehicle from office fleet driven to project and back
- ❖ Tool purchased for project also used on other projects
- ❖ Superintendent salary
- ❖ Jobsite trailer with computers, phone, and garbage
- ❖ Project engineer assisting project part-time
- ❖ Cell phones provided to employees
- ❖ Bonus paid to employees for specific project
- ❖ Pickup truck and gas expenses for Superintendent
- ❖ Material storage yard at project site

## Common Disagreement Direct vs. Indirect Cost

- ❖ One cost owners and contractors disagree about:
  - ✓ Jobsite overhead, including project engineering, superintendence, job trailers, marshalling yard, etc.
- ❖ What is the nature of the disagreement?
  - ✓ Contractors treat jobsite overhead as direct cost
  - ✓ Owners treat jobsite overhead as indirect cost
- ❖ Why does it matter in the context of a change?
  - ✓ Mark-up allowed on direct costs, not on indirect costs
- ❖ What is your position on this issue and is it identified in the contract?

# Mark-Up on Direct Costs

- ❖ Standard Specifications allow a mark-up on direct costs:
  - ✓ Additional overhead costs for work outside original contract
  - ✓ Reasonable profit for work outside the original contract
  
- ❖ Why is mark-up allowed for work outside the contract?
  - ✓ Overhead and profit are included in original bid items
  - ✓ Mark-ups are how contractor captures overhead/profit on direct costs for added/changed work not covered by bid item

# Standard Specification Mark-Up on Direct Costs

- ❖ What are your Standard Specification mark-ups?
  
- ❖ Is there additional mark-up for subcontracted work?
  - ✓ Why would there be a separate and distinct mark-up for work done by subcontractor than by the prime contractor?
  - ✓ Does the Standard Specification limit the number of levels of subcontractor mark-up? (i.e. sub-subcontractor, etc.)
  - ✓ Example: Roadwork prime contractor with overall structure subcontractor, who subs to drilled shaft sub, who subs to CSL testing sub. If additional direct costs for CSL testing are warranted, how would your contract apply mark-up?

# No Damages for Delay Clause

- ❖ No Damages for Delay (NDFD) clause intended to bar contractors from recovering damages resulting from an owner-caused delay:
  - ✓ Example: The Owner shall not be liable to the Contractor and/or any Subcontractor for claims or damages of any nature caused by or arising out of delays. The sole remedy against the Owner for delays shall be the allowance of additional time for completion of the Work, the amount of which shall be subject to the claims procedure set forth in the General Conditions.

# No Damage For Delay Exclusions

- ❖ Many states forbid NDFD in State Law
  - ✓ Washington State – RCW 4.24.360 “Any clause in a construction contract...which purports to waive, release, or extinguish the rights of a contractor, subcontractor, or supplier to damages or an equitable adjustment arising out of unreasonable delay in performance which delay is caused by the acts or omissions of the contractee or persons acting for the contractee is against public policy and is void and unenforceable. This section shall not be construed to void any provision in a construction contract...which (1) requires notice of delays, (2) provides for arbitration or other procedure for settlement, or (3) provides for reasonable liquidated damages.”

# Directed Acceleration to Avoid Delay

- ❖ Directed acceleration can be used to avoid delay when:
  - ✓ Minor delay exists and limited acceleration will correct
  - ✓ Major delay exists and acceleration cost acceleration is far less than the cost of extended duration
  - ✓ Significant public impacts avoided with targeted acceleration
  - ✓ Cost of acceleration much less than cost of extended duration (dispute)
  - ✓ Delay could “ripple” into other items causing compounding

# Delay Classification Scenarios

1. Contractor working on drainage pipe (non-controlling item) when an existing utility is in the way and work is delayed
2. Contractor paving (controlling item) when weather delays production and contractor unable to re-start due to compaction issues and runs out of paving season
3. Bridge contractor (non-controlling item) delayed by design issue with inadequate space for required reinforcement and delay forces work into cold weather conditions, further delaying work
4. Contractor submits RFI (traffic signal info.) and by the time DOT responds (within allowable contract timeframe), error is identified but electrical sub has to de-mob due to previous commitment on a different project, needs to re-mob later (signal moves from non-controlling item to controlling item due to required re-mob)



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# Disruptions

# What is a Disruption?

- ❖ A disruption is a loss of efficiency or a reduction in anticipated productivity of labor and equipment that:
  - ✓ Is caused by an action (or inaction) by the owner not contemplated or expressly provided for in contract
  - ✓ Results in project (or work activity) that is complete within allowable contract time but at an increased cost due to either modified means and methods, forced acceleration, or induced inefficiency

# What are Disruption Damages?



*Disruption damages, on the other hand, are for a project that may be timely completed but nevertheless includes disruption to the contractor and compensates it for “a reduction in the expected productivity of labor and equipment – a loss of efficiency measured in reduced production of units of work within a given period of time”...Disruption damages can also be caused by an “event [that] both disrupts and delays a critical path activity...” A project that finishes on time but at greater expense because of disruptive events or scheduling errors presents a claim for disruption damages.*

- Excerpt from article by Matthew DeVries [Burr & Forman LLP] on June 1, 2016, titled *One Awesome Case Discussing The Difference Between Delay and Disruption Damages*
- Quotations within article taken from *Bruner & O’Connor on Construction Law*

# Responsibility for Disruption



- ❖ Disruptions, like delays, are classified in one of four categories:
  - 1) Contractor-caused: Responsibility of contractor or subs, suppliers, etc. within contractor's control
  - 2) Owner-caused: Responsibility of owner or owner's designer or other party within owner's control
  - 3) Third-Party-caused: Responsibility of third party not controlled by owner or contractor such as railroad or utility
  - 4) Non-Party-caused: Responsibility of no party but natural weather event or public traffic

# Categorizing Disruptions

- ❖ Disruptions generally fall into one of three categories:
  - 1) Non-Excusable: Fault of contractor, responsibility for additional cost impacts borne by contractor
  - 2) Compensable: Owner's responsibility, so disruption damages (cost) are eligible
  - 3) Natural/Force Majeure: Not fault of either contractor or owner, but caused by forces beyond control of either party to contract (Act of God, bad weather, or regional/national material shortage)

# Disruption Types

- ❖ Disruptions generally fall into one of three types:
  - 1) Loss of Efficiency (Inefficiency)
  - 2) Constructive Acceleration
  - 3) Modified Means & Methods

# Disruption Type 1: Inefficiency

- ❖ Owner-Caused Inefficiency: Owner action impacting contractor's work progress and reducing production
- ❖ 5 Calculation Methods for Owner-Caused Inefficiency
  1. Measured Mile
  2. Comparison to Other Projects
  3. Comparison to Bid, Estimate, or Plan
  4. Use of Experts
  5. Use of Published Standards

# Using the Measured Mile Approach

- ❖ Compare “impacted” (i.e. inefficient) work with known, unimpacted work to identify a relative impact
- ❖ Complicated defining “normal production” and useful for repetitive work with measurable production rates

# Comparison to Other Projects

- ❖ When no “unimpacted” work is available, compare “impacted” contract work with “unimpacted” work from a different contract
- ❖ Complicated by multiple variables, useful if projects trend towards similar production rates

# Comparison to Bid, Estimate or Plan

- ❖ When no “unimpacted” work is available, compare “impacted” work to item as bid, estimated, or planned
- ❖ Good use for escrowed bid documents
  - ✓ Without escrowed bid documents, more difficult to assess whether bid or estimates are authentic
- ❖ Difficult to calculate level of inefficiency or production impact included in a bid, estimate, or planned value\*

# Use of Experts

- ❖ When “unimpacted” work not available, no escrowed bid documents, and no reliable bid or estimate, consider using an expert opinion
  - ✓ Without valid data, opinion may carry little weight
  - ✓ Impact cost is much greater than expert cost
  - ✓ Choose your expert wisely...

# Use of Published Standards

- ❖ Owner can use industry published standards
- ❖ An industry standard is likely very generalized and will be difficult to apply to a specific project situation
  - ✓ Verify the nature of the industry standard

## Acceleration

- ❖ Constructive acceleration is unintended and undesired acceleration as it is treated as a “forced” action
- ❖ Contractor must demonstrate the following 5 items:
  1. An excusable delay exists
  2. Provided notice to owner and requested a time extension
  3. Owner failed or refused to grant requested time extension
  4. Provided notice that compliance with existing schedule necessitated an acceleration of the work
  5. Contractor actually accelerated work and incurred costs

# Disruption Type 3: Modified Means & Methods



- ❖ Part of the low-bid process is to allow contractors to use the most advantageous means & methods unless expressly required or prohibited by contract
- ❖ Contractor may have to change means & methods based on either:
  - Engineer Direction; or
  - Differential Contract Interpretation; or
  - Self-Directed Reasons (i.e. practical application, inefficiency)
- ❖ Does it matter the cause for the contractor's change in means & methods...why or why not?

# Class Activity

## ❖ Perform a Measured Mile Analysis

- ✓ Perform a measured mile analysis to estimate the “unimpacted” production rate
- ✓ Use the measured mile analysis to propose a modification factor to account for inefficiency



## Measured Mile Analysis Exercise

Scenario: A subcontractor has been replacing guardrail for 2-weeks along highway. Traffic control is operating under a flagger & pilot car operation. After 2-weeks and many complaints from public, the owner unilaterally reduces the available work hours each day to try and prevent congestion at the end of the morning rush hour and at the beginning of the evening rush hour. The original contract allowed the contractor to close a traffic lane from 8 AM to 5 PM each weekday. Due to the owner's modified work hours, the contractor now can only close a traffic lane between 9 AM and 4 PM each weekday.

The subcontractor complained that the reduced work hours affected their guardrail production, and they would not be able to meet their 6-week schedule due to the reduced work hours. After one week working the modified hours, it became apparent that the subcontractor would not meet the required schedule. To avoid significant cost and time increases, the subcontractor indicates they were effectively "forced" to work at night to get enough work hours to meet the contract schedule and avoid putting the project behind schedule so close to the end, however, they noted that installing guardrail at night was a less efficient operation and their production rate slowed noticeably. They also note other project commitments require them to be done within 6-weeks to allow mobilization to other projects. Based on a review of the subcontractor's data, the Prime Contractor submits a request for cost modification on the guardrail item based on inefficiencies due to the owner's modification of available work hours. Although you may disagree as to whether entitlement exists, you decide to perform a measured mile analysis to determine the level of measurable impact to the guardrail subcontractor's production in case it becomes a dispute or a claim.

- Baseline Data:
- Guardrail Bid Item – 40,000 linear feet bid at \$30 per linear foot (Total = \$1.2 Million)
- Guardrail Work Crew – 4-person crew (3 laborers + 1 operator)
- Guardrail Equipment - 1 guardrail punch truck, 1 flatbed truck and trailer with guardrail materials and generator to power impact wrenches
- Original Contract Work Hours: 8 AM – 5 PM (Monday – Friday)
- Modified Contract Work Hours: 9 AM – 4 PM (Monday – Friday)
- Nighttime Contract Work Hours: 7 PM – 6 AM (Monday – Friday)

*Production Data Prior to Work Hour Reduction (Original Contract Hours 8 AM – 5 PM):*

- Day 1: Layout individual runs, begin installation, install 500 linear feet guardrail
- Day 2: Install guardrail all day, install 1,250 linear feet guardrail
- Day 3: Install guardrail all day, install 975 linear feet guardrail plus 2 non-flared end terminals
- Day 4: Install guardrail all day, install 1,300 linear feet guardrail
- Day 5: Install guardrail all day, install 1,325 linear feet guardrail (end week #1)
- Day 6: Install guardrail all day, install 1,400 linear feet guardrail plus 2 non-flared end terminals
- Day 7: Install guardrail all day, install 1,450 linear feet guardrail
- Day 8: Install guardrail all day, install 1,500 linear feet guardrail plus 2 non-flared end terminals
- Day 9: Install guardrail all day, install 1,488 linear feet guardrail
- Day 10: Install guardrail all day, install 1,500 linear feet guardrail (end week #2)

Total Guardrail Installed: 12,688 LF plus 6 non-flared end terminals in 90 crew hours

## *Production Data After Work Hour Reduction (Modified Contract Hours 9 AM – 4 PM):*

- ✓ Day 1: Install guardrail all day, install 1,150 linear feet guardrail
- ✓ Day 2: Install guardrail all day, install 1,050 linear feet guardrail plus 2 non-flared end terminals
- ✓ Day 3: Install guardrail all day, install 1,175 linear feet guardrail
- ✓ Day 4: Install guardrail all day, install 900 linear feet guardrail plus 4 non-flared end terminals
- ✓ Day 5: Install guardrail all day, install 1,100 linear feet guardrail (end week #3)
- ✓ At end of week #3, subcontractor decides to move to nighttime operations to completed work within 6 weeks and avoid potential liquidated damages

Total Guardrail Installed: 5,375 LF plus 6 non-flared end terminals in 35 crew hours

## *Production Data After Moving to Night Shift (Work Hours 7 PM – 6 AM):*

- ✓ Day 1: Install guardrail all night, install 1,438 linear feet guardrail
- ✓ Day 2: Install guardrail all night, install 1,350 linear feet guardrail plus 2 non-flared end terminals
- ✓ Day 3: Install guardrail all night, install 1,450 linear feet guardrail
- ✓ Day 4: Install guardrail part of night, install 825 linear feet guardrail plus 1 non-flared end terminal (significant accident in workzone & contractor assisted police with traffic)
- ✓ Day 5: Install guardrail all night, install 1,400 linear feet guardrail (end week #4)
- ✓ Day 6: Install guardrail all night, install 1,463 linear feet guardrail
- ✓ Day 7: Install guardrail all night, install 1,325 linear feet guardrail plus 2 non-flared end terminals
- ✓ Day 8: Install guardrail all night, install 1,500 linear feet guardrail
- ✓ Day 9: Install guardrail all night, install 1,350 linear feet guardrail plus 2 non-flared end terminals
- ✓ Day 10: Install guardrail all night, install 1,488 linear feet guardrail (end week #5)
- ✓ Day 11: Install guardrail all night, install 1,450 linear feet guardrail
- ✓ Day 12: Install guardrail all night, install 1,400 linear feet guardrail plus 1 non-flared end terminal
- ✓ Day 13: Install guardrail all night, install 1,463 linear feet guardrail
- ✓ Day 14: Install guardrail all night, install 1,512 linear feet guardrail
- ✓ Day 15: Install guardrail all night, install 1,475 linear feet guardrail (end week #6)
- ✓ Day 16: Install guardrail part of night, install 748 linear feet guardrail plus 1 final non-flared end terminal (allowed to work Friday night, work completed by 2 AM Saturday)

▪

Total Guardrail Installed: 21,637 LF plus 9 non-flared end terminals in 172 crew hours



# Implicit Concepts Affecting Contract Changes (What is Unstated But Implied)

- ❖ 5 implicit concepts that affect contract interpretation
  1. Responsibility for ambiguities, conflicts, errors and omissions
  2. Trade customs and usage / Industry standard
  3. Superior Knowledge
  4. Responsibility for Mitigation
  5. Past Experience

# Responsibility for Ambiguities, Conflicts, Errors and Omissions

- ❖ Who is responsible for these items?
  - ✓ The party drafting the contract is responsible
  - ✓ The legal term for this is “Contra Proferentem”

# Responsibility for Ambiguities, Conflicts, Errors and Omissions

## ❖ What is Contra Proferentem?

Contra proferentem, meaning “against the offeror,” is a rule of [contract law](#) that requires any ambiguous clause to be interpreted with the meaning that is most in favor of the party that did not draft or request the clause. This doctrine can also be called the *Ambiguity Doctrine*. Contra proferentem typically comes into play when a contract is challenged in court. In general contra proferentem is a last resort, used only when other language interpretation does not reveal the parties’ intent.

A court, in reviewing a contract, will determine if a clause could have more than one meaning. If that is the case, the clause is [ambiguous](#), and the court must determine which party wanted that clause included in the contract. The court must then interpret the ambiguous clause in favor of the other party.

# Responsibility for Ambiguities, Conflicts, Errors and Omissions



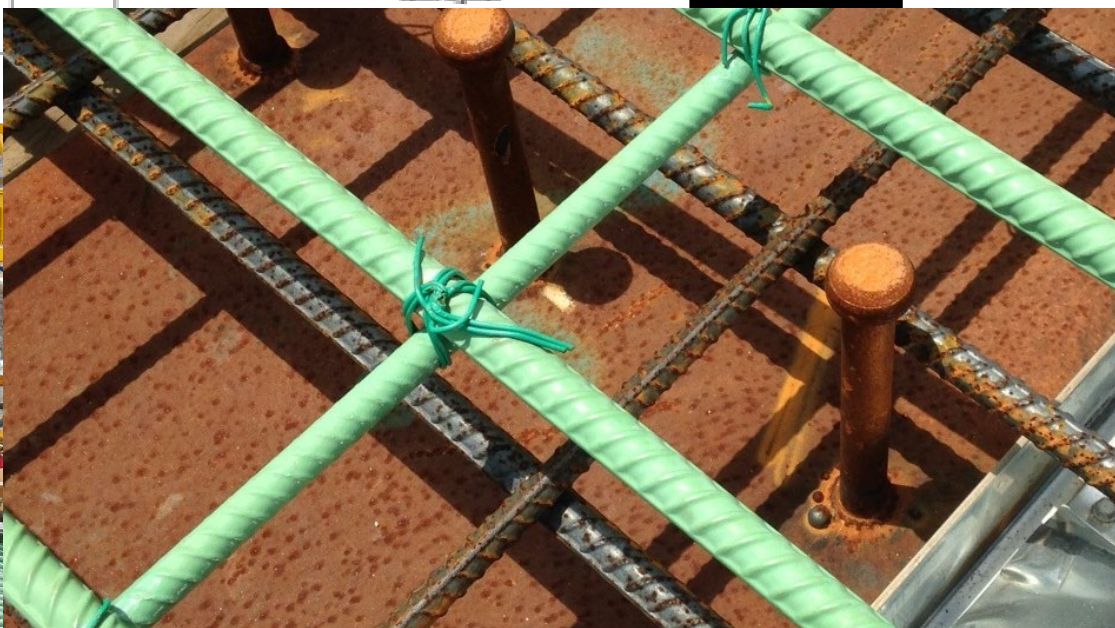
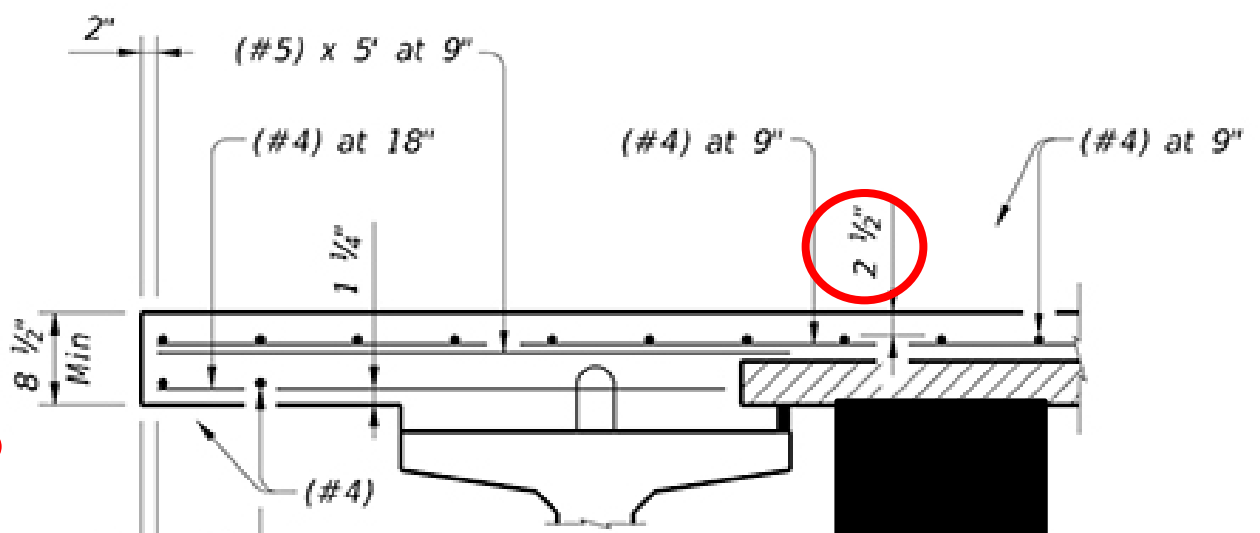
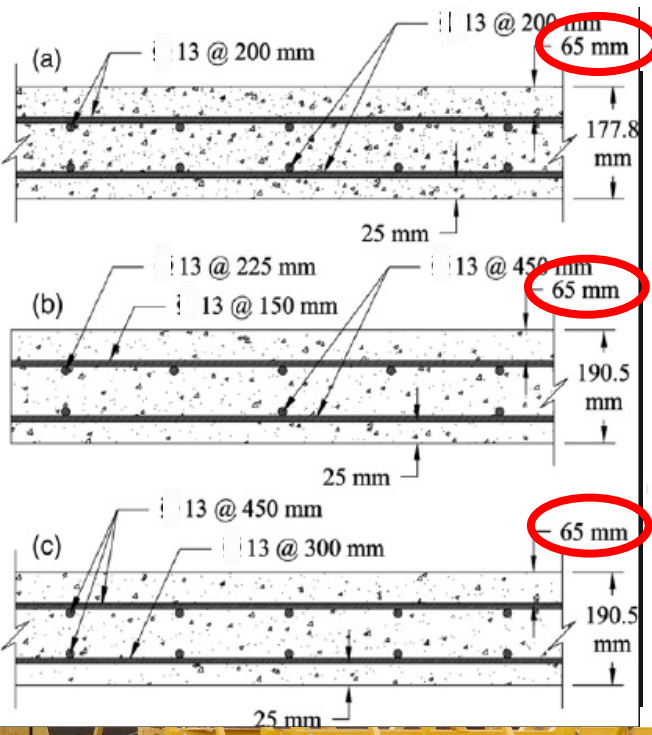
- ❖ How does *Contra Proferentem* align with DOT Standard Specifications regarding the authority of the Engineer?
  - ✓ Authority of the Engineer: The Engineer will decide questions which may arise, including but not limited to the following: the quality and acceptability of materials furnished, work performed, and rate of progress of the work; ***all questions which may arise as to the interpretation of the plans and specifications***; all questions as to the Contractor's acceptable fulfillments of the contract; and disputes between Contractors where it affects the progress of work. ***The Engineer's decision will be final***
- ❖ What is the difference between an ambiguity, a conflict, an error, and an omission?

# Ambiguity:

A contract provision with more than one “reasonable interpretation”

Who determines what is “reasonable?”

# Ambiguity Example #1



# Ambiguity Example #1

- ✓ Place top reinforcement 2 ½ " clear from deck surface
  - What parameters are used to determine placement tolerance?
  - If placement tolerance  $\pm 1/4$ " can every point on deck meet this?
  - Design intent of reinforcement placed in bridge deck slab?
  - Plans show "2 ½" minimum" means tolerance only  $1/4$ "?
  - How do design details demanding greater precision than is likely possible in the field affect a contractor's ability to bid work?

# Ambiguity Example #2

Specification Language: *“If completion of the contract requires performance of work on items with an increase in quantities that will take additional time to complete, contract time will be extended in the same proportion as cost of increased work bears to the total original contract amount”*

What is the contract intent of this language?

Where is the ambiguity in this language?

- Does “additional time to complete” apply to completion of the contract or to work on items with an increase in quantities?
- Does “total original contract amount” apply to entire contract or to entire contract amount for item with increased quantity?

# Ambiguity Example #2

- If HMA (not critical path) quantity increases from 30,000 tons to 33,000 tons, does contractor have grounds to request 10% additional time be granted based on this spec language?

# Ambiguity Example #3

Contract for Thin Epoxy Deck Overlay surface prep specs. include following:

- ✓ *The term “surface preparation” includes, but is not limited to, grinding, repairs of spall areas, or any other defects on the concrete surface (bid item for spall repairs but no bid item for grinding)*
- ✓ *Equipment for Surface Preparation includes language that shot-blasting equipment shall be self-contained cleaning system with dust collection and shall use steel shot or pellet*
- ✓ *The final surface shall comply with International Concrete Repair Inst. (ICRI) Surface Preparation Level 5-7 (also known as CSP 5 or CSP 7)*

Existing bridge deck surface very rough...rougher than CSP 5 or CSP 7, and roughness not conducive to successful application of a thin epoxy overlay. In order to make deck surface acceptable, surface grinding to reduce surface roughness is required. Owner indicates surface grinding is included in surface prep, while contractor wants additional payment for surface grinding...where is the ambiguity in this example?

# Ambiguity Example #3



Existing Bridge Deck Surface



CSP 1 (acid etched)



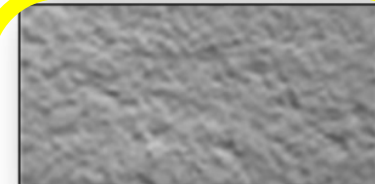
CSP 2 (grinding)



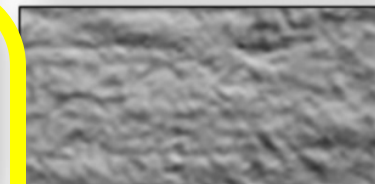
CSP 3 (light shotblast)



CSP 4 (light scarification)



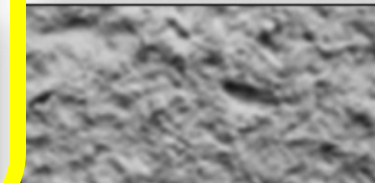
CSP 5 (medium shotblast)



CSP 6 (medium scarification)



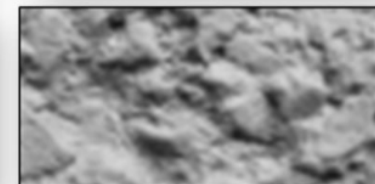
CSP 7 (heavy abrasive blast)



CSP 8 (scabbed)



CSP 9 (heavy scarification)



CSP 10 (course planing)

# Ambiguity Example #4

Plans show 6 bridges will receive structural overlay. On 4 of the bridges, plans include detail note “place bonding agent prior to overlay” ...however, 2 of the bridges don’t contain this note

DOT Standard Specification language for structural overlays:

*“All bridges receiving a structural overlay will include placement of a QPL-approved bonding agent prior to construction of structural overlay, regardless of specified overlay material”*

DOT expects bonding agent on all bridges...Contractor agrees to place bonding agent on 4 bridges with notes, but not on other 2 bridges without direction and additional payment

Is this dispute the result of an ambiguity or something else?



# Conflict:

When 2 or more contract documents provide for different requirements

# Conflicts

- ✓ Often managed using a order of precedence clause (coordination clause) in the Standard Specifications
- ✓ What is the order of precedence here and where is it found? Let's apply it to the following example...

Special Provisions: *“All structural concrete members shall receive a class 1 surface finish unless otherwise noted”*

Bridge Plan Note: *“Substructure elements shall receive a general surface finish; exposed superstructure elements shall receive a class 1 surface finish as directed by the Engineer”*

Standard Specifications: *“All structural concrete elements shall receive a general surface finish”*

- ✓ General Surface Finish: Patch surface
- ✓ Class 1 Surface Finish: General surface finish plus sanding and painting

# Conflict Example

Bridge plans indicate centerline elevation of bridge deck at end of structure is 100.00 feet

Bridge plans indicate 2% negative longitudinal slope coming off structure across end panel to roadway...calculated centerline elevation at end of 30' long end panel at same end of structure is 99.40 feet ( $100.0 - [30 * 0.02] = 99.4$  feet)

Roadway plans indicate centerline elevation of roadway adjacent to end panel is 99.60 feet (possibly assumed 20' end panel)

DOT order of precedence clause says stated values take precedence over calculated values

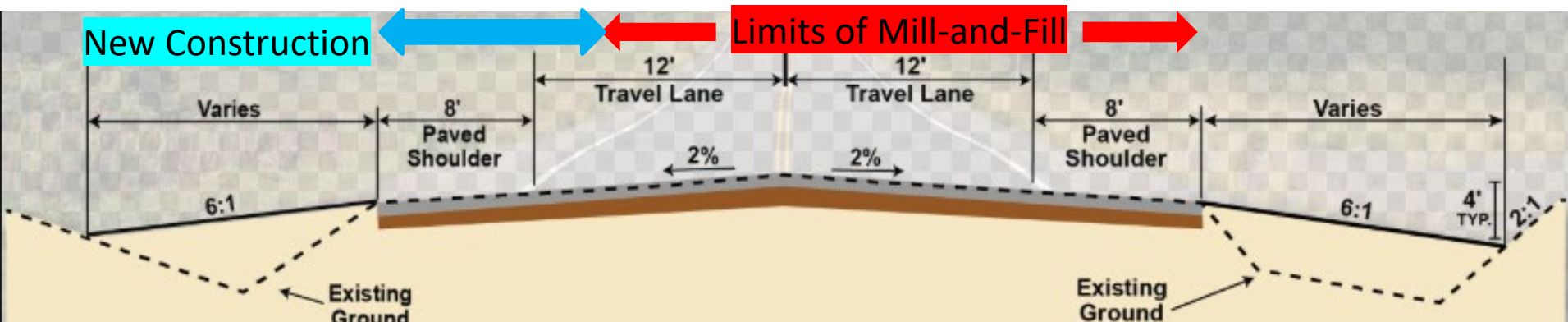
Is this dispute the result of a conflict or something else?

# Error:

Incorrect or conflicting information in a contract document not covered by a coordination clause

# Error Example

Existing roadway typical crown section with 12' travel lanes with 2' shoulders and 2% cross slope  
 New roadway typical crown section with 12' travel lanes with 8' shoulders and 2% cross slope  
 New roadway consists of 2" mill-and-fill over existing pavement with new construction widening occurring on one side of the road to limit number of right-of-way files as shown below



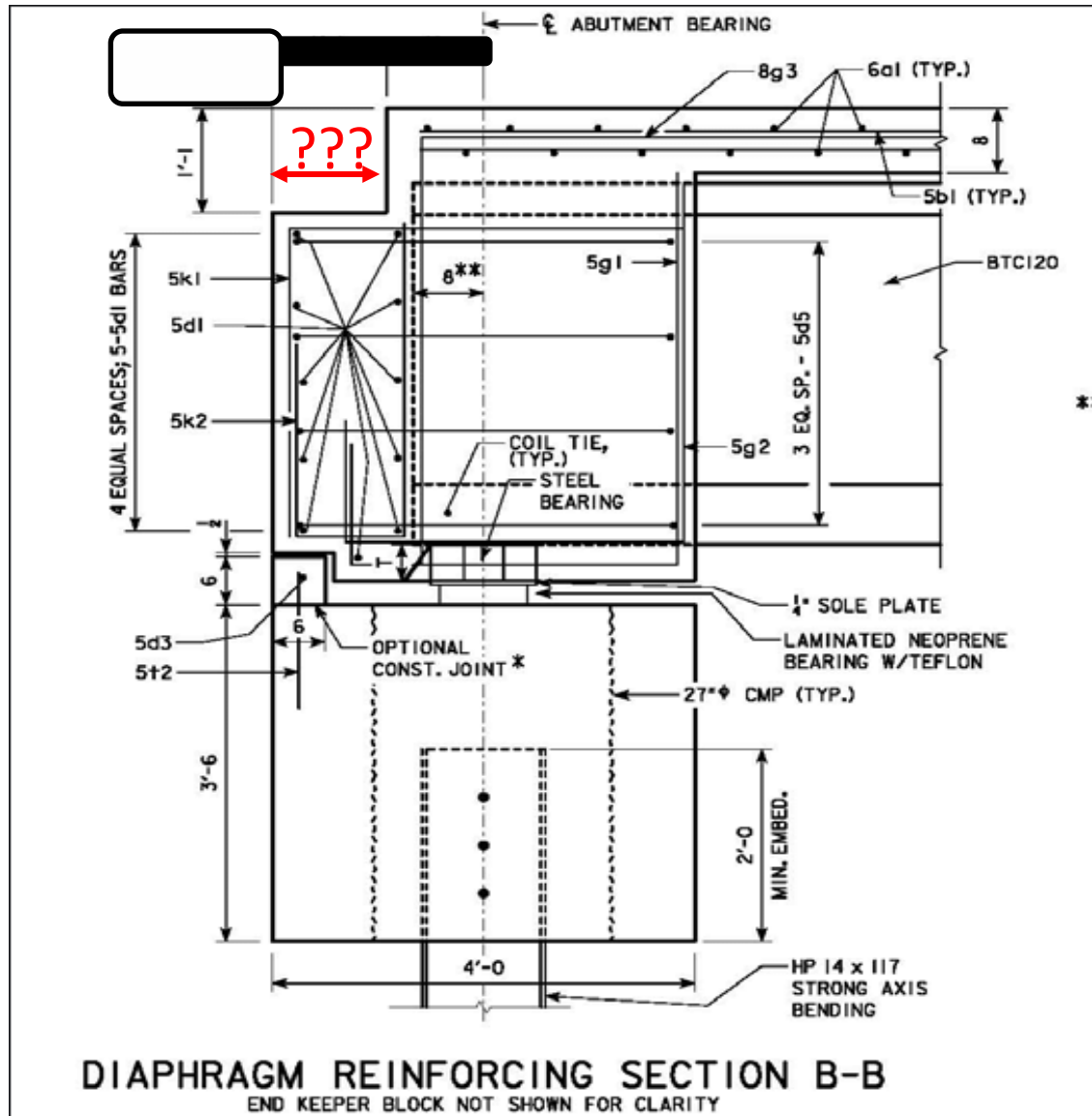
- ❖ What is the error in this example?
- ❖ What would it take to resolve this error?



# Omission:

A particular sub-set of errors where  
necessary information is missing

# Omission Example



If a bidder is aware of an error or an omission, it is obliged to call it to the government's attention. A bidder may not assume the interpretation most favorable to itself, but must check with the government, lest it be held to the Government's interpretation. *Continental Heller Corp.*, GSBCA Nos. 6929, 7143, 84 - 2 BCA 17, 276 ; *Malloy Construction Co.*, ASBCA No. 25055, 82 - 2 BCA 16,104 . As one Board said of a contractor who lost his appeal for failing to make the required inquiry, "All he had to do was ask." *Sajaan Moving & Storage Co.*, GSBCA No. 6364, 83-2 BCA 16,741. The interpretation is given to a contract by the actions of the parties before it becomes a subject of controversy is deemed to be of great, if not controlling, weight.

In a landmark decision by the U. S. Court of Claims, the Court stated, in *Blount Bros. Construction Co. v. U. S.*, 171 Ct. Cl. 478, 496 - 497 (1965):

Contractors are businessmen, and in the business of bidding on Government contracts they are usually pressed for time and are consciously seeking to underbid a number of competitors. Consequently, they estimate only on those costs which they feel the contract terms will permit the Government to insist upon in the way of performance. They are obliged to bring to the Government's attention major discrepancies or errors which they detect in the specifications or drawings, or else fail to do so at their peril. . . .

# Trade Customs & Usage / Industry Standard

- ❖ Industry standard is a minimum acceptable quality or performance level provided by industry trade groups
- ❖ Can an owner set a standard above industry standard?
- ❖ Can an owner set a standard below industry standard?
- ❖ If the contract is silent as to the level of quality or performance, then the industry standard would apply
- ❖ Let's look at an example...

# Design Manual for SEGMENTAL RETAINING WALLS

National Concrete Masonry Association  
3rd Edition

Standard

## Section 13.5: Construction Tolerances

Construction tolerances should be established prior to the start of construction so all will have the same understanding of what is an acceptable standard of work. Tolerances in the construction specifications, should provide a controllable construction process. Following are some typical tolerance guidelines.

### 13.5.1: Dimensional Tolerances for SRW Construction

As with any constructed works, some deviation from construction drawing alignment of cast-in-place concrete walls, alignment of SRWs can be simply corrected or minimized upon examination of numerous completed SRWs, the following recommendations with good construction techniques:

- **Vertical control**  
 $\pm 1.25$  in. (32 mm) maximum over a 10 ft (3 m) distance; 3

Does a 1" deviation in 10' meet industry standards?  
Does 1" deviation in 10' meet the contract requirements?  
How can you use this to your advantage?

714.02 Section 4

(5) Wall sections that do not conform to these tolerances shall be reconstructed at no additional cost to the Department.

6. Erection of permanent walls with flexible facing (such as welded wire mesh) shall be in accordance with the following tolerances:

a. Vertical and horizontal alignment of the wall face shall not vary by more than 2 inches when measured along a 10-foot straightedge, or as shown in the contract.

b. The overall vertical tolerance (plumbness) of the wall shall not exceed 1 inch per 10 feet of wall height. Negative (outward) batter is not acceptable.

c. The offset limit between consecutive rows of facing shall not exceed 1 inch from planned offset in the outward direction.

### Construction of Segmental Retaining Walls

- **Horizontal location control**  
straight lines:  $\pm 1.25$  in. (32 mm) over a 10 ft (3 m) distance
- **Rotation**  
from established plan wall batter:  $\pm 2^\circ$

# Superior Knowledge

- ❖ *Superior Knowledge Doctrine* is a principle in United States contract law. The doctrine states that the government must disclose to a contractor otherwise unavailable information that is vital to contract performance.

Wikipedia definition

# Superior Knowledge



## Superior Knowledge

### 2. PRINCIPLE OF SUPERIOR KNOWLEDGE

The principle of superior knowledge defines, in the federal contract setting, the duty to disclose any special knowledge that is exclusive or not otherwise reasonably available elsewhere to the contractor and which is vital to its performance.<sup>1</sup> Breaching this duty to disclose could constitute a breach of contract. The difficulty in this principle arises with the fact that the owner does not need to disclose everything it knows about a specific contract. Only “specific information on matters of substance” must be provided to the contractor.

The stipulation is that the information must be specific to some fact that the contractor needs to know in order to produce an item that meets specifications and to properly price the work involved. Without such information, the contractor’s methods and schedule of performance may be inappropriate and its bid costs too low. If the owner’s failure to disclose vital information causes the contractor’s costs to increase, a constructive change is often the result and the contractor may recover its additional costs. It is, however, the responsibility of the contractor to anticipate any commonly known difficulties that are inherent in the work it is performing.

# Superior Knowledge Example Case

- ❖ *RDA Construction Corp. vs United States (2017)* – Navy Facilities Eng. Command (NAVFAC) Reconstruct condemned wharf at Newport Naval Station in RI
- ❖ Navy had 2 condition reports indicating wharf could not support vehicular loads and did not disclose these reports to bidding contractors
- ❖ Contractor bid based on performing demo using excavators and demo equip from wharf surface
- ❖ Navy denied plan since wharf was condemned, required equipment work from barges, raising cost
- ❖ Contractor claimed both Type 1 DSC & Superior Knowledge for not disclosing reports to bidders as primary reason for changed method & incr. cost

Under the "superior knowledge doctrine," a contracting agency has an implied duty to disclose to a contractor "otherwise unavailable information" of novel matter vital to the performance of the contract where (1) "a contractor undertook to perform without vital knowledge of a fact that affects performance costs or duration;" (2) "the government was aware the contractor had no knowledge of and had no reason to obtain such information;" (3) "any contract specification supplied misled the contractor or did not put it on notice to inquire;" and (4) "the government failed to provide the relevant information." *Fed. Grp., Inc. v. United States*, 67 Fed. Cl. 87, 100 (2005). *Appeal of Am. Ordnance LLC*, ASBCA No. 54718, 10-1 BCA ¶ 34386; *J. F. Shea Company, Inc.*, 4 Cl. Ct. 46 (1983); *Tyroc Construction Corporation*, EBCA No. 210-3-82, 84-2 BCA ¶ 17,308; *Joseph A. Cairone, Inc.*, ASBCA No. 20504, 81-2 BCA ¶ 15,220; *Commercial Mechanical Contractors, Inc.*, ASBCA No. 25695, 83-2 BCA ¶ 16,768. The contractor is entitled to recover the increased costs resulting therefrom.

A cause of action for failure to disclose superior knowledge is grounded in the government's warranty of its contract specifications. It is therefore settled that the government has a duty at the time of bidding to disclose information which is critical to the contractor's evaluation of its performance risks. *Appeal of Am. Ordnance LLC*, ASBCA No. 54718, 10-1 BCA ¶ 34386; *Hardeman-Monier-Hutcherson v. United States*, 458 F.2d 1364, 1370 (Ct.Cl. 1972); *Helene Curtis Industries, Inc. v. United States*, 312 F.2d 774, 777 (Ct.Cl. 1973); *AAAA Enterprises*, <https://www.cohenseglias.com/contracting-database/superior-knowledge/> 10,020.

When the government fails to discharge its duty and the contractor is misled to its detriment by the nondisclosure, the government is liable for breach of contract. *Appeal of Am.*

*Ordnance LLC*, ASBCA No. 54718, 10-1 BCA ¶ 34386; *Leal v. United States*, 276 F.2d 378 (Ct.Cl. 1960); *Gordon H. Ball, Inc.*,

ENGBCA No. 3563, 78-1 BCA ¶ 13,055. As the Board noted in *Pacific Western Construction*, courts have made it “abundantly clear that the duty of the government to disclose all data in its possession is not a duty which is lightly to be avoided. This is true even if the government is of the opinion that some element of that data is inconsequential.” 82-2 BCA ¶ 16,045 (citing *Christie v.*

*United States*, 237 U.S. 234 (1915)). The failure to disclose “superior knowledge” places the government in the position of having to assume the risk that the contract might be impossible to perform as planned by the contractor. *Helene Curtis Industries, Inc. v. United States*, 160 Ct.Cl. 437, 312 P. 2d 774 (1963).

**Updated:** July 6, 2018

# Responsibility for Mitigation

- ❖ Mitigation is a responsibility to work cooperatively with other parties in a contract to reduce overall impact from changes, errors, & unforeseen issues
- ❖ For most DOT Standard Specifications, mitigation is not specifically mentioned as a requirement
- ❖ One notable exception is Ohio DOT, which includes Specification Section 108.02(F):
  - ✓ “Mitigation of any issue, whether caused by the Department, Contractor, third-party or an intervening event, is a shared contract and legal requirement.”
  - ✓ “Mitigation efforts include, but are not limited to, re-sequencing work activities, acceleration, and substitution of materials. The Contractor and Engineer must explore and discuss potential mitigation efforts in a timely manner.”

# Mitigation Examples

- ❖ Contractor places top base lift of asphalt paving, and ignition burn tests indicate asphalt binder content is too low, and outside the allowable threshold of  $\pm 0.4\%$  and by specification, it is rejected
  - ✓ What mitigation options might you consider?
- ❖ Embankment construction specifications require 95% of T-99 Proctor maximum density and  $-4\%$ -to- $+2\%$  of optimum moisture content...test results indicate 101% of T-99 Proctor maximum density but a moisture of 7% below optimum
  - ✓ What mitigation options might you consider?

# Mitigation Examples (cont.)

- ❖ Contractor installing storm drainage pipe and backfilling trench with native material in lifts in a continuous operation...after several days, compaction test results indicate the backfill material is 2-3% below required density, possibly due to excessively thick lifts
  - ✓ What mitigation options might you consider?
- ❖ Pile abutment poured anticipating girder placement in 3-5 days, 28-day acceptance cylinders cast but no early break cylinders cast, and girders can't be set until concrete reaches 80% of reqd. compressive strength
  - ✓ What mitigation options might you consider?

# How Does Past Experience Affect Contract Interpretation and Bidding?



# Embankment Construction Example

## Contract Specification Language:

Roadway embankment of earthen material shall be placed in horizontal layers not exceeding 8 inches in depth and shall be compacted before the next layer is placed. The Engineer may allow lifts greater than 8 inches provided the contractor demonstrates the specified density for the entire depth is obtained.

Effective spreading equipment shall be used on each lift to obtain uniform thickness prior to compacting. Each lift shall be thoroughly mixed to provide uniform moisture distribution. As the compaction progresses continuous leveling and manipulating will be required to assure uniform moisture and density. Construction equipment shall be routed uniformly over the entire surface of each layer.

# Embankment Construction Example (cont.)

## ❖ Correlations to 55 mph speed limit sign:

- 1) Lifts never more than 8" thick without Engineer approval
  - 2) If lifts greater than 8" are used, density tests are done for the entire lift depth and not just the top 8"
  - 3) All lifts are spread uniformly **before** compaction begins
  - 4) All lifts are thoroughly mixed and contain uniform moisture
  - 5) Continuous leveling and manipulating is done on every lift to ensure uniform moisture and density
  - 6) Construction equipment is always routed uniformly over the entire surface of each layer
- ✓ Do you think the contractor will bid earthwork based on the specification wording or based on how he or she has experienced the work on previous contracts? Why?



Implied Concepts...  
Which One Is It? (or is it  
possibly more than one?)

# Situation #1

- ✓ A contract includes a bid item for grinding existing bridge decks. The contract plans specify a “micro-mill” which is defined in the industry as a grinder with tooth spacing on the drum of less than  $\frac{1}{2}$  “. The contract special provisions also specify a “micro-mill” with tooth spacing on the drum of no more than  $\frac{1}{4}$  “. The contractor contends that the “micro-mill” they intend to provide is used all the time for bridge deck grinding although it has a tooth spacing of  $\frac{3}{8}$ ” ...*Let's take a look...*

## Situation #2

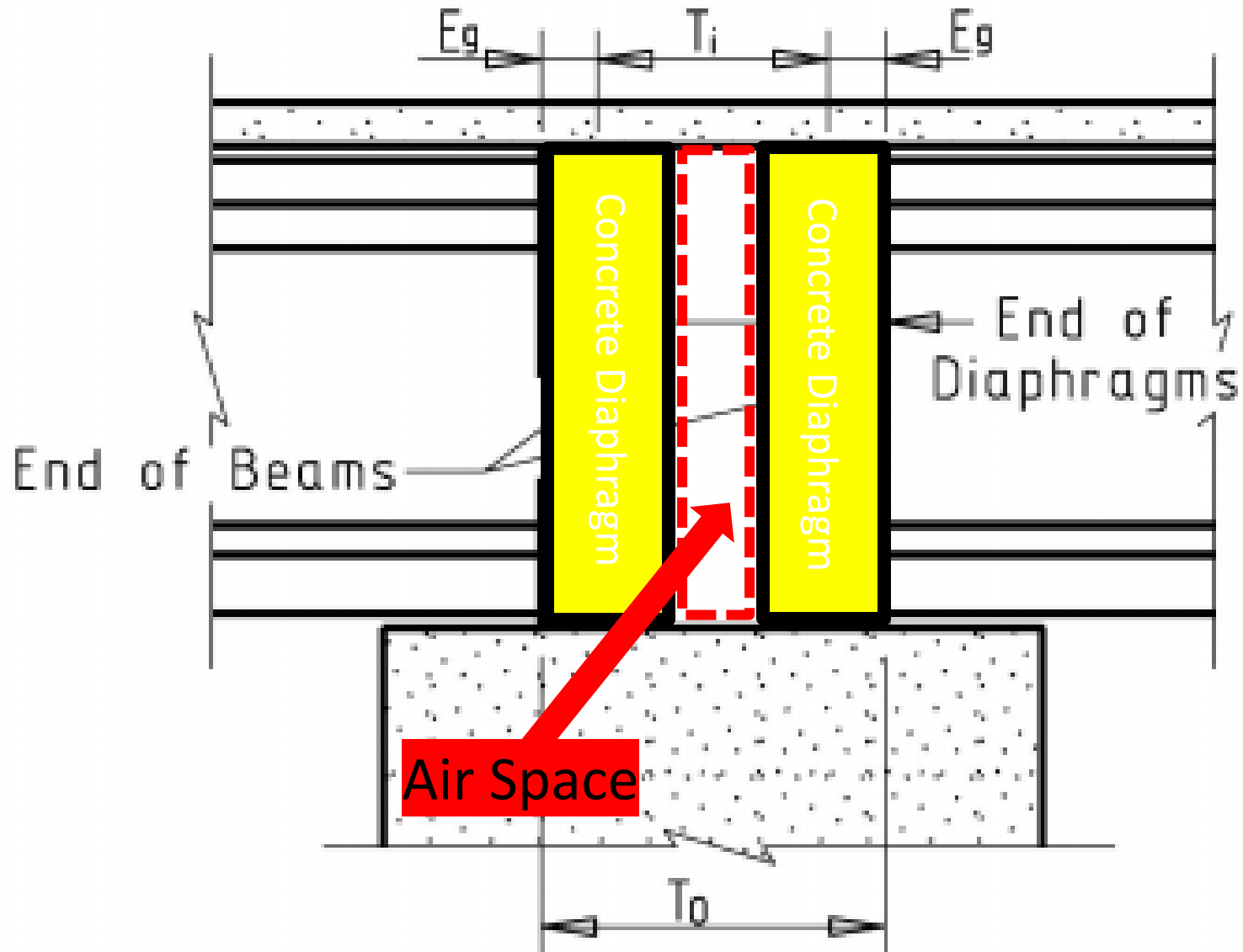
- ✓ Bridge pile abutment driven through mechanically stabilized earth (MSE) wall. To prevent pile damaging wall, vertical sleeves installed in wall. While building wall, contractor skews straps to avoid sleeves as normal in MSE wall industry. Every strap level same, & MSE wall supplier sees photo says straps placed don't meet DOT specs, need to be re-done. Facing tearing down 30-foot tall MSE wall, DOT RE contacts bridge/geotechnical engineers, determines issue could be resolved using vacuum truck, removing a small zone of material behind wall for full depth and replacing with concrete flowable fill to better anchor metal straps. The contractor disputes idea wall is built incorrectly as they have done many other MSE walls using this same technique...*let's take a look...*

# Situation #3

- ✓ A contract to construct a multi-span bridge includes details at each interior bent showing girders resting on each side of the bent are connected laterally to adjacent girders (on the same side of each bent) using separate cast-in-place concrete diaphragms. End diaphragms for each girder are separate, rest on the bent, and are very close together. The contractor is able to form the diaphragm for one side but contends there is inadequate room to form and strip the forms for the second side of the diaphragm. Essentially, the space between the cast-in-place end diaphragms is too tight to get people or tools into. The contract special provisions indicate stay-in-place forms are not allowed to be used on the structure. The contractor submits a RFI seeking clarification of the bridge designer's intent...*see picture...*

# Situation #3 Diagram

Image Credit: Texas Dept. of Transportation



# Situation #4

- ✓ Asphalt paving project includes both mainline paving and approach (driveway) paving, including bid item for mainline asphalt (paid by ton) and bid item for approach paving (paid by ton). Rural field approaches noted on plans as “field approach,” other approaches called out as “residential approach” or “business approach.” Estimated quantity for bid item “Paved Approach” (ton) in bid schedule includes only enough quantity for residential and business approaches. During construction, residential and business approaches are done as a separate paving operation but the narrow field approach width allows paving by “winging out” the screed during mainline paving. The contractor contends the field approach paving should be paid under the “Paved Approach” item since they were called field approaches in the plans. The owner contends they were not included in the estimated quantity for approaches because they are not part of a separate paving operation which was the intent of the “Paved Approach” (ton) bid item – to pay for low-production approach paving using a different bid item than high production mainline paving using the asphalt bid item (ton). Special provisions indicate both bid items will be paid by the ton for material installed and accepted...

## Situation #5

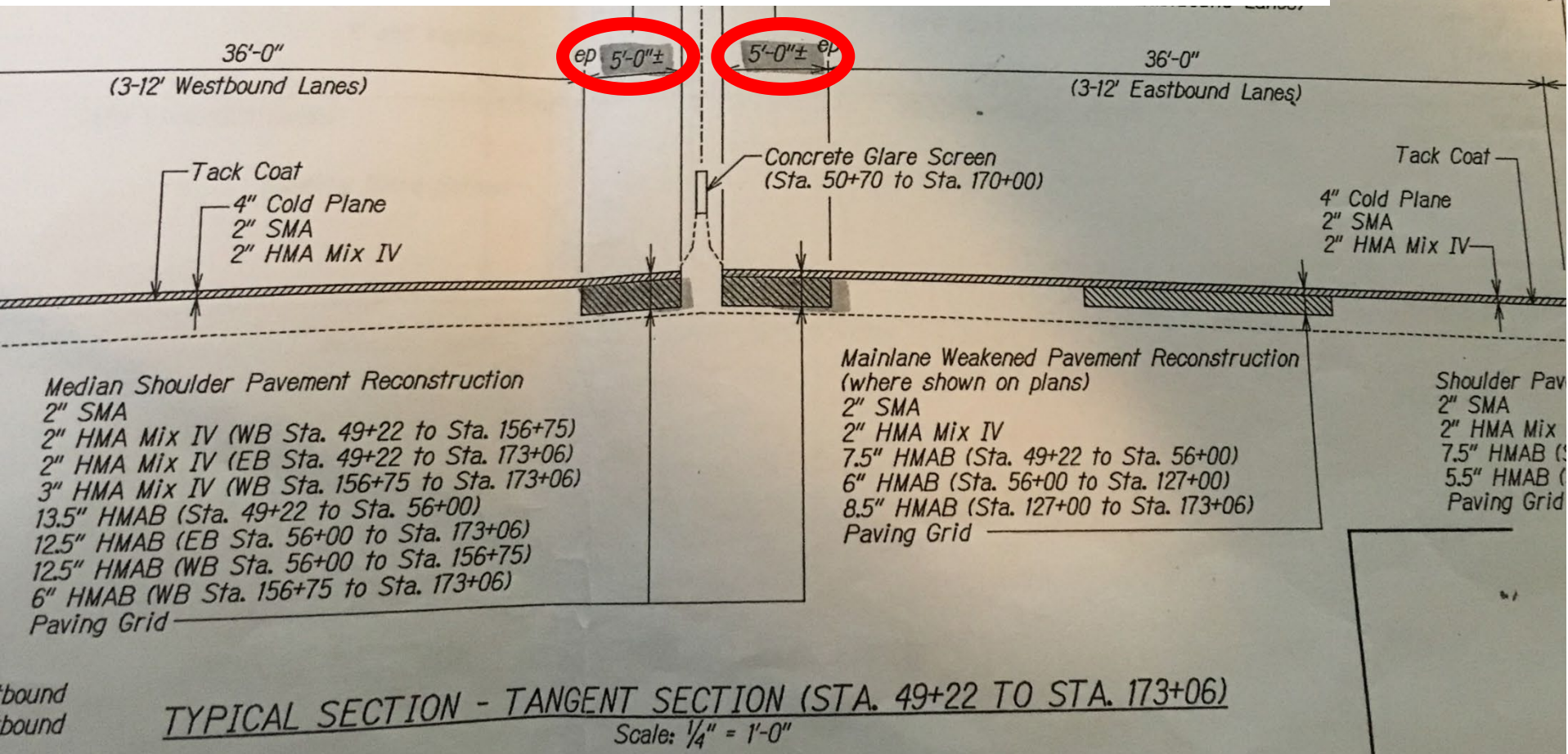
- ✓ Bridge replaced by reconstructing  $\frac{1}{2}$  of structure at a time with joint down centerline. When first half of structure is built, reinforcement in substructure is to be left sticking out of structure to be continued in second half of structure. Contractor submits a RFI indicating that stage 1 reinforcement can only be extended beyond concrete cross-beam for 5-feet before conflicting with existing structure. The 5-foot length is fine for most small reinforcing bars (#4-#8 bars), but the required lap length to approximate continuous bar for the #12 (1.5" dia.) framing bars in the cross-beam length is 50-diameters or 75" (6 ft-3 in) and there are no provisions or payment mechanisms in contract for mechanical splicing as normal in previous contracts...*let's take a look...*

## Situation #6

- ✓ DOT contract includes paving full-depth repairs (12" depth) on the interstate, including long, narrow patches along the inside median shoulder next to median barrier. According to project details, the width of the repair areas is 5-feet wide by several thousand feet long. In the paving specifications, the equipment required includes a paving machine and rollers, including a requirement that all rollers used are a minimum of 10-tons (20,000 lbs)...*let's take a look...*

# Situation #6 Photos

(c) **Vibratory Rollers.** Vibratory rollers shall be steel-tired tandem rollers having minimum weight of 10 tons. Equip vibratory rollers with amplitude and frequency controls and speedometer. Operate vibratory roller in accordance with manufacturer's recommendations.





Question 2: What does the contract mean, that is, what is the intent of the contract?

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# Contract Language vs. Intent

- ❖ A contract is an agreement between parties to exchange things of value (DOTs trade public funds for construction labor, equipment, & materials)
- ❖ Contracts use language & details of DOT's choosing
- ❖ Documents express DOT intent & establish material quality, acceptance criteria, allowable traffic impacts, contract duration, risk apportionment, and performance constraints
- ❖ If multiple interpretations exist, how do you determine DOT intent and apply it to low-bid contracts? Let's look at some examples...

# “Extra Work” Example

- ❖ Is it possible for there to be a legitimate dispute regarding whether a change in the contract constitutes “Extra Work?”
- ✓ **Extra Work:** Work not provided for in the contract, as awarded, but deemed essential to the satisfactory completion of the contract within its intended scope and authorized by the Engineer

# “Extra Work” Addl. Info.

- ❖ Extra work in construction law refers to *“that work which is not required under the contract. Extra work is something that is done in addition to the requirements of the contract. A contractor is generally, entitled to charge for extra work that consists of labor and materials not contemplated by or subsumed [included] within the original contract. Materials and labor not contemplated by the contract and which are required by subsequent changes in the plans and specifications are assumed as extra work. This is also termed as additional work.”* (emphasis added)

- USLegal.com Definition

# “Extra Work” or Not?

- ❖ Owner changes some culvert pipe from round corrugated metal pipe (CMP) to “squash” CMP
  - ✓ Bid Item in contract is 60” Dia. Culvert Pipe, areas of pipe changed to accommodate clearance issues w/ guardrail
  - ✓ Is modification of round pipe to “squash” pipe considered Extra Work as defined in the contract? Why or why not?
  - ✓ What if circular pipe installation locations are modified?

## Temporary Striping – Incidental or Pay Item?

- Contract specifications for maintenance of traffic includes the following statement:

*“When no pay item for temporary striping is included in the schedule of bid items, any temporary striping required should be considered incidental to other Maintenance of Traffic items”*
- A large paving project does not contain a pay item for temporary striping, and the estimated quantity of temporary striping is 10 miles (53,000 LF)
- What is your opinion of the owner’s intent for temporary striping and why?

# Imprecise Contract Language

- ❖ Is it possible for a DOT to clearly indicate an intent but not provide precise language to meet the intent?
  - ✓ Contract states at the end of the contract, the contractor shall deliver trailer-mounted arrow board to the DOT maintenance yard in “good condition”
  - ✓ Contractor delivers arrow board to maintenance yard, then drives away with arrow board. DOT says arrow board belongs to DOT at end of project
  - ✓ Contractor states arrow board will be given to DOT when they pay for it...contract only requires it to be delivered, and says nothing about taking possession

# GSB – Required or Optional Work?

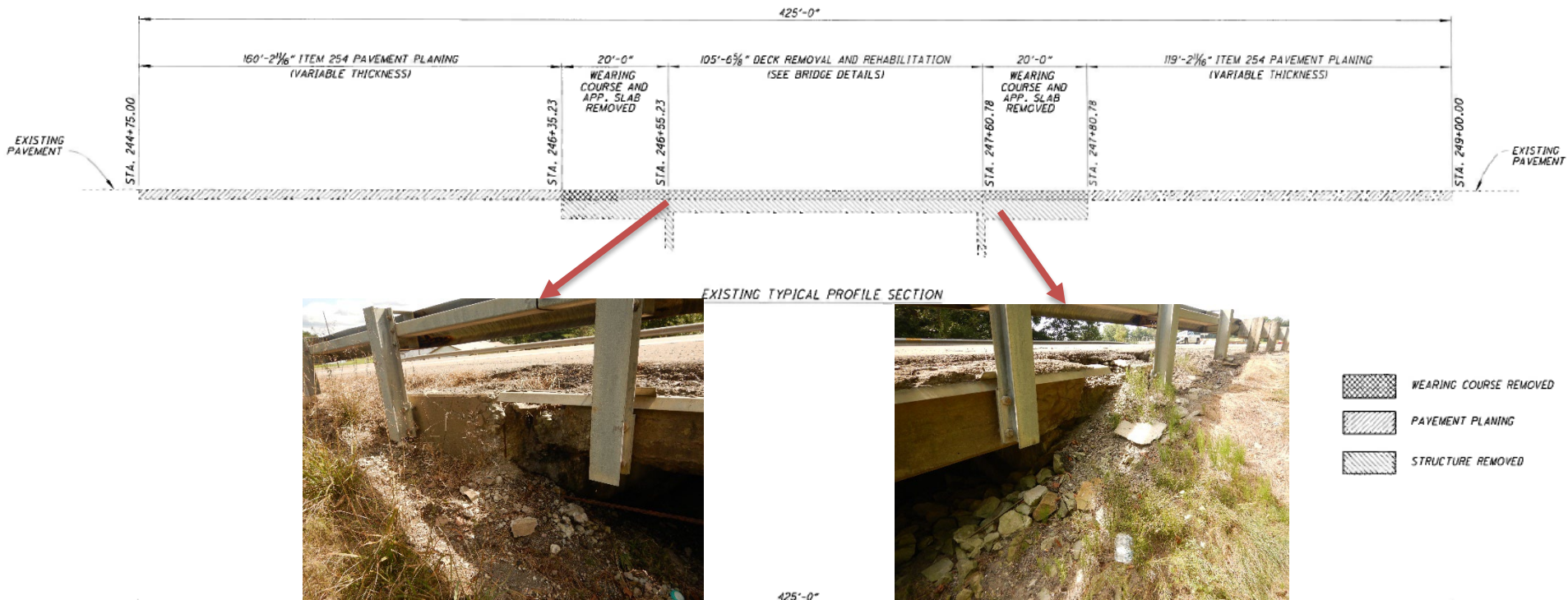
- Bid schedule includes bid item “Granular Subbase” (GSB) with an estimated quantity of 20,000 tons and an item for “Embankment in Place” with an estimated quantity of 50,000 CY
- Contract specs include a specification for both “Granular Subbase” and “Embankment in Place” including acceptance criteria, required material properties, and required construction method
- Plans include typical sections showing “Embankment” underneath asphalt & road base materials, but no information regarding the placement location of “Granular Subbase”

# GSB – Required or Optional Work?

- Contractor bids \$1/ton for “Granular Subbase”
- Owner directs placement of “Granular Subbase” and Contractor contends this direction is a change to the contract...Contractor is willing to place “Granular Subbase” but not at bid price of \$1/ton
- What do you think the Contractor’s position is and how do they justify directing the use of an existing bid item as a compensable contract change?

# Ambiguous Contract Documents

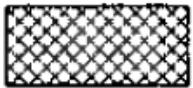


## Asphalt Removal from Bridge



Structures Removed: *"If removing a bridge or portion of a bridge with an asphalt wearing course, remove the wearing course separately before removing the bridge or portion of the bridge."* Pay Item: **Structure Removal (Lump Sum)**

# Asphalt Depth Details

160'-2<sup>11</sup>/<sub>16</sub>" ITEM 254 PAVEMENT PLANING  
(VARIABLE THICKNESS)

-  WEARING COURSE REMOVED
-  PAVEMENT PLANING
-  STRUCTURE REMOVED

20'-0"  
WEARING COURSE AND APP. SLAB REMOVED

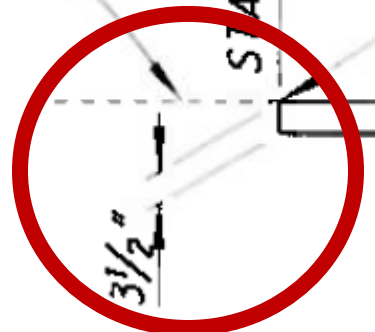
STA. 246+35.23

STA. 246+55.23

EXISTING PAVEMENT

STA. 244+

BUTT JOINT AS PER BP-3.1



# Asphalt Removal From Bridge

Contract includes removal/replacement of structure, which includes removal of asphalt wearing surface on top of concrete slab bridge. Asphalt depth not provided, although contract states to remove all asphalt before demolishing structure. Contractor estimated 3-3 ½” of asphalt to be removed based on plans but found 7” of asphalt to be removed. Owner indicated no specific depth was given, so no additional payment justified, while contractor indicated plans provided enough information to reasonably determine asphalt depth on structure, and requested additional payment for the additional asphalt removal effort to remove 7” versus 3-3 ½” anticipated

Is the contractor’s interpretation reasonable and defensible?

# Excess Excavation Pre-Placed for Local Agency Development



- Contract requires excavation and waste of approximately 200,000 CY of soil
- Local Agency project administered by DOT includes direction for contractor to stockpile 60,000 CY soil adjacent to future development
- Earthwork subcontractor subsequently hired by developer to build earthwork for future development
- Earthwork subcontractor uses 60,000 CY to construct development foundation, then stockpiles 60,000 CY adjacent to development as required in contract, leaving Local Agency with a useless mound of material and cost of removal...Does this violate the contract intent?

# Context Defines Intent

- ❖ Is it possible for DOT contract language to be perfectly clear yet still not be easily enforceable because it does not meet the intent of the contract in the context in which the language is offered?
- ✓ Roadway Excavation: Roadway excavation will include excavation and grading for roadways. Roadway excavation will be classified as unclassified excavation, rock excavation, undercut excavation, or muck excavation as hereinafter described.

# Excavation Types “Clearly” Classified

- ✓ Unclassified Excavation: Unclassified excavation shall consist of excavation, utilization or disposal of all material of whatever character encountered in the work, including selected material, which is not classified and included in the contract under other pay items.
- ✓ Rock Excavation: Rock excavation shall consist of excavation, utilization or disposal of igneous, metamorphic or sedimentary rock which cannot be excavated without drilling, blasting or the use of a ripper...It also includes the excavation of all boulders or other detached stones each having a volume of two cubic meters or more. ***When the contract does not include a pay item for Rock Excavation, the excavation of any rock encountered will be considered as Unclassified Excavation for measurement and payment purposes.***

# Clear Language vs. Clear Intent (cont.)

- ✓ <https://www.youtube.com/watch?v=i00iaUeNFDY> (3 min)
- ✓ [https://youtu.be/O2KAIHW\\_rVM](https://youtu.be/O2KAIHW_rVM) (1:34)
- ✓ Contract includes a bid item for unclassified excavation at \$10/CY but no bid item for rock excavation (typically at least \$100/CY)

# Clear Language vs. Clear Intent (cont.)

- ✓ Contract documents include boring logs from 17 separate bore holes along a new excavated alignment
- ✓ Bore logs show soil with gravel but no rock excavation
- ✓ During construction, contractor finds pocket of rock not visible on surface that requires drilling and shooting to remove 1,150 cubic meters (1,500 cubic yards) of rock
- ✓ Contractor requests additional compensation for rock excavation
- ✓ How does the contract address this issue?
- ✓ What would you do as a Resident Engineer and why?
- ✓ What if there were no bore logs?
- ✓ What if the rock were visible on the surface?



# Why is Contract Intent Important?

Excerpt from “Interpretation and Construction in Contract Law” – Gregory Klass,  
Georgetown University Law Center (2018)

<https://scholarship.law.georgetown.edu/cgi/viewcontent.cgi?article=2971&context=facpub>

When faced with questions of contract interpretation, courts commonly begin with the principle that “[t]he primary goal in interpreting contracts is to determine and enforce the parties’ intent.”<sup>1</sup> The maxim affirms that contractual obligations are chosen obligations. Parties acquire them by voluntarily entering into agreements whose terms they control. Contract interpretation therefore begins by seeking out the choices parties made. The maxim is of a piece with a picture of contract as a form of private legislation. Contract law gives parties the power to undertake new legal obligations when they wish. That power requires giving parties the obligations they intend. And the maxim serves to allocate responsibility. When a court enforces a contract, it is not imposing an obligation on a party, but merely giving effect to her own earlier choice. If a party is now unhappy with the contract terms, she has only her earlier self to blame.

But of course contractual obligations are not only a matter of party choice or intent. Sometimes when parties enter into the agreement, they do not have or do not express an intent one way or another on some issues—say whether the seller warrants the quality of the goods or the remedy for breach. Thus the importance of default rules in contract law, which determine parties’ contractual obligation in the absence of evidence of their intent. Alternatively, the parties’ expressions of their intent might be ambiguous. When this occurs, a court might apply a rule like *contra proferentem*, interpreting against the drafter, or the preference for



Question 3: What does a “fair and equitable” decision look like given the challenges of bidding risk into a low bid (design-bid-build) contract?

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# Administration of Contract Changes



# Calculating the Cost of a Change

- ❖ Separating Original Contract Work from Changed Work
- ❖ Fairest Method for Pricing a Contract Change
  1. Using the Contract
  2. Forward Pricing Using an Estimate
  3. Actual Cost (Force Account)



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# Separating Original Contract Work from Changed Work

# Separating Original Contract Work from Changes

- ❖ One of the most difficult steps in addressing construction changes...why?
  - ✓ Contract requires contractor to perform original scope of work at bid price, including risks associated with the work
  - ✓ Changing details or conditions of work relative to original contract entitles contractor to consideration of additional time and/or compensation
  - ✓ Additional time and/or compensation is limited to what was required beyond what was contemplated in the original contract...can be difficult to separate

# Scenario 1: Bridge Deck Weather Impact

- Original contract: Concrete bridge deck planned for month of September (50-80 F) from baseline schedule
- Contractor Problem: Pockets of unconsolidated concrete require removal of straddle bent, it takes 30-days for decision to remove, removal, and replacement
- Bridge deck pour moved to October in updated schedule



# Scenario 1: Bridge Deck Weather Impact

- RFI submitted in late-September for concern with reinforcing steel in skewed corners of deck
- RFI response provided in 10-days and includes change to bar size to allow easier passage of concrete aggregate
- Contractor complains that delay for RFI and change in bar size is moving bridge deck pour into November with more cold-weather and more time lost for cold weather concrete will be considered a critical delay



## Scenario 1: Which items are considered changes versus original contract work

- ✓ Cost to install false deck?
- ✓ Cost to provide propane heaters underneath girders?
- ✓ Cost of concrete mix using heated aggregates?
- ✓ Cost to place and maintain curing blankets?
- ✓ Cold-weather carpentry work?
- ✓ Lighting costs for long hours?
- ✓ Cost to mobilize additional rebar sub to project when railroad flagger doesn't allow enough overtime or weekend work hours?
- ✓ Additional Porta-Potty rental?

## Scenario 2: Changes to Mill-and-Fill Paving Project



- Original contract: 2” asphalt mill-and-fill on 2-ln road for 26’ width (leave existing shoulders/rumble strip) except for small areas of rumble strip replacement (bid item for rumble strip with small quantity in bid)
- Changed work: Significant delamination increased milling and re-paving depth, pushing asphalt quantities up from estimated contract amount. Badly damaged shoulder and cycling community concerns resulted in direction to mill full-width, requiring new rumble strips
- Contractor has complained that not enough asphalt rock was crushed based on estimated quantity and discussions with Engineer pre-bid and unit costs for extended quantity will be increased to meet contract requirements
- Both grinding and paving are controlling items so contractor is concerned that modifications will delay contract completion

## Scenario 4: Which items are considered changes versus original contract work?

- ✓ Cost for additional asphalt rock beyond original quantity?
- ✓ Cost to provide rumble strip equipment?
- ✓ Cost for traffic control for rumble strip installation?
- ✓ Cost of traffic control for additional milling and paving?
- ✓ Cost for mobilization of additional milling machines to address delamination without impacting mainline milling operation?
- ✓ Cost of providing additional pavers and rollers to pave in echelon due to increased paving width?
- ✓ Cost of high-speed vehicle used to transport quality control samples to the lab before the asphalt cools to 180 deg F? 😊



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Federal Highway Administration



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# Fairest Method for Pricing a Contract Change

# Method 1: Using the Contract

- ❖ Best method is to utilize contract so long as it is set up to be useful for calculating changes...
- ❖ Example where using contract is reasonable
  - ✓ Increase in asphalt quantity without any significant change in means & methods or unit cost to produce or place...extend bid item
- ❖ Example where using contract is challenging
  - ✗ Increase in grinding quantity due to delamination where increase affects production rate and impacts paving operation...extending bid item not reasonable?

# Method 2: Forward Pricing Using an Estimate

- ❖ If work details available in advance of work beginning, might be able to use a forward-priced estimate
  - ✓ You should do an independent estimate:
    - What historical bid pricing information do you have?
    - How do you account for current pricing trends?
    - Do you maintain data on previous production rates?
  - ✓ How is contractor allowed to apply risk to the forward-priced estimate? Is it likely the same allowance for risk included in the original bid prices...why/why not?

# Method 3: Actual Cost (Force Account)

- ❖ Under what conditions do you allow the use of force account as a payment method for contract changes?
  - ✓ What is the biggest benefit of force account payment method and what is the biggest drawback?
  - ✓ Who owns the risk of force account work and why?
  - ✓ Who chooses the means & methods and why?

# Using the Force Account Method

❖ What are allowable force account mark-ups and where are they in your specifications?

- ✓ Labor
- ✓ Equipment
- ✓ Materials
- ✓ Subcontractor

**DAILY FORCE ACCOUNT RECORD**

CONTRACTOR		PROJECT NAME (SECTION)				CONTRACT NO.					
SUB-CONTRACTOR		HIGHWAY		COUNTY		EWO NO.		DATE OF WORK			
DESCRIPTION OF WORK											
REMARKS											
LABOR	NAME	CRAFT GROUP NO.	HOURS ST OT		DO NOT LIST: "ALL" "LUMP SUM" OR "PER ATTACHED INVOICE"				QUANTITY	UNIT	
EQUIPMENT	CONTR.	TYPE OF EQUIPMENT	MANUFACTURER	MODEL NO.	YEAR AND/OR SERIAL #	GAS	DIESEL	SIZE, CAPACITY, HP CFM, AXLE CONFIG.	PAY ATTACHMENT	OPER	STDBY

SEE THE INSTRUCTIONS ON THE COVER. The Daily Force Account Record is prepared each day by the Inspector and signed by the Contractor's Representative. Original to the Contractor Representative, copy one to Construction Contract Services with Contractor's billing, copy two to Project Manager, copy three to Originator.

CONTRACTOR'S REPRESENTATIVE SIGNATURE      PREPARED BY SIGNATURE      CERT NO.

# General Rules When Trying to “Fairly”

## Price Contract Changes



- 1) Try to avoid seeking a “fixed” price for a “non-fixed” scope of work...why might this be a problem?
- 2) An appropriate level of cost to account for risk is likely higher in a proposed contract change price than it is in original bid prices...why might this be true?
- 3) Using historical bid prices as a “baseline” for estimating cost on items added to a construction contract via change order might underestimate actual cost...what are some reasons this might be correct?

Let’s look at some contract changes to better understand...

# Significant Changes Clause Scenario #1

- Urban reconstruction project in a small downtown section includes complete reconstruction of stormwater drainage system. Contract plans include drainage sheets detailing pipe sizes, slopes, and flowline invert elevations along with the original ground and proposed finish grade elevations. Based on these elevations, it appears the main trunk line will be approximately 8-10 feet deep and all lateral lines will be approximately 3-5 feet deep. There is no indication in the contract plans or specifications that any utilities (public or private) will conflict with the drainage pipe installation. The special provisions for drainage pipe includes the following statement:
  - *“Contractor is responsible for avoiding utility connections, service lines, and other individual service lines not show on the contract plans. No additional compensation will be made for work to avoid, repair, or reconnect existing service lines, to avoid or maintain and protect existing utilities, and the contractor will ensure that utility services to all businesses and residences are maintained at all times.”*

# Scenario #1 – How Do You Bid It?

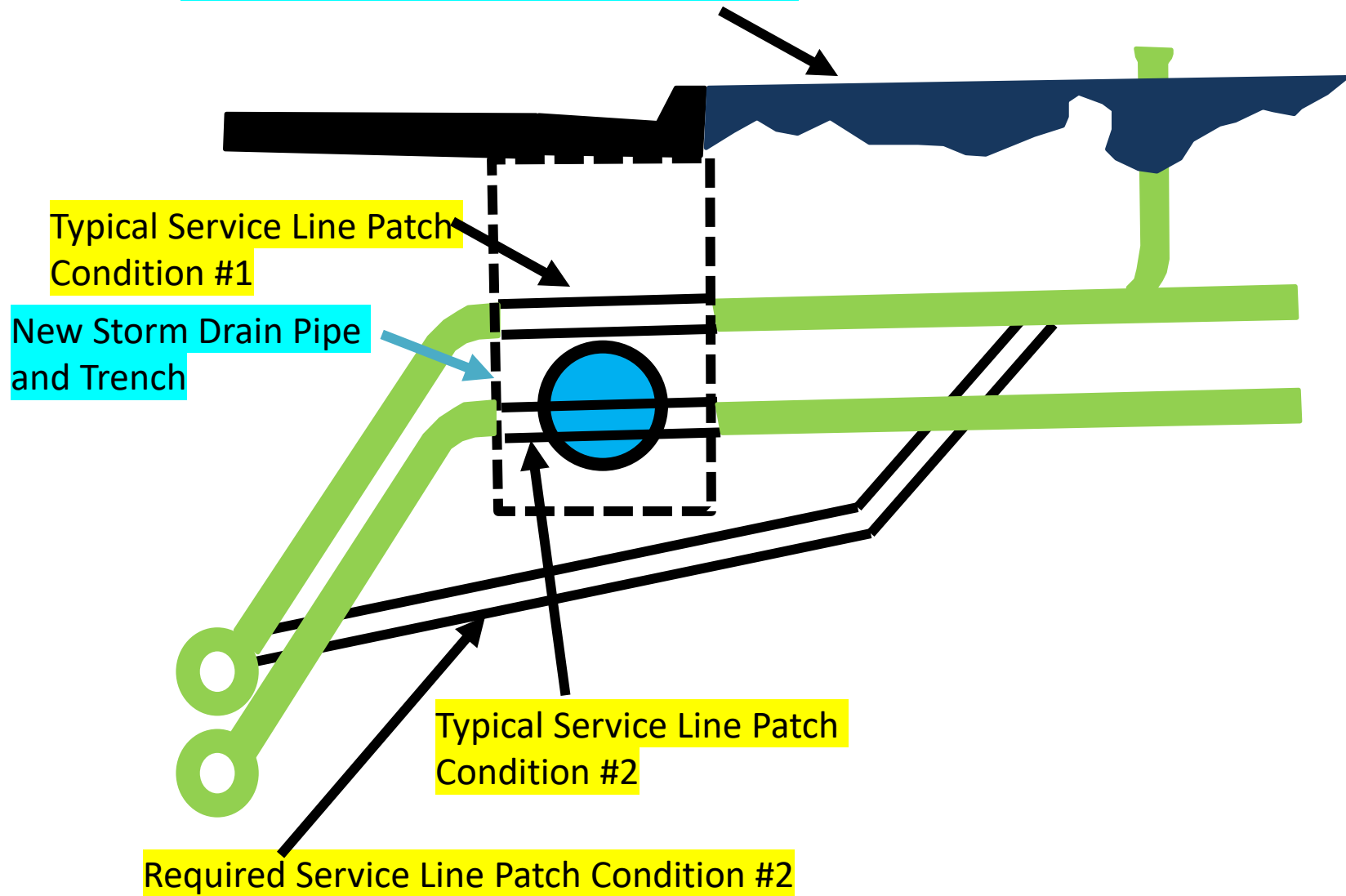
- As a bidding contractor, what considerations (bid assumptions) are you going to make with respect to dealing with individual service lines and/or utilities not shown on the contract documents to end up with the lowest responsive bid without significantly exposure to under-bidding? (remember contract language...)
- *“Contractor is responsible for avoiding utility connections, service lines, and other individual service lines not show on the contract plans. No additional compensation will be made for work to avoid, repair, or reconnect existing service lines, to avoid or maintain and protect existing utilities, and the contractor will ensure that utility services to all businesses and residences are maintained at all times.”*

# Scenario #1 – Is It a Change?

- You encounter multiple sanitary sewer service lines while excavating for the storm drainage lines. To meet plumbing code for public sewers, sanitary service lines should pass under and must be at least 1.5 feet away from storm drainage lines (I sort of made this up...just work with me 😏). To meet this criterion, you were forced to dig back 10-20 feet and install a PVC elbow to force the sanitary service lateral underneath the new storm drainage lateral and provide the required clearance. To expose the sanitary service line, you were forced to dig into multiple sidewalks, driveways, and residential yards – damaging sprinklers, landscaping, and lawns that required significant time and cost to repair. Is the contractor entitled to additional compensation for any of this work? (see diagram next slide...)
- *“Contractor is responsible for avoiding utility connections, service lines, and other individual service lines not show on the contract plans. No additional compensation will be made for work to avoid, repair, or reconnect existing service lines, to avoid or maintain and protect existing utilities, and the contractor will ensure that utility services to all businesses and residences are maintained at all times.”*

# Scenario #1 Image

Sidewalk, Driveway, or Residential Yard



# Scenario #1 – Is It a Change?

- In several locations, the depth of excavation to the bottom of lateral trench excavation was between 5 and 8 feet – requiring the use of a trench box that was not anticipated (trench box use only anticipated during construction of the trunk line). The use of a trench box reduced your planned installation production rate by about 50% for these lateral lines. Is the use of a trench box for lateral lines considered a “significant change” in the character of work under this clause? (*see pictures on next slide...*)
- *Contract plans include drainage sheets detailing pipe sizes, slopes, and flowline invert elevations along with the original ground and proposed finish grade elevations. Based on these elevations, it appears the main trunk line will be approximately 8-10 feet deep and all lateral lines will be approximately 3-5 feet deep.*

# Scenario #1 Images

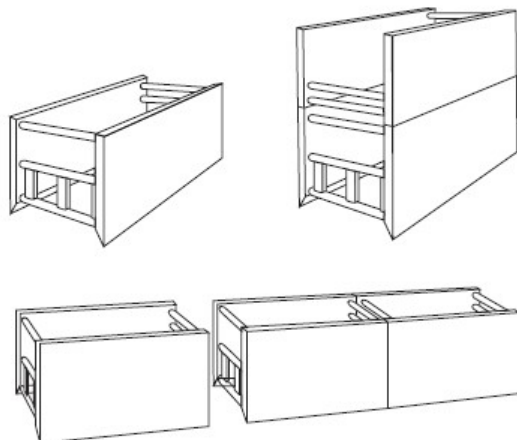


Figure 2. Trench Shields

The Excavation standards do not require a protective system when an excavation is made entirely in stable rock or when an excavation is less than 5 feet (1.52 meters) deep and a competent person has examined the ground and found no indication of a potential cave-in.

## What other precautions do employers need to take to protect workers from cave-ins?

The Excavation standards require employers to provide support systems, such as shoring, bracing, or underpinning, when necessary to ensure that adjacent structures (including adjoining buildings, walls, sidewalks and pavements) remain stable for the protection of workers. The standards also prohibit excavation below the base or footing of any foundation or retaining wall that could be reasonably expected to pose a hazard to workers unless:

- The employer provides a support system, such as underpinning;
- The excavation is in stable rock; or

**Note:** Unconfined compressive strength means the load per unit area at which a soil will fail in compression. It can be determined by laboratory testing or estimated in the field using a pocket penetrometer, thumb penetration tests, or other methods.

See the video link below for additional guidance on classifying soil: [www.osha.gov/dts/vtools/construction/soil\\_testing\\_fnl\\_eng\\_web.html](http://www.osha.gov/dts/vtools/construction/soil_testing_fnl_eng_web.html).



## What is a competent person?

A competent person is an individual, designated by the employer, who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous or dangerous to workers, and who is authorized to take prompt corrective measures to eliminate them.

Under the Excavation standards, tasks performed by the competent person include:

- Classifying soil;
- Inspecting protective systems;
- Designing structural ramps;
- Monitoring water removal equipment; and
- Conducting site inspections.

## Preplanning

### Why is preplanning important to excavation work?

No matter how many trenching, shoring, and backfilling jobs an employer has done in the past, it is important to approach each new job with care and preparation. Many on-the-job incidents result from inadequate initial planning. Waiting until after the

# Scenario #1 – Is It a Change?

- In several locations where proposed storm drain lines cross city water lines, you encountered controlled low-strength material (CLSM) sometimes called “flowable fill” filling in the water line trench. The city directed that the trench in and around the water line must be filled back in with flowable fill and native backfill material would not be allowed. This information was not noted in the plans or specs and required you to order several loads of flowable fill and delayed your production when placing the flowable fill in and around the water lines. Is this a “significant change” in the character of work with respect to the installation of the storm drainage lines? (*see photos on next slide...*)
- *“Contractor is responsible for avoiding utility connections, service lines, and other individual service lines not show on the contract plans. No additional compensation will be made for work to avoid, repair, or reconnect existing service lines, to avoid or maintain and protect existing utilities, and the contractor will ensure that utility services to all businesses and residences are maintained at all times.”*

# Scenario #1 – Clarifying Questions

- 1) Is a contract clause enforceable if it makes the contractor responsible for specific conditions but does not provide an adequate basis to determine the extent of the conditions? (yes or no)
- 2) Is it a “significant change” if the impact of an enforceable clause is much more significant than could be “reasonably” anticipated by either party? (yes or no)
- 3) Can a contractor base means & methods on plan measurements and contend it is a “significant change” if plan measurements are incorrect and a small error impacts their means & methods? (yes or no)

# DSC Clause Scenario #1

- ❖ Contract documents indicate sand, silt, and cobbles in a bridge abutment requiring a driven pile foundation. Contractor finds large boulders damaging the pile and preventing min. tip elevation.
  - ✓ Is this a DSC, if so, which type and why?

How would you address this issue if pile driving was just getting started and why?

# Suspension Clause Scenario #1

- Urban construction project in a small downtown section includes complete reconstruction of roadway and stormwater drainage system. During March & April 2020, a novel coronavirus (COVID-19) causes the Governor to issue an Executive Order preventing “non-essential” employees from working in a public setting to protect the overall public health. DOT Standard Specifications have both the Suspensions of Work Ordered by the Engineer clause and an Act of God provision as an allowable reason for adjustment of contract time

# Suspension or Act of God?

- Based on Governor's Executive Order, DOT clarifies that highway construction employees do not qualify as "essential employees" and therefore all active construction projects need to shut down until Governor's Executive Order is lifted. Based on this direction, contractor shuts down project...
- In your opinion, is this an Engineer Ordered Suspension or an Act of God, and why does it matter?


# Suspension or Act of God?

- Based on Governor's Executive Order, DOT clarifies that highway construction employees do qualify as "essential employees" and therefore all active construction projects should continue. While trying to continue, contractor determines their employees' safety cannot be maintained and indicates to DOT they will not allow employees to work on the project since they are unable to meet required CDC guidelines for employee safety. Based on this decision, contractor shuts down project...
- In your opinion, is this an Engineer Ordered Suspension or an Act of God? Why?

# Modified Means & Methods

- Based on Governor's EO, DOT clarifies highway construction employees qualify as "essential employees" and therefore all active construction projects should continue. While continuing, contractor determines employees can safely work, but only by changing construction methods and adding equipment to increase social distance and prevent employees from working too close together. Contractor requests additional costs for changing construction methods and reduced productivity and is told there is no entitlement to additional cost, only additional time, so contractor pulls staff off project until work can be done safely using methods originally bid. Based on these circumstances...
- Is the contractor allowed to do this and avoid a non-excusable delay as an Act of God or as an unreimbursed change in means & methods?

# Damage to New Work Example #1

- ❖ New guardrail damaged overnight, responsible party didn't stick around to get a DUI...VIN scrubbed and license plate removed...*let's take a look...* 

# Delay Example #1

- ❖ During construction of a new bridge, contractor poured cross-beam and found significant voids when removing forms. These voids resulted in the requirement to remove and replace the cross-beam. During this timeframe, contractor identified a design error regarding the location of the anchor bolts in the cross-beam to anchor bearings. This error would require installation of resin-bonded anchors at the correct location and cut-off & abandonment of existing anchor bolts. Since the cross-beam requires reconstruction, the new anchor bolts can be placed in the correct location during reconstruction...
  - ✓ How would you address multiple delays and associated cost?

# Delay Example #1 Photos



# Disruption Scenario #1 - Inefficiency

- ❖ During construction of multiple signals, electrical inspection required by County electrical inspector at multiple points. Multiple delayed inspections caused the electrical sub to jump around between signals to find available work until inspections were completed. Although the sub completed the work on schedule, they contend the work required more labor hours and a lower equipment utilization level than anticipated and considered normal. Subcontractor requests additional cost for labor and standby time for equipment...
- ✓ How would you address this disruption assuming electrical inspections were truly delayed without justification?
- ✓ Does it matter if signal work was critical? Why or why not?

## Significant Change Clause Scenario #2

- Project to rehabilitate and widen a rural roadway includes estimated 50,000 tons of Hot Mixed Asphalt (HMA). Contractor must mobilize crusher (subcontractor) to only viable source for DOT-approved HMA aggregate. Crusher charge is \$50,000 mob/set-up fee plus \$15/ton for rock crushed & stockpiled. Additional \$5/ton rock royalty paid to source owner. All rock crushed will be charged royalty whether used or not.
- Paving includes overlay & inlay/overlay work. In overlay areas, pavement condition good but ride quality poor – ride correction required to meet IRI specs. In inlay/overlay areas, pavement in poor condition with many blade patches and significant cracking. Pavement also being widened to convert narrow, 2-ln road w/ gravel shldrs into a 2-ln roadway with 8' paved shldrs. Existing gravel pull-outs will be paved & 1-mile passing lane to be added as well as a few windy side roads

# Scenario #2 – How Do You Bid It?

As a bidding contractor,

- 1) What assumptions will you make for HMA quantities to account for significant ride correction and badly fatigued asphalt?
- 2) How much HMA rock will you have crushed?  
(disregard impacts of RAP)

# Scenario #2 – Is It a Change?

- Contractor ends up using additional 5,000 tons HMA mix (55,000 tons total) due to ride correction in rough areas. This requires re-mobilization of a crusher & \$50,000 re-mob fee. Is contractor entitled to any consideration under this clause for adjustment of the HMA unit price? (why or why not)

## Scenario #2 – Is It a Change?

- During construction, favorable HMA mix price causes DOT to increase overlay depth slightly, pave additional gravel pull-outs and widen paved shoulder in passing lane. These additions increase total HMA mix quantity to 55,000 tons (5,000 tons above original estimate). This requires re-mobilization of a crusher & \$50,000 re-mob fee. Is contractor entitled to any consideration under this clause for adjustment of the HMA unit price? (why or why not)

## Scenario #2 – Is It a Change?

- DOT reduced scope/cost of project to mitigate budget challenges by reducing inlay & overlay thickness slightly, eliminating several paved pull outs and shortening length of passing lane. Most of eliminated paving is large, flat areas while remaining paving includes multiple side roads that are windy, narrow and on a steep grade. These changes alter final HMA quantity to 40,000 tons, leaving 10,000 tons of HMA rock left unused. Is contractor entitled to consideration for an adjustment of HMA unit price under this clause? (why or why not) – *let's look at the numbers...*

## Scenario #2 – Is It a Change?

- Production cost for 50,000 tons HMA rock
  - ✓ \$50,000 cost for crusher mobilization & set-up
  - ✓ 50,000 tns x \$15/tn crushing cost = \$750,000
  - ✓ 50,000 tns x \$5/tn royalty cost = \$250,000
  - ✓ Bid Unit Price: \$1,050,000 spent for 50,000 tns = **\$21/tn**  
(as bid)
- Recovered rock cost from 40,000 tons HMA placed
  - ✓ 40,000 tons @ \$1/tn = \$40,000 (crusher mob)
  - ✓ 40,000 tons @ \$15/tn = \$600,000 (crushing cost)
  - ✓ 40,000 tons @ \$5/tn = \$200,000 (rock royalty)
  - ✓ Total: \$840,000 recovered from 40,000 tons
  - ✓ Eff Unit Price: \$1,050,000 spent for 40,000 tns = **\$26.25/tn**

# Scenario #2 – Clarifying Questions

- 1) The 125%/75% thresholds in this clause are independent of whether the quantity change is based on a “natural variation” or a “directed change?” (agree or disagree)
- 2) If major bid item overruns by less than 25% but all work is done within original contract time, owner is entitled to seek credit for part of bid price covering overhead for extended quantity? (agree or disagree)
- 3) “Significant change” is allowed under this clause for a non-major (minor) item if there is overrun or underrun and there is justification for unit price adjustment? (agree or disagree)
- 4) A single major bid item, composed of “blended” levels of effort, can be re-negotiated based on partial elimination even if scope of remaining work doesn’t change and quantities change by less than 25%? (agree or disagree)

# DSC Clause Scenario #2

- ❖ Contractor to install MSE retaining wall for new roadway. While excavating foundation, contractor finds UST surrounded by black soil.
  - ✓ Is this a DSC, if so, which type and why?
  - ✓ Under the UST, contractor finds this...now what?

# Suspension Clause Scenario #2

- Project to reconstruct structure over railroad mainline track. Contractor's original schedule was to cast concrete deck in late-September. After girders set and false deck placed, contractor neglected to notify railroad flagger so work was delayed until railroad flagger arrived. Additionally, contractor unable to catch up with weekend work because railroad flagger was not given adequate notice. Contractor fell behind schedule, pushing deck pour into late-October. During reinforcing steel placement in mid-October, issue identified when bottom mat of steel conflicted with Nelson studs on top of steel girders. DOT Engineer suspended reinforcing steel placement while bridge designer re-designed deck steel and Nelson stud layout so contractor was unable to work on deck steel for 3 weeks, pushing deck pour into November.

# Scenario #2 Photos

# Scenario #2 Images



# Scenario #2 Images



# Scenario #2 Images



# Scenario #2 – How Do You Bid It?

As a bidding contractor,

- 1) What assumptions will you make with respect to cold-weather concrete requirements if you intend to pour concrete deck in September?
- 2) What assumptions will you make with respect to installation of Nelson studs and reinforcing steel on top of girders?

## Scenario #2 – What is Impact of Suspension?

- Contractor contends that Engineer Ordered Suspension in mid-October caused deck pour to slip into November and now additional costs for deck form heating and cold weather concrete provisions are a direct impact of the suspension. Do you agree?



## Scenario #2 – How Important is Notice Timing?

- From previous situation, it appears contractor waited until the last possible moment to submit RFI indicating potential conflict between Nelson studs and bottom mat of reinforcing steel. In response to RFI, Engineer was forced to suspend work until re-design was completed. Does the contractor own any of the delay resulting from the suspension due to their late notice of the apparent design error?

## Scenario #2 – What About Concurrence?

- From previous situation, while laying out deck reinforcing steel, it appears that several bundles of bent reinforcing steel shapes to form the base of bridge deck railing were bent incorrectly and required new reinforcing steel from the contractor's steel supplier. It was 14 days into the 21-day Engineer ordered suspension until the modified rail bars arrived on the project. What, if any, effect does this issue have on any determination on the impact of the suspension?

# Scenario #2 – Clarifying Questions

- 1) A contractor with self-induced impact concurrent with an Engineer Ordered Suspension is not entitled to consideration for additional time or money? (agree or disagree)
- 2) Within 7 days of the order to resume work, the contractor provides a written notice of impact but is unable to define the full scope of impact so Engineer is unable to mitigate the unknown? Is the contractor still entitled to full consideration for impacts they are unable to identify under the suspension clause? (yes or no)
- 3) If owner suspension creates significant impact (e.g. cold weather concrete) but impact is due to owner delay compounding with previous contractor delays, consideration for the impact is based more on the timing of delays than the significance of each delay? (agree or disagree) Float vs CP??

# Damage to New Work Example #2

- ❖ Large multi-support sign damaged overnight during large storm with heavy microburst wind gusts...

## Delay Example #2

- ❖ During construction of a large cut to realign a roadway to flatten a sharp curve, contractor ran into multiple delays due to equipment failures, problems with procurement of haul trucks, and delays clearing a private disposal site for botany and wetland issues. During the excavation, multiple large areas of rock were exposed and required a combination of ripping and drilling/shooting of rock. The owner agreed dealing with the rock was a compensable type 1 DSC...
  - ✓ How would you address concurrent delays when rock excavation occurred during contractor trucking delays?
  - ✓ How would you address concurrent delays when rock excavation work was delayed by inclement weather?

## Acceleration

- ❖ During construction of a paving project, the quantity of hot mixed asphalt (HMA) increased by 15%. Despite the contractor requesting additional contract time due to increased quantities, the Engineer delayed issuing additional time hoping to avoid allowing the paving to go beyond the end of the paving season. Failing to receive additional contract time, the contractor notified the Engineer that they would be accelerating paving operations and would incur additional costs, including weekend work and excess OT work due to the increased HMA quantity...
- ✓ How would you address this indication the contractor is requesting constructive acceleration?

# Significant Change Clause Scenario #3

- ❖ Contract paving operation (mill-fill) allows a flagger/pilot car operation between 7 AM - 5 PM
- ❖ Contract allows up to 3-mile-long operation
- ❖ Contract includes requirement for 15 min. max. delay

# Scenario #3 – How Do You Bid It?

As a bidding contractor,

- 1) What assumptions will you make for HMA paving operations with respect to work zone length and hours of operation?
- 2) How will you take into account the requirement for a 15-minute maximum delay time in the pilot car line in your bid?

# Scenario #3 – Is It a Change?

- ❖ Contractor restricts operation to 2-miles based on pilot delay issues, reducing daily production?
- ❖ Contractor limits flagger hours to 8 AM - 4 PM based on observed traffic and pilot car line delay?

# Scenario #3 – Is It a Change?

- ❖ DOT feels delamination left behind grinder & surface not clean enough to pave same day as grinding, asks contractor consider leaving milled surface under traffic for 24-hours to clean & identify delamination?

# Scenario #3 – Is It a Change?

- ❖ Owner requests “safety edge” be placed on edge of pavement to protect traffic until shoulder material is pulled in and to prevent run-off-the-road accidents?

# Scenario #3 – Clarifying Questions

- 1) If allowable work times conflict with allowable delay thresholds, contractor is responsible for meeting both criteria without any consideration for additional compensation? (agree or disagree)
- 2) If the owner directs additional quantities of work covered by existing bid items, the contractor has no right to request price adjustment for original contract quantities, only the additional quantities? (agree or disagree)
- 3) If contractor's means & methods are modified to accommodate adjusted work times or manage delay thresholds, modifications are not eligible for consideration as significant change in work character? (agree or disagree)

# DSC Example #3

- ❖ Contract documents (drilled shaft) indicate to expect water in the shafts and unstable shaft walls with caving soils. During construction, Contractor finds dry holes with stable walls and uses dry shaft methods rather than wet shaft techniques.
  - ✓ Is this a DSC, if so, which type and why?

# DSC Example #3

- ❖ After agreeing the dry shaft as constructed represents a differing site condition, the contractor states that there is no credit due because he/she bid it based on dry shaft construction methods, therefore the cost savings is already built into the bid?
  - ✓ Is this an acceptable reasoning? Why or why not?

# Damage to New Work Example #3

- ❖ Hillside that was excavated, shaped, and vegetated by contractor erodes during short, intense overnight storm

- ❖ During construction of a paving project on a 2-lane road, public traffic is significantly higher than anticipated. Despite the contractor's best efforts, they are unable to manage traffic using a pilot car and flaggers and delays become problematic. To avoid public scrutiny and outrage, Engineer directs contractor to move paving operation to nighttime. Contractor agrees and completes work on time, but contends significant additional costs at night including light plants, shift differential (union-based CBA) and additional costs for opening hot plant at night...
- ✓ How would you address this modification to means and methods (daytime-to-nighttime operation)?

- ❖ Contract plans for newly realigned roadway show rock throughout the alignment. According to the borings provided in the contract plans:
  - ✓ 80% of samples show rock ( ½ show rock elev. 10 ft.+ above subgrade; ½ show rock elev. below subgrade)
  - ✓ 50% of rock samples show rippable rock
  - ✓ 50% of rock samples show drill and shoot rock
  - ✓ Contractor finds rock above subgrade elevation in about 75% of excavation, in some cases 20 ft.+ above subgrade
  - ✓ 75% of rock is not rippable and requires drilling and blasting
  
- ❖ Contractor indicates they bid rock exc. item based on site investigation and relied upon bore logs for percentage and type of rock to be encountered
  - ✓ Is this a DSC, if so, which type and why?

# Damage to New Work Example #4

- ❖ Asphalt on multi-year project begins rutting due to braking trucks before project is completed

# Damage to New Work Example #5

- ❖ New concrete bridge rail struck and damaged by unknown parties before project is completed



Question 4: How will the final decision affect the critical working relationship between the owner and the contractor?

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# Overall Goal of DOT Projects

- ❖ As a public employee (or a consultant working on behalf of a public employer), your primary goal is to achieve the following:
  - ✓ All construction meets/exceeds contract requirements and is of excellent overall quality
  - ✓ All construction done in a timely fashion and safely for both traveling public and for project employees
  - ✓ All work done within budget to extent possible

# Unstated Goal of DOT Projects

- ❖ You might not be thinking about to what extent you achieved the following:
  - ? Did you pay “fair value” for all work done...that is, do not overpay and try never to get anything for free
  - ? Are you being fair to other bidders who weren't awarded the contract, and what are you training those bidders to do on future contracts
  - ? Did you ask for “fixed” price on non-fixed work scope
- ❖ Where does the working relationship belong in terms of its own importance as a project goal...?

# Potentially Inadequate Notice Example

## Drilled Shaft Construction

Slurry Method

Temporary  
Casing Method

- ✓ Drilled shaft work with unexpected water and caving soils, contractor provides notice after establishing potentially more expensive slurry method

# Inadequate Notice Example (cont.)

- ❖ Contractor provides required notice within the contractual timeframe, but not until after installing a solution to the unexpected water and caving soils
  - ✓ Did the contractor meet your notice requirements?
  - ✓ What actions are available to you once given this notice?
  - ✓ What might you consider if negotiating a change order under these circumstances?

# Minor Item Quantity Change

- ❖ Bark Mulch item is NOT a “Major Item”
  - ✓ Engineer’s Estimated unit price: \$20/cubic-yard
  - ✓ Contractor’s Awarded bid price: \$50/cubic-yard
  - ✓ Average bid price from other bidders: \$30/cubic-yard
  - ✓ Original bid tabulation quantity: 1,000 cubic-yards
  - ✓ New estimated quantity with bid tabulation error: 10,000 cubic-yards (typo error, no design changes)
- ❖ How would you attempt to negotiate a unit price adjustment? Does it matter that quantity bust is a typo, not a directed change or natural variation?

# Deletion of Work Example

- ❖ Slope stabilization fabric item... \$5/SY item bid at \$500/SY due to e-bid system (“500” typed intended as \$5 and 0 cents read as \$500)...contract awarded for 200 SY @ \$500/SY bid price
- ❖ Resident Engineer directs use of only 50 SY and directs a different process for remaining slope areas on force account
- ❖ Is this allowable? Is it reasonable? What are some potential unintended consequences of this direction?
- ❖ If contractor had bid \$0.01/SY, would they be held to their bid price for the entire quantity? What about additional quantities?

# Turbidity Curtain Installation

- ❖ Contract includes turbidity curtain in canal paid by linear foot for initial installation only. Subsequent installations are incidental. Placement and removal of turbidity curtain is controlled and directed by canal owner and is typically installed and removed to deal with significant rainfall events. Contractor ends up installing/removing turbidity curtains more than 10 times over a 2-year contract. Contractor indicates they estimated 4 install/removal cycles (2-per-year) and included that cost in their bid price. Previous projects required anywhere from zero to more than a dozen install/removal cycles...
- ❖ What could you do, what should you consider, and what are possible consequences of different decisions on the project working relationship?

# Quantity Change Rules to Live By 😊

1. If negotiating a “fair” unit price means lowering items unbalanced at high prices, then it must also mean raising items unbalanced at low prices...why?
2. Decide whether goal of adjusting unit price is to end up with “fair” price or to adjust the awarded price by the actual difference in cost of work (delta)...why?
3. Unit costs are part of an “awarded” contractual agreement, so avoid “cherry picking” high prices...don’t “weaponize” the contract simply because you can, or the impact to the contractual working relationship may be disproportionate to the actual cost impact of the weaponization

# Managing Working Relationship with FHWA

- ❖ Engage FHWA early with significant impacts to learn whether cost impacts are Federal-aid eligible
  - ✓ Assuming that a contract change is Federal-aid eligible can result in removal of Federal-aid funds and required replacement by local funds after-the-fact
- ❖ FHWA Policy for addressing changes in 23 CFR 635.120



U.S. Department of Transportation  
Federal Highway Administration



Federal Highway Administration  
**RESOURCE CENTER**  
Office of Innovation Implementation

# Closing the Change Process

# Closing the Process: Documenting Changes

- ❖ Several ways to do this:
  - ✓ Execute a contract change order (CCO) or contract modification (CM) agreeing to required changes
  - ✓ Unilateral CCO/CM for equitable adjustment (time, \$\$ or both) when contractor disagrees with offer. Do you allow or use unilateral change orders? If so, under what conditions?
  - ✓ Deny equitable adjustment if not signed and require contractor to file a claim for additional compensation

# End of Part 3



**Pre-con on the patio? “Just checking to see if I was standing on plastic.” (Lethal Weapon 2) 😊**




# Part 4

## Contract Administration Scenarios – A Synthesis of Knowledge

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# Contract Administration Scenarios

- ❖ Let's use what we've discussed for 2 ½ days to review several contract administration scenarios...
- ❖ There are no right or wrong answers...it is less important what you think should be done than your justification and basis for your action
- ❖ So let's get started... 

# Scenario #1

- ✓ Contract plans include drainage work – Type 1 manholes, Type A & B catch basins, and Class III reinforced concrete drain pipe. Unlocated utilities cause owner to re-design portions of drainage. New design includes Type 1 & 2 manholes, Type A, B, & C catch basins, and Class III, IV, & V reinforced concrete drain pipe. Contractor believes these changes fundamentally affect the bid prices and requests to renegotiate all drainage items, not just the newly added items not in the original contract.
- ✓ What are possible justifications for contractor's request?

## Scenario #2

- ✓ Contract plans include bridge with driven pile abutments. Pile designed for friction bearing so plans call for minimum penetration depth to ensure adequate friction bearing. Subsurface bore logs indicate predominantly fine-grained soil. During driving operations, several pile reach refusal before minimum tip elevation. Contractor submits RFI asking for guidance. DOT bridge designer reviews data & DOT responds within 14-day allowance indicating pile may be left in place & incorporated. Contractor unable to demobilize pile subcontractor until response from RFI received. Contractor requests contract time & labor/equipment/travel cost while waiting for bridge designer to determine final disposition of obstructed pile. Ultimately, no additional pile driving reqd.
- ✓ What are possible justifications for contractor's request?

## Scenario #3

- ✓ Contract plans include a skewed structure with steel girders and steel diaphragms requiring high-strength structural bolting. The structure spans a major railroad mainline track and requires a railroad flagger and coordinated track closures for setting girders and structural bolting. Special provisions require Total Dead Load Fit condition. Despite contractor's erection plan approved by DOT, fit up/bolting of diaphragms takes more than 3-times as long as reasonably anticipated, resulting in delays waiting for railroad to accommodate additional closure periods. Contractor expresses concern both for overall project schedule and potential for cold weather concrete requirements for bridge deck pour.
- ✓ What are possible justifications for contractor's concern?

# Scenario #4

- ✓ Asphalt paving project includes smoothness bonus paid based on the measured Profile Index (PI) and special provision language allowing rejection of “defective pavement.” The PI includes “blanking band” where “bumps” within the blanking band are ignored. Contractor has challenges with new paving equipment non-contact skis and wide paving panel width causes a series of “ripples” in the screed extensions. When tested for PI, these small “ripples” do not show up because the measurements are taken by specification in the wheel paths that fall within the area paved behind the hard screed – not the problematic screed extensions. Pavement qualifies for full 5% bonus but the general ride of the pavement outside the wheel paths is poor (like a subtle rumble strip). Owner directs contractor to remove/replace AC due to “defective” pavement and general poor quality ride due to ripples with no additional compensation. Contractor disagrees.
- ✓ What are possible justifications for contractor’s dispute?

# Scenario #5

- ✓ Contract plans include a large amount of earthwork including both excavation and embankment. Project plans include subsurface boreholes indicating large areas of gravel and small cobbles. Specifications require a granular embankment at the ends of multiple structures requiring a granular material. The contractor attempts to use excavated materials for the granular embankment at bridge ends to avoid requiring import of material. The owner rejects the excavated material as not being “homogenous” forcing import of material. Contractor believes additional compensation is due for not allowing granular excavated materials at bridge ends.
- ✓ What are possible justifications for contractor’s request?

## Scenario #6

- ✓ Contract plans include a bid item for watering for dust prevention paid by volume during ground disturbing activities. The contractor opens up all earthwork areas to start the project, but experiences multiple self-inflicted delays due to problems with subcontractors, challenging coordination with utilities and material moisture issues. Due to these delays, earthwork is delayed and large amounts of watering are needed until embankment is covered with rock and paved. Owner challenges payment of watering and stops paying for watering after original scheduled completion date for earthwork. Contractor contends they should be paid for watering as needed for dust control until no longer needed regardless of cause.
- ✓ What are possible justifications for contractor's request?

# Scenario #7

- ✓ Contract plans include a large diameter deep storm drain pipe consisting of precast concrete sections. During installation, when concrete pipe sections were joined properly (full joint seal), the pipe started moving off the required alignment. To correct this, contractor adjusted joint seal condition so one side of joint was partially sealed in order to keep pipe on correct alignment. After pipe completed, surface potholes indicated that soil above many pipe joints was washing into the pipe, undermining the roadway. Owner requests corrective plan. Contractor suggests failing pipe joints be exposed & re-sealed to prevent further piping, but owner demands all joints be re-sealed. Contractor disagrees, so owner rejects plan & directs pipe be removed/replaced. Contractor is willing to reconstruct pipe but not at no cost to the owner since repair is possible. Owner directs contractor to remove and replace pipe without additional compensation.
- ✓ What are possible justifications for contractor's dispute?

## Scenario #8

- ✓ Contract plans include stage construction of a number of blocks of urban roadway. Traffic control plans provide details for road closures, lane closures, and details for each stage, including quantities for signs and barricades to implement. However, there are no details for accommodation of bikes and peds. Special provisions indicate contractor must accommodate bikes and peds in accordance with ADA & MUTCD Part 6. Contractor provides plan for bikes and peds and expects to be paid for signs and barricades used, but owner contends no payment is included in contract, therefore work to accommodate bikes and peds is incidental to maintenance of traffic (MOT) and denies payment.
- ✓ What are possible justifications for contractor's dispute?

## Scenario #9

- ✓ Contract plans include construction of underground drain pipe along the edge of a roadway. Contractor begins work by digging trench and then placing both pipe and backfill along sides of trench (OSHA-compliant) and then using a flagger and pilot car to move traffic around the stockpiled backfill material in the roadway. The pilot car operation is compliant with the 15-minute delay allowed by specification, but it is causing delays and the public begins complaining. Owner determines that pipe installation can be done without need to close one traffic lane if trench backfill material is not stored in the roadway alongside trench and tells contractor that no lane closure will be allowed in this area due to requirement in contract specifications to “minimize public inconvenience.” Contractor requests additional compensation.
- ✓ What are possible justifications for contractor’s request?

# Scenario #10

- ✓ Contract plans include guardrail work – detailed plan notes indicate the starting and ending point for each guardrail run. The contractor bids based on use of a flagger and pilot car to move traffic away from the guardrail sub on the 2-lane roadway. Unfortunately, traffic is too heavy on the roadway to meet the 15-minute delay threshold for the pilot car operation so the contractor moves to night work to avoid a safety concern with having live traffic immediately adjacent to their guardrail operation on the shoulder. Contractor believes both contract time should be extended and contract price for guardrail should be adjusted due to night work.
- ✓ What are possible justifications for contractor's request?

# Scenario #11

- ✓ Contract plans for a multi-year contract include temporary detour bridge to carry traffic while one of many bridges receives a partial-depth bridge deck reconstruction. Original anticipated duration for detour bridge was 4-months during Summer. During hydro-demolition deck preparation, significant deterioration identified and resulted in partial-depth reconstruction being modified to full-depth deck reconstruction. This delayed bridge deck reconstruction by 4-months forcing detour bridge to be in service throughout Winter. Detour bridge design inadequate for scour from Winter/early-Spring precipitation. Contractor forced to beef up temporary detour to account for heavy scour and requests compensation for temporary detour bridge modifications. Owner indicates that temporary detour structure is LS item and since no directed changes in writing were made for temporary detour bridge, no additional payment is justified.
- ✓ What are possible justifications for contractor's request?

# Scenario #12

- ✓ Contract plans for paving project in rural part of state include option to use DOT-owned rock source. Contract clearly states contractor will only be allowed to extract enough aggregate from DOT source to complete project. Contractor chooses to use DOT source and all required aggregate production testing passes soundness & degradation testing. However, during hot mixed asphalt (HMA) production testing, aggregate durability issues are noted. Further testing of HMA aggregate indicates numerous tests fail to meet aggregate quality requirements. DOT tells contractor to halt HMA production & submit plan to correct deficient HMA already placed and to correct deficient aggregate already crushed. DOT states no additional payment will be made for correction since risk of using DOT source belongs to contractor. Contractor disagrees.
- ✓ Possible justifications for contractor's disagreement?

# Scenario #13

- ✓ Large earthwork project includes requirement to establish and maintain erosion & sediment control (ESC) consistent with Dept. of Enviro Quality (DEQ) permit for prevention of turbidity in adjacent river. Contractor submits ESC plan for approval and constructs ESC measures as approved. Very large rain event (~100-yr storm) causes ESC failure and significant turbidity released into adjacent river. DEQ issues permit violation due to ESC failure, turbidity release, & resource impact. DOT issues stop work order until DEQ permit violation resolved. Contractor requests both additional contract time and additional labor/equipment cost.
- ✓ Possible justifications for contractor's request?

# Scenario #14

- ✓ Interstate paving project plans include a table with locations for full-depth pavement repairs in areas of heavy “alligator” cracking. Unfortunately, between the time these repair areas were identified during the design and contract award, significant additional cracking occurred. Many additional repair areas marked by DOT inspector – doubling or tripling repair quantity. Pavement Repair (paid by SY) is a minor bid item. Many newly located repairs smaller than locations in the contract plan table. Contractor requests to negotiate modification to Pavement Repair (SY) item and the additional quantity represents about 50% more than shown in the original contract.
- ✓ Possible justifications for contractor’s request?

# Scenario #15

- ✓ Contractor planning to pave in September before contract time expires at end of October. Struggles with preparing original ground, drying of embankment materials, and proper compaction of embankment delays start of placement of base aggregate several months until early-September. In mid-September, as base aggregate is being placed, DOT shuts down project due to uncontrolled COVID-19 outbreak in the local area for 3-weeks. Once project is restarted, contractor is unable to complete base aggregate before freezing conditions prevent further work. Contractor paves temporary lift of HMA over roadway to allow traffic to use roadway until Spring when it will be removed as base aggregate placement continues. Owner indicates no payment for temp HMA because it is primarily due to contractor's failure to maintain schedule (3-months behind). Contractor disagrees.
- ✓ Possible justifications for contractor's disagreement?

# Scenario #16

- ✓ Contractor is constructing multiple breakaway sign supports that require drilled shaft-like foundations paid as LS. After surveyor stakes out sign locations, contractor requests a minor location change from inspector to improve sign visibility. Inspector confirms with Resident Engineer that request is reasonable and approves change. While digging foundation in new location, contractor identifies boulder that requires modifying foundation to a shallow spread footing. Contractor requests additional compensation based on modified footing work. Engineer indicates no directed changes were imposed on contractor, so risk of changed conditions for new location belongs to contractor and refuses to agree to additional payment for lump sum item...
- ✓ Is the contractor's request justifiable?

# End of Part 4 & Workshop 😊



**HERE !**