

#### Memorandum

CS Memorandum No. 1429

To:

Distribution

From:

Beverly Ward, CMB/Risk Management Assistant

Date:

April 29, 2013

Reference: Project No. M544.1, Contract No. CS-149

Task No. 1-8.02, Change Control

Subject:

Configuration Management Board Special Meeting No. 124

Attached please find minutes for Configuration Management Board Special Meeting No. 124 held on April 26, 2013.

Attachments: CMB Special Meeting No. 124 Rev. 0 Minutes with attachments

Cc:

David Kuehn, STV (w/attachments) david.kuehn@stvinc.com

Brad Lebovitz, STV (w/attachments) bradley.lebovitz@stvinc.com

Luis Zurinaga, SFCTA (w/attachments) luis.zurinaga@sfcta.org

Shahnam Farhangi, SFMTA (w/attachments)

John Funghi, SFMTA (w/attachments)

Richard Redmond, CSP (w/attachments)

Arthur Wong, SFMTA (w/attachments)

Roger Nguyen, SFMTA (w/attachments)

Jane Wang, SFMTA (w/attachments)

Aileen Read, CSDG (w/attachments)

CS File No. M544.1.5.0890

#### Distribution:

Albert Hoe, SFMTA Eric Stassevitch, CSP Ross Edwards, CSP Mark Latch, CSP Joon Park, SFMTA Mark Benson, CSP Brian Kelleher, SFMTA Vivian Chow, SFMTA Sarah Wilson, CSP Beverly Ward, CSP





# CMB Meeting Minutes #124 (Special Meeting)

DATE: April 26, 2013

MEETING DATE: April 26, 2013

LOCATION: 821 Howard St, Main Conference Room

TIME: 9:00 AM

ATTENDEES: A. Hoe (AH), R Edwards (RE), E. Stassevitch (ES), M. Benson (MB), J. Park (JP),

M. Latch (ML), B. Kelleher (BK), V. Chow (VC), S. Wilson (SW), B. Ward (BW)

COPIES TO: Attendees: S. Farhangi (SF), J Funghi (JF), R. Nguyen (RN), R. Redmond, (RR),

A. Wong (AW), L. Zurinaga (LZ), B. Lebovitz (BL), J. Wang (JW), A. Read (AR),

D. Kuehn (DK)

File No. M544.1.5.0890

REFERENCE Project No. M544.1, Contract No. 149 Task 1-8.02

Final Design

SUBJECT: Configuration Management Board Meeting # 124 – Rev. No. 0

#### RECORD OF MEETING (Italicized text indicates status update of open items)

ITEM#	DISCUSSION	ACTION BY DUE DATE
1-	1252 – COR 079 Compensation Grout – Previously seen at CMB meeting #118 and #123 and agreed to for merit; required authorization to proceed due to the potential impact to the critical path of the tunnel schedule. A brief history of events related to the change was reviewed to determine what direction was required and what authorization amount was needed to avoid impact to the schedule. Originally submitted by the Contractor as a differing site condition, the summary judgment agreed to at the meeting was to direct the Contractor to proceed on force account to mobilize the proposed smaller equipment to begin work without delay for an amount not to exceed \$70,000. It was presented that the actual configuration of utilities found in the ground differed from that on the contract drawings such that the Contractor could not utilize equipment originally planned and mobilized to perform the work. Although agreed that the change is a result of Different Site Condition (DSC) affecting the Contractor's equipment usage from their original means & methods, questions remain about the overall cost impact but all agreed that the small rig would not have the same production rate as the larger drill rig originally planned. The cost of the change would involve quantifying this delta. The RE is also evaluating the Contractors request for standby costs which are in question due to not fully complying with the required potholing plan development. RE stated there is a plan being developed to negotiate standby cost separately due to potential for a large dispute about these cost, which have yet to be quantified. The CMB suggested that in negotiating the standby time the RE should address the lack of a potholing plan being laid out by the Contractor which could have avoided these issues. CMB agreed to process the DSC as a COR directing the	MB 05/01/13





ITEM#	DISCUSSION	ACTION BY DUE DATE
	work through Force Account– Not to Exceed \$70K. AGREE – CMB 0115. The CMB requested a presentation of the DSC to address the timing of events and actual field condition vs. the contract documents for clarity. In addition the CM Team will provide a presentation of the estimated total impact costs. This item will be brought back to the next CMB.	

#### **ACTION ITEMS**

ITEM #	MTG DATE	MTG ACTION DATE	DESCRIPTION	BIC	DUE DATE	STATUS
1	04/26/13	04/26/13	1252 – DSC presentation - field condition vs. the contract documents	МВ	05/01/13	Open
1	04/26/13	04/26/13	1252 - DSC - estimate total cost impact	MB	05/01/13	Open

Meeting adjourned at 9:45am

These meeting minutes have been prepared by B. Ward and reviewed by, E. Stassevitch and are the preparer's interpretation of discussions that took place. If the reader's interpretation differs, please contact the author in writing within four (4) days of receipt of these minutes.

Signed [initials of preparer & reviewer] Date: 27423 [Date review completed]



## **Special Meeting Agenda**

Project No. M544.1, Contract No. CS-149
Program/Construction Management
Configuration Management Board (CMB) Meeting No. 124
April 26, 2013
9:00am – 9:30am
Central Subway Project Office
821 Howard St. 2<sup>nd</sup> Floor
Main Conference Room

#### Attendees:

Mark Benson	John Haley	Mark Latch	Eric Stassevitch
Vivian Chow	Albert Hoe	Brad Lebovitz	Beverly Ward
Ross Edwards	Brian Kelleher	Roger Nguyen	Sarah Wilson
Shahnam Farhangi	Jim Kelly	Joon Park	Arthur Wong
John Funghi	David Kuehn	Richard Redmond	Luis Zurinaga

1. 1252 - PCC 13 - Comp Grout - Old Navy - (previously presented as COR 079 - CMB mtg #118 & 123)





## **Special Meeting Attendance Sheet**

Project No. M544.1, Contract No. 149
Program/Construction Management
Configuration Management Board Meeting No. 124
April 26, 2013
9:00 a.m. – 9:30 a.m.
Central Subway Project Office
821 Howard, 2<sup>nd</sup> Floor
Main Conference Room

Deliver Meeting Attendance Sheet with original signatures/initials to Document Control.

NAME	AFFILIATION	PHONE	E-MAIL (for minutes)	INITIALS
Please enter nar	Please er ne, affiliation, pho	nter initials if your none number and em	ame is listed below. nail address if your name is not listed	l below.
Benson, Mark	CSP	(415) 701-4295	Mark.Benson@sfmta.com	mcB
Chow, Vivian	SFMTA	(415) 701-5264	Vivian.chow@sfmta.com	vc
Edwards, Ross	CSP	(415) 701-5296	Ross.Edwards@sfmta.com	The
Farhangi, Shahnam	SFMTA	(415) 554-0721	Shahnam.Farhangi@sfmta.com	
Funghi, John	SFMTA	(415) 701-4299	John.Funghi@sfmta.com	
Haley, John	SFMTA		John.Haley@sfmta.com	
Hoe, Albert	SFMTA	(415) 701-4289	Albert.Hoe@sfmta.com	2
Kelleher, Brian	SFMTA	(415) 701-5289	Brian. Kelleher@sfmta.com	M
Kelly, Jim	SFMTA		Jim.Kelly@sfmta.com	
Kuehn, David	STV/PMOC	(510) 464-8053	David.kuehn@stvinc.com	
Latch, Mark	CSP	(415) 701-5294	Mark.Latch@sfmta.com	Jan
Lebovitz, Brad	STV/PMOC	(510) 464-8052	Bradley.lebovitz@stvinc.com	





NAME	AFFILIATION	PHONE	E-MAIL (for minutes)	INITIALS
Nguyen, Roger	SFMTA	(415) 701-4312	Roger.Nguyen@sfmta.com	
Park, Joon	SFMTA	(415) 701-4742	Joon.Park@sfmta.com	90
Redmond, Richard	CSP	(415) 701-4288	Richard.Redmond@sfmta.com	
Stassevitch, Eric	CSP	(415) 701-4426	Eric.Stassevitch@sfmta.com	5
Ward, Beverly	CSP	(415) 701-5291	Beverly.Ward@sfmta.com	Par
Wilson, Sarah	CSP	(415) 243-0950	Sarah.Wilson@sfmta.com	SHW
Wong, Arthur	SFMTA	(415) 701-4305	Arthur.Wong@sfmta.com	
Zurinaga, Luis	SFCTA	(415) 716-6956	Luis.zurinaga@sfcta.org	
V .				
19-				



CMB Change No.: CMB - 113

Initial Implementing Change Control Procedure No.:1252 -PCC - 13

GENERAL						
Proposed Change Sponsor:	F	R. Edwai	rds		Received by CMB:	04/26/2013 (Date)
Affected Disciplines:	Building	Protect	ion			
					<u> </u>	
					_	
Impacts of Change	Compen	sation (	Grouting -	- Olc	d Navy	
	Propose \$70,000		act Chan		PCC 13) Amount Not 0e 79	t To Exceed
Contract(s) Directly Affe	ected by th	is Propo	sed Cha	nge:		
1250 1251 1252	1253	1254	1255	12		
1 ☐ 2 ☐ 3 ⊠ (CP01) (CP02) (CP03)	4 ☐ (CP04)	<b>5</b> □ (CP05)	<b>6</b> ☐ (CP06)	7 [ (CP	<del></del>	
	GURATIO	N MAN	AGEME	NT B	OARD APPROVAL	s
		۸۵۷		_	atures	Date
		_	ee with th Change	ie	Disagree with the Change	Date
Senior Program	Manager:		27.7		_	
Deputy Program	(1	de_	_		4/26/2013	
PM Project	Services:	S. M	That			26Ape 13
PM Project Developmen	10	EW	1		4/20/2013	
SFMTA O & M	Manager:					
SFMTA Safety an	d Security					
SF	СТА РМО					
	1-	(	Commen	ts	7	4
Agreed to pr					out Basis -	
CHANGE IS RESULT OF Differing Site Condition - effecting Contractors DELGINAL METERS/METHODS (Equipment) RATHER THAN ACC (Change						
IN scape CUB AGREED TO PROCESS AS COR - DIRECTING WORK						
THRU FURCE ACCOUNT UNTIL LUMP SUM CHANGE IS AGREED TO, = TANDBUY COSTS ARE ANTICIPATED TO BE DISPUTED LOSTS - MAY						
BE ADDRESSED !	BE ADDRESSED IN SEPERATE PROCESS. CM TEAM TO PREPARE					
Pelsentation o	5 Poff	enj s	te la	relit	from to address	timing of event
and actual come	actions	V5, C	antra	21 1	Jocuments -	tor charing



CP/PCC COR #79 Rev 3

Contract No. 1252

#### DSC FINDING OF FACT

<u>DIFFERING SITE CONDITIONS</u> – REFERENCE APPROPRIATE SPECIFICATIONS IN CONTRACT GENERAL PROVISIONS AND SPECIAL PROVISIONS

1.	REPORTED DATE OF OCCURRE	ENCE	3/5/13
2.	DATE OF CONTRACTOR'S WRI	TTEN NOTICE	BIHJV Letter No. 098 Dated 3/7/13
3.	TYPE OF WORK CONTRACTOR	R WAS PERFORMING	Excavation for compensation grouting
4.	NATURE OF OBSTRUCTION		
	Abandoned clay duct banks, stee operations for grout pipe.	l conduits and 12" PG&E	gas main. Abandoned utilities are in conflict with drilling
•	8	~ Sta. 138+00 to 139	+00. Utilities located in space between 10' to 16' west of
5.	LOCATION OF OBSTRUCTION	east curbline at 799 M	Market (Ross store, Stockton frontage)
6.	METHOD USED TO OVERCOME	E OBSTRUCTION	
	to be abandoned, Contractor rem	oved obstructions. Contra	s were drilled and windowed. When utilities were verified actor also demo portions of the gas main which was in e entire gas main which would have resulted in a wider
7.	SIGNIFICANT IMPACT ON CON-	STRUCTION PROGRES	S, IF ANY.(SUPPLIED BY THE CONTRACTOR)
		mpact due to small rig = \$ ated in COR #79 Rev 3 da	\$224,720.48 + \$55,000 additional cost + Potential ated 4/24/13
	At present time, work TIME length of standby time		cal path however an impact may occur depending on
8.	CONCLUSION, WHETHER-OR-N (BASED ON CONTRACT DOCUM		N BE CLASSIFIED AS A DIFFERING SITE CONDITION
			ruction constitutes a differing and unforeseen site ty demo drawings do not exist for this location.
_	Abandoned gas main: The existin	g gas main was shown or	n UE-127 but was omitted in UE-128.
9.	ATTACHMENTS:		
	SPECIFICATION	General Provision Articl	le 3.04
	DRAWINGS	BP-124, UE-127 and UI	E-128
	INSPECTION RPT		
	OTHER	Photos attached	a
	OHILK		





Prepared by:

Sarah Wilson, Resident Engineer

SFMTA Representative



#### PROPOSED CONTRACT CHANGE

Contract No.	1252 Tunnels	Date <u>4/26/201</u>
Contract No.	1232 Turrileis	Date 4/20/201

CORT9 PCC No.

PCC Title Compensation Grouting - Old Navy

#### **Description of PCC:**

Summary of Changes required at the "Old Navy" site - Pipe Array 3:

- 1. Perform additional field investigation with a vacuum truck at the original compensation grout hole design proximal points to determine limits of underground obstructions.
- Remove and dispose of the abandoned PG&E tile duct bank and 12" gas line that runs along the proposed compensation grouting trench alignment.
- 3. Remove and dispose of PG&E steel pipes within the proposed compensation grouting trench.
- 4. Demobilize the Klemm drill rig currently being used for installation of the compensation grout tubes.
- Mobilize a smaller drill rig to be used for installation of the compensation grout tubes.
- 6. Drill compensation grout holes at the original compensation grout hole design proximal points.

Spec Ref. CN 1252 Tunnels BP-122 Rev.0, BP-124 Rev.0, Reference Drawings UE-127 and 128 Drawing Nos. Attachments N/A

The Contractor's proposal in price and time is required on the this proposed contract change to the subject contract in accordance with the General Provisions Section 6.02 B, within 14 days after receipt of a PCC.

Recommended by: wilson, Resident Engineer (SFMTA Representative)

Concur in Principle:

Mark Benson, Construction Manager (SFMTA Representative)

Date 4/26/13

Date 4/26/13



#### FORCE ACCOUNT CHANGE ORDER

Title: Compensation Grouting - Old Navy				
SFMTA Project: Central Subway Project (544.1)				
Contract No. <u>1252</u>	FA Change Order No. <u>004</u>			
Report No. PGC 13- COR79	Date <u>April 26, 2013</u>			
TO: Barnard Impregilo Healy JV (BII	HJV), Contractor			
You are ordered to perform work as follows:				
<ol> <li>Demobilize the Klemm drill rig curren from the "Old Navy" site.</li> </ol>	tly being used for installation of the compensation grout tubes			
<ol><li>Mobilize a smaller drill rig to be used Navy" site.</li></ol>				
3. Drill compensation grout holes at the	originally foreseen proximal points for Pipe Array 3.			
Work, of the General Provisions, noting the typo	proce account basis as set forth in Section 6.05, Force Account graphical error in paragraph A.2 which incorrectly references 6.04. Payment for this work will not be allowed without an			
Allowance Amount for this PCC is: Not to Exce	ed \$70,000			
С	Prepared by:Sarah Wilson  Date: April 26, 2013  Approved:			
C	Construction Manager Mark Benson  Date: 4/34/13			
Original: Contractor				
Copies: Construction Manager				

Contract File

#### Ward, Beverly

From: Kelleher, Brian

**Sent:** Friday, April 26, 2013 10:20 AM

**To:** Ward, Beverly

**Subject:** Estimate for Old Navy Comp Grout DSC - COR #79

Hi Beverly - here's the basis for the COR 79 Force Account NTE amount of \$70K - thanks BK

From: Benson, Mark

Sent: Thursday, April 25, 2013 10:52 AM

To: Kelleher, Brian

Cc: Wilson, Sarah H (SFMTA); Leong, Mun; Hembd, Matthew; Dombrowski, Charles

Subject: RE: Old Navy Comp Grout DSC - COR #79

Brian,

Here is my recommendation for a NTE force account number:

Mobilization and Freight - \$15,000 Rental (2 weeks) - \$10,000 Inefficiencies related to loss of production of smaller rig (2 weeks of drilling) - \$40,200

Total - \$65,200

Recommend sending BIH/CJN letter directing to proceed \$70,000

#### Mark Benson, P.E.

Construction Manager SFMTA Central Subway 821 Howard Street, 2nd Floor San Francisco, CA 94103 D 415.701.5295 C 415.238.0996 mark.benson@sfmta.com

From: Benson, Mark

**Sent:** Thursday, April 25, 2013 9:59 AM **To:** Dombrowski, Charles; Kelleher, Brian

Cc: Wilson, Sarah H (SFMTA); Leong, Mun; Hembd, Matthew

Subject: Old Navy Comp Grout DSC - COR #79

CJ/Brian,

We need to get moving on this ASAP. Just spoke to BIH and CJN regarding how to move this forward as this is a time critical issue.

CJ, please start to prepare our engineer's estimate for this change, this needs to be our top priority.

Brian, I need to discuss with you about getting CJN started on mobilizing the equipment (smaller drill rig) now. I am thinking we can direct them to proceed with mobilization on force account. Please call me as soon as you can to discuss.

Thanks
Mark Benson, P.E.
Construction Manager
SFMTA Central Subway
821 Howard Street, 2nd Floor
San Francisco, CA 94103
D 415.701.5295
C 415.238.0996
mark.benson@sfmta.com



SFMTA Contract No. 1252 Contractor: Barnard Impregilo Healy JV (BIH)

#### **EVALUATION OF MERIT**

#### **COR 079**

**Recommendation:** Accept justification of Merit for COR 079 – (Comp Grout – Old Navy) - DSC / Design Modifications. There is no time extension recommended for this work.

**Facts:** The Contractor performed potholing activities in advance of compensation grout hole drilling at the Old Navy location (between Market St. and Stevenson St. on 4<sup>th</sup> Street) and encountered numerous buried obstructions. The obstructions were first encountered on March 5<sup>th</sup>, 2013.

After further field investigation with PG&E and additional potholing efforts, it was determined that there was not sufficient room between existing utilities (known and unknown) to drill the compensation grout holes as designed. The Contractor was able to remove many of these obstructions in an effort to identify a clear window of space in which to locate the proximal points of the compensation grout pipe array. However, one of the obstructions consisted of what was originally believed to be a live 12" waterline which would have caused the proximal points to shift to the east to avoid the live utility. On 4/4/13, it was discovered that this utility was not actually the 12" live waterline and on 4/5/13, PG&E confirmed that the utility was actually a 12" abandoned gas line.

The 12" abandoned gas line needs to be removed to allow drilling of the compensation grout holes at the originally foreseen proximal points in accordance with the Compensation Grout Design. However, further investigation showed that even with the removal of the 12" gas line, there was still insufficient room between utilities to install the grout tubes with the current equipment. The Contractor has been directed to demobilize the current equipment and mobilize a small drill rig which would allow the proximal points to be installed at the designed hole inclinations while passing beneath the PG&E electrical duct bank.

**Justification:** The buried obstructions constitute a differing and unforeseen site conditions as they were not shown or accurately depicted in the Contract Drawings. The following numerous issues that lead to the differing site condition are described herein:

- 1. There is not sufficient clearance between the existing PG&E lines per the original contact design to drill the compensation grout holes as designed.
- 2. Numerous unknown buried obstructions were encountered including, but not limited to tile duct banks, concrete of unknown contents, and steel pipes.
- 3. An abandoned 12" PG&E gas line was found to be approximately 16 feet from face of curb, approximately 4 feet below grade and running the entire length of the trench. The Contract Documents do indicate the presence of a 12" gas line at this location (Contract dwg. BP-124 Rev. 0 & Reference dwg. UE-127). See Field



SFMTA Contract No. 1252

**Contractor:** 

Barnard Impregilo Healy JV (BIH)

Sketches 045 through 047. However, the Contract Documents, specifically the Utility Demolition and Utility Composite drawings, do not show whether the 12" gas line is live or needs to be removed.

- 4. The PGE electrical duct bank was deeper and further east than originally anticipated.
- 5. The waterline shown on the drawings was further east than shown on the Contract drawings. See Field Sketches 045 through 046.
- 6. A sub-sidewalk basement within the Ross Dress for Less building was discovered to have an unknown roof load capacity. This resulted in the need to bring in a smaller drill rig that could install the compensation grout tubes from the roadway and avoid installation on top of the basement.

As a result of mitigation efforts for the DSCs the following additional costs will be incurred:

#### Standby costs:

• The Contractor claims the standby costs for the Pipe installation crew began accruing on March 14, 2013 and will continue to accrue until the array of grout holes are available to be drilled. Standby costs for the Pre-conditioning crew will begin accruing upon completion of the Wholefoods /AT&T Pre-conditioning work. At this time, standby costs for the Preconditioning crew are anticipated to start accruing on 4/8/2013. At this time, the RE disagrees with the standby period for these two operations and is working with the Contractor to resolve the differences.

#### Additional Costs:

- Additional potholing/investigative efforts
- Further engineering to the compensation grout design
- Excavation of a larger access trench
- Removal & disposal of abandoned/un-used DSC utilities
- Increased street restoration
- Demobilization of the existing Klemm drill rig being used for installation of the compensation grout tubes at the "Old Navy" site.
- Mobilization for the smaller drill rig and the additional cost associated with using the small drill rig.

Actual costs related to this additional work have yet to be determined.

Change Type – (2) Unforeseen Condition



SFMTA Contract No. 1252

Contractor:

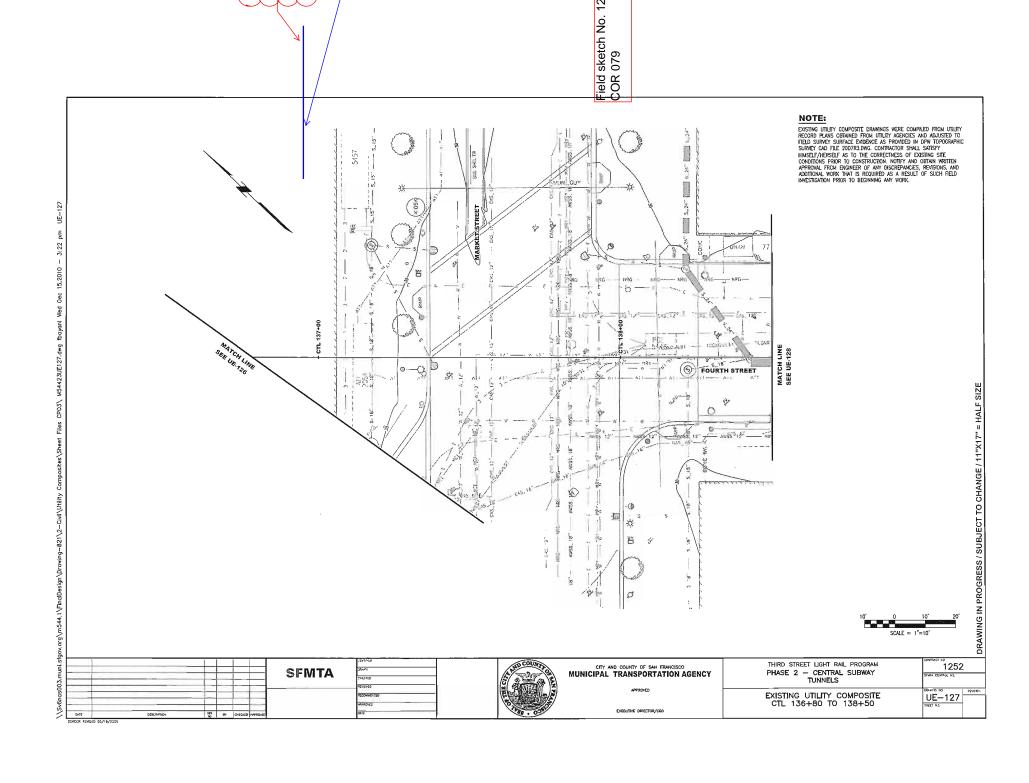
Barnard Impregilo Healy JV (BIH)

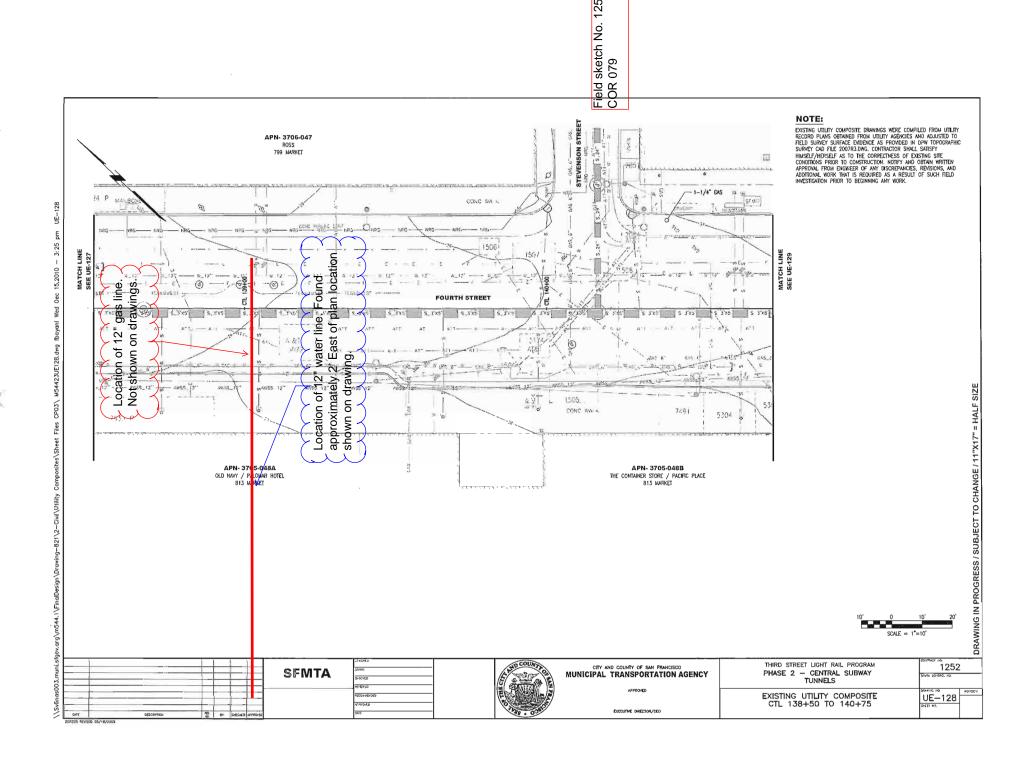
Resident Engineer

Configuration Management Board

REJUM to provide notice to PG&E of these Form B costs.

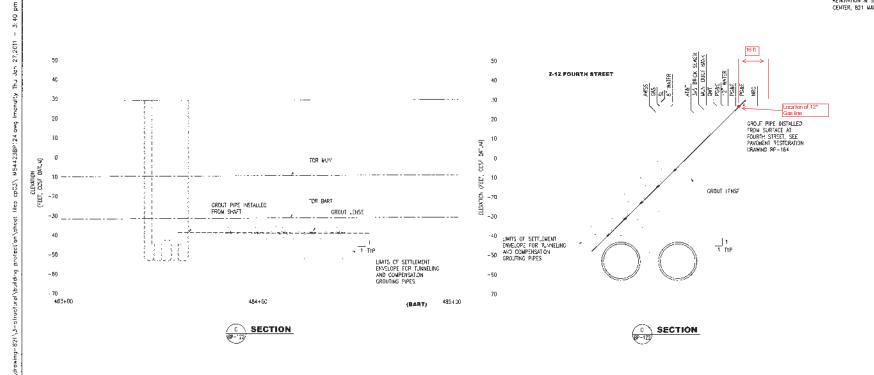
PLITTING PG: 5 ON NOTICE







- . INDICATED GROUP LEASE SHAPE AND EXTEND ARE FOR ILLUSTRATION PURPOSES ONLY. CONTROLLOR SHAD LEGISTRINE PRESSURES AND FLOW RAFES TO ACHEVE FEQ. RED WOO FILLING AND SETILEMENT CONTROL.
- 2. INCICATED PLE DEPTH FOR SULLDING AT 2 12 FOURTH STREET IS TAKEN FROM THE REPORT TOPOTOCHNICAL MYSTROATION RECKNOWN AS ESPACED AS TOPOTOC OF PACIFIC CENTER, 821 MARKET STREET, SC 1054.001



CONFORMED SCALE 1/ 6°=1'-0'

Field Sketch No. 1252 - 047

COR 079

PB TELAMON

South of The Market of State o





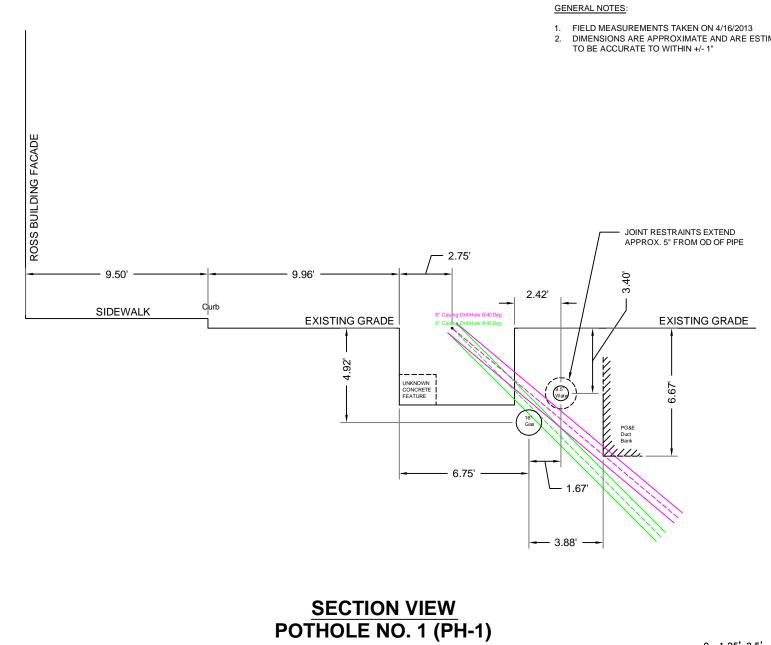
CITY MAP COUNTY OF SAN FRANCISCO
MUNICIPAL TRANSPORTATION AGENCY

WATERCOMMENT

| Water | Wate

THIRD STREET LIGHT RAIL PROGRAM
PHASE 2 - CENTRAL SUBWAY
TUNNELS

BUILDING PROTECTION
COMPENSATION GROUTING
MARKET STREET AREA, SHEET 3 OF 3



**LOOKING SOUTH AT APPROX. STATION 138+38** 

2. DIMENSIONS ARE APPROXIMATE AND ARE ESTIMATED

REVISION:

**CENTRAL SUBWAY** 

COMP GROUT TRENCH POTHOLE NO. 1 "OLD NAVY"

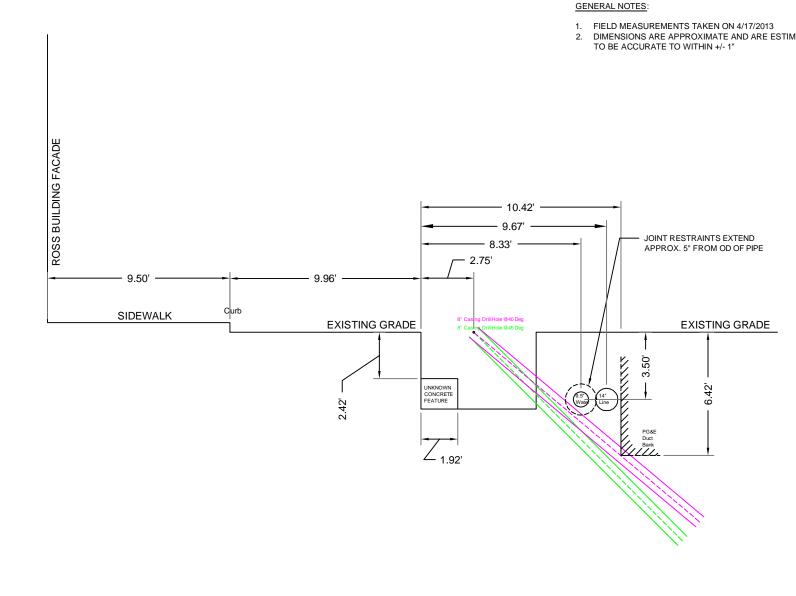
BARNARD CONSTRUCTION COMPANY, INC.
701 GOLD AVE.
BOZEMAN, MT 59715
PHONE: (406) 586-1995
www.betnard-inc.com

PLAN SHEET TITLE

SHEET

PH-1

0 1.25' 2.5' SCALE: 1"= 5'



2. DIMENSIONS ARE APPROXIMATE AND ARE ESTIMATED



**CENTRAL SUBWAY** 

# COMP GROUT TRENCH POTHOLE NO. 2 "OLD NAVY"

BARNARD CONSTRUCTION COMPANY, INC.
701 GOLD AVE.
BOZEMAN, MT 59715
PHONE: (406) 586-1995
www.betnard-inc.com

PLAN SHEET TITLE

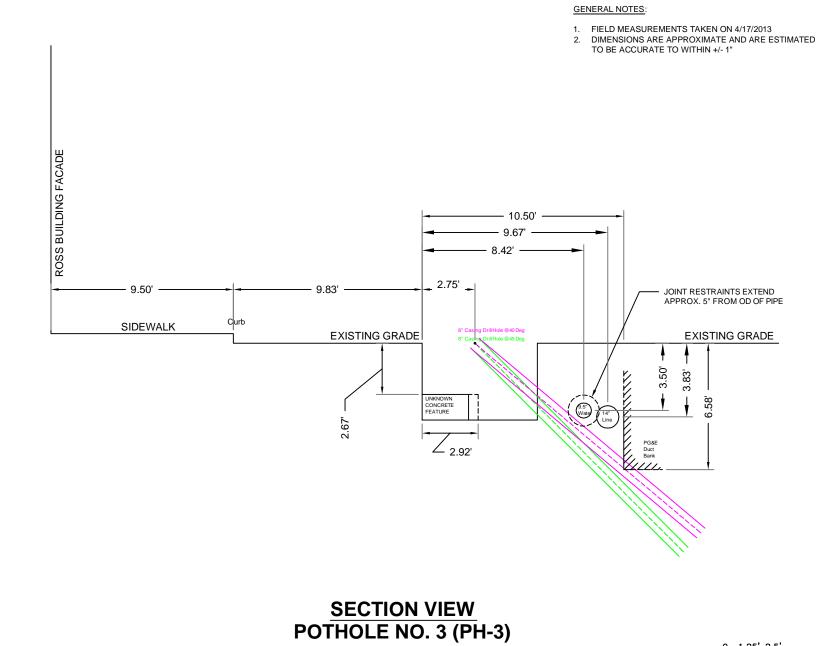
SHEET

0 1.25' 2.5'

SCALE: 1"= 5'

PH-2

SECTION VIEW POTHOLE NO. 2 (PH-2) **LOOKING SOUTH AT APPROX. STATION 138+72** 





**CENTRAL SUBWAY** 

COMP GROUT TRENCH POTHOLE NO. 3 "OLD NAVY"

BARNARD CONSTRUCTION COMPANY, INC.
701 GOLD AVE.
BOZEMAN, MT 59715
PHONE: (406) 586-1995
www.betnard-inc.com

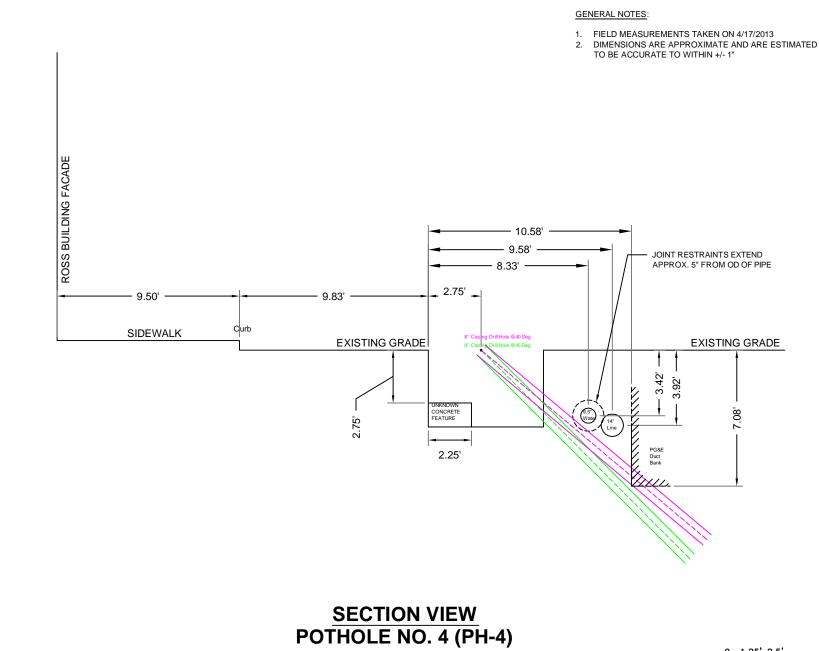
PLAN SHEET TITLE

SHEET

**LOOKING SOUTH AT APPROX. STATION 139+07** 

0 1.25' 2.5'

SCALE: 1"= 5'



**LOOKING SOUTH AT APPROX. STATION 139+42** 

REVISION:

**CENTRAL SUBWAY** 

COMP GROUT TRENCH POTHOLE NO. 4 "OLD NAVY"

BARNARD CONSTRUCTION COMPANY, INC.
701 GOLD AVE.
BOZEMAN, MT 59715
PHONE: (406) 586-1995
www.betnard-inc.com

PLAN SHEET TITLE

SHEET

0 1.25' 2.5'

SCALE: 1"= 5'

PH-4































