INFORMATION HANDOUT

For Contract No. 07-295704
At 07-LA-605-R0.0/20.5

Identified by
Project ID 0713000025

MATERIALS INFORMATION

Fiber Optics Asbuilt drawings

Aerially Deposited Lead Site Investigation Report. Site investigation for LA 605 CAPM project between I-10/605 junction and Los Angeles/Orange County line, Los Angeles County, California.

SCI70GM and SCI100GM Design and Installation Manual

FIBER OPTIC ASBUILT DRAWING

DIST	COUNTY	ROUTE	POST MILE TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	605	R0.1/R7.8	1	108

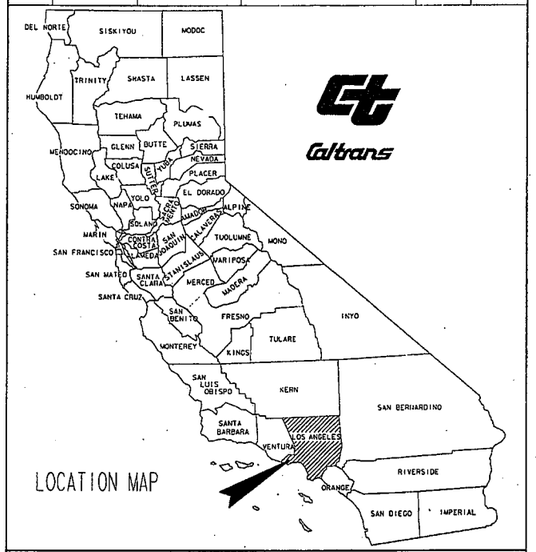
INDEX OF SHEETS

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

PROJECT PLANS FOR CONSTRUCTION ON STATE HIGHWAY

IN LOS ANGELES COUNTY IN LAKEWOOD, HAWAIIAN GARDENS, CERRITOS AND NORWALK FROM THE ORANGE COUNTY LINE TO THE ROUTE 105/605 SEPARATION

To be supplemented by Standard Plans dated July, 1992



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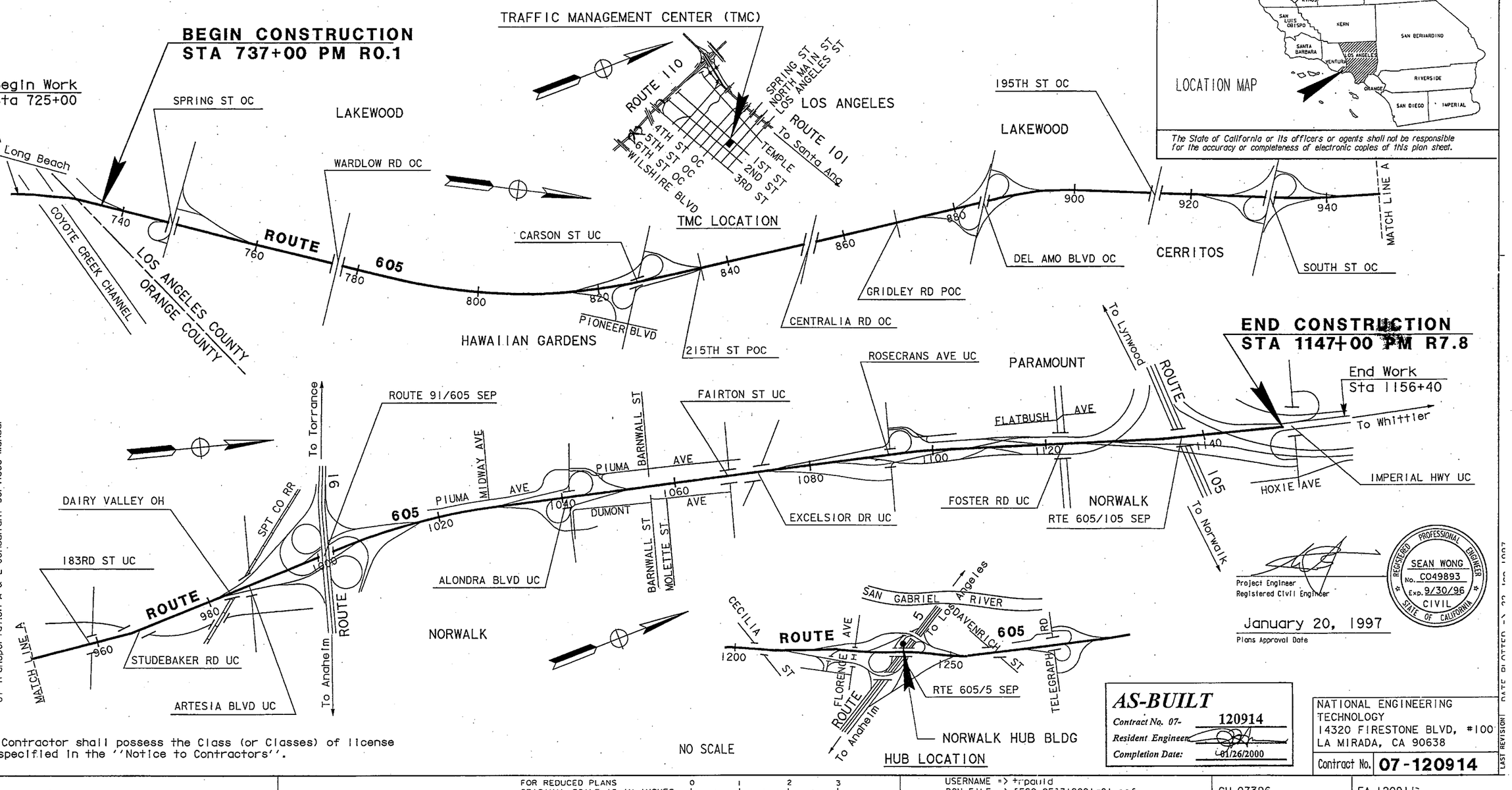

NO SCALE

Approved as to impact on State facilities and conformance with applicable State standards and practices and that technical oversight was performed as described in the California Department of Transportation A & E Consultant Services Manual

Project Engineer
Registered Civil Engineer

SEAN WONG
No. C049893
Exp. 9/30/96
CIVIL
STATE OF CALIFORNIA
REGISTERED PROFESSIONAL ENGINEER

January 20, 1997
Plans Approval Date

The Contractor shall possess the Class (or Classes) of license as specified in the ''Notice to Contractors''.

AS-BUILT
Contract No. 07- 120914
Resident Engineer
Completion Date: 01/26/2000

NATIONAL ENGINEERING TECHNOLOGY
14320 FIRESTONE BLVD, #100
LA MIRADA, CA 90638

Contract No. 07-120914

LAST REVISION DATE PLOTTED => 22-JAN-1997

DC-OE-93-PF (REV. 3/88)

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3

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DGN FILE => [ESC-OE]71209la01.psf

CU 07396

EA 120911

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	605	R0.1/R7.8	45	108

Teri Parola 9/11/95
REGISTERED ELECTRICAL ENGINEER

1-20-97
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
TERI J. PAROLA
No. E014898
Exp. 6/30/99
ELECTRICAL
STATE OF CALIFORNIA

NATIONAL ENGINEERING TECHNOLOGY
14320 FIRESTONE BLVD., SUITE 100
LA MIRADA, CA 90638

IN ASSOCIATION WITH:

RAYTHEON INFRASTRUCTURE SERVICES, INC.
ABRATIQUE AND ASSOCIATES, INC.
KATZ OKITSU AND ASSOCIATES
WAGNER ENGINEERING AND SURVEY, INC.

TABLE OF CONTENTS-ELECTRICAL PLANS

ABBREVIATIONS

2SMFO B/O	2 SINGLEMODE FIBER OPTIC BREAKOUT CABLE
12SMFO	12 SINGLEMODE FIBER OPTIC CABLE
36SMFO	36 SINGLEMODE FIBER OPTIC CABLE
6P22	6 PAIR 22 AWG TWISTED PAIR CABLE
12P22	6 PAIR 22 AWG TWISTED PAIR CABLE
50P22	50 PAIR 22 AWG TWISTED PAIR CABLE
ø	DIAMETER
AVC	AUTOMATIC VEHICLE CLASSIFICATION
BB	BASE BAND
B/O	BREAKOUT CABLE
CCR	CAMERA CONTROL RECEIVER
CCT	CAMERA CONTROL TRANSMITTER
CCTV	CLOSED CIRCUIT TELEVISION
CHAN #	CHANNEL NUMBER
CMS	CHANGEABLE MESSAGE SIGN
DEMARC	DEMARCATION
DEMUX	DEMULTIPLEXER
DIST	DISTRIBUTION
DLC	DETECTOR LOOP CABLE
FDF	FIBER DISTRIBUTION FRAME
FDU	FIBER DISTRIBUTION UNIT
FLEX	FLEXIBLE
F/O OR FO	FIBER OPTIC
FRE	FIBERGLASS REINFORCED EPOXY CONDUIT
INTRFCE	INTERFACE
IRR	IRRIGATION
J-BOX	JUNCTION BOX
MUX	MULTIPLEXER
NOM	NOMINAL
OHS	OVERHEAD SIGN
PDA	POWER DISTRIBUTION ASSEMBLY
PR	PAIR
PTZ	PAN, TILT AND ZOOM
REQ'D	REQUIRED
RMS	RAMP METERING SYSTEM OR STATION
RX	RECEIVER
SCE	SOUTHERN CALIFORNIA EDISON
SCHED	SCHEDULE
SH	SHORT HAUL
SM	SINGLEMODE
TDM	TIME DIVISON MULTIPLEXER
TELCO	TELEPHONE COMPANY
TMC	TRANSPORTATION MANAGEMENT CENTER
TMS	TRAFFIC MONITORING STATION
TP	TWISTED PAIR
TX	TRANSMITTER
VDX	VIDEO DEMULTIPLEXER
VMX	VIDEO MULTIPLEXER
VSAT	VERY SMALL APERTURE TERMINAL
VR	VIDEO RECEIVER
VX	VIDEO TRANSMITTER
#X	X AWG CONDUCTOR, Ie #10 MEANS 10 AWG CONDUCTOR
YP	Y PAIRS OF CONDUCTORS, Ie 2P MEANS 2 PAIRS

LEGEND

- CCTV CAMERA
- EXISTING CCTV CAMERA
- SPLICE VAULT
- EXISTING SPLICE VAULT
- FIBER OPTIC JUMPER
- COMMUNICATIONS PULL BOX
- EXISTING COMMUNICATION PULL BOX
- COMMUNICATIONS CONDUIT(S) (—C—)
- EXISTING COMMUNICATION CONDUIT(S) (—C—)
- SERVICE CONDUIT(S) (—E—)
- EXISTING SERVICE CONDUIT(S) (—e—)
- DELIMITER FOR PROJECT NOTES — EXAMPLE: 1 11 — C — 1 12
- TYPE 334 TV CABINET
- EXISTING TELEPHONE BRIDGE
- TELEPHONE BRIDGE
- FIBER OPTIC CABLE (11)
- COAXIAL CABLE
- HIGHWAY ADVISORY RADIO

TABLE 1-CCTV WIRING

CONDUCTOR TYPE	FUNCTION	QTY
RG-6A/U	CAMERA VIDEO INTERFACE CABLE	1
9#18 CABLE	PAN/TILT CONTROL CABLE	1
12#18 CABLE	LENS CONTROL CABLE	1

NOTE: THIS PLAN ACCURATE FOR ELECTRICAL WORK ONLY.

AS-BUILT
Contract No. 07- 120914
Resident Engineer: AMY MAO
Completion Date: 01/26/2000

CCTV AND COMMUNICATION SYSTEM (LEGEND AND NOTES)

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	605	R0.1/R7.8	46	108

Teri Parola 9/11/95
REGISTERED ELECTRICAL ENGINEER

REGISTERED PROFESSIONAL ENGINEER
TERI J. PAROLA
No. E014898
Exp. 6/30/99
ELECTRICAL
STATE OF CALIFORNIA

1-20-97
PLANS APPROVAL DATE

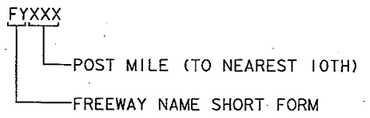
NATIONAL ENGINEERING TECHNOLOGY
14320 FIRESTONE BLVD., SUITE 100
LA MIRADA, CA 90638

IN ASSOCIATION WITH:

RAYTHEON INFRASTRUCTURE SERVICES, INC.
ABRATIQUE AND ASSOCIATES, INC.
KATZ OKITSU AND ASSOCIATES
WAGNER ENGINEERING AND SURVEY, INC.

GENERAL NOTES:

1. THE LOCATION OF ELECTRICAL HIGHWAY LIGHTING CONDUITS AND PULL BOXES ARE APPROXIMATE AND WERE OBTAINED FROM LIMITED LIGHTING RECORDS. CONTRACTOR SHALL AVOID DAMAGING EXISTING LIGHTING CONDUITS.
2. THE LOCATIONS OF EXISTING DETECTOR LOOPS, EXISTING CONTROLLER CABINETS, EXISTING SERVICE ENCLOSURES, POWER POLES AND EXISTING DEMARCATION BOXES ARE APPROXIMATE.
3. THE CONTRACTOR SHALL VERIFY PROPOSED CCTV POLE LOCATIONS WITH THE ENGINEER PRIOR TO PLACEMENT OF FOUNDATIONS.
4. THE LOCATIONS OF PROPOSED ELEMENTS ARE APPROXIMATE AND MAY BE CHANGED TO SUIT FIELD CONDITIONS AS DIRECTED OR APPROVED BY THE ENGINEER. SEE L-SHEETS FOR EXACT LOCATION OF CCTV CAMERAS.
5. WHEN EXISTING DETECTOR LOOPS AND CONDUITS ARE SHOWN IN THE VICINITY OF PROPOSED CONDUIT TRENCHES THE CONTRACTOR SHALL AVOID DAMAGING THE EXISTING CONDUIT. TRENCHING WITH HAND TOOLS MAY BE REQUIRED.
6. BEFORE REMOVING OR MODIFYING ANY EXISTING ELECTRICAL OR TELCO FACILITIES, THE CONTRACTOR SHALL PROVIDE WRITTEN NOTICE 72 HOURS PRIOR TO COMMENCING WORK TO ALL CONCERNED AGENCIES AND THE ENGINEER.
7. A PULL ROPE SHALL BE INSTALLED IN ALL EMPTY CONDUITS.
8. UNLESS OTHERWISE NOTED, ALL FIBER OPTIC CONDUIT BENDS SHALL BE 4 FEET RADIUS FACTORY BENDS. ALL OTHER CONDUITS SHALL HAVE A MINIMUM BEND RADIUS OF NO LESS THAN 6 TIMES THE CONDUIT DIAMETER.
9. CONDUITS AND CONDUCTORS IN CONDUIT AND CONDUCTOR SCHEDULE TABLES ARE NEW UNLESS MARKED (E) INDICATING EXISTING.
10. PVC, WHERE CALLED OUT IN THESE PLANS, SHALL MEAN RIGID NON-METALLIC CONDUIT AS DEFINED IN THE STANDARD SPECIFICATIONS.
11. CONDUIT(S) SHALL BE INSTALLED WHERE SHOWN ON THE PLANS RELATIVE TO THE EXISTING SHOULDER.
12. IDENTIFICATION FORMAT OF TRAFFIC OPERATION SYSTEM (TOS) ELEMENTS:



13. MODEM NUMBERS FOR SOME CONTROLLERS HAVE NOT YET BEEN ASSIGNED, AND THEREFORE SUCH LOCATIONS HAVE BEEN ASSIGNED TO MODEM AB. VERIFY MODEM NUMBERS BEFORE CONSTRUCTION.
14. FOR COMPLETE R/W AND ACCURATE ACCESS DATA, SEE R/W RECORD MAPS AT THE DISTRICT OFFICE.

PROJECT NOTES: (MASTER LIST)

[1] INSTALL CONDUIT(S) IN TRENCH IN PAVED SHOULDER. MAINTAIN A MINIMUM DISTANCE OF 4 FEET FROM EDGE OF TRAVELWAY. FOR INSTALLATION OF 4" CONDUITS, SEE SHEET E-34 FOR DETAILS.

[2] INSTALL CONDUIT(S) IN TRENCH IN SOIL OFF OF THE SHOULDER. FOR INSTALLATION OF 4" CONDUITS, SEE SHEET E-33 FOR DETAILS.

[3] INSTALL COMMUNICATION PULL BOX WITH TWISTED PAIR SPLICE CLOSURE. SEE SHEETS E-36 AND E-37 FOR DETAILS.

[4] JACK RIGID STEEL CONDUIT(S) UNDER ROADWAY. FOR INSTALLATION OF 4" CONDUITS, SEE SHEET E-35 FOR DETAILS.

[5] INSTALL FIBERGLASS REINFORCED EPOXY (FRE) CONDUIT(S) ON STRUCTURE. SEE SHEETS C-2 TO C-9 FOR DETAILS.

[6] ADD POWER CONDUCTORS TO EXISTING CONDUIT.

[7] INSTALL CCTV CAMERA POLE ON NEW FOUNDATION. SEE SHEETS E-50 AND C-11 FOR DETAILS. INSTALL CCTV CAMERA ASSEMBLY AND PAN/TILT UNIT ON POLE.

[8] INSTALL CCTV CAMERA ASSEMBLY AND PAN/TILT UNIT ON EXISTING SIGN STRUCTURE. SEE SHEETS E-50 AND C-12 FOR DETAILS.

[9] ADD CABLE(S) AND CONNECT TO CONTROLLER.

[10] INSTALL TELEPHONE BRIDGE AND 12-PAIR TERMINAL BLOCK IN CONTROLLER CABINET. SEE SHEETS E-39 AND DETAIL 1, SHEET E-43.

[11] DISCONNECT EXISTING TELCO DEMARCATION CABLE ONLY AFTER TESTING ALL INSTALLED EQUIPMENT, VERIFYING THE INSTALLATION IS OPERATIONAL AND GETTING APPROVAL FROM THE ENGINEER.

[12] INSTALL TYPE 334-TV CABINET ON NEW FOUNDATION. CABINET SHALL INCLUDE CAMERA CONTROL RECEIVER AND SINGLE VIDEO TRANSMITTER. SEE DETAIL A, SHEET E-41 AND DETAIL 3, SHEET E-43.

[13] INSTALL TYPE 334-TV CABINET ON NEW FOUNDATION. CABINET SHALL INCLUDE EQUIPMENT AT VIDEO NODE. SEE DETAIL B, SHEET E-41 AND DETAIL 5, SHEET E-44.

[14] INSTALL COMMUNICATION PULL BOX APPROXIMATELY 15 FEET FROM EDGE OF STRUCTURE.

[15] TRANSITION CONDUIT THROUGH SOUNDWALL. SEE SHEET C-10 FOR DETAILS.

[16] INSTALL TYPE 334 CABINET ON NEW FOUNDATION. INSTALL STATE-FURNISHED MODEL 170 CONTROLLER AND LOOP DETECTOR SENSORS. INSTALL TELEPHONE BRIDGE AND 12-PAIR TERMINAL BLOCK. SEE SHEET E-39 AND DETAIL 4, SHEET E-43.

[17] INSTALL 30A, 120V, SINGLE POLE CIRCUIT BREAKER FOR CCTV.

[18] COIL 50 FEET OF 6P22 TWISTED PAIR CABLE IN PULL BOX FOR TRAFFIC SIGNAL CONTROLLER. SPLICE IN/OUT PAIRS TOGETHER USING A TWISTED PAIR SPLICE CLOSURE.

[19] INSTALL ON NEW FOUNDATION TYPE III-BF 100A, 120/240V SERVICE WITH A 100A, 240V MAIN CIRCUIT BREAKER.

[20] INSTALL 3" CONDUIT TYPE H SERVICE RISER ON POWER POLE.

[21] INSTALL 3" RIGID STEEL CONDUIT. UTILITY COMPANY TO INSTALL CONDUCTORS.

[22] INSTALL CONDUITS IN THE SAME TRENCH. SEE SHEETS E-33 AND E-34 FOR DETAILS.

[23] THIS ITEM IS NOT INCLUDED IN THE QUANTITIES FOR PAYMENT ON THIS SHEET.

[25] IDENTIFY AND [RC] EXISTING DLC CONNECTED TO ABANDONED LOOPS. ADD NEW DETECTOR LOOP CABLE(S) THROUGH EXISTING CONDUIT INTO THE EXISTING CABINET AND CONNECT TO EXISTING TERMINAL BLOCK.

[26] INSTALL TYPE 334-TV CABINET ON NEW FOUNDATION. CABINET SHALL INCLUDE EQUIPMENT AT DATA NODE. SEE DETAIL B, SHEET E-44 AND DETAIL B, SHEET E-41.

[27] BEFORE STARTING WORK ON EXISTING LIGHTING CIRCUITS, CONTRACTOR SHALL DISCONNECT CIRCUITS AND PLACE "MEN AT WORK" SIGN NEAR SERVICE CABINET.

[28] INSTALL STATE-FURNISHED LOOP DETECTOR SENSORS IN EXISTING CABINET.

[29] INSTALL SPLICE VAULT APPROXIMATELY 15 FEET FROM EDGE OF STRUCTURE, WITHOUT TWISTED PAIR AND FIBER OPTIC SPLICE CLOSURES. FIGURE EIGHT 100 FEET OF ALL CABLES IN THE SPLICE VAULT.

[30] INSTALL RIGID STEEL CONDUIT(S) IN TRENCH IN PAVED SHOULDER. CONDUIT(S) SHALL BE INSTALLED AS CLOSE TO THE EDGE OF TRAVELWAY AS POSSIBLE.

[35] INSTALL SPLICE VAULT APPROXIMATELY 15 FEET FROM EDGE OF STRUCTURE.

[36] COIL 25 FEET OF 6P22 TWISTED PAIR CABLE IN PULL BOX FOR IRRIGATION CONTROLLER. SPLICE IN/OUT PAIRS TOGETHER USING A TWISTED PAIR SPLICE CLOSURE.

AS-BUILT
Contract No. 07- 120914
Resident Engineer: AMY MAO
Completion Date: 01/26/2000

CCTV AND COMMUNICATION SYSTEM (NOTES)

NO SCALE

NOTE: THIS PLAN ACCURATE FOR ELECTRICAL WORK ONLY.

LAST REVISION DATE PLOTTED => 27-JAN-1997

PROJECT NOTES: (THIS SHEET ONLY)

[1] INSTALL CONDUIT(S) IN TRENCH IN PAVED SHOULDER. MAINTAIN A MINIMUM DISTANCE OF 4 FEET FROM EDGE OF TRAVELWAY. FOR INSTALLATION OF 4" CONDUITS, SEE SHEET E-34 FOR DETAILS.

[2] INSTALL CONDUIT(S) IN TRENCH IN SOIL OFF OF THE SHOULDER. FOR INSTALLATION OF 4" CONDUITS, SEE SHEET E-33 FOR DETAILS.

[3] INSTALL COMMUNICATION PULL BOX WITH TWISTED PAIR SPLICE CLOSURE. SEE SHEETS E-36 AND E-37 FOR DETAILS.

[4] JACK RIGID STEEL CONDUIT(S) UNDER ROADWAY. FOR INSTALLATION OF 4" CONDUITS, SEE SHEET E-35 FOR DETAILS.

[9] ADD CABLE(S) AND CONNECT TO CONTROLLER.

[10] INSTALL TELEPHONE BRIDGE AND 12-PAIR TERMINAL BLOCK IN CONTROLLER CABINET. SEE SHEETS E-39 AND DETAIL 1, SHEET E-43.

[11] DISCONNECT EXISTING TELCO DEMARCATION CABLE ONLY AFTER TESTING ALL INSTALLED EQUIPMENT, VERIFYING THE INSTALLATION IS OPERATIONAL AND GETTING APPROVAL FROM THE ENGINEER.

[14] INSTALL COMMUNICATION PULL BOX APPROXIMATELY 15 FEET FROM EDGE OF STRUCTURE.

[18] COIL 50 FEET OF 6P22 TWISTED PAIR CABLE IN PULL BOX FOR TRAFFIC SIGNAL CONTROLLER. SPLICE IN/OUT PAIRS TOGETHER USING A TWISTED PAIR SPLICE CLOSURE.

[25] IDENTIFY AND [RC] EXISTING DLC CONNECTED TO ABANDONED LOOPS. ADD NEW DETECTOR LOOP CABLE(S) THROUGH EXISTING CONDUIT INTO THE EXISTING CABINET AND CONNECT TO EXISTING TERMINAL BLOCK.

[28] INSTALL STATE-FURNISHED LOOP DETECTOR SENSORS IN EXISTING CABINET.

[29] INSTALL SPLICE VAULT APPROXIMATELY 15 FEET FROM EDGE OF STRUCTURE, WITHOUT TWISTED PAIR AND FIBER OPTIC SPLICE CLOSURES. FIGURE EIGHT 100 FEET OF ALL CABLES IN THE SPLICE VAULT.

[30] INSTALL RIGID STEEL CONDUIT(S) IN TRENCH IN PAVED SHOULDER. CONDUIT(S) SHALL BE INSTALLED AS CLOSE TO THE EDGE OF TRAVELWAY AS POSSIBLE.

[32] INSTALL TYPE 334 CABINET ON NEW FOUNDATION. CABINET SHALL INCLUDE FDU SEE DETAIL 7, SHEET E-44.

[36] COIL 25 FEET OF 6P22 TWISTED PAIR CABLE IN PULL BOX FOR IRRIGATION CONTROLLER. SPLICE IN/OUT PAIRS TOGETHER USING A TWISTED PAIR SPLICE CLOSURE.

[37] COIL 25 FEET OF 6P22 TWISTED PAIR CABLE IN PULL BOX FOR IRRIGATION CONTROLLER.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	605	R0.1/R7.8	47	108

Teri Parola 9/11/95
REGISTERED ELECTRICAL ENGINEER

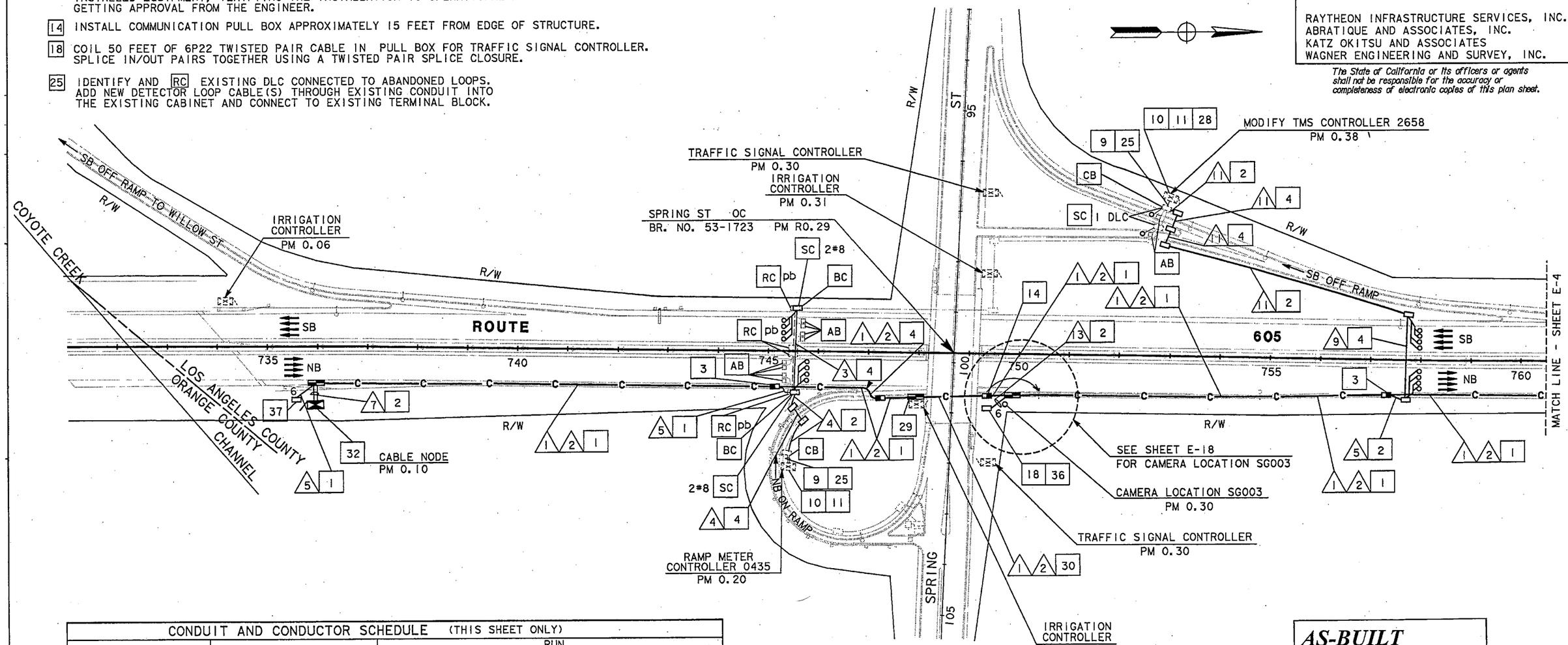
1-20-97
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — TERI J. PAROLA — No. E014898 — Exp. 6/30/99 — ELECTRICAL — STATE OF CALIFORNIA

NATIONAL ENGINEERING TECHNOLOGY
14320 FIRESTONE BLVD., SUITE 100
LA MIRADA, CA 90638

IN ASSOCIATION WITH:

RAYTHEON INFRASTRUCTURE SERVICES, INC.
ABRATIQUE AND ASSOCIATES, INC.
KATZ OKITSU AND ASSOCIATES
WAGNER ENGINEERING AND SURVEY, INC.



CONDUIT AND CONDUCTOR SCHEDULE (THIS SHEET ONLY)

CONDUCTOR TYPE	FUNCTION	RUN 1	2	3	4	5	7	9	11	13
50P22 CABLE	DATA /PHONE	1					1			
6P22 CABLE	DATA /PHONE				1	1		1	1	2
#8	POWER			2						
12SMFO CABLE	VIDEO /DATA	1					1			
12SMFO CABLE	SH VIDEO		1				1			
DLC	RAMP/COUNT			4	8			4	8	
	INNERDUCT	1 1/4" 1 1/4"					1 1/4"			
	CONDUIT SIZE	4"	4"	2"	2"	2"	3"	3"	2"	2"	2"

NOTE: FOR LEGEND AND PROJECT NOTES SEE SHEETS E-1 AND E-2.
THIS PLAN ACCURATE FOR ELECTRICAL WORK ONLY.

AS-BUILT

Contract No. 07- 120914
Resident Engineer: AMY MAO
Completion Date: 01/26/2000

LOOP DETECTOR, CCTV AND COMMUNICATION SYSTEM ROUTING

SCALE: 1"=100'

CONDUIT AND CONDUCTOR SCHEDULE (THIS SHEET ONLY)								
CONDUCTOR TYPE	FUNCTION	RUN						
		1			2	3	4	5
50P22 CABLE	DATA /PHONE	1						
6P22 CABLE	DATA /PHONE					1	1	
12P22 CABLE	DATA /PHONE						1	1
12SMFO CABLE	VIDEO /DATA		1					
12SMFO CABLE	SH VIDEO			1				
	INNERDUCT		1¼"	1¼"				
	CONDUIT SIZE	4"			4"	2"	2"	2"

PROJECT NOTES: (THIS SHEET ONLY)

1. INSTALL CONDUIT(S) IN TRENCH IN PAVED SHOULDER. MAINTAIN A MINIMUM DISTANCE OF 4 FEET FROM EDGE OF TRAVELWAY. FOR INSTALLATION OF 4" CONDUITS, SEE SHEET E-34 FOR DETAILS.
2. INSTALL CONDUIT(S) IN TRENCH IN SOIL OFF OF THE SHOULDER. FOR INSTALLATION OF 4" CONDUITS, SEE SHEET E-33 FOR DETAILS.
3. INSTALL COMMUNICATION PULL BOX WITH TWISTED PAIR SPLICE CLOSURE. SEE SHEETS E-36 AND E-37 FOR DETAILS.
4. JACK RIGID STEEL CONDUIT(S) UNDER ROADWAY. FOR INSTALLATION OF 4" CONDUITS, SEE SHEET E-35 FOR DETAILS.
9. ADD CABLE(S) AND CONNECT TO CONTROLLER.
10. INSTALL TELEPHONE BRIDGE AND 12-PAIR TERMINAL BLOCK IN CONTROLLER CABINET. SEE SHEETS E-39 AND DETAIL 1, SHEET E-43.
11. DISCONNECT EXISTING TELCO DEMARCATION CABLE ONLY AFTER TESTING ALL INSTALLED EQUIPMENT, VERIFYING THE INSTALLATION IS OPERATIONAL AND GETTING APPROVAL FROM THE ENGINEER.
14. INSTALL COMMUNICATION PULL BOX APPROXIMATELY 15 FEET FROM EDGE OF STRUCTURE.
29. INSTALL SPLICE VAULT APPROXIMATELY 15 FEET FROM EDGE OF STRUCTURE, WITHOUT TWISTED PAIR AND FIBER OPTIC SPLICE CLOSURES. FIGURE EIGHT 100 FEET OF ALL CABLES IN THE SPLICE VAULT.
30. INSTALL RIGID STEEL CONDUIT(S) IN TRENCH IN PAVED SHOULDER. CONDUIT(S) SHALL BE INSTALLED AS CLOSE TO THE EDGE OF TRAVELWAY AS POSSIBLE.
31. INSTALL 2 TELEPHONE BRIDGES AND 12-PAIR TERMINAL BLOCK IN CMS CABINET. SEE DETAIL 2, SHEET E-39 FOR DETAILS.
36. COIL 25 FEET OF 6P22 TWISTED PAIR CABLE IN PULL BOX FOR IRRIGATION CONTROLLER. SPLICE IN/OUT PAIRS TOGETHER USING A TWISTED PAIR SPLICE CLOSURE.
37. PROVIDE MINIMUM CLEARANCE OF 30" TOP OF UPPER CONDUIT TO SURFACE OF PAVEMENT.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	605	R0.1/R7.8	48	108

Teri Parola 9/11/95
REGISTERED ELECTRICAL ENGINEER

TERI J. PAROLA No. E014898 Exp. 6/30/99 ELECTRICAL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

1-20-97
PLANS APPROVAL DATE

NATIONAL ENGINEERING TECHNOLOGY
14320 FIRESTONE BLVD., SUITE 100
LA MIRADA, CA 90638

IN ASSOCIATION WITH:

RAYTHEON INFRASTRUCTURE SERVICES, INC.
ABRATIQUE AND ASSOCIATES, INC.
KATZ OKITSU AND ASSOCIATES
WAGNER ENGINEERING AND SURVEY, INC.

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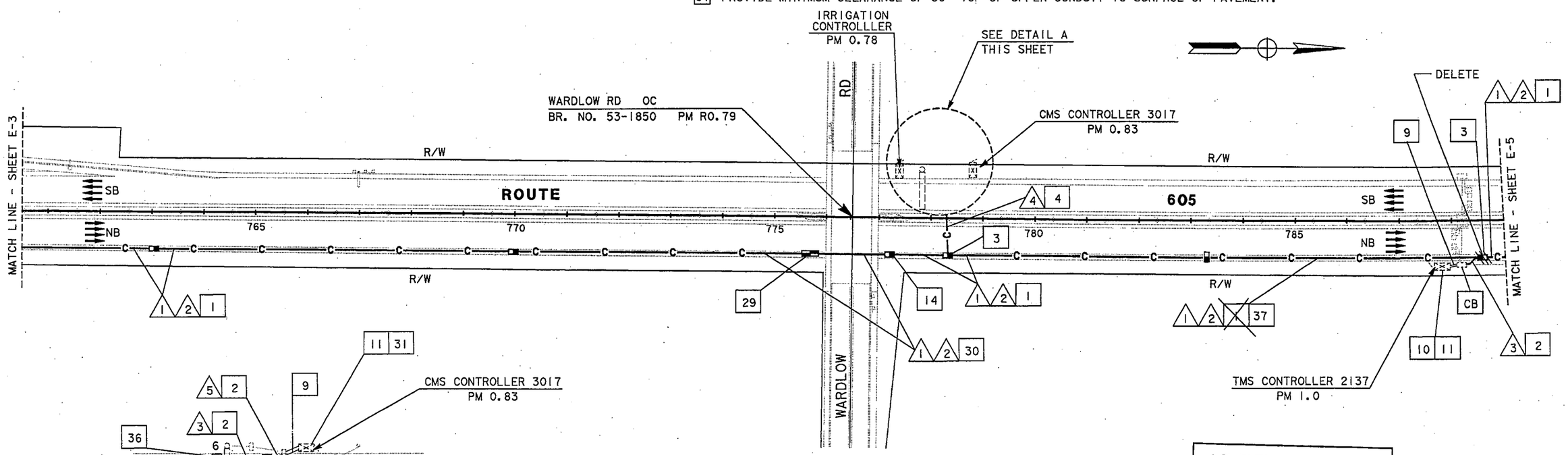

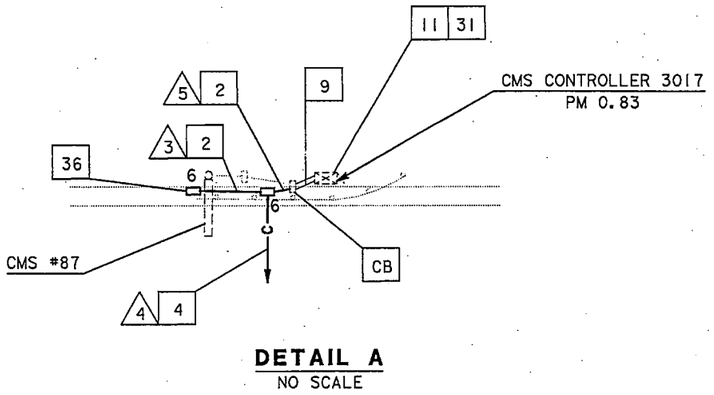

DETAIL A
NO SCALE

AS-BUILT
Contract No. 07- 120914
Resident Engineer: AMY MAO
Completion Date: 01/26/2000

COMMUNICATION SYSTEM ROUTING

SCALE: 1"=100'

NOTE: FOR LEGEND AND PROJECT NOTES SEE SHEETS E-1 AND E-2.
THIS PLAN ACCURATE FOR ELECTRICAL WORK ONLY.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	605	R0.1/R7.8	49	108

Teri Parola 9/11/95
REGISTERED ELECTRICAL ENGINEER

REGISTERED PROFESSIONAL ENGINEER — TERI J. PAROLA — No. E014898 — Exp. 6/30/99 — ELECTRICAL — STATE OF CALIFORNIA

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CONDUIT AND CONDUCTOR SCHEDULE (THIS SHEET ONLY)

CONDUCTOR TYPE	FUNCTION	RUN 1	RUN 2	RUN 3	RUN 4
50P22 CABLE	DATA /PHONE	1			
12P22 CABLE	DATA /PHONE			1	
6P22 CABLE	DATA /PHONE				1
12SMFO CABLE	VIDEO /DATA	1			
12SMFO CABLE	SH VIDEO	1			
	INNERDUCT	1 1/4" 1 1/4"			
	CONDUIT SIZE	4"	4"	2"	2"

PROJECT NOTES: (THIS SHEET ONLY)

[1] INSTALL CONDUIT(S) IN TRENCH IN PAVED SHOULDER. MAINTAIN A MINIMUM DISTANCE OF 4 FEET FROM EDGE OF TRAVELWAY. FOR INSTALLATION OF 4" CONDUITS, SEE SHEET E-34 FOR DETAILS.

[2] INSTALL CONDUIT(S) IN TRENCH IN SOIL OFF OF THE SHOULDER. FOR INSTALLATION OF 4" CONDUITS, SEE SHEET E-33 FOR DETAILS.

[3] INSTALL COMMUNICATION PULL BOX WITH TWISTED PAIR SPLICE CLOSURE. SEE SHEETS E-36 AND E-37 FOR DETAILS.

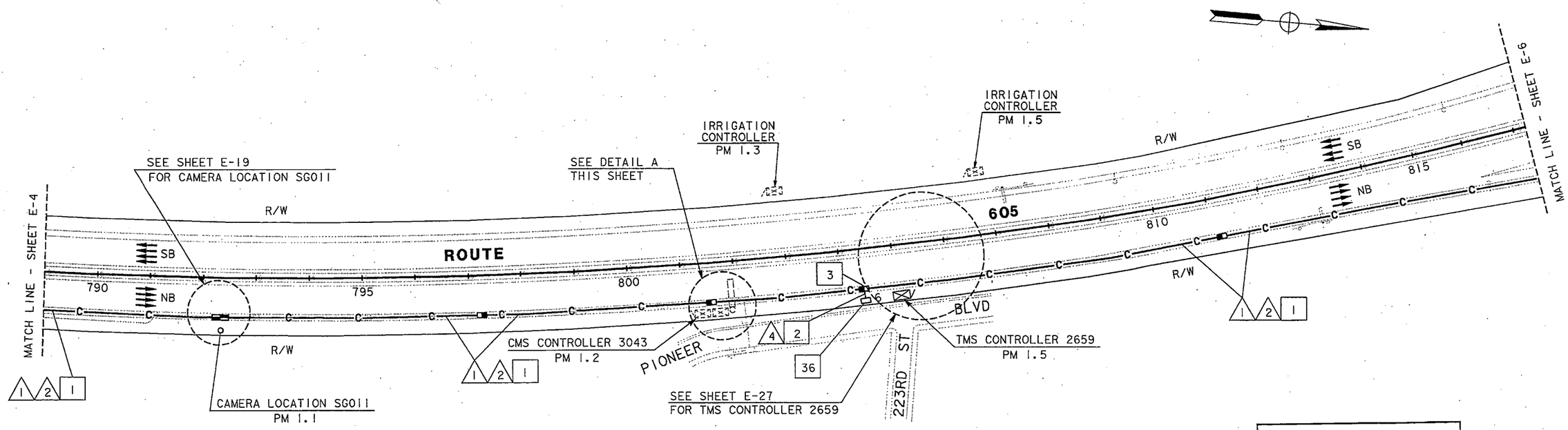
[4] JACK RIGID STEEL CONDUIT(S) UNDER ROADWAY. FOR INSTALLATION OF 4" CONDUITS, SEE SHEET E-35 FOR DETAILS.

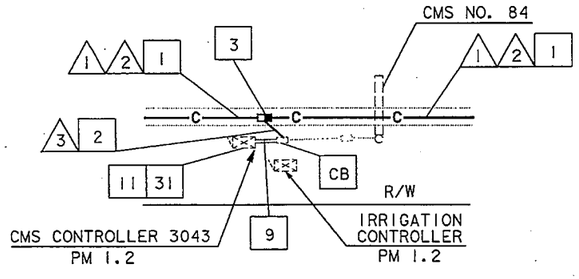
[9] ADD CABLE(S) AND CONNECT TO CONTROLLER.

[11] DISCONNECT EXISTING TELCO DEMARCATION CABLE ONLY AFTER TESTING ALL INSTALLED EQUIPMENT, VERIFYING THE INSTALLATION IS OPERATIONAL AND GETTING APPROVAL FROM THE ENGINEER.

[31] INSTALL 2 TELEPHONE BRIDGES AND 12-PAIR TERMINAL BLOCK IN CMS CABINET. SEE DETAIL 2, SHEET E-39 FOR DETAILS.

[36] COIL 25 FEET OF 6P22 TWISTED PAIR CABLE IN PULL BOX FOR IRRIGATION CONTROLLER. SPLICE IN/OUT PAIRS TOGETHER USING A TWISTED PAIR SPLICE CLOSURE.





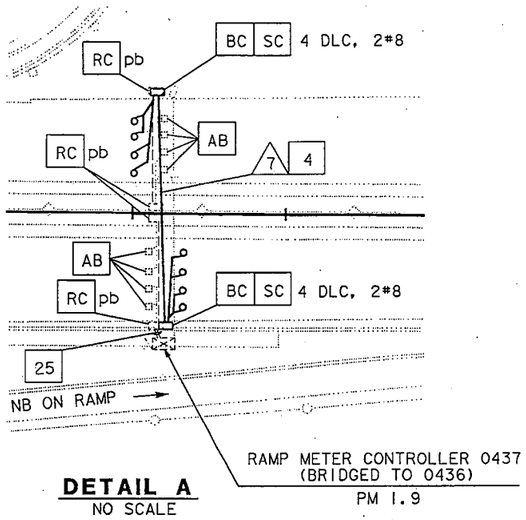
DETAIL A
NO SCALE

AS-BUILT
Contract No. 07- 120914
Resident Engineer: AMY MAO
Completion Date: 01/26/2000

TMS, CCTV AND COMMUNICATION SYSTEM ROUTING

SCALE: 1"=100'

NOTE: FOR LEGEND AND PROJECT NOTES SEE SHEETS E-1 AND E-2.
THIS PLAN ACCURATE FOR ELECTRICAL WORK ONLY.



DETAIL A
NO SCALE

PROJECT NOTES: (THIS SHEET ONLY)

1. INSTALL CONDUIT(S) IN TRENCH IN PAVED SHOULDER. MAINTAIN A MINIMUM DISTANCE OF 4 FEET FROM EDGE OF TRAVELWAY. FOR INSTALLATION OF 4" CONDUITS, SEE SHEET E-34 FOR DETAILS.
2. INSTALL CONDUIT(S) IN TRENCH IN SOIL OFF OF THE SHOULDER. FOR INSTALLATION OF 4" CONDUITS, SEE SHEET E-33 FOR DETAILS.
3. INSTALL COMMUNICATION PULL BOX WITH TWISTED PAIR SPLICE CLOSURE. SEE SHEETS E-36 AND E-37 FOR DETAILS.
4. JACK RIGID STEEL CONDUIT(S) UNDER ROADWAY. FOR INSTALLATION OF 4" CONDUITS, SEE SHEET E-35 FOR DETAILS.
5. INSTALL FIBERGLASS REINFORCED EPOXY (FRE) CONDUIT(S) ON STRUCTURE. SEE SHEETS C-2 TO C-9 FOR DETAILS.
9. ADD CABLE(S) AND CONNECT TO CONTROLLER.
10. INSTALL TELEPHONE BRIDGE AND 12-PAIR TERMINAL BLOCK IN CONTROLLER CABINET. SEE SHEETS E-39 AND DETAIL 1, SHEET E-43.
11. DISCONNECT EXISTING TELCO DEMARCATION CABLE ONLY AFTER TESTING ALL INSTALLED EQUIPMENT, VERIFYING THE INSTALLATION IS OPERATIONAL AND GETTING APPROVAL FROM THE ENGINEER.
14. INSTALL COMMUNICATION PULL BOX APPROXIMATELY 15 FEET FROM EDGE OF STRUCTURE.
18. COIL 50 FEET OF 6P22 TWISTED PAIR CABLE IN PULL BOX FOR TRAFFIC SIGNAL CONTROLLER. SPLICE IN/OUT PAIRS TOGETHER USING A TWISTED PAIR SPLICE CLOSURE.
25. IDENTIFY AND RC EXISTING DLC CONNECTED TO ABANDONED LOOPS. ADD NEW DETECTOR LOOP CABLES THROUGH EXISTING CABINET AND CONNECT TO EXISTING TERMINAL BLOCK.
29. INSTALL SPLICE VAULT APPROXIMATELY 15 FEET FROM EDGE OF STRUCTURE, WITHOUT TWISTED PAIR AND FIBER OPTIC SPLICE CLOSURES. FIGURE EIGHT 100 FEET OF ALL CABLES IN THE SPLICE VAULT.
30. INSTALL RIGID STEEL CONDUIT(S) IN TRENCH IN PAVED SHOULDER. CONDUIT(S) SHALL BE INSTALL AS CLOSE TO THE EDGE OF TRAVELWAY AS POSSIBLE.
36. COIL 25 FEET OF 6P22 TWISTED PAIR CABLE IN PULL BOX FOR IRRIGATION CONTROLLER. SPLICE IN/OUT PAIRS TOGETHER USING A TWISTED PAIR SPLICE CLOSURE.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	605	R0.1/R7.8	50	108

Teri Parola 9/11/95
REGISTERED ELECTRICAL ENGINEER

REGISTERED PROFESSIONAL ENGINEER
TERI J. PAROLA
No. E014898
Exp. 6/30/99
ELECTRICAL
STATE OF CALIFORNIA

1-20-97
PLANS APPROVAL DATE

NATIONAL ENGINEERING TECHNOLOGY
14320 FIRESTONE BLVD., SUITE 100
LA MIRADA, CA 90638

IN ASSOCIATION WITH:

RAYTHEON INFRASTRUCTURE SERVICES, INC.
ABRATIQUE AND ASSOCIATES, INC.
KATZ OKITSU AND ASSOCIATES
WAGNER ENGINEERING AND SURVEY, INC.

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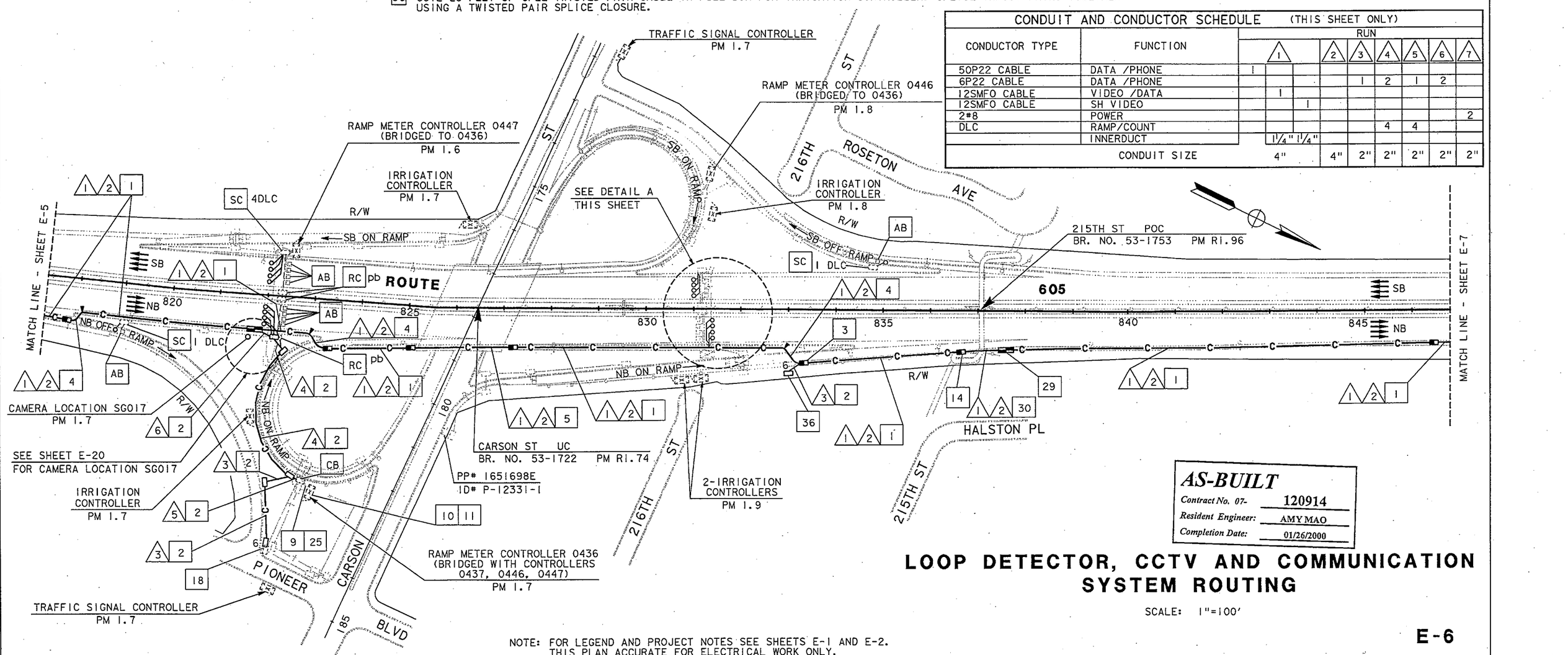
CONDUIT AND CONDUCTOR SCHEDULE (THIS SHEET ONLY)

CONDUCTOR TYPE	FUNCTION	RUN 1	2	3	4	5	6	7
50P22 CABLE	DATA /PHONE	1						
6P22 CABLE	DATA /PHONE			1	2	1	2	
12SMFO CABLE	VIDEO /DATA	1						
12SMFO CABLE	SH VIDEO	1						
2#8	POWER							2
DLC	RAMP/COUNT				4	4		
	INNERDUCT	1¼"	1¼"					
	CONDUIT SIZE	4"	4"	2"	2"	2"	2"	2"



AS-BUILT
Contract No. 07- 120914
Resident Engineer: AMY MAO
Completion Date: 01/26/2000

LOOP DETECTOR, CCTV AND COMMUNICATION SYSTEM ROUTING

SCALE: 1"=100'

NOTE: FOR LEGEND AND PROJECT NOTES SEE SHEETS E-1 AND E-2.
THIS PLAN ACCURATE FOR ELECTRICAL WORK ONLY.

CONDUIT AND CONDUCTOR SCHEDULE (THIS SHEET ONLY)							
CONDUCTOR TYPE	FUNCTION	RUN					
		1		2	3	4	5
50P22 CABLE	DATA /PHONE	1					
6P22 CABLE	DATA /PHONE						
12SMFO CABLE	VIDEO /DATA		1			1	2
12SMFO CABLE	SH VIDEO			1			
#8	POWER				2		
DLC	RAMP/COUNT				4		
	INNERDUCT		1¼" 1¼"				
	CONDUIT SIZE	4"		4"	2"	2"	2"

PROJECT NOTES: (THIS SHEET ONLY)

1. INSTALL CONDUIT(S) IN TRENCH IN PAVED SHOULDER. MAINTAIN A MINIMUM DISTANCE OF 4 FEET FROM EDGE OF TRAVELWAY. FOR INSTALLATION OF 4" CONDUITS, SEE SHEET E-34 FOR DETAILS.
2. INSTALL CONDUIT(S) IN TRENCH IN SOIL OFF OF THE SHOULDER. FOR INSTALLATION OF 4" CONDUITS, SEE SHEET E-33 FOR DETAILS.
3. INSTALL COMMUNICATION PULL BOX WITH TWISTED PAIR SPLICE CLOSURE. SEE SHEETS E-36 AND E-37 FOR DETAILS.
4. JACK RIGID STEEL CONDUIT(S) UNDER ROADWAY. FOR INSTALLATION OF 4" CONDUITS, SEE SHEET E-35 FOR DETAILS.
6. ADD 2#8 POWER CONDUCTORS TO EXISTING CONDUIT.
9. ADD CABLE(S) AND CONNECT TO CONTROLLER.
10. INSTALL TELEPHONE BRIDGE AND 12-PAIR TERMINAL BLOCK IN CONTROLLER CABINET. SEE SHEETS E-39 AND DETAIL 1, SHEET E-43.
11. DISCONNECT EXISTING TELCO DEMARCATION CABLE ONLY AFTER TESTING ALL INSTALLED EQUIPMENT, VERIFYING THE INSTALLATION IS OPERATIONAL AND GETTING APPROVAL FROM THE ENGINEER.
14. INSTALL COMMUNICATION PULL BOX APPROXIMATELY 15 FEET FROM EDGE OF STRUCTURE.
25. IDENTIFY AND RC EXISTING DLC CONNECTED TO ABANDONED LOOPS. ADD NEW DETECTOR LOOP CABLE(S) THROUGH EXISTING CONDUIT INTO THE EXISTING CABINET AND CONNECT TO EXISTING TERMINAL BLOCK.
29. INSTALL SPLICE VAULT APPROXIMATELY 15 FEET FROM EDGE OF STRUCTURE, WITHOUT TWISTED PAIR AND FIBER OPTIC SPLICE CLOSURES. FIGURE EIGHT 100 FEET OF ALL CABLES IN THE SPLICE VAULT.
30. INSTALL RIGID STEEL CONDUIT(S) IN TRENCH IN PAVED SHOULDER. CONDUIT(S) SHALL BE INSTALLED AS CLOSE TO THE EDGE OF TRAVELWAY AS POSSIBLE.
36. COIL 25 FEET OF 6P22 TWISTED PAIR CABLE IN PULL BOX FOR IRRIGATION CONTROLLER. SPLICE IN/OUT PAIRS TOGETHER USING A TWISTED PAIR SPLICE CLOSURE.
44. COIL 25 FEET OF 6P22 TWISTED PAIR CABLE IN PULL BOX FOR AVC CONTROLLER. SPLICE IN/OUT PAIRS TOGETHER USING A TWISTED PAIR SPLICE CLOSURE.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	605	R0.1/R7.8	51	108

Teri Parola 9/11/95
REGISTERED ELECTRICAL ENGINEER

REGISTERED PROFESSIONAL ENGINEER
TERI J. PAROLA
No. E014898
Exp. 6/30/99
ELECTRICAL
STATE OF CALIFORNIA

1-20-97
PLANS APPROVAL DATE

NATIONAL ENGINEERING TECHNOLOGY
14320 FIRESTONE BLVD., SUITE 100
LA MIRADA, CA 90638

IN ASSOCIATION WITH:

RAYTHEON INFRASTRUCTURE SERVICES, INC.
ABRATIQUE AND ASSOCIATES, INC.
KATZ OKITSU AND ASSOCIATES
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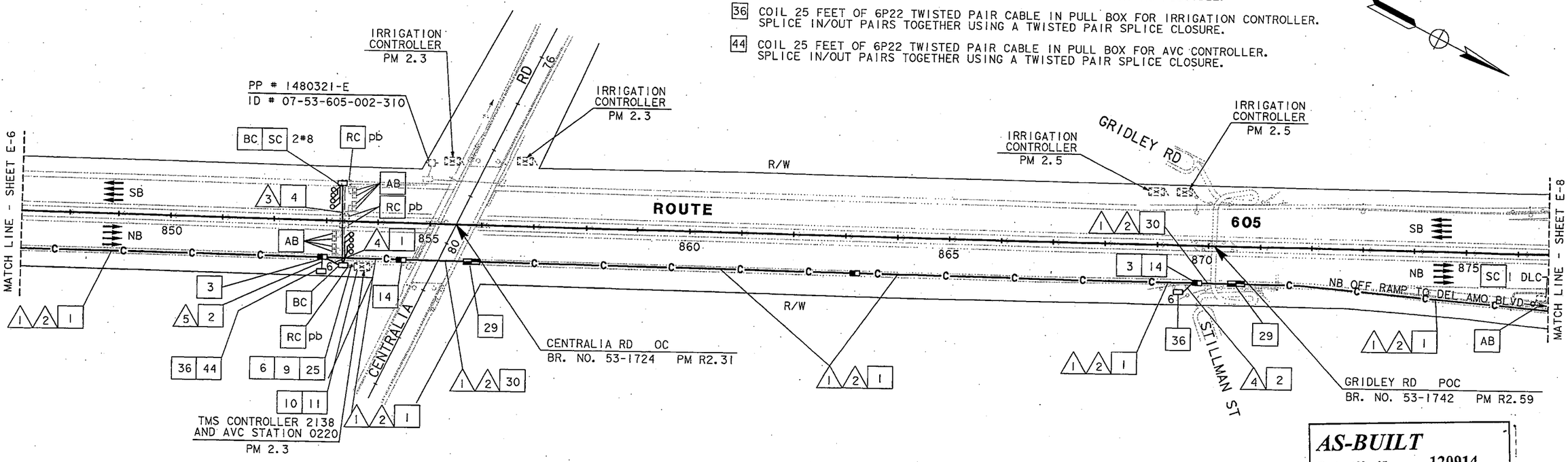


AS-BUILT
Contract No. 07- 120914
Resident Engineer: AMY MAO
Completion Date: 01/26/2000

LOOP DETECTOR AND COMMUNICATION SYSTEM ROUTING

SCALE: 1"=100'

NOTE: FOR LEGEND AND PROJECT NOTES SEE SHEETS E-1 AND E-2.
THIS PLAN ACCURATE FOR ELECTRICAL WORK ONLY.

CONDUIT AND CONDUCTOR SCHEDULE (THIS SHEET ONLY)

CONDUCTOR TYPE	FUNCTION	RUN 1	RUN 2	RUN 3	RUN 4	RUN 5	RUN 6
50P22 CABLE	DATA /PHONE	1				2	
6P22 CABLE	DATA /PHONE			1	1		
2SMFO B/O	SH VIDEO					3	
12SMFO CABLE	VIDEO /DATA	1					
12SMFO CABLE	SH VIDEO	1				2	
DLC	RAMP/COUNT				4		4
#6	POWER						2
	INNERDUCT	1¼" 1¼"				1¼"	
	CONDUIT SIZE	4"	4"	2"	2"	4"	2"

PROJECT NOTES: (THIS SHEET ONLY)

1. INSTALL CONDUIT(S) IN TRENCH IN PAVED SHOULDER. MAINTAIN A MINIMUM DISTANCE OF 4 FEET FROM EDGE OF TRAVELWAY. FOR INSTALLATION OF 4" CONDUITS, SEE SHEET E-34 FOR DETAILS.
2. INSTALL CONDUIT(S) IN TRENCH IN SOIL OFF OF THE SHOULDER. FOR INSTALLATION OF 4" CONDUITS, SEE SHEET E-33 FOR DETAILS.
3. INSTALL COMMUNICATION PULL BOX WITH TWISTED PAIR SPLICE CLOSURE. SEE SHEETS E-36 AND E-37 FOR DETAILS.
4. JACK RIGID STEEL CONDUIT(S) UNDER ROADWAY. FOR INSTALLATION OF 4" CONDUITS, SEE SHEET E-35 FOR DETAILS.
9. ADD CABLE(S) AND CONNECT TO CONTROLLER.
10. INSTALL TELEPHONE BRIDGE AND 12-PAIR TERMINAL BLOCK IN CONTROLLER CABINET. SEE SHEETS E-39 AND DETAIL 1, SHEET E-43.
11. DISCONNECT EXISTING TELCO DEMARCATION CABLE ONLY AFTER TESTING ALL INSTALLED EQUIPMENT, VERIFYING THE INSTALLATION IS OPERATIONAL AND GETTING APPROVAL FROM THE ENGINEER.
18. COIL 50 FEET OF 6P22 TWISTED PAIR CABLE IN PULL BOX FOR TRAFFIC SIGNAL CONTROLLER. SPLICE IN/OUT PAIRS TOGETHER USING A TWISTED PAIR SPLICE CLOSURE.
25. IDENTIFY AND RC EXISTING DLC CONNECTED TO ABANDONED LOOPS. ADD NEW DETECTOR LOOP CABLE(S) THROUGH EXISTING CONDUIT INTO THE EXISTING CABINET AND CONNECT TO EXISTING TERMINAL BLOCK.
29. INSTALL SPLICE VAULT APPROXIMATELY 15 FEET FROM EDGE OF STRUCTURE, WITHOUT TWISTED PAIR AND FIBER OPTIC SPLICE CLOSURES. FIGURE EIGHT 100 FEET OF ALL CABLES IN THE SPLICE VAULT.
30. INSTALL RIGID STEEL CONDUIT(S) IN TRENCH IN PAVED SHOULDER. CONDUIT(S) SHALL BE INSTALLED AS CLOSE TO THE EDGE OF TRAVELWAY AS POSSIBLE.
33. REWIRE EXISTING TELEPHONE BRIDGE, CONNECT EXISTING CABLE FROM CONTROLLER 0438 TO BRIDGE INPUT. CONNECT CONTROLLER 0444 TO BRIDGE OUTPUT.
34. CONNECT EXISTING CABLE FROM 0444 TO OUTPUT OF NEW BRIDGE IN CONTROLLER 0438.
35. INSTALL SPLICE VAULT APPROXIMATELY 15 FEET FROM EDGE OF STRUCTURE.
36. COIL 25 FEET OF 6P22 TWISTED PAIR CABLE IN PULL BOX FOR IRRIGATION CONTROLLER. SPLICE IN/OUT PAIRS TOGETHER USING A TWISTED PAIR SPLICE CLOSURE.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	605	R0.1/R7.8	52	108

Teri Parola 9/11/95
REGISTERED ELECTRICAL ENGINEER

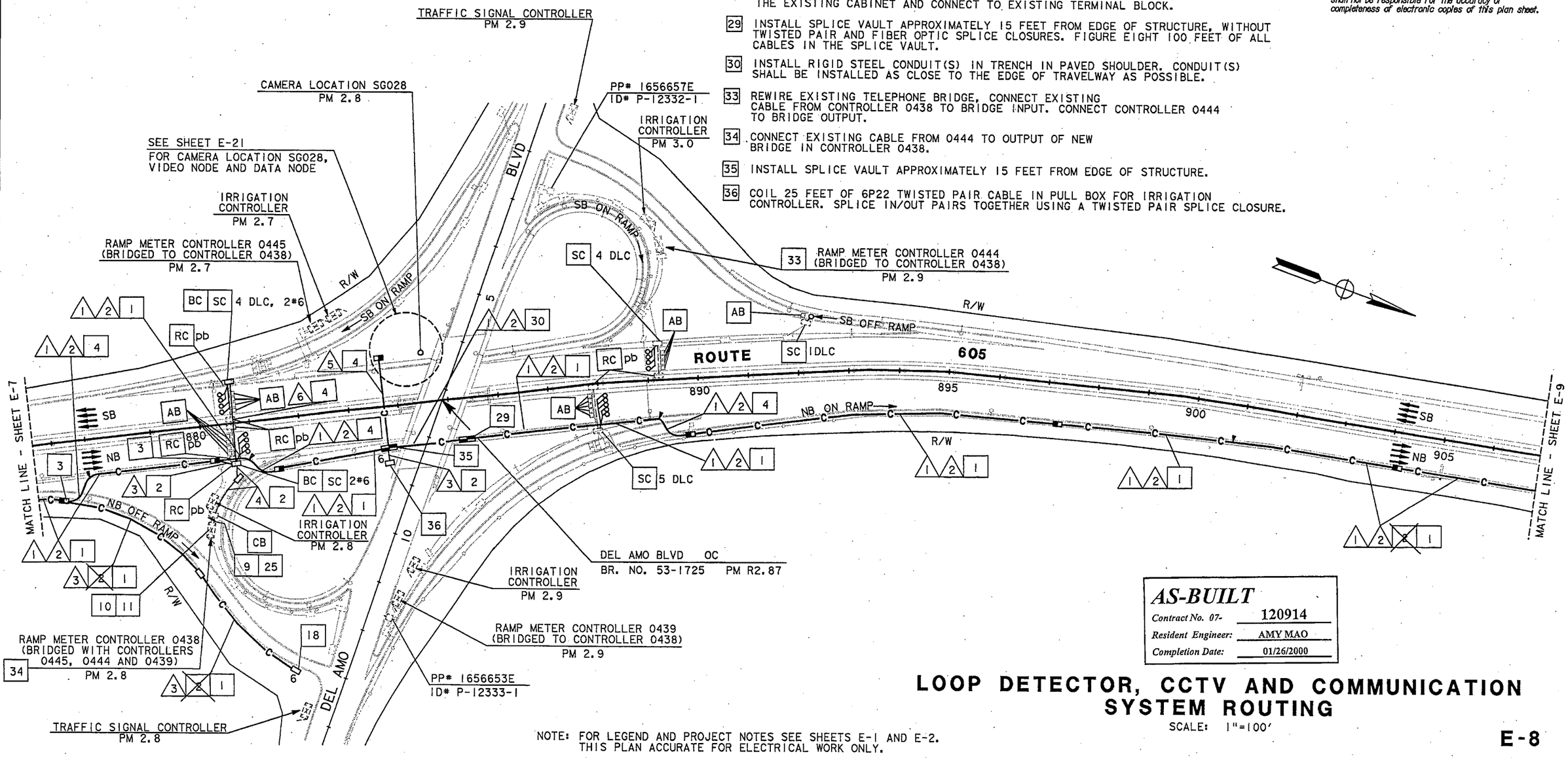
REGISTERED PROFESSIONAL ENGINEER — TERI J. PAROLA — No. E014898 — Exp. 6/30/99 — ELECTRICAL — STATE OF CALIFORNIA

1-20-97
PLANS APPROVAL DATE

NATIONAL ENGINEERING TECHNOLOGY
14320 FIRESTONE BLVD., SUITE 100
LA MIRADA, CA 90638

IN ASSOCIATION WITH:

RAYTHEON INFRASTRUCTURE SERVICES, INC.
ABRATIQUE AND ASSOCIATES, INC.
KATZ OKITSU AND ASSOCIATES
WAGNER ENGINEERING AND SURVEY, INC.



AS-BUILT
Contract No. 07- 120914
Resident Engineer: AMY MAO
Completion Date: 01/26/2000

LOOP DETECTOR, CCTV AND COMMUNICATION SYSTEM ROUTING

SCALE: 1"=100'

NOTE: FOR LEGEND AND PROJECT NOTES SEE SHEETS E-1 AND E-2.
THIS PLAN ACCURATE FOR ELECTRICAL WORK ONLY.

LAST REVISION DATE PLOTTED = 15 JUL 2000

PROJECT NOTES: (THIS SHEET ONLY)

[1] INSTALL CONDUIT(S) IN TRENCH IN PAVED SHOULDER. MAINTAIN A MINIMUM DISTANCE OF 4 FEET FROM EDGE OF TRAVELWAY. FOR INSTALLATION OF 4" CONDUITS, SEE SHEET E-34 FOR DETAILS.

[2] INSTALL CONDUIT(S) IN TRENCH IN SOIL OFF OF THE SHOULDER. FOR INSTALLATION OF 4" CONDUITS, SEE SHEET E-33 FOR DETAILS.

[3] INSTALL COMMUNICATION PULL BOX WITH TWISTED PAIR SPLICE CLOSURE. SEE SHEETS E-36 AND E-37 FOR DETAILS.

[4] JACK RIGID STEEL CONDUIT(S) UNDER ROADWAY. FOR INSTALLATION OF 4" CONDUITS, SEE SHEET E-35 FOR DETAILS.

[9] ADD CABLE(S) AND CONNECT TO CONTROLLER.

[10] INSTALL TELEPHONE BRIDGE AND 12-PAIR TERMINAL BLOCK IN CONTROLLER CABINET. SEE SHEETS E-39 AND DETAIL 1, SHEET E-43.

[11] DISCONNECT EXISTING TELCO DEMARCATION CABLE ONLY AFTER TESTING ALL INSTALLED EQUIPMENT, VERIFYING THE INSTALLATION IS OPERATIONAL AND GETTING APPROVAL FROM THE ENGINEER.

[14] INSTALL COMMUNICATION PULL BOX APPROXIMATELY 15 FEET FROM EDGE OF STRUCTURE.

[18] COIL 50 FEET OF 6P22 TWISTED PAIR CABLE IN PULL BOX FOR TRAFFIC SIGNAL CONTROLLER. SPLICE IN/OUT PAIRS TOGETHER USING A TWISTED PAIR SPLICE CLOSURE.

[25] IDENTIFY AND [RC] EXISTING DLC CONNECTED TO ABANDONED LOOPS. ADD NEW DETECTOR LOOP CABLE(S) THROUGH EXISTING CONDUIT INTO THE EXISTING CABINET AND CONNECT TO EXISTING TERMINAL BLOCK.

[29] INSTALL SPLICE VAULT APPROXIMATELY 15 FEET FROM EDGE OF STRUCTURE, WITHOUT TWISTED PAIR AND FIBER OPTIC SPLICE CLOSURES. FIGURE EIGHT 100 FEET OF ALL CABLES IN THE SPLICE VAULT.

[30] INSTALL RIGID STEEL CONDUIT(S) IN TRENCH IN PAVED SHOULDER. CONDUIT(S) SHALL BE INSTALLED AS CLOSE TO THE EDGE OF TRAVELWAY AS POSSIBLE.

[35] INSTALL SPLICE VAULT APPROXIMATELY 15 FEET FROM EDGE OF STRUCTURE.

[36] COIL 25 FEET OF 6P22 TWISTED PAIR CABLE IN PULL BOX FOR IRRIGATION CONTROLLER. SPLICE IN/OUT PAIRS TOGETHER USING A TWISTED PAIR SPLICE CLOSURE.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	605	R0.1/R7.8	53	108

Teri Parola 9/11/95
REGISTERED ELECTRICAL ENGINEER

1-20-97
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — TERI J. PAROLA — No. E014898 — Exp. 6/30/99 — ELECTRICAL — STATE OF CALIFORNIA

NATIONAL ENGINEERING TECHNOLOGY
14320 FIRESTONE BLVD., SUITE 100
LA MIRADA, CA 90638

IN ASSOCIATION WITH:

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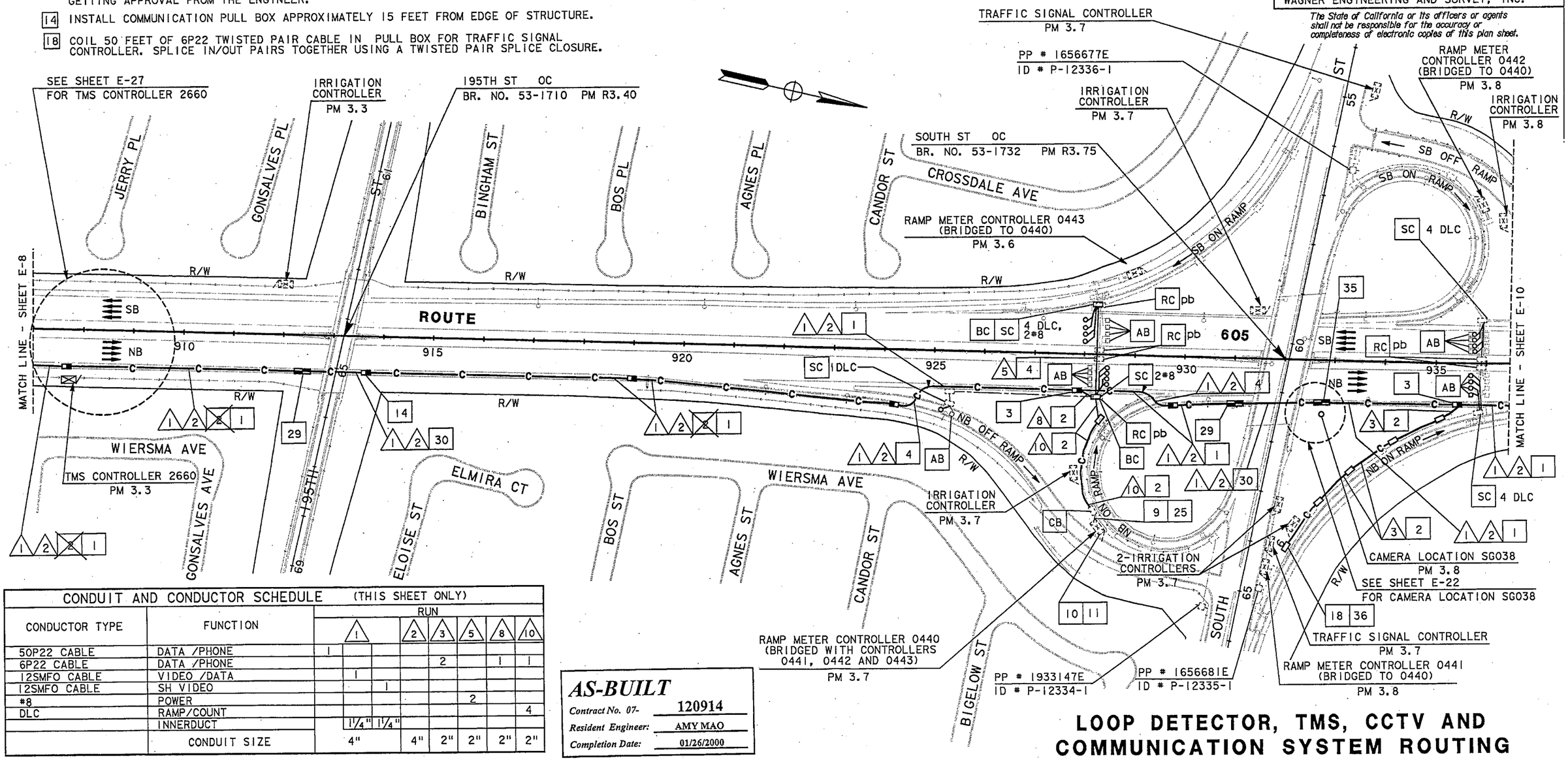

CONDUIT AND CONDUCTOR SCHEDULE (THIS SHEET ONLY)								
CONDUCTOR TYPE	FUNCTION	RUN 1	2	3	5	8	10	
50P22 CABLE	DATA /PHONE	1						
6P22 CABLE	DATA /PHONE			2		1	1	
12SMFO CABLE	VIDEO /DATA	1						
12SMFO CABLE	SH VIDEO		1					
#8	POWER				2			
DLC	RAMP/COUNT						4	
	INNERDUCT	1¼" 1¼"						
	CONDUIT SIZE	4"	4"	2"	2"	2"	2"	

AS-BUILT
Contract No. 07- 120914
Resident Engineer: AMY MAO
Completion Date: 01/26/2000

NOTE: FOR LEGEND AND PROJECT NOTES SEE SHEETS E-1 AND E-2. THIS PLAN ACCURATE FOR ELECTRICAL WORK ONLY.

LOOP DETECTOR, TMS, CCTV AND COMMUNICATION SYSTEM ROUTING

SCALE: 1"=100'

E-9

PROJECT NOTES: (THIS SHEET ONLY)

1 INSTALL CONDUIT(S) IN TRENCH IN PAVED SHOULDER. MAINTAIN A MINIMUM DISTANCE OF 4 FEET FROM EDGE OF TRAVELWAY. FOR INSTALLATION OF 4" CONDUITS, SEE SHEET E-34 FOR DETAILS.

3 INSTALL COMMUNICATION PULL BOX WITH TWISTED PAIR SPLICE CLOSURE. SEE SHEETS E-36 AND E-37 FOR DETAILS.

4 JACK RIGID STEEL CONDUIT(S) UNDER ROADWAY. FOR INSTALLATION OF 4" CONDUITS, SEE SHEET E-35 FOR DETAILS.

5 INSTALL FIBERGLASS REINFORCED EPOXY (FRE) CONDUIT(S) ON STRUCTURE. SEE SHEETS C-2 TO C-9 FOR DETAILS.

9 ADD CABLE(S) AND CONNECT TO CONTROLLER.

10 INSTALL TELEPHONE BRIDGE AND 12-PAIR TERMINAL BLOCK IN CONTROLLER CABINET. SEE SHEETS E-39 AND DETAIL 1, SHEET E-43.

11 DISCONNECT EXISTING TELCO DEMARCATION CABLE ONLY AFTER TESTING ALL INSTALLED EQUIPMENT, VERIFYING THE INSTALLATION IS OPERATIONAL AND GETTING APPROVAL FROM THE ENGINEER.

25 IDENTIFY AND RC EXISTING DLC CONNECTED TO ABANDONED LOOPS. ADD NEW DETECTOR LOOP CABLE(S) THROUGH EXISTING CONDUIT INTO THE EXISTING CABINET AND CONNECT TO EXISTING TERMINAL BLOCK.

28 INSTALL STATE-FURNISHED LOOP DETECTOR SENSORS IN EXISTING CABINET.

CONDUIT AND CONDUCTOR SCHEDULE (THIS SHEET ONLY)

CONDUCTOR TYPE	FUNCTION	RUN 1	RUN 2	RUN 3	RUN 4
50P22 CABLE	DATA /PHONE	1			
6P22 CABLE	DATA /PHONE			1	1
12SMFO CABLE	VIDEO /DATA	1			
12SMFO CABLE	SH VIDEO	1			
#8	POWER			2	
DLC	RAMP/COUNT			6	
	INNERDUCT	1 1/4"	1 1/4"		
	CONDUIT SIZE	4"	4"	2"	2"

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	605	R0.1/R7.8	54	108

Teri Parola 9/11/95
REGISTERED ELECTRICAL ENGINEER

REGISTERED PROFESSIONAL ENGINEER
TERI J. PAROLA
No. E014898
Exp. 6/30/99
ELECTRICAL
STATE OF CALIFORNIA

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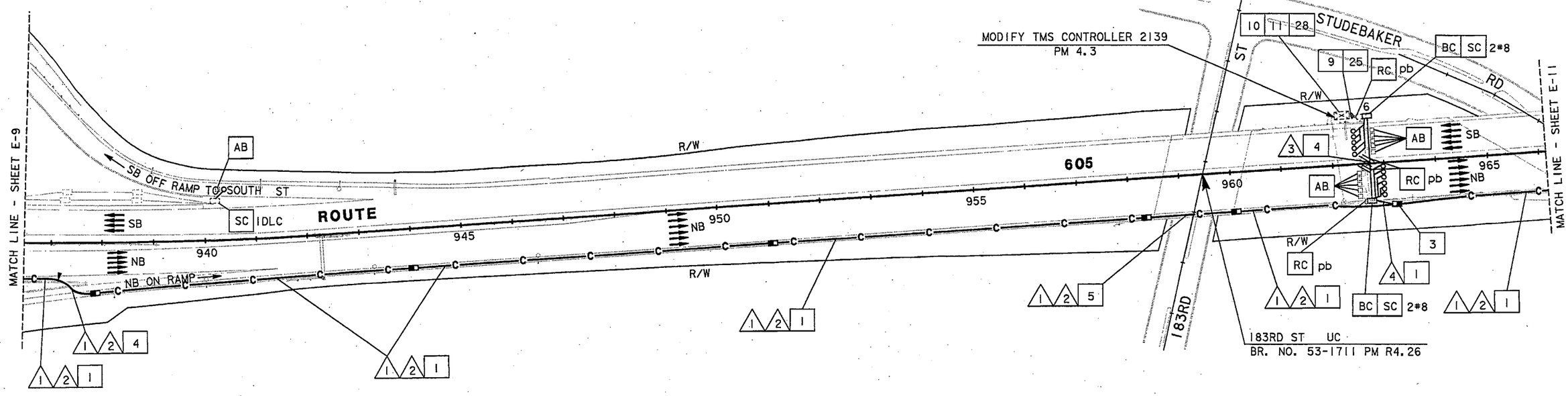

AS-BUILT
Contract No. 07- 120914
Resident Engineer: AMY MAO
Completion Date: 01/26/2000

LOOP DETECTOR AND COMMUNICATION SYSTEM ROUTING

SCALE: 1"=100'

NOTE: FOR LEGEND AND PROJECT NOTES SEE SHEETS E-1 AND E-2.
THIS PLAN ACCURATE FOR ELECTRICAL WORK ONLY.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	605	R0.1/R7.8	55	108

Teri Parola 9/11/95
REGISTERED ELECTRICAL ENGINEER

1-20-97
PLANS APPROVAL DATE

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TERI J. PAROLA
No. E014898
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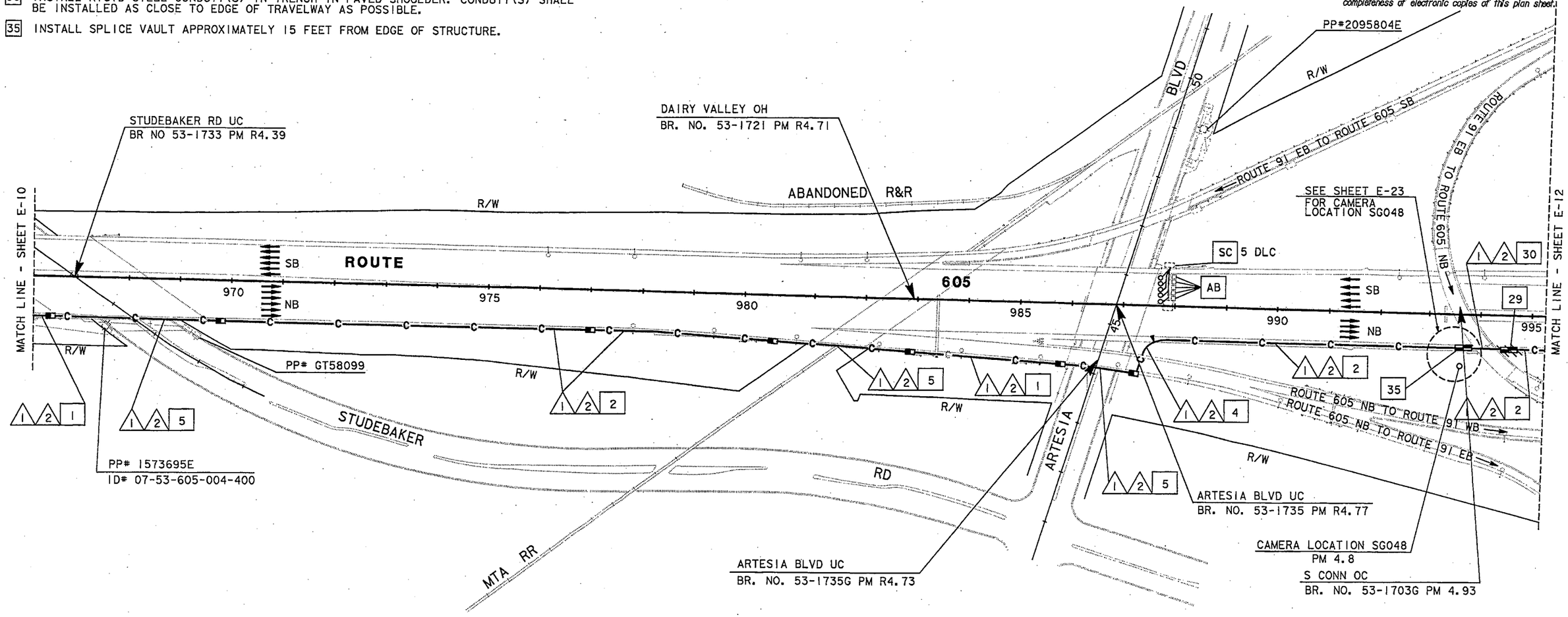
PROJECT NOTES: (THIS SHEET ONLY)

1. INSTALL CONDUIT(S) IN TRENCH IN PAVED SHOULDER. MAINTAIN A MINIMUM DISTANCE OF 4 FEET FROM EDGE OF TRAVELWAY. FOR INSTALLATION OF 4" CONDUITS, SEE SHEET E-34 FOR DETAILS.
2. INSTALL CONDUIT(S) IN TRENCH IN SOIL OFF OF THE SHOULDER. FOR INSTALLATION OF 4" CONDUITS, SEE SHEET E-33 FOR DETAILS.
4. JACK RIGID STEEL CONDUIT(S) UNDER ROADWAY. FOR INSTALLATION OF 4" CONDUITS, SEE SHEET E-35 FOR DETAILS.
5. INSTALL FIBERGLASS REINFORCED EPOXY (FRE) CONDUIT(S) ON STRUCTURE. SEE SHEETS C-2 TO C-9 FOR DETAILS.
29. INSTALL SPLICE VAULT APPROXIMATELY 15 FEET FROM EDGE OF STRUCTURE, WITHOUT TWISTED PAIR AND FIBER OPTIC SPLICE CLOSURES. FIGURE EIGHT 100 FEET OF ALL CABLES IN THE SPLICE VAULT.
30. INSTALL RIGID STEEL CONDUIT(S) IN TRENCH IN PAVED SHOULDER. CONDUIT(S) SHALL BE INSTALLED AS CLOSE TO EDGE OF TRAVELWAY AS POSSIBLE.
35. INSTALL SPLICE VAULT APPROXIMATELY 15 FEET FROM EDGE OF STRUCTURE.

CONDUIT AND CONDUCTOR SCHEDULE (THIS SHEET ONLY)

CONDUCTOR TYPE	FUNCTION	RUN 1	RUN 2
50P22 CABLE	DATA /PHONE	1	
12SMFO CABLE	VIDEO /DATA	1	
12SMFO CABLE	SH VIDEO	1	
DLC	RAMP/COUNT		
	INNERDUCT	1¼" 1¼"	
	CONDUIT SIZE	4"	4"



AS-BUILT
Contract No. 07- 120914
Resident Engineer: AMY MAO
Completion Date: 01/26/2000

LOOP DETECTOR AND COMMUNICATION SYSTEM ROUTING

SCALE: 1"=100'

NOTE: FOR LEGEND AND PROJECT NOTES SEE SHEETS E-1 AND E-2.
THIS PLAN ACCURATE FOR ELECTRICAL WORK ONLY.

E-11

REVISION | DATE PLOTTED => 16-JUN-2000

PROJECT NOTES: (THIS SHEET ONLY)

1. INSTALL CONDUIT(S) IN TRENCH IN PAVED SHOULDER. MAINTAIN A MINIMUM DISTANCE OF 4 FEET FROM EDGE OF TRAVELWAY. FOR INSTALLATION OF 4" CONDUITS, SEE SHEET E-34 FOR DETAILS.
2. INSTALL CONDUIT(S) IN TRENCH IN SOIL OFF OF THE SHOULDER. FOR INSTALLATION OF 4" CONDUITS, SEE SHEET E-33 FOR DETAILS.
3. INSTALL COMMUNICATION PULL BOX WITH TWISTED PAIR SPLICE CLOSURE. SEE SHEETS E-36 AND E-37 FOR DETAILS.
4. JACK RIGID STEEL CONDUIT(S) UNDER ROADWAY. FOR INSTALLATION OF 4" CONDUITS, SEE SHEET E-35 FOR DETAILS.
9. ADD CABLE(S) AND CONNECT TO CONTROLLER.
10. INSTALL TELEPHONE BRIDGE AND 12-PAIR TERMINAL BLOCK IN CONTROLLER CABINET. SEE SHEETS E-39 AND DETAIL 1, SHEET E-43.
11. DISCONNECT EXISTING TELCO DEMARCATION CABLE ONLY AFTER TESTING ALL INSTALLED EQUIPMENT, VERIFYING THE INSTALLATION IS OPERATIONAL AND GETTING APPROVAL FROM THE ENGINEER.
14. INSTALL COMMUNICATION PULL BOX APPROXIMATELY 15 FEET FROM EDGE OF STRUCTURE.
22. INSTALL CONDUITS IN THE SAME TRENCH. SEE SHEETS E-33 AND E-34 FOR DETAILS.
25. IDENTIFY AND [RC] EXISTING DLC CONNECTED TO ABANDONED LOOPS. ADD NEW DETECTOR LOOP CABLE(S) THROUGH EXISTING CONDUIT INTO THE EXISTING CABINET AND CONNECT TO EXISTING TERMINAL BLOCK.
29. INSTALL SPLICE VAULT APPROXIMATELY 15 FEET FROM EDGE OF STRUCTURE, WITHOUT TWISTED PAIR AND FIBER OPTIC SPLICE CLOSURES. FIGURE EIGHT 100 FEET OF ALL CABLES IN THE SPLICE VAULT.
30. INSTALL RIGID STEEL CONDUIT(S) IN TRENCH IN PAVED SHOULDER. CONDUIT(S) SHALL BE INSTALLED AS CLOSE TO THE EDGE OF TRAVELWAY AS POSSIBLE.
35. INSTALL SPLICE VAULT APPROXIMATELY 15 FEET FROM EDGE OF STRUCTURE.
36. COIL 25 FEET OF 6P22 TWISTED PAIR CABLE IN PULL BOX FOR IRRIGATION CONTROLLER. SPLICE IN/OUT PAIRS TOGETHER USING A TWISTED PAIR SPLICE CLOSURE.
37. THIS ITEM IS INCLUDED IN THE PAYMENT QUANTITIES FOR TRAFFIC MONITORING STATION (LOCATION 2540). SEE SHEET E-28.
44. COIL 25 FEET OF 6P22 TWISTED PAIR CABLE IN PULL BOX FOR FUTURE AVC CONTROLLER. SPLICE IN/OUT PAIRS TOGETHER USING A TWISTED PAIR SPLICE CLOSURE.

AS-BUILT
Contract No. 07- 120914
Resident Engineer: AMY MAO
Completion Date: 01/26/2000

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	605	R0.1/R7.8	56	108

Teri Parola 9/11/95
REGISTERED ELECTRICAL ENGINEER

TERI J. PAROLA No. E014898 Exp. 6/30/99 ELECTRICAL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

1-20-97
PLANS APPROVAL DATE

NATIONAL ENGINEERING TECHNOLOGY
14320 FIRESTONE BLVD., SUITE 100
LA MIRADA, CA 90638

IN ASSOCIATION WITH:

RAYTHEON INFRASTRUCTURE SERVICES, INC.
ABRATIQUE AND ASSOCIATES, INC.
KATZ OKITSU AND ASSOCIATES
WAGNER ENGINEERING AND SURVEY, INC.

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CONDUIT AND CONDUCTOR SCHEDULE (THIS SHEET ONLY)

CONDUCTOR TYPE	FUNCTION	RUN 1	2	3	4	5	6	7	8
50P22 CABLE	DATA /PHONE	1					1		
6P22 CABLE	DATA /PHONE				2	1		2	1
36SMFO CABLE	VIDEO /DATA	1							
12SMFO CABLE	VIDEO /DATA						1		
12SMFO CABLE	SH VIDEO		1					1	
2SMFO B/O CABLE	SH VIDEO								1
DLC	RAMP/COUNT			5	7				
	INNERDUCT	1¼"	1¼"				1¼"	1¼"	1¼"
	CONDUIT SIZE	4"	4"	2"	2"	2"	4"	2"	3"

TMS CONTROLLER 2373
COMMUNICATIONS PROVIDED BY OTHERS

ROUTE 91/605 SEPARATION
BR. NO. 53-1704 PM R5.05

ROUTE 91 EB TO ROUTE 605 SB
ROUTE 605 SB TO ROUTE 91 EB
ROUTE 605 SB TO ROUTE 91 WB
ROUTE 91 WB TO ROUTE 605 SB
ROUTE 605 SB TO ROUTE 91 EB
ROUTE 91 EB TO ROUTE 605 NB
ROUTE 605 NB TO ROUTE 91 WB
ROUTE 605 NB TO ROUTE 91 EB
ROUTE 91 WB TO ROUTE 605 NB

91 ROUTE — EB / WB — 150 / 155 / 160 / 165
605 ROUTE — SB / NB

SEE SHEET E-24
FOR CAMERA LOCATION SG053

CAMERA LOCATION SG053
PM 5.3

IRRIGATION CONTROLLER
PM 5.2

TMS CONTROLLER 2440 AND CONTROL STATION 0221
PM 5.31

PIUMA AVE

SEE SHEET E-28
FOR TMS 2439

TMS CONTROLLER 2439
PM 5.2

IRRIGATION CONTROLLER
PM 5.2

INSTALL HAR ADVANCE WARNING SIGN
STA 1016+00
SEE SHEET E-56

TMS CONTROLLER 2450
PM 5.1

SEE SHEET E-28
FOR TMS 2450
AND CABLE NODE

CABLE NODE
PM 5.1

TMS CONTROLLER 2383
PM 17.0

N CONN OC
BR. NO. 53-1705F PM R5.17

PETULA PL
CARLA PL
ELENA ST

MATCH LINE - SHEET E-11
MATCH LINE - SHEET E-13

NOTE: FOR LEGEND AND PROJECT NOTES SEE SHEETS E-1 AND E-2.
THIS PLAN ACCURATE FOR ELECTRICAL WORK ONLY.

LOOP DETECTOR, TMS, CABLE NODE, CCTV AND COMMUNICATION SYSTEM ROUTING

SCALE: 1"=100'

E-12

LAST REVISION

PROJECT NOTES: (THIS SHEET ONLY)

1. INSTALL CONDUIT(S) IN TRENCH IN PAVED SHOULDER. MAINTAIN A MINIMUM DISTANCE OF 4 FEET FROM EDGE OF TRAVELWAY. FOR INSTALLATION OF 4" CONDUITS, SEE SHEET E-34 FOR DETAILS.
2. INSTALL CONDUIT(S) IN TRENCH IN SOIL OFF OF THE SHOULDER. FOR INSTALLATION OF 4" CONDUITS, SEE SHEET E-33 FOR DETAILS.
3. INSTALL COMMUNICATION PULL BOX WITH TWISTED PAIR SPLICE CLOSURE. SEE SHEETS E-36 AND E-37 FOR DETAILS.
4. JACK RIGID STEEL CONDUIT(S) UNDER ROADWAY. FOR INSTALLATION OF 4" CONDUITS, SEE SHEET E-35 FOR DETAILS.
5. INSTALL FIBERGLASS REINFORCED EPOXY (FRE) CONDUIT(S) ON STRUCTURE. SEE SHEETS C-2 TO C-9 FOR DETAILS.
9. ADD CABLE(S) AND CONNECT TO CONTROLLER.
10. INSTALL TELEPHONE BRIDGE AND 12-PAIR TERMINAL BLOCK IN CONTROLLER CABINET. SEE SHEETS E-39 AND DETAIL 1, SHEET E-43.
11. DISCONNECT EXISTING TELCO DEMARCATION CABLE ONLY AFTER TESTING ALL INSTALLED EQUIPMENT, VERIFYING THE INSTALLATION IS OPERATIONAL AND GETTING APPROVAL FROM THE ENGINEER.
18. COIL 50 FEET OF 6P22 TWISTED PAIR CABLE IN PULL BOX FOR TRAFFIC SIGNAL CONTROLLER. SPLICE IN/OUT PAIRS TOGETHER USING A TWISTED PAIR SPLICE CLOSURE.
33. REWIRE EXISTING TELEPHONE BRIDGE, CONNECT EXISTING CABLE FROM CONTROLLER 0244 TO BRIDGE INPUT. CONNECT CONTROLLER 0384 TO BRIDGE OUTPUT.
34. CONNECT EXISTING CABLE FROM CONTROLLER 0384 TO OUTPUT OF NEW BRIDGE IN CONTROLLER 0244.
36. COIL 25 FEET OF 6P22 TWISTED PAIR CABLE IN PULL BOX FOR IRRIGATION CONTROLLER. SPLICE IN/OUT PAIRS TOGETHER USING A TWISTED PAIR SPLICE CLOSURE.
37. INSTALL TWO SOFFIT ACCESS DOOR OPENINGS

CONDUIT AND CONDUCTOR SCHEDULE (THIS SHEET ONLY)

CONDUCTOR TYPE	FUNCTION	RUN 1	2	3	4
50P22 CABLE	DATA /PHONE	1			
6P22 CABLE	DATA /PHONE			1	2
36SMFO CABLE	VIDEO /DATA	1			
12SMFO CABLE	SH VIDEO	1			
	INNERDUCT	1¼"	1¼"		
	CONDUIT SIZE	4"	4"	2"	2"

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	605	R0.1/R7.8	57	108

Teri Parola 9/11/95
REGISTERED ELECTRICAL ENGINEER

TERI J. PAROLA No. E014898 Exp. 6/30/99 ELECTRICAL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

1-20-97
PLANS APPROVAL DATE

NATIONAL ENGINEERING TECHNOLOGY
14320 FIRESTONE BLVD., SUITE 100
LA MIRADA, CA 90638

IN ASSOCIATION WITH:

RAYTHEON INFRASTRUCTURE SERVICES, INC.
ABRATIQUE AND ASSOCIATES, INC.
KATZ OKITSU AND ASSOCIATES
WAGNER ENGINEERING AND SURVEY, INC.

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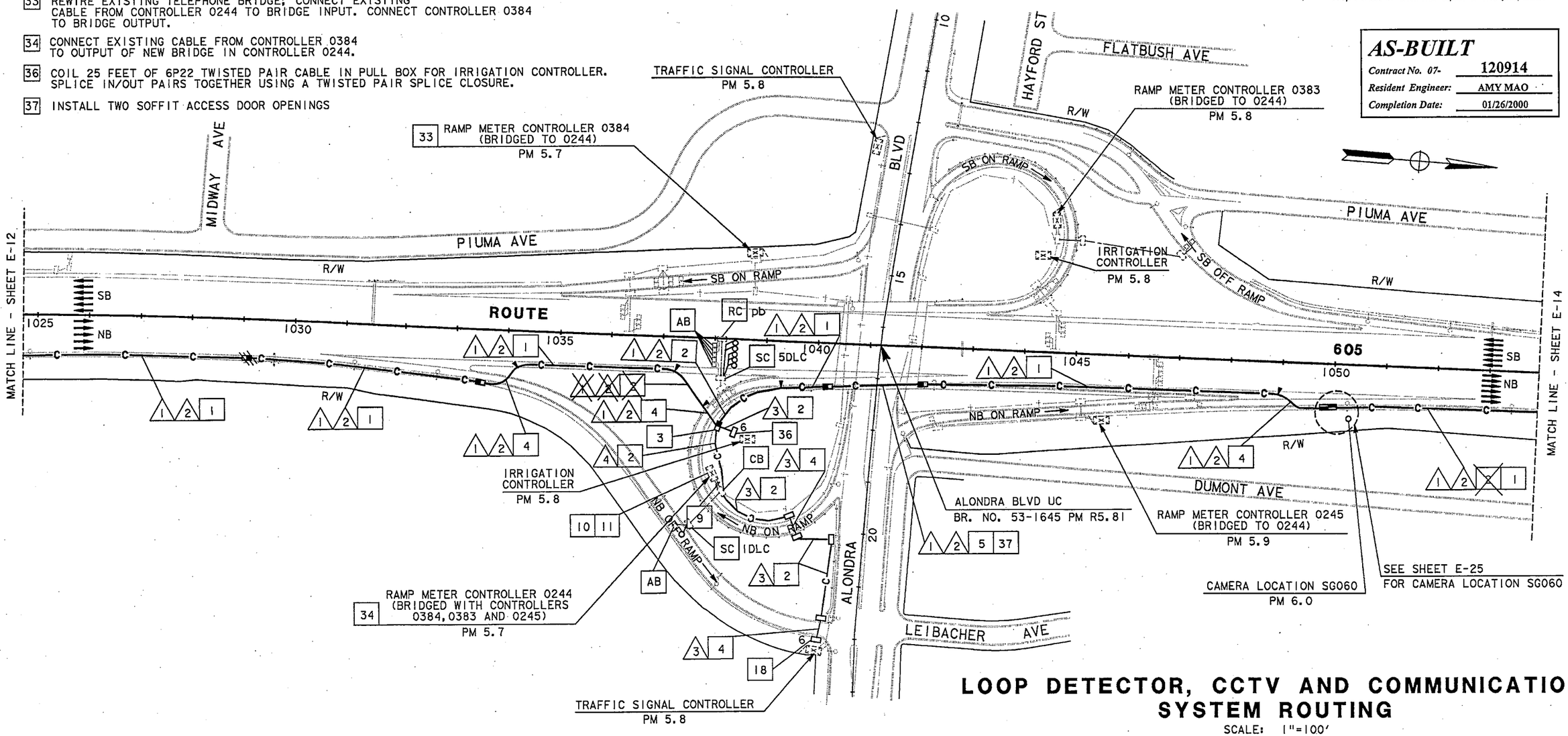
AS-BUILT
Contract No. 07- 120914
Resident Engineer: AMY MAO
Completion Date: 01/26/2000



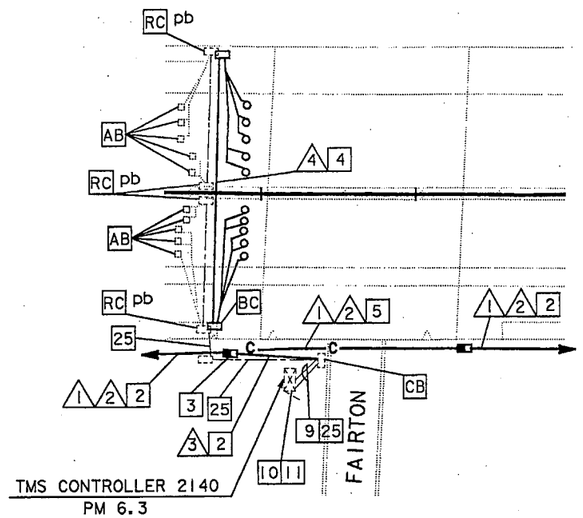
LOOP DETECTOR, CCTV AND COMMUNICATION SYSTEM ROUTING

SCALE: 1"=100'

NOTE: FOR LEGEND AND PROJECT NOTES SEE SHEETS E-1 AND E-2.
THIS PLAN ACCURATE FOR ELECTRICAL WORK ONLY.

PROJECT NOTES: (THIS SHEET ONLY)

1. INSTALL CONDUIT(S) IN TRENCH IN PAVED SHOULDER. MAINTAIN A MINIMUM DISTANCE OF 4 FEET FROM EDGE OF TRAVELWAY. FOR INSTALLATION OF 4" CONDUITS. SEE SHEET E-34 FOR DETAILS.
2. INSTALL CONDUIT(S) IN TRENCH IN SOIL OFF OF THE SHOULDER. FOR INSTALLATION OF 4" CONDUITS, SEE SHEET E-33 FOR DETAILS.
3. INSTALL COMMUNICATION PULL BOX WITH TWISTED PAIR SPLICE CLOSURE. SEE SHEETS E-36 AND E-37 FOR DETAILS.
4. JACK RIGID STEEL CONDUIT(S) UNDER ROADWAY. FOR INSTALLATION OF 4" CONDUITS, SEE SHEET E-35 FOR DETAILS.
5. INSTALL FIBERGLASS REINFORCED EPOXY (FRE) CONDUIT(S) ON STRUCTURE. SEE SHEETS C-2 TO C-9 FOR DETAILS.
9. ADD CABLE(S) AND CONNECT TO CONTROLLER.
10. INSTALL TELEPHONE BRIDGE AND 12-PAIR TERMINAL BLOCK IN CONTROLLER CABINET. SEE SHEETS E-39 AND DETAIL 1, SHEET E-43.
11. DISCONNECT EXISTING TELCO DEMARCATION CABLE ONLY AFTER TESTING ALL INSTALLED EQUIPMENT, VERIFYING THE INSTALLATION IS OPERATIONAL AND GETTING APPROVAL FROM THE ENGINEER.
25. IDENTIFY AND RC EXISTING DLC CONNECTED TO ABANDONED LOOPS. ADD NEW DETECTOR LOOP CABLE(S) THROUGH EXISTING CONDUIT INTO THE EXISTING CABINET AND CONNECT TO EXISTING TERMINAL BLOCK.



DETAIL A
NO SCALE

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	605	R0.1/R7.8	58	108

Toni Parola
REGISTERED ELECTRICAL ENGINEER

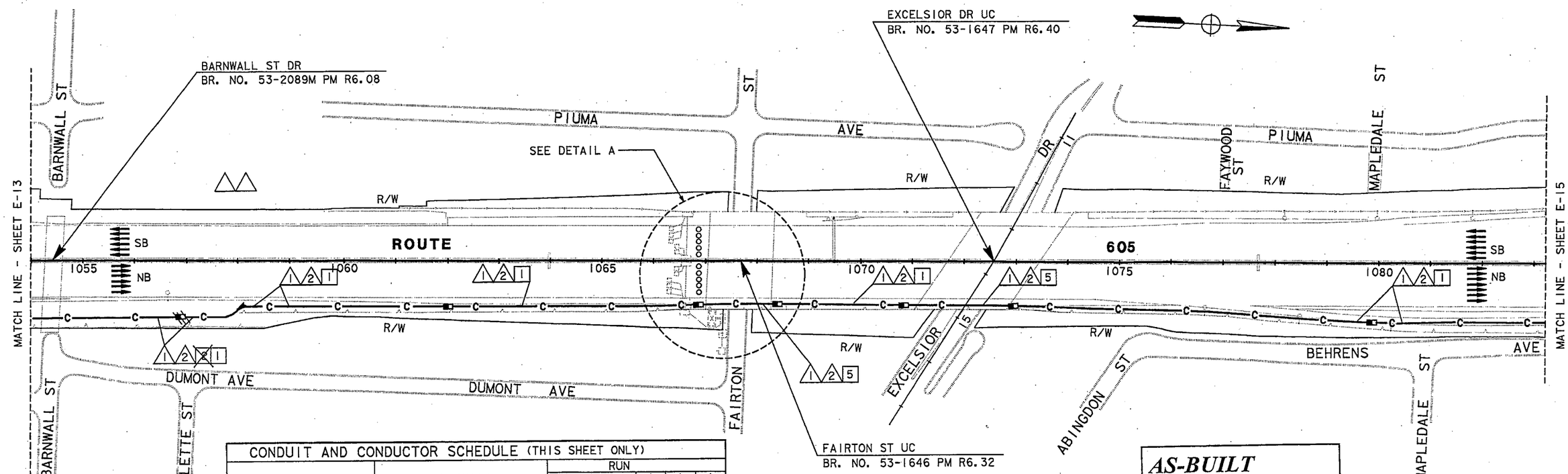
1-20-97
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — TERI J. PAROLA — No. E01 4898 — EXP. 6/30/99 — ELECTRICAL — STATE OF CALIFORNIA

NATIONAL ENGINEERING TECHNOLOGY
14320 FIRESTONE BLVD., SUITE 100
LA MIRADA, CA 90638

IN ASSOCIATION WITH:

RAYTHEON INFRASTUCTURE SERVICES, INC.
ABRATIQUE AND ASSOCIATES, INC.
KATZ ODITSU AND ASSOCIATES
WAGNER ENGINEERING AND SURVEY, INC.



CONDUIT AND CONDUCTOR SCHEDULE (THIS SHEET ONLY)						
CONDUCTOR TYPE	FUNCTION	RUN 1		2	3	4
50P22 CABLE	DATA /PHONE	1				
6P22 CABLE	DATA /PHONE				1	
36SMFO CABLE	VIDEO /DATA		1			
12SMFO CABLE	SH VIDEO			1		
DLC	RAMP /COUNT					5
	INNERDUCT		1¼"	1¼"		
	CONDUIT SIZE		4"	4"	2"	2"

AS-BUILT
Contract No. 07- 120914
Resident Engineer: AMY MAO
Completion Date: 01/26/2000

NOTE: FOR LEGEND AND PROJECT NOTES SEE SHEETS E-1 AND E-2.
THIS PLAN ACCURATE FOR ELECTRICAL WORK ONLY.

LOOP DETECTOR AND COMMUNICATION SYSTEM ROUTING

SCALE: 1"=100'

E-14

CONDUIT AND CONDUCTOR SCHEDULE (THIS SHEET ONLY)										
CONDUCTOR TYPE	FUNCTION	RUN								
		1			2	4	5	7	8	9
50P22 CABLE	DATA /PHONE	1								
6P22 CABLE	DATA /PHONE						2	1	1	1
36SMFO CABLE	VIDEO /DATA		1							
12SMFO CABLE	SH VIDEO			1						
2SMFO B/O	SH VIDEO								1	
12P22	CMS					1				
DLC	RAMP/COUNT							8		
	INNERDUCT		1¼"	1¼"					1¼"	
	CONDUIT SIZE	4"			4"	2"	2"	2"	3"	2"

PROJECT NOTES: (THIS SHEET ONLY)

1 INSTALL CONDUIT(S) IN TRENCH IN PAVED SHOULDER. MAINTAIN A MINIMUM DISTANCE OF 4 FEET FROM EDGE OF TRAVELWAY. FOR INSTALLATION OF 4" CONDUITS, SEE SHEET E-34 FOR DETAILS.

2 INSTALL CONDUIT(S) IN TRENCH IN SOIL OFF OF THE SHOULDER. FOR INSTALLATION OF 4" CONDUITS, SEE SHEET E-33 FOR DETAILS.

3 INSTALL COMMUNICATION PULL BOX WITH TWISTED PAIR SPLICE CLOSURE. SEE SHEETS E-36 AND E-37 FOR DETAILS.

4 JACK RIGID STEEL CONDUIT(S) UNDER ROADWAY. FOR INSTALLATION OF 4" CONDUITS, SEE SHEET E-35 FOR DETAILS.

5 INSTALL FIBERGLASS REINFORCED EPOXY (FRE) CONDUIT(S) ON STRUCTURE. SEE SHEETS C-2 TO C-9 FOR DETAILS.

9 ADD CABLE(S) AND CONNECT TO CONTROLLER.

10 INSTALL TELEPHONE BRIDGE AND 12-PAIR TERMINAL BLOCK IN CONTROLLER CABINET. SEE SHEETS E-39 AND DETAIL 1, SHEET E-43.

11 DISCONNECT EXISTING TELCO DEMARCATION CABLE ONLY AFTER TESTING ALL INSTALLED EQUIPMENT, VERIFYING THE INSTALLATION IS OPERATIONAL AND GETTING APPROVAL FROM THE ENGINEER.

15 TRANSITION CONDUIT THROUGH SOUNDWALL. SEE SHEET C-10 FOR DETAILS.

18 COIL 50 FEET OF 6P22 TWISTED PAIR CABLE IN PULL BOX FOR TRAFFIC SIGNAL CONTROLLER. SPLICE IN/OUT PAIRS TOGETHER USING A TWISTED PAIR SPLICE CLOSURE.

25 IDENTIFY AND RC EXISTING DLC CONNECTED TO ABANDONED LOOPS. ADD NEW DETECTOR LOOP CABLE(S) THROUGH EXISTING CONDUIT INTO THE EXISTING CABINET AND CONNECT TO EXISTING TERMINAL BLOCK.

31 INSTALL 2 TELEPHONE BRIDGES AND 12-PAIR TERMINAL BLOCK IN CMS CABINET. SEE DETAIL 2, SHEET E-39 FOR DETAILS.

33 REWIRE EXISTING TELEPHONE BRIDGE, CONNECT EXISTING CABLE FROM CONTROLLER 0382 TO BRIDGE INPUT. CONNECT CONTROLLER 0381 TO BRIDGE OUTPUT.

34 CONNECT EXISTING CABLE FROM 0381 TO OUTPUT OF NEW BRIDGE IN CONTROLLER 0382.

36 COIL 25 FEET OF 6P22 CABLE IN PULL BOX FOR IRRIGATION CONTROLLER. SPLICE IN/OUT PAIRS TOGETHER USING A TWISTED PAIR SPLICE CLOSURE.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	605	R0.1/R7.8	59	108

Teri Parola 9/11/95
REGISTERED ELECTRICAL ENGINEER

REGISTERED PROFESSIONAL ENGINEER — TERI J. PAROLA — No. E014898 — Exp. 6/30/99 — ELECTRICAL — STATE OF CALIFORNIA

1-20-97
PLANS APPROVAL DATE

NATIONAL ENGINEERING TECHNOLOGY
14320 FIRESTONE BLVD., SUITE 100
LA MIRADA, CA 90638

IN ASSOCIATION WITH:

RAYTHEON INFRASTRUCTURE SERVICES, INC.
ABRATIQUE AND ASSOCIATES, INC.
KATZ OKITSU AND ASSOCIATES
WAGNER ENGINEERING AND SURVEY, INC.

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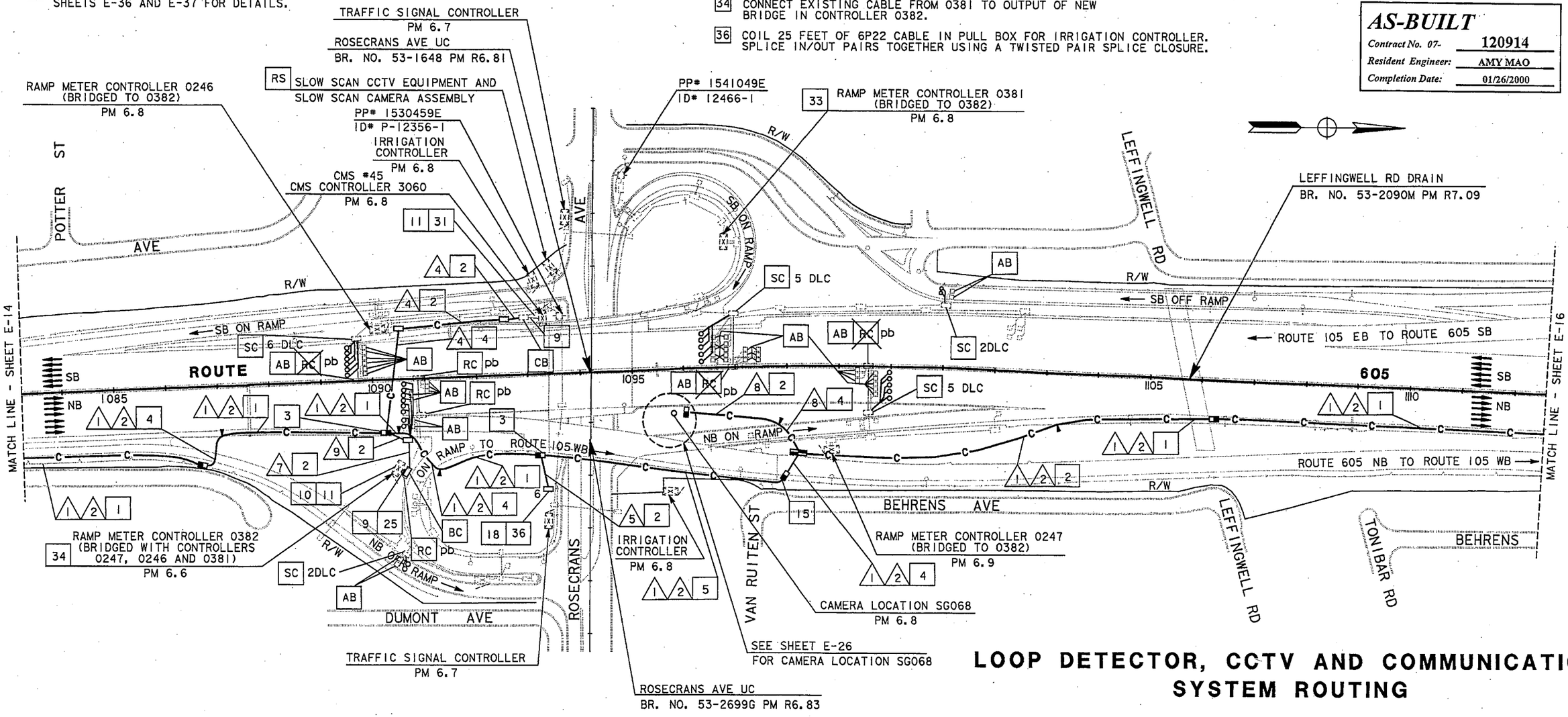
AS-BUILT
Contract No. 07- 120914
Resident Engineer: AMY MAO
Completion Date: 01/26/2000



NOTE: FOR LEGEND AND PROJECT NOTES SEE SHEETS E-1 AND E-2.
THIS PLAN ACCURATE FOR ELECTRICAL WORK ONLY.

LOOP DETECTOR, CCTV AND COMMUNICATION SYSTEM ROUTING

SCALE: 1"=100'

E-15

LAST REVISION DATE PLOTTED => 16-Jun-2000

PROJECT NOTES: (THIS SHEET ONLY)

1. INSTALL CONDUIT(S) IN TRENCH IN PAVED SHOULDER. MAINTAIN A MINIMUM DISTANCE OF 4 FEET FROM EDGE OF TRAVELWAY. FOR INSTALLATION OF 4" CONDUITS, SEE SHEET E-34 FOR DETAILS.
2. INSTALL CONDUIT(S) IN TRENCH IN SOIL OFF OF THE SHOULDER. FOR INSTALLATION OF 4" CONDUITS, SEE SHEET E-33 FOR DETAILS.
3. INSTALL COMMUNICATION PULL BOX WITH TWISTED PAIR SPLICE CLOSURE. SEE SHEETS E-36 AND E-37 FOR DETAILS.
4. JACK RIGID STEEL CONDUIT(S) UNDER ROADWAY. FOR INSTALLATION OF 4" CONDUITS, SEE SHEET E-35 FOR DETAILS.
5. INSTALL FIBERGLASS REINFORCED EPOXY (FRE) CONDUIT(S) ON STRUCTURE. SEE SHEETS C-2 TO C-9 FOR DETAILS.
9. ADD CABLE(S) AND CONNECT TO CONTROLLER.
10. INSTALL TELEPHONE BRIDGE AND 12-PAIR TERMINAL BLOCK IN CONTROLLER CABINET. SEE SHEETS E-39 AND DETAIL 1, SHEET E-43.
11. DISCONNECT EXISTING TELCO DEMARCATION CABLE ONLY AFTER TESTING ALL INSTALLED EQUIPMENT, VERIFYING THE INSTALLATION IS OPERATIONAL AND GETTING APPROVAL FROM THE ENGINEER.
25. IDENTIFY AND RC EXISTING DLC CONNECTED TO ABANDONED LOOPS. ADD NEW DETECTOR LOOP CABLE(S) THROUGH EXISTING CONDUIT INTO THE EXISTING CABINET AND CONNECT TO EXISTING TERMINAL BLOCK.
36. COIL 25 FEET OF 6P22 TWISTED PAIR CABLE IN PULL BOX FOR IRRIGATION CONTROLLER. SPLICE IN/OUT PAIRS TOGETHER USING A TWISTED PAIR SPLICE CLOSURE.

CONDUIT AND CONDUCTOR SCHEDULE (THIS SHEET ONLY)

CONDUCTOR TYPE	FUNCTION	RUN 1			RUN 2	RUN 3	RUN 4
50P22 CABLE	DATA /PHONE	1					
6P22 CABLE	DATA /PHONE					1	
36SMFO CABLE	VIDEO /DATA		1				
12SMFO CABLE	SH VIDEO			1			
DLC	RAMP / COUNT						6
	INNERDUCT		1¼"	1¼"			
	CONDUIT SIZE	4"			4"	2"	2"

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	605	R0.1/R7.8	60	108

Teri J. Parola 9/11/95
REGISTERED ELECTRICAL ENGINEER

REGISTERED PROFESSIONAL ENGINEER — TERI J. PAROLA — No. E014898 — Exp. 6/30/99 — ELECTRICAL — STATE OF CALIFORNIA

1-20-97
PLANS APPROVAL DATE

NATIONAL ENGINEERING TECHNOLOGY
14320 FIRESTONE BLVD., SUITE 100
LA MIRADA, CA 90638

IN ASSOCIATION WITH:

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KATZ OKITSU AND ASSOCIATES
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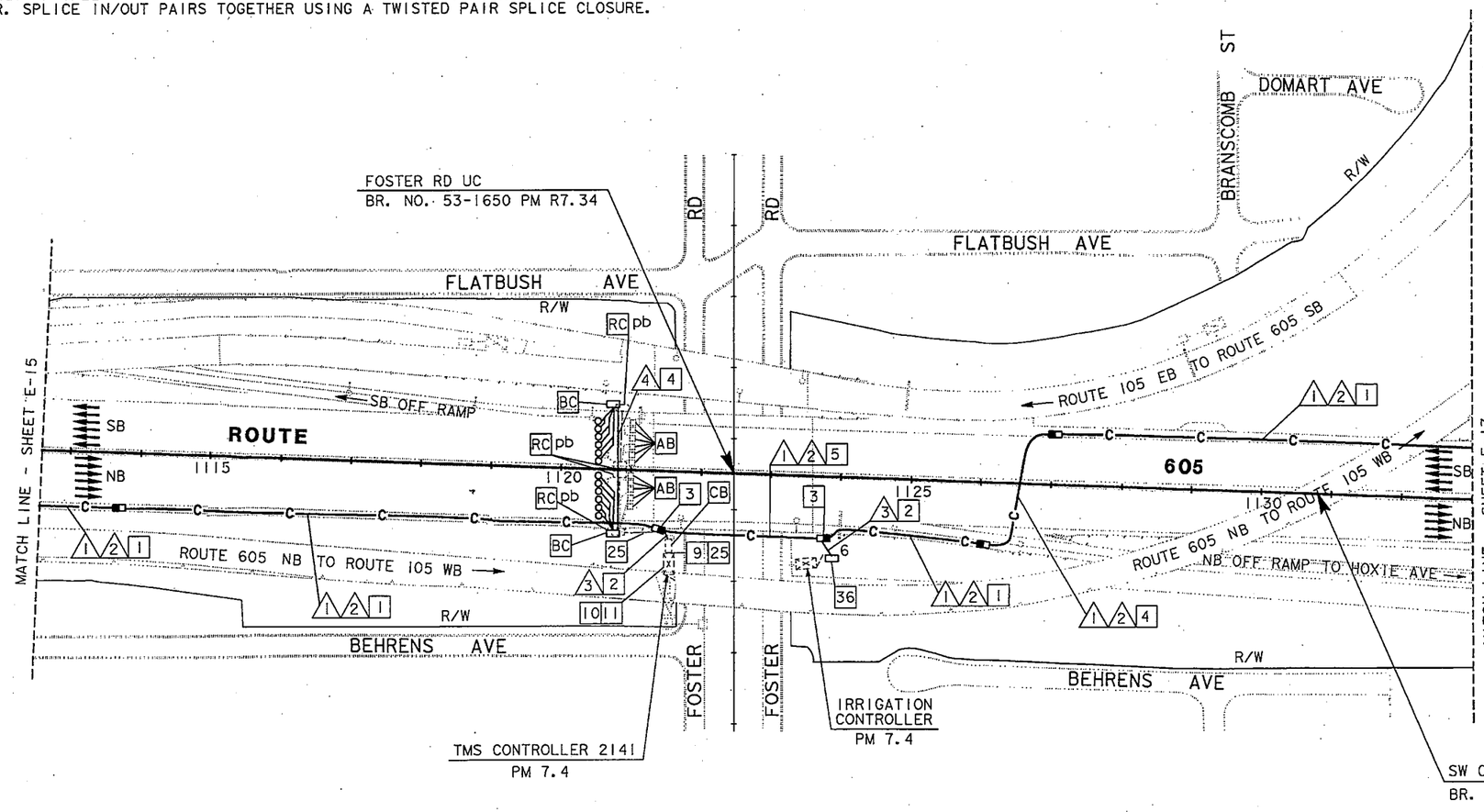

AS-BUILT
Contract No. 07- 120914
Resident Engineer: AMY MAO
Completion Date: 01/26/2000

LOOP DETECTOR AND COMMUNICATION SYSTEM ROUTING

NOTE: FOR LEGEND AND PROJECT NOTES SEE SHEETS E-1 AND E-2.
THIS PLAN ACCURATE FOR ELECTRICAL WORK ONLY.

SCALE: 1"=100'

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	605	R0.1/R7.8	61	108

Teri Parola 9/11/95
REGISTERED ELECTRICAL ENGINEER

1-20-97
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
TERI J. PAROLA
No. E014898
Exp. 6/30/99
ELECTRICAL
STATE OF CALIFORNIA

NATIONAL ENGINEERING TECHNOLOGY
14320 FIRESTONE BLVD., SUITE 100
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KATZ OKITSU AND ASSOCIATES
WAGNER ENGINEERING AND SURVEY, INC.

CONDUIT AND CONDUCTOR SCHEDULE (THIS SHEET ONLY)				
CONDUCTOR TYPE	FUNCTION	RUN 1		RUN 2
50P22 CABLE	DATA /PHONE	1		
36SMFO CABLE	VIDEO /DATA		1	
12SMFO CABLE	SH VIDEO			1
	INNERDUCT		1 1/4"	1 1/4"
	CONDUIT SIZE	4"		4"

PROJECT NOTES: (THIS SHEET ONLY)

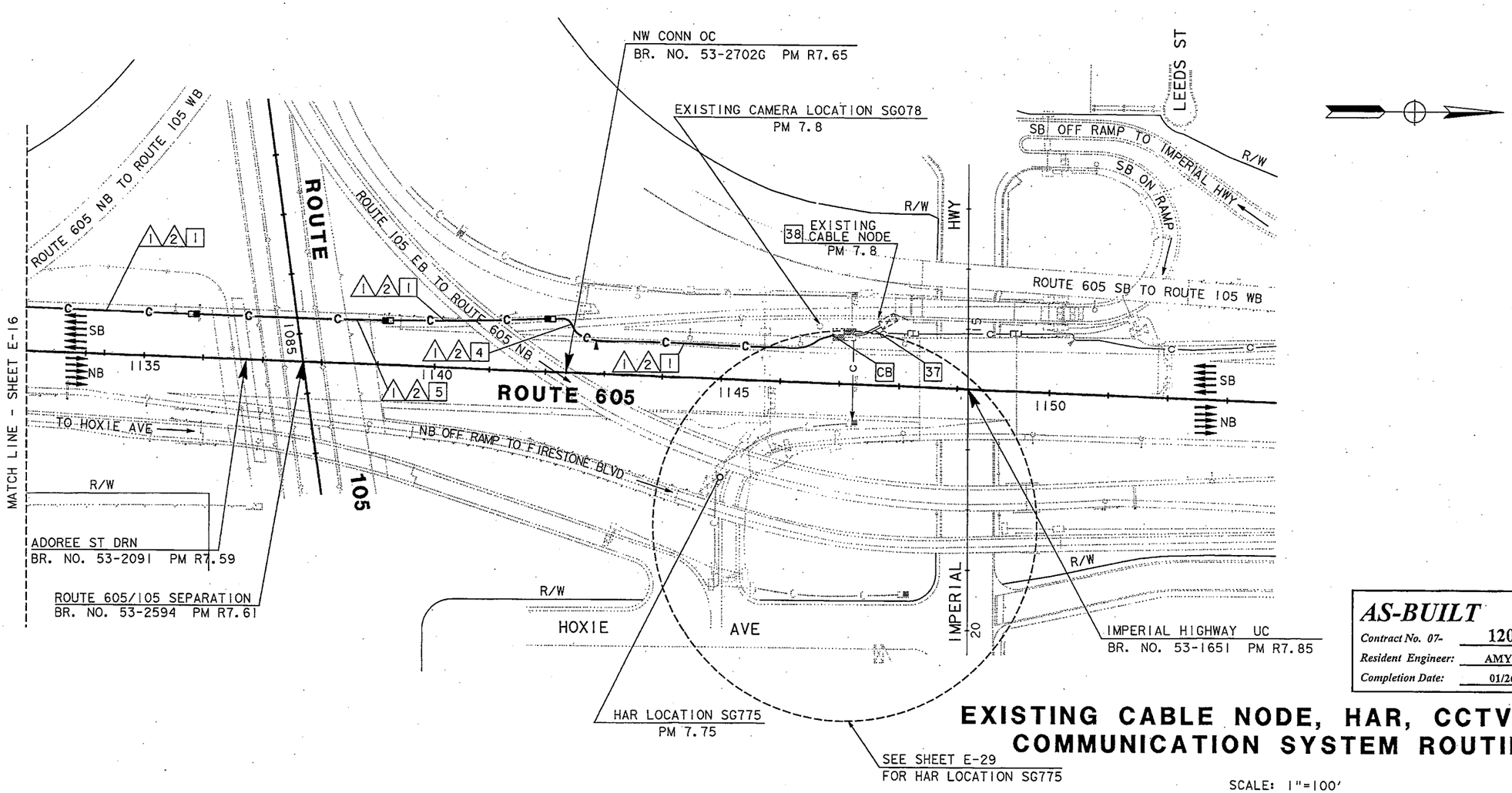
1 INSTALL CONDUIT(S) IN TRENCH IN PAVED SHOULDER. MAINTAIN A MINIMUM DISTANCE OF 4 FEET FROM EDGE OF TRAVELWAY. FOR INSTALLATION OF 4" CONDUITS, SEE SHEET E-34 FOR DETAILS.

4 JACK RIGID STEEL CONDUIT(S) UNDER ROADWAY. FOR INSTALLATION OF 4" CONDUITS, SEE SHEET E-35 FOR DETAILS.

5 INSTALL FIBERGLASS REINFORCED EPOXY (FRE) CONDUIT(S) ON STRUCTURE. SEE SHEETS C-2 TO C-9 FOR DETAILS.

37 INSTALL 36SMFO, 12SMFO CABLE, 50P22 AND 6P22 TWISTED PAIR CABLES IN EXISTING 3" CONDUIT.

38 SPLICE 36SMFO CABLE TO EXISTING 60SMFO CABLE IN EXISTING CABLE NODE, ENGINEER WILL PROVIDE FIBER ASSIGNMENTS. TERMINATE 12SMFO CABLE ON FDU. CROSS CONNECT 50P22 AND 6P22 TWISTED PAIR CABLES AS INDICATED ON SHEET E-46. SEE SHEET E-44, DETAIL 8.



AS-BUILT
Contract No. 07- 120914
Resident Engineer: AMY MAO
Completion Date: 01/26/2000

EXISTING CABLE NODE, HAR, CCTV AND COMMUNICATION SYSTEM ROUTING

SCALE: 1"=100'

NOTE: FOR LEGEND AND PROJECT NOTES SEE SHEETS E-1 AND E-2.
THIS PLAN ACCURATE FOR ELECTRICAL WORK ONLY.

E-17

LAST REVISION DATE PLOTTED = 27-JAN-2000

AERIALLY DEPOSITED LEAD SITE INVESTIGATION REPORT

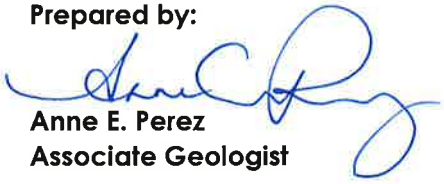
SITE INVESTIGATION FOR LA 605 CAPM PROJECT BETWEEN I-10/605 JUNCTION AND LOS ANGELES/ORANGE COUNTY LINE
LOS ANGELES COUNTY, CALIFORNIA
LOCATION: LA-605; PM 0.00/20.2

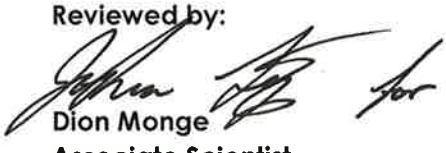
PROJECT/E-FIS NUMBER: 0713000025
EA NUMBER: 295701
CONTRACT NO. 07A3321
TASK ORDER NO. 06

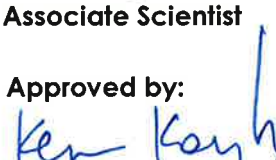
STANTEC PROJECT NO.: 185831006

Submitted to:
California Department of Transportation,
District 7
100 South Main Street
Los Angeles, California 90012

Submitted by:
Stantec Consulting Services Inc.
25864-F Business Center Drive
Redlands, California 92374

Prepared by:

Anne E. Perez
Associate Geologist

Reviewed by:

Dion Monge
Associate Scientist

Approved by:

Kevin Miskin, P.E. C48458
Principal Engineer

November 21, 2013

EXECUTIVE SUMMARY

At the request of the California Department of Transportation (Caltrans) District 7 Hazardous Waste South Branch, and pursuant to the provisions of Caltrans Agreement 07A3321 and Task Order request dated October 14, 2013, an aerially deposited lead site investigation (ADL SI) was conducted at discrete bridge locations along State Route (SR) SR605 between PM 0.00 to 20.2, between the I-10/SR605 Junction and the Los Angeles/Orange County line, in Los Angeles County, California. This investigation was conducted to evaluate the potential presence of ADL and other heavy metals in shallow subsurface soils at locations where concrete barriers will be constructed to protect bridge structural components. Soil will be excavated, to a depth of approximately two feet below the ground surface (bgs) for construction of the concrete barriers.

The objective of the ADL SI is to evaluate the presence and distribution of ADL and other heavy metals in subsurface soils within each of the areas where the construction of concrete barriers is proposed and to make recommendations for handling and/or disposal of soil generated during construction activities.

A total of 26 hand auger borings were advanced to a maximum depth of two feet bgs with soil samples collected from 0.5 to 1.0, and 1.5 to 2.0 feet bgs from each boring. Fifty-two (52) soil samples were analyzed for total lead, soluble lead by the California Waste Extraction Test using citric acid as the extractant (Cal WET-Citric, and soluble lead by the Toxicity Characteristic Leaching Procedure (TCLP) extraction method. In addition, 38 samples were analyzed for soluble lead by the modified Cal WET procedure using deionized water as the extractant (Cal WET-DI), eight samples were analyzed for pH, and 10 samples were analyzed for Title 22 metals.

Based on the findings of the investigation, the following are concluded:

1. ADL is present at each of the 13 proposed construction locations.
2. Total lead concentrations were reported at or above the California TTLC (1,000 mg/kg) in eight (8) samples collected as part of this investigation.
3. Cal WET-Citric soluble lead concentrations exceeded the California STLC (5 mg/L) in thirty-nine (39) samples analyzed as part of this investigation.
4. Cal WET-DI concentrations were reported above the Caltrans Lead Variance threshold of 1.5 mg/L in four (4) samples analyzed as part of this investigation. The Caltrans Lead Variance threshold of 150 mg/L was not exceeded in any of the samples.
5. TCLP soluble lead did not exceed the federal toxicity characteristic threshold (5 mg/L) in any of the samples.

Based on the findings and results of the investigation, soil in the investigation areas is impacted by ADL. Based on the findings and conclusions presented herein, the following are recommended:

1. Stantec recommends statistical evaluation of the data to assess appropriate reuse or disposition of excavated soils in accordance with the Caltrans lead variance and with appropriate local, state, and federal regulations and requirements.
2. All work should be conducted under the guidance of a lead compliance plan (LCP) prepared in accordance with Section 14-11.03 Material Containing Hazardous Waste Concentrations of Aerially Deposited Lead of the 2010 Standard Specifications. The purpose of the LCP is to identify measures that will be implemented during construction to reduce potential exposure to workers and the general public.

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1.0 INTRODUCTION

1.1 PROJECT DESCRIPTION

At the request of the California Department of Transportation (Caltrans) District 7 Hazardous Waste South Branch, and pursuant to the provisions of Caltrans Agreement 07A3321 and Task Order request dated October 14, 2013, an Aerially Deposited Lead Site Investigation (ADL SI) was conducted at discrete bridge locations along State Route 605 (SR605) between PM 0.00 to 20.2, between the I-10/SR605 Junction and the Los Angeles/Orange County line, in Los Angeles County, California. This investigation was conducted to evaluate the potential presence of ADL and other heavy metals in shallow subsurface soils at locations where concrete barriers will be constructed to protect bridge structural components. The project locations were provided by Caltrans in an Attachment A to the Task Order and are shown on Figure 1. Each of the locations is described below:

INVESTIGATION LOCATIONS

LOCATION NUMBER	POST MILE	DIRECTION	DESCRIPTION
1	0.29	NB	SPRING STREET OC
2 & 3	2.31	SB&NB	CENTRALIA ROAD OC
4	2.87	SB	DEL AMO BLVD. OC
5 & 6	3.4	SB&NB	195TH STREET OC
7	3.753	NB	SOUTH STREET OC
8	5.165	SB	91WB TO 605SB CONNECTOR
9 & 10	13.982	SB&NB	OBREGON STREET OC
11A* & 11B	14.08	SB&NB	WHITTIER UPRR OH
12	17.5	NB	SR60 WB TO SR605 SB COLUMN, NORTH OF SEPARATION

**Two additional borings were advanced on the southbound side of the highway as requested by Caltrans during field work (Section 4.3, Deviations from the Scope of Work)*
OC=Overcrossing; OH=Overhead bridge; NB=Northbound; SB=Southbound; WB=Westbound; UPRR=Union Pacific Railroad.

1.2 PURPOSE AND OBJECTIVES

The objective of the ADL SI is to evaluate the presence and distribution of ADL and other heavy metals in subsurface soils within each of the areas where the construction of concrete barriers is proposed and to make recommendations for handling and/or disposal of soil generated during construction activities.

1.3 BACKGROUND

According to the Task Order No. 06 Request, dated October 14, 2013, Caltrans is proposing a Capital Preventive Maintenance (CAPM) Project along State Route 605 (SR605). The project proposes excavation and construction of concrete safety barriers along the highway mainline to protect the structure columns at the freeway shoulders at several locations along SR605. Soil will be excavated, to a depth of approximately

two feet below the ground surface (bgs) for construction of the concrete barriers. Caltrans requested an ADL SI to evaluate proper handling and disposition of soil excavated during construction of the proposed project.

2.0 PROJECT SETTING

This section describes the project setting including a description of the study area, the physiographic setting of the study area, the geology and hydrogeology, and a description of the site vicinity.

2.1 SITE DESCRIPTION

The study area is located along the northbound and southbound shoulders of SR605 within Caltrans Right-of-way (ROW) through portions of Whittier, Pico Rivera, Cerritos, Hawaiian Gardens, and Los Alamitos, in Los Angeles County (Figure 1).

2.2 PHYSIOGRAPHIC SETTING

The Site topography along SR605 slopes southerly from the San Gabriel Mountains (north of the Site) towards Los Alamitos. Elevations across the Site range from approximately 300 feet above mean sea level (amsl) near the Whittier UPRR Overcrossing (near the northern limits of the project area) to approximately 56 feet amsl at the Los Angeles/Orange County Line (southern limits of the project area (Geologic Map - Los Angeles and Long Beach Sheets, respectively, United States Geological Survey [USGS], 1962).

2.3 REGIONAL GEOLOGY AND HYDROGEOLOGY

The Site is located within the Peninsular Ranges Geomorphic Province of California. According to the California Geological Society's (CGS), *California Geomorphic Provinces-Note 36* (CGS, 2002), the Peninsular Range Geomorphic Province is characterized by a series of northwest trending ranges separated by valleys. The geology consists primarily of granitic rocks and intruding older metamorphic rocks.

As is the case with most of southern California, the Site is located in a seismically active area. The nearest active faults are those associated with the Whittier Fault Zone, located approximately 5 miles east of SR605. The Sierra Madre and the Los Alamitos Faults are located to the north and south of the Site, respectively. (CGS, 2007).

According to the *Limited Soil and Groundwater Investigation Report*, dated October 2, 2013, prepared for a FedEx Freight facility located approximately one mile east of the Site's northern limits, in Whittier, California (Ocean Blue Engineers, 2013), depth to groundwater measured from the wells at this facility ranged from approximately 38 to 84 feet below the ground surface. The groundwater was reported to be flowing in a general northeast to southwest direction, following local topography.

2.4 SITE VICINITY

The area along the SR605 corridor is comprised of densely developed residential and commercial/industrial properties

3.0 SCOPE OF WORK

The scope of the ADL SI consisted of the following general elements:

- Pre-field activities:
  - Development of a project work plan to guide task order activities;
  - Development of a site specific health and safety plan;
  - Coordination of equipment and subcontractors.

- Field Investigations:
  - Advancement of twenty-six (26) shallow hand auger borings to a depth of two (2) feet below ground surface (bgs) at 9 highway overcrossings (13 proposed construction locations);
  - Collection and preservation of two (2) soil samples from 0.5 to 1.0 and 1.5 to 2.0 feet bgs from each boring;
  - Boring location survey using global positioning system (GPS);
  - Boring abandonment.

- Laboratory analysis of select soil samples pursuant to the requirements of Task Order No. 06 for,
  - Total lead;
  - Soluble lead by California Waste Extraction Test citric acid extract (Cal WET-Citric);
  - Soluble lead by modified Cal WET deionized water extract (Cal WET-DI);
  - Soluble lead by Toxicity Characteristic Leaching Procedure (TCLP);
  - pH; and
  - Title 22 metals.

- Data validation and preparation of this report.

4.0 SOIL INVESTIGATION METHODOLOGY

The soil investigation was conducted in general accordance with the methods and requirements of Task Order 06. The following subsections summarize the methodology implemented in completing the required scope of work, along with any deviations from the scope of work described in the task order.

4.1 PRE-FIELD ACTIVITIES

District 7 Task Order Manager, Mr. Samuel Yang, provided aerial photographs with proposed sample locations. Site reconnaissance was conducted on October 14, 2013 to evaluate accessibility to proposed borehole locations and to pre-mark boring locations.

As required by Task Order 06, a site-specific Health and Safety Plan (HASP) was developed in accordance with California Occupational Safety and Health Administration (Cal OSHA) requirements to guide field sampling activities. The HASP describes health and safety procedures and was submitted to Caltrans for approval prior to initiating field activities.

4.2 FIELD INVESTIGATIONS

Twenty-six (26) hand auger borings (locations shown on Figures 2 through 10) were advanced at nine locations along SR605 between the I-10/SR605 Junction and the Los Angeles/Orange County line, in Los Angeles County, California (Figure 1). The field methods used for the ADL SI were consistent with those proposed in Stantec's October 10, 2013 *ADL Site Investigation Proposal*. There were no accessibility issues related to the proposed sampling locations.

The weather was warm and sunny throughout the day with no weather-related delays. The following subsections describe the methodology and procedures followed in conducting the field investigations.

4.2.1 *Health and Safety*

Prior to initiating daily field work, a tail gate health and safety meeting was conducted at the Site with field personnel. During the tail gate meeting, daily work activities and health and safety issues were discussed, including the following:

- Field tasks to be conducted throughout the day;
- Project schedule;
- Hazard awareness;
- General health and safety practices, procedures and issues;
- Specific health and safety issues related to the day's work;

- Health and Safety procedures, controls, etc.;
- Engineering controls; personal protective equipment and monitoring;
- Traffic control and safety; and
- Emergency procedures and contacts.

Field documentation of health and safety meetings and monitoring were maintained throughout the duration of field activities. A copy of the completed field forms are provided in Appendix A.

4.2.2 *Traffic Control*

The following traffic control measures were implemented during field sampling activities:

- Traffic cones were placed along roadway shoulders at each separate work area, and
- Trucks with high visibility flashing yellow strobe lights were positioned between oncoming traffic and workers.

4.2.3 *Site Investigations - Soil Sampling Activities*

Twenty-six (26) hand-auger borings were advanced within each of the project locations to total depths of 2 feet below ground surface (bgs).

Soil samples were collected from all borings from 0.5 to 1.0 and 1.5 to 2.0 feet bgs.

4.2.4 *Sample Collection and Preservation*

Soil samples collected were discharged directly from the hand-auger bailer into a plastic zipper lock bag and manually homogenized in the field to minimize sample heterogeneity. Homogenized soil was then discharged to 8-ounce laboratory provided glass jars and sealed with a Teflon®-lined screw cap lid. Each sample jar was labeled with a specific sample I.D., boring I.D., project I.D., EA number, sample date, and sample time. Samples were also recorded on chain-of-custody (CoC) forms and delivered to an environmental laboratory for analysis.

4.2.5 *Boring Locations*

All boring locations were identified and plotted on a field map with a unique boring identification (I.D.) number to represent each borehole (Figures 2 through 10). In addition, the spatial coordinates (x and y) for each borehole were obtained using a handheld field GPS Trimble unit and recorded on field data sheets. However, due to limited satellite reception with the GPS unit at locations near or below overhead bridges, the coordinates for several locations could not be obtained. Refer to Section

4.3 for a discussion on this deviation from the scope of work. The spatial coordinates for the borings are provided in Appendix B. A photographic record of the boring locations is provided in Appendix C.

4.2.6 *Decontamination*

All sampling equipment was decontaminated prior to sampling at each sample interval using a non-phosphate detergent solution and triple rinsed with distilled water.

4.2.7 *Borehole Abandonment*

Excess soil cuttings were replaced in the shallow borehole.

4.2.8 *Field Quality Assurance/Quality Control*

In accordance with Task Order 06, the equipment blank was collected to evaluate the adequacy of field decontamination efforts. One equipment blank was collected for each chain of custody (CoC). The equipment blank was collected by pouring distilled water over the sampling equipment and collecting the water in appropriate sample containers.

4.3 DEVIATIONS FROM TASK ORDER SCOPE OF WORK

The following summarizes deviations or changes from the task order scope of work:

1. During the Site reconnaissance, the Task Order Task Manager requested advancement and sampling of two (2) additional borings on the southbound side of the highway shoulder at the Whittier UPRR Overhead Bridge location (Location 11A; Figure 9). The original Task Order only requested borings on the northbound side (Figure 9; Location 11B).

2. Boring 1226-121 encountered refusal at 0.5 feet bgs. The boring was relocated approximately five (5) feet from the originally proposed location. The boring was completed to the proposed depth of two (2) feet bgs.

3. GPS readings could not be obtained from several boring locations due to their position below the highway overcrossings. In these situations, the GPS unit could not connect with the satellites to obtain coordinates. As directed by the Caltrans Task Order Manager, measurements from nearby GPS-located borings, guardrails and bridge columns were used to document borehole locations where no GPS reading could be obtained. At locations where GPS coordinates were obtained for one boring, but not the second boring, measurements were taken from the second boring to the first boring. Where no GPS readings could be obtained for either of the borings, measurements were made from the end of

the guardrail and bridge columns for both borings. The GPS coordinates and the measurements for each boring are recorded in Appendix B.

5.0 LABORATORY ANALYSIS

Fifty-two (52) soil samples were submitted under CoC to Advanced Technology Laboratories (ATL). ATL is certified through the California Environmental Laboratory Accreditation Program (ELAP) to conduct the analyses required in this task order. The lab was directed to perform the following analyses based on Caltrans Task Order No. 06:

- *Total lead by EPA test method 6010B*—used to evaluate total lead concentrations against health screening limits, California hazardous waste total threshold limit concentration (TTLC), and the conditions of Caltrans' lead variance.

- *Soluble lead by CAL WET-Citric*—used to assess soluble lead concentrations with respect to California hazardous waste Soluble Threshold Limit Concentration (STLC).

- *Soluble lead by Cal WET DI*—used to evaluate requirements for on-site soil management against the Caltrans lead variance.

- *Soluble lead by TCLP (EPA test method 1311)*—used to evaluate waste characteristics and the requirements for disposal against Federal hazardous waste toxicity characteristic threshold limit of 5 mg/L.

- *pH (EPA test method 9045C)*— samples reporting total lead concentrations equal to or exceeding 1000 mg/kg were analyzed for pH to evaluate the requirements for managing and disposing of soil disposal against the conditions of the Caltrans lead variance.

- *Title 22 metals (EPA test method 6010B/7470)*— ten samples reporting the highest total lead concentrations were analyzed for the full suite of Title 22 metals (except for lead) to screen soil samples for other potentially elevated heavy metal analytes to further characterize excess soil for off-site disposal.

Copies of the laboratory CoCs and analytical reports are attached in Appendix D.

6.0 INVESTIGATIVE RESULTS

6.1 FIELD FINDINGS

The soils encountered during sampling were generally brown to dark brown in color and consisted primarily of silts and sands with traces of fine gravels.

Groundwater was not encountered in any of the boreholes and not expected to be present in shallow soils.

6.2 ANALYTICAL RESULTS

A summary of the analytical results is presented in Tables 1 and 2. Copies of the laboratory reports and chain-of-custody forms are included in Appendix D.

6.2.1 *Total Lead*

Fifty-two (52) soil samples were analyzed for total lead by EPA test method 6010B. Total lead concentrations ranged from 8.4 to 2,100 mg/kg (see Table 1).

Total lead concentrations met or exceeded the Total Threshold Limit Concentrations (TTLC) of 1,000 mg/kg in eight samples (1226-107-1, 1226-108-1, 1226-111-1, 1226-113-1, 1226-114-1, 1226-115-1, 1226-121-1, 1226-122-1).

6.2.2 *Soluble Lead (Cal WET- Citric)*

Fifty-two (52) soil samples were analyzed for soluble lead by Cal WET-Citric. Soluble lead concentrations ranged from 0.31 to 140 mg/L (see Table 1).

Soluble lead concentrations met or exceeded the Soluble Threshold Limit Concentration (STLC) of 5 mg/L in thirty-nine (39) of the samples analyzed.

6.2.3 *Soluble Lead (TCLP)*

Fifty-two (52) soil samples were analyzed for TCLP lead analysis. TCLP soluble lead concentrations ranged from 0.0051J[1] to 2.5 mg/L (see Table 1).

Soluble lead concentrations did not exceed the TCLP threshold of 5 mg/L in any of the samples submitted for analysis.

[1] J-flag indicates that the reported concentration was between the laboratory method detection limit and the practical quantitation limit and is therefore an estimated value.

6.2.4 *Soluble Lead (Cal WET- DI)*

The Caltrans variance allows for reuse of materials exceeding the STLC if the Cal WET-DI soluble lead concentrations do not exceed 150 mg/L using a less rigorous extraction

test that incorporates distilled water as the solvent rather than the Cal WET citric acid or TCLP acetic acid extractant. This method is often identified as the DHS modified Cal WET DI test.

Thirty-eight (38) soil samples were submitted for soluble lead analyses by the Cal WET DI extraction method. The Cal WET DI concentrations ranged from non-detect (less than the laboratory method reporting limit of 0.045 mg/L) to 5.4 mg/L (Table 1).

Soluble lead concentrations exceeded the Caltrans variance threshold limit of 1.5 mg/L for Type Y1 material in four (4) of the samples submitted for analysis.

6.2.5 *pH*

Eight samples reporting total lead concentrations in excess of 1,000 mg/kg were analyzed for pH. The pH values ranged from 6.7 to 8.1 (Table 1).

6.2.6 *Title 22 Metals*

As directed in the Task Order No. 06 request, the ten samples with the highest total lead concentrations were analyzed for Title 22 metals to evaluate whether potentially elevated concentrations of heavy metals, in addition to lead, pose a concern in the construction area.

With the exception of copper and zinc, Title 22 metals were reported at concentrations generally consistent with expected background (Table 2). Elevated copper and zinc concentrations were coincident with samples reporting elevated lead concentrations. Consequently, lead will drive waste classification and disposal.

6.3 DATA VALIDATION

Prior to submitting soil samples to the laboratory, the chain-of-custody documentation was reviewed for accuracy and completeness. The laboratory reports were cross-checked with the chain-of-custody forms to confirm accurate transposing of sample information. Laboratory quality assurance and quality control (QA/QC) data (method blanks, laboratory control samples and duplicates, matrix spike samples and duplicates) were also reviewed for compliance with QA/QC objectives. Stantec reviewed the laboratory QA/QC (duplicates, laboratory control, matrix spike and matrix spike duplicates). Other than minor issues related to natural heterogeneity of metals in soil duplicate sample analyses, QA/QC data are within expected control limits and considered valid for the intended use. Based on this validation process, the data contained herein are adequate for the purposes of this study. Copies of the Data Validation are included as Appendix E.

7.0 CONCLUSIONS

At the request of Caltrans District 7 Hazardous Waste South Branch, and pursuant to the provisions of Caltrans Agreement 07A3321 and Task Order request dated October 14, 2013, an ADL SI was conducted at discrete bridge locations along SR605 between PM 0.00 to 20.2, between the I-10/SR605 Junction and the Los Angeles/Orange County line, in Los Angeles County, California. This investigation was conducted to evaluate the potential presence of ADL and other heavy metals in shallow subsurface soils at locations where concrete barriers will be constructed to protect bridge structural components. Soil will be excavated, to a depth of approximately two feet below the ground surface for construction of the concrete barriers.

The objective of the ADL SI is to evaluate the presence and distribution of ADL and other heavy metals in subsurface soils within each of the areas where the construction of concrete barriers is proposed and to make recommendations for handling and/or disposal of soil generated during construction activities.

A total of 26 hand auger borings were advanced to a maximum depth of two feet bgs with soil samples collected from 0.5 to 1.0, and 1.5 to 2.0 feet bgs from each boring. Fifty-two (52) soil samples were analyzed for total lead, soluble lead by Cal WET-Citric extraction, and TCLP extraction. In addition, Thirty-eight (38) samples were analyzed for soluble lead by the modified California Waste Extraction Test using deionized water as the extractant (Cal WET-DI), eight (8) samples were analyzed for pH and 10 samples were analyzed for Title 22 metals.

Based on the findings of the investigation, the following are concluded:

1. ADL is present at each of the 13 proposed construction locations.
2. Total lead concentrations were reported at or above the California TTLC (1,000 mg/kg) in eight (8) samples collected as part of this investigation.
3. Cal WET-Citric soluble lead concentrations exceeded the California STLC (5 mg/L) in thirty-nine (39) samples analyzed as part of this investigation.
4. Cal WET-DI concentrations were reported above the Caltrans Lead Variance threshold of 1.5 mg/L in four (4) samples analyzed as part of this investigation. The Caltrans Lead Variance threshold of 150 mg/L was not exceeded in any of the samples.
5. TCLP soluble lead did not exceed the federal toxicity characteristic threshold (5 mg/L) in any of the samples.

8.0 RECOMMENDATIONS

Based on the findings and results of the investigation, soil in the investigation areas is impacted by ADL. Based on the findings and conclusions presented herein, the following are recommended:

1. Stantec recommends statistical evaluation of the data to assess appropriate reuse or disposition of excavated soils in accordance with the Caltrans lead variance and with appropriate local, state, and federal regulations and requirements.

2. All work should be conducted under the guidance of a lead compliance plan (LCP) prepared in accordance with Section 14-11.03 Material Containing Hazardous Waste Concentrations of Aerially Deposited Lead of the 2010 Standard Specifications. The purpose of the LCP is to identify measures that will be implemented during construction to reduce potential exposure to workers and the general public.

9.0 REFERENCES

California Department of Conservation Division of Mines and Geology (CDCDMG), 1986, Geomorphic Provinces and Some Principal Faults of California, May.

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United States Geological Survey (USGS) Topographic Map, 1965 (photorevised 1981), 7.5-minute series, Whittier, California Quadrangle.

United States Geological Survey (USGS) Topographic Map, 1966 (photorevised 1981), 7.5-minute series, Baldwin Park, California Quadrangle.

United States Geological Survey (USGS) Topographic Map, 1966 (photorevised 1981), 7.5-minute series, El Monte, California Quadrangle.

United States Geological Survey (USGS) Topographic Map, 1964 (photorevised 1981), 7.5-minute series, La Habra, California Quadrangle.

TABLES

TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS - LEAD
AERIALLY DEPOSITED LEAD SITE INVESTIGATION
LA-605, PM R0.00/R20.0
LOS ANGELES COUNTY, CALIFORNIA
EFIS 0713000025 (EA#295701)
TASK ORDER #06
CONTRACT 07A3321

Investigation Location	Sample ID	Total Lead [1] (mg/kg)	Soluble Lead [1] Cal WET-Citric (mg/L)	Soluble Lead [1] Cal WET-DI (mg/L)	Soluble Lead [1] TCLP (mg/L)	pH [2]
1-Spring St. OC - NB (FIGURE 2)	1226-113-1	**1600**	**120**	0.22 J	1.9	7.1
	1226-113-2	500	**34**	**1.6**	1.5	--
	1226-114-1	**1000**	**67**	0.96 J	1.0	7.1
	1226-114-2	390	**26**	1.4	0.81	--
2-Centralia Rd. OC - SB (FIGURE 3)	1226-111-1	**1400**	**110**	0.046 J	1.2	8.1
	1226-111-2	26	2.2	--	0.039 J	--
	1226-112-1	990	**67**	<0.045	0.40	--
	1226-112-2	35	2.0	--	0.027 J	--
3-Centralia Rd. OC - NB (FIGURE 3)	1226-115-1	**1000**	**83**	**1.8**	0.92	7.5
	1226-115-2	92	**6.9**	<0.045	0.29	--
	1226-116-1	410	**26**	<0.045	0.17	--
	1226-116-2	32	0.62 J	--	0.0051 J	--
4-Del Amo Blvd. OC - SB (FIGURE 4)	1226-109-1	250	**22**	<0.045	0.23	--
	1226-109-2	390	**54**	<0.045	0.67	--
	1126-110-1	350	**23**	<0.045	0.45	--
	1226-110-2	22	1.5	--	0.0053 J	--
5-195th St. OC - SB (FIGURE 5)	1226-107-1	**1100**	**56**	0.18 J	0.81	7.1
	1226-107-2	380	**25**	**5.4**	1.3	--
	1226-108-1	**2100**	**140**	0.077 J	1.8	7.3
	1226-108-2	32	1.3	--	0.0074 J	--
6-195th St. OC - NB (FIGURE 5)	1226-117-1	580	**52**	0.053 J	0.56	--
	1226-117-2	520	**33**	<0.045	0.61	--
	1226-118-1	670	**64**	<0.045	2.5	--
	1226-118-2	57	1.2	--	0.017 J	--
7-South St. OC - NB (FIGURE 6)	1226-119-1	520	**35**	<0.045	1.1	--
	1226-119-2	100	**6.7**	<0.045	0.23	--
	1226-120-1	780	**55**	0.26 J	2.0	--
	1226-120-2	47	2.4	--	0.17	--
8-91W to 605SB Connector - SB (FIGURE 7)	1226-105-1	190	**13**	<0.045	0.29	--
	1226-105-2	140	**6.9**	0.12 J	0.15	--
	1226-106-1	390	**32**	**1.9**	1.1	--
	1226-106-2	51	2.9	--	0.057	--
9-Obregon St. OC - SB (FIGURE 8)	1226-103-1	220	**16**	<0.045	0.53	--
	1226-103-2	8.4	0.37 J	--	0.074	--
	1226-104-1	600	**49**	<0.045	0.88	--
	1226-104-2	73	4.7	--	0.085	--
10-Obregon St. OC - NB (FIGURE 8)	1226-121-1	**1000**	**68**	0.85 J	0.89	7.3
	1226-121-2	98	3.7	--	0.015 C,J	--
	1226-122-1	**1000**	**63**	0.24 J	0.64	6.7
	1226-122-2	210	**8.0**	0.14 J	0.15	--
11A-Whittier UPRR OH-SB (FIGURE 9)	1226-101-1	400	**25**	<0.045	0.27	--
	1226-101-2	390	**23**	<0.045	0.37	--
	1226-102-1	250	**14**	0.083 J	0.18	--
	1226-102-2	200	**14**	<0.045	0.16	--
11B-Whittier UPRR OH - NB (FIGURE 9)	1226-123-1	160	**7.7**	<0.045	0.16	--
	1226-123-2	98	**5.0**	--	0.29	--
	1226-124-1	730	**39**	<0.045	2.2	--
	1226-124-2	78	**5.3**	<0.045	0.14	--
12-60W to 605SB Column, N of Separation (FIGURE 10)	1226-125-1	520	**29**	<0.045	0.64	--
	1226-125-2	110	**5.1**	<0.045	0.061	--
	1226-126-1	10	0.31 J	--	0.11	--
	1226-126-2	30	2.0	--	0.027 C,J	--
Threshold Limits	California Hazardous Waste	≥1000	≥5	--	--	--
	RCRA Hazardous Waste	--	--	--	≤5	≤2 or ≥12.5
	X	<1000	<5	--	≤5	--
	Y1	≤1411	--	<1.5	≤5	>5.5
	Y2	≤3397	--	<150	≤5	>5

Notes:

(1) Total Lead, Soluble Threshold Limit Concentration (STLC or "Soluble Lead"), and Toxicity Characteristic Leaching Procedure (TCLP) analysis by EPA method 6010B. Extraction methods vary.

(2) pH determined with EPA method 9045B.

mg/kg = milligrams per kilogram -- = Not analyzed or not applicable

mg/L = milligrams per liter Bold = Meets or Exceeds threshold limit

J - Concentration is reported between the practical quantitation limit and the method detection limit.

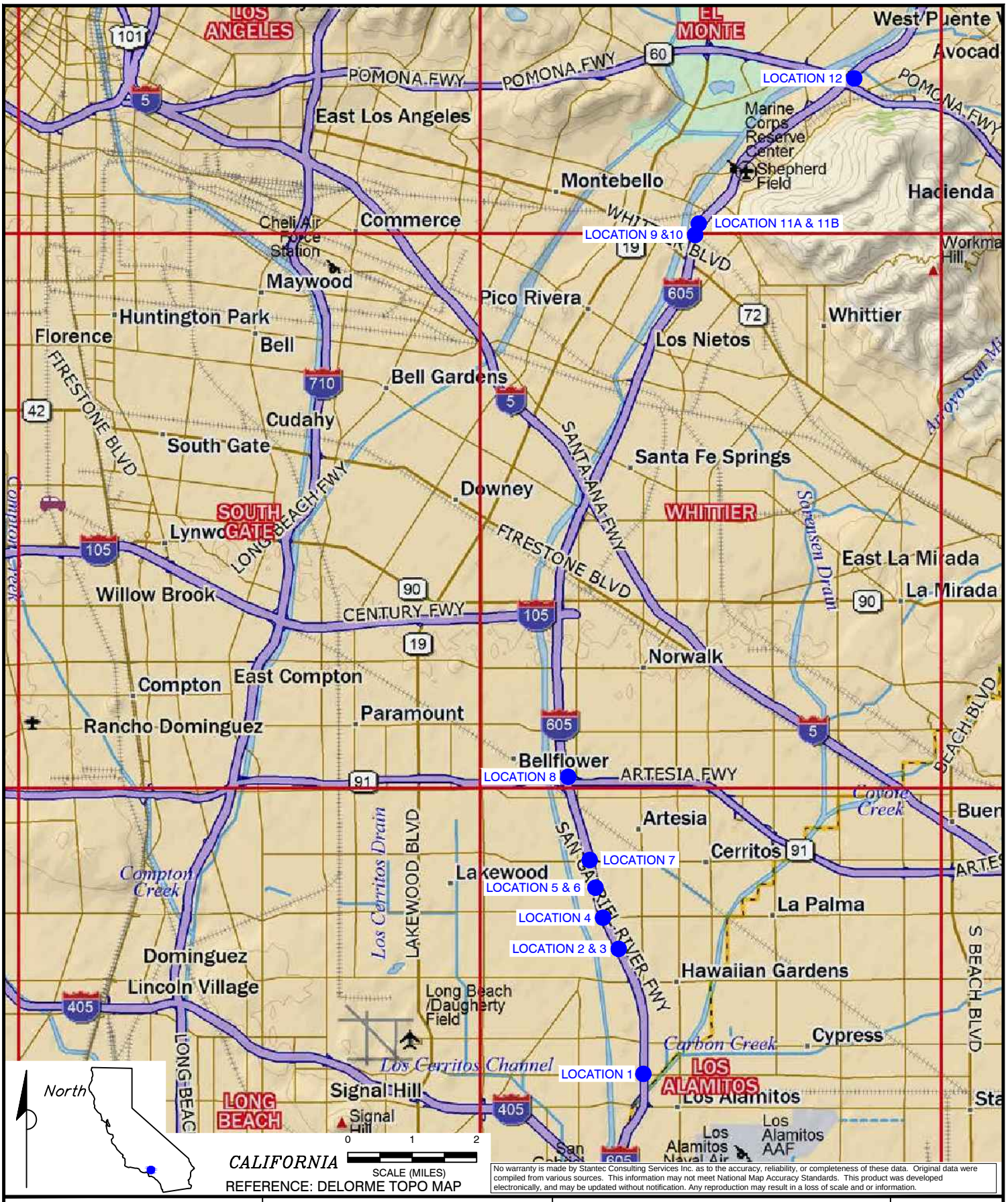
C - Possible laboratory contamination

TABLE 2
SUMMARY OF SOIL ANALYTICAL RESULTS - METALS
AERIALLY DEPOSITED LEAD SITE INVESTIGATION
LA-605, PM R0.00/R20.0
LOS ANGELES COUNTY, CALIFORNIA
EFIS 0713000025 (EA#295701)
TASK ORDER #06
CONTRACT 07A3321

Caltrans Unique Sample ID	Sample Depth (feet bgs)	Sample Date	TITLE 22 METALS by EPA Test Method 6010/7470															
			Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium (III)	Cobalt	Copper	Lead	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Mercury
CHHSLs - Industrial Use (1)			*380*	*0.24*	*63,000*	*190*	*7.5*	*100,000*	*3,200*	*38,000*	*320*	*4,800*	*16,000*	*4,800*	*4,800*	*63*	*6,700*	*100,000*	*180*
Expected Background Concentrations (2)			*0.15-1.95*	*12 (3)*	*133-1400*	*0.25-2.70*	*0.05-1.70*	*23-1579*	*2.7-46.9*	*9.1-96.4*	*12.4-97.1*	*0.1-9.6*	*9-509*	*0.015-0.430*	*13.2-39.4*	*9.8-36.2*	*75-288*	*133-236*	*0.05-0.90*
California TTLC			*500*	*500*	*10,000*	*75*	*100*	*2,500*	*8,000*	*2,500*	*1,000*	*3,500*	*2,000*	*100*	*500*	*700*	*2,400*	*5,000*	*20*
10 x California STLC			*150*	*50*	*1,000*	*7.5*	*10*	*50*	*800*	*250*	*50*	*3,500*	*200*	*10*	*50*	*70*	*240*	*2,500*	*2*
SOIL SAMPLES																			
1226-107-1	1	10/18/2013	**0.48 J**	**7.3**	**120**	**0.32 J**	**0.70 J**	**21**	**6.4**	**48**	*	**2.7**	**18**	<0.24	<0.06	<0.30	**27**	**370**	**0.07 J**
1226-108-1	1	10/18/2013	**0.57 J**	**9.1**	**140**	**0.32 J**	**0.99 J**	**25**	**6.4**	**740**	*	**3.8**	**24**	<0.24	**0.48 J**	**0.50 J**	**27**	**530**	**0.18**
1226-111-1	1	10/18/2013	<0.22	**8.2**	**140**	**0.36 J**	**0.58 J**	**20**	**7.0**	**49**	*	**2.6**	**18**	<0.24	<0.06	<0.29	**32**	**260**	**0.07 J**
1226-112-1	1	10/18/2013	**0.35 J**	**8.8**	**230**	**0.45 J**	**0.73 J**	**23**	**9.0**	**67**	*	**3.4**	**24**	<0.24	<0.06	<0.30	**40**	**310**	**0.07 J**
1226-113-1	1	10/18/2013	**0.34 J**	**4.2**	**84**	**0.18 J**	**0.52 J**	**15**	**5.5**	**44**	*	**1.6**	**14**	<0.24	<0.06	<0.30	**20**	**310**	**0.05 J**
1226-114-1	1	10/18/2013	**0.33 J**	**4.2**	**93**	**0.23 J**	**0.72 J**	**20**	**4.6**	**39**	*	**1.9**	**16**	<0.24	**0.06 J**	<0.29	**22**	**340**	**0.16**
1226-115-1	1	10/18/2013	<0.22	**8.5**	**150**	**0.38 J**	**0.65 J**	**22**	**7.7**	**53**	*	**2.8**	**20**	<0.24	<0.06	<0.29	**35**	**320**	**0.07 J**
1226-120-1	1	10/18/2013	**0.41 J**	**4.1**	**79**	**0.20 J**	**0.42 J**	**12**	**4.4**	**28**	*	**1.4**	**12**	<0.24	<0.06	<0.30	**19**	**210**	**0.05 J**
1226-121-1	1	10/18/2013	**0.36 J**	**13**	**130**	**0.33 J**	**0.75 J**	**21**	**7.1**	**54**	*	**4.1**	**21**	<0.24	<0.06	<0.29	**29**	**260**	**0.08 J**
1226-122-1	1	10/18/2013	**0.31 J**	**15**	**120**	**0.27 J**	**0.68 J**	**20**	**6.5**	**51**	*	**2.1**	**18**	<0.24	<0.06	**0.47 J**	**24**	**250**	**0.15**

NOTES:
All soil results in mg/Kg
CHHSLs = California Human Health Screening Levels
TTLC = Total Threshold Limit Concentration
STLC = Soluble Threshold Limit Concentration
bgs = below ground surface
Sample depth in feet below the ground surface
<0.5 - Analyte not reported at or above stated method detection limit
(1) Soil, California Human Health Screening Levels for Commercial/Industrial and Residential Land Use, California Environmental Protection Agency, January 2005; updates 2009 & 2010 Office of Environmental Health Hazard Assessment Table 1.
(2) G.R. Bradford, A.C. Chang, A.L. Page, D. Bakhtar, J.A. Frampton, and H. Wright, Background Concentrations of Trace and Major Elements in California Soils, March 1996.
(3) California Department of Toxic Substances Control (DTSC), 2008, Determination of a Southern California Regional Background Arsenic Concentration in Soil, March.
= Shaded cells indicate a concentration that exceeds either the CHHSL, and/or the background concentration for that particular metal.
J - Concentration is reported between the practical quantitation limit and the method detection limit.
* See Table 1

FIGURES



REFERENCE: DELORME TOPO MAP

Stantec

ADL SITE INVESTIGATION
Agreement No. 07A3321
Task Order No. 06
FOR ROADSIDE IMPROVEMENTS
LA-605 PM 0.00/20.2
PN: 07-13000025 - EA: 295701

SITE LOCATION MAP

FIGURE: **1**

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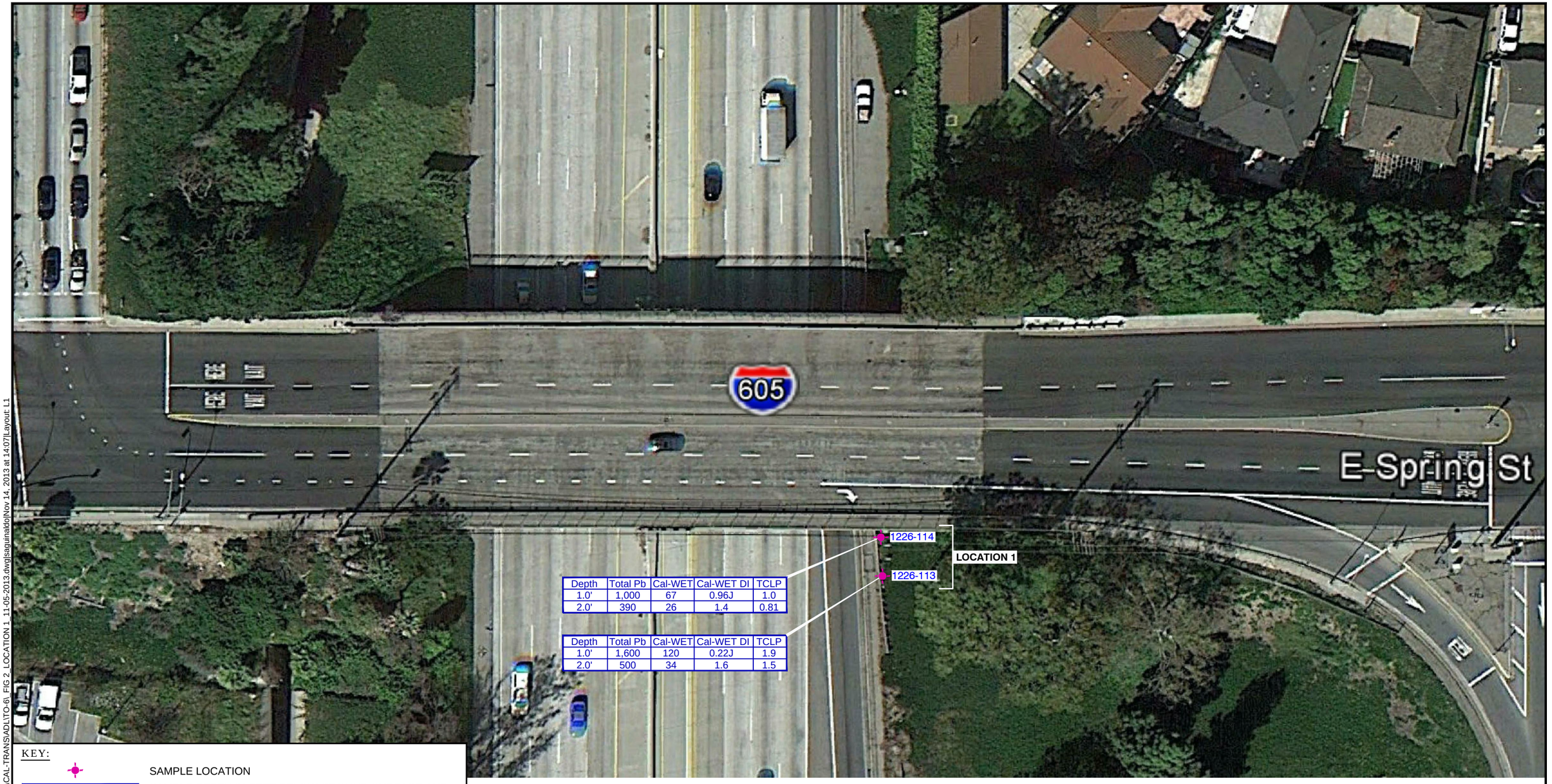
185831006	STA	AP	AP	11/12/13



KEY:

	SAMPLE LOCATION
Depth / FEET | ANALYTE / ##.##	SAMPLE DEPTH IN FEET BELOW GROUND SURFACE AND ANALYTE CONCENTRATION
Total Pb	TOTAL LEAD (mg/kg)
Cal-WET	SOLUBLE LEAD BY CAL-WET CITRIC (mg/L)
Cal-WET DI	SOLUBLE LEAD BY CAL-WET DI (mg/L)
TCLP	SOLUBLE LEAD BY TOXICITY CHARACTERISTIC LEACHING PROCEDURE (mg/L)
mg/kg	MILLIGRAMS PER KILOGRAM
mg/L	MILLIGRAMS PER LITER
<	ANALYTE NOT REPORTED AT OR ABOVE STATED LABORATORY METHOD DETECTION LIMIT (MDL)
--	NOT ANALYZED

N

0 40 80

APPROXIMATE SCALE IN FEET

NOTE: ALL SAMPLES COLLECTED ON UNPAVED SHOULDER AREA. SAMPLES THAT APPEAR ON THE BRIDGE WERE COLLECTED BELOW THE BRIDGE ON UNPAVED SHOULDER AREA.

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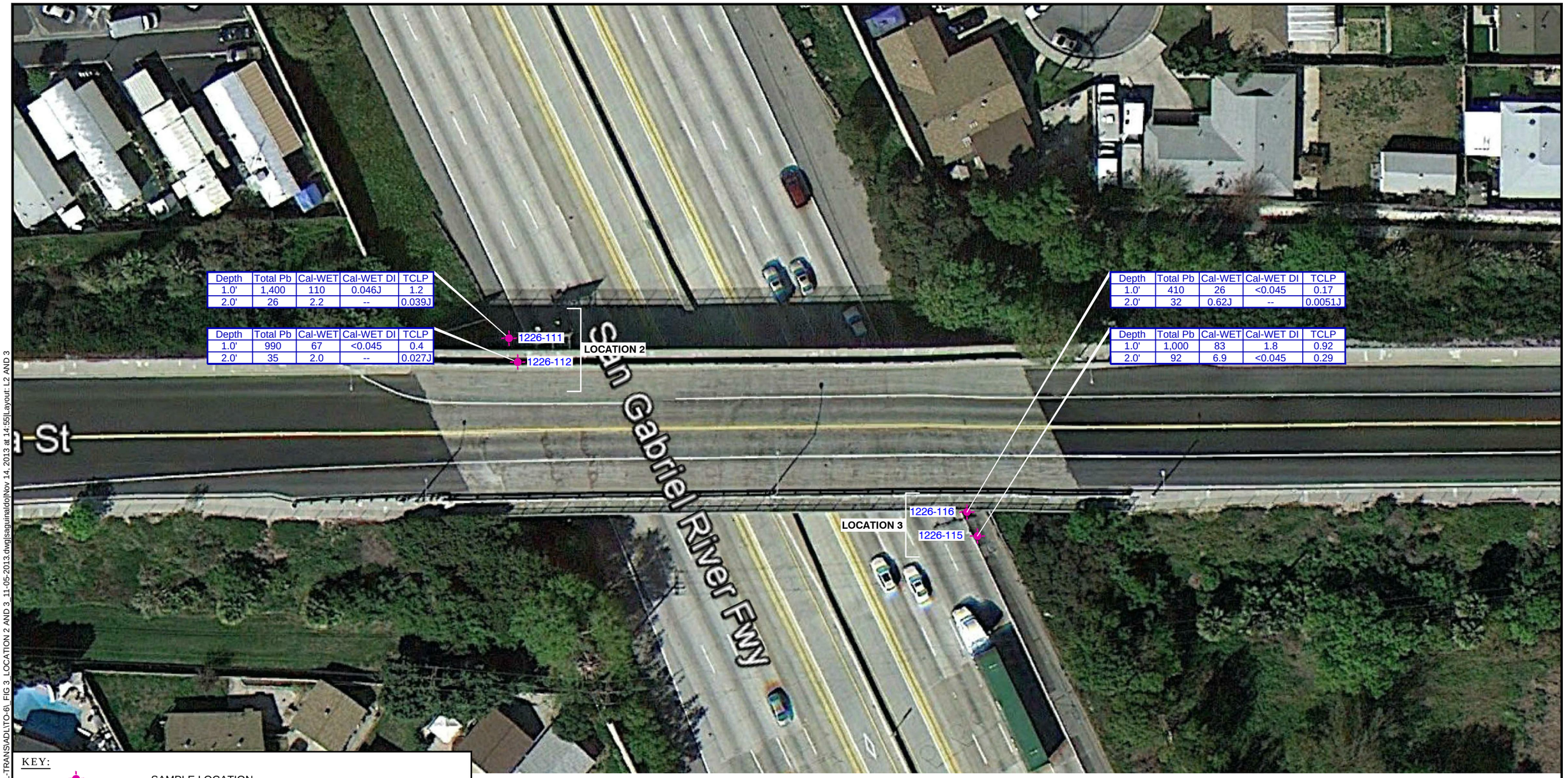
Agreement No. 07A3321
Task Order No. 06
FOR ROADSIDE IMPROVEMENTS
LA-605 PM 0.00/20.2
PN: 07-13000025 - EA: 295701

SITE MAP
LOCATION 1
PM 0.29 NB 605
SPRING STREET OVERCROSSING

FIGURE: 2

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185831006	STA	A. PEREZ	-	NOV. 2013

FILEPATH:M:_00 OTHER OFFICES\04-REDLANDS\CAL-TRANS\ADL\TO-6\ FIG 2_LOCATION 1_11-05-2013.dwg|saguinaldo|Nov 14, 2013 at 14:07|Layout: L1



KEY:

	SAMPLE LOCATION
Depth / FEET ; ANALYTE / ##.##	SAMPLE DEPTH IN FEET BELOW GROUND SURFACE AND ANALYTE CONCENTRATION
Total Pb	TOTAL LEAD (mg/kg)
Cal-WET	SOLUBLE LEAD BY CAL-WET CITRIC (mg/L)
Cal-WET DI	SOLUBLE LEAD BY CAL-WET DI (mg/L)
TCLP	SOLUBLE LEAD BY TOXICITY CHARACTERISTIC LEACHING PROCEDURE (mg/L)
mg/kg	MILLIGRAMS PER KILOGRAM
mg/L	MILLIGRAMS PER LITER
<	ANALYTE NOT REPORTED AT OR ABOVE STATED LABORATORY METHOD DETECTION LIMIT (MDL)
--	NOT ANALYZED

N

0 40 80

APPROXIMATE SCALE IN FEET

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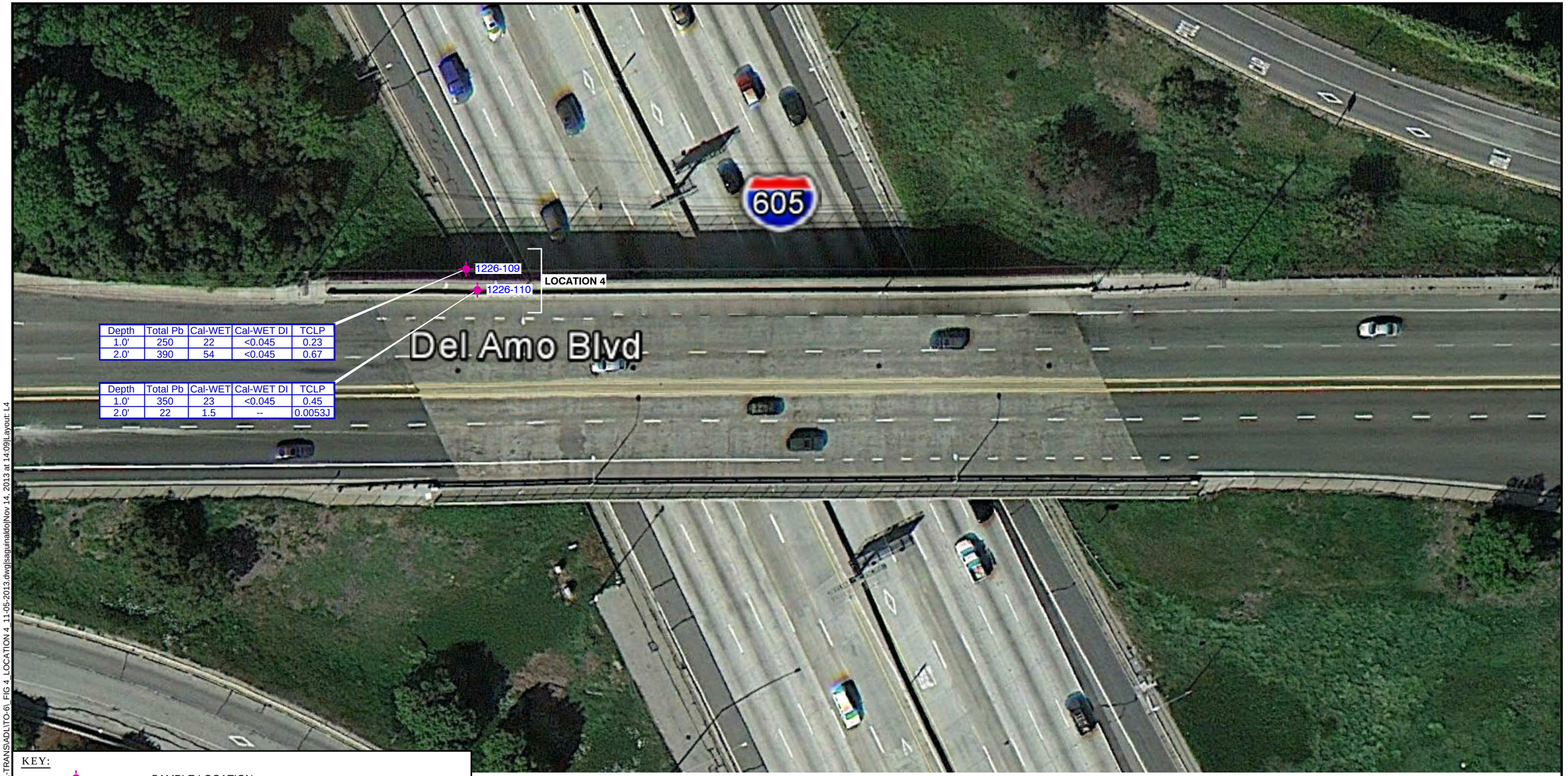
SITE MAP
LOCATION 2 & 3
PM 2.31 NB/SB 605
CENTRALIA ROAD OVERCROSSING

FIGURE: 3

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185831006	STA	A. PEREZ	-	NOV. 2013

FILEPATH:M:_00 OTHER OFFICES\04-REDLANDS\CAL-TRANS\ADL\TO-6_FIG 3_LOCATION 2 AND 3_11-05-2013.dwg|saguinaldo|Nov 14, 2013 at 14:55|Layout: L2 AND 3



Depth	Total Pb	Cal-WET	Cal-WET DI	TCLP
1.0'	250	22	<0.045	0.23
2.0'	390	54	<0.045	0.67

Depth	Total Pb	Cal-WET	Cal-WET DI	TCLP
1.0'	350	23	<0.045	0.45
2.0'	22	1.5	--	0.0053J

KEY:

	SAMPLE LOCATION
Depth FEET / ANALYTE ##.##	SAMPLE DEPTH IN FEET BELOW GROUND SURFACE AND ANALYTE CONCENTRATION
Total Pb	TOTAL LEAD (mg/kg)
Cal-WET	SOLUBLE LEAD BY CAL-WET CITRIC (mg/L)
Cal-WET DI	SOLUBLE LEAD BY CAL-WET DI (mg/L)
TCLP	SOLUBLE LEAD BY TOXICITY CHARACTERISTIC LEACHING PROCEDURE (mg/L)
mg/kg	MILLIGRAMS PER KILOGRAM
mg/L	MILLIGRAMS PER LITER
<	ANALYTE NOT REPORTED AT OR ABOVE STATED LABORATORY METHOD DETECTION LIMIT (MDL)
--	NOT ANALYZED

N

0 40 80

APPROXIMATE SCALE IN FEET

NOTE: ALL SAMPLES COLLECTED ON UNPAVED SHOULDER AREA. SAMPLES THAT APPEAR ON THE BRIDGE WERE COLLECTED BELOW THE BRIDGE ON UNPAVED SHOULDER AREA.

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SITE MAP
LOCATION 4
PM 2.87; SB 605
DEL AMO BLVD OVERCROSSING

FIGURE: 4

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
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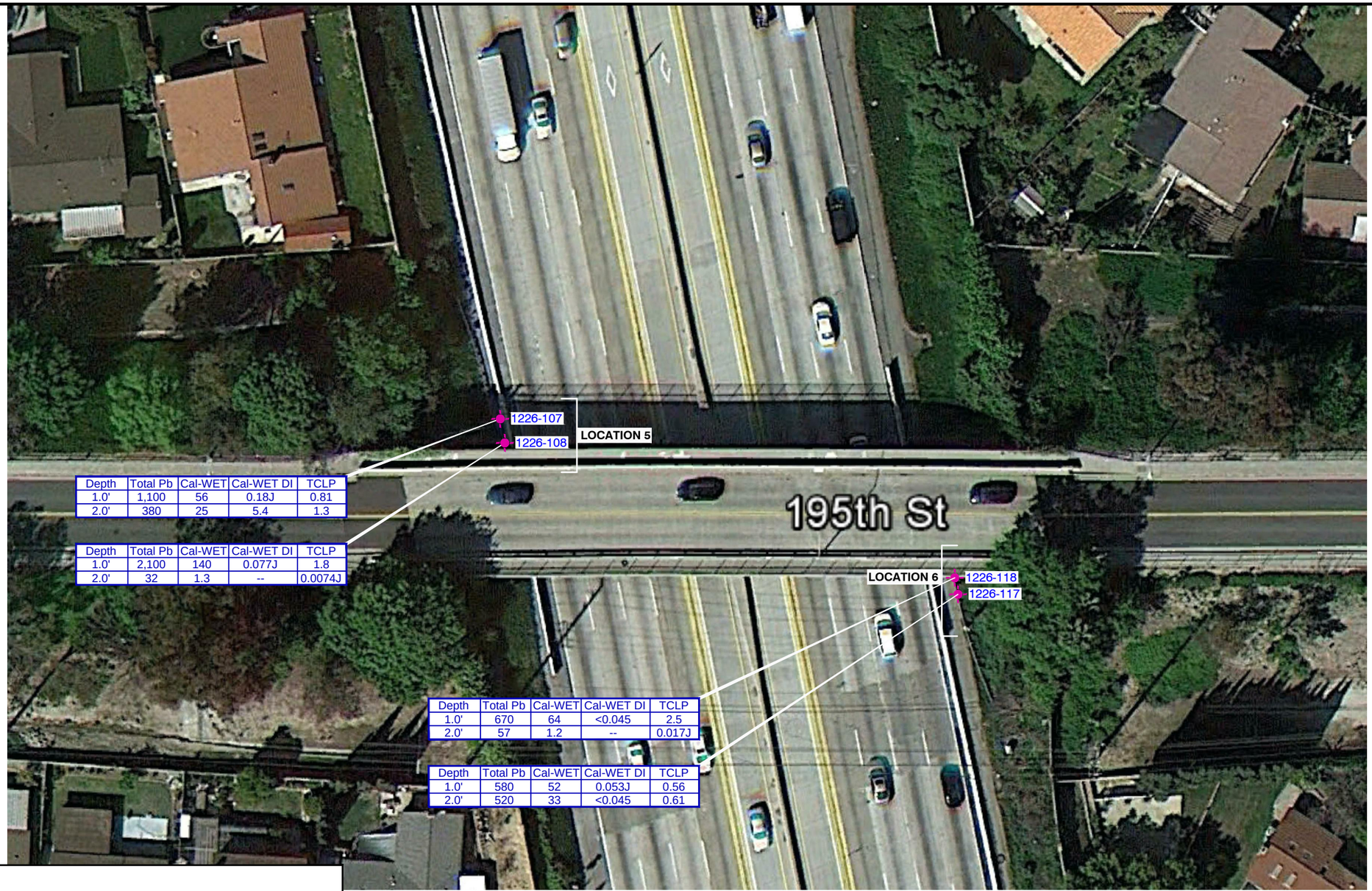
FILEPATH:M:_00 OTHER OFFICES\04-REDLANDS\CAL-TRANS\ADLITO-6_FIG 4_LOCATION 4_11-05-2013.dwg|saguinalto|Nov 14, 2013 at 14:09|Layout: L4



Depth	Total Pb	Cal-WET	Cal-WET DI	TCLP
1.0'	1,100	56	0.18J	0.81
2.0'	380	25	5.4	1.3

Depth	Total Pb	Cal-WET	Cal-WET DI	TCLP
1.0'	2,100	140	0.077J	1.8
2.0'	32	1.3	--	0.0074J

Depth	Total Pb	Cal-WET	Cal-WET DI	TCLP
1.0'	670	64	<0.045	2.5
2.0'	57	1.2	--	0.017J

Depth	Total Pb	Cal-WET	Cal-WET DI	TCLP
1.0'	580	52	0.053J	0.56
2.0'	520	33	<0.045	0.61

KEY:

	SAMPLE LOCATION
Depth / FEET ; ANALYTE / ##.##	SAMPLE DEPTH IN FEET BELOW GROUND SURFACE AND ANALYTE CONCENTRATION
Total Pb	TOTAL LEAD (mg/kg)
Cal-WET	SOLUBLE LEAD BY CAL-WET CITRIC (mg/L)
Cal-WET DI	SOLUBLE LEAD BY CAL-WET DI (mg/L)
TCLP	SOLUBLE LEAD BY TOXICITY CHARACTERISTIC LEACHING PROCEDURE (mg/L)
mg/kg	MILLIGRAMS PER KILOGRAM
mg/L	MILLIGRAMS PER LITER
<	ANALYTE NOT REPORTED AT OR ABOVE STATED LABORATORY METHOD DETECTION LIMIT (MDL)
--	NOT ANALYZED

N

0 40 80

APPROXIMATE SCALE IN FEET

NOTE: ALL SAMPLES COLLECTED ON UNPAVED SHOULDER AREA. SAMPLES THAT APPEAR ON THE BRIDGE WERE COLLECTED BELOW THE BRIDGE ON UNPAVED SHOULDER AREA.

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FOR: ADL SITE INVESTIGATION
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Task Order No. 06
FOR ROADSIDE IMPROVEMENTS
LA-605 PM 0.00/20.2
PN: 07-13000025 - EA: 295701

SITE MAP
LOCATIONS 5 AND 6
PM 3.4; NB/SB 605
195th STREET OVERCROSSING

FIGURE: 5

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
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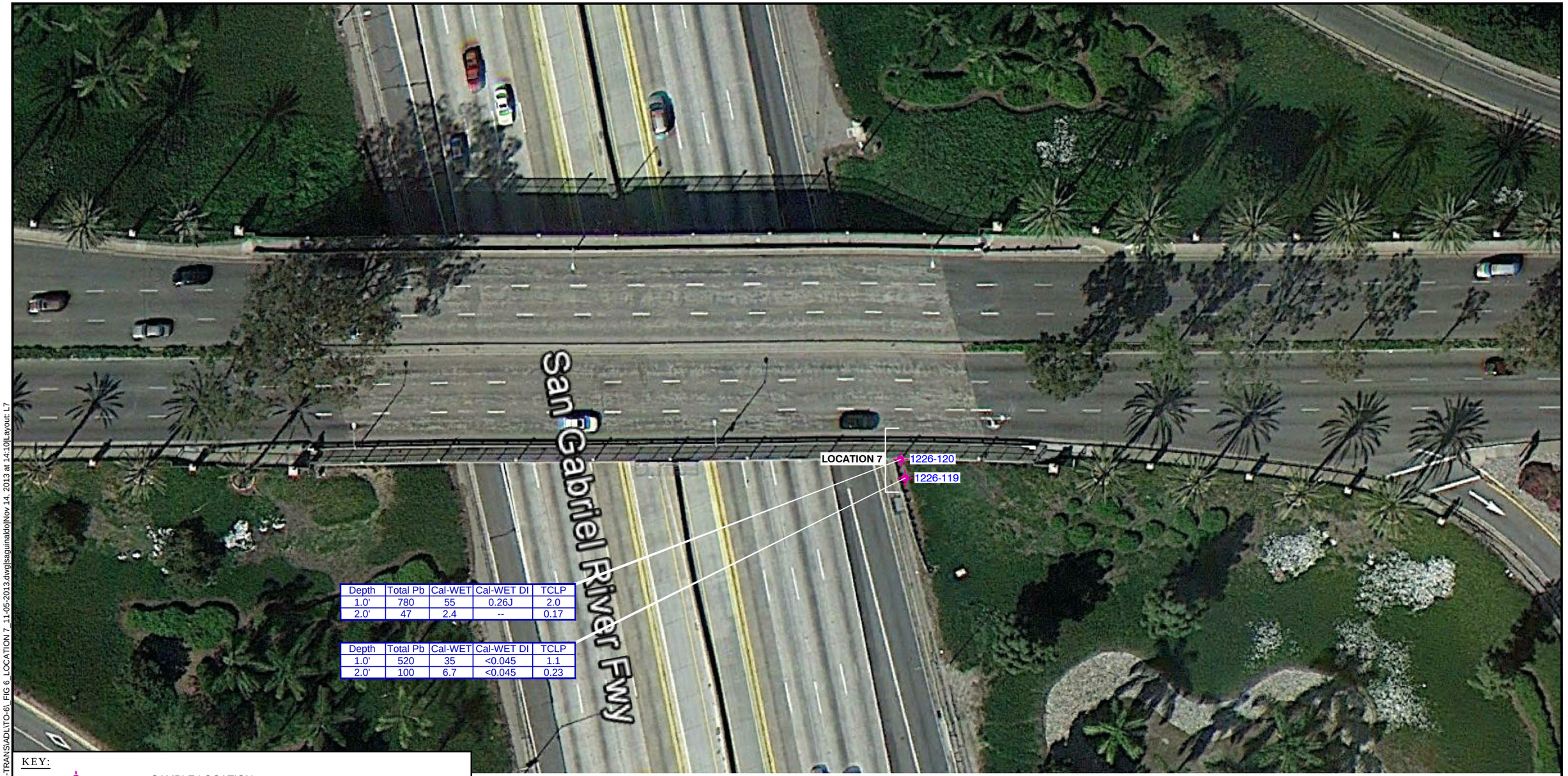
FILEPATH:M:_00 OTHER OFFICES\04-REDLANDS\CAL-TRANS\ADL\TO-6_FIG 5_LOCATIONS 5 AND 6_11-05-2013.dwg|saguinaldo|Nov 14, 2013 at 14:10|Layout: L5 & L6



Depth	Total Pb	Cal-WET	Cal-WET DI	TCLP
1.0'	780	55	0.26J	2.0
2.0'	47	2.4	--	0.17

Depth	Total Pb	Cal-WET	Cal-WET DI	TCLP
1.0'	520	35	<0.045	1.1
2.0'	100	6.7	<0.045	0.23

KEY:

	SAMPLE LOCATION
Depth FEET / ANALYTE ##.##	SAMPLE DEPTH IN FEET BELOW GROUND SURFACE AND ANALYTE CONCENTRATION
Total Pb	TOTAL LEAD (mg/kg)
Cal-WET	SOLUBLE LEAD BY CAL-WET CITRIC (mg/L)
Cal-WET DI	SOLUBLE LEAD BY CAL-WET DI (mg/L)
TCLP	SOLUBLE LEAD BY TOXICITY CHARACTERISTIC LEACHING PROCEDURE (mg/L)
mg/kg	MILLIGRAMS PER KILOGRAM
mg/L	MILLIGRAMS PER LITER
<	ANALYTE NOT REPORTED AT OR ABOVE STATED LABORATORY METHOD DETECTION LIMIT (MDL)
--	NOT ANALYZED

N

0 40 80

APPROXIMATE SCALE IN FEET

NOTE: ALL SAMPLES COLLECTED ON UNPAVED SHOULDER AREA. SAMPLES THAT APPEAR ON THE BRIDGE WERE COLLECTED BELOW THE BRIDGE ON UNPAVED SHOULDER AREA.

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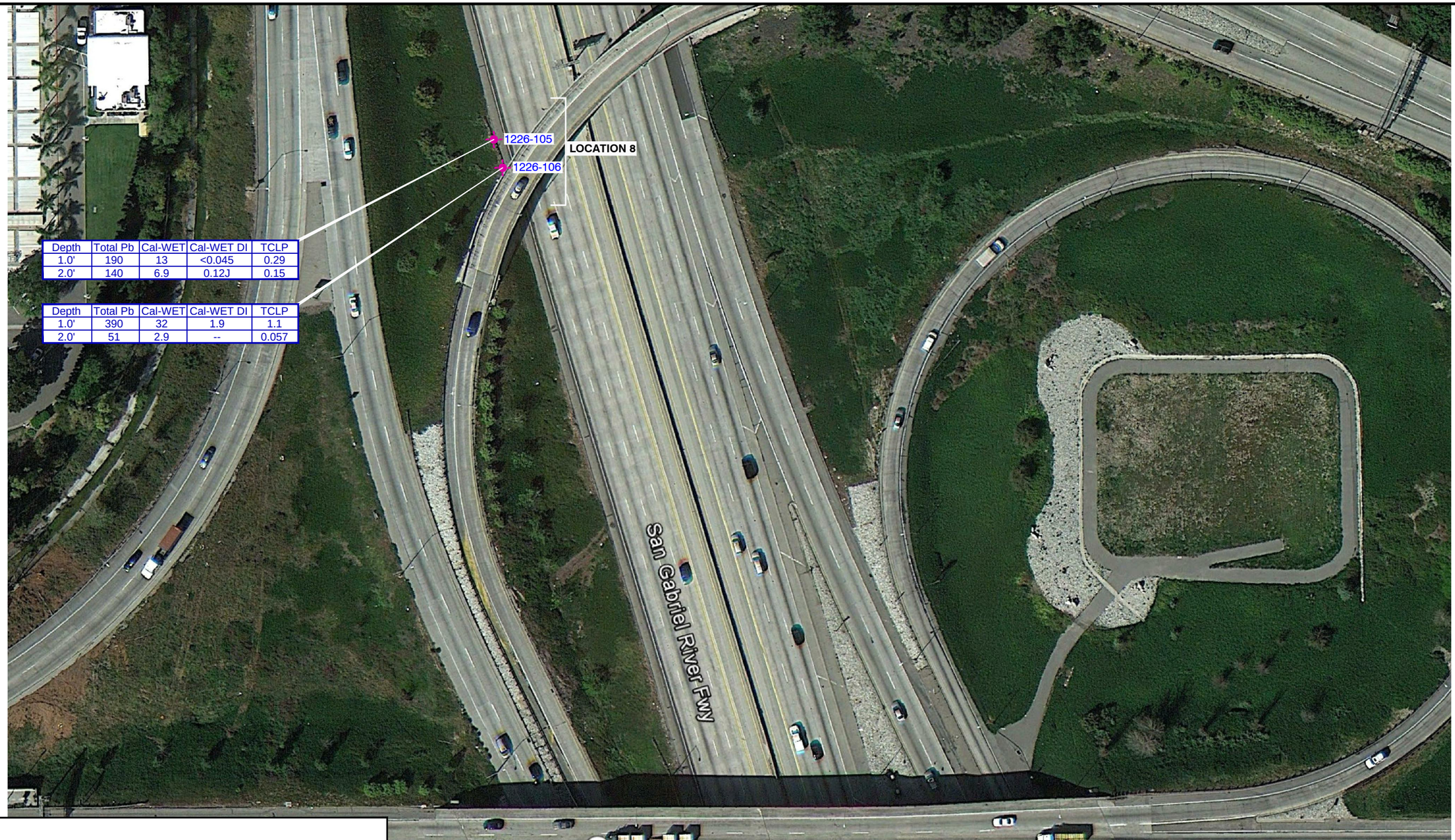
Agreement No. 07A3321
Task Order No. 06
FOR ROADSIDE IMPROVEMENTS
LA-605 PM 0.00/20.2
PN: 07-13000025 - EA: 295701

SITE MAP
LOCATION 7
PM 3.753; NB 605
SOUTH STREET OVERCROSSING

FIGURE: 6

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185831006	STA	A. PEREZ	-	NOV. 2013

FILEPATH:M:_00 OTHER OFFICES\04-REDLANDS\CAL-TRANS\ADL\TO-6_FIG 6_LOCATION 7_11-05-2013.dwg|saguinaldo|Nov 14, 2013 at 14:10|Layout: L7



Depth	Total Pb	Cal-WET	Cal-WET DI	TCLP
1.0'	190	13	<0.045	0.29
2.0'	140	6.9	0.12J	0.15

Depth	Total Pb	Cal-WET	Cal-WET DI	TCLP
1.0'	390	32	1.9	1.1
2.0'	51	2.9	--	0.057

KEY:

⌖	SAMPLE LOCATION
Depth / FEET: ANALYTE / ##.##	SAMPLE DEPTH IN FEET BELOW GROUND SURFACE AND ANALYTE CONCENTRATION
Total Pb	TOTAL LEAD (mg/kg)
Cal-WET	SOLUBLE LEAD BY CAL-WET CITRIC (mg/L)
Cal-WET DI	SOLUBLE LEAD BY CAL-WET DI (mg/L)
TCLP	SOLUBLE LEAD BY TOXICITY CHARACTERISTIC LEACHING PROCEDURE (mg/L)
mg/kg	MILLIGRAMS PER KILOGRAM
mg/L	MILLIGRAMS PER LITER
<	ANALYTE NOT REPORTED AT OR ABOVE STATED LABORATORY METHOD DETECTION LIMIT (MDL)
--	NOT ANALYZED

N

0 80 160

APPROXIMATE SCALE IN FEET

NOTE: ALL SAMPLES COLLECTED ON UNPAVED SHOULDER AREA. SAMPLES THAT APPEAR ON THE BRIDGE WERE COLLECTED BELOW THE BRIDGE ON UNPAVED SHOULDER AREA.

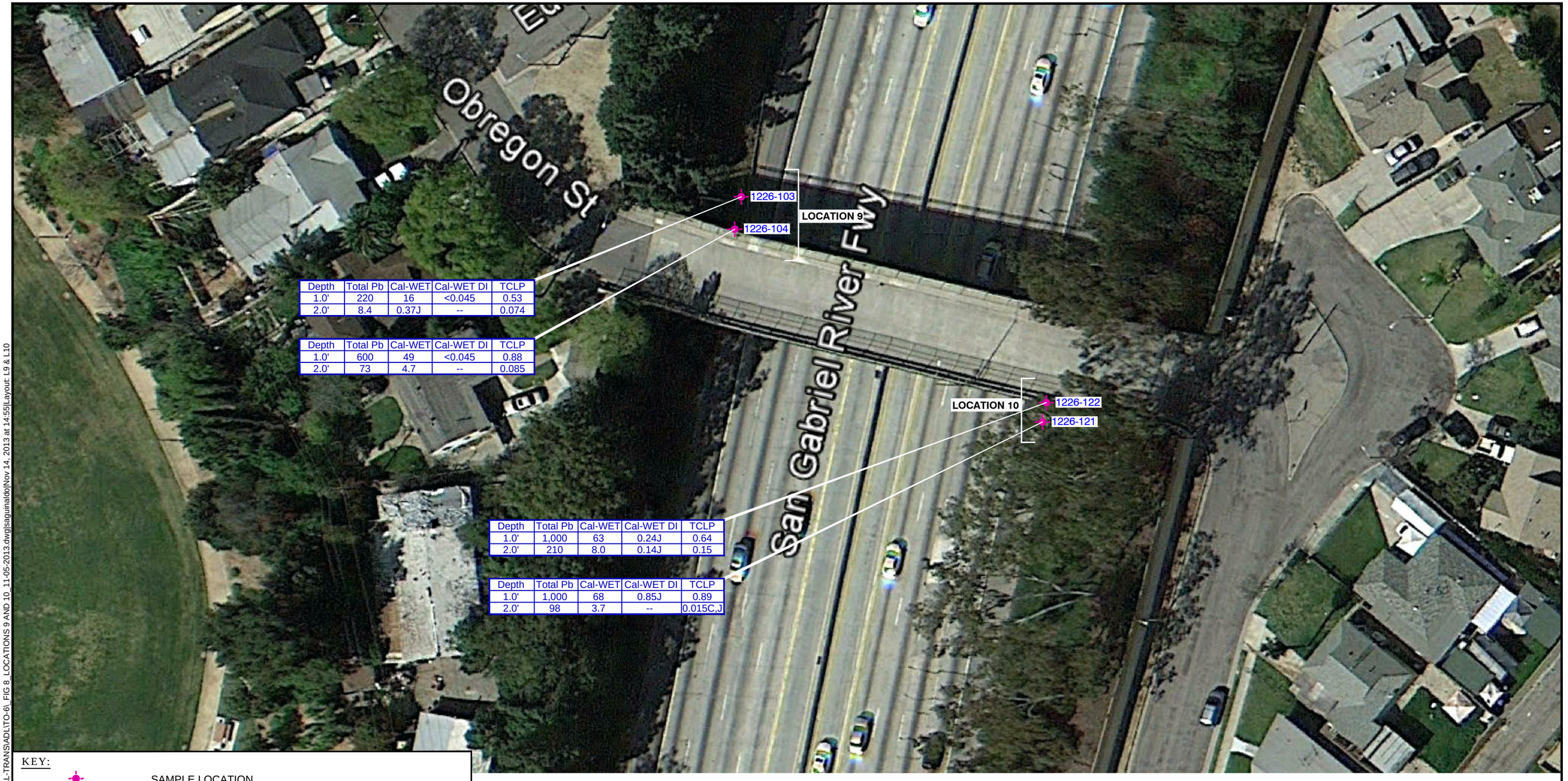
Stantec
25864-F BUSINESS CENTER DRIVE
REDLANDS, CALIFORNIA 92374
PHONE:(909) 335-6116 FAX:(909) 556-6516

FOR: ADL SITE INVESTIGATION
Agreement No. 07A3321
Task Order No. 06
FOR ROADSIDE IMPROVEMENTS
LA-605 PM 0.00/20.2
PN: 07-13000025 - EA: 295701

SITE MAP
LOCATION 8
PM 5.165; SB 605
91 WB TO THE 605 SB CONNECTOR

FIGURE: 7

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185831006	STA	A. PEREZ	-	NOV. 2013



Depth	Total Pb	Cal-WET	Cal-WET DI	TCLP
1.0'	220	16	<0.045	0.53
2.0'	8.4	0.37J	--	0.074

Depth	Total Pb	Cal-WET	Cal-WET DI	TCLP
1.0'	600	49	<0.045	0.88
2.0'	73	4.7	--	0.085

Depth	Total Pb	Cal-WET	Cal-WET DI	TCLP
1.0'	1,000	63	0.24J	0.64
2.0'	210	8.0	0.14J	0.15

Depth	Total Pb	Cal-WET	Cal-WET DI	TCLP
1.0'	1,000	68	0.85J	0.89
2.0'	98	3.7	--	0.015C,J

KEY:

	SAMPLE LOCATION
Depth FEET / ANALYTE ##.##	SAMPLE DEPTH IN FEET BELOW GROUND SURFACE AND ANALYTE CONCENTRATION
Total Pb	TOTAL LEAD (mg/kg)
Cal-WET	SOLUBLE LEAD BY CAL-WET CITRIC (mg/L)
Cal-WET DI	SOLUBLE LEAD BY CAL-WET DI (mg/L)
TCLP	SOLUBLE LEAD BY TOXICITY CHARACTERISTIC LEACHING PROCEDURE (mg/L)
mg/kg	MILLIGRAMS PER KILOGRAM
mg/L	MILLIGRAMS PER LITER
<	ANALYTE NOT REPORTED AT OR ABOVE STATED LABORATORY METHOD DETECTION LIMIT (MDL)
--	NOT ANALYZED

N

0 40 80

APPROXIMATE SCALE IN FEET

NOTE: ALL SAMPLES COLLECTED ON UNPAVED SHOULDER AREA. SAMPLES THAT APPEAR ON THE BRIDGE WERE COLLECTED BELOW THE BRIDGE ON UNPAVED SHOULDER AREA.

Stantec
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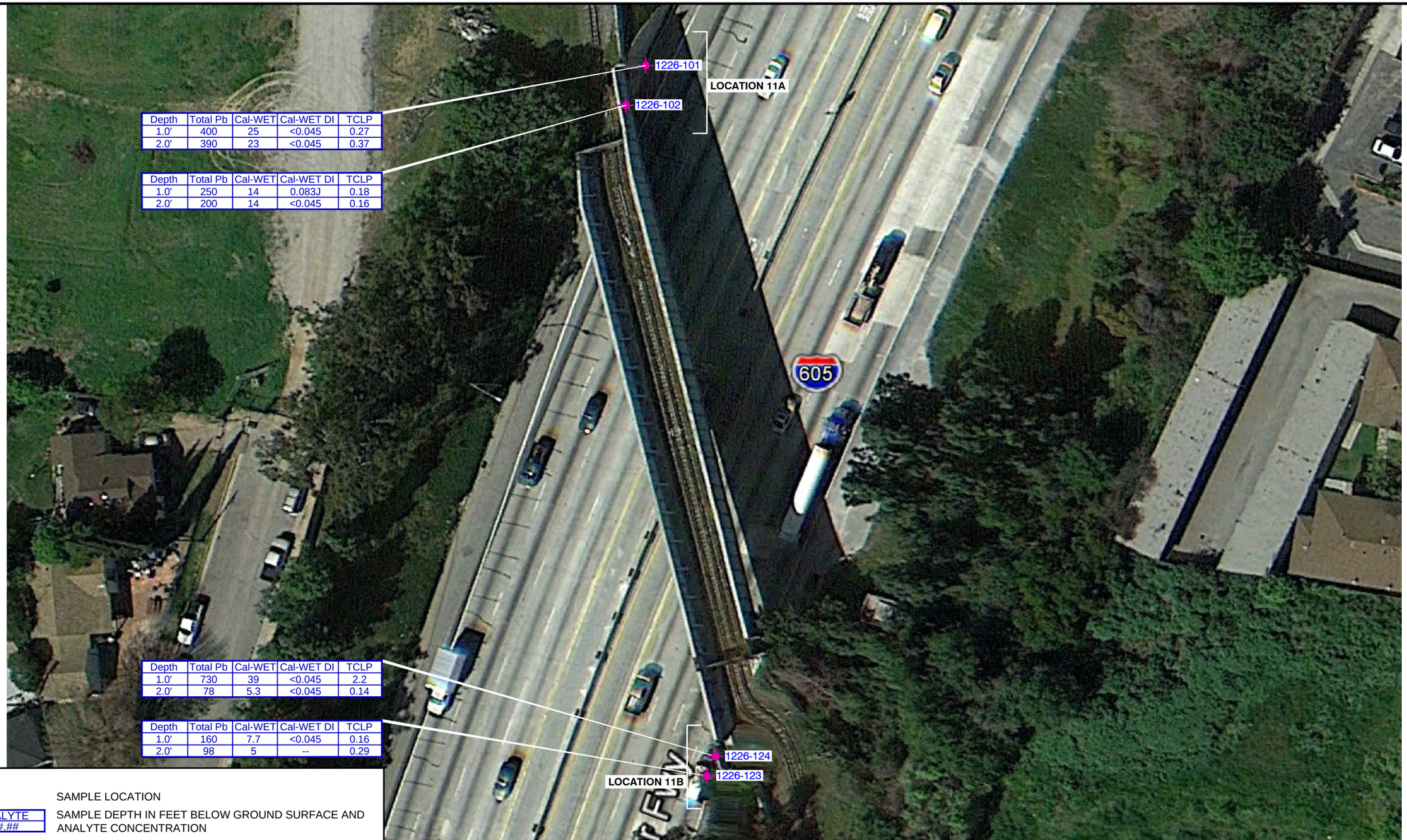
FOR: ADL SITE INVESTIGATION
Agreement No. 07A3321
Task Order No. 06
FOR ROADSIDE IMPROVEMENTS
LA-605 PM 0.00/20.2
PN: 07-13000025 - EA: 295701

SITE MAP
LOCATIONS 9 AND 10
PM 13.982; NB/SB 605
OBREGON STREET OVERCROSSING

FIGURE: 8

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185831006	STA	A. PEREZ	-	NOV. 2013

FILEPATH:M:\ 00 OTHER OFFICES\04-REDLANDS\CAL-TRANS\ADL\TO-6_FIG 8_LOCATIONS 9 AND 10_11-05-2013.dwg|saguinaldo|Nov 14, 2013 at 14:55|Layout: L9 & L10



Depth	Total Pb	Cal-WET	Cal-WET DI	TCLP
1.0'	400	25	<0.045	0.27
2.0'	390	23	<0.045	0.37

Depth	Total Pb	Cal-WET	Cal-WET DI	TCLP
1.0'	250	14	0.083J	0.18
2.0'	200	14	<0.045	0.16

Depth	Total Pb	Cal-WET	Cal-WET DI	TCLP
1.0'	730	39	<0.045	2.2
2.0'	78	5.3	<0.045	0.14

Depth	Total Pb	Cal-WET	Cal-WET DI	TCLP
1.0'	160	7.7	<0.045	0.16
2.0'	98	5	--	0.29

KEY:

	SAMPLE LOCATION
Depth / FEET ANALYTE ##.##	SAMPLE DEPTH IN FEET BELOW GROUND SURFACE AND ANALYTE CONCENTRATION
Total Pb	TOTAL LEAD (mg/kg)
Cal-WET	SOLUBLE LEAD BY CAL-WET CITRIC (mg/L)
Cal-WET DI	SOLUBLE LEAD BY CAL-WET DI (mg/L)
TCLP	SOLUBLE LEAD BY TOXICITY CHARACTERISTIC LEACHING PROCEDURE (mg/L)
mg/kg	MILLIGRAMS PER KILOGRAM
mg/L	MILLIGRAMS PER LITER
<	ANALYTE NOT REPORTED AT OR ABOVE STATED LABORATORY METHOD DETECTION LIMIT (MDL)
--	NOT ANALYZED

N

0 40 80

APPROXIMATE SCALE IN FEET

NOTE: ALL SAMPLES COLLECTED ON UNPAVED SHOULDER AREA. SAMPLES THAT APPEAR ON THE BRIDGE WERE COLLECTED BELOW THE BRIDGE ON UNPAVED SHOULDER AREA.

Stantec
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PHONE: (909) 335-6116 FAX: (909) 556-6516

FOR: ADL SITE INVESTIGATION
Agreement No. 07A3321
Task Order No. 06
FOR ROADSIDE IMPROVEMENTS
LA-605 PM 0.00/20.2
PN: 07-13000025 - EA: 295701

SITE MAP
LOCATION 11A AND 11B
PM 14.08; NB 605
WHITTIER UPRR OVERHEAD

FIGURE: 9

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185831006	STA	A. PEREZ	-	NOV. 2013

FILEPATH:M:_00 OTHER OFFICES\04-REDLANDS\CAL-TRANS\ADLITO-6_FIG 9_LOCATION 11_11-05-2013.dwg|saguinaldo|Nov 14, 2013 at 14:13|Layout: L11

Depth	Total Pb	Cal-WET	Cal-WET DI	TCLP
1.0'	10	0.31J	--	0.11
2.0'	30	2.0	--	0.027C,J

Depth	Total Pb	Cal-WET	Cal-WET DI	TCLP
1.0'	520	29	<0.045	0.64
2.0'	110	5.1	<0.045	0.061

KEY:

	SAMPLE LOCATION
Depth FEET / ANALYTE ##.##	SAMPLE DEPTH IN FEET BELOW GROUND SURFACE AND ANALYTE CONCENTRATION
Total Pb	TOTAL LEAD (mg/kg)
Cal-WET	SOLUBLE LEAD BY CAL-WET CITRIC (mg/L)
Cal-WET DI	SOLUBLE LEAD BY CAL-WET DI (mg/L)
TCLP	SOLUBLE LEAD BY TOXICITY CHARACTERISTIC LEACHING PROCEDURE (mg/L)
mg/kg	MILLIGRAMS PER KILOGRAM
mg/L	MILLIGRAMS PER LITER
<	ANALYTE NOT REPORTED AT OR ABOVE STATED LABORATORY METHOD DETECTION LIMIT (MDL)
--	NOT ANALYZED

N

0 80 160

APPROXIMATE SCALE IN FEET

NOTE: ALL SAMPLES COLLECTED ON UNPAVED SHOULDER AREA. SAMPLES THAT APPEAR ON THE BRIDGE WERE COLLECTED BELOW THE BRIDGE ON UNPAVED SHOULDER AREA.

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FOR: ADL SITE INVESTIGATION
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Task Order No. 06
FOR ROADSIDE IMPROVEMENTS
LA-605 PM 0.00/20.2
PN: 07-13000025 - EA: 295701

SITE MAP
LOCATION12
PM 17.5; NB 605
Rte 60 WB TO Rte 605 SB
COLUMN - NORTH OF SEPARATION

FIGURE: 10

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185831006	STA	A. PEREZ	-	NOV. 2013

FILEPATH:M:_00 OTHER OFFICES\04-REDLANDS\CAL-TRANS\ADLTO-6_FIG 10_LOCATION 12_11-05-2013.dwg|saguinaldo|Nov 14, 2013 at 14:14|Layout: L12

APPENDIX A
HASP AND FIELD FORMS

Purpose and Approval

Our work can be hazardous, and it is imperative that we never forget that! It is the purpose of this Health and Safety Plan (HASP) to proactively aid Stantec employees in:

- Identifying and understanding the potential risks/hazards they may encounter at the site.
- Mitigating those potential risks/hazards.

Stantec's policy is to complete our work on this site without any type of incident (injury, illness, impact to the environment, impact to property and equipment). In order to achieve this goal, the project team will work together to perform an effective hazard assessment. The team will then establish appropriate precautions and communicate these daily among project staff. Staff will be responsible for communicating changing field conditions to the project management so these conditions and appropriate precautions may be re-evaluated as needed. Staff will implement **STOP WORK AUTHORITY** at any time they believe that conditions may be inherently unsafe or might cause damage to property or harm to the environment. Staff may refuse to participate in work they believe will be unsafe. If it is believed that such conditions exist, staff will communicate immediately with the Project Manager to resolve the situation. We expect all subcontractors and project personnel to share this goal.

Client: The State of California, Department of Transportation – 07A3321

Site Name: Aerially Deposited Lead Site Investigation for Roadside Improvements, Location: LA-605 CAPM Project Between Coyote Creek and Los Angeles/Orange County Line

Project Name: TASK ORDER NO. 6 – ADL

Project Number: 185831006

Start Date: October 17, 2013

End Date: October 18, 2013

Plan Review Date*: April 17, 2014

(*The Plan Review Date is the date the HASP would need to be re-reviewed to maintain current information is included should the Task Order be extended. The Plan Review date is *not longer than 6 months from the start of the Period of Performance – however, no reviews will be performed on the HASP outside of the Task Order Period of Performance.*).

Kevin Miskin Project Manager	Signature:	Date: 10/15/13
Dan Feldt, MPH, CIH Health and Safety Manager, Certified Industrial Hygienist (CIH) HASP review	Signature:	Date: 10/15/13
Anne Perez Office Safety Environmental Coordinator (OSEC)	Signature:	Date: 10/16/13
Mike Clayton Site Health and Safety Officer (SHSO)	Signature:	Date: 10/16/13
Jim Dewoody Peer Reviewer	Signature:	Date: 10-16-13
Anne Perez HASP Originator	Signature:	Date: 10-16-13

The health and safety guidelines in this HASP were prepared exclusively for this site. This HASP will be amended (with changes recorded on the Health and Safety Plan Modification Log located in Attachment A) if site conditions, scope of work, training dates, personnel, or other critical items change before the scheduled HASP review date above. This HASP is intended to be available on site. Contents of this binder are listed in Attachment 1. Elements of the HASP shall be reviewed during daily tailgate meetings conducted by the Site Health & Safety Officer.

Acknowledgement and Agreement Form

"Zero Tolerance for Incidents of ANY Kind.
Work Together to Ensure a SAFE and High Quality Project"

All parties conducting site activities are required to coordinate their activities and practices with the Stantec Site Health and Safety Officer (SHSO). If subcontractors are on Site, Stantec will provide a copy of this HASP to these subcontractors in the interest of disclosure of potential risks/hazards of which Stantec may be aware. Similarly, subcontractors shall inform Stantec of any potential site risks/hazards of which they are aware including the subcontractor's work, equipment, procedures and chemicals.

This HASP has been developed for the purpose of proactively aiding Stantec employees in identifying, understanding, and mitigating the potential risks/hazards they are may encounter at the site. This HASP may also be used as a reference document by properly trained and experienced Stantec subcontractors and clients. However, subcontractors and other contractors (if any) at the site must develop their own HASP to address the potential risks/hazards faced by their own employees.

This HASP should NOT be understood by subcontractors or anyone other than Stantec employees to provide information on all of the potential risks/hazards to which they may be exposed as a result of their work. Stantec claims no responsibility for use of this HASP by others.

Your signature below confirms the following: that you have read and understand the potential risks/hazards identified by Stantec and the associated mitigation measures discussed in this HASP; that there may be additional risks or hazards that are not identified in this HASP; that you have received training and medical surveillance according to this HASP and the OSHA Standard on Hazardous Waste Operations and Emergency Response (29 CFR 1910.120); and that you understand that you could be prohibited by the Stantec Site Health and Safety Officer or other authorized Stantec personnel from working on this project for not complying with any aspect of this or any other applicable HASP.

(All Stantec and subcontractor personnel must sign.)

Name	Signature	Company	Date
Mike A Clayton		Stantec	10/17/13
Dion Monge		Stantec	10/17/13
Mark Zellmer		Stantec	10/17/13
SAM YOUNG		CT.	10/17/13
HUNG PHAM		CT	10/17/13

DAILY PRODUCTION HEALTH AND SAFETY BRIEFING LOG

Date: 10/17/13	**Start Time:** 0700
Scope of Work: ADL Survey	
Issues Discussed:	
1. PPE	6. Slip/Trip/Fall
2. Hospital	7.
3. Traffic	8.
4. Sample Collection	9.
5. Heat	10.

Attendees

Print Name and Company	Signature	Second Meeting (Initial)
Mike A Clayton Stantec		
Dion Monge		
mark zellmer		
Sam Young		
Hank AHAM		

Meeting Conducted by:	**Signature:**
Dion Monge	
Name (Site Health and Safety Coordinator):	**Signature:**

STANTEC
Field Daily Report Form

Stantec

Date : Oct 17, 2013
Project : CALTRANS DIST 7 / TO 6 185831006
Reporting : Monge / Zellmer / Clayton

Time	Description of Activities
0700-0730	Meet @ Site w/ Sam Yang & Hung Pham - Conduct H&S meeting
0730-0735	Collect equipment blank sample from all 4 buckets - 1226-EBLK-101712013
0735-0805	Travel to first location (Location 11) and sample at RR - SB I605
0805-0900	Travel to location 9/10 (southbound side)
0900-1435	Travel to remaining location; southbound first then northbound ending at location 12 (NB)

NOTES *ALL SAMPLES COLLECTED ON SB SIDE OF I-605 WERE COLLECTED W/IN 5 FEET OF NORTHERN BRIDGE COLUMN AND ALSO ~20 FEET NORTH OF THAT LOCATION
*ALL SAMPLES COLLECTED ON NB SIDE OF I-605 WERE COLLECTED W/IN 5 FEET OF SOUTH BRIDGE COLUMN AND ALSO ~20 FEET SOUTH OF THAT BORING LOCATION

Pic	SAMPLE ID	Collection time	LAT	LONG	OBSERVATIONS
✓	101-1	0802	33.00119400	-118.06733194	
	101-2	0815	—	—	
✓	102-1	0802	20.5' N to 2' W of location 101		
	102-2	0805	(location could not be recorded by GPS)		
✓	103-1	0845	From Northside guardrail = 17.7'	From Column to 103 = 46.0'	1.5' west of rail
	103-2	0851	—	—	
✓	104-1	0853	From Northend rail to = 61.7'	From column to 104 = 1.5'	1.5' west of rail
	104-2	0855	—	—	
✓	105-1	0933	33.87797890	-118.10332948	
	105-2	0935	—	—	
✓	106-1	0930	33.87794233	-118.10331556	
	106-2	0936	—	—	
✓	107-1	0958	33.85346449	-118.09528603	
	107-2	1002	—	—	
✓	108-1	0959	33.85340415	-118.09526212	
✓	108-2	1004	—	—	
✓	109-1	1024	33.84610632	-118.09287696	
	109-2	1027	—	—	

STANTEC
Field Daily Report Form

Date : Oct 12, 2013
Project : CALTRANS DIST 7 / TO 6 185831006
Reporting : Monge / Zellmer / Clayton

Time		Description of Activities	
SAMPLE ID	Collection time	Lat	Long
110-1	1023	33.846085519	-118.09285893
110-2	1032		
111-1	1056		
111-2	1100		
112-1	1057		
112-2	1101		
113-1	1125		; GPS logged
113-2	1128		
114-1	1126	4.8 from column 23.4 from location 113; GPS not picking up satellites	
114-2	1129		
115-1	1153		GPS logged
115-2	1156		
116-1	1154	5.8 from column; 18.0 location 115; GPS not picking up satellites	
116-2	1157		
117-1	1216	23.3 feet from column, 31.1 from rail, 1.5' east of rail	No satellites
117-2	1220		
118-1	1217	5.5 ft from column; 49.7 from rail; 1.5' east of rail	No satellites
118-2	1221		
119-1	1238		GPS logged
119-2	1242		
120-1	1239	5.7' from column 20.4' from 119, 1.5' east of rail	No satellites
120-2	1244		
121-1	1328	5.6" from rail	
121-2	1332		
122-1	1329	6'7" from column, 14'5" from 121 to rail, 1.5 in	
122-2	1333		
123-1	1355		GPS logged
123-2	1359		

STANTEC
Field Daily Report Form

Stantec

Date : Oct 17, 2013
Project : CALTRAN DIST 7 / TO 6 185831006
Reporting : MONGE / ZELLMER / CRAYTON

~~Time~~ **Description of Activities**

SAMPLE ID	Collection Time	Lat	Long	
124-1	1356			GPS Logged
124-2	1400			
125-1	1429	39'3" from S end of rail; 4'3" east of rail; 24'3" from column		
125-2	1433	↓		NO satellites
126-1	1430	58'5" from Location 125; 1.5' east of rail; 5'3" from column		
126-2	1434	↓		

ALL SAMPLES COLLECTED AT 1' and 2' bgs and homogenized in ziplock bag prior to packing into 8oz glass jars. Where satellites could not be picked up, locations where measured from nearest bridge column and end of guard rail. Where one location could be recorded with GPS, the other location was measured from the GPS recorded location.

APPENDIX B
BORING GPS COORDINATES

APPENDIX B - BORING GPS COORDINATES
AERIALLY DEPOSITED LEAD SITE INVESTIGATION
LA-605, PM R0.00/R20.0
LOS ANGELES COUNTY, CALIFORNIA
EFIS 0713000025 (EA#295701)
TASK ORDER #06
CONTRACT 07A3321

Boring ID	Latitude [1]	Longitude [1]	Northing (UTM)	Easting [2] (UTM)
1226-101	34.001194	-118.0673319	3775889.63	417888.85
1226-102	20 feet 5 inches north, and 2 feet west of 1226-101			
1226-103	17 feet 7 inches south from the north end of the guard rail, and 46 feet north from the support column, and 1.5 feet west of the guard rail.			
1226-104	61 feet 7 inches south from the north end of the guard rail, 1 foot 5 inches north from the support column, and 1.5 feet west of the guard rail.			
1226-105	33.8779789	-118.1033295	3775890.06	417928.02
1226-106	33.87794232	-118.1033156	3775900.98	418696.46
1226-107	33.85346449	-118.095286	3775904.91	418978.72
1226-108	33.85340415	-118.0952621	3775910.58	419382.52
1226-109	33.84610632	-118.092877	3775916.26	419786.32
1226-110	33.8460852	-118.0928589	3775921.93	420190.13
1226-111	33.83883326	-118.0886221	3775927.61	420593.93
1226-112	33.838798	-118.088608	3775933.28	420997.73
1226-113	33.81022244	-118.0811515	3775938.96	421401.54
1226-114	33.81023482	-118.0811555	3775944.63	421805.34
1226-115	33.83851632	-118.0878726	3775950.31	422209.14
1226-116	33.83854109	-118.0878806	3775955.98	422612.95
1226-117	31 feet 1 inch north from south end of the guard rail, and 23 feet 3 inches south of the support column, and 1.5 feet east of the guard rail.			
1226-118	49 feet 7 inchs north from south end of the guard rail, 5 feet 5 inches south of the support column, and 1.5 feet east of the guard rail.			
1226-119	33.85820571	-118.0958193	3775961.66	423016.75
1226-120	20 feet 4 inches north of boring 119, 5 feet 7 inches south of the support column, and 1.5 feet east of the guard rail.			
1226-121	33.99918255	-118.0676047	3775967.33	423420.55
1226-122	14 feet 5 inches north of a point perpendicular to boring 121 on the guard rail, 6 feet 7 inches from the support column, and 1.5 feet east of the guard rail.			
1226-123	34.00010928	-118.0672953	3775973.01	423824.35
1226-124	34.00019147	-118.0672619	3775978.68	424228.16
1226-125	39 feet 3 inches north from the south end of the guard rail, 24 feet 3 inches from the support column, and 4 feet 3 inches east of the guard rail.			
1226-126	58 feet 5 inches from boring 125, 5 feet 3 inches from the support column, and 1.5 feet east of the guard rail.			

Notes:
[1] North American Datum 83 (WPS 84)
[2] Zone 11

APPENDIX C
PHOTOGRAPHIC RECORD

STANTEC CONSULTING SERVICES, INC
PHOTOGRAPHIC RECORD

Client: Calif. Department of Transportation, District 7	**Job Number:** 185831006
Site Name: LA 605 CAPM Project between I-10/605 Junction and Los Angeles/Orange County line	**County/Route/Post-Mile:** LA-605 PM 0.00/20.25
Photographer: Dion Monge	**Date:** October 17, 2013

Photograph No. 1

WHITTIER UPRR OH (SOUTHBOUND I-605), BORINGS 1226-101 AND 1226-102.

Photograph No. 2

OBREGON ST OC (SOUTHBOUND I-605), BORINGS 1226-103 AND 1226-104.

STANTEC CONSULTING SERVICES, INC PHOTOGRAPHIC RECORD	
Client: Calif. Department of Transportation, District 7	**Job Number:** 185831006
Site Name: LA 605 CAPM Project between I-10/605 Junction and Los Angeles/Orange County line	**County/Route/Post-Mile:** LA-605 PM 0.00/20.25
Photographer: Dion Monge	**Date:** October 17, 2013

Photograph No. 3

91 WB CONNECTOR TO 605 SB CONNECTOR (SOUTHBOUND I-605), BORINGS 1226-105 AND 1226-106.

Photograph No. 4

195TH ST OC (SOUTHBOUND I-605), BORINGS 1226-107 AND 1226-108.

STANTEC CONSULTING CORPORATION PHOTOGRAPHIC RECORD	
Client: Calif. Department of Transportation, District 7	**Job Number:** 185831006
Site Name: LA 605 CAPM Project between I-10/605 Junction and Los Angeles/Orange County line	**County/Route/Post-Mile:** LA-605 PM 0.00/20.25
Photographer: Dion Monge	**Date:** November 14, 2013

Photograph No. 5

DEL AMO BLVD OC (SOUTHBOUND I-605), BORINGS 1226-109 AND 1226-110.

Photograph No. 6

CENTRALIA RD OC (SOUTHBOUND I-605), BORINGS 1226-111 AND 1226-112.

STANTEC CONSULTING CORPORATION PHOTOGRAPHIC RECORD	
Client: Calif. Department of Transportation, District 7	**Job Number:** 185831006
Site Name: LA 605 CAPM Project between I-10/605 Junction and Los Angeles/Orange County line	**County/Route/Post-Mile:** LA-605 PM 0.00/20.25
Photographer: Dion Monge	**Date:** November 14, 2013

Photograph No. 7

SPRING ST OC (NORTHBOUND I-605), BORINGS 1226-113 AND 1226-114.

Photograph No. 8

CENTRALIA RD OC (NORTHBOUND I-605), BORINGS 1226-115 AND 1226-116.

STANTEC CONSULTING CORPORATION
PHOTOGRAPHIC RECORD

Client: Calif. Department of Transportation, District 7	**Job Number:** 185831006
Site Name: LA 605 CAPM Project between I-10/605 Junction and Los Angeles/Orange County line	**County/Route/Post-Mile:** LA-605 PM 0.00/20.25
Photographer: Dion Monge	**Date:** November 14, 2013

Photograph No. 9

195TH ST OC (NORTHBOUND I-605), BORINGS 1226-117 AND 1226-118.

Photograph No. 10

SOUTH ST OC (NORTHBOUND I-605), BORINGS 1226-119 AND 1226-120.

STANTEC CONSULTING CORPORATION PHOTOGRAPHIC RECORD	
Client: Calif. Department of Transportation, District 7	**Job Number:** 185831006
Site Name: LA 605 CAPM Project between I-10/605 Junction and Los Angeles/Orange County line	**County/Route/Post-Mile:** LA-605 PM 0.00/20.25
Photographer: Dion Monge	**Date:** November 14, 2013

Photograph No. 11

OBREGON ST OC (NORTHBOUND I-605), BORINGS 1226-121 AND 1226-122.

Photograph No. 12

WHITTIER UPRR OH (NORTHBOUND I-605), BORINGS 1226-123 AND 1226-124.

STANTEC CONSULTING CORPORATION PHOTOGRAPHIC RECORD	
Client: Calif. Department of Transportation, District 7	**Job Number:** 185831006
Site Name: LA 605 CAPM Project between I-10/605 Junction and Los Angeles/Orange County line	**County/Route/Post-Mile:** LA-605 PM 0.00/20.25
Photographer: Dion Monge	**Date:** November 14, 2013

Photograph No. 13

RTE 60 WB TO 605 SB COLUMN, NORTH OF SEPARATION (SOUTHBOUND I-605), BORINGS 1226-125 AND 1226-126.

APPENDIX D
ANALYTICAL LABORATORY REPORTS and CHAIN-OF-CUSTODY RECORDS

November 04, 2013

Anne Perez
Stantec
25864-F Business Center Drive
Redlands, CA 92374
Tel: (909) 255-8202
Fax:(909) 335-6120

ELAP No.: 1838
NELAP No.: 02107CA
CSDLAC No.: 10196
ORELAP No.: CA300003
TCEQ No.: T104704502

Re: ATL Work Order Number : 1303286
Client Reference : 185831006 ADL - District 7 Task Order 6

Enclosed are the results for sample(s) received on October 18, 2013 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated on the enclosed chain of custody in accordance with applicable laboratory certifications. The laboratory results contained in this report specifically pertains to the sample(s) submitted.

Thank you for the opportunity to serve the needs of your company. If you have any questions, please feel free to contact me or your Project Manager.

Sincerely,

Eddie Rodriguez
Laboratory Director

Certificate of Analysis

Stantec	Project Number : 185831006 ADL - District 7 Task Order 6
25864-F Business Center Drive	Report To : Anne Perez
Redlands , CA 92374	Reported : 11/04/2013

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
1226-EBQC-10172013	1303286-01	Water	10/17/13 7:35	10/18/13 10:20
1226-101-1	1303286-02	Soil	10/17/13 8:02	10/18/13 10:20
1226-101-2	1303286-03	Soil	10/17/13 8:15	10/18/13 10:20
1226-102-1	1303286-04	Soil	10/17/13 8:02	10/18/13 10:20
1226-102-2	1303286-05	Soil	10/17/13 8:05	10/18/13 10:20
1226-103-1	1303286-06	Soil	10/17/13 8:45	10/18/13 10:20
1226-103-2	1303286-07	Soil	10/17/13 8:51	10/18/13 10:20
1226-104-1	1303286-08	Soil	10/17/13 8:53	10/18/13 10:20
1226-104-2	1303286-09	Soil	10/17/13 8:55	10/18/13 10:20
1226-105-1	1303286-10	Soil	10/17/13 9:33	10/18/13 10:20
1226-105-2	1303286-11	Soil	10/17/13 9:35	10/18/13 10:20
1226-106-1	1303286-12	Soil	10/17/13 9:30	10/18/13 10:20
1226-106-2	1303286-13	Soil	10/17/13 9:36	10/18/13 10:20
1226-107-1	1303286-14	Soil	10/17/13 9:58	10/18/13 10:20
1226-107-2	1303286-15	Soil	10/17/13 10:02	10/18/13 10:20
1226-108-1	1303286-16	Soil	10/17/13 9:59	10/18/13 10:20
1226-108-2	1303286-17	Soil	10/17/13 10:04	10/18/13 10:20
1226-109-1	1303286-18	Soil	10/17/13 10:24	10/18/13 10:20
1226-109-2	1303286-19	Soil	10/17/13 10:27	10/18/13 10:20
1226-110-1	1303286-20	Soil	10/17/13 10:23	10/18/13 10:20
1226-110-2	1303286-21	Soil	10/17/13 10:32	10/18/13 10:20
1226-111-1	1303286-22	Soil	10/17/13 10:56	10/18/13 10:20
1226-111-2	1303286-23	Soil	10/17/13 11:00	10/18/13 10:20
1226-112-1	1303286-24	Soil	10/17/13 10:57	10/18/13 10:20
1226-112-2	1303286-25	Soil	10/17/13 11:01	10/18/13 10:20
1226-113-1	1303286-26	Soil	10/17/13 11:25	10/18/13 10:20
1226-113-2	1303286-27	Soil	10/17/13 11:28	10/18/13 10:20
1226-114-1	1303286-28	Soil	10/17/13 11:26	10/18/13 10:20
1226-114-2	1303286-29	Soil	10/17/13 11:29	10/18/13 10:20
1226-115-1	1303286-30	Soil	10/17/13 11:53	10/18/13 10:20
1226-115-2	1303286-31	Soil	10/17/13 11:56	10/18/13 10:20
1226-116-1	1303286-32	Soil	10/17/13 11:54	10/18/13 10:20
1226-116-2	1303286-33	Soil	10/17/13 11:57	10/18/13 10:20
1226-117-1	1303286-34	Soil	10/17/13 12:16	10/18/13 10:20
1226-117-2	1303286-35	Soil	10/17/13 12:20	10/18/13 10:20
1226-118-1	1303286-36	Soil	10/17/13 12:17	10/18/13 10:20
1226-118-2	1303286-37	Soil	10/17/13 12:21	10/18/13 10:20

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1226-119-1	1303286-38	Soil	10/17/13 12:38	10/18/13 10:20
1226-119-2	1303286-39	Soil	10/17/13 12:42	10/18/13 10:20
1226-120-1	1303286-40	Soil	10/17/13 12:39	10/18/13 10:20
1226-120-2	1303286-41	Soil	10/17/13 12:44	10/18/13 10:20
1226-121-1	1303286-42	Soil	10/17/13 13:28	10/18/13 10:20
1226-121-2	1303286-43	Soil	10/17/13 13:32	10/18/13 10:20
1226-122-1	1303286-44	Soil	10/17/13 13:29	10/18/13 10:20
1226-122-2	1303286-45	Soil	10/17/13 13:33	10/18/13 10:20
1226-123-1	1303286-46	Soil	10/17/13 13:55	10/18/13 10:20
1226-123-2	1303286-47	Soil	10/17/13 13:59	10/18/13 10:20
1226-124-1	1303286-48	Soil	10/17/13 13:56	10/18/13 10:20
1226-124-2	1303286-49	Soil	10/17/13 14:00	10/18/13 10:20
1226-125-1	1303286-50	Soil	10/17/13 14:29	10/18/13 10:20
1226-125-2	1303286-51	Soil	10/17/13 14:33	10/18/13 10:20
1226-126-1	1303286-52	Soil	10/17/13 14:30	10/18/13 10:20
1226-126-2	1303286-53	Soil	10/17/13 14:34	10/18/13 10:20

CASE NARRATIVE

Sample Receiving/General Comments:

Documentation pertaining to additional analyses/change order available upon request.

Results were J-flagged. "J" is used to flag those results that are between the PQL (Practical Quantitation Limit) and the calculated MDL (Method Detection Limit). Results that are "J" flagged are estimated values since it becomes difficult to accurately quantitate the analyte near the MDL.

Certificate of Analysis

Stantec		Project Number :	185831006 ADL - District 7 Task Order 6
25864-F Business Center Drive		Report To :	Anne Perez
Redlands , CA 92374		Reported :	11/04/2013

Client Sample ID 1226-EBQC-10172013
Lab ID: 1303286-01

Title 22 Metals by ICP-AES EPA 6010B

Analyst: AG

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	0.0050	0.0035	1	B3J0498	10/23/2013	10/23/13 13:41	
Arsenic	ND	0.010	0.0054	1	B3J0498	10/23/2013	10/23/13 13:41	
Barium	**0.0024**	0.0030	0.0002	1	B3J0498	10/23/2013	10/23/13 13:41	C, J
Beryllium	**0.0006**	0.0030	0.0002	1	B3J0498	10/23/2013	10/23/13 13:41	J
Cadmium	**0.0015**	0.0030	0.0002	1	B3J0498	10/23/2013	10/23/13 13:41	J
Chromium	**0.0038**	0.0030	0.0006	1	B3J0498	10/23/2013	10/23/13 13:41	
Cobalt	**0.0017**	0.0030	0.0004	1	B3J0498	10/23/2013	10/23/13 13:41	J
Copper	**0.0027**	0.0050	0.0025	1	B3J0498	10/23/2013	10/23/13 13:41	J
Lead	**0.0025**	0.0050	0.0022	1	B3J0498	10/23/2013	10/23/13 13:41	J
Molybdenum	**0.0026**	0.0050	0.0025	1	B3J0498	10/23/2013	10/23/13 13:41	J
Nickel	**0.0032**	0.0050	0.0009	1	B3J0498	10/23/2013	10/23/13 13:41	J
Selenium	ND	0.010	0.0067	1	B3J0498	10/23/2013	10/23/13 13:41	
Silver	ND	0.0030	0.0018	1	B3J0498	10/23/2013	10/23/13 13:41	
Thallium	ND	0.015	0.0046	1	B3J0498	10/23/2013	10/23/13 13:41	
Vanadium	ND	0.0030	0.0019	1	B3J0498	10/23/2013	10/23/13 13:41	
Zinc	**0.0063**	0.010	0.0041	1	B3J0498	10/23/2013	10/23/13 13:41	J

Mercury by AA (Cold Vapor) EPA 7470A

Analyst: VV

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.20	0.06	1	B3J0505	10/23/2013	10/23/13 14:17	

Certificate of Analysis

Stantec		Project Number :	185831006 ADL - District 7 Task Order 6
25864-F Business Center Drive		Report To :	Anne Perez
Redlands , CA 92374		Reported :	11/04/2013

Client Sample ID 1226-101-1

Lab ID: 1303286-02

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**400**	0.99	0.14	1	B3J0476	10/22/2013	10/23/13 10:19	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.27**	0.050	0.0022	1	B3J0647	10/30/2013	10/30/13 15:06	

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**25**	1.0	0.045	20	B3J0519	10/24/2013	10/24/13 11:47	

STLC DI Metals by ICP-AES by EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	ND	1.0	0.045	20	B3K0005	11/01/2013	11/01/13 11:16	

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Stantec		Project Number :	185831006 ADL - District 7 Task Order 6
25864-F Business Center Drive		Report To :	Anne Perez
Redlands , CA 92374		Reported :	11/04/2013

Client Sample ID 1226-101-2

Lab ID: 1303286-03

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**390**	1.0	0.14	1	B3J0476	10/22/2013	10/23/13 10:19	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.37**	0.050	0.0022	1	B3J0647	10/30/2013	10/30/13 15:09	

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**23**	1.0	0.045	20	B3J0519	10/24/2013	10/24/13 11:49	

STLC DI Metals by ICP-AES by EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	ND	1.0	0.045	20	B3K0005	11/01/2013	11/01/13 11:18	

Certificate of Analysis

Stantec	Project Number : 185831006 ADL - District 7 Task Order 6
25864-F Business Center Drive	Report To : Anne Perez
Redlands , CA 92374	Reported : 11/04/2013

Client Sample ID 1226-102-1

Lab ID: 1303286-04

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**250**	1.0	0.14	1	B3J0476	10/22/2013	10/23/13 10:22	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.18**	0.050	0.0022	1	B3J0647	10/30/2013	10/30/13 15:11	

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**14**	1.0	0.045	20	B3J0519	10/24/2013	10/24/13 11:52	

STLC DI Metals by ICP-AES by EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.083**	1.0	0.045	20	B3K0005	11/01/2013	11/01/13 11:20	J

Certificate of Analysis

Stantec		Project Number :	185831006 ADL - District 7 Task Order 6
25864-F Business Center Drive		Report To :	Anne Perez
Redlands , CA 92374		Reported :	11/04/2013

Client Sample ID 1226-102-2

Lab ID: 1303286-05

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**200**	0.98	0.14	1	B3J0476	10/22/2013	10/23/13 10:23	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.16**	0.050	0.0022	1	B3J0647	10/30/2013	10/30/13 15:14	

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**14**	1.0	0.045	20	B3J0519	10/24/2013	10/24/13 11:54	

STLC DI Metals by ICP-AES by EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	ND	1.0	0.045	20	B3K0005	11/01/2013	11/01/13 11:22	

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Stantec	Project Number : 185831006 ADL - District 7 Task Order 6
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Client Sample ID 1226-103-1

Lab ID: 1303286-06

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**220**	1.0	0.14	1	B3J0476	10/22/2013	10/23/13 10:23	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.53**	0.050	0.0022	1	B3J0647	10/30/2013	10/30/13 15:16	

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**16**	1.0	0.045	20	B3J0519	10/24/2013	10/24/13 11:56	

STLC DI Metals by ICP-AES by EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	ND	1.0	0.045	20	B3K0005	11/01/2013	11/01/13 11:24	

Certificate of Analysis

Stantec		Project Number :	185831006 ADL - District 7 Task Order 6
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Redlands , CA 92374		Reported :	11/04/2013

Client Sample ID 1226-103-2

Lab ID: 1303286-07

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**8.4**	1.0	0.14	1	B3J0476	10/22/2013	10/23/13 10:25	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.074**	0.050	0.0022	1	B3J0647	10/30/2013	10/30/13 14:31	

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.37**	1.0	0.045	20	B3J0519	10/24/2013	10/24/13 11:58	J

Certificate of Analysis

Stantec		Project Number :	185831006 ADL - District 7 Task Order 6
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Redlands , CA 92374		Reported :	11/04/2013

Client Sample ID 1226-104-1

Lab ID: 1303286-08

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**600**	0.98	0.14	1	B3J0476	10/22/2013	10/23/13 10:26	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.88**	0.050	0.0022	1	B3J0647	10/30/2013	10/30/13 15:19	

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**49**	1.0	0.045	20	B3J0519	10/24/2013	10/24/13 12:04	

STLC DI Metals by ICP-AES by EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	ND	1.0	0.045	20	B3K0005	11/01/2013	11/01/13 11:27	

Certificate of Analysis

Stantec		Project Number :	185831006 ADL - District 7 Task Order 6
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Redlands , CA 92374		Reported :	11/04/2013

Client Sample ID 1226-104-2

Lab ID: 1303286-09

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**73**	1.0	0.14	1	B3J0476	10/22/2013	10/23/13 10:27	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.085**	0.050	0.0022	1	B3J0647	10/30/2013	10/30/13 15:25	

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**4.7**	1.0	0.045	20	B3J0519	10/24/2013	10/24/13 12:06	

Certificate of Analysis

Stantec	Project Number : 185831006 ADL - District 7 Task Order 6
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Redlands , CA 92374	Reported : 11/04/2013

Client Sample ID 1226-105-1

Lab ID: 1303286-10

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**190**	1.0	0.14	1	B3J0476	10/22/2013	10/23/13 10:27	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.29**	0.050	0.0022	1	B3J0647	10/30/2013	10/30/13 15:28	

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**13**	1.0	0.045	20	B3J0519	10/24/2013	10/24/13 12:09	

STLC DI Metals by ICP-AES by EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	ND	1.0	0.045	20	B3K0005	11/01/2013	11/01/13 11:29	

Certificate of Analysis

Stantec		Project Number :	185831006 ADL - District 7 Task Order 6
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Redlands , CA 92374		Reported :	11/04/2013

Client Sample ID 1226-105-2

Lab ID: 1303286-11

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**140**	0.98	0.14	1	B3J0476	10/22/2013	10/23/13 10:28	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.15**	0.050	0.0022	1	B3J0647	10/30/2013	10/30/13 15:30	

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**6.9**	1.0	0.045	20	B3J0519	10/24/2013	10/24/13 12:18	

STLC DI Metals by ICP-AES by EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.12**	1.0	0.045	20	B3K0005	11/01/2013	11/01/13 11:34	J

Certificate of Analysis

Stantec	Project Number : 185831006 ADL - District 7 Task Order 6
25864-F Business Center Drive	Report To : Anne Perez
Redlands , CA 92374	Reported : 11/04/2013

Client Sample ID 1226-106-1

Lab ID: 1303286-12

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**390**	1.0	0.14	1	B3J0476	10/22/2013	10/23/13 10:30	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**1.1**	0.050	0.0022	1	B3J0647	10/30/2013	10/30/13 15:33	

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**32**	1.0	0.045	20	B3J0519	10/24/2013	10/24/13 12:20	

STLC DI Metals by ICP-AES by EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**1.9**	1.0	0.045	20	B3K0005	11/01/2013	11/01/13 11:37	

Certificate of Analysis

Stantec		Project Number :	185831006 ADL - District 7 Task Order 6
25864-F Business Center Drive		Report To :	Anne Perez
Redlands , CA 92374		Reported :	11/04/2013

Client Sample ID 1226-106-2

Lab ID: 1303286-13

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**51**	1.0	0.14	1	B3J0476	10/22/2013	10/23/13 10:31	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.057**	0.050	0.0022	1	B3J0647	10/30/2013	10/30/13 15:35	

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**2.9**	1.0	0.045	20	B3J0519	10/24/2013	10/24/13 12:22	

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Stantec	Project Number : 185831006 ADL - District 7 Task Order 6
25864-F Business Center Drive	Report To : Anne Perez
Redlands , CA 92374	Reported : 11/04/2013

Client Sample ID 1226-107-1

Lab ID: 1303286-14

Lead by ICP-AES EPA 6010B

Analyst: AG

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**1100**	0.99	0.14	1	B3J0476	10/22/2013	10/23/13 10:32	

TCLP Metals by ICP-AES EPA 6010B

Analyst: AG

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.81**	0.050	0.0022	1	B3J0647	10/30/2013	10/30/13 15:38	

STLC Metals by ICP-AES by EPA 6010B

Analyst: CB

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**56**	1.0	0.045	20	B3J0519	10/24/2013	10/24/13 12:24	

STLC DI Metals by ICP-AES by EPA 6010B

Analyst: AG

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.18**	1.0	0.045	20	B3K0005	11/01/2013	11/01/13 11:39	J

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Redlands , CA 92374	Reported : 11/04/2013

Client Sample ID 1226-107-2

Lab ID: 1303286-15

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**380**	1.0	0.14	1	B3J0476	10/22/2013	10/23/13 10:32	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**1.3**	0.050	0.0022	1	B3J0675	10/31/2013	10/31/13 13:32	

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**25**	1.0	0.045	20	B3J0519	10/24/2013	10/24/13 12:30	

STLC DI Metals by ICP-AES by EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**5.4**	1.0	0.045	20	B3K0005	11/01/2013	11/01/13 11:47	

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Client Sample ID 1226-108-1

Lab ID: 1303286-16

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**2100**	0.99	0.14	1	B3J0476	10/22/2013	10/23/13 10:33	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**1.8**	0.050	0.0022	1	B3J0675	10/31/2013	10/31/13 13:35	

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**140**	1.0	0.045	20	B3J0519	10/24/2013	10/24/13 12:33	

STLC DI Metals by ICP-AES by EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.077**	1.0	0.045	20	B3K0005	11/01/2013	11/01/13 11:50	J

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Client Sample ID 1226-108-2

Lab ID: 1303286-17

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**32**	1.0	0.14	1	B3J0477	10/22/2013	10/23/13 10:41	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.0074**	0.050	0.0022	1	B3J0675	10/31/2013	10/31/13 13:37	J

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**1.3**	1.0	0.045	20	B3J0519	10/24/2013	10/24/13 12:35	

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Client Sample ID 1226-109-1

Lab ID: 1303286-18

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**250**	1.0	0.14	1	B3J0477	10/22/2013	10/23/13 10:42	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.23**	0.050	0.0022	1	B3J0675	10/31/2013	10/31/13 13:40	

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**22**	1.0	0.045	20	B3J0519	10/24/2013	10/24/13 12:37	

STLC DI Metals by ICP-AES by EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	ND	1.0	0.045	20	B3K0005	11/01/2013	11/01/13 11:52	

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Client Sample ID 1226-109-2

Lab ID: 1303286-19

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**390**	1.0	0.14	1	B3J0477	10/22/2013	10/23/13 10:42	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.67**	0.050	0.0022	1	B3J0675	10/31/2013	10/31/13 13:42	

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**54**	1.0	0.045	20	B3J0519	10/24/2013	10/24/13 12:39	

STLC DI Metals by ICP-AES by EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	ND	1.0	0.045	20	B3K0005	11/01/2013	11/01/13 11:54	

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Client Sample ID 1226-110-1

Lab ID: 1303286-20

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**350**	1.0	0.14	1	B3J0477	10/22/2013	10/23/13 10:43	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.45**	0.050	0.0022	1	B3J0675	10/31/2013	10/31/13 13:45	

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**23**	1.0	0.045	20	B3J0519	10/24/2013	10/24/13 12:41	

STLC DI Metals by ICP-AES by EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	ND	1.0	0.045	20	B3K0005	11/01/2013	11/01/13 12:00	

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Client Sample ID 1226-110-2

Lab ID: 1303286-21

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**22**	1.0	0.14	1	B3J0477	10/22/2013	10/23/13 10:44	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.0053**	0.050	0.0022	1	B3J0675	10/31/2013	10/31/13 13:47	J

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**1.5**	1.0	0.045	20	B3J0520	10/24/2013	10/24/13 12:58	

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Client Sample ID 1226-111-1

Lab ID: 1303286-22

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**1400**	1.0	0.14	1	B3J0477	10/22/2013	10/23/13 10:44	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**1.2**	0.050	0.0022	1	B3J0675	10/31/2013	10/31/13 13:53	

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**110**	1.0	0.045	20	B3J0520	10/24/2013	10/24/13 13:00	

STLC DI Metals by ICP-AES by EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.046**	1.0	0.045	20	B3K0005	11/01/2013	11/01/13 12:02	J

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Client Sample ID 1226-111-2

Lab ID: 1303286-23

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**26**	1.0	0.14	1	B3J0477	10/22/2013	10/23/13 10:45	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.039**	0.050	0.0022	1	B3J0675	10/31/2013	10/31/13 13:56	J

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**2.2**	1.0	0.045	20	B3J0520	10/24/2013	10/24/13 13:03	

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Client Sample ID 1226-112-1

Lab ID: 1303286-24

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**990**	1.0	0.14	1	B3J0477	10/22/2013	10/23/13 10:46	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.40**	0.050	0.0022	1	B3J0675	10/31/2013	10/31/13 13:58	

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**67**	1.0	0.045	20	B3J0520	10/24/2013	10/24/13 13:05	

STLC DI Metals by ICP-AES by EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	ND	1.0	0.045	20	B3K0005	11/01/2013	11/01/13 12:04	

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Client Sample ID 1226-112-2

Lab ID: 1303286-25

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**35**	1.0	0.14	1	B3J0477	10/22/2013	10/23/13 10:46	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.027**	0.050	0.0022	1	B3K0011	11/01/2013	11/01/13 17:26	J

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**2.0**	1.0	0.045	20	B3J0520	10/24/2013	10/24/13 13:07	

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Client Sample ID 1226-113-1

Lab ID: 1303286-26

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**1600**	1.0	0.14	1	B3J0477	10/22/2013	10/23/13 10:49	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**1.9**	0.050	0.0022	1	B3K0011	11/01/2013	11/01/13 17:29	

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**120**	1.0	0.045	20	B3J0520	10/24/2013	10/24/13 13:09	

STLC DI Metals by ICP-AES by EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.22**	1.0	0.045	20	B3K0005	11/01/2013	11/01/13 12:06	J

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Stantec	Project Number : 185831006 ADL - District 7 Task Order 6
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Redlands , CA 92374	Reported : 11/04/2013

Client Sample ID 1226-113-2

Lab ID: 1303286-27

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**500**	0.98	0.14	1	B3J0477	10/22/2013	10/23/13 10:51	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**1.5**	0.050	0.0022	1	B3K0011	11/01/2013	11/01/13 17:31	

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**34**	1.0	0.045	20	B3J0520	10/24/2013	10/24/13 13:11	

STLC DI Metals by ICP-AES by EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**1.6**	1.0	0.045	20	B3K0005	11/01/2013	11/01/13 12:08	

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Stantec		Project Number :	185831006 ADL - District 7 Task Order 6
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Client Sample ID 1226-114-1

Lab ID: 1303286-28

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**1000**	0.98	0.14	1	B3J0477	10/22/2013	10/23/13 10:52	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**1.0**	0.050	0.0022	1	B3K0011	11/01/2013	11/01/13 17:34	

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**67**	1.0	0.045	20	B3J0520	10/24/2013	10/24/13 13:14	

STLC DI Metals by ICP-AES by EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.96**	1.0	0.045	20	B3K0005	11/01/2013	11/01/13 12:10	J

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Stantec		Project Number :	185831006 ADL - District 7 Task Order 6
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Client Sample ID 1226-114-2

Lab ID: 1303286-29

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**390**	1.0	0.14	1	B3J0477	10/22/2013	10/23/13 10:52	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.81**	0.050	0.0022	1	B3K0011	11/01/2013	11/01/13 17:36	

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**26**	1.0	0.045	20	B3J0520	10/24/2013	10/24/13 13:16	

STLC DI Metals by ICP-AES by EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**1.4**	1.0	0.045	20	B3K0006	11/01/2013	11/01/13 12:27	

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Redlands , CA 92374	Reported : 11/04/2013

Client Sample ID 1226-115-1

Lab ID: 1303286-30

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**1000**	1.0	0.14	1	B3J0477	10/22/2013	10/23/13 10:53	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.92**	0.050	0.0022	1	B3K0011	11/01/2013	11/01/13 17:39	

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**83**	1.0	0.045	20	B3J0520	10/24/2013	10/24/13 13:22	

STLC DI Metals by ICP-AES by EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**1.8**	1.0	0.045	20	B3K0006	11/01/2013	11/01/13 12:29	

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Stantec		Project Number :	185831006 ADL - District 7 Task Order 6
25864-F Business Center Drive		Report To :	Anne Perez
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Client Sample ID 1226-115-2

Lab ID: 1303286-31

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**92**	1.0	0.14	1	B3J0477	10/22/2013	10/23/13 10:54	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.29**	0.050	0.0022	1	B3K0011	11/01/2013	11/01/13 17:41	

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**6.9**	1.0	0.045	20	B3J0520	10/24/2013	10/24/13 13:31	

STLC DI Metals by ICP-AES by EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	ND	1.0	0.045	20	B3K0006	11/01/2013	11/01/13 12:31	

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Stantec	Project Number : 185831006 ADL - District 7 Task Order 6
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Client Sample ID 1226-116-1

Lab ID: 1303286-32

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**410**	1.0	0.14	1	B3J0477	10/22/2013	10/23/13 10:54	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.17**	0.050	0.0022	1	B3K0011	11/01/2013	11/01/13 17:44	

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**26**	1.0	0.045	20	B3J0520	10/24/2013	10/24/13 13:33	

STLC DI Metals by ICP-AES by EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	ND	1.0	0.045	20	B3K0006	11/01/2013	11/01/13 12:33	

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Client Sample ID 1226-116-2

Lab ID: 1303286-33

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**32**	0.98	0.14	1	B3J0477	10/22/2013	10/23/13 10:55	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.0051**	0.050	0.0022	1	B3K0011	11/01/2013	11/01/13 17:46	J

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.62**	1.0	0.045	20	B3J0520	10/24/2013	10/24/13 13:35	J

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Client Sample ID 1226-117-1

Lab ID: 1303286-34

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**580**	1.0	0.14	1	B3J0477	10/22/2013	10/23/13 10:57	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.56**	0.050	0.0022	1	B3K0011	11/01/2013	11/01/13 17:49	

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**52**	1.0	0.045	20	B3J0520	10/24/2013	10/24/13 13:37	

STLC DI Metals by ICP-AES by EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.053**	1.0	0.045	20	B3K0006	11/01/2013	11/01/13 12:35	J

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Client Sample ID 1226-117-2

Lab ID: 1303286-35

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**520**	0.98	0.14	1	B3J0477	10/22/2013	10/23/13 10:58	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.61**	0.050	0.0022	1	B3K0011	11/01/2013	11/01/13 18:00	

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**33**	1.0	0.045	20	B3J0520	10/24/2013	10/24/13 13:39	

STLC DI Metals by ICP-AES by EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	ND	1.0	0.045	20	B3K0006	11/01/2013	11/01/13 12:37	

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Client Sample ID 1226-118-1

Lab ID: 1303286-36

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**670**	1.0	0.14	1	B3J0477	10/22/2013	10/23/13 10:59	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**2.5**	0.050	0.0022	1	B3K0011	11/01/2013	11/01/13 18:02	

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**64**	1.0	0.045	20	B3J0520	10/24/2013	10/24/13 13:42	

STLC DI Metals by ICP-AES by EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	ND	1.0	0.045	20	B3K0006	11/01/2013	11/01/13 12:39	

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Client Sample ID 1226-118-2

Lab ID: 1303286-37

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**57**	1.0	0.14	1	B3J0478	10/22/2013	10/23/13 11:04	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.017**	0.050	0.0022	1	B3K0011	11/01/2013	11/01/13 18:05	J

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**1.2**	1.0	0.045	20	B3J0520	10/24/2013	10/24/13 13:47	

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Client Sample ID 1226-119-1

Lab ID: 1303286-38

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**520**	1.0	0.14	1	B3J0478	10/22/2013	10/23/13 11:07	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**1.1**	0.050	0.0022	1	B3K0010	11/01/2013	11/01/13 16:30	

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**35**	1.0	0.045	20	B3J0520	10/24/2013	10/24/13 13:50	

STLC DI Metals by ICP-AES by EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	ND	1.0	0.045	20	B3K0006	11/01/2013	11/01/13 12:42	

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Client Sample ID 1226-119-2

Lab ID: 1303286-39

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**100**	1.0	0.14	1	B3J0478	10/22/2013	10/23/13 11:08	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.23**	0.050	0.0022	1	B3K0010	11/01/2013	11/01/13 16:33	

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**6.7**	1.0	0.045	20	B3J0520	10/24/2013	10/24/13 13:52	

STLC DI Metals by ICP-AES by EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	ND	1.0	0.045	20	B3K0006	11/01/2013	11/01/13 12:44	

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Stantec		Project Number :	185831006 ADL - District 7 Task Order 6
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Client Sample ID 1226-120-1

Lab ID: 1303286-40

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**780**	0.99	0.14	1	B3J0478	10/22/2013	10/23/13 11:08	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**2.0**	0.050	0.0022	1	B3K0010	11/01/2013	11/01/13 16:35	

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**55**	1.0	0.045	20	B3J0520	10/24/2013	10/24/13 13:54	

STLC DI Metals by ICP-AES by EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.26**	1.0	0.045	20	B3K0006	11/01/2013	11/01/13 12:49	J

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Client Sample ID 1226-120-2

Lab ID: 1303286-41

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**47**	1.0	0.14	1	B3J0478	10/22/2013	10/23/13 11:09	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.17**	0.050	0.0022	1	B3K0010	11/01/2013	11/01/13 16:38	

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**2.4**	1.0	0.045	20	B3J0521	10/24/2013	10/24/13 14:07	

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Client Sample ID 1226-121-1

Lab ID: 1303286-42

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**1000**	1.0	0.14	1	B3J0478	10/22/2013	10/23/13 11:10	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.89**	0.050	0.0022	1	B3K0010	11/01/2013	11/01/13 16:40	

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**68**	1.0	0.045	20	B3J0521	10/24/2013	10/24/13 14:13	

STLC DI Metals by ICP-AES by EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.85**	1.0	0.045	20	B3K0006	11/01/2013	11/01/13 12:58	J

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Client Sample ID 1226-121-2

Lab ID: 1303286-43

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**98**	0.99	0.14	1	B3J0478	10/22/2013	10/23/13 11:10	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.015**	0.050	0.0022	1	B3K0010	11/01/2013	11/01/13 16:43	C, J

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**3.7**	1.0	0.045	20	B3J0521	10/24/2013	10/24/13 14:15	

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Client Sample ID 1226-122-1

Lab ID: 1303286-44

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**1000**	1.0	0.14	1	B3J0478	10/22/2013	10/23/13 11:11	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.64**	0.050	0.0022	1	B3K0010	11/01/2013	11/01/13 16:45	

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**63**	1.0	0.045	20	B3J0521	10/24/2013	10/24/13 14:18	

STLC DI Metals by ICP-AES by EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.24**	1.0	0.045	20	B3K0006	11/01/2013	11/01/13 13:00	J

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Stantec		Project Number :	185831006 ADL - District 7 Task Order 6
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Client Sample ID 1226-122-2

Lab ID: 1303286-45

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**210**	1.0	0.14	1	B3J0478	10/22/2013	10/23/13 11:12	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.15**	0.050	0.0022	1	B3K0010	11/01/2013	11/01/13 16:48	

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**8.0**	1.0	0.045	20	B3J0521	10/24/2013	10/24/13 14:20	

STLC DI Metals by ICP-AES by EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.14**	1.0	0.045	20	B3K0006	11/01/2013	11/01/13 13:02	J

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Client Sample ID 1226-123-1

Lab ID: 1303286-46

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**160**	1.0	0.14	1	B3J0478	10/22/2013	10/23/13 11:12	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.16**	0.050	0.0022	1	B3K0010	11/01/2013	11/01/13 16:50	

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**7.7**	1.0	0.045	20	B3J0521	10/24/2013	10/24/13 14:22	

STLC DI Metals by ICP-AES by EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	ND	1.0	0.045	20	B3K0006	11/01/2013	11/01/13 13:04	

Certificate of Analysis

Stantec		Project Number :	185831006 ADL - District 7 Task Order 6
25864-F Business Center Drive		Report To :	Anne Perez
Redlands , CA 92374		Reported :	11/04/2013

Client Sample ID 1226-123-2

Lab ID: 1303286-47

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**98**	1.0	0.14	1	B3J0478	10/22/2013	10/23/13 11:16	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.29**	0.050	0.0022	1	B3K0010	11/01/2013	11/01/13 14:50	

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**5.0**	1.0	0.045	20	B3J0521	10/24/2013	10/24/13 14:24	

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Stantec		Project Number :	185831006 ADL - District 7 Task Order 6
25864-F Business Center Drive		Report To :	Anne Perez
Redlands , CA 92374		Reported :	11/04/2013

Client Sample ID 1226-124-1

Lab ID: 1303286-48

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**730**	1.0	0.14	1	B3J0478	10/22/2013	10/23/13 11:17	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**2.2**	0.050	0.0022	1	B3K0010	11/01/2013	11/01/13 16:53	

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**39**	1.0	0.045	20	B3J0521	10/24/2013	10/24/13 14:26	

STLC DI Metals by ICP-AES by EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	ND	1.0	0.045	20	B3K0006	11/01/2013	11/01/13 13:06	

Certificate of Analysis

Stantec	Project Number : 185831006 ADL - District 7 Task Order 6
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Redlands , CA 92374	Reported : 11/04/2013

Client Sample ID 1226-124-2

Lab ID: 1303286-49

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**78**	1.0	0.14	1	B3J0478	10/22/2013	10/23/13 11:18	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.14**	0.050	0.0022	1	B3K0010	11/01/2013	11/01/13 16:59	

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**5.3**	1.0	0.045	20	B3J0521	10/24/2013	10/24/13 14:29	

STLC DI Metals by ICP-AES by EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	ND	1.0	0.045	20	B3K0006	11/01/2013	11/01/13 13:09	

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Client Sample ID 1226-125-1

Lab ID: 1303286-50

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**520**	1.0	0.14	1	B3J0478	10/22/2013	10/23/13 11:18	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.64**	0.050	0.0022	1	B3K0010	11/01/2013	11/01/13 17:01	

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**29**	1.0	0.045	20	B3J0521	10/24/2013	10/24/13 14:31	

STLC DI Metals by ICP-AES by EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	ND	1.0	0.045	20	B3K0006	11/01/2013	11/01/13 13:14	

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Client Sample ID 1226-125-2

Lab ID: 1303286-51

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**110**	1.0	0.14	1	B3J0478	10/22/2013	10/23/13 11:19	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.061**	0.050	0.0022	1	B3K0010	11/01/2013	11/01/13 17:04	

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**5.1**	1.0	0.045	20	B3J0521	10/24/2013	10/24/13 14:43	

STLC DI Metals by ICP-AES by EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	ND	1.0	0.045	20	B3K0006	11/01/2013	11/01/13 13:17	

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Client Sample ID 1226-126-1

Lab ID: 1303286-52

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**10**	0.99	0.14	1	B3J0478	10/22/2013	10/23/13 11:20	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.11**	0.050	0.0022	1	B3K0010	11/01/2013	11/01/13 17:06	

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.31**	1.0	0.045	20	B3J0521	10/24/2013	10/24/13 14:46	J

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Client Sample ID 1226-126-2

Lab ID: 1303286-53

Lead by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**30**	1.0	0.14	1	B3J0478	10/22/2013	10/23/13 11:20	

TCLP Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.027**	0.050	0.0022	1	B3K0010	11/01/2013	11/01/13 17:09	C, J

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**2.0**	1.0	0.045	20	B3J0521	10/24/2013	10/24/13 14:48	

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Stantec	Project Number : 185831006 ADL - District 7 Task Order 6
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QUALITY CONTROL SECTION

Title 22 Metals by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0498 - EPA 3010A									
Blank (B3J0498-BLK1)				Prepared: 10/23/2013 Analyzed: 10/23/2013					
Antimony	ND	0.0050			NR				
Arsenic	ND	0.010			NR				
Barium	0.000965	0.0030			NR				J
Beryllium	ND	0.0030			NR				
Cadmium	ND	0.0030			NR				
Chromium	0.000988	0.0030			NR				J
Cobalt	ND	0.0030			NR				
Copper	ND	0.0050			NR				
Lead	ND	0.0050			NR				
Molybdenum	ND	0.0050			NR				
Nickel	1.1669E-3	0.0050			NR				J
Selenium	ND	0.010			NR				
Silver	ND	0.0030			NR				
Thallium	ND	0.015			NR				
Vanadium	ND	0.0030			NR				
Zinc	ND	0.010			NR				
Blank (B3J0498-BLK2)				Prepared: 10/23/2013 Analyzed: 10/23/2013					
Antimony	ND	0.0050			NR				
Arsenic	ND	0.010			NR				
Barium	5.929E-4	0.0030			NR				J
Beryllium	0.000350	0.0030			NR				J
Cadmium	ND	0.0030			NR				
Chromium	0.001109	0.0030			NR				J
Cobalt	ND	0.0030			NR				
Copper	ND	0.0050			NR				
Lead	ND	0.0050			NR				
Molybdenum	ND	0.0050			NR				
Nickel	ND	0.0050			NR				
Selenium	ND	0.010			NR				
Silver	ND	0.0030			NR				
Thallium	ND	0.015			NR				
Vanadium	ND	0.0030			NR				
Zinc	ND	0.010			NR				
LCS (B3J0498-BS1)				Prepared: 10/23/2013 Analyzed: 10/23/2013					
Antimony	0.958953	0.0050	1.00000		95.9	80 - 120			
Arsenic	0.977418	0.010	1.00000		97.7	80 - 120			

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Title 22 Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0498 - EPA 3010A (continued)									
LCS (B3J0498-BS1) - Continued				Prepared: 10/23/2013 Analyzed: 10/23/2013					
Barium	0.995373	0.0030	1.00000		99.5	80 - 120			
Beryllium	1.03478	0.0030	1.00000		103	80 - 120			
Cadmium	0.984884	0.0030	1.00000		98.5	80 - 120			
Chromium	1.01473	0.0030	1.00000		101	80 - 120			
Cobalt	0.980054	0.0030	1.00000		98.0	80 - 120			
Copper	1.01190	0.0050	1.00000		101	80 - 120			
Lead	0.994672	0.0050	1.00000		99.5	80 - 120			
Molybdenum	0.997171	0.0050	1.00000		99.7	80 - 120			
Nickel	0.973092	0.0050	1.00000		97.3	80 - 120			
Selenium	0.937578	0.010	1.00000		93.8	80 - 120			
Silver	0.971935	0.0030	1.00000		97.2	80 - 120			
Thallium	1.01635	0.015	1.00000		102	80 - 120			
Vanadium	0.974889	0.0030	1.00000		97.5	80 - 120			
Zinc	0.931815	0.010	1.00000		93.2	80 - 120			
Duplicate (B3J0498-DUP1)		**Source: 1303286-01**		Prepared: 10/23/2013 Analyzed: 10/23/2013					
Antimony	ND	0.0050		ND	NR			20	
Arsenic	ND	0.010		ND	NR			20	
Barium	0.000800	0.0030		2.4047E-3	NR		100	20	R, J
Beryllium	ND	0.0030		0.000567	NR			20	
Cadmium	ND	0.0030		0.001530	NR			20	
Chromium	0.001394	0.0030		0.003848	NR		93.6	20	R, J
Cobalt	ND	0.0030		0.001715	NR			20	
Copper	ND	0.0050		0.002693	NR			20	
Lead	ND	0.0050		0.002469	NR			20	
Molybdenum	ND	0.0050		2.5857E-3	NR			20	
Nickel	0.001119	0.0050		0.003233	NR		97.2	20	R, J
Selenium	ND	0.010		ND	NR			20	
Silver	ND	0.0030		ND	NR			20	
Thallium	ND	0.015		ND	NR			20	
Vanadium	ND	0.0030		ND	NR			20	
Zinc	ND	0.010		0.006251	NR			20	
Matrix Spike (B3J0498-MS1)		**Source: 1303286-01**		Prepared: 10/23/2013 Analyzed: 10/23/2013					
Antimony	2.42269	0.0050	2.50000	ND	96.9	78 - 117			
Arsenic	2.45320	0.010	2.50000	ND	98.1	78 - 113			
Barium	2.42608	0.0030	2.50000	2.4047E-3	96.9	77 - 112			
Beryllium	2.52116	0.0030	2.50000	0.000567	101	82 - 112			
Cadmium	2.43628	0.0030	2.50000	0.001530	97.4	76 - 107			
Chromium	2.50562	0.0030	2.50000	0.003848	100	76 - 113			
Cobalt	2.44163	0.0030	2.50000	0.001715	97.6	75 - 110			

Certificate of Analysis

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Title 22 Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0498 - EPA 3010A (continued)									
Matrix Spike (B3J0498-MS1) - Continued		**Source: 1303286-01**		Prepared: 10/23/2013 Analyzed: 10/23/2013					
Copper	2.46872	0.0050	2.50000	0.002693	98.6	77 - 115			
Lead	2.52243	0.0050	2.50000	0.002469	101	76 - 109			
Molybdenum	2.38799	0.0050	2.50000	2.5857E-3	95.4	77 - 108			
Nickel	2.46625	0.0050	2.50000	0.003233	98.5	67 - 121			
Selenium	2.36140	0.010	2.50000	ND	94.5	67 - 125			
Silver	2.44365	0.0030	2.50000	ND	97.7	68 - 129			
Thallium	2.49312	0.015	2.50000	ND	99.7	70 - 119			
Vanadium	2.41171	0.0030	2.50000	ND	96.5	80 - 113			
Zinc	2.42530	0.010	2.50000	0.006251	96.8	62 - 120			
Matrix Spike Dup (B3J0498-MSD1)		**Source: 1303286-01**		Prepared: 10/23/2013 Analyzed: 10/23/2013					
Antimony	2.40099	0.0050	2.50000	ND	96.0	78 - 117	0.900	20	
Arsenic	2.43562	0.010	2.50000	ND	97.4	78 - 113	0.720	20	
Barium	2.40848	0.0030	2.50000	2.4047E-3	96.2	77 - 112	0.728	20	
Beryllium	2.49516	0.0030	2.50000	0.000567	99.8	82 - 112	1.04	20	
Cadmium	2.41115	0.0030	2.50000	0.001530	96.4	76 - 107	1.04	20	
Chromium	2.46994	0.0030	2.50000	0.003848	98.6	76 - 113	1.43	20	
Cobalt	2.42118	0.0030	2.50000	0.001715	96.8	75 - 110	0.841	20	
Copper	2.42295	0.0050	2.50000	0.002693	96.8	77 - 115	1.87	20	
Lead	2.49760	0.0050	2.50000	0.002469	99.8	76 - 109	0.990	20	
Molybdenum	2.35653	0.0050	2.50000	2.5857E-3	94.2	77 - 108	1.33	20	
Nickel	2.43383	0.0050	2.50000	0.003233	97.2	67 - 121	1.32	20	
Selenium	2.33638	0.010	2.50000	ND	93.5	67 - 125	1.07	20	
Silver	2.40569	0.0030	2.50000	ND	96.2	68 - 129	1.57	20	
Thallium	2.46489	0.015	2.50000	ND	98.6	70 - 119	1.14	20	
Vanadium	2.38474	0.0030	2.50000	ND	95.4	80 - 113	1.12	20	
Zinc	2.40967	0.010	2.50000	0.006251	96.1	62 - 120	0.646	20	

Certificate of Analysis

Stantec	Project Number : 185831006 ADL - District 7 Task Order 6
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Lead by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0476 - EPA 3050 Modified									
Blank (B3J0476-BLK1)				Prepared: 10/22/2013 Analyzed: 10/23/2013					
Lead	0.552282	1.0			NR				J
Blank (B3J0476-BLK2)				Prepared: 10/22/2013 Analyzed: 10/23/2013					
Lead	0.253516	1.0			NR				J
LCS (B3J0476-BS1)				Prepared: 10/22/2013 Analyzed: 10/23/2013					
Lead	49.5721	1.0	50.0000		99.1	80 - 120			
Duplicate (B3J0476-DUP1)		**Source: 1303286-16**		Prepared: 10/22/2013 Analyzed: 10/23/2013					
Lead	2256.56	1.0		2061.38	NR		9.04	20	
Duplicate (B3J0476-DUP2)		**Source: 1303286-06**		Prepared: 10/22/2013 Analyzed: 10/23/2013					
Lead	281.046	1.0		220.032	NR		24.4	20	R
Matrix Spike (B3J0476-MS1)		**Source: 1303286-16**		Prepared: 10/22/2013 Analyzed: 10/23/2013					
Lead	2245.53	1.0	250.000	2061.38	73.7	51 - 106			
Matrix Spike (B3J0476-MS2)		**Source: 1303286-06**		Prepared: 10/22/2013 Analyzed: 10/23/2013					
Lead	490.806	1.0	250.000	220.032	108	51 - 106			M1
Matrix Spike Dup (B3J0476-MSD1)		**Source: 1303286-16**		Prepared: 10/22/2013 Analyzed: 10/23/2013					
Lead	2582.95	1.0	250.000	2061.38	209	51 - 106	14.0	20	M4
Batch B3J0477 - EPA 3050 Modified									
Blank (B3J0477-BLK1)				Prepared: 10/22/2013 Analyzed: 10/23/2013					
Lead	0.212620	1.0			NR				J
Blank (B3J0477-BLK2)				Prepared: 10/22/2013 Analyzed: 10/23/2013					
Lead	ND	1.0			NR				
LCS (B3J0477-BS1)				Prepared: 10/22/2013 Analyzed: 10/23/2013					
Lead	48.2427	1.0	50.0000		96.5	80 - 120			
Duplicate (B3J0477-DUP1)		**Source: 1303286-36**		Prepared: 10/22/2013 Analyzed: 10/23/2013					
Lead	1069.43	1.0		668.516	NR		46.1	20	R
Duplicate (B3J0477-DUP2)		**Source: 1303286-26**		Prepared: 10/22/2013 Analyzed: 10/23/2013					
Lead	1699.56	1.0		1618.20	NR		4.90	20	
Matrix Spike (B3J0477-MS1)		**Source: 1303286-36**		Prepared: 10/22/2013 Analyzed: 10/23/2013					
Lead	1060.11	1.0	250.000	668.516	157	51 - 106			M1

Certificate of Analysis

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Lead by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0477 - EPA 3050 Modified (continued)									
Matrix Spike (B3J0477-MS2)		**Source: 1303286-26**		Prepared: 10/22/2013 Analyzed: 10/23/2013					
Lead	1842.55	1.0	250.000	1618.20	89.7	51 - 106			
Matrix Spike Dup (B3J0477-MSD1)		**Source: 1303286-36**		Prepared: 10/22/2013 Analyzed: 10/23/2013					
Lead	963.482	1.0	250.000	668.516	118	51 - 106	9.55	20	M1
Batch B3J0478 - EPA 3050 Modified									
Blank (B3J0478-BLK1)				Prepared: 10/22/2013 Analyzed: 10/23/2013					
Lead	0.154712	1.0			NR				J
Blank (B3J0478-BLK2)				Prepared: 10/22/2013 Analyzed: 10/23/2013					
Lead	ND	1.0			NR				
LCS (B3J0478-BS1)				Prepared: 10/22/2013 Analyzed: 10/23/2013					
Lead	49.2385	1.0	50.0000		98.5	80 - 120			
Duplicate (B3J0478-DUP1)		**Source: 1303286-53**		Prepared: 10/22/2013 Analyzed: 10/23/2013					
Lead	30.8579	1.0		29.6287	NR		4.06	20	
Duplicate (B3J0478-DUP2)		**Source: 1303286-46**		Prepared: 10/22/2013 Analyzed: 10/23/2013					
Lead	140.201	1.0		163.035	NR		15.1	20	
Matrix Spike (B3J0478-MS1)		**Source: 1303286-53**		Prepared: 10/22/2013 Analyzed: 10/23/2013					
Lead	281.731	1.0	250.000	29.6287	101	51 - 106			

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Lead by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0478 - EPA 3050 Modified (continued)									
Matrix Spike (B3J0478-MS2)		**Source: 1303286-46**		Prepared: 10/22/2013 Analyzed: 10/23/2013					
Lead	416.162	1.0	250.000	163.035	101	51 - 106			

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Lead by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0478 - EPA 3050 Modified (continued)									
Matrix Spike Dup (B3J0478-MSD1)		**Source: 1303286-53**		Prepared: 10/22/2013 Analyzed: 10/23/2013					
Lead	253.714	1.0	250.000	29.6287	89.6	51 - 106	10.5	20	

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TCLP Metals by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0647 - EPA 3010A_SOIL									
Blank (B3J0647-BLK1)					Prepared: 10/30/2013 Analyzed: 10/30/2013				
Lead	ND	0.050			NR				

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TCLP Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0647 - EPA 3010A_SOIL (continued)									
Blank (B3J0647-BLK2)					Prepared: 10/30/2013 Analyzed: 10/30/2013				
Lead	ND	0.050			NR				

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TCLP Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0647 - EPA 3010A_SOIL (continued)									
Blank (B3J0647-BLK3)					Prepared: 10/30/2013 Analyzed: 10/30/2013				
Lead	ND	0.050			NR				

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TCLP Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0647 - EPA 3010A_SOIL (continued)									
Blank (B3J0647-BLK4)					Prepared: 10/30/2013 Analyzed: 10/30/2013				
Lead	ND	0.050			NR				

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TCLP Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0647 - EPA 3010A_SOIL (continued)									
LCS (B3J0647-BS1)				Prepared: 10/30/2013 Analyzed: 10/30/2013					
Lead	0.955157	0.050	1.00000		95.5	80 - 120			

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TCLP Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0647 - EPA 3010A_SOIL (continued)									
Duplicate (B3J0647-DUP1)		**Source: 1303372-02**		Prepared: 10/30/2013 Analyzed: 10/30/2013					
Lead	0.013334	0.050		0.010887	NR		20.2	20	R, J

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TCLP Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0647 - EPA 3010A_SOIL (continued)									
Duplicate (B3J0647-DUP2)		**Source: 1303286-07**		Prepared: 10/30/2013 Analyzed: 10/30/2013					
Lead	0.059402	0.050		0.074084	NR		22.0	20	R

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TCLP Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0647 - EPA 3010A_SOIL (continued)									
Matrix Spike (B3J0647-MS1)		**Source: 1303372-02**		Prepared: 10/30/2013 Analyzed: 10/30/2013					
Lead	2.21218	0.050	2.50000	0.010887	88.1	76 - 109			

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TCLP Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0647 - EPA 3010A_SOIL (continued)									
Matrix Spike (B3J0647-MS2)		**Source: 1303286-07**		Prepared: 10/30/2013 Analyzed: 10/31/2013					
Lead	2.38044	0.050	2.50000	0.074084	92.3	76 - 109			

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TCLP Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0647 - EPA 3010A_SOIL (continued)									
Matrix Spike Dup (B3J0647-MSD1)		**Source: 1303372-02**		Prepared: 10/30/2013 Analyzed: 10/30/2013					
Lead	2.16636	0.050	2.50000	0.010887	86.2	76 - 109	2.09	20	

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TCLP Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0675 - EPA 3010A_SOIL									
Blank (B3J0675-BLK1)					Prepared: 10/31/2013 Analyzed: 10/31/2013				
Lead	ND	0.050			NR				

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TCLP Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0675 - EPA 3010A_SOIL (continued)									
Blank (B3J0675-BLK2)					Prepared: 10/31/2013 Analyzed: 10/31/2013				
Lead	ND	0.050			NR				

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TCLP Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0675 - EPA 3010A_SOIL (continued)									
LCS (B3J0675-BS1)				Prepared: 10/31/2013 Analyzed: 10/31/2013					
Lead	0.971381	0.050	1.00000		97.1	80 - 120			

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TCLP Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0675 - EPA 3010A_SOIL (continued)									
Duplicate (B3J0675-DUP1)		**Source: 1303286-24**		Prepared: 10/31/2013 Analyzed: 10/31/2013					
Lead	0.390222	0.050		0.403326	NR		3.30	20	

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TCLP Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0675 - EPA 3010A_SOIL (continued)									
Matrix Spike (B3J0675-MS1)		**Source: 1303286-24**		Prepared: 10/31/2013 Analyzed: 10/31/2013					
Lead	2.60244	0.050	2.50000	0.403326	88.0	76 - 109			

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TCLP Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0675 - EPA 3010A_SOIL (continued)									
Matrix Spike Dup (B3J0675-MSD1)		**Source: 1303286-24**		Prepared: 10/31/2013 Analyzed: 10/31/2013					
Lead	2.56026	0.050	2.50000	0.403326	86.3	76 - 109	1.63	20	

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TCLP Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3K0010 - EPA 3010A_SOIL									
Blank (B3K0010-BLK1)				Prepared: 11/1/2013 Analyzed: 11/1/2013					
Lead	0.004017	0.050			NR				J

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TCLP Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3K0010 - EPA 3010A_SOIL (continued)									
Blank (B3K0010-BLK2)					Prepared: 11/1/2013 Analyzed: 11/1/2013				
Lead	ND	0.050			NR				

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TCLP Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3K0010 - EPA 3010A_SOIL (continued)									
Blank (B3K0010-BLK3)					Prepared: 11/1/2013 Analyzed: 11/1/2013				
Lead	ND	0.050			NR				

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TCLP Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3K0010 - EPA 3010A_SOIL (continued)									
Blank (B3K0010-BLK4)					Prepared: 11/1/2013 Analyzed: 11/1/2013				
Lead	ND	0.050			NR				

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TCLP Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3K0010 - EPA 3010A_SOIL (continued)									
LCS (B3K0010-BS1)				Prepared: 11/1/2013 Analyzed: 11/1/2013					
Lead	1.00922	0.050	1.00000		101	80 - 120			

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TCLP Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3K0010 - EPA 3010A_SOIL (continued)									
Duplicate (B3K0010-DUP1)		**Source: 1303348-37**		Prepared: 11/1/2013 Analyzed: 11/1/2013					
Lead	0.929537	0.050		1.36467	NR		37.9	20	R

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TCLP Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3K0010 - EPA 3010A_SOIL (continued)									
Duplicate (B3K0010-DUP2)		**Source: 1303286-47**		Prepared: 11/1/2013 Analyzed: 11/1/2013					
Lead	0.222859	0.050		0.293272	NR		27.3	20	R

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TCLP Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3K0010 - EPA 3010A_SOIL (continued)									
Matrix Spike (B3K0010-MS1)		**Source: 1303348-37**		Prepared: 11/1/2013 Analyzed: 11/1/2013					
Lead	3.54307	0.050	2.50000	1.36467	87.1	76 - 109			

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TCLP Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3K0010 - EPA 3010A_SOIL (continued)									
Matrix Spike (B3K0010-MS2)		**Source: 1303286-47**		Prepared: 11/1/2013 Analyzed: 11/1/2013					
Lead	2.45107	0.050	2.50000	0.293272	86.3	76 - 109			

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TCLP Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3K0010 - EPA 3010A_SOIL (continued)									
Matrix Spike Dup (B3K0010-MSD1)		**Source: 1303348-37**		Prepared: 11/1/2013 Analyzed: 11/1/2013					
Lead	3.50725	0.050	2.50000	1.36467	85.7	76 - 109	1.02	20	

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TCLP Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3K0011 - EPA 3010A_SOIL									
Blank (B3K0011-BLK1)					Prepared: 11/1/2013 Analyzed: 11/1/2013				
Lead	ND	0.050			NR				

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TCLP Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3K0011 - EPA 3010A_SOIL (continued)									
Blank (B3K0011-BLK2)					Prepared: 11/1/2013 Analyzed: 11/1/2013				
Lead	ND	0.050			NR				

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TCLP Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3K0011 - EPA 3010A_SOIL (continued)									
Blank (B3K0011-BLK3)					Prepared: 11/1/2013 Analyzed: 11/1/2013				
Lead	ND	0.050			NR				

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TCLP Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3K0011 - EPA 3010A_SOIL (continued)									
Blank (B3K0011-BLK4)					Prepared: 11/1/2013 Analyzed: 11/1/2013				
Lead	ND	0.050			NR				

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TCLP Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3K0011 - EPA 3010A_SOIL (continued)									
LCS (B3K0011-BS1)				Prepared: 11/1/2013 Analyzed: 11/1/2013					
Lead	0.970074	0.050	1.00000		97.0	80 - 120			

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TCLP Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3K0011 - EPA 3010A_SOIL (continued)									
Duplicate (B3K0011-DUP1)		**Source: 1303286-37**		Prepared: 11/1/2013 Analyzed: 11/1/2013					
Lead	0.022646	0.050		0.016884	NR		29.2	20	R, J

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TCLP Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3K0011 - EPA 3010A_SOIL (continued)									
Duplicate (B3K0011-DUP2)			**Source: 1303286-34**		Prepared: 11/1/2013 Analyzed: 11/1/2013				
Lead	0.457631	0.050		0.556726	NR		19.5	20	

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TCLP Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3K0011 - EPA 3010A_SOIL (continued)									
Matrix Spike (B3K0011-MS1)		**Source: 1303286-37**		Prepared: 11/1/2013 Analyzed: 11/1/2013					
Lead	2.14162	0.050	2.50000	0.016884	85.0	76 - 109			

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TCLP Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3K0011 - EPA 3010A_SOIL (continued)									
Matrix Spike (B3K0011-MS2)		**Source: 1303286-34**		Prepared: 11/1/2013 Analyzed: 11/1/2013					
Lead	2.90688	0.050	2.50000	0.556726	94.0	76 - 109			

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TCLP Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3K0011 - EPA 3010A_SOIL (continued)									
Matrix Spike Dup (B3K0011-MSD1)		**Source: 1303286-37**		Prepared: 11/1/2013 Analyzed: 11/1/2013					
Lead	2.19075	0.050	2.50000	0.016884	87.0	76 - 109	2.27	20	

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Redlands , CA 92374	Reported : 11/04/2013

STLC Metals by ICP-AES by EPA 6010B - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0519 - STLC Extraction									
Blank (B3J0519-BLK1)					Prepared: 10/24/2013 Analyzed: 10/24/2013				
Lead	ND	1.0			NR				

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Stantec	Project Number : 185831006 ADL - District 7 Task Order 6
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STLC Metals by ICP-AES by EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0519 - STLC Extraction (continued)									
Blank (B3J0519-BLK2)					Prepared: 10/24/2013 Analyzed: 10/24/2013				
Lead	ND	1.0			NR				

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Stantec	Project Number : 185831006 ADL - District 7 Task Order 6
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STLC Metals by ICP-AES by EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0519 - STLC Extraction (continued)									
LCS (B3J0519-BS1)					Prepared: 10/24/2013 Analyzed: 10/24/2013				
Lead	2.02570	1.0	2.00000		101	80 - 120			

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STLC Metals by ICP-AES by EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0519 - STLC Extraction (continued)									
Duplicate (B3J0519-DUP1)		**Source: 1303286-10**		Prepared: 10/24/2013 Analyzed: 10/24/2013					
Lead	11.9171	1.0		13.4411	NR		12.0	20	

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STLC Metals by ICP-AES by EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0519 - STLC Extraction (continued)									
Duplicate (B3J0519-DUP2)		**Source: 1303286-20**		Prepared: 10/24/2013 Analyzed: 10/24/2013					
Lead	21.2313	1.0		22.6552	NR		6.49	20	

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STLC Metals by ICP-AES by EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0519 - STLC Extraction (continued)									
Matrix Spike (B3J0519-MS1)		**Source: 1303286-10**		Prepared: 10/24/2013 Analyzed: 10/24/2013					
Lead	15.3569	1.0	2.50000	13.4411	76.6	33 - 131			

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STLC Metals by ICP-AES by EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0519 - STLC Extraction (continued)									
Matrix Spike (B3J0519-MS2)		**Source: 1303286-20**		Prepared: 10/24/2013 Analyzed: 10/24/2013					
Lead	23.6980	1.0	2.50000	22.6552	41.7	33 - 131			

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STLC Metals by ICP-AES by EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0519 - STLC Extraction (continued)									
Matrix Spike Dup (B3J0519-MSD1)		**Source: 1303286-10**		Prepared: 10/24/2013 Analyzed: 10/24/2013					
Lead	15.9350	1.0	2.50000	13.4411	99.8	33 - 131	3.69	20	

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STLC Metals by ICP-AES by EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0520 - STLC Extraction									
Blank (B3J0520-BLK1)				Prepared: 10/24/2013 Analyzed: 10/24/2013					
Lead	0.049415	1.0			NR				J

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STLC Metals by ICP-AES by EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0520 - STLC Extraction (continued)									
Blank (B3J0520-BLK2)					Prepared: 10/24/2013 Analyzed: 10/24/2013				
Lead	0.045545	1.0			NR				J

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STLC Metals by ICP-AES by EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0520 - STLC Extraction (continued)									
Blank (B3J0520-BLK3)					Prepared: 10/24/2013 Analyzed: 10/25/2013				
Lead	ND	1.0			NR				

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STLC Metals by ICP-AES by EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0520 - STLC Extraction (continued)									
Blank (B3J0520-BLK4)					Prepared: 10/24/2013 Analyzed: 10/25/2013				
Lead	ND	1.0			NR				

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STLC Metals by ICP-AES by EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0520 - STLC Extraction (continued)									
LCS (B3J0520-BS1)					Prepared: 10/24/2013 Analyzed: 10/24/2013				
Lead	2.10998	1.0	2.00000		105	80 - 120			

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STLC Metals by ICP-AES by EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0520 - STLC Extraction (continued)									
Duplicate (B3J0520-DUP1)		**Source: 1303286-30**		Prepared: 10/24/2013 Analyzed: 10/24/2013					
Lead	87.1700	1.0		82.9237	NR		4.99	20	

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STLC Metals by ICP-AES by EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0520 - STLC Extraction (continued)									
Duplicate (B3J0520-DUP2)		**Source: 1303286-40**		Prepared: 10/24/2013 Analyzed: 10/24/2013					
Lead	55.6283	1.0		54.5079	NR		2.03	20	

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STLC Metals by ICP-AES by EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0520 - STLC Extraction (continued)									
Matrix Spike (B3J0520-MS1)		**Source: 1303286-30**		Prepared: 10/24/2013 Analyzed: 10/24/2013					
Lead	81.9889	1.0	2.50000	82.9237	-37.4	33 - 131			M1

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STLC Metals by ICP-AES by EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0520 - STLC Extraction (continued)									
Matrix Spike (B3J0520-MS2)		**Source: 1303286-40**		Prepared: 10/24/2013 Analyzed: 10/24/2013					
Lead	54.3923	1.0	2.50000	54.5079	-4.63	33 - 131			M1

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STLC Metals by ICP-AES by EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0520 - STLC Extraction (continued)									
Matrix Spike Dup (B3J0520-MSD1)		**Source: 1303286-30**		Prepared: 10/24/2013 Analyzed: 10/24/2013					
Lead	84.6319	1.0	2.50000	82.9237	68.3	33 - 131	3.17	20	

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STLC Metals by ICP-AES by EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0521 - STLC Extraction									
Blank (B3J0521-BLK1)				Prepared: 10/24/2013 Analyzed: 10/24/2013					
Lead	0.114894	1.0			NR				J

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STLC Metals by ICP-AES by EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0521 - STLC Extraction (continued)									
Blank (B3J0521-BLK2)				Prepared: 10/24/2013 Analyzed: 10/24/2013					
Lead	0.054911	1.0			NR				J

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STLC Metals by ICP-AES by EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0521 - STLC Extraction (continued)									
Blank (B3J0521-BLK3)					Prepared: 10/24/2013 Analyzed: 10/25/2013				
Lead	ND	1.0			NR				

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STLC Metals by ICP-AES by EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0521 - STLC Extraction (continued)									
Blank (B3J0521-BLK4)					Prepared: 10/24/2013 Analyzed: 10/25/2013				
Lead	ND	1.0			NR				

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STLC Metals by ICP-AES by EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0521 - STLC Extraction (continued)									
LCS (B3J0521-BS1)					Prepared: 10/24/2013 Analyzed: 10/24/2013				
Lead	2.04870	1.0	2.00000		102	80 - 120			

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STLC Metals by ICP-AES by EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0521 - STLC Extraction (continued)									
Duplicate (B3J0521-DUP1)		**Source: 1303286-50**		Prepared: 10/24/2013 Analyzed: 10/24/2013					
Lead	36.1261	1.0		29.4212	NR		20.5	20	R

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STLC Metals by ICP-AES by EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0521 - STLC Extraction (continued)									
Duplicate (B3J0521-DUP2)		**Source: 1303286-53**		Prepared: 10/24/2013 Analyzed: 10/24/2013					
Lead	1.71859	1.0		1.97618	NR		13.9	20	

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STLC Metals by ICP-AES by EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0521 - STLC Extraction (continued)									
Matrix Spike (B3J0521-MS1)		**Source: 1303286-50**		Prepared: 10/24/2013 Analyzed: 10/24/2013					
Lead	30.3043	1.0	2.50000	29.4212	35.3	33 - 131			

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STLC Metals by ICP-AES by EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0521 - STLC Extraction (continued)									
Matrix Spike (B3J0521-MS2)		**Source: 1303286-53**		Prepared: 10/24/2013 Analyzed: 10/24/2013					
Lead	4.31234	1.0	2.50000	1.97618	93.4	33 - 131			

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STLC Metals by ICP-AES by EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0521 - STLC Extraction (continued)									
Matrix Spike Dup (B3J0521-MSD1)		**Source: 1303286-50**		Prepared: 10/24/2013 Analyzed: 10/24/2013					
Lead	30.5040	1.0	2.50000	29.4212	43.3	33 - 131	0.657	20	

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STLC DI Metals by ICP-AES by EPA 6010B - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3K0005 - STLC DI Extraction									
Blank (B3K0005-BLK1)					Prepared: 11/1/2013 Analyzed: 11/1/2013				
Lead	ND	1.0			NR				

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STLC DI Metals by ICP-AES by EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3K0005 - STLC DI Extraction (continued)									
Blank (B3K0005-BLK2)					Prepared: 11/1/2013 Analyzed: 11/1/2013				
Lead	ND	1.0			NR				

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STLC DI Metals by ICP-AES by EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3K0005 - STLC DI Extraction (continued)									
LCS (B3K0005-BS1)				Prepared: 11/1/2013 Analyzed: 11/1/2013					
Lead	2.17592	1.0	2.00000		109	80 - 120			

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STLC DI Metals by ICP-AES by EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3K0005 - STLC DI Extraction (continued)									
Duplicate (B3K0005-DUP1)		**Source: 1303286-14**		Prepared: 11/1/2013 Analyzed: 11/1/2013					
Lead	0.240640	1.0		0.181814	NR		27.8	20	R, J

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STLC DI Metals by ICP-AES by EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3K0005 - STLC DI Extraction (continued)									
Duplicate (B3K0005-DUP2)		**Source: 1303286-28**		Prepared: 11/1/2013 Analyzed: 11/1/2013					
Lead	1.89558	1.0		0.961489	NR		65.4	20	R

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STLC DI Metals by ICP-AES by EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3K0005 - STLC DI Extraction (continued)									
Matrix Spike (B3K0005-MS1)		**Source: 1303286-14**		Prepared: 11/1/2013 Analyzed: 11/1/2013					
Lead	2.68650	1.0	2.50000	0.181814	100	70 - 130			

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STLC DI Metals by ICP-AES by EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3K0005 - STLC DI Extraction (continued)									
Matrix Spike (B3K0005-MS2)		**Source: 1303286-28**		Prepared: 11/1/2013 Analyzed: 11/1/2013					
Lead	3.51363	1.0	2.50000	0.961489	102	70 - 130			

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STLC DI Metals by ICP-AES by EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3K0005 - STLC DI Extraction (continued)									
Matrix Spike Dup (B3K0005-MSD1)		**Source: 1303286-14**		Prepared: 11/1/2013 Analyzed: 11/1/2013					
Lead	2.74703	1.0	2.50000	0.181814	103	70 - 130	2.23	20	

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STLC DI Metals by ICP-AES by EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3K0006 - STLC DI Extraction									
Blank (B3K0006-BLK1)					Prepared: 11/1/2013 Analyzed: 11/1/2013				
Lead	ND	1.0			NR				

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STLC DI Metals by ICP-AES by EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3K0006 - STLC DI Extraction (continued)									
Blank (B3K0006-BLK2)					Prepared: 11/1/2013 Analyzed: 11/1/2013				
Lead	ND	1.0			NR				

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STLC DI Metals by ICP-AES by EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3K0006 - STLC DI Extraction (continued)									
LCS (B3K0006-BS1)				Prepared: 11/1/2013 Analyzed: 11/1/2013					
Lead	2.14049	1.0	2.00000		107	80 - 120			

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STLC DI Metals by ICP-AES by EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3K0006 - STLC DI Extraction (continued)									
Duplicate (B3K0006-DUP1)		**Source: 1303286-40**		Prepared: 11/1/2013 Analyzed: 11/1/2013					
Lead	1.20791	1.0		0.258332	NR		130	20	R

Certificate of Analysis

Stantec	Project Number : 185831006 ADL - District 7 Task Order 6
25864-F Business Center Drive	Report To : Anne Perez
Redlands , CA 92374	Reported : 11/04/2013

STLC DI Metals by ICP-AES by EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3K0006 - STLC DI Extraction (continued)									
Duplicate (B3K0006-DUP2)		**Source: 1303286-51**		Prepared: 11/1/2013 Analyzed: 11/1/2013					
Lead	ND	1.0		ND	NR			20	

Certificate of Analysis

Stantec	Project Number : 185831006 ADL - District 7 Task Order 6
25864-F Business Center Drive	Report To : Anne Perez
Redlands , CA 92374	Reported : 11/04/2013

STLC DI Metals by ICP-AES by EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3K0006 - STLC DI Extraction (continued)									
Matrix Spike (B3K0006-MS1)		**Source: 1303286-40**		Prepared: 11/1/2013 Analyzed: 11/1/2013					
Lead	2.84146	1.0	2.50000	0.258332	103	70 - 130			

Certificate of Analysis

Stantec	Project Number : 185831006 ADL - District 7 Task Order 6
25864-F Business Center Drive	Report To : Anne Perez
Redlands , CA 92374	Reported : 11/04/2013

STLC DI Metals by ICP-AES by EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3K0006 - STLC DI Extraction (continued)									
Matrix Spike (B3K0006-MS2)		**Source: 1303286-51**		Prepared: 11/1/2013 Analyzed: 11/1/2013					
Lead	2.55109	1.0	2.50000	ND	102	70 - 130			

Certificate of Analysis

Stantec	Project Number : 185831006 ADL - District 7 Task Order 6
25864-F Business Center Drive	Report To : Anne Perez
Redlands , CA 92374	Reported : 11/04/2013

STLC DI Metals by ICP-AES by EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3K0006 - STLC DI Extraction (continued)									
Matrix Spike Dup (B3K0006-MSD1)		**Source: 1303286-40**		Prepared: 11/1/2013 Analyzed: 11/1/2013					
Lead	2.87070	1.0	2.50000	0.258332	104	70 - 130	1.02	20	

Certificate of Analysis

Stantec	Project Number : 185831006 ADL - District 7 Task Order 6
25864-F Business Center Drive	Report To : Anne Perez
Redlands , CA 92374	Reported : 11/04/2013

Mercury by AA (Cold Vapor) EPA 7470A - Quality Control

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0505 - EPA 245.1/7470									
Blank (B3J0505-BLK1)				Prepared: 10/23/2013 Analyzed: 10/23/2013					
Mercury	ND	0.20			NR				

Certificate of Analysis

Stantec	Project Number : 185831006 ADL - District 7 Task Order 6
25864-F Business Center Drive	Report To : Anne Perez
Redlands , CA 92374	Reported : 11/04/2013

Mercury by AA (Cold Vapor) EPA 7470A - Quality Control (cont'd)

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0505 - EPA 245.1/7470 (continued)									
LCS (B3J0505-BS1)				Prepared: 10/23/2013 Analyzed: 10/23/2013					
Mercury	10.1985	0.20	10.0000		102	80 - 120			

Certificate of Analysis

Stantec	Project Number : 185831006 ADL - District 7 Task Order 6
25864-F Business Center Drive	Report To : Anne Perez
Redlands , CA 92374	Reported : 11/04/2013

Mercury by AA (Cold Vapor) EPA 7470A - Quality Control (cont'd)

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0505 - EPA 245.1/7470 (continued)									
Duplicate (B3J0505-DUP1)		**Source: 1303285-01**		Prepared: 10/23/2013 Analyzed: 10/23/2013					
Mercury	ND	0.20		ND	NR			20	

Certificate of Analysis

Stantec	Project Number : 185831006 ADL - District 7 Task Order 6
25864-F Business Center Drive	Report To : Anne Perez
Redlands , CA 92374	Reported : 11/04/2013

Mercury by AA (Cold Vapor) EPA 7470A - Quality Control (cont'd)

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0505 - EPA 245.1/7470 (continued)									
Matrix Spike (B3J0505-MS1)		**Source: 1303285-01**		Prepared: 10/23/2013 Analyzed: 10/23/2013					
Mercury	10.8982	0.20	10.0000	ND	109	70 - 130			

Certificate of Analysis

Stantec	Project Number : 185831006 ADL - District 7 Task Order 6
25864-F Business Center Drive	Report To : Anne Perez
Redlands , CA 92374	Reported : 11/04/2013

Mercury by AA (Cold Vapor) EPA 7470A - Quality Control (cont'd)

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0505 - EPA 245.1/7470 (continued)									
Matrix Spike Dup (B3J0505-MSD1)		**Source: 1303285-01**		Prepared: 10/23/2013 Analyzed: 10/23/2013					
Mercury	10.7379	0.20	10.0000	ND	107	70 - 130	1.48	20	

Certificate of Analysis

Stantec	Project Number : 185831006 ADL - District 7 Task Order 6
25864-F Business Center Drive	Report To : Anne Perez
Redlands , CA 92374	Reported : 11/04/2013

Mercury by AA (Cold Vapor) EPA 7470A - Quality Control (cont'd)

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3J0505 - EPA 245.1/7470 (continued)									
Post Spike (B3J0505-PS1)			**Source: 1303285-01**		Prepared: 10/23/2013 Analyzed: 10/23/2013				
Mercury	5.71090		5.00000	-0.020696	115	85 - 115			

Certificate of Analysis

Stantec		Project Number :	185831006 ADL - District 7 Task Order 6
25864-F Business Center Drive		Report To :	Anne Perez
Redlands , CA 92374		Reported :	11/04/2013

Notes and Definitions

R	RPD value outside acceptance criteria. Calculation is based on raw values.
M4	Matrix spike recovery outside of acceptance limit due to sample non-homogeneity. The analytical batch was validated by the laboratory control sample.
M1	Matrix spike recovery outside of acceptance limit. The analytical batch was validated by the laboratory control sample.
J	Analyte detected below the Practical Quantitation Limit but above or equal to the Method Detection Limit. Result is an estimated concentration.
C	Possible laboratory contamination.
ND	Analyte is not detected at or above the Practical Quantitation Limit (PQL). When client requests quantitation against MDL, analyte is not detected at or above the Method Detection Limit (MDL)
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
NR	Not Reported
RPD	Relative Percent Difference
CA1	CA-NELAP (CDPH)
CA2	CA-ELAP (CDPH)
OR1	OR-NELAP (OSPHL)
TX1	TX-NELAP (TCEQ)

Notes:
(1) The reported MDL and PQL are based on prep ratio variation and analytical dilution.
(2) The suffix [2C] of specific analytes signifies that the reported result is taken from the instrument's second column.

Stantec

CHAIN OF CUSTODY FORM

25864-F-Business Center Dr., Redlands, CA 92374 (909)335-6116, Fax (909) 335-6120

Client Name/Address:	Project/PO Number:
Stantec **25864-F Business Center Drive** **Redlands, CA**	**185831006** **ADL – District 7 Task Order 6**
Project Manager: **Anne Perez**	Phone Number: : **(909) 255-8202**
Email Address: **anne.perez@stantec.com**	Fax Number: (**909) 335-6120**
Sampler: **Monge**	

Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date	Sampling Time	Preservatives	Analysis Required: 6010: Total Lead	1311/6010: Soluble Lead Cal WET - Citric	1311/6010: Soluble Lead Cal WET - DI	1311/6010: Soluble Lead - TCLP	6010: Title 22 (CAM 17) Metals	9045C: pH	Special Instructions
1226-EBQC-10172013	Water	500-mL poly	1	10/17/2013	0735	On ice (see instructions)					X		Lab filter and preserve
1226-101-1	Soil	8-oz glass jar	1	10/17/2013	0802	On ice	X	X					
1226-101-2					0815		X	X					
1226-102-1					0802		X	X					
1226-102-2					0805		X	X					
1226-103-1					0845		X	X					
1226-103-2					0851		X	X					
1226-104-1					0853		X	X					
1226-104-2					0850		X	X					
1226-105-1					0933		X	X					
1226-105-2					0935		X	X					
1226-106-1					0930		X	X					
1226-106-2					0936		X	X					
1226-107-1					0958		X	X					

For all samples, please notify Stantec immediately with preliminary results of any TTLCs exceeding 1,000 mg/kg or STLC Wet-Citric exceeding 5 mg/L.

Relinquished By:	Date/Time: 10/18/13 1020	Received By:	Date/ Time: 10/18/13 1020
Relinquished By:	Date/Time: 10/18/13 1141	Received By: FEDEX	Date/Time: 10/18/13 1141
Relinquished By:	Date/Time:	Received in Lab By:	Date/ Time;

Turnaround Time: (Check)
same day ____ 5 days
24 hours ____ normal
48 hours ____

Sample Integrity: (Check)
intact ____ on ice ____

Note: By relinquishing samples, client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of invoice. Sample(s) will be disposed of after 30 days.

Stantec

CHAIN OF CUSTODY FORM

25864-F-Business Center Dr., Redlands, CA 92374 (909)335-6116, Fax (909) 335-6120

Client Name/Address:	Project/PO Number:
Stantec **25864-F Business Center Drive** **Redlands, CA**	**185831006** **ADL – District 7 Task Order 6**
Project Manager: **Anne Perez**	Phone Number: : **(909) 255-8202**
Email Address: **anne.perez@stantec.com**	Fax Number: **(909) 335-6120**
Sampler: **Monge**	

	Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date	Sampling Time	Preservatives	Analysis Required: 6010: Total Lead	1311/6010: Soluble Lead Cal WET - Citric	1311/6010: Soluble Lead Cal WET - DI	1311/6010: Soluble Lead - TCLP	6010: Title 22 (CAM 17) Metals	9045C: pH				Special Instructions
15	1226-107-2	Soil	8-oz glass jar	1	10/17/2013	1002	On ice	X	X								For **all** samples, please notify Stantec immediately with preliminary results of any TTLCs exceeding 1,000 mg/kg or STLC Wet-Citric exceeding 5 mg/L.
16	1226-108-1					0959		X	X								
17	1226-108-2					1004		X	X								
18	1226-109-1					1024		X	X								
19	1226-109-2					1027		X	X								
20	1226-110-1					1023		X	X								
21	1226-110-2					1032		X	X								
22	1226-111-1					1056		X	X								
23	1226-111-2					1100		X	X								
24	1226-112-1					1057		X	X								
25	1226-112-2					1101		X	X								
26	1226-113-1					1125		X	X								
27	1226-113-2					1128		X	X								
28	1226-114-1					1126		X	X								

Relinquished By:	Date/Time: 10/18/13 1020	Received By: Joe Arcio	Date/ Time: 10/18/13 1020
Relinquished By: Joe Arcio	Date/Time: 10/18/13 1141	Received By:	Date/Time: 10/18/13 1141
Relinquished By:	Date/Time:	Received in Lab By:	Date/ Time;

Turnaround Time: (Check)
same day _____
24 hours _____ 5 days
48 hours _____ normal

Sample Integrity: (Check)
intact _____ on ice _____

Note: By relinquishing samples, client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of invoice. Sample(s) will be disposed of after 30 days.

Stantec

CHAIN OF CUSTODY FORM

25864-F-Business Center Dr., Redlands, CA 92374 (909)335-6116, Fax (909) 335-6120

Client Name/Address:	Project/PO Number:
Stantec **25864-F Business Center Drive** **Redlands, CA**	**185831006** **ADL – District 7 Task Order 6**
Project Manager: **Anne Perez**	Phone Number: : **(909) 255-8202**
Email Address: **anne.perez@stantec.com**	Fax Number: **(909) 335-6120**
Sampler: **Monge**	

	Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date	Sampling Time	Preservatives	Analysis Required: 6010: Total Lead	1311/6010: Soluble Lead Cal WET - Citric	1311/6010: Soluble Lead Cal WET - DI	1311/6010: Soluble Lead - TCLP	6010: Title 22 (CAM 17) Metals	9045C: pH				Special Instructions
29	1226-114-2	Soil	8-oz glass jar	1	10/17/2013	1129	On ice	X	X								For all samples, please notify Stantec immediately with preliminary results of any TTLCs exceeding 1,000 mg/kg or STLC Wet-Citric exceeding 5 mg/L.
30	1226-115-1					1153		X	X								
31	1226-115-2					1156		X	X								
32	1226-116-1					1154		X	X								
33	1226-116-2					1157		X	X								
34	1226-117-1					1216		X	X								
35	1226-117-2					1220		X	X								
36	1226-118-1					1217		X	X								
37	1226-118-2					1221		X	X								
38	1226-119-1					1238		X	X								
39	1226-119-2					1242		X	X								
40	1226-120-1					1239		X	X								
41	1226-120-2					1244		X	X								
42	1226-121					1328		X	X								

Relinquished By:	Date/Time: 10/18/13 1020	Received By:	Date/ Time: 10/18/13 1020
Relinquished By:	Date/Time: 10/18/13 1141	Received By:	Date/Time: 10/18/13 1141
Relinquished By:	Date/Time:	Received in Lab By:	Date/ Time;

Tumaround	Time: (Chec
same day	
24 hours	5 days
48 hours	normal
Sample Integrity:	(Check)
intact	on ice

Note: By relinquishing samples, client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of invoice. Sample(s) will be disposed of after 30 days.

Stantec

CHAIN OF CUSTODY FORM

25864-F-Business Center Dr., Redlands, CA 92374 (909)335-6116, Fax (909) 335-6120

Client Name/Address:	Project/PO Number:
Stantec **25864-F Business Center Drive** **Redlands, CA**	**185831006** **ADL – District 7 Task Order 6**
Project Manager: **Anne Perez**	Phone Number: : **(909) 255-8202**
Email Address: **anne.perez@stantec.com**	Fax Number: **(909) 335-6120**
Sampler: **Monge**	

	Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date	Sampling Time	Preservatives	Analysis Required: 6010: Total Lead	1311/6010: Soluble Lead Cal WET - Citric	1311/6010: Soluble Lead Cal WET - DI	1311/6010: Soluble Lead - TCLP	6010: Title 22 (CAM 17) Metals	9045C: pH				Special Instructions
-43	1226-121-2	Soil	8-oz glass jar	1	10/17/2013	1332	On ice	X	X								For all samples, please notify Stantec immediately with preliminary results of any TTLCs exceeding 1,000 mg/kg or STLC Wet-Citric exceeding 5 mg/L.
-44	1226-122-1					1329		X	X								
-45	1226-122-2					1333		X	X								
-46	1226-123-1					1355		X	X								
-47	1226-123-2					1359		X	X								
-48	1226-124-1					1356		X	X								
-49	1226-124-2					1400		X	X								
-50	1226-125-1					1429		X	X								
-51	1226-125-2					1433		X	X								
-52	1226-126-1					1430		X	X								
-53	1226-126-2					1434		X	X								

Relinquished By:	Date/Time:	Received By:	Date/ Time:	Turnaround	Time: (Chec
	10/18/13 1020	Joe Arteo	10/18/13 1020	same day	
Relinquished By:	Date/Time:	Received By:	Date/Time:	24 hours	5 days
Joe Arteo	10/18/13 1141	FEDEX	10/18/13 1141	48 hours	normal
Relinquished By:	Date/Time:	Received in Lab By:	Date/ Time;	Sample Integrity: (Check)	
				intact	on ice

Note: By relinquishing samples, client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of invoice. Sample(s) will be disposed of after 30 days.

ADVANCED TECHNOLOGY LABORATORIES

November 13, 2013

ELAP No.: 1838
NELAP No.: 02107CA
CSDLAC No.: 10196
ORELAP No.: CA300003
TCEQ No.: T104704502

Anne Perez
Stantec
25864-F Business Center Drive
Redlands, CA 92374
Tel: (909) 255-8202
Fax:(909) 335-6120

Re: ATL Work Order Number : 1303286

Client Reference : 185831006 ADL - District 7 Task Order 6

Enclosed are the results for sample(s) received on October 18, 2013 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated on the enclosed chain of custody in accordance with applicable laboratory certifications. The laboratory results contained in this report specifically pertains to the sample(s) submitted.

Thank you for the opportunity to serve the needs of your company. If you have any questions, please feel free to contact me or your Project Manager.

Sincerely,

for

Eddie Rodriguez
Laboratory Director

Certificate of Analysis

Stantec		Project Number :	185831006 ADL - District 7 Task Order 6
25864-F Business Center Drive		Report To :	Anne Perez
Redlands , CA 92374		Reported :	11/13/2013

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
1226-107-1	1303286-14	Soil	10/17/13 9:58	10/18/13 10:20
1226-108-1	1303286-16	Soil	10/17/13 9:59	10/18/13 10:20
1226-111-1	1303286-22	Soil	10/17/13 10:56	10/18/13 10:20
1226-112-1	1303286-24	Soil	10/17/13 10:57	10/18/13 10:20
1226-113-1	1303286-26	Soil	10/17/13 11:25	10/18/13 10:20
1226-114-1	1303286-28	Soil	10/17/13 11:26	10/18/13 10:20
1226-115-1	1303286-30	Soil	10/17/13 11:53	10/18/13 10:20
1226-120-1	1303286-40	Soil	10/17/13 12:39	10/18/13 10:20
1226-121-1	1303286-42	Soil	10/17/13 13:28	10/18/13 10:20
1226-122-1	1303286-44	Soil	10/17/13 13:29	10/18/13 10:20

CASE NARRATIVE

Sample Receiving/General Comments:

Documentation pertaining to additional analyses/change order available upon request.

Results were J-flagged. "J" is used to flag those results that are between the PQL (Practical Quantitation Limit) and the calculated MDL (Method Detection Limit). Results that are "J" flagged are estimated values since it becomes difficult to accurately quantitate the analyte near the MDL.

Certificate of Analysis

Stantec	Project Number : 185831006 ADL - District 7 Task Order 6
25864-F Business Center Drive	Report To : Anne Perez
Redlands , CA 92374	Reported : 11/13/2013

Client Sample ID 1226-107-1
Lab ID: 1303286-14

Title 22 Metals by ICP-AES EPA 6010B

Analyst: AG

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	**0.48**	2.0	0.22	1	B3K0247	11/13/2013	11/13/13 12:44	J
Arsenic	**7.3**	1.0	0.38	1	B3K0247	11/13/2013	11/13/13 12:44	
Barium	**120**	1.0	0.08	1	B3K0247	11/13/2013	11/13/13 12:44	
Beryllium	**0.32**	1.0	0.02	1	B3K0247	11/13/2013	11/13/13 12:44	J
Cadmium	**0.70**	1.0	0.02	1	B3K0247	11/13/2013	11/13/13 12:44	J
Chromium	**21**	1.0	0.04	1	B3K0247	11/13/2013	11/13/13 12:44	
Cobalt	**6.4**	1.0	0.06	1	B3K0247	11/13/2013	11/13/13 12:44	
Copper	**48**	2.0	0.11	1	B3K0247	11/13/2013	11/13/13 12:44	
Molybdenum	**2.7**	1.0	0.04	1	B3K0247	11/13/2013	11/13/13 12:44	
Nickel	**18**	1.0	0.04	1	B3K0247	11/13/2013	11/13/13 12:44	
Selenium	ND	1.0	0.24	1	B3K0247	11/13/2013	11/13/13 12:44	
Silver	ND	1.0	0.06	1	B3K0247	11/13/2013	11/13/13 12:44	
Thallium	ND	1.0	0.30	1	B3K0247	11/13/2013	11/13/13 12:44	
Vanadium	**27**	1.0	0.17	1	B3K0247	11/13/2013	11/13/13 12:44	
Zinc	**370**	1.0	0.51	1	B3K0247	11/13/2013	11/13/13 12:44	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: VV

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	**0.07**	0.10	0.008	1	B3K0260	11/13/2013	11/13/13 13:36	J

pH by EPA 9045C

Analyst: LA

Analyte	Result (pH Units)	PQL (pH Units)	MDL (pH Units)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
pH	**7.1**	0.10	0.10	1	B3K0243	11/13/2013	11/13/13 11:11	

Certificate of Analysis

Stantec	Project Number : 185831006 ADL - District 7 Task Order 6
25864-F Business Center Drive	Report To : Anne Perez
Redlands , CA 92374	Reported : 11/13/2013

Client Sample ID 1226-108-1

Lab ID: 1303286-16

Title 22 Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	**0.57**	2.0	0.22	1	B3K0247	11/13/2013	11/13/13 12:49	J
Arsenic	**9.1**	0.99	0.38	1	B3K0247	11/13/2013	11/13/13 12:49	
Barium	**140**	0.99	0.08	1	B3K0247	11/13/2013	11/13/13 12:49	
Beryllium	**0.32**	0.99	0.02	1	B3K0247	11/13/2013	11/13/13 12:49	J
Cadmium	**0.99**	0.99	0.02	1	B3K0247	11/13/2013	11/13/13 12:49	J
Chromium	**25**	0.99	0.04	1	B3K0247	11/13/2013	11/13/13 12:49	
Cobalt	**6.4**	0.99	0.06	1	B3K0247	11/13/2013	11/13/13 12:49	
Copper	**740**	2.0	0.11	1	B3K0247	11/13/2013	11/13/13 12:49	
Molybdenum	**3.8**	0.99	0.04	1	B3K0247	11/13/2013	11/13/13 12:49	
Nickel	**24**	0.99	0.04	1	B3K0247	11/13/2013	11/13/13 12:49	
Selenium	ND	0.99	0.24	1	B3K0247	11/13/2013	11/13/13 12:49	
Silver	**0.48**	0.99	0.06	1	B3K0247	11/13/2013	11/13/13 12:49	J
Thallium	**0.50**	0.99	0.29	1	B3K0247	11/13/2013	11/13/13 12:49	J
Vanadium	**27**	0.99	0.17	1	B3K0247	11/13/2013	11/13/13 12:49	
Zinc	**530**	0.99	0.50	1	B3K0247	11/13/2013	11/13/13 12:49	

Mercury by AA (Cold Vapor) EPA 7471A — **Analyst: VV**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	**0.18**	0.10	0.008	1	B3K0260	11/13/2013	11/13/13 13:46	

pH by EPA 9045C — **Analyst: LA**

Analyte	Result (pH Units)	PQL (pH Units)	MDL (pH Units)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
pH	**7.3**	0.10	0.10	1	B3K0243	11/13/2013	11/13/13 11:11	

Certificate of Analysis

Stantec	Project Number : 185831006 ADL - District 7 Task Order 6
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Redlands , CA 92374	Reported : 11/13/2013

Client Sample ID 1226-111-1

Lab ID: 1303286-22

Title 22 Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	0.22	1	B3K0247	11/13/2013	11/13/13 12:51	
Arsenic	**8.2**	0.99	0.38	1	B3K0247	11/13/2013	11/13/13 12:51	
Barium	**140**	0.99	0.08	1	B3K0247	11/13/2013	11/13/13 12:51	
Beryllium	**0.36**	0.99	0.02	1	B3K0247	11/13/2013	11/13/13 12:51	J
Cadmium	**0.58**	0.99	0.02	1	B3K0247	11/13/2013	11/13/13 12:51	J
Chromium	**20**	0.99	0.04	1	B3K0247	11/13/2013	11/13/13 12:51	
Cobalt	**7.0**	0.99	0.06	1	B3K0247	11/13/2013	11/13/13 12:51	
Copper	**49**	2.0	0.11	1	B3K0247	11/13/2013	11/13/13 12:51	
Molybdenum	**2.6**	0.99	0.04	1	B3K0247	11/13/2013	11/13/13 12:51	
Nickel	**18**	0.99	0.04	1	B3K0247	11/13/2013	11/13/13 12:51	
Selenium	ND	0.99	0.24	1	B3K0247	11/13/2013	11/13/13 12:51	
Silver	ND	0.99	0.06	1	B3K0247	11/13/2013	11/13/13 12:51	
Thallium	ND	0.99	0.29	1	B3K0247	11/13/2013	11/13/13 12:51	
Vanadium	**32**	0.99	0.17	1	B3K0247	11/13/2013	11/13/13 12:51	
Zinc	**260**	0.99	0.50	1	B3K0247	11/13/2013	11/13/13 12:51	

Mercury by AA (Cold Vapor) EPA 7471A — **Analyst: VV**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	**0.07**	0.10	0.008	1	B3K0260	11/13/2013	11/13/13 13:48	J

pH by EPA 9045C — **Analyst: LA**

Analyte	Result (pH Units)	PQL (pH Units)	MDL (pH Units)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
pH	**8.1**	0.10	0.10	1	B3K0243	11/13/2013	11/13/13 11:11	

Certificate of Analysis

Stantec	Project Number : 185831006 ADL - District 7 Task Order 6
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Client Sample ID 1226-112-1

Lab ID: 1303286-24

Title 22 Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	**0.35**	2.0	0.22	1	B3K0247	11/13/2013	11/13/13 12:53	J
Arsenic	**8.8**	1.0	0.38	1	B3K0247	11/13/2013	11/13/13 12:53	
Barium	**230**	1.0	0.08	1	B3K0247	11/13/2013	11/13/13 12:53	
Beryllium	**0.45**	1.0	0.02	1	B3K0247	11/13/2013	11/13/13 12:53	J
Cadmium	**0.73**	1.0	0.02	1	B3K0247	11/13/2013	11/13/13 12:53	J
Chromium	**23**	1.0	0.04	1	B3K0247	11/13/2013	11/13/13 12:53	
Cobalt	**9.0**	1.0	0.06	1	B3K0247	11/13/2013	11/13/13 12:53	
Copper	**67**	2.0	0.11	1	B3K0247	11/13/2013	11/13/13 12:53	
Molybdenum	**3.4**	1.0	0.04	1	B3K0247	11/13/2013	11/13/13 12:53	
Nickel	**24**	1.0	0.04	1	B3K0247	11/13/2013	11/13/13 12:53	
Selenium	ND	1.0	0.24	1	B3K0247	11/13/2013	11/13/13 12:53	
Silver	ND	1.0	0.06	1	B3K0247	11/13/2013	11/13/13 12:53	
Thallium	ND	1.0	0.30	1	B3K0247	11/13/2013	11/13/13 12:53	
Vanadium	**40**	1.0	0.17	1	B3K0247	11/13/2013	11/13/13 12:53	
Zinc	**310**	1.0	0.51	1	B3K0247	11/13/2013	11/13/13 12:53	

Mercury by AA (Cold Vapor) EPA 7471A — **Analyst: VV**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	**0.07**	0.10	0.008	1	B3K0260	11/13/2013	11/13/13 13:50	J

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Stantec	Project Number : 185831006 ADL - District 7 Task Order 6
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Client Sample ID 1226-113-1

Lab ID: 1303286-26

Title 22 Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	**0.34**	2.0	0.22	1	B3K0247	11/13/2013	11/13/13 12:55	J
Arsenic	**4.2**	1.0	0.38	1	B3K0247	11/13/2013	11/13/13 12:55	
Barium	**84**	1.0	0.08	1	B3K0247	11/13/2013	11/13/13 12:55	
Beryllium	**0.18**	1.0	0.02	1	B3K0247	11/13/2013	11/13/13 12:55	J
Cadmium	**0.52**	1.0	0.02	1	B3K0247	11/13/2013	11/13/13 12:55	J
Chromium	**15**	1.0	0.04	1	B3K0247	11/13/2013	11/13/13 12:55	
Cobalt	**5.5**	1.0	0.06	1	B3K0247	11/13/2013	11/13/13 12:55	
Copper	**44**	2.0	0.11	1	B3K0247	11/13/2013	11/13/13 12:55	
Molybdenum	**1.6**	1.0	0.04	1	B3K0247	11/13/2013	11/13/13 12:55	
Nickel	**14**	1.0	0.04	1	B3K0247	11/13/2013	11/13/13 12:55	
Selenium	ND	1.0	0.24	1	B3K0247	11/13/2013	11/13/13 12:55	
Silver	ND	1.0	0.06	1	B3K0247	11/13/2013	11/13/13 12:55	
Thallium	ND	1.0	0.30	1	B3K0247	11/13/2013	11/13/13 12:55	
Vanadium	**20**	1.0	0.17	1	B3K0247	11/13/2013	11/13/13 12:55	
Zinc	**310**	1.0	0.51	1	B3K0247	11/13/2013	11/13/13 12:55	

Mercury by AA (Cold Vapor) EPA 7471A — **Analyst: VV**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	**0.05**	0.10	0.008	1	B3K0260	11/13/2013	11/13/13 13:56	J

pH by EPA 9045C — **Analyst: LA**

Analyte	Result (pH Units)	PQL (pH Units)	MDL (pH Units)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
pH	**7.1**	0.10	0.10	1	B3K0243	11/13/2013	11/13/13 11:11	

Certificate of Analysis

Stantec	Project Number : 185831006 ADL - District 7 Task Order 6
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Client Sample ID 1226-114-1

Lab ID: 1303286-28

Title 22 Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	**0.33**	2.0	0.22	1	B3K0247	11/13/2013	11/13/13 13:00	J
Arsenic	**4.2**	0.99	0.38	1	B3K0247	11/13/2013	11/13/13 13:00	
Barium	**93**	0.99	0.08	1	B3K0247	11/13/2013	11/13/13 13:00	
Beryllium	**0.23**	0.99	0.02	1	B3K0247	11/13/2013	11/13/13 13:00	J
Cadmium	**0.72**	0.99	0.02	1	B3K0247	11/13/2013	11/13/13 13:00	J
Chromium	**20**	0.99	0.04	1	B3K0247	11/13/2013	11/13/13 13:00	
Cobalt	**4.6**	0.99	0.06	1	B3K0247	11/13/2013	11/13/13 13:00	
Copper	**39**	2.0	0.11	1	B3K0247	11/13/2013	11/13/13 13:00	
Molybdenum	**1.9**	0.99	0.04	1	B3K0247	11/13/2013	11/13/13 13:00	
Nickel	**16**	0.99	0.04	1	B3K0247	11/13/2013	11/13/13 13:00	
Selenium	ND	0.99	0.24	1	B3K0247	11/13/2013	11/13/13 13:00	
Silver	**0.06**	0.99	0.06	1	B3K0247	11/13/2013	11/13/13 13:00	J
Thallium	ND	0.99	0.29	1	B3K0247	11/13/2013	11/13/13 13:00	
Vanadium	**22**	0.99	0.17	1	B3K0247	11/13/2013	11/13/13 13:00	
Zinc	**340**	0.99	0.50	1	B3K0247	11/13/2013	11/13/13 13:00	

Mercury by AA (Cold Vapor) EPA 7471A — **Analyst: VV**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	**0.16**	0.10	0.008	1	B3K0260	11/13/2013	11/13/13 13:58	

pH by EPA 9045C — **Analyst: LA**

Analyte	Result (pH Units)	PQL (pH Units)	MDL (pH Units)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
pH	**7.1**	0.10	0.10	1	B3K0243	11/13/2013	11/13/13 11:11	

Certificate of Analysis

Stantec	Project Number : 185831006 ADL - District 7 Task Order 6
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Redlands , CA 92374	Reported : 11/13/2013

Client Sample ID 1226-115-1
Lab ID: 1303286-30

Title 22 Metals by ICP-AES EPA 6010B

Analyst: AG

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	0.22	1	B3K0247	11/13/2013	11/13/13 13:01	
Arsenic	**8.5**	0.99	0.38	1	B3K0247	11/13/2013	11/13/13 13:01	
Barium	**150**	0.99	0.08	1	B3K0247	11/13/2013	11/13/13 13:01	
Beryllium	**0.38**	0.99	0.02	1	B3K0247	11/13/2013	11/13/13 13:01	J
Cadmium	**0.65**	0.99	0.02	1	B3K0247	11/13/2013	11/13/13 13:01	J
Chromium	**22**	0.99	0.04	1	B3K0247	11/13/2013	11/13/13 13:01	
Cobalt	**7.7**	0.99	0.06	1	B3K0247	11/13/2013	11/13/13 13:01	
Copper	**53**	2.0	0.11	1	B3K0247	11/13/2013	11/13/13 13:01	
Molybdenum	**2.8**	0.99	0.04	1	B3K0247	11/13/2013	11/13/13 13:01	
Nickel	**20**	0.99	0.04	1	B3K0247	11/13/2013	11/13/13 13:01	
Selenium	ND	0.99	0.24	1	B3K0247	11/13/2013	11/13/13 13:01	
Silver	ND	0.99	0.06	1	B3K0247	11/13/2013	11/13/13 13:01	
Thallium	ND	0.99	0.29	1	B3K0247	11/13/2013	11/13/13 13:01	
Vanadium	**35**	0.99	0.17	1	B3K0247	11/13/2013	11/13/13 13:01	
Zinc	**320**	0.99	0.50	1	B3K0247	11/13/2013	11/13/13 13:01	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: VV

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	**0.07**	0.10	0.008	1	B3K0260	11/13/2013	11/13/13 14:00	J

pH by EPA 9045C

Analyst: LA

Analyte	Result (pH Units)	PQL (pH Units)	MDL (pH Units)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
pH	**7.5**	0.10	0.10	1	B3K0243	11/13/2013	11/13/13 11:11	

Certificate of Analysis

Stantec	Project Number : 185831006 ADL - District 7 Task Order 6
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Client Sample ID 1226-120-1

Lab ID: 1303286-40

Title 22 Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	**0.41**	2.0	0.22	1	B3K0247	11/13/2013	11/13/13 13:03	J
Arsenic	**4.1**	1.0	0.38	1	B3K0247	11/13/2013	11/13/13 13:03	
Barium	**79**	1.0	0.08	1	B3K0247	11/13/2013	11/13/13 13:03	
Beryllium	**0.20**	1.0	0.02	1	B3K0247	11/13/2013	11/13/13 13:03	J
Cadmium	**0.42**	1.0	0.02	1	B3K0247	11/13/2013	11/13/13 13:03	J
Chromium	**12**	1.0	0.04	1	B3K0247	11/13/2013	11/13/13 13:03	
Cobalt	**4.4**	1.0	0.06	1	B3K0247	11/13/2013	11/13/13 13:03	
Copper	**28**	2.0	0.11	1	B3K0247	11/13/2013	11/13/13 13:03	
Molybdenum	**1.4**	1.0	0.04	1	B3K0247	11/13/2013	11/13/13 13:03	
Nickel	**12**	1.0	0.04	1	B3K0247	11/13/2013	11/13/13 13:03	
Selenium	ND	1.0	0.24	1	B3K0247	11/13/2013	11/13/13 13:03	
Silver	ND	1.0	0.06	1	B3K0247	11/13/2013	11/13/13 13:03	
Thallium	ND	1.0	0.30	1	B3K0247	11/13/2013	11/13/13 13:03	
Vanadium	**19**	1.0	0.17	1	B3K0247	11/13/2013	11/13/13 13:03	
Zinc	**210**	1.0	0.51	1	B3K0247	11/13/2013	11/13/13 13:03	

Mercury by AA (Cold Vapor) EPA 7471A — **Analyst: VV**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	**0.05**	0.10	0.008	1	B3K0260	11/13/2013	11/13/13 14:02	J

Certificate of Analysis

Stantec	Project Number : 185831006 ADL - District 7 Task Order 6
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Redlands , CA 92374	Reported : 11/13/2013

Client Sample ID 1226-121-1

Lab ID: 1303286-42

Title 22 Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	**0.36**	2.0	0.22	1	B3K0247	11/13/2013	11/13/13 13:05	J
Arsenic	**13**	0.99	0.38	1	B3K0247	11/13/2013	11/13/13 13:05	
Barium	**130**	0.99	0.08	1	B3K0247	11/13/2013	11/13/13 13:05	
Beryllium	**0.33**	0.99	0.02	1	B3K0247	11/13/2013	11/13/13 13:05	J
Cadmium	**0.75**	0.99	0.02	1	B3K0247	11/13/2013	11/13/13 13:05	J
Chromium	**21**	0.99	0.04	1	B3K0247	11/13/2013	11/13/13 13:05	
Cobalt	**7.1**	0.99	0.06	1	B3K0247	11/13/2013	11/13/13 13:05	
Copper	**54**	2.0	0.11	1	B3K0247	11/13/2013	11/13/13 13:05	
Molybdenum	**4.1**	0.99	0.04	1	B3K0247	11/13/2013	11/13/13 13:05	
Nickel	**21**	0.99	0.04	1	B3K0247	11/13/2013	11/13/13 13:05	
Selenium	ND	0.99	0.24	1	B3K0247	11/13/2013	11/13/13 13:05	
Silver	ND	0.99	0.06	1	B3K0247	11/13/2013	11/13/13 13:05	
Thallium	ND	0.99	0.29	1	B3K0247	11/13/2013	11/13/13 13:05	
Vanadium	**29**	0.99	0.17	1	B3K0247	11/13/2013	11/13/13 13:05	
Zinc	**260**	0.99	0.50	1	B3K0247	11/13/2013	11/13/13 13:05	

Mercury by AA (Cold Vapor) EPA 7471A — **Analyst: VV**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	**0.08**	0.10	0.008	1	B3K0260	11/13/2013	11/13/13 14:04	J

pH by EPA 9045C — **Analyst: LA**

Analyte	Result (pH Units)	PQL (pH Units)	MDL (pH Units)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
pH	**7.3**	0.10	0.10	1	B3K0243	11/13/2013	11/13/13 11:11	

Certificate of Analysis

Stantec	Project Number : 185831006 ADL - District 7 Task Order 6
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Client Sample ID 1226-122-1

Lab ID: 1303286-44

Title 22 Metals by ICP-AES EPA 6010B — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	**0.31**	2.0	0.22	1	B3K0247	11/13/2013	11/13/13 13:07	J
Arsenic	**15**	1.0	0.38	1	B3K0247	11/13/2013	11/13/13 13:07	
Barium	**120**	1.0	0.08	1	B3K0247	11/13/2013	11/13/13 13:07	
Beryllium	**0.27**	1.0	0.02	1	B3K0247	11/13/2013	11/13/13 13:07	J
Cadmium	**0.68**	1.0	0.02	1	B3K0247	11/13/2013	11/13/13 13:07	J
Chromium	**20**	1.0	0.04	1	B3K0247	11/13/2013	11/13/13 13:07	
Cobalt	**6.5**	1.0	0.06	1	B3K0247	11/13/2013	11/13/13 13:07	
Copper	**51**	2.0	0.11	1	B3K0247	11/13/2013	11/13/13 13:07	
Molybdenum	**2.1**	1.0	0.04	1	B3K0247	11/13/2013	11/13/13 13:07	
Nickel	**18**	1.0	0.04	1	B3K0247	11/13/2013	11/13/13 13:07	
Selenium	ND	1.0	0.24	1	B3K0247	11/13/2013	11/13/13 13:07	
Silver	ND	1.0	0.06	1	B3K0247	11/13/2013	11/13/13 13:07	
Thallium	**0.47**	1.0	0.30	1	B3K0247	11/13/2013	11/13/13 13:07	J
Vanadium	**24**	1.0	0.17	1	B3K0247	11/13/2013	11/13/13 13:07	
Zinc	**250**	1.0	0.51	1	B3K0247	11/13/2013	11/13/13 13:07	

Mercury by AA (Cold Vapor) EPA 7471A — **Analyst: VV**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	**0.15**	0.10	0.008	1	B3K0260	11/13/2013	11/13/13 14:07	

pH by EPA 9045C — **Analyst: LA**

Analyte	Result (pH Units)	PQL (pH Units)	MDL (pH Units)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
pH	**6.7**	0.10	0.10	1	B3K0243	11/13/2013	11/13/13 11:11	

Certificate of Analysis

Stantec	Project Number : 185831006 ADL - District 7 Task Order 6
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Redlands , CA 92374	Reported : 11/13/2013

QUALITY CONTROL SECTION

Title 22 Metals by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3K0247 - EPA 3050B									
Blank (B3K0247-BLK1)				Prepared: 11/13/2013 Analyzed: 11/13/2013					
Antimony	ND	2.0			NR				
Arsenic	ND	1.0			NR				
Barium	ND	1.0			NR				
Beryllium	ND	1.0			NR				
Cadmium	ND	1.0			NR				
Chromium	0.116556	1.0			NR				J
Cobalt	ND	1.0			NR				
Copper	ND	2.0			NR				
Molybdenum	ND	1.0			NR				
Nickel	0.128752	1.0			NR				J
Selenium	0.246554	1.0			NR				J
Silver	ND	1.0			NR				
Thallium	ND	1.0			NR				
Vanadium	ND	1.0			NR				
Zinc	ND	1.0			NR				
LCS (B3K0247-BS1)				Prepared: 11/13/2013 Analyzed: 11/13/2013					
Antimony	47.0813	2.0	50.0000		94.2	80 - 120			
Arsenic	47.1752	1.0	50.0000		94.4	80 - 120			
Barium	47.9978	1.0	50.0000		96.0	80 - 120			
Beryllium	50.1780	1.0	50.0000		100	80 - 120			
Cadmium	46.6204	1.0	50.0000		93.2	80 - 120			
Chromium	50.3830	1.0	50.0000		101	80 - 120			
Cobalt	48.6246	1.0	50.0000		97.2	80 - 120			
Copper	50.5434	2.0	50.0000		101	80 - 120			
Molybdenum	51.2538	1.0	50.0000		103	80 - 120			
Nickel	48.3342	1.0	50.0000		96.7	80 - 120			
Selenium	43.6620	1.0	50.0000		87.3	80 - 120			
Silver	45.9373	1.0	50.0000		91.9	80 - 120			
Thallium	48.0216	1.0	50.0000		96.0	80 - 120			
Vanadium	50.9926	1.0	50.0000		102	80 - 120			
Zinc	47.5254	1.0	50.0000		95.1	80 - 120			
Duplicate (B3K0247-DUP1)		**Source: 1303286-14**		Prepared: 11/13/2013 Analyzed: 11/13/2013					
Antimony	0.578374	2.0		0.481260	NR		18.3	20	J
Arsenic	6.60565	1.0		7.26830	NR		9.55	20	
Barium	111.708	1.0		122.852	NR		9.50	20	
Beryllium	0.300719	1.0		0.316686	NR		5.17	20	J
Cadmium	0.847956	1.0		0.698525	NR		19.3	20	J
Chromium	20.1101	1.0		20.7102	NR		2.94	20	

Certificate of Analysis

Stantec	Project Number : 185831006 ADL - District 7 Task Order 6
25864-F Business Center Drive	Report To : Anne Perez
Redlands , CA 92374	Reported : 11/13/2013

Title 22 Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3K0247 - EPA 3050B (continued)									
Duplicate (B3K0247-DUP1) - Continued		**Source: 1303286-14**		Prepared: 11/13/2013 Analyzed: 11/13/2013					
Cobalt	5.85296	1.0		6.42304	NR		9.29	20	
Copper	50.3916	2.0		47.5316	NR		5.84	20	
Molybdenum	2.70139	1.0		2.69850	NR		0.107	20	
Nickel	16.6429	1.0		17.6574	NR		5.92	20	
Selenium	ND	1.0		ND	NR			20	
Silver	ND	1.0		ND	NR			20	
Thallium	ND	1.0		ND	NR			20	
Vanadium	25.8357	1.0		27.2332	NR		5.27	20	
Zinc	370.686	1.0		367.516	NR		0.859	20	
Matrix Spike (B3K0247-MS1)		**Source: 1303286-14**		Prepared: 11/13/2013 Analyzed: 11/13/2013					
Antimony	72.7200	2.0	125.000	0.481260	57.8	21 - 109			
Arsenic	103.217	1.0	125.000	7.26830	76.8	55 - 102			
Barium	207.369	1.0	125.000	122.852	67.6	40 - 130			
Beryllium	96.9218	1.0	125.000	0.316686	77.3	60 - 104			
Cadmium	89.9560	1.0	125.000	0.698525	71.4	52 - 100			
Chromium	121.272	1.0	125.000	20.7102	80.4	53 - 113			
Cobalt	98.3728	1.0	125.000	6.42304	73.6	53 - 104			
Copper	158.631	2.0	125.000	47.5316	88.9	51 - 122			
Molybdenum	102.168	1.0	125.000	2.69850	79.6	55 - 103			
Nickel	110.911	1.0	125.000	17.6574	74.6	48 - 112			
Selenium	90.0372	1.0	125.000	ND	72.0	53 - 104			
Silver	101.291	1.0	125.000	ND	81.0	61 - 109			
Thallium	90.4962	1.0	125.000	ND	72.4	44 - 103			
Vanadium	124.737	1.0	125.000	27.2332	78.0	55 - 115			
Zinc	466.146	1.0	125.000	367.516	78.9	24 - 130			
Matrix Spike Dup (B3K0247-MSD1)		**Source: 1303286-14**		Prepared: 11/13/2013 Analyzed: 11/13/2013					
Antimony	69.4947	2.0	125.000	0.481260	55.2	21 - 109	4.54	20	
Arsenic	106.937	1.0	125.000	7.26830	79.7	55 - 102	3.54	20	
Barium	216.224	1.0	125.000	122.852	74.7	40 - 130	4.18	20	
Beryllium	100.035	1.0	125.000	0.316686	79.8	60 - 104	3.16	20	
Cadmium	91.8024	1.0	125.000	0.698525	72.9	52 - 100	2.03	20	
Chromium	124.258	1.0	125.000	20.7102	82.8	53 - 113	2.43	20	
Cobalt	101.620	1.0	125.000	6.42304	76.2	53 - 104	3.25	20	
Copper	164.655	2.0	125.000	47.5316	93.7	51 - 122	3.73	20	
Molybdenum	101.498	1.0	125.000	2.69850	79.0	55 - 103	0.658	20	
Nickel	113.320	1.0	125.000	17.6574	76.5	48 - 112	2.15	20	
Selenium	92.1866	1.0	125.000	ND	73.7	53 - 104	2.36	20	
Silver	103.071	1.0	125.000	ND	82.5	61 - 109	1.74	20	
Thallium	92.8326	1.0	125.000	ND	74.3	44 - 103	2.55	20	
Vanadium	129.020	1.0	125.000	27.2332	81.4	55 - 115	3.38	20	

Stantec
25864-F Business Center Drive
Redlands , CA 92374

Project Number : 185831006 ADL - District 7 Task Order 6
Report To : Anne Perez
Reported : 11/13/2013

Title 22 Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3K0247 - EPA 3050B (continued)									
Matrix Spike Dup (B3K0247-MSD1) - Continued		**Source: 1303286-14**		Prepared: 11/13/2013 Analyzed: 11/13/2013					
Zinc	474.415	1.0	125.000	367.516	85.5	24 - 130	1.76	20	

Certificate of Analysis

Stantec	Project Number : 185831006 ADL - District 7 Task Order 6
25864-F Business Center Drive	Report To : Anne Perez
Redlands , CA 92374	Reported : 11/13/2013

Mercury by AA (Cold Vapor) EPA 7471A - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3K0260 - EPA 7471									
Blank (B3K0260-BLK1)				Prepared: 11/13/2013 Analyzed: 11/13/2013					
Mercury	ND	0.10			NR				
LCS (B3K0260-BS1)				Prepared: 11/13/2013 Analyzed: 11/13/2013					
Mercury	0.792351	0.10	0.833333		95.1	80 - 120			
Duplicate (B3K0260-DUP1)		**Source: 1303286-14**		Prepared: 11/13/2013 Analyzed: 11/13/2013					
Mercury	0.070922	0.10		0.073298	NR		3.30	20	J
Matrix Spike (B3K0260-MS1)		**Source: 1303286-14**		Prepared: 11/13/2013 Analyzed: 11/13/2013					
Mercury	0.916118	0.10	0.833333	0.073298	101	70 - 130			
Matrix Spike Dup (B3K0260-MSD1)		**Source: 1303286-14**		Prepared: 11/13/2013 Analyzed: 11/13/2013					
Mercury	0.934926	0.10	0.833333	0.073298	103	70 - 130	2.03	20	
Post Spike (B3K0260-PS1)		**Source: 1303286-14**		Prepared: 11/13/2013 Analyzed: 11/13/2013					
Mercury	0.005836		5.00000E-3	0.000880	99.1	85 - 115			

Certificate of Analysis

Stantec	Project Number : 185831006 ADL - District 7 Task Order 6
25864-F Business Center Drive	Report To : Anne Perez
Redlands , CA 92374	Reported : 11/13/2013

pH by EPA 9045C - Quality Control

Analyte	Result (pH Units)	PQL (pH Units)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3K0243 - Prep_WC_1_S									
Duplicate (B3K0243-DUP1)		**Source: 1303286-14**		Prepared: 11/13/2013 Analyzed: 11/13/2013					
pH	7.13000	0.10		7.06000	NR		0.987	20	

Certificate of Analysis

Stantec		Project Number :	185831006 ADL - District 7 Task Order 6
25864-F Business Center Drive		Report To :	Anne Perez
Redlands , CA 92374		Reported :	11/13/2013

Notes and Definitions

J	Analyte detected below the Practical Quantitation Limit but above or equal to the Method Detection Limit. Result is an estimated concentration.
ND	Analyte is not detected at or above the Practical Quantitation Limit (PQL). When client requests quantitation against MDL, analyte is not detected at or above the Method Detection Limit (MDL)
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
NR	Not Reported
RPD	Relative Percent Difference
CA1	CA-NELAP (CDPH)
CA2	CA-ELAP (CDPH)
OR1	OR-NELAP (OSPHL)
TX1	TX-NELAP (TCEQ)

Notes:
(1) The reported MDL and PQL are based on prep ratio variation and analytical dilution.
(2) The suffix [2C] of specific analytes signifies that the reported result is taken from the instrument's second column.

Stantec

CHAIN OF CUSTODY FORM

25864-F-Business Center Dr., Redlands, CA 92374 (909)335-6116, Fax (909) 335-6120

Client Name/Address:	Project/PO Number:
Stantec **25864-F Business Center Drive** **Redlands, CA**	**185831006** **ADL – District 7 Task Order 6**
Project Manager: **Anne Perez**	Phone Number: : **(909) 255-8202**
Email Address: **anne.perez@stantec.com**	Fax Number: (**909) 335-6120**
Sampler: **Monge**	

Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date	Sampling Time	Preservatives	Analysis Required: 6010: Total Lead	1311/6010: Soluble Lead Cal WET - Citric	1311/6010: Soluble Lead Cal WET - DI	1311/6010: Soluble Lead - TCLP	6010: Title 22 (CAM 17) Metals	9045C: pH	Special Instructions
1226-EBQC-10172013	Water	500-mL poly	1	10/17/2013	0735	On ice (see instructions)					X		Lab filter and preserve
1226-101-1	Soil	8-oz glass jar	1	10/17/2013	0802	On ice	X	X					
1226-101-2					0815		X	X					
1226-102-1					0802		X	X					
1226-102-2					0805		X	X					
1226-103-1					0845		X	X					
1226-103-2					0851		X	X					
1226-104-1					0853		X	X					
1226-104-2					0850		X	X					
1226-105-1					0933		X	X					
1226-105-2					0935		X	X					
1226-106-1					0930		X	X					
1226-106-2					0936		X	X					
1226-107-1					0958		X	X					

For all samples, please notify Stantec immediately with preliminary results of any TTLCs exceeding 1,000 mg/kg or STLC Wet-Citric exceeding 5 mg/L.

Relinquished By:	Date/Time: 10/18/13 1020	Received By:	Date/ Time: 10/18/13 1020
Relinquished By:	Date/Time: 10/18/13 1141	Received By: FEDEX	Date/Time: 10/18/13 1141
Relinquished By:	Date/Time:	Received in Lab By:	Date/ Time;

Turnaround Time: (Check)
same day
24 hours 5 days
48 hours normal

Sample Integrity: (Check)
intact on ice

Note: By relinquishing samples, client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of invoice. Sample(s) will be disposed of after 30 days.

Stantec

CHAIN OF CUSTODY FORM

25864-F-Business Center Dr., Redlands, CA 92374 (909)335-6116, Fax (909) 335-6120

Client Name/Address:	Project/PO Number:
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Project Manager: **Anne Perez**	Phone Number: : **(909) 255-8202**
Email Address: **anne.perez@stantec.com**	Fax Number: **(909) 335-6120**
Sampler: **Monge**	

	Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date	Sampling Time	Preservatives	Analysis Required: 6010: Total Lead	1311/6010: Soluble Lead Cal WET - Citric	1311/6010: Soluble Lead Cal WET - DI	1311/6010: Soluble Lead - TCLP	6010: Title 22 (CAM 17) Metals	9045C: pH				Special Instructions
15	1226-107-2	Soil	8-oz glass jar	1	10/17/2013	1002	On ice	X	X								For **all** samples, please notify Stantec immediately with preliminary results of any TTLCs exceeding 1,000 mg/kg or STLC Wet-Citric exceeding 5 mg/L.
16	1226-108-1					0959		X	X								
17	1226-108-2					1004		X	X								
18	1226-109-1					1024		X	X								
19	1226-109-2					1027		X	X								
20	1226-110-1					1023		X	X								
21	1226-110-2					1032		X	X								
22	1226-111-1					1056		X	X								
23	1226-111-2					1100		X	X								
24	1226-112-1					1057		X	X								
25	1226-112-2					1101		X	X								
26	1226-113-1					1125		X	X								
27	1226-113-2					1128		X	X								
28	1226-114-1					1126		X	X								

Relinquished By:	Date/Time: 10/18/13 1020	Received By: Joe Arico	Date/ Time: 10/18/13 1020
Relinquished By: Joe Arico	Date/Time: 10/18/13 1141	Received By:	Date/Time: 10/18/13 1141
Relinquished By:	Date/Time:	Received in Lab By:	Date/ Time;

Turnaround Time: (Check)
same day _____
24 hours _____ 5 days
48 hours _____ normal

Sample Integrity: (Check)
intact _____ on ice _____

Note: By relinquishing samples, client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of invoice. Sample(s) will be disposed of after 30 days.

Stantec

CHAIN OF CUSTODY FORM

25864-F-Business Center Dr., Redlands, CA 92374 (909)335-6116, Fax (909) 335-6120

Client Name/Address:	Project/PO Number:
Stantec **25864-F Business Center Drive** **Redlands, CA**	**185831006** **ADL – District 7 Task Order 6**
Project Manager: **Anne Perez**	Phone Number: : **(909) 255-8202**
Email Address: **anne.perez@stantec.com**	Fax Number: **(909) 335-6120**
Sampler: **Monge**	

	Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date	Sampling Time	Preservatives	Analysis Required: 6010: Total Lead	1311/6010: Soluble Lead Cal WET - Citric	1311/6010: Soluble Lead Cal WET - DI	1311/6010: Soluble Lead - TCLP	6010: Title 22 (CAM 17) Metals	9045C: pH				Special Instructions
29	1226-114-2	Soil	8-oz glass jar	1	10/17/2013	1129	On ice	X	X								For all samples, please notify Stantec immediately with preliminary results of any TTLCs exceeding 1,000 mg/kg or STLC Wet-Citric exceeding 5 mg/L.
30	1226-115-1					1153		X	X								
31	1226-115-2					1156		X	X								
32	1226-116-1					1154		X	X								
33	1226-116-2					1157		X	X								
34	1226-117-1					1216		X	X								
35	1226-117-2					1220		X	X								
36	1226-118-1					1217		X	X								
37	1226-118-2					1221		X	X								
38	1226-119-1					1238		X	X								
39	1226-119-2					1242		X	X								
40	1226-120-1					1239		X	X								
41	1226-120-2					1244		X	X								
42	1226-121					1328		X	X								

Relinquished By:	Date/Time: 10/18/13 1020	Received By:	Date/ Time: 10/18/13 1020
Relinquished By:	Date/Time: 10/18/13 1141	Received By:	Date/Time: 10/18/13 1141
Relinquished By:	Date/Time:	Received in Lab By:	Date/ Time;

Turnaround	Time: (Check)
same day	
24 hours	5 days
48 hours	normal
Sample Integrity:	(Check)
intact	on ice

Note: By relinquishing samples, client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of invoice. Sample(s) will be disposed of after 30 days.

Stantec

CHAIN OF CUSTODY FORM

25864-F-Business Center Dr., Redlands, CA 92374 (909)335-6116, Fax (909) 335-6120

Client Name/Address:	Project/PO Number:
Stantec **25864-F Business Center Drive** **Redlands, CA**	**185831006** **ADL – District 7 Task Order 6**
Project Manager: **Anne Perez**	Phone Number: : **(909) 255-8202**
Email Address: **anne.perez@stantec.com**	Fax Number: **(909) 335-6120**
Sampler: **Monge**	

	Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date	Sampling Time	Preservatives	Analysis Required: 6010: Total Lead	1311/6010: Soluble Lead Cal WET - Citric	1311/6010: Soluble Lead Cal WET - DI	1311/6010: Soluble Lead - TCLP	6010: Title 22 (CAM 17) Metals	9045C: pH				Special Instructions
-43	1226-121-2	Soil	8-oz glass jar	1	10/17/2013	1332	On ice	X	X								For all samples, please notify Stantec immediately with preliminary results of any TTLCs exceeding 1,000 mg/kg or STLC Wet-Citric exceeding 5 mg/L.
-44	1226-122-1					1329		X	X								
-45	1226-122-2					1333		X	X								
-46	1226-123-1					1355		X	X								
-47	1226-123-2					1359		X	X								
-48	1226-124-1					1356		X	X								
-49	1226-124-2					1400		X	X								
-50	1226-125-1					1429		X	X								
-51	1226-125-2					1433		X	X								
-52	1226-126-1					1430		X	X								
-53	1226-126-2					1434		X	X								

Relinquished By:	Date/Time:	Received By:	Date/ Time:	Turnaround	Time: (Chec
	10/18/13 1020	Joe Arteo	10/18/13 1020	same day	
Relinquished By:	Date/Time:	Received By:	Date/Time:	24 hours	5 days
Joe Arteo	10/18/13 1141	FEDEX	10/18/13 1141	48 hours	normal
Relinquished By:	Date/Time:	Received in Lab By:	Date/ Time;	Sample Integrity: (Check)	
				intact	on ice

Note: By relinquishing samples, client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of invoice. Sample(s) will be disposed of after 30 days.

APPENDIX E
DATA VALIDATION RECORDS

Stantec Analytical Validation Checklist — Report No. 110713-EC-01

Project Name: Caltrans District 7	Project Number: 185831006
Stantec Validator: Elizabeth Crowley	Laboratory: ATL, Signal Hill, CA
Date Validated: 11/05/13	Laboratory Project Number: 1303286
Sample Start-End Date: 10/17/13	Laboratory Report Date: 11/04/13

Parameters Validated: Total Metals, TCPL Lead, STLC Lead, and STLC-DI Lead by SW 846 6010B, Mercury by 7471A and 7470A and pH by 9045C

Samples Validated: 52 solid field samples and 1 Equipment Blank

VALIDATION CRITERIA CHECK

Validation Flags Applicable to this Review:

U The analyte was analyzed for, but not detected above the reported sample quantitation limit.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".

NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

B The analyte was detected in the method, field and/or trip blank.

	Yes	No
1. Were all the analyses requested for the samples submitted with each COC completed by the lab?	X	
Comments:		
2. Did the laboratory identify any non-conformances related to the analytical result?	X	
Comments: Refer to laboratory report.		
3. Were sample Chain-of-Custody forms complete?	X	
Comments:		
4. Were samples received in good condition and at the appropriate temperature?	X	
Comments		
5. Were sample holding times met?	X	
Comments:		
6. Were correct concentration units reported?	X	
Comments:		
7. Were detections found in laboratory blank samples?	X	

Comments: 6010B batch B3J0477 - Lead = 0.213 mg/Kg. Batch B3J0478 – Lead = 0.153 mg/Kg. 6010B STLC batch B3J0520 – Lead = 0.049 mg/Kg. Batch B3J0521 – Lead = 0.115 mg/Kg. Sample results below the blank concentration are validated to non-detect and flagged "UJB". The detection limit is changed to the blank concentration. Sample results greater than the blank concentration and less than 100 times the blank concentration are flagged "JB". Sample concentrations greater than 100 times the blank concentration require no qualifying. Reason Code – MB		
8. Were detections found in field blank, equipment rinse blank, and/or trip blank samples?	Yes X	No
Comments: .EBQC – Lead = 0.0025 mg/L. Associated sample results greater than 100x the blank concentration. No qualifying action required.		
9. Were instrument calibrations within method criteria?	Yes NA	No
Comments: Level II data package and validation, no data provided.		
10. Were surrogate recoveries within control limits?	Yes NA	No
Comments: No organic analyses requested.		
11. Were laboratory control (LC/LD) sample recoveries within control limits?	Yes X	No
Comments:		
12. Were matrix spike (MS/MD) recoveries within control limits?	Yes	No X
Comments: 6010B batch B3J0477 – %R above limits for Total Lead. Sample site specific. Associated result flagged "J" for 1226-118-1 only.		
13. Were RPDs within control limits?	Yes	No X
Comments: 6010B batch B3J0476 – Lab Duplicate RPD above limits for Total Lead. Associated sample result for 1226-103-1 flagged "J". Reason Code – LDUP. 6010B batch B3J0477 – Lab Duplicate RPD above limits for Total Lead. Associated sample result for 1226-118-1 flagged "J". Reason Code – LDUP. 6010B batch B3J0647 – Lab Duplicate RPD above limits for TCLP Lead. Associated sample result for 1226-103-2 flagged "J". Reason Code – LDUP. 6010B batch B3K0010 – Lab Duplicate RPD above limits for TCLP Lead. Associated sample result for 1226-123-2 flagged "J". Reason Code – LDUP.		
14. Were dilutions required on any samples?	Yes X	No

Comments: No action required.			
15. Were Tentatively Identified Compounds (TIC) present?		Yes X	No
Comments: Sample results below the reporting limit do not possess the degree of qualitative or quantitative confidence required. The value may be a false positive and is an estimated value and is flagged “NJ”. Reason Code – SQL			
16. Were organic system performance criteria met?	NA	Yes	No
Comments: No organic analyses requested.			
17. Were GC/MS internal standards within method criteria?	NA	Yes	No
Comments: No organic analyses requested.			
18. Were inorganic system performance criteria met?	NA	Yes	No
Comments: Level II data package and validation, no data provided.			
19. Were blind field duplicates collected? If so, discuss the precision (RPD) of the results. Duplicate Sample Nos.		Yes	No X
Comments:			
20. Were at least 10 percent of the hard copy results compared to the Electronic Data Deliverable Results?		Yes X	No Initials EAC
Comments:			
21. Other?		Yes	No X
Comments:			

PRECISION, ACCURACY, METHOD COMPLIANCE AND COMPLETENESS ASSESSMENT

Precision:	Acceptable X	Unacceptable	Initials EAC
Comments:			
Sensitivity:	Acceptable X	Unacceptable	Initials EAC
Comments:			
Accuracy:	Acceptable X	Unacceptable	Initials EAC
Comments:			
Representativeness:	Acceptable X	Unacceptable	Initials EAC

Comments:			
Method Compliance:	Acceptable X	Unacceptable	Initials EAC
Comments:			
Completeness:	Acceptable X	Unacceptable	Initials EAC
Comments:			

Stantec Analytical Validation Checklist — Report No. 111413-EC-01

Project Name: Caltrans District 7	Project Number: 185831006
Stantec Validator: Elizabeth Crowley	Laboratory: ATL, Signal Hill, CA
Date Validated: 11/14/13	Laboratory Project Number: 1303286add
Sample Start-End Date: 10/17/13	Laboratory Report Date: 11/13/13

Parameters Validated: Total Metals by SW 846 6010B, Mercury by 7471A and pH by 9045C

Samples Validated: 10 solid field samples

VALIDATION CRITERIA CHECK

Validation Flags Applicable to this Review:

U The analyte was analyzed for, but not detected above the reported sample quantitation limit.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".

NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

B The analyte was detected in the method, field and/or trip blank.

	Yes	No
1. Were all the analyses requested for the samples submitted with each COC completed by the lab?	X	
Comments:		
2. Did the laboratory identify any non-conformances related to the analytical result?	Yes X	No
Comments: Refer to laboratory report.		
3. Were sample Chain-of-Custody forms complete?	Yes X	No
Comments:		
4. Were samples received in good condition and at the appropriate temperature?	Yes X	No
Comments		
5. Were sample holding times met?	Yes X	No
Comments:		
6. Were correct concentration units reported?	Yes X	No
Comments:		
7. Were detections found in laboratory blank samples?	Yes X	No

Comments: 6010B batch B3L0247 – Chromium = 0.117 mg/Kg, Nickel = 0.129 mg/Kg and Selenium = 0.247 mg/Kg. Sample results greater than 100 times the blank concentration. No qualifying action required.		
8. Were detections found in field blank, equipment rinse blank, and/or trip blank samples?	Yes X	No
Comments: .EBQC – previously analyzed and reported in 13I0481 on 11/07/2013 - Barium = 0.0024 mg/L, Beryllium = 0.0006 mg/L, Cadmium = 0.0015 mg/L, Chromium = 0.0038 mg/L, Cobalt = 0.0017 mg/L, Copper = 0.0017 mg/L, Lead = 0.0025 mg/L, Molybdenum = 0.0026 mg/L, Nickel = 0.0032 mg/L and Zinc = 0.0063 mg/L. Associated sample results greater than 100x the blank concentration. No qualifying action required.		
9. Were instrument calibrations within method criteria?	Yes NA	No
Comments: Level II data package and validation, no data provided.		
10. Were surrogate recoveries within control limits?	Yes NA	No
Comments: No organic analyses requested.		
11. Were laboratory control (LC/LD) sample recoveries within control limits?	Yes X	No
Comments:		
12. Were matrix spike (MS/MD) recoveries within control limits?	Yes X	No
Comments:		
13. Were RPDs within control limits?	Yes X	No
Comments:		
14. Were dilutions required on any samples?	Yes	No X
Comments:		
15. Were Tentatively Identified Compounds (TIC) present?	Yes X	No
Comments: Sample results below the reporting limit do not possess the degree of qualitative or quantitative confidence required. The value may be a false positive and is an estimated value and is flagged “NJ”. Reason Code – SQL		
16. Were organic system performance criteria met?	Yes NA	No
Comments: No organic analyses requested.		
17. Were GC/MS internal standards within method criteria?	Yes NA	No
Comments: No organic analyses requested.		
18. Were inorganic system performance criteria met?	Yes	No

NA			
Comments: Level II data package and validation, no data provided.			
19. Were blind field duplicates collected? If so, discuss the precision (RPD) of the results. Duplicate Sample Nos.		Yes	No X
Comments:			
20. Were at least 10 percent of the hard copy results compared to the Electronic Data Deliverable Results?		Yes X	No Initials EAC
Comments:			
21. Other?		Yes	No X
Comments:			
PRECISION, ACCURACY, METHOD COMPLIANCE AND COMPLETENESS ASSESSMENT			
Precision:	Acceptable X	Unacceptable	Initials EAC
Comments:			
Sensitivity:	Acceptable X	Unacceptable	Initials EAC
Comments:			
Accuracy:	Acceptable X	Unacceptable	Initials EAC
Comments:			
Representativeness:	Acceptable X	Unacceptable	Initials EAC
Comments:			
Method Compliance:	Acceptable X	Unacceptable	Initials EAC
Comments:			
Completeness:	Acceptable X	Unacceptable	Initials EAC
Comments:			

SCI Products Inc.

SCI70GM AND SCI100GM DESIGN AND INSTALLATION MANUAL

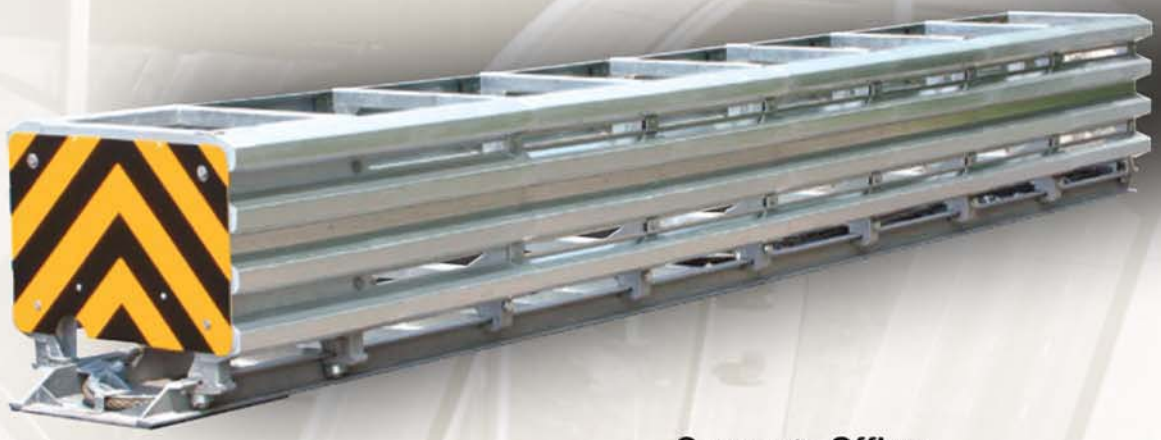
The World's Only

Speed-Dependent

Crash Attenuator

SMART CUSHION INNOVATIONS®

NCHRP 350 Approved



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WORK AREA PROTECTION CORP. EST. 1969

Work Area Protection

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APPENDIXES

OVERVIEW

Product

The SMART CUSHION® impact attenuators are manufactured by SCI Products, Inc./Work Area Protection Corp. They are NCHRP Report 350, Test Levels 2 and 3 (TL2 and TL3) compliant (Models SCI 70 GM and SCI 100 GM, respectively) and are fully redirective, non-gating, and bi-directional. SMART CUSHION® impact attenuators are used to help protect motorists from hazards in both permanent and work zone locations. They can be attached to most types of median and roadside barriers.

The SMART CUSHION® attenuators use a patented system for stopping vehicles. The system is speed dependent and stops small and large vehicles by automatically regulating the stopping force exerted on a vehicle. Essentially, the system provides the necessary forces based on the speed of the vehicle automatically compensating for the mass of the vehicle.

The SMART CUSHION® attenuators are slightly tapered from front to rear. This allows the side panel sections to collapse over the next section without stress or damage. During collapse, the parts move freely past each other and do not become wedged during the impact.

Wide temperature variations and temperature extremes do not affect the performance of SMART CUSHION® impact attenuators. Temperature driven changes in viscosity of the fluid in the shock-arresting cylinder does not affect performance.

Maintenance

SMART CUSHION® impact attenuators are low-maintenance units. In a two-year in-service evaluation report submitted to the Federal Highway Administration, the average cost of parts to repair the SMART CUSHION® impact attenuator was $39, excluding two catastrophic impacts. More than four out of five of the reported repairs only required two shear bolts costing under $2. A trained, two-person maintenance crew can return most impacted SMART CUSHION® attenuators to full service within 30 minutes. This short repair time reduces the maintenance workers' exposure to traffic and minimizes motorist inconvenience. Side impacts usually result in no damage to the impact attenuator.

Crash Performance

The SMART CUSHION® impact attenuator broke new ground during NCHRP Report 350 crash testing. In the high-speed test, 100 kilometers per hour (63 miles per hour), the small vehicle's deceleration rate was significantly lower than any previously recorded value (-9.8 G's as compared to previous low of –13.4 G's). This means less impact forces on the vehicle's occupants and a reduced risk of injury and severity.

All the tests were conducted on the same SMART CUSHION® unit over four consecutive days with no damage to non-expendable parts. The only parts replaced after each crash test were the two shear bolts, costing less than $2 for each reset.

SPECIFICATIONS

Description

The SMART CUSHION® is a re-directive, non-gating crash attenuator that consists of a base, supporting frames, a sled, side panels, a wire rope cable, sheaves, and a shock-arresting cylinder. The base is anchored to the mounting surface and provides support for the frames that are mounted on it. The support frames hold the side panels that provide a flat outer redirective surface for side impacts. The sled provides redirective support for side impacts and deceleration force for frontal impacts. The SMART CUSHION® telescopes rearward upon frontal impact and can be reset with minimal repair parts. It is NCHRP 350 approved at Test Levels 2 and 3.

System Dimensions & Weight

Table 2 – Dimensions & Weight

	SCI 70 GM	SCI 100 GM
Width	24 inch (610 mm)	24 inch (610 mm)
Length	13 ½ feet (4115 mm)	21 ½ feet (6550 mm)
Height	33 inch (840 mm)	33 inch (840 mm)
Weight	2465 lbs. (1120 kg)	3450 lbs. (1570 kg)
NCHRP 350, Test Level	2	3

DESIGN CRITERIA

General

SMART CUSHION® impact attenuators comply with NCHRP Report 350, TL2 and TL3, and are designed for work zone and permanent applications.

Foundations

Foundations must be a flat surface with longitudinal and cross slopes of 10:1 (horizontal: vertical) or less. SMART CUSHION® impact attenuators should not be located over drainage basins or expansion joints. Portland cement concrete foundation pads are preferred for permanent installations; asphaltic concrete foundation pads are appropriate for work zone installations.

The following table describes the foundations that may be used. See Appendices for drawings.

Table 1 – Foundations

Pad Material and Thickness	Anchor Embedment
6 inch (150 mm) reinforced PCC [1]	5 ½ inch (140 mm)
8 inch (205 mm) non-reinforced PCC	5 ½ inch (140 mm)
3 inch (75 mm) AC [2,3] over 3 inch (75 mm) non-reinforced PCC	16 ½ inch (420 mm)
6 inch (150 mm) AC over compacted subgrade [3]	16 ½ inch (420 mm)
8 inch (205 mm) AC [3]	16 ½ inch (420 mm)

Notes: 1. Portland cement concrete 2. Asphaltic concrete 3. Minimum compaction: 95% of optimal

Concrete compressive strength shall be 4000 psi (28 MPa) at 28 days.

Foundation lengths may vary when using wide transitions.

Support Structure

SMART CUSHION® impact attenuators are self-supporting and do not require an additional support structure.

Location

The SMART CUSHION® impact attenuator's location determines its position and transition requirements.

1. Approach Zone – SMART CUSHION® impact attenuators should not be placed directly behind raised curbs that exceed 4 inches in height. The longitudinal and cross slopes in front of the device should not exceed 10:1 (horizontal: vertical).
2. Barrier Width – SMART CUSHION® impact attenuators are 24 inch (610 mm) wide at the rear. Barriers 24 inch (610 mm) wide, or less, can be shielded without using a transition if there is no reverse direction traffic. Barriers that are wider than 24 inch (610 mm) and/or have reverse direction traffic require a transition, available from Work Area Protection Corp.
3. Barrier Height – SMART CUSHION® impact attenuators are approximately 33 ⅜ inch (848 mm) high.
4. Barrier Shape – SMART CUSHION® transitions allow for connection to many barrier shapes.

Transition Design

SMART CUSHION® impact attenuators can be attached to many different barrier shapes. The attenuators are designed for direct attachment to 24 in wide barriers and Jersey/F-Shape barriers with base widths up to 27 ½ inch (700 mm). The SMART CUSHION® side panels move rearward beyond the end of the attenuator up to 30 inch (760 mm) upon impact. This area is known as the travel zone. SMART CUSHION® transitions provide this travel zone in front of wider barriers and obstacles.

See appendices for SMART CUSHION® transition drawings. Work Area Protection Corp. can design transitions for other frequently used applications. Contact us for details.

Transitions

Necessary Locations (see Figure 1 – Necessary Locations):

- There is reverse direction traffic within the clear zone .
- The barrier intrudes into the side panels' travel zone.

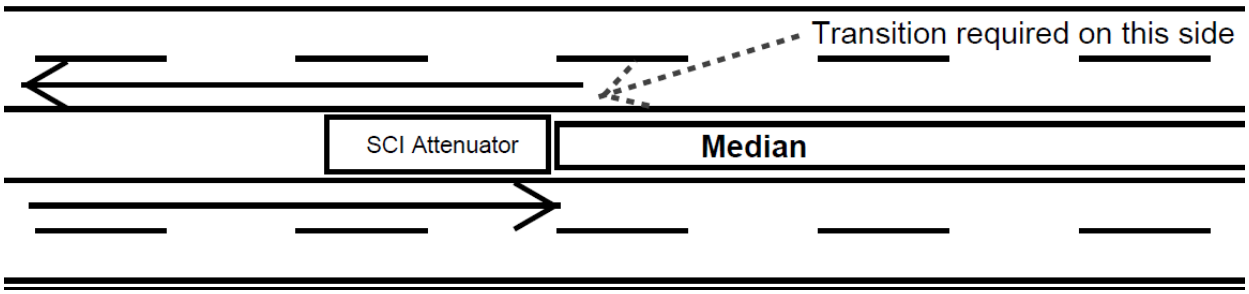


Figure 1 – Necessary Locations

Examples are median applications with bidirectional traffic, two lane roads with crossover potential, etc.

Unnecessary Locations (see Figure 2 – Unnecessary Locations):

- No reverse direction traffic within the clear zone.
- The barrier does not intrude into the side panels' travel zone.

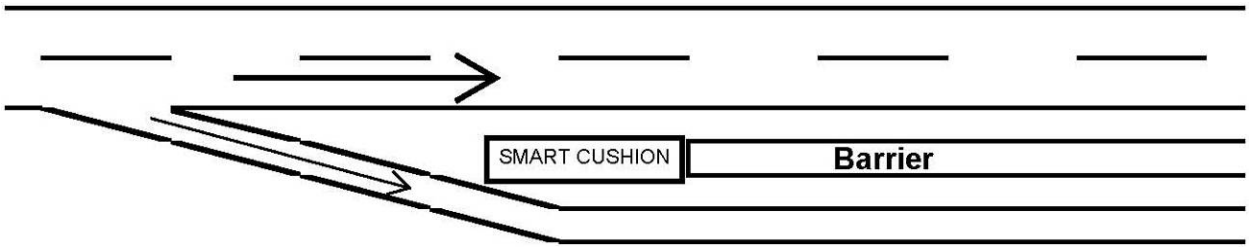


Figure 2 – Unnecessary Locations

Examples are traffic splits, shoulder applications with no crossover potential, one-way roads, etc.

Determining Side of Transition

The transition's side is determined by standing at the front of the attenuator looking rearward toward the barrier to choose between left and right.

Drawings

The following SMART CUSHION® transitions and layouts are available from Work Area Protection Corporation. Diagrams are shown in the Appendices as follows:

- Layout – Gore Assembly, Appendix F & F2 - Rigid design for wide obstacles
- Layout – Gore Assembly Calculations, Appendix F3 - Used to calculate longitudinal distances and parts requirements
- Transition - Jersey/F Shape, Appendix G - Used on standard Jersey/F shaped barriers with a 24 inch Base
- Transition - Concrete Block, 24 Inch, Appendix H - Used on 24 inch Concrete Block that must be 30 inch longitudinal length for our travel zone
- Transition - Concrete Block, 30 Inch, Appendix I - Used on 30 inch Concrete Block and will extend our installation length 38 inches
- Transition - Concrete Block, 36 Inch, Appendix J - Used on 36 inch Concrete Block and will extend our installation length 53 inches
- Transition - Concrete Block, 30 Inch, Flared, Appendix K - Used on 30 inch Concrete Block/Pillars and will extend our installation length 54 inches
- Transition - Concrete Block, 36 Inch, Flared, Appendix L - Used on 36 inch Concrete Block/Pillars and will extend our installation length 71 inches
- Transition – Thrie-Beam Rigid Assembly, Appendix M - Rigid design for possible reverse direction impacts
- Transition – W-Beam Rigid Assembly, Appendix N - Rigid design for possible reverse direction impacts
- Transition – Jersey, Median Barrier Variable Width, Appendix O - Used on Jersey Shape barrier with base widths of 30 - 38 inches wide.
- Transition – Single Slope Barrier, Appendix -P - Used on 42 inch and 48 inch Single Slope barrier up to 26 inches wide at the base
- Transition – W-Beam 28 Inch High, Appendix Q – Connection to 28 inch high W-Beam Guardrail with no reverse direction traffic
- Transition – W-Beam 32 Inch High, Appendix R – Connection to 32 inch high W-Beam Guardrail with no reverse direction traffic
- Transition – Wide Block Spanner, Appendix S – Connection to a wide Concrete Block for one sided protection

Installation

Installation and Performance Statements

Proper performance within these limits depends on correct installation of the system on an approved foundation. Any crash cushion not installed according to the drawings and the requirements of this installation manual may present an unsafe condition and should be reinstalled accordingly.

Impacts with vehicles whose size or mass are outside of those tested according to NCHRP 350 or with vehicles traveling at speeds greater than those tested according to NCHRP 350 will not necessarily produce results within the test criteria. The crash cushion is in conformance with all requirements of NCHRP 350 Levels 2 & 3 but is not guaranteed to safely stop a vehicle in a situation not encompassed by the test conditions.

Safety

All work during installation, repair and inspection of the crash cushion should be performed according to federal, state and local laws.

Equipment List

See Appendix B

Site Preparation

Check to make sure there are no drains, expansion joints, or buried conduit, cables or utility lines in the footprint space where the attenuator will be placed. Remove any curbs >4 inch or obstacles in front of or beside where attenuator will be installed for a minimum distance of 12 feet from any edge of the attenuator. Be sure to set up proper traffic control before beginning any installation or repair work at the site.

Foundations – (reference Appendices E1 and E2)

New foundations should be installed according to Appendix E – Foundation Drawing. Concrete should reach full cure strength before use. The surface of the foundation must be cleaned of all debris, dirt, mud, sand, etc., as the crash cushion must sit on a level plane, although longitudinal and/or cross slope of up to 10:1 (horizontal:vertical) is allowed.

Any of the following foundations will meet the minimum requirements:

- 6 inch reinforced concrete pad
- 8 inch non-reinforced concrete pad
- 3 inch asphalt over 3 inch of concrete
- 6 inch asphalt over 6 inch of compacted sub base
- 8 inch asphalt

Note: Concrete should be 28 MPa or 4000 psi minimum at full cure. The slope should not exceed 10:1.

Installing the crash cushion on an existing foundation may result in anchor bolt locations corresponding to rebar positions in the foundation. It may be necessary to use more elaborate drilling equipment than simply an impact drill with standard concrete bits.

Prior to installing the crash cushion on an existing foundation, the concrete must be thoroughly inspected for slope, signs of cracking, surface wear, shifting from original position, undercut of earth below or to the sides supporting the foundation, settling, and any other signs of age or deterioration which may make the foundation unusable. If any of these signs are evident, the foundation must be removed and a new one must be installed according to requirements stated. If prior bolt patterns are present, use proper engineering calculations to assure adequate strength in the new holes.

Placement of the Crash Cushion

Measure the correct distance and offset of the crash cushion according to the type of object being shielded and the type of transition being used. The dimensions shown on the transition drawings may be used as a guide for this. System drawings are also available.

The crash cushion is shipped in one piece, fully assembled. Use a choked four-point attachment on panel support frames 3 & 4 behind the sled for the Test Level 3 unit. The lift points on the Test Level 2 unit are the 1st and 2nd frames behind the sled. Lift the crash cushion off the transporting vehicle with a boom or forklift of sufficient capacity and place it in the position marked on the foundation.

Once in place, double-check the measurements to be sure of the proper location of the crash cushion.

Warning: On a full collapse, the last set of side panels will telescope 30 inches beyond the last terminal brace at the rear of the crash cushion. All objects that may interfere with this motion can affect the performance of and cause undue damage to the crash cushion.

Anchor Installation

Embedment Requirements are as follows:

1. 6 inch reinforced concrete pad – anchor embedment of 5 ½ inch and a torque value of 125 ft-lbs
2. 8 inch non-reinforced concrete pad – anchor embedment of 5 ½ inch and a torque value of 125 ft-lbs
3. 3 inch asphalt over 3 inch of concrete – anchor embedment of 16 ½ inch and a torque value of less than 10 ft-lbs
4. 6 inch asphalt over 6 in of compacted sub base – anchor embedment of 16 ½ inch and a torque value of less than 10 ft-lbs
5. 8 inch asphalt – anchor embedment of 16 ½ inch and a torque value of less than 10 ft-lbs

Using the holes in the base as a template, drill ⅞ inch diameter holes to the proper depth as previously defined. If the crash cushion is being installed on an existing foundation and the drills are hitting rebar, use a core drill or rebar cutter to ensure that straight, vertical holes are made at each location. Take care that the holes do not break out the bottom of the foundation as this may result in loss of epoxy during anchor placement.

Once the holes are drilled, clean the hole of all debris using suitable means. To ensure epoxy adhesion, concrete holes MUST be cleaned with a bottle brush to remove embedded dust, and a final check conducted that all holes are clean of debris and dry. Inject the epoxy into each hole at an angle to avoid air entrapment. Use a sufficient amount of epoxy so that the hole will be filled when the bolt is inserted. Screw the nut on the anchor bolt flush with the end, put the washer on the stud, and immediately insert the anchor stud all the way to the bottom while turning the anchor. This method assures the anchor bolts are vertically plumb and the threads are coated with epoxy. **Stud locations should not project more than ½ inch above the nut after final torque is completed.

There is a quantity of 48 anchors for the SCI 100 GM, TL-3 attenuator.
There is a quantity of 34 anchors for the SCI 70 GM, TL-2 attenuator.

The epoxy will be ready for bolt tightening after 30 minutes at 80 degrees F (27 degrees C). See the container label for other temperatures and bolt up times. Allow the epoxy to cure. Torque the anchor nuts to 170 N-m (125 ft-lbs). Substitute epoxy must match our specifications. Asphalt anchors are longer and should only be torqued to 10 ft-lbs.

Delineator Panel Attachment

Installation of the front delineation plate will be determined by the location of the attenuator and state regulations. A delineation plate is shipped with a yellow powder coat background and no striping. It is attached with four bolts. Applying the striping to the plate is easier while it is removed from the attenuator. Examples of the delineation plate are as follows:


Right Shoulder


Chevron (Gores)


Left Shoulder

Transition Installation

Transitions may be required. Any use of a crash cushion with a possible reverse direction impact will require a transition. In all applications, be sure to install the transition anchors that are exposed to traffic, so that there is no extension of the studs beyond the outside face of the nut. Refer to the transition drawings for details of the required anchor locations. For horizontal stud installation in concrete use mechanical anchors, or if using studs repeat the same epoxy installation process as the anchor bolts using plugs to retain the epoxy to secure the transition to the barrier. Transition drawings and parts explosions are in the appendices.

Final Inspection

After the anchor bolts have been tightened to the proper torque value, check that the crash cushion is not distorted in any way as might happen if the unit is secured to a foundation which is not a flat plane. Check that the front section is pulled out to within 1 inch of the front stop bolts and that no part of the unit has been damaged by shipping and handling. Verify that all assembly bolts are tight and have not come loose during shipping or installation. Finally, check that no tools or other equipment have been left within the crash cushion structure.

Resetting Crash Cushion after Impact

In the event of any impact, the crash cushion will require a full evaluation to determine the necessary repairs to return it to service. To do this, proceed as follows:

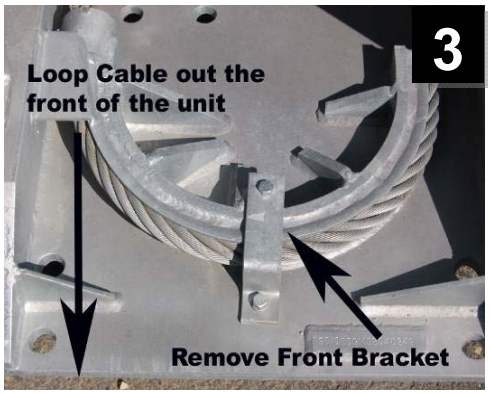
Site Preparation

Do not begin work until the area is declared safe and accessible.

Re-Extension and Inspection after Frontal Impact

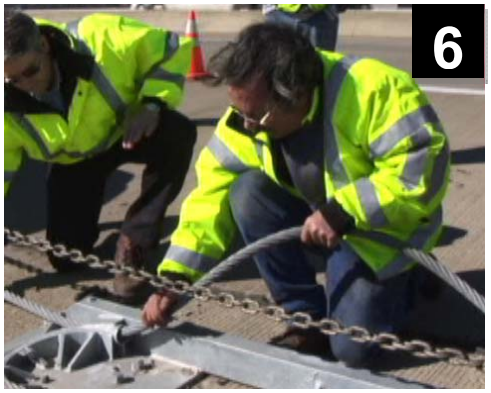
1. Remove the front delineator panel and attach pulling means to the bottom brace of the front sled.
2. Use wire or strap on the bottom brace at the front of the sled to hold the spelter socket up in the air while pulling out or it will catch on the base frame cross braces.

3. Remove the front cable bracket that is located on the front sheave at the front of the attenuator.



4. Pull the sled forward one to two feet to give you slack on the cable.

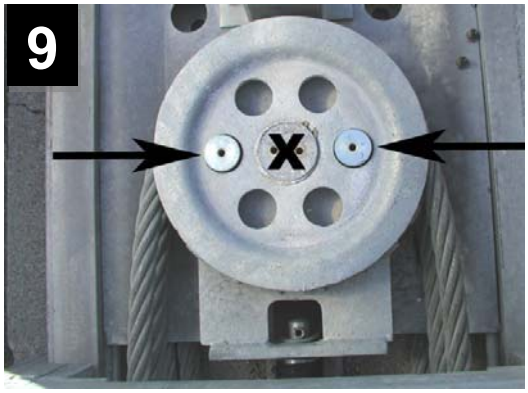
5. If necessary, use two long-handled flat screwdrivers or Work Area Protection Corp's cable release tool to break cable loose from the sheave at the front of the attenuator if the zinc coating has attached the cable to the sheave. Start feeding the cable out of the front of the unit.



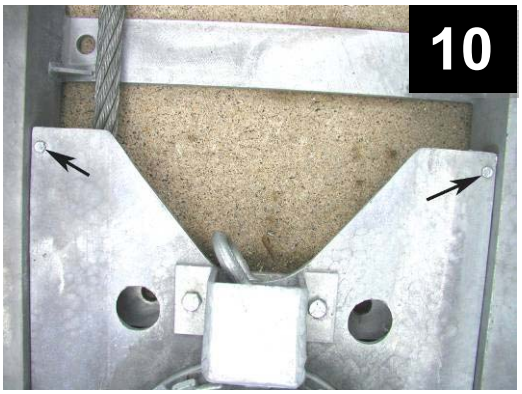
6. Pull the sled out the rest of the way in short smooth increments so you can help feed the cable out the front of the attenuator. This will give you a cable loop in front of the attenuator. When you are past the last cross brace, you will need to remove the

strap or wire to allow the cable to follow the path into the front sheave. The sled must be fully extended to replace the shear bolts. The sled should be approximately 1 inch from the stop bolts in the front.

7. During frame pullout, inspect front part of the cable from the spelter socket, as it will be partially obscured after extension of the mobile frames and sheaves. See the cable inspection procedure.
8. Remove the front and rear sheave cover plates at each end of the cylinder by removing the two hex bolts that hold them down.



9. Remove the anti-rotation pins, which are the two outer pins, inserted through the holes in the sheaves from both the front and back sheaves. This will be easily done with Work Area Protection Corp's anti-rotation pin removal tool. Caution: Do not remove the center pin. The rear pins are longer than the front sheave pins and cannot be intermixed so leave them by their locations.
10. Remove shear bolt remnants in the holes on both sides of the mobile sheaves. These are grade 8 bolts so they can be difficult to remove without a 90 degree pry bar with a claw to pry out.



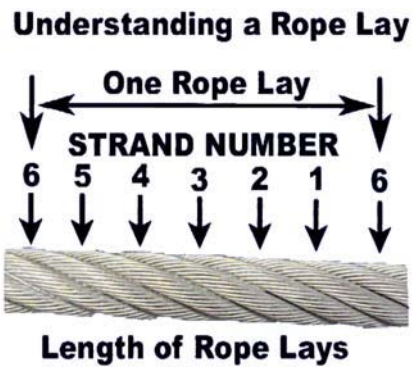
11. Attach a pulling means to the shackle on the mobile sheave assembly. (See #10)
12. Slowly pull out the mobile sheaves. Do not stand inside the cable loop or be in the pulling strap danger zone.
13. Finish pulling out the mobile sheaves until you can see through the shear bolt holes but do not put in the shear bolts yet.
14. If the cable passes inspection, release any tension on your pulling strap and reinstall the anti-rotation pins in the front and back sheave assemblies and reinstall the cover plates for those sheaves using marine grade anti-seize on the bolt threads. The sheaves may be aligned by inserting a pry bar into the sheave holes. Work your way from the bottom up.
15. Put tension on your chain and replace the two ¼ inch Grade 8 shear bolts in the front corners of the mobile sheaves.
16. Inspect the cylinder, anchor bolts and side panels according to the subsequent procedures listed.

Side Impact Inspection and Repair

17. Inspect and replace any damaged side panels.
18. Inspect and replace any damaged side keeper bolts on all panels. There are three styles of side keeper bolts. The winged style is for the panel connected to the sled and bolts through the first frame behind the sled. The center side keepers have a ½ inch shoulder while the last side keeper, which is bolted to the terminal frame, has a ¼ inch shoulder.
19. Inspect and repair any damaged side guides.

Cable Inspection Procedure

The cable should be visually inspected for damage. The most common sign of rope deterioration is broken wires. The wire must be clean and not under tension to perform a visual inspection. The visual inspection should include looking for broken wire strands, localized wear or crowns. A sharp awl or marlin spike can be used to separate wires to check if internal damage is present, indicated by loose wires or crowns. If internal inspection shows any damage to any core wires, the cable should be replaced. If there are more than six random broken wires in one rope lay or three broken wires in one strand in one rope lay, the wire rope should be replaced. A rope lay is the length along the rope in which one strand makes a complete revolution around the rope.



Inspect the spelter socket for broken wires, damaged eyes or other fatigue. Any signs of broken wires at the spelter socket will require a new cable.

Cable damage is the indication of an over-design impact. The unit must be inspected by an authorized manufacturers' representative.

Cylinder Inspection

The cylinder should be inspected for:

- Dented or swollen tube jacket
- Visible cracks in any welds and fluid leakage from the welds
- Piston rod surface damage, bending or fluid leakage in seal area
- If fully collapsed or over design impact speed, disconnect piston rod from the mobile sheave after the unit is pulled out and push the piston rod in checking for free movement.

If any of these inspections are suspect, replace cylinder and have it examined by the manufacturer. Current models have PTFE seals with an unlimited static life.

Anchor Bolt Inspection

Anchor bolts may come loose or be damaged upon impact. These bolts may be replaced by welding a nut or putting a double nut on them and backing them out of the hole. Drill out the old epoxy and reinstall new bolts with new epoxy following previous instructions on page 9.

Side Panel Inspection

Side Panels are designed to nest and collapse with minimal or no damage upon frontal impact. The side keepers sustain a shock upon impact. These side keepers should be replaced if there are any signs of fatigue, bending or other visible damage. Inspect the side panels for any bending or torn metal. If damage is found, any side panel is removable by removing four bolts. It may be necessary to remove the bolts on the panel upstream to slide out a panel located in the middle of the unit. The side keepers used to hold the large front sled panels are different than the side keepers on the center panels. Also, the side keeper used on the last terminal brace, which is the rearmost support, has a shorter shoulder

(¼ inch vs. ½ inch), as it does not have a panel overlap. These shoulders must seat into the outer overlapping panel and pin the inside panel to the frames using a torque value of 270 N-m (200 ft-lbs). Be careful not to pin the edge of the outside panel as it will restrict free sliding of that panel.

Side Guide Inspection

At the bottom of each support frame, there are two guides to stabilize and guide collapse of the attenuator. Inspect each side guide for damage. These guide assemblies are very rugged. If the side guides are not damaged they can be reused. The torque value for the side guides is 920 N-m (680 ft-lb). These side guides are stronger than the rail, so visually inspect the rail for crowns. Any crowning of the rail can be straightened.

Final Inspection

After the resetting of the crash cushion is complete, verify by visual inspection that all assembly bolts are tight and show no sign of damage. Finally, check that no tools and other equipment or debris have been left within the crash cushion structure. Verify that no other damage unrelated to the most recent impact has occurred and that no significant corrosion or other deterioration has taken place.

Non-Repairable Impacts

There can be instances where the impact is outside the scope of the crash cushion's design. This may render the crash cushion unsafe to reuse and it should be replaced.

APPENDIX A - SCI SMART CUSHION® ATTENUATOR PARTS LIST

Prod No.	Part No.	Description	Qty Per Unit TL2/TL3	Unit of Measure
270128	9400	Attenuator 24" wide w/Concrete Anchors TL3		
270127	9450	Attenuator 24" wide w/Asphalt Anchors TL3		
270126	9451	Attenuator 24" wide w/Concrete Anchors TL2		
270125	9452	Attenuator 24" wide w/Asphalt Anchors TL2		
270667	9401	Bolt Concrete Anchor 3/4" X 7" TL3 *(Included in P/N 9400)	*	KIT/48 pcs.
270663	9402	Bolt Asphalt Anchor 3/4" x 18" TL3 *(Included in P/N 9450)	*	KIT/48 pcs.
270666	9453	Bolt Concrete Anchor 3/4" X 7" TL2 **(Included in P/N 9451)	**	KIT/34 pcs.
270664	9454	Bolt Asphalt Anchor 3/4" x 18" TL2 **(Included in P/N 9452)	**	KIT/34 pcs.
270685	9404	Bolt Sled Side Panel	8	EACH
270677	9405	Bolt Front Stop	2	EACH
270683	9406	Bolt Shear	2	EACH
270687	9408	Bolt Terminal Brace	4	EACH
270770	9409	Brace Terminal	1	EACH
274915	9413	Strap Cylinder TL3	1	EACH
233936	9448	Strap Cylinder TL2	1	EACH
272214	9414	Frame Mobile #1 TL3	0/1	EACH
272215	9415	Frame Mobile #2 TL3	0/1	EACH
272216	9416	Frame Mobile #3 TL3	0/1	EACH
272217	9417	Frame Mobile #4 TL2 & TL3	1	EACH
272218	9418	Frame Mobile #5 TL2 & TL3	1	EACH
272219	9419	Frame Mobile #6 TL2 & TL3	1	EACH
272527	9421	Keeper Side #3 (Sled Panels) TL2 & TL3	4	EACH
272593	9422	Keeper Side #1 (Side Panels) TL2 & TL3	8/20	EACH
272595	9423	Keeper Side #2 (Rear Panels) TL2 & TL3	4	EACH
273378	9424	Panel Delineator (Painted Yellow) TL3	0/1	EACH
273386	9496	Panel Delineator (Painted Black) TL3		EACH
273381	9497	Panel Delineator Diamond Grade Chevron 6 inch stripes TL3		EACH
273383	9498	Panel Delineator Diamond Grade Left 6 inch stripes TL3		EACH
273389	9499	Panel Delineator Diamond Grade Right 6 inch stripes TL3		EACH
273380	9456	Panel Delineator (Painted Yellow) TL2	1/0	EACH
273385	9506	Panel Delineator (Painted Black) TL2		EACH
273382	9501	Panel Delineator Diamond Grade Chevron 6 inch stripes TL2		EACH
233928	9502	Panel Delineator Diamond Grade Left 6 inch stripes TL2		EACH
273388	9503	Panel Delineator Diamond Grade Right 6 inch stripes TL2		EACH
273401	9425	Panel Side TL2 & TL3	4/10	EACH
273402	9426	Panel Sled	2	EACH
273399	9427	Panel Rear	2	EACH
274649	9429	Sled (with guide rollers) 24" TL3	0/1	EACH
274648	9457	Sled (with guide rollers) 24" TL2	1/0	EACH
271242	9439	Epoxy 28 oz. Cartridge and Nozzle ***	***	EACH
272612	9515	Epoxy Kit for TL3 Concrete Attenuator		EACH
272610	9516	Epoxy Kit for TL3 Asphalt Attenuator		EACH
272611	9517	Epoxy Kit for TL2 Concrete Attenuator		EACH
272609	9518	Epoxy Kit for TL2 Asphalt Attenuator		EACH
273113	9440	Nozzle Epoxy Mixing ***	***	EACH
271946	9441	Dispenser Epoxy	0	EACH
270707	9443	Boot Cylinder TL3	1	EACH
233937	9449	Boot Cylinder TL2	0	EACH
272626	9444	Spare Parts Kit TL3	0	EACH

APPENDIX A - SCI SMART CUSHION® ATTENUATOR PARTS LIST (continued

274747	9458	Spare Parts Kit TL2	0	EACH
272621	9488	Reset Parts Kit TL3	0	EACH
272620	9489	Reset Parts Kit TL2	0	EACH
273994	9495	Tool Anti Rotation Pin Removal	0	EACH
270069	9507	Anchor Drop In	0	EACH
273590	9508	Pin Anti-Rotation Front	0	EACH
273608	9509	Pin Anti-Rotation Rear	0	EACH
273667	9510	Plate Sheave Cover	0	EACH
233449	9524	PWB02 Block Out	0	EACH
275224	9525	Cable Release Tool	0	EACH
238247	9536	Shear Bolt Removal Tool	0	EACH
270952	9519	Hole Brush-Nylon	0	EACH
		Transitions and Transition Parts		
275297	9431	Transition Jersey Barrier - Right	O	EACH
275294	9432	Transition Jersey Barrier - Left	O	EACH
275263	9433	Transition 24" Concrete - Left & Right	O	EACH
275298	9437	Transition Thrie & W Beam - Right	O	EACH
232971	9438	Transition Thrie & W Beam - Left	O	EACH
275309	9511	Transition W Beam 28" High Right	O	EACH
275307	9512	Transition W Beam 28" High Left	O	EACH
275311	9513	Transition W Beam 32" High Right	O	EACH
275310	9514	Transition W Beam 32" High Left	O	EACH
275279	9459	Transition Assembly 30" Concrete Straight Connection	O	EACH
275283	9460	Transition Assembly 36" Concrete Straight Connection	O	EACH
275278	9461	Transition Assembly 30" Concrete Outside Connection	O	EACH
275282	9462	Transition Assembly 36" Concrete Outside Connection	O	EACH
275288	9475	Transition Assembly Gore to End of Flared Transition	O	EACH
239542	9528	Transition Assembly Median Barrier Variable Width with Rub Rail	O	EACH
239545	9535	Transition Assembly Median Barrier Variable Width w/o Rub Rail	O	EACH
275265	9463	Transition 30" Concrete Straight Connection	O	EACH
275267	9464	Transition 36" Concrete Straight Connection	O	EACH
275266	9465	Transition 30" Concrete Outside Connection	O	EACH
275268	9466	Transition 36" Concrete Outside Connection	O	EACH
275304	9467	Transition Thrie & W Beam 10 Degree Flare - Right	O	EACH
275306	9468	Transition Thrie & W Beam 10 Degree Flare - Left	O	EACH
275291	9469	Transition Concrete Spanner Brace	O	EACH
275290	9470	Transition Concrete #1 Tapered Spanner Brace	O	EACH
233450	9471	Transition Concrete #2 Tapered Spanner Brace	O	EACH
275292	9472	Transition Gore Tapered #1 Spanner Brace	O	EACH
275293	9473	Transition Gore Tapered #2 Spanner Brace	O	EACH
270765	9474	Thrie Beam Concrete Leg Brace	O	EACH
275273	9493	Transition Median Barrier Variable Width - Right	O	EACH
275272	9494	Transition Median Barrier Variable Width - Left	O	EACH
239471	9526	Transition Support Bracket - Right	O	EACH
239472	9527	Transition Support Bracket - Left	O	EACH
275271	9480	Transition Rub Rail Median Barrier-Right	O	EACH
275270	9481	Transition Rub Rail Median Barrier-Left	O	EACH
275299	9490	Transition Single Slope 24-26 9/32" Wide Median Barrier - Right	O	EACH
275302	9491	Transition Single Slope 24-26 9/32" Wide Median Barrier - Left	O	EACH
251641	9537	Transition Spanner – Left & Right	O	EACH
		O = Optional Revised 4-2013		

APPENDIX B - EQUIPMENT LIST

The following tools and equipment will be required to install and repair the Crash Cushion:

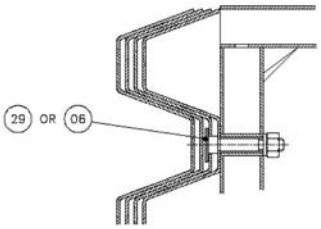
- Standard roadside work area safety equipment
- Personal safety equipment (gloves, latex gloves for epoxy, eye/face protection, etc.)
- Means of safely unloading 3500 lbs.
- Compressed air source/vacuum
- 1 inch bottle brush
- Safety goggles
- Four lifting slings or four-point sling
- Bosch rotary hammer drill 13 ½ amp #11263EVS Model 0 611 263 739 or equal
- ⅞ inch X 22 inch concrete drill bit for concrete installations or ⅞ inch X 28 inch drill bit for asphalt installations
- Renton rebar eater bit #RB-14 - ⅞ inch rebar cutter bit or equal
- 1 inch X 12 inch concrete drill bit for drop-in anchors on transitions
- Punch or setting tool for drop in anchors.
- ½ inch electric drill for rebar bit and bottle brush (cordless will work for bottle brush)
- Epoxy dispenser for 28 oz. dual cartridge system (have spare in case of malfunction)
- Socket wrench and breaker bar
- Torque wrench (225 ft-lb capacity) with 3 ft extension
- Measuring and layout equipment (tape measure, chalk line, markers, etc.)
- Combination wrenches, deep sockets (Including 7/16 inch - ⅝ inch, 1 ¼ inch, 1 ½ inch, 1 ⅝ inch) and 3+ inch extension
- 5 foot wedge and round-ended pry bar
- Loctite #34395 marine grade anti-seize
- Suitable pulling means (strap or chain)
- 2 long-handled flat screwdrivers
- Misc. small tools (hammers, pliers, screwdrivers, vise grips, etc.)
- Bear claw pry bar to remove ¼ inch shear bolt remnants
- Anti-rotation pin removal tool
- Cable release tool
- Piece of wire to hold up spelter socket during pullout

This list is adequate for general installation and repair.
Depending on site conditions, additional tools and equipment may be required.

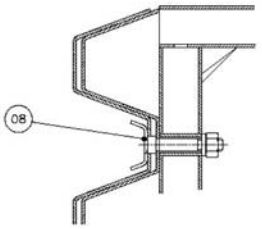
APPENDIX C - SMART CUSHION®, TEST LEVEL 2

PARTS LIST

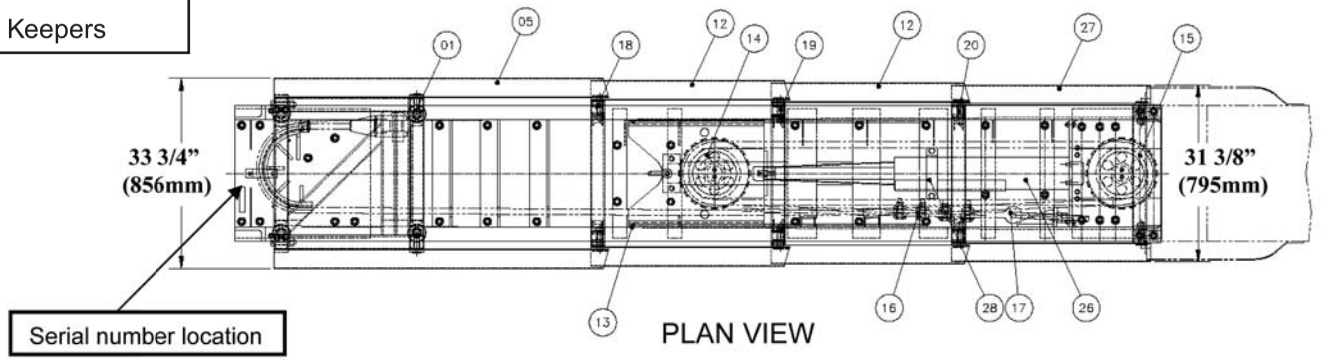
01 - Front Sled
02 - Cable Assembly
05 - Sled Panel
07 - Terminal Brace
09 - Anchor Bolts
12 - Side Panels
14 - Mobile Sheave Assembly
17 - Cable Adjuster Bolt
18-20 - Mobile Frames 4-6
26 - Cylinder
27 - Rear Panel
06, 08, 29 - Side Keepers



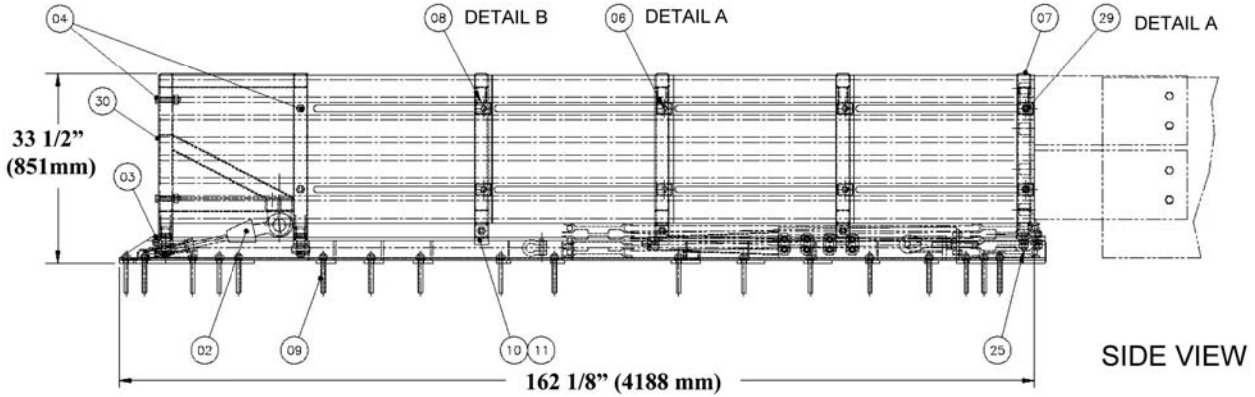
DETAIL A



DETAIL B



PLAN VIEW

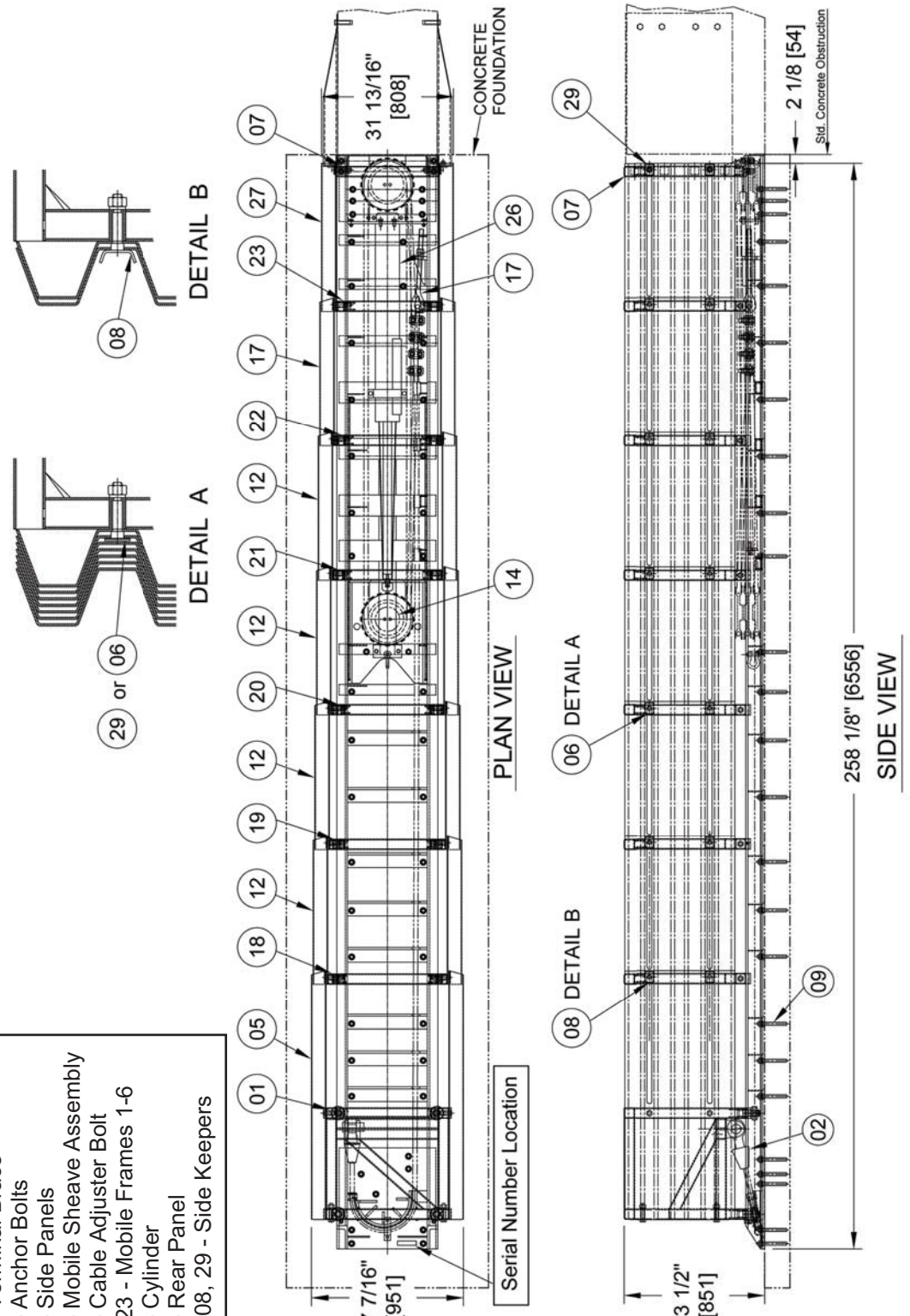


SIDE VIEW

APPENDIX D - SMART CUSHION®, TEST LEVEL 3

PARTS LIST

01 - Front Sled
02 - Cable Assembly
05 - Sled Panel
07 - Terminal Brace
09 - Anchor Bolts
12 - Side Panels
14 - Mobile Sheave Assembly
17 - Cable Adjuster Bolt
18-23 - Mobile Frames 1-6
26 - Cylinder
27 - Rear Panel
06, 08, 29 - Side Keepers



APPENDIX E1 - TEST LEVEL 2 FOUNDATION

Cross Slope at Top Surface not to Exceed 1 in 10
Foundation must be a Level Plane

* * * * * Wide Hazards and Transitions may require the foundation to be longer. See Transition Drawings.

SPECIFICATIONS

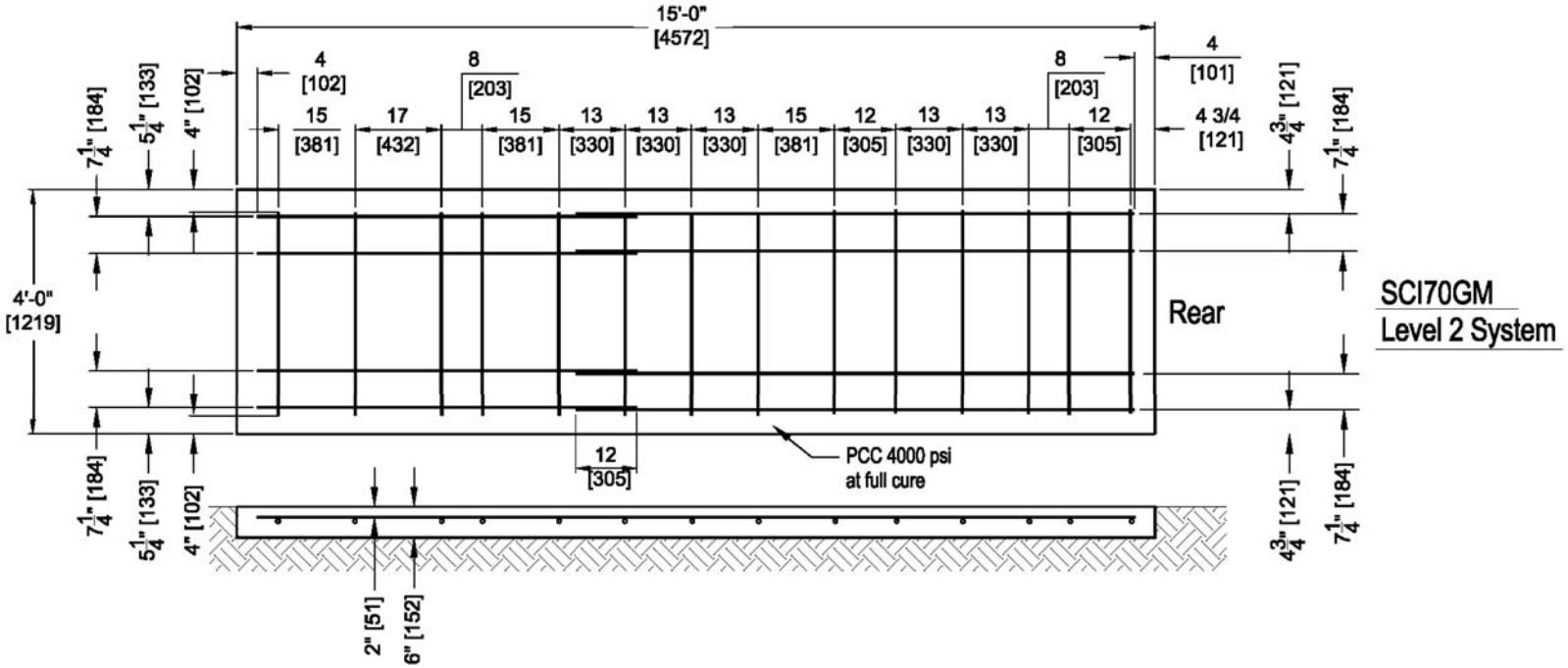
All reinforcing steel - straight #4 ASTM-A36

Embedment requirements:

- 6" reinforced concrete pad with anchor embedment of 5 1/2"
- 8" non-reinforced concrete pad with anchor embedment of 5 1/2"
- 3" asphalt over 3" concrete with anchor embedment of 16 1/2"
- 6" asphalt over 6" of compacted subbase with anchor embedment of 16 1/2"
- 8" asphalt with anchor embedment of 16 1/2"

The contractor shall furnish a certification for material installed to the following requirements:

- 6" reinforced concrete (PCC) sampling per ASTM C31-84, testing per ASTM C39-84
- 8" non-reinforced concrete (PCC) sampling per ASTM C31-84, testing per ASTM 39-84
- 3" asphalt over 3" concrete - Type SP 12.5 Level C or higher
- 6" asphalt over 6" of compacted subbase - same as above
- 8" asphalt (AC) - Type SP 12.5 Traffic Level C or higher



APPENDIX E2 - TEST LEVEL 3 FOUNDATION

Cross Slope at Top Surface not to Exceed 1 in 10
Foundation must be a Level Plane

* * * * * Wide Hazards and Transitions may require the foundation to be longer. See Transition Drawings.

SPECIFICATIONS

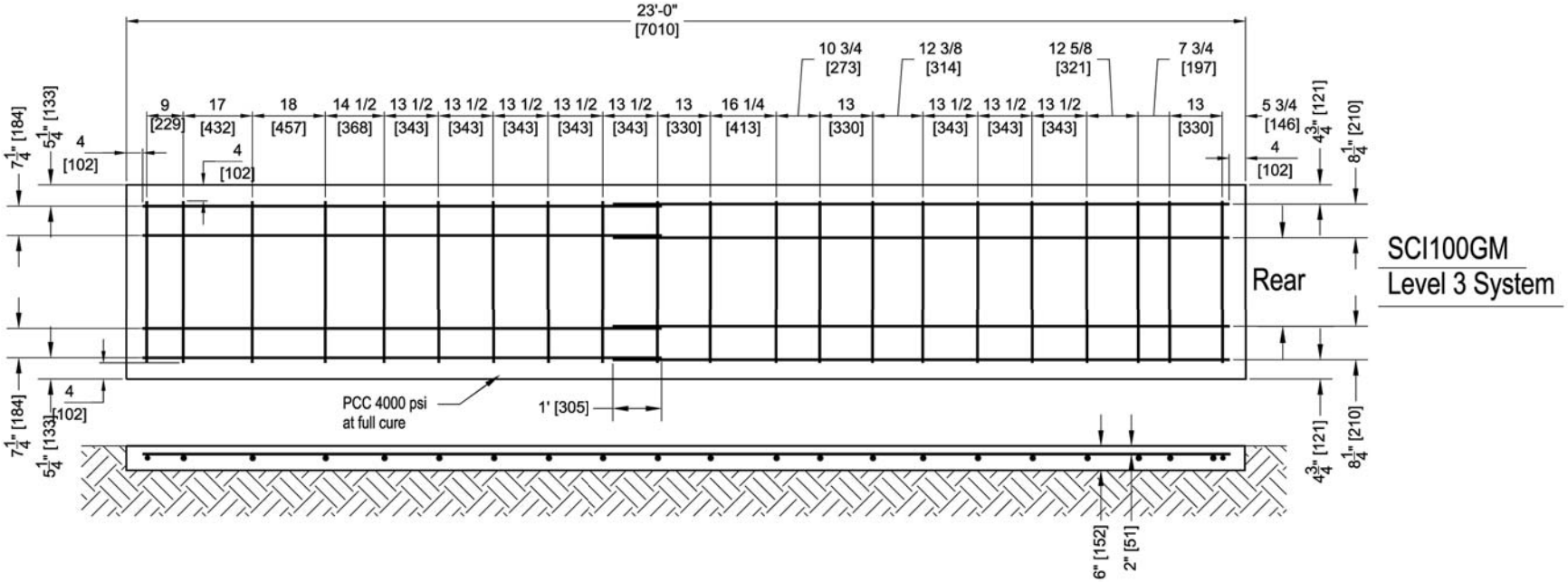
All reinforcing steel - straight #4 ASTM-A36

Embedment requirements:

- 6" reinforced concrete pad with anchor embedment of 5 1/2"
- 8" non-reinforced concrete pad with anchor embedment of 5 1/2"
- 3" asphalt over 3" concrete with anchor embedment of 16 1/2"
- 6" asphalt over 6" of compacted subbase with anchor embedment of 16 1/2"
- 8" asphalt with anchor embedment of 16 1/2"

The contractor shall furnish a certification for material installed to the following requirements:

- 6" reinforced concrete (PCC) sampling per ASTM C31-84, testing per ASTM C39-84
- 8" non-reinforced concrete (PCC) sampling per ASTM C31-84, testing per ASTM 39-84
- 3" asphalt over 3" concrete - Type SP 12.5 Level C or higher
- 6" asphalt over 6" of compacted subbase - same as above
- 8" asphalt (AC) - Type SP 12.5 Traffic Level C or higher



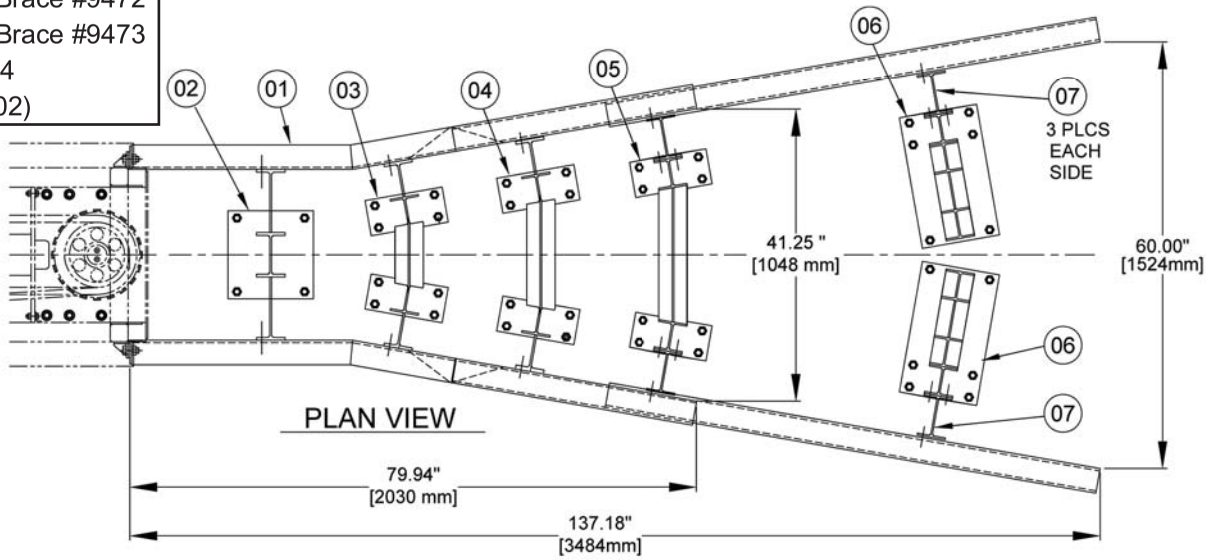
APPENDIX F - TRANSITION, GORE ASSEMBLY

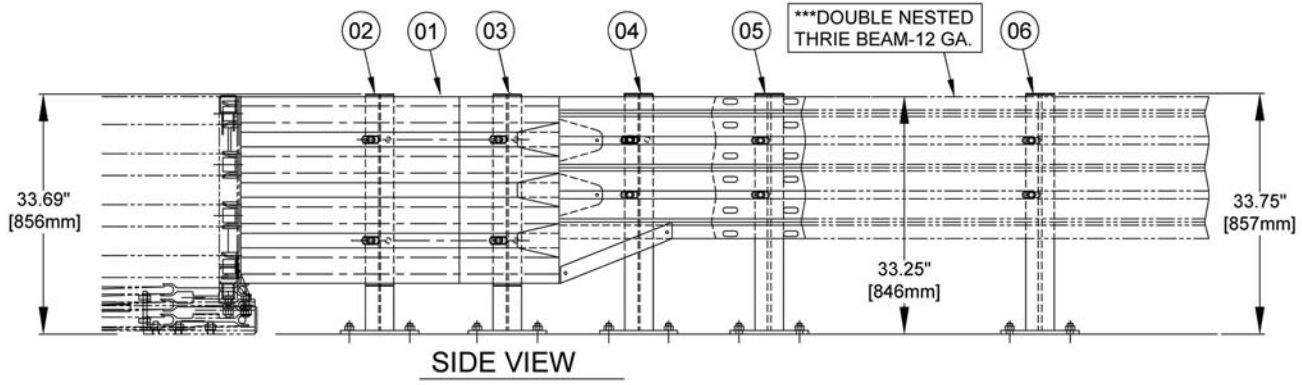
PARTS LIST

Gore Assembly #9475
01 - Transition 10 Degree Flare Right #9467
01 - Transition 10 Degree Flare Left #9468
02 - Transition Concrete Spanner Brace #9469
03 - Transition Concrete #1 Spanner Brace #9470
04 - Transition Gore Tapered #1 Spanner Brace #9472
05 - Transition Gore Tapered #2 Spanner Brace #9473
06 - Thrie Beam Concrete Leg Brace #9474
07 - Thrie Beam Blockout (AASHTO PWB02)

***** SPLICE BOLTS AND GUARDRAIL SUPPLIED BY OTHERS*****

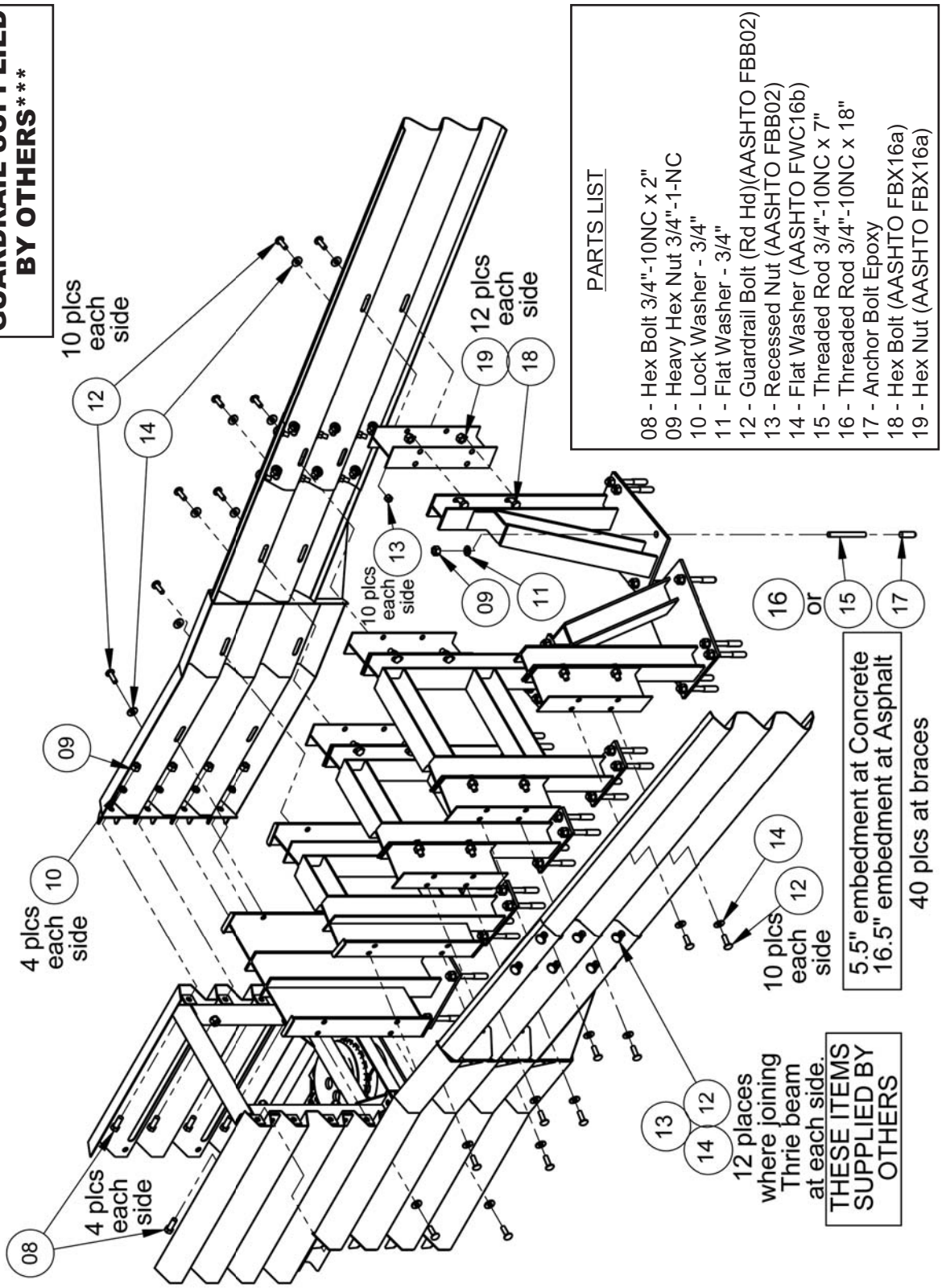
NOTES:
1) DIMENSIONS SHOWN ARE FOR 60" WIDTH
2) FOR EACH 1" OF WIDTH CHANGE, ADD OR SUBTRACT THE FOLLOWIING:
   2.88" [73.15mm] TO LENGTH OF GUARDRAIL
   2.84" [72.13mm] TO OVERAL LENGTH
3) ADD OR SUBTRACT ADDITIONAL POST ON EACH SIDE FOR EACH 13" [330mm] CHANGE IN WIDTH.
4) GUARDRAIL TERMINATION - YOU MUST ADD THE GUARDRAIL OVERLAP LENGTH AND TERMINATE PER STATE REGULATIONS.





The use of the last brace will be determined by whether the Thrie Beam can be attached to the obstruction or not. If the Thrie Beam distance from the last brace is 40 inches or less and can be attached, you will not need a brace at the obstruction. If you cannot attach to the obstruction, you may need a brace and drill holes in the Thrie Beam at the furthest rearward location.

APPENDIX F(2) - TRANSITION. GORE ASSEMBLY



APPENDIX F(3) - TRANSITION. GORE ASSEMBLY CALCULATIONS

SCI GM WIDE TRANSITION CALCULATIONS

Guardrail

12.6" Splice overlap at Transition end

Must add length for barrier overlap and end termination per state specifications

Longitudinal distance increases 2.84" for each 1" increase in width

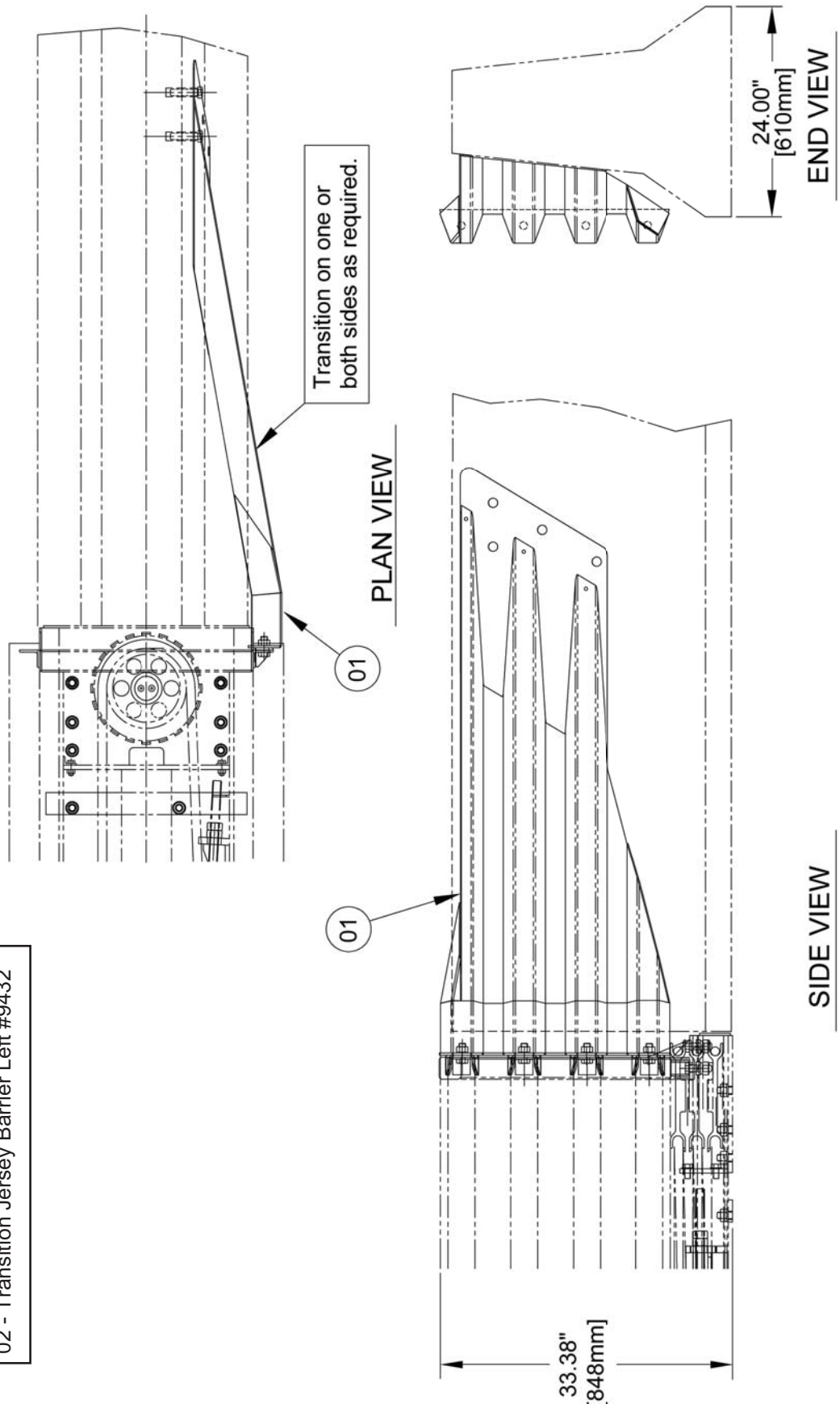
Thrie Beam Length increases 2.88" for each 1" increase in width

Gore Width Inches	Additional Long. Distance Inches	Additional Long. Distance Feet	Thrie Beam Length Inches	Overall System Length Feet	Additional Brace Count
41	79.2	6.6	12.6	28.1	All 4 Spanner Braces # 9469, 9470, 9472, 9473
48	99.1	8.3	32.8	29.8	All 4 Spanner Braces # 9469, 9470, 9472, 9473
55	118.9	9.9	52.9	31.4	Add 2-Thrie Beam Concrete Leg Brace #9474
60	133.1	11.1	67.3	32.6	Add 2-Thrie Beam Concrete Leg Brace #9474
68	155.8	13.0	90.4	34.5	Add 4-Thrie Beam Concrete Leg Brace #9474
69	158.6	13.2	93.2	34.7	Add 4-Thrie Beam Concrete Leg Brace #9474
81	192.7	16.1	127.8	37.6	Add 6-Thrie Beam Concrete Leg Brace #9474
88	212.5	17.7	148.0	39.2	Add 6-Thrie Beam Concrete Leg Brace #9474
94	229.5	19.1	165.2	40.6	Add 8-Thrie Beam Concrete Leg Brace #9474
100	246.5	20.5	182.5	42.1	Add 8-Thrie Beam Concrete Leg Brace #9474
107	266.4	22.2	202.7	43.7	Add 10-Thrie Beam Concrete Leg Brace #9474
112	280.6	23.4	217.1	44.9	Add 10-Thrie Beam Concrete Leg Brace #9474
120	303.3	25.3	240.1	46.8	Add 12-Thrie Beam Concrete Leg Brace #9474
126	320.3	26.7	257.4	48.2	Add 12-Thrie Beam Concrete Leg Brace #9474
133	340.1	28.3	277.6	49.9	Add 14-Thrie Beam Concrete Leg Brace #9474

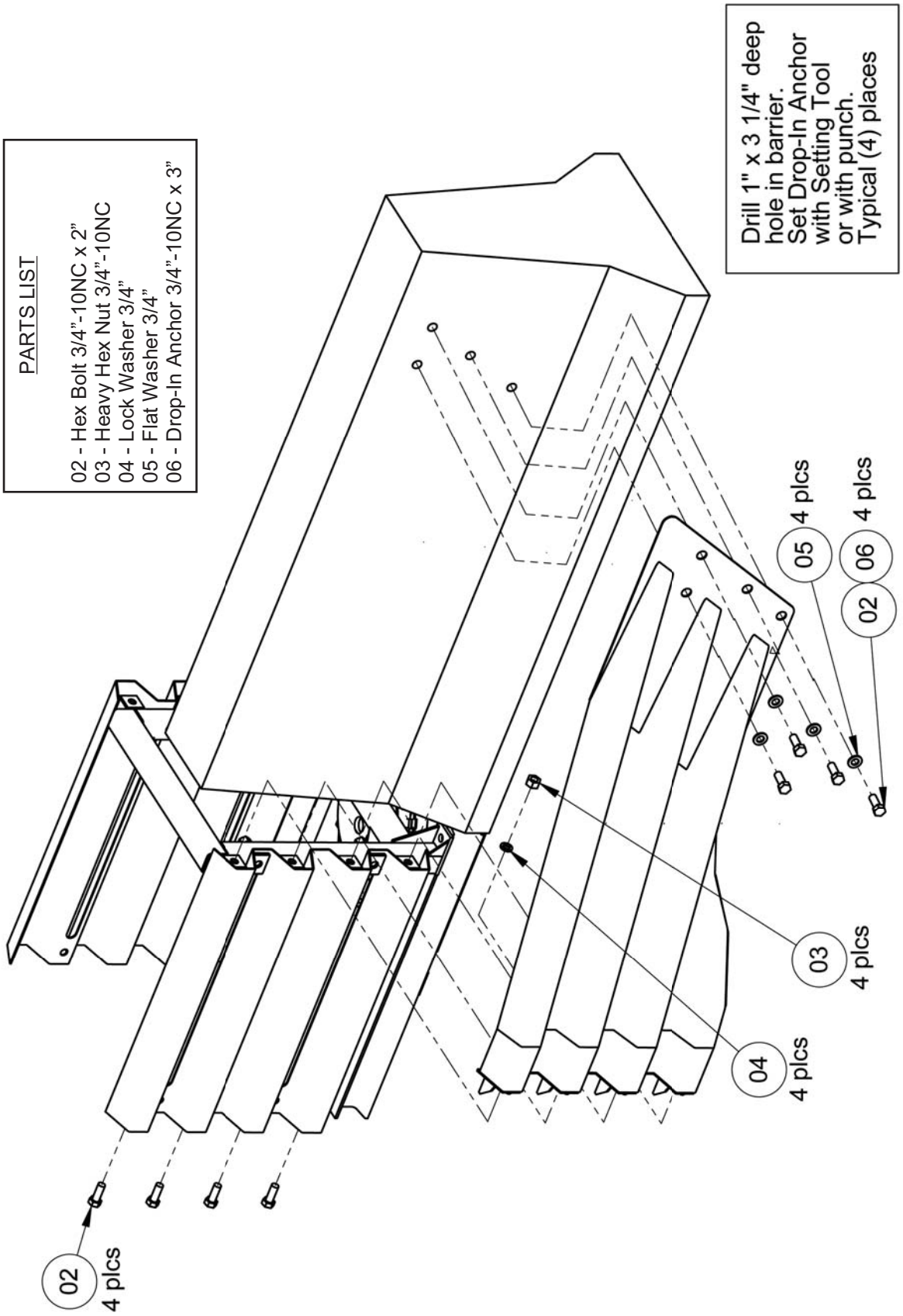
APPENDIX G - TRANSITION, JERSEY/F SHAPE BARRIER

PARTS LIST

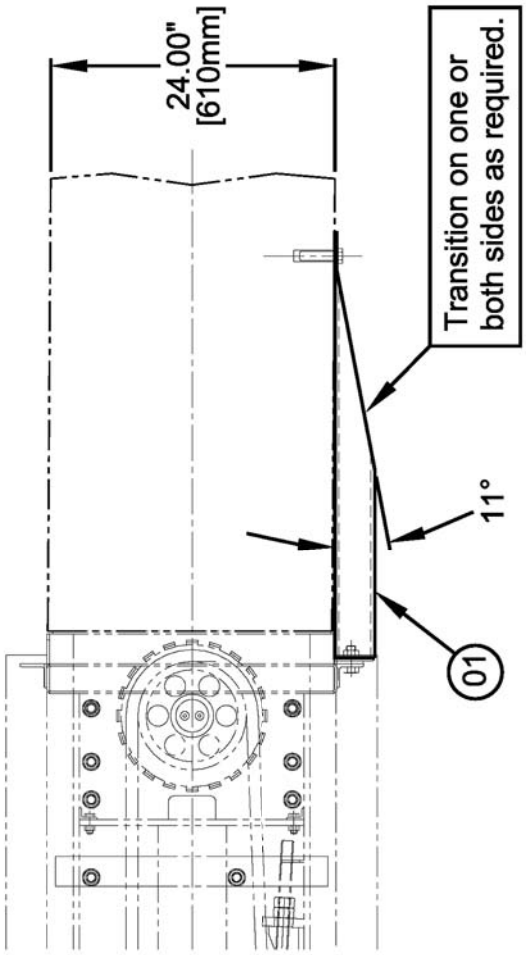
01 - Transition Jersey Barrier Right #9431
02 - Transition Jersey Barrier Left #9432



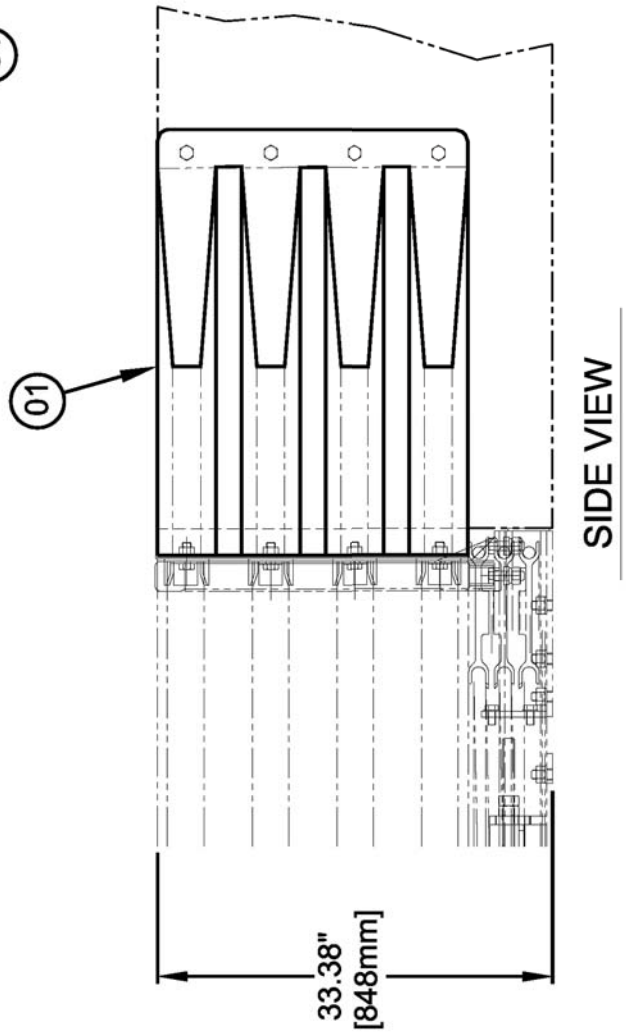
APPENDIX G(2) - TRANSITION, JERSEY/F SHAPE BARRIER



APPENDIX H - TRANSITION, CONCRETE BLOCK, 24 INCH (610mm)



PLAN VIEW

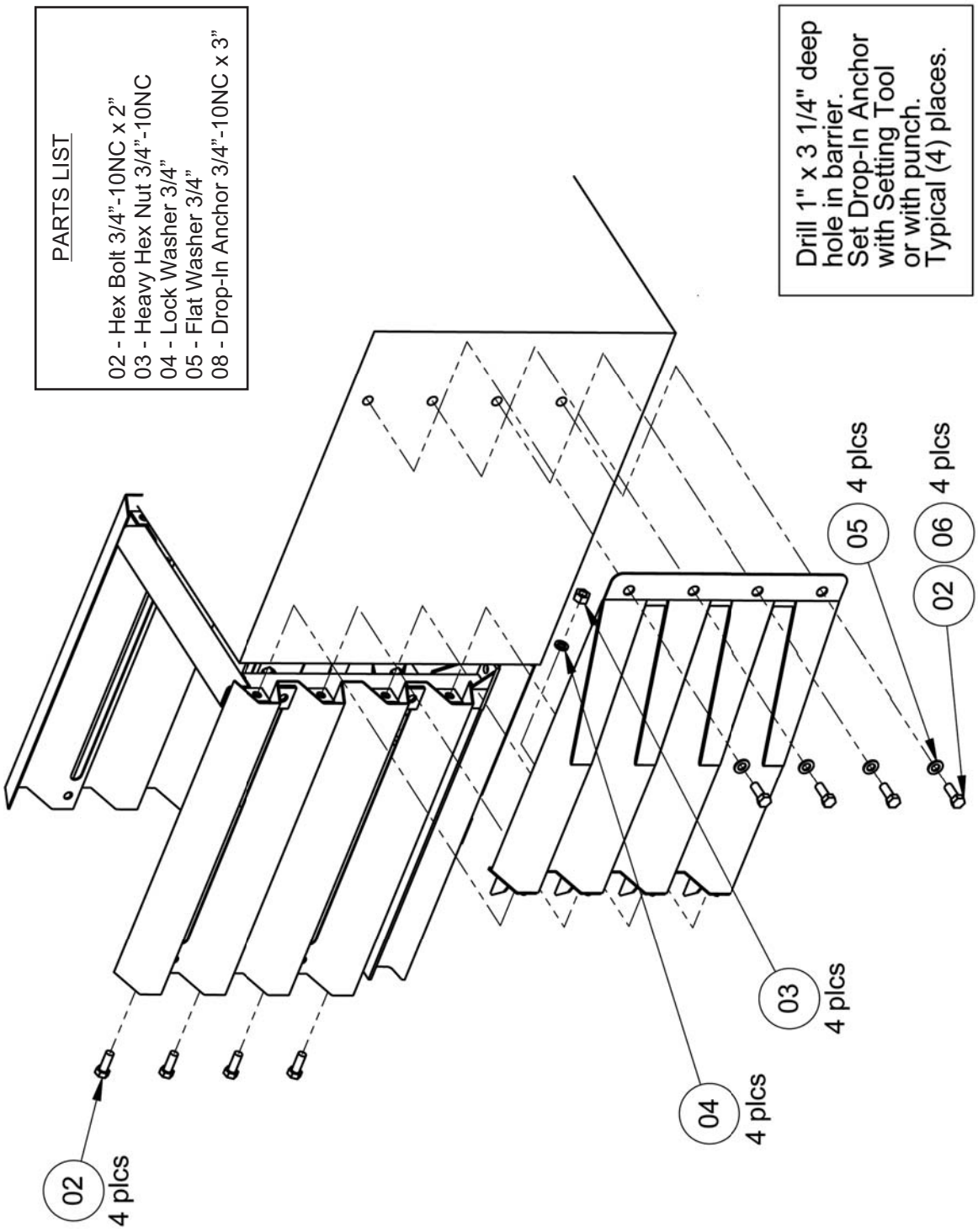


SIDE VIEW

PARTS LIST

01 - Transition Concrete Block Right or Left #9433

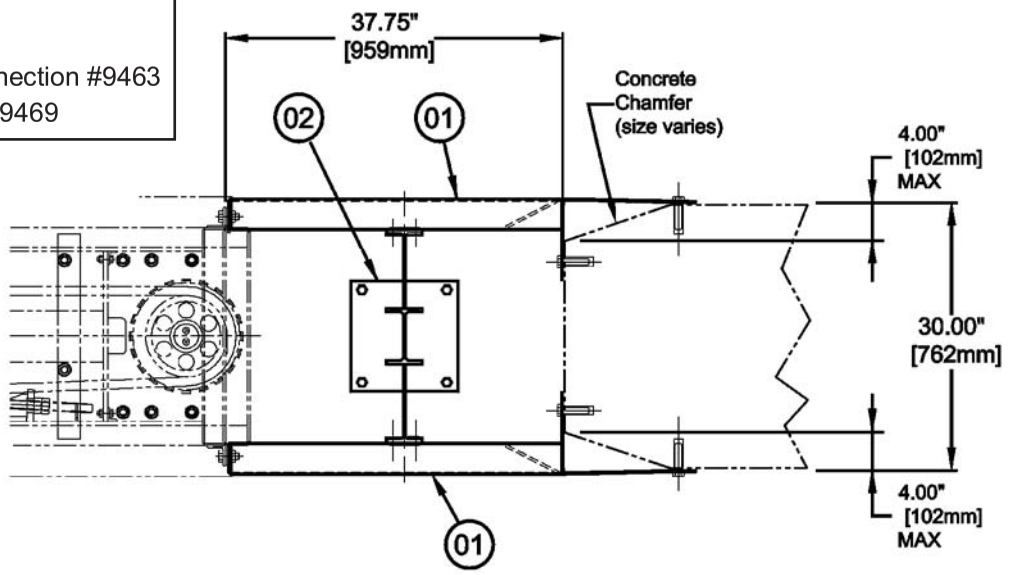
APPENDIX H(2) - TRANSITION, CONCRETE BLOCK, 24 INCH (610mm)



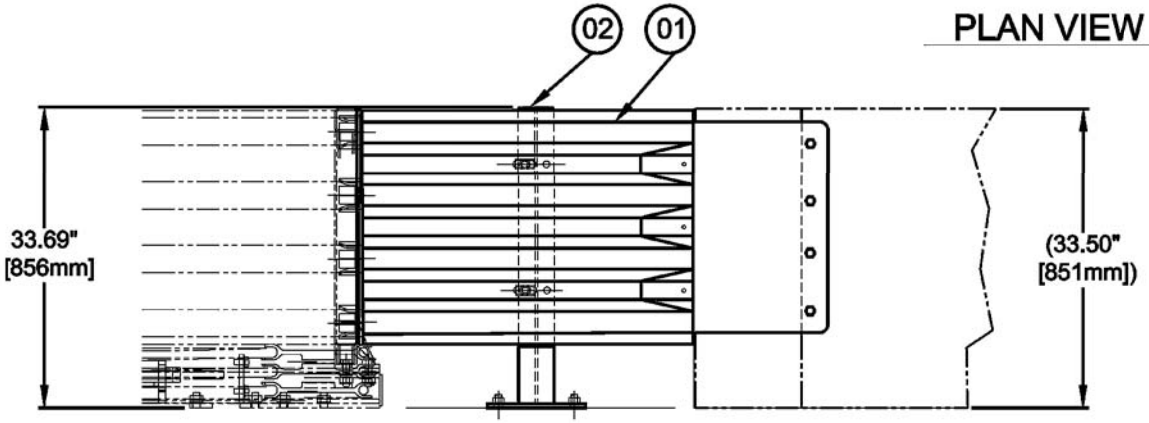
APPENDIX I - TRANSITION, CONCRETE BLOCK, 30 INCH (762mm)

PARTS LIST

Two Sided Full Assembly #9459
01 - Transition 30" Concrete Straight Connection #9463
02 - Transition Concrete Spanner Brace #9469



PLAN VIEW

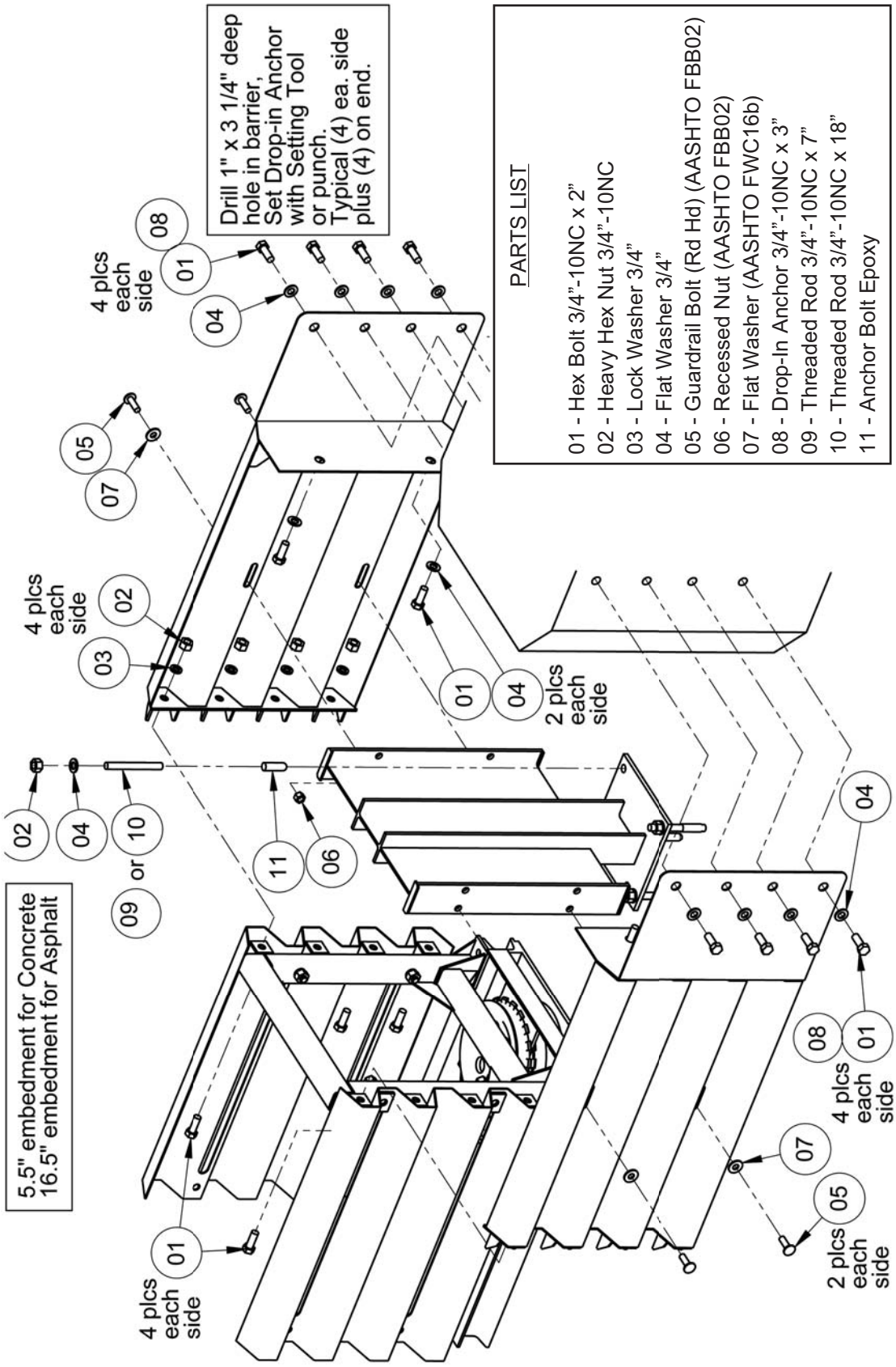


SIDE VIEW

USED FOR:
1. Unchamfered Concrete Block
2. Chamfered Concrete Block ***

***Chamfer limited to <4"

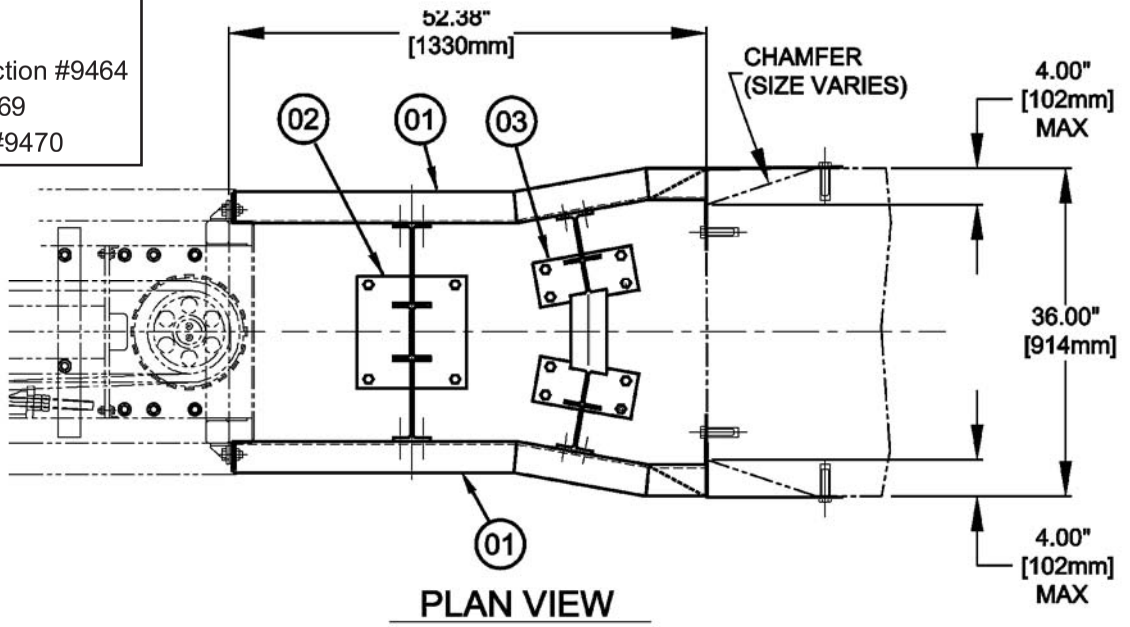
APPENDIX I(2) - TRANSITION, CONCRETE BLOCK, 30 INCH (762mm)



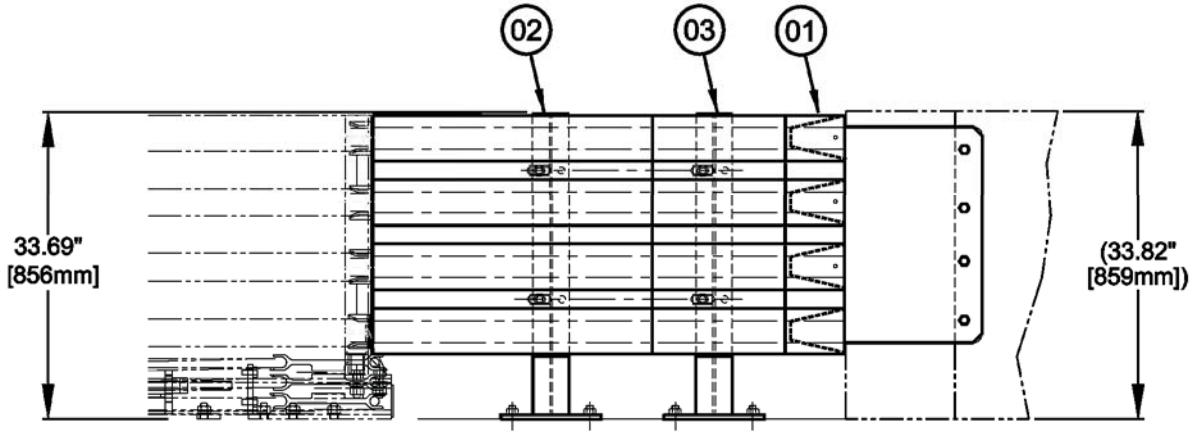
APPENDIX J - TRANSITION, CONCRETE BLOCK, 36 INCH (915mm)

PARTS LIST

Two Sided Full Assembly #9460
01 - Transition 36" Concrete Straight Connection #9464
02 - Transition Concrete Spanner Brace #9469
03 - Transition Concrete #1 Spanner Brace #9470



PLAN VIEW

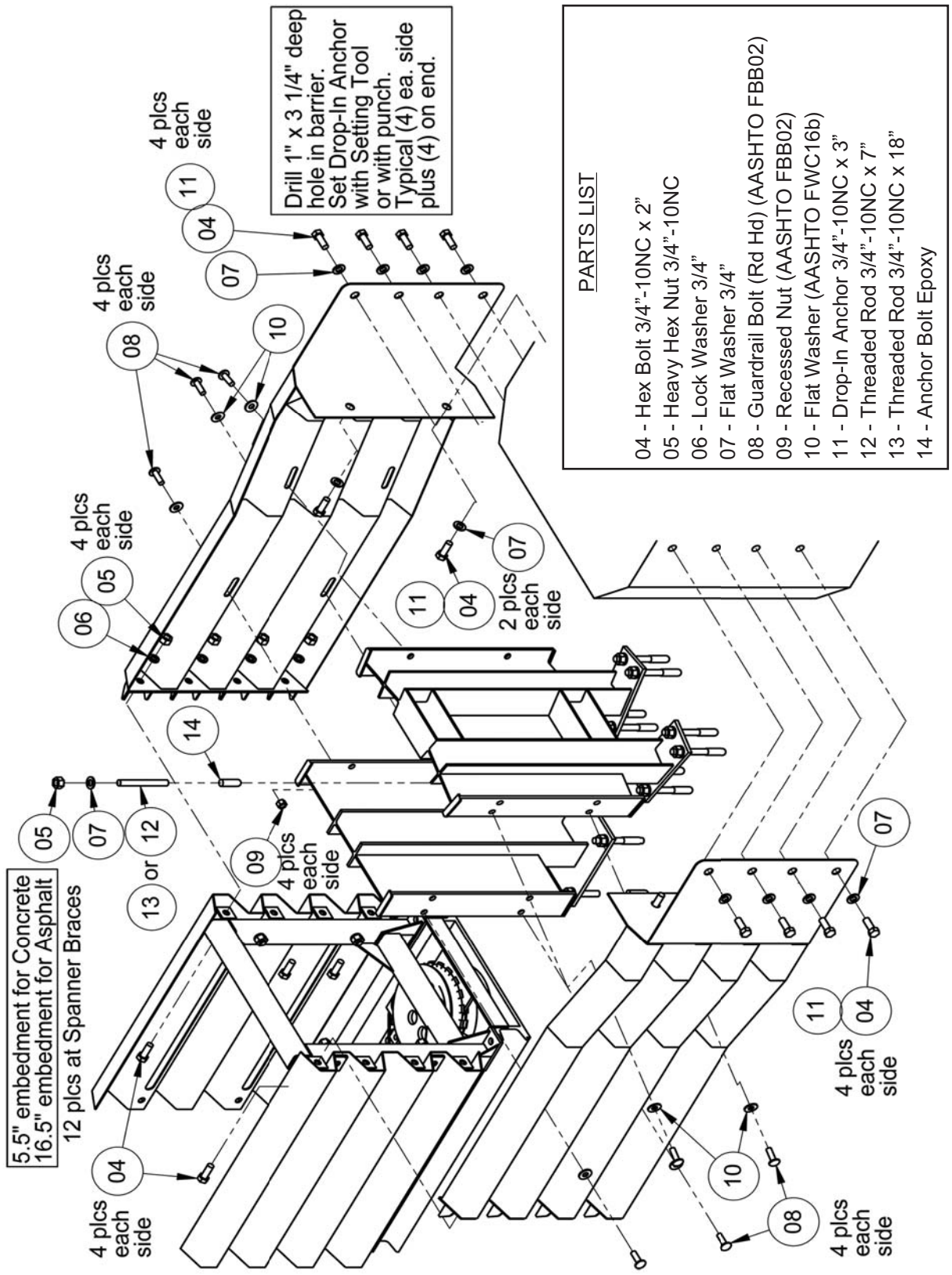


SIDE VIEW

USED FOR:
1. Unchamfered Concrete Block
2. Chamfered Concrete Block ***

***Chamfer limited to <4"

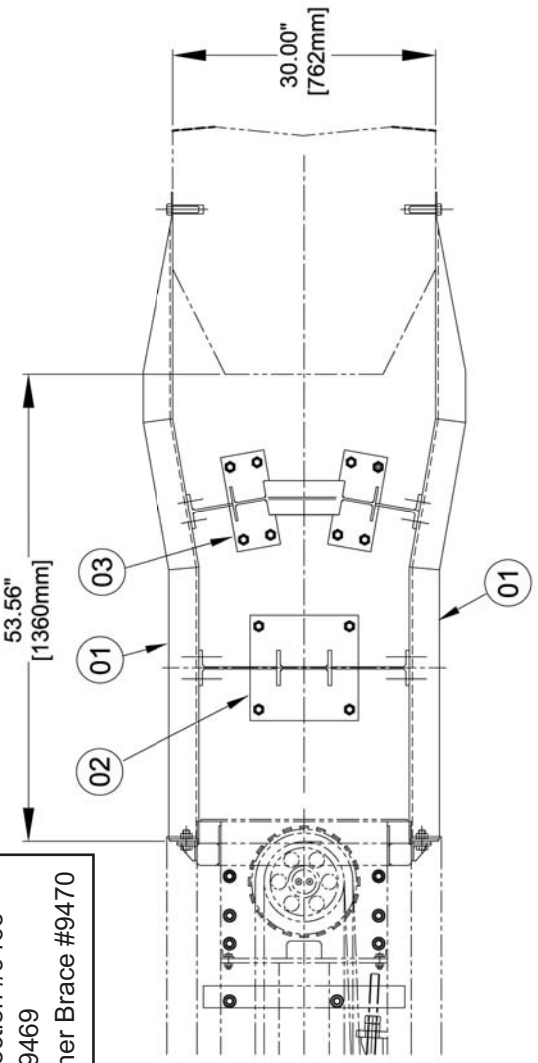
APPENDIX J2 - TRANSITION, CONCRETE BLOCK, 36 INCH (915mm)



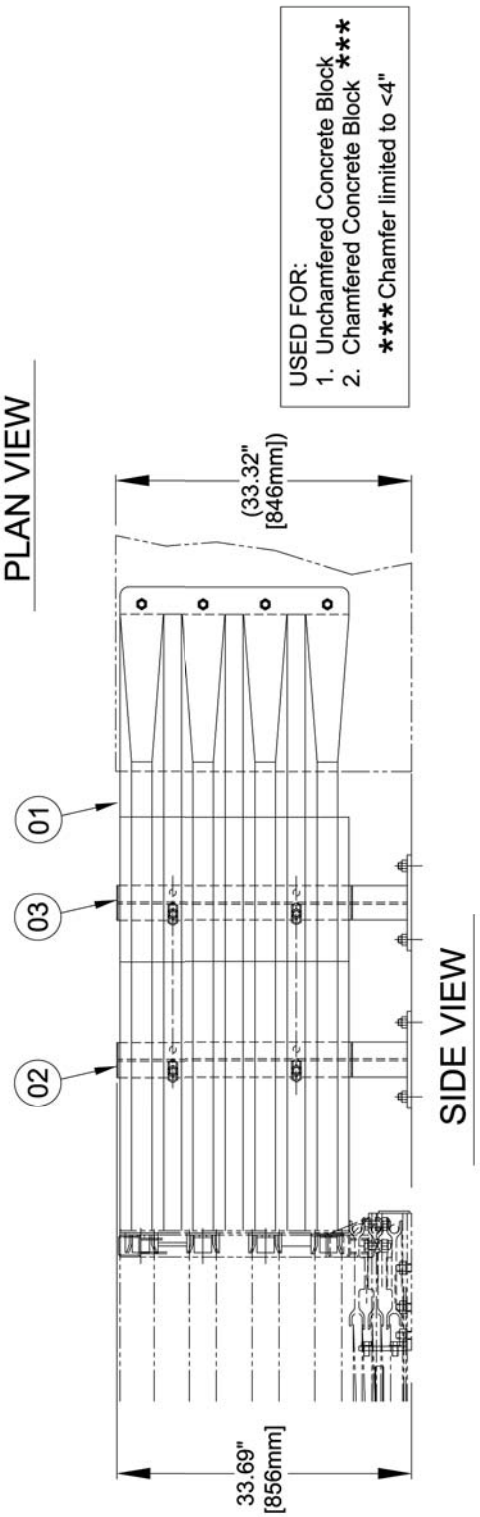
APPENDIX K - TRANSITION, CONCRETE BLOCK, 30 INCH (762mm) FLARED

PARTS LIST

Two Sided Full Assembly #9461
01 - Transition 30" Concrete Outside Connection #9465
02 - Transition Concrete Spanner Brace # 9469
03 - Transition Concrete #1 Tapered Spanner Brace #9470

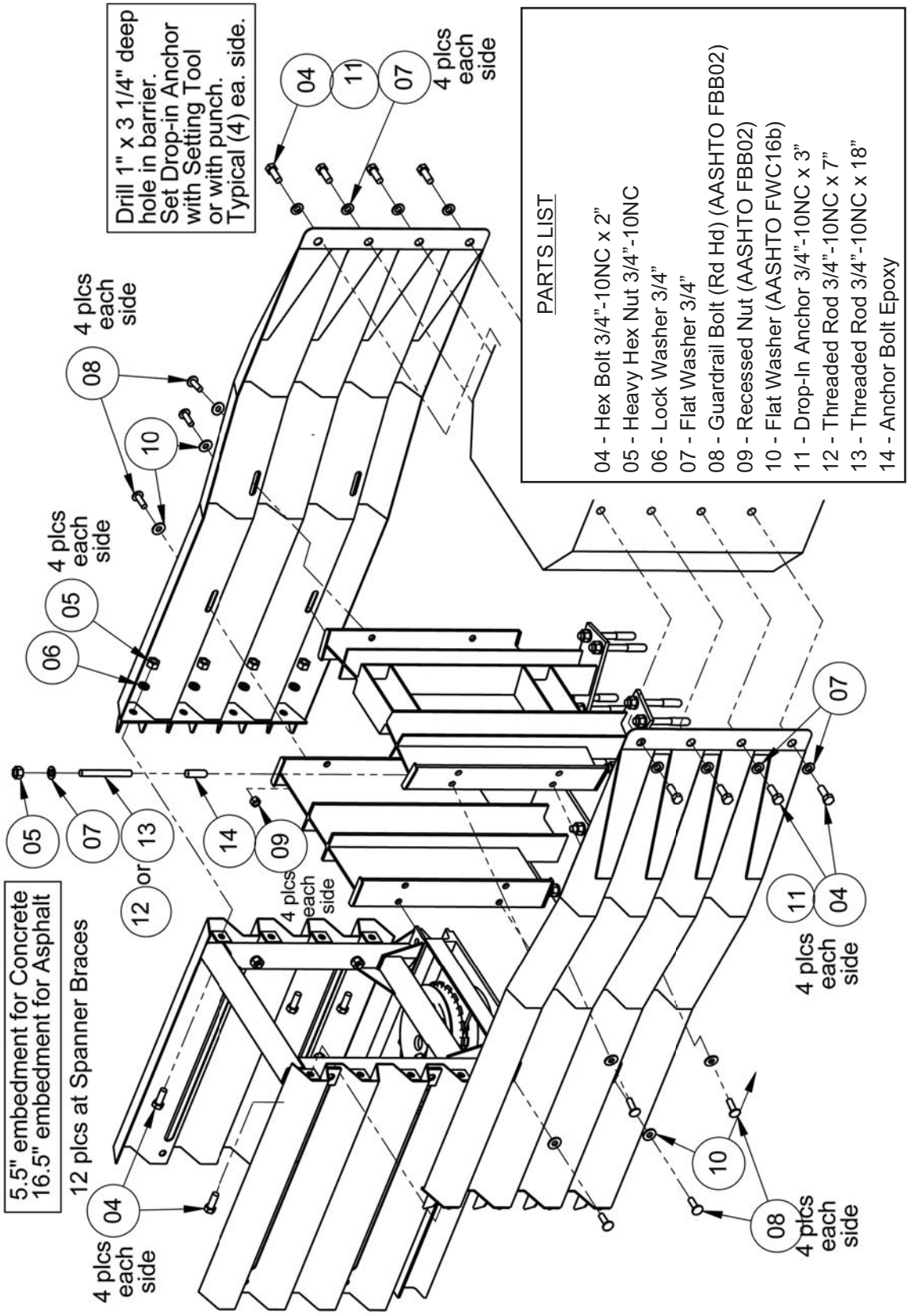


PLAN VIEW



SIDE VIEW

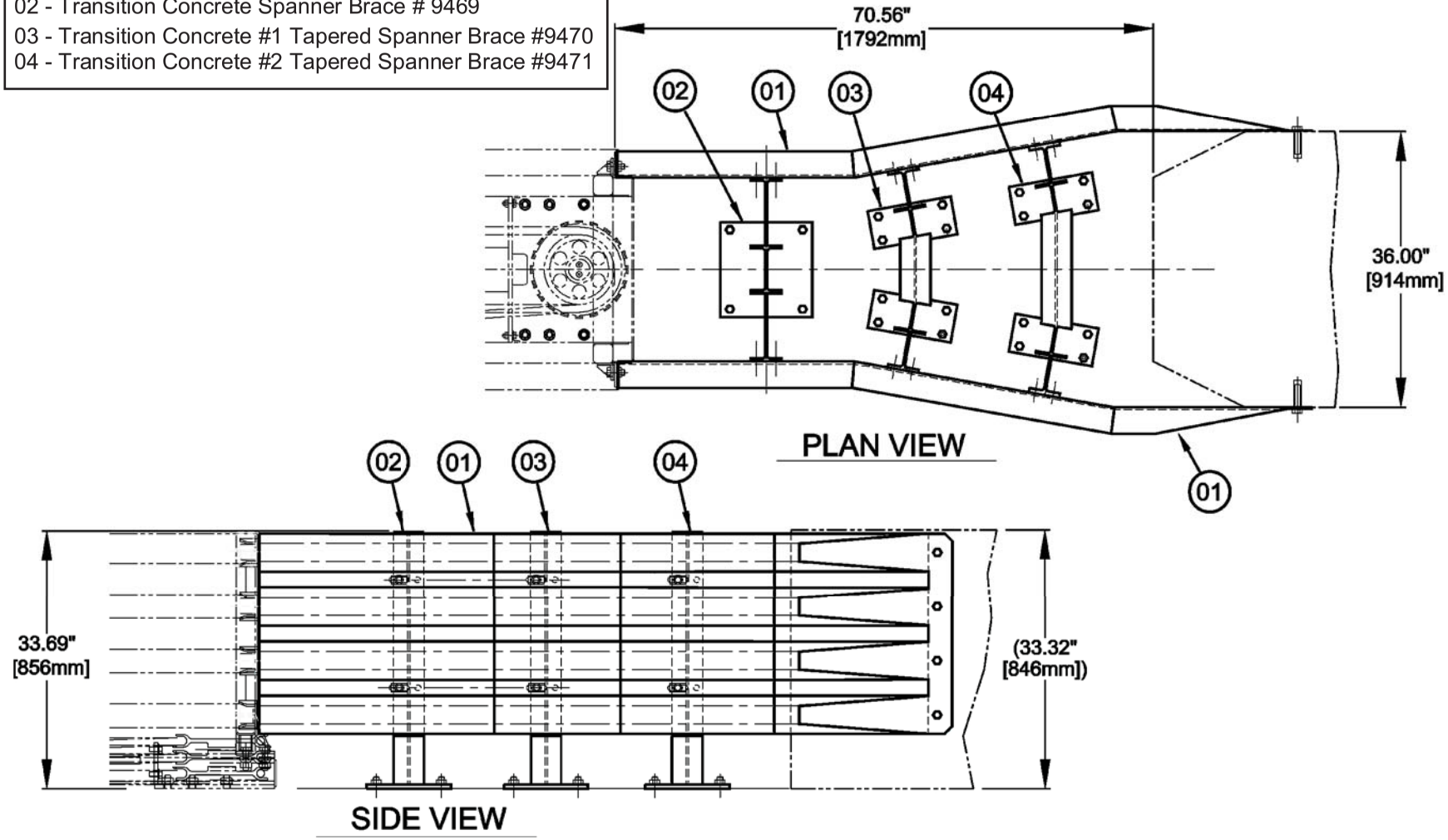
APPENDIX K(2) - TRANSITION, CONCRETE BLOCK, 30 INCH (762mm) FLARED



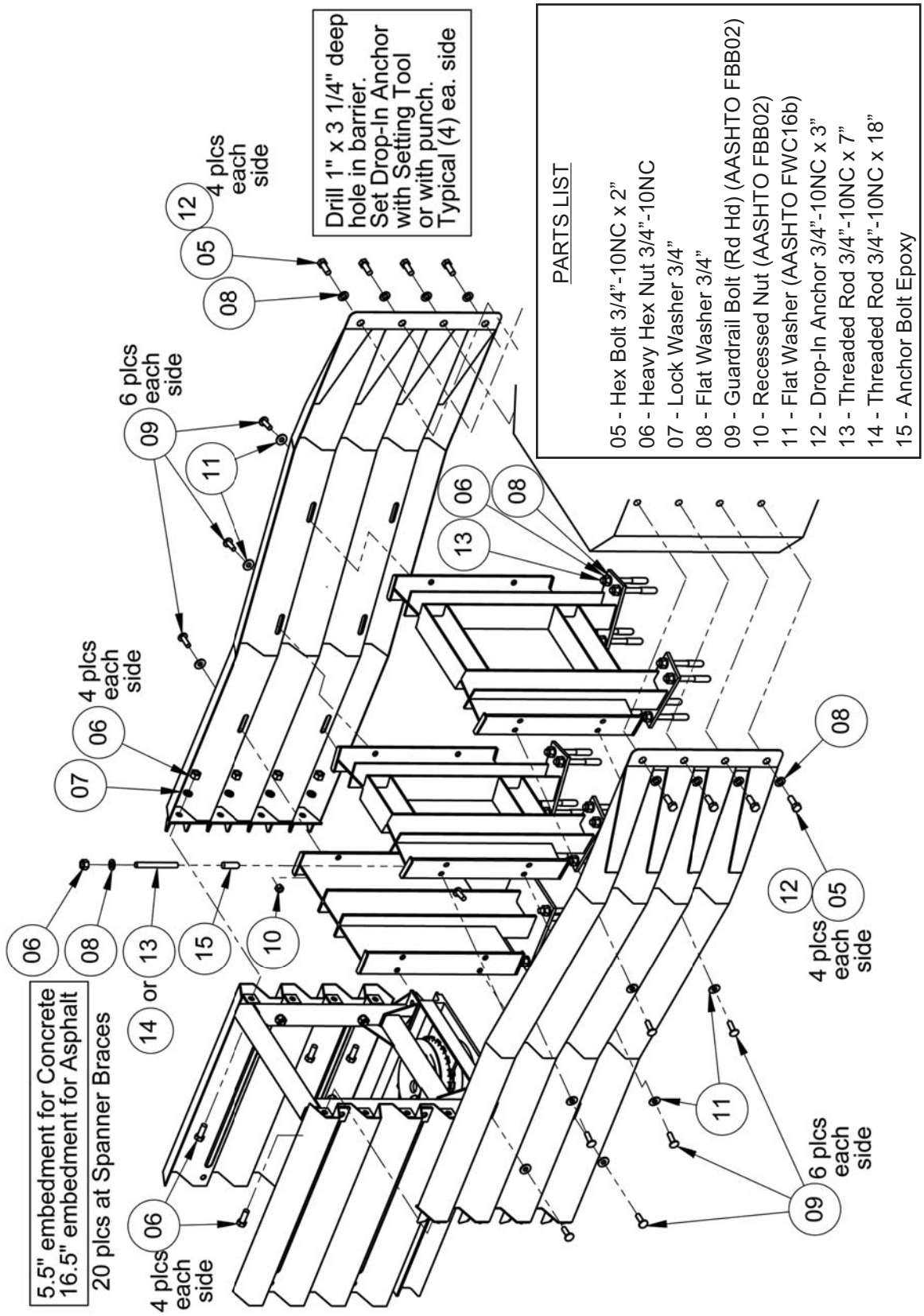
APPENDIX L - TRANSITION, CONCRETE BLOCK, 36 INCH (915mm) FLARED

PARTS LIST

Two Sided Full Assembly #9462
01 - Transition 36" Concrete Outside Connection #9466
02 - Transition Concrete Spanner Brace # 9469
03 - Transition Concrete #1 Tapered Spanner Brace #9470
04 - Transition Concrete #2 Tapered Spanner Brace #9471



APPENDIX L(2) - TRANSITION, CONCRETE BLOCK, 36 INCH (915mm) FLARED

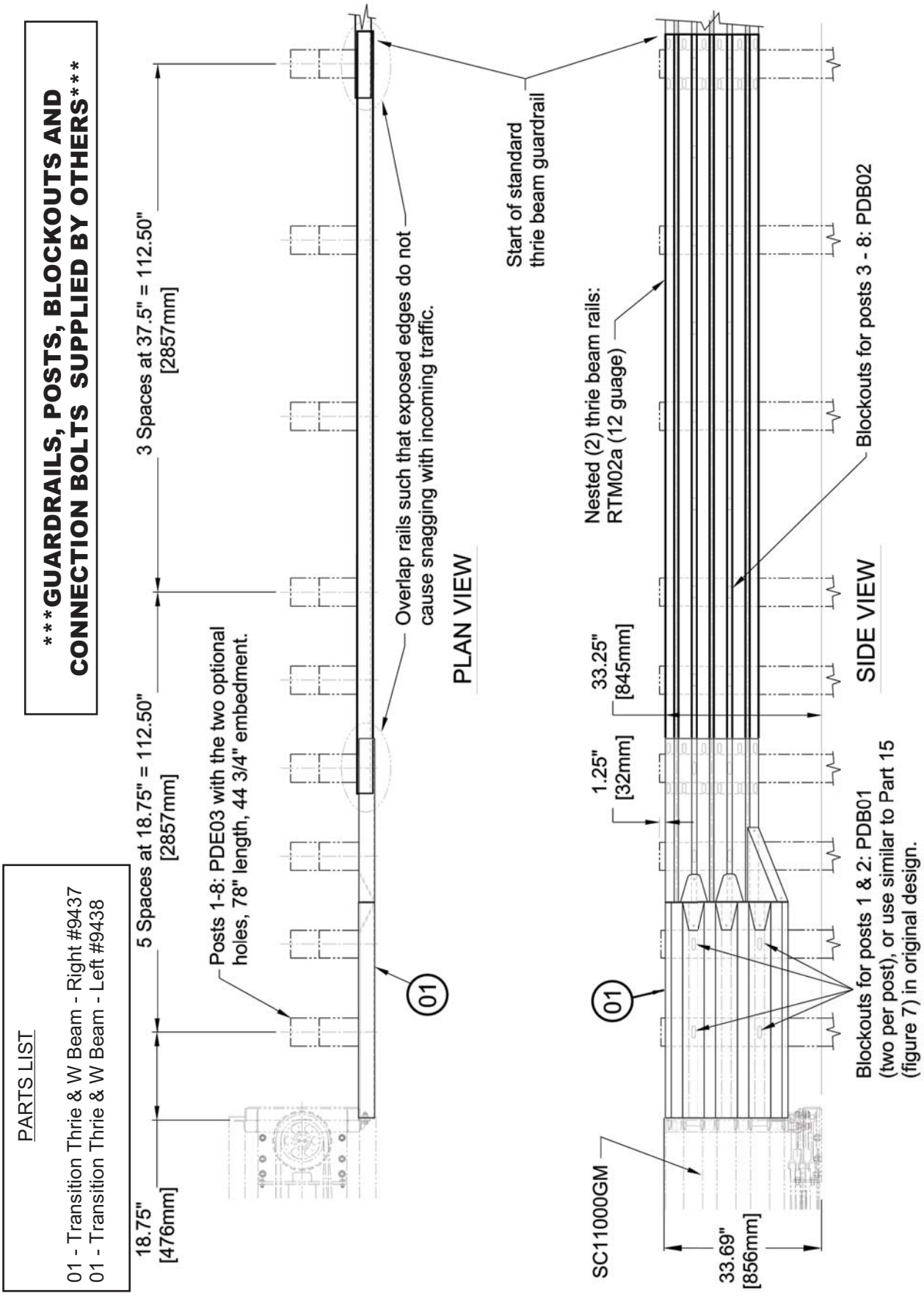


APPENDIX M - TRANSITION, THRIE BEAM

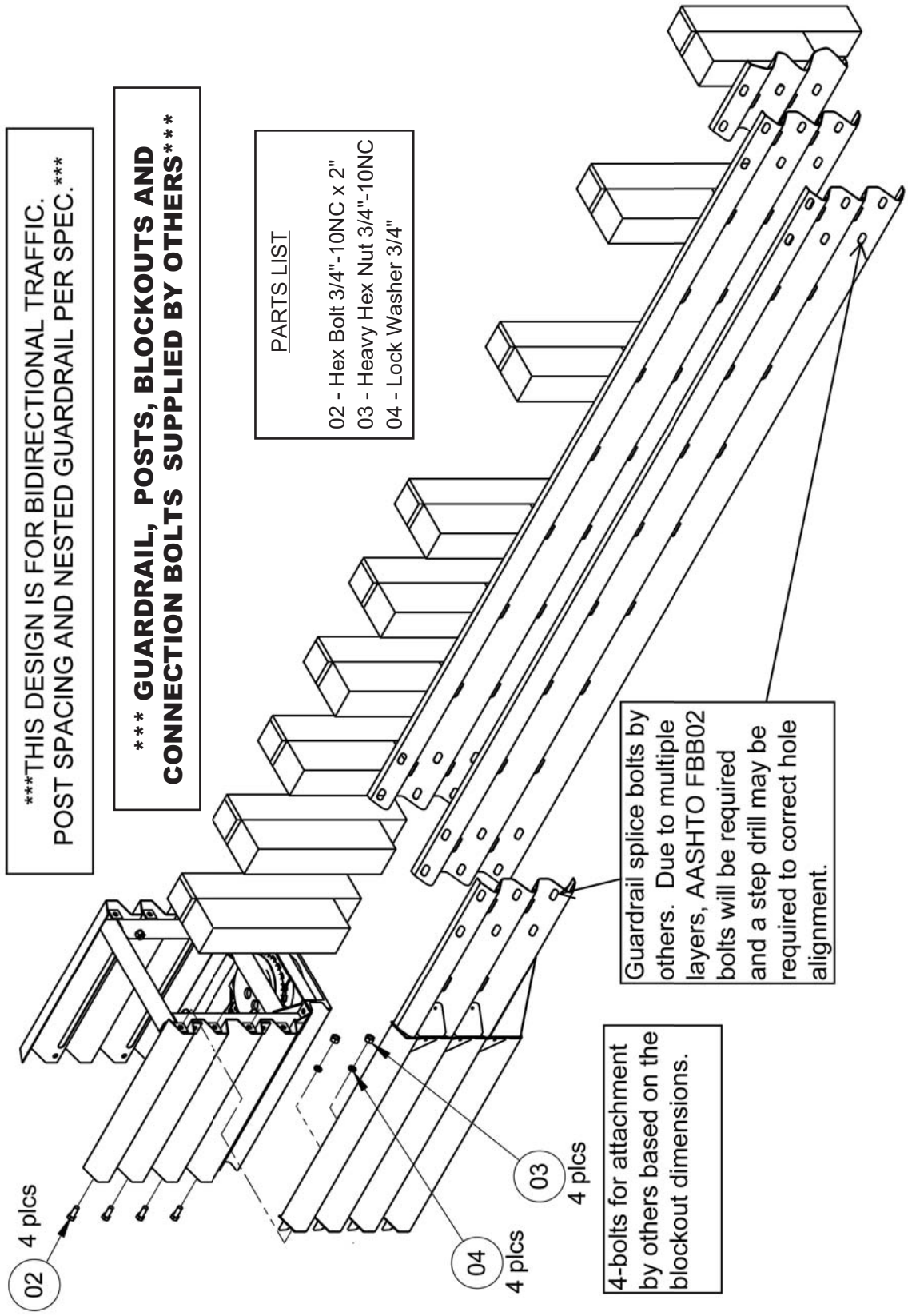
PARTS LIST

01 - Transition Thrie & W Beam - Right #9437
01 - Transition Thrie & W Beam - Left #9438

GUARDRAILS, POSTS, BLOCKOUTS AND CONNECTION BOLTS SUPPLIED BY OTHERS



APPENDIX M(2) - TRANSITION, THRIE BEAM

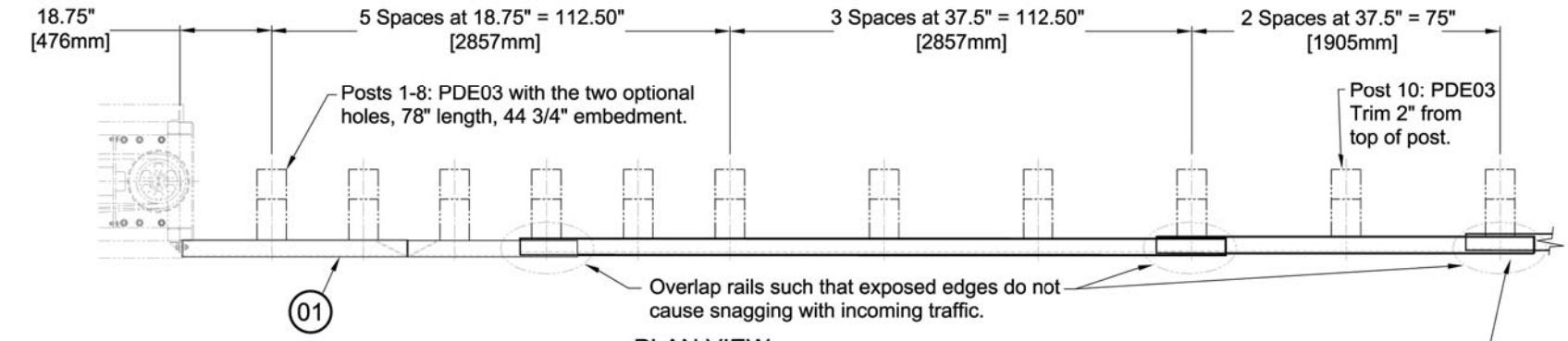


APPENDIX N - TRANSITION, W BEAM
***FOR USE WITH REVERSE DIRECTION TRAFFIC ***

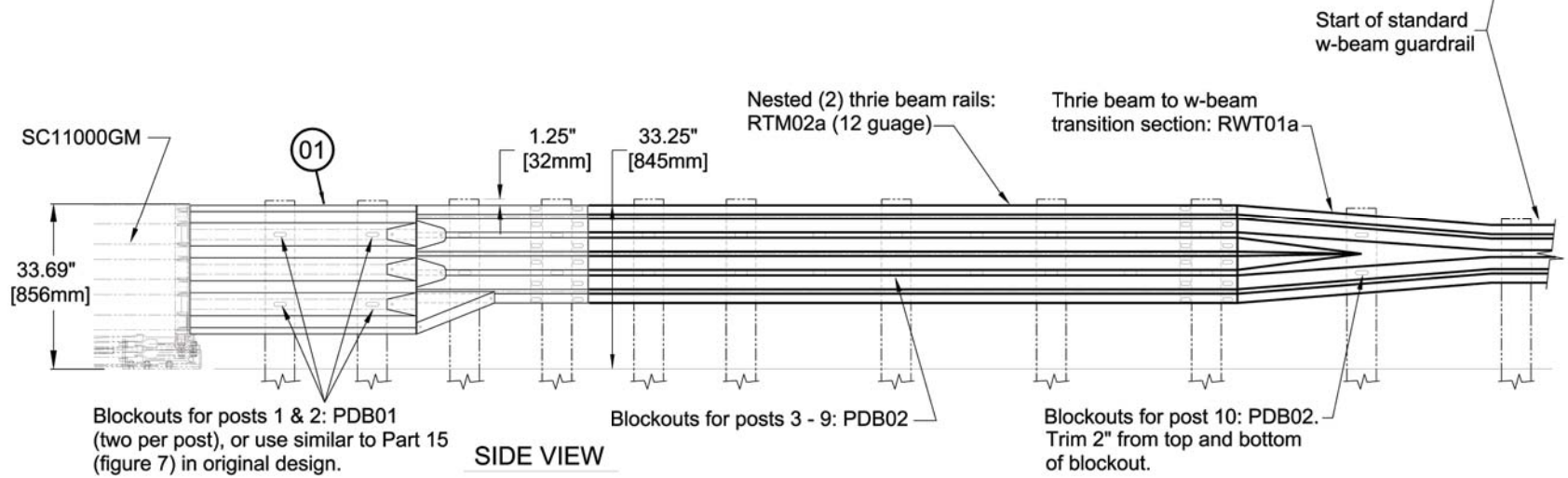
***** GUARDRAIL, POSTS, BLOCKOUTS AND CONNECTION BOLTS SUPPLIED BY OTHERS*****

PARTS LIST

01 - Transition Thrie & W Beam - Right #9437
01 - Transition Thrie & W Beam - Left #9438



PLAN VIEW

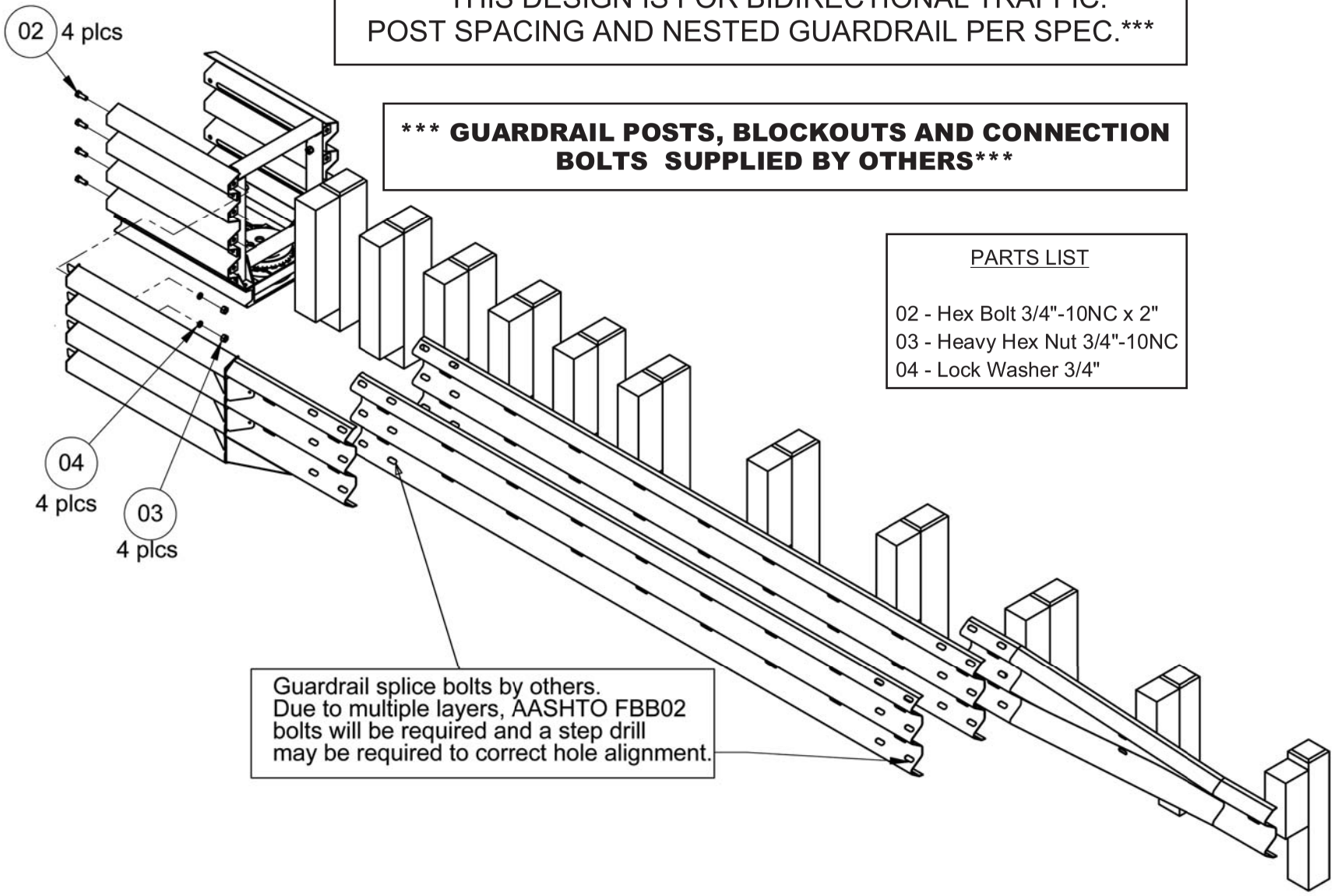


SIDE VIEW

APPENDIX N(2) - TRANSITION, W BEAM

***THIS DESIGN IS FOR BIDIRECTIONAL TRAFFIC.
POST SPACING AND NESTED GUARDRAIL PER SPEC.***

***** GUARDRAIL POSTS, BLOCKOUTS AND CONNECTION BOLTS SUPPLIED BY OTHERS*****



PARTS LIST

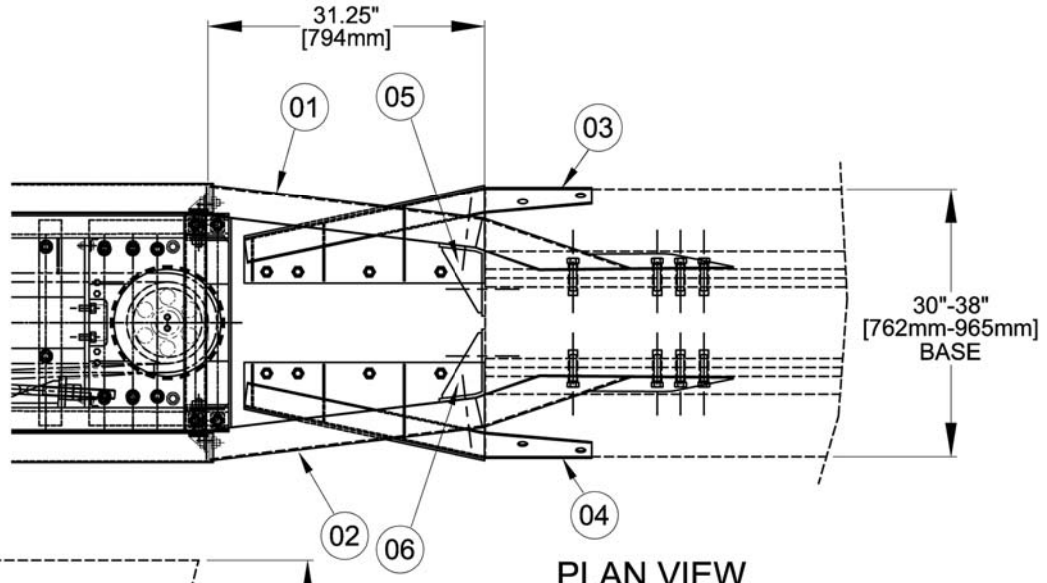
02 - Hex Bolt 3/4"-10NC x 2"
03 - Heavy Hex Nut 3/4"-10NC
04 - Lock Washer 3/4"

APPENDIX O - TRANSITION, JERSEY/F SHAPE, VARIABLE WIDTH BASE

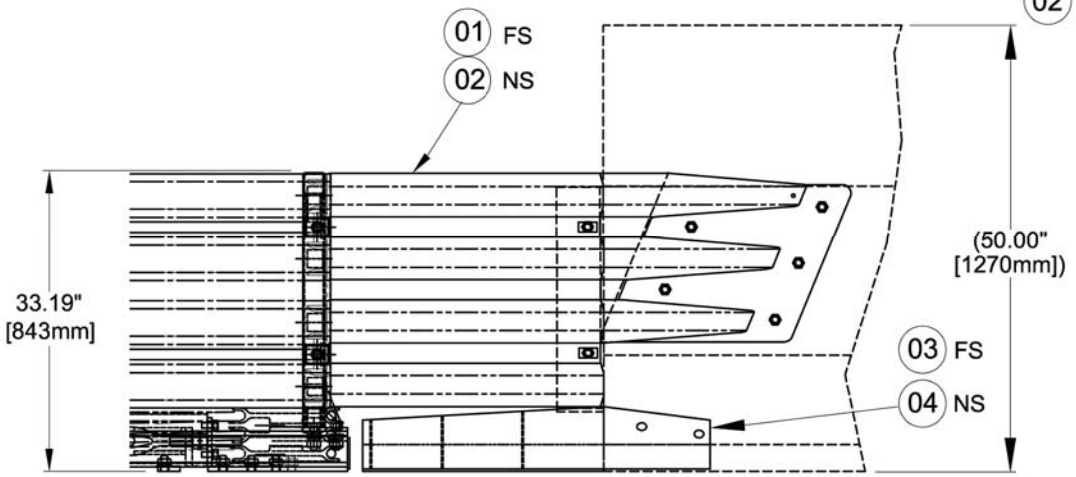
PARTS LIST

Double Sided Median Base 30"-38" Base:
Two Sided Full Assembly
With Rub Rail #9528
Without Rub Rail #9535
01 - Transition - Left #9494
02 - Transition - Right #9493
03 - Transition Rub Rail - Left #9481
04 - Transition Rub Rail - Right #9480
05 - Transition Support Bracket - Right #9526
06 - Transition Support Bracket - Left #9527

For use with barriers with base widths of 30"-38"
Rub rails only required for base widths > 34"

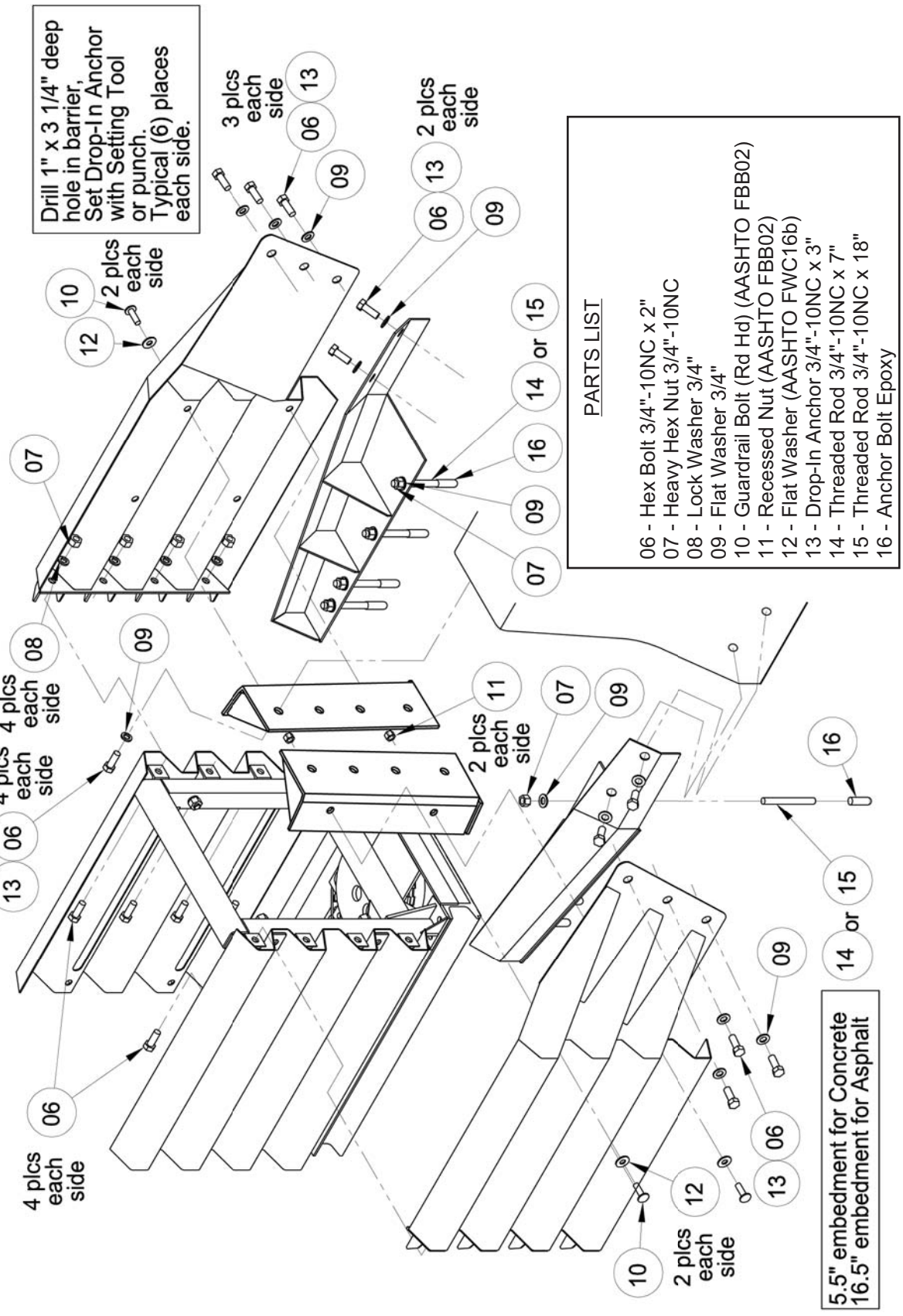


PLAN VIEW



SIDE VIEW

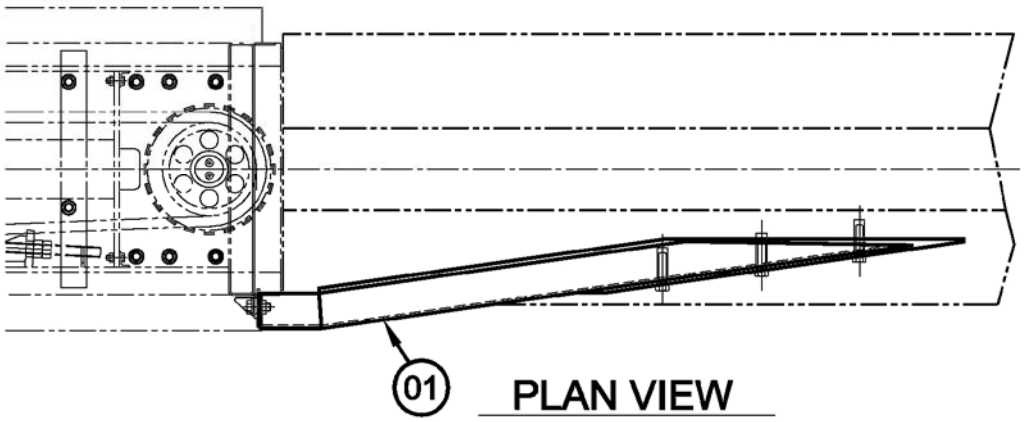
APPENDIX O(2) - TRANSITION, JERSEY/F SHAPE, VARIABLE WIDTH BASE



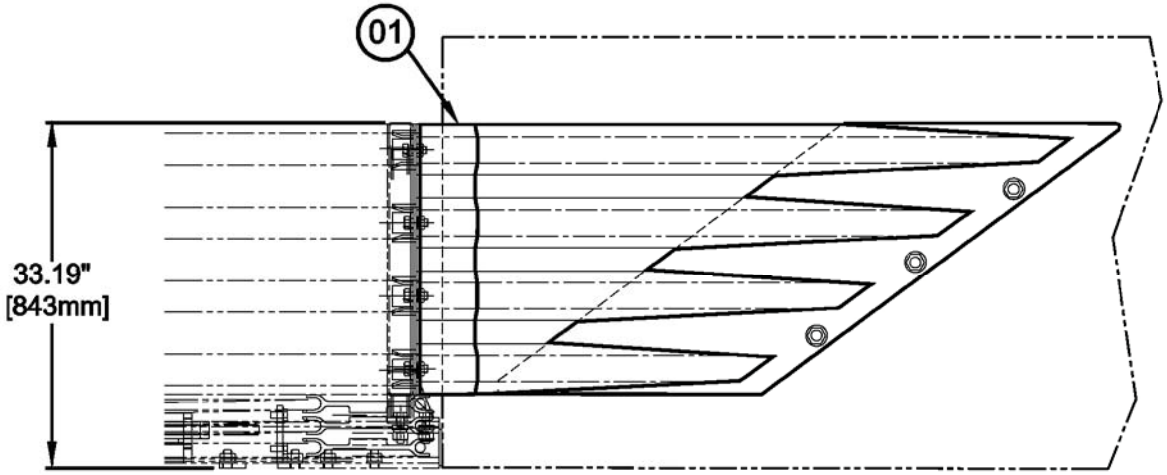
APPENDIX P - TRANSITION, MEDIAN BARRIER, SINGLE SLOPE

PARTS LIST

01 - Transition Single Slope Barrier - Right #9490
01 - Transition Single Slope Barrier - Left #9491

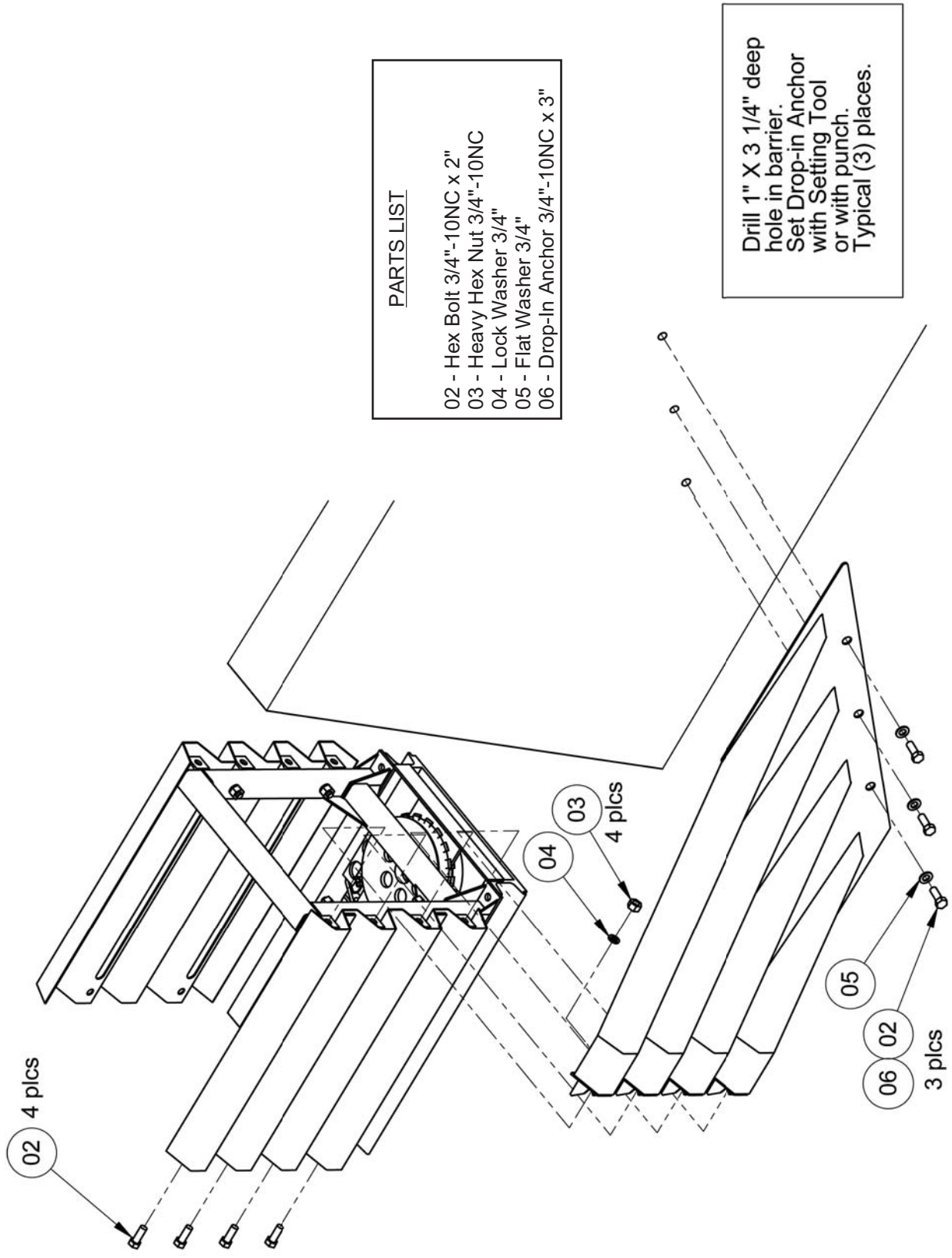


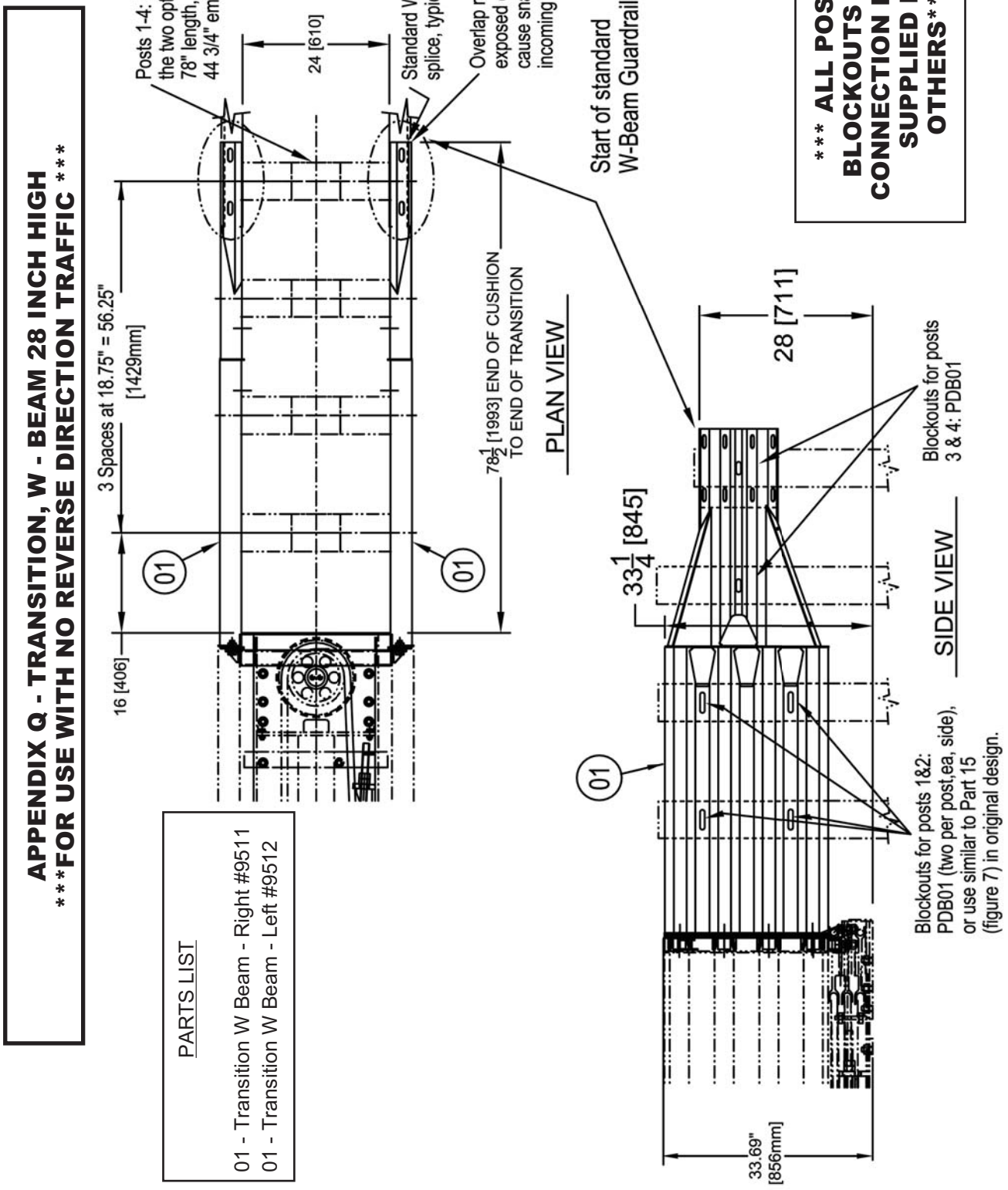
PLAN VIEW

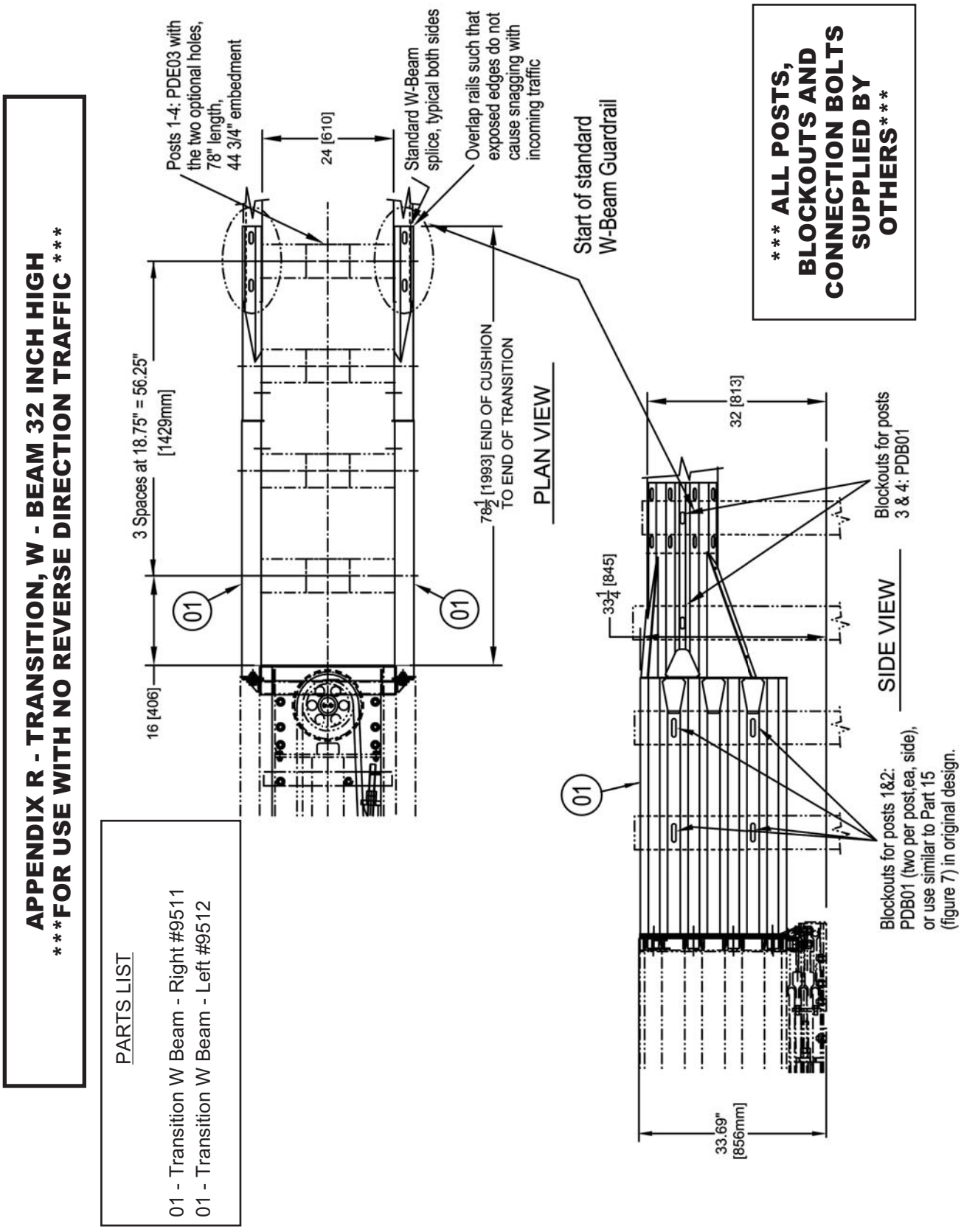


SIDE VIEW

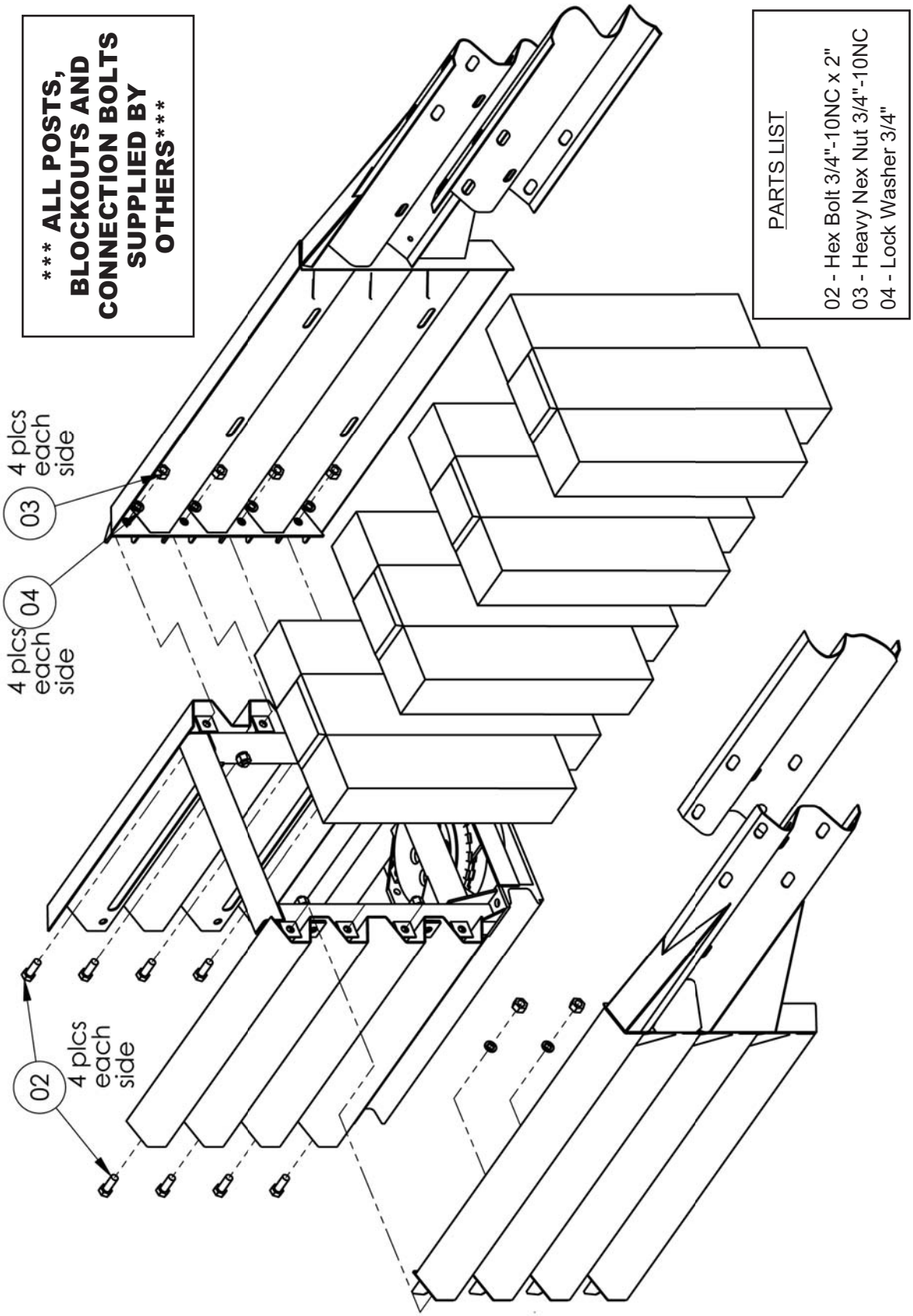
APPENDIX P(2) - TRANSITION, MEDIAN BARRIER, SINGLE SLOPE




APPENDIX Q - TRANSITION, W - BEAM 28 INCH HIGH
***FOR USE WITH NO REVERSE DIRECTION TRAFFIC ***
PARTS LIST
01 - Transition W Beam - Right #9511
01 - Transition W Beam - Left #9512
Posts 1-4: PDE03 with the two optional holes, 78" length, 44 3/4" embedment
24 [610]
Standard W-Beam splice, typical both sides
Overlap rails such that exposed edges do not cause snagging with incoming traffic
3 Spaces at 18.75" = 56.25" [1429mm]
16 [406]
78½ [1993] END OF CUSHION TO END OF TRANSITION
Start of standard W-Beam Guardrail
PLAN VIEW
*** ALL POSTS, BLOCKOUTS AND CONNECTION BOLTS SUPPLIED BY OTHERS***
28 [711]
33¼ [845]
Blockouts for posts 3 & 4: PDB01
Blockouts for posts 1&2: PDB01 (two per post,ea, side), or use similar to Part 15 (figure 7) in original design.
SIDE VIEW
33.69" [856mm]
01


APPENDIX R - TRANSITION, W - BEAM 32 INCH HIGH
***FOR USE WITH NO REVERSE DIRECTION TRAFFIC ***
PARTS LIST
01 - Transition W Beam - Right #9511
01 - Transition W Beam - Left #9512
Posts 1-4: PDE03 with the two optional holes, 78" length, 44 3/4" embedment
24 [610]
Standard W-Beam splice, typical both sides
Overlap rails such that exposed edges do not cause snagging with incoming traffic
3 Spaces at 18.75" = 56.25" [1429mm]
16 [406]
78½ [1993] END OF CUSHION TO END OF TRANSITION
Start of standard W-Beam Guardrail
PLAN VIEW
*** ALL POSTS, BLOCKOUTS AND CONNECTION BOLTS SUPPLIED BY OTHERS***
32 [813]
33¼ [845]
Blockouts for posts 3 & 4: PDB01
Blockouts for posts 1&2: PDB01 (two per post,ea, side), or use similar to Part 15 (figure 7) in original design.
SIDE VIEW
33.69" [856mm]

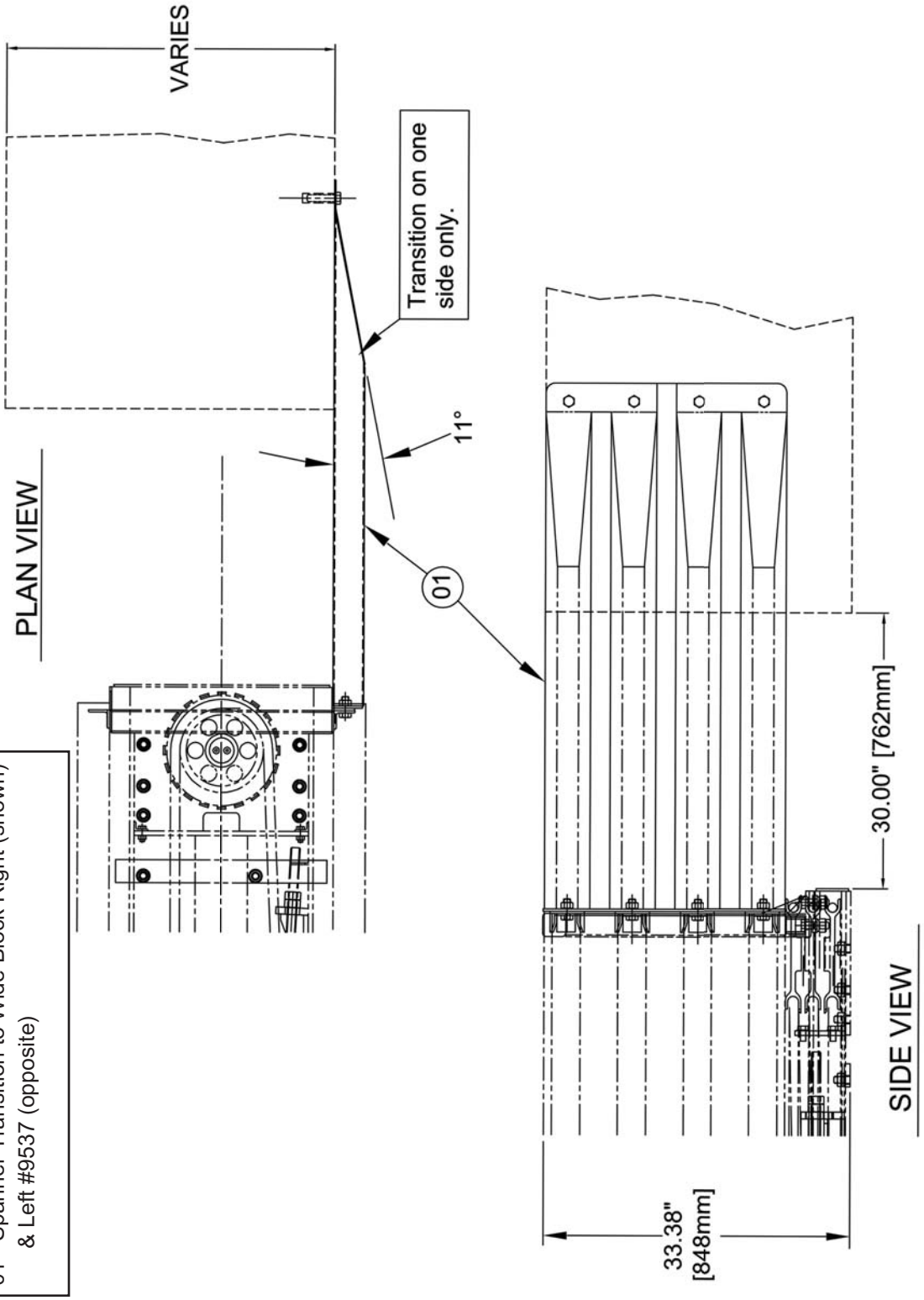
APPENDIX Q(2) & R(2) - TRANSITION, W-BEAM 28" & 32" HIGH



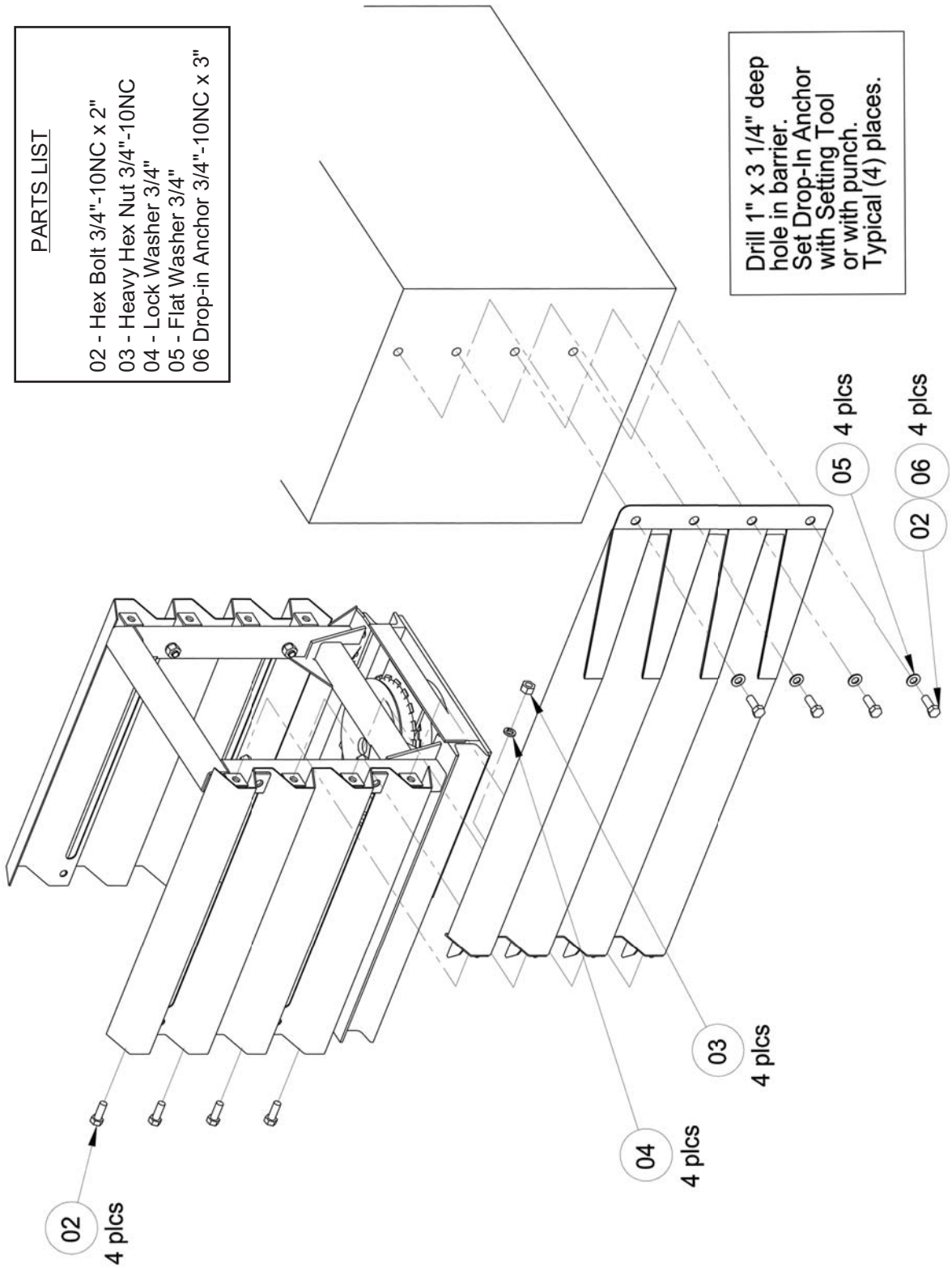
APPENDIX S - TRANSITION, WIDE BLOCK SPANNER

PARTS LIST

01 - Spanner Transition to Wide Block Right (shown)
& Left #9537 (opposite)



APPENDIX S(2) - TRANSITION, WIDE BLOCK SPANNER



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