

A detailed map of the project site area in San Francisco. The map shows the intersection of Lincoln Ave, Taft Ave, and Katella Ave. The project site is highlighted with a hatched pattern. A north arrow and 'N.T.S.' (Not To Scale) are included. The map also shows the San Francisco River and various streets and landmarks.

N.T.S

THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR
UNDER MY DIRECTION IN CONFORMANCE WITH REQUIREMENTS OF
THE PROFESSIONAL LAND SURVEYOR'S ACT; THIS 21 DAY
OF JUNE, 2019.

MICHAEL KUBISTY, PLS SENIOR LAND SURVEYOR



THIS MAP HAS BEEN EXAMINED IN ACCORDANCE WITH THE
PROFESSIONAL LAND SURVEYOR'S ACT; THIS 21 DAY OF
JUNE, 2019.

WADE WEAVER, PLS DEPUTY COUNTY SURVEYOR



FOUND CGPS "SACY"
N: 2218015.22
E: 6061433.12
THIS IS A CONTINUOUS GPS STATION (CGPS)
AND IS PART OF THE CALIFORNIA SPATIAL
PREFERENCE NETWORK (CSRN), FROM WHICH
DATA CAN BE DOWNLOADED HERE:
[HTTP://SOPACCSR.CUCSD.EDU/](http://SOPACCSR.CUCSD.EDU/).

FOUND CGPS "OEOC"
N: 2225550.03'
E: 6107584.60'
THIS IS A CONTINUOUS GPS
STATION (CGPS) AND IS PART OF
THE CALIFORNIA SPATIAL
PREFERENCE NETWORK (CSRN),
FROM WHICH DATA CAN BE
DOWNLOADED HERE:
[HTTP://SOPACCSRC.UCSD.EDU/](http://SOPACCSRC.UCSD.EDU/)

TOPOGRAPHIC MAPPING PROJECT

THE BASIS OF BEARINGS FOR THIS SURVEY IS BASED ON THE CALIFORNIA COORDINATE SYSTEM (CCS83), ZONE VI, NAD 83, OCS (2007.00) EPOCH ADJUSTMENT, AS DETERMINED LOGICALLY BY A LINE BETWEEN CONTINUOUS GLOBAL POSITIONING STATIONS (CGPS) OECC AND SACY BEING NORTH 80°43'39" EAST AS DERIVED FROM THE COORDINATES PUBLISHED BY THE CALIFORNIA SPATIAL REFERENCE CENTER (CSRC) ALONG WITH DATA SHEETS ON FILE IN THE OFFICE OF THE ORANGE COUNTY SURVEYOR.

COORDINATES SHOWN ARE BASED ON THE CALIFORNIA COORDINATE SYSTEM (CCS83), ZONE VI, NAD 83, OCS 2007.0 EPOCH ADJUSTMENT.

ALL DISTANCES SHOWN ARE GRID, UNLESS OTHERWISE NOTED. TO OBTAIN GROUND
DISTANCES DIVIDE GRID BY 0.99998548
ALL DISTANCES ARE BASED ON THE U.S. SURVEY FOOT.

O.C.S. BM. 1E-71-69 ELEV. = 197.808' YEAR LEVELED: 1988

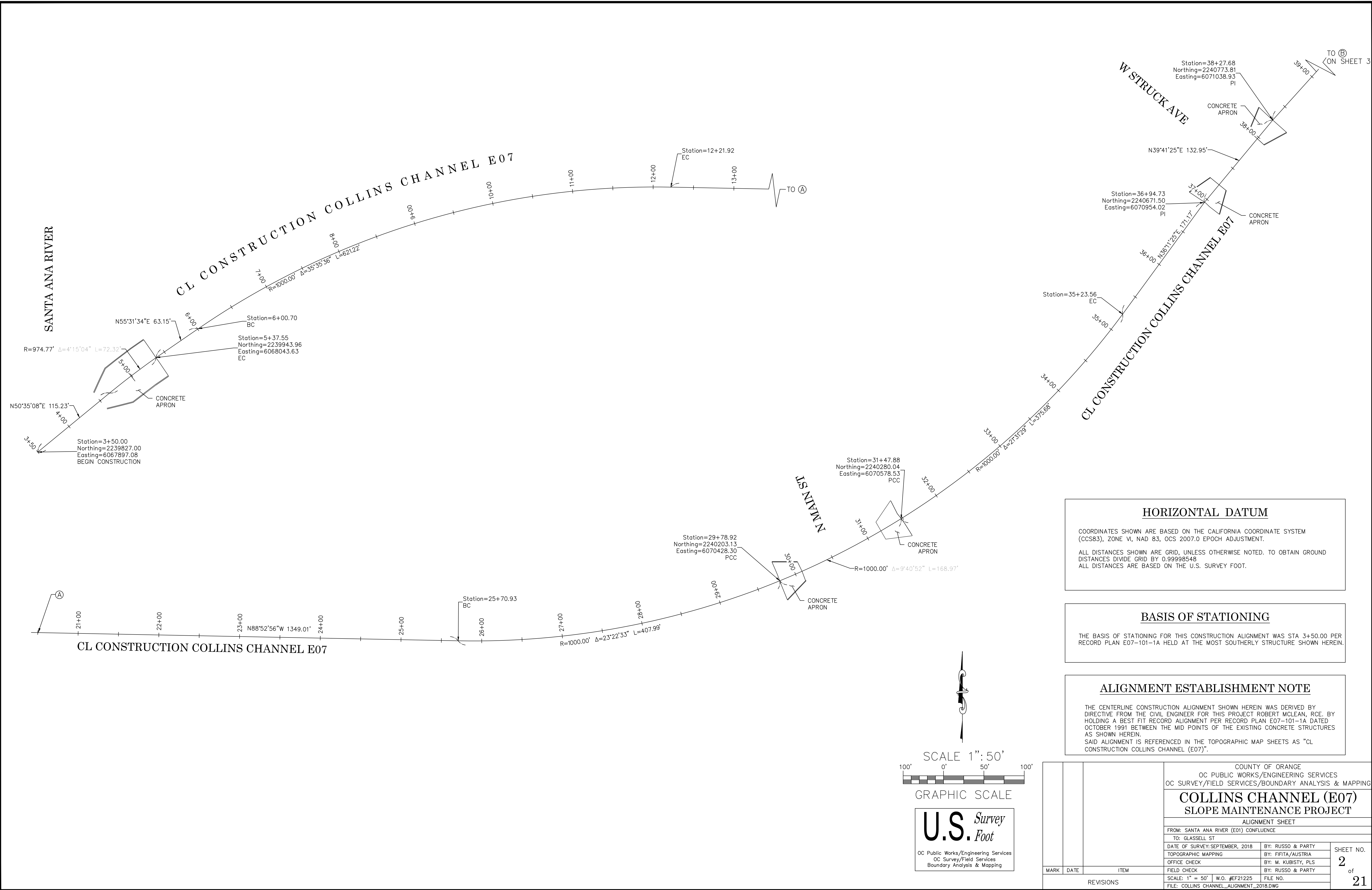
NAVD 1988 (O.C.S. 1995 ADJUSTMENT)

DESCRIPTION: DESCRIBED BY OCS 2002 - FOUND 3 3/4" OCS ALUMINUM BENCHMARK DISK STAMPED "1E-71-69", SET IN THE SOUTHEASTERLY CORNER OF A 3.5 FT. BY 7 FT. CONCRETE CATCH BASIN. MONUMENT IS LOCATED IN THE NORTHEASTERLY CORNER OF THE INTERSECTION OF ORANGE OLIVE ROAD AND GROVE AVENUE, 18.5 FT. NORTHERLY OF THE CENTERLINE OF GROVE AVENUE. MONUMENT IS SET LEVEL WITH THE TOP OF THE CURB.

THE SURVEY INFORMATION SHOWN HEREON IS TO BE USED FOR TOPOGRAPHIC
RELATIONSHIPS ONLY AND IS NOT INTENDED FOR LAND ACQUISITION OR
BOUNDARY PURPOSES.

SHEET	NO.	DESCRIPTION
SHEET	1	TITLE SHEET
SHEET	2-4	ALIGNMENT SHEET
SHEETS	5-21	TOPOGRAPHIC MAP

			COUNTY OF ORANGE OC PUBLIC WORKS/ENGINEERING SERVICES OC SURVEY/FIELD SERVICES/BOUNDARY ANALYSIS & MAPPING				
			COLLINS CHANNEL (E07) SLOPE MAINTENANCE PROJECT				
			TITLE SHEET				
			FROM: SANTA ANA RIVER (E01) CONFLUENCE				
			TO: GLASSSELL ST				
			DATE OF SURVEY: SEPTEMBER, 2018		BY: RUSSO & PARTY		SHEET NO. 1 of 21
			TOPOGRAPHIC MAPPING		BY: M. AUSTRIA / H. AFTIM		
			OFFICE CHECK		BY: M. KUBISTY, PLS		
			FIELD CHECK		BY: RUSSO & PARTY		
			SCALE: 1" = 20'		W.O. #EF21225		
FILE: COLLINS_CHANNEL_TOPO_2019.DWG		FILE NO.					
MARK	DATE	ITEM					
REVISIONS							



HORIZONTAL DATUM

COORDINATES SHOWN ARE BASED ON THE CALIFORNIA COORDINATE SYSTEM (CCS83), ZONE VI, NAD 83, OCS 2007.0 EPOCH ADJUSTMENT.

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ALL DISTANCES ARE BASED ON THE U.S. SURVEY FOOT.

BASIS OF STATIONING

THE BASIS OF STATIONING FOR THIS CONSTRUCTION ALIGNMENT WAS STA 3+50.00 PER RECORD PLAN E07-101-1A HELD AT THE MOST SOUTHERLY STRUCTURE SHOWN HEREIN.

ALIGNMENT ESTABLISHMENT NOTE

THE CENTERLINE CONSTRUCTION ALIGNMENT SHOWN HEREIN WAS DERIVED BY DIRECTIVE FROM THE CIVIL ENGINEER FOR THIS PROJECT ROBERT MOLEAN, RCE, BY HOLDING A BEST FIT RECORD ALIGNMENT PER RECORD PLAN E07-101-1A DATED OCTOBER 1991 BETWEEN THE MID POINTS OF THE EXISTING CONCRETE STRUCTURES AS SHOWN HEREIN.

SAID ALIGNMENT IS REFERENCED IN THE TOPOGRAPHIC MAP SHEETS AS "CL CONSTRUCTION COLLINS CHANNEL (E07)".

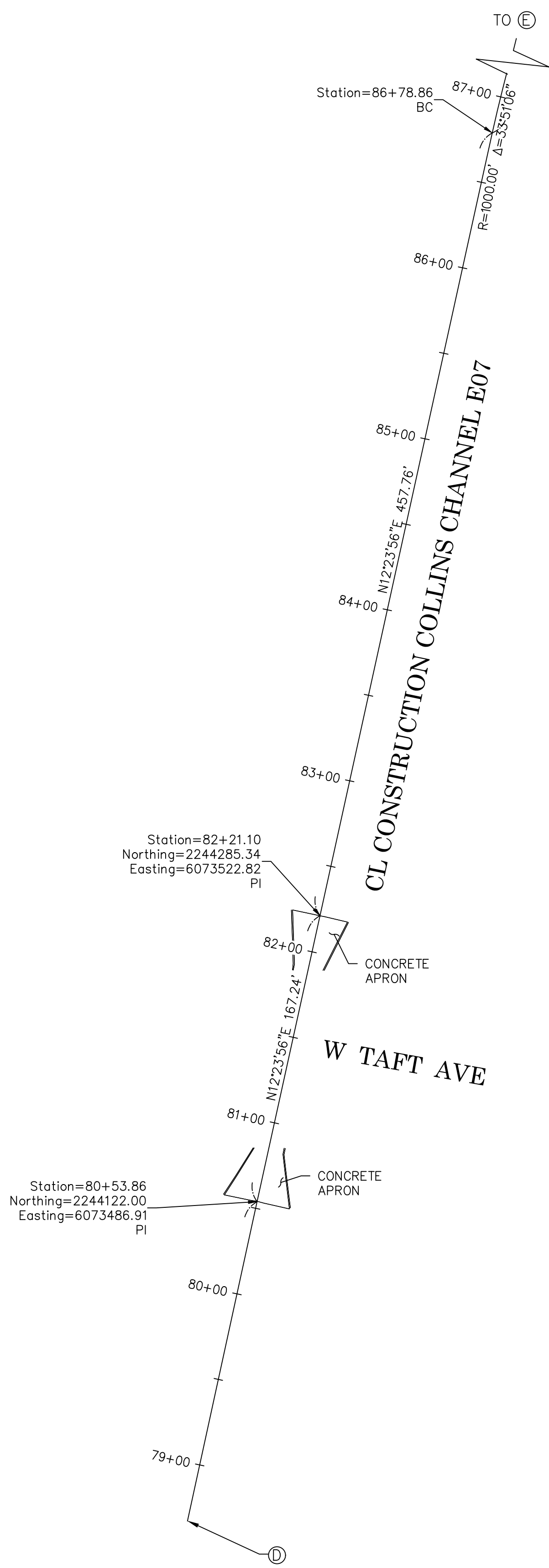
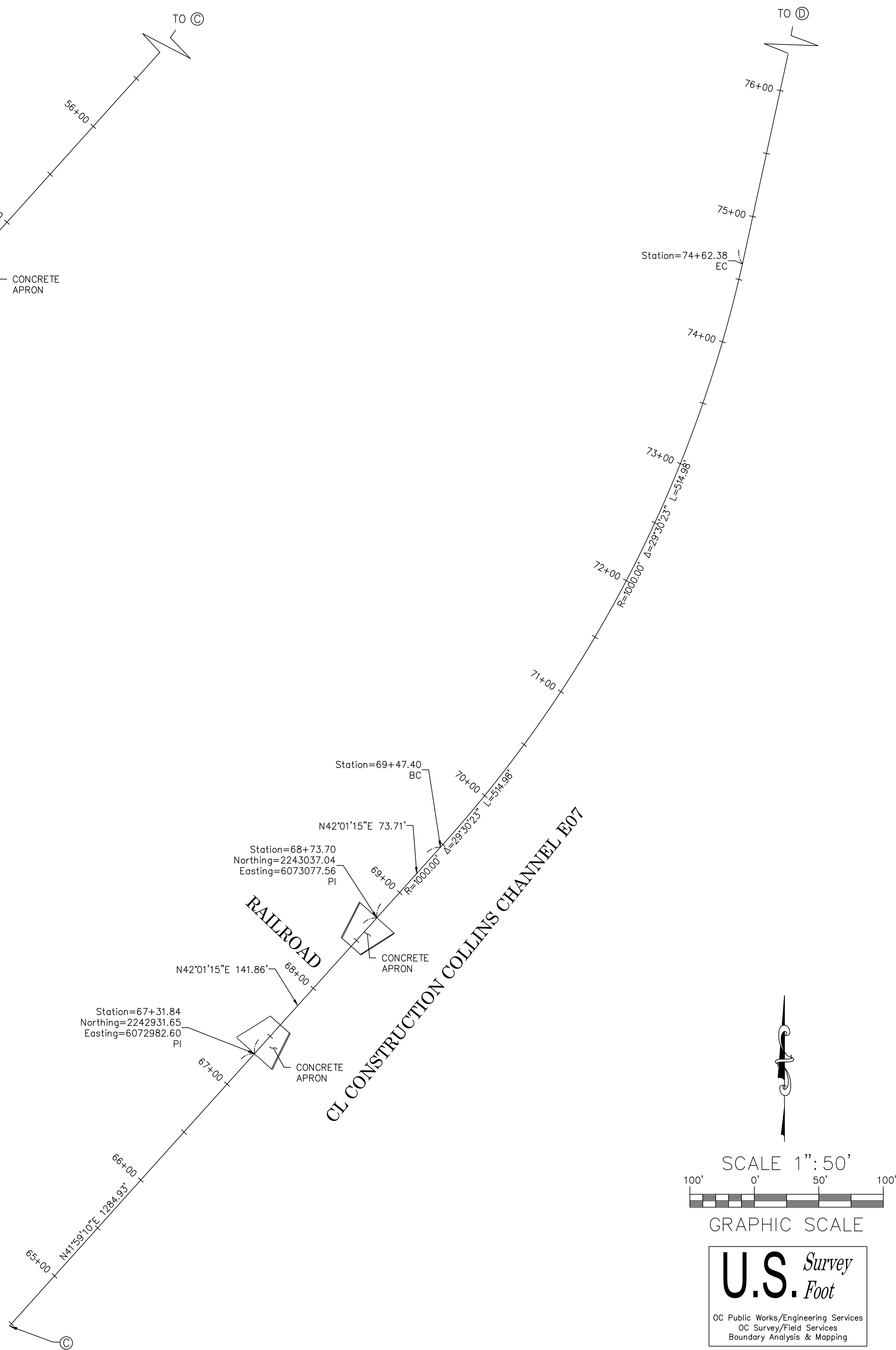
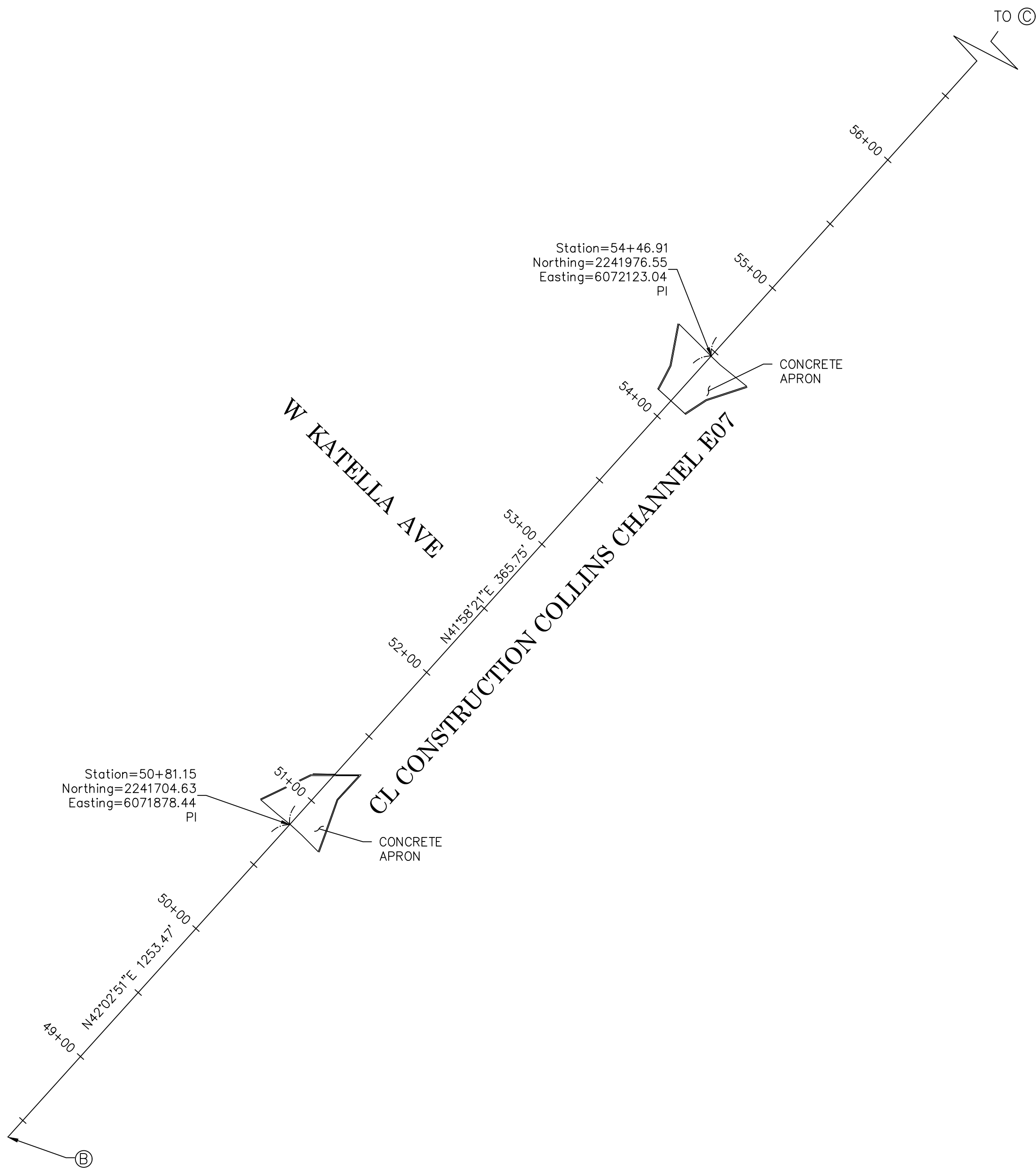
SCALE 1"=50'

GRAPHIC SCALE

U.S. Survey Foot

OC Public Works/Engineering Services
OC Survey/Field Services
Boundary Analysis & Mapping

			COUNTY OF ORANGE OC PUBLIC WORKS/ENGINEERING SERVICES OC SURVEY/FIELD SERVICES/BOUNDARY ANALYSIS & MAPPING		
			COLLINS CHANNEL (E07) SLOPE MAINTENANCE PROJECT		
			ALIGNMENT SHEET		
			FROM: SANTA ANA RIVER (E01) CONFLUENCE		
			TO: GLASSELL ST		
			DATE OF SURVEY: SEPTEMBER, 2018	BY: RUSSO & PARTY	SHEET NO. 2 of 21
			TOPOGRAPHIC MAPPING	BY: FIFITA/AUSTRIA	
			OFFICE CHECK	BY: M. KUBISTY, PLS	
			FIELD CHECK	BY: RUSSO & PARTY	
MARK	DATE	ITEM	SCALE: 1" = 50'	W.O. #EF21225	FILE NO.
REVISIONS			FILE: COLLINS_CHANNEL_ALIGNMNT_2018.DWG		



HORIZONTAL DATUM

COORDINATES SHOWN ARE BASED ON THE CALIFORNIA COORDINATE SYSTEM (CCS83), ZONE VI, NAD 83, OCS 2007.0 EPOCH ADJUSTMENT.

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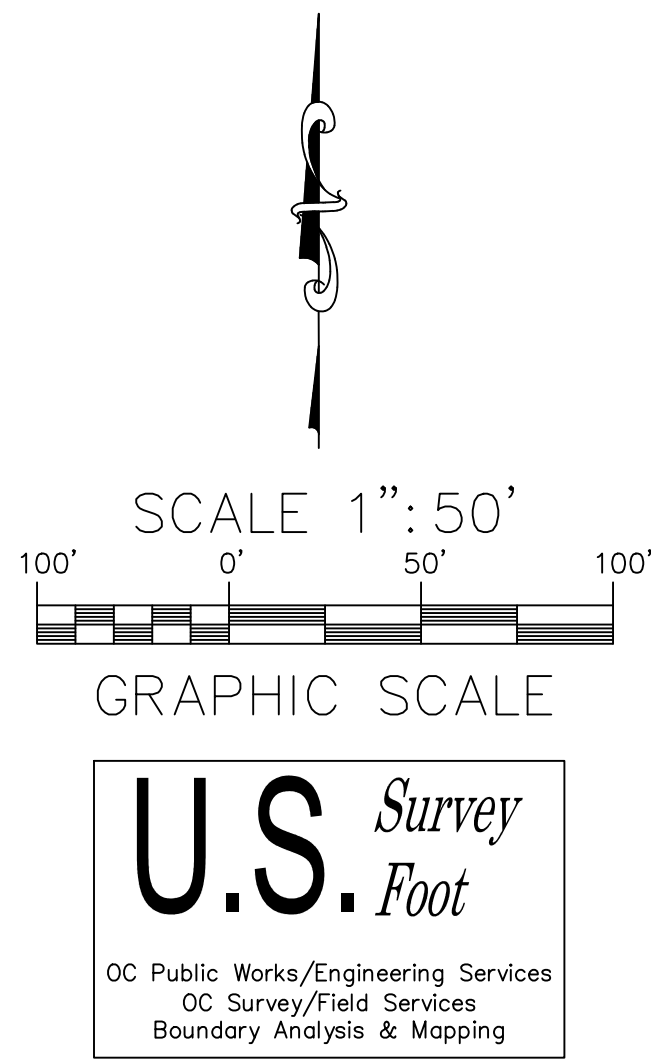
BASIS OF STATIONING

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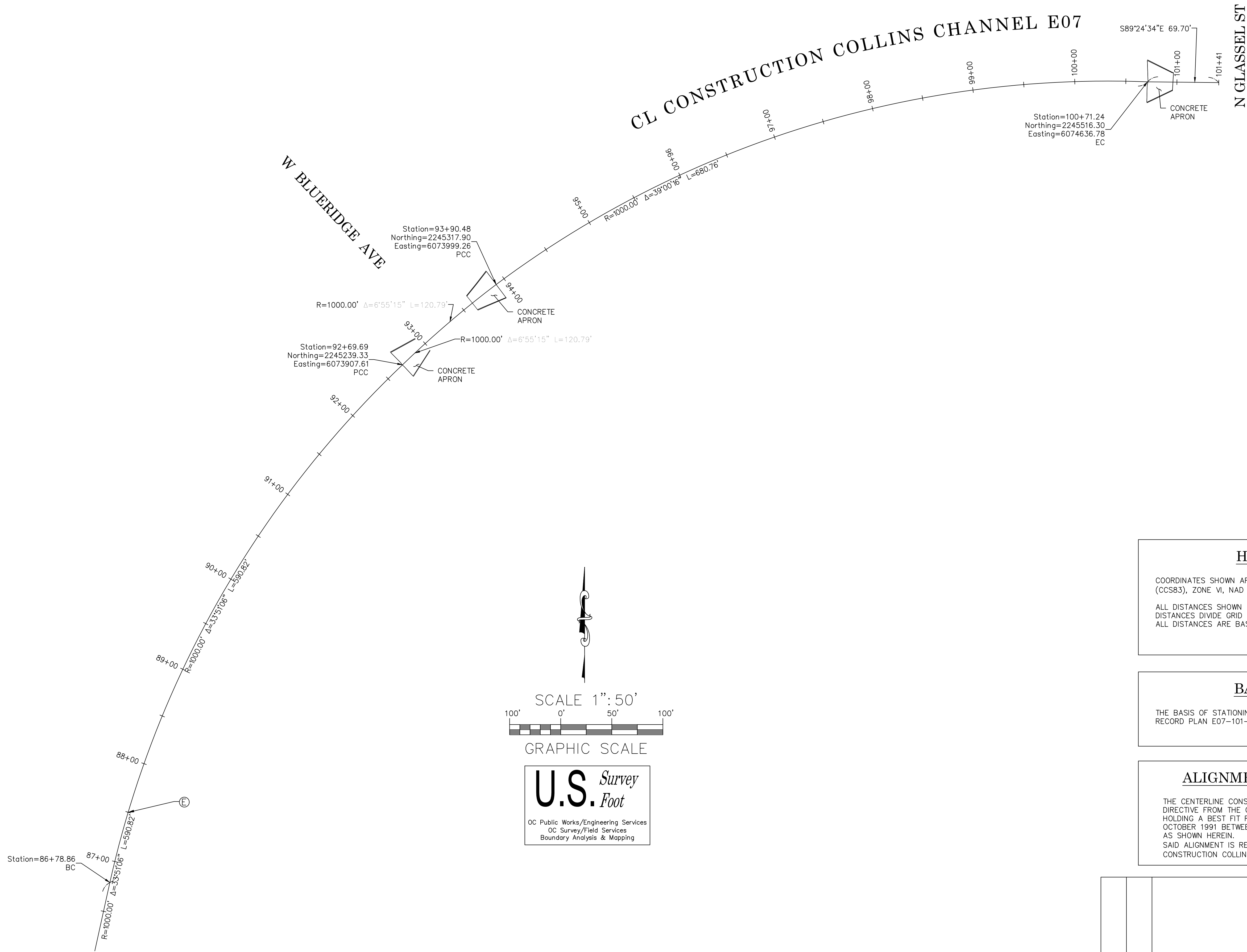
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SAID ALIGNMENT IS REFERENCED IN THE TOPOGRAPHIC MAP SHEETS AS "CL CONSTRUCTION COLLINS CHANNEL (E07)".



COUNTY OF ORANGE			
OC PUBLIC WORKS/ENGINEERING SERVICES			
OC SURVEY/FIELD SERVICES/BOUNDARY ANALYSIS & MAPPING			
COLLINS CHANNEL (E07)			
SLOPE MAINTENANCE PROJECT			
ALIGNMENT SHEET			
FROM: SANTA ANA RIVER (E01) CONFLUENCE			
TO: GLASSSELL ST			
DATE OF SURVEY: SEPTEMBER, 2018		BY: RUSSO & PARTY	
TOPOGRAPHIC MAPPING		BY: FIFITA/AUSTRIA	
OFFICE CHECK		BY: M. KUBISTY, PLS	
FIELD CHECK		BY: RUSSO & PARTY	
SCALE: 1" = 50'		W.O. #EF21225	
FILE: COLLINS_CHANNEL_ALIGNMNT_2018.DWG		FILE NO.	
MARK	DATE	ITEM	
REVISIONS			
			SHEET NO.
			3
			of
			21



HORIZONTAL DATUM

COORDINATES SHOWN ARE BASED ON THE CALIFORNIA COORDINATE SYSTEM (CCS83), ZONE VI, NAD 83, OCS 2007.0 EPOCH ADJUSTMENT.

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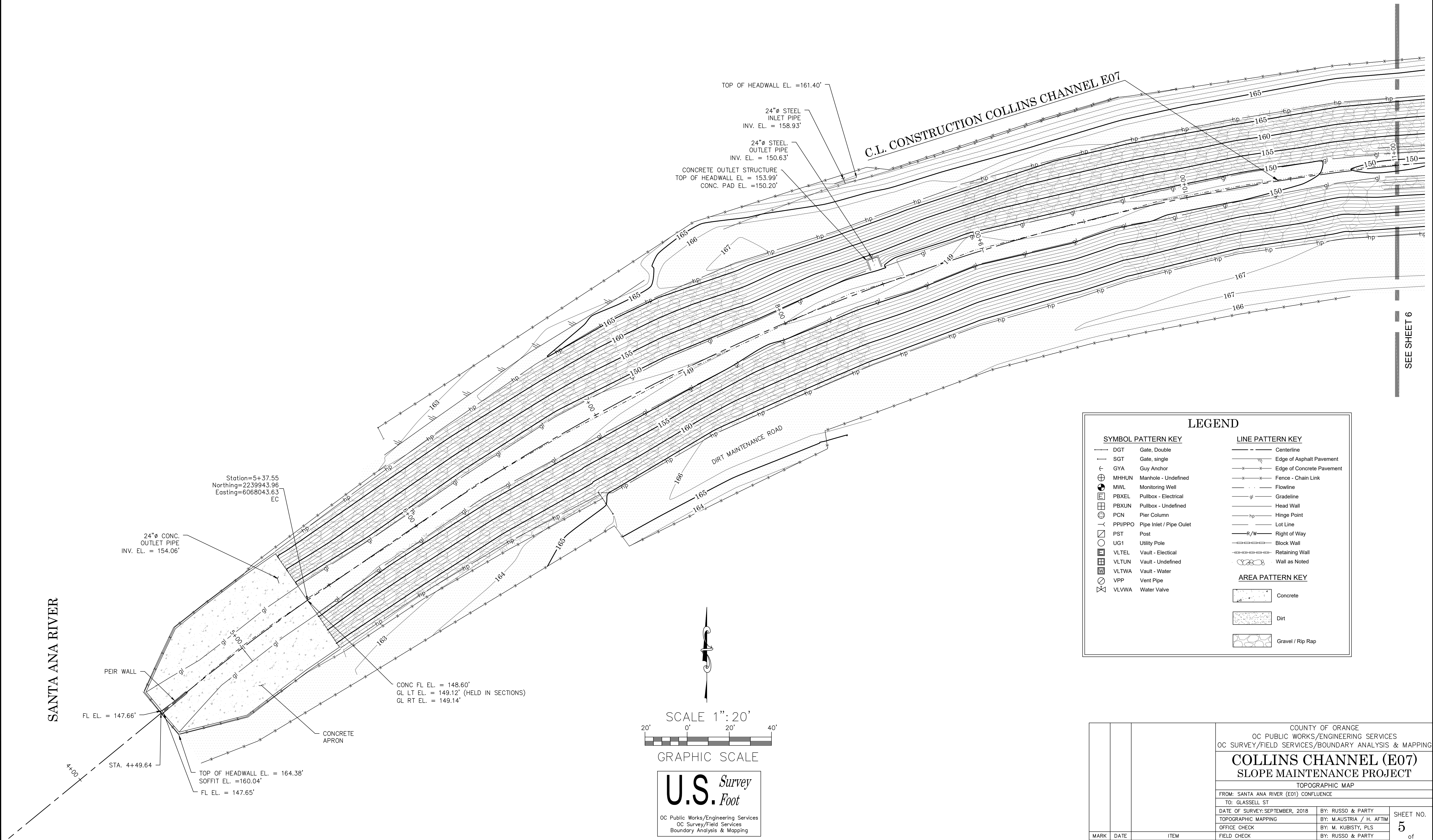
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			COLLINS CHANNEL (E07) SLOPE MAINTENANCE PROJECT		
			ALIGNMENT SHEET		
			FROM: SANTA ANA RIVER (E01) CONFLUENCE		
			TO: GLASSELL ST		
			DATE OF SURVEY: SEPTEMBER, 2018	BY: RUSSO & PARTY	SHEET NO. 4 of 21
			TOPOGRAPHIC MAPPING	BY: FIFITA/AUSTRIA	
			OFFICE CHECK	BY: M. KUBISTY, PLS	
			FIELD CHECK	BY: RUSSO & PARTY	
			SCALE: 1" = 50'	W.O. #EF21225	
FILE: COLLINS_CHANNEL_ALIGNM_2018.DWG		FILE NO.			
REVISIONS					



TOP OF HEADWALL EL. = 161.40'
24"Ø STEEL INLET PIPE INV. EL. = 158.93'
24"Ø STEEL OUTLET PIPE INV. EL. = 150.63'
CONCRETE OUTLET STRUCTURE TOP OF HEADWALL EL. = 153.99' CONC. PAD EL. = 150.20'

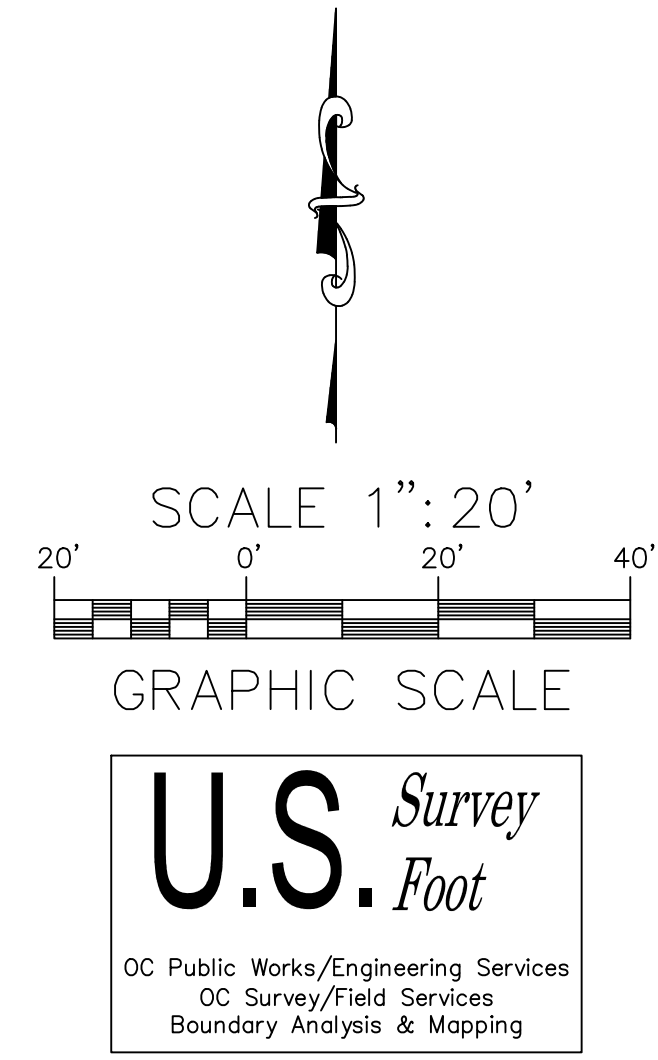
C.L. CONSTRUCTION COLLINS CHANNEL E07

Station=5+37.55
Northing=2239943.96
Easting=6068043.63
EC

24"Ø CONC. OUTLET PIPE INV. EL. = 154.06'

CONC FL EL. = 148.60'
CL LT EL. = 149.12' (HELD IN SECTIONS)
CL RT EL. = 149.14'

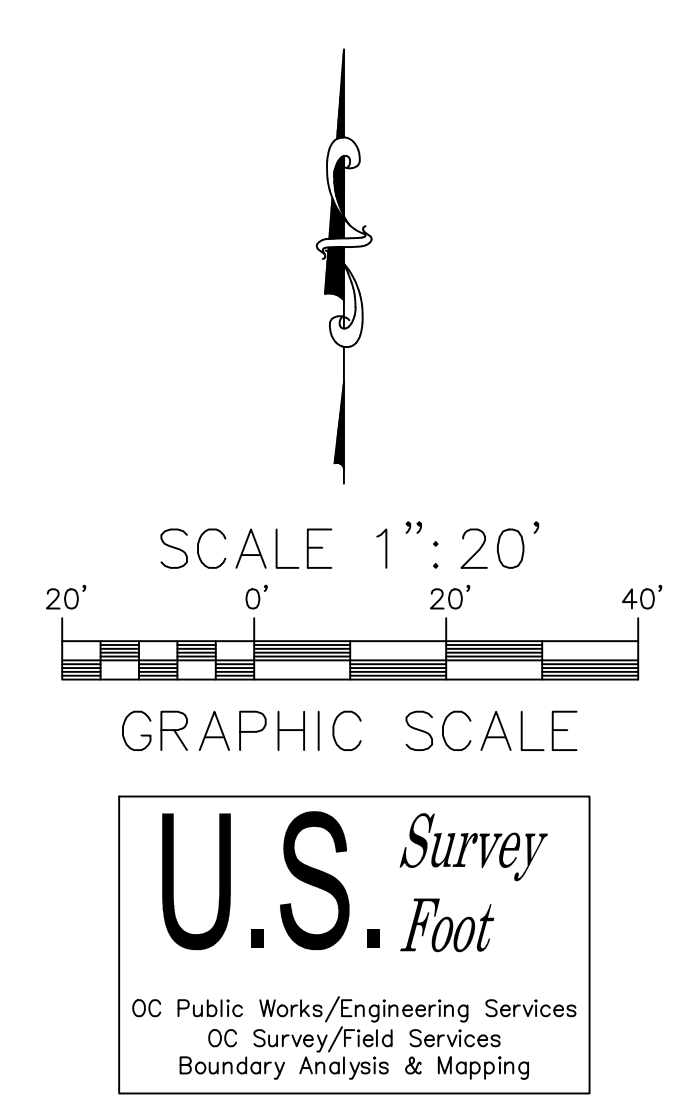
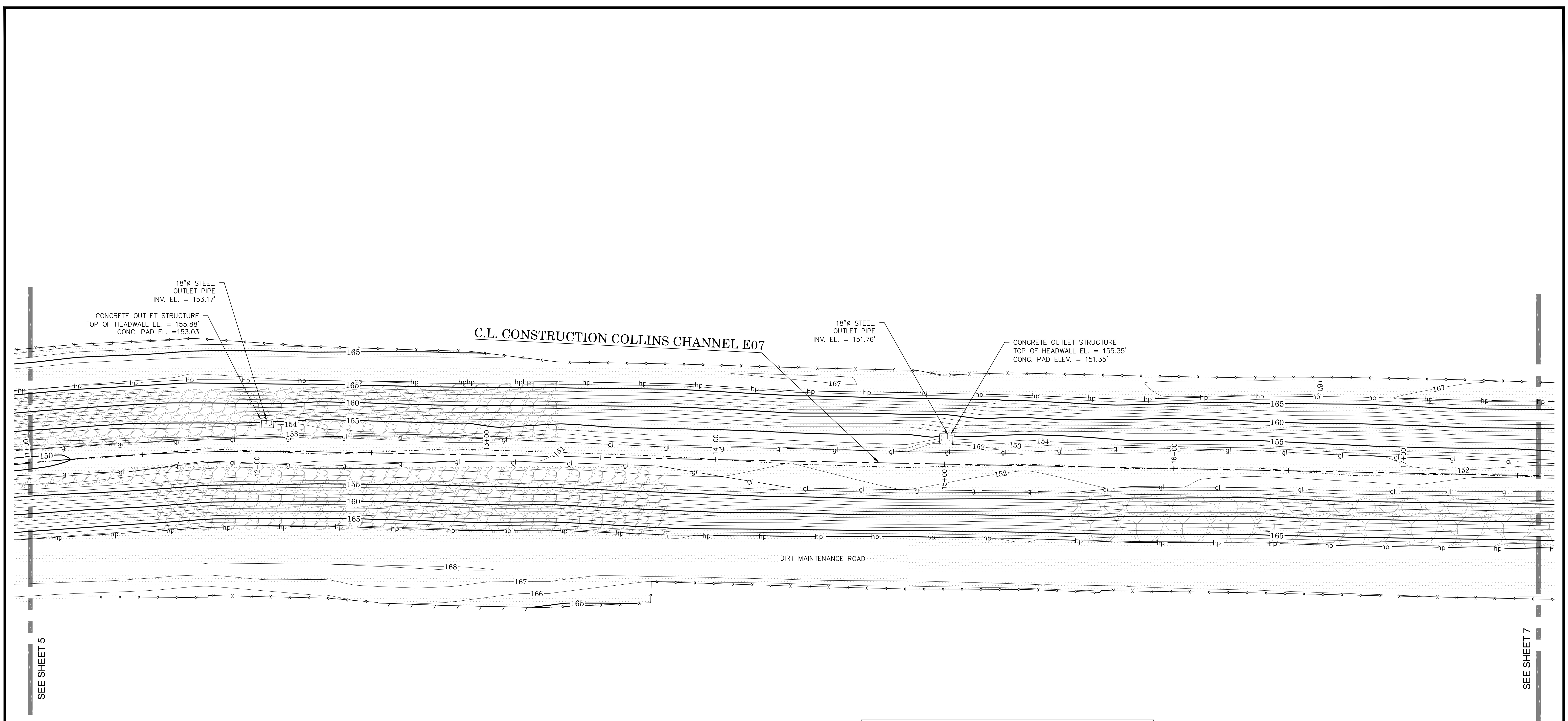
TOP OF HEADWALL EL. = 164.38'
SOFFIT EL. = 160.04'
FL EL. = 147.65'



SYMBOL PATTERN KEY		LINE PATTERN KEY	
DGT	Gate, Double	Centerline	
SGT	Gate, single	Edge of Asphalt Pavement	
GYA	Guy Anchor	Edge of Concrete Pavement	
MHHUN	Manhole - Undefined	Fence - Chain Link	
MWL	Monitoring Well	Flowline	
PBXEL	Pullbox - Electrical	Gradeline	
PBXUN	Pullbox - Undefined	Head Wall	
PCN	Pier Column	Hinge Point	
PPI/PPO	Pipe Inlet / Pipe Outlet	Lot Line	
PST	Post	Right of Way	
UG1	Utility Pole	Block Wall	
VLTEL	Vault - Electrical	Retaining Wall	
VLTUN	Vault - Undefined	Wall as Noted	
VLTTWA	Vault - Water		
VPP	Vent Pipe		
VLVWA	Water Valve		
		AREA PATTERN KEY	
		Concrete	
		Dirt	
		Gravel / Rip Rap	

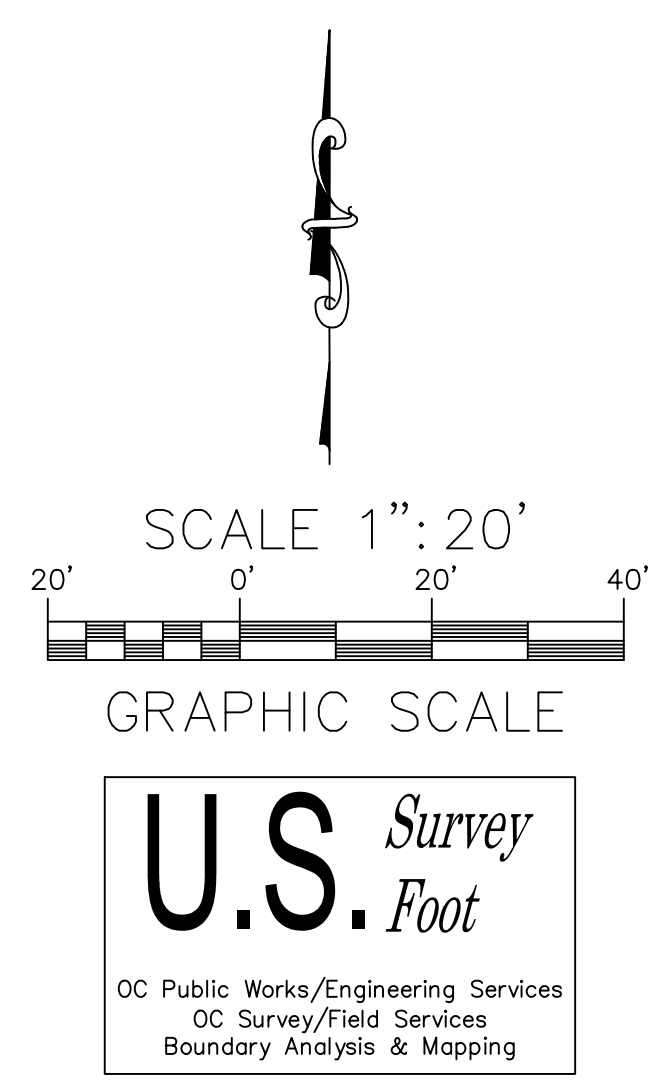
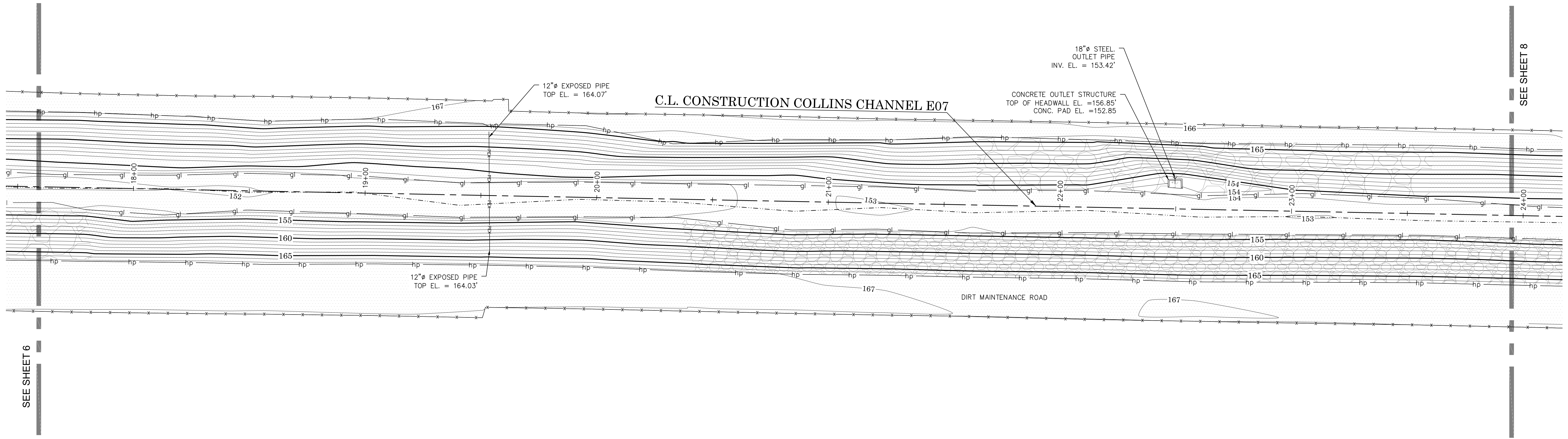
		COUNTY OF ORANGE OC PUBLIC WORKS/ENGINEERING SERVICES OC SURVEY/FIELD SERVICES/BOUNDARY ANALYSIS & MAPPING	
		COLLINS CHANNEL (E07) SLOPE MAINTENANCE PROJECT	
		TOPOGRAPHIC MAP	
		FROM: SANTA ANA RIVER (E01) CONFLUENCE	
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		DATE OF SURVEY: SEPTEMBER, 2018	BY: RUSSO & PARTY
		TOPOGRAPHIC MAPPING	BY: M.AUSTRIA / H. AFTIM
		OFFICE CHECK	BY: M. KUBISTY, PLS
		FIELD CHECK	BY: RUSSO & PARTY
		SCALE: 1" = 20'	W.O. #EF21225
		FILE NO.	FILE: COLLINS_CHANNEL_TOPO_2019.DWG
MARK	DATE	ITEM	
REVISIONS			

SEE SHEET 6



SYMBOL PATTERN KEY		LINE PATTERN KEY	
DGT	Gate, Double	Centerline	
SGT	Gate, single	Edge of Asphalt Pavement	
GYA	Guy Anchor	Edge of Concrete Pavement	
MHHUN	Manhole - Undefined	Fence - Chain Link	
MWL	Monitoring Well	Flowline	
PBXEL	Pullbox - Electrical	Gradeline	
PBXUN	Pullbox - Undefined	Head Wall	
PCN	Pier Column	Hinge Point	
PPI/PPO	Pipe Inlet / Pipe Outlet	Lot Line	
PST	Post	Right of Way	
UG1	Utility Pole	Block Wall	
VLTEL	Vault - Electrical	Retaining Wall	
VLTUN	Vault - Undefined	Wall as Noted	
VLTWA	Vault - Water		
VPP	Vent Pipe		
VLVWA	Water Valve		
AREA PATTERN KEY			
	Concrete		
	Dirt		
	Gravel / Rip Rap		

COUNTY OF ORANGE OC PUBLIC WORKS/ENGINEERING SERVICES OC SURVEY/FIELD SERVICES/BOUNDARY ANALYSIS & MAPPING			
COLLINS CHANNEL (E07) SLOPE MAINTENANCE PROJECT			
TOPOGRAPHIC MAP			
FROM: SANTA ANA RIVER (E01) CONFLUENCE			
TO: GLASSELL ST			
DATE OF SURVEY: SEPTEMBER, 2018	BY: RUSSO & PARTY	SHEET NO.	
TOPOGRAPHIC MAPPING	BY: M.AUSTRIA / H. AFTIM	6	
OFFICE CHECK	BY: M. KUBISTY, PLS	of	
FIELD CHECK	BY: RUSSO & PARTY	21	
SCALE: 1" = 20'	W.O. #EF21225		
FILE: COLLINS_CHANNEL_TOPO_2019.DWG	FILE NO.		
MARK	DATE	ITEM	
REVISIONS			



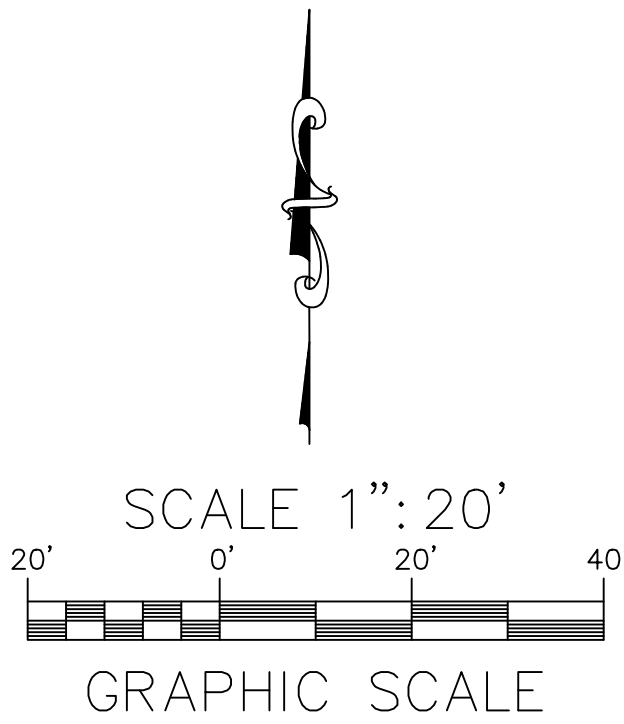
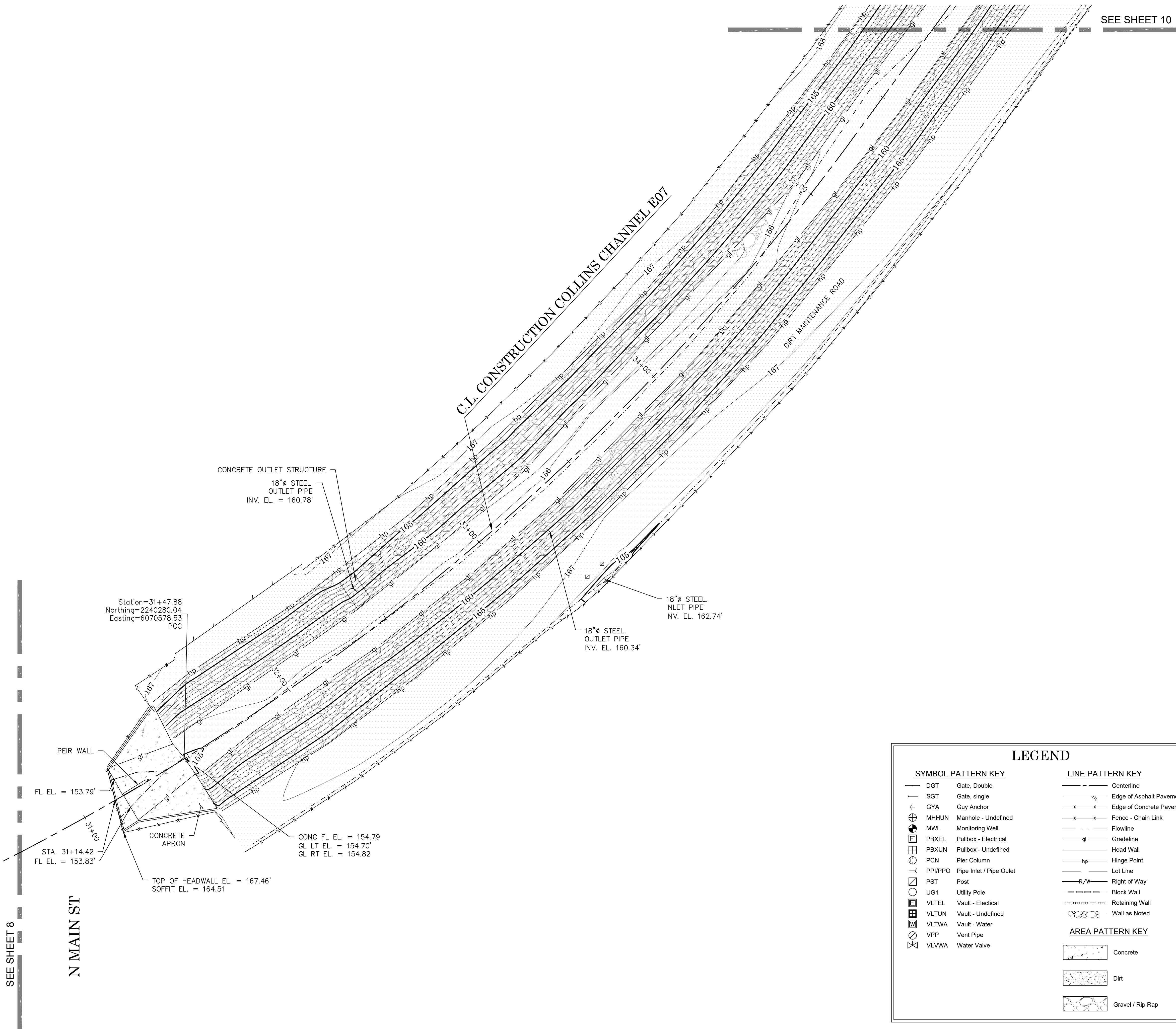
SYMBOL PATTERN KEY		LINE PATTERN KEY	
DGT	Gate, Double	Centerline	
SGT	Gate, single	Edge of Asphalt Pavement	
GYA	Guy Anchor	Edge of Concrete Pavement	
MHHUN	Manhole - Undefined	Fence - Chain Link	
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PBXEL	Pullbox - Electrical	Gradeline	
PBXUN	Pullbox - Undefined	Head Wall	
PCN	Pier Column	Hinge Point	
PPI/PPO	Pipe Inlet / Pipe Outlet	Lot Line	
PST	Post	R/W	Right of Way
UG1	Utility Pole	Block Wall	
VLTEL	Vault - Electrical	Retaining Wall	
VLTUN	Vault - Undefined	Wall as Noted	
VLTWA	Vault - Water		
VPP	Vent Pipe		
VLVWA	Water Valve		
AREA PATTERN KEY			
		Concrete	
		Dirt	
		Gravel / Rip Rap	

COUNTY OF ORANGE OC PUBLIC WORKS/ENGINEERING SERVICES OC SURVEY/FIELD SERVICES/BOUNDARY ANALYSIS & MAPPING			
COLLINS CHANNEL (E07) SLOPE MAINTENANCE PROJECT			
TOPOGRAPHIC MAP			
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TO: GLASSELL ST			
DATE OF SURVEY: SEPTEMBER, 2018		BY: RUSSO & PARTY	
TOPOGRAPHIC MAPPING		BY: M. AUSTRIA / H. AFTIM	
OFFICE CHECK		BY: M. KUBISTY, PLS	
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SCALE: 1" = 20'		W.O. #EF21225	
FILE: COLLINS_CHANNEL_TOPO_2019.DWG		FILE NO.	
MARK	DATE	ITEM	SHEET NO.
REVISIONS			7 of 21



			COUNTY OF ORANGE OC PUBLIC WORKS/ENGINEERING SERVICES OC SURVEY/FIELD SERVICES/BOUNDARY ANALYSIS & MAPPING	
			COLLINS CHANNEL (E07) SLOPE MAINTENANCE PROJECT	
			TOPOGRAPHIC MAP	
			FROM: SANTA ANA RIVER (E01) CONFLUENCE	
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			DATE OF SURVEY: SEPTEMBER, 2018	BY: RUSSO & PARTY
			TOPOGRAPHIC MAPPING	BY: M. AUSTRIA / H. AFTM
			OFFICE CHECK	BY: M. KUBISTY, PLS
			FIELD CHECK	BY: RUSSO & PARTY
			SCALE: 1" = 20'	FILE NO.
			FILE: COLLINS_CHANNEL_TOPO_2019.DWG	
			REVISIONS	

SHEET NO. 8 of 21



U.S. Survey
Foot
OC Public Works/Engineering Services
OC Survey/Field Services
Boundary Analysis & Mapping

SYMBOL PATTERN KEY		LINE PATTERN KEY	
DGT	Gate, Double	Centerline	
SGT	Gate, single	Edge of Asphalt Pavement	
GYA	Guy Anchor	Edge of Concrete Pavement	
MHHUN	Manhole - Undefined	Fence - Chain Link	
MWL	Monitoring Well	Flowline	
PBXEL	Pullbox - Electrical	Gradeline	gl
PBXUN	Pullbox - Undefined	Head Wall	
PCN	Pier Column	Hinge Point	hp
PPI/PPO	Pipe Inlet / Pipe Outlet	Lot Line	
PST	Post	Right of Way	R/W
UG1	Utility Pole	Block Wall	
VLTEL	Vault - Electrical	Retaining Wall	
VLTUN	Vault - Undefined	Wall as Noted	
VLTWA	Vault - Water		
VPP	Vent Pipe		
VLVWA	Water Valve		
AREA PATTERN KEY			
	Concrete		
	Dirt		
	Gravel / Rip Rap		

MARK	DATE	ITEM	COUNTY OF ORANGE OC PUBLIC WORKS/ENGINEERING SERVICES OC SURVEY/FIELD SERVICES/BOUNDARY ANALYSIS & MAPPING		
			COLLINS CHANNEL (E07) SLOPE MAINTENANCE PROJECT		
			TOPOGRAPHIC MAP		
			FROM: SANTA ANA RIVER (E01) CONFLUENCE		
			TO: GLASSELL ST		
			DATE OF SURVEY: SEPTEMBER, 2018	BY: RUSSO & PARTY	SHEET NO. 9 of 21
			TOPOGRAPHIC MAPPING	BY: M. AUSTRIA / H. AFTIM	
			OFFICE CHECK	BY: M. KUBISTY, PLS	
			FIELD CHECK	BY: RUSSO & PARTY	
			SCALE: 1" = 20'	W.O. #EF21225	
FILE: COLLINS_CHANNEL_TOPO_2019.DWG					
REVISIONS					

SEE SHEET 11

C.I. CONSTRUCTION COLLINS CHANNEL E07

DIRT MAINTENANCE ROAD

W STRUCK AVE

TOP OF HEADWALL EL. = 167.56'
18"Ø STEEL OUTLET PIPE
INV. EL. = 165.57'

18"Ø STEEL OUTLET PIPE
INV. EL. = 159.28'
CONCRETE OUTLET STRUCTURE
TOP OF HEADWALL EL. = 162.80'
CONC. PAD EL. = 157.17'

Station=38+27.68
Northing=2240773.81
Easting=6071038.93
PI

PEIR WALL

CONC FL EL. = 156.59'
GL LT EL. = 157.32'
GL RT EL. = 157.33'

CONCRETE APRON

34"Ø STEEL OUTLET PIPE
INV. EL. = 157.45'
TOP OF HEADWALL EL. = 168.81'
SOFFIT EL. = 166.29'
FL EL. = 155.94'

FL EL. = 155.78'
STA. 37+86.81

FL EL. = 155.65'
24"Ø STEEL OUTLET PIPE
INV. EL. = 156.61'

Station=36+94.73
Northing=2240671.50
Easting=6070954.02
PI

STA. 37+35.72
TOP OF HEADWALL EL. = 168.83'
SOFFIT EL. = 166.329'
60"Ø CONC. OUTLET PIPE
INV. EL. = 156.06'
FL EL. = 155.75'

CONCRETE APRON

CONC FL EL. = 155.35'
GL LT EL. = 156.07;
GL RT EL. = 156.11'

SEE SHEET 9

LEGEND

SYMBOL PATTERN KEY

- DGT Gate, Double
- SGT Gate, single
- GYA Guy Anchor
- MHHUN Manhole - Undefined
- MWL Monitoring Well
- PBXEL Pullbox - Electrical
- PBXUN Pullbox - Undefined
- PCN Pier Column
- PPI/PPPO Pipe Inlet / Pipe Outlet
- PST Post
- UG1 Utility Pole
- VLTEL Vault - Electrical
- VLTUN Vault - Undefined
- VLTWA Vault - Water
- VPP Vent Pipe
- VLVWA Water Valve

LINE PATTERN KEY

- Centerline
- Edge of Asphalt Pavement
- Edge of Concrete Pavement
- Fence - Chain Link
- Flowline
- Gradeline
- Head Wall
- Hinge Point
- Lot Line
- Right of Way
- Block Wall
- Retaining Wall
- Wall as Noted

AREA PATTERN KEY

- Concrete
- Dirt
- Gravel / Rip Rap



GRAPHIC SCALE

U.S. Survey Foot

OC Public Works/Engineering Services
OC Survey/Field Services
Boundary Analysis & Mapping

COUNTY OF ORANGE
OC PUBLIC WORKS/ENGINEERING SERVICES
OC SURVEY/FIELD SERVICES/BOUNDARY ANALYSIS & MAPPING

COLLINS CHANNEL (E07)
SLOPE MAINTENANCE PROJECT

TOPOGRAPHIC MAP

FROM: SANTA ANA RIVER (E01) CONFLUENCE

TO: GLASSELL ST

DATE OF SURVEY: SEPTEMBER, 2018

TOPOGRAPHIC MAPPING

OFFICE CHECK

FIELD CHECK

SCALE: 1" = 20'

FILE: COLLINS_CHANNEL_TOPO_2019.DWG

BY: RUSSO & PARTY

BY: M. AUSTRIA / H. AFTIM

BY: M. KUBISTY, PLS

BY: RUSSO & PARTY

FILE NO.

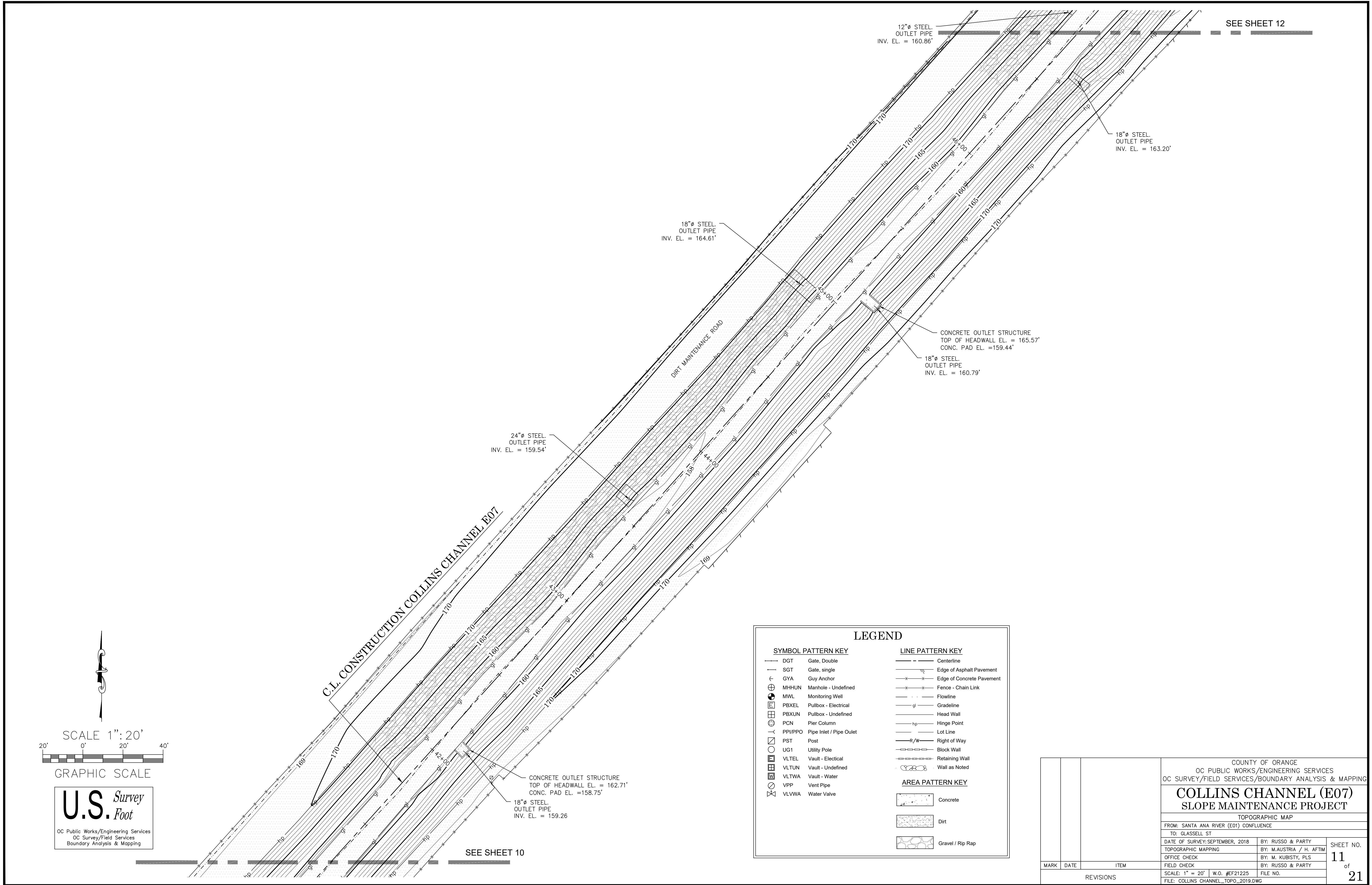
SHEET NO.


10

of

21

MARK	DATE	ITEM
REVISIONS		





SCALE 1" = 20'

GRAPHIC SCALE

20' 0' 20' 40'

U.S. Survey
Foot

OC Public Works/Engineering Services
OC Survey/Field Services
Boundary Analysis & Mapping

LEGEND

SYMBOL PATTERN KEY

DGT	Gate, Double
SGT	Gate, single
GYA	Guy Anchor
MHHUN	Manhole - Undefined
MWL	Monitoring Well
PBXEL	Pullbox - Electrical
PBXUN	Pullbox - Undefined
PCN	Pier Column
PPI/PPO	Pipe Inlet / Pipe Outlet
PST	Post
UG1	Utility Pole
VLTEL	Vault - Electrical
VLTEL	Vault - Undefined
VLTLWA	Vault - Water
VPP	Vent Pipe
VLVWA	Water Valve

LINE PATTERN KEY

Centerline	
Edge of Asphalt Pavement	
Edge of Concrete Pavement	
Fence - Chain Link	
Flowline	
Gradeline	
Head Wall	
Hinge Point	
Lot Line	
R/W	Right of Way
Block Wall	
Retaining Wall	
Wall as Noted	

AREA PATTERN KEY

Concrete
Dirt
Gravel / Rip Rap

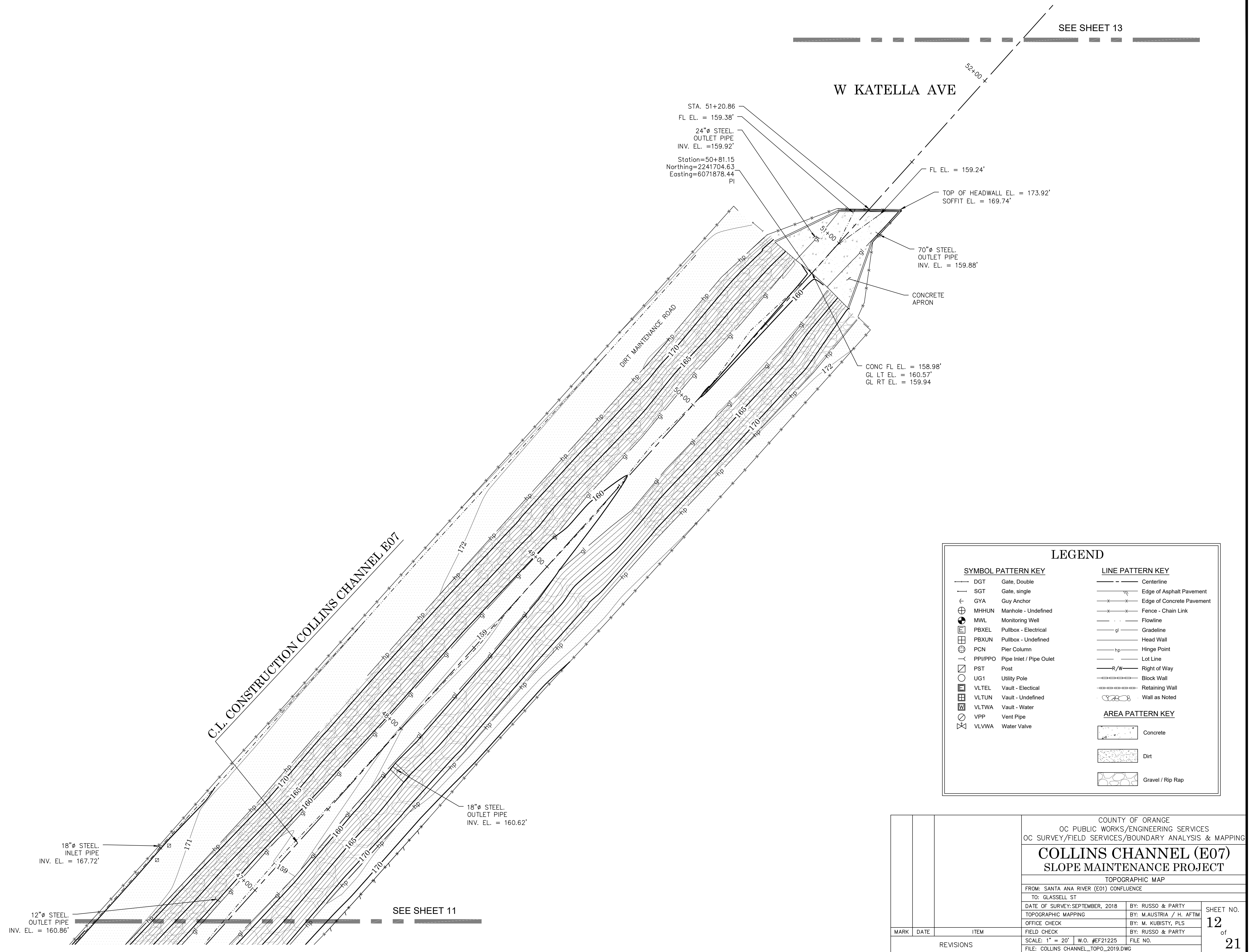
COUNTY OF ORANGE OC PUBLIC WORKS/ENGINEERING SERVICES OC SURVEY/FIELD SERVICES/BOUNDARY ANALYSIS & MAPPING			
COLLINS CHANNEL (E07) SLOPE MAINTENANCE PROJECT			
TOPOGRAPHIC MAP			
FROM: SANTA ANA RIVER (E01) CONFLUENCE			
TO: GLASSSELL ST			
DATE OF SURVEY: SEPTEMBER, 2018		BY: RUSSO & PARTY	
TOPOGRAPHIC MAPPING		BY: M. AUSTRIA / H. AFTIM	
OFFICE CHECK		BY: M. KUBISTY, PLS	
FIELD CHECK		BY: RUSSO & PARTY	
SCALE: 1" = 20'		W.O. #EF21225	
FILE: COLLINS_CHANNEL_TOPO_2019.DWG		FILE NO.	
MARK	DATE	ITEM	
REVISIONS			



GRAPHIC SCALE

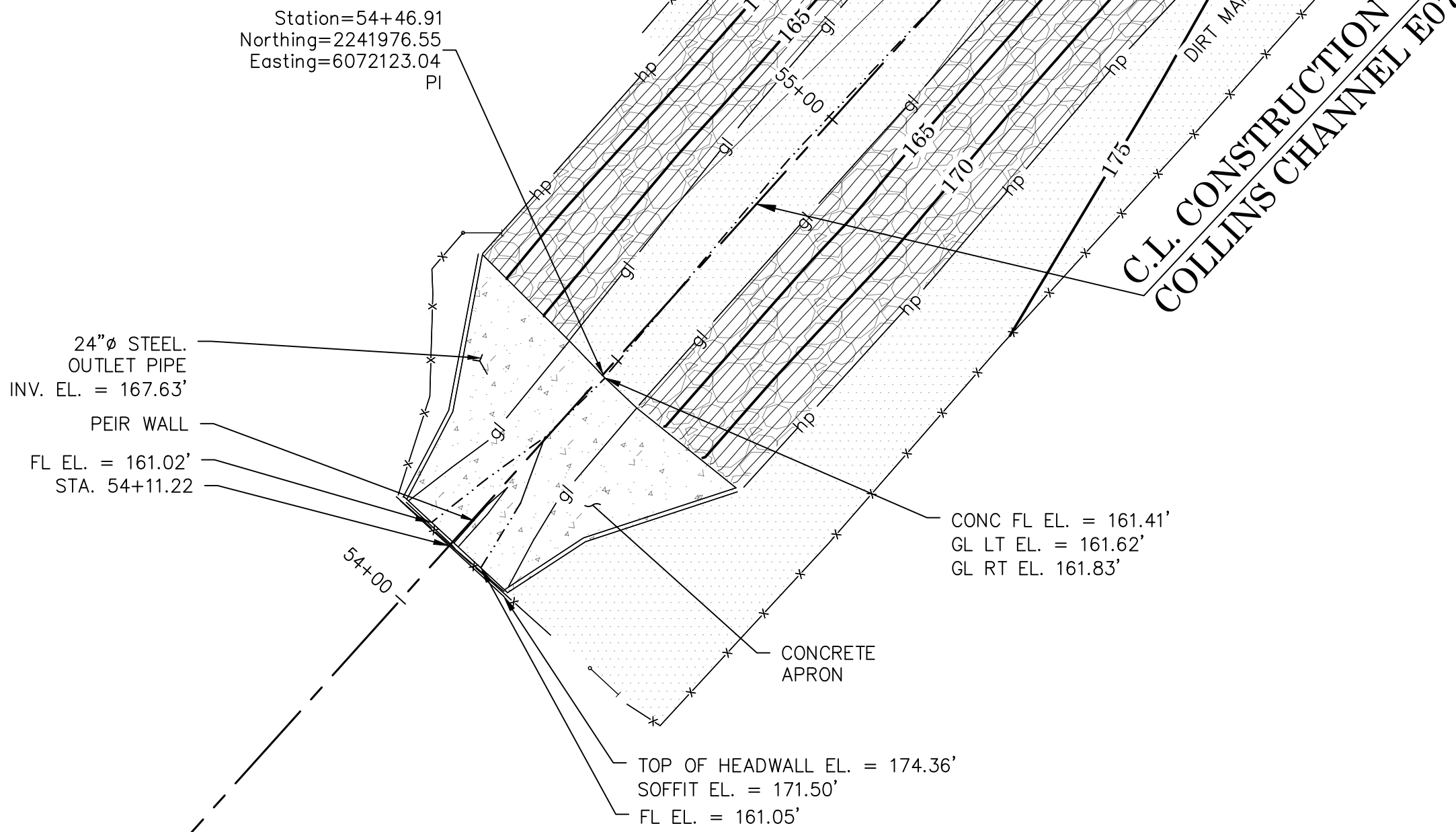
U.S. Survey Foot

OC Public Works/Engineering Services
OC Survey/Field Services
Boundary Analysis & Mapping



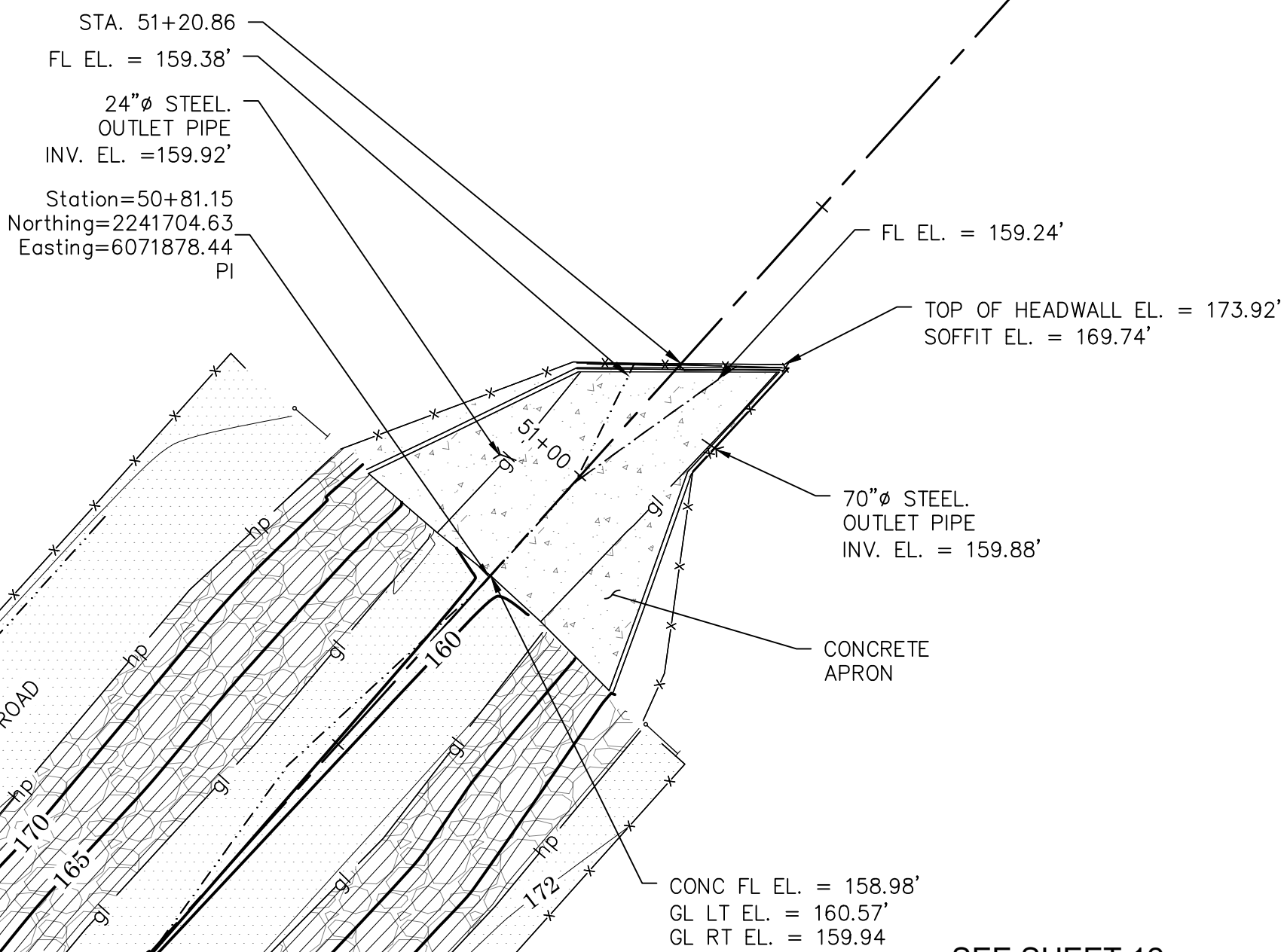
			COUNTY OF ORANGE				SHEET NO. 12 of 21
			OC PUBLIC WORKS/ENGINEERING SERVICES				
			OC SURVEY/FIELD SERVICES/BOUNDARY ANALYSIS & MAPPING				
			COLLINS CHANNEL (E07)				
			SLOPE MAINTENANCE PROJECT				
			TOPOGRAPHIC MAP				
			FROM: SANTA ANA RIVER (E01) CONFLUENCE				
			TO: GLASSELL ST				
			DATE OF SURVEY: SEPTEMBER, 2018		BY: RUSSO & PARTY		
			TOPOGRAPHIC MAPPING		BY: M. AUSTRIA / H. AFTIM		
MARK	DATE	ITEM	OFFICE CHECK		BY: M. KUBISTY, PLS		
			FIELD CHECK		BY: RUSSO & PARTY		
			SCALE: 1" = 20' W.O. #EF21225		FILE NO.		
			FILE: COLLINS CHANNEL_TOPO_2019.DWG				
REVISIONS							

SEE SHEET 14



SEE SHEET 9

W KATELLA AVE



SEE SHEET 12

LEGEND

SYMBOL PATTERN KEY

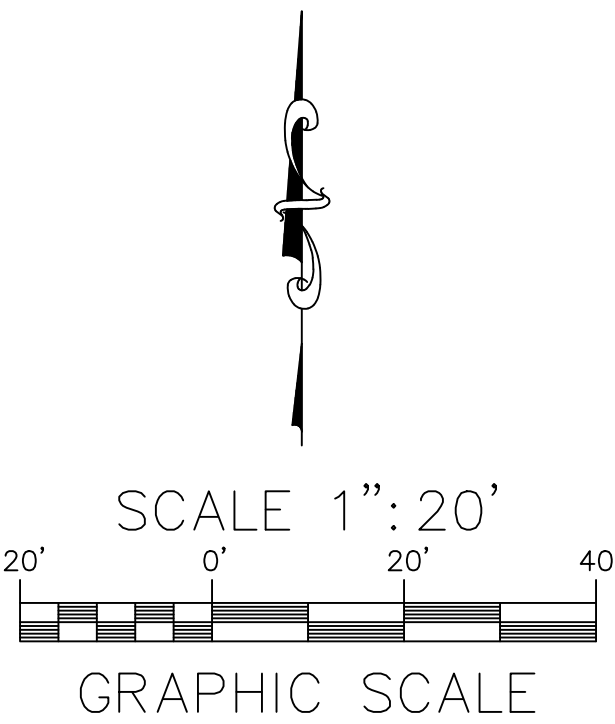
DGT	Gate, Double
SGT	Gate, single
GYA	Guy Anchor
MHHUN	Manhole - Undefined
MWL	Monitoring Well
PBXEL	Pullbox - Electrical
PBXUN	Pullbox - Undefined
PCN	Pier Column
PPI/PPO	Pipe Inlet / Pipe Outlet
PST	Post
UG1	Utility Pole
VLTEL	Vault - Electrical
VLTUN	Vault - Undefined
VLTWA	Vault - Water
VPP	Vent Pipe
VLVWA	Water Valve

LINE PATTERN KEY

Centerline
Edge of Asphalt Pavement
Edge of Concrete Pavement
Fence - Chain Link
Flowline
Gradeline
Head Wall
Hinge Point
Lot Line
Right of Way
Block Wall
Retaining Wall
Wall as Noted

AREA PATTERN KEY

Concrete
Dirt
Gravel / Rip Rap



U.S. Survey
Foot

OC Public Works/Engineering Services
OC Survey/Field Services
Boundary Analysis & Mapping

COUNTY OF ORANGE
OC PUBLIC WORKS/ENGINEERING SERVICES
OC SURVEY/FIELD SERVICES/BOUNDARY ANALYSIS & MAPPING

COLLINS CHANNEL (E07) SLOPE MAINTENANCE PROJECT

TOPOGRAPHIC MAP

FROM: SANTA ANA RIVER (E01) CONFLUENCE

TO: GLASSSELL ST

DATE OF SURVEY: SEPTEMBER, 2018

TOPOGRAPHIC MAPPING

OFFICE CHECK

FIELD CHECK

SCALE: 1" = 20' W.O. #F21225

FILE: COLLINS_CHANNEL_TOPO_2019.DWG

BY: RUSSO & PARTY

BY: M.AUSTRIA / H. AFTIM

BY: M. KUBISTY, PLS

BY: RUSSO & PARTY

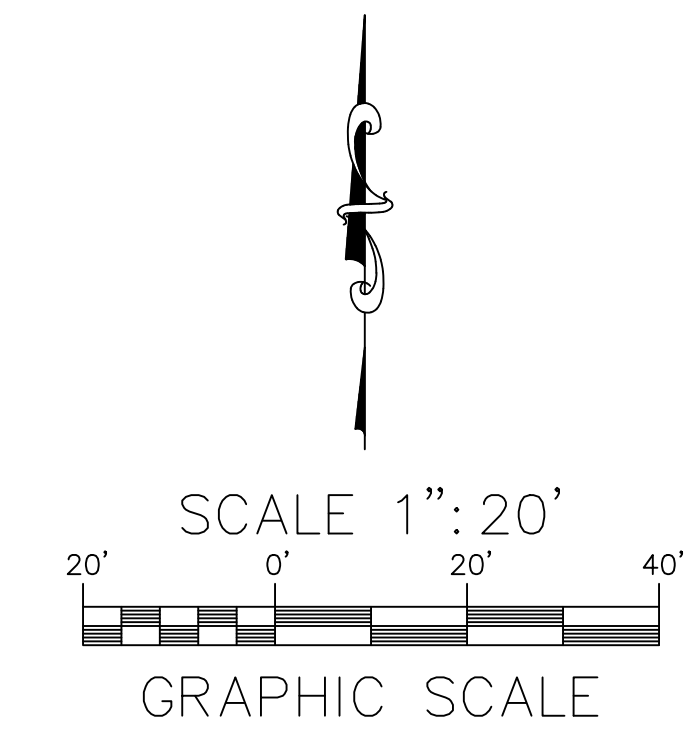
FILE NO.

SHEET NO.

13
of

21

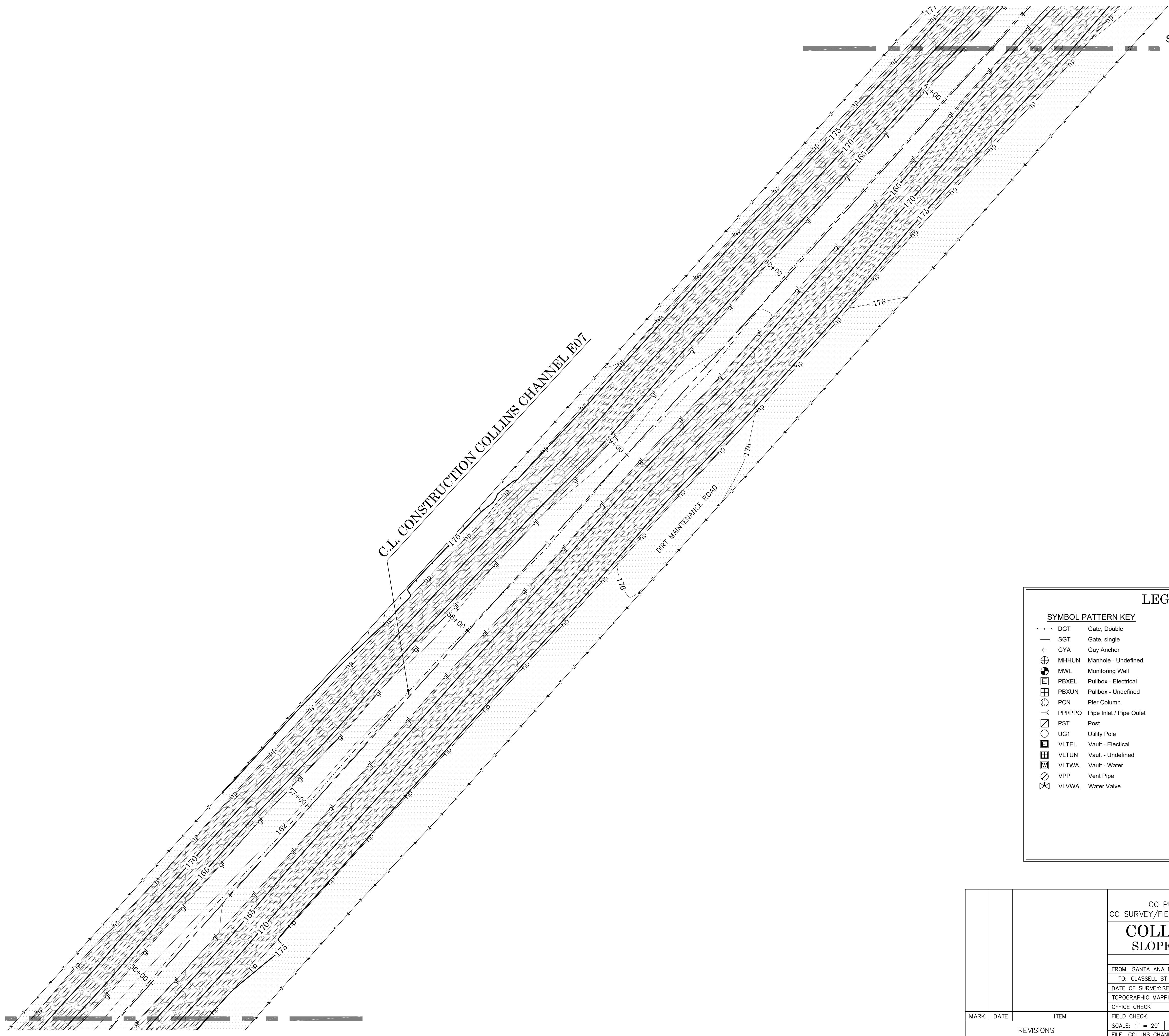
REVISIONS



U.S. Survey
Foot

OC Public Works/Engineering Services
OC Survey/Field Services
Boundary Analysis & Mapping

SEE SHEET 13



SEE SHEET 15

SYMBOL PATTERN KEY		LINE PATTERN KEY	
DGT	Gate, Double	Centerline	
SGT	Gate, single	Edge of Asphalt Pavement	
GYA	Guy Anchor	Edge of Concrete Pavement	
MHHUN	Manhole - Undefined	Fence - Chain Link	
MWL	Monitoring Well	Flowline	
PBXEL	Pullbox - Electrical	Gradeline	
PBXUN	Pullbox - Undefined	Head Wall	
PCN	Pier Column	Hinge Point	
PPI/PPO	Pipe Inlet / Pipe Outlet	Lot Line	
PST	Post	R/W	Right of Way
UG1	Utility Pole	Block Wall	
VLTEL	Vault - Electrical	Retaining Wall	
VLTUN	Vault - Undefined	Wall as Noted	
VLTWA	Vault - Water		
VPP	Vent Pipe		
VLVWA	Water Valve		
		AREA PATTERN KEY	
		Concrete	
		Dirt	
		Gravel / Rip Rap	

		COUNTY OF ORANGE OC PUBLIC WORKS/ENGINEERING SERVICES OC SURVEY/FIELD SERVICES/BOUNDARY ANALYSIS & MAPPING	
		COLLINS CHANNEL (E07) SLOPE MAINTENANCE PROJECT	
		TOPOGRAPHIC MAP	
		FROM: SANTA ANA RIVER (E01) CONFLUENCE	
		TO: GLASSELL ST	
		DATE OF SURVEY: SEPTEMBER, 2018	BY: RUSSO & PARTY
		TOPOGRAPHIC MAPPING	BY: M. AUSTRIA / H. AFTIM
		OFFICE CHECK	BY: M. KUBISTY, PLS
		FIELD CHECK	BY: RUSSO & PARTY
		SCALE: 1" = 20'	W.O. #EF21225
		FILE: COLLINS_CHANNEL_TOPO_2019.DWG	FILE NO.
MARK	DATE	ITEM	
REVISIONS			
			SHEET NO. 14 of 21

SEE SHEET 16

42"Ø STEEL
OUTLET PIPE
INV. EL. = 165.39'

CONC FL EL. = 164.96'

TOP OF HEADWALL EL. = 179.59'

24"Ø STEEL
OUTLET PIPE
INV. EL. = 170.08'

C.L. CONSTRUCTION COLLINS CHANNEL E07

DIRT MAINTENANCE ROAD

DIRT MAINTENANCE ROAD

LEGEND

SYMBOL PATTERN KEY

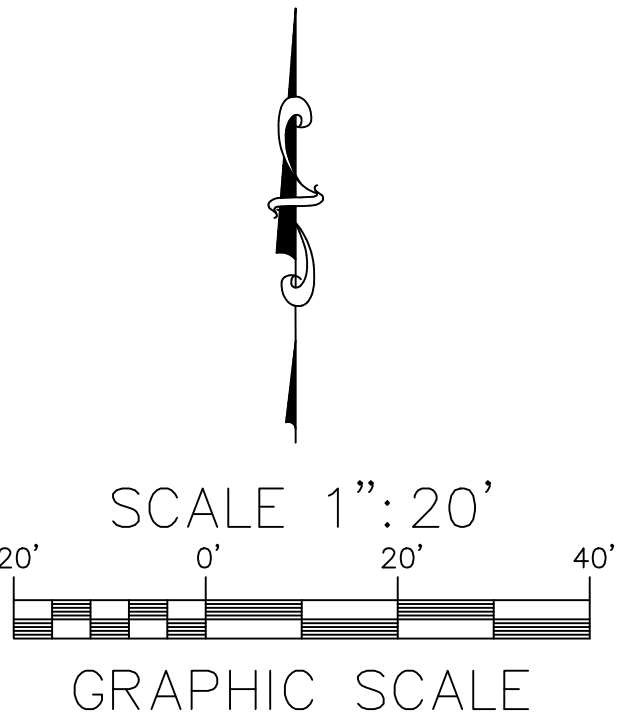
- DGT Gate, Double
- SGT Gate, single
- GYA Guy Anchor
- MHHUN Manhole - Undefined
- MWL Monitoring Well
- PBXEL Pullbox - Electrical
- PBXUN Pullbox - Undefined
- PCN Pier Column
- PPI/PPO Pipe Inlet / Pipe Outlet
- PST Post
- UG1 Utility Pole
- VLTEL Vault - Electrical
- VLTUN Vault - Undefined
- VLTVW Vault - Water
- VPP Vent Pipe
- VLVWA Water Valve

LINE PATTERN KEY

- Centerline
- Edge of Asphalt Pavement
- Edge of Concrete Pavement
- Fence - Chain Link
- Flowline
- Graseline
- Head Wall
- Hinge Point
- Lot Line
- Right of Way
- Block Wall
- Retaining Wall
- Wall as Noted

AREA PATTERN KEY

- Concrete
- Dirt
- Gravel / Rip Rap



U.S. Survey
Foot

OC Public Works/Engineering Services
OC Survey/Field Services
Boundary Analysis & Mapping

SEE SHEET 14

COUNTY OF ORANGE OC PUBLIC WORKS/ENGINEERING SERVICES OC SURVEY/FIELD SERVICES/BOUNDARY ANALYSIS & MAPPING			
COLLINS CHANNEL (E07) SLOPE MAINTENANCE PROJECT			
TOPOGRAPHIC MAP			
FROM: SANTA ANA RIVER (E01) CONFLUENCE			
TO: GLASSSELL ST			
DATE OF SURVEY: SEPTEMBER, 2018	BY: RUSSO & PARTY	SHEET NO. 15 of 21	
TOPOGRAPHIC MAPPING	BY: M. AUSTRIA / H. AFTIM		
OFFICE CHECK	BY: M. KUBISTY, PLS		
FIELD CHECK	BY: RUSSO & PARTY		
SCALE: 1" = 20'	W.O. #EF21225		
FILE: COLLINS_CHANNEL_TOPO_2019.DWG	FILE NO.		

MARK	DATE	ITEM
REVISIONS		

20'

0'

20'

40'

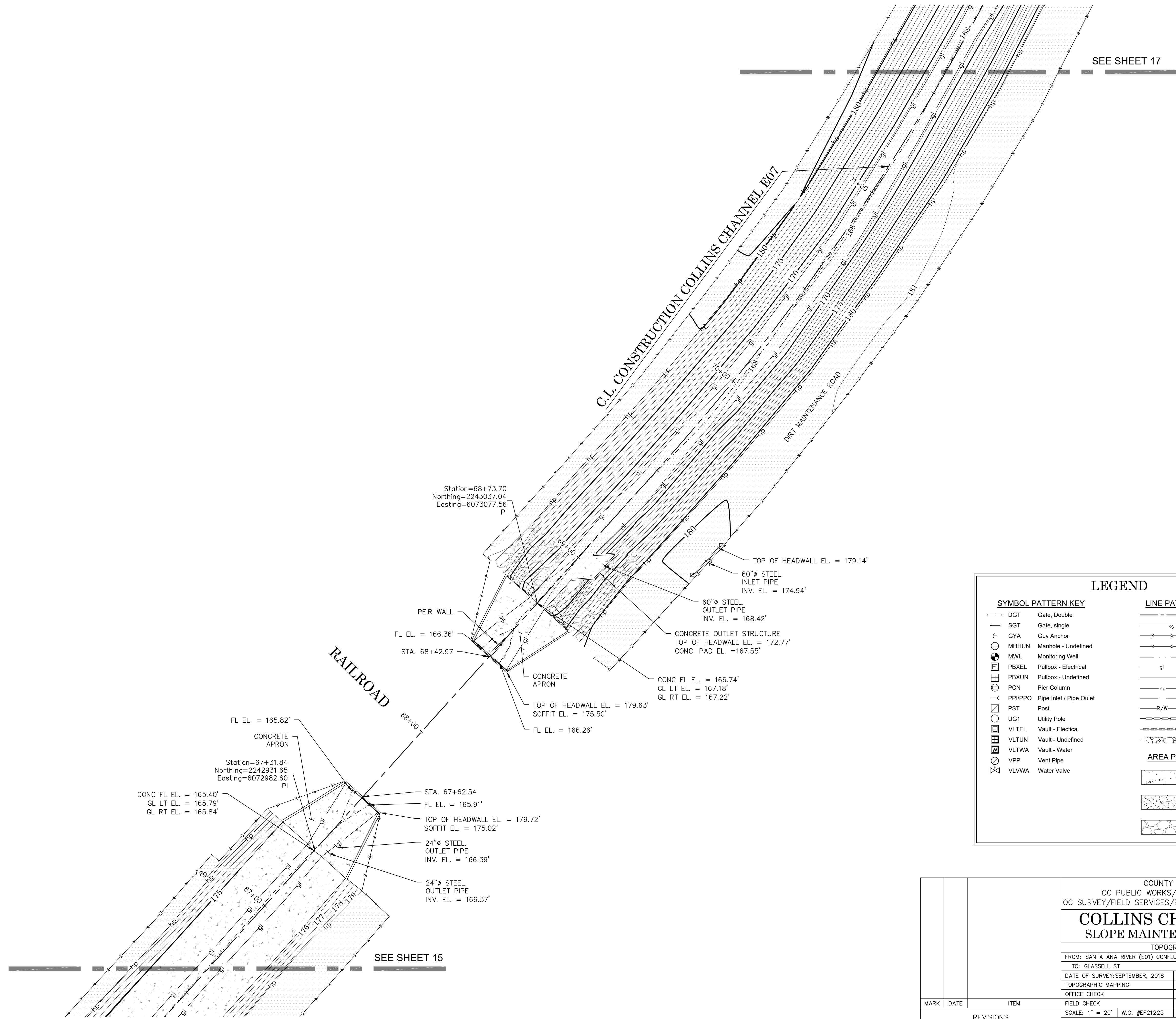
SCALE 1"=20'

GRAPHIC SCALE

U.S. Survey

Foot

OC Public Works/Engineering Services
OC Survey/Field Services
Boundary Analysis & Mapping



LEGEND

SYMBOL PATTERN KEY

DGT

Gate, Double

SGT

Gate, single

GYA

Guy Anchor

MHHUN

Manhole - Undefined

MWL

Monitoring Well

PBXEL

Pullbox - Electrical

PBXUN

Pullbox - Undefined

PCN

Pier Column

PPI/PPO

Pipe Inlet / Pipe Outlet

PST

Post

UG1

Utility Pole

VLTEL

Vault - Electrical

VLTUN

Vault - Undefined

VLTWA

Vault - Water

VPP

Vent Pipe

VLVWA

Water Valve

LINE PATTERN KEY

Centerline

Edge of Asphalt Pavement

Edge of Concrete Pavement

Fence - Chain Link

Flowline

Graseline

Head Wall

Hinge Point

Lot Line

Right of Way

Block Wall

Retaining Wall

Wall as Noted

AREA PATTERN KEY

Concrete

Dirt

Gravel / Rip Rap

				COUNTY OF ORANGE OC PUBLIC WORKS/ENGINEERING SERVICES OC SURVEY/FIELD SERVICES/BOUNDARY ANALYSIS & MAPPING	
				COLLINS CHANNEL (E07) SLOPE MAINTENANCE PROJECT	
				TOPOGRAPHIC MAP	
				FROM: SANTA ANA RIVER (E01) CONFLUENCE	
				TO: GLASSELL ST	
		DATE OF SURVEY: SEPTEMBER, 2018		BY: RUSSO & PARTY	SHEET NO. 16 of 21
		TOPOGRAPHIC MAPPING		BY: M.AUSTRIA / H. AFTIM	
		OFFICE CHECK		BY: M. KUBISTY, PLS	
		FIELD CHECK		BY: RUSSO & PARTY	
		SCALE: 1" = 20'		W.O. #CF21225	FILE NO.
				FILE: COLLINS_CHANNEL_TOPO_2019.DWG	
MARK	DATE	ITEM			
REVISIONS					

SEE SHEET 18

C.L. CONSTRUCTION COLLINS CHANNEL E07

DIRT MAINTENANCE ROAD

18"Ø STEEL
OUTLET PIPE
INV. EL. 170.54'

CONCRETE OUTLET STRUCTURE
TOP OF HEADWALL EL. = 173.22'
CONC. PAD EL. =169.63'

30"Ø STEEL
OUTLET PIPE
INV. EL. 170.30'

18"Ø STEEL
OUTLET PIPE
INV. EL. 168.91'

CONCRETE OUTLET STRUCTURE
TOP OF HEADWALL EL. = 173.04'
CONC. PAD EL. =168.61'

LEGEND

SYMBOL PATTERN KEY

DGT	Gate, Double
SGT	Gate, single
GYA	Guy Anchor
MHHUN	Manhole - Undefined
MWL	Monitoring Well
PBXEL	Pullbox - Electrical
PBXUN	Pullbox - Undefined
PCN	Pier Column
PPI/PPO	Pipe Inlet / Pipe Outlet
PST	Post
UG1	Utility Pole
VLTEL	Vault - Electrical
VLTUN	Vault - Undefined
VLTWA	Vault - Water
VPP	Vent Pipe
VLVWA	Water Valve

LINE PATTERN KEY

Centerline
Edge of Asphalt Pavement
Edge of Concrete Pavement
Fence - Chain Link
Flowline
Gradeline
Head Wall
Hinge Point
Lot Line
Right of Way
Block Wall
Retaining Wall
Wall as Noted

AREA PATTERN KEY

Concrete
Dirt
Gravel / Rip Rap

SCALE 1"=20'



GRAPHIC SCALE

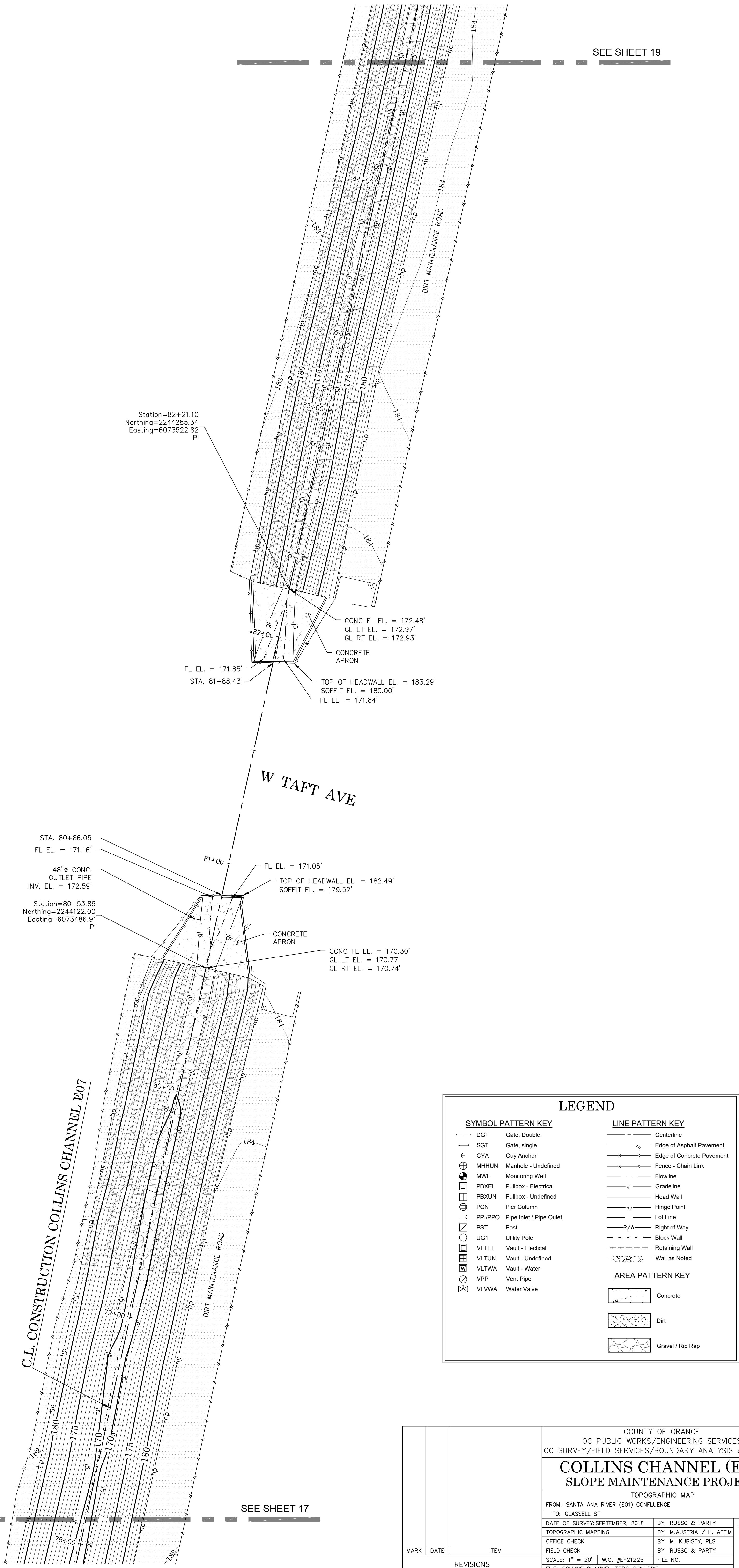
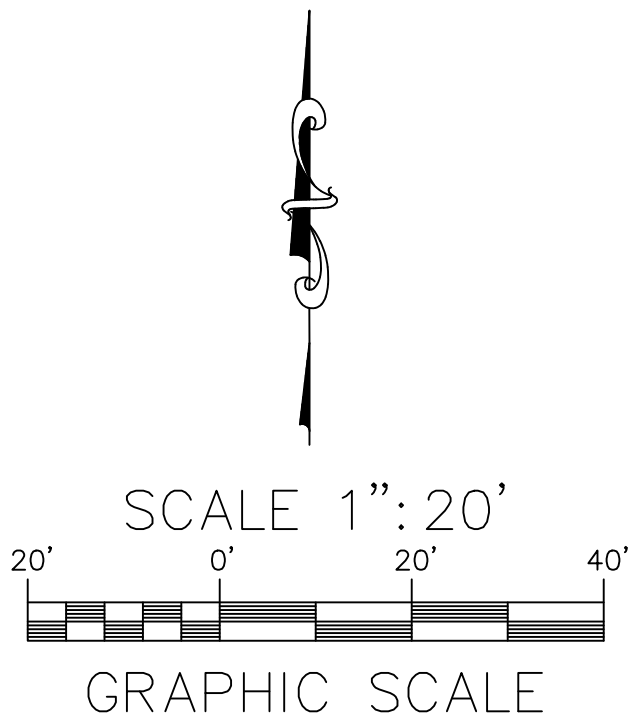
U.S. Survey
Foot

OC Public Works/Engineering Services
OC Survey/Field Services
Boundary Analysis & Mapping

SEE SHEET 16

COUNTY OF ORANGE OC PUBLIC WORKS/ENGINEERING SERVICES OC SURVEY/FIELD SERVICES/BOUNDARY ANALYSIS & MAPPING			
COLLINS CHANNEL (E07) SLOPE MAINTENANCE PROJECT			
TOPOGRAPHIC MAP			
FROM: SANTA ANA RIVER (E01) CONFLUENCE			
TO: GLASSSELL ST			
DATE OF SURVEY: SEPTEMBER, 2018	BY: RUSSO & PARTY	SHEET NO. 17 of 21	
TOPOGRAPHIC MAPPING	BY: M.AUSTRIA / H. AFTIM		
OFFICE CHECK	BY: M. KUBISTY, PLS		
FIELD CHECK	BY: RUSSO & PARTY		
SCALE: 1" = 20'	W.O. #EF21225	FILE NO.	
FILE: COLLINS_CHANNEL_TOPO_2019.DWG			

MARK	DATE	ITEM
REVISIONS		



			COUNTY OF ORANGE OC PUBLIC WORKS/ENGINEERING SERVICES OC SURVEY/FIELD SERVICES/BOUNDARY ANALYSIS & MAPPING				
			COLLINS CHANNEL (E07) SLOPE MAINTENANCE PROJECT				
			TOPOGRAPHIC MAP				
			FROM: SANTA ANA RIVER (E01) CONFLUENCE				
			TO: GLASSELL ST				
			DATE OF SURVEY: SEPTEMBER, 2018		BY: RUSSO & PARTY		SHEET NO. 18 of 21
			TOPOGRAPHIC MAPPING		BY: M. AUSTRIA / H. AFTIM		
			OFFICE CHECK		BY: M. KUBISTY, PLS		
			FIELD CHECK		BY: RUSSO & PARTY		
			SCALE: 1" = 20'		W.O. #EF21225		
MARK	DATE	ITEM	FILE NO.				
REVISIONS			FILE: COLLINS_CHANNEL_TOPO_2019.DWG				

C.L. CONSTRUCTION COLLINS CHANNEL E07

SEE SHEET 20

18" Ø STEEL
OUTLET PIPE
INV. EL. = 181.82'

DIRT MAINTENANCE ROAD

30" Ø STEEL
OUTLET PIPE
INV. EL. = 176.79'

DIRT MAINTENANCE ROAD

30" Ø STEEL
OUTLET PIPE
INV. EL. = 175.03'

LEGEND

SYMBOL PATTERN KEY

- DGT Gate, Double
- SGT Gate, single
- GYA Guy Anchor
- MHHUN Manhole - Undefined
- MWL Monitoring Well
- PBXEL Pullbox - Electrical
- PBXUN Pullbox - Undefined
- PCN Pier Column
- PPI/PPO Pipe Inlet / Pipe Outlet
- PST Post
- UG1 Utility Pole
- VLTTEL Vault - Electrical
- VLTUN Vault - Undefined
- VLTWA Vault - Water
- VPP Vent Pipe
- VLVWA Water Valve

LINE PATTERN KEY

- Centerline
- Edge of Asphalt Pavement
- Edge of Concrete Pavement
- Fence - Chain Link
- Flowline
- Gradeline
- Head Wall
- Hinge Point
- Lot Line
- Right of Way
- Block Wall
- Retaining Wall
- Wall as Noted

AREA PATTERN KEY

- Concrete
- Dirt
- Gravel / Rip Rap

SCALE 1" = 20'

GRAPHIC SCALE

U.S. Survey
Foot

OC Public Works/Engineering Services
OC Survey/Field Services
Boundary Analysis & Mapping

SEE SHEET 18

COLLINS CHANNEL (E07)
SLOPE MAINTENANCE PROJECT

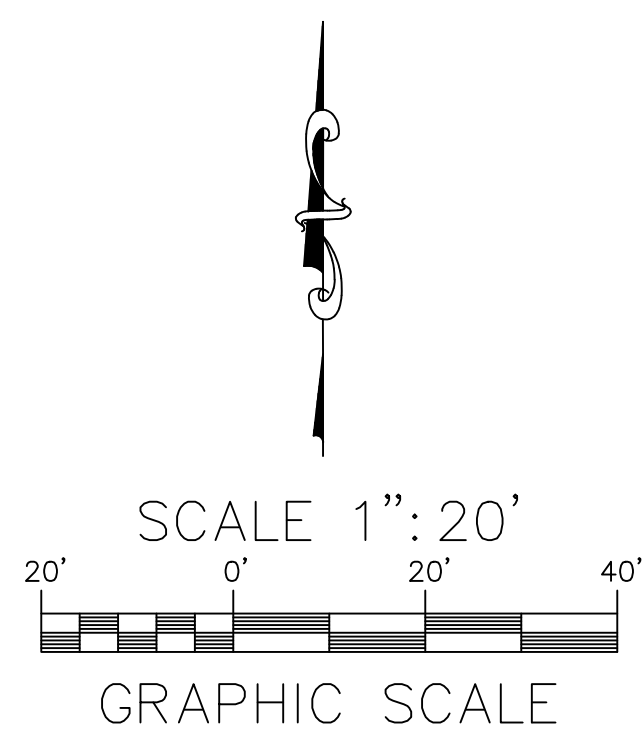
TOPOGRAPHIC MAP
FROM: SANTA ANA RIVER (E01) CONFLUENCE
TO: GLASSSELL ST.

DATE OF SURVEY: SEPTEMBER, 2018
TOPOGRAPHIC MAPPING
OFFICE CHECK
FIELD CHECK
SCALE: 1" = 20'
W.O. #EF21225
FILE NO.

BY: RUSSO & PARTY
BY: M. AUSTRIA / H. AFTIM
BY: M. KUBISTY, PLS
BY: RUSSO & PARTY

SHEET NO.
19
of
21

REVISIONS



U.S. Survey Foot

OC Public Works/Engineering Services
OC Survey/Field Services
Boundary Analysis & Mapping

SEE SHEET 19

18" Ø STEEL
OUTLET PIPE
INV. EL. = 181.82'

C.I. CONSTRUCTION COLLINS CHANNEL E07

STA. 92+99.98
FL EL. = 176.89'
Station=92+69.69
Northing=2245239.33
Easting=6073907.61
PCC

W BLUERIDGE AVE

PEIR WALL
FL EL. = 177.00'
STA. 93+60.12

18" Ø STEEL
OUTLET PIPE
INV. EL. 182.63'
Station=93+90.48
Northing=2245317.90
Easting=6073999.26
PCC

93+00
FL EL. = 176.88'
TOP OF HEADWALL EL. = 189.03'
SOFFIT EL. = 185.60'
FL EL. = 177.37'
TOP OF HEADWALL EL. = 188.78'
SOFFIT EL. = 185.20'

CONC FL EL. = 176.59'
GL LT EL. = 177.10'
GL RT EL. = 177.06'

30" Ø STEEL
OUTLET PIPE
INV. EL. = 177.84'

CONC FL EL. = 177.17'
GL LT EL. = 177.62'
GL RT EL. = 177.60'

CONCRETE APRON

DIRT MAINTENANCE ROAD

48" Ø STEEL
OUTLET PIPE
INV. EL. = 179.51'

SEE SHEET 21

LEGEND

SYMBOL PATTERN KEY

- DGT Gate, Double
- SGT Gate, single
- GYA Guy Anchor
- MHHUN Manhole - Undefined
- MWL Monitoring Well
- PBXEL Pullbox - Electrical
- PBXUN Pullbox - Undefined
- PCN Pier Column
- PPI/PPO Pipe Inlet / Pipe Outlet
- PST Post
- UG1 Utility Pole
- VLTEL Vault - Electrical
- VLTUN Vault - Undefined
- VLTWA Vault - Water
- VPP Vent Pipe
- VLVWA Water Valve

LINE PATTERN KEY

- Centerline
- Edge of Asphalt Pavement
- Edge of Concrete Pavement
- Fence - Chain Link
- Flowline
- Gradeline
- Head Wall
- Hinge Point
- Lot Line
- Right of Way
- Block Wall
- Retaining Wall
- Wall as Noted

AREA PATTERN KEY

- Concrete
- Dirt
- Gravel / Rip Rap

COUNTY OF ORANGE
OC PUBLIC WORKS/ENGINEERING SERVICES
OC SURVEY/FIELD SERVICES/BOUNDARY ANALYSIS & MAPPING

COLLINS CHANNEL (E07) SLOPE MAINTENANCE PROJECT

TOPOGRAPHIC MAP

FROM: SANTA ANA RIVER (E01) CONFLUENCE

TO: GLASSELL ST

DATE OF SURVEY: SEPTEMBER, 2018

TOPOGRAPHIC MAPPING

OFFICE CHECK

FIELD CHECK

SCALE: 1" = 20' W.O. #EF21225

FILE: COLLINS_CHANNEL_TOPO_2019.DWG

BY: RUSSO & PARTY

BY: M.AUSTRIA / H. AFTM

BY: M. KUBISTY, PLS

BY: RUSSO & PARTY

FILE NO.

SHEET NO.

20

of

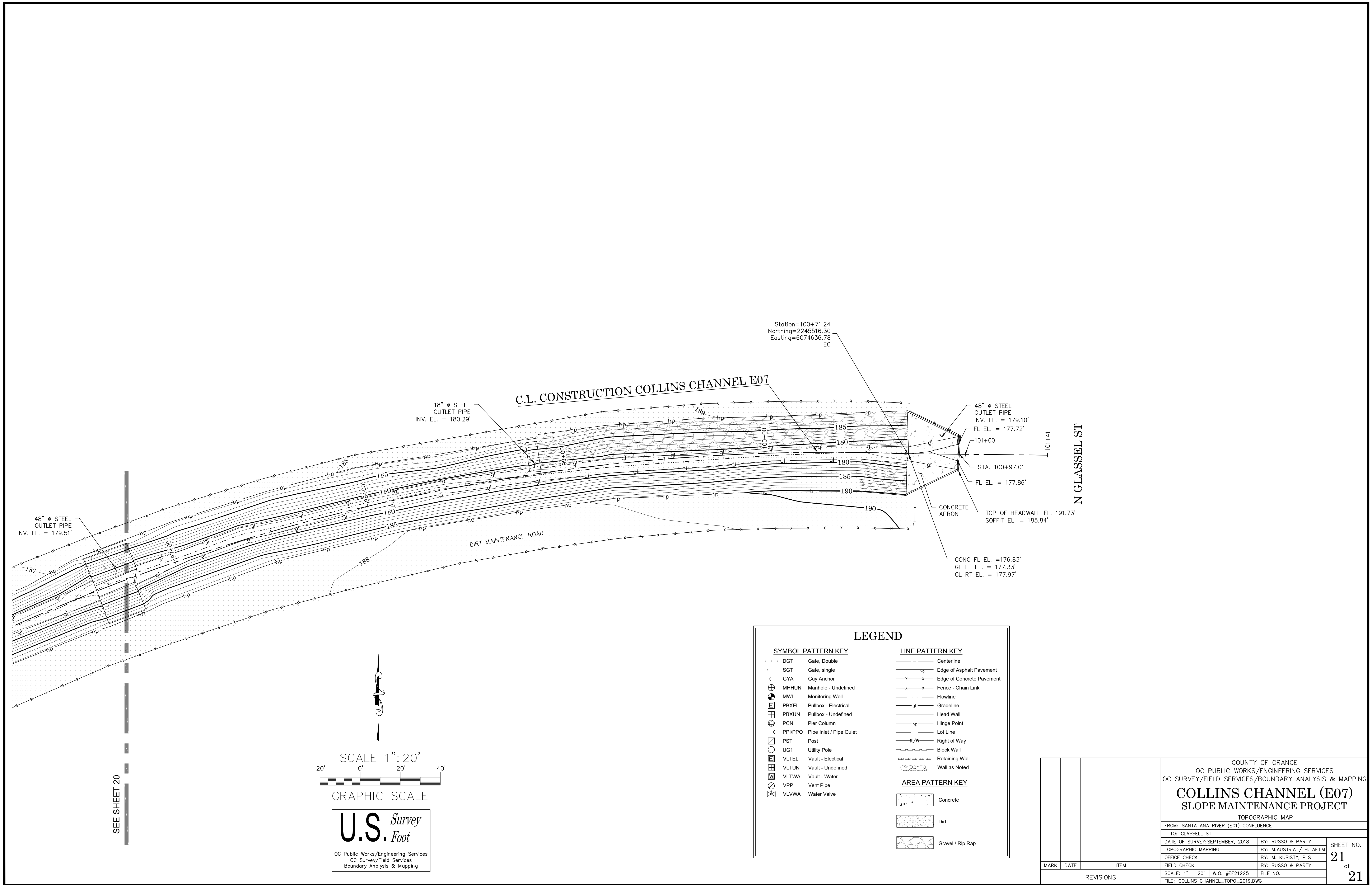
21

MARK

DATE

ITEM

REVISIONS



Station=100+71.24
Northing=2245516.30
Easting=6074636.78
EC

C.L. CONSTRUCTION COLLINS CHANNEL E07

18" Ø STEEL
OUTLET PIPE
INV. EL. = 180.29'

48" Ø STEEL
OUTLET PIPE
INV. EL. = 179.51'

48" Ø STEEL
OUTLET PIPE
INV. EL. = 179.10'

FL EL. = 177.72'

101+00

STA. 100+97.01

FL EL. = 177.86'

CONCRETE
APRON

TOP OF HEADWALL EL. 191.73'

SOFFIT EL. = 185.84'

CONC FL EL. =176.83'

GL LT EL. = 177.33'

GL RT EL. = 177.97'

N GLASSELL ST

LEGEND

SYMBOL PATTERN KEY

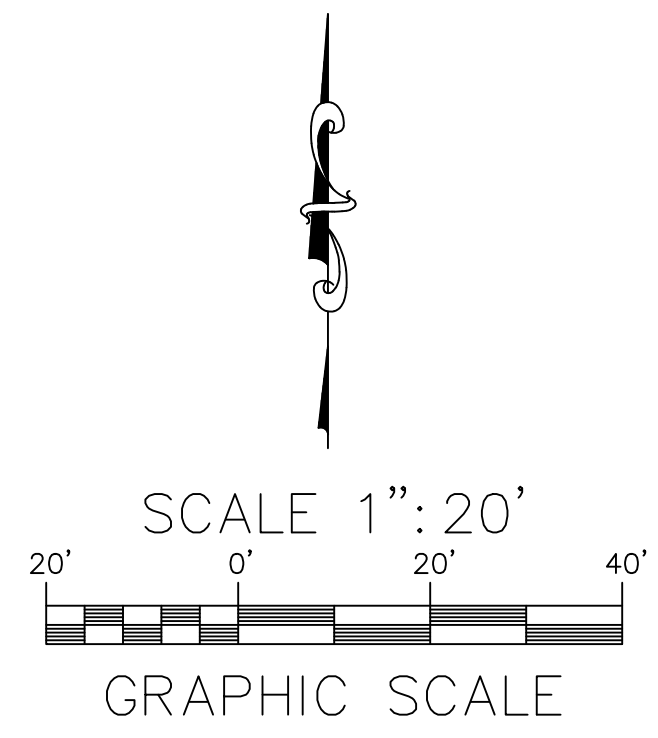
- DGT Gate, Double
- SGT Gate, single
- GYA Guy Anchor
- MHHUN Manhole - Undefined
- MWL Monitoring Well
- PBXEL Pullbox - Electrical
- PBXUN Pullbox - Undefined
- PCN Pier Column
- PPI/PPO Pipe Inlet / Pipe Outlet
- PST Post
- UG1 Utility Pole
- VLTEL Vault - Electrical
- VLTUN Vault - Undefined
- VLTTWA Vault - Water
- VPP Vent Pipe
- VLVWA Water Valve

LINE PATTERN KEY

- Centerline
- Edge of Asphalt Pavement
- Edge of Concrete Pavement
- Fence - Chain Link
- Flowline
- Gradeline
- Head Wall
- Hinge Point
- Lot Line
- Right of Way
- Block Wall
- Retaining Wall
- Wall as Noted

AREA PATTERN KEY

- Concrete
- Dirt
- Gravel / Rip Rap



U.S. Survey
Foot
OC Public Works/Engineering Services
OC Survey/Field Services
Boundary Analysis & Mapping

COUNTY OF ORANGE OC PUBLIC WORKS/ENGINEERING SERVICES OC SURVEY/FIELD SERVICES/BOUNDARY ANALYSIS & MAPPING			
COLLINS CHANNEL (E07) SLOPE MAINTENANCE PROJECT			
TOPOGRAPHIC MAP			
FROM: SANTA ANA RIVER (E01) CONFLUENCE			
TO: GLASSELL ST			
DATE OF SURVEY: SEPTEMBER, 2018	BY: RUSSO & PARTY	SHEET NO. 21 of 21	
TOPOGRAPHIC MAPPING	BY: M.AUSTRIA / H. AFTIM		
OFFICE CHECK	BY: M. KUBISTY, PLS		
FIELD CHECK	BY: RUSSO & PARTY		
SCALE: 1" = 20'	W.O. #EF21225	FILE NO.	
FILE: COLLINS_CHANNEL_TOPO_2019.DWG			

MARK	DATE	ITEM
REVISIONS		