Oversight / NHS	
FHWA REGION VIII OVERSIGHT?	■ NO ☐ YES
NATIONAL HIGHWAY SYSTEM?	■ NO ☐ YES

DEPARTMENT OF TRANSPORTATION
STATE OF COLORADO
CONSTRUCTION BID PLANS
FEDERAL AID PROJECT NO. STM 110-081
CITY OF BOULDER PROJECT NO. 41-2015
WONDERLAND CREEK
GREENWAYS IMPROVEMENT PROJECT
WINDING TRAIL DRIVE TO FOOTHILLS PARKWAY (SH 157)
CITY OF BOULDER, BOULDER COUNTY
JUNE, 2015

Know what's **below**
Call before you dig.

Related Projects:
P. E. UNDER PROJECT:
Project Code: 19748

R.O.W. Projects:
R.O.W. Project Description:
STM M110-081 18405
AQC M110-087 19748

Contract Information

Contractor:	
Resident Engineer:	
Project Engineer:	
PROJECT STARTED: __/__/__	ACCEPTED: __/__/__
Comments:	

FOR CONSTRUCTION

VOLUME 2 OF 2

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1.01 - 8.01	(18 SHEETS)	PROPOSED PROJECT NO. AQC M110-087

* THE PLANS DO NOT INCLUDE A WALL 6 PLAN AND PROFILE

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AutoCAD 2014	Scale: AS SHOWN

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CONSULTING ENGINEERS
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MULLER
MEC PROJECT NO. 11039.03

COLORADO REGISTERED CHRISTOPHER L. KRAGENBRINK 37254 PROFESSIONAL ENGINEER 6/18/15

Sheet Revisions		
Date:	Comments	Init.

As Constructed
No Revisions:
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Region 4 RDM

CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
TITLE SHEET

Designer:	CLK	Structure Numbers	
Detailer:	JHK		
Sheet Subset:	GENERAL	Subset Sheets:	G-1A

Project No./Code
STM 110-081
18405
Sheet Number: 213

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NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH -FINAL DESIGN\CAD\11-039.03_COVER.DWG

TRAIL HORIZONTAL CONTROL CURVE TABLE

CURVE #	RADIUS	LENGTH	CHORD DIRECTION	START STATION	START NORTHING	START EASTING	END STATION	END NORTHING	END EASTING
TC1	44.00	129.68	N70° 10' 05.04"W	0+00.00	255585.42	72230.29	1+29.68	255615.14	72147.90
TC2	44.00	60.87	N25° 22' 38.44"W	1+29.68	255615.14	72147.90	1+90.54	255665.85	72123.85
TC3	60.00	91.77	S71° 10' 29.41"W	2+37.34	255685.62	72081.43	3+29.12	255658.81	72002.79
TC4	60.00	186.23	N63° 43' 35.83"W	3+81.90	255611.94	71978.53	5+68.13	255665.04	71870.95
TC5	75.00	58.52	N02° 50' 23.24"E	5+68.13	255665.04	71870.95	6+26.64	255722.02	71873.78
TC6	65.00	52.97	N03° 50' 10.84"E	6+26.64	255722.02	71873.78	6+79.62	255773.42	71877.22
TC7	65.00	100.77	N17° 13' 45.79"W	6+79.62	255773.42	71877.22	7+80.39	255860.32	71850.28
TC8	60.00	74.04	N26° 17' 26.60"W	8+52.28	255894.46	71787.01	9+26.32	255956.71	71756.26
TC9	65.00	78.39	N25° 29' 20.31"W	9+51.95	255982.03	71760.30	10+30.34	256048.58	71728.57
TC10	65.00	47.62	N39° 03' 03.90"W	10+30.34	256048.58	71728.57	10+77.96	256084.74	71699.23
TC11	305.00	105.78	N27° 59' 55.03"W	10+77.96	256084.74	71699.23	11+83.75	256177.67	71649.82
TC12	250.00	42.31	N33° 05' 08.96"W	11+83.75	256177.67	71649.82	12+26.06	256213.08	71626.75
TC13	200.00	10.98	N29° 48' 34.33"W	12+79.79	256260.42	71601.33	12+90.77	256269.94	71595.87
TC14	500.00	116.65	N38° 03' 56.10"W	14+36.15	256394.06	71520.17	15+52.80	256485.69	71448.41
TC15	205.00	134.01	N63° 28' 37.20"W	15+52.80	256485.69	71448.41	16+86.82	256544.48	71330.62
TC16	205.00	45.65	N75° 49' 32.16"W	17+02.54	256546.61	71315.05	17+48.19	256557.76	71270.88
TC17	85.00	30.34	N79° 40' 19.53"W	17+48.19	256557.76	71270.88	17+78.53	256563.17	71241.19
TC18	60.00	48.33	S67° 37' 38.68"W	0+00.00	255607.81	71874.30	0+48.33	255589.91	71830.81
TC19	85.00	77.80	N58° 56' 17.53"E	0+00.00	255716.22	71875.57	0+77.80	255754.97	71939.91
TC20	216.50	121.12	N48° 44' 44.33"E	0+77.80	255754.97	71939.91	1+98.92	255833.80	72029.78
TC21	120.00	68.51	N48° 25' 02.22"E	1+98.92	255833.80	72029.78	2+67.43	255878.66	72080.34
TC22	60.00	50.82	N07° 47' 44.82"E	2+67.43	255878.66	72080.34	3+18.25	255927.52	72087.03
TC23	150.00	69.49	N77° 05' 38.59"W	1+61.56	256612.60	70028.50	2+31.05	256627.98	69961.37
TC24	125.00	76.65	N46° 15' 20.78"W	2+31.05	256627.98	69961.37	3+07.70	256680.16	69906.86
TC25	60.00	15.79	N21° 09' 03.86"W	3+24.21	256694.64	69898.93	3+40.00	256709.32	69893.25
TC26	250.00	62.92	N70° 15' 02.71"W	0+00.00	257146.61	69536.74	0+62.92	257167.81	69477.67
TC27	100.00	52.99	N47° 51' 36.71"W	0+62.92	257167.81	69477.67	1+15.91	257202.95	69438.84
TC28	80.00	40.29	N47° 06' 30.63"W	1+36.45	257220.24	69427.75	1+76.74	257247.37	69398.54

TRAIL HORIZONTAL CONTROL CURVE TABLE

CURVE #	RADIUS	LENGTH	CHORD DIRECTION	START STATION	START NORTHING	START EASTING	END STATION	END NORTHING	END EASTING
TC29	300.00	84.01	N48° 31' 19.55"W	0+79.28	257222.16	69451.44	1+63.29	257277.62	69388.70
TC30	150.00	28.56	N61° 59' 55.98"W	2+24.15	257311.18	69337.92	2+52.71	257324.57	69312.74
TC31	200.00	55.03	N59° 34' 12.41"W	2+52.71	257324.57	69312.74	3+07.75	257352.35	69265.44
TC32	120.08	42.81	N61° 54' 16.05"W	3+59.75	257384.59	69224.64	4+02.56	257404.64	69187.07
TC33	100.00	15.86	N56° 13' 50.02"W	0+00.00	257284.68	69329.73	0+15.86	257293.48	69316.56
TC34	200.00	36.32	N46° 29' 05.85"W	1+30.33	257364.45	69226.74	1+66.65	257389.42	69200.44
TC35	60.00	37.17	N23° 32' 06.61"W	3+50.10	257527.28	69079.39	3+87.28	257560.82	69064.79
TC36	60.00	35.65	N22° 48' 31.64"W	4+93.01	257666.01	69054.13	5+28.66	257698.40	69040.51
TC37	500.00	57.25	N36° 33' 06.77"W	6+04.22	257756.42	68992.11	6+61.47	257802.38	68958.04
TC38	100.00	28.31	N25° 09' 39.04"W	8+76.47	257982.14	68840.09	9+04.78	258007.68	68828.09
TC39	150.00	54.82	N27° 31' 10.85"W	9+57.16	258057.76	68812.73	10+11.98	258106.11	68787.54
TC40	70.00	25.06	N23° 52' 14.13"W	0+34.37	257674.19	69066.42	0+59.43	257696.99	69056.33
TC41	15.00	15.42	N15° 50' 32.60"E	0+62.38	257699.85	69055.64	0+77.81	257714.05	69059.66
TC42	7.50	11.82	N05° 18' 05.98"E	0+02.97	257722.37	69024.38	0+14.78	257732.95	69025.36
TC43	489.50	56.04	N36° 33' 06.77"W	0+54.09	257763.14	69000.18	1+10.14	257808.14	68966.82
TC44	100.00	18.22	N28° 03' 11.15"W	1+77.93	257864.82	68929.62	1+96.15	257880.88	68921.07
TC45	60.00	15.29	N26° 43' 23.60"W	0+24.15	257951.44	68896.00	0+39.45	257965.06	68889.15
TC46	150.00	44.85	N42° 35' 26.68"W	0+95.20	258011.27	68857.95	1+40.05	258044.16	68827.71
TC47	65.00	32.92	N36° 38' 44.12"W	1+40.05	258044.16	68827.71	1+72.97	258070.30	68808.27
TC48	300.00	86.69	N09° 18' 20.04"W	0+27.74	258386.51	68611.33	1+14.43	258471.76	68597.36
TC49	70.00	82.80	N34° 54' 43.75"W	6+10.53	258967.77	68588.47	6+93.32	259031.78	68543.80
TC50	65.00	35.59	N84° 29' 00.97"W	8+62.10	259092.82	68386.45	8+97.69	259096.20	68351.47
TC51	55.00	16.52	S88° 26' 01.83"W	9+51.21	259086.75	68298.79	9+67.72	259086.30	68282.34
TC52	89.50	57.63	N64° 31' 00.45"W	10+86.11	259100.81	68164.85	11+43.73	259125.17	68113.72
TC53	50.00	64.40	S88° 13' 53.79"E	0+00.00	259106.83	68522.07	0+64.40	259104.97	68582.08
TC54	40.00	123.07	S36° 59' 01.63"E	0+64.40	259104.97	68582.08	1+87.47	259041.10	68630.18
TC55	65.00	48.33	N24° 46' 08.47"W	0+18.36	259177.15	68059.77	0+66.70	259220.03	68039.98
TC56	125.00	59.40	N17° 04' 45.29"W	0+66.70	259220.03	68039.98	1+26.09	259276.27	68022.70

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MEC PROJECT NO. 11039.03

COLORADO REGISTERED CHRISTOPHER L. KREGER 37254 6/18/15 PROFESSIONAL ENGINEER

Sheet Revisions		
Date:	Comments	Init.

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URBAN DRAINAGE AND FLOOD CONTROL DISTRICT
CDOT CO Region 4 RDM
CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
TRAIL HORIZONTAL CONTROL TABLES

Designer:	JW3	Structure Numbers	
Detailer:	NJM		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-1

Project No./Code
STM 110-081
18405
Sheet Number: 214

TRAIL HORIZONTAL CONTROL LINE TABLE

LINE #	LENGTH	DIRECTION	START STATION	START NORTHING	START EASTING	END STATION	END NORTHING	END EASTING
TL1	46.80	N65° 00' 21.08"W	1+90.54	255665.85	72123.85	2+37.34	255685.62	72081.43
TL2	52.78	S27° 21' 19.90"W	3+29.12	255658.81	72002.79	3+81.90	255611.94	71978.53
TL3	71.89	N61° 38' 35.15"W	7+80.39	255860.32	71850.28	8+52.28	255894.46	71787.01
TL4	25.63	N09° 03' 41.96"E	9+26.32	255956.71	71756.26	9+51.95	255982.03	71760.30
TL5	53.73	N28° 14' 13.42"W	12+26.06	256213.08	71626.75	12+79.79	256260.42	71601.33
TL6	145.38	N31° 22' 55.24"W	12+90.77	256269.94	71595.87	14+36.15	256394.06	71520.17
TL7	15.72	N82° 12' 17.45"W	16+86.82	256544.48	71330.62	17+02.54	256546.61	71315.05
TL8	48.47	N89° 53' 52.19"W	17+78.53	256563.17	71241.19	18+27.00	256563.26	71192.72
TL9	16.83	N89° 17' 52.11"W	0+48.33	255589.91	71830.81	0+65.16	255590.11	71813.98
TL10	161.56	S89° 38' 05.21"W	0+00.00	256613.63	70190.06	1+61.56	256612.60	70028.50
TL11	16.51	N28° 41' 19.19"W	3+07.70	256680.16	69906.86	3+24.21	256694.64	69898.93
TL12	20.54	N32° 40' 47.22"W	1+15.91	257202.95	69438.84	1+36.45	257220.24	69427.75
TL13	18.27	N61° 38' 52.17"W	1+76.74	257247.37	69398.54	1+95.01	257256.05	69382.46
TL14	79.28	N40° 29' 58.19"W	0+00.00	257161.88	69502.92	0+79.28	257222.16	69451.44
TL15	60.86	N56° 32' 40.58"W	1+63.29	257277.62	69388.70	2+24.15	257311.18	69337.92
TL16	52.00	N51° 41' 13.44"W	3+07.75	257352.35	69265.44	3+59.75	257384.59	69224.64
TL17	114.47	N51° 41' 13.44"W	0+15.86	257293.48	69316.56	1+30.33	257364.45	69226.74
TL18	183.45	N41° 17' 03.85"W	1+66.65	257389.42	69200.44	3+50.10	257527.28	69079.39
TL19	105.74	N05° 47' 08.60"W	3+87.28	257560.82	69064.79	4+93.01	257666.01	69054.13
TL20	75.55	N39° 49' 54.68"W	5+28.66	257698.40	69040.51	6+04.22	257756.42	68992.11

TRAIL HORIZONTAL CONTROL LINE TABLE

LINE #	LENGTH	DIRECTION	START STATION	START NORTHING	START EASTING	END STATION	END NORTHING	END EASTING
TL21	215.00	N33° 16' 18.85"W	6+61.47	257802.38	68958.04	8+76.47	257982.14	68840.09
TL22	52.38	N17° 02' 59.22"W	9+04.78	258007.68	68828.09	9+57.16	258057.76	68812.73
TL23	34.37	N34° 07' 39.68"W	0+00.00	257645.74	69085.70	0+34.37	257674.19	69066.42
TL24	2.95	N13° 36' 48.59"W	0+59.43	257696.99	69056.33	0+62.38	257699.85	69055.64
TL25	0.81	N45° 17' 53.80"E	0+77.81	257714.05	69059.66	0+78.61	257714.61	69060.24
TL26	2.97	N50° 10' 05.32"E	0+00.00	257720.47	69022.10	0+02.97	257722.37	69024.38
TL27	39.31	N39° 49' 54.68"W	0+14.78	257732.95	69025.36	0+54.09	257763.14	69000.18
TL28	67.80	N33° 16' 18.85"W	1+10.14	257808.14	68966.82	1+77.93	257864.82	68929.62
TL29	1.01	N22° 21' 39.26"W	1+96.15	257880.88	68921.07	1+97.16	257881.81	68920.69
TL30	24.15	N19° 25' 15.78"W	0+00.00	257928.66	68904.04	0+24.15	257951.44	68896.00
TL31	55.75	N34° 01' 31.42"W	0+39.45	257965.06	68889.15	0+95.20	258011.27	68857.95
TL32	27.74	N17° 35' 02.77"W	0+00.00	258360.06	68619.71	0+27.74	258386.51	68611.33
TL33	496.09	N01° 01' 37.31"W	1+14.43	258471.76	68597.36	6+10.53	258967.77	68588.47
TL34	168.77	N68° 47' 50.19"W	6+93.32	259031.78	68543.80	8+62.10	259092.82	68386.45
TL35	53.52	S79° 49' 48.25"W	8+97.69	259096.20	68351.47	9+51.21	259086.75	68298.79
TL36	118.38	N82° 57' 44.59"W	9+67.72	259086.30	68282.34	10+86.11	259100.81	68164.85
TL37	12.17	N46° 04' 16.31"W	11+43.73	259125.17	68113.72	11+55.91	259133.62	68104.96
TL38	64.80	S51° 09' 43.18"W	1+87.47	259041.10	68630.18	2+52.28	259000.46	68579.70
TL39	18.36	N46° 04' 16.31"W	0+00.00	259164.41	68072.99	0+18.36	259177.15	68059.77

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LAKEWOOD, COLORADO 80226
(303) 988-4939
MEC PROJECT NO. 11039.03

COLORADO REGISTERED PROFESSIONAL ENGINEER CHRISTOPHER L. KRAGER 37254 6/18/15

Sheet Revisions		
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CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT

TRAIL HORIZONTAL CONTROL TABLES

Designer: JW3 | Structure Numbers
Detailer: NJM
Sheet Subset: TRAIL-WALL | Subset Sheets: TW-2

Project No./Code
STM 110-081
18405
Sheet Number: 215

WALL HORIZONTAL CONTROL LINE TABLE

LINE #	LENGTH	DIRECTION	START STATION	START NORTHING	START EASTING	END STATION	END NORTHING	END EASTING
WL1	5.00	N49° 14' 00.47"W	0+00.00	255656.70	72222.83	0+05.00	255659.96	72219.04
WL2	43.42	S89° 33' 21.18"W	0+22.98	255666.03	72202.52	0+66.40	255665.69	72159.11
WL3	44.43	N65° 00' 21.08"W	1+01.92	255673.18	72124.68	1+46.35	255691.95	72084.42
WL4	52.81	S27° 21' 19.90"W	2+48.86	255662.03	71996.57	3+01.67	255615.13	71972.30
WL5	41.23	N61° 37' 00.70"W	0+00.00	255881.46	71826.85	0+41.23	255901.06	71790.58
WL6	68.47	N60° 07' 34.30"W	0+00.00	255934.36	71880.91	0+68.47	255968.46	71821.54
WL7	34.00	S60° 07' 34.50"E	0+00.00	255974.51	71666.45	0+34.00	255957.58	71695.93
WL8	53.73	N28° 14' 13.42"W	0+19.07	256216.39	71632.92	0+72.80	256263.73	71607.50
WL9	145.38	N31° 22' 55.24"W	0+84.17	256273.59	71601.85	2+29.55	256397.71	71526.14
WL10	15.72	N82° 12' 17.45"W	1+53.72	256535.06	71329.33	1+69.44	256537.20	71313.76
WL11	14.42	N89° 53' 37.33"W	2+51.48	256556.19	71234.31	2+65.91	256556.21	71219.89
WL12	24.00	S16° 49' 28.19"E	0+00.00	256691.13	70792.61	0+24.00	256668.15	70799.56
WL13	67.50	S89° 38' 44.93"W	0+00.00	256620.59	70774.08	0+67.50	256620.17	70706.58
WL14	165.00	S89° 38' 44.93"W	0+00.00	256618.62	70574.02	1+65.00	256617.60	70409.02
WL15	8.40	N32° 40' 47.22"W	0+00.00	257217.22	69438.60	0+08.40	257224.29	69434.06
WL16	34.53	N61° 32' 14.04"W	0+52.47	257253.96	69402.11	0+87.00	257270.42	69371.75
WL17	125.00	N51° 41' 13.44"W	0+00.00	257296.50	69324.83	1+25.00	257374.00	69226.75
WL18	44.78	N51° 41' 13.44"W	0+30.55	257358.24	69270.09	0+75.32	257386.00	69234.96
WL19	146.57	N41° 17' 03.85"W	1+39.98	257422.09	69181.74	2+86.54	257532.22	69085.03
WL20	5.88	N05° 43' 41.32"E	3+11.58	257554.19	69073.53	3+17.46	257560.05	69074.12
WL21	118.26	N35° 47' 08.60"W	3+17.46	257560.05	69074.12	4+35.72	257655.98	69004.97
WL22	154.64	N33° 49' 51.16"W	4+35.72	257655.98	69004.97	5+90.36	257784.44	68918.87
WL23	88.45	N34° 29' 11.48"W	5+90.36	257784.44	68918.87	6+78.81	257857.35	68868.79
WL24	21.99	N30° 56' 03.68"E	6+78.81	257857.35	68868.79	7+00.80	257876.21	68880.09
WL25	14.50	S84° 12' 51.40"W	0+00.00	257641.76	69080.48	0+14.50	257640.30	69066.05
WL26	1.30	S54° 12' 51.40"W	0+14.50	257640.30	69066.05	0+15.80	257639.54	69065.00
WL27	34.71	N35° 47' 08.60"W	0+15.80	257639.54	69065.00	0+50.51	257667.70	69044.70
WL28	5.72	N04° 52' 44.62"E	0+50.51	257667.70	69044.70	0+56.22	257673.39	69045.19
WL29	75.55	N39° 49' 54.68"W	0+79.14	257693.59	69034.75	1+54.70	257751.61	68986.35
WL30	43.95	N33° 16' 18.85"W	2+12.80	257798.26	68951.77	2+56.75	257835.01	68927.66
WL31	39.31	N39° 49' 54.68"W	0+00.00	257730.71	69022.67	0+39.31	257760.90	68997.49
WL32	83.92	N33° 16' 18.85"W	0+95.76	257806.22	68963.89	1+79.68	257876.39	68917.85

WALL HORIZONTAL CONTROL LINE TABLE

LINE #	LENGTH	DIRECTION	START STATION	START NORTHING	START EASTING	END STATION	END NORTHING	END EASTING
WL33	21.00	N33° 16' 18.85"W	0+00.00	257858.74	68910.29	0+21.00	257876.30	68898.77
WL34	24.00	N63° 16' 18.85"W	0+00.00	257932.78	68842.97	0+24.00	257943.58	68821.53
WL35	47.73	N33° 16' 18.85"W	0+00.00	257932.87	68861.65	0+47.73	257972.78	68835.46
WL36	15.51	N17° 02' 59.22"W	0+81.99	258003.68	68820.95	0+97.50	258018.51	68816.40
WL37	13.23	N42° 47' 35.42"E	0+00.00	257932.97	68881.72	0+13.23	257942.68	68890.71
WL38	48.62	N34° 01' 31.42"W	0+33.13	257960.86	68882.93	0+81.75	258001.16	68855.72
WL39	58.01	N34° 01' 31.42"W	0+00.00	257967.10	68896.21	0+58.01	258015.18	68863.75
WL40	365.92	N01° 01' 37.31"W	0+00.00	258613.21	68602.33	3+65.92	258979.08	68595.77
WL41	25.41	N51° 09' 43.18"E	4+12.38	259019.72	68614.78	4+37.79	259035.65	68634.57
WL42	180.26	N01° 01' 37.31"W	0+00.00	258787.47	68584.20	1+80.26	258967.70	68580.97
WL43	16.77	N68° 47' 55.51"W	2+51.23	259022.57	68542.68	2+68.00	259028.63	68527.05
WL44	17.43	N06° 23' 58.00"E	0+31.30	258967.90	68548.61	0+48.72	258985.21	68550.55
WL45	11.37	N68° 47' 50.19"W	0+74.97	259006.09	68537.91	0+86.34	259010.20	68527.31
WL46	52.00	N74° 19' 03.71"E	0+00.00	259047.03	68526.61	0+52.00	259061.08	68576.67
WL47	136.00	N01° 06' 14.08"W	0+00.00	258962.98	68420.63	1+36.00	259098.96	68418.01
WL48	94.87	N68° 47' 44.90"W	0+00.00	259098.96	68418.01	0+94.87	259133.27	68329.57
WL49	63.37	N74° 56' 04.64"W	1+50.54	259142.74	68274.89	2+13.91	259159.21	68213.69
WL50	39.88	N68° 47' 55.51"W	0+00.00	259071.82	68415.71	0+39.88	259086.24	68378.52
WL51	3.14	S79° 49' 48.25"W	0+64.52	259088.58	68354.30	0+67.67	259088.03	68351.21
WL52	0.24	N68° 47' 50.19"W	0+00.00	259053.36	68416.06	0+00.24	259053.44	68415.84
WL53	20.86	S32° 33' 28.23"W	0+00.24	259053.44	68415.84	0+21.09	259035.87	68404.62
WL54	105.79	N73° 03' 06.98"W	0+12.35	259048.20	68355.70	1+18.14	259079.04	68254.50
WL55	6.42	S06° 18' 37.38"W	1+53.27	259062.11	68228.79	1+59.70	259055.72	68228.09
WL56	116.88	N82° 57' 44.59"W	0+10.43	259093.91	68281.95	1+27.32	259108.23	68165.95
WL57	2.06	N18° 22' 23.42"E	1+79.32	259135.57	68129.44	1+81.38	259137.52	68130.08
WL58	32.85	N06° 17' 11.92"E	0+00.00	259047.43	68207.60	0+32.85	259080.08	68211.20
WL59	40.69	N82° 57' 44.59"W	0+45.31	259088.89	68204.23	0+86.00	259093.88	68163.84
WL60	24.00	N49° 37' 36.58"W	0+00.00	259181.33	68079.85	0+24.00	259196.87	68061.57
WL61	65.01	N11° 44' 51.26"W	0+00.00	259183.27	68077.57	0+65.01	259246.92	68064.33
WL62	21.91	N49° 35' 54.69"W	0+00.00	259204.05	68125.17	0+21.91	259218.25	68108.48
WL63	19.00	N06° 37' 36.58"W	0+00.00	259204.46	68125.98	0+19.00	259223.33	68123.79

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MEC PROJECT NO. 11039.03

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WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
WALL HORIZONTAL CONTROL TABLES

Designer: JW3
Detailer: NJM
Structure Numbers
Sheet Subset: TRAIL-WALL
Subset Sheets: TW-3

Project No./Code
STM 110-081
18405
Sheet Number: 216

WALL HORIZONTAL CONTROL CURVE TABLE

CURVE #	RADIUS	LENGTH	CHORD DIRECTION	START STATION	START NORTHING	START EASTING	END STATION	END NORTHING	END EASTING
WC1	25.00	17.98	N69° 50' 19.64"W	0+05.00	255659.96	72219.04	0+22.98	255666.03	72202.52
WC2	80.00	35.52	N77° 43' 29.95"W	0+66.40	255665.69	72159.11	1+01.92	255673.18	72124.68
WC3	67.00	102.52	S71° 11' 21.34"W	1+46.35	255691.95	72084.42	2+48.86	255662.03	71996.57
WC4	53.00	24.34	S40° 32' 20.32"W	3+01.67	255615.13	71972.30	3+26.00	255596.80	71956.62
WC5	52.50	15.50	N53° 11' 05.75"W	0+41.23	255901.06	71790.58	0+56.73	255910.32	71778.21
WC6	57.50	43.38	N38° 25' 35.79"W	0+00.00	256008.90	71751.15	0+43.38	256042.08	71724.82
WC7	72.50	24.12	N50° 30' 25.93"W	0+43.38	256042.08	71724.82	0+67.50	256057.35	71706.29
WC8	243.00	19.07	N30° 29' 08.11"W	0+00.00	256199.96	71642.59	0+19.07	256216.39	71632.92
WC9	207.00	11.36	N29° 48' 34.33"W	0+72.80	256263.73	71607.50	0+84.17	256273.59	71601.85
WC10	507.00	118.28	N38° 03' 56.10"W	2+29.55	256397.71	71526.14	3+47.83	256490.62	71453.38
WC11	212.00	65.17	N53° 33' 18.91"W	3+47.83	256490.62	71453.38	4+13.00	256529.18	71401.16
WC12	490.50	25.91	N43° 14' 08.31"W	0+00.00	256460.13	71459.41	0+25.91	256479.00	71441.66
WC13	195.50	127.80	N63° 28' 37.20"W	0+25.91	256479.00	71441.66	1+53.72	256535.06	71329.33
WC14	214.50	52.89	N75° 08' 26.49"W	1+69.44	256537.20	71313.76	2+22.33	256550.73	71262.76
WC15	75.50	29.15	N79° 08' 14.91"W	2+22.33	256550.73	71262.76	2+51.48	256556.19	71234.31
WC16	87.50	44.07	N47° 06' 30.63"W	0+08.40	257224.29	69434.06	0+52.47	257253.96	69402.11
WC17	192.50	30.55	N56° 13' 58.48"W	0+00.00	257341.28	69295.45	0+30.55	257358.24	69270.09
WC18	152.50	34.90	N58° 14' 35.44"W	0+75.32	257386.00	69234.96	1+10.22	257404.32	69205.34
WC19	72.50	29.75	N53° 02' 30.64"W	1+10.22	257404.32	69205.34	1+39.98	257422.09	69181.74
WC20	52.50	25.03	N27° 37' 31.25"W	2+86.54	257532.22	69085.03	3+11.58	257554.19	69073.53
WC21	52.50	22.92	N27° 19' 32.47"W	0+56.22	257673.39	69045.19	0+79.14	257693.59	69034.75

WALL HORIZONTAL CONTROL CURVE TABLE

CURVE #	RADIUS	LENGTH	CHORD DIRECTION	START STATION	START NORTHING	START EASTING	END STATION	END NORTHING	END EASTING
WC22	507.50	58.11	N36° 33' 06.77"W	1+54.70	257751.61	68986.35	2+12.80	257798.26	68951.77
WC23	493.00	56.44	N36° 33' 06.77"W	0+39.31	257760.90	68997.49	0+95.76	257806.22	68963.89
WC24	121.00	34.26	N25° 09' 39.04"W	0+47.73	257972.78	68835.46	0+81.99	258003.68	68820.95
WC25	52.50	19.90	N23° 10' 00.22"W	0+13.23	257942.68	68890.71	0+33.13	257960.86	68882.93
WC26	157.00	46.97	N42° 35' 46.51"W	0+58.01	258015.18	68863.75	1+04.99	258049.63	68832.08
WC27	58.00	14.49	N43° 58' 03.63"W	1+04.99	258049.63	68832.08	1+19.48	258060.04	68822.04
WC28	51.00	46.45	N25° 04' 02.93"E	3+65.92	258979.08	68595.77	4+12.38	259019.72	68614.78
WC29	47.00	144.21	N36° 44' 23.92"W	4+37.79	259035.65	68634.57	5+82.00	259110.93	68578.38
WC30	60.00	70.97	N34° 54' 46.41"W	1+80.26	258967.70	68580.97	2+51.23	259022.57	68542.68
WC31	20.00	31.30	N51° 13' 49.00"E	0+00.00	258950.24	68526.62	0+31.30	258967.90	68548.61
WC32	20.00	26.25	N31° 11' 56.09"W	0+48.72	258985.21	68550.55	0+74.97	259006.09	68537.91
WC33	60.00	19.68	N78° 11' 28.44"W	0+94.87	259133.27	68329.57	1+14.55	259137.28	68310.39
WC34	163.00	35.99	N81° 15' 38.31"W	1+14.55	259137.28	68310.39	1+50.54	259142.74	68274.89
WC35	87.00	36.99	N87° 06' 58.65"W	2+13.91	259159.21	68213.69	2+50.91	259161.06	68177.02
WC36	45.00	24.64	N84° 29' 03.63"W	0+39.88	259086.24	68378.52	0+64.52	259088.58	68354.30
WC37	104.00	12.35	N69° 35' 29.52"W	0+00.00	259043.90	68367.27	0+12.35	259048.20	68355.70
WC38	20.00	35.13	S56° 37' 45.20"W	1+18.14	259079.04	68254.50	1+53.27	259062.11	68228.79
WC42	8.00	12.46	N38° 20' 16.33"W	0+32.85	259080.08	68211.20	0+45.31	259088.89	68204.23

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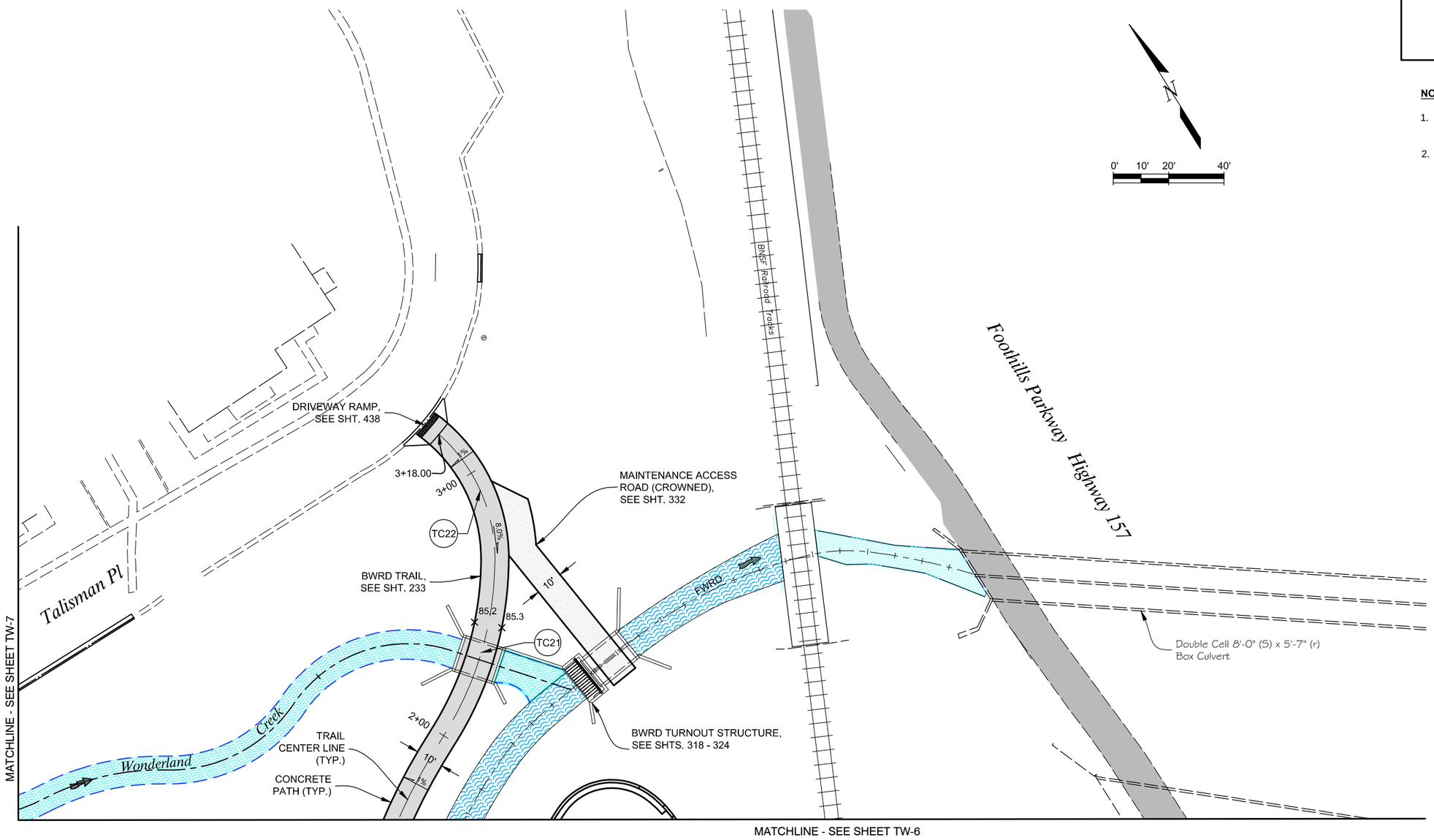
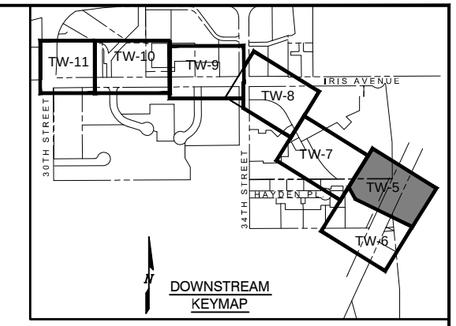
WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
WALL HORIZONTAL CONTROL TABLES
Designer: JW3 Structure Numbers
Detailer: NJM
Sheet Subset: TRAIL-WALL Subset Sheets: TW-4

Project No./Code
STM 110-081
18405
Sheet Number: 217





NOTES:

1. SEE TRAIL AND WALL HORIZONTAL CONTROL TABLES ON SHTS. 214-217.
2. SEE TRAIL DETAILS ON SHTS. 240-241.

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WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT

TRAIL AND WALL GEOMETRY PLAN

Designer:	MKN	Structure Numbers	
Detailer:	JHK		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-5

Project No./Code
STM 110-081
18405
Sheet Number: 218

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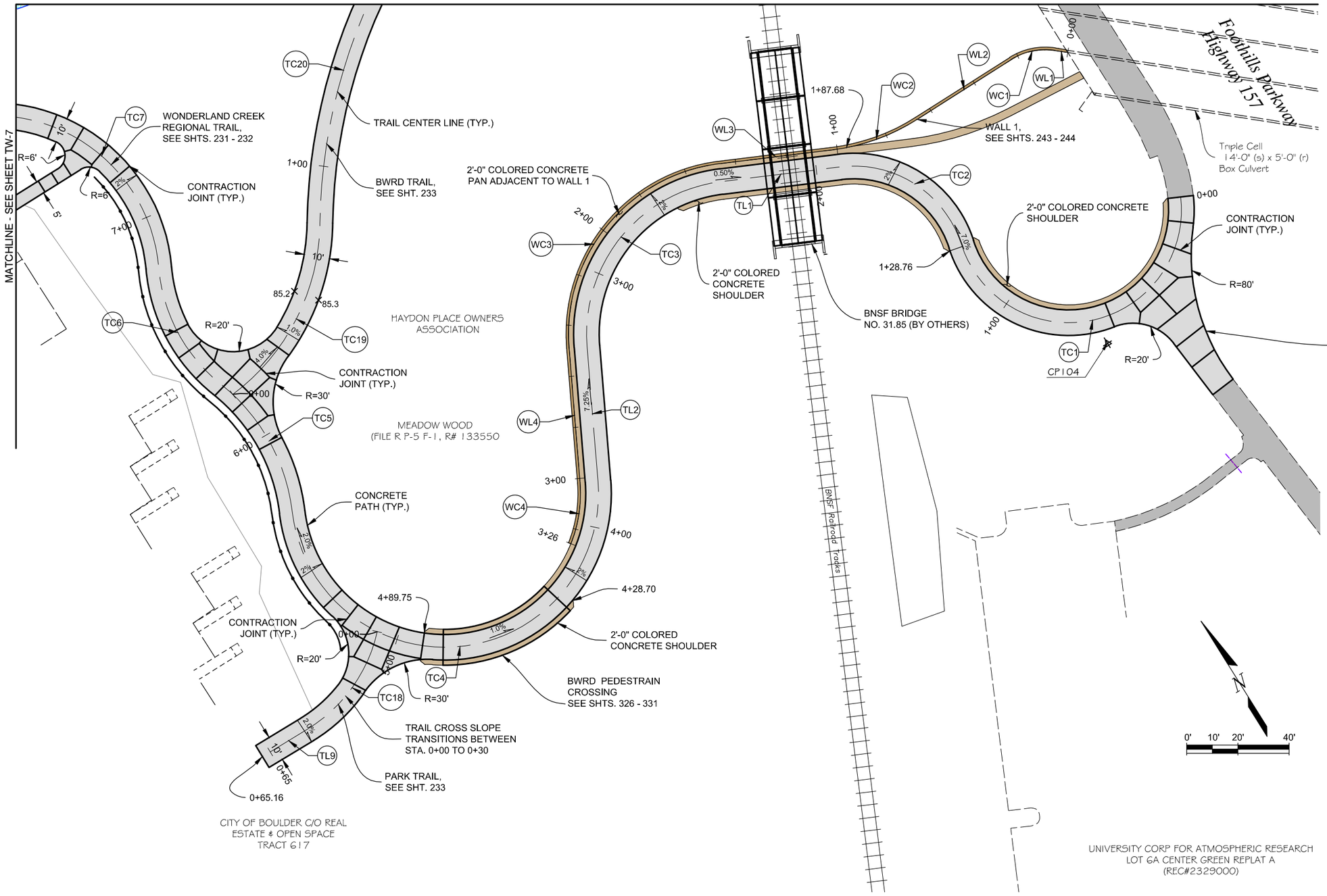

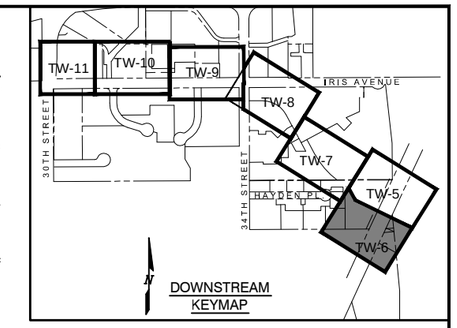

NOTES:

1. SEE TRAIL AND WALL HORIZONTAL CONTROL TABLES ON SHTS. 214-217.
2. SEE TRAIL DETAILS ON SHTS. 240-241.

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Last Modification Date: 06/18/15	Initials: JHK	
Full Path: P:\11-039.03\CAD		
Drawing File Name: 11-039.03_TRAIL & WALL PLANS.dwg		
AutoCAD 2014	Scale: AS SHOWN	FEET

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MULLER
MEC PROJECT NO. 11039.03

COLORADO REGISTERED PROFESSIONAL ENGINEER CHRISTOPHER L. KREBER 37254 6/18/15

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Region 4 RDM
CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
TRAIL AND WALL GEOMETRY PLAN

Designer:	MKN	Structure Numbers	
Detailer:	JHK		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-6

Project No./Code
STM 110-081
18405
Sheet Number: 219

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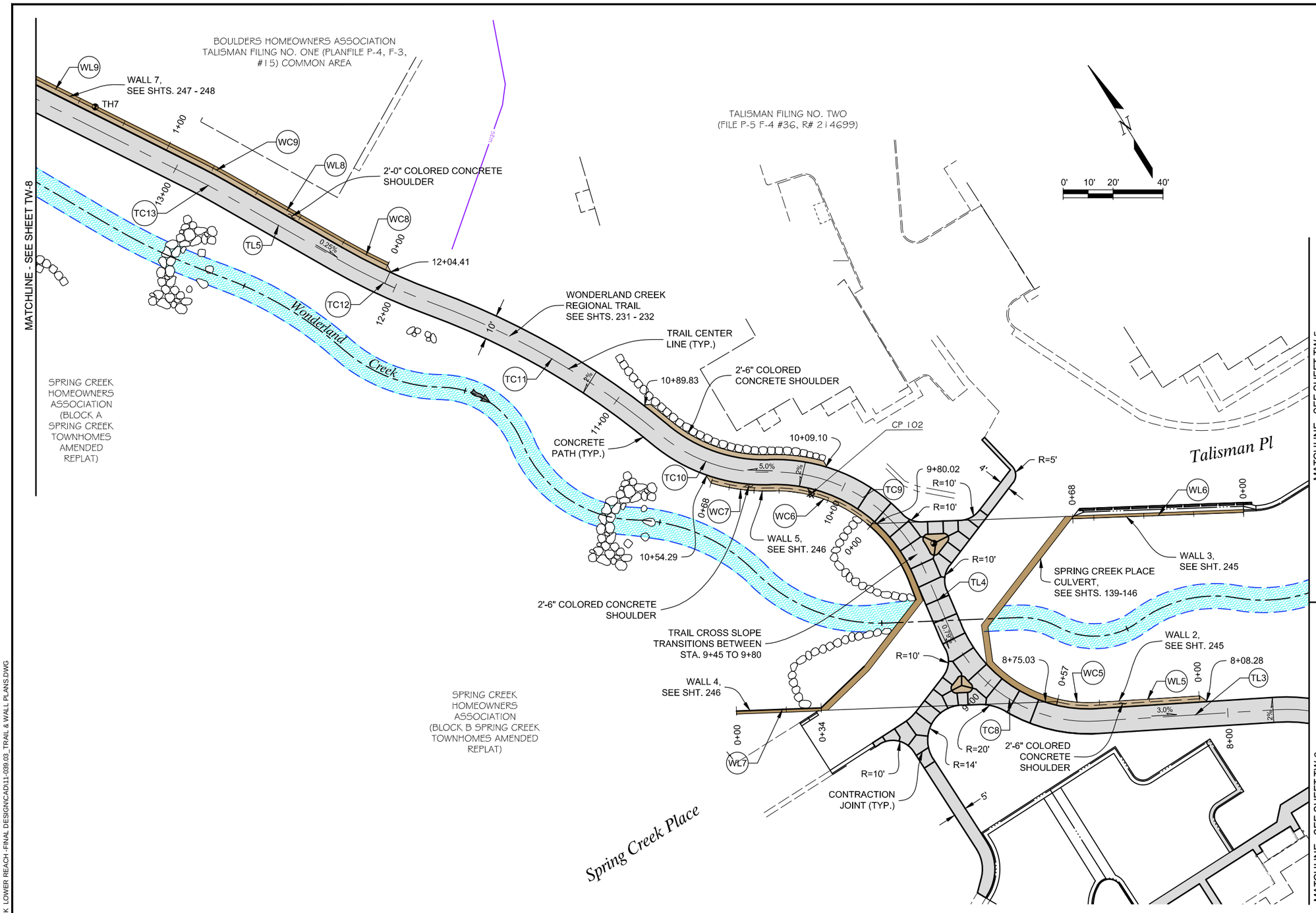

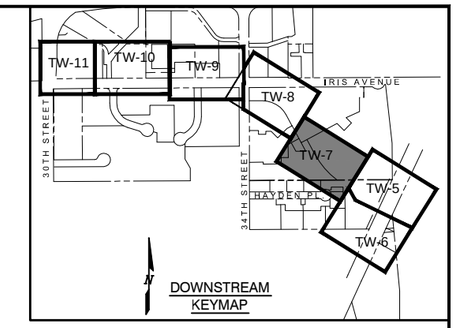

NOTES:

1. SEE TRAIL AND WALL HORIZONTAL CONTROL TABLES ON SHTS. 214-217.
2. SEE TRAIL DETAILS ON SHTS. 240-241.

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Drawing File Name: 11-039.03_TRAIL & WALL PLANS.dwg		
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MEC PROJECT NO. 11039.03

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Region 4 RDM
CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
TRAIL AND WALL GEOMETRY PLAN

Designer:	MKN	Structure Numbers	
Detailer:	JHK		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-7

Project No./Code
STM 110-081
18405
Sheet Number: 220

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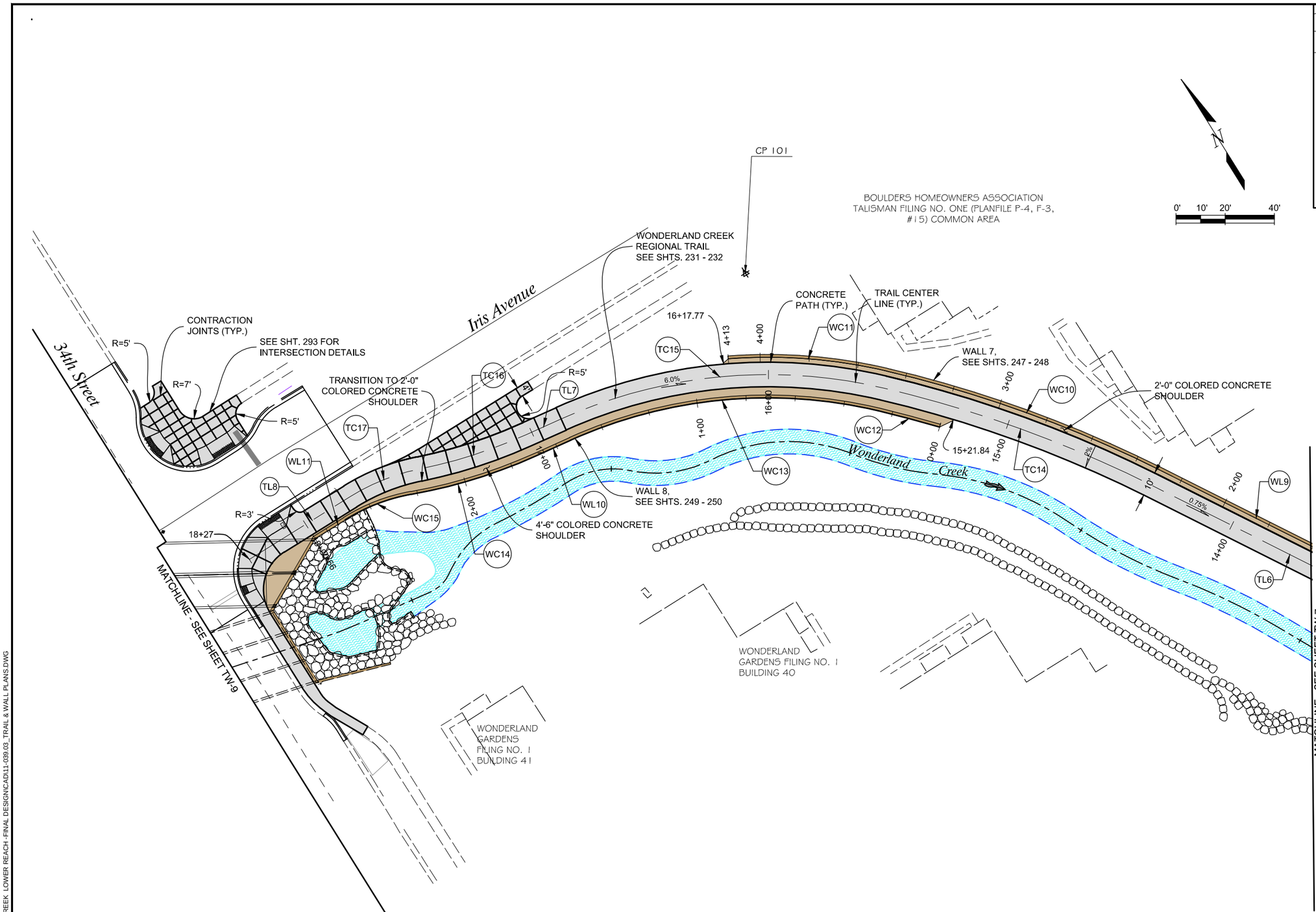

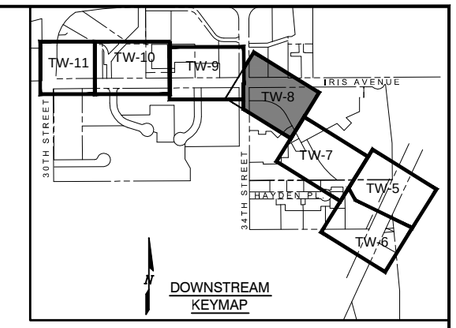

NOTES:

1. SEE TRAIL AND WALL HORIZONTAL CONTROL TABLES ON SHTS. 214-217.
2. SEE TRAIL DETAILS ON SHTS. 240-241.
3. SEE SHTS. 290-293 FOR IRIS AVE. AND 34TH STREET ROADWAY IMPROVEMENTS.

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AutoCAD 2014	Scale: AS SHOWN	FEET

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MEC PROJECT NO. 11039.03

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WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
TRAIL AND WALL GEOMETRY PLAN

Designer:	MKN	Structure Numbers	
Detailer:	JHK		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-8

Project No./Code
STM 110-081
18405
Sheet Number: 221

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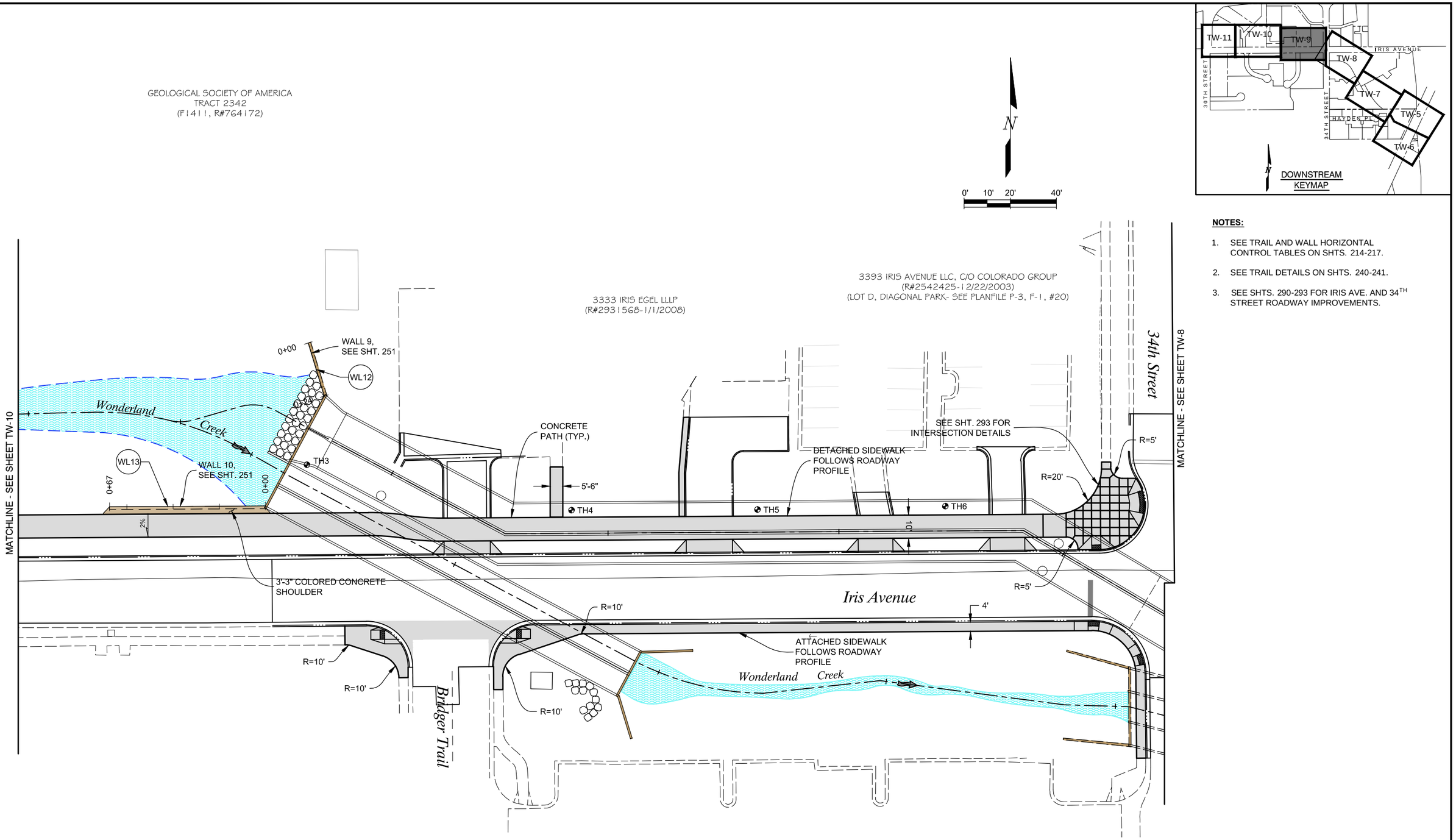

NOTES:

1. SEE TRAIL AND WALL HORIZONTAL CONTROL TABLES ON SHTS. 214-217.
2. SEE TRAIL DETAILS ON SHTS. 240-241.
3. SEE SHTS. 290-293 FOR IRIS AVE. AND 34TH STREET ROADWAY IMPROVEMENTS.

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CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
TRAIL AND WALL GEOMETRY PLAN

Designer:	MKN	Structure Numbers	
Detailer:	JHK		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-9

Project No./Code
STM 110-081
18405
Sheet Number: 222

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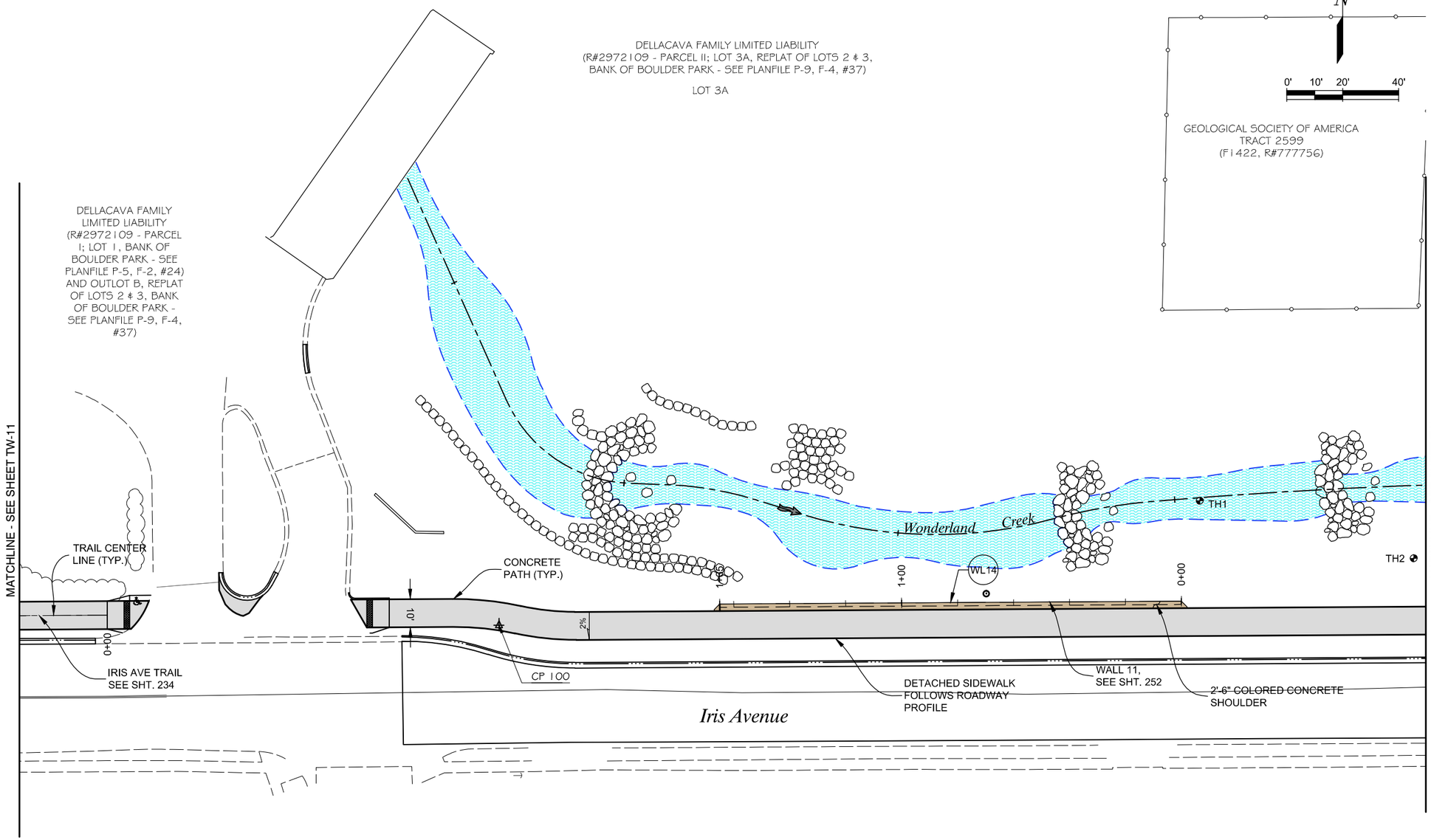

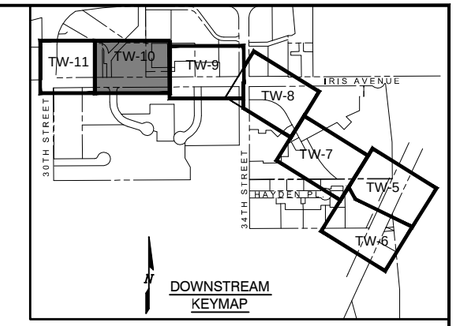

NOTES:

1. SEE TRAIL AND WALL HORIZONTAL CONTROL TABLES ON SHTS. 214-217.
2. SEE TRAIL DETAILS ON SHTS. 240-241.
3. SEE SHTS. 290-293 FOR IRIS AVE. AND 34TH STREET ROADWAY IMPROVEMENTS.

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WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT

TRAIL AND WALL GEOMETRY PLAN

Designer:	MKN	Structure Numbers	
Detailer:	JHK		
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Project No./Code
STM 110-081
18405
Sheet Number: 223

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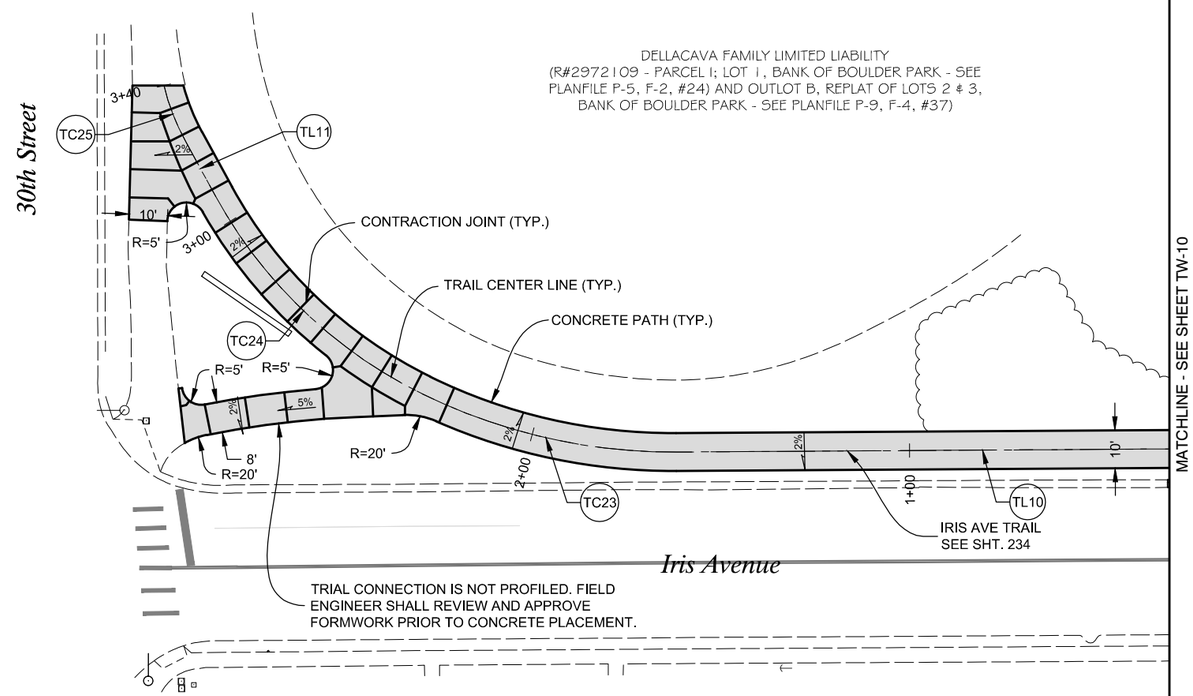

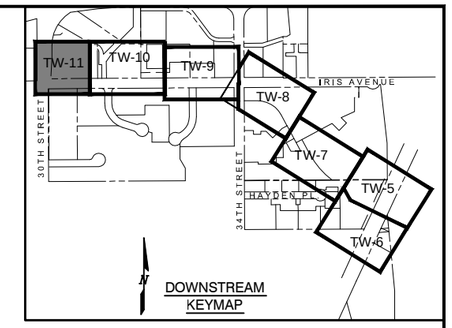

NOTES:

1. SEE TRAIL AND WALL HORIZONTAL CONTROL TABLES ON SHTS. 214-217.
2. SEE TRAIL DETAILS ON SHTS. 240-241.

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WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
TRAIL AND WALL GEOMETRY PLAN

Designer:	MKN	Structure Numbers	
Detailer:	JHK		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-11

Project No./Code
STM 110-081
18405
Sheet Number: 224

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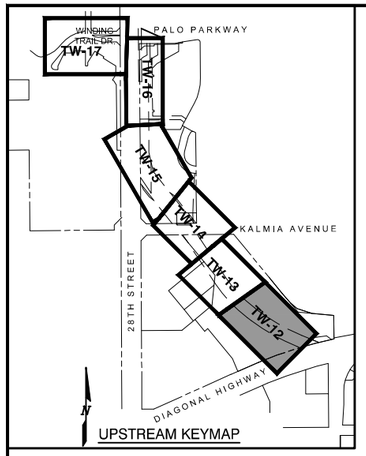
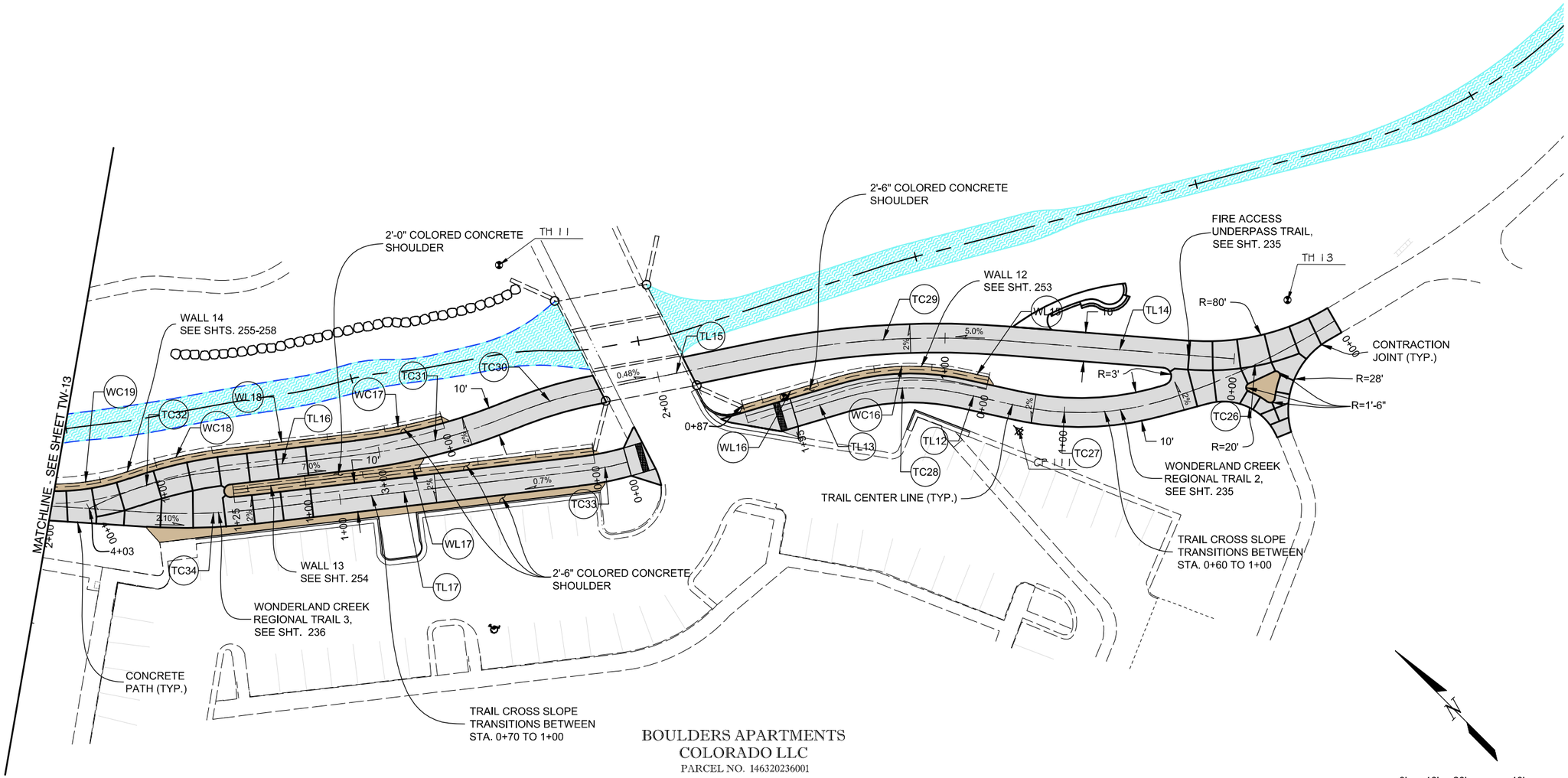


NOTES:

1. SEE TRAIL AND WALL HORIZONTAL CONTROL TABLES ON SHTS. 214-217.
2. SEE TRAIL DETAILS ON SHTS. 240-241.



BOULDERS APARTMENTS
COLORADO LLC
PARCEL NO. 146320236001

ASPEN GROVE
(PLANFILE P-10, F-3, #13)

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Date:	Comments	Init.

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CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
TRAIL AND WALL GEOMETRY PLAN

Designer:	MKN	Structure Numbers	
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Project No./Code
STM 110-081
18405
Sheet Number: 225

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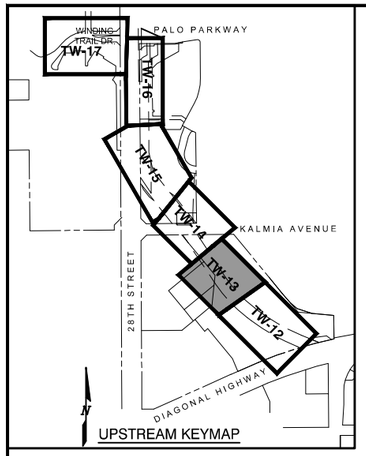
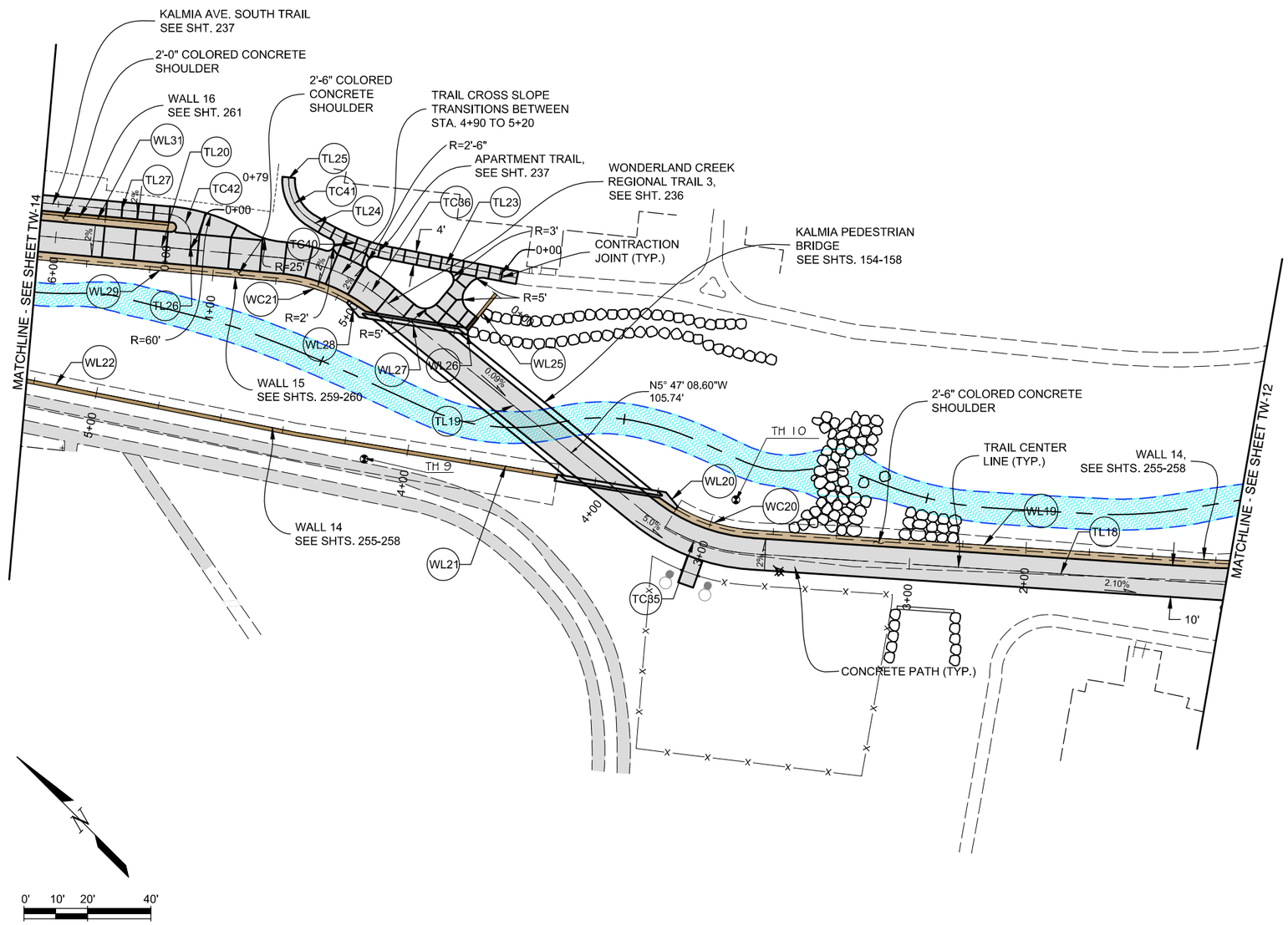


NOTES:

1. SEE TRAIL AND WALL HORIZONTAL CONTROL TABLES ON SHTS. 214-217.
2. SEE TRAIL DETAILS ON SHTS. 240-241.



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AutoCAD 2014	Scale: AS SHOWN	FEET

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CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT

TRAIL AND WALL GEOMETRY PLAN

Designer:	MKN	Structure Numbers	
Detailer:	JHK		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-13

Project No./Code
STM 110-081
18405
Sheet Number: 226

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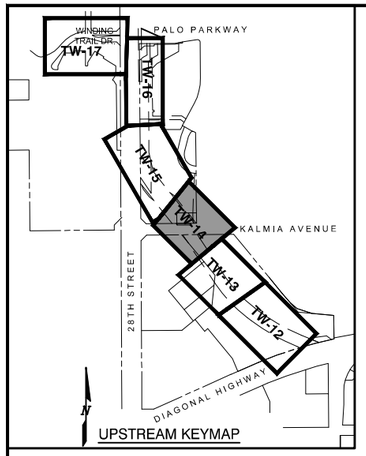
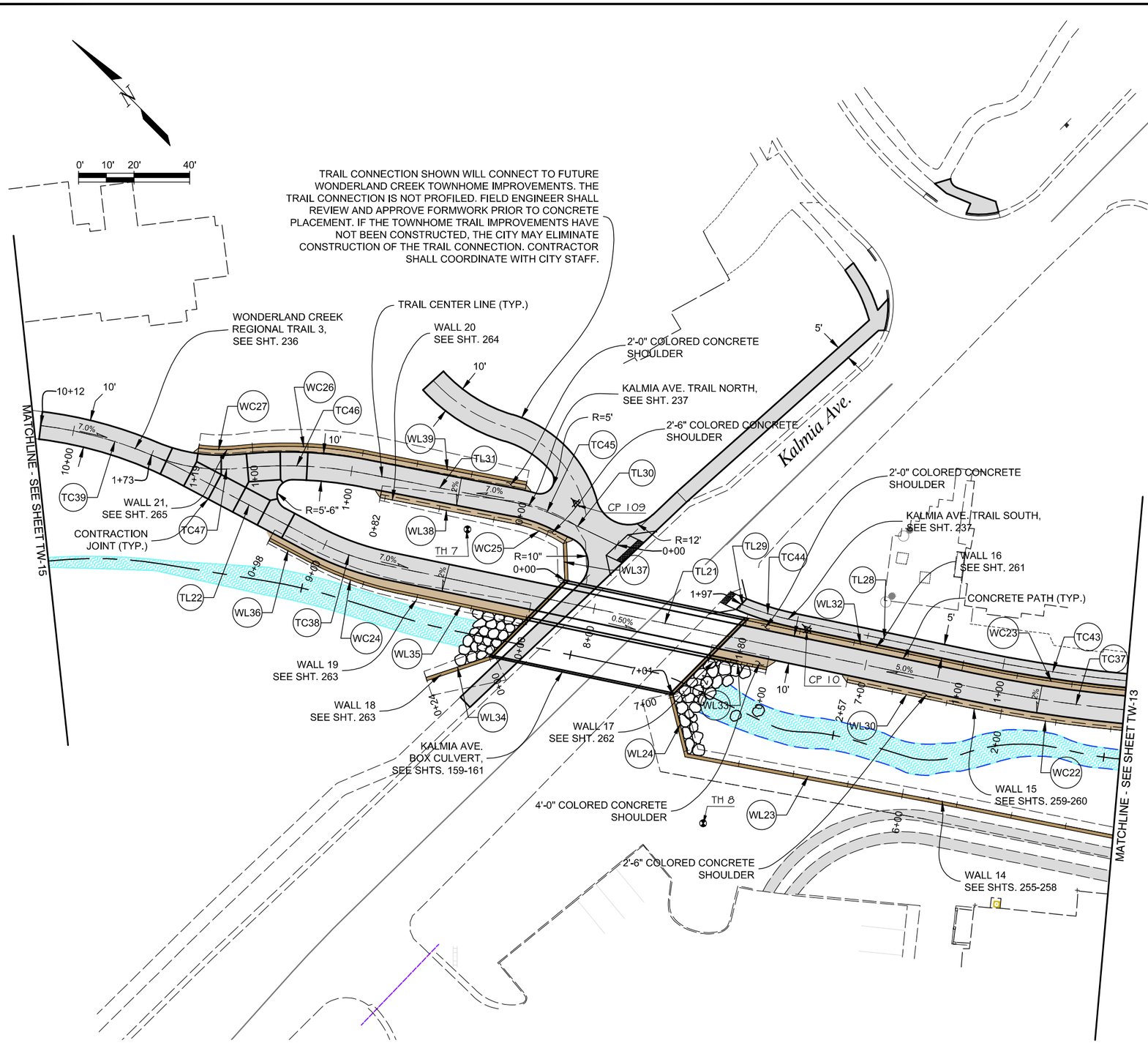


NOTES:

1. SEE TRAIL AND WALL HORIZONTAL CONTROL TABLES ON SHTS. 214-217.
2. SEE TRAIL DETAILS ON SHTS. 240-241.



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AutoCAD 2014	Scale: AS SHOWN	FEET

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Region 4 RDM
CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
TRAIL AND WALL GEOMETRY PLAN

Designer:	MKN	Structure Numbers	
Detailer:	JHK		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-14

Project No./Code
STM 110-081
18405
Sheet Number: 227

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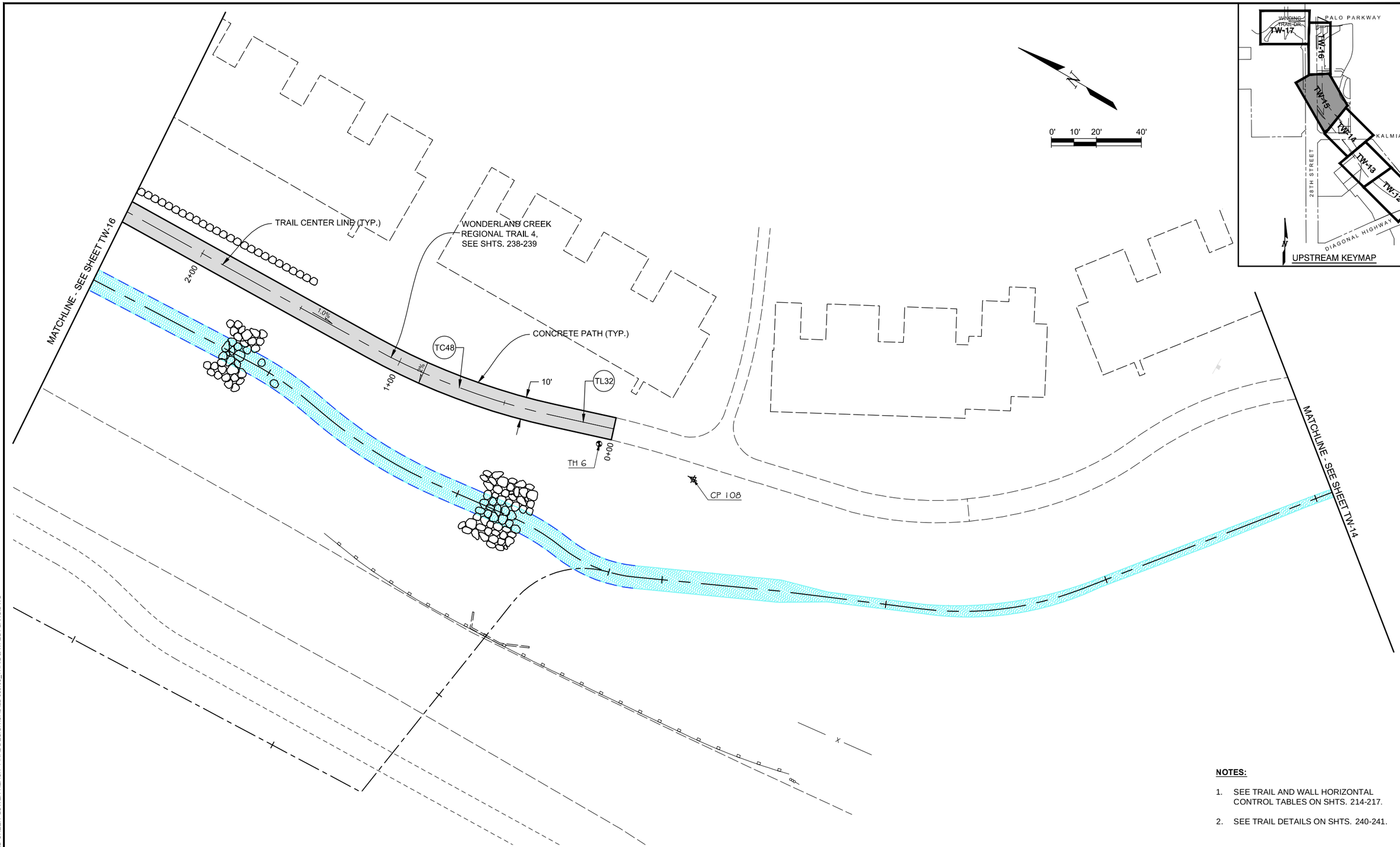

NOTES:

1. SEE TRAIL AND WALL HORIZONTAL CONTROL TABLES ON SHTS. 214-217.
2. SEE TRAIL DETAILS ON SHTS. 240-241.

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COLORADO REGISTERED CHRISTOPHER L. KADGER 37254 6/18/15 PROFESSIONAL ENGINEER

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CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT

TRAIL AND WALL GEOMETRY PLAN

Designer:	MKN	Structure Numbers	
Detailer:	JHK		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-15

Project No./Code
STM 110-081
18405
Sheet Number: 228

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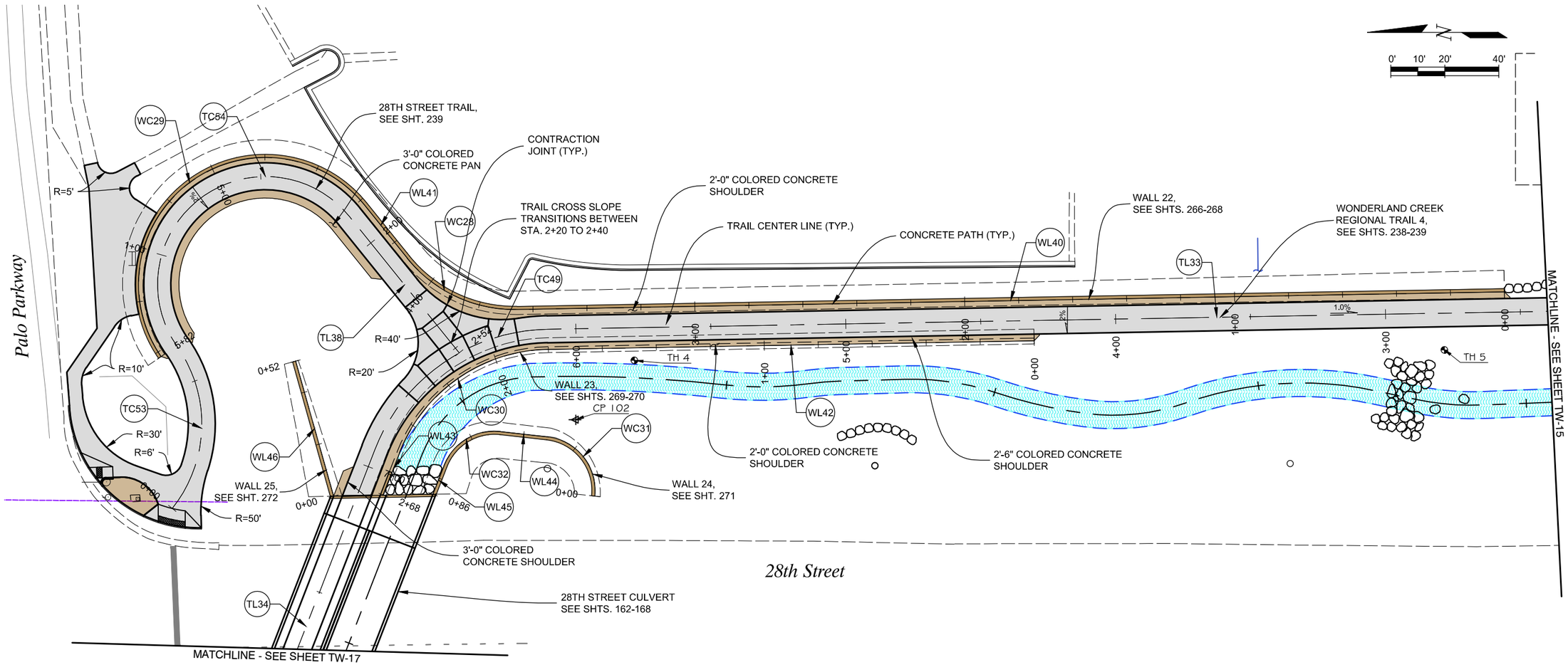

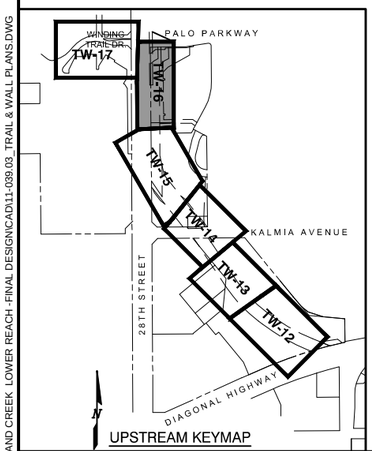

UPSTREAM KEYMAP

NOTES:

1. SEE TRAIL AND WALL HORIZONTAL CONTROL TABLES ON SHTS. 214-217.
2. SEE TRAIL DETAILS ON SHTS. 240-241.

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WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT

TRAIL AND WALL GEOMETRY PLAN

Designer:	MKN	Structure Numbers	
Detailer:	JHK		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-16

Project No./Code
STM 110-081
18405
Sheet Number: 229

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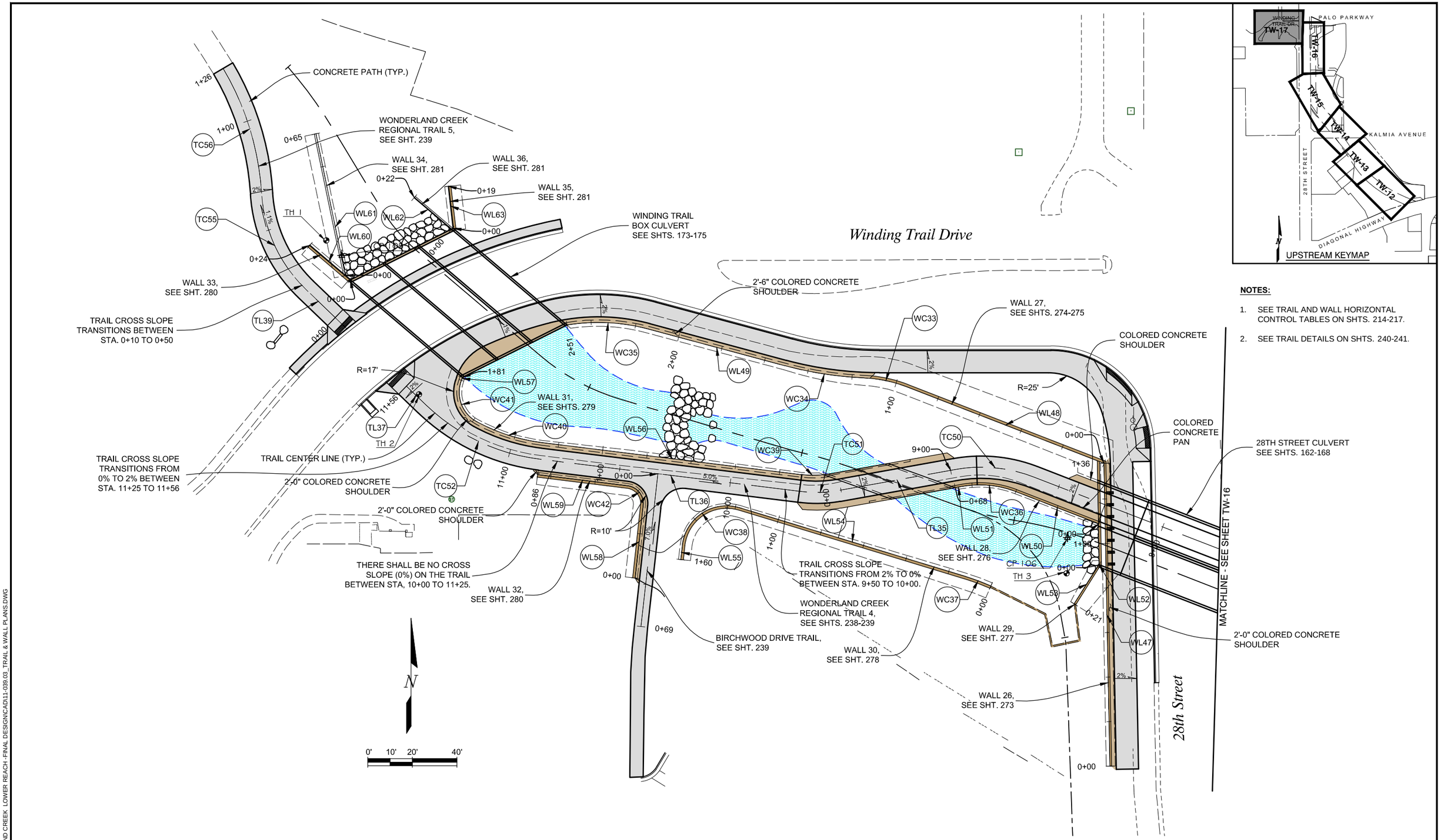

NOTES:

1. SEE TRAIL AND WALL HORIZONTAL CONTROL TABLES ON SHTS. 214-217.
2. SEE TRAIL DETAILS ON SHTS. 240-241.

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LAKEWOOD, COLORADO 80226
(303) 988-4939
MULLER
MEC PROJECT NO. 11039.03

COLORADO REGISTERED CHRISTOPHER L. KARGER 37254 6/18/15 PROFESSIONAL ENGINEER

Sheet Revisions		
Date:	Comments	Init.

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GREAT DRAINAGE AND FLOOD CONTROL DISTRICT
CDOT CO Region 4 RDM
CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
TRAIL AND WALL GEOMETRY PLAN

Designer:	MKN	Structure Numbers	
Detailer:	JHK		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-17

Project No./Code
STM 110-081
18405
Sheet Number: 230

PLOTTED: 6/19/2015 11:36:13 AM
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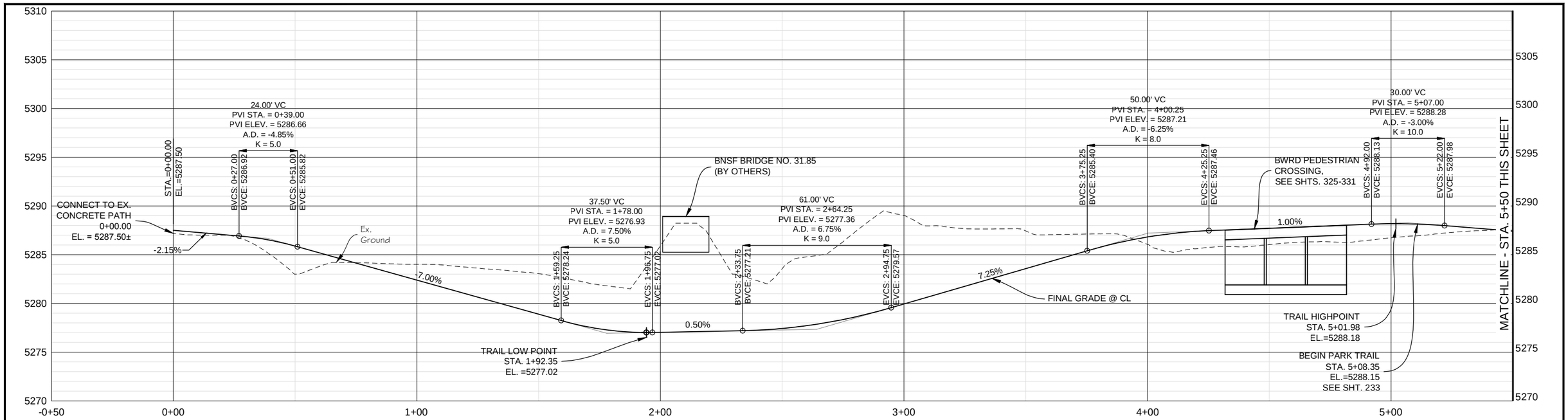
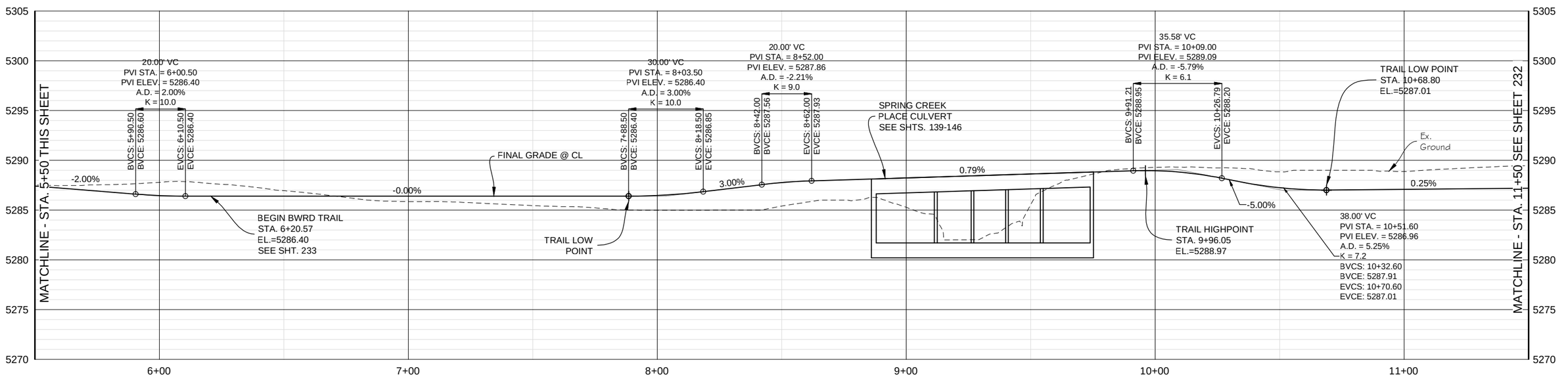


WONDERLAND CREEK REGIONAL TRAIL PROFILE

SCALE: HORIZ. 1" = 40'
VERT. 1" = 10'



WONDERLAND CREEK REGIONAL TRAIL PROFILE

SCALE: HORIZ. 1" = 40'
VERT. 1" = 10'

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Last Modification Date: 06/18/15	Initials: JHK	
Full Path: P:\11-039.03\CAD		
Drawing File Name: 11-039.03_TRAIL Profile.dwg		
AutoCAD 2014	Scale: AS SHOWN	

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Region 4 RDM

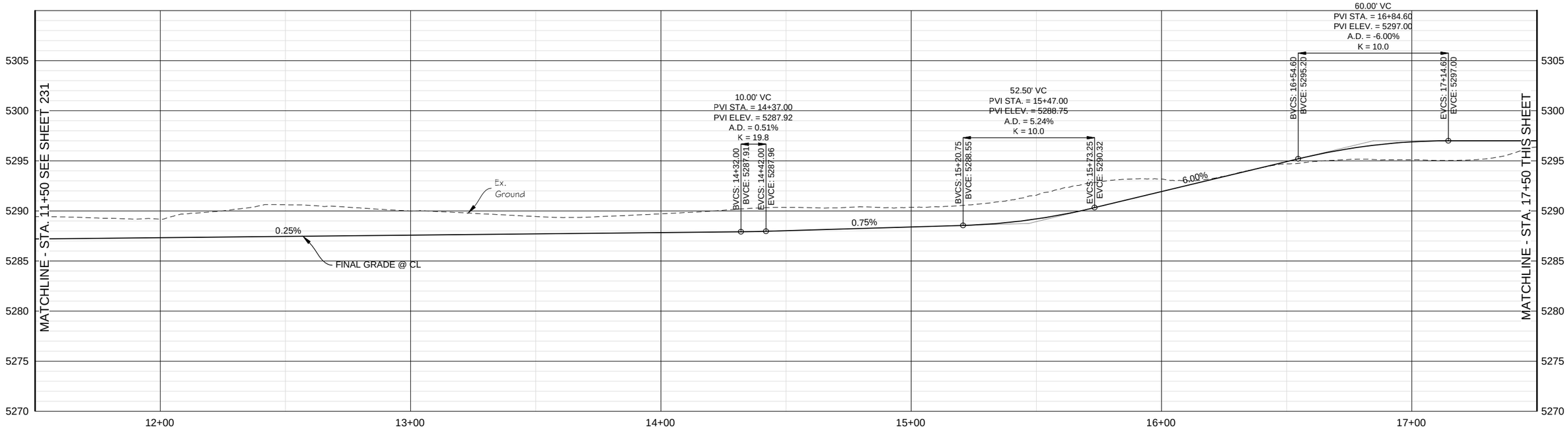
CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT

TRAIL PROFILES

Designer: MKN
Detailer: JHK
Structure Numbers
Sheet Subset: TRAIL-WALL
Subset Sheets: TW-18

Project No./Code
STM 110-081
18405
Sheet Number: 231



WONDERLAND CREEK REGIONAL TRAIL PROFILE

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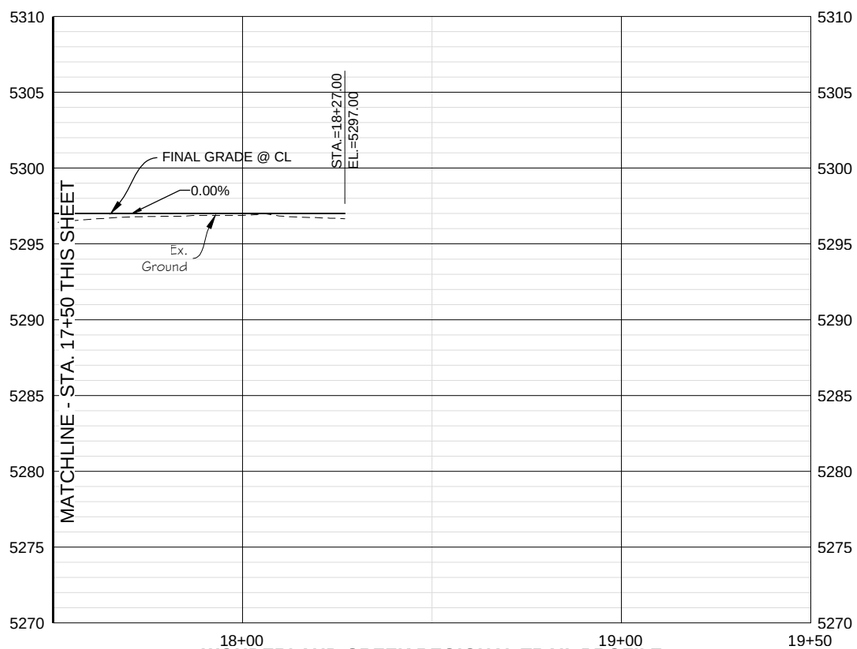

WONDERLAND CREEK REGIONAL TRAIL PROFILE

SCALE: HORIZ. 1" = 40'
VERT. 1" = 10'

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AutoCAD 2014	Scale: AS SHOWN		

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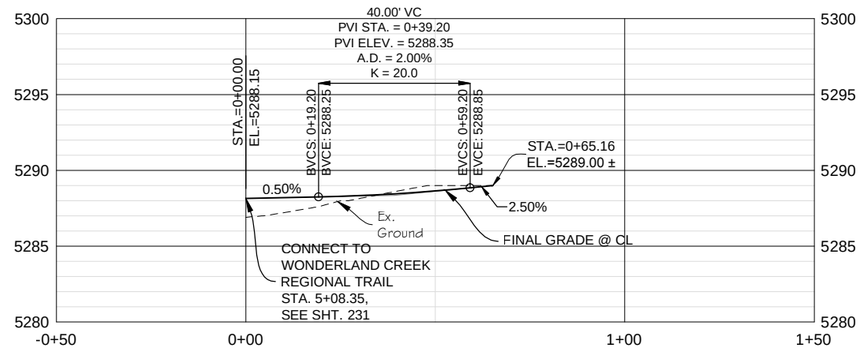
WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT

TRAIL PROFILES

Designer:	MKN	Structure Numbers	
Detailer:	JHK		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-19

Project No./Code
STM 110-081
18405
Sheet Number: 232



PARK TRAIL PROFILE

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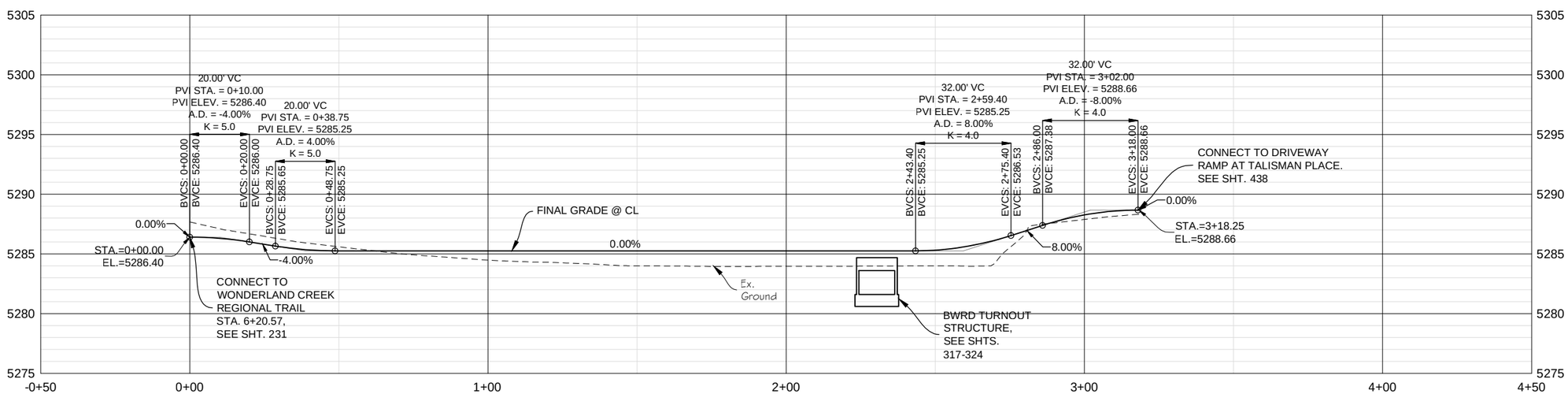

BWRD TRAIL PROFILE

SCALE: HORIZ. 1" = 40'
VERT. 1" = 10'

PLOTTED: 6/19/2015 11:39:00 AM
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AutoCAD 2014	Scale: AS SHOWN		

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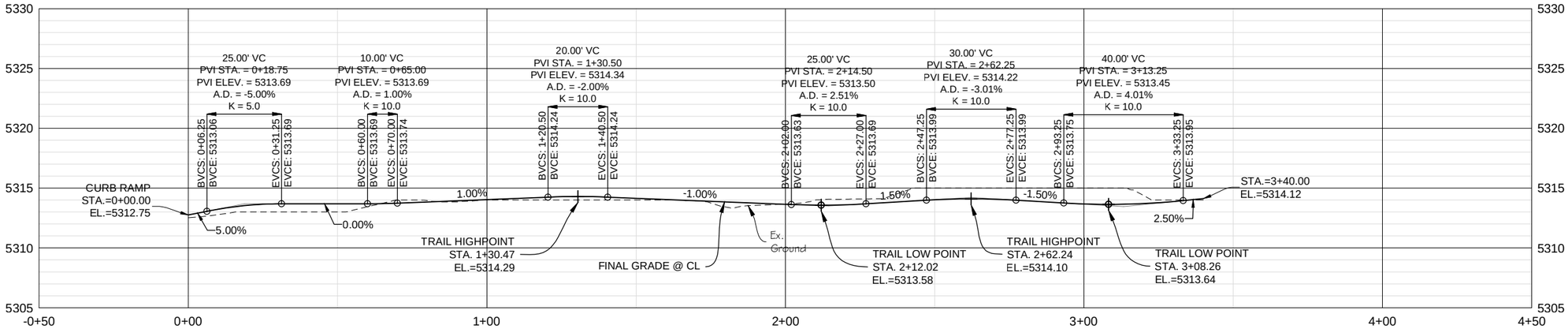
WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
TRAIL PROFILES

Designer:	MKN	Structure Numbers	
Detailer:	JHK		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-20

Project No./Code
STM 110-081
18405
Sheet Number: 233



IRIS AVE. TRAIL PROFILE

SCALE: HORIZ. 1" = 40'
VERT. 1" = 10'

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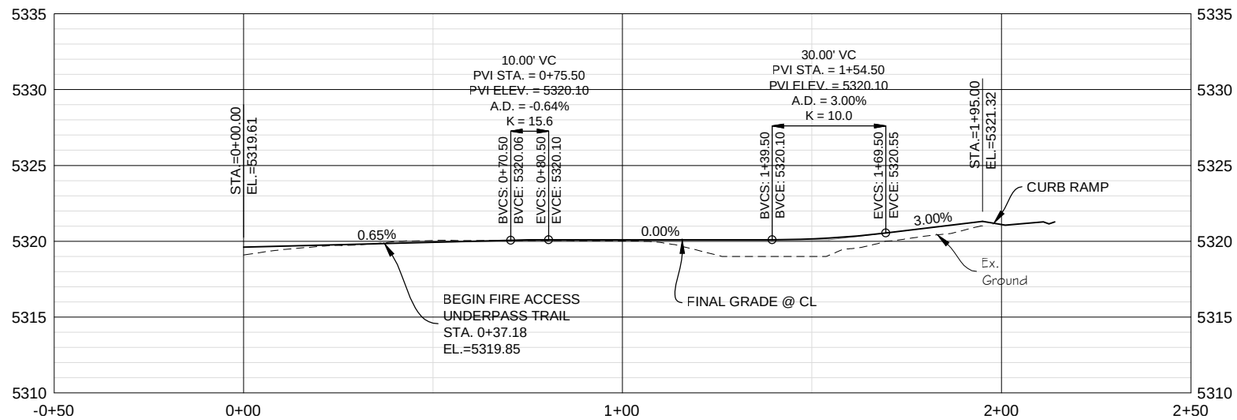
WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
TRAIL PROFILES

Designer:	MKN	Structure Numbers	
Detailer:	JHK		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-21

Project No./Code
STM 110-081
18405
Sheet Number: 234



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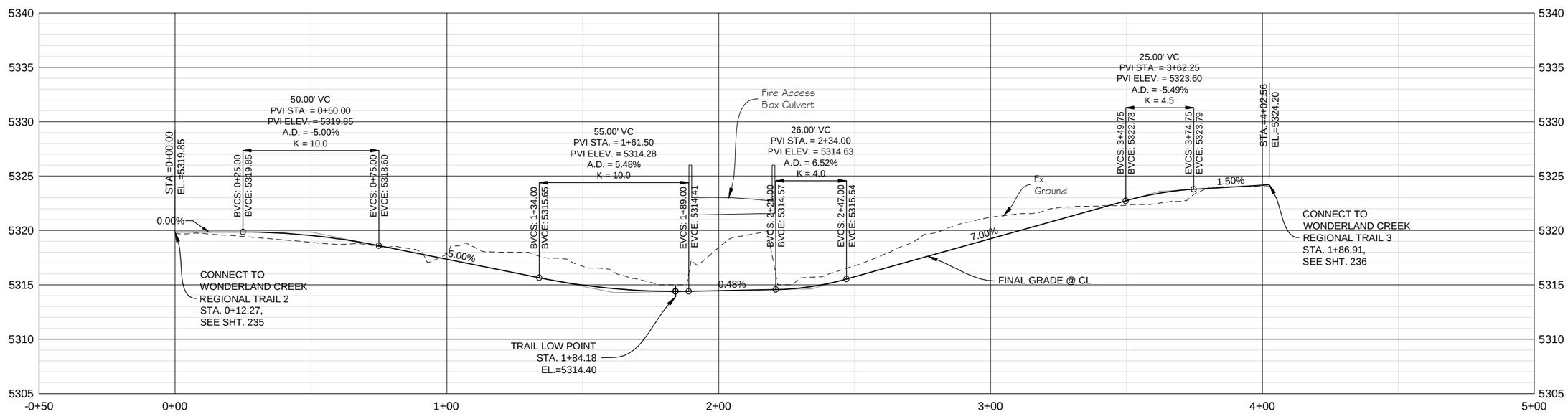
VERT. 1" = 10'



FIRE ACCESS UNDERPASS TRAIL PROFILE

SCALE: HORIZ. 1" = 40'
VERT. 1" = 10'

PLOTTED: 6/19/2015 11:39:49 AM
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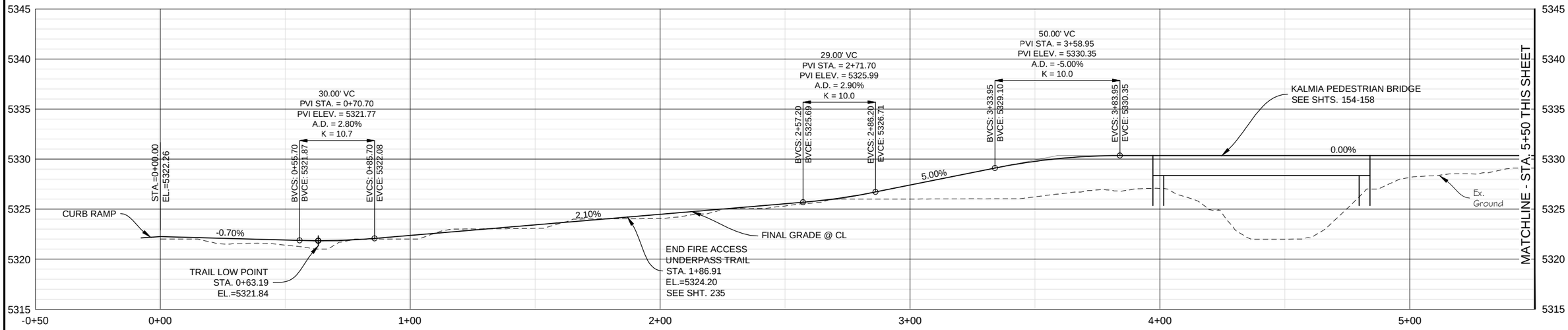
WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT

TRAIL PROFILES

Designer:	MKN	Structure Numbers	
Detailer:	JHK		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-22

Project No./Code
STM 110-081
18405
Sheet Number: 235



WONDERLAND CREEK REGIONAL TRAIL 3 PROFILE

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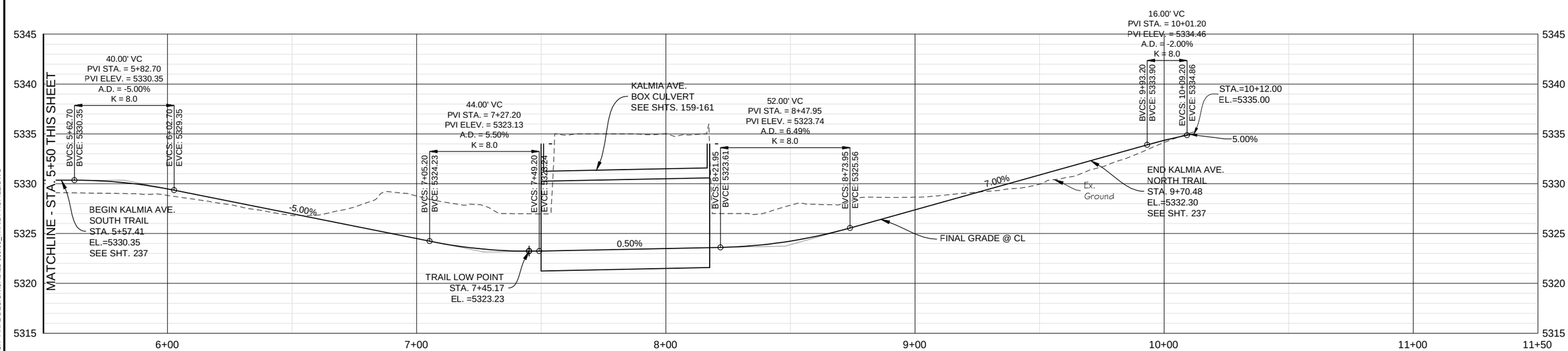

WONDERLAND CREEK REGIONAL TRAIL 3 PROFILE

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VERT. 1" = 10'

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Last Modification Date: 06/18/15	Initials: JHK	
Full Path: P:\11-039.03\CAD		
Drawing File Name: 11-039.03_TRAIL Profile.dwg		
AutoCAD 2014	Scale: AS SHOWN	

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MEC PROJECT NO. 11039.03

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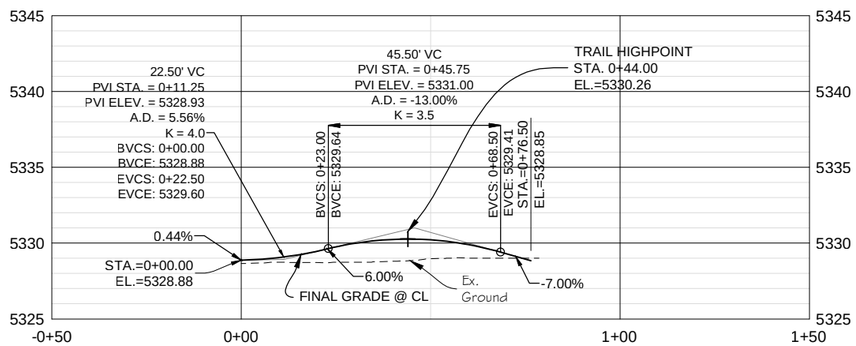
WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
TRAIL PROFILES

Designer:	MKN	Structure Numbers	
Detailer:	JHK		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-23

Project No./Code
STM 110-081
18405
Sheet Number: 236



APARTMENT TRAIL PROFILE

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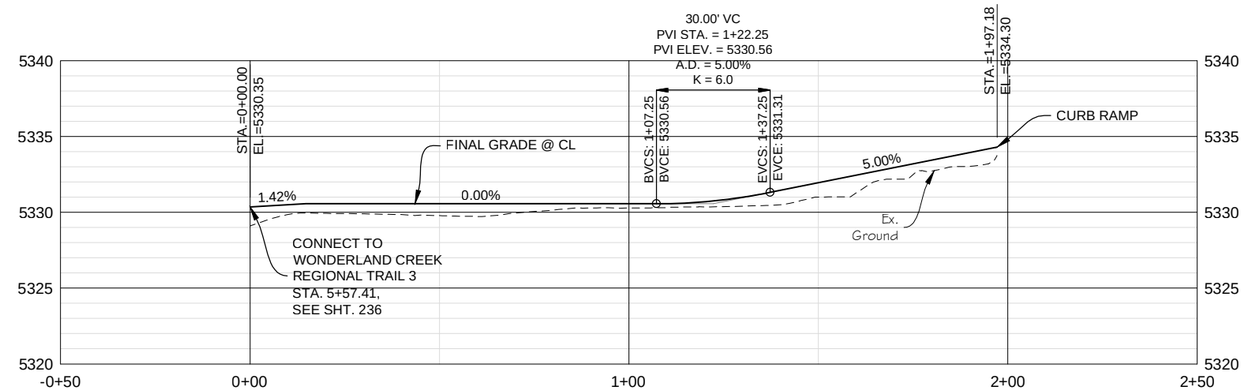

KALMIA AVE TRAIL SOUTH PROFILE

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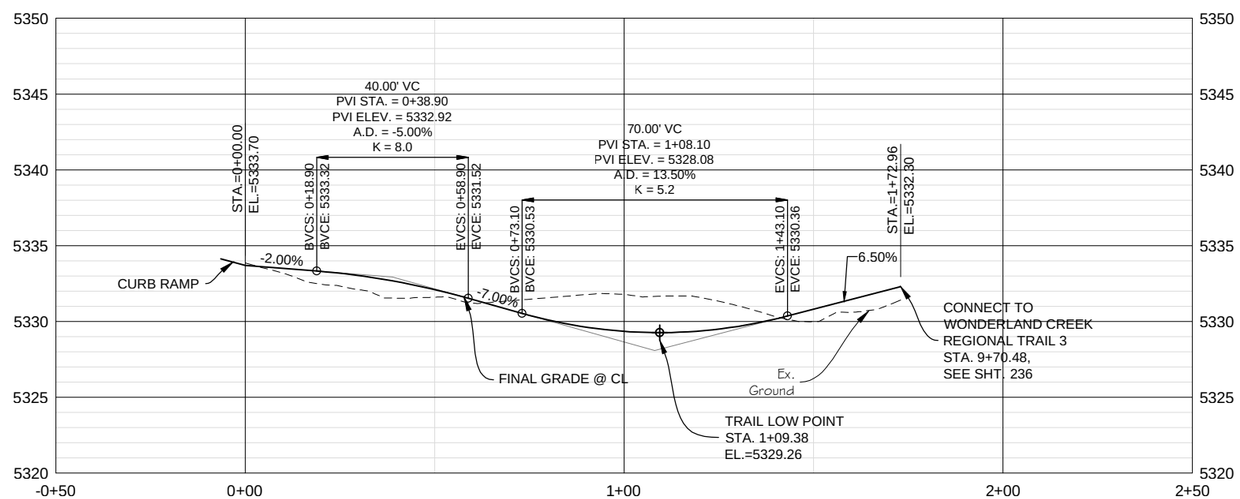
VERT. 1" = 10'



KALMIA AVE TRAIL NORTH PROFILE

SCALE: HORIZ. 1" = 40'
VERT. 1" = 10'

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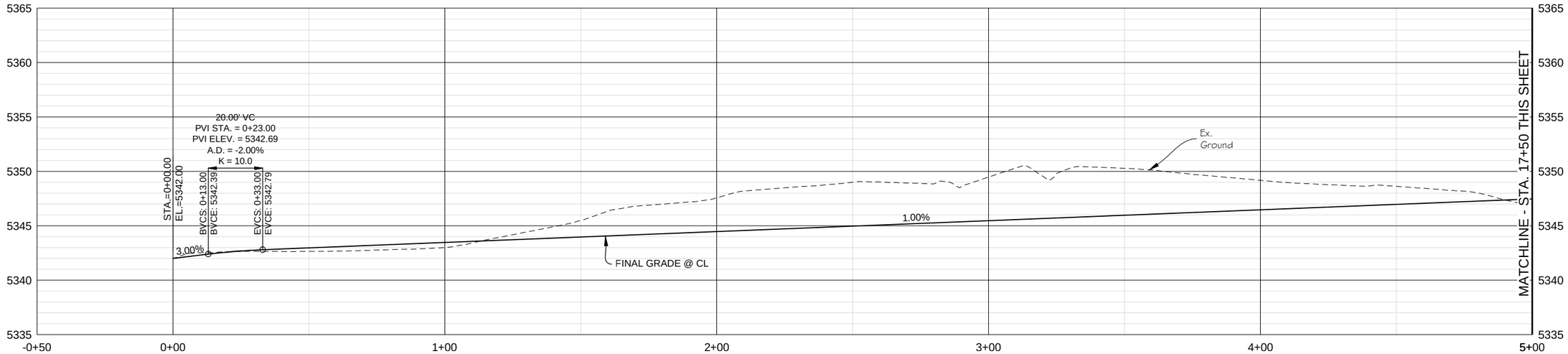
TRAIL PROFILES

Designer:	MKN	Structure Numbers	
Detailer:	JHK		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-24

Project No./Code
STM 110-081
18405
Sheet Number: 237



WONDERLAND CREEK REGIONAL TRAIL 4 PROFILE

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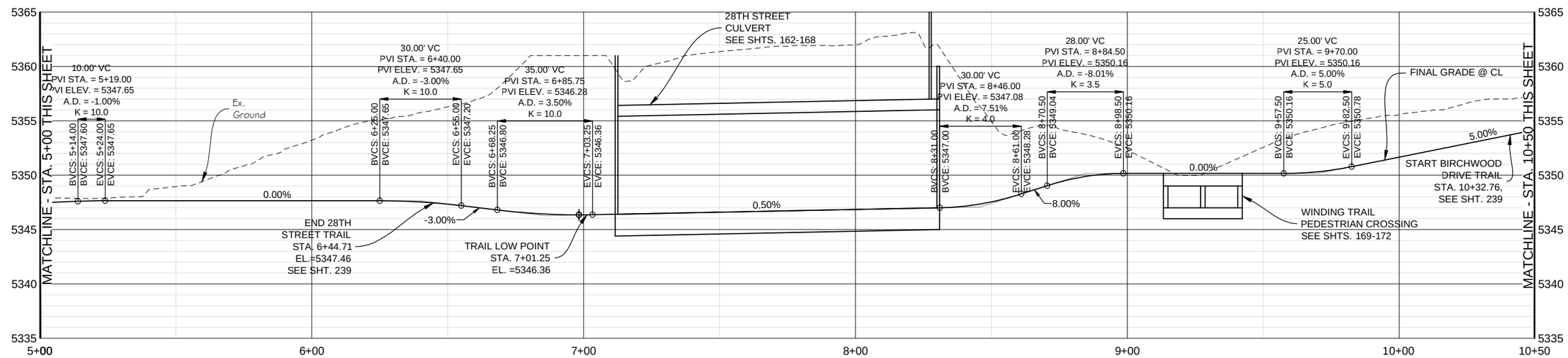

WONDERLAND CREEK REGIONAL TRAIL 4 PROFILE

SCALE: HORIZ. 1" = 40'
VERT. 1" = 10'

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Last Modification Date: 06/18/15	Initials: JHK	CONSULTING ENGINEERS 777 S. WADSWORTH BLVD. 4-100 LAKEWOOD, COLORADO 80226 (303) 988-4939					Revised:			TRAIL PROFILES
Full Path: P:\11-039.03\CAD							Void:			Designer: MKN / Structure Numbers
Drawing File Name: 11-039.03_TRAIL Profile.dwg										Detailer: JHK
AutoCAD 2014	Scale: AS SHOWN	MEC PROJECT NO. 11039.03						Region 4 RDM	CITY OF BOULDER	Sheet Subset: TRAIL-WALL / Subset Sheets: TW-25

Project No./Code: STM 110-081

18405

Sheet Number: 238

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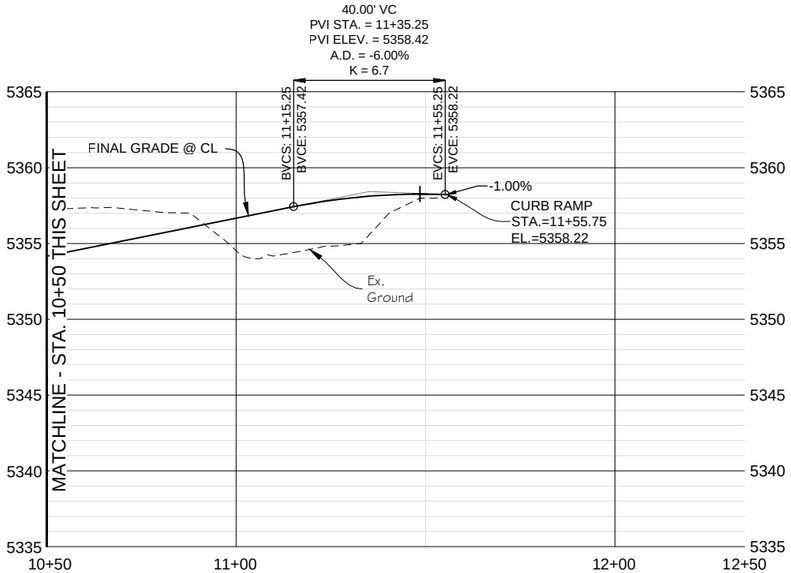

WONDERLAND CREEK REGIONAL TRAIL 4 PROFILE

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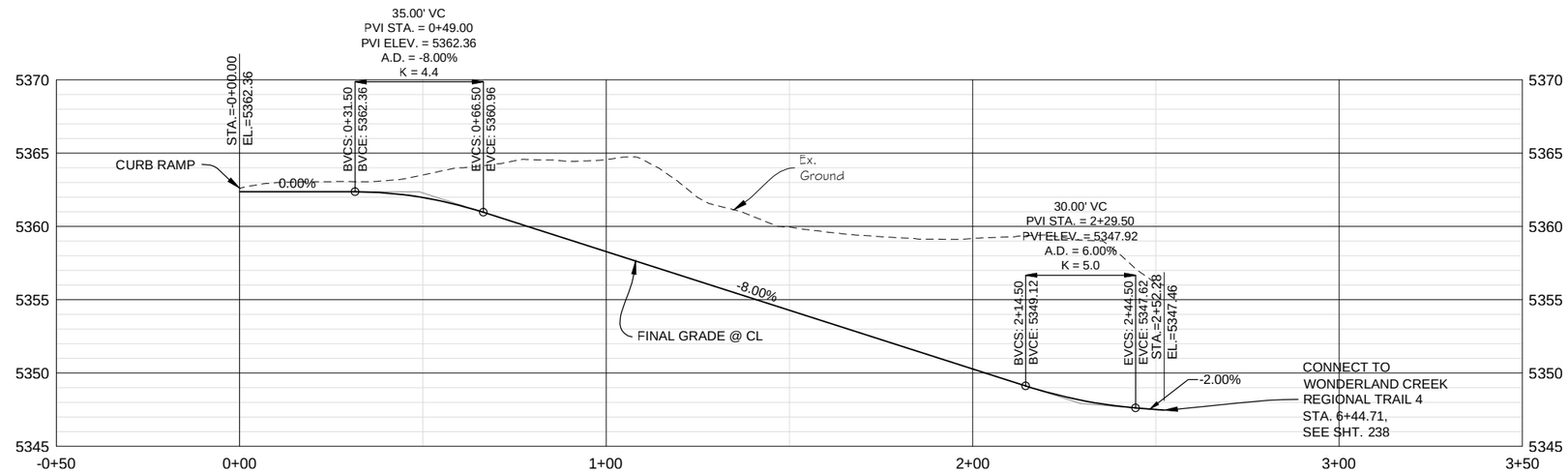

28TH STREET TRAIL PROFILE

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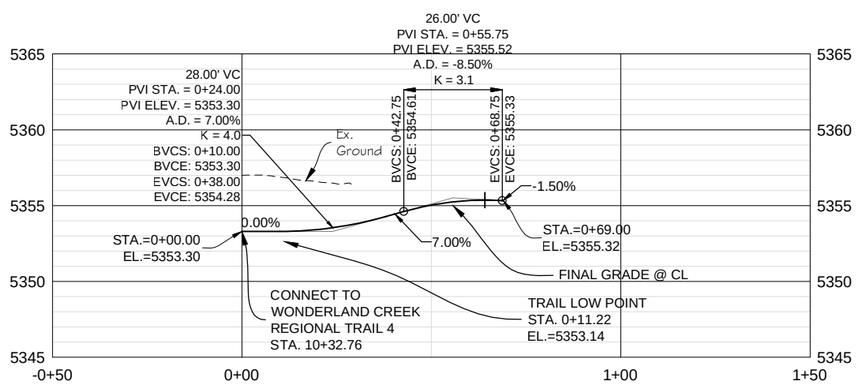

BIRCHWOOD DRIVE TRAIL PROFILE

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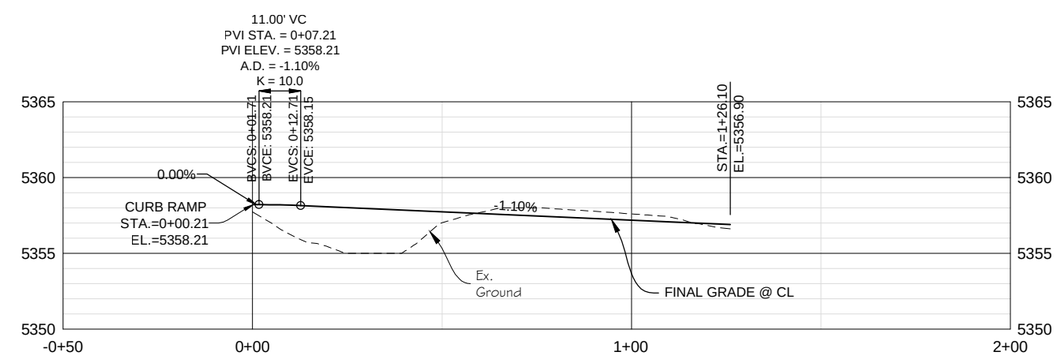

WONDERLAND CREEK REGIONAL TRAIL 5 PROFILE

SCALE: HORIZ. 1" = 40'
VERT. 1" = 10'

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Drawing File Name: 11-039.03_TRAIL Profile.dwg		
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MEC PROJECT NO. 11039.03

COLORADO REGISTERED PROFESSIONAL ENGINEER CHRISTOPHER L. KREBER 37254 6/18/15

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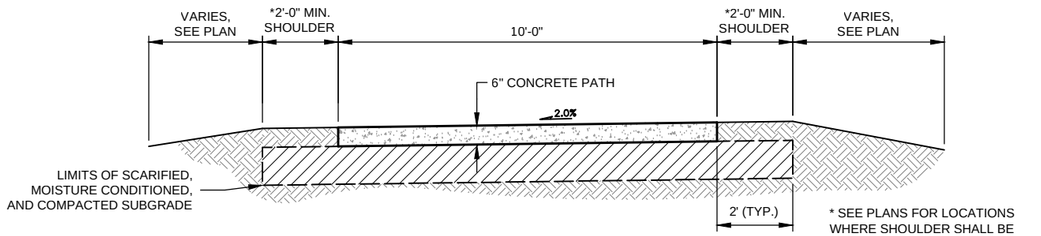
WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
TRAIL PROFILES

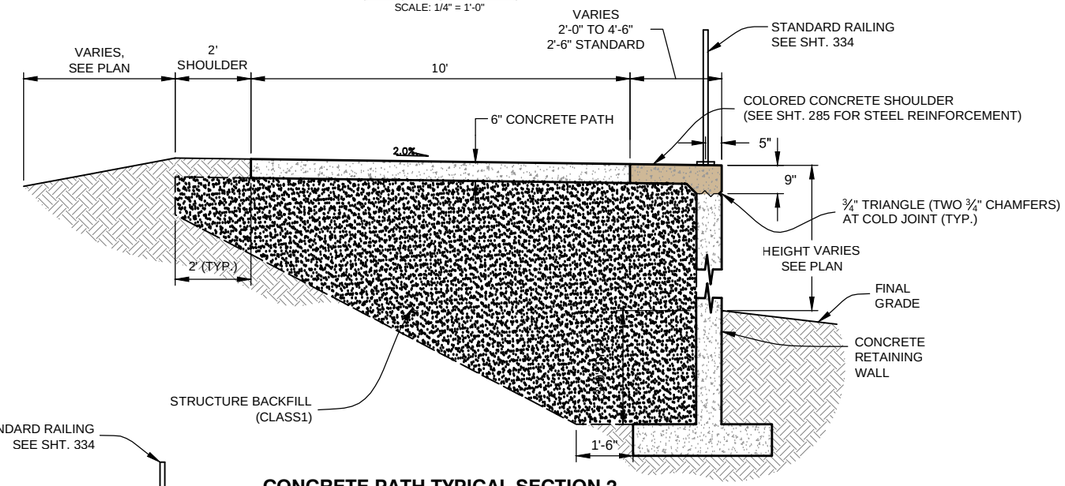
Designer:	MKN	Structure Numbers	
Detailer:	JHK		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-26

Project No./Code
STM 110-081
18405
Sheet Number: 239



CONCRETE PATH TYPICAL SECTION 1

0' 1' 2' 4'
SCALE: 1/4" = 1'-0"



CONCRETE PATH TYPICAL SECTION 2

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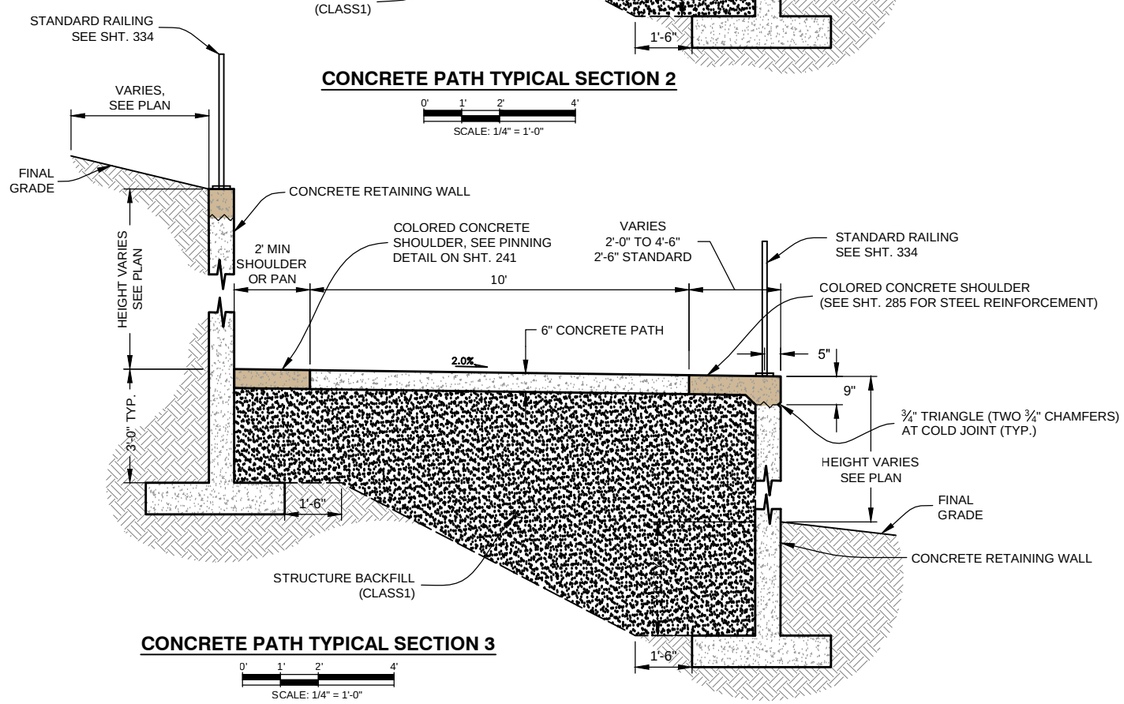
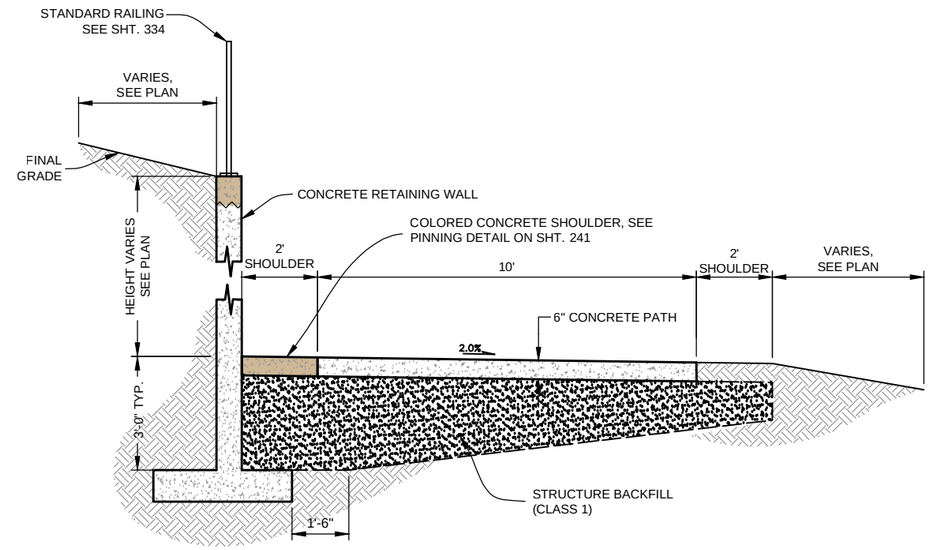


CONCRETE PATH TYPICAL SECTION 3

0' 1' 2' 4'
SCALE: 1/4" = 1'-0"



CONCRETE PATH TYPICAL SECTION 4

0' 1' 2' 4'
SCALE: 1/4" = 1'-0"

CONCRETE PATH GENERAL NOTES:

1.) DIRECTION OF THE PATH CROSS SLOPE IS INDICATED ON DRAWINGS. INSTALLED CROSS SLOPE SHALL BE NO GREATER THAN 2%.

2.) CONCRETE SPECIFICATIONS FOR CAST IN PLACE CONCRETE PATH.

CONCRETE CLASS D
FIBROUS REINFORCEMENT = 1.5 LBS/CY

FIBROUS REINFORCEMENT TO BE 100% VIRGIN POLYPROPYLENE FIBRILLATED FIBERS CONTAINING NO CLEFIN MATERIALS.

3.) LONGITUDINAL PATH GRADE SHALL NOT EXCEED 5%, UNLESS OTHERWISE SHOWN ON THE PLAN.

4.) OWNER OR OWNER'S REPRESENTATIVE SHALL INSPECT SUBGRADE AND FORM GRADES PRIOR TO PLACEMENT OF CONCRETE.

5.) TRANSVERSE JOINTS SHALL BE INSTALLED EVERY TEN FEET (10') OR AS SHOWN ON THE PLANS. REFER TO SHT. 438 FOR TRAIL JOINT DETAILS. JOINTS FOR TRAILS WHICH CAP WALLS SHALL BE IN LINE WITH WALL WEAKENED PLANE AND EXPANSION JOINTS.

6.) EXPANSION JOINTS SHALL BE INSTALLED AT INTERVALS OF NOT MORE THAN 500 FEET, AND SHALL BE FILLED WITH 1/2 INCH THICK FULL DEPTH, PREFORMED EXPANSION JOINT FILLER.

7.) CONSTRUCTION JOINTS SHALL BE INSTALLED BETWEEN NEW CONCRETE AND EXISTING CONCRETE. PREFORMED EXPANSION JOINT FILLER 1/2 INCH THICK SHALL BE INSTALLED FULL DEPTH IN THESE JOINTS.

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777 S. WADSWORTH BLVD. 4-100
LAKEWOOD, COLORADO 80226
(303) 988-4939
MULLER
MEC PROJECT NO. 11039.03

COLORADO REGISTERED PROFESSIONAL ENGINEER CHRISTOPHER L. KREGENOW 37254 6/18/15

Sheet Revisions		
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No Revisions:
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Void:

Region 4 RDM

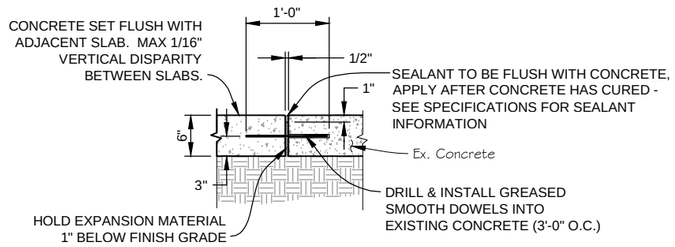
CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT

TRAIL DETAILS

Designer: MKN
Detailer: JHK
Structure Numbers
Sheet Subset: TRAIL-WALL
Subset Sheets: TW-27

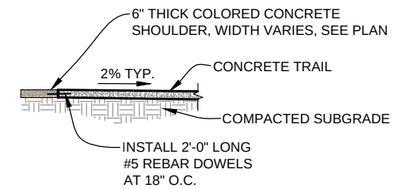
Project No./Code
STM 110-081
18405
Sheet Number: 240



CONCRETE JOINT PINNING DETAIL

N.T.S.

NOTES:
1. ALL CONCRETE ADJACENT TO EXISTING CONCRETE OR A SEPARATE POUR SHALL BE PINNED
2. WHEN STARTING A NEW POUR OF THE 10' WIDE CONCRETE TRAIL IN UNREINFORCED SECTIONS THE TRAIL SHALL BE PINNED TO THE EXISTING SECTION WITH FIVE (5) DOWELS STARTING 6" FROM EACH SIDE OF THE TRAIL
3. ALL OTHER PINNED CONNECTIONS SHALL BE SPACED AT 3'-0" CENTERS



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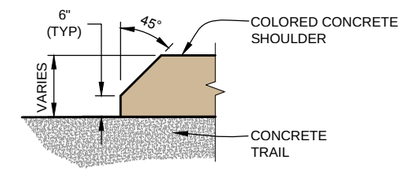
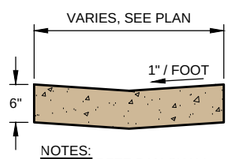


TYPICAL RETURN PLAN

NOTES:
1. CONCRETE MIX SHALL MATCH SPECIFICATIONS LISTED FOR CONCRETE PATH ON SHT. 240.
2. CONCRETE COLOR SHALL BE "FLAGSTONE BROWN" BY DAVIS COLORS OR APPROVED EQUAL, 3 LBS. OF #641 PER 94 LBS. OF CEMENT. USE DAVIS COLOR W-1000 CLEAR CURING COMPOUND OR APPROVED EQUAL.
3. JOINTS SHALL LINE UP WITH TRAIL JOINTS.

COLORED CONCRETE SHOULDER DETAILS

N.T.S.



NOTES:
1. CONCRETE PAN SHALL BE COLORED CONCRETE.

CONCRETE PAN DETAIL

SCALE: 1"=1'

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MEC PROJECT NO. 11039.03

COLORADO REGISTERED PROFESSIONAL ENGINEER CHRISTOPHER L. KREBS 37254 6/18/15

Sheet Revisions		
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CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT

TRAIL DETAILS

Designer:	MKN	Structure Numbers	
Detailer:	JHK		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-28

Project No./Code
STM 110-081
18405
Sheet Number: 241

GENERAL NOTES

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) 2011 STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION, AND CITY OF AURORA STANDARD SPECIFICATIONS APPLICABLE TO THE PROJECT.

2. EXCEPT AS SHOWN IN THE PLANS, STRUCTURE EXCAVATION AND BACKFILL SHALL BE IN ACCORDANCE WITH M-206-1 FOR STRUCTURES.

3. EXPANSION JOINT MATERIAL SHALL MEET AASHTO SPECIFICATION M-213.

4. ALL EXPOSED CONCRETE EDGES SHALL HAVE A ¾" CHAMFER UNLESS DETAILED OR OTHERWISE NOTED.

5. STRUCTURAL CONCRETE EXPOSED TO SOIL SHALL CONFORM TO CEMENTITIOUS MATERIALS REQUIREMENTS CLASS 0, CORRESPONDING TO SULFATE EXPOSURE CLASS 0. SLOPE PAVING CONCRETE AND ALL STRUCTURAL CONCRETE NOT EXPOSED TO SOIL SHALL CONFORM TO CEMENTITIOUS MATERIALS REQUIREMENTS CLASS 0, CORRESPONDING TO SULFATE EXPOSURE CLASS 0.

6. A STRUCTURAL CONCRETE COATING WILL BE REQUIRED ON ALL GRAY CONCRETE (NO INTEGRAL COLOR) EXPOSED SURFACES TO 1'-0" BELOW FINAL GRADE UNLESS OTHERWISE NOTED. THE COLOR SHALL BE EQUIVALENT TO FEDERAL STANDARD 595B, COLOR NO. 33522 (LIGHT TAN). TEST PANELS SHALL BE SUBMITTED IN ACCORDANCE WITH CDOT STANDARD SPECIFICATION 601.14(B) 4.

7. THE USE OF TEMPORARY CASING AND DE-WATERING DURING CAISSON CONSTRUCTION MAY BE REQUIRED.

8. STATIONS, ELEVATIONS, AND DIMENSIONS CONTAINED IN THESE PLANS FOR SB SOUND WALL 1 ARE CALCULATED FROM A RECENT FIELD SURVEY AND FROM EXISTING PLANS. THE CONTRACTOR SHALL VERIFY ALL DEPENDENT DIMENSIONS IN THE FIELD BEFORE ORDERING OR FABRICATING ANY MATERIAL.

9. THE CONTRACTOR SHALL NOT BACKFILL AGAINST CAST-IN-PLACE CONCRETE RETAINING WALLS UNTIL ALL CONCRETE HAS REACHED 80% OF DESIGN STRENGTH.

10. THE CONTRACTOR SHALL COORDINATE THE RETAINING WALLS FORM LINER DETAILS AND INSTALLATION WITH CHEVO STUDIOS (303) 455-9656.

11. THE COLORED CONCRETE WALL CAP SHALL BE "FLAGSTONE BROWN" BY DAVIS COLORS OR APPROVED EQUAL, 3 LBS OF # 641 PER 94 LBS OF CEMENT. USE DAVIS COLOR W-1000 CLEAR CURING COMPOUND OR APPROVED EQUAL ON THE TOP SURFACE OF THE CAP.

12. GRADE 60 REINFORCING STEEL IS REQUIRED.

13. ALL REINFORCING STEEL SHALL BE BLACK REINFORCING BARS UNLESS OTHERWISE NOTED.

14. ALL REINFORCING SHALL HAVE 2" CLEAR COVER UNLESS OTHERWISE NOTED.

15. THE STOCK LENGTH USED FOR ALL REINFORCING IS 60 FEET.

16. THE FOLLOWING TABLE GIVES THE MINIMUM CLASS B LAP SPLICE LENGTH FOR BLACK REINFORCING BARS PLACED IN ACCORDANCE WITH SUBSECTION 602.06. THESE SPLICE LENGTHS SHALL BE INCREASED BY 25% FOR BARS SPACED AT LESS THAN 6" ON CENTER.

BAR SIZE:	#4	#5	#6	#7	#8	#9	#10	#11
SPLICE LENGTH FOR CLASS D CONCRETE:	1'-1"	1'-4"	1'-7"	1'-11"	2'-6"	3'-1"	3'-11"	4'-10"

17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STABILITY OF THE STRUCTURE DURING CONSTRUCTION.

ABUT. = ABUTMENT
B.F. = BACK FACE
BOT. = BOTTOM
BRG. = BEARING
E.F. = EACH FACE
EQ. = EQUAL
F.G. = FINISHED GRADE
HCL =HORIZONTAL CONTROL LINE
I.D. = INSIDE DIAMETER
I.F. = INSIDE FACE
O.F. = OUTSIDE FACE
SPA. = SPACING
T.O. = TOP OF

18. THE INFORMATION SHOWN ON THESE PLANS CONCERNING THE TYPE AND LOCATION OF UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATION AS TO THE TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. THE CONTRACTOR SHALL CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO AT 8111 OR 1-800-922-1987 AT LEAST 3 DAYS (NOT INCLUDING THE DAY OF NOTIFICATION) PRIOR TO ANY EXCAVATION OR OTHER EARTHWORK.

19. SOIL BORING LOCATIONS ARE SHOWN IN PLAN ON WALL GENERAL LAYOUT SHEETS. ALSO SEE PROJECT SPECIFICATION FOR GEOTECHNICAL REPORTS AND BORING LOG INFORMATION.

20. THE FOOTING THICKNESS IS SCHEMATICALLY SHOWN ON THE WALL PLAN AND PROFILE SHEETS. REFER TO THE WALL TYPICAL SECTION DETAILS FOR THE EXACT DIMENSION.

21. A STRUCTURAL CONCRETE COATING SHALL BE APPLIED TO ALL GRAY CONCRETE (NO INTEGRAL COLOR) EXPOSED SURFACES TO 1'-0" BELOW FINAL GRADE UNLESS OTHERWISE NOTED. THE COLOR SHALL BE EQUIVALENT TO FEDERAL STANDARD 595B, COLOR NO. 33522 (LIGHT TAN). TEST PANELS SHALL BE SUBMITTED IN ACCORDANCE WITH CDOT STANDARD SPECIFICATION 601.14(B) 4.

DESIGN DATA-WALL 16 (CAISSON WALL)

AASHTO LRFD 6TH EDITION, 2012

DESIGN METHOD: WALL-LOAD AND RESISTANCE FACTORED DESIGN
CAISSON-ALLOWABLE STRESS DESIGN

DESIGN LOADS:
UNIT WEIGHT OF CONCRETE = 150 PCF
UNIT WEIGHT OF SOIL = 135 PCF
EQUIVALENT FLUID PRESSURE = 55 PCF
LIVE LOAD SURCHARGE = 2'-0" OF SOIL
(COMBINE WITH ACTIVE FLUID PRESSURE)

CAISSON CONCRETE:
CONCRETE CLASS BZ: F'c = 4,000 psi
REINFORCING STEEL: Fy = 60,000 psi

REINFORCED CONCRETE:
CONCRETE CLASS D: F'c = 4,500 psi
REINFORCING STEEL: Fy = 60,000 psi

CAISSON LOADING:
ALLOWABLE END BEARING PRESSURE = 30,000 psf
ALLOWABLE SKIN FRICTION = 3,000 psf
UNIT WEIGHT OF SOIL = 135 PCF

DESIGN DATA-WALL 26 (SOUND WALL)

AASHTO LRFD 6TH EDITION, 2012 AND GUIDE SPECIFICATIONS FOR STRUCTURAL DESIGN OF SOUND BARRIERS, 1989, WITH 1992 AND 2002 INTERIMS.

DESIGN METHOD: LOAD AND RESISTANCE FACTOR DESIGN

LIVE LOAD:
LIVE LOAD: 2' SURCHARGE
WIND LOAD: 4 psf

REINFORCED CONCRETE:
CLASS D CONCRETE: F'c = 4,500 psi
REINFORCING STEEL: Fy = 60,000 psi

DESIGN DATA-CAST IN PLACE WALLS

AASHTO LRFD 6TH EDITION, 2012

DESIGN METHOD: LOAD AND RESISTANCE FACTOR DESIGN

DESIGN LOADS (CAST IN PLACE RETAINING WALLS):
UNIT WEIGHT OF CONCRETE = 150 pcf
UNIT WEIGHT OF SOIL = 135 pcf
EQUIVALENT FLUID PRESSURE = 35 pcf (ACTIVE)
LIVE LOAD SURCHARGE = 2'-0" OF SOIL
(COMBINED WITH ACTIVE FLUID PRESSURE)

SATURATED CONDITION:
SATURATED EQUIVALENT PRESSURE = 95 pcf (ACTIVE)

REINFORCED CONCRETE:
CONCRETE CLASS D (WALL): F'c = 4,500 psi
REINFORCING STEEL: Fy = 60,000 psi

WALLS 1-11

MAXIMUM TOE PRESSURE = 3,000 psf
⅓ HEIGHT SATURATED CONDITION

WALLS 12-16, 18, 20-22, 25, 27, 29-36

MAXIMUM TOE PRESSURE = 2,000 psf
⅓ HEIGHT SATURATED CONDITION

WALLS 17, 19, 23, & 28

MAXIMUM TOE PRESSURE = 2,000 psf
½ HEIGHT SATURATED CONDITION

Know what's **below**
Call before you dig.

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MEC PROJECT NO. 11039.03

REGISTERED PROFESSIONAL ENGINEER 32038 6-18-15

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Date:	Comments	Init.

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No Revisions:
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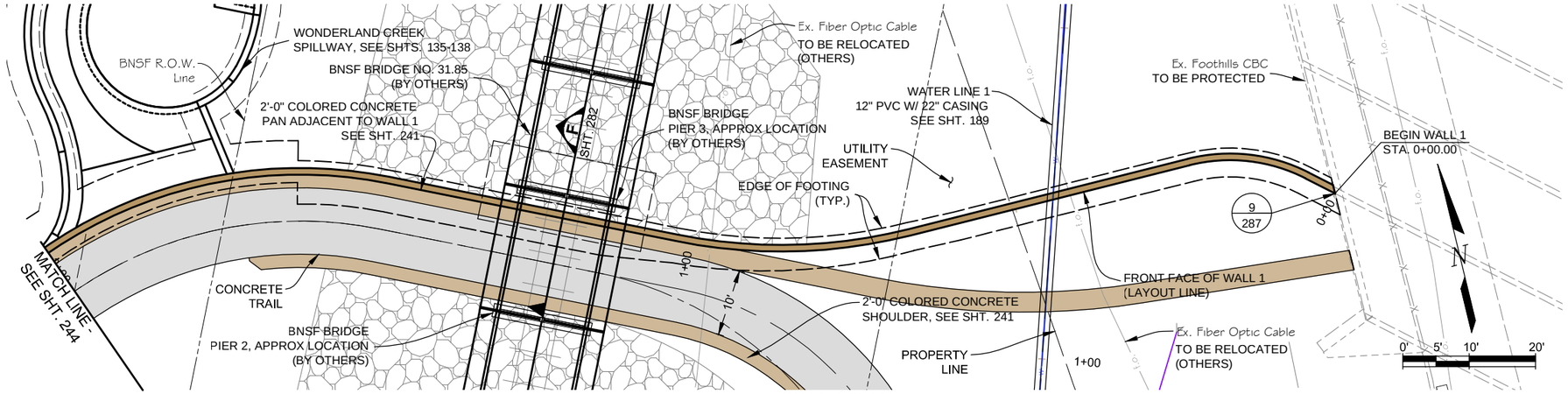
Region 4 RDM

CITY OF BOULDER

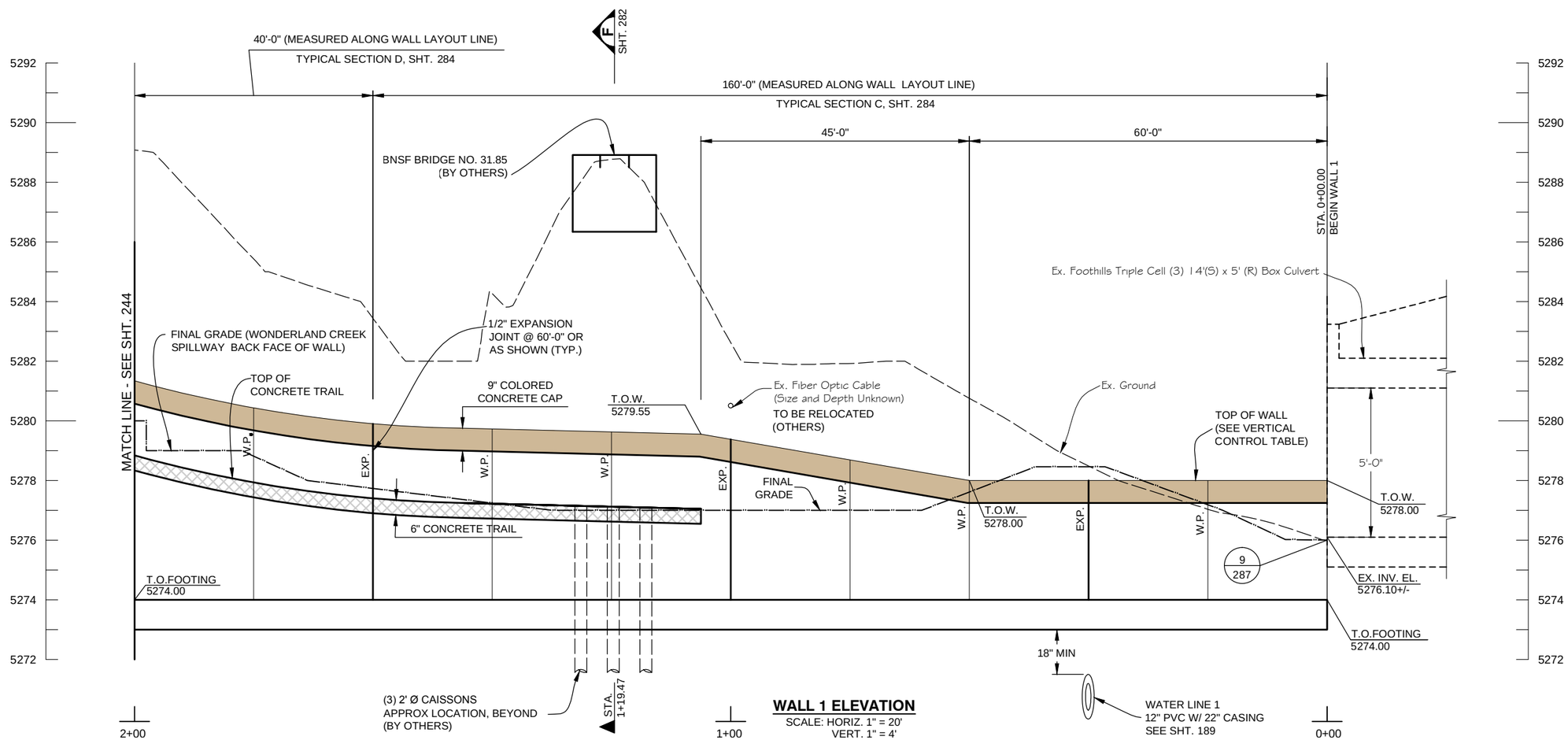
WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
WALL GENERAL INFORMATION

Designer: KMA
Detailer: JHK
Sheet Subset: TRAIL-WALL
Structure Numbers
Subset Sheets: TW-29

Project No./Code
STM 110-081
18405
Sheet Number: 242



WALL 1 PLAN



WALL 1 ELEVATION

SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'

NOTES:

1. SEE SHTS. 214-230 FOR HORIZONTAL CONTROL.
2. FOR EXPANSION (EXP.) AND WEAKENED PLANE (W.P.) DETAILS, SEE SHT. 285.
3. CONTRACTOR SHALL COORDINATE WALL FACE TREATMENT WITH CHEVO STUDIOS.
4. ALL UNDERDRAIN PIPE SHALL BE SCHEDULE 80 PVC. SEE INSTALLATION TYPICAL SECTION DETAIL ON SHT. 286.
5. TOP OF WALL 1 SHALL BE CONSTRUCTED 2'-6" ABOVE ADJACENT TRAIL GRADE PER DETAIL ON SHT. 284

WALL 1 VERTICAL CONTROL TABLE

WALL STATION	T.O.W. ELEV.
0+00.00	5278.00
0+10.00	5278.00
0+20.00	5278.00
0+30.00	5278.00
0+40.00	5278.00
0+50.00	5278.00
0+60.00	5278.00
0+70.00	5278.34
0+80.00	5278.68
0+90.00	5278.70
1+00.00	5279.37
1+10.00	5279.57
1+20.00	5279.62
1+30.00	5279.67
1+40.00	5279.72
1+50.00	5279.77
1+60.00	5279.90
1+70.00	5280.12
1+80.00	5280.43
1+90.00	5280.84
2+00.00	5281.34
2+10.00	5281.93
2+20.00	5282.71
2+30.00	5283.30
2+40.00	5283.99
2+50.00	5284.68
2+60.00	5285.38
2+70.00	5286.07
2+80.00	5286.76
2+90.00	5287.45
3+00.00	5288.17
3+10.00	5288.81
3+20.00	5289.30
3+26.00	5289.52

CONTROL TABLE NOTE:
VERTICAL CONTROL TABLE PROVIDED FOR INFORMATION ONLY. ACTUAL T.O.W. ELEVATIONS SHALL BE DETERMINED USING TRAIL VERTICAL GEOMETRY AND BE ADJUSTED FOR OFFSET AND TRAIL THICKNESS.

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MULLER
MEC PROJECT NO. 11039.03

COLORADO REGISTERED PROFESSIONAL ENGINEER CHRISTOPHER L. KREGENOW 37254 6/18/15

Sheet Revisions		
Date:	Comments	Init.

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Region 4 RDM
CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
WALL 1 PLAN & PROFILE (1 OF 2)

Designer:	ASP/KMA	Structure Numbers	
Detailer:	JHK		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-30

Project No./Code
STM 110-081
18405
Sheet Number: 243

WALL 1 VERTICAL CONTROL TABLE	
WALL STATION	T.O.W. ELEV.
0+00.00	5278.00
0+10.00	5278.00
0+20.00	5278.00
0+30.00	5278.00
0+40.00	5278.00
0+50.00	5278.00
0+60.00	5278.00
0+70.00	5278.34
0+80.00	5278.68
0+90.00	5278.70
1+00.00	5279.37
1+10.00	5279.57
1+20.00	5279.62
1+30.00	5279.67
1+40.00	5279.72
1+50.00	5279.77
1+60.00	5279.90
1+70.00	5280.12
1+80.00	5280.43
1+90.00	5280.84
2+00.00	5281.34
2+10.00	5281.93
2+20.00	5282.71
2+30.00	5283.30
2+40.00	5283.99
2+50.00	5284.68
2+60.00	5285.38
2+70.00	5286.07
2+80.00	5286.76
2+90.00	5287.45
3+00.00	5288.17
3+10.00	5288.81
3+20.00	5289.30
3+26.00	5289.52

CONTROL TABLE NOTE:
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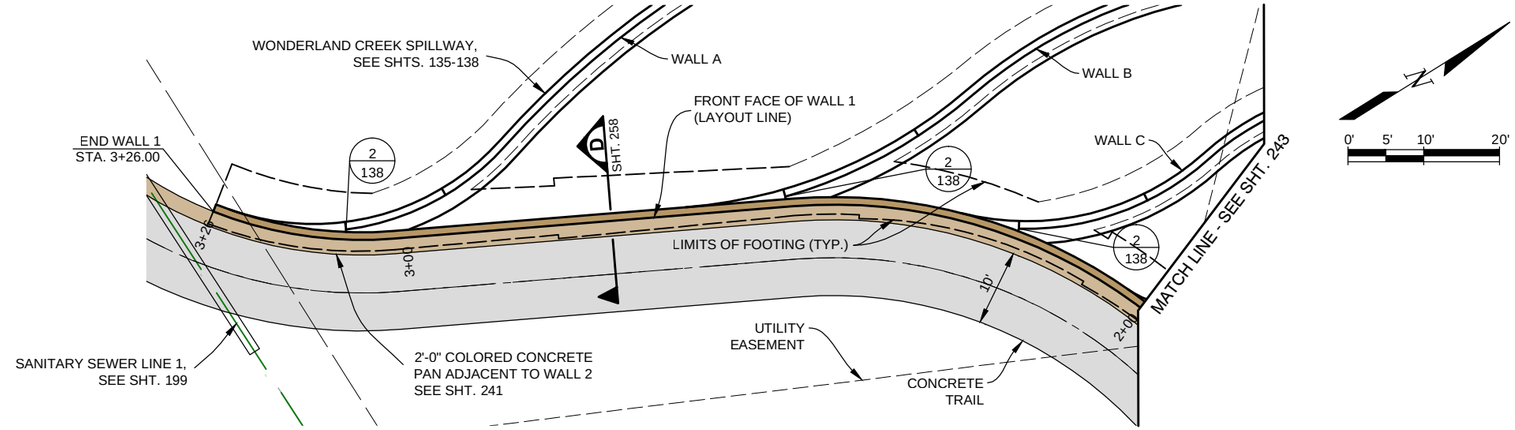
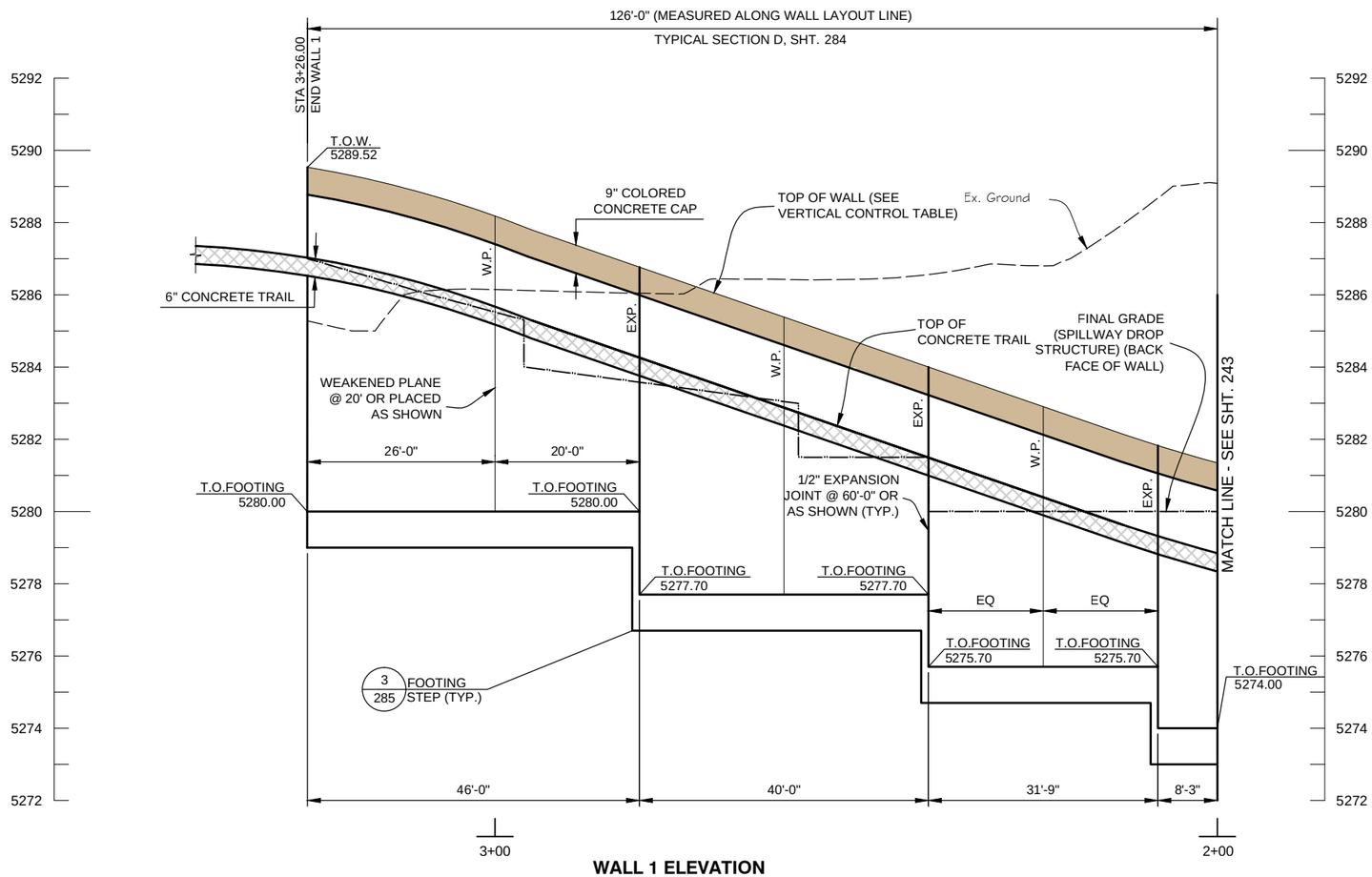


WALL 1 PLAN



WALL 1 ELEVATION

SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'

NOTES:
1. SEE SHTS. 214 - 230 FOR HORIZONTAL CONTROL.
2. FOR EXPANSION (EXP.) AND WEAKENED PLANE (W.P.) DETAILS, SEE SHT. 285.
3. CONTRACTOR SHALL COORDINATE WALL FACE TREATMENT WITH CHEVO STUDIOS.
4. ALL UNDERDRAIN PIPE SHALL BE SCHEDULE 80 PVC. SEE INSTALLATION TYPICAL SECTION DETAIL ON SHT. 286.
5. TOP OF WALL 1 SHALL BE CONSTRUCTED 2'-6" ABOVE ADJACENT TRAIL GRADE PER DETAIL ON SHT. 284

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(303) 988-4939
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MEC PROJECT NO. 11039.03

COLORADO REGISTERED PROFESSIONAL ENGINEER CHRISTOPHER L. KREGER 37254 6/18/15

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CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
WALL 1 PLAN & PROFILE (2 OF 2)

Designer:	ASP/KMA	Structure Numbers	
Detailer:	JHK		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-31

Project No./Code
STM 110-081
18405
Sheet Number: 244

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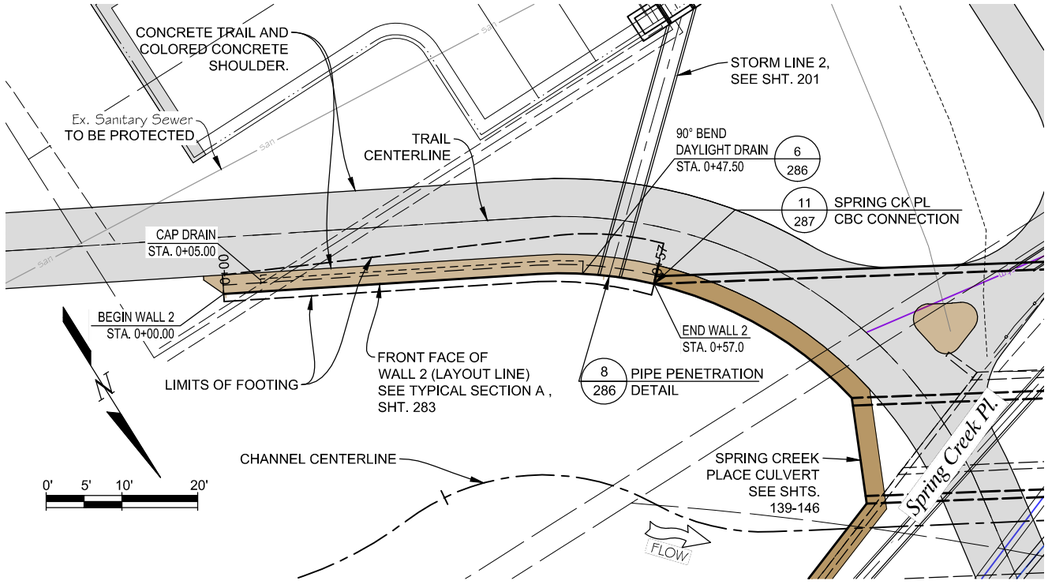
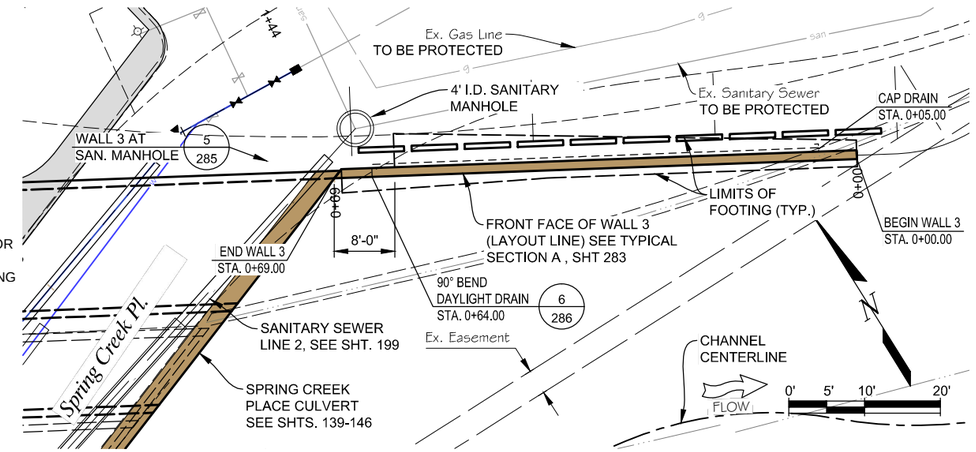


WALL 2 PLAN

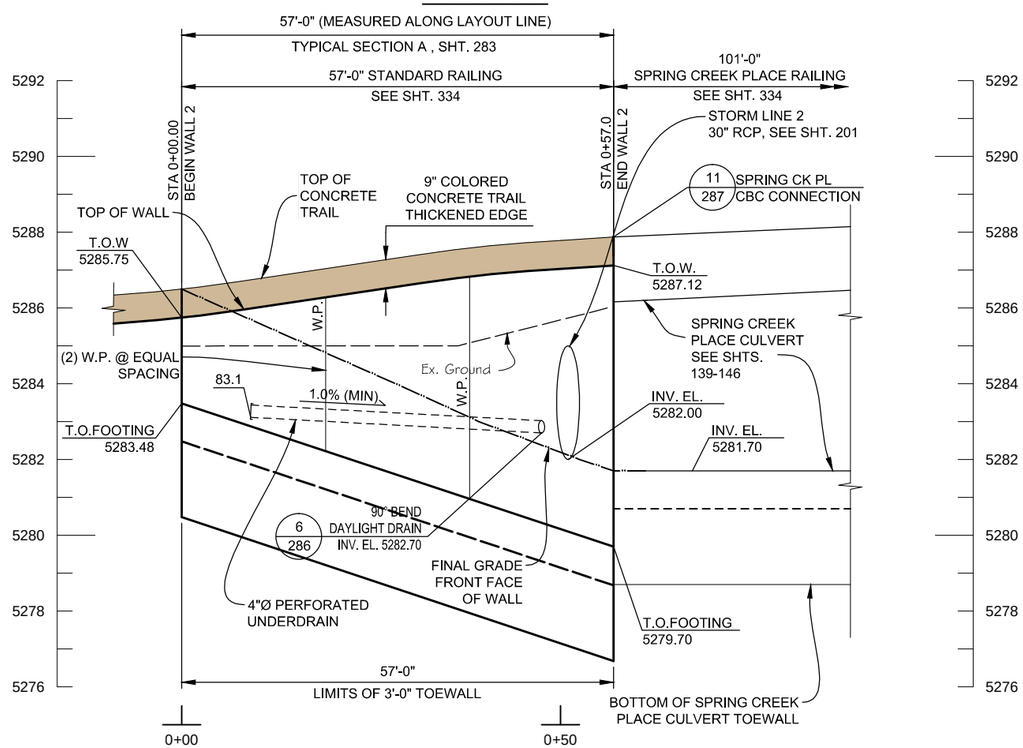
WALL 2 VERTICAL CONTROL TABLE	
WALL STATION	T.O.W. ELEV.
0+00.00	5285.75
0+10.00	5286.01
0+20.00	5286.31
0+30.00	5286.61
0+40.00	5286.87
0+50.00	5287.03

CONTROL TABLE NOTE:
VERTICAL CONTROL TABLE PROVIDED FOR INFORMATION ONLY. ACTUAL T.O.W. ELEVATIONS SHALL BE DETERMINED USING TRAIL VERTICAL GEOMETRY AND BE ADJUSTED FOR OFFSET AND TRAIL THICKNESS.

NOTES:
1. SEE SHTS. 214-230 FOR HORIZONTAL CONTROL.
2. FOR EXPANSION (EXP.) AND WEAKENED PLANE (W.P.) DETAILS, SEE SHT. 285.
3. CONTRACTOR SHALL COORDINATE WALL FACE TREATMENT WITH CHEVO STUDIOS.
4. ALL UNDERDRAIN PIPE SHALL BE SCHEDULE 80 PVC. SEE INSTALLATION TYPICAL SECTION DETAIL ON SHT. 286.

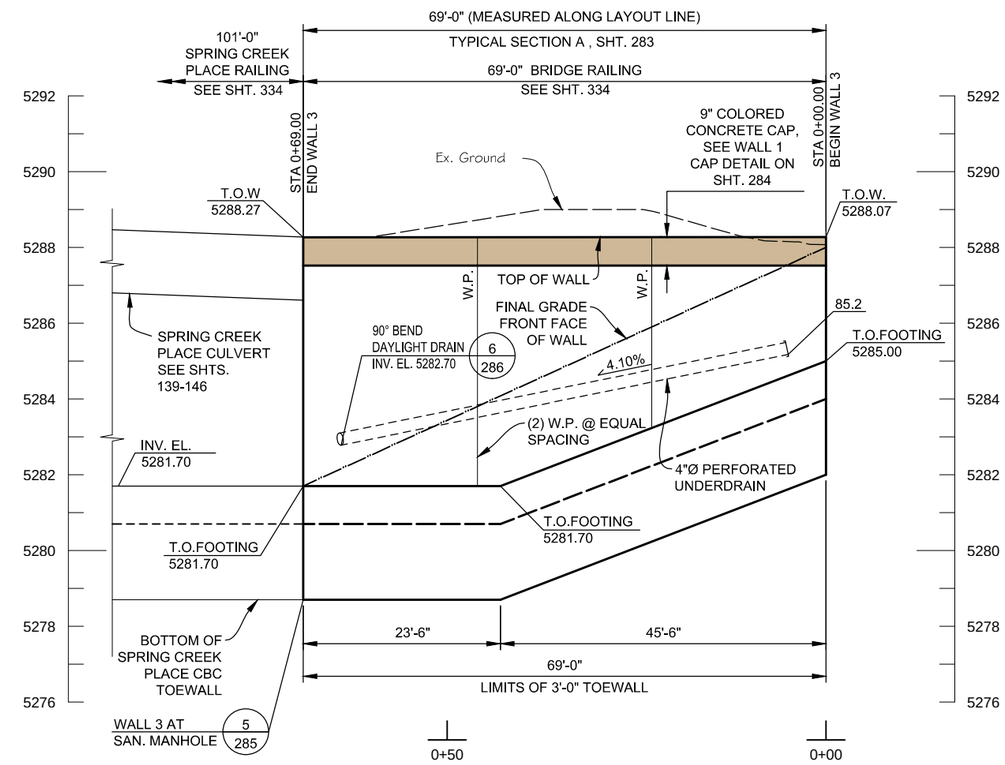


WALL 3 PLAN



WALL 2 ELEVATION

SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'



WALL 3 ELEVATION

SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'

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Last Modification Date: 06/18/15	Initials: JHK
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Drawing File Name: 11-039.03_WALL PROFILES.dwg	
AutoCAD 2014	Scale: AS SHOWN

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MULLER
MEC PROJECT NO. 11039.03

COLORADO REGISTERED PROFESSIONAL ENGINEER CHRISTOPHER L. KRAMER 37254 6/18/15

Sheet Revisions		
Date:	Comments	Init.

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No Revisions:
Revised:
Void:

Region 4 RDM
CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
WALLS 2 & 3 PLAN & PROFILE

Designer:	ASP/KMA	Structure Numbers	
Detailer:	JHK		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-32

Project No./Code
STM 110-081
18405
Sheet Number: 245

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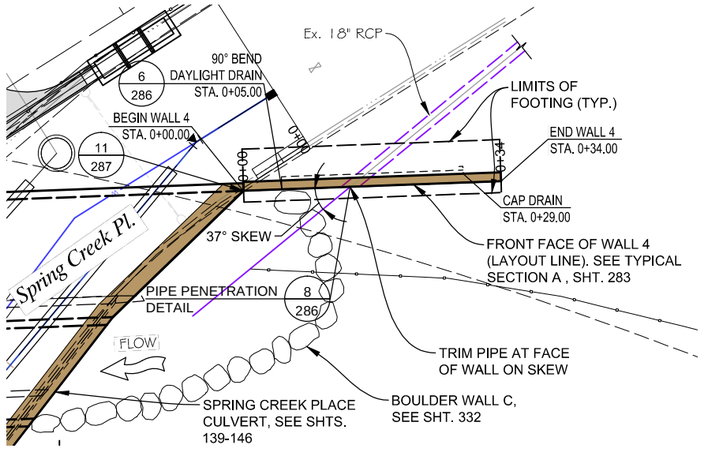
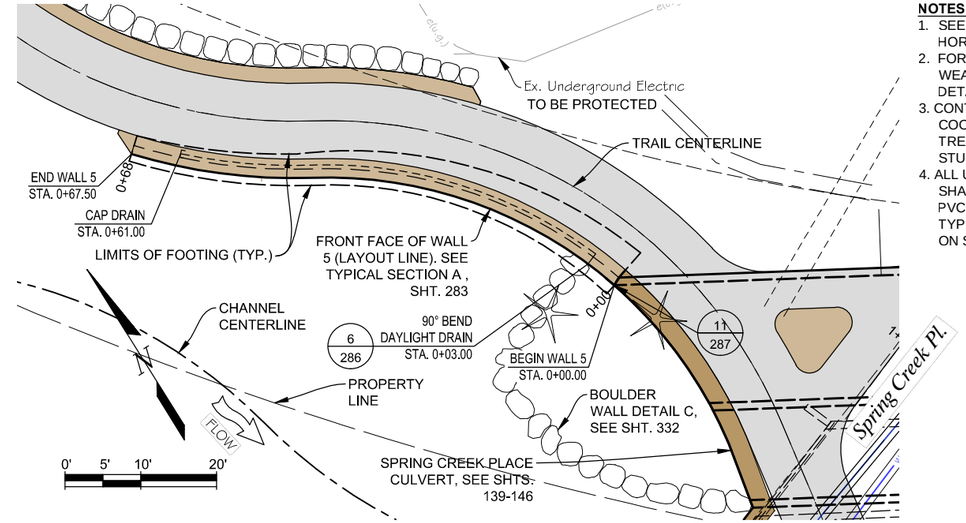


WALL 4 PLAN

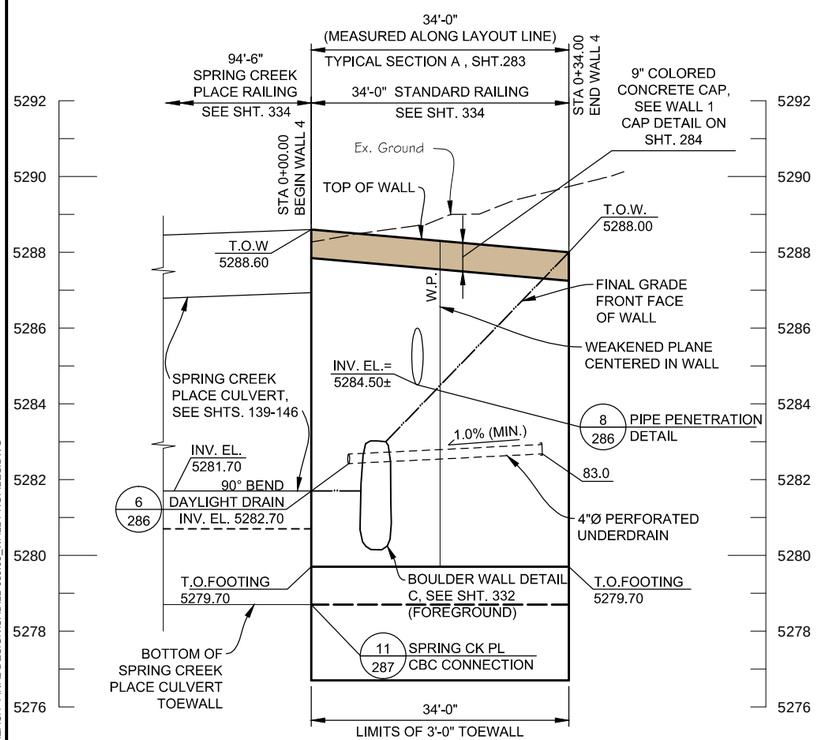
WALL 5 VERTICAL CONTROL TABLE	
WALL STATION	T.O.W. ELEV.
0+00.00	5288.39
0+10.00	5288.45
0+20.00	5288.35
0+30.00	5288.05
0+40.00	5287.56
0+50.00	5287.08
0+60.00	5286.73

CONTROL TABLE NOTE:
VERTICAL CONTROL TABLE PROVIDED FOR INFORMATION ONLY. ACTUAL T.O.W. ELEVATIONS SHALL BE DETERMINED USING TRAIL VERTICAL GEOMETRY AND BE ADJUSTED FOR OFFSET AND TRAIL THICKNESS.



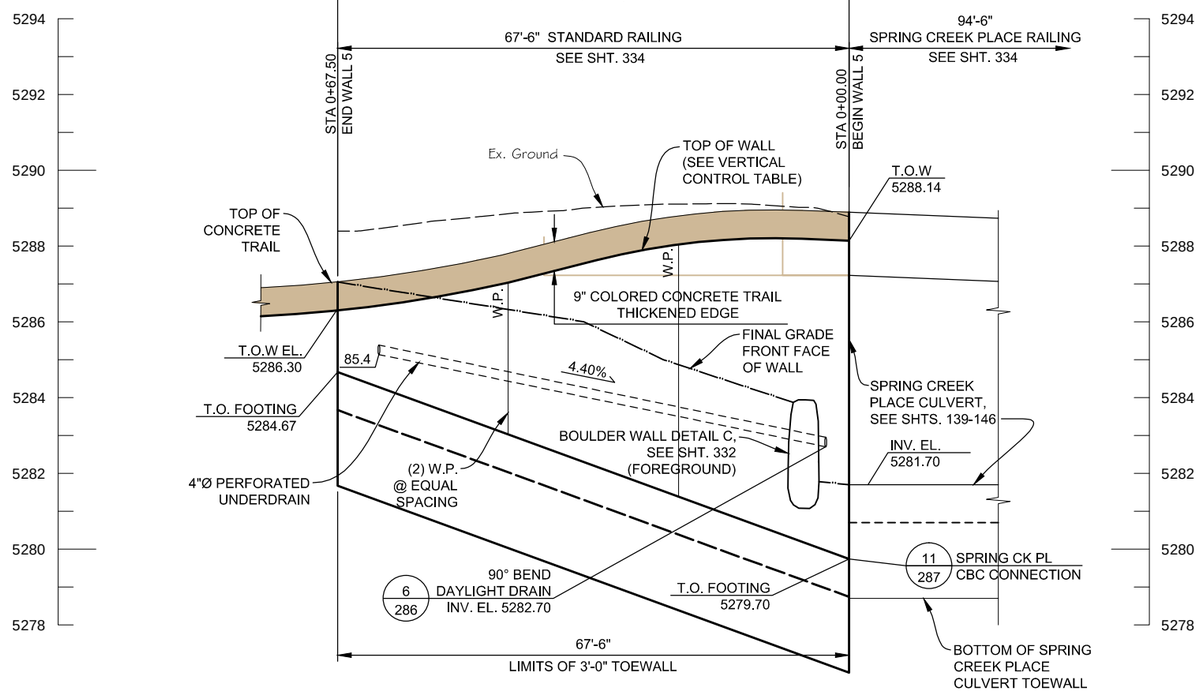
WALL 5 PLAN

NOTES:
1. SEE SHTS. 214-230 FOR HORIZONTAL CONTROL.
2. FOR EXPANSION (EXP.) AND WEAKENED PLANE (W.P.) DETAILS, SEE SHT. 285.
3. CONTRACTOR SHALL COORDINATE WALL FACE TREATMENT WITH CHEVO STUDIOS.
4. ALL UNDERDRAIN PIPE SHALL BE SCHEDULE 80 PVC. SEE INSTALLATION TYPICAL SECTION DETAIL ON SHT. 286.



WALL 4 ELEVATION
SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'

0+00



WALL 5 ELEVATION
SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'

1+00 0+00

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Last Modification Date: 06/18/15	Initials: JHK
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Drawing File Name: 11-039.03_WALL PROFILES.dwg	
AutoCAD 2014	Scale: AS SHOWN

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MEC PROJECT NO. 11039.03

COLORADO REGISTERED PROFESSIONAL ENGINEER CHRISTOPHER L. KADGER 37254 6/18/15

Sheet Revisions		
Date:	Comments	Init.

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No Revisions:
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Void:

Region 4 RDM
CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
WALLS 4 & 5 PLAN & PROFILE

Designer: ASP/KMA
Detailer: JHK
Structure Numbers
Sheet Subset: TRAIL-WALL
Subset Sheets: TW-33

Project No./Code
STM 110-081
18405
Sheet Number: 246

PLOTTED: 6/19/2015 11:46:57 AM
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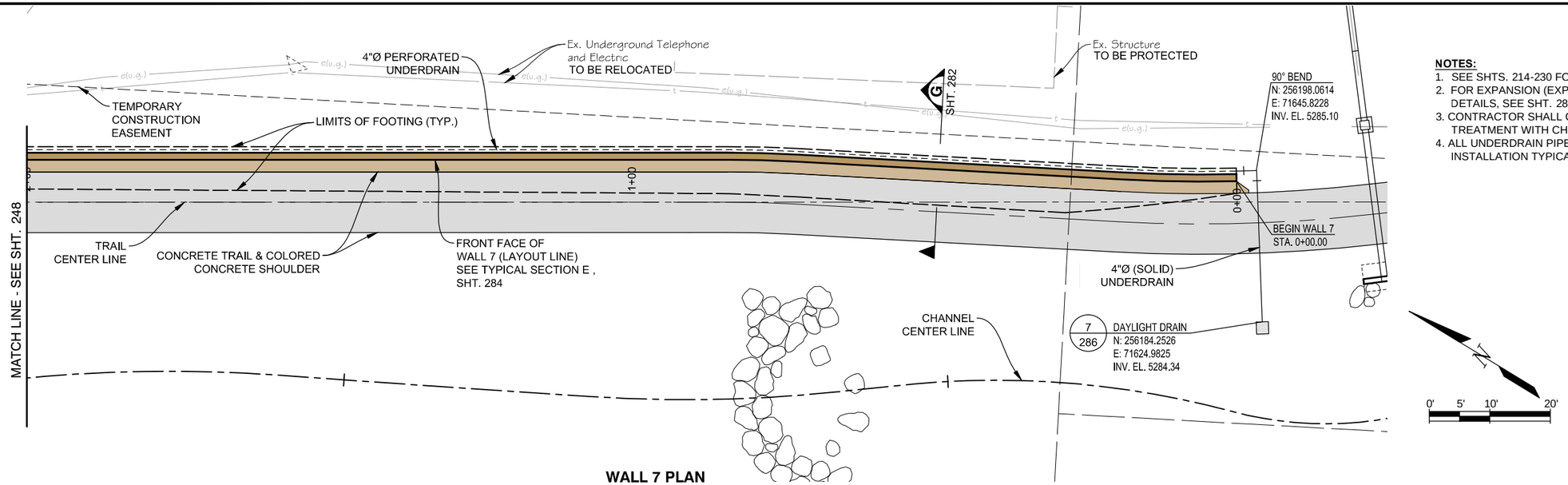
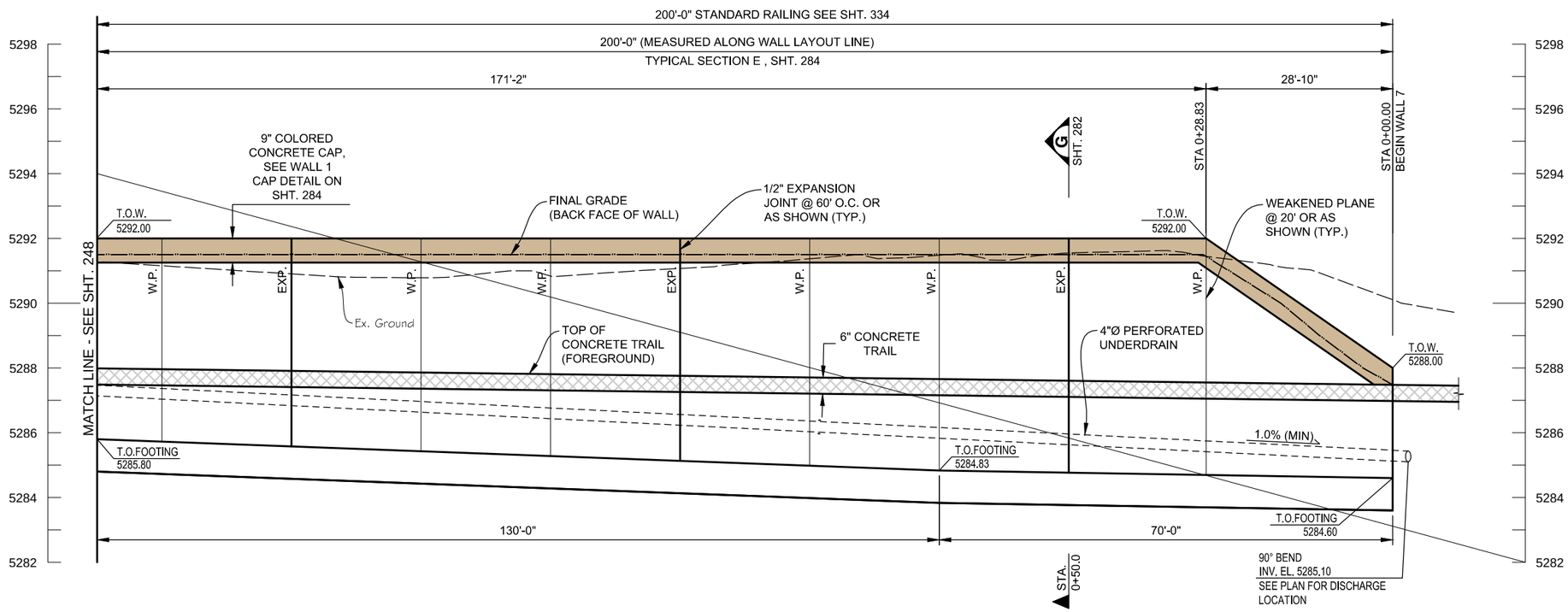


NOTES:

1. SEE SHTS. 214-230 FOR HORIZONTAL CONTROL.
2. FOR EXPANSION (EXP.) AND WEAKENED PLANE (W.P.) DETAILS, SEE SHT. 285.
3. CONTRACTOR SHALL COORDINATE WALL FACE TREATMENT WITH CHEVO STUDIOS.
4. ALL UNDERDRAIN PIPE SHALL BE SCHEDULE 80 PVC. SEE INSTALLATION TYPICAL SECTION DETAIL ON SHT. 286.

WALL 7 PLAN



WALL 7 ELEVATION

SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'

Computer File Information	
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Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_WALL PROFILES.dwg	
AutoCAD 2014	Scale: AS SHOWN

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Sheet Revisions		
Date:	Comments	Init.

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No Revisions:
Revised:
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Region 4 RDM
CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
WALL 7 PLAN & PROFILE (1 OF 2)

Designer:	ASP/KMA	Structure Numbers	
Detailer:	JHK		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-34

Project No./Code
STM 110-081
18405
Sheet Number: 247

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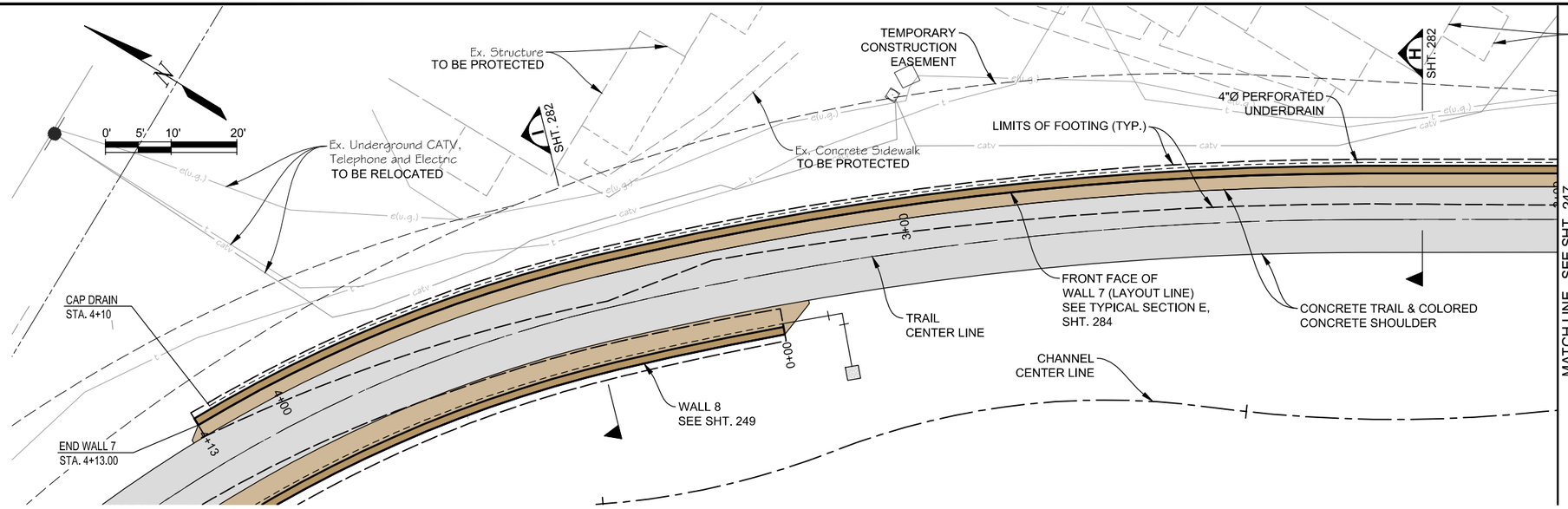
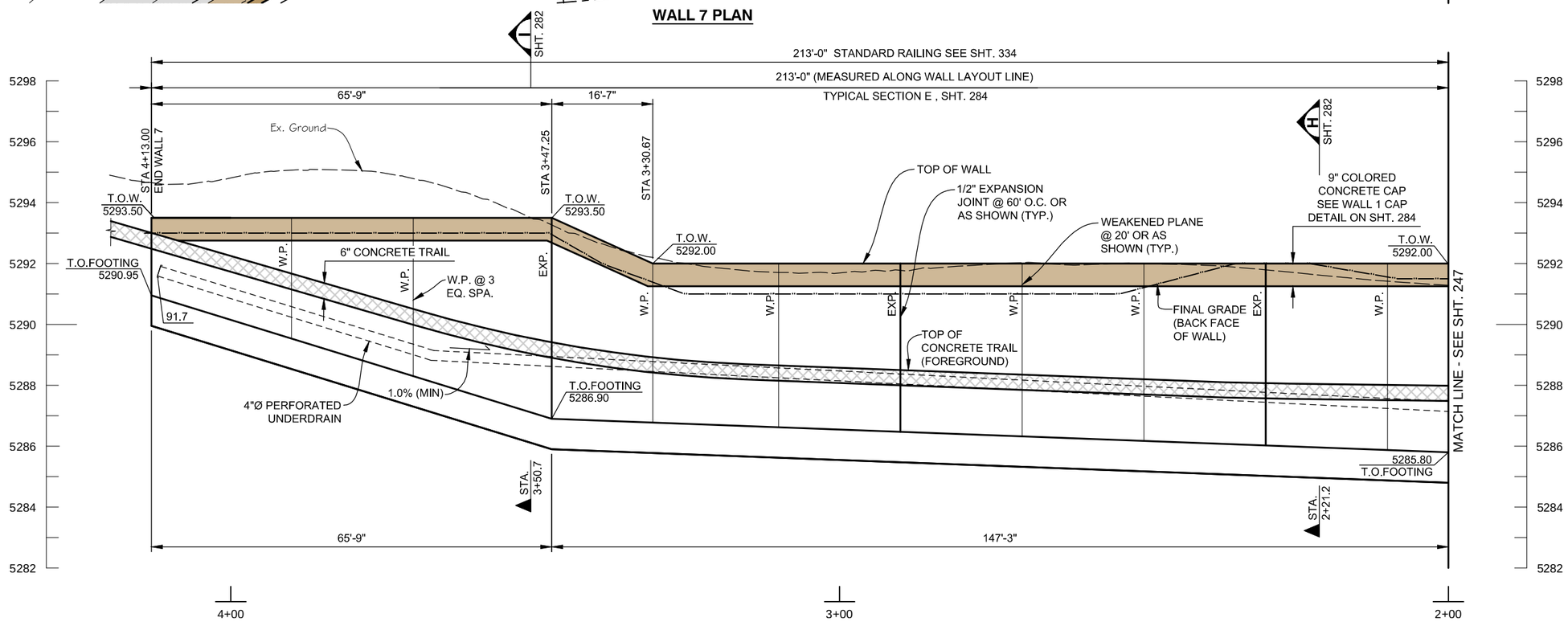


NOTES:

1. SEE SHTS. 214-230 FOR HORIZONTAL CONTROL.
2. FOR EXPANSION (EXP.) AND WEAKENED PLANE (W.P.) DETAILS, SEE SHT. 285.
3. CONTRACTOR SHALL COORDINATE WALL FACE TREATMENT WITH CHEVO STUDIOS.
4. ALL UNDERDRAIN PIPE SHALL BE SCHEDULE 80 PVC. SEE INSTALLATION TYPICAL SECTION DETAIL ON SHT. 286.

WALL 7 PLAN



WALL 7 ELEVATION

SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'

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Last Modification Date: 06/18/15	Initials: JHK
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MEC PROJECT NO. 11039.03

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CO CDOT Region 4 RDM
CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
WALL 7 PLAN & PROFILE (2 OF 2)

Designer:	ASP/KMA	Structure Numbers	
Detailer:	JHK		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-35

Project No./Code
STM 110-081
18405
Sheet Number: 248

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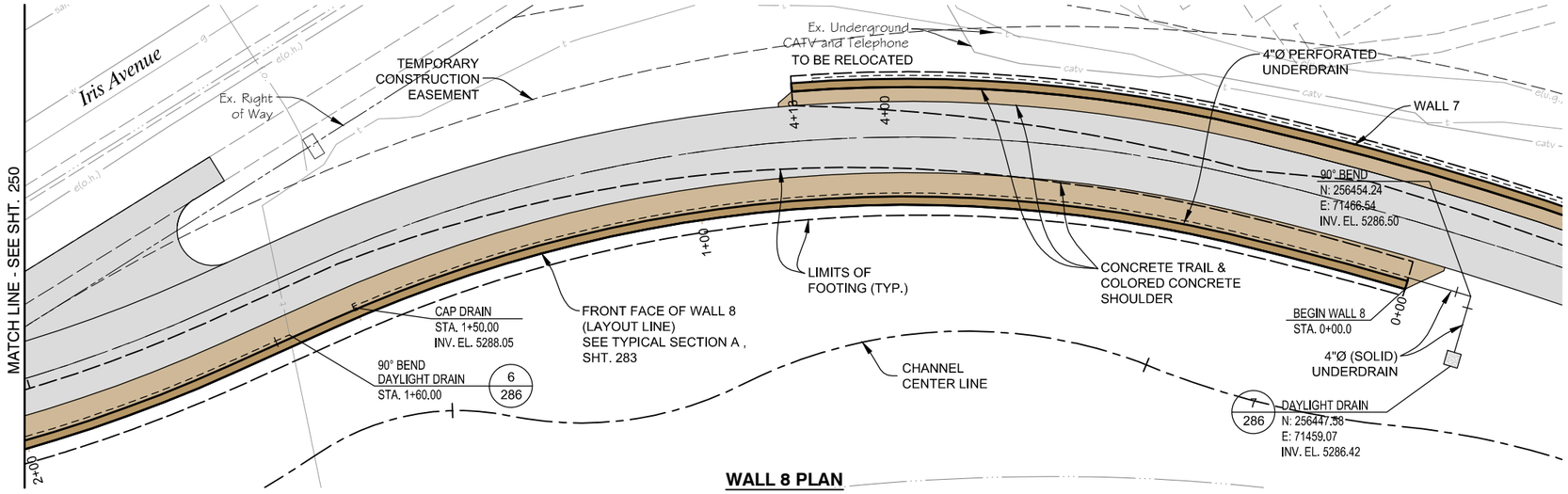
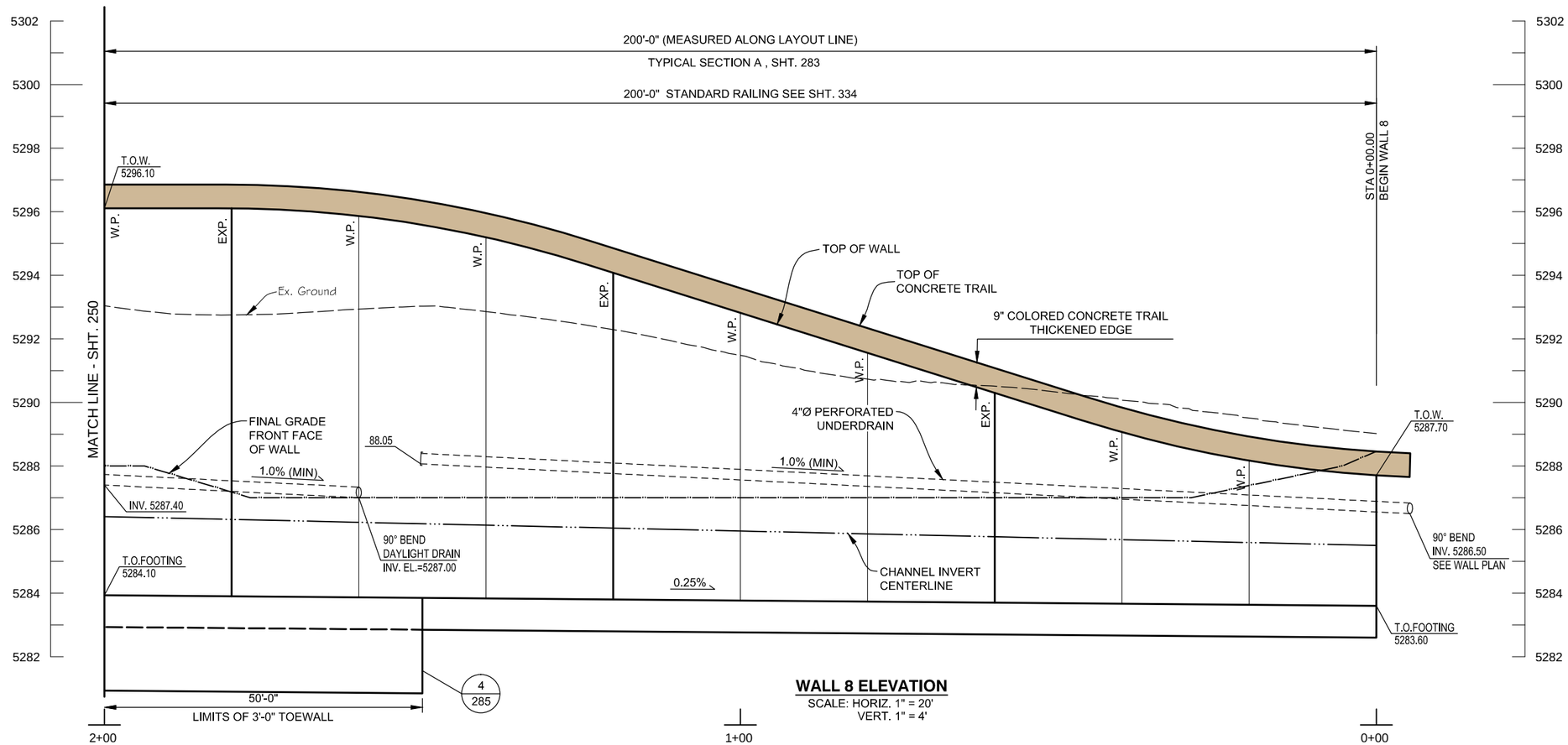


WALL 8 PLAN



WALL 8 ELEVATION

SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'

WALL 8 VERTICAL CONTROL TABLE	
WALL STATION	T.O.W. ELEV.
0+00.00	5287.70
0+10.00	5287.88
0+20.00	5288.17
0+30.00	5288.56
0+40.00	5289.07
0+50.00	5289.68
0+60.00	5290.31
0+70.00	5290.94
0+80.00	5291.57
0+90.00	5292.20
1+00.00	5292.83
1+10.00	5293.46
1+20.00	5294.08
1+30.00	5294.70
1+40.00	5295.20
1+50.00	5295.59
1+60.00	5295.87
1+70.00	5296.04
1+80.00	5296.10
1+90.00	5296.10
2+00.00	5296.10

CONTROL TABLE NOTE:
VERTICAL CONTROL TABLE PROVIDED FOR INFORMATION ONLY. ACTUAL T.O.W. ELEVATIONS SHALL BE DETERMINED USING TRAIL VERTICAL GEOMETRY AND BE ADJUSTED FOR OFFSET AND TRAIL THICKNESS.

NOTES:
1. SEE SHTS. 214-230 FOR HORIZONTAL CONTROL.
2. FOR EXPANSION (EXP.) AND WEAKENED PLANE (W.P.) DETAILS, SEE SHT. 285.
3. CONTRACTOR SHALL COORDINATE WALL FACE TREATMENT WITH CHEVO STUDIOS.
4. ALL UNDERDRAIN PIPE SHALL BE SCHEDULE 80 PVC. SEE INSTALLATION TYPICAL SECTION DETAIL ON SHT. 286.

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Last Modification Date: 06/18/15	Initials: JHK
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MEC PROJECT NO. 11039.03

COLORADO REGISTERED PROFESSIONAL ENGINEER CHRISTOPHER L. KRAMER 37254 6/18/15

Sheet Revisions		
Date:	Comments	Init.

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No Revisions:
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Region 4 RDM
CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
WALL 8 PLAN & PROFILE (1 OF 2)

Designer: ASP/KMA
Detailer: JHK
Structure Numbers
Sheet Subset: TRAIL-WALL
Subset Sheets: TW-36

Project No./Code
STM 110-081
18405
Sheet Number: 249

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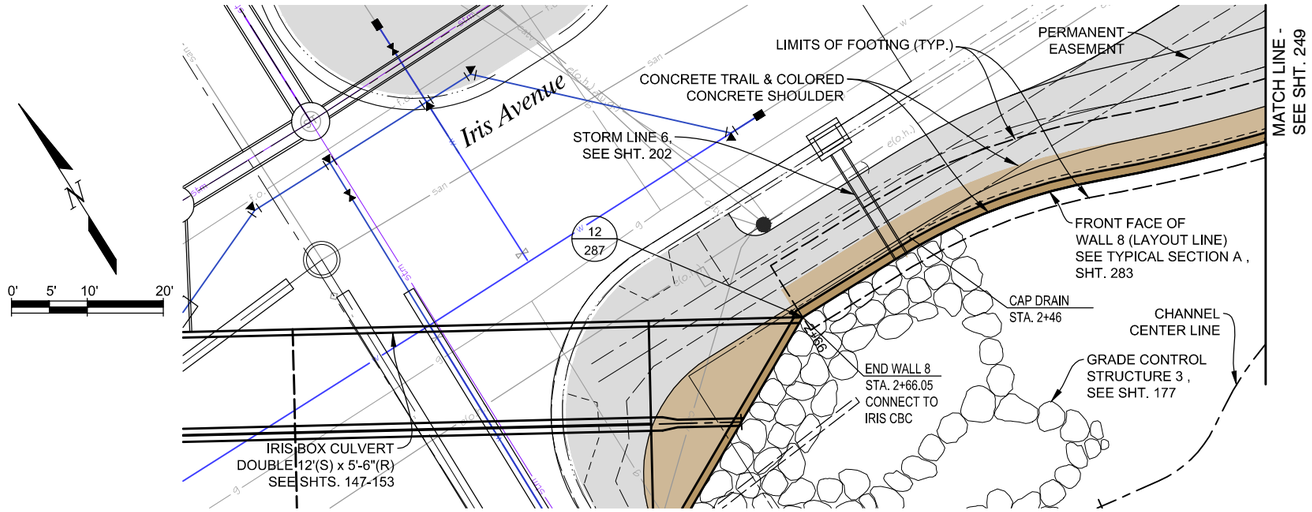
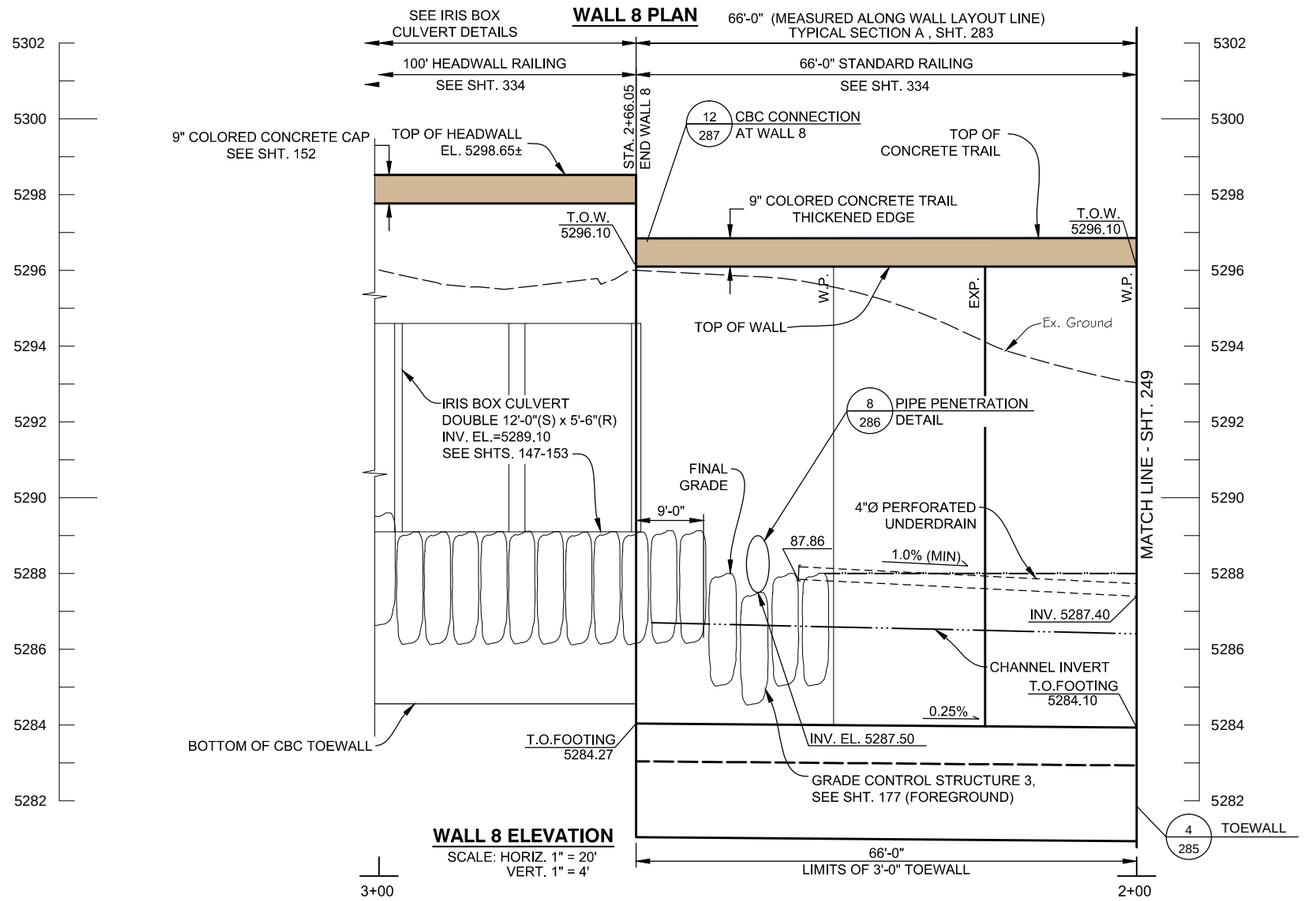


WALL 8 PLAN

WALL 8 VERTICAL CONTROL TABLE	
WALL STATION	T.O.W. ELEV.
2+00.00	5296.10
2+10.00	5296.10
2+20.00	5296.10
2+30.00	5296.10
2+40.00	5296.10
2+50.00	5296.10
2+60.00	5296.10
2+66.05	5296.10

CONTROL TABLE NOTE:
VERTICAL CONTROL TABLE PROVIDED FOR INFORMATION ONLY. ACTUAL T.O.W. ELEVATIONS SHALL BE DETERMINED USING TRAIL VERTICAL GEOMETRY AND BE ADJUSTED FOR OFFSET AND TRAIL THICKNESS.



WALL 8 ELEVATION

SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'

NOTES:
1. SEE SHTS. 214-230 FOR HORIZONTAL CONTROL.
2. FOR EXPANSION (EXP.) AND WEAKENED PLANE (W.P.) DETAILS, SEE SHT. 285.
3. CONTRACTOR SHALL COORDINATE WALL FACE TREATMENT WITH CHEVO STUDIOS.
4. ALL UNDERDRAIN PIPE SHALL BE SCHEDULE 80 PVC. SEE INSTALLATION TYPICAL SECTION DETAIL ON SHT. 286.
5. THE TOP ELEVATION OF THE HEADWALL RAILING SHALL MATCH THE TOP ELEVATION OF THE ADJACENT STANDARD RAILING.

Computer File Information		
Creation Date: 08/08/14	Initials: JHK	
Last Modification Date: 06/18/15	Initials: JHK	
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Drawing File Name: 11-039.03_WALL PROFILES.dwg		
AutoCAD 2014	Scale: AS SHOWN	

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MEC PROJECT NO. 11039.03

COLORADO REGISTERED PROFESSIONAL ENGINEER CHRISTOPHER L. KREGER 37254 6/18/15

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No Revisions:
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GREAT DENVER AREA FLOOD CONTROL DISTRICT
CO CDOT Region 4 RDM
CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
WALL 8 PLAN & PROFILE (2 OF 2)

Designer:	ASP/KMA	Structure Numbers	
Detailer:	JHK		
Sheet Subset:	TRAIL-WALL	Subset Sheets:	TW-37

Project No./Code
STM 110-081
18405
Sheet Number: 250

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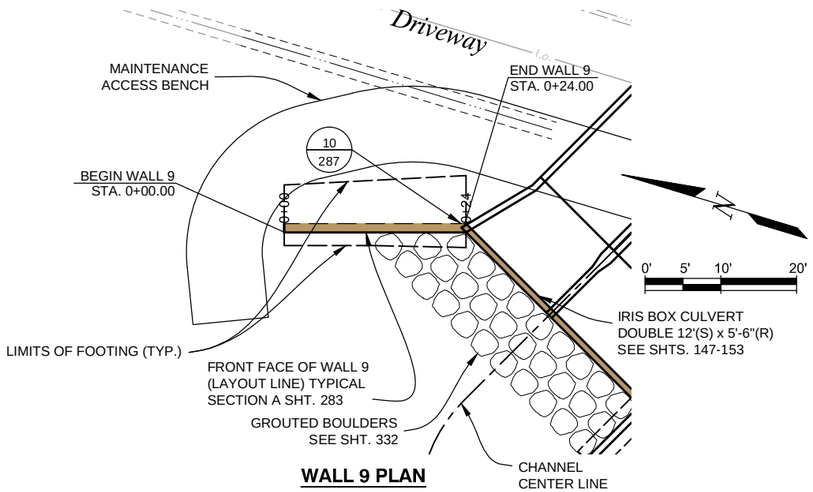
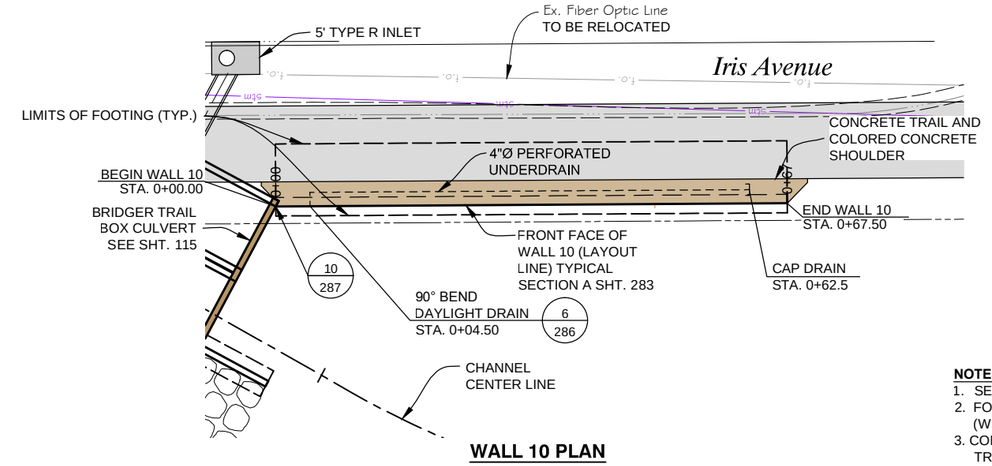
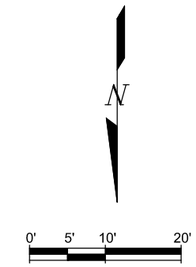


WALL 9 PLAN

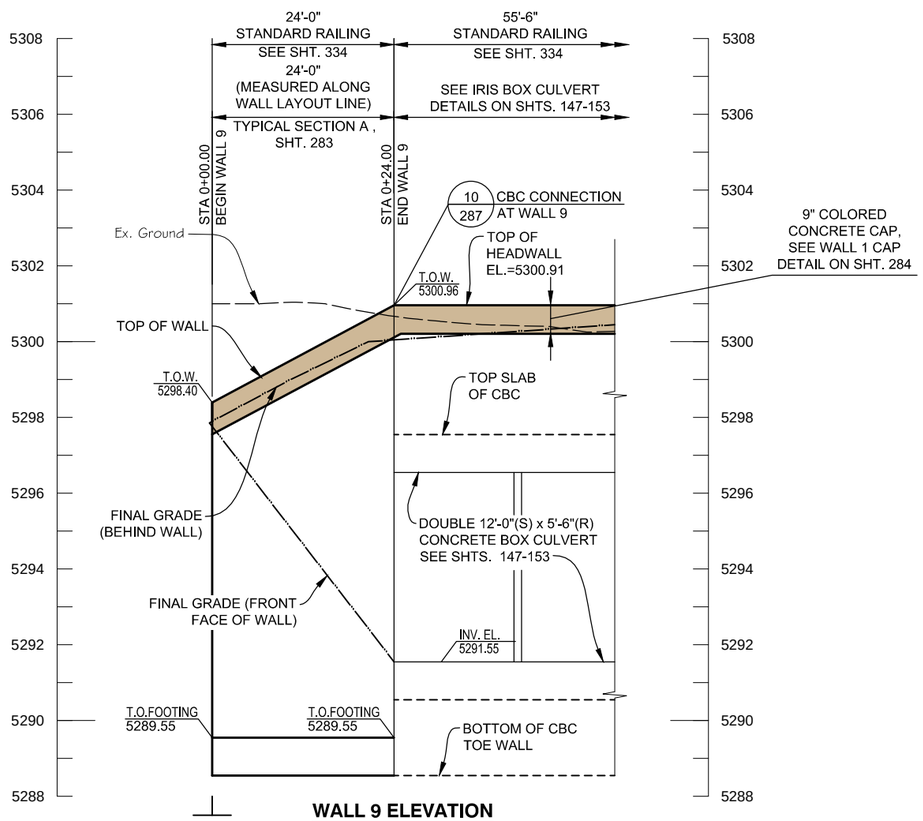


WALL 10 PLAN



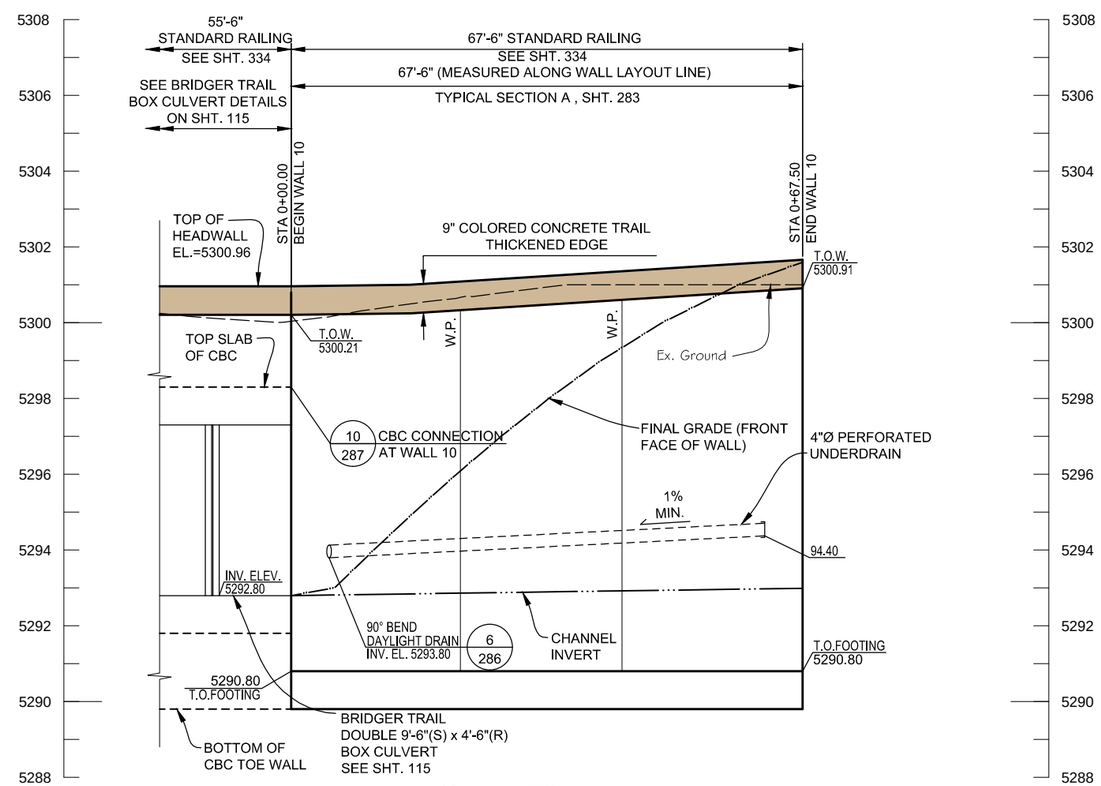
NOTES:

1. SEE SHTS. 214-230 FOR HORIZONTAL CONTROL.
2. FOR EXPANSION (EXP.) AND WEAKENED PLANE (W.P.) DETAILS, SEE SHT. 285.
3. CONTRACTOR SHALL COORDINATE WALL FACE TREATMENT WITH CHEVO STUDIOS.
4. ALL UNDERDRAIN PIPE SHALL BE SCHEDULE 80 PVC. SEE INSTALLATION TYPICAL SECTION DETAIL ON SHT. 286.



WALL 9 ELEVATION

SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'



WALL 10 ELEVATION

SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'

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Last Modification Date: 06/18/15	Initials: JHK		
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AutoCAD 2014	Scale: AS SHOWN		

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MULLER
MEC PROJECT NO. 11039.03

COLORADO REGISTERED PROFESSIONAL ENGINEER CHRISTOPHER L. KREGER 37254 6/18/15

Sheet Revisions		
Date:	Comments	Init.

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No Revisions:
Revised:
Void:

Region 4 RDM

CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT

WALLS 9 & 10 PLAN & PROFILE

Designer:	ASP/KMA	Structure Numbers	
Detailer:	JHK		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-38

Project No./Code
STM 110-081
18405
Sheet Number: 251

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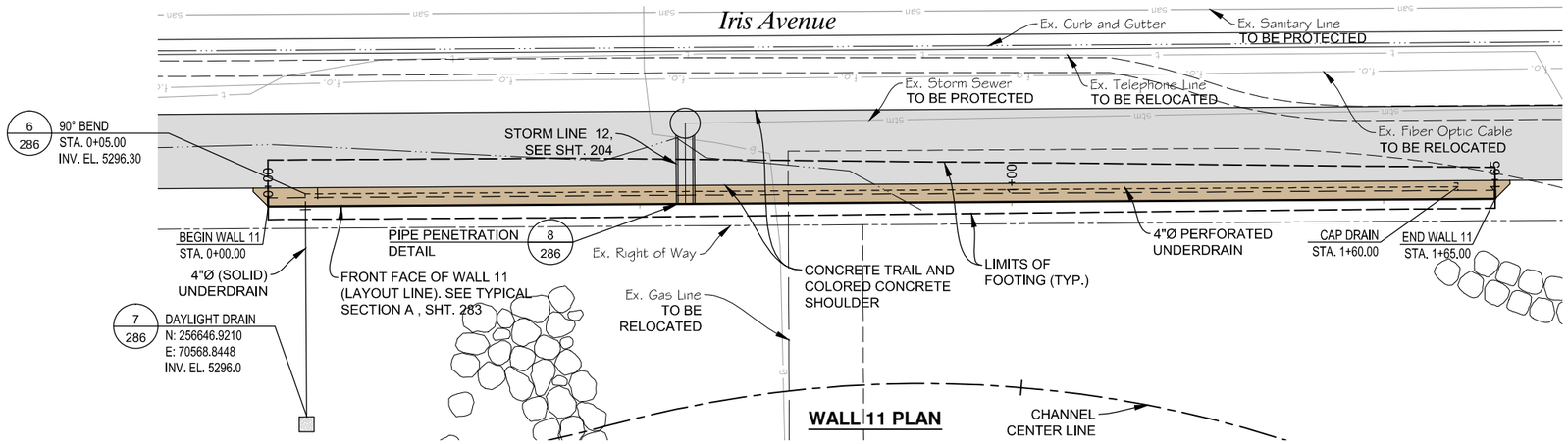
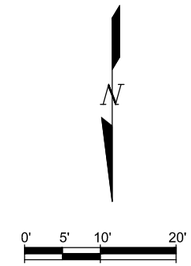
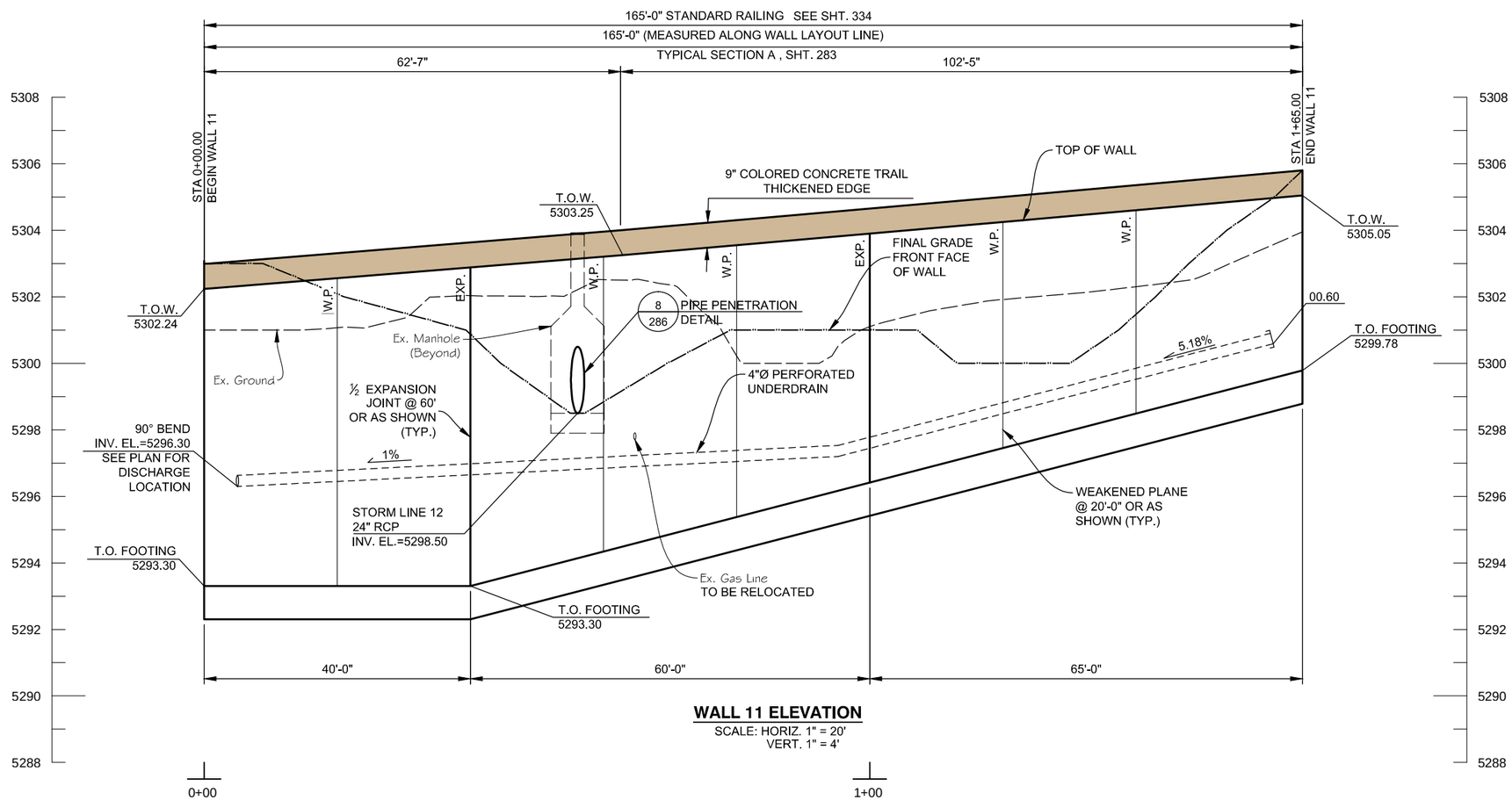


WALL 11 PLAN



NOTES:

1. SEE SHTS. 214-230 FOR HORIZONTAL CONTROL.
2. FOR EXPANSION (EXP.) AND WEAKENED PLANE (W.P.) DETAILS, SEE SHT. 285.
3. CONTRACTOR SHALL COORDINATE WALL FACE TREATMENT WITH CHEVO STUDIOS.
4. ALL UNDERDRAIN PIPE SHALL BE SCHEDULE 80 PVC. SEE INSTALLATION TYPICAL SECTION DETAIL ON SHT. 286.



WALL 11 ELEVATION

SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'

Computer File Information		Sheet Revisions			As Constructed
Creation Date: 08/08/14	Initials: JHK	Date:	Comments	Init.	No Revisions:
Last Modification Date: 06/18/15	Initials: JHK				Revised:
Full Path: P:\11-039.03\CAD					Void:
Drawing File Name: 11-039.03_WALL PROFILES.dwg					
AutoCAD 2014	Scale: AS SHOWN				

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MULLER
MEC PROJECT NO. 11039.03

COLORADO REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER L. KRAMER
37254
6/18/15

Region 4 RDM

CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT

WALL 11 PLAN & PROFILE

Designer:	ASP/KMA	Structure Numbers	
Detailer:	JHK		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-39

Project No./Code
STM 110-081
18405
Sheet Number: 252

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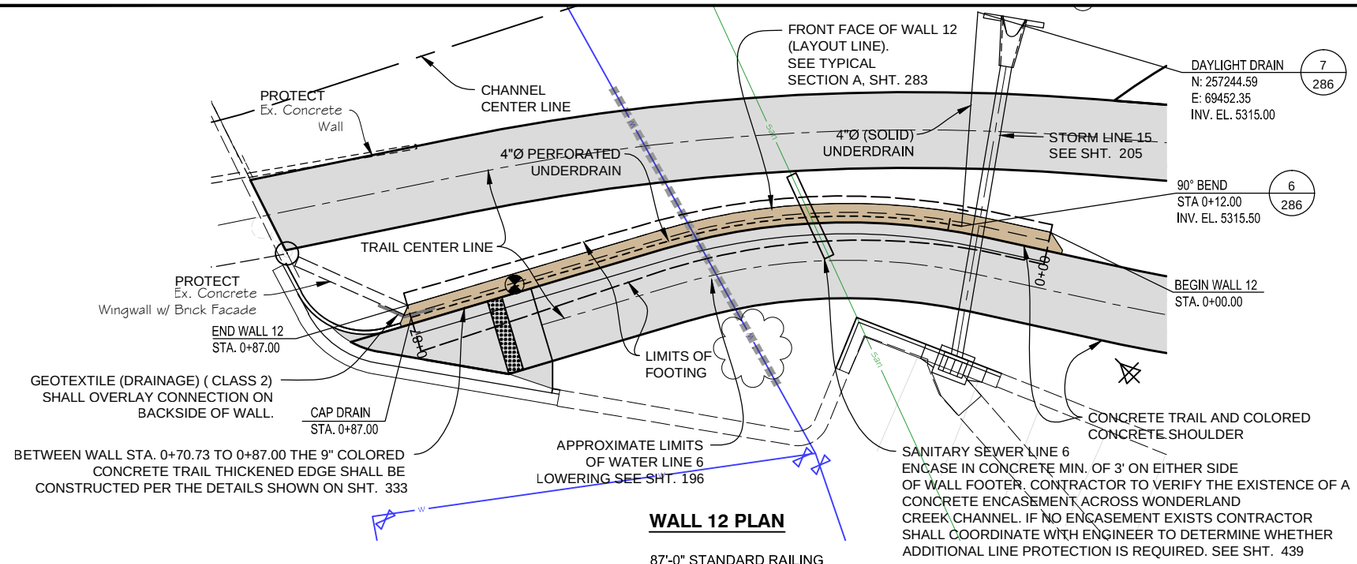
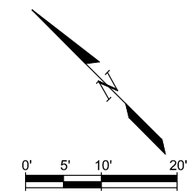


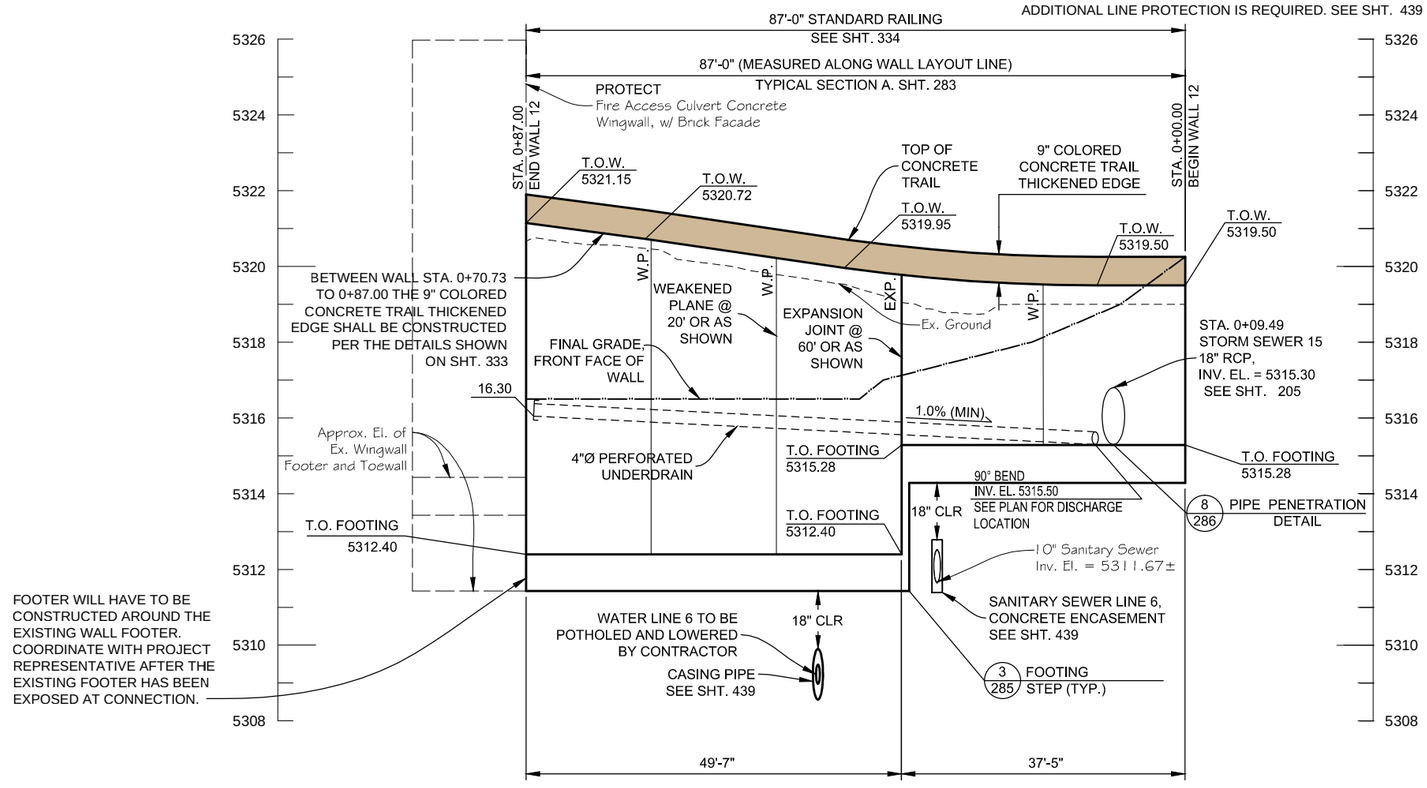
WALL 12 PLAN

NOTES:
1. SEE SHTS. 214-230 FOR HORIZONTAL CONTROL.
2. FOR EXPANSION (EXP.) AND WEAKENED PLANE (W.P.) DETAILS, SEE SHT. 285
3. CONTRACTOR SHALL COORDINATE WALL FACE TREATMENT WITH CHEVO STUDIOS.
4. ALL UNDERDRAIN PIPE SHALL BE SCHEDULE 80 PVC. SEE INSTALLATION TYPICAL SECTION DETAIL ON SHT. 286.



WALL 12 VERTICAL CONTROL TABLE	
WALL STATION	T.O.W. ELEV.
0+00.00	5319.50
0+10.00	5319.50
0+20.00	5319.53
0+30.00	5319.64
0+40.00	5319.84
0+50.00	5320.11
0+60.00	5320.41
0+70.00	5320.70
0+80.00	5320.97
0+87.00	5321.15

CONTROL TABLE NOTE:
VERTICAL CONTROL TABLE PROVIDED FOR INFORMATION ONLY. ACTUAL T.O.W. ELEVATIONS SHALL BE DETERMINED USING TRAIL VERTICAL GEOMETRY AND BE ADJUSTED FOR OFFSET AND TRAIL THICKNESS.



WALL 12 ELEVATION

SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'

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Last Modification Date: 06/18/15	Initials: JHK
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Drawing File Name: 11-039.03_WALL PROFILES NORTH.dwg	
AutoCAD 2010	Scale: AS SHOWN FEET

MULLER ENGINEERING CO., INC.
CONSULTING ENGINEERS
777 S. WADSWORTH BLVD. 4-100
LAKEWOOD, COLORADO 80226
(303) 988-4939
MULLER
MEC PROJECT NO. 11039.03

COLORADO REGISTERED PROFESSIONAL ENGINEER CHRISTOPHER L. KRIEGER 37254 6/18/15

Sheet Revisions		
Date:	Comments	Init.

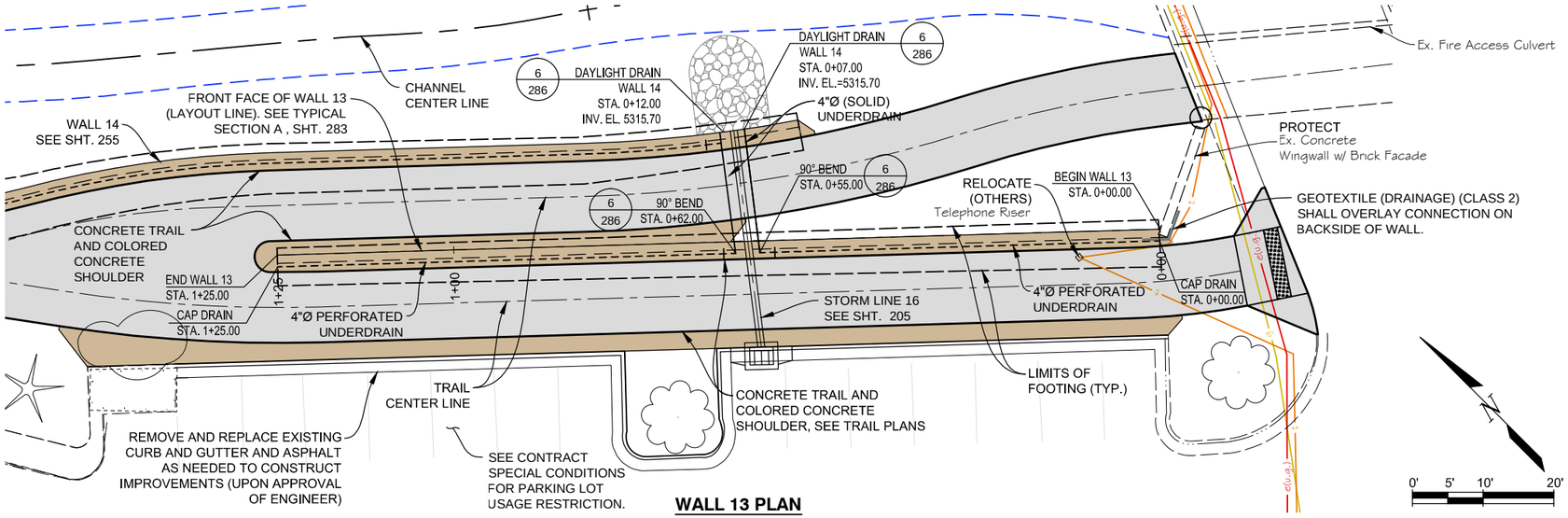
As Constructed
No Revisions:
Revised:
Void:

URBAN DRAINAGE AND FLOOD CONTROL DISTRICT
CDOT CO Region 4 RDM
CITY OF BOULDER

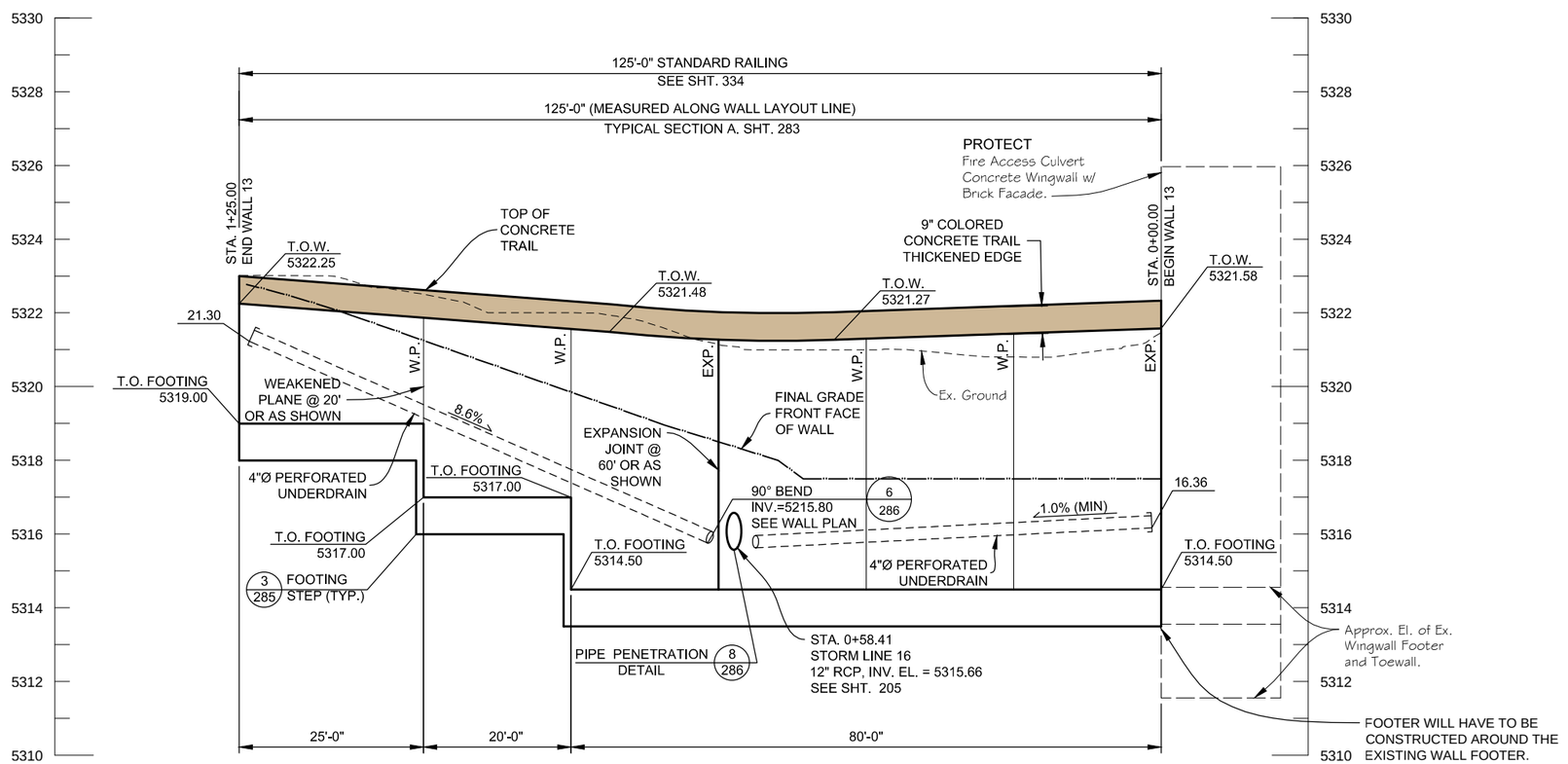
WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
WALL 12 PLAN & PROFILE

Designer:	MKN	Structure Numbers	
Detailer:	NJM		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-40

Project No./Code
STM 110-081
18405
Sheet Number: 253



WALL 13 PLAN



WALL 13 ELEVATION

SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'

NOTES:
1. SEE SHTS. 214-230 FOR HORIZONTAL CONTROL.
2. FOR EXPANSION (EXP.) AND WEAKENED PLANE (W.P.) DETAILS, SEE SHT. 285
3. CONTRACTOR SHALL COORDINATE WALL FACE TREATMENT WITH CHEVO STUDIOS.
4. ALL UNDERDRAIN PIPE SHALL BE SCHEDULE 80 PVC. SEE INSTALLATION TYPICAL SECTION DETAIL ON SHT. 286.

WALL 13 VERTICAL CONTROL TABLE

WALL STATION	T.O.W. ELEV.
0+00.00	5321.58
0+10.00	5321.51
0+20.00	5321.44
0+30.00	5321.37
0+40.00	5321.30
0+50.00	5321.25
0+60.00	5321.27
0+70.00	5321.40
0+80.00	5321.56
0+90.00	5321.72
1+00.00	5321.87
1+10.00	5322.02
1+20.00	5322.17
1+25.00	5322.25

CONTROL TABLE NOTE:
VERTICAL CONTROL TABLE PROVIDED FOR INFORMATION ONLY. ACTUAL T.O.W. ELEVATIONS SHALL BE DETERMINED USING TRAIL VERTICAL GEOMETRY AND BE ADJUSTED FOR OFFSET AND TRAIL THICKNESS.

Computer File Information		
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Last Modification Date: 06/18/15	Initials: JHK	
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Drawing File Name: 11-039.03_WALL PROFILES NORTH.dwg		
AutoCAD 2010	Scale: AS SHOWN	FEET

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777 S. WADSWORTH BLVD. 4-100
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(303) 988-4939
MULLER
MEC PROJECT NO. 11039.03

COLORADO REGISTERED PROFESSIONAL ENGINEER 37254 CHRISTOPHER L. KRAGER 6/18/15

Sheet Revisions		
Date:	Comments	Init.

As Constructed
No Revisions:
Revised:
Void:

Region 4 RDM
CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
WALL 13 PLAN & PROFILE

Designer: MKN
Detailer: NJM
Structure Numbers
Sheet Subset: TRAIL-WALL
Subset Sheets: TW-41

Project No./Code
STM 110-081
18405
Sheet Number: 254

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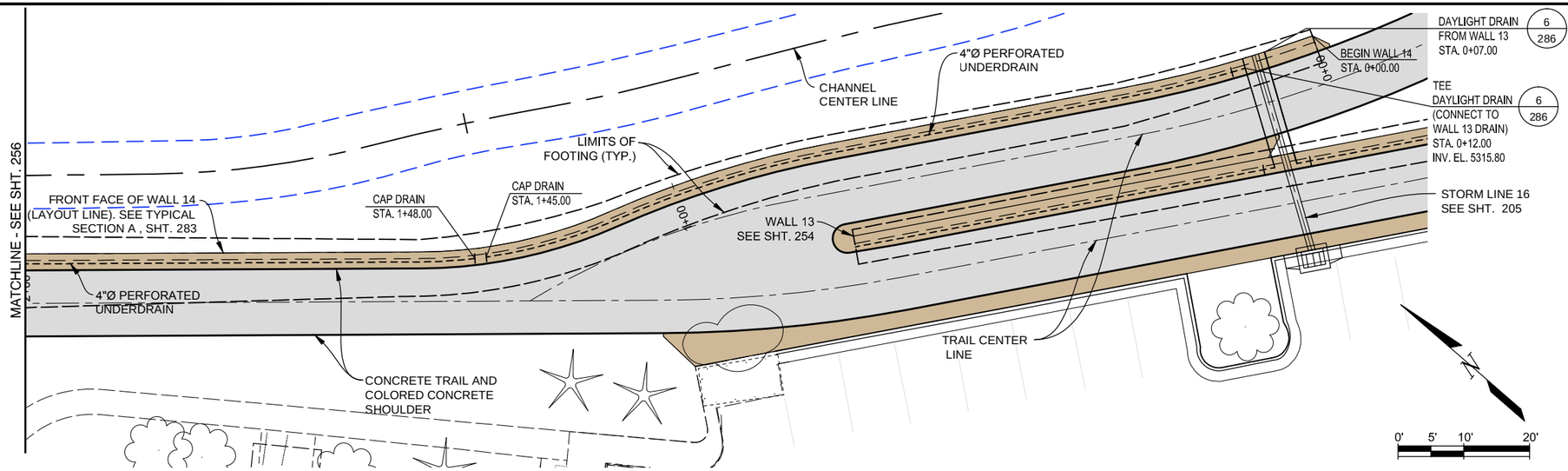


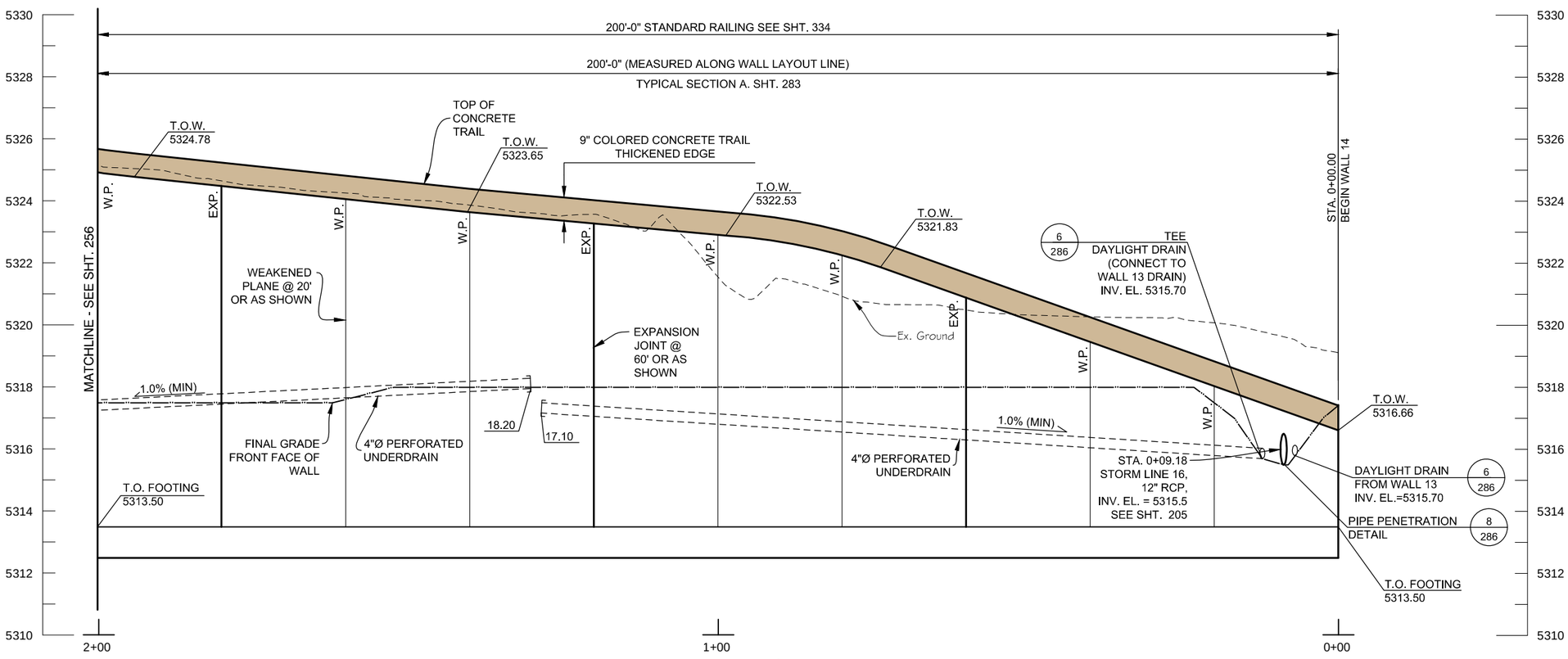
WALL 14 PLAN

NOTES:
1. SEE SHTS. 214-230 FOR HORIZONTAL CONTROL.
2. FOR EXPANSION (EXP.) AND WEAKENED PLANE (W.P.) DETAILS, SEE SHT. 285
3. CONTRACTOR SHALL COORDINATE WALL FACE TREATMENT WITH CHEVO STUDIOS.
4. ALL UNDERDRAIN PIPE SHALL BE SCHEDULE 80 PVC. SEE INSTALLATION TYPICAL SECTION DETAIL ON SHT. 286.

WALL 14 VERTICAL CONTROL TABLE

WALL STATION	T.O.W. ELEV.
0+00.00	5316.66
0+10.00	5317.37
0+20.00	5318.09
0+30.00	5318.80
0+40.00	5319.51
0+50.00	5320.22
0+60.00	5320.94
0+70.00	5321.65
0+80.00	5322.29
0+90.00	5322.70
1+00.00	5322.92
1+10.00	5323.10
1+20.00	5323.29
1+30.00	5323.47
1+40.00	5323.65
1+50.00	5323.86
1+60.00	5324.07
1+70.00	5324.28
1+80.00	5324.49
1+90.00	5323.70
2+00.00	5324.93

CONTROL TABLE NOTE:
VERTICAL CONTROL TABLE PROVIDED FOR INFORMATION ONLY. ACTUAL T.O.W. ELEVATIONS SHALL BE DETERMINED USING TRAIL VERTICAL GEOMETRY AND BE ADJUSTED FOR OFFSET AND TRAIL THICKNESS.



WALL 14 ELEVATION

SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'

Computer File Information		
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Last Modification Date: 06/18/15	Initials: JHK	
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AutoCAD 2010	Scale: AS SHOWN	FEET

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(303) 988-4939
MULLER
MEC PROJECT NO. 11039.03

COLORADO REGISTERED PROFESSIONAL ENGINEER CHRISTOPHER L. KREGER 37254 6/18/15

Sheet Revisions		
Date:	Comments	Init.

As Constructed
No Revisions:
Revised:
Void:

Region 4 RDM

CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT

WALL 14 PLAN & PROFILE (1 OF 4)

Designer: MKN
Detailer: NJM
Sheet Subset: TRAIL-WALL
Structure Numbers
Subset Sheets: TW-42

Project No./Code
STM 110-081
18405
Sheet Number: 255

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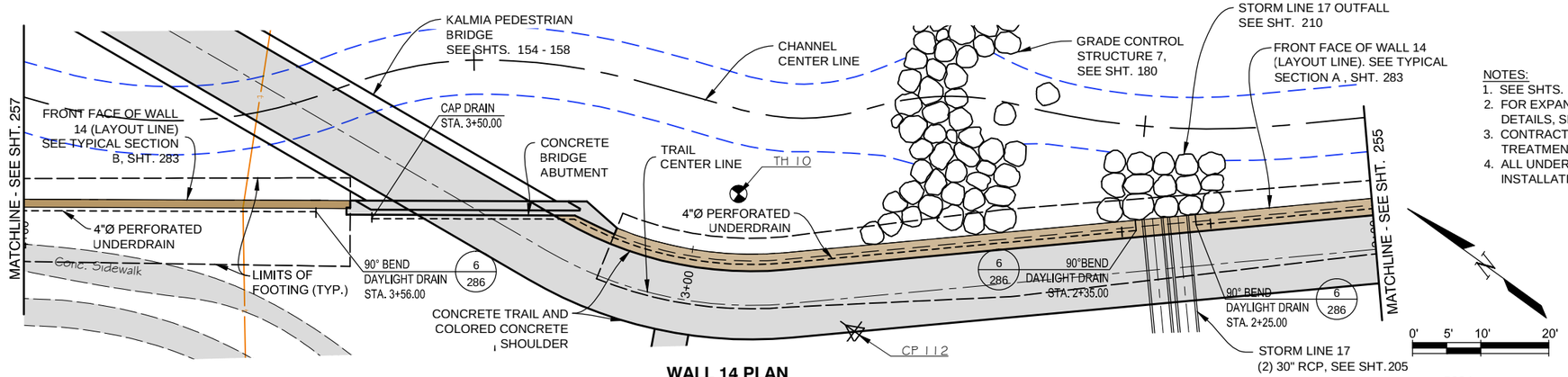
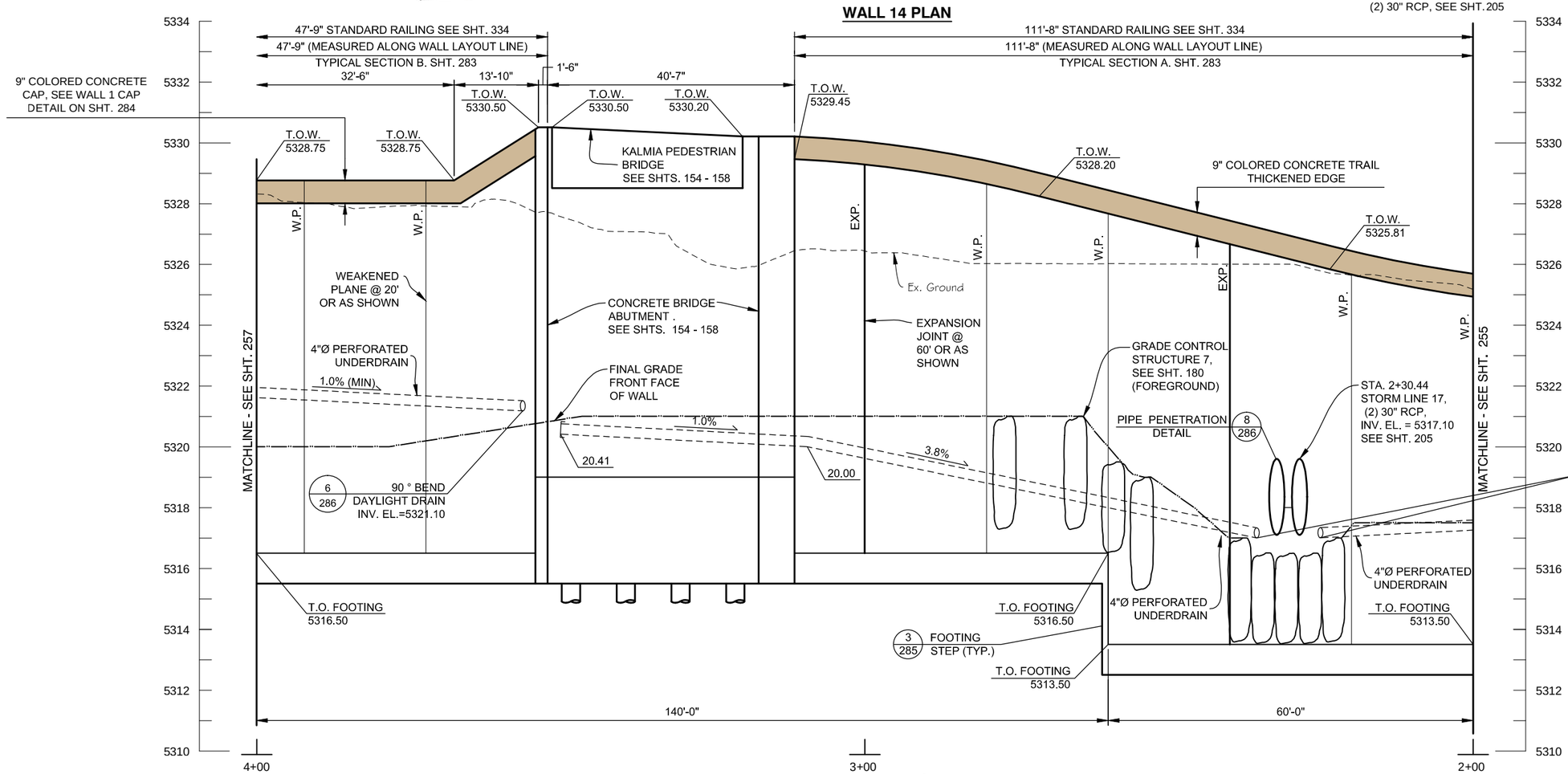


WALL 14 PLAN

NOTES:
1. SEE SHTS. 214-230 FOR HORIZONTAL CONTROL.
2. FOR EXPANSION (EXP.) AND WEAKENED PLANE (W.P.) DETAILS, SEE SHT. 285
3. CONTRACTOR SHALL COORDINATE WALL FACE TREATMENT WITH CHEVO STUDIOS.
4. ALL UNDERDRAIN PIPE SHALL BE SCHEDULE 80 PVC. SEE INSTALLATION TYPICAL SECTION DETAIL ON SHT. 286.



WALL 14 ELEVATION

SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'

WALL 14 VERTICAL CONTROL TABLE	
WALL STATION	T.O.W. ELEV.
2+00.00	5324.93
2+10.00	5325.26
2+20.00	5325.68
2+30.00	5326.18
2+40.00	5326.68
2+50.00	5327.18
2+60.00	5327.68
2+70.00	5328.18
2+80.00	5328.65
2+90.00	5329.02
3+00.00	5329.28
3+10.00	5329.44
3+11.55	5329.45

CONTROL TABLE NOTE:
VERTICAL CONTROL TABLE PROVIDED FOR INFORMATION ONLY. ACTUAL T.O.W. ELEVATIONS SHALL BE DETERMINED USING TRAIL VERTICAL GEOMETRY AND BE ADJUSTED FOR OFFSET AND TRAIL THICKNESS.

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AutoCAD 2010	Scale: AS SHOWN FEET

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MULLER
MEC PROJECT NO. 11039.03

COLORADO REGISTERED PROFESSIONAL ENGINEER CHRISTOPHER L. KRIEGER 37254 6/18/15

Sheet Revisions		
Date:	Comments	Init.

As Constructed
No Revisions:
Revised:
Void:

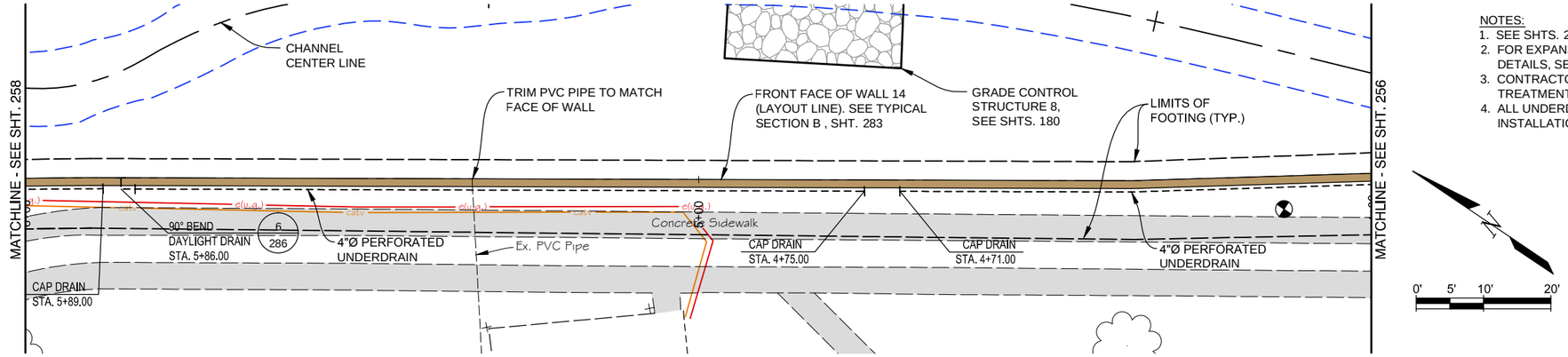
URBAN DRAINAGE AND FLOOD CONTROL DISTRICT
CDOT CO Region 4 RDM
CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
WALL 14 PLAN & PROFILE (2 OF 4)

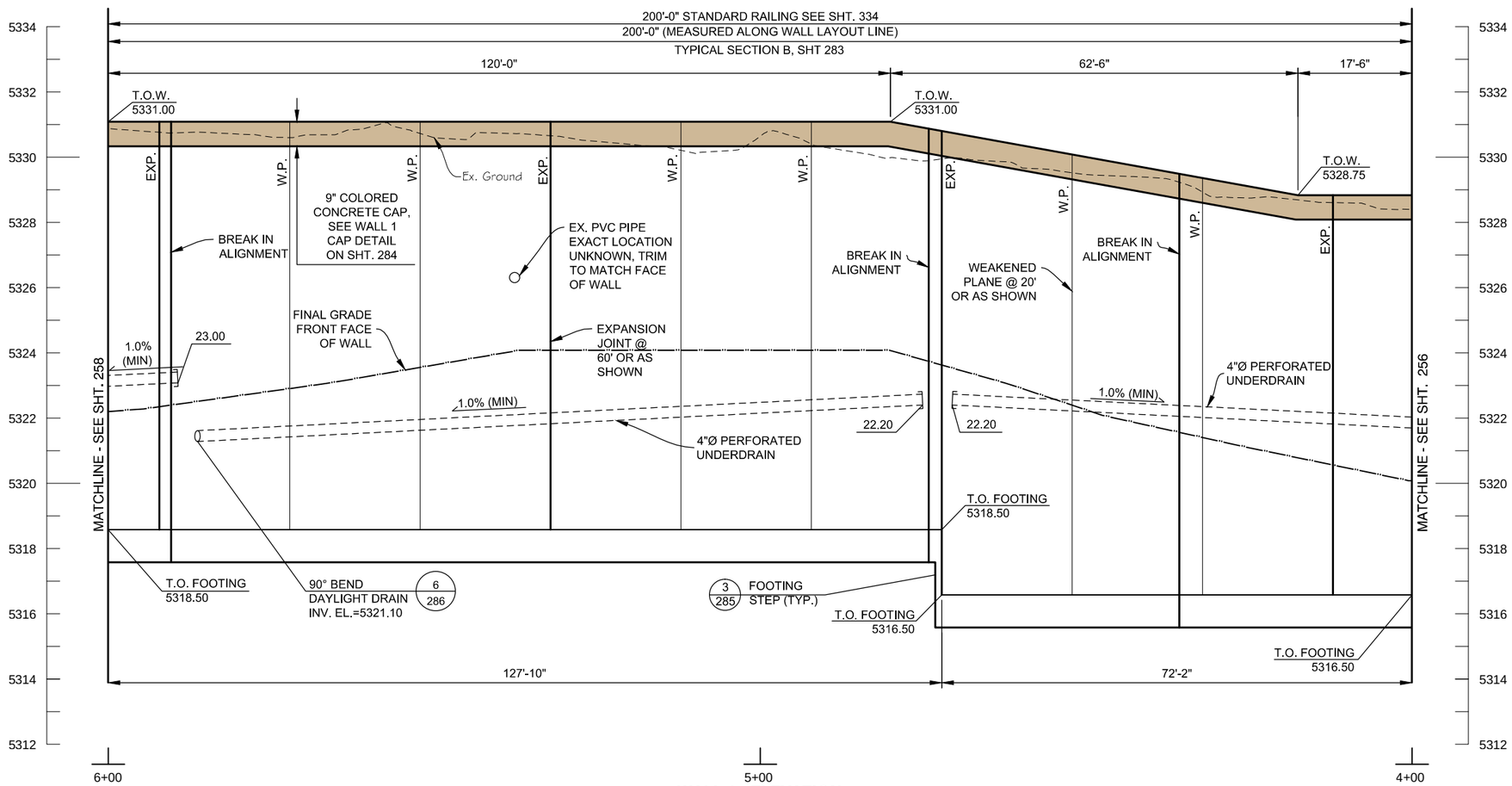
Designer:	MKN	Structure Numbers	
Detailer:	NJM		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-43

Project No./Code
STM 110-081
18405
Sheet Number: 256

NOTES:
1. SEE SHTS. 214-230 FOR HORIZONTAL CONTROL.
2. FOR EXPANSION (EXP.) AND WEAKENED PLANE (W.P.) DETAILS, SEE SHT. 285
3. CONTRACTOR SHALL COORDINATE WALL FACE TREATMENT WITH CHEVO STUDIOS.
4. ALL UNDERDRAIN PIPE SHALL BE SCHEDULE 80 PVC. SEE INSTALLATION TYPICAL SECTION DETAIL ON SHT. 286.



WALL 14 PLAN



WALL 14 ELEVATION

SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'

Computer File Information		
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Last Modification Date: 06/18/15	Initials: JHK	
Full Path: P:\11-039.03\CAD		
Drawing File Name: 11-039.03_WALL PROFILES NORTH.dwg		
AutoCAD 2010	Scale: AS SHOWN	FEET

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(303) 988-4939
MEC PROJECT NO. 11039.03

COLORADO REGISTERED PROFESSIONAL ENGINEER CHRISTOPHER L. KRIEGER 37254 6/18/15

Sheet Revisions		
Date:	Comments	Init.

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No Revisions:
Revised:
Void:

Region 4 RDM
CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
WALL 14 PLAN & PROFILE (3 OF 4)

Designer: MKN
Detailer: NJM
Structure Numbers
Sheet Subset: TRAIL-WALL
Subset Sheets: TW-44

Project No./Code
STM 110-081
18405
Sheet Number: 257

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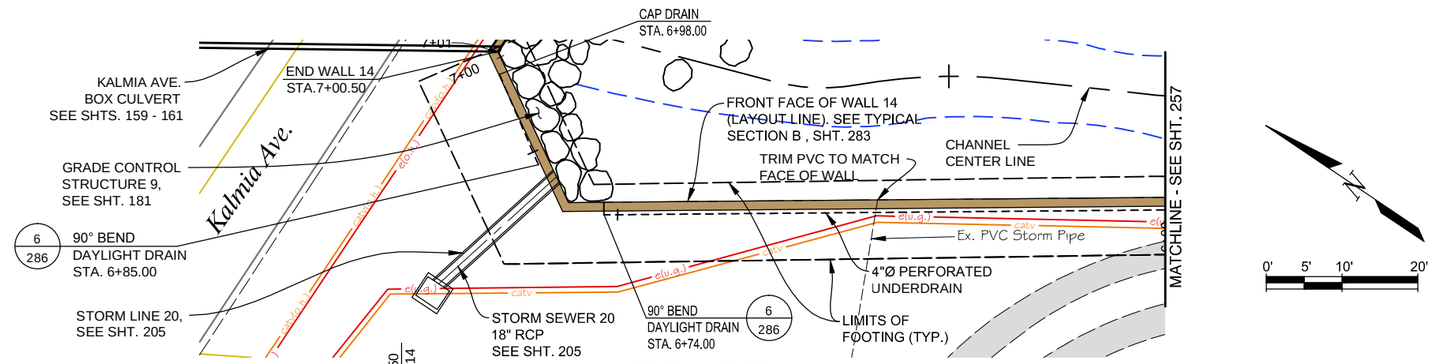
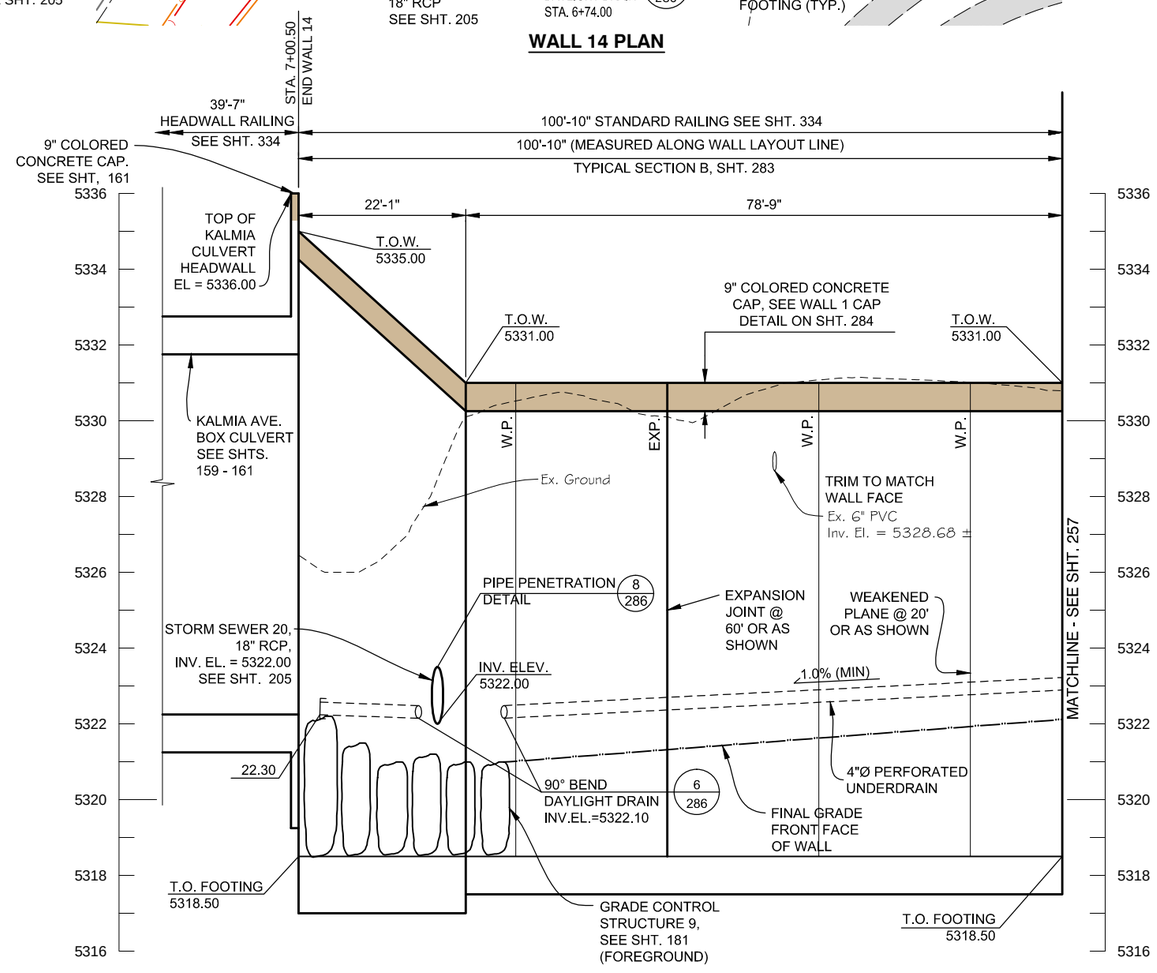


WALL 14 PLAN

NOTES:
1. SEE SHTS. 214-230 FOR HORIZONTAL CONTROL.
2. FOR EXPANSION (EXP.) AND WEAKENED PLANE (W.P.) DETAILS, SEE SHT. 285
3. CONTRACTOR SHALL COORDINATE WALL FACE TREATMENT WITH CHEVO STUDIOS.
4. ALL UNDERDRAIN PIPE SHALL BE SCHEDULE 80 PVC. SEE INSTALLATION TYPICAL SECTION DETAIL ON SHT. 286.



WALL 14 ELEVATION

SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'

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Last Modification Date: 06/18/15	Initials: JHK	
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Drawing File Name: 11-039.03_WALL PROFILES NORTH.dwg		
AutoCAD 2010	Scale: AS SHOWN	FEET

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LAKEWOOD, COLORADO 80226
(303) 988-4939
MULLER
MEC PROJECT NO. 11039.03

COLORADO REGISTERED PROFESSIONAL ENGINEER CHRISTOPHER L. KRIEGER 37254 6/18/15

Sheet Revisions		
Date:	Comments	Init.

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No Revisions:
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Region 4 RDM
CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
WALL 14 PLAN & PROFILE (4 OF 4)

Designer:	MKN	Structure Numbers	
Detailer:	NJM		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-45

Project No./Code
STM 110-081
18405
Sheet Number: 258

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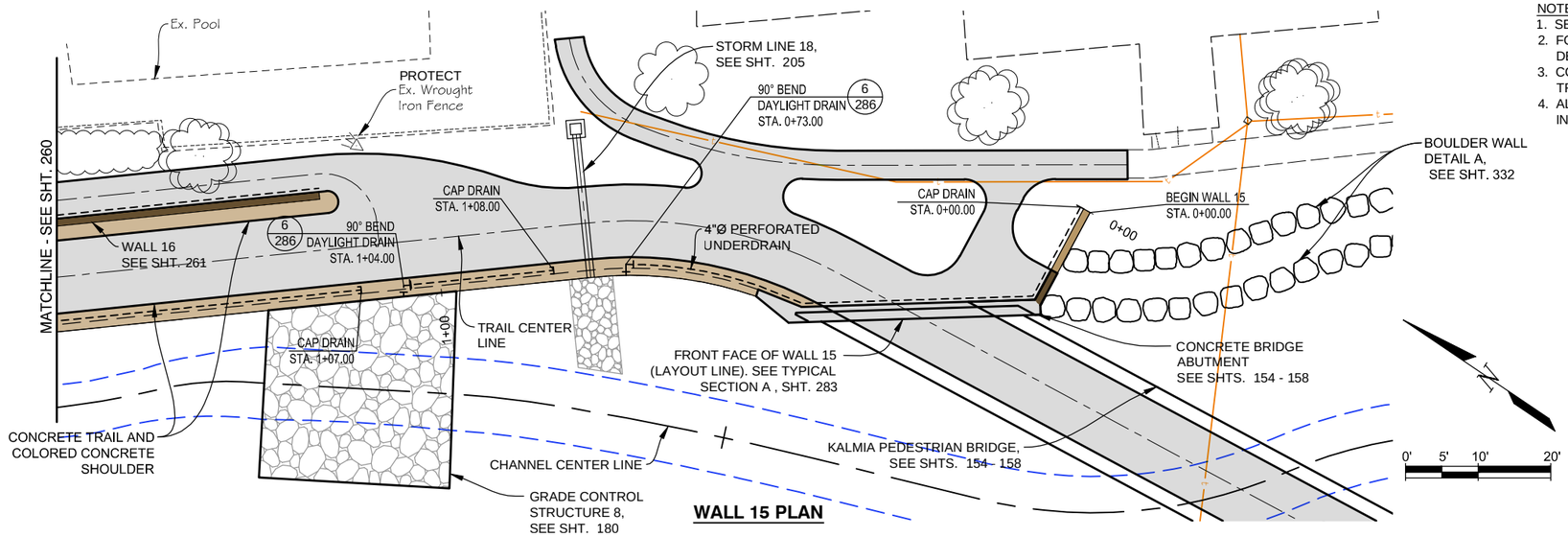
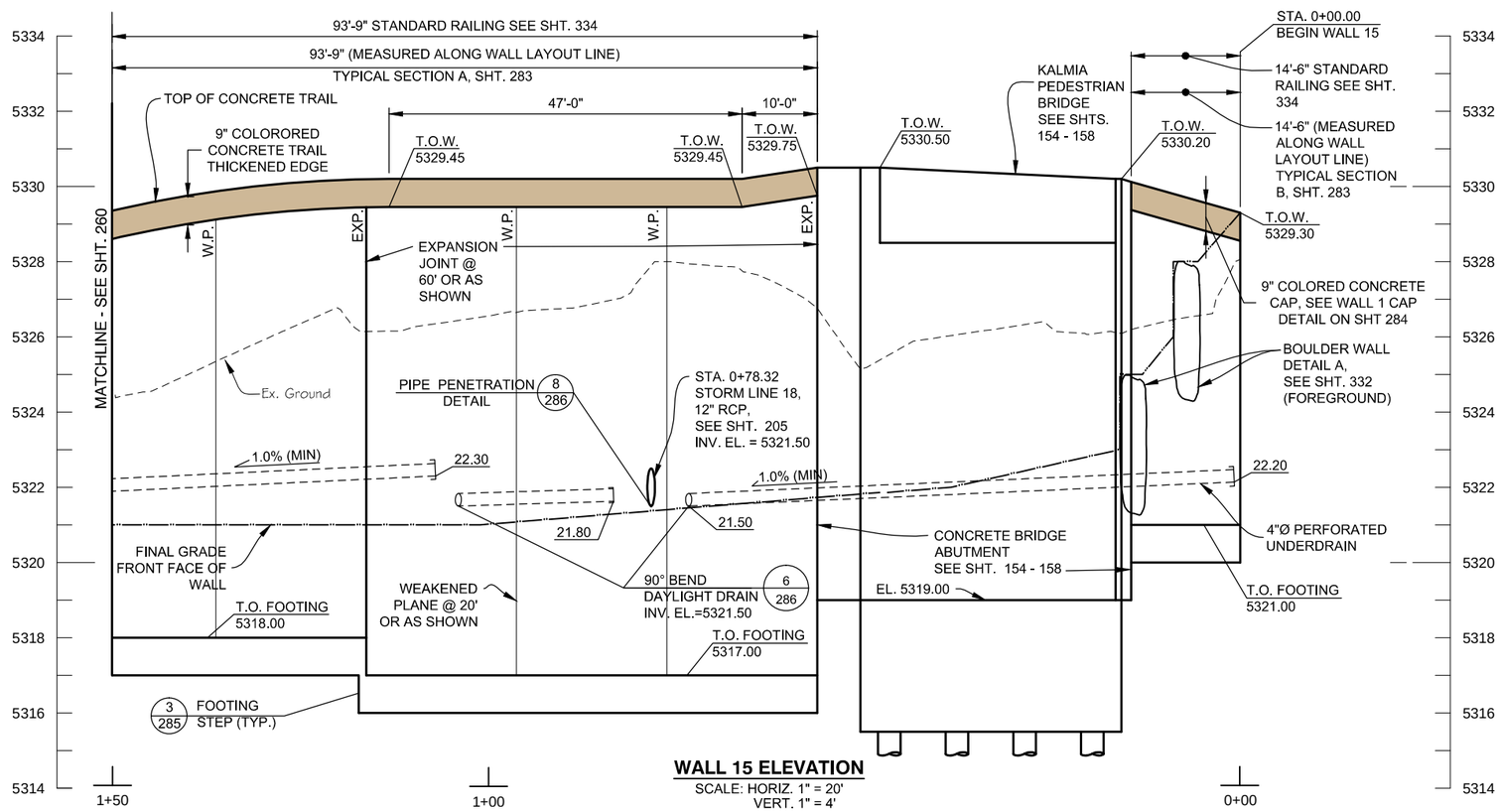


WALL 15 PLAN

NOTES:
1. SEE SHTS. 214 - 230 FOR HORIZONTAL CONTROL.
2. FOR EXPANSION (EXP.) AND WEAKENED PLANE (W.P.) DETAILS, SEE SHT. 285
3. CONTRACTOR SHALL COORDINATE WALL FACE TREATMENT WITH CHEVO STUDIOS.
4. ALL UNDERDRAIN PIPE SHALL BE SCHEDULE 80 PVC. SEE INSTALLATION TYPICAL SECTION DETAIL ON SHT. 286.

WALL 15 VERTICAL CONTROL TABLE	
WALL STATION	T.O.W. ELEV.
0+00.00	5328.55
0+10.00	5329.12
0+20.00	NA
0+30.00	NA
0+40.00	NA
0+50.00	5330.50
0+60.00	5329.64
0+70.00	5329.45
0+80.00	5329.45
0+90.00	5329.45
1+00.00	5329.45
1+10.00	5329.45
1+20.00	5329.42
1+30.00	5329.27
1+40.00	5329.00
1+50.00	5328.60

CONTROL TABLE NOTE:
VERTICAL CONTROL TABLE PROVIDED FOR INFORMATION ONLY. ACTUAL T.O.W. ELEVATIONS SHALL BE DETERMINED USING TRAIL VERTICAL GEOMETRY AND BE ADJUSTED FOR OFFSET AND TRAIL THICKNESS.



WALL 15 ELEVATION
SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'

Computer File Information	
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Last Modification Date: 06/18/15	Initials: JHK
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AutoCAD 2010	Scale: AS SHOWN FEET

MULLER ENGINEERING CO., INC.
CONSULTING ENGINEERS
777 S. WADSWORTH BLVD. 4-100
LAKEWOOD, COLORADO 80226
(303) 988-4939
MULLER
MEC PROJECT NO. 11039.03

COLORADO REGISTERED PROFESSIONAL ENGINEER CHRISTOPHER L. KREGENOW 37254 6/18/15

Sheet Revisions		
Date:	Comments	Init.

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No Revisions:
Revised:
Void:

Region 4 RDM
CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
WALL 15 PLAN & PROFILE (1 OF 2)

Designer: MKN
Detailer: NJM
Structure Numbers
Sheet Subset: TRAIL-WALL
Subset Sheets: TW-46

Project No./Code
STM 110-081
18405
Sheet Number: 259

PLOTTED: 6/19/2015 11:51:51 AM
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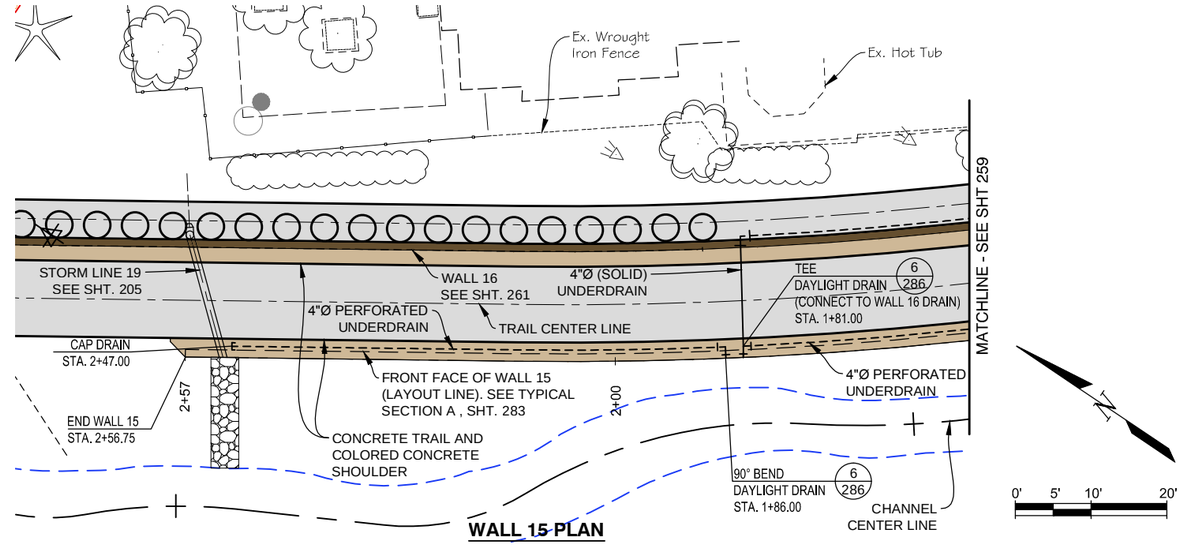
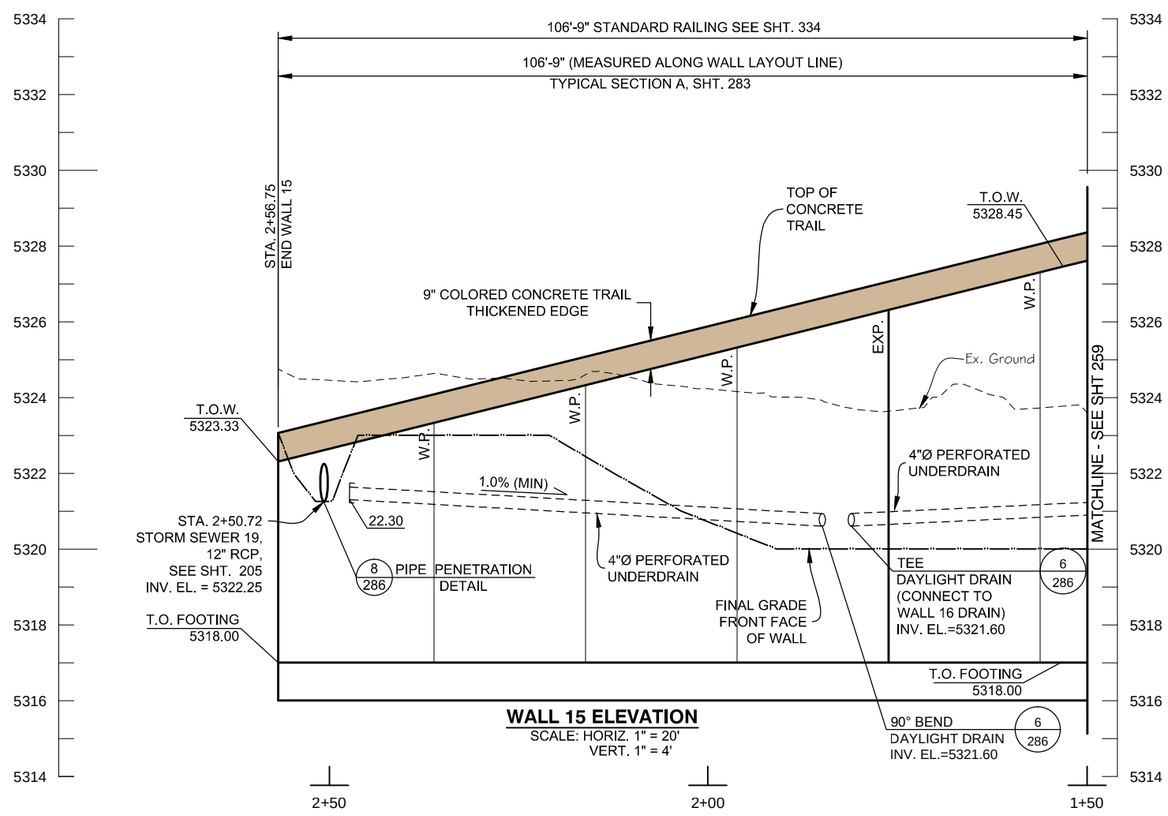


WALL 15 PLAN

NOTES:
1. SEE SHTS. 214-230 FOR HORIZONTAL CONTROL.
2. FOR EXPANSION (EXP.) AND WEAKENED PLANE (W.P.) DETAILS, SEE SHT. 285
3. CONTRACTOR SHALL COORDINATE WALL FACE TREATMENT WITH CHEVO STUDIOS.
4. ALL UNDERDRAIN PIPE SHALL BE SCHEDULE 80 PVC. SEE INSTALLATION TYPICAL SECTION DETAIL ON SHT. 286.

WALL 15 VERTICAL CONTROL TABLE	
WALL STATION	T.O.W. ELEV.
1+50.00	5328.60
1+60.00	5328.11
1+70.00	5327.62
1+80.00	5327.12
1+90.00	5326.62
2+00.00	5326.13
2+10.00	5325.63
2+20.00	5325.13
2+30.00	5324.64
2+40.00	5324.14
2+50.00	5323.64
2+56.75	5323.31

CONTROL TABLE NOTE:
VERTICAL CONTROL TABLE PROVIDED FOR INFORMATION ONLY. ACTUAL T.O.W. ELEVATIONS SHALL BE DETERMINED USING TRAIL VERTICAL GEOMETRY AND BE ADJUSTED FOR OFFSET AND TRAIL THICKNESS.



WALL 15 ELEVATION
SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'

Computer File Information		
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Last Modification Date: 06/18/15	Initials: JHK	
Full Path: P:\11-039.03\CAD		
Drawing File Name: 11-039.03_WALL PROFILES NORTH.dwg		
AutoCAD 2010	Scale: AS SHOWN	FEET

MULLER ENGINEERING CO., INC.
CONSULTING ENGINEERS
777 S. WADSWORTH BLVD. 4-100
LAKEWOOD, COLORADO 80226
(303) 988-4939
MULLER
MEC PROJECT NO. 11039.03

COLORADO REGISTERED PROFESSIONAL ENGINEER CHRISTOPHER L. KREBER 37254 6/18/15

Sheet Revisions		
Date:	Comments	Init.

As Constructed
No Revisions:
Revised:
Void:

GREENWAY AND FLOOD CONTROL DISTRICT
CO CDOT Region 4 RDM
CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
WALL 15 PLAN & PROFILE (2 OF 2)

Designer:	MKN	Structure Numbers	
Detailer:	NJM		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-47

Project No./Code
STM 110-081
18405
Sheet Number: 260

PLOTTED: 6/19/2015 11:52:06 AM
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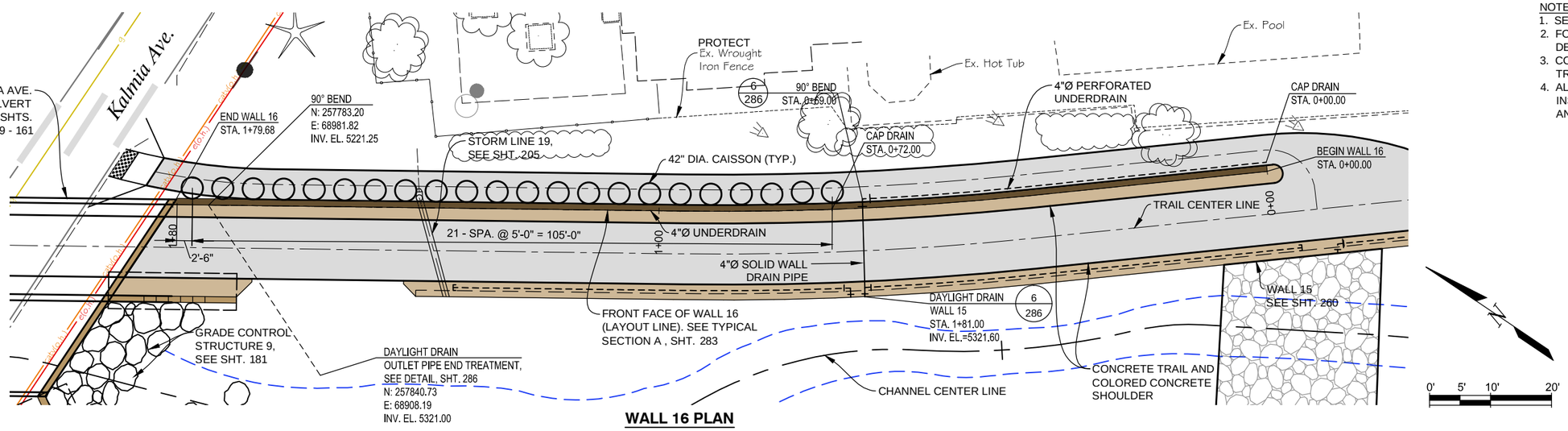


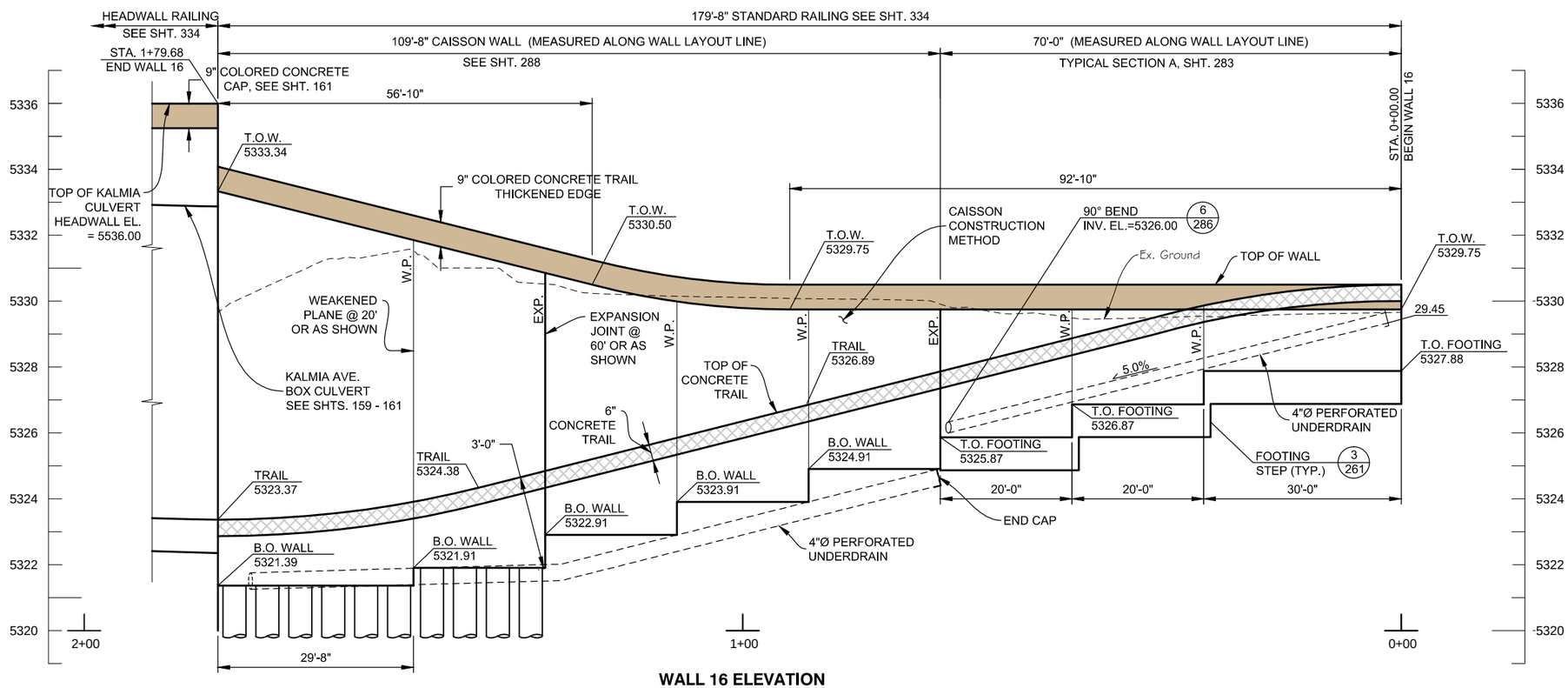
WALL 16 PLAN

NOTES:
1. SEE SHTS. 214-230 FOR HORIZONTAL CONTROL.
2. FOR EXPANSION (EXP.) AND WEAKENED PLANE (W.P.) DETAILS, SEE SHT. 285
3. CONTRACTOR SHALL COORDINATE WALL FACE TREATMENT WITH CHEVO STUDIOS.
4. ALL UNDERDRAIN PIPE SHALL BE SCHEDULE 80 PVC. SEE INSTALLATION TYPICAL SECTION DETAIL ON SHTS. 286 AND 288.

WALL 16 VERTICAL CONTROL TABLE

WALL STATION	T.O.W. ELEV.
0+00.00	5329.75
0+10.00	5329.75
0+20.00	5329.75
0+30.00	5329.75
0+40.00	5329.75
0+50.00	5329.75
0+60.00	5329.75
0+70.00	5329.75
0+80.00	5329.75
0+90.00	5329.75
1+00.00	5329.79
1+10.00	5329.99
1+20.00	5330.36
1+30.00	5330.86
1+40.00	5331.35
1+50.00	5331.85
1+60.00	5332.35
1+70.00	5332.85
1+79.68	5333.34

CONTROL TABLE NOTE:
VERTICAL CONTROL TABLE PROVIDED FOR INFORMATION ONLY. ACTUAL T.O.W. ELEVATIONS SHALL BE DETERMINED USING TRAIL VERTICAL GEOMETRY AND BE ADJUSTED FOR OFFSET AND TRAIL THICKNESS.



WALL 16 ELEVATION

SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'

Computer File Information	
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Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_WALL PROFILES NORTH.dwg	
AutoCAD 2010	Scale: AS SHOWN FEET

MULLER ENGINEERING CO., INC.
CONSULTING ENGINEERS
777 S. WADSWORTH BLVD. 4-100
LAKEWOOD, COLORADO 80226
(303) 988-4939
MULLER
MEC PROJECT NO. 11039.03

COLORADO REGISTERED PROFESSIONAL ENGINEER CHRISTOPHER L. KRAEBER 37254 6/18/15

Sheet Revisions		
Date:	Comments	Init.

As Constructed
No Revisions:
Revised:
Void:

Region 4 RDM
CITY OF BOULDER

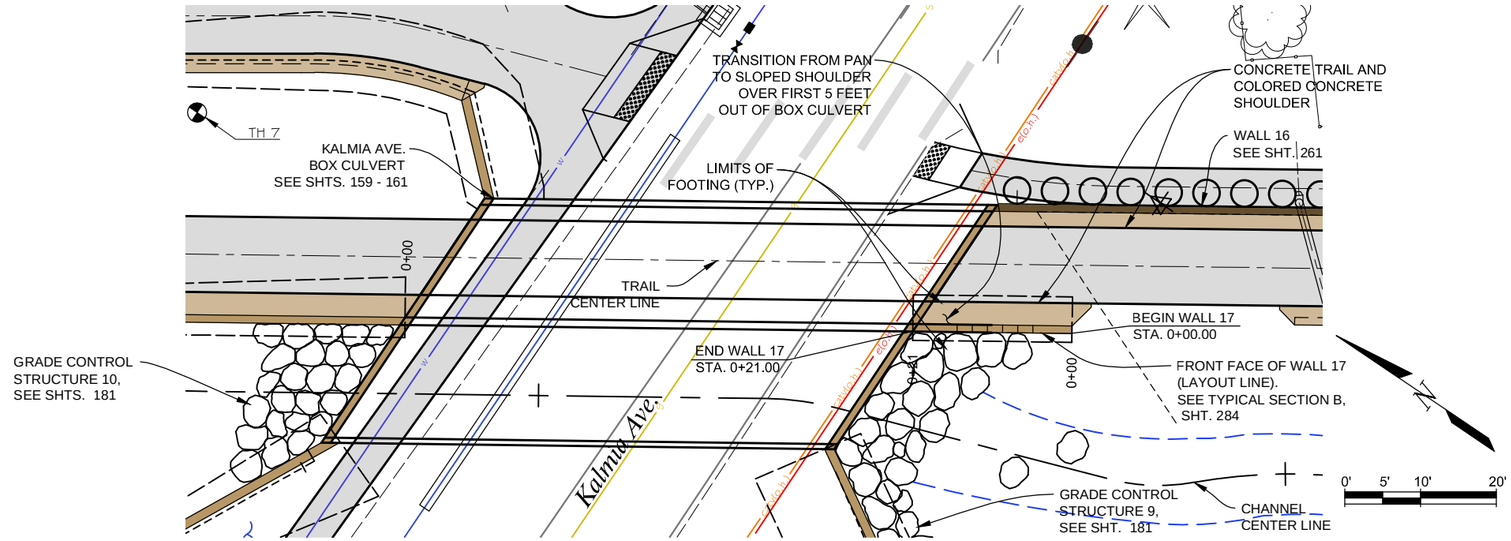
WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
WALL 16 PLAN & PROFILE

Designer:	MKN	Structure Numbers	
Detailer:	NJM		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-48

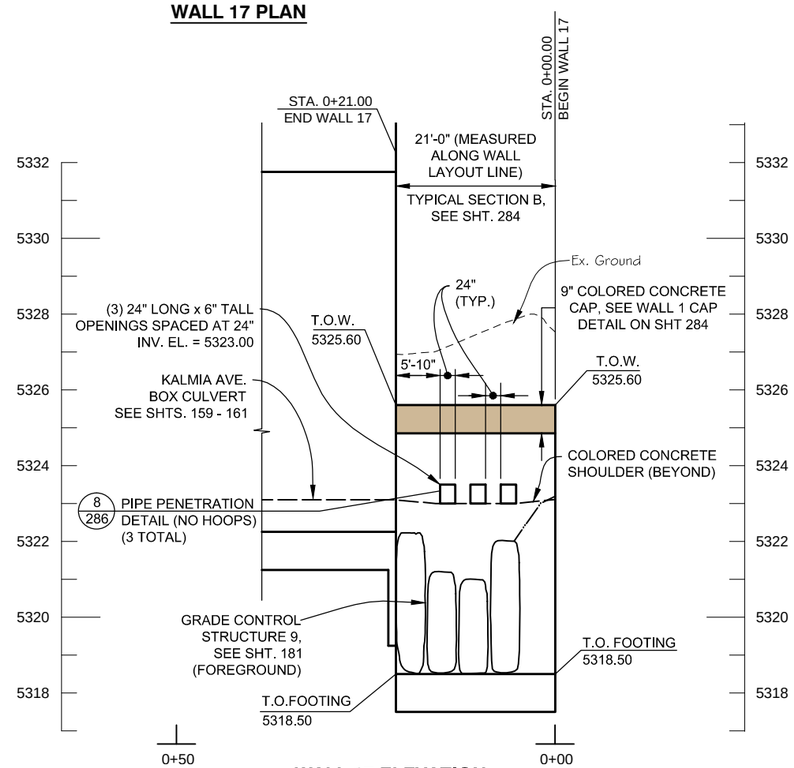
Project No./Code
STM 110-081
18405
Sheet Number: 261

PLOTTED: 6/19/2015 11:52:19 AM
NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03_WALL PROFILES NORTH.DWG

NOTES:
1. SEE SHTS. 214-230 FOR HORIZONTAL CONTROL.
2. FOR EXPANSION (EXP.) AND WEAKENED PLANE (W.P.) DETAILS, SEE SHT. 285
3. CONTRACTOR SHALL COORDINATE WALL FACE TREATMENT WITH CHEVO STUDIOS.
4. ALL UNDERDRAIN PIPE SHALL BE SCHEDULE 80 PVC. SEE INSTALLATION TYPICAL SECTION DETAIL ON SHT. 286.



WALL 17 PLAN



WALL 17 ELEVATION

SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'

Computer File Information		
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Last Modification Date: 06/18/15	Initials: JHK	
Full Path: P:\11-039.03\CAD		
Drawing File Name: 11-039.03_WALL PROFILES NORTH.dwg		
AutoCAD 2010	Scale: AS SHOWN	FEET

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MULLER
CONSULTING ENGINEERS
777 S. WADSWORTH BLVD. 4-100
LAKEWOOD, COLORADO 80226
(303) 988-4939
MEC PROJECT NO. 11039.03

COLORADO REGISTERED CHRISTOPHER L. KREGER 37254 6/18/15 PROFESSIONAL ENGINEER

Sheet Revisions		
Date:	Comments	Init.

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No Revisions:
Revised:
Void:

UNITED DRAINAGE AND FLOOD CONTROL DISTRICT
CO CDOT Region 4 RDM
CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
WALL 17 PLAN & PROFILE

Designer:	MKN	Structure Numbers	
Detailer:	NJM		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-49

Project No./Code
STM 110-081
18405
Sheet Number: 262

PLOTTED: 6/19/2015 11:52:33 AM
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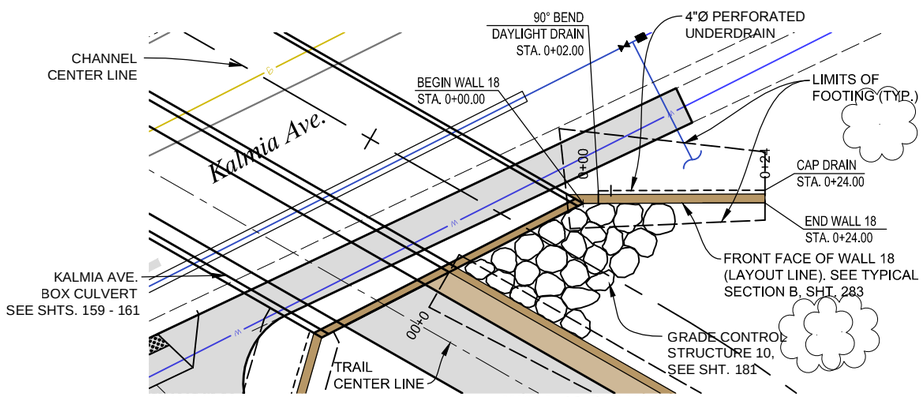
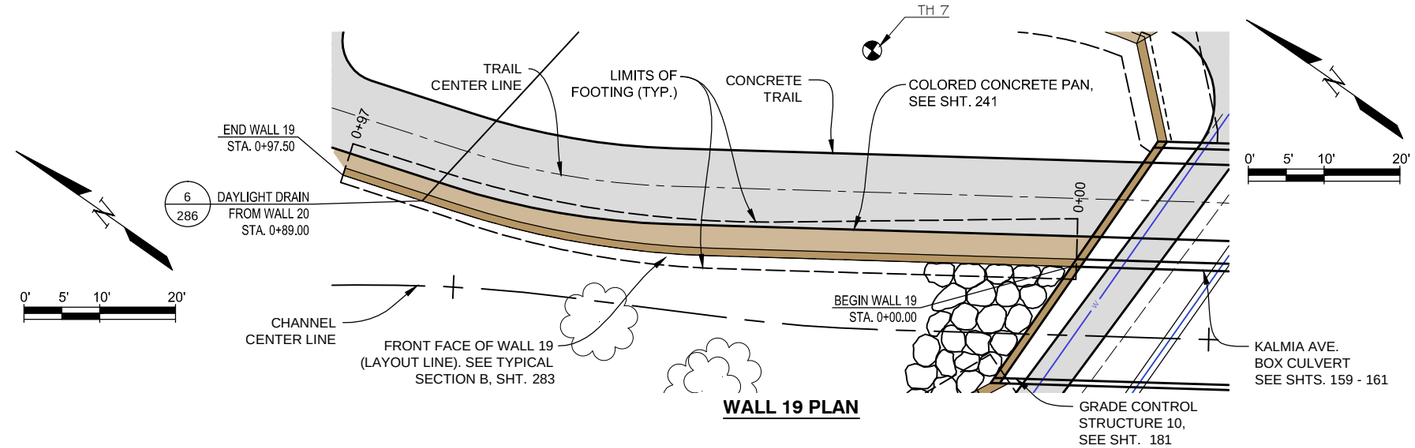
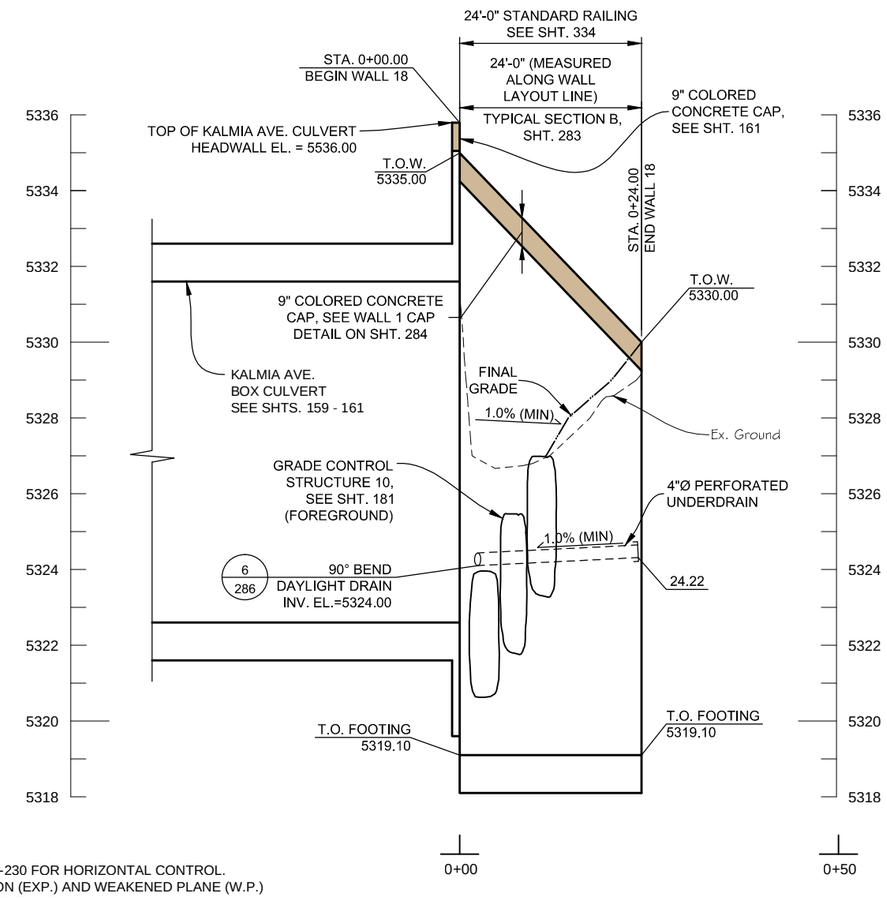


WALL 18 PLAN

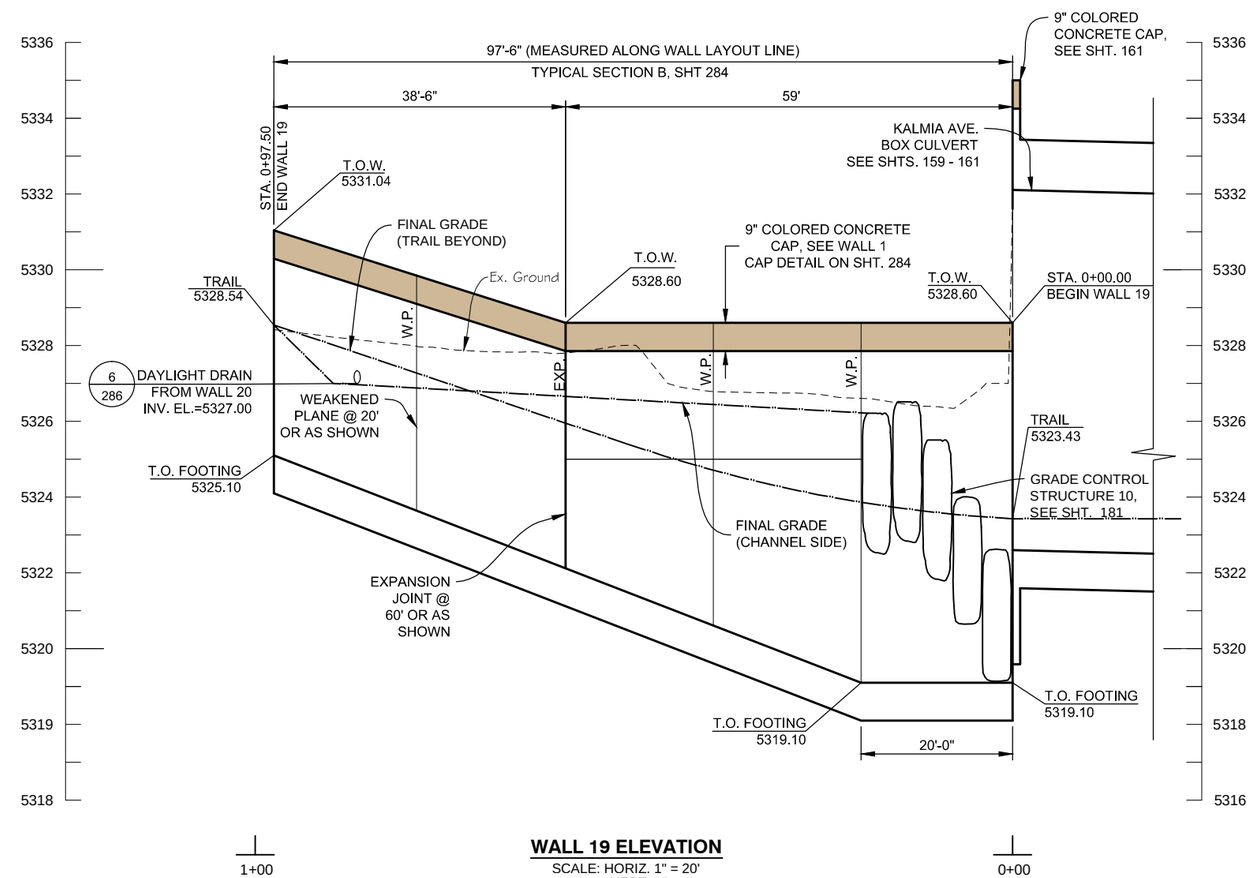


WALL 19 PLAN



WALL 18 ELEVATION

SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'



WALL 19 ELEVATION

SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'

NOTES:
1. SEE SHTS. 214-230 FOR HORIZONTAL CONTROL.
2. FOR EXPANSION (EXP.) AND WEAKENED PLANE (W.P.) DETAILS, SEE SHT. 285
3. CONTRACTOR SHALL COORDINATE WALL FACE TREATMENT WITH CHEVO STUDIOS.
4. ALL UNDERDRAIN PIPE SHALL BE SCHEDULE 80 PVC. SEE INSTALLATION TYPICAL SECTION DETAIL ON SHT. 286.

Computer File Information		
Creation Date: 01/06/15	Initials: JHK	
Last Modification Date: 06/18/15	Initials: JHK	
Full Path: P:\11-039.03\CAD		
Drawing File Name: 11-039.03_WALL PROFILES NORTH.dwg		
AutoCAD 2010	Scale: AS SHOWN	FEET

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MULLER
MEC PROJECT NO. 11039.03

COLORADO REGISTERED CHRISTOPHER L. KRIEGER 37254 6/18/15 PROFESSIONAL ENGINEER

Sheet Revisions		
Date:	Comments	Init.

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No Revisions:
Revised:
Void:

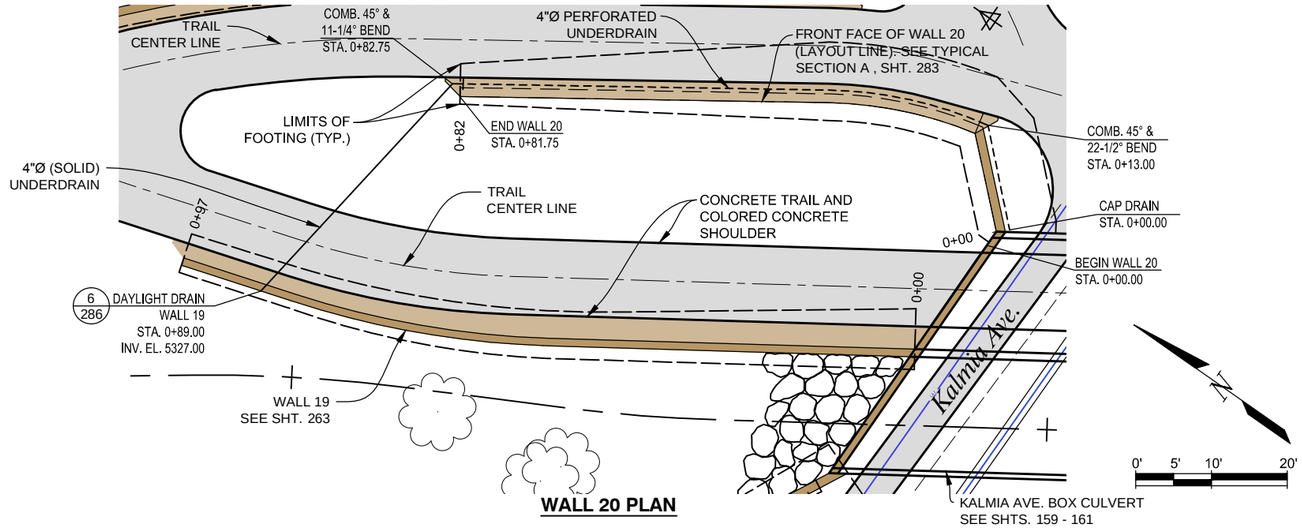
Region 4 RDM
CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
WALLS 18 & 19 PLAN & PROFILE

Designer: MKN
Detailer: NJM
Structure Numbers
Sheet Subset: TRAIL-WALL
Subset Sheets: TW-50

Project No./Code
STM 110-081
18405
Sheet Number: 263

PLOTTED: 6/19/2015 11:52:50 AM
NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH -FINAL DESIGN\CAD\11-039.03_WALL PROFILES NORTH.DWG

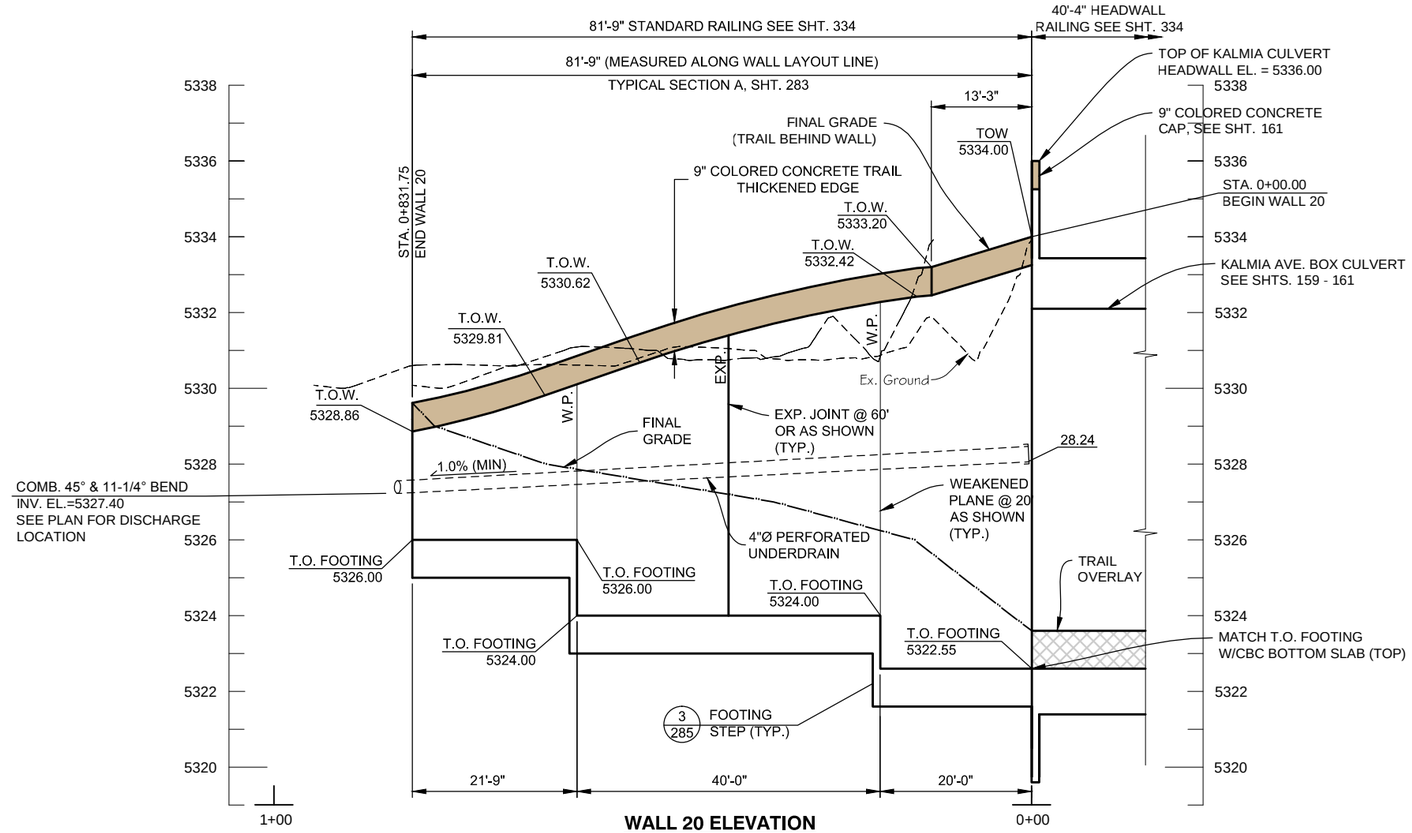


WALL 20 PLAN

NOTES:
1. SEE SHTS. 214-230 FOR HORIZONTAL CONTROL.
2. FOR EXPANSION (EXP.) AND WEAKENED PLANE (W.P.) DETAILS, SEE SHT. 285
3. CONTRACTOR SHALL COORDINATE WALL FACE TREATMENT WITH CHEVO STUDIOS.
4. ALL UNDERDRAIN PIPE SHALL BE SCHEDULE 80 PVC. SEE INSTALLATION TYPICAL SECTION DETAIL ON SHT. 286.

WALL 20 VERTICAL CONTROL TABLE	
WALL STATION	T.O.W. ELEV.
0+00.00	5333.25
0+10.00	5332.65
0+20.00	5332.27
0+30.00	5331.89
0+40.00	5331.40
0+50.00	5330.80
0+60.00	5330.10
0+70.00	5329.43
0+80.00	5328.93
0+81.75	5328.86

CONTROL TABLE NOTE:
VERTICAL CONTROL TABLE PROVIDED FOR INFORMATION ONLY. ACTUAL T.O.W. ELEVATIONS SHALL BE DETERMINED USING TRAIL VERTICAL GEOMETRY AND BE ADJUSTED FOR OFFSET AND TRAIL THICKNESS.



WALL 20 ELEVATION

SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'

Computer File Information		
Creation Date: 01/06/15	Initials: JHK	
Last Modification Date: 06/18/15	Initials: JHK	
Full Path: P:\11-039.03\CAD		
Drawing File Name: 11-039.03_WALL PROFILES NORTH.dwg		
AutoCAD 2010	Scale: AS SHOWN	FEET

MULLER ENGINEERING CO., INC.
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(303) 988-4939
MULLER
MEC PROJECT NO. 11039.03

COLORADO REGISTERED PROFESSIONAL ENGINEER CHRISTOPHER L. KREGER 37254 6/18/15

Sheet Revisions		
Date:	Comments	Init.

As Constructed
No Revisions:
Revised:
Void:

Region 4 RDM
CITY OF BOULDER

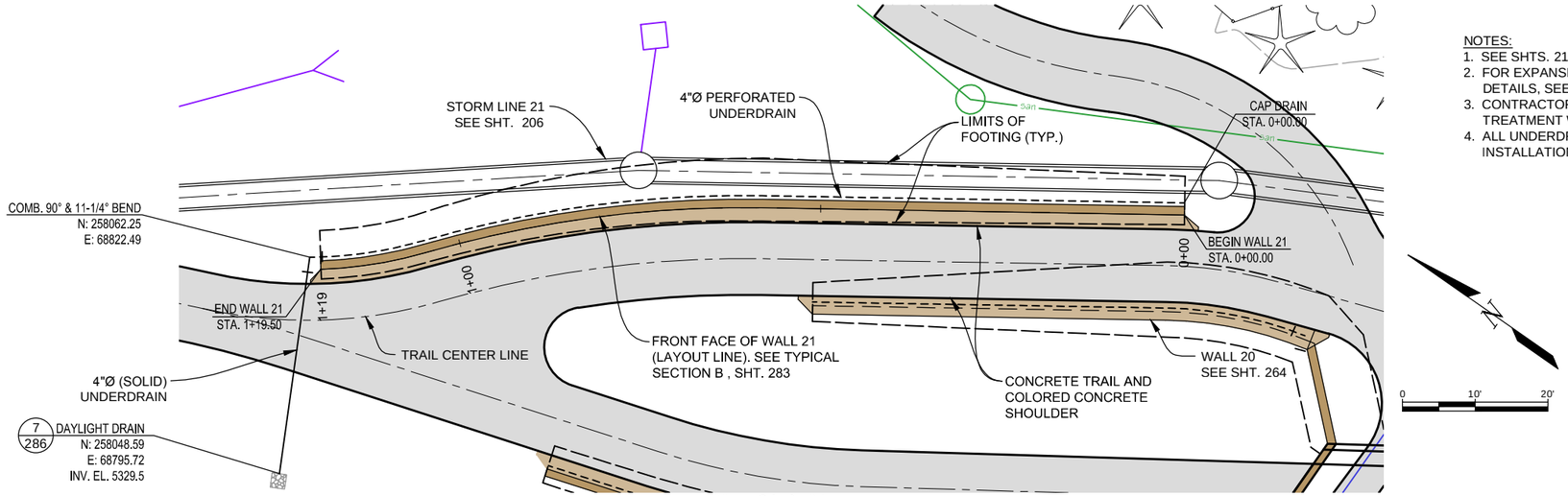
WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
WALL 20 PLAN & PROFILE

Designer:	MKN	Structure Numbers	
Detailer:	NJM		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-51

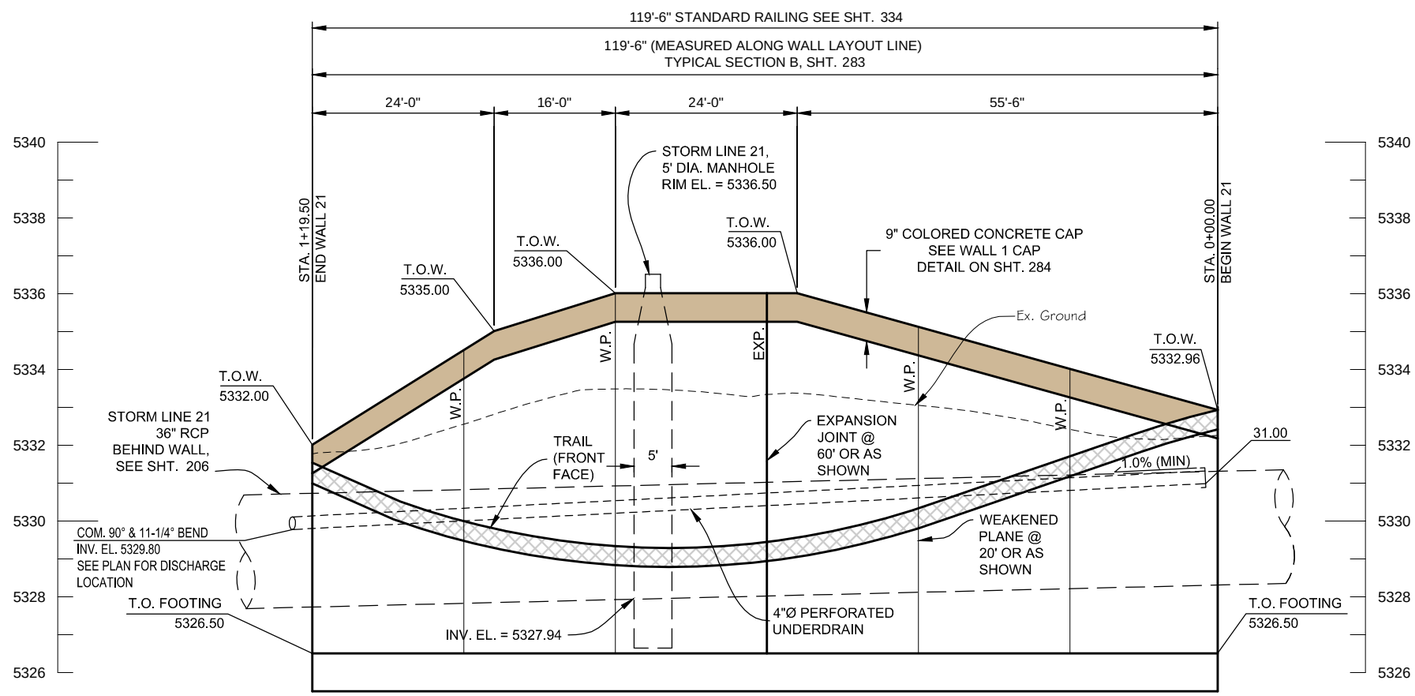
Project No./Code
STM 110-081
18405
Sheet Number: 264

PLOTTED: 6/19/2015 11:53:04 AM
FILE NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH -FINAL DESIGN\CAD\11-039.03_WALL PROFILES NORTH.DWG

NOTES:
1. SEE SHTS. 214-230 FOR HORIZONTAL CONTROL.
2. FOR EXPANSION (EXP.) AND WEAKENED PLANE (W.P.) DETAILS, SEE SHT. 285
3. CONTRACTOR SHALL COORDINATE WALL FACE TREATMENT WITH CHEVO STUDIOS.
4. ALL UNDERDRAIN PIPE SHALL BE SCHEDULE 80 PVC. SEE INSTALLATION TYPICAL SECTION DETAIL ON SHT. 286.



WALL 21 PLAN



WALL 21 ELEVATION

SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'

Computer File Information		
Creation Date: 03/02/15	Initials: JHK	
Last Modification Date: 06/18/15	Initials: JHK	
Full Path: P:\11-039.03\CAD		
Drawing File Name: 11-039.03_WALL PROFILES NORTH-2.dwg		
AutoCAD 2014	Scale: AS SHOWN	FEET

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777 S. WADSWORTH BLVD. 4-100
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(303) 988-4939
MULLER
MEC PROJECT NO. 11039.03

COLORADO REGISTERED PROFESSIONAL ENGINEER CHRISTOPHER L. KADEGER 37254 6/18/15

Sheet Revisions		
Date:	Comments	Init.

As Constructed
No Revisions:
Revised:
Void:

Region 4 RDM
CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
WALL 21 PLAN & PROFILE

Designer:	MKN	Structure Numbers	
Detailer:	JHK		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-52

Project No./Code
STM 110-081
18405
Sheet Number: 265

PLOTTED: 6/19/2015 11:54:35 AM
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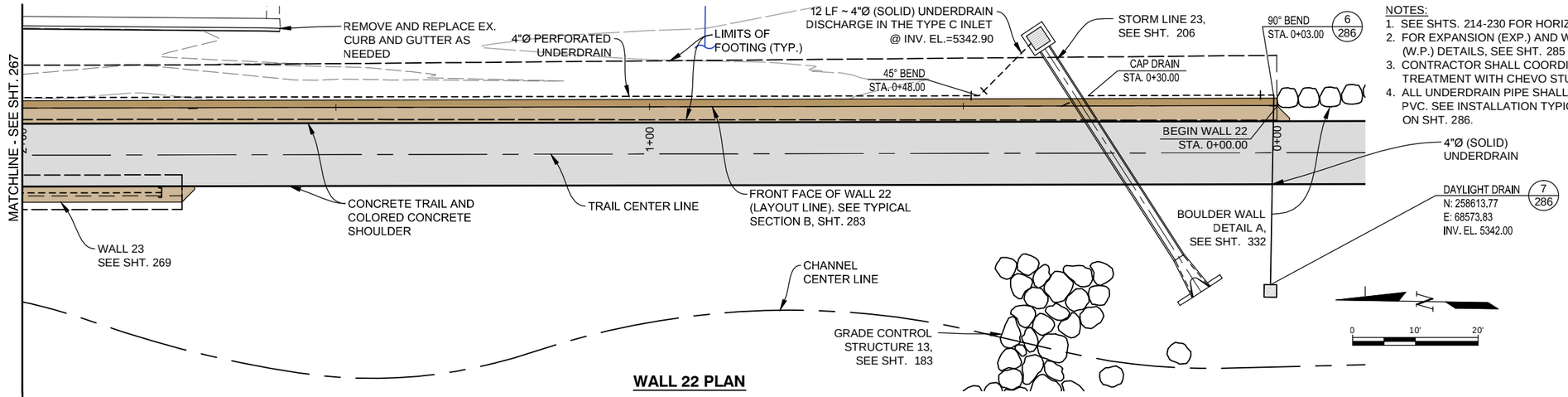
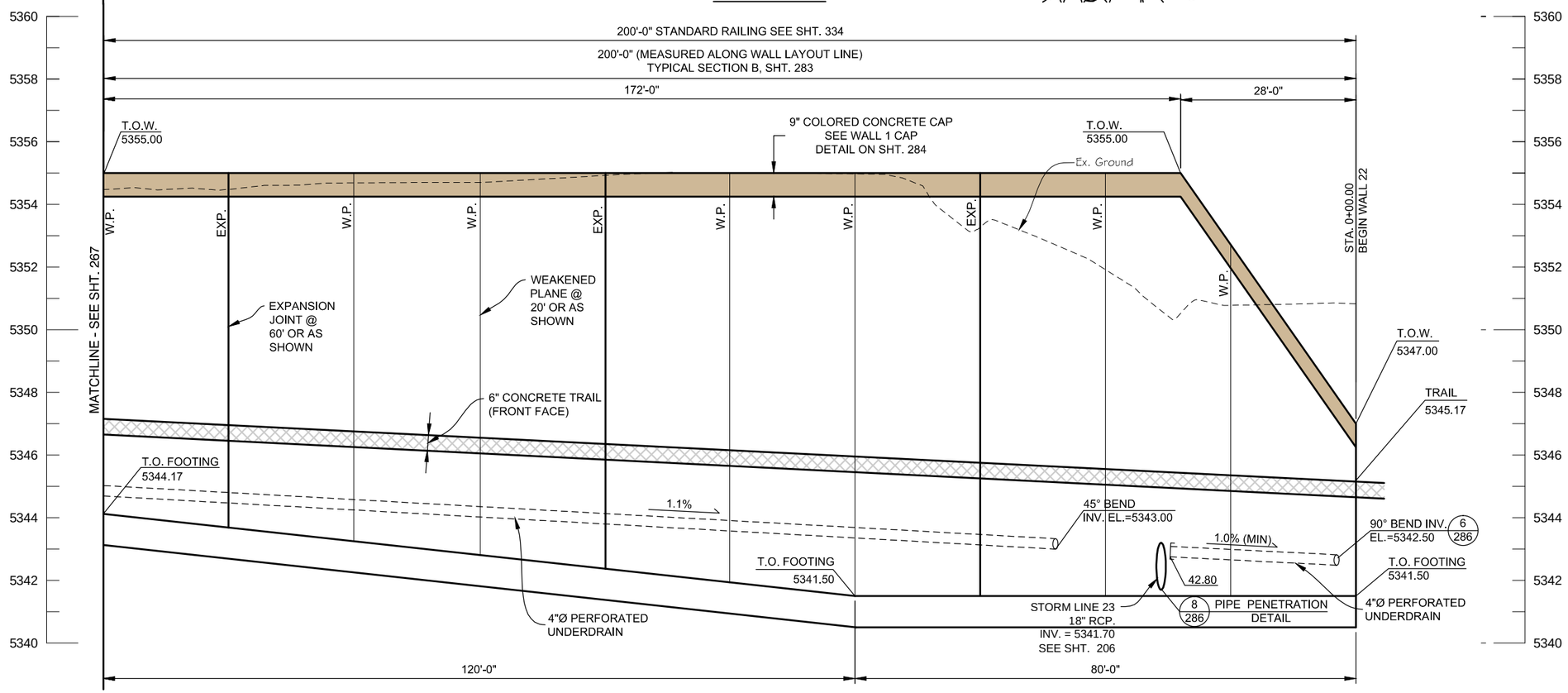


NOTES:
1. SEE SHTS. 214-230 FOR HORIZONTAL CONTROL.
2. FOR EXPANSION (EXP.) AND WEAKENED PLANE (W.P.) DETAILS, SEE SHT. 285
3. CONTRACTOR SHALL COORDINATE WALL FACE TREATMENT WITH CHEVO STUDIOS.
4. ALL UNDERDRAIN PIPE SHALL BE SCHEDULE 80 PVC. SEE INSTALLATION TYPICAL SECTION DETAIL ON SHT. 286.

WALL 22 PLAN



WALL 22 ELEVATION

SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'

Computer File Information		
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Last Modification Date: 06/18/15	Initials: JHK	
Full Path: P:\11-039.03\CAD		
Drawing File Name: 11-039.03_WALL PROFILES NORTH-2.dwg		
AutoCAD 2014	Scale: AS SHOWN	FEET

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777 S. WADSWORTH BLVD. 4-100
LAKEWOOD, COLORADO 80226
(303) 988-4939
MULLER
MEC PROJECT NO. 11039.03

COLORADO REGISTERED CHRISTOPHER L. KREGER 37254 6/18/15 PROFESSIONAL ENGINEER

Sheet Revisions		
Date:	Comments	Init.

As Constructed
No Revisions:
Revised:
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URBAN DRAINAGE AND FLOOD CONTROL DISTRICT
CO CDOT Region 4 RDM
CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
WALL 22 PLAN & PROFILE (1 OF 3)

Designer:	MKN	Structure Numbers	
Detailer:	JHK		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-53

Project No./Code
STM 110-081
18405
Sheet Number: 266

PLOTTED: 6/19/2015 11:54:49 AM
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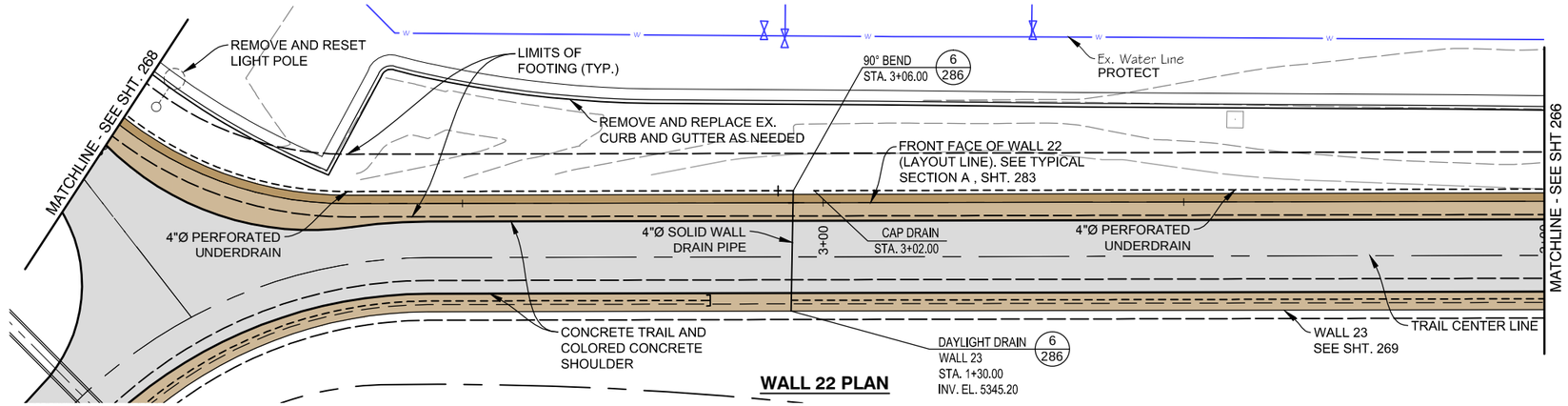
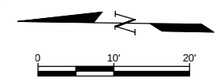
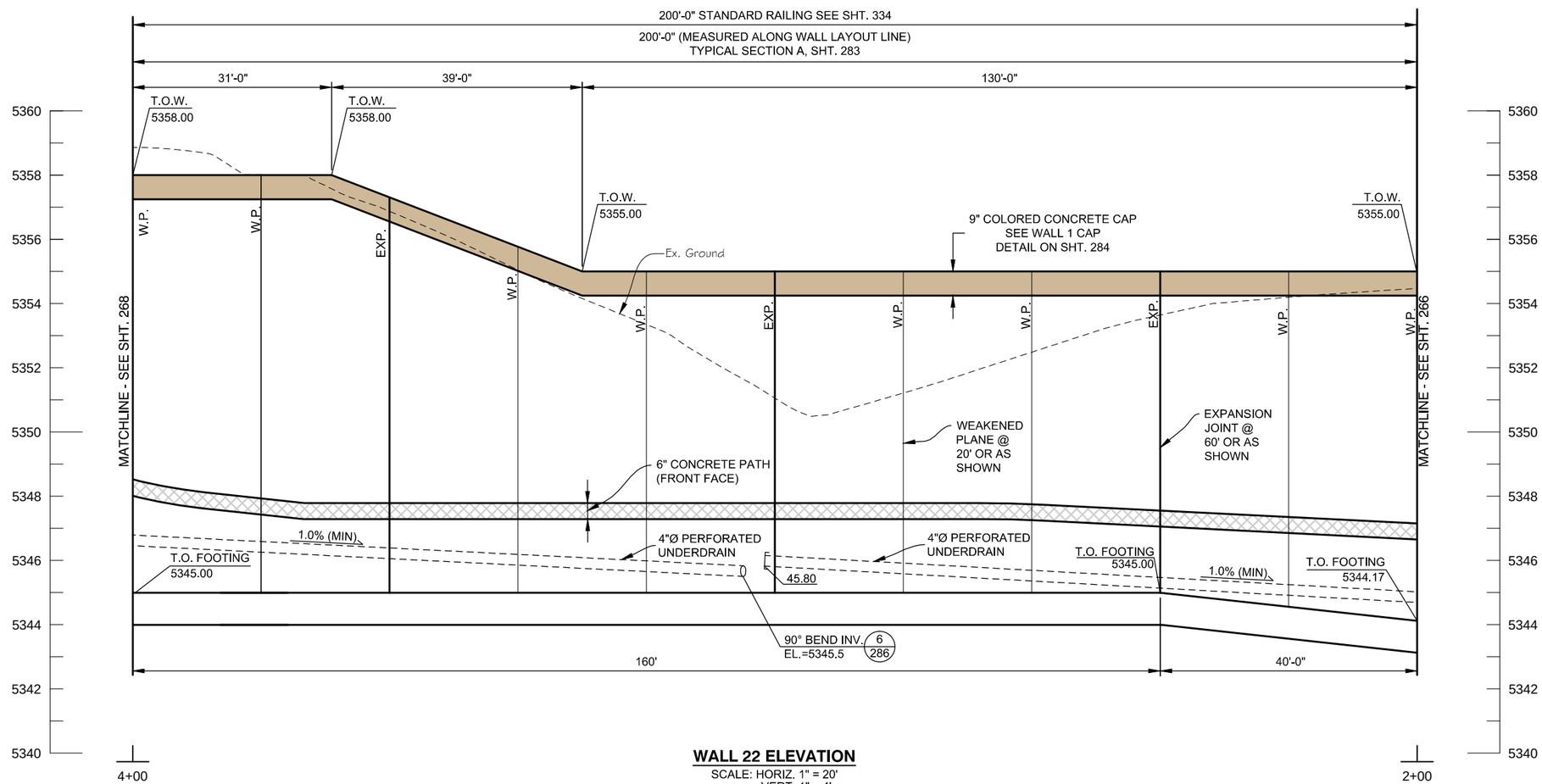


WALL 22 PLAN

NOTES:
1. SEE SHTS. 214-230 FOR HORIZONTAL CONTROL.
2. FOR EXPANSION (EXP.) AND WEAKENED PLANE (W.P.) DETAILS, SEE SHT. 285
3. CONTRACTOR SHALL COORDINATE WALL FACE TREATMENT WITH CHEVO STUDIOS.
4. ALL UNDERDRAIN PIPE SHALL BE SCHEDULE 80 PVC. SEE INSTALLATION TYPICAL SECTION DETAIL ON SHT. 286.





WALL 22 ELEVATION

SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'

Computer File Information		
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Last Modification Date: 06/18/15	Initials: JHK	
Full Path: P:\11-039.03\CAD		
Drawing File Name: 11-039.03_WALL PROFILES NORTH-2.dwg		
AutoCAD 2014	Scale: AS SHOWN	FEET

MULLER ENGINEERING CO., INC.
CONSULTING ENGINEERS
777 S. WADSWORTH BLVD. 4-100
LAKEWOOD, COLORADO 80226
(303) 988-4939
MULLER
MEC PROJECT NO. 11039.03

COLORADO REGISTERED PROFESSIONAL ENGINEER CHRISTOPHER L. KREBS 37254 6/18/15

Sheet Revisions		
Date:	Comments	Init.

As Constructed
No Revisions:
Revised:
Void:

Region 4 RDM

CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT

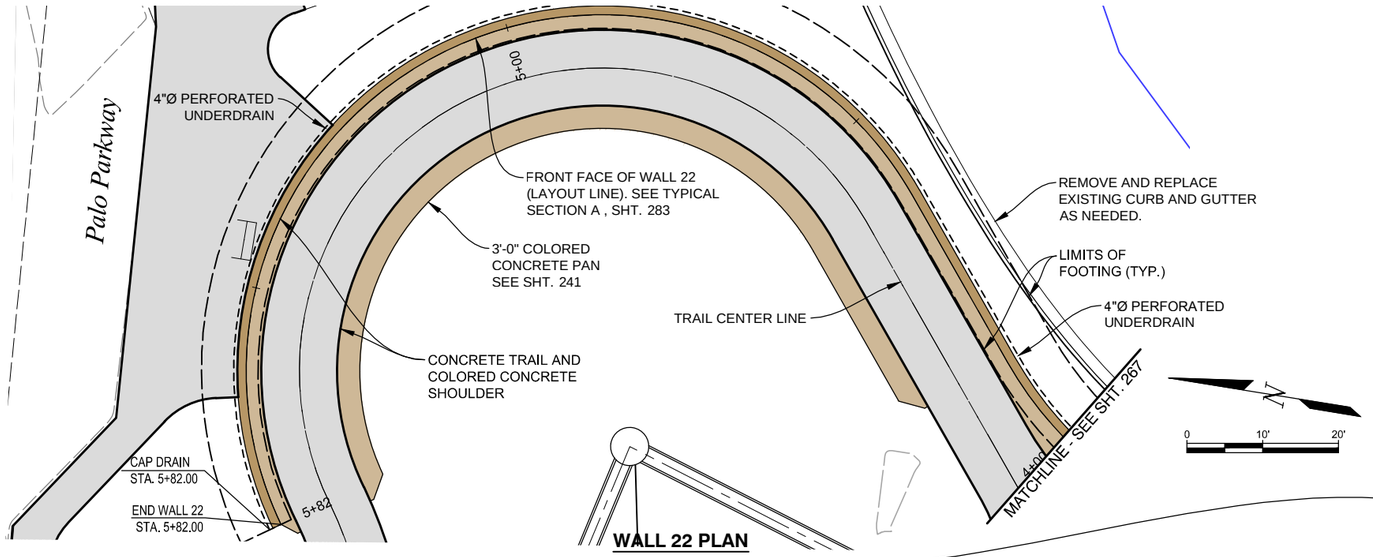
WALL 22 PLAN & PROFILE (2 OF 3)

Designer:	MKN	Structure Numbers	
Detailer:	JHK		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-54

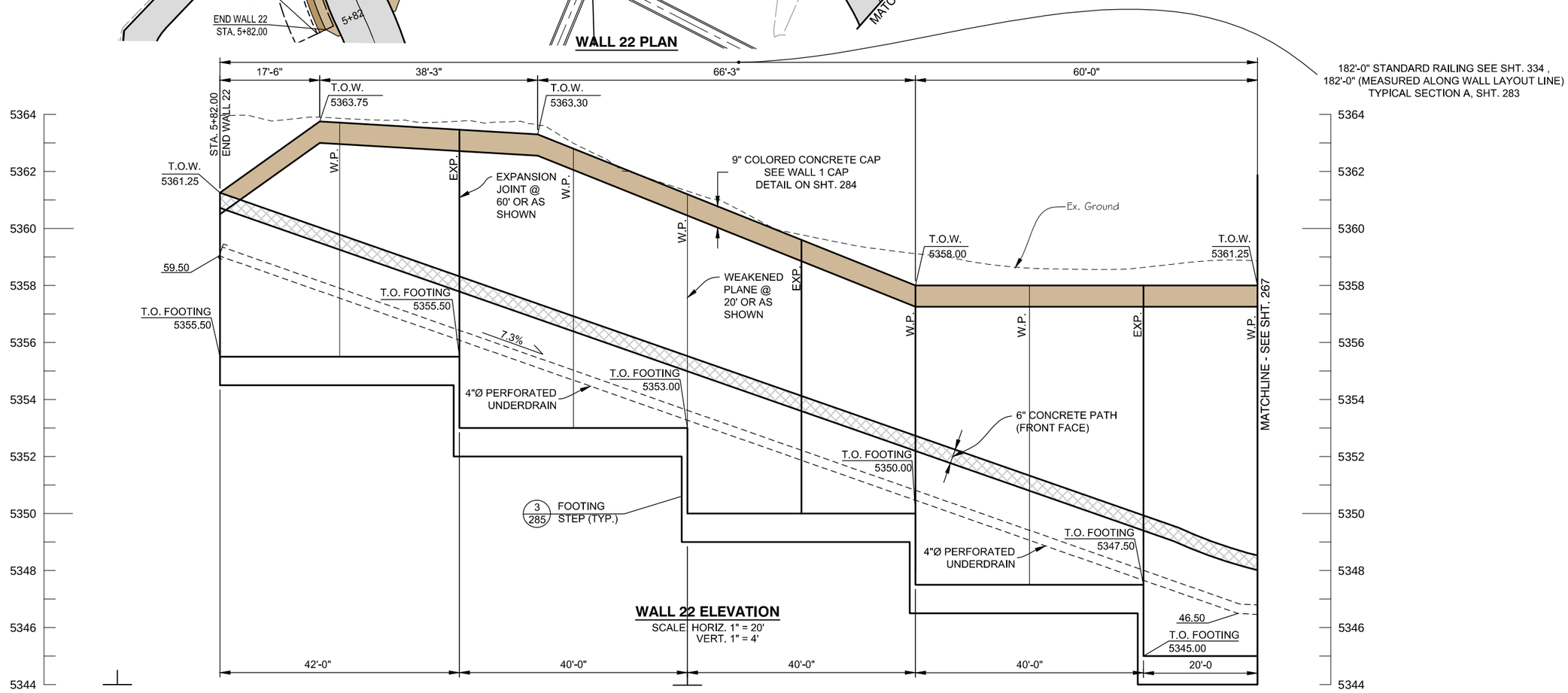
Project No./Code
STM 110-081
18405
Sheet Number: 267

PLOTTED: 6/19/2015 11:55:10 AM
NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH -FINAL DESIGN\CAD\11-039.03_WALL PROFILES NORTH-2.DWG

NOTES:
1. SEE SHTS. 214-230 FOR HORIZONTAL CONTROL.
2. FOR EXPANSION (EXP.) AND WEAKENED PLANE (W.P.) DETAILS, SEE SHT. 285
3. CONTRACTOR SHALL COORDINATE WALL FACE TREATMENT WITH CHEVO STUDIOS.
4. ALL UNDERDRAIN PIPE SHALL BE SCHEDULE 80 PVC. SEE INSTALLATION TYPICAL SECTION DETAIL ON SHT. 286.



WALL 22 PLAN



WALL 22 ELEVATION
SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'

Computer File Information		
Creation Date: 03/02/15	Initials: JHK	
Last Modification Date: 06/18/15	Initials: JHK	
Full Path: P:\11-039.03\CAD		
Drawing File Name: 11-039.03_WALL PROFILES NORTH-2.dwg		
AutoCAD 2014	Scale: AS SHOWN	FEET

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LAKEWOOD, COLORADO 80226
(303) 988-4939
MULLER
MEC PROJECT NO. 11039.03

COLORADO REGISTERED PROFESSIONAL ENGINEER CHRISTOPHER L. KRIEGER 37254 6/18/15

Sheet Revisions		
Date:	Comments	Init.

As Constructed
No Revisions:
Revised:
Void:

URBAN DRAINAGE AND FLOOD CONTROL DISTRICT
CDOT CO Region 4 RDM
CITY OF BOULDER

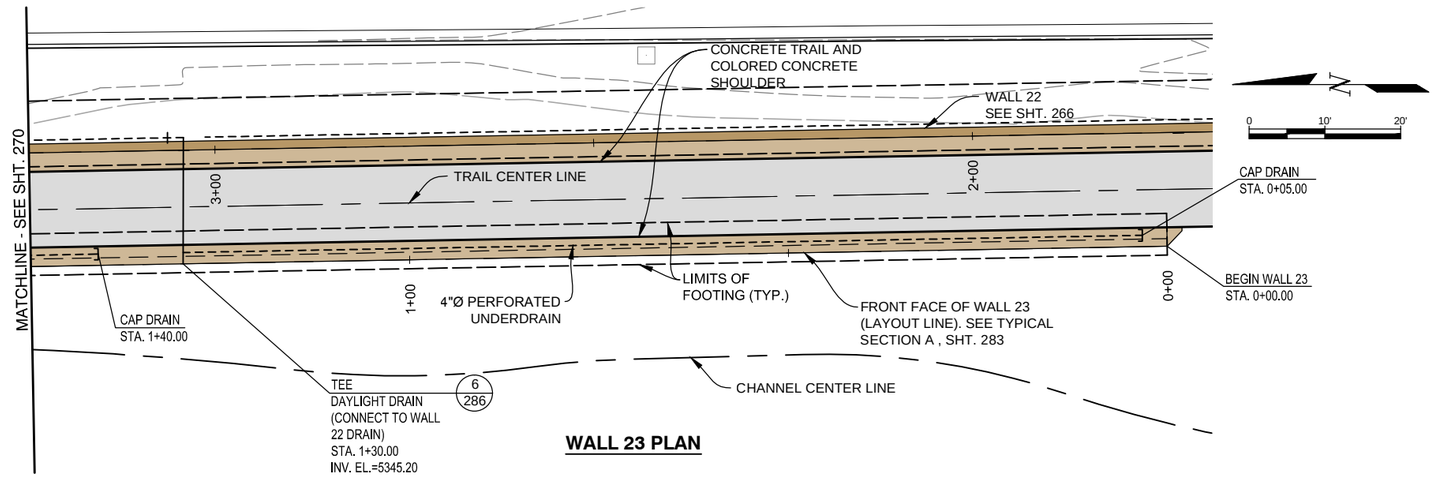
WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
WALL 22 PLAN & PROFILE (3 OF 3)

Designer:	MKN	Structure Numbers	
Detailer:	JHK		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-55

Project No./Code
STM 110-081
18405
Sheet Number: 268

PLOTTED: 6/19/2015 11:55:31 AM
NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03_WALL PROFILES NORTH-2.DWG

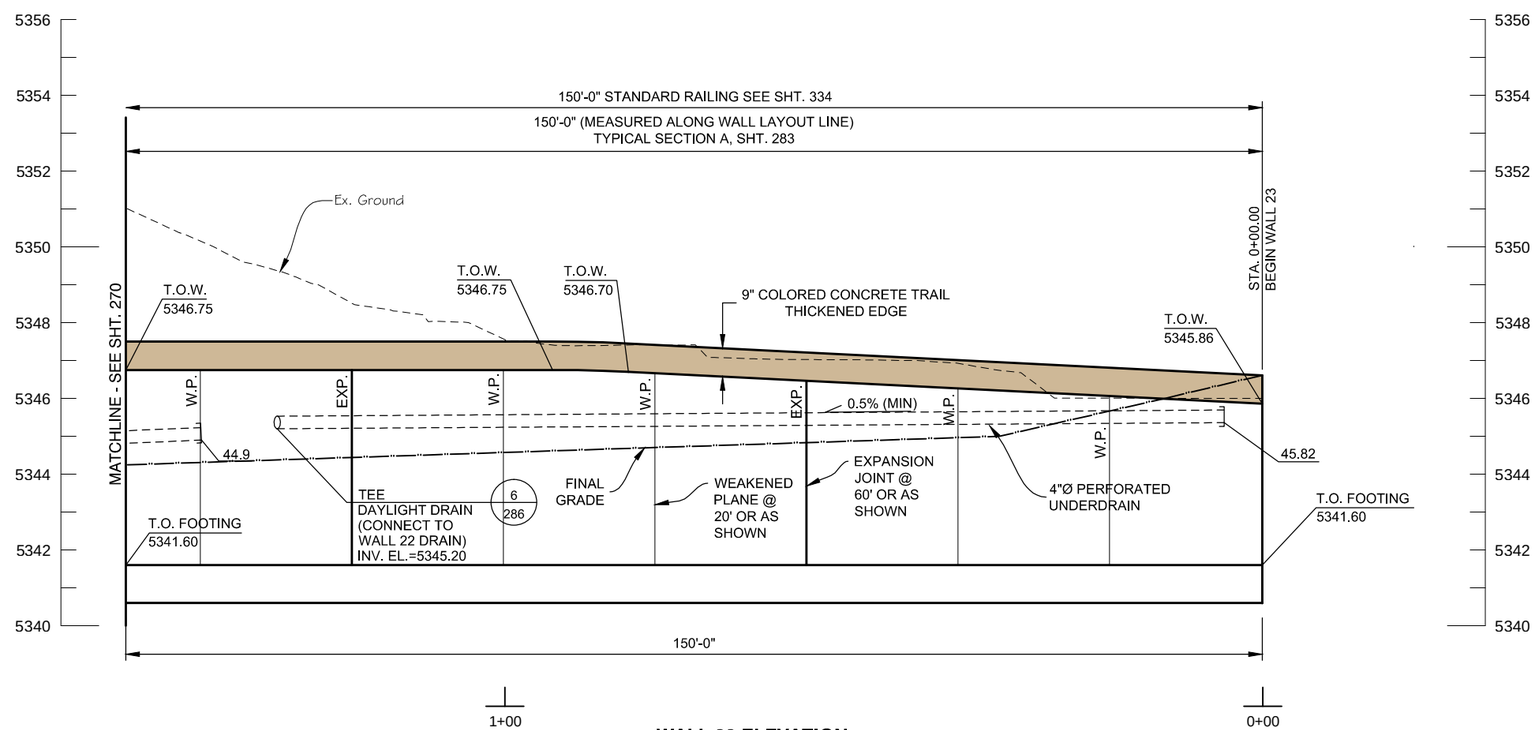
NOTES:
1. SEE SHTS. 214-230 FOR HORIZONTAL CONTROL.
2. FOR EXPANSION (EXP.) AND WEAKENED PLANE (W.P.) DETAILS, SEE SHT. 285
3. CONTRACTOR SHALL COORDINATE WALL FACE TREATMENT WITH CHEVO STUDIOS.
4. ALL UNDERDRAIN PIPE SHALL BE SCHEDULE 80 PVC. SEE INSTALLATION TYPICAL SECTION DETAIL ON SHT. 286.



WALL 23 PLAN

WALL 23 VERTICAL CONTROL TABLE	
WALL STATION	T.O.W. ELEV.
0+00.00	5345.86
0+10.00	5345.96
0+20.00	5346.06
0+30.00	5346.16
0+40.00	5346.26
0+50.00	5346.36
0+60.00	5346.46
0+70.00	5346.56
0+80.00	5346.66
0+90.00	5346.75
1+00.00	5346.75
1+10.00	5346.75
1+20.00	5346.75
1+30.00	5346.75
1+40.00	5346.75
1+50.00	5346.75

CONTROL TABLE NOTE:
VERTICAL CONTROL TABLE PROVIDED FOR INFORMATION ONLY. ACTUAL T.O.W. ELEVATIONS SHALL BE DETERMINED USING TRAIL VERTICAL GEOMETRY AND BE ADJUSTED FOR OFFSET AND TRAIL THICKNESS.



WALL 23 ELEVATION
SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'

PLOTTED: 6/19/2015 11:55:52 AM
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Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_WALL PROFILES NORTH-2.dwg	
AutoCAD 2014 Scale: AS SHOWN	FEET

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MULLER
MEC PROJECT NO. 11039.03

COLORADO REGISTERED CHRISTOPHER L. KRIEGER 37254 PROFESSIONAL ENGINEER 6/18/15

Sheet Revisions		
Date:	Comments	Init.

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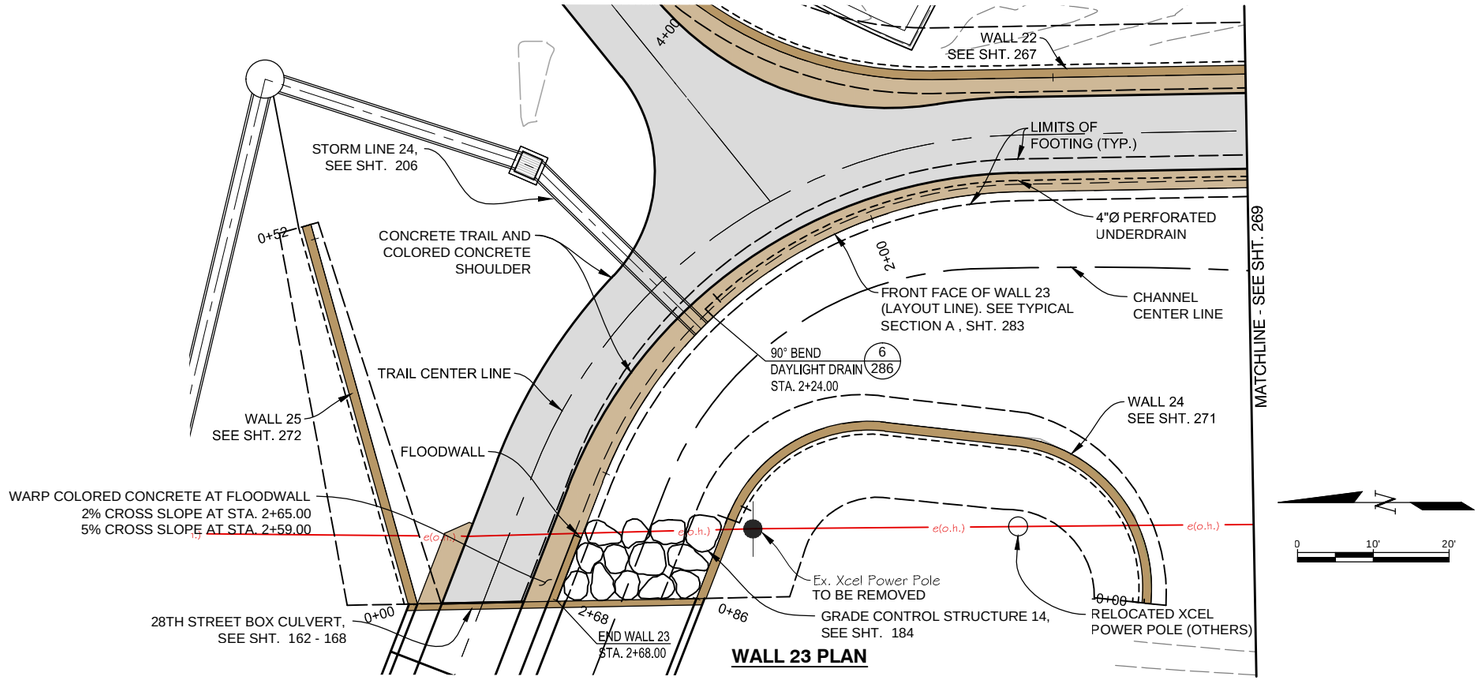
No Revisions:
Revised:
Void:

Region 4 RDM
CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
WALL 23 PLAN & PROFILE (1 OF 2)

Designer:	MKN	Structure Numbers	
Detailer:	JHK		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-56

Project No./Code
STM 110-081
18405
Sheet Number: 269

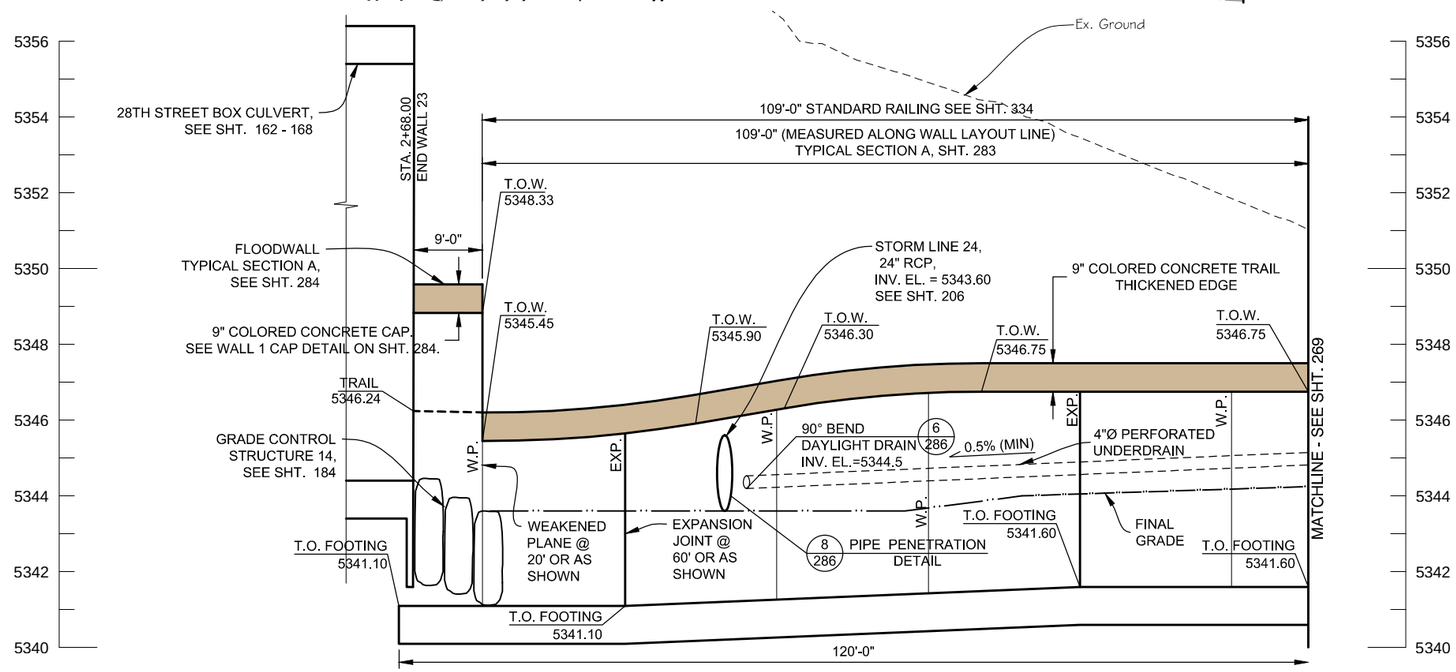


WALL 23 PLAN

NOTES:
1. SEE SHTS. 214-230 FOR HORIZONTAL CONTROL.
2. FOR EXPANSION (EXP.) AND WEAKENED PLANE (W.P.) DETAILS, SEE SHT. 285
3. CONTRACTOR SHALL COORDINATE WALL FACE TREATMENT WITH CHEVO STUDIOS.
4. ALL UNDERDRAIN PIPE SHALL BE SCHEDULE 80 PVC. SEE INSTALLATION TYPICAL SECTION DETAIL ON SHT. 286.

WALL 23 VERTICAL CONTROL TABLE	
WALL STATION	T.O.W. ELEV.
1+50.00	5346.75
1+60.00	5346.75
1+70.00	5346.75
1+80.00	5346.75
1+90.00	5346.75
2+00.00	5346.75
2+10.00	5346.75
2+20.00	5346.75
2+30.00	5346.47
2+40.00	5345.98
2+50.00	5345.57
2+60.00	5348.83
2+68.00	5348.83

CONTROL TABLE NOTE:
VERTICAL CONTROL TABLE PROVIDED FOR INFORMATION ONLY. ACTUAL T.O.W. ELEVATIONS SHALL BE DETERMINED USING TRAIL VERTICAL GEOMETRY AND BE ADJUSTED FOR OFFSET AND TRAIL THICKNESS.



WALL 23 ELEVATION

SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'

Computer File Information	
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Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_WALL PROFILES NORTH-2.dwg	
AutoCAD 2014	Scale: AS SHOWN FEET

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CONSULTING ENGINEERS
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(303) 988-4939
MEC PROJECT NO. 11039.03

COLORADO REGISTERED PROFESSIONAL ENGINEER 37254 CHRISTOPHER L. KRAGER 6/18/15

Sheet Revisions		
Date:	Comments	Init.

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No Revisions:
Revised:
Void:

Region 4 RDM
CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
WALL 23 PLAN & PROFILE (2 OF 2)

Designer: MKN
Detailer: JHK
Structure Numbers
Sheet Subset: TRAIL-WALL
Subset Sheets: TW-57

Project No./Code
STM 110-081
18405
Sheet Number: 270

PLOTTED: 6/19/2015 11:56:13 AM
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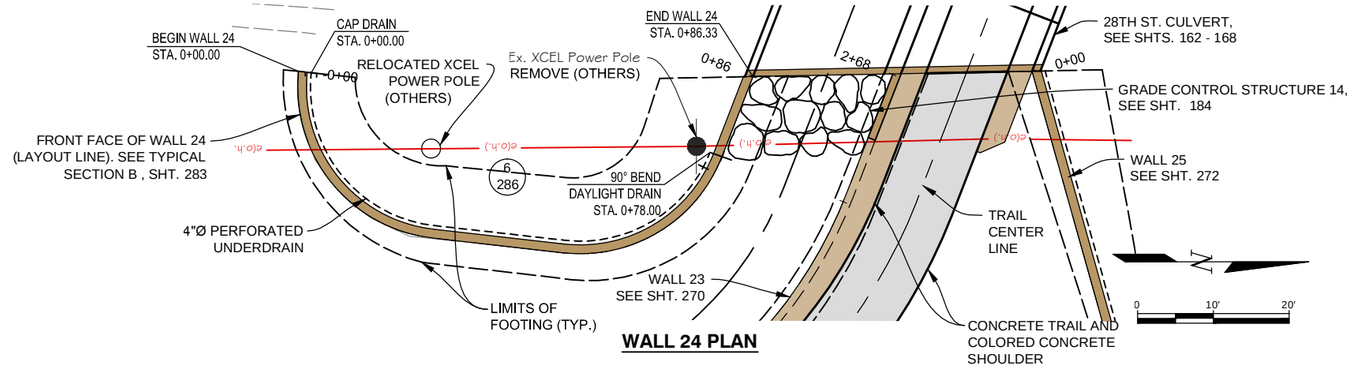
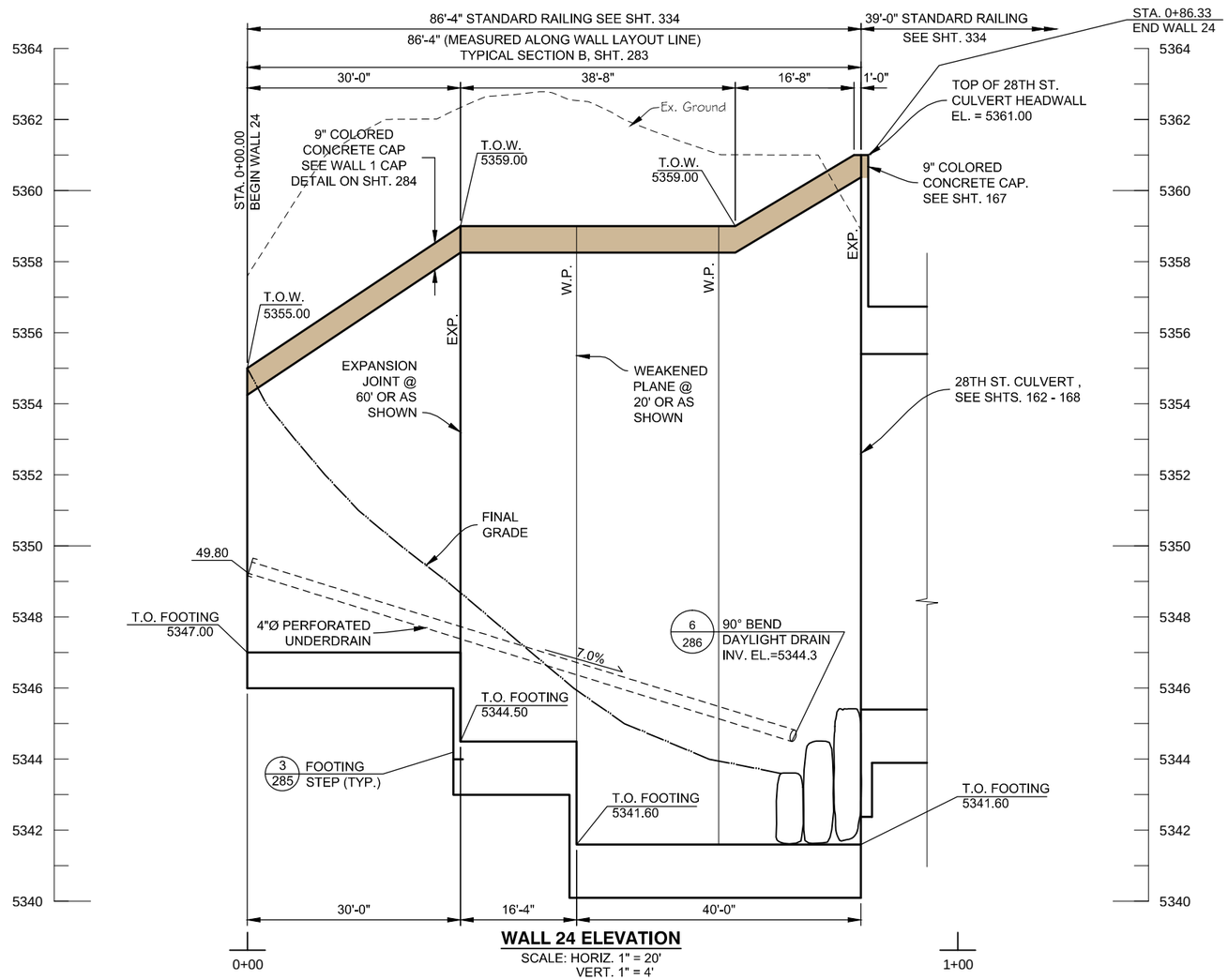


WALL 24 PLAN

NOTES:

1. SEE SHTS. 214-230 FOR HORIZONTAL CONTROL.
2. FOR EXPANSION (EXP.) AND WEAKENED PLANE (W.P.) DETAILS, SEE SHT. 285
3. CONTRACTOR SHALL COORDINATE WALL FACE TREATMENT WITH CHEVO STUDIOS.
4. ALL UNDERDRAIN PIPE SHALL BE SCHEDULE 80 PVC. SEE INSTALLATION TYPICAL SECTION DETAIL ON SHT. 286.
5. WALL 24 SHALL BE CONSTRUCTED IN A MINIMUM OF TWO PHASES. PHASE 1 SHALL COMPRISE THE FOLLOWING: THE SOUTHERN 50 LINEAR FEET OF THE RETAINING WALL SHALL BE CONSTRUCTED WITH THE EXISTING XCEL POWER POLE TO THE NORTH IN PLACE. FOLLOWING THE CONSTRUCTION OF THE PHASE 1 PORTION OF THE RETAINING WALL THE CONTRACTOR SHALL COORDINATE WITH XCEL TO HAVE THE NORTHERN POWER POLE REMOVED AND A NEW POWER POLE INSTALLED APPROXIMATELY 35 FEET SOUTH OF THE EXISTING LOCATION. FOLLOWING THE RELOCATION OF THE POWER POLE THE CONTRACTOR SHALL PROCEED WITH PHASE 2 OF THE RETAINING WALL CONSTRUCTION WHICH WILL INCLUDE THE REMAINDER OF THE RETAINING WALL. THE PHASING AND CONSTRUCTION OF THIS RETAINING WALL SHALL BE CLOSELY COORDINATED WITH XCEL ENERGY.



WALL 24 ELEVATION

SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'

Computer File Information			
Creation Date: 03/02/15	Initials: JHK		
Last Modification Date: 06/18/15	Initials: JHK		
Full Path: P:\11-039.03\CAD			
Drawing File Name: 11-039.03_WALL PROFILES NORTH-2.dwg			
AutoCAD 2014	Scale: AS SHOWN	FEET	

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MEC PROJECT NO. 11039.03

COLORADO REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER L. KREGER
37254
6/18/15

Sheet Revisions		
Date:	Comments	Init.

As Constructed
No Revisions:
Revised:
Void:

Region 4 RDM

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WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT

WALL 24 PLAN & PROFILE

Designer:	MKN	Structure Numbers	
Detailer:	JHK		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-58

Project No./Code
STM 110-081
18405
Sheet Number: 271

PLOTTED: 6/19/2015 11:56:34 AM
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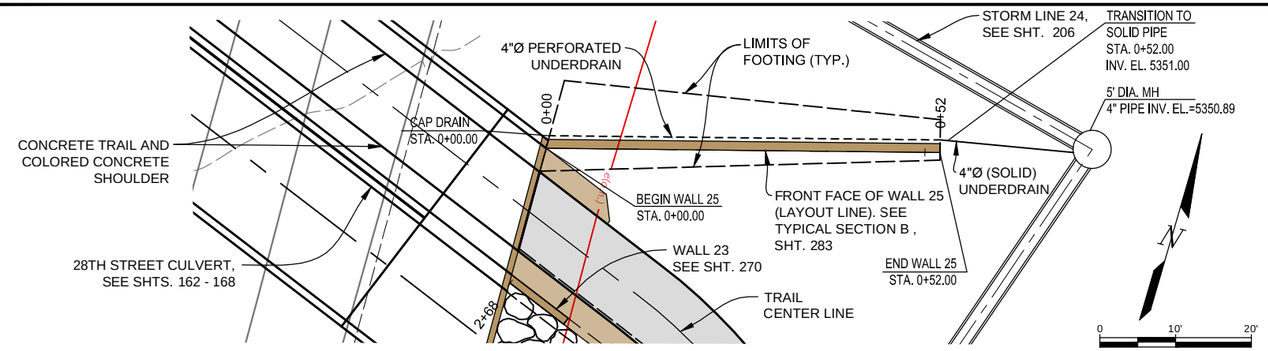
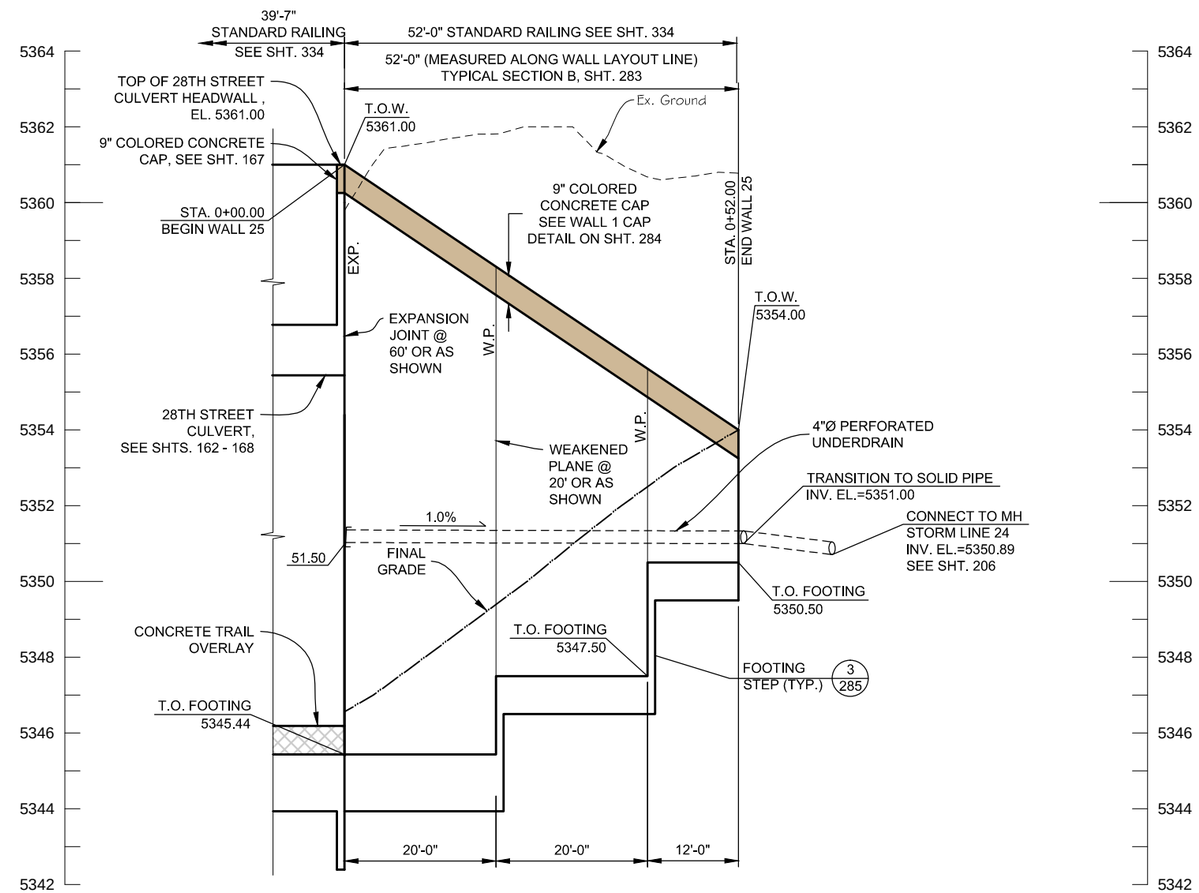


WALL 25 PLAN

NOTES:
1. SEE SHTS. 214-230 FOR HORIZONTAL CONTROL.
2. FOR EXPANSION (EXP.) AND WEAKENED PLANE (W.P.) DETAILS, SEE SHT. 285
3. CONTRACTOR SHALL COORDINATE WALL FACE TREATMENT WITH CHEVO STUDIOS.
4. ALL UNDERDRAIN PIPE SHALL BE SCHEDULE 80 PVC. SEE INSTALLATION TYPICAL SECTION DETAIL ON SHT. 286.



WALL 25 ELEVATION

SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'

Computer File Information		
Creation Date: 03/02/15	Initials: JHK	
Last Modification Date: 06/18/15	Initials: JHK	
Full Path: P:\11-039.03\CAD		
Drawing File Name: 11-039.03_WALL PROFILES NORTH-2.dwg		
AutoCAD 2014	Scale: AS SHOWN	FEET

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MEC PROJECT NO. 11039.03

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Sheet Revisions		
Date:	Comments	Init.

As Constructed
No Revisions:
Revised:
Void:

Region 4 RDM
CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
WALL 25 PLAN & PROFILE

Designer:	MKN	Structure Numbers	
Detailer:	JHK		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-59

Project No./Code
STM 110-081
18405
Sheet Number: 272

PLOTTED: 6/19/2015 11:56:56 AM
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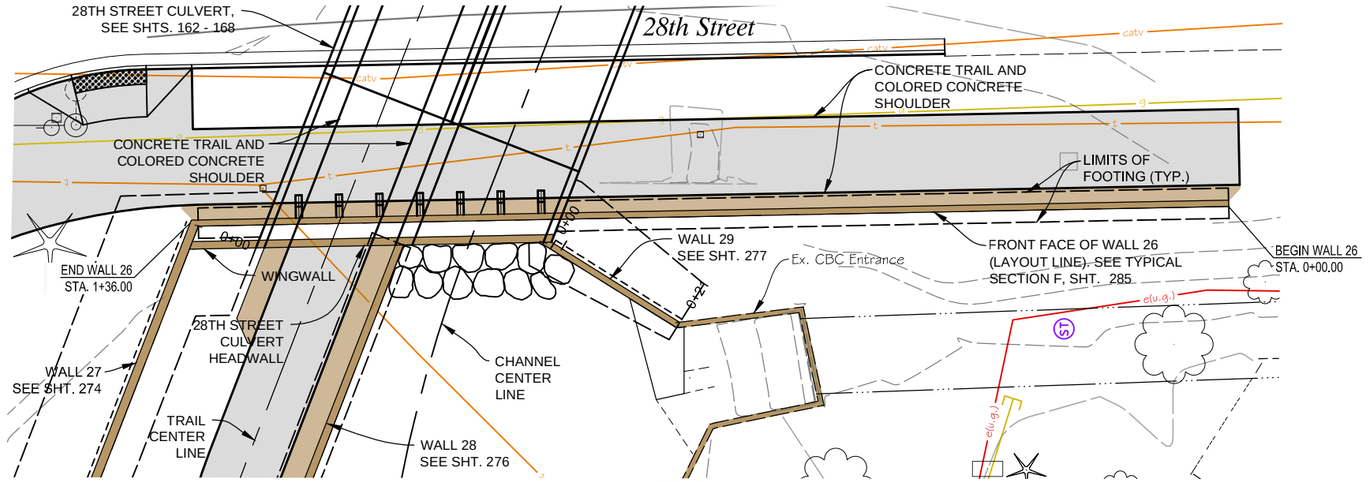
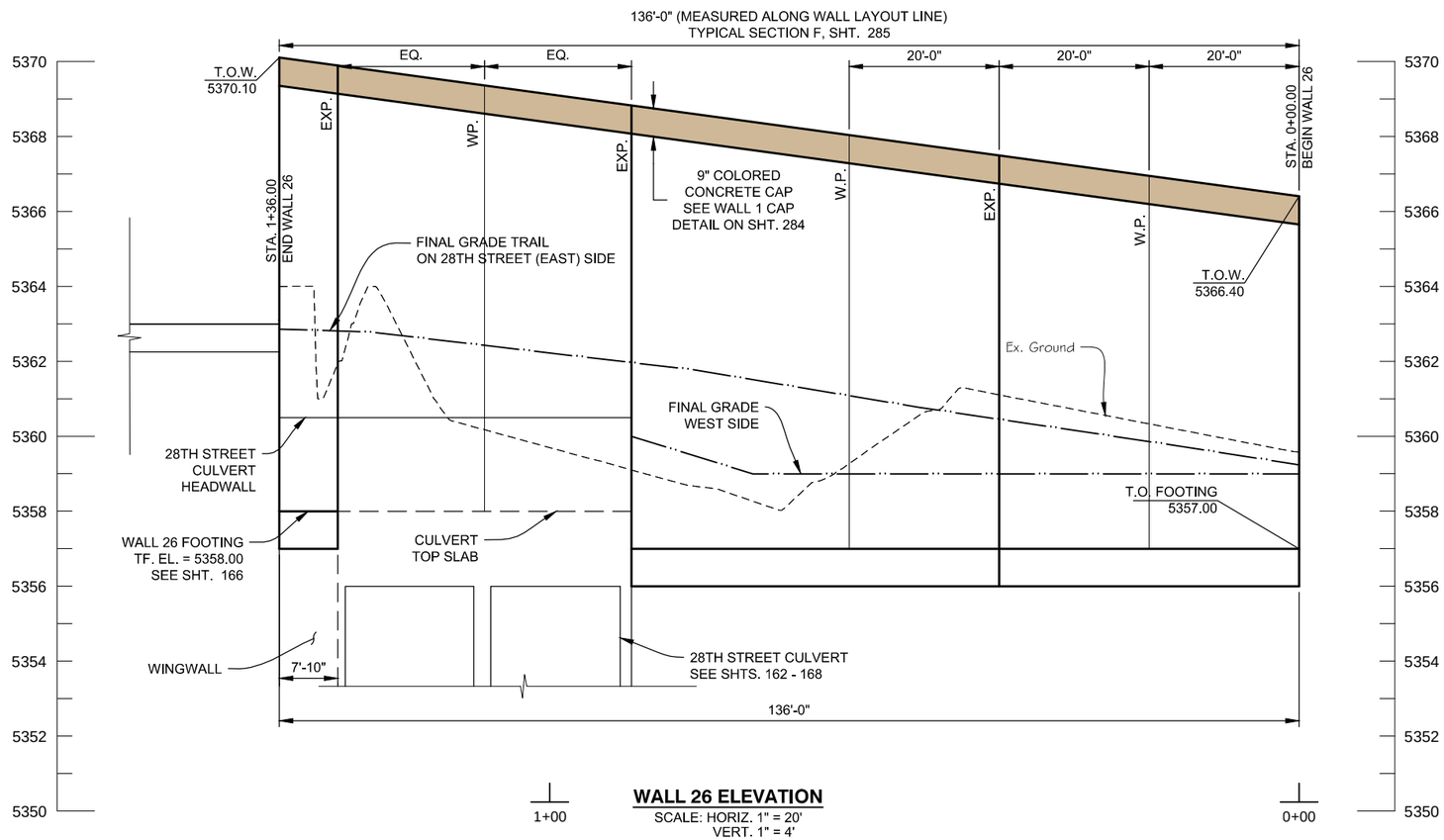


WALL 26 PLAN

NOTES:
1. SEE SHTS. 214-230 FOR HORIZONTAL CONTROL.
2. FOR EXPANSION (EXP.) AND WEAKENED PLANE (W.P.) DETAILS, SEE SHT. 285
3. CONTRACTOR SHALL COORDINATE WALL FACE TREATMENT WITH CHEVO STUDIOS.
4. ALL UNDERDRAIN PIPE SHALL BE SCHEDULE 80 PVC. SEE INSTALLATION TYPICAL SECTION DETAIL ON SHT. 286.

N
0 10' 20'



WALL 26 ELEVATION
SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'

Computer File Information		
Creation Date: 03/02/15	Initials: JHK	
Last Modification Date: 06/18/15	Initials: JHK	
Full Path: P:\11-039.03\CAD		
Drawing File Name: 11-039.03_WALL PROFILES NORTH-2.dwg		
AutoCAD 2014	Scale: AS SHOWN	FEET

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MEC PROJECT NO. 11039.03

COLORADO REGISTERED CHRISTOPHER L. KRIEGER 37254 6/18/15 PROFESSIONAL ENGINEER

Sheet Revisions		
Date:	Comments	Init.

As Constructed
No Revisions:
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Region 4 RDM
CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
WALL 26 PLAN & PROFILE

Designer:	MKN	Structure Numbers	
Detailer:	JHK		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-60

Project No./Code
STM 110-081
18405
Sheet Number: 273

PLOTTED: 6/19/2015 11:57:17 AM
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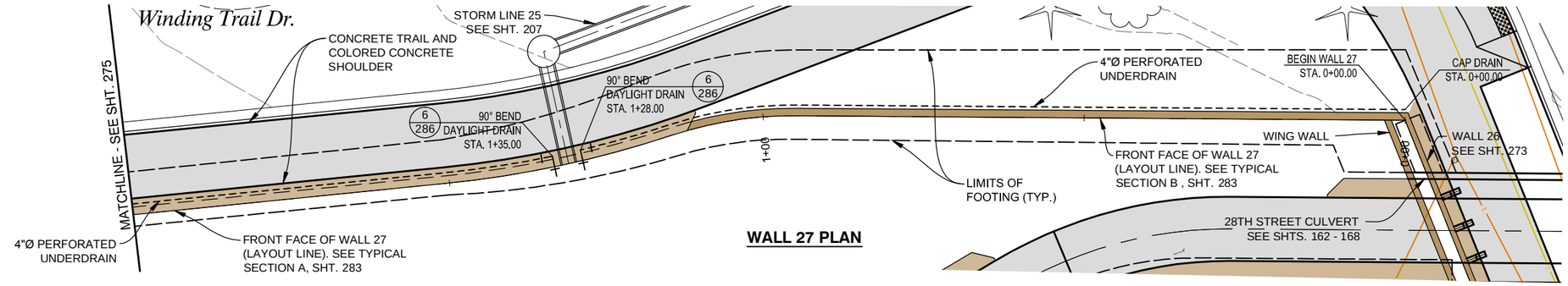
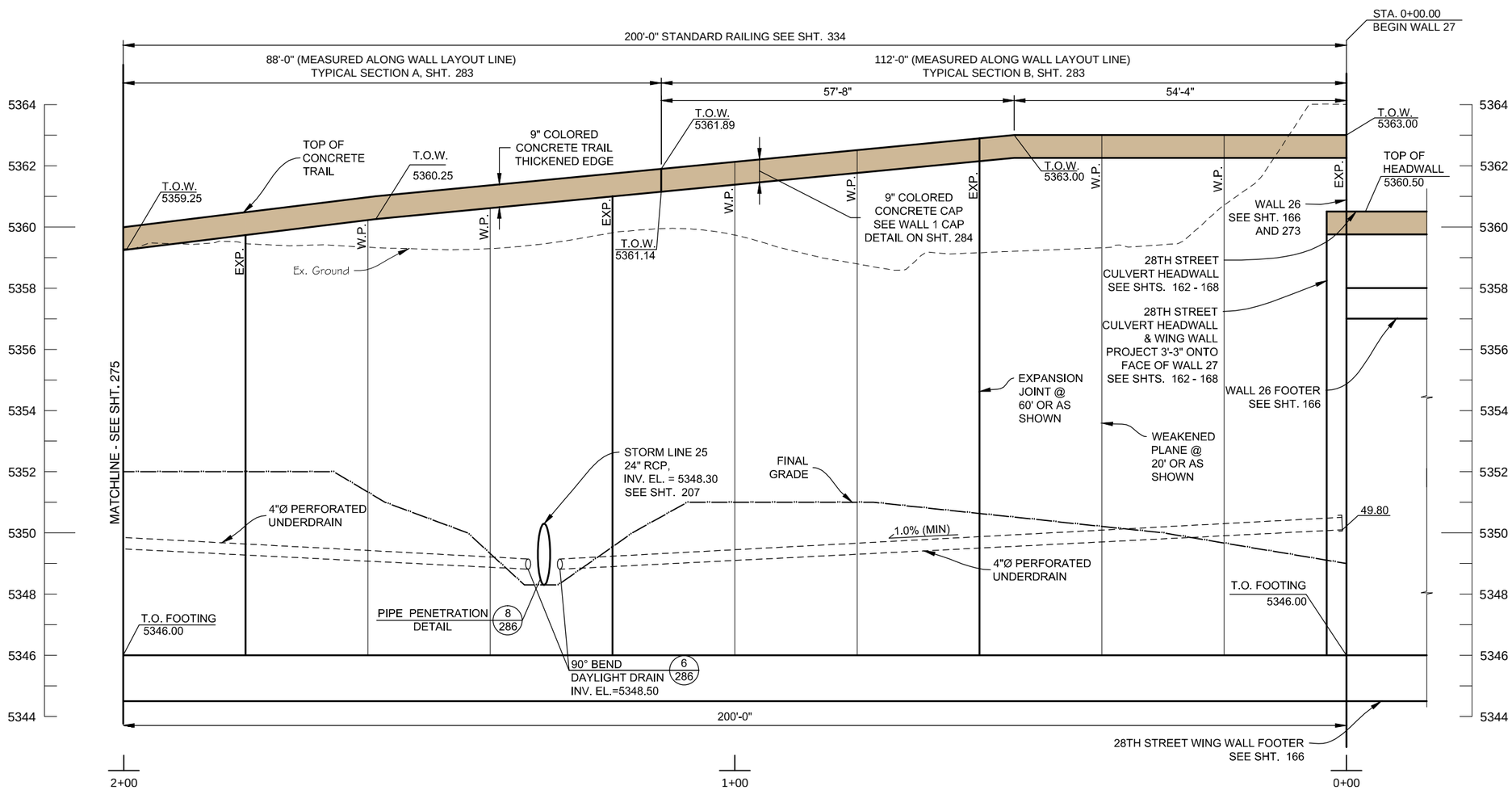


WALL 27 PLAN

NOTES:
1. SEE SHTS. 214-230 FOR HORIZONTAL CONTROL.
2. FOR EXPANSION (EXP.) AND WEAKENED PLANE (W.P.) DETAILS, SEE SHT. 285
3. CONTRACTOR SHALL COORDINATE WALL FACE TREATMENT WITH CHEVO STUDIOS.
4. ALL UNDERDRAIN PIPE SHALL BE SCHEDULE 80 PVC. SEE INSTALLATION TYPICAL SECTION DETAIL ON SHT. 286.



WALL 27 ELEVATION

SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'

WALL 27 VERTICAL CONTROL TABLE	
WALL STATION	T.O.W. ELEV.
0+00.00	5362.25
0+10.00	5362.25
0+20.00	5362.25
0+30.00	5362.25
0+40.00	5362.25
0+50.00	5362.25
0+60.00	5362.14
0+70.00	5361.95
0+80.00	5361.76
0+90.00	5361.57
1+00.00	5361.38
1+10.00	5361.18
1+20.00	5360.99
1+30.00	5360.80
1+40.00	5360.61
1+50.00	5360.42
1+60.00	5360.22
1+70.00	5359.97
1+80.00	5359.73
1+90.00	5359.48
2+00.00	5359.24

CONTROL TABLE NOTE:
VERTICAL CONTROL TABLE PROVIDED FOR INFORMATION ONLY. ACTUAL T.O.W. ELEVATIONS SHALL BE DETERMINED USING TRAIL VERTICAL GEOMETRY AND BE ADJUSTED FOR OFFSET AND TRAIL THICKNESS.

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Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_WALL PROFILES NORTH-2.dwg	
AutoCAD 2014	Scale: AS SHOWN FEET

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MULLER
MEC PROJECT NO. 11039.03

COLORADO REGISTERED PROFESSIONAL ENGINEER CHRISTOPHER L. KADGER 37254 6/18/15

Sheet Revisions		
Date:	Comments	Init.

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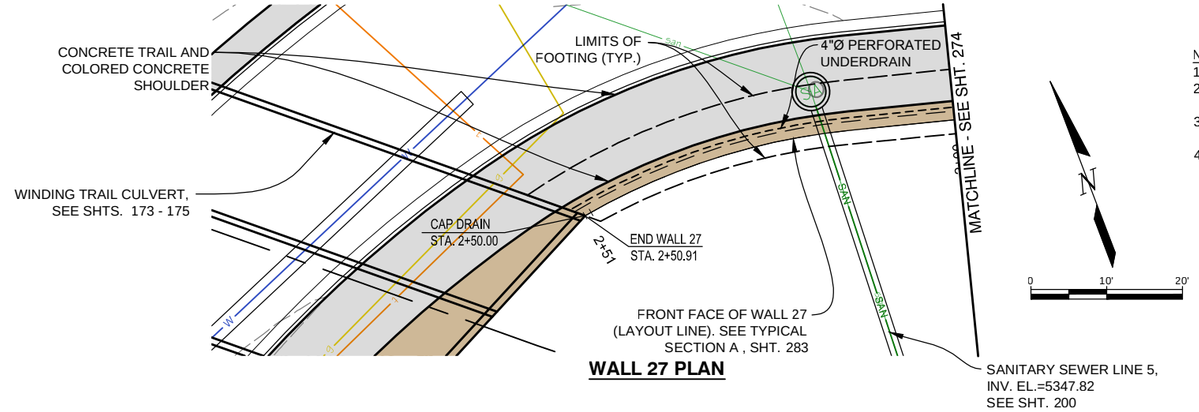
Region 4 RDM
CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
WALL 27 PLAN & PROFILE (1 OF 2)

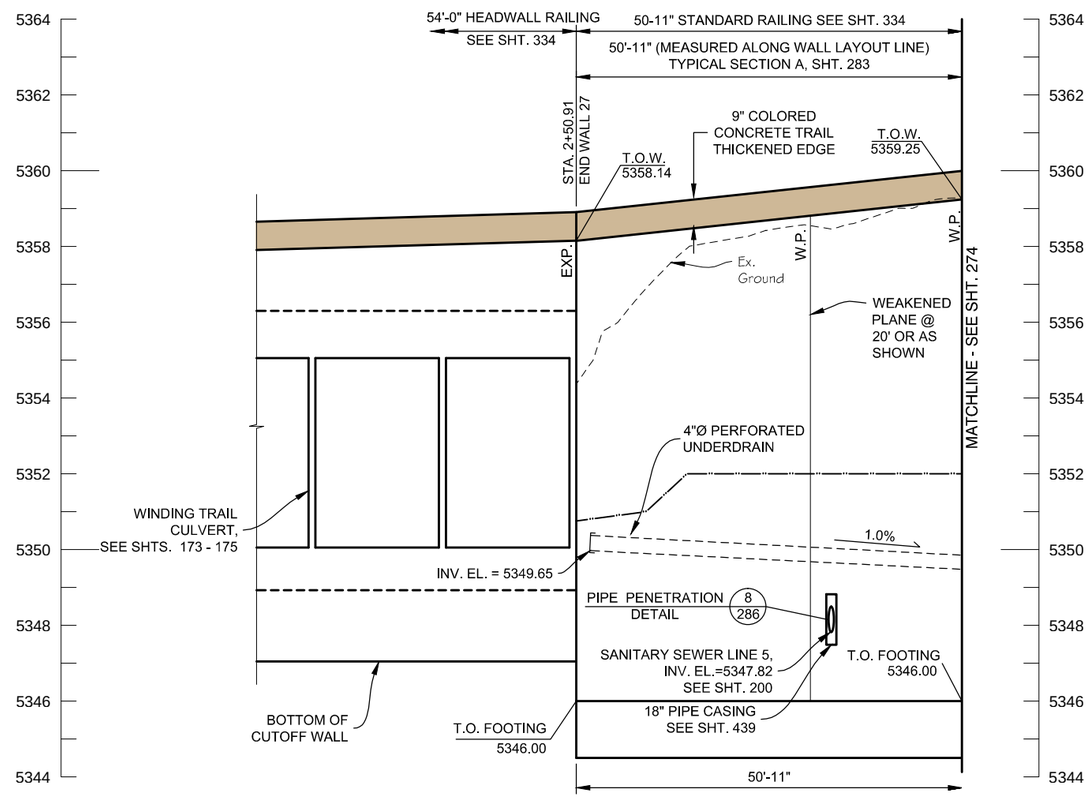
Designer: MKN
Detailer: JHK
Structure Numbers
Sheet Subset: TRAIL-WALL
Subset Sheets: TW-61

Project No./Code
STM 110-081
18405
Sheet Number: 274



WALL 27 PLAN

NOTES:
1. SEE SHTS. 214-230 FOR HORIZONTAL CONTROL.
2. FOR EXPANSION (EXP.) AND WEAKENED PLANE (W.P.) DETAILS, SEE SHT. 285
3. CONTRACTOR SHALL COORDINATE WALL FACE TREATMENT WITH CHEVO STUDIOS.
4. ALL UNDERDRAIN PIPE SHALL BE SCHEDULE 80 PVC. SEE INSTALLATION TYPICAL SECTION DETAIL ON SHT. 286.



WALL 27 ELEVATION

SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'

WALL 27 VERTICAL CONTROL TABLE	
WALL STATION	T.O.W. ELEV.
2+00.00	5359.24
2+10.00	5359.04
2+20.00	5358.84
2+30.00	5358.64
2+40.00	5358.45
2+50.00	5358.25
2+50.91	5358.15

CONTROL TABLE NOTE:
VERTICAL CONTROL TABLE PROVIDED FOR INFORMATION ONLY. ACTUAL T.O.W. ELEVATIONS SHALL BE DETERMINED USING TRAIL VERTICAL GEOMETRY AND BE ADJUSTED FOR OFFSET AND TRAIL THICKNESS.

PLOTTED: 6/19/2015 11:58:01 AM
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Computer File Information	
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Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_WALL PROFILES NORTH-2.dwg	
AutoCAD 2014 Scale: AS SHOWN	FEET

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(303) 988-4939
MULLER
MEC PROJECT NO. 11039.03

COLORADO REGISTERED PROFESSIONAL ENGINEER CHRISTOPHER L. KRIEGER 37254 6/18/15

Sheet Revisions		
Date:	Comments	Init.

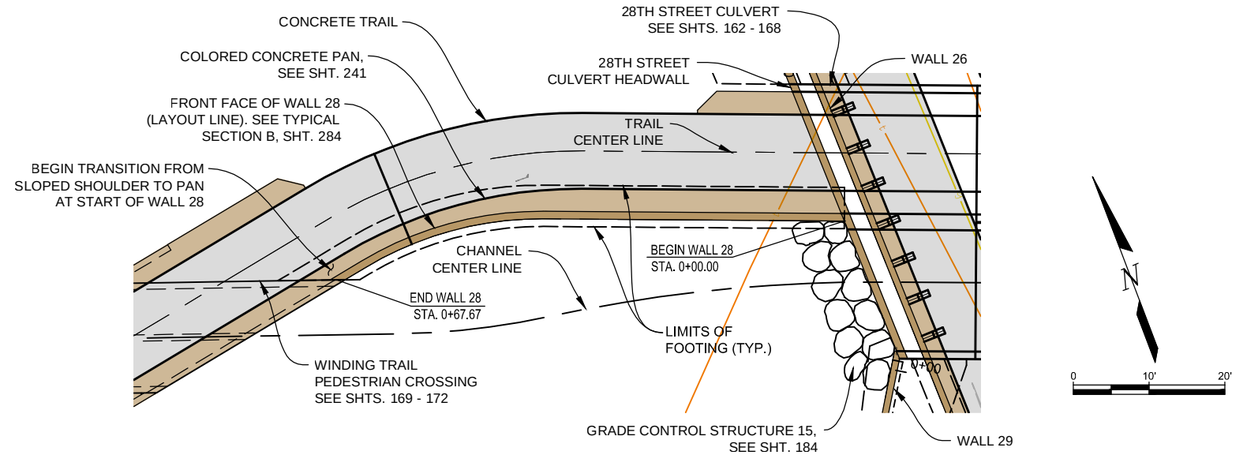
As Constructed
No Revisions:
Revised:
Void:

Region 4 RDM
CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
WALL 27 PLAN & PROFILE (2 OF 2)

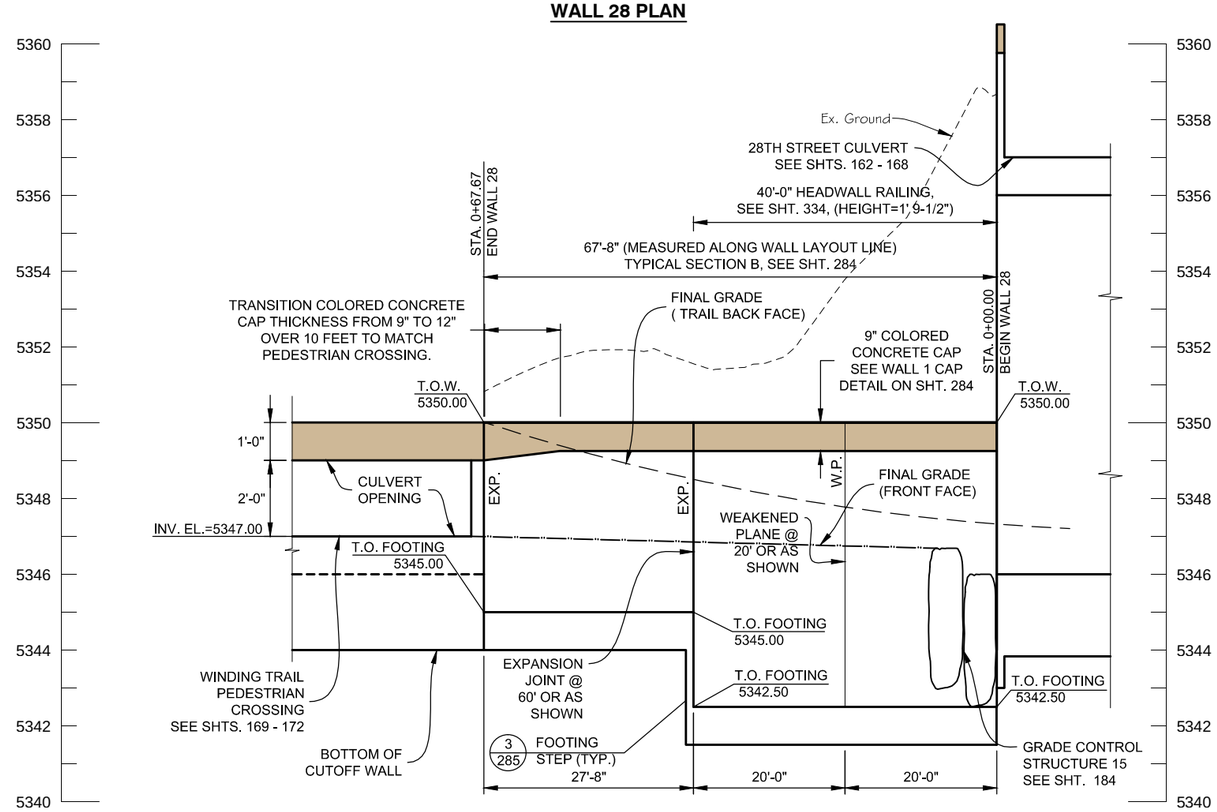
Designer:	MKN	Structure Numbers	
Detailer:	JHK		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-62

Project No./Code
STM 110-081
18405
Sheet Number: 275



WALL 28 PLAN

NOTES:
1. SEE SHTS. 214-230 FOR HORIZONTAL CONTROL.
2. FOR EXPANSION (EXP.) AND WEAKENED PLANE (W.P.) DETAILS, SEE SHT. 285
3. CONTRACTOR SHALL COORDINATE WALL FACE TREATMENT WITH CHEVO STUDIOS.
4. ALL UNDERDRAIN PIPE SHALL BE SCHEDULE 80 PVC. SEE INSTALLATION TYPICAL SECTION DETAIL ON SHT. 286.



WALL 28 ELEVATION

SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'

Computer File Information		
Creation Date: 03/02/15	Initials: JHK	
Last Modification Date: 06/18/15	Initials: JHK	
Full Path: P:\11-039.03\CAD		
Drawing File Name: 11-039.03_WALL PROFILES NORTH-2.dwg		
AutoCAD 2014	Scale: AS SHOWN	FEET

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LAKEWOOD, COLORADO 80226
(303) 988-4939
MULLER
MEC PROJECT NO. 11039.03

COLORADO REGISTERED PROFESSIONAL ENGINEER CHRISTOPHER L. KRIEGER 37254 6/18/15

Sheet Revisions		
Date:	Comments	Init.

As Constructed
No Revisions:
Revised:
Void:

Region 4 RDM

CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT

WALL 28 PLAN & PROFILE

Designer:	MKN	Structure Numbers	
Detailer:	JHK		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-63

Project No./Code
STM 110-081
18405
Sheet Number: 276

PLOTTED: 6/19/2015 11:58:24 AM
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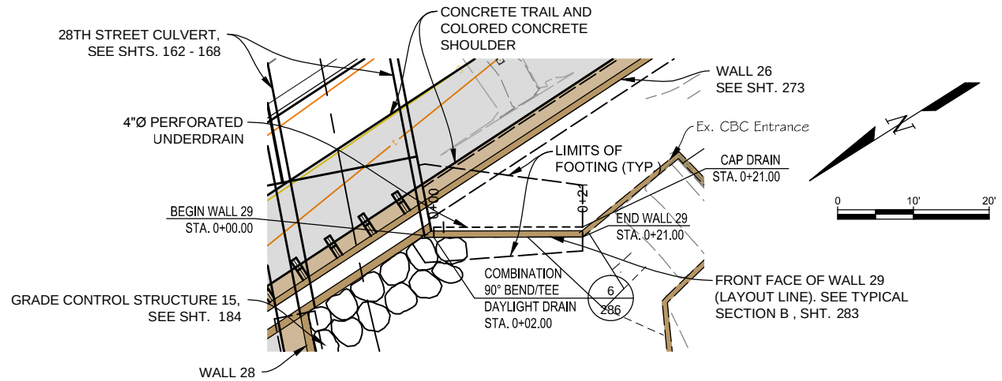
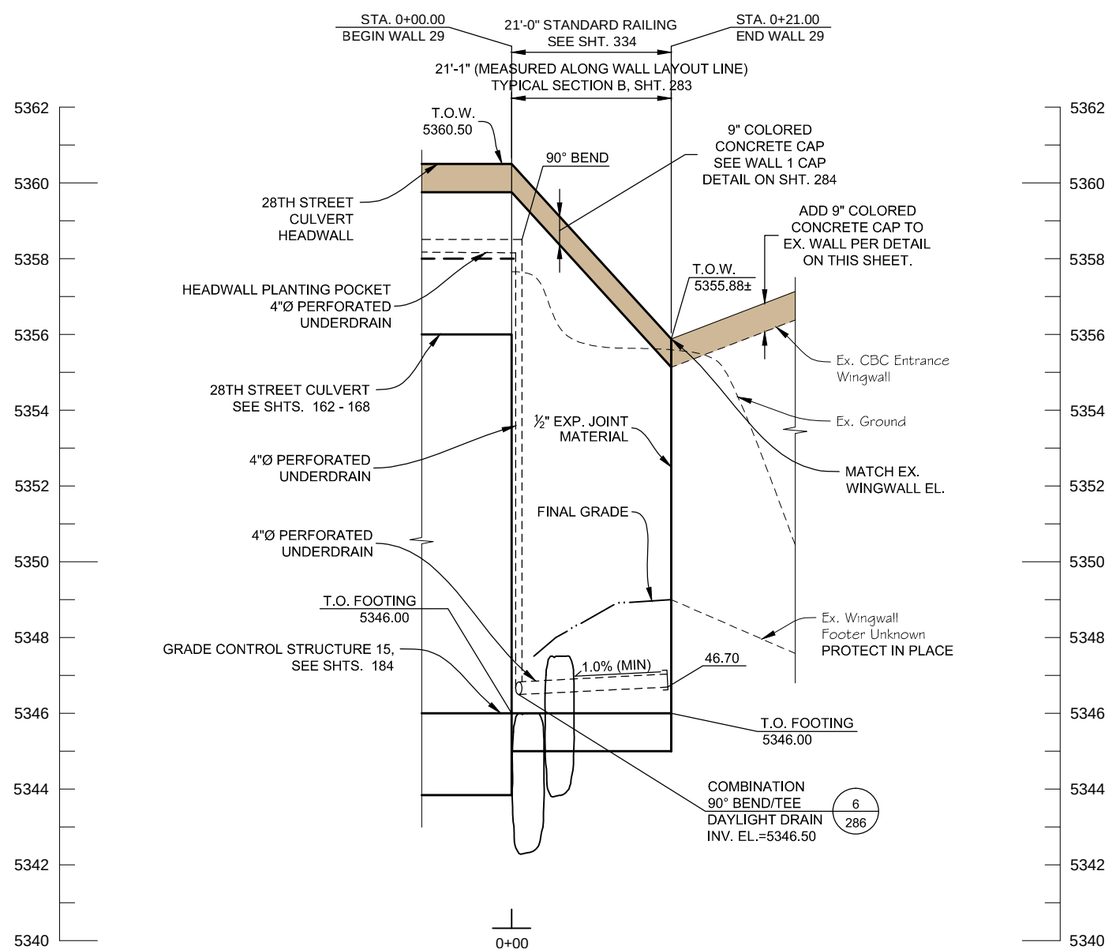
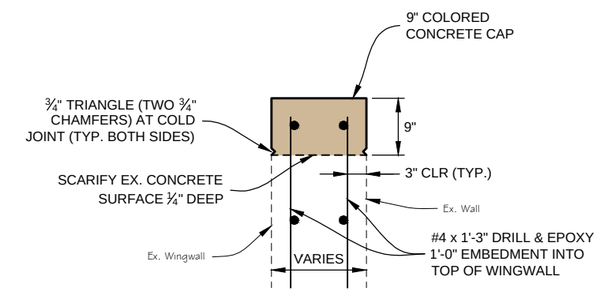


NOTES:
1. SEE SHTS. 214-230 FOR HORIZONTAL CONTROL.
2. FOR EXPANSION (EXP.) AND WEAKENED PLANE (W.P.) DETAILS, SEE SHT. 285
3. CONTRACTOR SHALL COORDINATE WALL FACE TREATMENT WITH CHEVO STUDIOS.
4. ALL UNDERDRAIN PIPE SHALL BE SCHEDULE 80 PVC. SEE INSTALLATION TYPICAL SECTION DETAIL ON SHT. 286.
5. WALL 29 AND THE EX. WALL MAY HAVE WALL WIDTHS WHICH ARE NOT EQUAL. THE WIDTH TRANSITION SHALL BE PERFORMED ON THE BACK SIDE OF THE WALLS.



WALL 29 ELEVATION

SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'



EX. WALL CAP DETAIL

0 6" 1' 2'
SCALE: 1" = 1'-0"

Computer File Information		
Creation Date: 03/02/15	Initials: JHK	
Last Modification Date: 06/18/15	Initials: JHK	
Full Path: P:\11-039.03\CAD		
Drawing File Name: 11-039.03_WALL PROFILES NORTH-2.dwg		
AutoCAD 2014	Scale: AS SHOWN	FEET

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MULLER
MEC PROJECT NO. 11039.03

COLORADO REGISTERED CHRISTOPHER L. KREBERT 37254 6/18/15 PROFESSIONAL ENGINEER

Sheet Revisions		
Date:	Comments	Init.

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No Revisions:
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Region 4 RDM

CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT

WALL 29 PLAN & PROFILE

Designer:	MKN	Structure Numbers	
Detailer:	JHK		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-64

Project No./Code
STM 110-081
18405
Sheet Number: 277

PLOTTED: 6/19/2015 11:59:00 AM
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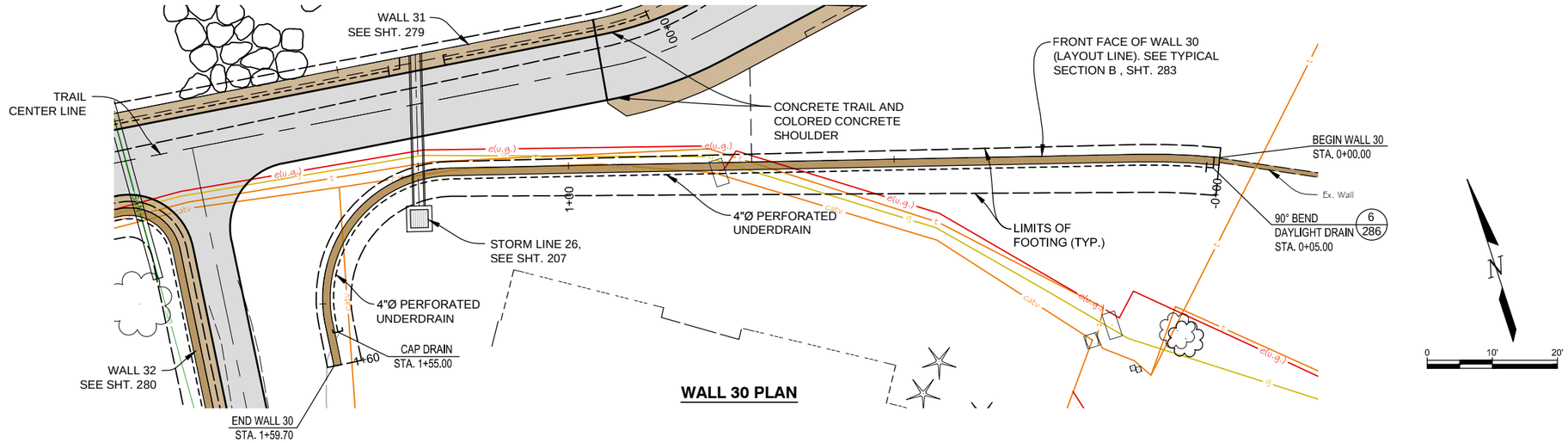
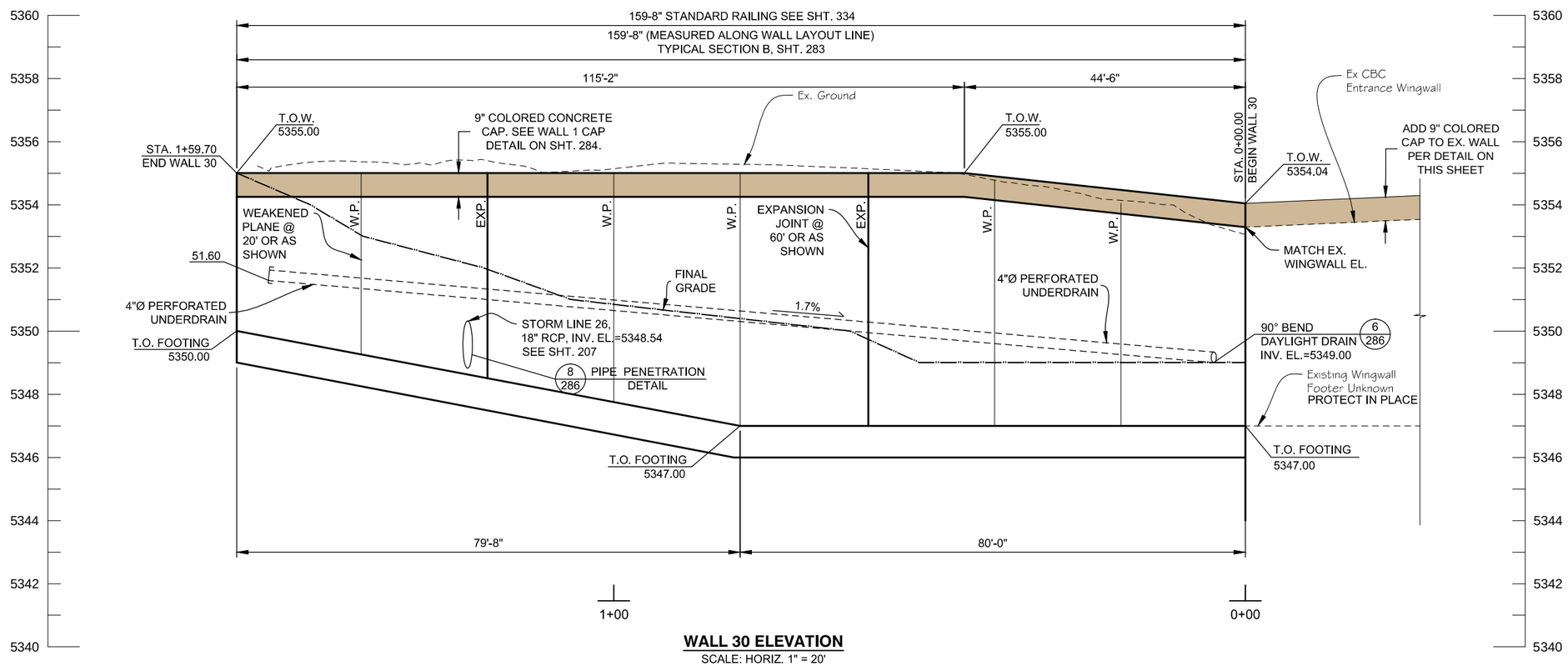


WALL 30 PLAN

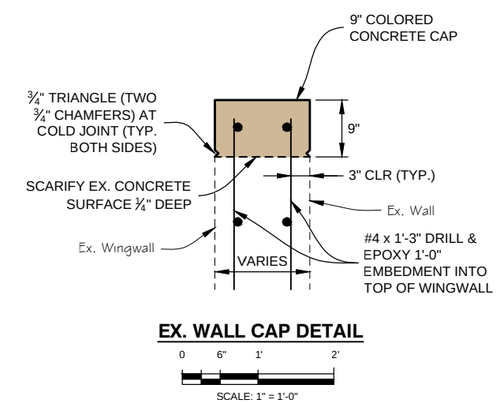
NOTES:

1. SEE SHTS. 214-230 FOR HORIZONTAL CONTROL.
2. FOR EXPANSION (EXP.) AND WEAKENED PLANE (W.P.) DETAILS, SEE SHT. 285
3. CONTRACTOR SHALL COORDINATE WALL FACE TREATMENT WITH CHEVO STUDIOS.
4. ALL UNDERDRAIN PIPE SHALL BE SCHEDULE 80 PVC. SEE INSTALLATION TYPICAL SECTION DETAIL ON SHT. 286.
5. WALL 30 AND THE EX. WALL MAY HAVE WALL WIDTHS WHICH ARE NOT EQUAL. THE WIDTH TRANSITION SHALL BE PERFORMED ON THE BACK SIDE OF THE WALLS.



WALL 30 ELEVATION

SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'



EX. WALL CAP DETAIL

Computer File Information			
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Last Modification Date: 06/18/15	Initials: JHK		
Full Path: P:\11-039.03\CAD			
Drawing File Name: 11-039.03_WALL PROFILES NORTH-2.dwg			
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MEC PROJECT NO. 11039.03

COLORADO REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER L. KREGER
37254
6/18/15

Sheet Revisions		
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No Revisions:
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Region 4 RDM
CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT

WALL 30 PLAN & PROFILE

Designer:	MKN	Structure Numbers	
Detailer:	JHK		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-65

Project No./Code
STM 110-081
18405
Sheet Number: 278

PLOTTED: 6/19/2015 11:59:33 AM
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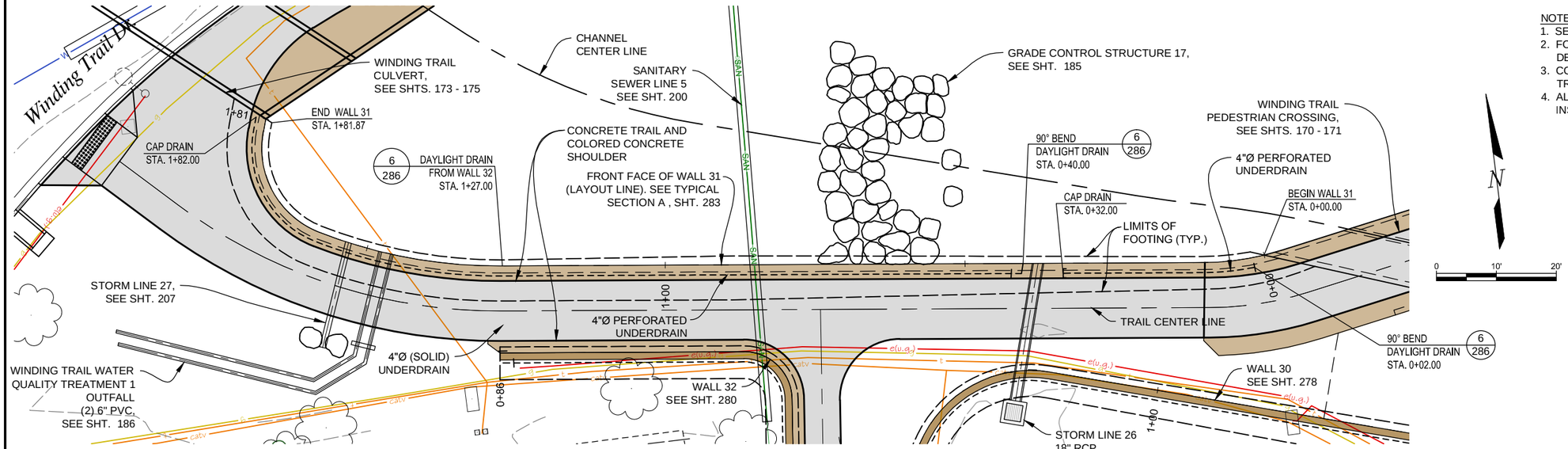


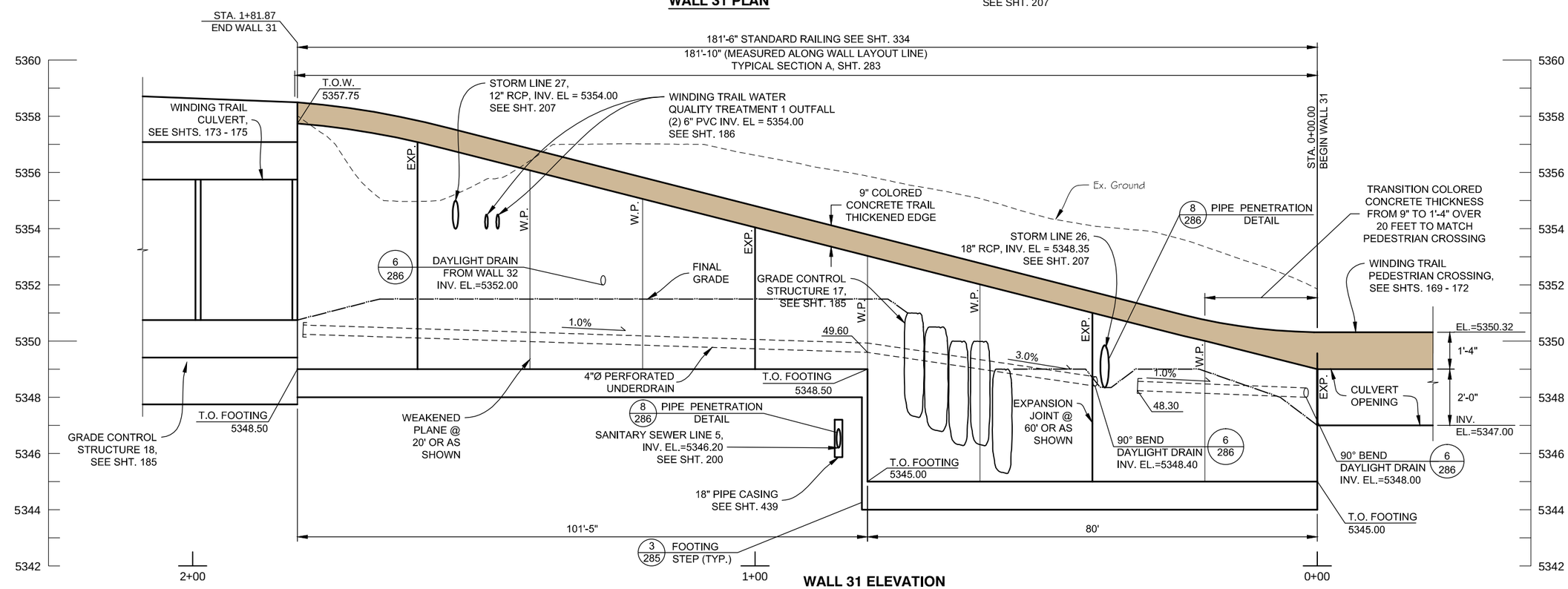
WALL 31 PLAN

NOTES:
1. SEE SHTS. 214-230 FOR HORIZONTAL CONTROL.
2. FOR EXPANSION (EXP.) AND WEAKENED PLANE (W.P.) DETAILS, SEE SHT. 285
3. CONTRACTOR SHALL COORDINATE WALL FACE TREATMENT WITH CHEVO STUDIOS.
4. ALL UNDERDRAIN PIPE SHALL BE SCHEDULE 80 PVC. SEE INSTALLATION TYPICAL SECTION DETAIL ON SHT. 286.

WALL 31 VERTICAL CONTROL TABLE

WALL STATION	T.O.W. ELEV.
0+00.00	5348.99
0+10.00	5349.36
0+20.00	5349.64
0+30.00	5350.39
0+40.00	5350.86
0+50.00	5351.37
0+60.00	5351.88
0+70.00	5352.39
0+80.00	5352.89
0+90.00	5353.40
1+00.00	5353.91
1+10.00	5354.42
1+20.00	5354.93
1+30.00	5355.44
1+40.00	5355.95
1+50.00	5356.46
1+60.00	5357.06
1+70.00	5357.49
1+80.00	5357.75
1+81.87	5357.79

CONTROL TABLE NOTE:
VERTICAL CONTROL TABLE PROVIDED FOR INFORMATION ONLY. ACTUAL T.O.W. ELEVATIONS SHALL BE DETERMINED USING TRAIL VERTICAL GEOMETRY AND BE ADJUSTED FOR OFFSET AND TRAIL THICKNESS.



WALL 31 ELEVATION

SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'

Computer File Information		
Creation Date: 03/02/15	Initials: JHK	
Last Modification Date: 06/18/15	Initials: JHK	
Full Path: P:\11-039.03\CAD		
Drawing File Name: 11-039.03_WALL PROFILES NORTH-2.dwg		
AutoCAD 2014	Scale: AS SHOWN	FEET

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MEC PROJECT NO. 11039.03

COLORADO REGISTERED PROFESSIONAL ENGINEER CHRISTOPHER L. KREGER 37254 6/18/15

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GREATER DENVER AREA DRAINAGE AND FLOOD CONTROL DISTRICT
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WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
WALL 31 PLAN & PROFILE

Designer:	MKN	Structure Numbers	
Detailer:	JHK		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-66

Project No./Code
STM 110-081
18405
Sheet Number: 279

PLOTTED: 6/19/2015 11:59:49 AM
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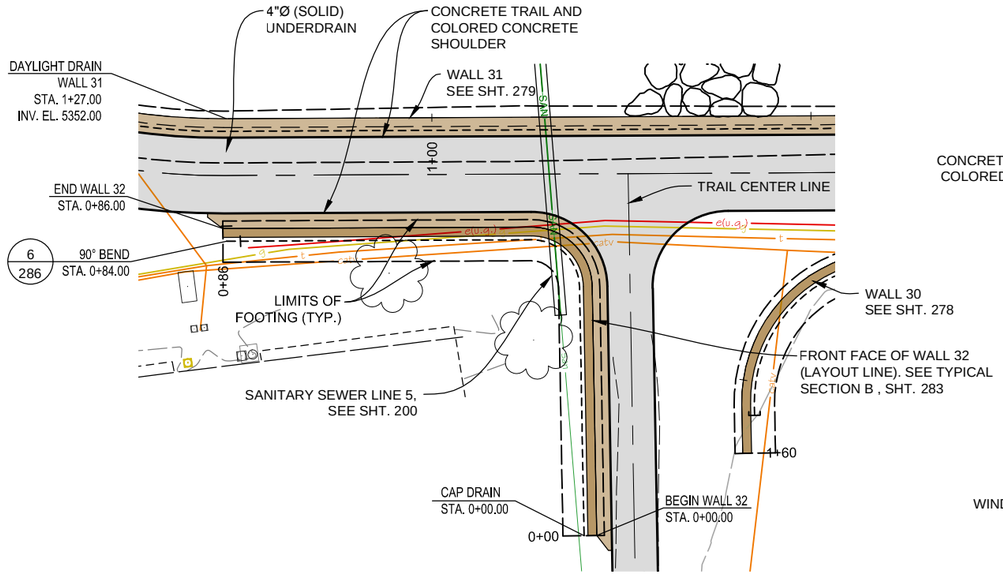
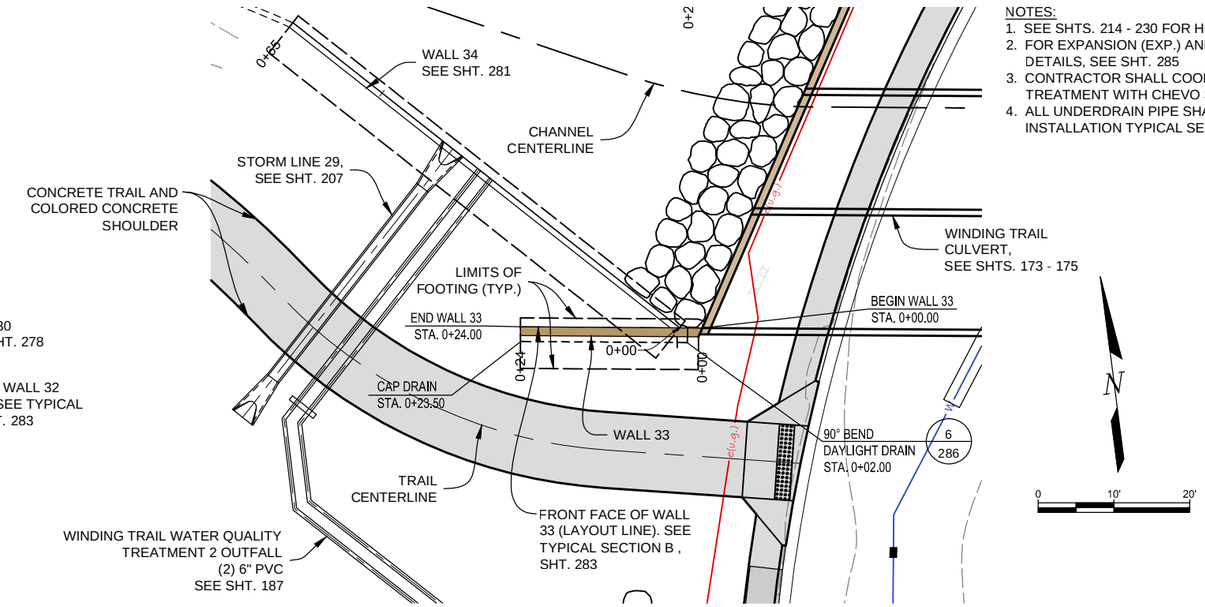
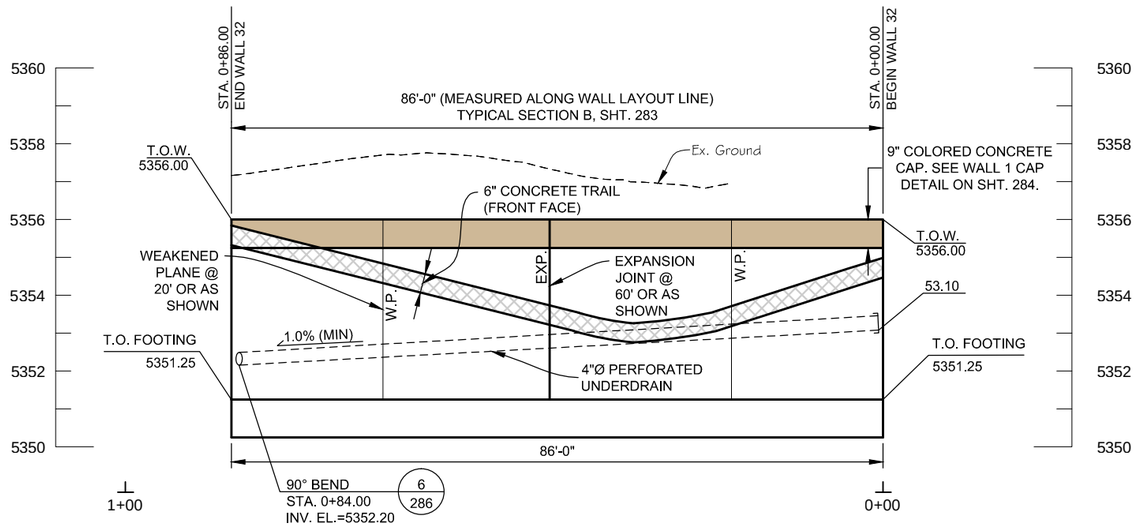


WALL 32 PLAN



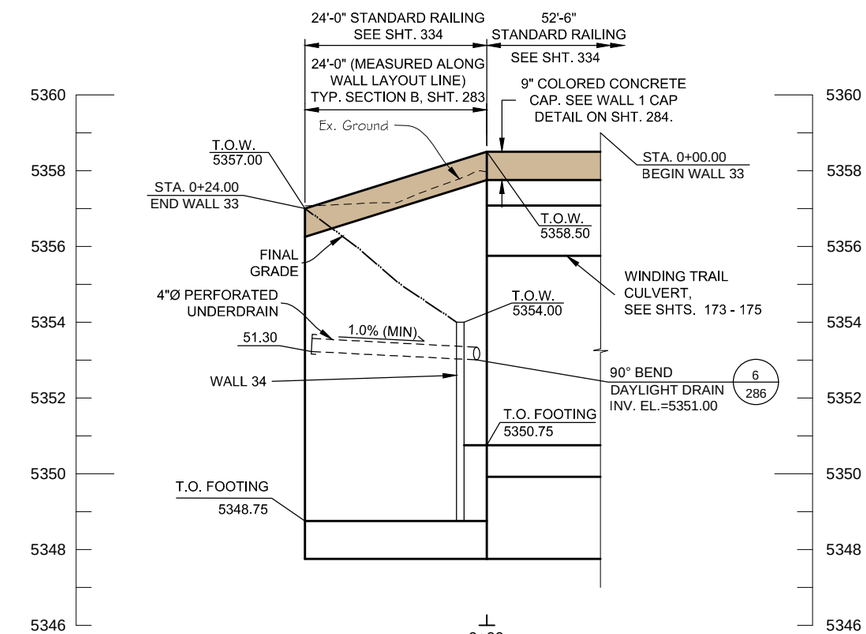
WALL 33 PLAN

NOTES:
1. SEE SHTS. 214 - 230 FOR HORIZONTAL CONTROL.
2. FOR EXPANSION (EXP.) AND WEAKENED PLANE (W.P.) DETAILS, SEE SHT. 285
3. CONTRACTOR SHALL COORDINATE WALL FACE TREATMENT WITH CHEVO STUDIOS.
4. ALL UNDERDRAIN PIPE SHALL BE SCHEDULE 80 PVC. SEE INSTALLATION TYPICAL SECTION DETAIL ON SHT. 286.



WALL 32 ELEVATION

SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'



WALL 33 ELEVATION

SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'

Computer File Information		
Creation Date: 03/02/15	Initials: JHK	
Last Modification Date: 06/18/15	Initials: JHK	
Full Path: P:\11-039.03\CAD		
Drawing File Name: 11-039.03_WALL PROFILES NORTH-2.dwg		
AutoCAD 2014	Scale: AS SHOWN	FEET

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COLORADO REGISTERED PROFESSIONAL ENGINEER CHRISTOPHER L. KREGER 37254 6/18/15

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CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT

WALLS 32 & 33 PLAN & PROFILE

Designer:	MKN	Structure Numbers	
Detailer:	JHK		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-67

Project No./Code
STM 110-081
18405
Sheet Number: 280

PLOTTED: 6/19/2015 12:00:20 PM
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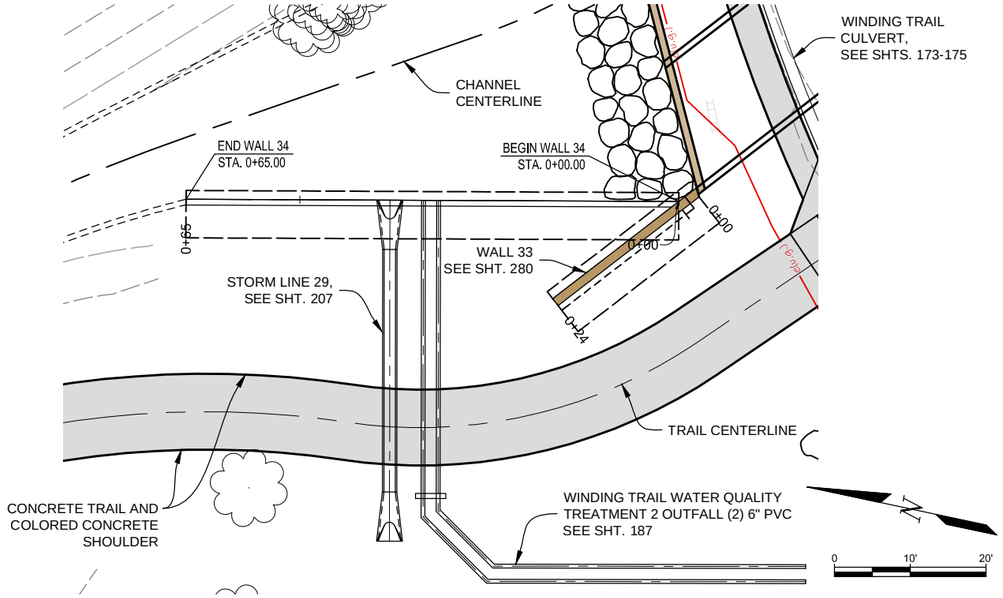
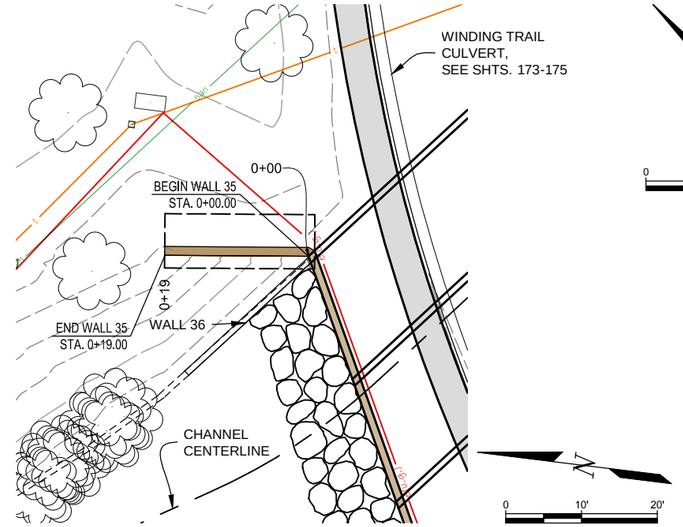
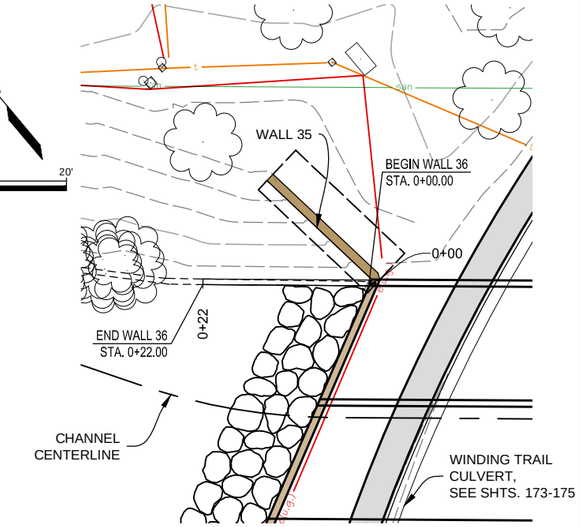


WALL 34 PLAN

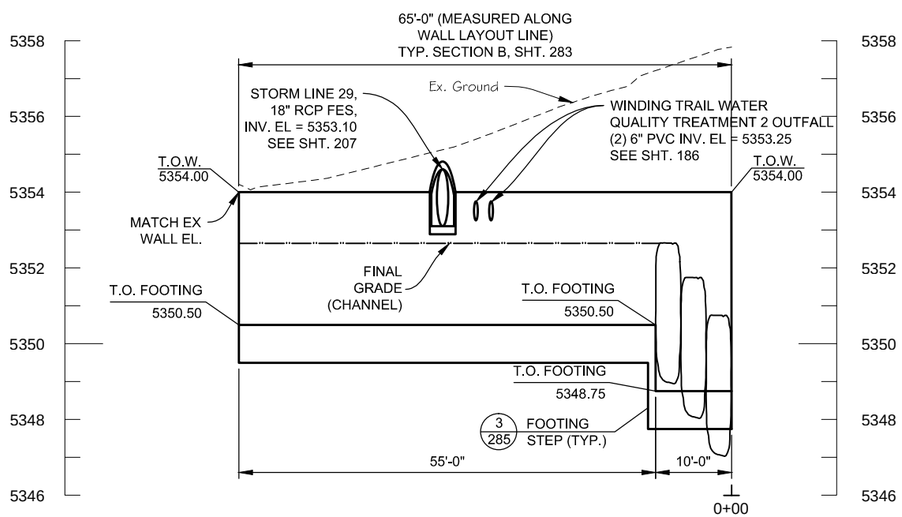


WALL 35 PLAN

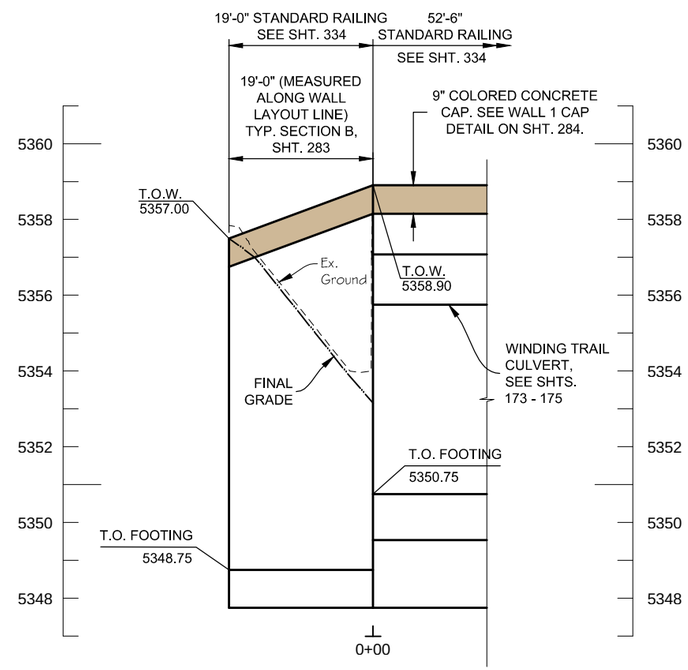


WALL 36 PLAN

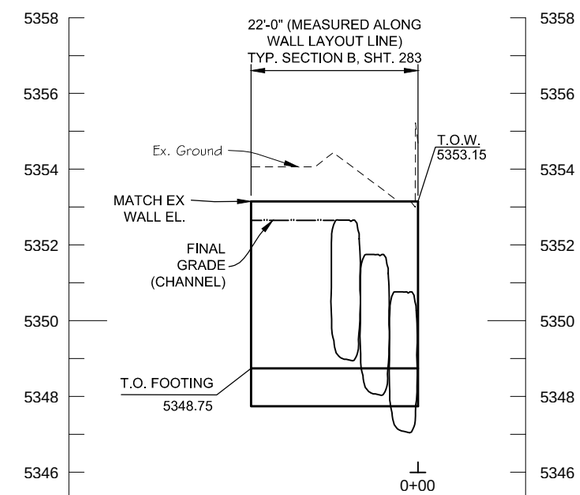
NOTES:
1. SEE SHTS. 214-230 FOR HORIZONTAL CONTROL.
2. FOR EXPANSION (EXP.) AND WEAKENED PLANE (W.P.) DETAILS, SEE SHT. 285
3. CONTRACTOR SHALL COORDINATE WALL FACE TREATMENT WITH CHEVO STUDIOS.
4. ALL UNDERDRAIN PIPE SHALL BE SCHEDULE 80 PVC. SEE INSTALLATION TYPICAL SECTION DETAIL ON SHT. 286.
5. WALLS 34 AND 36 SHALL NOT BE PAINTED.



WALL 34 ELEVATION
SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'



WALL 35 ELEVATION
SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'



WALL 36 ELEVATION
SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'

Computer File Information		
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Last Modification Date: 06/18/15	Initials: JHK	
Full Path: P:\11-039.03\CAD		
Drawing File Name: 11-039.03_WALL PROFILES NORTH-2.dwg		
AutoCAD 2014	Scale: AS SHOWN	FEET

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MULLER
MEC PROJECT NO. 11039.03

COLORADO REGISTERED PROFESSIONAL ENGINEER CHRISTOPHER L. KRAGEBER 37254 6/18/15

Sheet Revisions		
Date:	Comments	Init.

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No Revisions:
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Region 4 RDM
CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
WALLS 34, 35 & 36 PLAN & PROFILE

Designer:	MKN	Structure Numbers	
Detailer:	JHK		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-68

Project No./Code
STM 110-081
18405
Sheet Number: 281

PLOTTED: 6/19/2015 12:01:02 PM
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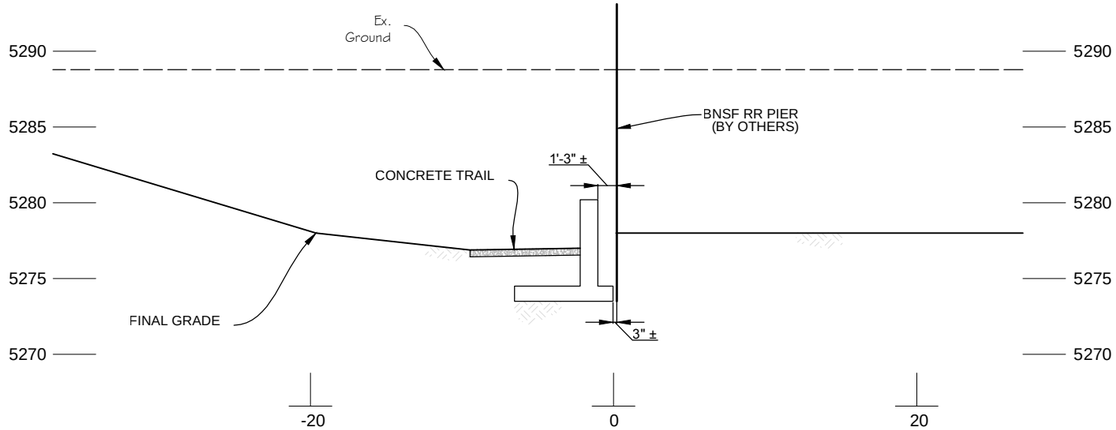
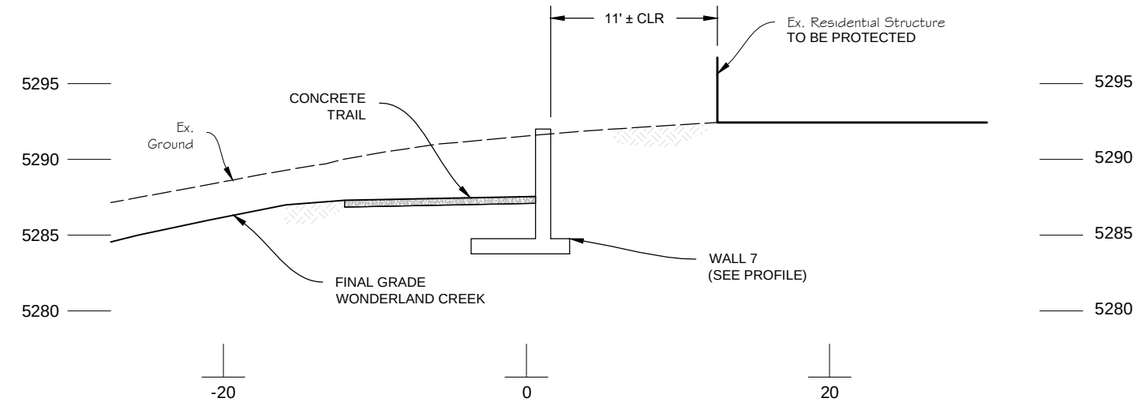


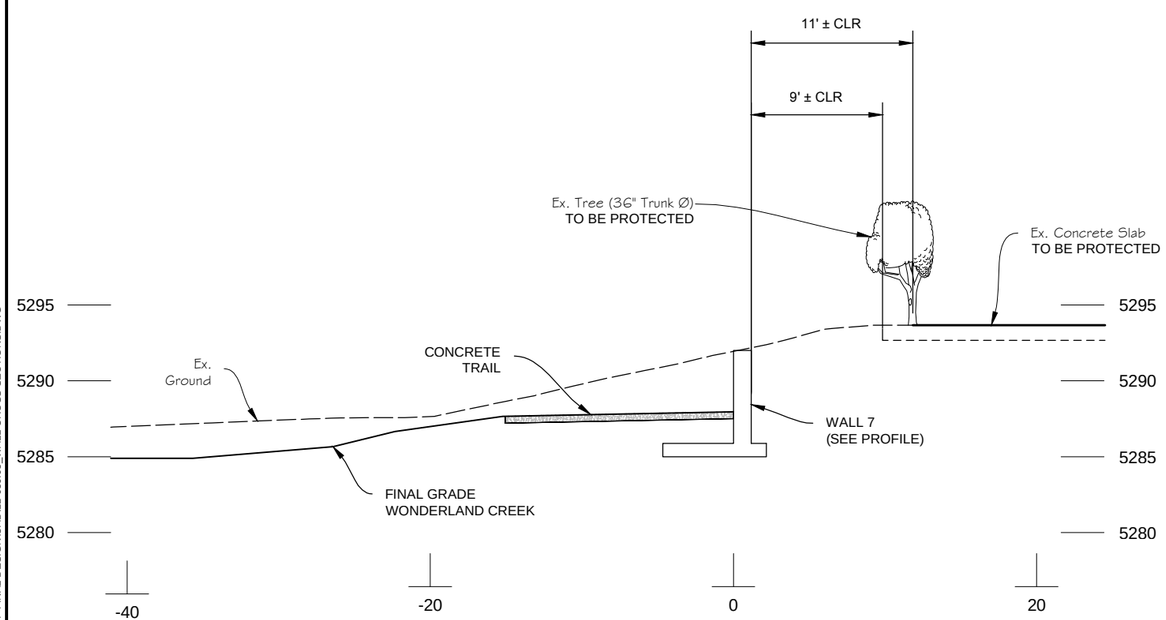
WALL 1 SECTION F SHT. 243
STA. 0+50.0
SCALE: HORIZ. 1" = 10'
VERT. 1" = 10'



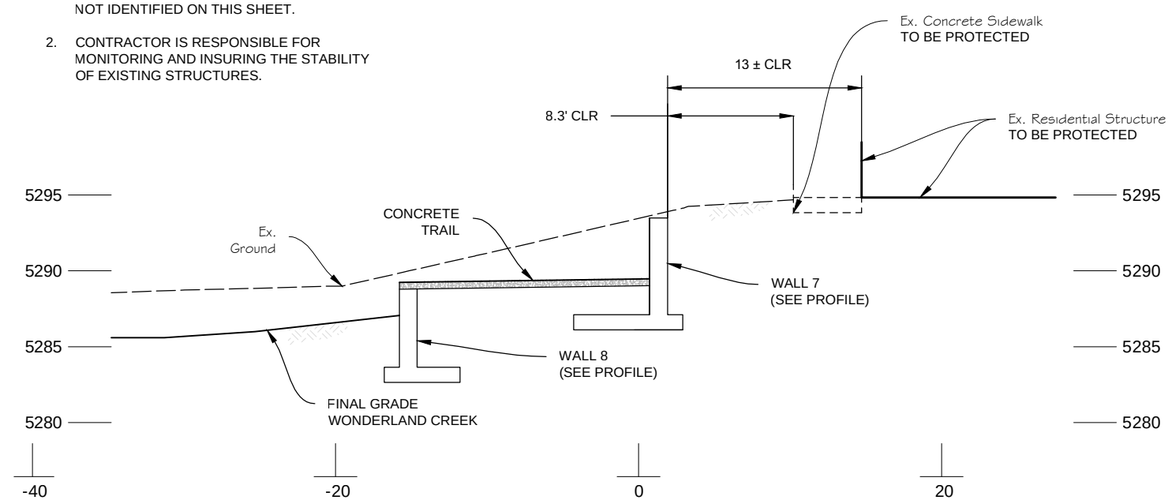
WALL 7 SECTION G SHT. 247
STA. 0+50.0
SCALE: HORIZ. 1" = 10'
VERT. 1" = 10'

NOTES:

1. EXISTING STRUCTURAL LOCATIONS AND CLEAR DISTANCES ARE PROVIDED FOR INFORMATION ONLY. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING DIMENSIONS AND PROTECTING ALL EXISTING STRUCTURES, INCLUDING STRUCTURES NOT IDENTIFIED ON THIS SHEET.
2. CONTRACTOR IS RESPONSIBLE FOR MONITORING AND INSURING THE STABILITY OF EXISTING STRUCTURES.



WALL 7 SECTION H SHT. 248
STA. 2+21.2
SCALE: HORIZ. 1" = 10'
VERT. 1" = 10'



WALL 7 SECTION I SHT. 248
STA. 3+50.7
SCALE: HORIZ. 1" = 10'
VERT. 1" = 10'

Computer File Information		
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Last Modification Date: 06/18/15	Initials: JHK	
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AutoCAD 2014	Scale: AS SHOWN	

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MULLER
MEC PROJECT NO. 11039.03

COLORADO REGISTERED PROFESSIONAL ENGINEER 32038 6-18-15

Sheet Revisions		
Date:	Comments	Init.

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Region 4 RDM
CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
WALL NON-TYPICAL SECTIONS

Designer:	ASP	Structure Numbers	
Detailer:	LMR		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-69

Project No./Code
STM 110-081
18405
Sheet Number: 282

PLOTTED: 6/19/2015 12:01:37 PM
NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH -FINAL DESIGN\CAD\11-039.03_WALL CROSS SECTIONS.DWG

WALLS 2-5, 8-11

DESIGN DATA-REINFORCING STEEL-DIMENSIONS

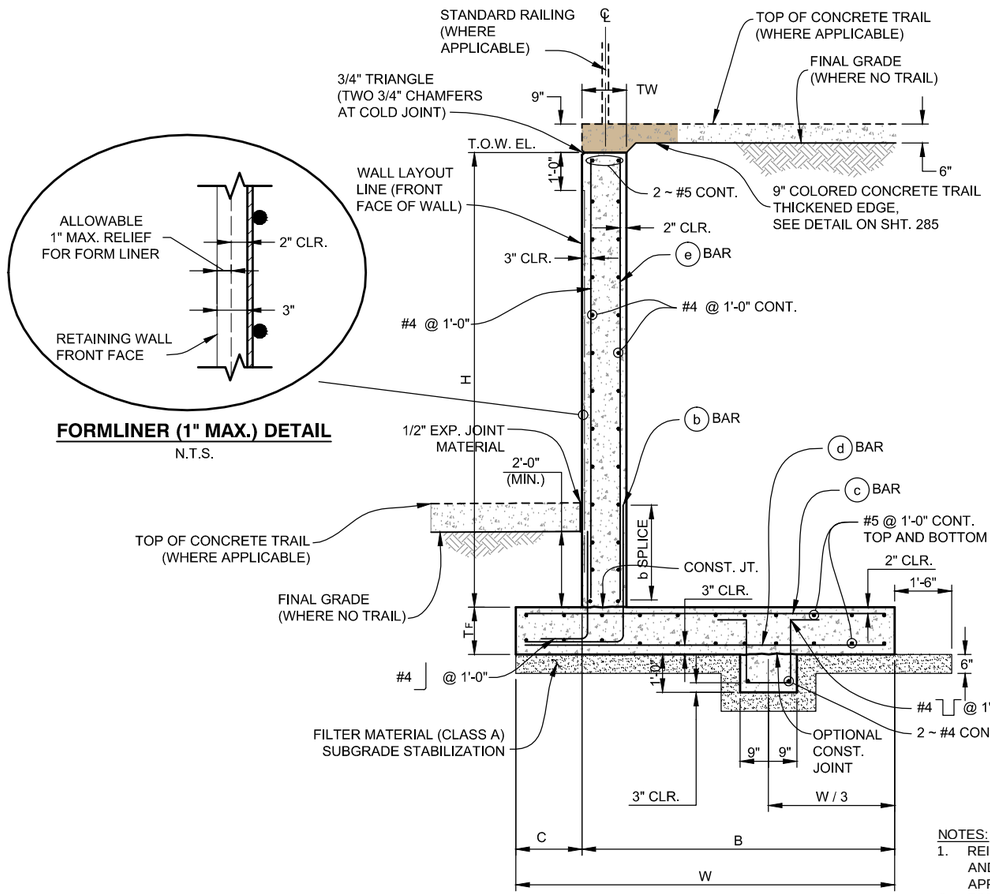
H	5'	6'	7'	8'	9'	10'	11'	12'
TW	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"
W	5'-0"	5'-6"	6'-6"	7'-0"	8'-0"	8'-6"	9'-6"	10'-0"
C	1'-0"	1'-3"	1'-3"	1'-3"	1'-9"	1'-9"	2'-0"	2'-0"
B	4'-0"	4'-3"	5'-3"	5'-9"	6'-3"	6'-9"	7'-6"	8'-0"
TF	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-4"	1'-4"
b BARS	#4 @ 1'-0"	#4 @ 1'-0"	#5 @ 1'-0"	#5 @ 10"	#5 @ 8"	#5 @ 6"	#5 @ 6"	#6 @ 6"
c BARS	#4 @ 1'-0"	#4 @ 1'-0"	#5 @ 1'-0"	#5 @ 10"	#5 @ 8"	#5 @ 6"	#5 @ 6"	#5 @ 6"
e BARS	---	---	---	---	#4 @ 8"	#4 @ 6"	#4 @ 6"	#4 @ 6"
d BARS	#4 @ 1'-0"	#4 @ 1'-0"	#4 @ 1'-0"	#4 @ 1'-0"	#4 @ 1'-0"	#4 @ 1'-0"	#4 @ 10"	#4 @ 10"
b Splice	---	---	---	---	1'-9"	1'-9"	1'-9"	2'-2"

WALLS 12-15,17-25, 27-36

DESIGN DATA-REINFORCING STEEL-DIMENSIONS

H	5'	6'	7'	8'	9'	10'	11'	12'	13'	14'	15'	16'	17'	18'
TW *	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-5"	1'-5"	1'-5"	1'-5"
W	5'-4"	6'-0"	6'-8"	7'-4"	8'-0"	8'-8"	9'-6"	10'-4"	11'-2"	12'-2"	13'-0"	14'-0"	15'-3"	16'-3"
C	1'-0"	1'-2"	1'-4"	1'-6"	1'-8"	1'-10"	2'-0"	2'-4"	2'-8"	3'-0"	3'-8"	4'-2"	5'-0"	5'-8"
B	4'-4"	4'-10"	5'-4"	5'-10"	6'-4"	6'-10"	7'-6"	8'-0"	8'-6"	9'-2"	9'-4"	9'-10"	10'-3"	10'-7"
TF	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-3"	1'-3"	1'-6"	1'-6"	1'-9"	1'-9"	2'-0"	2'-3"	2'-3"
b BARS	#5 @ 1'-0"	#5 @ 1'-0"	#5 @ 1'-0"	#5 @ 6"	#5 @ 6"	#5 @ 6"	#6 @ 6"	#6 @ 6"	#7 @ 6"	#7 @ 6"	#7 @ 6"	#8 @ 6"	#8 @ 6"	#9 @ 6"
e BARS					#5 @ 1'-0"	#5 @ 1'-0"	#6 @ 1'-0"	#6 @ 1'-0"	#6 @ 1'-0"	#7 @ 1'-0"	#7 @ 1'-0"	#8 @ 1'-0"	#8 @ 1'-0"	#8 @ 1'-0"
c BARS	#5 @ 1'-0"	#5 @ 1'-0"	#5 @ 6"	#5 @ 6"	#5 @ 6"	#5 @ 6"	#6 @ 6"	#7 @ 6"	#7 @ 6"	#7 @ 6"	#7 @ 6"	#8 @ 6"	#8 @ 6"	#8 @ 6"
d BARS	#5 @ 1'-0"	#5 @ 1'-0"	#5 @ 1'-0"	#5 @ 1'-0"	#5 @ 1'-0"	#5 @ 1'-0"	#5 @ 1'-0"	#5 @ 1'-0"	#5 @ 1'-0"	#5 @ 6"	#5 @ 6"	#5 @ 6"	#5 @ 6"	#6 @ 6"
b Splice	---	---	---	---	2'-3"	2'-3"	2'-3"	2'-10	2'-10	2'-10	3'-6"	3'-6"	3'-6"	3'-8"

NOTE:
FOR WALLS 17, 19, 23, 28, TW = 1'-0"

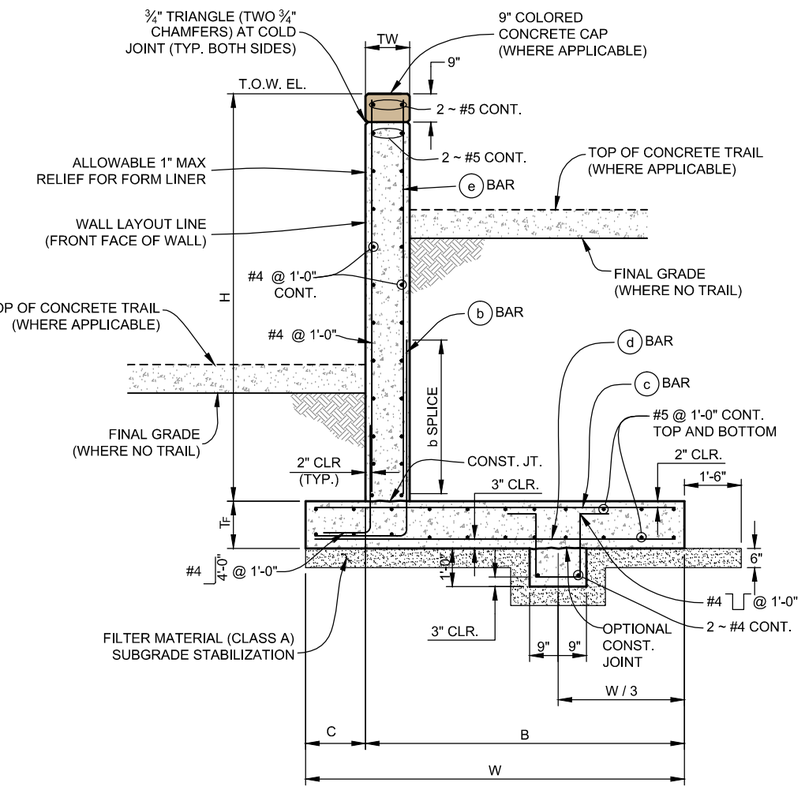


FORMLINER (1" MAX.) DETAIL
N.T.S.

TYPICAL SECTION A
WALLS 2-5, 8-10, 11, 12, 13, 16, 20, 23, 31, WALL 14 STA. 0+00 TO STA. 3+11.55, WALL 15 STA. 0+56.22 TO 2+56.75, AND WALL 27 STA. 1+12.00 TO STA. 2+50.91

0' 1' 2' 4'
SCALE: 1/4" = 1'-0"

NOTES:
1. REINFORCEMENT AND DIMENSIONS VARY BY WALL HEIGHT AND LOCATION. SEE DESIGN DATA TABLE FOR THE APPROPRIATE WALL HEIGHT AND LOCATION (THIS SHEET).
2. FOR TOP OF WALL AND FOOTING ELEVATION SEE WALL PLAN AND PROFILE SHEETS.
3. SEE SHEET 288 FOR UNDERDRAIN DETAILS.
4. SEE PROJECT SPECIFICATIONS FOR WALL LOCATIONS TO RECEIVE DETAILS.



TYPICAL SECTION B
WALLS 17, 18, 19, 21, 22, 24, 25, 28, 29, 30, 32, 33, 34, 35, 36, WALL 14 STA. 3+52.14 TO STA. 7+00.50, WALL 15 STA. 0+00.00 TO 0+14.50, AND WALL 27 STA. 0+00.00 TO STA 1+12.00

0' 1' 2' 4'
SCALE: 1/4" = 1'-0"

Computer File Information		
Creation Date: 08/19/14	Initials: JHK	
Last Modification Date: 06/18/15	Initials: JHK	
Full Path: P:\11-039.03\CAD		
Drawing File Name: 11-039.03_WALL DETAILS.dwg		
AutoCAD 2014	Scale: AS SHOWN	

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CONSULTING ENGINEERS
777 S. WADSWORTH BLVD. 4-100
LAKEWOOD, COLORADO 80226
(303) 988-4939
MULLER
MEC PROJECT NO. 11039.03

COLORADO LICENSED PROFESSIONAL ENGINEER JONATHON L. HAYES 49227 6/18/15

Sheet Revisions		
Date:	Comments	Init.

As Constructed
No Revisions:
Revised:
Void:

Region 4 RDM

CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
WALL DETAILS (1 OF 6)

Designer:	ASP	Structure Numbers	
Detailer:	LMR		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-70

Project No./Code
STM 110-081
18405
Sheet Number: 283

PLOTTED: 6/19/2015 12:02:03 PM
NAME: P:\11-039.03 WONDERLAND CREEK -LOWER REACH -FINAL DESIGN\CAD\11-039.03_WALL DETAILS.DWG

WALL 1 STA. 0+00 TO 1+60

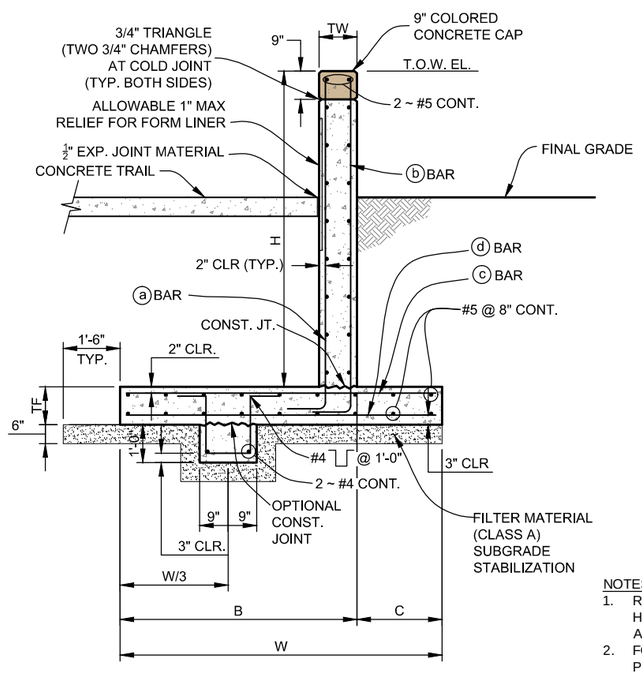
DESIGN DATA-REINFORCING STEEL-DIMENSIONS				
H	4'	5'	6'	7'
TW	1'-0"	1'-0"	1'-0"	1'-0"
W	4'-6"	5'-6"	6'-6"	7'-6"
C	10"	1'-0"	1'-0"	2'-0"
B	3'-8"	4'-6"	5'-6"	5'-6"
TF	1'-0"	1'-0"	1'-0"	1'-3"
a BARS	#4 @ 1'-0"	#4 @ 1'-0"	#5 @ 1'-0"	#5 @ 10"
b BARS	#4 @ 1'-0"	#4 @ 1'-0"	#5 @ 1'-0"	#5 @ 10"
c BARS	#4 @ 1'-0"	#5 @ 1'-0"	#5 @ 10"	#6 @ 10"
d BARS	#4 @ 1'-0"	#5 @ 1'-0"	#6 @ 10"	#7 @ 10"

WALL 1 STA. 1+60 TO 3+26

DESIGN DATA-REINFORCING STEEL-DIMENSIONS				
H	7'	8'	9'	10'
TW	1'-0"	1'-0"	1'-0"	1'-0"
W	6'-6"	7'-0"	8'-0"	8'-6"
C	1'-3"	1'-3"	1'-9"	1'-9"
B	5'-3"	5'-9"	6'-3"	6'-9"
TF	1'-0"	1'-0"	1'-0"	1'-0"
a BARS	#5 @ 1'-0"	#5 @ 10"	#5 @ 8"	#5 @ 6"
b BARS	#5 @ 1'-0"	#5 @ 10"	#5 @ 8"	#5 @ 6"
c BARS	---	---	#4 @ 8"	#4 @ 6"
d BARS	#4 @ 1'-0"	#4 @ 1'-0"	#4 @ 1'-0"	#4 @ 1'-0"

WALL 7

DESIGN DATA-REINFORCING STEEL-DIMENSIONS				
H	4'	5'	6'	7'
TW	1'-2"	1'-2"	1'-2"	1'-2"
W	4'-2"	5'-6"	6'-10"	8'-2"
C	2'-0"	3'-4"	4'-8"	6'-0"
B	2'-2"	2'-2"	2'-2"	2'-2"
b BARS	#4 @ 1'-0"	#4 @ 1'-0"	#4 @ 1'-0"	#5 @ 1'-0"
c BARS	#4 @ 1'-0"	#4 @ 1'-0"	#4 @ 1'-0"	#5 @ 1'-0"
e BARS	---	---	---	---
d BARS	#4 @ 1'-0"	#5 @ 1'-0"	#5 @ 8"	#5 @ 6"



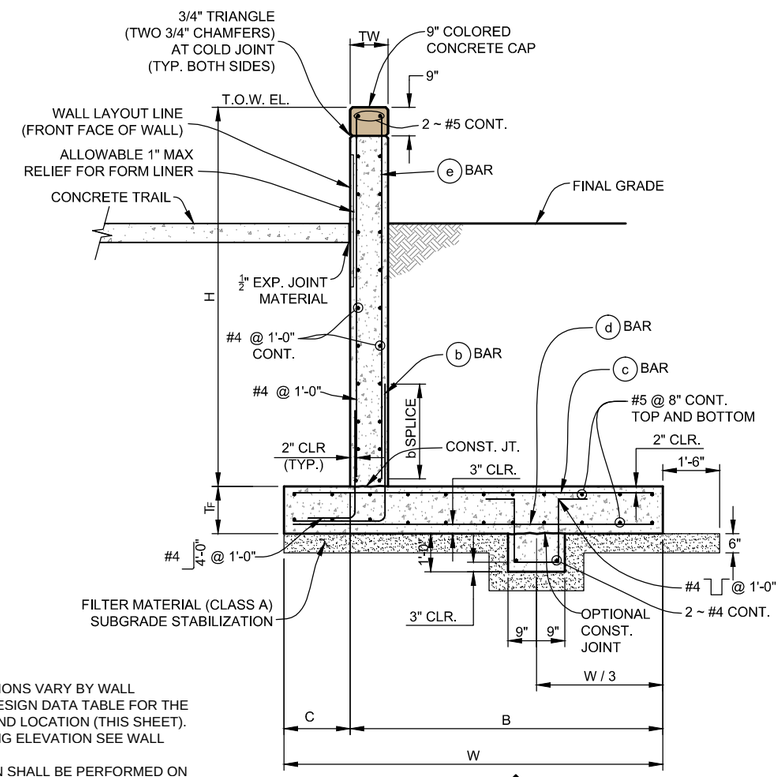
TYPICAL SECTION C

WALL 1 STA. 0+00 TO 1+60

0' 1' 2' 4'
SCALE: 1/4" = 1'-0"

NOTES:

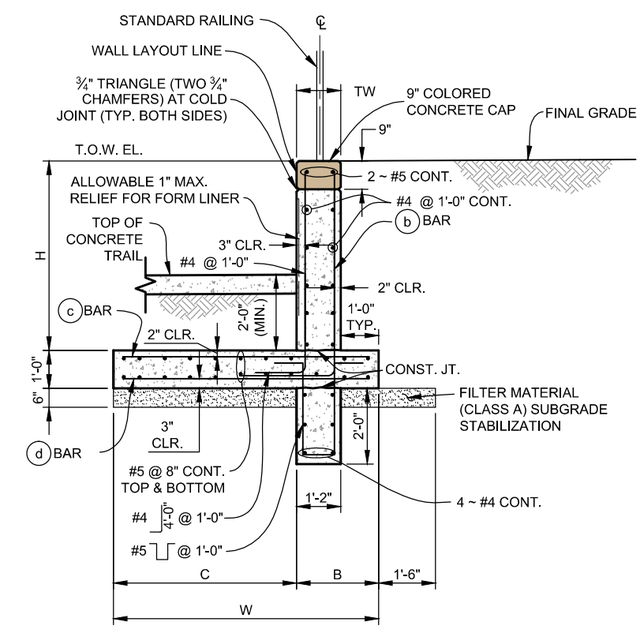
1. REINFORCEMENT AND DIMENSIONS VARY BY WALL HEIGHT AND LOCATION. SEE DESIGN DATA TABLE FOR THE APPROPRIATE WALL HEIGHT AND LOCATION (THIS SHEET).
2. FOR TOP OF WALL AND FOOTING ELEVATION SEE WALL PLAN AND PROFILE SHEETS.
3. A SIMILAR CAP CONSTRUCTION SHALL BE PERFORMED ON WALLS 3 AND 4.
4. SEE SHEET 288 FOR UNDERDRAIN DETAILS.
5. SEE PROJECT SPECIFICATIONS FOR WALL LOCATIONS TO RECEIVE FORM LINERS.



TYPICAL SECTION D

WALL 1 STA. 1+60 TO 3+26

0' 1' 2' 4'
SCALE: 1/4" = 1'-0"



TYPICAL SECTION E

WALL 7

0' 1' 2' 4'
SCALE: 1/4" = 1'-0"

PLOTTED: 6/19/2015 12:02:09 PM
NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH -FINAL DESIGN\CAD\11-039.03_WALL DETAILS.DWG

Computer File Information	
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Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_WALL DETAILS.dwg	
AutoCAD 2014	Scale: AS SHOWN

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MULLER
MEC PROJECT NO. 11039.03

COLORADO LICENSED JONATHON L. SMITH 49227 6/19/15 PROFESSIONAL ENGINEER

Sheet Revisions		
Date:	Comments	Init.

As Constructed
No Revisions:
Revised:
Void:

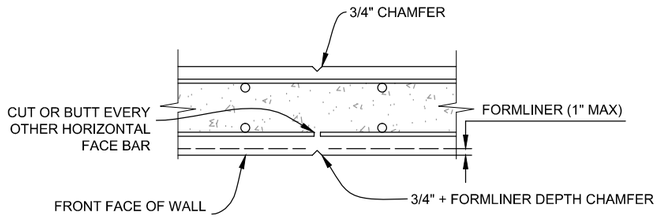
GREENWAY AND FLOOD CONTROL DISTRICT
CO CDOT Region 4 RDM
CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT

WALL DETAILS (2 OF 6)

Designer:	ASP	Structure Numbers	
Detailer:	LMR		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-71

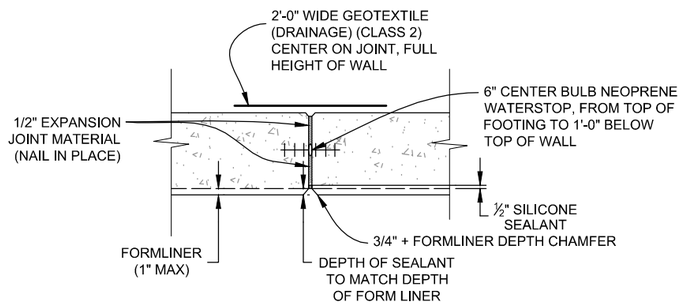
Project No./Code
STM 110-081
18405
Sheet Number: 284



WEAKENED PLANE

(SEE WALL ELEVATIONS FOR SPACING)

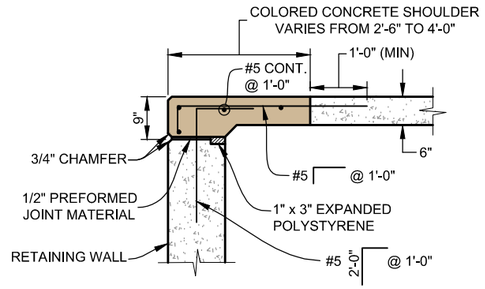
0' 3" 6" 1'
SCALE: 1" = 1'-0"



½" EXPANSION JOINT

(SEE WALL ELEVATIONS FOR SPACING)

0' 3" 6" 1'
SCALE: 1" = 1'-0"

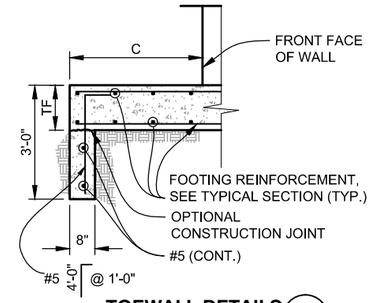


NOTE:
RAILING NOT SHOWN FOR CLARITY

COLORED CONCRETE SHOULDER ON WALL DETAIL

SEE RETAINING WALL ELEVATION FOR LOCATION

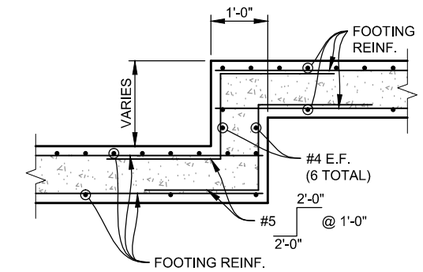
0' 6" 1' 2'
SCALE: 3/8" = 1'-0"



TOEWALL DETAILS 4/285

(WHERE SPECIFIED, SEE WALL ELEVATIONS)

0' 1' 2' 4'
SCALE: 1/4" = 1'-0"

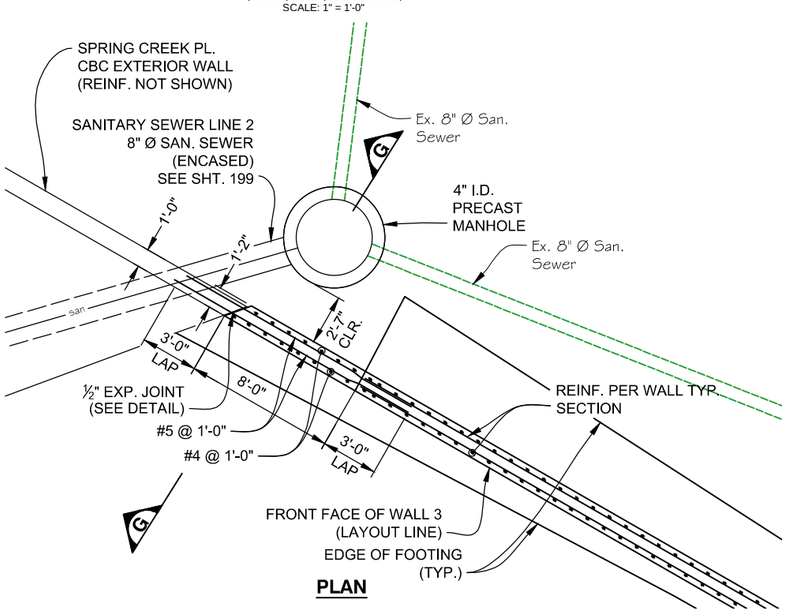


FOOTING STEP DETAIL (WALL 1)

SEE RETAINING WALL ELEVATION FOR LOCATION

0' 6" 1' 2'
SCALE: 3/8" = 1'-0"

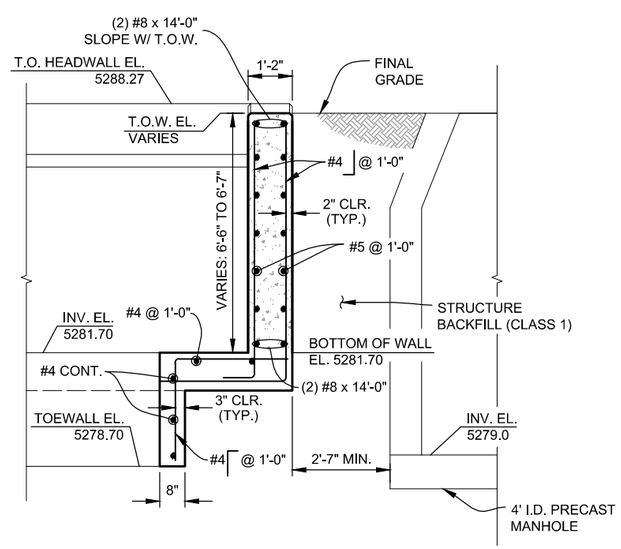
3 — 137, 138, 244, 250, 253, 254, 256, 257, 259, 261, 264, 268, 271, 272, 274, 276, 279



PLAN

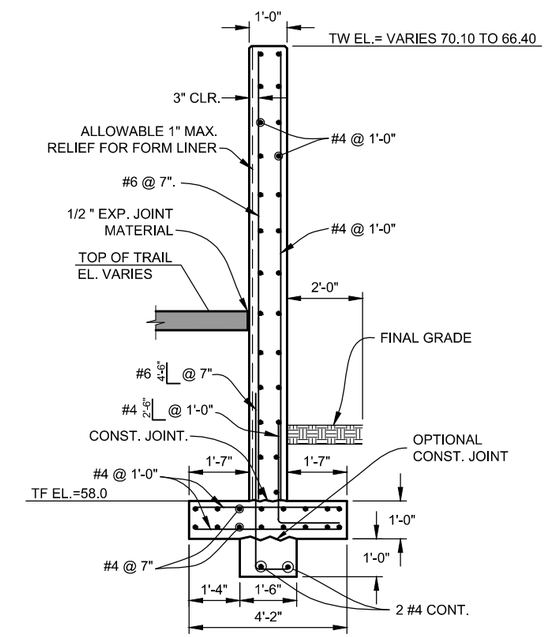
0' 2' 4' 8'
SCALE: 1/8" = 1'-0"

WALL 3 SANITARY MANHOLE DETAIL 5/245



SECTION F

0' 1' 2' 4'
SCALE: 1/4" = 1'-0"



TYPICAL SECTION WALL 26 F

0' 1' 2' 4'
SCALE: 1/4" = 1'-0"

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Last Modification Date: 06/18/15	Initials: JHK	CONSULTING ENGINEERS 777 S. WADSWORTH BLVD. 4-100 LAKEWOOD, COLORADO 80226 (303) 988-4939	
Full Path: P:\11-039.03\CAD			
Drawing File Name: 11-039.03_WALL DETAILS.dwg			
AutoCAD 2014	Scale: AS SHOWN	MEC PROJECT NO. 11039.03	

Sheet Revisions

Date:	Comments	Init.

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Region 4 RDM

CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT

WALL DETAILS (3 OF 6)

Designer:	KMA	Structure Numbers	
Detailer:	LMR		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-72

Project No./Code: STM 110-081
18405
Sheet Number: 285

PLOTTED: 6/19/2015 12:02:17 PM
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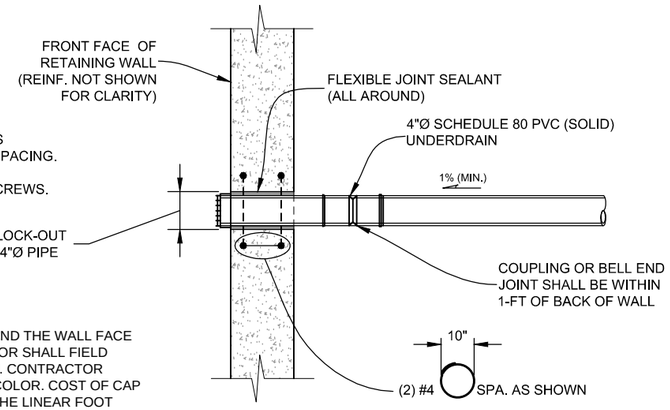


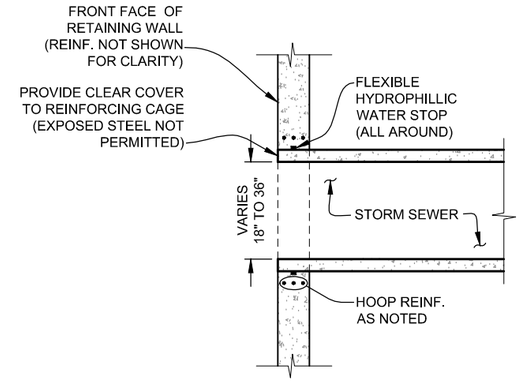
ANIMAL GUARD:
PVC PIPE CAP WITH 1/2" HOLES DRILLED INTO CAP AT 1" O.C. SPACING. ATTACH CAP W/ FOUR (4) 1/2" GALVANIZED SELF TAPPING SCREWS.

NOTE:
1. PVC PIPE MUST BE EXTENDED BEYOND THE WALL FACE FOR CAP INSTALLATION. CONTRACTOR SHALL FIELD DETERMINE THE REQUIRED LENGTH. CONTRACTOR SHALL PAINT CAP TO MATCH WALL COLOR. COST OF CAP AND PAINT SHALL BE INCLUDED IN THE LINEAR FOOT COST OF THE PIPE AND NOT PAID FOR SEPARATELY.
2. DETAIL ALSO APPLIES FOR PIPE PENETRATION OF WALLS BELOW GRADE.

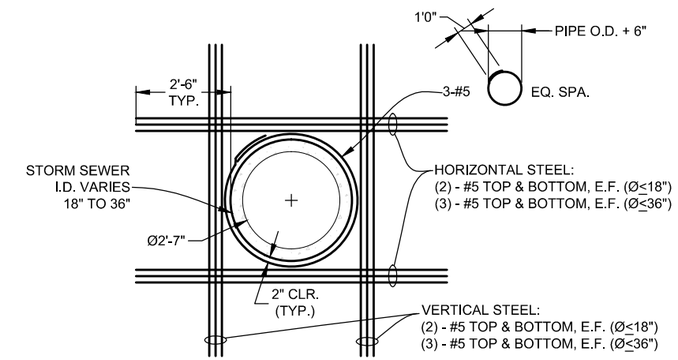
DAYLIGHT UNDERDRAIN THRU WALL DETAIL (6)

0 1' 2' 4'
SCALE: 1/2" = 1'-0"

245, 246, 249, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 263, 264, 266, 267, 269, 270, 271, 274, 277, 278, 279, 280, 281



ELEVATION



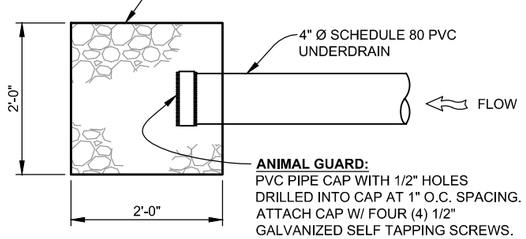
PLAN

PIPE PENETRATION DETAIL (8)

0' 1' 2' 4'
SCALE: 1/4" = 1'-0"

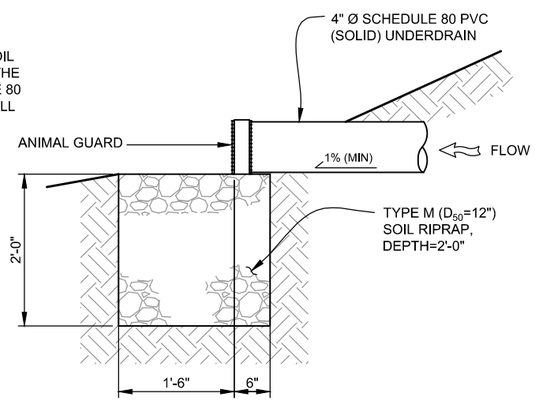
135, 245, 246, 250, 252, 253, 254, 256, 258, 259, 260, 266, 270, 274, 278, 279, 286, 315

NOTES:
1. COST OF ANIMAL GUARD AND SOIL RIPRAP SHALL BE INCLUDED IN THE LF COST OF THE 4" Ø SCHEDULE 80 PVC PIPE UNDERDRAIN AND SHALL NOT BE PAID SEPARATELY.



ANIMAL GUARD:
PVC PIPE CAP WITH 1/2" HOLES DRILLED INTO CAP AT 1" O.C. SPACING. ATTACH CAP W/ FOUR (4) 1/2" GALVANIZED SELF TAPPING SCREWS.

PLAN

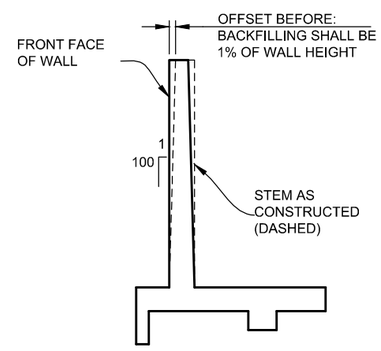


ELEVATION

DAYLIGHT UNDERDRAIN AT GRADE (7)

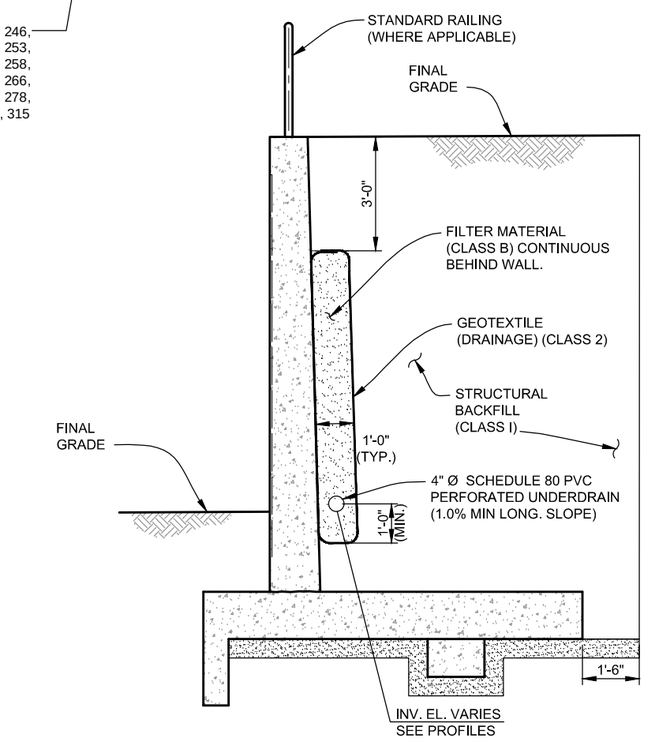
0 1' 2'
SCALE: 1" = 1'-0"

247, 249, 252, 253, 265, 266



APPROX. WALL OFFSETS

0 1' 2' 4' 8'
SCALE: 1/4" = 1'-0"



4" Ø PERFORATED UNDERDRAIN INSTALLATION TYPICAL SECTION

0 1' 2' 4'
SCALE: 1/2" = 1'-0"

NOTE:
1. A 90° BEND IS REQUIRED WHERE UNDERDRAINS DAYLIGHT THROUGH WALLS. THE PORTION OF PIPE FROM 90° BEND TO WALL SHALL BE SOLID PVC.

Computer File Information		
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Last Modification Date: 06/18/15	Initials: JHK	
Full Path: P:\11-039.03\CAD		
Drawing File Name: 11-039.03_WALL DETAILS.dwg		
AutoCAD 2014	Scale: AS SHOWN	

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777 S. WADSWORTH BLVD. 4-100
LAKEWOOD, COLORADO 80226
(303) 988-4939
MULLER
MEC PROJECT NO. 11039.03

REGISTERED PROFESSIONAL ENGINEER 32038 6-18-15

Sheet Revisions		
Date:	Comments	Init.

As Constructed
No Revisions:
Revised:
Void:

Region 4 RDM
CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
WALL DETAILS (4 OF 6)

Designer: ASP
Detailer: KLH
Structure Numbers
Sheet Subset: TRAIL-WALL
Subset Sheets: TW-73

Project No./Code
STM 110-081
18405
Sheet Number: 286

PLOTTED: 6/19/2015 12:02:25 PM
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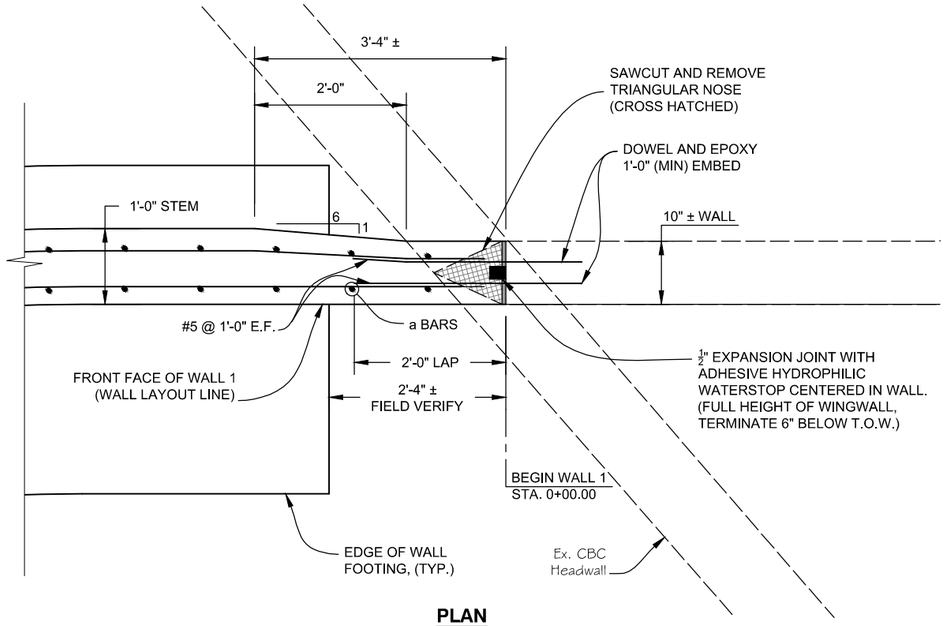
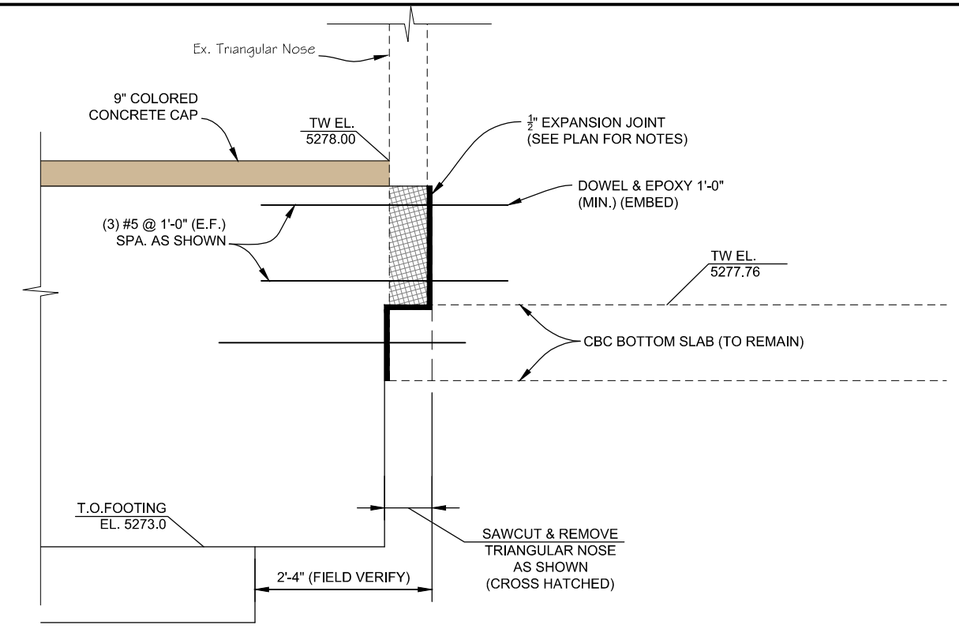


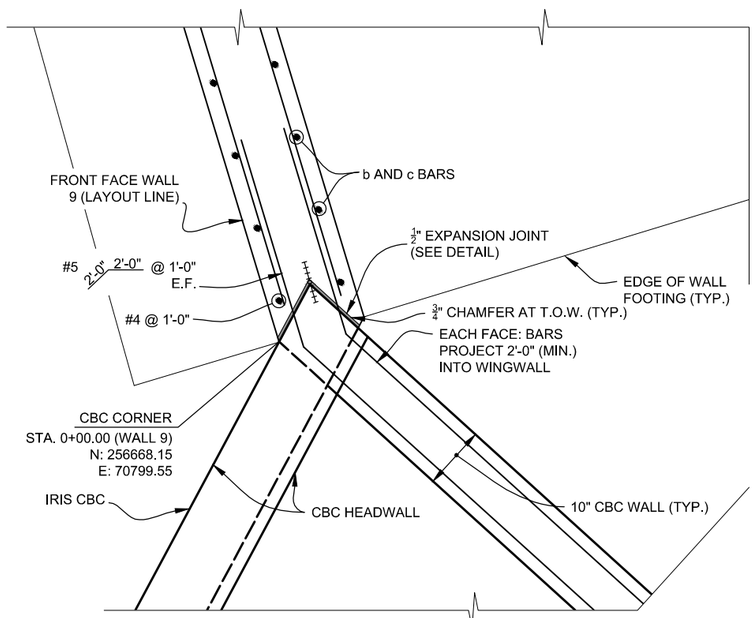
PLAN



ELEVATION

CBC CONNECTION DETAIL (AT WALL 1) 9/243

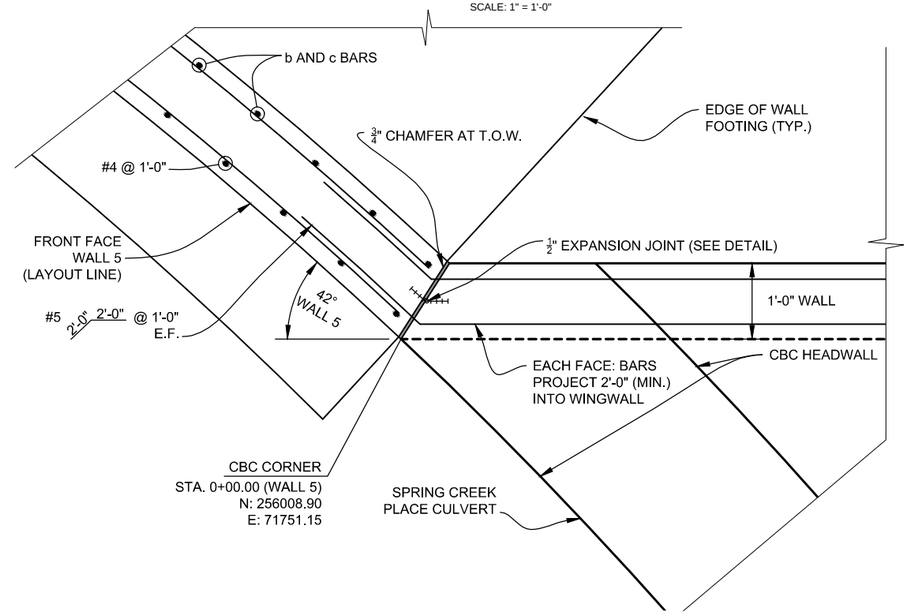
0 1' 2'
SCALE: 1" = 1'-0"



0 1' 2'
SCALE: 1" = 1'-0"

CBC CONNECTION DETAIL (AT WALL 9) 10/150, 251

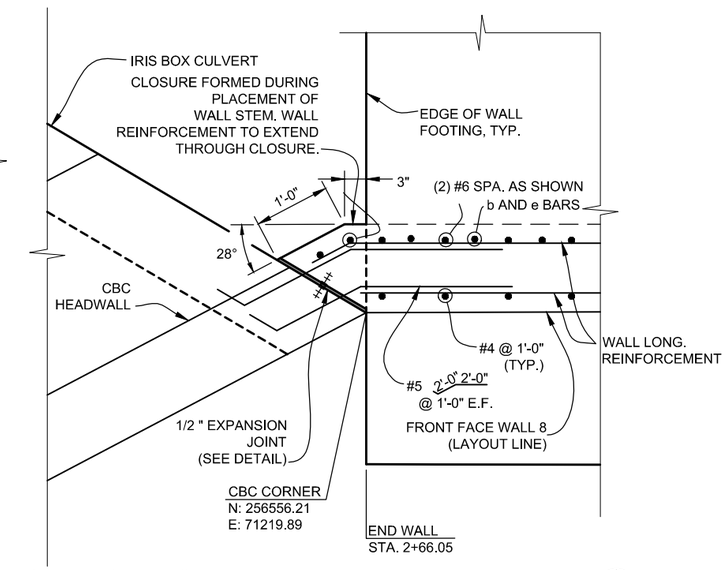
(WALL 10 SIMILAR)



0 1' 2'
SCALE: 1" = 1'-0"

CBC CONNECTION DETAIL (AT WALL 5) 11/245, 246

(WALLS 2 & 4 SIMILAR)



0 1' 2'
SCALE: 1" = 1'-0"

CBC CONNECTION DETAIL (AT WALL 8) 12/150, 250

Computer File Information		
Creation Date: 08/19/14	Initials: JHK	
Last Modification Date: 06/18/15	Initials: JHK	
Full Path: P:\11-039.03\CAD		
Drawing File Name: 11-039.03_WALL DETAILS.dwg		
AutoCAD 2014	Scale: AS SHOWN	

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LAKEWOOD, COLORADO 80226
(303) 988-4939
MULLER
MEC PROJECT NO. 11039.03

REGISTERED PROFESSIONAL ENGINEER 32038 6-18-15

Sheet Revisions		
Date:	Comments	Init.

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No Revisions:
Revised:
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Region 4 RDM

CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT

WALL DETAILS (5 OF 6)

Designer:	ASP	Structure Numbers	
Detailer:	KLH		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-74

Project No./Code
STM 110-081
18405
Sheet Number: 287

PLOTTED: 6/19/2015 12:02:33 PM
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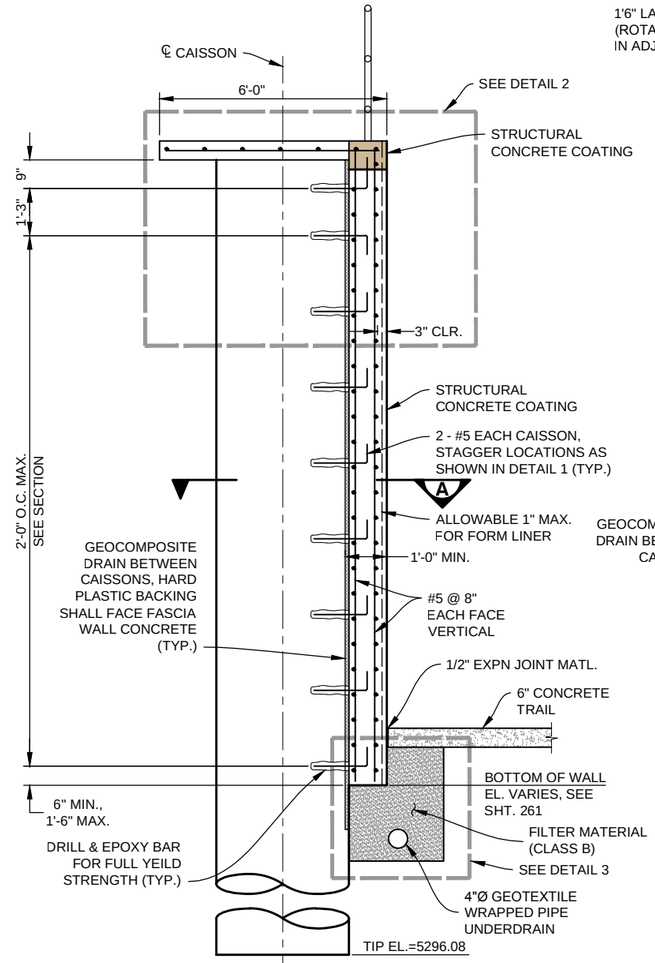
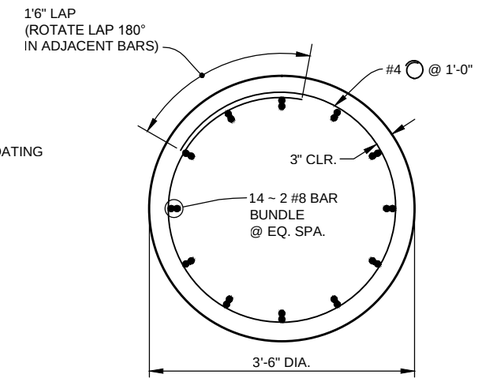
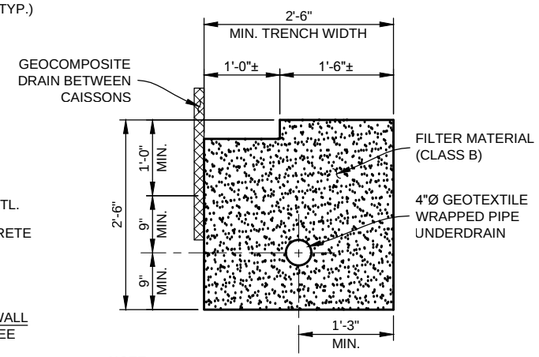


TYPICAL SECTION

0' 1' 2' 4'
SCALE: 1/4" = 1'-0"

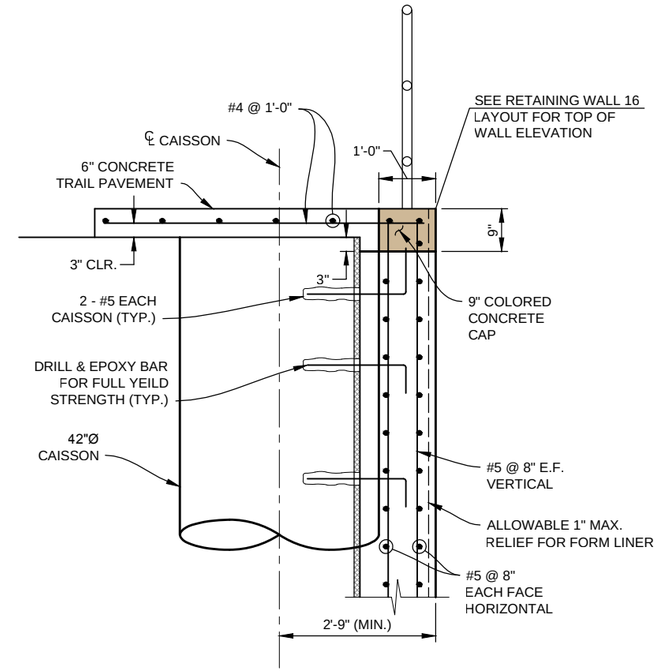


TYPICAL CAISSON SECTION



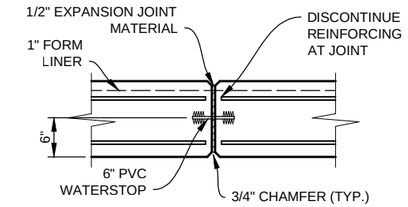
NOTE:
TRENCHING, GEOTEXTILE, BACKFILL COMPACTION, AND FITTINGS SHALL BE INCLUDED IN THE COST OF 4 INCH PERFORATED PIPE UNDERDRAIN.

DETAIL 3



DETAIL 2

0' 6" 1' 2'
SCALE: 3/8" = 1'-0"

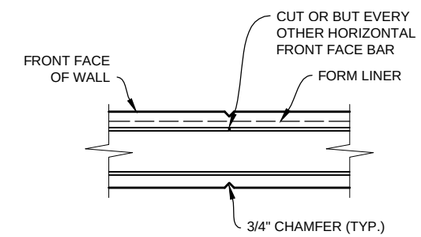


EXPANSION JOINT

(SEE RETAINING WALL 16 LAYOUT FOR LOCATIONS)

0' 6" 1' 2'
SCALE: 1/2" = 1'-0"

NOTE:
COST OF WATERSTOP & EXP. JT. MATERIAL SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN COST OF CONCRETE (CLASS D)

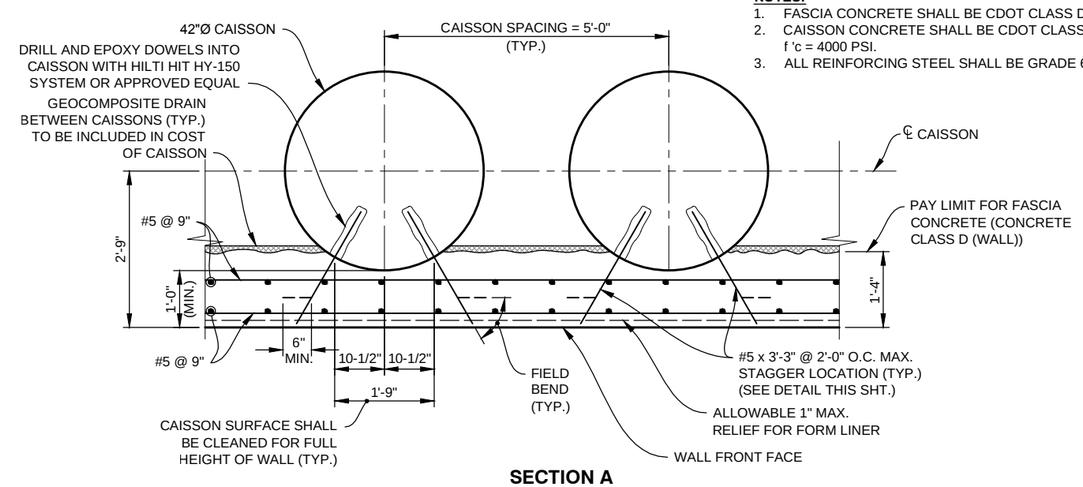


WEAKENED PLANE

(SEERETAINING WALL 16 LAYOUT FOR LOCATIONS)

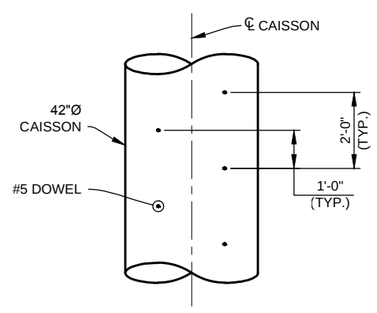
0' 6" 1' 2'
SCALE: 1/2" = 1'-0"

NOTES:
1. FASCIA CONCRETE SHALL BE CDOT CLASS D
2. CAISSON CONCRETE SHALL BE CDOT CLASS BZ, f 'c = 4000 PSI.
3. ALL REINFORCING STEEL SHALL BE GRADE 60 KSI.



SECTION A

0' 6" 1' 2'
SCALE: 3/8" = 1'-0"



DETAIL 1

0' 1' 2' 4'
SCALE: 1/4" = 1'-0"

TESTING OF CASSION / FASCIA DOWELS:

1. THE CONTRACTOR SHALL DRILL AND EPOXY #5 x 3'-3" WITH HILTI HY-200 SYSTEM OR APPROVED EQUIVALENT SYSTEM, IN FULL ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS. PROVIDE A MINIMUM EMBEDMENT OF 8 INCHES INTO CAISSON.
2. THE CONTRACTOR SHALL PROOF LOAD 20% OF THE DOWELS WITH A 10 KIP PULL OUT FORCE. THE PROOF LOAD SHALL BE APPLIED USING APPROVED, CALIBRATED, HOLLOW CORE HYDRAULIC TESTING EQUIPMENT WHICH INCLUDES RAM, PUMP AND GAGE.
3. AFTER ACCEPTANCE OF THE DOWELS BY THE ENGINEER, THE CONTRACTOR MAY THEN FIELD BEND DOWELS AND INCORPORATE IN THE WORK.
4. THE COST OF INSTALLING THE DOWELS AND PROOF TESTING SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF CONCRETE CLASS D.
5. THE SOILS AND FOUNDATION INVESTIGATION FOR THE CONCRETE BOX CULVERT WAS PERFORMED BY CTL THOMPSON, INC. THE SUB SURFACE CONDITIONS AND RECOMMENDATIONS FOR THE STRUCTURE ARE CONTAINED IN A REPORT DATED JULY 3, 2013, PROJ NO. DN46,599-125. REFER TO THE PROJECT SPECIFICATIONS FOR COPIES OF THESE REPORTS.

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Last Modification Date: 06/18/15	Initials: JHK	MULLER	CONSULTING ENGINEERS 777 S. WADSWORTH BLVD. 4-100 LAKEWOOD, COLORADO 80226 (303) 988-4939
Full Path: P:\11-039.03\CAD			
Drawing File Name: 11-039.03_WALL DETAILS.dwg			
AutoCAD 2014	Scale: AS SHOWN	MEC PROJECT NO. 11039.03	

COLORADO REGISTERED PROFESSIONAL ENGINEER 32038 6-18-15

Sheet Revisions		
Date:	Comments	Init.

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Void:

Region 4 RDM

CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT

WALL DETAILS (6 OF 6)

Designer:	KMA	Structure Numbers	
Detailer:	KLH		
Sheet Subset: TRAIL-WALL		Subset Sheets:	TW-75

Project No./Code
STM 110-081
18405
Sheet Number: 288

PLOTTED: 6/19/2015 12:02:40 PM
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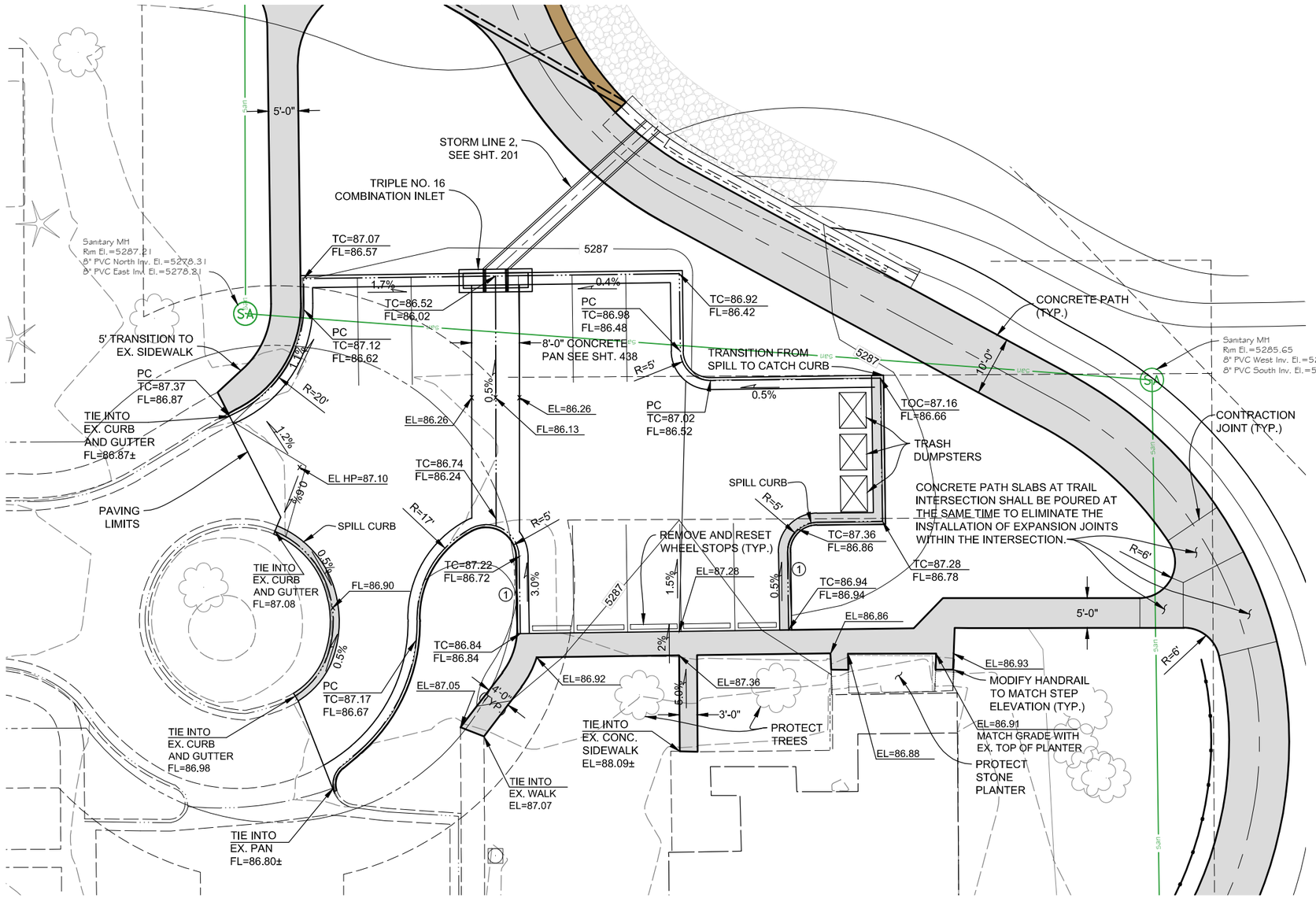

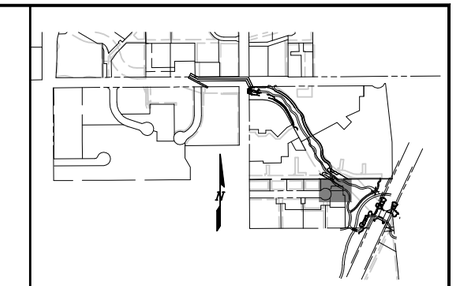

NOTES:

1. CURB HEIGHT TRANSITIONS FROM 6" TO 0".
2. ALL CATCH CURB AND GUTTER SHALL BE CONSTRUCTED PER THE CITY OF BOULDER STANDARD 6" CURB AND GUTTER DETAIL.
3. ALL SPILL CURB AND GUTTER SHALL BE CONSTRUCTED PER THE CITY OF BOULDER OUTFALL/MEDIAN CURB AND GUTTER DETAIL. THE GUTTER DIMENSION SHALL BE MODIFIED FROM 1'-0" TO 1'-6" TO CREATE A 2'-0" TOTAL CURB AND GUTTER WIDTH.

PLOTTED: 6/19/2015 12:03:35 PM
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Drawing File Name: 11-039.03_PARKING LOT PLAN.dwg	
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(303) 988-4939

MEC PROJECT NO. 11039.03

COLORADO REGISTERED PROFESSIONAL ENGINEER CHRISTOPHER L. KRAGE 37254 6/18/15

Sheet Revisions		
Date:	Comments	Init.

Region 4

CITY OF BOULDER

WONDERLAND CREEK - 30TH STREET TO FOOTHILLS PARKWAY

PARKING LOT PLAN

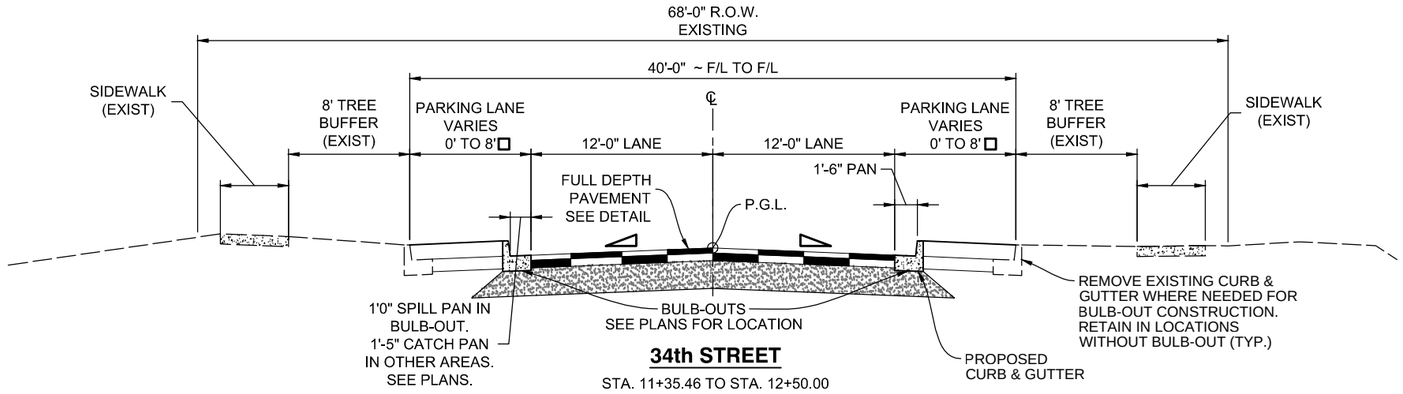
Designer:	CLK	Structure Numbers	
Detailer:	JHK		
Sheet Subset:	PARKING	Subset Sheets:	PL-1

Project No./Code

STA 04-XX

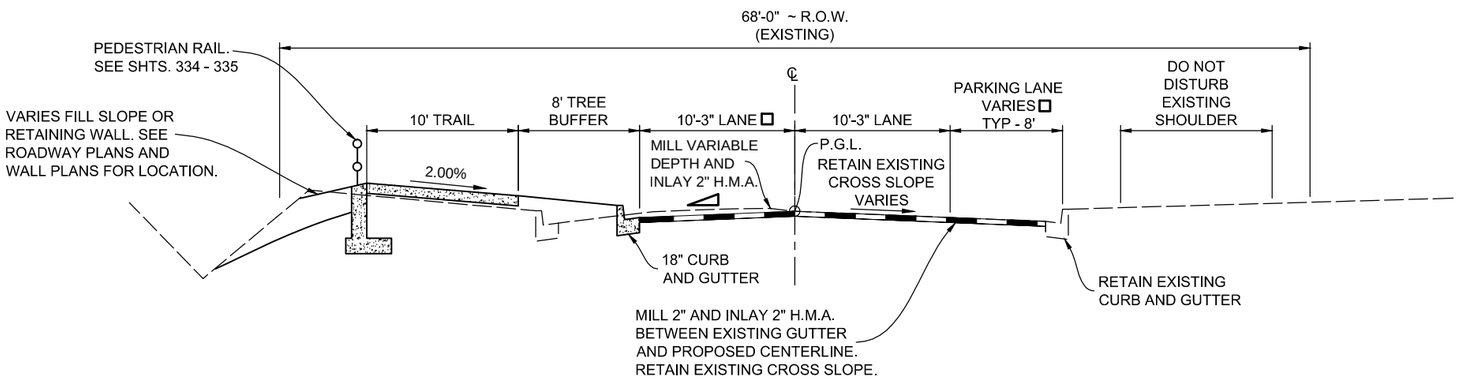
18405

Sheet Number: 289



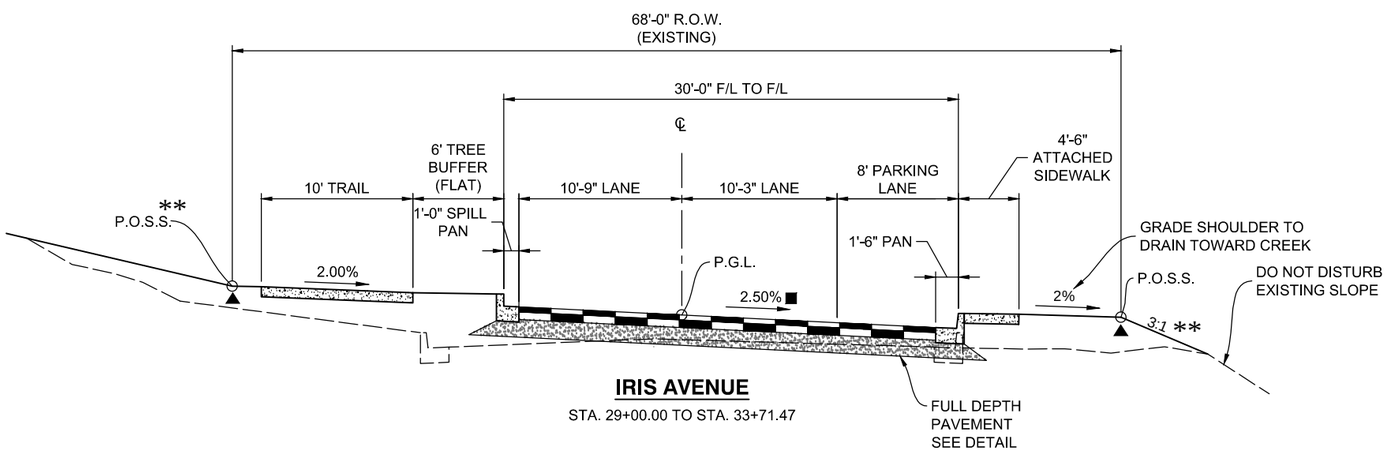
34th STREET

STA. 11+35.46 TO STA. 12+50.00



IRIS AVENUE

STA. 24+18.57 TO STA. 29+00.00

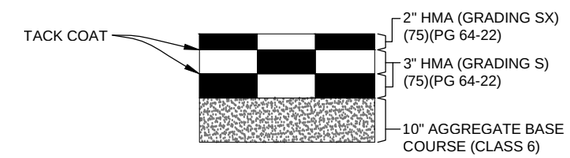


IRIS AVENUE

STA. 29+00.00 TO STA. 33+71.47

TYPICAL SECTION NOTES

1. ○ P.G.L. ~PROFILE GRADE LINE
2. H.M.A. ~HOT MIX ASPHALT
3. ○ P.O.S.S. ~POINT OF SLOPE SELECTION
4. ▲ BREAKPOINTS IN SLOPES AND IN BOTTOMS OF DITCHES SHALL BE ROUNDED DURING CONSTRUCTION FOR A PLEASING APPEARANCE.
5. ◿ 2% ROADWAY CROSS SLOPE (TYPICAL). FOR SPECIFIC CROSS SLOPES AND SUPERELEVATION LIMITS SEE PROFILE.
6. ■ SEE ROADWAY PROFILE FOR SUPERELEVATION LIMITS.
7. □ SEE ROADWAY SHEETS FOR SPECIFIC WIDTHS AND LOCATIONS OF TAPERS.
8. ** SLOPE VARIES, SEE CROSS SECTIONS.

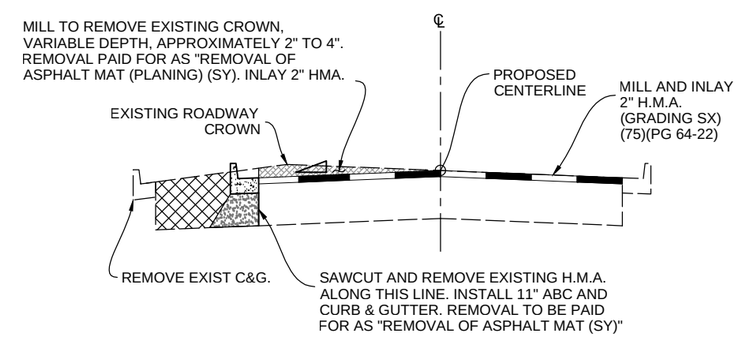


28th STREET
FULL DEPTH PAVEMENT DETAIL

N.T.S.

IRIS AVE, 34th STREET, KALMIA AVE. AND WINDING TRAIL
FULL DEPTH PAVEMENT DETAIL

N.T.S.



IRIS AVE MILL AND OVERLAY DETAIL

N.T.S.

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Drawing File Name: 11-039.03_ROADWAY TYPICAL SECTIONS.dwg	
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MULLER
MEC PROJECT NO. 11039.03

COLORADO LICENSED
DANIEL BUCKLEY
0046905
6/18/15
PROFESSIONAL ENGINEER

Sheet Revisions		
Date:	Comments	Init.

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Region 4 RDM

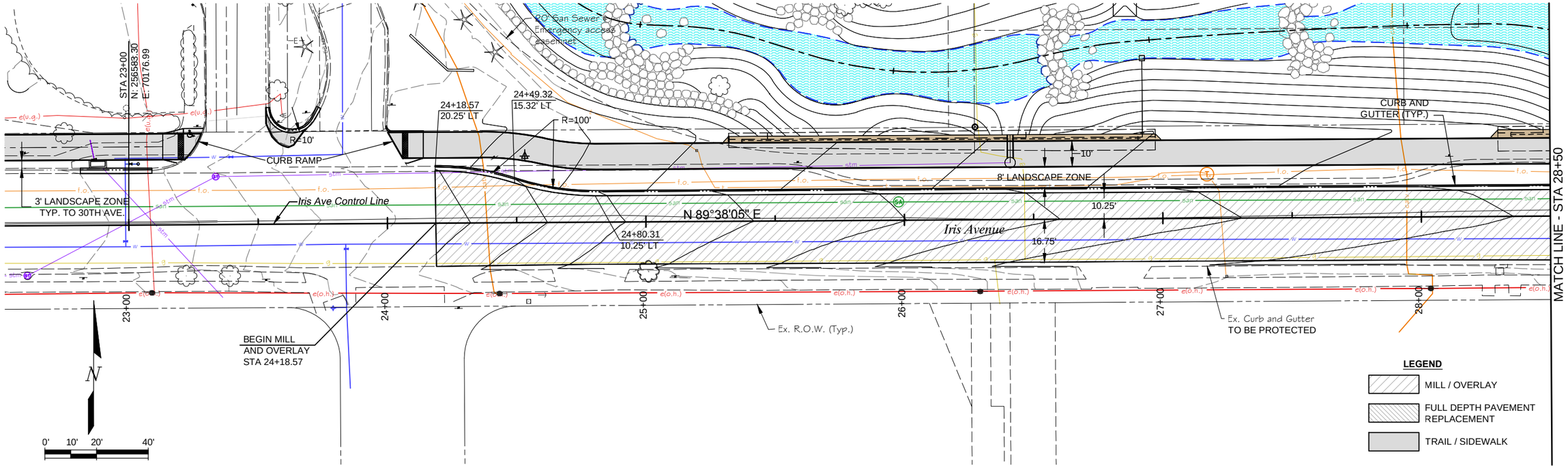
CITY OF BOULDER

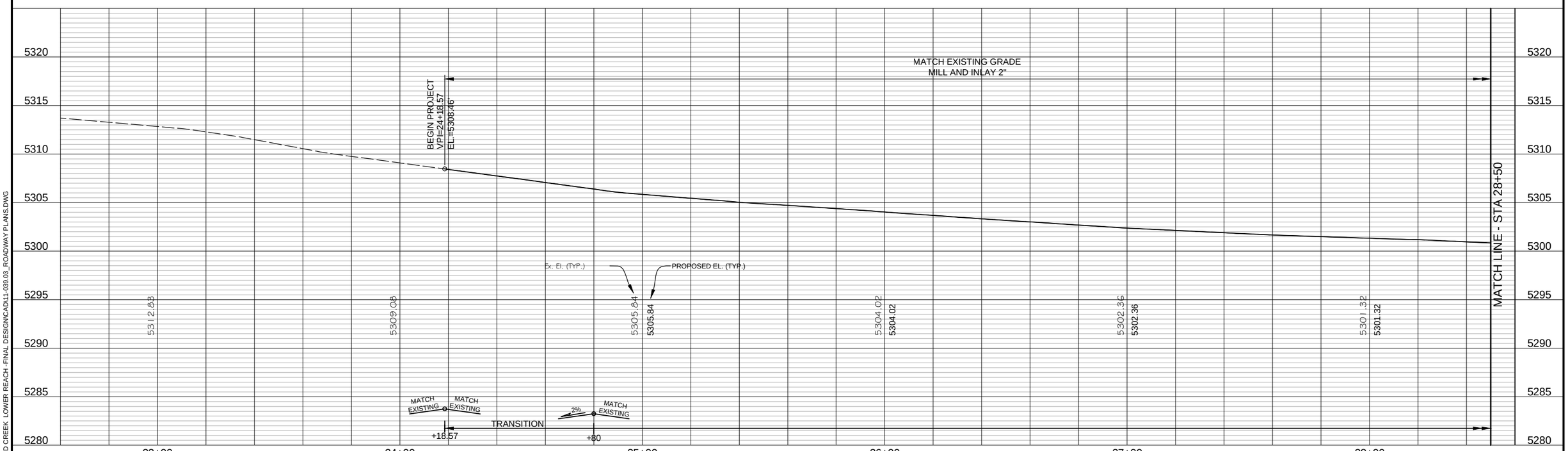
WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT

TYPICAL ROADWAY SECTIONS

Designer:	SDB	Structure Numbers	
Detailer:	JHK		
Sheet Subset:	ROADWAY	Subset Sheets:	R-1

Project No./Code
STM 110-081
18405
Sheet Number: 290





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AutoCAD 2014	Scale: AS SHOWN	

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CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
IRIS AVE. ROADWAY PLAN AND PROFILE
STA 23+00 TO STA 28+50

Designer:	SDB	Structure Numbers	
Detailer:	JHK		
Sheet Subset:	ROADWAY	Subset Sheets:	R-2

Project No./Code
STM 110-081
18405
Sheet Number: 291

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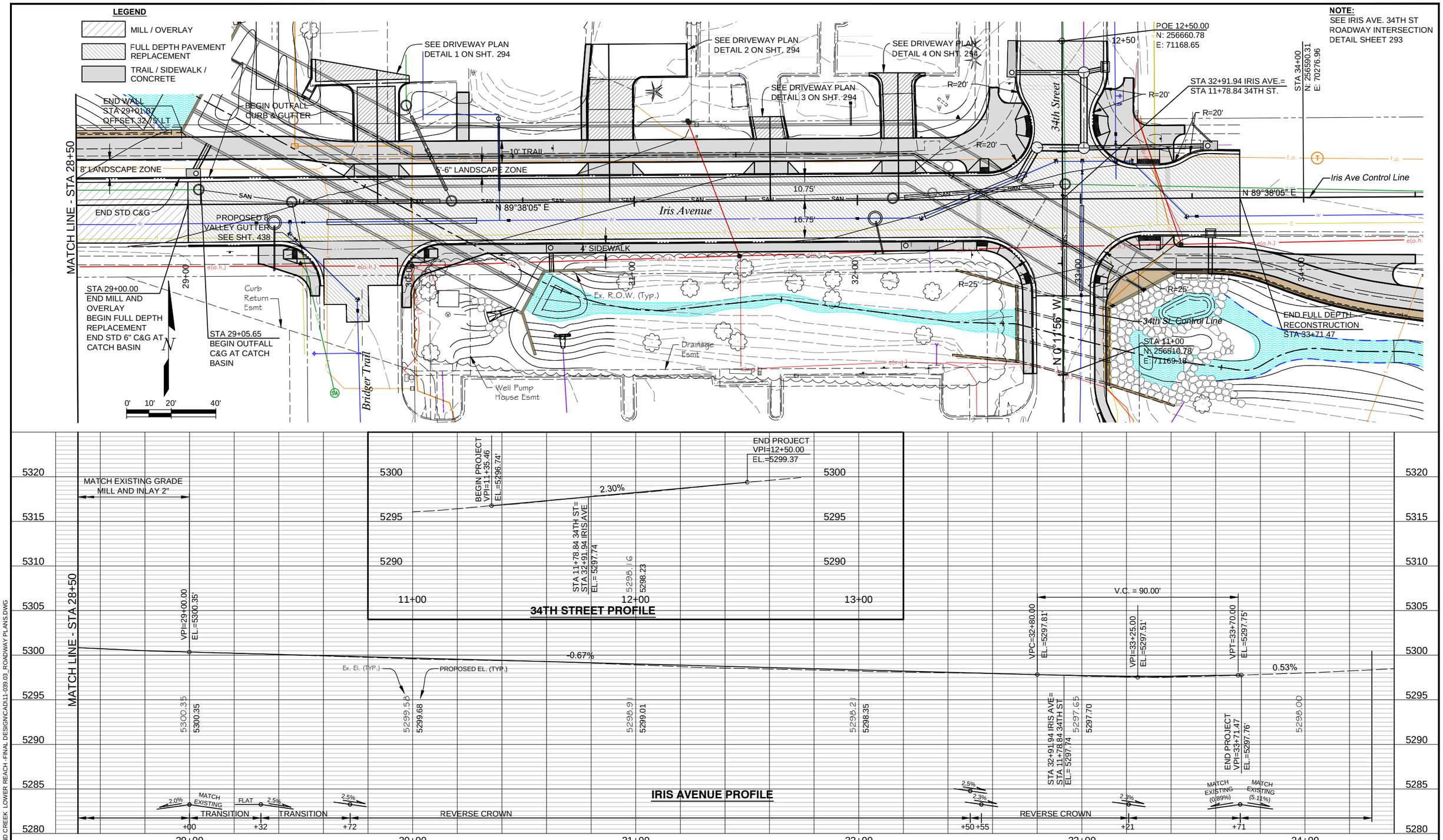

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AutoCAD 2014	Scale: AS SHOWN

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CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
IRIS AVE. ROADWAY PLAN AND PROFILE
STA 28+50 TO STA 34+00

Designer:	SDB	Structure Numbers	
Detailer:	JHK		
Sheet Subset:	ROADWAY	Subset Sheets:	R-3

Project No./Code
STM 110-081
18405
Sheet Number: 292

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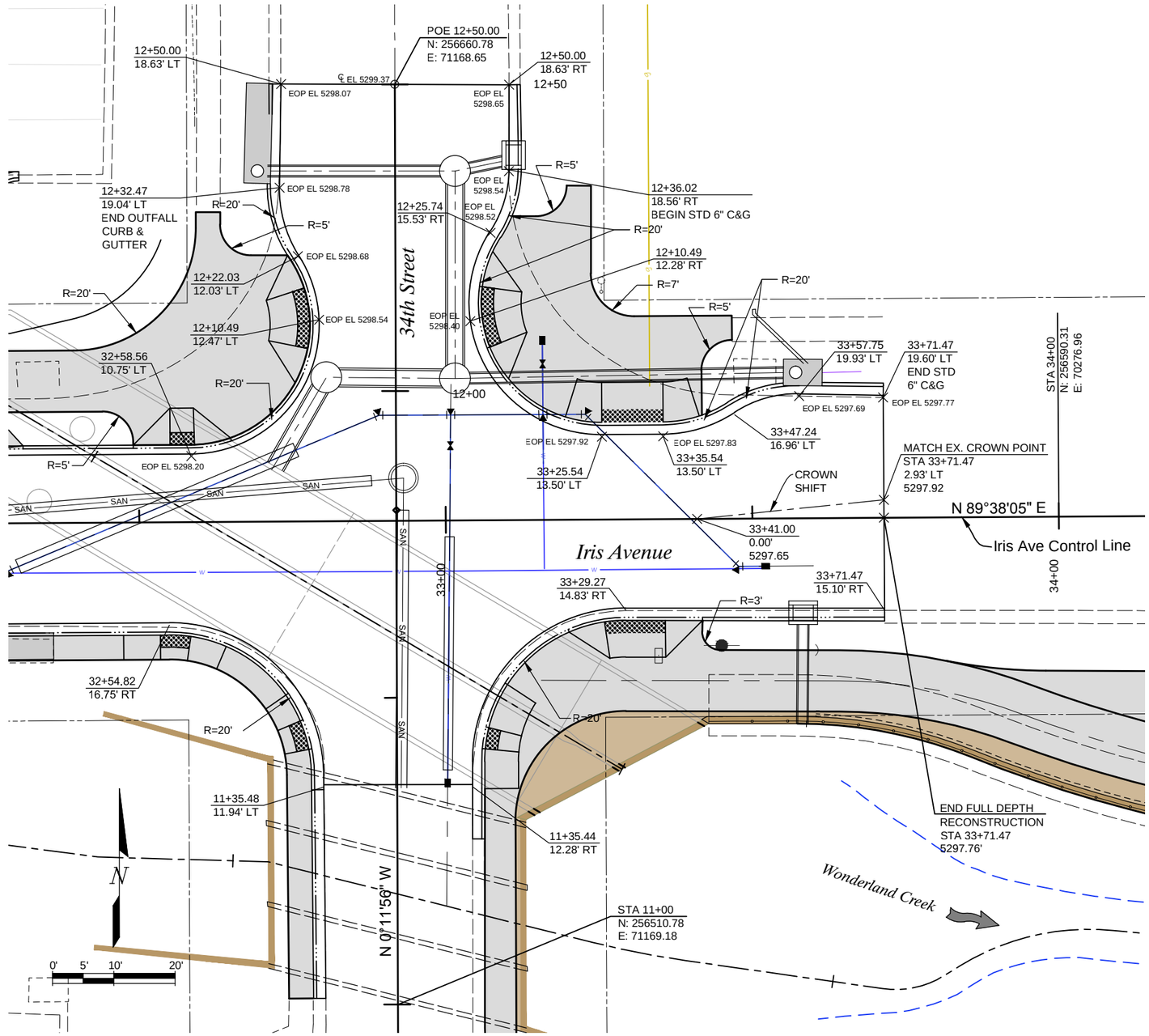

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WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
IRIS AVE. - 34TH STREET
ROADWAY INTERSECTION DETAIL

Designer:	SDB	Structure Numbers	
Detailer:	JHK		
Sheet Subset:	ROADWAY	Subset Sheets:	R-4

Project No./Code
STM 110-081
18405
Sheet Number: 293

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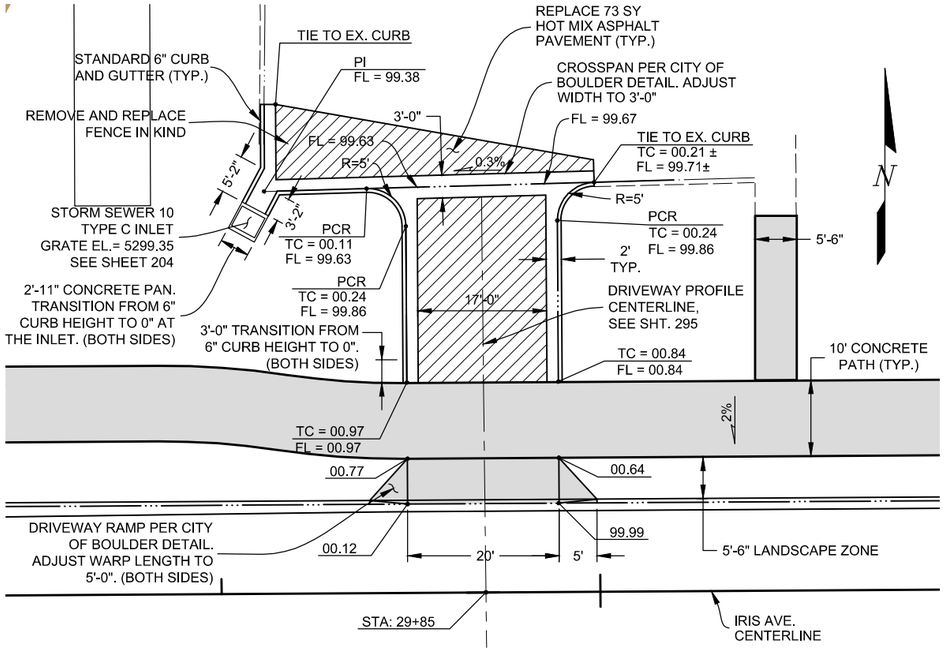
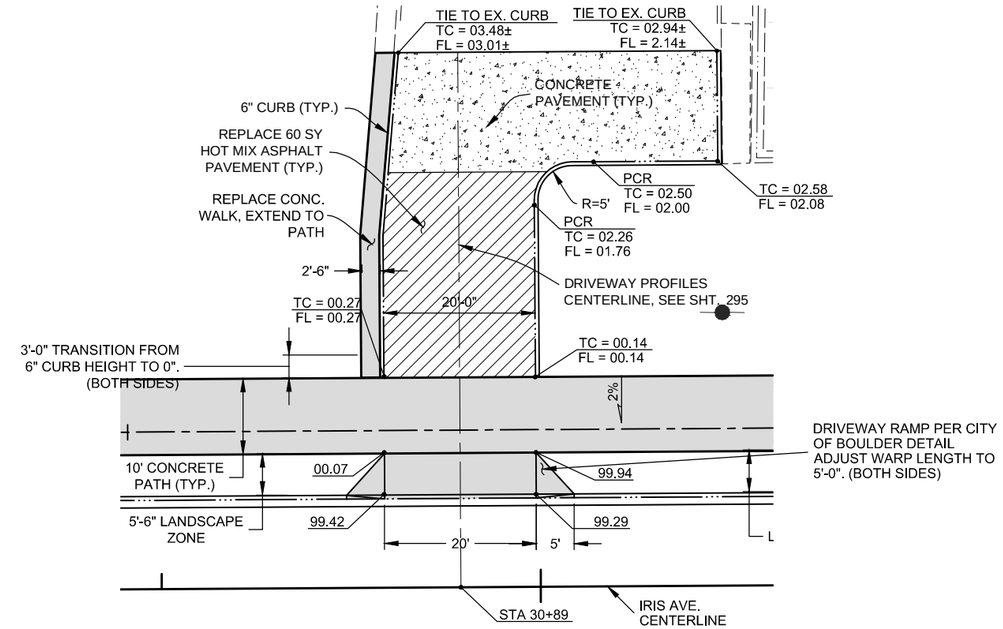


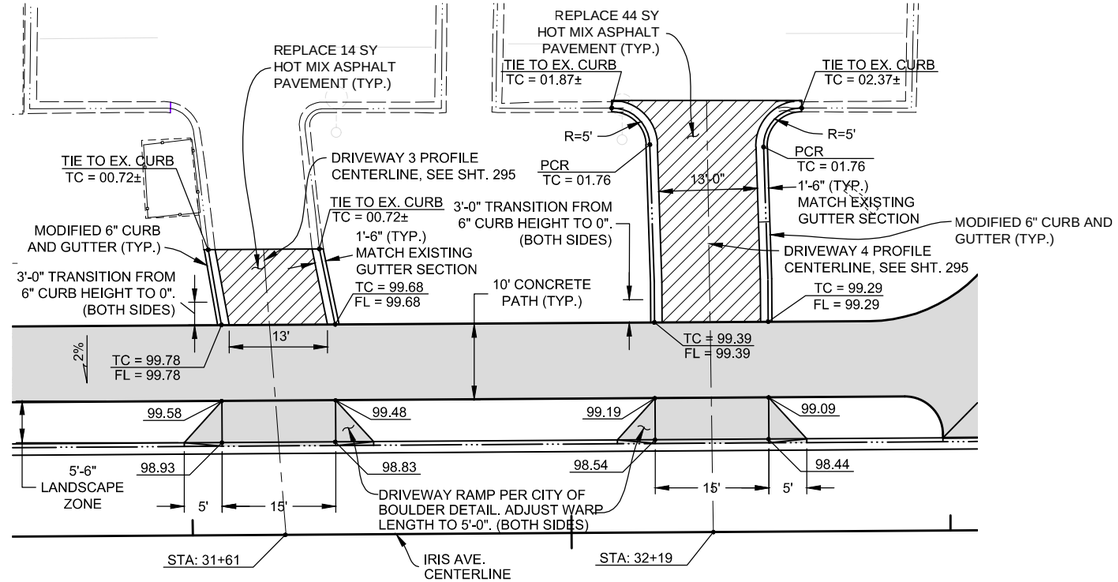
DRIVEWAY PLAN DETAIL 1

0' 5' 10' 20'



DRIVEWAY PLAN DETAIL 2

0' 5' 10' 20'



DRIVEWAY PLAN DETAIL 3 & 4

0' 5' 10' 20'

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Last Modification Date: 06/18/15	Initials: JHK		
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COLORADO REGISTERED PROFESSIONAL ENGINEER CHRISTOPHER L. KREGER 37254 6/18/15

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CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT

DRIVEWAY PLAN DETAILS

Designer:	MKN	Structure Numbers	
Detailer:	JHK		
Sheet Subset:	ROADWAY	Subset Sheets:	R-5

Project No./Code
STM 110-081
18405
Sheet Number: 294

PLOTTED: 6/19/2015 12:07:00 PM
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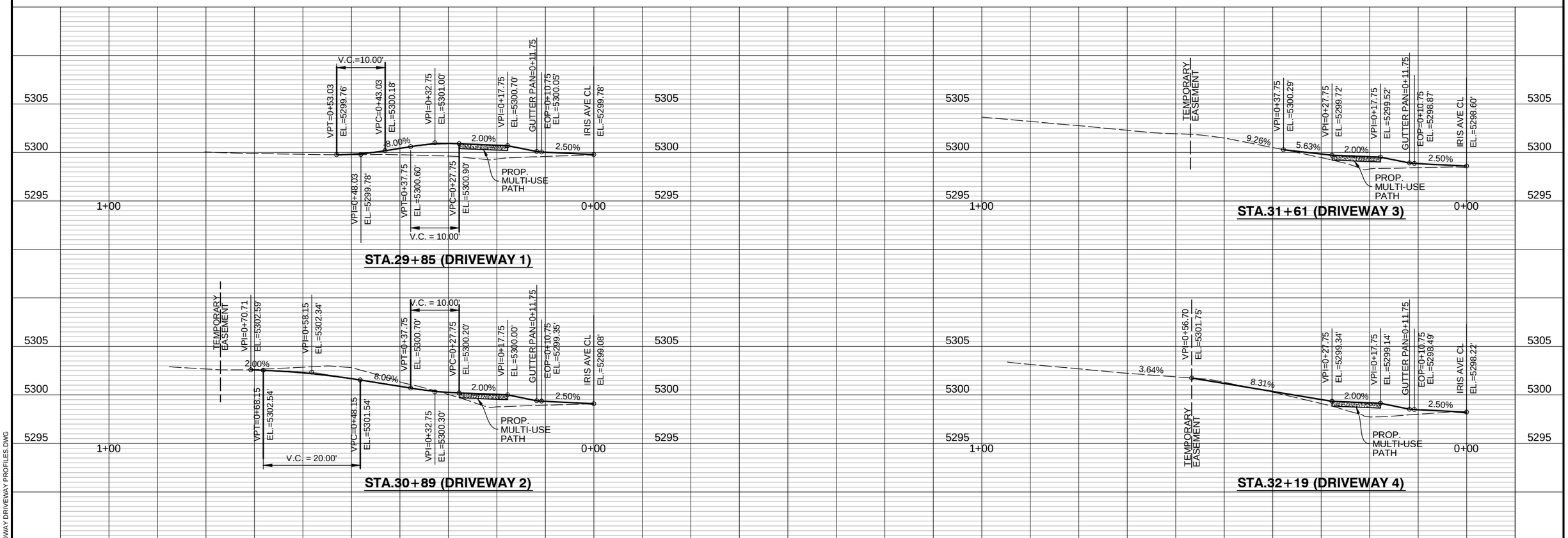

SCALE: HORIZ. 1" = 20'
VERT. 1" = 10'

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Last Modification Date: 06/18/15	Initials: JHK		
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MEC PROJECT NO. 11039.03

COLORADO REGISTERED PROFESSIONAL ENGINEER CHRISTOPHER L. KREBS 37254 6/18/15

Sheet Revisions		
Date:	Comments	Init.

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URBAN DRAINAGE AND FLOOD CONTROL DISTRICT

CO CDOT Region 4 RDM

CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT

DRIVEWAY PROFILES

Designer:	MKN	Structure Numbers	
Detailer:	JHK		
Sheet Subset:	ROADWAY	Subset Sheets:	R-6

Project No./Code
STM 110-081
18405
Sheet Number: 295

PLOTTED: 6/19/2015 12:07:14 PM
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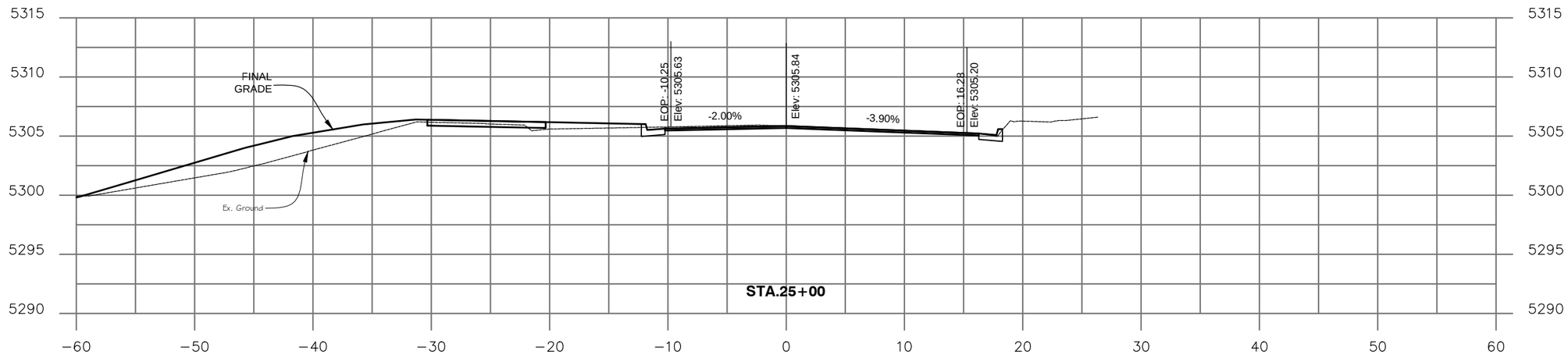

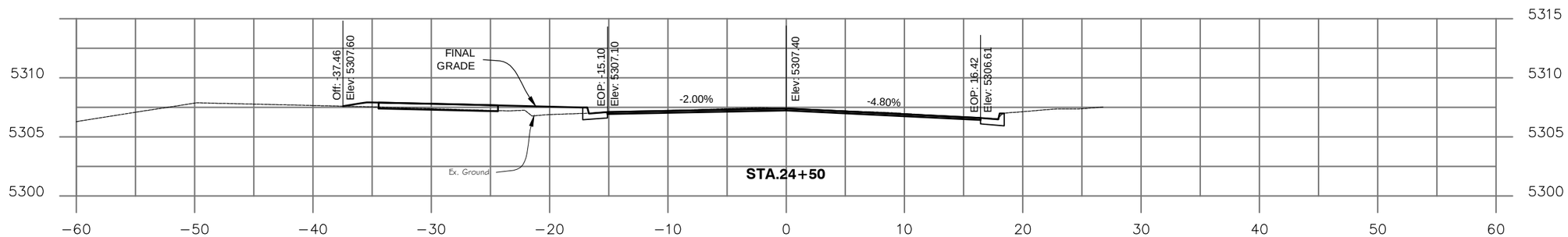

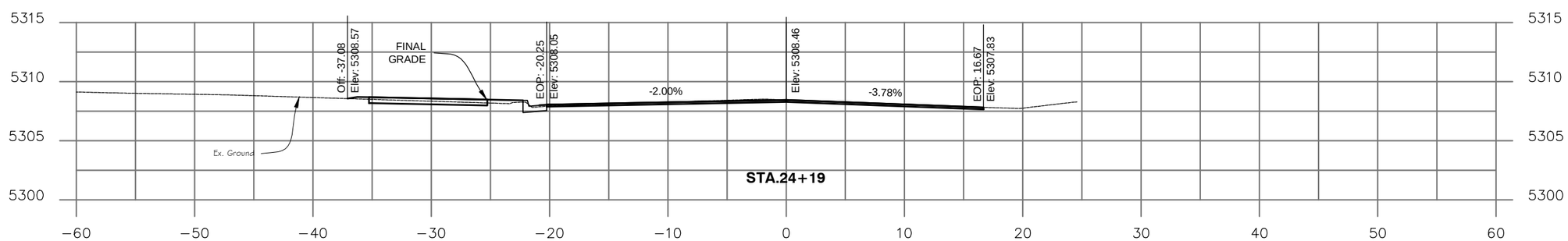

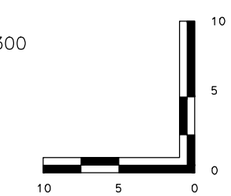

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MULLER
MEC PROJECT NO. 11039.03

COLORADO LICENSED PROFESSIONAL ENGINEER 0046905 6/18/15

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Date:	Comments	Init.

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Region 4 RDM
CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
CROSS SECTIONS

Designer:	SDB	Structure Numbers	
Detailer:	JHK		
Sheet Subset:	ROADWAY	Subset Sheets:	R-7

Project No./Code
STM 110-081
18405
Sheet Number: 296

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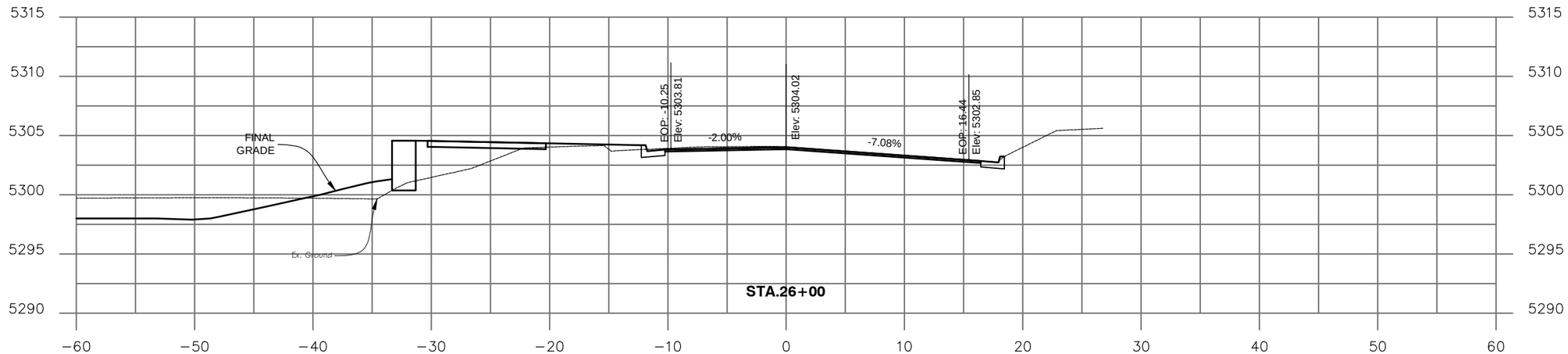

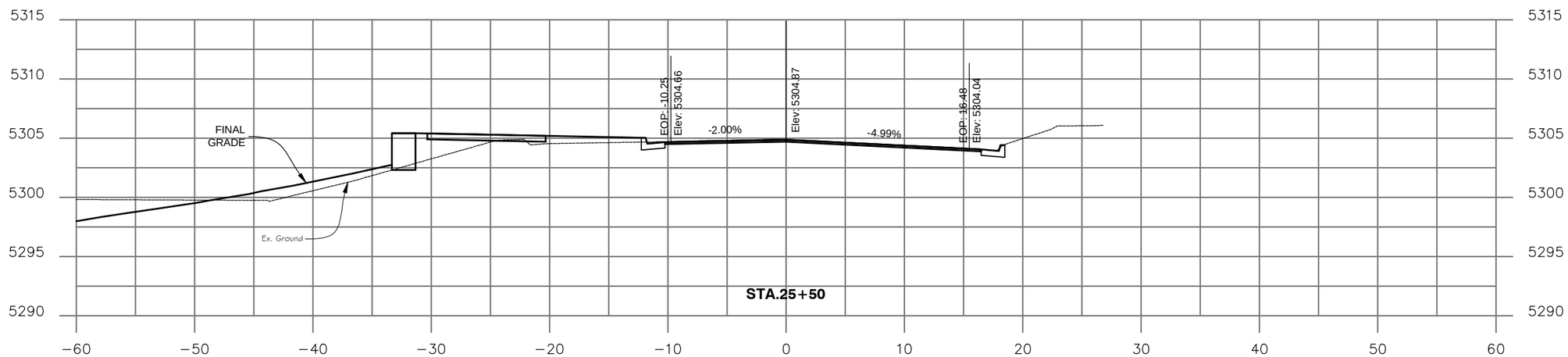

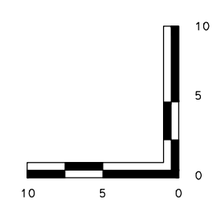

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0046905
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CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT

CROSS SECTIONS

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18405

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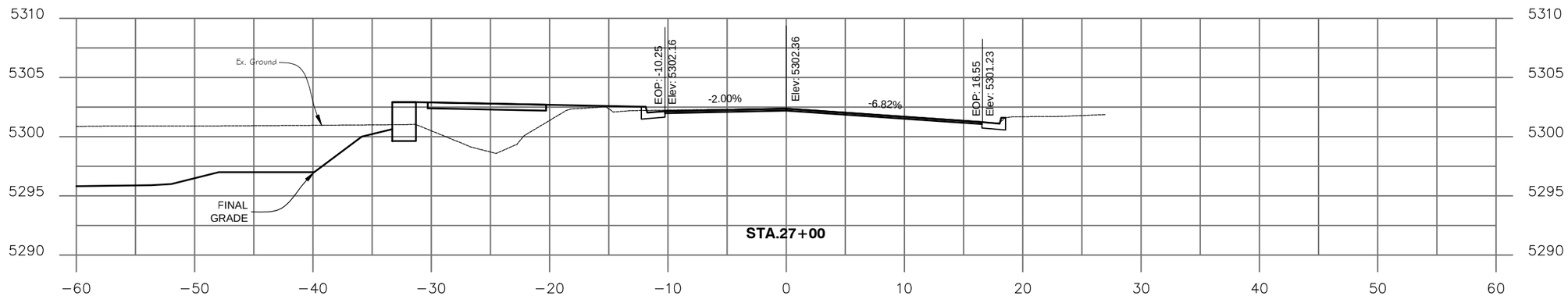

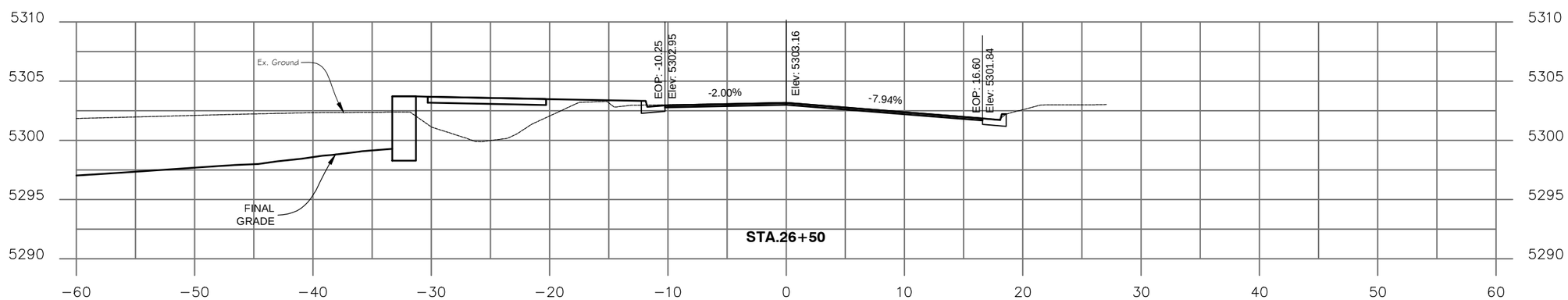

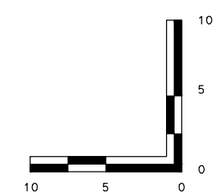

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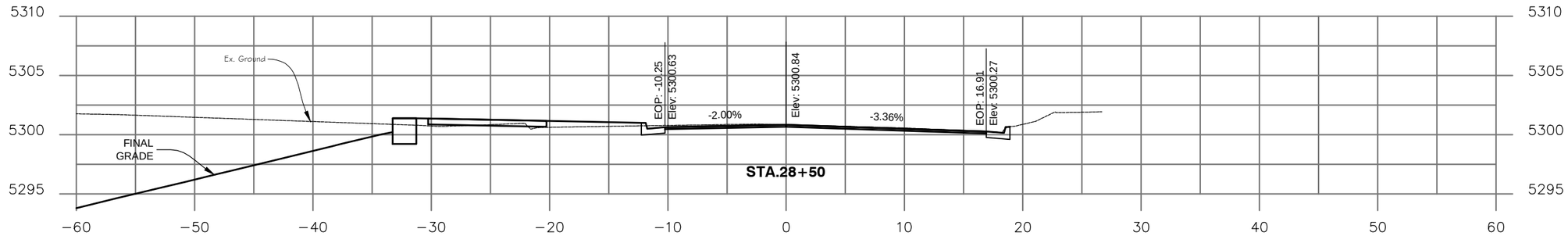

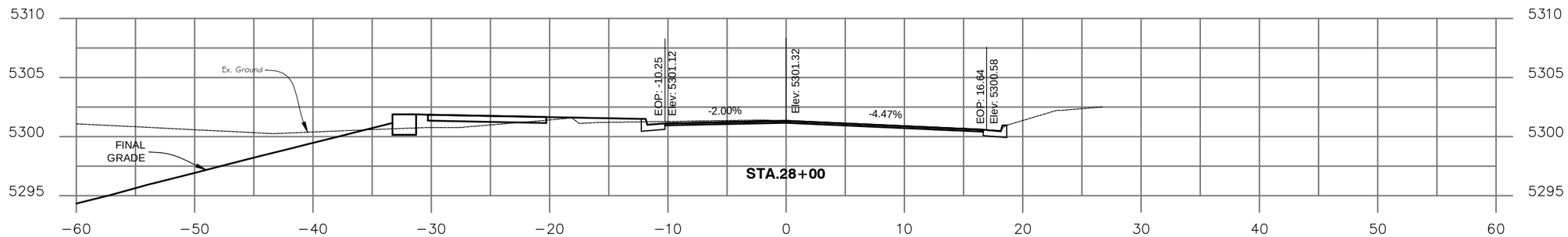

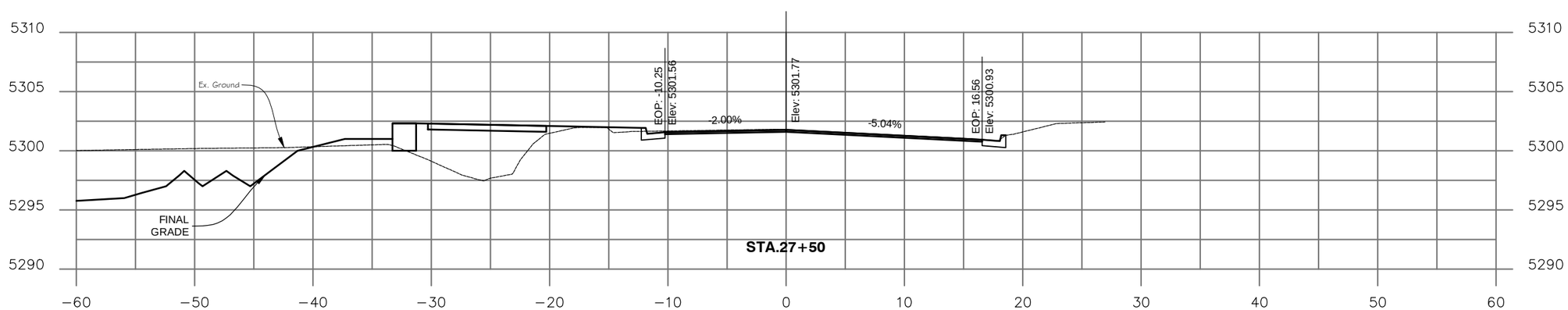

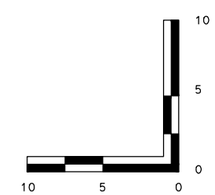

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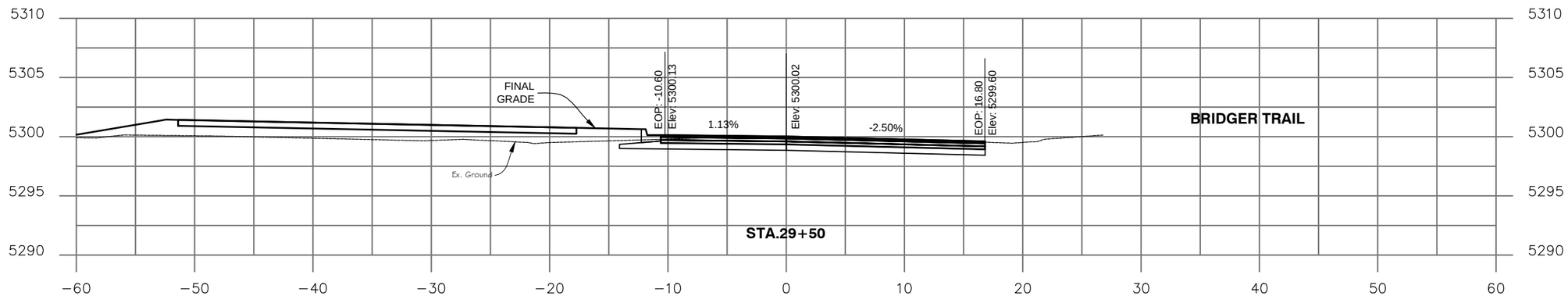

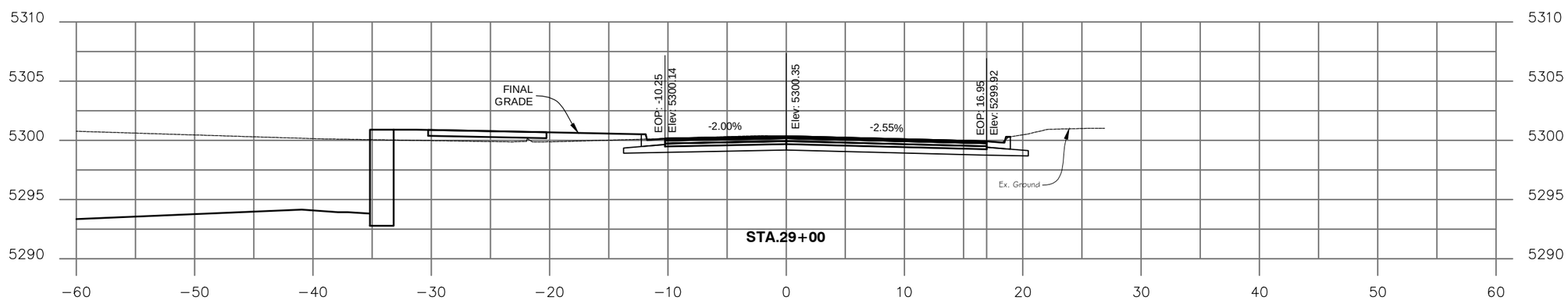

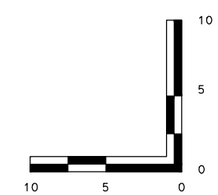

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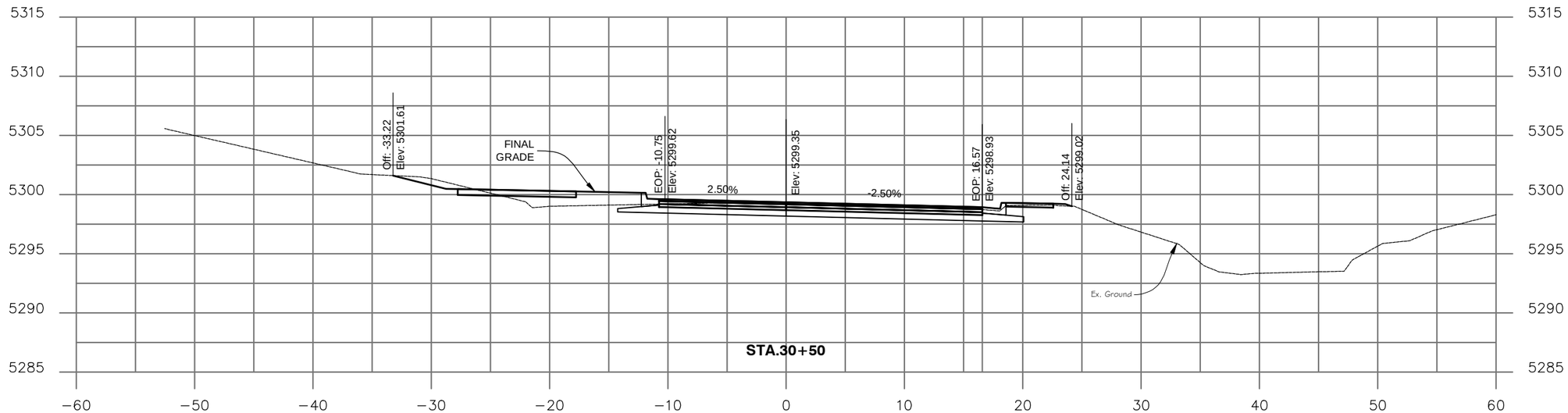

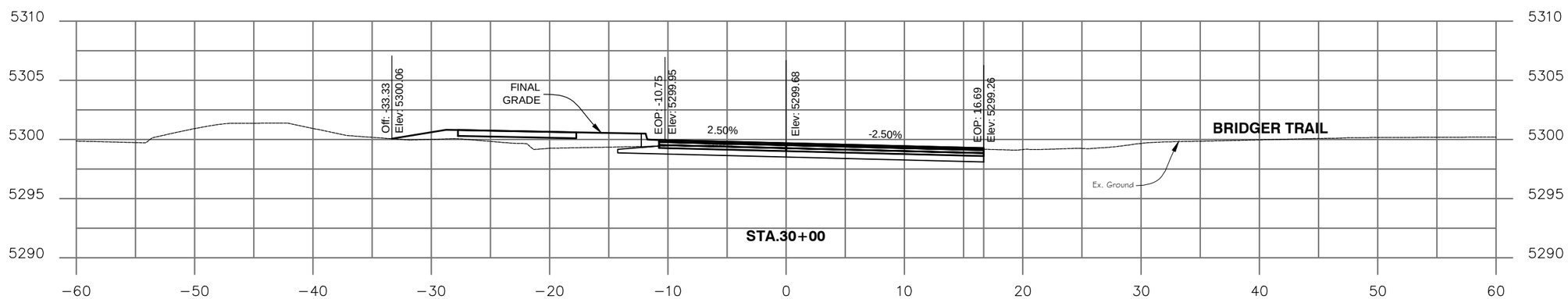

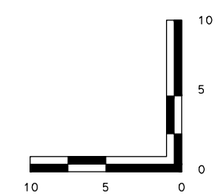

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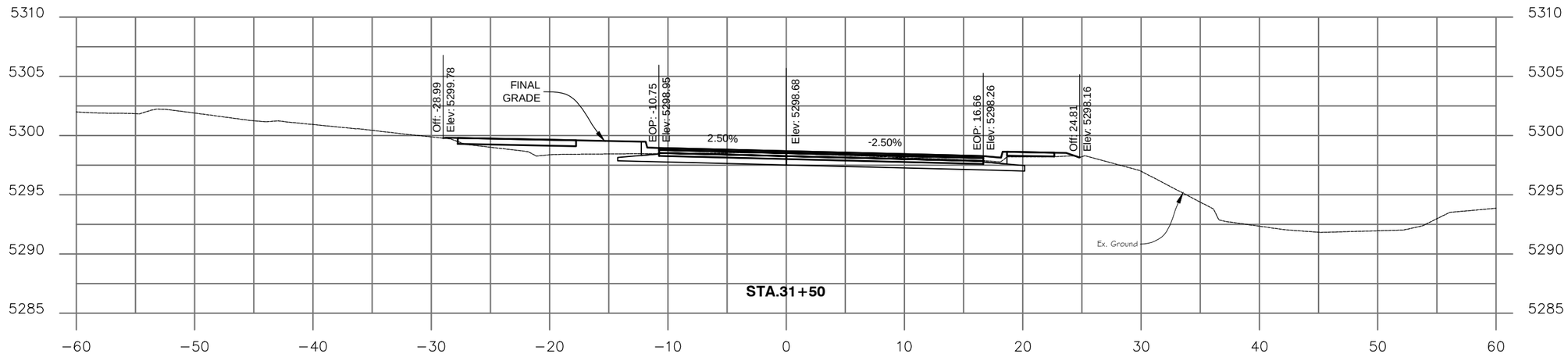

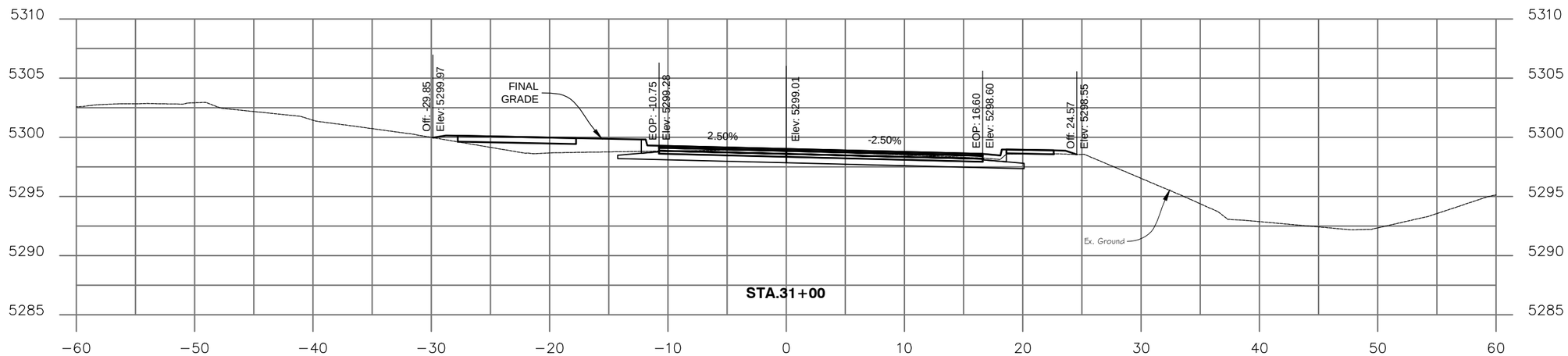

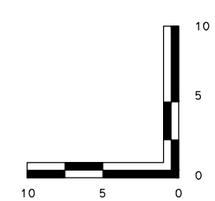

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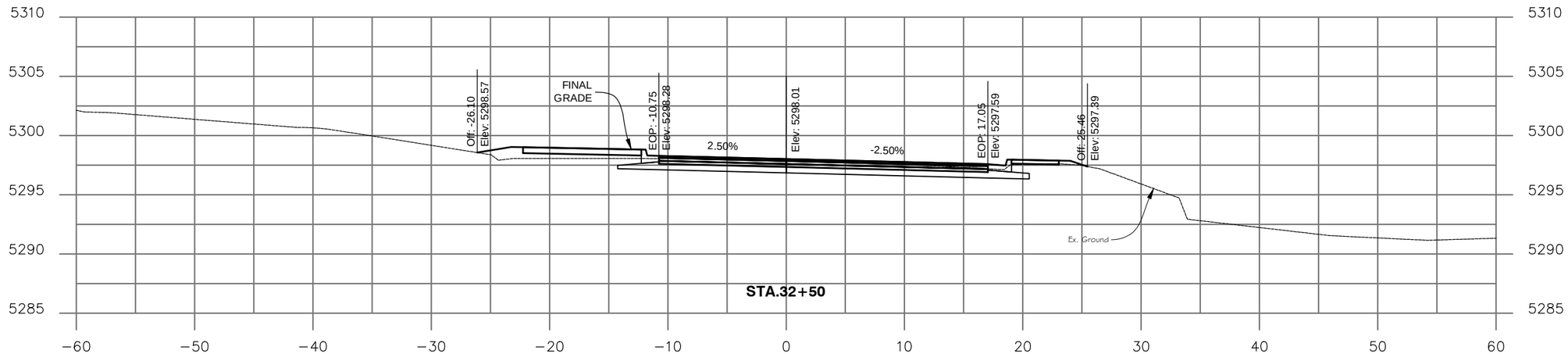

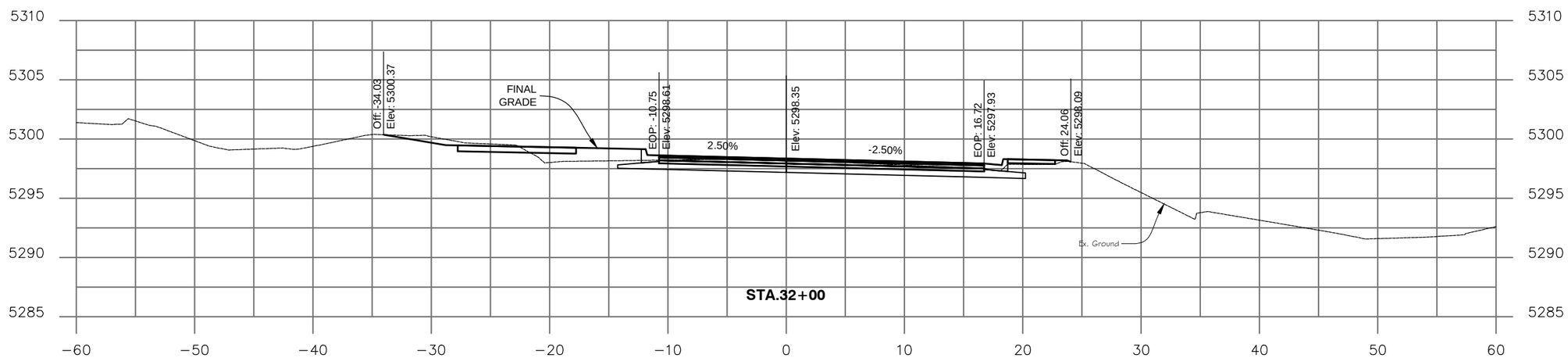

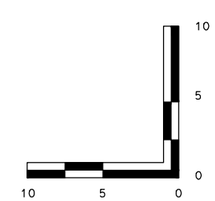

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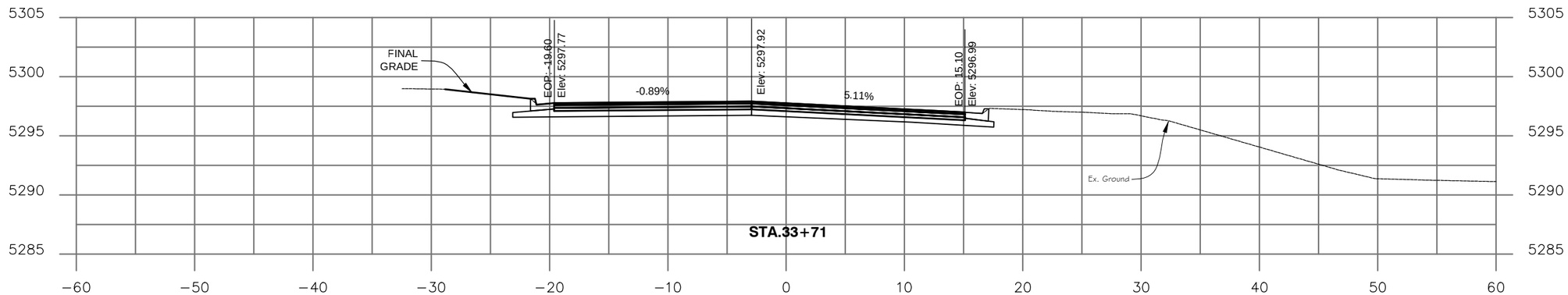

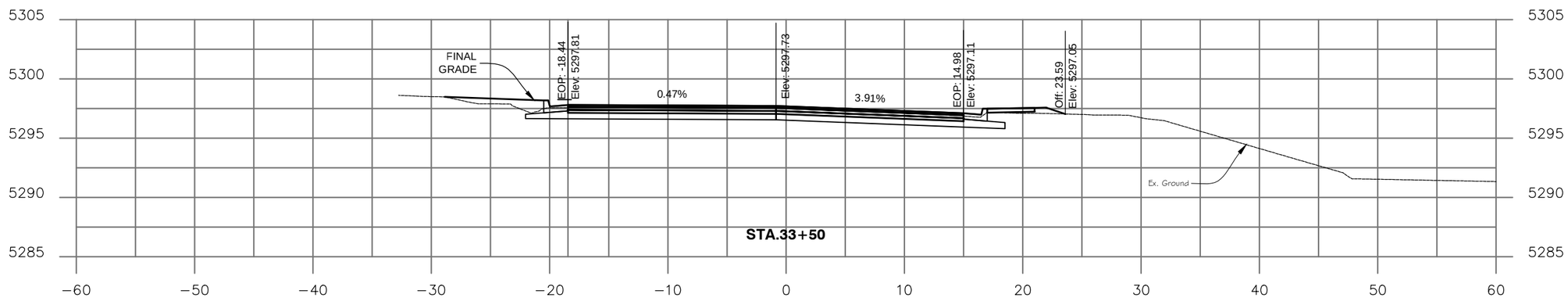

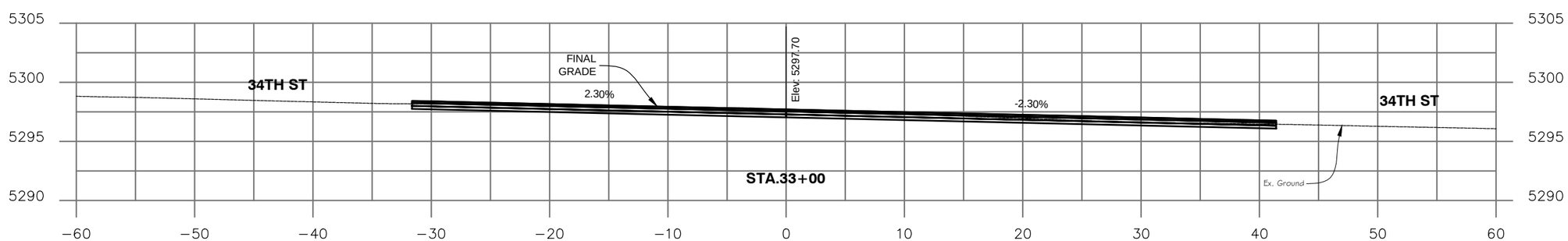

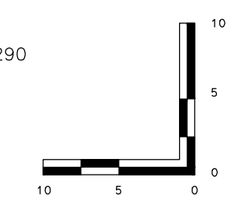

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SUGGESTED CONSTRUCTION PHASING WORK ITEMS

IRIS AVENUE LOCATION

PHASE 1A:

1. REMOVE SIDEWALK AND CURB RAMPS IN THE SOUTHWEST QUADRANT OF THE INTERSECTION. INSTALL TEMPORARY PAVEMENT TO PROVIDE TRAVELED WAY WIDTH PRIOR TO IMPLEMENTING CONSTRUCTION TRAFFIC CONTROL.

2. CONSTRUCT THE PROPOSED DRAINAGE STRUCTURES IN THE SOUTHEAST PORTION OF THE INTERSECTION.

3. CLOSE ALL ACCESS TO THE WEST LEG (IRIS AVENUE) OF THE INTERSECTION.

4. MAINTAIN A SINGLE LANE OF TRAVEL ON 34TH STREET ALONG THE WEST SIDE OF THE INTERSECTION. THE LANE SHALL BE CONTROLLED BY A FLAGGER DURING WORK HOURS AND STOP SIGNS DURING NON-WORK HOURS.

5. MAINTAIN A MINIMUM OF A SINGLE LANE OF TRAVEL ON THE EAST LEG OF IRIS AVENUE APPROACHING THE INTERSECTION.

PHASE 1B:

1. PLACE TEMPORARY PAVEMENT ON THE EAST SIDE OF 34TH STREET TO ACCOMMODATE A SINGLE TRAVEL LANE THROUGH THE INTERSECTION.

2. CONSTRUCT THE PROPOSED DRAINAGE STRUCTURES IN THE NORTHWEST PORTION OF THE INTERSECTION AS WELL AS UNDER THE EASTERN-MOST ACCESS ON IRIS AVENUE ADJACENT TO THE INTERSECTION.

3. MAINTAIN A SINGLE LANE OF TRAVEL ON 34TH STREET ALONG THE EAST SIDE OF THE INTERSECTION. THE LANE SHALL BE CONTROLLED BY A FLAGGER DURING WORK HOURS AND STOP SIGNS DURING NON-WORK HOURS.

4. MAINTAIN A MINIMUM OF A SINGLE LANE OF TRAVEL ON THE EAST LEG OF IRIS AVENUE APPROACHING THE INTERSECTION.

PHASE 2:

1. RESTORE FULL ACCESS THROUGH THE 34TH STREET/IRIS AVENUE INTERSECTION AND THE EASTERN-MOST ACCESS ON IRIS AVENUE PRIOR TO CONSTRUCTION OF PHASE 2.

2. CONSTRUCT THE PROPOSED DRAINAGE STRUCTURES UNDER THE MIDDLE TWO ACCESSES ON IRIS AVENUE. IMPLEMENT A FULL CLOSURE OF IRIS AVENUE.

3. MAINTAIN PRIVATE PROPERTY ACCESS AS PROPOSED ON THE ACCESS PHASING SHEET.

PHASE 3:

1. RESTORE ACCESS TO IRIS AVENUE AND THE MIDDLE TWO ACCESSES PRIOR TO CONSTRUCTION OF PHASE 3.

2. CONSTRUCT PROPOSED DRAINAGE STRUCTURES UNDER THE WESTERN-MOST ACCESS ALONG IRIS AVENUE. CLOSE THROUGH ACCESS ON IRIS AVENUE AT BRIDGER TRAIL.

3. MAINTAIN A SINGLE LANE OF ACCESS TO BRIDGER TRAIL FROM IRIS AVENUE. USE STOP SIGNS OR FLAGGER CONTROL AS DIRECTED BY THE ENGINEER.

PHASE 4:

1. RESTORE FULL ACCESS TO ALL ROADWAYS AND ACCESSES.

2. CONSTRUCT TOP LIFT OF PAVEMENT AND CURB, SIDEWALK AND CURB RAMPS WHERE NECESSARY.

THE OUTLINED PHASES MAY BE CONSTRUCTED IN THE REVERSE ORDER IF DESIRED. AT LEAST ONE LANE OF TRAVEL THROUGH THE 34TH STREET/IRIS AVENUE INTERSECTION MUST BE MAINTAINED AT ALL TIMES. REFER TO THE PROPOSED TRAFFIC DETOUR PHASING SHEETS FOR RECOMMENDED ACCESS STRATEGY.

KALMIA AVENUE LOCATION

THE KALMIA AVENUE LOCATION CONSISTS OF A FULL CLOSURE OF KALMIA AVENUE BETWEEN KALMIA COURT AND ISLAND DRIVE. ALL PROPOSED DRAINAGE STRUCTURES SHALL BE CONSTRUCTED DURING THE FULL CLOSURE.

TWO DETOURS SHOULD BE ESTABLISHED DURING THE CLOSURE. RESIDENTIAL TRAFFIC SHOULD BE DETOURED FROM KALMIA AVENUE NORTH ALONG ISLAND DRIVE TO LINKS DRIVE AND CONTINUING ALONG PASEO DEL PRADO STREET TO PALO PARKWAY. TRAFFIC ASSOCIATED WITH CALVARY BIBLE CHURCH AND THE BOULDER JEWISH COMMUNITY CENTER SHOULD BE DETOURED ALONG PINEDALE STREET AND RIDGEWAY STREET BETWEEN KALMIA AVENUE AND PALO PARKWAY. THE CONTRACTOR SHOULD WORK WITH BOTH THE CHURCH AND COMMUNITY CENTER TO ADVERTISE AND DISSEMINATE THE DETOUR ROUTE PRIOR TO THE DETOUR IMPLEMENTATION. PROPER DETOUR SIGNING SHALL BE PROVIDED FOR BOTH ROUTES DURING THE DURATION OF THE KALMIA AVENUE CLOSURE.

US 36/28TH STREET LOCATION

PRIOR TO CONSTRUCTION AND SUBMITTAL OF MHTS FOR THIS LOCATION, THE CONTRACTOR SHALL CONTACT RTD WITH REGARD TO THE EXISTING BUS STOP LOCATED IN THE SOUTHWEST QUADRANT OF THE 28TH STREET/PALO PARKWAY INTERSECTION. A TEMPORARY RELOCATION OF THE BUS STOP TO THE NORTH SIDE OF THE INTERSECTION MAY BE REQUIRED TO ACCOMMODATE THE NECESSARY DRAINAGE CONSTRUCTION AND LANE DETOURS ON 28TH STREET.

PHASE 1:

1. GRADE THE EAST SHOULDER OF 28TH STREET AS APPROPRIATE TO PROVIDE A WIDTH UP TO 15' FOR TEMPORARY PAVEMENT. INSTALL TEMPORARY PAVEMENT FOR LANE DETOUR.

2. SHIFT LANES TO THE EAST. LANE WIDTHS MAY BE REDUCED TO A MINIMUM OF 10' TO MAXIMIZE CONSTRUCTION AREA. THE THREE LANES SHALL CONSIST OF A SOUTHBOUND THROUGH LANE, A NORTHBOUND LEFT TURN LANE, AND A NORTHBOUND SHARED THROUGH/RIGHT TURN LANE. TEMPORARY RE-STRIPING OF LANES ON 28TH STREET NORTH OF THE PALO PARKWAY INTERSECTION WILL ALSO BE NECESSARY. THE ENGINEER SHALL DETERMINE IF TRAFFIC SIGNAL HEAD AND TRAFFIC SIGNAL TIMING MODIFICATIONS ARE NECESSARY TO ACCOMMODATE THE LANE DETOUR AT THE INTERSECTION.

3. CONSTRUCT PROPOSED DRAINAGE STRUCTURES WEST OF DETOURED TRAFFIC.

PHASE 2:

1. SHIFT DETOUR TO THE WEST SIDE OF 28TH STREET. RESTRIPE LANES ON 28TH STREET NORTH OF THE PALO PARKWAY INTERSECTION TO ACCOMMODATE THE DETOUR SHIFT. THE ENGINEER SHALL DETERMINE IF TRAFFIC SIGNAL HEAD AND TRAFFIC SIGNAL TIMING MODIFICATIONS ARE NECESSARY TO ACCOMMODATE THE LANE DETOUR AT THE INTERSECTION.

2. CONSTRUCT PROPOSED DRAINAGE STRUCTURES EAST OF THE DETOURED TRAFFIC.

3. REMOVE ANY REMAINING TEMPORARY PAVEMENT ON THE EAST SHOULDER OF 28TH STREET AND RESTRIPE LANES TO MATCH EXISTING CONDITIONS.

WINDING TRAIL DRIVE LOCATION

PHASE 1:

1. REMOVE CURB, SIDEWALK AND CURB RAMPS ALONG NORTH SIDE OF WINDING TRAIL DRIVE. INSTALL TEMPORARY PAVEMENT TO PROVIDE SPACE FOR ADEQUATE LANE DETOURS.

2. PROVIDE A MINIMUM OF 22' TRAVEL WAY TO MAINTAIN BOTH DIRECTIONS OF TRAFFIC ON WINDING TRAIL DRIVE DURING CONSTRUCTION.

3. CONSTRUCT THE PROPOSED DRAINAGE STRUCTURES SOUTH OF THE DETOURED LANES.

PHASE 2:

1. SHIFT DETOURED TRAFFIC LANES TO THE SOUTH SIDE OF WINDING TRAIL DRIVE. INSTALL TEMPORARY PAVEMENT TO PROVIDE ADDITIONAL WIDTH TO ACCOMMODATE THE LANE DETOUR.

2. PROVIDE A MINIMUM OF 22' TRAVEL WAY TO MAINTAIN BOTH DIRECTIONS OF TRAFFIC ON WINDING TRAIL DRIVE DURING CONSTRUCTION.

3. CONSTRUCT THE PROPOSED DRAINAGE STRUCTURES NORTH OF THE DETOURED LANES.

PHASE 3:

1. CONSTRUCT TOP LIFT OF PAVEMENT AND THE CURB, SIDEWALK AND CURB RAMPS ON BOTH SIDES OF WINDING TRAIL DRIVE.

SPRING CREEK PLACE LOCATION

PHASE 1:

1. INSTALL TEMPORARY CONCRETE BARRIER ALONG TALISMAN PLACE EAST OF THE CREEK CROSSING AND ACROSS SPRING CREE PLACE WEST OF THE CREEK CROSSING TO CLOSE THE CREEK CROSSING.

2. CONSTRUCT THE PROPOSED DRAINAGE STRUCTURES.

3. RECONSTRUCT ROADWAY AND ANY AFFECT SIDEWALK, CURB AND GUTTER AND TRAIL FACILITIES.

CONSTRUCTION TRAFFIC CONTROL NOTES

1. IT IS THE INTENT OF THE TRAFFIC CONTROL NOTES AND PLANS TO CONVEY TO THE CONTRACTOR THE GENERAL, BUT ESSENTIAL, PHASING ELEMENTS REQUIRED TO CONSTRUCT THE PROJECT. OTHER MINOR PHASES (NOT INDICATED IN THE PLAN SET) USING TEMPORARY LANE CLOSURES MAY BE NECESSARY TO CONSTRUCT THE PROPOSED IMPROVEMENTS. THE CONTRACTOR SHALL SUBMIT A METHOD OF HANDLING TRAFFIC (MHT) TO CITY OF BOULDER FOR REVIEW AND APPROVAL CONFORMING TO CITY OF BOULDER AND CDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AND M&S STANDARDS TWO WEEKS PRIOR TO RELATED CONSTRUCTION ACTIVITY.

2. ALL CONSTRUCTION TRAFFIC CONTROL SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, 2009 EDITION, AND APPLICABLE STANDARDS IN THE 2011 COLORADO DEPARTMENT OF TRANSPORTATION STANDARDS AND SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AND THE JULY 2012 COLORADO DEPARTMENT OF TRANSPORTATION STANDARD PLANS M&S STANDARDS.

3. REFER TO CDOT M&S STANDARD PLAN S-630-1, REVISED JULY 22, 2014, FOR STANDARD TRAFFIC CONTROL CASES THAT WILL BE REQUIRED TO IMPLEMENT PHASES AND OTHER TRAFFIC CONTROL CONDITIONS. ALL TRAFFIC CONTROL DEVICES SHALL BE PLACED IN ACCORDANCE WITH THE CONSTRUCTION TRAFFIC CONTROL PLANS, THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, 2009 EDITION, AND CDOT M&S STANDARD PLANS S-630-1.

4. THE CONTRACTOR SHALL BEAR RESPONSIBILITY AND EXPENSE FOR MAINTAINING ADEQUATE DRAINAGE AND SAFE DRIVING CONDITIONS AT ALL TIMES. THIS WORK SHALL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF RELATED WORK.

5. APPROPRIATE ADVANCE WARNING SIGNS SHALL BE PLACED AS NEEDED. THESE SHALL BE SHOWN IN THE MHT TO BE APPROVED BY THE ENGINEER.

6. MINIMUM LANE WIDTH MAY BE REDUCED TO 10' AS APPROVED BY THE ENGINEER. HOWEVER, WHEN POSSIBLE, A 12' MINIMUM LANE WIDTH SHOULD BE USED.

7. A MINIMUM SHOULDER WIDTH OF 1 FOOT SHALL BE PROVIDED BETWEEN THE CHANNELIZING DEVICE AND EDGE OF TRAVEL LANE AT ALL TIMES.

8. SLOPES WITHIN THE CLEAR ZONE SHALL BE 3:1 OR FLATTER UNLESS PROTECTED BY CONCRETE BARRIER (TEMPORARY). CONCRETE BARRIER (TEMPORARY) SHALL HAVE BOTH ENDS PROTECTED WITH AN IMPACT ATTENUATOR (TEMPORARY).

9. REMOVAL OF TEMPORARY PAVEMENT MARKINGS FOR TEMPORARY LANES WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF PAVEMENT MARKING PAINT. PAINT REMOVALS MUST BE DISPOSED OF PROPERLY OFF-SITE.

10. CONTRACTOR SHALL MAINTAIN SAFE AND REASONABLE ACCESS TO PRIVATE PROPERTIES AT ALL TIMES, UNLESS OTHERWISE APPROVED BY THE ENGINEER AND THE PROPERTY OWNER IN WRITING.

11. EXISTING SIGNS IN CONFLICT WITH THE TEMPORARY LANES SHALL BE COVERED OR RESET AS CONDITIONS REQUIRE FOR EACH CONSTRUCTION PHASE AND AS DIRECTED BY THE ENGINEER. MASKING OR EXISTING SIGNS, INCLUDING THE COVERING MATERIALS AND FASTENING DEVICES, WILL NOT BE MEASURED AND PAID FOR SEPARATELY BUS SHALL BE INCLUDED IN THE COST OF THE WORK.

12. CONTRACTOR SHALL UTILIZE A TRAILER MOUNTED TEMPORARY TRAFFIC SIGNAL IN THE SOUTHWEST QUADRANT OF THE 28TH STREET/PALO PARKWAY INTERSECTION IF CONSTRUCTION EXCAVATION REQUIRES THE REMOVAL OF THE EXISTING TRAFFIC SIGNAL POLE FOR SAFETY PURPOSES.

13. CONTRACTOR SHALL MAINTAIN SAFE PEDESTRIAN AND BICYCLE ACCESS AT ALL TIMES. APPROPRIATE SIGNS SHALL BE PLACED TO DESIGNATE CLOSURES, DETOURS AND CROSSING LOCATIONS.

SCHEDULE OF CONSTRUCTION TRAFFIC CONTROL SIGNS

SIGN CODE	LEGEND	DIMENSION	AREA	PHASE/LOCATION					PANEL SIZE			SPECIAL
				Winding Trail	28th St	Kalmia Avenue	Iris Avenue	Spring Creek Place	A	B	C	
		W x H	SF	EA	EA	EA	EA	EA	EA	EA	EA	SF
G20-2	END ROAD WORK	36 x 18	4.5	2	4	4	4		4			
M4-8	DETOUR	24 x 12	2			3	2		3			
M4-8A	END DETOUR	24 x 18	3			2	2		2			
M4-9L	DETOUR (LEFT ARROW)	30 x 24	5			9	4		9			
M4-9R	DETOUR (RIGHT ARROW)	30 x 24	5			7	4		7			
M4-9THRU	DETOUR (THROUGH ARROW)	30 x 24	5			2	1		2			
R1-1	STOP SIGN	30 x 30	6.25				4		4			
R11-2	ROAD CLOSED	48 x 30	10			4	5	2		5		
R11-3A	ROAD CLOSED - LOCAL TRAFFIC ONLY	60 x 30	12.5				1			1		
R2-1(25)	SPEED LIMIT - 25 MPH	24 x 30	5		2				2			
W13-1P(25)	ADVISORY SPEED (25 MPH)	24 x 24	4		2				2			
W20-1	ROAD WORK AHEAD	36 x 36	9	2	4	4	4		4			
W20-3	ROAD CLOSED AHEAD	36 x 36	9			2						
W20-4	ONE LANE ROAD AHEAD	36 x 36	9				4		4			
W20-5R	RIGHT LANE CLOSED AHEAD	36 x 36	9		1				1			
W24-1L	DOUBLE REVERSE CURVE (LEFT)	36 x 36	9	1	1				1			
W24-1R	DOUBLE REVERSE CURVE (RIGHT)	36 x 36	9	1	1				1			
W3-5(25)	REDUCED SPEED LIMIT AHEAD - 25 MPH	36 x 36	9		2				2			
W5-1	ROAD NARROWS	36 x 36	9	2					2			
	TRAIL DETOUR SIGNS	30 x 24	5	30	30	30			30			
		x	0						0			
		x	0						0			
		x	0						0			
SPECIAL		60 x 30	12.5									0
TOTALS									80	6	0	0

TABULATION OF CONSTRUCTION TRAFFIC CONTROL DEVICES

ITEM NO.	ITEM	UNIT	PHASE/LOCATION					TOTALS
			Winding Trail	28th St	Kalmia Avenue	Iris Avenue	Spring Creek Place	
627-00011	PAVEMENT MARKING PAINT (WATERBORNE)	GAL		30				30
630-00000	FLAGGER	HOUR				250		250
630-00003	UNIFORMED TRAFFIC CONTROL	HOUR		8				8
630-00007	TRAFFIC CONTROL INSPECTION	DAY	28	21	11	23	11	94
630-00012	TRAFFIC CONTROL MANAGEMENT	DAY	70	55	27	59	27	238
630-80336	BARRICADE (TYPE 3 M-B) (TEMPORARY)	EA			4	6	2	6
630-80341	CONSTRUCTION TRAFFIC SIGN (PANEL SIZE A)	EA						80
630-80342	CONSTRUCTION TRAFFIC SIGN (PANEL SIZE B)	EA						6
630-80343	CONSTRUCTION TRAFFIC SIGN (PANEL SIZE C)	EA						0
630-80344	CONSTRUCTION TRAFFIC SIGN (SPECIAL)	SF						0
630-80355	PORTABLE MESSAGE SIGN PANEL	EA			4			4
630-80360	DRUM CHANNELIZING DEVICE	EA	40	70	40	40	30	70
630-80370	CONCRETE BARRIER (TEMPORARY)	LF	430	440	60	320	220	440
630-80380	TRAFFIC CONE	EA	40	40	40	40		40
630-86810	TRAFFIC SIGNAL (TEMPORARY)	EA		1				1

NOTES:

TYPICAL MUTCD TEMPORARY TRAFFIC CONTROL APPLICATIONS WERE ASSUMED FOR EACH CONSTRUCTION LOCATION:

1. IRIS AVENUE - TA #8, TA #20, TA #27
2. KALMIA AVENUE - TA #20
3. 28TH STREET - TA #31/#32 MODIFIED FOR A SINGLE THROUGH LANE IN EACH DIRECTION
4. TRAIL CLOSURES - TA #29

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MEC PROJECT NO. 11039.03

COLORADO LICENSED PROFESSIONAL ENGINEER 40715 6/18/15

Sheet Revisions

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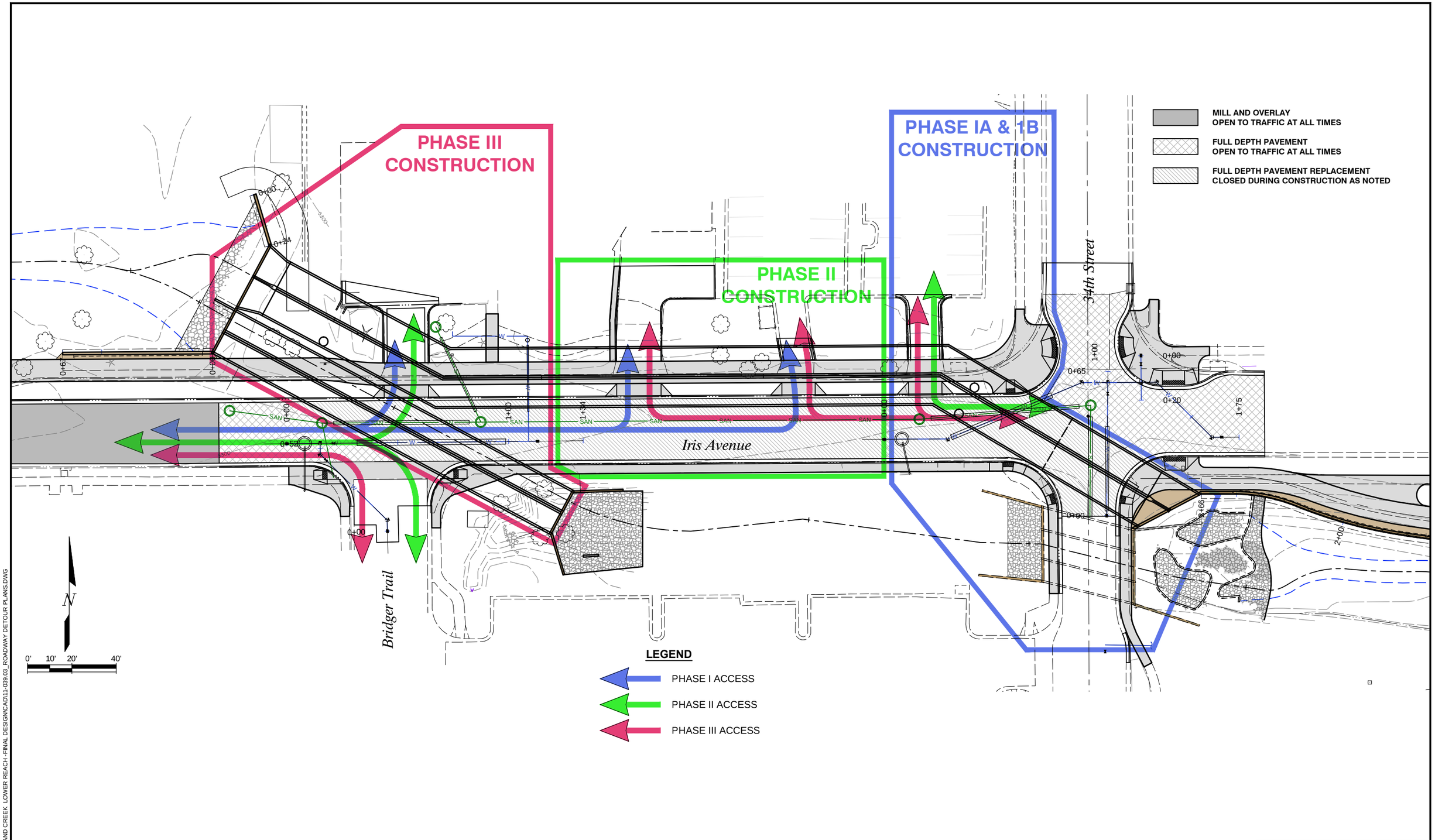
WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
TABULATION OF TEMPORARY TRAFFIC ENGINEERING ITEMS
Designer: JDH
Detailer: NJM
Sheet Subset: ROADWAY
Structure Numbers
Subset Sheets: R-17

Project No./Code
STM 110-081
18405
Sheet Number: 306



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IRIS AVE. TRAFFIC DETOUR PHASING PLAN

Designer:	JDH	Structure Numbers	
Detailer:	JHK		
Sheet Subset:	ROADWAY	Subset Sheets:	R-18

Project No./Code

STM 110-081

18405

Sheet Number: 307

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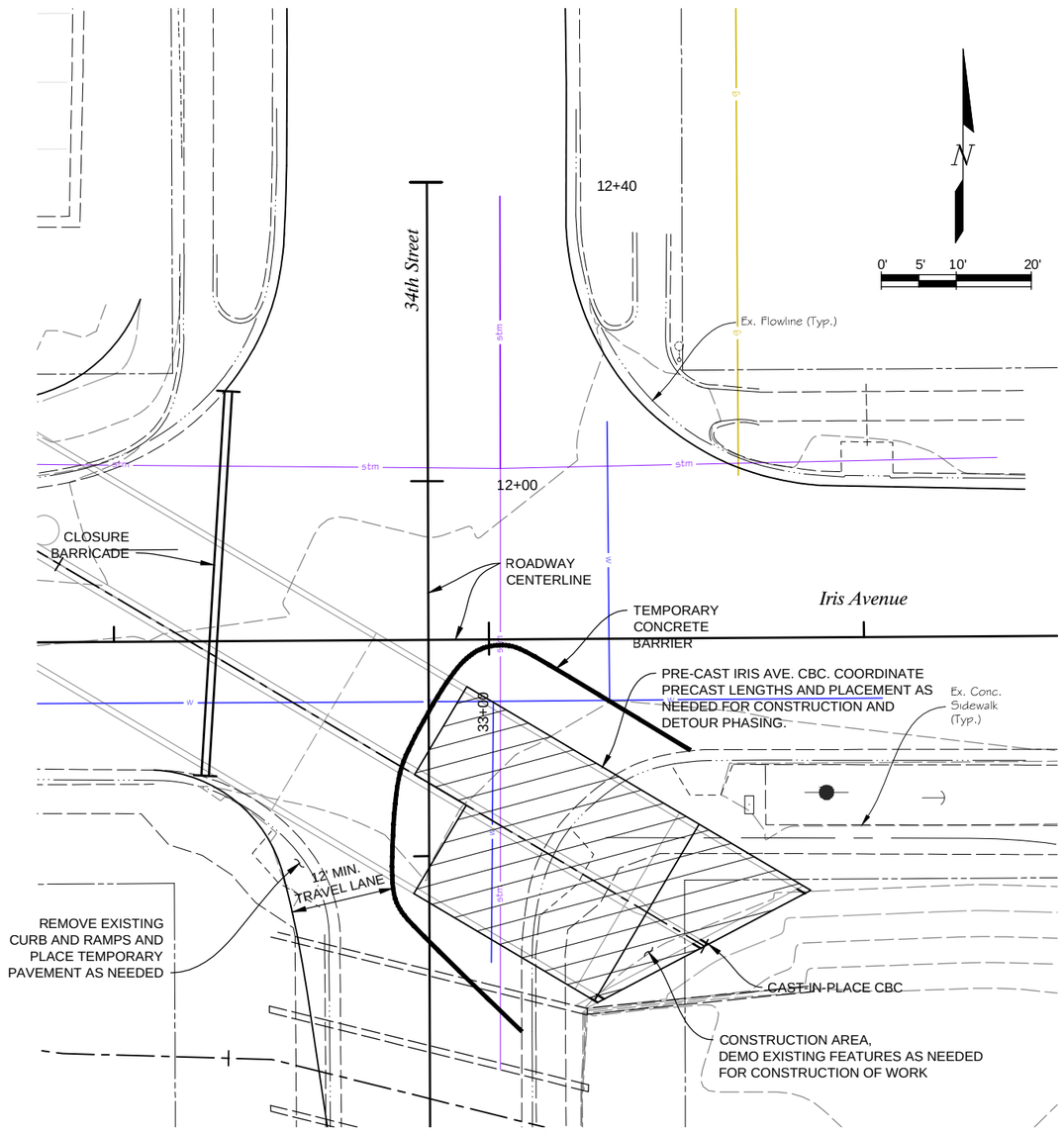

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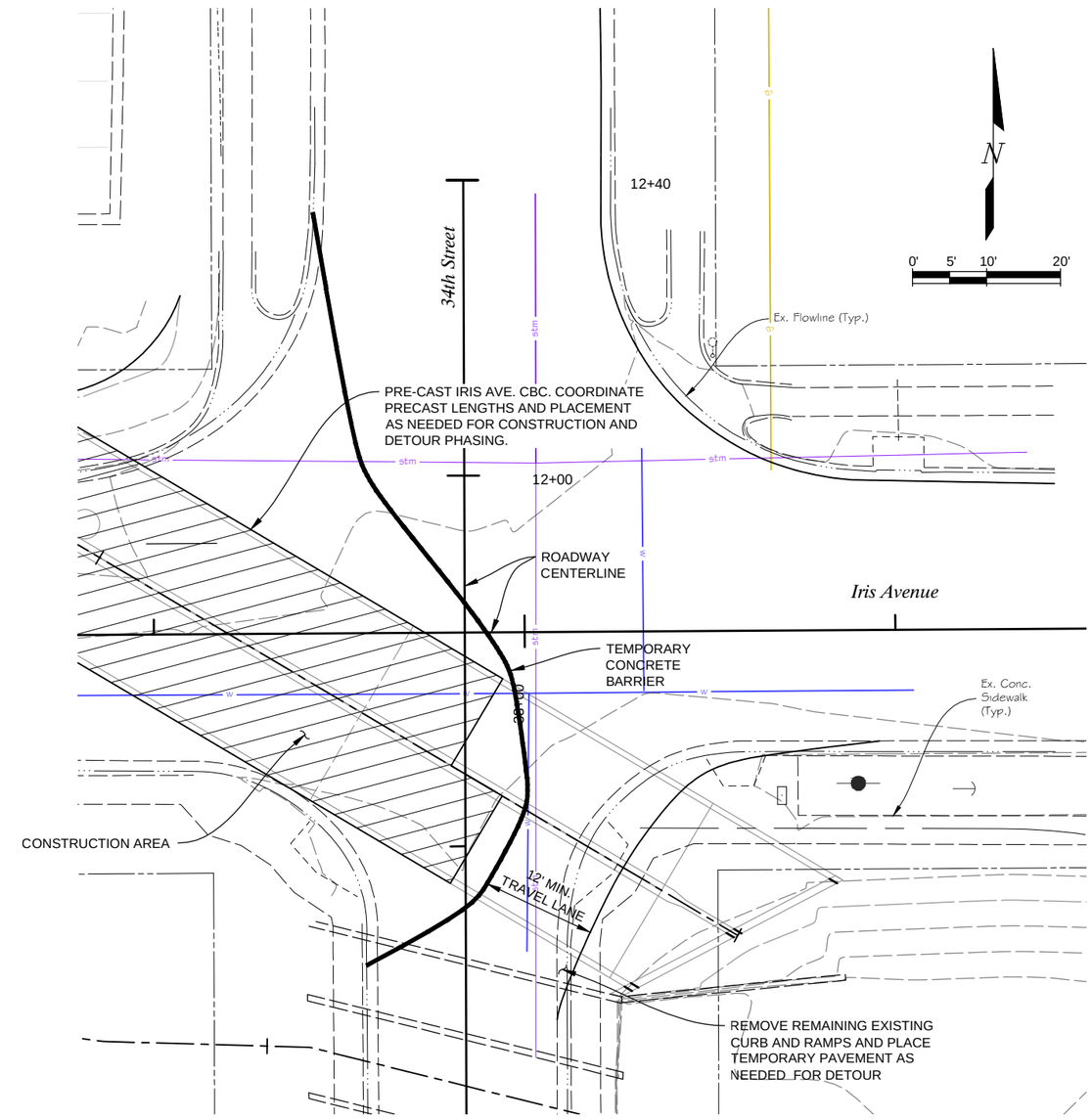

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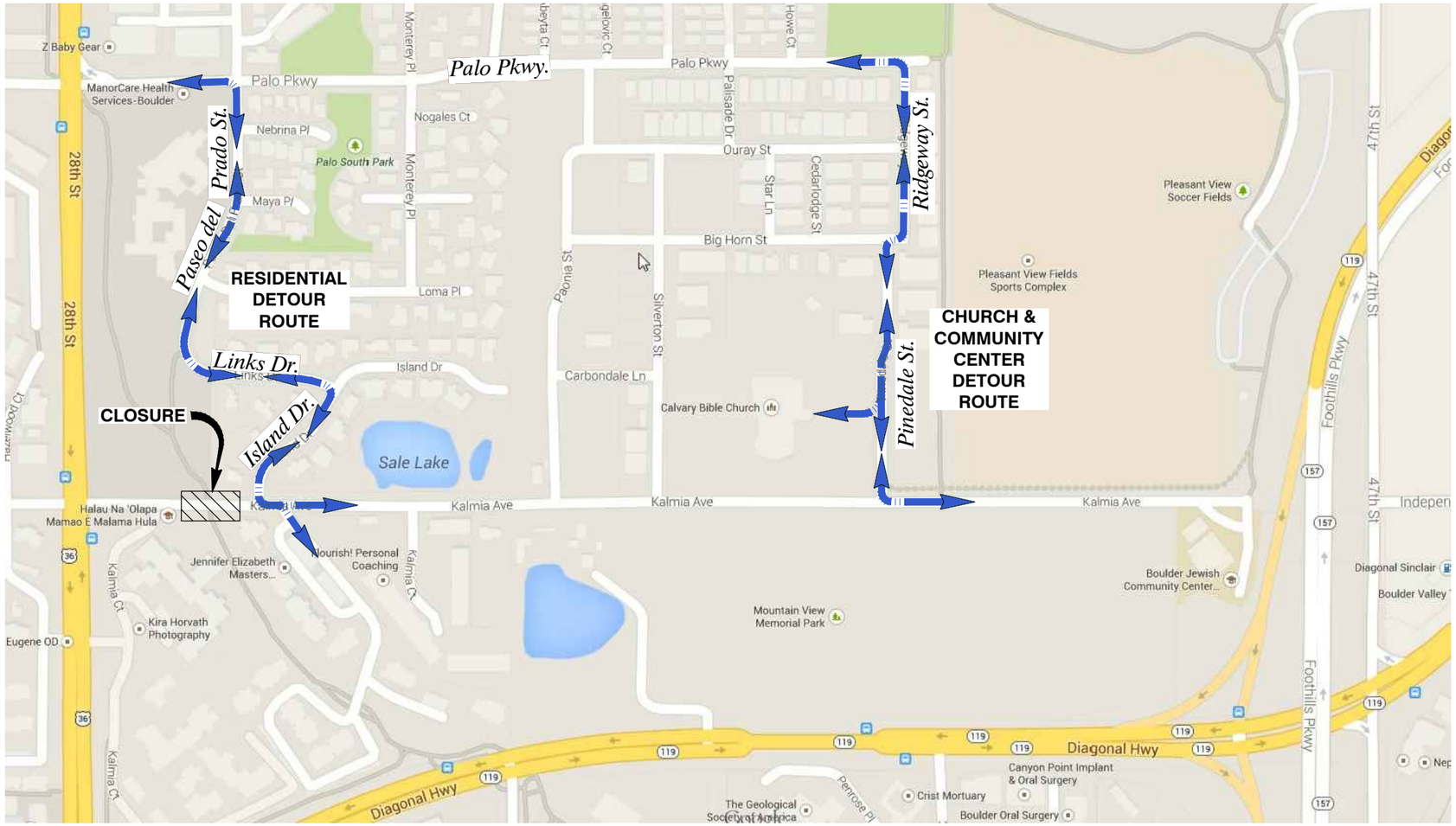
WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT

IRIS AVE. INTERSECTION PHASING DETAIL

Designer:	JDH	Structure Numbers	
Detailer:	NJM		
Sheet Subset:	ROADWAY	Subset Sheets:	R-19

Project No./Code
STM 110-081
18405
Sheet Number: 308



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Last Modification Date: 06/18/15	Initials: JHK	MULLER	CONSULTING ENGINEERS 777 S. WADSWORTH BLVD. 4-100 LAKEWOOD, COLORADO 80226 (303) 988-4939		Date:	Comments	Init.	No Revisions:			KALMIA AVE. TRAFFIC DETOUR PLAN		STM 110-081
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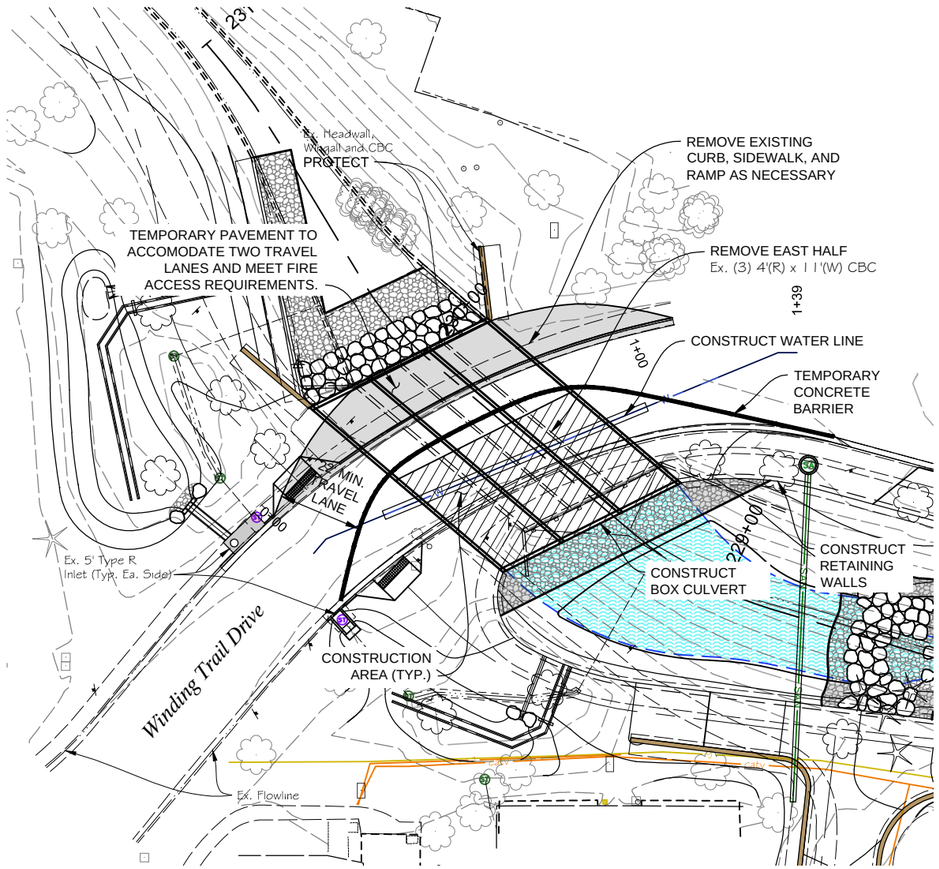

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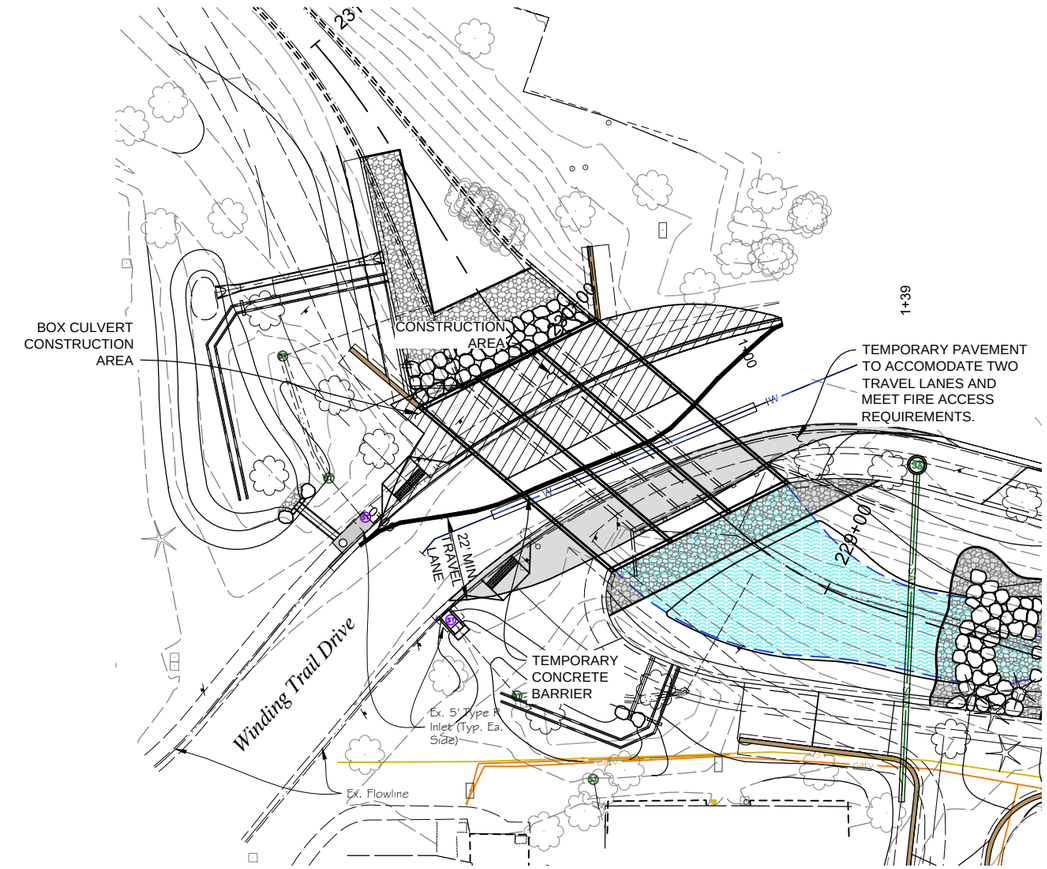

PHASE 2

N

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WINDING TRAIL DRIVE
CONSTRUCTION TRAFFIC PHASING

Designer:	JDH	Structure Numbers	
Detailer:	NJM		
Sheet Subset:	ROADWAY	Subset Sheets:	R-21

Project No./Code

STM 110-081

18405

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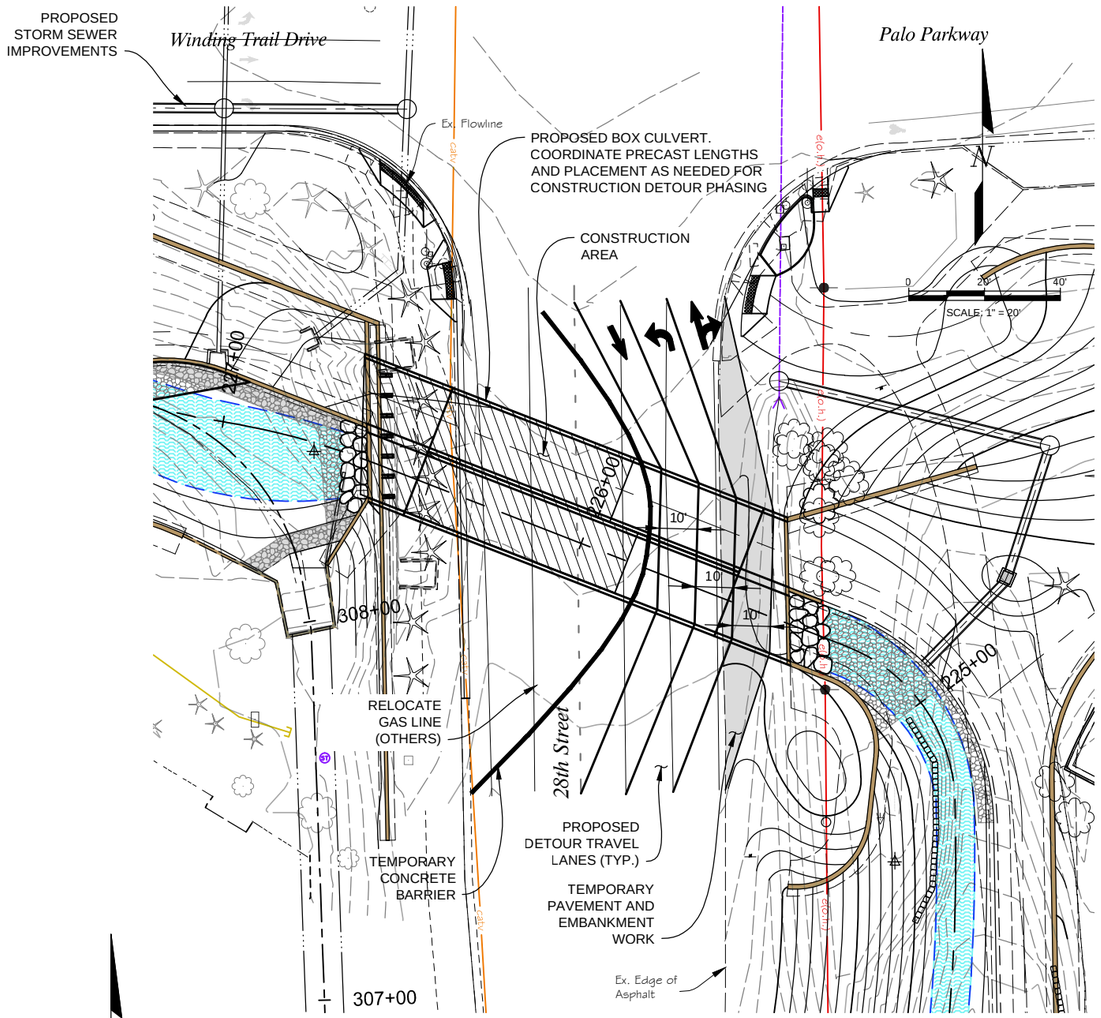

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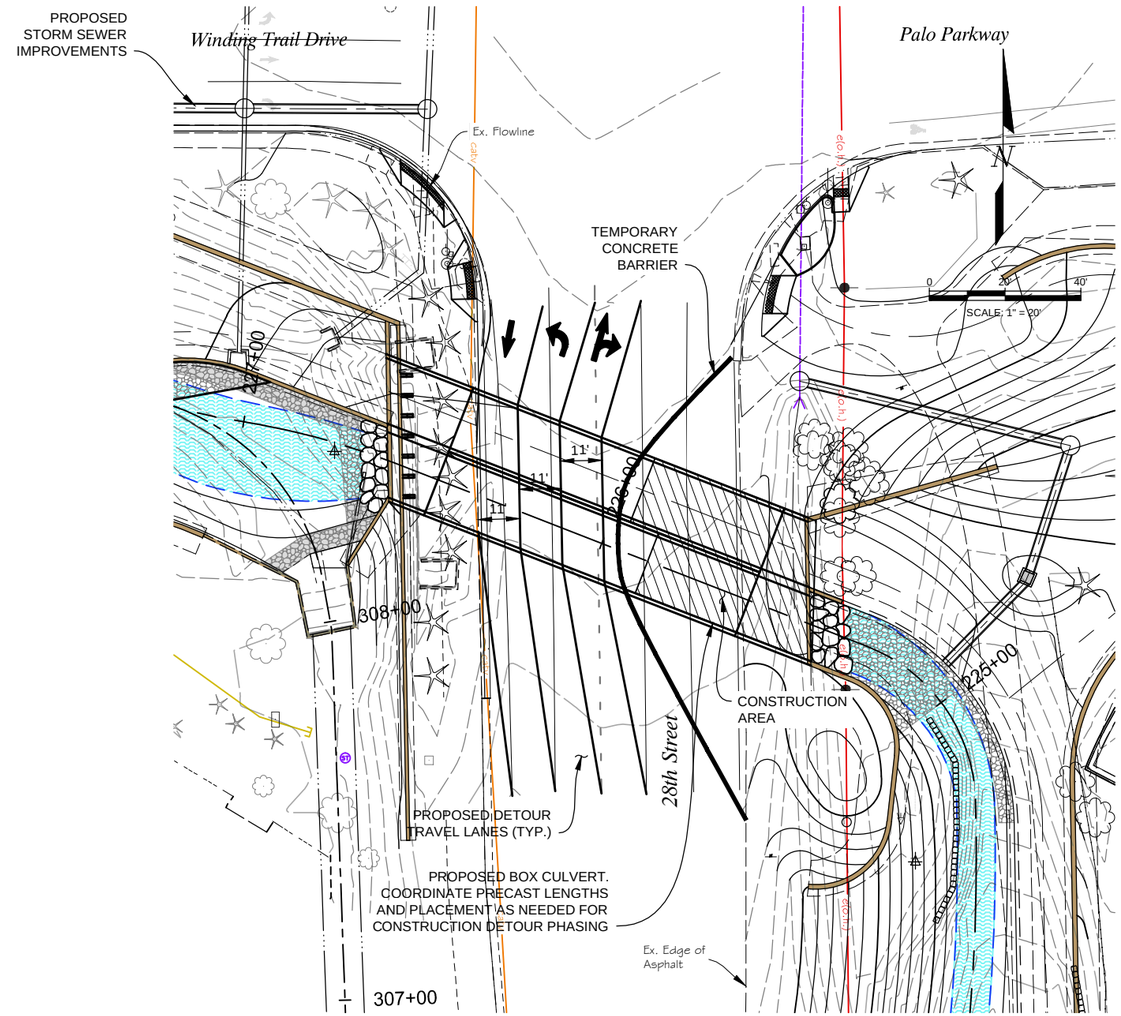

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WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
28TH STREET CONSTRUCTION
TRAFFIC PHASING

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Sheet Subset:	ROADWAY	Subset Sheets:	R-22

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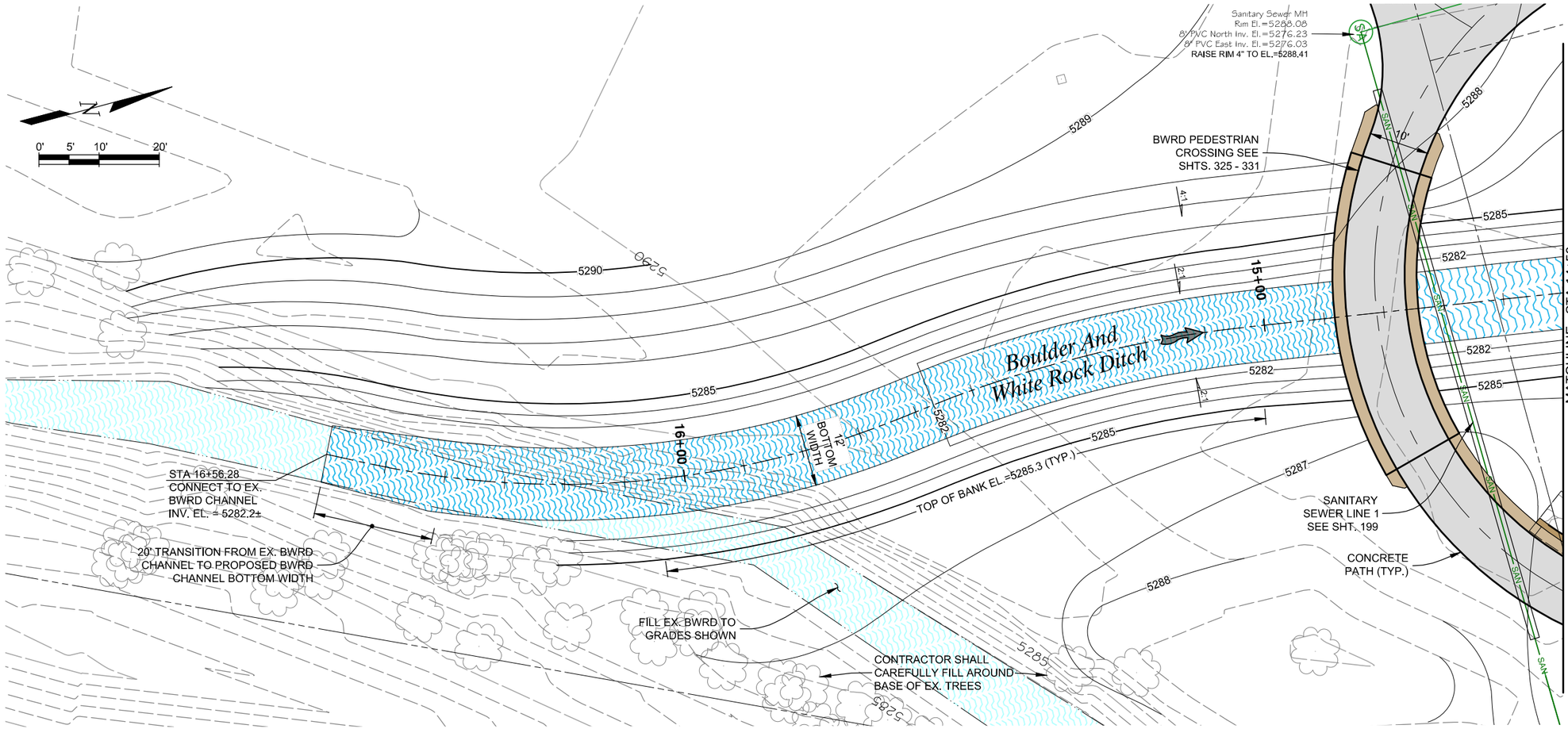
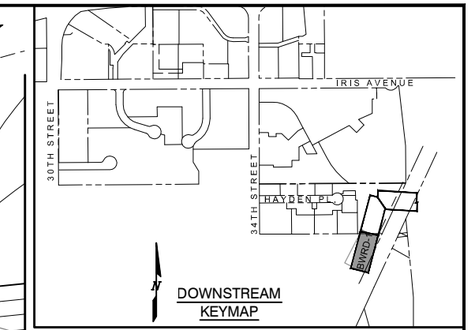
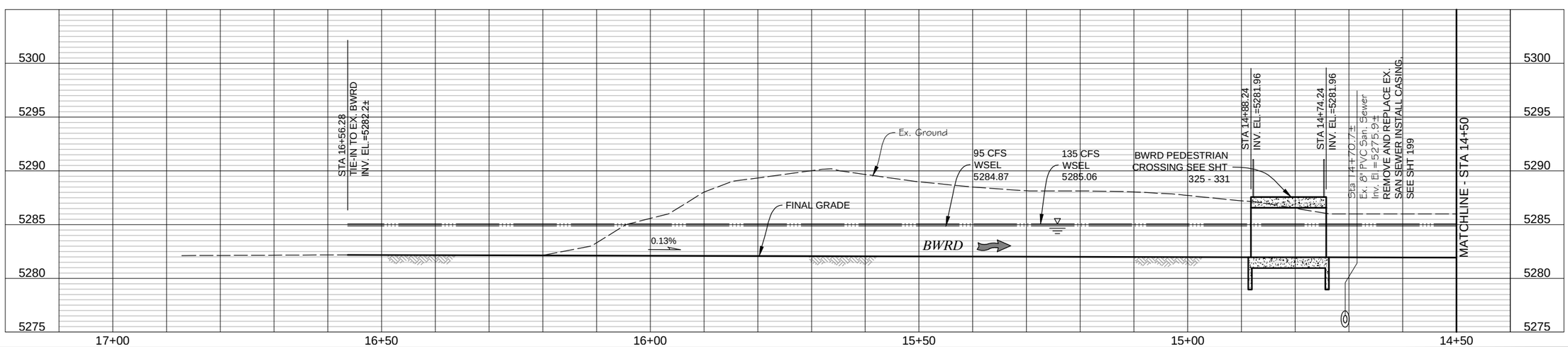




NOTES:

1. THE MAXIMUM DECREED DITCH FLOW IS 135 CFS.
2. THE TYPICAL DITCH OPERATING FLOW IS 95 CFS.



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WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT

BWRD PLAN & PROFILE

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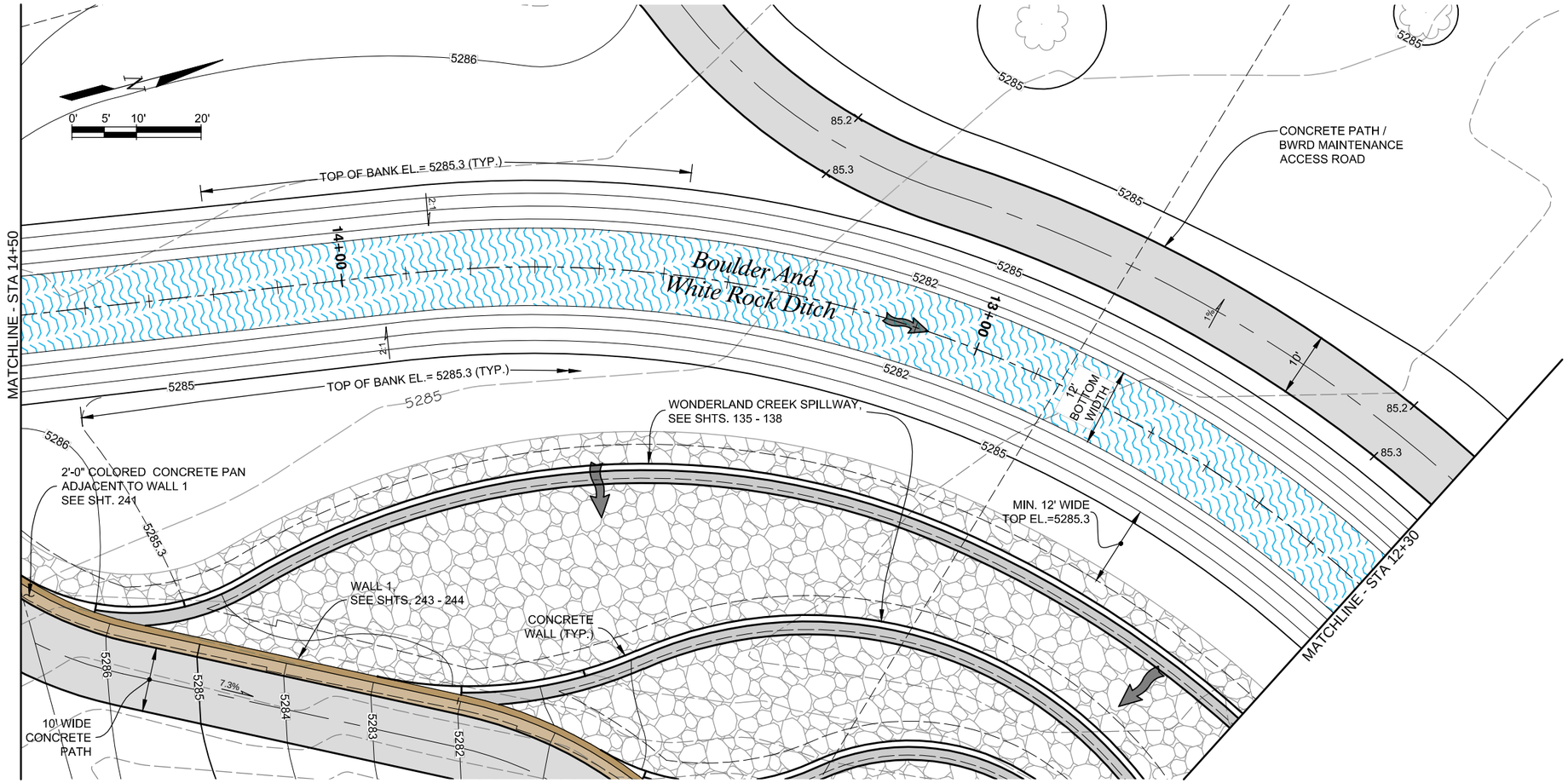

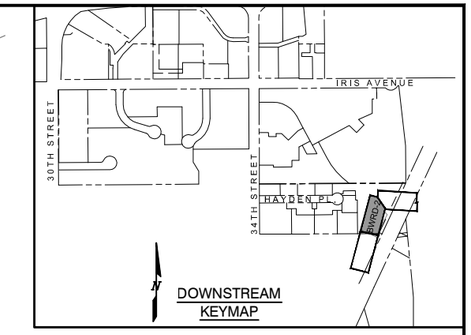

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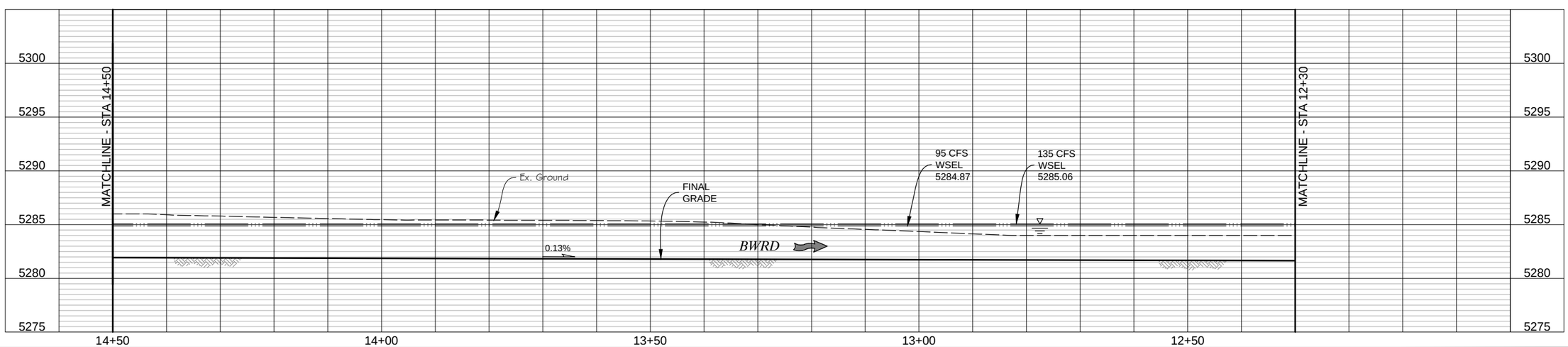

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777 S. WADSWORTH BLVD. 4-100
LAKEWOOD, COLORADO 80226
(303) 988-4939
MULLER
MEC PROJECT NO. 11039.03

COLORADO REGISTERED PROFESSIONAL ENGINEER CHRISTOPHER L. KRAMER 37254 6/18/15

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Date:	Comments	Init.

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Region 4 RDM
CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
BWRD PLAN & PROFILE

Designer:	CLK	Structure Numbers	
Detailer:	JHK		
Sheet Subset:	BWRD	Subset Sheets:	BWRD-2

Project No./Code
STM 110-081
18405
Sheet Number: 313

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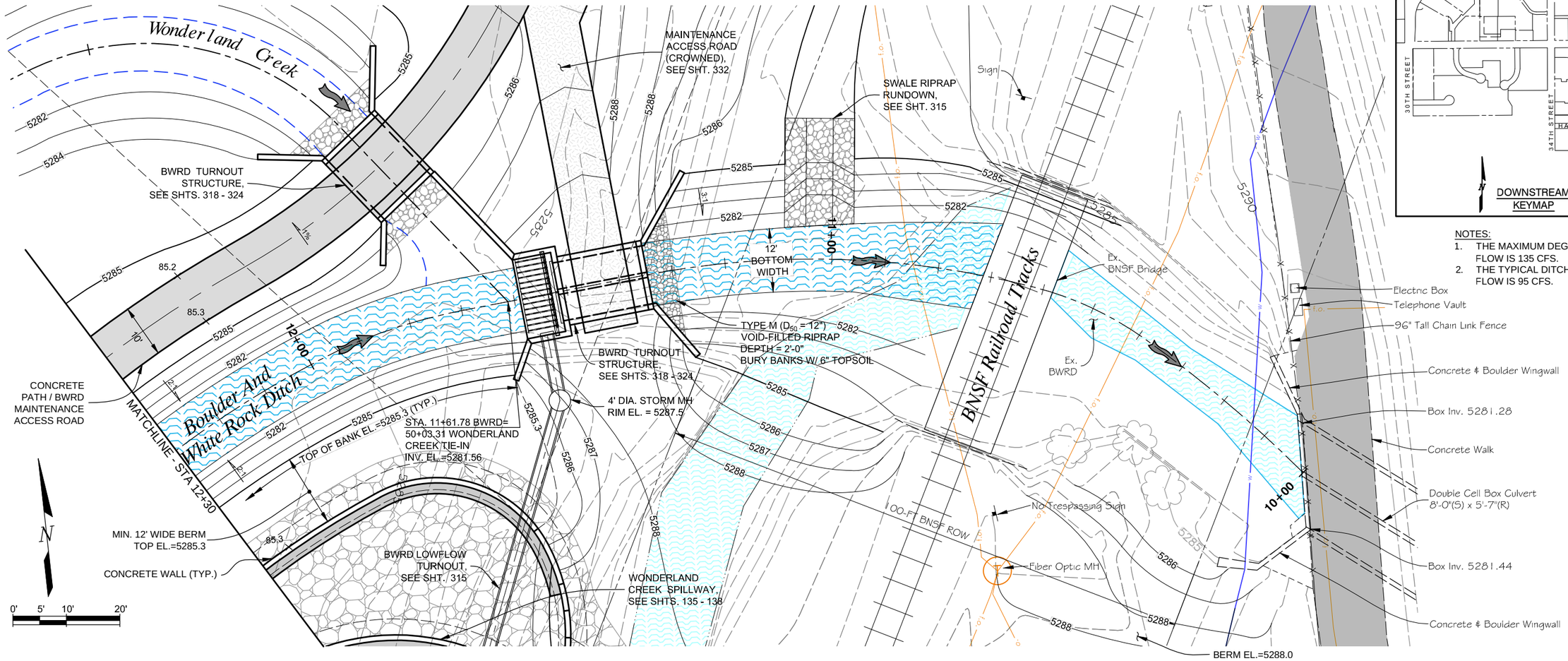
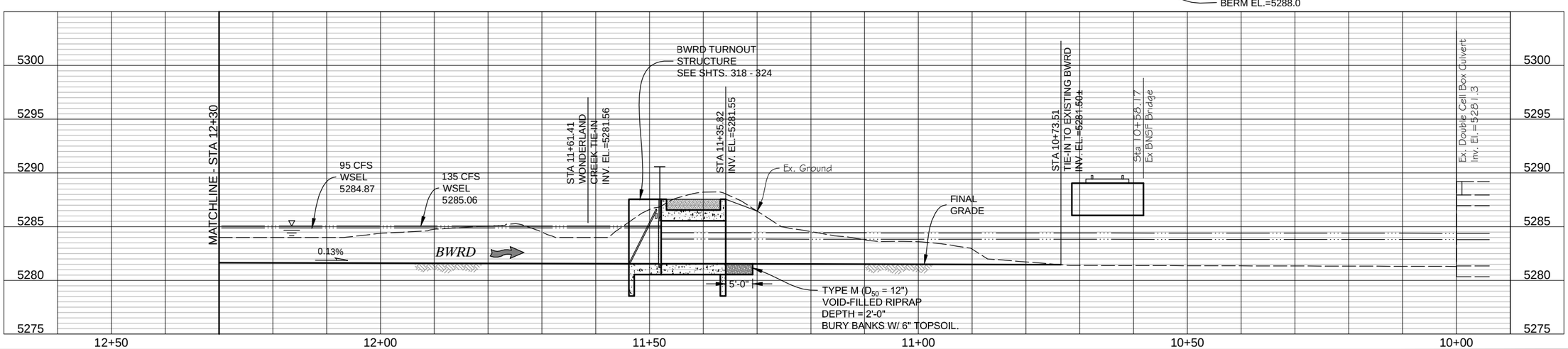


NOTES:
1. THE MAXIMUM DEGREED DITCH FLOW IS 135 CFS.
2. THE TYPICAL DITCH OPERATING FLOW IS 95 CFS.



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WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
BWRD PLAN & PROFILE

Designer:	CLK	Structure Numbers	
Detailer:	JHK		
Sheet Subset:	BWRD	Subset Sheets:	BWRD-3

Project No./Code
STM 110-081
18405
Sheet Number: 314

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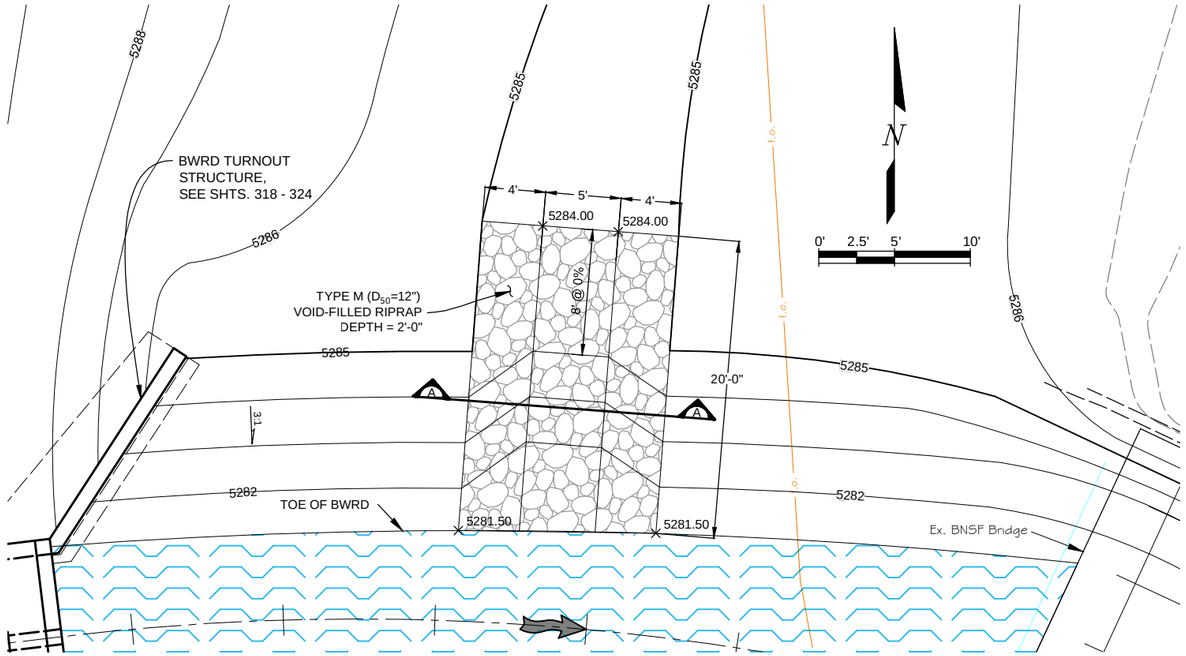
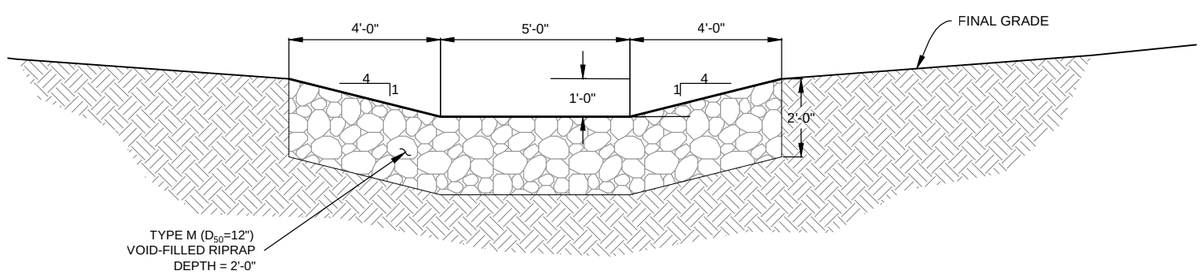
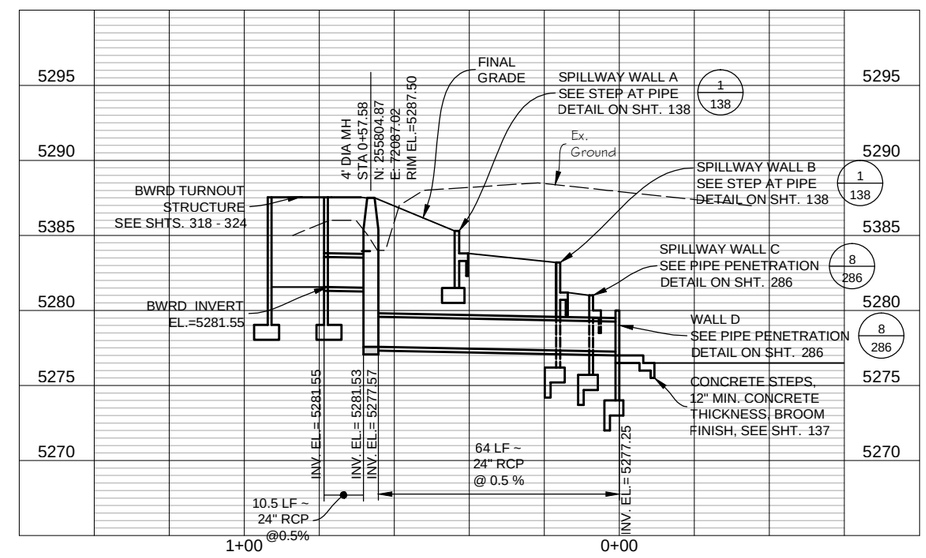


SWALE RIPRAP RUNDOWN PLAN



SWALE RUNDOWN SECTION DETAIL A

0' 1' 2' 4'



BWRD LOWFLOW TURNOUT PROFILE

SCALE: HORIZ. 1" = 40'
VERT. 1" = 10'

PLOTTED: 6/19/2015 12:14:17 PM
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COLORADO REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER L. KRIEGER
37254
6/18/15

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Date:	Comments	Init.
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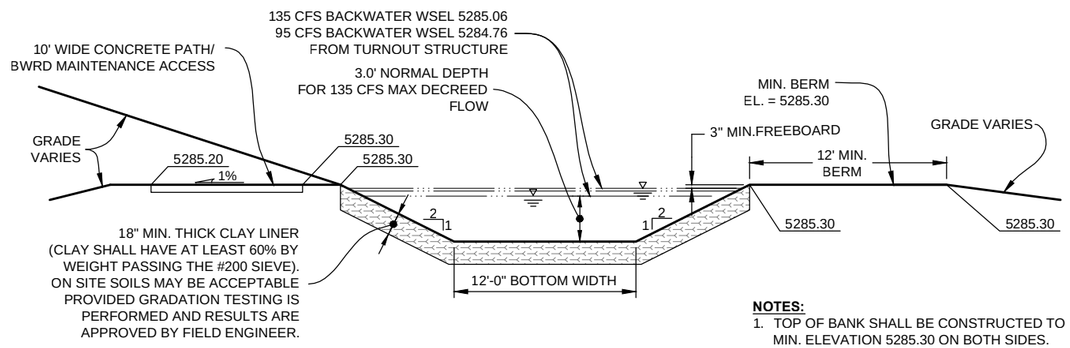
URBAN DRAINAGE AND FLOOD CONTROL DISTRICT
CDOT CO Region 4 RDM
CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
BWRD DETAILS

Designer:	JW3	Structure Numbers	
Detailer:	JHK		
Sheet Subset:	BWRD	Subset Sheets:	BWRD-4

Project No./Code
STM 110-081
18405
Sheet Number: 315



NOTES:

1. TOP OF BANK SHALL BE CONSTRUCTED TO MIN. ELEVATION 5285.30 ON BOTH SIDES.

BWRD TYPICAL DITCH SECTION
(LOOKING NORTH)
SCALE: 1" = 5'-0"

0' 5' 10'

PLOTTED: 6/19/2015 12:14:27 PM
NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH -FINAL DESIGN\CAD\11-039.03_BWRD RUNDOWN DETAILS.DWG

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Full Path: P:\11-039.03\CAD		
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MEC PROJECT NO. 11039.03

COLORADO REGISTERED PROFESSIONAL ENGINEER CHRISTOPHER L. KREBS 37254 6/18/15

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CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT

BWRD DETAILS

Designer:	JW3	Structure Numbers	
Detailer:	JHK		
Sheet Subset:	BWRD	Subset Sheets:	BWRD-5

Project No./Code
STM 110-081
18405
Sheet Number: 316

STRUCTURE GENERAL NOTES

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2011 EDITION, AS APPLICABLE TO THE PROJECT.
2. STRUCTURE EXCAVATION AND BACKFILL SHALL BE IN ACCORDANCE WITH CDOT STANDARD PLANS, M&S STANDARDS M-206-1, UNLESS OTHERWISE NOTED ON PLANS.
3. STRUCTURE BACKFILL FOR THE BOX CULVERT AND WINGWALLS SHALL CONFORM TO STRUCTURE BACKFILL (CLASS 1) SPECIFICATIONS, AND SHALL BE PLACED IN ACCORDANCE WITH CDOT SPECIFICATIONS, SECTION 206.
4. THE SOILS AND FOUNDATION INVESTIGATION FOR THE CONCRETE BOX CULVERT AND WINGWALLS WAS PERFORMED BY CTL THOMPSON, INC. THE SUB SURFACE CONDITIONS AND RECOMMENDATIONS FOR THE STRUCTURE ARE CONTAINED IN A REPORT DATED JULY 3, 2013, PROJ NO. DN46,599-125. REFER TO THE PROJECT SPECIFICATIONS FOR COPIES OF THESE REPORTS.
5. THE BOTTOM SLAB OF THE BOX CULVERT, AND THE WINGWALL FOOTINGS SHALL NOT BE PLACED UNTIL SUBGRADE IS OBSERVED AND APPROVED IN WRITING BY THE ENGINEER.
6. EXPANSION JOINT MATERIAL SHALL MEET AASHTO SPECIFICATION M-213.
7. THE COST FOR EXPANSION JOINT MATERIAL SHALL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE WORK.
8. WATER STOPS SHALL MEET THE REQUIREMENTS OF CDOT SPECIFICATIONS, SECTION 518.
9. STRUCTURAL CONCRETE EXPOSED TO SOIL SHALL CONFORM TO CEMENTITIOUS MATERIALS REQUIREMENTS CLASS 0 CORRESPONDING TO SULFATE EXPOSURE CLASS 0.
10. ALL CONCRETE SHALL BE CLASS D (BOX CULVERT)
11. ALL CONSTRUCTION JOINTS SHALL BE THOROUGHLY CLEANED AND ROUGHENED BEFORE FRESH CONCRETE IS PLACED.
12. ALL CONSTRUCTION JOINTS NOT SHOWN ON THE PLANS SHALL BE APPROVED BY THE ENGINEER.
13. WINGWALL FOOTINGS AND BOTTOM SLAB OF BOX CULVERT SHALL BE PLACED MONOLITHICALLY.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STABILITY OF THE STRUCTURE DURING CONSTRUCTION.
15. THE CONTRACTOR SHALL NOT BACKFILL STRUCTURES UNTIL TOP SLAB AND WALLS HAVE REACHED 80% OF DESIGN STRENGTH.
16. ALL EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED 3/4", UNLESS SHOWN OR OTHERWISE NOTED.
17. GRADE 60 REINFORCING STEEL IS REQUIRED.
18. ALL REINFORCING STEEL SHALL BE BLACK REINFORCING BARS UNLESS OTHERWISE NOTED.
19. THE FOLLOWING TABLE GIVES THE MINIMUM CLASS B LAP SPLICE LENGTH FOR BLACK (NON-EPOXY COATED) REINFORCING BARS PLACED IN ACCORDANCE WITH SUBSECTION 602.06, THESE SPLICE LENGTH SHALL INCREASE BY 25% FOR BARS SPACED LESS THAN 6" ON CENTER.

BAR SIZE:	#4	#5	#6	#7	#8	#9	#10	#11
SPLICE LENGTH FOR CLASS D CONCRETE:	1'-0"	1'-4"	1'-7"	1'-11"	2'-6"	3'-1"	3'-11"	4'-10"

20. ALL REINFORCEMENT SHALL HAVE A CLEAR COVERAGE OF 2", EXCEPT AS SHOWN ON THE PLANS. CLEAR COVERAGE SHALL BE MEASURED FROM THE SURFACE OF THE CONCRETE TO THE OUTSIDE OF THE REINFORCEMENT.
21. THE STOCK LENGTH USED FOR ALL REINFORCING IS 60 FEET.
22. ALL TRANSVERSE REINFORCING SHAIL BE NORMAL TO THE CENTERLINE OF THE BOX.
23. FILTER MATERIAL AND CLOTH FOR WINGWALL DRAIN HOLES SHALL BE INCLUDED IN WORK.
24. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STABILITY OF THE STRUCTURE DURING CONSTRUCTION.
25. ALL DIMENSIONS ARE PERPENDICULAR TO THE CENTERLINE OF THE BOX.
26. STATIONS, ELEVATIONS, AND DIMENSIONS CONTAINED IN THESE PLANS ARE CALCULATED FROM A RECENT FIELD SURVEY. THE CONTRACTOR SHALL VERIFY ALL DEPENDENT DIMENSIONS IN THE FIELD BEFORE ORDERING OR FABRICATING ANY MATERIAL
27. THE INFORMATION SHOWN ON THESE PLANS CONCERNING-THE TYPE AND LOCATION OF UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATION AS TO THE TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. THE CONTRACTOR SHALL CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO AT 1-800-922-1987 AT LEAST 2 DAYS (NOT INCLUDING THE DAY OF NOTIFICATION) PRIOR TO ANY EXCAVATION OR OTHER EARTHWORK.
28. A STRUCTURAL CONCRETE COATING SHALL BE APPLIED TO ALL GRAY CONCRETE (NO INTEGRAL COLOR) EXPOSED SURFACES TO 1'-0" BELOW FINAL GRADE UNLESS OTHERWISE NOTED. THE COLOR SHALL BE EQUIVALENT TO FEDERAL STANDARD 595B, COLOR NO. 33522 (LIGHT TAN). TEST PANELS SHALL BE SUBMITTED IN ACCORDANCE WITH CDOT STANDARD SPECIFICATION 601.14(B) 4.

DESIGN DATA

AASHTO LRFD 6TH EDITION, 2012

DESIGN METHOD: LOAD AND RESISTANCE FACTOR DESIGN

LOADING DATA (CONCRETE BOX CULVERT):

LIVE LOAD = AASHTO LRFD, HL-93 TRUCK, HL-93 TANDEM, AND COLORADO PERMIT TRUCK

DEAD LOAD CASE 1: VERTICAL EARTH LOAD = 120 PCF
HORIZONTAL EARTH LOAD = 30 PCF

DEAD LOAD CASE 2: VERTICAL EARTH LOAD = 120 PCF
HORIZONTAL EARTH LOAD = 60 PCF

LIVE LOAD SURCHARGE ON EXTERIOR WALLS = 2'-0" OF EARTH

DESIGN LOADING (WINGWALLS):

MAXIMUM TOE PRESSURE = 3000 psf

UNIT SOIL WEIGHT = 135 PCF

ACTIVE LATERAL EARTH PRESSURE = 35 pcf

COEFFICIENT OF SLIDING FRICTION = 0.50

REINFORCED CONCRETE:

CLASS D CONCRETE: f' c = 4,500 psi

REINFORCING STEEL: f y = 60,000 psi

Know what's **below**
Call before you dig.

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AutoCAD 2014	Scale: AS SHOWN

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REGISTERED PROFESSIONAL ENGINEER 32038 6-18-15

Sheet Revisions		
Date:	Comments	Init.

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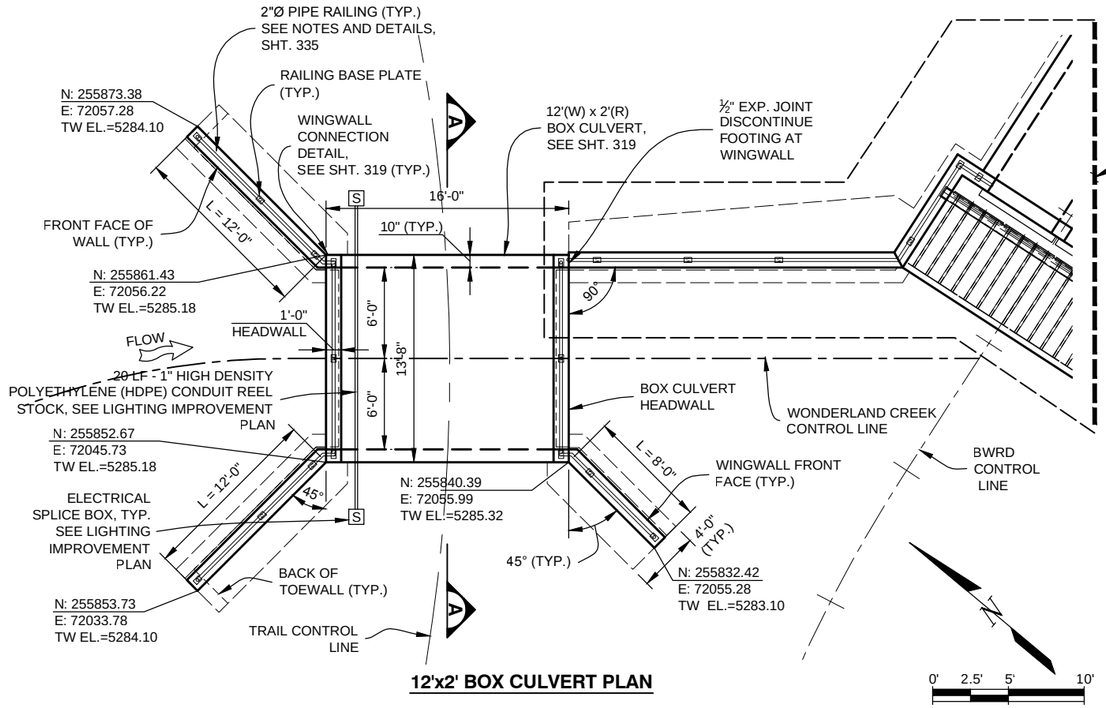
CITY OF BOULDER

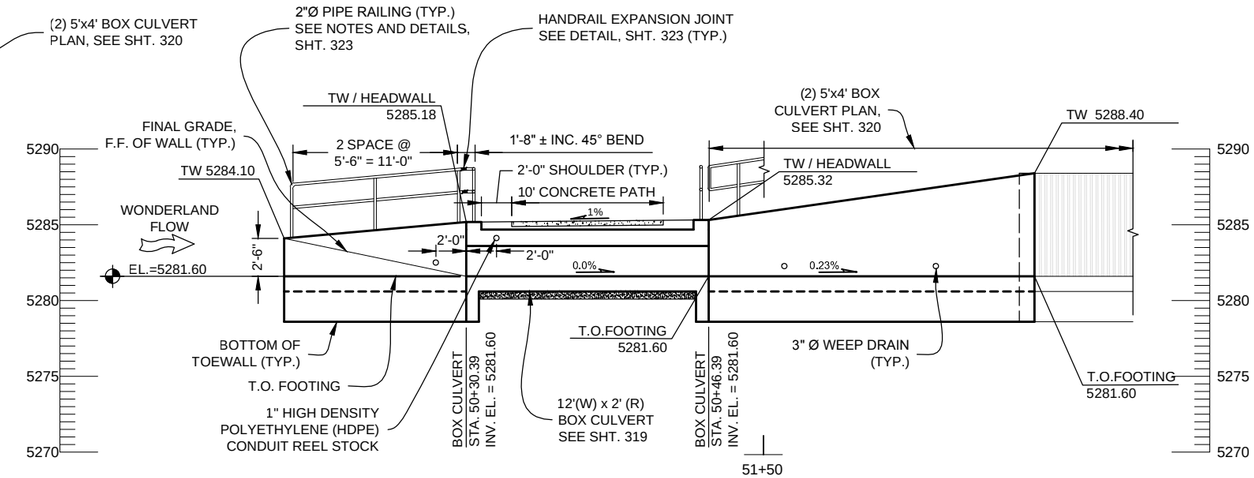
WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
BWRD TURNOUT STRUCTURE
GENERAL INFORMATION

Designer:	KMA	Structure Numbers	
Detailer:	JHK		
Sheet Subset:	BWRD	Subset Sheets:	BWRD-6

Project No./Code
STM 110-081
18405
Sheet Number: 317



12'x2' BOX CULVERT PLAN



PROFILE SECTION
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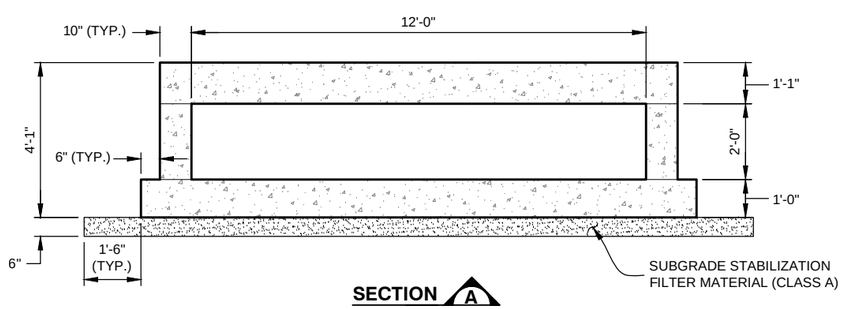
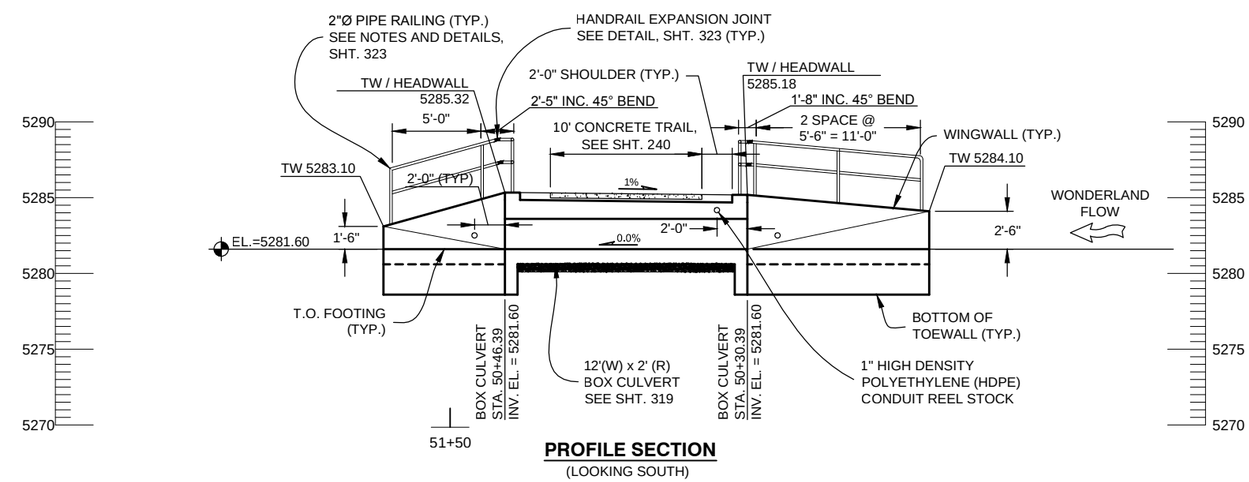


SECTION A



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Last Modification Date: 06/18/15	Initials: JHK			Date:	Comments	Init.	No Revisions:		BWRD TURNOUT STRUCTURE DETAILS		STM 110-081
Full Path: P:\11-039.03\CAD							Revised:	Region 4 RDM	Designer: ASP	Structure Numbers	18405
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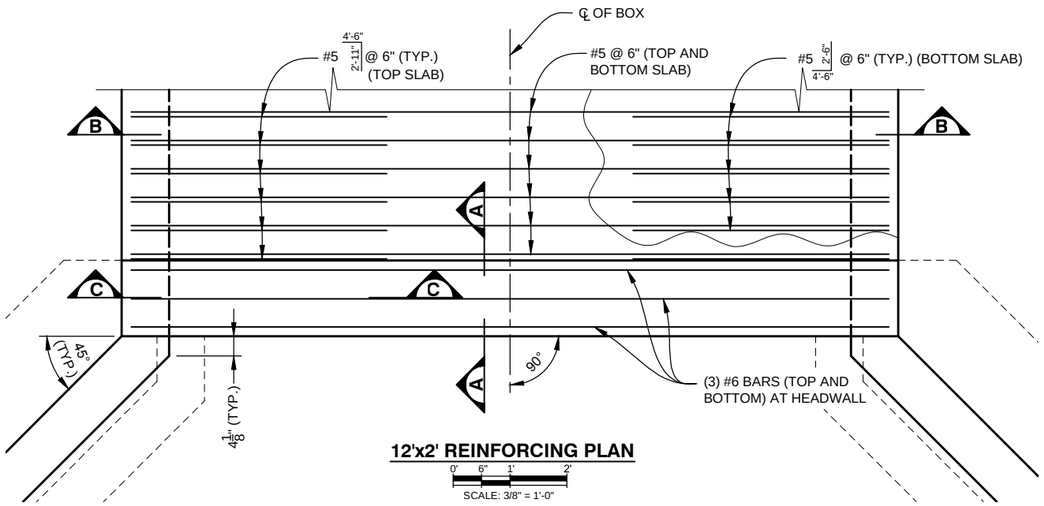
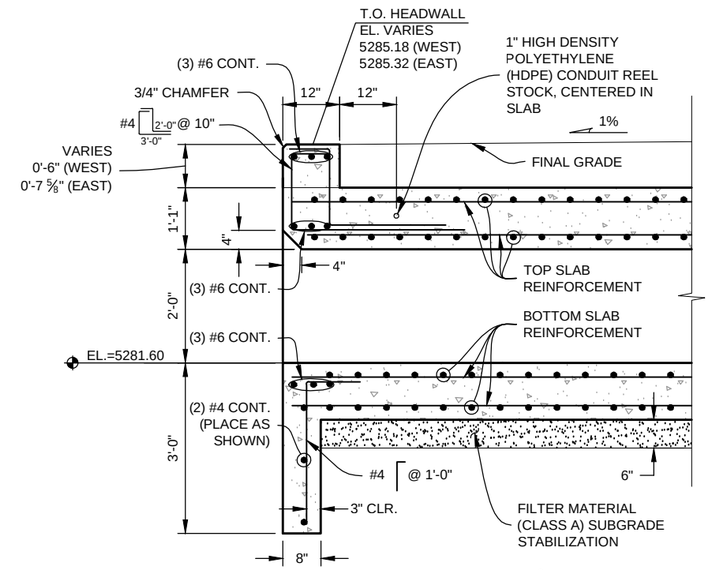


12'x2' REINFORCING PLAN

0' 6" 1' 2'
SCALE: 3/8" = 1'-0"



SECTION A

0' 6" 1' 2'
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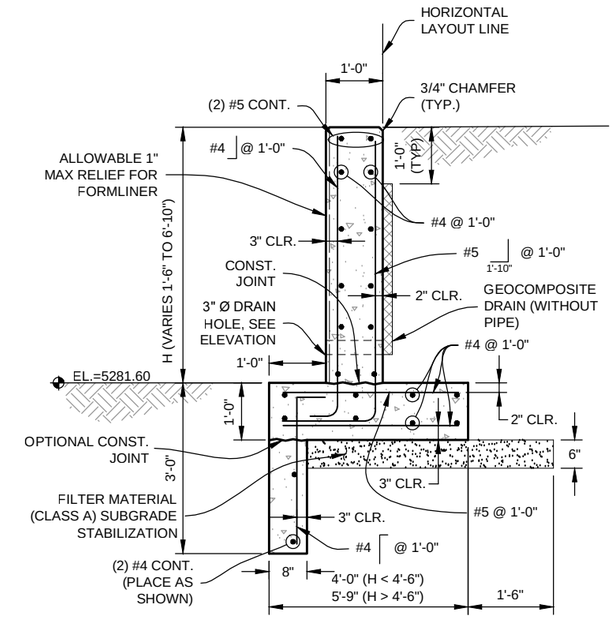
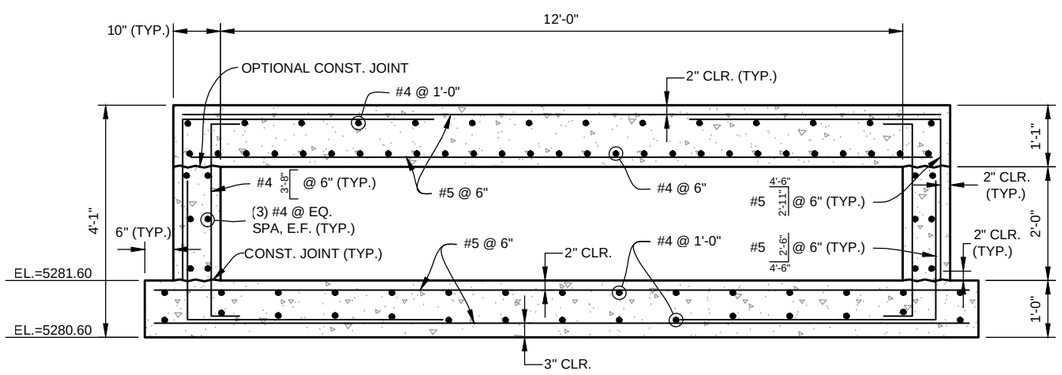


WINGWALL TYPICAL SECTION

12'x2' BOX CULVERT & (2) 5'x4' BOX CULVERT

0' 6" 1' 2'
SCALE: 3/8" = 1'-0"



SECTION B

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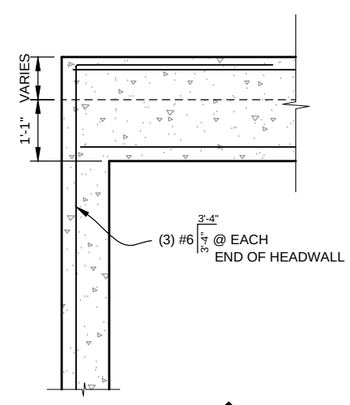

SECTION C

0' 6" 1' 2'
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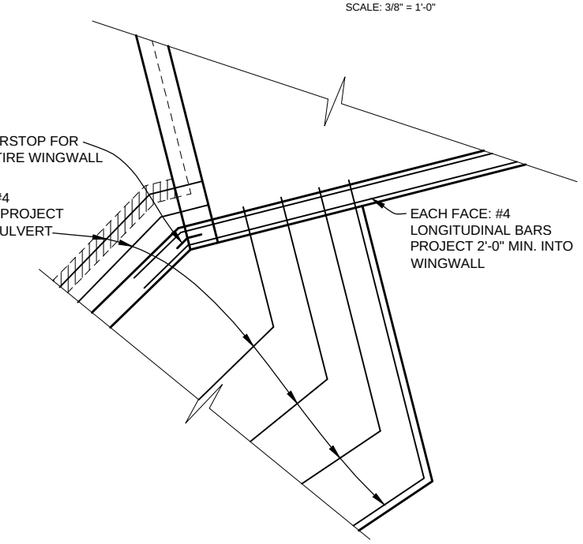

12'x2' WINGWALL CONNECTION DETAIL

(NW, SW, SE WINGWALLS, 3 LOCATIONS TOTAL)
N.T.S.

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MEC PROJECT NO. 11039.03

COLORADO REGISTERED 32038 PROFESSIONAL ENGINEER 6-18-15

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Region 4 RDM
CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
BWRD TURNOUT STRUCTURE DETAILS

Designer:	ASP	Structure Numbers	
Detailer:	JHK		
Sheet Subset:	BWRD	Subset Sheets:	BWRD-8

Project No./Code
STM 110-081
18405
Sheet Number: 319

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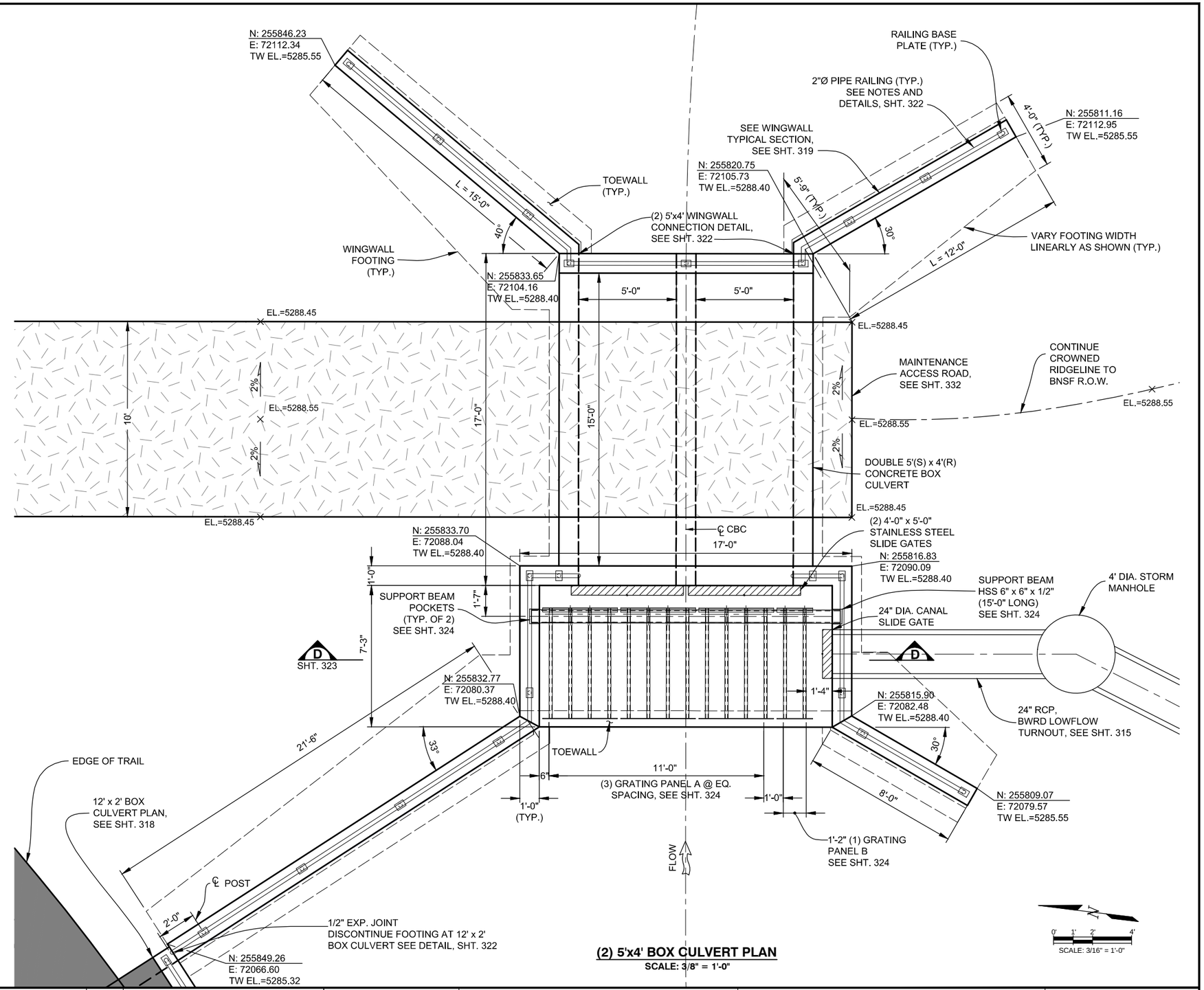
NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH -FINAL DESIGN\CAD\11-039.03_STR TALISMAN CROSSING DET.DWG

STAINLESS STEEL RECTANGULAR SLIDE GATE NOTES:

1. SLIDE GATE FRAME, SLIDE PLATE, REINFORCEMENTS, AND FASTENERS SHALL BE STAINLESS STEEL, ASTM A 276, TYPE 304.
2. GATES SHALL BE SELF CONTAINED AND WALL MOUNTED PER THE MANUFACTURER'S REQUIREMENTS. A 1 INCH SPACE BETWEEN THE SEAT AND CONCRETE SHALL BE GROUTED AFTER GATE HAS BEEN MOUNTED ON THE ANCHOR BOLTS. TOP OF GATE FRAME SHALL EXTEND 42" ABOVE THE TOP OF HEADWALL, AS SHOWN. FRAME SHALL ACT AS SAFETY RAILING.
3. BOTTOM OF GATE SHALL BE FLUSH MOUNTED WITH A BLOCKOUT PER THE MANUFACTURER'S REQUIREMENTS.
4. GATES SHALL BE PRESSURE RATED FOR 10 FEET OF SEATED / UNSEATED HEAD.
5. OPERATOR SHALL BE A GEARED HAND CRANKED LIFT ASSEMBLY.
6. SLIDE GATES SHALL CONFORM TO THE REQUIREMENTS OF SECTION 615.

CIRCULAR CANAL SLIDE GATE NOTES:

1. GATE CONSTRUCTION SHALL BE GREY IRON COVER WITH STAINLESS STEEL STRUCTURAL FRAME AND BOLTS, STAINLESS STEEL STEMS AND EPOXY COATINGS .
2. FRAME SHALL BE SELF-CONTAINED AND FLATBACK FOR HEADWALL MOUNTING PER THE MANUFACTURER'S REQUIREMENTS. THE TOP OF THE STRUCTURAL FRAME SHALL BE 42" ABOVE THE TOP OF HEADWALL. A 1 INCH SPACE BETWEEN THE SEAT AND CONCRETE SHALL BE GROUTED AFTER GATE HAS BEEN MOUNTED ON THE ANCHOR BOLTS.
3. BOTTOM OF GATE SHALL BE FLUSH MOUNTED WITH A BLOCKOUT PER THE MANUFACTURER'S REQUIREMENTS.
4. GATES SHALL BE PRESSURE RATED FOR 20 FEET SEATING HEAD AND 10 FEET UNSEATED HEAD.
5. GATE SHALL BE OPERATED BY A CAST IRON (COATED) TURN WHEEL AND HEAVY CAST-BRONZE LIFT NUT.
6. SLIDE GATES SHALL CONFORM TO THE REQUIREMENTS OF SECTION 615.



(2) 5'x4' BOX CULVERT PLAN
SCALE: 3/8" = 1'-0"

Computer File Information			
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Last Modification Date: 06/18/15	Initials: JHK		
Full Path: P:\11-039.03\CAD			
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COLORADO REGISTERED PROFESSIONAL ENGINEER 32038 6-18-15

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CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT

BWRD TURNOUT STRUCTURE DETAILS

Designer:	KMA/ASP	Structure Numbers	
Detailer:	JHK		
Sheet Subset:	BWRD	Subset Sheets:	BWRD-9

Project No./Code
STM 110-081
18405
Sheet Number: 320

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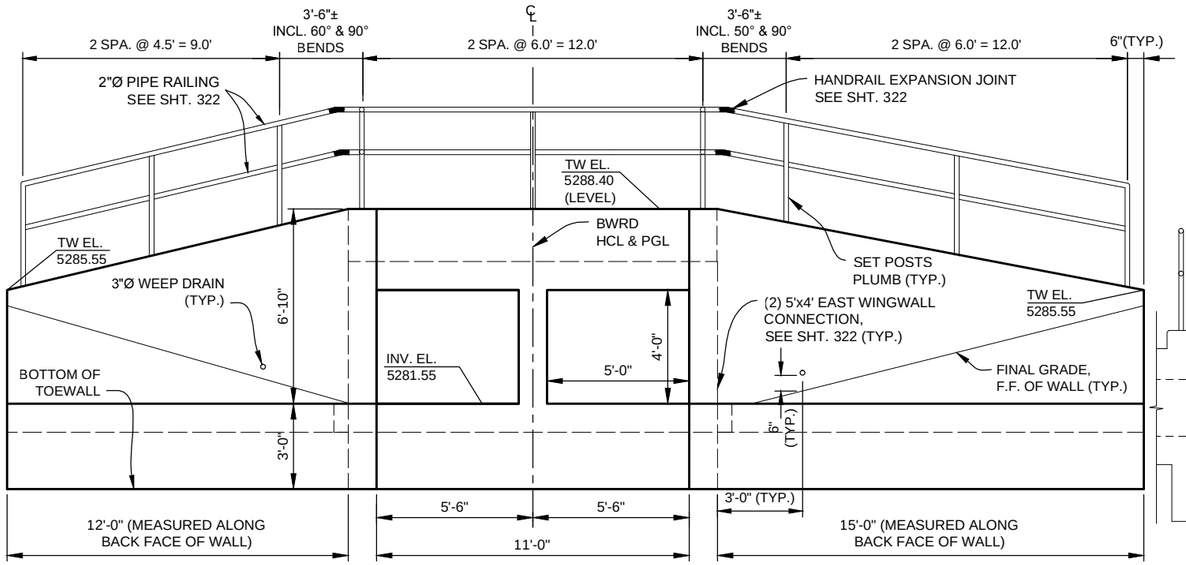
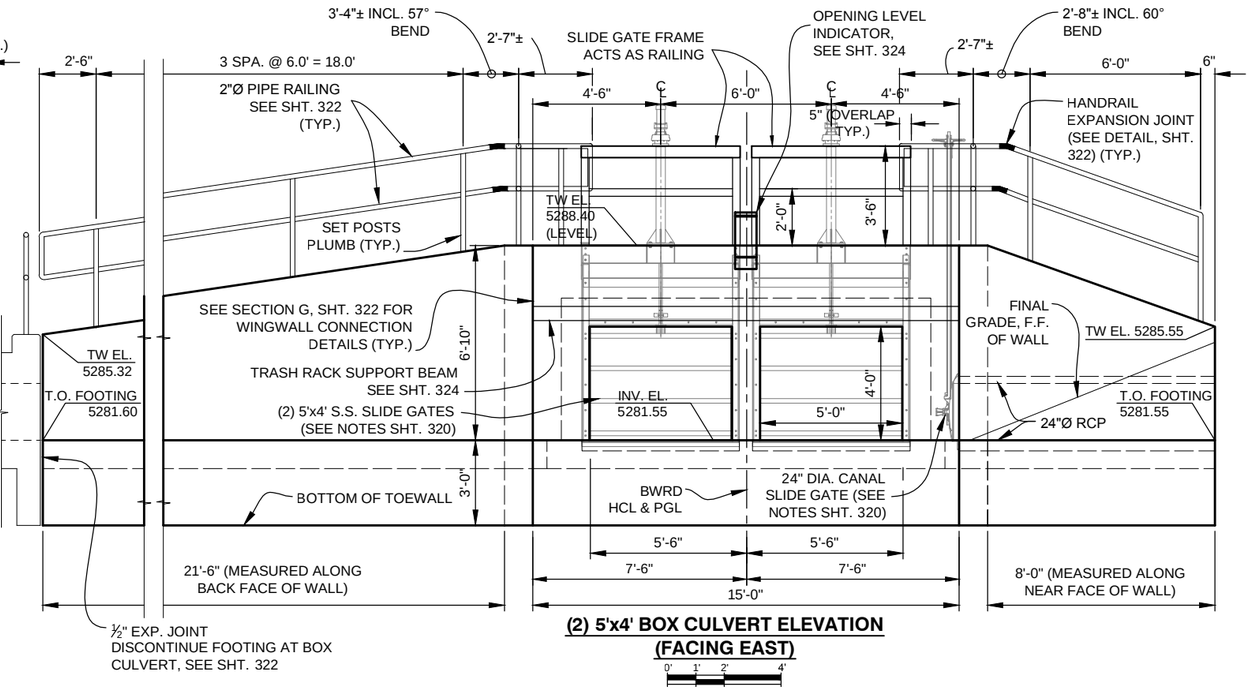


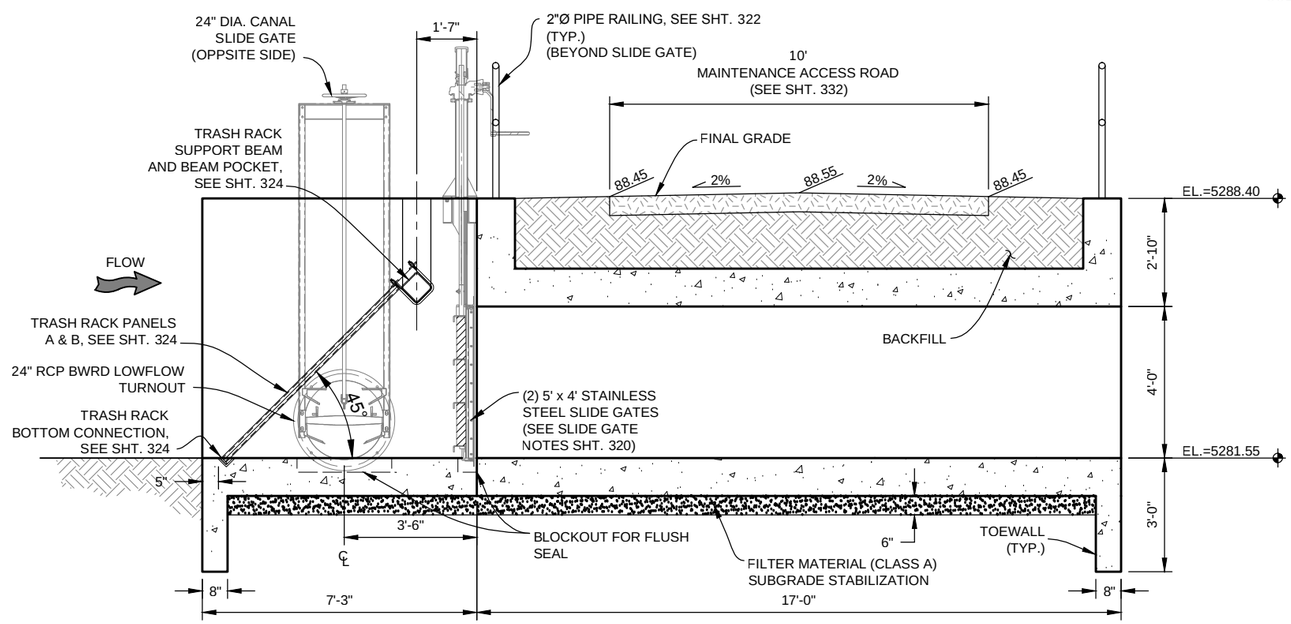
(2) 5'x4' BOX CULVERT ELEVATION (FACING WEST)

0' 1' 2' 4'
SCALE: 3/16" = 1'-0"



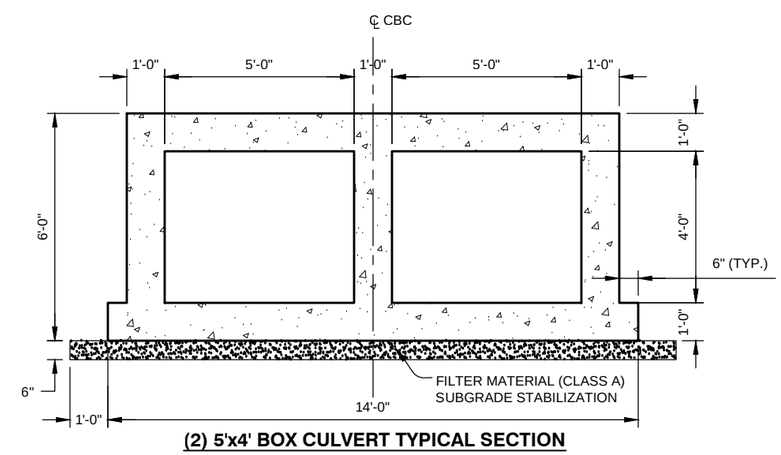
(2) 5'x4' BOX CULVERT ELEVATION (FACING EAST)

0' 1' 2' 4'
SCALE: 3/16" = 1'-0"



(2) 5'x4' BOX CULVERT LONGITUDINAL SECTION

0' 1' 2' 4'
SCALE: 1/4" = 1'-0"



(2) 5'x4' BOX CULVERT TYPICAL SECTION

0' 1' 2' 4'
SCALE: 1/4" = 1'-0"

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CONSULTING ENGINEERS
777 S. WADSWORTH BLVD. 4-100
LAKEWOOD, COLORADO 80226
(303) 988-4939
MULLER
MEC PROJECT NO. 11039.03

REGISTERED PROFESSIONAL ENGINEER 32038 6-18-15

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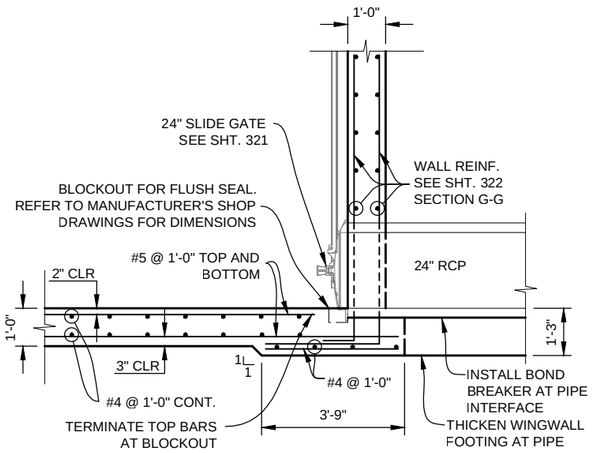
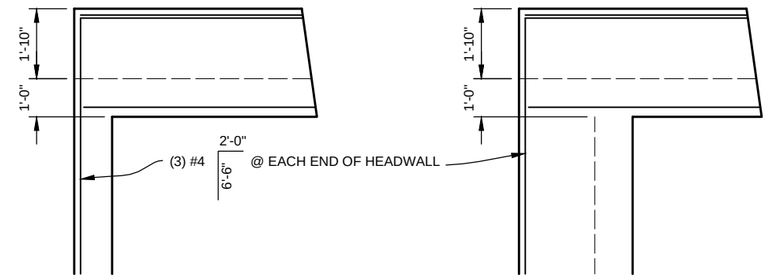
PIPE RAILING NOTES:

1. ALL PIPE SHALL BE 2" NOMINAL DIAMETER, SCH. 40 STEEL CONFORMING TO THE REQUIREMENTS IN AASHTO M270 FOR GRADE 36 ksi STEEL.
2. THE CONTRACTOR SHALL FIELD MEASURE THE LENGTH OF PIPE RAILING AND ANCHOR PLATE LOCATIONS AND SUBMIT PIPE RAILING SHOP DRAWINGS TO THE ENGINEER PRIOR TO FABRICATION.
3. ALL STEEL SHALL BE PAINTED AFTER FABRICATION IN ACCORDANCE WITH SECTION 509 OF CDOT STANDARD SPECIFICATIONS.
4. RAILINGS, ANCHORAGE ASSEMBLIES, AND ALL PLATES, BOLTS AND NUTS SHALL BE PAID FOR AS ITEM 514 PIPE RAILING.
5. PIPE RAILING SHALL BE PAINTED WITH A TWO-COAT INORGANIC ZINC POLYURETHANE PAINT SYSTEM AS SPECIFIED IN SECTION 708.03 AND SHALL HAVE A MINIMUM DRY FILM THICKNESS OF 4.0 MILS. THE PAINT COLOR SHALL BE FEDERAL STANDARD 595 COLOR FS 30108 (DARK BRONZE). PRIMER AND PAINT SHALL BE APPLIED IN ACCORDINACE WITH MANUFACTURER'S RECOMMENDATIONS.
6. BOLTS AND NUTS SHALL BE GALVANIZED AFTER FABRICATION.
7. INSTALL POSTS PLUMB.



24" SLIDE GATE AT FLOOR SLAB

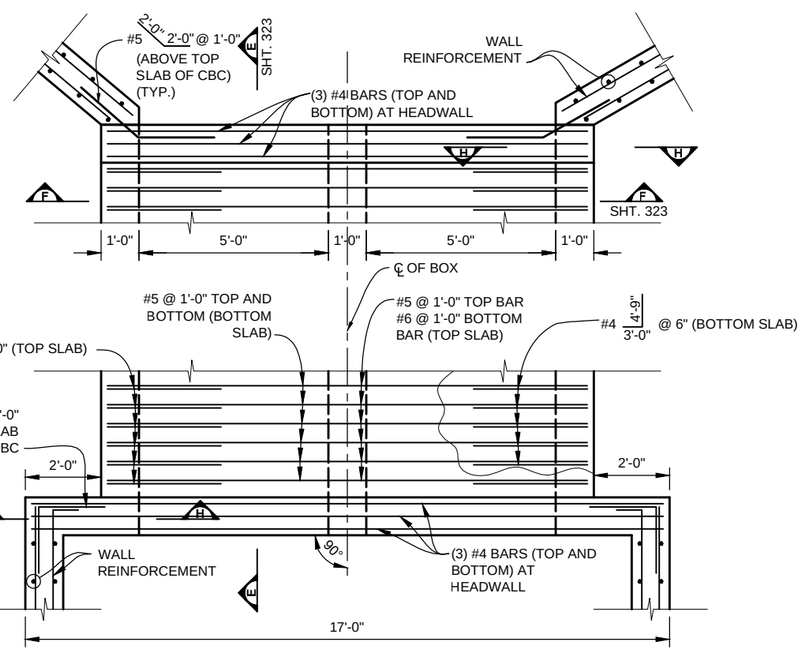
SCALE: 1/4" = 1'-0"



EAST HEADWALL **WEST HEADWALL**

SECTION H

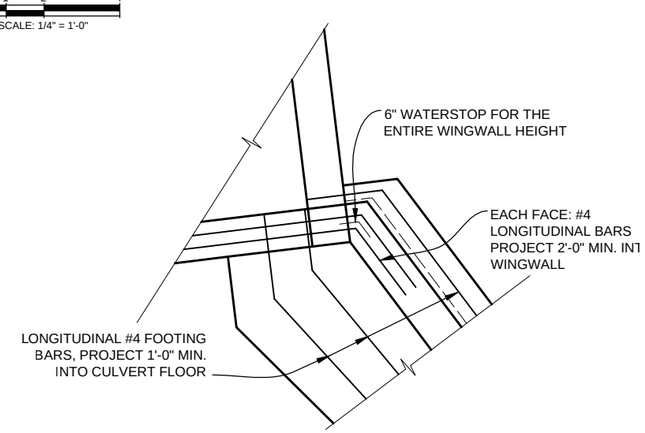
SCALE: 1/4" = 1'-0"



NOTE:
SEE SHT. 322
SECTION G-G,
FOR CORNER
REINFORCEMENT
BELOW THE SLAB.

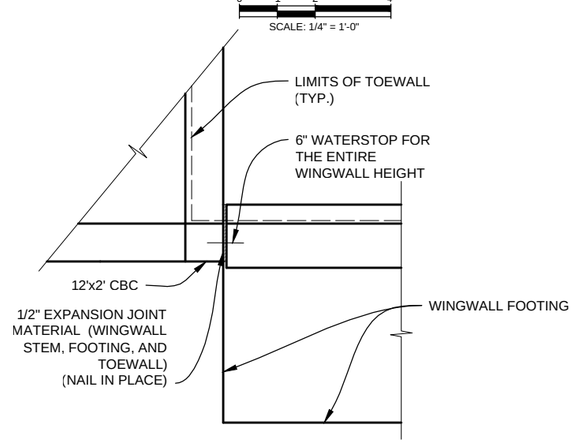
(2) 5'x4' REINFORCING PLAN

SCALE: 1/4" = 1'-0"



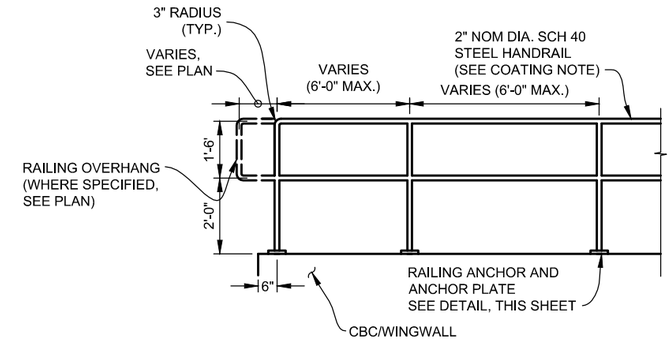
(2) 5'x4' EAST WINGWALL CONNECTION

SCALE: 1/4" = 1'-0"



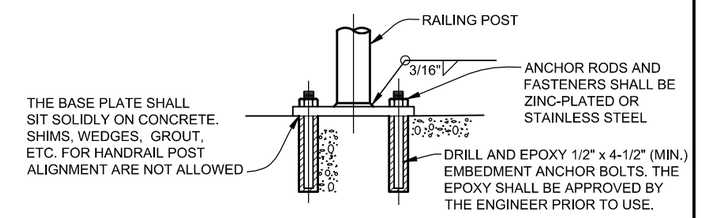
1/2" EXPANSION JOINT AT 12'x2' BOX CULVERT

SCALE: 1/4" = 1'-0"



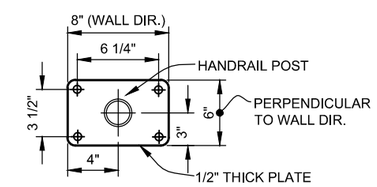
2" Ø PIPE RAILING DETAIL

SCALE: 1/4" = 1'-0"



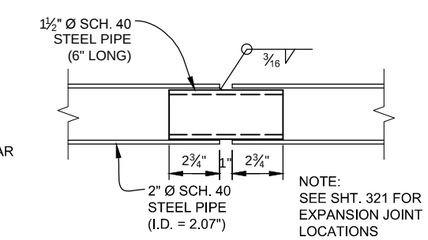
RAILING ANCHOR DETAIL

SCALE: N.T.S.



BASE PLATE PLAN

SCALE: N.T.S.



RAILING EXPANSION JOINT

SCALE: N.T.S.

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MEC PROJECT NO. 11039.03

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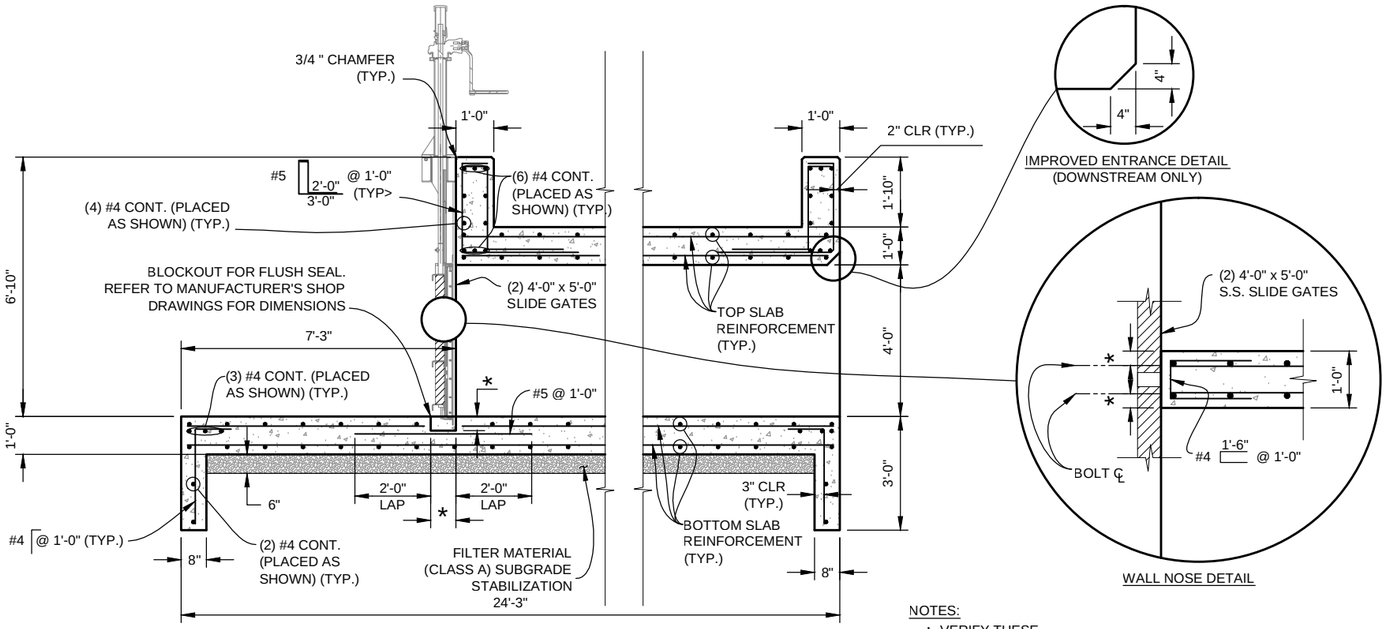
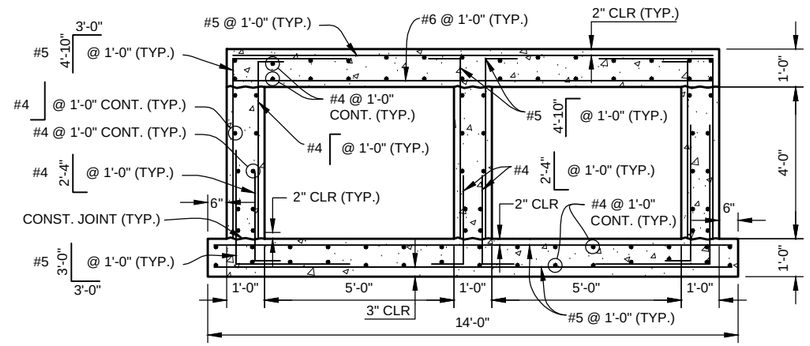


SECTION E SHT. 322

0' 1' 2' 4'
SCALE: 1/4" = 1'-0"

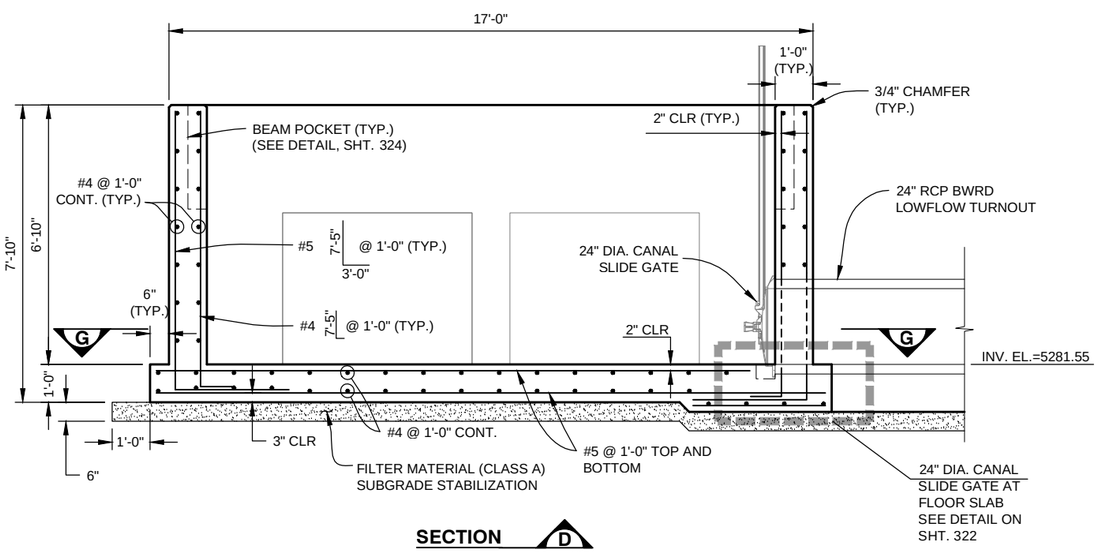
NOTES:

* VERIFY THESE DIMENSIONS WITH MANUFACTURER PRIOR TO CONSTRUCTION



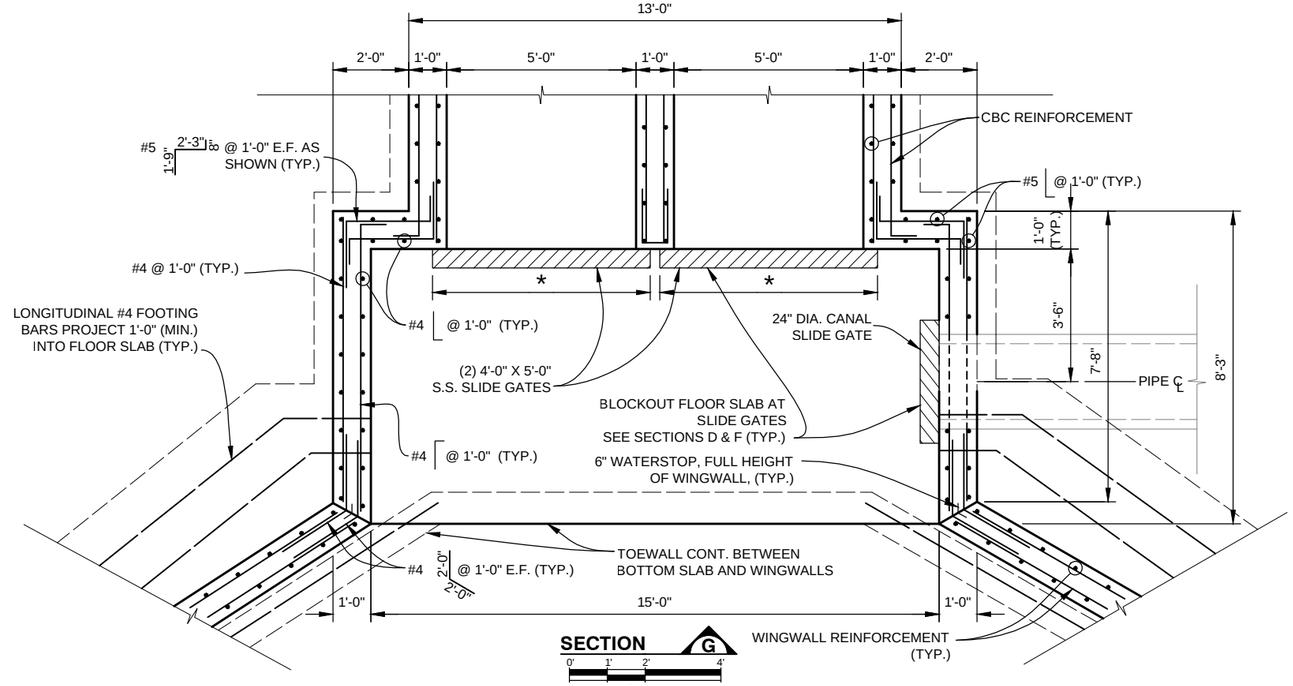
SECTION F SHT. 322

0' 1' 2' 4'
SCALE: 1/4" = 1'-0"



SECTION D SHT. 320

0' 1' 2' 4'
SCALE: 1/4" = 1'-0"



SECTION G

0' 1' 2' 4'
SCALE: 1/4" = 1'-0"

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Last Modification Date: 06/18/15	Initials: JHK	MULLER	CONSULTING ENGINEERS 777 S. WADSWORTH BLVD. 4-100 LAKEWOOD, COLORADO 80226 (303) 988-4939
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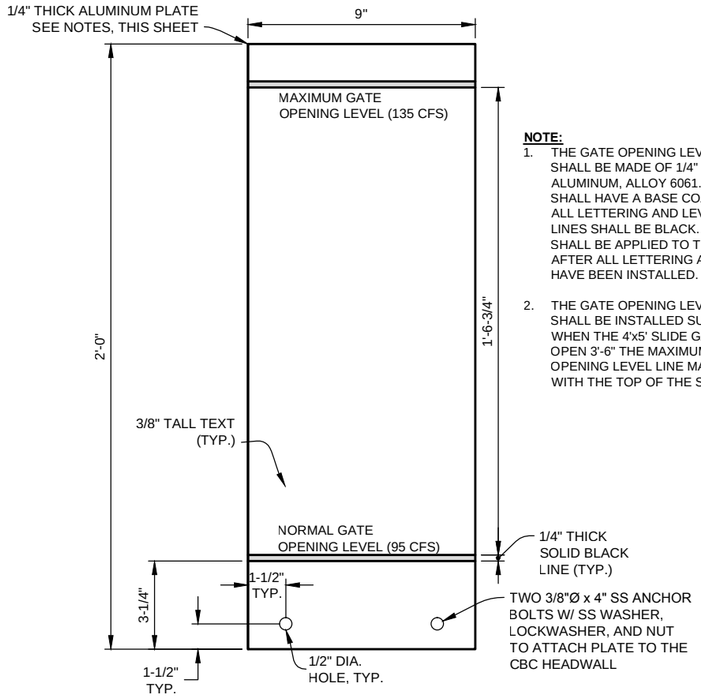


NOTE:

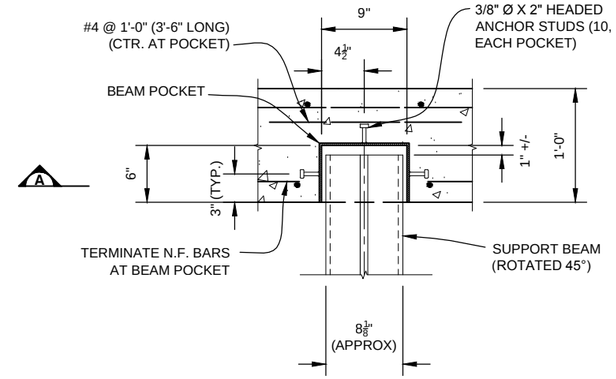
1. THE GATE OPENING LEVEL PLATE SHALL BE MADE OF 1/4" THICK ALUMINUM, ALLOY 6061. THE PLATE SHALL HAVE A BASE COAT OF WHITE. ALL LETTERING AND LEVEL INDICATOR LINES SHALL BE BLACK. A CLEAR COAT SHALL BE APPLIED TO THE PLATE AFTER ALL LETTERING AND MARKERS HAVE BEEN INSTALLED.
2. THE GATE OPENING LEVEL PLATE SHALL BE INSTALLED SUCH THAT WHEN THE 4'x5' SLIDE GATES ARE OPEN 3'-6" THE MAXIMUM GATE OPENING LEVEL LINE MATCHES UP WITH THE TOP OF THE SLIDE GATE.

GATE OPENING LEVEL PLATE DETAIL

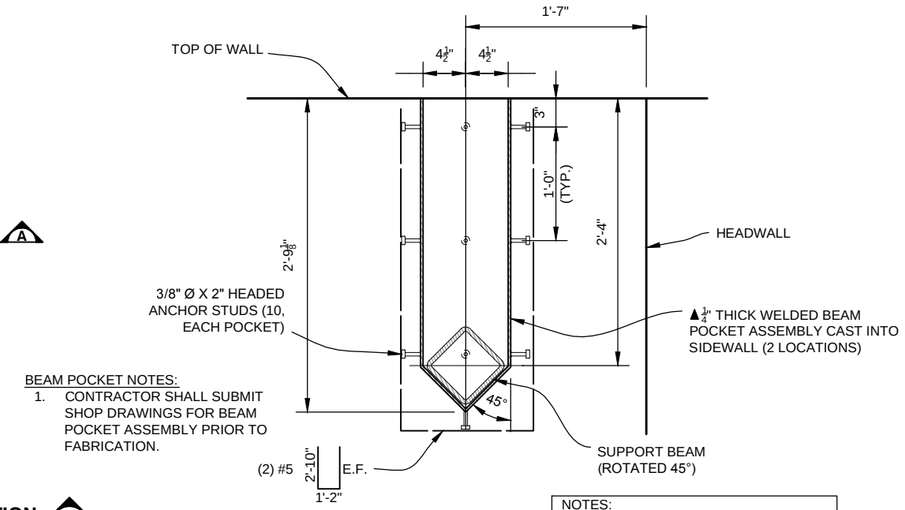
0' 6" 1'-0"

SCALE: 1" = 6"

(SEE SHT. 321 FOR MOUNTING LOCATION)



PLAN



BEAM POCKET NOTES:

1. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR BEAM POCKET ASSEMBLY PRIOR TO FABRICATION.

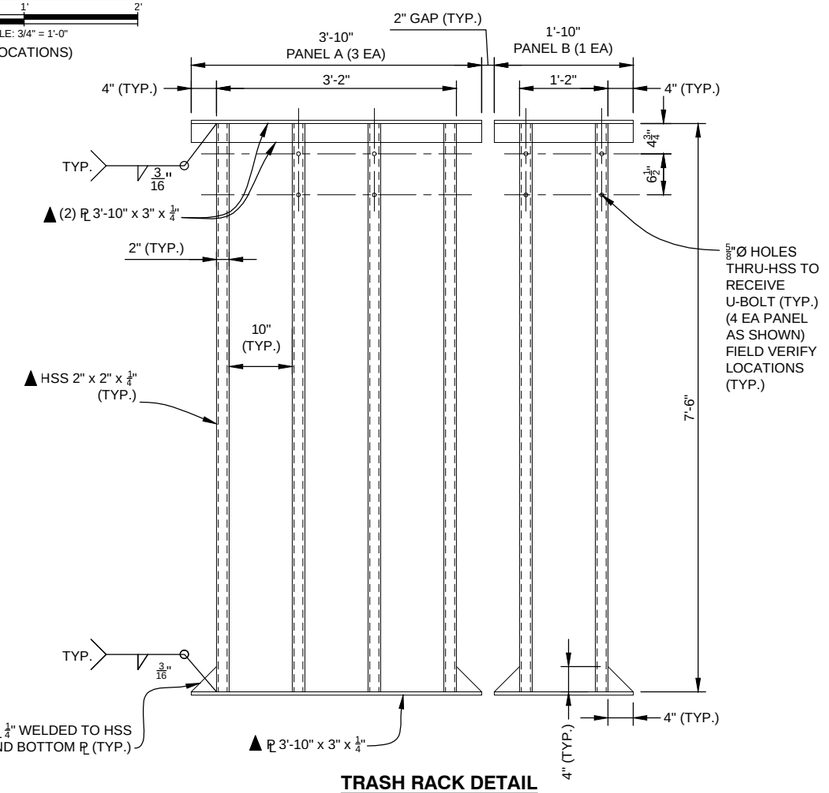
NOTES:
▲ HOT-DIPPED GALVANIZED FOLLOWING FABRICATION.

SECTION A
BEAM POCKET DETAILS

0' 6" 1' 2'

SCALE: 3/4" = 1'-0"

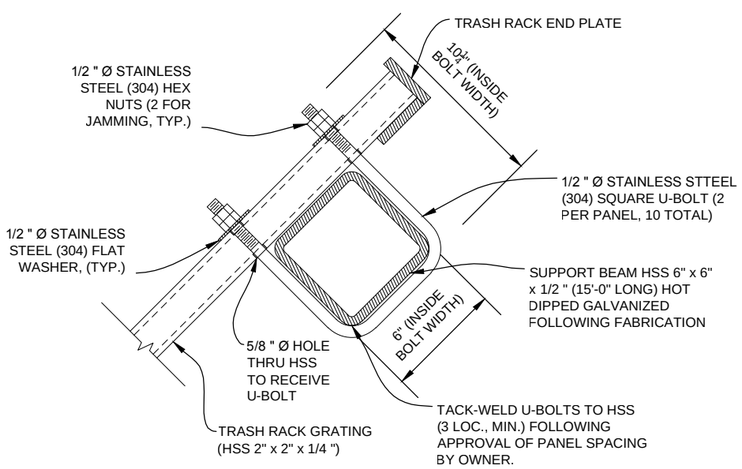
(2 LOCATIONS)



TRASH RACK DETAIL

0' 6" 1' 2'

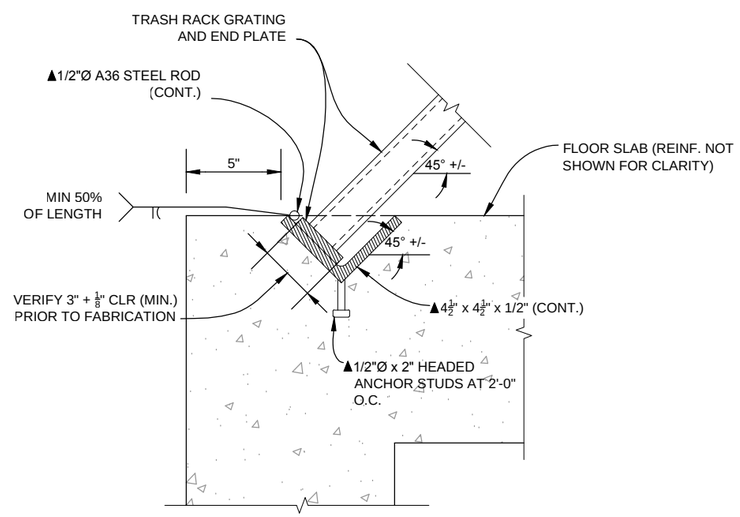
SCALE: 1/2" = 1'-0"



TRASH RACK TOP CONNECTION DETAIL

0' 3" 6" 1'

SCALE: 1-1/2" = 1'-0"



TRASH RACK BOTTOM CONNECTION DETAIL

0' 3" 6" 1'

SCALE: 1-1/2" = 1'-0"

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STRUCTURE GENERAL NOTES

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2011 EDITION, AS APPLICABLE TO THE PROJECT.
2. STRUCTURE EXCAVATION AND BACKFILL SHALL BE IN ACCORDANCE WITH CDOT STANDARD PLANS, M&S STANDARDS M-206-1, UNLESS OTHERWISE NOTED ON PLANS.
3. STRUCTURE BACKFILL FOR THE BOX CULVERT AND WINGWALLS SHALL CONFORM TO STRUCTURE BACKFILL (CLASS 1) SPECIFICATIONS, AND SHALL BE PLACED IN ACCORDANCE WITH CDOT SPECIFICATIONS, SECTION 206.
4. THE SOILS AND FOUNDATION INVESTIGATION FOR THE CONCRETE BOX CULVERT AND WINGWALLS WAS PERFORMED BY CTL THOMPSON, INC. THE SUB SURFACE CONDITIONS AND RECOMMENDATIONS FOR THE STRUCTURE ARE CONTAINED IN A REPORT DATED JULY 3, 2013, PROJ NO. DN46,599-125. REFER TO THE PROJECT SPECIFICATIONS FOR COPIES OF THESE REPORTS.
5. THE BOTTOM SLAB OF THE BOX CULVERT, AND THE WINGWALL FOOTINGS SHALL NOT BE PLACED UNTIL SUBGRADE IS OBSERVED AND APPROVED IN WRITING BY THE ENGINEER.
6. EXPANSION JOINT MATERIAL SHALL MEET AASHTO SPECIFICATION M-213.
7. THE COST FOR EXPANSION JOINT MATERIAL SHALL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE WORK.
8. WATER STOPS SHALL MEET THE REQUIREMENTS OF CDOT SPECIFICATIONS, SECTION 518.
9. STRUCTURAL CONCRETE EXPOSED TO SOIL SHALL CONFORM TO CEMENTITIOUS MATERIALS REQUIREMENTS CLASS 0 CORRESPONDING TO SULFATE EXPOSURE CLASS 0.
10. ALL CONCRETE SHALL BE CLASS D (BOX CULVERT)
11. ALL CONSTRUCTION JOINTS SHALL BE THOROUGHLY CLEANED AND ROUGHENED BEFORE FRESH CONCRETE IS PLACED.
12. ALL CONSTRUCTION JOINTS NOT SHOWN ON THE PLANS SHALL BE APPROVED BY THE ENGINEER.
13. WINGWALL FOOTINGS AND BOTTOM SLAB OF BOX CULVERT SHALL BE PLACED MONOLITHICALLY.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STABILITY OF THE STRUCTURE DURING CONSTRUCTION.
15. THE CONTRACTOR SHALL NOT BACKFILL STRUCTURES UNTIL TOP SLAB AND WALLS HAVE REACHED 80% OF DESIGN STRENGTH.
16. ALL EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED 3/4", UNLESS SHOWN OR OTHERWISE NOTED.
17. GRADE 60 REINFORCING STEEL IS REQUIRED.
18. ALL REINFORCING STEEL SHALL BE BLACK REINFORCING BARS UNLESS OTHERWISE NOTED.
19. THE FOLLOWING TABLE GIVES THE MINIMUM CLASS B LAP SPLICE LENGTH FOR BLACK (NON-EPOXY COATED) REINFORCING BARS PLACED IN ACCORDANCE WITH SUBSECTION 602.06, THESE SPLICE LENGTH SHALL INCREASE BY 25% FOR BARS SPACED LESS THAN 6" ON CENTER.

BAR SIZE:	#4	#5	#6	#7	#8	#9	#10	#11
SPLICE LENGTH FOR CLASS D CONCRETE:	1'-0"	1'-4"	1'-7"	1'-11"	2'-6"	3'-1"	3'-11"	4'-10"

20. ALL REINFORCEMENT SHALL HAVE A CLEAR COVERAGE OF 2", EXCEPT AS SHOWN ON THE PLANS. CLEAR COVERAGE SHALL BE MEASURED FROM THE SURFACE OF THE CONCRETE TO THE OUTSIDE OF THE REINFORCEMENT.
21. THE STOCK LENGTH USED FOR ALL REINFORCING IS 60 FEET.
22. ALL TRANSVERSE REINFORCING SHAIL BE NORMAL TO THE CENTERLINE OF THE BOX, EXCEPT AS SHOWN ON PLANS.
23. FILTER MATERIAL AND CLOTH FOR WINGWALL DRAIN HOLES SHALL BE INCLUDED IN WORK.
24. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STABILITY OF THE STRUCTURE DURING CONSTRUCTION.
25. ALL DIMENSIONS ARE PERPENDICULAR TO THE CENTERLINE OF THE BOX.
26. STATIONS, ELEVATIONS, AND DIMENSIONS CONTAINED IN THESE PLANS ARE CALCULATED FROM A RECENT FIELD SURVEY. THE CONTRACTOR SHALL VERIFY ALL DEPENDENT DIMENSIONS IN THE FIELD BEFORE ORDERING OR FABRICATING ANY MATERIAL
27. THE INFORMATION SHOWN ON THESE PLANS CONCERNING-THE TYPE AND LOCATION OF UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATION AS TO THE TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. THE CONTRACTOR SHALL CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO AT 1-800-922-1987 AT LEAST 2 DAYS (NOT INCLUDING THE DAY OF NOTIFICATION) PRIOR TO ANY EXCAVATION OR OTHER EARTHWORK.
28. A STRUCTURAL CONCRETE COATING SHALL BE APPLIED TO ALL GRAY CONCRETE (NO INTEGRAL COLOR) EXPOSED SURFACES TO 1'-0" BELOW FINAL GRADE UNLESS OTHERWISE NOTED. THE COLOR SHALL BE EQUIVALENT TO FEDERAL STANDARD 595B, COLOR NO. 33522 (LIGHT TAN). TEST PANELS SHALL BE SUBMITTED IN ACCORDANCE WITH CDOT STANDARD SPECIFICATION 601.14(B) 4.

DESIGN DATA

AASHTO LRFD 6TH EDITION, 2012

DESIGN METHOD: LOAD AND RESISTANCE FACTOR DESIGN

LOADING DATA (CONCRETE BOX CULVERT):

LIVE LOAD = AASHTO H10 TRUCK

DEAD LOAD CASE 1: VERTICAL EARTH LOAD = 120 PCF
HORIZONTAL EARTH LOAD = 30 PCF

DEAD LOAD CASE 2: VERTICAL EARTH LOAD = 120 PCF
HORIZONTAL EARTH LOAD = 60 PCF

LIVE LOAD SURCHARGE ON EXTERIOR WALLS = 2'-0" OF EARTH

DESIGN LOADING (WINGWALLS):

MAXIMUM TOE BEARING PRESSURE = 3000 psf

UNIT SOIL WEIGHT = 135 PCF

ACTIVE LATERAL EARTH PRESSURE = 35 pcf

COEFFICIENT OF SLIDING FRICTION = 0.50

REINFORCED CONCRETE:

CLASS D CONCRETE: f' c = 4,500 psi

REINFORCING STEEL: f y = 60,000 psi

Know what's **below**
Call before you dig.

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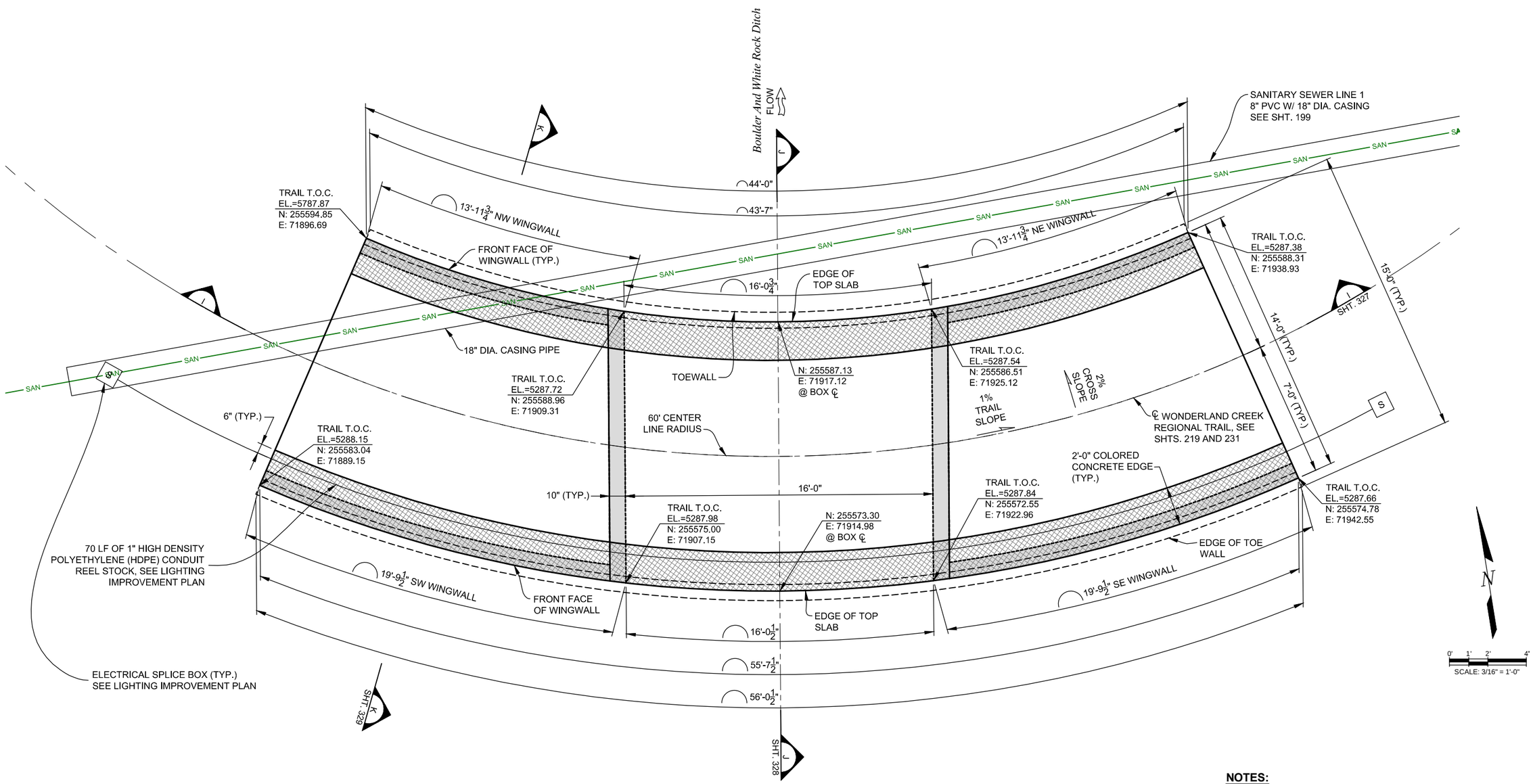
CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
BWRD PEDESTRIAN CROSSING
GENERAL INFORMATION

Designer:	KMA	Structure Numbers	
Detailer:	JHK		
Sheet Subset:	BWRD	Subset Sheets:	BWRD-14

Project No./Code
STM 110-081
18405
Sheet Number: 325



BWRD PEDESTRIAN CROSSING PLAN

NOTES:

1. THE TOP SURFACE OF THE TRAIL CROSSING SHALL BE FLOATED WITH A WOODEN OR MAGNESIUM FLOAT AND GIVEN A TRANSVERSE BROOM FINISH.
2. FOR SECTION I-I, SEE SHT. 327.
3. FOR SECTION J-J, SEE SHT. 328.
4. FOR SECTION K-K, SEE SHT. 329.

Computer File Information		
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Last Modification Date: 06/18/15	Initials: JHK	
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WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT

BWRD PEDESTRIAN CROSSING PLAN

Designer:	KLH	Structure Numbers	
Detailer:	JHK		
Sheet Subset:	BWRD	Subset Sheets:	BWRD-15

Project No./Code
STM 110-081
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Sheet Number: 326

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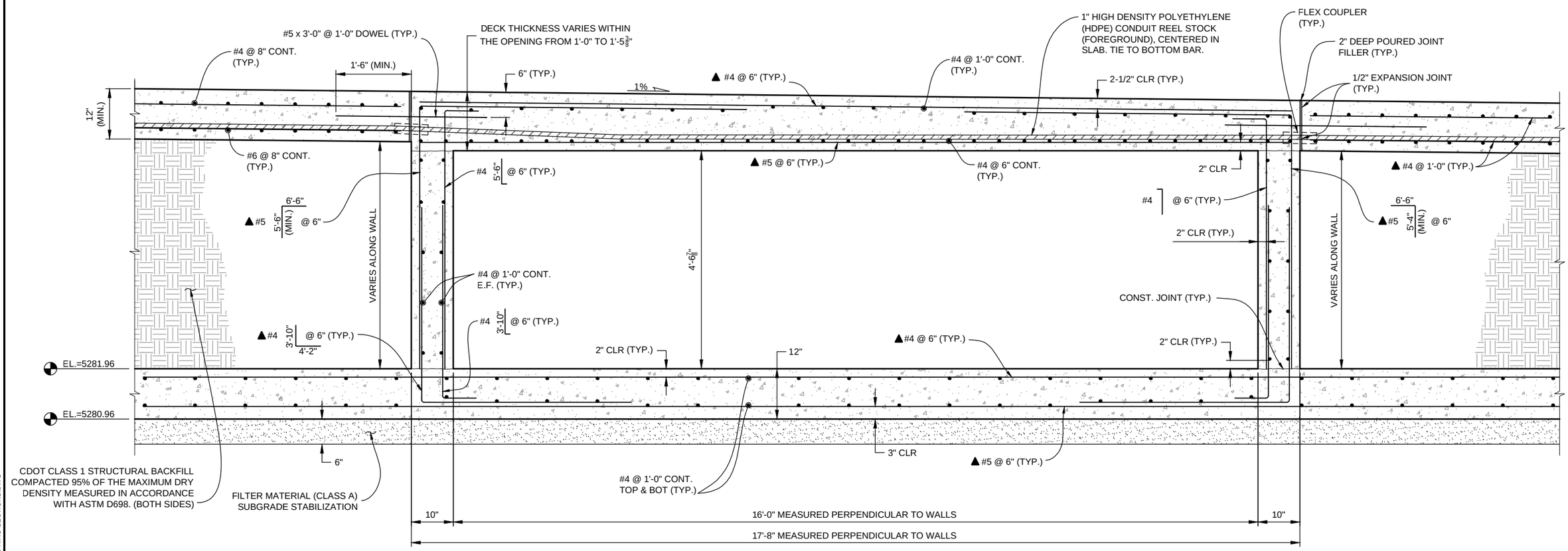

SECTION I
SHT. 326

0' 6" 1' 2'
SCALE: 1/2" = 1'-0"

NOTES:
▲ ALL BARS SHALL BE PLACED PARALLEL TO THE CENTERLINE.

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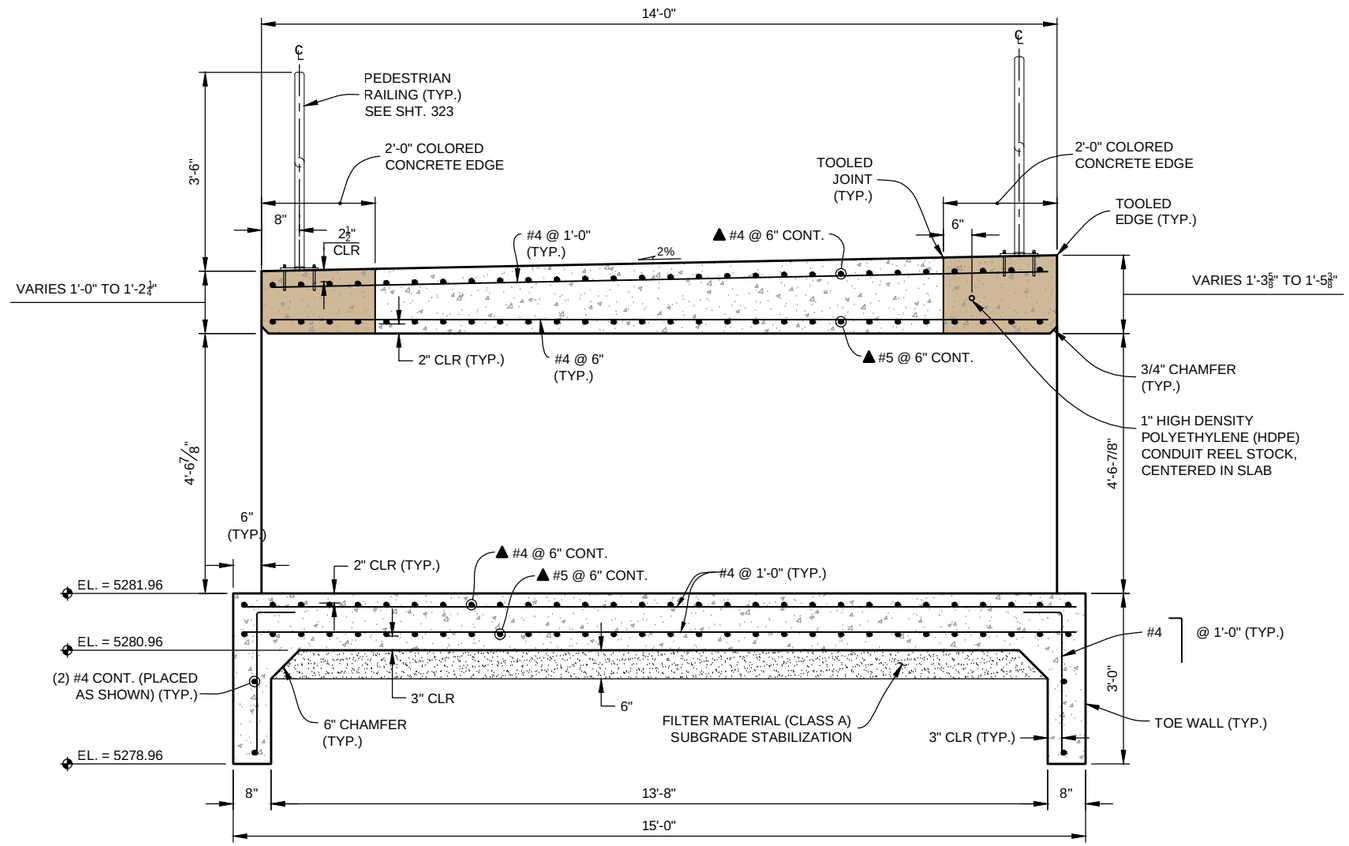
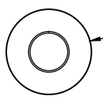
WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
BWRD PEDESTRIAN CROSSING DETAILS
(1 OF 5)

Designer:	KLH	Structure Numbers	
Detailer:	JHK		
Sheet Subset:	BWRD	Subset Sheets:	BWRD-16

Project No./Code
STM 110-081
18405
Sheet Number: 327





SANITARY SEWER LINE 1
8" PVC INV. EL.=5275.87±
W/ 18" DIA. CASING
SEE SHT. 199

SECTION J
SHT. 326

0' 6" 1' 2'
SCALE: 3/8" = 1'-0"

NOTES:
▲ BARS SHALL BE PLACED PARALLEL TO THE CENTERLINE.

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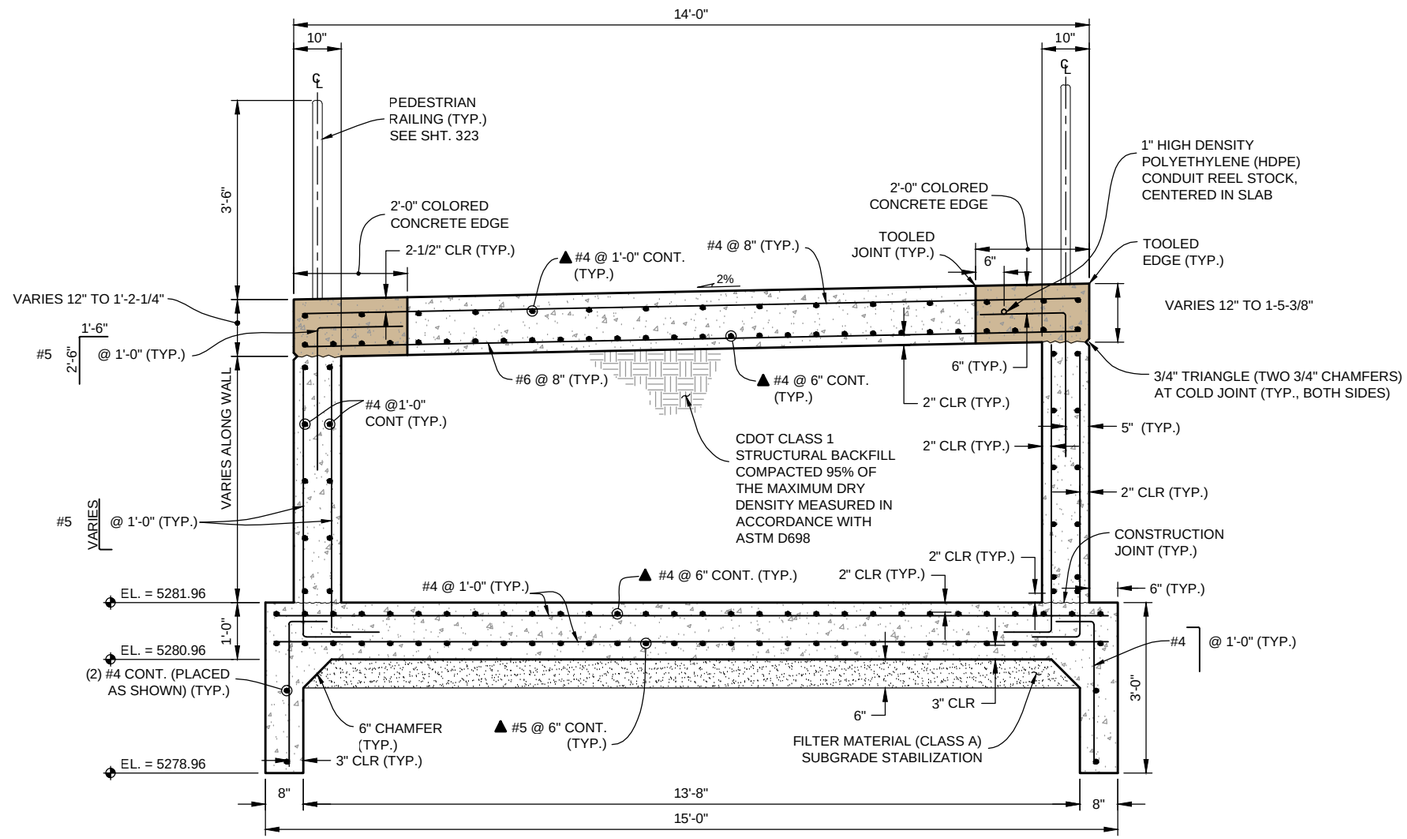
WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
BWRD PEDESTRIAN CROSSING DETAILS
(2 OF 5)

Designer:	KLH	Structure Numbers	
Detailer:	JHK		
Sheet Subset:	BWRD	Subset Sheets:	BWRD-17

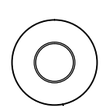
Project No./Code
STM 110-081
18405
Sheet Number: 328



SECTION K
SHT. 326

0' 6" 1' 2'
SCALE: 3/8" = 1'-0"

NOTES:
▲ BARS SHALL BE PLACED PARALLEL TO THE CENTERLINE.



SANITARY SEWER LINE 1
8" PVC INV. EL.=5275.93
W/ 18" CASING
SEE SHT. 199

Computer File Information		
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WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
BWRD PEDESTRIAN CROSSING DETAILS
(3 OF 5)

Designer:	KLH	Structure Numbers	
Detailer:	JHK		
Sheet Subset:	BWRD	Subset Sheets:	BWRD-18

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Sheet Number: 329

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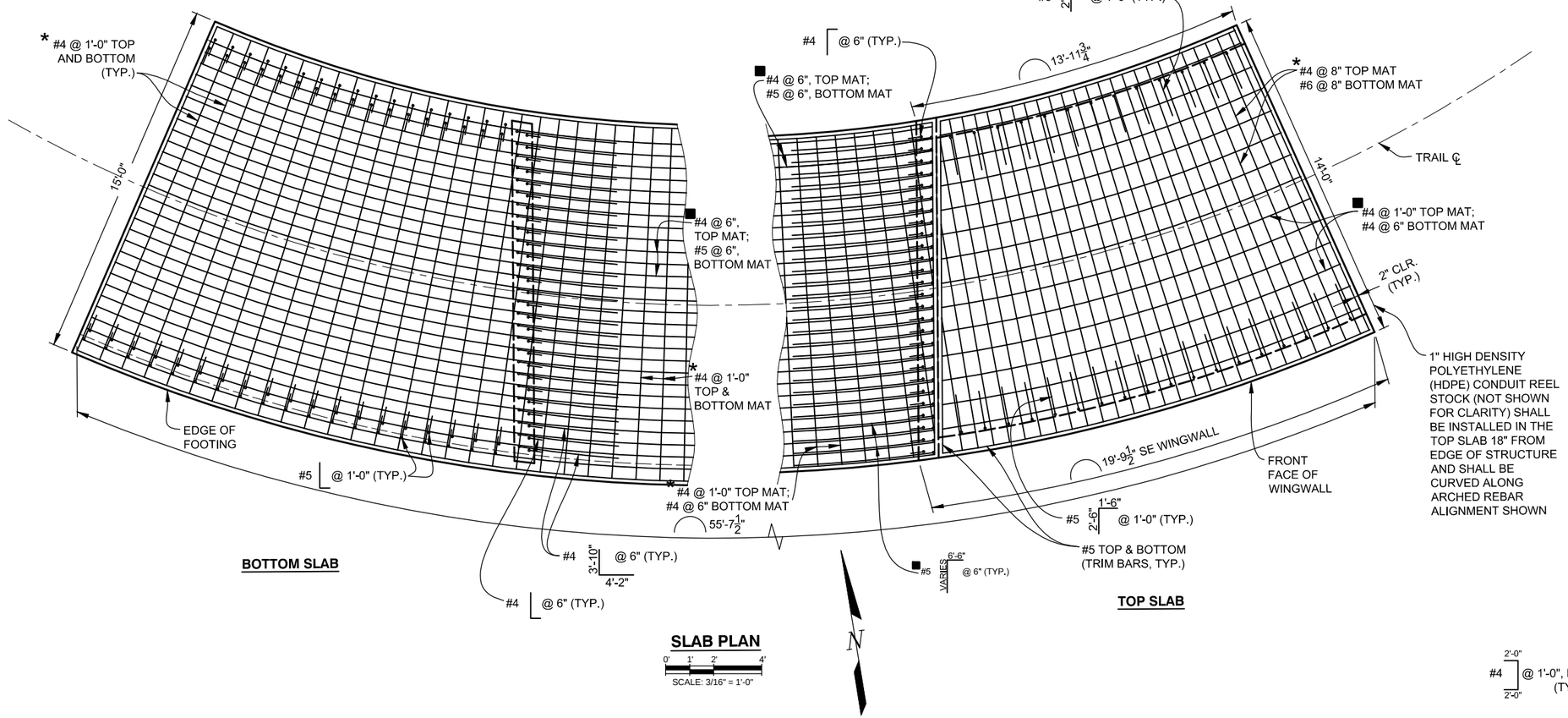
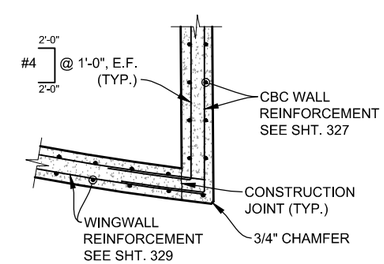


SLAB PLAN

0' 1' 2' 4'

SCALE: 3/16" = 1'-0"



CBC WALL / WINGWALL CONNECTION

SCALE: 1/2" = 1'-0"

NOTES:

* ON-CENTER SPACING OF BARS SHALL NOT EXCEED THE SPACING INDICATED AT THE POINT OF MAXIMUM RADIUS (SOUTH EDGE OF SLAB). BARS SHALL BE ORIENTED PERPENDICULAR TO THE TRAIL ℄, SUCH THAT THE ON-CENTER SPACING IS LESS THAN THE REQUIRED AT THE POINT OF THE MINIMUM RADIUS (NORTH EDGE OF SLAB).

■ PLACED PARALLEL TO TRAIL ℄.

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WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
BWRD PEDESTRIAN CROSSING DETAILS
(4 OF 5)

Designer:	KLH	Structure Numbers	
Detailer:	JHK		
Sheet Subset:	BWRD	Subset Sheets:	BWRD-19

Project No./Code
STM 110-081
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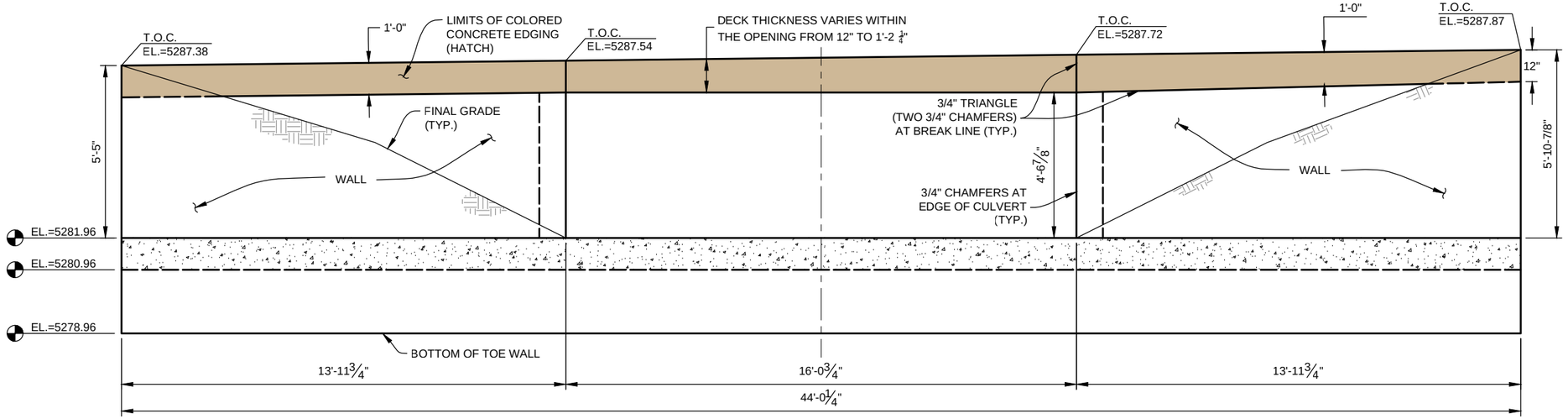
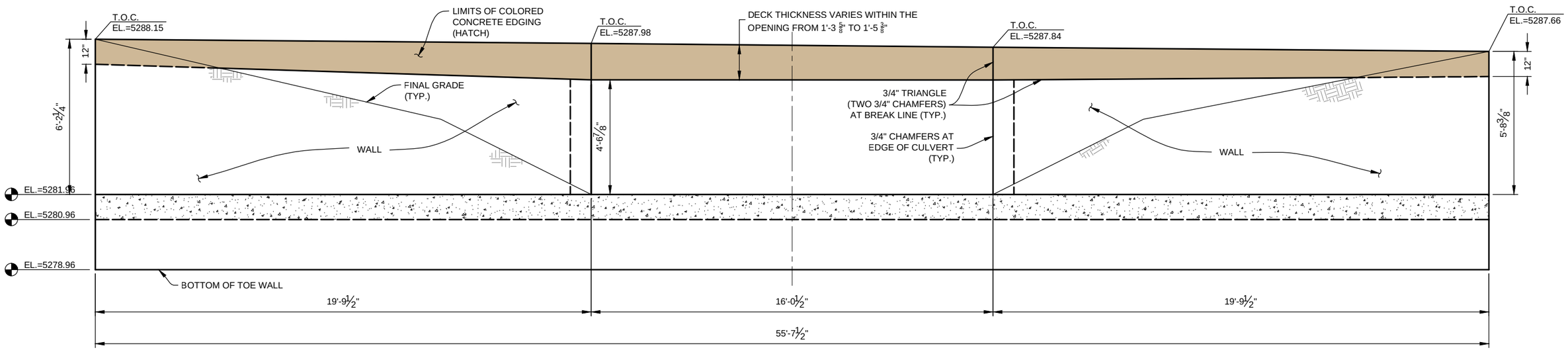
Sheet Number: 330



NORTH ELEVATION (LOOKING SOUTH)

MEASUREMENTS TAKEN RADIAL ALONG
FRONT FACE OF BOX CULVERT



SOUTH ELEVATION (LOOKING NORTH)

MEASUREMENTS TAKEN RADIAL ALONG
FRONT FACE OF BOX CULVERT

0' 1' 2' 4'
SCALE: 1/4" = 1'-0"

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WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
BWRD PEDESTRIAN CROSSING DETAILS
(5 OF 5)

Designer:	KLH	Structure Numbers	
Detailer:	JHK		
Sheet Subset:	BWRD	Subset Sheets:	BWRD-20

Project No./Code
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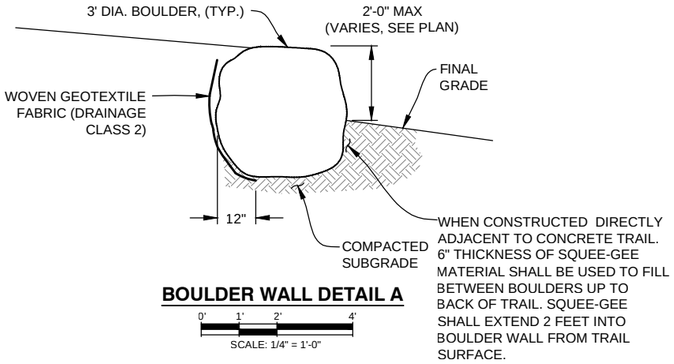
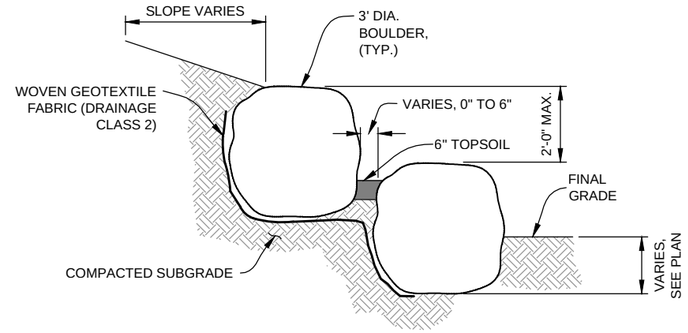
Sheet Number: 331



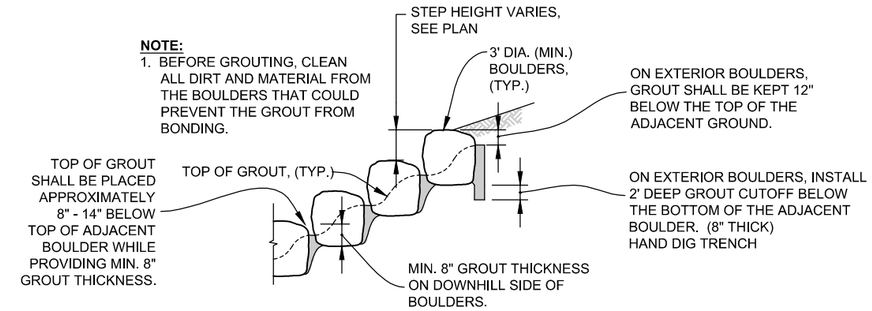
BOULDER WALL DETAIL A

0' 1' 2' 4'
SCALE: 1/4" = 1'-0"



BOULDER WALL DETAIL B

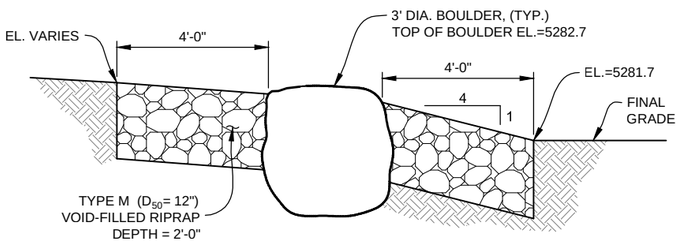
0' 1' 2' 4'
SCALE: 1/4" = 1'-0"



NOTE:
1. BEFORE GROUTING, CLEAN ALL DIRT AND MATERIAL FROM THE BOULDERS THAT COULD PREVENT THE GROUT FROM BONDING.

GROUTED BOULDER TYPICAL SECTION DETAIL

0' 2.5' 5' 10'
SCALE: 1" = 5'-0"



BOULDER WALL DETAIL C

0' 1' 2' 4'
SCALE: 1/4" = 1'-0"

BOULDER WALL NOTES:

1. ALL BOULDERS SHALL BE 3' MIN. DIAMETER.
2. CONTRACTOR SHALL CHINK ALL VOIDS BETWEEN BOULDERS WITH LOOSE ROCK.
3. BOULDERS SHALL BE PLACED WITH THE TOP OF BOULDER LEVEL.
4. SEE PLAN VIEWS FOR TOP OF BOULDER ELEVATIONS. IN CASES OF MULTIPLE BOULDER ROWS, THE TOP OF BOULDER ELEVATION PROVIDED IS FOR THE TOP ROW OF BOULDERS.
5. MULTIPLE ROWS OF BOULDERS SHALL BE CONSTRUCTED WITH THE BOULDERS STAGGERED BY ROW.

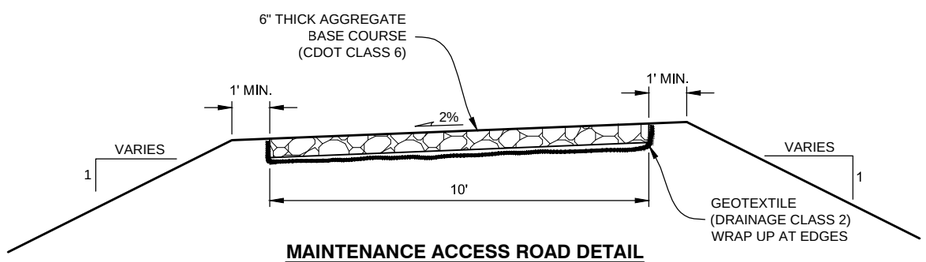
GROUT NOTES

MATERIAL SPECIFICATIONS

1. ALL GROUT SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH EQUAL TO 3200 PSI.
2. ONE CUBIC YARD OF GROUT SHALL HAVE A MINIMUM OF SIX (6) SACKS OF TYPE II PORTLAND CEMENT.
3. A MAXIMUM OF 25% TYPE F FLY ASH MAY BE SUBSTITUTED FOR THE PORTLAND CEMENT.
4. TYPE A GROUT SHALL BE USED.
5. FOR TYPE A GROUT, THE AGGREGATE SHALL BE COMPRISED OF 70% NATURAL SAND (FINES) AND 30% 3/8-INCH ROCK (COARSE).
6. THE GROUT SLUMP SHALL BE 4-INCHES TO 6-INCHES.
7. AIR ENTRAINMENT SHALL BE 5.5% - 7.5%
8. TO CONTROL SHRINKAGE AND CRACKING, 1.5 POUNDS OF FIBERMESH, OR EQUIVALENT, SHALL BE USED PER CUBIC YARD OF GROUT.
9. COLOR ADDITIVE IN REQUIRED AMOUNTS SHALL BE USED WHEN SO SPECIFIED BY CONTRACT.

PLACEMENT SPECIFICATIONS

1. ALL TYPE A GROUT SHALL BE DELIVERED BY MEANS OF A LOW PRESSURE (LESS THAN 10 PSI) CONCRETE PUMP USING A 2-INCH DIAMETER NOZZLE.
2. FULL DEPTH PENETRATION OF THE GROUT INTO THE BOULDER VOIDS SHALL BE ACHIEVED BY INJECTING GROUT STARTING WITH THE NOZZLE NEAR THE BOTTOM AND RAISING IT AS GROUT FILLS, WHILE VIBRATING GROUT INTO PLACE USING A PENCIL VIBRATOR.
3. AFTER GROUT PLACEMENT, EXPOSED BOULDER FACES SHALL BE CLEANED WITH A WET BROOM.
4. ALL GROUT BETWEEN BOULDERS SHALL BE TREATED WITH A BROOM FINISH.
5. ALL FINISHED GROUT SURFACES SHALL BE SPRAYED WITH A CLEAR LIQUID MEMBRANE CURING COMPOUND AS SPECIFIED IN ASTM C-309.
6. SPECIAL PROCEDURES SHALL BE REQUIRED FOR GROUT PLACEMENT WHEN THE AIR TEMPERATURES ARE LESS THAN 40°F OR GREATER THAN 90°F. CONTRACTOR SHALL OBTAIN PRIOR APPROVAL FROM THE DESIGN ENGINEER OF THE PROCEDURES TO BE USED FOR PROTECTING THE GROUT.
7. CLEAN BOULDERS BY BRUSHING AND WASHING BEFORE AND AFTER GROUTING.
8. BOULDERS SHALL BE INSTALLED TIGHTLY TOGETHER TO PROVIDE A TYPICAL 4" GROUT THICKNESS BETWEEN BOULDERS.



MAINTENANCE ACCESS ROAD DETAIL

0' 1' 2' 4'
SCALE: 1/4" = 1'-0"

NOTE:
ROAD GRADE MAY VARY IF INDICATED ON THE PLAN DRAWINGS.

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COLORADO REGISTERED PROFESSIONAL ENGINEER CHRISTOPHER L. KREGER 37254 6/18/15

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CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT

MISCELLANEOUS DETAILS

Designer:	CLK	Structure Numbers	
Detailer:	JHK		
Sheet Subset:	MISC. DET.	Subset Sheets:	M-1

Project No./Code
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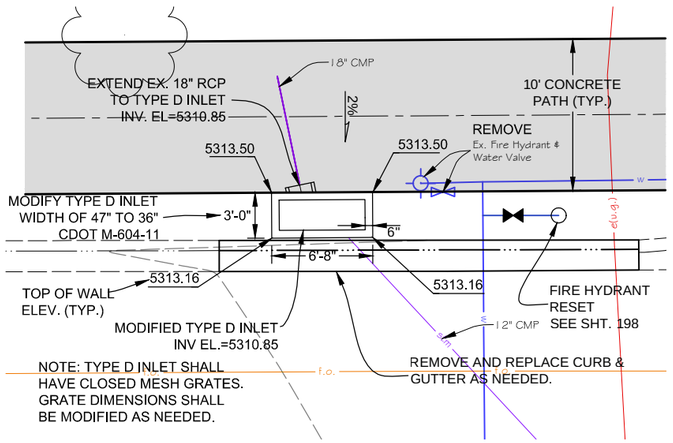
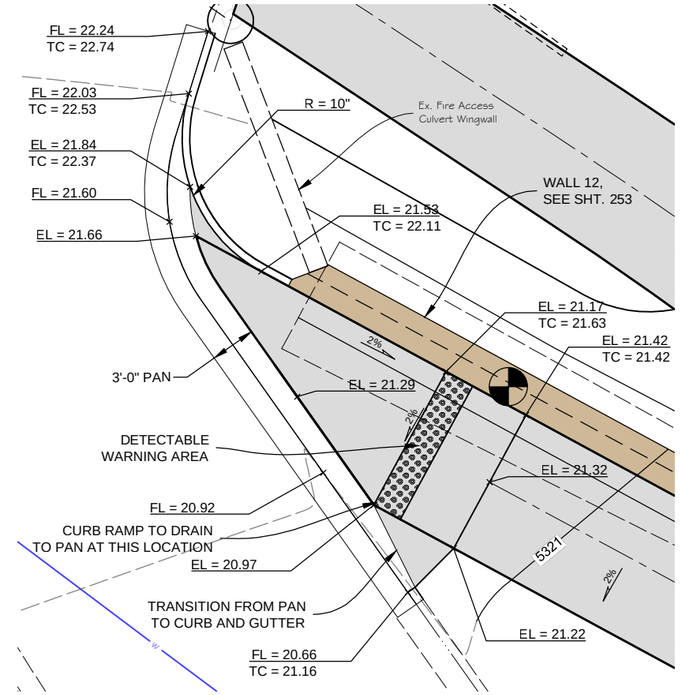


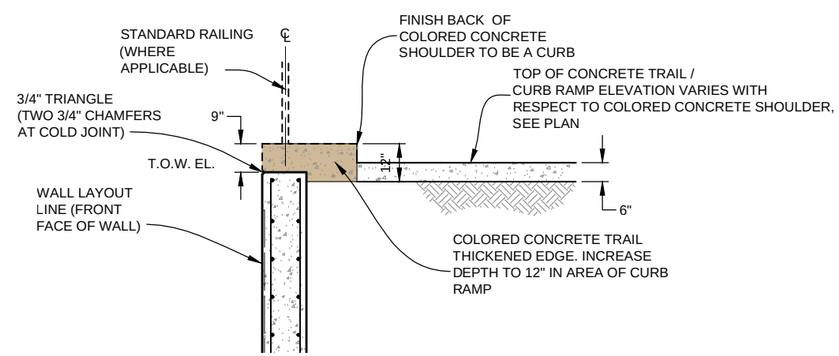
IRRIGATION CONNECTION BOX PLAN

0' 2.5' 5' 10'
SCALE: 1" = 5'-0"



FIRE ACCESS CURB RAMP PLAN

0' 2.5' 5' 10'
SCALE: 1" = 5'-0"



FIRE ACCESS CURB RAMP COLORED SHOULDER DETAIL

0' 1' 2' 4'
SCALE: 1/4" = 1'-0"

Computer File Information			
Creation Date: 09/24/14	Initials: JHK		
Last Modification Date: 06/18/15	Initials: JHK		
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WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
MISCELLANEOUS DETAILS

Designer:	JW3	Structure Numbers	
Detailer:	JHK		
Sheet Subset:	MISC. DET.	Subset Sheets:	M-2

Project No./Code
STM 110-081
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Sheet Number: 333

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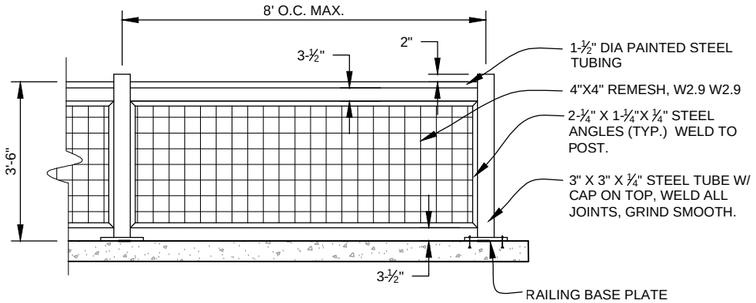
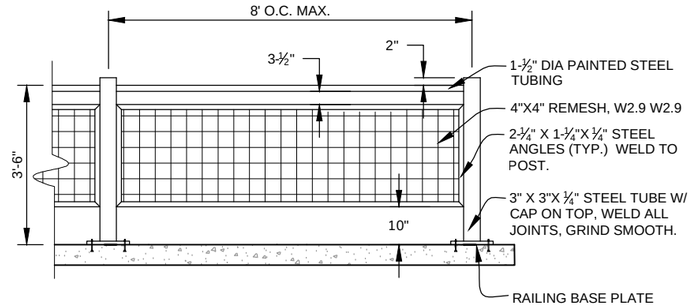


TO BE PAID FOR AS: PEDESTRAIN RAILING (STEEL) (SPECIAL)

STANDARD RAILING ELEVATION

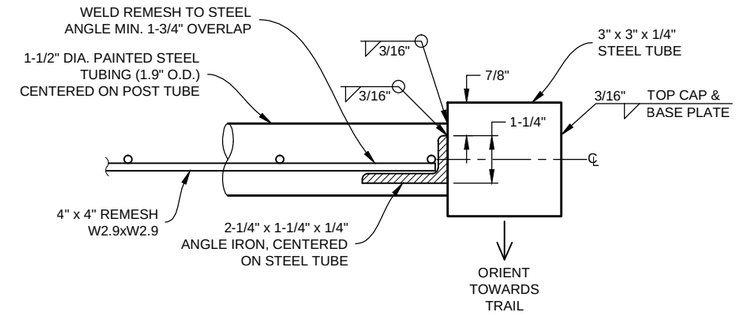
N.T.S.



TO BE PAID FOR AS: PEDESTRAIN RAILING (STEEL) (SPECIAL)

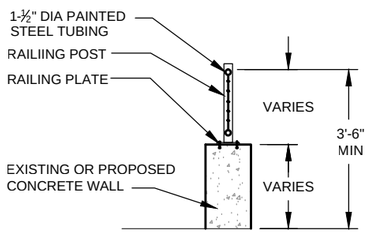
SPRING CREEK PLACE RAILING ELEVATION

N.T.S.



TYPICAL RAILING SECTION

N.T.S.



SECTION

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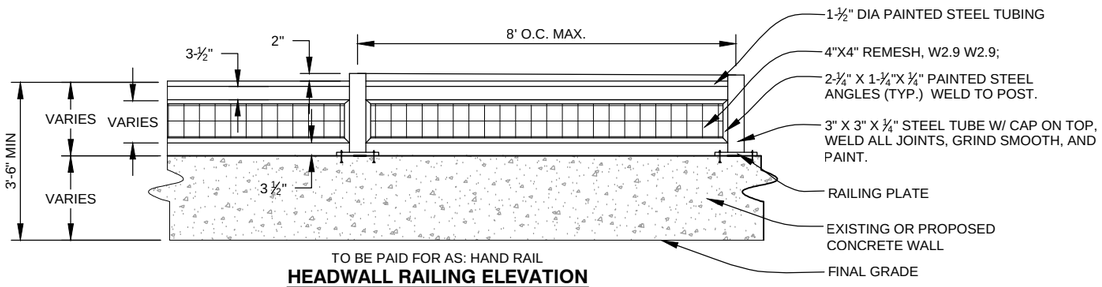
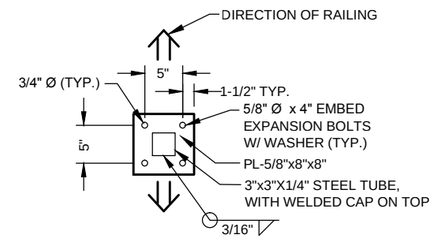


TO BE PAID FOR AS: HAND RAIL

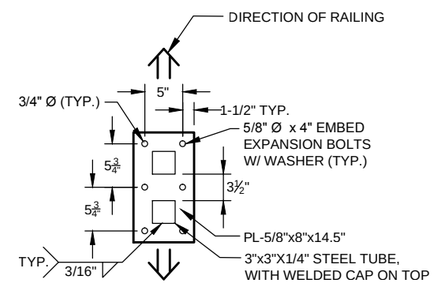
HEADWALL RAILING ELEVATION

N.T.S.



SINGLE RAILING PLATE PLAN

N.T.S.



DOUBLE RAILING PLATE PLAN

N.T.S.

RAILING NOTES:

1. ALL METAL RAILING MATERIAL TO BE POWDER COATED PAINTED BLACK. INSTALLATION HARDWARE SHALL BE PAINTED BLACK TO MATCH FOLLOWING INSTALLATION.

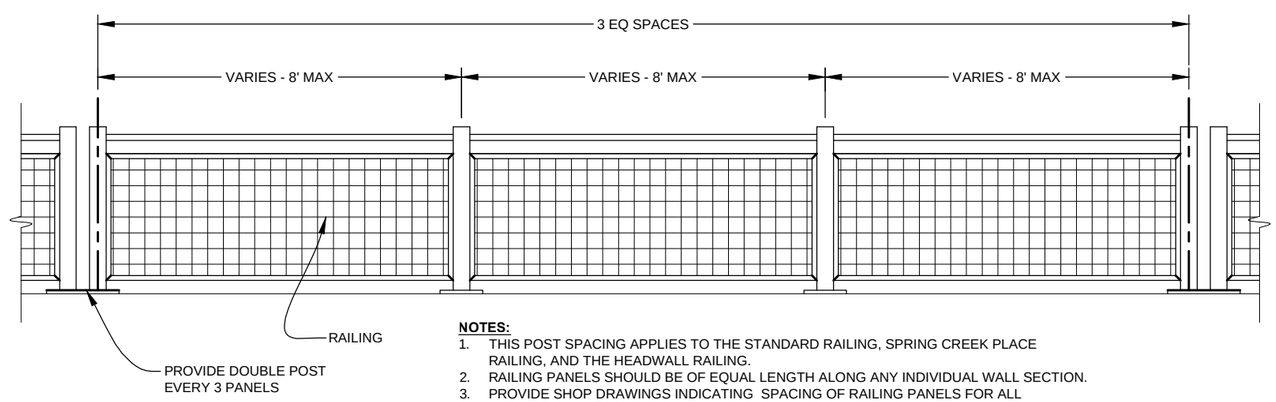
2. CONTRACTOR TO SUBMIT SHOP DRAWINGS INCLUDING WELD INFORMATION TO OWNER'S REPRESENTATIVE FOR APPROVAL.

3. LENGTH BETWEEN DOUBLE RAILING POSTS IS NOT TO EXCEED 24' DUE TO THERMAL EXPANSION. WHERE DOUBLE RAILING POSTS ARE INSTALLED POSTS SHALL BE 3 1/2" APART.

4. POSTS TO BE PLUMB. RAILS AND STEEL ANGLE FRAME TO SLOPE AND CURVE WITH TRAIL. REMESH SHALL BE INSTALLED PLUMB. FIELD MEASURE TO PROVIDE PROPER SLOPE AND CURVE OF RAILING.

5. SET POSTS 6" FROM FACE OF WALL TO FACE OF POST WHERE TRAIL AND OR TRAIL SHOULDER IS POURED ON TOP OF WALL. POSTS SHALL BE CENTERED ON THE WALL AT ALL OTHER LOCATIONS.

6. CONTRACTOR SHALL ENSURE THAT RAILING IS CONSTRUCTED SO THAT SPACING BETWEEN RAILING MEMBERS, AND BETWEEN THE RAILING AND THE ADJACENT GROUND OR WALL PREVENTS THE PASSAGE OF A 4" SPHERE. THE ONLY EXCEPTION TO THIS IS THE CLEARANCE BETWEEN THE SPRING CREEK PLACE RAILING AND THE GROUND, WHICH HAS A LARGER SPACE DUE TO HYDRAULIC REQUIREMENTS.



NOTES:

1. THIS POST SPACING APPLIES TO THE STANDARD RAILING, SPRING CREEK PLACE RAILING, AND THE HEADWALL RAILING.
2. RAILING PANELS SHOULD BE OF EQUAL LENGTH ALONG ANY INDIVIDUAL WALL SECTION.
3. PROVIDE SHOP DRAWINGS INDICATING SPACING OF RAILING PANELS FOR ALL SECTIONS OF RAILING.
4. THE MINIMUM RAILING PANEL WIDTH SHALL BE 3-FEET.

RAILING POST SPACING DETAIL

N.T.S.

BASE PLATE NOTES:

1. TO ENSURE THAT RAILING SPACING DOES NOT CREATE A GAP GREATER THAN A 4" SPHERE THE CONTRACTOR MAY MODIFY THE LOCATION OF THE RAILING CONNECTION TO THE BASE PLATE. THE RAILING TUBE SHALL REST A MINIMUM OF A 1/2" FROM THE EDGE OF THE BASE PLATE. THESE MODIFICATIONS ARE ASSUMED TO BE USED AT SHARP BENDS (I.E. WHERE HEADWALLS MEET WINGWALLS) AND WHEN TRANSITIONING FROM ONE STRUCTURE TO ANOTHER (I.E. WHERE SPRING CREEK PLACE CULVERT MEETS THE ADJOINING RETAINING WALLS).

2. IN SITUATIONS WHERE A BASE PLATE MUST BE PLACED CLOSE TO AN EDGE OF A STRUCTURE TO ENSURE THAT RAILING SPACING DOES NOT CREATE A GAP GREATER THAN A 4" SPHERE THE CONTRACTOR SHALL MODIFY THE LOCATION OF THE BASE PLATE BOLT CONNECTIONS SUCH THAT THE BOLTS ARE A MINIMUM OF 3" FROM THE EDGE OF THE STRUCTURE OR PER THE MINIMUM EDGE DISTANCE RECOMMENDED BY THE BOLT MANUFACTURER. THE STRICTER EDGE DISTANCE SHALL APPLY.

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Last Modification Date: 06/18/15	Initials: JHK	
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Drawing File Name: 11-039.03_DETAIL MISC.dwg		
AutoCAD 2010	Scale: AS SHOWN	

MULLER ENGINEERING CO., INC.
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MEC PROJECT NO. 11039.03

COLORADO REGISTERED PROFESSIONAL ENGINEER CHRISTOPHER L. KREGER 37254 6/18/15

Sheet Revisions		
Date:	Comments	Init.

As Constructed
No Revisions:
Revised:
Void:

Region 4 RDM

CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT

MISCELLANEOUS DETAILS

Designer:	JW3	Structure Numbers	
Detailer:	JHK		
Sheet Subset:	MISC. DET.	Subset Sheets:	M-3

Project No./Code
STM 110-081
18405
Sheet Number: 334

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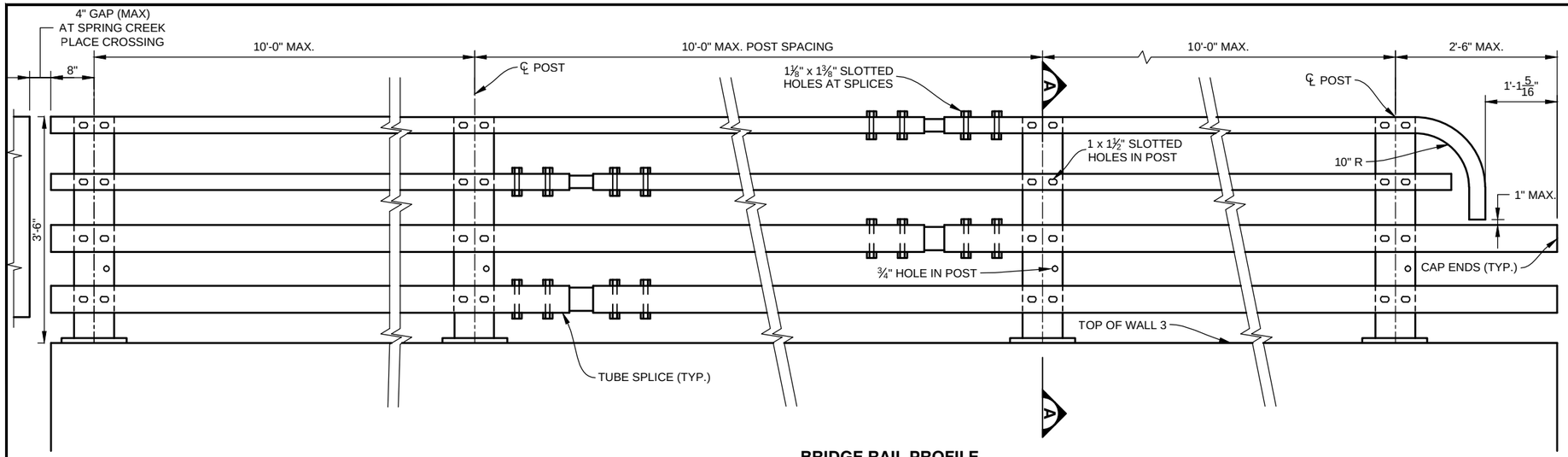

BRIDGE RAIL PROFILE

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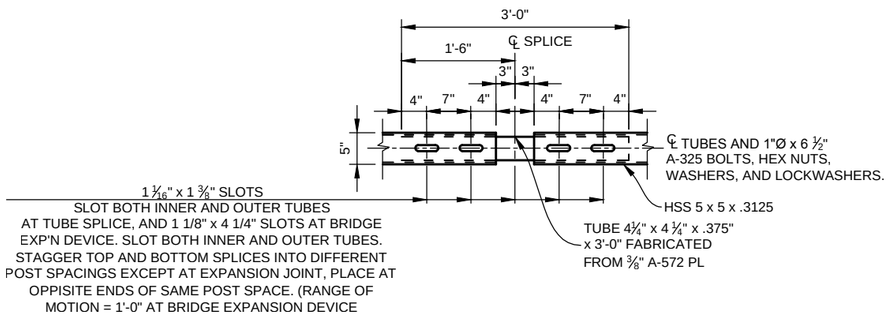
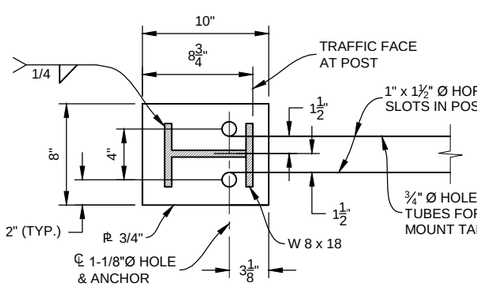
SCALE: 1" = 1'-0"



PLAN - TUBE SPLICE

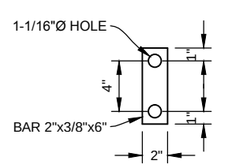
0 1' 2'
SCALE: 1" = 1'-0"

(SPLICE FOR 5x5 TUBE SHOWN, PROVIDE SIMILAR SPLICE AT 4x3 TOP TUBE)
STAGGER TOP AND BOTTOM SPLICES INTO DIFFERENT POST SPACINGS.



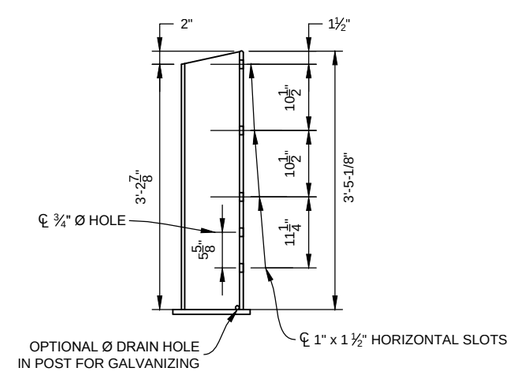
PLAN - POST DETAIL

0 3" 6" 1'
SCALE: 2" = 1'-0"



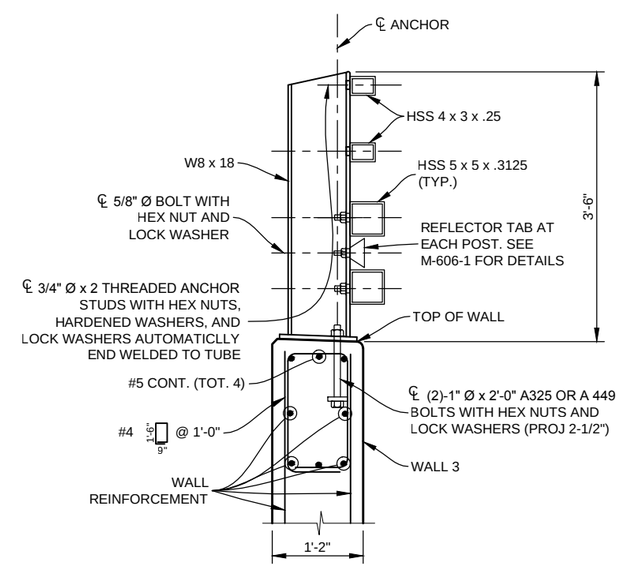
ANCHOR DETAIL

0 3" 6" 1'
SCALE: 2" = 1'-0"



ELEVATION

0 1' 2'
SCALE: 1" = 1'-0"



SECTION A

NOTES:

ALL TUBES SHALL BE ASTM A-500 GRADE B.
ALL POSTS AND BASE PLATES SHALL BE ASTM A-572 GRADE 50. ALL OTHER STEEL SHALL BE ASTM A-36 UNLESS OTHERWISE NOTED.

ALL METAL AND HARDWARE SHALL BE POWER COATED PAINTED BLACK.

POST ANCHORS, ENCASED IN CONCRETE, SHALL BE ASTM A-36 (AASHTO M-183) STEEL AND NEED NOT BE GALVANIZED.

THE TUBES SHALL BE SHOP BENT OR FABRICATED TO FIT HORIZONTAL CURVE WHEN RADIUS IS LESS THAN 1,500 FEET.

TUBES SHALL BE CONTINUOUS OVER NOT LESS THAN TWO POSTS. NO WELDED BUTT SPLICES WILL BE ALLOWED IN TUBE SECTIONS.

THE CENTERLINE OF THE TUBE SPLICE SHALL BE 1'-8" MINIMUM AND 2'-6" MAXIMUM FROM THE CENTERLINE OF THE POSTS.

ALL BOLTS THAT HAVE LOCK WASHERS SHALL BE TIGHTENED TO SNUG ONLY.

POSTS SHALL BE PLUMB TO THE TOP OF THE WALL.

ONE OR MORE 10'-0" POST SPACINGS MAY BE REDUCED (6'-8" MIN.) IN ORDER TO MAINTAIN DIMENSIONS FROM THE END OF THE RAIL AND EXPANSION JOINTS.

PAYMENT WILL BE MADE UNDER ITEM 606, BRIDGE RAIL TYPE 10H FOR ALL POSTS, POST ANCHORS, BASE PLATES, BACKING PLATES, ANCHOR BOLTS, MISCELLANEOUS BOLTS, NUTS, WASHERS, TUBES, TUBE SPLICES, END PLATES, AND REFLECTOR TABS.

PRIOR TO FABRICATION OF THIS ITEM, THREE SETS OF WORKING DRAWINGS WHICH COMPLY WITH THE REQUIREMENTS OF CDOT STANDARD SPECIFICATIONS SECTION 105, SHALL BE SUBMITTED TO THE ENGINEER FOR INFORMATION ONLY.

STRUCTURAL STEEL:

AASHTO M-183 (ASTM A-36)	f_y = 36,000 PSI
AASHTO M-223 (ASTM A-572) GRADE 50	f_y = 50,000 PSI
COLD FORMED ASTM ASTM A-500 GRADE B	f_y = 46,00 PSI

FOR ADDITIONAL DETAILS SEE NEXT RAIL SHEETS.

NO VEHICLE IMPACT LOAD PERMITTED ON THE RAIL.

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WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT
MISCELLANEOUS DETAILS

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Detailer:	JHK		
Sheet Subset:	MISC. DET.	Subset Sheets:	M-4

Project No./Code
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Sheet Number: 335