

BULBOUT 3										
POINT ID	P.C. STA.	P.C. N / E	P.I. STA.	P.I. N / E	P.T. STA.	P.T. N / E	DELTA	RADIUS	LENGTH	BEARING
FCL14	39+75.00	N: 1267257.1368 E: 3084352.3604	39+87.50	N: 1267259.4004 E: 3084364.6587	40+00.00	N: 1267260.9744 E: 3084377.0641	3° 11' 54"	447.934	25.003	N81° 10' 12.53"E
FCL15	40+00.00	N: 1267260.9744 E: 3084377.0641	40+07.81	N: 1267262.1313 E: 3084384.7881	40+14.40	N: 1267256.4668 E: 3084390.1652	55° 00' 37"	15.000	14.402	S71° 00' 50.24"E
FCL16	40+14.40	N: 1267256.4668 E: 3084390.1652	40+21.41	N: 1267251.3822 E: 3084394.9918	40+27.52	N: 1267251.8236 E: 3084401.9887	50° 06' 04"	15.000	13.116	S68° 33' 33.94"E
FCL17	40+27.52	N: 1267251.8236 E: 3084401.9887	40+36.52	N: 1267252.3904 E: 3084410.9720	40+45.52	N: 1267252.7078 E: 3084419.9676	1° 35' 21"	649.000	18.001	N87° 11' 04.47"E
FCL18	40+45.52	N: 1267252.7078 E: 3084419.9676	40+52.72	N: 1267252.9617 E: 3084427.1651	40+58.95	N: 1267258.7373 E: 3084431.4677	51° 17' 40"	15.000	13.429	N62° 19' 55.22"E
FCL19	40+58.95	N: 1267258.7373 E: 3084431.4677	40+66.40	N: 1267264.7123 E: 3084435.9189	40+72.78	N: 1267264.7755 E: 3084443.3695	52° 49' 45"	15.000	13.831	N63° 05' 58.06"E
FCL20	40+72.78	N: 1267264.7755 E: 3084443.3695	40+85.28	N: 1267264.5229 E: 3084455.8715	40+97.78	N: 1267263.5940 E: 3084468.3415	3° 06' 09"	461.756	25.003	S87° 17' 28.25"E

BULBOUT 4										
POINT ID	P.C. STA.	P.C. N / E	P.I. STA.	P.I. N / E	P.T. STA.	P.T. N / E	DELTA	RADIUS	LENGTH	BEARING
FCL21	49+75.00	N: 1267214.0919 E: 3084359.2072	49+87.50	N: 1267216.1010 E: 3084371.5457	50+00.00	N: 1267217.7974 E: 3084383.9311	1° 26' 56"	988.675	25.001	N81° 28' 34.36"E
FCL22	50+00.00	N: 1267217.7974 E: 3084383.9311	50+05.52	N: 1267218.6072 E: 3084389.3922	50+10.58	N: 1267222.7642 E: 3084393.0252	40° 24' 45"	15.000	10.580	N61° 21' 32.77"E
FCL23	50+10.58	N: 1267222.7642 E: 3084393.0252	50+16.83	N: 1267227.4685 E: 3084397.1367	50+22.42	N: 1267227.8632 E: 3084403.3720	45° 13' 32"	15.000	11.840	N63° 45' 55.88"E
FCL24	50+22.42	N: 1267227.8632 E: 3084403.3720	50+31.42	N: 1267228.4318 E: 3084412.3553	50+40.42	N: 1267228.7414 E: 3084421.3513	1° 39' 01"	625.000	18.001	N87° 12' 12.07"E
FCL25	50+40.42	N: 1267228.7414 E: 3084421.3513	50+46.41	N: 1267228.9475 E: 3084427.3363	50+51.82	N: 1267224.9750 E: 3084431.8176	43° 31' 38"	15.000	11.395	S70° 12' 28.38"E
FCL26	50+51.82	N: 1267224.9750 E: 3084431.8176	50+57.61	N: 1267221.1309 E: 3084436.1540	50+62.88	N: 1267221.2007 E: 3084441.9486	42° 14' 47"	15.000	11.060	S69° 34' 02.84"E
FCL27	50+62.88	N: 1267221.2007 E: 3084441.9486	50+75.38	N: 1267221.0964 E: 3084454.4534	50+87.88	N: 1267220.2683 E: 3084466.9312	3° 19' 08"	431.654	25.003	S87° 51' 45.15"E

BULBOUT 5										
POINT ID	P.C. STA.	P.C. N / E	P.I. STA.	P.I. N / E	P.T. STA.	P.T. N / E	DELTA	RADIUS	LENGTH	BEARING
FCL28	59+75.00	N: 1266074.5881 E: 3085139.7426	59+87.50	N: 1266062.1848 E: 3085141.3094	60+00.00	N: 1266049.8436 E: 3085143.3078	1° 59' 55"	716.724	25.001	S08° 11' 56.42"E
FCL29	60+00.00	N: 1266049.8436 E: 3085143.3078	60+05.25	N: 1266044.6560 E: 3085144.1038	60+10.10	N: 1266040.1038 E: 3085141.4919	38° 34' 07"	15.000	10.097	S10° 33' 40.89"W
FCL30	60+10.10	N: 1266040.1038 E: 3085141.4919	60+16.32	N: 1266034.7050 E: 3085138.3943	60+21.90	N: 1266028.6992 E: 3085140.0290	45° 04' 20"	15.000	11.800	S07° 18' 34.55"W
FCL31	60+21.90	N: 1266028.6992 E: 3085140.0290	60+30.90	N: 1266020.0101 E: 3085142.3941	60+39.90	N: 1266011.5037 E: 3085145.3499	3° 56' 06"	262.140	18.004	S17° 11' 38.48"E
FCL32	60+39.90	N: 1266011.5037 E: 3085145.3499	60+46.12	N: 1266005.6299 E: 3085147.3910	60+51.69	N: 1266002.9230 E: 3085152.9892	45° 02' 00"	15.000	11.790	S41° 40' 41.49"E
FCL33	60+51.69	N: 1266002.9230 E: 3085152.9892	60+57.58	N: 1266000.3608 E: 3085158.2881	60+62.91	N: 1265994.8787 E: 3085160.4305	42° 50' 57"	15.000	11.218	S42° 46' 13.20"E
FCL34	60+62.91	N: 1265994.8787 E: 3085160.4305	60+75.42	N: 1265983.4829 E: 3085165.5928	60+87.92	N: 1265972.5476 E: 3085171.6697	4° 41' 29"	305.405	25.007	S26° 42' 57.56"E

NW FL - BRANDON CK DR										
POINT ID	P.C. STA.	P.C. N / E	P.I. STA.	P.I. N / E	P.T. STA.	P.T. N / E	DELTA	RADIUS	LENGTH	BEARING
FCL35	70+00.00	N: 1265724.5539 E: 3085375.7285	70+17.81	N: 1265712.8684 E: 3085389.1743	70+27.47	N: 1265700.0172 E: 3085376.8379	92° 50' 09"	16.953	27.469	S02° 35' 19.53"E
FL6	70+27.47	N: 1265700.0172 E: 3085376.8379			70+39.74	N: 1265691.1404 E: 3085368.3656			12.271	S43° 39' 52.19"W

NW FL - IDYLBILD CT										
POINT ID	P.C. STA.	P.C. N / E	P.I. STA.	P.I. N / E	P.T. STA.	P.T. N / E	DELTA	RADIUS	LENGTH	BEARING
FCL37	90+00.00	N: 1265403.4025 E: 3085625.4946	90+15.00	N: 1265389.7309 E: 3085631.6569	90+23.56	N: 1265383.5652 E: 3085617.9868	89° 59' 09"	15.000	23.558	S20° 43' 48.48"W
FL8	90+23.56	N: 1265383.5652 E: 3085617.9868			90+50.73	N: 1265372.3940 E: 3085593.2188			27.171	S65° 43' 22.82"W

SW FL - BRANDON CK DR										
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FL7	80+00.00	N: 1265672.4896 E: 3085383.3278			80+20.65	N: 1265685.2927 E: 3085399.5335			20.653	N51° 41' 24.00"E
FCL36	80+20.65	N: 1265685.2927 E: 3085399.5335	80+34.78	N: 1265694.0526 E: 3085410.6214	80+44.23	N: 1265684.7526 E: 3085421.2604	79° 28' 05"	17.000	23.579	S88° 34' 33.62"E

Print Date: 08/01/2016
 File Name: 60316_RD-03.DWG
 Hertz Scale: N/A Vert. Scale: N/A
 City Project Manager
 1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202
 Phone: 303-764-1520 Fax: 303-860-7139

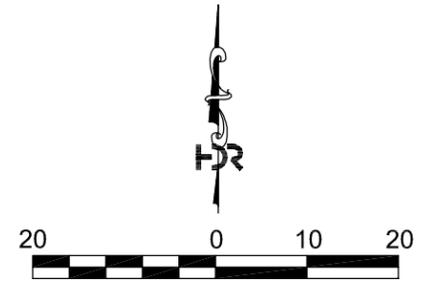
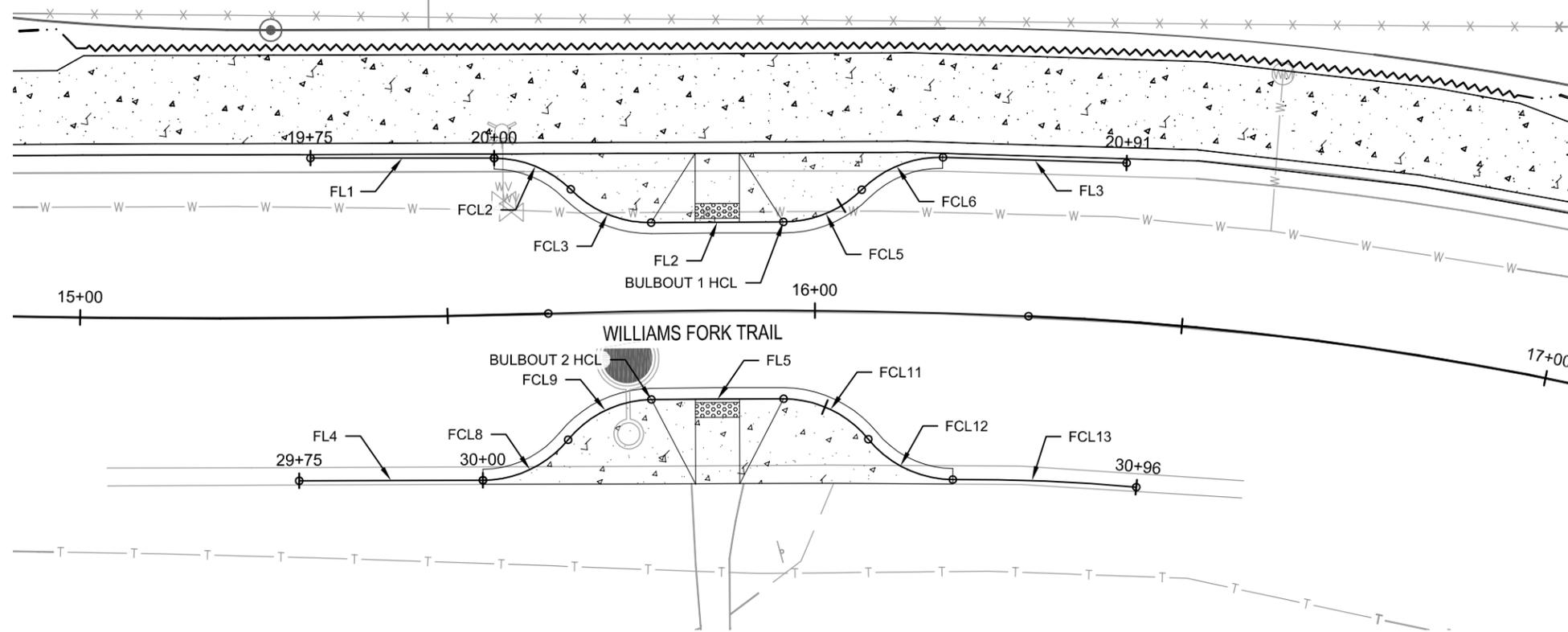
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Date:	Comments	Init.



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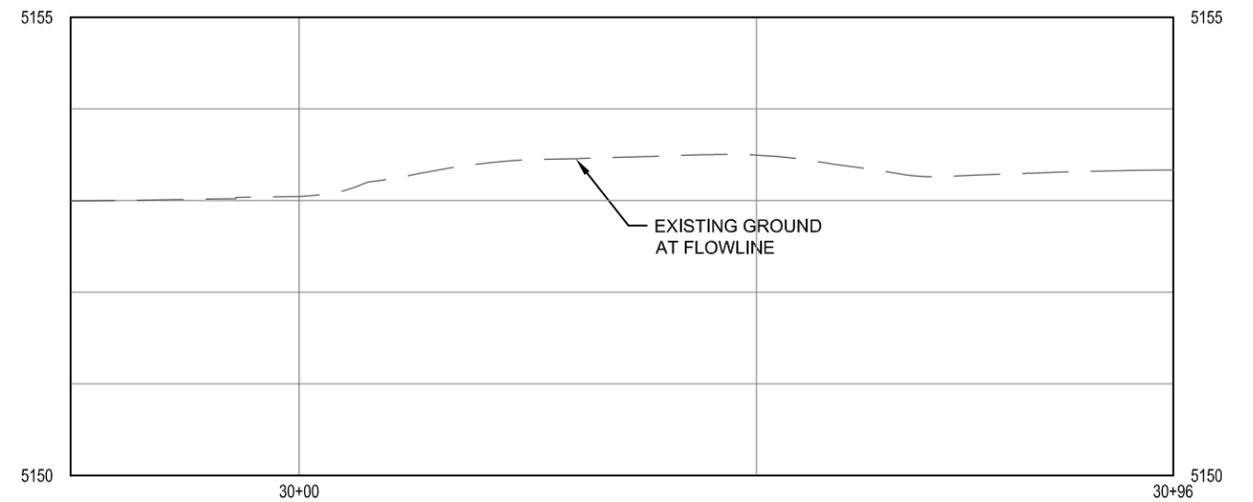
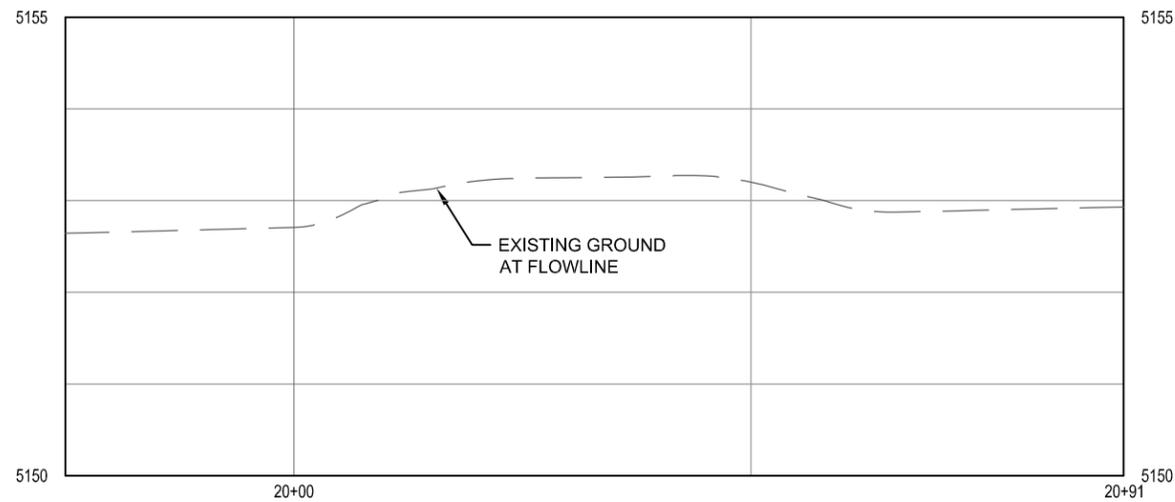
TWIN LAKES MULTI-USE PATH CONNECTIONS
 BULBOUT DESIGN
 AND GEOMETRIC DATA PLAN
 Designer: E. BAYLEY
 Detailer: A. NILES
 Sheet Subset: GEOMETRIC DATA
 Structure Numbers
 Subset Sheets: 3 of 3

Project Number / Code
 TAP C070-076
 20673
 Sheet Number 22



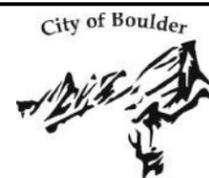
BULBOUT 1

BULBOUT 2



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HR 1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202
 Phone: 303-764-1520 Fax: 303-860-7139

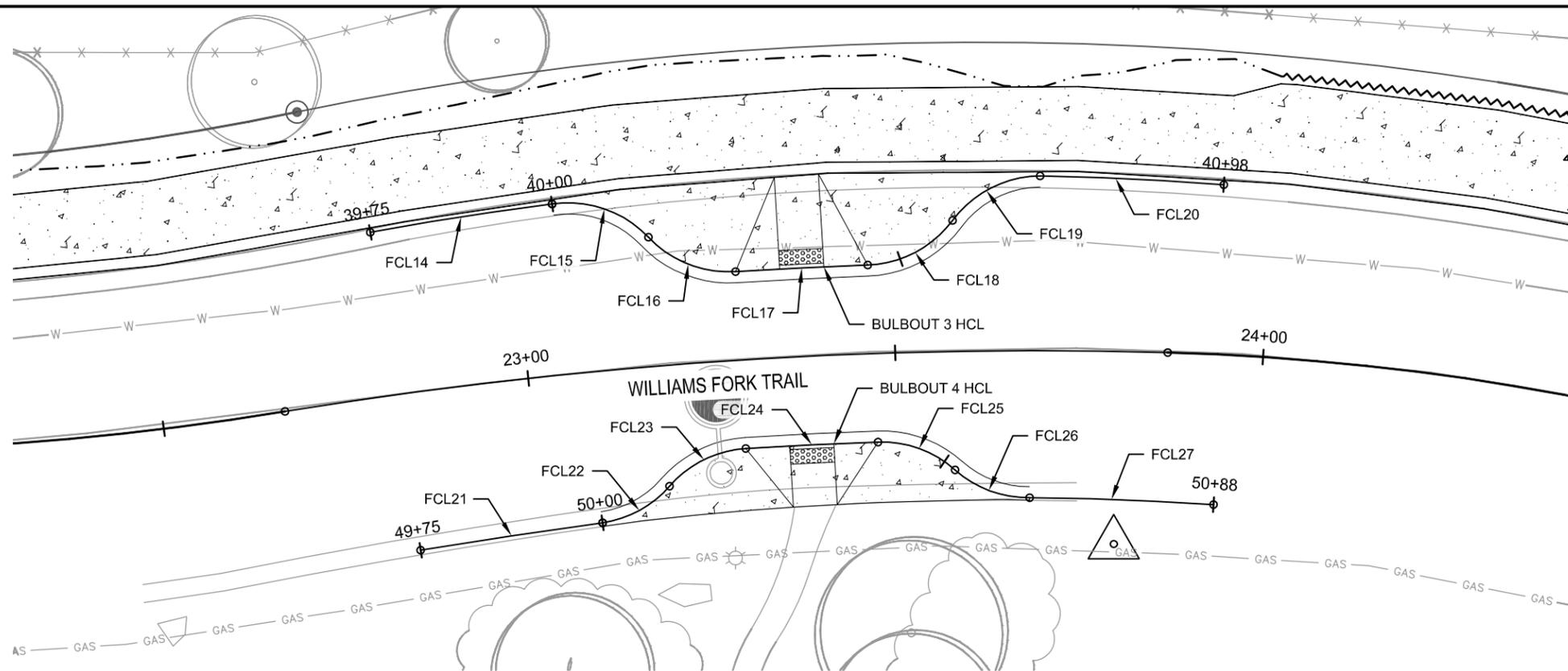
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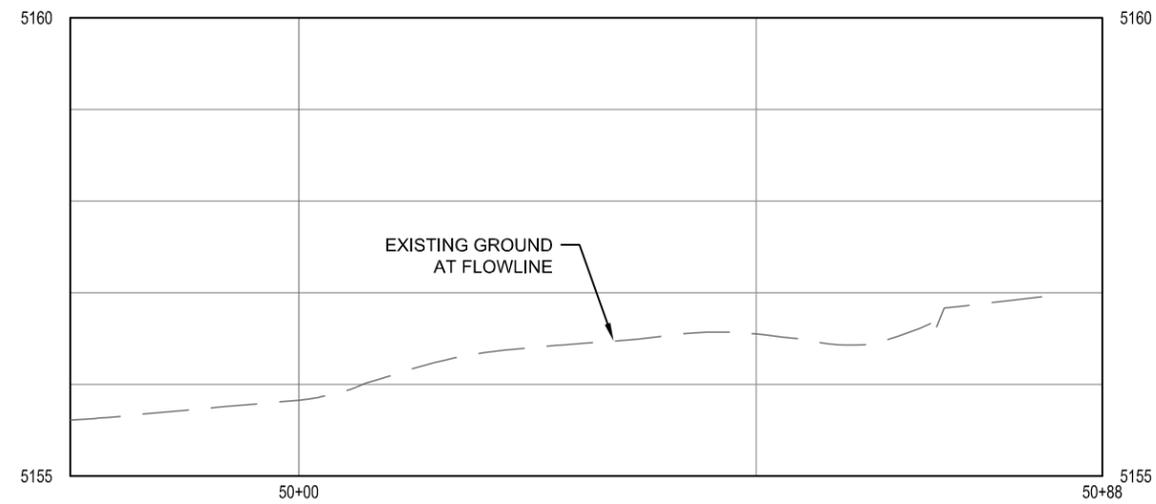
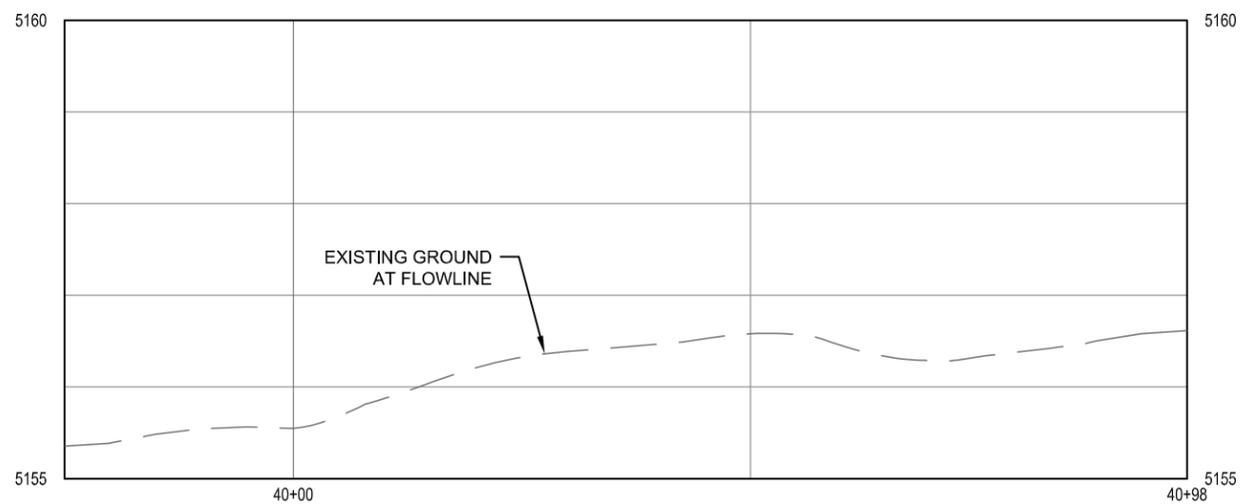
TWIN LAKES MULTI-USE PATH CONNECTIONS
**BULBOUT DESIGN
 PLAN AND PROFILE**
 Designer: E. BAYLEY
 Detailer: A. NILES
 Sheet Subset: ROADWAY
 Structure Numbers
 Subset Sheets: 1 of 4

Project Number / Code
 TAP C070-076
 20673
 Sheet Number 23



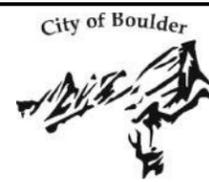
BULBOUT 3

BULBOUT 4



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 Phone: 303-764-1520 Fax: 303-860-7139

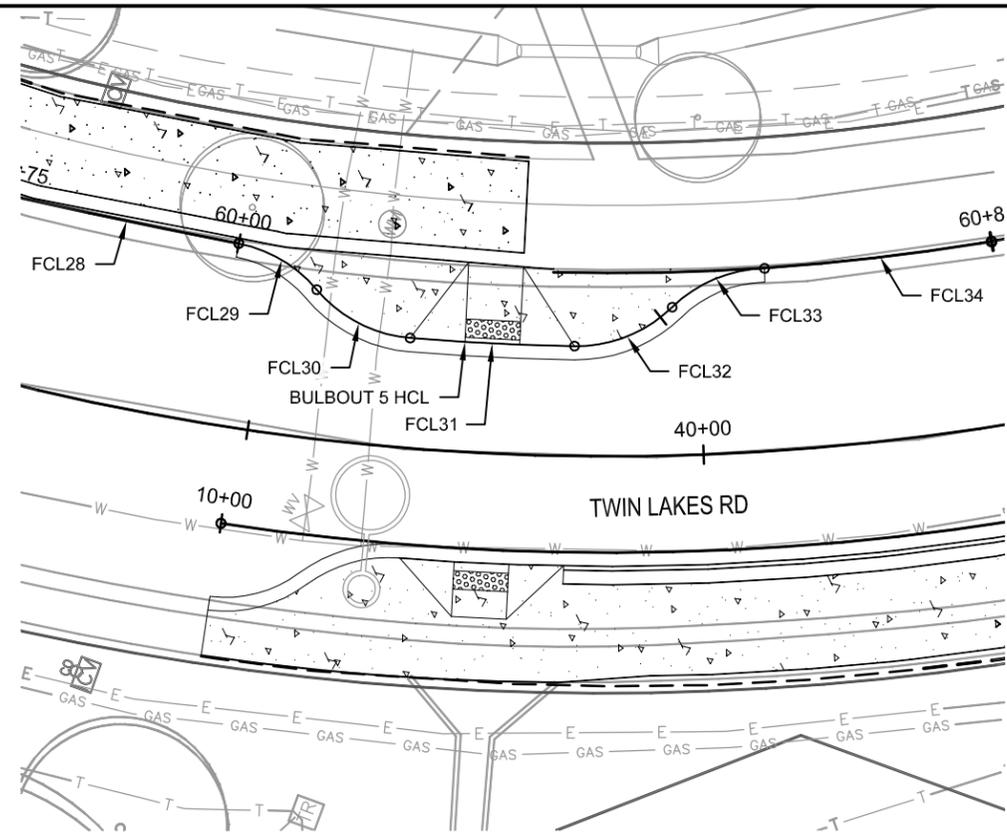
Sheet Revisions		
Date:	Comments	Init.



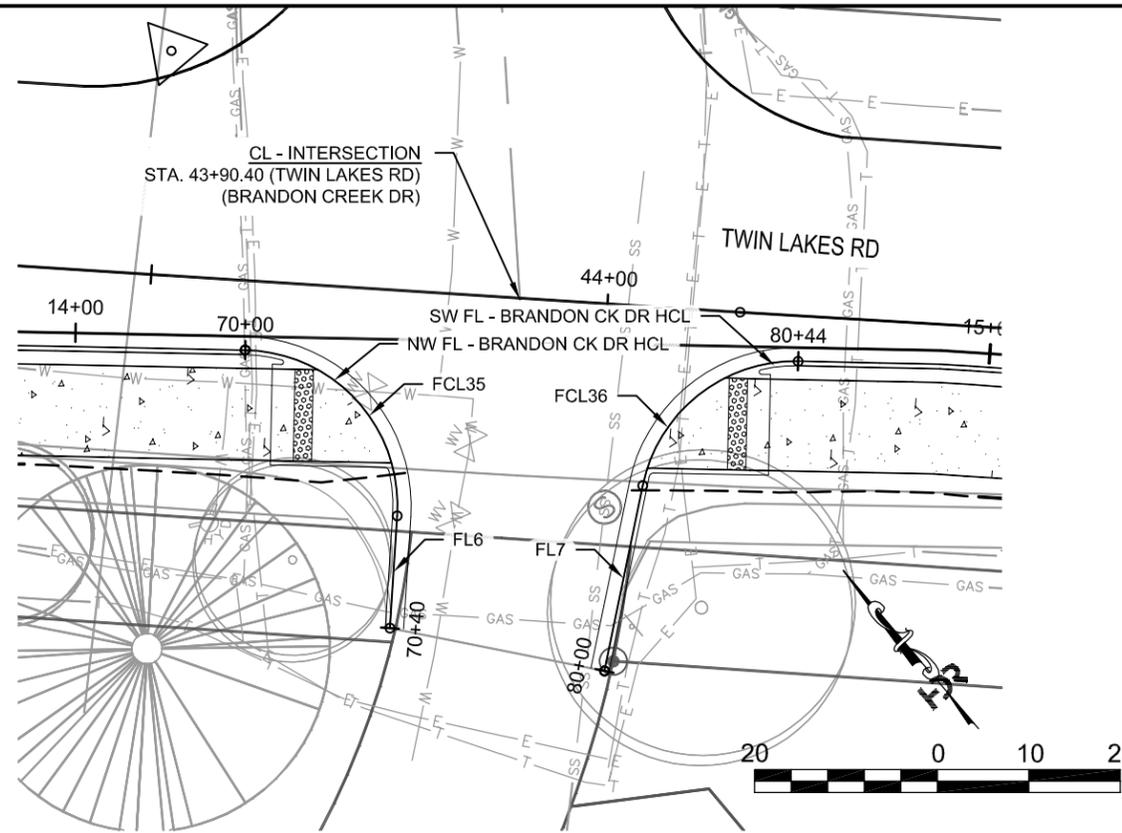
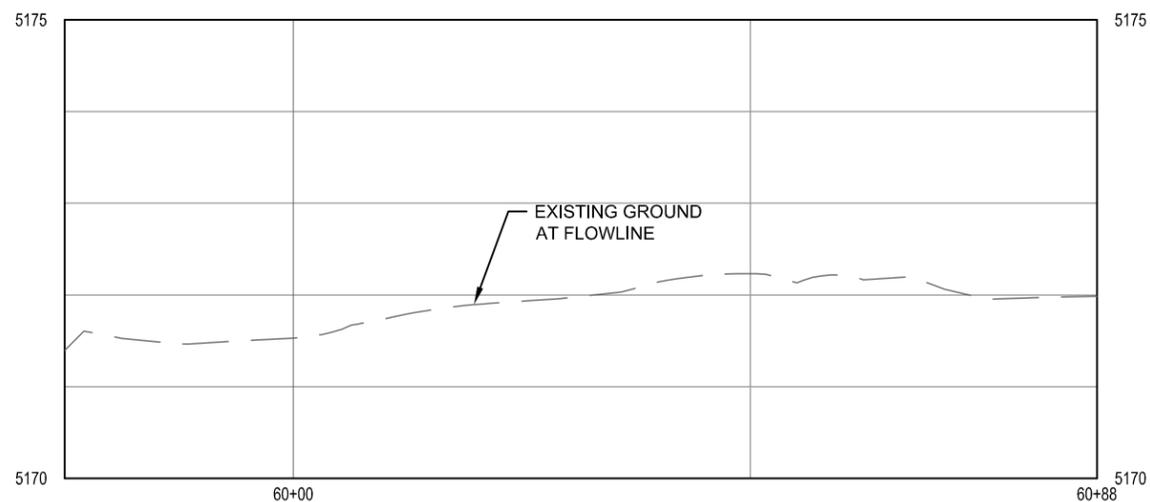
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 No Revisions:
 Revised:
 Void:

TWIN LAKES MULTI-USE PATH CONNECTIONS
**BULBOUT DESIGN
 PLAN AND PROFILE**
 Designer: E. BAYLEY
 Detailer: A. NILES
 Sheet Subset: ROADWAY
 Structure Numbers
 Subset Sheets: 2 of 4

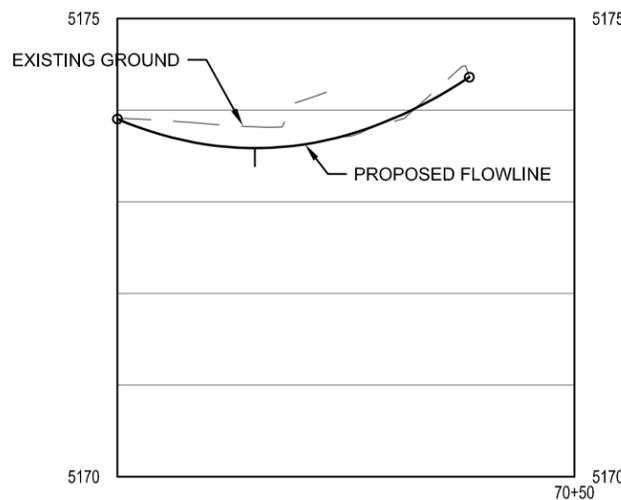
Project Number / Code
 TAP C070-076
 20673
 Sheet Number 24



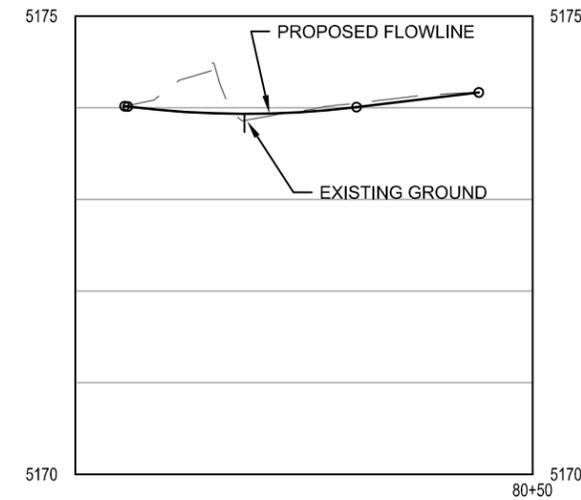
BULBOUT 5



NW FL - BRANDON CK DR

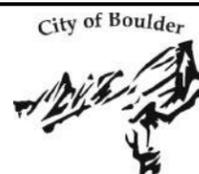


SW FL - BRANDON CK DR



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 Phone: 303-764-1520 Fax: 303-860-7139

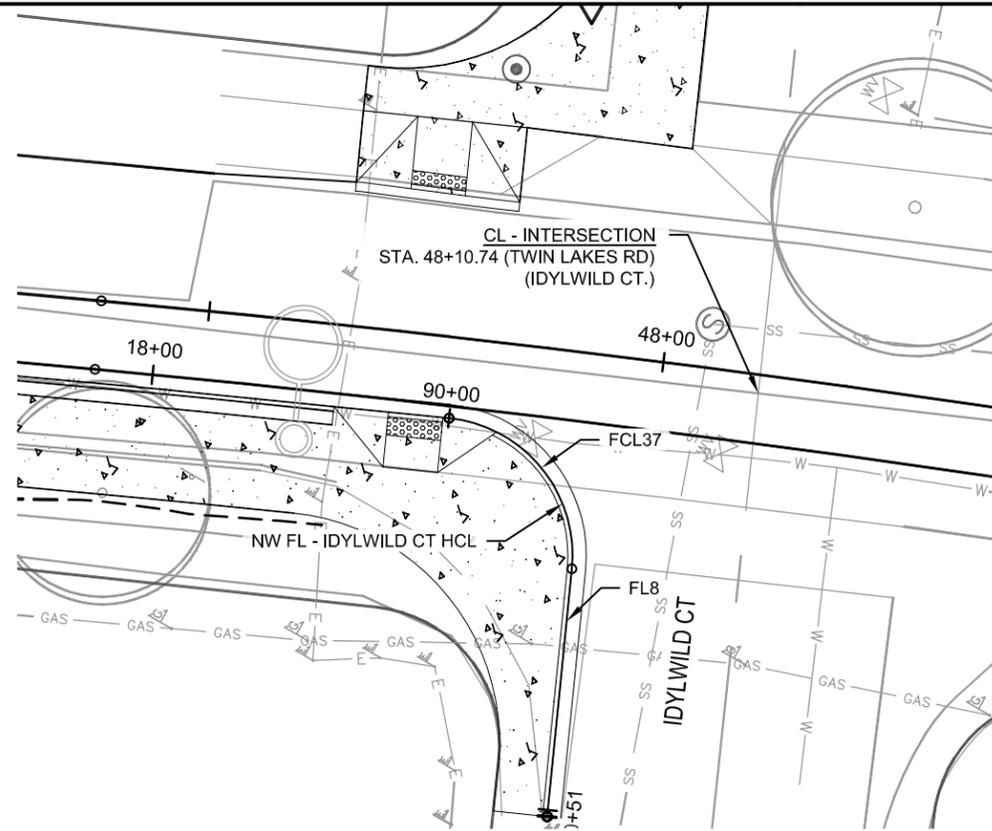
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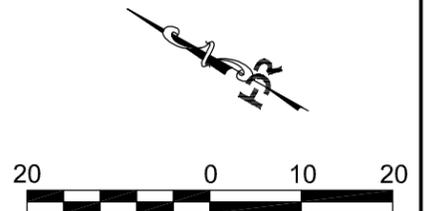
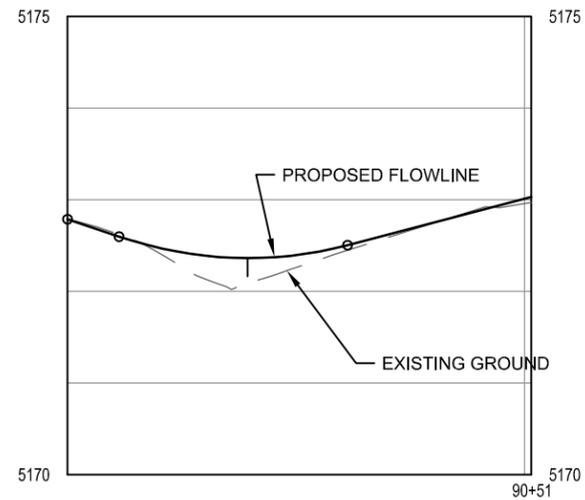
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 No Revisions:
 Revised:
 Void:

TWIN LAKES MULTI-USE PATH CONNECTIONS
**BULBOUT DESIGN
 PLAN AND PROFILE**
 Designer: E. BAYLEY
 Detailer: A. NILES
 Sheet Subset: ROADWAY Subset Sheets: 3 of 4

Project Number / Code
 TAP C070-076
 20673
 Sheet Number 25

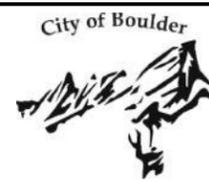


NW FL - IDYLWILD CT



Print Date: 08/01/2016
 File Name: 60316_RD-03.DWG
 Horiz. Scale: 1" = 20' Vert. Scale: 5'
 City Project Manager
HR 1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202
 Phone: 303-764-1520 Fax: 303-860-7139

Sheet Revisions		
Date:	Comments	Init.



As Constructed
 No Revisions:
 Revised:
 Void:

TWIN LAKES MULTI-USE PATH CONNECTIONS
**BULBOUT DESIGN
 PLAN AND PROFILE**
 Designer: E. BAYLEY
 Detailer: A. NILES
 Sheet Subset: ROADWAY
 Structure Numbers
 Subset Sheets: 4 of 4

Project Number / Code
 TAP C070-076
 20673
 Sheet Number 26

300	200	65	3500
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*Biological nutrient shall not exceed 8-8-8 (N-P-K).

[**Pick either Compost or Spray on Amendment based on slope conditions. Delete the other.]

Humate based material shall be in accordance to Standard Special Provision 212 and compost shall be in accordance to Standard Special Provision 2' 2.

F. **SOIL RETENTION COVERING:** On slopes and ditches requiring a blanket or turf reinforcement mat (trm), the blanket/trm shall be placed in lieu of mulch and mulch tackifier and placed after seeding (native). See SWMP site map for blanket/trm locations.

G. **RESEEDING OPERATIONS/CORRECTIVE STABILIZATION**

Prior to partial acceptance. [Select item(s) that apply, delete references to all others]

- All seeded areas shall be reviewed during the 14 day inspections by the SWMP Administrator and/or Erosion Control Inspector for bare soils caused by surface or wind erosion. Bare areas caused by surface or gully erosion, blown away mulch, etc. shall be re-graded, seeded, and have the designated mulching applied as necessary, at no additional cost to the project.
- The Contractor shall maintain seeding/mulch/tackifier/blanket/TRM, mow to control weeds or apply herbicide to control weeds in the seeded areas until Partial Acceptance of the stormwater construction work.

BMP Matrix:

- M-Standards have been included along with standard BMP narratives. If a Non-Standard BMP will be used or the standard narrative does not apply, the SWMP Administrator shall write a Non-Standard BMP narrative, place an "X" in the column and complete a Non-Standard BMP Specification and Narrative for the SWMP notebook.
- The SWMP Administrator shall place an "X" in the column In Use on Site when the BMP/Control Measure has been installed.
- Place an "X" in the column BMP/Control Measure to be located by SWMP Administrator if the SWMP Administrator shall locate the BMP/Control Measure during construction. These BMP/Control Measures are not currently located on SWMP Plans but are anticipated to be used during construction (i.e. Vehicle Tracking Pad, Batch Plants, etc.). The SWMP Administrator shall locate these prior to or during construction and reflect on SWMP Map.
- Place an "X" in the column Installation BMP/Control Measure Pre-Construction if the BMP/Control Measure is to be installed prior to construction activity.

STRUCTURAL BMPs/Control Measures that may be potentially used on the project for erosion and sediment control; practices may include, but are not limited to:

APPLICATION, BMP/CONTROL MEASURE	NARRATIVE	M-STANDARD/NON-STANDARD	IN USE ON SITE	BMP/CONTROL MEASURE TO BE LOCATED BY SWMP ADMINISTRATOR	INSTALLATION BMP/CONTROL MEASURE PRE-CONSTRUCTION	BMP/CONTROL MEASURE PHASING		
						FIRST/INITIAL CONSTRUCTION ACTIVITIES	INTERIM CONSTRUCTION ACTIVITIES	PERMANENT STABILIZATION
PROTECTION OF EXISTING WETLANDS Fence (plastic) and erosion logs	Fence (plastic) shall be placed in combination with erosion logs to prevent encroachment of construction traffic and sediment into state waters prior to start of construction disturbances. Fence (plastic) shall be placed adjacent to the wetlands; erosion logs shall be placed between the plastic fence and disturbance area. Logs shall be placed to direct flows away from or filter water running into wetlands from disturbance areas.					X	X	
PROTECTION OF EXISTING TREES/LANDSCAPING Fence (plastic)	Fence (plastic) shall be used in areas indicated in the plans to prevent encroachment of construction traffic and sediment for the protection of mature trees and/or existing landscaping prior to start of construction disturbances.					X	X	
CHECK DAM/DITCH CHECK Erosion log, silt berm, silt dike, rock check dam	Placed in ditches immediately upon completion of ditch grading to reduce velocity of runoff in ditch. For existing ditches, place prior to start of construction disturbances.	M-208				X	X	X

10. PRIOR TO PROJECT FINAL ACCEPTANCE

- Partial Acceptance shall be in accordance with subsection 107.25 (d), 208.10 and 214.04 at the Partial Acceptance of the project, it shall be determined by the SWMP Administrator and the Engineer which temporary BMPs/Control Measures shall remain until 70% revegetation is established or which shall be removed.
- At the end of the project, all ditch checks shall either consist of temporary erosion logs (or equivalent) or permanent rip-rap.
- All storm drains shall be cleaned prior to the Final Acceptance of the project. Work shall be included in 202 Clean Culvert.

11. NARRATIVES:

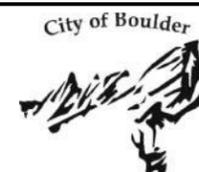
- ADDITIONAL BMPs/CONTROL MEASURES AND NARRATIVES:**
BMP/Control Measure details and narratives not covered by the SWMP or Standard Plan M-208, M-216 shall be added to the SWMP notebook by the SWMP Administrator.

TYPE R AND TYPE 16 INLET PROTECTION Storm drain inlet protection (Type 1, 2 and 3)	Placed prior to construction disturbances as detailed in M-208-1, to protect existing inlets or immediately upon completion of new inlets to prevent sediment from entering the inlet throughout construction.	M-208					X	X	X
CULVERT INLET/OUTLET PROTECTION Erosion logs, aggregate bags	Placed at mouth of culvert inlets and over top of culvert at inlet and outlet where disturbance may be occurring adjacent to pipe to prevent sediment laden water from entering pipe or drainage. Place prior to start of construction disturbances.	M-208					X	X	X
TYPE C, TYPE D AND TYPE 13 PROTECTION Erosion logs, aggregate bags, erosion bales	Placed around inlet grate or slope and ditch paving to prevent sediment from entering inlet. Place prior to start of construction disturbances.	M-208					X	X	X
STOCKPILE PROTECTION Temporary berm, erosion logs, aggregate bags*	Placed within specified distance, in accordance with subsection 208.06, from toe to contain sediment around stockpile. *Aggregate bags are easily moved and replaced for access during the work day. Place prior to start of stock pile, increase control as stock pile increases size.	M-208						X	
TOE OF FILL PROTECTION Erosion logs, temporary berm, silt fence, topsoil windrow*	Place prior to slope/embankment work to capture sediment and protect and delineate undisturbed areas. *Can be used to stockpile topsoil for salvage.	M-208					X	X	
PERIMETER CONTROL Erosion logs, silt fence, temporary berm, topsoil windrow*	Placed prior to construction commencing to address potential run-on water from off site, and to divert around disturbed area. *Can be used to stockpile topsoil for salvage.	M-208					X	X	
SEDIMENT CONTROL/ SLOPE CONTROL Silt fence, erosion logs	Placed on the contour of a slope to contain and slow down construction runoff. Place prior to start of construction disturbances.	M-208					X	X	
TEMPORARY SEDIMENT TRAP (SWMP Administrator shall add locations to SWMP site maps)	Used to capture sediment laden runoff from disturbed areas < 5 acres during construction. Place prior to start of construction disturbances.	M-208					X	X	
PERMANENT SEDIMENT BASIN Extended detention basin or other Permanent Water Quality features	Constructed early in project, prior to storm sewer/ditches to capture storm flow as a temporary sediment trap. Outlet structure shall be modified for contaminants of construction runoff a non standard detail is needed.						X	X	
EMBANKMENT PROTECTION OR TEMPORARY SLOPE DRAIN	Placed as a conduit or chute to drain runoff down slope and to prevent erosion of slope.	M-208						X	X
OUTLET PROTECTION Riprap, or approved other	Material placed as energy dissipater to prevent erosion at outlet structure.							X	X
CONCRETE WASHOUT In-ground or fabricated	Construction control, used for waste management of concrete and concrete equipment cleaning. Place prior to start of concrete activities.	M-208					X	X	
VEHICLE TRACKING PAD	Source control, placed to prevent tracking of sediment from disturbed area to offsite surface. Place prior to start of construction disturbances.	M-208					X	X	
SWEEPING	Source control, used to remove sediment tracked onto paved surfaces and to prevent sediment from entering drainage system. Sweep daily and at the end of the construction shift as needed. Kick brooms shall not be permitted.						X	X	
DEWATERING (Contractor is responsible for obtaining a permit from Colorado Department of Health and Environment.)	Shall be done in such a manner to prevent potential pollutants from entering state waters.						X	X	
TEMPORARY STREAM CROSSING (SWMP Administrator shall add locations to SWMP site maps)	Constructed over stream or drainage to prevent discharge of pollutants from construction equipment into water.						X	X	
CLEAN WATER DIVERSION	Placed to divert clean surface or ground water around disturbance area to prevent it from mixing with construction runoff.						X	X	
OTHER									

NON-STRUCTURAL BMPs/Control Measures that may be potentially used on the project for erosion and sediment control; practices may include, but are not limited to:
Erosion control devices are used to limit the amount of soil loss on site
Sediment control devices are designed to capture sediment on the project site.

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City Project Manager
 1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202
Phone: 303-764-1520 Fax: 303-860-7139

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TWIN LAKES MULTI-USE PATH CONNECTIONS
STORMWATER MANAGEMENT PLAN
NOTES
Designer: E. BAYLEY
Detailer: A. NILES
Structure Numbers
Sheet Subset: STORMWATER
Subset Sheets: 4 of 6

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