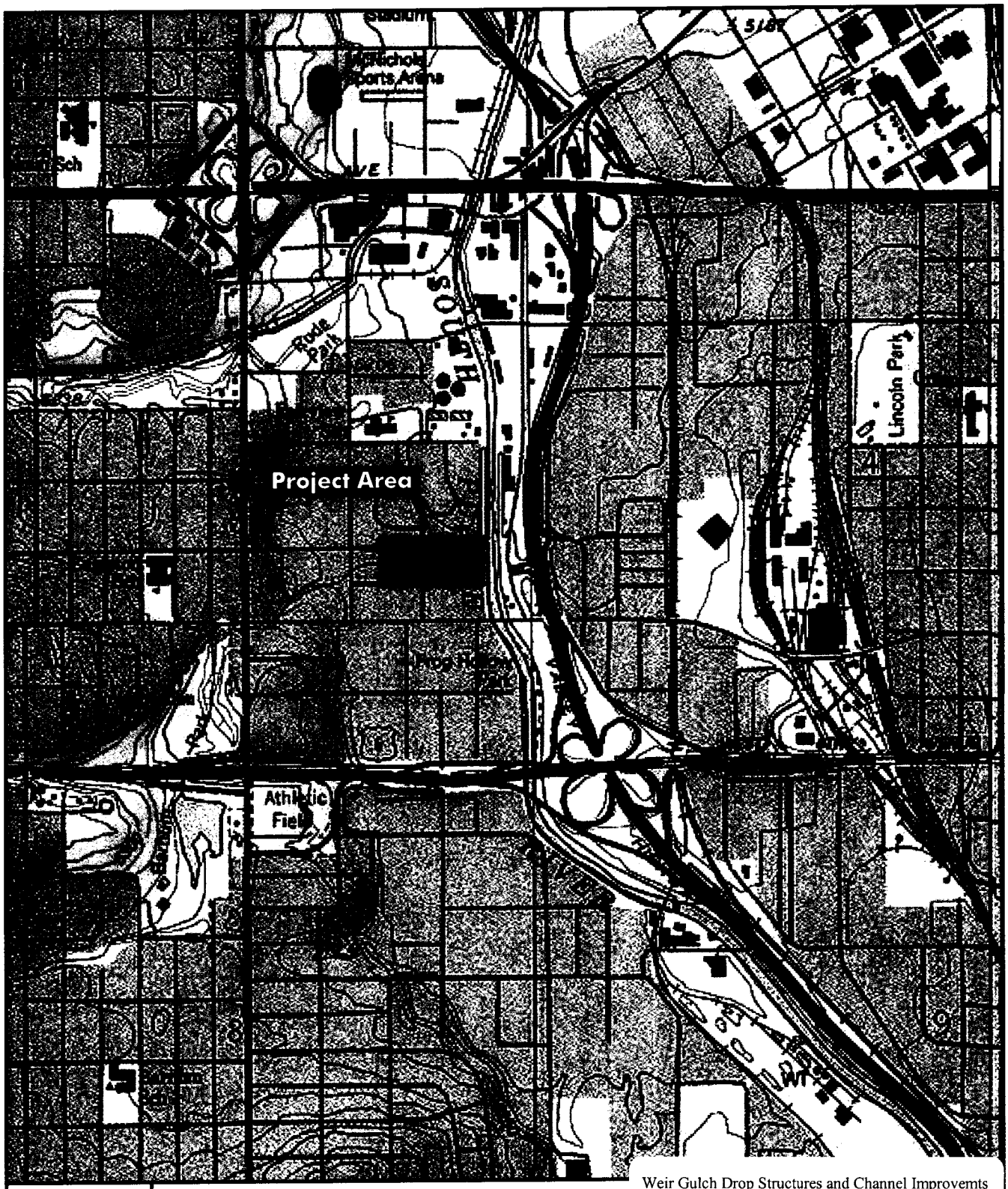


ERO

ERO Resources Corp.
1842 Clarkson Street
Denver, CO 80218
(303) 830-1188
Fax: 830-1199

Weir Gulch Channel Improvements
T4S, R68W, SE 1/4 Section 5
UTM Coordinates: Zone 13; 4397750mN, 498500mE
USGS Fort Logan, Colorado Quadrangle
Denver County, Colorado

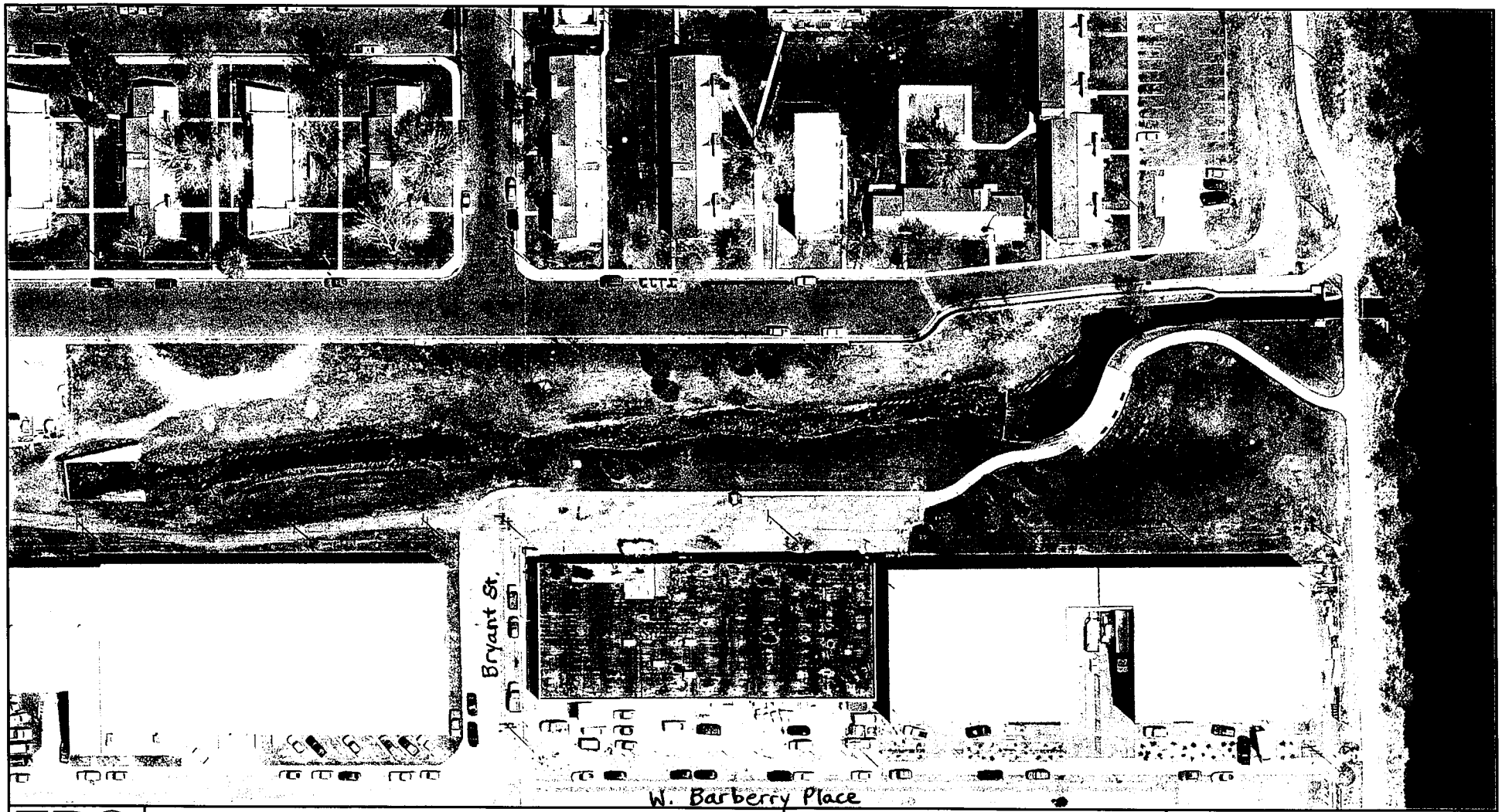
Weir Gulch Drop Structures and Channel Improvemts
Urban Drainage and Flood Control District
Corps File No. 200380707

Project Location Map
Fig. 1/7

1 Inch = 2,000 Feet

N

Prepared for: UDFCD
File: figure 1.ai
January 2004



ERO
ERO Resources Corp.
1842 Clarkson Street
Denver, CO 80218
(303) 830-1188
Fax: (303) 830-1199

Wetlands

● SP = Soil Points

0 0 FEET
Scale: 1" = 60'

North

Figure 2
Wetland Map
Weir Gulch at 9th Avenue

Produced for: UDFCD
File: Figure 2
Date: 2/26/04

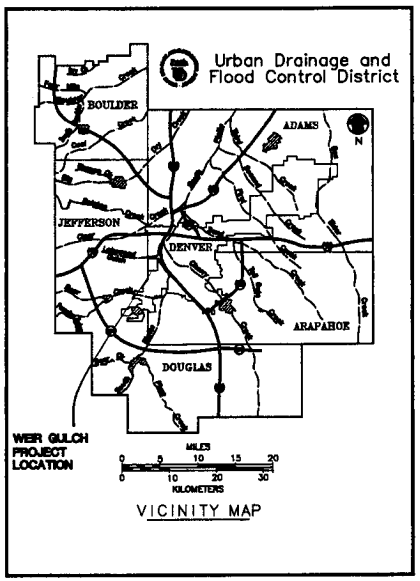
Weir Gulch Drop Structures and Channel Improvemts
Urban Drainage and Flood Control District
Corps File No. 200380707

Aerial View Project Location
Fig. 2/7

URBAN DRAINAGE AND FLOOD CONTROL DISTRICT

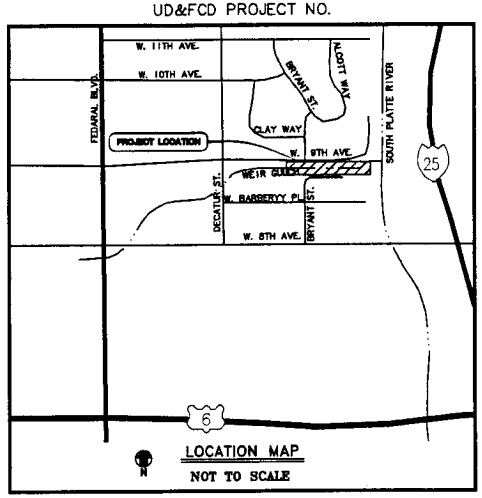
TITLE

SUB–TITLE



VICINITY MAP

UD&FCD PROJECT NO.



LOCATION MAP

NOT TO SCALE

DECEMBER 2003

GENERAL NOTES

1. All construction shall be in accordance with the latest edition of the Colorado Department of Transportation's Standard Specifications for road and bridge construction", and the Urban Drainage and Flood Control District's Criteria unless otherwise noted on the drawings and specifications.

2. All materials and workmanship shall be subject to inspection by the Owners. The Owners reserve the right to accept or reject any such workmanship that does not conform to their Standards and Specifications.

3. The Contractor shall notify the Urban Drainage and Flood Control District a minimum of 48 hours prior to starting construction. Phone Number 455-6277

4. The Contractor shall be responsible for restoring all disturbed surfaces and related structures, including but not limited to, driveways, curbs, gutters, walks, and bituminous pavements to original conditions (or better). The Inspecting Engineer and the Contractor shall together coordinate the documentation of existing grades and other information prior to all construction activities. The Contractor shall include this work in his bid.

5. It shall be the responsibility of the Contractor to verify the existence and location of all underground utilities along the route of work and to coordinate construction schedules with these utility owners. The Contractor shall note all utilities may not appear on these drawings and that the potential conflict with these utilities shall be considered in the preparation of cost estimates and bids.

6. The Contractor shall field verify all utilities and coordinate with utility owners prior to starting construction. The Contractor shall be responsible for protecting utilities during construction and shall hold the Owners and the Engineer harmless for damage arising from failure to adequately protect utilities. It shall be the responsibility of the Contractor to schedule utility adjustments to eliminate conflict with progress of the work.

7. Compaction for all fills and subgrade shall be a minimum of 95% of the maximum standard proctor density (ASTM D698-78) and within 2% of the optimum moisture content.

8. All grades shown are finished grades, unless otherwise noted on the Drawings.

9. All slopes are shown as diagrammatic and shall be varied and rounded at top and bottom.

10. All disturbed areas shall be seeded using the seed mix shown on the drawings.

11. The Contractor shall notify the Engineer immediately of any field condition not consistent with the contract documents.

12. The Contractor is responsible for saving and protecting all existing trees and vegetation where removal for construction is not mandatory. All trees to be removed will be marked by the Owner prior to removal.

13. The Contractor shall be responsible for the acceptance and control of all flows including storm flows in and entering the channel, off-site drainage flows, and groundwater flows. He shall be responsible for damage to structures, loss of topsoil and loss of seed caused by flows until the project is accepted by the Owner.

14. The cost of any and all dewatering necessary for the construction of all items shown on these drawings shall be considered as incidental to the construction of all phases of this project. All work shall be done in a dry condition.

15. Contractor shall protect all existing curb, gutter, and asphalt at all access points from damage by equipment or construction operations. All curb, gutter and asphalt damaged by the contractor shall be removed and replaced at his expense.

16. The Contractor is responsible for any and all permits, license, fees, and bonds that are necessary to complete the construction of this project or by the Owners.

17. The Contractor shall be responsible to cleanup any trash or mud on the site or adjacent streets as a result of construction.

18. Excess dirt that is not suitable for fill shall become the property of the Contractor and shall be disposed of by the Contractor at a place approved by the Owner, at the Contractors expense.

19. Contractor shall restore any access areas to their original grades and seed using the mix shown on these drawings.

20. Construction stakes shall be provided by the UD&FCD. Staking shall be one-time only and shall be protected by the Contractor. Re-staking due to negligence by the Contractor shall be completed at the Contractors expense.

21. The Contractor shall be solely responsible for maintaining public safety measures on and adjacent to the project.

22. Final construction access for the project will be determined at the pre-bid meeting.

CALL UTILITY LOCATION CENTER OF COLORADO

1-800-922-1987

CALL 2 BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES

– INDEX OF SHEETS –

SHEET NUMBER	DESCRIPTION
1.	COVER SHEET
2.	PLAN & PROFILE STATION 0+00 TO 4+10
3.	PLAN & PROFILE STATION 4+10 TO 6+81.42
4.	PLANTING PLAN
5.	DETAIL SHEET

– APPROVALS –

URBAN DRAINAGE AND FLOOD CONTROL DISTRICT

TITLE:EXEC-DIR _____ DATE _____

TITLE:CHIEF _____ DATE _____

TITLE:ENGINEER _____ DATE _____

ICON ENGINEERING, INC.
7108-B South Alton Way, Englewood, CO 80112-2106
Phone (303) 221-0802 / Fax (303) 221-4019

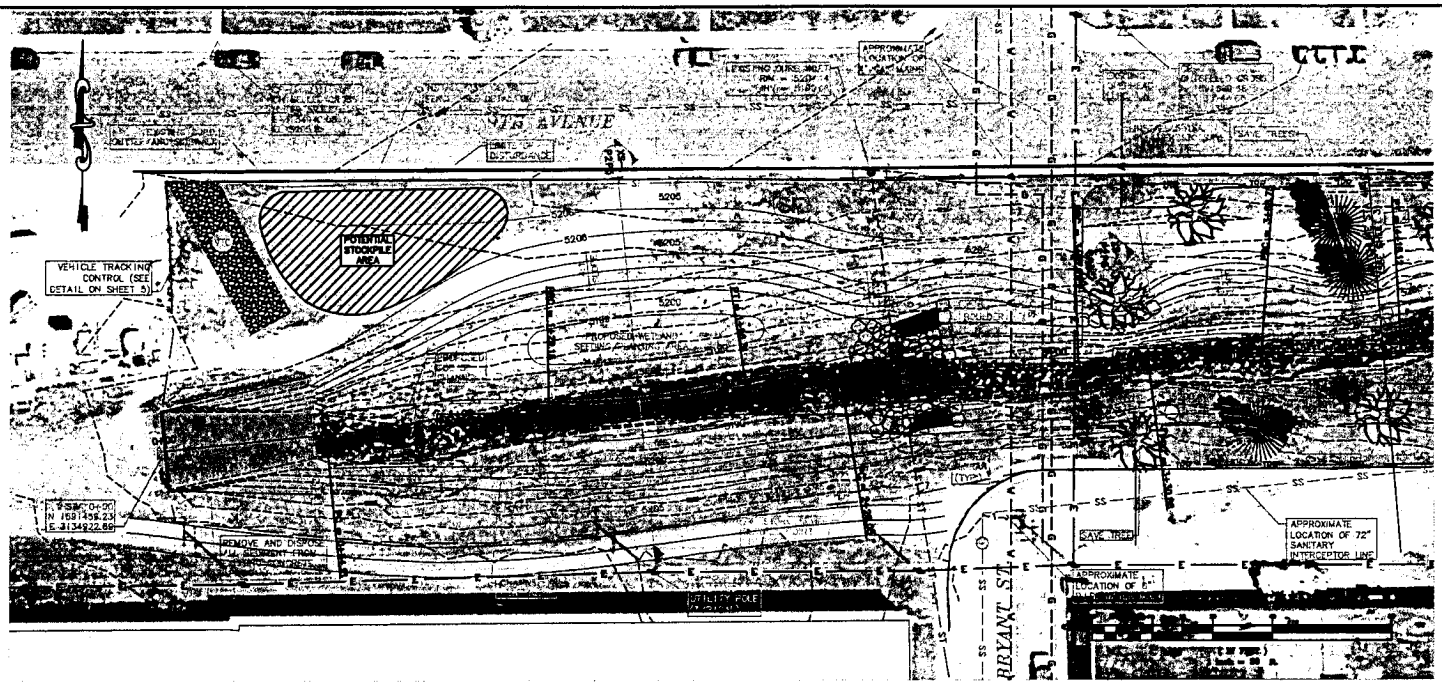
PROJECT DIRECTOR:PRJ-DIR _____

PROJECT ENGINEER:PRJ-ENG _____

Weir Gulch Drop Structures and Channel Improvemts
Urban Drainage and Flood Control District
Corps File No. 200380707

Work Plans

Fig. 3/7

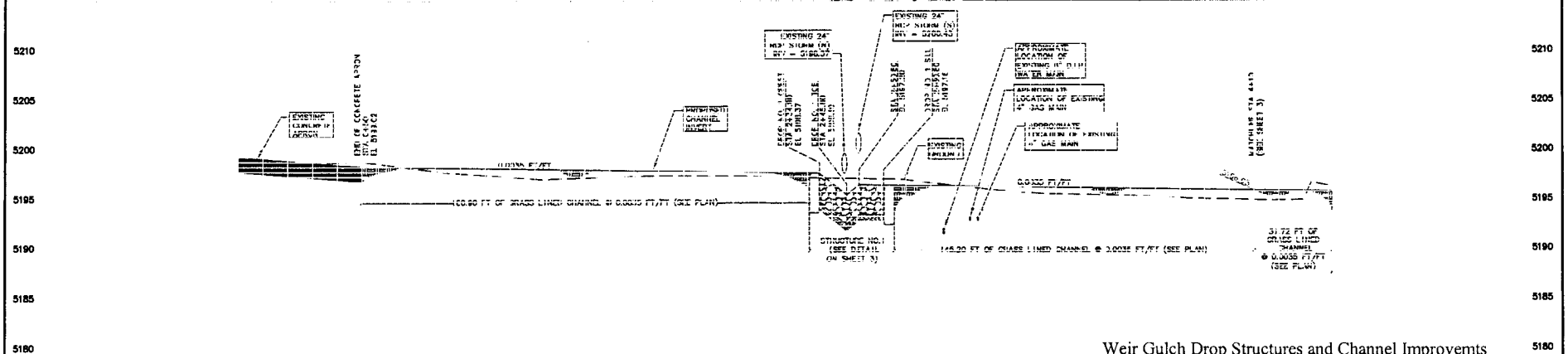


CNETERLINE LINE TABLE		
LINE	LENGTH	BEARING
L1	54.21	N84°14'53"E
L2	31.74	N80°54'21"E
L3	54.97	N86°29'30"E

CENTERLINE CURVE TABLE				
CURVE	LENGTH	RADIUS	TANGENT	DELTA
C1	74.94	938.35	37.49	4°34'33"
C2	67.16	406.04	33.66	9°28'38"
C3	79.74	635.78	39.92	7°11'09"
C4	23.07	250.26	11.54	5°16'52"
C5	37.88	188.88	19.01	11°29'32"
C6	47.38	300.82	23.74	9°01'26"
C7	61.72	857.57	30.87	4°07'24"
C8	88.25	539.21	44.23	9°22'40"
C9	60.35	71.29	32.12	48°30'11"

NOTES:

1. CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS INCLUDING ALL ACCESS AND STAGING AREAS



Weir Gulch Drop Structures and Channel Improvemts
Urban Drainage and Flood Control District
Corps File No. 200380707

Work Plans
Fig. 4/7

No.	DATE	REVISIONS	APPR.
R#1	RDATE1	R1	R1A
R#2	RDATE2	R2	R2A
R#3	RDATE3	R3	R3A
R#4	RDATE4	R4	R4A
R#5	RDATE5	R5	R5A

INF01
INF02
INF03
INF04
INF05
PROJECT No. 4205-DSP-999

DRAWN
DRAWN
DESIGNED
DESIGNED
CHECKED
CHECKED

Urban Drainage and Flood Control District

ICON ENGINEERING, INC.
8100 South Akron Street, Suite 300, Englewood, CO 80
Phone (303) 221-0802 / Fax (303) 221-4019

DATE
DATE
ET/FIGURE
SHEET#

CENTERLINE CURVE TABLE				
CURVE	LENGTH	RADIUS	TANGENT	DELTA
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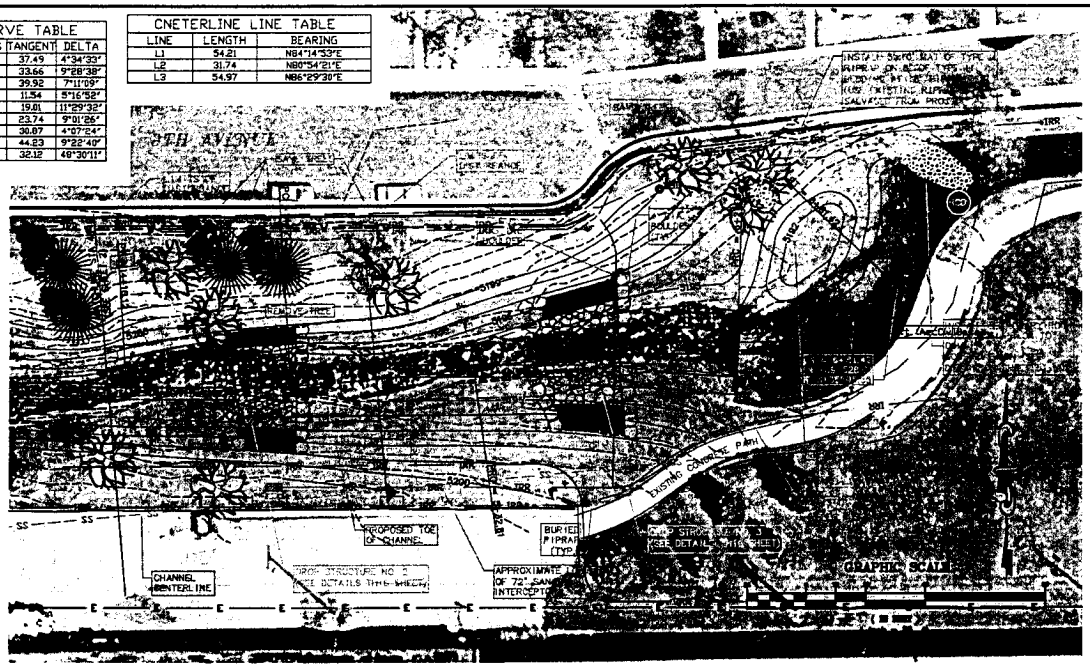
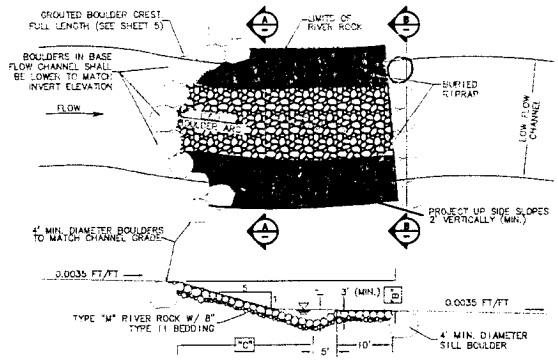
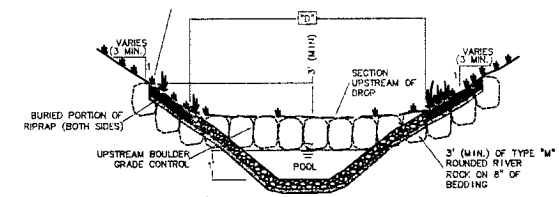
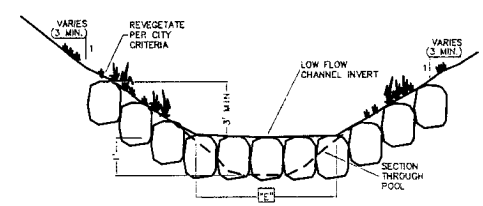
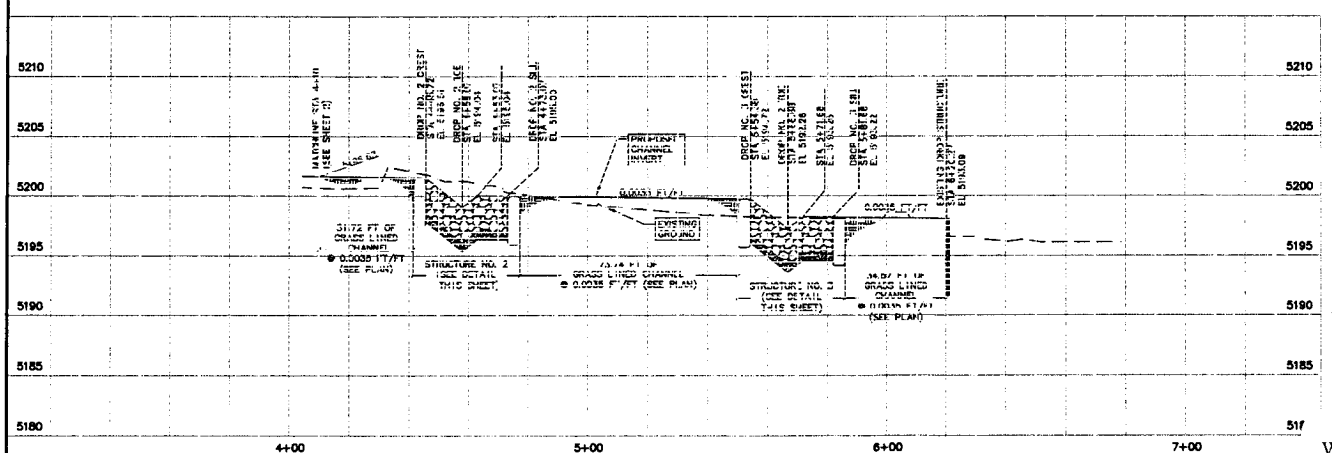










NOTES:

1. CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS INCLUDING ALL ACCESS AND STAGING AREAS.

	DROP STRUCTURE DIMENSIONS				
	"A"	"B"	"C"	"D"	"E"
DROP STRUCTURE #1	9'±	1.21'	10.90'	15.30'	13.95'
DROP STRUCTURE #2	7'±	1.50'	12.35'	22.62'	13.27'
DROP STRUCTURE #3	6'±	1.50'	12.30'	23.39'	16.59'

R#1	RDATE1	R1	R1A
R#2	RDATE2	R2	R2A
R#3	RDATE3	R3	R3A
R#4	RDATE4	R4	R4A
R#5	RDATE5	R5	R5A
No.	DATE	REVISIONS	APPR.

INF01
INF02
INF03
INF04
INF05
PROJECT No. 4205-DSP-699

DRAWN
DRAWN
DESIGNED
DESIGNED
CHECKED
CHECKED

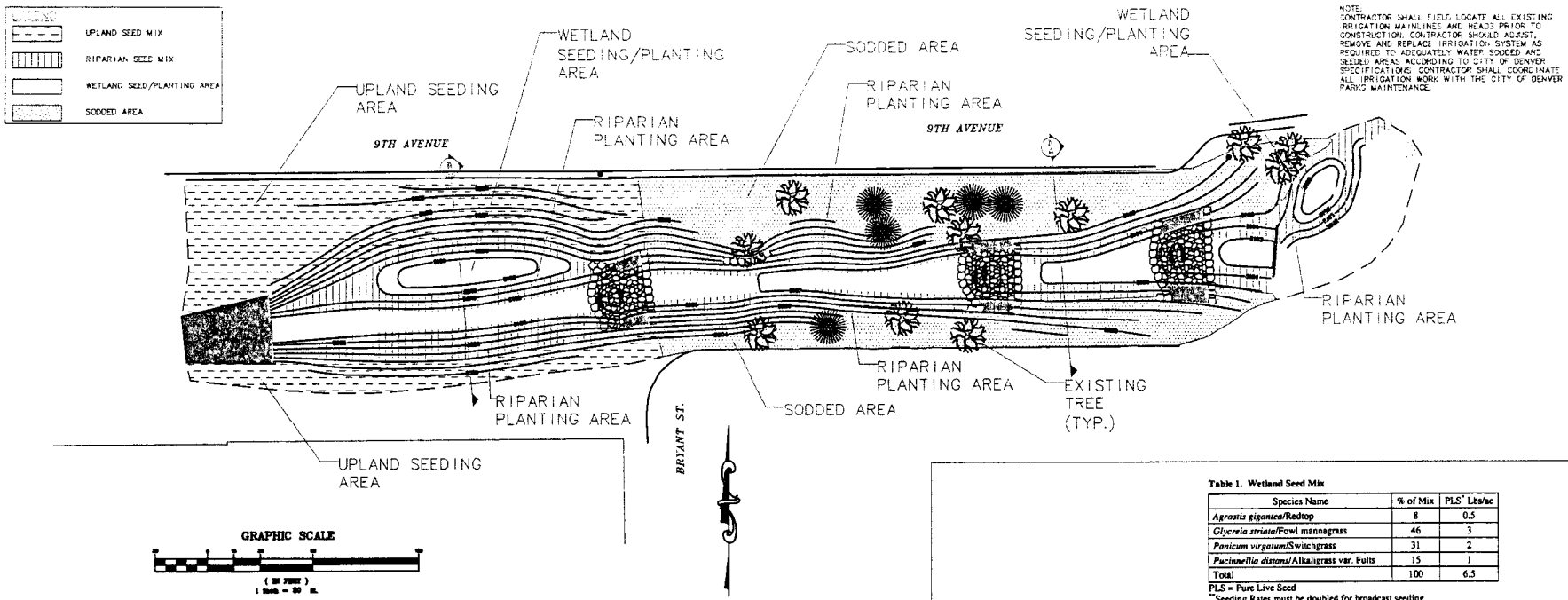
Urban Drainage and Flood Control District

ICON ENGINEERING, INC.
3100 South Alton Street, Suite 300, Englewood, CO
Phone (303) 221-6602 / Fax (303) 221-4016

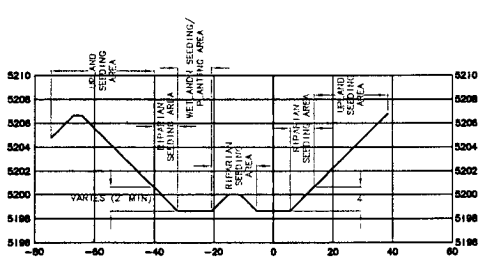
Weir Gulch Drop Structures and Channel Improvemts
Urban Drainage and Flood Control District
Corps File No. 200380707

Work Plans
Fig. 5/7

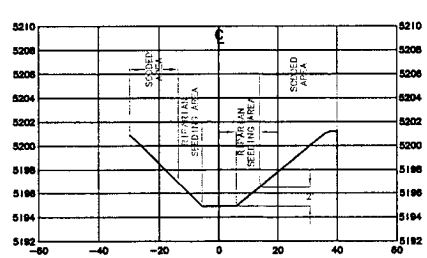
DATE
DATE
SHEET/FIGURE
SHEET#



NOTE:
CONTRACTOR SHALL FIELD LOCATE ALL EXISTING IRRIGATION MAINLINES AND HEADS PRIOR TO CONSTRUCTION. CONTRACTOR SHOULD ADJUST, REMOVE AND REPLACE IRRIGATION SYSTEM AS REQUIRED TO ADEQUATELY WATER SODDED AND SEEDED AREAS ACCORDING TO CITY OF DENVER SPECIFICATIONS. CONTRACTOR SHALL COORDINATE ALL IRRIGATION WORK WITH THE CITY OF DENVER PARKS MAINTENANCE.



CROSS-SECTION XS-1
SCALE



CROSS-SECTION XS-2
SCALE

GENERAL NOTES

TOPSOIL STOCKPILE: CLAY EXCAVATED AND PLACED WITHIN CONSTRUCTION LIMITS SHALL BE BURIED TO THE EXTENT POSSIBLE. FERTILE ONSITE TOPSOIL SHALL BE STRIPPED AND STOCKPILED. STOCKPILED ON-SITE TOPSOIL SHALL BE USED TO COVER THE DISTURBED AREA TO A DEPTH OF 6 INCHES.

SOIL PREPARATION: THE TOP 4 INCHES OF SURFACE SHALL BE TILLED AND CLODS AND ROCKS REMOVED PER CDOT STANDARD SPECIFICATIONS. TOPSOIL SHALL THEN BE APPLIED. TOPSOIL SHALL BE SPREAD ON ALL DISTURBED AREAS INCLUDING THE CHANNEL BOTTOM UNLESS DESIGNATED OTHERWISE ON THE DRAWINGS. TOPSOIL DEPTH SHALL BE A MINIMUM OF 6 INCHES AND SHALL BE PLACED TO MEET FINISHED GRADES. ALL GRADES SHOWN ARE FINISHED GRADES.

SEEDING: NATIVE SEED MAY BE DRILLED OR BROADCAST. SEED WHICH IS BROADCAST SHALL BE HAND RAKED IMMEDIATELY FOLLOWING SEEDING TO COVER WITH 1/8" TO 1/2" OF TOPSOIL. BROADCAST OPERATIONS MUST ENSURE THAT ALL SIZE SEEDS ARE EVENLY DISTRIBUTED. RATES FOR SEEDING VARY DEPENDING ON THE METHOD CHOSEN AND SHOULD FOLLOW THE SEEDING NOTES SHOWN.

MULCH: WEED-FREE, MOLD-FREE STRAW MULCH IS TO BE APPLIED TO ALL SEEDED AREAS AT A RATE OF 2 TONS PER ACRE, CRIMPED ACCORDINGLY PER UD&FCD CRITERIA.

CHISEL OR HARROW ALL AREAS TO BE SEEDED.

BROADCAST WETLAND SEED MIX ONTO WETLAND/PLANTING AREA.

Table 1. Wetland Seed Mix

Species Name	% of Mix	PLS* Lbs/ac
Agrostis gigantea/Redtop	8	0.5
Glyceria striata/Fowl mannagrass	46	3
Panicum virgatum/Switchgrass	31	2
Pucinnellia distans/Alkaligrass var. Fults	15	1
Total	100	6.5

PLS = Pure Live Seed
**Seeding Rates must be doubled for broadcast seeding

Table 2. Riparian Seed Mix

Species Name	% of Mix	PLS* Lbs/ac**
Festuca arundinacea/Tall fescue	10	2
Festuca rubra/Red fescue	5	1
Panicum virgatum/Switchgrass	10	2
Poa canbyi/Canby bluegrass	5	1
Pascopyrum smithii/Western wheatgrass	50	10
Schizachrium scoparium/Little bluestem	20	4
Total	100	20

*PLS = Pure Live Seed
**Seeding Rates must be doubled for broadcast seeding

Table 3. Upland Seed Mix

Species Name	% of Mix	PLS* Lbs/ac**
Bouteloua curtipendula/Sideoats gramma	10	3
Bouteloua gracilis/Blue gramma	7	2
Buchloe dactyloides/Buffalograss	30	10
Oryzopsis hymenoides/Indian ricegrass	13	4
Pascopyrum smithii/Western wheatgrass	30	10
Poa canbyi/Canby bluegrass	3	1
Total	100	30

*PLS = Pure Live Seed
**Seeding Rates must be doubled for broadcast seeding

No.	DATE	REVISIONS	APPR.

PROJECT No. 03-008-008-362

DRAWN PAK
DESIGNED PAK
CHECKED DJW

Urban Drainage and Flood Control District

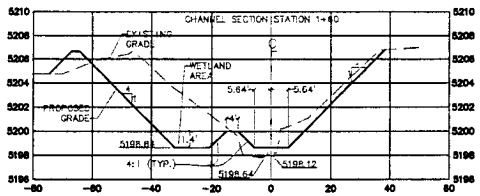
ICON ENGINEERING INC
7500-E South Alton Way, Englewood, CO 80112-2360
Phone (303) 220-0202/Fax (303) 220-0203

Weir Gulch Drop Structures and Channel Improvemts
Urban Drainage and Flood Control District
Corps File No. 200380707

Mitigation Plans
Fig. 6/7

DATE DEC 2003

SHEET 4 OF 5



CROSS-SECTION (XS-1, 2/3)
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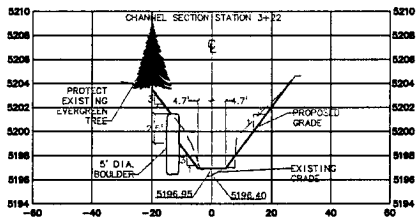

CROSS-SECTION (XS-2, 2/3)
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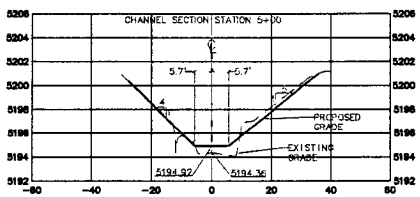

CROSS-SECTION (XS-3, 2/3)
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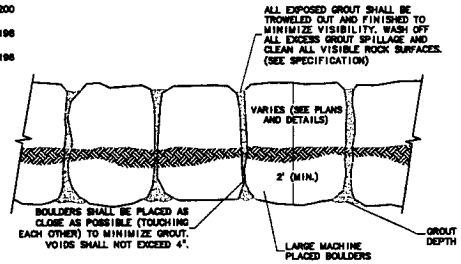
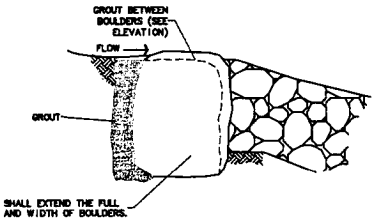
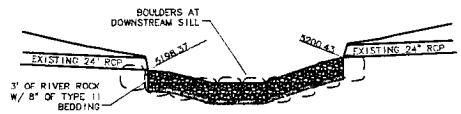


ELEVATION

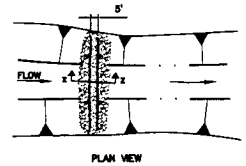


SECTION

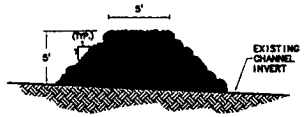
GROUTED BOULDER EDGE
NOT TO SCALE



STORM SEWER OUTFALL DETAIL
NOT TO SCALE



PLAN VIEW



SECTION Z-Z

NOTES:

1. THE TEMPORARY CHECK DAM SHALL EXTEND ACROSS THE ENTIRE CHANNEL.

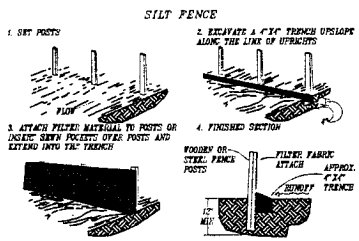
2. THE CONTRACTOR SHALL MAINTAIN THE CHECK DAM DURING CONSTRUCTION. SEDIMENT SHALL BE REMOVED AND DISPOSED OF PERIODICALLY WHEN IT REACHES A MAXIMUM DEPTH OF 18 INCHES BEHIND THE CHECK DAM.

3. AFTER CONSTRUCTION, ALL ACCUMULATED SEDIMENT BEHIND THE CHECK DAM SHALL BE REMOVED AND DISPOSED OF AND ALL ROCK SHALL BE SPREAD INTO THE CHANNEL BOTTOM AND BURIED SO AS NOT THE CHANGE THE FINAL DESIGNED CHANNEL INVERT.

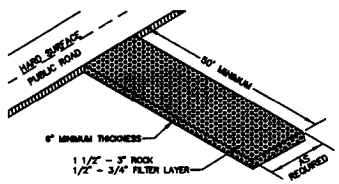
ROCK SILT DIKE DETAIL
NOT TO SCALE

- LEGEND -

TITLE	KEY	SYMBOL
TEMPORARY ROCK SILT DIKE	SD	SD
VEHICLE TRACKING CONTROL	VTC	VTC
SILT FENCE	SF	SF



SILT FENCE DETAIL
NOT TO SCALE



VEHICLE TRACKING CONTROL DETAIL
NOT TO SCALE

No.	DATE	REVISIONS	APPR.

PROJECT No. 03-008-008-002

DRAWN PAK
DESIGNED PAK
CHECKED DJW

Urban Drainage and Flood Control District

ICON ENGINEERING INC
7600-E South Alton Way, Englewood, CO 80112-2066
Phone (303) 331-8520/Fax (303) 320-4589

Weir Gulch Drop Structures and Channel Improvemts
Urban Drainage and Flood Control District
Corps File No. 200380707

Details
Fig. 7/7

DATE DEC 2003
SHEET 5 OF 5