

CRYSTAL RIVER RESTORATION AND WEAVER DITCH EFFICIENCY PROJECT
CRYSTAL RIVER - CARBONDALE, CO
BID SET - APRIL 2022

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CONTACTS

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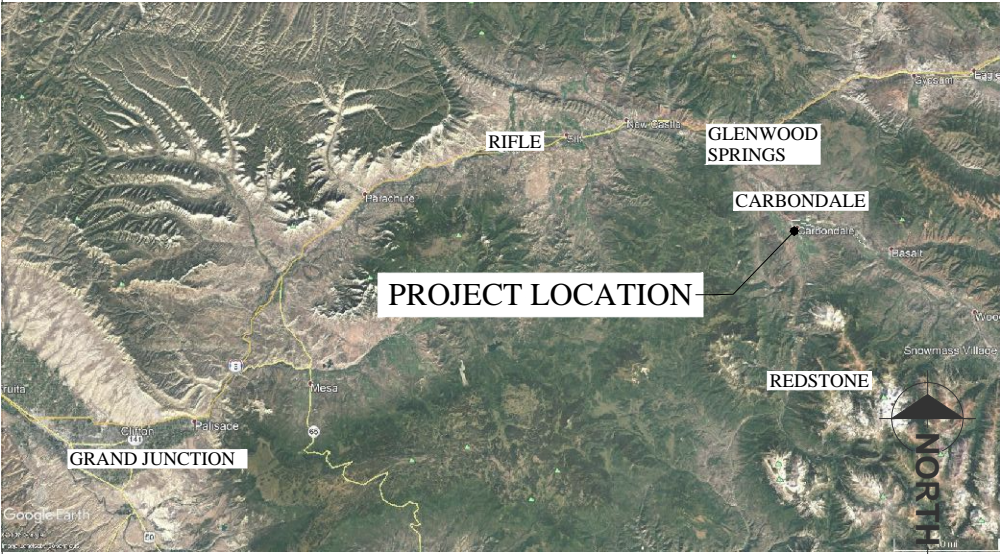
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Principal Landscape Architect
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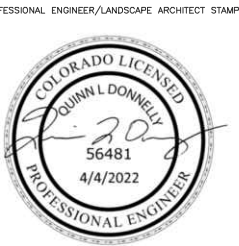
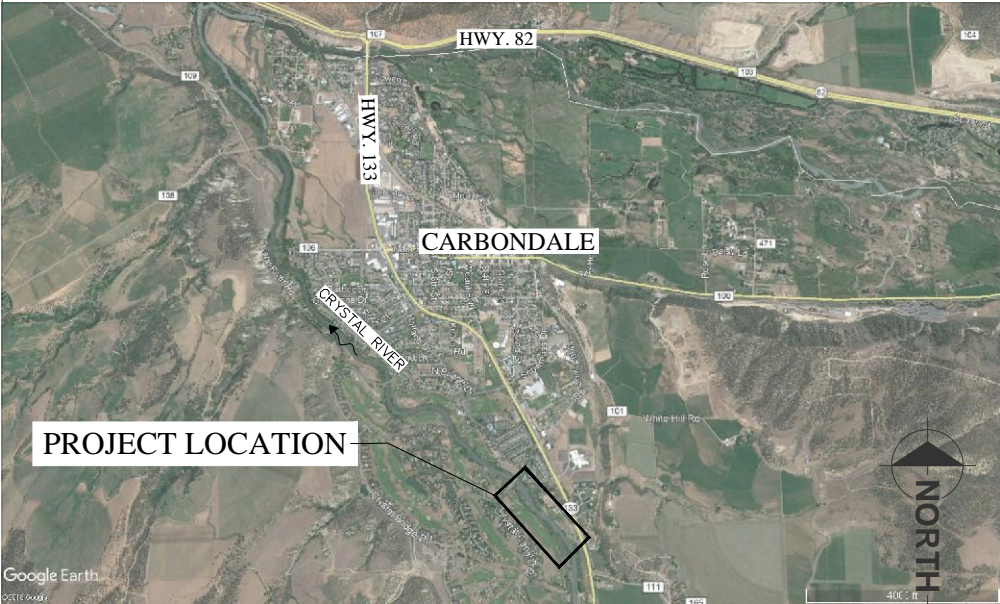
ABBREVIATIONS:

BGCS BOULDER GRADE CONTROL
STRUCTURE
BMP BEST MANAGEMENT PRACTICE
OHWM ORDINARY HIGH WATER MARK
PIP PROTECT-IN-PLACE
TOC TOWN OF CARBONDALE

VICINITY MAP



LOCATION MAP



CRYSTAL RIVER RESTORATION AND
WEAVER DITCH EFFICIENCY PROJECT
COVER SHEET

No.	REVISION/UPDATE	Date

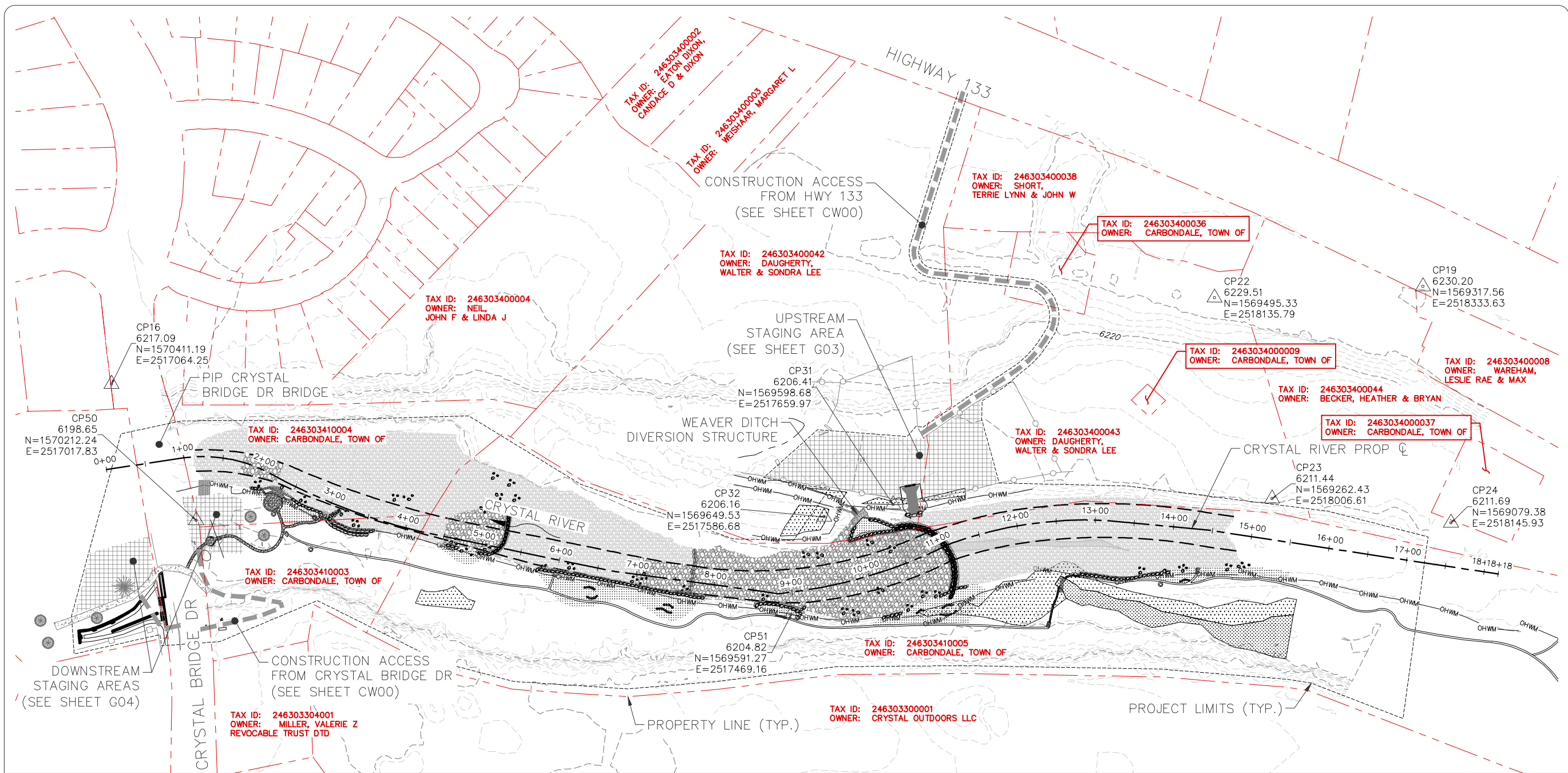
CLIENT NAME AND ADDRESS
 Town of Carbondale 511 Colorado Ave Carbondale, CO 81623

DESIGN FIRMS NAME AND ADDRESSES
 RiverRestoration.org, LLC P.O. Box 248 Carbondale, CO 81623 www.RiverRestoration.org
DHM DESIGN 311 Main St, Suite 102 Carbondale, CO 81623 970.963.6520 www.dhmdesign.com

PROJECT NAME AND ADDRESS
Crystal River Restoration and Weaver Ditch Efficiency Project Carbondale, CO 81623

Project 38047	Sheet
Date April 2022	G01
Scale NTS	

BID SET



HORIZONTAL DATUM:

NORTH AMERICAN DATUM 1983 (NAD83) – COLORADO STATE PLANE, CENTRAL ZONE, US SURVEY FOOT

VERTICAL DATUM:

NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88)

LEGEND

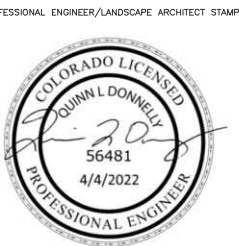
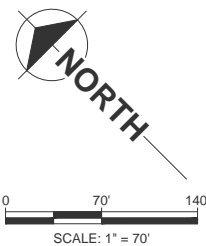
- PALUSTRINE EMERGENT WETLAND (PEM1B)
- PALUSTRINE SCRUB SHRUB WETLAND (PSSB1)
- PROPERTY LINE
- ORDINARY HIGH WATER MARK
- PROPOSED CONTOUR
- EXISTING CONTOUR
- PROJECT LIMITS
- STAGING AREA

NOTES:

- PROPERTY LINES SHOWN ARE FROM GARFIELD COUNTY GIS DATABASE AND ARE APPROXIMATE AND SHOWN FOR REFERENCE ONLY.

CONTROL POINT TABLE

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
16	1570411.19	2517064.25	6217.09	CP 16
19	1569317.56	2518333.63	6230.20	CP 19
22	1569495.33	2518135.79	6229.51	CP 22
23	1569262.43	2518006.61	6211.44	CP 23
24	1569079.38	2518145.93	6211.69	CP 24
31	1569598.68	2517659.97	6206.41	CP 31 REBAR
32	1569649.53	2517586.68	6206.16	CP 32 REBAR
50	1570212.24	2517017.83	6198.65	CP 50 AL CAP
51	1569591.27	2517469.16	6204.82	CP 51 AL CAP
52	1568310.48	2518213.19	6216.42	CP 52 AL CAP



CRYSTAL RIVER RESTORATION AND
WEAVER DITCH EFFICIENCY PROJECT
SITE ACCESS PLAN AND
HORIZONTAL CONTROL PLAN

No.	REVISION/UPDATE	Date

CLIENT NAME AND ADDRESS

 Town of Carbondale
511 Colorado Ave
Carbondale, CO 81623

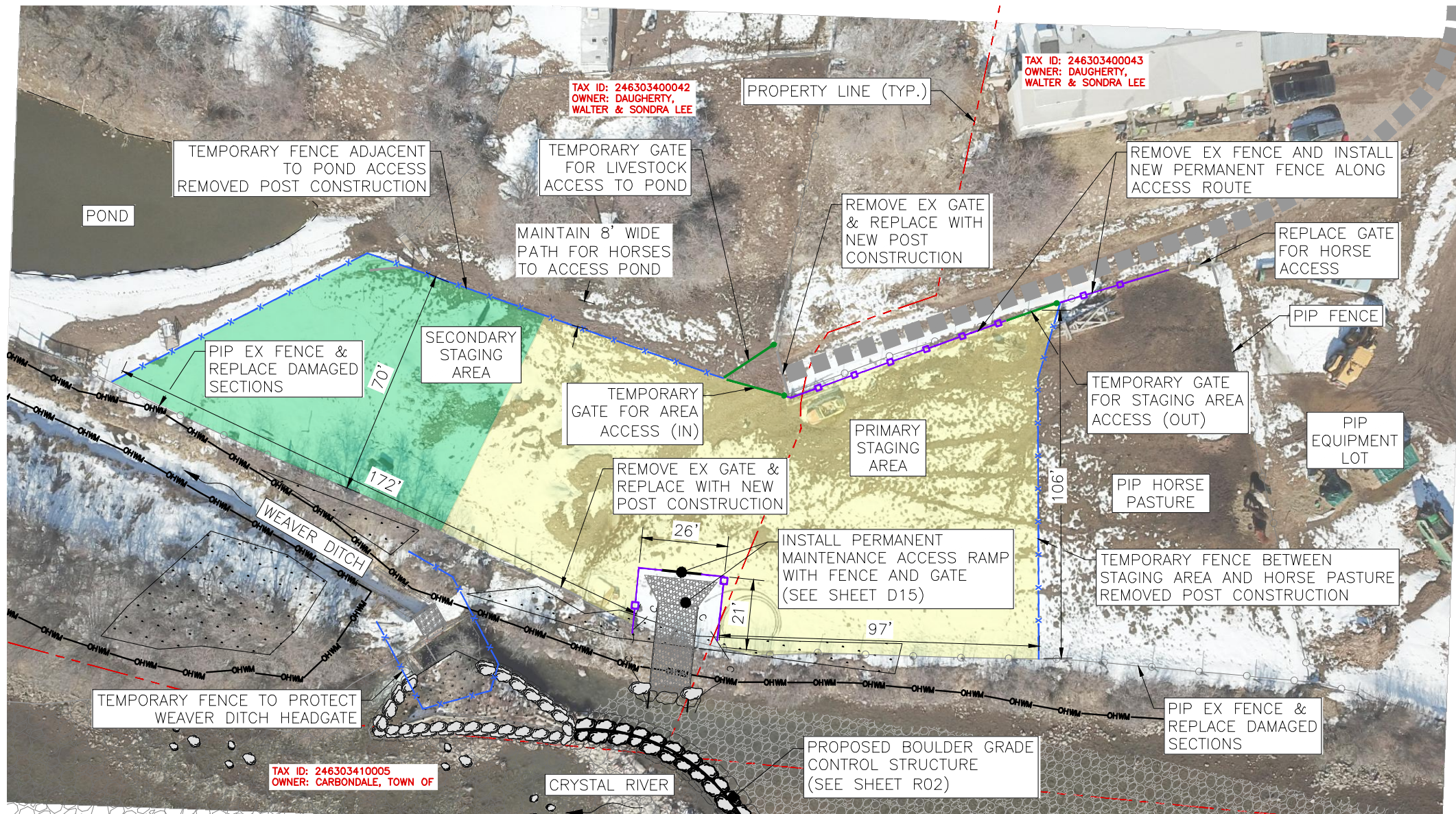
DESIGN FIRMS NAME AND ADDRESSES

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PROJECT NAME AND ADDRESS		
Crystal River Restoration and Weaver Ditch Efficiency Project Carbondale, CO 81623		
Project 38047	Sheet G02	
Date April 2022		
Scale 1" = 70' (FULL SIZE)		

BID SET



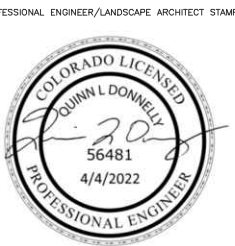
NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS AND BEST MANAGEMENT PRACTICES (BMPS).
2. REFER TO SHEETS CW00 – CW05 FOR RECOMMENDED CARE OF WATER PLAN.
3. PROPERTY LINES ARE APPROXIMATE. SEE SHEET G02 FOR PROPERTY OWNER INFORMATION.
4. CONTRACTOR MUST OBTAIN TOC PERMISSION PRIOR TO PLACING EQUIPMENT AND MATERIALS IN SECONDARY STAGING AREA.
5. UPON COMPLETION OF PROJECT, THE CONTRACTOR SHALL REMOVE ALL EQUIPMENT, BMPS, AND RESTORE THE STAGING AREA TO EQUAL OR BETTER CONDITIONS.

LEGEND

- EXISTING FENCE
- PROPERTY LINE
- PERMANENT NEW FENCE
- TEMPORARY CONSTRUCTION FENCE
- TEMPORARY CONSTRUCTION GATE
- TEMPORARY CONSTRUCTION ACCESS ROUTE
- PRIMARY STAGING AREA
- SECONDARY STAGING AREA


PIP PROTECT-IN-PLACE
0.45AC TOTAL STAGING AREA (19,500 SQ.FT)



CRYSTAL RIVER RESTORATION AND
WEAVER DITCH EFFICIENCY PROJECT
STAGING PLAN - UPSTREAM

No.	REVISION/UPDATE	Date

CLIENT NAME AND ADDRESS

 Town of Carbondale
511 Colorado Ave
Carbondale, CO 81623

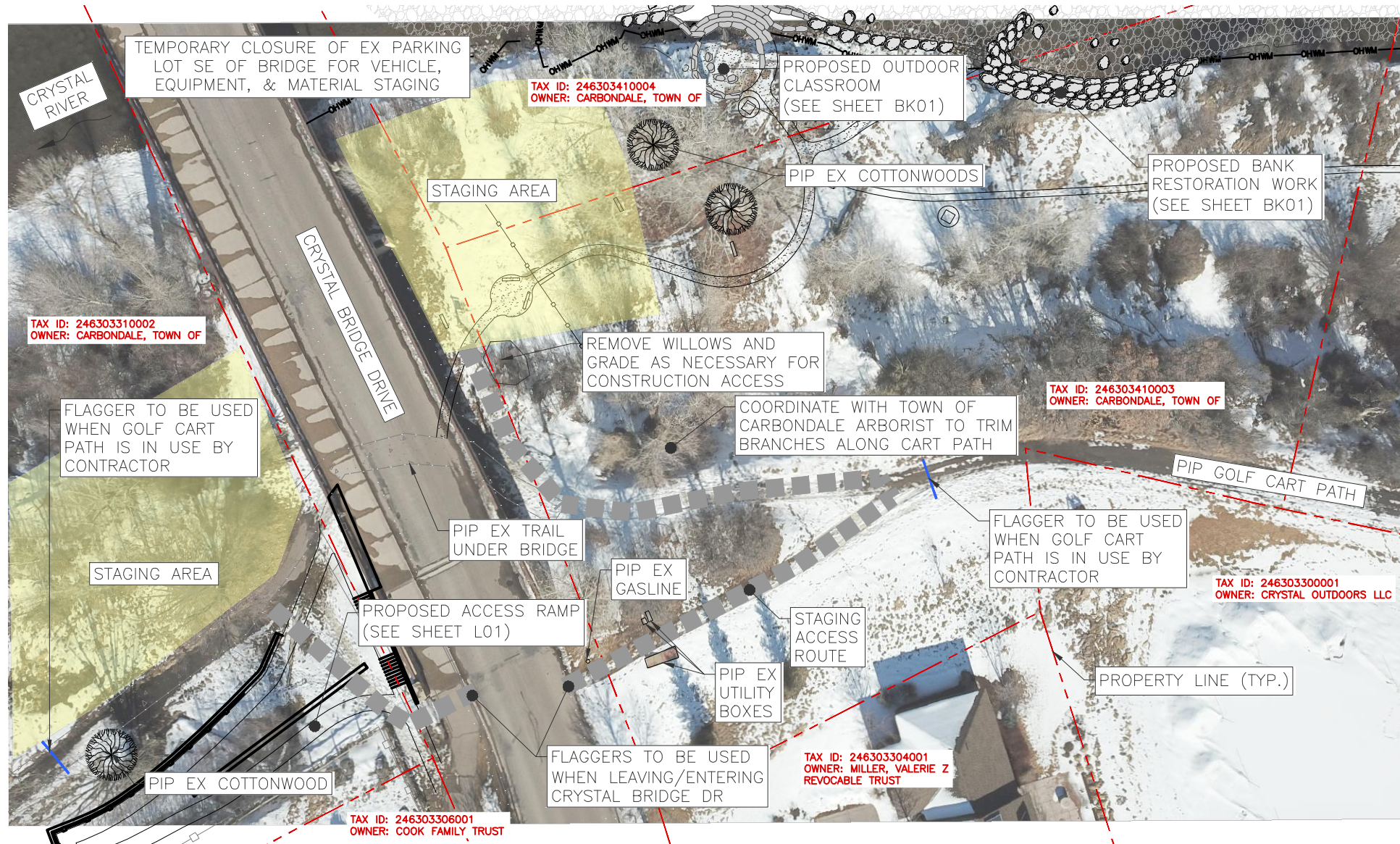
DESIGN FIRMS NAME AND ADDRESSES

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PROJECT NAME AND ADDRESS		
Crystal River Restoration and Weaver Ditch Efficiency Project Carbondale, CO 81623		
Project 38047	Sheet G03	
Date April 2022		
Scale 1" = 20' (FULL SIZE)		

BID SET



NOTES:

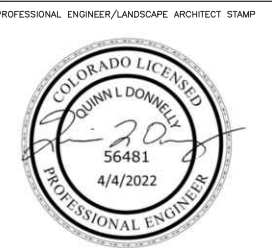
1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS AND BEST MANAGEMENT PRACTICES (BMPS).
2. TEMPORARY PROJECT CONSTRUCTION INFORMATION SIGNS TO BE DEVELOPED BY DESIGN TEAM AND INSTALLED BY CONTRACTOR AT KEY ACCESS LOCATIONS PRIOR TO THE START OF CONSTRUCTION.
3. PROPERTY LINES ARE APPROXIMATE. SEE SHEET G02 FOR PROPERTY OWNER INFORMATION.
4. LOW BRIDGE CLEARANCE ON CRYSTAL BRIDGE DRIVE – CONTRACTOR SHOULD NOT EXPECT TO DRIVE LARGE EQUIPMENT UNDER BRIDGE.
5. UPON COMPLETION OF PROJECT, THE CONTRACTOR SHALL REMOVE ALL EQUIPMENT, BMPS, AND RESTORE THE STAGING AREA TO EQUAL OR BETTER CONDITIONS.

LEGEND

- PROPERTY LINE
- TEMPORARY CONSTRUCTION ACCESS
- TEMPORARY TRAIL BARRIER
- STAGING AREA
- TEMPORARY CONSTRUCTION ACCESS RAMP
- PIP PIP PROTECT-IN-PLACE




BID SET



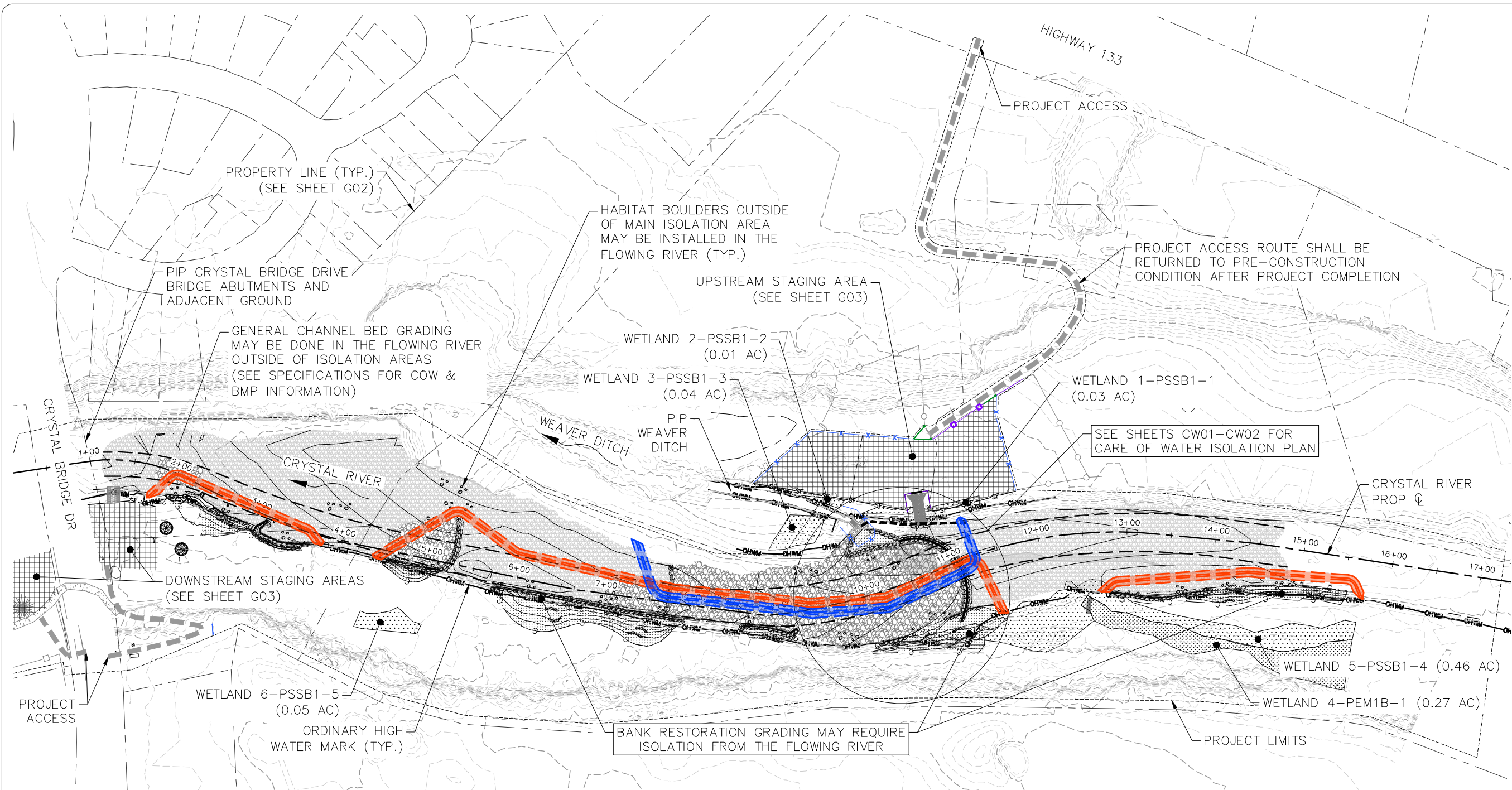
CRYSTAL RIVER RESTORATION AND WEAVER DITCH EFFICIENCY PROJECT STAGING PLAN - DOWNSTREAM

No.	REVISION/UPDATE	Date

CLIENT NAME AND ADDRESS
 Town of Carbondale 511 Colorado Ave Carbondale, CO 81623

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PROJECT NAME AND ADDRESS	
Crystal River Restoration and Weaver Ditch Efficiency Project Carbondale, CO 81623	
Project 38047	Sheet G04
Date April 2022	
Scale 1"= 20' (FULL SIZE)	

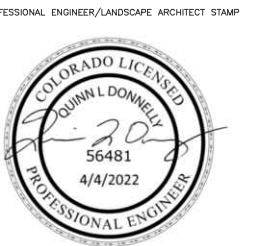
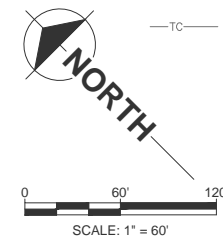


CARE OF WATER NOTES (APPLICABLE TO ALL CW SHEETS):

- 1) CARE OF WATER (CW) PLAN SHOWN IS FOR PERMITTING AND COST ESTIMATION ONLY. THE FINAL CW PLAN, INCLUDING DEVELOPMENT OF STAGING AREAS AND ACCESS ROUTES, IS WHOLLY THE RESPONSIBILITY OF THE CONTRACTOR. SEE SPECIFICATIONS FOR DETAILS.
- 2) CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS AND BEST MANAGEMENT PRACTICES (BMPs).
- 3) IF CHANNEL CONSTRUCTION REQUIRES ISOLATION FROM THE CRYSTAL RIVER, A COFFER SYSTEM MAY BE REQUIRED AND CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTATION OF ISOLATION PLAN. SEE SHEET CW05 AND SPECIFICATIONS FOR OPTIONAL COFFERDAM DETAILS.
- 4) ALL TREES AND ESTABLISHED VEGETATION WITHIN THE DISTURBANCE AREA NOT SPECIFIED AS PROTECT-IN-PLACE (PIP) SHALL NOT BE REMOVED OR DAMAGED UNLESS NECESSARY FOR ACCESS OR WITHIN GRADING AREAS.
- 5) UTILITY LOCATIONS SHOWN IN PLANS ARE APPROXIMATE. CONTRACTOR IS RESPONSIBLE FOR ALL UTILITY LOCATES INCLUDING UTILITIES NOT SHOWN IN PLANS.
- 6) SEE SPECIFICATIONS FOR BMPs, CARE OF WATER, AND MATERIALS INFORMATION.

LEGEND

- | | |
|--|-------------------|
| PALUSTRINE EMERGENT WETLAND (PEM1B) | STAGING AREA |
| PALUSTRINE SCRUB SHRUB WETLAND (PSSB1) | COFFERDAM-EAST |
| PROPERTY LINE | COFFERDAM-WEST |
| ORDINARY HIGH WATER MARK | ACCESS ROUTE |
| PROPOSED CONTOUR | SILT FENCE |
| EXISTING CONTOUR | OIL BOOM |
| PROJECT LIMITS | TURBIDITY CURTAIN |
| PERMANENT NEW FENCE | |
| TEMPORARY CONSTRUCTION FENCE | |
| TEMPORARY CONSTRUCTION GATE | |



CRYSTAL RIVER RESTORATION AND
WEAVER DITCH EFFICIENCY PROJECT
PROJECT ACCESS AND CARE OF WATER
OVERVIEW - PLAN

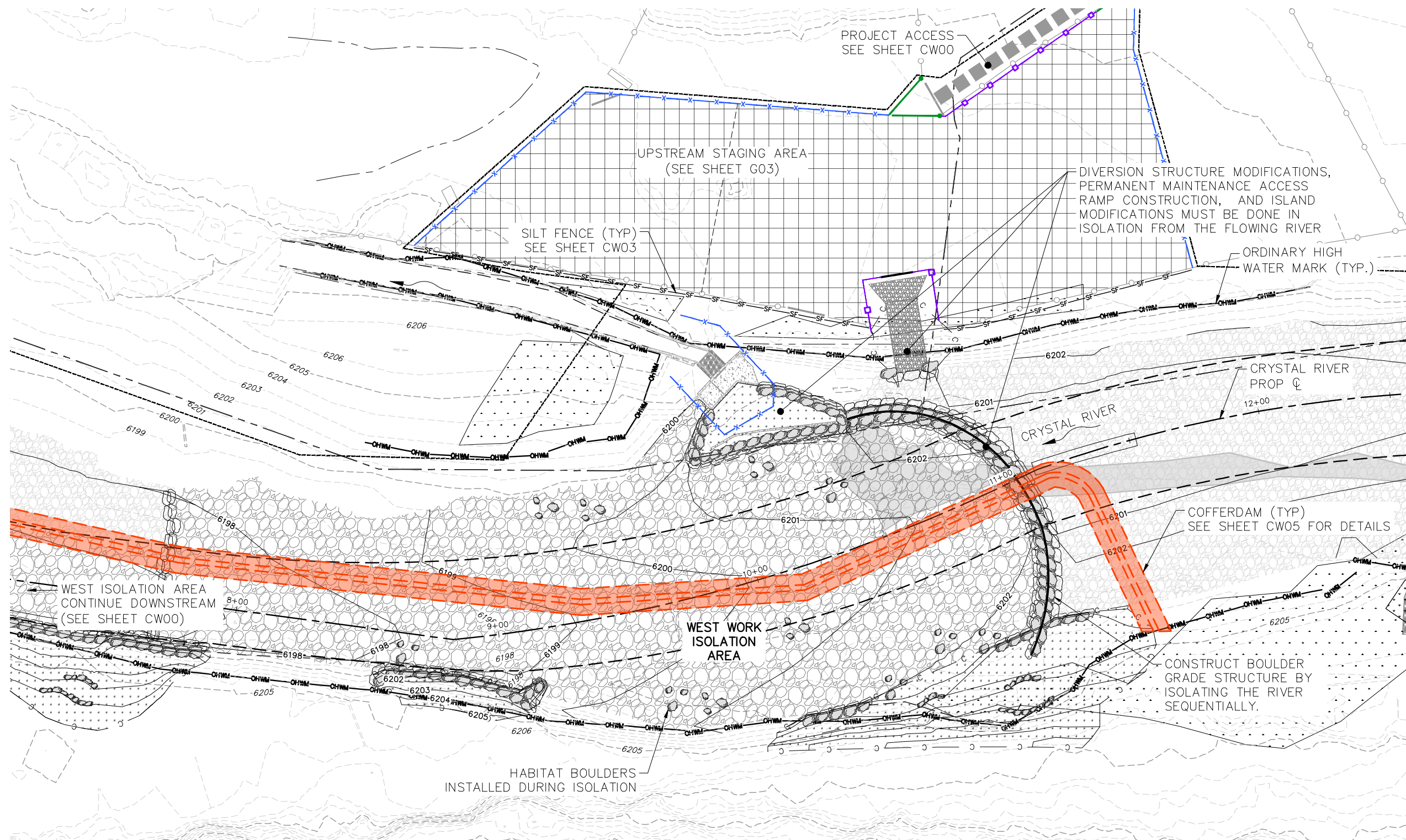
No.	REVISION/UPDATE	Date

CLIENT NAME AND ADDRESS
 Town of Carbondale 511 Colorado Ave Carbondale, CO 81623

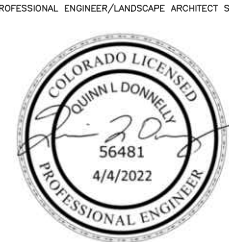
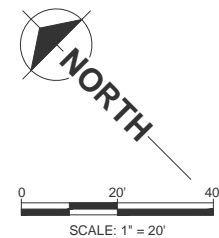
DESIGN FIRMS NAME AND ADDRESSES
 RiverRestoration.org, LLC P.O. Box 248 Carbondale, CO 81623 www.RiverRestoration.org
 DHM DESIGN 311 Main St, Suite 102 Carbondale, CO 81623 970.963.6520 www.dhmdesign.com

PROJECT NAME AND ADDRESS	
Crystal River Restoration and Weaver Ditch Efficiency Project Carbondale, CO 81623	
Project 38047	Sheet CW00
Date April 2022	
Scale 1"=60' (FULL SIZE)	

BID SET




- LEGEND**
- | | | | |
|--|--|--|-------------------|
| | PALUSTRINE EMERGENT WETLAND (PEM1B) | | STAGING AREA |
| | PALUSTRINE SCRUB SHRUB WETLAND (PSSB1) | | COFFERDAM-EAST |
| | PROPERTY LINE | | COFFERDAM-WEST |
| | ORDINARY HIGH WATER MARK | | ACCESS ROUTE |
| | PROPOSED CONTOUR | | SILT FENCE |
| | EXISTING CONTOUR | | OIL BOOM |
| | PROJECT LIMITS | | TURBIDITY CURTAIN |
| | PERMANENT NEW FENCE | | |
| | TEMPORARY CONSTRUCTION FENCE | | |
| | TEMPORARY CONSTRUCTION GATE | | |



CRYSTAL RIVER RESTORATION AND
WEAVER DITCH EFFICIENCY PROJECT
RIFFLE AND DIVERSION STRUCTURE
CARE OF WATER PLAN (WEST ISOLATION)

No.	REVISION/UPDATE	Date

CLIENT NAME AND ADDRESS



Town of Carbondale
511 Colorado Ave
Carbondale, CO 81623

DESIGN FIRMS NAME AND ADDRESSES



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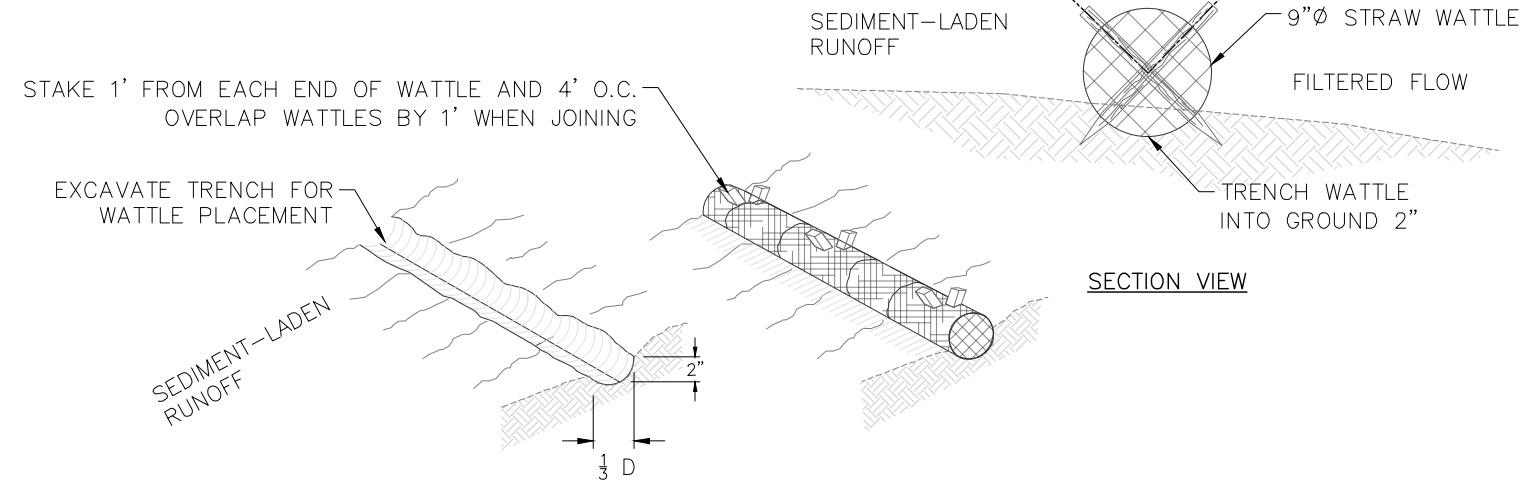
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970.963.6520
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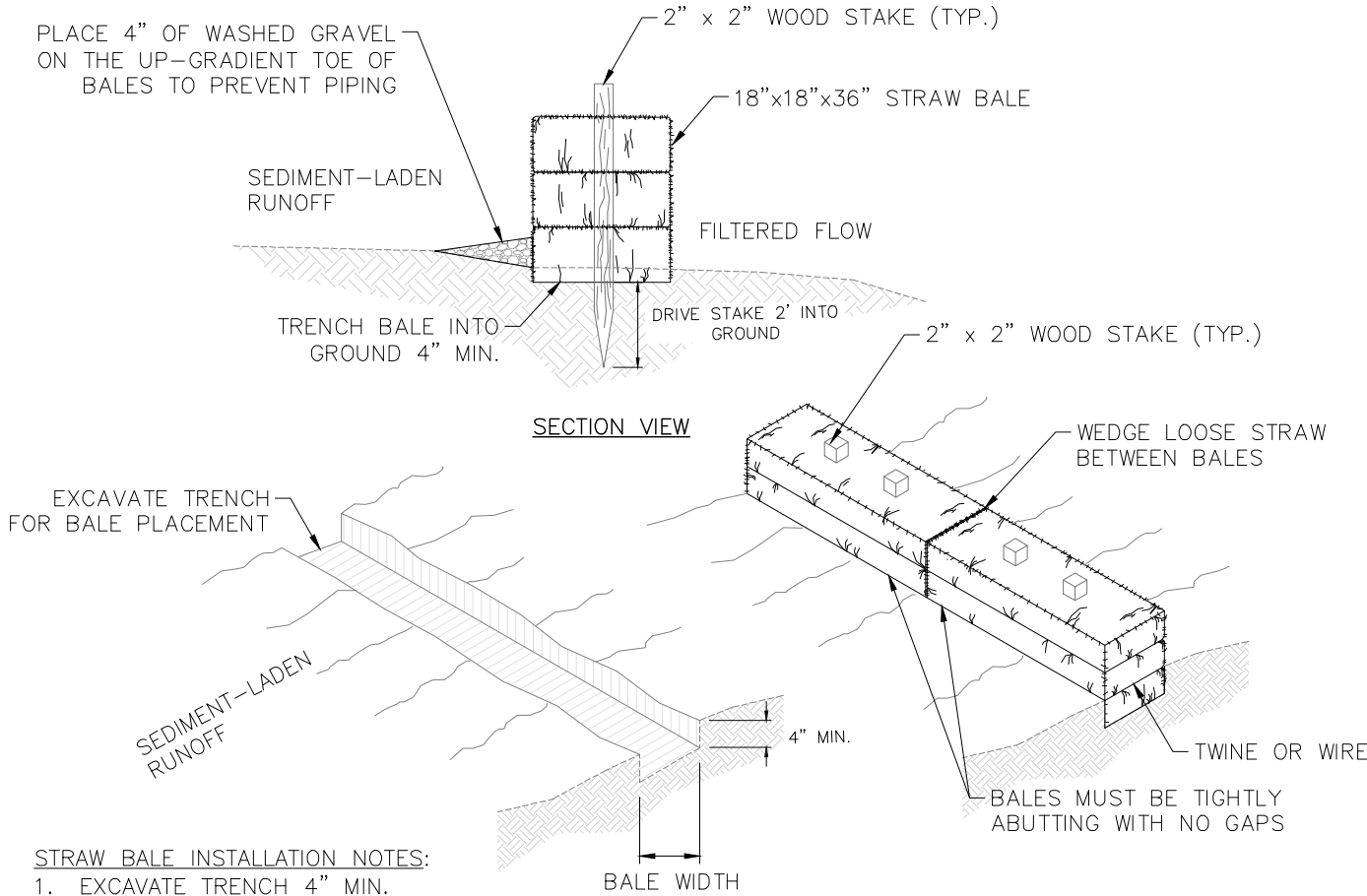
PROJECT NAME AND ADDRESS		
Crystal River Restoration and Weaver Ditch Efficiency Project Carbondale, CO 81623		
Project 38047	Sheet CW01	
Date April 2022		
Scale 1" = 10' (FULL SIZE)		

BID SET

- STRAW WATTLE INSTALLATION NOTES:
1. EXCAVATE TRENCH 2".
 2. PLACE AND STAKE WATTLE.
 3. PLACE SPOILS UP-SLOPE FROM WATTLE, KNIFE-IN AND COMPACT.

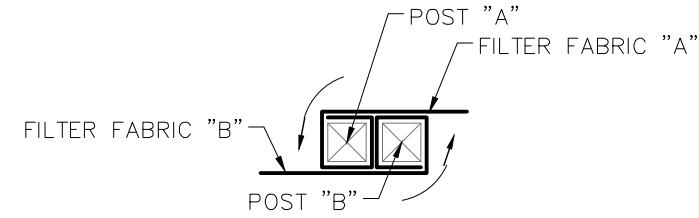
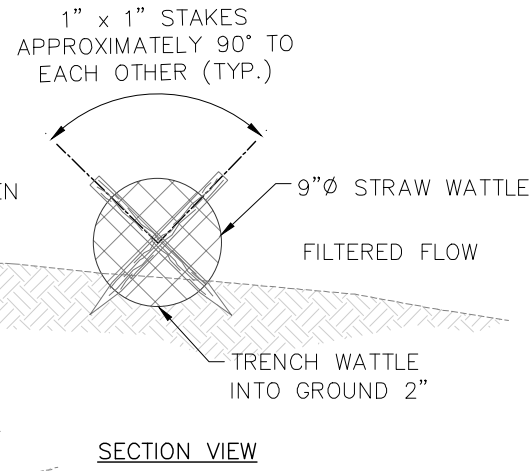


1 STRAW WATTLE INSTALLATION (TYP)
CW03 NTS



- STRAW BALE INSTALLATION NOTES:
1. EXCAVATE TRENCH 4" MIN.
 2. PLACE AND STAKE STRAW BALES.
 3. STRAW BALES SHALL BE CERTIFIED "WEED-FREE" AND NOT HAY.

2 STRAW BALE INSTALLATION (TYP)
CW03 NTS

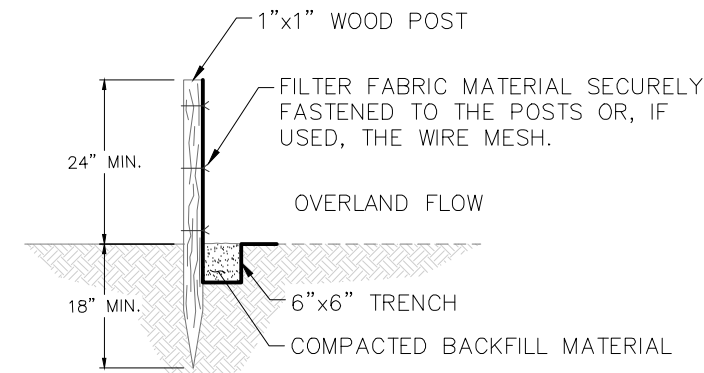


JOINING SECTION DETAIL (PLAN VIEW)

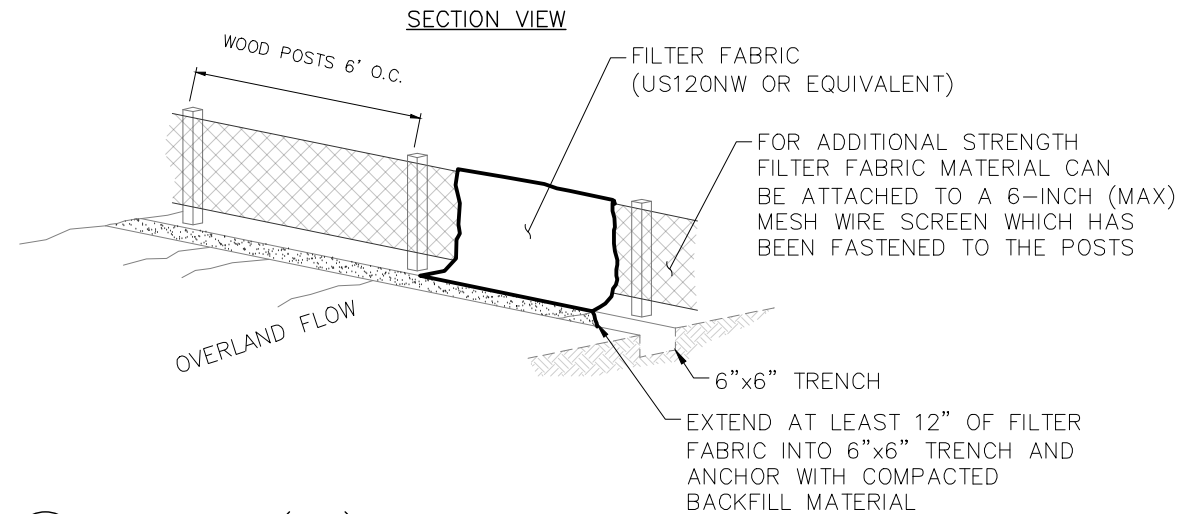
- SILT FENCE JOINING NOTES:
1. WRAP APPROXIMATELY 6" OF FILTER FABRIC OF EACH END AROUND A WOODEN POST ONE FULL TURN, THEN SECURED ALONG THE POST WITH HEAVY DUTY WIRE STAPLES AT LEAST 1" LONG.
 2. POST SHALL BE TIGHTLY ABUTTED WITH NO GAPS TO PREVENT POTENTIAL FLOW-THROUGH OF SEDIMENT AT JOINT.



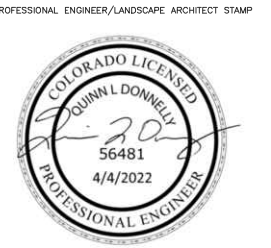
END SECTION DETAIL (PLAN VIEW)



SECTION VIEW




3 SILT FENCE (TYP)
CW03 NTS



CRYSTAL RIVER RESTORATION AND
WEAVER DITCH EFFICIENCY PROJECT
EROSION CONTROL DETAILS

No.	REVISION/UPDATE	Date

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 Town of Carbondale
511 Colorado Ave
Carbondale, CO 81623

DESIGN FIRMS NAME AND ADDRESSES

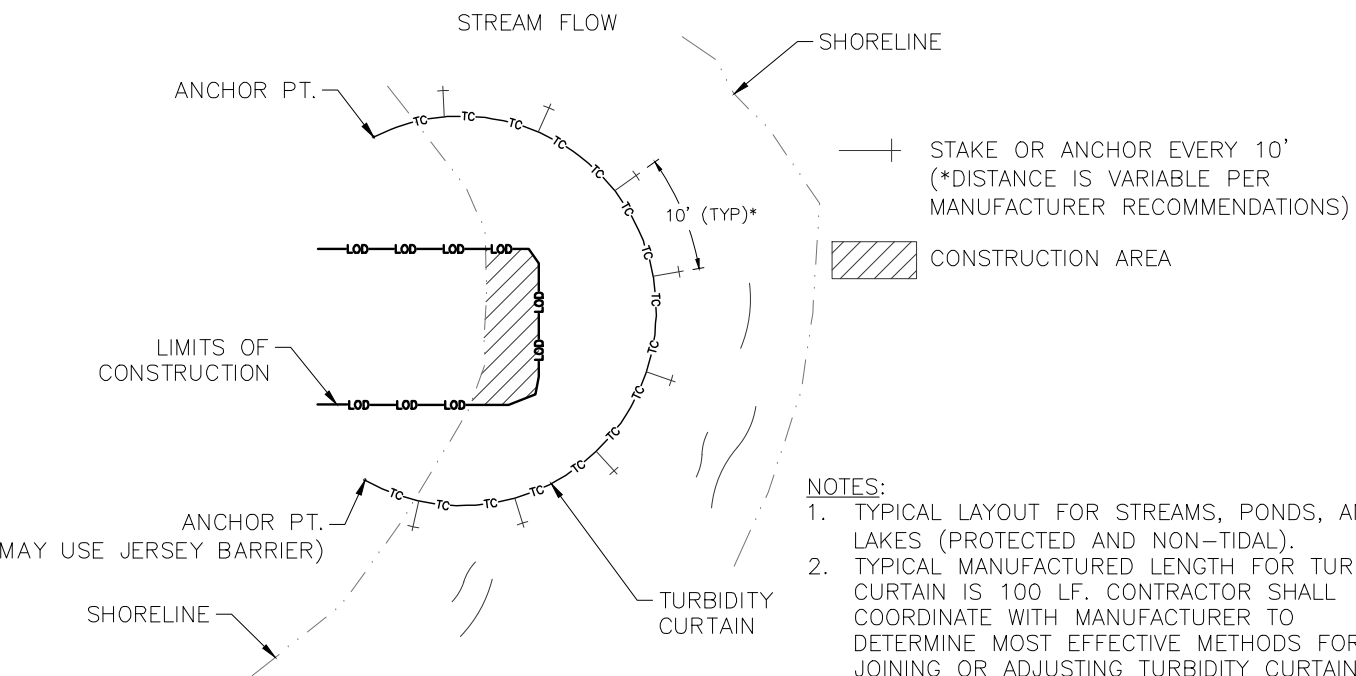
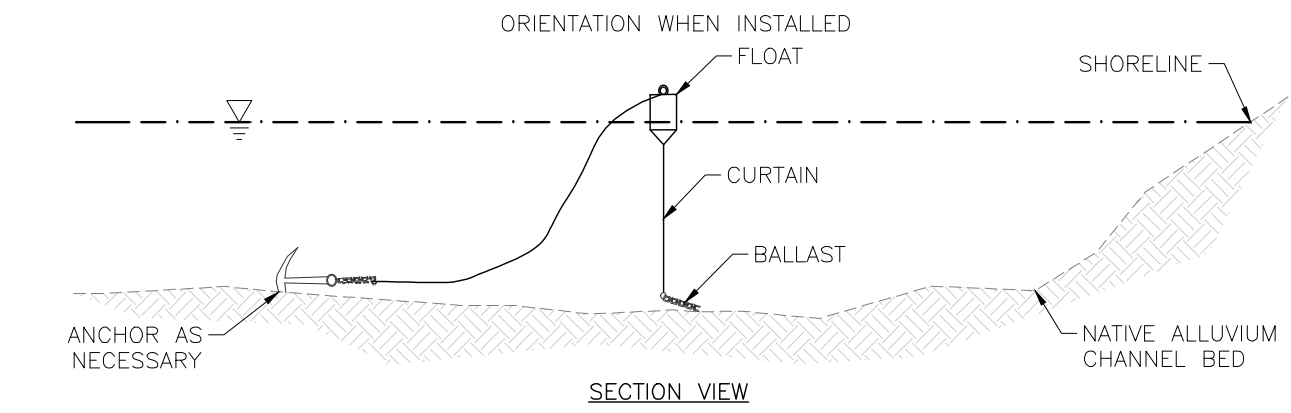
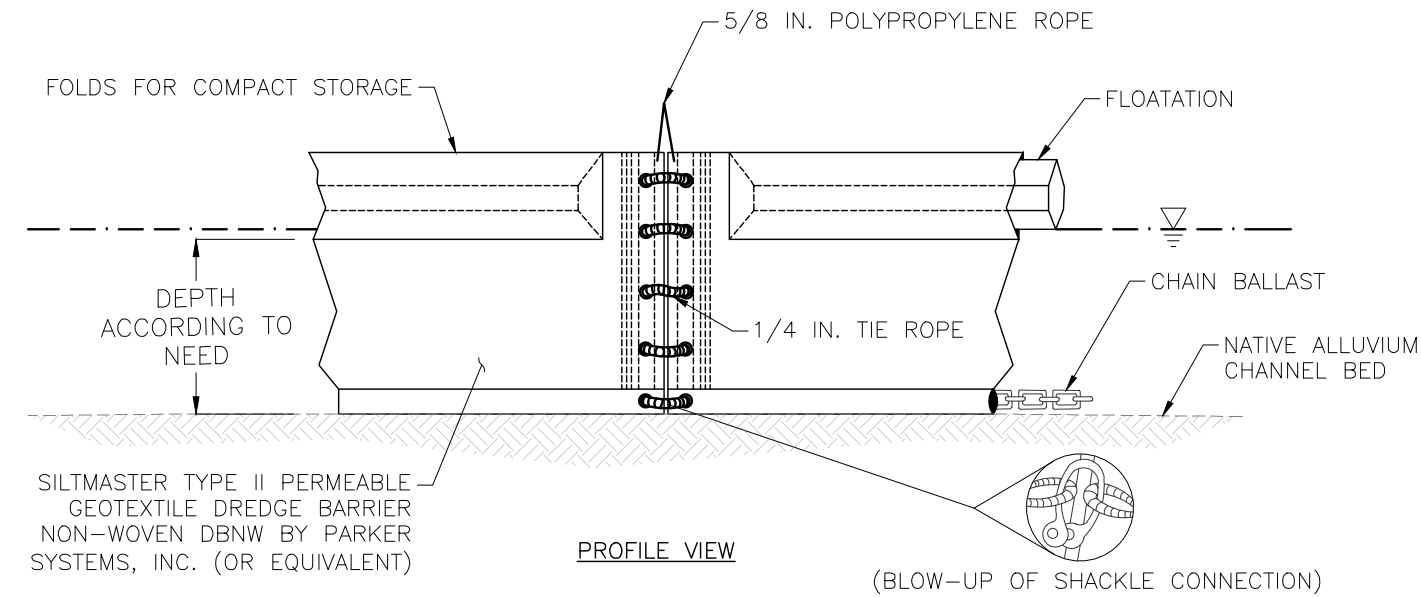
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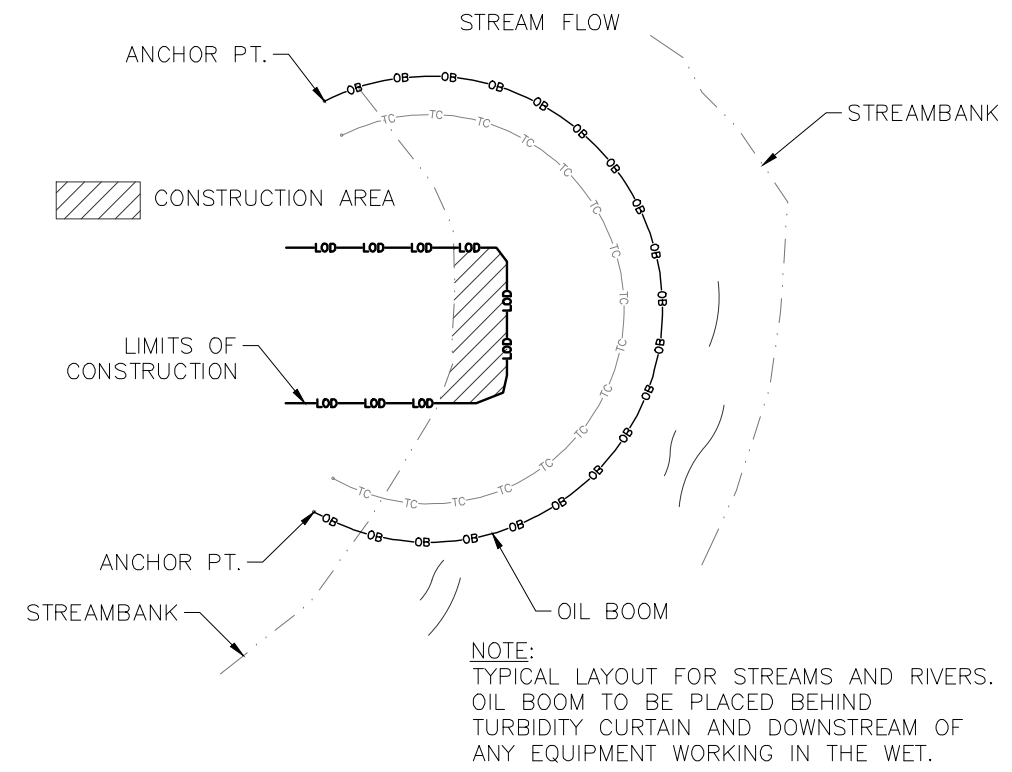
PROJECT NAME AND ADDRESS	
Crystal River Restoration and Weaver Ditch Efficiency Project Carbondale, CO 81623	
Project 38047	Sheet CW03
Date April 2022	
Scale NTS	



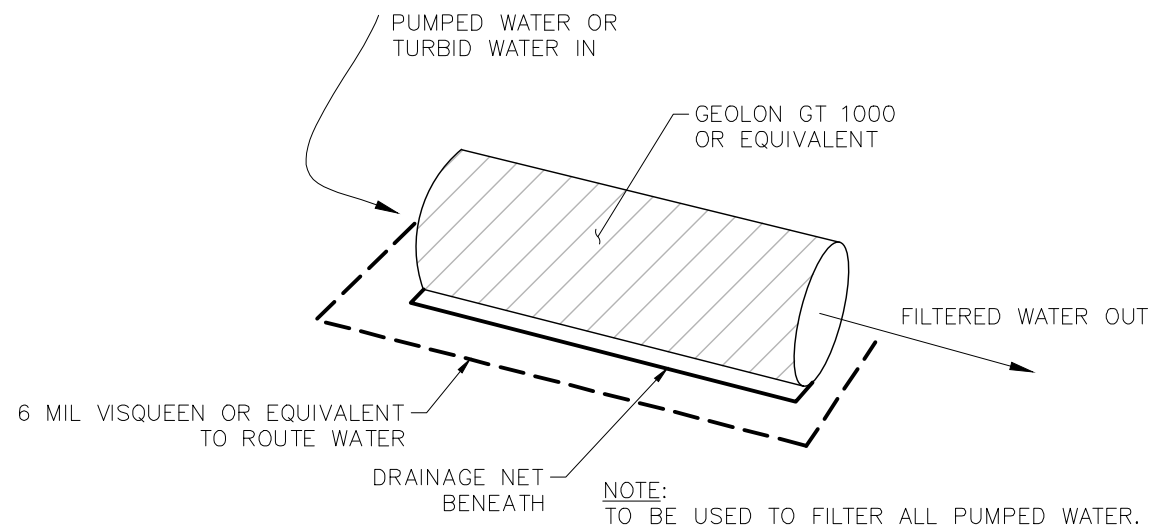
BID SET



1 TURBIDITY CURTAIN (TYP)
CW04 PLAN VIEW - NTS



2 OIL BOOM (TYP)
CW04 PLAN VIEW - NTS




3 GEO-TUBE FILTER (TYP)
CW04 NTS



CRYSTAL RIVER RESTORATION AND
WEAVER DITCH EFFICIENCY PROJECT
CARE OF WATER DETAILS

No.	REVISION/UPDATE	Date

CLIENT NAME AND ADDRESS



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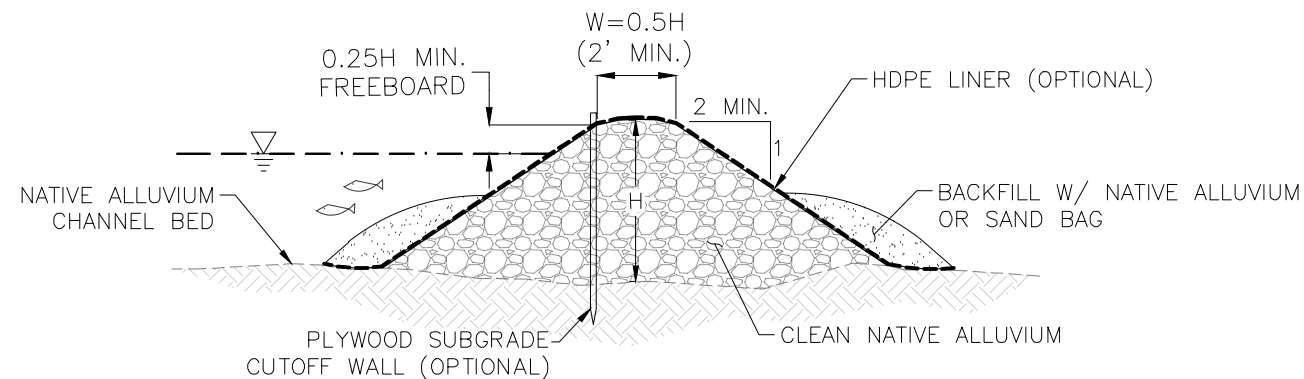
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PROJECT NAME AND ADDRESS	
Crystal River Restoration and Weaver Ditch Efficiency Project Carbondale, CO 81623	
Project 38047	Sheet
Date April 2022	CW04
Scale NTS	



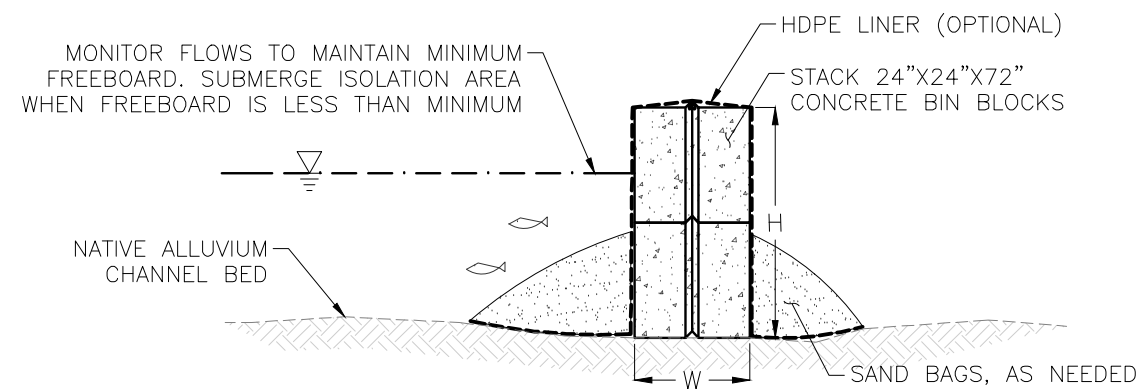
BID SET



NOTE:
HMAX=8.0'
WMIN=0.5H
MIN FREEBOARD=0.25H
MAX DEPTH=6'

*SUBMERGE WORK WHEN MIN FREEBOARD IS EXCEEDED.

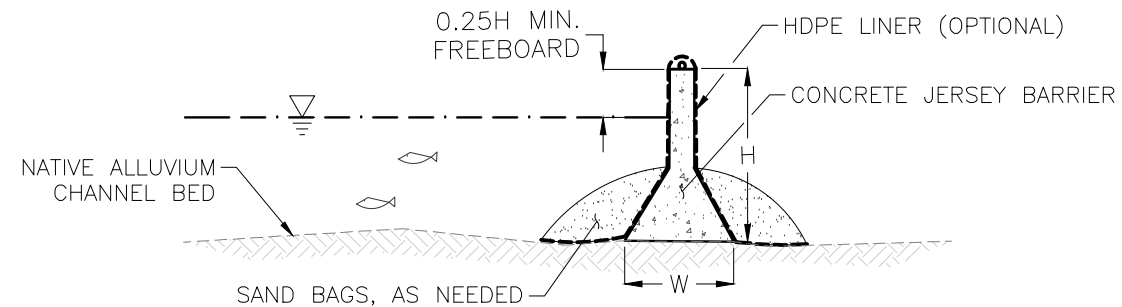
1 ALLUVIUM COFFERDAM (TYP)
CW05 SECTION VIEW - NTS



NOTE:
HMAX=8.0'
WMIN=1.5H-1.5
MIN FREEBOARD=0.25H
MAX DEPTH=0.75H

*SUBMERGE WORK WHEN MIN FREEBOARD IS EXCEEDED

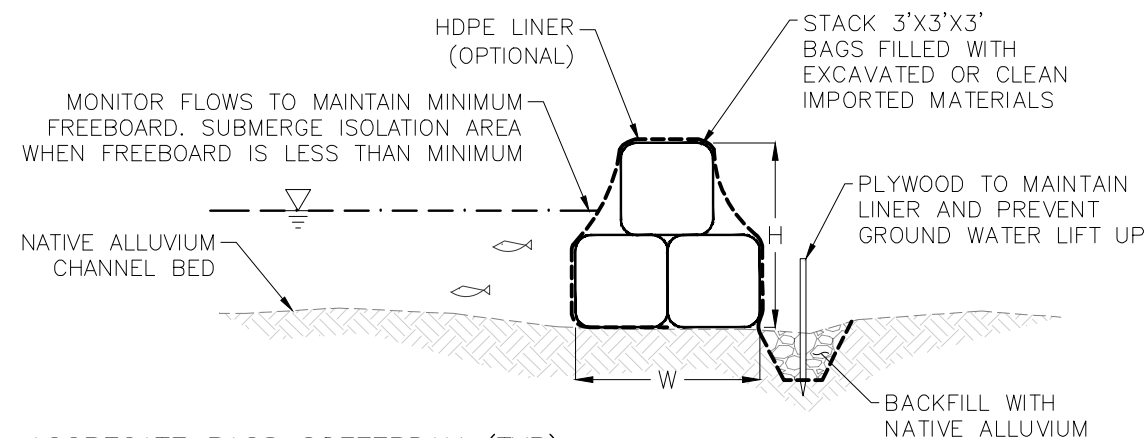
2 CONCRETE BLOCK COFFERDAM (TYP)
CW05 SECTION VIEW - NTS



NOTE:
H=34" (TYP. JERSEY BARRIER HEIGHT)
W=23" (TYP. JERSEY BARRIER BASE WIDTH)
MIN FREEBOARD=0.25H
MAX DEPTH=0.75H

*SUBMERGE WORK WHEN MIN FREEBOARD IS EXCEEDED

3 JERSEY BARRIER COFFERDAM (TYP)
CW05 SECTION VIEW - NTS



NOTE:
 $W=H^2-2.5H$
 $W_{MIN} = 1.5H-1.5$
H MAX = 8.0'
MIN FREEBOARD = 0.25H
MAX DEPTH = 0.75H

*SUBMERGE WORK WHEN MIN FREEBOARD IS EXCEEDED


4 AGGREGATE BAGS COFFERDAM (TYP)
CW05 SECTION VIEW - NTS

PROFESSIONAL ENGINEER/LANDSCAPE ARCHITECT STAMP



CRYSTAL RIVER RESTORATION AND
WEAVER DITCH EFFICIENCY PROJECT
COFFERDAM OPTION DETAILS

No.	REVISION/UPDATE	Date

CLIENT NAME AND ADDRESS
 Town of Carbondale 511 Colorado Ave Carbondale, CO 81623

DESIGN FIRMS NAME AND ADDRESSES
 RiverRestoration.org, LLC P.O. Box 248 Carbondale, CO 81623 www.RiverRestoration.org DHM DESIGN 311 Main St, Suite 102 Carbondale, CO 81623 970.963.6520 www.dhmdesign.com

PROJECT NAME AND ADDRESS
Crystal River Restoration and Weaver Ditch Efficiency Project Carbondale, CO 81623

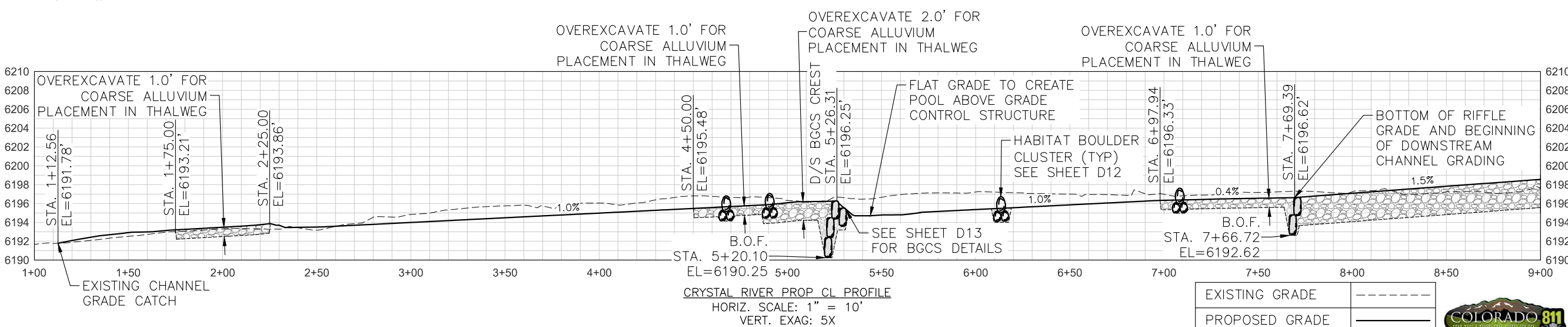
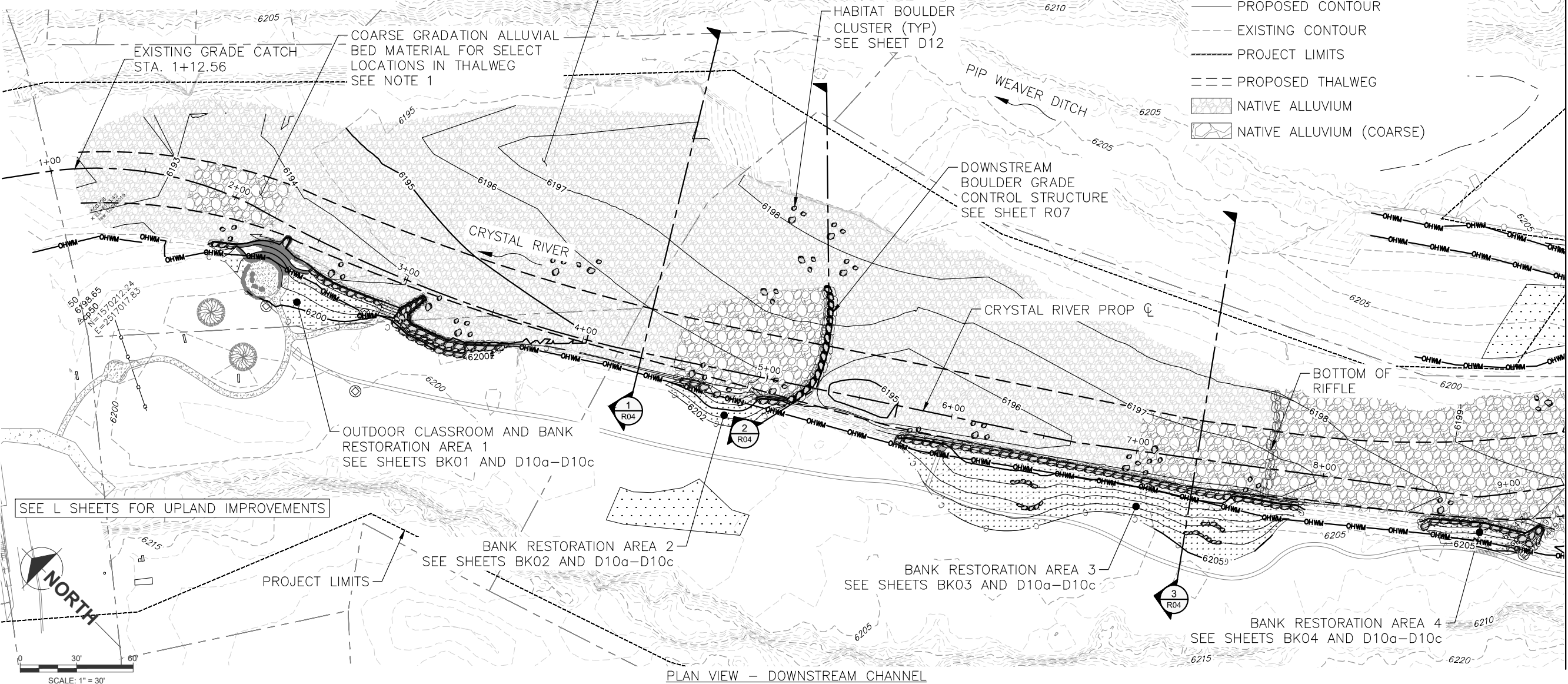
Project 38047	Sheet CW05
Date April 2022	
Scale NTS	



BID SET

NOTES:

1. EXISTING COBBLE BED MATERIAL SHALL BE SORTED INTO 2 GRADATION CLASSES AND REDISTRIBUTED ALONG CHANNEL AS SHOWN IN THESE PLANS. COARSER GRADATION SHALL BE INSTALLED TO DEPTHS SHOWN IN PROFILE. SEE SPECIFICATIONS FOR DETAILS ON MATERIAL CLASSES.



PROFESSIONAL ENGINEER/LANDSCAPE ARCHITECT STAMP



CRYSTAL RIVER RESTORATION AND
WEAVER DITCH EFFICIENCY PROJECT
DOWNSTREAM CHANNEL
PLAN AND PROFILE

No.	REVISION/UPDATE	Date

CLIENT NAME AND ADDRESS

Town of Carbondale
511 Colorado Ave
Carbondale, CO 81623

DESIGN FIRMS NAME AND ADDRESSES

RIVER
RiverRestoration.org, LLC
P.O. Box 248
Carbondale, CO 81623
www.RiverRestoration.org

DHM DESIGN
311 Main St, Suite 102
Carbondale, CO 81623
970.963.6520
www.dhmdesign.com

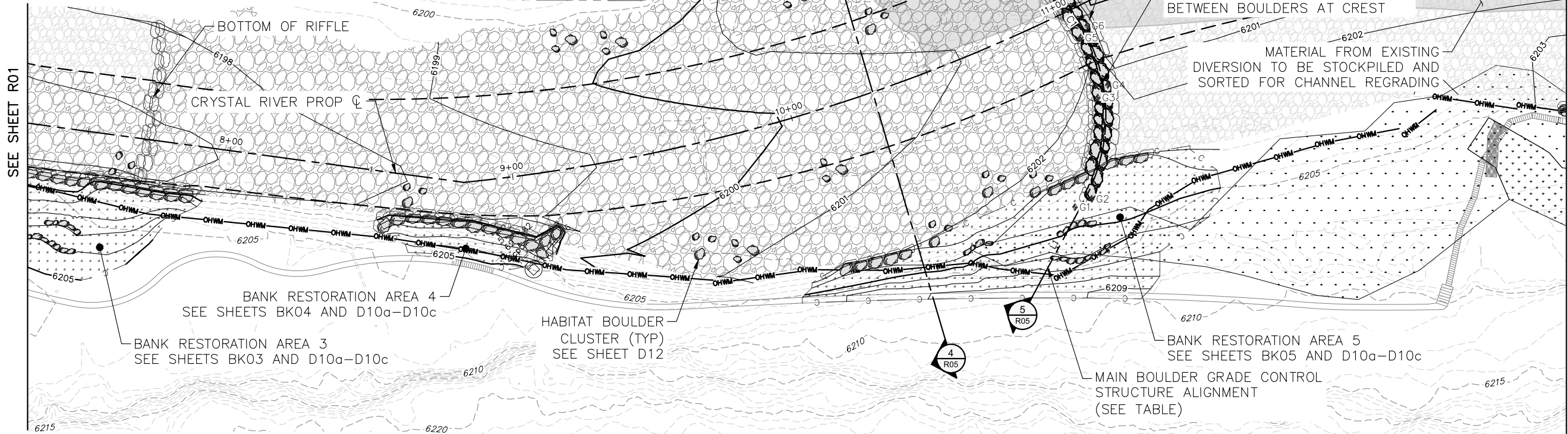
PROJECT NAME AND ADDRESS

Crystal River Restoration
and Weaver Ditch Efficiency Project
Carbondale, CO 81623

Project 38047	Sheet RO1
Date April 2022	
Scale 1"=30' (FULL-SIZE)	

RIFFLE GRADE CONTROL POINTS				
POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	1569463.8647	2517621.8509	6202.45	G1
2	1569461.7369	2517628.0187	6202.41	G2
3	1569485.3642	2517654.6177	6202.11	G3
4	1569485.9860	2517660.2212	6202.07	G4
5	1569504.4530	2517665.2005	6201.80	G5
6	1569505.7960	2517669.7794	6201.75	G6
7	1569541.1162	2517666.4383	6202.36	G7
8	1569545.3187	2517669.3130	6202.36	G8
9	1569573.2951	2517639.6291	6202.50	G9
10	1569576.8878	2517641.3875	6202.97	G10

RIFFLE GRADE CONTROL ALIGNMENT			
NUMBER	LENGTH	RADIUS	LIN/CHORD DIRECTION
L1	43.946		N73° 16' 11.14"E
C1	128.298	62.621	N11° 44' 41.46"E
L2	27.849		N57° 29' 10.28"W

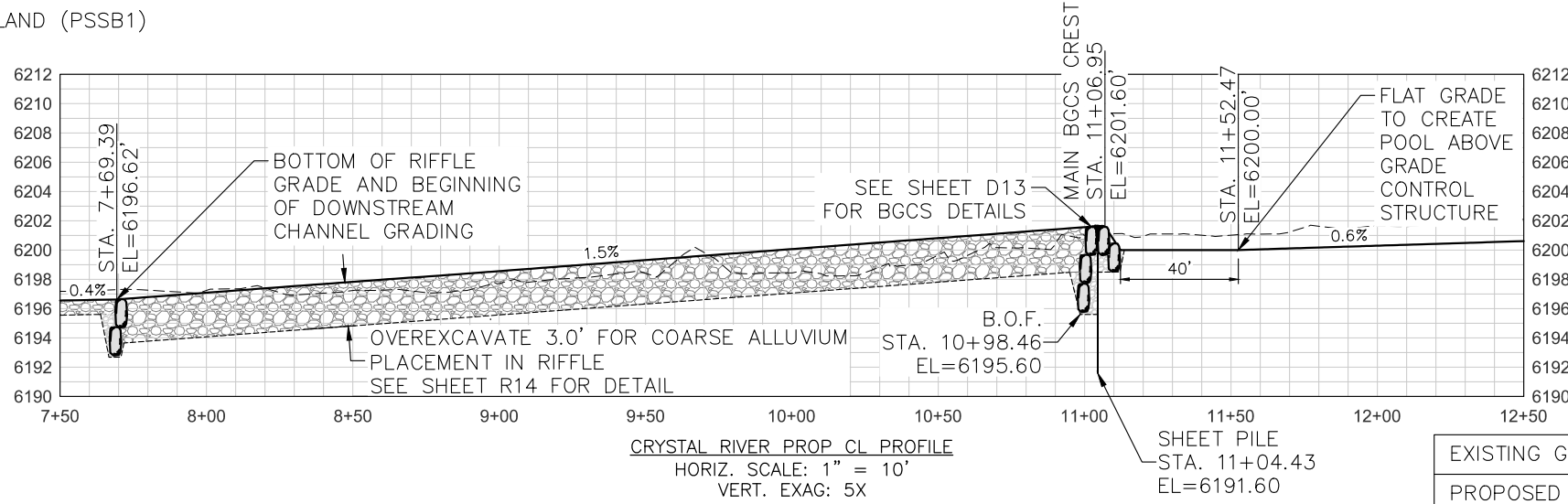


SEE SHEET R01

SEE SHEET R03

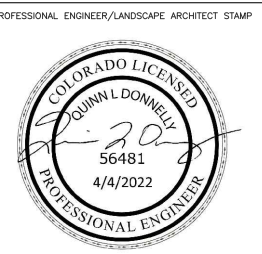
- LEGEND**
- PALUSTRINE EMERGENT WETLAND (PEM1B)
 - PALUSTRINE SCRUB SHRUB WETLAND (PSSB1)
 - PROPERTY LINE
 - ORDINARY HIGH WATER MARK
 - PROPOSED CONTOUR
 - EXISTING CONTOUR
 - PROJECT LIMITS
 - PROPOSED THALWEG
 - NATIVE ALLUVIUM
 - NATIVE ALLUVIUM (COARSE)

PLAN VIEW – RIFFLE AND GRADE CONTROL STRUCTURE



- NOTES:**
- EXISTING COBBLE BED MATERIAL SHALL BE SORTED INTO 2 GRADATION CLASSES AND REDISTRIBUTED ALONG CHANNEL AS SHOWN IN THESE PLANS. COARSER GRADATION SHALL BE INSTALLED TO DEPTHS SHOWN IN PROFILE. SEE SPECIFICATIONS FOR DETAILS ON MATERIAL CLASSES.

EXISTING GRADE	---
PROPOSED GRADE	---



CRYSTAL RIVER RESTORATION AND
WEAVER DITCH EFFICIENCY PROJECT
RIFFLE AND GRADE CONTROL STRUCTURE
PLAN AND PROFILE

No.	REVISION/UPDATE	Date

CLIENT NAME AND ADDRESS

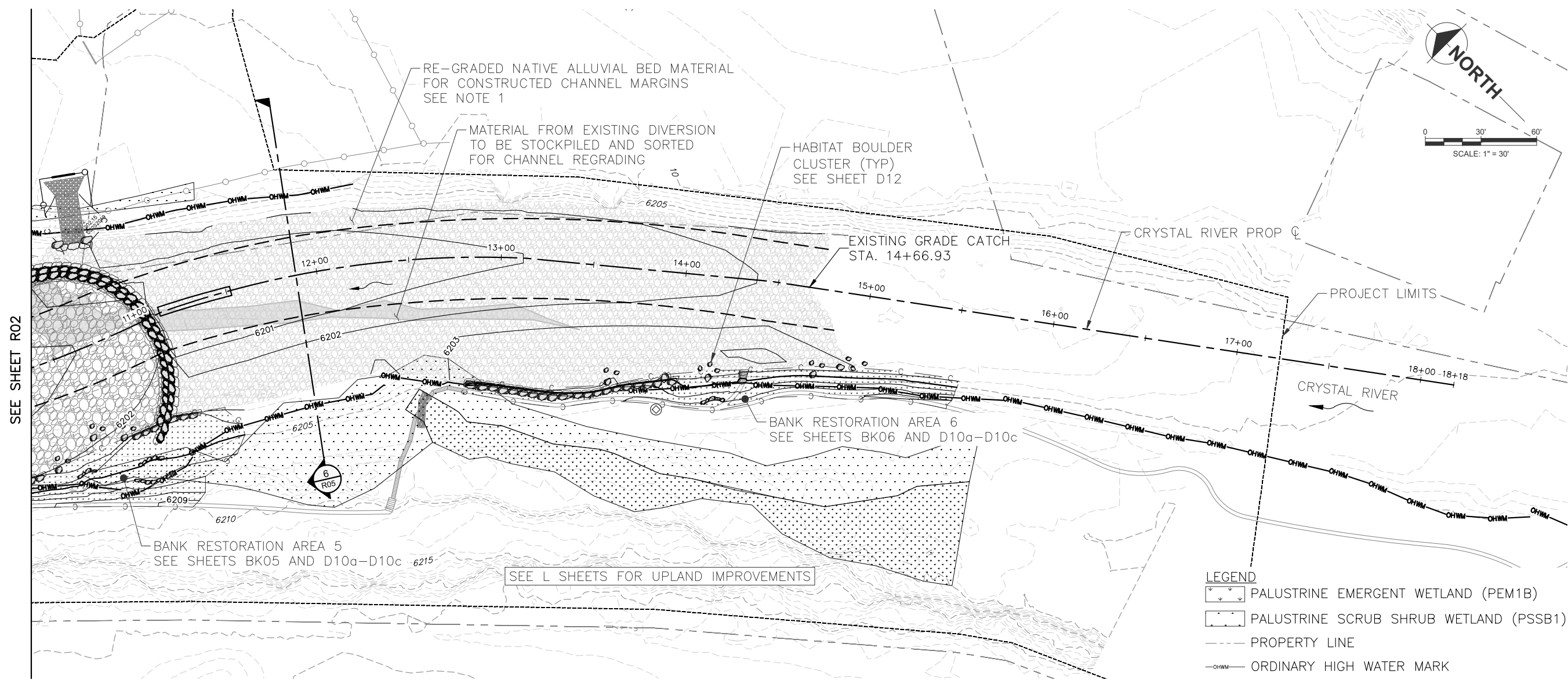
Town of Carbondale
511 Colorado Ave
Carbondale, CO 81623

DESIGN FIRMS NAME AND ADDRESSES

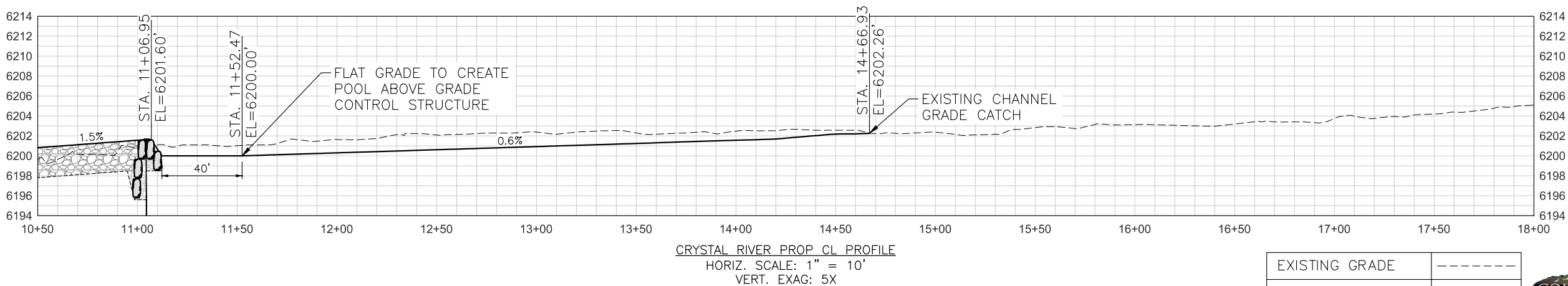
RiverRestoration.org, LLC
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Carbondale, CO 81623
www.RiverRestoration.org

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Carbondale, CO 81623
970.963.4520
www.dhmdesign.com

PROJECT NAME AND ADDRESS	
Crystal River Restoration and Weaver Ditch Efficiency Project Carbondale, CO 81623	
Project 38047	Sheet R02
Date April 2022	
Scale VARIES	



- NOTES:
1. EXISTING COBBLE BED MATERIAL SHALL BE SORTED INTO 2 GRADATION CLASSES AND REDISTRIBUTED ALONG CHANNEL AS SHOWN IN THESE PLANS. COARSER GRADATION SHALL BE INSTALLED TO DEPTHS SHOWN IN PROFILE. SEE SPECIFICATIONS FOR DETAILS ON MATERIAL CLASSES.




- LEGEND
- PALUSTRINE EMERGENT WETLAND (PEM1B)
 - PALUSTRINE SCRUB SHRUB WETLAND (PSSB1)
 - PROPERTY LINE
 - ORDINARY HIGH WATER MARK
 - PROPOSED CONTOUR
 - EXISTING CONTOUR
 - PROJECT LIMITS
 - PROPOSED THALWEG
 - NATIVE ALLUVIUM
 - NATIVE ALLUVIUM (COARSE)



CRYSTAL RIVER RESTORATION AND
WEAVER DITCH EFFICIENCY PROJECT
UPSTREAM CHANNEL
PLAN AND PROFILE

No.	REVISION/UPDATE	Date

CLIENT NAME AND ADDRESS

 Town of Carbondale
511 Colorado Ave
Carbondale, CO 81623

DESIGN FIRMS NAME AND ADDRESSES

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www.RiverRestoration.org

DHM DESIGN
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Carbondale, CO 81623
970.963.6520
www.dhmdesign.com

PROJECT NAME AND ADDRESS

Crystal River Restoration
and Weaver Ditch Efficiency Project
Carbondale, CO 81623

Project 38047	Sheet R03
Date April 2022	
Scale 1"=30' (FULL-SIZE)	




BID SET



CRYSTAL RIVER RESTORATION AND
WEAVER DITCH EFFICIENCY PROJECT
CHANNEL SECTIONS 1 OF 2

No.	REVISION/UPDATE	Date

CLIENT NAME AND ADDRESS



Town of Carbondale
511 Colorado Ave
Carbondale, CO 81623

DESIGN FIRMS NAME AND ADDRESSES



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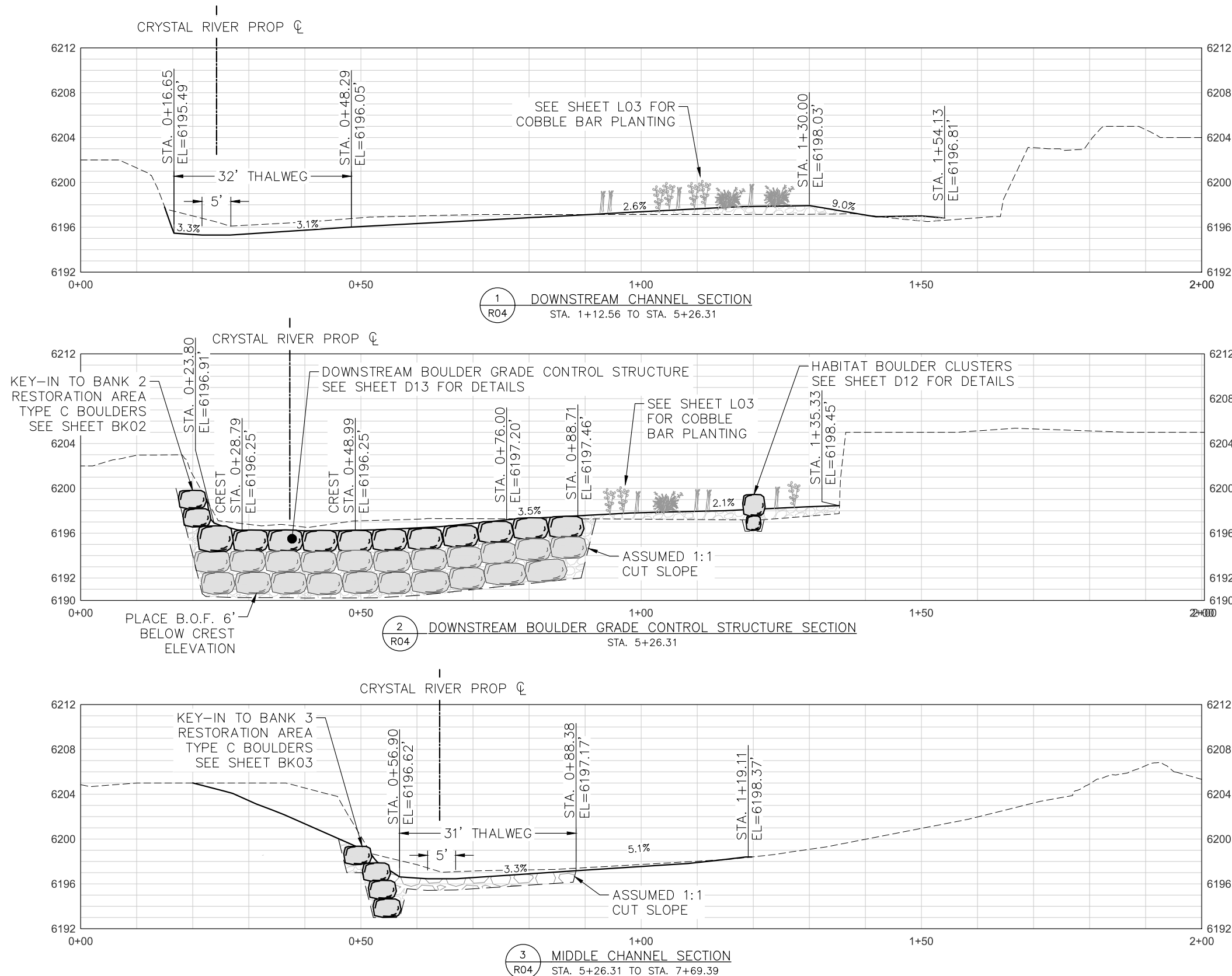
PROJECT NAME AND ADDRESS	
Crystal River Restoration and Weaver Ditch Efficiency Project Carbondale, CO 81623	
Project 38047	Sheet R04
Date April 2022	
Scale 1"= 10' (FULL-SIZE)	

GRADATION LEGEND (SEE SPECIFICATIONS)

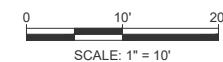
- NATIVE ALLUVIUM
- NATIVE ALLUVIUM (COARSE)

NOTES:

- EXISTING COBBLE BED MATERIAL SHALL BE SORTED INTO 2 GRADATION CLASSES AND REDISTRIBUTED ALONG CHANNEL AS SHOWN IN THESE PLANS. COARSER GRADATION SHALL BE INSTALLED TO DEPTHS SHOWN IN PROFILE. SEE SPECIFICATIONS FOR DETAILS ON MATERIAL CLASSES.



EXISTING GRADE	---
PROPOSED GRADE	—

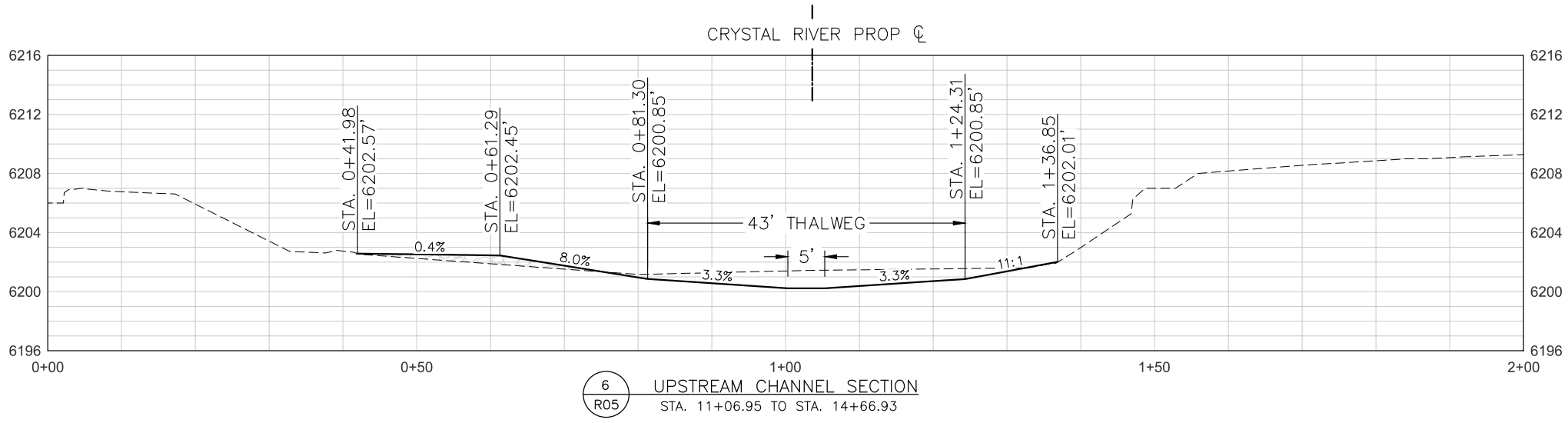
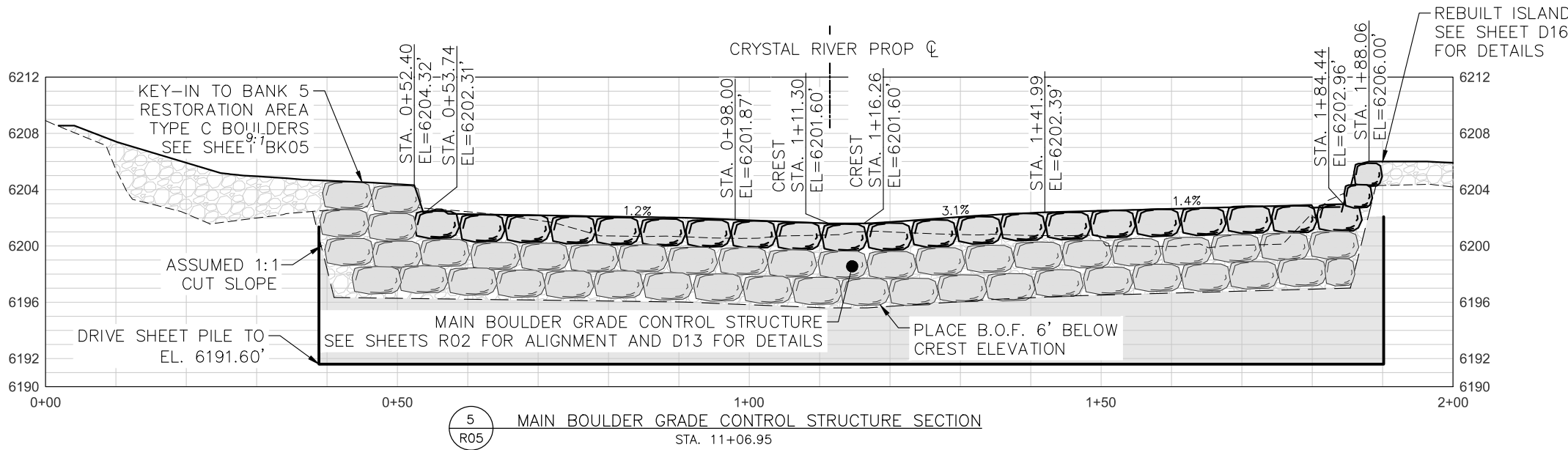
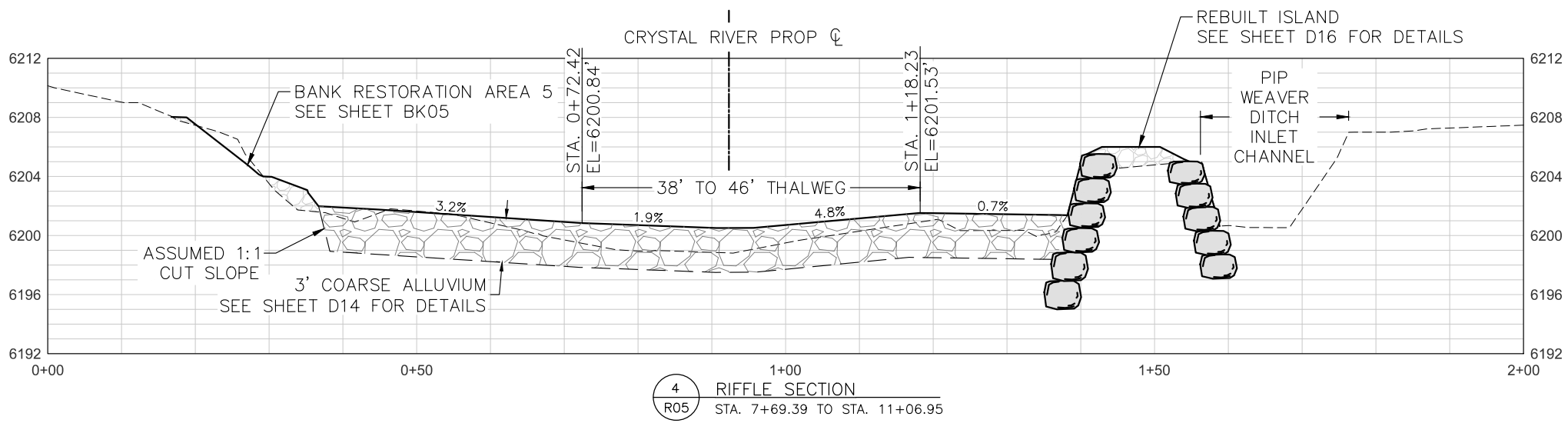


SCALE: 1"= 10'

2x VERTICAL EXAGGERATION



BID SET



GRADATION LEGEND (SEE SPECIFICATIONS)

NATIVE ALLUVIUM

NATIVE ALLUVIUM (COARSE)

NOTES:

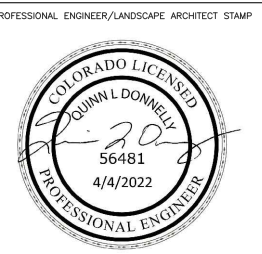
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EXISTING GRADE

PROPOSED GRADE

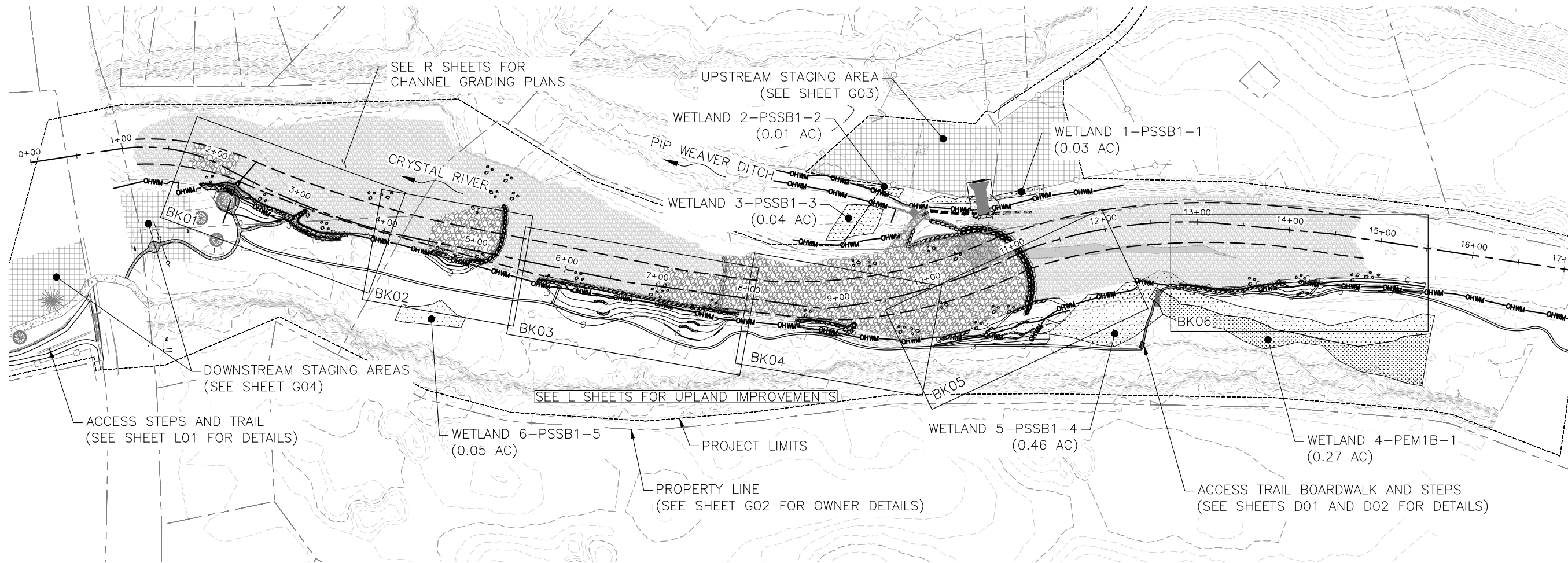
SCALE: 1" = 10'

2x VERTICAL EXAGGERATION

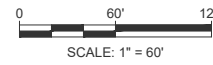


CRYSTAL RIVER RESTORATION AND
WEAVER DITCH EFFICIENCY PROJECT
CHANNEL SECTIONS 2 OF 2

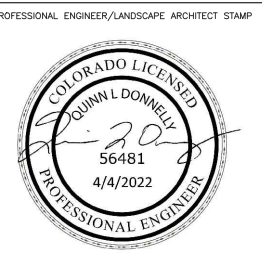
No.	REVISION/UPDATE	Date
CLIENT NAME AND ADDRESS		
 Town of Carbondale 511 Colorado Ave Carbondale, CO 81623		
DESIGN FIRMS NAME AND ADDRESSES		
 RiverRestoration.org, LLC P.O. Box 248 Carbondale, CO 81623 www.RiverRestoration.org		
 311 Main St, Suite 102 Carbondale, CO 81623 970.963.6520 www.dhmdesign.com		
PROJECT NAME AND ADDRESS		
Crystal River Restoration and Weaver Ditch Efficiency Project Carbondale, CO 81623		
Project 38047	Sheet	
Date April 2022	R05	
Scale 1" = 10' (FULL-SIZE)		



- LEGEND
- PALUSTRINE EMERGENT WETLAND (PEM1B)
 - PALUSTRINE SCRUB SHRUB WETLAND (PSSB1)
 - PROPERTY LINE
 - ORDINARY HIGH WATER MARK
 - PROPOSED CONTOUR
 - EXISTING CONTOUR
 - PROJECT LIMITS
 - PROPOSED THALWEG
 - NATIVE ALLUVIUM
 - NATIVE ALLUVIUM (COARSE)




BID SET



CRYSTAL RIVER RESTORATION AND
WEAVER DITCH EFFICIENCY PROJECT
BANK RESTORATION - OVERVIEW

No.	REVISION/UPDATE	Date

CLIENT NAME AND ADDRESS



Town of Carbondale
511 Colorado Ave
Carbondale, CO 81623

DESIGN FIRMS NAME AND ADDRESSES

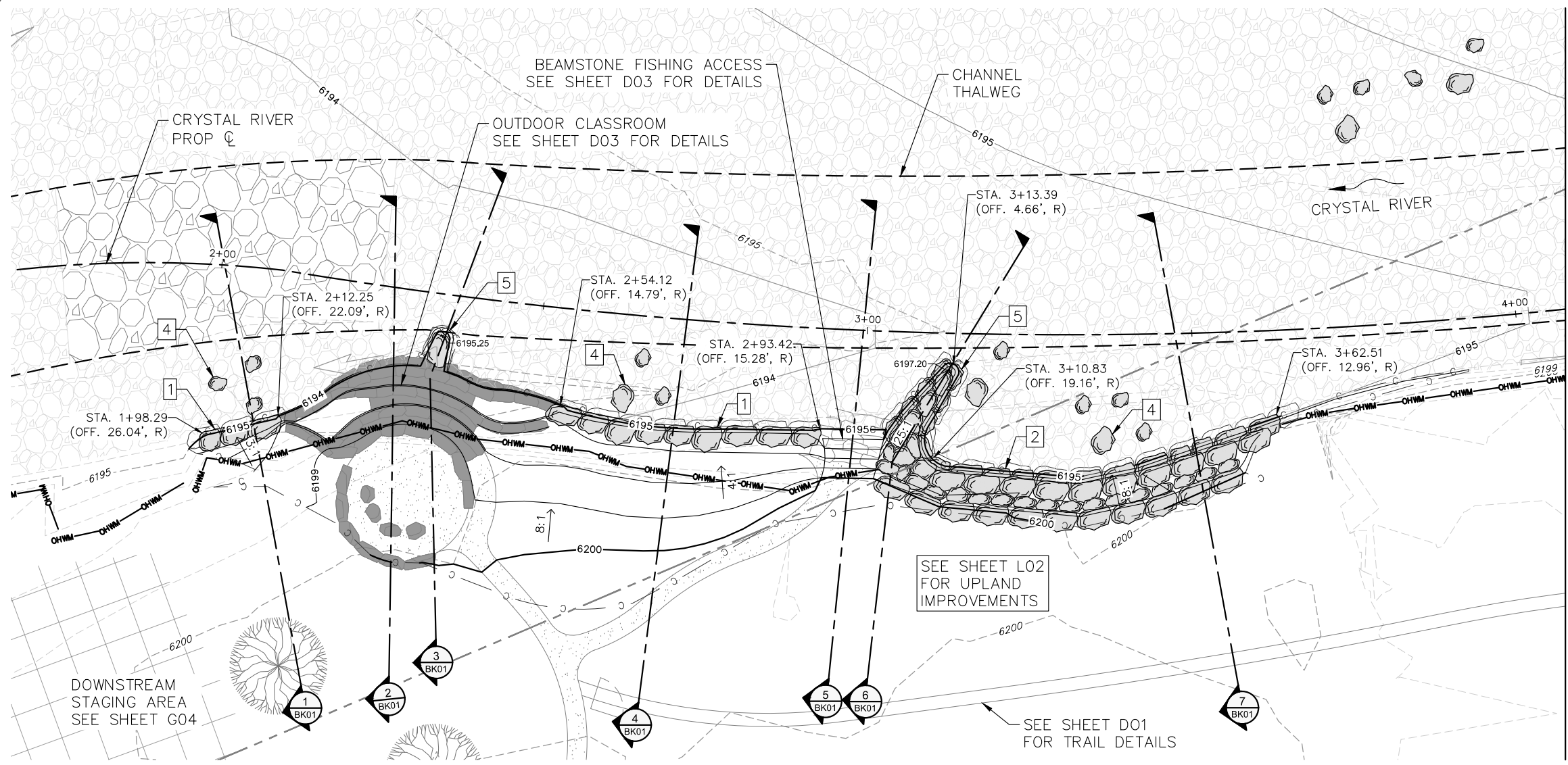


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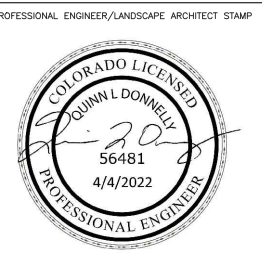
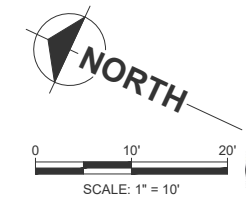
PROJECT NAME AND ADDRESS		
Crystal River Restoration and Weaver Ditch Efficiency Project Carbondale, CO 81623		
Project 38047	Sheet BK00	
Date April 2022		
Scale 1"=60' (FULL-SIZE)		



PLAN VIEW — BANK RESTORATION AREA 1

- LEGEND**
- PALUSTRINE EMERGENT WETLAND (PEM1B)
 - PALUSTRINE SCRUB SHRUB WETLAND (PSSB1)
 - PROPERTY LINE
 - ORDINARY HIGH WATER MARK
 - PROPOSED CONTOUR
 - EXISTING CONTOUR
 - PROJECT LIMITS
 - PROPOSED THALWEG
 - NATIVE ALLUVIUM
 - NATIVE ALLUVIUM (COARSE)


- BANK RESTORATION KEY NOTES**
- TYPE C BANK RESTORATION (SEE SHEET D10a)
 - TYPE D BANK RESTORATION (SEE SHEET D10b)
 - HABITAT BOULDER CLUSTER (SEE SHEET D12)
 - ROCK BARB (SEE SHEET D12)



CRYSTAL RIVER RESTORATION AND
WEAVER DITCH EFFICIENCY PROJECT
BANK RESTORATION AREA 1
PLAN VIEW

No.	REVISION/UPDATE	Date

CLIENT NAME AND ADDRESS



Town of Carbondale
511 Colorado Ave
Carbondale, CO 81623

DESIGN FIRMS NAME AND ADDRESSES



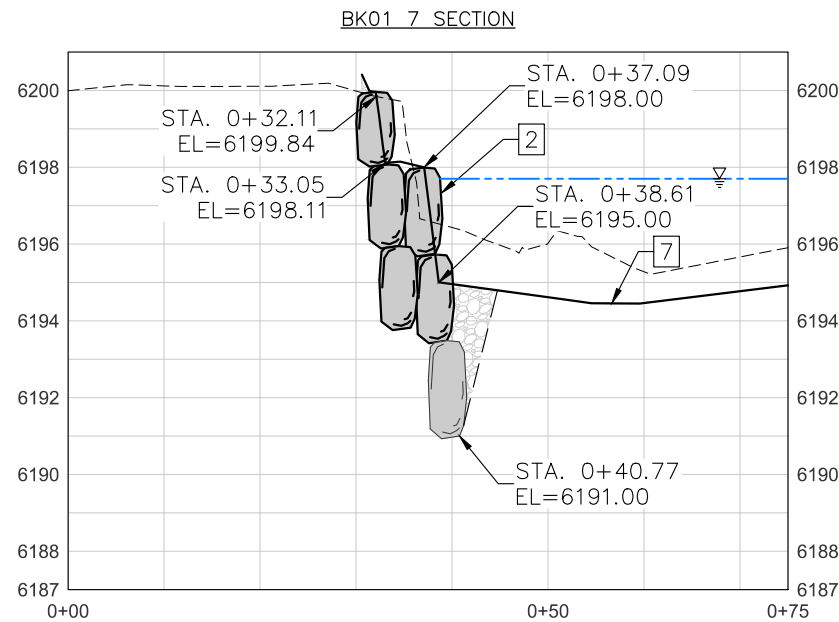
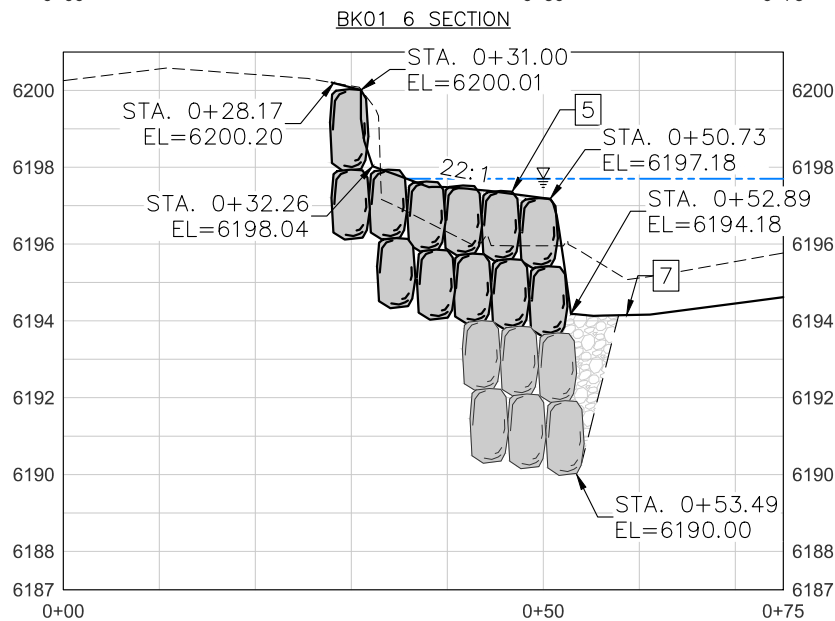
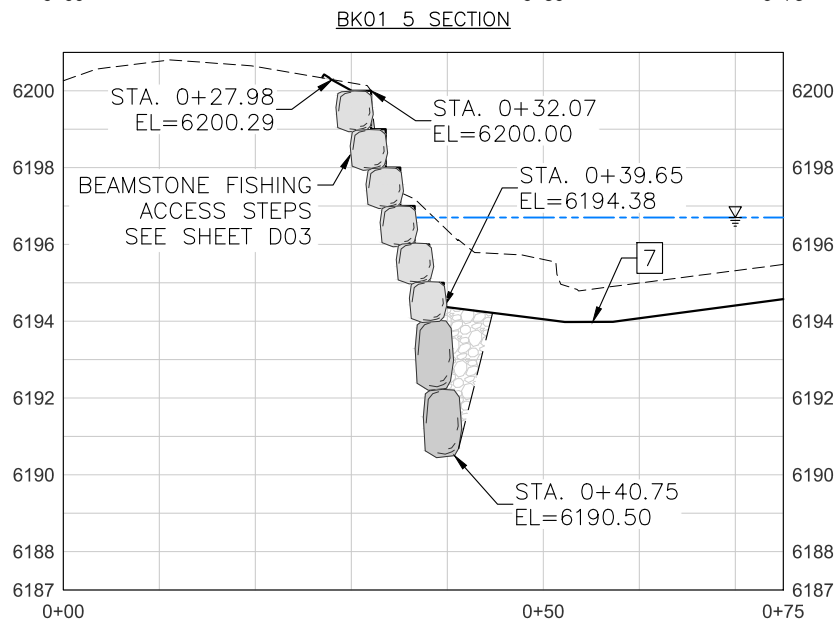
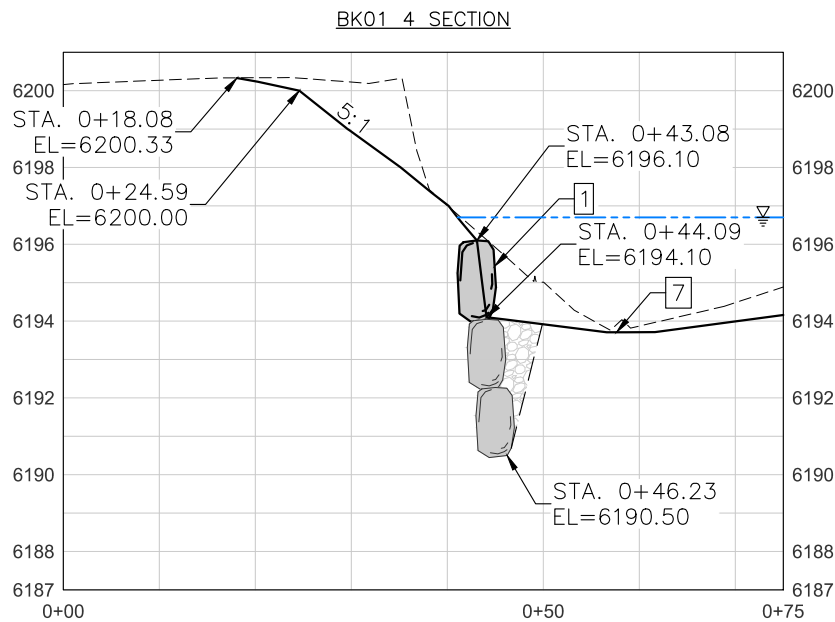
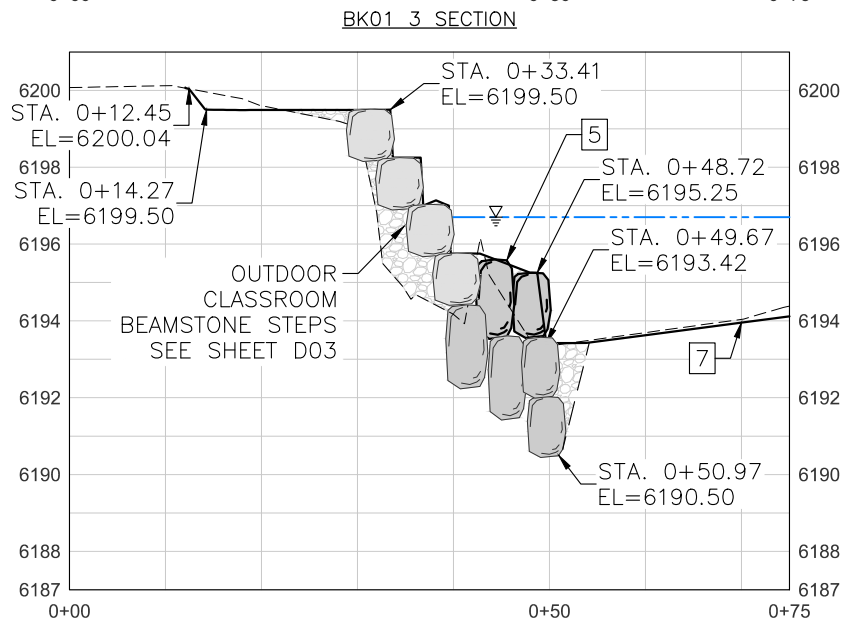
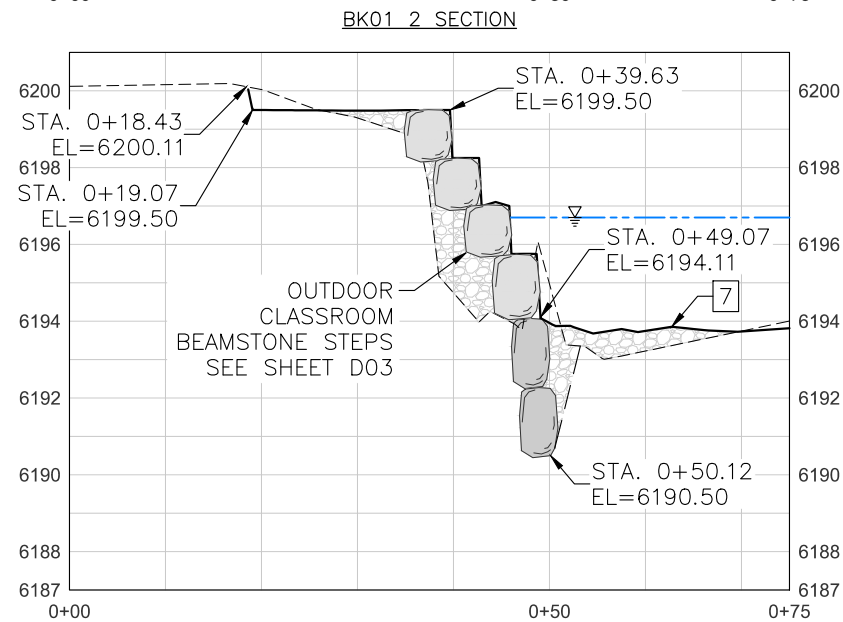
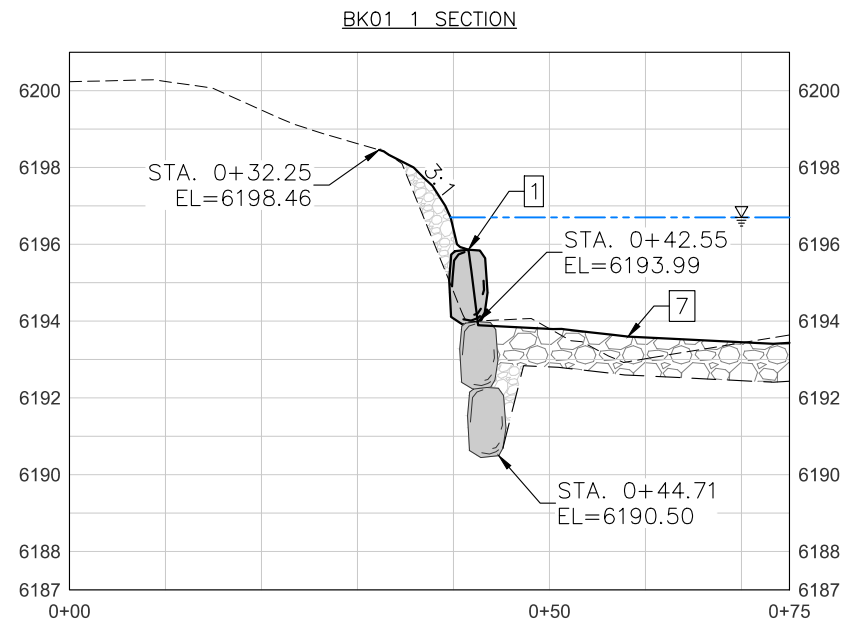
RiverRestoration.org, LLC
P.O. Box 248
Carbondale, CO 81623
www.RiverRestoration.org

DHM DESIGN

311 Main St, Suite 102
Carbondale, CO 81623
970.963.6520
www.dhmdesign.com

PROJECT NAME AND ADDRESS	
Crystal River Restoration and Weaver Ditch Efficiency Project Carbondale, CO 81623	
Project 38047	Sheet BKO1
Date April 2022	
Scale 1" = 10' (FULL-SIZE)	

BID SET



BANK RESTORATION KEY NOTES

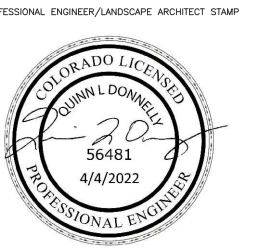
- 1 TYPE C BANK RESTORATION (SEE SHEET D10a)
- 2 TYPE D BANK RESTORATION (SEE SHEET D10b)
- 4 HABITAT BOULDER CLUSTER (SEE SHEET D12)
- 5 ROCK BARB (SEE SHEET D12)
- 7 PROPOSED CHANNEL BED (SEE R SHEETS)

GRADATION LEGEND (SEE SPECIFICATIONS)

- NATIVE ALLUVIUM
- COARSE ALLUVIUM

OHWM (2600 CFS)	---
EXISTING GRADE	---
PROPOSED GRADE	---


4x VERTICAL EXAGGERATION



CRYSTAL RIVER RESTORATION AND
WEAVER DITCH EFFICIENCY PROJECT
BANK RESTORATION AREA 1
CROSS SECTIONS

No.	REVISION/UPDATE	Date

CLIENT NAME AND ADDRESS

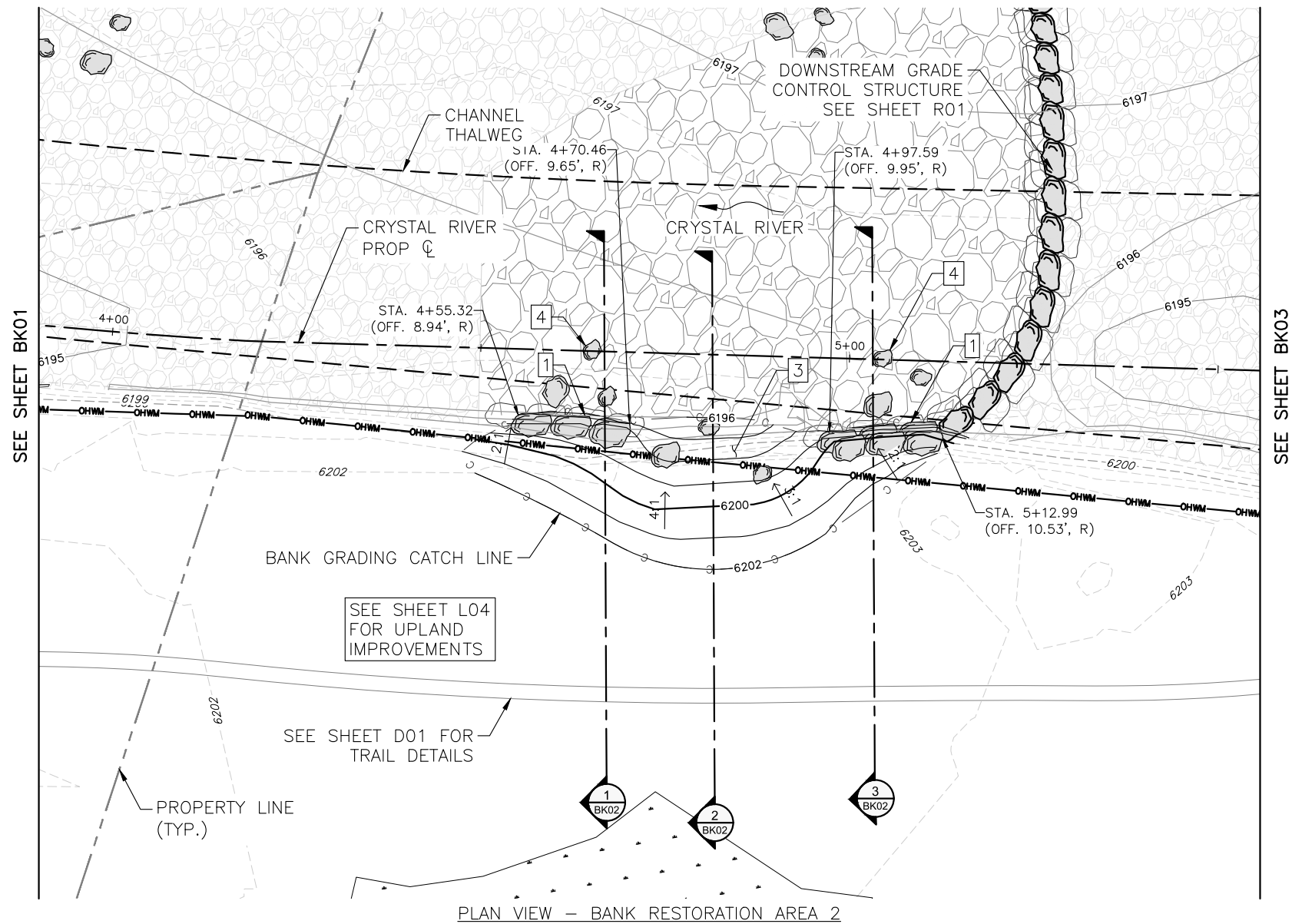
 Town of Carbondale
511 Colorado Ave
Carbondale, CO 81623

DESIGN FIRMS NAME AND ADDRESSES

 RiverRestoration.org, LLC
P.O. Box 248
Carbondale, CO 81623
www.RiverRestoration.org

DHM DESIGN
311 Main St, Suite 102
Carbondale, CO 81623
970.963.6520
www.dhmdesign.com

PROJECT NAME AND ADDRESS	
Crystal River Restoration and Weaver Ditch Efficiency Project Carbondale, CO 81623	
Project 38047	Sheet BKO1b
Date April 2022	
Scale 1"= 10' (FULL-SIZE)	

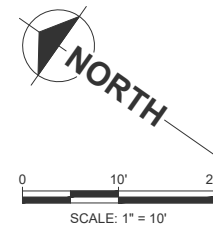


LEGEND

- PALUSTRINE EMERGENT WETLAND (PEM1B)
- PALUSTRINE SCRUB SHRUB WETLAND (PSSB1)
- PROPERTY LINE
- ORDINARY HIGH WATER MARK
- PROPOSED CONTOUR
- EXISTING CONTOUR
- PROJECT LIMITS
- PROPOSED THALWEG
- NATIVE ALLUVIUM
- NATIVE ALLUVIUM (COARSE)

BANK RESTORATION KEY NOTES

- TYPE C BANK RESTORATION (SEE SHEET D10a)
- TYPE E BANK RESTORATION (SEE SHEET D10c)
- HABITAT BOULDER CLUSTER (SEE SHEET D12)



BID SET



CRYSTAL RIVER RESTORATION AND
WEAVER DITCH EFFICIENCY PROJECT
BANK RESTORATION AREA 2
PLAN VIEW

No.	REVISION/UPDATE	Date

CLIENT NAME AND ADDRESS



Town of Carbondale
511 Colorado Ave
Carbondale, CO 81623

DESIGN FIRMS NAME AND ADDRESSES

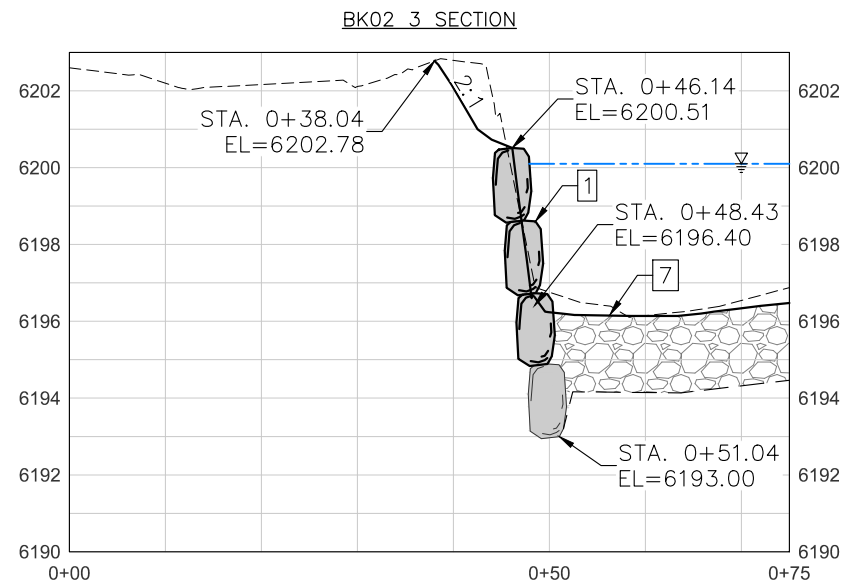
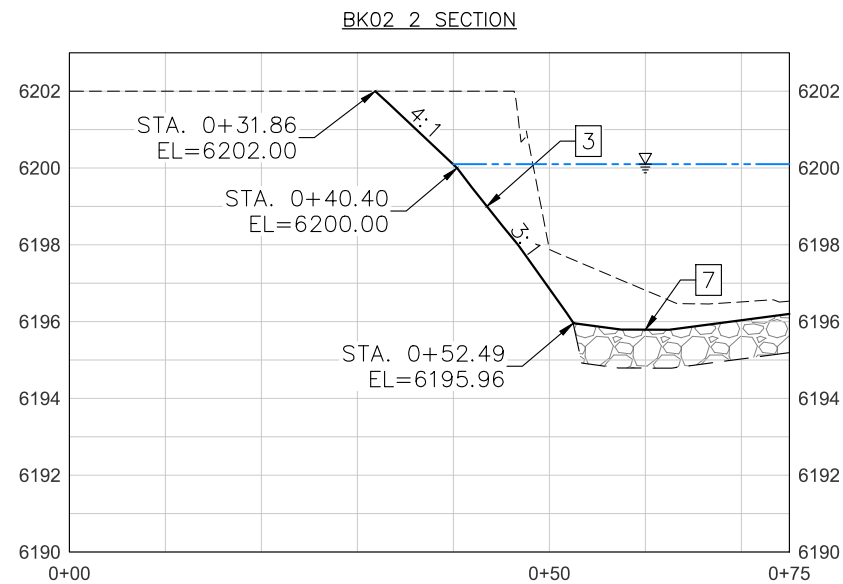
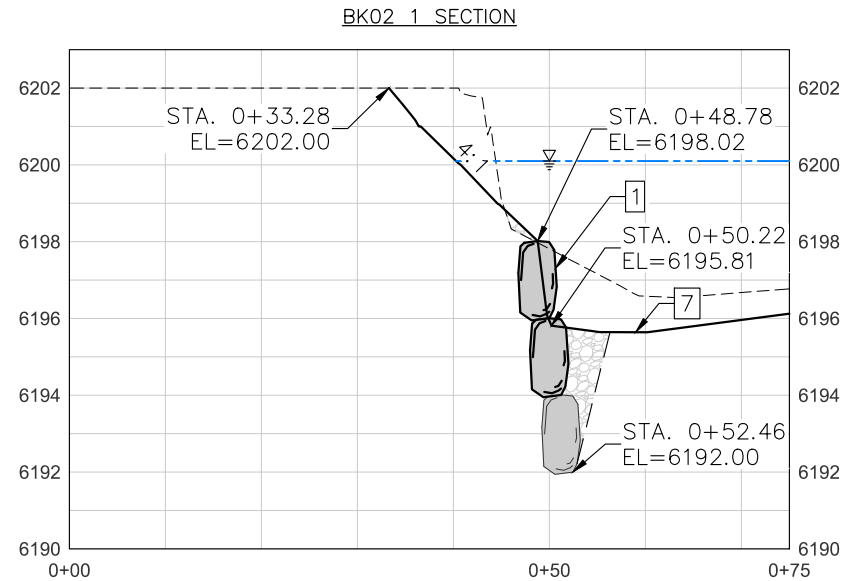


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PROJECT NAME AND ADDRESS	
Crystal River Restoration and Weaver Ditch Efficiency Project Carbondale, CO 81623	
Project 38047	Sheet BK02
Date April 2022	
Scale 1" = 10' (FULL-SIZE)	



- BANK RESTORATION KEY NOTES
- 1 TYPE C BANK RESTORATION (SEE SHEET D10a)
 - 3 TYPE E BANK RESTORATION (SEE SHEET D10c)
 - 4 HABITAT BOULDER CLUSTER (SEE SHEET D12)
 - 7 PROPOSED CHANNEL BED (SEE R SHEETS)

GRADATION LEGEND (SEE SPECIFICATIONS)

- NATIVE ALLUVIUM
- COARSE ALLUVIUM

OHWM (2600 CFS)	---
EXISTING GRADE	---
PROPOSED GRADE	---

4x VERTICAL EXAGGERATION



BID SET


PROFESSIONAL ENGINEER/LANDSCAPE ARCHITECT STAMP



CRYSTAL RIVER RESTORATION AND
WEAVER DITCH EFFICIENCY PROJECT
BANK RESTORATION AREA 2
CROSS SECTIONS

No.	REVISION/UPDATE	Date

CLIENT NAME AND ADDRESS

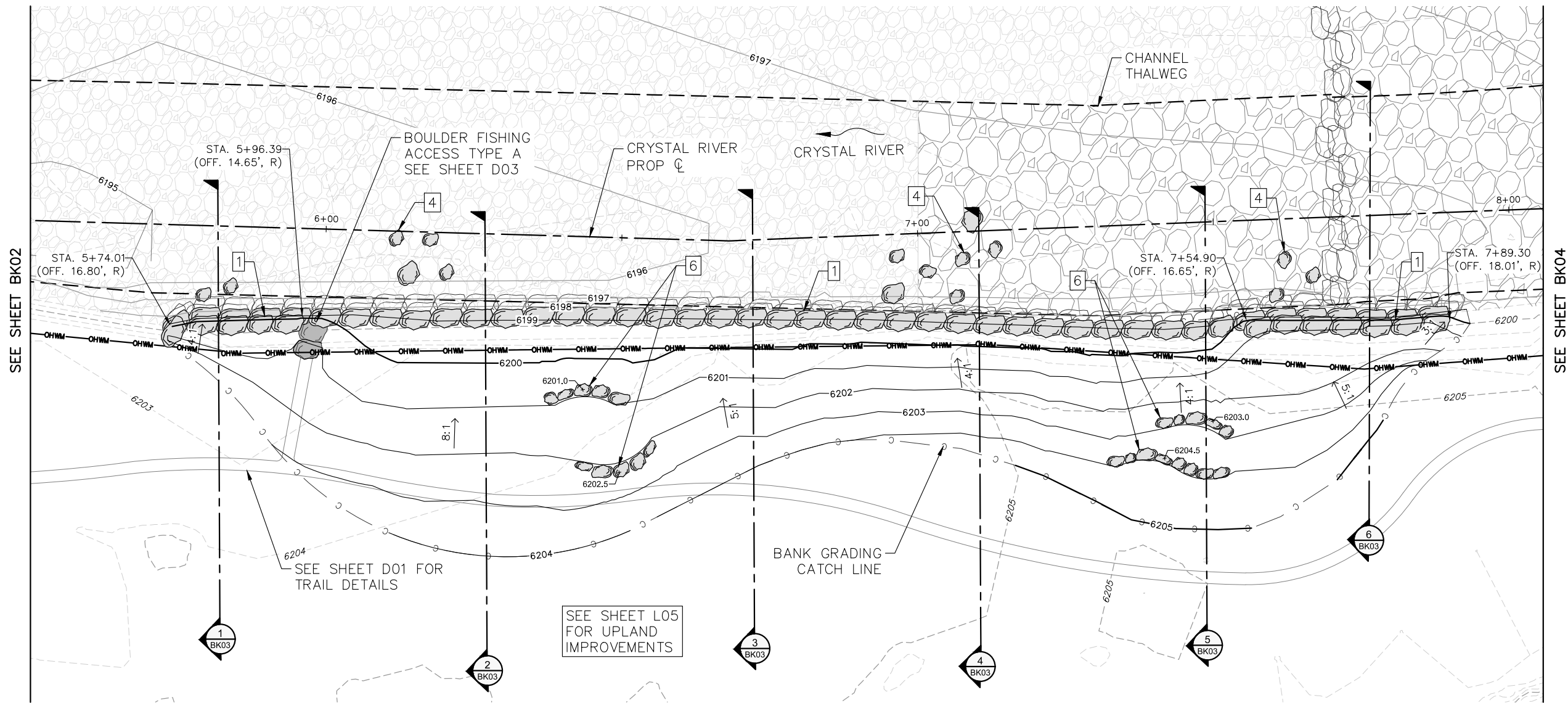
 Town of Carbondale
511 Colorado Ave
Carbondale, CO 81623

DESIGN FIRMS NAME AND ADDRESSES


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PROJECT NAME AND ADDRESS Crystal River Restoration and Weaver Ditch Efficiency Project Carbondale, CO 81623	
Project 38047	Sheet BK02b
Date April 2022	
Scale 1"= 10' (FULL-SIZE)	



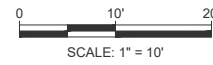
PLAN VIEW — BANK RESTORATION AREA 3

LEGEND

- PALUSTRINE EMERGENT WETLAND (PEM1B)
- PALUSTRINE SCRUB SHRUB WETLAND (PSSB1)
- PROPERTY LINE
- ORDINARY HIGH WATER MARK
- PROPOSED CONTOUR
- EXISTING CONTOUR
- PROJECT LIMITS
- PROPOSED THALWEG
- NATIVE ALLUVIUM
- NATIVE ALLUVIUM (COARSE)

BANK RESTORATION KEY NOTES


- TYPE C BANK RESTORATION (SEE SHEET D10a)
- HABITAT BOULDER CLUSTER (SEE SHEET D12)
- CONTAINER PLANTINGS IN BOULDER RETAINING WALL (SEE SHEET D06)



CRYSTAL RIVER RESTORATION AND
WEAVER DITCH EFFICIENCY PROJECT
BANK RESTORATION AREA 3
PLAN VIEW

No.	REVISION/UPDATE	Date

CLIENT NAME AND ADDRESS



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Carbondale, CO 81623

DESIGN FIRMS NAME AND ADDRESSES



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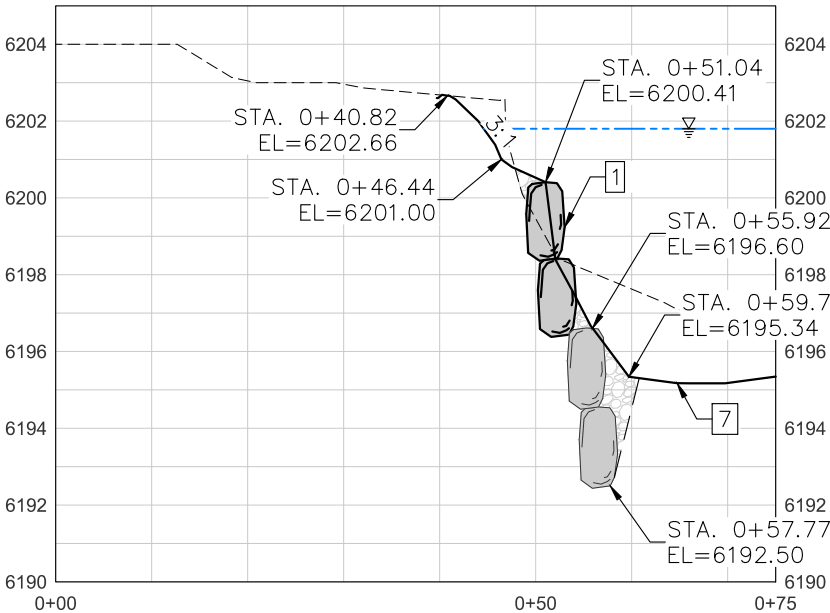
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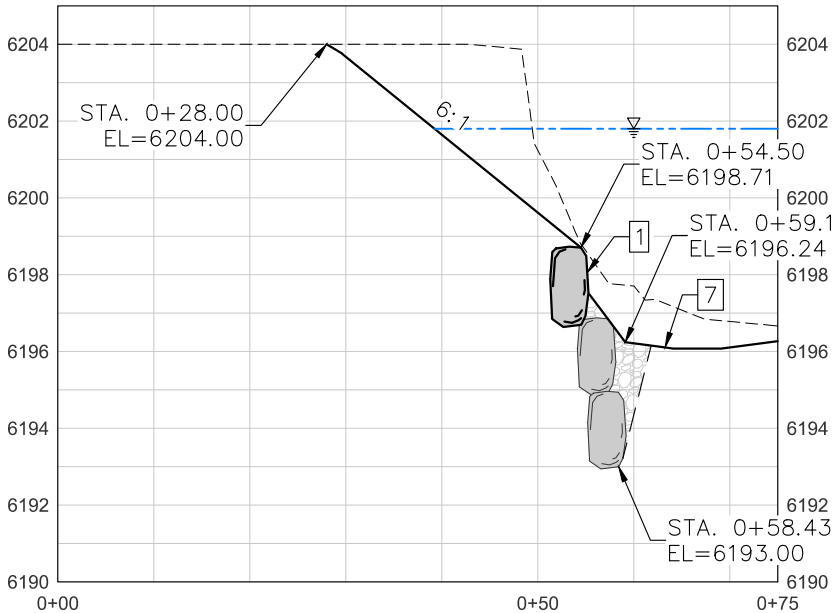
PROJECT NAME AND ADDRESS	
Crystal River Restoration and Weaver Ditch Efficiency Project Carbondale, CO 81623	
Project 38047	Sheet BK03
Date April 2022	
Scale 1" = 10' (FULL-SIZE)	

BID SET

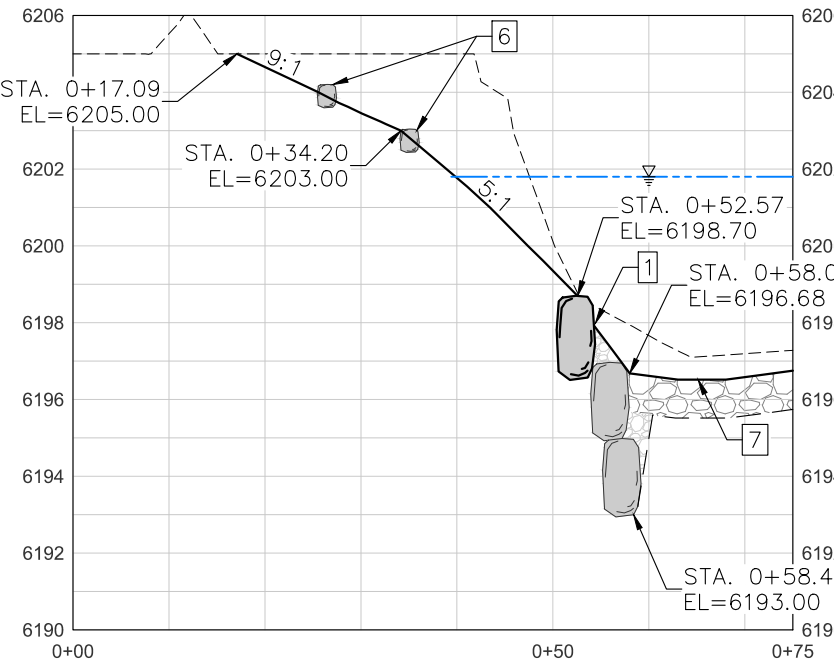
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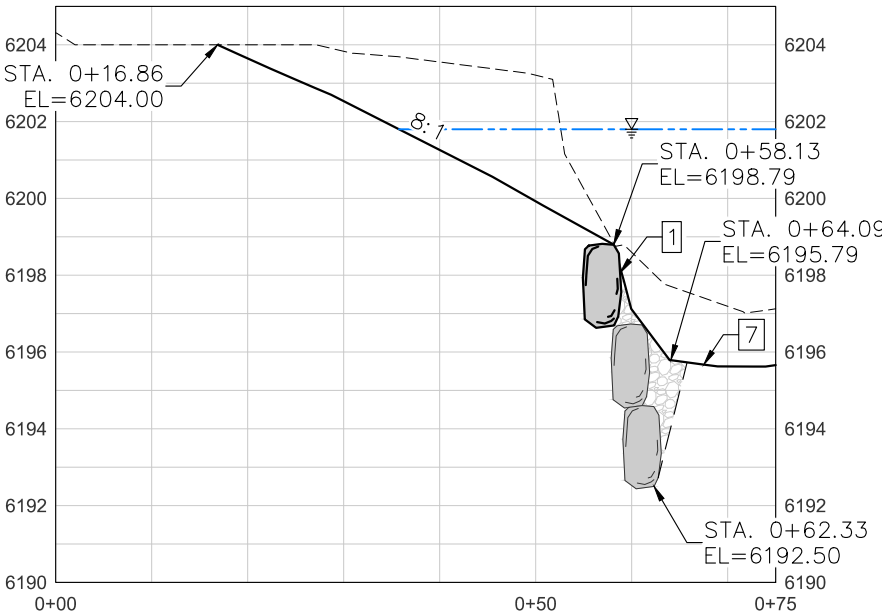
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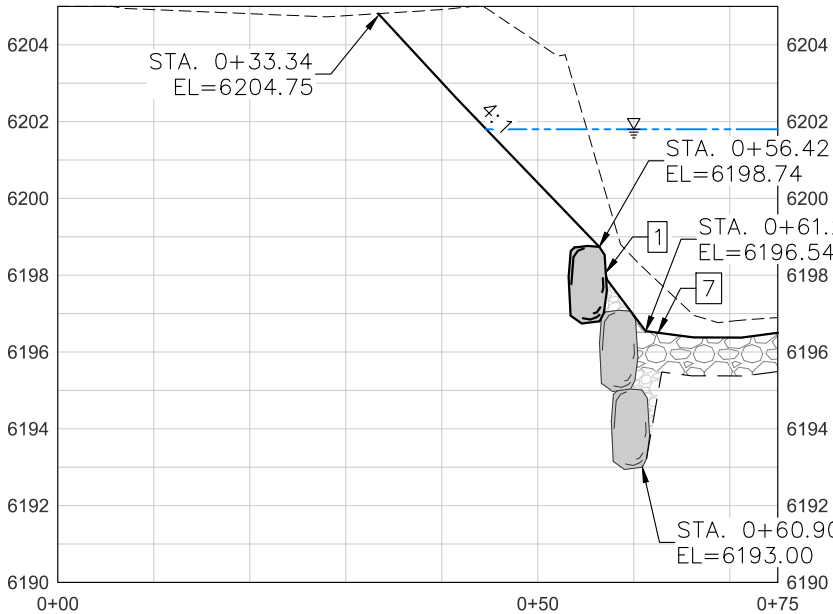
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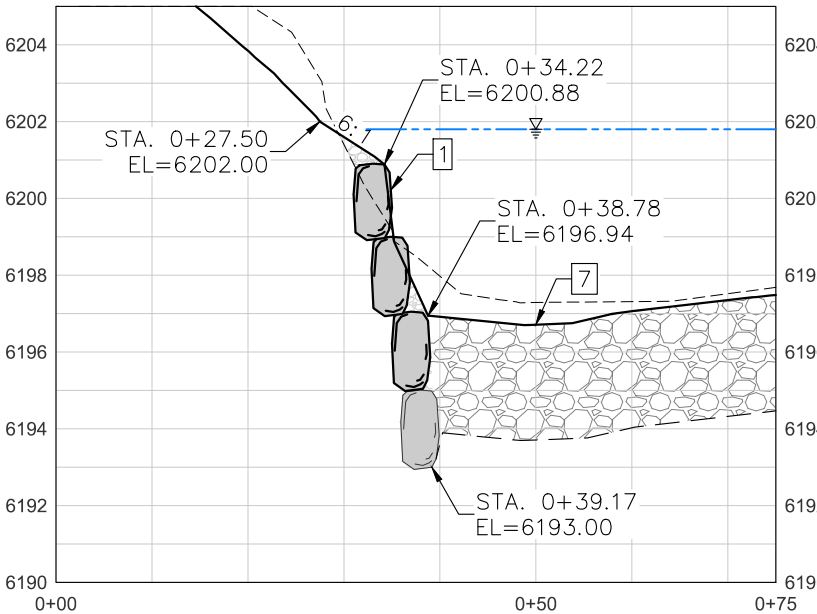
BK03 2 SECTION



BK03 4 SECTION



BK03 6 SECTION



GRADATION LEGEND (SEE SPECIFICATIONS)

- NATIVE ALLUVIUM
- COARSE ALLUVIUM

OHWM (2600 CFS)	---
EXISTING GRADE	---
PROPOSED GRADE	---

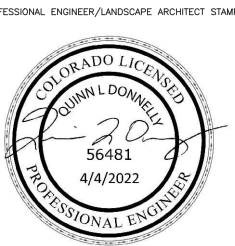
BANK RESTORATION KEY NOTES

- 1 TYPE C BANK RESTORATION (SEE SHEET D10a)
- 4 HABITAT BOULDER CLUSTER (SEE SHEET D12)
- 6 CONTAINER PLANTINGS IN BOULDER RETAINING WALL (SEE SHEET D06)
- 7 PROPOSED CHANNEL BED (SEE R SHEETS)

4x VERTICAL EXAGGERATION



BID SET



CRYSTAL RIVER RESTORATION AND
WEAVER DITCH EFFICIENCY PROJECT
BANK RESTORATION AREA 3
CROSS SECTIONS

No.	REVISION/UPDATE	Date

CLIENT NAME AND ADDRESS

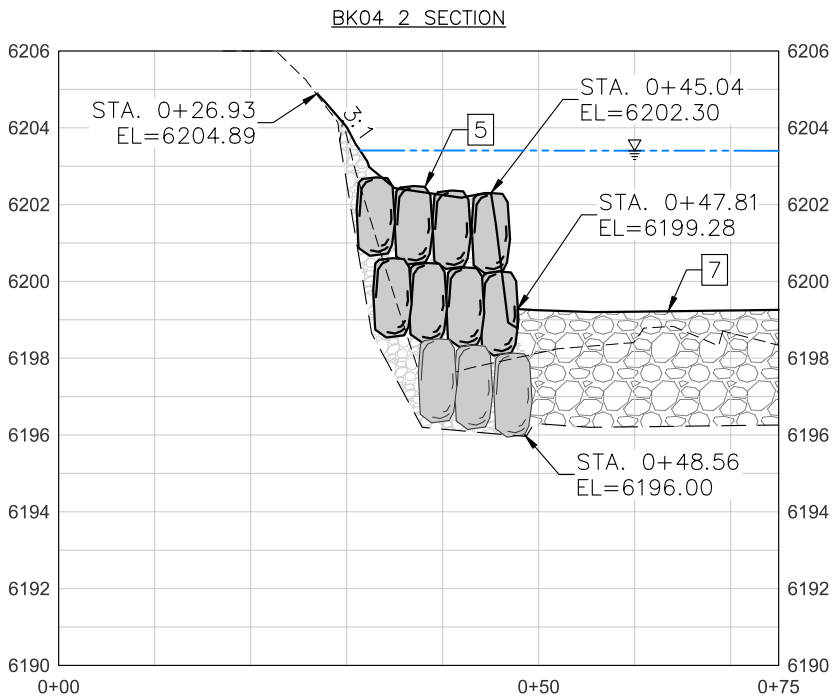
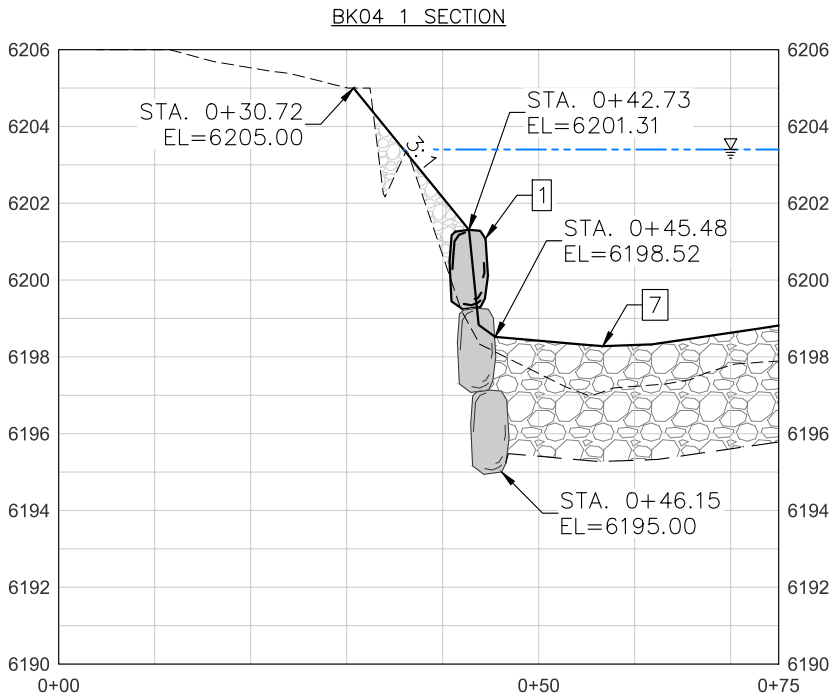
 Town of Carbondale
511 Colorado Ave
Carbondale, CO 81623

DESIGN FIRMS NAME AND ADDRESSES

 RiverRestoration.org, LLC
P.O. Box 248
Carbondale, CO 81623
www.RiverRestoration.org

 311 Main St, Suite 102
Carbondale, CO 81623
970.963.6520
www.dhmdesign.com

PROJECT NAME AND ADDRESS	
Crystal River Restoration and Weaver Ditch Efficiency Project Carbondale, CO 81623	
Project 38047	Sheet BK03b
Date April 2022	
Scale 1"= 10' (FULL-SIZE)	



- BANK RESTORATION KEY NOTES
- 1 TYPE C BANK RESTORATION (SEE SHEET D10a)
 - 4 HABITAT BOULDER CLUSTER (SEE SHEET D12)
 - 5 ROCK BARB (SEE SHEET D12)
 - 7 PROPOSED CHANNEL BED (SEE R SHEETS)

GRADATION LEGEND (SEE SPECIFICATIONS)

- NATIVE ALLUVIUM
- COARSE ALLUVIUM

OHWM (2600 CFS)	---
EXISTING GRADE	---
PROPOSED GRADE	---

4x VERTICAL EXAGGERATION



BID SET



CRYSTAL RIVER RESTORATION AND
WEAVER DITCH EFFICIENCY PROJECT
BANK RESTORATION AREA 4
CROSS SECTIONS

No.	REVISION/UPDATE	Date

CLIENT NAME AND ADDRESS

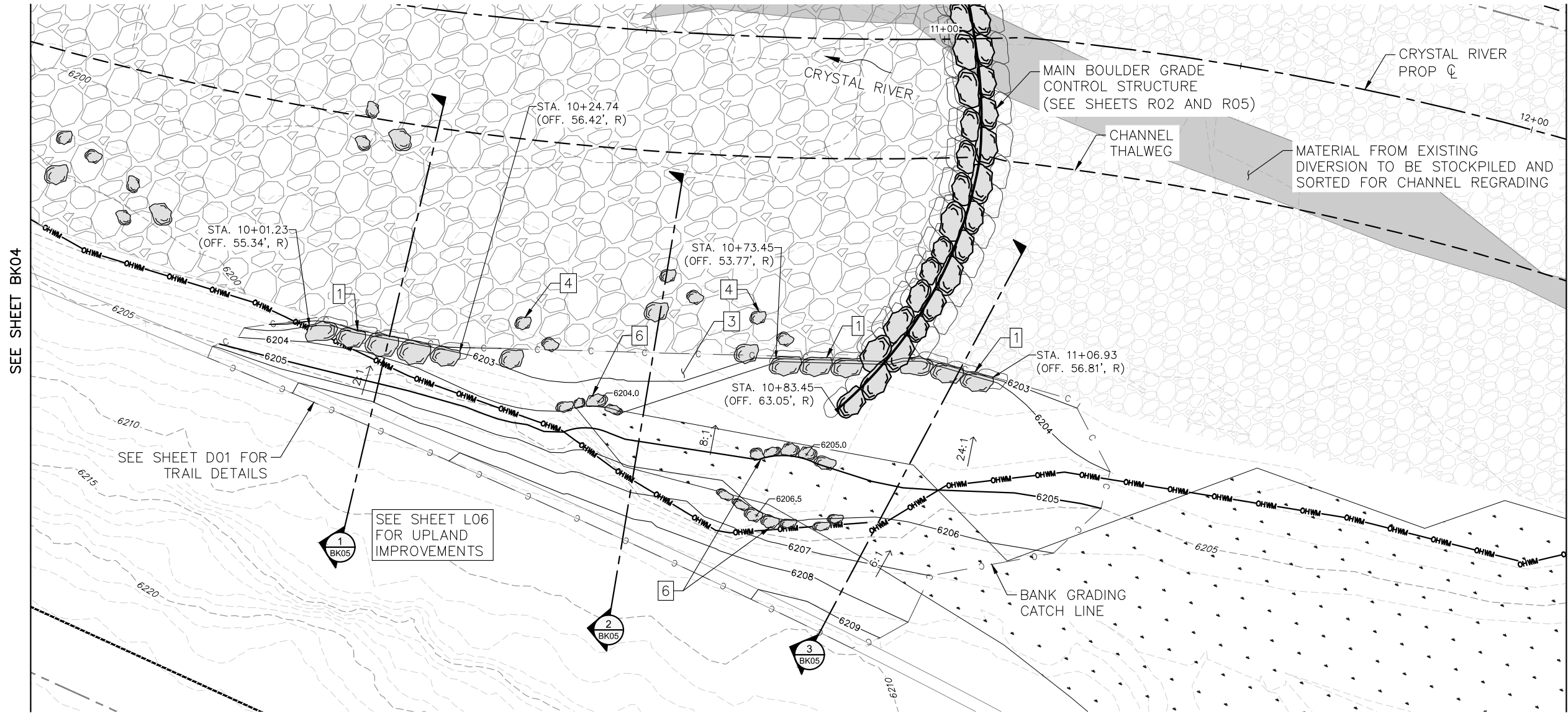
 Town of Carbondale
511 Colorado Ave
Carbondale, CO 81623

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PROJECT NAME AND ADDRESS	
Crystal River Restoration and Weaver Ditch Efficiency Project Carbondale, CO 81623	
Project 38047	Sheet
Date April 2022	BK04b
Scale 1"= 10' (FULL-SIZE)	



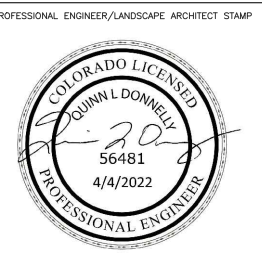
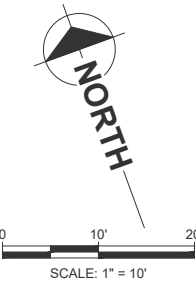
PLAN VIEW - BANK RESTORATION AREA 5

LEGEND

- PALUSTRINE EMERGENT WETLAND (PEM1B)
- PALUSTRINE SCRUB SHRUB WETLAND (PSSB1)
- PROPERTY LINE
- ORDINARY HIGH WATER MARK
- PROPOSED CONTOUR
- EXISTING CONTOUR
- PROJECT LIMITS
- PROPOSED THALWEG
- NATIVE ALLUVIUM
- NATIVE ALLUVIUM (COARSE)

BANK RESTORATION KEY NOTES


- TYPE C BANK RESTORATION (SEE SHEET D10a)
- TYPE E BANK RESTORATION (SEE SHEET D10c)
- HABITAT BOULDER CLUSTER (SEE SHEET D12)
- CONTAINER PLANTINGS IN BOULDER RETAINING WALL (SEE SHEET D06)



CRYSTAL RIVER RESTORATION AND
WEAVER DITCH EFFICIENCY PROJECT
BANK RESTORATION AREA 5
PLAN VIEW

No.	REVISION/UPDATE	Date

CLIENT NAME AND ADDRESS



Town of Carbondale
511 Colorado Ave
Carbondale, CO 81623

DESIGN FIRMS NAME AND ADDRESSES



RiverRestoration.org, LLC
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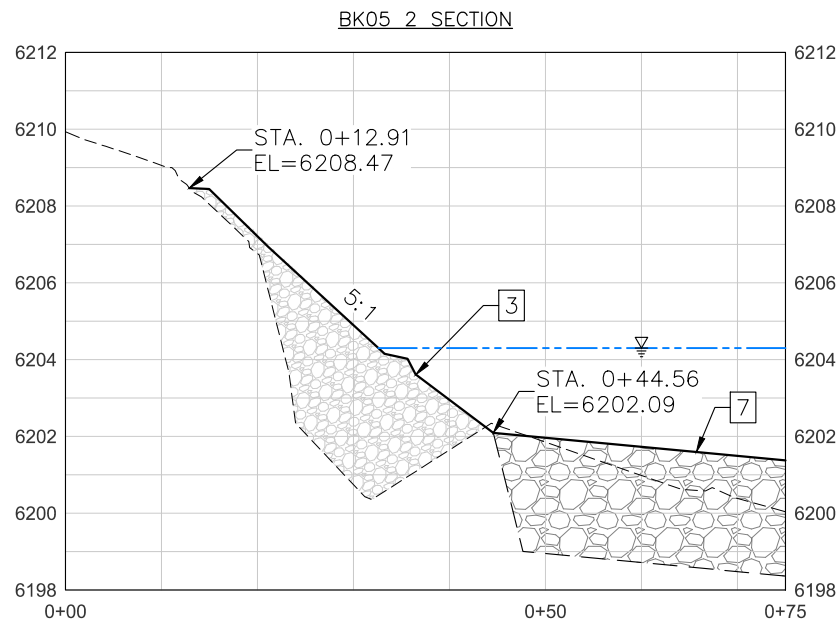
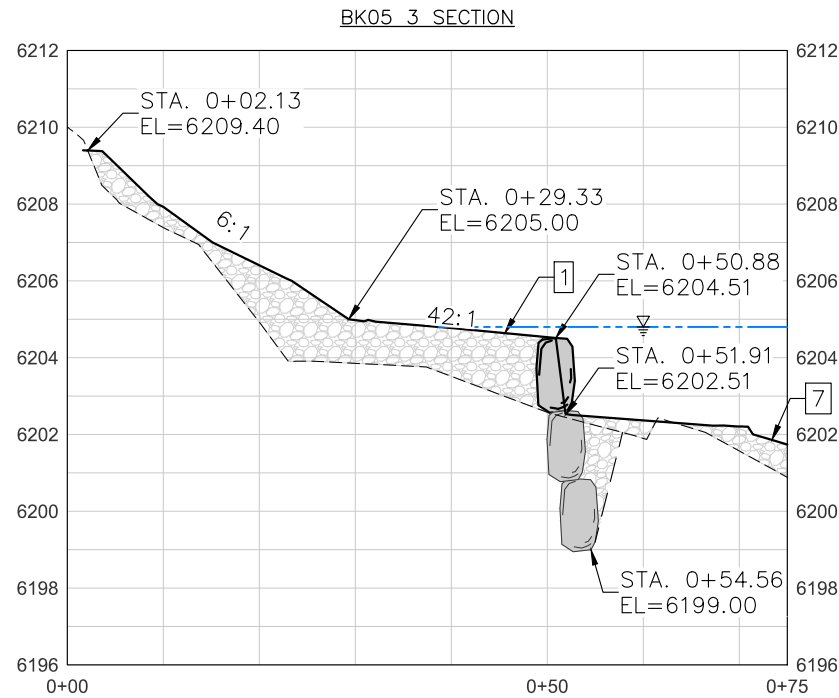
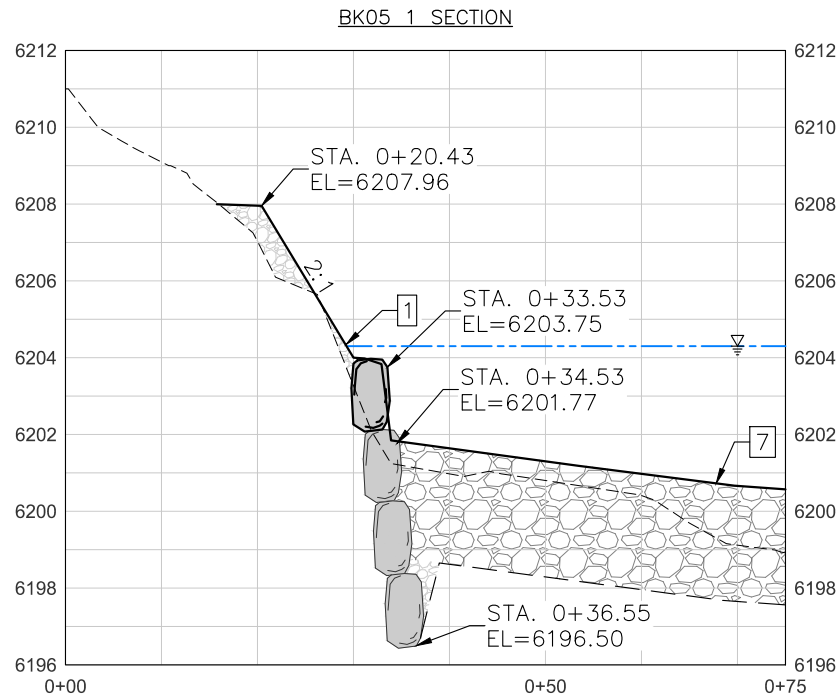
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PROJECT NAME AND ADDRESS

Crystal River Restoration
and Weaver Ditch Efficiency Project
Carbondale, CO 81623

Project 38047	Sheet BK05
Date April 2022	
Scale 1" = 10' (FULL-SIZE)	

BID SET



- BANK RESTORATION KEY NOTES**
- 1 TYPE C BANK RESTORATION (SEE SHEET D10a)
 - 3 TYPE E BANK RESTORATION (SEE SHEET D10c)
 - 4 HABITAT BOULDER CLUSTER (SEE SHEET D12)
 - 6 CONTAINER PLANTINGS IN BOULDER RETAINING WALL (SEE SHEET D06)
 - 7 PROPOSED CHANNEL BED (SEE R SHEETS)

GRADATION LEGEND (SEE SPECIFICATIONS)

- NATIVE ALLUVIUM
- COARSE ALLUVIUM

OHWM (2600 CFS)	---
EXISTING GRADE	---
PROPOSED GRADE	---

4x VERTICAL EXAGGERATION



BID SET

PROFESSIONAL ENGINEER/LANDSCAPE ARCHITECT STAMP



CRYSTAL RIVER RESTORATION AND
WEAVER DITCH EFFICIENCY PROJECT
BANK RESTORATION AREA 5
CROSS SECTIONS

No.	REVISION/UPDATE	Date

CLIENT NAME AND ADDRESS

 Town of Carbondale
511 Colorado Ave
Carbondale, CO 81623

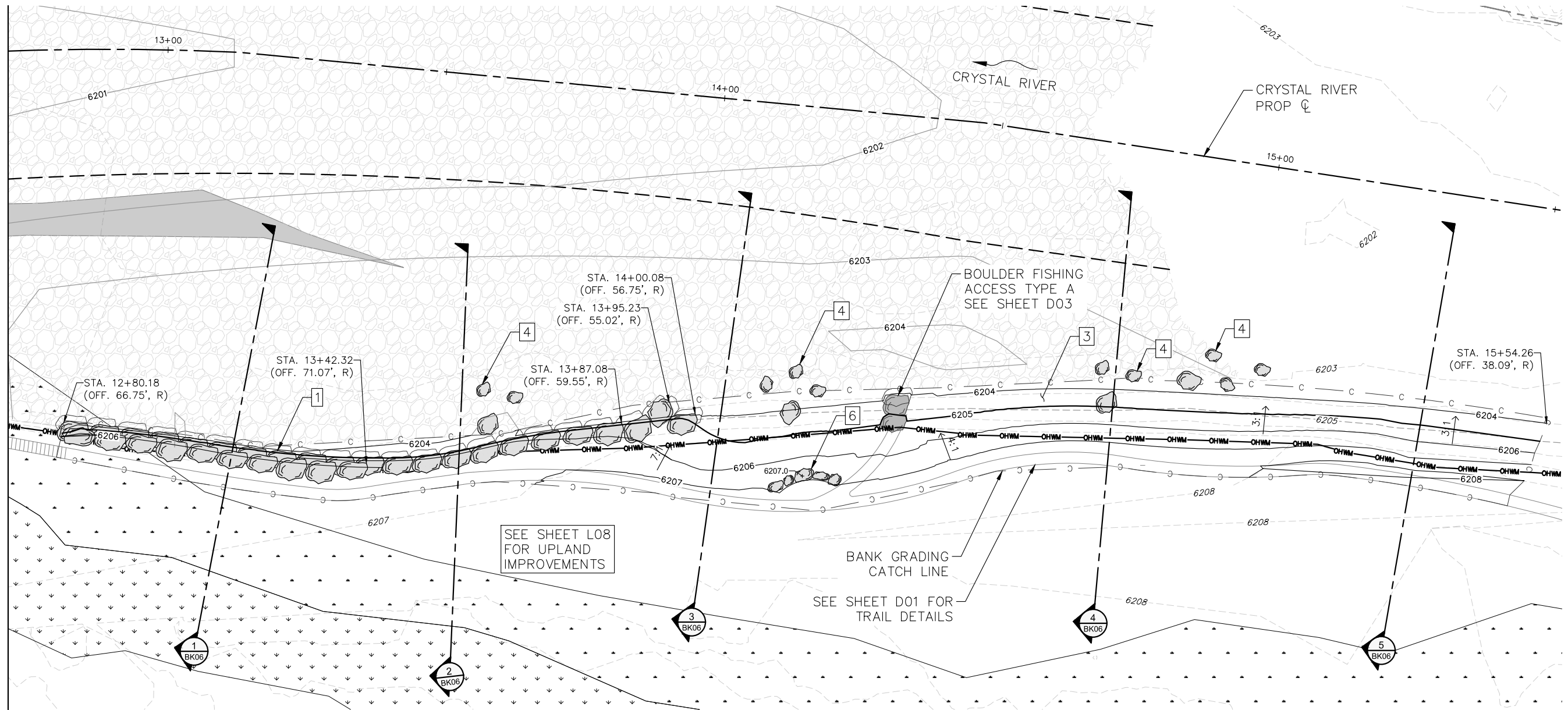
DESIGN FIRMS NAME AND ADDRESSES

 River
Restoration.org, LLC
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Carbondale, CO 81623
www.RiverRestoration.org

DHM DESIGN
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PROJECT NAME AND ADDRESS	
Crystal River Restoration and Weaver Ditch Efficiency Project Carbondale, CO 81623	
Project 38047	Sheet
Date April 2022	BK05b
Scale 1"= 10' (FULL-SIZE)	

SEE SHEET BK05



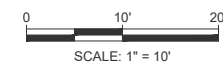
PLAN VIEW — BANK RESTORATION AREA 6

LEGEND

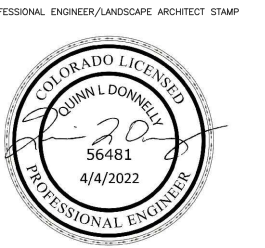
- PALUSTRINE EMERGENT WETLAND (PEM1B)
- PALUSTRINE SCRUB SHRUB WETLAND (PSSB1)
- PROPERTY LINE
- ORDINARY HIGH WATER MARK
- PROPOSED CONTOUR
- EXISTING CONTOUR
- PROJECT LIMITS
- PROPOSED THALWEG
- NATIVE ALLUVIUM
- NATIVE ALLUVIUM (COARSE)

BANK RESTORATION KEY NOTES

- TYPE C BANK RESTORATION (SEE SHEET D10a)
- TYPE E BANK RESTORATION (SEE SHEET D10c)
- HABITAT BOULDER CLUSTER (SEE SHEET D12)
- CONTAINER PLANTINGS IN BOULDER RETAINING WALL (SEE SHEET D06)



BID SET



CRYSTAL RIVER RESTORATION AND
WEAVER DITCH EFFICIENCY PROJECT
BANK RESTORATION AREA 6
PLAN VIEW

No.	REVISION/UPDATE	Date

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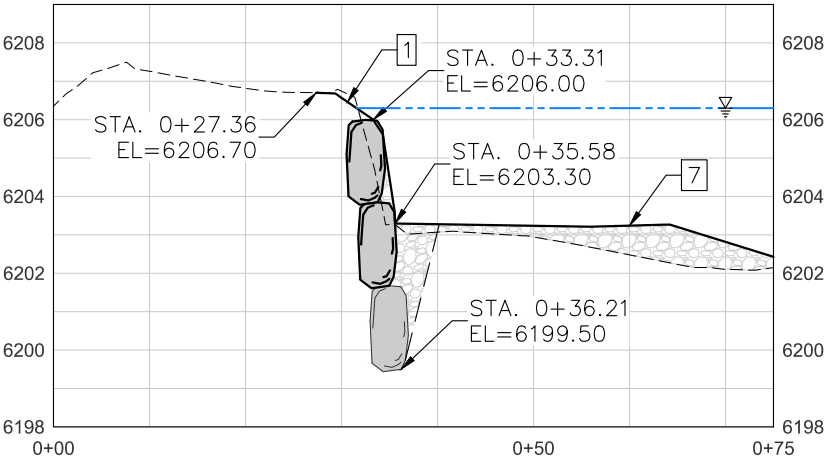
311 Main St, Suite 102
Carbondale, CO 81623
970.963.6520
www.dhmdesign.com

PROJECT NAME AND ADDRESS

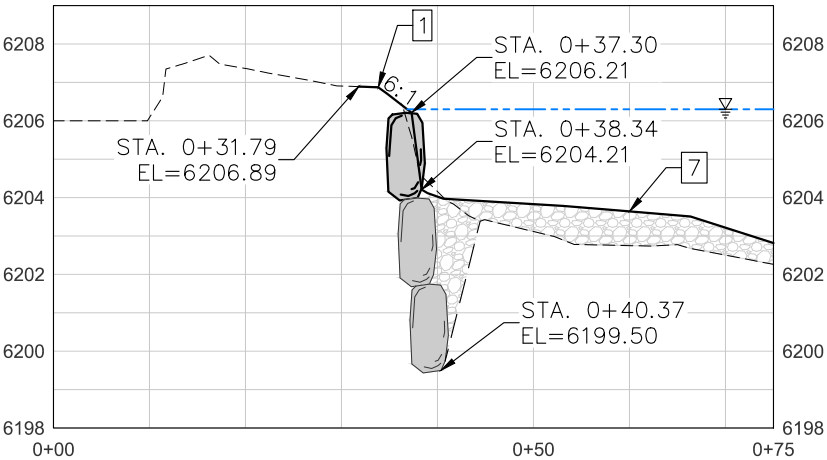
Crystal River Restoration
and Weaver Ditch Efficiency Project
Carbondale, CO 81623

Project 38047	Sheet BK06
Date April 2022	
Scale 1" = 10' (FULL-SIZE)	

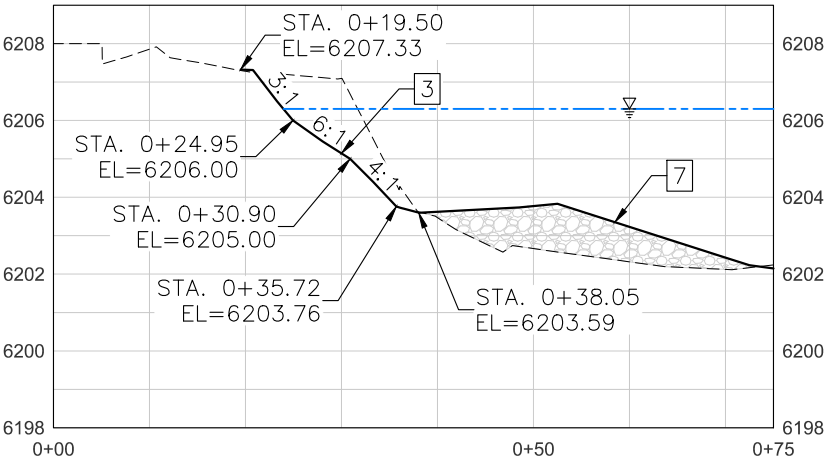
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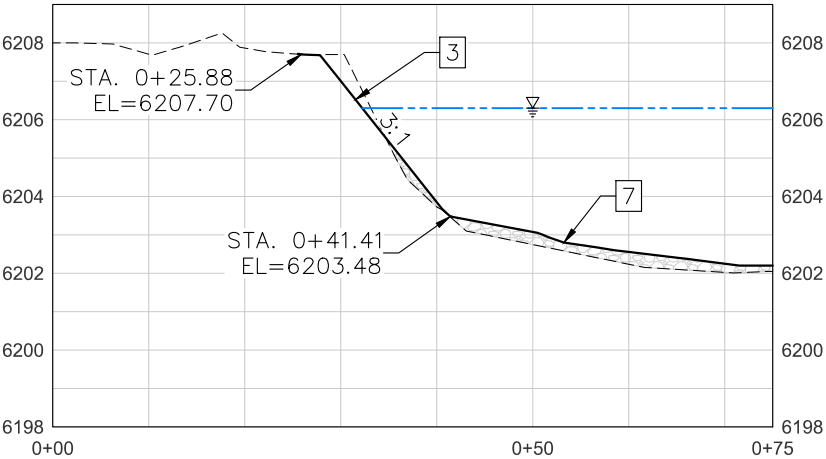
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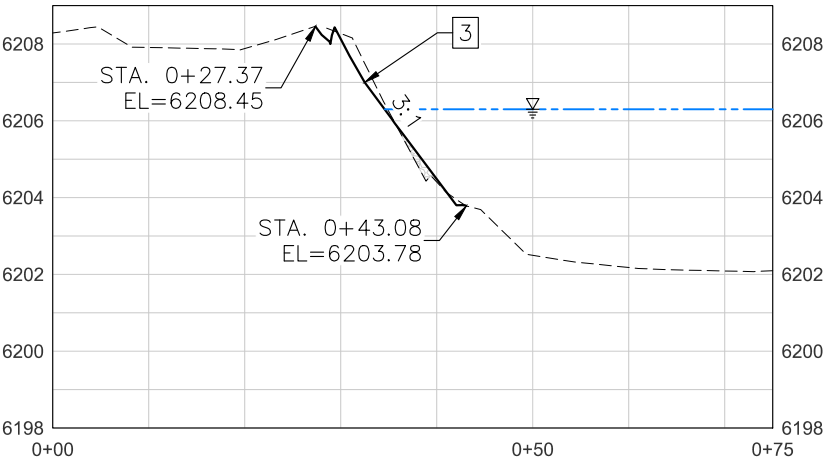
BK06 3 SECTION



BK06 4 SECTION



BK06 5 SECTION



- BANK RESTORATION KEY NOTES**
- 1 TYPE C BANK RESTORATION (SEE SHEET D10a)
 - 3 TYPE E BANK RESTORATION (SEE SHEET D10c)
 - 4 HABITAT BOULDER CLUSTER (SEE SHEET D12)
 - 6 CONTAINER PLANTINGS IN BOULDER RETAINING WALL (SEE SHEET D06)
 - 7 PROPOSED CHANNEL BED (SEE R SHEETS)

GRADATION LEGEND (SEE SPECIFICATIONS)

- NATIVE ALLUVIUM
- COARSE ALLUVIUM

OHWM (2600 CFS)	---
EXISTING GRADE	---
PROPOSED GRADE	---

4x VERTICAL EXAGGERATION



BID SET



CRYSTAL RIVER RESTORATION AND
WEAVER DITCH EFFICIENCY PROJECT
BANK RESTORATION AREA 6
CROSS SECTIONS

No.	REVISION/UPDATE	Date

CLIENT NAME AND ADDRESS

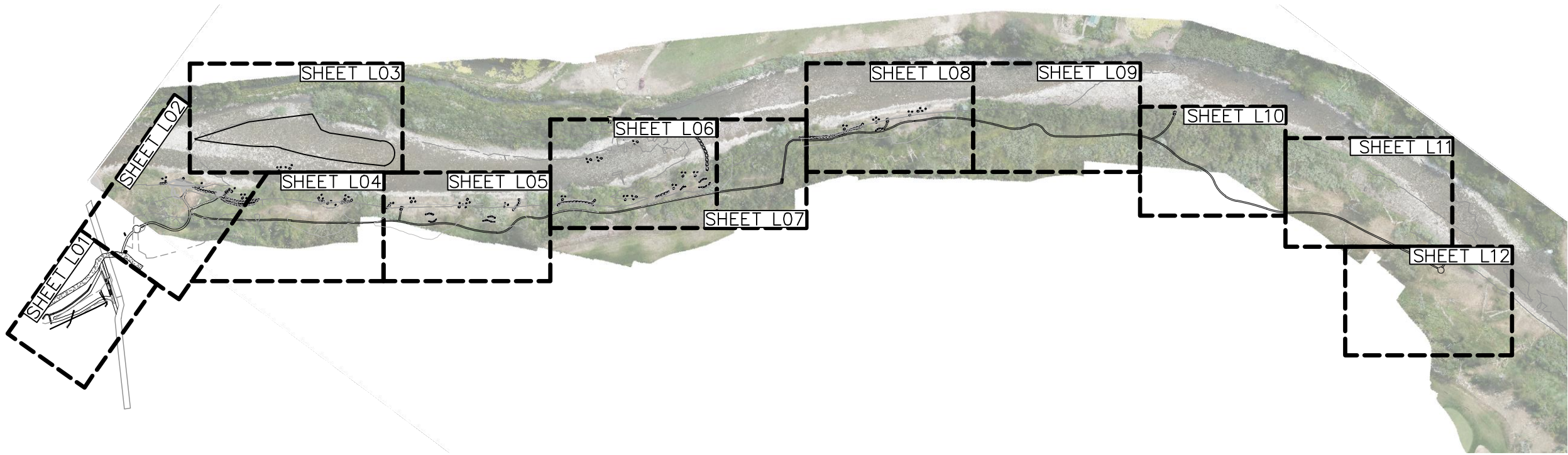
 Town of Carbondale
511 Colorado Ave
Carbondale, CO 81623

DESIGN FIRMS NAME AND ADDRESSES

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Carbondale, CO 81623
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Carbondale, CO 81623
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PROJECT NAME AND ADDRESS	
Crystal River Restoration and Weaver Ditch Efficiency Project Carbondale, CO 81623	
Project 38047	Sheet
Date April 2022	BK06b
Scale 1"= 10' (FULL-SIZE)	



CONSTRUCTION NOTES:

1. PROVIDE ALLOWANCE FOR 8 INTERPRETIVE SIGNS AND 2 KIOSK SIGNS TO BE DESIGNED IN SUBSEQUENT PROJECT PHASES.
2. REFER TO ENGINEERING PLANS FOR GRADING, DRAINAGE AND HORIZONTAL LAYOUT
3. SEE ENGINEERING PLANS FOR SITE ACCESS, CONSTRUCTION STAGING AND STOCKPILING AREAS.
4. CIVIL ENGINEER TO VERIFY UTILITY LOCATION AND REQUIREMENTS AND IDENTIFY ANY POTENTIAL CONFLICTS WITH PROPOSED SITE DESIGN.
5. SEE INDIVIDUAL SITE AND LANDSCAPE PLAN ENLARGEMENT SHEETS FOR SPECIFIC SITE AMENITY, FURNISHING, AND LAYOUT.
6. ALL LAYOUT OF SITE WALLS, PAVING AND LANDSCAPE FEATURES TO BE PERFORMED IN FIELD BY SURVEYOR AND APPROVED BY LANDSCAPE ARCHITECT.
7. ANY DISCREPANCIES, ERRORS OR OMISSIONS ON THE CONSTRUCTION DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE.
8. CONTRACTOR TO REPAIR ANY ASPHALT, CONCRETE AND OTHER SITE IMPROVEMENTS DAMAGED DURING CONSTRUCTION AT NO ADDITIONAL COST TO OWNER.
9. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY PERMITS OR LICENSES REQUIRED FOR THE PERFORMANCE OF THE WORK AS APPLICABLE TO THIS PROJECT.
10. PROVIDE RECESSED AND CAULKED EXPANSION JOINTS, PER WRITTEN SPECIFICATIONS, WHERE CONCRETE FLATWORK MEETS VERTICAL STRUCTURES SUCH AS POSTS, WALLS, RAMPS, CURBS, AND STEPS,.
11. ALL CONTROL JOINTS TO BE SAWCUT ON ALL TRAILS UNLESS NOTIFICATION FROM LANDSCAPE ARCHITECT IS GIVEN, NO EXCEPTIONS.
12. ADDITIONAL LAYOUT INFORMATION WILL BE PROVIDED TO THE CONTRACTOR PRIOR TO CONSTRUCTION AS NEEDED.
13. DUE TO SCALE OF DRAWINGS, NOT ALL CONDITIONS/ITEMS CARRY A DETAIL CALLOUT ON THE PLAN. THIS DOES NOT EXCLUDE THIS CONDITION/ITEM FROM THE PROJECT.

LEGEND

- MAJOR CONTOUR - PROPOSED

MINOR CONTOUR - PROPOSED

MINOR CONTOUR - EXISTING

MINOR CONTOUR - EXISTING

PATH CENTERLINE

PALUSTRINE EMERGENT WETLAND (PEM1B)

PALUSTRINE SCRUB SHRUB WETLAND (PSSB1)

POST AND DOWEL FENCE

FENCE - EXISTING

CONCRETE - PROPOSED

CONCRETE - EXISTING

GRAVEL MULCH

TIMBER WALL
- LOW WATER MARK - MARCH 91 CFS

LOW WATER MARK - MAY 966 CFS

ORDINARY HIGH WATER MARK 2600 CFS

10-YEAR FLOODPLAIN 5310 CFS

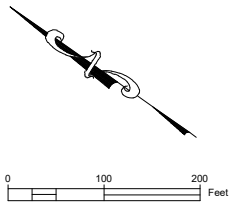
RIPARIAN CREATION TOPSOIL

CLOSURE GATE

INTERPRETIVE SIGNAGE KIOSK; FUTURE PHASE, N.I.C.

BOULDER BANK RETENTION; RE: ENGINEER DWGS, THIS SET

EXISTING TREES




Flow Rate (cfs)	March 91	May 966	OHWM 2600	10-yr 5310
Water Surface Elevation (ft)				
Bank 1 between dssrm and jetty	6195	6195.5	6196.7	6198.8
Bank 1 @ jetty	6195.5	6196.3	6197.7	6199.5
Bank 2	6196.9	6196.6	6200.1	6202.2
Bank 3	6197.6	6199.9	6201.8	6203.9
Bank 4	6198.5	6200.9	6203.4	6205.5
Bank 5 ds end	6201.6	6202.8	6204.3	6206.4
Bank 5 us end	6201.9	6203.4	6204.8	6206.8
Bank 6	6202.2	6204.7	6206.3	6208.4

100% CONSTRUCTION DOCUMENT SET

CRYSTAL RIVER RESTORATION AND
WEAVER DITCH EFFICIENCY PROJECT
UPLAND IMPROVEMENTS - OVERVIEW

No.	REVISION/UPDATE	Date
	FINAL REV.	08.25.21

CLIENT NAME AND ADDRESS



Town of Carbondale
511 Colorado Ave
Carbondale, CO 81623

DESIGN FIRMS NAME AND ADDRESSES



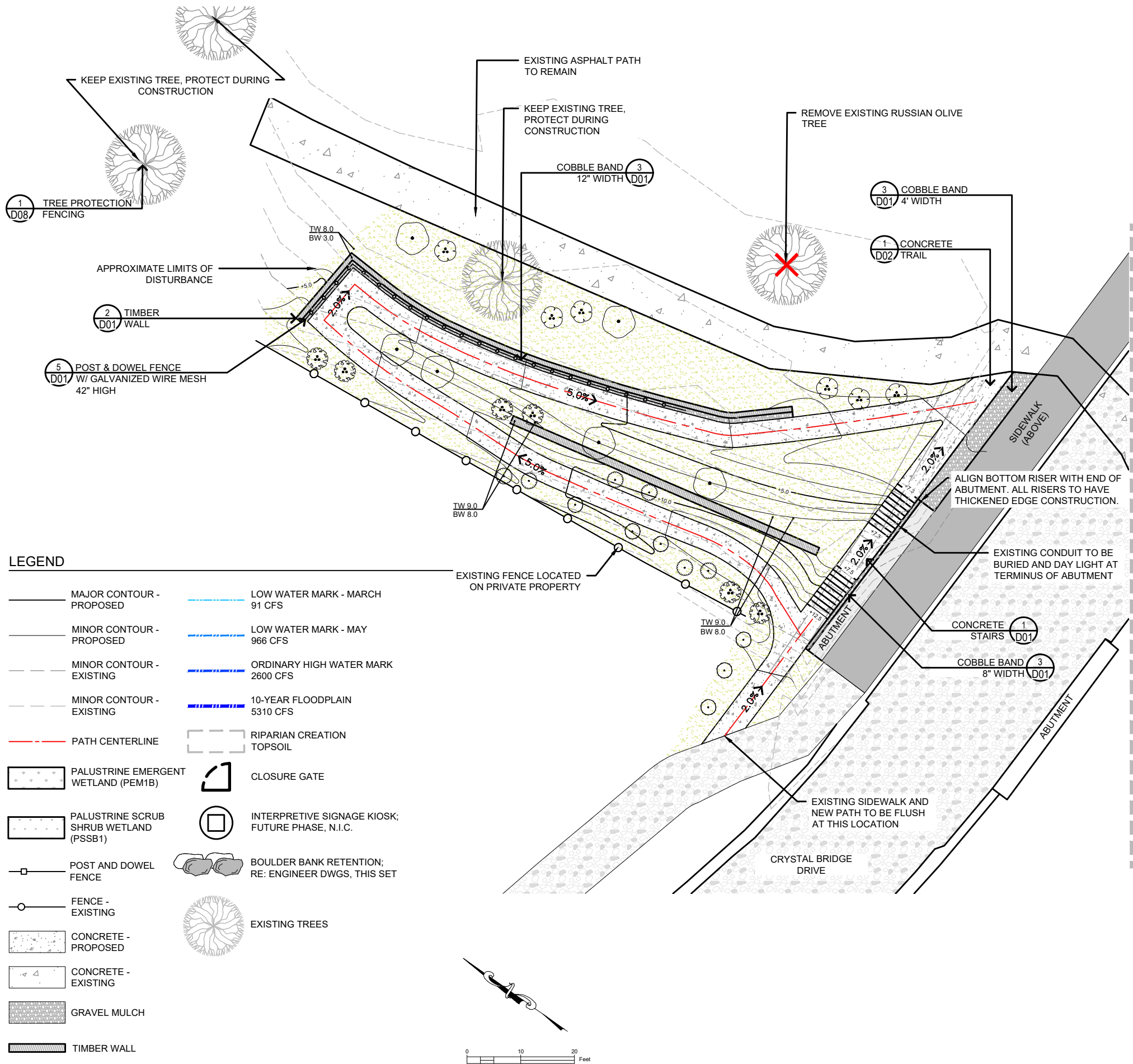
RiverRestoration.org, LLC
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PROJECT NAME AND ADDRESS		
Crystal River Restoration and Weaver Ditch Efficiency Project Carbondale, CO 81623		
Project	38047	Sheet
Date	AUG 2021	LOO
Scale	1"=20' AT FULL SIZE	





PLANT SCHEDULE L01		
UPLAND	BOTANICAL / COMMON NAME	SIZE - QUANTITY
	ACER GLABRUM ROCKY MOUNTAIN MAPLE	1 GAL - 4 5 GAL - 2
	ARTEMISIA TRIDENTATA VASEYANA MOUNTAIN BIG SAGEBRUSH	1 GAL - 4 5 GAL - 2
	CHRYSOHAMNUS NAUSEOSUS RUBBER RABBITBRUSH	1 GAL - 4 5 GAL - 2
	POPULUS ANGUSTIFOLIA NARROWLEAF COTTONWOOD	1 GAL - 4 5 GAL - 2
	PRUNUS VIRGINIANA MELANOCARPA WESTERN CHOKEBERRY	1 GAL - 4 5 GAL - 2


CONCEPT PLANT SCHEDULE L01		
	NON-IRRIGATED SEED MIX ACHNATHERUM HYMENOIDES / INDIAN RICE GRASS BOULELOUA GRACILIS / BLUE GRAMA ELYMUS TRACHYCAULUS / SLENDER WHEATGRASS NASSELLA VIRIDULA / GREEN NEEDLEGRASS PASCOPYRUM SMITHII / WESTERN WHEATGRASS PSEUDOROEGNERIA SPICATA / BLUEBUNCH WHEATGRASS	2,146 SF 215 SF 322 SF 537 SF 322 SF 537 SF 215 SF

- CONSTRUCTION NOTES:**
- OVERALL PLANTING AND SEED SCHEDULES, AND RESTORATION DETAILS ARE CONTAINED IN THE SUBSEQUENT PAGE SETS INCLUDING OVERALL SITE SPECIES, QUANTITIES, AND LANDSCAPE UNIT REQUIREMENTS.
 - THIS SHEET CONTAINS THE PLANT QUANTITIES FOR THIS ENLARGEMENT AREA ONLY. SEE PLANT SCHEDULE FOR THE DETAILED LIST OF PLANTS IN THIS RESTORATION ZONES.
 - PLANT LABELS ARE FOR INCREASED CLARITY AND ARE INCLUDED WHERE POSSIBLE. CONTRACTOR TO VERIFY OVERALL PLANT COUNTS IN EACH AREA BASED ON THE PLANT SCHEDULE.
 - LAYOUT OF THE ACCESS RAMP AND STAIRS MUST BE LAID OUT IN THE FIELD AND EVALUATED ONSITE. FIELD MODIFICATIONS MAY BE NECESSARY BASED ON CONDITIONS ENCOUNTERED IN THE FIELD. CONTRACTOR TO COORDINATE DIRECTLY WITH PROJECT LANDSCAPE ARCHITECT AND TOWN REPRESENTATIVE.
 - EXISTING DEADFALL WITHIN THE DISTURBANCE AREA TO BE STOCKPILED AND FIELD LOCATED FOR HABITAT PER PROJECT ECOLOGIST.
 - ALL INTERPRETIVE AND KIOSK SIGNS TO BE DESIGNED AND INSTALLED IN A SUBSEQUENT PROJECT PHASE.
 - TRAILS ARE TO BE 24-30 INCHES WIDE, OF COMPACTED NATIVE SOIL. PREPARE TRAIL BED BY REMOVING EXISTING VEGETATION, SURFACE ROOTS AND ROCKS, AND SUBSURFACE ROOTS TO A DEPTH OF 6 INCHES. LOOSEN AND RAKE SOIL TO ACHIEVE A CONSISTENT TRAIL BED. COMPACT WITH PLATE, JUMPING JACK, OR HAND TAMP.
 - GRADES ARE SHOWN FOR ILLUSTRATIVE PURPOSES. SEE ENGINEERING PLANS FOR ALL GRADING AND SPOT ELEVATIONS.

CRYSTAL RIVER RESTORATION AND
WEAVER DITCH EFFICIENCY PROJECT
ACCESSIBLE RAMP

No.	REVISION/UPDATE	Date
	FINAL REV.	08.25.21

CLIENT NAME AND ADDRESS



Town of Carbondale
511 Colorado Ave
Carbondale, CO 81623

DESIGN FIRMS NAME AND ADDRESSES



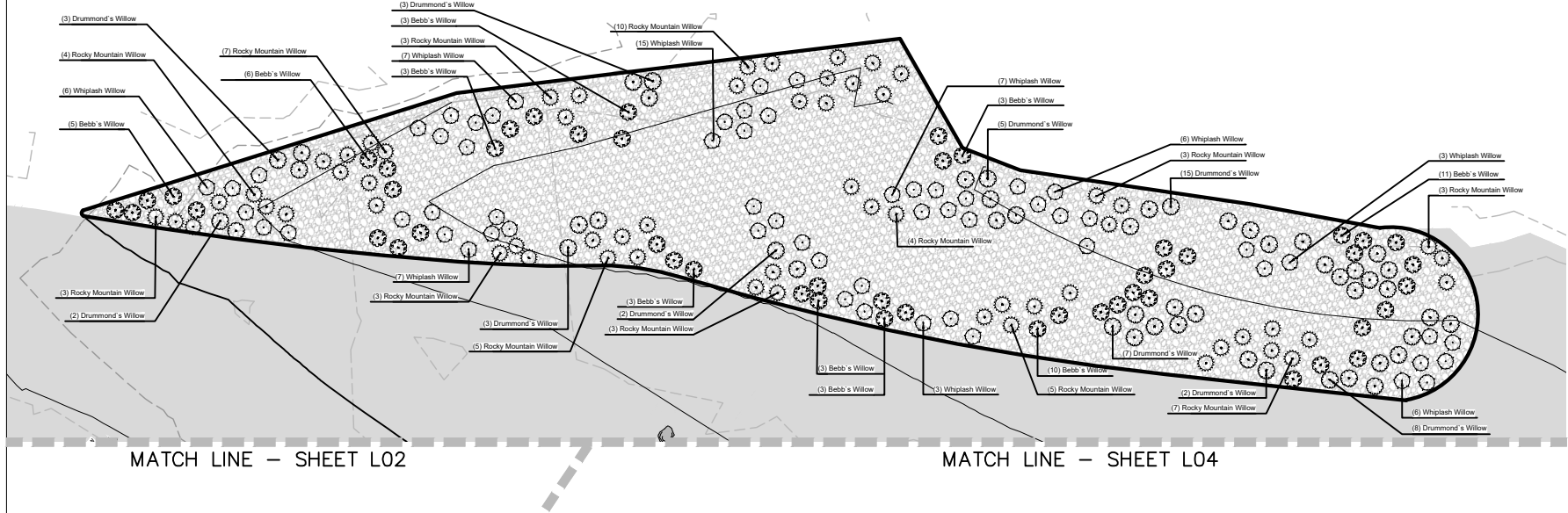
RiverRestoration.org, LLC
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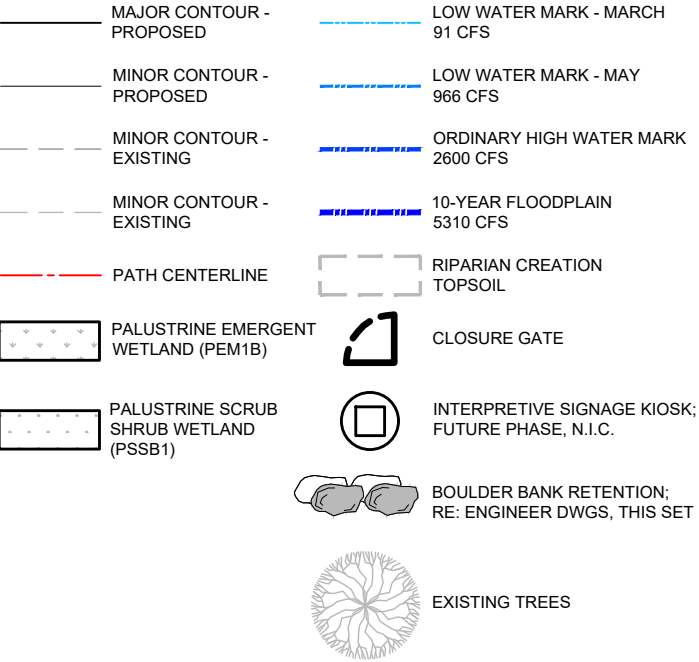
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PROJECT NAME AND ADDRESS		
Crystal River Restoration and Weaver Ditch Efficiency Project Carbondale, CO 81623		
Project	38047	Sheet
Date	AUG 2021	LO1
Scale	1"=10' AT FULL SIZE	

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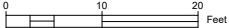
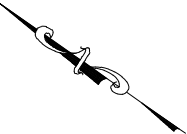
LEGEND



PLANT SCHEDULE L03		
RIPARIAN CREATION TYPE 2 (COBBLE ISLAND)	BOTANICAL / COMMON NAME	SIZE - QUANTITY
	SALIX BEBBIANA BEBB'S WILLOW	1 GAL - 30 5 GAL - 20
	SALIX DRUMMONDIANA DRUMMOND'S WILLOW	1 GAL - 30 5 GAL - 20
	SALIX LASIANDRA WHIPLASH WILLOW	1 GAL - 36 5 GAL - 24
	SALIX MONTICOLA ROCKY MOUNTAIN WILLOW	1 GAL - 36 5 GAL - 24

CONSTRUCTION NOTES:

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- EXISTING DEADFALL WITHIN THE DISTURBANCE AREA TO BE STOCKPILED AND FIELD LOCATED FOR HABITAT PER PROJECT ECOLOGIST.
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- GRADES ARE SHOWN FOR ILLUSTRATIVE PURPOSES. SEE ENGINEERING PLANS FOR ALL GRADING AND SPOT ELEVATIONS.
- TEMPORARY ABOVE GROUND IRRIGATION REQUIRED FOR ALL RESTORATION ZONES.




100% CONSTRUCTION DOCUMENT SET

CRYSTAL RIVER RESTORATION AND
WEAVER DITCH EFFICIENCY PROJECT
UPLAND IMPROVEMENTS

No.	REVISION/UPDATE	Date
	FINAL REV.	08.25.21

CLIENT NAME AND ADDRESS



Town of Carbondale
511 Colorado Ave
Carbondale, CO 81623

DESIGN FIRMS NAME AND ADDRESSES



RiverRestoration.org, LLC
P.O. Box 248
Carbondale, CO 81623
www.RiverRestoration.org



311 Main St, Suite 102
Carbondale, CO 81623
970.963.4520
www.dhmdesign.com

PROJECT NAME AND ADDRESS	
Crystal River Restoration and Weaver Ditch Efficiency Project Carbondale, CO 81623	
Project	38047
Date	AUG 2021
Scale	1"= 20' AT FULL SIZE
Sheet	
L03	

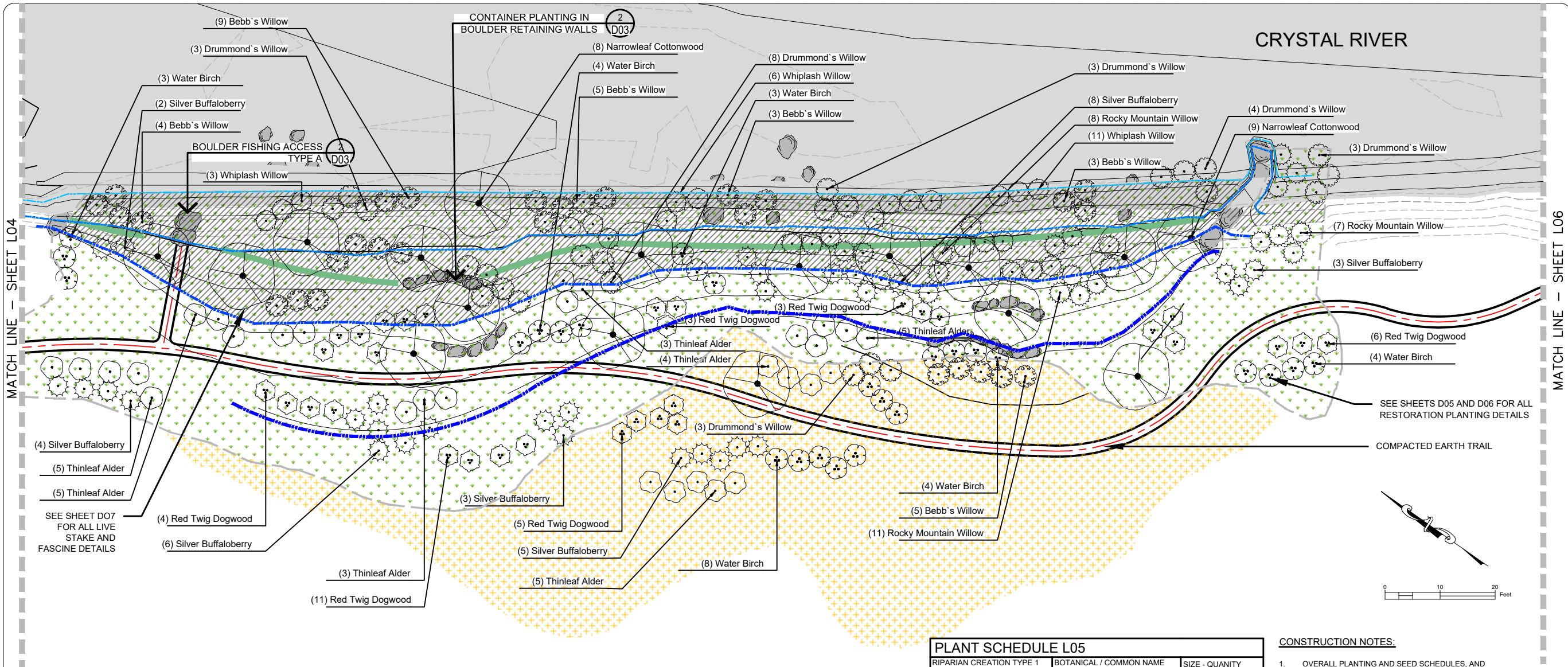
CRYSTAL RIVER

BANK RESTORATION
STA 23+81.00
(SEE SHEET BK02
FOR DETAILS)

(3) Narrowleaf Cottonwood
(3) Bebb's Willow
(3) Red Twig Dogwood
(3) Drummond's Willow

(7) Thinleaf Alder

(4) Whiplash Willow
(2) Narrowleaf Cottonwood
(4) Red Twig Dogwood
(4) Thinleaf Alder
(3) Red Twig Dogwood
(4) Water Birch



LEGEND

- MAJOR CONTOUR - PROPOSED
- MINOR CONTOUR - PROPOSED
- MINOR CONTOUR - EXISTING
- MINOR CONTOUR - EXISTING
- PATH CENTERLINE
- PALUSTRINE EMERGENT WETLAND (PEM1B)
- PALUSTRINE SCRUB SHRUB WETLAND (PSSB1)
- LOW WATER MARK - MARCH 91 CFS
- LOW WATER MARK - MAY 966 CFS
- ORDINARY HIGH WATER MARK 2600 CFS
- 10-YEAR FLOODPLAIN 5310 CFS
- RIPARIAN CREATION TOPSOIL
- CLOSURE GATE
- INTERPRETIVE SIGNAGE KIOSK; FUTURE PHASE, N.I.C.
- BOULDER BANK RETENTION; RE: ENGINEER DWGS, THIS SET
- EXISTING TREES

CONCEPT PLANT SCHEDULE L05

LIVE STAKES POPULUS ANGUSTIFOLIA / NARROWLEAF POPLAR SALIX SPP / WILLOW	3,829 SF 299 697
RIPARIAN SEED MIX - CREATION CALAMAGROSTIS CANADENSIS / BLUEJOINT REED GRASS DESCHAMPSIA CESPITOSA / TUFTED HAIR GRASS ELYMUS TRACHYCAULUS / SLENDER WHEATGRASS GLYCERIA STRIATA / FOWL MANNA GRASS JUNCUS ARCTICUS / WIRE RUSH PASCOPYRUM SMITHII / WESTERN WHEATGRASS POA SECUNDA / BLUEGRASS	9,281 SF 928 SF 1,856 SF 1,856 SF 928 SF 928 SF 1,856 SF 928 SF
RIPARIAN SEED MIX - ENHANCEMENT CALAMAGROSTIS CANADENSIS / BLUEJOINT REED GRASS DESCHAMPSIA CESPITOSA / TUFTED HAIR GRASS ELYMUS TRACHYCAULUS / SLENDER WHEATGRASS GLYCERIA STRIATA / FOWL MANNA GRASS JUNCUS ARCTICUS / WIRE RUSH PASCOPYRUM SMITHII / WESTERN WHEATGRASS POA SECUNDA / BLUEGRASS	5,135 SF 513 SF 1,027 SF 1,027 SF 513 SF 513 SF 1,027 SF 513 SF
WILLOW FASCINES	179 LF

PLANT SCHEDULE L05

RIPARIAN CREATION TYPE 1	BOTANICAL / COMMON NAME	SIZE - QUANTITY
	ALNUS TENUFOLIA THINLEAF ALDER	1 GAL - 13 5 GAL - 8
	BETULA OCCIDENTALIS WATER BIRCH	1 GAL - 11 5 GAL - 7
	CORNUS SERICEA RED TWIG DOGWOOD	1 GAL - 16 5 GAL - 11
	POPULUS ANGUSTIFOLIA NARROWLEAF COTTONWOOD	1 GAL - 10 5 GAL - 7
	SALIX BEBBIANA BEBB'S WILLOW	1 GAL - 15 5 GAL - 9
	SALIX DRUMMONDIANA DRUMMOND'S WILLOW	1 GAL - 13 5 GAL - 8
	SALIX LASIANDRA WHIPLASH WILLOW	1 GAL - 6 5 GAL - 4
	SALIX MONTICOLA ROCKY MOUNTAIN WILLOW	1 GAL - 16 5 GAL - 10
	SHEPHERDIA ARGENTEA SILVER BUFFALOBERRY	1 GAL - 16 5 GAL - 10
RIPARIAN ENHANCEMENT	BOTANICAL / COMMON NAME	SIZE - QUANTITY
	ALNUS TENUFOLIA THINLEAF ALDER	1 GAL - 6 5 GAL - 3
	BETULA OCCIDENTALIS WATER BIRCH	1 GAL - 5 5 GAL - 3
	CORNUS SERICEA RED TWIG DOGWOOD	1 GAL - 3 5 GAL - 2
	SALIX BEBBIANA BEBB'S WILLOW	1 GAL - 3 5 GAL - 2
	SALIX DRUMMONDIANA DRUMMOND'S WILLOW	1 GAL - 2 5 GAL - 1
	SHEPHERDIA ARGENTEA SILVER BUFFALOBERRY	1 GAL - 3 5 GAL - 2

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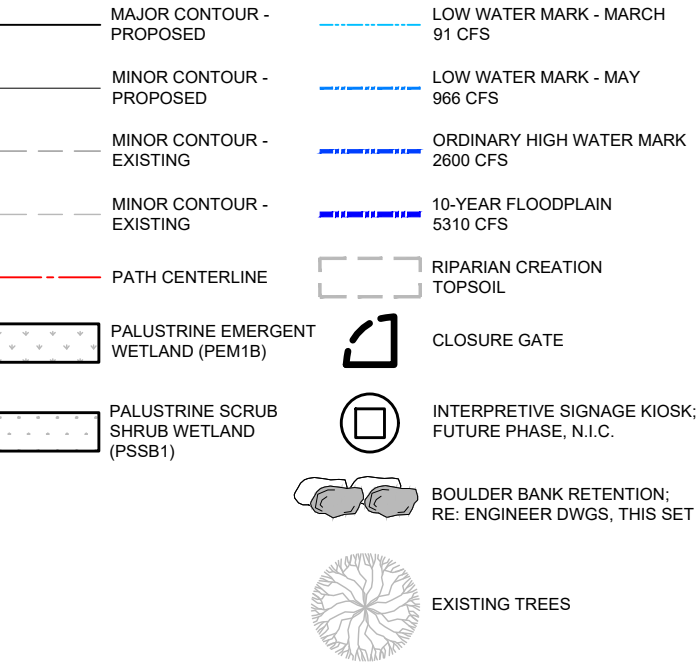
100% CONSTRUCTION DOCUMENT SET

CRYSTAL RIVER RESTORATION AND
WEAVER DITCH EFFICIENCY PROJECT

UPLAND IMPROVEMENTS

No.	REVISION/UPDATE	Date
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Town of Carbondale 511 Colorado Ave Carbondale, CO 81623		
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DHM DESIGN 311 Main St, Suite 102 Carbondale, CO 81623 970.763.6520 www.dhmdesign.com		
PROJECT NAME AND ADDRESS		
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Project	38047	Sheet
Date	AUG 2021	L05
Scale	1"=20' AT FULL SIZE	

LEGEND



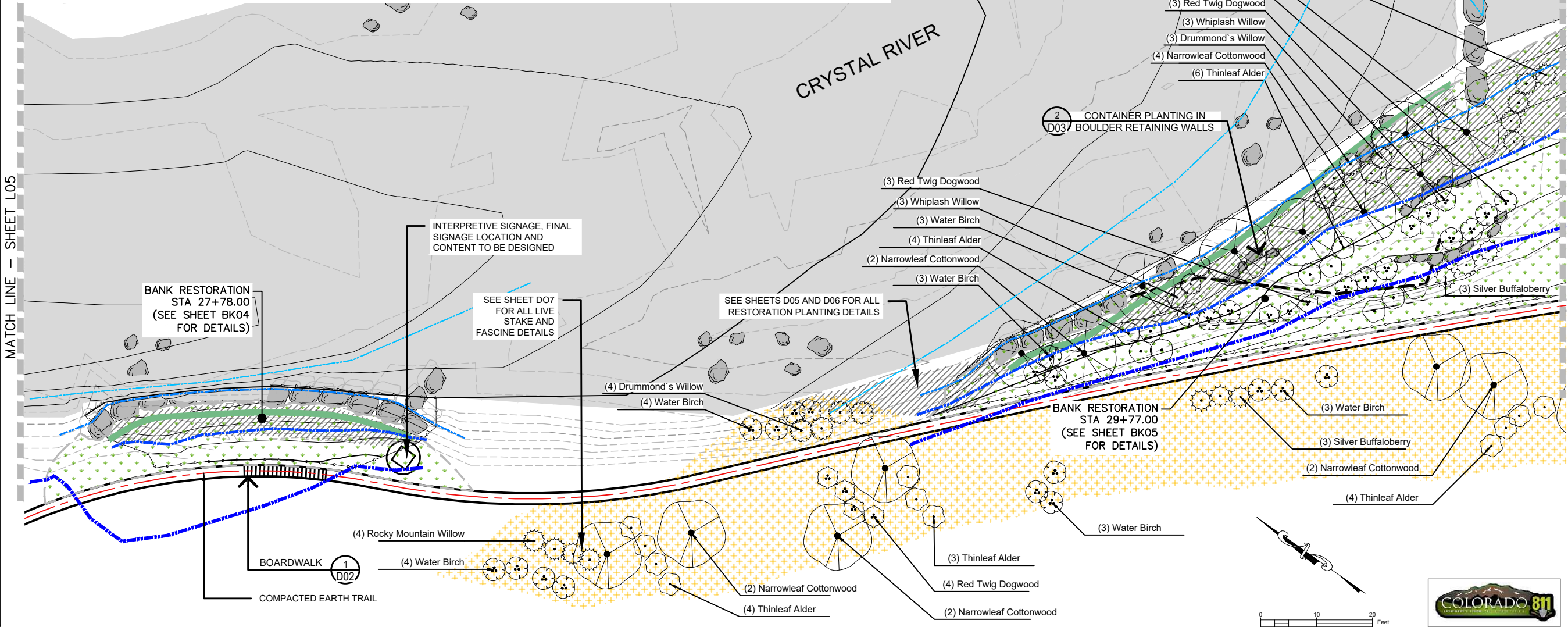
PLANT SCHEDULE L06		
RIPARIAN CREATION TYPE 1	BOTANICAL / COMMON NAME	SIZE - QUANTITY
	ALNUS TENUFOLIA THINLEAF ALDER	1 GAL - 6 5 GAL - 4
	BETULA OCCIDENTALIS WATER BIRCH	1 GAL - 8 5 GAL - 5
	CORNUS SERICEA RED TWIG DOGWOOD	1 GAL - 4 5 GAL - 2
	POPULUS ANGUSTIFOLIA NARROWLEAF COTTONWOOD	1 GAL - 6 5 GAL - 3
	SALIX DRUMMONDIANA DRUMMOND'S WILLOW	1 GAL - 2 5 GAL - 1
	SALIX LASIANDRA WHIPLASH WILLOW	1 GAL - 4 5 GAL - 2
	SALIX MONTICOLA ROCKY MOUNTAIN WILLOW	1 GAL - 3 5 GAL - 2
	SHEPHERDIA ARGENTEA SILVER BUFFALOBERRY	1 GAL - 2 5 GAL - 1
RIPARIAN ENHANCEMENT	BOTANICAL / COMMON NAME	SIZE - QUANTITY
	ALNUS TENUFOLIA THINLEAF ALDER	1 GAL - 7 5 GAL - 4
	BETULA OCCIDENTALIS WATER BIRCH	1 GAL - 9 5 GAL - 5
	CORNUS SERICEA RED TWIG DOGWOOD	1 GAL - 3 5 GAL - 1
	POPULUS ANGUSTIFOLIA NARROWLEAF COTTONWOOD	1 GAL - 4 5 GAL - 2
	SALIX DRUMMONDIANA DRUMMOND'S WILLOW	1 GAL - 3 5 GAL - 1
	SALIX MONTICOLA ROCKY MOUNTAIN WILLOW	1 GAL - 3 5 GAL - 1
	SHEPHERDIA ARGENTEA SILVER BUFFALOBERRY	1 GAL - 2 5 GAL - 1

CONCEPT PLANT SCHEDULE L06

	LIVE STAKES POPULUS ANGUSTIFOLIA / NARROWLEAF POPLAR SALIX SPP / WILLOW	1,693 SF 132 308
	RIPARIAN SEED MIX - CREATION CALAMAGROSTIS CANADENSIS / BLUEJOINT REED GRASS DESCHAMPSIA CESPITOSA / TUFTED HAIR GRASS ELYMUS TRACHYCAULUS / SLENDER WHEATGRASS GLYCERIA STRIATA / FOWL MANNA GRASS JUNCUS ARCTICUS / WIRE RUSH PASCOPYRUM SMITHII / WESTERN WHEATGRASS POA SECUNDA / BLUEGRASS	5,316 SF 532 SF 1,063 SF 1,063 SF 532 SF 532 SF 1,063 SF 532 SF
	RIPARIAN SEED MIX - ENHANCEMENT CALAMAGROSTIS CANADENSIS / BLUEJOINT REED GRASS DESCHAMPSIA CESPITOSA / TUFTED HAIR GRASS ELYMUS TRACHYCAULUS / SLENDER WHEATGRASS GLYCERIA STRIATA / FOWL MANNA GRASS JUNCUS ARCTICUS / WIRE RUSH PASCOPYRUM SMITHII / WESTERN WHEATGRASS POA SECUNDA / BLUEGRASS	8,203 SF 820 SF 1,641 SF 1,641 SF 820 SF 820 SF 1,641 SF 820 SF
	WILLOW FASCINES	151 LF

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- TEMPORARY ABOVE GROUND IRRIGATION REQUIRED FOR ALL RESTORATION ZONES.



MATCH LINE - SHEET L07

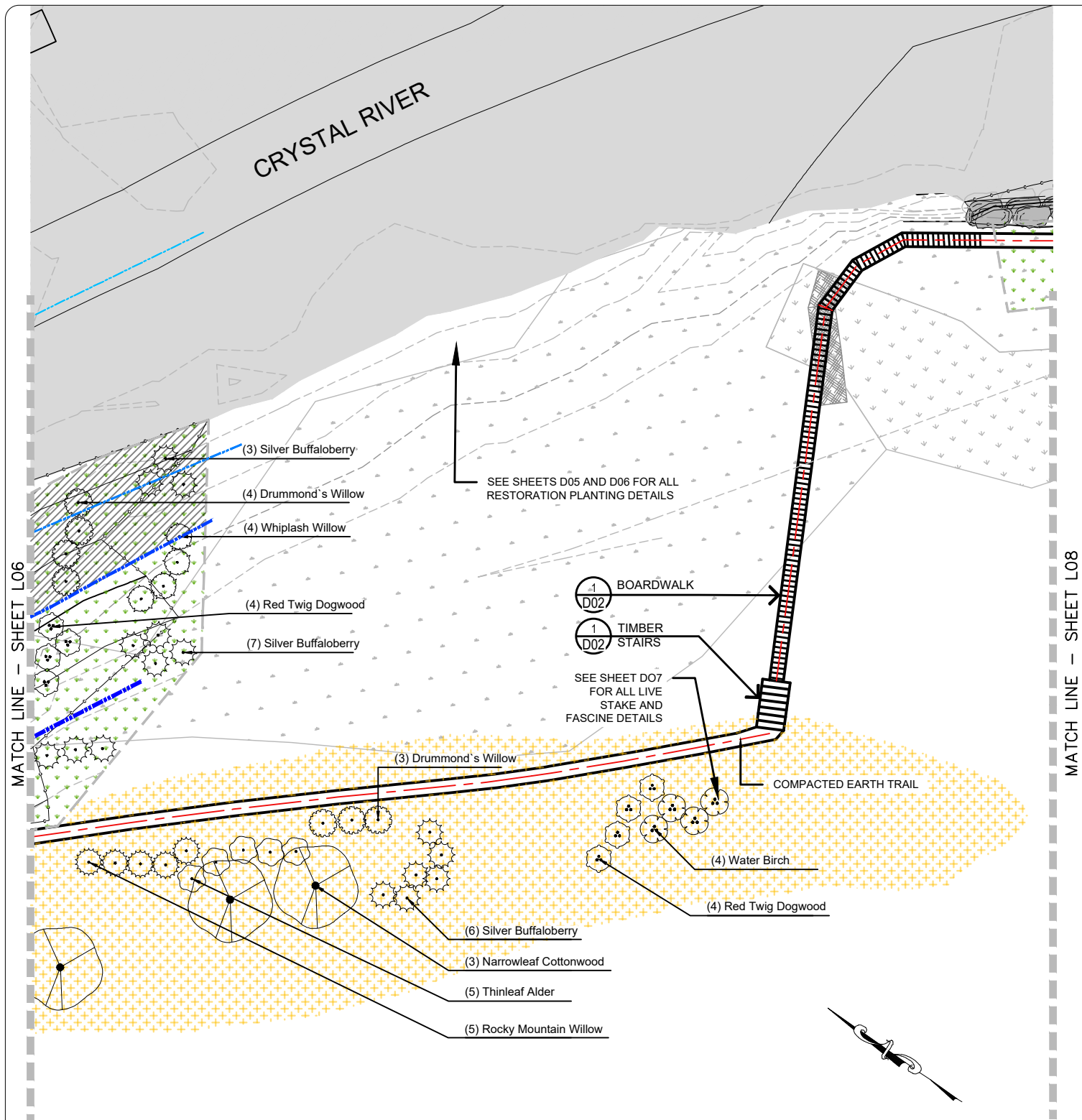
CRYSTAL RIVER RESTORATION AND
WEAVER DITCH EFFICIENCY PROJECT
UPLAND IMPROVEMENTS

No.	REVISION/UPDATE	Date
	FINAL REV.	08.25.21

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DESIGN FIRMS NAME AND ADDRESSES	
	RiverRestoration.org, LLC P.O. Box 248 Carbondale, CO 81623 www.RiverRestoration.org
	DHM DESIGN 311 Main St, Suite 102 Carbondale, CO 81623 970.963.6520 www.dhmdesign.com

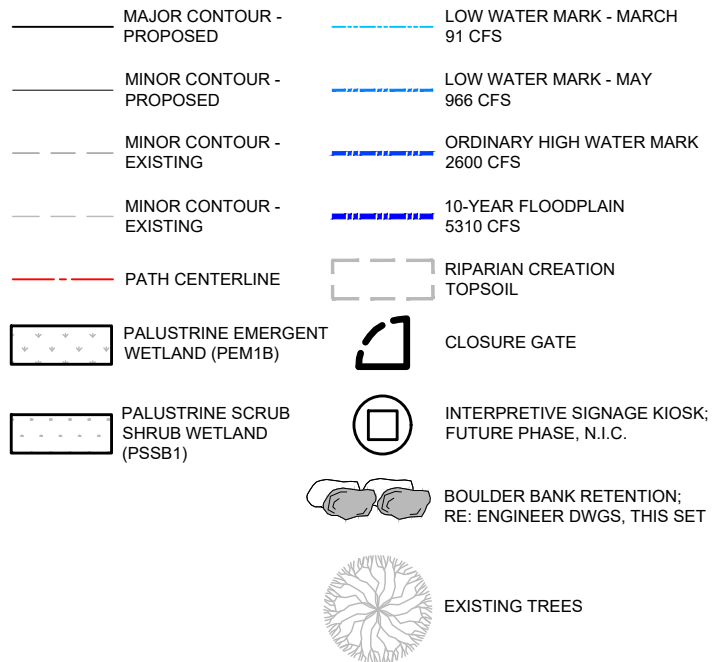
PROJECT NAME AND ADDRESS	
Crystal River Restoration and Weaver Ditch Efficiency Project Carbondale, CO 81623	
Project	38047
Date	AUG 2021
Scale	1"=20' AT FULL SIZE
Sheet	
L06	



MATCH LINE - SHEET L06

MATCH LINE - SHEET L08

LEGEND



PLANT SCHEDULE L07

RIPARIAN CREATION TYPE 1	BOTANICAL / COMMON NAME	SIZE - QUANTITY
	CORNUS SERICEA RED TWIG DOGWOOD	1 GAL - 3 5 GAL - 1
	SALIX DRUMMONDIANA DRUMMOND'S WILLOW	1 GAL - 3 5 GAL - 1
	SALIX LASIANDRA WHIPLASH WILLOW	1 GAL - 3 5 GAL - 1
	SHEPHERDIA ARGENTEA SILVER BUFFALOBERRY	1 GAL - 6 5 GAL - 4
RIPARIAN ENHANCEMENT	BOTANICAL / COMMON NAME	SIZE - QUANTITY
	ALNUS TENUFOLIA THINLEAF ALDER	1 GAL - 3 5 GAL - 2
	BETULA OCCIDENTALIS WATER BIRCH	1 GAL - 3 5 GAL - 1
	CORNUS SERICEA RED TWIG DOGWOOD	1 GAL - 3 5 GAL - 1
	POPULUS ANGUSTIFOLIA NARROWLEAF COTTONWOOD	1 GAL - 2 5 GAL - 1
	SALIX DRUMMONDIANA DRUMMOND'S WILLOW	1 GAL - 2 5 GAL - 1
	SALIX MONTICOLA ROCKY MOUNTAIN WILLOW	1 GAL - 3 5 GAL - 2
	SHEPHERDIA ARGENTEA SILVER BUFFALOBERRY	1 GAL - 4 5 GAL - 2

CONSTRUCTION NOTES:

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- TEMPORARY ABOVE GROUND IRRIGATION REQUIRED FOR ALL RESTORATION ZONES.
- FIELD FLAG AND ADJUST BOARDWALK TO ACHIEVE BALANCE OF MINIMIZING DISTURBANCE AND PREFERRED ALIGNMENT.




100% CONSTRUCTION DOCUMENT SET

CRYSTAL RIVER RESTORATION AND WEAVER DITCH EFFICIENCY PROJECT UPLAND IMPROVEMENTS

No.	REVISION/UPDATE	Date
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511 Colorado Ave
Carbondale, CO 81623

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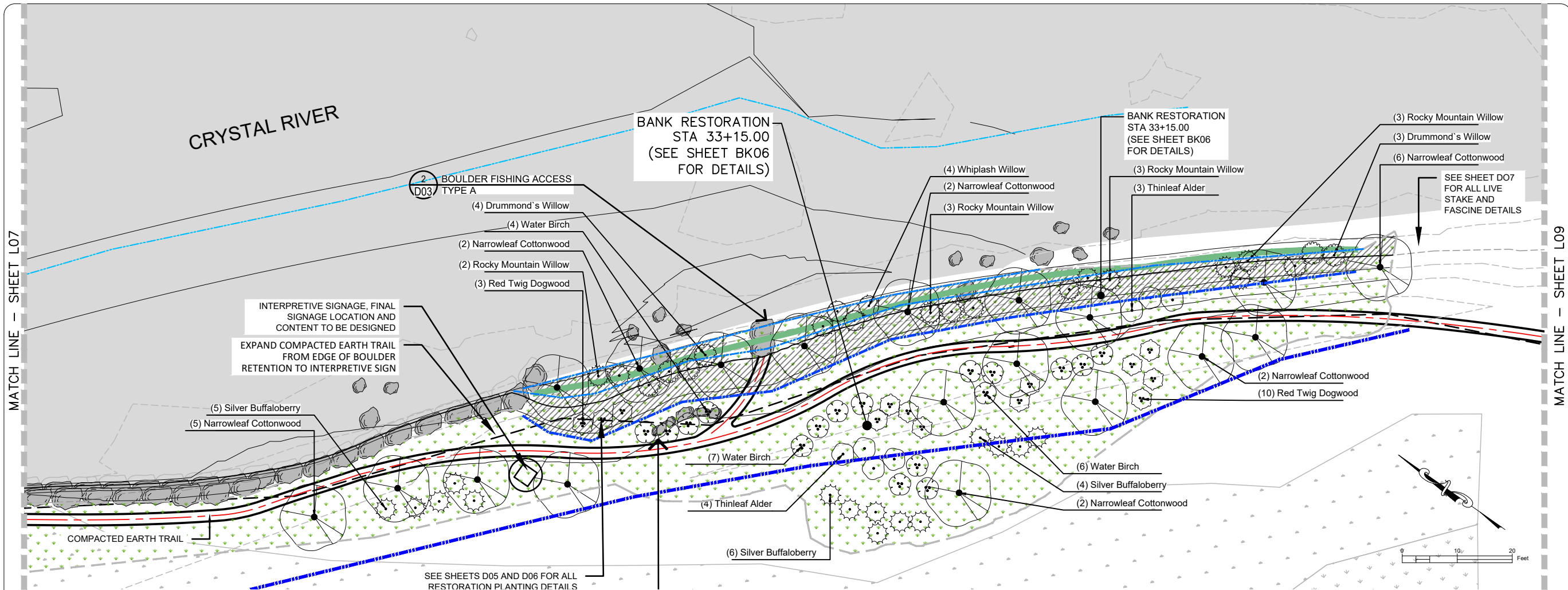


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Project	38047
Date	AUG 2021
Scale	1"=20' AT FULL SIZE
Sheet	L07



LEGEND

- MAJOR CONTOUR - PROPOSED

MINOR CONTOUR - PROPOSED

MINOR CONTOUR - EXISTING

MINOR CONTOUR - EXISTING

PATH CENTERLINE
- LOW WATER MARK - MARCH 91 CFS

LOW WATER MARK - MAY 966 CFS

ORDINARY HIGH WATER MARK 2600 CFS

10-YEAR FLOODPLAIN 5310 CFS

RIPARIAN CREATION TOPSOIL
- PALUSTRINE EMERGENT WETLAND (PEM1B)

PALUSTRINE SCRUB SHRUB WETLAND (PSSB1)

CLOSURE GATE

INTERPRETIVE SIGNAGE KIOSK, FUTURE PHASE, N.I.C.

BOULDER BANK RETENTION; RE: ENGINEER DWGS, THIS SET

EXISTING TREES

PLANT SCHEDULE L08		
RIPARIAN CREATION TYPE 1	BOTANICAL / COMMON NAME	SIZE - QUANTITY
	ALNUS TENUIFOLIA / THINLEAF ALDER	1 GAL - 4 5 GAL - 3
	BETULA OCCIDENTALIS / WATER BIRCH	1 GAL - 10 5 GAL - 7
	CORNUS SERICEA / RED TWIG DOGWOOD	1 GAL - 8 5 GAL - 5
	POPULUS ANGUSTIFOLIA / NARROWLEAF COTTONWOOD	1 GAL - 12 5 GAL - 7
	SALIX DRUMMONDIANA / DRUMMOND'S WILLOW	1 GAL - 4 5 GAL - 3
	SALIX LASIANDRA / WHIPLASH WILLOW	1 GAL - 3 5 GAL - 1
	SALIX MONTICOLA / ROCKY MOUNTAIN WILLOW	1 GAL - 7 5 GAL - 4
	SHEPHERDIA ARGENTEA / SILVER BUFFALOBERRY	1 GAL - 9 5 GAL - 6

CONCEPT PLANT SCHEDULE L08

	LIVE STAKES POPULUS ANGUSTIFOLIA / NARROWLEAF POPLAR SALIX SPP / WILLOW	1,175 SF 92 214
	RIPARIAN SEED MIX - CREATION CALAMAGROSTIS CANADENSIS / BLUEJOINT REED GRASS DESCHAMPSIA CESPITOSA / TUFTED HAIR GRASS ELYMUS TRACHYCAULUS / SLENDER WHEATGRASS GLYCERIA STRIATA / FOWL MANNA GRASS JUNCUS ARCTICUS / WIRE RUSH PASCOPYRUM SMITHII / WESTERN WHEATGRASS POA SECUNDA / BLUEGRASS	5,474 SF 547 SF 1,095 SF 1,095 SF 547 SF 547 SF 1,095 SF 547 SF
	WILLOW FASCINES	153 LF


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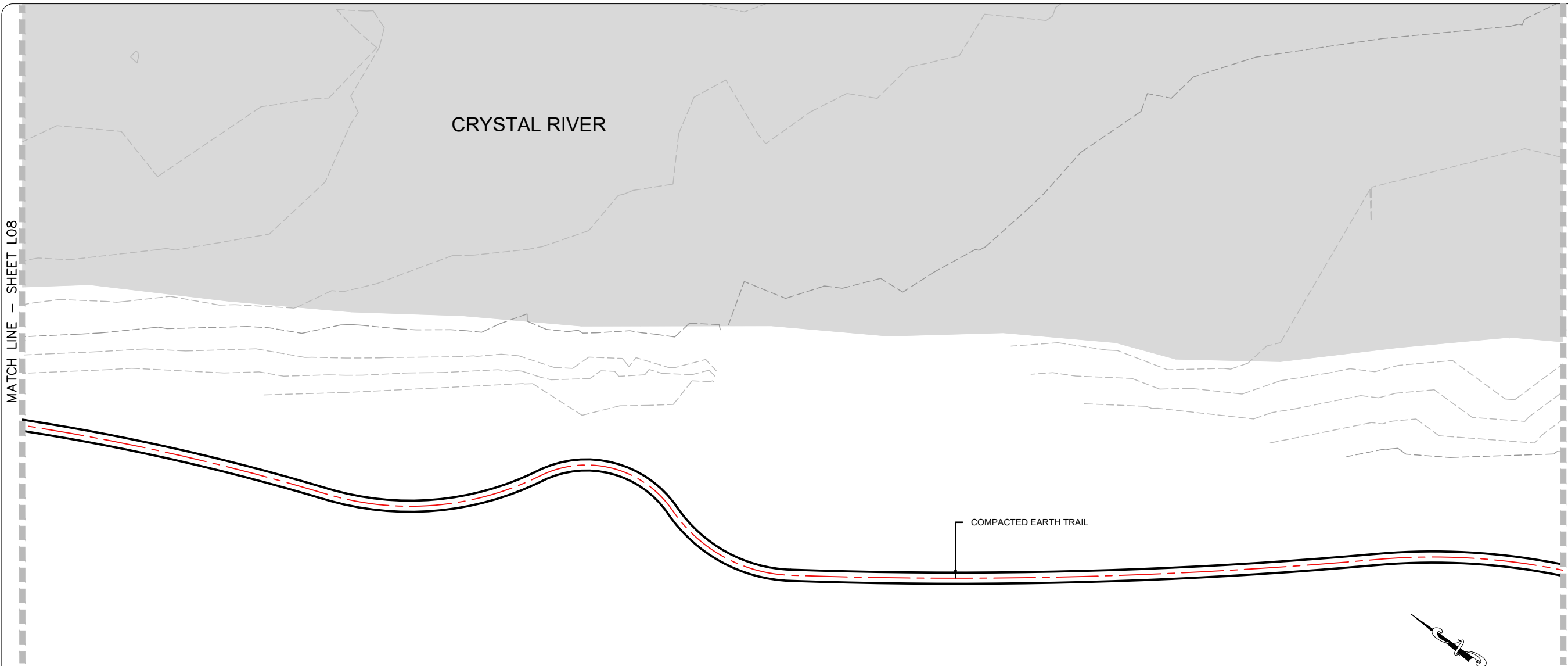


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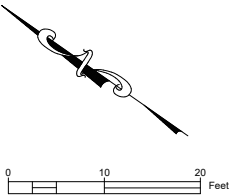


100% CONSTRUCTION DOCUMENT SET



LEGEND

- MAJOR CONTOUR - PROPOSED
- MINOR CONTOUR - PROPOSED
- MINOR CONTOUR - EXISTING
- MINOR CONTOUR - EXISTING
- PATH CENTERLINE
- PALUSTRINE EMERGENT WETLAND (PEM1B)
- PALUSTRINE SCRUB SHRUB WETLAND (PSSB1)
- LOW WATER MARK - MARCH 91 CFS
- LOW WATER MARK - MAY 966 CFS
- ORDINARY HIGH WATER MARK 2600 CFS
- 10-YEAR FLOODPLAIN 5310 CFS
- RIPARIAN CREATION TOPSOIL
- CLOSURE GATE
- INTERPRETIVE SIGNAGE KIOSK; FUTURE PHASE, N.I.C.
- BOULDER BANK RETENTION: RE: ENGINEER DWGS, THIS SET
- EXISTING TREES




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Project	38047	Sheet
Date	AUG 2021	L09
Scale	1"= 20' AT FULL SIZE	

MATCH LINE - SHEET L09

MATCH LINE - SHEET L11

CRYSTAL RIVER

BOULDER FISHING ACCESS
TYPE A (D03)

COMPACTED
EARTH TRAIL

INTERPRETIVE SIGNAGE, FINAL
SIGNAGE LOCATION AND
CONTENT TO BE DESIGNED

LEGEND

- MAJOR CONTOUR - PROPOSED

MINOR CONTOUR - PROPOSED

MINOR CONTOUR - EXISTING

MINOR CONTOUR - EXISTING

PATH CENTERLINE

PALUSTRINE EMERGENT WETLAND (PEM1B)

PALUSTRINE SCRUB SHRUB WETLAND (PSSB1)
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ORDINARY HIGH WATER MARK 2600 CFS

10-YEAR FLOODPLAIN 5310 CFS

RIPARIAN CREATION TOPSOIL

CLOSURE GATE

INTERPRETIVE SIGNAGE KIOSK; FUTURE PHASE, N.I.C.

BOULDER BANK RETENTION: RE: ENGINEER DWGS, THIS SET


EXISTING TREES

0 10 20 Feet

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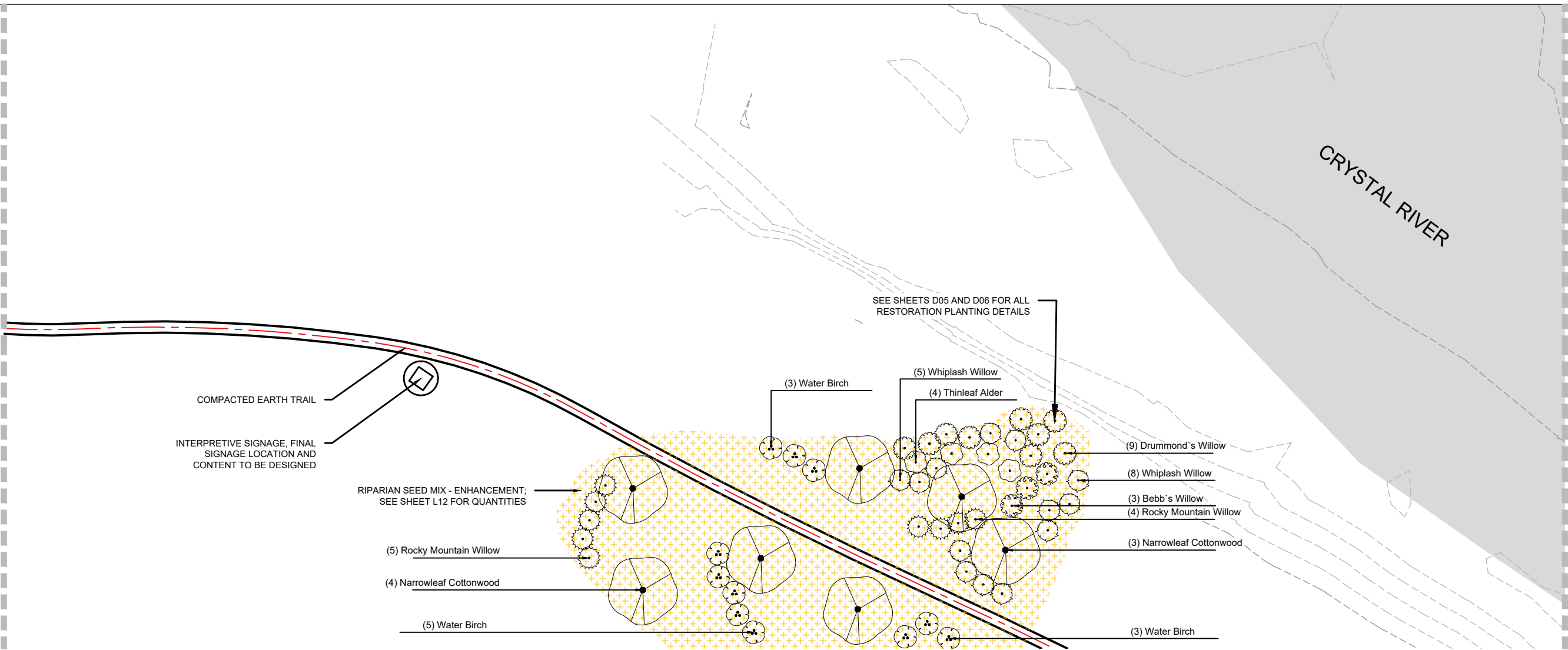
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100% CONSTRUCTION DOCUMENT SET



MATCH LINE - SHEET L10

MATCH LINE - SHEET L12



LEGEND

- MAJOR CONTOUR - PROPOSED

MINOR CONTOUR - PROPOSED

MINOR CONTOUR - EXISTING

MINOR CONTOUR - EXISTING

PATH CENTERLINE
- LOW WATER MARK - MARCH 91 CFS

LOW WATER MARK - MAY 966 CFS

ORDINARY HIGH WATER MARK 2600 CFS

10-YEAR FLOODPLAIN 5310 CFS

RIPARIAN CREATION TOPSOIL
- PALUSTRINE EMERGENT WETLAND (PEM1B)

PALUSTRINE SCRUB SHRUB WETLAND (PSSB1)

CLOSURE GATE

INTERPRETIVE SIGNAGE KIOSK; FUTURE PHASE, N.I.C.

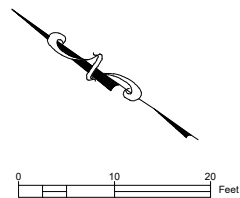
BOULDER BANK RETENTION; RE: ENGINEER DWGS, THIS SET

EXISTING TREES

PLANT SCHEDULE L11		
RIPARIAN ENHANCEMENT	BOTANICAL / COMMON NAME	SIZE - QUANTITY
	ALNUS TENUFOLIA THINLEAF ALDER	1 GAL - 3 5 GAL - 1
	BETULA OCCIDENTALIS WATER BIRCH	1 GAL - 7 5 GAL - 4
	POPULUS ANGUSTIFOLIA NARROWLEAF COTTONWOOD	1 GAL - 4 5 GAL - 3
	SALIX BEBBIANA BEBB'S WILLOW	1 GAL - 2 5 GAL - 1
	SALIX DRUMMONDIANA DRUMMOND'S WILLOW	1 GAL - 6 5 GAL - 3
	SALIX LASIANDRA WHIPLASH WILLOW	1 GAL - 8 5 GAL - 5
	SALIX MONTICOLA ROCKY MOUNTAIN WILLOW	1 GAL - 6 5 GAL - 3

CONSTRUCTION NOTES:

- OVERALL PLANTING AND SEED SCHEDULES, AND RESTORATION DETAILS ARE CONTAINED IN THE SUBSEQUENT PAGE SETS INCLUDING OVERALL SITE SPECIES, QUANTITIES, AND LANDSCAPE UNIT REQUIREMENTS.
- THIS SHEET CONTAINS THE PLANT QUANTITIES FOR THIS ENLARGEMENT AREA ONLY, SEE PLANT SCHEDULE FOR THE DETAILED LIST OF PLANTS IN THIS RESTORATION ZONES.
- PLANT LABELS ARE FOR INCREASED CLARITY AND ARE INCLUDED WHERE POSSIBLE. CONTRACTOR TO VERIFY OVERALL PLANT COUNTS IN EACH AREA BASED ON THE PLANT SCHEDULE.
- EXISTING DEADFALL WITHIN THE DISTURBANCE AREA TO BE STOCKPILED AND FIELD LOCATED FOR HABITAT PER PROJECT ECOLOGIST.
- ALL INTERPRETIVE AND KIOSK SIGNS TO BE DESIGNED AND INSTALLED IN A SUBSEQUENT PROJECT PHASE.
- TRAILS ARE TO BE 24-30 INCHES WIDE, OF COMPACTED NATIVE SOIL. PREPARE TRAIL BED BY REMOVING EXISTING VEGETATION, SURFACE ROOTS AND ROCKS, AND SUBSURFACE ROOTS TO A DEPTH OF 6 INCHES. LOOSEN AND RAKE SOIL TO ACHIEVE A CONSISTENT TRAIL BED. COMPACT WITH PLATE, JUMPING JACK, OR HAND TAMP.
- GRADES ARE SHOWN FOR ILLUSTRATIVE PURPOSES. SEE ENGINEERING PLANS FOR ALL GRADING AND SPOT ELEVATIONS.
- TEMPORARY ABOVE GROUND IRRIGATION REQUIRED FOR ALL RESTORATION ZONES.




100% CONSTRUCTION DOCUMENT SET

CRYSTAL RIVER RESTORATION AND
WEAVER DITCH EFFICIENCY PROJECT
UPLAND IMPROVEMENTS

No.	REVISION/UPDATE	Date
	FINAL REV.	08.25.21

CLIENT NAME AND ADDRESS



Town of Carbondale
511 Colorado Ave
Carbondale, CO 81623

DESIGN FIRMS NAME AND ADDRESSES

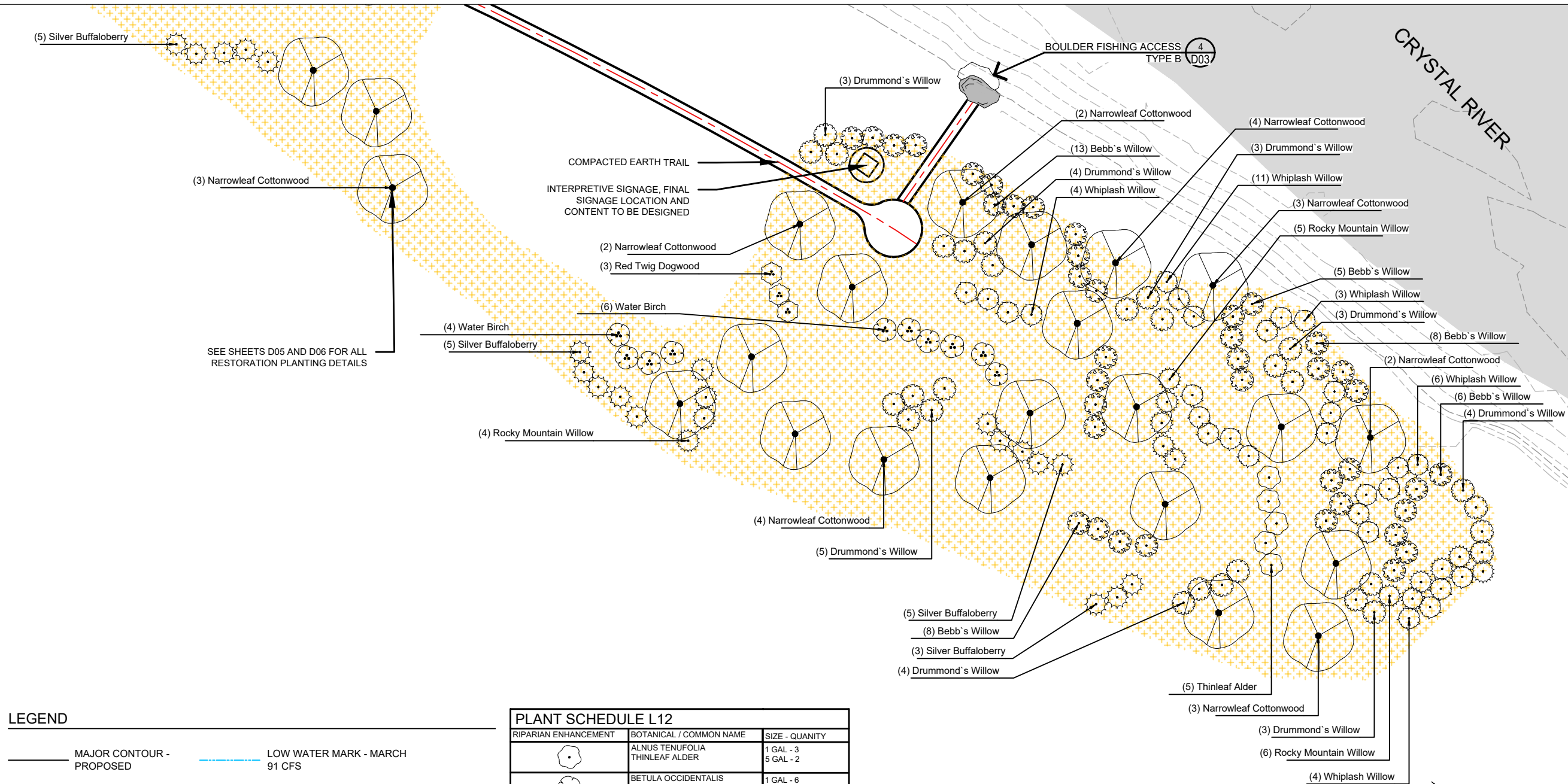


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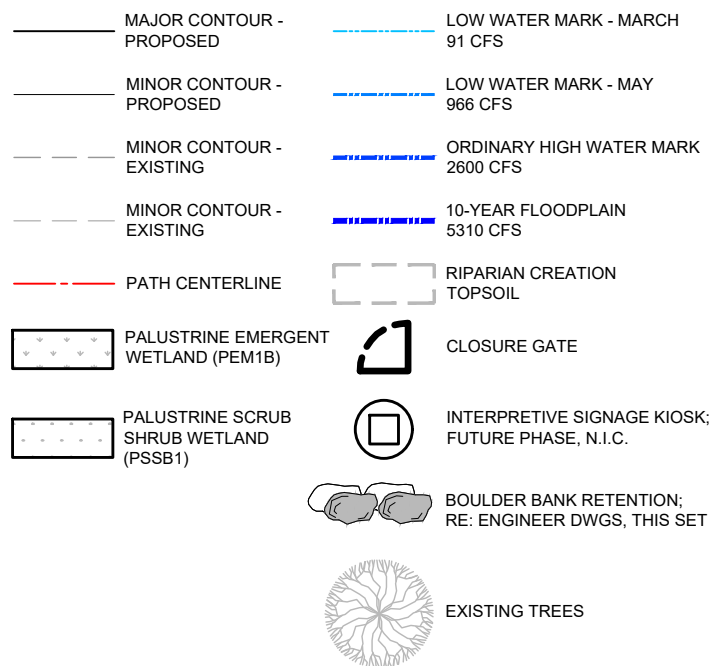


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PROJECT NAME AND ADDRESS		
Crystal River Restoration and Weaver Ditch Efficiency Project Carbondale, CO 81623		
Project	38047	Sheet
Date	AUG 2021	L I I
Scale	1"=20' AT FULL SIZE	



LEGEND



PLANT SCHEDULE L12

RIPARIAN ENHANCEMENT	BOTANICAL / COMMON NAME	SIZE - QUANTITY
	ALNUS TENUFOLIA THINLEAF ALDER	1 GAL - 3 5 GAL - 2
	BETULA OCCIDENTALIS WATER BIRCH	1 GAL - 6 5 GAL - 4
	CORNUS SERICEA RED TWIG DOGWOOD	1 GAL - 2 5 GAL - 1
	POPULUS ANGUSTIFOLIA NARROWLEAF COTTONWOOD	1 GAL - 14 5 GAL - 9
	SALIX BEBBIANA BEBB'S WILLOW	1 GAL - 24 5 GAL - 16
	SALIX DRUMMONDIANA DRUMMOND'S WILLOW	1 GAL - 18 5 GAL - 11
	SALIX LASIANDRA WHIPLASH WILLOW	1 GAL - 18 5 GAL - 10
	SALIX MONTICOLA ROCKY MOUNTAIN WILLOW	1 GAL - 9 5 GAL - 6
	SHEPHERDIA ARGENTEA SILVER BUFFALOERRY	1 GAL - 11 5 GAL - 7

CONCEPT PLANT SCHEDULE L12

	RIPARIAN SEED MIX - ENHANCEMENT	13,125 SF
	CALAMAGROSTIS CANADENSIS / BLUEJOINT REED GRASS	1,312 SF
	DESCHAMPSIA CESPITOSA / TUFTED HAIR GRASS	2,625 SF
	ELYMUS TRACHYCAULUS / SLENDER WHEATGRASS	2,625 SF
	GLYCERIA STRIATA / FOWL MANNA GRASS	1,312 SF
	JUNCUS ARCTICUS / WIRE RUSH	1,312 SF
	PASCOPYRUM SMITHII / WESTERN WHEATGRASS	2,625 SF
	POA SECUNDA / BLUEGRASS	1,312 SF

CONSTRUCTION NOTES:

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- GRADES ARE SHOWN FOR ILLUSTRATIVE PURPOSES. SEE ENGINEERING PLANS FOR ALL GRADING AND SPOT ELEVATIONS.
- TEMPORARY ABOVE GROUND IRRIGATION REQUIRED FOR ALL RESTORATION ZONES.

CRYSTAL RIVER RESTORATION AND
WEAVER DITCH EFFICIENCY PROJECT
UPLAND IMPROVEMENTS

No.	REVISION/UPDATE	Date
	FINAL REV.	08.25.21

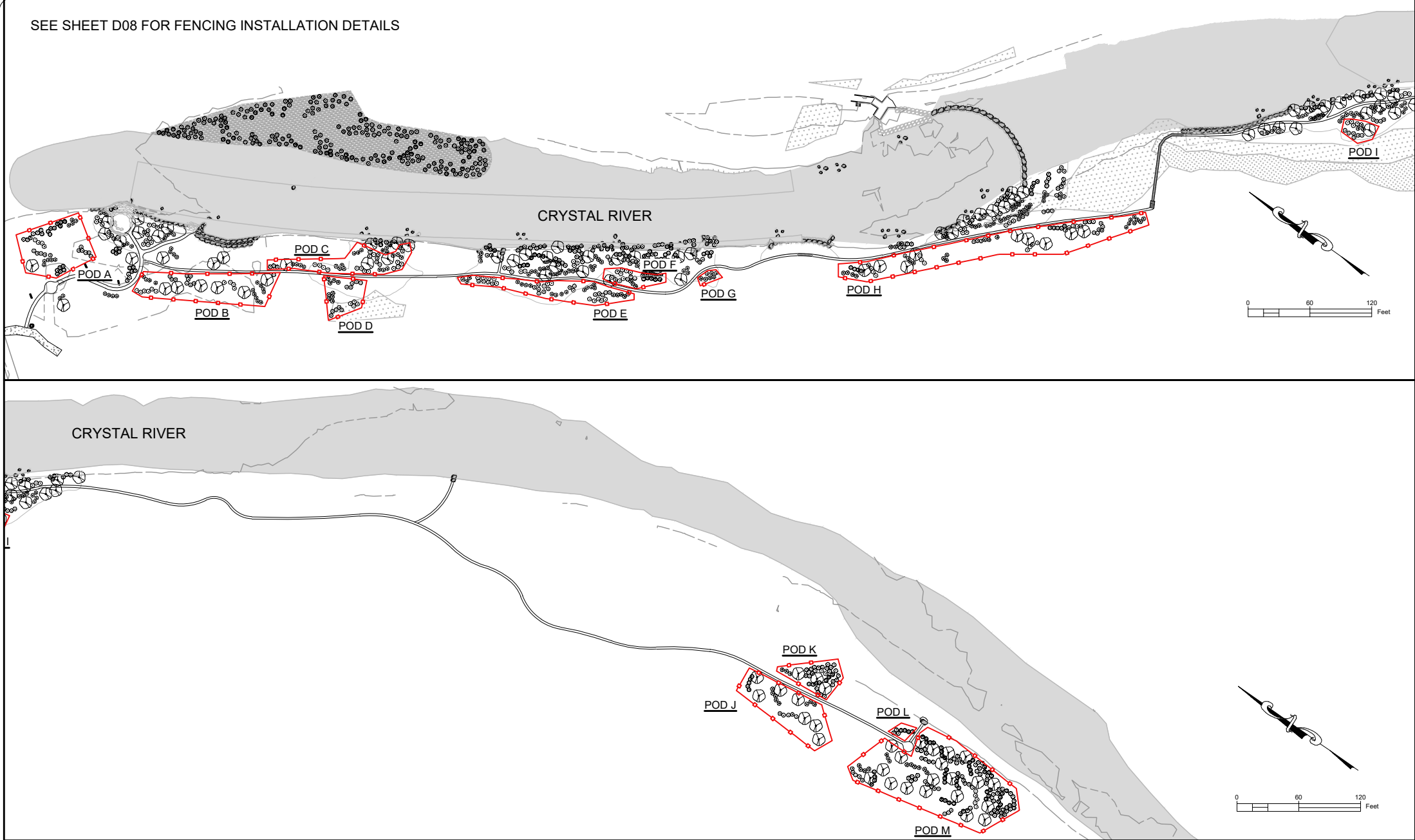
CLIENT NAME AND ADDRESS
Town of Carbondale 511 Colorado Ave Carbondale, CO 81623

DESIGN FIRMS NAME AND ADDRESSES
RiverRestoration.org, LLC P.O. Box 248 Carbondale, CO 81623 www.RiverRestoration.org
311 Main St, Suite 102 Carbondale, CO 81623 970.963.6520 www.dhmdesign.com

PROJECT NAME AND ADDRESS
Crystal River Restoration and Weaver Ditch Efficiency Project Carbondale, CO 81623
Project
38047
Sheet
L12
Date
AUG 2021
Scale
1"=20' AT FULL SIZE

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SEE SHEET D08 FOR FENCING INSTALLATION DETAILS




FENCING - APPROXIMATE AREAS AND QUANTITIES

POD	AREA (SF)	FENCE LENGTH (FT)	APPROXIMATE FENCE MATERIAL (8'x100')	APPROXIMATE POSTS	WIRE MESH TIES	GROUND STAKES
A	3210	222	3	28	84	45
B	3634	322	4	41	123	65
C	2281	323	4	41	123	65
D	1292	147	2	19	57	30
E	2417	357	4	45	135	72
F	811	142	2	18	54	29
G	209	61	1	8	24	13
H	6380	637	7	80	240	128
I	586	95	1	12	36	20
J	3232	256	3	33	99	52
K	1440	165	2	21	63	34
L	243	66	1	9	27	14
M	9180	429	5	54	162	86
TOTALS	34,915	3,222	39	409	1205	653

CRYSTAL RIVER RESTORATION AND
WEAVER DITCH EFFICIENCY PROJECT
WILDLIFE PROTECTION FENCING PLAN

No.	REVISION/UPDATE	Date
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Project	38047	Sheet
Date	AUG 2021	L13
Scale	1"=20' AT FULL SIZE	

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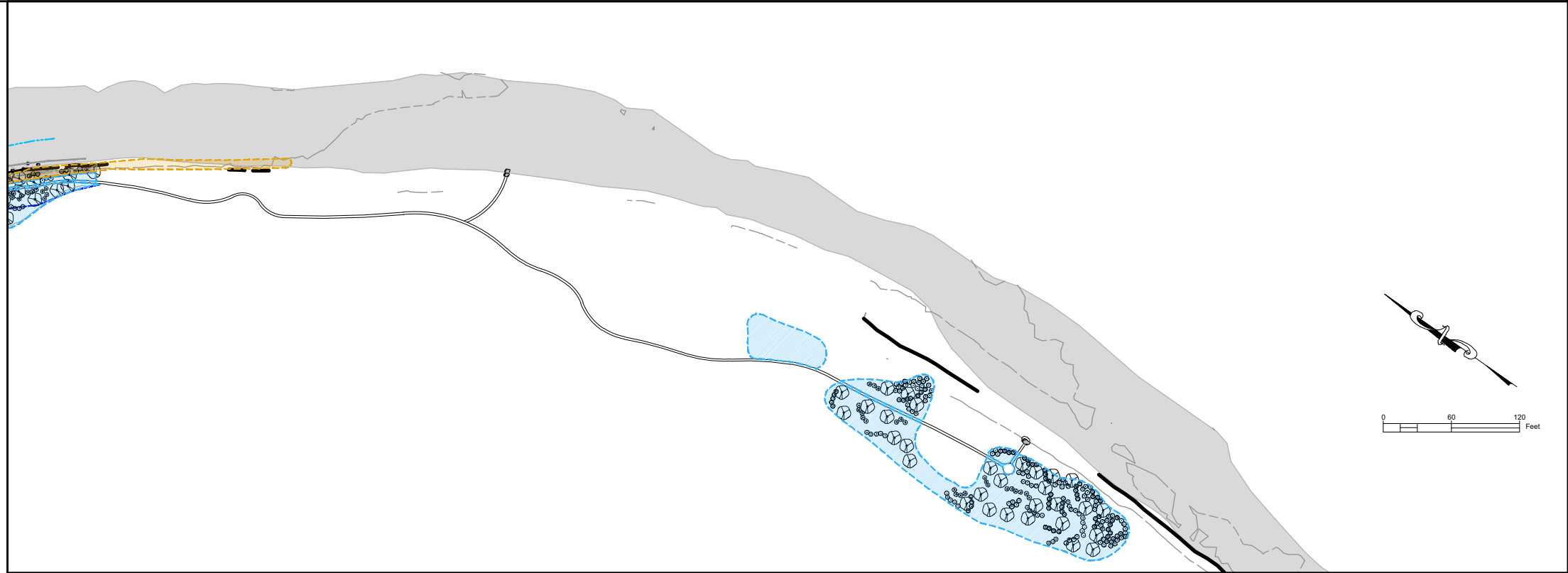
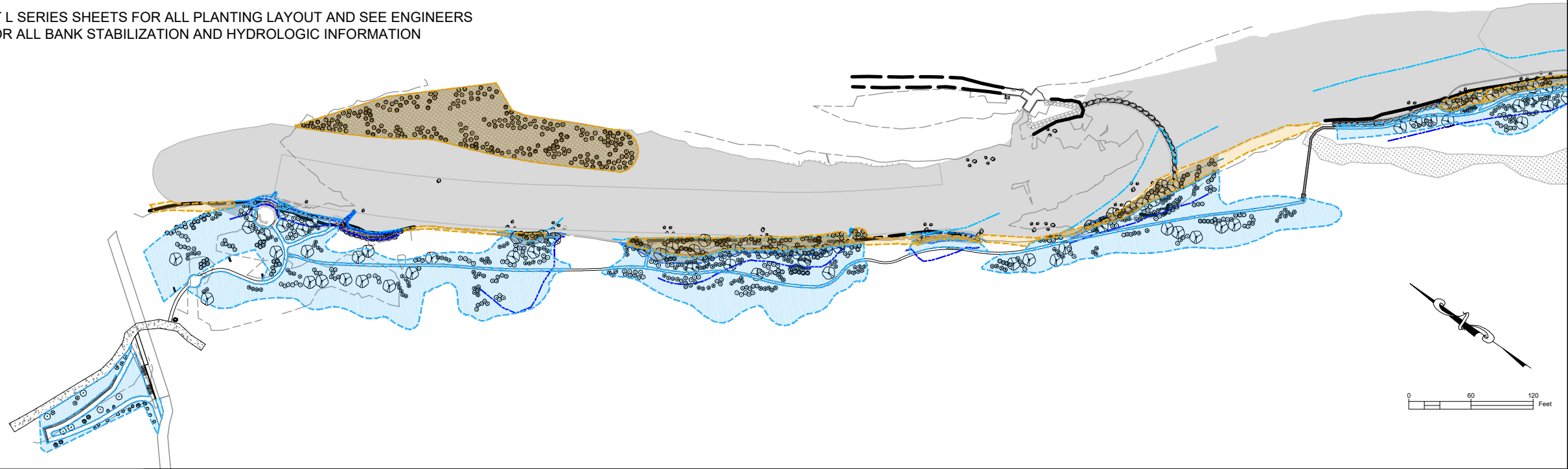


TOTAL RESTORATION AREA
95,334 SF

TOTAL IRRIGATED AREA (TEMPORARY ABOVE GROUND MIN 2 YEARS)
72,089 SF

TOTAL NON-IRRIGATED AREA
23,245 SF

1. SEE SHEET L SERIES SHEETS FOR ALL PLANTING LAYOUT AND SEE ENGINEERS SHEETS FOR ALL BANK STABILIZATION AND HYDROLOGIC INFORMATION




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CRYSTAL RIVER RESTORATION AND
WEAVER DITCH EFFICIENCY PROJECT
IRRIGATION DIAGRAM

No.	REVISION/UPDATE	Date
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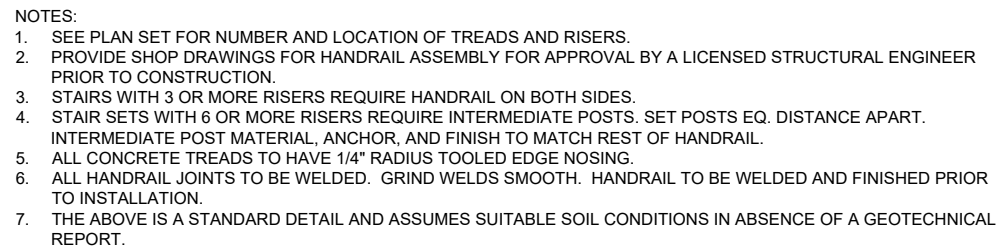


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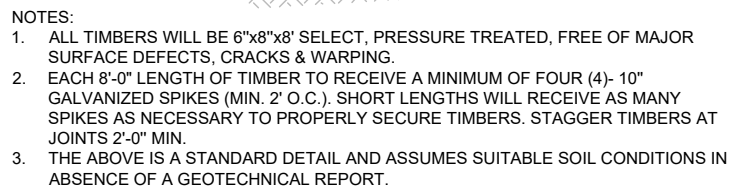


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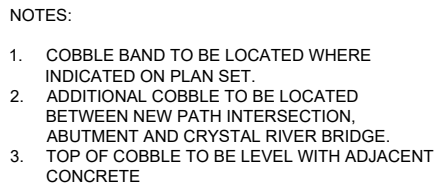
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Crystal River Restoration and Weaver Ditch Efficiency Project Carbondale, CO 81623	
Project	38047
Date	AUG 2021
Scale	1"=20' AT FULL SIZE
Sheet	L14



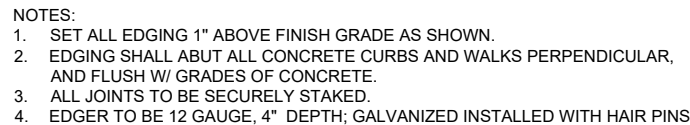
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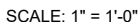
SCALE: 1" = 1'-0"



SCALE: 1" = 1'-0"



NTS

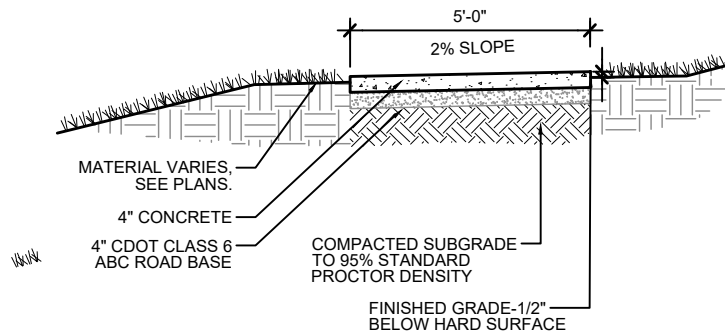


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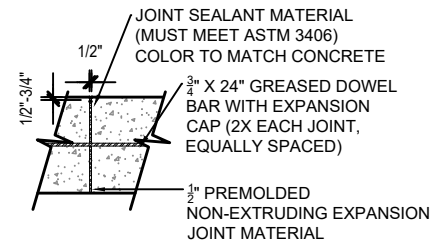


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Project 38047	Sheet DO I
Date AUG 2021	
Scale NOT TO SCALE	

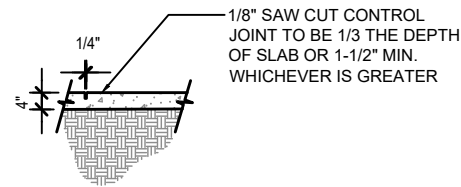
CRYSTAL RIVER RESTORATION AND WEAVER DITCH EFFICIENCY PROJECT ACCESS IMPROVEMENT DETAILS



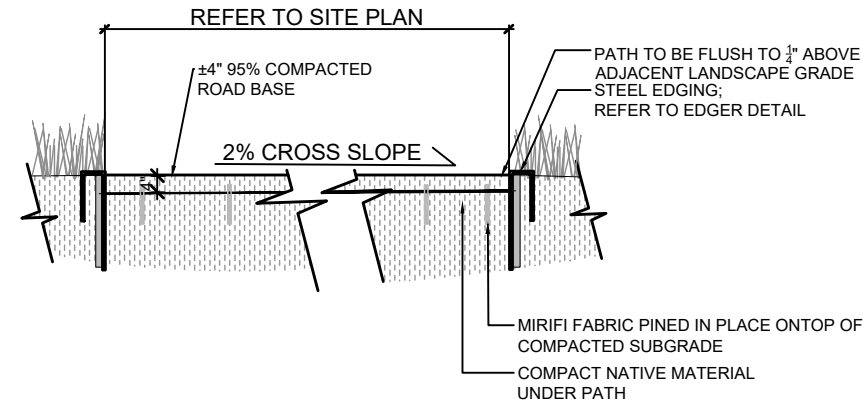
- NOTES:
1. CONCRETE TO BE 4" (DEPTH).
 2. SAWCUT JOINTS AT REGULAR INTERVALS MATCHING WALK WIDTH.
 3. LOCATE EXPANSION JOINTS AS SHOWN ON PLAN AND STAIR DETAIL.
 4. CONCRETE TO ACHIEVE 3000 PSI AT 28 DAYS, INCLUDE FIBER MESH.
 5. SEE PLANS FOR LAYOUT.
 6. ALL CONCRETE WALKS TO HAVE BROOM FINISH.
 7. LONGITUDINAL SLOPE TO BE 5% MAX.



EXPANSION JOINT



CONTROL JOINT



- NOTES:
1. APPLY CLASS 6 ABC OVER COMPACTED SUBGRADE (REMOVE LARGE ROOTS AND ORGANIC MATERIAL FROM SURFACE OF SUB-GRADE.) INSTALL CLASS 6 ABC TO A DEPTH OF 4 INCHES IN TWO EQUAL LIFTS, MOISTEN AND COMPACT. COMPACT WITH PLATE OR VIBRATORY ROLLER.
 2. PROVIDE SAMPLES OF MATERIAL FOR OWNER SELECTION.
 3. WIDTH OF PATH VARIES, SEE SITE PLANS.
 4. CROSS SLOPE DIRECTION TO BE DETERMINED IN FIELD.

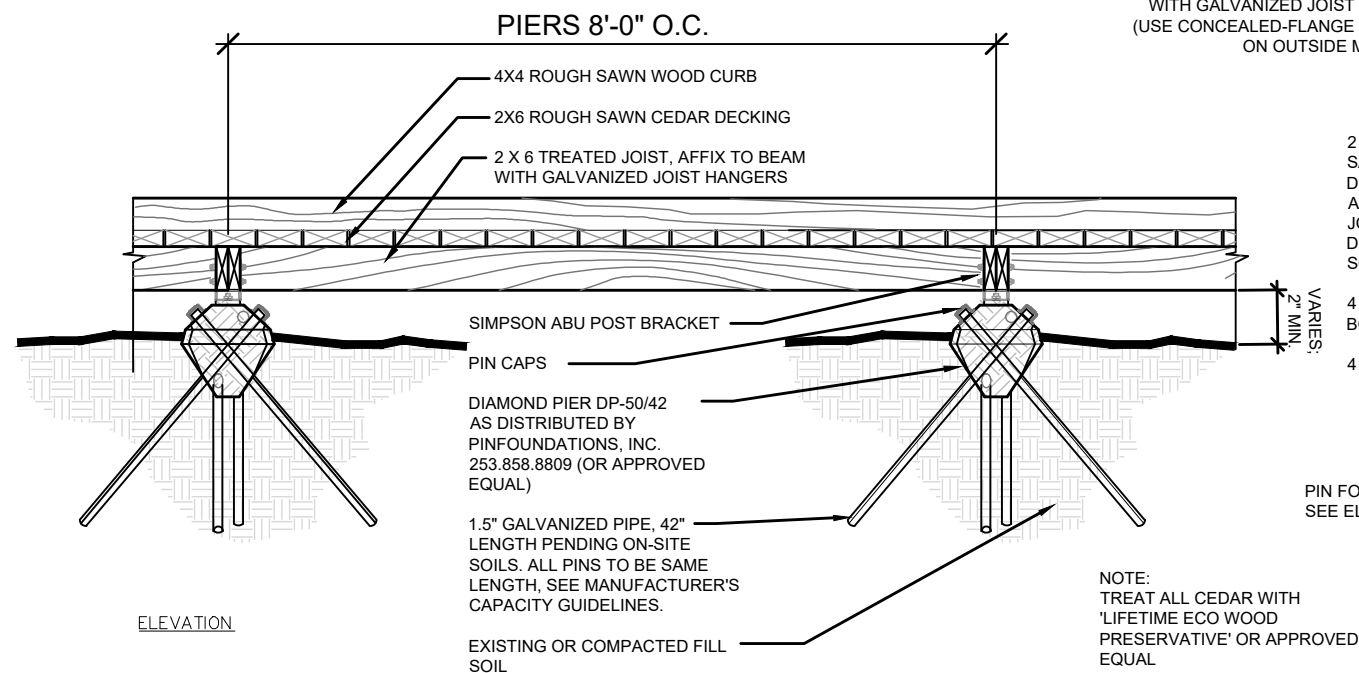
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D02 CONCRETE TRAIL

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

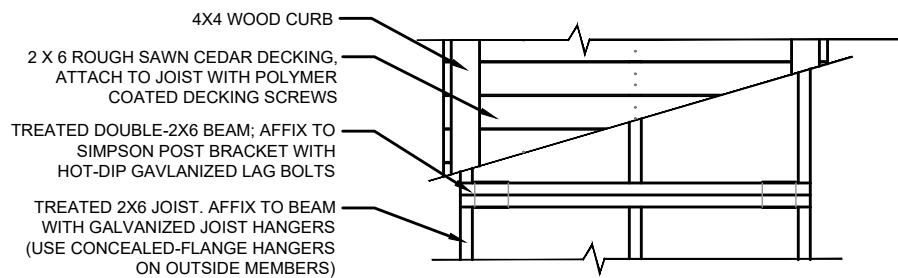
2
D02 ROAD BASE PATH

NTS

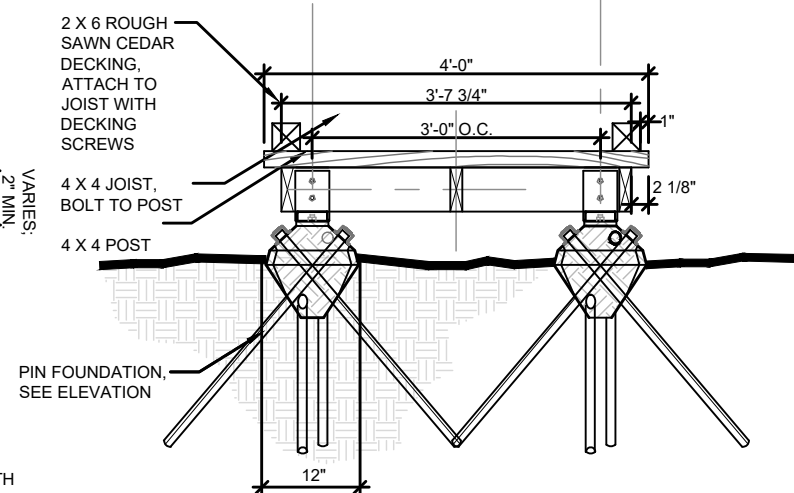
- NOTES:
1. INSTALL DIAMOND PIER DP-50 PER MANUFACTURER'S RECOMMENDATIONS.
 2. CONSULT PRODUCT MANUFACTURER AND INSTALLATION MANUAL FOR ADDITIONAL INFORMATION REGARDING PIN FOUNDATIONS



ELEVATION



PLAN



SECTION

3
D02


BOARDWALK

SCALE: 1" = 1'-0"



CRYSTAL RIVER RESTORATION AND WEAVER DITCH EFFICIENCY PROJECT TRAIL IMPROVEMENT DETAILS

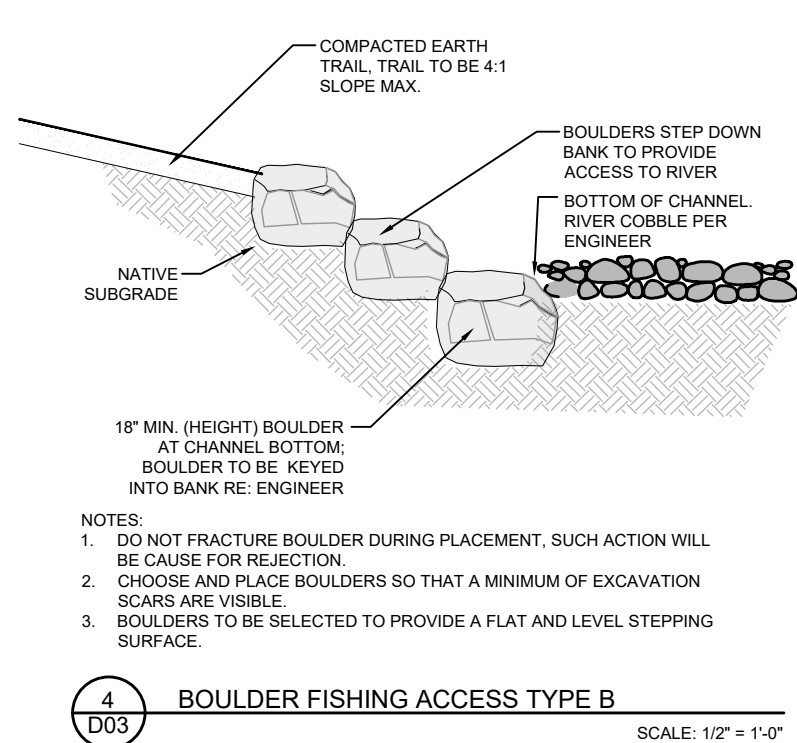
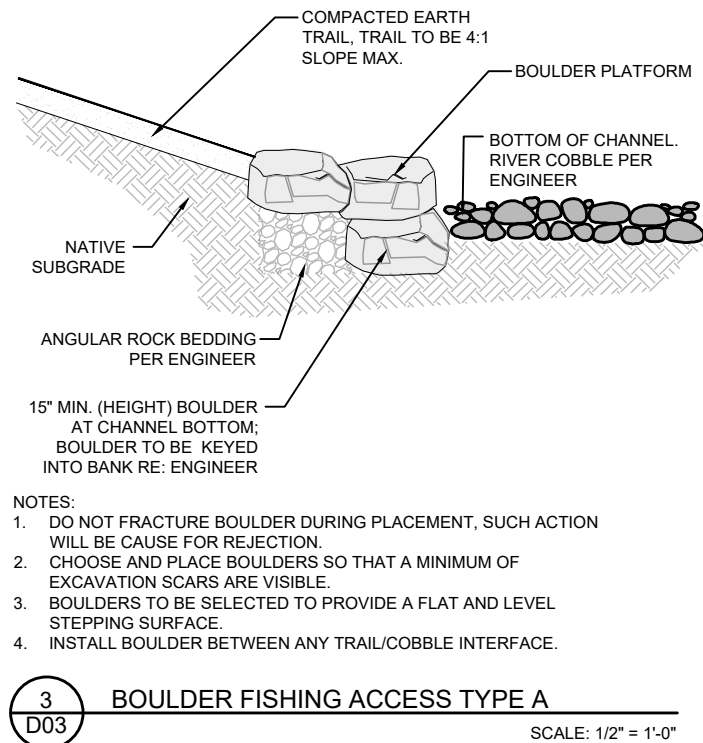
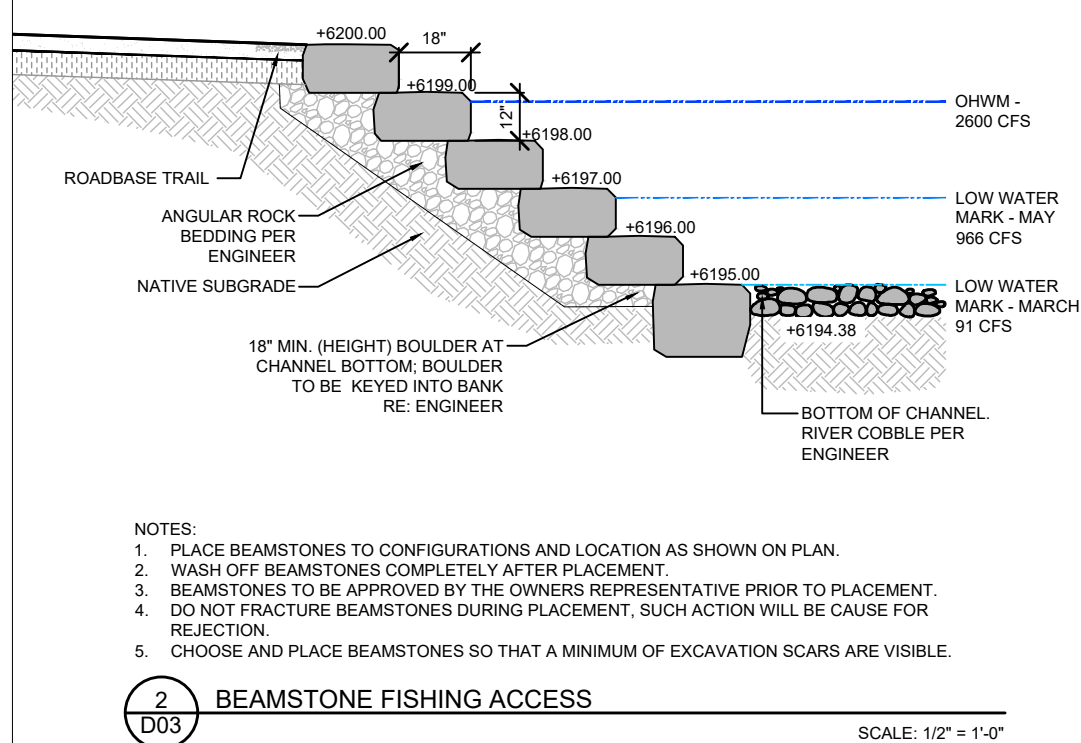
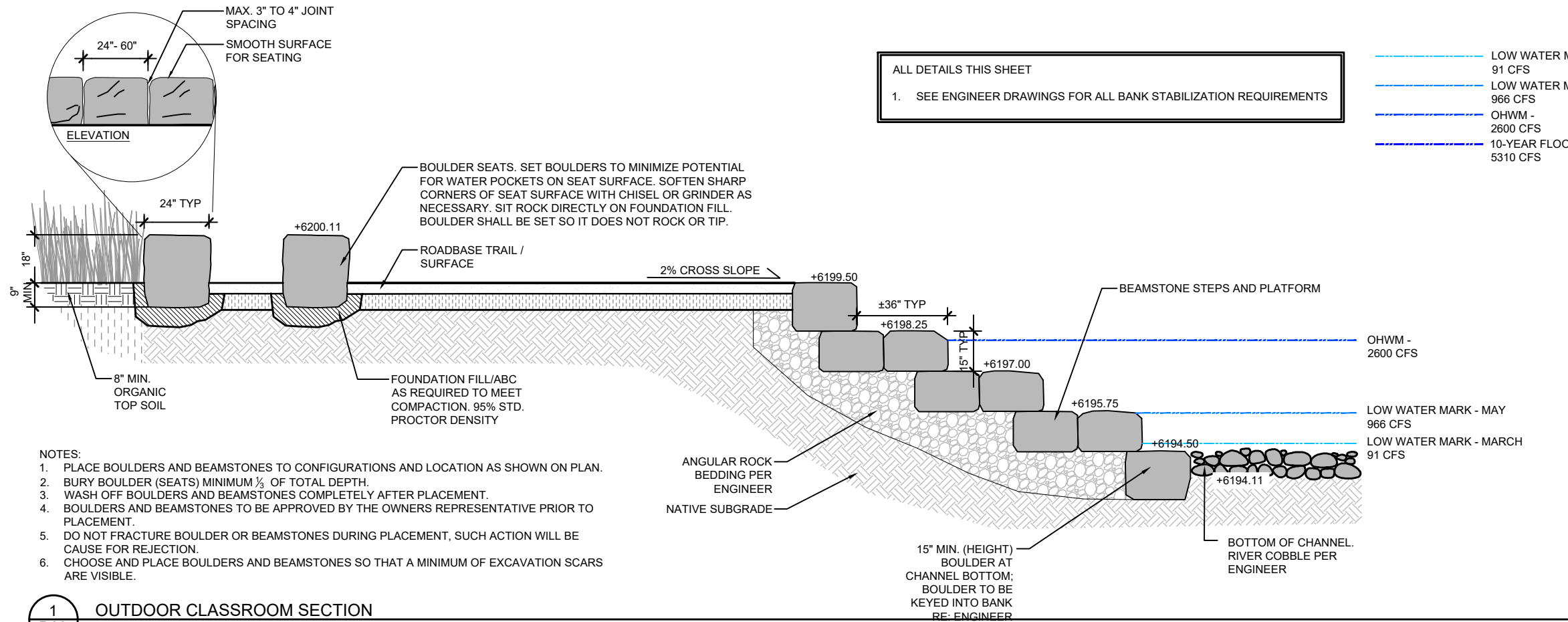
No.	REVISION/UPDATE	Date
	FINAL REV.	08.25.21

CLIENT NAME AND ADDRESS	
 Town of Carbondale 511 Colorado Ave Carbondale, CO 81623	

DESIGN FIRMS NAME AND ADDRESSES	
 RiverRestoration.org, LLC P.O. Box 248 Carbondale, CO 81623 www.RiverRestoration.org	
 DHM DESIGN 311 Main St, Suite 102 Carbondale, CO 81623 970.963.6520 www.dhmdesign.com	


PROJECT NAME AND ADDRESS	Crystal River Restoration and Weaver Ditch Efficiency Project Carbondale, CO 81623
Project	38047
Date	AUG 2021
Scale	NOT TO SCALE
Sheet	D02

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CRYSTAL RIVER RESTORATION AND
WEAVER DITCH EFFICIENCY PROJECT
UPLAND IMPROVEMENT AND
RIVER ACCESS DETAILS

No.	REVISION/UPDATE	Date
	FINAL REV.	08.25.21

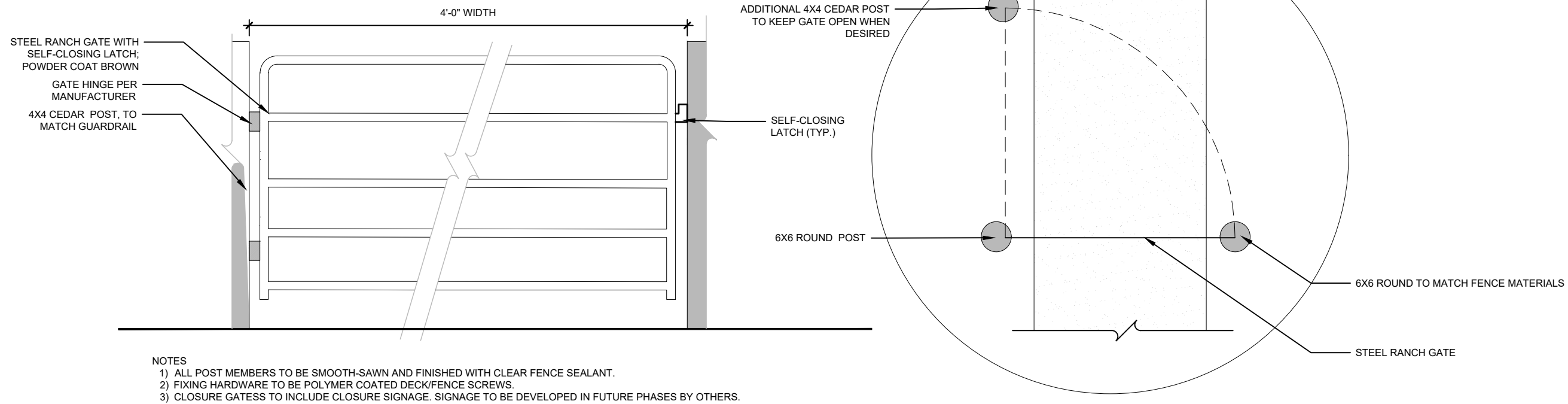
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Project	38047	Sheet
Date	AUG 2021	D03
Scale	NOT TO SCALE	



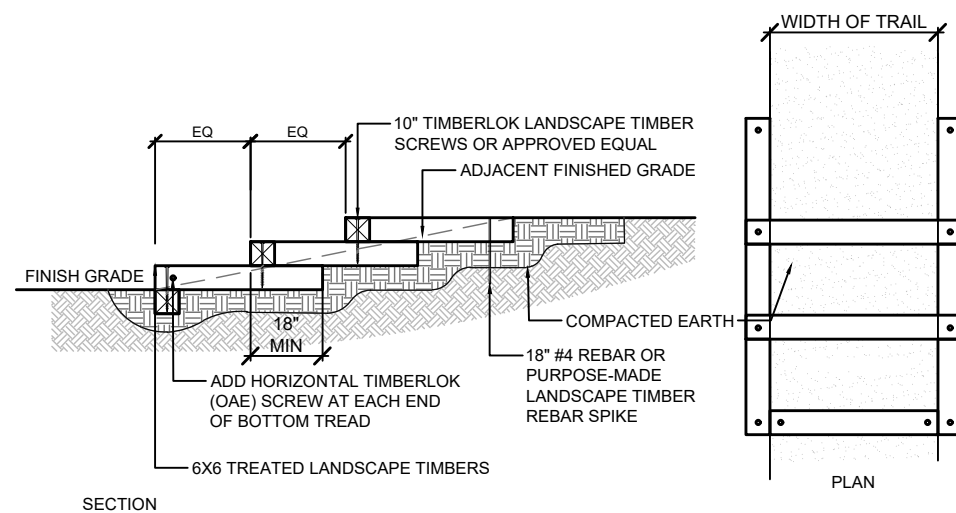
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1
D04

CLOSURE GATE

SCALE: 1" = 1'-0"



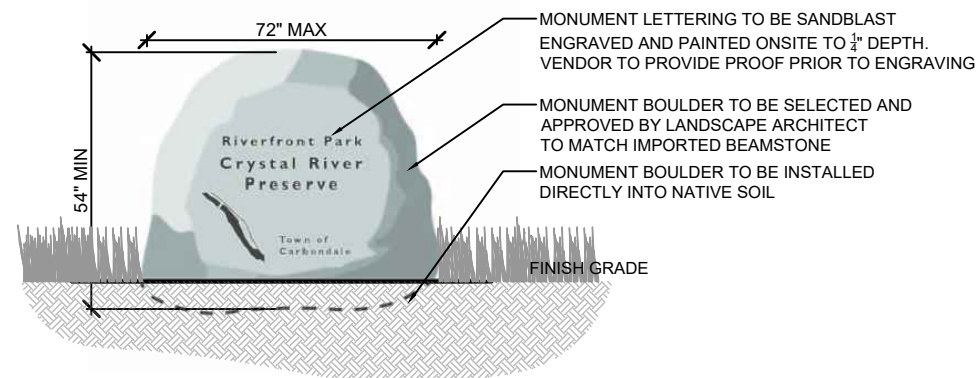
NOTES:

- 1) INSTALL LIFTS OF TIMBER STAIRS INDIVIDUALLY, BACKFILLING EACH LIFT.
- 2) LENGTH AND WIDTH OF TREAD WILL VARY PENDING GRADE AND TRAIL WIDTH. MINIMUM WIDTH OF TREAD (INCLUDING LANDSCAPE TIMBERS) TO BE 3'. MINIMUM TREAD LENGTH 12". TREADS TO BE EQUAL LENGTH FOR ENTIRE RUN OF STAIR.

2
D04

TIMBER STAIRS

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



SECTION

PLAN

3
D04

ENTRY MONUMENT


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

NOTES:

- 1) MONUMENT BOULDER TO BE NATURAL BOULDER TO MATCH IMPORTED BEAM STONE. BOULDER TO BE SELECTED BY LANDSCAPE ARCHITECT.
- 2) ENGRAVING VENDOR TO PROVIDE SHOP DRAWINGS/PROOF TO LANDSCAPE ARCHITECT FOR APPROVAL PRIOR TO ENGRAVING.
- 3) MONUMENT GRAPHIC AND INSTALLATION TO BE COMPLETED BY THE TOWN OF CARBONDALE.

CRYSTAL RIVER RESTORATION AND WEAVER DITCH EFFICIENCY PROJECT UPLAND IMPROVEMENT AND ACCESS DETAILS

No.	REVISION/UPDATE	Date
	FINAL REV.	08.25.21

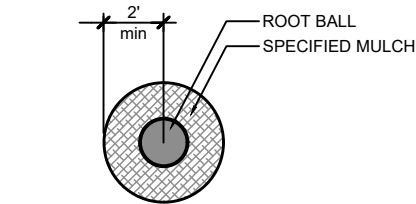
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	Town of Carbondale 511 Colorado Ave Carbondale, CO 81623

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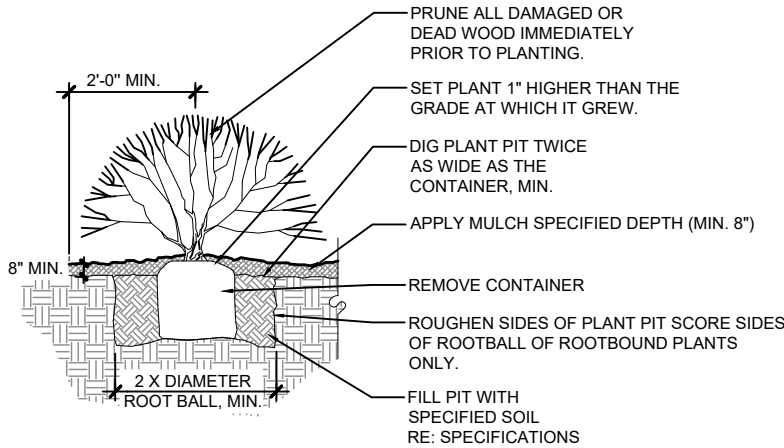
PROJECT NAME AND ADDRESS	
Crystal River Restoration and Weaver Ditch Efficiency Project Carbondale, CO 81623	
Project	38047
Date	AUG 2021
Scale	NOT TO SCALE
Sheet	
D04	



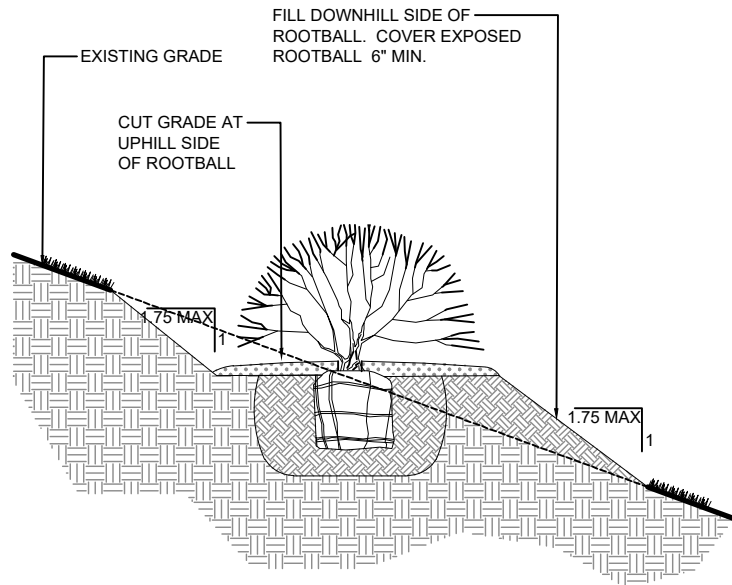
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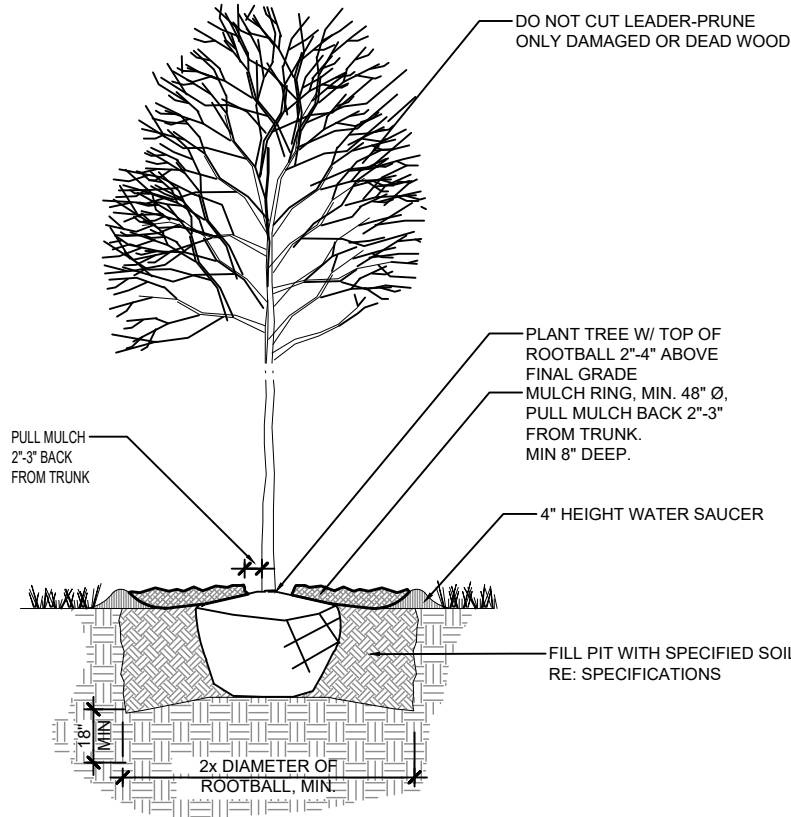
MULCHING CONTAINERIZED PLANTS IN NATIVE SEED AREAS



- NOTES:
1. ANY BROKEN OR CRUMBLING ROOTBALLS WILL BE REJECTED.
 2. REMOVING THE CONTAINERS WILL NOT BE AN EXCUSE FOR DAMAGED ROOTBALLS.



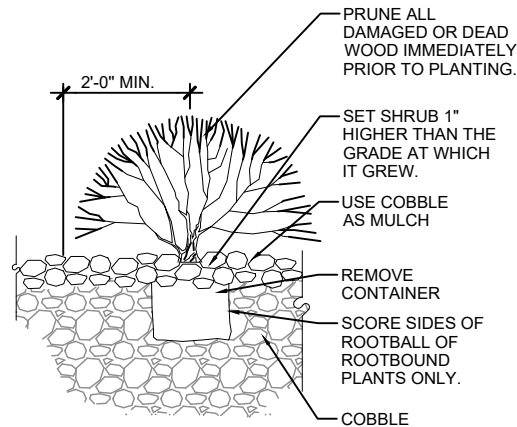
- NOTES:
1. REFER TO VARIOUS SPECIFIC CONTAINER PLANTING INSTALLATION DETAILS AND TO SPECIFICATIONS FOR MULCHING, BACKFILL, ETC.
 2. THIS INSTALLATION SHALL APPLY (AS NEEDED) TO ALL PLANT TYPES AND SIZES PLANTED ON SLOPES GREATER THAN 8:1.



1 D05 CONTAINER PLANTING IN NATIVE AREAS

2 D05 CONTAINER PLANTING ON A SLOPE

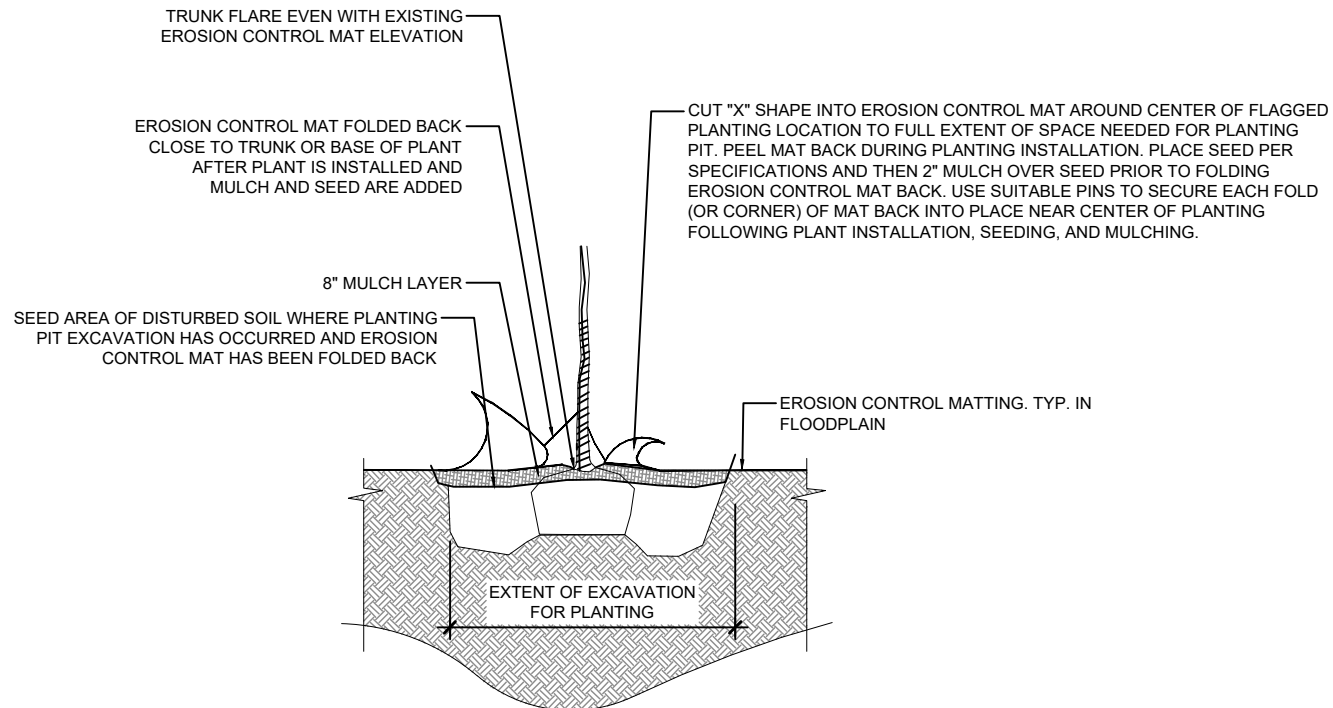
3 D05 TREE PLANTING (CONTAINERIZED)



- NOTES:
1. ANY BROKEN OR CRUMBLING ROOTBALLS WILL BE REJECTED.
 2. REMOVING THE CONTAINERS WILL NOT BE AN EXCUSE FOR DAMAGED ROOTBALLS.

4 D05 SHRUB PLANTING AT COBBLE ISLAND

- NOTES:
1. PLANT MATERIAL TO BE PLACED IN APPROPRIATE, FIELD VERIFIED ZONE. SEE RESTORATION PLANTING PLAN FOR DETAILED LOCATION AND ORGANIZATION OF RESTORATION PLANTING AND FEATURES.
 2. ALL PLANT MATERIAL TO BE INSPECTED AND APPROVED BY LANDSCAPE ARCHITECT/ECOLOGIST PRIOR TO INSTALLATION.
 3. ALL PLANTING ZONES TO BE MARKED IN FIELD AND APPROVED BY LANDSCAPE ARCHITECT/ECOLOGIST PRIOR TO PLANT INSTALLATION.
 4. SEE CIVIL FOR ADDITIONAL INFORMATION ON BOULDER EXTRACTION, INSTALLATION AND QUANTITIES.



- NOTES:
1. THIS DETAIL APPLIES TO ALL PLANTING (TREE OR SHRUB) IN FLOODPLAIN AREAS WHERE EROSION CONTROL MAT EXISTS.
 2. REFERENCE TREE AND SHRUB PLANTING DETAILS FOR PLANT INSTALLATION.

5 D05 EROSION CONTROL BLANKET MODIFICATIONS (CONTAINERIZED PLANTS)

CRYSTAL RIVER RESTORATION AND WEAVER DITCH EFFICIENCY PROJECT CONTAINERIZED PLANTING DETAILS

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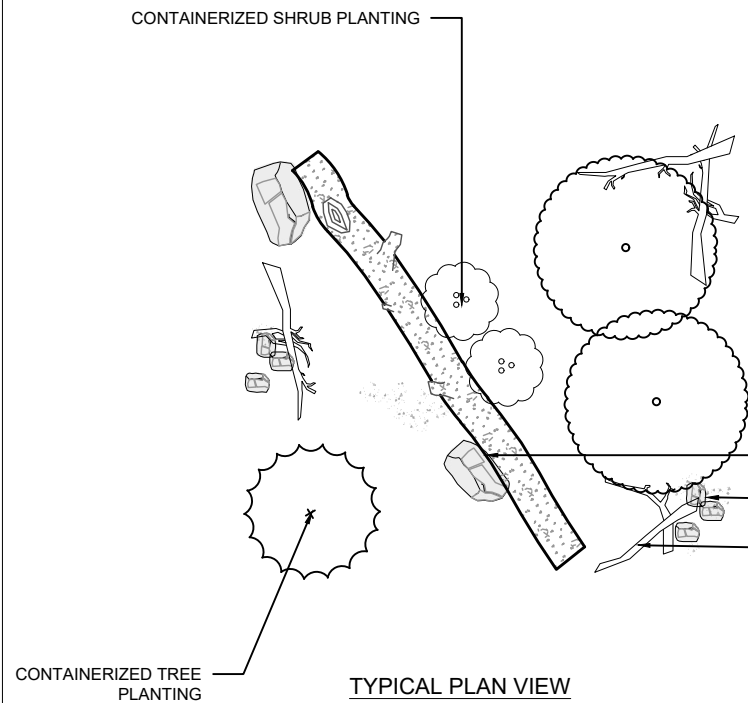
PROJECT NAME AND ADDRESS

Crystal River Restoration
and Weaver Ditch Efficiency Project
Carbondale, CO 81623

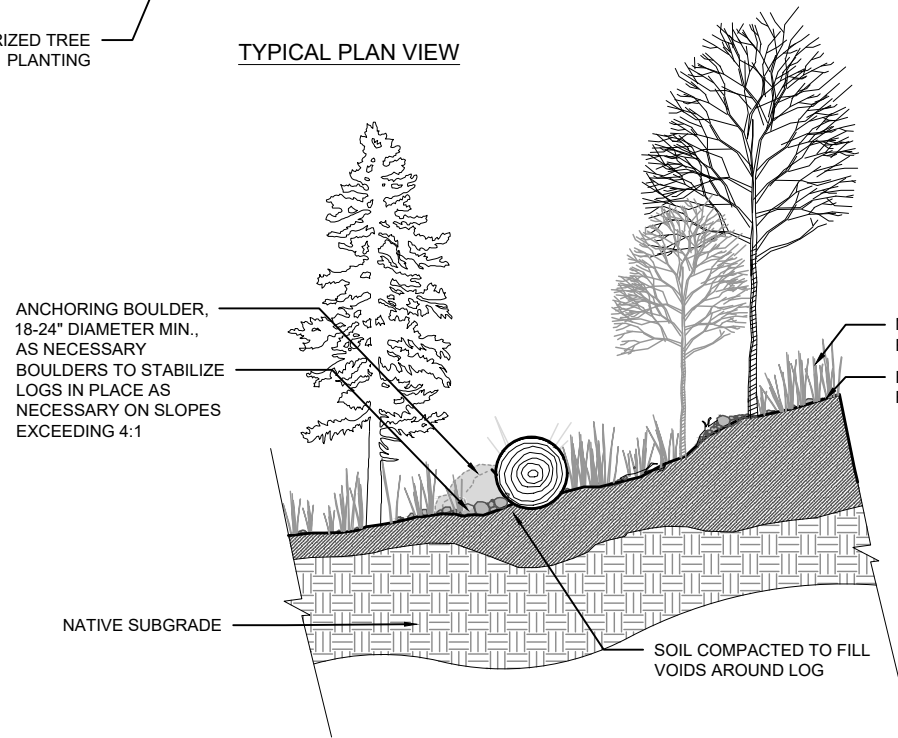
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Date	AUG 2021		
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- NOTES:
1. DETAIL HAS BEEN PROVIDED TO ILLUSTRATE DESIGN INTENT
 2. REFER TO GRADING PLANS FOR ALL GRADING INFORMATION.
 3. LOGS HARVESTED ON SITE. LOGS TO BE 12" (MIN) IN DIAMETER. CONTRACTOR TO COORDINATE WITH LANDSCAPE ARCHITECT/PROJECT ECOLOGIST TO LOCATE LOGS AND ESTABLISH PROTOCOL FOR HARVESTING.
 4. ALL LOGS TO HAVE ENDS CRUSHED TO SIMULATE NATURAL FALL AND MASK ALL SAW CUTS
 5. STICKS AND SMALL SCALE ROCKS ARE INTENDED TO BE PLACED ON TOP OF FINAL SURFACE TO NATURALIZE AND ROUGHEN THE RESTORATION SITE PER PROJECT ECOLOGIST
 6. REFER TO PLANTING DETAILS FOR ALL PLANTING INSTALLATION NOTES.
 7. REFER TO BOULDER DETAILS FOR INSTALLATION NOTES.



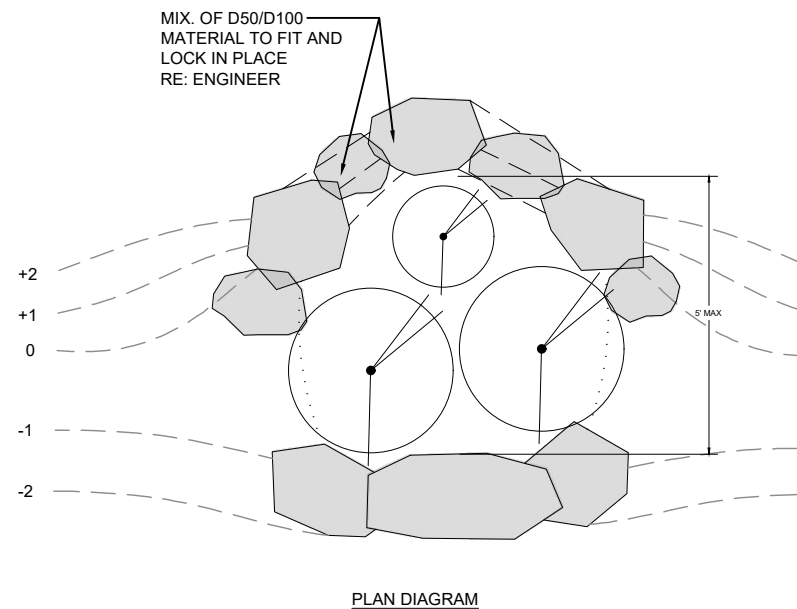
TYPICAL SECTION VIEW

1
D06

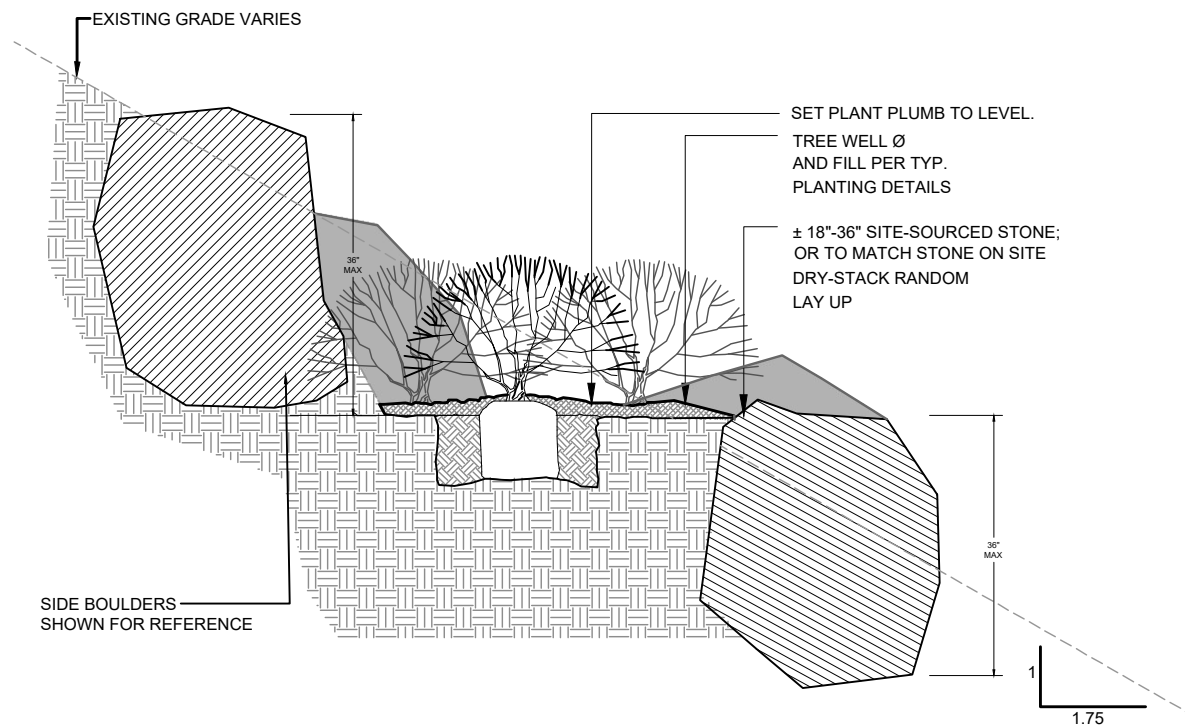
DEADFALL LOG PLACEMENT AND SURFACE NATURALIZATION

NTS

- NOTES:
1. PLANT MATERIAL TO BE PLACED IN APPROPRIATE, FIELD VERIFIED ZONE. SEE RESTORATION PLANTING PLAN FOR DETAILED LOCATION AND ORGANIZATION OF RESTORATION PLANTING AND FEATURES.
 2. ALL PLANT MATERIAL TO BE INSPECTED AND APPROVED BY LANDSCAPE ARCHITECT/ECOLOGIST PRIOR TO INSTALLATION.
 3. ALL PLANTING ZONES TO BE MARKED IN FIELD AND APPROVED BY LANDSCAPE ARCHITECT/ECOLOGIST PRIOR TO PLANT INSTALLATION.
 4. SEE CIVIL FOR ADDITIONAL INFORMATION ON BOULDER EXTRACTION, INSTALLATION AND QUANTITIES.



PLAN DIAGRAM



- NOTES:
1. REFER TO VARIOUS SPECIFIC CONTAINER PLANTING INSTALLATION DETAILS AND TO SPECIFICATIONS FOR MULCHING, BACKFILL, ETC.
 2. MINIMIZE USE AND APPEARANCE OF STONE RETAINING AROUND PLANTS AS MUCH AS POSSIBLE.
 3. BURY BOULDERS $\frac{1}{3}$ DIAMETER AROUND PLANTS.
 4. BOULDER RETAINING WALLS SHOULD BE NATURALIZED WHEREVER POSSIBLE BY VARYING DISTANCE, SPACING AND ELEVATIONS OF BOULDER PLACEMENT. CIVIL ENGINEER AND LANDSCAPE ARCHITECT TO APPROVE BOULDER PLACEMENT.

2
D06


CONTAINER PLANTING IN BOULDER RETAINING WALLS

NTS



CRYSTAL RIVER RESTORATION AND WEAVER DITCH EFFICIENCY PROJECT RESTORATION DETAILS

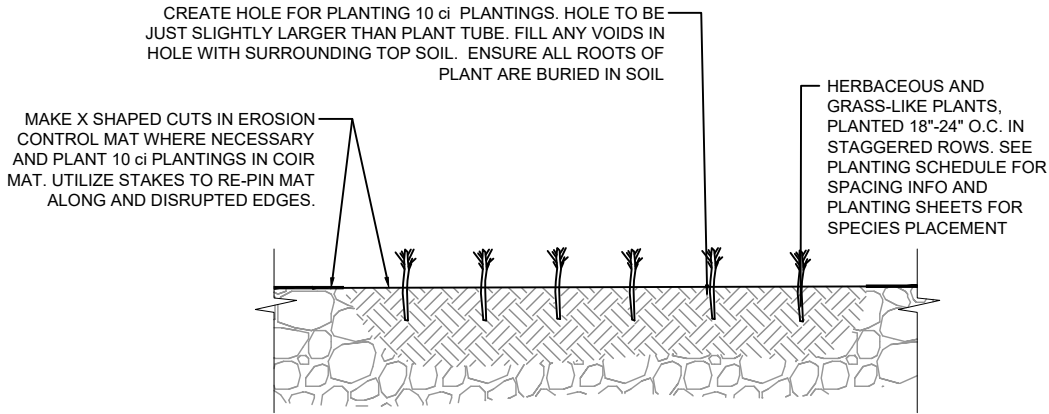
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 Town of Carbondale 511 Colorado Ave Carbondale, CO 81623

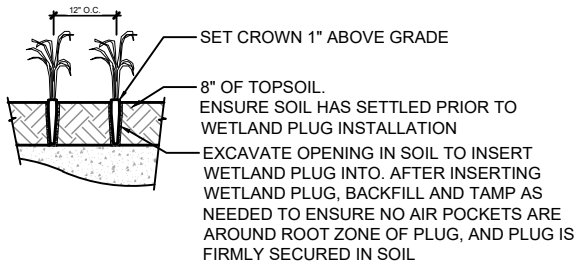
DESIGN FIRMS NAME AND ADDRESSES
 RiverRestoration.org, LLC P.O. Box 248 Carbondale, CO 81623 www.RiverRestoration.org
 311 Main St, Suite 102 Carbondale, CO 81623 970.963.6520 www.dhmdesign.com

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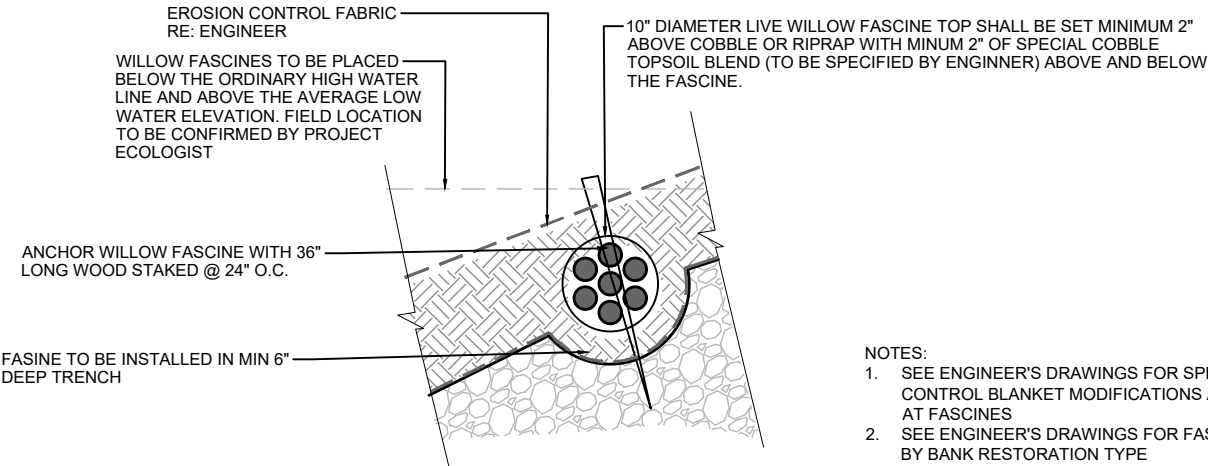
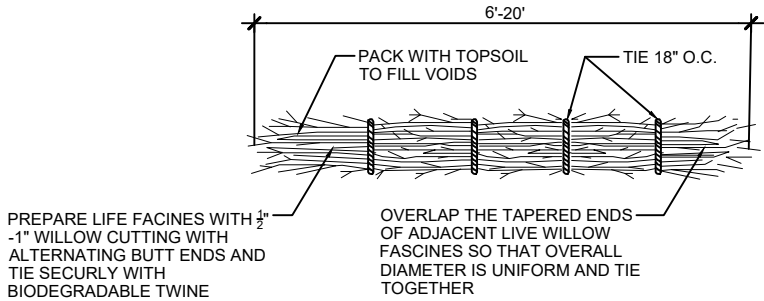


SECTION- PLANTING IN FLAT AREAS



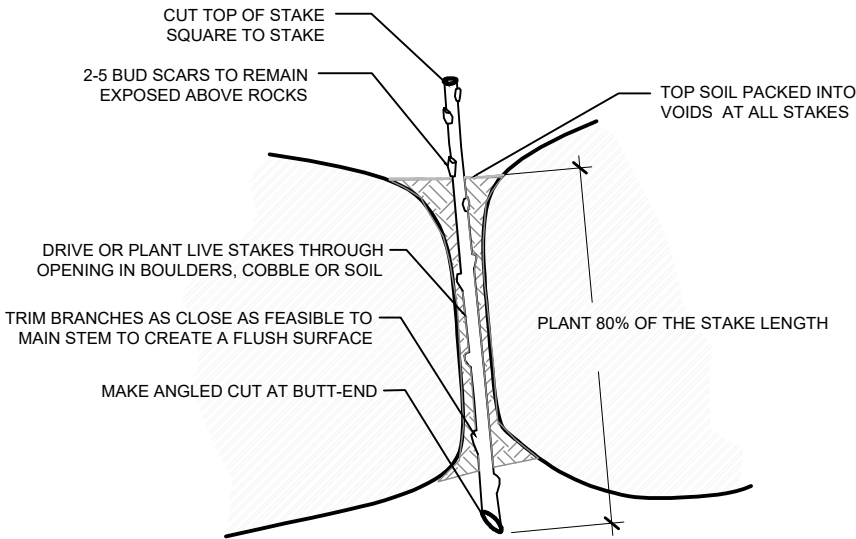
1 WETLAND PLUG INSTALLATION

- NOTES:
1. ALL WOODY AND HERBACEOUS PLANT MATERIAL TO BE PLACED IN APPROPRIATE, FIELD VERIFIED HYDROLOGIC ZONE.
 2. ALL WETLAND PLANT MATERIAL TO BE INSPECTED AND APPROVED BY LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
 3. ALL WETLAND PLANTING ZONES TO BE MARKED IN FIELD AND APPROVED BY LANDSCAPE ARCHITECT PRIOR TO PLANT INSTALLATION.
 4. COORDINATE WETLAND PLUG DELIVERY, WATER LEVELS PRE AND POST PLANTING, AND SEQUENCE OF WETLAND PLUG AND OTHER PLANT INSTALLATION WITH DHM DESIGN.



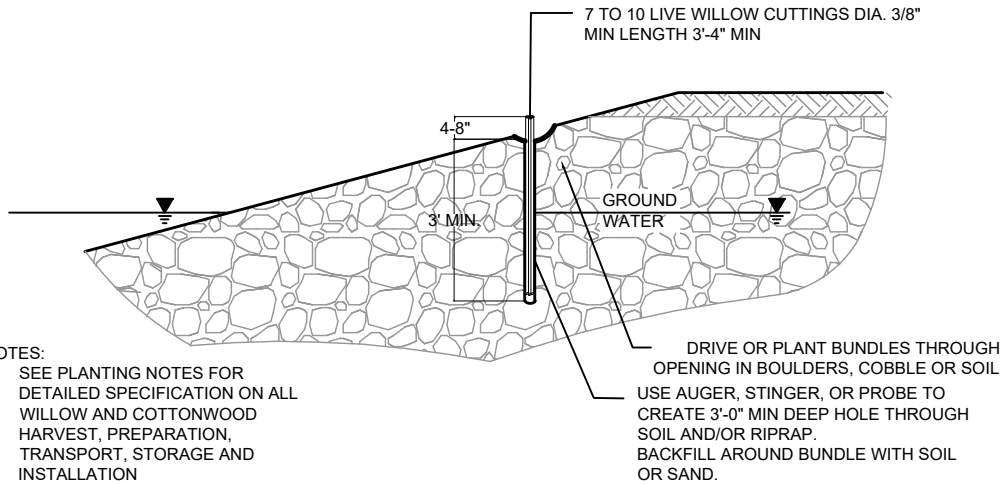
4 LIVE WILLOW FASCINES

- NOTES:
1. SEE ENGINEER'S DRAWINGS FOR SPECIFIC EROSION CONTROL BLANKET MODIFICATIONS AND REQUIREMENTS AT FASCINES
 2. SEE ENGINEER'S DRAWINGS FOR FASCINE INSTALLATION BY BANK RESTORATION TYPE



- NOTES:
1. SEE PLANTING NOTES FOR DETAILED SPECIFICATION ON ALL WILLOW AND COTTONWOOD HARVEST, PREPARATION, TRANSPORT, STORAGE AND INSTALLATION

2 LIVE STAKES




- NOTES:
1. SEE PLANTING NOTES FOR DETAILED SPECIFICATION ON ALL WILLOW AND COTTONWOOD HARVEST, PREPARATION, TRANSPORT, STORAGE AND INSTALLATION

3 WILLOW BUNDLE

- NOTES:
1. PLANT MATERIAL TO BE PLACED IN APPROPRIATE, FIELD VERIFIED ZONE. SEE RESTORATION PLANTING PLAN FOR DETAILED LOCATION AND ORGANIZATION OF RESTORATION PLANTING AND FEATURES.
 2. ALL PLANT MATERIAL TO BE INSPECTED AND APPROVED BY LANDSCAPE ARCHITECT/ECOLOGIST PRIOR TO INSTALLATION.
 3. ALL PLANTING ZONES TO BE MARKED IN FIELD AND APPROVED BY LANDSCAPE ARCHITECT/ECOLOGIST PRIOR TO PLANT INSTALLATION.
 4. SEE CIVIL FOR ADDITIONAL INFORMATION ON BOULDER EXTRACTION, INSTALLATION AND QUANTITIES.

CRYSTAL RIVER RESTORATION AND
WEAVER DITCH EFFICIENCY PROJECT
RESTORATION PLANTING DETAILS

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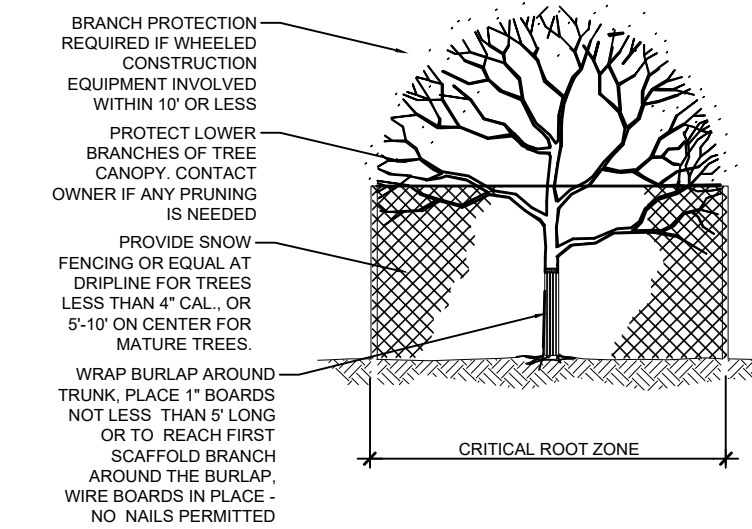
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Project	38047	Sheet
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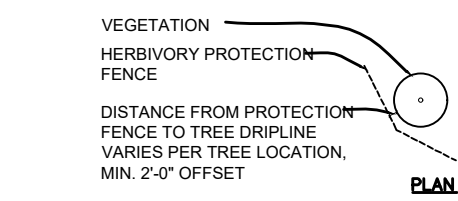
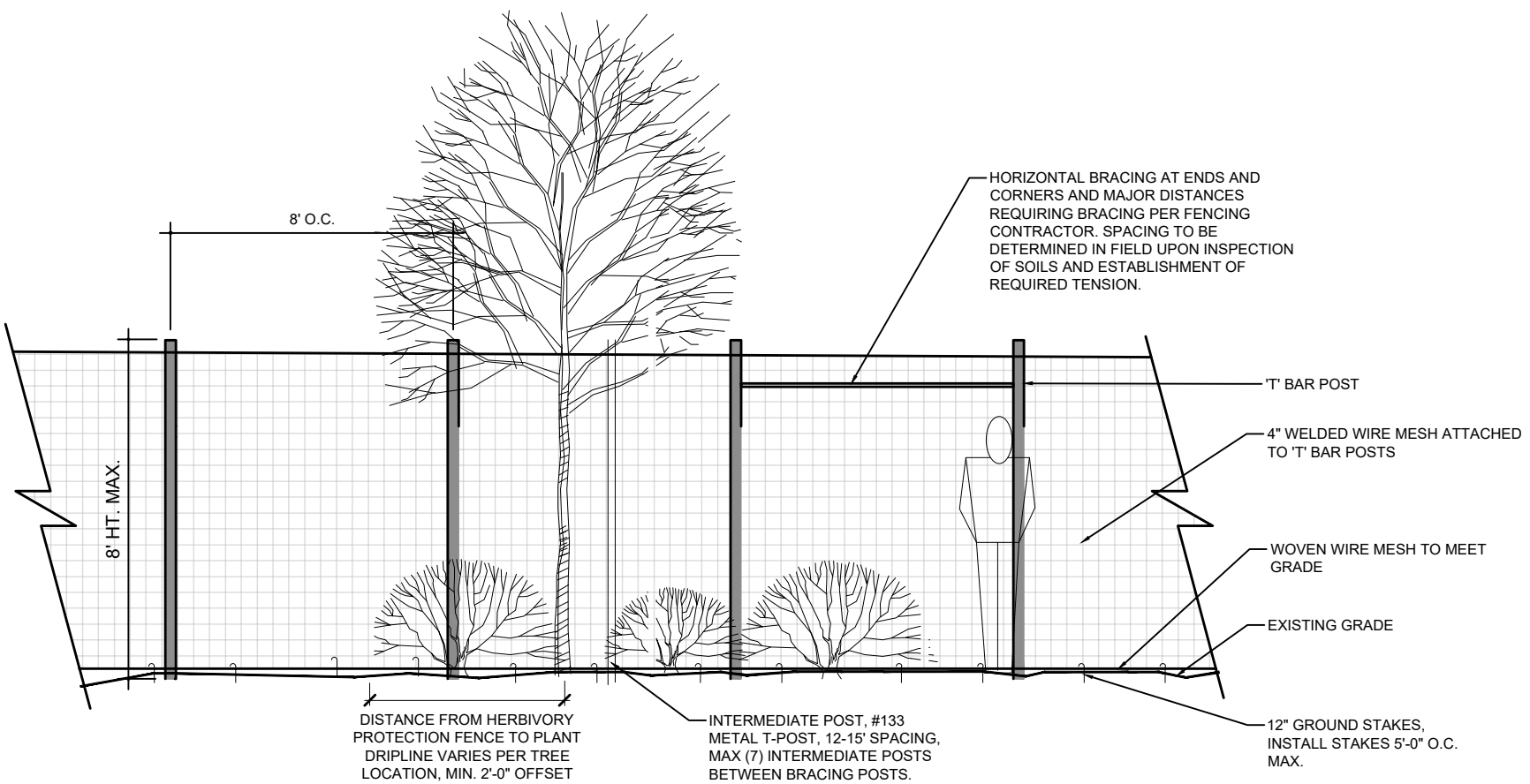


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- NOTES
1. CONTRACTOR WILL PRESERVE & PROTECT EXISTING TREES ON SITE, DURING DEMOLITION AND CONSTRUCTION OPERATIONS AS NECESSARY, INCLUDING CANOPIES, TRUNKS, AND ROOT SYSTEMS.
 2. TREES THAT ARE IN PERIL OF DAMAGE, OR TREES WITHIN 10' OF DEMOLITION OF CONSTRUCTION ACTIVITIES, OR TREES IDENTIFIED SPECIFICALLY BY OWNER, SHALL RECEIVE TREE PROTECTION.
 3. CONTRACTOR SHALL CONTACT OWNER IF FIELD CONDITIONS ARE SIGNIFICANTLY DIFFERENT THAT WHAT IS SHOWN ON THE PLANS.
 4. IT IS ACKNOWLEDGED THAT CONSTRUCTION AND DEMOLITION ACTIVITIES WILL OCCUR CLOSE TO TRUNKS AND OVER CRITICAL ROOT ZONES. HOWEVER, THE CONTRACTOR WILL AVOID ALL UNNECESSARY DAMAGE TO TREES.
 5. IN AREAS WHERE FENCING WILL INTERFERE WITH TRAIL CONSTRUCTION, OR WHERE FENCING CANNOT BE INSTALLED, WRAP TRUNK WITH BURLAP AS PER DETAIL. CONSULT WITH OWNER PRIOR TO APPLYING PROTECTIVE WRAP TO VERIFY CONDITIONS.
 6. ALL DISTURBED ROOTS SHALL BE TRIMMED TO BE CLEAN CUTS. DO NOT LEAVE BARE ROOTS EXPOSED. COVER WITH A BREATHABLE TEMPORARY COVER SUCH AS GEOTECH FABRIC AND A 1" LAYER OF SOIL IF ROOTS ARE TO BE UNCOVERED FOR MORE THAN ONE DAY. WATER AS NECESSARY TO KEEP ROOTS ALIVE.

1 EXISTING TREE PROTECTION NTS



- NOTES:
1. REFER TO LANDSCAPE PLANS FOR WILDLIFE PROTECTION FENCING PLAN
 2. FENCING PER AREAS OF PLANTING I.E. "PLANTING PODS".
 3. "T" BAR POSTS TO BE SPACED APPROPRIATELY TO ENSURE INTEGRITY OF FENCE.
 4. LOCATION OF FENCING TO BE APPROVED BY ECOLOGICAL TEAM IN FIELD.
 5. DRIVE 12" ALUMINUM STAKES EVERY 5'-0" O.C. MAX AT FENCE LINE. INSTALL VERTICALLY PLUMB.
 6. FENCING TO BE REMOVED ONCE PLANTING IS ESTABLISHED

2 WILDLIFE PROTECTION FENCING NOT TO SCALE

CRYSTAL RIVER RESTORATION AND
WEAVER DITCH EFFICIENCY PROJECT
FENCING DETAILS

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 Town of Carbondale 511 Colorado Ave Carbondale, CO 81623		
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Project	38047	Sheet
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RESTORATION NOTES

1. THE LANDSCAPE PLANS AND DETAILS ARE TO BE USED IN CONJUNCTION WITH CIVIL PLANS TO FORM COMPLETE INFORMATION REGARDING SITE WORK. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY COORDINATION WITH SUBCONTRACTORS AS REQUIRED TO ACCOMPLISH ALL CONSTRUCTION OPERATIONS.
2. THE CONTRACTOR IS RESPONSIBLE FOR WEED CONTROL UNTIL FINAL ACCEPTANCE. NOXIOUS VEGETATION SHALL BE CONTROLLED THROUGHOUT THE SEEDING ZONES AS WELL AS THE ENTIRE PROJECT SITE. THE AGGRESSIVE ESTABLISHMENT OF NEW PLANT MATERIAL IS INTENDED TO DISCOURAGE FUTURE NOXIOUS VEGETATION ENCROACHMENTS.
3. CONTRACTOR SHALL NOT WILLFULLY PROCEED WITH CONSTRUCTION AS DESIGNED WHEN IT IS OBVIOUS THAT UNKNOWN OBSTRUCTIONS, AREA DISCREPANCIES AND/OR GRADE DIFFERENCES EXIST THAT MAY NOT HAVE BEEN KNOWN DURING DESIGN. SUCH CONDITIONS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE AN AUTHORIZED REPRESENTATIVE. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ALL NECESSARY REVISIONS DUE TO FAILURE TO GIVE SUCH NOTIFICATIONS.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING HIMSELF FAMILIAR WITH ALL UNDERGROUND UTILITIES, PIPES AND STRUCTURES. CONTRACTOR SHALL TAKE SOLE RESPONSIBILITY FOR COSTS INCURRED DUE TO DAMAGE AND THE REPLACEMENT OF SAID UTILITIES. LOCATION OF EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO ACTUAL CONSTRUCTION. FOR INFORMATION CONTACT: UTILITY NOTIFICATION CENTER OF COLORADO, 303.232.1991 OR 8-1-1.
5. ALL EXISTING IMPROVEMENTS TO REMAIN SHALL BE PROPERLY AND ADEQUATELY PROTECTED FROM DAMAGE DURING CONSTRUCTION OPERATIONS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RESTORE TO THE ORIGINAL CONDITION ANY EXISTING ITEMS THAT ARE DAMAGED OR DISTURBED IN ANY WAY.
6. PROTECT ALL EXISTING HEALTHY, NATIVE VEGETATION, EXCEPT WHERE REMOVAL IS DEEMED NECESSARY DUE TO DISTURBANCE CAUSED BY BANK STABILIZATION ACTIVITIES. ANY NON-NATIVE VEGETATION SHOULD BE REMOVED IN SPECIFIC TARGETED RESTORATION AREAS. PROVIDE CONSTRUCTION FENCING AROUND THE DRIP LINE OF EACH TREE OR GROUP OF TREES TO REMAIN. DO NOT STORE EQUIPMENT OR SUPPLIES INSIDE FENCE LINE. SEE CIVIL PLANS FOR TREE REMOVAL AND PROTECTION IDENTIFICATION AND GUIDELINES.

LANDSCAPE MATERIALS

1. CONTRACTOR SHALL USE LOCAL BEST MANAGEMENT PRACTICES FOR OBTAINING AND INSTALLING LANDSCAPE MATERIALS. COMPLETE THE WORK USING SKILLED PERSONNEL, PROFICIENT IN THE TRADES REQUIRED & IN A NEAT , ORDERLY AND RESPONSIBLE MANNER & WITH RECOGNIZED STANDARDS OF WORKMANSHIP.
2. ALL PLANTS TO BE APPROVED BY LANDSCAPE ARCHITECT/ECOLOGIST PRIOR TO INSTALLATION. NOTIFY FOR INSPECTION AND APPROVAL OF PLANT MATERIAL AT TIME OF DELIVERY. ANY PLANT NOT MEETING APPROVAL MAY BE REJECTED AT ANY TIME PRIOR TO FINAL ACCEPTANCE.
3. PLANT MATERIAL MUST MEET CURRENT LANDSCAPE NURSERY STANDARDS &/OR ANSI Z60.1.
4. IF PLANTS ARE NOT AVAILABLE, NOTIFY LANDSCAPE ARCHITECT/ECOLOGIST FOR APPROVAL OF CHANGE BEFORE MAKING SUBSTITUTIONS.
5. LANDSCAPE ARCHITECT OR PROJECT ECOLOGIST WILL PROVIDE PLANT LAYOUT DIRECTION FOR PLANTS IN TERMS OF CONCEPT FOR GENERAL LAYOUT. PLANTING SYMBOLS AND GROUPINGS ARE REPRESENTED HERE AS GENERAL LAYOUT. ACTUAL ARRANGEMENT TO BE LAID OUT BY LANDSCAPE ARCHITECT OR PROJECT ECOLOGIST IN THE FIELD WITH LANDSCAPE CONTRACTOR. PLANTINGS ARE INTENDED TO FLOW TOGETHER IN A CONTEMPLATED ECOLOGICAL SYSTEM. BOUNDARIES BETWEEN GROUPS OF PLANTS ON PLANS ARE REPRESENTED WITH HARDER EDGES THEN WILL BE ACCOMPLISHED IN THE FIELD.
- 5.1. MINOR FIELD ADJUSTMENTS TO THE PLANTING PLANS MAY BE NECESSARY BASED ON THE ACTUAL LOCATION OF EXISTING VEGETATION, WALKWAYS AND SIMILAR FEATURES. CONTRACTOR MUST OBTAIN APPROVAL FROM THE LANDSCAPE ARCHITECT/ECOLOGIST E PRIOR TO ADJUSTING THE DESIGN.

- 5.2. PROPOSED SHRUB AND TREE LOCATIONS TO BE FIELD ADJUSTED TO ENHANCE EXISTING WOODY VEGETATION.
6. CONTRACTOR SHALL FOLLOW THE LANDSCAPE PLAN. ANY DISCREPANCIES BETWEEN THE PLAN AND FIELD CONDITIONS SHALL BE REPORTED TO THE LANDSCAPE ARCHITECT/ECOLOGIST. BEFORE PROCEEDING WITH IF THERE IS A DISCREPANCY BETWEEN THE PLANT COUNTS ON THE CALL-OUTS ON THE PLANS & THE ACTUAL NUMBER OF PLANT SYMBOLS DEPICTED ON THE PLANS, THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING THE ACTUAL NUMBER OF PLANTS AS SYMBOLICALLY DEPICTED ON THE PLANS.
7. MULCH:

7.1. DO NOT BURY PLANTS WITH MULCH.

7.2. PULL MULCH BACK 6 INCHES FROM TRUNK OF TREES AS PER DETAILS.

7.3. MULCH RINGS AROUND CONTAINERIZED PLANTS IN NATIVE AREAS SHALL BE MINIMUM 8' ON CENTER.
8. TO THE MAXIMUM EXTENT POSSIBLE, TOPSOIL THAT IS REMOVED DURING CONSTRUCTION ACTIVITY SHALL BE STOCKPILED ON-SITE FOR LATER USE.
9. BOUNDARY OF RESTORATION SEEDING TO BE OUTLINED IN THE FIELD BY THE LANDSCAPE ARCHITECT/ECOLOGIST. APPLY SEED TO LIMITS OF DISTURBANCE (SEE PLANT LIST FOR SEED MIX AND PLANS FOR DISTRIBUTION OF TYPES). IMMEDIATELY FOLLOWING SEEDING OPERATIONS OF SPECIFIC ZONES, THE AREAS SHALL BE PROTECTED FROM TRAFFIC OR OTHER ACTIVITIES.
10. THE CONTRACTOR SHALL STAKE ALL KEY RESTORATION AREAS AND SHALL RECEIVE APPROVAL FROM THE PROJECT LANDSCAPE ARCHITECT/ECOLOGIST PRIOR TO PROCEEDING WITH CONSTRUCTION.
11. WHERE PLANT MATERIALS INDICATED INTO NATIVE UNDISTURBED SOILS, MATERIAL SHOULD BE INSTALLED TO MINIMIZE DISTURBANCE TO ADJACENT VEGETATION AND INSTALLED BY HAND WITH HAND TOOLS. HAND SEED ALL DISTURBED SOIL AND FOLLOW SEEDING PROTOCOL AS PROVIDED IN THE SEEDING RESTORATION NOTES.

SOIL AMMENDMENTS AND GRADING

1. CONTRACTOR IS TO CONDUCT A SOIL NUTRIENT ANALYSIS PRIOR TO ANY SOIL AMENDMENTS. THIS ANALYSIS WILL FORM THE BASELINE DATA FOR ANY FUTURE APPLICATION OF NUTRIENTS.
2. ALL AREAS TO BE SEEDED WILL HAVE THE TOP SOIL LOOSENEED TO A DEPTH OF 4 TO PREPARE THE SEEDBED. APPLY GRANULAR BIOSOL OR TRITON RICHLAWN AT THE MANUFACTURER'S SPECIFICATIONS PRIOR TO SEED INSTALLATION.
3. CONTRACTOR TO SUBMIT A SOIL TEST REPORT TO BE APPROVED BY PROJECT ECOLOGIST.
4. GRADING

4.1. LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR ROUGH GRADING, AND FINE GRADING AFTER SOIL AMENDMENT OPERATIONS TO ALLOW FOR SEEDING, STRAW MULCH, AND HYDROMULCH INSTALLATION AND EROSION CONTROL BLANKETS WHERE INDICATED.

4.2. CONTRACTOR SHALL OBTAIN APPROVAL OF THE LANDSCAPE ARCHITECT/ECOLOGIST OF THE GRADING PRIOR TO PLANTING.

IRRIGATION

1. REFERENCE IRRIGATION PLAN FOR ALL IRRIGATION INFORMATION.
2. TEMP IRRIGATION TO BE UTILIZED AND MAINTAINED AT A MINIMUM OF TWO YEARS STARTING IN THE 2022 GROWING SEASON
3. IRRIGATION SYSTEM TO BE MAINTAINED AND MONITORED BY THE TOWN OF CARBONDALE

CRYSTAL RIVER RESTORATION AND
WEAVER DITCH EFFICIENCY PROJECT
GENERAL RESTORATION NOTES
MATERIALS SCHEDULE

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Town of Carbondale
511 Colorado Ave
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RESTORATION NOTES cont.

RIPARIAN VEGETATION AND WETLAND CUTTINGS/STAKES NOTES

SUMMARY

RIPARIAN PLANTING COVERS THE RIVER BANKS FROM THE EDGE OF WATER AT OR NEAR LOWFLOW WATER SURFACE ELEVATION UP TO AND INCLUDING PART OF THE OVBANK/FLOODPLAIN. AREAS DESIGNATED FOR RIPARIAN PLANTING OF CONTAINERIZED MATERIALS AND WILLOW STAKES ARE SHOWN ON THE DRAWINGS AND PLANT SCHEDULES.

SOURCE MATERIAL

- CONTAINERIZED PLANTS: CONTAINERIZED PLANT MATERIALS WILL BE GROWN FROM SEED OR CUTTINGS SOURCED WITHIN THE ROCKY MOUNTAIN REGION.
- WILLOW CUTTINGS / STAKES: CUTTINGS / STAKES WILL BE COLLECTED IN A MANNER CONFORMING TO FEDERAL AND STATE LAW. MATERIALS WILL BE COLLECTED WITHIN THE STATE OF COLORADO, IN THE SAME WATERSHED AND AREAS OF SIMILAR ELEVATION AND HYDROLOGY TO THOSE EXISTING AT THE PLANTING SITE (I.E. ECOTYPIC MATERIAL).
- COLLECTIONS MADE ON PUBLIC LANDS MUST BE PERMITTED AND CARRIED OUT IN ACCORDANCE WITH STATE AND FEDERAL LAW.

INSTALLATION

- CONTRACTOR SHALL BE ABLE TO DEMONSTRATE EXTENSIVE EXPERIENCE WITH PROJECTS OF SIMILAR HYDROLOGY, SPECIES COMPOSITION AND SOIL CONDITIONS.
- CONTRACTOR SHALL BE ABLE TO DEMONSTRATE EXTENSIVE EXPERTISE IN THE ECOLOGY OF NATIVE PLANTS, PARTICULARLY IN THE IDENTIFICATION AND HYDROLOGIC PREFERENCES OF RIPARIAN WOODY SPECIES
- CONTRACTOR SHALL BE ABLE TO DEMONSTRATE EXTENSIVE EXPERIENCE IN THE HARVEST AND MAINTENANCE OF VIABLE WILLOW STAKES PRIOR TO PLANTING.

DELIVERY / TRANSPORT

- ALL PLANT MATERIALS ARE TO BE DELIVERED DIRECTLY TO THE PLANTING SITE FROM STORAGE OR THE NURSERY FACILITY.
- PLANT MATERIALS ARE TO BE DELIVERED TO THE PLANTING SITE IN THE SPECIES, SIZE AND QUANTITIES IDENTIFIED BY THIS DOCUMENT. PLANT MATERIALS WILL BE ACCOMPANIED BY A BILL OF LADING STATING SAME.
- THE SUBCONTRACTOR SHALL COUNT AND CONFIRM THE DELIVERY IS ACCURATE AND INSPECT PLANT MATERIAL TO ENSURE THE PLANT MATERIAL IS IN GOOD CONDITION AND HEALTH.
- ALL PLANTS WILL BE CHECKED AND APPROVED BY THE DESIGNER & CONTRACTOR PRIOR TO PLANTING TO ENSURE CONFORMITY OF SPECIES, QUALITY AND QUANTITY. PLANT MATERIAL SHALL:
 - BE WELL SHAPED, VIGOROUS AND HEALTHY WITH A WELL BRANCHED ROOT SYSTEM, FREE FORM DISEASE, HARMFUL INSECTS AND INSECT EGGS, SUN-SCALD INJURY, DISFIGUREMENT OR ABRASION;
 - BE CHECKED FOR UNAUTHORIZED SUBSTITUTION AND EXHIBIT TYPICAL FORM OF BRANCH TO HEIGHT RATIO;
 - MEET THE CONTAINER, CALIPER AND HEIGHT MEASUREMENTS SPECIFIED AND NOT BE CROPPED;
 - SHOW NEW FIBROUS ROOTS AND MAINTAIN ITS SHAPE WHEN REMOVED FROM THE CONTAINER AND NOT HAVE BROKEN OR CRACKED ROOTBALLS, OR BROKEN CONTAINERS;
 - CONFORM TO THE AMERICAN ASSOCIATION OF NURSERYMEN'S AMERICAN STANDARD FOR NURSERY STOCK.
- IF WITHIN 24 HOURS OF DELIVERY THE DESIGNER DETERMINES THAT THE PLANT MATERIAL DOES NOT MEET THESE SPECIFICATIONS, THE UNACCEPTABLE MATERIAL SHALL BE REJECTED, REMOVED, AND REPLACED AT NO EXPENSE TO THE CLIENT.
- IF OVER THE COURSE OF THE PROJECT THE DESIGNER DISCOVERS THE CONTRACTOR HAS FAILED TO PROPERLY STORE, INSTALL & MAINTAIN ANY PREVIOUSLY ACCEPTED PLANT MATERIAL, SAID MATERIAL WILL BE REMOVED AND REPLACED WITH ACCEPTABLE MATERIAL AT THE EXPENSE OF THE SUBCONTRACTOR.
- DELIVERY IS TO BE MADE USING A VEHICLE WITH AN ENCLOSED, COVERED CARGO AREA TO PREVENT DAMAGE FROM WIND, RAIN, HAIL AND DEBRIS.
- CONTAINERIZED MATERIALS ARE TO BE SECURED IN A RACK SYSTEM DESIGNED SPECIFICALLY FOR THE TRANSPORTATION OF PLANTS, IN ORDER TO PREVENT DAMAGE CAUSED BY SHIFTING LOADS.
- PLANT MATERIAL SHALL BE STAGED BY SPECIES IN SEPARATE AND IDENTIFIABLE GROUPS DURING UNLOADING.
- PLANT MATERIAL SHALL BE IDENTIFIED WITH ATTACHED, DURABLE, WATERPROOF LABELS AND WEATHER RESISTANT INK, STATING THE CORRECT SCIENTIFIC AND COMMON NAME.

STORAGE

- CUTTINGS / STAKES: CUTTINGS / STAKES MUST BE STORED AT 32-40 DEGREES FAHRENHEIT IN A HUMID, DARK ENVIRONMENT. IMMEDIATELY AFTER HARVESTING, WILLOW STAKES SHALL BE FULLY SUBMERGED AND STORED IN A COLD/COOL WATER (EITHER IN A TANK OR NATURAL WATER BODY) IN A DARK OR SHADED LOCATION FOR A MINIMUM OF 5 TO 7 DAYS. FAILURE TO PROPERLY STORE AND HYDRATE WILLOW CUTTINGS OR IF CUTTINGS LINGER ON SITE MORE THAN 2 DAYS BEFORE PLANTING WILL BE REPLACED BY THE CONTRACTOR AT NO COST TO THE CLIENT IF SAID CUTTINGS FAIL TO THRIVE.
- CONTAINERIZED MATERIALS: PRIOR TO PLANTING, CONTAINERIZED MATERIALS MUST BE STORED IN A LICENSED, QUALIFIED NURSERY (SEE 1.02, B-1). MATERIALS SHALL BE PROPERLY PRUNED IN ACCORDANCE WITH RECOGNIZED STANDARD PRACTICE. ROOT SYSTEMS WILL BE KEPT MOIST AT ALL TIMES.
- PLANT MATERIAL SHALL BE KEPT SHADED, WATERED AND MAINTAINED IN GOOD HEALTH DURING TRANSPORT AND THEREAFTER UNTIL THE PROJECT IS APPROVED.
- COMMERCIALY AVAILABLE PLANT MATERIALS NOT INSTALLED WITHIN 5 DAYS OF ARRIVAL AT THE SITE SHALL BE STORED AND PROTECTED IN DESIGNATED TEMPORARY ON-SITE NURSERY AREA. NURSERY GROWN PLANT MATERIAL SHALL NOT BE STORED ON SITE LONGER THAN 15 CALENDAR DAYS. PLANT MATERIAL SHALL BE PROTECTED FROM DIRECT EXPOSURE TO WIND AND SUN, KEPT SHADED AND MOIST BY WATERING, EITHER BY HAND OR A TEMPORARY IRRIGATION SYSTEM UNTIL INSTALLED.

HANDLING

- CUTTINGS / STAKES: CARE WILL BE TAKEN TO AVOID DAMAGE TO BUDS DURING HANDLING. BARK MUST NOT BE SEPARATED FROM THE CAMBIUM LAYER. ONLY THE NUMBER OF WILLOW STAKES THAT CAN BE PLANTED IN ONE DAY WILL BE DELIVERED TO THE PLANTING SITE.
- CONTAINERIZED MATERIALS: DO NOT INJURE PLANTS BY DROPPING THEM OR HANDLING THEM BY THE TRUNK, STEMS OR FOLIAGE. CONTAINERIZED MATERIALS ARE TO BE HAND-CARRIED BY THE CONTAINER ONLY. THESE MATERIALS SHALL BE KEPT MOIST AT ALL TIMES AND NOT ALLOWED TO DRY OUT.

MATERIALS

WILLOW STAKES

- IDENTIFICATION: WILLOW STAKE COLLECTION MUST BE PERFORMED BY OR UNDER THE SUPERVISION OF AN ECOLOGIST OR BOTANIST EXPERIENCED IN THE IDENTIFICATION OF NATIVE WILLOW SPECIES.
- COLLECTION: WILLOW STAKE COLLECTION/HARVESTING SHALL BE PERFORMED WHILE WILLOWS ARE DORMANT ACCORDING TO THE FOLLOWING PRIORITY:
 - IMMEDIATELY PRIOR TO SETTING BUD (APPROXIMATELY MID - MARCH TO MID - APRIL; THEN
 - FALL DORMANT SEASON (APPROXIMATELY NOV.1 TO MID-DEC) IMMEDIATELY AFTER LEAF DROP.
- QUALITY: CUTTINGS SHOULD ONLY BE HARVESTED FROM HEALTHY, LIVE PLANTS THAT ARE AT LEAST TWO YEARS OLD AND ARE: RELATIVELY STRAIGHT, COVERED WITH SMOOTH BARK, AND HAVE NO INSECT/PATHOGEN DAMAGE. NO MORE THAN ONE-THIRD OF A LIVE PLANT SHOULD BE HARVESTED AND STEMS SHOULD BE HARVESTED EVENLY THROUGH THE STAND AND WITH INDIVIDUAL WILLOW PLANTS (I.E. DO NOT REMOVE $\frac{1}{3}$ OF THE STEMS FROM THE SAME SIDE OF AN INDIVIDUAL PLANT).
- SIZE:
 - CUTTINGS SHOULD BE A MINIMUM OF A HALF INCH IN DIAMETER TO ENSURE SUFFICIENT ENERGY FOR ROOTING. CUTTINGS SHALL BE 24-36 INCHES IN LENGTH. THE BOTTOM OF THE STEMS TO BE CUT WITH A CLEAN DIAGONAL CUT TO DIFFERENTIATE THE ROOTING END FROM THE ABOVE GROUND END, AND TO AID IN INSTALLATION.
 - WHEN PLANTED, CUTTINGS SHOULD EXTEND 6-8 INCHES INTO THE WATER TABLE OR CAPILLARY FRINGE.
 - THREE QUARTERS OF THE CUTTING SHOULD BE BELOW GROUND TO PREVENT BEING DISLODGED DURING HIGH FLOWS.
- FORM: ALL SIDE BRANCHES WILL BE REMOVED, AVOIDING ANY DAMAGE TO THE STEM. THE TERMINAL BUD SHALL BE TRIMMED FROM STAKES WITH A HORIZONTAL CUT. THIS WILL DIVERT ENERGY TO THE LATERAL BUDS FOR EFFICIENT ROOT AND STEM SPROUTING.
- BUNDLING: AT THE TIME OF HARVESTING, WILLOW STAKES SHALL BE BUNDLED IN GROUPS OF 10, 25, OR 50 BY LIKE SPECIES FOR EASE OF COUNTING.
- SOAK WILLOWS PRIOR TO PLANTING, MAINTAINING WATER CONTACT WITH 50-80% OF THE LENGTH OF THE CUTTING.
- INTERIM MAINTENANCE: HARVESTED WILLOW CUTTINGS SHOULD BE STORED AND MAINTAINED AT A QUALIFIED, LICENSED NURSERY FACILITY IN THE MANNER DESCRIBED IN 1.03, B-1 FOR NO MORE THAN SIXTY DAYS PRIOR TO PLANTING.

PLANTING/INSTALLATION

- CUTTINGS: PLANTING OF RIPARIAN CUTTINGS SHALL OCCUR IN THE SPRING BEFORE BUD BREAK, AND AS SOON AS GROUND CONDITIONS PERMIT OR IMMEDIATELY AFTER SPRING RUN-OFF.

SITE PREPARATION

- SITE SHALL BE FINISHED GRADED, TOPSOIL PLACED, AND FREE OF DEBRIS AND HEAVY EQUIPMENT IN PLANTING AREAS PRIOR TO THE COMMENCEMENT OF PLANTING OPERATIONS.
- CONTRACTOR SHALL BECOME FAMILIAR WITH SITE HYDROLOGY AND SOIL CONDITIONS PRIOR TO BEGINNING RIPARIAN SEEDING AND PLANTING WORK.
- PLANT LOCATIONS WILL BE DETERMINED PRIMARILY BY THE PROJECT DRAWINGS. PRECISE LOCATIONS FOR INDIVIDUAL PLANTS AND WETLAND SHRUBS WILL BE DETERMINED BY THE ECOLOGIST BASED ON IN-FIELD MACRO- AND MICRO-SITE AND HYDROLOGIC CONDITIONS AND PLANT ZONATION REQUIREMENTS.
- PLANTING SITES WILL BE FLAGGED OR SPRAYED WITH GROUND PAINT BY THE ECOLOGIST AS TO PRECISE PLANT LOCATIONS PRIOR TO THE OCCURRENCE OF PLANTING WORK.

WILLOW & WILLOW STAKE & BUNDLE PLANTING PROCEDURE

- PLANTING HOLES FOR WILLOW STAKES SHALL BE CREATED WITH A PUNCH BAR, STINGER OR SIMILAR EQUIPMENT AS DESIGNATED BY THE CONTRACTOR. HOLES SHALL BE DEEP ENOUGH TO EXTEND WILLOW STAKE $\frac{2}{3}$ OF THE LENGTH OF THE CUTTING INTO THE GROUND (PRIOR TO ANY NECESSARY TRIMMING).
- CUTTINGS SHALL BE PLANTED IN A MANNER SO AS TO EXTEND ABOVE COMPETING HERBACEOUS VEGETATION, BUT SHOULD BE SHORT ENOUGH TO MINIMIZE THE CHANCE OF BEING RIPPED FROM THE GROUND BY HIGH FLOWS OR WIND - BLOWN DEBRIS. THE LENGTH OF CUTTINGS SHOULD BE TRIMMED TO WITHIN 6 TO 9 INCHES OF THE GROUND. TRIMMING THE TOPS OF WILLOW STAKES DOES NOT RELIEVE THE CONTRACTOR FROM INSTALLING $\frac{2}{3}$ RDs OF THE CUTTING IN THE GROUND.
- ONE WILLOW CUTTING SHALL BE PLACED IN EACH HOLE. SPACING SHOULD BE 18"-24" O.C. IN DESIGNATED AREAS, AND SHOULD BE PLACED RANDOMLY TO APPEAR MORE NATURAL.
- WILLOW BUNDLES WILL BE INSTALLED PER DETAIL. WITH MULTIPLE STAKES INSERTED INTO EACH HOLE. LOCATION TO BE FIELD VERIFIED BY LANDSCAPE ARCHITECT OR ECOLOGIST.
- AFTER PLANTING, THE HOLE SHALL BE FILLED WITH A THICK MUD / WATER SLURRY IN ORDER TO PREVENT THE FORMATION OF AIR POCKETS AROUND THE STAKE.
- AT LEAST TWO ROWS OF STAKES SHALL BE USED IN A PARTICULAR AREA TO COVER THE RANGE OF WATER LEVELS. ROWS SHALL BE STAGGERED TO CREATE DIAGONAL ON CENTER SPACING.
- QUALIFIED CONTRACTOR PERSONNEL WITH EXTENSIVE EXPERTISE IN THE FIELD OF ECOLOGICAL RESTORATION SHALL REMAIN ON - SITE TO SUPERVISE PLANTING CREWS AND TO PROMPTLY

LIVE WILLOW FASCINES

- A CONTINUOUS FASCINE SHALL BE BUILT IN A PREPARED TRENCH, AS OPPOSED TO INDIVIDUAL WILLOW BUNDLES LAID END-TO-END. CONTRACTOR SHALL CONTACT ENGINEER OR PLANT ECOLOGIST PRIOR TO BEGINNING THE WORK TO ARRANGE FOR OVERSIGHT AND GUIDANCE DURING THE CONSTRUCTION OF FASCINES. TRIMMINGS OF YOUNG SUCKERS AND SOME SMALLER BRANCHES MAY BE INCLUDED IN THE FASCINES, BUT HALF OF THE STEMS IN THE FASCINES SHALL BE AT LEAST ONE-HALF (1/2) INCH IN DIAMETER. COMPLETE LIVE WILLOW FASCINES SHALL BE AT LEAST TEN (10) INCHES IN DIAMETER, WITH THE GROWING TIPS AND BUTT ENDS ORIENTED IN ALTERNATING DIRECTIONS. CUTTINGS SHALL BE STAGGERED IN THE FASCINES SO THAT THE GROWING TIPS ARE EVENLY DISTRIBUTED THROUGHOUT THE LENGTH OF THE BUNDLE. SOIL SHALL BE WORKED INTO THE FASCINES TO FILL THE VOIDS (STEMS SHALL BE IN CLOSE CONTACT) AND FASCINES SHALL BE COMPRESSED AND TIGHTLY TIED WITH BIODEGRADABLE ROPE OR TWINE OF SUFFICIENT STRENGTH AND DURABILITY. FASCINES SHALL BE TIED AT TWO- (2-) FOOT INTERVALS.

- THE TRENCH SHALL BE DUG INTO THE BASE OF THE SLOPE APPROXIMATELY ONE- (1-) FOOT DEEP OR AS SPECIFIED IN DRAWINGS. THE COIR MAT SHALL BE LAID IN THE EMPTY TRENCH WITH THE BULK OF THE FABRIC ALONG THE LOWER (WATER) SIDE OF THE TRENCH. THE FABRIC SHALL BE STAKED SECURELY INTO THE TRENCH ON TWO- (2-) FOOT INTERVALS WITH TWO- (2-) FOOT WOODEN STAKES. LAY TWINE CROSSWAYS IN THE TRENCH AT APPROXIMATELY TWO- (2-) FOOT INTERVALS, OVERLAPPING THE SIDES OF THE TRENCH SUFFICIENT LENGTH TO WRAP AROUND THE FASCINE AND TIE. LAY THE CUTTINGS WITHIN THE TRENCH AS NOTED ABOVE. BACKFILL THE TRENCH WITH SAND OR SOIL; FILLING VOIDS BETWEEN THE CUTTINGS. TIE THE TWINE SECURELY AROUND THE FASCINE. THE COIR MAT BLANKET FOR THE ADJACENT SLOPE SHALL BE WRAPPED AROUND THE FASCINE AS SHOWN IN THE DRAWINGS. THE TRENCH ON EACH SIDE OF THE FASCINE SHALL BE BACKFILLED WITH COMPACTED TOPSOIL. THE TOP OF THE FASCINE SHALL BE SLIGHTLY VISIBLE WHEN THE INSTALLATION IS COMPLETE.
- FASCINES SHALL BE STAKED FIRMLY IN PLACE WITH ONE ROW OF TWO- (2-) FOOT LONG DIAGONALLY CUT TWO- (2-) INCH BY FOUR- (4-) INCH WOODEN STAKES EVERY TWENTY-FOUR (24) INCHES, ALTERNATING SIDES OF THE FASCINE. TAPERED ENDS OF ADJACENT FASCINES SHALL BE OVERLAPPED SO THAT THE OVERALL FASCINE DIAMETER IS UNIFORM AND CONTINUOUS. TWO (2) STAKES SHALL BE USED AT EACH FASCINE OVERLAP SUCH THAT A STAKE IS DRIVEN BETWEEN THE LAST TWO TIES OF EACH FASCINE.

WILDLIFE PROTECTION FENCE

- REFER TO DETAILS FOR FENCING DETAILS.
- FENCING TO BE INSTALLED AROUND ALL TREES.

SEEDING NOTES

SEEDING AREA PREPARATION

- LIMIT SUBGRADE PREPARATION TO AREAS TO BE PLANTED WITHIN TWO WEEKS OF SUBGRADE PREPARATION. FOLLOWING SUBGRADE PREPARATION, NO VEHICLE TRACKING, EQUIPMENT ACCESS OR MATERIALS STAGING IS TO OCCUR IN PREPARED AREAS, EXCEPT FOR OPERATIONS DIRECTLY RELATED TO SEED INSTALLATION.
- MOISTEN PREPARED AREA BEFORE PLANTING IF SOIL IS DRY. WATER THOROUGHLY AND ALLOW SURFACE TO DRY BEFORE PLANTING. DO NOT CREATE MUDDY SOIL.
- LOOSEN THE SURFACE OF AREAS TO BE SEEDED WITH HAND RAKES BEFORE APPLYING SEED.

BROADCAST SEEDING


- BROADCAST SEEDING PROTOCOL TO INCLUDE ALL NATIVE REVEGETATION ZONES.
- DO NOT USE WET SEED OR SEED THAT IS MOLDY OR OTHERWISE DAMAGED IN TRANSIT OR STORAGE. DELIVER SEED TO JOB SITE IN THE ORIGINAL UNOPENED CONTAINERS AND SAVE LABELS.
- SEED SHALL BE UNIFORMLY SOWN BY BROADCASTING.
- BROADCAST SEEDING RATES SHALL BE TWICE THE AMOUNT SPECIFIED. BROADCAST SEEDING SHALL BE RAKED INTO THE SOIL TO A DEPTH OF APPROXIMATELY ONE-QUARTER INCH (1/4") TO ONE-HALF INCH (1/2").
- THE SEEDING SHALL BE DONE IN TWO (2) SEPARATE APPLICATIONS CROSSING THE AREA AT RIGHT ANGLES TO ONE ANOTHER TO GUARANTEE EVEN COVERAGE.
- DO NOT SEED DURING HIGH WINDS OR WHEN THE GROUND IS FROZEN OR OTHERWISE UNABLE TO BE WORKED.
- STRAW MULCH SHALL BE STRAW BLOWER BLOWN, CERTIFIED WEED-FREE STRAW. AT LEAST SEVENTY PERCENT (70%) OF THE MULCH BY WEIGHT SHALL BE TEN (10) INCHES OR MORE IN LENGTH. MULCH SHALL NOT CONTAIN ANY NOXIOUS WEED, MUST, MOLD, CAKE, OR DECAY. NO HAY MAY BE USED ON THE PROJECT UNLESS APPROVED IN ADVANCE BY ECOLOGIST OR LANDSCAPE ARCHITECT.
- PROTECT SEEDED AREAS AGAINST EROSION BY UNIFORMLY SPREADING STRAW MULCH AFTER COMPLETION OF SEEDING OPERATIONS. SPREAD UNIFORMLY AT A MINIMUM RATE OF 2 TONS PER ACRE (45 KG PER 100 SQ. M) TO FORM A CONTINUOUS BLANKET 1-1/2-INCHES (38-MM) LOOSE DEPTH OVER SEEDED AREAS. SPREAD BY HAND, BLOWER, OR OTHER SUITABLE EQUIPMENT.
- FOLLOW STRAW APPLICATION BONDED FIBER MATRIX. ATTACH FIBER VIA HYDRO MULCH AT MANUFACTURER RECOMMENDED RATES. HYDRO MULCH EXAMPLES - RANIER PLUS TACKIFIER
- PROTECT SEEDED SLOPES EXCEEDING 3:1 AGAINST EROSION WITH EROSION-CONTROL BLANKETS INSTALLED AND STAPLED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
- PROTECTION OF SEEDED AREAS: PROVIDE BARRIERS AS REQUIRED TO PREVENT PEDESTRIAN OR VEHICULAR TRAFFIC OVER NEWLY SEEDED AREAS UNTIL COMPLETION.
- AT THE END OF ONE GROWING SEASON, ALL SEEDED AREAS SHALL ACHIEVE 85% GERMINATION AND BE FREE OF WEEDS AND OTHER UNDESIRABLE VEGETATION.
- USE SPECIFIED MATERIALS TO REESTABLISH SEEDING AREA THAT DOES NOT COMPLY WITH REQUIREMENTS AND CONTINUE MAINTENANCE UNTIL ESTABLISHMENT IS SATISFACTORY.

IF THERE IS A DISCREPANCY BETWEEN THE PLANT COUNTS ON THE CALL-OUTS ON THE PLANS & THE ACTUAL NUMBER OF PLANT SYMBOLS DEPICTED ON THE PLANS, THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING THE ACTUAL NUMBER OF PLANTS AS SYMBOLICALLY DEPICTED ON THE PLANS, WETLAND PRESERVATION AREAS TO BE SURVEYED AND FENCED PRIOR TO CONSTRUCTION. DISTURBANCE TO WETLANDS NOT EXPRESSLY IDENTIFIED AS WITHIN AREAS OF DISTURBANCE IS NOT PERMITTED AT ANY TIME UNDER ANY CIRCUMSTANCE. SHOULD DISTURBANCE TO ANY WETLANDS OUTSIDE OF DISTURBANCE AREAS BECOME NECESSARY, CONTRACTOR IS TO CONTACT LANDSCAPE ARCHITECT/ECOLOGIST PRIOR TO COMMENCING WORK IN THAT AREA.

CRYSTAL RIVER RESTORATION AND
WEAVER DITCH EFFICIENCY PROJECT
PLANTING AND SEEDING NOTES

No.	REVISION/UPDATE	Date
	FINAL REV.	08.25.21

CLIENT NAME AND ADDRESS



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DESIGN FIRMS NAME AND ADDRESSES



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PROJECT NAME AND ADDRESS		
Crystal River Restoration and Weaver Ditch Efficiency Project Carbondale, CO 81623		
Project	38047	Sheet
Date	AUG 2021	D09b
Scale	NOT TO SCALE	







100% CONSTRUCTION DOCUMENT SET

PLANT SCHEDULE

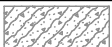


Symbol	Botanical	Size	Quantity	Total
	ACER GLABRUM ROCKY MOUNTAIN MAPLE	1 GAL	4	6
		5 GAL	2	
	ALNUS TENUFOLIA THINLEAF ALDER	1 GAL	71	118
		5 GAL	47	
	ARTEMISIA TRIDENTATA VASEYANA MOUNTAIN BIG SAGEBRUSH	1 GAL	4	6
		5 GAL	2	
	BETULA OCCIDENTALIS WATER BIRCH	1 GAL	68	114
		5 GAL	46	
	CHRYSOTHAMNUS NAUSEOSUS RUBBER RABBITBRUSH	1 GAL	4	6
		5 GAL	2	
	CORNUS SERICEA RED TWIG DOGWOOD	1 GAL	73	121
		5 GAL	48	
	POPULUS ANGUSTIFOLIA NARROWLEAF COTTONWOOD	1 GAL	69	115
		5 GAL	46	
	PRUNUS VIRGINIANA MELANOCARPA WESTERN CHOKEBERRY	1 GAL	4	6
		5 GAL	2	
	SALIX BEBBIANA BEBB'S WILLOW	1 GAL	79	131
		5 GAL	52	
	SALIX DRUMMONDIANA DRUMMOND'S WILLOW	1 GAL	86	143
		5 GAL	57	
	SALIX LASIANDRA WHIPLASH WILLOW	1 GAL	87	145
		5 GAL	58	
	SALIX MONTICOLA ROCKY MOUNTAIN WILLOW	1 GAL	92	154
		5 GAL	62	
	SHEPHERDIA ARGENTEA SILVER BUFFALOBERRY	1 GAL	77	129
		5 GAL	52	
		GRAND TOTAL		1,194

TOTAL 1 GAL 716
TOTAL 5 GAL 478

SEED MIXES



Symbol	Scientific Name	Common Name	Variety	% of Mix	Pounds
 ENHANCEMENT  CREATION	Riparian Seed Mix (Enhancement: 47,631 SF and Creation:25,576 SF)- 1.7 ACRES at 60 LBS/ACRE				
	Calamagrostis canadensis	Bluejoint reed grass		10%	10.2
	Deschampsia cespitosa	Tufted hair grass		20%	20.4
	Elymus trachycaulus	Slender wheatgrass		20%	20.4
	Glyceria striata	Fowl manna grass		10%	10.2
	Juncus arcticus	Wire rush		10%	10.2
	Pascopyrum smithii	Western wheatgrass		20%	20.4
	Poa secunda	Bluegrass		10%	10.2
Total Pounds - Riparian Seed Mix				100%	102.0
	Non-Irrigated Seed Mix - .07 ACRES at 60 LBS/ACRE				
	Achnatherum hymenoides	Indian ricegrass		10%	0.4
	Bouteloua gracilis	Blue grama		15%	0.6
	Elymus trachycaulus	Slender wheatgrass		25%	1.1
	Nassella viridula	Green needlegrass		15%	0.6
	Pascopyrum smithii	Western wheatgrass		25%	1.1
	Pseudoroegneria spicata	Bluebunch wheatgrass	secar	10%	0.4
	Total Area - Non-Irrigated Seed Mix			100%	4.2
	Wetland Seed Mix - .01 ACRES at 80 LBS/ACRE				
	Deschampsia cespitosa	Tufted hair grass	Peru Creek	30%	0.24
	Elymus trachycaulus	Slender wheatgrass	Sodar	30%	0.24
	Calamagrostis canadensis	Bluejoint reed grass		5%	0.04
	Juncus arcticus	Wire rush		10%	0.08
	Poa palustris	Fowl Bluegrass		25%	0.20
Total Area - Non-Irrigated Seed Mix				100%	0.80

WETLAND PLUGS


Symbol	Botanical	Common Name	Size	% of Mix	Quantity
Wetland Creation Type A Plugs Spaced 12" O.C.					
	<i>Carex aquatilis</i>	Water sedge	10 ci plug	16%	35
	<i>Carex lanuginosa</i>	Wooly sedge	10 ci plug	17%	37
	<i>Carex nebraskensis</i>	Nebraska sedge	10 ci plug	17%	37
	<i>Carex utriculata</i>	Beaked sedge	10 ci plug	17%	37
	<i>Schoenoplectus acutus</i>	Hardstem bulrush	10 ci plug	17%	37
	<i>Sparganium eurycarpum</i>	Common bur reed	10 ci plug	16%	35
	Total Wetland Creation Zone 1			100%	220
Wetland Creation Type B Plugs Spaced 12" O.C.					
	<i>Carex microptera</i>	Small winged sedge	10 ci plug	14%	16
	<i>Eleocharis palustris</i>	Great spike rush	10 ci plug	14%	16
	<i>Juncus arcticus</i>	Wire rush	10 ci plug	14%	16
	<i>Juncus confuses</i>	Colorado rush	10 ci plug	15%	17
	<i>Juncus ensifolius</i>	Swordleaf rush	10 ci plug	15%	17
	<i>Juncus tracyii</i>	Torrey's rush	10 ci plug	14%	16
	<i>Schoenoplectus pungens</i>	American threesquare bulrush	10 ci plug	14%	16
Total Wetland Creation Zone 2			100%	113	
Wetland Creation Type C Plugs Spaced 12" O.C.					
	<i>Calamagrostis canadensis</i>	Bluejoint reed grass	10 ci plug	34%	105
	<i>Festuca thurberi</i>	Thurber's fescue	1 GAL	33%	102
	<i>Glyceria striata</i>	Fowl manna grass	1 GAL	33%	102
	Total Wetland Creation Zone 3			100%	308

WETLAND PLANTINGS AND SEEDING IS NOT DEPICTED ON PLAN SET. ALL WETLAND PLANTINGS AND SEEDING AREAS ARE TO BE FIELD IDENTIFIED, FLAGGED AND APPROVED BY PROJECT ECOLOGIST.

LIVE STAKES AND FASCINE

Symbol	Restoration Element	NOTES	Total
	Live Stakes Salix spc (70%), Populus Angustifolia (30%)	Stakes are to be spaced 24" O.C. where indicated in bank restoration zones. All other stake loactions are to be field identified, flagged, and staked per project ecologist. Create bundles using 10% of total stakes (276 stakes grouped to create roughly 35 live stake bundles)	1200 INDIVIDUAL STAKES
	Willow Fascines Salix spc	Build and install willow fascines re: details and notes. Fascines to be minimum 6" in diameter	590 LINEAR FEET

SOILS

	RIPARIAN CREATION TOPSOIL (IMPORTED, 6" DEPTH) TOTAL: 237 CF
*ALL OTHER AREAS (RIPARIAN ENHANCEMENT, WETLAND CREATION, AND UPLAND PLANTING) TO USE EXISTING TOPSOIL ON SITE.	

CRYSTAL RIVER RESTORATION AND
WEAVER DITCH EFFICIENCY PROJECT
OVERALL PLANTING SCHEDULE AND
SEED MIXES

No.	REVISION/UPDATE	Date
	FINAL REV.	08.25.21

CLIENT NAME AND ADDRESS	
	Town of Carbondale 511 Colorado Ave Carbondale, CO 81623

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PROJECT NAME AND ADDRESS	
Crystal River Restoration and Weaver Ditch Efficiency Project Carbondale, CO 81623	
Project	38047
Date	AUG 2021
Scale	NOT TO SCALE
D09c	

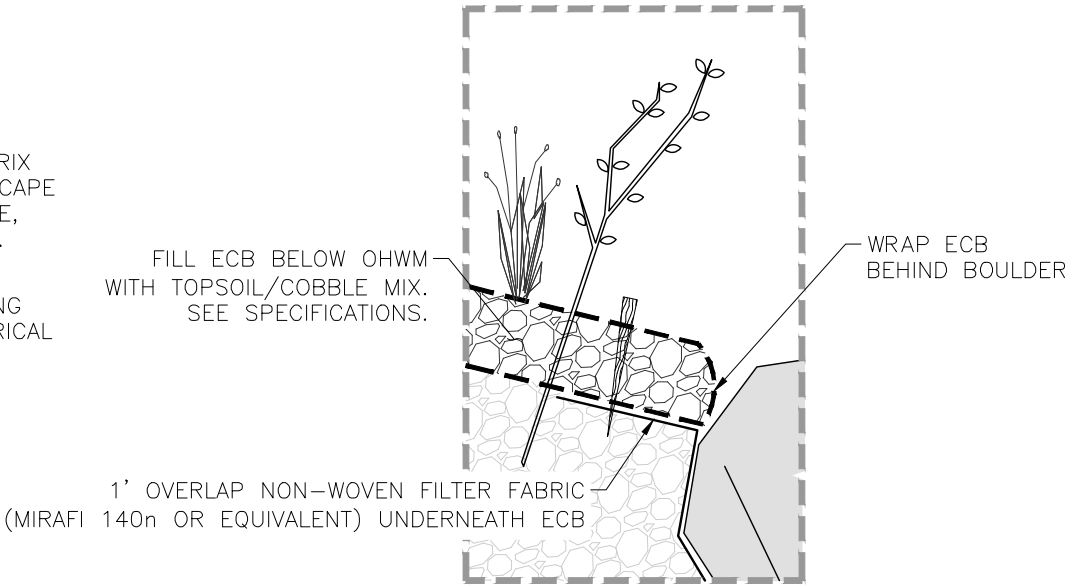


100% CONSTRUCTION DOCUMENT SET

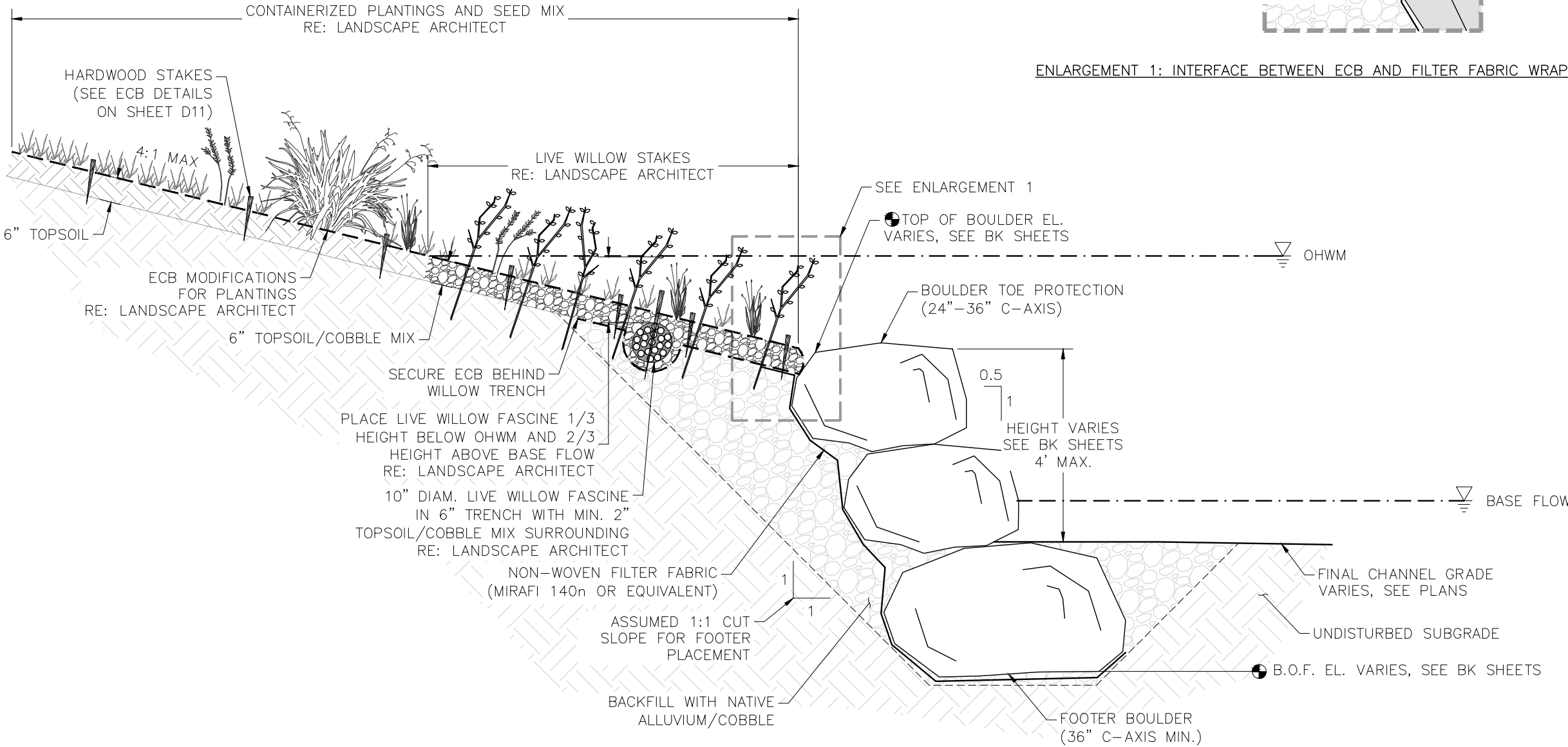
BANK RESTORATION AREA	TREATMENT TYPES	WSE (FT)	
		BASEFLOW	OHWM
BANK 1 D/S ROCK BARB	TYPE C	6195.0	6196.7
BANK 1 U/S ROCK BARB	TYPE D	6195.5	6197.7
BANK 2	TYPE C, E	6196.9	6200.1
BANK 3	TYPE E	6197.6	6201.8
BANK 4	TYPE C	6198.5	6203.4
BANK 5 D/S GRADE CONTROL	TYPE C, E	6201.6	6204.3
BANK 5 U/S GRADE CONTROL	TYPE E	6201.9	6204.8
BANK 6	TYPE C, E	6202.2	6206.3

NOTES:

1. EROSION CONTROL BLANKET (ECB) SHALL BE COARSE BIODEGRADABLE WOVEN COIR 700 OR EQUIVALENT. ECB SHALL BE ANCHORED AND MODIFIED FOR PLANTINGS PER LANDSCAPE ARCHITECT DIRECTION. SEE SHEET D11.
2. SEED, STRAW MULCH, AND BONDED FIBER MATRIX ARE TO BE INSTALLED BELOW ECB, RE: LANDSCAPE ARCHITECT. TO THE GREATEST EXTENT POSSIBLE, LMIT ACTIVITY IN THESE ZONES POST-SEEDING.
3. WATER SURFACE ELEVATIONS SHOWN ARE APPROXIMATE AND ARE BASED ON 2D-MODELING RESULTS THAT WERE CALIBRATED USING HISTORICAL STREAM INFORMATION AND SURVEY DATA.



ENLARGEMENT 1: INTERFACE BETWEEN ECB AND FILTER FABRIC WRAP



1 BANK RESTORATION – TYPE "C" (TYP)
D10a PROFILE VIEW – NTS



BID SET



CRYSTAL RIVER RESTORATION AND
WEAVER DITCH EFFICIENCY PROJECT
BANK RESTORATION DETAILS - TYPE C

No.	REVISION/UPDATE	Date

CLIENT NAME AND ADDRESS

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511 Colorado Ave
Carbondale, CO 81623

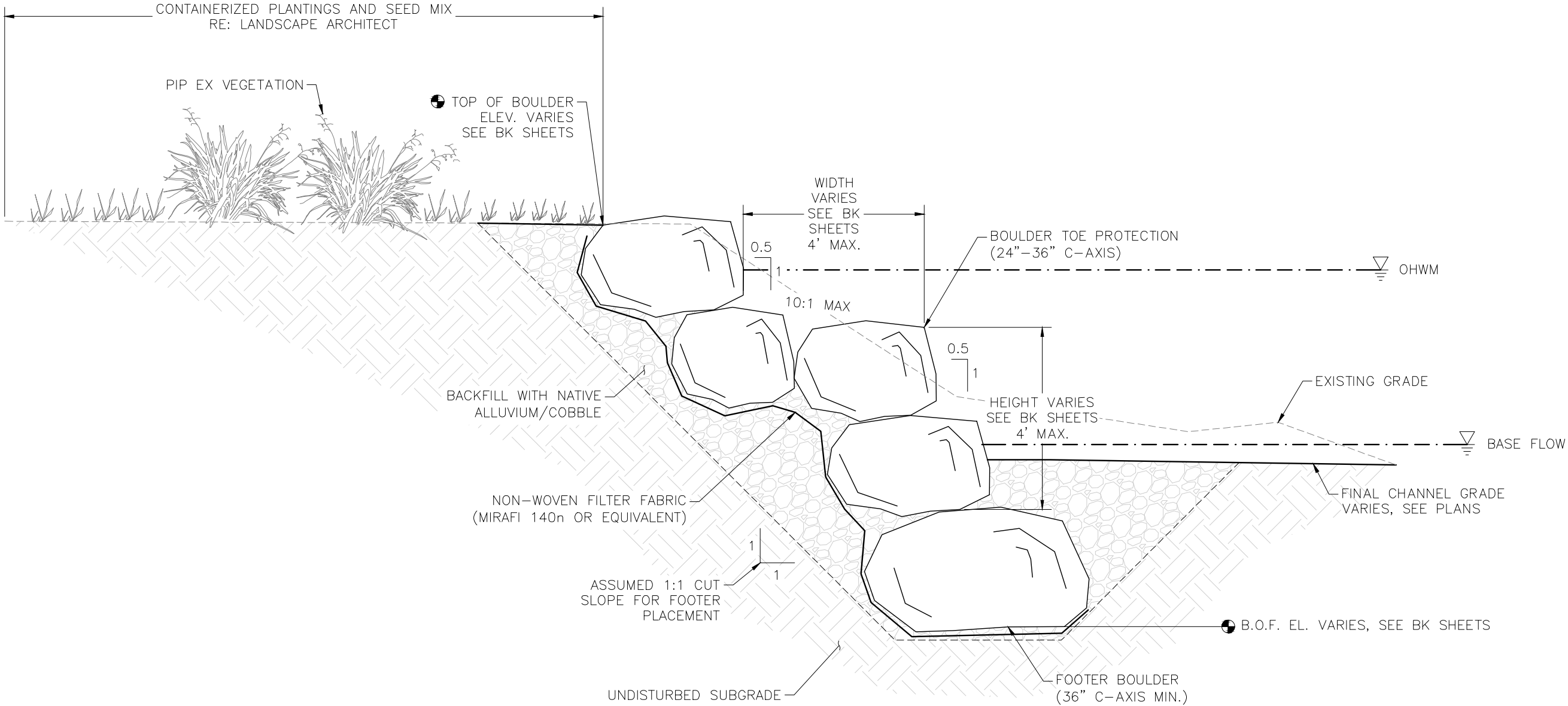
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Project 38047	Sheet
Date April 2022	D10a
Scale NOT TO SCALE	

BANK RESTORATION AREA	TREATMENT TYPES	WSE (FT)	
		BASEFLOW	OHWM
BANK 1 D/S ROCK BARB	TYPE C	6195.0	6196.7
BANK 1 U/S ROCK BARB	TYPE D	6195.5	6197.7
BANK 2	TYPE C, E	6196.9	6200.1
BANK 3	TYPE E	6197.6	6201.8
BANK 4	TYPE C	6198.5	6203.4
BANK 5 D/S GRADE CONTROL	TYPE C, E	6201.6	6204.3
BANK 5 U/S GRADE CONTROL	TYPE E	6201.9	6204.8
BANK 6	TYPE C, E	6202.2	6206.3



1 BANK RESTORATION – TYPE "D" (TYP)
D10b PROFILE VIEW – NTS

PROFESSIONAL ENGINEER/LANDSCAPE ARCHITECT STAMP



CRYSTAL RIVER RESTORATION AND
WEAVER DITCH EFFICIENCY PROJECT
BANK RESTORATION DETAILS - TYPE D

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Scale NOT TO SCALE		



BID SET

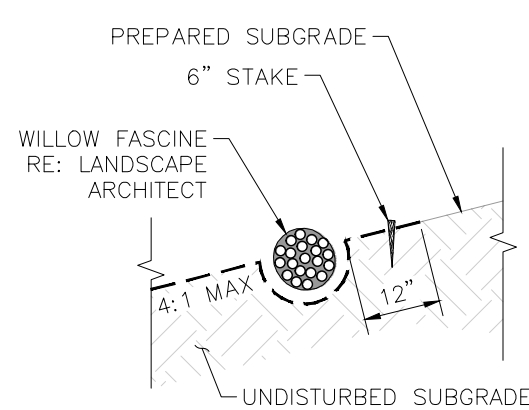


FIGURE A: KEY-IN BEHIND WILLOW TRENCH – NTS

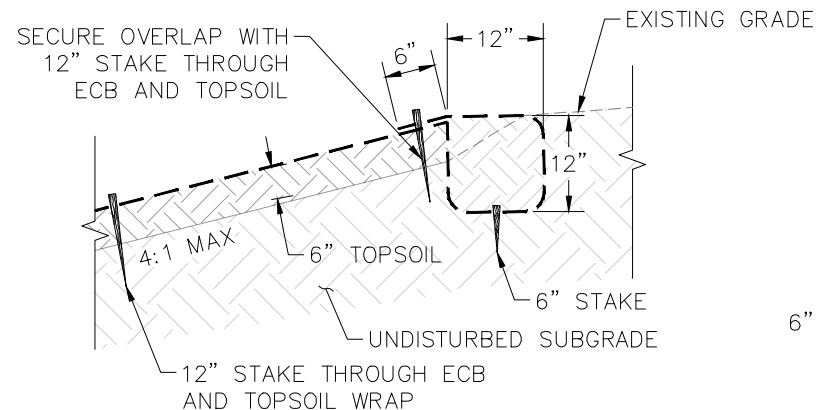


FIGURE B: SECURE ECB AT TOP OF BANK – NTS

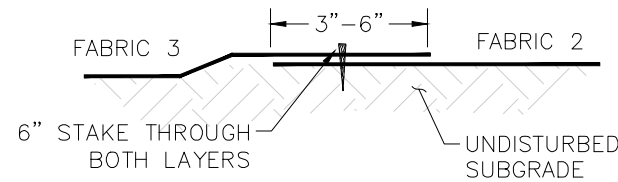


FIGURE C: CROSS SECTION VIEW OF OVERLAP – NTS

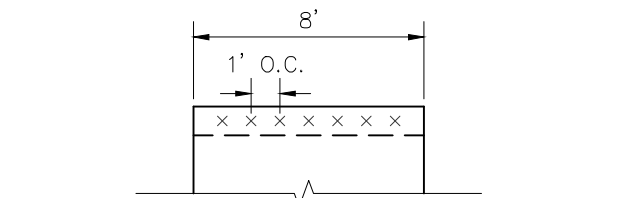
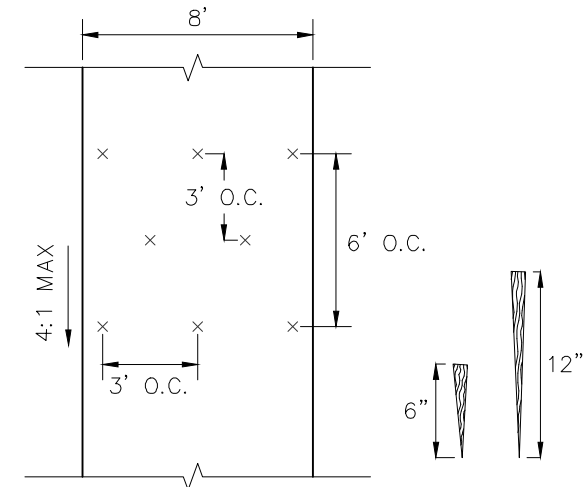


FIGURE D: TOE STAKE SPACING PLAN VIEW – NTS



× DENOTES STAKE LOCATION
(APPROXIMATELY 0.7 STAPLES PER SY)

FIGURE E: STAKE SPACING PLAN VIEW – NTS

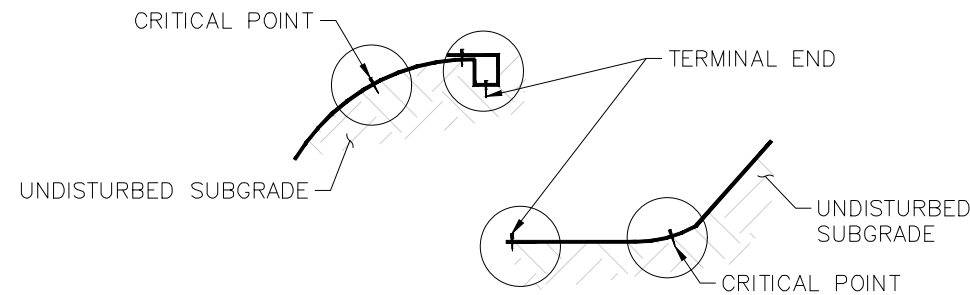


FIGURE F: CRITICAL POINT SECURING – NTS

ECB INSTALLATION NOTES:

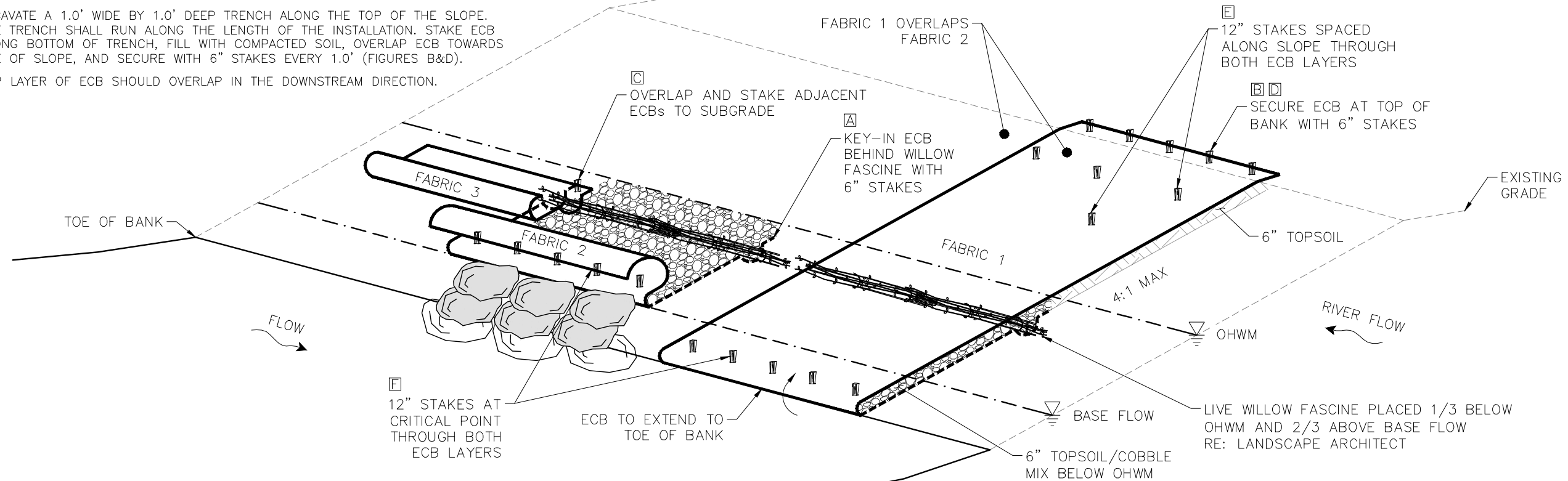
- CONTRACTOR SHALL USE ALL NATURAL 100% BIODEGRADABLE COIR 700 EROSION CONTROL BLANKETS (ECBs). STAKES SHALL ALSO BE 100% BIODEGRADABLE. SEE SPECIFICATIONS AND MANUFACTURER'S INSTALLATION GUIDELINES FOR ADDITIONAL INFORMATION.
- FOR TYPE C AND TYPE E BANK RESTORATION TREATMENT, EXCAVATE A 1.0' WIDE BY 0.5' DEEP TRENCH 1/3 DISTANCE BETWEEN ORDINARY HIGH WATER AND BASE FLOW ELEVATIONS FOR LIVE WILLOW FASCINE PLACEMENT.
- ROLL ECB DOWNSLOPE AND SECURE IN PLACE PER STAKING PLAN (FIGURE E). ECB MUST BE PLACED LOOSELY OVER GROUND SURFACE. DO NOT STRETCH.
- EDGES OF PARALLEL ECBs MUST BE STAKED WITH AN APPROXIMATE 2"-5" OVERLAP (FIGURE C). IF NEEDED, CONSECUTIVE ECBs SPICED DOWNSLOPE MUST BE OVERLAPPED END-OVER-END (SHINGLED) WITH AN APPROXIMATE 3" OVERLAP.
- IN THE FOLLOWING ORDER, APPLY TOPSOIL*, SEED MIX, STRAW MULCH AND BFM, THEN WRAP ECB AT THE TOE TOWARDS THE TOP OF BANK.

* TOPSOIL/COBBLE MIX SHALL BE PLACED BELOW THE OHWM

- ECB MODIFICATIONS FOR PLANTING, RE: LANDSCAPE ARCHITECT.

- EXCAVATE A 1.0' WIDE BY 1.0' DEEP TRENCH ALONG THE TOP OF THE SLOPE. THE TRENCH SHALL RUN ALONG THE LENGTH OF THE INSTALLATION. STAKE ECB ALONG BOTTOM OF TRENCH, FILL WITH COMPACTED SOIL, OVERLAP ECB TOWARDS TOE OF SLOPE, AND SECURE WITH 6" STAKES EVERY 1.0' (FIGURES B&D).

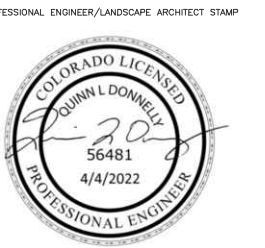
- TOP LAYER OF ECB SHOULD OVERLAP IN THE DOWNSTREAM DIRECTION.



1
D11 EROSION CONTROL BLANKET INSTALLATION (TYP)
NTS



BID SET



CRYSTAL RIVER RESTORATION AND
WEAVER DITCH EFFICIENCY PROJECT
EROSION CONTROL BLANKET DETAILS

No.	REVISION/UPDATE	Date

CLIENT NAME AND ADDRESS

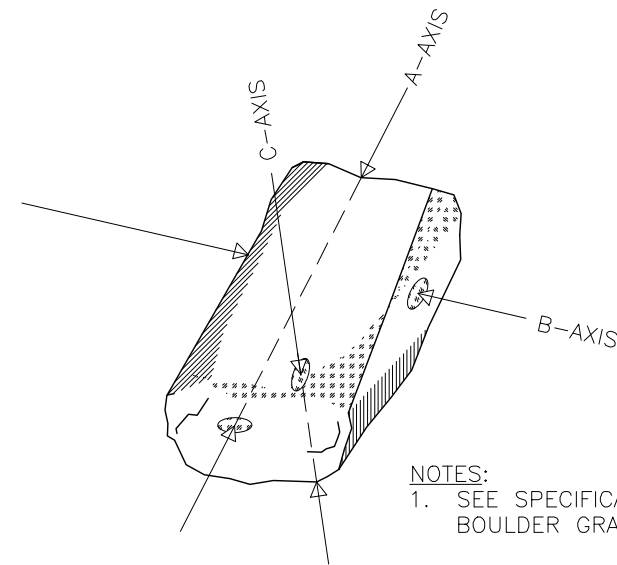
Town of Carbondale
511 Colorado Ave
Carbondale, CO 81623

DESIGN FIRMS NAME AND ADDRESSES

RiverRestoration.org, LLC
P.O. Box 248
Carbondale, CO 81623
www.RiverRestoration.org

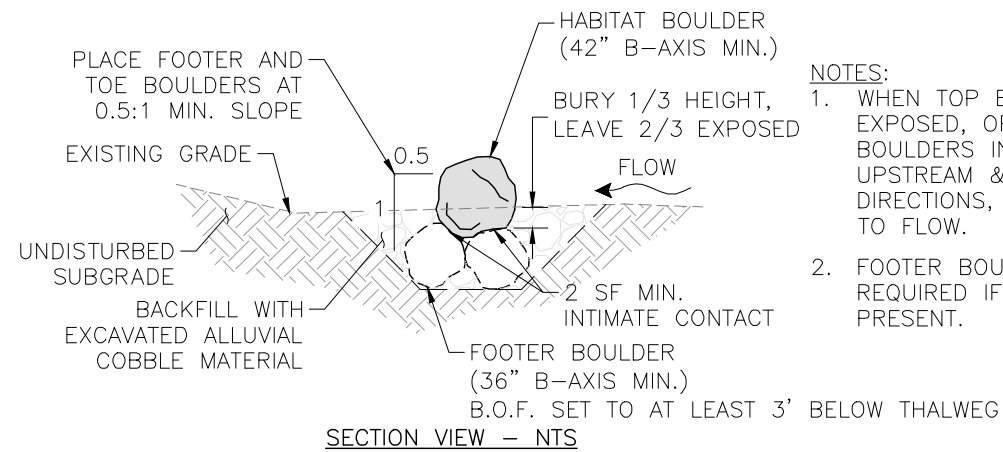
DHM DESIGN
311 Main St, Suite 102
Carbondale, CO 81623
970.963.6520
www.dhmdesign.com

PROJECT NAME AND ADDRESS Crystal River Restoration and Weaver Ditch Efficiency Project Carbondale, CO 81623	
Project 38047	Sheet D11
Date April 2022	Scale NOT TO SCALE

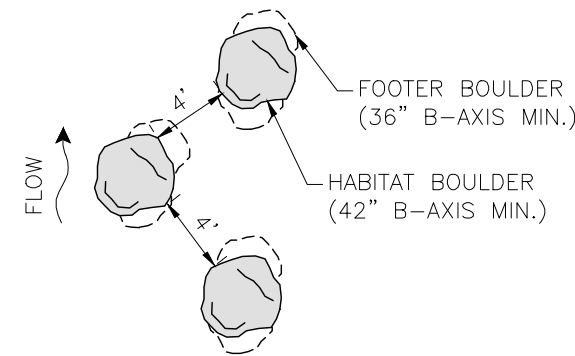


NOTES:
1. SEE SPECIFICATIONS FOR BOULDER GRADATION.

1 BOULDER AXIAL PLACEMENT (TYP)
D12 NTS



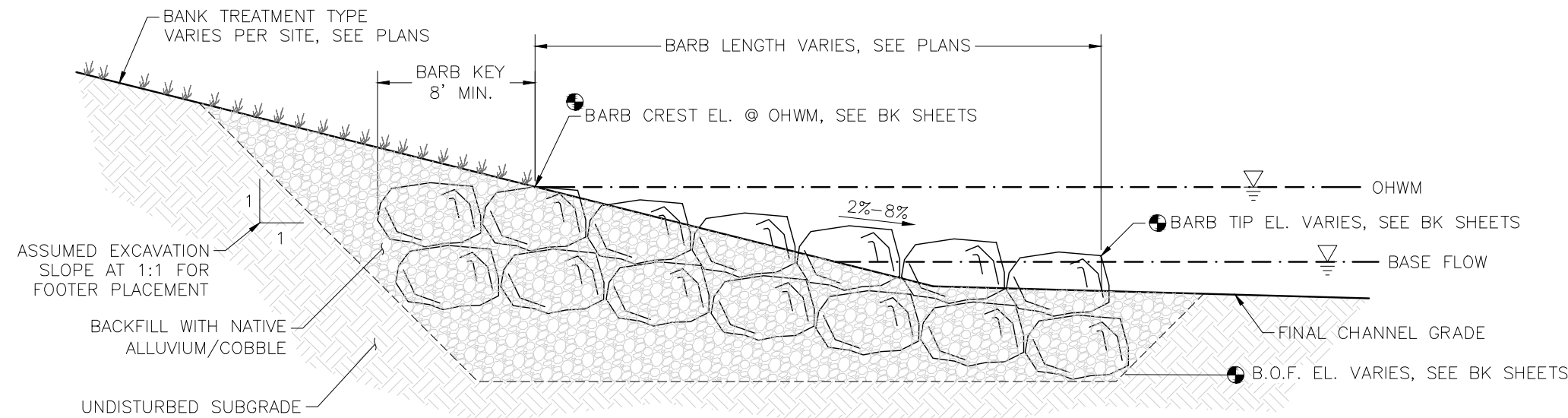
NOTES:
1. WHEN TOP BOULDER IS EXPOSED, OFFSET FOOTER BOULDERS IN THE UPSTREAM & DOWNSTREAM DIRECTIONS, PERPENDICULAR TO FLOW.
2. FOOTER BOULDERS ARE NOT REQUIRED IF BEDROCK IS PRESENT.



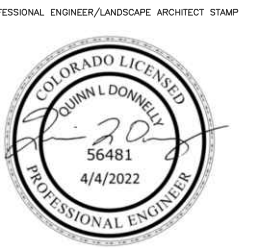
NOTES:
1. SPACE BOULDERS A MIN. OF 4' IN TRIANGLE PATTERN.
2. OFFSET BOULDERS FROM MAIN CURRENT.

3 HABITAT BOULDER CLUSTER (TYP)
D12 PLAN VIEW - NTS

NOTES:
1. ROCK BARB SHALL CONSIST OF 36" B-AXIS SELECT BOULDER.




2 ROCK BARB (TYP)
D12 NTS



CRYSTAL RIVER RESTORATION AND WEAVER DITCH EFFICIENCY PROJECT IN-CHANNEL BOULDER DETAILS

No.	REVISION/UPDATE	Date

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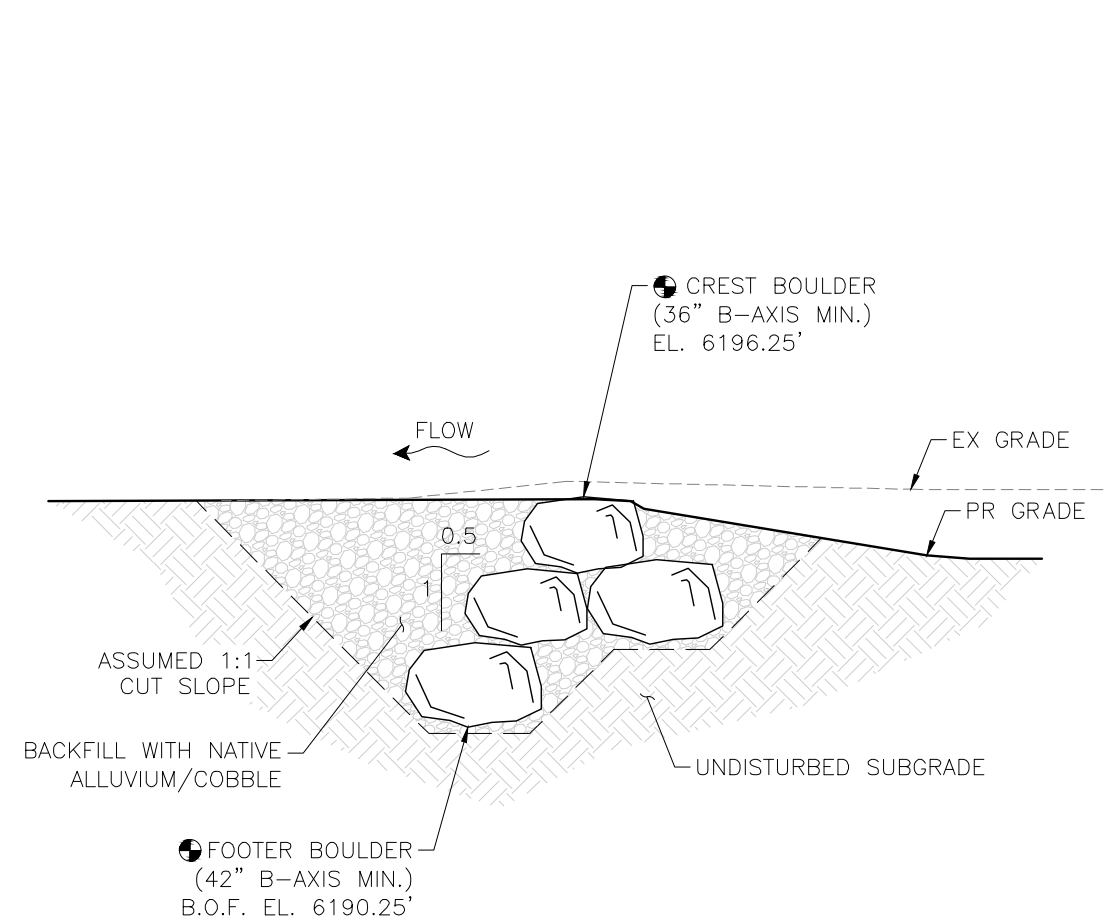


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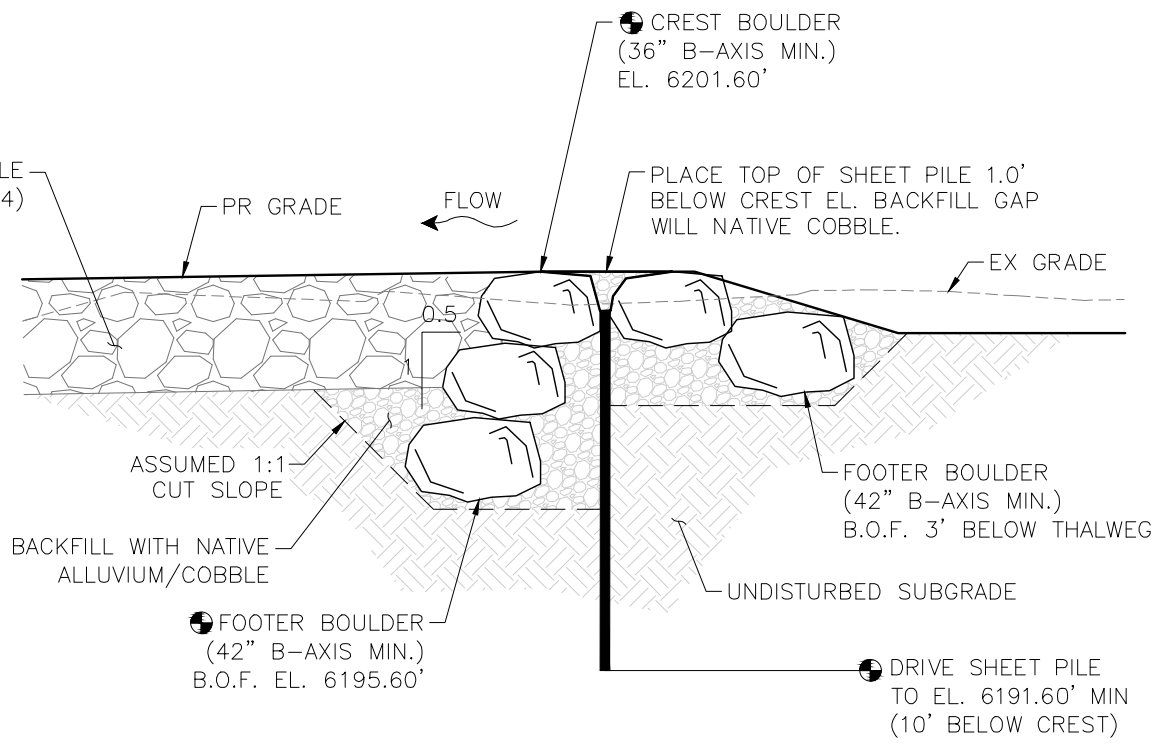
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Crystal River Restoration and Weaver Ditch Efficiency Project Carbondale, CO 81623	
Project 38047	Sheet D12
Date April 2022	Scale NOT TO SCALE



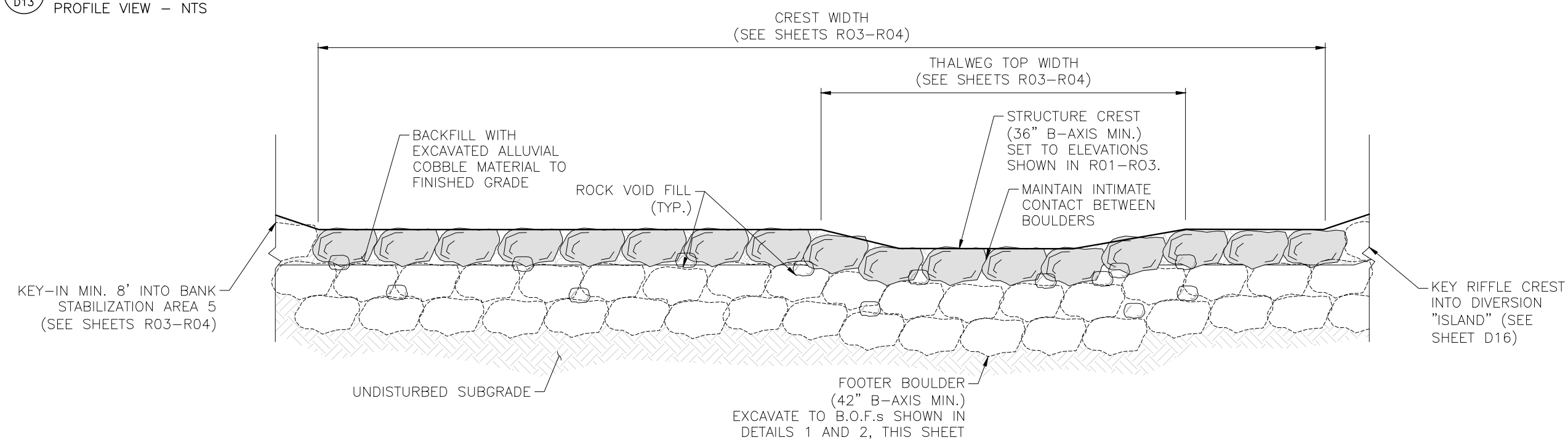
BID SET



1 DOWNSTREAM BOULDER GRADE CONTROL STRUCTURE
D13 PROFILE VIEW – NTS



2 MAIN BOULDER GRADE CONTROL STRUCTURE W/ CUTOFF WALL
D13 PROFILE VIEW – NTS




3 BOULDER GRADE CONTROL STRUCTURE (TYP.)
D13 SECTION VIEW – NTS



CRYSTAL RIVER RESTORATION AND
WEAVER DITCH EFFICIENCY PROJECT
BOULDER GRADE CONTROL DETAILS

No.	REVISION/UPDATE	Date

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PROJECT NAME AND ADDRESS
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and Weaver Ditch Efficiency Project
Carbondale, CO 81623

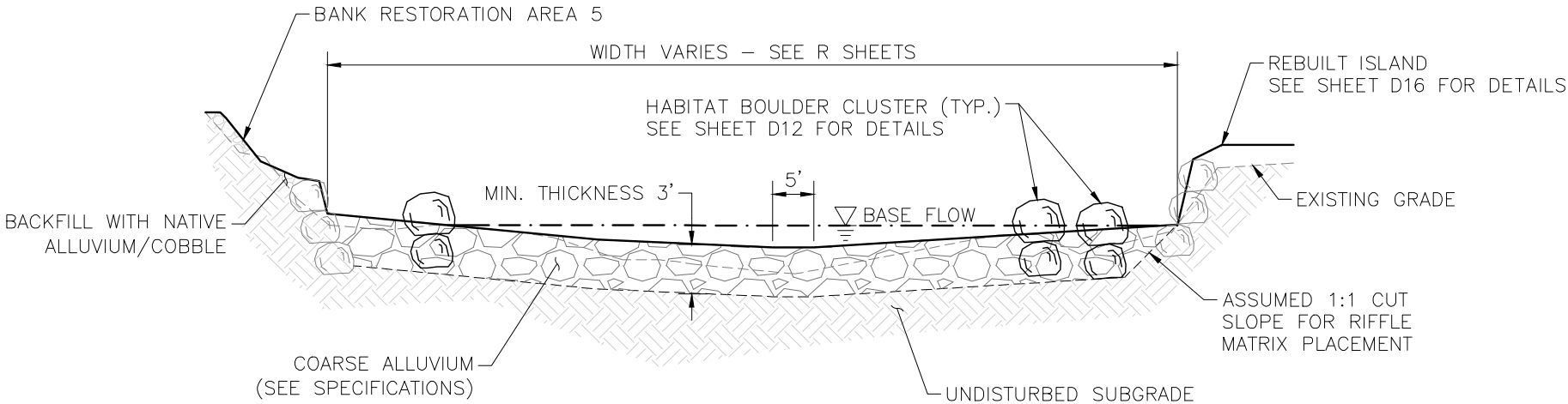
Project 38047	Sheet
Date April 2022	D13
Scale NOT TO SCALE	



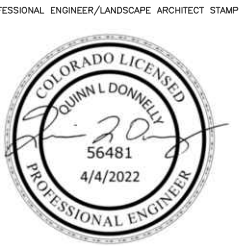
BID SET

GRADATION NOTES:

1. PERCENT PASSING SIZE CLASS IS BASED ON NOMINAL DIAMETER OF ROCK.
2. NOMINAL DIAMETER SHALL BE MEASURED AS THE INTERMEDIATE AXIS WHERE THE SMALL AND LARGE AXIS SHALL NOT BE MORE THAN 3 TIMES LESS THAN OR GREATER THAN THE NOMINAL DIAMETER.
3. ACCEPTABLE RIFFLE MATERIAL MAY BE CREATED FROM STOCKPILES OF VARIOUS SIZED SCREENED MATERIALS, EXCAVATED MATERIALS, OR IMPORTED MATERIALS. SEE SPECIFICATIONS FOR MIXING RECOMMENDATIONS BASED ON ESTIMATED ONSITE MATERIALS AND SPECIFIED IMPORTED MATERIALS.



1 ENGINEERED RIFFLE (TYP)
D14 SECTION VIEW - NTS



CRYSTAL RIVER RESTORATION AND
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ENGINEERED RIFFLE DETAILS

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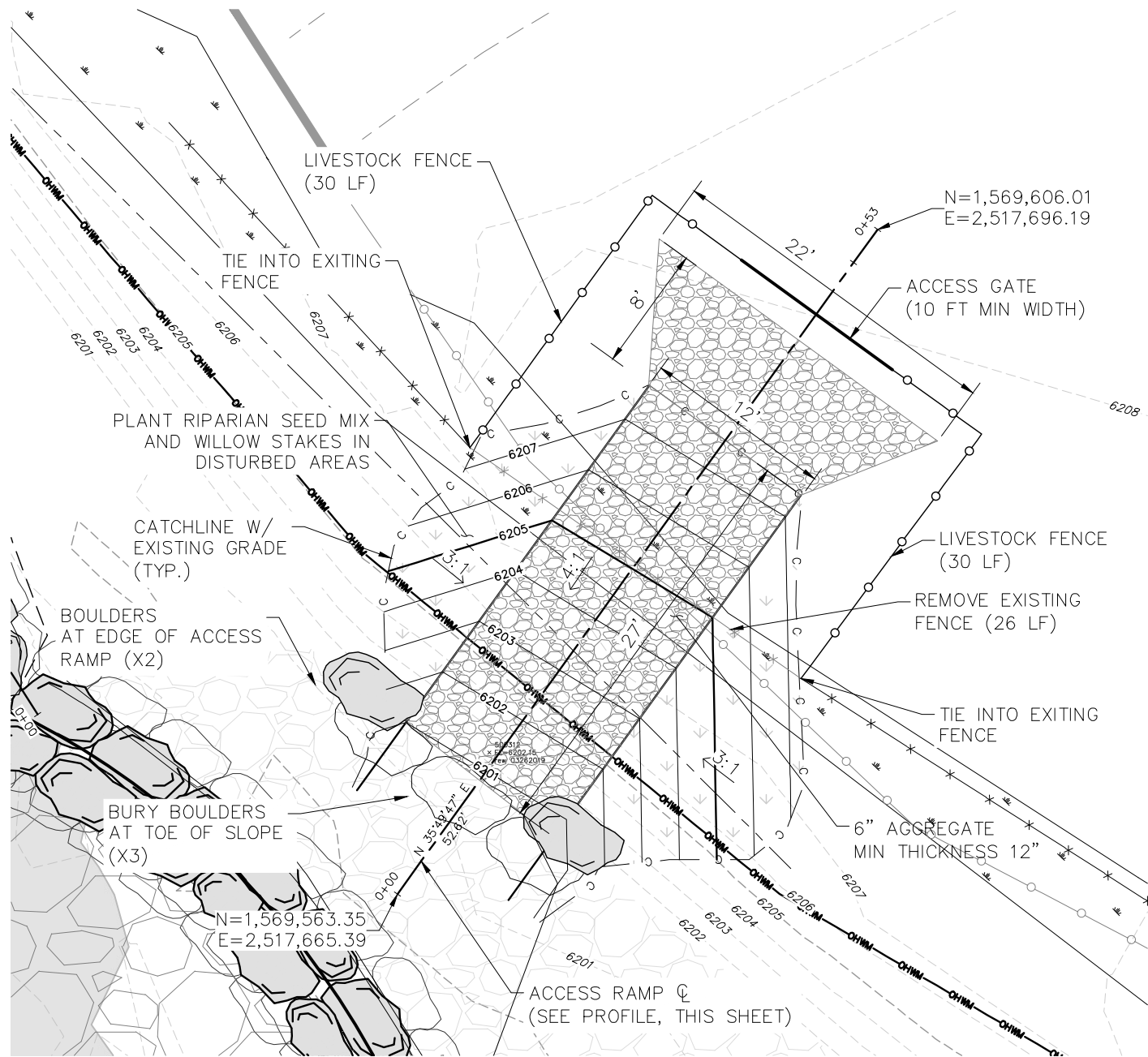


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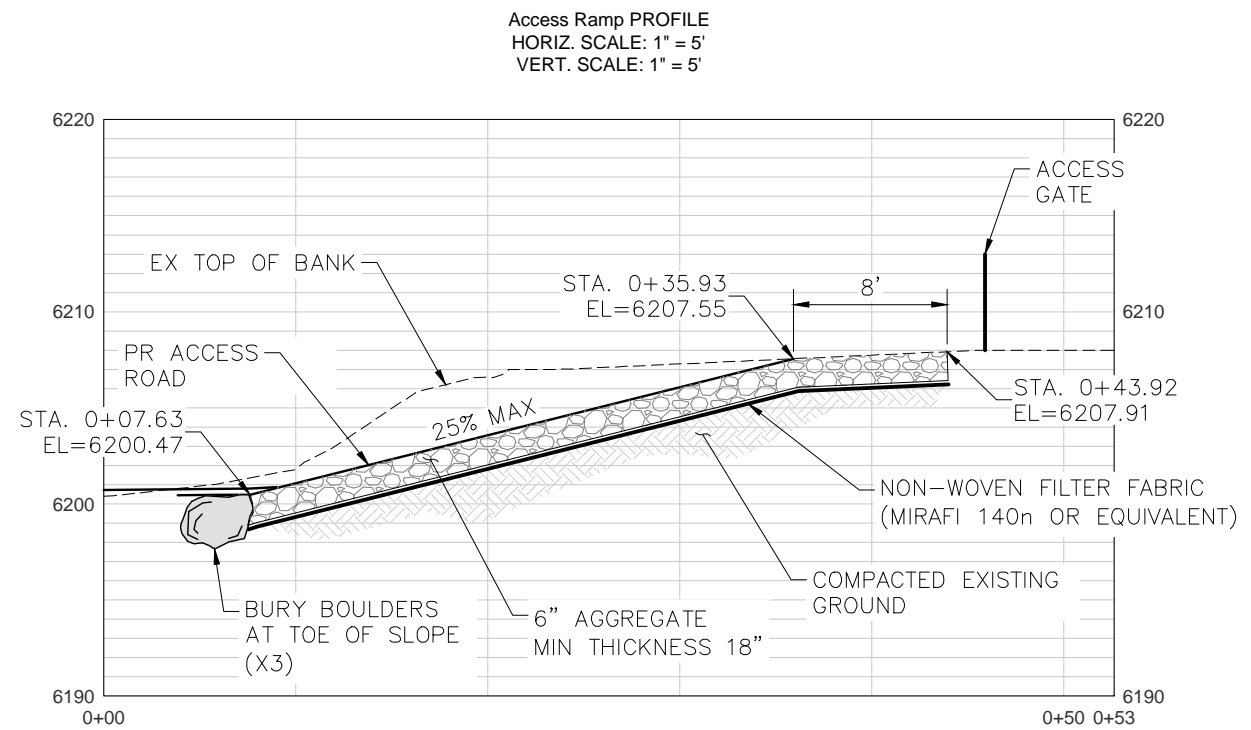
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Crystal River Restoration and Weaver Ditch Efficiency Project Carbondale, CO 81623		
Project 38047	Sheet	
Date April 2022	D14	
Scale NOT TO SCALE		



BID SET



MAINTENANCE ACCESS RAMP – PLAN VIEW



MAINTENANCE ACCESS RAMP – PROFILE VIEW



CRYSTAL RIVER RESTORATION AND WEAVER DITCH EFFICIENCY PROJECT MAINTENANCE ACCESS RAMP DETAILS

No.	REVISION/UPDATE	Date

CLIENT NAME AND ADDRESS

TOWN OF CARBONDALE
Town of Carbondale
511 Colorado Ave
Carbondale, CO 81623

DESIGN FIRMS NAME AND ADDRESSES

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www.RiverRestoration.org

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Carbondale, CO 81623
970.963.6520
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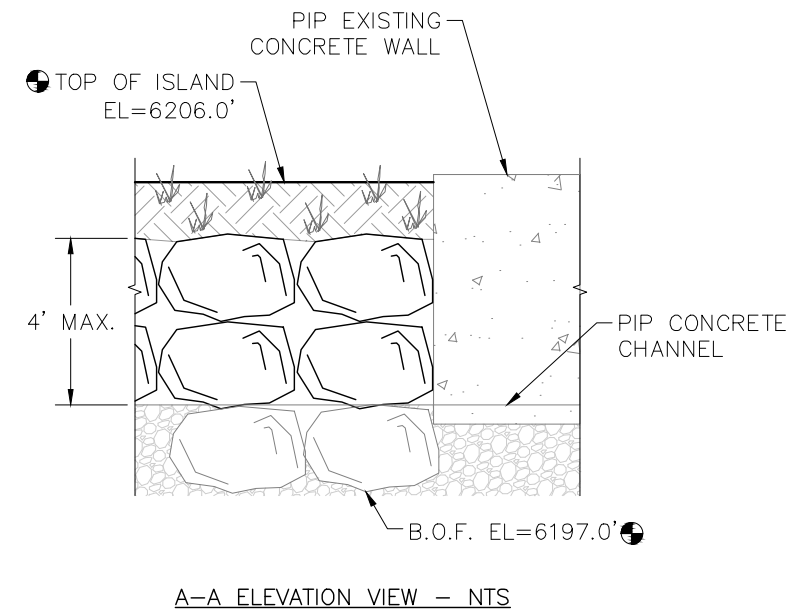
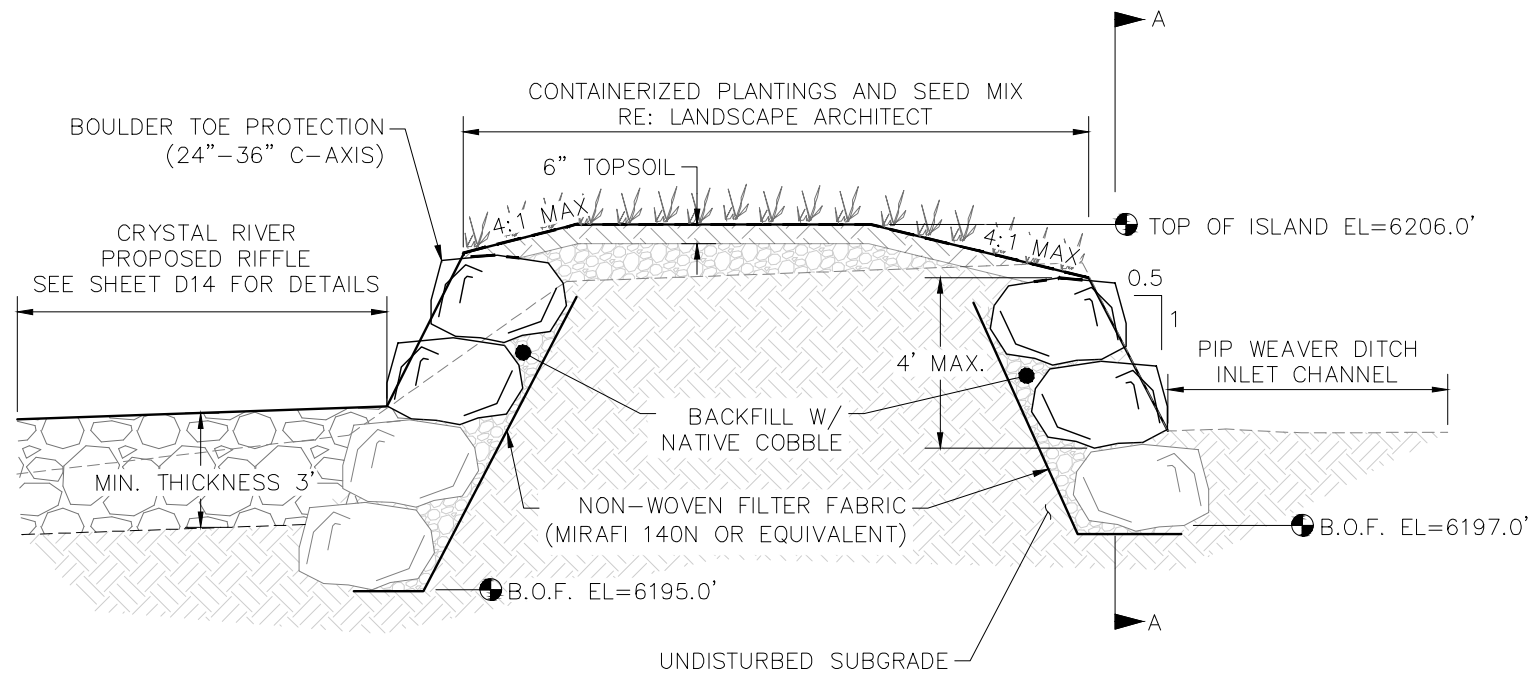
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Crystal River Restoration
and Weaver Ditch Efficiency Project
Carbondale, CO 81623

Project 38047	Sheet D15
Date April 2022	Scale NOT TO SCALE

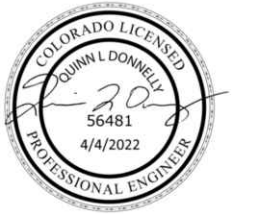


BID SET



1 DIVERSION "ISLAND" REHABILITATION
D16 SECTION VIEW - NTS

PROFESSIONAL ENGINEER/LANDSCAPE ARCHITECT STAMP



CRYSTAL RIVER RESTORATION AND
WEAVER DITCH EFFICIENCY PROJECT
DIVERSION ISLAND DETAILS

No.	REVISION/UPDATE	Date

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Carbondale, CO 81623

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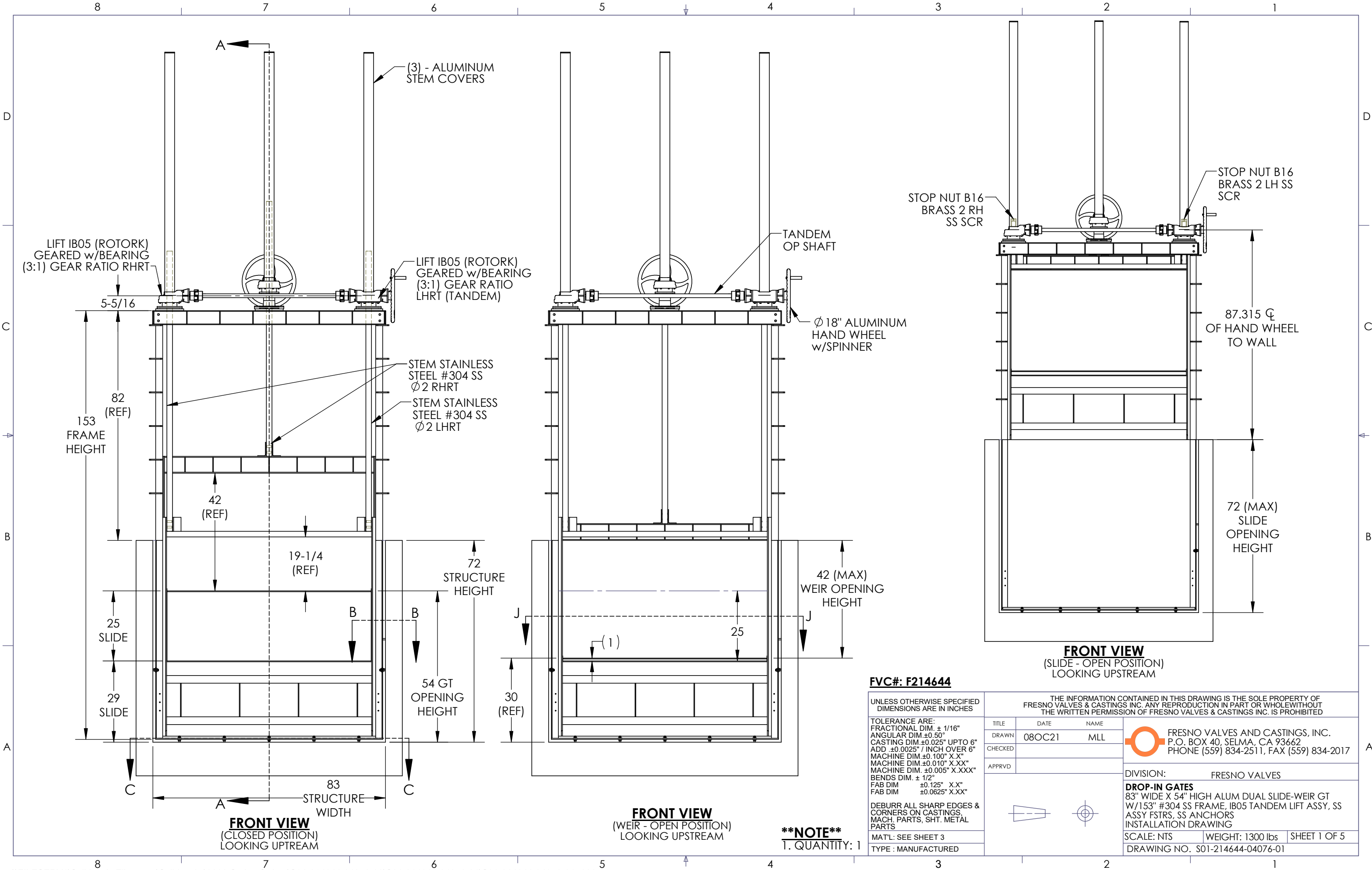
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Crystal River Restoration
and Weaver Ditch Efficiency Project
Carbondale, CO 81623

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Date April 2022	
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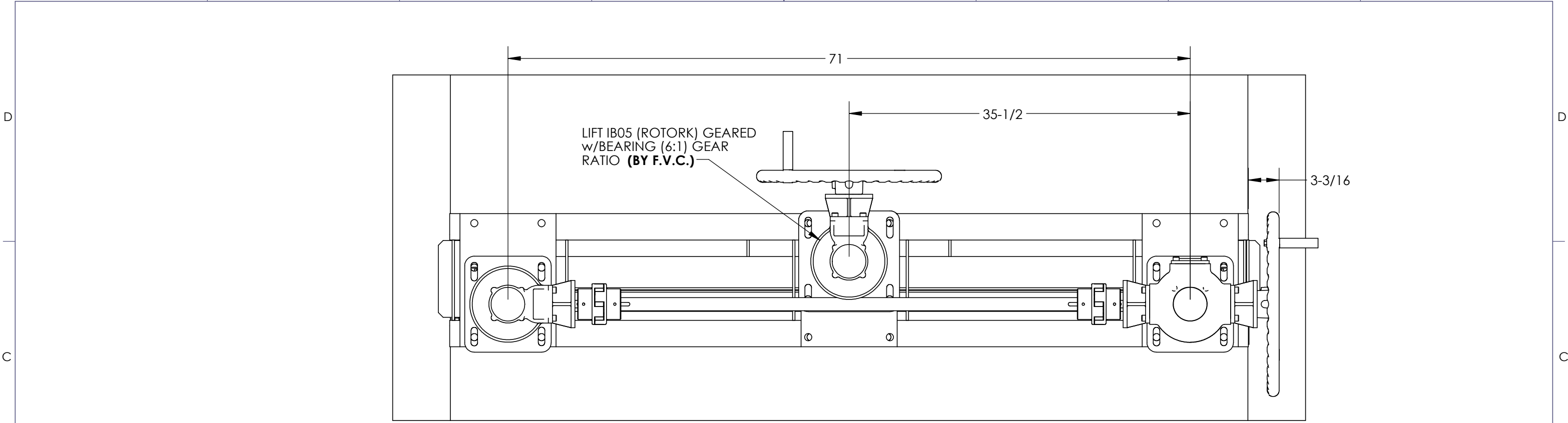


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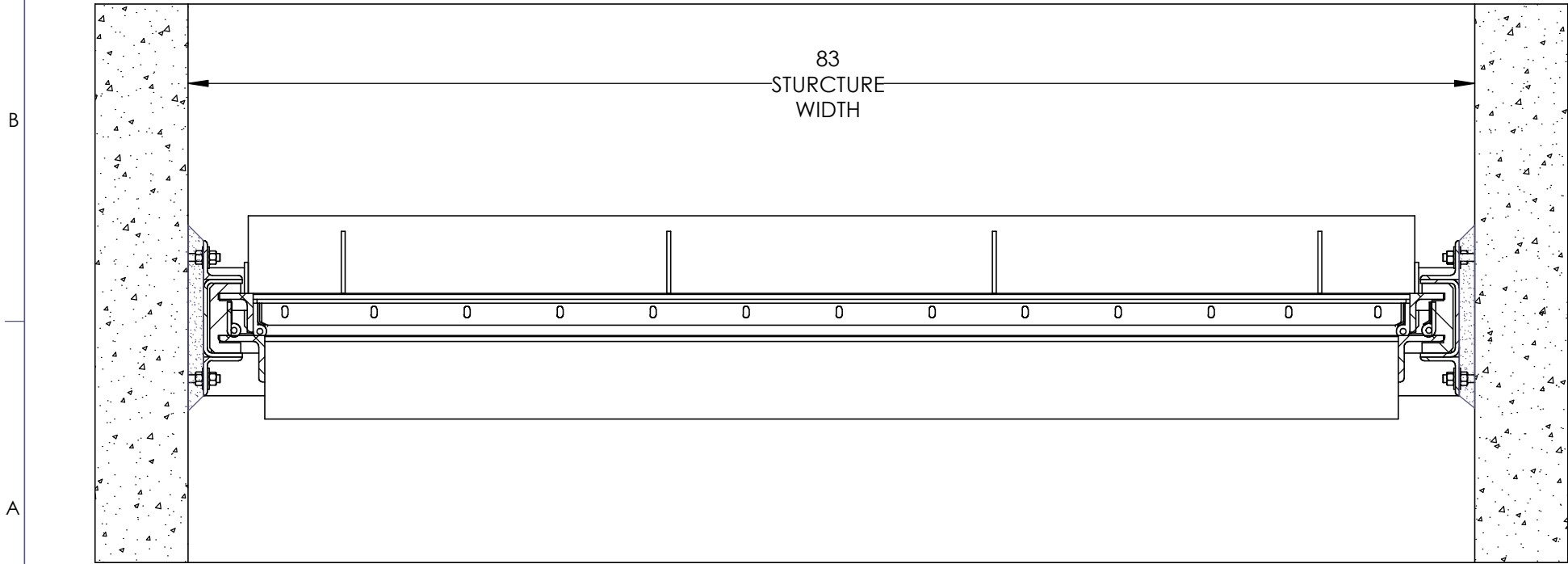
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TOP VIEW

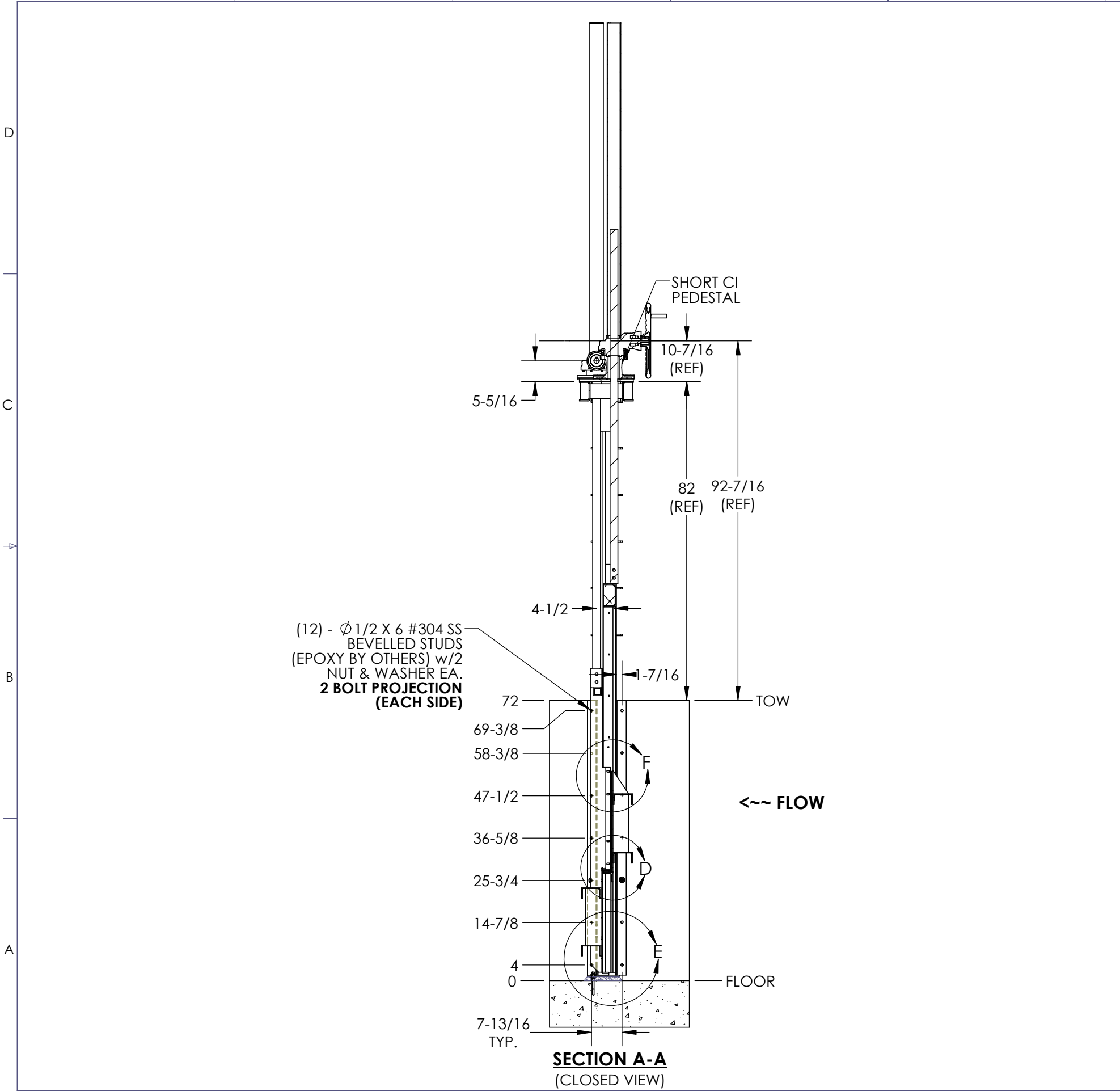


SECTION J-J

FVC#: F214644

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	DRAWN	08OC21	MLL	
	CHECKED			
	APPRVD			
DEBURR ALL SHARP EDGES & CORNERS ON CASTINGS, MACH. PARTS, SHT. METAL PARTS	 			
MAT'L: SEE SHEET 3	DIVISION: FRESNO VALVES DROP-IN GATES 83" WIDE X 54" HIGH ALUM DUAL SLIDE-WEIR GT W/153" #304 SS FRAME, IB05 TANDEM LIFT ASSY, SS ASSY FSTRS, SS ANCHORS INSTALLATION DRAWING			
TYPE : MANUFACTURED	SCALE: NTS		WEIGHT: 1300 lbs	SHEET 2 OF 5
	DRAWING NO. S01-214644-04076-01			

Created on 3/10/2015 9:20:45 AM



MATERIAL SPECIFICATIONS		
DESCRIPTION	MATERIAL	ASTM SPECIFICATION
FRAME, SLIDE PLATE AND REINFORCEMENTS	ALUMINUM	B308, ALLOY 6061-T6 (STRUCTURAL) B209, ALLOY 6061-T6 (PLATES)
SPRING CLIP	STAINLESS STEEL	STAINLESS STEEL (A276, TYPE 304)
FASTENERS	STAINLESS STEEL	STAINLESS STEEL (A276, TYPE 304)
POLYLINER	PLASTIC	POLYETHYLENE, ASTM D4020
SEALS FRAME	RUBBER	NEOPRENE, ASTM D2000, GRADE IBE609
SEALS GATE	RUBBER	NEOPRENE, ASTM D2000, GRADE IBE609
STEM	STAINLESS STEEL	STAINLESS STEEL (A276, TYPE 304)
STEM COVER	ALUMINUM	6000 SERIES, 6061-T6 (PIPING)
LIFT NUT (IF ANY)	RED BRASS	MANGANESE BRONZE (ASTM B584, ALLOY 844)
SEAL RETAINERS	STAINLESS STEEL	STAINLESS STEEL (A276, TYPE 304)
OUTER SIDE GUIDES	STAINLESS STEEL	STAINLESS STEEL (A276, TYPE 304)
HAND WHEEL	CAST ALUMINUM	ASTM B26-09/B26M-09

FVC#: F214644

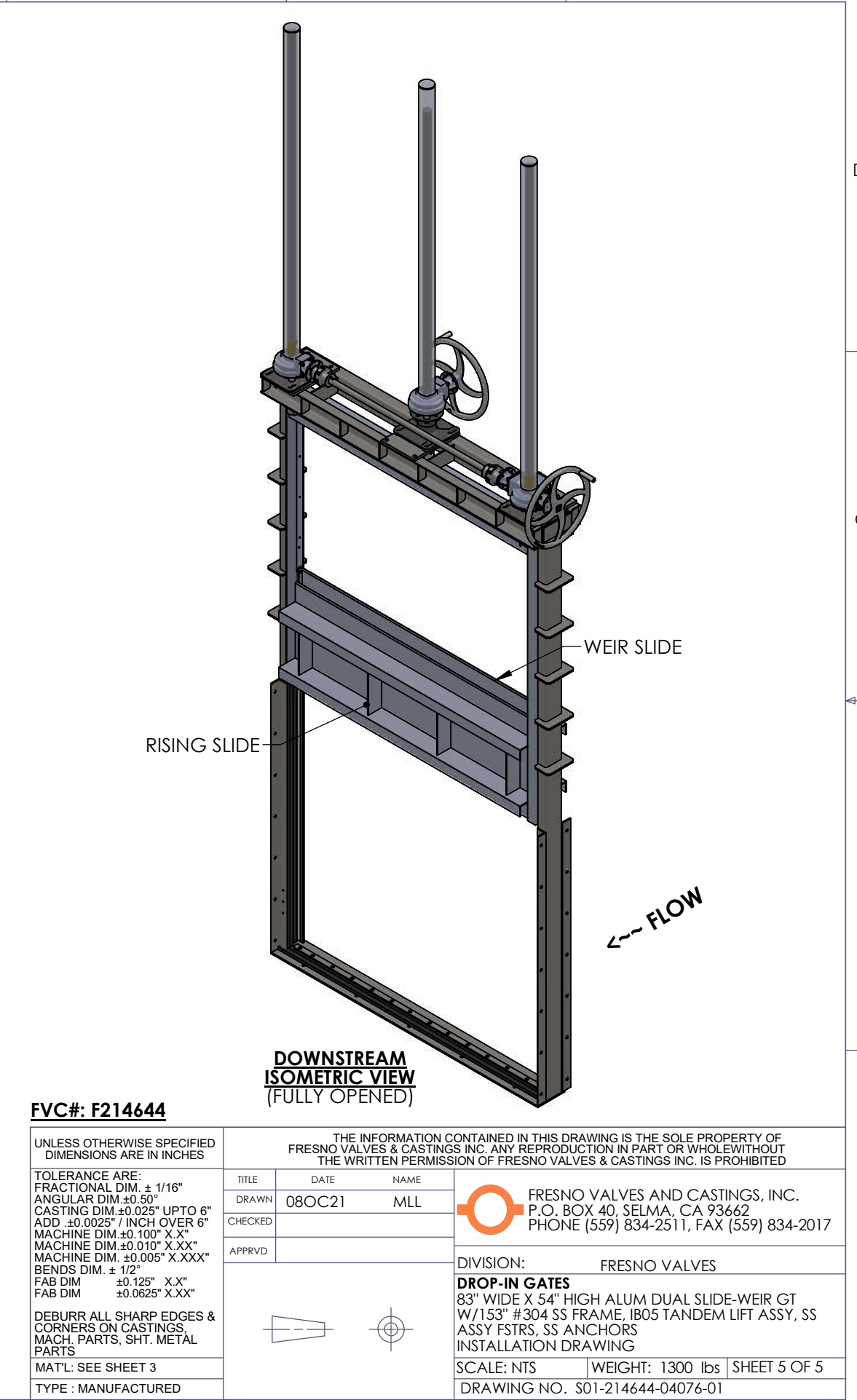
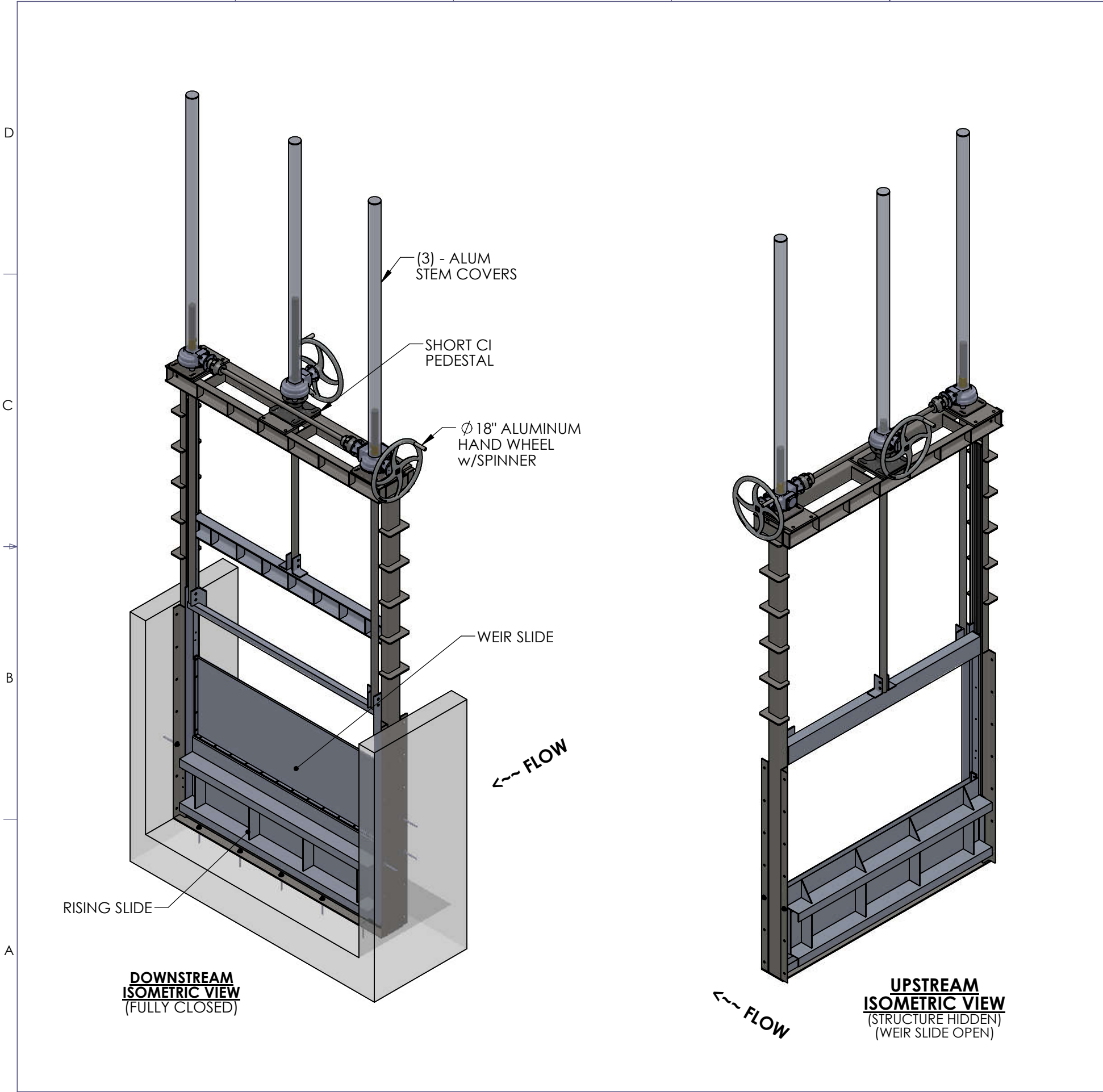
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	FRESNO VALVES AND CASTINGS, INC. P.O. BOX 40, SELMA, CA 93662 PHONE (559) 834-2511, FAX (559) 834-2017		
DEBURR ALL SHARP EDGES & CORNERS ON CASTINGS, MACH. PARTS, SHT. METAL PARTS MAT'L: SEE ABOVE TYPE : MANUFACTURED	DIVISION: FRESNO VALVES		
	DROP-IN GATES 83" WIDE X 54" HIGH ALUM DUAL SLIDE-WEIR GT W/153" #304 SS FRAME, IB05 TANDEM LIFT ASSY, SS ASSY FSTRS, SS ANCHORS INSTALLATION DRAWING SCALE: NTS WEIGHT: 1300 lbs SHEET 3 OF 5 DRAWING NO. S01-214644-04076-01		

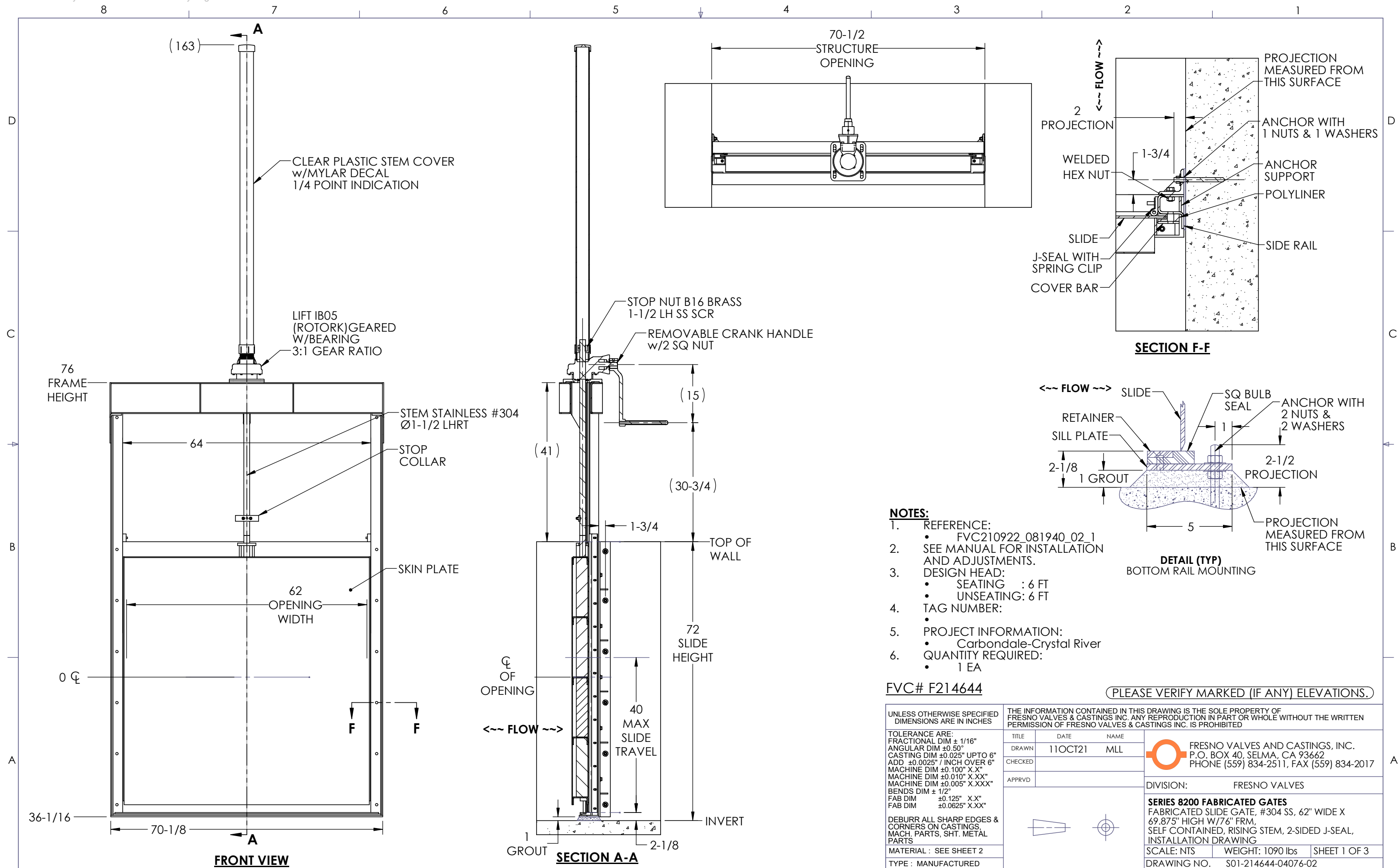


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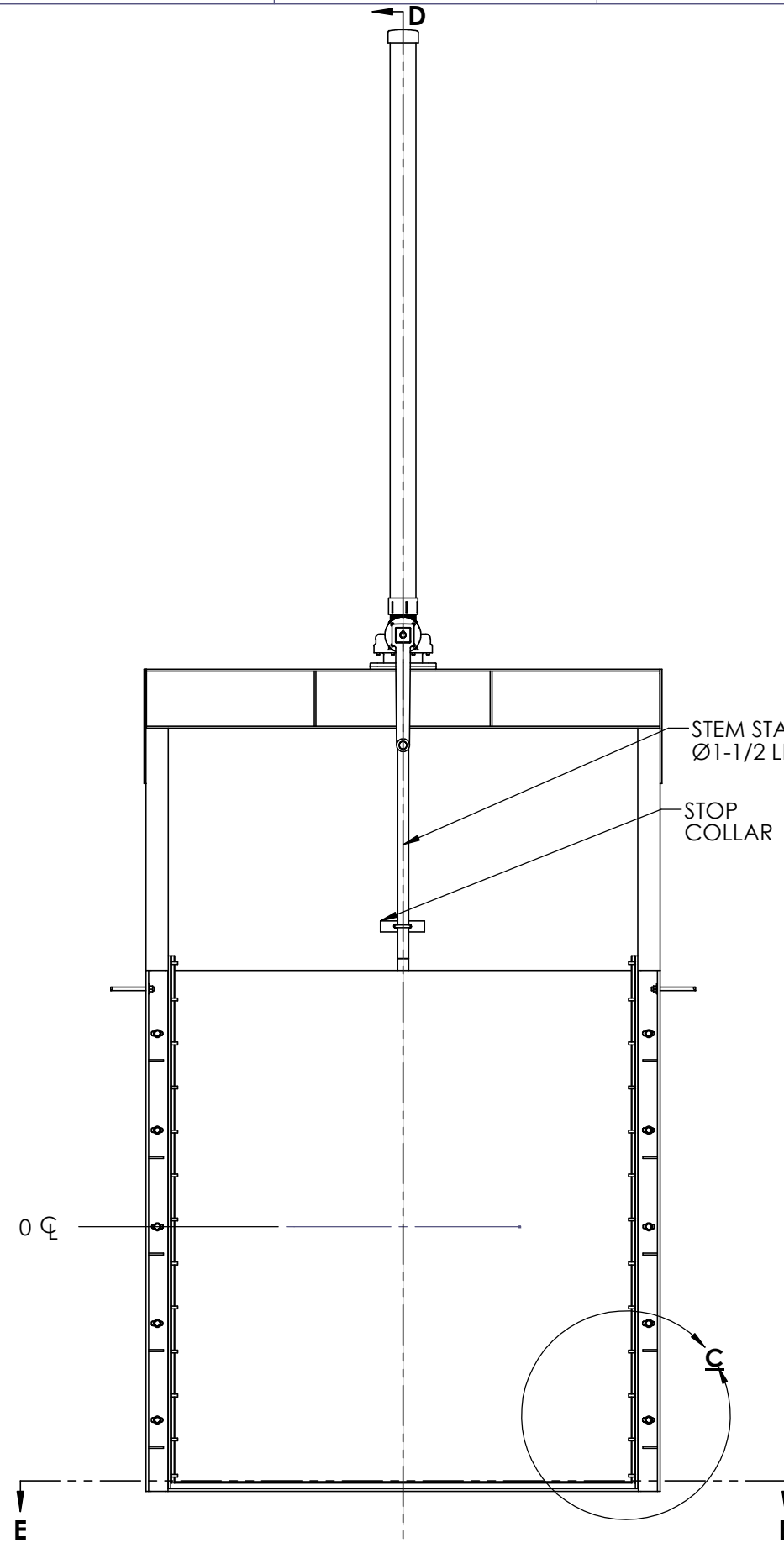
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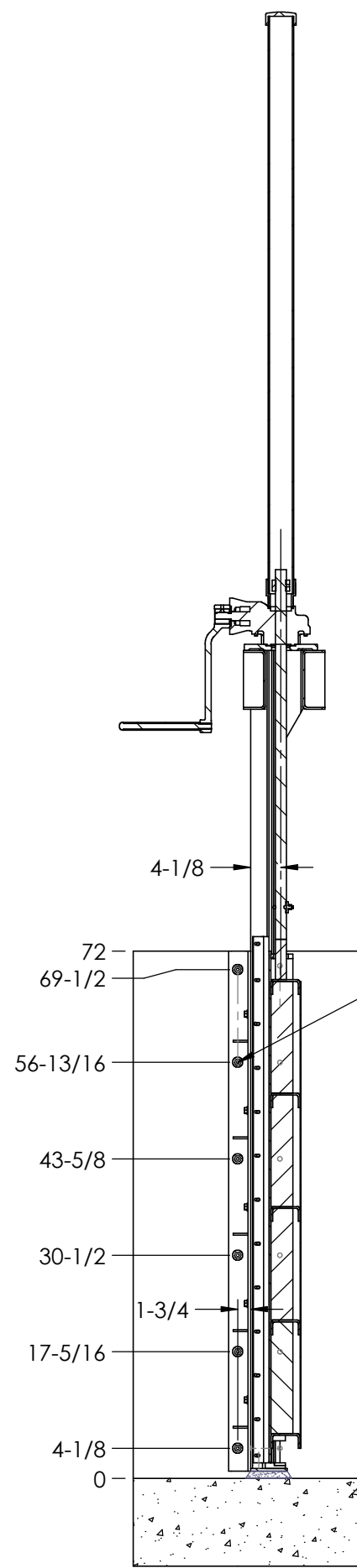
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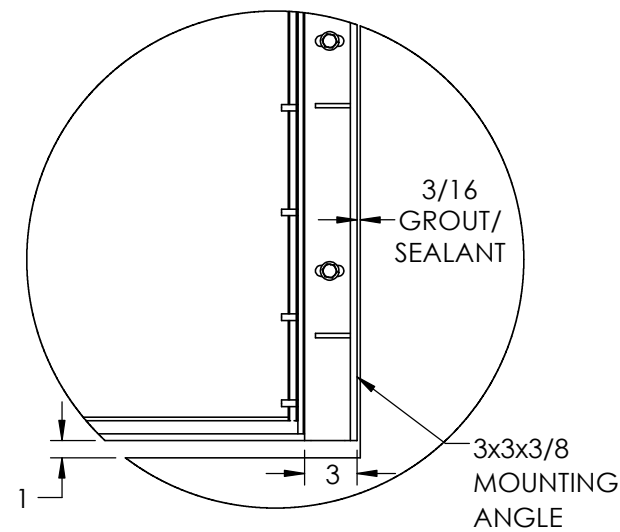
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BACK VIEW



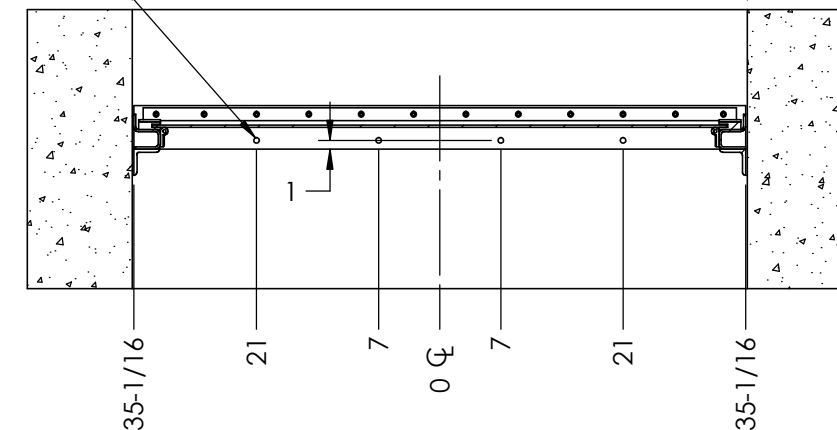
SECTION D-D



DETAIL C

(4) - Ø1/2 X 8 #304 SS
BEVELLED STUDS (EPOXY BY OTHERS)
W/ 2 NUTS & 2 WASHERS EA

70-1/2
OPENING
STURCTRURE



SECTION E-E

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOLERANCE ARE:
FRACTIONAL DIM. ± 1/16"
ANGULAR DIM. ± 0.50°
CASTING DIM. ± 0.025" UPTO 6"
ADD ± 0.0025" / INCH OVER 6"
MACHINE DIM. ± 0.100" X.X"
MACHINE DIM. ± 0.010" X.XX"
MACHINE DIM. ± 0.005" X.XXX"
BENDS DIM. ± 1/2°
FAB DIM. ± 0.125" X.X"
FAB DIM. ± 0.0625" X.XX"

DEBURR ALL SHARP EDGES &
CORNERS ON CASTINGS,
MACH. PARTS, SHT. METAL
PARTS

MATERIAL : xx

TYPE : "PMT"

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P.O. BOX 40, SELMA, CA 93662
PHONE (559) 834-2511, FAX (559) 834-2017

DIVISION: FRESNO VALVES

SERIES 8200 FABRICATED GATES
FABRICATED SLIDE GATE, #304 SS, 62" WIDE X
69.875" HIGH W/76" FRM,
SELF CONTAINED, RISING STEM, 2-SIDED J-SEAL,
INSTALLATION DRAWING

SCALE: NTS WEIGHT: 1090 lbs SHEET 2 OF 3

DRAWING NO. S01-214644-04076-02

D

C

B



A

A



FVC# F214644

REFERENCE: FVC210922_081940_02_1

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	DRAWN	11OCT21	MLL	
	CHECKED			
	APPRVD			
			DIVISION: FRESNO VALVES	
	SERIES 8200 FABRICATED GATES FABRICATED SLIDE GATE, #304 SS, 62" WIDE X 69.875" HIGH W/76" FRM, SELF CONTAINED, RISING STEM, 2-SIDED J-SEAL, INSTALLATION DRAWING			
	SCALE: NTS		WEIGHT: 1090 lbs	SHEET 3 OF 3
	DRAWING NO. S01-214644-04076-02			