Memo

To: City Council

From: Peter Brixius, City Manager

Date: 5/7/2021

Re: Yampa River Corridor Project Engineering

To meet the Merit for Further Consideration requirements received from the Economic Development Administration (EDA) regarding Assistance to Coal Communities funding for the Yampa River Corridor Project, the City of Craig recently requested a design and engineering cost proposal from Riverwise Engineering.

Riverwise has in-depth knowledge and experience working within this section of the Yampa River having completed the 2016 Site Feasibility and Conceptual Report for the current Yampa River Diversion Structure Whitewater Park and their most recent work executing the Loudy-Simpson Boat Ramp permitting and engineering.

The City of Craig's timeline to meet EDA's requirements to secure our requested $1.8 million in construction funding for the Yampa River Corridor Project is heavily contingent on expeditiously completing the project engineering and starting the instream permitting applications.

The Yampa River Corridor Project has captured a growing list of local, regional, and state-wide project partners and collaborators. Moffat County has committed $25,000 in support of design and engineering and the City of Craig has proactively secured grant funding from the Yampa White Green Basin Roundtable, Resources Legacy Fund, and the Yampa River Fund. In addition to the funding support for the engineering components of the project, the City of Craig has committed construction match funding from Friends of the Yampa, the Northwest Colorado Chapter of Parrotheads, and Trapper Mine.

It is my recommendation to proceed with Riverwise Engineering and their proposal which totals $237,455 for the design and engineering of the Yampa River Corridor Project.

YAMPA RIVER CORRIDOR PROJECT BUDGET

	AMOUNT	NOTES
Construction	$ 2,304,581.00	
COMMITTED MATCH		
City of Craig	$ 397,916.00	
Friends of the Yampa	$ 25,000.00	
NWCO Parrotheads	$ 8,000.00	
Trappermine	$ 30,000.00	
Architectural & Engineering	**$ 237,455.00**	**RIVERWISE ENGINEERING / FALL EDA DEADLINE**
COMMITTED MATCH/GRANTS		
Moffat County	$ 25,000.00	
YWG Basin Roundtable	$ 65,000.00	
Resources Legacy Fund	$ 80,000.00	
Yampa River Fund	$ 18,000.00	* potential for unused YRF funds to be re-directed to this project
TOTAL	$ 188,000.00	
Remaning/City of Craig	$ 49,455.00	
TOTAL PROJECT COST	$ 2,542,036.00	
EDA Request	$ 1,843,665.00	

Riverwise Engineering

Yampa River Improvements At Diversion Park and Loudy Simpson Park, Craig, CO

Preliminary Design, Permitting, Final Design, and Construction Observations

5/5/2021 Revision 2 - Including Timeline

	TASK	Task Subtotal	Phase Subtotal	Anticipated Completion Date (Assumes early May 2021 Notice to Proceed)
Task 1: Instream Preliminary Design, Modeling, and Permitting Applications			$ 113,500	
1.1	**Bathymetric Survey:** Includes field data collection and creation of a one-foot contour digital topographical map of the Diversion Park project area. RWE staff will be involved with the process and that work may include field data collection help, survey limit creation, data collection oversight, and quality control.	$ 7,400		June 15th, 2021
1.2	**Instream Preliminary Design:** 60% drawings including plan, profile and section of Improvements as noted in the Preliminary Engineering Report completed by SGM in October of 2020. Loudy Simpson improvements are complete to this level. The plan will incorporate comments and suggestions by stakeholders. Includes one review and on-going coordination with City staff and stakeholders.	$ 9,920		September 15th, 2021 (Draft)
1.3	**Preliminary Instream Cost and Quantity Estimate:** Cost and quantity estimates suitable for 60% design drawings and permit applications. Loudy Simpson improvements are complete to this level.	$ 2,240		September 15th, 2021 (Draft)
1.4	**Instream Permit Applications:** Includes permit applications (no permit fees) for work below the ordinary high water line. Deliverables include US Army Corps of Engineers 404 and 408 permit applications, and local floodplain permit application. Does not include permit applications that may be necessary for work upland of the ordinary high water line.	$ 11,840		November 15th, 2021 Pre-Permit Submittal January 15th, 2022 Submittal
1.5	**Hydrologic and Hydraulic Analysis Related to Floodplain:** Includes updating the existing HEC-RAS Model of Record (previously digitized and calibrated by RWE) to include the existing and proposed infrastructure produced from a 3-D surface. Assumes No-Rise Conditions and City staff will publish any floodplain notices.	$ 8,000		November 15th, 2021
1.6	**Two-Dimensional Hydraulic Model:** Includes creation of a two-dimensional hydraulic model using HEC-RAS software. The model will be used for hydraulic analysis related to sediment transport, fish passage, and scour assessments at Diversion Park. No model will be created for Loudy Simpson Improvements. RWE anticipates the model will be required during permit review.	$ 13,600		November 15th, 2021
1.7	**Cofferdam Design:** Includes design and recommendations to contractor for placement, elevations, and extents of the cofferdams needed for the project.	$ 960		September 15th, 2021
1.9	**Construction Access and Staging Design:** Assumes access and staging area will occur near upland improvements.	$ 1,120		September 15th, 2021
1.10	**Historical and Cultural Resource Study:** Includes a project area study consistent with requirements for the USACOE 404 process and creation of a figure showing the Area of Potential Effect (APE).	$ 8,000		August 15th, 2021

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	TASK	Task Subtotal		Anticipated Completion Date (Assumes early May 2021 Notice to Proceed)
1.11	**Biological Surveys, Agency Coordination, and Additional Permit Documentation:** Includes completion of biological surveys needed for EDA EA requirements, 404 permitting requirements and Section 7 Consultation. The project team will coordinate with agencies through the process and complete application documentation needed. Assumes no surveys are needed at the Loudy Simpson Improvements.	$ 35,200		On-going
1.12	**Meetings and Coordination:** Includes up to four agency meetings and seven project team teleconference meetings (formal or informal). Includes City and subconsultant coordination and responses to City requests.	$ 5,280		On-Going
1.13	**Basis of Design Report:** Includes creation of a Basis of Design Report for Diversion Park outlining the design premises, a reference to the alternatives, summarization of the hydrological and hydraulic calculations, and a summary of design parameters used in the project for the instream structures.	$ 5,600		January 15th, 2022
1.14	**Expenses:** Includes office expenses plus assistance with the bathymetric survey.	$ 4,340		
	Task II: Environmental Narrative for EDA Funding		$ 12,220	
2.1	**Project Narrative and USGS Map:** Includes a description of the project components in detailed, quantifiable terms and creation of a USGS topographical map.	$ 2,560		June 15th, 2021
2.2	**Need and Purpose Statement and Alternatives Analysis:** Includes a brief summary of the need and purpose for the project. The alternatives analysis includes a description of at least three alternatives including the No Project alternative. The analysis will be used for both the EDA funding and the 404 permit application.	$ 5,440		September 15th, 2021
2.3	**Water Resources:** Includes a description of the existing surface and groundwater resources, and any impacts to these resources. Includes an assessment of the potential for a NPDES permit and completion of a permit application form, if needed. Includes assessment of 303(d) listing and EPA sole source aquifer recharge area designation, and a summary of stormwater runoff changes, additions, and modifications resulting from the project. If the project is found to affect 303(d) or EPA jurisdictions, additional studies, analysis, and the associated fees should be	$ 2,720		June 30th, 2021
2.4	**Permits and Schedule Organization Chart:** Includes creation of a permit organization chart showing necessary permits, status, and correspondence. Based on correspondence with Melanie, we understand the City will be responsible for updates on the chart, organization of documents, and similar management and administrative tasks associated with the project.	$ 960		June 15th, 2021
2.5	**Expenses:** Includes office expenses	$ 540		

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Task III: Upland Preliminary and Final Design			$ 8,375	**Anticipated Completion Date (Assumes early May 2021 Notice to Proceed)**
3.1	**Upland Preliminary, Final, and Construction Documents:** Design services to include preliminary design, final design, and contract documents for improvements noted in the PER completed by SGM in October 2020.	$ 5,120		Spring 2022
3.2	**Upland Preliminary and Final Cost and Quantity Estimates:** Includes cost estimates at the 60% and 90% level to be used for planning, permitting, and bidding purposes.	$ 2,880		Spring 2022
3.3	**Expenses:** Includes office expenses.	$ 375		
Task IV: Final Design, Permitting Support & Construction Documents			$ 29,220	
4.1	**Instream Final Design Construction Ready Documents**: Includes plan, profile, and section drawings. Plan drawings include key elevations required for construction plus relevant dimensions. Profile drawings include existing and proposed elevations. Section drawings include existing and proposed dimensions including key elevations and break points. Deliverables include typical drawings for additional areas, as needed.	$ 7,680	Includes $10,000 for responses related to Item 4.2	August 15th, 2022
4.2	**Responses:** Respond to questions, comments, and concerns from federal, state, and local permitting agencies including US Army Corps of Engineers, US Fish and Wildlife Service, and Colorado Parks and Wildlife 404 issues.	Hourly: $160/hour estimated at $10,000		Summer 2022
4.3	**Final Cost and Quantity Estimates:** Includes cost estimates at the 90% level to be used for planning and bidding purposes.	$ 2,560		August 15th, 2022
4.4	**Specifications, Structural Specifications, and General Notes:** Includes final design specifications for construction of project following applicable standards. Includes general notes, standards, recommendations, and criteria for construction of specific elements of the project.	$ 3,360		August 15th, 2022
4.5	**On-site Meeting:** Includes one RWE representative on-site to meet with stakeholders, City staff, and sub consultants to discuss the construction process, and solve pre-construction problems and concerns. Assumes all sites can be visited during the meeting.	$ 2,720		November 1st, 2022
4.6	**Expenses:** Includes office expenses plus direct expenses associated with one on-site meeting.	$ 2,900		
Task V: Construction Observations			$ 41,460	
5.1	**Construction Observations**: Includes four trips of up to three days for on-site observations during construction. Work includes coordination with City and County staff prior to, and following, the visits. RWE staff will be available to review shop drawings, construction techniques, materials, and any other contractor coordination that is needed.	$ 32,000		November/December 2022
5.2	**Contractor Invoice and Submittal Review:** Includes coordination and review of submittals to assist the City and County with contracting and billing.	$ 2,560		December/January 2022/2023
5.3	**Expenses:** Includes office expenses plus direct expenses associated with five on-site visits.	$ 6,900		

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	Task VI: Wetland Impact Mitigation		$ 32,680	Anticipated Completion Date (Assumes early May 2021 Notice to Proceed)
6.1	**Wetland Mitigation Plan**: Includes creation of a wetland mitigation plan for both sites consistent with USACOE requirements during the 404 permitting process.	$ 6,200		January 15th, 2022
6.2	**Wetland Construction Observations:** Includes observations during planting and creation of wetland mitigation areas to ensure maximum vegetation survival and minimum future maintenance.	$ 5,800		Spring 2023
6.3	**Wetland Monitoring:** Includes monitoring as required by the USACOE during the 404 permitting process. These costs will be incurred over the period of five years following construction.	$ 19,000		On-Going
6.4	**Expenses:** Includes office expenses plus direct expenses associated with five on-site visits.	$ 1,680		
		.	**$ 237,455**	

Notes:

1) Does not include additional surveying following construction nor any permit conditions or additionally requested studies from permitting agencies that are not included in this proposal. Does not include sediment transport studies.

2) Does not include additional local permits that may be necessary prior to construction. These will be acquired by the contractor during construction phase services. Does not include NPDES permit or SWMP, which may be required during construction.

3) Assumes "No Rise" Conditions. Does not include completion of a Conditional Letter of Map Revision (CLOMR) or LOMR.

4) Construction administration and observations are required by GEI and RWE staff.

5) Costs are based on the following hourly rates: Principal Engineer $160/hr., Civil Engineer $145/hr., Principal Architect $125/hr., Architect $90/hr., Biologist $115/hr., Graphics $95/hr., Administrative $65/hr.

6) Assumes City staff will publish all notices required for the EDA funding.

7) Assumes all wetland delineations cover the project areas and will be valid.

8) Tasks IV, V, and VI to be revisited following permit acquisition and the noted costs should be considered preliminary estimates.

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APPENDIX A - Loudy Simpson Boat Ramp engineering documents

LOUDY SIMPSON IMPROVEMENTS PROJECT

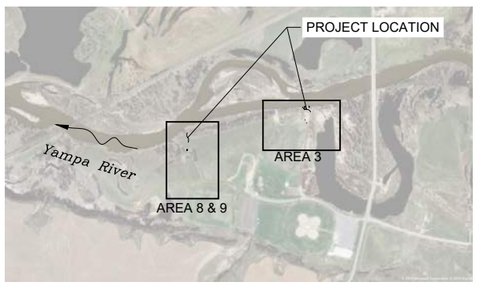
MOFFAT COUNTY

MAY 2019

PRELIMINARY CONCEPT REVIEW DRAWINGS

VICINITY MAP

SCALE: 1"=3,000' (FOR 22X34" SHEETS)



SITE PLAN

SCALE: 1"=1000' (FOR 22X34" SHEETS)

PROJECT LOCATION:

LATITUDE 40°29'56.5"N
LONGITUDE 107°33'27.3"W

MOFFAT COUNTY

PROJECT NOTES:

1. RWE STAFF SHALL BE PRESENT FOR CONSTRUCTION OF KEY ASPECTS OF THIS PROJECT
2. THESE DRAWINGS ARE CONCEPTUAL AND NOT INTENDED FOR PERMITTING, BIDDING OR CONSTRUCTION.
3. CONTRACTOR SHALL COMPLY WITH ALL PERMIT CONDITIONS REFERENCED IN UNITED STATES ARMY CORPS OF ENGINEERS 404 PERMIT NUMBER: SPK-_____
4. CONTRACTOR SHALL CONTACT AND FILE APPROPRIATE NOTIFICATION WITH COLORADO 811 PRIOR TO CONSTRUCTION.

WETLAND NOTES:

WETLAND REMEDIATION FACTOR:
WETLAND IMPACTED: ACRES
WETLAND CREATED: ACRES

SURVEY NOTES:

ALL SURVEY WORK COMPLETED BY PETER EPP OF EPP & ASSOCIATES INC. PROFESSIONAL LAND SURVEYORS.

433 4TH AVENUE WEST
PO BOX 837
CRAIG, CO 81625

PHONE (970) 824-8236
FAX (970) 824-5227

PROJECT OWNER:

BOARD OF COUNTY COMMISSIONERS MOFFAT COUNTY COLORADO
C/O RAY BECK
221 WEST VICTORY WAY, SUITE 130
CRAIG, COLORADO, 81625
970-824-5516

ENGINEER OF RECORD:

SHANE SIGLE, P.E.
RIVERWISE ENGINEERING, LLC
PO BOX 706
DURANGO, CO 81302
303-808-7734
INFO@RIVERWISE.ORG

SHEET INDEX:

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ABBREVIATIONS:

AVG	AVERAGE	N	NORTH
DTL	DETAIL	NTS	NOT TO SCALE
E	EAST	OC	ON CENTER
ELEV	ELEVATION	OHWM	ORDINARY HIGH WATER MARK
FT	FEET	SHT	SHEET
IN	INCHES	STA	STATION
MAX	MAXIMUM	STD	STANDARD
MIN	MINIMUM	TYP	TYPICAL

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LOUDY-SIMPSON IMPROVEMENTS PROJECT
MOFFAT COUNTY
YAMPA RIVER
PRELIMINARY - NOT FOR CONSTRUCTION
TABLE OF CONTENTS

REVISIONS:

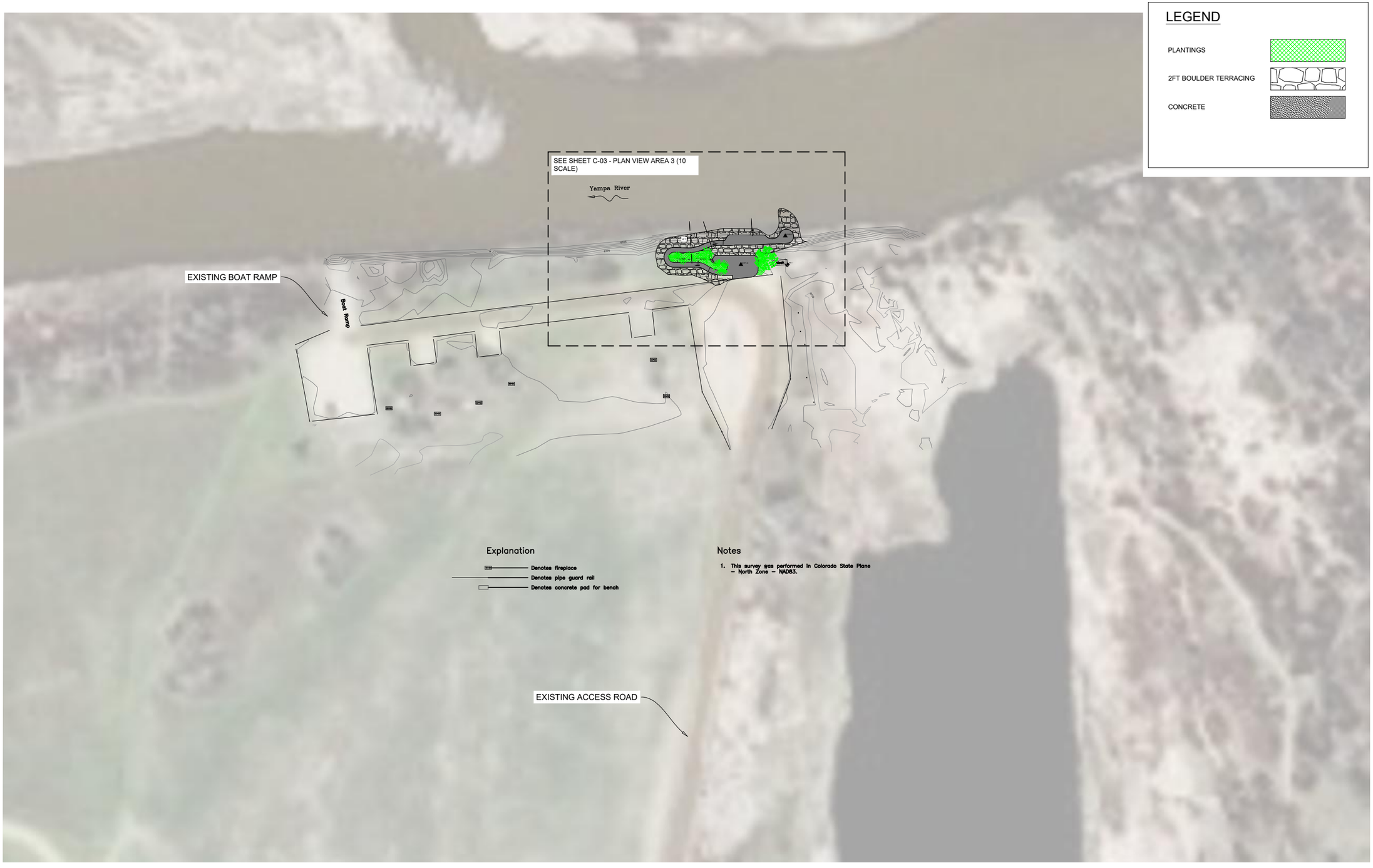
NO.	DATE

DESIGNED: SS DRAFTED: RG
CHECKED:
PLOT DATE: 5/18/2019

DRAWING NO.

C-01

SHEET C-01 OF 15



OVERVIEW - AREA 3

SCALE: 1"=50'

N

SCALE BAR 1"=50'

50 0 50

CONTOUR INTERVAL 1FT

Riverwise Engineering

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LOUDY-SIMPSON IMPROVEMENTS PROJECT

YAMPA RIVER

MOFFAT COUNTY

PRELIMINARY - NOT FOR CONSTRUCTION

OVERVIEW - AREA 3

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C-02

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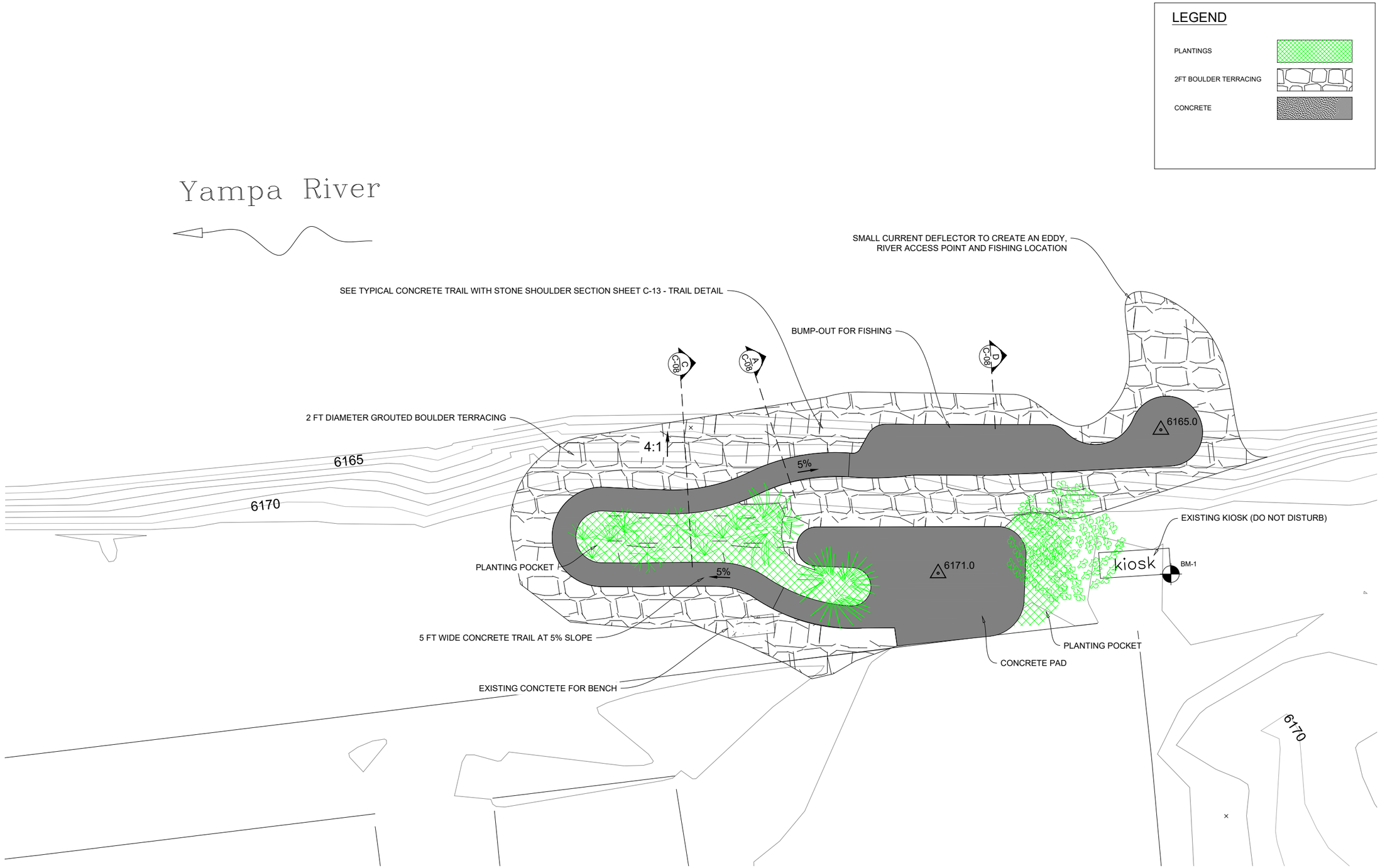

PLAN VIEW SITE PLAN AREA 3

SCALE: 1"=10'

N

SCALE BAR 1"=10'

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CONTOUR INTERVAL 1FT

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PLAN VIEW AREA 3 (10 SCALE)

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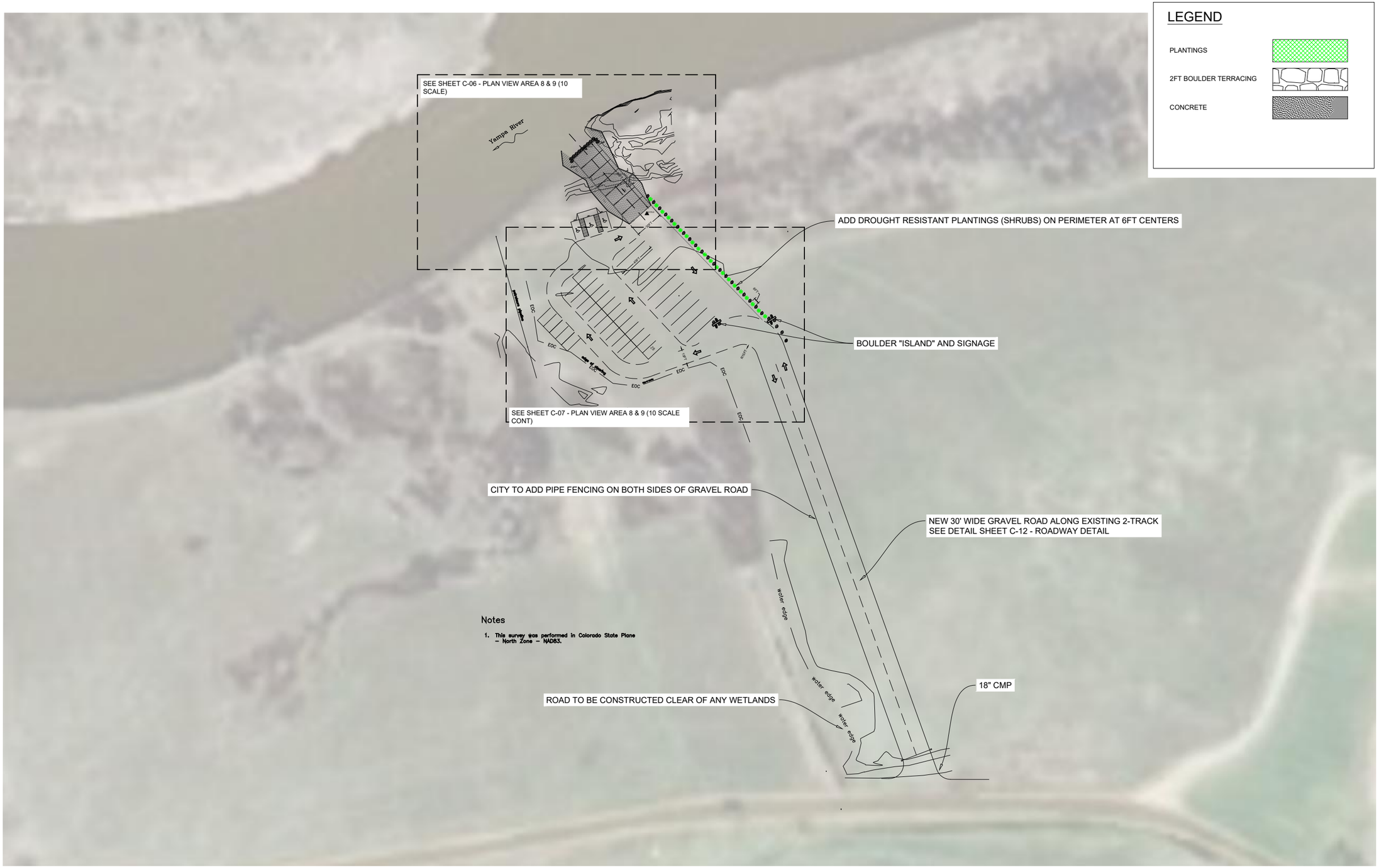

LEGEND

- PLANTINGS
- 2FT BOULDER TERRACING
- CONCRETE

OVERVIEW - AREA 8 & 9

SCALE: 1"=50'

N

SCALE BAR 1"=50'

50 0 50

CONTOUR INTERVAL 1FT

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MOFFAT COUNTY
YAMPA RIVER
PRELIMINARY - NOT FOR CONSTRUCTION
OVERVIEW - AREA 8 & 9

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C-04

SHEET C-04 OF 15

LEGEND

- PLANTINGS
- 2FT BOULDER TERRACING
- CONCRETE

PLAN VIEW SITE PLAN AREA 8 & 9

SCALE: 1"=20'

N

SCALE BAR 1"=20'

20 0 20

CONTOUR INTERVAL 1FT

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PLAN VIEW AREA 8 & 9 (20 SCALE)

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C-05

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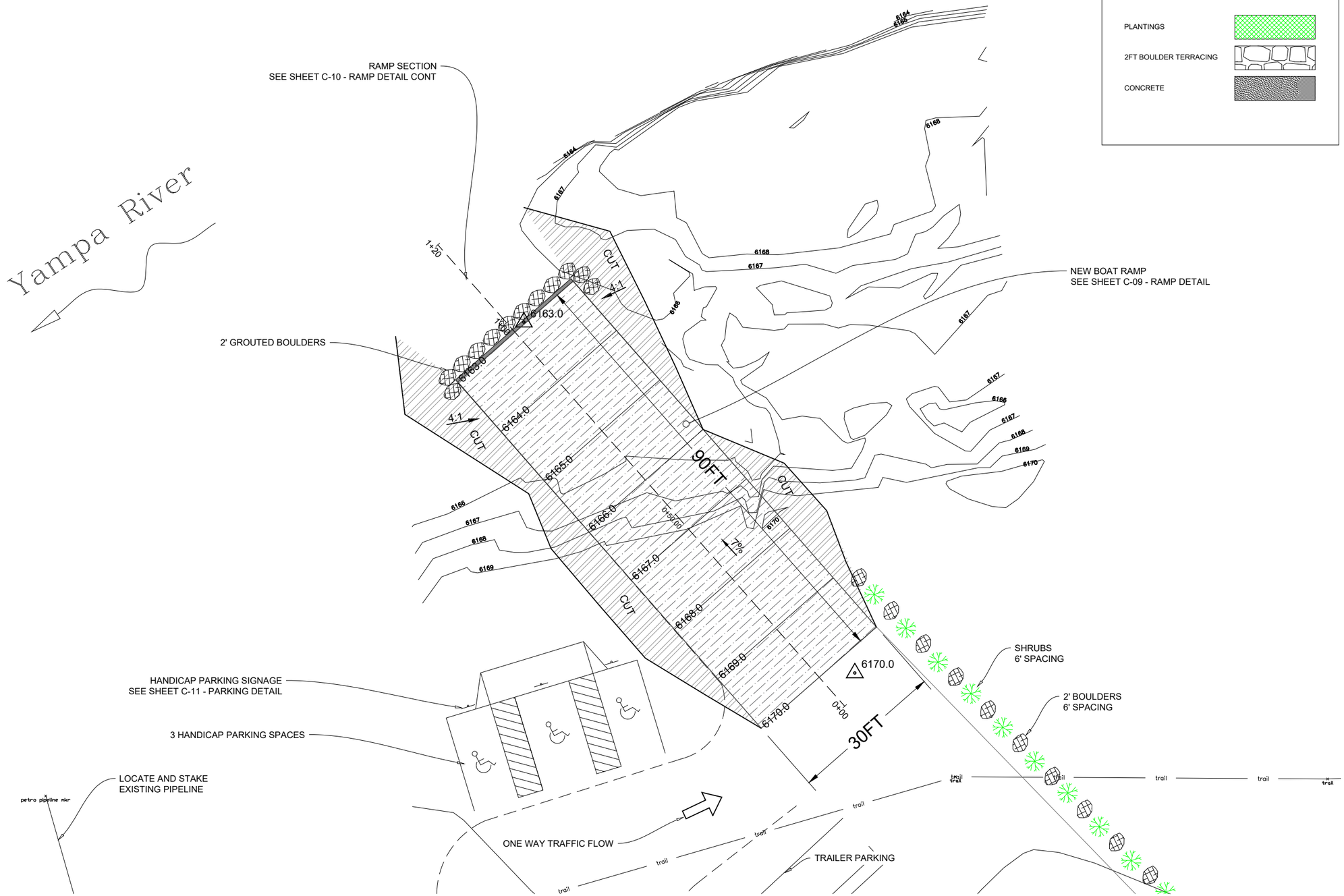

PLAN VIEW SITE PLAN AREA 8 & 9

SCALE: 1"=10'

N

SCALE BAR 1"=10'

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CONTOUR INTERVAL 1FT

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PLAN VIEW AREA 8 & 9 (10 SCALE)

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C-06

SHEET C-06 OF 15

LEGEND

- PLANTINGS
- 2FT BOULDER TERRACING
- CONCRETE

30FT

40FT

6189

6176

NEW 30' WIDE GRAVEL ROAD ALONG EXISTING 2-TRACK
SEE DETAIL SHEET C-12 - ROADWAY DETAIL

2' BOULDERS
6' SPACING

6FT

TRAILER PARKING

PARKING SPOTS

ONE WAY TRAFFIC FLOW

PRECAST CONC WHEEL STOP DELINEATORS
SEE SHEET C-11 - PARKING DETAIL

GUIDANCE SIGN 1
SEE SHEET C-11 - PARKING DETAIL

GUIDANCE SIGN 2
SEE SHEET C-11 - PARKING DETAIL

28

15FT

R15FT

petroleum pipeline

LOCATE AND STAKE
EXISTING PIPELINE

EOC

edge of clearing

Edge of clearing

ONE WAY TRAFFIC FLOW

CITY TO ADD PIPE
FENCING ON BOTH
SIDES OF GRAVEL
ROAD

PLAN VIEW SITE PLAN AREA 8 & 9
SCALE: 1"=10'

N

SCALE BAR 1"=10'
10 0 10
CONTOUR INTERVAL 1FT

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LOUDY-SIMPSON IMPROVEMENTS PROJECT
MOFFAT COUNTY
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PRELIMINARY - NOT FOR CONSTRUCTION
PLAN VIEW AREA 8 & 9 (10 SCALE CONT)

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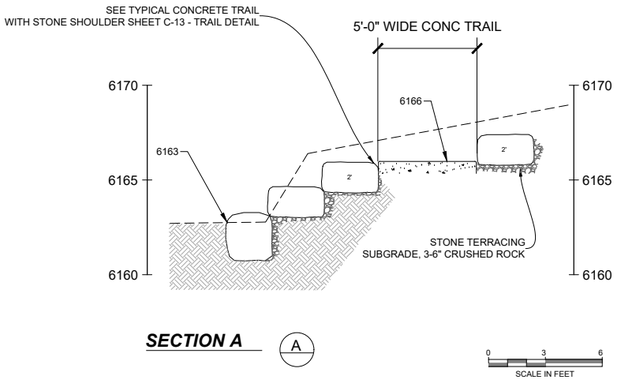
C-07

SHEET C-07 OF 15

AREA 3 SECTIONS:



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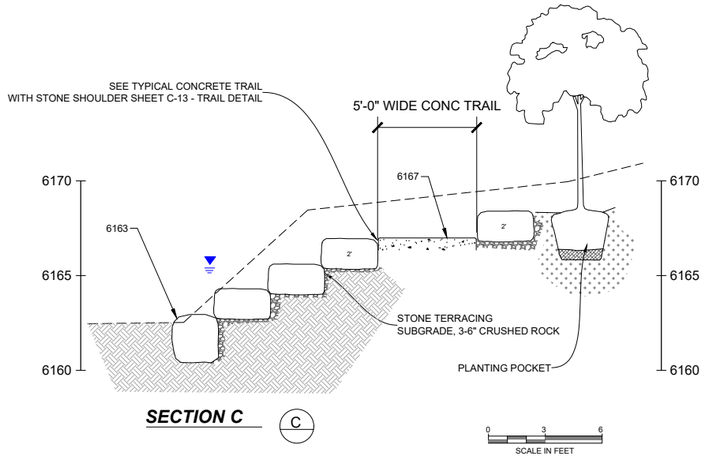

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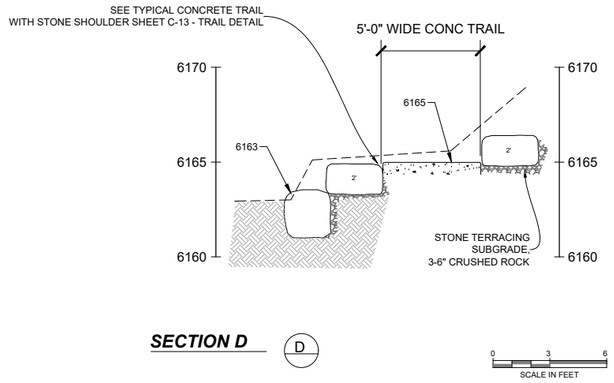


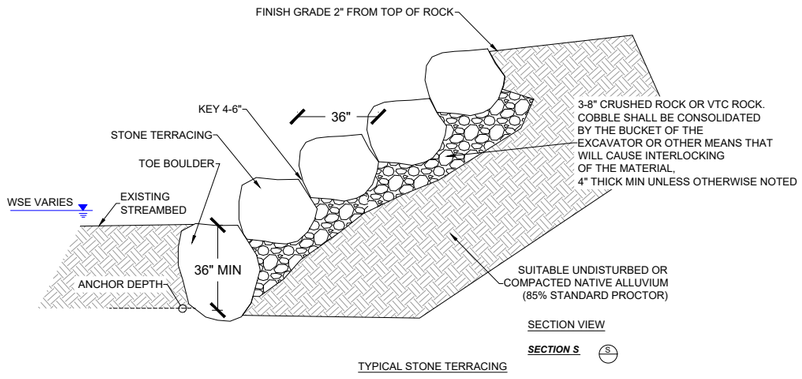
SECTION D (D)

LEGEND

EXISTING GRADE

PROPOSED GRADE

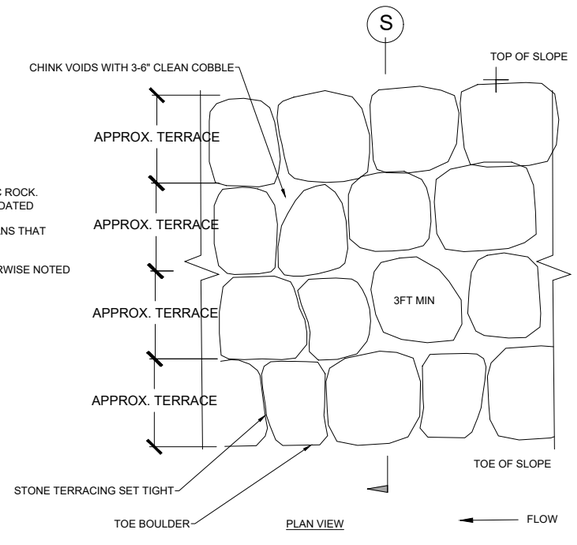
TYPICAL TERRACING



SECTION VIEW

SECTION S (S)

TYPICAL STONE TERRACING



PLAN VIEW

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LOUDY-SIMPSON IMPROVEMENTS PROJECT

MOFFAT COUNTY

YAMPA RIVER

PRELIMINARY - NOT FOR CONSTRUCTION

AREA 3 DETAILS

REVISIONS:

NO.	DATE

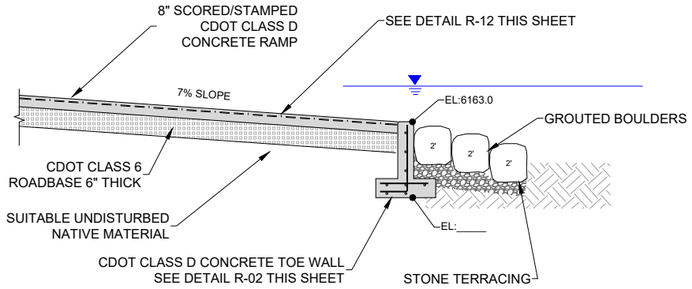
DESIGNED:	SS	DRAFTED:	RG
CHECKED:	SS		

PLOT DATE: 5/18/2019

DRAWING NO.

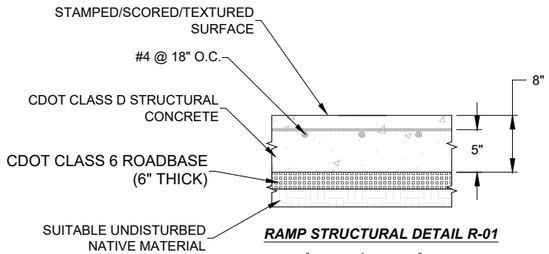
C-08

RAMP DETAILS:



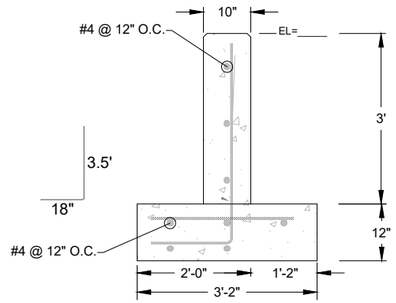
BOAT RAMP TOE SECTION

0 3 6
SCALE IN FEET



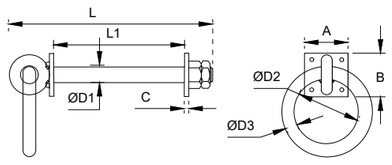
RAMP STRUCTURAL DETAIL R-01

0 1 2
SCALE IN FEET



CONCRETE TOE WALL DETAIL R-02

0 1 2
SCALE IN FEET

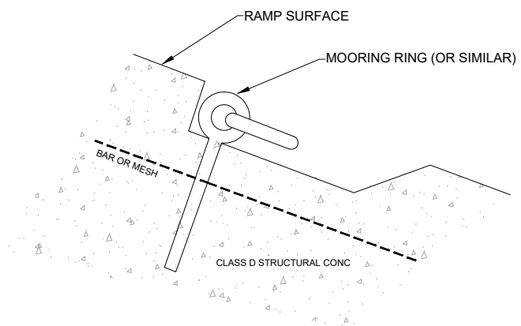


SCALE 1:40

NOTE: FINAL MOORING RING HARDWARE DIMENSIONS TBD

0 6" 12"
SCALE IN INCHES

MOORING RING DETAIL R-03



MOORING RING SURFACE DETAIL R-04

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DRAFT

PROJECT OWNER:
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Board of County Commissioners
c/o Ray Beck, MCBOCC Chair
221 W. Victory Way, Suite 130
Craig, CO 81625

LOUDY-SIMPSON IMPROVEMENTS PROJECT

YAMPA RIVER MOFFAT COUNTY

PRELIMINARY - NOT FOR CONSTRUCTION

RAMP DETAIL

REVISIONS:

NO.	DATE

DESIGNED:	SS	DRAFTED:	RG
CHECKED:	SS		

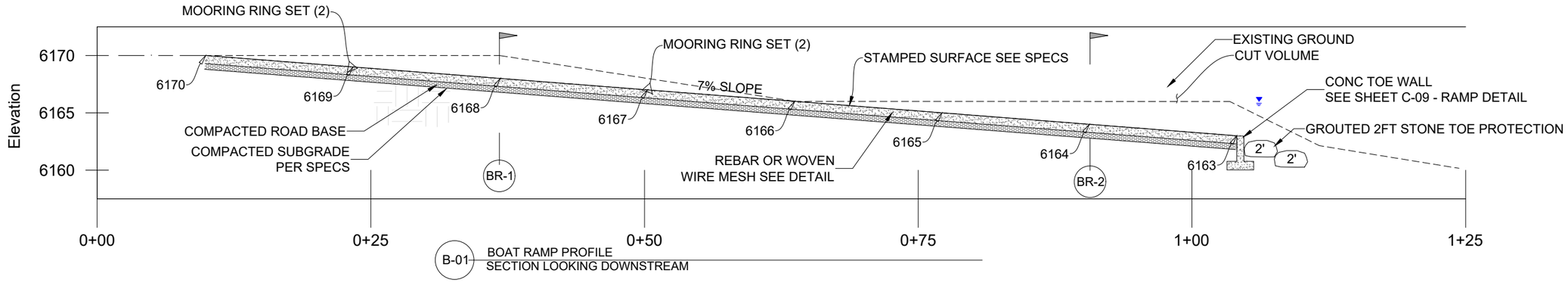
PLOT DATE: 5/18/2019

DRAWING NO.

C-09

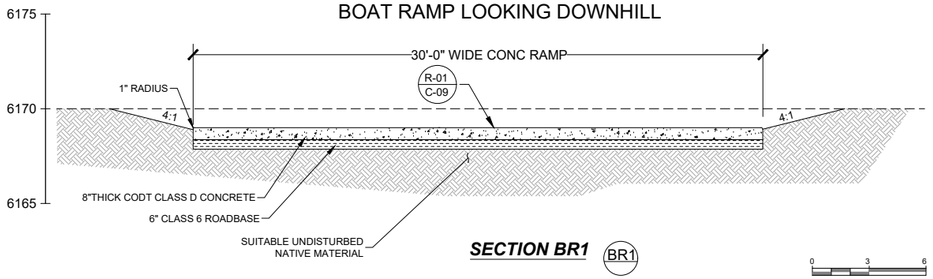
SHEET C-09 OF 15

RAMP DETAILS CONT:



B-01 BOAT RAMP PROFILE
SECTION LOOKING DOWNSTREAM

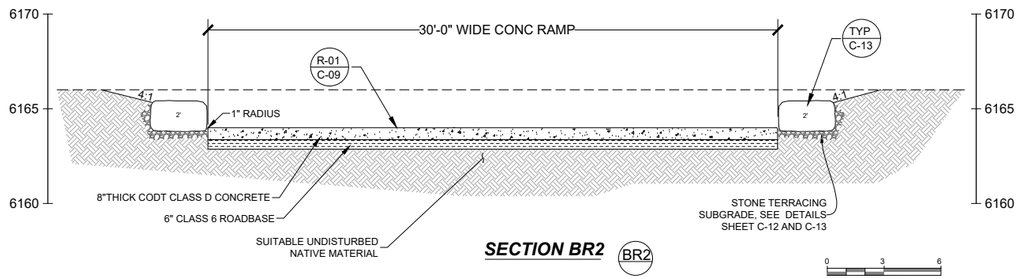
BOAT RAMP LOOKING DOWNHILL



SECTION BR1 BR1

STATION 0+36.23

BOAT RAMP LOOKING DOWNHILL



SECTION BR2 BR2

STATION 0+90.01

LEGEND

EXISTING GRADE

PROPOSED GRADE

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LOUDY-SIMPSON IMPROVEMENTS PROJECT
MOFFAT COUNTY
YAMPA RIVER
PRELIMINARY - NOT FOR CONSTRUCTION
RAMP DETAIL CONT

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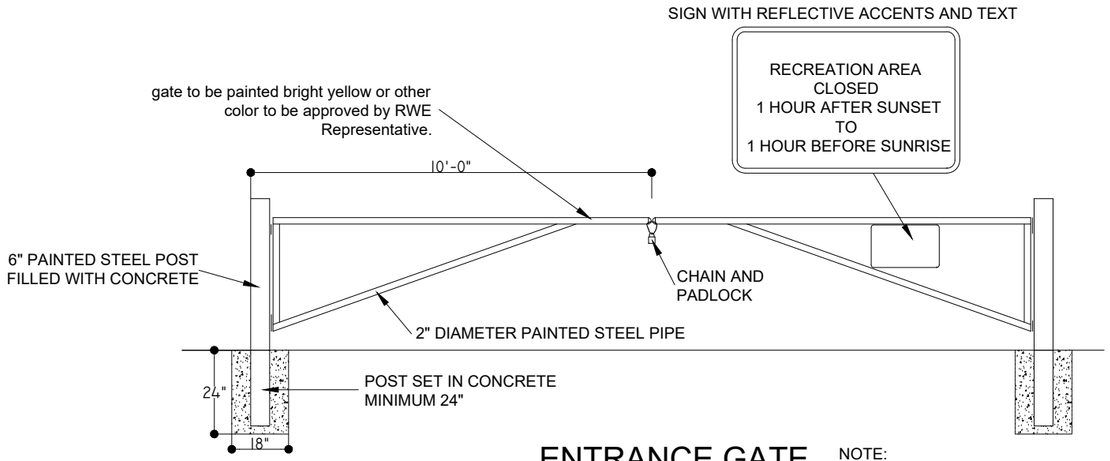
DRAWING NO.

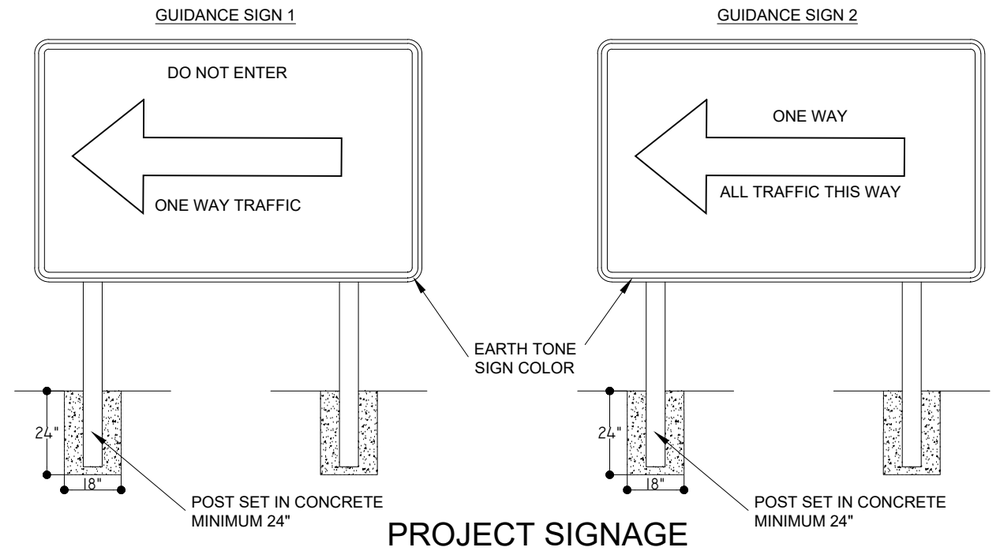
C-10

PARKING DETAILS:

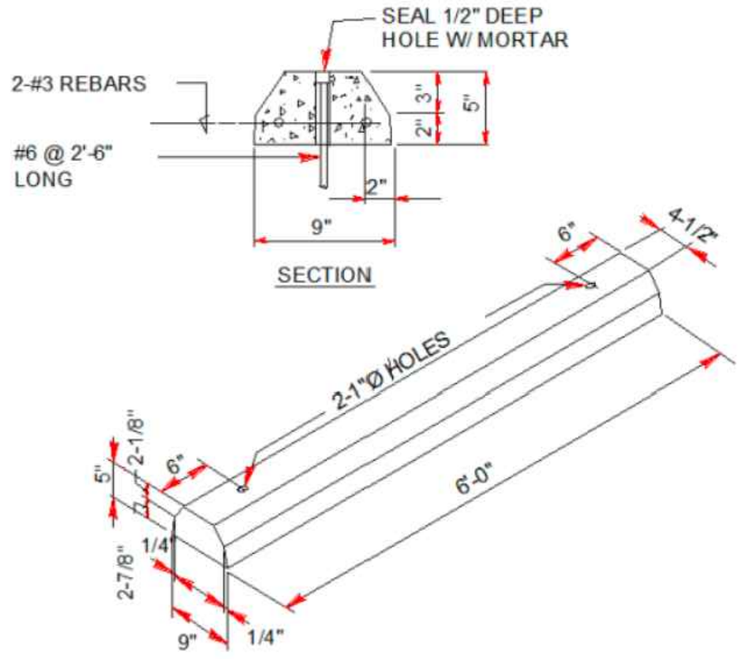


ENTRANCE GATE

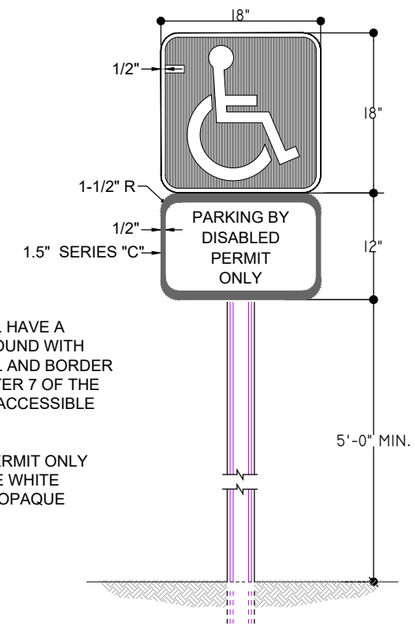
NOTE:
CONFER WITH AN RWE REPRESENTATIVE AND THE OWNER'S REPRESENTATIVE FOR THE FINAL SIGN TEXT PRIOR TO ORDERING OR FABRICATING ANY SIGNS.



PROJECT SIGNAGE



PRECAST CONCRETE WHEEL STOP



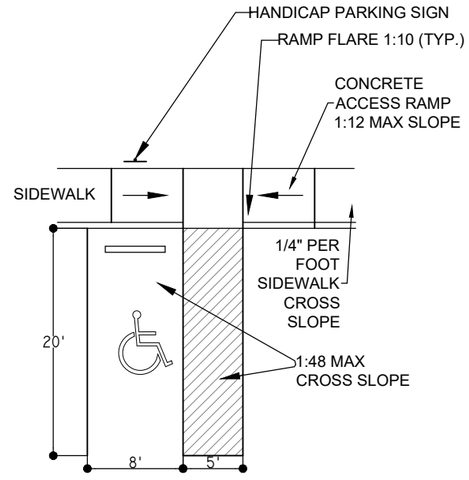
NOTES:

1. HANDICAP SYMBOL SHALL HAVE A REFLECTIVE BLUE BACKGROUND WITH WHITE REFLECTIVE SYMBOL AND BORDER AND CONFORM WITH CHAPTER 7 OF THE 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN.

2. PARKING BY DISABLED PERMIT ONLY SHALL HAVE A REFLECTEIVE WHITE BACKGROUND WITH BLACK OPAQUE LEGEND AND BORDER

HANDICAP PARKING SIGNAGE

NOT TO SCALE



STANDARD HANDICAP PARKING

NOT TO SCALE

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LOUDY-SIMPSON IMPROVEMENTS PROJECT
MOFFAT COUNTY
YAMPA RIVER
PRELIMINARY - NOT FOR CONSTRUCTION
PARKING DETAIL

REVISIONS:

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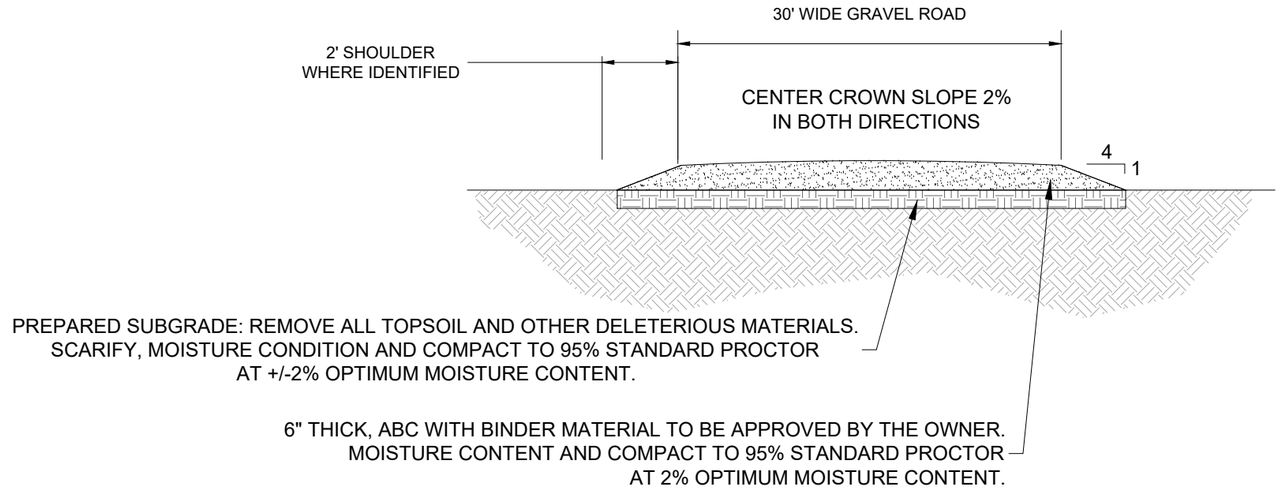
CHECKED: SS
PLOT DATE: 5/18/2019

DRAWING NO.

C-11

ROADWAY DETAILS:



Riverwise Engineering

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LOUDY-SIMPSON IMPROVEMENTS PROJECT

MOFFAT COUNTY

YAMPA RIVER

PRELIMINARY - NOT FOR CONSTRUCTION

ROADWAY DETAIL

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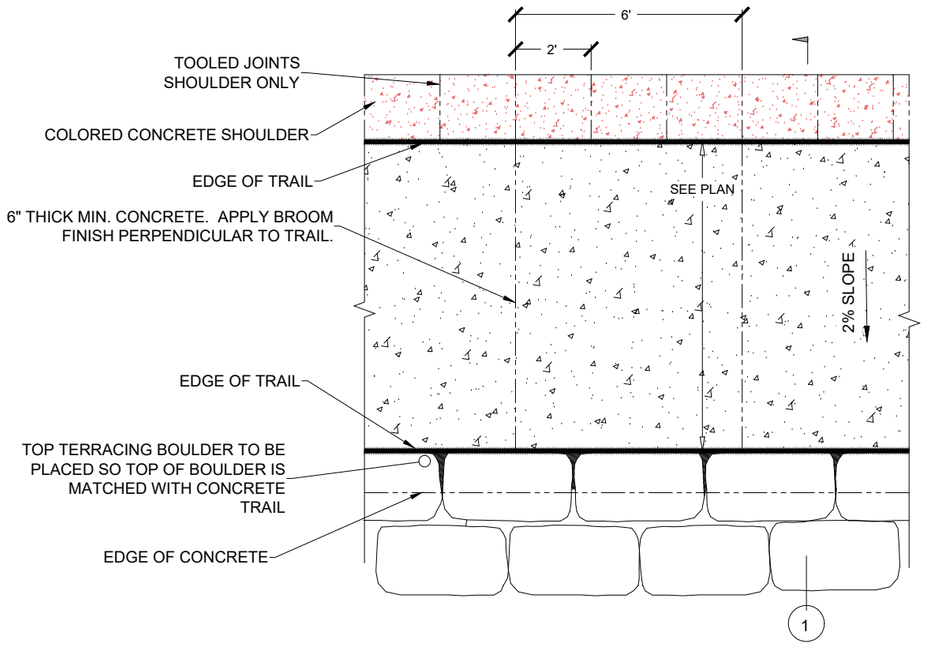
PLOT DATE: 5/18/2019

DRAWING NO.

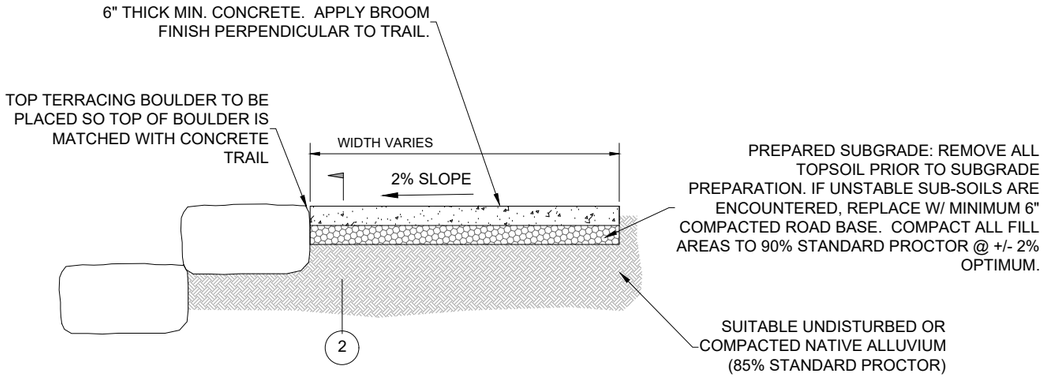
C-12

SHEET C-12 OF 15

TRAIL DETAILS:

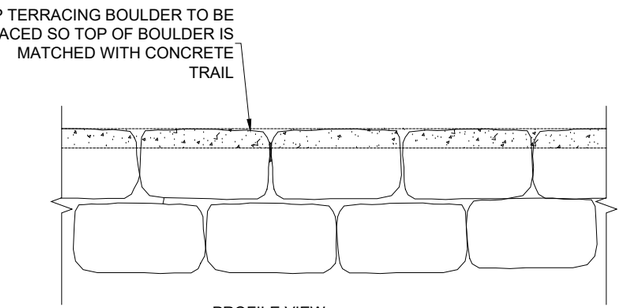


TYPICAL CONCRETE TRAIL WITH STONE SHOULDER



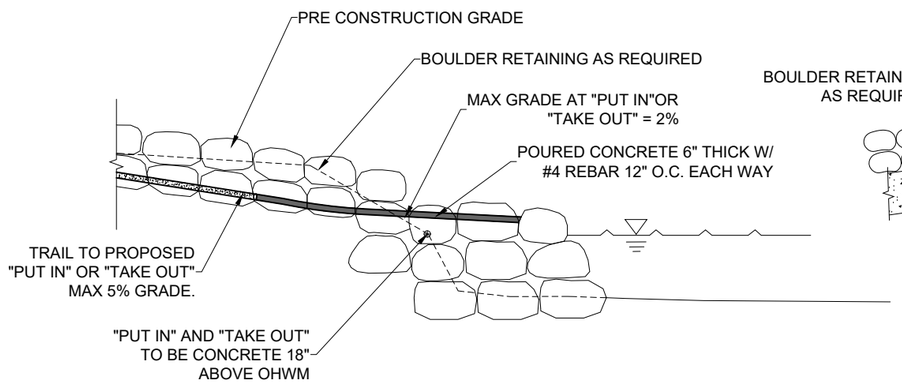
SECTION VIEW

TYPICAL SECTION 1 (1)

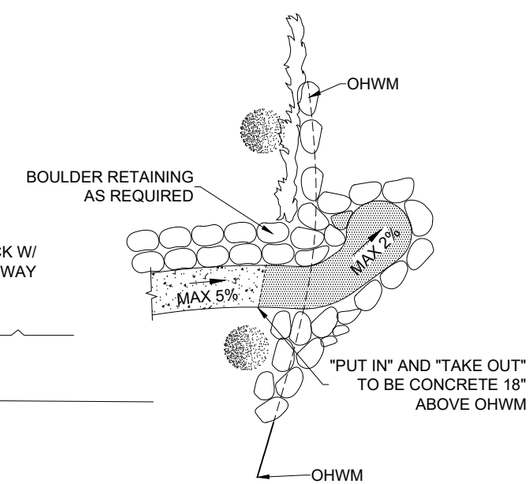


PROFILE VIEW

TYPICAL PROFILE 2 (2)



TYPICAL "PUT IN" OR "TAKE OUT" SECTION VIEW



TYPICAL "PUT IN" OR "TAKE OUT" PLAN VIEW

Riverwise Engineering

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LOUDY-SIMPSON IMPROVEMENTS PROJECT
YAMPA RIVER
MOFFAT COUNTY
PRELIMINARY - NOT FOR CONSTRUCTION
TRAIL DETAIL

REVISIONS:

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CHECKED:	SS		

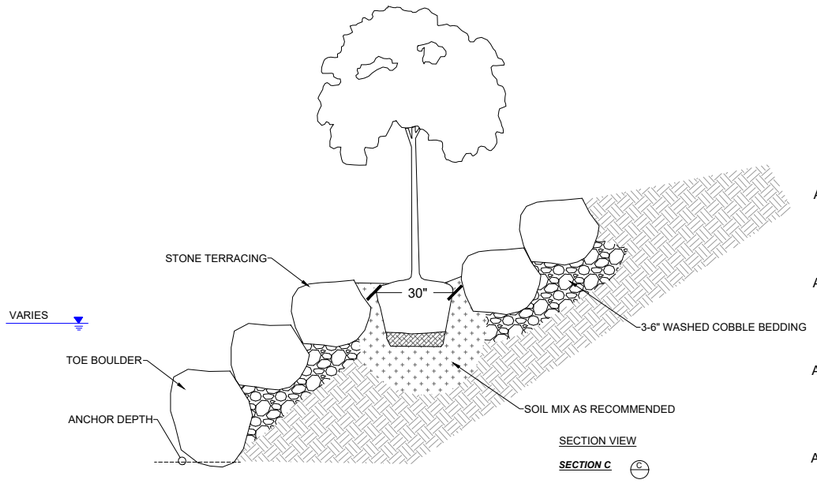
PLOT DATE: 5/18/2019

DRAWING NO.

C-13

SHEET C-13 OF 15

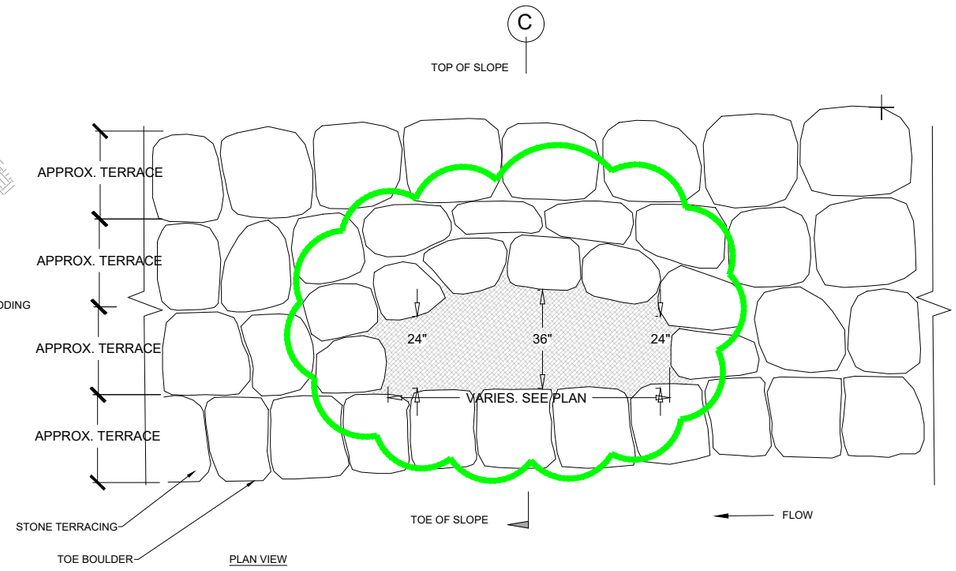
TYPICAL PLANTING POCKET DETAILS:



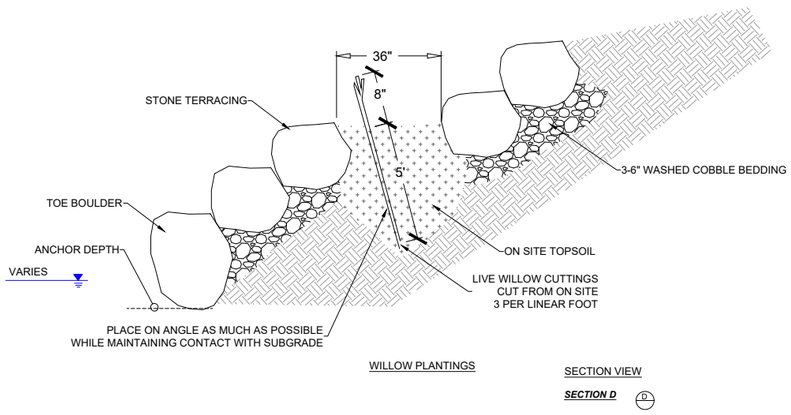
SECTION VIEW

SECTION C C

TREE PLANTINGS



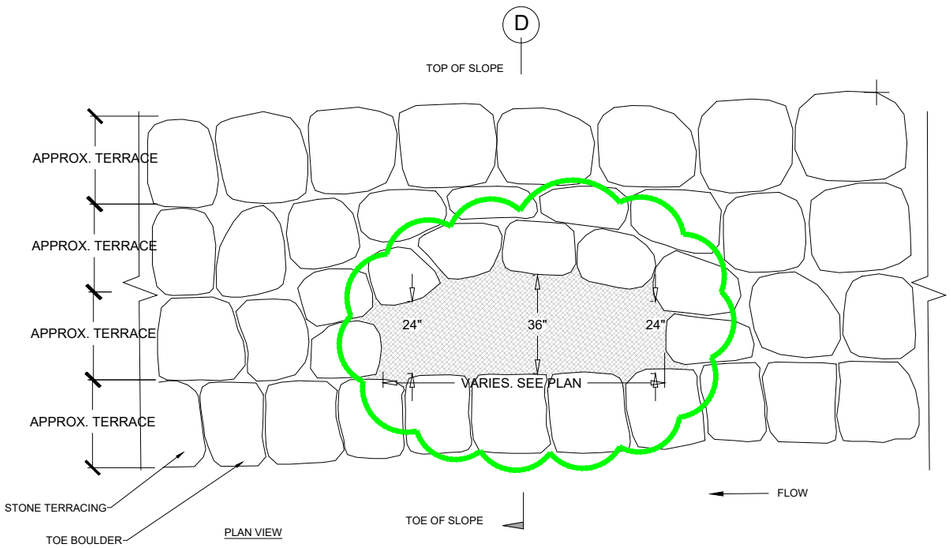
PLAN VIEW



WILLOW PLANTINGS

SECTION VIEW

SECTION D D



PLAN VIEW

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LOUDY-SIMPSON IMPROVEMENTS PROJECT
YAMPA RIVER
MOFFAT COUNTY

PRELIMINARY - NOT FOR CONSTRUCTION

PLANTING POCKET DETAILS

REVISIONS:

NO.	DATE

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CHECKED:	SS		

PLOT DATE: 5/18/2019

DRAWING NO.

C-14

PROJECT SPECIFICATIONS:

GENERAL NOTES

ENGINEERS OVERSIGHT

1. THE ENGINEER WAIVES ANY AND ALL RESPONSIBILITY, AND IS NOT LIABLE FOR PROBLEMS WHICH ARISE FROM FAILURE TO FOLLOW THESE PLANS, SPECIFICATIONS AND THE DESIGN INTENT THEY CONVEY OR FOR PROBLEMS WHICH ARISE FROM OTHERS OR OTHERS' FAILURE TO OBTAIN AND/OR FOLLOW THE ENGINEER'S GUIDANCE WITH RESPECT TO ANY ERRORS, OMISSIONS, INCONSISTENCIES, AMBIGUITIES OR CONFLICTS.
2. RWE STAFF SHALL BE PRESENT FOR THE CONSTRUCTION OF KEY ASPECTS OF THIS PROJECT AND HOLDS NO RESPONSIBILITY FOR CONSTRUCTION DONE WITHOUT OVERSIGHT
3. ALL ELEVATIONS, DIMENSIONS, ALIGNMENTS AND ORIENTATION OF ALL ELEMENTS SHOWN IN THE PLANS MUST BE APPROVED BY THE RWE ENGINEER OR RWE ENGINEER'S REPRESENTATIVE (ENGINEER).
4. WORK SHALL NOT COMMENCE UNTIL AFTER THE DATE OF THE ON-SITE PRE-CONSTRUCTION MEETING WHICH WILL BE ATTENDED BY REPRESENTATIVES OF THE PROJECT OWNER, ENGINEER, CONTRACTOR AND ANY SUB-CONTRACTORS. IN THE EVENT THAT WORK DOES NOT BEGIN IMMEDIATELY FOLLOWING THE PRE-CONSTRUCTION MEETING, THE CONTRACTOR SHALL PROVIDE REPRESENTATIVES OF THE PROJECT OWNER, ENGINEER, ANY SUB-CONTRACTORS, AND RELEVANT AGENCIES NOTED IN THE PERMITS, TWO WEEKS NOTICE BEFORE CONSTRUCTION COMMENCES.
5. STANDARD SPECIFICATIONS OF MATERIALS FOR AGGREGATES AND SOIL AGGREGATE SUB-BASE, BASE AND SURFACE COURSES SHALL BE GOVERNED BY AASHTO DESIGNATION M147-65 (1993) OR LATEST REVISION. ALL CONSTRUCTION SHALL CONFORM TO CITY AND COUNTY STANDARDS AND SPECIFICATIONS AS APPLICABLE.
6. WHENEVER THE INCLUDED DRAWINGS ARE FOUND TO BE INCONSISTENT WITH ANY OTHER RESOLUTION, ORDINANCE, CODE, REGULATION, OR OTHER STANDARDS REFERENCED, THE ENACTMENT IMPOSING THE MORE RESTRICTIVE STANDARDS OR REQUIREMENTS SHALL CONTROL.
7. THE CONTRACTOR SHALL NOT COMMENCE CONSTRUCTION WITHOUT CONSTRUCTION PLAN APPROVAL BY ALL RELEVANT AGENCIES. A COPY OF THE APPROVED PLANS SHALL BE AVAILABLE AT THE CONSTRUCTION SITE AT ALL TIMES DURING WORKING HOURS.
8. THE ENGINEER IS TO BE NOTIFIED PRIOR TO ANY PLAN CHANGES OR ON-SITE DESIGN MODIFICATIONS. ALL PLAN CHANGES MUST BE APPROVED BY THE ENGINEER.
9. ALL EXISTING TOPOGRAPHIC SURVEY DATA SHOWN ON THESE PLANS HAS BEEN OBTAINED AND CERTIFIED BY OTHERS. THE ENGINEER HAS UNDERTAKEN NO FIELD VERIFICATION OF THIS TOPOGRAPHIC INFORMATION, AND MAKES NO REPRESENTATION PERTAINING THERETO AND THEREFORE ASSUMES NO RESPONSIBILITY OR LIABILITY.
10. THE CONTRACTOR SHALL CONFINE HIS OPERATIONS TO THE CONSTRUCTION LIMITS OF THE PROJECT AND IN NO WAY SHALL ENCROACHMENT OCCUR ONTO ADJACENT PROPERTIES UNLESS LEGAL EASEMENTS ARE OBTAINED. ALL FILL AND CUT SLOPES SHALL BE SETBACK FROM THE PROPERTY LINE IN ACCORDANCE WITH CHAPTER 70 OF THE UNIFORM BUILDING CODE. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY AGREEMENTS NECESSARY OR DAMAGE CAUSED BY CONSTRUCTION ACTIVITIES TO PUBLIC OR PRIVATE PROPERTY, INCLUDING UTILITIES.

SURVEY

1. THE CONSTRUCTION SURVEYOR SHALL VERIFY PROPOSED GRADES AND INVERT ELEVATIONS, FLOW LINES, ALIGNMENTS, SETBACKS AND TOPOGRAPHY PRIOR TO CONSTRUCTION.
2. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL SURVEY EQUIPMENT, STAKING, CONTROL POINT LOCATIONS, AND TOOLS FOR ELEVATION DETERMINATION.
3. THE CONTRACTOR IS RESPONSIBLE TO SET UP CONTROL POINTS NEAR EACH FEATURE. THESE CONTROL POINTS MUST OVERLAP SO GRADES MAY BE CHECKED FROM MULTIPLE CONTROL POINTS.
4. THE CONTRACTOR IS RESPONSIBLE FOR COMPLETING AN AS-BUILT SURVEY, IF REQUESTED, FOLLOWING COMPLETION OF THE FINAL GRADES.

UTILITIES

1. A MINIMUM OF 12 INCHES OF SEPARATION MUST BE MAINTAINED BETWEEN UTILITY LINES.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION OF ALL EXISTING UTILITIES AND SHOULD NOT RELY SOLELY ON THESE CONSTRUCTION PLANS FOR UTILITY LOCATIONS. CONTRACTOR MUST COMPLETE ALL UTILITY LOCATES PRIOR TO CONSTRUCTION. LOCATES CAN BE COORDINATED WITH THE UTILITY NOTIFICATION CENTER OF COLORADO (UNCC) 800-922-1987. DAMAGE TO ANY EXISTING UTILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.

GENERAL ENVIRONMENTAL

1. WORK SHALL COMPLY WITH ALL LOCAL, STATE, AND FEDERAL AGENCIES' LAWS, RULES, REGULATIONS, AND PERMITS. ALL WORK SHALL BE SUBJECT TO INSPECTIONS AND SITE INVESTIGATION BY REGULATORY AGENCIES. FAILURE TO COMPLY WITH THESE REGULATIONS IS SUBJECT TO LEGAL ENFORCEMENT ACTION.
2. COPIES OF PERMITS OBTAINED BY THE OWNER WILL BE PROVIDED TO THE CONTRACTOR. CONTRACTOR SHALL MAINTAIN COPIES OF ALL PERMITS ON THE SITE AT ALL TIMES. THESE MAY INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING: CLEAN WATER ACT SECTION 404 PERMIT FROM THE U.S. ARMY CORPS OF ENGINEERS, SECTION 401 WATER QUALITY CERTIFICATION, NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT, FLOODPLAIN DEVELOPMENT PERMIT, ANY APPROPRIATE LAND USE PERMITS, AND ANY RELEVANT CONSTRUCTION STORM WATER PERMITS.
3. A PRE-CONSTRUCTION MEETING WITH EQUIPMENT OPERATORS SHALL BE HELD TO DISCUSS THE PROJECT REQUIREMENTS AS THEY RELATE TO ENVIRONMENTAL PERMIT COMPLIANCE.
4. ON-SITE CONSTRUCTION REVIEWS SHALL BE CONDUCTED TO IDENTIFY MAINTENANCE NEEDS AND CHRONIC PROBLEMS THAT MAY BE OCCURRING. APPROPRIATE REMEDIAL ACTIONS SHALL BE IMPLEMENTED IN A TIMELY MANNER.
5. IF PREVIOUSLY UNKNOWN ARCHEOLOGICAL MATERIALS ARE DISCOVERED DURING CONSTRUCTION ACTIVITIES, WORK SHALL STOP IMMEDIATELY AND THE ENGINEER AND OWNER SHALL BE CONTACTED. THE STATE HISTORIC PRESERVATION OFFICE WILL THEN BE CONTACTED BY THE ENGINEER OR OWNER FOR CONSULTATION.

SEDIMENT AND POLLUTION CONTROL

1. ALL APPROPRIATE SEDIMENT AND POLLUTION CONTROL MEASURES, AND BEST MANAGEMENT PRACTICES (BMP'S) SHALL BE IN PLACE TO MINIMIZE SEDIMENTATION AND RIVERBED IMPACTS PRIOR TO INITIATING IN-RIVER / RIVERBANK WORK. SEDIMENT AND EROSION CONTROLS SHALL BE INSTALLED IN ACCORDANCE WITH THE URBAN DRAINAGE AND FLOOD CONTROL DISTRICT GUIDELINES AND ANY STORM WATER POLLUTION PREVENTION PLAN PROVIDED BY THE ENGINEER.
2. CONTRACTOR SHALL BE WHOLLY RESPONSIBLE FOR THE DESIGN, IMPLEMENTATION, AND MAINTENANCE OF SEDIMENT AND EROSION CONTROLS IN CONFORMANCE WITH CONSTRUCTION STANDARDS AND THE REQUIREMENTS OF REGULATORY AGENCIES THROUGHOUT THE CONSTRUCTION PERIOD. THE ENGINEER WILL NOT BE ON-SITE TO APPROVE, REVIEW, OR MAINTAIN THE CONTROLS. STORMWATER MEASURES MAY BE REQUIRED TO BE INSTALLED AT ANY TIME DURING CONSTRUCTION AT THE DIRECTION OF THE ENGINEER OR OWNER.
3. IN ADDITION TO CONSTRUCTION BMP'S, TEMPORARY SEDIMENT AND EROSION CONTROLS (E.G., TEMPORARY SEEDING, MULCHING, SILT FENCE, STRAW WADDLE) SHALL BE IMPLEMENTED ON ALL DISTURBED AREAS WITHIN 2-DAYS IF DISTURBED AREAS ARE TO REMAIN DORMANT FOR MORE THAN 21-DAYS. PERMANENT SOIL STABILIZATION (E.G., PERMANENT SEEDING, EROSION CONTROL FABRIC) SHALL BE IMPLEMENTED ON DISTURBED AREAS WITHIN 2-DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE PROJECT AREA.
4. SPOIL PILES SHALL BE COVERED OR OTHERWISE MANAGED TO REDUCE SEDIMENTATION. ALL MATERIAL WHICH IS TO BE PLACED AT UPLAND SITE SHALL BE DISPOSED OF IN SUCH A WAY THAT SEDIMENT RUNOFF IS CONTROLLED AND MINIMIZED.
5. CONTRACTOR SHALL NOT STORE EQUIPMENT BELOW THE ORDINARY HIGH WATER LINE, AND TAKES FULL RESPONSIBILITY FOR ANY MATERIALS VANDALIZED, DAMAGED, BROKEN, OR LOST AS A RESULT OF RIVER EVENTS.
6. ALL FUELING OPERATIONS, LUBRICATING, HYDRAULIC TOPPING OFF, FUEL TANK PURGING, AND EQUIPMENT MAINTENANCE/REPAIRS SHALL BE PERFORMED AT AN UPLAND SITE OUTSIDE OF THE BANKS OF ANY SITE WATERWAYS AT A LOCATION TO BE DETERMINED BY THE ENGINEER OR OWNER. THESE ACTIVITIES SHALL TAKE PLACE ON AN APPROVED PAD WITH SPILL CONTROL/ COLLECTION DEVICES IN PLACE.
7. ALL CONSTRUCTION EQUIPMENT SHALL BE INSPECTED DAILY FOR HYDRAULIC AND FUEL LEAKS. LEAKS SHALL BE REPAIRED PRIOR TO OPERATION WITHIN THE 100-YEAR FLOODPLAIN. WHEN NOT IN USE, FUEL AND HYDRAULIC FLUIDS SHALL BE STORED AT AN UPLAND SITE OUTSIDE OF THE 100-YEAR FLOODPLAIN. EMERGENCY SPILL RESPONSE DEVICES SHALL BE ON-SITE AT ALL TIMES DURING CONSTRUCTION IN WATERWAYS AND FLOODPLAINS AND SHALL BE READY TO DEPLOY IN THE EVENT OF A SPILL.
8. NO CHEMICALS, FUELS, LUBRICANTS, BRUSH, ETC. SHALL BE DISCHARGED OR DISPOSED OF INTO OR ALONGSIDE ANY STREAM, WATERCOURSE, OR FLOODPLAIN UNDER ANY CIRCUMSTANCES.
9. LITTER AND CONSTRUCTION DEBRIS SHALL BE CONTAINED DAILY. ALL CONSTRUCTION DEBRIS AND LITTER SHALL BE COMPLETELY REMOVED OFFSITE AND DISPOSED OF PROPERLY UPON PROJECT COMPLETION.
10. CONSTRUCTION ENTRANCES SHALL BE INSTALLED AS NECESSARY TO PROVIDE ACCESS TO CONSTRUCTION AREAS FROM ALL EXISTING ROADWAYS AND PATHS TO MINIMIZE GROUND DISTURBANCE AND SEDIMENT TRACKING FROM VEHICLE TIRES. ADJACENT ROADWAYS AND PATHS SHALL BE VISUALLY INSPECTED DAILY TO ENSURE THAT SEDIMENT IS NOT BEING CARRIED OFF-SITE. IF SEDIMENT IS BEING CARRIED OFF-SITE, THE ADJACENT ROADWAYS AND PATHS SHALL BE SWEPT CLEAN DAILY.
11. BMP'S PLUS TEMPORARY SEDIMENT AND EROSION CONTROLS SHALL BE MAINTAINED TO BE FUNCTIONAL UNTIL THE SITE HAS REACHED FINAL STABILIZATION. THE PROJECT AREA SHALL BE CONSIDERED TO HAVE REACHED FINAL STABILIZATION WHEN:

A. A PERENNIAL, VEGETATIVE COVER HAS GROWN TO A 80-PERCENT DENSITY THROUGHOUT THE ENTIRE DISTURBED AREA.

B. ALL TEMPORARY SEDIMENT AND EROSION CONTROLS HAVE BEEN REMOVED AND DISPOSED OF PROPERLY.

C. ALL TRAPPED SEDIMENT HAS BEEN REMOVED AND PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION.

D. ALL CONSTRUCTION ACTIVITIES HAVE CEASED.

BEST MANAGEMENT PRACTICES (BMP'S)

1. BMP'S SUCH AS DRAINAGE CHANNELS, PERIMETER FENCING, DETENTION BASINS, AND VEHICLE TRACKING CONTROLS MUST BE INSTALLED PRIOR TO CONSTRUCTION ACTIVITIES. EFFECTIVE EROSION CONTROL REQUIRES ADAPTATION AND CHANGES DURING CONSTRUCTION THAT CANNOT BE DESIGNED OR ANTICIPATED PRIOR TO CONSTRUCTION. A QUALIFIED SUPERVISOR SHOULD CHECK ALL BMP'S REGULARLY AND NOTIFY THE ENGINEER IF THERE ARE QUESTIONS OR CONCERNS. THE ENGINEER ACCEPTS NO LIABILITY FOR THE PLACEMENT, EFFECTIVENESS, MAINTENANCE, OR CHOICE OF BMP ON THE SITE IF THE ENGINEER AND/OR ENGINEER'S REPRESENTATIVE ARE NOT PRESENT.
2. THE CONTRACTOR SHALL IMPLEMENT THE NECESSARY SITE EROSION CONTROL MEASURES FOR INHIBITING DUST, WIND, AND AIR SEDIMENT MOVEMENT OFFSITE DURING ALL PHASES OR STAGES OF CONSTRUCTION.
3. THE CONTRACTOR SHALL PROVIDE AN AREA TO STORE CONSTRUCTION DEBRIS WHERE IT WILL NOT BE A NUISANCE TO THE SURROUNDING NEIGHBORHOOD. ALL DEBRIS SHALL BE CONTAINED IN SUCH A MANNER THAT WILL PREVENT SCATTERING. ALL DEBRIS, INCLUDING TREES AND UNDERGROWTH SHALL BE DISPOSED OF PROPERLY. ALL DEBRIS SHALL BE REMOVED FROM THE SITE PRIOR TO FINAL SITE INSPECTION.
4. CONTRACTOR SHALL LIMIT THE AREAS OF DISTURBANCE AND COMPLETE CONSTRUCTION WITH PHASES IN MIND.
5. CONTRACTOR SHALL LIMIT DIRECTLY CONNECTED IMPERVIOUS AREAS (DCIA).
6. BUFFER STRIPS SHOULD BE USED DURING CONSTRUCTION TO LIMIT THE DCIA'S. WHEN POSSIBLE, TRANSITIONING CHANGES IN SLOPE, TERRACING LONGER SLOPES, SURFACE ROUGHENING, AND CONTOUR FURROWS SHOULD BE USED TO MINIMIZE CONSOLIDATED FLOW.
7. ANY STAGED GRADING MUST BE DONE TO DIRECT STORMWATER TOWARDS THE APPROPRIATE BMP'S.
8. DURING CONSTRUCTION, STRAW WADDLES, COMPACTED SOIL BERMS, AGGREGATE BAGS, OR SIMILAR MUST BE USED ON ALL DISTURBED SLOPES OF 3:1 AND GREATER THAN 20 FEET IN LENGTH.
9. SILT FENCING LOCATED ON THE PERIMETER OF DISTURBED AREAS SHOULD BE CHECK ONA DAILY BASIS, OR FOLLOWING SIGNIFICANT STORM EVENTS TO ENSURE IT IS WORKING PROPERLY.
10. INLET PROTECTION MUST BE INCLUDED AT ALL STORM, SEWER, AND CULVERT LINKS. APPROPRIATE BMP'S INCLUDE ROCK SOCKS, SEDIMENT CONTROL LOGS, OR SIMILAR.
11. SEDIMENT ENTRAINMENT FACILITIES HAVE BEEN DESIGNED TO STORE THE APPROPRIATE VOLUME OF STORMWATER DISCHARGE, BUT CONTAIN MINIMAL ADDITIONAL CAPACITY. THEY MUST BE MAINTAINED TO THE CALCULATED VOLUME AND DREDGED AS NECESSARY.

MATERIAL HANDLING

1. A LIST OF ALL POTENTIALLY TOXIC OR HAZARDOUS CHEMICALS THAT WILL BE USED OR STORED ON-SITE SHALL BE MAINTAINED WITH THE EROSION CONTROL SUPERVISOR. WARNING LABELS MUST BE ATTACHED. MATERIAL SAFETY DATA SHEETS (MSDS) AND OTHER SAFETY INFORMATION FOR A POTENTIALLY TOXIC OR HAZARDOUS SUBSTANCE MUST BE ON THE SITE WHILE THE SUBSTANCE IS USED OR STORED.

SPILL REMEDIATION PRACTICES

1. ALL CONSTRUCTION SITE PERSONNEL MUST FOLLOW SPILL PREVENTION AND CONTROL PRACTICES AS FOLLOWS:
   a. THE SENIOR SAFETY MANAGER, DESIGNATED COORDINATORS, AND THE WATER QUALITY OFFICER WILL BE CONTACTED IMMEDIATELY FOLLOWING ANY SPILL. THE SENIOR SAFETY MANAGER (OR DESIGNEE) MUST IN TURN REPORT THE SPILL TO THE APPROPRIATE FEDERAL, STATE, OR LOCAL AGENCIES IN ACCORDANCE WITH APPLICABLE REGULATIONS.
   b. PERSONNEL WILL WEAR APPROPRIATE PROTECTIVE EQUIPMENT.
   c. THERE MUST BE A DESIGNATED INDIVIDUAL ON THE SITE TRAINED IN THE APPROPRIATE CLEANUP PROCEDURES FOR VARIOUS TYPES OF CHEMICALS AND THE LOCATION OF INFORMATION AND CLEANUP SUPPLIES.
   d. THE MSDS OF ANY MATERIAL SHOULD BE CONSULTED ON THE EVENT OF A SPILL. THE MSDS FOR ALL CHEMICALS USED ON THE SITE WILL BE KEPT ON THE SITE, AND WORKERS WILL BE REQUIRED TO REVIEW MSDS'S.
   e. SPILL KITS MUST BE LOCATED ON-SITE. SUBCONTRACTORS MUST BE NOTIFIED OF THEIR LOCATION AND INSTRUCTED HOW TO USE THEM WHEN NECESSARY.
   f. SPILLS MUST BE CLEANED UP PROMPTLY AFTER DISCOVERY, AND MATERIALS USED FOR CLEANUP MUST BE DISPOSED OF OFF-SITE AT AN APPROVED FACILITY.

WORK LIMITS AND LAYDOWN

1. WORK LIMITS, ACCESS, STAGING, LAYDOWN, AND STOCKPILE AREAS SHALL BE LOCATED WHERE SHOWN ON THE CONSTRUCTION DRAWINGS OR OTHERWISE AS APPROVED BY THE ENGINEER OR OWNER.
2. ALL CONSTRUCTION ACTIVITIES SHALL OCCUR WITHIN CURRENTLY DISTURBED AREAS TO THE EXTENT POSSIBLE.
3. DISTURBED/ EXPOSED RIVERBANKS AND STAGING AND PROJECT ACCESS AREAS SHALL BE PROPERLY STABILIZED (SEEDED, MULCHED, OR OTHERWISE) WITH NATIVE VEGETATION IMMEDIATELY AFTER GRADING TO PREVENT EROSION AND ESTABLISHMENT OF INVASIVE PLANT SPECIES.
4. CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY DAMAGE TO VEGETATION OR PROPERTY OUTSIDE THE WORK LIMITS RESULTING FROM CONSTRUCTION OPERATIONS.
5. ALL AREAS TEMPORARILY DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO THEIR ORIGINAL CONDITION, SLOPES, AND ELEVATIONS, UNLESS OTHERWISE NOTED IN THE CONSTRUCTION DRAWINGS.

ROCK QUALITY

1. ALL ROCK USED FOR INSTREAM STRUCTURES SHALL MEET SECTION 31 37 00 OF THE URBAN DRAINAGE AND FLOOD CONTROL DISTRICT SPECIFICATIONS.
2. INDIVIDUAL STONE BOULDERS SHALL BE DENSE, SOUND AND FREE FROM CRACKS, SEAMS AND OTHER DEFECTS CONDUCIVE TO ACCELERATED WEATHERING.
3. AT A MINIMUM EXPOSED ROCK SHOULD HAVE ONE FLAT SURFACE AND THIS SHOULD BE THE ONLY EXPOSED SURFACE.
4. THE ROCK SHALL HAVE THE FOLLOWING PROPERTIES:
   a. BULK SPECIFIC GRAVITY (SATURATED SURFACE-DRY BASIS) NOT LESS THAN 2.5.
   b. ABSORPTION NOT MORE THAN 2% BY WEIGHT.
   c. THE BULK SPECIFIC GRAVITY AND ABSORPTION SHALL BE DETERMINED BY ASTM METHOD C-127.
5. ROCK THAT FAILS TO MEET THESE REQUIREMENTS MAY BE ACCEPTED ONLY IF SIMILAR ROCK FROM THE SAME SOURCE HAS BEEN DEMONSTRATED TO BE SOUND AFTER FIVE YEARS OR MORE OF SERVICE UNDER CONDITIONS OF WEATHER, WETTING AND DRYING, AND EROSIVE FORCES SIMILAR TO THOSE ANTICIPATED. ALTERNATIVELY NATIVE OR IMPORTED STONE, ALREADY AT THE SITE AND MEETING THE STANDARDS OUTLINED ABOVE, MAY BE USED.
6. THE ENGINEER RETAINS RIGHT OF REFUSAL FOR ANY ROCK BROUGHT TO THE SITE WHICH IS NOT SUITABLE AND DOES NOT MEET THE ABOVE CRITERIA AND/OR SHOWS EXCESSIVE WEATHERING, CRACKING OR DEFORMATION.
7. MINIMUM ROCK DIMENSIONS FOR "QUARRIED STONE" SHALL BE 2'X2'X2'.
8. ALL RIP RAP TO MEET ASTM C-535-69, AASHTO TEST 103 AND HAVE A SPECIFIC GRAVITY OF 2.65 AS WELL AS MEETING THE URBAN DRAINAGE AND FLOOD CONTROL DISTRICT (UDFCD) SPECIFICATIONS. THE ENGINEER TAKES NO RESPONSIBILITY FOR MATERIAL USED NOT MEETING THESE SPECIFICATIONS OR NOT APPROVED ON-SITE BY THE ENGINEER OR OWNER.

SITE PREPARATION-ROCK EXCAVATION

1. CONTRACTOR SHALL USE SUITABLE EXCAVATION TECHNIQUES THAT INCLUDE RIPPERS, STANDARD BUCKET EXCAVATION, AND HYDRAULIC BREAKERS. NO BLASTING OR EXPLOSIVES MAY BE USED WITHOUT PRIOR APPROVAL.

SITE PREPARATION- STONES PLACED IN CHANNEL

1. QUARRIED STONE SHALL BE PLACED AS SHOWN ON THE DRAWINGS WITHOUT ANY GAPS, SO THAT EACH BOULDER TOUCHES THE NEXT ONE.
2. EACH STONE SHALL BE PLACED TO THE FINAL POSITION BY SUITABLE EQUIPMENT FOR HANDLING MATERIAL AND, IF NECESSARY; THE STONE SHALL BE PICKED UP AND REPOSITIONED.
3. IT SHOULD BE ANTICIPATED THAT RE-HANDLING OF INDIVIDUAL STONES, AFTER INITIAL PLACEMENT WILL BE REQUIRED TO ACHIEVE REQUIRED SLOPES, GRADES, ELEVATIONS AND POSITION.
4. THE ENGINEER SHALL OBSERVE AND APPROVE CONTRACTOR'S METHOD FOR STONE PLACEMENT IN A REPRESENTATIVE AREA FOR EACH PROJECT COMPONENT.

REVEGETATION NOTES

1. ANY REVEGETATION OR PLANTING SHALL OCCUR WITHIN THE APPROPRIATE PLANTING WINDOWS AND IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS. THIS TIMEFRAME SHOULD NOT EXCEED 14 DAYS AFTER COMPLETION OF FINAL GRADES.
2. THE CONTRACTOR SHALL COORDINATE WITH DAVE MEHAN OF SGM FOR PLANTINGS AND SEED MIX PLACEMENT
3. THE CONTRACTOR SHALL PLANT THE TYPE OF PLANT MATERIAL AND MIX OF SPECIES INDICATED FOR THE RIPARIAN BUFFER TO CREATE WETLAND AND RESTORE DISTURBED UPLAND AREAS. LOCATIONS OF TREE AND SHRUB PLANTINGS WILL BE MARKED IN THE FIELD UPON COMPLETION OF EARTHWORK BY THE ENGINEER AND MAY VARY FROM THOSE SHOWN ON THE DRAWING DUE TO ACTUAL SITE CONDITIONS.
4. ALL SUITABLE TOPSOIL SHALL BE STOCKPILED DURING CONSTRUCTION AND PLACED WITHIN THE SEEDED AREAS IN MINIMUM 3-INCH DEPTHS.
5. CONTRACTOR SHALL MAINTAIN ALL PLANT MATERIAL IN A VIABLE CONDITION UP TO THE TIME OF PLANTING AND SHALL NOT PLANT DEAD, DISEASED, OR DAMAGED PLANTS OR SEEDS.
6. NO PLANTING OR SEEDING SHALL OCCUR UNTIL THE AREA HAS BEEN PROPERLY PREPARED AND APPROVED BY THE ENGINEER (INCLUDING SOILS BEING SATURATED AND/OR FLOODED TO APPROPRIATE WATER DEPTHS).
7. PLANT MATERIALS SHALL BE INSTALLED USING STANDARD PRACTICES FOR THE TYPE OF MATERIAL. THE FOLLOWING DESCRIBES THE SPECIFIC METHODS TO BE USED FOR EACH TYPE OF PLANTING:
   a. TREES AND SHRUBS: TREES AND SHRUBS SHALL BE PLANTED ACCORDING TO TABLE 1 ON SHEET C-10.
   b. SEEDING: THE UPPER THREE (3) INCHES (MINIMUM) OF THE AREA TO BE SEEDED SHALL BE IN A LOOSE AND FRIABLE CONDITION SUITABLE FOR SEEDING. IF NECESSARY, AREAS TO BE SEEDED WILL BE TILLED TO RELIEVE COMPACTION PRIOR TO SEEDING. ONCE SEEDING IS COMPLETE, NO MORE THAN 0.5-INCHES OF SOIL MAY BE PLACED OVER THE SEED.
8. CONTROL ANY SURFACE FLOW TO ENABLE SEEDING.
9. 2 TONS PER ACRE OF STRAW MULCH SHALL BE APPLIED TO SEEDED AREAS IMMEDIATELY AFTER SEEDING,
10. ALL PLANTED AND SEEDED AREAS SHALL BE ADEQUATELY WATERED WITHIN 4 HOURS AFTER SEEDING/PLANTING. THE FOLLOWING DESCRIBES THE REVEGETATION TO BE COMPLETED BY AREA:

9.1. RIPARIAN BUFFER WITH CREATED WETLAND: PLANT AS SHOWN IN DETAILS AND TABLE 1 ON SHEET C-10
9.2. EXCESS SOIL DISPOSAL AREA AND OTHER UPLAND AREAS: A) BROADCAST UPLAND SEED MIX SPECIFIED, B) APPLY 2 TONS PER ACRE STRAW MULCH, C) CRIMP MULCH TO SECURE.

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DRAFT

PROJECT OWNER:
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Board of County Commissioners
c/o Ray Beck, MCBOCC Chair
221 W. Victory Way, Suite 130
Craig, CO 81625

LOUDY-SIMPSON IMPROVEMENTS PROJECT
MOFFAT COUNTY
YAMPA RIVER
PRELIMINARY - NOT FOR CONSTRUCTION
SPECS 1

REVISIONS:

NO.	DATE

DESIGNED:	SS	DRAFTED:	RG
CHECKED:	SS		

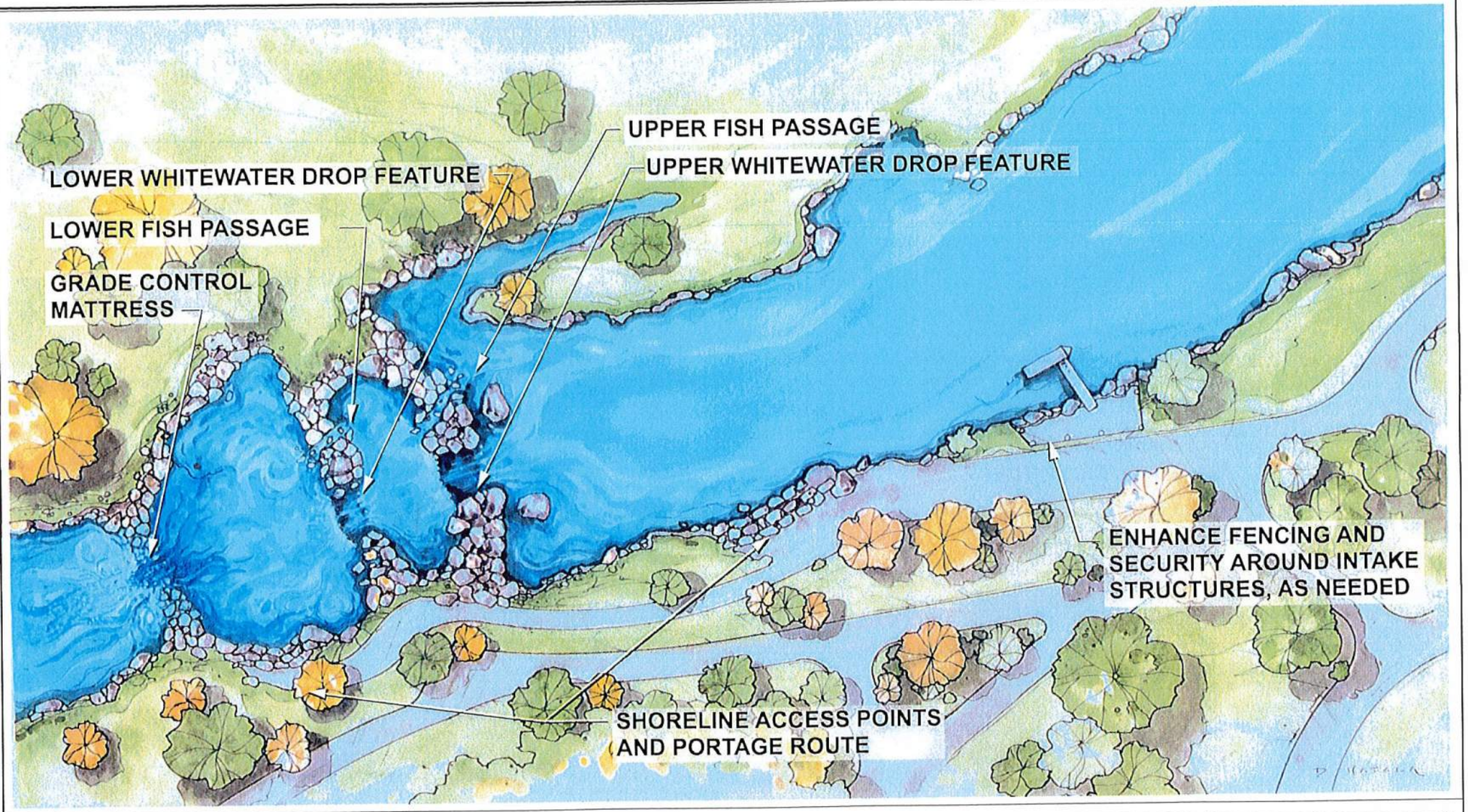
PLOT DATE: 5/18/2019

DRAWING NO.

C-15

SHEET C-15 OF 15

APPENDIX B - Diversion Park engineering concept documents



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CRAIG DIVERSION PARK STRUCTURE IMPROVEMENTS

YAMPA RIVER, MOFFAT COUNTY

CITY OF CRAIG, COLORADO

DESIGNED BY: KB	DATE: DEC 5, 2016
DWN BY: AHTS	
REVIEWED BY: SS	
SUBMITTED BY: RIVERWISE ENGINEERING, LLC	FILE: CRAIG STRUCTURES DWG

CLIENT:
NORTHWEST COLORADO CHAPTER OF THE PARROTHEADS
P.O. BOX 1536
CRAIG, CO 81626

SHEET REFERENCE
C
SHEET 1 OF 1