Water Supply Reserve Fund
Water Activity Summary Sheet
January 28, 2018
Agenda Item 8(c)

Applicant & Grantee:	City of Grand Junction
Water Activity Name:	Las Colonias Park River Recreation Feature
Water Activity Purpose:	Recreational Implementation
County:	Mesa
Drainage Basin:	Colorado
Water Source:	Colorado River
Amount Requested:	$10,000 Colorado Basin Account
Matching Funds:	Applicant Match (cash & in-kind) = $1.24 million • 124% of the Basin Account request (meets 25% min) • 99% of the total project cost of $1.25 million

Staff Recommendation:
Staff recommends approval of up to $10,000 from the Colorado Basin Account to help fund the project titled: Las Colonias Park River Recreation Feature.

Water Activity Summary: WSRF grant funds, if approved, will contribute to the proposed river recreation construction project at Las Colonias Park in Mesa County. The recreation feature will balance improvements to the riparian habitat with the community's need to access and connect to the Colorado River, a long-ignored waterway in the Grand Valley. The main goal of the project is to restore 1,200 feet of what was once a riparian area in the downtown Grand Junction riverfront while improving the ecosystem and habitat for fish.

An additional inlet channel will allow flowing water for a greater period of the year, will control flow distribution to function appropriately in the existing river system and avoid adverse impacts to existing aquatic habitat in the main channel of the Colorado River or any secondary channels. An extension of the existing slough will feature two boulder step structures to create step-pool morphology and provide channel grade control. Multiple habitat boulders and ribbed riffle enhancements will be installed throughout the modified secondary channel creating flow heterogeneity and aquatic habitat complexity. The streambanks of the new channels will be planted with native riparian vegetation plantings, providing erosion control, a riparian buffer, and increased habitat. Bank areas along the outside of meander bends (areas of high scour potential) will be protected by biotechnical bank stabilization consisting of vegetated natural boulder terracing. This project will restore the original intent of the existing slough by adding more flow and will add 1.77 acres of open water.

Discussion: As described in the Colorado basin roundtable chair's recommendation letter, this project was supported and recommended for approval by the roundtable on November 26, 2018. The City of Grand Junction's proposed project for the Las Colonias Park River Recreation Feature will help directly meet goals outlined in the Colorado Water Plan and in the Colorado River Basin's Basin

Implementation Plan. The project helps meet the statewide long-term goal #1 by improving public engagement in the endangered fish recovery program and statewide long-term goal #2 by enhancing the economic value of the river for both the local and statewide economies (CWP, 6-157). This project also helps meet the basin wide goal to protect identified recreational reaches and opportunities from degradation by enhancing user days and the user experience; the project segment was identified as a key recreational reach by American Whitewater in coordination with the WFET effort (Colorado BIP, 29).

Issues/Additional Needs: No additional needs have been identified.

Eligibility Requirements: The application meets requirements of all eligibility components.

Evaluation Criteria: Staff has determined this activity satisfies the Evaluation Criteria.

Funding Summary / Matching Funds:

Funding Source	**Cash**	**In-Kin$0d**	**Total**
City of Grand Junction	$625,297	$0	$625,297
Private Donations	$15,000	$0	$15,000
CWCB Water Plan Grant	$150,000	$0	$150,000
CWCB Watershed Restoration Grant	$99,703	$0	$99,703
Great Outdoors Colorado (pending spring notification)	$350,000	$0	$350,000
Sub-total	**$1,240,000**	**$0**	**$1,240,000**
WSRF Colorado Basin Account	$10,000	n/a	$10,000
Totals	**$1,250,000**	**$0**	**$1,250,000**

CWCB Project Manager: Chris Sturm

THE COLORADO BASIN ROUNDTABLE
C/O P.O. BOX 1120
GLENWOOD SPRINGS, COLORADO 81602

November 29, 2018

Megan Holcomb
Colorado Water Conservation Boar
CWCB Stream Restoration Program
1313 Sherman Street, Rom 721
Denver CO
(303) 866-3441

Dear Megan and staff,

The Colorado Basin Roundtable (CBRT) unanimously supported at its Nov. 26, 2018 meeting the City of Grand Junction's WSRF request for $10,000 from our WSRF Basin account as part of a $1.2 million project to rehabilitate the riparian area at Las Colonias Park.

The CBRT's Basin Implementation Plan (BIP) has six findings, and one of them is "to protect and rehabilitate healthy rivers, streams, lakes and riparian areas. This project will advance our BIP. Specifically, the WSRF money will rehabilitate a slough alongside the Colorado River to promote wildlife habitat and will also address river bank rehabilitation with vegetation plantings.

Clearly, this work will advance the findings of our BIP and thus Colorado's Water Plan. And this is the first constituent request that we have received for such work.

Sincerely yours,

Jim Pokrandt
Chair, Colorado Basin Roundtable

COLORADO
Colorado Water Conservation Board
Department of Natural Resources

Last Update: August 3, 2017

Colorado Water Conservation Board

Water Supply Reserve Fund Grant Application

Instructions

All WSRF grant applications shall conform to the current 2016 WSRF Criteria and Guidelines.

To receive funding from the WSRF, a proposed water activity must be approved by a Roundtable(s) **AND** the Colorado Water Conservation Board (CWCB). The process for Roundtable consideration and recommendation is outlined in the 2016 WSRF Criteria and Guidelines. The CWCB meets bimonthly according to the schedule on page 2 of this application.

If you have questions, please contact the current CWCB staff Roundtable liaison:

Arkansas	**Gunnison | North Platte | South Platte | Yampa/White**	**Colorado | Metro | Rio Grande | Southwest**
Ben Wade	Craig Godbout	Megan Holcomb
ben.wade@state.co.us	craig.godbout@state.co.us	megan.holcomb@state.co.us
303-866-3441 x3238	303-866-3441 x3210	303-866-3441 x3222

WSRF Submittal Checklist (Required)

X	I acknowledge this request for funding was recommended for CWCB approval by the sponsoring Basin Roundtable(s).
X	I acknowledge I have read and understand the 2016 WSRF Criteria and Guidelines.
X	I acknowledge the Grantee will be able to contract with CWCB using the Standard Contract.(1)
Exhibit A	
X	Statement of Work(2) *(Word – see Exhibit A Template)*
X	Budget & Schedule(2) *(Excel Spreadsheet – see Exhibit A Template)*
X	Letters of Matching and/or Pending 3rd Party Commitments(2)
Exhibit C	
X	Map(2)
X	Photos/Drawings/Reports
X	Letters of Support
	Certificate of Insurance(3) (General, Auto, & Workers' Comp.)
Contracting Documents	
N/A	Certificate of Good Standing(3)
X	W-9(3)
N/A	Independent Contractor Form(3) (If applicant is individual, not company/organization)
	Electronic Funds Transfer (ETF) Form(3)

(1) Click "Grant Agreements". For reference only/do not fill out or submit/required for contracting
(2) Required with application if applicable.
(3) Required for contracting. While optional at the time of this application, submission can expedite contracting upon CWCB Board approval.

Last Update: August 3, 2017

Schedule		
CWCB Meeting	**Application Submittal Dates**	**Type of Request**
January	December 1	Basin Account; BIP
March	February 1	Basin/Statewide Account; BIP
May	April 1	Basin Account; BIP
July	June 1	Basin Account; BIP
September	August 1	Basin/Statewide Account; BIP
November	October 1	Basin Account/BIP

Desired Timeline	
Desired CWCB Hearing Month:	July 2018
Desired Notice to Proceed Date:	October 2018

Water Activity Summary	
Name of Applicant	City of Grand Junction
Name of Water Activity	Las Colonias Park River Recreation Feature
Approving Roundtable(s)	Basin Account Request(s)(1)
Colorado	10,000
Basin Account Request Subtotal	$10,000
Statewide Account Request(1)	
Total WSRF Funds Requested (Basin & Statewide)	$10,000
Total Project Costs	$1.2 million

(1) Please indicate the amount recommended for approval by the Roundtable(s)

Last Update: August 3, 2017

Grantee and Applicant Information	
Name of Grantee(s)	City of Grand Junction
Mailing Address	1340 Gunnison Avenue, Grand Junction CO 81501
FEIN	
Grantee's Organization Contact(1)	Traci Wieland
Position/Title	Recreation Superintendent
Email	Traciw@gjcity.org
Phone	970-254-3846
Grant Management Contact(2)	Traci Wieland
Position/Title	Recreation Superintendent
Email	Traciw@gjcity.org
Phone	970-254-3846
Name of Applicant (if different than grantee)	
Mailing Address	
Position/Title	
Email	
Phone	

(1) Person with signatory authority

(2) Person responsible for creating reimbursement invoices (Invoice for Services) and corresponding with CWCB staff.

Description of Grantee
Provide a brief description of the grantee's organization (100 words or less).
As the largest municipality between Salt Lake City, Utah and Denver, Colorado, the City of Grand Junction routinely serves the residents of Grand Junction **and** Mesa County residents from Palisade to the east and Fruita to the west. The City's population is 63,775 of the total Mesa County population of 149,249. The City of Grand Junction provides full service municipal services including parks, trails, recreation, and golf. The City's highest priority for park development is Las Colonias Park, a 130 acres downtown riverfront park.

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Type of Eligible Entity (check one)	
X	**Public (Government):** municipalities, enterprises, counties, and State of Colorado agencies. Federal agencies are encouraged to work with local entities. Federal agencies are eligible, but only if they can make a compelling case for why a local partner cannot be the grant recipient.
	Public (Districts): authorities, Title 32/special districts (conservancy, conservation, and irrigation districts), and water activity enterprises
	Private Incorporated: mutual ditch companies, homeowners associations, corporations
	Private Individuals, Partnerships, and Sole Proprietors: are eligible for funding from the Basin Accounts but not for funding from the Statewide Account.
	Non-governmental organizations: broadly, any organization that is not part of the government
	Covered Entity: as defined in Section 37-60-126 Colorado Revised Statutes

Type of Water Activity (check one)	
	Study
X	Implementation

Category of Water Activity (check all that apply)		
	Nonconsumptive (Environmental)	
X	Nonconsumptive (Recreational)	
	Agricultural	
	Municipal/Industrial	
	Needs Assessment	
	Education & Outreach	
	Other	Explain:

Location of Water Activity	
Please provide the general county and coordinates of the proposed activity below in **decimal degrees**. The Applicant shall also provide, in Exhibit C, a site map if applicable.	
County/Counties	Mesa
Latitude	39.054696
Longitude	-108.565346

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Water Activity Overview
Please provide a summary of the proposed water activity (200 words or less). Include a description of the activity and what the WSRF funding will be used for specifically (e.g. studies, permitting, construction). Provide a description of the water supply source to be utilized or the water body affected by the activity. Include details such as acres under irrigation, types of crops irrigated, number of residential and commercial taps, length of ditch improvements, length of pipe installed, area of habitat improvements. If this project addresses multiple purposes or spans multiple basins, please explain. The Applicant shall also provide, in Exhibit A, a detailed Statement of Work, Budget, and Schedule.
The Las Colonias Park River Recreation feature will balance improvements to the riparian habitat with the community's need to access and connect to the Colorado River, a long-ignored waterway in the Grand Valley. The proposed construction project at Las Colonias Park includes four project elements. An additional inlet channel will allow flowing water for a greater period of the year, will control flow distribution to function appropriately in the existing river system and avoid adverse impacts to existing aquatic habitat in the main channel of the Colorado River or any secondary channels. An extension of the existing slough will feature two boulder step structures to create step-pool morphology and provide channel grade control. Multiple habitat boulders and ribbed riffle enhancements will be installed throughout the modified secondary channel creating flow heterogeneity and aquatic habitat complexity. The streambanks of the new channels will be planted with native riparian vegetation plantings, providing erosion control, a riparian buffer, and increased habitat. Bank areas along the outside of meander bends (areas of high scour potential) will be protected by biotechnical bank stabilization consisting of vegetated natural boulder terracing. This project will restore the original intent of the existing slough by adding more flow and will add 1.77 acres of open water. An approved Pre-Construction Notification has already been obtained for **these improvements** from the Army Corp of Engineers that had a Section 7 consultation with US Fish and Wildlife. WPG funds will be utilized for construction of the feature.

Measurable Results		
To catalog measurable results achieved with WSRF funds please provide any of the following values.		
	New Storage Created (acre-feet)	
	New Annual Water Supplies Developed or Conserved (acre-feet), Consumptive or Nonconsumptive	
	Existing Storage Preserved or Enhanced (acre-feet)	
1,200	Length of Stream Restored or Protected (linear feet)	
	Efficiency Savings (indicate acre-feet/year OR dollars/year)	
0.70	Area of Restored or Preserved Habitat (acres)	
	Length of Pipe/Canal Built or Improved	
36,000	Other	Explain: users annually

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Water Activity Justification

Provide a description of how this water activity supports the goals of Colorado's Water Plan, the most recent Statewide Water Supply Initiative, and the respective Roundtable Basin Implementation Plan and Education Action Plan [(1)]. The Applicant is required to reference specific needs, goals, themes, or Identified Projects and Processes (IPPs), including citations (e.g. document, chapters, sections, or page numbers).

For applications that include a request for funds from the Statewide Account, the proposed water activity shall be evaluated based upon how well the proposal conforms to Colorado's Water Plan criteria for state support (CWP, Section 9.4, pp. 9-43 to 9-44;) (Also listed pp. 4-5 in 2016 WSRF Criteria and Guidelines).

Colorado Water Plan – Chapter 6: Water Supply Management – Section 6.6: Environmental and Recreational Projects and Methods

Promote restoration, recovery, sustainability, and resiliency of endangered, threatened, and imperiled aquatic and riparian-dependent species and plant communities.

Due directly or indirectly to human activities, the Colorado River has experienced an overall narrowing of the main channel and associated loss of side channels. The decrease in side channel habitat is thought to be a key factor in the decline of native and endangered fish in the Colorado River. An objective of this project is to increase the area of aquatic side channel habitat in the reach of the Colorado River near Grand Junction. The new channel extension will enhance the aquatic habitat in Las Colonias Park by increasing the area of open water and creating flow complexity. The step-pool channel morphology incorporated into the channel will allow for natural scouring below the installed boulder steps, form flow pools with low velocities that create cover, create flow complexity and habitat diversity, aerate the water, and provide grade control and flow control for the new channel. The streambanks of the new channels will be planted with native riparian vegetation plantings, providing erosion control, a riparian buffer, and increased habitat. Bank areas along the outside of meander bends (areas of high scour potential) will be protected by biotechnical bank stabilization consisting of vegetated natural boulder terracing. This will provide enhanced scour protection in these areas, as well as erosion protection from foot traffic associated with the public path along the north bank.

There is no consumptive use proposed for the Colorado River, rather just diversion of a portion of the existing instream flows over 810 CFS. While two pools are created, water is intended to keep moving through those and creates additional habitat for the endangered fish program.

The final buildout of Las Colonias Park includes development of hardscape areas and parking lots; however, thoughtful consideration of filtration of this urban runoff situation has been addressed by the extensive restoration of the riparian area.

Protect and enhance economic values to local and statewide economies that rely on environmental and recreational water uses, such as fishing, boating, waterfowl hunting, wildlife watching, camping, and hiking. Support the development of multipurpose projects and methods that benefit environmental and recreational water needs as well as water needs for communities or agriculture.

With more than two thirds of the surrounding county owned by the federal government, outdoor recreation and enjoyment is a favorite pastime of locals and tourists. Grand Junction is located in the banana belt of the state with warmer temps, mild winters, and year-round recreation opportunities including hundreds of miles of trails and the Gunnison and Colorado Rivers offering fishing, rafting, kayaking, and paddle boarding opportunities; however, there is a significant void in terms of whitewater

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Water Activity Justification

type of activities. The Grand Junction community has expressed a major desire for these types of recreational opportunities along the Colorado River for small water crafts (canoes, kayaks, etc.). Currently, the closest opportunity is in Montrose or Glenwood Springs, both of which are over an hour drive away. The lack of opportunities has forced participants to accommodate by making the time consuming and costly drive, or many recreational users are simply going without. To maintain our strong economic position with tourists and to better meet the needs of our residents, this type of amenity is sorely needed.

Understand, protect, maintain, and improve conditions of streams, lakes, wetlands, and riparian areas to promote self-sustaining fisheries and functional riparian and wetland habitat to promote long-term sustainability and resiliency.

The main goal of the project is to restore what was once a riparian area in the downtown Grand Junction riverfront while improving the ecosystem and habitat for fish. There is no flow from the Colorado River into the newly constructed slough for the majority of the year. During a site visit on November 21, 2017, REP confirmed that no water was entering the slough inlet at a flow of 1,580cfs in the Colorado River (USGS 09106150, closest gauge to the site). Photos from the site visit are shown in Figures 2-4. Average monthly flows are below this level for 3 months of the year in late summer (see Figure 6). The median daily flow for the period of record at USGS gauge 09106150 is 1,700cfs. Additional flow in the channel will result in improved water quality, reduced pool stagnation, greater dilution of the contaminates present at the site, improved aquatic habitat, and will aid in the re-establishment and maintenance of secondary flow channels.

Engineered social use is incorporated into the design with well-designed and strategically placed access points. The creation of native zones will encourage appropriate use of areas as well as long-term sustainability and resiliency to recreation use. The designated areas will provide balance between humans and long-term riparian success.

High-quality, balanced and grassroots water education and outreach efforts that inform Coloradans about the issues so that they may engage in determining Colorado's water future.

The Las Colonias Park River Recreation feature is an excellent opportunity for educational opportunities, especially tied directly to the Grand Valley's strong agricultural roots. Increasing cooperation between the agricultural and recreation community will be enhanced through these educational opportunities. Volunteer groups, in addition to the Western Colorado Conservation Corps, will assist with planting efforts providing a source of engagement. In addition, educational/interpretive signage will be installed to provide free educational opportunities for park users, trail users, local schools, the underserved populations directly connected to the park, and the 50,000 annual Riverfront Trail users. Involvement in the project as well as the signage will encourage and teach responsible recreation (i.e. Leave No Trace, etc.). The City of Grand Junction has a broad representation of stakeholders in the development process for Las Colonias, including: Department of Energy (DOE), Navarro (contractor to DOE), Colorado Department of Public Health and Environment, US Fish and Wildlife, Colorado Parks and Wildlife, RiversEdge West, Grand Junction Lions Club, Western Colorado Botanical Society, Grand Valley Audubon, and a whole host of volunteers and community members interested in the sustainability of the park as well as its responsible use.

SWSI – Section 8, Recommendations, 8-1, Support meeting Colorado's non-consumptive water needs by working with Colorado's water stakeholders to help:

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Water Activity Justification

Promote recovery and sustainability of endangered, threatened, and imperiled species in a manner that allows the state to fully use its compact and decreed entitlements. Protect or enhance environmental and recreational values that benefit local and statewide economies. Encourage multi-purpose projects that benefit both water users and native species.

This project will improve aquatic and riparian side channel habitat in the Colorado River. Loss of backwater and side channel habitat in the Colorado River has been identified as a key factor in the decline of four federally listed fish species: Bonytail (Gila elegans), Humpback Chub (Gila cypha), Colorado Pikeminnow (Ptychochelius Lucius), and Razorback Sucker (Xyrauchen texanus). In addition, improvements in the riparian habitat benefit the Yellow-Billed Cuckoo (Coccyzus americanus). It is expected that improved side channel habitat will enhance the function of Colorado River system for these endangered species. The modified inlet will control flow distribution to function appropriately in the existing river system and avoid adverse impacts to existing aquatic habitat in the main channel of the Colorado River or any secondary channels. Additional flow in the channel will result in improved water quality, reduced pool stagnation, greater dilution of the contaminates present at the site, improved aquatic habitat, and will aid in the re-establishment and maintenance of secondary flow channels.

The new channel extension will enhance the aquatic habitat in Las Colonias Park by increasing the area of open water and creating flow complexity. The step-pool channel morphology incorporated into the channel will allow for natural scouring below the installed boulder steps, form flow pools with low velocities that create cover, create flow complexity and habitat diversity, aerate the water, and provide grade control and flow control for the new channel. Habitat boulders and ribbed riffle enhancements placed at optimal locations throughout the channel will create flow complexity and aquatic habitat heterogeneity by allowing natural scouring, secondary eddy currents, velocity refuges, and cover. The streambanks of the new channels will be planted with native riparian vegetation plantings using bioengineering bank treatments to provide erosion control, a riparian buffer, and increased habitat.

The Colorado Division of Water Resources recommended the River Recreation project be combined with the overall development of Las Colonias Park into one application at the completion of the park. This application is a standardized application with no well permits required and is a non-consumptive, recreational diversion.

Colorado Basin Implementation Plan

Preserve high quality recreational river and stream reaches with appropriate flows: short term needs: develop acceptance from watershed groups on 28 recreation reaches identified by American Whitewater in cooperation with the WFET work; long term needs: support efforts to expand water based recreational uses of the Colorado River Basin. The plan's themes include: protect and restore healthy streams, develop local water conscious land use strategies, and encourage high level of Basinwide conservation.

The City of Grand Junction's proposed project for the Las Colonias Park River Recreation Feature will help directly meet goals outlined in the State's Colorado Water Plan and in the Colorado River Basin's BIP. The project helps meet the statewide long-term goal #1 by improving public engagement in the endangered fish recovery program and statewide long-term goal #2 by enhancing the economic value of the river for both the local and statewide economies (CWP, 6-157). This project also helps meet the basin wide goal to protect identified recreational reaches and opportunities from degradation by enhancing user days and the user experience; the project segment was identified as a key recreational reach by American Whitewater in coordination with the WFET effort (Colorado BIP, 29).

(1) Access Basin Implementation Plans or Education Action Plans from Basin drop down menu.

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Matching Requirements: Basin Account Requests	
Basin (only) Account grant requests require a 25% match (cash and/or in-kind) from the Applicant or 3rd party and shall be accompanied by a **letter of commitment** as described in the 2016 WSRF Criteria and Guidelines (submitted on the contributing entity's letterhead). Attach additional sheet if necessary.	
Contributing Entity	Amount and Form of Match (note cash or in-kind)
CWP Grant Request Amount	$150,000 (secured)
Other Funding Sources – Great Outdoors Colorado	$350,000 (unsecured – notification spring 2019)
Other Funding Sources – Private Donations	$15,000 (secured)
Other Funding Sources – CWCB	$99,703 (secured from existing grant redirect)
Other Funding Sources – Water Supply Reserve	$10,000 (pending final notification)
Applicant Funding Contribution – Conservation Trust Fund	$165,000 (secured)
Applicant Funding Contribution – Developer Fees	$460,297 (secured)
Total Match	$1,250,000
If you requested a Waiver to the Basin Account matching requirements, indicate the percentage you wish waived.	

Matching Requirements: Statewide Account Requests	
Statewide Account grant requests require a 50% match as described in the 2016 WSRF Criteria and Guidelines. A minimum of 10% match shall be from Basin Account funds (cash only). A minimum of 10% match shall be provided by the applicant or 3rd party (cash, in-kind, or combination). The remaining 30% of the required match may be provided from any other source (Basin, applicant, or 3rd party) and shall be accompanied by a **letter of commitment.** Attach additional sheet if necessary.	
Contributing Entity	Amount and Form of Match (note cash or in-kind):
Total Match	$

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Matching Requirements: Statewide Account Requests	
If you requested a Waiver to the Statewide Account matching, indicate % you wish waived. (Max 50% reduction of requirement).	

Related Studies
Please provide a list of any related studies, including if the water activity is complimentary to or assists in the implementation of other CWCB programs.
Recreational use of the downtown Grand Junction riverfront was identified in the original 1998 Las Colonias Master Plan. Although not called out specifically as a recreation feature, the plan included a boardwalk, promenade, pond, and wetlands. The plan was revised over the course of several decades and most recently in 2017, the updated plan included a river recreation feature. Matching funds for completion of the project are included in the 2019 City of Grand Junction Capital Improvement Plan. The Las Colonias Park River Recreation feature will support the goals identified in the six themes from the Colorado Basin Implementation Plan through educational and interpretive signage. The feature actively supports the first theme to protect and restore healthy streams, rivers, lakes, and riparian areas. In addition, the feature will actively aid in protecting and rehabilitating a riparian area. Las Colonias Park was formerly used as a uranium mill which produced 2.2 million tons of radioactive tailings. Other portions of the park were used as a dumping ground and a junkyard. Until the 1980's, the riverfront was literally inaccessible. Thanks to strong civic leadership in the 80's and 90's, the uranium mill was remediated, the junkyard was cleaned up, and the invasive weed species was removed. The river recreation feature mimics the braided channels found throughout the Colorado River basin on the Western Slope increasing the area of aquatic side channel habitat in the reach of the Colorado River and improving habitat for endangered fish.

Previous CWCB Grants
List all previous or current CWCB grants (including WSRF) awarded to both the Applicant and Grantee. Include: 1) Applicant name; 2) Water activity name; 3) Approving RT(s); 4) CWCB board meeting date; 5) Contract number or purchase order
City of Grand Junction, Las Colonias Park Riparian Restoration, Colorado Watershed Restoration Program, $99,703, POGG1 PDAA 201700000838: This project was to revegetation the original excavated slough. This new project, the new inlet and additional water channel, was created after the Watershed Restoration grant was received, so the original scope of work has been on hold until a final determination and regulatory permit was secured. A request has been submitted to CWCB to request a project extension as well as divert these funds to the new project.

Tax Payer Bill of Rights
The Tax Payer Bill of Rights (TABOR) may limit the amount of grant money an entity can receive. Please describe any relevant TABOR issues that may affect the applicant.

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Currently, the TABOR excess the City voters have authorized to be used on street infrastructure maintenance comes from the TABOR limit calculation that we are required to do for Property Tax Revenues only. In addition to this we also perform a “Black Box” calculation which includes property tax revenues and other revenues subject to the limit. Grants or direct distribution of severance tax dollars are subject to the City’s “Black Box” TABOR calculation; however, at this time, we have a **margin** in our “Black Box” calculation (actual revenues are less than allowed revenues), so adding additional revenue would not put us into an excess situation in the “Black Box”.

Last Update: January 9, 2018

Colorado Water Conservation Board	
Water Supply Reserve Fund	
Exhibit A - Statement of Work	
Date:	**July 9, 2018**
Water Activity Name:	**City of Grand Junction**
Grant Recipient:	**Las Colonias Park River Recreation Feature**
Funding Source:	

Water Activity Overview: (Please provide brief description of the proposed water activity (no more than 200 words). Include a description of the overall water activity and specifically what the WSRF funding will be used for.

The proposed construction project at Las Colonias Park includes four project elements. An additional inlet channel will allow flowing water for a greater period of the year, will control flow distribution to function appropriately in the existing river system and avoid adverse impacts to existing aquatic habitat in the main channel of the Colorado River or any secondary channels. An extension of the existing slough will feature two boulder step structures to create step-pool morphology and provide channel grade control. Multiple habitat boulders and ribbed riffle enhancements will be installed throughout the modified secondary channel creating flow heterogeneity and aquatic habitat complexity. The streambanks of the new channels will be planted with native riparian vegetation plantings, providing erosion control, a riparian buffer, and increased habitat. Bank areas along the outside of meander bends (areas of high scour potential) will be protected by biotechnical bank stabilization consisting of vegetated natural boulder terracing. This project will restore the original intent of the existing slough by adding more flow and will add 1.77 acres of open water.

Objectives: (List the objectives of the project)

The enhanced construction project at Las Colonias Park includes four project elements. An additional inlet channel will allow flowing water for a greater period of the year, will control flow distribution to function appropriately in the existing river system, and will avoid adverse impacts to existing aquatic habitat in the main channel of the Colorado River or any secondary channels. An extension of the existing slough will feature two boulder step structures to create step-pool morphology and provide channel grade control. Multiple habitat boulders and ribbed riffle enhancements will be installed throughout the modified secondary channel creating flow heterogeneity and aquatic habitat complexity. The streambanks of the new channels will be planted with native riparian vegetation plantings, providing erosion control, a riparian buffer, and increased habitat. Bank areas along the outside of meander bends (areas of high scour potential) will be protected by biotechnical bank stabilization consisting of vegetated natural boulder terracing. This project will restore the original intent of the existing slough by adding more flow and will add 1.77 acres of open waters of the U.S. Simultaneously, this project promotes an anastomosing channel planform and makes the channel much more naturalized and aesthetically pleasing.

Specifically, the new downstream channel extension will enhance the aquatic habitat in Las Colonias Park by

increasing the area of open water and creating flow complexity. The step-pool channel morphology incorporated into the channel will allow for natural scouring below the installed boulder steps, form flow pools with low velocities that create cover, create flow complexity and habitat diversity, aerate the water, and provide grade control and flow control for the new channel. This channel extension will not only be a recreational and environmental amenity but will also add to the aesthetics and natural look of the park.

To ensure proper function and riparian species survival, an adaptive management plan will be utilized. Channel extensions, structures, current deflectors, constructed riffles, channel boulders, inlets and vegetation will be monitored for performance, proper function, and riparian species survival. If it is determined that corrective action is required from erosion, deposition, navigational performance, flow performance, habitat structure functionality. Structures, current deflectors, channel boulders and constructed riffles may be adjusted to address performance or function issues. Replanting may be recommended if target survival rates are not met for riparian plantings. In addition, this project includes riparian plantings near the side channel and channel extensions with a target survival rate of 55%. A supplemental irrigation plan will be developed to increase riparian species survival rates planted at greater distances from the channel with lower moisture contents with a target survival rate of 75%. The warranty period for all contractor work is one year.

Tasks
Task 1 – Site Preparation
Description of Task:
Work includes but is not limited to: providing all required bonds and insurance, mobilization, demobilization, installation of temporary work area facilities, protecting in place vegetation and utilities, bringing and removing all necessary construction equipment to and from the site, obtaining construction permits, all incidentals, and restoration of site and disturbed areas to pre-construction conditions.
Method/Procedure:
Site will be safe for use by park users and the workers. Including general care of water practices and best management practices.
Deliverable:
Site preparation will be conducted such that the site and area are safe for workers and trail users.

Tasks

Last Update: January 9, 2018

Tasks
Task 2 – Excavation and Haul to Disposal Area
Description of Task:
Excavation, haul and fill placement to prepare the site for enhancements and channel extension.
Method/Procedure:
Contractor will perform all excavation, haul, and fill as per contract. All construction activities shall follow U.S. Army Corps of Engineers ref # (SPK-2016-00344). In-stream work shall be performed during low water periods. Prior to construction activities, BMPs shall be in place to minimize turbidity and sedimentation, as well as prevent pollution and the potential release of contaminants from equipment. Construction activities shall be sequenced and sized to minimize temporary impacts to flowing water.
Deliverable:
Upon completion, the excavated channel extension will have continuous water flow when the Colorado River flows are above 810 cubic feet per second. This excavation will add 1.77 acres of open water, increasing the area of aquatic habitat at the site while enhancing recreation in the park as well as the natural aesthetics of the area.

Tasks
Task 3 – Boulder Step-Pool Structures
Description of Task:
Furnish and place boulders to create recreational enhancement features which allow for increased flow complexity and associated habitat diversity.
Method/Procedure:
Contractor will furnish and place boulders.

Last Update: January 9, 2018

Tasks
Deliverable:
The step-pool structures will be constructed using locally sourced natural boulders and will provide recreation opportunities for in-stream users. The structures will be stable and will not present a hazard to navigation. The structures will allow for natural scouring below the installed boulder steps, form flow pools with low velocities that create cover, create flow complexity and habitat diversity, aerate the water, provide grade control and flow control for the new channel, and will add to the natural appearance of the park. Upon completion, the secondary channel extension will be excavated and will include two boulder step structures to create step-pool morphology in the new channel and provide channel grade control. The increased area of open water will create additional aquatic habitat with the boulder steps allowing for natural scouring, flow complexity, and flow pools. The water in the channel will return to the Colorado River downstream of Las Colonias Park. The completed work will significantly add to the natural beauty of the park as a whole.

Tasks
Task 4 – Pool Armoring
Description of Task:
Strategically place small tight boulders along the new riverbed at the tail end of the flow pools to enhance the integrity of the new structures and pools.
Method/Procedure:
Contractor will place boulders.
Deliverable:
Individual stones shall be set tight, minimizing voids to create adequate pool protection and avoid foot entrapment while providing the structure that the step-pool features require. Includes riprap placement for riffle structure modifications and pool armoring.

Last Update: January 9, 2018

Tasks

Tasks
Task 5 – Large Habitat Boulder Placement
Description of Task:
Place large boulders in the flow pools near the boulder step structures.
Method/Procedure:
Contractor will place boulders.
Deliverable:
Individual large boulders placed at optimal locations throughout the channel will create flow complexity and aquatic habitat heterogeneity by allowing natural scouring, secondary eddy currents, velocity refuges, and cover. These boulders are beneficial for the natural habitat, river users, and the aesthetics of the park as a whole.

Tasks
Task 6 – Terracing Subgrade (3-8” crushed rock) and Subsequent Blocky Stone Placement
Description of Task:
Furnish and place blocky stone, and, in locations where unsuitable subgrade is encountered, place subgrade prior to stone placement.
Method/Procedure:

Last Update: January 9, 2018

Tasks
Contractor will place stone.
Deliverable:
Individual stones shall be set tight, minimizing voids to create adequate erosion protection and avoid foot entrapment hazards. The terracing shall be constructed using locally sourced natural stone boulders. It will be functional, pleasing to any park user, and often mistaken as naturally placed stone.

Tasks
Task 7 – Topsoil Import and Grading
Description of Task:
Top soil import and grading includes costs of purchasing all materials, delivery and stockpile of top soil, including BMP's, grading in 4” min. lifts, preparation for erosion control fabrics, weed control, and placement of top soil. Install erosion control blankets and mulch.
Method/Procedure:
Contractor will import top soil and complete grading.
Deliverable:
A multi-layer canopy will be developed which consists of approximately four to six distinct vertical layers of vegetation and provides a diverse physical habitat structure and improves the biodiversity in the area.

Tasks
Task 8 – Furnish and Install Riparian Native Seed Mix

Last Update: January 9, 2018

Tasks
Description of Task:
Furnish and plant native riparian seed mix in specified areas. Soil moisture varies dramatically with the distance to the feature. Riparian seeding shall be complimented with adjacent vegetation reflecting the gradient of vegetation from the streambank/wetland edge to the upper stream terrace areas. Permanent seeding shall occur within the appropriate time frame and weather permitting, from October 1 to March 15. Seeding at any other time must be approved by the Owner.
Method/Procedure:
Contractor will install.
Deliverable:
Riparian seed mix and seeding timeframe to be approved prior to use. Proper seedbed preparation and blanket protection may be required. This revegetation is envisioned to help restore the natural look of the area after the construction is complete.

Tasks
Task 9 – Furnish and Plant Containerized Trees and Shrubs
Description of Task:
Furnish and plant containerized trees and shrubs in specified areas. Soil moisture varies dramatically with the distance to the feature. Woody tree and shrub species shall be complimented by riparian seeding or willow plantings to reflect the gradient of vegetation from the streambank/wetland edge to the upper stream terrace areas. Channel extensions, structures, current deflectors, constructed riffles, channel boulders, inlets and vegetation will be monitored for performance, proper function, and riparian species survival. If it is determined that corrective action is required from erosion, deposition, navigational performance, flow performance, habitat structure functionality. Structures, current deflectors, channel boulders and constructed riffles may be adjusted to address performance or function issues. Replanting may be recommended if target survival rates are not met for riparian plantings.

Last Update: January 9, 2018

Tasks
Method/Procedure:
Contractor will install.
Deliverable:
Native and riparian trees and shrubs to be used. Includes Mountain Willow and Planeleaf Willow plantings, Box Elder, Black Choke Cherry, and Narrowleaf Cottonwood trees are proposed. This revegetation is envisioned to help restore the natural look of the area after the construction is complete.

Tasks
Task 10 – Install Irrigation System
Description of Task:
This project includes riparian plantings in close proximity to the side channel and channel extensions (Target survival rate of 55%). An irrigation plan will be installed to increase riparian species survival rates planted at greater distances from the channel with lower moisture contents (Target survival rate of 75%).
Method/Procedure:
Contractor will install.
Deliverable:
To ensure the survivability of the plants, an irrigation system is critical. This system will include an overhead broadcast system with one point of delivery, from reclaimed water from the water treatment plant meant to irrigate the entire Las Colonias property. The system will utilize broadcast and battery powered control valves.

Tasks
Task 11 – Install Interpretive and Educational Signage

Last Update: January 9, 2018

Tasks
Description of Task:
The importance of this project will be highlighted with interpretive/historical signs throughout the rehabilitated area to encourage future responsible use of the rivers and educational opportunities for area youth.
Method/Procedure:
Contractor will design signs with wording supplied by City of Grand Junction. City of Grand Junction will install. Significant consultation will occur with US Fish and Wildlife and CPW for sign development.
Deliverable:
Six interpretive/historical signs will be installed to highlight the restoration of the riverfront area, the 15-mile reach of the Endangered Fish Act, non-native species impacts to habitat, and the importance of aquatic and riparian side channel habitat. These 24" x 36" full color, high pressure laminate signs are mounted in 45-degree in-ground, black power coated aluminum exhibit bases.
Budget and Schedule
Exhibit B - Budget and Schedule: This Statement of Work shall be accompanied by a combined Budget and Schedule that reflects the Tasks identified in the Statement of Work and shall be submitted to CWCB in excel format. A separate excel formatted Budget is required for engineering costs to include rate and unit costs.

Reporting Requirements
Progress Reports: The grantee shall provide the CWCB a progress report every 6 months, beginning from the date of issuance of a purchase order, or the execution of a contract. The progress report shall describe the status of the tasks identified in the statement of work, including a description of any major issues that have occurred and any corrective action taken to address these issues. The CWCB may withhold reimbursement until satisfactory progress reports have been submitted.
Final Report: At completion of the project, the grantee shall provide the CWCB a Final Report on the grantee's letterhead that: • Summarizes the project and how the project was completed. • Describes any obstacles encountered, and how these obstacles were overcome. • Confirms that all matching commitments have been fulfilled. • Includes photographs, summaries of meetings and engineering reports/designs.
Payments

Last Update: January 9, 2018

Reporting Requirements

Payment will be made based on actual expenditures, must include invoices for all work completed and must be on grantee's letterhead. The request for payment must include a description of the work accomplished by task, an estimate of the percent completion for individual tasks and the entire Project in relation to the percentage of budget spent, identification of any major issues, and proposed or implemented corrective actions.

The CWCB will pay the last 10% of the entire water activity budget when the Final Report is completed to the satisfaction of CWCB staff. Once the Final Report has been accepted, and final payment has been issued, the water activity and purchase order or contract will be closed without any further payment. Any entity that fails to complete a satisfactory Final Report and submit to CWCB within 90 days of the expiration of a purchase order or contract may be denied consideration for future funding of any type from CWCB.

Performance Requirements

Performance measures for this contract shall include the following:
(a) Performance standards and evaluation: Grantee will produce detailed deliverables for each task as specified. Grantee shall maintain receipts for all project expenses and documentation of the minimum in-kind contributions (if applicable) per the budget in Exhibit B. Per Grant Guidelines, the CWCB will pay out the last 10% of the budget when the final deliverable is completed to the satisfaction of CWCB staff. Once the final deliverable has been accepted, and final payment has been issued, the purchase order or grant will be closed without any further payment.
(b) Accountability: Per the Grant Guidelines full documentation of project progress must be submitted with each invoice for reimbursement. Grantee must confirm that all grant conditions have been complied with on each invoice. In addition, per the Grant Guidelines, Progress Reports must be submitted at least once every 6 months. A Final Report must be submitted and approved before final project payment.
(c) Monitoring Requirements: Grantee is responsible for ongoing monitoring of project progress per Exhibit A. Progress shall be detailed in each invoice and in each Progress Report, as detailed above. Additional inspections or field consultations will be arranged as may be necessary.
(d) Noncompliance Resolution: Payment will be withheld if grantee is not current on all grant conditions. Flagrant disregard for grant conditions will result in a stop work order and cancellation of the Grant Agreement.

Last Update: 10/17/17

Colorado Water Conservation Board

Water Supply Reserve Fund

EXHIBIT B - BUDGET AND SCHEDULE - Direct & Indirect (Administrative) Costs

Date: July 26, 2018

Water Activity Name: Las Colonias Park River Recreation Feature

Grantee Name: City of Grand Junction

Task No.[1]	Description	Start Date[2]	End Date	Matching Funds (cash
1	**Site Preparation**	July 2019	July 2019	$30,800
2	**Excavation and Haul**	August 19	Aug 2019	$289,100
3	**Boulder Step-Pool Structures**	September 2019	September 2019	$205,500
4	**Pool Armoring**	September 2019	September 2019	$19,000
5	**Large Habitat Boulder Placement**	October 2019	October 2019	$17,500
6	**Terracing Subgrade/Blocky Stone Plmt**	October 2019	October 2019	$219,850
7	**Topsoil Import and Grading**	October 2019	October 2019	$110,000
8	**Furnish and Install Riparian Native Seed**	October 2019	October 2019	$4,755
9	**Furnish and Plant Trees and Shrubs**	October 2019	October 2019	$110,000
10	**Install Irrigation System**	August 2019	August 2019	$30,000
11	**Other**	November 2019	November 2019	$161,200
			Total	$1,197,705

(1) The single task that include costs for Grant Administration must provide a labor breakdown (see Indirect Costs tab below

(2) Start Date for funding under $100K - 45 Days from Board Approval; Start Date for funding over $100K - 90 Days from Boa

(3) Round values up to the nearest hundred dollars.

• Reimbursement eligibility commences upon the grantee's receipt of a Notice to Proceed (NTP)

• NTP will not be accepted as a start date. Project activities may commence as soon as the grantee enters contract and rece

The CWCB will pay the last 10% of the entire water activity budget when the Final Report is completed to the satisfaction of

• Additonally, the applicant shall provide a progress report every 6 months, beginning from the date of contract execution

• Standard contracting proceedures dictate that the Expiration Date of the contract shall be 5 years from the Effective Date.

WSRF Funds	Total
$0	$30,800
$0	$289,100
$5,000	$210,500
$0	$19,000
$1,700	$19,200
$3,300	$223,150
$0	$110,000
$0	$4,755
$0	$110,000
$0	$30,000
$0	$161,200
	$0
	$0
$10,000	$1,207,705

) where the total WSRF

ard Approval.

ives formal signed State

the CWCB staff project

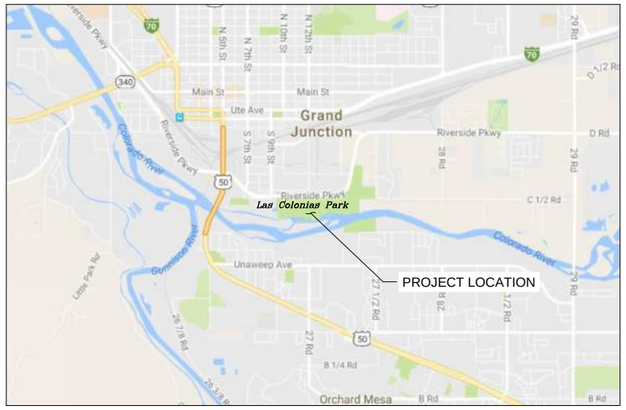
CITY OF GRAND JUNCTION

LAS COLONIAS RIVER PARK & SLOUGH IMPROVEMENTS PROJECT

MESA COUNTY

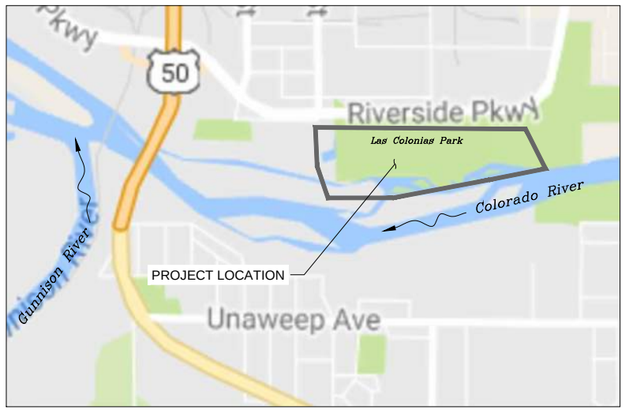
JULY, 2018

FINAL REVIEW SET



VICINITY MAP

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



SITE PLAN

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

PROJECT LOCATION:

LATITUDE 39° 03' 15.3" N
LONGITUDE 108° 33' 06.2" W

MESA COUNTY

PROJECT:

LAS COLONIAS SLOUGH IMPROVEMENTS PROJECT

NATURE AND ACTIVITY
PROPOSED SLOUGH ENHANCEMENTS AT LAS COLONIAS PARK INCLUDE A NEW INLET CHANNEL CONNECTING TO THE EXISTING SLOUGH, A SLOUGH EXTENSION CREATING ANOTHER SECONDARY CHANNEL WITH STEP-POOL CHANNEL MORPHOLOGY, IN-STREAM HABITAT STRUCTURES AND BOULDERS, NATIVE RIPARIAN PLANTINGS, AND BIOENGINEERED BANK STABILIZATION.

PURPOSE AND NEED
THE PURPOSE OF THE PROPOSED SLOUGH ENHANCEMENTS AT LAS COLONIAS PARK IS TO ENHANCE THE STREAM HYDROLOGY AND AQUATIC HABITAT ZONE IN THE EXISTING RECENTLY CONSTRUCTED SLOUGH, ADD ADDITIONAL AQUATIC HABITAT AREA BY SUPPORTING THE COLORADO RIVER'S MULTI-THREAD ANASTOMOSING CHANNEL PLANFORM, AND MAINTAIN EXISTING NAVIGATIONAL AND RECREATIONAL USE THROUGHOUT A LARGER PORTION OF THE YEAR.

CONTRACTOR SHALL COMPLY WITH ALL PERMIT CONDITIONS REFERENCED IN UNITED STATES ARMY CORPS OF ENGINEERS 404 PERMIT NUMBER: SPK-2016-0344

CONTRACTOR SHALL CONTACT AND FILE APPROPRIATE NOTIFICATION WITH COLORADO 811 PRIOR TO CONSTRUCTION.

NOTE: THESE DRAWINGS ARE PRELIMINARY AND NOT INTENDED FOR BIDDING OR CONSTRUCTION.

SURVEY NOTES:

SURVEY BY: CITY OF GRAND JUNCTION
DATE: NOVEMBER 21, 2017
DATA BASED ON FIELD SURVEYS BY CITY OF GRAND JUNCTION. ADDITIONAL SURVEY DATA COLLECTED BY MIKE GRIZENKO 21 NOVEMBER 2017, USING TRIMBLE S5 TDS RANGER DATA COLLECTOR.
USGS 09106150 COLO RIVER BELOW GRAND VALLEY DIV NR PALISADE, CO ON 21 NOVEMBER 2017 AT 10:30AM READING 1,580 CFS.

VERTICAL DATUM: NAVD88
HORIZONTAL COORDINATE SYSTEM: MESA COUNTY LOCAL COORDINATE SYSTEM (MCLCS)

PROJECT OWNER:

CITY OF GRAND JUNCTION
250 NORTH 5TH STREET
GRAND JUNCTION, CO
81501

SHEET INDEX:

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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PROJECT OWNER:
CITY OF GRAND JUNCTION
---
250 N 5TH STREET
GRAND JUNCTION, CO

LAS COLONIAS RIVER PARK
COLORADO RIVER
GRAND JUNCTION, COLORADO

FINAL REVIEW SET - NOT FOR CONSTRUCTION

COVER SHEET

REVISIONS:

NO.	DATE
	01/02/2018

DESIGNED: GL DRAFTED: RG
CHECKED: XX
PLOT DATE: 7/25/2018

DRAWING NO.

G-01

PROJECT NOTES

GENERAL SITE NOTES:

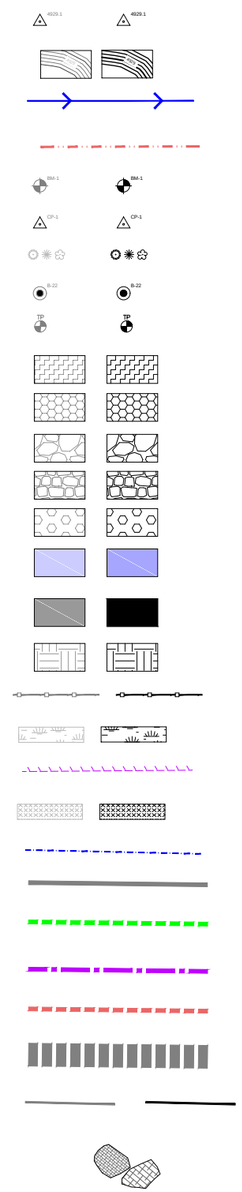
1. EXISTING TOPOGRAPHY SHOWN BASED ON DATA PROVIDED BY CITY OF GRAND JUNCTION. ADDITIONAL MAPPING HAS BEEN ADDED BY RIVERRESTORATION PO BOX 248, CARBONDALE, CO 81623. THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS AND ADJUST WORK PLAN ACCORDINGLY PRIOR TO BEGINNING CONSTRUCTION.
2. EXISTING TOPOGRAPHY, STRUCTURES AND SITE FEATURES ARE SHOWN SCREENED AND/OR LIGHT LINED. NEW FINISH GRADE, STRUCTURES AND SITE FEATURES ARE SHOWN SOLID AND/OR HEAVY-LINED.
3. MAINTAIN, RELOCATE OR REPLACE EXISTING SURVEY MONUMENTS, CONTROL POINTS AND STAKES WHICH ARE DISTURBED OR DESTROYED. PERFORM THE WORK TO PRODUCE THE SAME LEVEL OF ACCURACY AS THE ORIGIONAL MONUMENT(S) IN A TIMELY MANNER AT THE CONTRACTOR'S EXPENSE.
4. PROVIDE TEMPORARY FENCING AS NECESSARY TO MAINTAIN SECURITY. FENCING SHALL BE INCLUDED IN MOBILIZATION COSTS.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING AND MAINTAINING EROSION CONTROL DEVICES DURING CONSTRUCTION.
6. CONTRACTOR SHALL TAKE ALL OTHER MEASURES TO PRECLUDE EROSION MATERIALS FROM LEAVING THE SITE. CONTRACTOR TO SUBMIT EROSION CONTROL PLAN FOR APPROVAL PRIOR TO MOBILIZATION.
7. REMOVE TREES, SHRUBS OR OTHER PLANTINGS ONLY IF DIRECTED BY THE ENGINEER TO DO SO. IMPLEMENT TREE PROTECTION IF NEEDED AT LOCATIONS SPECIFIED.
8. DISPOSE OF ALL MATERIALS DESIGNATED FOR REMOVAL AT AN APPROVED DISPOSAL SITE UNLESS NOTED OTHERWISE.
9. CONTRACTOR SHALL PROTECT PUBLIC AND PRIVATE PROPERTY IN ACCORDANCE WITH SPECIFICATIONS AND REPLACE OR REPAIR DAMAGED PROPERTY AT CONTRACTOR EXPENSE.
10. AN REP REPRESENTATIVE SHALL BE PRESENT DURING CONSTRUCTION OF KEY PORTIONS OF THE PROJECT INCLUDING, DEFLECTOR, RANDOM BOULDER, AND RELATED BANK TERRACING. MINOR CHANGES MAY BE MADE BY AN REP REPRESENTATIVE. STRUCTURE ELEVATIONS WILL BE VERIFIED BY THE CONTRACTOR AND MAY BE CHECKED BY AN REP REPRESENTATIVE DURING CONSTRUCTION.

UTILITY DATA PROVIDED FOR REFERENCE ONLY.

CONTRACTOR SHALL LOCATE AND MARK ALL UTILITIES WITHIN THE PROJECT AREA PRIOR TO CONSTRUCTION AND SHALL NOT RELY SOLELY ON THESE CONSTRUCTION PLANS FOR UTILITY LOCATIONS. CONTRACTOR MUST COMPLETE ALL UTILITY LOCATES PRIOR TO CONSTRUCTION. DAMAGE TO ANY EXISTING UTILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.

PROJECT LEGEND

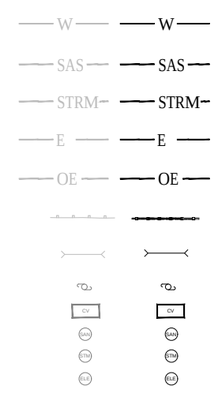
EXISTING PROPOSED



SPOT ELEVATION
CONTOUR LINE
CHANNEL THALWEG
STAGING OR LIMITS OF CONSTRUCTION
BENCHMARK
CONTROL POINT
TREE
BORING LOCATION
TEST PIT LOCATION
RIFFLE
RIPRAP ARMORING
BANK TERRACING
BOULDER STRUCTURE
ROUGHENED FISHWAY
WATER SURFACE APPROXIMATION
CONCRETE STRUCTURE
NATIVE ALLUVIUM
FENCELINE
WETLANDS
ORDINARY HIGH WATER MARK
TOPSOIL SOIL
100-YR FLOODPLAIN
PROPERTY BOUNDARIES
SHEET PILE
SILT FENCING
CONSTRUCTION SECURITY FENCING
TEMPORARTY COFFERDAM LOCATION
EDGE OF TRAIL
RANDOM BOULDERS

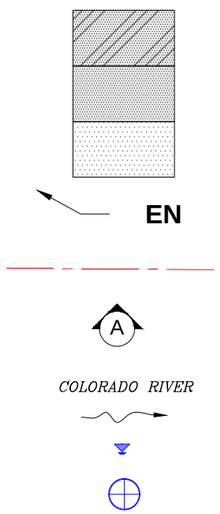
UTILITIES

EXISTING PROPOSED



WATER LINE
SEWER LINE
STORMWATER LINE
BURIED ELECTRIC
OVERHEAD ELECTRIC
GUARDRAIL
CULVERT
UTILITY POLE
CONTROL VALVE BOX
SEWER MANHOLE
STORM MANHOLE
ELECTRIC MANHOLE

FLOODPLAIN



FEMA FLOODWAY
FEMA ZONE AE BASE FLOOD ELEVATIONS
FEMA ZONE X OTHER FLOOD AREAS
FEMA CROSS SECTION
HYDRAULIC CROSS SECTIONS
STRUCTURE CROSS SECTIONS
FLOW DIRECTION
FREE WATER SURFACE
MEASURED WATER SURFACE ELEVATION LOCATION

PROJECT MAY NOT CONTAIN ALL ELEMENTS REPRESENTED

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PROJECT OWNER:
CITY OF GRAND JUNCTION
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250 N 5TH STREET
GRAND JUNCTION, CO

LAS COLONIAS RIVER PARK
COLORADO RIVER
GRAND JUNCTION, COLORADO

FINAL REVIEW SET - NOT FOR CONSTRUCTION

PROJECT NOTES & LEGEND

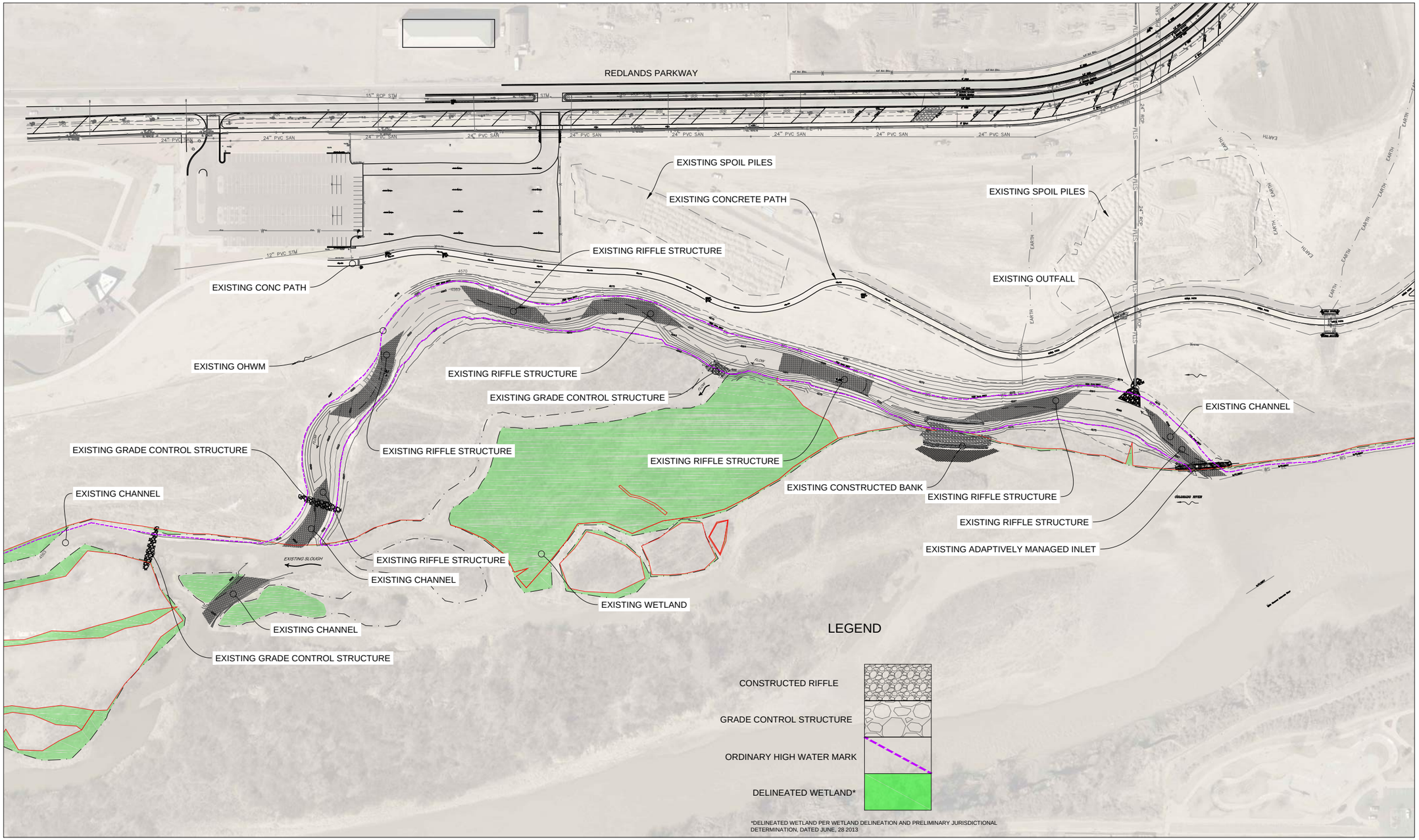
REVISIONS:

NO.	DATE
	01/02/2018

DESIGNED: GL | DRAFTED: RG
CHECKED: XX
PLOT DATE: 9/26/2018

DRAWING NO.

G-02



EXISTING CONDITIONS

SCALE BAR 1"=100'

100 0 100

CONTOUR INTERVAL ONE FOOT

NOTES:

1. EXISTING SLOUGH CHANNEL NO RIVER INFLOW AT 1600CFS
2. AREAS OF PROPOSED NEW CHANNELS HAVE FEW OR NO NATIVE VEGETATION
3. A URANIUM MILL WAS PREVIOUSLY LOCATED AT THE PROPOSED PROJECT SITE, AND CONTAMINATED SOILS WERE REMOVED FROM THE SITE AS PART OF THE CLEAN-UP EFFORT. CONTAMINATION AT THE SITE IS STILL A CONCERN AND FURTHER DILUTION OF CONTAMINANTS IS A GOAL OF THE PROPOSED PROJECT. THERE HAVE BEEN A NUMBER OF PROJECTS TO ENHANCE THE SIDE CHANNEL HABITAT AT LAS COLONIAS PARK. DREDGING AND EXPANSION OF ONE OF THE EXISTING SIDE CHANNELS OCCURRED SEVERAL TIMES. THE MOST RECENT PROJECT CONSISTED OF THE CONSTRUCTION OF A NEW SECONDARY CHANNEL (“SLOUGH”), DIVERGING FROM THE MAIN CHANNEL BEFORE REJOINING THE SYSTEM AT A NEW LOCATION DOWNSTREAM, CREATING NEW SIDE CHANNEL AQUATIC HABITAT.

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PROJECT OWNER:
CITY OF GRAND JUNCTION
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250 N 5TH STREET
GRAND JUNCTION, CO

LAS COLONIAS RIVER PARK
COLORADO RIVER
GRAND JUNCTION, COLORADO

FINAL REVIEW SET - NOT FOR CONSTRUCTION

EXISTING CONDITIONS

REVISIONS:

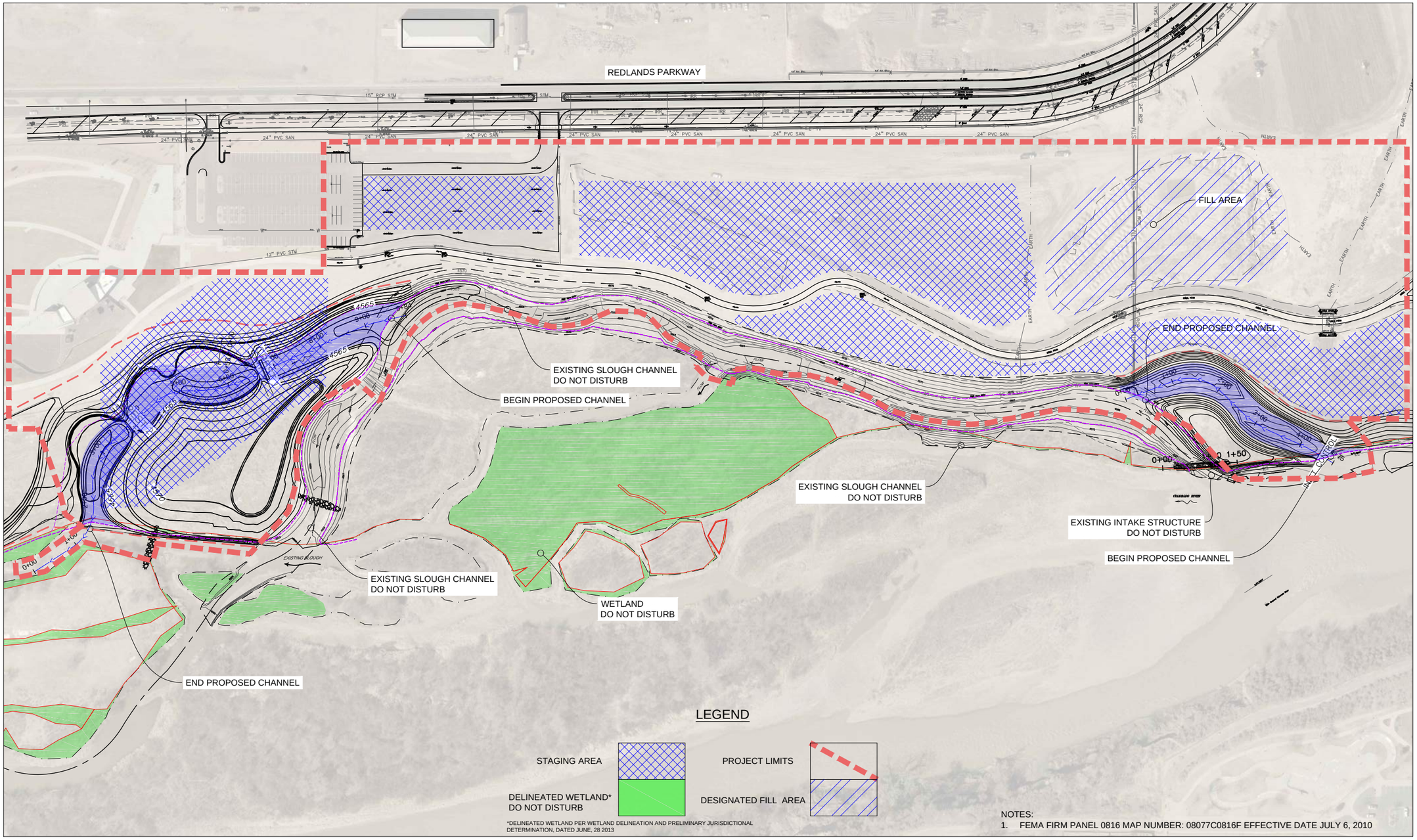
NO.	DATE
	01/02/2018

DESIGNED: GL DRAFTED: RG
CHECKED: XX
PLOT DATE: 7/25/2018

DRAWING NO.

G-03

SHEET G-03 OF 26



STAGING & ACCESS

SCALE BAR 1"=100'

100 0 100

CONTOUR INTERVAL ONE FOOT

NOTES:

1. 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.
2. 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.
3. 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.
4. NO CHEMICALS, FUELS, LUBRICANTS, BRUSH, ETC. SHALL BE DISCHARGED OR DISPOSED OF INTO OR ALONGSIDE ANY STREAM, WATERCOURSE, OR FLOODPLAIN UNDER ANY CIRCUMSTANCES.

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AND PLANNING
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DRAFT

PROJECT OWNER:
CITY OF GRAND JUNCTION
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250 N 5TH STREET
GRAND JUNCTION, CO

LAS COLONIAS RIVER PARK
COLORADO RIVER
GRAND JUNCTION, COLORADO

FINAL REVIEW SET - NOT FOR CONSTRUCTION

STAGING & ACCESS

REVISIONS:

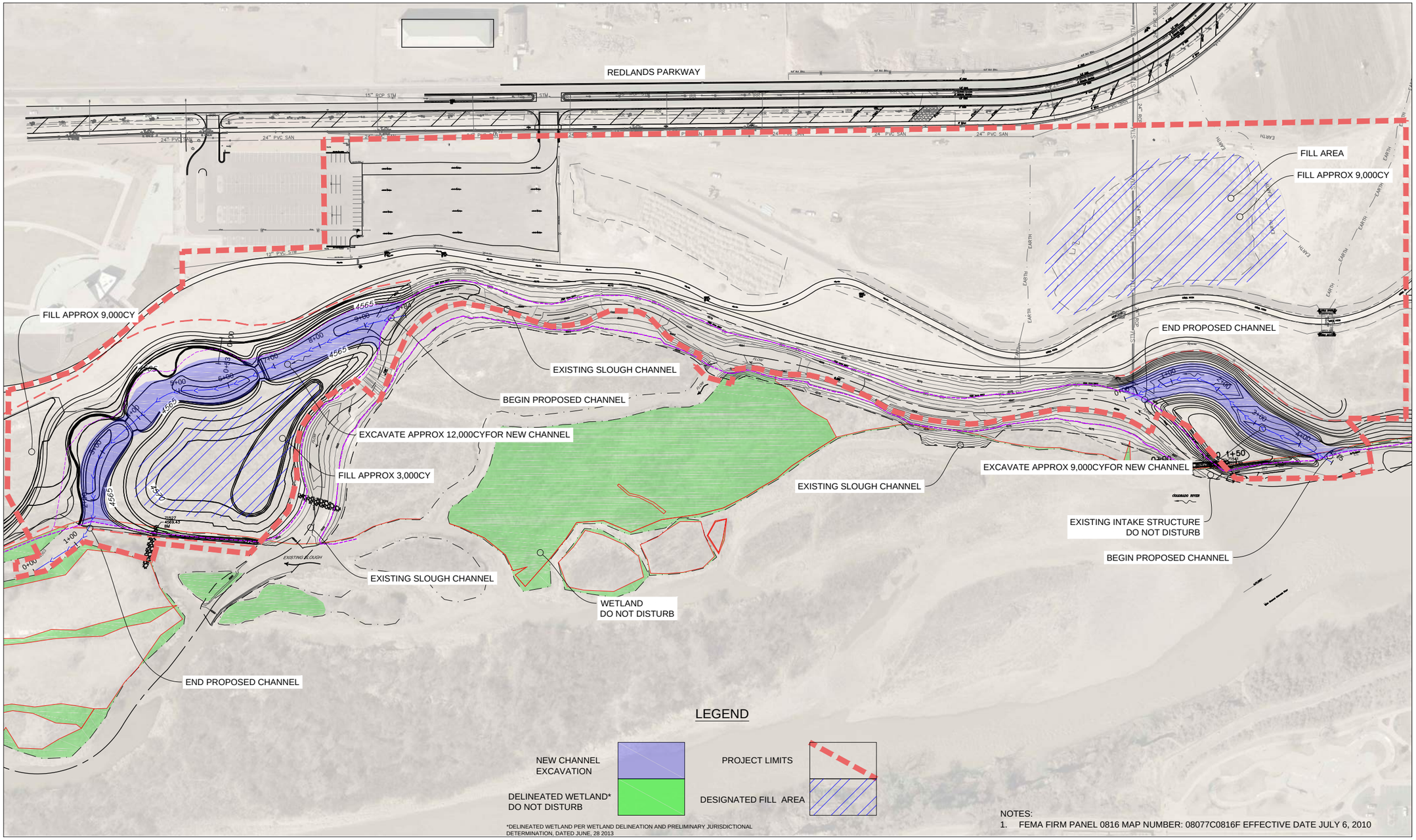
NO.	DATE
	01/02/2018

DESIGNED:	GL	DRAFTED:	RG
CHECKED:	XX		
PLOT DATE:	7/25/2018		

DRAWING NO.

C-01

SHEET C-01 OF 26



EARTHWORK & EXCAVATION

SCALE BAR 1"=100'

100 0 100

CONTOUR INTERVAL ONE FOOT

NOTES:

1. 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.
2. 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.
3. 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.
4. NO CHEMICALS, FUELS, LUBRICANTS, BRUSH, ETC. SHALL BE DISCHARGED OR DISPOSED OF INTO OR ALONGSIDE ANY STREAM, WATERCOURSE, OR FLOODPLAIN UNDER ANY CIRCUMSTANCES.

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PROJECT OWNER:
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GRAND JUNCTION, CO

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COLORADO RIVER
GRAND JUNCTION, COLORADO

FINAL REVIEW SET - NOT FOR CONSTRUCTION

EARTHWORK & EXCAVATION

REVISIONS:

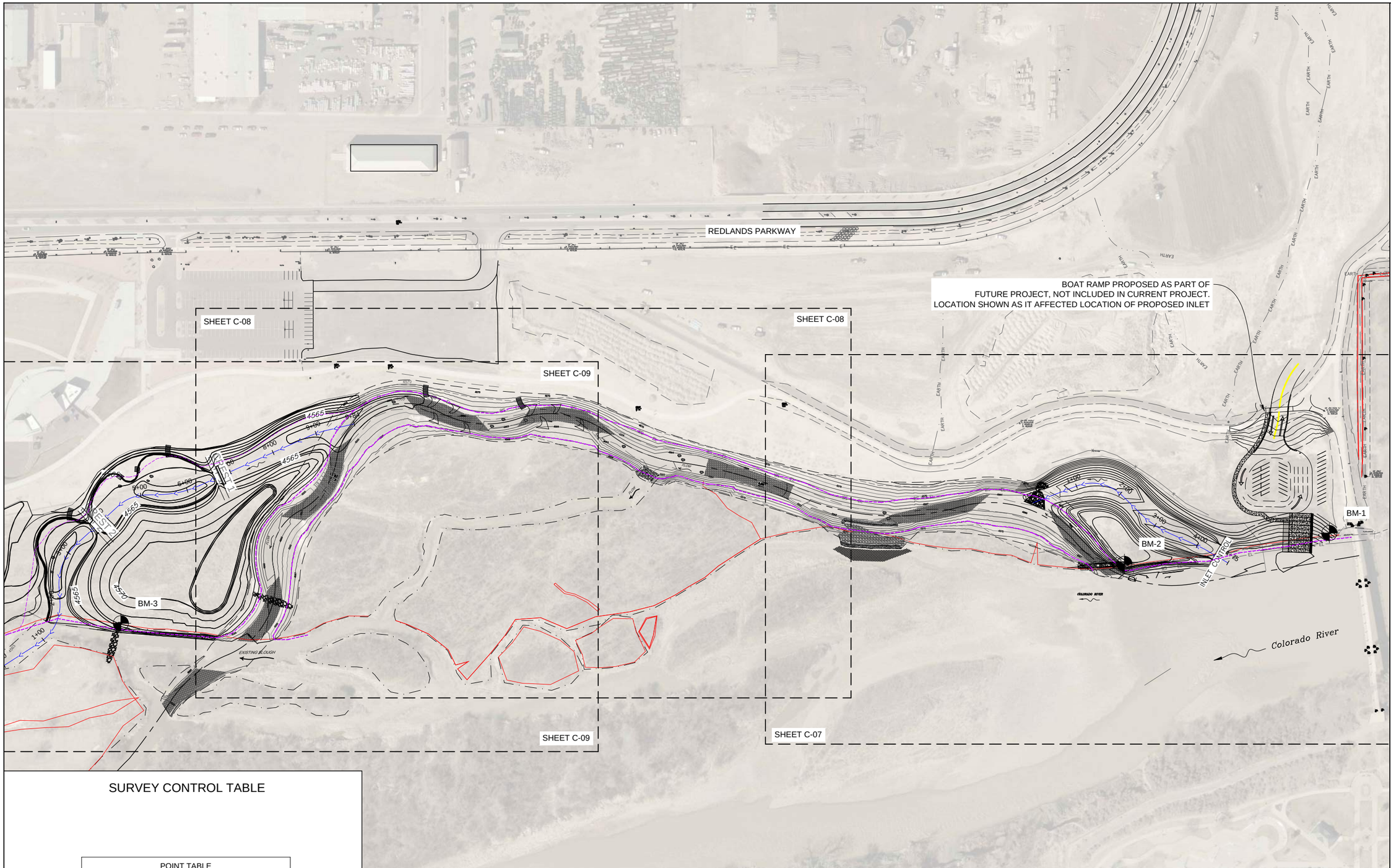
NO.	DATE
	01/02/2018

DESIGNED:	GL	DRAFTED:	RG
CHECKED:	XX		
PLOT DATE:	7/25/2018		

DRAWING NO.

C-02

SHEET C-02 OF 26



SURVEY CONTROL TABLE

POINT TABLE				
POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
71527	30815.1230	94023.2890	4569.43	BM
71541	30947.6060	96171.1910	4571.99	BM
71542	31005.1960	96605.2850	4571.70	BM

SITE PLAN OVERALL

SCALE BAR 1"=100'
100 0 100
CONTOUR INTERVAL ONE FOOT

NOTES:
1. BENCHMARKS ESTABLISHED FOR SUBSEQUENT WATER SURFACE MEASUREMENT
2. MEASURED WATER SURFACE ELEVATIONS
   2.1. JUNE 12, 2017 - 4570.34 - COLO RVR - 13,800 CFS
   2.2. SEPTEMBER 11, 2017 - 4566.65 - COLO RIVER - 1,080 CFS
   2.3. NOVEMBER 21, 2017 - 4566.90 - COLO RIVER - 1,580 CFS

USGS 09106150 COLO RIVER BELOW GRAND VALLEY DIV NR PALISADE CO

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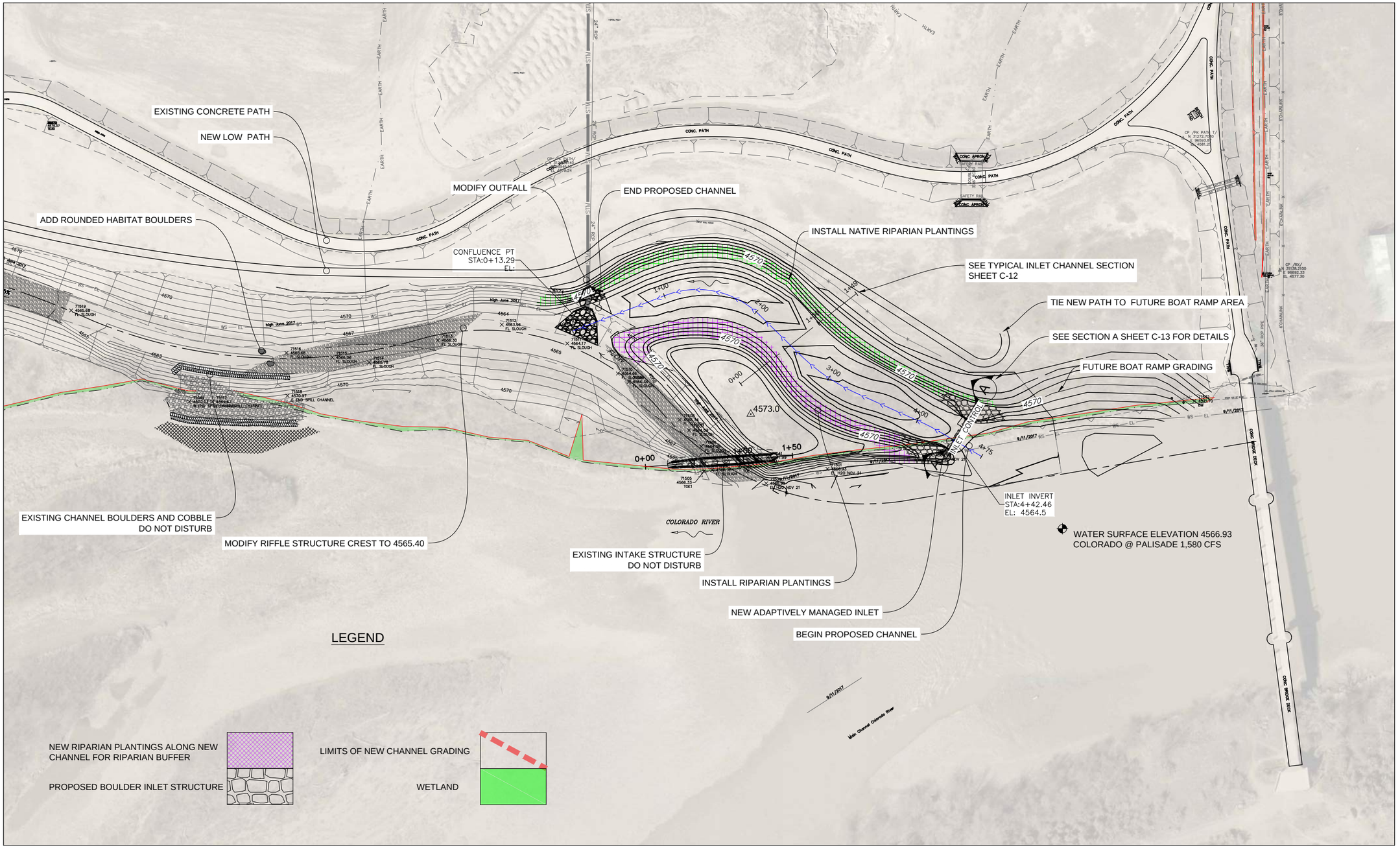
OVERALL SITE PLAN

REVISIONS:

NO.	DATE
	01/02/2018

DESIGNED: GL | DRAFTED: RG
CHECKED: XX
PLOT DATE: 7/25/2018

DRAWING NO.
C-03



NEW INLET CHANNEL SITE PLAN

N

SCALE BAR 1"=50'

50 0 50

CONTOUR INTERVAL ONE FOOT

NOTES:

1. ADAPTIVELY MANAGED INLET TO AVOID IMPACTING LOW FLOW REQUIREMENTS IN THE MAIN CHANNEL OF THE COLORADO RIVER. DURING PERIODS WHEN THE MAIN CHANNEL OF THE RIVER IS AT OR BELOW 810 CFS THE PROPOSED CHANNEL WILL NOT DIVERT ANY WATER. LOW FLOW CONDITIONS ARE MOST LIKELY DURING LATE AUGUST AND EARLY SEPTEMBER. PROPOSED CHANNEL WILL CONTINUE TO MAINTAIN FLOW FOR FISH HABITAT AND UPSTREAM MIGRATION WITHIN MAIN CHANNEL AND OTHER CHANNEL BRAIDS IN THE REACH.
2. FLOWING POOLS SIMILAR TO THE EXISTING SLOUGH CHANNEL WILL MINIMIZE POOLS OF STANDING WATER AVOIDING INCREASING HABITAT FOR NON-NATIVE FISHES AND REDUCE POTENTIAL MOSQUITO BREEDING HABITAT.
3. PROPOSED CHANNEL IMPROVEMENTS WILL BE ADAPTIVELY MANAGED WITH ACCOMPANYING MONITORING AND MAINTENANCE PLANS TO ENSURE REQUIREMENTS ARE SUSTAINED.

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NEW INLET CHANNEL SITE PLAN

REVISIONS:

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	01/02/2018

DESIGNED:	GL	DRAFTED:	RG
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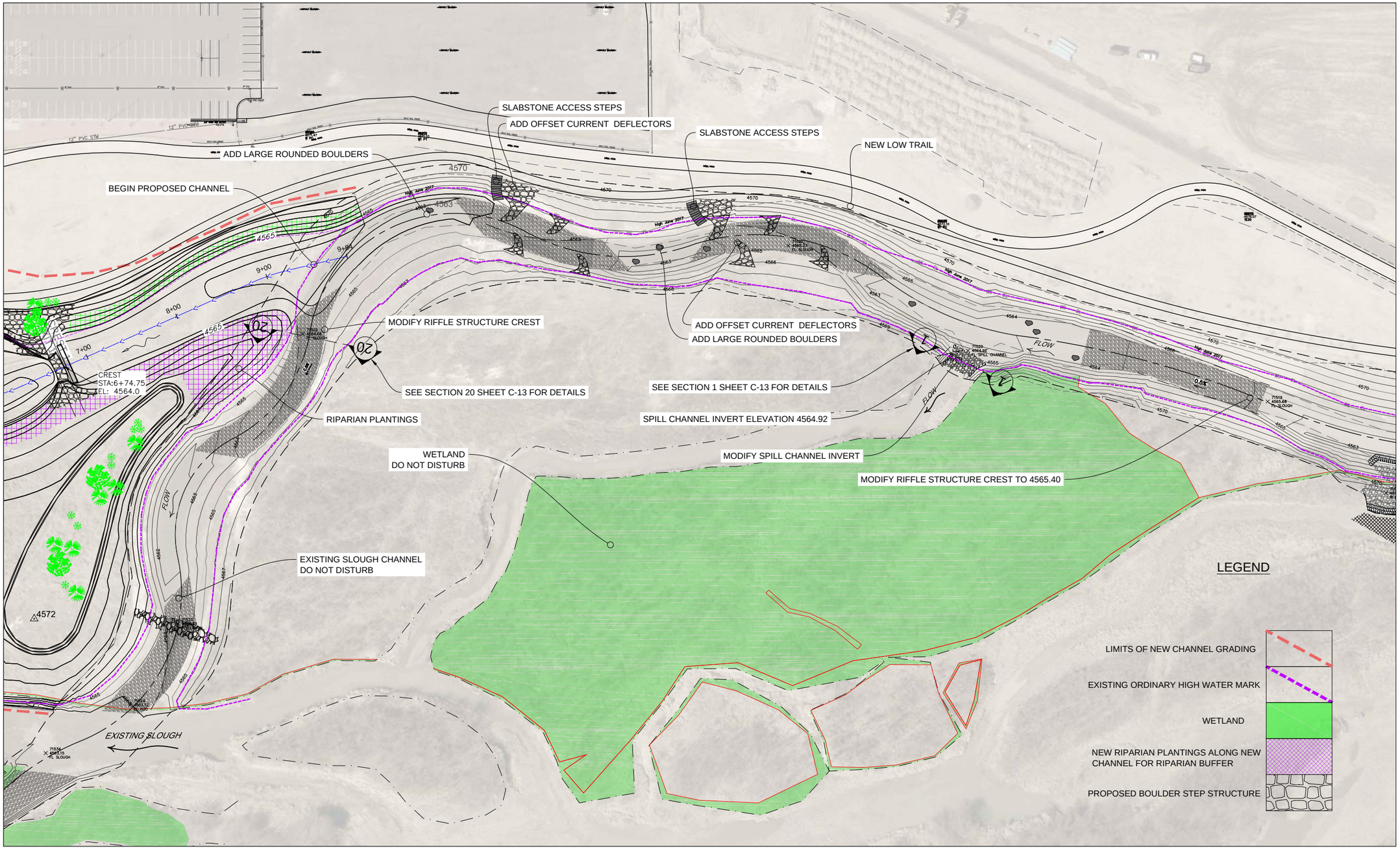
PLOT DATE: 7/25/2018

DRAWING NO.

C-04

SHEET C-04 OF 26



SLOUGH ENHANCEMENTS SITE PLAN

SCALE BAR 1"=50'

50 0 50

CONTOUR INTERVAL ONE FOOT

NOTES:

1. FLOWING POOLS WILL AVOID AND MINIMIZE STAGNANT POOLING, THUS LIMITING HABITAT FOR NON-NATIVE FISH, MAINTAIN CONTAMINANT DILUTION AND REDUCE MOSQUITO BREEDING AREAS.
2. BIOENGINEERED VEGETATION INCORPORATED TO INCREASE EROSIONAL STABILITY DURING HIGH FLOW EVENTS.
3. CURRENT DEFLECTORS - IN-STREAM HABITAT STRUCTURES TO CREATE FLOW HETEROGENEITY AND HABITAT COMPLEXITY BY ALLOWING NATURAL SCOUR, EDDY CURRENTS, VELOCITY REFUGES, COVER, ETC.
4. HABITAT BOULDERS PLACED AT OPTIMAL LOCATIONS THROUGHOUT SLOUGH TO ADD HABITAT COMPLEXITY AND COVER. HABITAT BOULDERS ARE KNOWN TO ALLOW NATURAL LOCAL SCOURING IN THE VICINITY, PROVIDE COVER, CREATE SECONDARY EDDY CURRENTS, VELOCITY SHELTERS.
5. NATIVE VEGETATION PLANTINGS ALONG STREAMBANK FOR RIPARIAN BUFFER. EROSION CONTROL ALONG THE OUTSIDE OF MEANDER BENDS WILL BE ACCOMPLISHED WITH BIOTECHNICAL BANK STABILIZATION CONSISTING OF VEGETATED NATURAL BOULDER TERRACING.

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SLOUGH ENHANCEMENTS SITE PLAN

REVISIONS:

NO.	DATE
	01/02/2018

DESIGNED:	GL	DRAFTED:	RG
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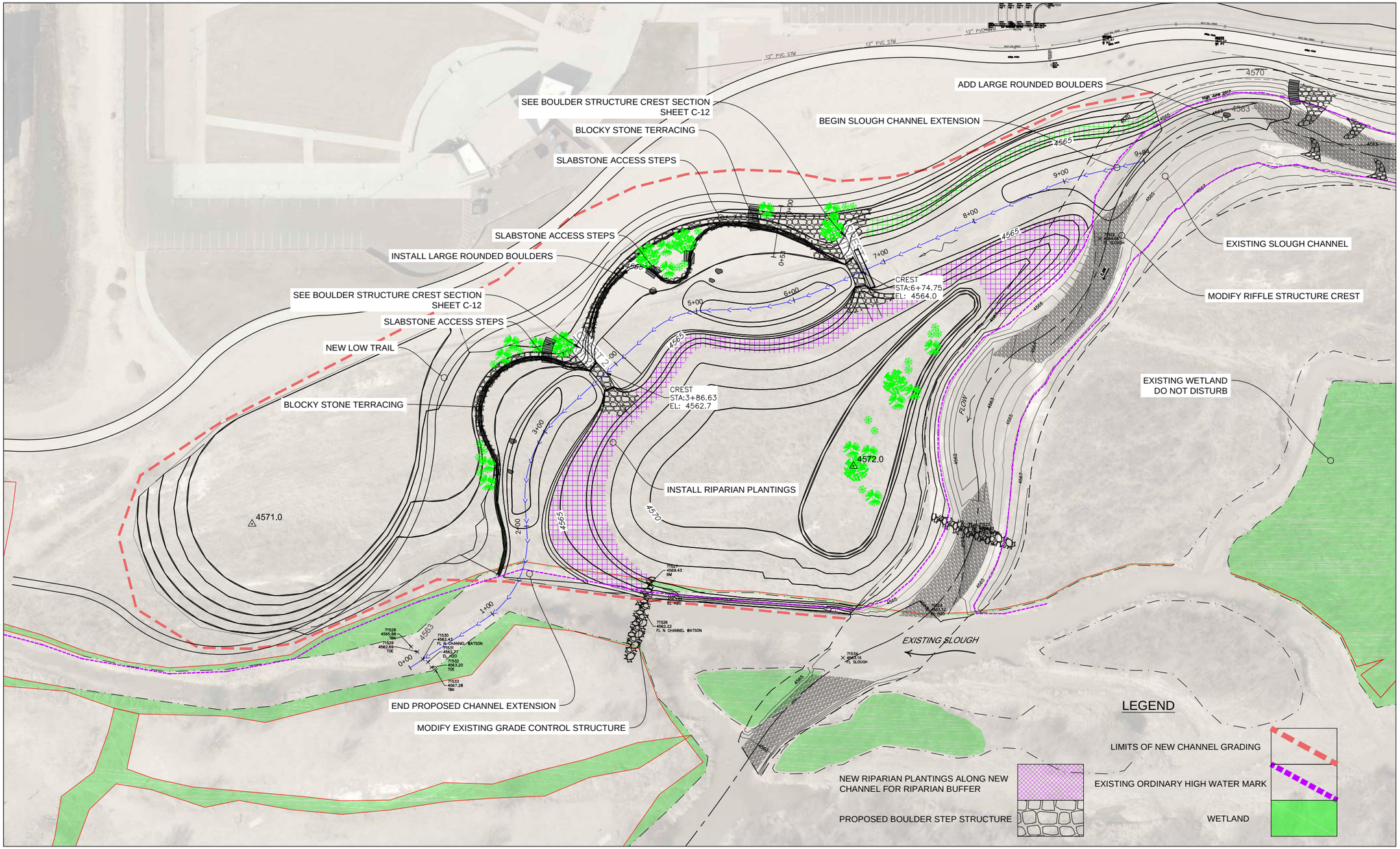
PLOT DATE:	7/25/2018		

DRAWING NO.

C-05

SHEET C-05 OF 26



NEW CHANNEL EXTENSION SITE PLAN

SCALE BAR 1"=50'

50 0 50

CONTOUR INTERVAL ONE FOOT

NOTES:

1. NEW SECONDARY CHANNEL, STEP-POOL CHANNEL MORPHOLOGY. NEW ADDITIONAL CHANNEL INCREASES AREA OF OPEN WATER AND AQUATIC HABITAT. BOULDERS PLACED TO ALLOW NATURAL SCOURING BELOW STEPS. FLOW COMPLEXITY CREATING HABITAT DIVERSITY. DEEP POOLS CREATE COVER, LOW VELOCITIES. HABITAT BOULDERS PLACED IN POOLS CREATES ADDITIONAL COVER AND HABITAT HETEROGENEITY
2. NATIVE VEGETATION PLANTINGS ALONG STREAMBANK FOR RIPARIAN BUFFER. EROSION CONTROL ALONG THE OUTSIDE OF MEANDER BENDS WILL BE ACCOMPLISHED WITH BIOTECHNICAL BANK STABILIZATION CONSISTING OF VEGETATED NATURAL BOULDER TERRACING.

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NEW CHANNEL EXTENSION SITE PLAN

REVISIONS:

NO.	DATE
	01/02/2018

DESIGNED: GL DRAFTED: RG
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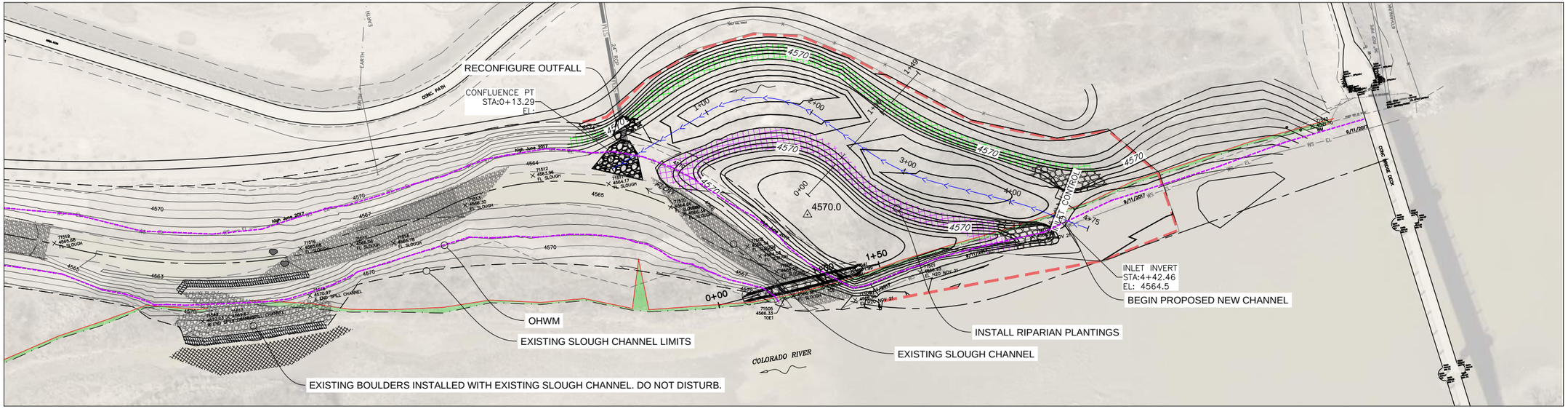
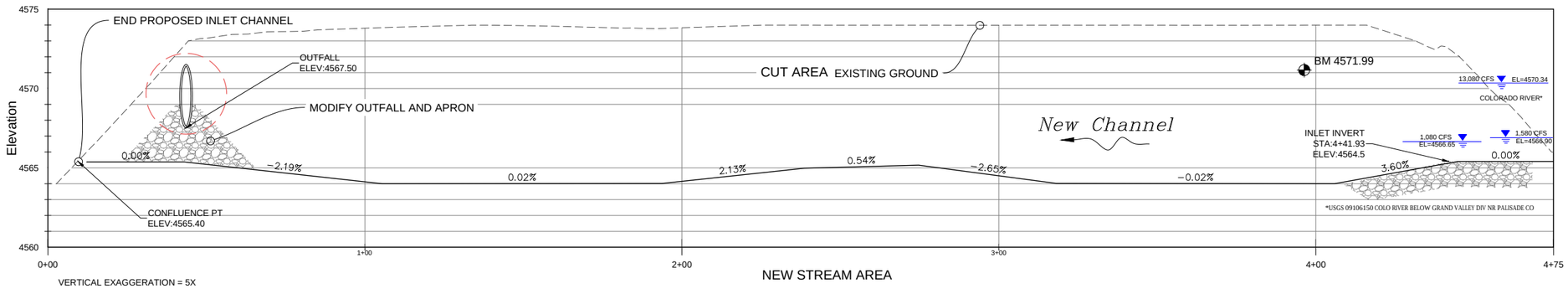
PLOT DATE: 7/25/2018

DRAWING NO.

C-06

SHEET C-06 OF 26





NEW INLET CHANNEL PLAN AND PLAN

SCALE BAR 1"=50'
50 0 50
CONTOUR INTERVAL ONE FOOT

NOTES:
1. NEW INLET CHANNEL - ANOTHER SECONDARY CHANNEL, INCREASING TOTAL AREA OF OPEN WATER AND AQUATIC HABITAT. INCREASE FUNCTION OF THE EXISTING SLOUGH. CURRENTLY NO FLOW INTO EXISTING SLOUGH AT 1600CFS, NO AQUATIC HABITAT
2. CURRENT DEFLECTORS - IN-STREAM HABITAT STRUCTURES TO CREATE FLOW HETEROGENEITY AND HABITAT COMPLEXITY BY ALLOWING NATURAL SCOUR, EDDY CURRENTS, VELOCITY REFUGES, COVER, ETC.
3. HABITAT BOULDERS PLACED AT OPTIMAL LOCATIONS THROUGHOUT SLOUGH TO ADD HABITAT COMPLEXITY AND COVER. HABITAT BOULDERS ARE KNOWN TO ALLOW NATURAL LOCAL SCOURING IN THE VICINITY, PROVIDE COVER, CREATE SECONDARY EDDY CURRENTS, VELOCITY SHELTERS.

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NEW CHANNEL PLAN & PROFILE

REVISIONS:

NO.	DATE
	01/02/2018

DESIGNED:	GL	DRAFTED:	RG
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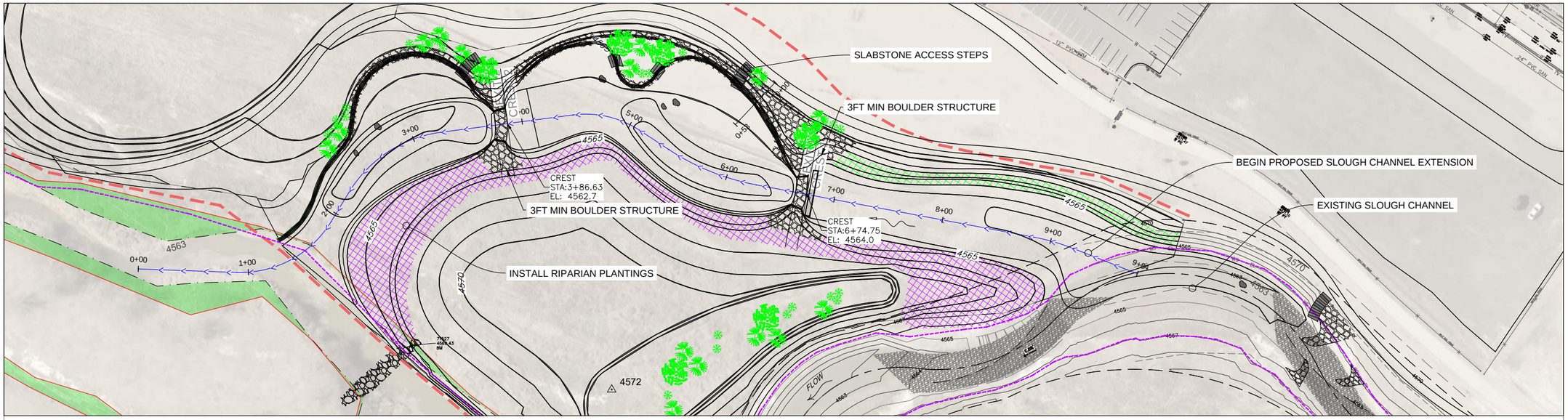
PLOT DATE: 7/25/2018

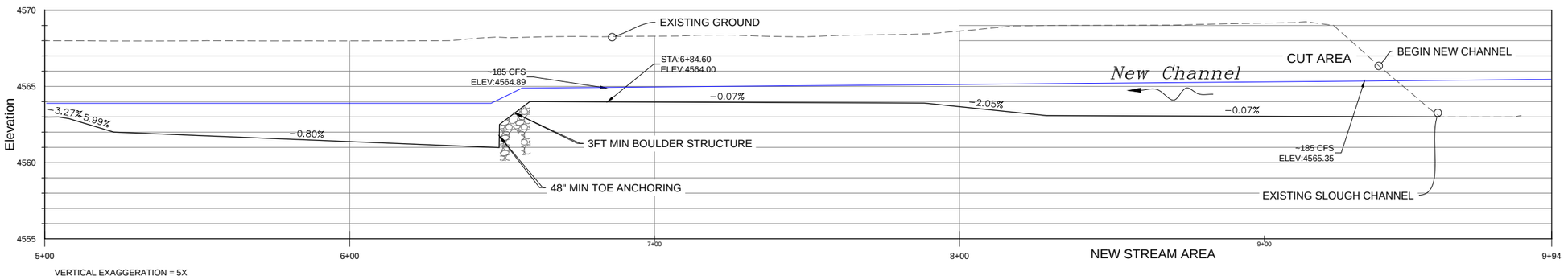
DRAWING NO.

C-07

SHEET C-07 OF 26



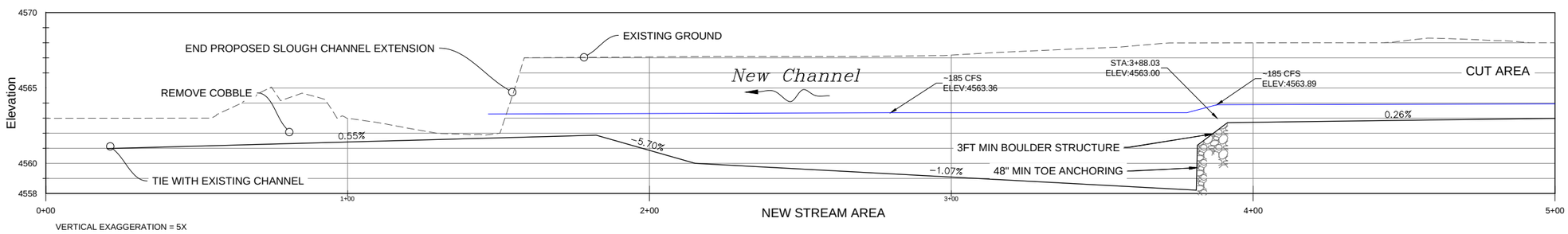
Thalweg Profile



VERTICAL EXAGGERATION = 5X

EXAGGERATED BY 5X VERTICALLY

Thalweg Profile



VERTICAL EXAGGERATION = 5X

NEW CHANNEL EXTENSION PLAN AND PROFILE

SCALE BAR 1"=50'

50 0 50

CONTOUR INTERVAL ONE FOOT

NOTES:

1. ENHANCE STREAM HYDROLOGY IN EXISTING CONSTRUCTED SIDE CHANNELS BY PROVIDING ADDITIONAL FLOW TO CHANNEL OVER GREATER PERIOD OF THE YEAR.
2. INCREASE AREA OF AQUATIC HABITAT IN THE COLORADO RIVER SYSTEM BY RESTORING CHANNEL PLANFORM TO MULTI-THREAD ANASTOMOSING CHANNEL
3. MAINTAIN EXISTING NAVIGATIONAL USE OF THE CHANNEL BY SMALL WATERCRAFT (CANOES) OVER A GREATER PERIOD OF THE YEAR.

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SLOUGH EXTENSION PLAN & PROFILE

REVISIONS:

NO.	DATE
	01/02/2018

DESIGNED:	GL	DRAFTED:	RG
CHECKED:	XX		
PLOT DATE:	7/25/2018		

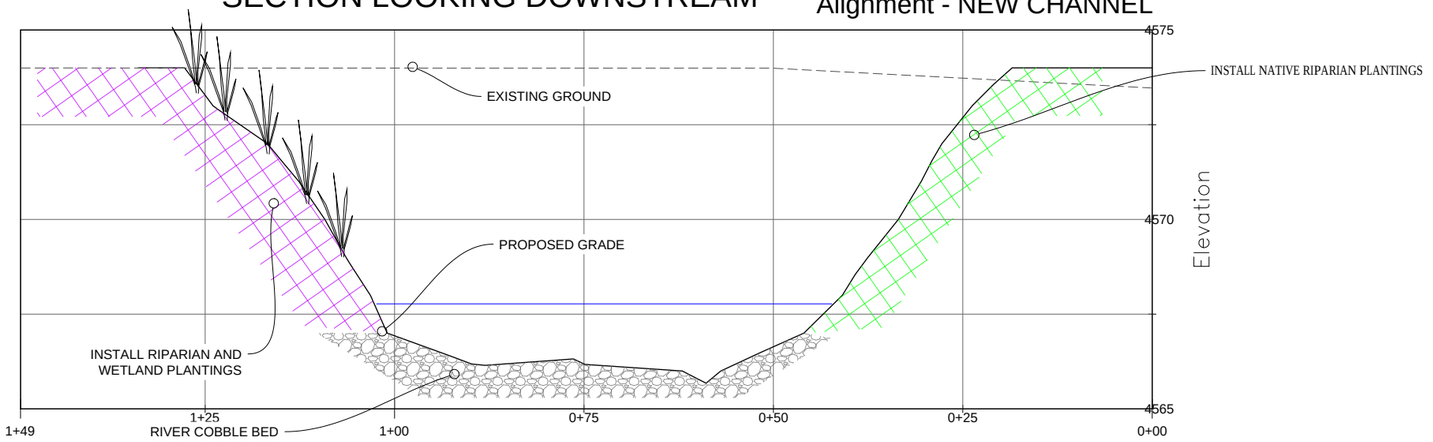
DRAWING NO.

C-08

SHEET C-08 OF 26

SECTION LOOKING DOWNSTREAM

Alignment - NEW CHANNEL



VERTICAL EXAGGERATION = 5X
LOOKING DOWNSTREAM

INLET CHANNEL CUT SLOPE AND INVERT TREATMENT SECTION

SECTION EXAGGERATED BY 5X VERTICALLY

CHANNEL SECTIONS

SECTION EXAGGERATED BY 5X VERTICALLY

SCALE BAR 1"=10'

10 0 10

CONTOUR INTERVAL ONE FOOT

NOTES:
1. RIPARIAN PLANTINGS, WETLAND PLANTINGS, EMERGENT WETLAND PLANTING, DEEP-ROOTED PLANTS AS SPECIFIED
2. SIDE SLOPE CUT BANK VARIES 20:1 TO 3:1

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CHANNEL SECTIONS

REVISIONS:

NO.	DATE
	01/02/2018

DESIGNED:	GL	DRAFTED:	RG
CHECKED:	XX		

PLOT DATE: 7/25/2018

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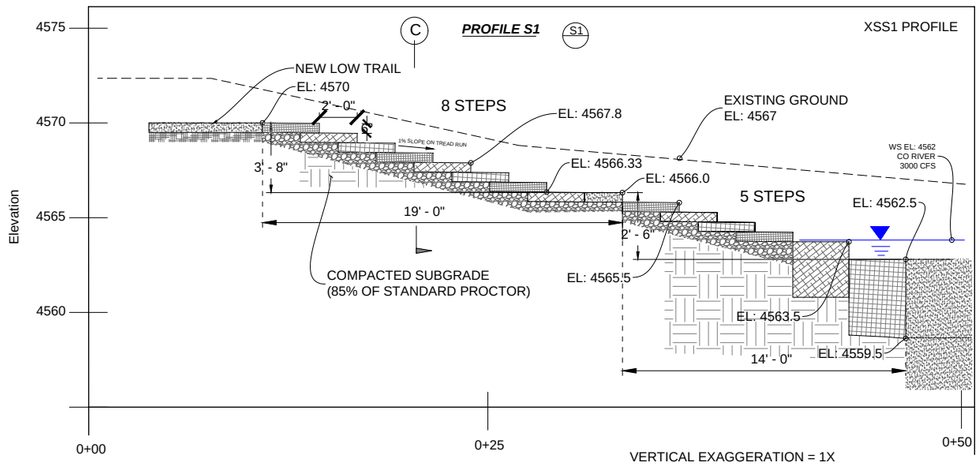
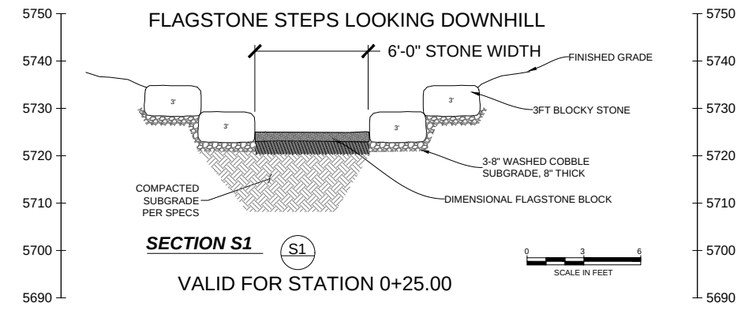
C-09

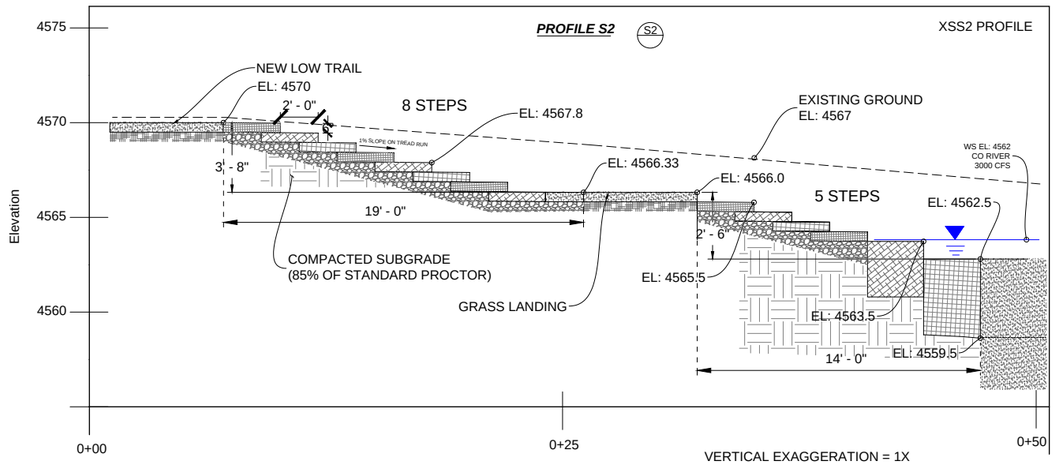




TYPICAL PROFILE SLABSTONE STEPS

SCALE: H: 1"=8' V: 1"=8'

NOTES:
1. STRUCTURAL FILL DEFINED AS GRANULAR FILL COMPACTED IN MAX 2FT LIFTS. EXCAVATED ALLUVIUM MAY BE USED IF SUFFICIENTLY DRIED AND APPROVED BY ENGINEER
2. ALL PLACED STONES MUST BE KEYED 6 INCHES MINIMUM IN THE HORIZONTAL AND VERTICAL DIRECTIONS
3. IF UNSUITABLE SUBGRADE IS ENCOUNTERED, CONTRACTOR MUST INCLUDE SUITABLE SUBGRADE MATERIAL SUCH AS ROAD BASE GRAVEL.



REPRESENTATIVE PROFILE SLABSTONE STEPS

SCALE: H: 1"=8' V: 1"=8'

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SLABSTONE SECTIONS

REVISIONS:

NO.	DATE
#	01/02/2018

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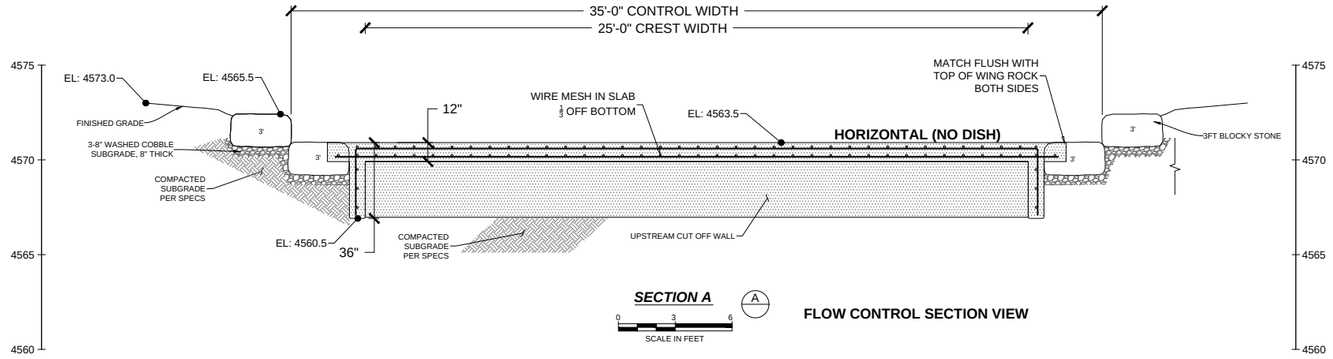
C-10



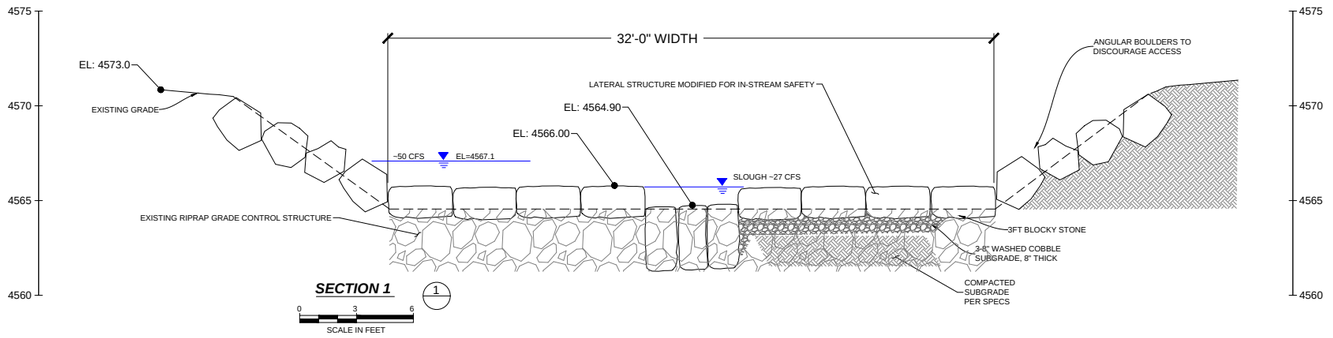
FLOW CONTROL SECTION VIEW

FLOW CONTROL PAD SECTION

SCALE: H: 1"=10' V: 1"=10'

NOTES:
1. STRUCTURAL FILL DEFINED AS GRANULAR FILL COMPACTED IN MAX 2FT LIFTS. EXCAVATED ALLUVIUM MAY BE USED IF SUFFICIENTLY DRIED AND APPROVED BY ENGINEER
2. ALL PLACED STONES MUST BE KEYED 6 INCHES MINIMUM IN THE HORIZONTAL AND VERTICAL DIRECTIONS
3. IF UNSUITABLE SUBGRADE IS ENCOUNTERED, CONTRACTOR MUST INCLUDE SUITABLE SUBGRADE MATERIAL SUCH AS ROAD BASE GRAVEL.

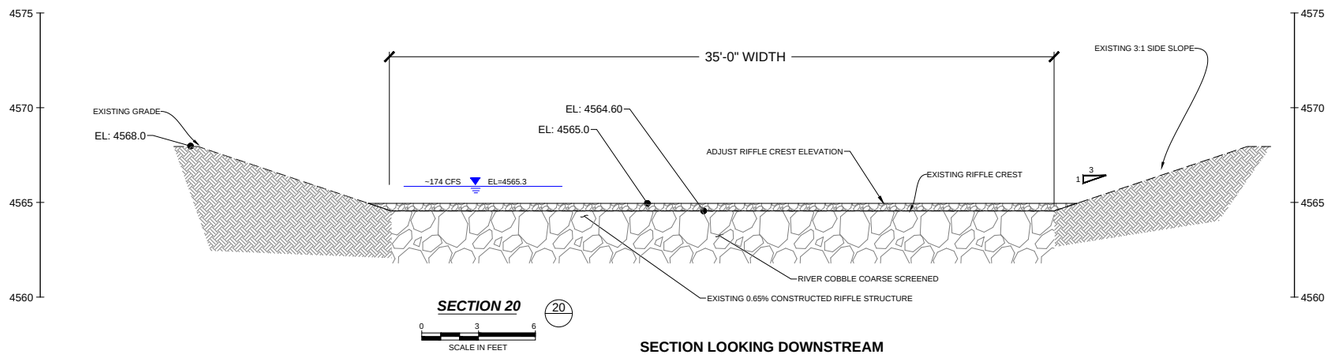
CHANNEL BRAID 1 SECTION VIEW



CHANNEL BRAID 1 SECTION MODIFICATION

SCALE: H: 1"=10' V: 1"=10'

SLOUGH RIFFLE 20+00 SECTION VIEW



SECTION LOOKING DOWNSTREAM

RIFFLE SECTION MODIFICATION

SCALE: H: 1"=10' V: 1"=10'

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DETAIL SECTIONS

REVISIONS:

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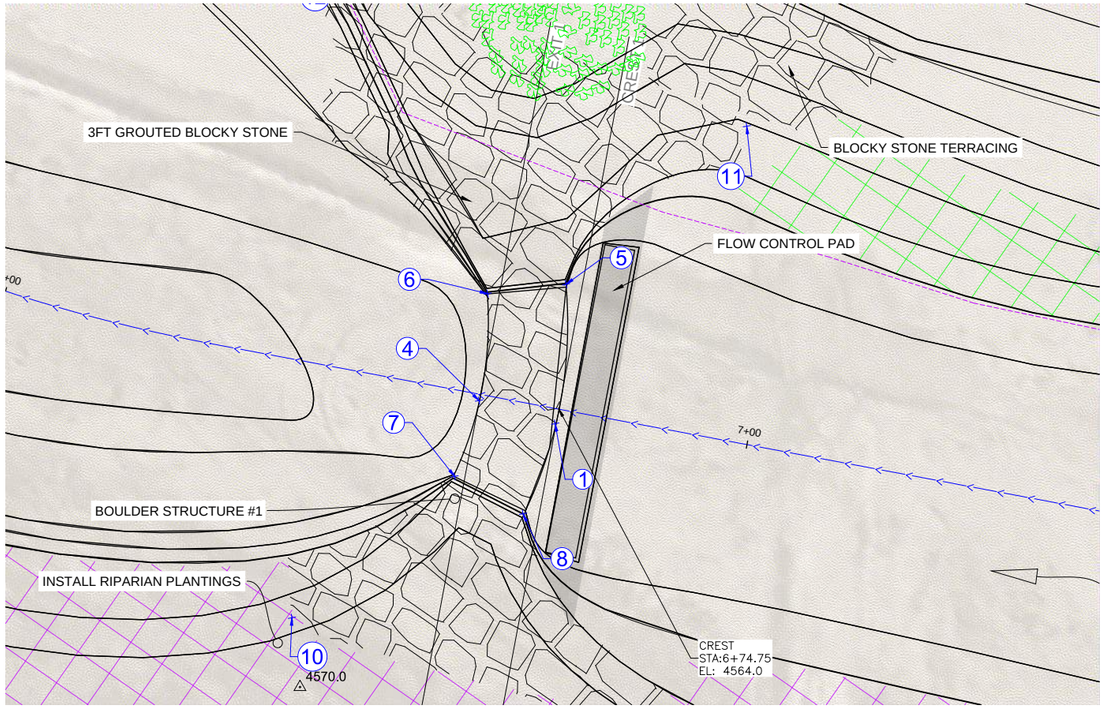
PLOT DATE: 7/25/2018

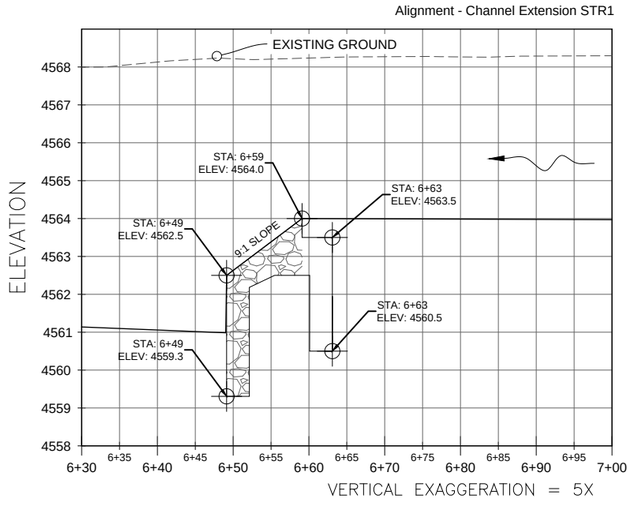
DRAWING NO.

C-11

SHEET C-11 OF 26



STRUCTURE 1 PLAN



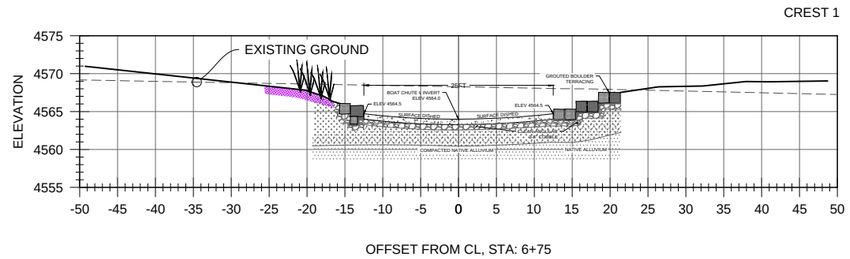
STRUCTURE 1 PROFILE

SCALE: H: 1"=10' V: 1"=2' EXAGGERATED BY 5X VERTICALLY

STRUCTURE 1 DETAILS

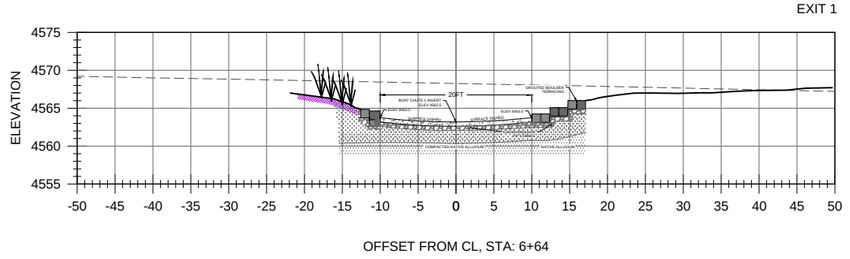
POINT TABLE				
POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	31130.6922	94239.4255	4564.00	STR1
4	31127.4370	94229.4379	4562.50	STR1
5	31146.6005	94230.0867	4566.00	STR1
6	31139.6626	94222.2991	4565.00	STR1
7	31117.3817	94232.5142	4565.00	STR1
8	31118.5109	94242.7542	4566.00	STR1
9	31106.1195	94272.2316	4568.00	STR1
10	31089.8041	94225.5767	4568.00	STR1
11	31177.3487	94237.7127	4568.00	STR1
12	31163.1569	94186.9723	4566.00	STR1

STRUCTURE 1 POINT TABLE



STRUCTURE 1 CREST SECTION

SCALE: H: 1"=5' V: 1"=5'



STRUCTURE 1 EXIT SECTION

SCALE: H: 1"=5' V: 1"=5'

NOTES:
1. ENHANCE STREAM HYDROLOGY IN EXISTING CONSTRUCTED SIDE CHANNELS BY PROVIDING ADDITIONAL FLOW TO CHANNEL OVER GREATER PERIOD OF THE YEAR.
2. INCREASE AREA OF AQUATIC HABITAT IN THE COLORADO RIVER SYSTEM BY RESTORING CHANNEL PLANFORM TO MULTI-THREAD ANASTOMOSING CHANNEL
3. MAINTAIN EXISTING NAVIGATIONAL USE OF THE CHANNEL BY SMALL WATERCRAFT (CANOES) OVER A GREATER PERIOD OF THE YEAR.
4. STRUCTURAL FILL DEFINED AS GRANULAR FILL COMPACTED IN MAX 2FT LIFTS. EXCAVATED ALLUVIUM MAY BE USED IF SUFFICIENTLY DRIED AND APPROVED BY ENGINEER, SEE SPECIFICATIONS
5. GROUTED BOULDER BANK TERRACING TO CURVE WITH CONTOURS

Recreation Engineering & Planning
RECREATION ENGINEERING AND PLANNING
485 ARAPAHOE AVE.
BOULDER | CO | 80302
WWW.BOATERPARKS.COM

DRAFT

PROJECT OWNER:
CITY OF GRAND JUNCTION
---
250 N 5TH STREET
GRAND JUNCTION, CO

LAS COLONIAS RIVER PARK
COLORADO RIVER
GRAND JUNCTION, COLORADO

FINAL REVIEW SET - NOT FOR CONSTRUCTION

STRUCTURE #1 PLAN

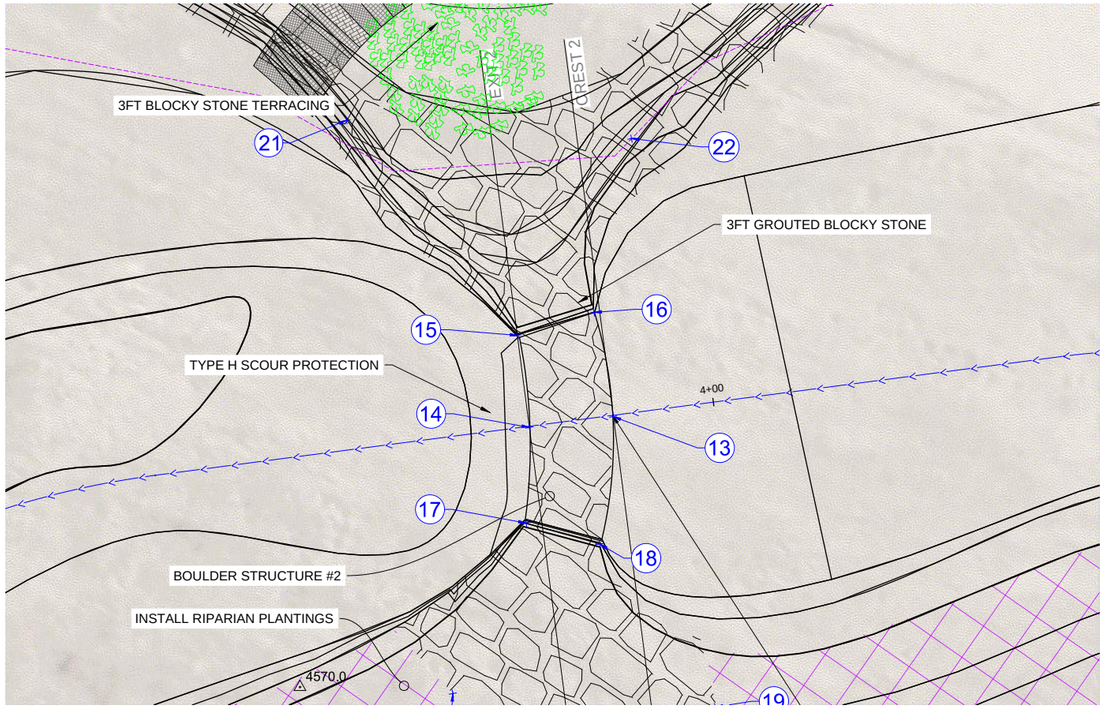
REVISIONS:

NO.	DATE
	01/02/2018

DESIGNED: GL DRAFTED: RG
CHECKED: XX
PLOT DATE: 7/25/2018

DRAWING NO.

C-12



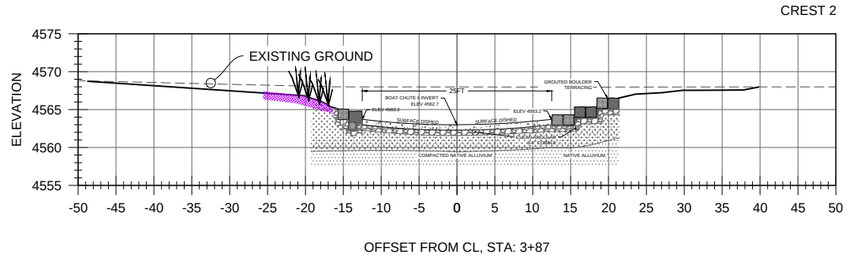
STRUCTURE 2 PLAN

SCALE BAR 1"=10'

10 0 10

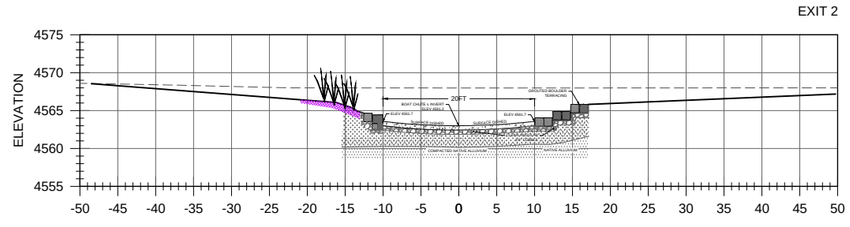
POINT TABLE				
POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
13	31029.7282	93979.0857	4562.70	STR2
14	31022.2369	93970.8353	4561.20	STR2
15	31031.3152	93962.6191	4563.20	STR2
16	31039.5464	93969.1253	4564.70	STR2
17	31011.6337	93977.6885	4563.20	STR2
18	31014.9195	93987.2534	4564.70	STR2
19	31005.9825	94012.0569	4568.00	STR2
20	30987.6480	93982.6253	4568.00	STR2
21	31041.6660	93927.8471	4566.00	STR2
22	31061.2039	93960.0759	4567.00	STR2

STRUCTURE 2 POINT TABLE



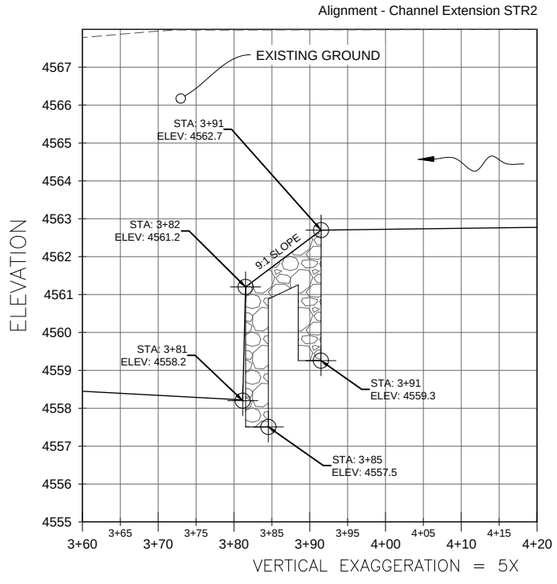
STRUCTURE 2 CREST SECTION

SCALE: H: 1"=5' V: 1"=5'



STRUCTURE 2 EXIT SECTION

SCALE: H: 1"=5' V: 1"=5'



STRUCTURE 2 PROFILE

SCALE: H: 1"=10' V: 1"=2' EXAGGERATED BY 5X VERTICALLY

STRUCTURE 2 DETAILS

NOTES:
1. ENHANCE STREAM HYDROLOGY IN EXISTING CONSTRUCTED SIDE CHANNELS BY PROVIDING ADDITIONAL FLOW TO CHANNEL OVER GREATER PERIOD OF THE YEAR.
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LAS COLONIAS RIVER PARK
GRAND JUNCTION, COLORADO
COLORADO RIVER

FINAL REVIEW SET - NOT FOR CONSTRUCTION

STRUCTURE #2 PLAN

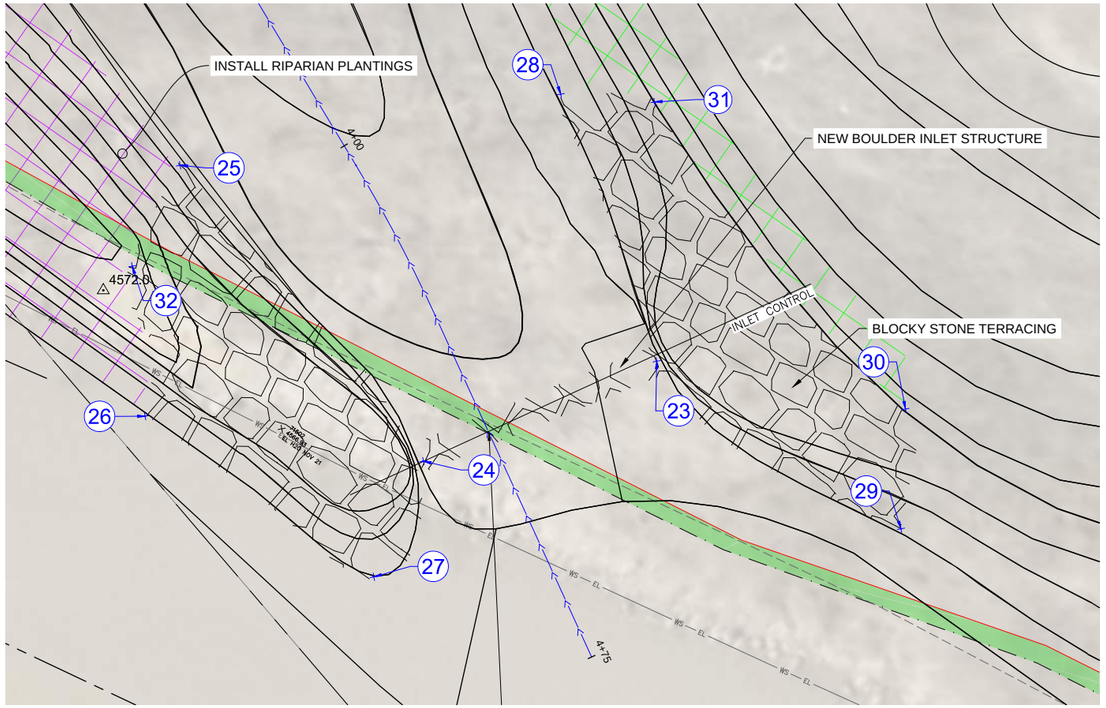
REVISIONS:

NO.	DATE
	01/02/2018

DESIGNED: GL DRAFTED: RG
CHECKED: XX
PLOT DATE: 7/25/2018

DRAWING NO.

C-13



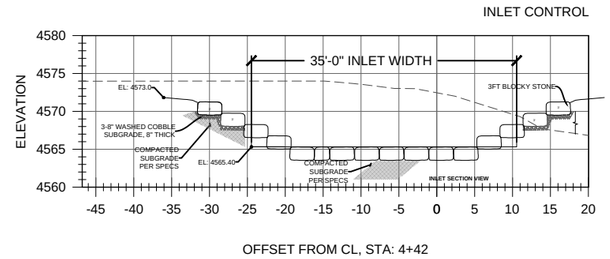
INLET STRUCTURE PLAN

SCALE BAR 1"=10'

10 0 10

POINT TABLE				
POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
23	30985.6593	96373.3916	4564.50	INLET
24	30957.2265	96355.6768	4564.50	INLET
25	30970.8756	96306.9995	4564.50	INLET
26	30941.0807	96322.1513	4564.50	INLET
27	30940.9585	96359.0533	4564.50	INLET
28	31007.3205	96342.8330	4564.50	INLET
29	30985.9512	96412.4828	4564.50	INLET
30	30999.2612	96403.9293	4570.00	INLET
31	31013.5481	96353.5862	4570.00	INLET
32	30956.3516	96309.4392	4570.00	INLET

INLET STRUCTURE POINT TABLE



INLET STRUCTURE CREST SECTION

SCALE: H: 1"=5' V: 1"=5'

INLET STRUCTURE PROFILE

SCALE: H: 1"=10' V: 1"=2' EXAGGERATED BY 5X VERTICALLY

INLET STRUCTURE DETAILS

NOTES:
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INLET STRUCTURE PLAN

REVISIONS:

NO.	DATE
	01/02/2018

DESIGNED: GL DRAFTED: RG
CHECKED: XX
PLOT DATE: 7/25/2018

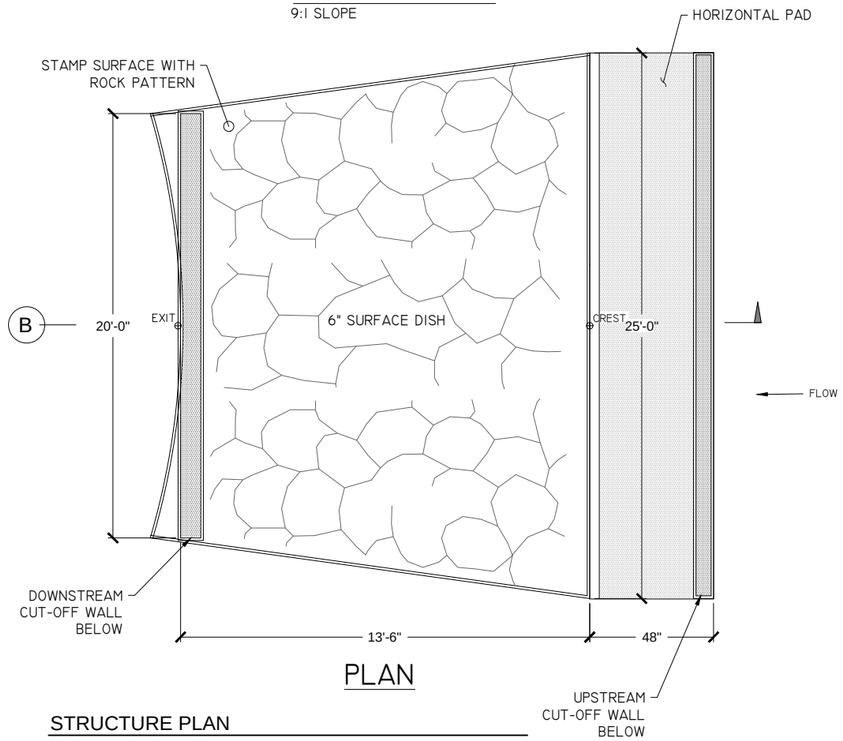
DRAWING NO.

C-14

SHEET C-14 OF 26

STRUCTURE #1

9:1 SLOPE

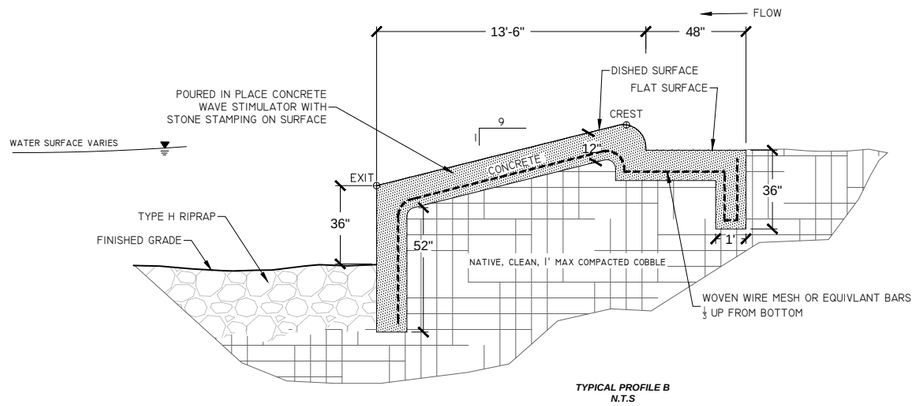


PLAN

STRUCTURE PLAN

SCALE: H: NTS V: NTS

STRUCTURE #1 PROFILE



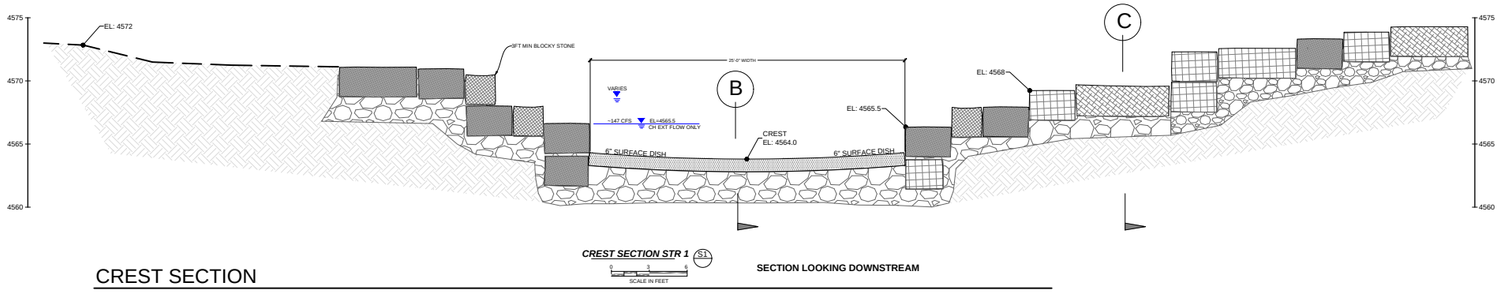
TYPICAL PROFILE B
N.T.S

CREST ELEVATION: 4564.0
EXIT ELEVATION: 4562.5

STRUCTURE PROFILE CENTERLINE

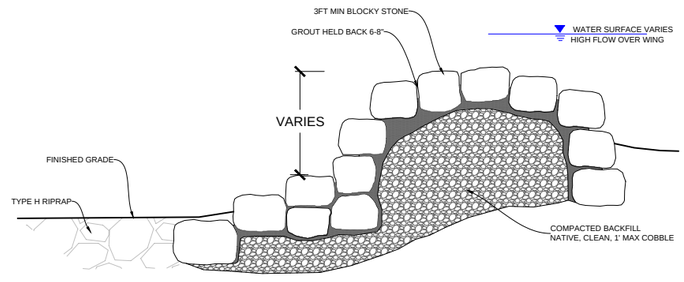
SCALE: H: NTS V: NTS

STRUCTURE #1 CREST SECTION VIEW



CREST SECTION

SCALE: H: NTS' V: NTS



TYPICAL PROFILE OF ROCK IN "WING"
PROFILE C
N.T.S

TYPICAL SECTION C-C'

SCALE: H: NTS' V: NTS

NOTES:

1. INDIVIDUAL STONE BOULDERS SHALL BE DENSE, SOUND AND FREE FROM CRACKS, SEAMS AND OTHER DEFECTS CONDUCIVE TO ACCELERATED WEATHERING.
2. AT A MINIMUM EXPOSED ROCK SHOULD HAVE AT LEAST ONE FLAT SURFACE AND MAY REQUIRE TWO ADJACENT FLAT SURFACES FOR STEPPED AND TERRACED AREAS.
3. 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.

4. 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.
5. 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, DEFORMATION OR SHARP PROTRUSIONS THAT COULD CREATE A SAFETY HAZARD.
6. MINIMUM ROCK DIAMETER SHALL BE 3' FOR DROP STRUCTURES. MINIMUM ROCK DIMENSIONS FOR ALL POOL ARMORING AND CRIB FILL TO BE RIP RAP WITH A D50 OF 9-INCHES.
7. BOULDER SHALL HAVE ALL AXES NOT BE LESS THAN THE DIMENSION SPECIFIED FOR BOULDERS AS SHOWN ON THE DRAWINGS. THESE AXES FOR THE BOULDERS ARE DESCRIBED AS FOLLOWS:

L - LONGITUDINAL AXIS, REPRESENTS THE CENTERLINE (AXIS) CONNECTING THE MOST DISTANT POINTS OF THE BOULDER

B - REPRESENTS THE CENTERLINE WITHIN THE ROCK THAT INTERSECTS THE L-AXIS AT RIGHT ANGLES.

T - REPRESENTS THE CENTERLINE WITHIN THE ROCK THAT IS PERPENDICULAR TO THE L-B PLANES.

8. ALL RIP RAP TO MEET ASTM C-535-69, AASHTO TEST 103 AND HAVE A SPECIFIC GRAVITY OF 2.65. THE ENGINEER TAKES NO RESPONSIBILITY FOR MATERIAL USED NOT MEETING THESE SPECIFICATIONS OR NOT APPROVED ON-SITE BY THE ENGINEER OR OWNER.

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DRAFT

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250 N 5TH STREET
GRAND JUNCTION, CO

LAS COLONIAS RIVER PARK
GRAND JUNCTION, COLORADO
COLORADO RIVER

FINAL REVIEW SET - NOT FOR CONSTRUCTION

STRUCTURE #1 DETAIL

REVISIONS:

NO.	DATE
#	01/02/2018

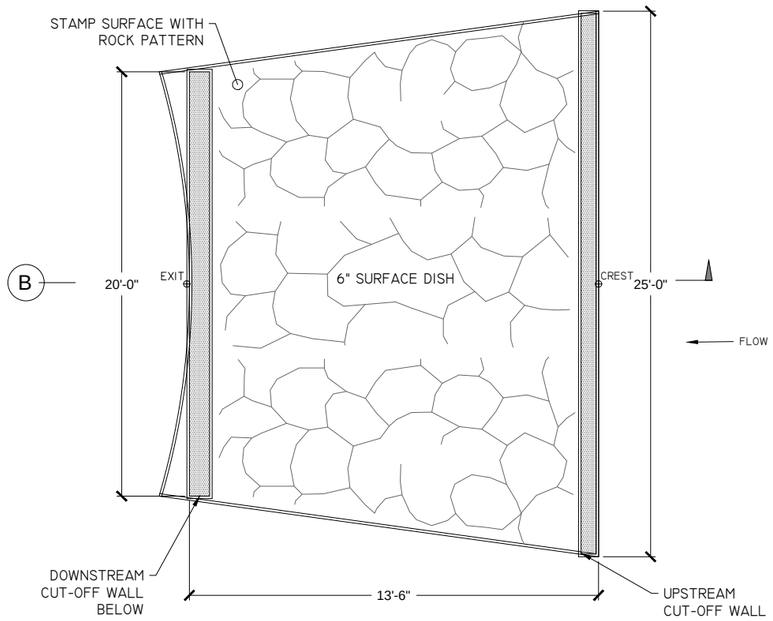
DESIGNED: GL DRAFTED: RG
CHECKED: XX
PLOT DATE: 7/25/2018

DRAWING NO.

C-15

STRUCTURE #2

9:1 SLOPE

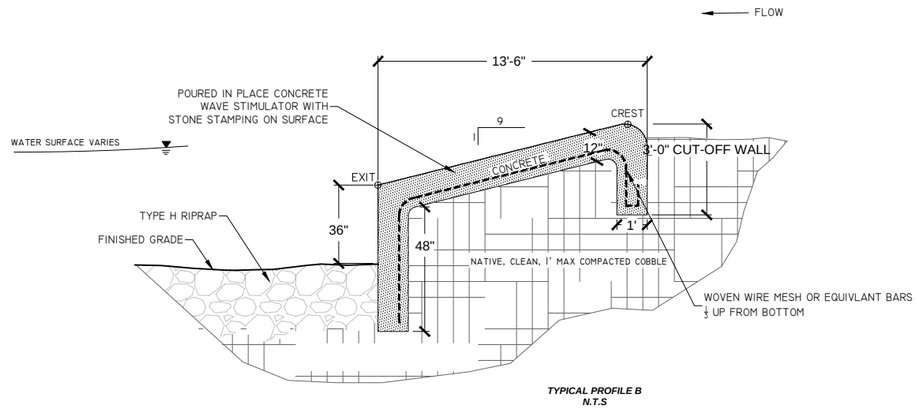


PLAN

STRUCTURE PLAN

SCALE: H: NTS V: NTS

STRUCTURE #2 PROFILE

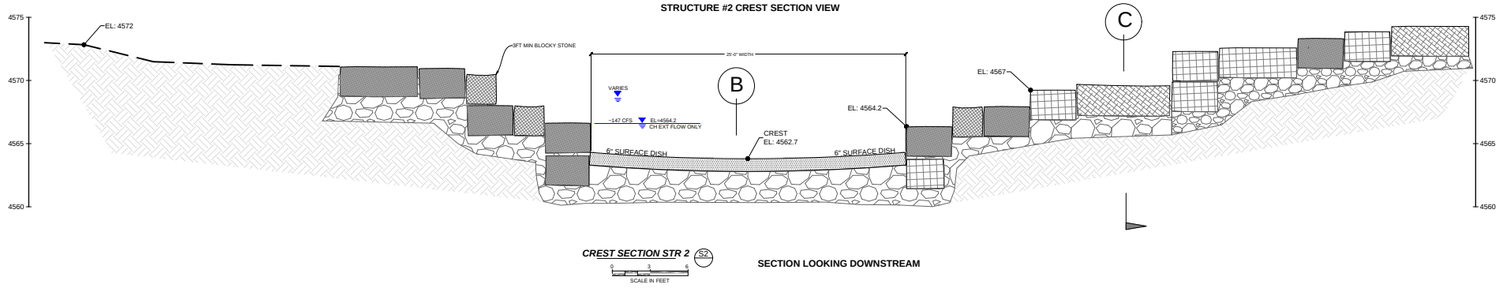


TYPICAL PROFILE B
N.T.S

CREST ELEVATION: 4562.7
EXIT ELEVATION: 4561.2

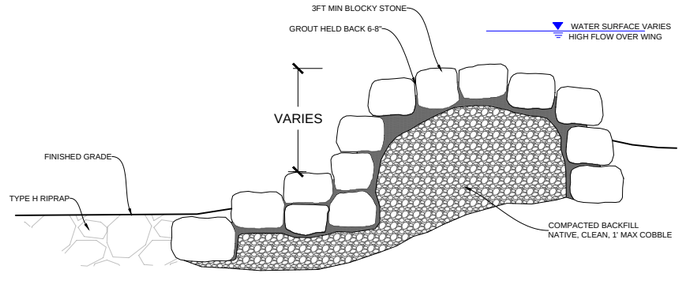
STRUCTURE PROFILE CENTERLINE

SCALE: H: NTS V: NTS



CREST SECTION

SCALE: H: NTS' V: NTS



TYPICAL PROFILE OF ROCK IN "WING"
PROFILE C
N.T.S

TYPICAL SECTION C-C'

SCALE: H: NTS' V: NTS

NOTES:

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   C. THE BULK SPECIFIC GRAVITY AND ABSORPTION SHALL BE DETERMINED BY ASTM METHOD C-127.
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LAS COLONIAS RIVER PARK
COLORADO RIVER
GRAND JUNCTION, COLORADO

FINAL REVIEW SET - NOT FOR CONSTRUCTION

STRUCTURE #2 DETAIL

REVISIONS:

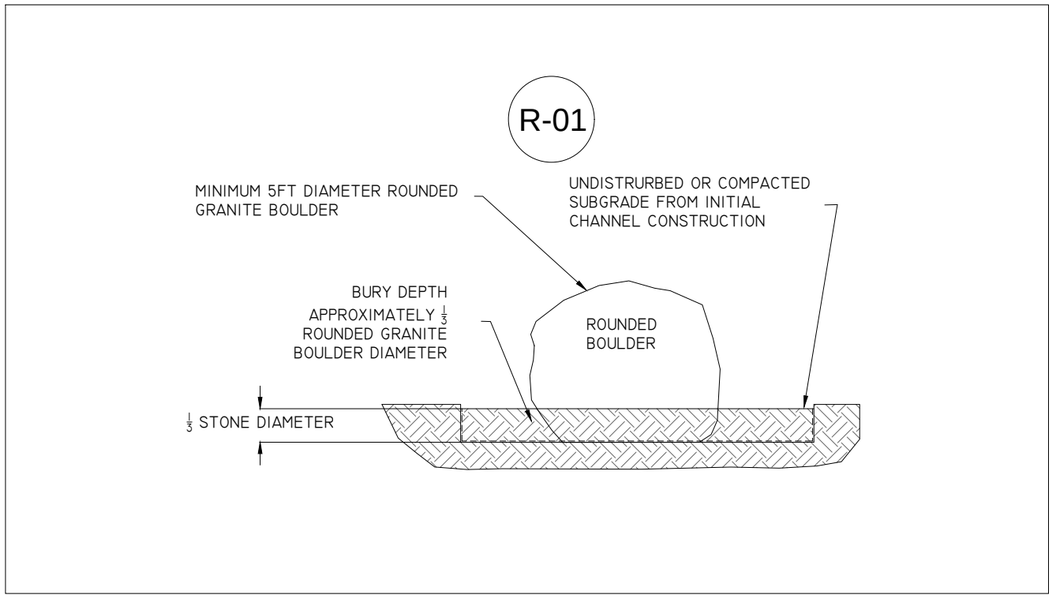
NO.	DATE
#	01/02/2018

DESIGNED: GL DRAFTED: RG
CHECKED: XX
PLOT DATE: 7/25/2018

DRAWING NO.

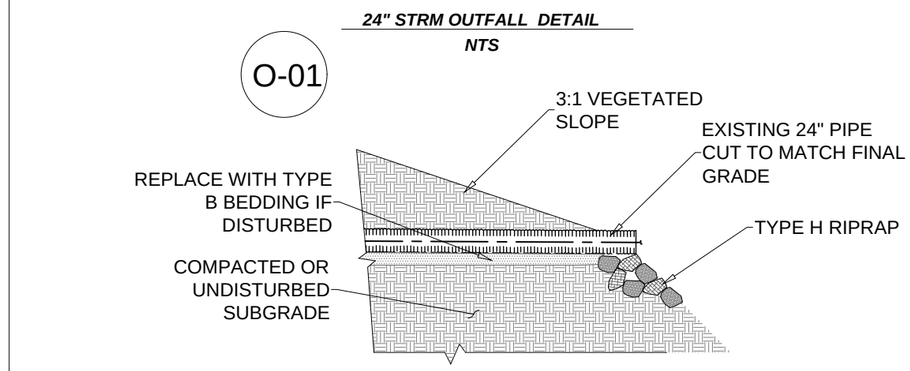
C-16

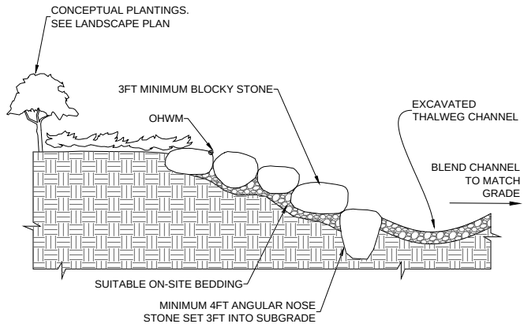
SHEET C-16 OF 26



TYPICAL ROUNDED CHANNEL BOULDER

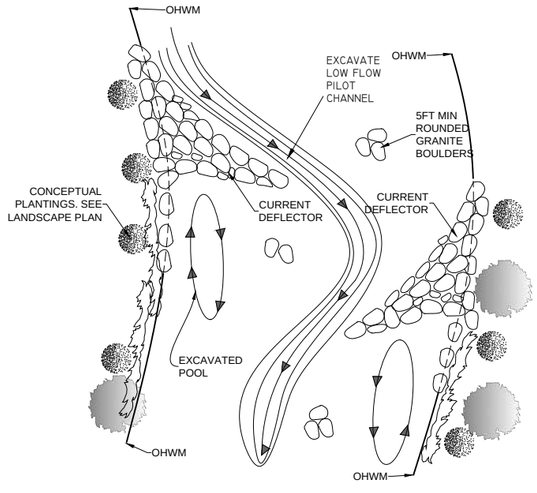
SCALE: H: 1"=8' V: 1"=8'





CURRENT DEFLECTOR CROSS SECTION VIEW

TYPICAL OFFSET CURRENT DEFLECTORS
PLAN VIEW



TYPICAL RIFFLE RIBS

SCALE: N.T.S.

NOTES:
1. STRUCTURAL FILL DEFINED AS GRANULAR FILL COMPACTED IN MAX 2FT LIFTS. EXCAVATED ALLUVIUM MAY BE USED IF SUFFICIENTLY DRIED AND APPROVED BY ENGINEER
2. ALL PLACED STONES MUST BE KEYED 6 INCHES MINIMUM IN THE HORIZONTAL AND VERTICAL DIRECTIONS
3. IF UNSUITABLE SUBGRADE IS ENCOUNTERED, CONTRACTOR MUST INCLUDE SUITABLE SUBGRADE MATERIAL SUCH AS ROAD BASE GRAVEL.

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GRAND JUNCTION, COLORADO

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RIFFLE ENHANCEMENTS

REVISIONS:

NO.	DATE
#	01/02/2018

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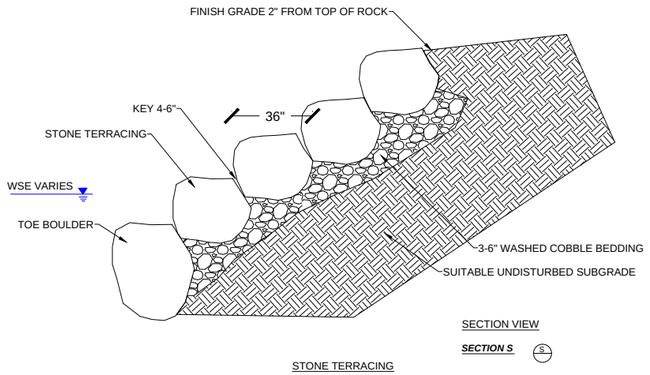
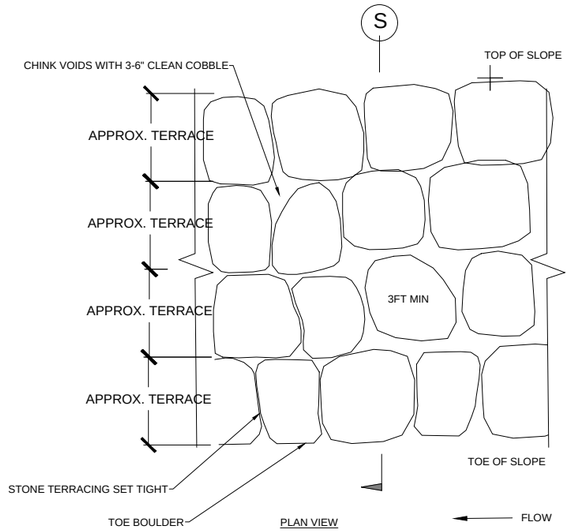
CHECKED: XX
PLOT DATE: 7/25/2018

DRAWING NO.

C-17

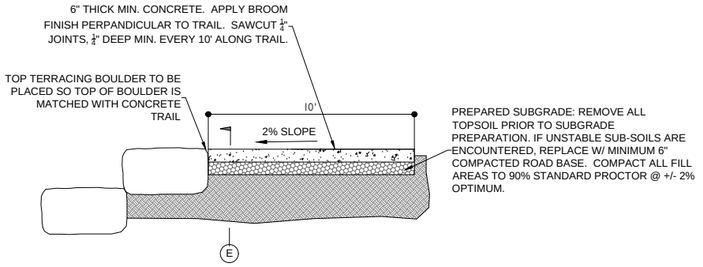
SHEET C-17 OF 26



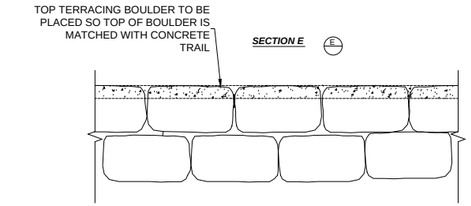


TYPICAL STONE BANK TERRACING

SCALE: H: 1"=8' V: 1"=8'

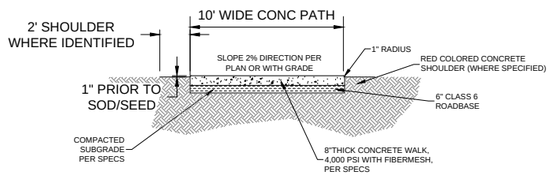


TYPICAL CONCRETE TRAIL WITH STONE SHOULDER SECTION



TYPICAL CONCRETE TRAIL WITH STONE SHOULDER PROFILE

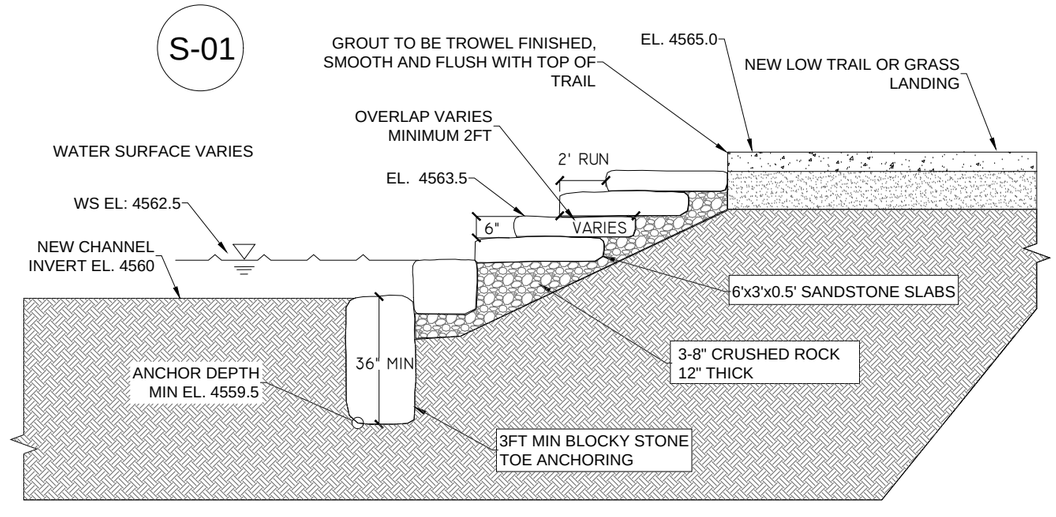
NOTES:
1. CONSTRUCT NEW SHELTER FOOTERS AND CONCRETE PAD, RELOCATE EXISTING SHELTER STRUCTURE, REMOVE EXISTING FOOTERS AND PAD.
2. REASONABLE EFFORTS TO PREVENT DAMAGE TO THE EXISTING SHELTER STRUCTURE SHALL ME MADE
3. NEW ROOFING MATERIAL WILL LIKELY BE REQUIRED.



NOTES:
1. SAW CUT JOINTS 1 ½" DEEP (WITHIN 96 HOURS) MAX 6' CENTERS
2. EXPANSION JOINTS WHERE SIDEWALK RUN EXCEEDS 120'
3. TOOLED JOINTS ONLY ON RED COLORED CONCRETE SHOULDERS (WHERE SPECIFIED)

TRAIL AND RIVER ACCESS DETAILS

SCALE: H: 1"=8' V: 1"=8'



FLAGSTONE RIVER ACCESS STEPS DETAIL
N.T.S.

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PROJECT OWNER:
CITY OF GRAND JUNCTION
---
250 N 5TH STREET
GRAND JUNCTION, CO

LAS COLONIAS RIVER PARK
GRAND JUNCTION, COLORADO
COLORADO RIVER

FINAL REVIEW SET - NOT FOR CONSTRUCTION

BANK DETAILS

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NO.	DATE
#	01/02/2018

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PLOT DATE: 7/25/2018

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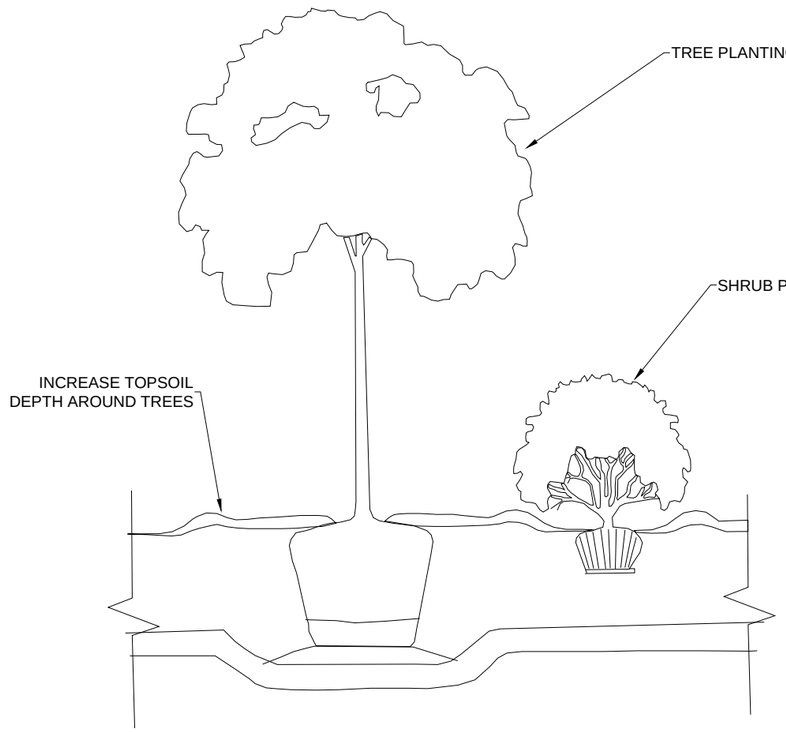
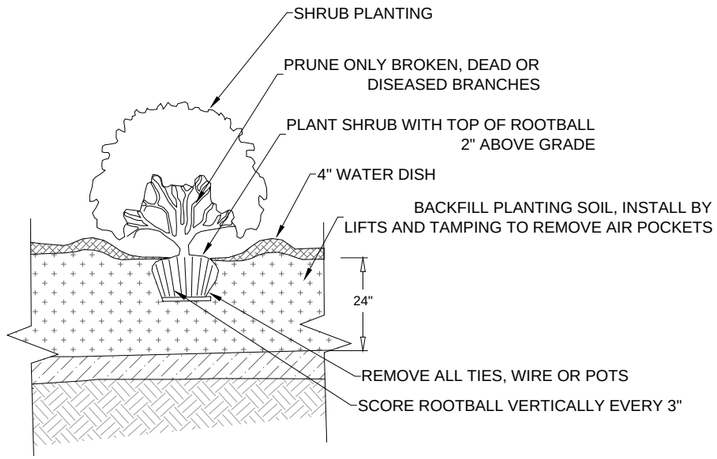
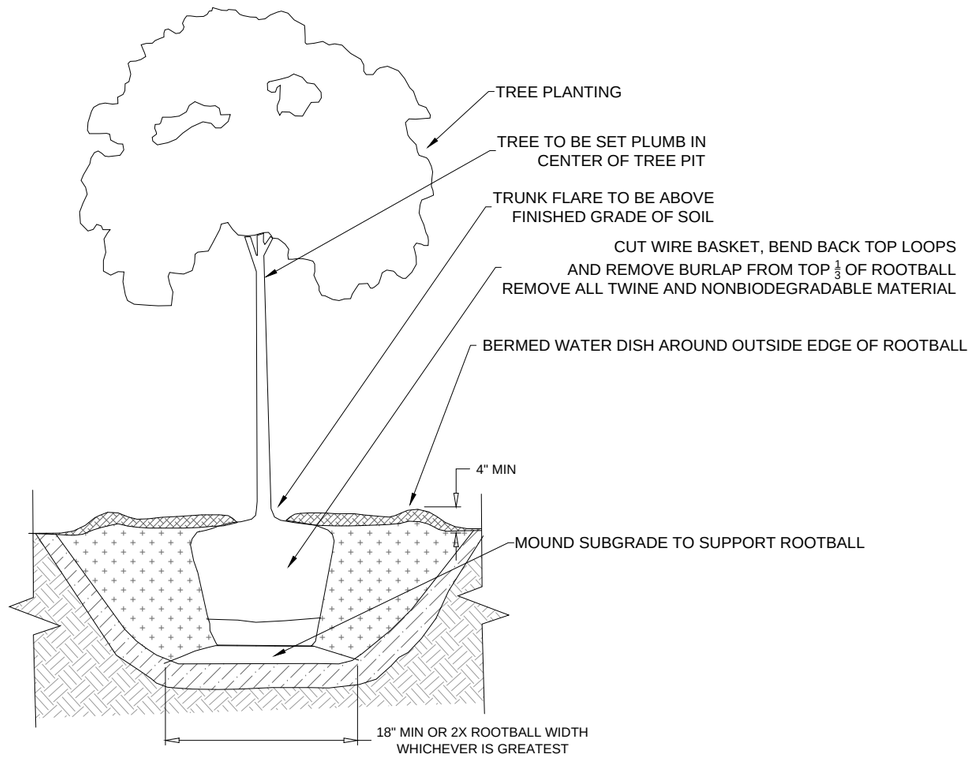


TREE AND SHRUB PLANTINGS

NOTES:
1) REMOVE ALL UNSUITABLE MATERIAL INGLUDING TRASH, RUBBLE, DEBRIS, GRAVEL, ETC. FROM PLATING PIT
2) WATER THOROUGHLY AFTER INSTALLATION
3) REMOVE TREE RINGS AND STAKES TWO YEARS AFTER INSTALLATION IF STAKING WAS REQUIRED
4) DO NOT ALLOW AIR POCKETS TO FORM WHEN BACKFILLING
5) CROWN OF ROOTBALL TO BE PLACED 2" ABOVE FINISHED GRADE TO ALLOW FOR SETTLEMENT
6) DO NOT WRAP TRUNK



SHRUB PLANTING



TREE PLANTING

TREE AND SHRUB PLANTING DETAIL

SCALE: H: 1"=8' V: 1"=8'

Recreation Engineering & Planning
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TREE SHRUB DETAILS

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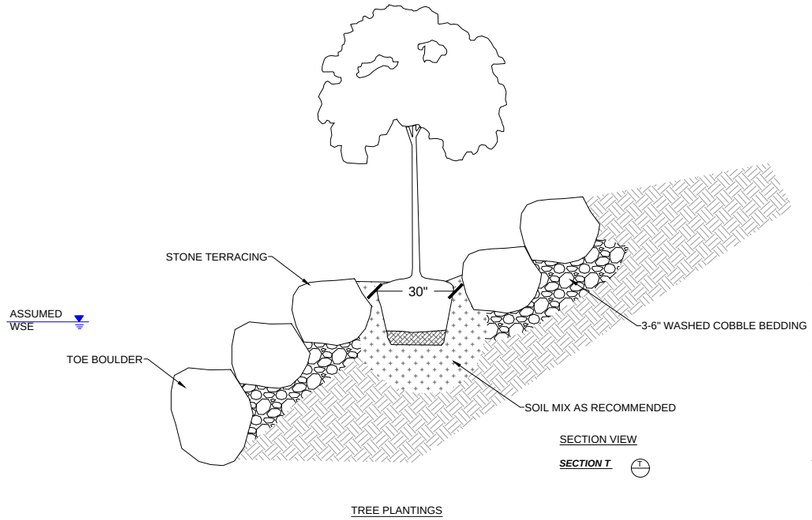
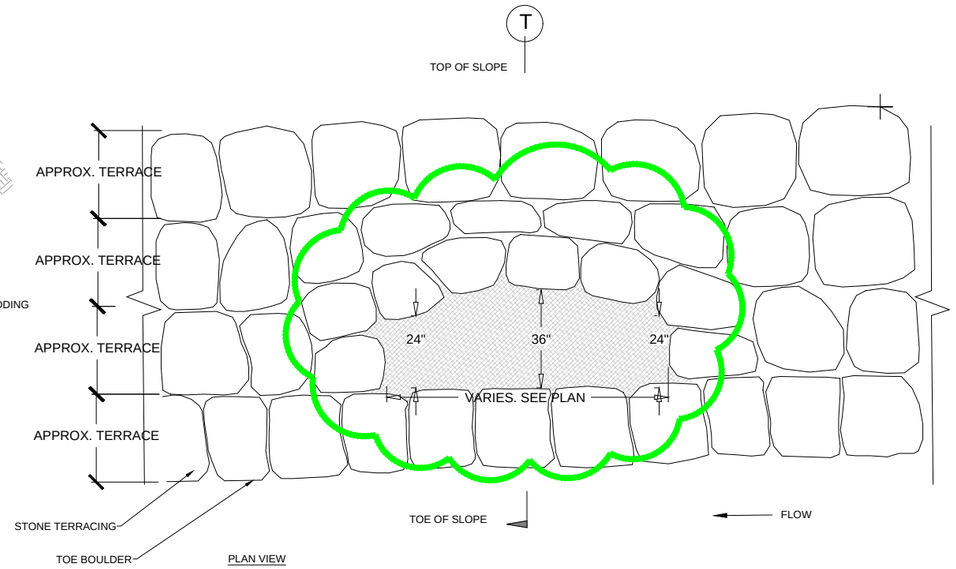


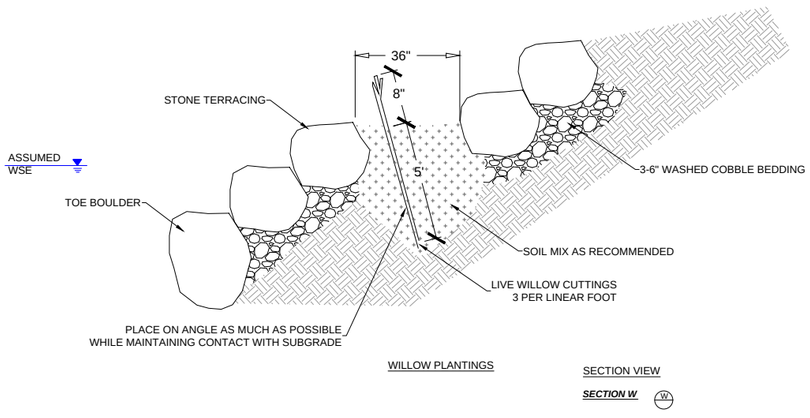
TREE PLANTINGS

TYPICAL RIPARIAN TREE PLANTINGS SECTION

SCALE: H: 1"=8' V: 1"=8'



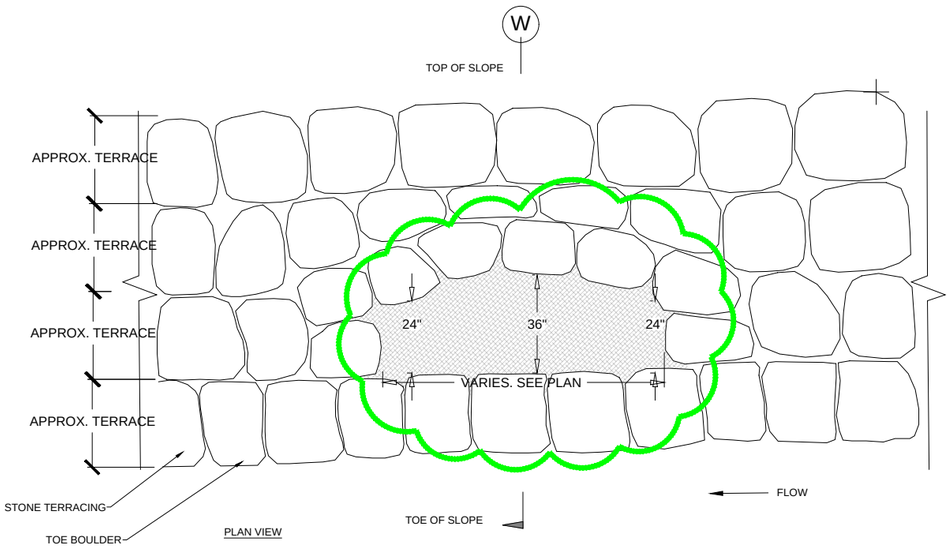
PLAN VIEW



WILLOW PLANTINGS

TYPICAL WILLOW STAKES PLANTINGS SECTION

SCALE: H: 1"=8' V: 1"=8'



PLAN VIEW

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PLANTING POCKET DETAIL

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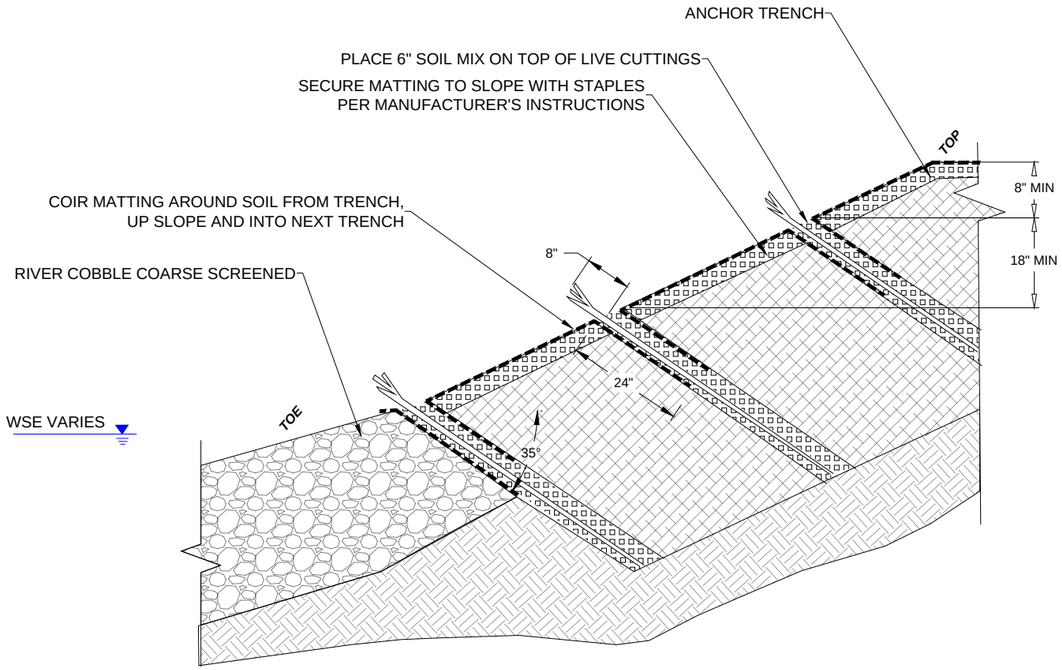
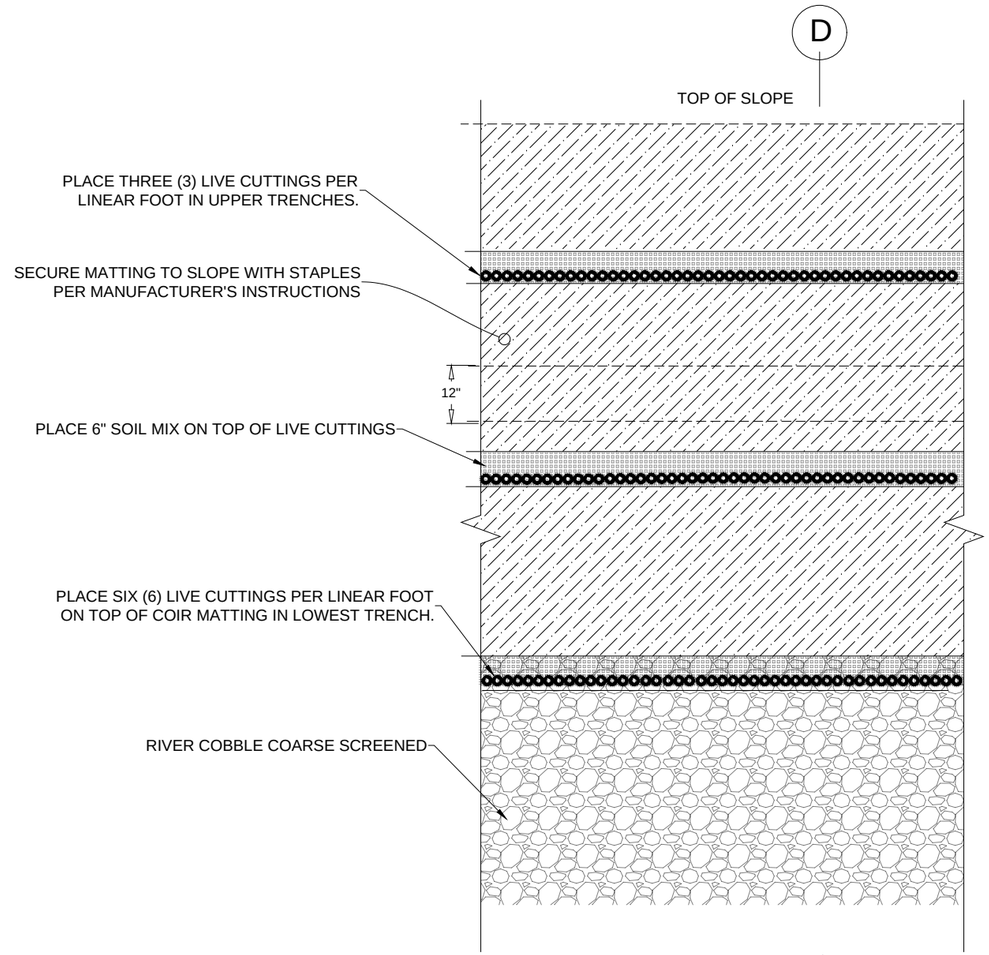


SECTION VIEW

SECTION D (D)

NOTES:
1) IF SLOPE IS TOO SHORT TO ACCOMMODATE 3 ROWS OF PLANTINGS, ELIMINATE 1 ROW OF POCKETS, BRUSH LATER TO REMAIN AT TOP.
2) PLACE SIX (6) LIVE CUTTINGS PER LINEAR FOOT ON TOP OF COIR MATTING IN LOWEST TRENCH. PLACE THREE (3) LIVE CUTTINGS PER LINEAR FOOT IN UPPER TRENCHES.



PLAN VIEW

TYPICAL WILLOW PLANTINGS SECTION

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WILLOW PLANTINGS DETAIL

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C-21

SHEET C-21 OF 26

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. ALL ELEVATIONS, DIMENSIONS, ALIGNMENTS AND ORIENTATION OF ALL ELEMENTS SHOWN IN THE PLANS MUST BE APPROVED BY THE REP ENGINEER OR REP ENGINEER'S REPRESENTATIVE (ENGINEER).
3. 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.
4. ALL CONSTRUCTION WORK SHALL CONFORM TO THE CITY OF GRAND JUNCTION DESIGN AND SPECIFICATIONS. UTILITY CONSTRUCTION SHALL CONFORM TO THE AMERICAN PUBLIC WORKS ASSOCIATION, PUBLIC WORKS CONSTRUCTION MANUAL, LATEST EDITION. 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.
5. 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.
6. 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.
7. 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. AN REP REPRESENTATIVE SHALL BE PRESENT DURING CONSTRUCTION OF KEY PORTIONS OF THE PROJECT (DROP STRUCTURES, DEFLECTORS, RANDOM BOULDER PLACEMENT, POOL SHAPING, CONSTRUCTED RIFFLES AND RELATED BANK TERRACING). CHANGES MAY BE MADE BY AN REP REPRESENTATIVE PRIOR TO AND DURING CONSTRUCTION.
8. 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.
9. 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 PERTINENT BUILDING CODES. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY AGREEMENTS NECESSARY OR DAMAGE CAUSED BY CONSTRUCTION ACTIVITIES TO PUBLIC OR PRIVATE PROPERTY, INCLUDING UTILITIES.

UTILITIES

1. THE CONTRACTOR SHALL LOCATE ALL UTILITIES WITHIN THE PROJECT AREA PRIOR TO CONSTRUCTION.
2. IF UTILITIES ARE IDENTIFIED WITHIN THE PROJECT AREA, A MINIMUM BUFFER OF NO DISTURBANCE, APPROVED BY THE ENGINEER OR OWNER, IS TO BE MAINTAINED ON ALL UTILITY CROSSINGS.
3. 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. 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, 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 RELEVANT STORM WATER POLLUTION PREVENTION PLAN.
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.

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 CHECKED ON A 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 SHOULD BE DESIGNED TO STORE THE APPROPRIATE VOLUME OF STORM WATER DISCHARGE, BUT CONTAIN MINIMAL ADDITIONAL CAPACITY. THEY MUST BE MAINTAINED TO THE CALCULATED VOLUME AND DREDGED AS NECESSARY.

WORK LIMITS AND LAYDOWN

1. WORK LIMITS, ACCESS, STAGING, LAYDOWN, AND STOCKPILE AREAS SHALL BE LOCATED 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. INDIVIDUAL STONE BOULDERS SHALL BE DENSE, SOUND AND FREE FROM CRACKS, SEAMS AND OTHER DEFECTS CONDUCIVE TO ACCELERATED WEATHERING.
2. AT A MINIMUM EXPOSED ROCK SHOULD HAVE AT LEAST ONE FLAT SURFACE AND MAY REQUIRE TWO ADJACENT FLAT SURFACES FOR STEPPED AND TERRACED AREAS.
3. 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.

4. 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.
5. 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, DEFORMATION OR SHARP PROTRUSIONS THAT COULD CREATE A SAFETY HAZARD.
6. MINIMUM ROCK DIAMETER SHALL BE 3' FOR DROP STRUCTURES. MINIMUM ROCK DIMENSIONS FOR ALL POOL ARMORING AND CRIB FILL TO BE RIP RAP WITH A D50 OF 9-INCHES.
7. BOULDER SHALL HAVE ALL AXES NOT BE LESS THAN THE DIMENSION SPECIFIED FOR BOULDERS AS SHOWN ON THE DRAWINGS. THESE AXES FOR THE BOULDERS ARE DESCRIBED AS FOLLOWS:

L - LONGITUDINAL AXIS, REPRESENTS THE CENTERLINE (AXIS) CONNECTING THE MOST DISTANT POINTS OF THE BOULDER

B - REPRESENTS THE CENTERLINE WITHIN THE ROCK THAT INTERSECTS THE L-AXIS AT RIGHT ANGLES.

T - REPRESENTS THE CENTERLINE WITHIN THE ROCK THAT IS PERPENDICULAR TO THE L-B PLANES.

8. ALL RIP RAP TO MEET ASTM C-535-69, AASHTO TEST 103 AND HAVE A SPECIFIC GRAVITY OF 2.65. THE ENGINEER TAKES NO RESPONSIBILITY FOR MATERIAL USED NOT MEETING THESE SPECIFICATIONS OR NOT APPROVED ON-SITE BY THE ENGINEER OR OWNER.

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GENERAL NOTES CONT.:

MISCELLANEOUS

1. THE CONTRACTOR SHALL PROTECT STRUCTURES, UTILITIES, SIDEWALKS, PAVEMENTS AND OTHER FACILITIES FROM DAMAGE CAUSED BY SETTLEMENT, LATERAL MOVEMENT, UNDERMINING, WASHOUT AND OTHER HAZARDS CREATED BY EARTHWORK OPERATIONS. EQUIPMENT HAVING RUBBER RUNNERS OR TIRES SHALL BE UTILIZED EXCLUSIVELY ON PERMANENT PAVEMENT. TRACK-TYPE EXCAVATORS MAY BE EMPLOYED WHEN STREET MATS (AS APPROVED BY THE ENGINEER) ARE USED TO PROTECT THE PAVEMENT. HOWEVER, DIRT MAT PAVEMENT PROTECTION IS NOT TO BE USED.

THE CONTRACTOR SHALL EXCAVATE BY HAND IN AREAS WHERE DEEMED NECESSARY BY THE ENGINEER OR WHERE AVAILABLE SPACE IS TOO LIMITED TO PERMIT USE OF EQUIPMENT.

A. DAMAGE OF ANY KIND THAT IS OUTSIDE OF EITHER THE PERMANENT RIGHT-OF-WAY OR LIMIT OF EXCAVATION, WHICHEVER IS LESS, SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER AT NO ADDITIONAL COST TO THE OWNER OR ENGINEER.

B. ADEQUATE PROVISIONS SHALL BE MADE FOR THE FLOW OF SEWERS, DRAINS, CULVERTS, AND WATER COURSES ENCOUNTERED DURING CONSTRUCTION.

C. ALL SUCH STRUCTURES DISTURBED OR DAMAGED DURING THE WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER AT NO ADDITIONAL COST TO THE OWNER.

2. THE CONTRACTOR SHALL PERFORM EARTHWORK OPERATIONS IN SUCH A MANNER AS TO KEEP THE JOB SITE FREE OF PONDED WATER AND THE SUBGRADE AT PROPER MOISTURE CONTENT REQUIRED FOR COMPACTION.
3. EXCAVATED MATERIAL SHALL BE DEPOSITED IN SUCH A MANNER AS TO INTERFERE AS LITTLE AS POSSIBLE WITH THE EXECUTION OF THE WORK, INCLUDING PREVENTING CAVE-INS OR MATERIAL FALLING OR SLIDING INTO DITCHES.
4. DITCHES SHALL BE KEPT FREE OF DEBRIS.
5. EARTHWORK OPERATIONS SHALL BE CONDUCTED SO AS TO MAINTAIN SAFE PEDESTRIAN AND VEHICULAR TRAFFIC UNLESS PROVISIONS FOR DETOURS OR DISRUPTION OF TRAFFIC ARE SET FORTH HEREIN OR ARE APPROVED BY THE ENGINEER PRIOR TO START OF CONSTRUCTION.
6. ACCESS TO ALL EXISTING VALVE PIT COVERS, VALVE BOXES, CURB STOP BOXES, FIRE AND POLICE CALL BOXES OR OTHER UTILITY CONTROLS SHALL BE MAINTAINED AT ALL TIMES.
7. ALL MATERIALS ENCOUNTERED, REGARDLESS OF TYPES OR HARDNESS AND INCLUDING EXISTING FOUNDATIONS AND OTHER UNDERGROUND INSTALLATIONS, SHALL BE REMOVED TO REQUIRED LINES AND DEPTHS.
8. NO CLAIMS FOR EXTRA COMPENSATION OR EXTENSION OF TIME DUE TO SUBSURFACE CONDITIONS ENCOUNTERED WILL BE CONSIDERED.
9. THE CONTRACTOR SHALL REMOVE ALL STREET AND SIDEWALK PAVEMENTS, CURBING, DRAINS, RIPRAP, BARRIERS, WALLS AND OTHER SUCH OBSTACLES AS REQUIRED FOR PROPER EXECUTION OF THE WORK AND SHALL STORE AND PROTECT ALL MATERIALS THAT CAN BE USED IN RESTORING THE SITE TO ITS ORIGINAL OR PROPOSED CONDITION.
10. EXCAVATE ALL ASHES, CINDERS, REFUSE, ORGANIC MATERIAL AND OTHER UNSATISFACTORY SUBGRADE MATERIALS THAT EXTEND BELOW REQUIRED ELEVATIONS TO ADDITIONAL DEPTH REQUIRED BY THE ENGINEER. REPLACE UNSUITABLE MATERIAL WITH APPROVED BACKFILL MATERIAL. COMPACT AND GRADE BACKFILL TO REQUIRED DENSITY AND TOLERANCE.
11. SUCH ADDITIONAL EXCAVATION AND BACKFILL SHALL BE CONSIDERED INCIDENTAL TO THE WORK OF THE PROJECT.
12. UNSUITABLE EXCAVATED MATERIAL SHALL BE REMOVED FROM SITE OF WORK AND WASTED IN APPROVED AREAS.
13. THE CONTRACTOR SHALL PROTECT THE BOTTOM OF ALL EXCAVATIONS FROM FREEZING.
14. PROVIDE AND PLACE ALL TIMBERWORK, SHEETING, SHORING, BRACING AND OTHER CLASSES OF TIMBERWORK TO ADEQUATELY PROTECT THE WORK FROM EARTH PRESSURE AS REQUIRED BY FEDERAL AND STATE LAWS AND MUNICIPAL ORDINANCES. ALL SHEETING, BRACING, SHORING OR OTHER SUPPORTS NOT ORDERED LEFT IN PLACE BY THE ENGINEER SHALL BE REMOVED AFTER EXCAVATION IS REFILLED IN SUCH A MANNER AS TO PREVENT CAVING IN. UPON REMOVAL, ALL VOIDS SHALL BE CAREFULLY BACKFILLED AND COMPACTED. WHERE SHEETING AND BRACING ARE REQUIRED, EXCAVATION WIDTH SHALL BE INCREASED ACCORDINGLY. TRENCH SHEETING SHALL REMAIN IN PLACE UNTIL THE NECESSARY ITEMS HAVE BEEN INSTALLED AND EARTH AROUND THE ITEM CONSTRUCTED IS COMPACTED TO A DEPTH OF TWO FEET OR AS SHOWN ON THE PLAN.
15. THE DECISION AS TO THE WEATHER OR NOT SHEETING AND SHORING ARE NECESSARY, AND THE DESIGN OF SUCH SHEETING AND SHORING, WILL BE MADE BY THE CONTRACTOR WHO SHALL ASSUME SOLE RESPONSIBILITY FOR THE SAFETY OF THE WORK AND ADJACENT STRUCTURES AND PROPERTIES DURING AND FOLLOWING THE EXCAVATION OPERATION.
16. REMOVAL OF MATERIALS BEYOND INDICATED SUBGRADE ELEVATIONS FOR DIMENSIONS WITHOUT SPECIFIC DIRECTIONS FROM THE ENGINEER IS PROHIBITED.
17. UNAUTHORIZED EXCAVATION BENEATH FOOTINGS, FOUNDATION BASES, OR CONCRETE ANCHORS SHALL BE CORRECTED BY EXTENDING INDICATED BOTTOM ELEVATION TO THE EXCAVATION BOTTOM WITHOUT ALTERING THE REQUIRED TOP ELEVATION.
18. ALL OTHER UNAUTHORIZED EXCAVATIONS SHALL BE BACKFILLED AND COMPACTED TO INDICATED GRADE AS SPECIFIED FOR AUTHORIZED EXCAVATIONS OF THE SAME TYPE.
19. NO CLAIMS OR EXTRA COMPENSATION DUE TO UNAUTHORIZED EXCAVATIONS WILL BE ALLOWED.
20. CONTRACTOR SHALL PROTECT EXCAVATION BOTTOMS AGAINST FREEZING WHEN ATMOSPHERIC TEMPERATURE IS LESS THAN 35°F.

COMPACTED BACKFILL, FILL AND SUBGRADE

1. CONTRACTOR SHALL PROVIDE ALL MATERIALS, LABOR, AND EQUIPMENT NECESSARY TO PERFORM ALL BACKFILL, FILL AND GRADING REQUIRED FOR CONSTRUCTION OF THE PROJECT. SUB-BASE MATERIAL BENEATH SLABS IS INCLUDED IN THIS SECTION.
2. COMPACTED BACKFILL SHALL BE USED FOR FILLING ALL EXCAVATED AREAS AROUND STRUCTURES WHEN INDICATED. COMPACTED BACKFILL SHALL ALSO BE USED FOR REPLACING UNSATISFACTORY FOUNDATION MATERIAL FOR STRUCTURES, FOR REPLACING CAVED-IN MATERIAL AND FOR REPLACING MATERIALS EXCAVATED BEYOND ESTABLISHED LIMITS. COMPACTED BACKFILL SHALL BE PLACED TO THE ORIGINAL GROUND SURFACE OR TO THE LINES AND GRADES SHOWN ON THE DRAWINGS, AS SPECIFIED HEREIN, OR AS DIRECTED BY THE ENGINEER.
3. FILL SHALL CONSIST OF THE PLACEMENT OF SUITABLE MATERIALS IN DESIGNATED AREAS IN ACCORDANCE WITH THESE SPECIFICATIONS AND TO THE LINES AND GRADES SHOWN ON THE DRAWINGS, INCLUDING ROADWAY EMBANKMENTS.
4. SUBGRADE SHALL CONSIST OF THE PREPARATION OF THE TOP SURFACE OF THE GROUND TO ACCOMMODATE THE PLACEMENT OF PAVEMENTS, SLABS, STRUCTURES, SHOULDERS, CURBS, GUTTERS, ETC. IN ACCORDANCE WITH THESE SPECIFICATIONS AND TO THE LINES AND GRADES AS SHOWN ON THE DRAWINGS.
5. NO FROZEN OR EXCESSIVELY WET MATERIAL SHALL BE USED AS BACKFILL.
6. NO SLAG, FLY ASH OR BOTTOM ASH MATERIALS SHALL BE USED FOR BEDDING, BACKFILL OR FILL MATERIALS.

MATERIALS

7. BACKFILL MATERIAL SHALL BE SECURED FROM REQUIRED EXCAVATIONS OR BORROW AREAS SHOWN ON THE DRAWINGS OR APPROVED BY THE ENGINEER. BACKFILL MATERIAL SHALL BE FREE OF ASHES, ROCK OR GRAVEL NOT LARGER THAN 3" IN ANY DIMENSION, DEBRIS, WASTE, FROZEN MATERIALS, BROKEN CONCRETE, ROOTS, BRUSH OR OTHER ORGANICS OR OTHER DELETERIOUS MATTER UNLESS DIRECTED OTHERWISE.
8. IT SHALL BE REASONABLY WELL GRADED FROM COARSE TO FINE. UNLESS OTHERWISE SPECIFIED, THE MATERIAL SHALL BE GRANULAR AND PERVIOUS IN NATURE. IF OBTAINED FROM REQUIRED EXCAVATION, THE MATERIAL MAY REQUIRE SORTING TO REMOVE OBJECTIONABLE MATERIAL AND MAY ALSO REQUIRE STOCKPILING FOR LATER USE. NO SEPARATE PAYMENT WILL BE MADE FOR SORTING OR STOCKPILING.
9. IF THE ENGINEER DETERMINES EXCAVATED MATERIAL CANNOT BE USED FOR BACKFILL, THEN HE SHALL DIRECT THE CONTRACTOR TO USE BORROWED BACKFILL MATERIAL. NO ADDITIONAL PAYMENT WILL BE MADE TO THE CONTRACTOR FOR BORROWED BACKFILL.
10. SUB-BASE MATERIAL SHALL BE A NATURALLY OR ARTIFICIALLY GRADED MIXTURE OF NATURAL OR CRUSHED GRAVEL, CRUSHED STONE, NATURAL OR CRUSHED SAND MEETING THE FOLLOWING REQUIREMENTS:
11. UNDER TRAIL: WASHED MATERIAL 100% PASSING A 1-1/2" SIEVE, 90-100% PASSING A 1" SIEVE; 25-60% PASSING A ½ SIEVE; 0-10% PASSING A #4 SIEVE, AND 0-5% PASSING A #8 SIEVE.
12. SUB-BASE MATERIAL DEPTH SHALL BE 4" MINIMUM UNLESS OTHERWISE SHOWN ON THE DRAWINGS OR SPECIFIED HEREIN.

DISPOSAL OF EXCESS AND WASTE MATERIALS

1. EXCESS EXCAVATED MATERIAL, SUITABLE FOR USE AS FILL, SHALL BE PLACED TO THE LINES AND GRADES SHOWN ON THE DRAWINGS OR TO THE LIMITS OF SUCH MATERIAL AVAILABLE.
2. EXCESS EXCAVATED MATERIAL, UNACCEPTABLE EXCAVATED MATERIAL, TRASH, DEBRIS AND WASTE MATERIALS SHALL BE REMOVED FROM OWNER'S PROPERTY AND DISPOSED OF.

SITE PREPARATION- STONES PLACED IN CHANNEL

1. NO ROCK PLACEMENT SHALL OCCUR IN CHANNEL UNTIL APPROPRIATE WATER CONTROL MEASURES ARE IN PLACE (IF REQUIRED). CONTRACTOR SHALL PREPARE A DEWATERING PLAN TO BE APPROVED BY THE ENGINEER OR OWNER PRIOR TO COMMENCEMENT OF ANY DEWATERING ACTIVITIES.
2. STEPS SHALL BE EMPLOYED THROUGHOUT THE COURSE OF THE PROJECT TO AVOID THE CREATION OF EXCESSIVE TURBIDITY WHICH MAY DEGRADE WATER QUALITY OR ADVERSELY AFFECT AQUATIC LIFE.
3. STONE SHALL BE PLACED AS SHOWN ON THE DRAWINGS WITHOUT ANY GAPS, SO THAT EACH BOULDER TOUCHES THE NEXT ONE.
4. 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.
5. IT SHOULD BE ANTICIPATED THAT RE-HANDLING OF INDIVIDUAL STONES, AFTER INITIAL PLACEMENT WILL BE REQUIRED TO ACHIEVE REQUIRED SLOPES, GRADES, ELEVATIONS AND POSITION.
6. THE ENGINEER SHALL OBSERVE AND APPROVE CONTRACTOR'S METHOD FOR STONE PLACEMENT IN A REPRESENTATIVE AREA FOR EACH PROJECT COMPONENT.

SITE PREPARATION-ROCKS PLACED IN STONE TERRACING

1. ALL ROCKS PLACED AS STONE TERRACING MUST BE PLACED WITH FLAT SIDE FACING UP AND BE CLEAN OF ALL SHARP PROTRUSIONS THAT COULD CREATE A SAFETY HAZARD.
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. ALL PLACED ROCKS MUST BE KEYED IN A MINIMUM OF 6-INCHES IN BOTH THE HORIZONTAL AND VERTICAL DIRECTIONS.
5. ALL PLACED STONES SHALL BE PLACED ON SUITABLE SUBGRADE APPROVED BY ENGINEER. IF UNSUITABLE SUBGRADE IS EXPERIENCED, CONTRACTOR MUST INCLUDE SUITABLE SUBGRADE MATERIAL SUCH AS ROAD BASE GRAVEL OR WASHED COBBLE AND BACKFILL WITH CLEAN NATIVE FILL AFTER STONE PLACEMENT.

CONCRETE MATERIALS

1. CONCRETE SHALL CONSIST OF PORTLAND CEMENT, SAND, AND GRAVEL, THOROUGHLY MIXED WITH WATER TO PRODUCE A THICK, CREAMY CONSISTENCY. THE MINIMUM AMOUNT OF WATER SHOULD BE USED TO PREVENT EXCESS SHRINKAGE OF THE CONCRETE AFTER PLACEMENT.
2. THE AGGREGATE, FOR CONCRETE, SHALL CONSIST OF 70 PERCENT SAND AND 30 PERCENT 3/8-INCH ROCK. MAXIMUM AGGREGATE SHALL BE 3/8 INCH.
3. ALL CONCRETE SHALL BE PRODUCED FROM TYPE II PORTLAND CEMENT WITH LESS THAN 5% TRICALCIUM ALUMINATE. CONCRETE SHALL HAVE MINIMUM CEMENT CONTENT OF 7 GALLONS PER SACK.
4. STRENGTH OF THE CONCRETE SHALL BE 3,000 PSI IN 28 DAYS. THE WATER CEMENT RATIO SHALL NOT EXCEED 0.48. A STIFFER MIX SHALL BE USED FOR STEEPER APPLICATIONS. AIR ENTRAINMENT SHALL BE USED FOR STEEPER APPLICATIONS. AIR ENTRAINMENT SHALL BE 6% TO 9%, AND SLUMP SHALL BE 5-INCHES TO 9-INCHES, EXCEPT AS APPROVED OR DIRECTED. AIR ENTRAINING AGENTS SHALL CONFORM TO ASTM C260 AND WATER REDUCING AGENTS SHALL CONFORM TO ASTM C494.
5. SUBGRADE, BASE MATERIAL, AND SURFACE COURSE IS TO BE COMPACTED TO 95% STANDARD PROCTOR WITH A MOISTURE CONTENT WITHIN 2% OF OPTIMAL PER ASTM D1558 AND AASHTO T180.

COLD WEATHER PLACEMENT

6. CONTRACTOR MUST FOLLOW RECOMMENDATIONS SET IN THE AMERICAN CONCRETE INSTITUTE COMMITTEE 306 (ACI 306R-88). WHEN PLACING CONCRETE AFTER THE FIRST FROST OR WHEN THE MEAN DAILY TEMPERATURES ARE BELOW 40° F.
7. HEAT AGGREGATES AND WATER IN ORDER TO PLACE FLOW FILL AT TEMPERATURES BETWEEN 50° F AND 80° F.
8. PLACING OF CONCRETE MAY BEGIN IN MORNING, BUT SHALL BE DISCONTINUED AT 3:00 PM OF SAME DAY IF FREEZING WEATHER THREATENS.
9. AFTER CONCRETE IS PLACED, PROVIDE SUFFICIENT PROTECTION SUCH AS COVER, CANVAS, FRAMEWORK, HEATING APPARATUS, ETC., TO ENCLOSE AND PROTECT FLOW FILL AND MAINTAIN TEMPERATURE OF 70° F FOR 3 DAYS OR 50° F FOR 5 DAYS AFTER PLACING.
10. IF FLAKING OR SPAWLING IS FOUND, THAT PORTION OF THE CONCRETE DID NOT APPROPRIATELY CURE AND WILL BE RE-DONE AT THE EXPENSE OF THE CONTRACTOR.
11. IF IN THE OPINION OF OWNER'S REPRESENTATIVE PROTECTION IS NOT ADEQUATE, CEASE PLACEMENT UNTIL CONDITIONS OR PROCEDURES ARE SATISFACTORY TO OWNER'S REPRESENTATIVE.

Recreation Engineering & Planning
RECREATION ENGINEERING AND PLANNING
485 ARAPAHOE AVE.
BOULDER | CO | 80302
WWW.BOATERPARKS.COM

DRAFT

PROJECT OWNER:
CITY OF GRAND JUNCTION
---
250 N 5TH STREET
GRAND JUNCTION, CO

LAS COLONIAS RIVER PARK
COLORADO RIVER
GRAND JUNCTION, COLORADO

FINAL REVIEW SET - NOT FOR CONSTRUCTION

GENERAL NOTES CONT

REVISIONS:

NO.	DATE
#	01/02/2018

DESIGNED:	GL	DRAFTED:	RG
CHECKED:	XX		
PLOT DATE:	7/25/2018		

DRAWING NO.

C-23

SHEET C-23 OF 26

Letters of Support

Colorado Riverfront Foundation, Inc.
PO Box 2477
Grand Junction, CO 81502
Phone: 970.683.4333
info@OneRiverfront.org
OneRiverfront.org

July 22, 2018

City of Grand Junction
Attn: Traci Wieland
1340 Gunnison Avenue
Grand Junction, CO 81501

Dear Ms. Wieland,

One Riverfront and the Colorado Riverfront Foundation strongly support the ongoing development of Las Colonias Park as a major component of the Riverfront Project. The Colorado River provides a valuable water resource that sustains the agricultural and urban economics of the Grand Valley (greater Grand Junction area) in western Colorado, which is one of the largest metropolitan areas located on the river. Since 1987, One Riverfront has been dedicated to helping Grand Valley communities be stewards of this precious resource through the development of the Riverfront Project. Often described as a string of pearls, the Riverfront Project is comprised of county properties, city parks, state parks and wildlife areas, and open space which are connected by multi-use trails stretching along the Colorado River.

Las Colonias Park is one of the last remaining pearls within the Riverfront Project. One Riverfront strongly supports its development, so much so, the Colorado Riverfront Foundation, One Riverfront's fiscal agent, is donating $15,000 in matching funds for the completion of the River Recreation feature. The Colorado Riverfront Foundation was established as a non-profit in 1987 to accept donations and grants on behalf of the Riverfront Trail Project and has been working with the City of Grand Junction for decades to revitalize and redevelop the riverfront in downtown Grand Junction. The Colorado Riverfront Foundation has donated $120,000 to the development of Las Colonias Park since 2014.

Several of the goals of the Riverfront Project include celebrating and preserving the cottonwood groves, wetlands, cattail marshes, gravel bars, and islands of the Colorado (originally the Grand) and the Gunnison Rivers. The junction of these two mighty rivers provides a beautiful and rich habitat for wildlife and riparian vegetation in an otherwise arid region. This rich and diverse environment is home to over 200 different species of birds, three endangered species of fish and an abundance of small animals. The rehabilitation of Las Colonias Park from its historical use as a junkyard and uranium mill are integral to the long-term success of the Riverfront Project, and the River Recreation feature will allow for that essential

rehabilitation in the form of revegetation. The project will also provide vast opportunity for community members to immerse themselves in nature learning about riparian habitat and how to take care of it for generations to come.

One Riverfront and the Riverfront Foundation are thrilled with the opportunity to see the completion of Las Colonias Park, and we look forward to the support of the Colorado Water Conservation Board to make that possible.

Sincerely,

Paul Nelson

Paul Nelson
Colorado Riverfront Foundation, Inc., Chair

Colorado Water Conservation Board Funding Letter

Traci Wieland

From: Traci Wieland
Sent: Tuesday, October 16, 2018 7:22 PM
To: Traci Wieland
Subject: FW: Las Colonias Park River Recreation

From: Sturm - DNR, Chris [mailto:chris.sturm@state.co.us]
Sent: Monday, October 15, 2018 10:19 AM
To: Traci Wieland <traciw@gjcity.org>
Subject: Re: Las Colonias Park River Recreation

Traci,
The CWCB grant from the Co Watershed Restoration Program has been extended until 12/31/19. The grant amount for $99,704 was awarded to Grand Junction in Jan of 2017.
-Chris

--
Chris Sturm
Stream Restoration Coordinator

O 303-866-3441 x3236| F 303-866-4474
1313 Sherman St., Rm. 721, Denver, CO 80203
chris.sturm@state.co.us | cwcb.state.co.us

COLORADO
Colorado Water Conservation Board
Department of Natural Resources

1313 Sherman Street
Denver, CO 80203

P (303) 866-3441
F (303) 866-4474

John Hickenlooper, Governor

Robert Randall, DNR Executive Director

Rebecca Mitchell, CWCB Director

TO: Colorado Water Conservation Board Members

FROM: Chris Sturm, Stream Restoration Coordinator
Watershed and Flood Protection Section

DATE: November 14-15, 2018 Board Meeting

AGENDA ITEM: 10.a-f. Water Plan Grants Overview - Environment and Recreation

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Introduction

In 2018, the Environment and Recreation category was appropriated $1.5 million in funding. The unreserved balance in the Environment and Recreation category is $1,501,002, including carryover funds from the fiscal year 2017-2018 appropriation. In the first round of fiscal year 2018-2019 applications, the CWCB received 6 applications totaling $1,805,420. Staff is recommending approval of the 6 grants totaling $754,711, leaving $746,289 available for future rounds of grant funding. See attached Data Sheets for locations and project summaries.

Staff Recommendation

Staff recommends that the Board approve the projects/activities listed in the following table for Water Plan Grant funding contingent upon the applicants' abilities to address the issues discussed below.

Applicant	Project Name	Grant Request Amount	Staff Recommendation
a. City of Grand Junction	Las Colonias Park River Recreation Feature	$175,000	$150,000
b. City of Brighton	South Platte River Berm Removal	$640,907	$200,000
c. Colorado Rio Grande Restoration Foundation	Del Norte Riverfront Project	$140,000	$140,000
d. Ducks Unlimited	South Platte Basin Shallow Water Wetlands	$169,604	$84,802
e. Year One Inc., dba Mile High Youth Corps	John Griffin Regional Park - Tamarisk & Russian Olive Abatement	$39,840	$39,840
f. The Nature Conservancy	Wines Ditch Diversion and Conveyance Improvements	$140,069	$140,069
Total Recommended for Approval			**$754,711**

Project Issues/Additional Needs:

a. City of Grand Junction - Las Colonias River Recreation Feature

- Project design should be subject to an independent engineering review.
- Applicant should clarify with CWCB and their design engineer that the primary objective is ecological enhancement and not recreation.

- Applicant should produce a riparian re-vegetation plan prepared by a qualified professional. It should promote biological diversity.
- Project should comply with the CWCB's Rules and Regulations for Regulatory Floodplains in Colorado.

b. City of Brighton - South Platte River Berm Removal

- Project design should be subject to an independent engineering review.
- Applicant should produce a riparian re-vegetation plan prepared by a qualified professional. It should promote biological diversity.
- Project should comply with the CWCB's Rules and Regulations for Regulatory Floodplains in Colorado.
- Applicant must demonstrate an ability to fully fund the project.

c. Colorado Rio Grande River Restoration Foundation - Del Norte Riverfront Project

- Project design should be subject to an independent engineering review.
- Applicant should produce a riparian re-vegetation plan prepared by a qualified professional. It should promote biological diversity.
- Applicant should consult Colorado Parks and Wildlife (CPW) to confirm that the design will promote fish passage for species prioritized by CPW.
- Project should comply with the CWCB's Rules and Regulations for Regulatory Floodplains in Colorado.

d. Ducks Unlimited - South Platte Basin Shallow Water Wetlands

- Funding recommendation is one of the two projects proposed in their application. The applicant will work with CWCB staff to determine which project is a higher priority.
- Applicant should demonstrate that it has a water right decreed for the proposed use.
- Applicant should demonstrate that the Division of Water Resources can administer the water right.

e. Mile High Youth Corps - John Griffin Regional Park - Tamarisk & Russian Olive Abatement

- Applicant should produce a riparian re-vegetation plan prepared by a qualified professional. It should promote biological diversity.
- Applicant should demonstrate that the re-vegetation budget is adequate to achieve re-vegetation objectives outlined in the plan.
- Applicant should demonstrate that invasive species removal in this area is viable and not in an area where re-establishment is likely because of upstream, downstream, or surrounding populations.

f. The Nature Conservancy - Wines Ditch Diversion and Conveyance Improvements

- Project design should be subject to an independent engineering review.
- Applicant should produce a riparian re-vegetation plan prepared by a qualified professional. It should promote biological diversity.
- Applicant should consult Colorado Parks and Wildlife (CPW) to confirm that the design of the fish barrier is adequate and appropriately located.
- Project should comply with the CWCB's Rules and Regulations for Regulatory Floodplains in Colorado.

Centennial Canoe Outfitters
1623 Juniper Court
Grand Junction, CO 81505
(720) 283-0553

To Whom It May Concern,

I am writing in support of the Las Colonias Park River Recreation Feature in Grand Junction, Colorado.

The project exemplifies a well-rounded approach to river recreation by balancing human use and environmental stewardship and protection. Riparian enhancement through revegetation and increased signage to delineate appropriate access and use will inevitably result in improved water quality in that area. In addition, the plan associated with the river recreation features was designed with full consideration of wildlife needs. The project also provides a unique opportunity to connect people of the Grand Valley to the river. In the predominately agricultural community of Grand Junction, the recreation river feature will make available interminable opportunities for water education, responsible recreation and river stewardship.

I respectfully encourage your support of this effort by the City of Grand Junction.

Sincerely,

Owner Operator
Western River Outfitters, LLC
Centennial Canoe Outfitters
Former Projects Coordinator Eagle River Watershed Council
Participant Colorado Basin Roundtable

COLORADO MESA UNIVERSITY

President's Office
1100 North Avenue • Grand Junction, CO 81501-3122
970.248.1498 (o) • 970.248.1903 (f) • 1.800.982.6372

July 24, 2018

Colorado Water Conservation Board
c/o Water Plan Grant
1313 Sherman Street, Room 718
Denver, CO 80203

Dear Sir or Madam:

I write today to express strong support for the Water Plan Grant application submitted by the City of Grand Junction to complete the **Las Colonias Park River Recreation Feature**.

As you may know, CMU is Colorado's fastest growing institution of higher education. With approximately 11,000 students enrolled each year, we are constantly developing unique partnerships to develop new opportunities for our students to recreate, research and be involved in the community. The proposed Las Colonias Park River Recreation Feature is the latest example of organizations in our community pooling resources to develop a win-win outcome for the entire Grand Valley.

As you can appreciate, it is high time for our city – named after the confluence of two great rivers – to embrace its riverfront. The work done to date by the City of Grand Junction at the Las Colonias site is truly transformational for our community. From my vantage point, the development of the Las Colonias Park River Recreation Feature is the next logical step in this evolution and our institution supports its speedy development wholeheartedly. This feature will enhance the environment, boost economic development and encourage a more healthy interaction between citizens and the riverfront going forward.

Thank you for the opportunity to support this project. I hope you view the application favorably.

Sincerely,

Tim Foster

Tim Foster, President
Colorado Mesa University

RiversEdge West
RESTORE + CONNECT + INNOVATE

July 26, 2018

Ms. Linda Bassi
Colorado Water Conservation Board
1313 Sherman St., Room 718
Denver, CO 80203

Dear Ms. Bassi,

RiversEdge West (REW) strongly supports the City of Grand Junction's Water Plan Grant proposal to increase the availability and function of riparian and aquatic habitat along the Colorado River near downtown Grand Junction. We have a highly vested interest in seeing restoration succeed at this site given our decade long commitment to improving riparian habitat at Las Colonias and at other nearby sites, all of which are highly visible to and utilized by the community.

The proposed project bolsters our previous restoration efforts, and those of our partners, to provide high-quality streamside vegetation to support habitat for fish and wildlife species, while also creating an accessible means to enjoy the river environment. With the active planting of native vegetation along a currently depauperate stretch of river, this project will benefit numerous species, including federally listed fish species and the threatened Western Yellow Billed Cuckoo. In-stream improvements, including the addition of habitat boulders and ribbed riffle enhancements, will further help to improve aquatic habitat and heterogeneity.

Not only do the objectives of this project fulfill the mission of REW, but they also bolster the goals of the Desert Rivers Collaborative (DRC), a group which CWCB has long funded and championed. In addition to restoring and maintaining native riparian habitat along the Colorado and Gunnison rivers, the DRC is focused on fostering community pride and livelihood through passive and active recreational experiences and opportunities for engagement along rivers, a goal which this project fully supports.

We are hopeful that a well-executed project at this site will be the springboard for future work focused on riparian habitat improvements along our community's rivers.

Sincerely,

Shannon Hatch
Restoration Coordinator