EXISTING OVERFLOW CHANNEL ACTIVATED AT 1.5 YEAR EVENT, MINIMAL PROPOSED GRADING REQUIRED

BANK STABILIZATION AND CHANNEL COMPLEXITY DEVELOPED BY USE OF ROOT WADS

EXISTING BANK STABILIZATION BY OTHERS, REQUIRES ADDITIONAL EVALUATION

EXISTING CHANNEL TO BE ACTIVATED AT 5 YEAR EVENT WITH PLUGS TO PROVIDE AREA OF AGGRADATION FOR SEDIMENT STORAGE

PRE-FLOOD DIVERSION LOCATION EXISTING VERTICAL ANDESITE WALLS

OVERFLOW CHANNEL ACTIVATED AT 1.5 YEAR EVENT

OVERFLOW CHANNEL ACTIVATED DURING 1.5 YEAR EVENT, MINIMAL GRADING REQUIRED

RECLAMATION OF LYONS QUARRY IS THE RESPONSIBILITY OF THE MINING COMPANY UNDER COLORADO DIVISION OF RECLAMATION, MINING AND SAFETY PERMIT IM-1977-141

RIFFLE POOL SECTION WITH REALIGNMENT MAIN CHANNEL TO MMIC HISTORIC CHANNEL FLOW PATH PRIOR TO MINING

NOTES:
1. TYPICAL CHANNEL CROSS SECTION MAY BE APPLIED EVEN IN AREAS WHERE PROPOSED ALIGNMENT WILL MIMIC EXISTING ALIGNMENT. CHANNEL, SHAPING AND BANK GRADING WILL STILL TAKE PLACE TO PROVIDE ACCESS TO THE FLOODPLAIN VIA A MULTI-STAGE/TERRACED CHANNEL. IN ORDER TO ESTABLISH A CONNECTED FLOODPLAIN CHANNEL WORK MIGHT BE REQUIRED.

2. RECOMMENDATION FOR MODIFICATIONS TO EXISTING INFRASTRUCTURE WILL BE PROVIDED AS PART OF THIS PROJECT. COMPLETE DESIGNS WILL NOT BE INCLUDED, BUT MASTER PLAN LEVEL CONCEPTS WILL BE GENERATED TO PROVIDE GUIDANCE TO FUTURE PROJECTS AND CAN BE USED FOR FUTURE FUNDING APPLICATIONS.

3. EVALUATION OF EXISTING PROJECTS AND DOWNSTREAM PROJECTS WILL TAKE PLACE TO EITHER BE APPLIED UNDER THIS PROJECT OR INFORM FUTURE DESIGNS. CONTACTS HAVE BEEN MADE WITH ALL EXISTING AND PROPOSED PROJECTS.

4. ALTERNATIVES WILL BE EVALUATED USING 1-D AND 2-D MODELING TO DETERMINE GEOMORPHOLOGIC ASPECTS INCLUDING VELOCITY, SHEAR STRESS, WATER DEPTH, AND SEDIMENT TRANSPORT CAPABILITY TO NAME A FEW. THIS INFORMATION WILL BE PRESENTED IN THE PRELIMINARY BASIS OF DESIGN REPORT.

5. OVERFLOW CHANNELS TO BE VEGETATED WITH NATIVE VEGETATION TO ALLOW ACCESS ACROSS AS NECESSARY

SOUTH ST. VRAIN CREEK RESTORATION
BANK STABILIZATION WITH RE-GRADING AND REVEGETATION

BURY EXISTING RIPRAP REVETMENT AND REVEGETATE

PLACE EXTRA FILL AT TOE OF ERODING BANK AND GRADE OUT AND REVEGETATE

EXISTING WOOD AND ROCK BANK STABILIZATION TO REMAIN, FURTHER EVALUATION REQUIRED TO DETERMINE ADEQUATENESS

ADD HYDRAULIC COMPLEXITY IN OVER-WIDENED REACHES (HABITAT BOULDERS AND/OR ENHANCE RIFFLES)

GRADE VERTICAL BANK TO STABLE SLOPE AND REVEGETATE

REALIGN CHANNEL TO HISTORIC ALIGNMENT WITH POOL RIFFLE COMBINATION

OVERFLOWS UNIFIED WITH NATIVE VEGETATION TO ALLOW ACCESS ACROSS AS NECESSARY

ACTIVATE 5 YEAR OVERFLOW CHANNEL WITH GRADING AT UPSTREAM TO CONNECT TO EXISTING OVERFLOW CHANNEL DOWNSTREAM

BURY EXISTING RIPRAP REVETMENT AND REVEGETATE

GRADE VERTICAL BANK TO STABLE SLOPE AND REVEGETATE

PRE-FLOOD DIVERSION LOCATION EXISTING VERTICAL ANDESITE WALLS

PROPOSED NEW ALIGNMENT OF MATTHEWS & HOLCOMB COMBINED DITCH

EXISTING ANDESITE BOULDERS TO REMAIN AS BANK STABILIZATION

OFFSET BURIED REVETMENT TO CONNECT TO EXISTING ANDESITE BOULDERS

PLACE EXTRA FILL AT TOE OF ERODING BANK AND GRADE OUT AND REVEGETATE

LEGEND

- FLOODPLAIN CONNECTIVITY
- CHANNEL COMPLEXITY/INFRASTRUCTURE PROTECTION/FLOODPLAIN CONNECTIVITY
- INFRASTRUCTURE PROTECTION
- INFRASTRUCTURE TO PROTECT
- OFFSET BURIED REVETMENT
- EXISTING/PROPOSED DITCHES

NOTES:
1. TYPICAL CHANNEL CROSS SECTION MAY BE APPLIED EVEN IN AREAS WHERE PROPOSED ALIGNMENT WILL MIMIC EXISTING ALIGNMENT. CHANNEL SHAPING AND BANK GRADING WILL STILL TAKE PLACE TO PROVIDE ACCESS TO THE FLOODPLAIN VIA A MULTI-RASTERIZED CHANNEL. IN ORDER TO ESTABLISH A CONNECTED FLOODPLAIN CHANNEL, WORK MUST BE REQUIRED.
2. RECOMMENDATION FOR MODIFICATIONS TO EXISTING INFRASTRUCTURE WILL BE PROVIDED AS PART OF THIS PROJECT. COMPLETE DESIGNS WILL NOT BE INCLUDED, BUT MASTER PLAN LEVEL CONCEPTS WILL BE GENERATED TO PROVIDE GUIDANCE TO FUTURE PROJECTS AND CAN BE USED FOR FUTURE FUNDING APPLICATIONS.
3. EVALUATION OF EXISTING PROJECTS AND DOWNSTREAM PROJECTS WILL TAKE PLACE TO ENSURE THAT PROJECTS ARE UNDER THE PROJECT OR INFORM FUTURE DESIGNS. CONTACTS HAVE BEEN MADE WITH ALL EXISTING AND PROPOSED PROJECTS.
4. ALTERNATIVES WILL BE EVALUATED USING 1-D AND 2-D MODELING TO DETERMINE GEOMORPHOLOGIC ASPECTS INCLUDING VELOCITY, SHEAR STRESS, WATER DEPTH, AND SEDIMENT TRANSPORT CAPABILITY TO NAME A FEW. THIS INFORMATION WILL BE PRESENTED IN THE PRELIMINARY BASIS OF DESIGN REPORT.
5. OVERFLOWS UNIFIED WITH NATIVE VEGETATION TO ALLOW ACCESS ACROSS AS NECESSARY

SOUTH ST. VRAIN CREEK RESTORATION
OFFSET BURIED RIPRAP REVETMENT TO PROTECT OLD SOUTH ST VRAIN ROAD AND DITCH (DIVERSION BEING RELOCATED)

EXISTING CHANNEL AS 1.5 YEAR OVERFLOW CHANNEL WITH PLUGS TO PROVIDE AREA OF AGGRADATION FOR SEDIMENT STORAGE

REALIGN CHANNEL TO HISTORIC ALIGNMENT WITH POOL RIFFLE COMBINATION

EXISTING WOOD AND ROCK BANK STABILIZATION TO REMAIN, FURTHER EVALUATION REQUIRED TO DETERMINE ADEQUATENESS

BANK STABILIZATION VIA BIOENGINEERING OR REVEGETATION

ENHANCING TWO EXISTING OVERFLOW CHANNELS

EXISTING SPLIT FLOW ALIGNMENT TO REMAIN

EXISTING BANK STABILIZATION TO REMAIN

EXISTING WOOD AND ROCK BANK STABILIZATION TO REMAIN, FURTHER EVALUATION REQUIRED TO DETERMINE ADEQUATENESS

EXISTING WOOD AND ROCK BANK STABILIZATION TO REMAIN, FURTHER EVALUATION REQUIRED TO DETERMINE ADEQUATENESS

EXISTING WOOD AND ROCK BANK STABILIZATION TO REMAIN, FURTHER EVALUATION REQUIRED TO DETERMINE ADEQUATENESS

GRADE CONTROL SILL SET AT RECURRENCE INTERVAL TO CONTROL WHEN OVERFLOW IS ACTIVATED

EXISTING OVERFLOW CHANNEL TO BE ACTIVATED DURING 5 YEAR EVENT, MINIMAL PROPOSED GRADING REQUIRED

EXISTING OVERFLOW CHANNEL TO BE ACTIVATED DURING 1.5 YEAR EVENT, MINIMAL PROPOSED GRADING REQUIRED

EXISTING ANDESITE BOULDERS TO BE RELOCATED TO ALLOW FOR FLOODPLAIN CONNECTIVITY

EXISTING WETLAND AREA TO BE PRESERVED AS MUCH AS POSSIBLE

NOTES:
1. TYPICAL CHANNEL CROSS SECTION MAY BE APPLIED EVEN IN AREAS WHERE PROPOSED ALIGNMENT WILL MIMIC EXISTING ALIGNMENT. CHANNEL SHAPING AND BANK GRADING WILL STILL TAKE PLACE TO PROVIDE ACCESS TO THE FLOODPLAIN VIA A MULTI-STAGE/TERRACED CHANNEL. IN ORDER TO ESTABLISH A CONNECTED FLOODPLAIN CHANNEL WORK MIGHT BE REQUIRED.
2. RECOMMENDATION FOR MODIFICATIONS TO EXISTING INFRASTRUCTURE WILL BE PROVIDED AS PART OF THIS PROJECT. COMPLETE DESIGNS WILL NOT BE INCLUDED, BUT MASTER PLAN LEVEL CONCEPTS WILL BE GENERATED TO PROVIDE GUIDANCE TO FUTURE PROJECTS AND CAN BE USED FOR FUTURE FUNDING APPLICATIONS.
3. EVALUATION OF EXISTING PROJECTS AND DOWNSTREAM PROJECTS WILL TAKE PLACE TO ENSURE SEQUENCE OF PROJECTS. CONTACTS HAVE BEEN MADE WITH ALL EXISTING AND PROPOSED PROJECTS.
4. ALTERNATIVES WILL BE EVALUATED USING 1-D AND 2-D MODELING TO DETERMINE GEOMORPHOLOGIC ASPECTS INCLUDING VELOCITY, SHEAR STRESS, WATER DEPTH, AND SEDIMENT TRANSPORT CAPABILITY TO NAME A FEW. THIS INFORMATION WILL BE PRESENTED IN THE PRELIMINARY BASIS OF DESIGN REPORT.
5. OVERFLOW CHANNELS TO BE VEGETATED WITH NATIVE VEGETATION TO ALLOW ACCESS ACROSS AS NECESSARY

LEGEND
FLOODPLAIN CONNECTIVITY
CHANNEL COMPLEXITY: RIFFLE-POOL SEQUENCES
ROOT WAD / LARGE WOOD
INFRASTRUCTURE PROTECTION: INFRASTRUCTURE TO PROTECT
OFFSET BURIED REVETMENT
EXISTING/PROPOSED DITCHES
1.5 YEAR OVERFLOW CHANNEL
5 YEAR OVERFLOW CHANNEL
NEW ALIGNMENT
BANK STABILIZATION
FLOODPLAIN CONNECTIVITY

ACTIVATE EXISTING OVERFLOW CHANNELS AT 1.5 OR 5 YEAR, PERMITTING ASPECTS TO BE EVALUATED TO DETERMINE FEASIBILITY

EXISTING WETLAND AREA TO BE PRESERVED AS MUCH AS POSSIBLE

SOUTH ST. VRAIN CREEK RESTORATION

EWP PROJECT AREA 1 ($1,573,189)
EXISTING BANK STABILIZATION VIA LOGS AND ROOTWADS TO REMAIN

EXISTING BANK STABILIZATION TO REMAIN

RECOMMENDATION FOR MODIFICATIONS TO EXISTING INFRASTRUCTURE WILL BE PROVIDED AS PART OF THIS PROJECT. COMPLETE DESIGNS WILL NOT BE INCLUDED, BUT MASTER PLAN LEVEL CONCEPTS WILL BE GENERATED TO PROVIDE GUIDANCE TO FUTURE PROJECTS AND CAN BE USED FOR FUTURE FUNDING APPLICATIONS.

EVALUATION OF EXISTING PROJECTS AND DOWNSTREAM PROJECTS WILL TAKE PLACE TO EITHER BE APPLIED UNDER THIS PROJECT OR INFORM FUTURE DESIGNS. CONTACTS HAVE BEEN MADE WITH ALL EXISTING AND PROPOSED PROJECTS.

ALTERNATIVES WILL BE EVALUATED USING 1-D AND 2-D MODELING TO DETERMINE GEOMORPHOLOGIC ASPECTS INCLUDING VELOCITY, SHEAR STRESS, WATER DEPTH, AND SEDIMENT TRANSPORT CAPABILITY TO NAME A FEW. THIS INFORMATION WILL BE PRESENTED IN THE PRELIMINARY BASIS OF DESIGN REPORT.

OVERFLOW CHANNELS TO BE VEGETATED WITH NATIVE VEGETATION TO ALLOW ACCESS ACROSS AS NECESSARY

SOUTH ST. VRAIN CREEK RESTORATION

ACTIVATE EXISTING OVERFLOW CHANNELS AT 1.5 OR 5 YEAR PERMITTING ASPECTS TO BE EVALUATED TO DETERMINE FEASIBILITY.

CHANNEL WORK TO TAKE PLACE FOR CONVEYANCE AND GRADE CONTROL

SELECTIVE GRADING IN FLOODPLAIN TO INCREASE FLOW CONNECTIVITY TO LOW LYING AREAS AS NECESSARY

PRESERVE EXISTING WETLAND AREA AS MUCH AS POSSIBLE

ACTIVATE EXISTING OVERFLOW CHANNELS AT 1.5 OR 5 YEAR PERMITTING ASPECTS TO BE EVALUATED TO DETERMINE FEASIBILITY.

CHANNEL WORK TO TAKE PLACE FOR CONVEYANCE AND GRADE CONTROL

SELECTIVE GRADING IN FLOODPLAIN TO INCREASE FLOW CONNECTIVITY TO LOW LYING AREAS AS NECESSARY

PRESERVE EXISTING WETLAND AREA AS MUCH AS POSSIBLE
REVEGETATE AS NECESSARY
REALIGN CHANNEL THROUGH HISTORICAL ALIGNMENT TO REDUCE ABRUPT CURVE INTO BRIDGE
RESET EXISTING RIPRAP PROTECTION TO INCREASE CONVEYANCE THROUGH BRIDGE
MASTER PLAN ELEMENT: EVALUATE NEEDED CAPACITY OF BRIDGE TO PASS 100 YEAR EVENT
USE HISTORICAL CHANNEL ALIGNMENT AS OVERFLOW CHANNEL DURING THE 5 YEAR EVENT
OFFSET BURIED RIPRAP PROTECTION TO PROTECT ROAD EMBANKMENT
BANK STABILIZATION VIA BIOENGINEERING AND REVEGETATION
POTENTIAL FUTURE RELOCATION OF DIVERSION UPSTREAM OR INSTALL SLOPING STRUCTURE DOWNSTREAM (NOT DESIGNED AS PART OF THIS PROJECT)
USE HISTORICAL CHANNEL ALIGNMENT AS OVERFLOW CHANNEL DURING THE 5 YEAR EVENT
OFFSET BURIED RIPRAP PROTECTION TO PROTECT ROAD EMBANKMENT
BANK STABILIZATION VIA BIOENGINEERING AND REVEGETATION
BURIED OFFSET RIPRAP REVETMENT TO PROTECT DITCH AND NEW INFRASTRUCTURE
PROTECT EXISTING INFRASTRUCTURE CROSSING UNDER OVERFLOW CHANNEL
OVERFLOW CHANNEL ACTIVATED AT 5 YEAR EVENT
SPLIT FLOW ALIGNMENT TO REMAIN
REVEGETATE AS NECESSARY
SOUTH ST. VRAIN CREEK RESTORATION
LEGEND
CHANNEL COMPLEXITY/INFRASTRUCTURE PROTECTION/FLOODPLAIN CONNECTIVITY
CHANNEL COMPLEXITY
WET-POOL SEQUENCES
ROOT WAD / LARGE WOOD
INFRASTRUCTURE PROTECTION
INFRASTRUCTURE TO PROTECT
OFFSET BURIED REVETMENT
EXISTING PROPOSED DITCHES
1.5 YEAR OVERFLOW CHANNEL
5 YEAR OVERFLOW CHANNEL
NEW ALIGNMENT
BANK STABILIZATION
FLOODPLAIN CONNECTIVITY
NOTES:
1. TYPICAL CHANNEL CROSS SECTION MAY BE APPLIED EVEN IN AREAS WHERE PROPOSED ALIGNMENT WILL MIMIC EXISTING ALIGNMENT. CHANNEL SHAPING AND BANK GRADING WILL STILL TAKE PLACE TO PROVIDE ACCESS TO THE FLOODPLAIN VIA A MULTI-STAGE/TERRACED CHANNEL. IN ORDER TO ESTABLISH A CONNECTED FLOODPLAIN CHANNEL WORK MIGHT BE REQUIRED.
2. RECOMMENDATION FOR MODIFICATIONS TO EXISTING INFRASTRUCTURE WILL BE PROVIDED AS PART OF THIS PROJECT. COMPLETE DESIGNS WILL NOT BE INCLUDED, BUT MASTER PLAN LEVEL CONCEPTS WILL BE GENERATED TO PROVIDE GUIDANCE TO FUTURE PROJECTS AND CAN BE USED FOR FUTURE FUNDING APPLICATIONS.
3. EVALUATION OF EXISTING PROJECTS AND DOWNSTREAM PROJECTS WILL TAKE PLACE TO EITHER BE APPLIED UNDER THIS PROJECT OR INFORM FUTURE DESIGNS. CONTACTS HAVE BEEN MADE WITH ALL EXISTING AND PROPOSED PROJECTS.
4. ALTERNATIVES WILL BE EVALUATED USING 1-D AND 2-D MODELING TO DETERMINE GEOMORPHOLOGIC ASPECTS INCLUDING VELOCITY, SHEAR STRESS, WATER DEPTH, AND SEDIMENT TRANSPORT CAPABILITY TO NAME A FEW. THIS INFORMATION WILL BE PRESENTED IN THE PRELIMINARY BASIS OF DESIGN REPORT.
5. OVERFLOW CHANNELS TO BE VEGETATED WITH NATIVE VEGETATION TO ALLOW ACCESS ACROSS AS NECESSARY