

# CONSTRUCTION DRAWINGS

## CHERRY CREEK BASIN WATER QUALITY AUTHORITY

### CHERRY CREEK STREAM RECLAMATION

#### AT 12-MILE PARK

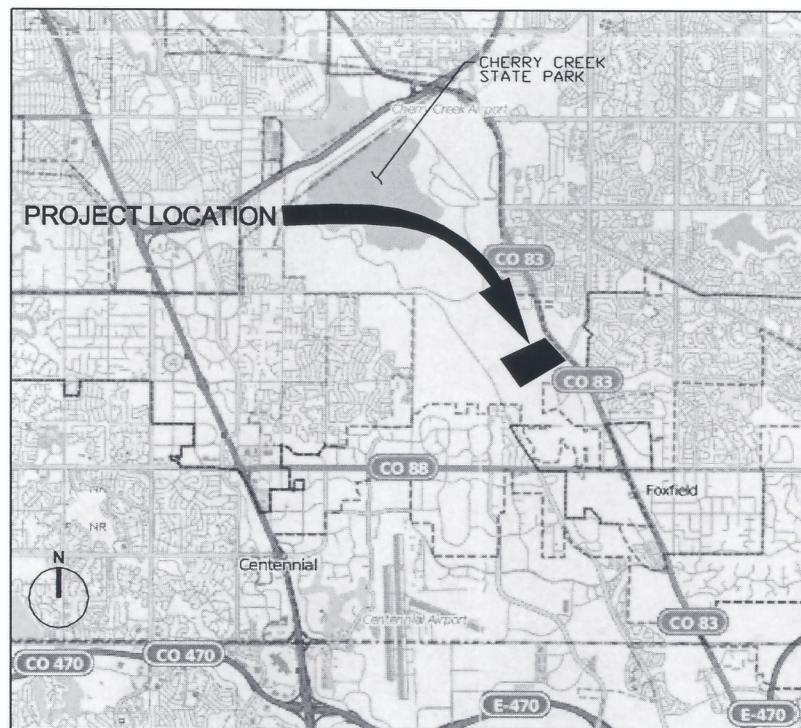
#### PHASE 1



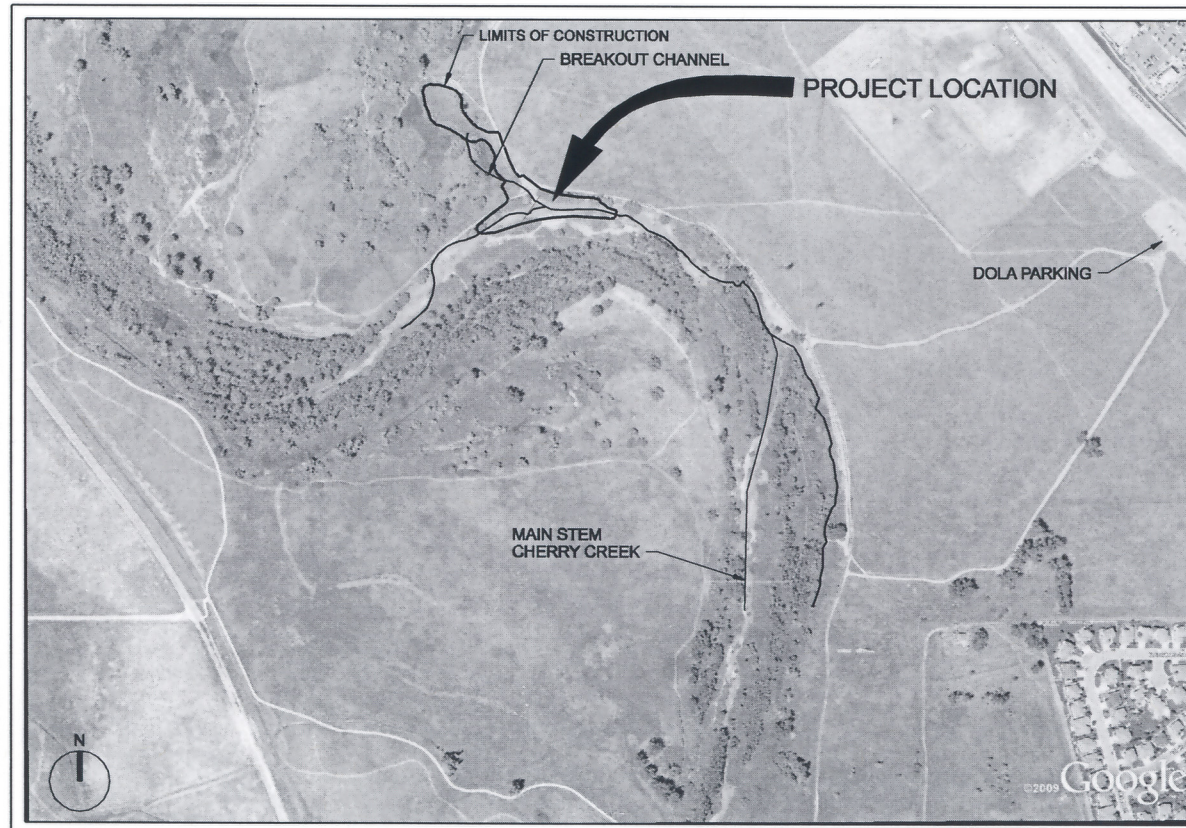
OCTOBER 2011

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VICINITY MAP: ARAPAHOE COUNTY, CO  
NTS  
SOURCE: EXPERT GPS



LOCATION MAP: ARAPAHOE COUNTY, CO  
NTS  
SOURCE: GOOGLE EARTH

CHERRY CREEK BASIN WATER QUALITY AUTHORITY

*William Ruzzo*  
BILL RUZZO, TECHNICAL MANAGER

*10/06/2011*  
DATE

CH2M HILL

*Scott Yanagihara*  
SCOTT YANAGIHARA, PROJECT MANAGER

*10/7/2011*  
DATE

|      |      |             |      |
|------|------|-------------|------|
| NO.  | DATE | DESCRIPTION | BY   |
| DSGN |      |             | APVD |
| DR   |      |             | APVD |
| CHK  |      |             | APVD |
| REV  |      |             | APVD |

CHERRY CREEK BASIN WATER QUALITY AUTHORITY  
CHERRY CREEK STREAM RECLAMATION  
AT 12-MILE PARK  
CHERRY CREEK STATE PARK  
ARAPAHOE COUNTY

**CH2MHILL**

COVER

|       |              |
|-------|--------------|
| DATE  | OCTOBER 2011 |
| PROJ  | 407259       |
| DWG   | G-1          |
| SHEET | 1            |

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## GENERAL NOTES

- IT IS THE INTENT OF THESE PLANS TO SHOW ALL EXISTING UTILITIES, HOWEVER IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY ALL UTILITIES PRIOR TO CONSTRUCTION, WHETHER SHOWN ON THESE PLANS OR NOT. CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO (UNCC) AT 811, PRIOR TO DIGGING. THE ENGINEER AND CCBWQA SHALL BE NOTIFIED OF ANY POTENTIAL CONFLICTS.
- EXISTING FACILITIES AND UTILITIES NOT INDICATED TO BE REMOVED SHALL BE PROTECTED IN PLACE OR REMOVED AND REPLACED IN KIND, AS APPROVED BY THE ENGINEER.
- ALL MATERIALS AND WORKMANSHIP SHALL BE SUBJECT TO INSPECTION BY CCBWQA, CCSP AND/OR ITS AUTHORIZED REPRESENTATIVES. CCBWQA AND CCSP RESERVE THE RIGHT TO ACCEPT OR REJECT ANY SUCH MATERIALS AND WORKMANSHIP THAT DO NOT CONFORM TO ITS STANDARDS AND SPECIFICATIONS.
- THE CONTRACTOR SHALL NOTIFY CCBWQA 48 HOURS PRIOR TO STARTING CONSTRUCTION.
- THE CONTRACTOR SHALL HAVE ONE (1) SIGNED COPY OF THE PLANS (ACCEPTED BY CCBWQA), AND ONE (1) COPY OF ALL REQUIRED PERMITS AT THE JOB SITE AT ALL TIMES.
- THE FINAL FILL AND EXCAVATION SLOPES, LINES AND GRADES SHOWN ON THE DRAWINGS ARE THE NEAT LINES FOR PAY PURPOSES AND ARE THE STEEPEST SLOPES PERMITTED UNLESS APPROVED BY THE ENGINEER. FLATTER SLOPES MAY BE NECESSARY, AS DETERMINED BY THE CONTRACTOR. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR PROVIDING STABLE EXCAVATIONS AND TEMPORARY SLOPES AND FOR SATISFYING ALL APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS. TEMPORARY EXCAVATIONS SHALL PROVIDE AT MINIMUM, THE TRENCH DIMENSIONS AND CLEARANCES SHOWN OR SPECIFIED. TEMPORARY CONSTRUCTION SLOPES SHALL BE SLOPED, SHORED, SHEETED, AND/OR BRACED IN ACCORDANCE WITH STABILITY REQUIREMENTS AND APPLICABLE REGULATIONS, AND SHALL BE NO STEEPER THAN THE MINIMUM SLOPES SHOWN OR SPECIFIED WITHOUT THE APPROVAL OF THE ENGINEER. ANY SUCH APPROVALS BY THE ENGINEER WILL NOT RELIEVE THE CONTRACTOR FROM SOLE RESPONSIBILITY FOR PROVIDING STABLE EXCAVATIONS AND TEMPORARY SLOPES.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ACCEPTANCE AND CONTROL OF DRAINAGE WATER FROM AREAS ADJACENT TO THE CREEK AND FOR STREAM FLOW WITHIN THE CREEK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING METHODS BY WHICH CHANNEL FLOW, SURFACE RUNOFF, AND SUBSURFACE SEEPAGE WILL BE TEMPORARILY DIVERTED, DETAINED OR OTHERWISE CONTROLLED. WATER CONTROL SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS, AS WELL AS ALL APPLICABLE PERMIT CONDITIONS. TEMPORARY WATER CONTROL SYSTEMS SHALL NOT CAUSE INCREASED FLOODING OR AFFECT NORMAL FLOW CHARACTERISTICS DURING CONSTRUCTION. ANY DAMAGE TO THE WORK RESULTING FROM BASE FLOWS OR FLOOD FLOWS SHALL BE CORRECTED BY THE CONTRACTOR AT THE CONTRACTOR'S SOLE COST.
- THE CONTRACTOR IS ADVISED THAT THE STOCKPILING AND USE OF MATERIAL AND/OR EQUIPMENT WITHIN THE CHANNEL CREATES POTENTIAL OBSTRUCTIONS TO THE FLOW OF THE STREAM. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONDUCT THE WORK IN A MANNER THAT MINIMIZES THE REDUCTION IN CHANNEL CAPACITY AT ALL TIMES. THE CONTRACTOR IS ADVISED THAT THE STORAGE OF FUELS, CHEMICALS, TRASH, DEBRIS, CONSTRUCTION MATERIAL, VEHICLES, AND EQUIPMENT SHALL BE PROHIBITED WITHIN THE CHANNEL AT ALL TIMES EXCEPT AS IS ESSENTIAL TO THE PROGRESS OF THE WORK. UNDER NO CIRCUMSTANCE SHALL ANY OF THE ABOVE MENTIONED MATERIALS BE STORED OVERNIGHT WITHIN THE CHANNEL.
- CONTRACTOR SHALL PROVIDE PEDESTRIAN AND VEHICULAR SIGNAGE THAT CLEARLY IDENTIFIES THE CONSTRUCTION ZONE THROUGHOUT PROJECT. CONTRACTOR IS RESPONSIBLE FOR SITE SAFETY.
- CONTRACTOR SHALL PROTECT ALL EXISTING CURB, GUTTER AND PAVEMENT AT ALL ACCESS POINTS FROM DAMAGE BY EQUIPMENT OR CONSTRUCTION OPERATIONS. ALL CURB, GUTTER AND PAVEMENT DAMAGED BY THE CONTRACTOR SHALL BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE.
- SOIL RIPRAP SHALL CONSIST OF 65% RIPRAP AND 35% SOIL, AND SHALL BE COMPACTED.
- NATIVE FILL SHALL BE COMPACTED TO 95% STD PROCTOR.
- CONSTRUCTION STAKING AND SURVEY SHALL BE PROVIDED BY THE CONTRACTOR.
- CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS FOR THIS PROJECT, EXCEPT FOR THE 404 PERMIT.
- CONTRACTOR SHALL BE LICENSED TO PERFORM WORK IN ARAPAHOE COUNTY, AS REQUIRED.
- NEW FILL SHOULD BE CONTINUOUSLY BENCHED INTO EXISTING SLOPES EXCEEDING 4 HORIZONTAL TO 1 VERTICAL. A BENCH HEIGHT BETWEEN 1 AND 2 FEET SHOULD BE USED. PROPER COMPACTION IS FREQUENTLY DIFFICULT TO ACHIEVE AT THE EDGES OF FILL SLOPES. FOR THIS REASON OVERBUILD FILL SLOPES 1 TO 2 FEET AND CUT THE SLOPE SURFACE BACK TO THE GRADES SHOWN. FILLS SHOULD BE PLACED IN UNIFORM LIFTS NOT EXCEEDING 8 INCHES LOOSE AND SHOULD BE COMPACTED TO THE MOISTURE AND DENSITY REQUIREMENTS PER CCBWQA SPECIFICATIONS.
- VISITS TO THE JOB SITE BY THE ENGINEER TO OBSERVE THE CONSTRUCTION DO NOT IN ANY WAY MEAN THAT THE ENGINEER IS GUARANTOR OF CONTRACTOR'S WORK, NOR RESPONSIBLE FOR THE COMPREHENSIVE OR SPECIAL INSPECTIONS, COORDINATION, SUPERVISION, NOR THE SAFETY AT THE JOB SITE.
- SITE ACCESS AND STAGING SHALL BE PER THE CONSTRUCTION DOCUMENTS, UNLESS ALTERNATIVE ACCESS AND STAGING ARE APPROVED BY CCBWQA AND/OR ITS AUTHORIZED REPRESENTATIVES.
- CCBWQA STANDARD SPECIFICATIONS SHALL BE USED ON THIS PROJECT.
- CONTRACTOR SHALL INSTALL TWO PROJECT SIGNS PER THE PROJECT SPECIFICATIONS.
- SEE PROJECT SPECIFICATIONS FOR REQUIRED SUBMITTALS AND MEASUREMENT AND PAYMENTS REQUIREMENTS.

## CULTURAL AND HISTORICAL FINDINGS

- IF ANY SUSPECTED CULTURAL OR HISTORIC FINDINGS ARE UNCOVERED DURING CONSTRUCTION, STOP CONSTRUCTION IMMEDIATELY AND NOTIFY: MARY POWELL/ERO RESOURCES AT 303-830-1188.

## SEEDING AND PLANTING NOTES

- ADJUST SITE GRADING AS APPROPRIATE SO THAT IMPACTS TO WOODY VEGETATION AND TREES TO BE PROTECTED CAN BE AVOIDED.
- AVOID CLEARING AND GRUBBING WOODY VEGETATION IN AREAS OF TEMPORARY IMPACTS. IF NECESSARY, PRUNE WOODY VEGETATION TO GROUND LEVEL SO THAT IT MAY GROW BACK FOLLOWING CONSTRUCTION.
- AVOID THE UNNECESSARY REMOVAL OF TREES OR SHRUBS; FOR EXAMPLE, PRUNE THE AERIAL PORTIONS OF TREES AND SHRUBS THAT HANG OVER A PROJECT AREA AND INTERFERE WITH EQUIPMENT.
- ALL DISTURBED AREAS SHALL BE SEEDED WITH EITHER THE UPLAND OR WETLAND SEED MIX LISTED BELOW. NO SUBSTITUTIONS SHALL BE ALLOWED, INCLUDING ADDITION OF A COVER CROP, WITHOUT WRITTEN PERMISSION OF CCBWQA REPRESENTATIVE. OVERLAP THE SEED MIXES A MINIMUM OF 1 FEET. THE CONTRACTOR SHALL LIMIT DISTURBANCE TO THE CONSTRUCTION LIMITS SHOWN ON THE PLAN. SEED TAGS MUST BE SUBMITTED TO THE CCBWQA REPRESENTATIVE.
- NATIVE SEED MAY BE DRILLED OR BROADCAST. SEED WHICH IS BROADCAST SHALL BE HAND RAKED IMMEDIATELY FOLLOWING SEEDING TO COVER WITH 1/8" TO 1/2" OF TOPSOIL. SEEDING RATES SHOWN SHALL BE DOUBLED IF BROADCASTED.
- LIVE SANDBAR WILLOW STAKES - WILLOWS SHALL BE CUT FROM THE EXISTING SANDBAR WILLOW WITHIN THE PROJECT AREA. THE EXISTING WILLOWS WILL BE CUT 8 TO 10 INCHES FROM THE GROUND WITH LOPPERS OR HANDSAWS. THE CUTS WILL BE AT A 45-DEGREE ANGLE. WILLOW STAKES WILL BE APPROXIMATELY 3 TO 4 FEET LONG AND GREATER THAN 1/2 INCH IN DIAMETER. ALL SIDE BRANCHES AND THE TERMINAL BUD SHALL BE TRIMMED OFF. IMMEDIATELY AFTER CUTTING, ALL LIVE STAKES WILL BE PLACED IN WATER SO THAT THE CUT ENDS ARE COVERED WITH WATER, AND THE CUTTINGS SHALL BE STORED IN A COOL LOCATION. TO STORE CUT WILLOWS STAKES GREATER THAN 3 DAYS, CUT STAKES WILL BE WRAPPED IN WET BURLAP AND STORED IN A COOL PLACE. BURLAP WILL REMAIN DAMP AT ALL TIMES DURING STORAGE. WILLOW STAKES SHALL BE PLANTED USING A PIECE OF REBAR TO CREATE A VERTICAL HOLE APPROXIMATELY 1 TO 2 FEET DEEP. APPROXIMATELY 2/3 OF THE STAKE SHALL BE INSERTED INTO THE HOLE SO THAT THE STAKE IS IN CONTACT WITH THE WATER TABLE. AFTER THE WILLOW CUTTING IS INSERTED, THE HOLE SHALL BE BACKFILLED WITH NATIVE SOILS AND LIGHTLY TAMPED TO PREVENT AIR POCKETS. THE STAKE SHALL THEN BE WATERED TO HELP FILL IN THE AIR POCKETS. WILLOW STAKES SHALL BE PLANTED 3 FEET ON CENTER IN TWO ROWS. IT IS IMPORTANT TO PLANT WILLOW STAKES DEEP ENOUGH SO THAT THE BOTTOM OF THE CUTTING REACHES SATURATED SOIL THROUGHOUT THE GROWING SEASON.
- HARVEST AND PLANT WILLOW LIVE STAKES DURING DORMANT SEASON.
- USE HEALTHY, STRAIGHT, AND LIVE WOOD AT 2 TO 3 YEARS OLD.
- MAKE CLEAN CUTS AND DO NOT DAMAGE STAKES OR SPLIT ENDS DURING INSTALLATION.
- SOAK CUTTINGS FOR 24 HOURS (MIN.) PRIOR TO INSTALLATION.
- STORE CUT WILLOWS WITH LOWER ENDS IN WATER FOR NO LONGER THAN 7 DAYS BEFORE PLANTING.

| WETLAND SEED MIX           |                                |           |          |
|----------------------------|--------------------------------|-----------|----------|
| COMMON NAME                | SCIENTIFIC NAME                | VARIETY   | LBS/ACRE |
| Woolly sedge               | <i>Carex lanuginosa</i>        | Native    | 0.25     |
| Alkali sacaton             | <i>Sporobolus airoides</i>     | Native    | 3.00     |
| Prairie cordgrass          | <i>Spartina pectinata</i>      | Native    | 6.00     |
| Green needlegrass          | <i>Nassella viridula</i>       | Lodum     | 15.00    |
| Switchgrass                | <i>Panicum virgatum</i>        | Blackwell | 15.00    |
| Western wheatgrass         | <i>Pascopyrum smithii</i>      | Arriba    | 10.00    |
| High Plains Wet Meadow Mix | <i>Western Native Seed CO.</i> |           | 10.00    |
| Louisiana sage             | <i>Artemisia ludoviciana</i>   | Native    | 0.25     |
| Nuttall's sunflower        | <i>Helianthus nuttallii</i>    | Native    | 0.25     |
| Blue vervain               | <i>Verbena hastata</i>         | Native    | 0.25     |
| Yarrow                     | <i>Achillea lanulosa</i>       | Native    | 0.25     |
| Total pounds LBS/acre      |                                |           | 60.25    |

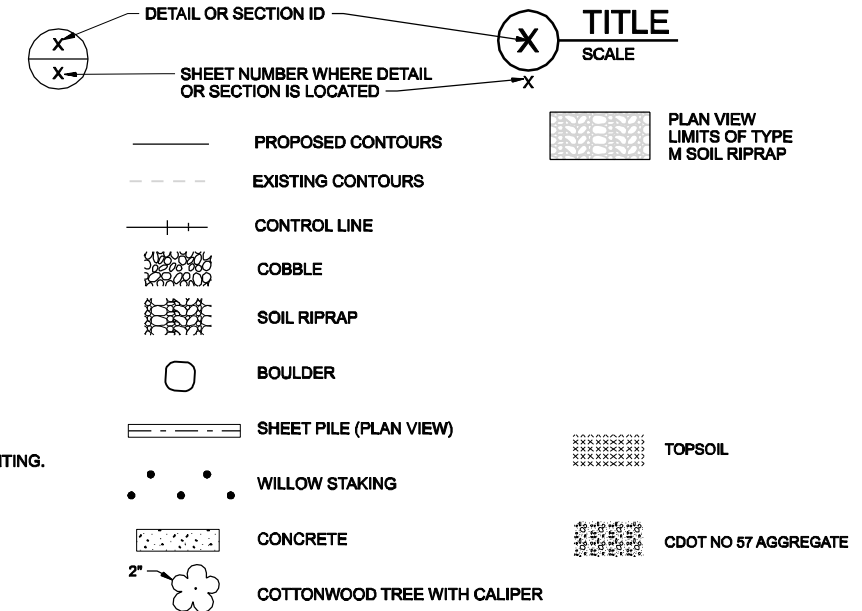
| UPLAND SEED MIX FOR LOAMY TO CLAY-LOAM SOILS |                                     |           |          |
|--|-------------------------------------|-----------|----------|
| COMMON NAME                                  | SCIENTIFIC NAME                     | VARIETY   | LBS/ACRE |
| Sideoats grama                               | <i>Bouteloua curtipendula</i>       | Butte     | 5        |
| Blue grama                                   | <i>Chondrosium gracile</i>          | Lovington | 3        |
| Prairie sandreed                             | <i>Calamovilfa longifolia</i>       | Native    | 6        |
| Switchgrass                                  | <i>Panicum virgatum</i>             | Blackwell | 5        |
| Indian ricegrass                             | <i>Oryzopsis hymenoides</i>         | Rimrock   | 1        |
| Western wheatgrass                           | <i>Pascopyrum smithii</i>           | Arriba    | 5        |
| Sand bluestem                                | <i>Andropogon hallii</i>            | Woodward  | 2        |
| Sand dropseed                                | <i>Sporobolus cryptandrus</i>       | Native    | 2        |
| Fringed sage                                 | <i>Artemisia frigida</i>            | Native    | 0.05     |
| Aster  | <i>Aster laevis</i>                 | Native    | 0.01     |
| Purple prairie clover                        | <i>Dalea purpurea</i>               | Native    | 0.5      |
| Blanket flower                               | <i>Gaillardia aristata</i>          | Native    | 0.5      |
| Tansy aster                                  | <i>Machaeranthera tanacetifolia</i> | Native    | 0.1      |
| Large-flowered penstemon                     | <i>Penstemon grandiflorus</i>       | Native    | 0.1      |
| Wand penstemon                               | <i>Penstemon virgatus</i>           | Native    | 0.05     |
| Prairie coneflower                           | <i>Ratibida columnifera</i>         | Native    | 0.1      |
| Showy goldeneye                              | <i>Viguiera multiflora</i>          | Native    | 0.2      |
| Total LBS/acre                               |                                     |           | 30.6     |

## SHEET PILE

- SHEET PILE SHALL BE PZ-22.
- USE MANUFACTURER INSTALLATION PROCESS FOR SOIL CONDITIONS PRESENTED IN THE GEOTECHNICAL REPORT TITLED "GEOTECHNICAL INVESTIGATION, 12-MILE PARK CHERRY CREEK STREAM RECLAMATION WEST OF SOUTH PARKER ROAD AND SOUTH CHAMBERS ROAD, ARAPAHOE COUNTY, COLORADO", CTL THOMPSON, AUGUST 30, 2010.
- SHEET PILE PROFILE SHALL BE MANUFACTURED WITH AN INTERLOCKING FEATURE THAT ENSURES ADJACENT PANELS MAINTAIN ALIGNMENT.
- SHEET PILE SHALL BE PAID FOR BY THE INSTALLED PLANAR SQUARE FEET, PER THE CONTRACT BID SCHEDULE.

## LEGEND

TYPICAL SECTIONS AND DETAIL CALLOUTS FOLLOW THE GENERAL FORMAT SHOWN BELOW. DETAILS ARE IDENTIFIED WITH NUMBERS AND CROSS SECTION CUTS ARE IDENTIFIED BY LETTERS. SEE GESC SHEETS FOR ASSOCIATED SYMBOLOLOGY.



## ABBREVIATIONS

|        |  |       |   |
|--------|--|-------|---|
| CC     | COMPOUND CURVE                             | H     | HORIZONTAL                                |
| CCBWQA | CHERRY CREEK BASIN WATER QUALITY AUTHORITY | INV   | INVERT                                    |
| CCSP   | CHERRY CREEK STATE PARK                    | LBS   | POUNDS                                    |
| CDOT   | COLORADO DEPARTMENT OF TRANSPORTATION      | MAX   | MAXIMUM                                   |
| CMP    | CORRUGATED METAL PIPE                      | MIN   | MINIMUM                                   |
| CLR    | CLEAR                                      | N     | NORTHING                                  |
| CY     | CUBIC YARD                                 | OC    | ON CENTER                                 |
| DIA    | DIAMETER                                   | PC    | POINT OF CURVATURE                        |
| DOLA   | DOG OFF LEASH AREA                         | PI    | POINT OF INTERSECTION                     |
| DWG    | DRAWING                                    | PJF   | PREMOLDED JOINT FILLER                    |
| E      | EASTING                                    | POB   | POINT OF BEGINNING                        |
| EA     | EACH                                       | POE   | POINT OF ENDING                           |
| EC     | EROSION CONTROL                            | PT    | POINT OF TANGENCY                         |
| EF     | EACH FACE                                  | PVI   | POINT OF VERTICAL INTERSECTION            |
| ELEV   | ELEVATION                                  | REINF | REINFORCING                               |
| EW     | EACH WAY                                   | S     | SLOPE                                     |
| EWEF   | EACH WAY EACH FACE                         | SST   | STAINLESS STEEL                           |
| EXST   | EXISTING                                   | STA   | STATION                                   |
| FES    | FLARED END SECTION                         | TYP   | TYPICAL                                   |
| GESC   | GRADING, EROSION, AND SEDIMENT CONTROL     | UDFCD | URBAN DRAINAGE AND FLOOD CONTROL DISTRICT |
|        |  | V     | VERTICAL                                  |

**CH2MHILL**

CHERRY CREEK BASIN WATER QUALITY AUTHORITY

CHERRY CREEK STREAM RECLAMATION AT 12-MILE PARK CHERRY CREEK STATE PARK ARAPAHOE COUNTY

GENERAL NOTES

|                                      |              |
|--------------------------------------|--------------|
| VERIFY SCALE                         |              |
| BAR IS ONE INCH ON ORIGINAL DRAWING. |              |
| DATE                                 | OCTOBER 2011 |
| PROJ                                 | 407258       |
| DWG                                  | G-2          |
| SHEET                                | 2            |

**SURVEY CONTROL POINTS**

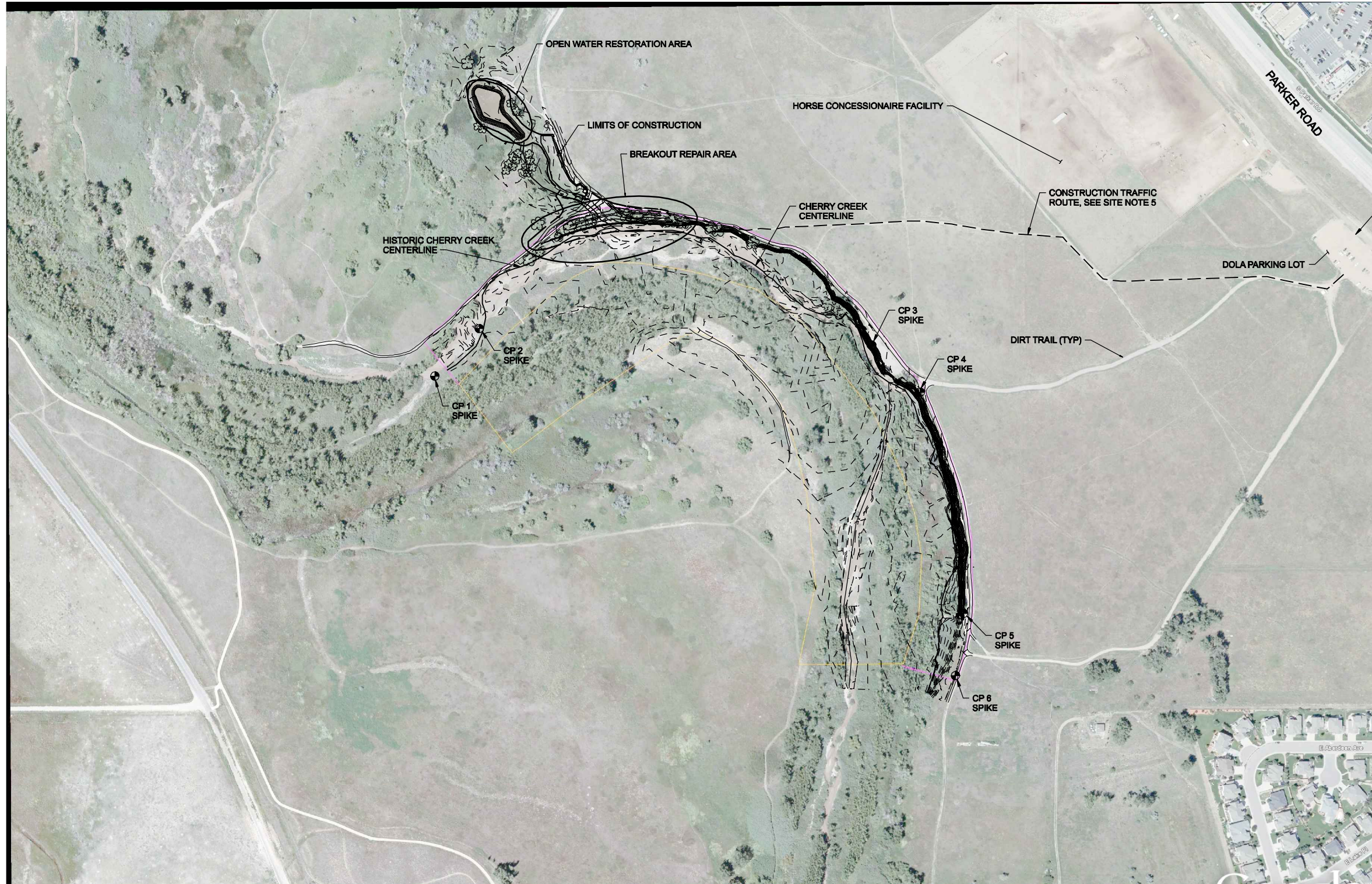
| POINT NO. | NORTHING   | EASTING    | ELEVATION | DESCRIPTION |
|-----------|------------|------------|-----------|-------------|
| CP 1      | 1649267.00 | 3190343.83 | 5597.07   | SPIKE       |
| CP 2      | 1649436.82 | 3190502.66 | 5597.77   | SPIKE       |
| CP 3      | 1649377.43 | 3191905.98 | 5610.48   | SPIKE       |
| CP 4      | 1649209.00 | 3192079.55 | 5612.93   | SPIKE       |
| CP 5      | 1648418.36 | 3192234.35 | 5617.6    | SPIKE       |
| CP 6      | 1648195.89 | 3192205.43 | 5616.45   | SPIKE       |

**SURVEY NOTES**

- HORIZONTAL DATUM: NORTH AMERICAN DATUM OF 1983, ADJUSTMENT OF 2007 (NSRS2007) ACQUIRED FROM VRS NETWORK
- VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 ACQUIRED FROM VRS NETWORK. CONVERSION FROM NAVD 88 TO NGVD 29= NAVD 88 ELEV-2.97 FT=NGVD 29 ELEV.
- PROJECTION: COLORADO COORDINATE SYSTEM OF 1983, CENTRAL ZONE
- GEOID - 2009
- COMBINED SCALE FACTOR (GRID TO GROUND) 1.000289002
- UNITS: US SURVEY FEET
- INITIAL SURVEY PERFORMED BY CRITIGEN, UPDATED BY CH2MHILL
- DATE OF SURVEY: JULY 1, 2010 UPDATED FOR BORROW AREA JUNE 2, 2011

**SITE NOTES:**

- SEE GESC PLANS FOR EROSION CONTROL MEASURES AND ACCESS REQUIREMENTS.
- CONTRACTOR SHALL MAINTAIN PARK ACCESS AND TRAIL ACCESS DURING CONSTRUCTION.
- CONTRACTOR SHALL COMPLY WITH STATE PARKS REQUIREMENTS FOR WORK HOURS AND SITE ACCESS.
- CONTRACTOR SHALL REMOVE ALL WEEDS AND DIRT FROM CONSTRUCTION EQUIPMENT PRIOR TO ACCESSING SITE TO PREVENT THE SPREAD OF WEEDS.
- CONSTRUCTION TRAFFIC SHALL UTILIZE IDENTIFIED ROUTE. IF ALTERNATE ROUTE IS REQUESTED IT MUST BE APPROVED BY CCSP PRIOR TO USE OF NEW ROUTE.



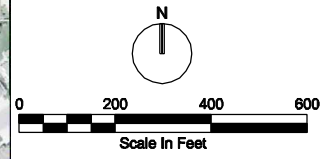
CHERRY CREEK BASIN  
WATER QUALITY AUTHORITY

CHERRY CREEK STREAM RECLAMATION  
AT 12-MILE PARK  
CHERRY CREEK STATE PARK  
ARAPAHOE COUNTY

**CH2MHILL**

**SURVEY CONTROL AND  
SITE PLAN**

|                                      |              |
|--------------------------------------|--------------|
| VERIFY SCALE                         |              |
| BAR IS ONE INCH ON ORIGINAL DRAWING. |              |
| DATE                                 | OCTOBER 2011 |
| PROJ                                 | 407259       |
| DWG                                  | G-3          |
| SHEET                                | 3            |



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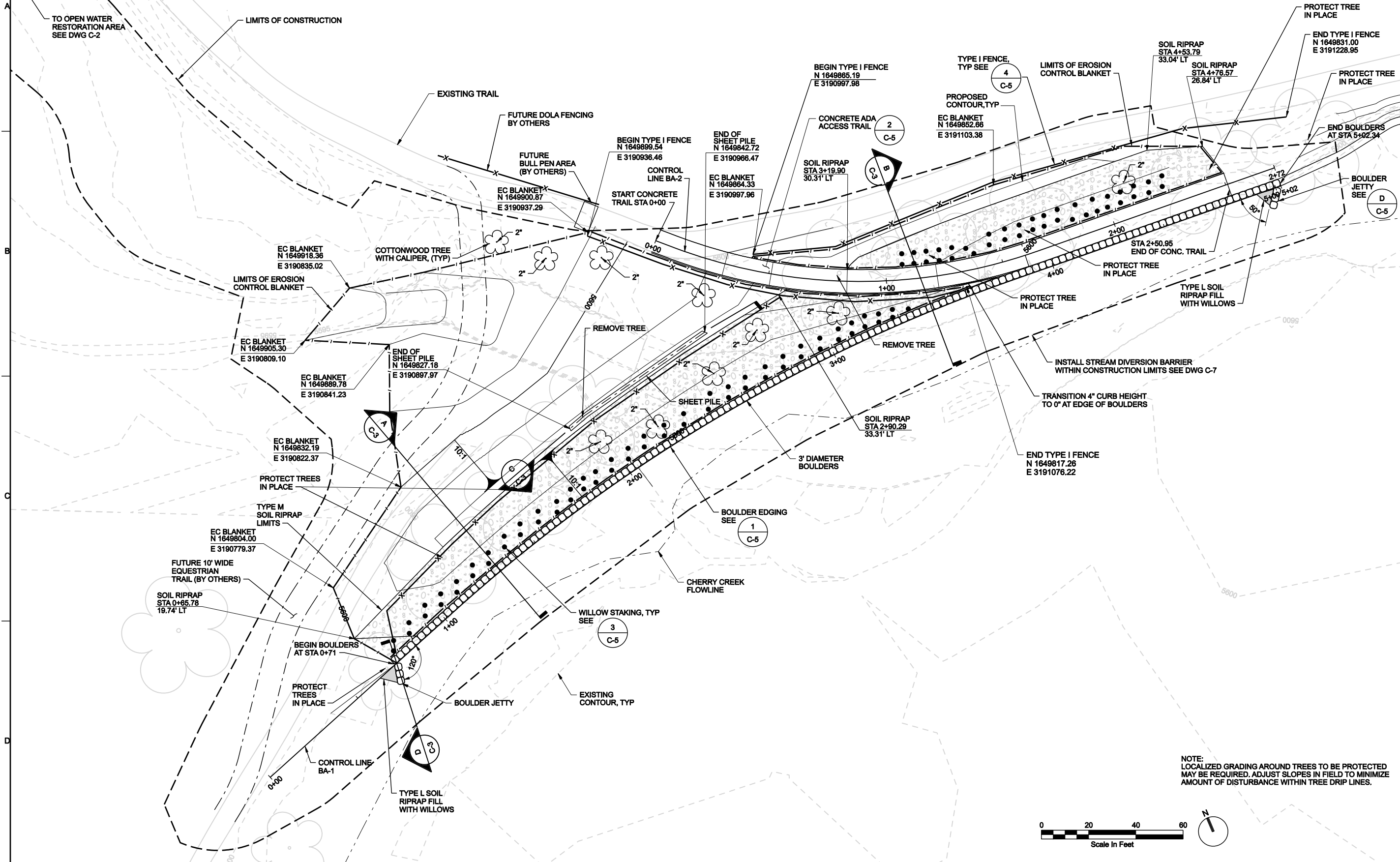
|     |      |             |      |      |
|-----|------|-------------|------|------|
| NO  | DATE | DESCRIPTION | APVR | N    |
| NO. | DATE | REVISION    | BY   | APVD |
| DGN |      | CHK         | APVD |      |
|     |      | DR          |      |      |
|     |      | A COOK      |      |      |
|     |      | S KRAMER    |      |      |
|     |      | C HOOPER    |      |      |
|     |      | S YAMAGISHI |      |      |

| CONTROL LINE BA-1 |              |         |            |            |        |        |             |                    |
|-------------------|--------------|---------|------------|------------|--------|--------|-------------|--------------------|
| POINT TYPE        | POINT NUMBER | STATION | NORTHING   | EASTING    | RADIUS | LENGTH | DELTA/THETA | ROTATION DIRECTION |
| POB               |              | 0+00.00 | 1649740.39 | 3190723.55 |        |        |             |                    |
| PC                |              | 1+04.45 | 1649774.74 | 3190822.19 |        |        |             |                    |
| PI                |              | 2+44.96 | 1649820.94 | 3190954.89 | 700    | 277.34 | 22°42'01"   | RIGHT              |
| CC                |              |         | 1649113.66 | 3191052.38 |        |        |             |                    |
| PT                |              | 3+81.78 | 1649812.36 | 3191095.14 |        |        |             |                    |
| POE               |              | 5+02.34 | 1649804.99 | 3191215.46 |        |        |             |                    |

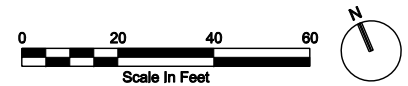
NOTE: CONTROL LINE BA-1 AT ELEVATION 5598.00

| CONTROL LINE BA-2 |              |         |            |            |        |        |             |                    |
|-------------------|--------------|---------|------------|------------|--------|--------|-------------|--------------------|
| POINT TYPE        | POINT NUMBER | STATION | NORTHING   | EASTING    | RADIUS | LENGTH | DELTA/THETA | ROTATION DIRECTION |
| POB               |              | 0+00.00 | 1649886.48 | 3190962.37 |        |        |             |                    |
| PC                |              | 0+07.81 | 1649881.10 | 3190968.03 |        |        |             |                    |
| PI                |              | 0+89.82 | 1649824.60 | 3191027.46 | 225.00 | 157.29 | 40°03'10"   | LEFT               |
| CC                |              |         | 1650044.18 | 3191123.05 |        |        |             |                    |
| PT                |              | 1+65.10 | 1649819.60 | 3191109.32 |        |        |             |                    |
| POE               |              | 2+71.93 | 1649813.08 | 3191215.96 |        |        |             |                    |

| CONTROL LINE BA-2 VERTICAL |                  |                |         |         |           |           |        |         |         |
|----------------------------|------------------|----------------|---------|---------|-----------|-----------|--------|---------|---------|
| ELEMENT TYPE               | BEGIN POINT TYPE | END POINT TYPE | STATION | STATION | ELEVATION | ELEVATION | GRADE  | TANGENT | TANGENT |
| LINEAR                     | POB              | PVI            | 0+00.00 | 0+07.81 | 5600.13   | 5600.14   | 0.22%  | 7.81    |         |
| LINEAR                     | PVI              | PVI            | 0+07.81 | 0+14.45 | 5600.14   | 5600.17   | 0.46%  | 6.65    |         |
| LINEAR                     | PVI              | PVI            | 0+14.45 | 0+59.00 | 5600.17   | 5602.4    | 5.00%  | 44.55   |         |
| LINEAR                     | PVI              | PVI            | 0+59.00 | 0+68.00 | 5602.4    | 5602.4    | 0.00%  | 9       |         |
| LINEAR                     | PVI              | POE            | 0+68.00 | 1+60.00 | 5602.4    | 5600      | -2.61% | 92      |         |
| LINEAR                     | PVI              | POE            | 1+60.00 | 2+71.93 | 5600      | 5600      | 0.00%  | 111.93  |         |



NOTE: LOCALIZED GRADING AROUND TREES TO BE PROTECTED MAY BE REQUIRED. ADJUST SLOPES IN FIELD TO MINIMIZE AMOUNT OF DISTURBANCE WITHIN TREE DRIP LINES.



| NO | DATE | DESCRIPTION | BY | APPROVED |
|----|------|-------------|----|----------|
|    |      |             |    |          |

CHERRY CREEK BASIN  
WATER QUALITY AUTHORITY  
CHERRY CREEK STREAM RECLAMATION  
AT 12-MILE PARK  
CHERRY CREEK STATE PARK  
ARAPAHOE COUNTY

**CH2MHILL**

BREAKOUT AREA REPAIR PLAN

VERIFY SCALE  
BAR IS ONE INCH ON ORIGINAL DRAWING.

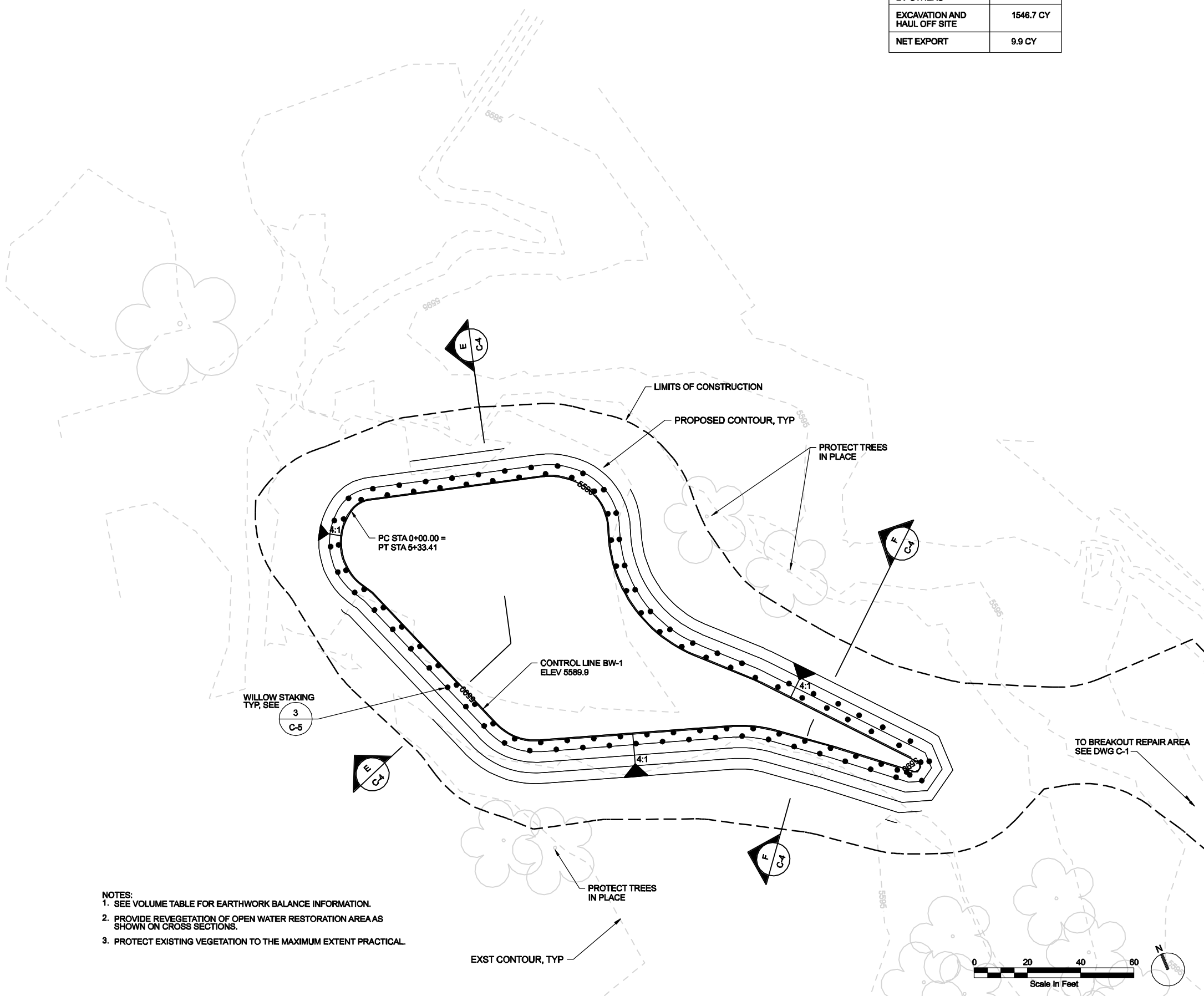
|       |              |
|-------|--------------|
| DATE  | OCTOBER 2011 |
| PROJ  | 407259       |
| DWG   | C-1          |
| SHEET | 4            |

FILENAME: CC50nc003.dgn PLOT DATE: 10/7/2011 PLOT TIME: 4:45:17 PM

S. YAMAGISHI  
 C. HOOPER  
 S. KRAMER  
 A. COOK  
 DR  
 CHK  
 DSGN  
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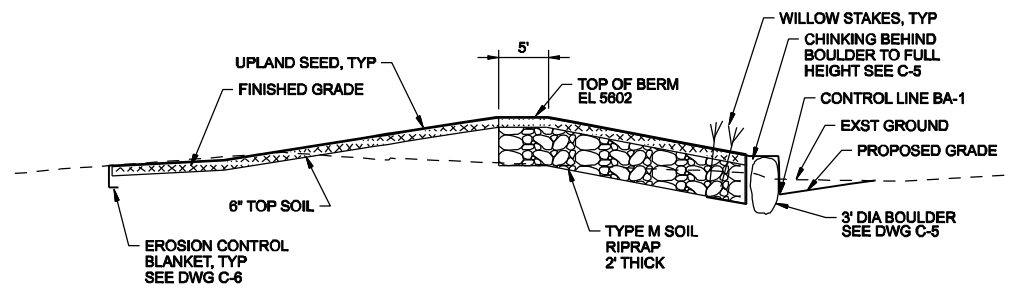
| CONTROL LINE BW-1 |              |         |            |            |        |        |               |                    |
|-------------------|--------------|---------|------------|------------|--------|--------|---------------|--------------------|
| Point Type        | Point Number | Station | Northing   | Easting    | Radius | Length | Delta / Theta | Rotation Direction |
| PC                |              | 0+00.00 | 1650298.18 | 3190493.83 |        |        |               |                    |
| PI                |              | 0+19.94 | 1650287.83 | 3190476.79 | 20     | 31.36  | 89°49'48"     | Left               |
| CC                |              |         | 1650281.08 | 3190504.21 |        |        |               |                    |
| PT                |              | 0+31.36 | 1650270.75 | 3190487.08 |        |        |               |                    |
| PI                |              | 0+35.71 | 1650267.02 | 3190489.33 |        |        |               |                    |
| PC                |              | 0+35.71 | 1650267.02 | 3190489.33 |        |        |               |                    |
| PI                |              | 1+03.62 | 1650203.43 | 3190513.16 |        |        |               |                    |
| CC                |              | 1+13.13 | 1650194.52 | 3190516.50 | 20     | 17.76  | 50°52'34"     | Left               |
| PT                |              | 1+21.38 | 1650191.49 | 3190525.51 |        |        |               |                    |
| PC                |              | 1+21.38 | 1650191.49 | 3190525.51 |        |        |               |                    |
| PI                |              | 1+93.30 | 1650168.57 | 3190593.69 |        |        |               |                    |
| CC                |              | 2+02.03 | 1650165.79 | 3190601.96 | 50     | 17.28  | 19°48'09"     | Right              |
| PT                |              | 2+10.58 | 1650160.37 | 3190608.80 |        |        |               |                    |
| PC                |              | 2+31.64 | 1650147.29 | 3190625.31 |        |        |               |                    |
| PI                |              | 2+32.47 | 1650146.78 | 3190625.96 | 50     | 1.66   | 1°54'28"      | Right              |
| CC                |              |         | 1650108.10 | 3190594.26 |        |        |               |                    |
| PT                |              | 2+33.30 | 1650146.24 | 3190626.59 |        |        |               |                    |
| PC                |              | 2+64.45 | 1650126.09 | 3190650.35 |        |        |               |                    |
| PI                |              | 2+89.29 | 1650110.03 | 3190669.30 | 2      | 5.96   | 170°47'36"    | Left               |
| CC                |              |         | 1650127.62 | 3190651.64 |        |        |               |                    |
| PT                |              | 2+70.41 | 1650128.92 | 3190653.16 |        |        |               |                    |
| PC                |              | 3+37.64 | 1650180.04 | 3190609.51 |        |        |               |                    |
| PI                |              | 3+38.41 | 1650180.62 | 3190609.01 | 20     | 1.55   | 4°25'44"      | Left               |
| CC                |              |         | 1650167.05 | 3190594.30 |        |        |               |                    |
| PT                |              | 3+39.18 | 1650181.17 | 3190608.46 |        |        |               |                    |
| PC                |              | 3+63.25 | 1650198.21 | 3190591.46 |        |        |               |                    |
| PI                |              | 3+96.38 | 1650221.67 | 3190568.06 | 52     | 59     | 65°00'33"     | Right              |
| CC                |              |         | 1650234.93 | 3190628.28 |        |        |               |                    |
| PT                |              | 4+22.25 | 1650252.79 | 3190579.44 |        |        |               |                    |
| PC                |              | 4+24.46 | 1650254.87 | 3190580.20 |        |        |               |                    |
| PI                |              | 4+39.20 | 1650268.71 | 3190585.26 | 20     | 25.4   | 72°46'12"     | Left               |
| CC                |              |         | 1650261.73 | 3190561.42 |        |        |               |                    |
| PT                |              | 4+49.86 | 1650277.64 | 3190573.54 |        |        |               |                    |
| PC                |              | 4+51.71 | 1650278.76 | 3190572.07 |        |        |               |                    |
| PI                |              | 4+55.62 | 1650281.13 | 3190568.96 | 20     | 7.72   | 22°06'28"     | Left               |
| CC                |              |         | 1650262.85 | 3190559.95 |        |        |               |                    |
| PT                |              | 4+59.43 | 1650282.15 | 3190565.19 |        |        |               |                    |
| PC                |              | 5+25.11 | 1650299.38 | 3190501.81 |        |        |               |                    |
| PI                |              | 5+29.40 | 1650300.50 | 3190497.67 | 10     | 8.11   | 46°27'45"     | Left               |
| CC                |              |         | 1650289.73 | 3190499.19 |        |        |               |                    |
| PT                |              | 5+33.22 | 1650298.28 | 3190494.00 |        |        |               |                    |
| POE               |              | 5+33.41 | 1650298.18 | 3190493.83 |        |        |               |                    |

| VOLUME TABLE                           |            |
|--|------------|
| ON-SITE FILL                           | 1,499.8 CY |
| FILL AT TOWER LOOP ROAD SITE BY OTHERS | 37 CY      |
| EXCAVATION AND HAUL OFF SITE           | 1546.7 CY  |
| NET EXPORT                             | 9.9 CY     |

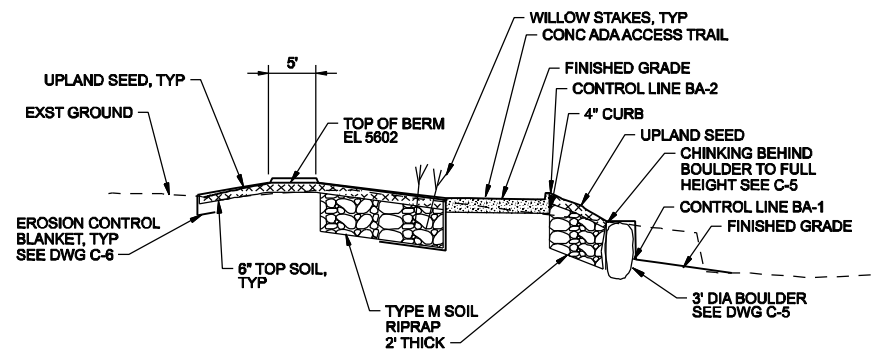


- NOTES:  
 1. SEE VOLUME TABLE FOR EARTHWORK BALANCE INFORMATION.  
 2. PROVIDE REVEGETATION OF OPEN WATER RESTORATION AREA AS SHOWN ON CROSS SECTIONS.  
 3. PROTECT EXISTING VEGETATION TO THE MAXIMUM EXTENT PRACTICAL.

|   |  |  |   |                  |
|---|--|--|---|------------------|
| CHERRY CREEK BASIN<br>WATER QUALITY AUTHORITY<br><br>CHERRY CREEK STREAM RECLAMATION<br>AT 12-MILE PARK<br>CHERRY CREEK STATE PARK<br>ARAPAHOE COUNTY | NO. DATE<br>DSGN                                     | DESCRIPTION REVISION<br>CHK            | AP/VD BY<br>AP/VD   | N<br>BY<br>AP/VD |
|   | A COOK<br>S KRAMER<br>C HOOPER<br>S YAMAGIHARA       | © CH2M HILL 2011. ALL RIGHTS RESERVED. |   |                  |
| <b>CH2MHILL</b><br><br>OPEN WATER RESTORATION<br>AREA PLAN  | VERIFY SCALE<br>BAR IS ONE INCH ON ORIGINAL DRAWING. |  |   |                  |
|   | DATE<br>PROJ<br>DWG<br>SHEET                         | OCTOBER 2011<br>407259<br>C-2<br>5     | FILENAME: CC50nc005.dgn PLOT DATE: 9/29/2011 PLOT TIME: 10:31:11 AM |                  |

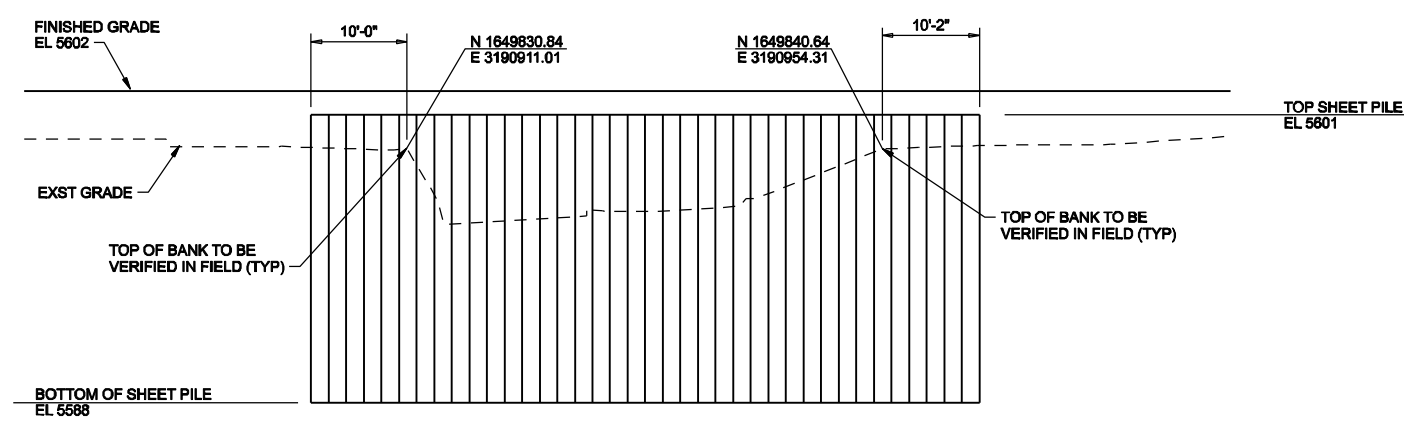


**A** BREAKOUT AREA CROSS SECTION  
 H:1"=10'-0" V: 1"=5'-0"  
 C-1

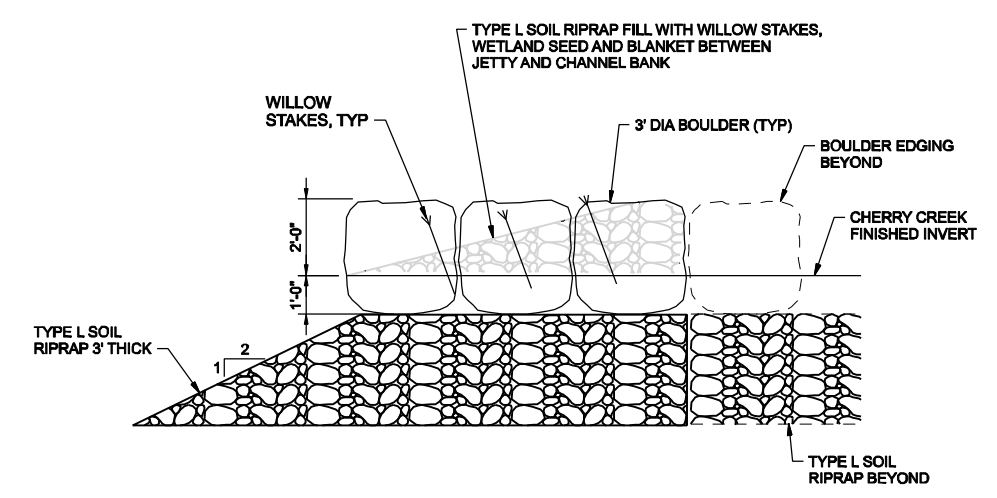


**B** BREAKOUT AREA CROSS SECTION  
 H:1"=10'-0" V: 1"=5'-0"  
 C-1

- NOTES:
1. TYPE M SOIL RIPRAP PER CCBWQA STANDARDS.
  2. LIMITS OF TYPE M SOIL RIPRAP SHOWN ON PLANS.

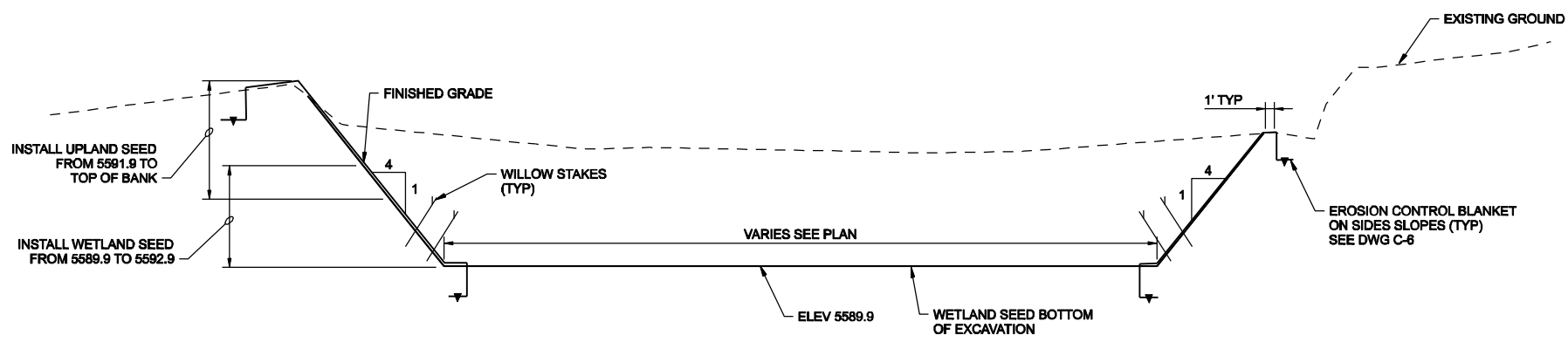


**C** BREAKOUT AREA SHEET PILE SECTION  
 H:1"=10'-0" V: 1"=5'-0"  
 C-1

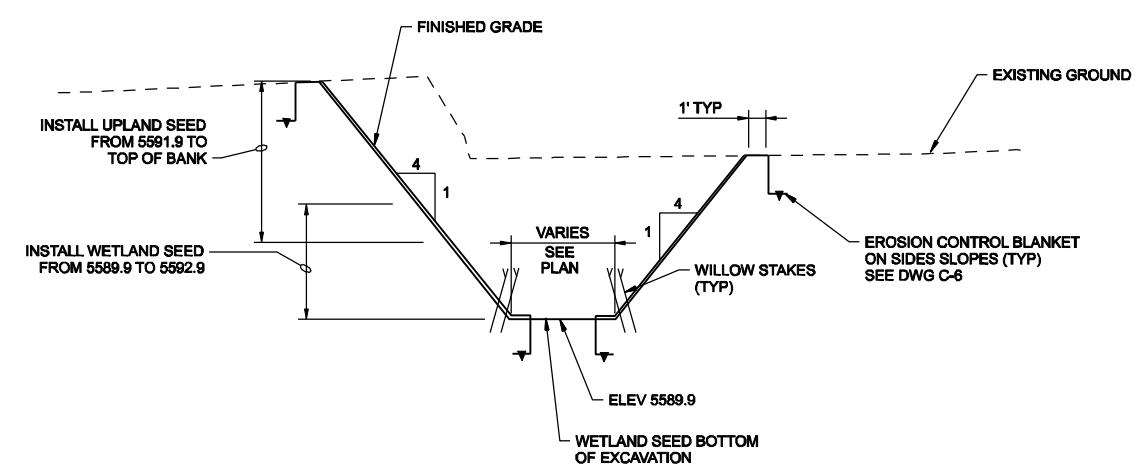


**D** BOULDER JETTY SECTION  
 1"=5'  
 C-1

|  |  |                                      |      |   |                  |
|--|--|--------------------------------------|------|---|------------------|
| CHERRY CREEK BASIN<br>WATER QUALITY AUTHORITY  |  | DESCRIPTION                          |      | APVD  | N                |
|  |  | REVISION                             |      | BY  | APVD             |
| CHERRY CREEK STREAM RECLAMATION<br>AT 12-MILE PARK<br>CHERRY CREEK STATE PARK<br>ARAPAHOE COUNTY |  | NO.                                  | DATE | A COOK<br>DR  | S. KRAMER<br>CHK |
|  |  | DGN                                  | DATE |   |                  |
| CH2MHILL   |  | VERIFY SCALE                         |      | S. YAMAGIHARA<br>© CH2M HILL 2004. ALL RIGHTS RESERVED. |                  |
|  |  | BAR IS ONE INCH ON ORIGINAL DRAWING. |      | 0 1   |                  |
| DATE   |  | OCTOBER 2011                         |      | PROJECT   |                  |
| PROJ   |  | 407259                               |      | DWG   |                  |
| DWG  |  | C-3                                  |      | SHEET   |                  |
| SHEET  |  | 6                                    |      | PLOT TIME: 10:32:02 AM                                  |                  |



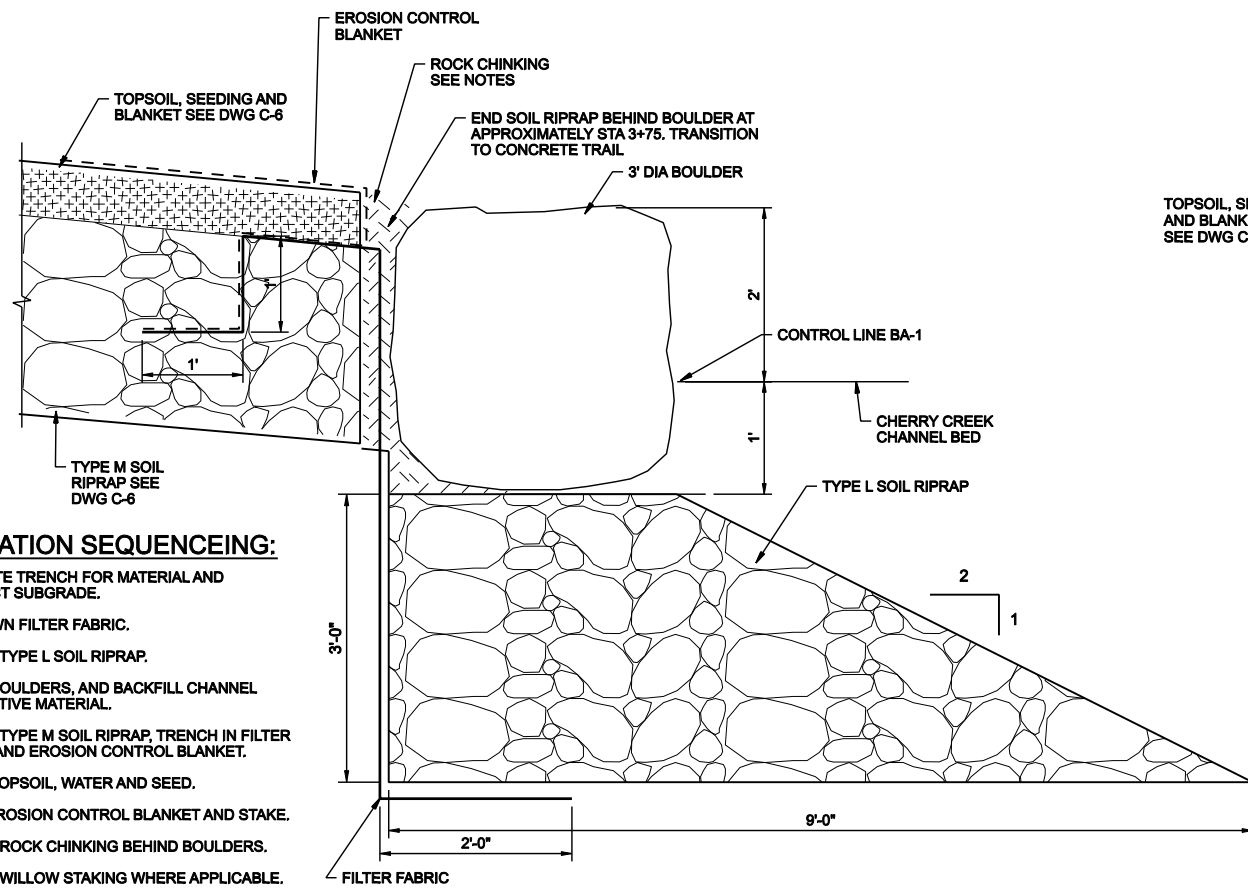
**E**  
 OPEN WATER RESTORATION  
 AREA CROSS SECTION  
 H: 1"=10' V: 1"=2'  
 C-2



**F**  
 OPEN WATER RESTORATION  
 AREA CROSS SECTION  
 H: 1"=10' V: 1"=2'  
 C-2

- NOTES:  
 1. INSTALL 6" OF TOPSOIL AND SEED PRIOR TO INSTALLING EROSION CONTROL BLANKET.  
 2. THOROUGHLY SATURATE SOILS PER SPECIFICATIONS PRIOR TO SEEDING.

|  |  |       |  |              |  |             |  |              |  |              |  |  |  |
|--|--|-------|--|--------------|--|-------------|--|--------------|--|--------------|--|--|--|
| CHERRY CREEK BASIN<br>WATER QUALITY AUTHORITY  |  | NO.   |  | DATE         |  | DESCRIPTION |  | APVR         |  | BY           |  | N                                      |  |
|  |  | DGN   |  | DATE         |  | REVISION    |  | APVD         |  | BY           |  | N                                      |  |
| CHERRY CREEK STREAM RECLAMATION<br>AT 12-MILE PARK<br>CHERRY CREEK STATE PARK<br>ARAPAHOE COUNTY |  | DR    |  | A COOK       |  | S KRAMER    |  | C HOOPER     |  | S YAMAGIHARA |  | © CH2M HILL 2004. ALL RIGHTS RESERVED. |  |
|  |  | DGN   |  | A COOK       |  | S KRAMER    |  | C HOOPER     |  | S YAMAGIHARA |  | © CH2M HILL 2004. ALL RIGHTS RESERVED. |  |
| CH2MHILL   |  | DATE  |  | OCTOBER 2011 |  | DATE        |  | OCTOBER 2011 |  | DATE         |  | OCTOBER 2011                           |  |
|  |  | PROJ  |  | 407258       |  | PROJ        |  | 407258       |  | PROJ         |  | 407258                                 |  |
| OPEN WATER RESTORATION<br>AREA SECTIONS  |  | DWG   |  | C-4          |  | DWG         |  | C-4          |  | DWG          |  | C-4                                    |  |
|  |  | SHEET |  | 7            |  | SHEET       |  | 7            |  | SHEET        |  | 7                                      |  |

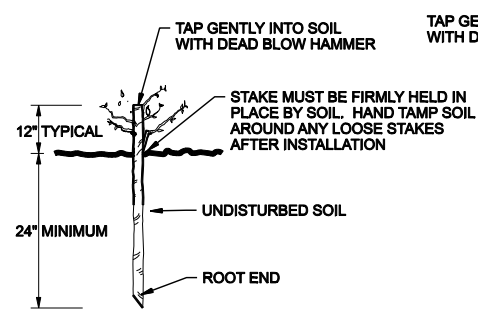


**INSTALLATION SEQUENCEING:**

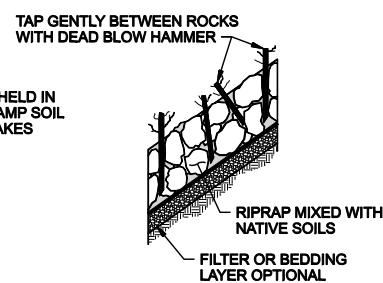
1. EXCAVATE TRENCH FOR MATERIAL AND COMPACT SUBGRADE.
2. LAY DOWN FILTER FABRIC.
3. INSTALL TYPE L SOIL RIPRAP.
4. PLACE BOULDERS, AND BACKFILL CHANNEL WITH NATIVE MATERIAL.
5. INSTALL TYPE M SOIL RIPRAP, TRENCH IN FILTER FABRIC AND EROSION CONTROL BLANKET.
6. PLACE TOPSOIL, WATER AND SEED.
7. WRAP EROSION CONTROL BLANKET AND STAKE.
8. INSTALL ROCK CHINKING BEHIND BOULDERS.
9. INSTALL WILLOW STAKING WHERE APPLICABLE.

**1 BOULDER EDGING DETAIL**  
1"=1'-0"

**BARE GROUND INSTALLATION**



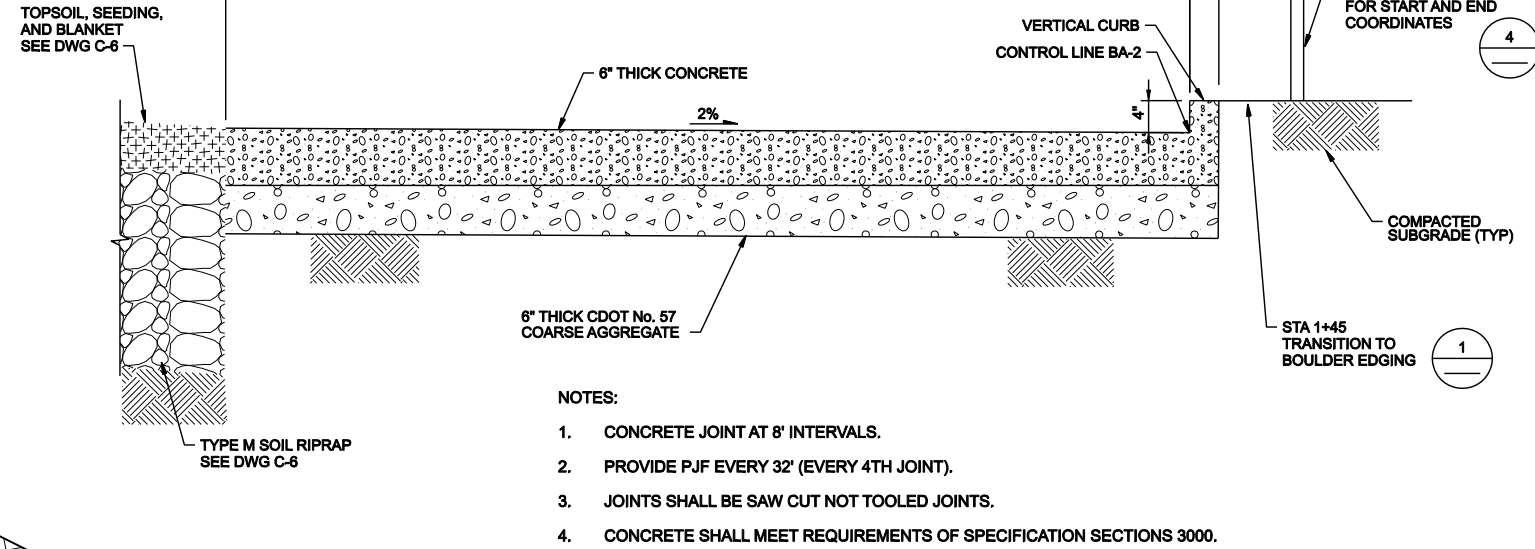
**RIPRAP "JOINT" INSTALLATION**



**NOTES:**

1. THE STAKE SHALL BE INSERTED INTO THE HOLE SO STAKE IS IN CONTACT WITH WATER TABLE.
2. CUT STAKE AND INSTALL STAKES WITH A MINIMUM OF 4 BUDS ABOVE AND 4 BUDS BELOW FINISHED GRADE.

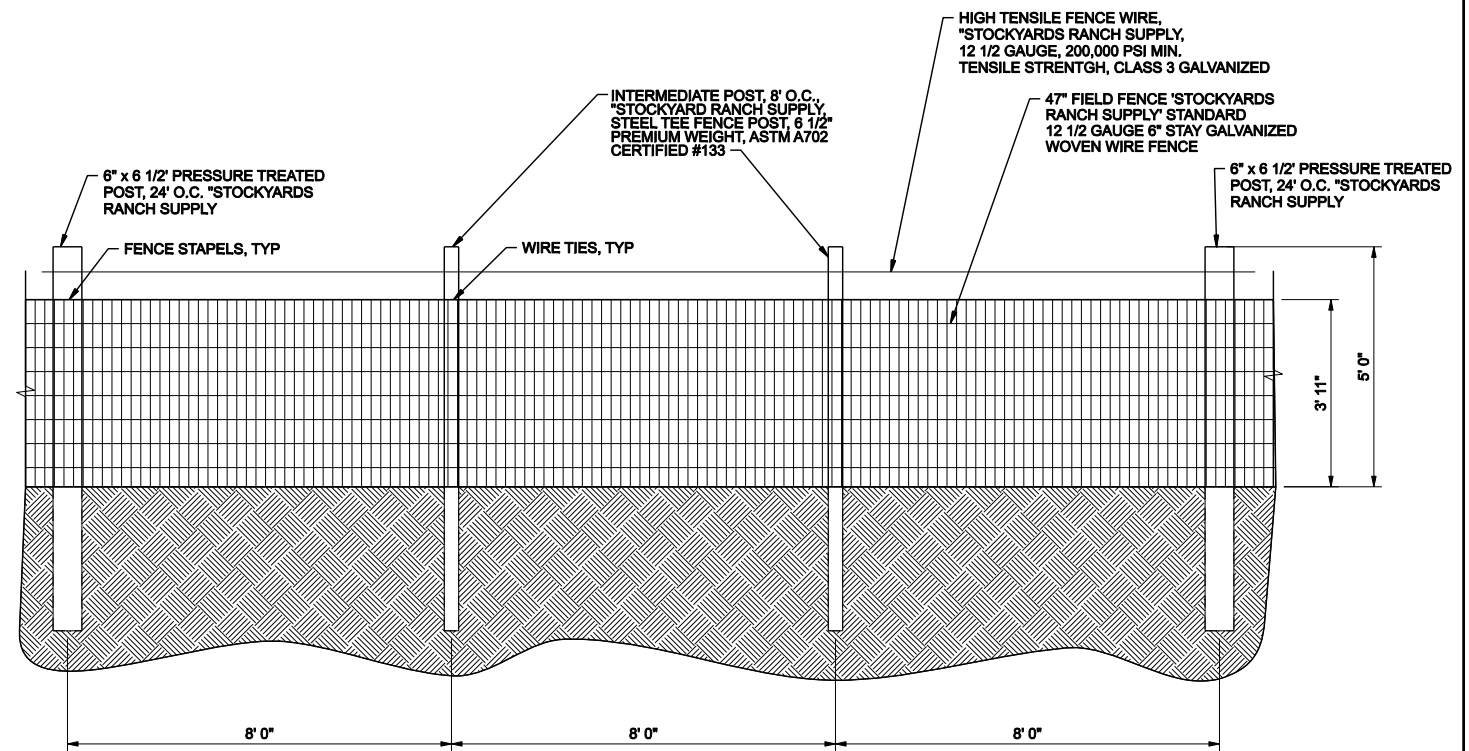
**3 WILLOW STAKE DETAIL**  
NTS  
C-1  
C-2



**NOTES:**

1. CONCRETE JOINT AT 8' INTERVALS.
2. PROVIDE PJF EVERY 32' (EVERY 4TH JOINT).
3. JOINTS SHALL BE SAW CUT NOT TOOLED JOINTS.
4. CONCRETE SHALL MEET REQUIREMENTS OF SPECIFICATION SECTIONS 3000.

**2 CONCRETE TRAIL DETAIL**  
1"=1'-0"

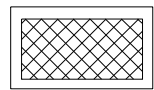


**4 DOG PARK FENCE, TYPE 1**  
NTS  
C-1

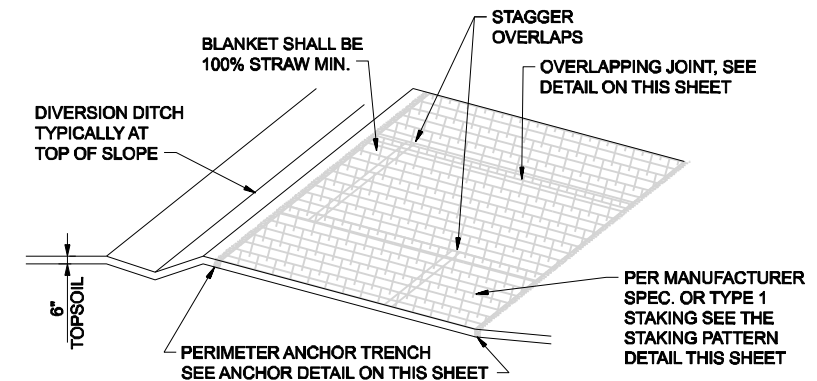
|  |   |                                    |                                 |
|--|---|------------------------------------|---------------------------------|
| <b>CH2MHILL</b><br><br>CHERRY CREEK BASIN<br>WATER QUALITY AUTHORITY<br><br>CHERRY CREEK STREAM RECLAMATION<br>AT 12-MILE PARK<br>CHERRY CREEK STATE PARK<br>ARAPAHOE COUNTY | DESCRIPTION<br>REVISION<br>CHK<br>DR<br>A COOK<br>S. KRAMER<br>C. HOOPER<br>S. YANAGIHARA | NO.<br>DATE<br>NO.<br>DATE<br>DSGN | N<br>BY<br>APVD<br>APVD<br>APVD |
|  | VERIFY SCALE<br>BAR IS ONE INCH ON ORIGINAL DRAWING.                                      |                                    |                                 |
|  | DATE: OCTOBER 2011<br>PROJ: 407259<br>DWG: C-5<br>SHEET: 8                                |                                    |                                 |
|  | FILENAME: CC95ndt01.dgn PLOT DATE: 10/7/2011 PLOT TIME: 4:50:25 PM                        |                                    |                                 |

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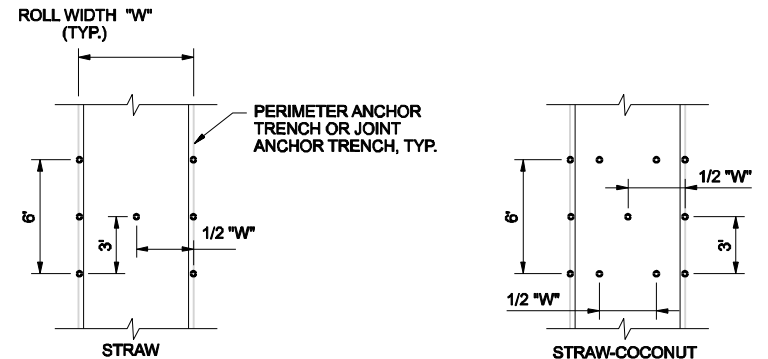
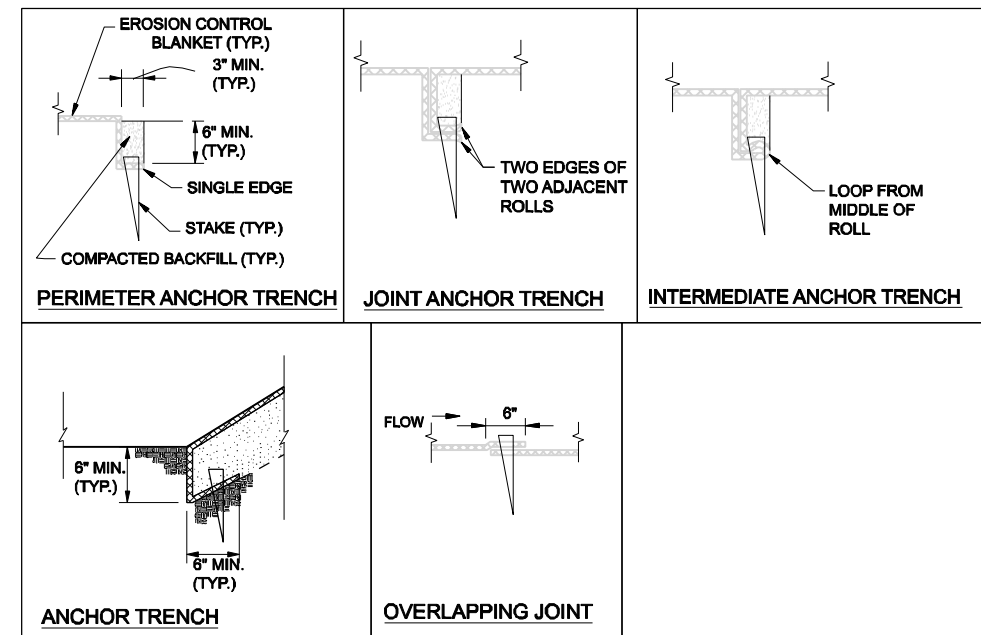
ECB



**OUTSIDE OF STREAMS AND DRAINAGE CHANNELS**

**AT PIPE OUTLET AREAS OF STREAMS AND DRAINAGE CHANNELS - DETAIL A**

**ANCHOR DETAILS**



**STAKING PATTERNS**

SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATION. IF NO MANUFACTURER'S SPECIFICATION IS AVAILABLE USE THE ACCEPTABLE STAKING PATTERN (AS SHOWN ABOVE)

**EROSION CONTROL BLANKET MAINTENANCE NOTES**

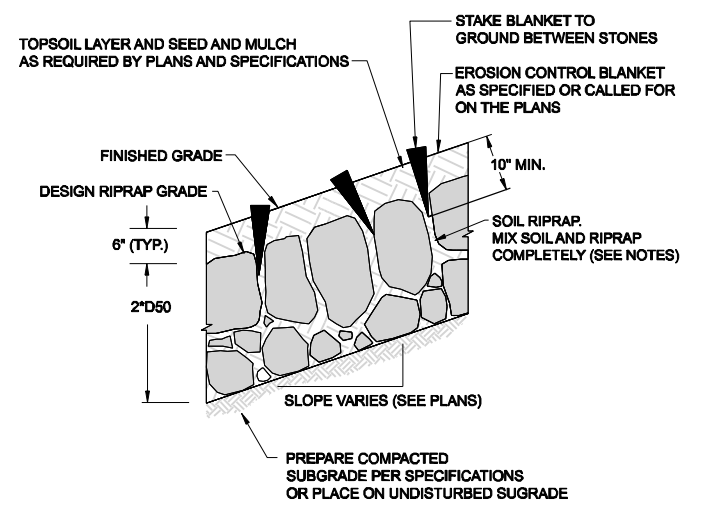
1. THE SWMP MANAGER SHALL INSPECT EROSION CONTROL BLANKETS WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS AS NECESSARY.
2. EROSION CONTROL BLANKET IS TO BE LEFT IN PLACE UNLESS REQUESTED TO BE REMOVED BY THE LOCAL JURISDICTION.
3. ANY EROSION CONTROL BLANKET PULLED OUT, TORN, OR OTHERWISE DAMAGED SHALL BE RE-INSTALLED. ANY SUBGRADE AREAS BELOW THE BLANKET THAT HAVE ERODED TO CREATE A VOID UNDER THE BLANKET, OR THAT REMAIN DEVOID OF GRASS SHALL BE REPAIRED, RESEEDED AND MULCHED AND THE EROSION CONTROL BLANKET REINSTALLED.

**EROSION CONTROL BLANKET INSTALLATION NOTES**

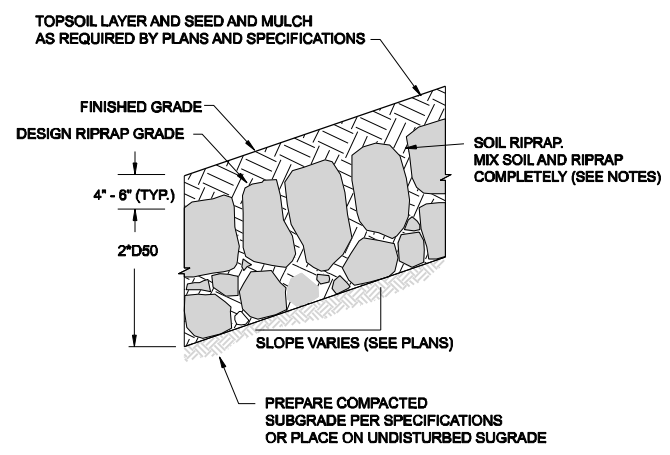
1. SEE PLAN VIEW FOR:
  - LOCATION OF PERIMETER OF EROSION CONTROL BLANKET.
  - TYPE OF BLANKET C125BN OR APPROVED EQUAL
  - AREA "A" IN SQUARE YARDS OF EACH TYPE OF BLANKET.
2. ALL EROSION CONTROL BLANKETS AND NETTING SHALL BE MADE OF 100% NATURAL AND BIODEGRADABLE MATERIAL (NOT INCLUDING COTTON) NO PLASTIC OR OTHER SYNTHETIC MATERIAL, EVEN IF PHOTO DEGRADABLE, SHALL BE ALLOWED.
3. IN AREAS WHERE EROSION CONTROL BLANKET IS SHOWN ON THE PLANS, THE PERMITEE SHALL PLACE TOPSOIL AND PERFORM FINAL GRADING, SURFACE PREPARATION, AND SEEDING BELOW THE SEEDING AND MULCHING. SUBGRADE SHALL BE SMOOTH AND MOIST PRIOR TO THE BLANKET INSTALLATION AND THE BLANKET SHALL BE IN FULL CONTACT WITH SUBGRADE, NO GAPS OR VOIDS SHALL EXIST UNDER THE BLANKET.
4. PERIMETER ANCHOR TRENCH SHALL BE USED AT OUTSIDE PERIMETER OF ALL BLANKET AREAS.
5. JOINT ANCHOR TRENCH SHALL BE USED TO JOIN ROLLS OF BLANKET TOGETHER (LONGITUDINALLY AND TRANSVERSELY) FOR ALL BLANKETS EXCEPT STRAW, WHICH MAY USE AND OVERLAPPING JOINT.
6. INTERMEDIATE ANCHOR TRENCH SHALL BE USED AT SPACING OF ONE-HALF THE ROLL LENGTH FOR COCONUT AND EXCELSIOR BLANKETS.
7. THE OVERLAPPING JOINT DETAIL SHALL BE USED TO JOIN ROLLS OF BLANKETS TOGETHER FOR BLANKETS ON SLOPES.
8. ANY AREAS OF SEEDING AND MULCHING DISTURBED IN THE PROCESS OF INSTALLING EROSION CONTROL BLANKET SHALL BE RESEEDED AND MULCHED.

**EROSION CONTROL BLANKET**

NTS



**TYPICAL SECTION - SOIL RIPRAP WITH EROSION CONTROL FABRIC**



**TYPICAL SECTION - SOIL RIPRAP WITH MUCLH**

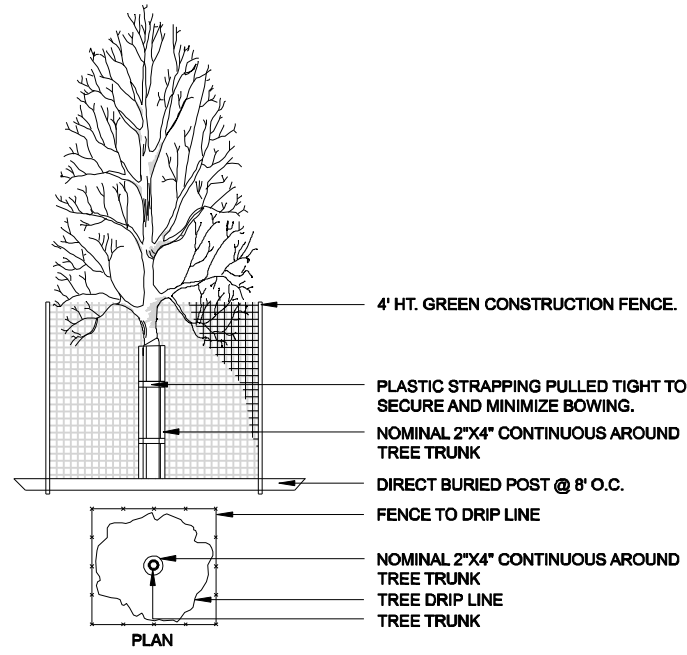
**NOTES:**

1. SOIL RIPRAP DETAILS ARE APPLICABLE TO SLOPED AREAS. REFER TO THE SITE PLAN ACTUAL LOCATION AND LIMITS.
2. MIX UNIFORMLY 65% RIPRAP BY VOLUME WITH 35% OF APPROVED SOIL BY VOLUME PRIOR TO PLACEMENT.
3. PLACE STONE-SOIL MIX TO RESULT IN SECURELY INTERLOCKED ROCK AT THE DESIGN THICKNESS AND GRADE. COMPACT AND LEVEL TO ELIMINATE ALL VOIDS AND ROCKS PROJECTING ABOVE DESIGN RIPRAP TOP GRADE.
4. CRIMP OR TACKIFY MULCH OR USE APPROVED HYDROMULCH AS CALLED FOR IN THE PLANS AND SPECIFICATIONS.

**SOIL RIPRAP**

NTS

|   |  |                                      |     |               |    |      |
|---|--|--------------------------------------|-----|---------------|----|------|
| CHERRY CREEK BASIN<br>WATER QUALITY AUTHORITY | CHERRY CREEK STREAM RECLAMATION<br>AT 12-MILE PARK<br>CHERRY CREEK STATE PARK<br>ARAPAHOE COUNTY | NO. DATE                             | DR  | APVD          | BY | DATE |
|   |  | NO. DATE                             | CHK | APVD          | BY | DATE |
| CH2MHILL                                      |  | DESCRIPTION                          |     | S. YAMAGIHARA |    |      |
|   |  | REVISION                             |     | C. HOOPER     |    |      |
| STANDARD DETAILS                              |  | NO. DATE                             |     | A. COOK       |    |      |
|   |  | NO. DATE                             |     | S. KRAMER     |    |      |
| VERIFY SCALE                                  |  | BAR IS ONE INCH ON ORIGINAL DRAWING. |     |               |    |      |
| DATE  |  | OCTOBER 2011                         |     |               |    |      |
| PROJ  |  | 407259                               |     |               |    |      |
| DWG   |  | C-6                                  |     |               |    |      |
| SHEET   |  | 9                                    |     |               |    |      |



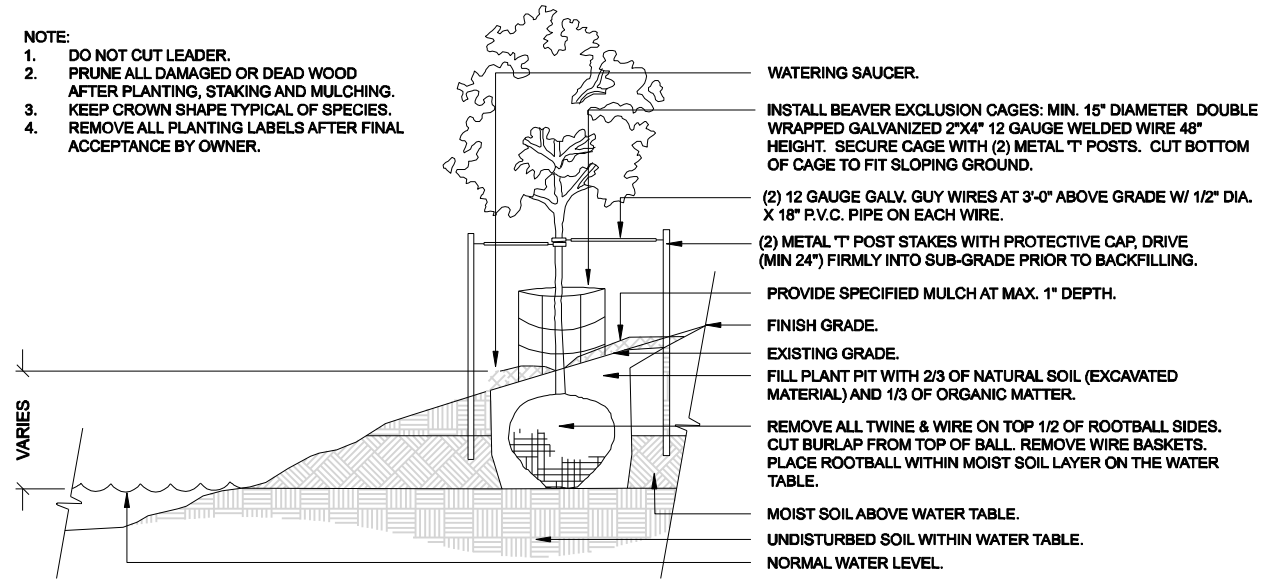
**TREE PROTECTION NOTES:**

1. PRESERVATION MEASURES MUST BE IN PLACE BEFORE CONSTRUCTION, DEMOLITION AND/OR GRADING ACTIVITIES COMMENCE. CONSTRUCTION MAY BE HALTED IF TREE PRESERVATION MEASURES ARE NOT IN PLACE AND MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
2. TREES CALLED OUT FOR PRESERVATION SHALL BE FENCED AT THE DRIPLINE. FENCING MAY OCCUR AT THE COMBINED DRIPLINES OF GROVES OF TREES. PLACE 3 INCH BARK MULCH BENEATH DRIPLINES OF TREES TO BE PRESERVED. TREE PROTECTION ZONES SHALL HAVE A 6 FOOT MINIMUM DIAMETER.
3. FENCING SHALL BE 4 FEET TALL SNOW FENCING WITH STEEL POST EMBEDDED IN THE GROUND.
4. NO CONSTRUCTION MATERIALS OR CONSTRUCTION VEHICLES MAY BE STORED WITHIN THE DRIPLINES/FENCES AREA OF EXISTING TREES.
5. CONSTRUCTION VEHICLES OR MACHINERY MAY NOT PASS BETWEEN TWO OR MORE EXISTING TREES IDENTIFIED FOR PRESERVATION IF THEIR CANOPIES ARE WITHIN 10 FEET OF TOUCHING. ADDITIONAL FENCING MAY BE REQUIRED.
6. UNAUTHORIZED TREE REMOVAL OR DAMAGE IS SUBJECT TO REPLACEMENT EQUAL TO THE APPRAISED VALUE OF THE TREE LOST. CONTRACTOR IS RESPONSIBLE FOR DOCUMENTATION OF ALL EXISTING TREES TO REMAIN, PRIOR TO CONSTRUCTION.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING IMPROVEMENTS AND UTILITIES AND SHALL REPAIR ANY DAMAGE AT HIS EXPENSE

**TREE PROTECTION**

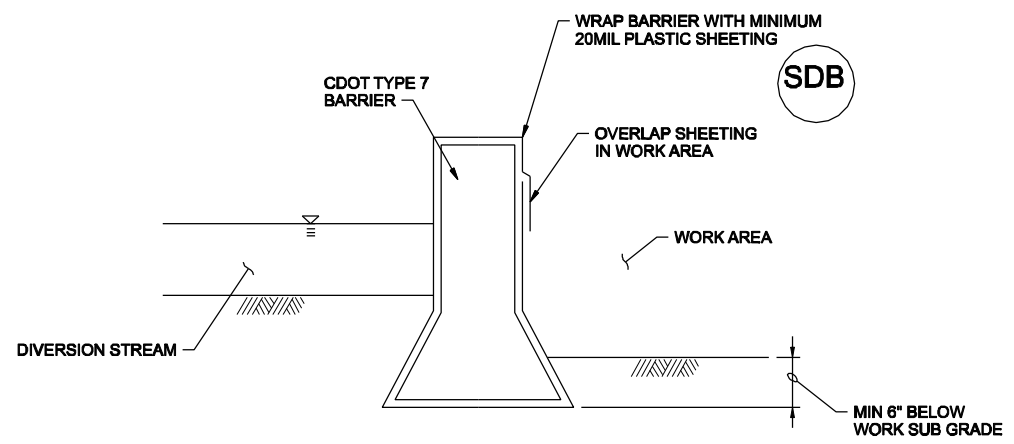
NTS

- NOTE:
1. DO NOT CUT LEADER.
  2. PRUNE ALL DAMAGED OR DEAD WOOD AFTER PLANTING, STAKING AND MULCHING.
  3. KEEP CROWN SHAPE TYPICAL OF SPECIES.
  4. REMOVE ALL PLANTING LABELS AFTER FINAL ACCEPTANCE BY OWNER.



**DEEP TREE PLANTING FOR B&B COTTONWOOD SPECIES**

NTS



- NOTES:
1. CONTRACTOR MAY SUBMIT AN ALTERNATIVE WATER DIVERSION SYSTEM, BUT IS SUBJECT TO APPROVAL BY ENGINEER.

**STREAM DIVERSION BARRIER**

NTS

|   |  |                                      |        |             |      |               |
|---|--|--------------------------------------|--------|-------------|------|---------------|
| CHERRY CREEK BASIN<br>WATER QUALITY AUTHORITY | CHERRY CREEK STREAM RECLAMATION<br>AT 12-MILE PARK<br>CHERRY CREEK STATE PARK<br>ARAPAHOE COUNTY | NO.                                  | DATE   | DESCRIPTION | APVR | N             |
|   |  | DGN                                  | DATE   | REVISION    | BY   | APVD          |
| CH2MHILL                                      | STANDARD DETAILS   | A                                    | COOK   | DR          | APVD | S. YAMAGIHARA |
|   |  | S                                    | KRAMER | CHK         | APVD | C. HOOPER     |
| VERIFY SCALE                                  |  | BAR IS ONE INCH ON ORIGINAL DRAWING. |        |             |      |               |
| DATE  | OCTOBER 2011   |                                      |        |             |      |               |
| PROJ  | 407259   |                                      |        |             |      |               |
| DWG   | C-7  |                                      |        |             |      |               |
| SHEET   | 10   |                                      |        |             |      |               |