# ACR SITE DEVELOPMENT PLAN

## TRACT 6 & 10 VALLEY GARDENS SUBDIVISION
## CITY OF COLORADO SPRINGS, COUNTY OF EL PASO
## STATE OF COLORADO

# GRADING AND EROSION CONTROL PLANS

## GRADING AND EROSION CONTROL STANDARD NOTES

1. STORMWATER DISCHARGES FROM CONSTRUCTION SITES SHALL NOT CAUSE OR THREATEN TO CAUSE POLLUTION, CONTAMINATION, OR DEGRADATION OF STATE WATERS. ALL WORK AND EARTH DISTURBANCE SHALL BE DONE IN A MANNER THAT MINIMIZES POLLUTION OF ANY ON-SITE OR OFF-SITE WATERS, INCLUDING WETLANDS.

2. NOTWITHSTANDING ANYTHING DEPICTED IN THESE PLANS IN WORDS OR GRAPHIC REPRESENTATION, ALL DESIGN AND CONSTRUCTION RELATED TO ROADS, STORM DRAINAGE AND EROSION CONTROL SHALL CONFORM TO THE STANDARDS AND REQUIREMENTS OF THE MOST RECENT VERSION OF THE RELEVANT ADOPTED EL PASO COUNTY STANDARDS, INCLUDING THE LAND DEVELOPMENT CODE, THE ENGINEERING CRITERIA MANUAL, THE DRAINAGE CRITERIA MANUAL, AND THE DRAINAGE CRITERIA MANUAL VOLUME 2. ANY DEVIATIONS FROM REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING.

3. A SEPARATE STORMWATER MANAGEMENT PLAN (SMWP) FOR THIS PROJECT SHALL BE COMPLETED AND AN EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP) ISSUED PRIOR TO COMMENCING CONSTRUCTION. MANAGEMENT OF THE SWMP DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE DESIGNATED QUALIFIED STORMWATER MANAGER OR CERTIFIED EROSION CONTROL INSPECTOR. THE SWMP SHALL BE LOCATED ON SITE AT ALL TIMES DURING CONSTRUCTION AND SHALL BE KEPT UP TO DATE WITH WORK PROGRESS AND CHANGES IN THE FIELD.

4. ONCE THE ESQCP IS APPROVED AND A "NOTICE TO PROCEED" HAS BEEN ISSUED, THE CONTRACTOR MAY INSTALL THE INITIAL STAGE EROSION AND SEDIMENT CONTROL MEASURES AS INDICATED ON THE APPROVED GEC. A PRECONSTRUCTION MEETING BETWEEN THE CONTRACTOR, ENGINEER, AND EL PASO COUNTY WILL BE HELD PRIOR TO ANY CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE APPLICANT TO COORDINATE THE MEETING TIME AND PLACE WITH COUNTY STAFF.

5. CONTROL MEASURES MUST BE INSTALLED PRIOR TO COMMENCEMENT OF ACTIVITIES THAT COULD CONTRIBUTE POLLUTANTS TO STORMWATER. CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, AND DISTURBED LAND AREAS SHALL BE INSTALLED IMMEDIATELY UPON COMPLETION OF THE DISTURBANCE.

6. ALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES SHALL BE MAINTAINED AND REMAIN IN EFFECTIVE OPERATING CONDITION UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED AND FINAL STABILIZATION IS ESTABLISHED. ALL PERSONS ENGAGED IN LAND DISTURBANCE ACTIVITIES SHALL ASSESS THE ADEQUACY OF CONTROL MEASURES AT THE SITE AND IDENTIFY IF CHANGES TO THOSE CONTROL MEASURES ARE NEEDED TO ENSURE THE CONTINUED EFFECTIVE PERFORMANCE OF THE CONTROL MEASURES. ALL CHANGES TO TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES MUST BE INCORPORATED INTO THE STORMWATER MANAGEMENT PLAN.

7. TEMPORARY STABILIZATION SHALL BE IMPLEMENTED ON DISTURBED AREAS AND STOCKPILES WHERE GROUND DISTURBING CONSTRUCTION ACTIVITY HAS PERMANENTLY CEASED OR TEMPORARILY CEASED FOR LONGER THAN 14 DAYS.

8. FINAL STABILIZATION MUST BE IMPLEMENTED AT ALL APPLICABLE CONSTRUCTION SITES. FINAL STABILIZATION IS ACHIEVED WHEN ALL GROUND DISTURBING ACTIVITIES ARE COMPLETE AND ALL DISTURBED AREAS EITHER HAVE A UNIFORM VEGETATIVE COVER WITH INDIVIDUAL PLANT DENSITY OF 70 PERCENT OF PRE-DISTURBANCE LEVELS ESTABLISHED OR EQUIVALENT PERMANENT ALTERNATIVE STABILIZATION METHOD IS IMPLEMENTED. ALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES SHALL BE REMOVED UPON FINAL STABILIZATION AND BEFORE PERMIT CLOSURE.

9. ALL PERMANENT STORMWATER MANAGEMENT FACILITIES SHALL BE INSTALLED AS DESIGNED IN THE APPROVED PLANS. ANY PROPOSED CHANGES THAT AFFECT THE DESIGN OR FUNCTION OF PERMANENT STORMWATER MANAGEMENT STRUCTURES MUST BE APPROVED BY THE ECM ADMINISTRATOR PRIOR TO IMPLEMENTATION.

10. EARTH DISTURBANCES SHALL BE CONDUCTED IN SUCH A MANNER SO AS TO EFFECTIVELY MINIMIZE ACCELERATED SOIL EROSION AND RESULTING SEDIMENTATION. ALL DISTURBANCES SHALL BE DESIGNED, CONSTRUCTED, AND COMPLETED SO THAT THE EXPOSED AREA OF ANY DISTURBED LAND SHALL BE LIMITED TO THE SHORTEST PRACTICAL PERIOD OF TIME. PRE-EXISTING VEGETATION SHALL BE PROTECTED AND MAINTAINED WITHIN 50 HORIZONTAL FEET OF A WATERS OF THE STATE UNLESS SHOWN TO BE INFEASIBLE AND SPECIFICALLY REQUESTED AND APPROVED.

11. COMPACTION OF SOIL MUST BE PREVENTED IN AREAS DESIGNATED FOR INFILTRATION CONTROL MEASURES OR WHERE FINAL STABILIZATION WILL BE ACHIEVED BY VEGETATIVE COVER. AREAS DESIGNATED FOR INFILTRATION CONTROL MEASURES SHALL ALSO BE PROTECTED FROM SEDIMENTATION DURING CONSTRUCTION UNTIL FINAL STABILIZATION IS ACHIEVED. IF COMPACTION PREVENTION IS NOT FEASIBLE DUE TO SITE CONSTRAINTS, ALL AREAS DESIGNATED FOR INFILTRATION AND VEGETATION CONTROL MEASURES MUST BE LOOSENED PRIOR TO INSTALLATION OF THE CONTROL MEASURE(S).

12. ANY TEMPORARY OR PERMANENT FACILITY DESIGNED AND CONSTRUCTED FOR THE CONVEYANCE OF STORMWATER AROUND, THROUGH, OR FROM THE EARTH DISTURBANCE AREA SHALL BE A STABILIZED CONVEYANCE DESIGNED TO MINIMIZE EROSION AND THE DISCHARGE OF SEDIMENT OFF SITE.

13. CONCRETE WASH WATER SHALL BE CONTAINED AND DISPOSED OF IN ACCORDANCE WITH THE SWMP. NO WASH WATER SHALL BE DISCHARGED TO OR ALLOWED TO ENTER STATE WATERS, INCLUDING ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR FACILITIES. CONCRETE WASHOUTS SHALL NOT BE LOCATED IN AN AREA WHERE SHALLOW GROUNDWATER MAY BE PRESENT, OR WITHIN 50 FEET OF A SURFACE WATER BODY, CREEK OR STREAM.

14. DURING DEWATERING OPERATIONS OF UNCONTAMINATED GROUND WATER MAY BE DISCHARGED ON SITE, BUT SHALL NOT LEAVE THE SITE IN THE FORM OF SURFACE RUNOFF UNLESS AN APPROVED STATE DEWATERING PERMIT IS IN PLACE.

15. EROSION CONTROL BLANKETING OR OTHER PROTECTIVE COVERING SHALL BE USED ON SLOPES STEEPER THAN 3:1.

16. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL WASTES FROM THE CONSTRUCTION SITE FOR DISPOSAL IN ACCORDANCE WITH LOCAL AND STATE REGULATORY REQUIREMENTS. NO CONSTRUCTION DEBRIS, TREE SLASH, BUILDING MATERIAL WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURIED, DUMPED, OR DISCHARGED AT THE SITE.

17. WASTE MATERIALS SHALL NOT BE TEMPORARILY PLACED OR STORED IN THE STREET, ALLEY, OR OTHER PUBLIC WAY, UNLESS IN ACCORDANCE WITH AN APPROVED TRAFFIC CONTROL PLAN. CONTROL MEASURES MAY BE REQUIRED BY EL PASO COUNTY ENGINEERING IF DEEMED NECESSARY, BASED ON SPECIFIC CONDITIONS AND CIRCUMSTANCES.

18. TRACKING OF SOILS AND CONSTRUCTION DEBRIS OFF-SITE SHALL BE MINIMIZED. MATERIALS TRACKED OFF-SITE SHALL BE CLEANED UP AND PROPERLY DISPOSED OF IMMEDIATELY.

19. THE OWNER/DEVELOPER SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL CONSTRUCTION DEBRIS, DIRT, TRASH, ROCK, SEDIMENT, SOIL, AND SAND THAT MAY ACCUMULATE IN ROADS, STORM DRAINS AND OTHER DRAINAGE CONVEYANCE SYSTEMS AND STORMWATER APPURTENANCES AS A RESULT OF SITE DEVELOPMENT.

20. THE QUANTITY OF MATERIALS STORED ON THE PROJECT SITE SHALL BE LIMITED, AS MUCH AS PRACTICAL, TO THAT QUANTITY REQUIRED TO PERFORM THE WORK IN AN ORDERLY SEQUENCE. ALL MATERIALS STORED ON-SITE SHALL BE STORED IN A NEAT, ORDERLY MANNER, IN THEIR ORIGINAL CONTAINERS, WITH ORIGINAL MANUFACTURER'S LABELS.

21. NO CHEMICAL(S) HAVING THE POTENTIAL TO BE RELEASED IN STORMWATER ARE TO BE STORED OR USED ONSITE UNLESS PERMISSION FOR THE USE OF SUCH CHEMICAL(S) IS GRANTED IN WRITING BY THE ECM ADMINISTRATOR. IN GRANTING APPROVAL FOR THE USE OF SUCH CHEMICAL(S), SPECIAL CONDITIONS AND MONITORING MAY BE REQUIRED.

22. BULK STORAGE OF ALLOWED PETROLEUM PRODUCTS OR OTHER ALLOWED LIQUID CHEMICALS IN EXCESS OF 55 GALLONS SHALL REQUIRE ADEQUATE SECONDARY CONTAINMENT PROTECTION TO CONTAIN ALL SPILLS ONSITE AND TO PREVENT ANY SPILLED MATERIALS FROM ENTERING STATE WATERS, ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR OTHER FACILITIES.

23. NO PERSON SHALL CAUSE THE IMPEDIMENT OF STORMWATER FLOW IN THE CURB AND GUTTER OR DITCH EXCEPT WITH APPROVED SEDIMENT CONTROL MEASURES.

24. OWNER/DEVELOPER AND THEIR AGENTS SHALL COMPLY WITH THE "COLORADO WATER QUALITY CONTROL ACT" (TITLE 25, ARTICLE 8, CRS), AND THE "CLEAN WATER ACT" (33 USC 1344). IN ADDITION TO THE REQUIREMENTS OF THE LAND DEVELOPMENT CODE, DCM VOLUME II AND THE ECM APPENDIX I. ALL APPROPRIATE PERMITS MUST BE OBTAINED BY THE CONTRACTOR PRIOR TO CONSTRUCTION (1041, NPDES, FLOODPLAIN, 404, FUGITIVE DUST, ETC.). IN THE EVENT OF CONFLICTS BETWEEN THESE REQUIREMENTS AND OTHER LAWS, RULES, OR REGULATIONS OF OTHER FEDERAL, STATE, LOCAL, OR COUNTY AGENCIES, THE MOST RESTRICTIVE LAWS, RULES, OR REGULATIONS SHALL APPLY.

25. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE ONLY AT APPROVED CONSTRUCTION ACCESS POINTS.

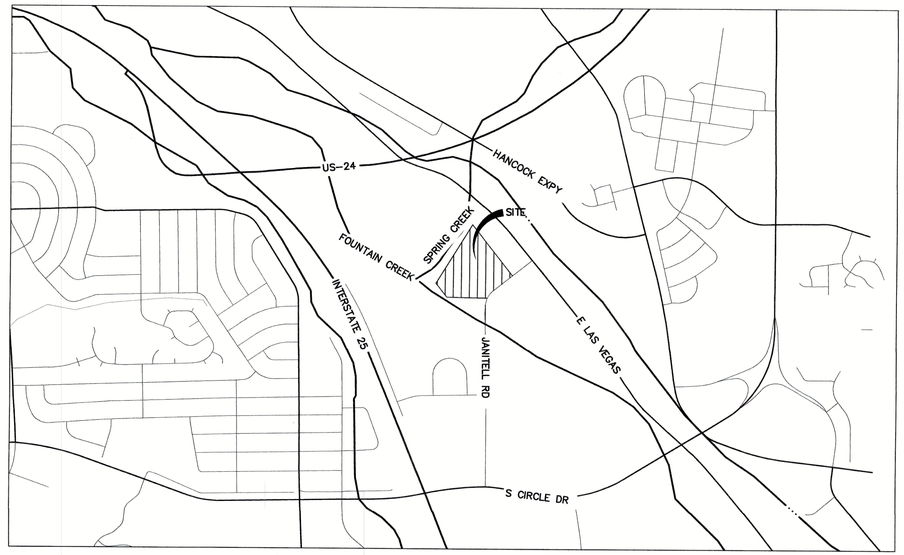
26. PRIOR TO CONSTRUCTION THE PERMITTEE SHALL VERIFY THE LOCATION OF EXISTING UTILITIES.

27. A WATER SOURCE SHALL BE AVAILABLE ON SITE DURING EARTHWORK OPERATIONS AND SHALL BE UTILIZED AS REQUIRED TO MINIMIZE DUST FROM EARTHWORK EQUIPMENT AND WIND.

28. THE SOILS REPORT FOR THIS SITE HAS BEEN PREPARED BY ENTECH ENGINEERING INC., DATED JUNE 28TH, 2019 AND SHALL BE CONSIDERED A PART OF THESE PLANS.

29. AT LEAST TEN (10) DAYS PRIOR TO THE ANTICIPATED START OF CONSTRUCTION, FOR PROJECTS THAT WILL DISTURB ONE (1) ACRE OR MORE, THE OWNER OR OPERATOR OF CONSTRUCTION ACTIVITY SHALL SUBMIT A PERMIT APPLICATION FOR STORMWATER DISCHARGE TO THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT, WATER QUALITY DIVISION. THE APPLICATION CONTAINS CERTIFICATION OF COMPLETION OF A STORMWATER MANAGEMENT PLAN (SWMP), OF WHICH THIS GRADING AND EROSION CONTROL PLAN MAY BE A PART. FOR INFORMATION OR APPLICATION MATERIALS CONTACT:

COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT
WATER QUALITY CONTROL DIVISION
WQCD - PERMITS
4300 CHERRY CREEK DRIVE SOUTH
DENVER, CO 80246-1530
ATTN: PERMITS UNIT




VICINITY MAP
SCALE: 1"=1000'

## CONTACTS:

| | |
|---|---|
| OWNER/DEVELOPER | ACR SITE DEVELOPMENT<br>705 CRESTFIELD GROVE<br>COLORADO SPRINGS, CO<br>P~719-338-9902 |
| ENGINEER/SURVEYOR | JR ENGINEERING, LLC<br>ATTN: MIKE A. BRAMLETT<br>5475 TECH CENTER DRIVE, SUITE 235<br>COLORADO SPRINGS, CO 80919<br>P~(303) 267-6240 |

## SHEET INDEX


1 - COVER SHEET
2 - LEGEND
3 - GRADING AND EROSION CONTROL PLAN
6 - 9 - DETAILS


## EL PASO COUNTY STATEMENT

COUNTY PLAN REVIEW IS PROVIDED ONLY FOR GENERAL CONFORMANCE WITH COUNTY DESIGN CRITERIA. THE COUNTY IS NOT RESPONSIBLE FOR THE ACCURACY AND ADEQUACY OF THE DESIGN, DIMENSIONS, AND/OR ELEVATIONS WHICH SHALL BE CONFIRMED AT THE JOB SITE. THE COUNTY THROUGH THE APPROVAL OF THIS DOCUMENT ASSUMES NO RESPONSIBILITY FOR COMPLETENESS AND/OR ACCURACY OF THIS DOCUMENT.

FILED IN ACCORDANCE WITH THE REQUIREMENTS OF THE EL PASO COUNTY LAND DEVELOPMENT CODE, DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2, AND ENGINEERING CRITERIA MANUAL AS AMENDED.

IN ACCORDANCE WITH ECM SECTION 1.12, THESE CONSTRUCTION DOCUMENTS WILL BE VALID FOR CONSTRUCTION FOR A PERIOD OF 2 YEARS FROM THE DATE SIGNED BY THE EL PASO COUNTY ENGINEER. IF CONSTRUCTION HAS NOT STARTED WITHIN THOSE 2 YEARS, THE PLANS WILL NEED TO BE RESUBMITTED FOR APPROVAL, INCLUDING PAYMENT OF REVIEW FEES AT THE PLANNING AND COMMUNITY DEVELOPMENT DIRECTORS DISCRETION.

Approved
By: Elizabeth Nijkamp
Date: 06/23/2020
El Paso County Planning & Community Development

JENNIFER IRVINE, P.E. — DATE

COUNTY ENGINEER/ECM ADMINISTRATOR

## OWNER/DEVELOPER STATEMENT

I, THE OWNER/DEVELOPER HAVE READ AND WILL COMPLY WITH THE REQUIREMENT OF THE GRADING AND EROSION CONTROL PLANS.

PERRY HASTINGS — DATE 6/9/20

ACR SITE DEVELOPMENT
2350 FRANCEVILLE COAL MINE RD
COLORADO SPRINGS, CO 80929

## ENGINEER'S STATEMENT

THIS GRADING AND EROSION CONTROL PLAN WAS PREPARED UNDER MY DIRECTION AND SUPERVISION AND IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. SAID PLAN HAS BEEN PREPARED ACCORDING TO THE CRITERIA ESTABLISHED BY THE COUNTY FOR GRADING AND EROSION CONTROL PLANS. I ACCEPT RESPONSIBILITY FOR ANY LIABILITY CAUSED BY ANY NEGLIGENT ACTS, ERRORS OR OMISSIONS ON MY PART IN PREPARING THIS PLANS.

COLORADO REGISTERED MIKE A. BRAMLETT 32314 PROFESSIONAL ENGINEER

MIKE A. BRAMLETT, P.E. — DATE 6/9/20
COLORADO P.E. 32314
FOR AND ON BEHALF OF JR ENGINEERING, LLC

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCY, ENGINEERING APPROVES THEIR USE FOR ONLY FOR THE PURPOSES DESIGNATED BY WRITTEN AUTHORIZATION.

PREPARED FOR
ACR SITE DEVELOPMENT
705 CRESTFIELD GROVE
COLORADO SPRINGS, CO 80906
DUANE HAYS
(719) 338-9902
DUANE@HAYSCOMPANY.NET


J·R ENGINEERING
A Westrian Company
Centennial 303-740-9393 • Colorado Springs 719-593-2593
Fort Collins 970-491-9888 • www.jrengineering.com


| No. | REVISION | BY | DATE |
|---|---|---|---|
| | | | |

| | |
|---|---|
| H-SCALE | N/A |
| V-SCALE | N/A |
| DATE | 05/21/20 |
| DESIGNED BY | RB |
| DRAWN BY | JEA |
| CHECKED BY | |

ACR SITE DEVELOPMENT PLAN
COVER SHEET

GESC PLANS - PPR-19-052

SHEET 1 OF 9

JOB NO. 25176.00

## LAYER LINETYPE LEGEND

| | EXISTING | PROPOSED |
|---|---|---|
| PHASE LINE | | |
| MATCH LINE | | |
| SECTION LINE | | |
| BOUNDARY LINE | | |
| PROPERTY LINE | | |
| EASEMENT LINE | | |
| RIGHT OF WAY | | |
| R.O.W. A LINE | A | A |
| CENTERLINE | | |
| CITY LIMITS | | |
| WIRE FENCE | | |
| CHAIN LINK FENCE | | |
| WOOD FENCE | | |
| MASONRY FENCE | | |
| GUARDRAIL | | |
| CONC. BARRIER | | |
| CABLE TV | TV | TV |
| ELECTRIC | E | E |
| FIBER OPTIC | FO | FO |
| GAS MAIN | G | G |
| IRRIGATION MAIN | IRR | IRR |
| OIL/PETRO. MAIN | O | O |
| OVERHEAD UTILITY | OHU | OHU |
| SANITARY SEWER | S | S |
| STORM DRAIN | | |
| TELEPHONE | T | T |
| WATER MAIN | W | W |
| RAW WATER LINE | RWL | RWL |
| SWALE/WATERWAY FLOWLINE | | |
| DIVERSION DITCH | | |
| DIVERSION CHANNEL | | |
| MAJOR DRAINAGE BASIN | | |
| MINOR DRAINAGE BASIN | | |
| TOP OF SLOPE | | |
| TOE OF SLOPE | | |
| EDGE OF WATER | | |
| INDEX CONTOUR | 6100 | 6100 |
| INTERMEDIATE CONTOUR | | |
| DEPRESSION CONT. (INDEX) | 6100 | 6100 |
| DEPRESSION CONT. (INTER) | | |
| TOP OF CUTS | | |
| TOE OF FILLS | | |
| CUT AND FILL LINE | | C/F C/F |
| SILT FENCE | SF SF | SF SF |
| 100 YEAR FLOODPLAIN | 100YR | 100YR |
| 500 YEAR FLOODPLAIN | 500YR | 500YR |
| FLOODWAY | FLDWY | FLDWY |
| STORAGE/EQUIPMENT AREAS | | |
| EDGE OF WETLANDS | | |
| STONE WALL | | |

## UTILITIES LEGEND

| | EXISTING | PROPOSED |
|---|---|---|
| **STORM SEWER** | | |
| MANHOLE | | |
| STORM INLET | | |
| AREA INLET – SQUARE | | |
| AREA INLET – ROUND | | |
| FLARED END SECTION | | |
| RIPRAP | | |
| **SANITARY SEWER** | | |
| LINE MARKER | Mkr San | |
| SERVICE MARKER | S | |
| CLEAN-OUT | | |
| MANHOLE W/ DIRECTIONAL FLOW ARROW | | |
| **WATER LINE** | | |
| LINE MARKER | Mkr W | |
| SERVICE MARKER | W | |
| FIRE HYDRANT | | |
| FIRE CONNECTION | | |
| MANHOLE | | |
| BEND | | |
| BLOW-OFF VALVE | | |
| WELL | WELL | WELL |
| METER | | |
| VALVE | | |
| REDUCER | | |
| THRUST BLOCK | | |
| CROSS | | |
| PLUG W/ THRUST BLOCK | | |
| TEE | | |
| REVERSE ANCHOR | | |
| ANODE | | |
| AIR & VACUUM VALVE ASSEMBLY | | |
| TRANSMISSION BLOW-OFF ASSEMBLY | | |
| **GAS LINE** | | |
| MARKER | Mkr G | |
| SERVICE MARKER | G | |
| METER | | |
| VALVE | | |
| PLUG | | |
| TEE | | |
| **DRY UTILITIES** | | |
| CABLE TV MARKER | Mkr TV | |
| CABLE TELEVISION PEDESTAL | TV | |
| ELECTRIC MARKER | Mkr E | |
| ELECTRIC SERVICE MARKER | E | |
| ELECTRICAL PEDESTAL | E | |
| ELECTRICAL METER | E | |
| ELECTRICAL MANHOLE | E | |
| FIBER-OPTIC MARKER | Mkr FO | |
| IRRIGATION PEDESTAL | I | |
| TELEPHONE MARKER | Mkr T | |
| TELEPHONE PEDESTAL | T | |
| TELEPHONE MANHOLE | T | |
| UTILITY POLE | | |
| GUY ANCHOR | | |
| GUY POLE | | |
| **MISC. UTILITIES** | | |
| VENT PIPE | VP | VP |
| TEST HOLE DESIGNATOR | TH# FIRM AGENCY | |

## MONUMENTATION LEGEND

| | |
|---|---|
| ALUMINUM CAP – FOUND | AC |
| BRASS CAP – FOUND | BC |
| BENCHMARK – FOUND | |
| CROSS – FOUND | |
| MONUMENT – SET | |
| MONUMENT – FOUND (DEFAULT) | |
| MONUMENT – FOUND (ALTERNATE 1) | |
| MONUMENT – FOUND (ALTERNATE 2) | |
| MONUMENT – FOUND (ALTERNATE 3) | |
| MONUMENT – FOUND (ALTERNATE 4) | |
| MONUMENT – FOUND (ALTERNATE 5) | |
| MONUMENT – FOUND (ALTERNATE 6) | |
| MONUMENT – FOUND (ALTERNATE 7) | |
| NAIL & WASHER – FOUND | NAIL & WASHER |
| PANEL – FOUND | |
| PK NAIL – FOUND | PK NAIL |
| ROW MONUMENT – FOUND | |
| ROW MARKER – FOUND | |
| SECTION CORNER – FOUND | |
| SECTION CORNER – SET | |
| QUARTER-SECTION CORNER – FOUND | |
| QUARTER-SECTION CORNER – SET | |
| SECTION CENTER – FOUND | |
| SECTION CENTER – FOUND | |
| CONTROL/TRAVERSE POINT – SET | |

## TRAFFIC LEGEND

| | EXISTING | PROPOSED |
|---|---|---|
| PARKING METER | | |
| TRAFFIC SIGNAL BOX | | |
| TRAFFIC SIGNAL POLE | | |
| TRAFFIC SIGNAL | | |
| BARRICADE | | |
| GUARD RAIL POST | | |
| IMPACT ATTENUATOR | | |
| BRIDGE STYLE HIGHWAY SIGN POST | | |
| CANTILEVER STYLE HIGHWAY SIGN POST | | |
| SIGN | | |
| RAILROAD MARKER/SIGN | RR | |
| STREET LIGHT | | |
| STREET LIGHT – SINGLE | | |
| STREET LIGHT – DOUBLE | | |
| LUMINAIRE | | |
| ALTERNATE LUMINAIRE | | |
| SIGNAL MAST ARM W/ LUMINAIRE | | |
| PEDESTAL POLE FOUNDATION | | |
| TRAFFIC SIGNAL POLE | | |
| ROUND PULL BOX | | |
| MEDIUM PULL BOX | | |
| LARGE PULL BOX (20X33X15) | | |
| SIGNAL HEAD WITHOUT BACK PLATE | | |
| SIGNAL HEAD WITH BACK PLATE | | |
| PEDESTRIAN SIGNAL HEAD | | |
| VIDEO IMAGE DETECTOR | | |
| OPTICOM DETECTOR | | |
| VEHICLE DETECTION ZONE | | V |

## STORM WATER MANAGEMENT

| | KEY | SYMBOL |
|---|---|---|
| CHECK DAM | CD | |
| CONSTRUCTION ROAD STABILIZATION | CRS | |
| CURB SOCK INLET PROTECTION | CS | |
| CONCRETE WASHOUT AREA | CWA | |
| DIVERSION DITCH AND DIKE, TEMPORARY | DD | |
| DIVERSION CHANNEL, TEMPORARY | DV | |
| DEWATERING | DW | |
| EROSION CONTROL BLANKET | ECB | |
| INLET FILTER | IF | |
| INLET PROTECTION | IP | |
| MULCHING | MU | |
| OUTLET PROTECTION | OP | |
| PAVED FLUME | PF | |
| PERMENENT SEEDING | PS | |
| REINFORCED CONCRETE DAM | RCD | |
| ROUGH CUT STREET CONTROL | RCS | |
| SEDIMENT BASIN | SB | |
| SEDIMENT CONTROL LOG | SCL | |
| SILT FENCE | SF | |
| SURFACE ROUGHENING | SR | |
| STABILIZED STAGING AREA | SSA | |
| SEDIMENT TRAP | ST | |
| STRAW BALE BARRIER | STB | |
| TERRACING | TER | |
| TEMPORARY SEEDING | TS | |
| TEMPORARY STREAM CROSSING CULVERT/BRIDGE | TSC C | |
| TEMPORARY STREAM CROSSING FORD TYPE | TSC F | |
| TEMPORARY SLOPE DRAIN | TSD | |
| VEHICLE TRACKING CONTROL | VTC | |
| VEHICLE TRACKING CONTROL WITH WASH RACK | WR | |

## DRAINAGE REPORT PLANS

| | KEY |
|---|---|
| BASIN DESIGNATION (NO COEFFICIENT) | # / #.# |
| BASIN DESIGNATION (1 COEFFICIENT) | # / #.# / # |
| BASIN DESIGNATION (2 COEFFICIENTS) | # / #.# / # / # |
| ANALISYS POINT IDENTIFIER | # |
| BASIN DESIGNATION (HISTORIC) | # / #.# |
| BASIN DESIGNATION (DEVELOPED) | # / #.# |
| SUB-BASIN DESIGNATION (DEVELOPED) | # / #.# |
| DRAINAGE PIPE IDENTIFIER | ## |
| DRAINAGE POINT IDENTIFIER (HEXAGONAL) | ## |
| DRAINAGE POINT IDENTIFIER (TRIANGULAR) | ? |
| SWMM DESIGNATION 1 | # |
| SWMM DESIGNATION 2 | # |
| SWMM DESIGNATION 3 | # |
| SWMM DESIGNATION 4 | ? |

## LANDSCAPE LEGEND

| | EXISTING | PROPOSED |
|---|---|---|
| TREE – CONIFEROUS | | |
| TREE – DECIDUOUS | | |
| SHRUB/BUSH | | |
| SHRUBS AND BUSHES | | |
| IRRIGATION BOX | | |
| IRRIGATION SPRINKLER | | |
| IRRIGATION VALVE | | |
| BOLLARD | | |
| FLAGPOLE | FP | |

COLORADO LICENSED MIKE BRAMLETT 32314 6/9/20 PROFESSIONAL ENGINEER

6/9/20

EPC 6/23/20

Know what's **below.** **Call** before you dig.

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, JR ENGINEERING APPROVES THEIR USE ONLY FOR THE PURPOSES DESIGNATED BY WRITTEN AUTHORIZATION.

PREPARED FOR
**ACR SITE DEVELOPMENT**
705 CRESTFIELD GROVE
COLORADO SPRINGS, CO 80906
DUANE HAYS
(719) 338-9902
DUANE@HAYSCOMPANY.NET

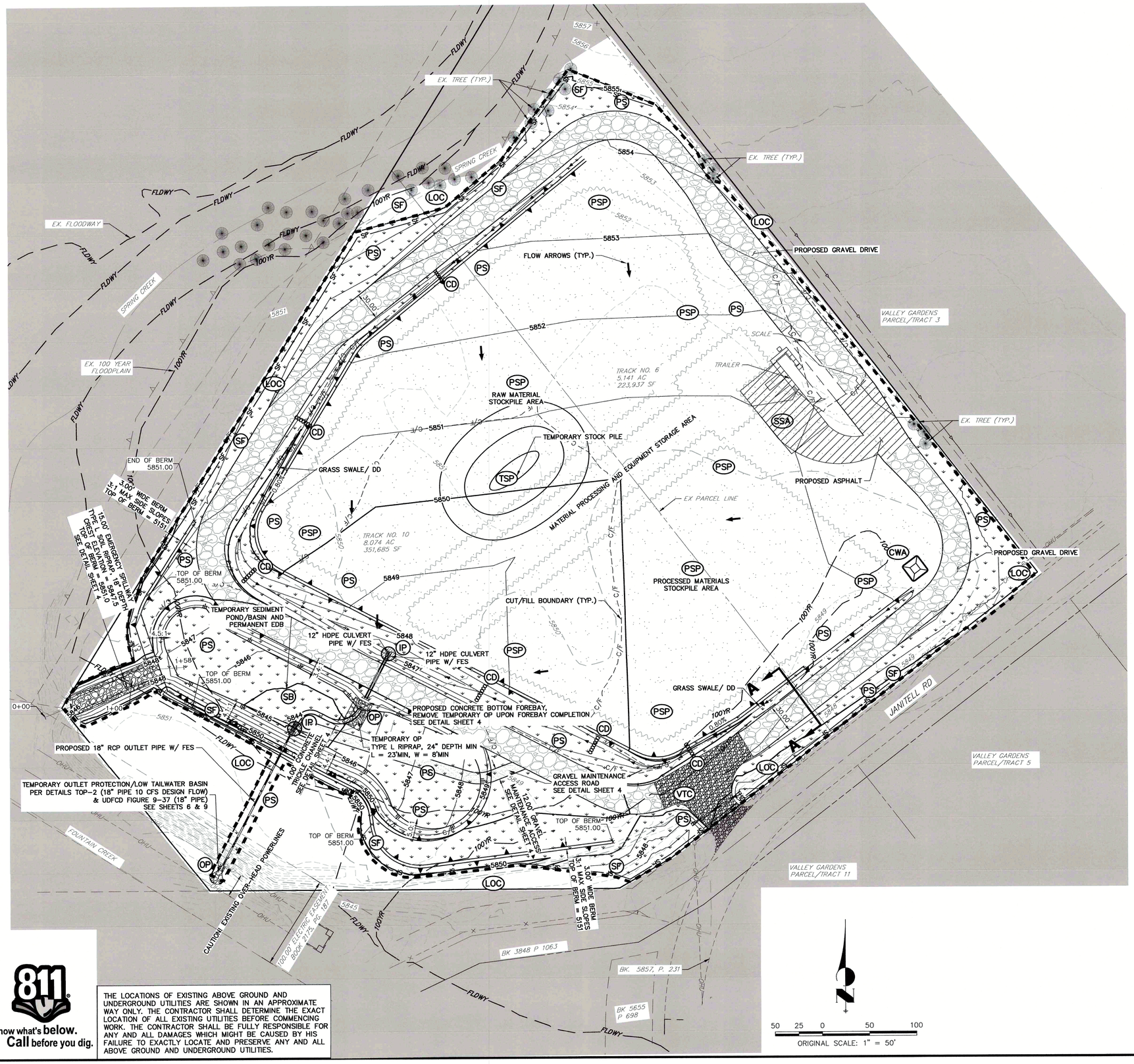

**J·R ENGINEERING**
A Westrian Company
Centennial 303-740-9393 • Colorado Springs 719-593-2593
Fort Collins 970-491-9888 • www.jrengineering.com

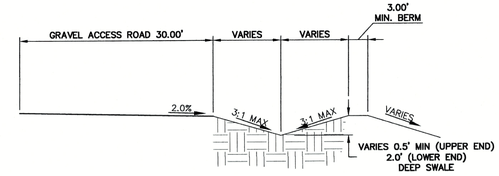

| No. | REVISION | BY | DATE |
|---|---|---|---|
| | | | |

| | |
|---|---|
| H-SCALE | |
| V-SCALE | |
| DATE | 05/21/20 |
| DESIGNED BY | RB |
| DRAWN BY | JEA |
| CHECKED BY | |

ACR SITE DEVELOPMENT PLAN
LEGEND

SHEET 2 OF 9
JOB NO. 25176.00




A–A NTS

## TYPICAL DIVERSION DITCH CROSS SECTION

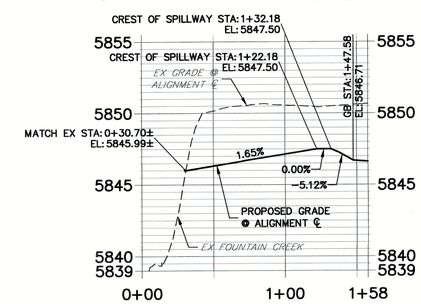
## LEGEND

| | | |
|---|---|---|
| TEMPORARY SEDIMENT BASIN | SB | TOE / TOP |
| SILT FENCE | SF | SF |
| STABILIZED STAGING AREA | SSA | |
| VEHICLE TRACKING CONTROL | VTC | |
| TEMPORARY STOCK PILE | TSP | |
| EROSION CONTROL BLANKET | ECB | |
| INLET PROTECTION | IP | |
| OUTLET PROTECTION | OP | |
| LIMITS OF CONSTRUCTION | LOC | |
| CONCRETE WASHOUT AREA | CWA | |
| PERMANENT SEEDING | PS | |
| CHECK DAM | CD | |
| PERMANENT STOCK PILE | PSP | |

## GROUND COVER LEGEND

| | |
|---|---|
| GRAVEL | |
| PERMANENT MATERIAL STOCKPILES | |
| PERMANENT SEEDING | |
| ASPHALT PAVING | |

## EMERGENCY SPILLWAY PROFILE STA 0+00.00 TO 1+57.79




EPC 6/23/20

Mike Brainard 6/9/20

COLORADO LICENSED MIKE BRAINARD 32314 6/9/20 PROFESSIONAL ENGINEER

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| No. | REVISION | BY | DATE |
|---|---|---|---|
| | | | |

| | |
|---|---|
| H-SCALE | 1"=50' |
| V-SCALE | N/A |
| DATE | 05/21/20 |
| DESIGNED BY | RB |
| DRAWN BY | JEA |
| CHECKED BY | |

# ACR SITE DEVELOPMENT PLAN

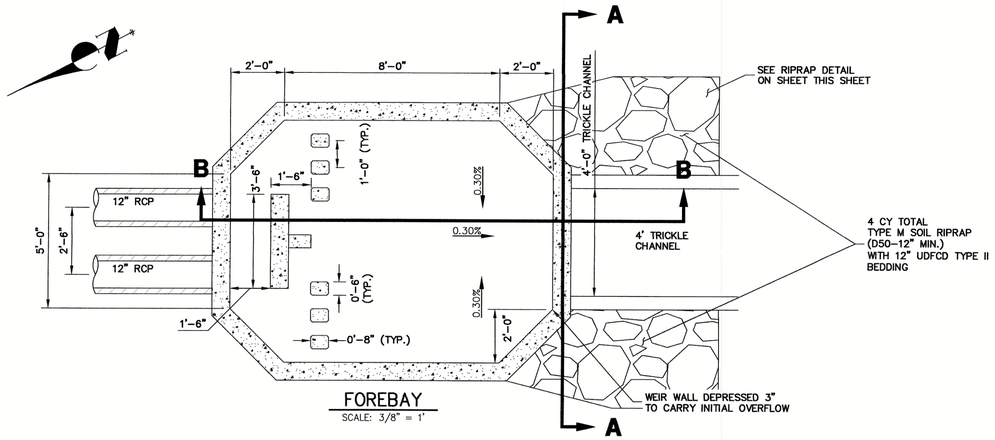
## GRADING AND EROSION CONTROL PLAN

SHEET 3 OF 9

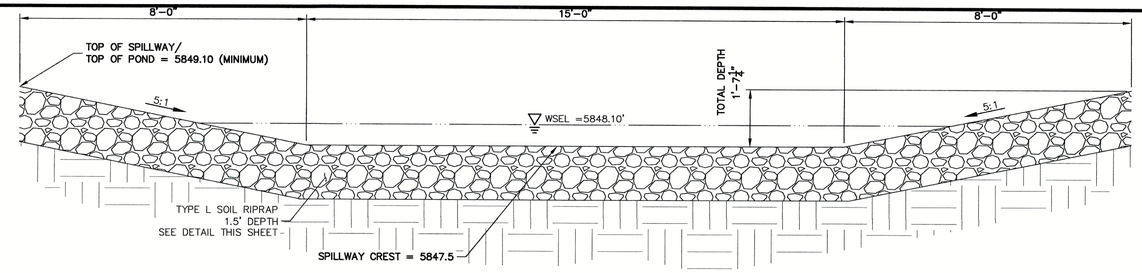
JOB NO. 25176.00

811 Know what's below. Call before you dig.

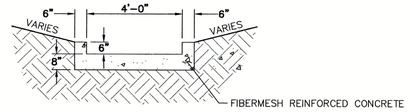
THE LOCATIONS OF EXISTING ABOVE GROUND AND UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL ABOVE GROUND AND UNDERGROUND UTILITIES.



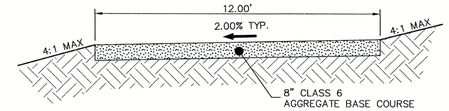

FOREBAY
SCALE: 3/8" = 1'



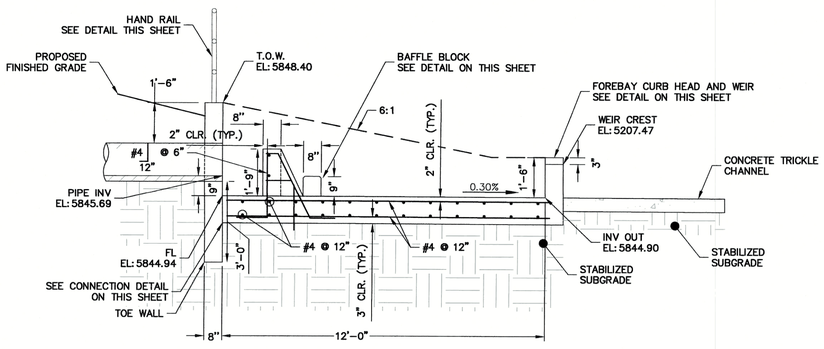

POND EMERGENCY SPILLWAY
SCALE: N.T.S.



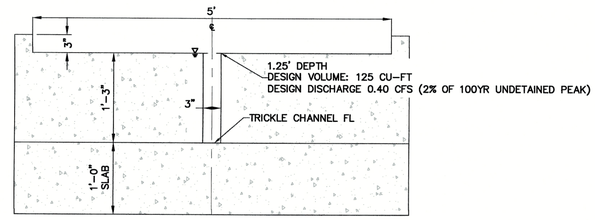

POND TRICKLE CHANNEL
N.T.S.



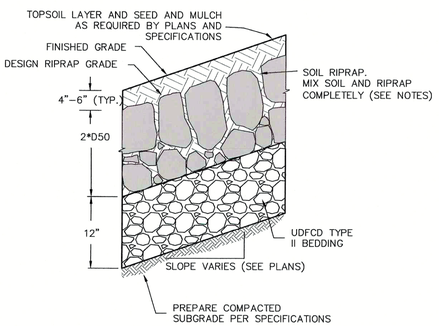

GRAVEL MAINTENANCE ACCESS ROAD TYPICAL SECTION
N.T.S.



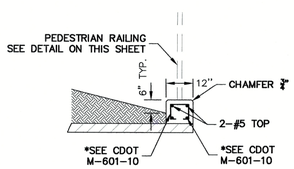

FOREBAY SECTION B-B
SCALE: 3/8" = 1'



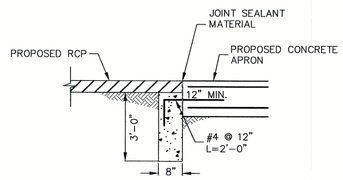

A FOREBAY
SCALE: 1" = 1'



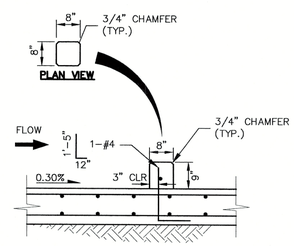

SOIL RIPRAP EMBANKMENT PROTECTION WITH BEDDING TYP. SECTION
N.T.S.



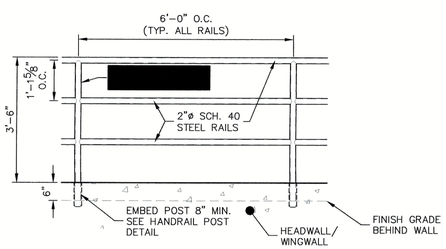

RCP HEADWALL
SCALE: N.T.S.



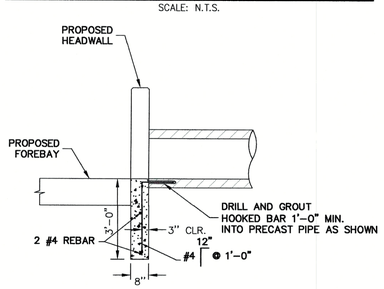

CONNECTION TO PROPOSED RCP TOEWALL
SCALE: N.T.S.



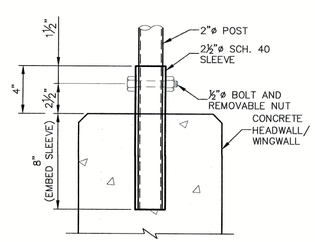

FOREBAY BAFFLE BLOCK SECTION
SCALE: 1/2"=1'




PEDESTRIAN RAILING DETAIL
SCALE: 1/2"=1'




RCP TOEWALL
SCALE: N.T.S.




HANDRAIL POST DETAIL
SCALE: 1"=6"

## TYPE M RIPRAP

| INTERMEDIATE ROCK DIMENSION (IN.) | PERCENT PASSING (%) |
|---|---|
| 21 | 70-100 |
| 18 | 50-70 |
| 12 | 35-50 |
| 4 | 2-10 |

*TYPE M RIPRAP $D_{50}$=12".
$D_{50}$ = MEAN PARTICLE SIZE (INTERMEDIATE DIMENSION) BY WEIGHT.

## RIPRAP 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.
5. ROCK SHALL BE HARD, DURABLE, ANGULAR IN SHAPE, AND FREE FROM CRACKS, OVERBURDEN, SHALE, AND ORGANIC MATTER.
6. NEITHER BREADTH NOR THICKNESS OF A SINGLE STONE SHOULD BE LESS THAN ONE-THIRD ITS LENGTH, AND ROUNDED STONE SHOULD BE AVOIDED.
7. THE ROCK SHOULD SUSTAIN A LOSS OF NOT MORE THAN 40% AFTER 500 REVOLUTIONS IN AN ABRASION TEST (LOS ANGELES MACHINE ASTM C-535-69) AND SHOULD SUSTAIN A LOSS OF NOT MORE THAN 10% AFTER 12 CYCLES OF FREEZING AND THAWING (AASHTO TEST 103 FOR LEDGE ROCK PROCEDURE A).
8. ROCK HAVING A MINIMUM SPECIFIC GRAVITY OF 2.65 IS PREFERRED; HOWEVER, IN NO CASE SHOULD ROCK HAVE A SPECIFIC GRAVITY LESS THAN 2.50.

## CAST-IN-PLACE STRUCTURAL NOTES:

1. ALL CONCRETE SHALL BE CLASS D IN ACCORDANCE WITH CDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.
2. ALL CONSTRUCTION JOINTS SHALL BE THOROUGHLY CLEANED BEFORE FRESH CONCRETE IS POURED.
3. ALL CONSTRUCTION JOINTS NOT SHOWN ON THE PLANS SHALL BE APPROVED BY THE ENGINEER.
4. THE CONTRACTOR IS RESPONSIBLE FOR THE STABILITY OF THE STRUCTURE DURING CONSTRUCTION.
5. STRUCTURE EXCAVATION AND BACKFILL SHALL BE IN ACCORDANCE WITH CDOT STD. M-206-1.
6. DO NOT BACKFILL UNTIL CONCRETE HAS REACHED DESIGN STRENGTH, F'c.
7. GRADE 60 REINFORCING STEEL AND EPOXY COATED ARE REQUIRED.
8. THE MINIMUM LAP SPLICE LENGTH FOR EPOXY COATED REINFORCING BARS SHALL BE:

| BAR SIZE: | #4 | #5 | #6 | #7 | #8 | #9 | #10 | #11 |
|---|---|---|---|---|---|---|---|---|
| SPLICE LENGTH: | 1'-3" | 1'-6" | 1'-10" | 2'-2" | 3'-8" | 4'-8" | 5'-11" | 7'-3" |

9. THE MINIMUM LAP SPLICE LENGTH FOR BLACK REINFORCING BARS SHALL BE:

| BAR SIZE: | #4 | #5 | #6 | #7 | #8 | #9 | #10 | #11 |
|---|---|---|---|---|---|---|---|---|
| SPLICE LENGTH: | 1'-0" | 1'-4" | 1'-7" | 1'-10" | 2'-5" | 3'-1" | 3'-11" | 4'-10" |

10. REINFORCING BARS SHALL BE DEFORMED AND SHALL HAVE A MINIMUM OF 2" CLEARANCE.
11. ALL EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED ¾".
12. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE LOCATIONS OF EXISTING STRUCTURES AND EXISTING UTILITIES, PRIOR TO CONSTRUCTION OF THE CAST-IN-PLACE STRUCTURES. FIELD MODIFICATIONS OF PRECAST UNITS TO ACCOMMODATE CAST-IN-PLACE STRUCTURES WILL ONLY BE ACCEPTABLE WITH THE ENGINEER'S APPROVAL.
13. CONTRACTOR SHALL SUBMIT STEEL REINFORCING SHOP DRAWINGS FOR ALL CAST-IN-PLACE STRUCTURES FOR ENGINEER'S APPROVAL PRIOR TO CONSTRUCTION.

## WALL NOTES:

1. HEADWALLS FOR PIPES SHALL BE CONSTRUCTED IN ACCORDANCE WITH CDOT STANDARD PLAN M-601-10.
2. WINGWALLS SHALL BE CONSTRUCTED IN ACCORDANCE WITH CDOT STANDARD PLAN M-601-20.

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## ENGINEER'S STATEMENT

THIS GRADING AND EROSION CONTROL PLAN WAS PREPARED UNDER MY DIRECTION AND SUPERVISION AND IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. SAID PLAN HAS BEEN PREPARED ACCORDING TO THE CRITERIA ESTABLISHED BY THE COUNTY FOR GRADING AND EROSION CONTROL PLANS. I ACCEPT RESPONSIBILITY FOR ANY LIABILITY CAUSED BY ANY NEGLIGENT ACTS, ERRORS OR OMISSIONS ON MY PART IN PREPARING THIS PLANS.

COLORADO REGISTERED PROFESSIONAL ENGINEER MIKE A. BRAMLETT 32314 6/9/20

6/9/20 DATE

MIKE A. BRAMLETT, P.E.
COLORADO P.E. 32314
FOR AND ON BEHALF OF JR ENGINEERING, LLC

EPC 6/23/20

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COLORADO SPRINGS, CO 80906
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(719) 338-9902
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| No. | REVISION | BY | DATE |
|---|---|---|---|
| | | | |

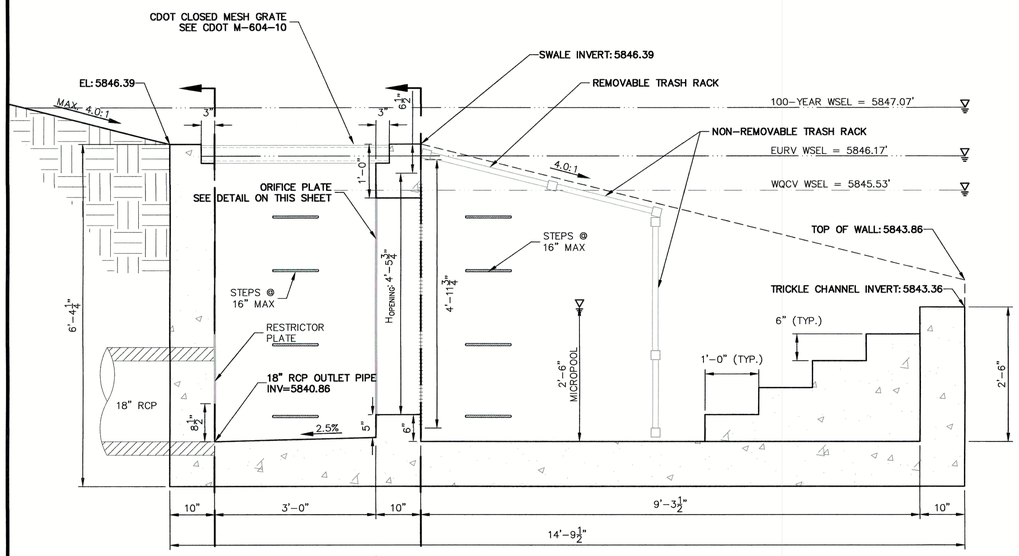
| | |
|---|---|
| H-SCALE | AS SHOWN |
| V-SCALE | AS SHOWN |
| DATE | 05/21/20 |
| DESIGNED BY | RB |
| DRAWN BY | JEA |
| CHECKED BY | |

ACR SITE DEVELOPMENT PLAN

POND STRUCTURE DETAILS

SHEET 4 OF 9

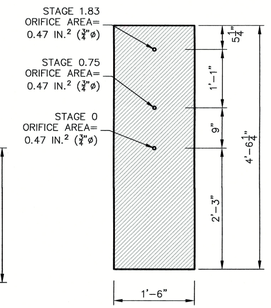
JOB NO. 25176.00




OUTLET STRUCTURE – PROFILE

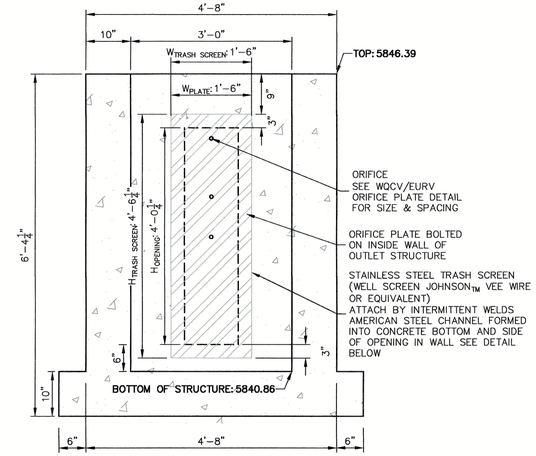
SCALE: 3/4"=1'

EURV/WQCV ORIFICE PLATE:
4'-6¼" x 1'-6" x ½" THICK FLOW GALVANIZED STEEL FLOW CONTROL PLATE. PROVIDE CONTINUOUS NEOPRENE GASKET MATERIAL BETWEEN THE ORIFICE PLATE AND CONCRETE. BOLT PLATE TO CONCRETE @ 12" MAX O.C., 1½" FROM PLATE EDGE.



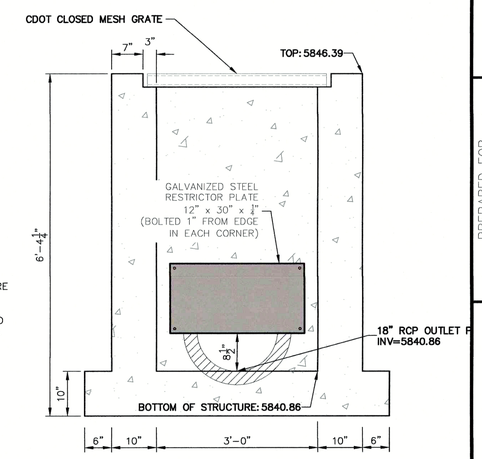

WQCV/EURV ORIFICE PLATE DETAIL

SCALE: 3/4"=1'



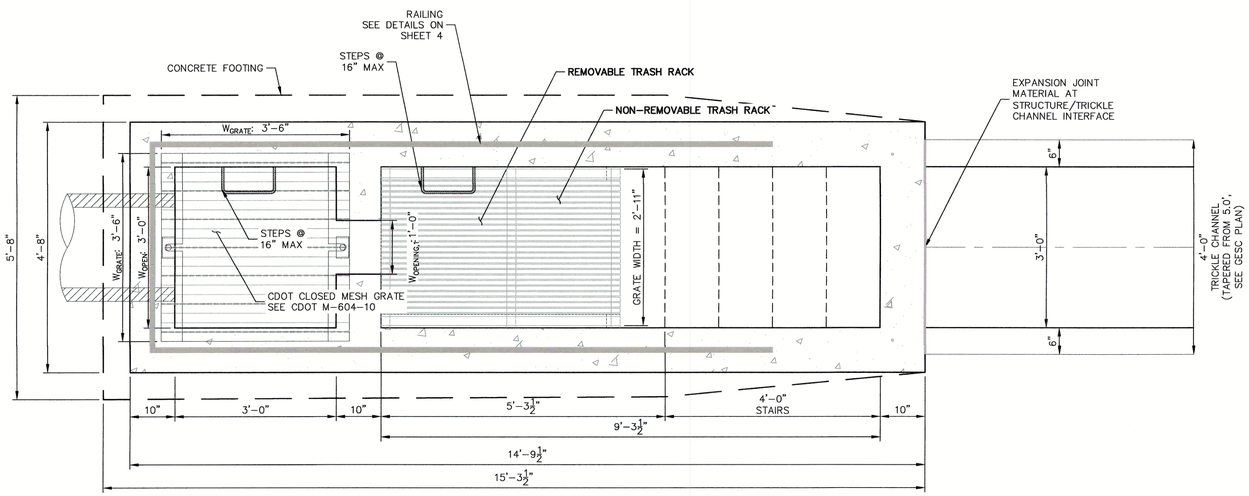

A SECTION A AT ORIFICE (FRONT) WALL

SCALE: 3/4"=1'



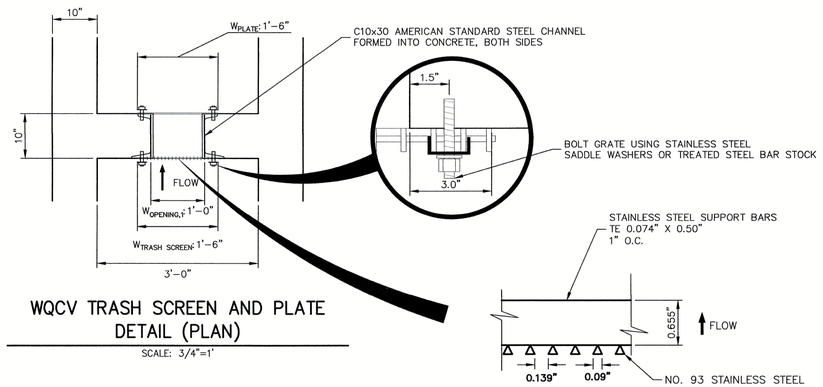

B SECTION B AT OUTLET (REAR) WALL

SCALE: 3/4"=1'




OUTLET STRUCTURE – PLAN

SCALE: 3/4"=1'




WQCV TRASH SCREEN AND PLATE DETAIL (PLAN)

SCALE: 3/4"=1'

R VALUE = (NET OPEN AREA)/(GROSS RACK AREA) = 0.60

TRASH SCREEN DETAIL

N.T.S.

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|---|---|
| H-SCALE | 3/4" = 1' |
| V-SCALE | 3/4" = 1' |
| DATE | 05/21/20 |
| DESIGNED BY | REB |
| DRAWN BY | REB |
| CHECKED BY | |

ACR SITE DEVELOPMENT PLAN

POND STRUCTURE DETAILS

SHEET 5 OF 9

JOB NO. 25176.00

EPC 6/23/20

COLORADO LICENSED PROFESSIONAL ENGINEER MIKE BRAMANT 32314 1/9/20

1/9/20

## Vehicle Tracking

### What it is

Vehicle tracking refers to the stabilization of construction entrances, roads, parking areas, and staging areas to prevent the tracking of sediment from the construction site.

### When and Where to use it

- All points where vehicles exit the construction site onto a public road.
- Construction entrance/exit should be located at permanent access locations if at all possible.
- Construction roads and parking areas.
- Loading and unloading areas.
- Storage and staging areas.
- Where trailers are parked.
- Any construction area that receives high vehicular traffic.

### When and Where NOT to use it

- The vehicle tracking area should not be located in areas that are wet or where soils erode easily.

This picture shows an unstabilized entrance where dirt is being tracked onto a public road.

### Construction Details and Maintenance Requirements

Figure VT-1 and VT-2 provide construction details and maintenance requirements for vehicle tracking.



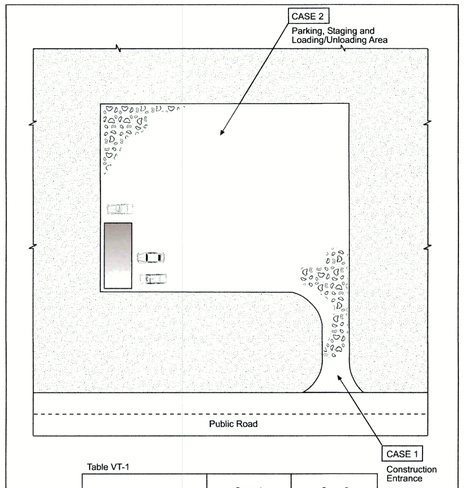


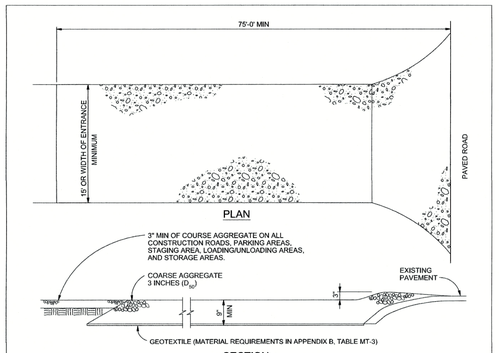

Table VT-1

| | Case 1 | Case 2 |
|---|---|---|
| Gravel Thickness | 9" | 3" |
| Filter Fabric | YES | NO |

City of Colorado Springs Storm Water Quality | Figure VT-1 Vehicle Tracking Application Examples

DEN/MB153722.CS C&b/Fig/VT-1/9-99






## VEHICLE TRACKING

NTS

## VEHICLE TRACKING NOTES

### INSTALLATION REQUIREMENTS

1. ALL ENTRANCES TO THE CONSTRUCTION SITE ARE TO BE STABILIZED PRIOR TO CONSTRUCTION BEGINNING.

2. CONSTRUCTION ENTRANCES ARE TO BE BUILT WITH AN APRON TO ALLOW FOR TURNING TRAFFIC, BUT SHOULD NOT BE BUILT OVER EXISTING PAVEMENT EXCEPT FOR A SLIGHT OVERLAP.

3. AREAS TO BE STABILIZED ARE TO BE PROPERLY GRADED AND COMPACTED PRIOR TO LAYING DOWN GEOTEXTILE AND STONE.

4. CONSTRUCTION ROADS, PARKING AREAS, LOADING/UNLOADING ZONES, STORAGE AREAS, AND STAGING AREAS ARE TO BE STABILIZED.

5. CONSTRUCTION ROADS ARE TO BE BUILT TO CONFORM TO SITE GRADES, BUT SHOULD NOT HAVE SIDE SLOPES OR ROAD GRADES THAT ARE EXCESSIVELY STEEP.

### MAINTENANCE REQUIREMENTS

1. REGULAR INSPECTIONS ARE TO BE MADE OF ALL STABILIZED AREAS, ESPECIALLY AFTER STORM EVENTS.

2. STONES ARE TO BE REAPPLIED PERIODICALLY AND WHEN REPAIR IS NECESSARY.

3. SEDIMENT TRACKED ONTO PAVED ROADS IS TO BE REMOVED DAILY BY SHOVELING OR SWEEPING. SEDIMENT IS NOT TO BE WASHED DOWN STORM SEWER DRAINS.

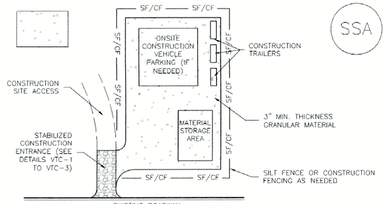
4. STORM SEWER INLET PROTECTION IS TO BE IN PLACE, INSPECTED, AND CLEANED IF NECESSARY.

5. OTHER ASSOCIATED SEDIMENT CONTROL MEASURES ARE TO BE INSPECTED TO ENSURE GOOD WORKING CONDITION.

City of Colorado Springs Stormwater Quality | Figure VT-2 Vehicle Tracking Application Examples








## SSA-1. STABILIZED STAGING AREA

STABILIZED STAGING AREA INSTALLATION NOTES

1. SEE PLAN VIEW FOR
   -LOCATION OF STAGING AREA(S).
   -CONTRACTOR MAY ADJUST LOCATION AND SIZE OF STAGING AREA WITH APPROVAL FROM THE LOCAL JURISDICTION.

2. STABILIZED STAGING AREA SHOULD BE APPROPRIATE FOR THE NEEDS OF THE SITE. OVERSIZING RESULTS IN A LARGER AREA TO STABILIZE FOLLOWING CONSTRUCTION.

3. STAGING AREA SHALL BE STABILIZED PRIOR TO OTHER OPERATIONS ON THE SITE.

4. THE STABILIZED STAGING AREA SHALL CONSIST OF A MINIMUM 3" THICK GRANULAR MATERIAL.

5. UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.

6. ADDITIONAL PERIMETER BMPs MAY BE REQUIRED INCLUDING BUT NOT LIMITED TO SILT FENCE AND CONSTRUCTION FENCING.

STABILIZED STAGING AREA MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY IF RUTTING OCCURS OR UNDERLYING SUBGRADE BECOMES EXPOSED.





STABILIZED STAGING AREA MAINTENANCE NOTES

5. STABILIZED STAGING AREA SHALL BE ENLARGED IF NECESSARY TO CONTAIN PARKING, STORAGE, AND UNLOADING/LOADING OPERATIONS.

6. THE STABILIZED STAGING AREA SHALL BE REMOVED AT THE END OF CONSTRUCTION. THE GRANULAR MATERIAL SHALL BE REMOVED OR, IF APPROVED BY THE LOCAL JURISDICTION, USED ON SITE, AND THE AREA COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION.

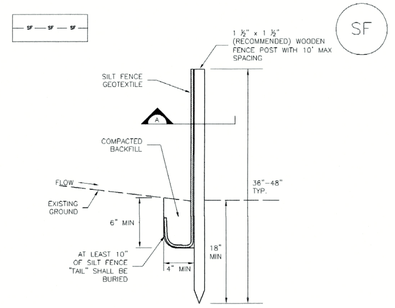
NOTE: MANY MUNICIPALITIES PROHIBIT THE USE OF RECYCLED CONCRETE AS GRANULAR MATERIAL FOR STABILIZED STAGING AREAS DUE TO DIFFICULTIES WITH RE-ESTABLISHMENT OF VEGETATION IN AREAS WHERE RECYCLED CONCRETE WAS PLACED.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

(DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO, NOT AVAILABLE IN AUTOCAD)








## SILT FENCE

## SECTION A

## SF-1. SILT FENCE





SILT FENCE INSTALLATION NOTES

1. SILT FENCE MUST BE PLACED AWAY FROM THE TOE OF THE SLOPE TO ALLOW FOR WATER PONDING. SILT FENCE AT THE TOE OF A SLOPE SHOULD BE INSTALLED IN A FLAT LOCATION AT LEAST SEVERAL FEET (2-5 FT) FROM THE TOE OF THE SLOPE TO ALLOW ROOM FOR PONDING AND DEPOSITION.

2. A UNIFORM 6" X 4" ANCHOR TRENCH SHALL BE EXCAVATED USING TRENCHER OR SILT FENCE INSTALLATION DEVICE. NO ROAD GRADERS, BACKHOES, OR SIMILAR EQUIPMENT SHALL BE USED.

3. COMPACT ANCHOR TRENCH BY HAND WITH A "JUMPING JACK" OR BY WHEEL ROLLING. COMPACTION SHALL BE SUCH THAT SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.

4. SILT FENCE SHALL BE PULLED TIGHT AS IT IS ANCHORED TO THE STAKES. THERE SHOULD BE NO NOTICEABLE SAG BETWEEN STAKES AFTER IT HAS BEEN ANCHORED TO THE STAKES.

5. SILT FENCE FABRIC SHALL BE ANCHORED TO THE STAKES USING 1" HEAVY DUTY STAPLES OR NAILS WITH 1" HEADS. STAPLES AND NAILS SHOULD BE PLACED 3" ALONG THE FABRIC DOWN THE STAKE.

6. AT THE END OF A RUN OF SILT FENCE ALONG A CONTOUR, THE SILT FENCE SHOULD BE TURNED PERPENDICULAR TO THE CONTOUR TO CREATE A "J-HOOK." THE "J-HOOK" EXTENDING PERPENDICULAR TO THE CONTOUR SHOULD BE OF SUFFICIENT LENGTH TO KEEP RUNOFF FROM FLOWING AROUND THE END OF THE SILT FENCE (TYPICALLY 10' - 20').

7. SILT FENCE SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

SILT FENCE MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. SEDIMENT ACCUMULATED UPSTREAM OF THE SILT FENCE SHALL BE REMOVED AS NEEDED TO MAINTAIN THE FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 6".

5. REPAIR OR REPLACE SILT FENCE WHEN THERE ARE SIGNS OF WEAR, SUCH AS SAGGING, TEARING, OR COLLAPSE.

6. SILT FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION, OR IS REPLACED BY AN EQUIVALENT PERIMETER SEDIMENT CONTROL BMP.

7. WHEN SILT FENCE IS REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

(DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.



**ENGINEER'S STATEMENT**

STANDARD DETAILS SHOWN WERE REVIEWED ONLY AS TO THEIR APPLICATION ON THIS PROJECT

MIKE A. BRAMLETT, P.E. 6/9/20 DATE
COLORADO P.E. 32314
FOR AND ON BEHALF OF JR ENGINEERING, LLC

EPC 6/23/20

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, THEY ARE ONLY FOR THE PURPOSES DESIGNATED BY WRITTEN AUTHORIZATION.

PREPARED FOR
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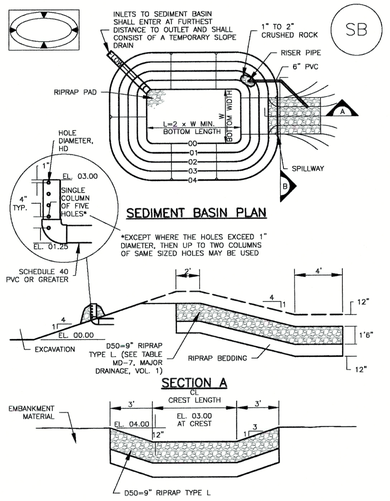
| No. | REVISION | BY | DATE |
|---|---|---|---|
| | | | |

| | |
|---|---|
| H-SCALE | N/A |
| V-SCALE | N/A |
| DATE | 05/21/20 |
| DESIGNED BY | RB |
| DRAWN BY | JEA |
| CHECKED BY | |

ACR SITE DEVELOPMENT PLAN
DETAILS 1

SHEET 6 OF 9
JOB NO. 25176.00








PER PROPOSED GRADING, CONTRACTOR TO FIELD VERIFY SIZING DURING CONSTRUCTION

TABLE SB-1. SIZING INFORMATION FOR STANDARD SEDIMENT BASIN

| Upstream Drainage Area (rounded to nearest acre), (ac) | Basin Bottom Width (W), (ft) | Spillway Crest Length (CL), (ft) | Hole Diameter (HD), (in) |
|---|---|---|---|
| 1 | 12 ½ | 2 | 9/32 |
| 2 | 21 | 3 | 1 5/64 |
| 3 | 28 | 5 | ½ |
| 4 | 33 ½ | 6 | 9/16 |
| 5 | 38 ½ | 8 | 27/32 |
| 6 | 43 | 9 | 27/32 |
| 7 | 47 ¼ | 11 | 27/32 |
| 8 | 51 | 12 | 27/32 |
| 9 | 55 | 13 | ¾ |
| 10 | 58 ¼ | 15 | 15/16 |
| 11 | 61 | 16 | 15/32 |
| 12 | 64 | 18 | ½ |
| 13 | 67 ½ | 19 | 1 1/16 |
| 14 | 70 ½ | 21 | 1 ⅛ |
| 15 | 73 ¼ | 22 | 1 3/16 |

SEDIMENT BASIN INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   - LOCATION OF SEDIMENT BASIN.
   - TYPE OF BASIN (STANDARD BASIN OR NONSTANDARD BASIN).
   - FOR STANDARD BASIN, BOTTOM WIDTH W, CREST LENGTH CL, AND HOLE DIAMETER, HD.
   - FOR NONSTANDARD BASIN, SEE CONSTRUCTION DRAWINGS FOR DESIGN OF BASIN INCLUDING RISER HEIGHT H, NUMBER OF COLUMNS N, HOLE DIAMETER HD AND PIPE DIAMETER D.
2. FOR STANDARD BASIN, BOTTOM DIMENSION MAY BE MODIFIED AS LONG AS BOTTOM AREA IS NOT REDUCED.
3. SEDIMENT BASINS SHALL BE INSTALLED PRIOR TO ANY OTHER LAND-DISTURBING ACTIVITY THAT RELIES ON ON BASINS AS AS A STORMWATER CONTROL.
4. EMBANKMENT MATERIAL SHALL CONSIST OF SOIL FREE OF DEBRIS, ORGANIC MATERIAL, AND ROCKS OR CONCRETE GREATER THAN 3 INCHES AND SHALL HAVE A MINIMUM OF 15 PERCENT BY WEIGHT PASSING THE NO. 200 SIEVE.
5. EMBANKMENT MATERIAL SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D698.
6. PIPE SCH 40 OR GREATER SHALL BE USED.
7. THE DETAILS SHOWN ON THESE SHEETS PERTAIN TO STANDARD SEDIMENT BASIN(S) FOR DRAINAGE AREAS LESS THAN 15 ACRES. SEE CONSTRUCTION DRAWINGS FOR EMBANKMENT, STORAGE VOLUME, SPILLWAY, OUTLET, AND OUTLET PROTECTION DETAILS FOR ANY SEDIMENT BASIN(S) THAT HAVE BEEN INDIVIDUALLY DESIGNED FOR DRAINAGE AREAS LARGER THAN 15 ACRES.





SEDIMENT BASIN MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. SEDIMENT ACCUMULATED IN BASIN SHALL BE REMOVED AS NEEDED TO MAINTAIN BMP EFFECTIVENESS. (TYPICALLY WHEN SEDIMENT DEPTH REACHES ONE FOOT (I.E., TWO FEET BELOW THE SPILLWAY CREST).
5. SEDIMENT BASINS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS ACCEPTED BY THE LOCAL JURISDICTION.
6. WHEN SEDIMENT BASINS ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

(DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.





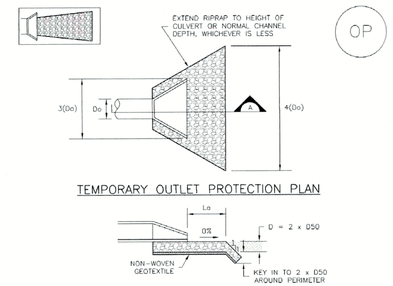


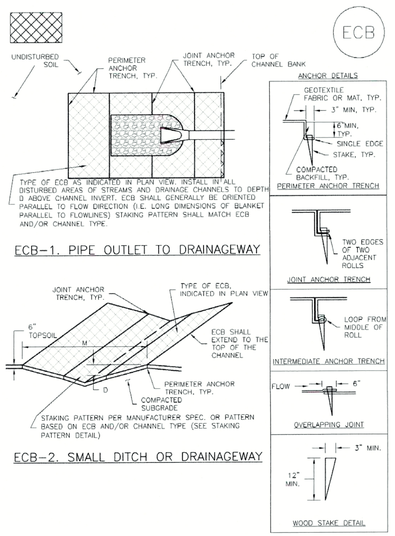

TABLE OP-1. TEMPORARY OUTLET PROTECTION SIZING TABLE

| PIPE DIAMETER, Do (INCHES) | DISCHARGE, Q (CFS) | APRON LENGTH, Lo (FT) | RIPRAP D50 DIAMETER MIN (INCHES) |
|---|---|---|---|
| 8 | 2.5 | 5 | 4 |
| | 5 | 10 | 6 |
| 12 | 5 | 10 | 4 |
| | 10 | 13 | 6 |
| 18 | 10 | 10 | 6 |
| | 20 | 16 | 9 |
| | 30 | 23 | 12 |
| | 40 | 26 | 16 |
| 24 | 30 | 16 | 9 |
| | 40 | 26 | 9 |
| | 50 | 26 | 12 |
| | 60 | 30 | 16 |

OP-1. TEMPORARY OUTLET PROTECTION

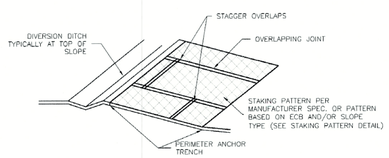















EROSION CONTROL BLANKET INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   - LOCATION OF ECB.
   - TYPE OF ECB (STRAW, STRAW-COCONUT, COCONUT, OR EXCELSIOR).
   - AREA, A, IN SQUARE YARDS OF EACH TYPE OF ECB.
2. 100% NATURAL AND BIODEGRADABLE MATERIALS ARE PREFERRED FOR RECPs, ALTHOUGH SOME JURISDICTIONS MAY ALLOW OTHER MATERIALS IN SOME APPLICATIONS.
3. IN AREAS WHERE ECBs ARE SHOWN ON THE PLANS, THE PERIMETER SHALL PLACE TOPSOIL AND PERFORM FINAL GRADING, SURFACE PREPARATION, AND SEEDING AND MULCHING. SUBGRADE SHALL BE SMOOTH AND MOIST PRIOR TO ECB INSTALLATION AND THE ECB SHALL BE IN FULL CONTACT WITH SUBGRADE. NO GAPS OR VOIDS SHALL EXIST UNDER THE BLANKET.
4. PERIMETER ANCHOR TRENCH SHALL BE USED ALONG THE OUTSIDE PERIMETER OF ALL BLANKET AREAS.
5. JOINT ANCHOR TRENCH SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER (LONGITUDINALLY AND TRANSVERSELY) FOR ALL ECBs EXCEPT STRAW WHICH MAY USE AN OVERLAPPING JOINT.
6. INTERMEDIATE ANCHOR TRENCH SHALL BE USED AT SPACING OF ONE-HALF ROLL LENGTH FOR COCONUT AND EXCELSIOR ECBs.
7. OVERLAPPING JOINT DETAIL SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER FOR ECBs ON SLOPES.
8. MATERIAL SPECIFICATIONS OF ECBs SHALL CONFORM TO TABLE ECB-1.
9. ANY AREAS OF SEEDING AND MULCHING DISTURBED IN THE PROCESS OF INSTALLING ECBS SHALL BE RESEEDED AND MULCHED.
10. DETAILS ON DESIGN PLANS FOR MAJOR DRAINAGEWAY STABILIZATION WILL GOVERN IF DIFFERENT FROM THOSE SHOWN HERE.

TABLE ECB-1. ECB MATERIAL SPECIFICATIONS

| TYPE | COCONUT CONTENT | STRAW CONTENT | EXCELSIOR CONTENT | RECOMMENDED NETTING** |
|---|---|---|---|---|
| STRAW* | – | 100% | – | DOUBLE/ NATURAL |
| STRAW-COCONUT | 30% MIN | 70% MAX | – | DOUBLE/ NATURAL |
| COCONUT | 100% | – | – | DOUBLE/ NATURAL |
| EXCELSIOR | – | – | 100% | DOUBLE/ NATURAL |

*STRAW ECBs MAY ONLY BE USED OUTSIDE OF STREAMS AND DRAINAGE CHANNEL.
**ALTERNATE NETTING MAY BE ACCEPTABLE IN SOME JURISDICTIONS





EROSION CONTROL BLANKET MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. ECBs SHALL BE LEFT IN PLACE TO EVENTUALLY BIODEGRADE, UNLESS REQUESTED TO BE REMOVED BY THE LOCAL JURISDICTION.
5. ANY ECB PULLED OUT, TORN, OR OTHERWISE DAMAGED SHALL BE REPAIRED OR REINSTALLED. ANY SUBGRADE AREAS BELOW THE GEOTEXTILE THAT HAVE ERODED TO CREATED A VOID UNDER THE BLANKET, OR THAT REMAIN DEVOID OF GRASS SHALL BE REPAIRED, RESEEDED AND MULCHED AND THE ECB REINSTALLED.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

(DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO AND TOWN OF PARKER COLORADO, NOT AVAILABLE IN AUTOCAD)



**ENGINEER'S STATEMENT**

STANDARD DETAILS SHOWN WERE REVIEWED ONLY AS TO THEIR APPLICATION ON THIS PROJECT

MIKE A. BRAMLETT, P.E.
COLORADO P.E. 32314
FOR AND ON BEHALF OF JR ENGINEERING, LLC

DATE 6/9/20

EPC 6/23/20

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, JR ENGINEERING APPROVES THEIR USE ONLY FOR THE PURPOSES DESIGNATED BY WRITTEN AUTHORIZATION.

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| No. | REVISION | BY | DATE |
|---|---|---|---|
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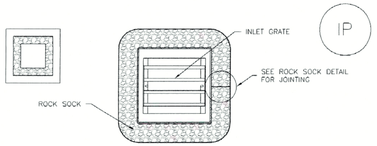
|---|---|---|---|
| H-SCALE | N/A | | |
| V-SCALE | N/A | | |
| DATE | 05/21/20 | | |
| DESIGNED BY | RB | | |
| DRAWN BY | JEA | | |
| CHECKED BY | | | |

ACR SITE DEVELOPMENT PLAN

DETAILS 2

SHEET 7 OF 9

JOB NO. 25176.00

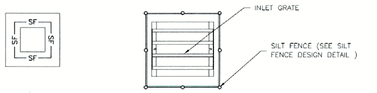



IP-3. ROCK SOCK SUMP/AREA INLET PROTECTION

ROCK SOCK SUMP/AREA INLET PROTECTION INSTALLATION NOTES

1. SEE ROCK SOCK DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.

2. STRAW WATTLES/SEDIMENT CONTROL LOGS MAY BE USED IN PLACE OF ROCK SOCKS FOR INLETS IN PERVIOUS AREAS. INSTALL PER SEDIMENT CONTROL LOG DETAIL.




IP-4. SILT FENCE FOR SUMP INLET PROTECTION

SILT FENCE INLET PROTECTION INSTALLATION NOTES

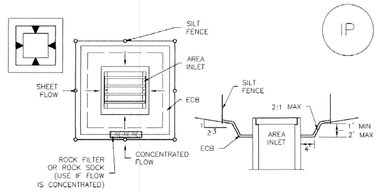
1. SEE SILT FENCE DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.

2. POSTS SHALL BE PLACED AT EACH CORNER OF THE INLET AND AROUND THE EDGES AT A MAXIMUM SPACING OF 3 FEET.

3. STRAW WATTLES/SEDIMENT CONTROL LOGS MAY BE USED IN PLACE OF SILT FENCE FOR INLETS IN PERVIOUS AREAS. INSTALL PER SEDIMENT CONTROL LOG DETAIL.







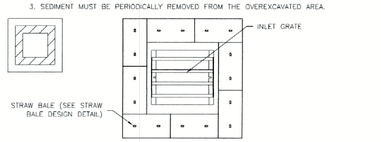

IP-5. OVEREXCAVATION INLET PROTECTION

OVEREXCAVATION INLET PROTECTION INSTALLATION NOTES

1. THIS FORM OF INLET PROTECTION IS PRIMARILY APPLICABLE FOR SITES THAT HAVE NOT YET REACHED FINAL GRADE AND SHOULD BE USED ONLY FOR INLETS WITH A RELATIVELY SMALL CONTRIBUTING DRAINAGE AREA.

2. WHEN USING FOR CONCENTRATED FLOWS, SHAPE BASIN IN 2:1 RATIO WITH LENGTH ORIENTED TOWARDS DIRECTION OF FLOW.

3. SEDIMENT MUST BE PERIODICALLY REMOVED FROM THE OVEREXCAVATED AREA.




IP-6. STRAW BALE FOR SUMP INLET PROTECTION

STRAW BALE BARRIER INLET PROTECTION INSTALLATION NOTES

1. SEE STRAW BALE DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.

2. BALES SHALL BE PLACED IN A SINGLE ROW AROUND THE INLET WITH ENDS OF BALES TIGHTLY ABUTTING ONE ANOTHER.





GENERAL INLET PROTECTION INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   - LOCATION OF INLET PROTECTION.
   - TYPE OF INLET PROTECTION (IP.1, IP.2, IP.3, IP.4, IP.5, IP.6)

2. INLET PROTECTION SHALL BE INSTALLED PROMPTLY AFTER INLET CONSTRUCTION OR PAVING IS COMPLETE (TYPICALLY WITHIN 48 HOURS). IF A RAINFALL/RUNOFF EVENT IS FORECAST, INSTALL INLET PROTECTION PRIOR TO ONSET OF EVENT.

3. MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

INLET PROTECTION MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. SEDIMENT ACCUMULATED UPSTREAM OF INLET PROTECTION SHALL BE REMOVED AS NECESSARY TO MAINTAIN BMP EFFECTIVENESS, TYPICALLY WHEN STORAGE VOLUME REACHES 50% OF CAPACITY, A DEPTH OF 6" WHEN SILT FENCE IS USED, OR ¼ OF THE HEIGHT FOR STRAW BALES.

5. INLET PROTECTION IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS PERMANENTLY STABILIZED, UNLESS THE LOCAL JURISDICTION APPROVES EARLIER REMOVAL OF INLET PROTECTION IN STREETS.

6. WHEN INLET PROTECTION AT AREA INLETS IS REMOVED, THE DISTURBED AREA SHALL BE COVERED WITH TOP SOIL, SEEDED AND MULCHED, OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

(DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

NOTE: THE DETAILS INCLUDED WITH THIS FACT SHEET SHOW COMMONLY USED, CONVENTIONAL METHODS OF INLET PROTECTION IN THE DENVER METROPOLITAN AREA. THERE ARE MANY PROPRIETARY INLET PROTECTION METHODS ON THE MARKET. UDFCD NEITHER ENDORSES NOR DISCOURAGES USE OF PROPRIETARY INLET PROTECTION; HOWEVER, IN THE EVENT PROPRIETARY METHODS ARE USED, THE APPROPRIATE DETAIL FROM THE MANUFACTURER MUST BE INCLUDED IN THE SWMP AND THE BMP MUST BE INSTALLED AND MAINTAINED AS SHOWN IN THE MANUFACTURER'S DETAILS.

NOTE: SOME MUNICIPALITIES DISCOURAGE OR PROHIBIT THE USE OF STRAW BALES FOR INLET PROTECTION. CHECK WITH LOCAL JURISDICTION TO DETERMINE IF STRAW BALE INLET PROTECTION IS ACCEPTABLE.





- Clean, weed-free and seed-free cereal grain straw should be applied evenly at a rate of 2 tons per acre and must be tacked or fastened by a method suitable for the condition of the site. Straw mulch must be anchored (and not merely placed) on the surface. This can be accomplished mechanically by crimping or with the aid of tackifiers or nets. Anchoring with a crimping implement is preferred, and is the recommended method for areas flatter than 3:1. Mechanical crimpers must be capable of tucking the long mulch fibers into the soil to a depth of 3 inches without cutting them. An agricultural disk, while not an ideal substitute, may work if the disk blades are dull or blunted and set vertically; however, the frame may have to be weighted to afford proper soil penetration.
- Grass hay may be used in place of straw; however, because hay is comprised of the entire plant including seed, mulching with hay may seed the site with non-native grass species which might in turn out-compete the native seed. Alternatively, native species of grass hay may be purchased, but can be difficult to find and are more expensive than straw. Purchasing and utilizing a certified weed-free straw is an easier and less costly mulching method. When using grass hay, follow the same guidelines as for straw (provided above).
- On small areas sheltered from the wind and heavy runoff, spraying a tackifier on the mulch is satisfactory for holding it in place. For steep slopes and special situations where greater control is needed, erosion control blankets anchored with stakes should be used instead of mulch.
- Hydraulic mulching consists of wood cellulose fibers mixed with water and a tackifying agent and should be applied at a rate of no less than 1,500 pounds per acre (1,425 lbs of fibers mixed with at least 75 lbs of tackifier) with a hydraulic mulcher. For steeper slopes, up to 2000 pounds per acre may be required for effective hydroseeding. Hydromulch typically requires up to 24 hours to dry; therefore, it should not be applied immediately prior to inclement weather. Application to roads, waterways and existing vegetation should be avoided.
- Erosion control mats, blankets, or nets are recommended to help stabilize steep slopes (generally 3:1 and steeper) and waterways. Depending on the product, these may be used alone or in conjunction with grass or straw mulch. Normally, use of these products will be restricted to relatively small areas. Biodegradable mats made of straw and jute, straw-coconut, coconut fiber, or excelsior can be used instead of mulch. (See the ECM/TRM BMP for more information.)
- Some tackifiers or binders may be used to anchor mulch. Check with the local jurisdiction for allowed tackifiers. Manufacturer's recommendations should be followed at all times. (See the Soil Binder BMP for more information on general types of tackifiers.)
- Rock can also be used as mulch. It provides protection of exposed soils to wind and water erosion and allows infiltration of precipitation. An aggregate base course can be spread on disturbed areas for temporary or permanent stabilization. The rock mulch layer should be thick enough to provide full coverage of exposed soil on the area it is applied.

## Maintenance and Removal

After mulching, the bare ground surface should not be more than 10 percent exposed. Reapply mulch, as needed, to cover bare areas.





Seeding dates for the highest success probability of perennial species along the Front Range are generally in the spring from April through early May and in the fall after the first of September until the ground freezes. If the area is irrigated, seeding may occur in summer months, as well. See Table TS/PS-3 for appropriate seeding dates.

**Table TS/PS-1. Minimum Drill Seeding Rates for Various Temporary Annual Grasses**

| Species[a] (Common name) | Growth Season[b] | Pounds of Pure Live Seed (PLS)/acre[c] | Planting Depth (inches) |
|---|---|---|---|
| 1. Oats | Cool | 35 - 50 | 1 - 2 |
| 2. Spring wheat | Cool | 25 - 35 | 1 - 2 |
| 3. Spring barley | Cool | 25 - 35 | 1 - 2 |
| 4. Annual ryegrass | Cool | 10 - 15 | ½ |
| 5. Millet | Warm | 3 - 15 | ½ - ¾ |
| 6. Sudangrass | Warm | 5–10 | ½ - ¾ |
| 7. Sorghum | Warm | 5–10 | ½ - ¾ |
| 8. Winter wheat | Cool | 20–35 | 1 - 2 |
| 9. Winter barley | Cool | 20–35 | 1 - 2 |
| 10. Winter rye | Cool | 20–35 | 1 - 2 |
| 11. Triticale | Cool | 25–40 | 1 - 2 |

[a] Successful seeding of annual grass resulting in adequate plant growth will usually produce enough dead-plant residue to provide protection from wind and water erosion for an additional year. This assumes that the cover is not disturbed or mowed closer than 8 inches.

Hydraulic seeding may be substituted for drilling only where slopes are steeper than 3:1 or where access limitations exist. When hydraulic seeding is used, hydraulic mulching should be applied as a separate operation, when practical, to prevent the seeds from being encapsulated in the mulch.

[b] See Table TS/PS-3 for seeding dates. Irrigation, if consistently applied, may extend the use of cool season species during the summer months.

[c] Seeding rates should be doubled if seed is broadcast, or increased by 50 percent if done using a Brillion Drill or by hydraulic seeding.





**Table TS/PS-2. Minimum Drill Seeding Rates for Perennial Grasses**

| Common[a] Name | Botanical Name | Growth Season[b] | Growth Form | Seeds/ Pound | Pounds of PLS/acre |
|---|---|---|---|---|---|
| **Alakali Soil Seed Mix** | | | | | |
| Alkali sacaton | *Sporobolus airoides* | Cool | Bunch | 1,750,000 | 0.25 |
| Basin wildrye | *Elymus cinereus* | Cool | Bunch | 165,000 | 2.5 |
| Sodar streambank wheatgrass | *Agropyron riparium 'Sodar'* | Cool | Sod | 170,000 | 2.5 |
| Jose tall wheatgrass | *Agropyron elongatum 'Jose'* | Cool | Bunch | 79,000 | 7.0 |
| Arriba western wheatgrass | *Agropyron smithii 'Arriba'* | Cool | Sod | 110,000 | 5.5 |
| **Total** | | | | | **17.75** |
| **Fertile Loamy Soil Seed Mix** | | | | | |
| Ephriam crested wheatgrass | *Agropyron cristatum 'Ephriam'* | Cool | Sod | 175,000 | 2.0 |
| Dural hard fescue | *Festuca ovina 'duriuscula'* | Cool | Bunch | 565,000 | 1.0 |
| Lincoln smooth brome | *Bromus inermis leyss 'Lincoln'* | Cool | Sod | 130,000 | 3.0 |
| Sodar streambank wheatgrass | *Agropyron riparium 'Sodar'* | Cool | Sod | 170,000 | 2.5 |
| Arriba western wheatgrass | *Agropyron smithii 'Arriba'* | Cool | Sod | 110,000 | 7.0 |
| **Total** | | | | | **15.5** |
| **High Water Table Soil Seed Mix** | | | | | |
| Meadow foxtail | *Alopecurus pratensis* | Cool | Sod | 900,000 | 0.5 |
| Redtop | *Agrostis alba* | Warm | Open sod | 5,000,000 | 0.25 |
| Reed canarygrass | *Phalaris arundinacea* | Cool | Sod | 68,000 | 0.5 |
| Lincoln smooth brome | *Bromus inermis leyss 'Lincoln'* | Cool | Sod | 130,000 | 3.0 |
| Pathfinder switchgrass | *Panicum virgatum 'Pathfinder'* | Warm | Sod | 389,000 | 1.0 |
| Alkar tall wheatgrass | *Agropyron elongatum 'Alkar'* | Cool | Bunch | 79,000 | 5.5 |
| **Total** | | | | | **10.75** |
| **Transition Turf Seed Mix[c]** | | | | | |
| Ruebens Canadian bluegrass | *Poa compressa 'Ruebens'* | Cool | Sod | 2,500,000 | 0.5 |
| Dural hard fescue | *Festuca ovina 'duriuscula'* | Cool | Bunch | 565,000 | 1.0 |
| Citation perennial ryegrass | *Lolium perenne 'Citation'* | Cool | Sod | 247,000 | 3.0 |
| Lincoln smooth brome | *Bromus inermis leyss 'Lincoln'* | Cool | Sod | 130,000 | 3.0 |
| **Total** | | | | | **7.5** |





**Table TS/PS-2. Minimum Drill Seeding Rates for Perennial Grasses (cont.)**

| Common Name | Botanical Name | Growth Season[b] | Growth Form | Seeds/ Pound | Pounds of PLS/acre |
|---|---|---|---|---|---|
| **Sandy Soil Seed Mix** | | | | | |
| Blue grama | *Bouteloua gracilis* | Warm | Sod-forming bunchgrass | 825,000 | 0.5 |
| Camper little bluestem | *Schizachyrium scoparium 'Camper'* | Warm | Bunch | 240,000 | 1.0 |
| Prairie sandreed | *Calamovilfa longifolia* | Warm | Open sod | 274,000 | 1.0 |
| Sand dropseed | *Sporobolus cryptandrus* | Cool | Bunch | 5,298,000 | 0.25 |
| Vaughn sideoats grama | *Bouteloua curtipendula 'Vaughn'* | Warm | Sod | 191,000 | 2.0 |
| Arriba western wheatgrass | *Agropyron smithii 'Arriba'* | Cool | Sod | 110,000 | 5.5 |
| **Total** | | | | | **10.25** |
| **Heavy Clay, Rocky Foothill Seed Mix** | | | | | |
| Ephriam crested wheatgrass[d] | *Agropyron cristatum 'Ephriam'* | Cool | Sod | 175,000 | 1.5 |
| Oahe Intermediate wheatgrass | *Agropyron intermedium 'Oahe'* | Cool | Sod | 115,000 | 5.5 |
| Vaughn sideoats grama[e] | *Bouteloua curtipendula 'Vaughn'* | Warm | Sod | 191,000 | 2.0 |
| Lincoln smooth brome | *Bromus inermis leyss 'Lincoln'* | Cool | Sod | 130,000 | 3.0 |
| Arriba western wheatgrass | *Agropyron smithii 'Arriba'* | Cool | Sod | 110,000 | 5.5 |
| **Total** | | | | | **17.5** |

[a] All of the above seeding mixes and rates are based on drill seeding followed by crimped straw mulch. These rates should be doubled if seed is broadcast and should be increased by 50 percent if the seeding is done using a Brillion Drill or is applied through hydraulic seeding. Hydraulic seeding may be substituted for drilling only where slopes are steeper than 3:1. If hydraulic seeding is used, hydraulic mulching should be done as a separate operation.

[b] See Table TS/PS-3 for seeding dates.

[c] If site is to be irrigated, the transition turf seed rates should be doubled.

[d] Crested wheatgrass should not be used on slopes steeper than 6H to 1V.

[e] Can substitute 0.5 lbs PLS of blue grama for the 2.0 lbs PLS of Vaughn sideoats grama.





**Table TS/PS-3. Seeding Dates for Annual and Perennial Grasses**

| | Annual Grasses (Numbers in table reference species in Table TS/PS-1) | | Perennial Grasses | |
|---|---|---|---|---|
| **Seeding Dates** | **Warm** | **Cool** | **Warm** | **Cool** |
| January 1–March 15 | | | ✓ | ✓ |
| March 16–April 30 | 4 | 1,2,3 | ✓ | ✓ |
| May 1–May 15 | 4 | | ✓ | |
| May 16–June 30 | 4,5,6,7 | | | |
| July 1–July 15 | 5,6,7 | | | |
| July 16–August 31 | | | | |
| September 1–September 30 | | 8,9,10,11 | | |
| October 1–December 31 | | | ✓ | ✓ |

### Mulch

Cover seeded areas with mulch or an appropriate rolled erosion control product to promote establishment of vegetation. Anchor mulch by crimping, netting or use of a non-toxic tackifier. See the Mulching BMP Fact Sheet for additional guidance.

## Maintenance and Removal

Monitor and observe seeded areas to identify areas of poor growth or areas that fail to germinate. Reseed and mulch these areas, as needed.

An area that has been permanently seeded should have a good stand of vegetation within one growing season if irrigated and within three growing seasons without irrigation in Colorado. Reseed portions of the site that fail to germinate or remain bare after the first growing season.

Seeded areas may require irrigation, particularly during extended dry periods. Targeted weed control may also be necessary.

Protect seeded areas from construction equipment and vehicle access.



**ENGINEER'S STATEMENT**

STANDARD DETAILS SHOWN WERE REVIEWED ONLY AS TO THEIR APPLICATION ON THIS PROJECT

MIKE A. BRAMLETT, P.E.
COLORADO P.E. 32314
FOR AND ON BEHALF OF JR ENGINEERING, LLC

DATE 6/9/20

EPC 6/23/20

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, JR ENGINEERING APPROVES THEIR USE ONLY FOR THE PURPOSES DESIGNATED BY WRITTEN AUTHORIZATION.

PREPARED FOR
ACR SITE DEVELOPMENT
705 CRESTFIELD GROVE
COLORADO SPRINGS, CO 80906
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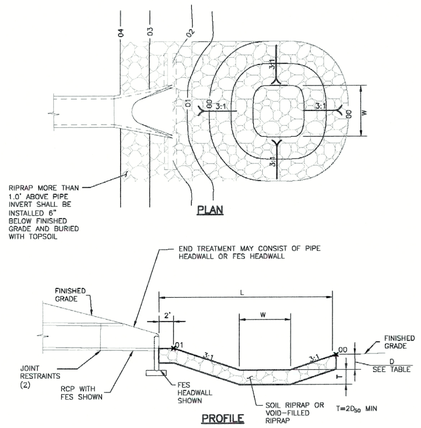
Fort Collins 970-491-9888 • www.jrengineering.com

| No. | REVISION | BY | DATE |
|---|---|---|---|
| | | | |

| | |
|---|---|
| H-SCALE | N/A |
| V-SCALE | N/A |
| DATE | 05/21/20 |
| DESIGNED BY | RB |
| DRAWN BY | JEA |
| CHECKED BY | |

ACR SITE DEVELOPMENT PLAN
DETAILS 3

SHEET 8 OF 9
JOB NO. 25176.00



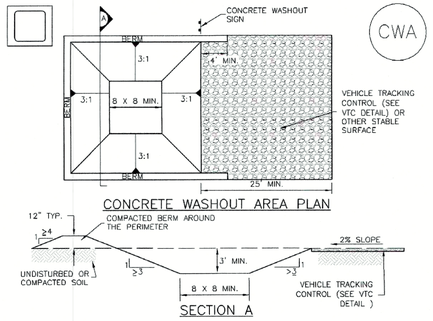

| PIPE SIZE OR BOX HEIGHT | D | W* | L |
|---|---|---|---|
| 18" – 24" | 1'–0" | 4' | 15' |
| 30" – 36" | 1'–6" | 6' | 20' |
| 42" – 48" | 2'–0" | 7' | 24' |
| 54" – 60" | 2'–6" | 8' | 28' |
| 66" – 72" | 3'–0" | 9' | 32' |

* IF OUTLET PIPE IS A BOX CULVERT WITH A WIDTH GREATER THAN W, THEN W = CULVERT WIDTH

**Figure 9-37. Low tailwater riprap basin**








## CWA–1. CONCRETE WASHOUT AREA

CWA INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   –CWA INSTALLATION LOCATION.

2. DO NOT LOCATE AN UNLINED CWA WITHIN 400' OF ANY NATURAL DRAINAGE PATHWAY OR WATERBODY. DO NOT LOCATE WITHIN 1,000' OF ANY WELLS OR DRINKING WATER SOURCES. IF SITE CONSTRAINTS MAKE THIS INFEASIBLE, OR IF HIGHLY PERMEABLE SOILS EXIST ON SITE, THE CWA MUST BE INSTALLED WITH AN IMPERMEABLE LINER (16 MIL MIN. THICKNESS) OR SURFACE STORAGE ALTERNATIVES USING PREFABRICATED CONCRETE WASHOUT DEVICES OR A LINED ABOVE GROUND STORAGE ARE SHOULD BE USED.

3. THE CWA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.

4. CWA SHALL INCLUDE A FLAT SUBSURFACE PIT THAT IS AT LEAST 8' BY 8' SLOPES LEADING OUT OF THE SUBSURFACE PIT SHALL BE 3:1 OR FLATTER. THE PIT SHALL BE AT LEAST 3' DEEP.

5. BERM SURROUNDING SIDES AND BACK OF THE CWA SHALL HAVE MINIMUM HEIGHT OF 1'.

6. VEHICLE TRACKING PAD SHALL BE SLOPED 2% TOWARDS THE CWA.

7. SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE CWA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CWA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.

8. USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION.





CWA MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. THE CWA SHALL BE REPAIRED, CLEANED, OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR CONCRETE WASTE. CONCRETE MATERIALS, ACCUMULATED IN PIT, SHALL BE REMOVED ONCE THE MATERIALS HAVE REACHED A DEPTH OF 2'.

5. CONCRETE WASHOUT WATER, WASTED PIECES OF CONCRETE AND ALL OTHER DEBRIS IN THE SUBSURFACE PIT SHALL BE TRANSPORTED FROM THE JOB SITE IN A WATER–TIGHT CONTAINER AND DISPOSED OF PROPERLY.

6. THE CWA SHALL REMAIN IN PLACE UNTIL ALL CONCRETE FOR THE PROJECT IS PLACED.

7. WHEN THE CWA IS REMOVED, COVER THE DISTURBED AREA WITH TOP SOIL, SEED AND MULCH OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

(DETAIL ADAPTED FROM DOUGLAS COUNTY, COLORADO AND THE CITY OF PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD).

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.



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PREPARED FOR
ACR SITE DEVELOPMENT
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| No. | REVISION | BY | DATE |
|---|---|---|---|
| | | | |

| | |
|---|---|
| H-SCALE | N/A |
| V-SCALE | N/A |
| DATE | 05/21/20 |
| DESIGNED BY | RB |
| DRAWN BY | JEA |
| CHECKED BY | |

ACR SITE DEVELOPMENT PLAN
DETAILS 4

SHEET 9 OF 9
JOB NO. 25176.00