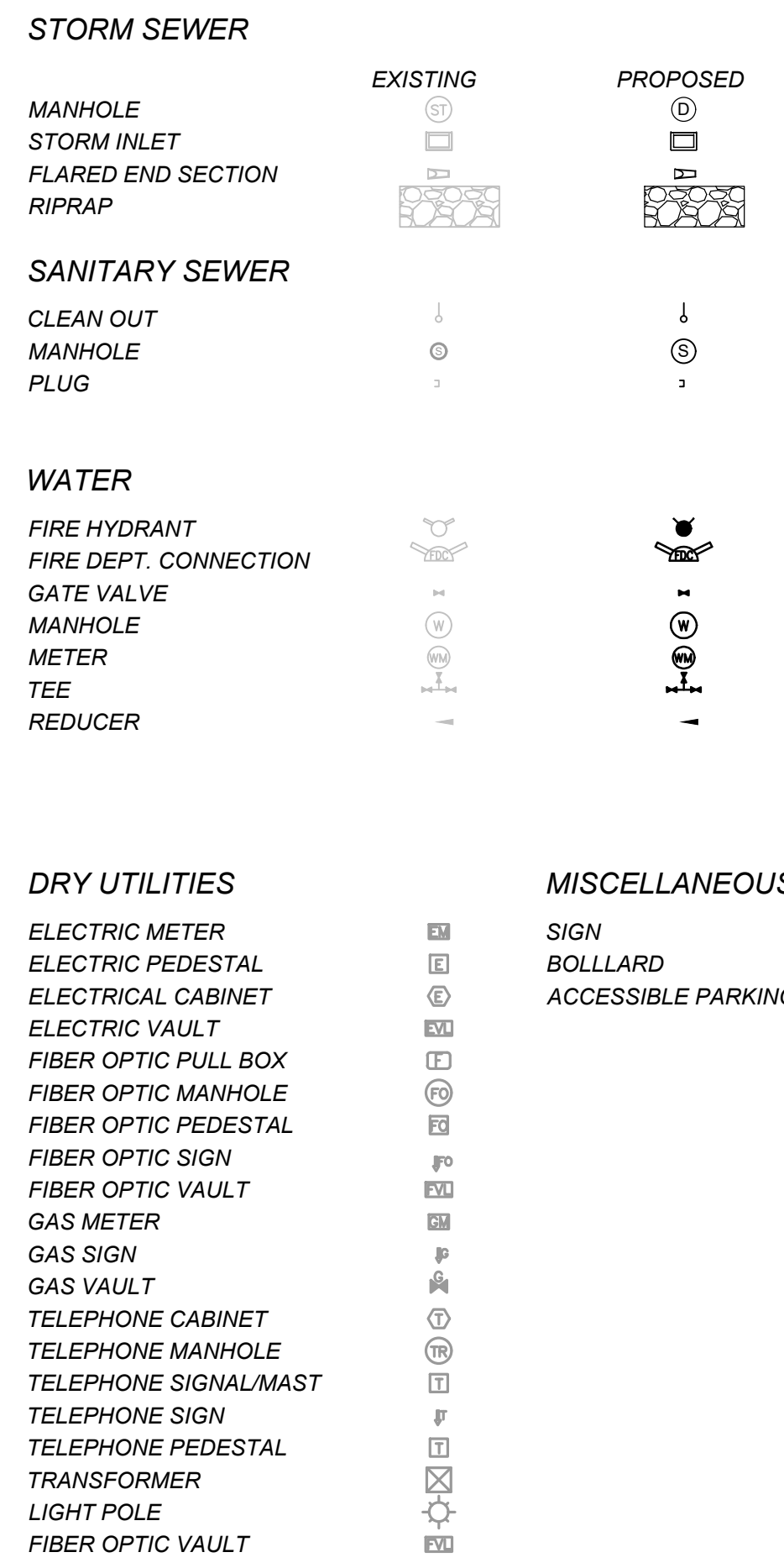
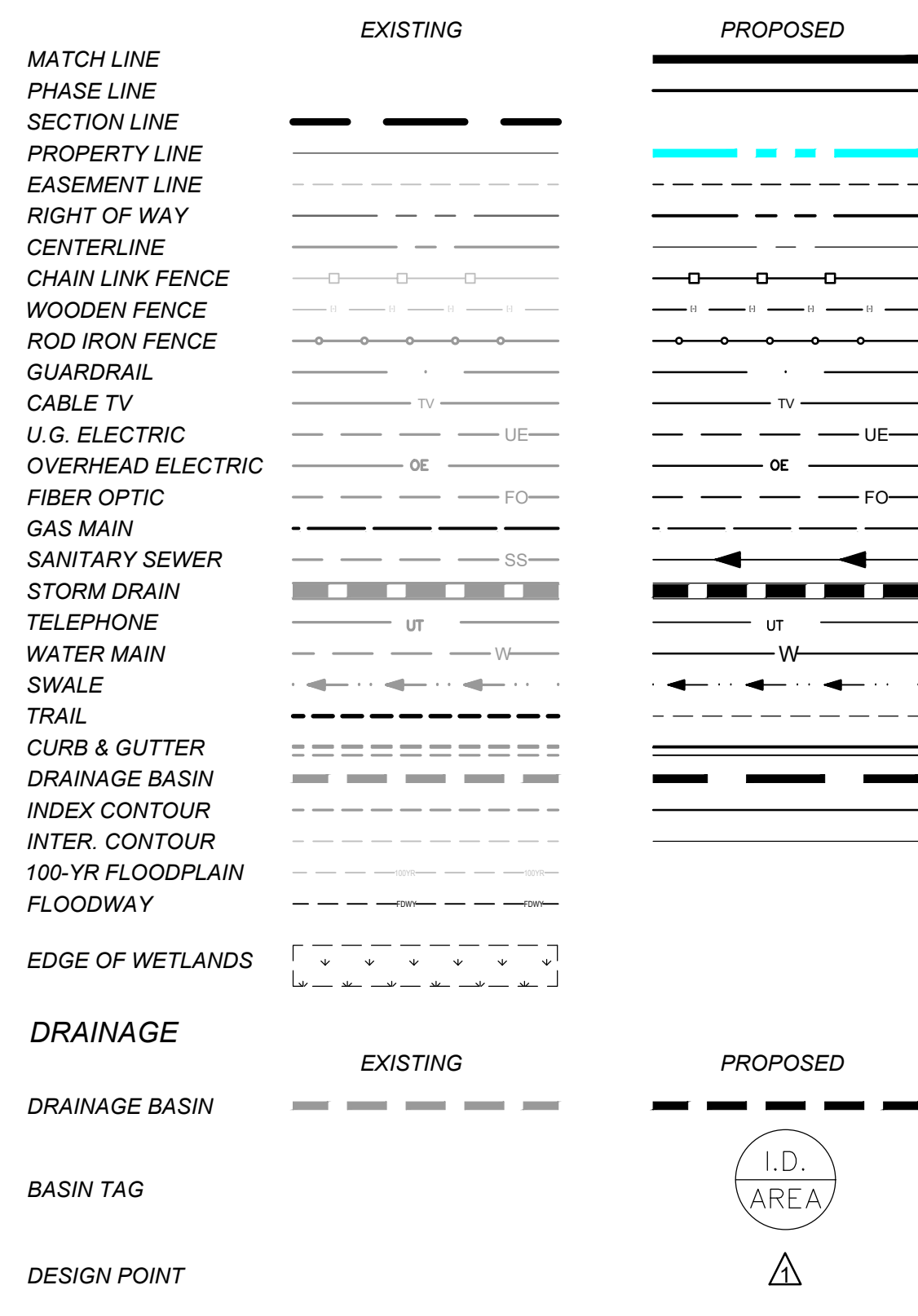




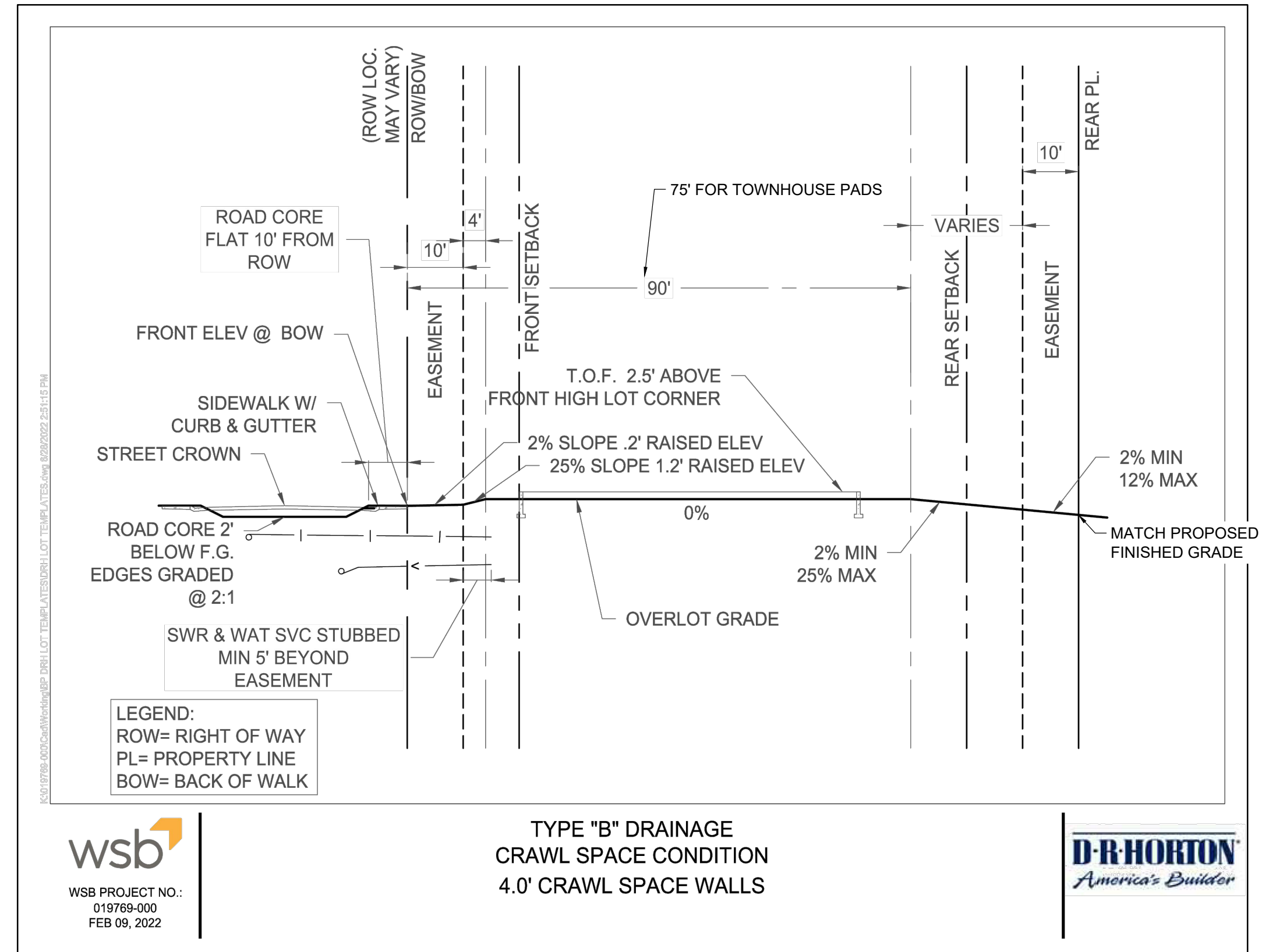
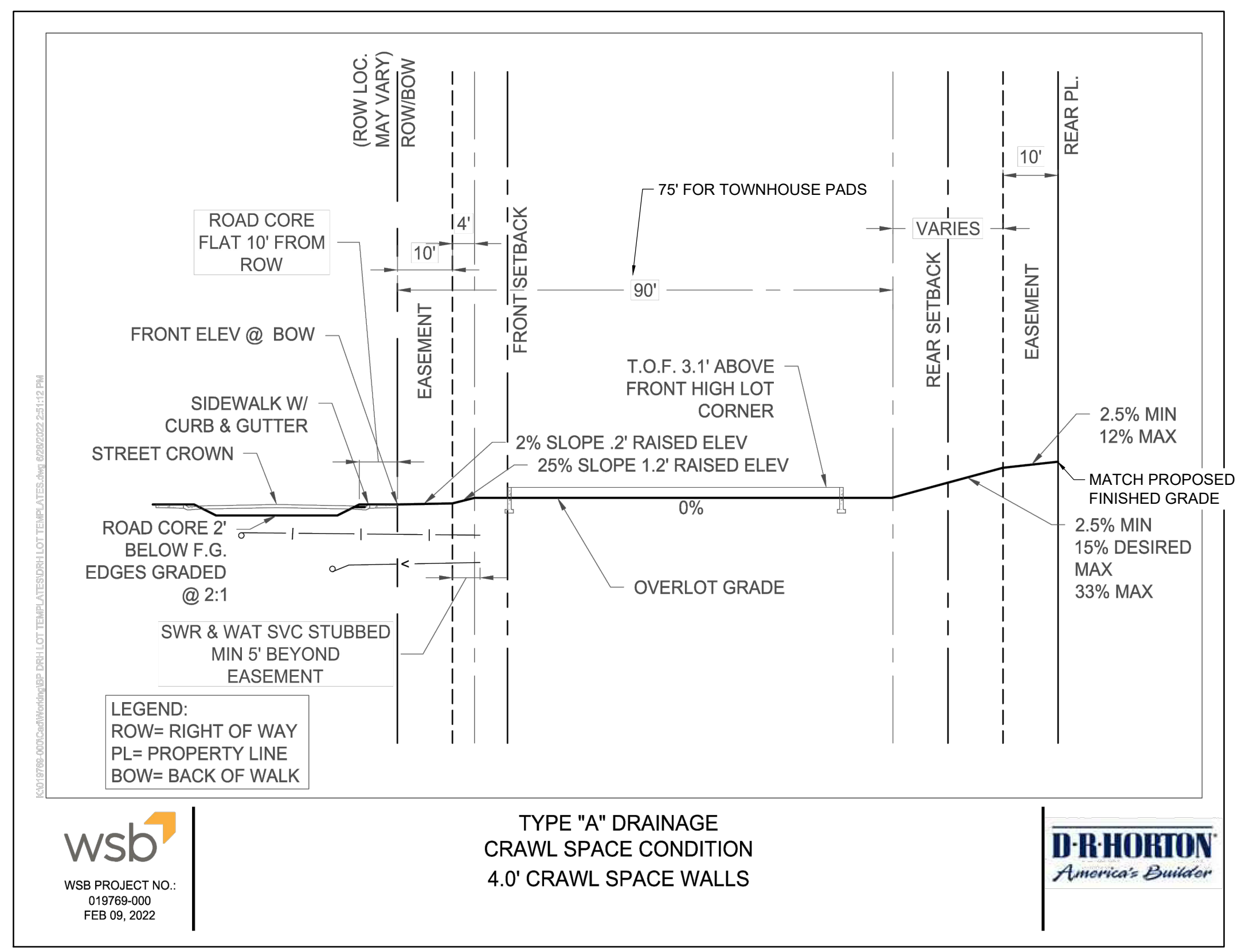
HUHN, KEN, 7/30/2024 11:19 AM

**LEGEND**



**GRANDVIEW RESERVE PHASE 3  
EARLY GRADING & EROSION CONTROL PLAN**

A TRACT OF LAND BEING A PORTION SECTIONS 21, 22, 27, & 28, TOWNSHIP 12 SOUTH, RANGE 64 WEST OF THE 6TH/ PRINCIPAL MERIDIAN, EL PASO COUNTY, COLORADO



wsb  
WSB PROJECT NO.:  
019769-000  
FEB 09, 2022

TYPE "A" DRAINAGE  
CRAWL SPACE CONDITION  
4.0' CRAWL SPACE WALLS



wsb  
WSB PROJECT NO.:  
019769-000  
FEB 09, 2022

TYPE "B" DRAINAGE  
CRAWL SPACE CONDITION  
4.0' CRAWL SPACE WALLS



NOT FOR CONSTRUCTION  
LAND USE REVIEW FILE NO: PUDSP-

DRAWN BY: DLH JOB DATE: 12/4/2023  
APPROVED: KMH JOB NUMBER: 201662.2  
CAD DATE: 7/30/2024  
CAD FILE: J:\2020\201662\CAD\DWG\CIPUD\_Phase\_2\_662.202\GEC\Early\_GradingNotes\_EarlyGrading

NO.	DATE	BY	REVISION DESCRIPTION

HR GREEN - COLORADO SPRINGS  
1975 RESEARCH PKWY SUITE 230  
COLORADO SPRINGS CO 80920  
PHONE: 719.300.4140  
FAX: 713.965.0044

GRANDVIEW RESERVE - PHASE 3  
D.R. HORTON  
EL PASO COUNTY, CO



EARLY GRADING & EROSION CONTROL PLANS  
TYPICAL SECTION

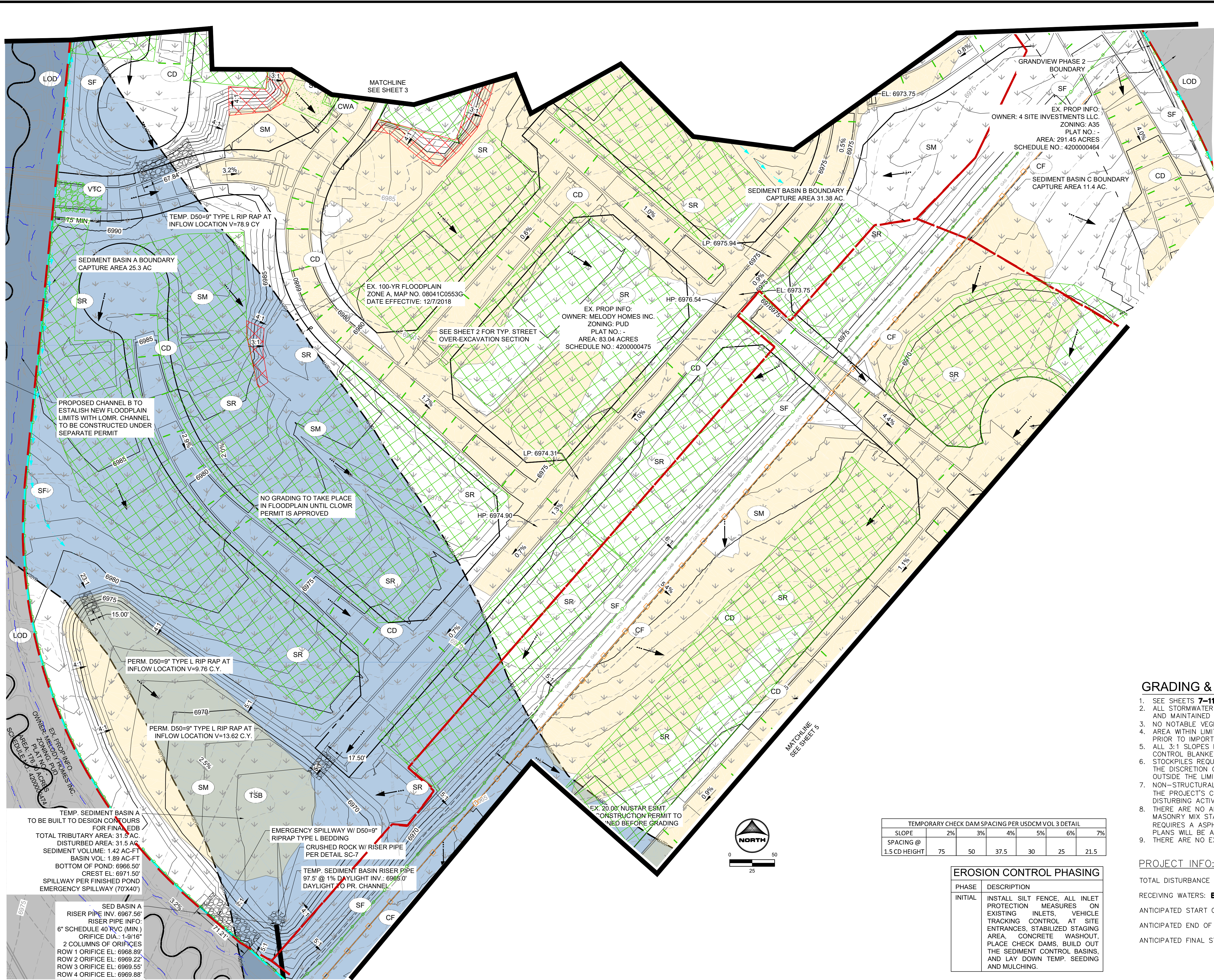
SHEET  
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2

HR GREEN Xref: xj-1-arch d01\_PHZ\_PUD; lo\_Loyent\_Typicals; lo\_L\_Bldg\_Typicals; lo\_townhome\_Typicals; Legend; 4-Unit-Townhome



HUHN, KEN, 7/30/2024, 11:20 AM

HR GREEN Xrefs: wgs-1-sarc0.dwg, P12\_PUD\_1202201662\_CAD\dwg\CIPUD\_Phase\_2\_662.2021\GEC\_Early\_Grading\GEC\_EarlyGrading.dwg



- GEC LEGEND:**
- CWA CONCRETE WASHOUT AREA
  - ED/DS EARTH DIKE & DRAINAGE SWALE
  - IP INLET PROTECTION
  - CIP CULVERT INLET PROTECTION
  - SF SILT FENCE
  - CF CONSTRUCTION FENCE
  - SSA STABILIZED STAGING AREA
  - SP STOCKPILE PROTECTION
  - VTC VEHICLE TRACKING CONTROL
  - LOD LIMITS OF CONSTRUCTION/DISTURBANCE (CUT/FILL LIMIT)
  - SM TEMPORARY SEEDING AND MULCHING
  - PT PORTABLE TOILET
  - CD CHECK DAM
  - TSB TEMPORARY SEDIMENT BASIN
  - ECB EROSION CONTROL BLANKET
  - SR SURFACE ROUGHENING
  - TW/BW ELEVATION OF TOP/BOTTOM OF WALL DO NOT DISTURB/ PROPOSED WORK BY OTHERS
  - AREA OF CUT
  - PROP FLOW DIRECTION
  - EX FLOW DIRECTION
  - EX FLOODPLAIN
  - PR. FLOWLINE OF CHANNEL B
  - PR. FLOODPLAIN (PER CHANNEL B LOMR)

**GRADING & EROSION CONTROL PLAN NOTES:**

- SEE SHEETS 7-11 FOR EL PASO COUNTY GRADING AND EROSION CONTROL DETAILS.
- ALL STORMWATER MANAGEMENT MEASURES SHOWN ON THIS PLAN MUST BE INSTALLED AND MAINTAINED PER THE EL PASO COUNTY GRADING AND EROSION CONTROL DETAILS.
- NO NOTABLE VEGETATION FOUND WITHIN SITE EXCEPT FOR NATIVE GRASSES/WEEDS.
- AREA WITHIN LIMITS OF DISTURBANCE TO BE CLEARED, GRUBBED AND STOCKPILED PRIOR TO IMPORT OF ANY FILL.
- ALL 3:1 SLOPES MUST BE RECEIVE SLOPE TRACKING TREATMENT AND EROSION CONTROL BLANKET.
- STOCKPILES REQUIRED DURING ONSITE CONSTRUCTION ACTIVITIES WILL BE PLACED AT THE DISCRETION OF THE CONTRACTOR. STOCKPIILING OF MATERIAL MUST NOT OCCUR OUTSIDE THE LIMITS OF DISTURBANCE SHOWN ON THIS PLAN.
- NON-STRUCTURAL CONTROLS (I.E. STREET SWEEPING) WILL BE AT THE DISCRETION OF THE PROJECT'S CERTIFIED GEC ADMINISTRATOR THROUGHOUT THE DURATION OF LAND DISTURBING ACTIVITIES.
- THERE ARE NO ANTICIPATED ASPHALT AND/OR CONCRETE BATCH PLANTS, OR MASONRY MIX STATIONS ASSOCIATED WITH THIS PROJECT. IF THE CONTRACTOR REQUIRES A ASPHALT/CONCRETE BATCH PLANTS OR MASONRY MIX STATIONS, THESE PLANS WILL BE AMENDED AS REQUIRED.
- THERE ARE NO EXISTING PRESERVATION EASEMENTS LOCATED ON SITE.

**PROJECT INFO:**

TOTAL DISTURBANCE AREA = **69.1 AC**  
 RECEIVING WATERS: **BLACK SQUIRREL CREEK**  
 ANTICIPATED START OF CONSTRUCTION: **SPRING 2025**  
 ANTICIPATED END OF LAND DISTURBANCE: **SUMMER 2025**  
 ANTICIPATED FINAL STABILIZATION: **FALL 2025**

LAND USE REVIEW FILE NO: PUDSP-23-006

SLOPE	2%	3%	4%	5%	6%	7%
SPACING @ 1.5 CD HEIGHT	75	50	37.5	30	25	21.5

PHASE	DESCRIPTION
INITIAL	INSTALL SILT FENCE, ALL INLET PROTECTION MEASURES ON EXISTING INLETS, VEHICLE TRACKING CONTROL AT SITE ENTRANCES, STABILIZED STAGING AREA, CONCRETE WASHOUT, PLACE CHECK DAMS, BUILD OUT THE SEDIMENT CONTROL BASINS, AND LAY DOWN TEMP. SEEDING AND MULCHING.

DRAWN BY: DLH JOB DATE: 7/30/24  
 APPROVED: KMH JOB NUMBER: 201662.2  
 CAD DATE: 7/30/2024  
 CAD FILE: J:\2020\201662\CAD\dwg\CIPUD\_Phase\_2\_662.2021\GEC\_Early\_Grading\GEC\_EarlyGrading.dwg

NO.	DATE	BY	REVISION DESCRIPTION

HR GREEN - COLORADO SPRINGS  
 1975 RESEARCH PKWY SUITE 230  
 COLORADO SPRINGS CO 80920  
 PHONE: 719.300.4140  
 FAX: 713.965.0044

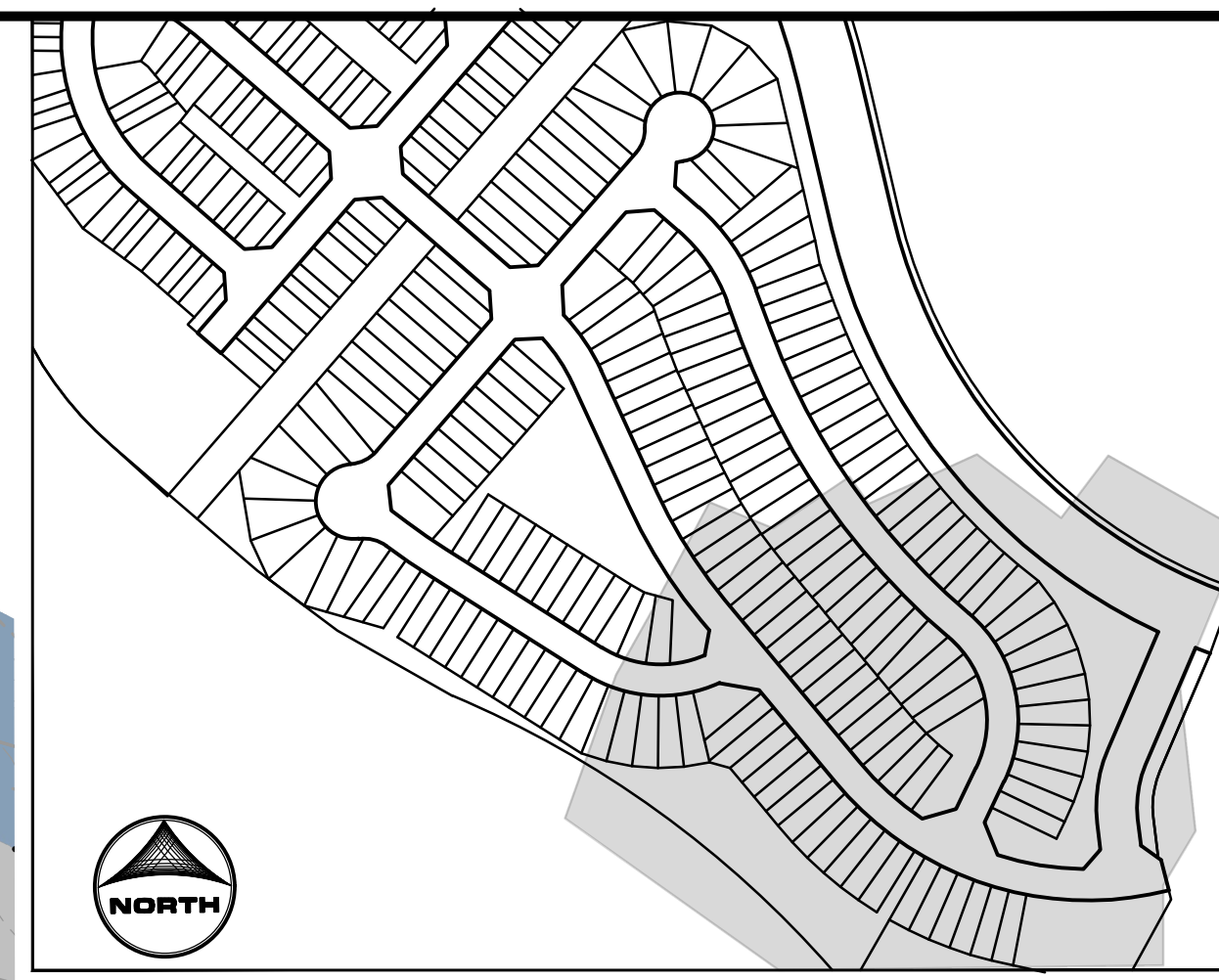
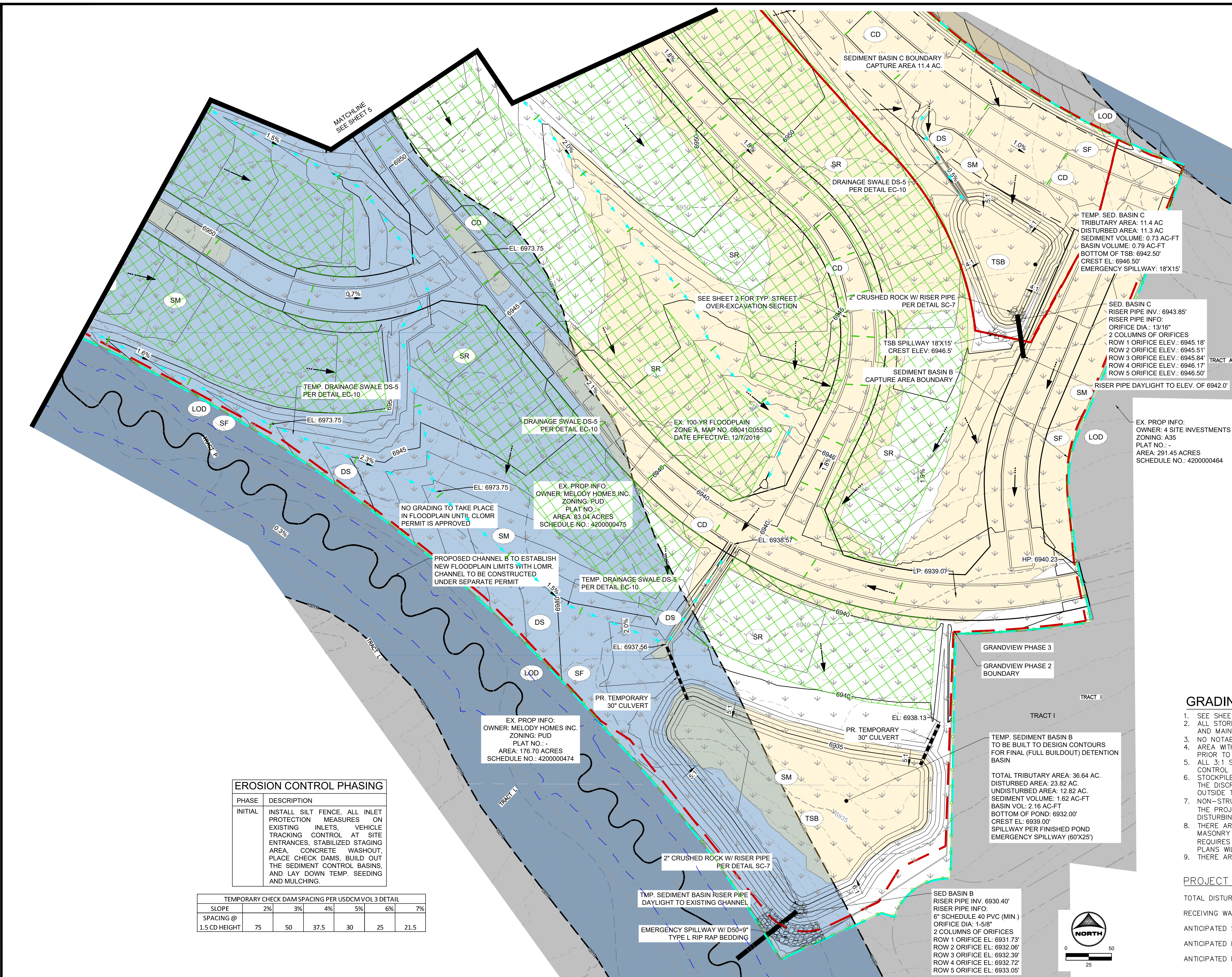
GRANDVIEW RESERVE - PHASE 2  
 D.R. HORTON  
 EL PASO COUNTY, CO



EARLY GRADING & EROSION CONTROL PLANS  
 GEC INITIAL

SHEET  
 GEC  
 4





KEY MAP SCALE: NTS

**GEC LEGEND:**

- CWA CONCRETE WASHOUT AREA
- ED/DS EARTH DIKE & DRAINAGE SWALE
- IP INLET PROTECTION
- CIP CULVERT INLET PROTECTION
- SF SILT FENCE
- CF CONSTRUCTION FENCE
- SSA STABILIZED STAGING AREA
- SP STOCKPILE PROTECTION
- VTC VEHICLE TRACKING CONTROL
- LOD LIMITS OF CONSTRUCTION/DISTURBANCE (CUT/FILL LIMIT)
- SM TEMPORARY SEEDING AND MULCHING
- PT PORTABLE TOILET
- CD CHECK DAM
- TSB TEMPORARY SEDIMENT BASIN
- ECB EROSION CONTROL BLANKET
- SR SURFACE ROUGHENING
- TWBW ELEVATION OF TOP/BOTTOM OF WALL DO NOT DISTURB/ PROPOSED WORK BY OTHERS
- AREA OF CUT
- PROP FLOW DIRECTION
- EX FLOW DIRECTION
- EX FLOODPLAIN
- PR. FLOWLINE OF CHANNEL B
- PR. FLOODPLAIN (PER CHANNEL B LOMR)

- GRADING & EROSION CONTROL PLAN NOTES:**
- SEE SHEETS 7-11 FOR EL PASO COUNTY GRADING AND EROSION CONTROL DETAILS.
  - ALL STORMWATER MANAGEMENT MEASURES SHOWN ON THIS PLAN MUST BE INSTALLED AND MAINTAINED PER THE EL PASO COUNTY GRADING AND EROSION CONTROL DETAILS.
  - NO NOTABLE VEGETATION FOUND WITHIN SITE EXCEPT FOR NATIVE GRASSES/WEEDS. AREA WITHIN LIMITS OF DISTURBANCE TO BE CLEARED, GRUBBED AND STOCKPILED PRIOR TO IMPORT OF ANY FILL.
  - ALL 3:1 SLOPES MUST BE RECEIVE SLOPE TRACKING TREATMENT AND EROSION CONTROL BLANKET.
  - STOCKPILES REQUIRED DURING ONSITE CONSTRUCTION ACTIVITIES WILL BE PLACED AT THE DISCRETION OF THE CONTRACTOR. STOCKPILING OF MATERIAL MUST NOT OCCUR OUTSIDE THE LIMITS OF DISTURBANCE SHOWN ON THIS PLAN.
  - NON-STRUCTURAL CONTROLS (I.E. STREET SWEEPING) WILL BE AT THE DISCRETION OF THE PROJECT'S CERTIFIED GEC ADMINISTRATOR THROUGHOUT THE DURATION OF LAND DISTURBING ACTIVITIES.
  - THERE ARE NO ANTICIPATED ASPHALT AND/OR CONCRETE BATCH PLANTS, OR MASONRY MIX STATIONS ASSOCIATED WITH THIS PROJECT. IF THE CONTRACTOR REQUIRES AN ASPHALT/CONCRETE BATCH PLANTS OR MASONRY MIX STATIONS, THESE PLANS WILL BE AMENDED AS REQUIRED.
  - THERE ARE NO EXISTING PRESERVATION EASEMENTS LOCATED ON SITE.

**PROJECT INFO:**

TOTAL DISTURBANCE AREA = **69.1 AC**

RECEIVING WATERS: **BLACK SQUIRREL CREEK**

ANTICIPATED START OF CONSTRUCTION: **SPRING 2025**

ANTICIPATED END OF LAND DISTURBANCE: **SUMMER 2025**

ANTICIPATED FINAL STABILIZATION: **FALL 2025**

**EROSION CONTROL PHASING**

PHASE	DESCRIPTION
INITIAL	INSTALL SILT FENCE, ALL INLET PROTECTION MEASURES ON EXISTING INLETS, VEHICLE TRACKING CONTROL AT SITE ENTRANCES, STABILIZED STAGING AREA, CONCRETE WASHOUT, PLACE CHECK DAMS, BUILD OUT THE SEDIMENT CONTROL BASINS, AND LAY DOWN TEMP. SEEDING AND MULCHING.

**TEMPORARY CHECK DAM SPACING PER USDCM VOL 3 DETAIL**

SLOPE	2%	3%	4%	5%	6%	7%
SPACING @ 1.5 CD HEIGHT	75	50	37.5	30	25	21.5

DRAWN BY: DLH JOB DATE: 7/30/24  
 APPROVED: KMH JOB NUMBER: 201662.2  
 CAD DATE: 7/30/2024  
 CAD FILE: J:\2020\201662\CAD\DWG\CIPUD\_Phase\_2\_662.202\GEC\_Early\_Grading\GEC\_EarlyGrading.dwg

NO.	DATE	BY	REVISION DESCRIPTION

**HRGreen**  
 HR GREEN - COLORADO SPRINGS  
 1975 RESEARCH PKWY SUITE 230  
 COLORADO SPRINGS CO 80920  
 PHONE: 719.300.4140  
 FAX: 713.965.0044

**GRANDVIEW RESERVE - PHASE 2**  
 D.R. HORTON  
 EL PASO COUNTY, CO



EARLY GRADING & EROSION CONTROL PLANS  
 GEC INITIAL

SHEET  
**GEC**  
 6

### Surface Roughening (SR) EC-1

**SR-1. SURFACE ROUGHENING FOR STEEP SLOPES (3:1 OR STEEPER)**

**SR-2. SURFACE ROUGHENING FOR LOW SLOPES (LESS THAN 3:1)**

November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 SR-3

### EC-1 Surface Roughening (SR)

**SURFACE ROUGHENING INSTALLATION NOTES**

- SEE PLAN VIEW FOR:
  - LOCATIONS OF SURFACE ROUGHENING.
- SURFACE ROUGHENING SHALL BE PROVIDED PROMPTLY AFTER COMPLETION OF FINISHED GRADING (FOR AREAS NOT RECEIVING TOPSOIL) OR PRIOR TO TOPSOIL PLACEMENT OR ANY FORECASTED RAIN EVENT.
- AREAS WHERE BUILDING FOUNDATIONS, PAVEMENT, OR SOD WILL BE PLACED WITHOUT DELAY IN THE CONSTRUCTION SEQUENCE, SURFACE ROUGHENING IS NOT REQUIRED.
- DISTURBED SURFACES SHALL BE ROUGHENED USING RIPPING OR TILLING EQUIPMENT ON THE CONTOUR OR TRACKING UP AND DOWN A SLOPE USING EQUIPMENT TREADS.
- A FARMING DISK SHALL NOT BE USED FOR SURFACE ROUGHENING.

**SURFACE ROUGHENING MAINTENANCE NOTES**

- 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.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACE UPON DISCOVERY OF THE FAILURE.
- VEHICLES AND EQUIPMENT SHALL NOT BE DRIVEN OVER AREAS THAT HAVE BEEN SURFACE ROUGHENED.
- IN NON-TURF GRASS FINISHED AREAS, SEEDING AND MULCHING SHALL TAKE PLACE DIRECTLY OVER SURFACE ROUGHENED AREAS WITHOUT FIRST SMOOTHING OUT THE SURFACE.
- IN AREAS NOT SEEDED AND MULCHED AFTER SURFACE ROUGHENING, SURFACES SHALL BE RE-ROUGHENED AS NECESSARY TO MAINTAIN GROOVE DEPTH AND SMOOTH OVER RILL EROSION.

(DETAILS ADAPTED FROM TOWN 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.

SR-4 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 November 2010

### EC-2 Temporary and Permanent Seeding (TS/PS)

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

Species <sup>a</sup> (Common name)	Growth Season <sup>b</sup>	Pounds of Pure Live Seed (PLS)/acre <sup>c</sup>	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. Winter wheat	Cool	20 - 35	1 - 2
7. Winter barley	Cool	20 - 35	1 - 2
8. Winter rye	Cool	20 - 35	1 - 2
9. Triticale	Cool	25 - 40	1 - 2

<sup>a</sup> 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.

<sup>b</sup> See Table TS/PS-2 for seeding dates. Irrigation, if consistently applied, may extend the use of cool season species during the summer months.

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

TS/PS-4 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 January 2021

### Temporary and Permanent Seeding (TS/PS) EC-2

**Table TS/PS-2. Seeding Dates for Annual and Perennial Grasses**

Seeding Dates	Annual Grasses (Numbers in table reference species in Table TS/PS-1)		Perennial Grasses	
	Warm	Cool	Warm	Cool
January 1–March 15			✓	✓
March 16–April 30		1,2,3	✓	✓
May 1–May 15			✓	
May 16–June 30	5			
July 1–July 15	5			
July 16–August 31				
September 1–September 30			6, 7, 8, 9	
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 USDCM Volume 2 *Revegetation* Chapter and Volume 3 *Mulching BMP Fact Sheet (EC-04)* 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.

If a temporary annual seed was planted, the area should be reseeded with the desired perennial mix when there will be no further work in the area. To minimize competition between annual and perennial species, the annual mix needs time to mature and die before seeding the perennial mix. To increase success of the perennial mix, it should be seeded during the appropriate seeding dates the second year after the temporary annual mix was seeded. Alternatively, if this timeline is not feasible, the annual mix seed heads should be removed and then the area seeded with the perennial mix.

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.

January 2021 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 TS/PS-5

### EC-6 Rolled Erosion Control Products (RECP)

**ECB-1. PIPE OUTLET TO DRAINAGEWAY**

**ECB-2. SMALL DITCH OR DRAINAGEWAY**

RECP-6 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 November 2010

### EC-6 Rolled Erosion Control Products (RECP) EC-6

**ECB-3. OUTSIDE OF DRAINAGEWAY**

**STAKING PATTERNS BY ECB TYPE**

RECP-7 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 November 2010

### EC-6 Rolled Erosion Control Products (RECP)

**EROSION CONTROL BLANKET INSTALLATION NOTES**

- SEE PLAN VIEW FOR:
  - LOCATION OF ECB.
  - TYPE OF ECB (STRAW, STRAW-COCOONUT, COCONUT, OR EXCELSIOR).
  - AREA, A, IN SQUARE YARDS OF EACH TYPE OF ECB.
- 100% NATURAL AND BIODEGRADABLE MATERIALS ARE PREFERRED FOR RECPs, ALTHOUGH SOME JURISDICTIONS MAY ALLOW OTHER MATERIALS IN SOME APPLICATIONS.
- IN AREAS WHERE ECBs ARE SHOWN ON THE PLANS, THE PERMITTEE 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.
- PERIMETER ANCHOR TRENCH SHALL BE USED ALONG THE OUTSIDE PERIMETER OF ALL BLANKET AREAS.
- 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.
- INTERMEDIATE ANCHOR TRENCH SHALL BE USED AT SPACING OF ONE-HALF ROLL LENGTH FOR COCONUT AND EXCELSIOR ECBs.
- OVERLAPPING JOINT DETAIL SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER FOR ECBs ON SLOPES.
- MATERIAL SPECIFICATIONS OF ECBs SHALL CONFORM TO TABLE ECB-1.
- ANY AREAS OF SEEDING AND MULCHING DISTURBED IN THE PROCESS OF INSTALLING ECBs SHALL BE RESEDED AND MULCHED.
- 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-COCOONUT	30% MIN	70% MAX	—	DOUBLE/NATURAL
COCONUT	100%	—	—	DOUBLE/NATURAL
EXCELSIOR	—	—	100%	DOUBLE/NATURAL

\*STRAW ECBs MAY ONLY BE USED SLOPE OF STRAIGHT AND TRANSVERSE CROWN. ALTERNATE NETTING MAY BE ACCEPTABLE IN SOME JURISDICTIONS.

RECP-8 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 November 2010

### EC-6 Rolled Erosion Control Products (RECP) EC-6

**EROSION CONTROL BLANKET MAINTENANCE NOTES**

- 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.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- ECBs SHALL BE LEFT IN PLACE TO EVENTUALLY BIODEGRADE, UNLESS REQUESTED TO BE REMOVED BY THE LOCAL JURISDICTION.
- ANY ECB PULLED OUT, TORN, OR OTHERWISE DAMAGED SHALL BE REPAIRED OR REINSTALLED. ANY SUBGRADE AREAS BELOW THE GEOTEXTILE THAT HAVE ERODED TO CREATE A VOID UNDER THE BLANKET, OR THAT REMAIN DEVOID OF GRASS SHALL BE REPAIRED, RESEDED 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)

RECP-9 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 November 2010

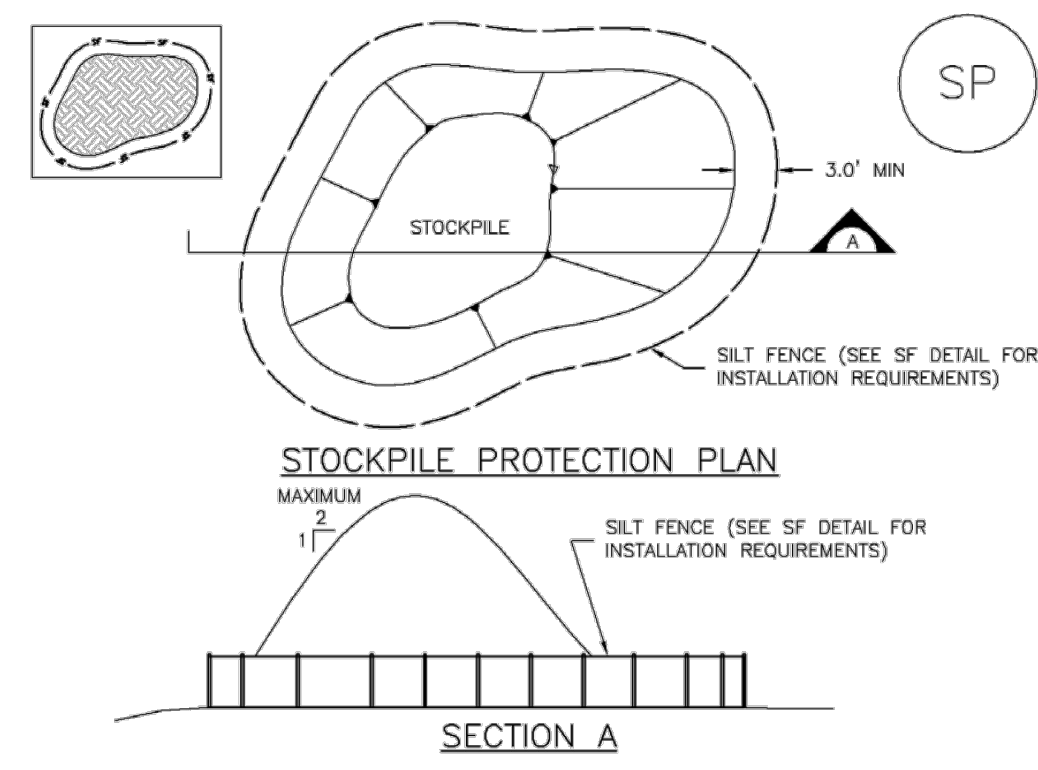
MM-1 Concrete Washout Area (CWA)

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.

CWA-4 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 November 2010

Stockpile Management (SP) MM-2



SP-1. STOCKPILE PROTECTION

STOCKPILE PROTECTION INSTALLATION NOTES

- 1. SEE PLAN VIEW FOR: -LOCATION OF STOCKPILES -TYPE OF STOCKPILE PROTECTION.
2. INSTALL PERIMETER CONTROLS IN ACCORDANCE WITH THEIR RESPECTIVE DESIGN DETAILS. SILT FENCE IS SHOWN IN THE STOCKPILE PROTECTION DETAILS; HOWEVER, OTHER TYPES OF PERIMETER CONTROLS INCLUDING SEDIMENT CONTROL LOGS OR ROCK SOCKS MAY BE SUITABLE IN SOME CIRCUMSTANCES. CONSIDERATIONS FOR DETERMINING THE APPROPRIATE TYPE OF PERIMETER CONTROL FOR A STOCKPILE INCLUDE WHETHER THE STOCKPILE IS LOCATED ON A PERVIOUS OR IMPVIOUS SURFACE, THE RELATIVE HEIGHTS OF THE PERIMETER CONTROL AND STOCKPILE, THE ABILITY OF THE PERIMETER CONTROL TO CONTAIN THE STOCKPILE WITHOUT FAILING IN THE EVENT THAT MATERIAL FROM THE STOCKPILE SHIFTS OR SLUMPS AGAINST THE PERIMETER, AND OTHER FACTORS.
3. STABILIZE THE STOCKPILE SURFACE WITH SURFACE ROUGHENING, TEMPORARY SEEDING AND MULCHING, EROSION CONTROL BLANKETS, OR SOIL BINDERS. SOILS STOCKPILED FOR AN EXTENDED PERIOD (TYPICALLY FOR MORE THAN 60 DAYS) SHOULD BE SEEDED AND MULCHED WITH A TEMPORARY GRASS COVER ONCE THE STOCKPILE IS PLACED (TYPICALLY WITHIN 14 DAYS). USE OF MULCH ONLY OR A SOIL BINDER IS ACCEPTABLE IF THE STOCKPILE WILL BE IN PLACE FOR A MORE LIMITED TIME PERIOD (TYPICALLY 30-60 DAYS).
4. FOR TEMPORARY STOCKPILES ON THE INTERIOR PORTION OF A CONSTRUCTION SITE, WHERE OTHER DOWNGRADIENT CONTROLS INCLUDING PERIMETER CONTROL ARE IN PLACE, STOCKPILE PERIMETER CONTROLS MAY NOT BE REQUIRED.

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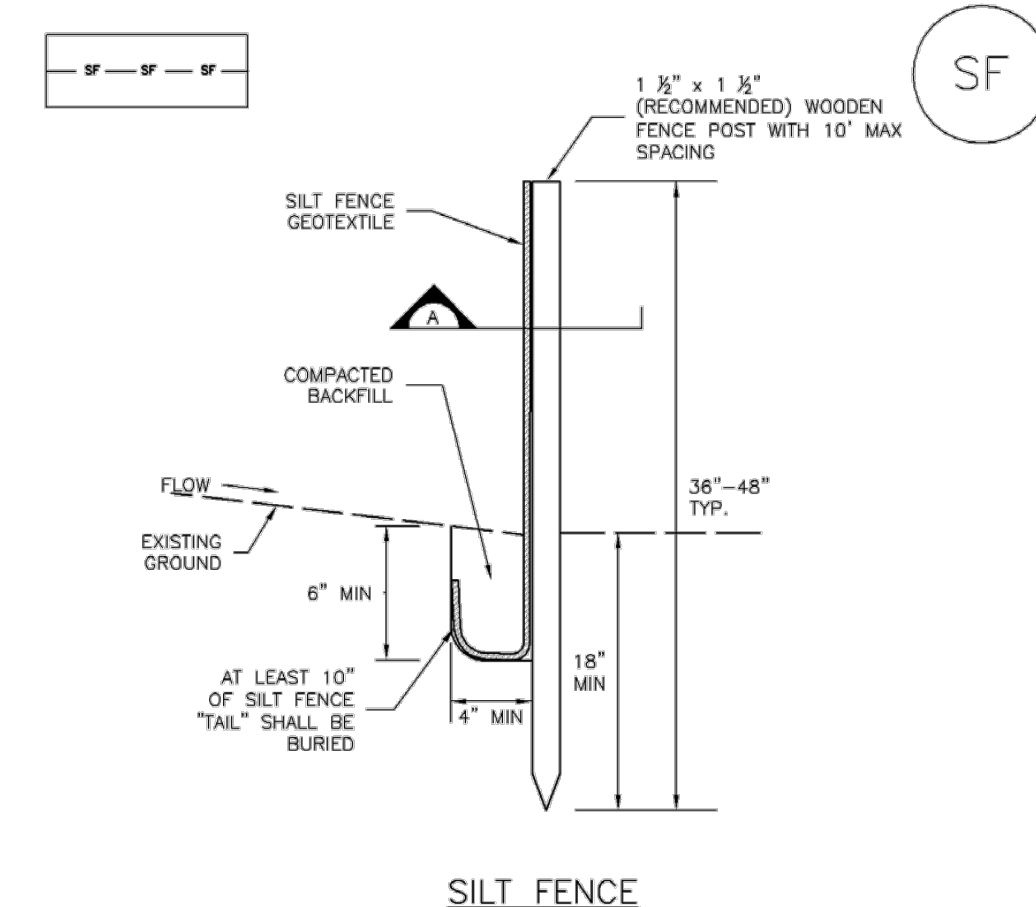
MM-2 Stockpile Management (SM)

STOCKPILE PROTECTION MAINTENANCE NOTES

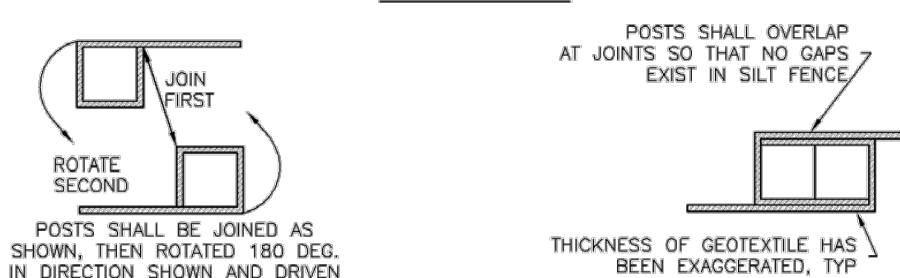
- 1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS 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. IF PERIMETER PROTECTION MUST BE MOVED TO ACCESS SOIL STOCKPILE, REPLACE PERIMETER CONTROLS BY THE END OF THE WORKDAY.
5. STOCKPILE PERIMETER CONTROLS CAN BE REMOVED ONCE ALL THE MATERIAL FROM THE STOCKPILE HAS BEEN USED.
(Details adapted from 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.

SP-4 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 November 2010

Silt Fence (SF) SC-1



SILT FENCE



SECTION A

SF-1. SILT FENCE

November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 SF-3

SC-1 Silt Fence (SF)

SILT FENCE INSTALLATION NOTES

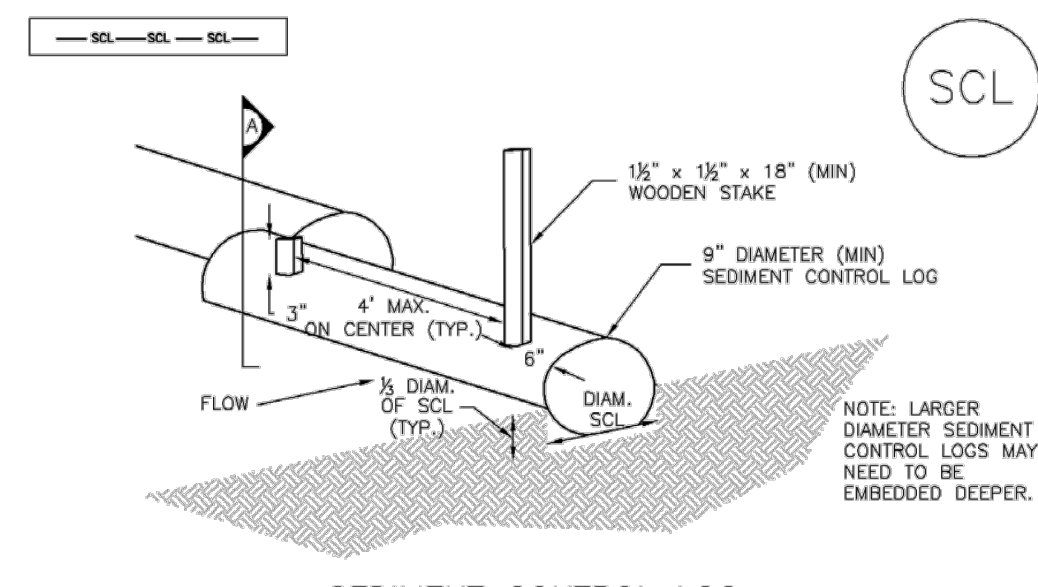
- 1. SILT FENCE MUST BE PLACED AWAY FROM THE TOE OF THE SLOPE TO ALLOW FOR WATER PONDING. SILT FENCE AT THE TOE OF A SLOPE SHOULD BE INSTALLED IN A FLAT LOCATION AT LEAST SEVERAL FEET (2-5 FT) FROM THE TOE OF THE SLOPE TO ALLOW ROOM FOR PONDING AND DEPOSITION.
2. A UNIFORM 6" x 4" ANCHOR TRENCH SHALL 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. COMPACTATION 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

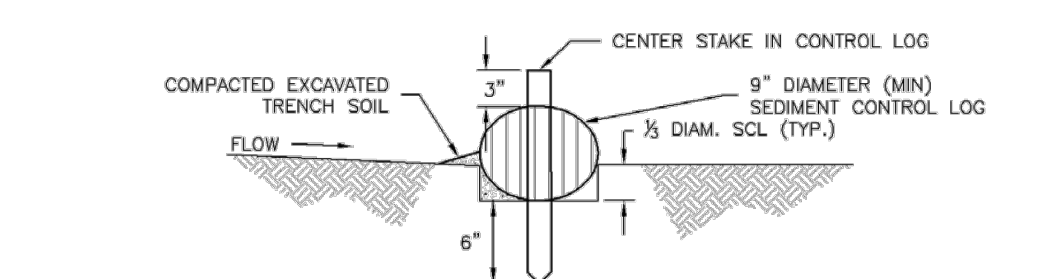
- 1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS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

SF-4 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 November 2010

Sediment Control Log (SCL) SC-2



SEDIMENT CONTROL LOG



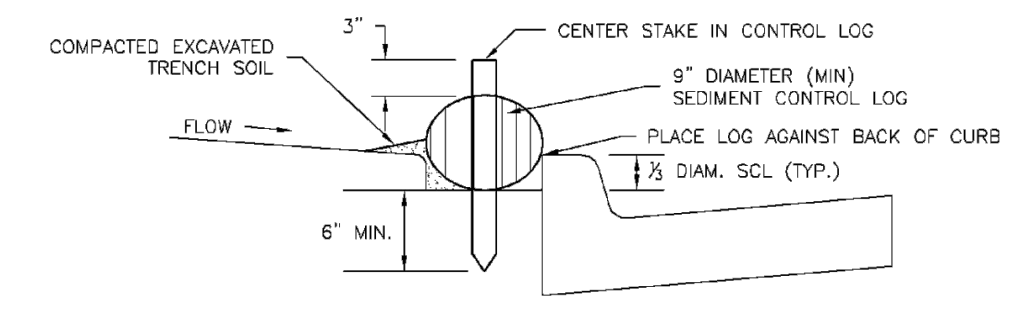
SECTION A

SEDIMENT CONTROL LOG JOINTS

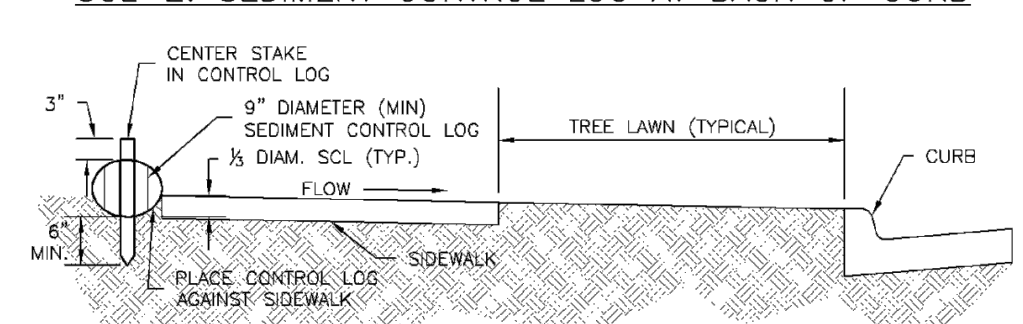
SCL-1. SEDIMENT CONTROL LOG

November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 SCL-3

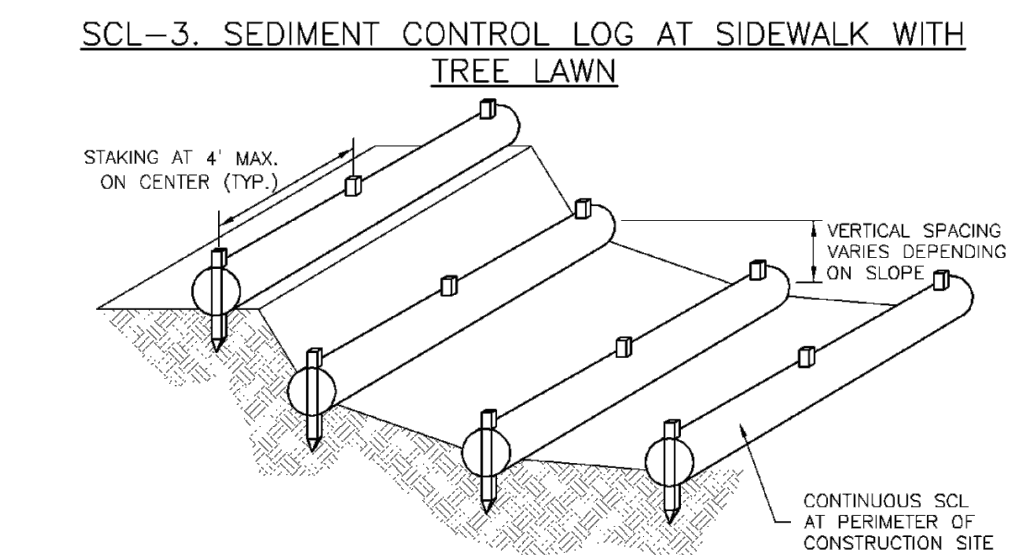
SC-2 Sediment Control Log (SCL)



SCL-2. SEDIMENT CONTROL LOG AT BACK OF CURB



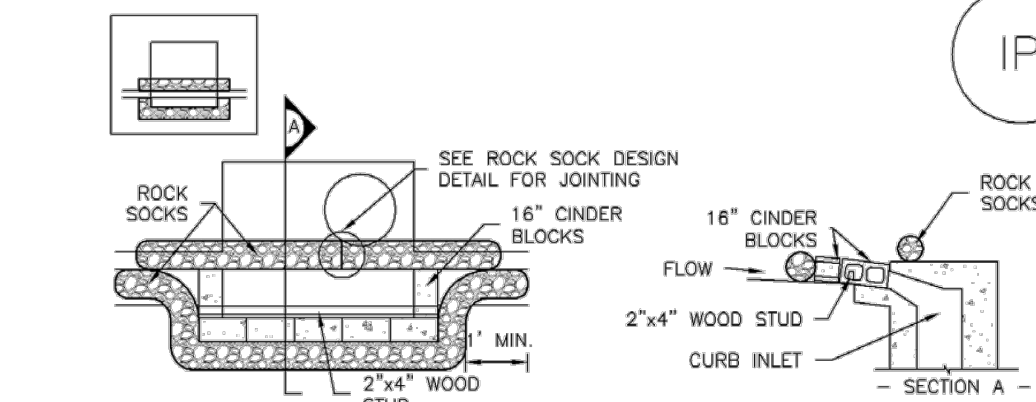
SCL-3. SEDIMENT CONTROL LOG AT SIDEWALK WITH TREE LAWN



SCL-4. SEDIMENT CONTROL LOGS TO CONTROL SLOPE LENGTH

SCL-4 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 November 2010

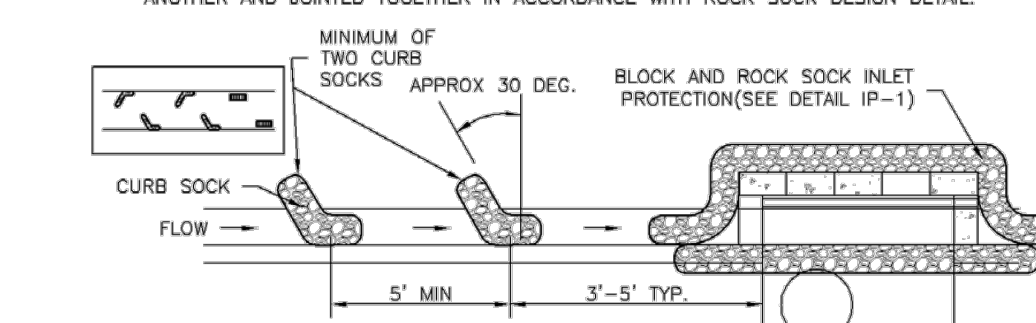
SC-6 Inlet Protection (IP)



IP-1. BLOCK AND ROCK SOCK SUMP OR ON GRADE INLET PROTECTION

BLOCK AND CURB SOCK INLET PROTECTION INSTALLATION NOTES

- 1. SEE ROCK SOCK DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.
2. CONCRETE "CINDER" BLOCKS SHALL BE LAID ON THEIR SIDES AROUND THE INLET IN A SINGLE ROW, ABUTTING ONE ANOTHER WITH THE OPEN END FACING AWAY FROM THE CURB.
3. GRAVEL BAGS SHALL BE PLACED AROUND CONCRETE BLOCKS, CLOSELY ABUTTING ONE ANOTHER AND JOINTED TOGETHER IN ACCORDANCE WITH ROCK SOCK DESIGN DETAIL.



IP-2. CURB ROCK SOCKS UPSTREAM OF INLET PROTECTION

CURB ROCK SOCK INLET PROTECTION INSTALLATION NOTES

- 1. SEE ROCK SOCK DESIGN DETAIL INSTALLATION REQUIREMENTS.
2. PLACEMENT OF THE SOCK SHALL BE APPROXIMATELY 30 DEGREES FROM PERPENDICULAR IN THE OPPOSITE DIRECTION OF FLOW.
3. SOCKS ARE TO BE FLUSH WITH THE CURB AND SPACED A MINIMUM OF 5 FEET APART.
4. AT LEAST TWO CURB SOCKS IN SERIES ARE REQUIRED UPSTREAM OF ON-GRADE INLETS.

IP-4 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 August 2013

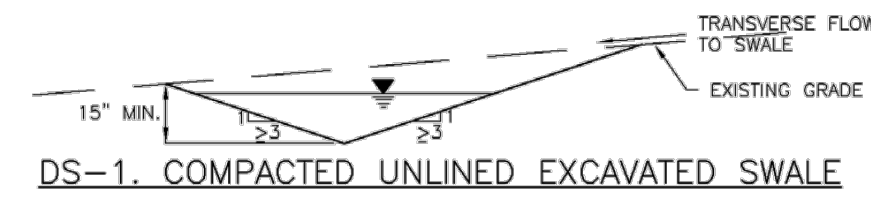
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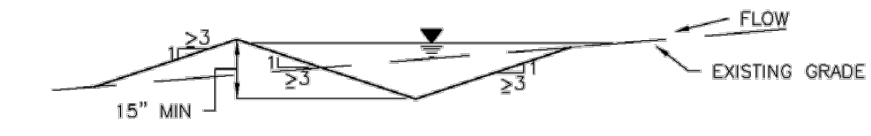
Earth Dikes and Drainage Swales (ED/DS) EC-10



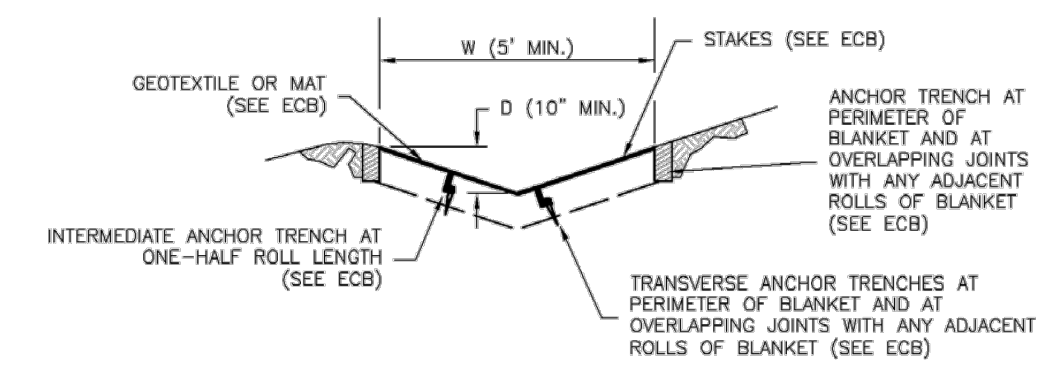
ED-1. COMPACTED UNLINED EARTH DIKE FORMED BY BERM



DS-1. COMPACTED UNLINED EXCAVATED SWALE



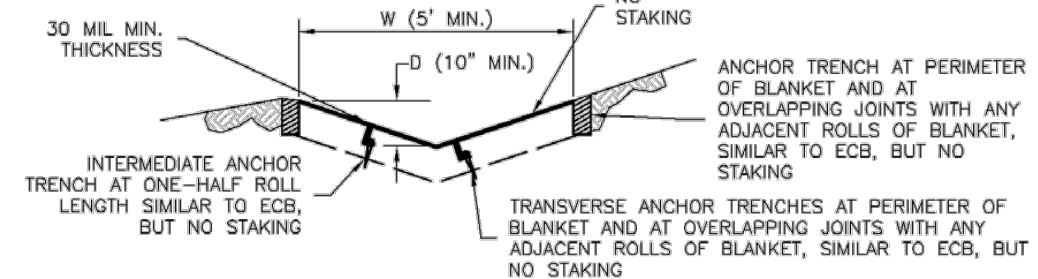
DS-2. COMPACTED UNLINED SWALE FORMED BY CUT AND FILL



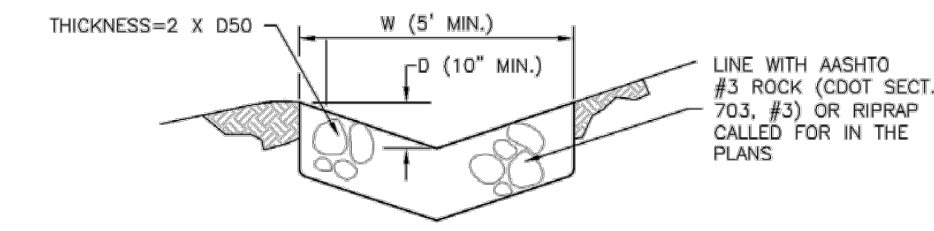
DS-3. ECB LINED SWALE (CUT AND FILL OR BERM)

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Urban Storm Drainage Criteria Manual Volume 3

EC-10 Earth Dikes and Drainage Swales (ED/DS)



DS-4. SYNTHETIC LINED SWALE



DS-5. RIPRAP LINED SWALE

EARTH DIKE AND DRAINAGE SWALE INSTALLATION NOTES

- 1. SEE SITE PLAN FOR: - LOCATION OF DIVERSION SWALE - TYPE OF SWALE (UNLINED, COMPACTED AND/OR LINED), - LENGTH OF EACH SWALE, - DEPTH, D, AND WIDTH, W DIMENSIONS, - FOR ECB/TRM LINED DITCH, SEE ECB DETAIL, - FOR RIPRAP LINED DITCH, SIZE OF RIPRAP, D50.
2. SEE DRAINAGE PLANS FOR DETAILS OF PERMANENT CONVEYANCE FACILITIES AND/OR DIVERSION SWALES EXCEEDING 2-YEAR FLOW RATE OR 10 CFS.
3. EARTH DIKES AND SWALES, INDICATED ON SWMP PLAN SHALL BE INSTALLED PRIOR TO LAND-DISTURBING ACTIVITIES IN PROXIMITY.
4. EMBANKMENT IS TO BE COMPACTED TO 90% OF MAXIMUM DENSITY AND WITHIN 2% OF OPTIMUM MOISTURE CONTENT ACCORDING TO ASTM D698.
5. SWALES ARE TO DRAIN TO A SEDIMENT CONTROL BMP.
6. FOR LINED DITCHES, INSTALLATION OF ECB/TRM SHALL CONFORM TO THE REQUIREMENTS OF THE ECB DETAIL.
7. WHEN CONSTRUCTION TRAFFIC MUST CROSS A DIVERSION SWALE, INSTALL A TEMPORARY CULVERT WITH A MINIMUM DIAMETER OF 12 INCHES.

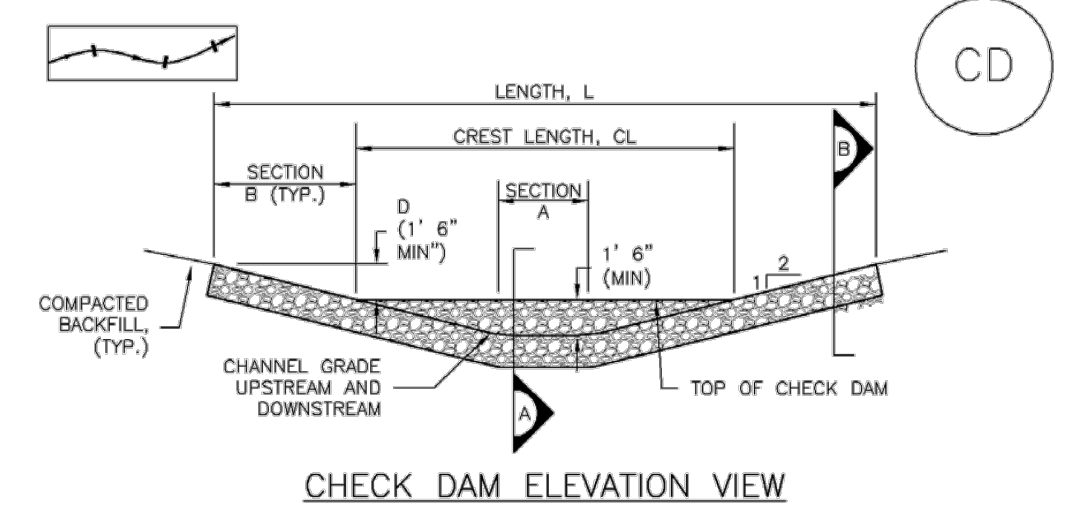
ED/DS-4 Urban Drainage and Flood Control District November 2010  
Urban Storm Drainage Criteria Manual Volume 3

Earth Dikes and Drainage Swales (ED/DS) EC-10

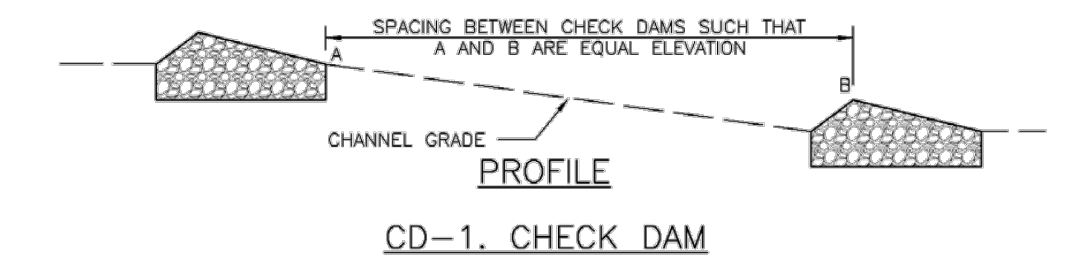
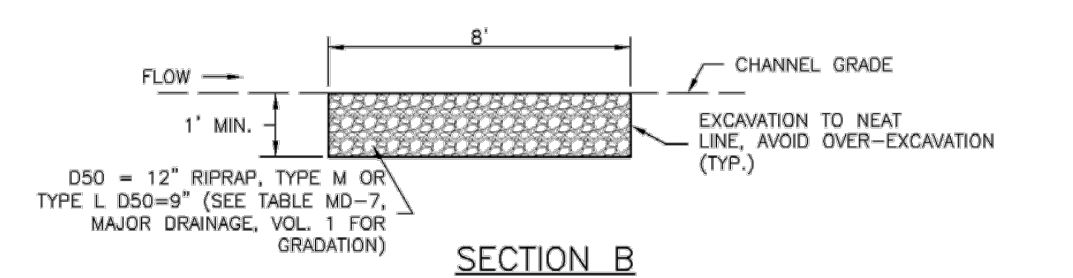
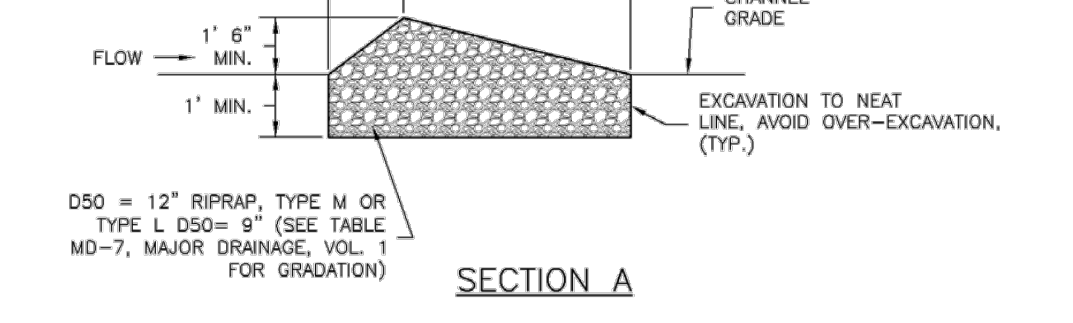
- EARTH DIKE AND DRAINAGE SWALE MAINTENANCE NOTES
1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM 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. SWALES SHALL REMAIN IN PLACE UNTIL THE END OF CONSTRUCTION; IF APPROVED BY LOCAL JURISDICTION, SWALES MAY BE LEFT IN PLACE.
5. WHEN A SWALE IS REMOVED, THE DISTURBED AREA SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION.
(Detail adapted from Douglas County, Colorado and the City of Colorado Springs, 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.

November 2010 Urban Drainage and Flood Control District ED/DS-5  
Urban Storm Drainage Criteria Manual Volume 3

Check Dams (CD) EC-12



CHECK DAM ELEVATION VIEW



November 2010 Urban Drainage and Flood Control District CD-3  
Urban Storm Drainage Criteria Manual Volume 3

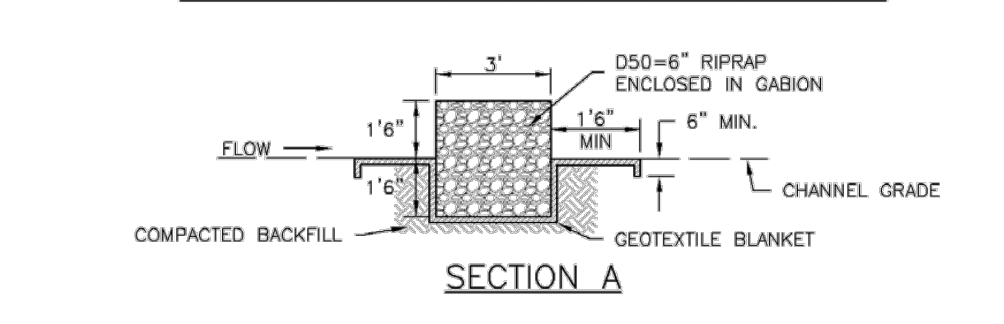
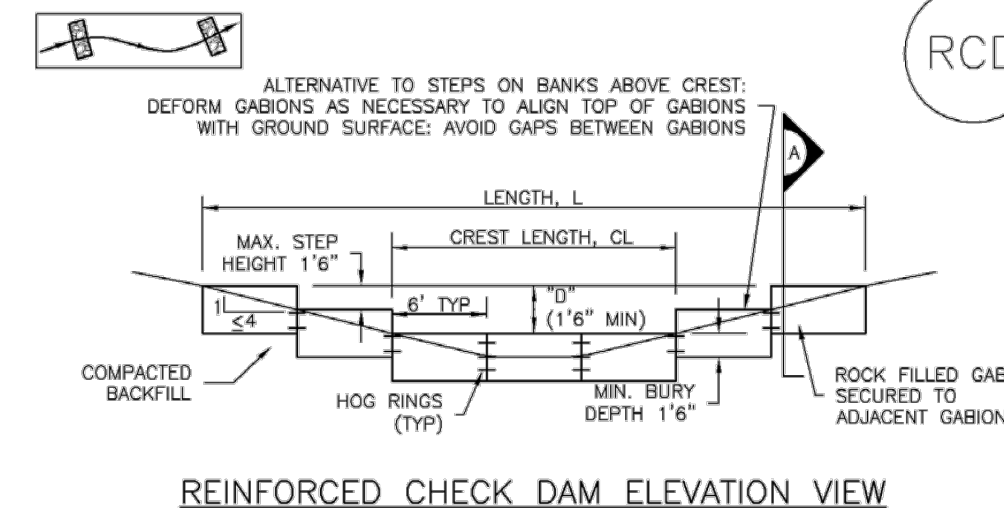
EC-12 Check Dams (CD)

- CHECK DAM INSTALLATION NOTES
1. SEE PLAN VIEW FOR: - LOCATION OF CHECK DAMS, - CHECK DAM TYPE (CHECK DAM OR REINFORCED CHECK DAM), - LENGTH (L), CREST LENGTH (CL), AND DEPTH (D).
2. CHECK DAMS INDICATED ON INITIAL SWMP SHALL BE INSTALLED AFTER CONSTRUCTION FENCE, BUT PRIOR TO ANY UPSTREAM LAND DISTURBING ACTIVITIES.
3. RIPRAP UTILIZED FOR CHECK DAMS SHOULD BE OF APPROPRIATE SIZE FOR THE APPLICATION. TYPICAL TYPES OF RIPRAP USED FOR CHECK DAMS ARE TYPE M (D50 12") OR TYPE L (D50 9").
4. RIPRAP PAD SHALL BE TRENCHED INTO THE GROUND A MINIMUM OF 1'.
5. THE ENDS OF THE CHECK DAM SHALL BE A MINIMUM OF 1' 6" HIGHER THAN THE CENTER OF THE CHECK DAM.

- CHECK DAM 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 CHECK DAMS SHALL BE REMOVED WHEN THE SEDIMENT DEPTH IS WITHIN 1/2 OF THE HEIGHT OF THE CREST.
5. CHECK DAMS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.
6. WHEN CHECK DAMS ARE REMOVED, EXCAVATIONS SHALL BE FILLED WITH SUITABLE COMPACTED BACKFILL, DISTURBED AREA SHALL BE SEEDED AND MULCHED AND COVERED WITH GEOTEXTILE OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.
(Details adapted from Douglas County, 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.

CD-4 Urban Drainage and Flood Control District November 2010  
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Check Dams (CD) EC-12



- REINFORCED CHECK DAM INSTALLATION NOTES
1. SEE PLAN VIEW FOR: - LOCATIONS OF CHECK DAMS, - CHECK DAM TYPE (CHECK DAM OR REINFORCED CHECK DAM), - LENGTH (L), CREST LENGTH (CL), AND DEPTH (D).
2. CHECK DAMS INDICATED ON THE SWMP SHALL BE INSTALLED PRIOR TO AN UPSTREAM LAND-DISTURBING ACTIVITIES.
3. REINFORCED CHECK DAMS, GABIONS SHALL HAVE GALVANIZED TWISTED WIRE NETTING WITH A MAXIMUM OPENING DIMENSION OF .85" AND A MINIMUM WIRE THICKNESS OF 0.10". WIRE "HOG RINGS" AT 4' SPACING OR OTHER APPROVED MEANS SHALL BE USED AT ALL GABION SEAMS AND TO SECURE THE GABION TO THE ADJACENT SECTION.
4. THE CHECK DAM SHALL BE TRENCHED INTO THE GROUND A MINIMUM OF 1' 6".
5. GEOTEXTILE BLANKET SHALL BE PLACED IN THE REINFORCED CHECK DAM TRENCH EXTENDING A MINIMUM OF 1' 6" ON BOTH THE UPSTREAM AND DOWNSTREAM SIDES OF THE REINFORCED CHECK DAM.

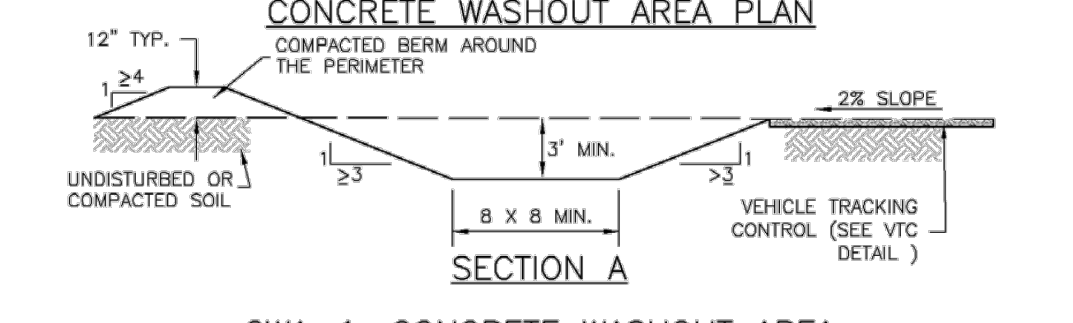
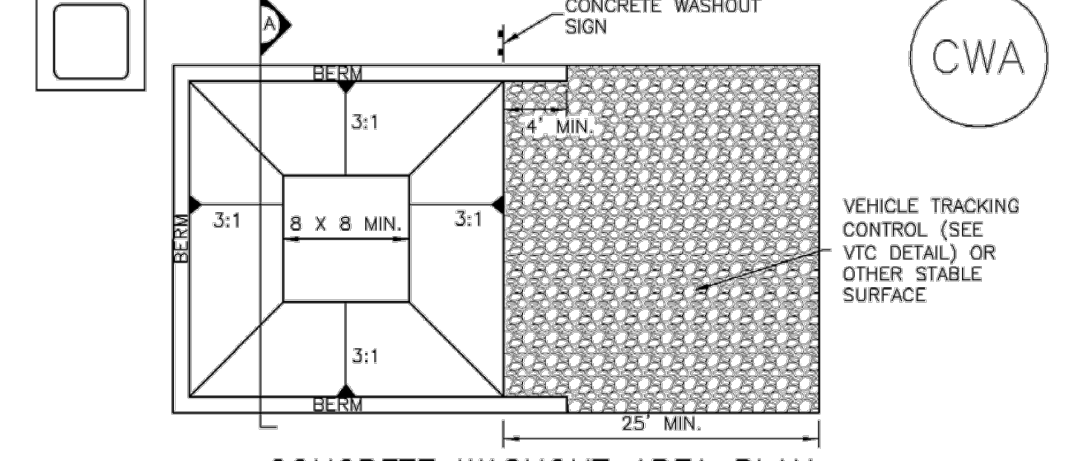
November 2010 Urban Drainage and Flood Control District CD-5  
Urban Storm Drainage Criteria Manual Volume 3

EC-12 Check Dams (CD)

- REINFORCED CHECK DAM MAINTENANCE NOTES
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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 REINFORCED CHECK DAMS SHALL BE REMOVED AS NEEDED TO MAINTAIN THE EFFECTIVENESS OF BMP, TYPICALLY WHEN THE UPSTREAM SEDIMENT DEPTH IS WITHIN 1/2 THE HEIGHT OF THE CREST.
5. REPAIR OR REPLACE REINFORCED CHECK DAMS WHEN THERE ARE SIGNS OF DAMAGE SUCH AS HOLES IN THE GABION OR UNDERCUTTING.
6. REINFORCED CHECK DAMS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.
7. WHEN REINFORCED CHECK DAMS ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED, AND COVERED WITH A GEOTEXTILE BLANKET, OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.
(Detail adapted from Douglas County, 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.

CD-6 Urban Drainage and Flood Control District November 2010  
Urban Storm Drainage Criteria Manual Volume 3

Concrete Washout Area (CWA) MM-1



- 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 (1/8 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.

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APPROVED: KMH JOB NUMBER: 0 ADJUST SCALE ACCORDINGLY.
CAD DATE: 7/30/2024 IF NOT ONE INCH.
CAD FILE: J:\2020\201662\CADD\dwgs\CIPUD\_Phase\_2\_662.202\GEC\_Early\_Grading\Early\_GEC\_Details

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HR GREEN - COLORADO SPRINGS
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FAX: 713.965.0044

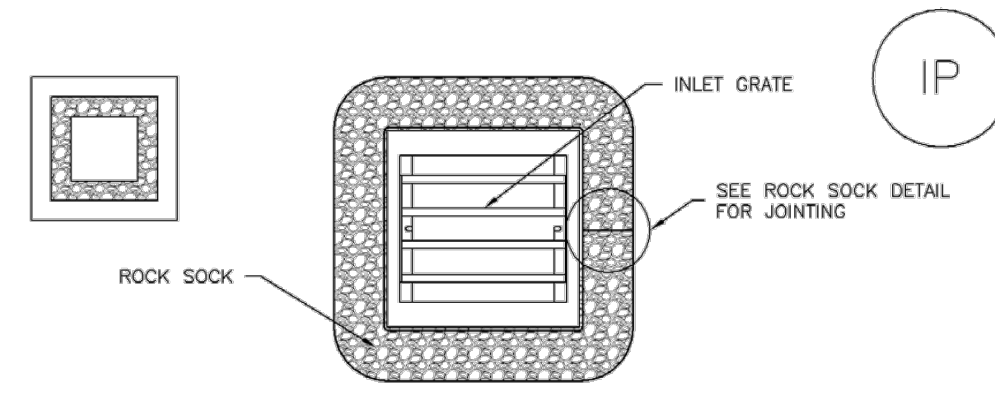
GRANDVIEW RESERVE - PHASE 2
D.R. HORTON
EL PASO COUNTY, CO



EARLY GRADING & EROSION CONTROL PLANS
DETAILS

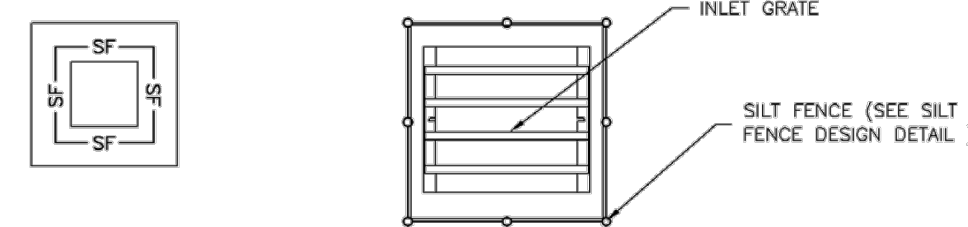
### Inlet Protection (IP)

SC-6



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.



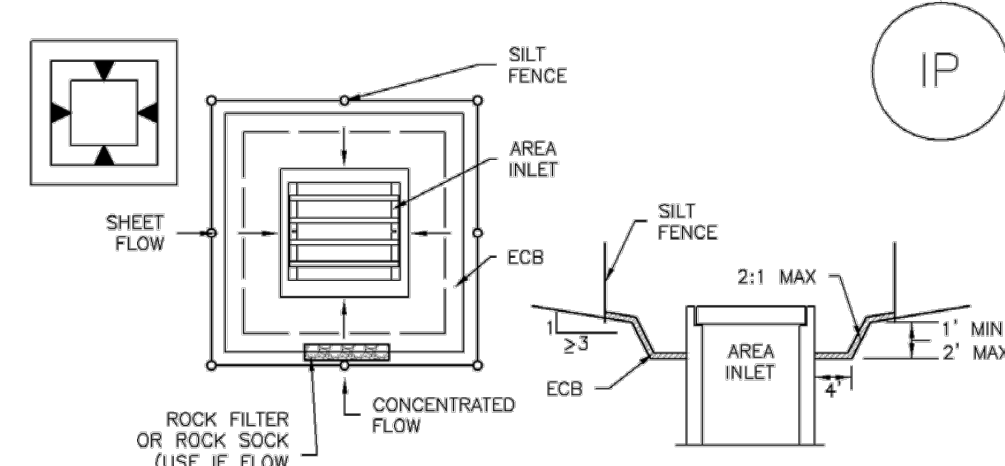
IP-4. SILT FENCE FOR SUMP INLET PROTECTION

- 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.

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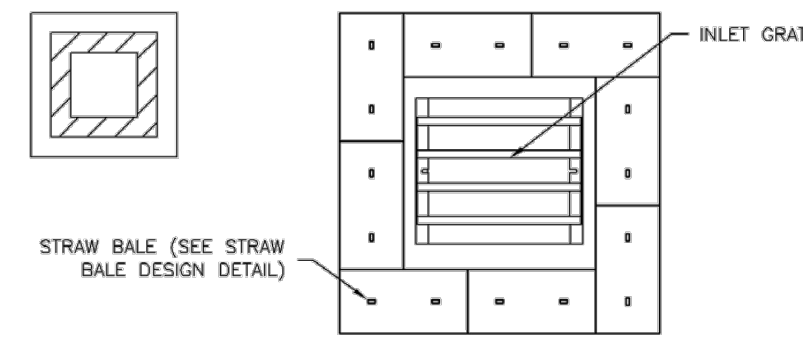
SC-6

### Inlet Protection (IP)



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.



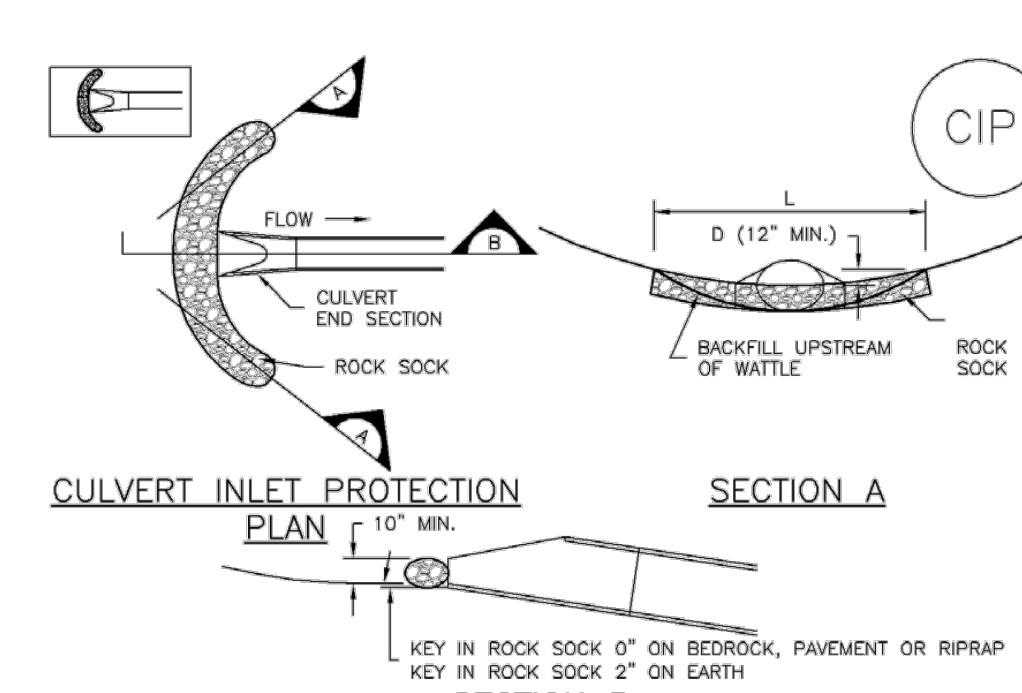
IP-6. STRAW BALE FOR SUMP INLET PROTECTION

- 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.

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### Inlet Protection (IP)

SC-6



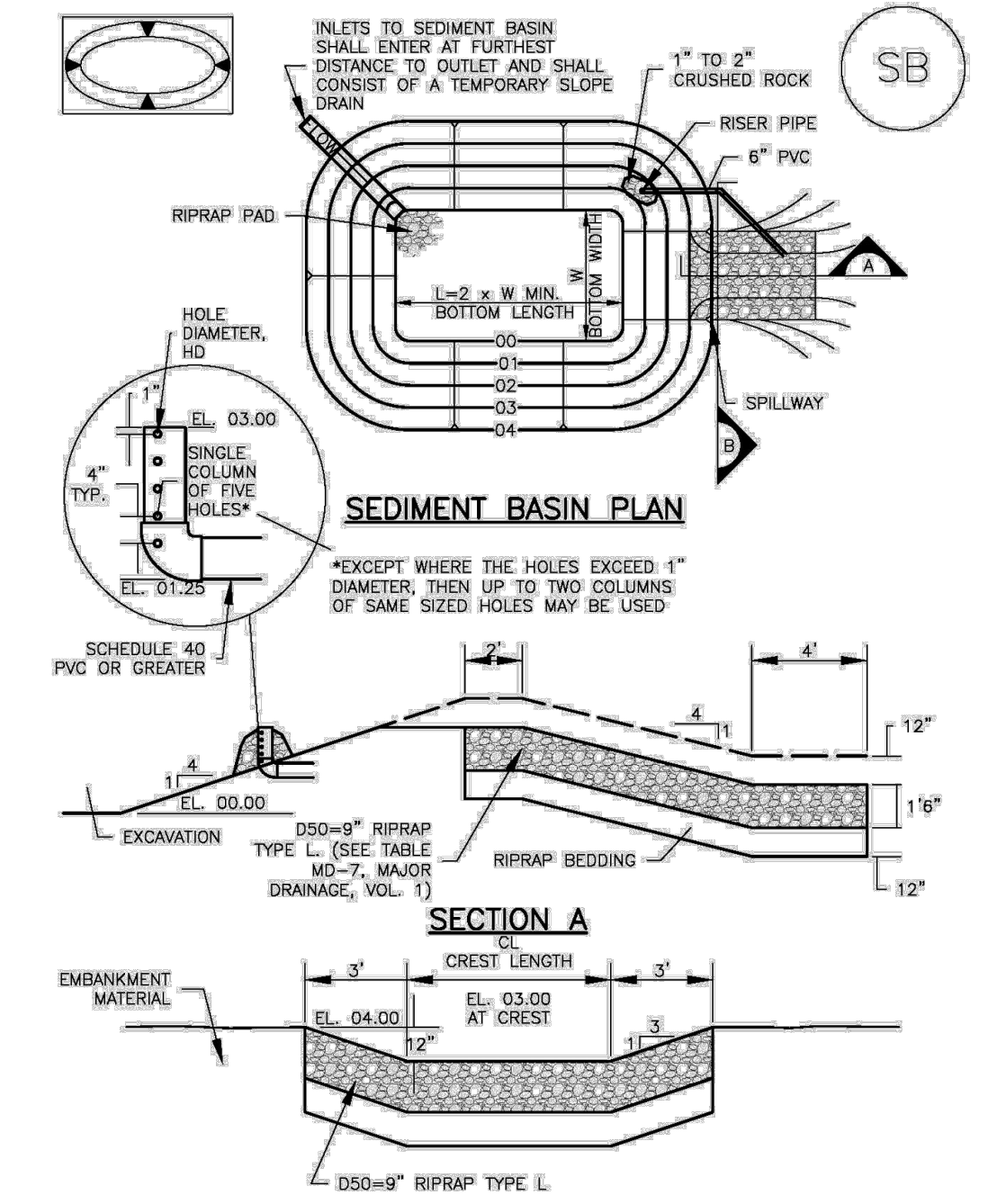
CIP-1. CULVERT INLET PROTECTION

- CULVERT INLET PROTECTION INSTALLATION NOTES**
1. SEE PLAN VIEW FOR LOCATION OF CULVERT INLET PROTECTION.
  2. SEE ROCK SOCK DESIGN DETAIL FOR ROCK GRADATION REQUIREMENTS AND JOINTING DETAIL.
- CULVERT 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 THE CULVERT SHALL BE REMOVED WHEN THE SEDIMENT DEPTH IS 1/2 THE HEIGHT OF THE ROCK SOCK.
  5. CULVERT INLET PROTECTION SHALL REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS PERMANENTLY STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.

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### Sediment Basin (SB)

SC-7



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SC-7

### Sediment Basin (SB)

Upstream Drainage Area (rounded to nearest acre), (ac)	Basin Bottom Width (W), (ft)	Spillway Crest Length (CL), (ft)	Hole Diameter (HD), (in)
1	12 1/2	2	9/16
2	21	3	5/8
3	29	4	3/4
4	33 1/2	5	7/8
5	38 1/2	6	7/8
6	43	7	7/8
7	47 1/2	8	7/8
8	51	9	7/8
9	55	10	7/8
10	58 1/2	11	7/8
11	61	12	7/8
12	64	13	7/8
13	67 1/2	14	1 1/8
14	70 1/2	15	1 1/8
15	73 1/2	16	1 1/8

- 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 BASIN 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.

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### Sediment Basin (SB)

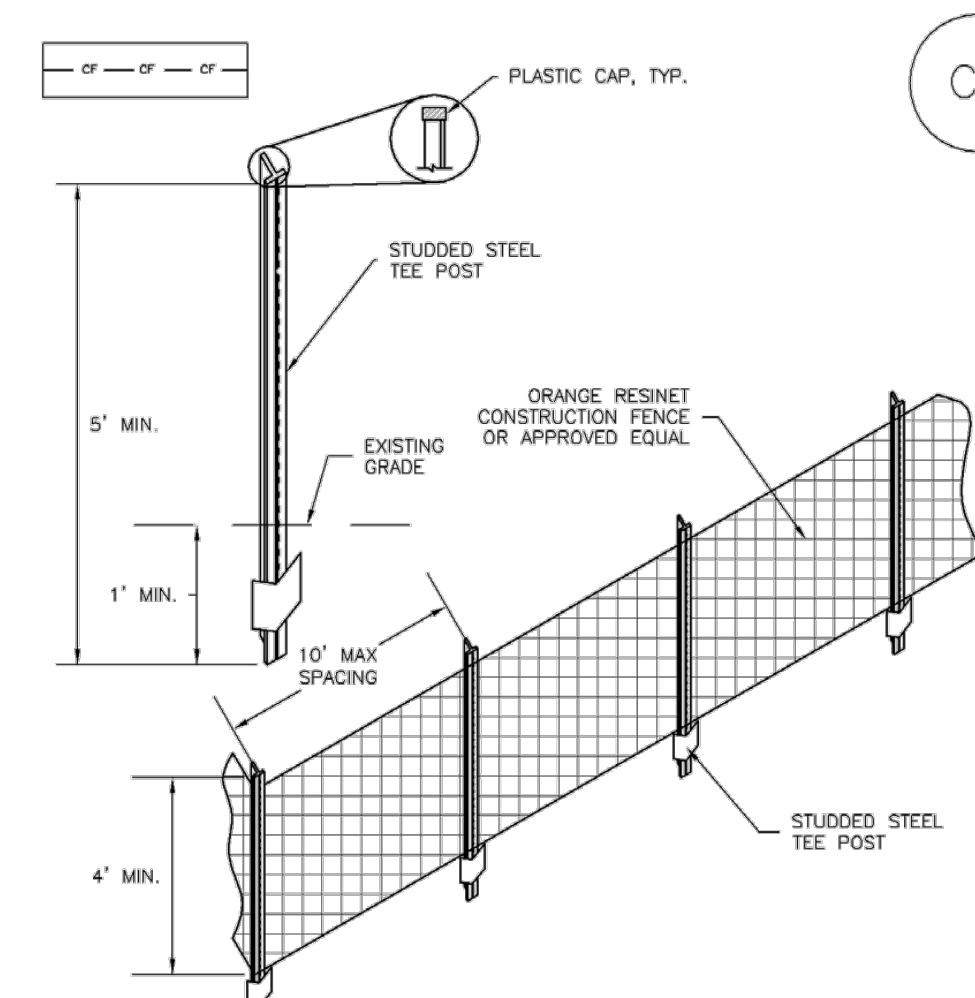
SC-7

- 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.

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SM-3

### Construction Fence (CF)



CF-1. PLASTIC MESH CONSTRUCTION FENCE

- CONSTRUCTION FENCE INSTALLATION NOTES**
1. SEE PLAN VIEW FOR:
    - LOCATION OF CONSTRUCTION FENCE.
  2. CONSTRUCTION FENCE SHOWN SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
  3. CONSTRUCTION FENCE SHALL BE COMPOSED OF ORANGE, CONTRACTOR-GRADE MATERIAL THAT IS AT LEAST 4' HIGH. METAL POSTS SHOULD HAVE A PLASTIC CAP FOR SAFETY.
  4. STUDED STEEL TEE POSTS SHALL BE UTILIZED TO SUPPORT THE CONSTRUCTION FENCE. MAXIMUM SPACING FOR STEEL TEE POSTS SHALL BE 10'.
  5. CONSTRUCTION FENCE SHALL BE SECURELY FASTENED TO THE TOP, MIDDLE, AND BOTTOM OF EACH POST.

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### Construction Fence (CF)

SM-3

- CONSTRUCTION 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. CONSTRUCTION FENCE SHALL BE REPAIRED OR REPLACED WHEN THERE ARE SIGNS OF DAMAGE SUCH AS RIPS OR SAGS. CONSTRUCTION FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.
  5. WHEN CONSTRUCTION FENCES ARE REMOVED, ALL DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION, MAINTENANCE, AND/OR REMOVAL OF THE FENCE SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED, OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.
- 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.
- (DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD)

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NO.	DATE	BY	REVISION DESCRIPTION

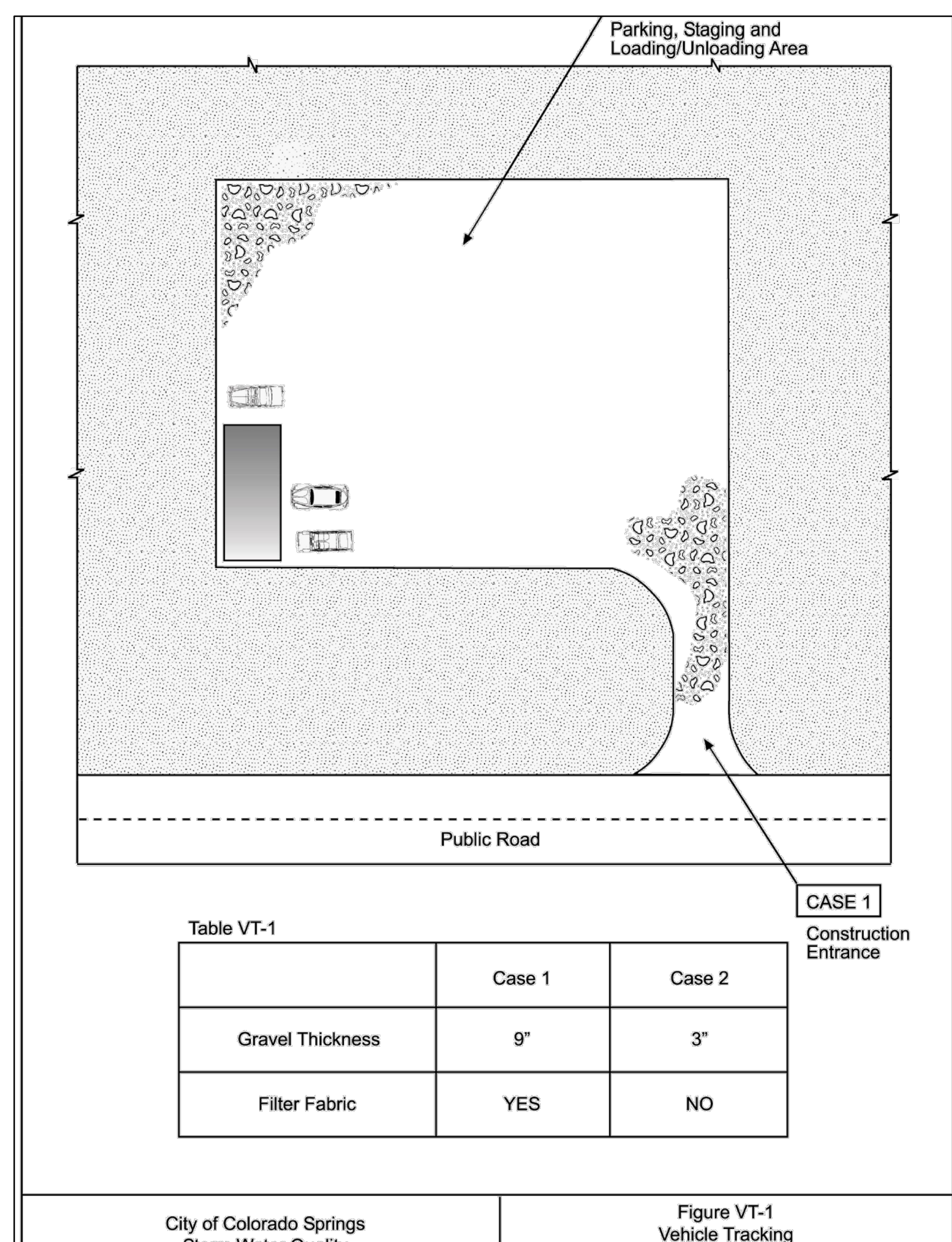
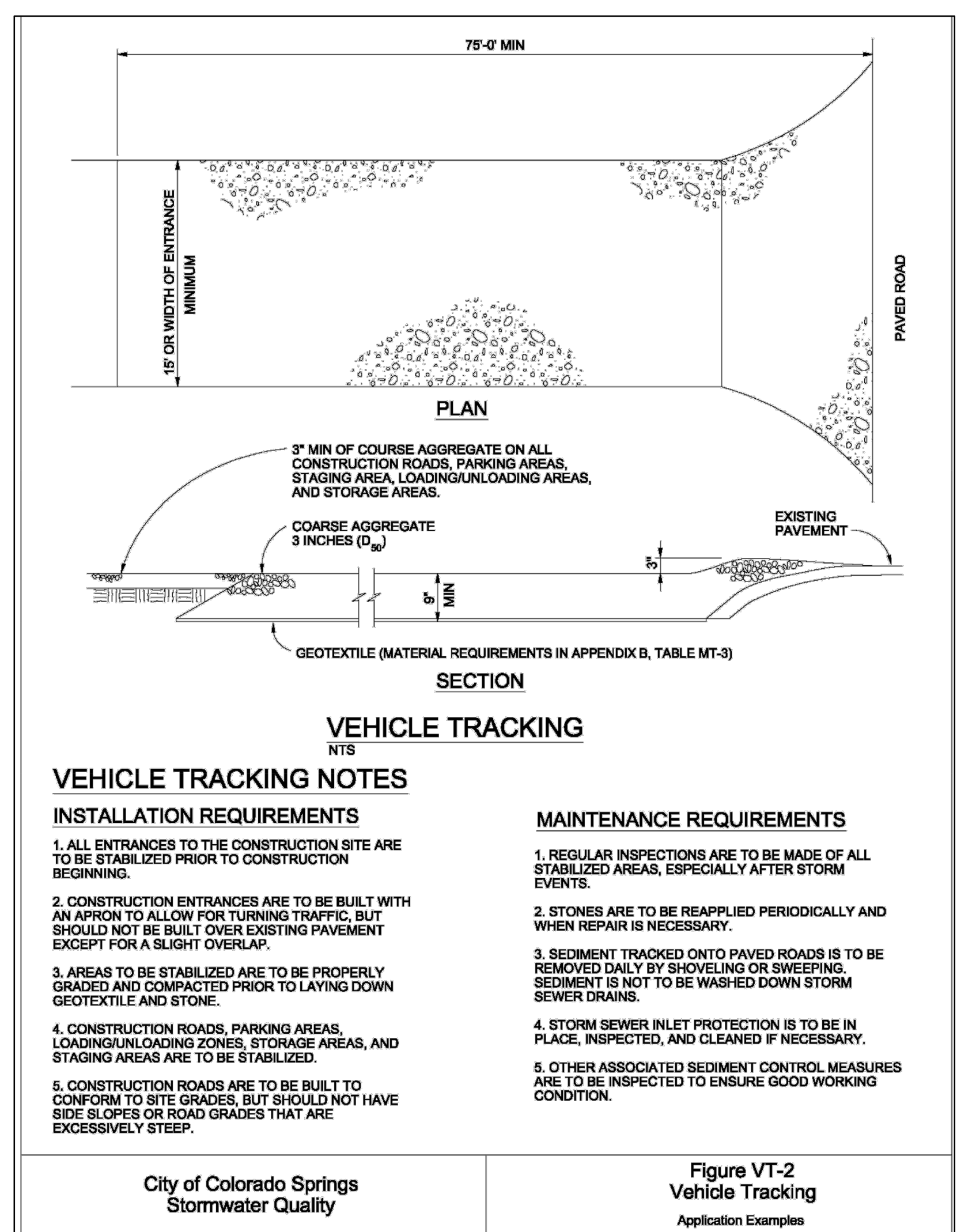


Table VT-1

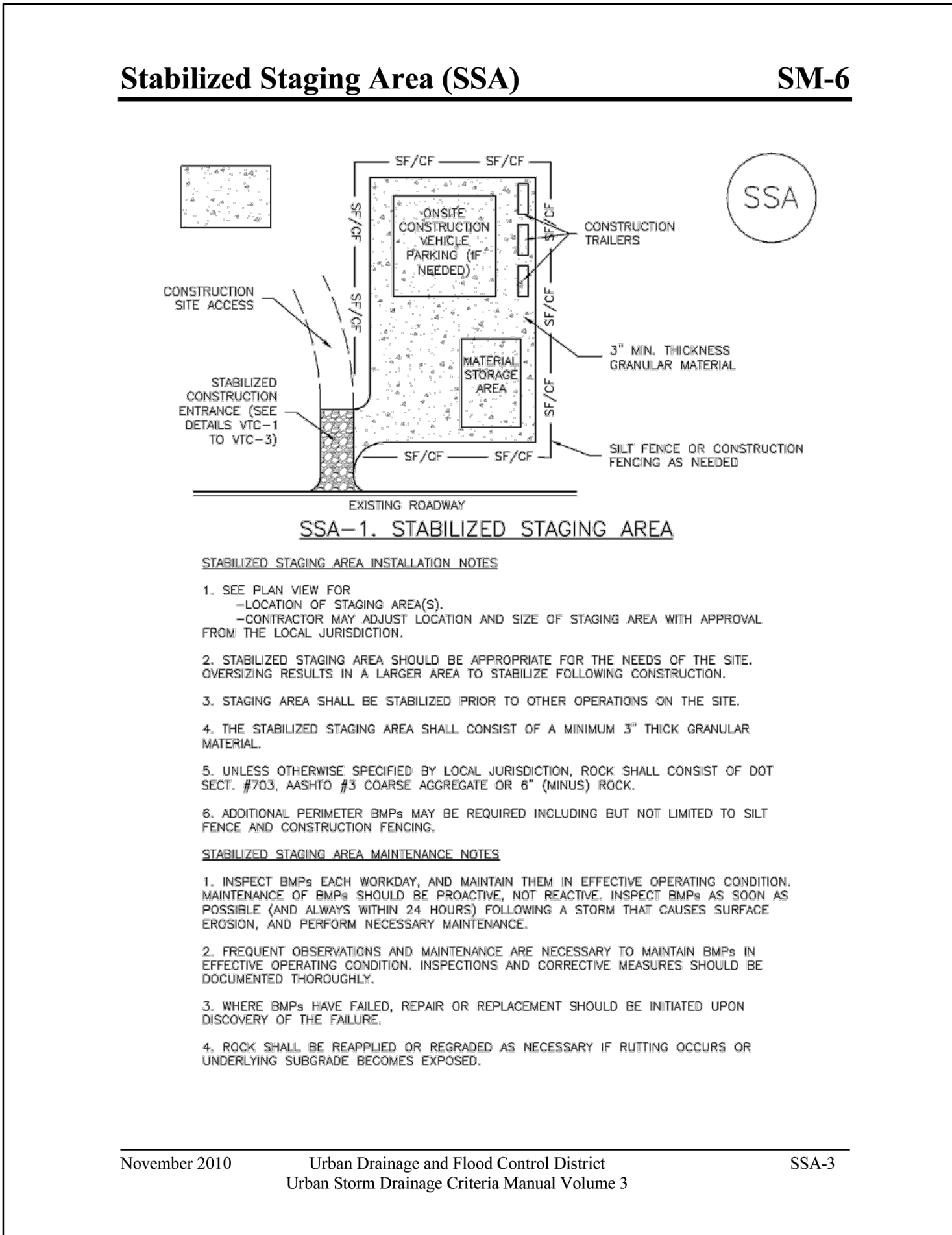
	Case 1	Case 2
Gravel Thickness	9"	3"
Filter Fabric	YES	NO

City of Colorado Springs  
Figure VT-1  
Vehicle Tracking



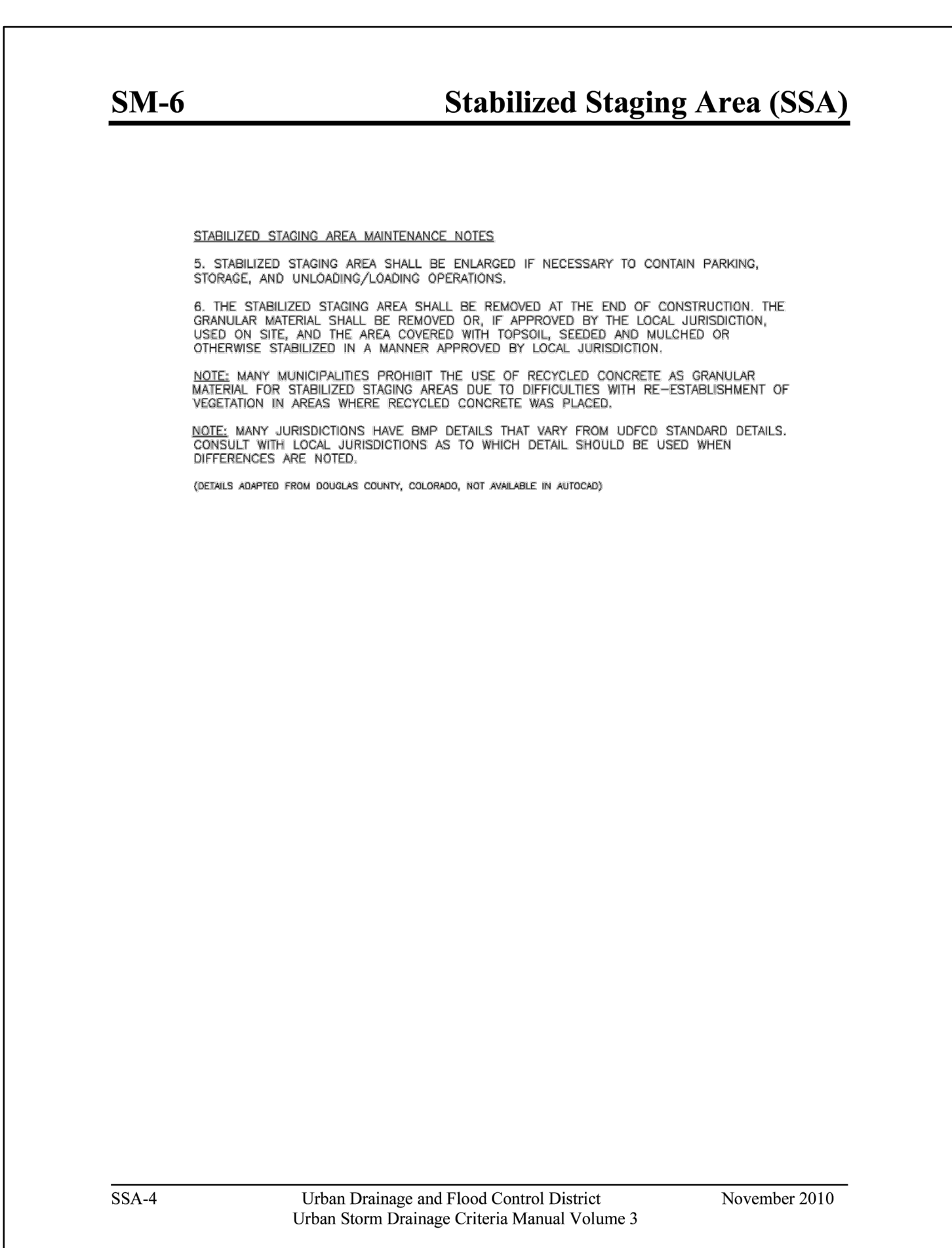
- VEHICLE TRACKING NOTES**
- INSTALLATION REQUIREMENTS**
1. ALL ENTRANCES TO THE CONSTRUCTION SITE ARE TO BE STABILIZED PRIOR TO CONSTRUCTION BEGINNING.
  2. CONSTRUCTION ENTRANCES ARE TO BE BUILT WITH AN APRON TO ALLOW FOR TURNING TRAFFIC, BUT SHOULD NOT BE BUILT OVER EXISTING PAVEMENT EXCEPT FOR A 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



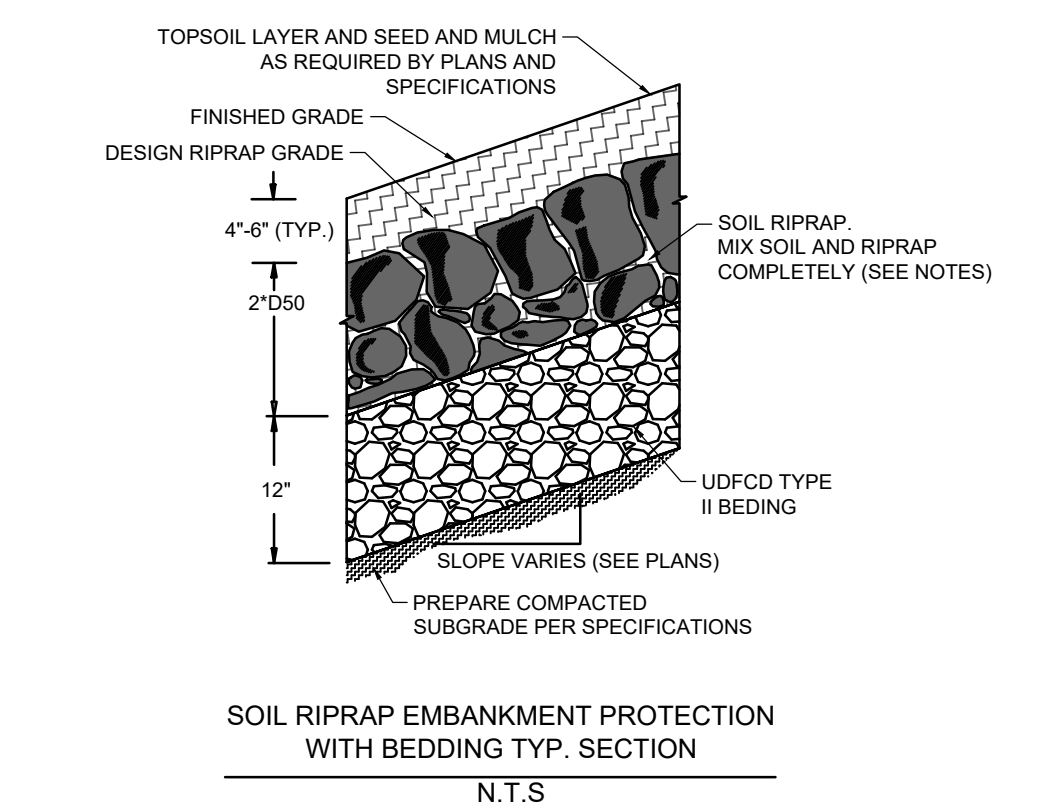
- STABILIZED STAGING AREA INSTALLATION NOTES**
1. SEE PLAN VIEW FOR -LOCATION OF STAGING AREA(S). -CONTRACTOR MAY ADJUST LOCATION AND SIZE OF STAGING AREA WITH APPROVAL FROM THE LOCAL JURISDICTION.
  2. STABILIZED STAGING AREA SHOULD BE APPROPRIATE FOR THE NEEDS OF THE SITE. OVERSIZING RESULTS IN A LARGER 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, MASHTO #1 COARSE AGGREGATE OR 3" (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.

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- 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, SEEDING 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 BOULDER COUNTY, COLORADO, NOT AVAILABLE IN AUTOCAD)

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TYPE VL RIPRAP

INTERMEDIATE ROCK DIMENSION (IN .)	PERCENT PASSING (%)
12	70-100
9	50-70
6	35-50
2	2-10

\*TYPE L RIPRAP D50=6"  
D50=MEAN PARTICLE SIZE (INTERMEDIATE DIMENSION) BY WEIGHT

TYPE M RIPRAP

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

\*TYPE L RIPRAP D50=12"  
D50=MEAN PARTICLE SIZE (INTERMEDIATE DIMENSION) BY WEIGHT

TYPE H RIPRAP

INTERMEDIATE ROCK DIMENSION (IN .)	PERCENT PASSING (%)
30	70-100
24	50-70
18	35-50
6	2-10

\*TYPE L RIPRAP D50=18"  
D50=MEAN PARTICLE SIZE (INTERMEDIATE DIMENSION) BY WEIGHT

TYPE VH RIPRAP

INTERMEDIATE ROCK DIMENSION (IN .)	PERCENT PASSING (%)
41	70-100
33	50-70
24	35-50
9	2-10

\*TYPE L RIPRAP D50=24"  
D50=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. CRIMP OR TACKIFY MULCH OR USE APPROVED HYDROMULCH AS CALLED FOR IN THE PLANS AND SPECIFICATIONS.
  4. ROCK SHALL BE HARD, DURABLE, ANGULAR IN SHAPE, AND FREE FROM CRACKS, OVERBURDEN, SHALE, AND ORGANIC MATTER.
  5. NEITHER BREADTH NOR THICKNESS OF A SINGLE STONE SHOULD BE LESS THAN ONE-THIRD ITS LENGTH, AND ROUNDED STONE SHOULD BE AVOIDED.
  6. 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).
  7. 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.

TYPE L RIPRAP	
INTERMEDIATE ROCK DIMENSION (IN .)	PERCENT PASSING (%)
15	70-100
12	50-70
9	35-50
3	2-10

\*TYPE L RIPRAP D50=9"  
D50=MEAN PARTICLE SIZE (INTERMEDIATE DIMENSION) BY WEIGHT

NO.	DATE	BY	REVISION DESCRIPTION