

# WOODMOOR WATER AND SANITATION DISTRICT NO. 1

## WELL NO. 22

### EL PASO COUNTY, COLORADO

### SWMP, GRADING AND EROSION CONTROL PLAN

**CONTACTS**

<b>OWNER (APPLICANT):</b>	WOODMOOR WATER AND SANITATION DISTRICT NO. 1 1845 WOODMOOR DRIVE MONUMENT, CO 80132	JESSE SHAFTER, P.E. (719) 488-2525 JESSE@WOODMOORWATER.COM
<b>ENVIRONMENTAL ENGINEER:</b>	JVA, INC 1675 LARIMER STREET, SUITE 550 DENVER, CO 80202	RICHARD HOOD, P.E. (303) 444-1951 RHOO@JVAJVA.COM
<b>CIVIL ENGINEER (SWMP PREPARER):</b>	JVA, INC 1319 SPRUCE STREET BOULDER, CO 80302	KENNETH J. CLIFFORD, P.E. (303) 565-4973 KCLIFFORD@JVAJVA.COM



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AUGUST 2023

PREPARED UNDER THE SUPERVISION OF

JVA, Inc.

AT LEAST (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 OF APPLICATION MATERIALS CONTACT:

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

**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 PLAN.

ENGINEER OF RECORD: DATE: \_\_\_\_\_

**OWNER'S STATEMENT:**

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

8-30-23  
OWNER SIGNATURE DATE

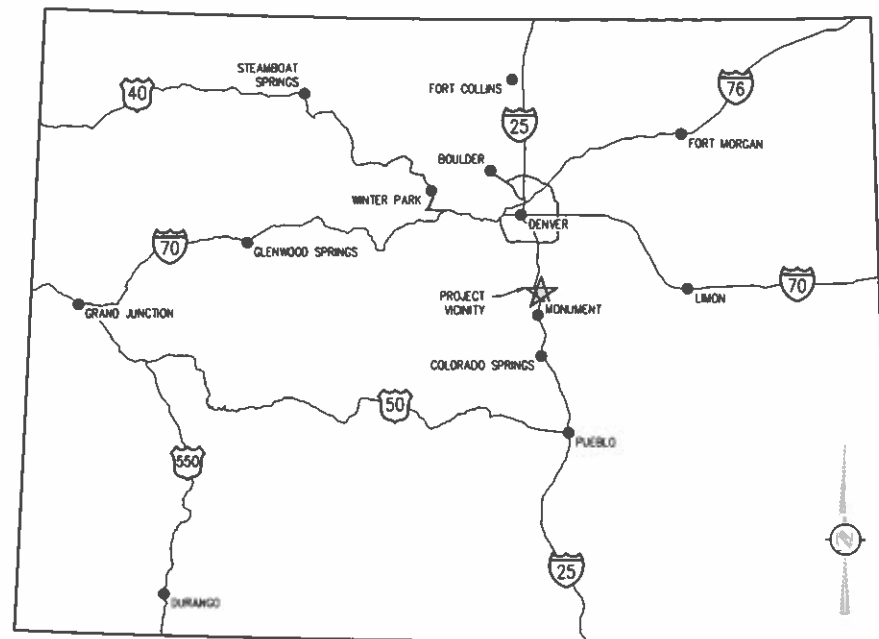
**EL PASO COUNTY:**

COUNTY PLAN REVIEW IS PROVIDED ONLY FOR GENERAL CONFORMANCE WITH THE 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.

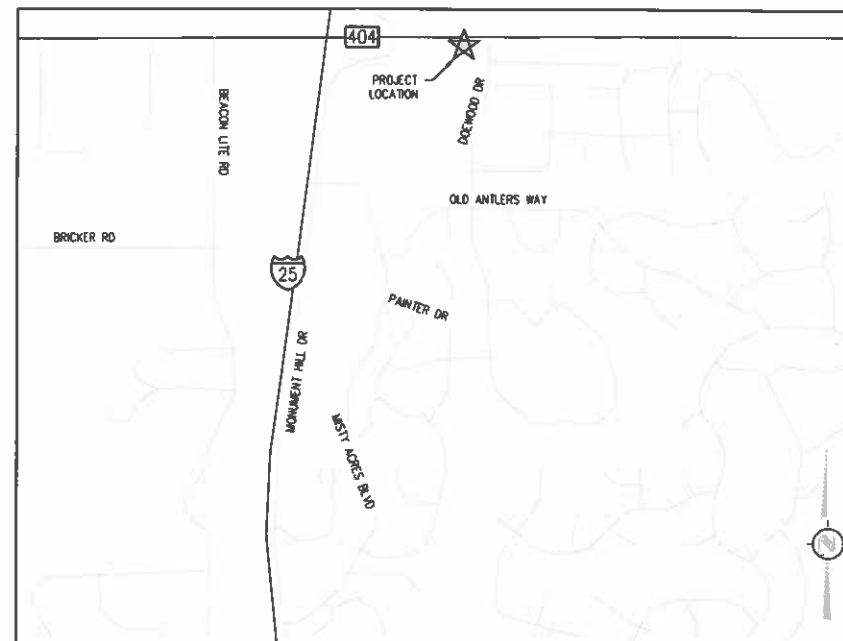
FILED IN ACCORDANCE WITH THE REQUIREMENTS OF THE EL PASO COUNTY LAND DEVELOPMENT CODE, DRAINAGE CRITERIA MANUAL VOLUMES 1 AND 2, AND ENGINEERING CRITERIA MANUAL, AS AMENDED.

IN ACCORDANCE WITH EGM 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 DIRECTOR'S DISCRETION.

Joshua Palmer, P.E. County Engineer/ECM Administrator DATE: \_\_\_\_\_

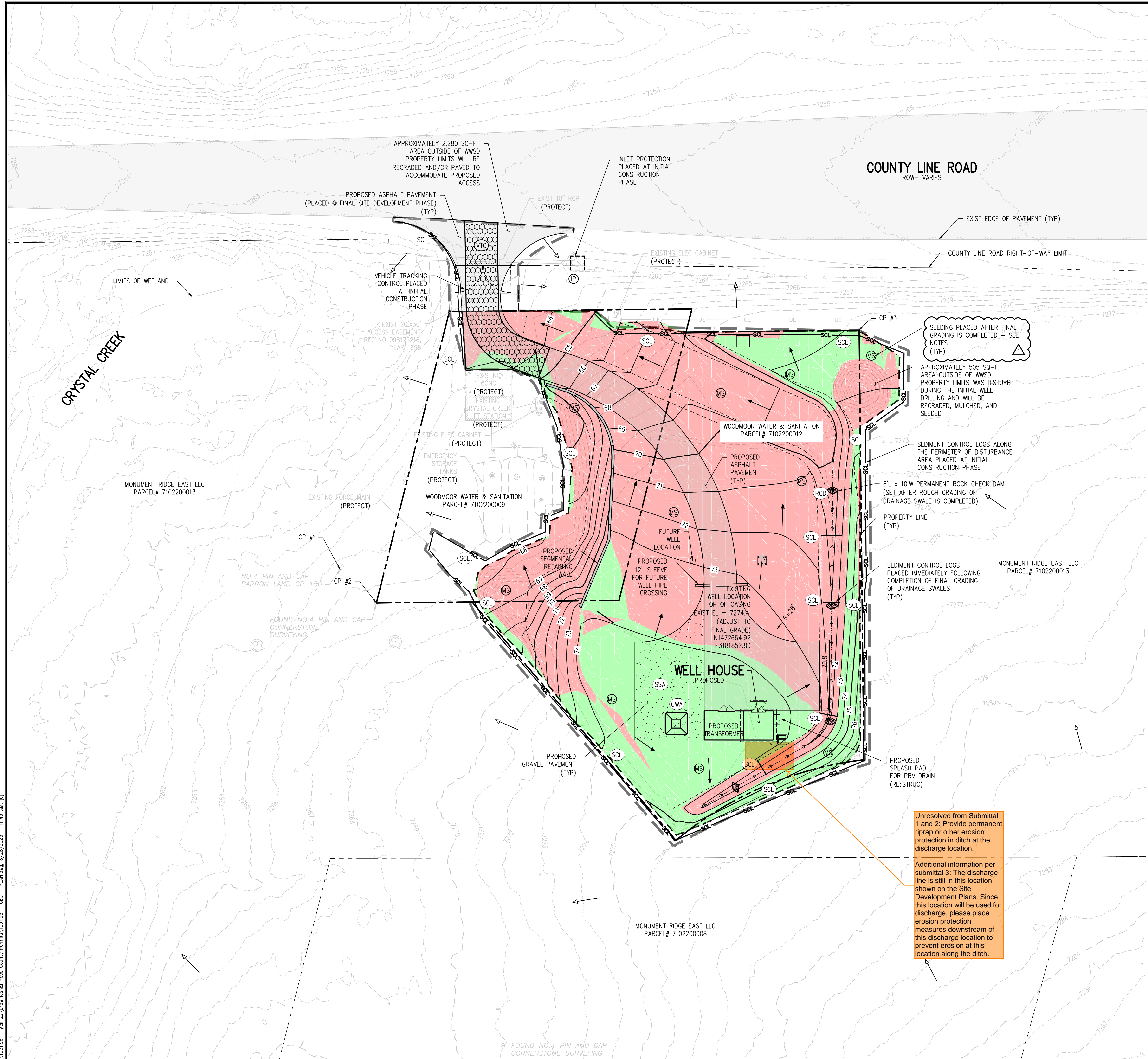


VICINITY MAP  
NTS



PROJECT LOCATION MAP  
NTS





**EROSION CONTROL LEGEND**

	EXISTING INDEX CONTOUR
	EXISTING INTERMEDIATE CONTOUR
	PROPOSED INDEX CONTOUR
	PROPOSED INTERMEDIATE CONTOUR
	RIGHT-OF-WAY
	PROPERTY LINE
	LIMITS OF CONSTRUCTION/DISTURBANCE BOUNDARY
	LIMITS OF EARTHWORK CUT/FILL
	VEHICLE TRACKING CONTROL
	STABILIZED STAGING AREA
	INLET PROTECTION
	CONCRETE WASHOUT AREA
	SEDIMENT CONTROL LOG
	ROCK CHECK DAM
	MULCHING AND SEEDING
	HISTORIC DRAINAGE
	DEVELOPED DRAINAGE
	EARTHWORK CUT AREA
	EARTHWORK FILL AREA

**EROSION AND SEDIMENTATION NOTES:**

- CONTRACTOR IS RESPONSIBLE FOR INSTALLING AND MAINTAINING ALL CONTROLS DURING INITIAL, INTERIM, AND FINAL CONDITIONS.
- CONTRACTOR IS RESPONSIBLE FOR TAKING THE NECESSARY PRECAUTIONS TO PROTECT EXISTING FEATURES OUTSIDE OF LIMITS OF CONSTRUCTION.
- AT THE COMPLETION OF THE DRILLING THE CONTRACTOR WILL REDISTRIBUTE THE SOIL STOCK PILES WITHIN THE DISTURBANCE AREA. SOME OF THE SOIL MAY BE HAULED OFF-SITE.
- ALL CONTROLS SHALL BE INSTALLED WITHIN THE PROPERTY LINES UNLESS OTHERWISE SPECIFIED. WHEN CONSTRUCTION ACTIVITIES DISTURB ADJACENT AND/OR RIGHT-OF-WAY PROPERTIES, COORDINATION WITH PROPERTY OWNERS IS REQUIRED PRIOR TO CONSTRUCTION.
- GRADING/DISTURBANCE WITHIN THE RIGHT-OF-WAY MAY REQUIRE CONTRACTOR TO OBTAIN A WORK WITHIN RIGHT-OF-WAY PERMIT. CONTRACTOR TO VERIFY WITH EL PASO COUNTY PRIOR TO CONSTRUCTION.
- ON-SITE AND OFF-SITE SEEDING WILL OCCUR OVER ALL DISTURBED NON-PAVED AREAS (GRAVEL OR ASPHALT PAVING) AND THE WELL HOUSE AND TRANSFORMER SITES, AS SHOWN ON THIS PLAN. COMPACTION OF SOIL MUST BE PREVENTED IN AREAS DESIGNATED FOR MULCHING AND SEEDING. IF COMPACTION PREVENTION IS NOT FEASIBLE PRIOR FINAL MULCHING AND SEEDING, THEN THE CONTRACTOR MUST FIRST LOOSEN SOIL.

Unresolved from Submittal 1 and 2: Provide permanent riprap or other erosion protection in ditch at the discharge location.

Additional information per submittal 3: The discharge line is still in this location shown on the Site Development Plans. Since this location will be used for discharge, please place erosion protection measures downstream of this discharge location to prevent erosion at this location along the ditch.

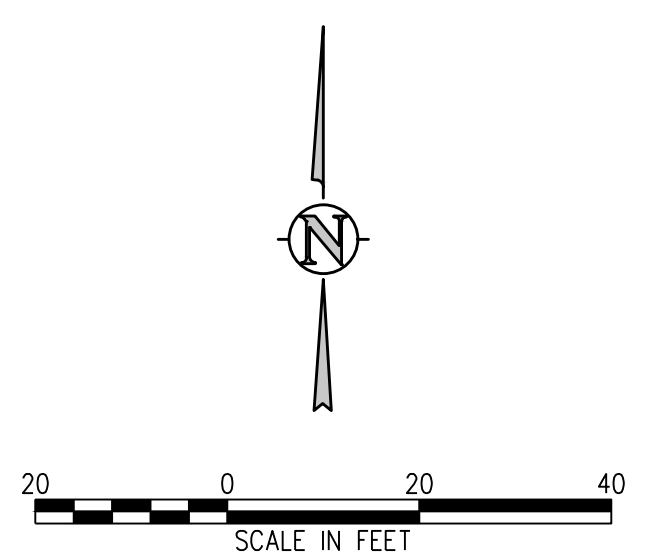
NO.	DATE	DESIGNED	BY	DATE	DESCRIPTION



DESIGNED BY: JGJ  
 DRAWN BY: JGJ  
 CHECKED BY: KJC  
 JOB #: 1051.9e  
 DATE: AUGUST 2023  
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WOODMOOR WSD NO. 1  
 WELL NO. 22  
 EL PASO COUNTY, COLORADO  
 EROSION CONTROL PLAN

SHEET NO.  
**CE1.0**

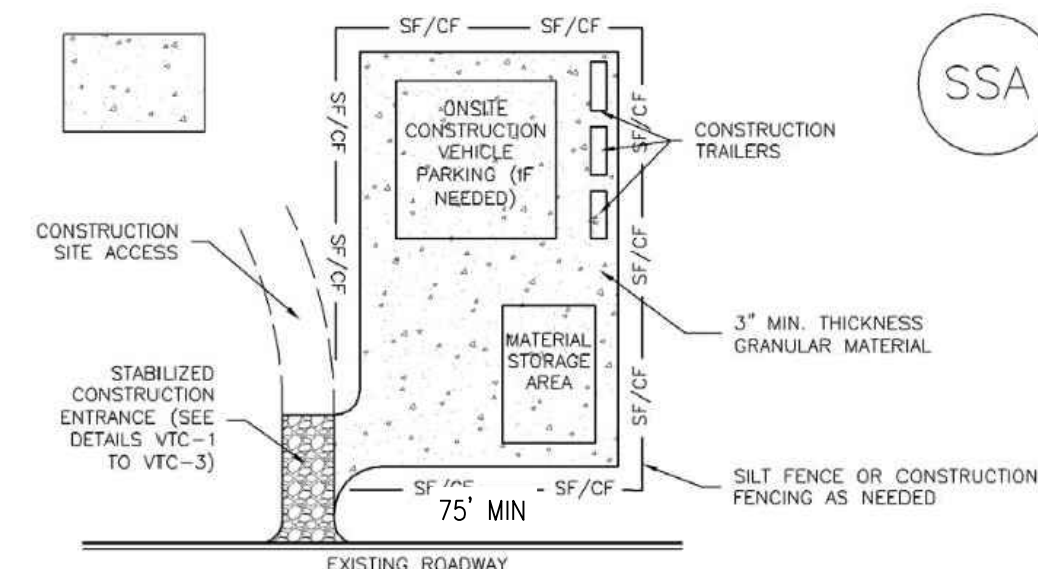


N:\1051.9e - Well 22 Drawings\El Paso County Permits\1051.9e - CEC - PLAN.dwg, 8/28/2023 - 11:49 AM, JGJ



**Stabilized Staging Area (SSA)**

SM-6



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.

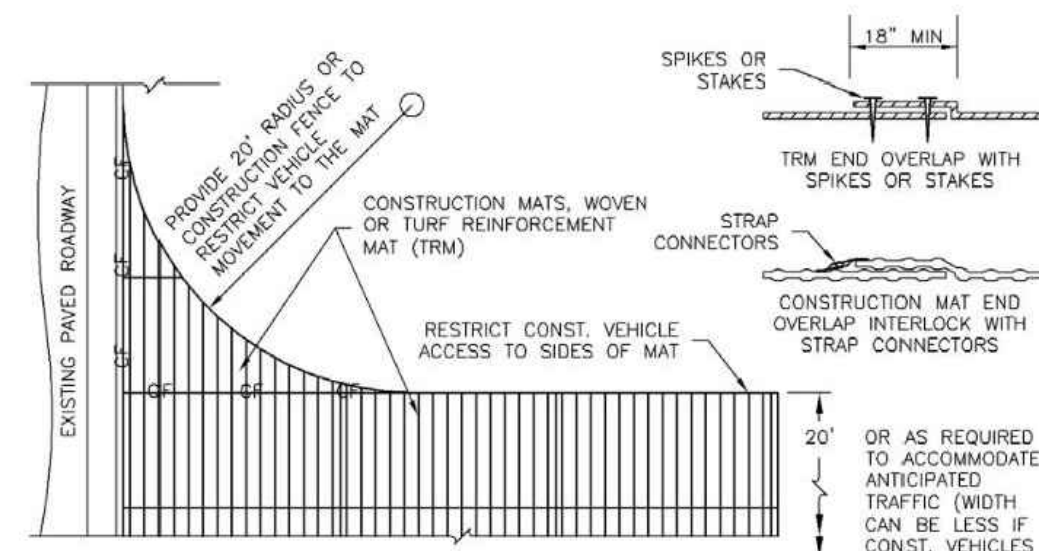
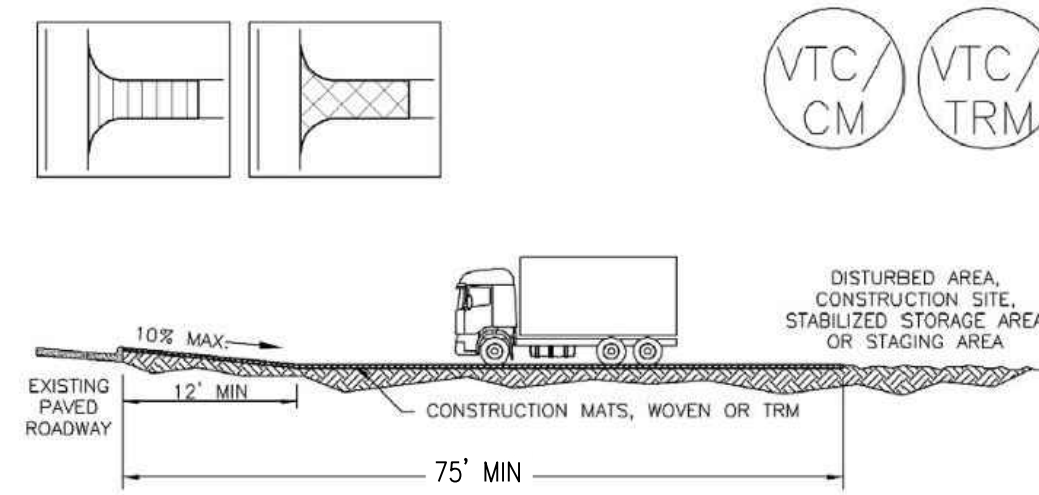
**STABILIZED STAGING AREA MAINTENANCE NOTES**

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.

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

**Vehicle Tracking Control (VTC)**

SM-4



VTC-3. VEHICLE TRACKING CONTROL W/ CONSTRUCTION MAT OR TURF REINFORCEMENT MAT (TRM)

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

**SM-4 Vehicle Tracking Control (VTC)**

**STABILIZED CONSTRUCTION ENTRANCE/EXIT INSTALLATION NOTES**

1. SEE PLAN VIEW FOR  
-LOCATION OF CONSTRUCTION ENTRANCE(S)/EXIT(S).  
-TYPE OF CONSTRUCTION ENTRANCE(S)/EXIT(S) (WITH/WITHOUT WHEEL WASH, CONSTRUCTION MAT OR TRM).
2. CONSTRUCTION MAT OR TRM STABILIZED CONSTRUCTION ENTRANCES ARE ONLY TO BE USED ON SHORT DURATION PROJECTS (TYPICALLY RANGING FROM A WEEK TO A MONTH) WHERE THERE WILL BE LIMITED VEHICULAR ACCESS.
3. A STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE LOCATED AT ALL ACCESS POINTS WHERE VEHICLES ACCESS THE CONSTRUCTION SITE FROM PAVED RIGHT-OF-WAYS.
4. STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
5. A NON-WOVEN GEOTEXTILE FABRIC SHALL BE PLACED UNDER THE STABILIZED CONSTRUCTION ENTRANCE/EXIT PRIOR TO THE PLACEMENT OF ROCK.
6. UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.

**STABILIZED CONSTRUCTION ENTRANCE/EXIT 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 TO THE STABILIZED ENTRANCE/EXIT TO MAINTAIN A CONSISTENT DEPTH.
5. SEDIMENT TRACKED ONTO PAVED ROADS IS TO BE REMOVED THROUGHOUT THE DAY AND AT THE END OF THE DAY BY SHOULDERING OR SWEEPING. SEDIMENT MAY NOT BE WASHED DOWN STORM SEWER DRAINS.

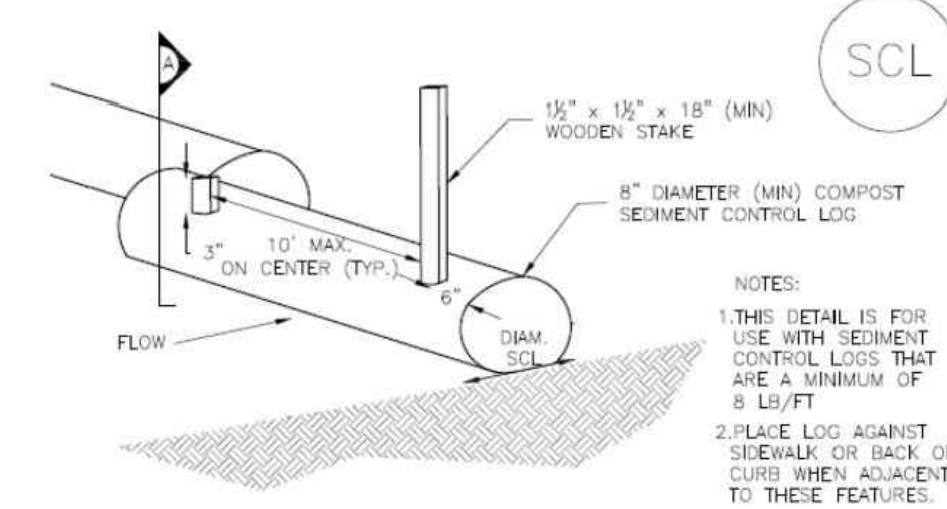
NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

(DETAILS ADAPTED FROM CITY OF BROOMFIELD, COLORADO, NOT AVAILABLE IN AUTOCAD)

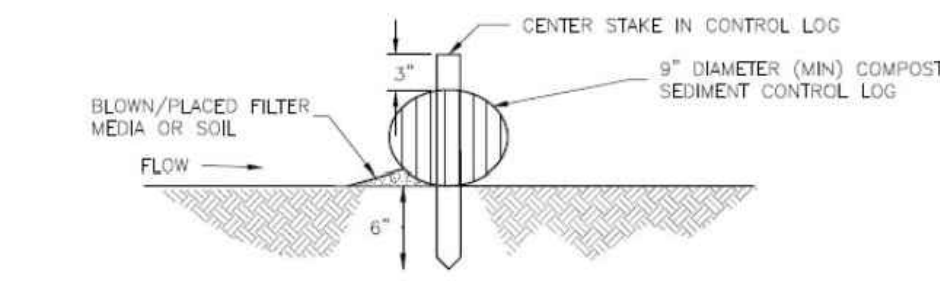
VTC-6 Urban Drainage and Flood Control District November 2010  
Urban Storm Drainage Criteria Manual Volume 3

**SC-2**

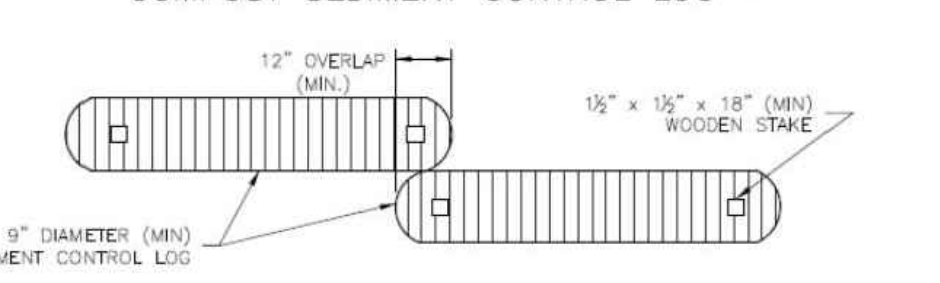
**Sediment Control Log (SCL)**



COMPOST SEDIMENT CONTROL LOG (WEIGHTED)



COMPOST SEDIMENT CONTROL LOG (A)



LOG JOINTS

SCL-2. COMPOST SEDIMENT CONTROL LOG (WEIGHTED)

SC-4 Urban Drainage and Flood Control District November 2015  
Urban Storm Drainage Criteria Manual Volume 3

**SC-2 Sediment Control Log (SCL)**

**SEDIMENT CONTROL LOG INSTALLATION NOTES**

1. SEE PLAN VIEW FOR LOCATION AND LENGTH OF SEDIMENT CONTROL LOGS.
2. SEDIMENT CONTROL LOGS THAT ACT AS A PERIMETER CONTROL SHALL BE INSTALLED PRIOR TO ANY UPGRADIENT LAND-DISTURBING ACTIVITIES.
3. SEDIMENT CONTROL LOGS SHALL CONSIST OF STRAW, COMPOST, EXCELSIOR OR COCONUT FIBER, AND SHALL BE FREE OF ANY NOXIOUS WEED SEEDS OR DEFECTS INCLUDING RIPS, HOLES AND OBVIOUS WEAR.
4. SEDIMENT CONTROL LOGS MAY BE USED AS SMALL CHECK DAMS IN DITCHES AND SWALES. HOWEVER, THEY SHOULD NOT BE USED IN PERENNIAL STREAMS.
5. IT IS RECOMMENDED THAT SEDIMENT CONTROL LOGS BE TRENCHED INTO THE GROUND TO A DEPTH OF APPROXIMATELY 1/3 OF THE DIAMETER OF THE LOG. IF TRENCHING TO THIS DEPTH IS NOT FEASIBLE AND/OR DESIRABLE (SHORT TERM INSTALLATION WITH DESIRE NOT TO DAMAGE LANDSCAPE) A LESSER TRENCHING DEPTH MAY BE ACCEPTABLE WITH MORE ROBUST STAKING. COMPOST LOGS THAT ARE 8 LB/FT DO NOT NEED TO BE TRENCHED.
6. THE UPHILL SIDE OF THE SEDIMENT CONTROL LOG SHALL BE BACKFILLED WITH SOIL OR FILTER MATERIAL THAT IS FREE OF ROCKS AND DEBRIS. THE SOIL SHALL BE TIGHTLY COMPACTED INTO THE SHAPE OF A RIGHT TRIANGLE USING A SHOVEL OR WEIGHTED LAWN ROLLER OR BLOWN IN PLACE.
7. FOLLOW MANUFACTURERS' GUIDANCE FOR STAKING. IF MANUFACTURERS' INSTRUCTIONS DO NOT SPECIFY SPACING, STAKES SHALL BE PLACED ON 4' CENTERS AND EMBEDDED A MINIMUM OF 6" INTO THE GROUND. 3" OF THE STAKE SHALL PROTRUDE FROM THE TOP OF THE LOG. STAKES THAT ARE BROKEN PRIOR TO INSTALLATION SHALL BE REPLACED. COMPOST LOGS SHOULD BE STAKED 10' ON CENTER.

**SEDIMENT CONTROL LOG MAINTENANCE NOTES**

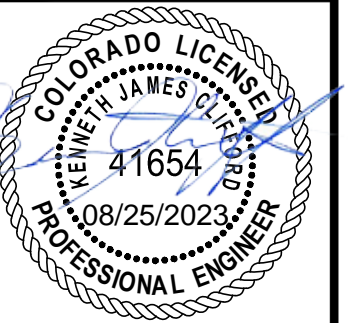
1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS 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 SEDIMENT CONTROL LOG SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP. TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 1/2 OF THE HEIGHT OF THE SEDIMENT CONTROL LOG.
5. SEDIMENT CONTROL LOG SHALL BE REMOVED AT THE END OF CONSTRUCTION/COMPOST FROM COMPOST LOGS MAY BE LEFT IN PLACE AS LONG AS BAGS ARE REMOVED AND THE AREA SEEDED. IF DISTURBED AREAS EXIST AFTER REMOVAL, THEY SHALL BE COVERED WITH TOP SOIL, SEEDS AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

(DETAILS ADAPTED FROM TOWN OF PARKER, COLORADO, SERRANO COUNTY, COLORADO, DOUGLAS COUNTY, COLORADO, AND CITY OF ALBUQUA, 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.

SC-6 Urban Drainage and Flood Control District November 2015  
Urban Storm Drainage Criteria Manual Volume 3

NO.	DATE	DESIGN	BY	REVISIONS PER COUNTY COMMENTS
1	08/25/23	SWW	DWIN	

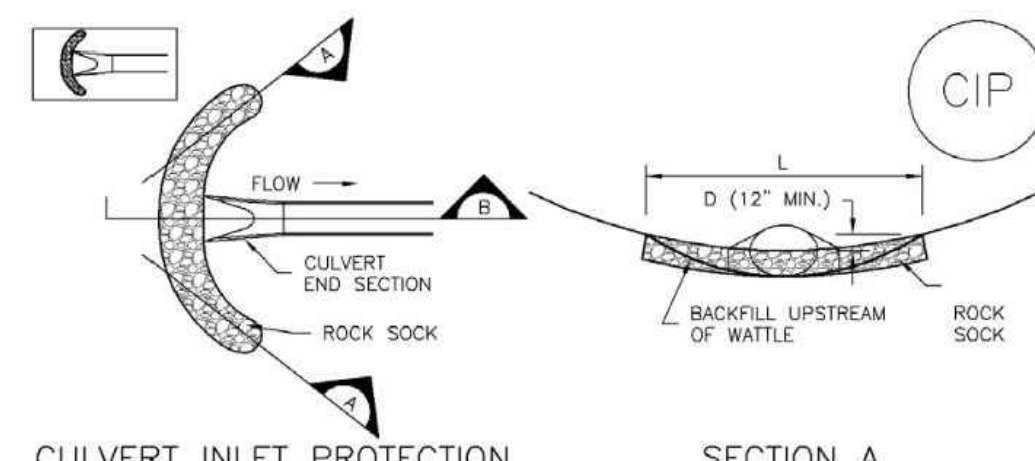


DESIGNED BY: MHT/JGJ  
DRAWN BY: MHT/JGJ  
CHECKED BY: KJC  
JOB #: 1051.9e  
DATE: AUGUST 2023  
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WOODMOOR WSD NO. 1  
WELL NO. 22  
EL PASO COUNTY, COLORADO  
EROSION CONTROL DETAILS

SHEET NO.  
CE1.2

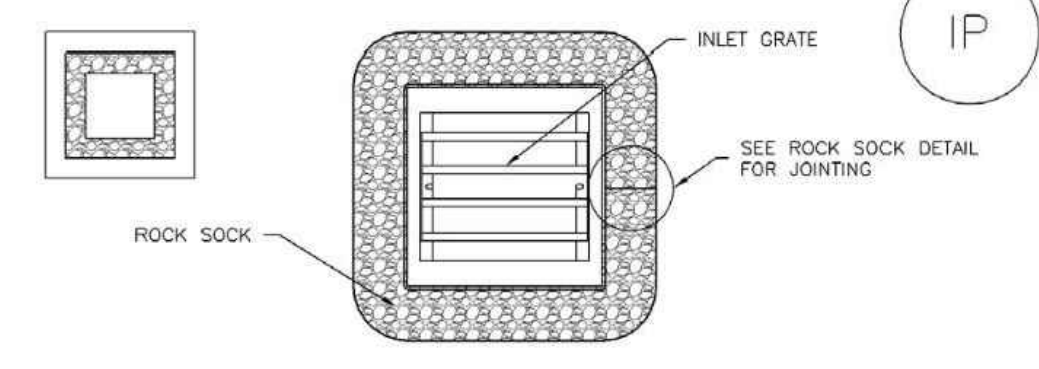
**Inlet Protection (IP) SC-6**



**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.  
(DETAILS ADAPTED FROM 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.

August 2013 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 IP-7

**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 PEROUS AREAS. INSTALL PER SEDIMENT CONTROL LOG 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.  
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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.  
(DETAILS ADAPTED FROM AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)  
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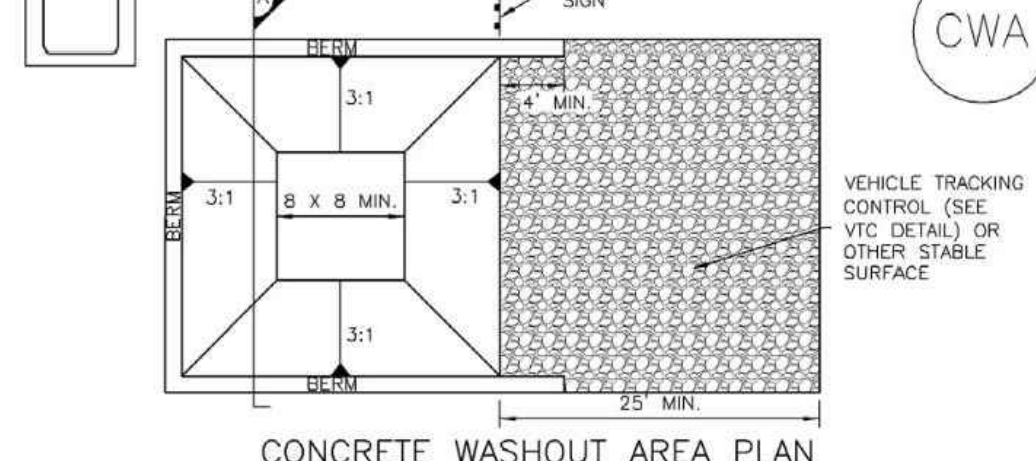
August 2013 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 IP-5

**SC-6 Inlet Protection (IP)**

**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 1/2 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 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.

IP-8 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 August 2013

**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 1000' 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 TRUCKS.  
8. USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION.

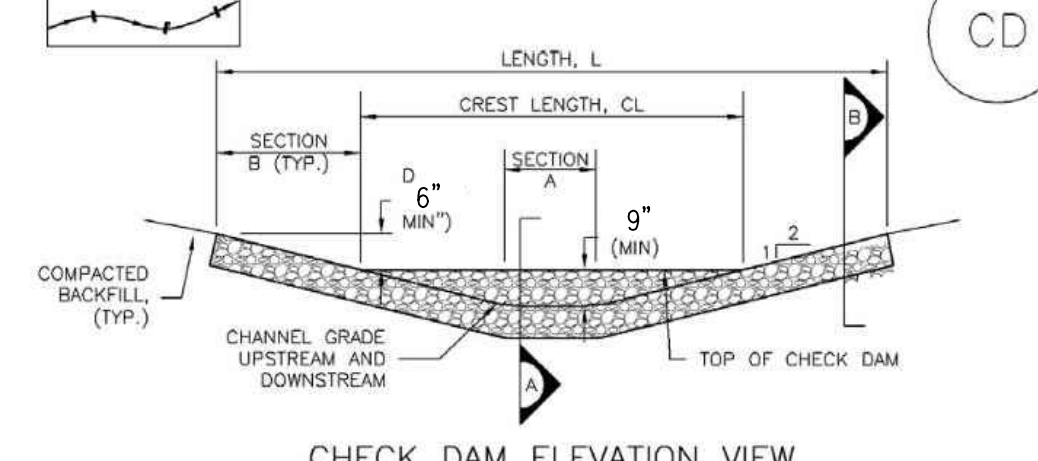
November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 CWA-3

**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

**Check Dams (CD) EC-12**



**CD-1. CHECK DAM**  
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 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.

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

**EC-12 Check Dams (CD)**

**CHECK DAM MAINTENANCE NOTES**  
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(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 Urban Storm Drainage Criteria Manual Volume 3 November 2010

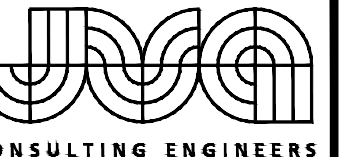
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DWN KJC  
AUGUST 2023



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CHECKED BY: KJC  
JOB #: 1051.9e  
DATE: AUGUST 2023  
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WOODMOOR WSD NO. 1  
WELL NO. 22  
EL PASO COUNTY, COLORADO  
EROSION CONTROL DETAILS

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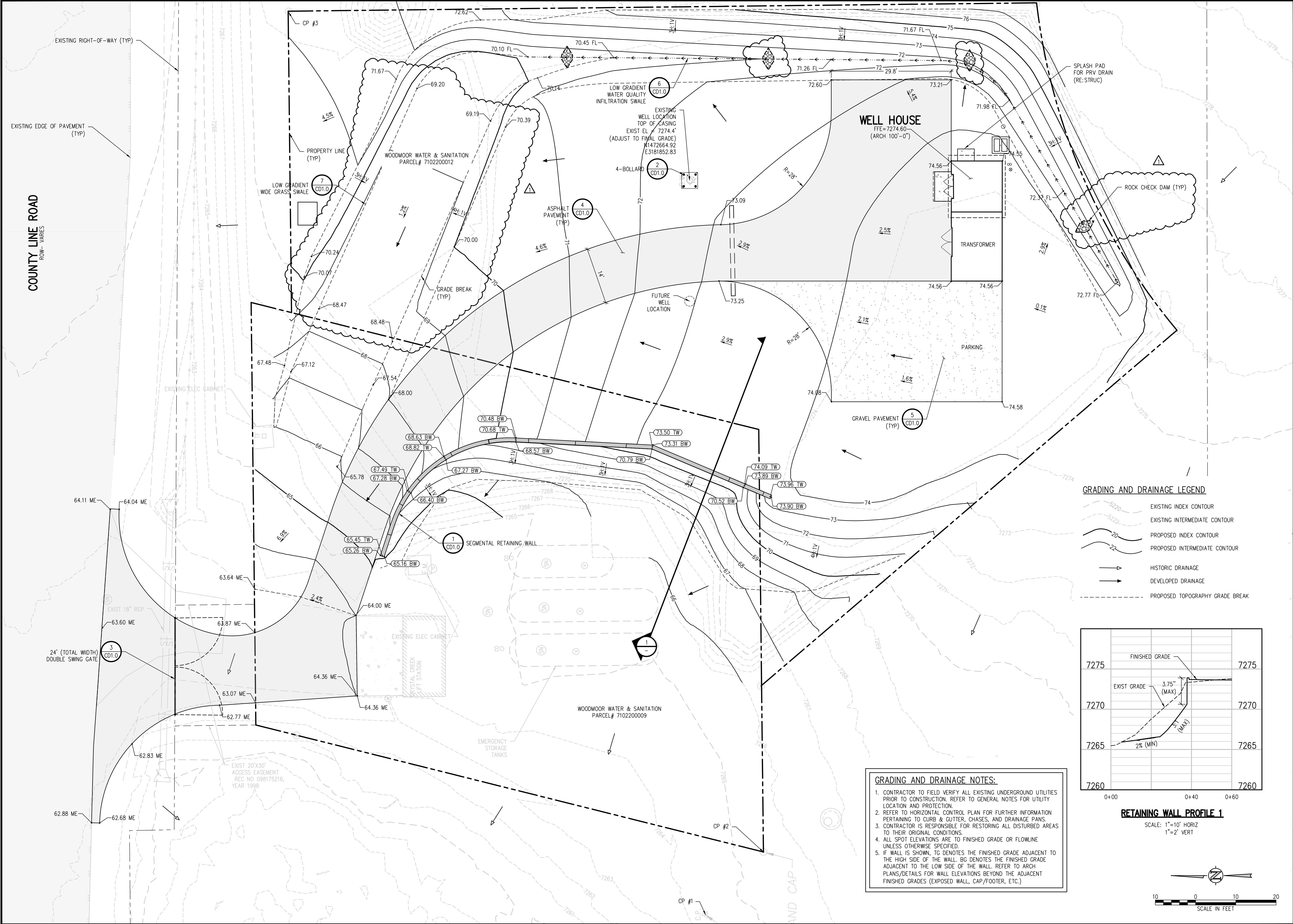
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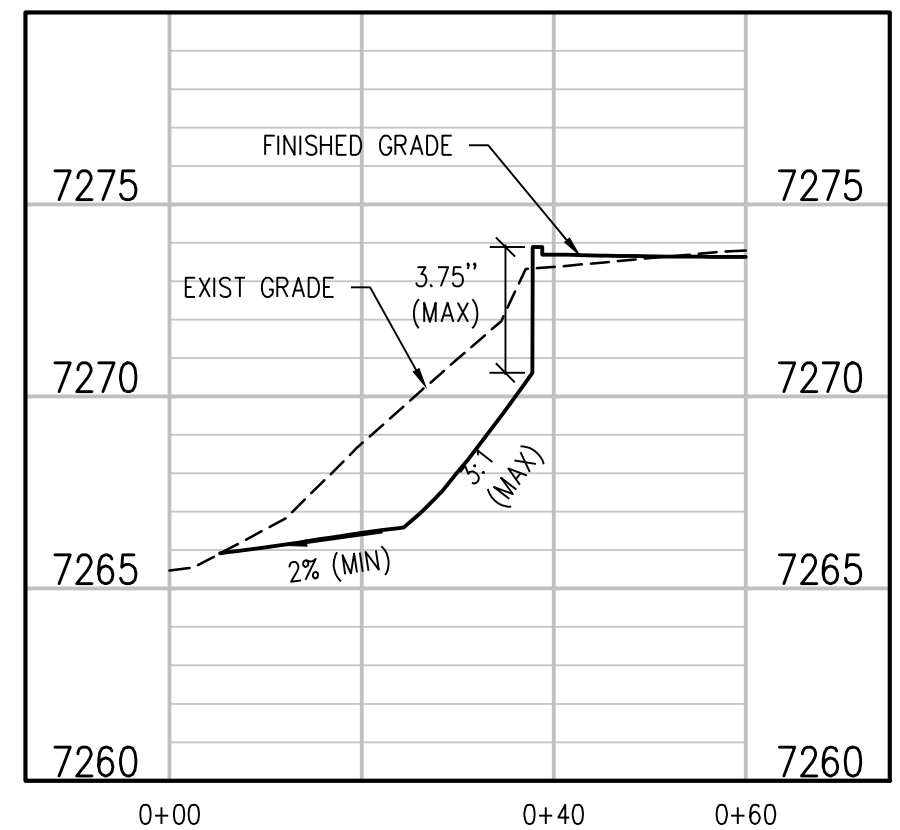
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 EL PASO COUNTY, COLORADO  
 GRADING AND DRAINAGE PLAN

SHEET NO.  
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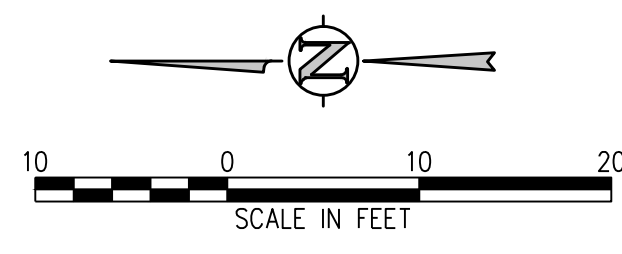
**GRADING AND DRAINAGE LEGEND**

	EXISTING INDEX CONTOUR
	EXISTING INTERMEDIATE CONTOUR
	PROPOSED INDEX CONTOUR
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	HISTORIC DRAINAGE
	DEVELOPED DRAINAGE
	PROPOSED TOPOGRAPHY GRADE BREAK

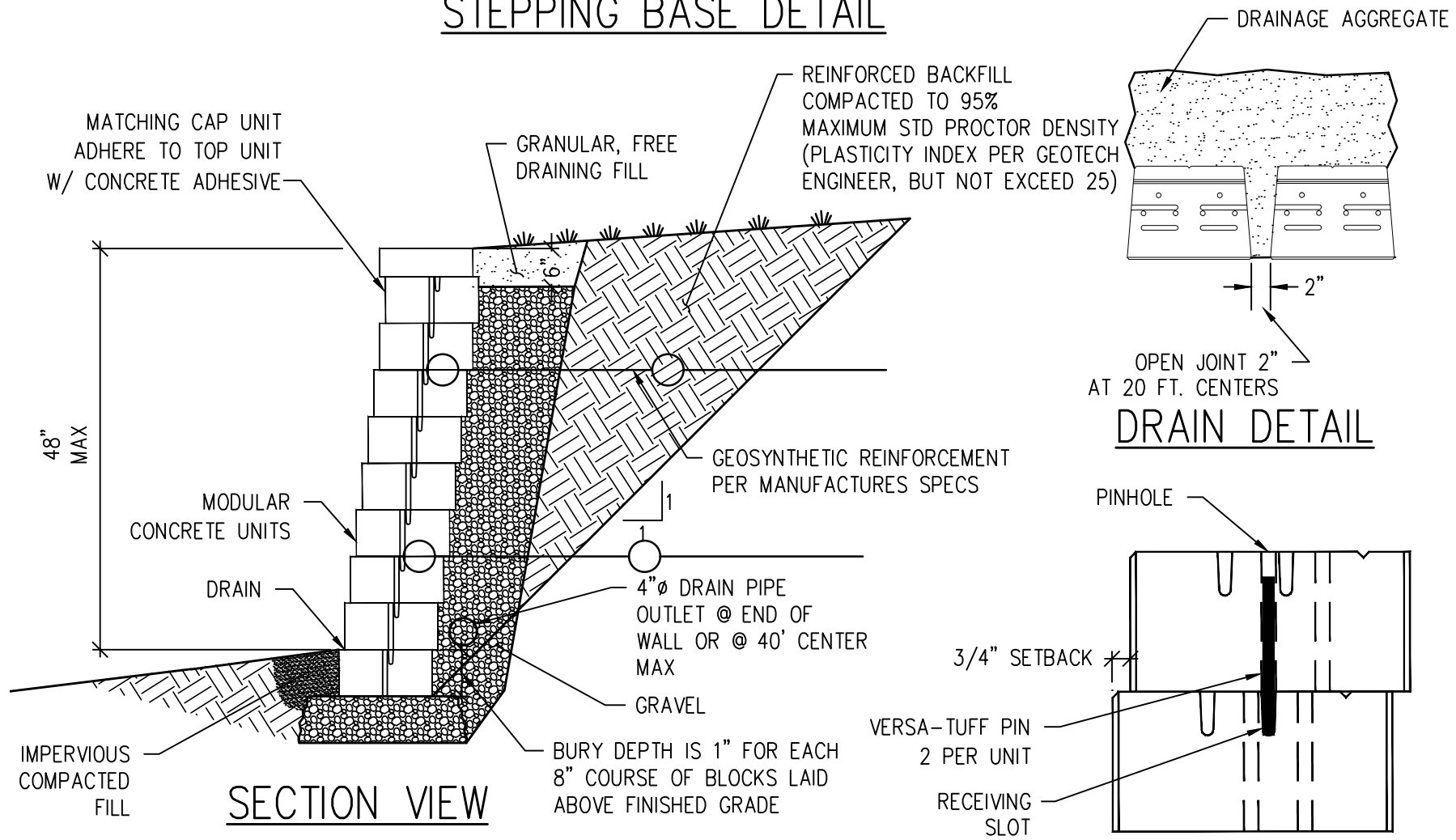
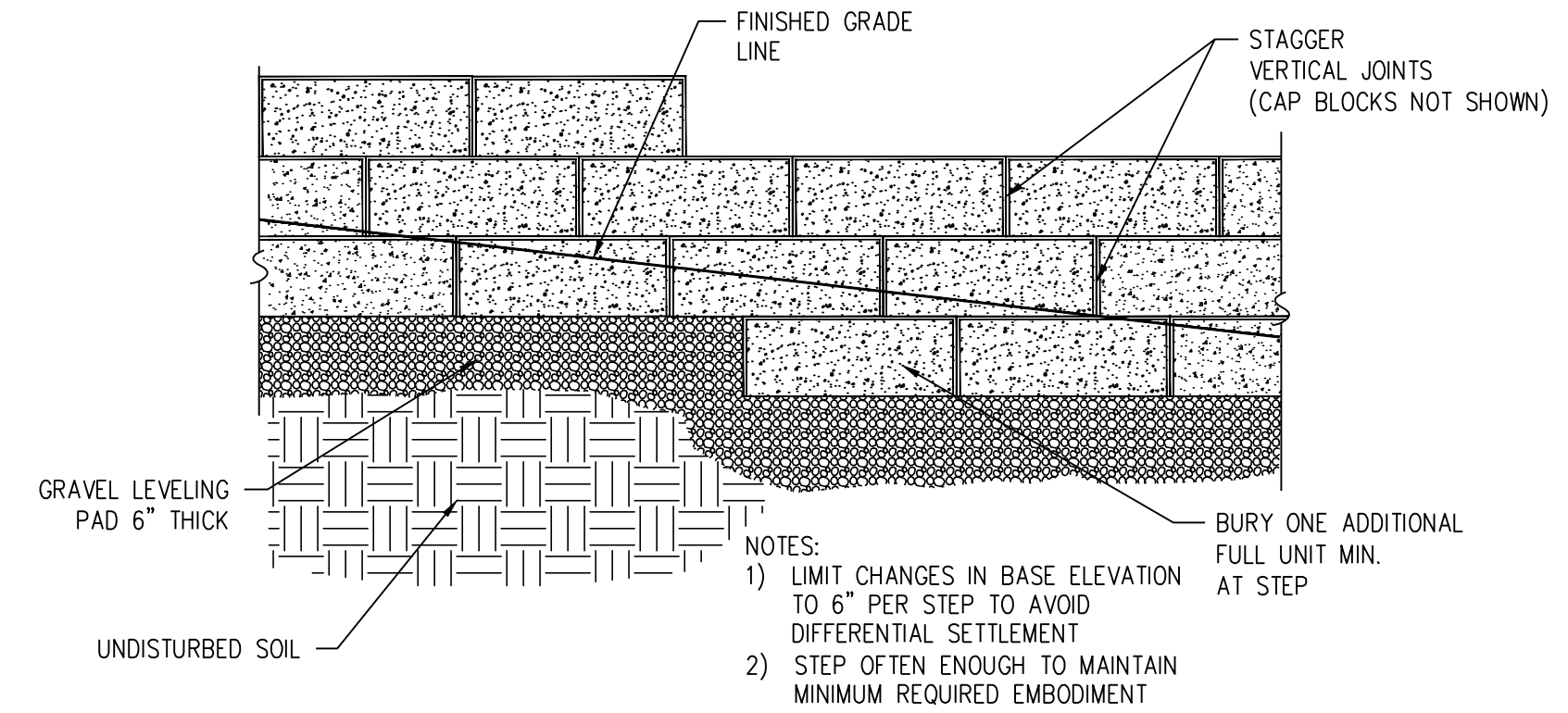


**GRADING AND DRAINAGE NOTES:**

- CONTRACTOR TO FIELD VERIFY ALL EXISTING UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. REFER TO GENERAL NOTES FOR UTILITY LOCATION AND PROTECTION.
- REFER TO HORIZONTAL CONTROL PLAN FOR FURTHER INFORMATION PERTAINING TO CURB & GUTTER, CHASES, AND DRAINAGE PANS.
- CONTRACTOR IS RESPONSIBLE FOR RESTORING ALL DISTURBED AREAS TO THEIR ORIGINAL CONDITIONS.
- ALL SPOT ELEVATIONS ARE TO FINISHED GRADE OR FLOWLINE UNLESS OTHERWISE SPECIFIED.
- IF WALL IS SHOWN, TG DENOTES THE FINISHED GRADE ADJACENT TO THE HIGH SIDE OF THE WALL. BG DENOTES THE FINISHED GRADE ADJACENT TO THE LOW SIDE OF THE WALL. REFER TO ARCH PLANS/DETAILS FOR WALL ELEVATIONS BEYOND THE ADJACENT FINISHED GRADES (EXPOSED WALL, CAP/FOOTER, ETC.)

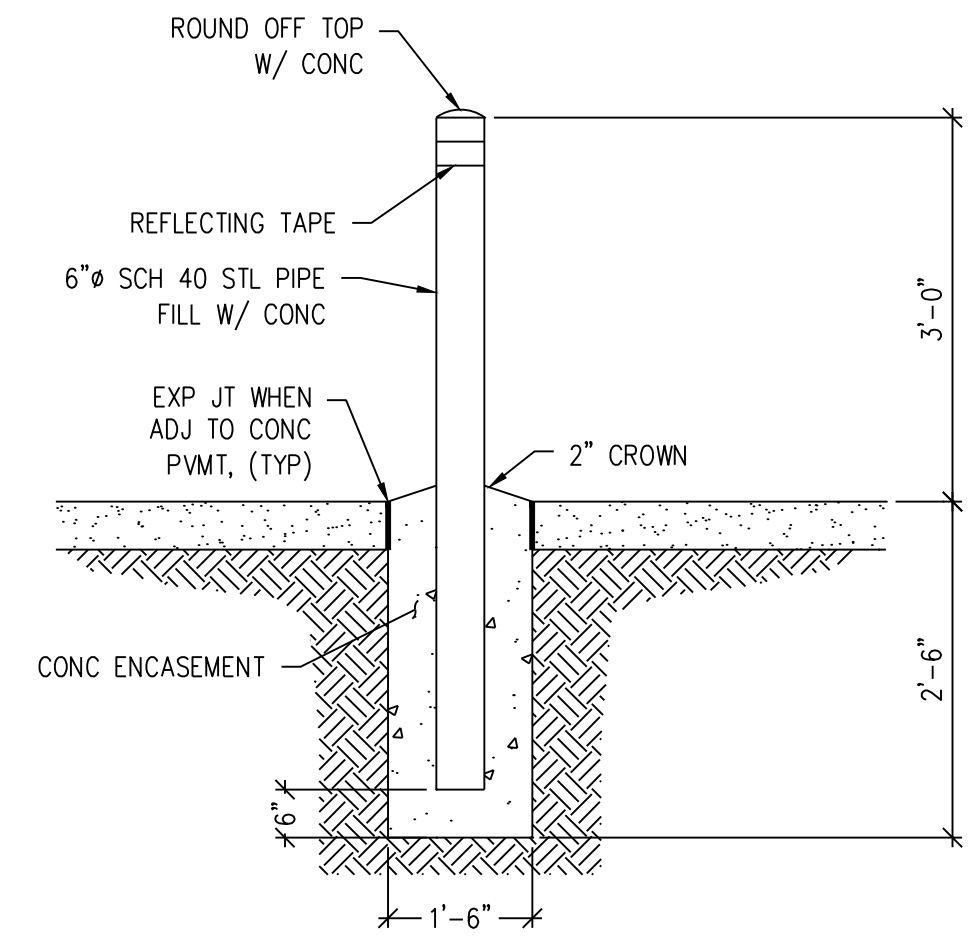


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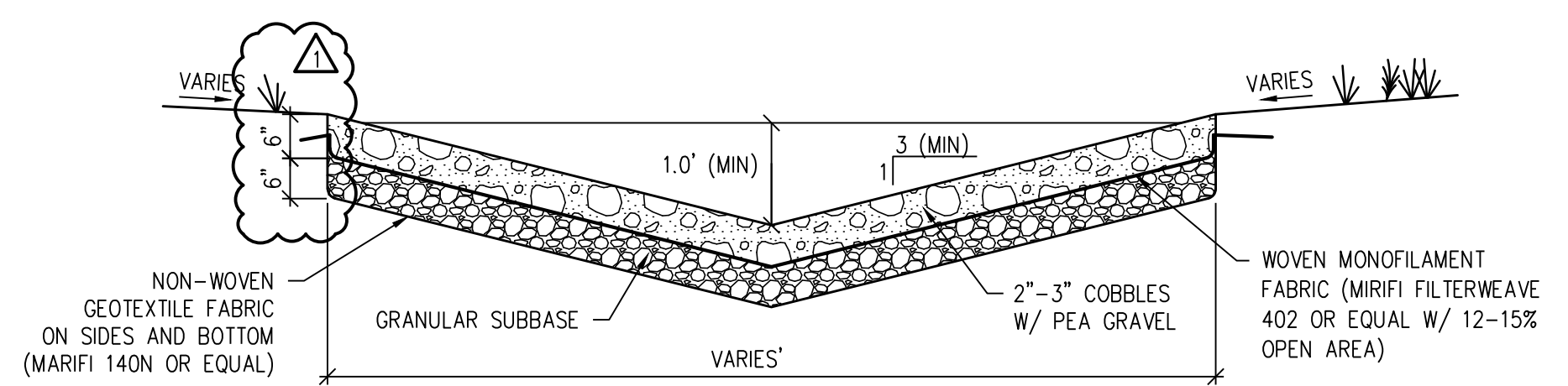


- NOTES:**
- THE ABOVE DETAILS ARE GENERAL WALL LAYOUT & QUALITY INFORMATION. CONTRACTOR TO REVIEW AND FOLLOW ALL OF BLOCK MANUFACTURER'S DESIGN, SUBMITTAL AND INSTALLATION REQUIREMENTS. BLOCKS TO BE VERSA-LOCK "STANDARD" SPLIT FACE OR ACCEPTED. BLOCK COLORS TO BE SUBMITTED FOR APPROVAL.
  - SUBMIT FINAL BLOCK COLOR AND TEXTURE SAMPLE TO OWNER FOR APPROVAL PRIOR TO CONSTRUCTION.
  - BACKFILL TO HAVE MAX PLASTICITY INDEX OF 25.
  - ALL RETAINING WALLS (OR ADDITION OF MULTIPLE TIERED WALLS) THAT EXCEED A FOUR FOOT HEIGHT OR INCLUDE A SURCHARGE LOAD WILL REQUIRE A BUILDING PERMIT PRIOR TO OBTAINING A PUBLIC WORKS PERMIT.

**SEGMENTAL RETAINING WALL** 1  
 NTS C1.0

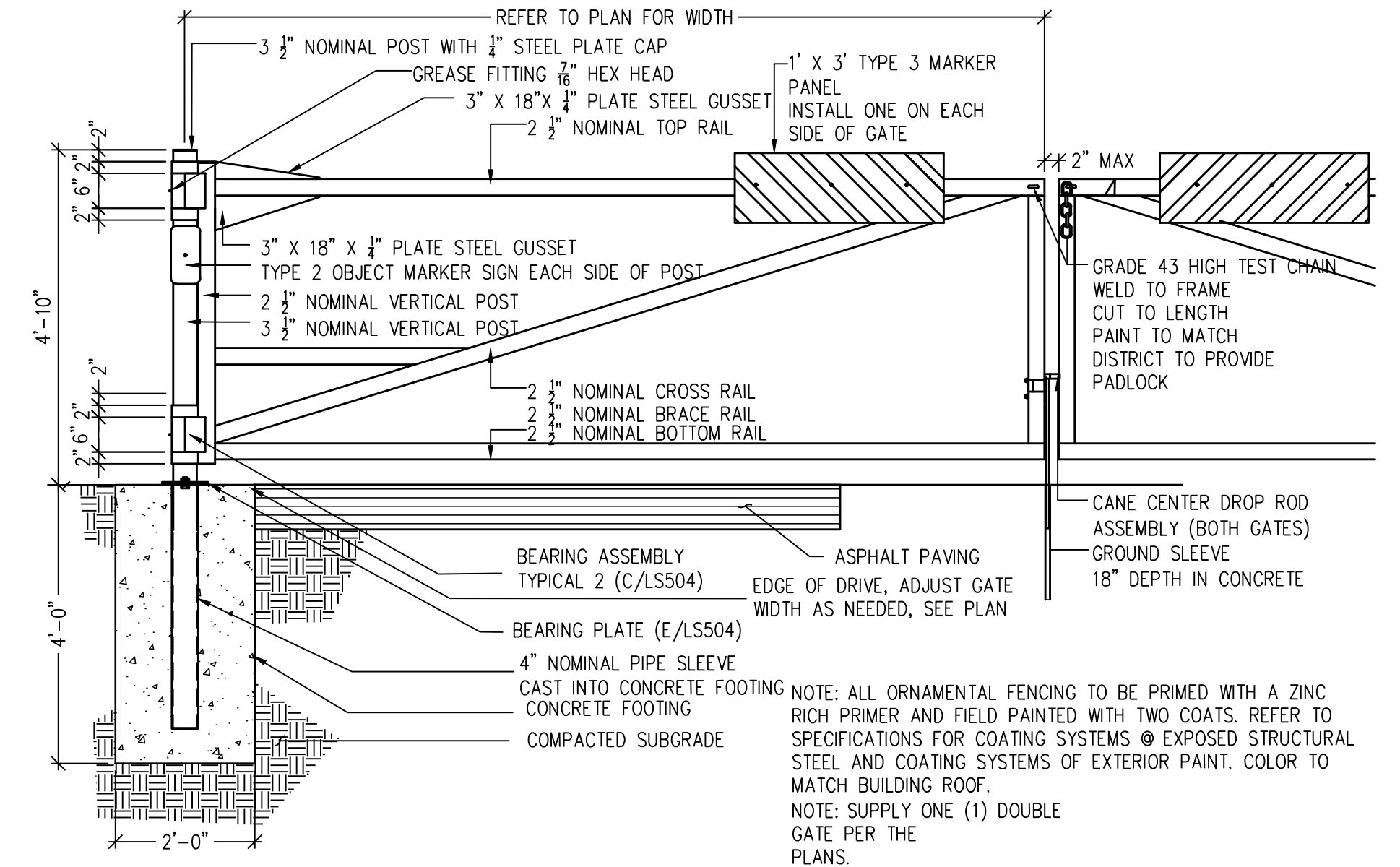
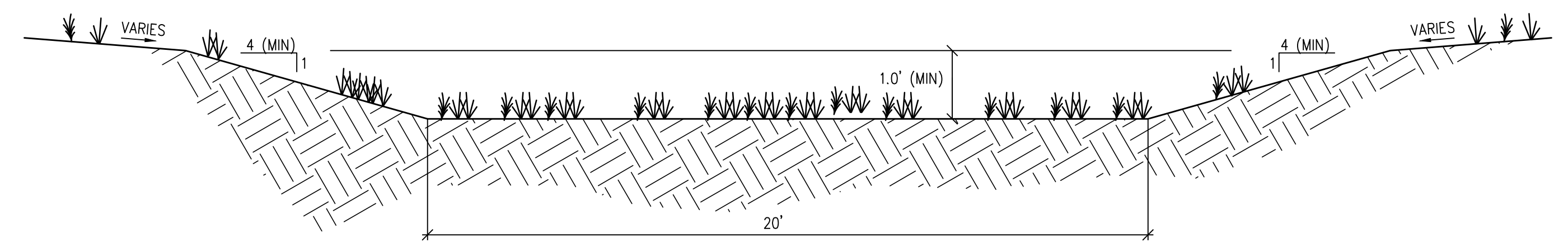


**BOLLARD DETAIL** 2  
 NTS C1.0



- NOTES:**
- GRANULAR SUBBASE SHALL MEET AASHTO No. 4 COARSE AGGREGATE (WASHED 3/4" - 1-1/2" GRAVEL). COBBLES SHALL BE 2"-3" AVERAGE DIAMETER. PEA GRAVEL SHALL MEET CDOT CLASS B FILTER MATERIAL.
  - MAINTENANCE REQUIREMENTS:
    - NONIRRIGATED NATIVE GRASS AT 6 TO 8 INCHES TALL. COLLECT CUTTINGS AND DISPOSE OF THEM OFFSITE OR USE A MULCHING MOWER.
    - AS NEEDED BY INSPECTION, REMOVE ALL COLLECTED DEBRIS AND LITTER. KEEP THE AREA CLEAN FOR AESTHETIC REASONS, WHICH ALSO REDUCES FLOATABLES BEING FLUSHED DOWNSTREAM. REPAIR SWALE IF DAMAGED AFTER STORM EVENTS.
    - ANNUALLY CHECK THE SWALE FOR RIPRAP PLACEMENT, COBBLE LAYER COVERAGE, AND SEDIMENT ACCUMULATED IN SWALE AND NEAR INLETS AND FLARED END SECTIONS.
    - ROUTINELY REMOVE ACCUMULATED SEDIMENT NEAR CULVERTS AND WITHIN THE CHANNEL TO MAINTAIN FLOW CAPACITY. REPLACE THE GRASS AREAS DAMAGED IN THE PROCESS. PERIODICALLY REPAIR AND REVEGETATE ERODED AREAS IN THE CHANNELS DUE TO HIGH FLOWS.
    - WHEN THE WATER IN THE SWALE FAILS TO INFILTRATE DUE TO HIGH SEDIMENT DEPOSITS IN THE COBBLE/PEA GRAVEL LAYER, REMOVE CLEAN AND STOCKPILE THE COBBLE/PEA GRAVEL LAYER.
  - REMOVE AND REPLACE THE WORN GEO FABRIC LAYER IF NECESSARY, REPLACE THE CLEANED COBBLE/PEA GRAVEL LAYER.

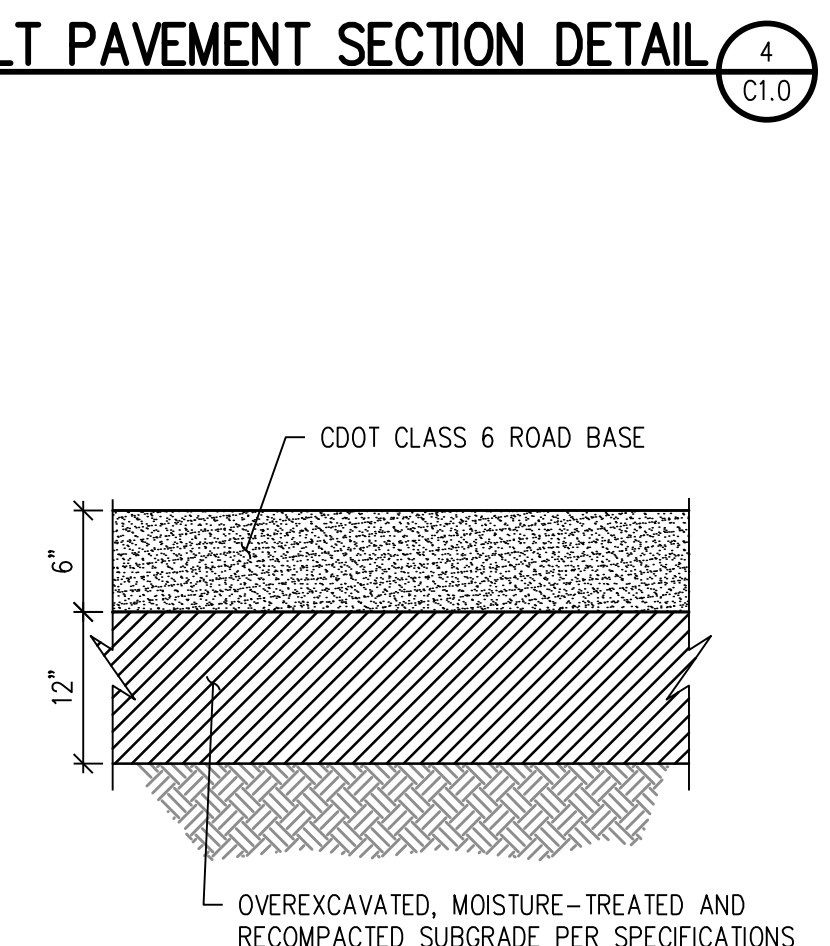
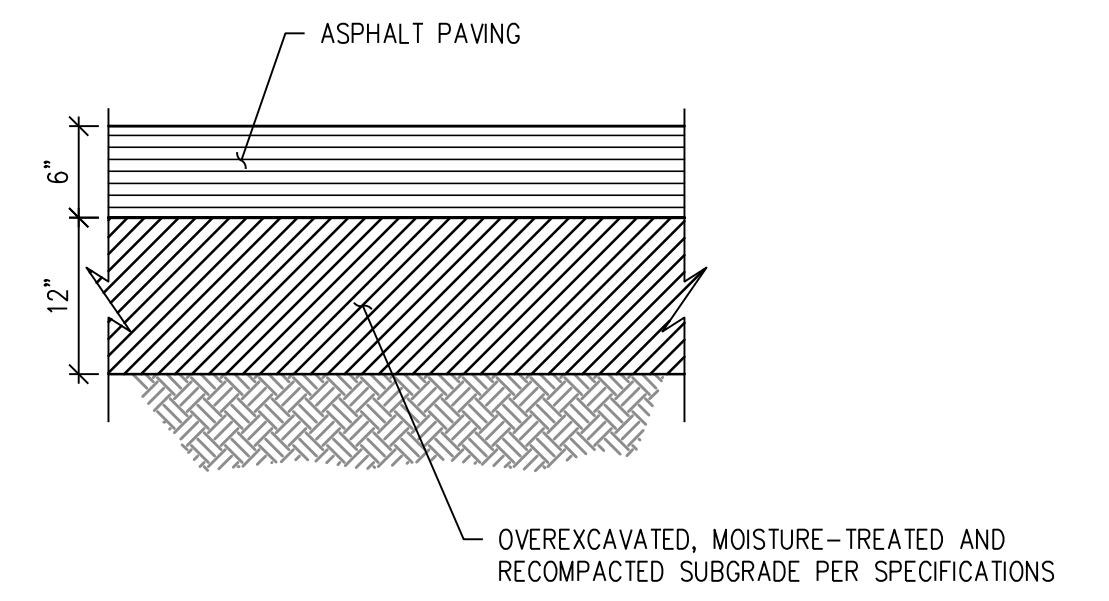
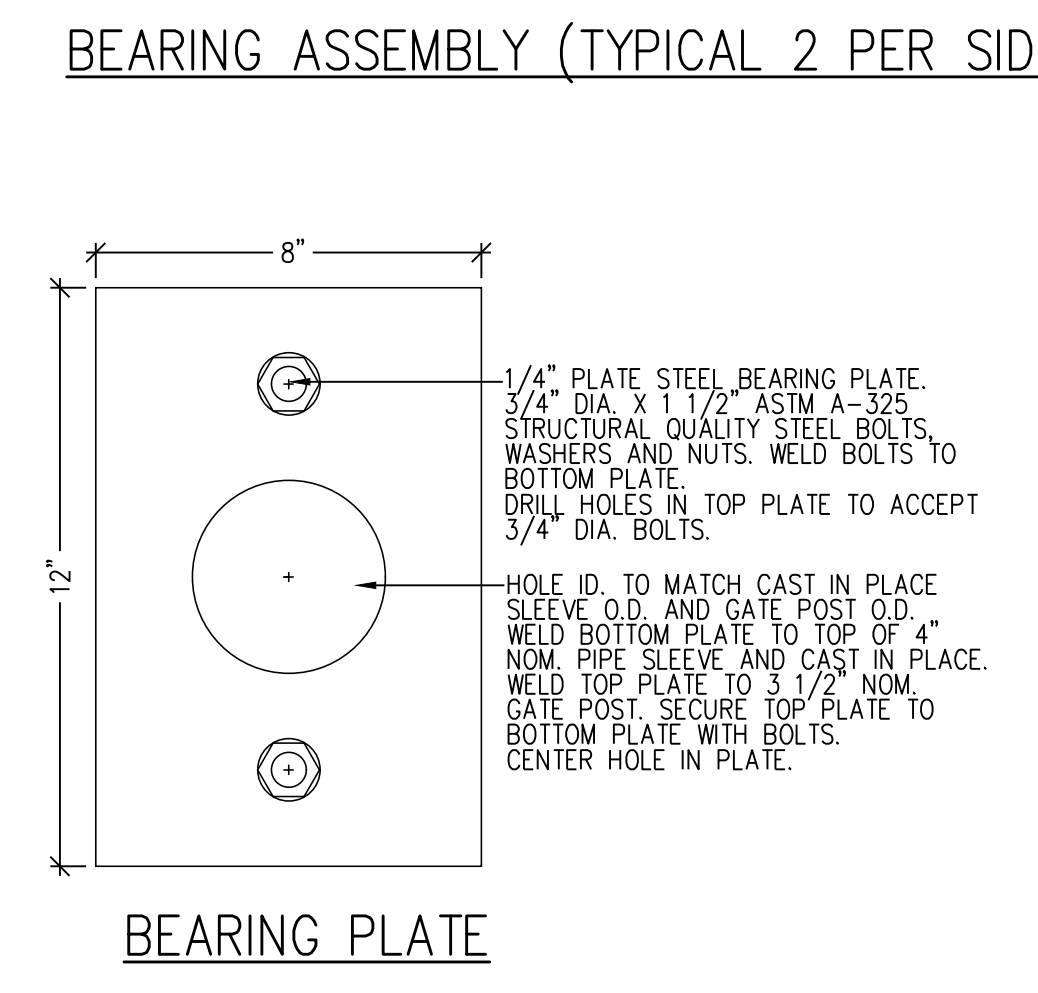
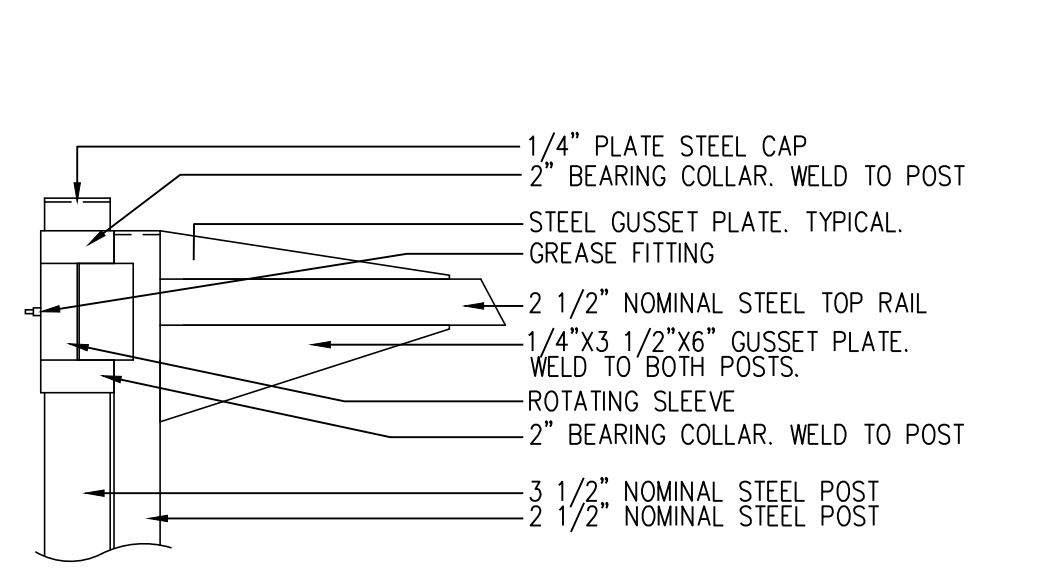
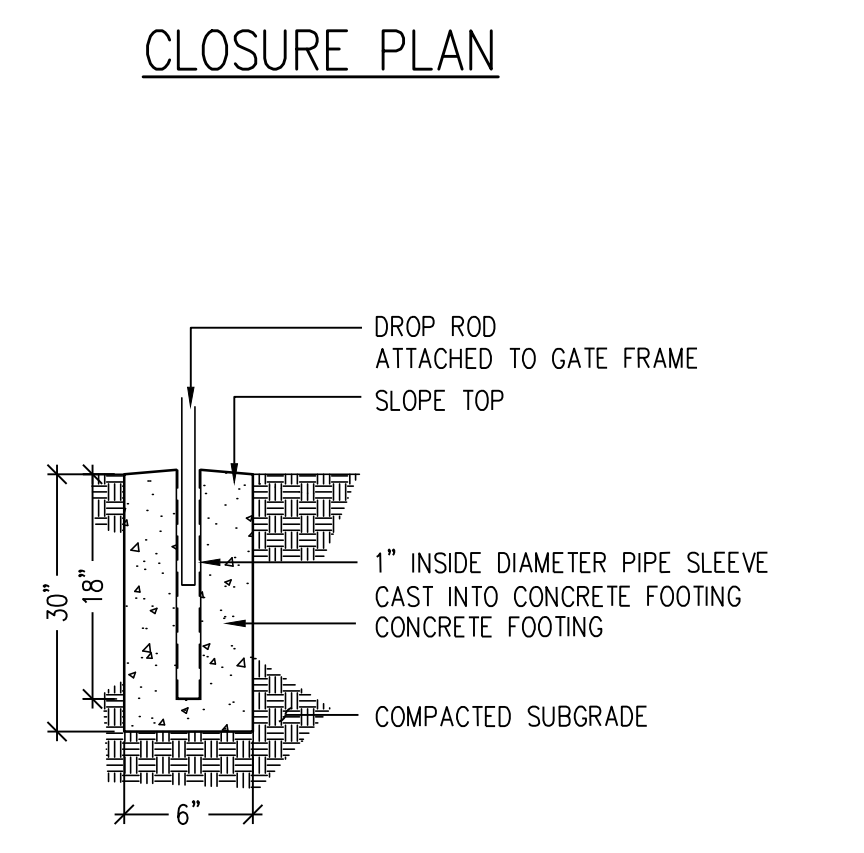
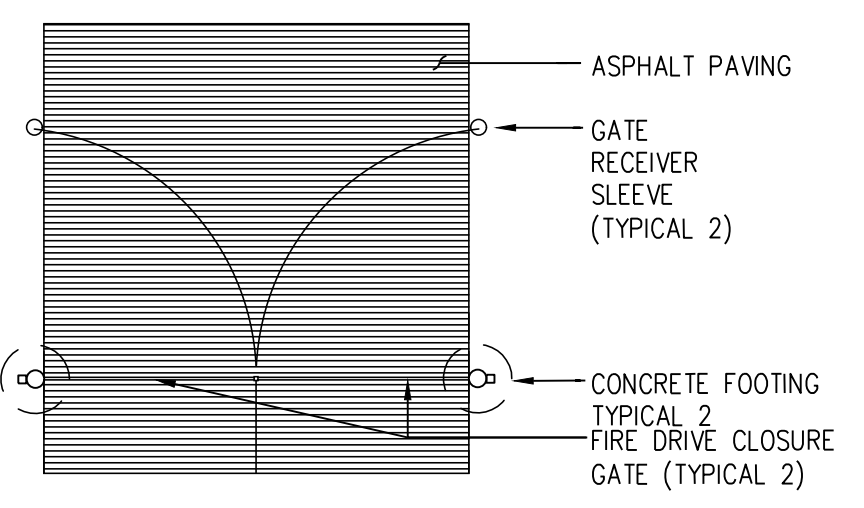
**LOW GRADIENT WATER QUALITY INFILTRATION SWALE** 6  
 NTS C1.0



**GENERAL NOTES**

- ALL PIPE TO BE SEAMLESS STANDARD WEIGHT STRUCTURAL STEEL.
- ALL SIZES NOTED REFER TO NOMINAL SIZE UNLESS NOTED OTHERWISE.

1. NOMINAL SIZE	ACTUAL O.D.	ACTUAL I.D.	WALL THICKNESS	WEIGHT PER LIN. FT.	COMPONENT
2 1/2"	2.875"	2.469"	.203"	5.79 LB	TOP AND BOTTOM RAILS, BRACE, GATE POST
3 1/2"	4.00"	3.548"	.226"	9.11 LB	GATE POST
4"	4.50"	4.026"	.237"	10.79 LB	BEARING COLLARS AND SLEEVES, CAST IN PLACE PIPE SLEEVE



**GRAVEL SECTION DETAIL** 5  
 NTS C1.0



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