STANDARD NOTES FOR EL PASO COUNTY GRADING & EROSION PLAN:

- STORMWATER DISCHARGES FROM CONSTRUCTION SITES SHALL NOT CAUSE OR THREATEN TO CAUSE POLLUTION, CONTAMINATION, OR DEGRADATION OF STATE WATERS. ALL WORK AND EARTH DISTURBANCE SHALL BE DONE IN A MANNER THAT MINIMIZES POLLUTION OF ANY ON-SITE OR OFF-SITE WATERS. INCLUDING WETLANDS.
- NOTWITHSTANDING ANYTHING DEPICTED IN THESE PLANS IN WORDS OR GRAPHIC REPRENSENTATION, ALL DESIGN AND CONSTRUCTION RELATED TO ROADS, STORM DRAINAGE AND EROSION CONTROL SHALL CONFORM TO THE STANDARDS AND REQUIREMENTS OF THE MOST RECENT VERSION OF THE RELEVANT ADOPTED EL PASO COUNTY STANDARDS, INCLUDING THE LAND DEVELOPMENT CODE, THE ENGINEERING CRITERIA MANUAL, THE DRAINAGE CRITERIA MANUAL AND THE DRAINAGE CRITERIA MANUAL VOLUME 2. ANY DEVIATIONS FROM REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING.
- A SEPARATE STORMWATER MANAGEMENT PLAN (SWMP) FOR THIS PROJECT SHALL BE COMPLETED AND AN EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP) ISSUED PRIOR TO COMMENCING CONSTRUCTION. MANAGEMENT OF THE SWMP DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE DESIGNATED QUALIFIED STORMWATER MANAGER OR CERTIFIED EROSION CONTROL INSPECTOR. THE SWMP SHALL BE LOCATED ON-SITE AT ALL TIMES DURING CONSTRUCTION AND SHALL BE KEPT UP TO DATE WITH WORK PROGRESS AND CHANGES IN THE FIELD.
- ONCE THE ESQCP IS APPROVED AND A "NOTICE TO PROCEED" HAS BEEN ISSUED, THE CONTRACTOR MAY INSTALL THE INITIAL STAGE EROSION AND SEDIMENT CONTROL MEASURES AS INDICATED ON THE APPROVED GEC. A PRECONSTRUCTION MEETING BETWEEN THE CONTRACTOR, ENGINEER, AND EL PASO COUNTY WILL BE HELD PRIOR TO ANY CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE APPLICANT TO COORDINATE THE MEETING TIME AND PLACE
- CONTROL MEASURES MUST BE INSTALLED PRIOR TO COMMENCEMENT OF ACTIVITIES THAT COULD CONTRIBUTE POLLUTANTS TO STORMWATER. CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, AND DISTURBED LAND AREAS SHALL BE INSTALLED IMMEDIATELY UPON COMPLETION OF THE DISTURBANCE.
- ALL CONSTRUCTION CONTROL MEASURES SHALL BE MAINTAINED UNTIL PERMANENT STABILIZATION MEASURES ARE
- IMPLEMENTED. TEMPORARY CONSTRUCTION CONTROL MEASURES MUST BE REMOVED PRIOR TO PERMIT CLOSEOUT. TEMPORARY STABILIZATION SHALL BE IMPLEMENTED ON DISTURBED AREAS AND STOCKPILES WHERE GROUND DISTURBING CONSTRUCTION ACTIVITY HAS PERMANENTLY CEASED OR TEMPORARILY CEASED FOR LONGER THAN 14
- FINAL STABILIZATION MUST BE IMPLEMENTED AT ALL APPLICABLE CONSTRUCTION SITES. FINAL STABILIZATION IS ACHIEVED WHEN ALL GROUND DISTURBING ACTIVITIES ARE COMPLETE AND ALL DISTURBED AREAS EITHER HAVE A UNIFORM VEGETATIVE COVER WITH INDIVIDUAL PLANT DENSITY OF 70 PERCENT OF PRE-DISTURBANCE LEVELS ESTABLISHED OR EQUIVALENT PERMANENT ALTERNATIVE STABILIZATION METHOD IS IMPLEMENTED. ALL TEMPORARY
- SEDIMENT AND EROSION CONTROL MEASURES SHALL BE REMOVED UPON FINAL STABILIZATION AND BEFORE PERMIT ALL PERMANENT STORMWATER MANAGEMENT FACILITIES SHALL BE INSTALLED AS DESIGNED IN THE APPROVED PLANS. ANY PROPOSED CHANGES THAT EFFECT THE DESIGN OR FUNCTION OF PERMANENT STORMWATER MANAGEMENT
- STRUCTURES MUST BE APPROVED BY THE ECM ADMINISTRATOR PRIOR TO IMPLEMENTATION. D. EARTH DISTURBANCES SHALL BE CONDUCTED IN SUCH A MANNER SO AS TO EFFECTIVELY MINIMIZE ACCELERATED SOIL EROSION AND RESULTING SEDIMENTATION. ALL DISTURBANCES SHALL BE DESIGNED, CONSTRUCTED, AND COMPLETED SO THAT THE EXPOSED AREA OF ANY DISTURBED LAND SHALL BE LIMITED TO THE SORTEST PRACTICAL PERIOD OF TIME. PRE-EXISTING VEGETATION SHALL BE PROTECTED AND MAINTAINED WITHIN 50 HORIZONTAL FEET OF A WATERS OF THE STATE UNLESS SHOWN TO BE INFEASIBLE AND SPECIFICALLY REQUESTED AND APPROVED.
- COMPACTION OF SOIL MUST BE PREVENTED IN AREAS DESIGNATED FOR INFILTRATION CONTROL MEASURES OR WHERE FINAL STABILIZATION WILL BE ACHIEVED BY THE VEGETATIVE COVER. AREAS DESIGNATED FOR INFILTRATION CONTROL MEASURES SHALL ALSO BE PROTECTED FROM SEDIMENTATION DURING CONSTRUCTION UNTIL FINAL STABILIZATION IS ACHIEVED. IF COMPACTION PREVENTION IS NOT FEASIBLE DUE TO SITE CONSTRAINTS, ALL AREAS DESIGNATED FOR INFILTRATION AND VEGETATION CONTROL MEASURES MUST BE LOOSENED PRIOR TO INSTALLATION OF THE CONTROL MEASURE(S)
- 2. ANY TEMPORARY OR PERMANENT FACILITY DESIGNED AND CONSTRUCTED FOR THE CONVEYANCE OF STORMWATER AROUND, THROUGH, OR FROM THE EARTH DISTURBANCE AREA SHALL BE A STABILIZED CONVEYANCE DESIGNED TO MINIMIZE EROSION AND THE DISCHARGE OF SEDIMENT OFF-SITE.
- I3. CONCRETE WASH WATER SHALL BE CONTAINED AND DISPOSED OF IN ACCORDANCE WITH THE SWMP. NO WASH WATER SHALL BE DISCHARGED TO OR ALLOWED TO ENTER STATE WATERS, INCLUDING ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR FACILITIES. CONCRETE WASHOUTS SHALL NOT BE LOCATED IN AN AREA WHERE SHALLOW GROUNDWATER MAY BE PRESENT, OR WITHIN 50 FEET OF A SURFACE WATER BODY, CREEK OR STREAM.
- . DURING DEWATERING OPERATIONS, UNCONTAMINATED GROUNDWATER MAY BE DISCHARGED ON-SITE, BUT SHALL NO $^\circ$ LEAVE THE SITE IN THE FORM OF SURFACE RUNOFF UNLESS AN APPROVED STATE DEWATERING PERMIT IS IN PLACE
- I.5. EROSION CONTROL BLANKETING OR OTHER PROTECTIVE COVERING SHALL BE USED ON SLOPES STEEPER THAN 3:1. 16. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL WASTES FROM THE CONSTRUCTION SITE FOR DISPOSAL IN ACCORDANCE WITH LOCAL AND STATE REGULATORY REQUIREMENTS. NO CONSTRUCTION DEBRIS, TREE SLASH, BUILDING MATERIAL WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURIED, DUMPED, OR DISCHARGED
- 17. WASTE MATERIALS SHALL NOT BE TEMPORARILY PLACED OR STORED IN THE STREET, ALLEY, OR OTHER PUBLIC WAY, UNLESS IN ACCORDANCE WITH AN APPROVED TRAFFIC CONTROL PLAN. CONTROL MEASURES MAY BE REQUIRED BY EL
- PASO COUNTY ENGINEERING IF DEEMED NECESSARY, BASED ON SPECIFIC CONDITIONS AND CIRCUMSTANCES. 18. TRACKING OF SOILS AND CONSTRUCTION DEBRIS OFF—SITE SHALL BE MINIMIZED. MATERIALS TRACKED OFF—SITE
- SHALL BE CLEANED UP AND PROPERLY DISPOSED OF IMMEDIATELY. 19. THE OWNER/DEVELOPER SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL CONSTRUCTION DEBRIS, DIRT, TRASH ROCK, SEDIMENT, SOIL, AND SAND THAT MAY ACCUMULATE IN ROADS, STORM DRAINS AND OTHER DRAINAGE
- CONVEYANCE SYSTEMS AND STORMWATER APPURTENANCES AS A RESULT OF SITE DEVELOPMENT. 20. THE QUANTITY OF MATERIALS STORED ON THE PROJECT SITE SHALL BE LIMITED, AS MUCH AS PRACTICAL, TO THAT QUANTITY REQUIRED TO PERFORM THE WORK IN AN ORDERLY SEQUENCE. ALL MATERIALS STORED ON-SITE SHALL BE
- STORED IN A NEAT, ORDERLY MANNER, IN THEIR ORIGINAL CONTAINERS, WITH ORIGINAL MANUFACTURER'S LABELS. 21. NO CHEMICAL(S) HAVING THE POTENTIAL TO BE RELEASED IN STORMWATER ARE TO BE STORED OR USED ON-SITE UNLESS PERMISSION FOR THE USE OF SUCH CHEMICAL(S) IS GRANTED IN WRITING BY THE ECM ADMINISTRATOR. IN
- GRANTING APPROVAL FOR THE USE OF SUCH CHEMICAL(S), SPECIAL CONDITIONS AND MONITORING MAY BE REQUIRED. 22. BULK STORAGE OF ALLOWED PETROLEUM PRODUCTS OR OTHER ALLOWED LIQUID CHEMICALS IN EXCESS OF 55 GALLONS SHALL REQUIRE ADEQUATE SECONDARY CONTAINMENT PROTECTION TO CONTAIN ALL SPILLS ON-SITE AND TO PREVENT ANY SPILLED MATERIALS FROM ENTERING STATE WATERS, ANY SURFACE OR SUBSURFACE STORM
- DRAINAGE SYSTEM OR OTHER FACILITIES. 23. NO PERSON SHALL CAUSE THE IMPEDIMENT OF STORMWATER FLOW IN THE CURB AND GUTTER OR DITCH EXCEPT WITH APPROVED SEDIMENT CONTROL MEASURES.
- 24. OWNER DEVELOPER AND THEIR AGENTS SHALL COMPLY WITH THE "COLORADO WATER QUALITY CONTROL ACT" (TITLE 25, ARTICLE 8, CRS), AND THE "CLEAN WATER ACT" (33 USC 1344), IN ADDITION TO THE REQUIREMENTS OF THE LAND DEVELOPMENT CODE, DCM VOLUME II AND THE ECM APPENDIX I. ALL APPROPRIATE PERMITS MUST BE OBTAINED BY THE CONTRACTOR PRIOR TO CONSTRUCTION (1041, NPDES, FLOODPLAIN, 404, FUGITIVE DUST, ETC.). IN THE EVENT OF CONFLICTS BETWEEN THESE REQUIREMENTS AND OTHER LAWS. RULES. OR REGULATIONS OF OTHER FEDERAL, STATE, LOCAL, OR COUNTY AGENCIES, THE MOST RESTRICTIVE LAWS. RULES. OR REGULATIONS SHALL
- 25. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE ONLY AT APPROVED CONSTRUCTION ACCESS POINTS.
- 26. PRIOR TO CONSTRUCTION THE PERMITTEE SHALL VERIFY THE LOCATION OF EXISTING UTILITIES.
- 27. A WATER SOURCE SHALL BE AVAILABLE ON-SITE DURING EARTHWORK OPERATIONS AND SHALL BE UTILIZED AS REQUIRED TO MINIMIZE DUST FROM EARTHWORK EQUIPMENT AND WIND.
- 28. THE SOILS REPORT FOR THIS SITE HAS BEEN PREPARED BY RMG-ROCKY MOUNTAIN GROUP, DATED OCTOBER 8, 2021 AND SHALL BE CONSIDERED A PART OF THESE PLANS.
- 29. AT LEAST TEN (10) DAYS PRIOR TO THE ANTICIPATED START OF CONSTRUCTION, FOR PROJECTS THAT WILL DISTURB ONE (1) ACRE OR MORE, THE OWNER OR OPERATOR OF CONSTRUCTION ACTIVITY SHALL SUBMIT A PERMIT APPLICATION FOR STORMWATER DISCHARGE TO THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT. WATER QUALITY DIVISION. THE APPLICATION CONTAINS CERTIFICATION OF COMPLETION OF A STORMWATER MANAGEMENT PLAN (SWMP), OF WHICH THIS GRADING AND EROSION CONTROL PLAN MAY BE A PART. FOR INFORMATION OR APPLICATION MATERIALS CONTACT:

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

CHALLENGER HOMES FALCON HIGHLANDS SOUTH

SITUATED IN SECTION 12, TOWNSHIP 13 SOUTH, RANGE 65 WEST OF THE SIXTH PRINCIPAL MERIDIAN, COUNTY OF EL PASO, STATE OF COLORADO GRADING & EROSION CONTROL PLANS



LEGAL DESCRIPTION:

A PORTION OF SECTION 12, TOWNSHIP 13 SOUTH, RANGE 65 WEST OF THE SIXTH PRINCIPAL MERIDIAN, COUNTY OF EL

PROJECT DESCRIPTION:

378 SINGLE-FAMILY RESIDENTIAL LOT DEVELOPMENT OVER 125.5 ACRES.

FLOODPLAIN STATEMENT:

THE SUBJECT PROPERTY IS NOT LOCATED IN A DESIGNATED FLOODPLAIN AS SHOWN ON THE FEMA FLOOD INSURANCE RATE MAP 08041C0561G, EFFECTIVE DECEMBER 7, 2018

NOTE:

DETENTION AND WATER QUALITY ARE PROVIDED IN THE EXISTING DOWNSTREAM WATER QUALITY AND DETENTION POND FACILITIES, POND 1, 2 & WU, LOCATED EAST OF THE PROPOSED DEVELOPMENT, NORTHWEST OF HIGHWAY 24.

DESCRIPTION OF CONSTRUCTION ACTIVITIES:

ANTICIPATED STARTING AND COMPLETION TIME PERIOD OF SITE GRADING:

SEPTEMBER 2023

EXPECTED DATE ON WHICH THE FINAL STABILIZATION WILL BE COMPLETED:

AUGUST 2024

TOTAL AREA OF THE SITE TO BE CLEARED, EXCAVATED, OR GRADED:

APPROXIMATELY 115 ACRES

RECEIVING WATERS:

ULTIMATE RECEIVING WATER IS SAND CREEK DRAINAGE BASIN AND FALCON DRAINAGE BASIN. **SOIL TYPE:**

THE SITE IS UNDERLAIN BY BLAKELAND-FLUVAQUENTIC HAPLAQUOILS, HYDROLOGIC SOIL GROUP A.

SHEET LIST TABLE					
	SHEET NUMBER	SHEET TITLE			
	1	COVER			
	2	INITIAL GECP			
	3	INITIAL GECP			
	4	INITIAL GECP			
	5	INITIAL GECP			
	6	INTERIM GECP			
	7	INTERIM GECP			
	8	INTERIM GECP			
	9	INTERIM GECP			
	10	FINAL GECP			
	11	FINAL GECP			
	12	FINAL GECP			
	13	FINAL GECP			
	14	DETAIL GECP			

DETAIL GECP DETAIL GECP DETAIL GECP

CHEET HOT TABLE

CHALLENGER HOMES

8605 EXPLORER DRIVE

STE. 250 COLORADO SPRINGS, CO 80920

(719) 598-5192

CONTACT: JIM BYERS

SURVEYOR: ATWELL, LLC

143 UNION BLVD.

STE. 700

LAKEWOOD, CO 80228

(303) 462-1100 CONTACT: KENNETH SCHRAMM

ENGINEER'S STATEMENT

THIS GRADING AND EROSION CONTROL PLAN WAS PREPARED UNDER MY DIRECT 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 SIGNATURE DANIEL MADRUGA, PE

1/24/24

OWNER'S STATEMENT

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

OWNER SIGNATURE JIM BYERS

EL PASO COUNTY

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

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

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

COUNTY ENGINEER / ECM ADMINISTRATOR DATE JOSHUA PALMER, P.E.

GENERAL NOTES:

FALCON, CO 80831

(719) 495–2500

CONTACT: RYAN MANGINO

CIVIL ENGINEER: ATWELL, LLC.

143 UNION BLVD.,

SUITE 700

LAKEWOOD, CO 80228

(303) 462-1100 CONTACT: DAN MADRUGA, PE

EL PASO COUNTY: 3275 AKERS DRIVE

COLORADO SPRINGS, CO 80922

(719) 520-6460 CONTACT: ELIZABETH NIIJKAMP

- 1. EXISTING VEGETATION OF SITE IS APPROXIMATELY 97.0 PERCENT CONSISTING OF NATIVE GRASSES AND WEEDS.
- 2. CONCLUSIONS FROM SOILS/GEOTECHNICAL REPORT AND GEOLOGIC HAZARDS REPORT INCORPORATED IN GRADING DESIGN (SLOPES, EMBANKMENTS, MATERIALS, MITIGATION, ETC.)
- 3. THERE ARE NO LOCATIONS OF ANY DEDICATED ASPHALT / CONCRETE BATCH PLANTS.
- 4. THE USE OF CONSTRUCTION OFFICE TRAILERS REQUIRE PCD PERMITTING.
- 5. NO DEWATERING OPERATIONS ARE ANTICIPATED AT THIS TIME. IF THE CONTRACTOR DISCOVERS GROUNDWATER, ALL CONSTRUCTION SHALL STOP UNTIL PROPER PROCEDURES APPROVED BY THE ENGINEER OF RECORD AND EL PASO COUNTY ARE PUT IN PLACE.
- 6. THERE IS NO PROPOSED OFFSITE DISTURBANCE AND THERE ARE NO OFFSITE STORMWATER CONTROL MEASURES PROPOSED.
- 7. THERE ARE NO PROPOSED RETAINING WALLS LOCATED WITHIN COUNTY RIGHT-OF-WAY.
- 8. STRUCTURAL CONTROL MEASURES INCLUDE PONDS 1, 2, AND WU AND PROPOSED GRASSLINED SWALE.

BENCHMARK:

ELEVATIONS ARE BASED UPON SW COR SEC. 12, T13S, R65W, 6TH PM, FND. 3.25" ALUM. CAP. (ELEVATION: 6810.43=NAVD88).

BASIS OF BEARINGS:

BEARINGS ARE BASED UPON THE WEST LINE OF THE SOUTHWEST QUARTER OF SECTION 12. TOWNSHIP 13 SOUTH, RANGE 65 WEST OF THE SIXTH PRINCIPAL MERIDIAN, MONUMENTED AT THE SOUTH END BY A FOUND3-1/4" ALUMINUM CAP STAMPED "AZTEC CONSULTANTS PLS 38256" AND AT THE NORTH END BY A FOUND 3-1/4" ALUMINUM CAP STAMPED "PLS 4842".

Call before you dig

STRUCTION SITE SAFETY IS STRUCTURES, OR OF ANY OTH PERSONS.

REPRODUCTION SHALL BE MA WITHOUT THE PRIOR WRITTE



TH AD0

03/14/2022

st SUBMITTAL TO EPC 03/14/2022 d SUBMITTAL TO EPC 08/31/2022

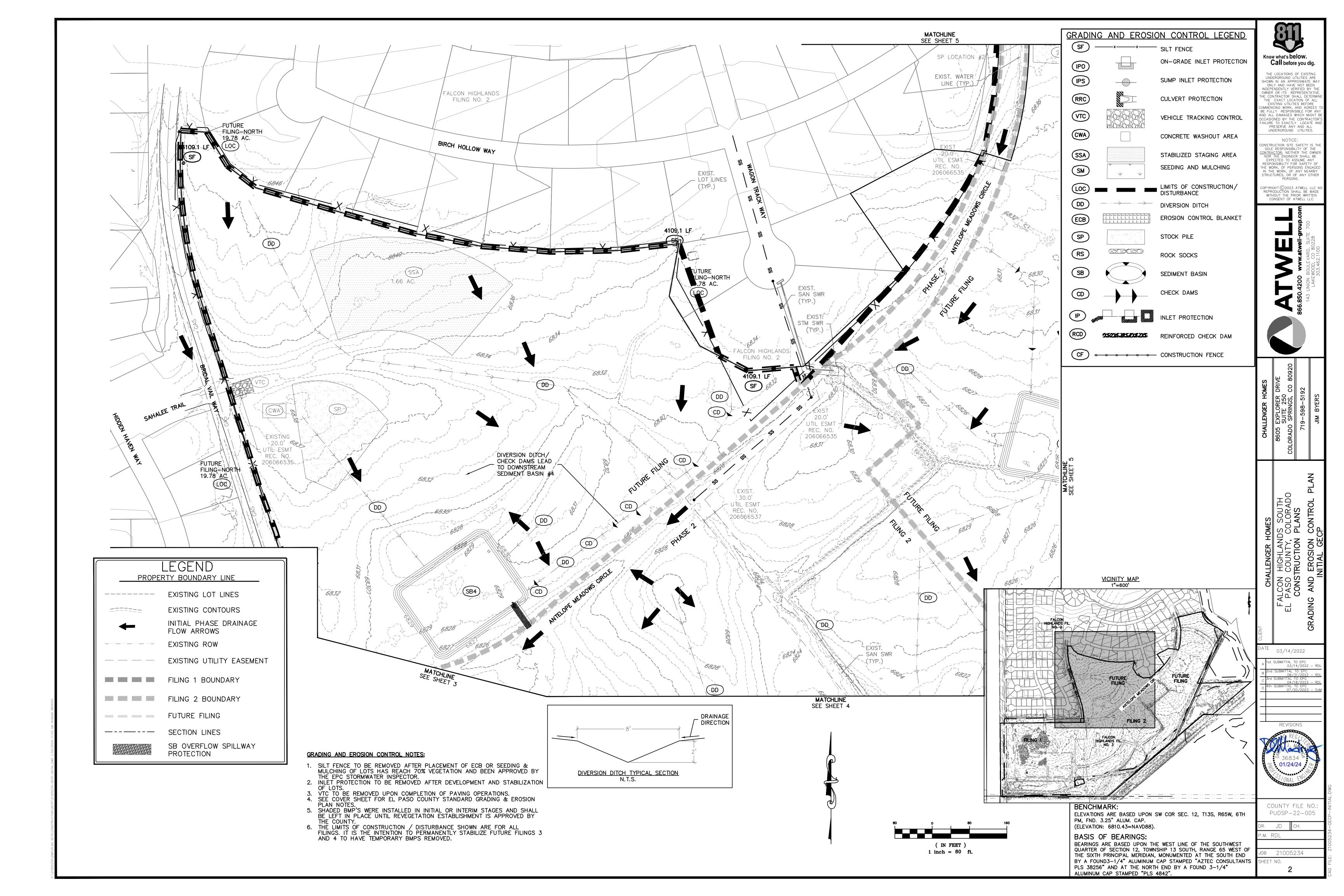
REVISIONS

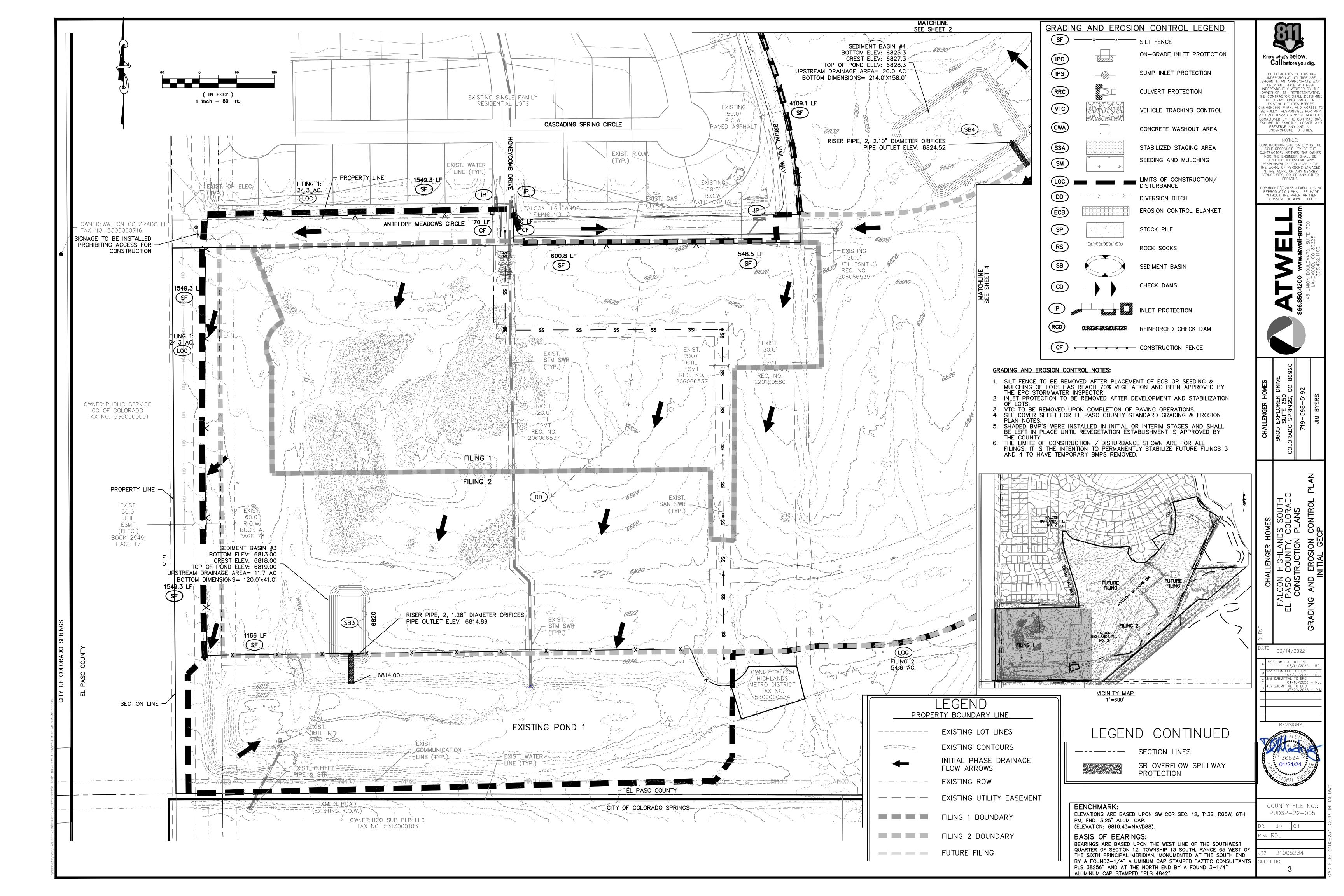


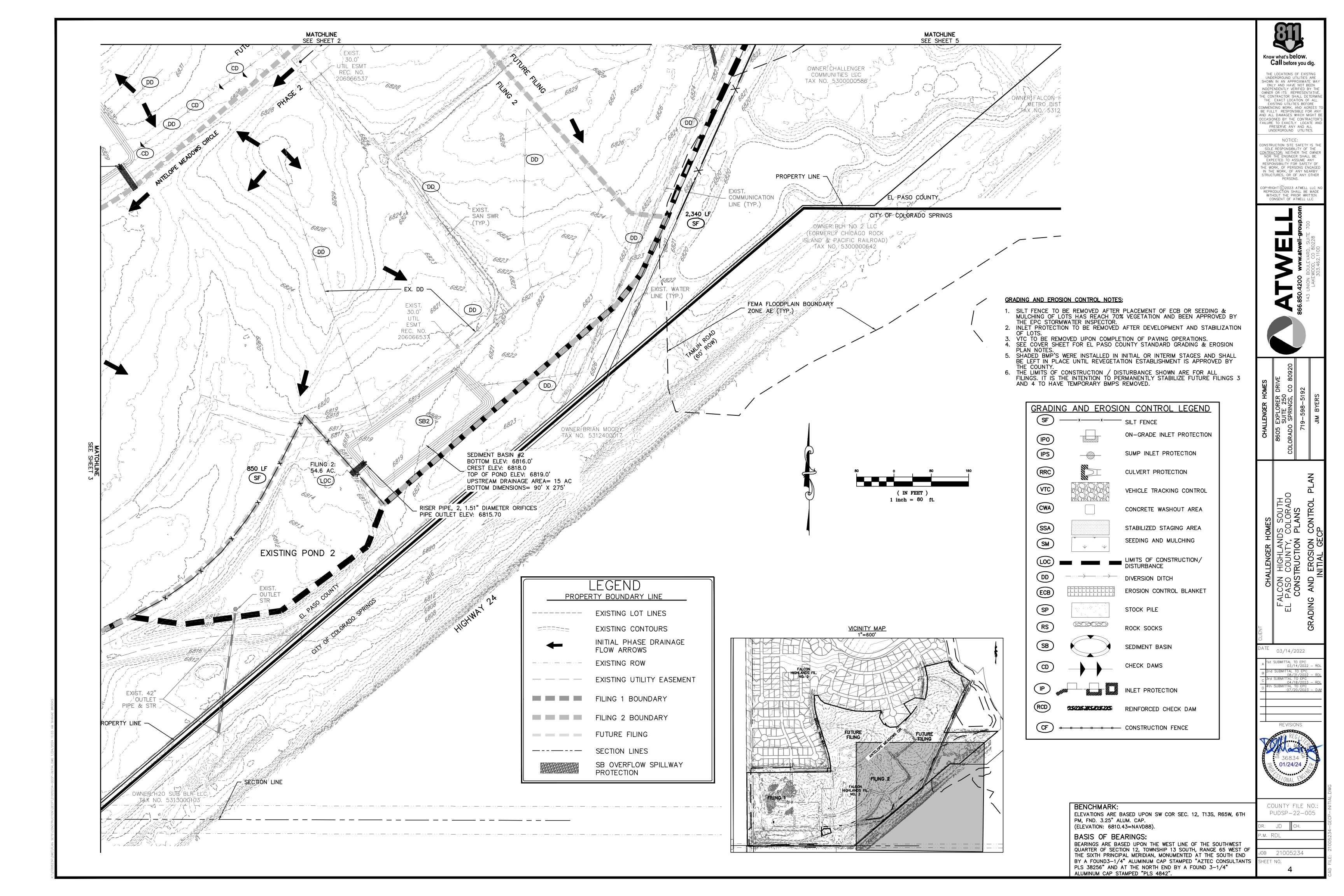
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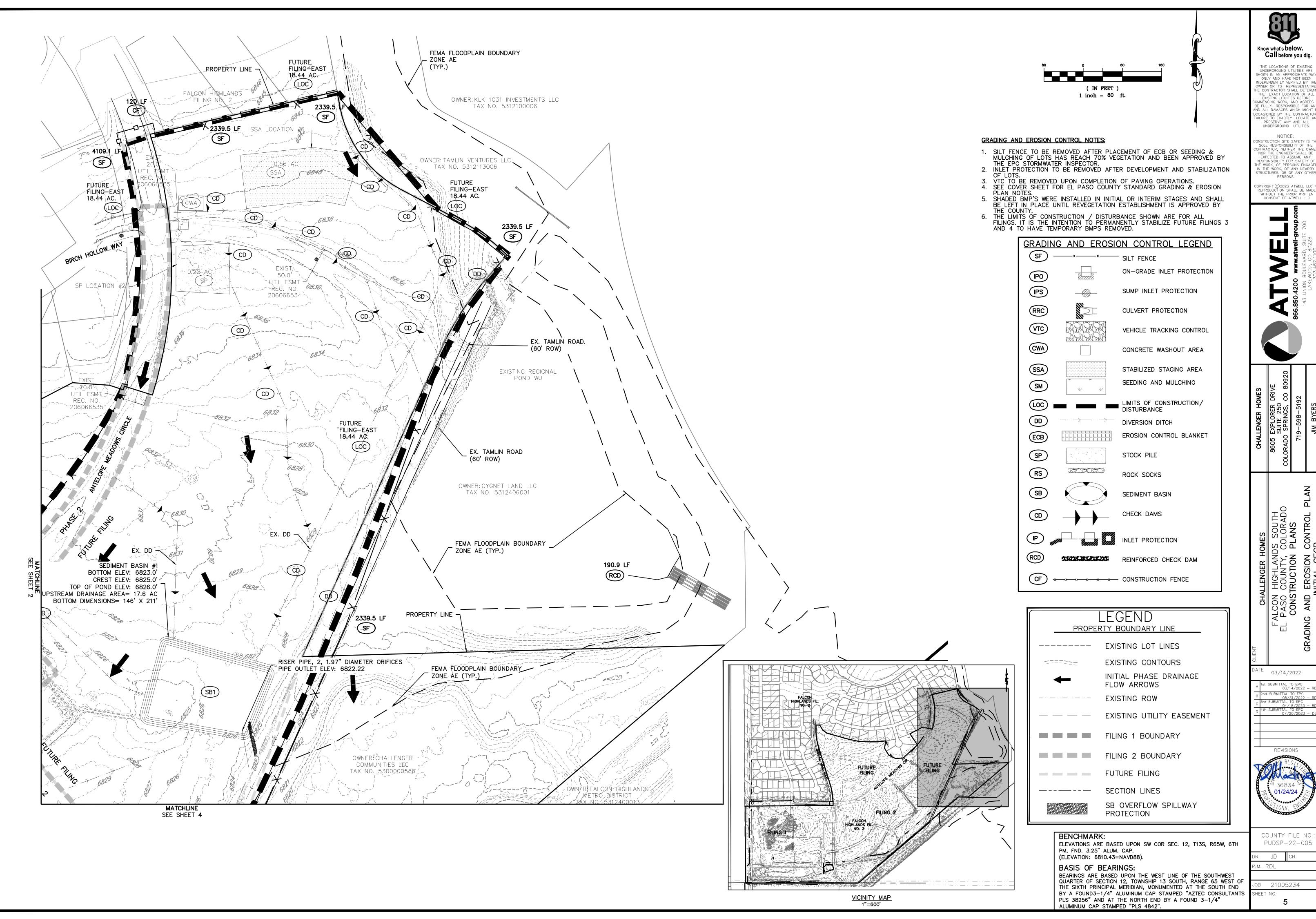
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Know what's **below**. Call before you dig.

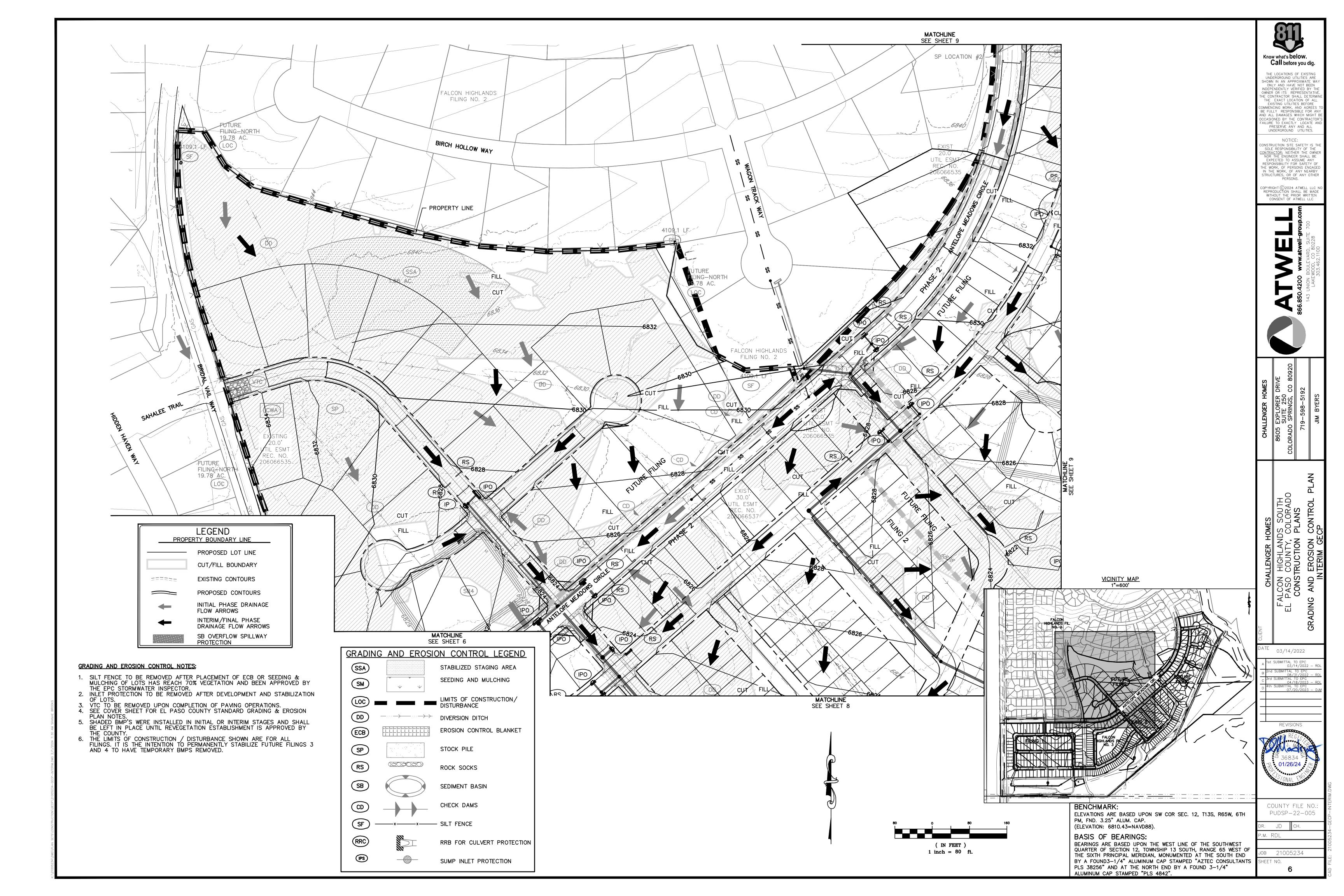
THE LOCATIONS OF EXISTING THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAS ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THOWNER OR ITS REPRESENTATIVE CONTRACTOR SHALL DETERM THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES BE FULLY RESPONSIBLE FOR AND AND ALL DAMAGES WHICH INCOLUMN. OCCASIONED BY THE CONTRACTO FAILURE TO EXACTLY LOCATE A PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

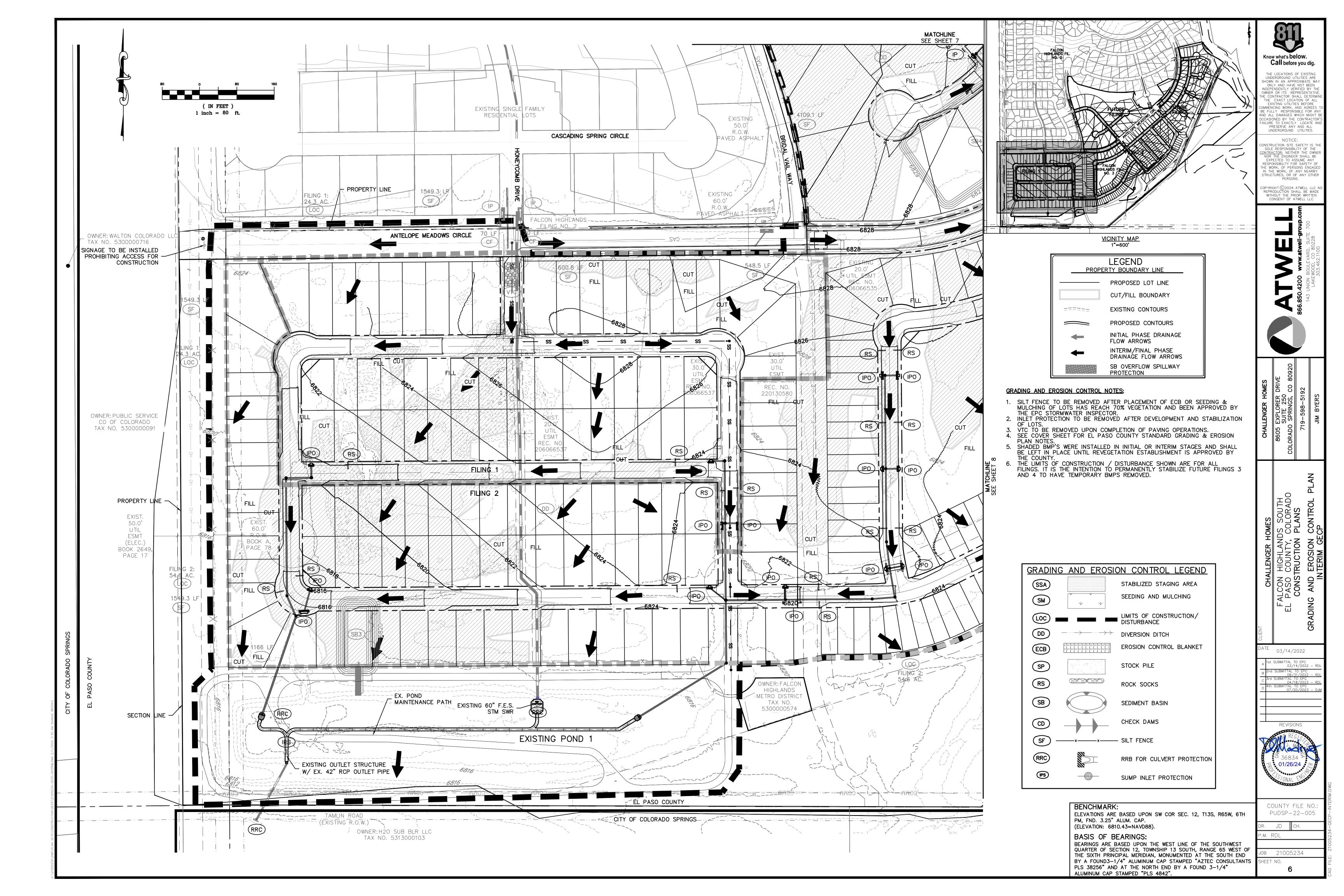
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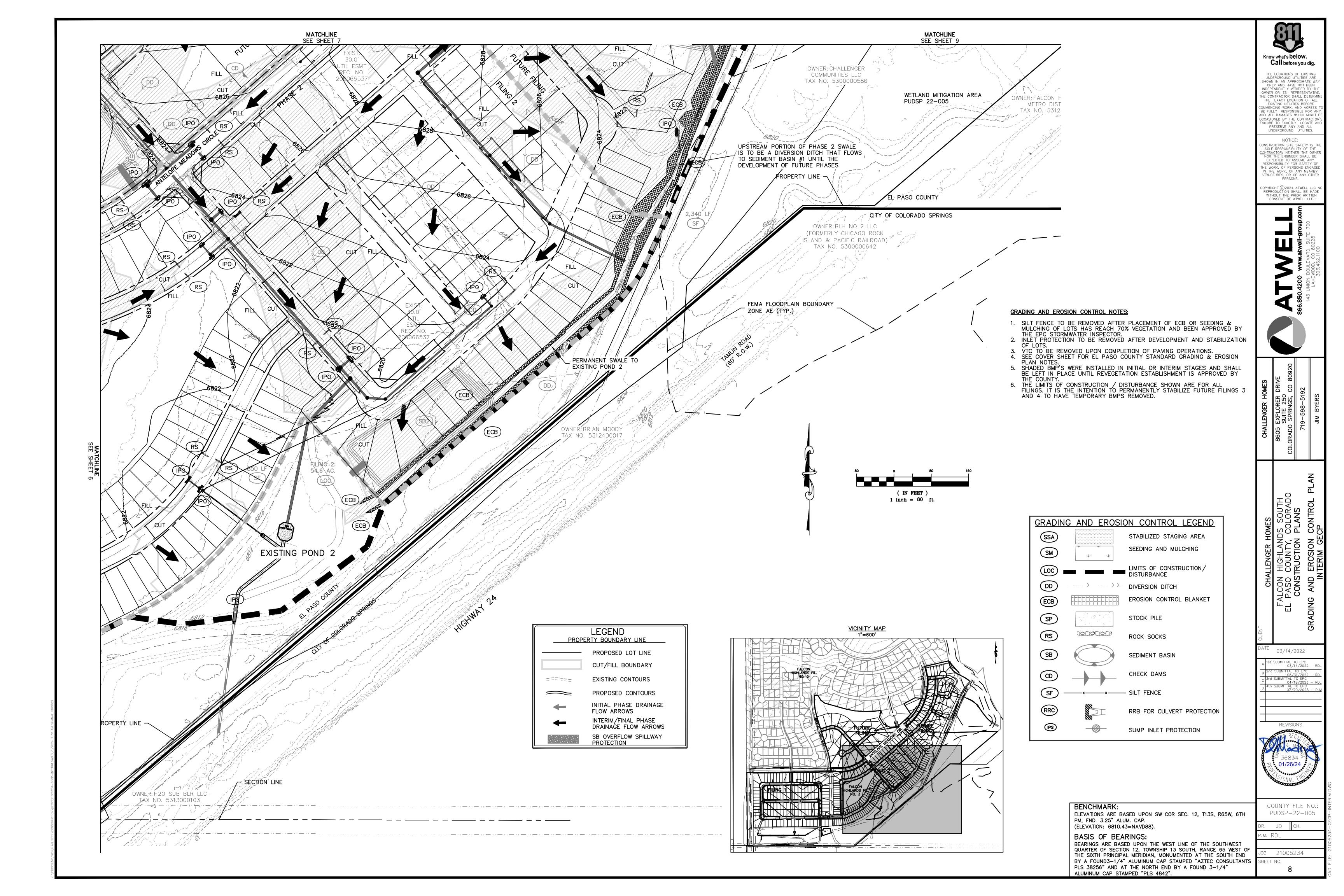
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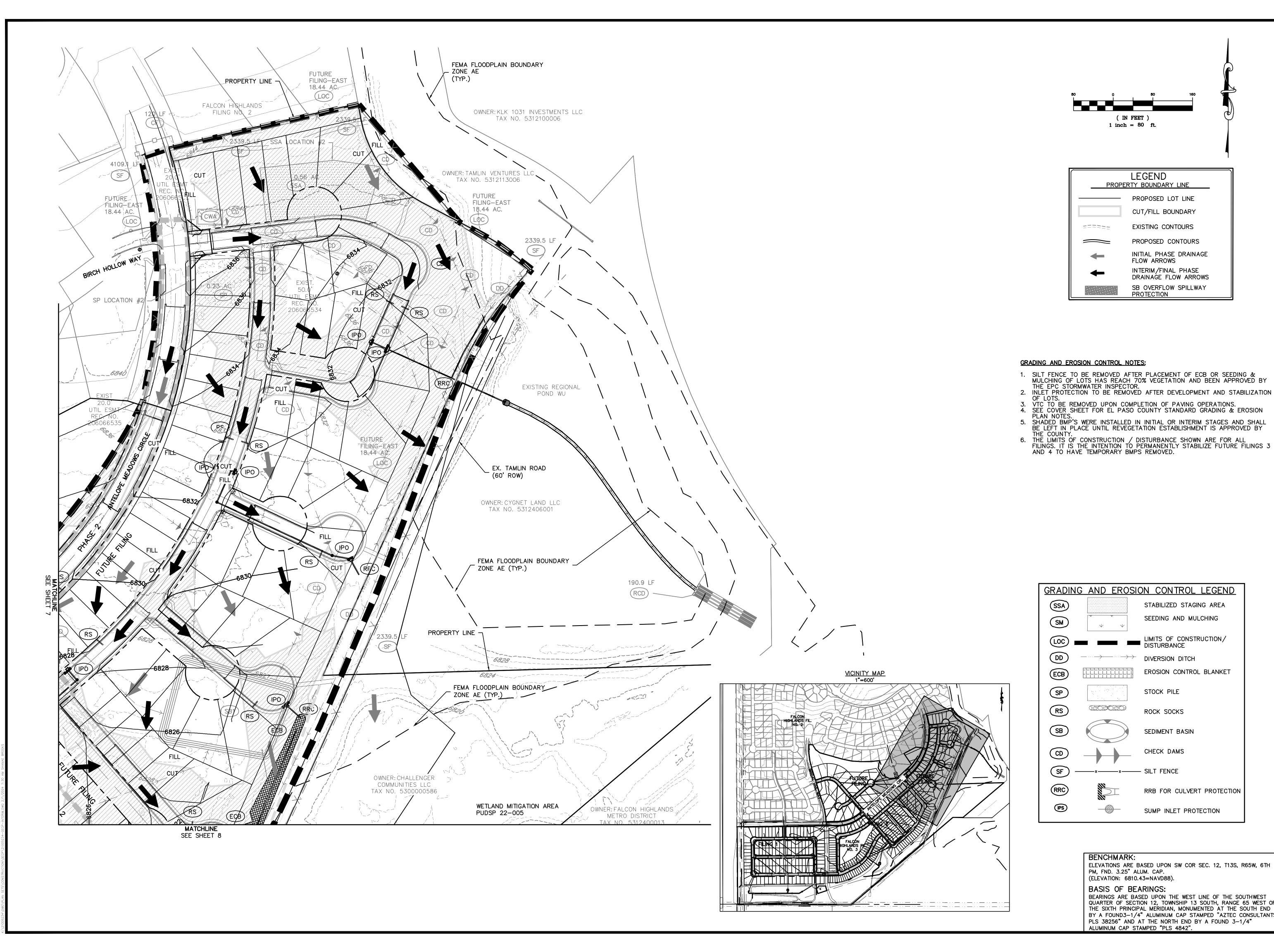
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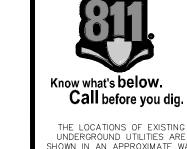
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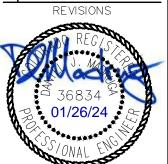
NOTICE:

CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

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PASO COUNTY, C

03/14/2022



BENCHMARK: ELEVATIONS ARE BASED UPON SW COR SEC. 12, T13S, R65W, 6TH PM, FND. 3.25" ALUM. CAP.

RRB FOR CULVERT PROTECTION

SUMP INLET PROTECTION

STABILIZED STAGING AREA

LIMITS OF CONSTRUCTION/

EROSION CONTROL BLANKET

SEEDING AND MULCHING

DISTURBANCE

STOCK PILE

ROCK SOCKS

CHECK DAMS

——×——— SILT FENCE

SEDIMENT BASIN

DIVERSION DITCH

(ELEVATION: 6810.43=NAVD88). BASIS OF BEARINGS:

(IN FEET) 1 inch = 80 ft.

LEGEND

PROPERTY BOUNDARY LINE

PROPOSED LOT LINE

CUT/FILL BOUNDARY

EXISTING CONTOURS

PROPOSED CONTOURS

INTERIM/FINAL PHASE DRAINAGE FLOW ARROWS SB OVERFLOW SPILLWAY

FLOW ARROWS

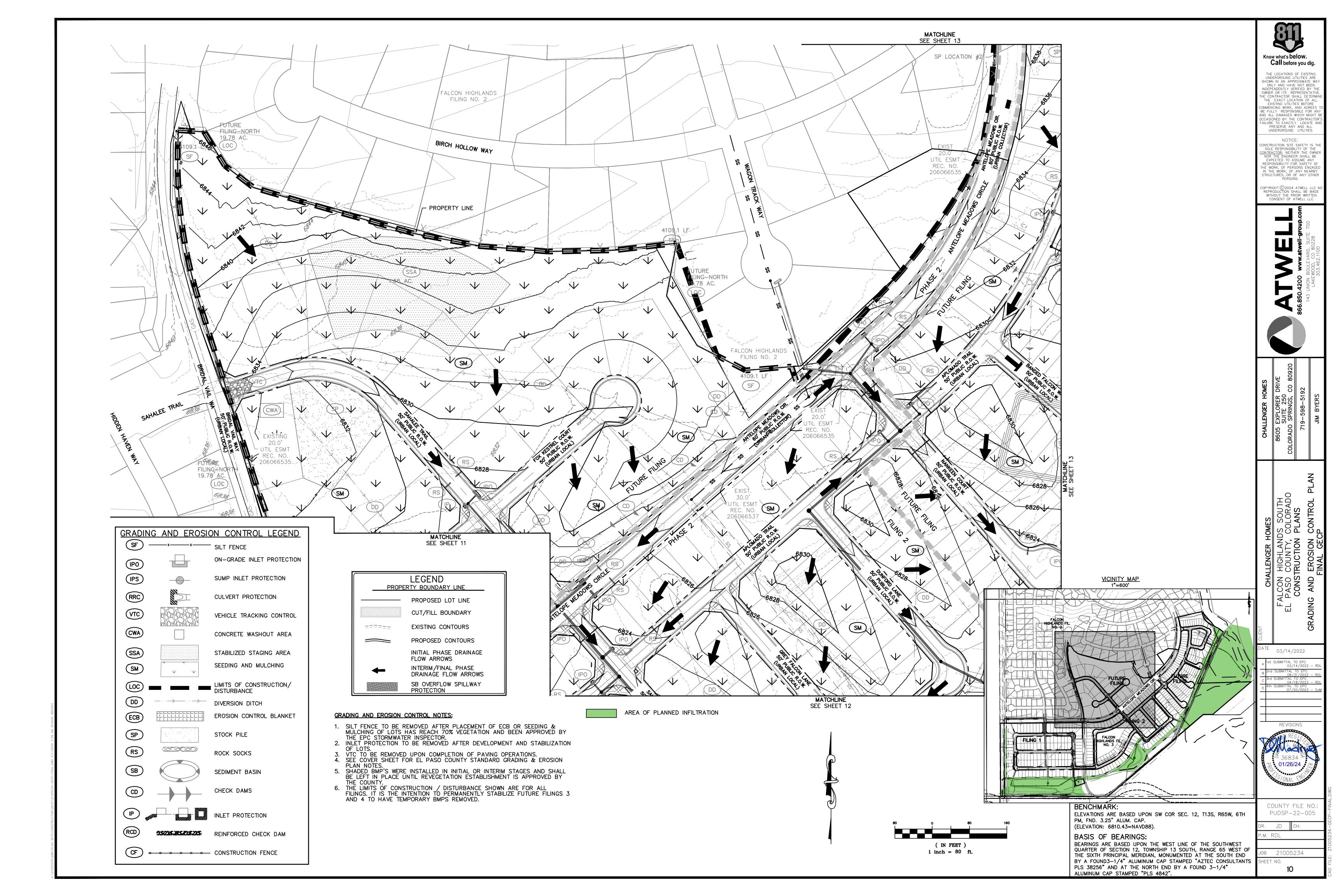
PROTECTION

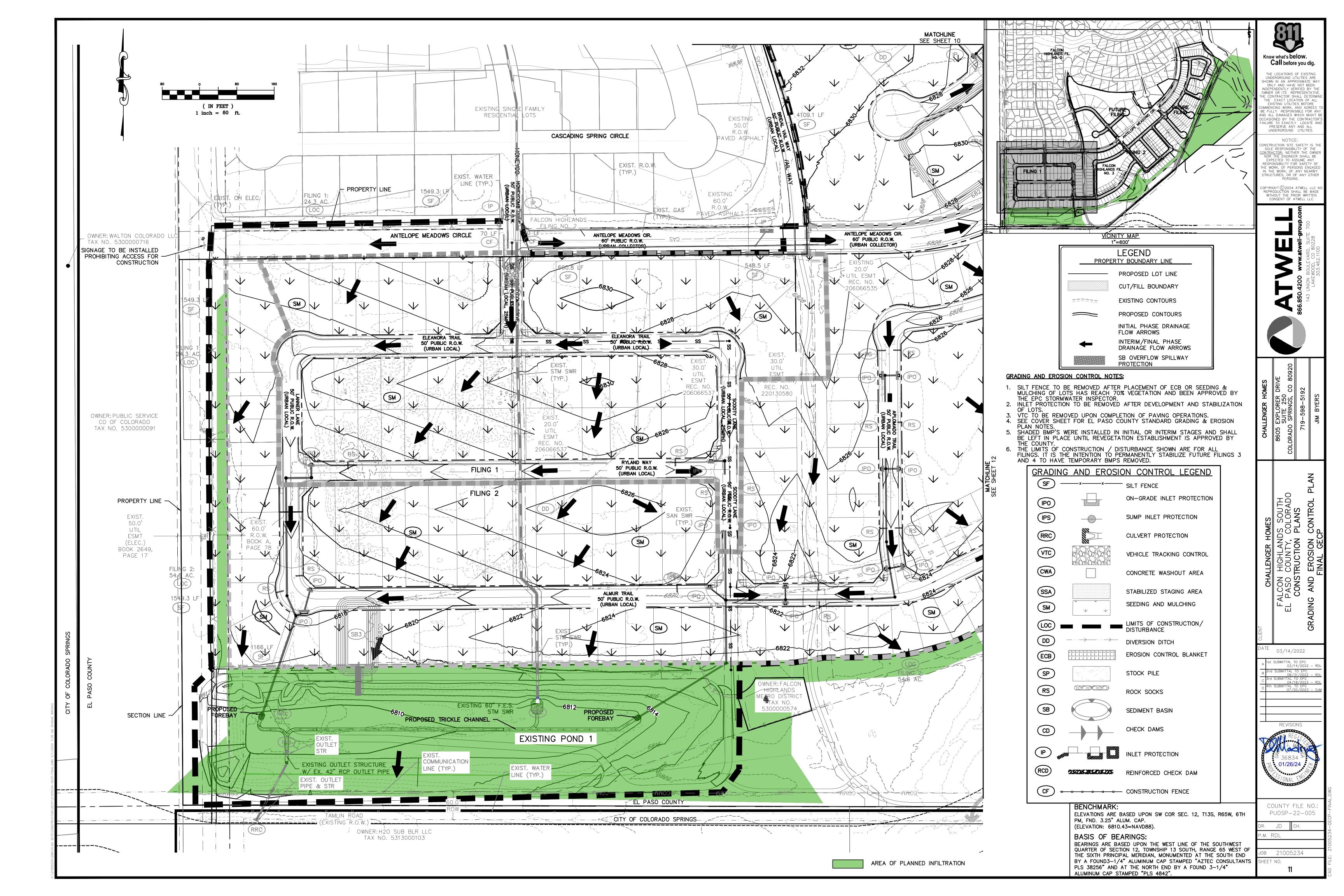
INITIAL PHASE DRAINAGE

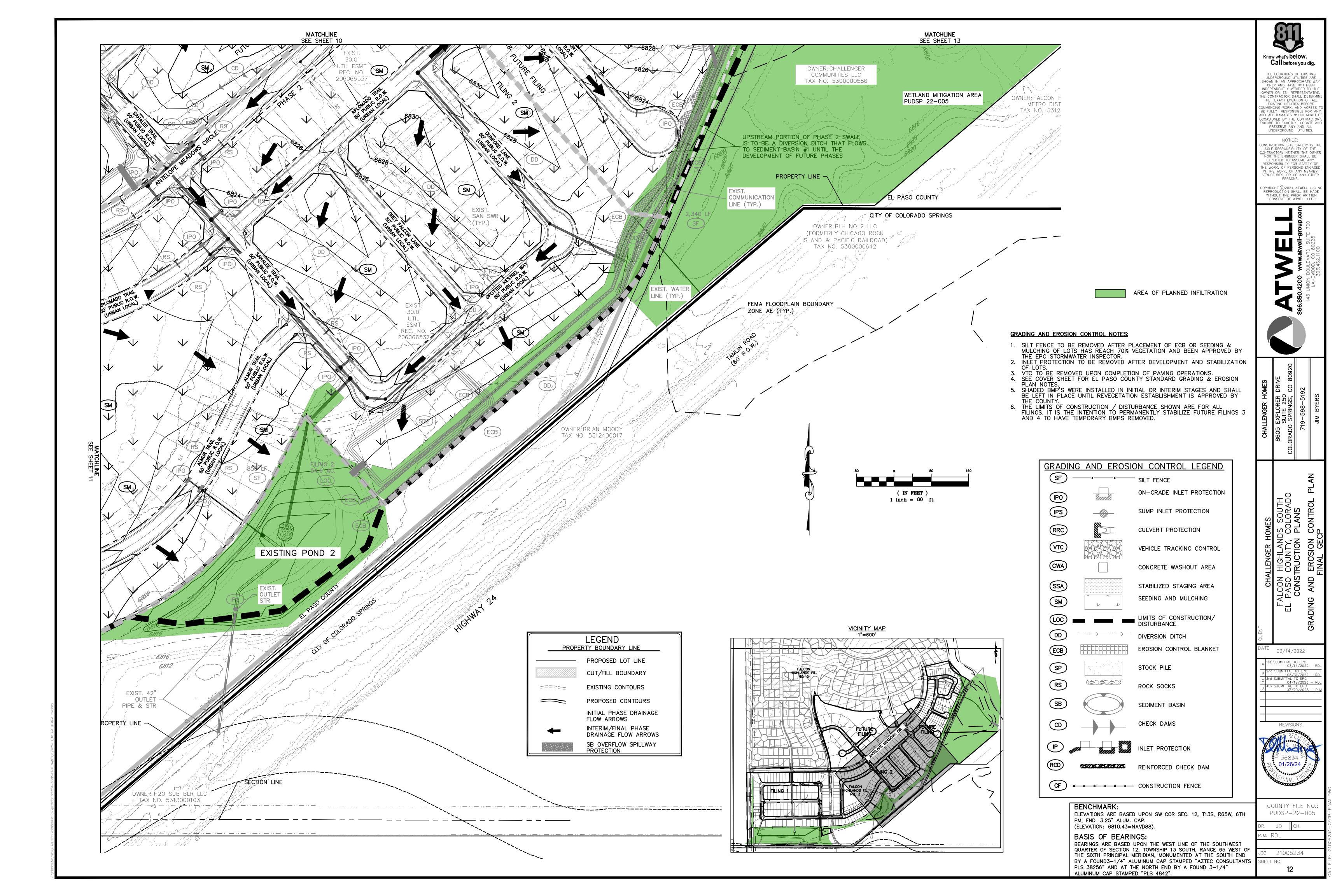
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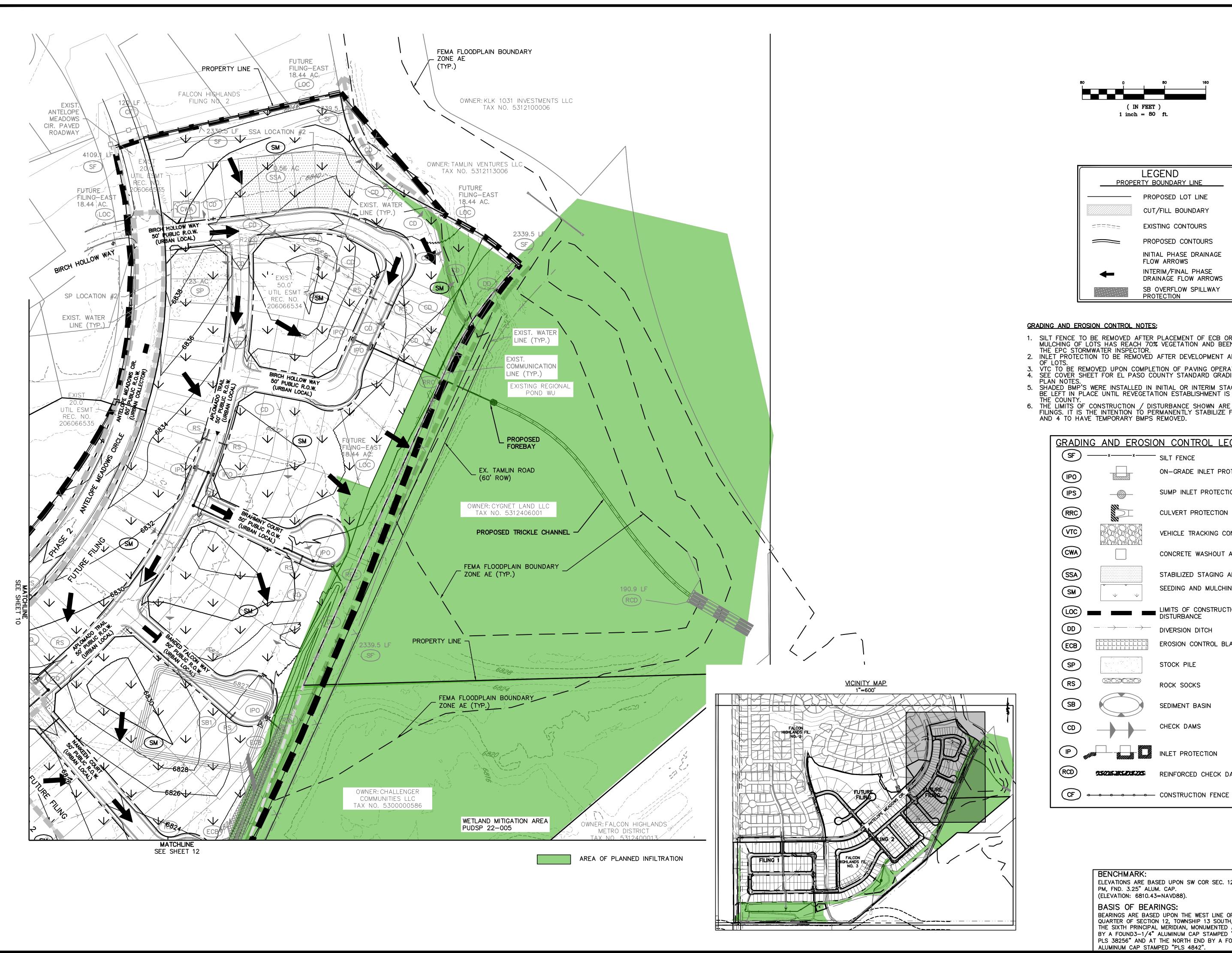
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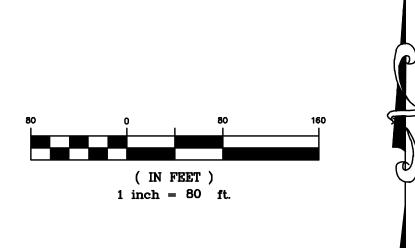
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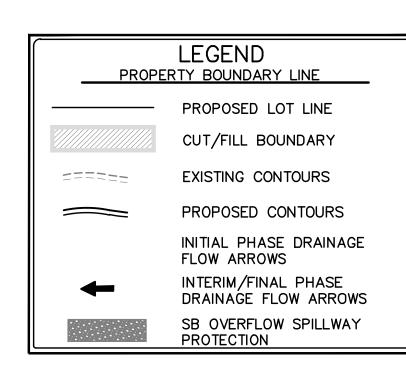












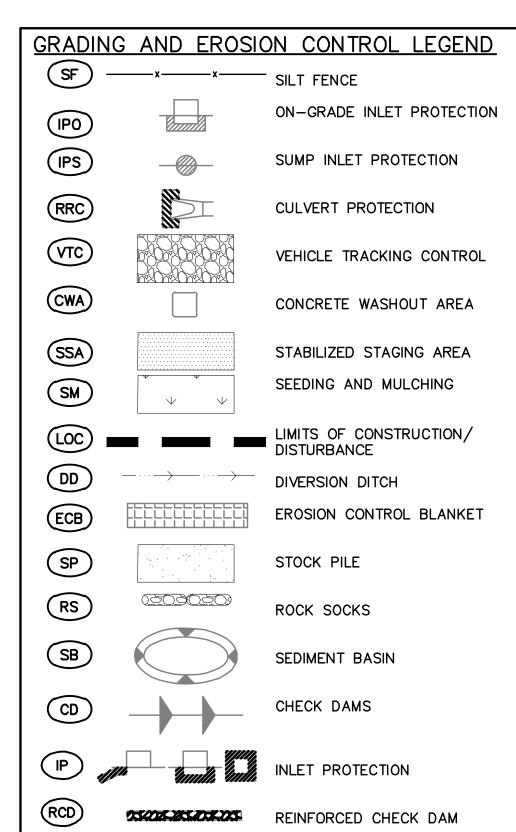
GRADING AND EROSION CONTROL NOTES:

- 1. SILT FENCE TO BE REMOVED AFTER PLACEMENT OF ECB OR SEEDING & MULCHING OF LOTS HAS REACH 70% VEGETATION AND BEEN APPROVED BY THE EPC STORMWATER INSPECTOR. 2. INLET PROTECTION TO BE REMOVED AFTER DEVELOPMENT AND STABILIZATION
- OF LOTS.

 3. VTC TO BE REMOVED UPON COMPLETION OF PAVING OPERATIONS.

 4. SEE COVER SHEET FOR EL PASO COUNTY STANDARD GRADING & EROSION

- 5. SHADED BMP'S WERE INSTALLED IN INITIAL OR INTERIM STAGES AND SHALL BE LEFT IN PLACE UNTIL REVEGETATION ESTABLISHMENT IS APPROVED BY THE COUNTY.
- 6. THE LIMITS OF CONSTRUCTION / DISTURBANCE SHOWN ARE FOR ALL FILINGS. IT IS THE INTENTION TO PERMANENTLY STABILIZE FUTURE FILINGS 3 AND 4 TO HAVE TEMPORARY BMPS REMOVED.



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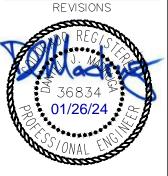
Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THOWNER OR ITS REPRESENTATIVE CONTRACTOR SHALL DETERM THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES BE FULLY RESPONSIBLE FOR ALL DAMAGES WHICH MIGHT ONCASSIDED BY THE CONTRACTOR DCCASIONED BY THE CONTRACTO FAILURE TO EXACTLY LOCATE A PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

CONSTRUCTION SITE SAFETY IS TH SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNEI NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGEI IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

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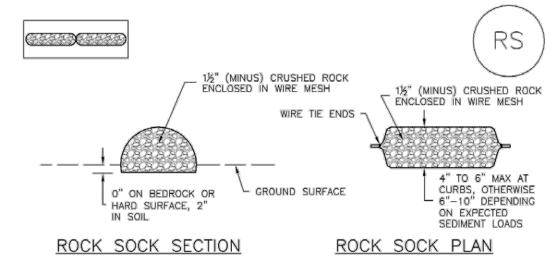
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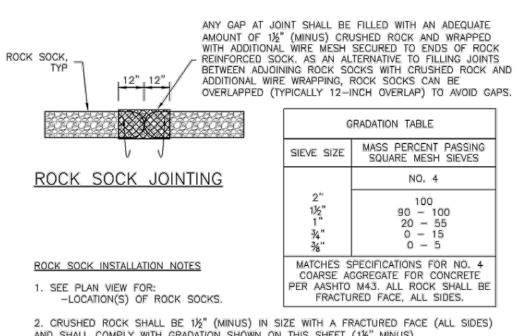


COUNTY FILE NO. PUDSP-22-005

JD CH. м. RDL

DB 21005234





AND SHALL COMPLY WITH GRADATION SHOWN ON THIS SHEET (1½" MINUS).

3. WIRE MESH SHALL BE FABRICATED OF 10 GAGE POULTRY MESH, OR EQUIVALENT, WITH A

MAXIMUM OPENING OF 1/2", RECOMMENDED MINIMUM ROLL WIDTH OF 48" 4. WIRE MESH SHALL BE SECURED USING "HOG RINGS" OR WIRE TIES AT 6" CENTERS

ALONG ALL JOINTS AND AT 2" CENTERS ON ENDS OF SOCKS.

5. SOME MUNICIPALITIES MAY ALLOW THE USE OF FILTER FABRIC AS AN ALTERNATIVE TO WIRE MESH FOR THE ROCK ENCLOSURE. RS-1. ROCK SOCK PERIMETER CONTRO

RS-2 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3

November 2010

Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 RS-3

EC-6

SC-5

Rolled Erosion Control Products (RECP)

EROSION CONTROL BLANKET MAINTENANCE NOTES

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

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

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

4. ECBs SHALL BE LEFT IN PLACE TO EVENTUALLY BIODEGRADE, UNLESS REQUESTED TO BE REMOVED BY THE LOCAL JURISDICTION.

5. ANY ECB PULLED OUT. TORN, OR OTHERWISE DAMAGED SHALL BE REPAIRED OR REINSTALLED. ANY SUBGRADE AREAS BELOW THE GEOTEXTILE THAT HAVE ERODED TO CREATED A VOID UNDER THE BLANKET, OR THAT REMAIN DEVOID OF GRASS SHALL BE REPAIRED. RESEEDED AND MULCHED AND THE ECB REINSTALLED.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN (DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO AND TOWN OF PARKER COLORADO, NOT AVAILABLE IN AUTOCAD)

Rock Sock (RS)

ROCK SOCK 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.

5. SEDIMENT ACCUMULATED UPSTREAM OF ROCK SOCKS 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 ROCK SOCK.

4. ROCK SOCKS SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED, OR DAMAGED

6. ROCK SOCKS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.

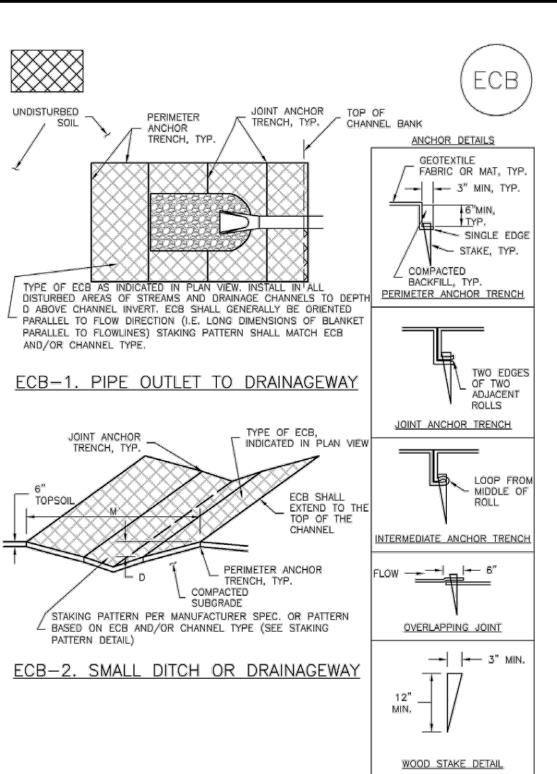
7. WHEN ROCK SOCKS ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL

(DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD) NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

NOTE: THE DETAILS INCLUDED WITH THIS FACT SHEET SHOW COMMONLY USED, CONVENTIONAL METHODS OF ROCK SOCK INSTALLATION IN THE DENVER METROPOLITAN AREA. THERE ARE MANY OTHER SIMILAR PROPRIETARY PRODUCTS ON THE MARKET, UDECD NEITHER NDORSES NOR DISCOURAGES USE OF PROPRIETARY PROTECTION PRODUCTS; 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.

Rolled Erosion Control Products (RECP)

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Rolled Erosion Control Products (RECP)

AppF-65.png (1015×1345)

9' MIN. ——

EXCAVATED AND

- CONTAINMENT-

RAMP

CONCRET

EXISTING

1/1/08

https://mcclibrary.blob.core.usgovcloudapi.net/codecontent/15646/367064/AppF-65.png

GROUND

TRUCK ACCESS

PLAN VIEW

EXCAVATED

AREA

SECTION A-A

NOTES:

1. SIGN MATERIAL, EXCAVATION, AND RESTORATION ARE INCLUDED IN THE COST OF THE CONCRETE WASHOUT STRUCTURE.

Concrete Washout Structure

Standard Drawing

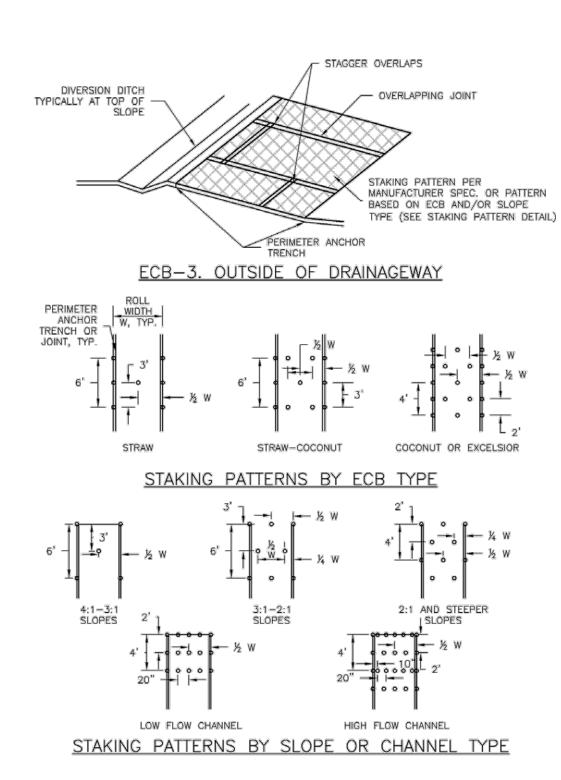
2. EROSION BALES MAY BE USED AS AN ALTERNATIVE FOR THE BERM.

MAXIMUM STORAGE

SD_3-84

EC-6

(% OF VOLUME AREA)



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EROSION CONTROL BLANKET INSTALLATION NOTES

1. SEE PLAN VIEW FOR: -LOCATION OF ECB.

RECP-8

-TYPE OF ECB (STRAW, STRAW-COCONUT, COCONUT, OR EXCELSIOR). -AREA, A, IN SQUARE YARDS OF EACH TYPE OF ECB.

2. 100% NATURAL AND BIODEGRADABLE MATERIALS ARE PREFERRED FOR RECPS, ALTHOUGH SOME JURISDICTIONS MAY ALLOW OTHER MATERIALS IN SOME APPLICATIONS. 3. IN AREAS WHERE ECBs ARE SHOWN ON THE PLANS, THE 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

Rolled Erosion Control Products (RECP)

4. PERIMETER ANCHOR TRENCH SHALL BE USED ALONG THE OUTSIDE PERIMETER OF ALL

5. JOINT ANCHOR TRENCH SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER (LONGITUDINALLY AND TRANSVERSELY) FOR ALL ECBs EXCEPT STRAW WHICH MAY USE

6. INTERMEDIATE ANCHOR TRENCH SHALL BE USED AT SPACING OF ONE-HALF ROLL LENGTH FOR COCONUT AND EXCELSIOR ECBs.

7. OVERLAPPING JOINT DETAIL SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER FOR ECBs ON SLOPES.

8. MATERIAL SPECIFICATIONS OF ECBs SHALL CONFORM TO TABLE ECB-1.

9. ANY AREAS OF SEEDING AND MULCHING DISTURBED IN THE PROCESS OF INSTALLING ECBS

SHALL BE RESEEDED AND MULCHED. 10. DETAILS ON DESIGN PLANS FOR MAJOR DRAINAGEWAY STABILIZATION WILL GOVERN IF DIFFERENT FROM THOSE SHOWN HERE.

TABLE ECB-1, ECB MATERIAL SPECIFICATIONS									
TYPE	COCONUT CONTENT	STRAW CONTENT	EXCELSIOR CONTENT	RECOMMENDED NETTING**					
STRAW*	-	100%	_	DOUBLE/ NATURAL					
STRAW- COCONUT	30% MIN	70% MAX	-	DOUBLE/ NATURAL					
COCONUT	100%	-	_	DOUBLE/ NATURAL					
EXCELSIOR	_	_	100%	DOUBLE/					

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

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UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE W ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY T OWNER OR ITS REPRESENTATI MMENCING WORK, AND AGRE E FULLY RESPONSIBLE FOR

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THE LOCATIONS OF EXISTIN

CCASIONED BY THE CONTRAC PRESERVE ANY AND AL UNDERGROUND UTILITIES. NSTRUCTION SITE SAFETY IS SOLE RESPONSIBILITY OF SOLE RESPONSIBILITY OF THE
CONTRACTOR; NEITHER THE OWNE
NOR THE ENGINEER SHALL BE
EXPECTED TO ASSUME ANY
RESPONSIBILITY FOR SAFETY OF

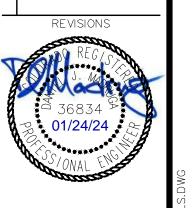
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S SOUTH COLORADO PLANS CONTROL P ALCON HIGHLAND PASO COUNTY, (CONSTRUCTION

03/14/2022



JD

STOCKPILE

STOCKPILE PROTECTION PLAN

SECTION A

SP-1. 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 IMPERVIOUS 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

3. STABILIZE THE STOCKPILE SURFACE WITH SURFACE ROUGHENING, TEMPORARY SEEDING AND

4. FOR TEMPORARY STOCKPILES ON THE INTERIOR PORTION OF A CONSTRUCTION SITE, WHERE

OTHER DOWNGRADIENT CONTROLS, INCLUDING PERIMETER CONTROL, ARE IN PLACE, STOCKPILE

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

SP-3

SM-4

UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, USE

CDOT SECT. #703, AASHTO #3

SP

SILT FENCE (SEE SF DETAIL FOR

INSTALLATION REQUIREMENTS)

SILT FENCE (SEE SF DETAIL FOR

INSTALLATION REQUIREMENTS)

TARP ANCHOR

ROAD CL

BERM MATERIAL (TRIANGULAR SILT DIKE,

SÈDIMENT CONTROL LOG,

DAMAGE OR LOSS OF INTEGRITY.

WRAPPED MATERIAL)

SOIL/LANDSCAPE

6" PVC PIPE

IN FLOWLINE

TARP ANCHOR (CINDER

- BLOCK, OR 5 GALLON

F POLY LINER

- 6" PVC PIPE

BUCKET OF WATER)

CURB LINE

MM-2

MATERIALS STAGING IN ROADWAY MAINTENANCE NOTES

EROSION, AND PERFORM NECESSARY MAINTENANCE.

DISCOVERY OF THE FAILURE.

DIFFERENCES ARE NOTED.

(DETAILS ADAPTED FROM AURORA, COLORADO)

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

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

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON

5. CLEAN MATERIAL FROM PAVED SURFACES BY SWEEPING OR VACUUMING.

4. INSPECT PVC PIPE ALONG CURB LINE FOR CLOGGING AND DEBRIS. REMOVE OBSTRUCTIONS

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

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COUNTY FILE NO

PUDSP-22-005 JD

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STOCKPILE PROTECTION MAINTENANCE NOTES

MM-2

SP-4

SM-4

PUBLIC ROADWAY

REINFORCED CONCRETE RACK

(MAY SUBSTITUTE STEEL CATTLE -

GUARD FOR CONCRETE RACK)

WASH RACK -

6°7" MIN.

VTC-2. AGGREGATE VEHICLE TRACKING CONTROL WITH

WASH RACK

NOTE: WASH WATER

CHEMICALS OR SOAPS WITHOUT OBTAINING

A SEPARATE PERMIT

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

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

STOCKPILE PROTECTION MAINTENANCE NOTES 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

(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.

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Urban Storm Drainage Criteria Manual Volume 3

Vehicle Tracking Control (VTC)

WASH WATER TO SEDIMENT TRAP

OR BASIN

MATERIALS STAGING IN ROADWAYS INSTALLATION NOTES

6"MIN.

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

SP-2. MATERIALS STAGING IN ROADWAY

2. FEATURE MUST BE INSTALLED PRIOR TO EXCAVATION, EARTHWORK OR DELIVERY OF

6' MAX., MUST NOT
BE LOCATED WITHIN
A DRIVE LANE

3. MATERIALS MUST BE STATIONED ON THE POLY LINER, ANY INCIDENTAL MATERIALS DEPOSITED ON PAVED SECTION OR ALONG CURB LINE MUST BE CLEANED UP PROMPTLY. 4. POLY LINER AND TARP COVER SHOULD BE OF SIGNIFICANT THICKNESS TO PREVENT

5. SAND BAGS MAY BE SUBSTITUTED TO ANCHOR THE COVER TARP OR PROVIDE BERMING

6. FEATURE IS NOT INTENDED FOR USE WITH WET MATERIAL THAT WILL BE DRAINING AND/OR SPREADING OUT ON THE POLY LINER OR FOR DEMOLITION MATERIALS. 7. THIS FEATURE CAN BE USED FOR:

-WHEN OTHER STAGING LOCATIONS AND OPTIONS ARE LIMITED. -OTHER LIMITED APPLICATION AND SHORT DURATION STAGING.

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SP-5

SM-4

SP-6

SM-4

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-TYPE OF CONSTRUCTION ENTRANCE(S)/EXITS(S) (WITH/WITHOUT WHEEL WASH,

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)

4. STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE INSTALLED PRIOR TO ANY LAND

6. UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT

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

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

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

5. SEDIMENT TRACKED ONTO PAVED ROADS IS TO BE REMOVED THROUGHOUT THE DAY AND

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.

AT THE END OF THE DAY BY SHOVELING OR SWEEPING, SEDIMENT MAY NOT BE WASHED

4. ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY TO THE STABILIZED ENTRANCE/EXIT TO MAINTAIN A CONSISTENT DEPTH.

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

WHERE VEHICLES ACCESS THE CONSTRUCTION SITE FROM PAVED RIGHT-OF-WAYS.

5. A NON-WOVEN GEOTEXTILE FABRIC SHALL BE PLACED UNDER THE STABILIZED

CONSTRUCTION ENTRANCE/EXIT PRIOR TO THE PLACEMENT OF ROCK.

SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.

STABILIZED CONSTRUCTION ENTRANCE/EXIT MAINTENANCE NOTES

EROSION, AND PERFORM NECESSARY MAINTENANCE.

3. A STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE LOCATED AT ALL ACCESS POINTS

STABILIZED CONSTRUCTION ENTRANCE/EXIT INSTALLATION NOTES

-LOCATION OF CONSTRUCTION ENTRANCE(S)/EXIT(S).

CONSTRUCTION MAT OR TRM).

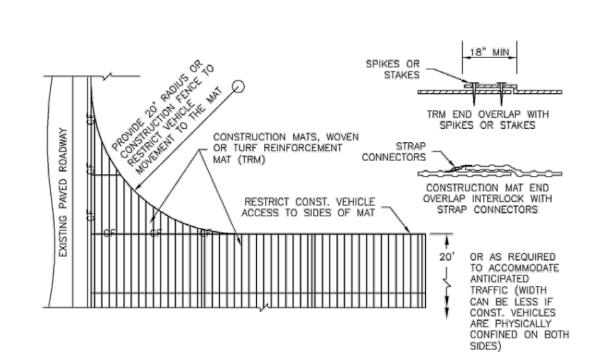
DISTURBING ACTIVITIES.

DOWN STORM SEWER DRAINS.

WHERE THERE WILL BE LIMITED VEHICULAR ACCESS.

Vehicle Tracking Control (VTC)

DISTURBED AREA CONSTRUCTION SITE STABILIZED STORAGE AREA 12" MIN - CONSTRUCTION MATS, WOVEN OR TRM



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

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VTC-6

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Urban Storm Drainage Criteria Manual Volume 3

VTC-3

VTC-4 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3

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WW

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Urban Drainage and Flood Control District

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Vehicle Tracking Control (VTC)

ROADWAY

COMPACTED SUBGRADE

STOCKPILE PROTECTION INSTALLATION NOTES

-TYPE OF STOCKPILE PROTECTION.

PERIMETER CONTROLS MAY NOT BE REQUIRED

OR SLUMPS AGAINST THE PERIMETER, AND OTHER FACTORS.

IN PLACE FOR A MORE LIMITED TIME PERIOD (TYPICALLY 30-60 DAYS).

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SEE PLAN VIEW FOR:
 -LOCATION OF STOCKPILES.

(WIDTH CAN BE LESS IF CONST. VEHICLES ARE PHYSICALLY CONFINED ON BOTH SIDES) SIDEWALK OR OTHER 75 FOOT (MIN.) PAVED SURFACE

COARSE AGGREGATE OR 6" NON-WOVEN GEOTEXTILE FABRIC BETWEEN SOIL AND ROCK UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, USE CDOT SECT. #703, AASHTO INSTALL ROCK FLUSH WITH OR BELOW TOP OF PAVEMENT #3 COARSE AGGREGATE OR 6" MINUS ROCK NON-WOVEN GEOTEXTILE

VTC-1. AGGREGATE VEHICLE TRACKING CONTROL

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VTC-5

___ SF ___ SF ___ SF __

GROUND

SILT FENCE

GEOTEXTILE

BACKFILI

OF SILT FENCE

POSTS SHALL BE JOINED AS

SHOWN, THEN ROTATED 180 DEG

November 2010

IN DIRECTION SHOWN AND DRIVEN

BURIED

SILT FENCE

SECTION A

SF-1. SILT FENCE

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1 ½" x 1 ½" (RECOMMENDED) WOODEN

FENCE POST WITH 10" MAX

AT JOINTS SO THAT NO GAPS -EXIST IN SILT FENCE/

THICKNESS OF GEOTEXTILE HAS

BEEN EXAGGERATED, TYPE

SF-3

SPACING

CONSTRUCTION SITE ACCESS

STABILIZED

TO VTC-3)

CONSTRUCTION

ENTRANCE (SEE -

DETAILS VTC-1

SM-6

STABILIZED STAGING AREA MAINTENANCE NOTES

STORAGE, AND UNLOADING/LOADING OPERATIONS.

5. STABILIZED STAGING AREA SHALL BE ENLARGED IF NECESSARY TO CONTAIN PARKING,

OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION.

VEGETATION IN AREAS WHERE RECYCLED CONCRETE WAS PLACED.

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

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

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

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.

SM-6

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COUNTY FILE NO. PUDSP-22-005

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DB 21005234

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

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

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

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,

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.

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(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.

November 2010

Sediment Basin (SB)

Urban Drainage and Flood Control District

SSA-3

SSA-4

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STABILIZED STAGING AREA INSTALLATION NOTES

EROSION, AND PERFORM NECESSARY MAINTENANCE.

EXISTING ROADWAY

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

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

— SF/CF —— SF/CF →

SSA-1. STABILIZED STAGING AREA

— SF/CF —— SF/CF —

ONSITE

CONSTRUCTION

VEHICLE

PARKING (IF

NEEDED)

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

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

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

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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3" MIN. THICKNESS

GRANULAR MATERIAL

SILT FENCE OR CONSTRUCTION FENCING AS NEEDED

Sediment Basin (SB)

EROSION, AND PERFORM NECESSARY MAINTENANCE.

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

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

4. SEDIMENT ACCUMULATED IN BASIN SHALL BE REMOVED AS NEEDED TO MAINTAIN BMP EFFECTIVENESS, TYPICALLY WHEN SEDIMENT DEPTH REACHES ONE FOOT (I.E., TWO FEET BELOW THE SPILLWAY CREST).

5. SEDIMENT BASINS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS ACCEPTED BY THE LOCAL JURISDICTION. 6. WHEN SEDIMENT BASINS ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

(DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO)

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

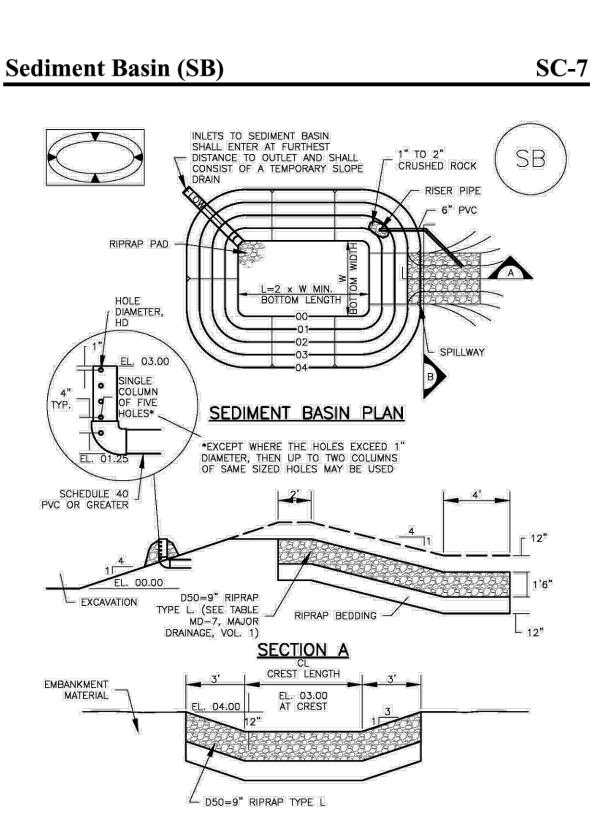


TABLE SB-1. SIZING INFORMATION FOR STANDARD SEDIMENT BASIN Upstream Drainage Basin Bottom Width Spillway Crest (W), (ft) Length (CL), (ft) nearest acre), (ac) 58 ¼

SEDIMENT BASIN INSTALLATION NOTES

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 -FOR NONSTANDARD BASIN, SEE CONSTRUCTION DRAWINGS FOR DESIGN OF BASIN INCLUDING RISER HEIGHT H, NUMBER OF COLUMNS N, HOLE DIAMETER HD AND PIPE

2. FOR STANDARD BASIN, BOTTOM DIMENSION MAY BE MODIFIED AS LONG AS BOTTOM AREA IS NOT REDUCED.

3. SEDIMENT BASINS SHALL BE INSTALLED PRIOR TO ANY OTHER LAND-DISTURBING ACTIVITY THAT RELIES ON ON BASINS AS AS A STORMWATER CONTROL.

4. EMBANKMENT MATERIAL SHALL CONSIST OF SOIL FREE OF DEBRIS, ORGANIC MATERIAL, AND ROCKS OR CONCRETE GREATER THAN 3 INCHES AND SHALL HAVE A MINIMUM OF 15 PERCENT BY WEIGHT PASSING THE NO. 200 SIEVE.

5. EMBANKMENT MATERIAL SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D698. 6. PIPE SCH 40 OR GREATER SHALL BE USED.

7. THE DETAILS SHOWN ON THESE SHEETS PERTAIN TO STANDARD SEDIMENT BASIN(S) FOR DRAINAGE AREAS LESS THAN 15 ACRES. SEE CONSTRUCTION DRAWINGS FOR EMBANKMENT, STORAGE VOLUME, SPILLWAY, OUTLET, AND OUTLET PROTECTION DETAILS FOR

ANY SEDIMENT BASIN(S) THAT HAVE BEEN INDIVIDUALLY DESIGNED FOR DRAINAGE AREAS

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SB-5

Inlet Protection (IP)

ROCK SOCK -

INLET GRATE

IP-3. ROCK SOCK SUMP/AREA INLET PROTECTION

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

2. POSTS SHALL BE PLACED AT EACH CORNER OF THE INLET AND AROUND THE EDGES

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.

ROCK SOCK SUMP/AREA INLET PROTECTION INSTALLATION NOTES

1. SEE ROCK SOCK DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.

SEE ROCK SOCK DETAIL

FOR JOINTING

INLET GRATE

SILT FENCE (SEE SILT

FENCE DESIGN DETAIL

SC-6

SC-6

FLOW --

CULVERT INLET PROTECTION

CULVERT END SECTION

<u>PLAN</u> Γ 10" ΜΙΝ.

CULVERT INLET PROTECTION INSTALLATION NOTES

CULVERT INLET PROTECTION MAINTENANCE NOTES

EROSION, AND PERFORM NECESSARY MAINTENANCE.

SEDIMENT DEPTH IS 1/2 THE HEIGHT OF THE ROCK SOCK.

(DETAILS ADAPTED FROM AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)

DOCUMENTED THOROUGHLY.

DISCOVERY OF THE FAILURE.

-LOCATION OF CULVERT INLET PROTECTION.

- ROCK SOCK

SC-6

COUNTY FILE NO PUDSP-22-005

JD 1. RDL DB 21005234

030303 SEE ROCK SOCK DESIGN DETAIL FOR JOINTING 16" CINDER 16" CINDER BLOCKS BLOCKS

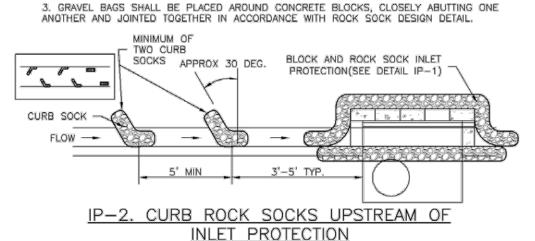
2"x4" WOOD STUD -

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



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.

Use mulch in conjunction with seeding to help protect the seedbed and stabilize the soil. Mulch can also

growing season constraints prevent effective reseeding. Disturbed areas should be properly mulched and

tacked, or seeded, mulched and tacked promptly after final grade is reached (typically within no longer

Standard dry mulching is encouraged in most jurisdictions; however, hydromulching may not be allowed

Prior to mulching, surface-roughen areas by rolling with a crimping or punching type roller or by track

walking. Track walking should only be used where other methods are impractical because track walking

than 14 days) on portions of the site not otherwise permanently stabilized.

in certain jurisdictions or may not be allowed near waterways.

be used as a temporary cover on low to mild slopes to help temporarily stabilize disturbed areas where

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Mulching (MU)

Mulching consists of evenly applying

straw, hay, shredded wood mulch, rock,

bark or compost to disturbed soils and

reduce erosion by protecting bare soil

Although often applied in conjunction

with temporary or permanent seeding, it

from rainfall impact, increasing

infiltration, and reducing runoff.

can also be used for temporary

stabilization of areas that cannot be

Mulch can be applied either using

Appropriate Uses

standard mechanical dry application

methods or using hydromulching equipment

Do not apply mulch during windy conditions.

with heavy equipment typically compacts the soil.

A variety of mulches can be used effectively at construction

Design and Installation

sites. Consider the following:

June 2012

that hydraulically applies a slurry of water,

wood fiber mulch, and often a tackifier.

reseeded due to seasonal constraints.

securing the mulch by crimping, tackifiers

netting or other measures. Mulching helps

Description

August 2013

Photograph MU-1. An area that was recently seeded, mulched,

Mulch

Yes

Moderate

No

Functions

Erosion Control

Sediment Control

Site/Material Management

August 2013

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SILT FENCE INLET PROTECTION INSTALLATION NOTES

AT A MAXIMUM SPACING OF 3 FEET.

1. SEE SILT FENCE DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.

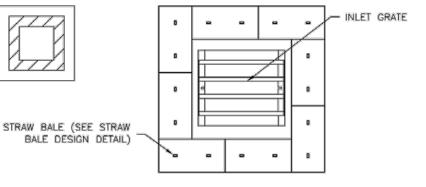
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Mulching (MU)

ECB -CONCENTRATED OR ROCK SOCK (USE IF FLOW IS CONCENTRATED) 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

IP

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.



SMALL CONTRIBUTING DRAINAGE AREA.

IP-6. STRAW BALE FOR SUMP INLET PROTECTION

STRAW BALE BARRIER INLET PROTECTION INSTALLATION NOTES 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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Temporary and Permanent Seeding (TS/PS)

Pounds of

Pure Live Seed

(PLS)/acre^c

35 - 50

25 - 35

25 - 35

10 - 15

3 - 15

20 - 35

20 - 35

20-35

25 - 40

Planting

Depth

(inches)

1 - 2

1 - 2

1 - 2

1/2

 $\frac{1}{2} - \frac{3}{4}$

1 - 2

1 - 2

1 - 2

1 - 2

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

Growth

Season^b

Cool

Cool

Cool

Cool

Warm

Cool

Cool

Cool

Cool

is not disturbed or mowed closer than 8 inches.

^a Successful seeding of annual grass resulting in adequate plant growth will

usually produce enough dead-plant residue to provide protection from

Hydraulic seeding may be substituted for drilling only where slopes are

operation, when practical, to prevent the seeds from being encapsulated in

^b See Table TS/PS-2 for seeding dates. Irrigation, if consistently applied,

may extend the use of cool season species during the summer months.

percent if done using a Brillion Drill or by hydraulic seeding.

Seeding rates should be doubled if seed is broadcast, or increased by 50

steeper than 3:1 or where access limitations exist. When hydraulic

seeding is used, hydraulic mulching should be applied as a separate

wind and water erosion for an additional year. This assumes that the cover

(Common name)

Spring wheat

Annual ryegrass

Spring barley

Winter wheat

7. Winter barley

Winter rye

Triticale

Millet

August 2013

Temporary and Permanent Seeding (TS/PS)

BACKFILL UPSTREAM

SECTION A

KEY IN ROCK SOCK O" ON BEDROCK, PAVEMENT OR RIPRAP

KEY IN ROCK SOCK 2" ON EARTH

SECTION B

CIP-1. CULVERT INLET PROTECTION

2. SEE ROCK SOCK DESIGN DETAIL FOR ROCK GRADATION REQUIREMENTS AND JOINTING

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

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

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON

4. SEDIMENT ACCUMULATED UPSTREAM OF THE CULVERT SHALL BE REMOVED WHEN THE

5. CULVERT INLET PROTECTION SHALL REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED

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.

AREA IS PERMANENTLY STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.

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

	Annual Grasses (Numbers in table reference species in Table TS/PS-1)		Perennial Grasses	
Seeding Dates	Warm	Cool	Warm	Cool
January 1–March 15			✓	✓
March 16–April 30		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

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

Protect seeded areas from construction equipment and vehicle access.

January 2021

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TS/PS-5

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 Clean, weed-free and seed-free cereal grain straw should be applied evenly at a rate of 2 tons per acre and must be tacked or fastened by a method suitable for the condition of the site. Straw mulch must be anchored (and not merely placed) on the surface. This can be accomplished mechanically by crimping or with the aid of tackifiers or nets. Anchoring with a crimping implement is preferred, and is the recommended method for areas flatter than 3:1. Mechanical crimpers must be capable of tucking the long

have to be weighted to afford proper soil penetration. Grass hay may be used in place of straw; however, because hay is comprised of the entire plant including seed, mulching with hay may seed the site with non-native grass species which might in turn out-compete the native seed. Alternatively, native species of grass hay may be purchased, but can be difficult to find and are more expensive than straw. Purchasing and utilizing a certified weed-free straw is an easier and less costly mulching method. When using grass hay, follow the same guidelines as for straw (provided

mulch fibers into the soil to a depth of 3 inches without cutting them. An agricultural disk, while not an

ideal substitute, may work if the disk blades are dull or blunted and set vertically; however, the frame may

 On small areas sheltered from the wind and heavy runoff, spraying a tackifier on the mulch is satisfactory for holding it in place. For steep slopes and special situations where greater control is needed, erosion control blankets anchored with stakes should be used instead of mulch.

 Hydraulic mulching consists of wood cellulose fibers mixed with water and a tackifying agent and should be applied at a rate of no less than 1,500 pounds per acre (1,425 lbs of fibers mixed with at least 75 lbs of tackifier) with a hydraulic mulcher. For steeper slopes, up to 2000 pounds per acre may be required for effective hydroseeding. Hydromulch typically requires up to 24 hours to dry; therefore, it should not be applied immediately prior to inclement weather. Application to roads, waterways and existing vegetation

 Erosion control mats, blankets, or nets are recommended to help stabilize steep slopes (generally 3:1 and steeper) and waterways. Depending on the product, these may be used alone or in conjunction with grass or straw mulch. Normally, use of these products will be restricted to relatively small areas.

Biodegradable mats made of straw and jute, straw-coconut, coconut fiber, or excelsior can be used instead of mulch. (See the ECM/TRM BMP for more information.) Some tackifiers or binders may be used to anchor mulch. Check with the local jurisdiction for allowed

tackifiers. Manufacturer's recommendations should be followed at all times. (See the Soil Binder BMP for more information on general types of tackifiers.)

 Rock can also be used as mulch. It provides protection of exposed soils to wind and water erosion and allows infiltration of precipitation. An aggregate base course can be spread on disturbed areas for temporary or permanent stabilization. The rock mulch layer should be thick enough to provide full coverage of exposed soil on the area it is applied.

Maintenance and Removal

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

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TS/PS-4