

# CONSTRUCTION DOCUMENTS FOR BLACK FOREST OFFICE

N1/2 NE1/4 SE1/4 SE1/4 OF SECTION 07, TOWNSHIP 12 SOUTH, RANGE 65 WEST OF  
THE 6TH P.M., EL PASO COUNTY, COLORADO

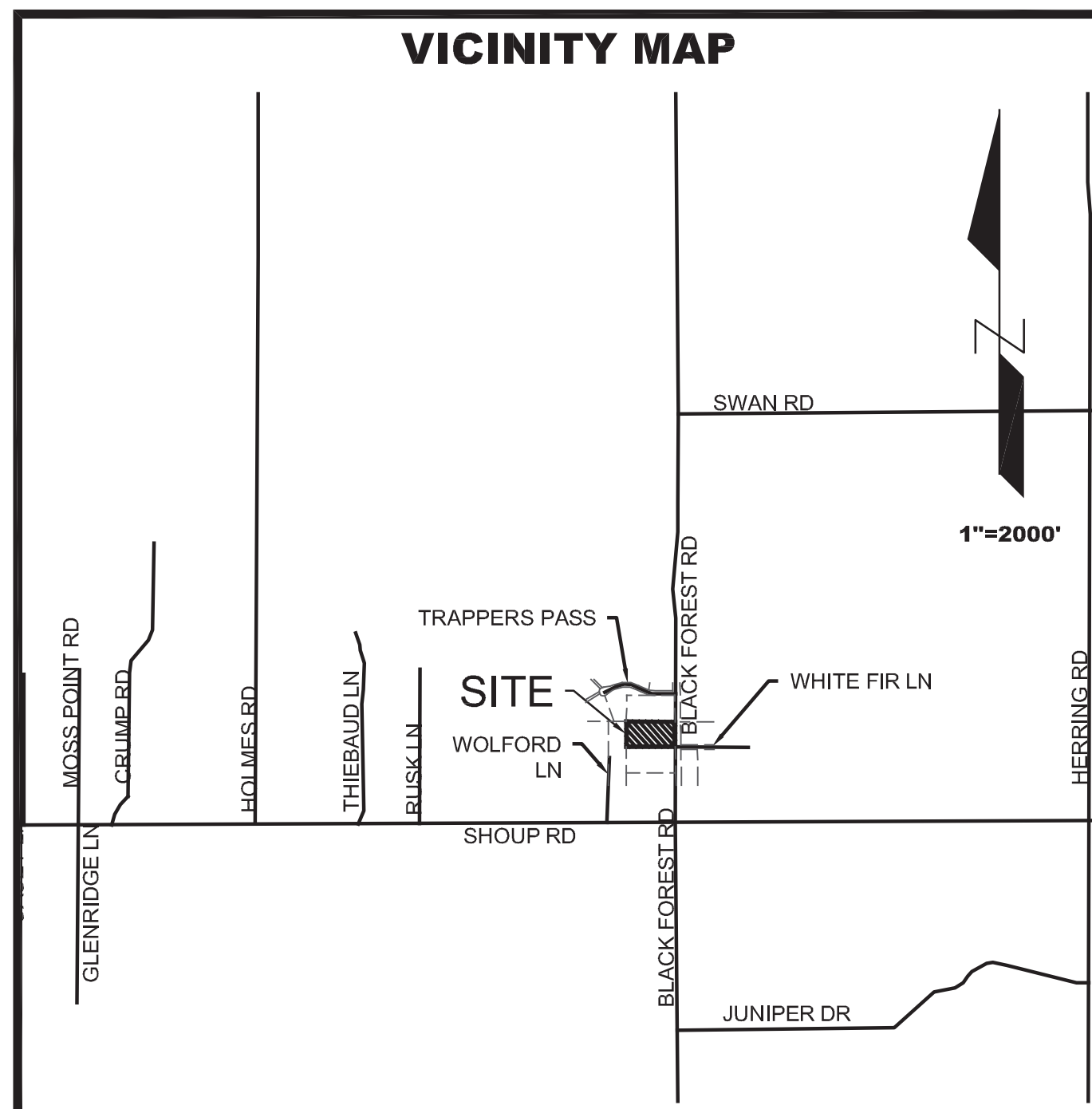


303.925.0544  
www.2ncivil.com



## 2N CIVIL GENERAL NOTES:

- THE OWNER/DEVELOPER AND/OR THEIR ASSIGNS IS HEREBY NOTIFIED THAT IT IS TYPICAL AND LIKELY THAT SOME MOVEMENT OF THE SURFACE GRADES WILL OCCUR OVER TIME DUE TO VARIOUS FACTORS THAT ARE NOT IN CONTROL OF THE DESIGNERS. THUS, A ROUTINE AND DILIGENT MAINTENANCE PROGRAM IS REQUIRED TO MAINTAIN THE PROPER GRADING AND DRAINAGE THROUGHOUT THE PROJECT.
- PROPOSED CONTOURS AND SPOT ELEVATIONS AS SHOWN HEREIN ARE DEFINED AS FINISHED ELEVATION AFTER PAVING, LANDSCAPING, ETC. CONTRACTOR SHALL COORDINATE WITH GEOTECH FOR PAVEMENT THICKNESS AND LANDSCAPE FOR THICKNESS OF TOPSOIL AND SOD.
- CONTRACTOR SHALL REVIEW THE GEOTECHNICAL REPORT FOR THIS PROJECT FOR PAVEMENT DESIGN AND RECOMMENDATIONS REGARDING EXCAVATION, COMPACTION, EMBANKMENT, AND TOPSOIL REMOVAL AND REPLACEMENT. FINAL PAVEMENT DESIGN TO BE DETERMINED BY THE GEOTECHNICAL ENGINEER. CONTRACTOR TO COORDINATE THIS WORK. THE CONSTRUCTION METHODS FOR EXCAVATION/EMBANKMENTS, COMPACTION, AND SUBGRADE PREPARATION SHALL BE IN STRICT CONFORMANCE WITH THE GEOTECHNICAL ENGINEER'S RECOMMENDATIONS. ENGINEER SHALL BE NOTIFIED IMMEDIATELY OF DISCREPANCIES BETWEEN THE GEOTECHNICAL REPORT RECOMMENDATIONS AND REQUIREMENTS OF THESE CONSTRUCTION DOCUMENTS AND SPECIFICATIONS.
- EXISTING GRADES AND SPOT ELEVATIONS SHOWN ON THIS DRAWING HAVE BEEN PLOTTED FROM BEST AVAILABLE INFORMATION AND ARE SHOWN TO THE EXTENT KNOWN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY EXISTING GRADE CONDITIONS AT THE LIMITS OF CONSTRUCTION AND AT LOCATIONS THAT INTERFACE WITH EXISTING OR PROPOSED BUILDINGS AND NOTIFY THE CIVIL ENGINEER OF ANY DISCREPANCIES THAT CONTRADICT THE CIVIL ENGINEER'S INTENT FOR DRAINAGE PATTERNS, MAXIMUM AND MINIMUM SLOPES, AND PROPOSED ELEVATIONS AS SHOWN ON THE PLAN. THE ENGINEER WILL NOT BE LIABLE FOR ANY COSTS ASSOCIATED WITH CHANGES TO THE DESIGN WITHOUT PROPER NOTIFICATION.
- CONTRACTOR LAYDOWN / MATERIAL AREA, CONCRETE WASHOUT AREA AND STOCKPILE AREA ARE SHOWN FOR INFORMATION ONLY. FINAL LOCATIONS OF THESE AREAS SHALL BE COORDINATED BETWEEN THE CONTRACTOR AND OWNER'S REPRESENTATIVE. STORM WATER MANAGEMENT IS STRICTLY THE CONTRACTOR'S RESPONSIBILITY AND THE CONTRACTOR MUST ADHERE TO LOCAL AND STATE JURISDICTIONAL CRITERIA.
- SLOPE OF INLET FLOWLINE OR GRATE TO MATCH STREET GRADE UNLESS INLET IS AT A SUMP LOCATION. ALL DIMENSIONS, CURVE DATA AND LINE DATA ARE AT FLOWLINE UNLESS OTHERWISE NOTED.
- NOTICE TO BIDDERS - UNLESS APPROVAL BLOCKS ARE SIGNED AND THE PLANS ARE STAMPED BY A PROFESSIONAL ENGINEER, THESE DOCUMENTS ARE PENDING JURISDICTIONAL APPROVAL AND SUBJECT TO CHANGE.
- SAW CUTTING OF EXISTING PAVEMENT AND CONCRETE, WHERE REQUIRED, SHALL BE DONE TO A NEAT WORK LINE WITH A CUTTING WHEEL ATTACHED TO A BLADE, OR OTHER METHOD AS APPROVED BY THE ENGINEER.
- 2N CIVIL, LLC ASSUMES NO RESPONSIBILITY FOR UTILITY LOCATIONS. THE UTILITIES SHOWN ON THESE DRAWINGS HAVE BEEN PLOTTED FROM THE BEST AVAILABLE INFORMATION. IT IS, HOWEVER, THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE LOCATION OF ALL UTILITIES PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION. NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.
- THE UTILITIES SHOWN ON THESE PLANS HAVE BEEN PLOTTED FROM THE BEST AVAILABLE INFORMATION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY UTILITY LOCATIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROTECT EXISTING UTILITIES FROM DAMAGE THROUGHOUT THE CONSTRUCTION OF THIS PROJECT. THE CONTRACTOR SHALL CALL THE UTILITY NOTIFICATION CENTER OF COLORADO FOR UTILITY LOCATIONS 2 WORKING DAYS PRIOR TO COMMENCING CONSTRUCTION.
- EXISTING SITE FEATURES TO BE DEMOLISHED (INCLUDING BUT NOT LIMITED TO BUILDINGS, CONCRETE SLABS, FENCING, TREES) HAVE BEEN OMITTED FROM THIS CONSTRUCTION DRAWING SET FOR CLARITY.
- ALL AREAS DISTURBED BEYOND CONSTRUCTION LIMITS SHALL BE RESEEDDED/MULCHED AT THE CONTRACTOR'S EXPENSE.



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6	ESCD - INTERIM PHASE
7	ESCD - FINAL PHASE
8-10	EROSION CONTROL DETAILS
11-12	POND DETAILS

PROJECT TEAM	
<u>OWNER</u>	<u>ARCHITECT</u>
BLACK FOREST, LLC 8655 TABLE BUTTE ROAD COLORADO SPRINGS, CO 80908	PWN ARCHITECTS & PLANNERS 4949 S SYRACUSE ST #320 DENVER, CO 80237 303.649.9880
<u>CIVIL ENGINEER</u>	<u>STRUCTURAL</u>
2N CIVIL, LLC 6 INVERNESS COURT EAST, SUITE 125 ENGLEWOOD, CO 80112 MR. TODD WEST 303.925.0544	THE LEFFLER GROUP 165 SOUTH UNION BLVD, SUITE 360 LAKEWOOD, CO 80228 720-890-4095
	<u>MECHANICAL, ELECTRICAL, PLUMBING</u>
	COLORADO COMFORT CONSULTING ENGINEERS, INC. 7891 LEWIS COURT ARVADA, CO 80005 PH: 303-956-8811 EMAIL: DesEng1@Comcast.net

PREPARED FOR:  
BLACK FOREST, LLC  
12740 BLACK FOREST ROAD  
COLORADO SPRINGS, CO 80908

Cover Sheet  
CONSTRUCTION DOCUMENTS  
BLACK FOREST OFFICE  
COLORADO SPRINGS, COLORADO

BY: DATE:

REVISIONS:

19015  
12-03-2020  
TEW  
RCE

PROJECT NUMBER:  
ISSUED DATE:  
DESIGNED BY:  
REVIEWED BY:

Cover Sheet

**CAUTION: NOTICE TO CONTRACTOR**  
THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE LOCAL UTILITY LOCATION CENTER AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATIONS OF THE UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.



Know what's below.  
Call before you dig.



PREPARED FOR:  
BLACK FOREST, LLC  
12740 BLACK FOREST ROAD  
COLORADO SPRINGS, CO 80908

**Site and Utility Plan**  
CONSTRUCTION DOCUMENTS  
BLACK FOREST OFFICE  
COLORADO SPRINGS, COLORADO

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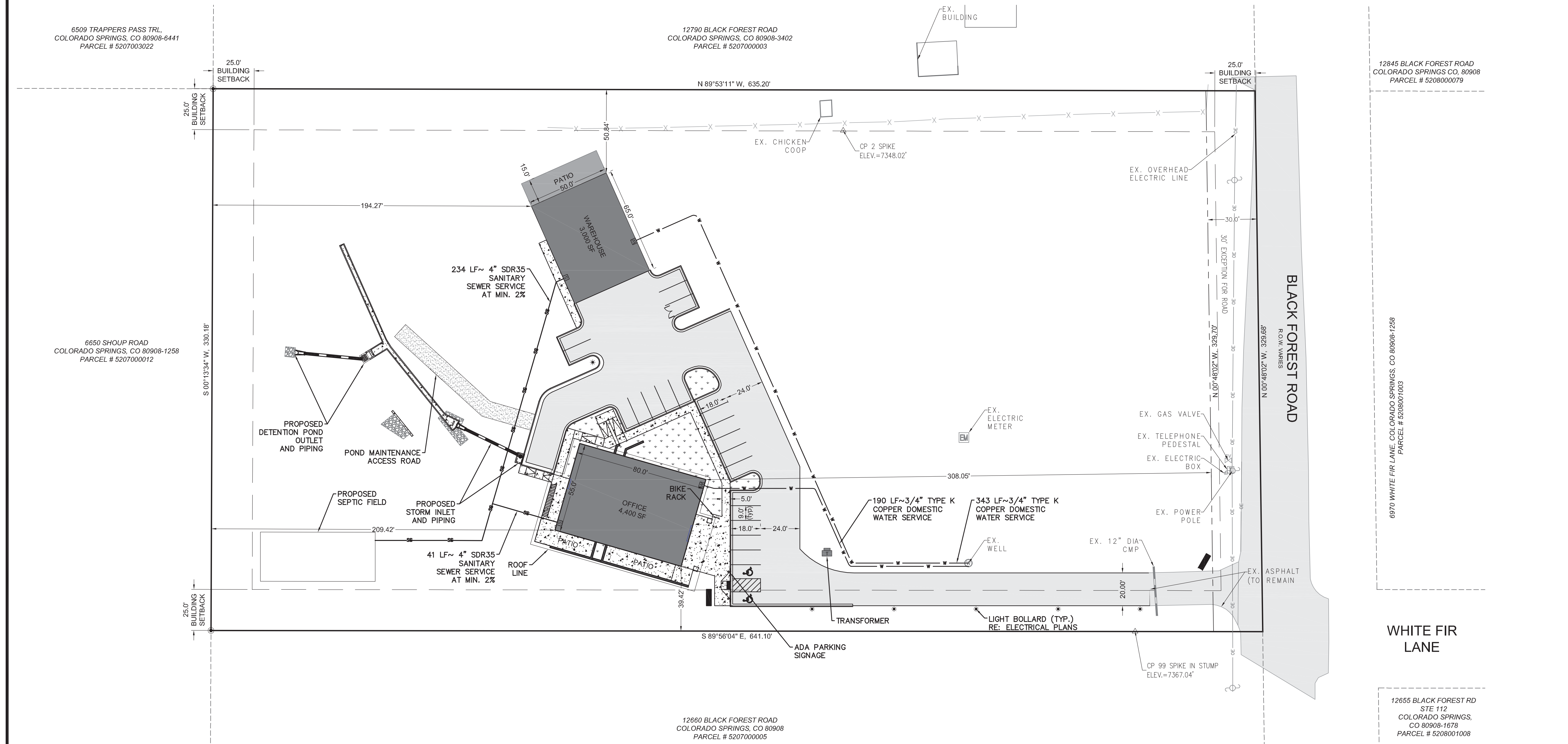
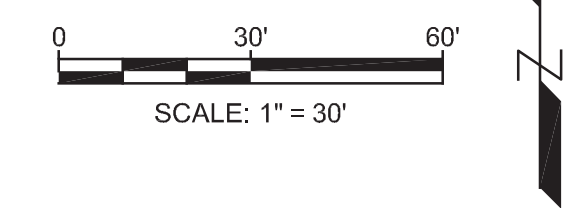
Site and Utility Plan

**MATERIAL LEGEND**

- EXISTING ASPHALT
- PROPOSED CONCRETE
- PROPOSED ASPHALT
- PROPOSED GRAVEL
- PROPOSED BUILDING
- PROPOSED LANDSCAPE ELEMENTS

**LEGEND**

- PROPERTY BOUNDARY
- EXISTING EASEMENT
- EXISTING SIGN
- EXISTING CURB & GUTTER
- EXISTING HYDRANT
- BUILDING SETBACK
- PROPOSED EASEMENT
- PROPOSED CURB AND GUTTER (CATCH)
- PROPOSED CURB AND GUTTER (SPILL)
- PROPOSED FENCE
- PROPOSED SIGN
- PROPOSED FIRE HYDRANT
- SURVEY CONTROL POINT
- FOUND PROPERTY CORNER



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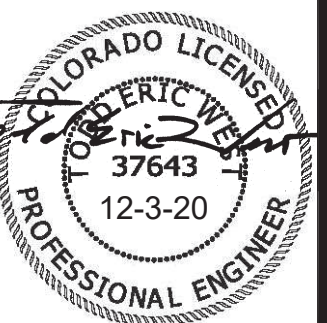


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**BENCHMARK**  
SURVEY CONTROL POINTS AS SHOWN HEREON. ALL ELEVATIONS ARE BASED UPON NAVD88 VERTICAL DATUM.

**DETAILED DRAINAGE CONSTRUCTION PLANS AND SPECIFICATIONS ENGINEER'S STATEMENT:**  
THESE DETAILED PLANS AND SPECIFICATIONS WERE PREPARED UNDER MY DIRECTION AND SUPERVISION. SAID DETAILED PLANS AND SPECIFICATIONS HAVE BEEN PREPARED ACCORDING TO THE CRITERIA ESTABLISHED BY THE CITY/COUNTY FOR DETAILED DRAINAGE PLANS AND SPECIFICATIONS, AND SAID DETAILED PLANS AND SPECIFICATIONS ARE IN CONFORMITY WITH THE MASTER PLAN OF THE DRAINAGE BASIN. SAID DETAILED DRAINAGE PLANS AND SPECIFICATIONS MEET THE PURPOSES FOR WHICH THE PARTICULAR DRAINAGE FACILITY(S) IS DESIGNED. I ACCEPT RESPONSIBILITY FOR ANY LIABILITY CAUSED BY ANY NEGLIGENT ACTS, ERRORS OR OMISSIONS ON MY PART IN PREPARATION OF THE DETAILED DRAINAGE PLANS AND SPECIFICATIONS.

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



PREPARED FOR:  
BLACK FOREST, LLC  
12740 BLACK FOREST ROAD  
COLORADO SPRINGS, CO 80908

**Grading and Drainage Plan**  
CONSTRUCTION DOCUMENTS  
BLACK FOREST OFFICE  
COLORADO SPRINGS, COLORADO

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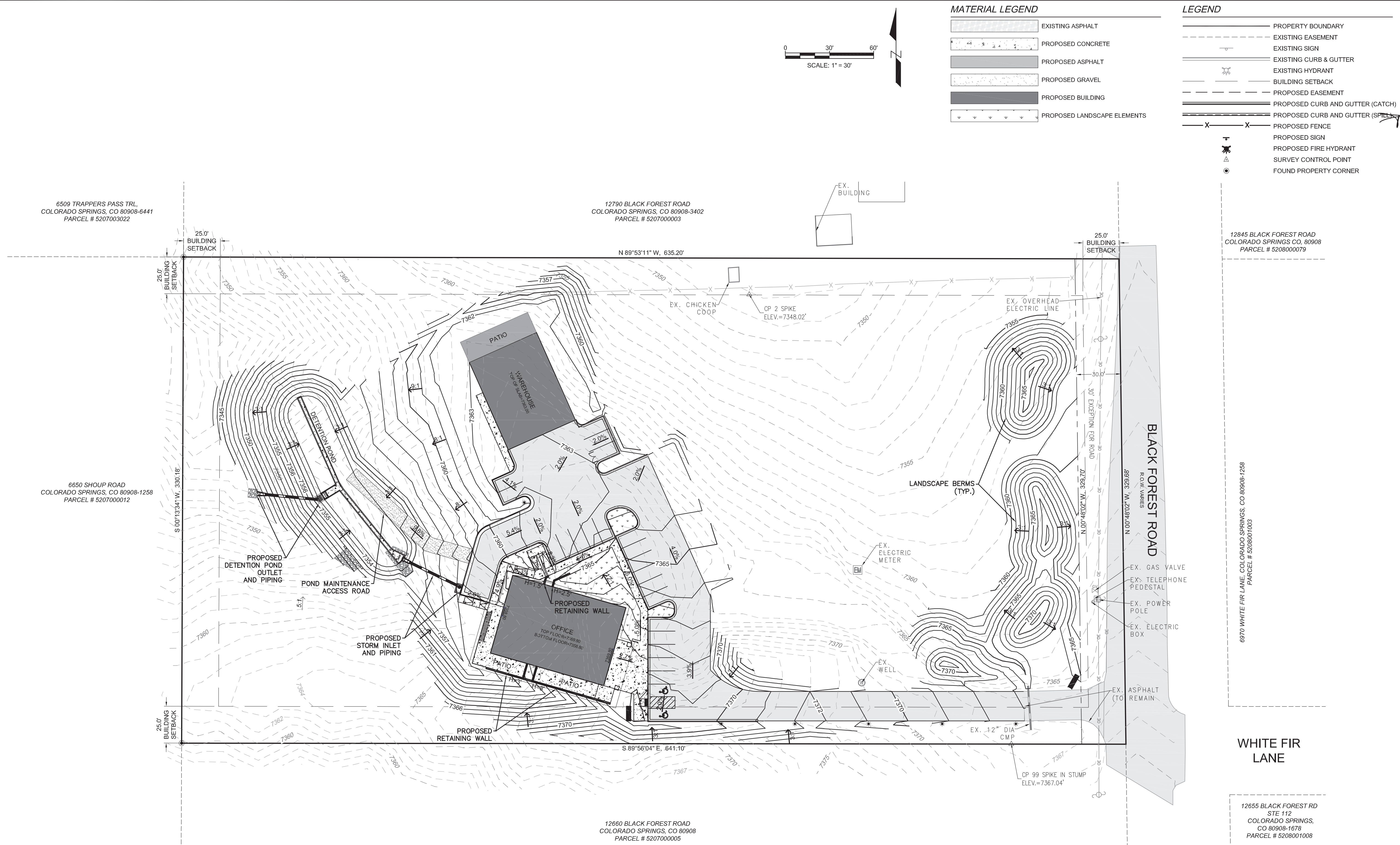
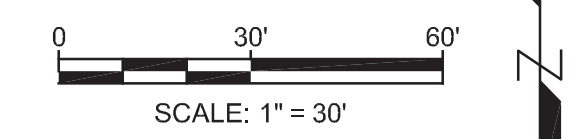
**Grading and Drainage Plan**

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- PROPOSED CURB AND GUTTER (SPLIT)
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# GRADING, EROSION, AND SEDIMENT CONTROL PLANS FOR BLACK FOREST OFFICE

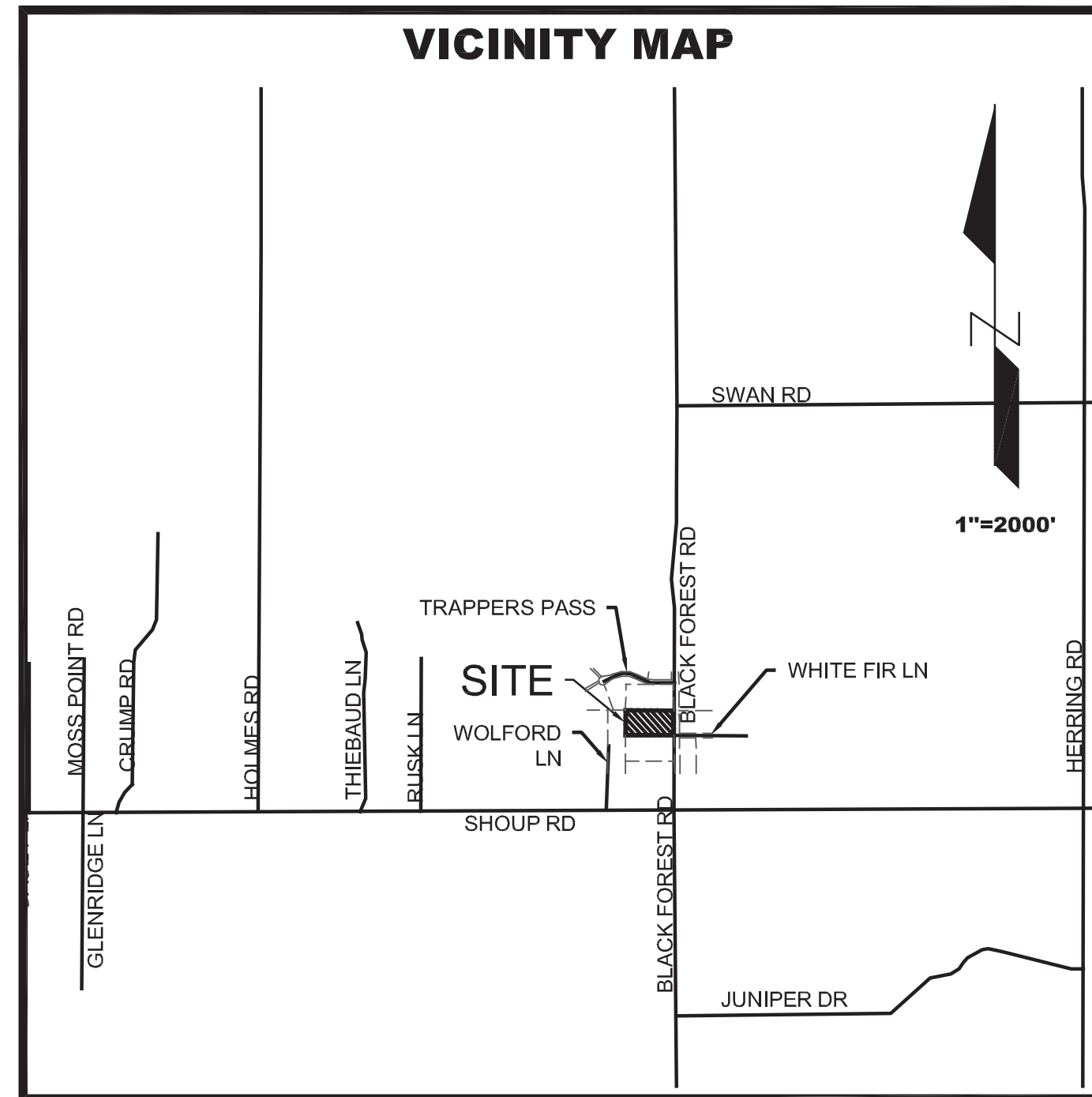
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THE 6TH P.M., EL PASO COUNTY, COLORADO



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PROJECT TEAM	
<b>OWNER</b>	<b>LANDSCAPE ARCHITECT</b>
BLACK FOREST, LLC 8655 TABLE BUTTE ROAD COLORADO SPRINGS, CO 80908	PWN ARCHITECTS & PLANNERS 4949 S SYRACUSE ST #320 DENVER, CO 80237 303.649.9880
<b>STORMWATER MANAGER</b>	
CHRIS RICHARDSON CMG CORPORATION 6615 VINCENT DR. COLORADO SPRINGS, CO 80918	
<b>CIVIL ENGINEER</b>	
2N CIVIL, LLC 6 INVERNESS COURT EAST, SUITE 125 ENGLEWOOD, CO 80112 MR. TODD WEST 303.925.0544	



BMP	PROJECT STAGE		
	INITIAL At outset of construction, prior to any land disturbance activities	INTERIM During clearing and grubbing, earthwork operations	FINAL During last steps of construction process for long-term stabilization
Silt Fence		MAINTAINED	TO BE REMOVED
Vehicle Tracking Control		MAINTAINED	TO BE REMOVED
Concrete Washout Area		MAINTAINED	TO BE REMOVED
Stabilized Staging Area		MAINTAINED	TO BE REMOVED
Sediment Control Log			TO BE REMOVED
Inlet Protect			TO BE REMOVED
Culvert Inlet Protection		MAINTAINED	TO BE REMOVED
Sediment Basin		MAINTAINED	TO BE REMOVED
Diversion Ditch		MAINTAINED	TO BE REMOVED
Erosion Control Blanket			TO REMAIN
Seeding and Mulching			TO REMAIN
Permanent Landscaping			

**EROSION CONTROL PHASING NOTES:**

- INITIAL STAGE BMPs SHALL BE INSTALLED AT THE OUTSET OF CONSTRUCTION, PRIOR TO ANY OTHER LAND-DISTURBING ACTIVITIES. INITIAL CONTROLS ARE TO BE PLACED ON EXISTING GRADES.
- CONTRACTOR TO ESTABLISH PERIMETER CONTROLS (IP, SF), VTC AND SSA PRIOR TO COMMENCING CONSTRUCTION.
- INTERIM STAGE BMPs SHALL BE BASED ON PROPOSED GRADES AND DRAINAGE FEATURES AND ARE INSTALLED AFTER INITIAL SITE CONSTRUCTION. FOR SOME BMPs SUCH AS INLET PROTECTION, INTERIM CONTROLS ARE INSTALLED AFTER THE CONSTRUCTION OF SITE INFRASTRUCTURE.
- FINAL STAGE BMPs SHALL BE INSTALLED AS ONE OF THE LAST STEPS IN THE CONSTRUCTION ACTIVITY, SUCH AS FINAL SEEDING AND MULCHING.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PHASE THE FINAL BMPs AS THE CONSTRUCTION PROGRESSES.

**SOIL TYPE NOTE:**

- THE HYDROLOGIC SOILS GROUP (HSG) FOR THE AREA SHOWN WITHIN THE LIMIT OF CONSTRUCTION IS TYPE B. TYPE B SOILS EXHIBIT A MODERATE INFILTRATION RATE WHEN THOROUGHLY WET.

**EXISTING VEGETATION:**

- THE SITE CONSISTS OF THE FOLLOWING GROUND COVER AND PERCENTAGES. 40% - DISTURBED CENTRAL SHORTGRASS PRAIRIE, 30% - REFORESTATION AREA, 25% - DISTURBED SOIL, AND 5% - EXISTING ASPHALT.

**ANTICIPATED TIMING/PHASING SCHEDULE:**

Project start date is planned for: Spring 2021  
Initial phase – Spring 2021 (2 day duration)  
Interim phase – June 2021 (9 month duration)  
Final phase – Spring 2022

Add a note stating no batch plants are proposed for this project  
Add a note that there are no streams or wetlands within 50 ft of the project area  
Unresolved.

**EARTHWORK NOTE:**

- EARTHWORK QUANTITIES SHOWN ARE RAW NUMBERS AND HAVE NOT BEEN ADJUSTED TO ACCOUNT FOR SHRINK, SWELL, COMPACTION, UTILITY SPOILS, TOPSOIL, PLAY PIT EXCAVATION, ETC. THE VALUES REFLECT FINISH GRADE AND DO NOT ACCOUNT FOR ASPHALT/CONCRETE PAVING, PLAYPIT MATERIAL, CRUSHER FINES, SAND, SOD, ETC. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL EARTHWORK VALUES.

CUT REQUIRED: 7,485 CY  
FILL REQUIRED: 2,885 CY  
NET CUT REQUIRED: 4,600 CY

**FLOODPLAIN STATEMENT:**

BASED ON THE FEMA MAP NO. 08041C0315G WITH AN EFFECTIVE DATE OF 12/07/18 (INCLUDED IN THE APPENDIX) THE SITE IS LOCATED WITHIN ZONE X, AREAS OF MINIMAL FLOOD HAZARD. NO PORTION OF THE SITE IS LOCATED WITHIN THE 100 YEAR FLOODPLAIN.

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**STANDARD GRADING, EROSION AND STORMWATER QUALITY CONTROL PLAN NOTES**

CITY OF COLORADO SPRINGS - ENGINEERING DEVELOPMENT REVIEW DIVISION (EDRD)

- ANY LAND DISTURBANCE BY ANY OWNER, DEVELOPER, BUILDER, CONTRACTOR, OR OTHER PERSON SHALL COMPLY WITH THE BASIC GRADING, EROSION AND STORMWATER QUALITY CONTROL REQUIREMENTS AND GENERAL PROHIBITIONS NOTED IN THE DRAINAGE CRITERIA MANUAL VOLUME II.
- NO CLEARING, GRADING, EXCAVATION, FILLING, OR OTHER LAND DISTURBING ACTIVITIES SHALL BE PERMITTED UNTIL SIGNOFF AND ACCEPTANCE OF THE GRADING PLAN AND EROSION AND STORMWATER QUALITY CONTROL PLAN IS RECEIVED FROM EDRD.
- THE INSTALLATION OF THE FIRST LEVEL OF TEMPORARY EROSION CONTROL FACILITIES AND BMP'S SHALL BE INSTALLED AND INSPECTED PRIOR TO ANY EARTH DISTURBANCE OPERATIONS TAKING PLACE. CALL CITY STORMWATER INSPECTIONS, 385-5980, 48 HOURS PRIOR TO CONSTRUCTION.
- SEDIMENT (MUD AND DIRT) TRANSPORTED ONTO A PUBLIC ROAD, REGARDLESS OF THE SIZE OF THE SITE, SHALL BE CLEANED IMMEDIATELY.
- CONCRETE WASH WATER SHALL NOT BE DISCHARGED TO OR ALLOWED TO RUNOFF TO STATE WATERS, INCLUDING ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR FACILITIES.
- SOIL EROSION CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, OR ANY DISTURBED LAND AREA SHALL BE COMPLETED WITHIN TWENTY-ONE (21) CALENDAR DAYS AFTER FINAL GRADING OR FINAL EARTH DISTURBANCE HAS BEEN COMPLETED. DISTURBED AREAS AND STOCKPILES WHICH ARE NOT AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN THIRTY (30) DAYS SHALL ALSO BE MULCHED WITHIN TWENTY-ONE (21) DAYS AFTER INTERIM GRADING. AN AREA THAT IS GOING TO REMAIN IN AN INTERIM STATE FOR MORE THAN SIXTY (60) DAYS SHALL ALSO BE SEEDED. ALL TEMPORARY SOIL EROSION CONTROL MEASURES AND BMP'S SHALL BE MAINTAINED UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED.
- THE GRADING AND EROSION CONTROL PLAN WILL BE SUBJECT TO RE-REVIEW AND RE-ACCEPTANCE BY EDRD SHOULD ANY OF THE FOLLOWING OCCUR: GRADING DOES NOT COMMENCE WITHIN TWELVE (12) MONTHS OF THE CITY ENGINEER'S ACCEPTANCE OF THE PLAN, A CHANGE IN PROPERTY OWNERSHIP, PROPOSED DEVELOPMENT CHANGES, OR PROPOSED GRADING REVISIONS.
- THE PLAN SHALL NOT SUBSTANTIALLY CHANGE THE DEPTH OF COVER, OR ACCESS EXISTING UTILITY LINES. ACCEPTANCE OF THIS PLAN DOES NOT CONSTITUTE APPROVAL TO GRADE IN ANY UTILITY EASEMENT OR RIGHT-OF-WAY. APPROVALS TO GRADE WITHIN UTILITY EASEMENTS MUST BE OBTAINED FROM THE APPROPRIATE UTILITY COMPANY. IT IS NOT PERMISSIBLE FOR ANY PERSON TO MODIFY THE GRADE OF THE EARTH ON ANY COLORADO SPRINGS UTILITIES EASEMENT OR UTILITY RIGHT-OF-WAY WITHOUT THEIR WRITTEN APPROVAL. THE PLAN SHALL NOT INCREASE OR DIVERT WATER TOWARDS UTILITY FACILITIES. ANY CHANGES TO EXISTING UTILITY FACILITIES TO ACCOMMODATE THE PLAN MUST BE APPROVED BY THE AFFECTED UTILITY OWNER PRIOR TO IMPLEMENTING THE PLAN. THE COST TO RELOCATE OR PROTECT EXISTING UTILITIES OR TO PROVIDE INTERIM ACCESS IS THE APPLICANT'S EXPENSE.

Update notes in accordance with Section 3 of the GEC Checklist  
Unresolved.

Replace with signature blocks for GEC within a Construction Drawing set (see GEC Checklist items gg and ii)

**Design 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.

*Todd West*  
Todd West, P.E. #37643

12-3-20  
Date

**Owner/Developer's Statement:**

I, the owner/developer have read and will comply with the requirements of the grading and erosion control plan.

Black Forest, LLC  
8655 Table Butte Road  
Colorado Springs, CO 80905

Date

**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 amended.

In accordance with ECM Section 1.12, these construction documents will be valid for construction for a period of 2 years from the date signed by the El Paso County Engineer. If construction has not started within those 2 years, the plans will need to be resubmitted for approval, including payment of review fees at the Planning and Community Development Directors discretion.

Jennifer Irvine, P.E.  
County Engineer / ECM Administrator

Date

PREPARED FOR:  
BLACK FOREST, LLC  
12740 BLACK FOREST ROAD  
COLORADO SPRINGS, CO 80908

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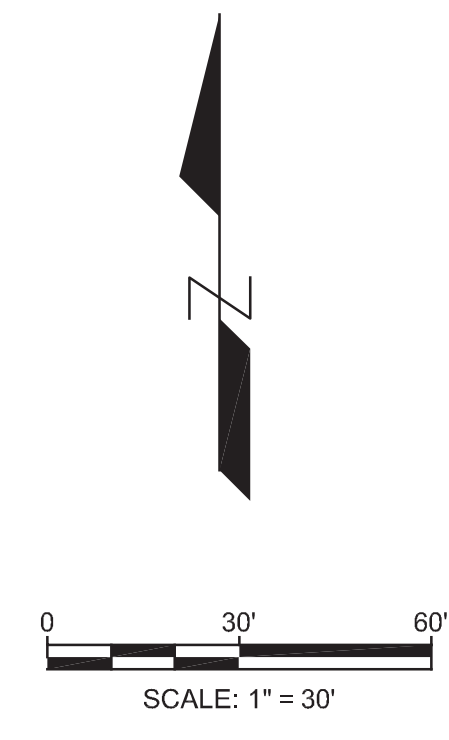
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**LEGEND**

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	PROPOSED SIGN
	PROPOSED FIRE HYDRANT
	SURVEY CONTROL POINT
	FOUND PROPERTY CORNER

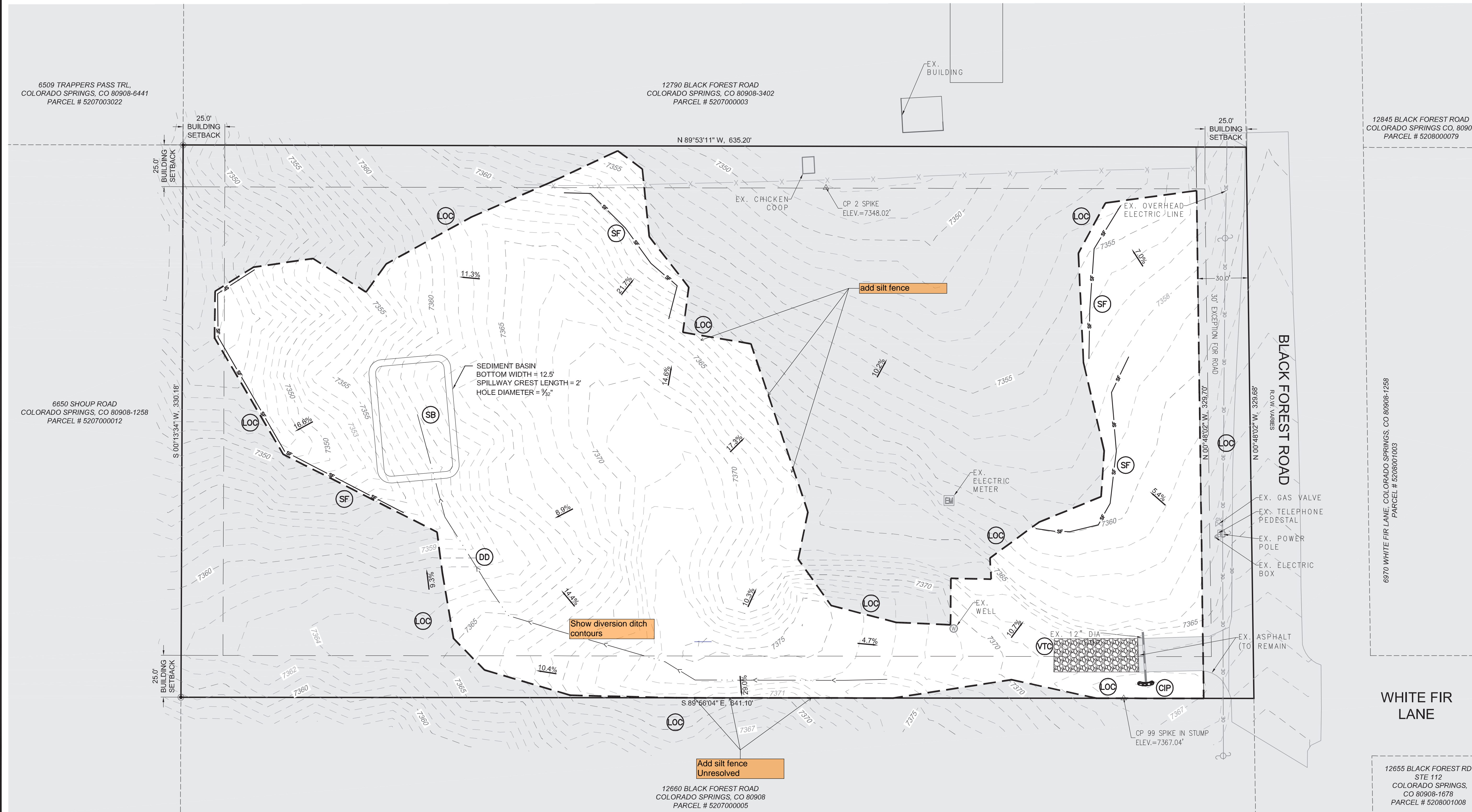
**BMP LEGEND**

	LIMITS OF CONSTRUCTION
	CULVERT INLET PROTECTION
	CONCRETE WASHOUT AREA
	DIVERSION DITCH
	EROSION CONTROL BLANKET
	INLET PROTECTION
	SEDIMENT CONTROL LOG
	SEEDING & MULCHING
	SILT FENCE
	STABILIZED STAGING AREA
	VEHICLE TRACKING CONTROL



**EROSION CONTROL NOTES:**

1. THE BMPs SHOWN ON THIS INITIAL STAGE ECSD DRAWING SHALL BE INSTALLED AT THE OUTSET OF CONSTRUCTION, PRIOR TO ANY OTHER LAND-DISTURBING ACTIVITIES. INITIAL CONTROLS ARE TO BE PLACED ON EXISTING GRADES, BUT SHALL BE BASED IN PART ON PROPOSED GRADING OPERATIONS.
2. REFER TO EROSION AND SEDIMENT CONTROL REPORT FOR THIS PROJECT FOR ADDITIONAL DETAILS AND STORMWATER MANAGEMENT REQUIREMENTS.
3. CONTRACTOR TO ESTABLISH PERIMETER CONTROLS, VTC AND SB PRIOR TO COMMENCING CLEARING AND GRUBBING.
4. SEDIMENT BASINS SHALL BE INSTALLED PRIOR TO ANY OTHER LAND DISTURBANCE ACTIVITY THAT RELIES ON BASIN AS A STORMWATER CONTROL.
5. SEE CONSTRUCTION PLANS FOR DETAILS OF PERMANENT DRAINAGE FACILITIES SUCH AS EXTENDED DETENTION BASIN, CULVERTS, AND STORM DRAIN INLETS.
6. IF ANY BMP REQUIRES MODIFICATION, THE PLAN SHALL BE RED-LINED AND APPROVAL SHALL BE OBTAINED FROM THE COUNTY INSPECTOR PRIOR TO PROCEEDING, UNLESS IT IS AN EMERGENCY SITUATION THAT REQUIRES IMMEDIATE ATTENTION.
7. REMOVAL OF BMPs SHALL NOT OCCUR WITHOUT THE APPROVAL OF THE COUNTY INSPECTOR.



**CAUTION: NOTICE TO CONTRACTOR**

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE LOCAL UTILITY LOCATION CENTER AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATIONS OF THE UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.

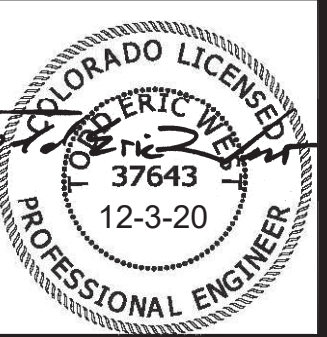


**BENCHMARK**

SURVEY CONTROL POINTS AS SHOWN HEREON. ALL ELEVATIONS ARE BASED UPON NAVD88 VERTICAL DATUM.



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PREPARED FOR:  
BLACK FOREST, LLC  
12740 BLACK FOREST ROAD  
COLORADO SPRINGS, CO 80908

ESCD - Initial Phase  
CONSTRUCTION DOCUMENTS  
BLACK FOREST OFFICE  
COLORADO SPRINGS, COLORADO

BY: DATE:

REVISIONS:  
1.  
2.  
3.  
4.

PROJECT NUMBER:  
19015

ISSUED DATE:  
12-03-2020

DESIGNED BY:  
TEW

REVIEWED BY:  
RCE

ESCD - Initial Phase

**MATERIAL LEGEND**

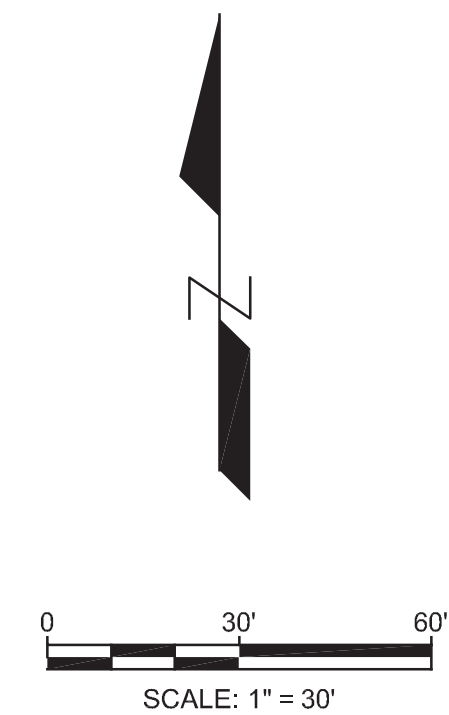
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[Pattern]	PROPOSED CONCRETE
[Pattern]	PROPOSED ASPHALT
[Pattern]	PROPOSED GRAVEL
[Pattern]	PROPOSED BUILDING
[Pattern]	PROPOSED LANDSCAPE ELEMENTS

**LEGEND**

[Symbol]	PROPERTY BOUNDARY
[Symbol]	EXISTING EASEMENT
[Symbol]	EXISTING SIGN
[Symbol]	EXISTING CURB & GUTTER
[Symbol]	EXISTING HYDRANT
[Symbol]	BUILDING SETBACK
[Symbol]	PROPOSED EASEMENT
[Symbol]	PROPOSED CURB AND GUTTER (CATCH)
[Symbol]	PROPOSED CURB AND GUTTER (SPILL)
[Symbol]	PROPOSED FENCE
[Symbol]	PROPOSED SIGN
[Symbol]	PROPOSED FIRE HYDRANT
[Symbol]	SURVEY CONTROL POINT
[Symbol]	FOUND PROPERTY CORNER

**BMP LEGEND**

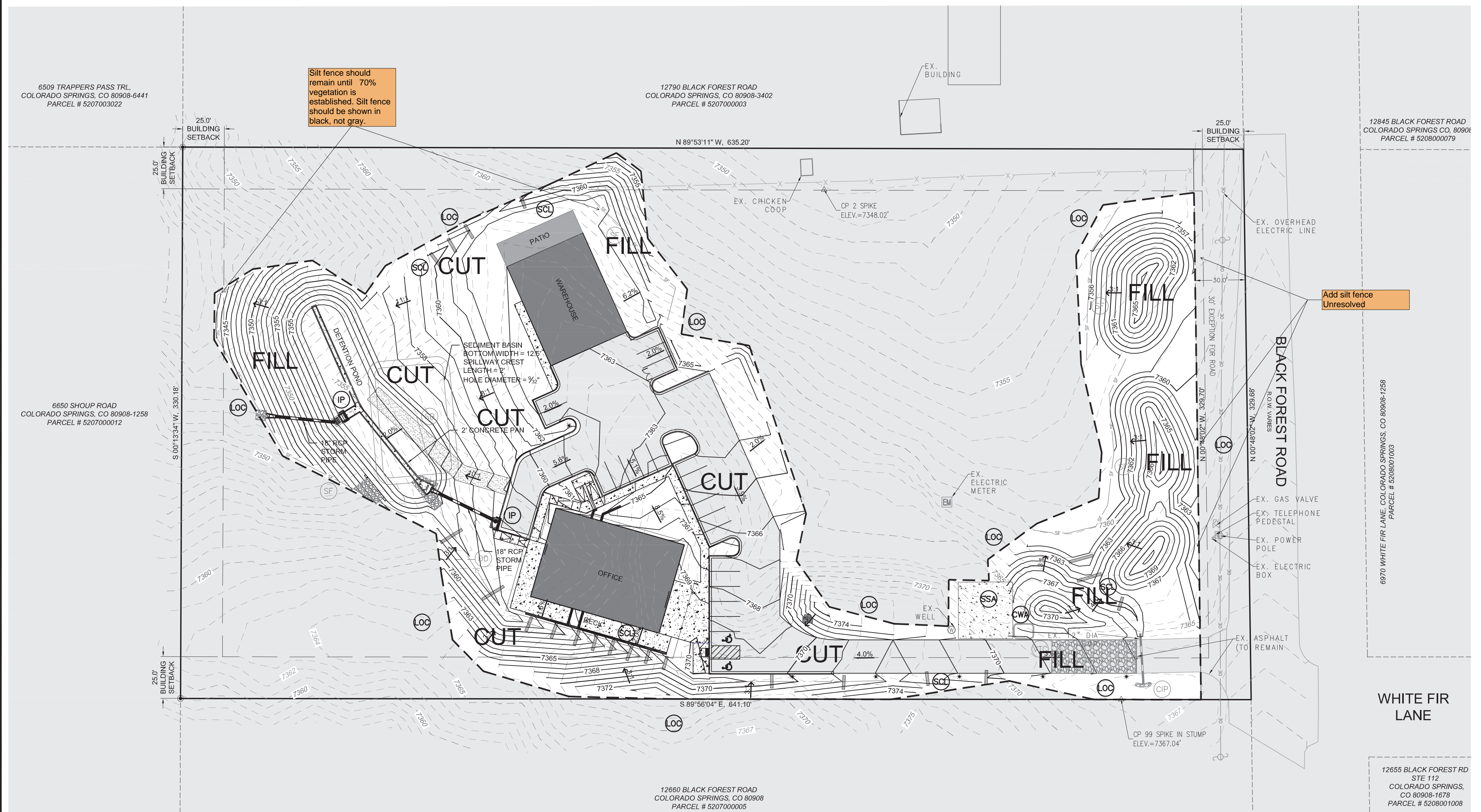
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[Symbol]	CWA CONCRETE WASHOUT AREA
[Symbol]	DD DIVERSION DITCH
[Symbol]	ECB EROSION CONTROL BLANKET
[Symbol]	IP INLET PROTECTION
[Symbol]	SCL SEDIMENT CONTROL LOG
[Symbol]	SM SEEDING & MULCHING
[Symbol]	SF SILT FENCE
[Symbol]	SSA STABILIZED STAGING AREA
[Symbol]	VTC VEHICLE TRACKING CONTROL



**EROSION CONTROL NOTES:**

1. THE BMPs SHOWN ON THIS INTERIM STAGE ECSD DRAWING SHALL BE BASED ON PROPOSED GRADES AND DRAINAGE FEATURES AND ARE INSTALLED AFTER INITIAL SITE GRADING. FOR SOME BMPs SUCH AS INLET PROTECTION, INTERIM CONTROLS ARE INSTALLED AFTER THE CONSTRUCTION OF SITE INFRASTRUCTURE.
2. SHADED BMPs WERE INSTALLED IN INITIAL STAGE AND SHALL BE LEFT IN PLACE IN INTERIM STAGE.
3. SEE CONSTRUCTION PLANS FOR DETAILS OF PERMANENT DRAINAGE FACILITIES SUCH AS EXTENDED DETENTION BASIN, CULVERTS, AND STORM DRAIN INLETS.
4. REFER TO EROSION AND SEDIMENT CONTROL REPORT FOR THIS PROJECT FOR ADDITIONAL DETAILS AND STORMWATER MANAGEMENT REQUIREMENTS.
5. ANY WASTE AND DISPOSAL ITEMS SHALL BE PROCESSED THROUGH THE STAGING AREA AND PROPERLY DISPOSED OF OFF-SITE.
6. IF ANY BMP REQUIRES MODIFICATION, THE PLAN SHALL BE RED-LINED AND APPROVAL SHALL BE OBTAINED FROM THE COUNTY INSPECTOR PRIOR TO PROCEEDING, UNLESS IT IS AN EMERGENCY SITUATION THAT REQUIRES IMMEDIATE ATTENTION.
7. REMOVAL OF BMPs SHALL NOT OCCUR WITHOUT THE APPROVAL OF THE COUNTY INSPECTOR.

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**CAUTION: NOTICE TO CONTRACTOR**  
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**BENCHMARK**  
SURVEY CONTROL POINTS AS SHOWN HEREON. ALL ELEVATIONS ARE BASED UPON NAVD88 VERTICAL DATUM.

AREA OF DISTURBANCE = 93582.357 SQ. FT  
2.15 AC

PREPARED FOR:  
BLACK FOREST, LLC  
12740 BLACK FOREST ROAD  
COLORADO SPRINGS, CO 80908

**ESCD - Interim Phase**  
CONSTRUCTION DOCUMENTS  
BLACK FOREST OFFICE  
COLORADO SPRINGS, COLORADO

PROJECT NUMBER:	19015
ISSUED DATE:	12-03-2020
DESIGNED BY:	TEW
REVIEWED BY:	RCE
REVISIONS:	1. 2. 3. 4.
BY:	DATE:

ESCD - Interim Phase

**MATERIAL LEGEND**

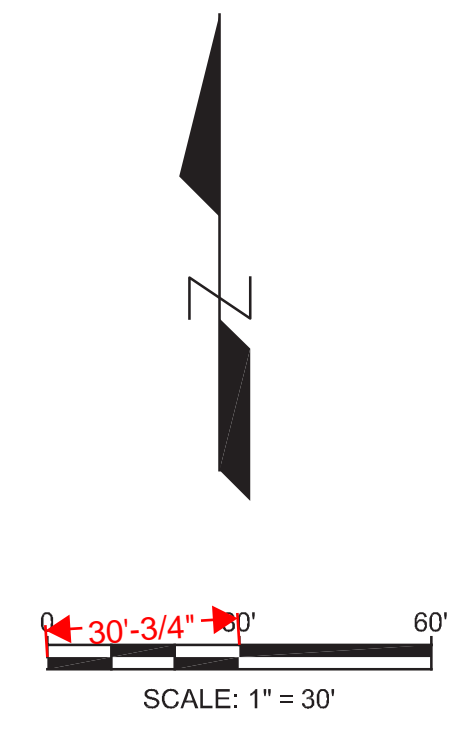
	EXISTING ASPHALT
	PROPOSED CONCRETE
	PROPOSED ASPHALT
	PROPOSED GRAVEL
	PROPOSED BUILDING
	PROPOSED LANDSCAPE ELEMENTS

**LEGEND**

	PROPERTY BOUNDARY
	EXISTING EASEMENT
	EXISTING SIGN
	EXISTING CURB & GUTTER
	EXISTING HYDRANT
	BUILDING SETBACK
	PROPOSED EASEMENT
	PROPOSED CURB AND GUTTER (CATCH)
	PROPOSED CURB AND GUTTER (SPILL)
	PROPOSED FENCE
	PROPOSED SIGN
	PROPOSED FIRE HYDRANT
	SURVEY CONTROL POINT
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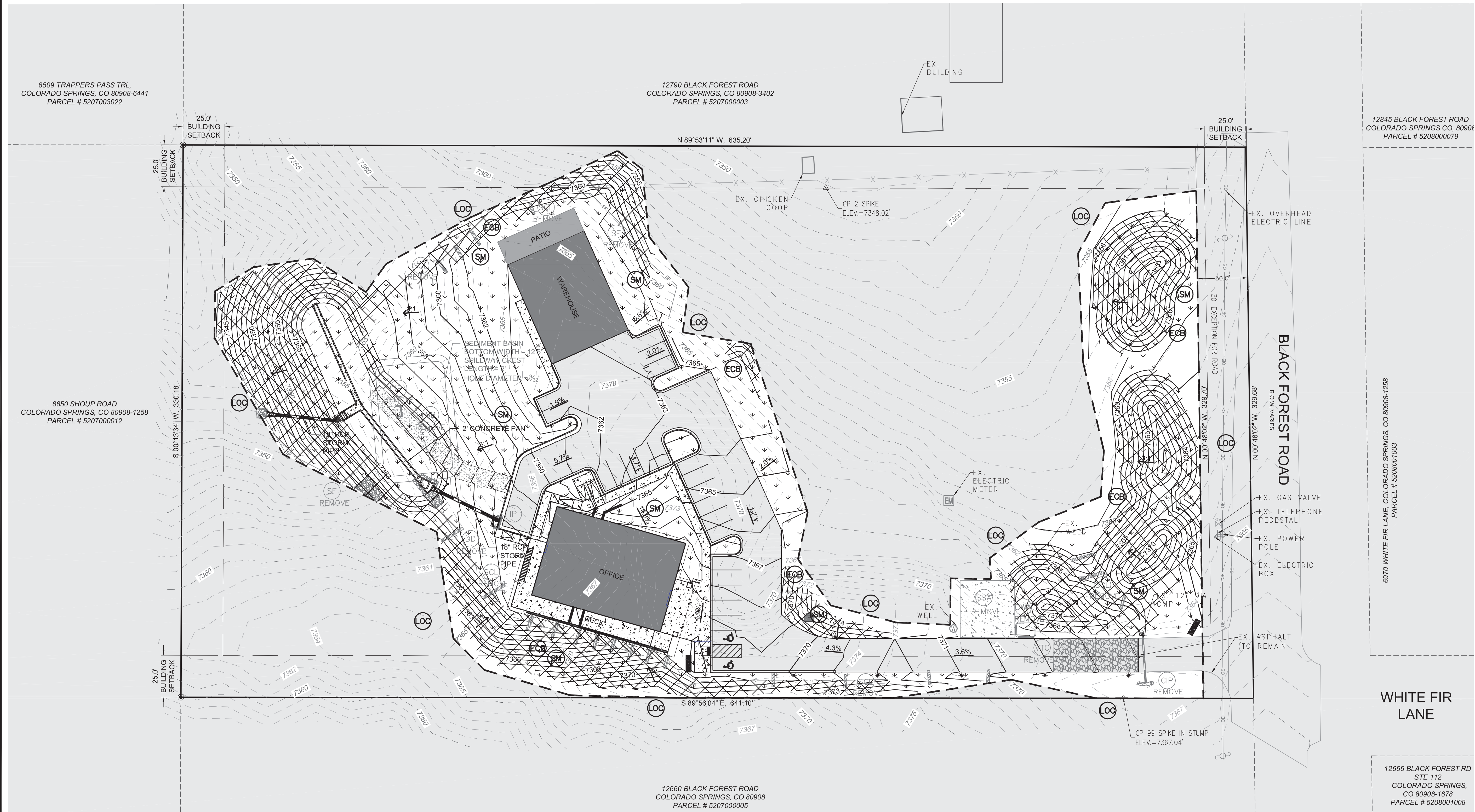
**BMP LEGEND**

	LIMITS OF CONSTRUCTION
	CULVERT INLET PROTECTION
	CONCRETE WASHOUT AREA
	DIVERSION DITCH
	EROSION CONTROL BLANKET
	INLET PROTECTION
	SEDIMENT CONTROL LOG
	SEEDING & MULCHING
	SILT FENCE
	STABILIZED STAGING AREA
	VEHICLE TRACKING CONTROL



**EROSION CONTROL NOTES:**

1. THE BMPs SHOWN ON THIS FINAL STAGE ECSD DRAWING SHALL BE INSTALLED AS ONE OF THE LAST STEPS IN THE CONSTRUCTION PROCESS, SUCH AS FINAL SEEDING AND MULCHING.
2. SHADED BMPs WERE INSTALLED IN INITIAL OR INTERIM ECSD PLAN AND, UNLESS OTHERWISE INDICATED, SHALL BE LEFT IN PLACE UNTIL REVEGETATION ESTABLISHMENT IS APPROVED BY THE COUNTY.
3. SEE CONSTRUCTION PLANS FOR DETAILS OF PERMANENT DRAINAGE FACILITIES SUCH AS EXTENDED DETENTION BASIN, CULVERTS, AND STORM DRAIN INLETS.
4. STAGING AREAS SHALL BE RESTORED TO PROPOSED CONDITIONS AFTER CONSTRUCTION IS COMPLETE.
5. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PHASE THE FINAL BMPs AS THE CONSTRUCTION PHASES PROGRESS.
6. REFER TO EROSION AND SEDIMENT CONTROL REPORT FOR THIS PROJECT FOR ADDITIONAL DETAILS AND STORMWATER MANAGEMENT REQUIREMENTS.
7. IF ANY BMP REQUIRES MODIFICATION, THE PLAN SHALL BE RED-LINED AND APPROVAL SHALL BE OBTAINED FROM THE COUNTY INSPECTOR PRIOR TO PROCEEDING, UNLESS IT IS AN EMERGENCY SITUATION THAT REQUIRES IMMEDIATE ATTENTION.



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**BENCHMARK**

SURVEY CONTROL POINTS AS SHOWN HEREON. ALL ELEVATIONS ARE BASED UPON NAVD83 VERTICAL DATUM.

303.925.0544  
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PREPARED FOR:  
BLACK FOREST, LLC  
12740 BLACK FOREST ROAD  
COLORADO SPRINGS, CO 80908

ESCD - Final Phase  
CONSTRUCTION DOCUMENTS  
BLACK FOREST OFFICE  
COLORADO SPRINGS, COLORADO

PROJECT NUMBER: 19015  
ISSUED DATE: 12-03-2020  
DESIGNED BY: TEW  
REVIEWED BY: RCE

REVISIONS:  
1.  
2.  
3.  
4.

BY: DATE:

ESCD - Final Phase

7

replace with EPC approved VTC detail (DCM Vol. 2)  
Unresolved



PREPARED FOR:  
BLACK FOREST, LLC  
12740 BLACK FOREST ROAD  
COLORADO SPRINGS, CO 80908

ESCD Details 1  
CONSTRUCTION DOCUMENTS  
BLACK FOREST OFFICE  
COLORADO SPRINGS, COLORADO

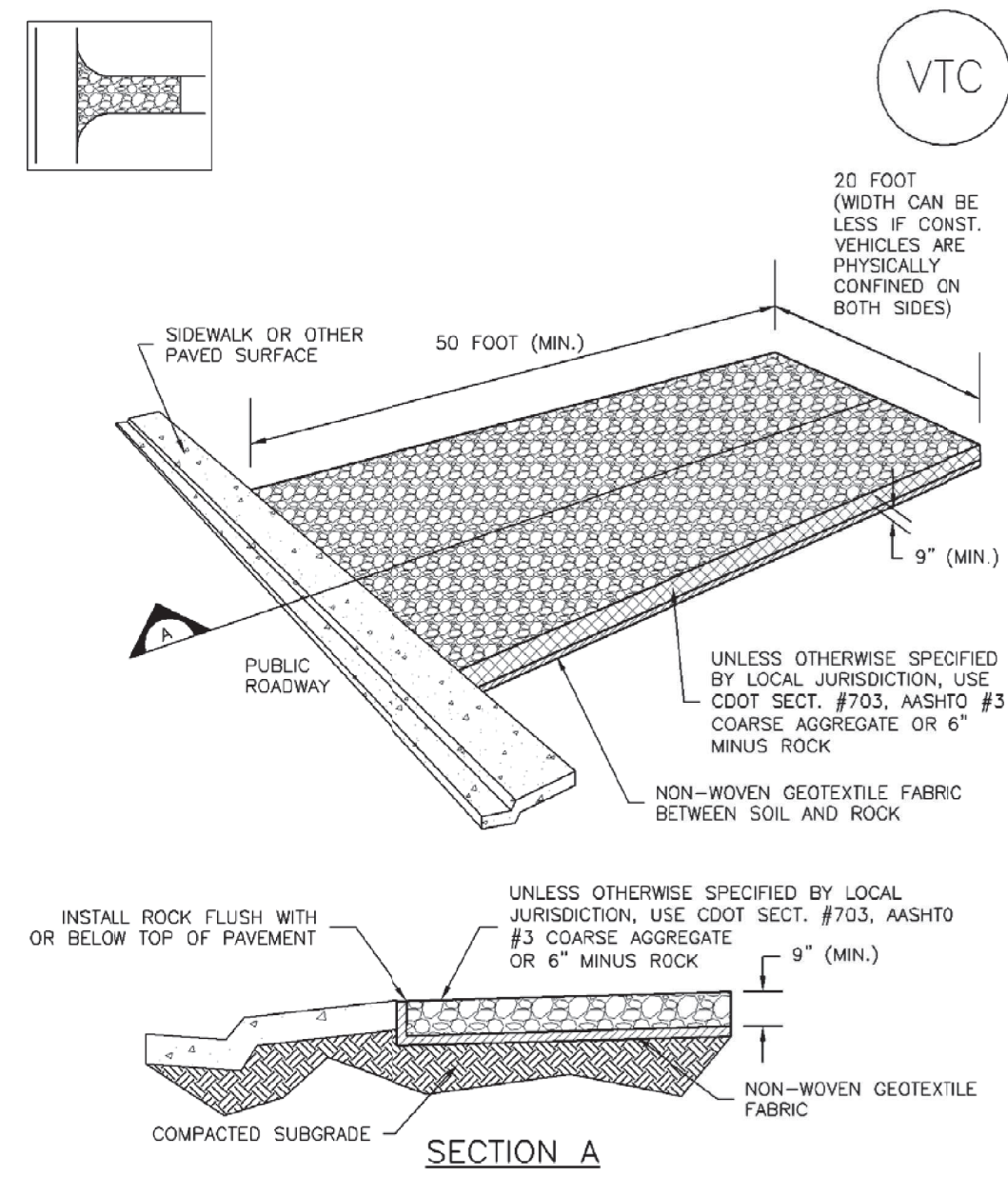
BY: DATE:

REVISIONS:

PROJECT NUMBER: 19015  
ISSUED DATE: 12-03-2020  
DESIGNED BY: TEW  
REVIEWED BY: RCE

ESCD Details 1

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



VTC-1. AGGREGATE VEHICLE TRACKING CONTROL

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

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

**STABILIZED CONSTRUCTION ENTRANCE/EXIT INSTALLATION NOTES**

- 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).
- 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.
- A STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE LOCATED AT ALL ACCESS POINTS WHERE VEHICLES ACCESS THE CONSTRUCTION SITE FROM PAVED RIGHT-OF-WAYS.
- STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
- A NON-WOVEN GEOTEXTILE FABRIC SHALL BE PLACED UNDER THE STABILIZED CONSTRUCTION ENTRANCE/EXIT PRIOR TO THE PLACEMENT OF ROCK.
- 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**

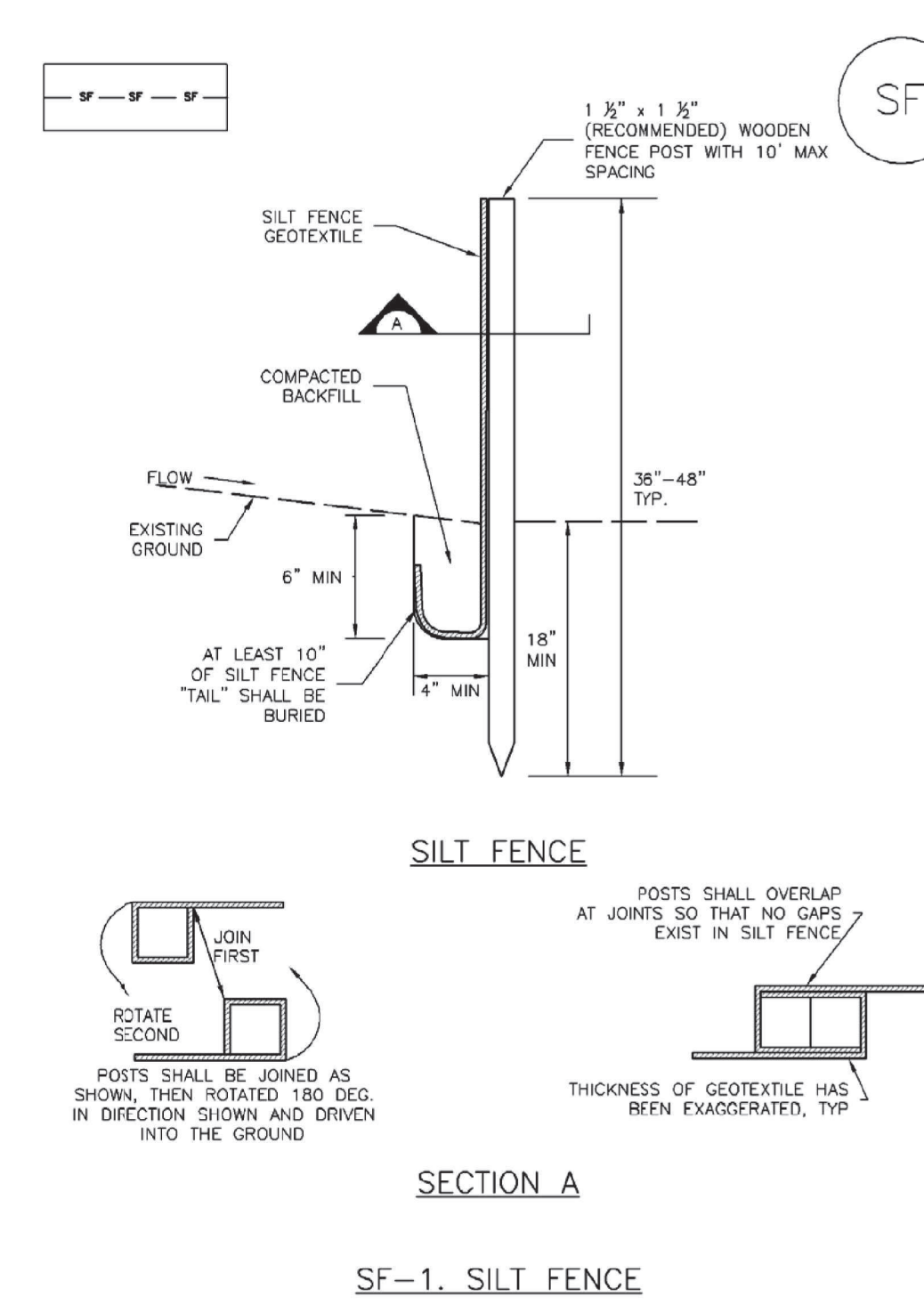
- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY TO THE STABILIZED ENTRANCE/EXIT TO MAINTAIN A CONSISTENT DEPTH.
- SEDIMENT TRACKED ONTO PAVED ROADS IS TO BE REMOVED THROUGHOUT THE DAY AND AT THE END OF THE DAY BY SHOVELING 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 Urban Storm Drainage Criteria Manual Volume 3 November 2010

**Silt Fence (SF) SC-1**



SF-1. SILT FENCE

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

**SC-1 Silt Fence (SF)**

**SILT FENCE INSTALLATION NOTES**

- SILT FENCE MUST BE PLACED AWAY FROM THE TOE OF A SLOPE TO ALLOW FOR WATER PONDING. SILT FENCE AT THE TOE OF A SLOPE SHOULD BE INSTALLED IN A FLAT LOCATION AT LEAST SEVERAL FEET (2-5 FT) FROM THE TOE OF THE SLOPE TO ALLOW ROOM FOR PONDING AND DEPOSITION.
- 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.
- COMPACT ANCHOR TRENCH BY HAND WITH A "JUMPING JACK" OR BY WHEEL ROLLING. COMPACTION SHALL BE SUCH THAT SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.
- 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.
- 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.
- 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').
- SILT FENCE SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

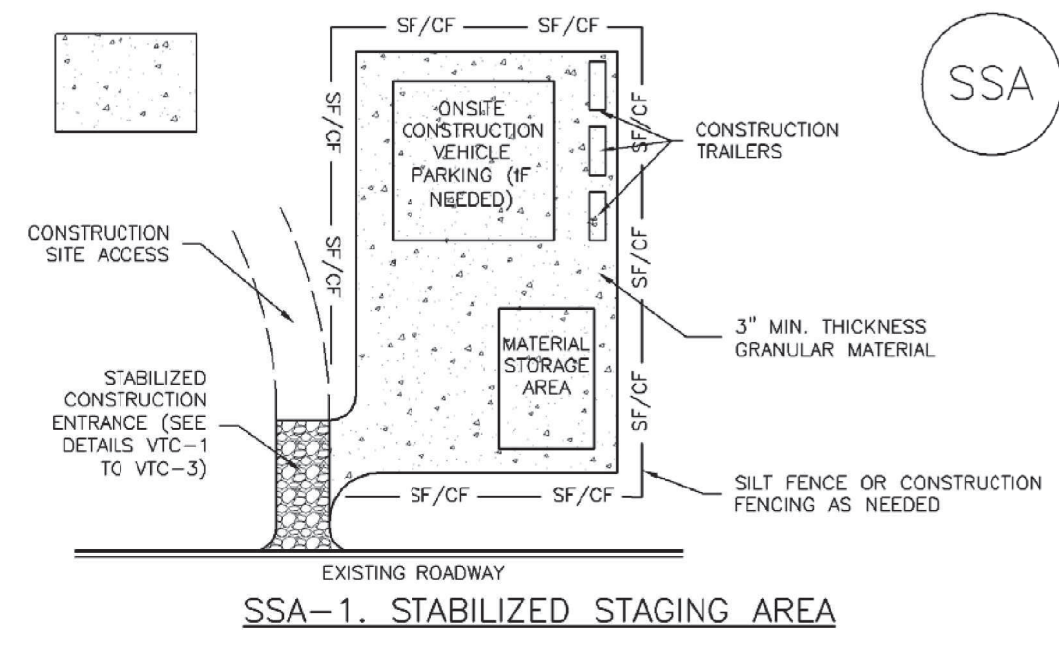
**SILT FENCE MAINTENANCE NOTES**

- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- 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".
- REPAIR OR REPLACE SILT FENCE WHEN THERE ARE SIGNS OF WEAR, SUCH AS SAGGING, TEARING, OR COLLAPSE.
- 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.
- WHEN SILT FENCE IS REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

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

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

**Stabilized Staging Area (SSA) SM-6**



SSA-1. STABILIZED STAGING AREA

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

**SM-6 Stabilized Staging Area (SSA)**

**STABILIZED STAGING AREA MAINTENANCE NOTES**

- STABILIZED STAGING AREA SHALL BE ENLARGED IF NECESSARY TO CONTAIN PARKING, STORAGE, AND UNLOADING/LOADING OPERATIONS.
- THE STABILIZED STAGING AREA SHALL BE REMOVED AT THE END OF CONSTRUCTION. THE GRANULAR MATERIAL SHALL BE REMOVED OR, IF APPROVED BY THE LOCAL JURISDICTION, USED ON SITE, AND THE AREA COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION.

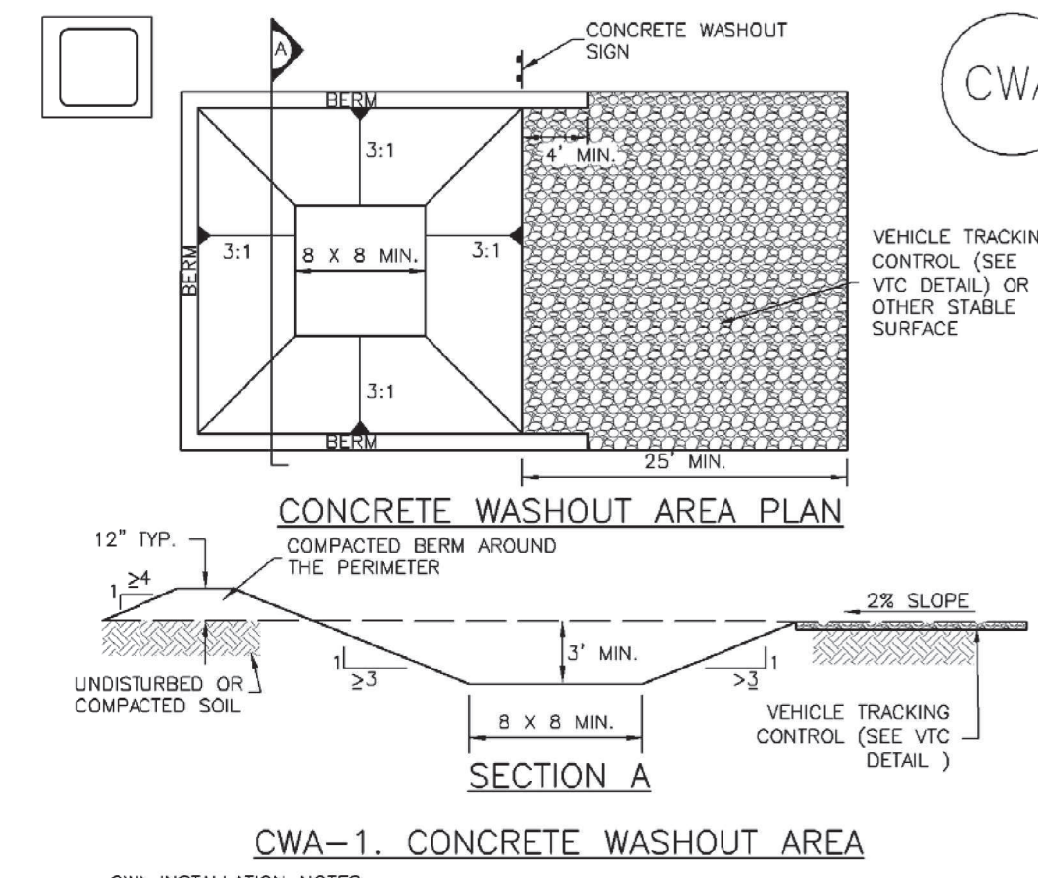
NOTE: MANY MUNICIPALITIES PROHIBIT THE USE OF RECYCLED CONCRETE AS GRANULAR MATERIAL FOR STABILIZED STAGING AREAS DUE TO DIFFICULTIES WITH RE-ESTABLISHMENT OF VEGETATION IN AREAS WHERE RECYCLED CONCRETE WAS PLACED.

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

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

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

**Concrete Washout Area (CWA) MM-1**



CWA-1. CONCRETE WASHOUT AREA

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**

- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- 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".
- 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.
- THE CWA SHALL REMAIN IN PLACE UNTIL ALL CONCRETE FOR THE PROJECT IS PLACED.
- 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





PREPARED FOR:  
BLACK FOREST, LLC  
12740 BLACK FOREST ROAD  
COLORADO SPRINGS, CO 80908

EESD Details 2  
CONSTRUCTION DOCUMENTS  
BLACK FOREST OFFICE  
COLORADO SPRINGS, COLORADO

DATE:

BY:

REVISIONS:

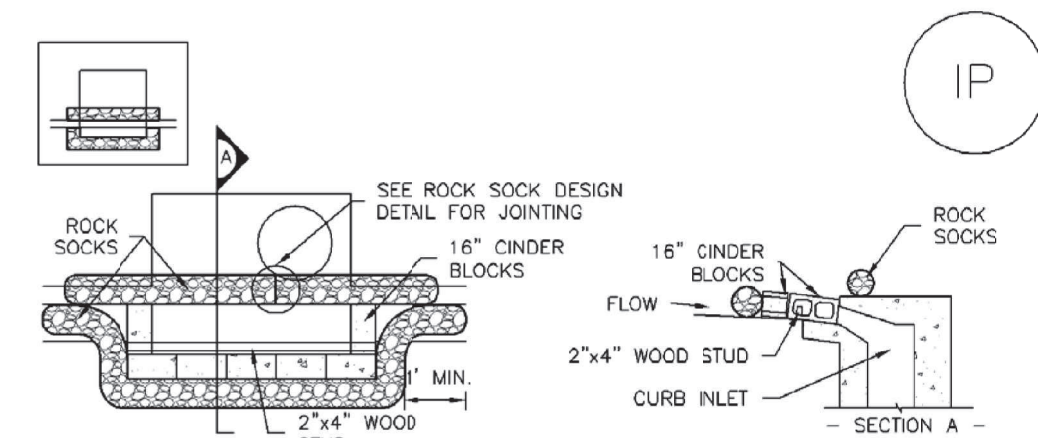
PROJECT NUMBER:

ISSUED DATE:

DESIGNED BY:

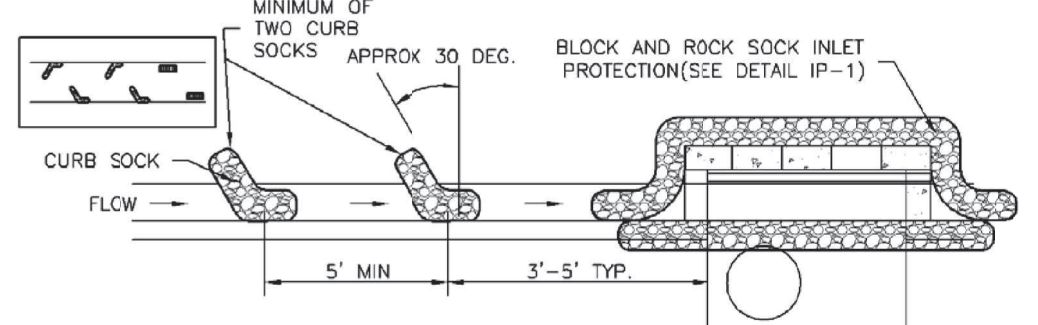
REVIEWED BY:

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



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

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

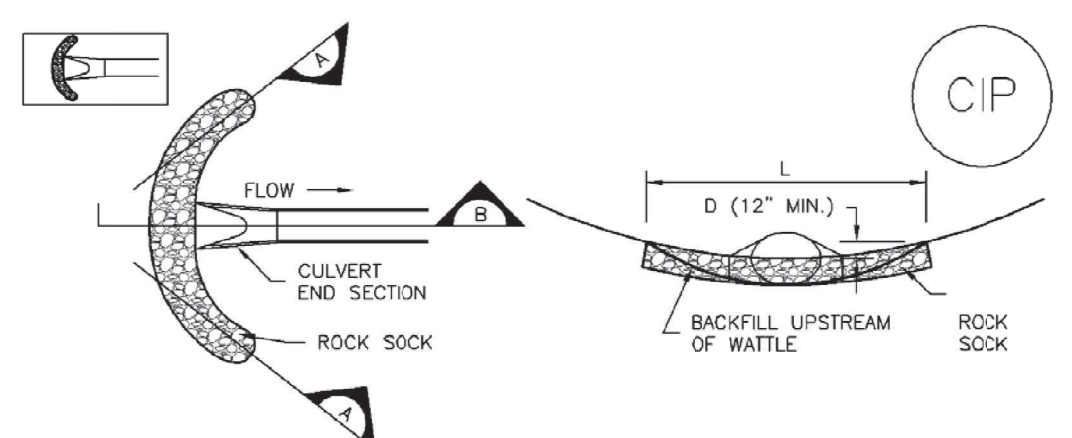


**IP-2. CURB ROCK SOCKS UPSTREAM OF INLET PROTECTION**

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

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

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



**CIP-1. CULVERT INLET PROTECTION**

- CULVERT INLET PROTECTION INSTALLATION NOTES**
- SEE PLAN VIEW FOR LOCATION OF CULVERT INLET PROTECTION.
  - SEE ROCK SOCK DESIGN DETAIL FOR ROCK GRADATION REQUIREMENTS AND JOINING DETAIL.

- CULVERT INLET PROTECTION MAINTENANCE NOTES**
- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
  - FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
  - WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
  - SEDIMENT ACCUMULATED UPSTREAM OF THE CULVERT SHALL BE REMOVED WHEN THE SEDIMENT DEPTH IS 1/2 THE HEIGHT OF THE ROCK SOCK.
  - CULVERT INLET PROTECTION SHALL REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS PERMANENTLY STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.

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

- GENERAL INLET PROTECTION INSTALLATION NOTES**
- SEE PLAN VIEW FOR:
    - LOCATION OF INLET PROTECTION.
    - TYPE OF INLET PROTECTION (IP.1, IP.2, IP.3, IP.4, IP.5, IP.6)
  - 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.
  - 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**
- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
  - FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
  - WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
  - 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 1/4 OF THE HEIGHT FOR STRAW BALES.
  - 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.
  - 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.

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

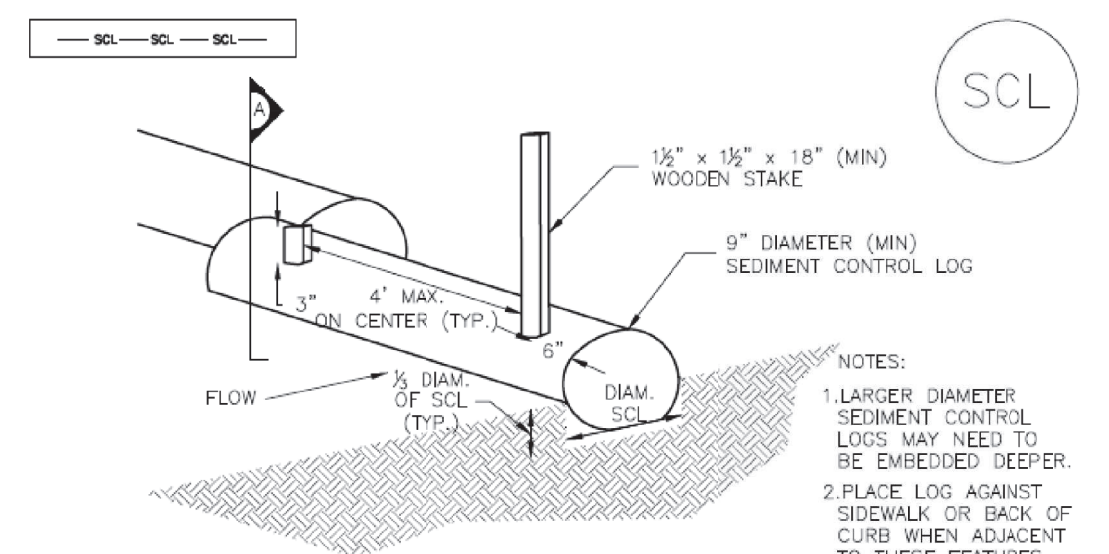
**NOTE:** MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

**NOTE:** THE DETAILS INCLUDED WITH THIS FACT SHEET SHOW COMMONLY USED, CONVENTIONAL METHODS OF INLET PROTECTION IN THE DENVER METROPOLITAN AREA. THERE ARE MANY PROPRIETARY INLET PROTECTION METHODS ON THE MARKET. UDFCD NEITHER ENDORSES NOR DISAPPROVES 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.

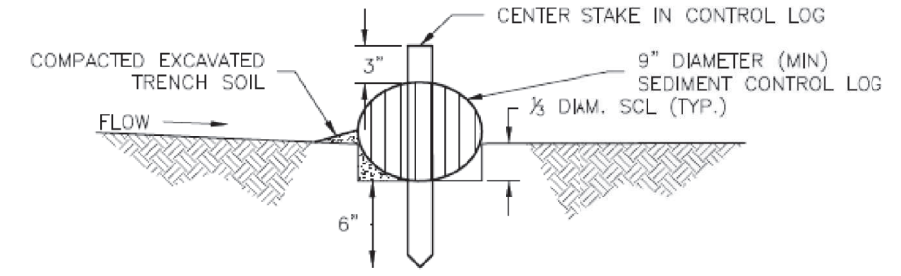
**NOTE:** SOME MUNICIPALITIES DISCOURAGE OR PROHIBIT THE USE OF STRAW BALES FOR INLET PROTECTION. CHECK WITH LOCAL JURISDICTION TO DETERMINE IF STRAW BALE INLET PROTECTION IS ACCEPTABLE.

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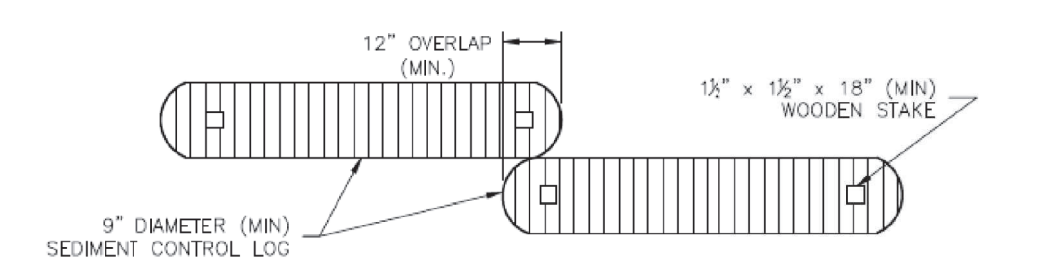
**Sediment Control Log (SCL) SC-2**



**TRENCHED SEDIMENT CONTROL LOG**



**TRENCHED SEDIMENT CONTROL LOG**

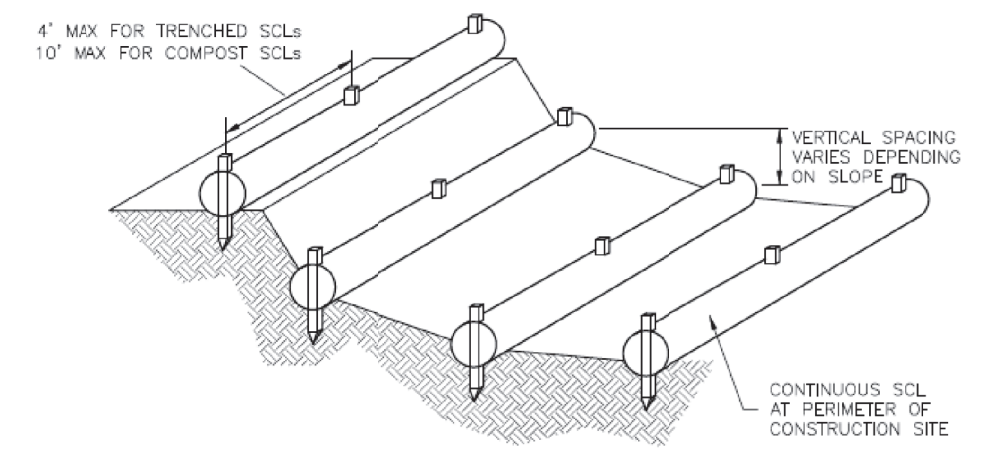


**LOG JOINTS**

**SCL-1. TRENCHED SEDIMENT CONTROL LOG**

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Urban Storm Drainage Criteria Manual Volume 3

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



**SCL-3. SEDIMENT CONTROL LOGS TO CONTROL SLOPE LENGTH**

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Urban Storm Drainage Criteria Manual Volume 3

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

- SEDIMENT CONTROL LOG INSTALLATION NOTES**
- SEE PLAN VIEW FOR LOCATION AND LENGTH OF SEDIMENT CONTROL LOGS.
  - SEDIMENT CONTROL LOGS THAT ACT AS A PERIMETER CONTROL SHALL BE INSTALLED PRIOR TO ANY UPGRADE LAND-DISTURBING ACTIVITIES.
  - 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.
  - SEDIMENT CONTROL LOGS MAY BE USED AS SMALL CHECK DAMS IN DITCHES AND SWALES. HOWEVER, THEY SHOULD NOT BE USED IN PERENNIAL STREAMS.
  - IT IS RECOMMENDED THAT SEDIMENT CONTROL LOGS BE TRENCHED INTO THE GROUND TO A DEPTH OF APPROXIMATELY 1/2 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 6 LB/FT DO NOT NEED TO BE TRENCHED.
  - 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.
  - 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.

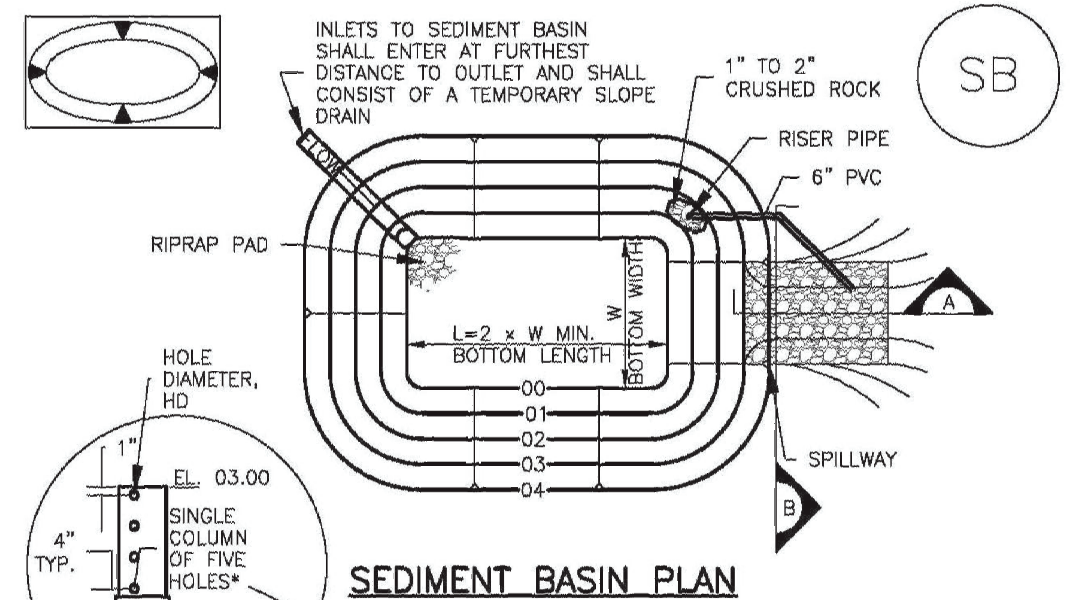
- SEDIMENT CONTROL LOG MAINTENANCE NOTES**
- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
  - FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
  - WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
  - 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.
  - 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, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

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

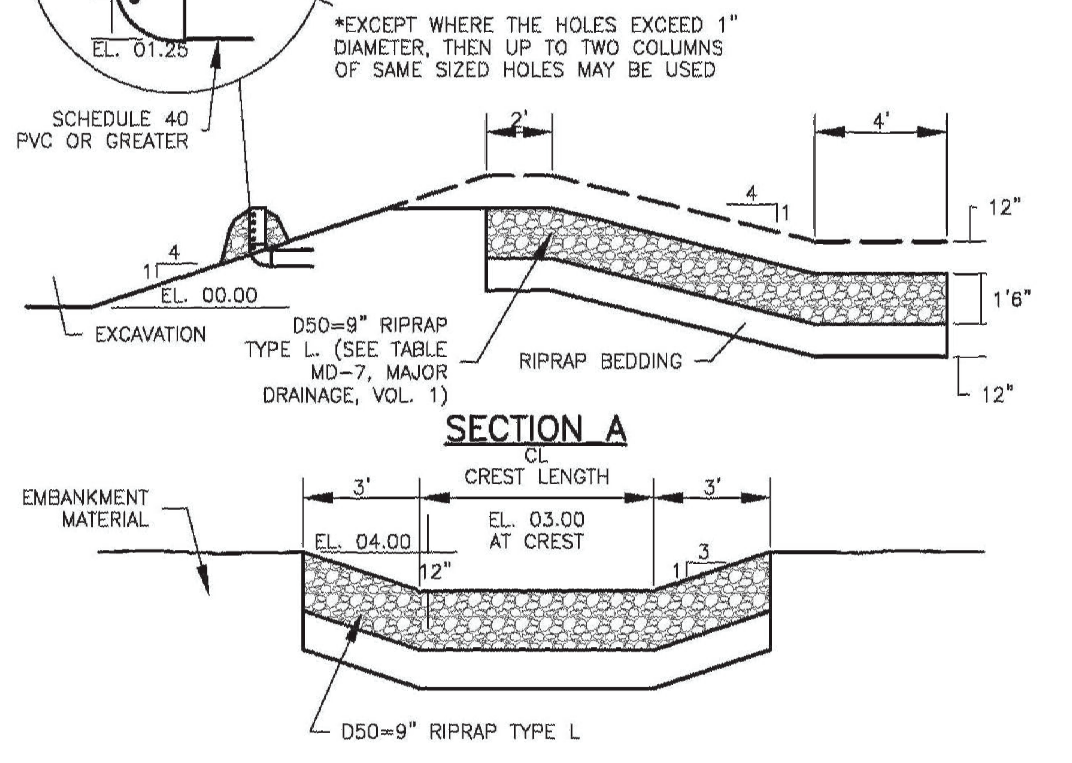
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**Sediment Basin (SB) SC-7**



**SEDIMENT BASIN PLAN**



**SECTION A**

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**SC-7 Sediment Basin (SB)**

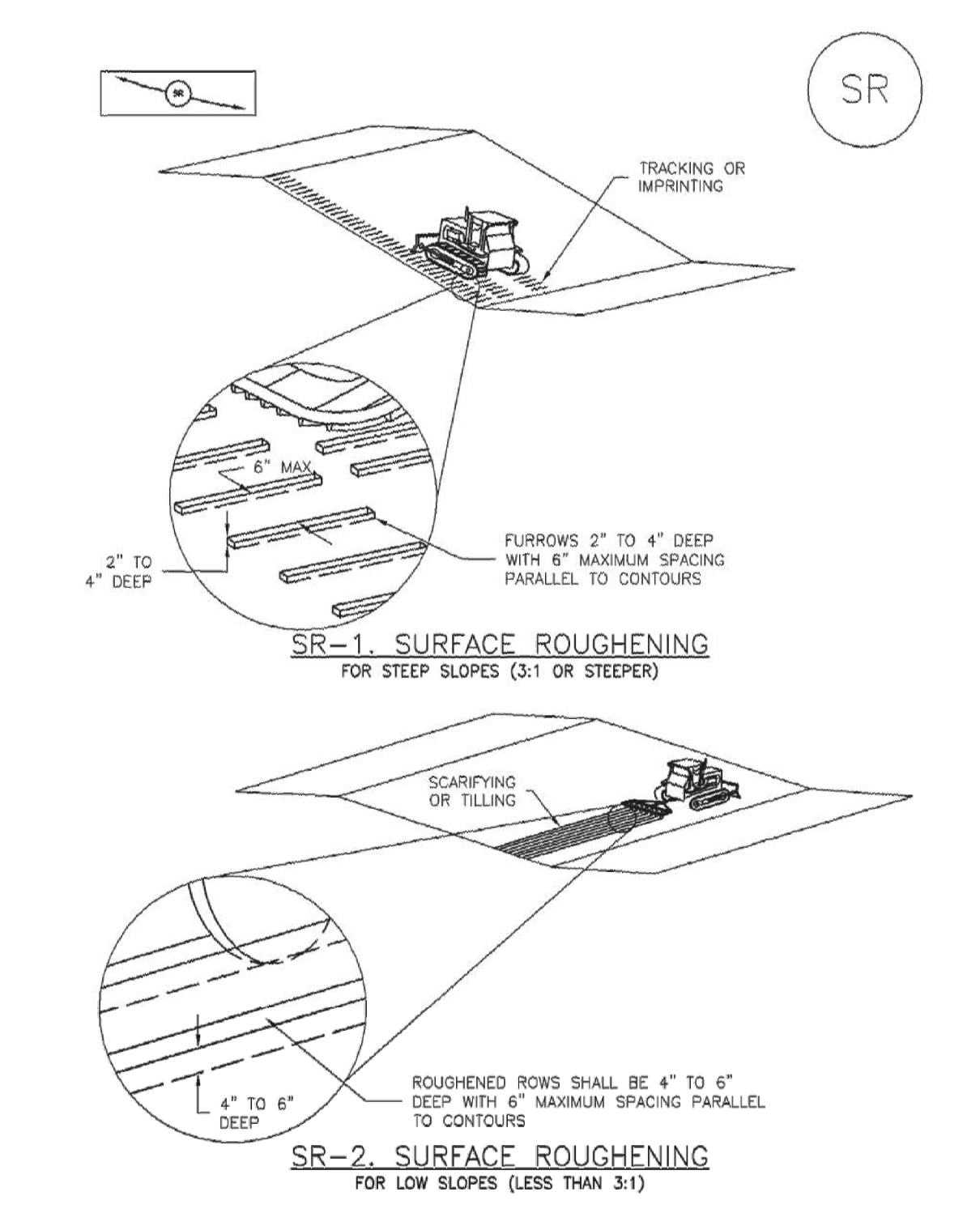
**TABLE SB-1. SIZING INFORMATION FOR STANDARD SEDIMENT BASIN**

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

- 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 DIAMETER, HD.
    - FOR NONSTANDARD BASIN, SEE CONSTRUCTION DRAWINGS FOR DESIGN OF BASIN INCLUDING RISER HEIGHT H, NUMBER OF COLUMNS N, HOLE DIAMETER HD AND PIPE DIAMETER D.
  - FOR STANDARD BASIN, BOTTOM DIMENSION MAY BE MODIFIED AS LONG AS BOTTOM AREA IS NOT REDUCED.
  - SEDIMENT BASINS SHALL BE INSTALLED PRIOR TO ANY OTHER LAND-DISTURBING ACTIVITY THAT RELIES ON BASINS AS A STORMWATER CONTROL.
  - 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.
  - EMBANKMENT MATERIAL SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D698.
  - PIPE SCH 40 OR GREATER SHALL BE USED.
  - THE DETAILS SHOWN ON THESE SHEETS PERTAIN TO STANDARD SEDIMENT BASIN(S) FOR DRAINAGE AREAS LESS THAN 15 ACRES. SEE CONSTRUCTION DRAWINGS FOR EMBANKMENT, STORAGE VOLUME, SPILLWAY, OUTLET, AND OUTLET PROTECTION DETAILS FOR ANY SEDIMENT BASIN(S) THAT HAVE BEEN INDIVIDUALLY DESIGNED FOR DRAINAGE AREAS LARGER THAN 15 ACRES.

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**Surface Roughening (SR) EC-1**



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

**EC-1 Surface Roughening (SR)**

**SURFACE ROUGHENING INSTALLATION NOTES**

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

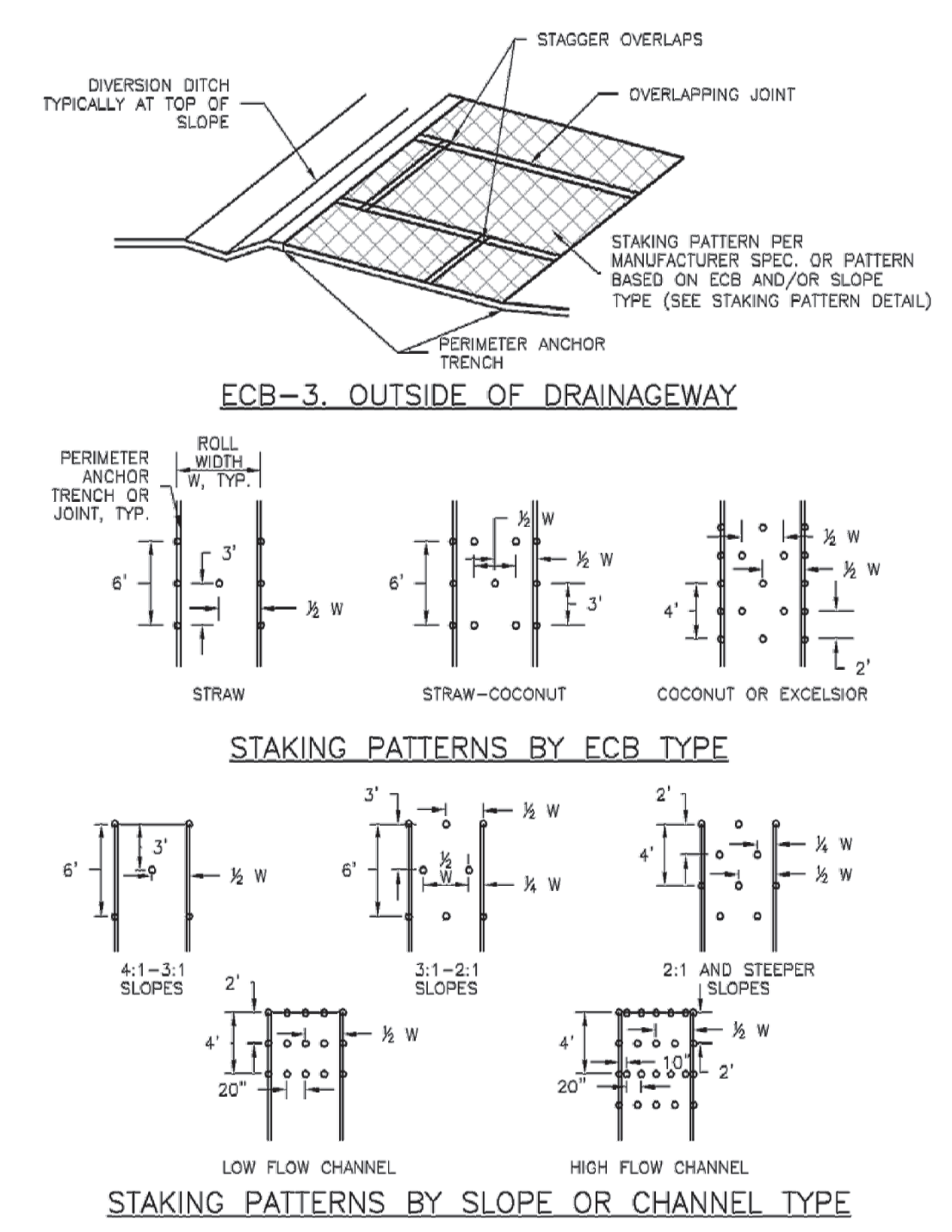
**SURFACE ROUGHENING MAINTENANCE NOTES**

- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACE UPON DISCOVERY OF THE FAILURE.
- VEHICLES AND EQUIPMENT SHALL NOT BE DRIVEN OVER AREAS THAT HAVE BEEN SURFACE ROUGHENED.
- IN NON-TURF GRASS FINISHED AREAS, SEEDING AND MULCHING SHALL TAKE PLACE DIRECTLY OVER SURFACE ROUGHENED AREAS WITHOUT FIRST SMOOTHING OUT THE SURFACE.
- IN AREAS NOT SEEDED AND MULCHED AFTER SURFACE ROUGHENING, SURFACES SHALL BE RE-ROUGHENED AS NECESSARY TO MAINTAIN GROOVE DEPTH AND SMOOTH OVER ROLL EROSION.

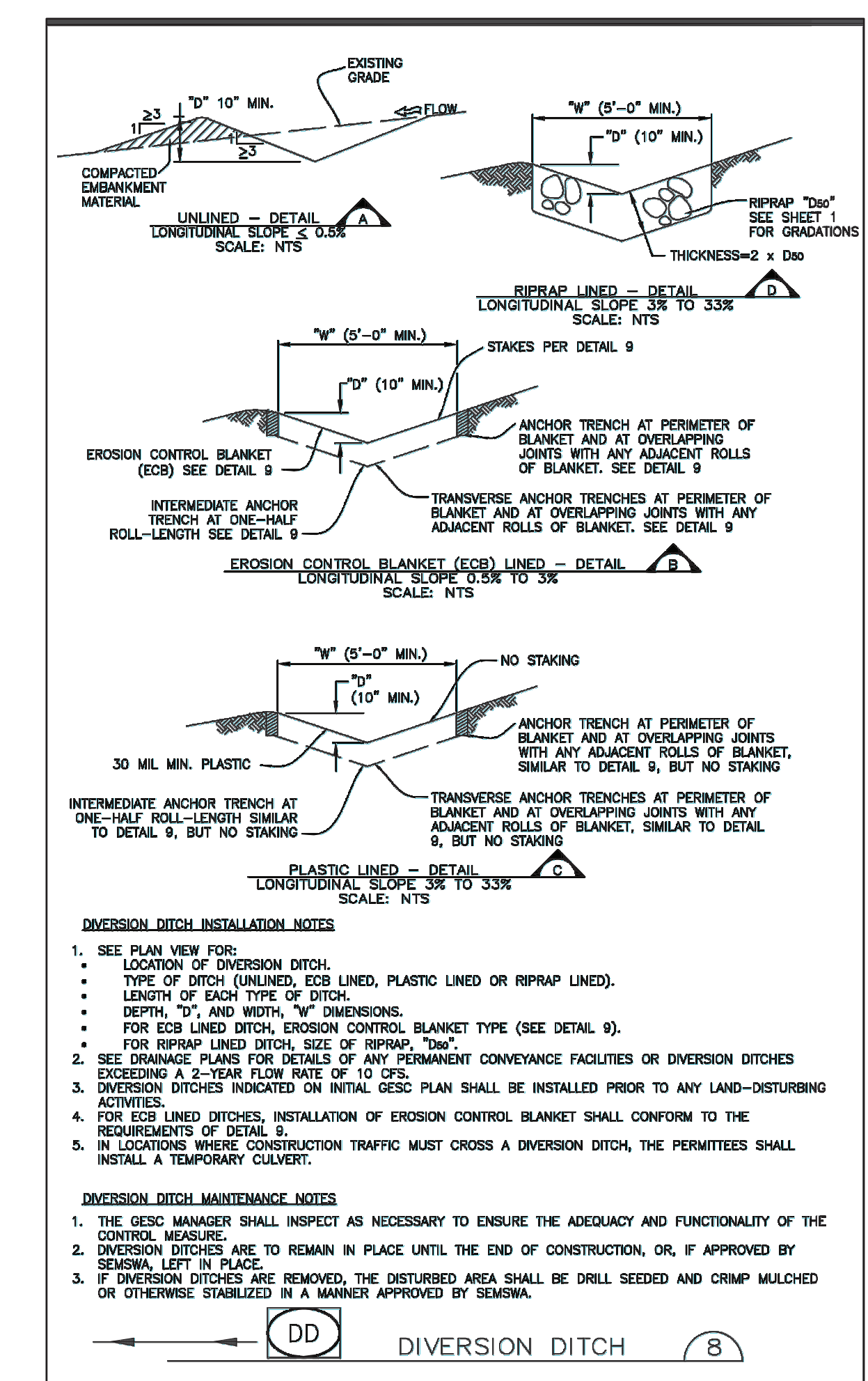
(DETAILS ADAPTED FROM TOWN OF PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD)  
NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

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

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



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



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

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

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

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

**Maintenance and Removal**  
Monitor and observe seeded areas to identify areas of poor growth or areas that fail to germinate. Re-seed and mulch these areas, as needed.

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

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

Protect seeded areas from construction equipment and vehicle access.

TS/PS-6 Urban Drainage and Flood Control District  
Urban Storm Drainage Criteria Manual Volume 3 June 2012

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

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

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

Species* (Common name)	Growth Season*	Pounds of Pure Live Seed (PLS)/acre <sup>†</sup>	Planting Depth (Inches)
1. Oats	Cool	35 - 50	1 - 2
2. Spring wheat	Cool	25 - 35	1 - 2
3. Spring barley	Cool	25 - 35	1 - 2
4. Annual ryegrass	Cool	10 - 15	½
5. Millet	Warm	3 - 15	½ - ¾
6. Sudangrass	Warm	5-10	½ - ¾
7. Sorghum	Warm	5-10	½ - ¾
8. Winter wheat	Cool	20-35	1 - 2
9. Winter barley	Cool	20-35	1 - 2
10. Winter rye	Cool	20-35	1 - 2
11. Triticale	Cool	25-40	1 - 2

\* Successful seeding of annual grass resulting in adequate plant growth will usually produce enough dead-plant residue to provide protection from wind and water erosion for an additional year. This assumes that the cover is not disturbed or mowed closer than 8 inches.  
Hydraulic seeding may be substituted for drilling only where slopes are steeper than 3:1 or where access limitations exist. When hydraulic seeding is used, hydraulic mulching should be applied as a separate operation, when practical, to prevent the seeds from being encapsulated in the mulch.  
<sup>†</sup> See Table TS/PS-3 for seeding dates. Irrigation, if consistently applied, may extend the use of cool season species during the summer months.  
<sup>‡</sup> Seeding rates should be doubled if seed is broadcast, or increased by 50 percent if done using a Brillion Drill or by hydraulic seeding.

June 2012 Urban Drainage and Flood Control District  
Urban Storm Drainage Criteria Manual Volume 3 TS/PS-3

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

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

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

TS/PS-4 Urban Drainage and Flood Control District  
Urban Storm Drainage Criteria Manual Volume 3 June 2012

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

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

Common Name	Botanical Name	Growth Season*	Growth Form	Seeds/ Pound	Pounds of PLS/acre
<b>Sandy Soil Seed Mix</b>					
Blaze grama	<i>Bouteloua gracilis</i>	Warm	Sod-forming bunchgrasses	825,000	0.5
Camper little bluestem	<i>Setochyrium scoparium 'Camper'</i>	Warm	Bunch	240,000	1.0
Prairie sandreed	<i>Calamovilfa longifolia</i>	Warm	Open sod	274,000	1.0
Sand dropseed	<i>Sporobolus cryptandrus</i>	Cool	Bunch	5,298,000	0.25
Vaughn sideoats grama	<i>Bouteloua curtipendula 'Vaughn'</i>	Warm	Sod	191,000	2.0
Arriba western wheatgrass	<i>Agropyron smithii 'Arriba'</i>	Cool	Sod	110,000	5.5
<b>Total</b>					<b>10.25</b>
<b>Heavy Clay, Rocky Foothill Seed Mix</b>					
Ephraim crested wheatgrass <sup>†</sup>	<i>Agropyron cristatum 'Ephraim'</i>	Cool	Sod	175,000	1.5
Oahe intermediate wheatgrass	<i>Agropyron intermedium 'Oahe'</i>	Cool	Sod	115,000	5.5
Vaughn sideoats grama <sup>‡</sup>	<i>Bouteloua curtipendula 'Vaughn'</i>	Warm	Sod	191,000	2.0
Lincoln smooth brome	<i>Bromus inermis leysii 'Lincoln'</i>	Cool	Sod	130,000	3.0
Arriba western wheatgrass	<i>Agropyron smithii 'Arriba'</i>	Cool	Sod	110,000	5.5
<b>Total</b>					<b>17.5</b>

\* All of the above seeding mixes and rates are based on drill seeding followed by crimped straw mulch. These rates should be doubled if seed is broadcast and should be increased by 50 percent if the seeding is done using a Brillion Drill or is applied through hydraulic seeding. Hydraulic seeding may be substituted for drilling only where slopes are steeper than 3:1. If hydraulic seeding is used, hydraulic mulching should be done as a separate operation.  
<sup>†</sup> See Table TS/PS-3 for seeding dates.  
<sup>‡</sup> If site is to be irrigated, the transition turf seed rates should be doubled.  
<sup>§</sup> Crested wheatgrass should not be used on slopes steeper than 6H to 1V.  
<sup>¶</sup> Can substitute 0.5 lbs PLS of blue grama for the 2.0 lbs PLS of Vaughn sideoats grama.

June 2012 Urban Drainage and Flood Control District  
Urban Storm Drainage Criteria Manual Volume 3 TS/PS-5

# BLACK FOREST OFFICE

N1/2 NE1/4 SE1/4 SE1/4 OF SECTION 07, TOWNSHIP 12 SOUTH, RANGE 65 WEST OF THE 6TH P.M., EL PASO COUNTY, COLORADO



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12740 BLACK FOREST ROAD  
COLORADO SPRINGS, CO 80908

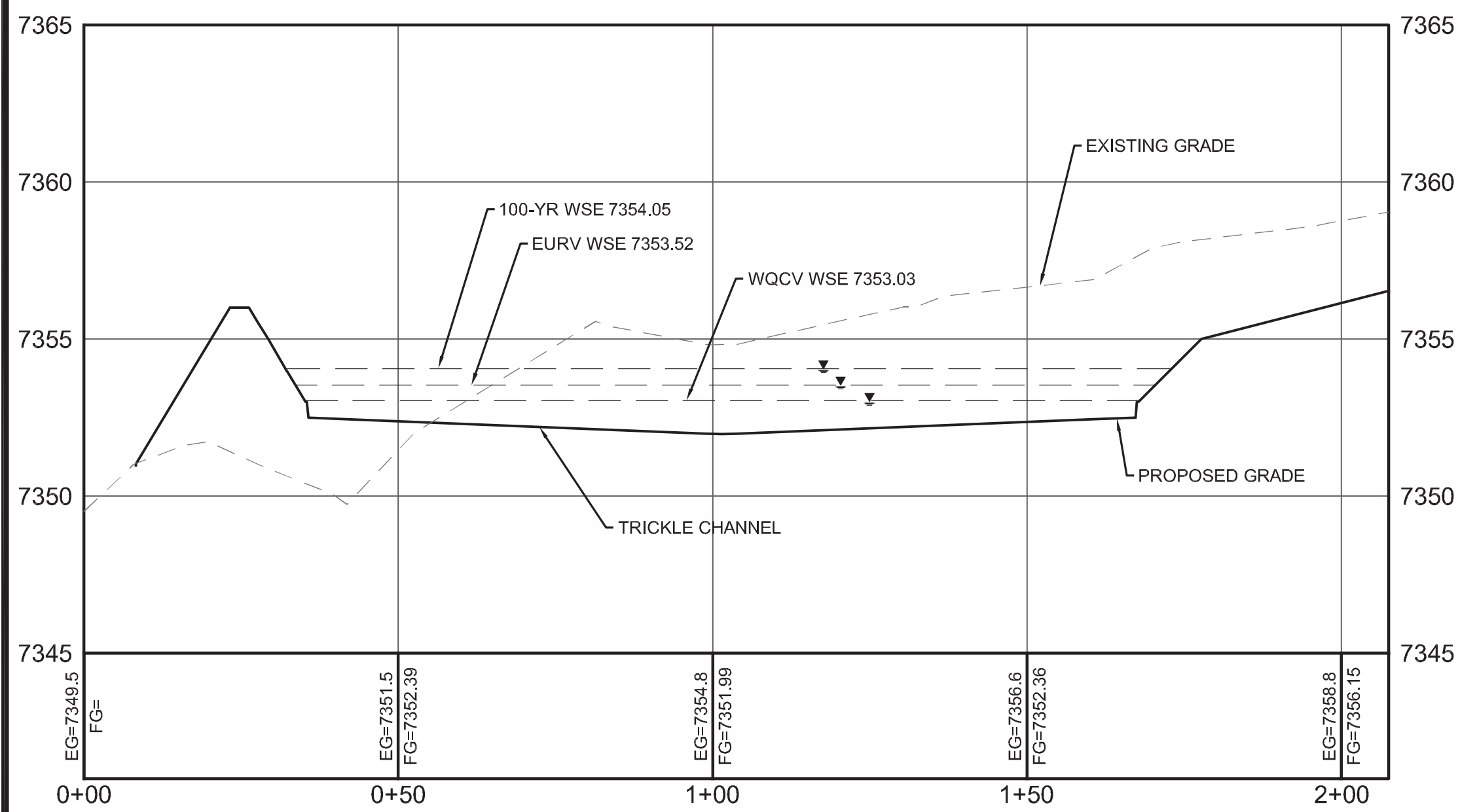
**Pond Details**  
CONSTRUCTION DOCUMENTS  
BLACK FOREST OFFICE  
COLORADO SPRINGS, COLORADO

BY: DATE:

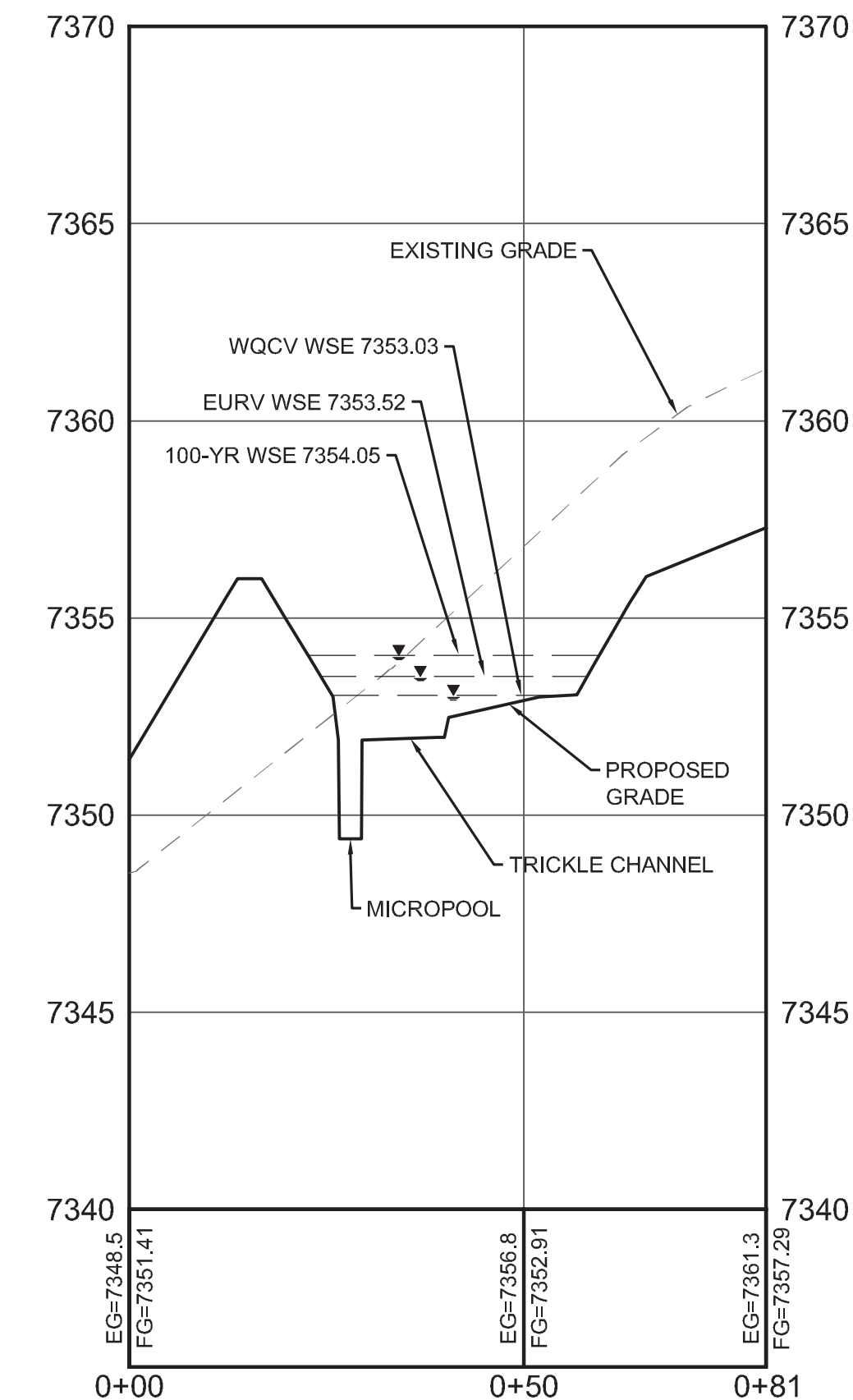
REVISIONS:

PROJECT NUMBER: 19015  
ISSUED DATE: 12-03-2020  
DESIGNED BY: TEW  
REVIEWED BY: RCE

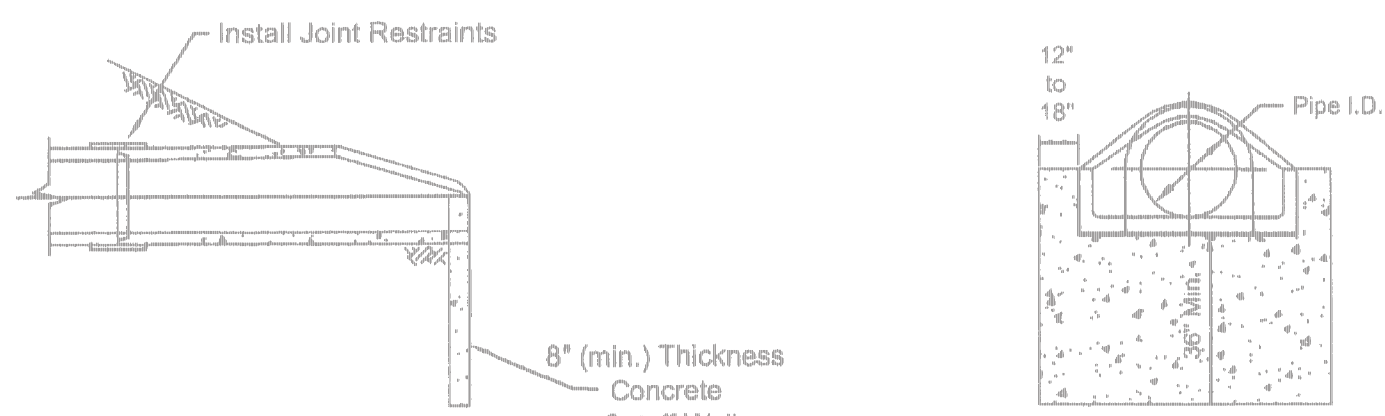
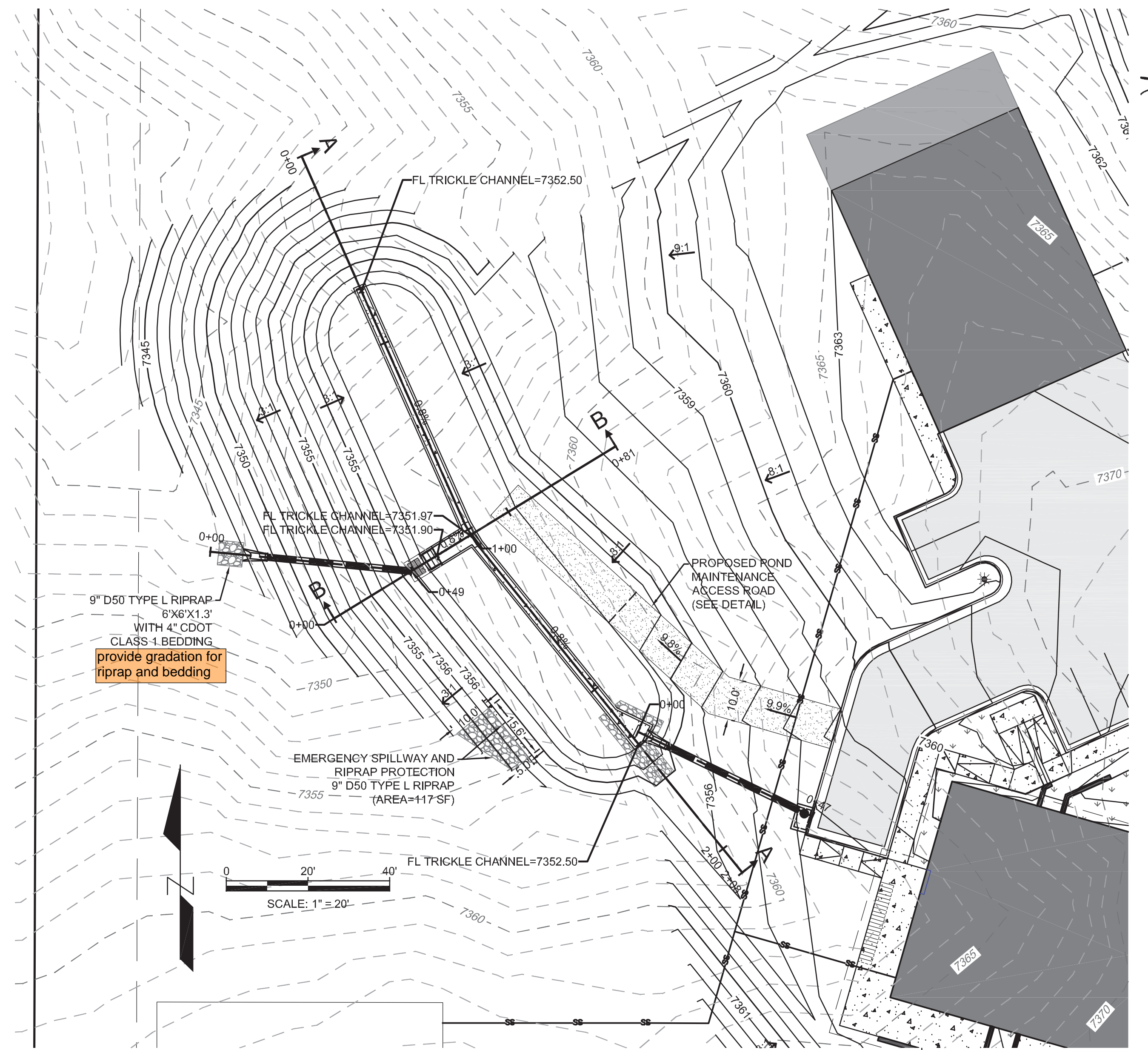
Pond Details



SECTION A-A PROFILE  
SCALE: (H) 1" = 20' (V) 1" = 4'  
START STA: 0+00.00, END STA: 2+07.51

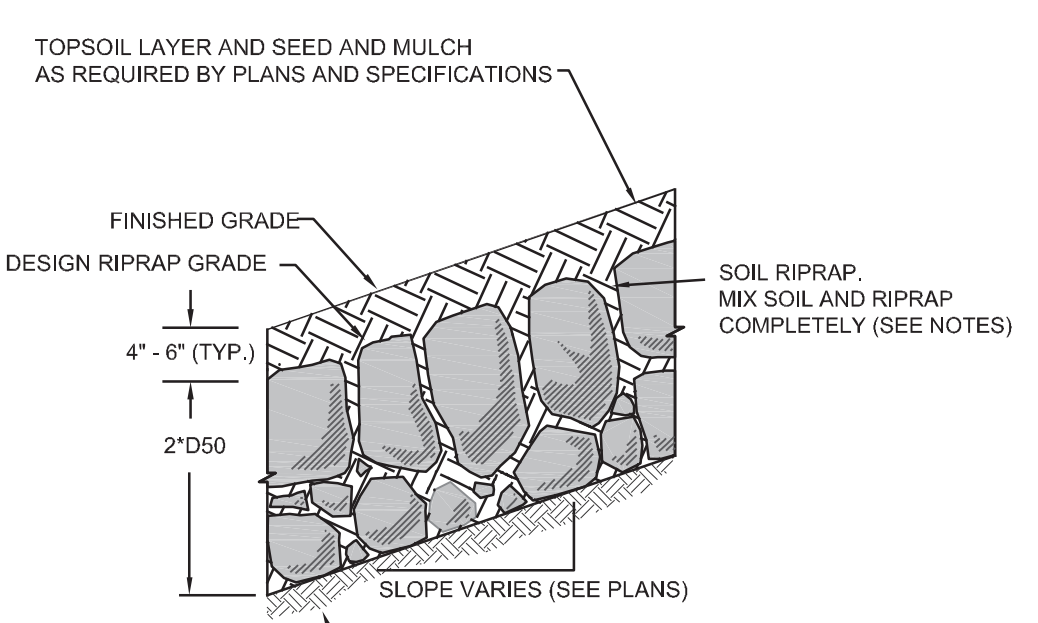


SECTION B-B PROFILE  
SCALE: (H) 1" = 20' (V) 1" = 4'  
START STA: 0+00.00, END STA: 0+80.77

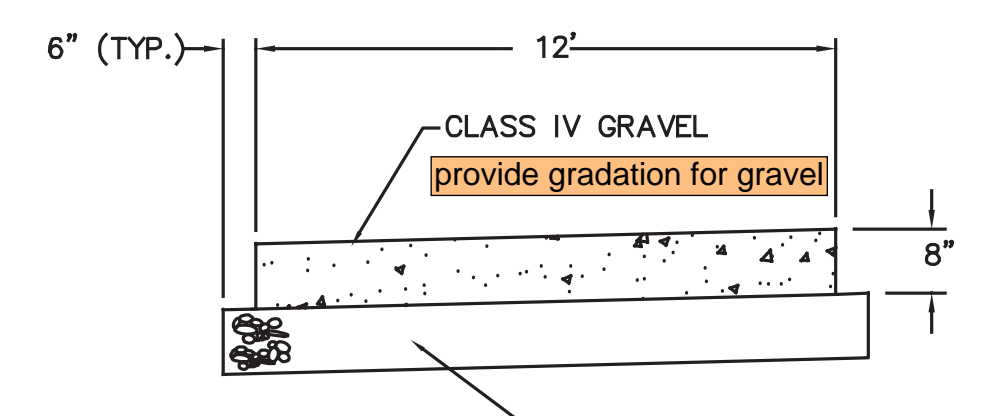


PIPE DIA.	W	L	D
18"	2.50'	5.0'	18"
24"	3.00'	6.0'	18"
30"	4.00'	8.0'	18"

Concrete Flared End Section With Cutoff Wall

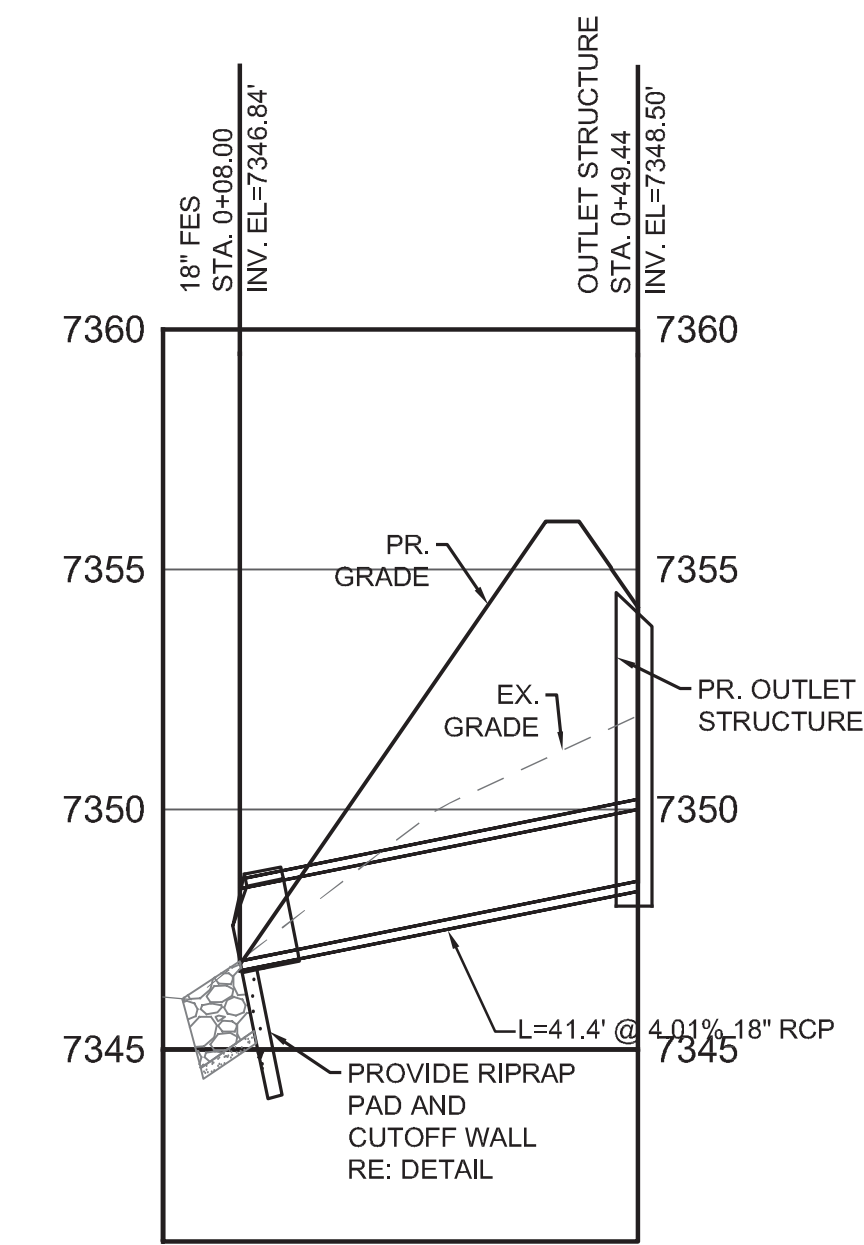


TYPICAL SECTION -  
SOIL RIPRAP WITH MULCH

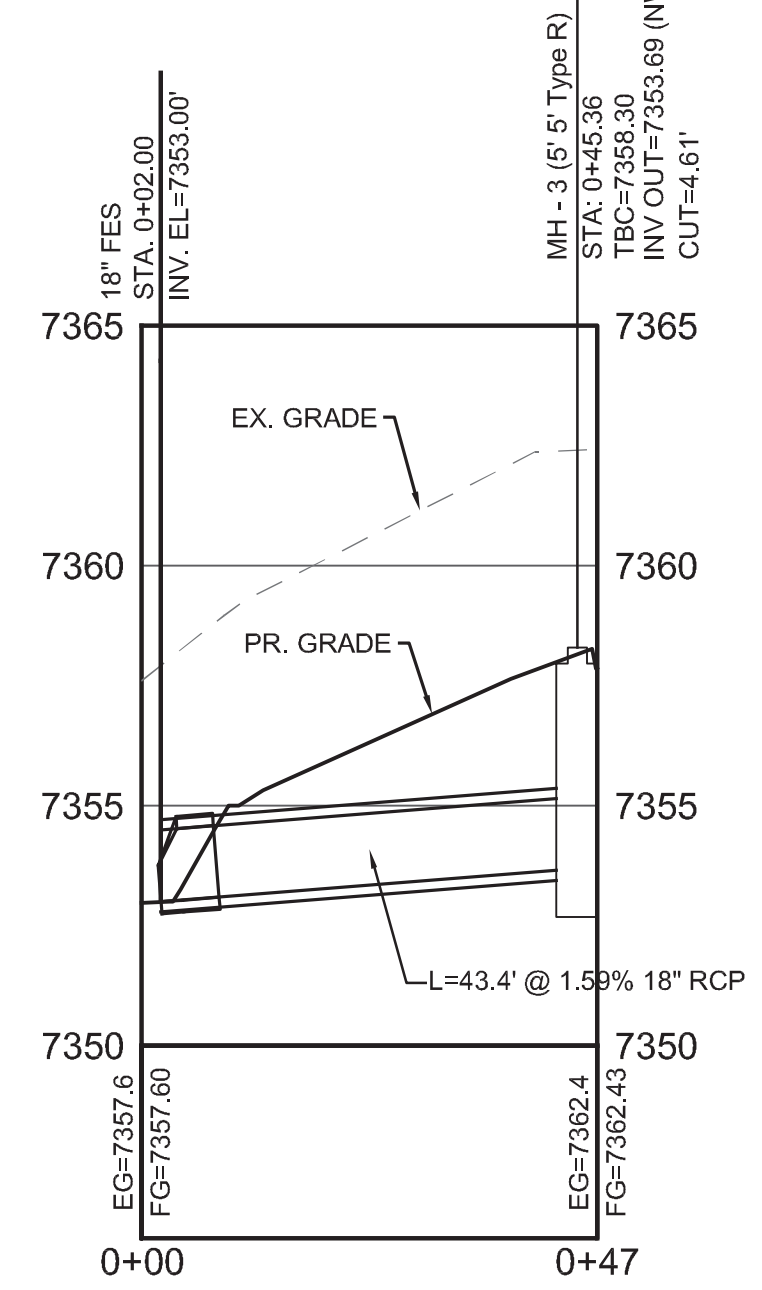


POND MAINTENANCE ROAD DETAIL  
N.T.S.

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



STORM - POND OUTFALL PROFILE  
SCALE: (H) 1" = 20' (V) 1" = 4'  
START STA: 0+00.00, END STA: 0+49.44



STORM PROFILE  
SCALE: (H) 1" = 20' (V) 1" = 4'  
START STA: 0+00.00, END STA: 0+47.44

# BLACK FOREST OFFICE

N1/2 NE1/4 SE1/4 SE1/4 OF SECTION 07, TOWNSHIP 12 SOUTH, RANGE 65 WEST OF THE 6TH P.M., EL PASO COUNTY, COLORADO



PREPARED FOR:  
BLACK FOREST, LLC  
12740 BLACK FOREST ROAD  
COLORADO SPRINGS, CO 80908

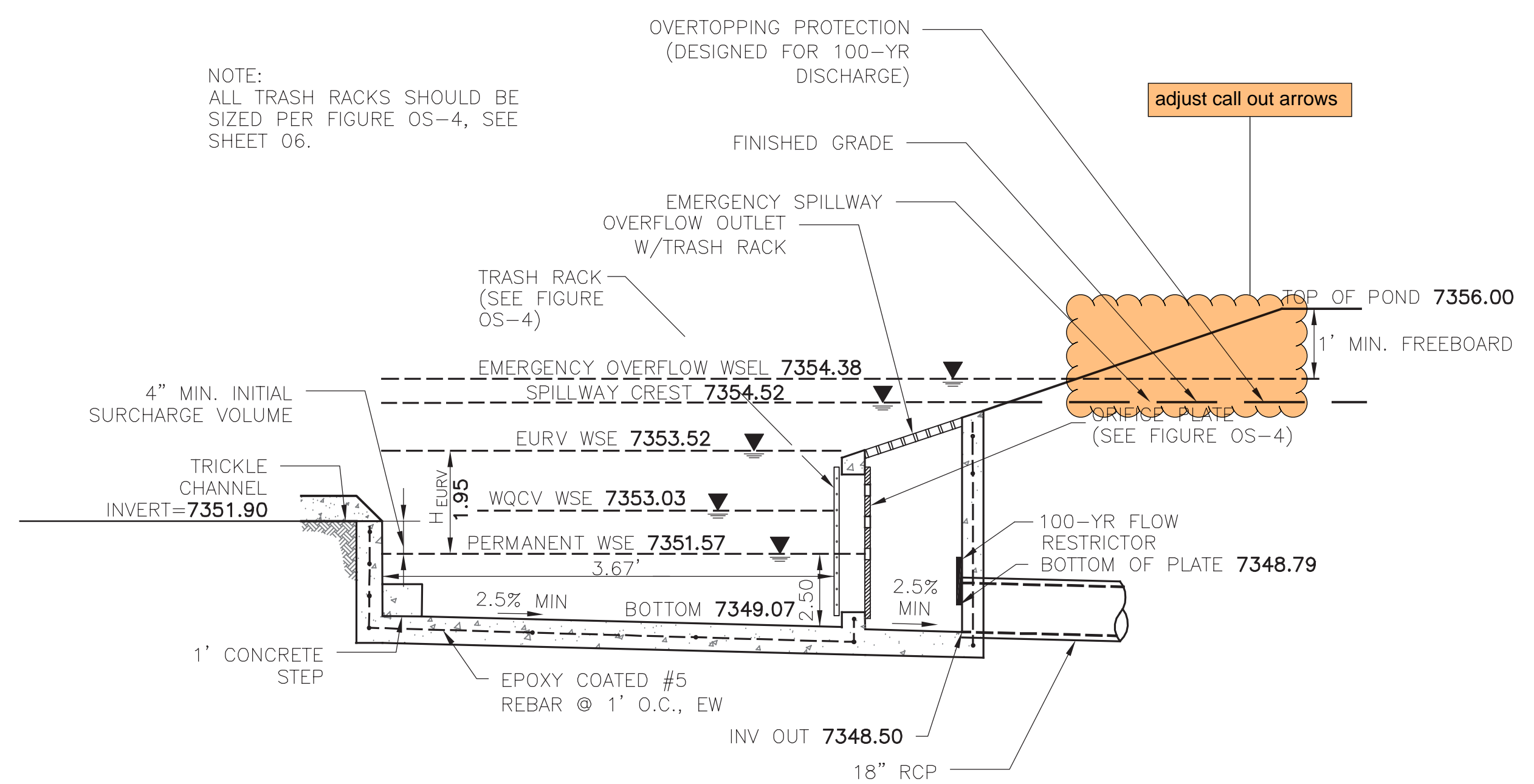
Outlet Structure Details  
CONSTRUCTION DOCUMENTS  
BLACK FOREST OFFICE  
COLORADO SPRINGS, COLORADO

BY: DATE:

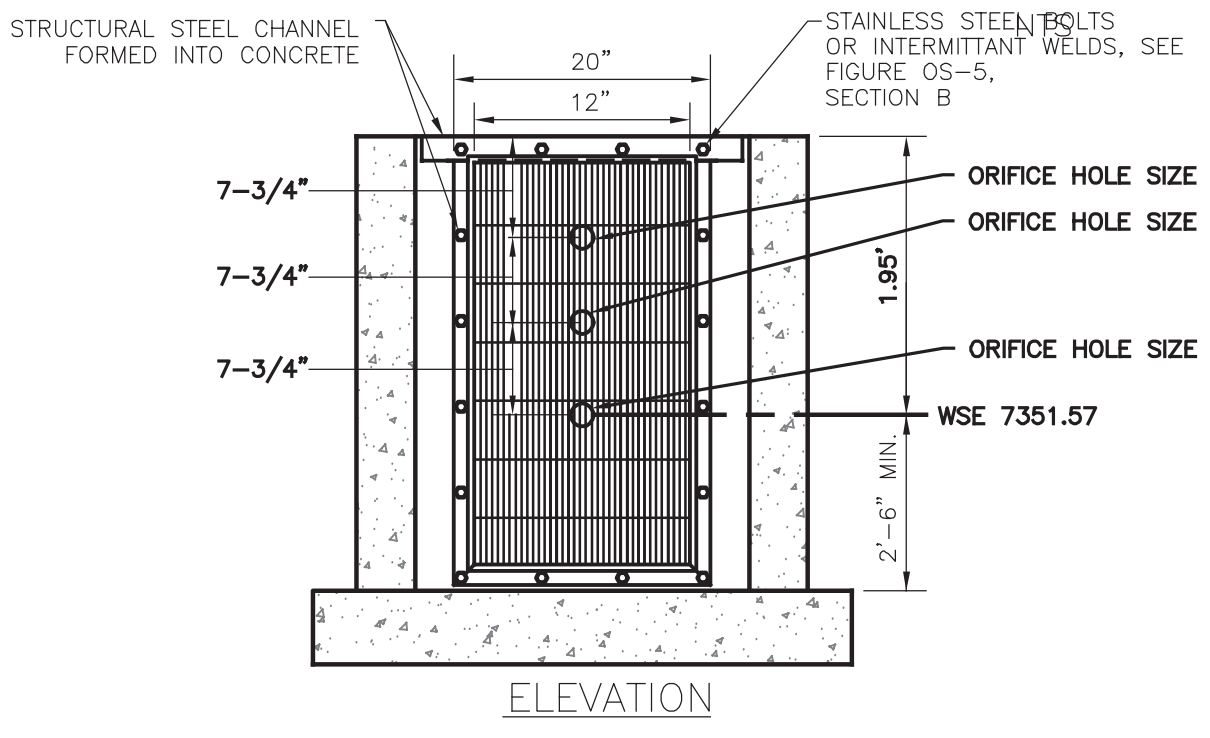
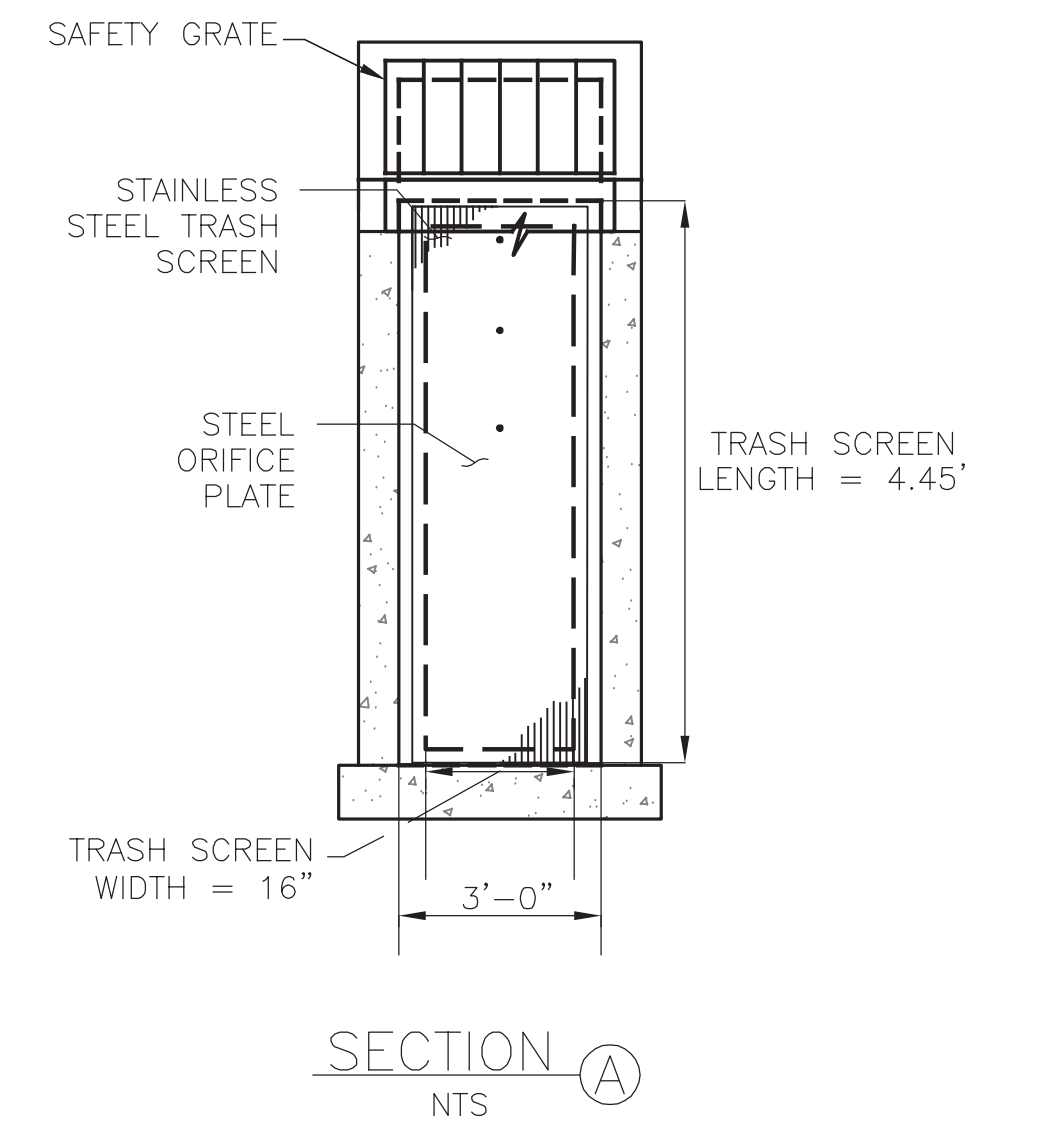
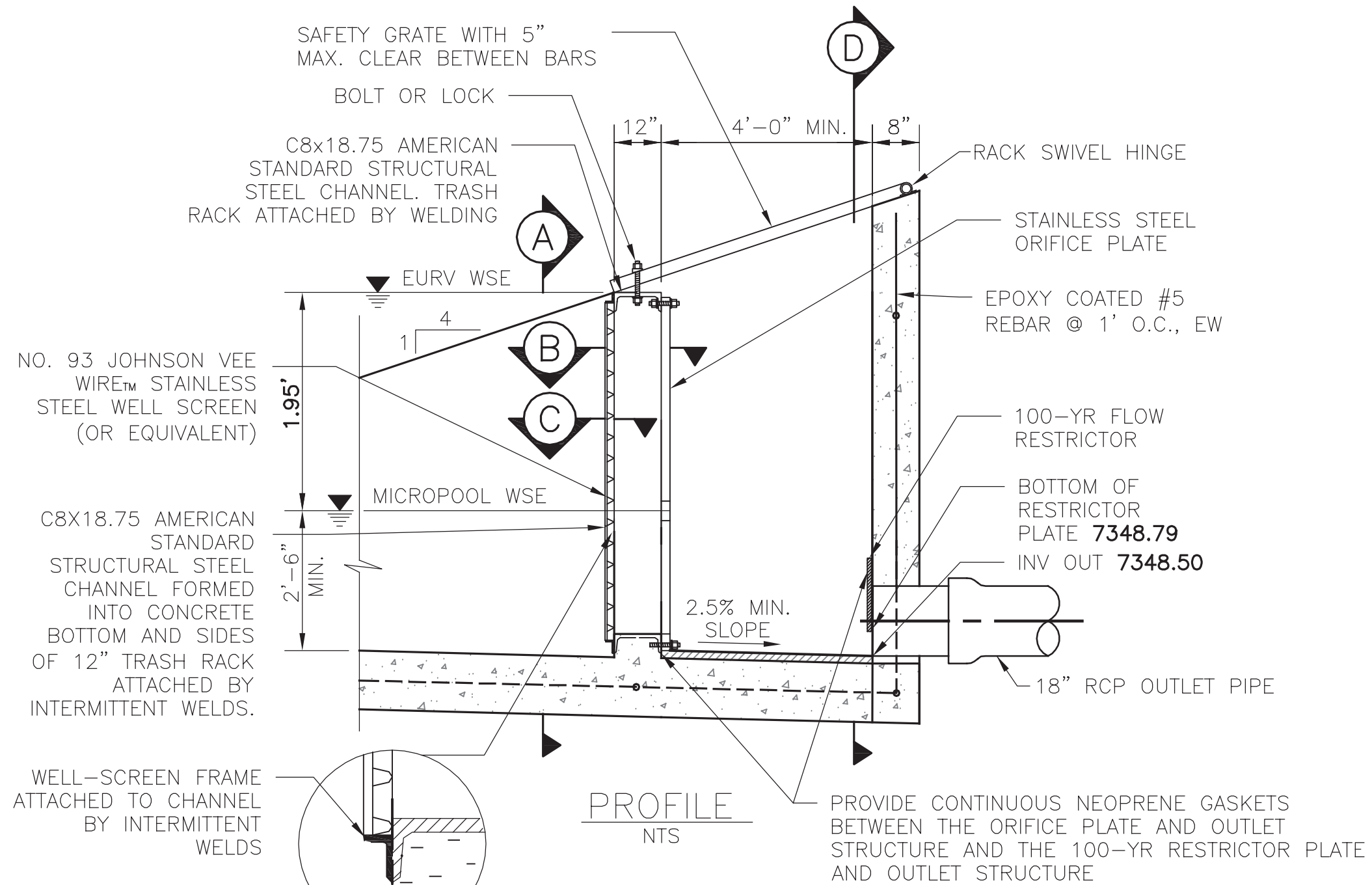
REVISIONS:  
1.  
2.  
3.  
4.

PROJECT NUMBER: 19015  
ISSUED DATE: 12-03-2020  
DESIGNED BY: TEW  
REVIEWED BY: RCE

Outlet Structure Details



OUTLET STRUCTURE SECTION VIEW



- ORIFICE PLATE NOTES:
1. PROVIDE CONTINUOUS NEOPRENE GASKET MATERIAL BETWEEN THE ORIFICE PLATE AND CONCRETE.
  2. BOLT PLATE TO CONCRETE 12" MAX. ON CENTER. SEE TABLE OS-2 FOR PLATE THICKNESS.
- EURV AND WQCV TRASH RACKS:
1. WELL-SCREEN TRASH RACKS SHALL BE STAINLESS STEEL AND SHALL BE ATTACHED BY INTERMITTENT WELDS ALONG THE EDGE OF THE MOUNTING FRAME.
  2. BAR GATE TRASH RACKS SHALL BE ALUMINUM AND SHALL BE BOLTED USING STAINLESS STEEL HARDWARE.
  3. TRASH RACK OPEN AREAS ARE FOR SPECIFIED TRASH RACK MATERIALS. TOTAL TRASH RACK SIZE MAY NEED TO BE ADJUSTED FOR MATERIALS HAVING DIFFERENT OPEN AREA/GROSS AREA RATIO (R VALUE).
  4. STRUCTURAL DESIGN OF TRASH RACKS SHALL BE BASED ON FULL HYDROSTATIC HEAD WITH ZERO HEAD DOWNSTREAM OF THE RACK.
- OVERFLOW SAFETY GRATES:
1. ALL SAFETY GRATES SHALL BE MOUNTED USING STAINLESS STEEL HARDWARE AND PROVIDED WITH HINGED AND LOCKABLE OR BOLTABLE ACCESS PANELS.
  2. SAFETY GRATES SHALL BE STAINLESS STEEL, ALUMINUM, OR STEEL. STEEL GRATES SHALL BE HOT DIP GALVANIZED AND MAY BE HOT POWDER COATED AFTER GALVANIZING.
  3. SAFETY GRATES SHALL BE DESIGNED SUCH THAT THE DIAGONAL DIMENSION OF EACH OPENING IS SMALLER THAN THE DIAMETER OF THE OUTLET PIPE.
  4. STRUCTURAL DESIGN OF SAFETY GRATES SHALL BE BASED ON FULL HYDROSTATIC HEAD WITH ZERO HEAD DOWNSTREAM OF THE RACK.

FIGURE OS-4 ORIFICE PLATE AND TRASH RACK DETAILS AND NOTES

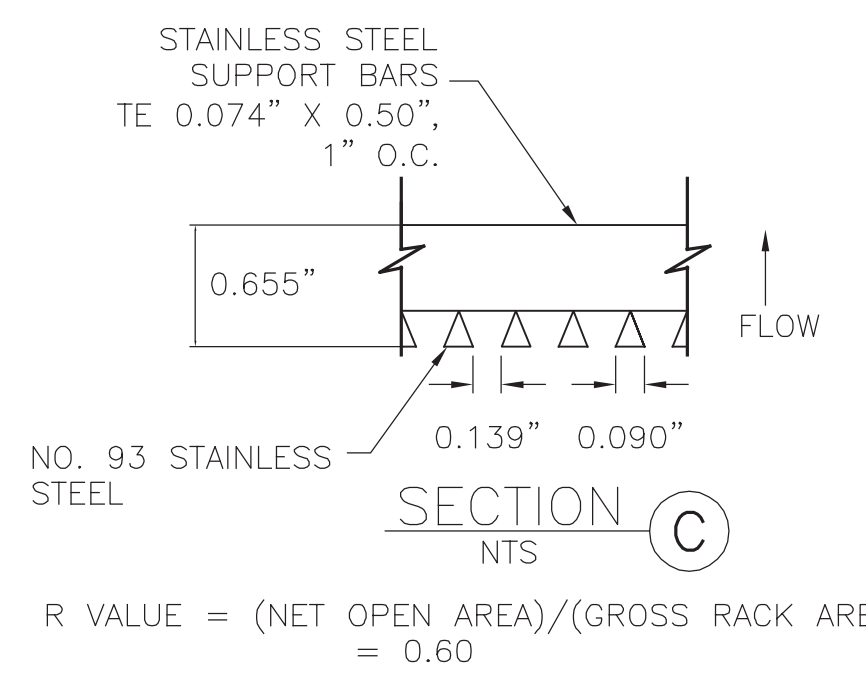
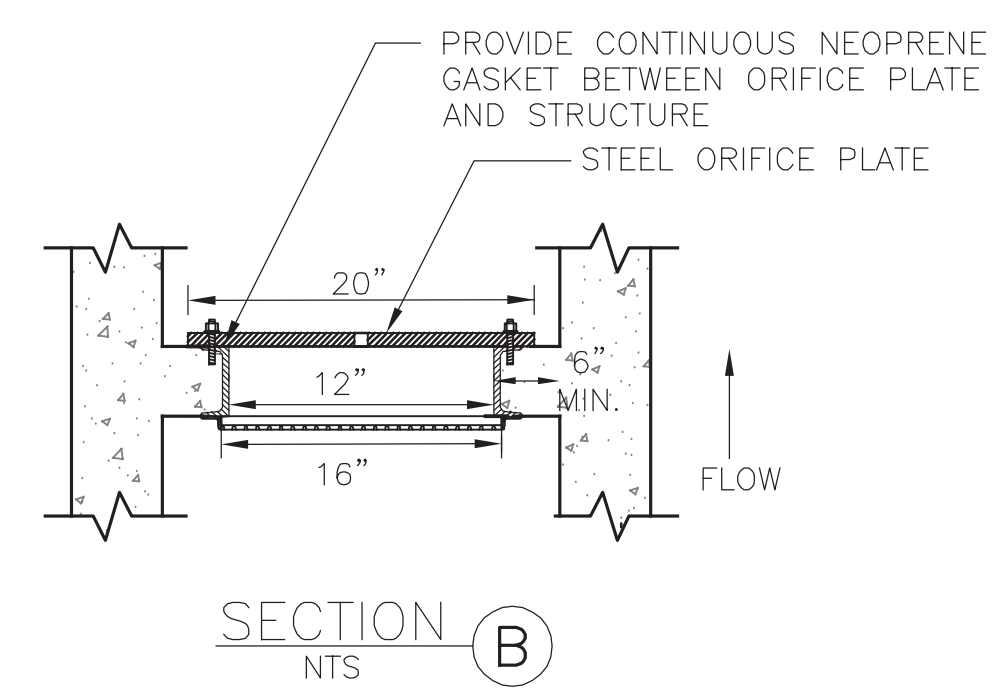


FIGURE OS-5 TYPICAL OUTLET STRUCTURE WITH WELL SCREEN TRASH RACK

