

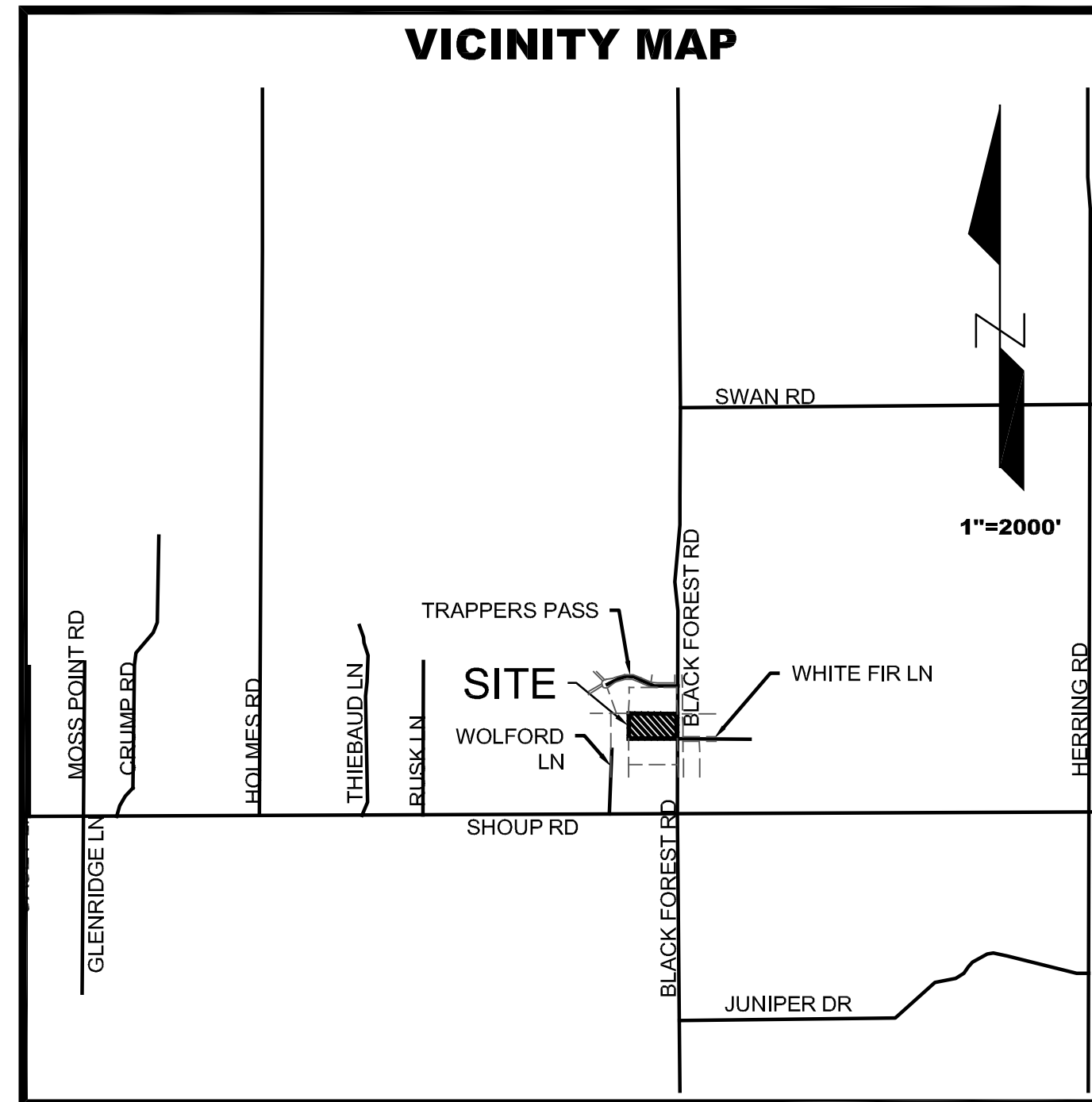
CONSTRUCTION DOCUMENTS FOR BLACK FOREST OFFICE

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



2N CIVIL GENERAL NOTES:

1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.
7. 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.
8. 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.
9. 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.
10. 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.
11. 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.
12. ALL AREAS DISTURBED BEYOND CONSTRUCTION LIMITS SHALL BE RESEEDDED/MULCHED AT THE CONTRACTOR'S EXPENSE.



SHEET INDEX	
1	COVER SHEET
2	SITE AND UTILITY PLAN
3	GRADING PLAN
4	ESCD COVER SHEET
5	ESCD - INITIAL PHASE
6	ESCD - INTERIM PHASE
7	ESCD - FINAL PHASE
8-10	EROSION CONTROL DETAILS
11-12	POND DETAILS

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

Since the Grading and erosion control plans are provided within the construction document set, please provide the County standard signature block(below) on this cover page:

Design Engineer's Statement:

These detailed plans and specifications were prepared under my direction and supervision. Said plans and specifications have been prepared according to the criteria established by the County for detailed roadway, drainage, grading and erosion control plans and specifications, and said plans and specifications are in conformity with applicable master drainage plans and master transportation plans. Said plans and specifications meet the purposes for which the particular roadway and drainage facilities are designed and are correct to the best of my knowledge and belief. I accept responsibility for any liability caused by any negligent acts, errors or omissions on my part in preparation of these detailed plans and specifications.

[Name, P.E. # _____] Date _____

Owner/Developer's Statement:

I, the owner/developer have read and will comply with all of the requirements specified in these detailed plans and specifications.

[Name, Title] Date _____
[Business Name]
[Address]

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. Date _____
County Engineer / ECM Administrator

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

Cover Sheet
 CONSTRUCTION DOCUMENTS
 BLACK FOREST OFFICE
 COLORADO SPRINGS, COLORADO

DATE: 1-19-21
 BY: TEW

REVISIONS:
 1. EL PASO CNTY COMMENTS 1-7-21
 2.
 3.
 4.

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

Cover Sheet

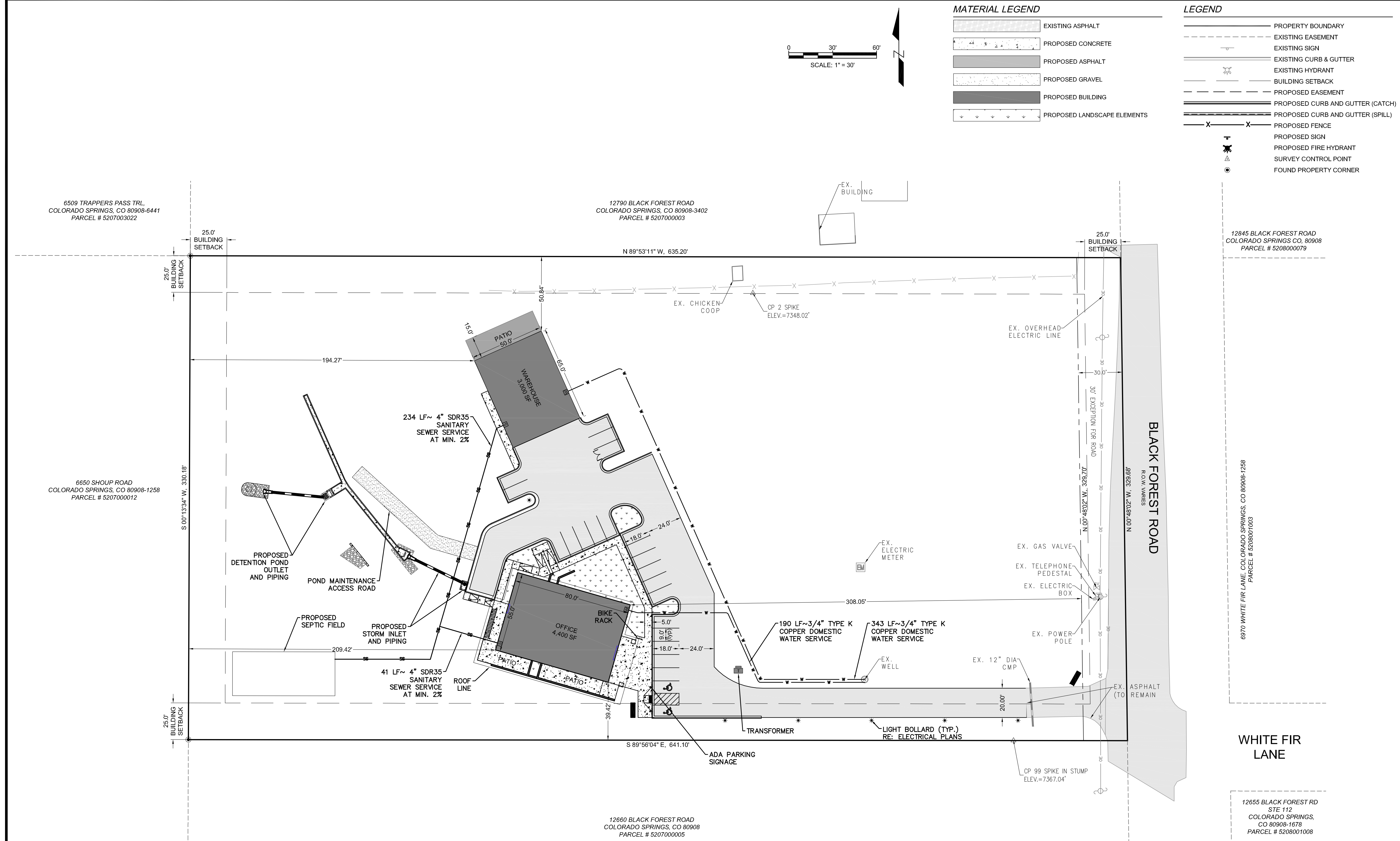
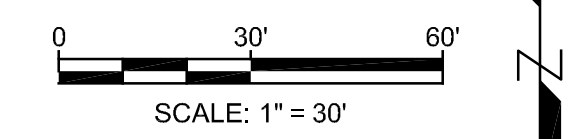


MATERIAL LEGEND

	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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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.

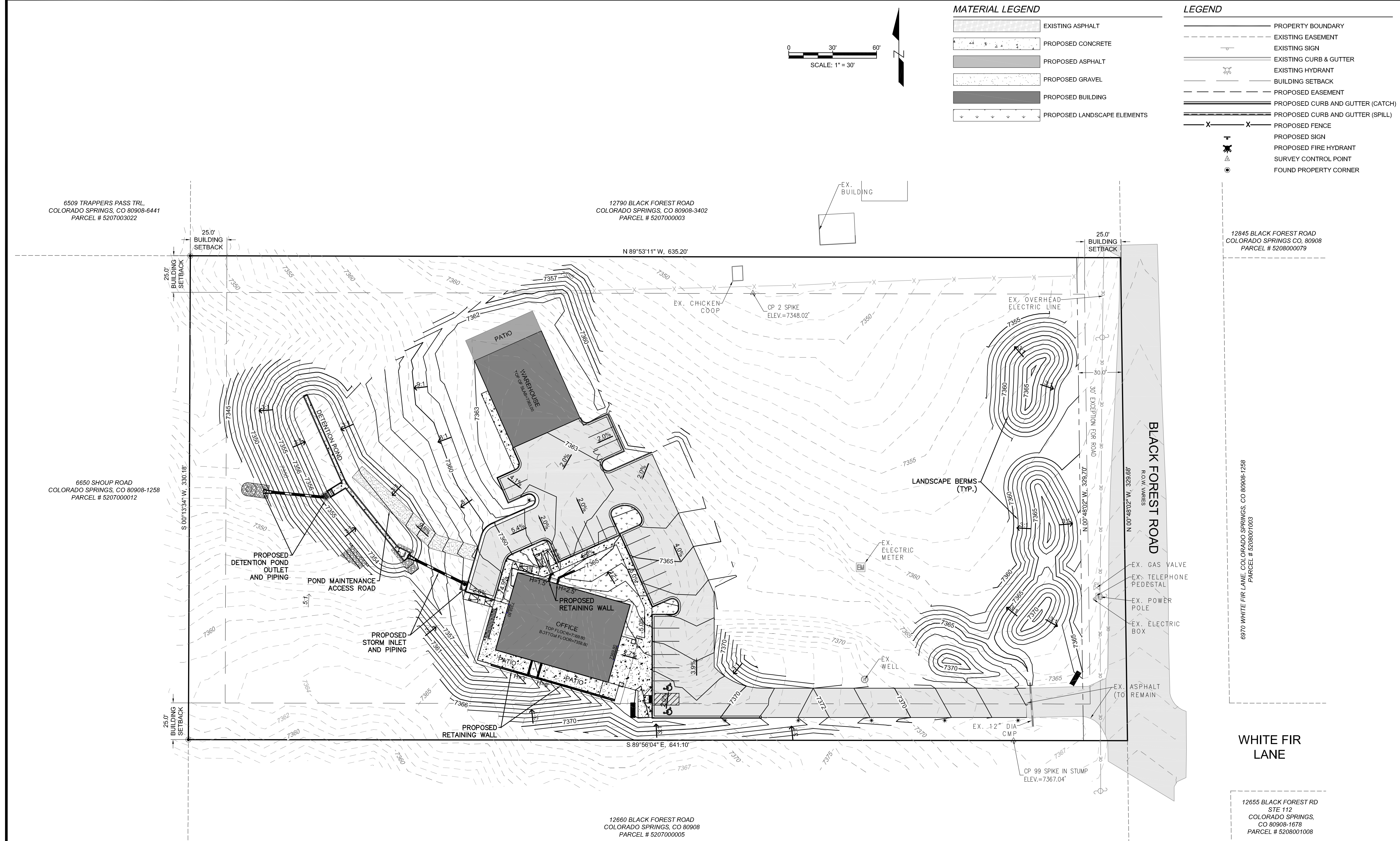
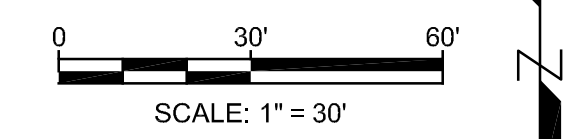


MATERIAL LEGEND

- 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
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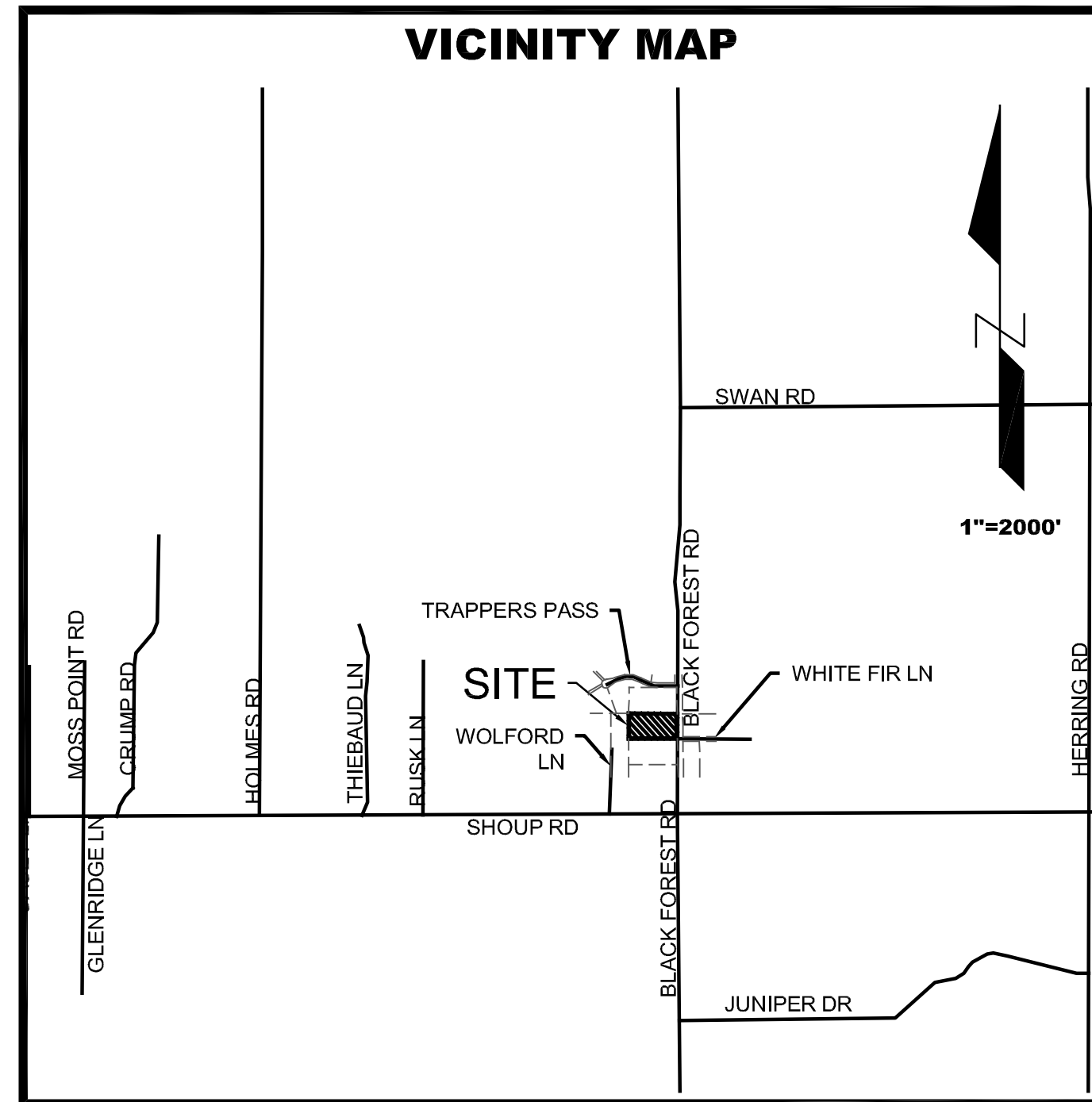
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GRADING, EROSION, AND SEDIMENT CONTROL PLANS FOR BLACK FOREST OFFICE

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



PROJECT TEAM	
OWNER	LANDSCAPE ARCHITECT
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
STORMWATER MANAGER	
CHRIS RICHARDSON CMG CORPORATION 6615 VINCENT DR. COLORADO SPRINGS, CO 80918	
CIVIL ENGINEER	
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.

ADDITIONAL NOTES:

- NO CONCRETE BATCH PLANTS ARE PROPOSED FOR THIS PROJECT.
- NO STREAMS OR WETLANDS ARE WITHIN 50 FEET OF THE PROJECT AREA.

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

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

ENGINEER'S STATEMENT

These detailed plans and specifications were prepared under my direction and supervision. Said plans and specifications have been prepared according to the criteria established by the County for detailed roadway, drainage, grading and erosion control plans and specifications, and said plans and specifications are in conformity with applicable master drainage plans and master transportation plans. Said plans and specifications meet the purposes for which the particular roadway and drainage facilities are designed and are correct to the best of my knowledge and belief. I accept responsibility for any liability caused by any negligent acts, errors or omissions on my part in preparation of these detailed plans and specifications.

Engineer of Record Signature Date

OWNER'S STATEMENT

I, the owner/developer have read and will comply with the requirements of the grading and erosion control plan and all of the requirements specified in these detailed plans and specifications.

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

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. Date
County Engineer / ECM Administrator

STANDARD NOTES FOR EL PASO COUNTY GRADING AND EROSION CONTROL PLANS

- 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 representation, all design and construction related to roads, storm drainage and erosion control shall conform to the standards and requirements of the most recent version of the relevant adopted El Paso County standards, including the Land Development Code, the Engineering Criteria Manual, the Drainage Criteria Manual, and the Drainage Criteria Manual Volume 2. Any deviations from regulations and standards must be requested, and approved, in writing.
- A separate Stormwater Management Plan (SMWP) for this project shall be completed and an Erosion and Stormwater Quality Control Permit (ESQCP) issued prior to commencing construction. Management of the SWMP during construction is the responsibility of the designated Qualified Stormwater Manager or Certified Erosion Control Inspector. The SWMP shall be located on site at all times during construction and shall be kept up to date with work progress and changes in the field.
- Once the ESQCP is approved and a "Notice to Proceed" has been issued, the contractor may install the initial stage erosion and sediment control measures as indicated on the approved GEC. A Preconstruction Meeting between the contractor, engineer, and El Paso County will be held prior to any construction. It is the responsibility of the applicant to coordinate the meeting time and place with County staff.
- 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.
- xAll temporary sediment and erosion control measures shall be maintained and remain in effective operating condition until permanent soil erosion control measures are implemented and final stabilization is established. All persons engaged in land disturbance activities shall assess the adequacy of control measures at the site and identify if changes to those control measures are needed to ensure the continued effective performance of the control measures. All changes to temporary sediment and erosion control measures must be incorporated into the Stormwater Management Plan.
- Temporary stabilization shall be implemented on disturbed areas and stockpiles where ground disturbing construction activity has permanently ceased or temporarily ceased for longer than 14 days.
- Final stabilization must be implemented at all applicable construction sites. Final stabilization is achieved when all ground disturbing activities are complete and all disturbed areas either have a uniform vegetative cover with individual plant density of 70 percent of pre-disturbance levels established or equivalent permanent alternative stabilization method is implemented. All temporary sediment and erosion control measures shall be removed upon final stabilization and before permit closure.
- 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.

Update notes in accordance with Section 3 of the GEC Checklist -- there are a total of 29 notes in the section that need to be shown on the plans.
Unresolved.

SHEET INDEX

- | | |
|------|-------------------------|
| 4 | COVER SHEET |
| 5 | ESCD - INITIAL PHASE |
| 6 | ESCD - INTERIM PHASE |
| 7 | ESCD - FINAL PHASE |
| 8-10 | EROSION CONTROL DETAILS |

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.

Since the Grading and Erosion Control plans are provided within the Construction documents set this signature block should be removed and a signature block on the cover sheet of the construction documents set should be provided. See comment on sheet 1.

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.



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

ESCD Cover Sheet
CONSTRUCTION DOCUMENTS
BLACK FOREST OFFICE
COLORADO SPRINGS, COLORADO

DATE: 1-18-21
BY: TEW

REVISIONS:
1. EL PASO COUNTY COMMENTS 1-17-21
2.
3.
4.

PROJECT NUMBER: 190715
ISSUED DATE: 12-03-2020
DESIGNED BY: TEW
REVIEWED BY: RCE

ESCD Cover Sheet

MATERIAL LEGEND

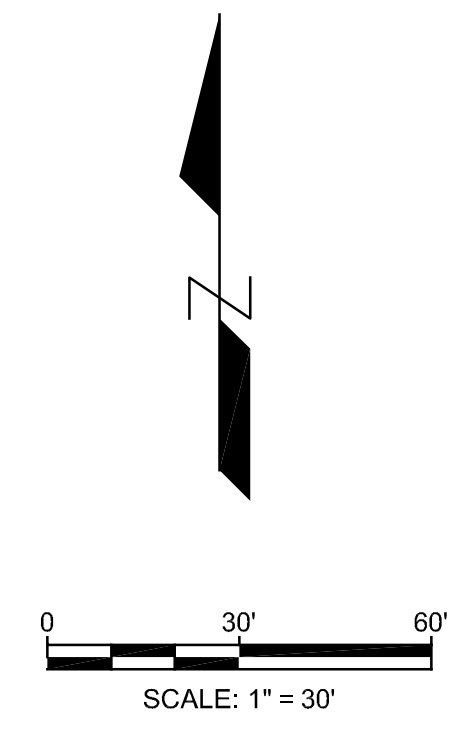
	EXISTING ASPHALT
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	PROPOSED BUILDING
	PROPOSED LANDSCAPE ELEMENTS

LEGEND

	PROPERTY BOUNDARY
	EXISTING EASEMENT
	EXISTING SIGN
	EXISTING CURB & GUTTER
	EXISTING HYDRANT
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	PROPOSED EASEMENT
	PROPOSED CURB AND GUTTER (CATCH)
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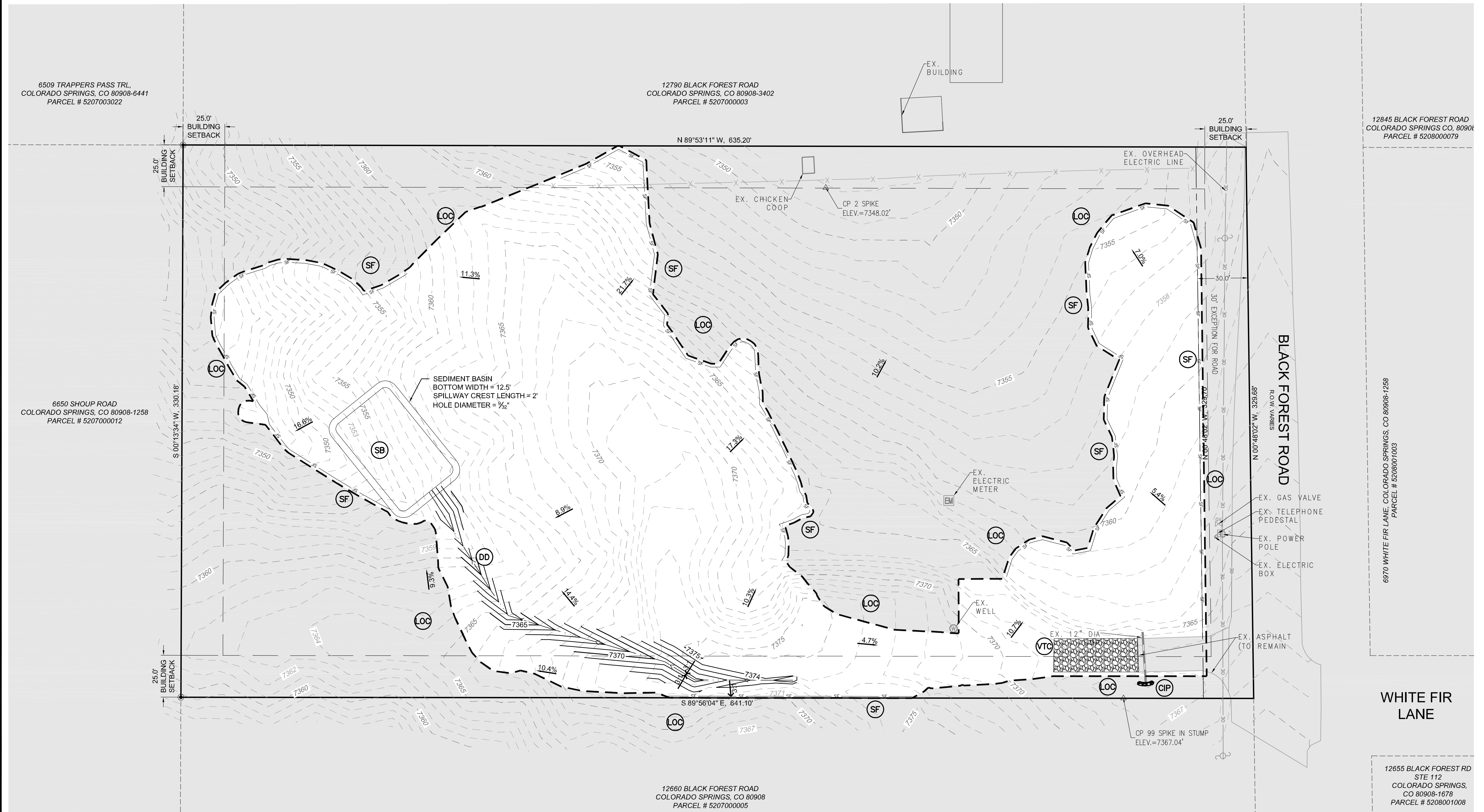
BMP LEGEND

	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 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

DATE:
1-18-21

REVISIONS:
1. EL PASO ONLY COMMENTS 1-7-21
2.
3.
4.

PROJECT NUMBER:
19015

ISSUED DATE:
12-03-2020

ESCD - Initial Phase

MATERIAL LEGEND

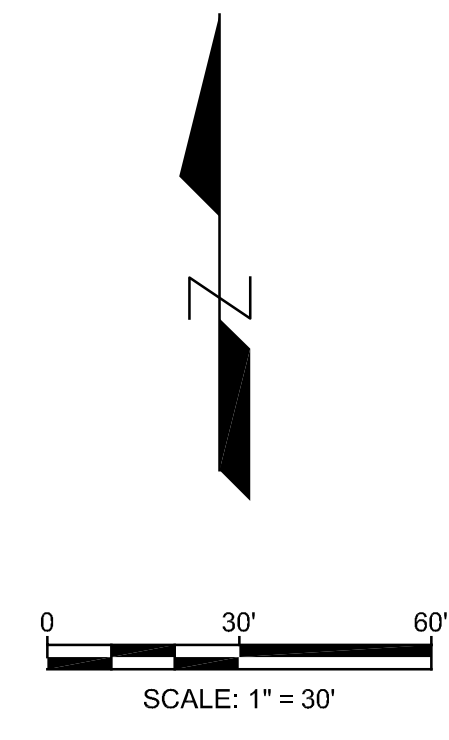
	EXISTING ASPHALT
	PROPOSED CONCRETE
	PROPOSED ASPHALT
	PROPOSED GRAVEL
	PROPOSED BUILDING
	PROPOSED LANDSCAPE ELEMENTS

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
	FOUND PROPERTY CORNER

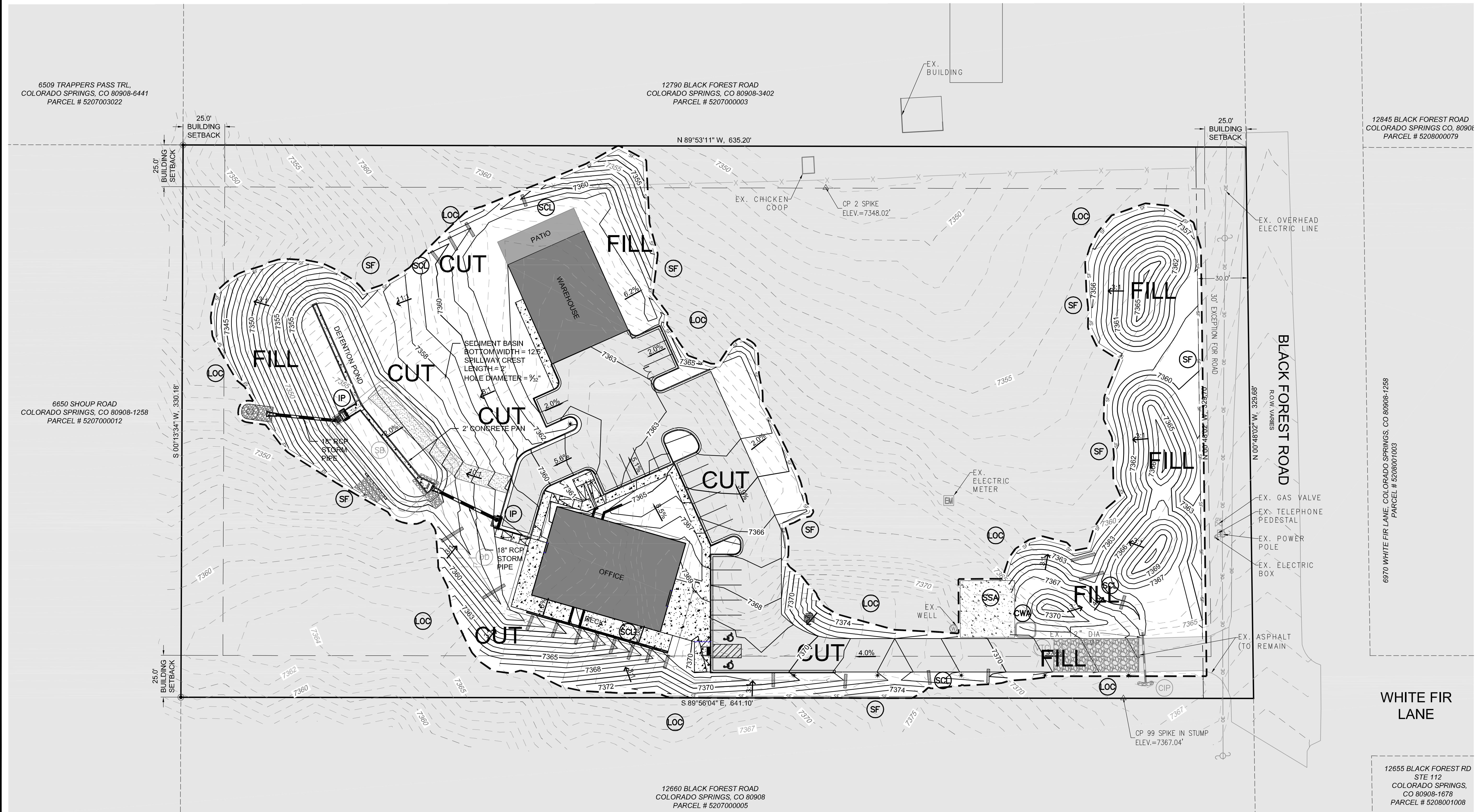
BMP LEGEND

	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 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. 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.
8. SILT FENCE SHALL REMAIN UNTIL 70% COVERAGE OF PRE-DISTURBANCE LEVEL OF VEGETATION HAS BEEN ESTABLISHED.



6509 TRAPPERS PASS TRL.
COLORADO SPRINGS, CO 80908-6441
PARCEL # 5207003022

12790 BLACK FOREST ROAD
COLORADO SPRINGS, CO 80908-3402
PARCEL # 5207000003

12845 BLACK FOREST ROAD
COLORADO SPRINGS, CO 80908
PARCEL # 5208000079

6650 SHOUP ROAD
COLORADO SPRINGS, CO 80908-1258
PARCEL # 5207000012

6970 WHITE FIR LANE, COLORADO SPRINGS, CO 80908-1258
PARCEL # 5208001003

12660 BLACK FOREST ROAD
COLORADO SPRINGS, CO 80908
PARCEL # 5207000005

12655 BLACK FOREST RD
STE 112
COLORADO SPRINGS,
CO 80908-1678
PARCEL # 5208001008

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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



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BLACK FOREST, LLC
12740 BLACK FOREST ROAD
COLORADO SPRINGS, CO 80908

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BLACK FOREST OFFICE
COLORADO SPRINGS, COLORADO

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4.

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ISSUED DATE:
12-03-2020

DESIGNED BY:
TEW

REVIEWED BY:
RCE

ESCD - Interim
Phase

MATERIAL LEGEND

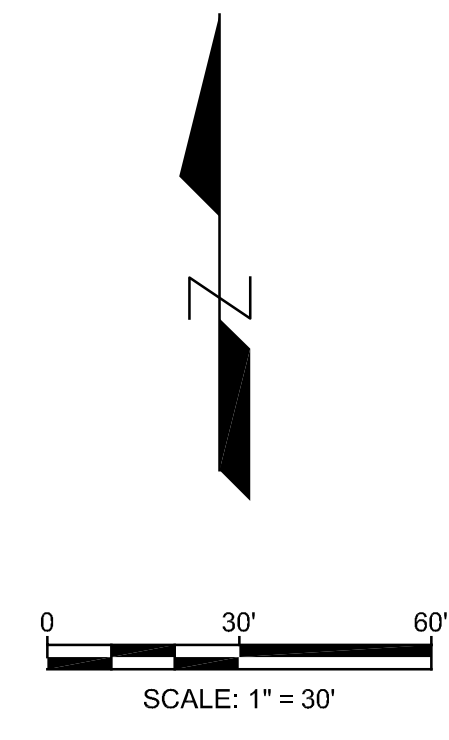
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	PROPOSED CONCRETE
	PROPOSED ASPHALT
	PROPOSED GRAVEL
	PROPOSED BUILDING
	PROPOSED LANDSCAPE ELEMENTS

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

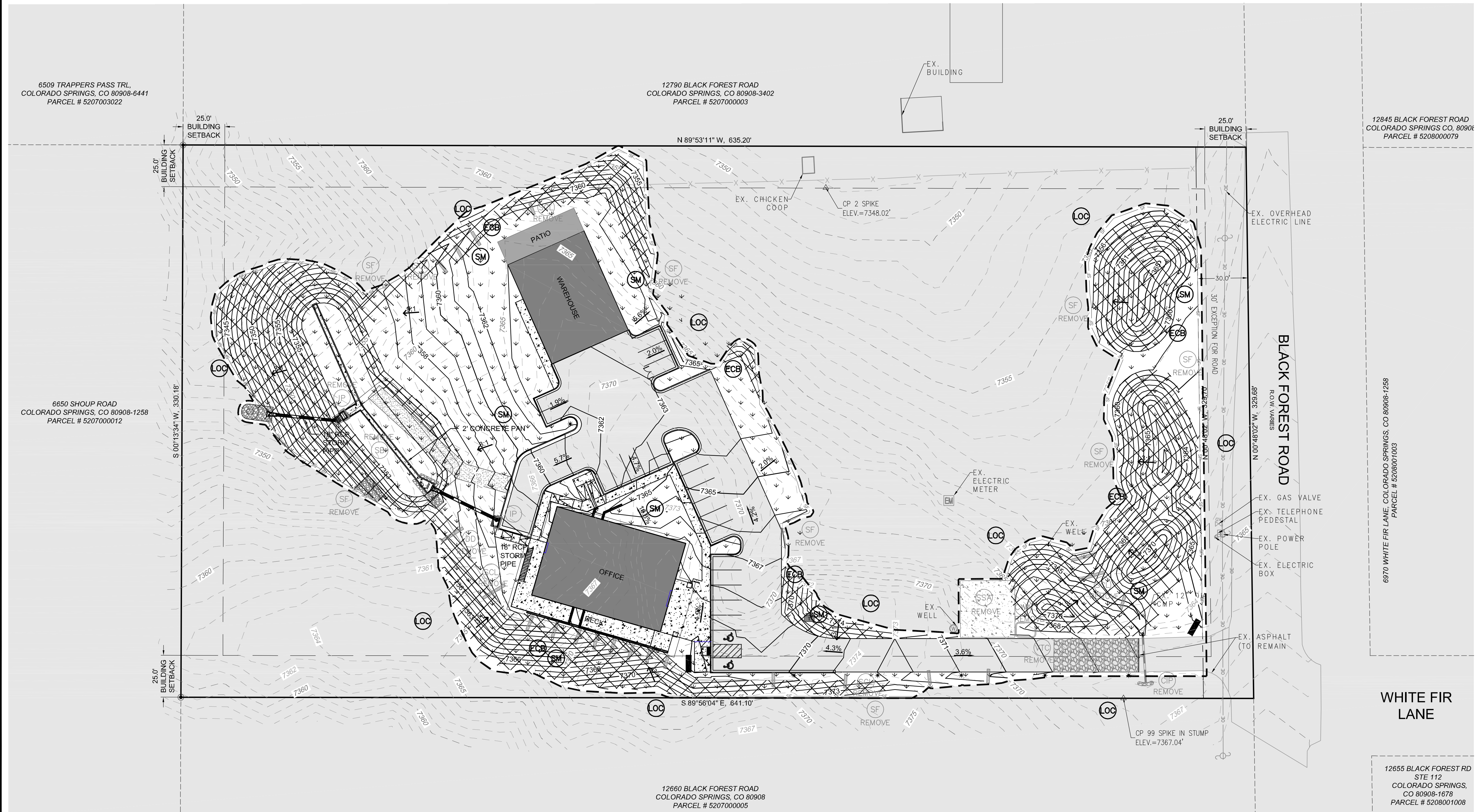
BMP LEGEND

	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.

J:\Projects\191015\811\811_Plan\ECSD - Final Phase.dwg 1/18/2021

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 303.925.0544
 www.2ncivil.com

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

ESCD - Final Phase
 CONSTRUCTION DOCUMENTS
 BLACK FOREST OFFICE
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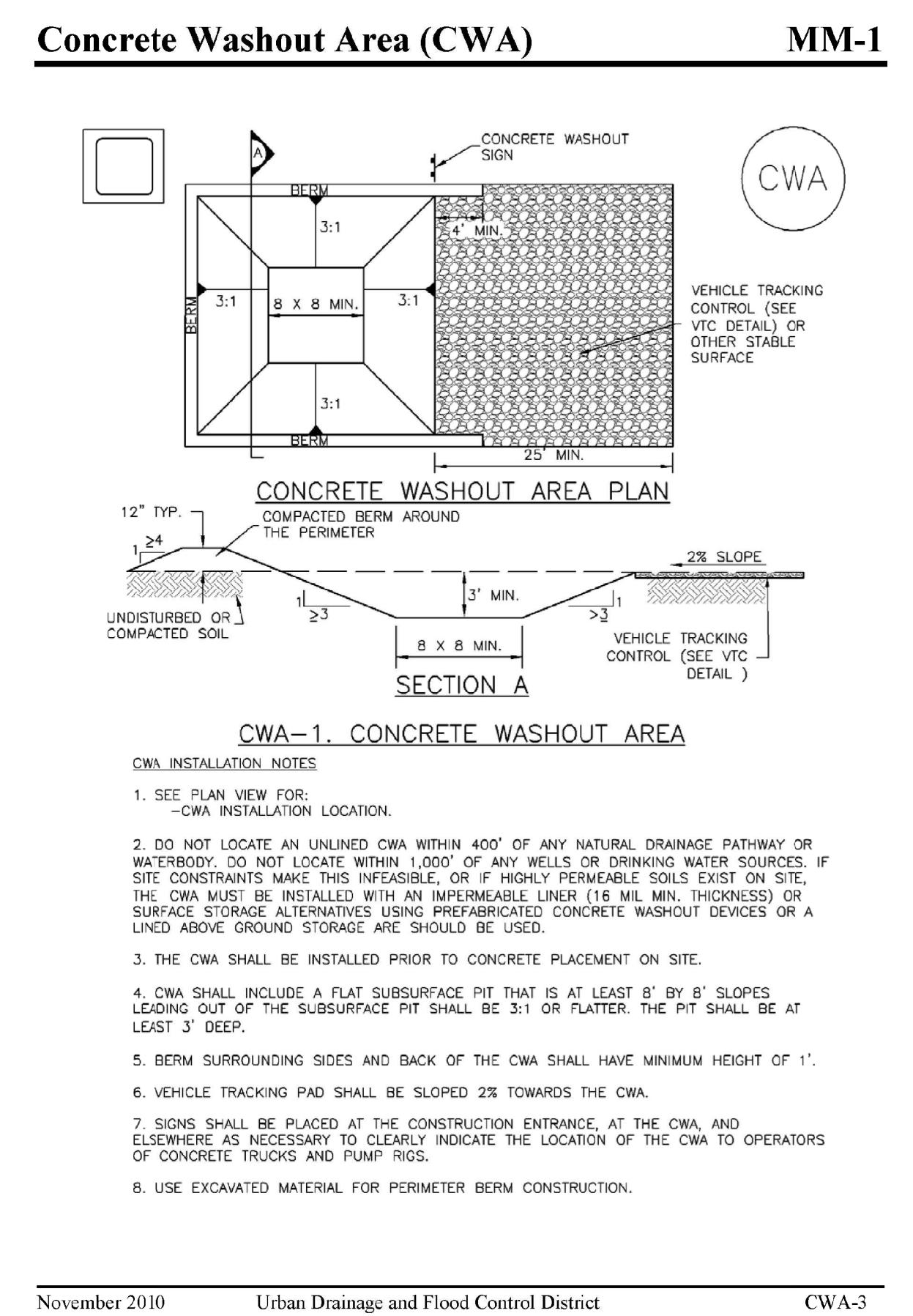
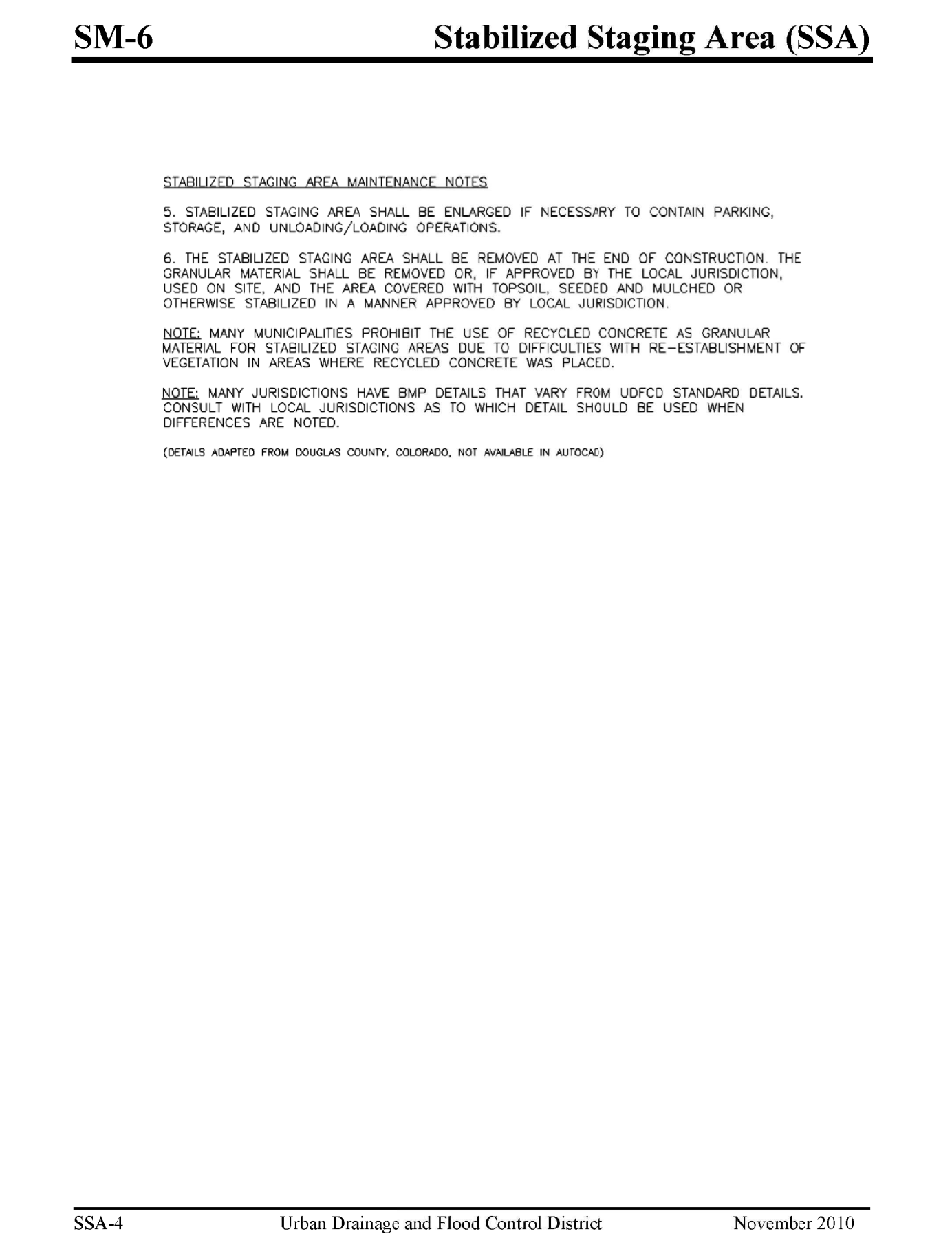
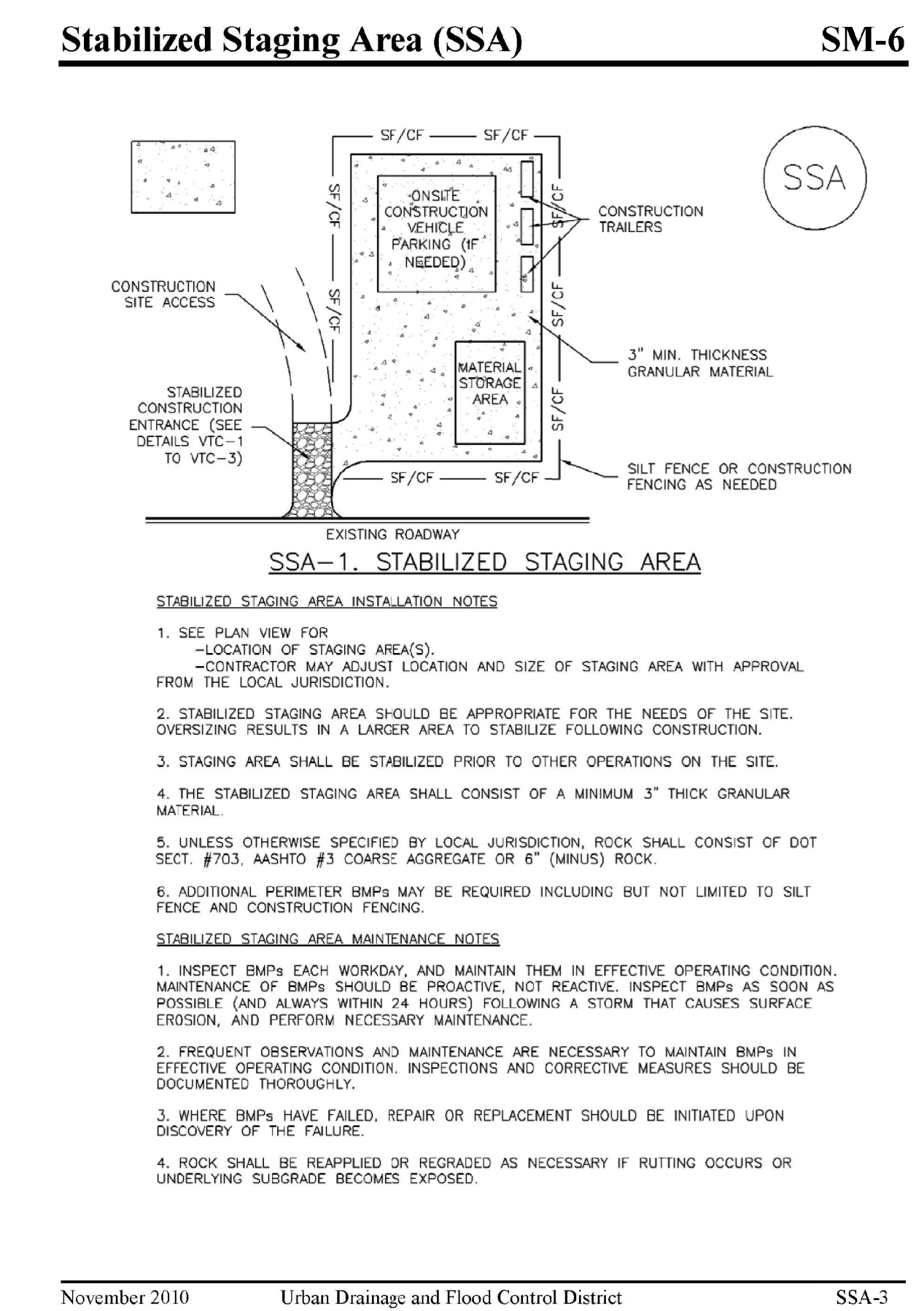
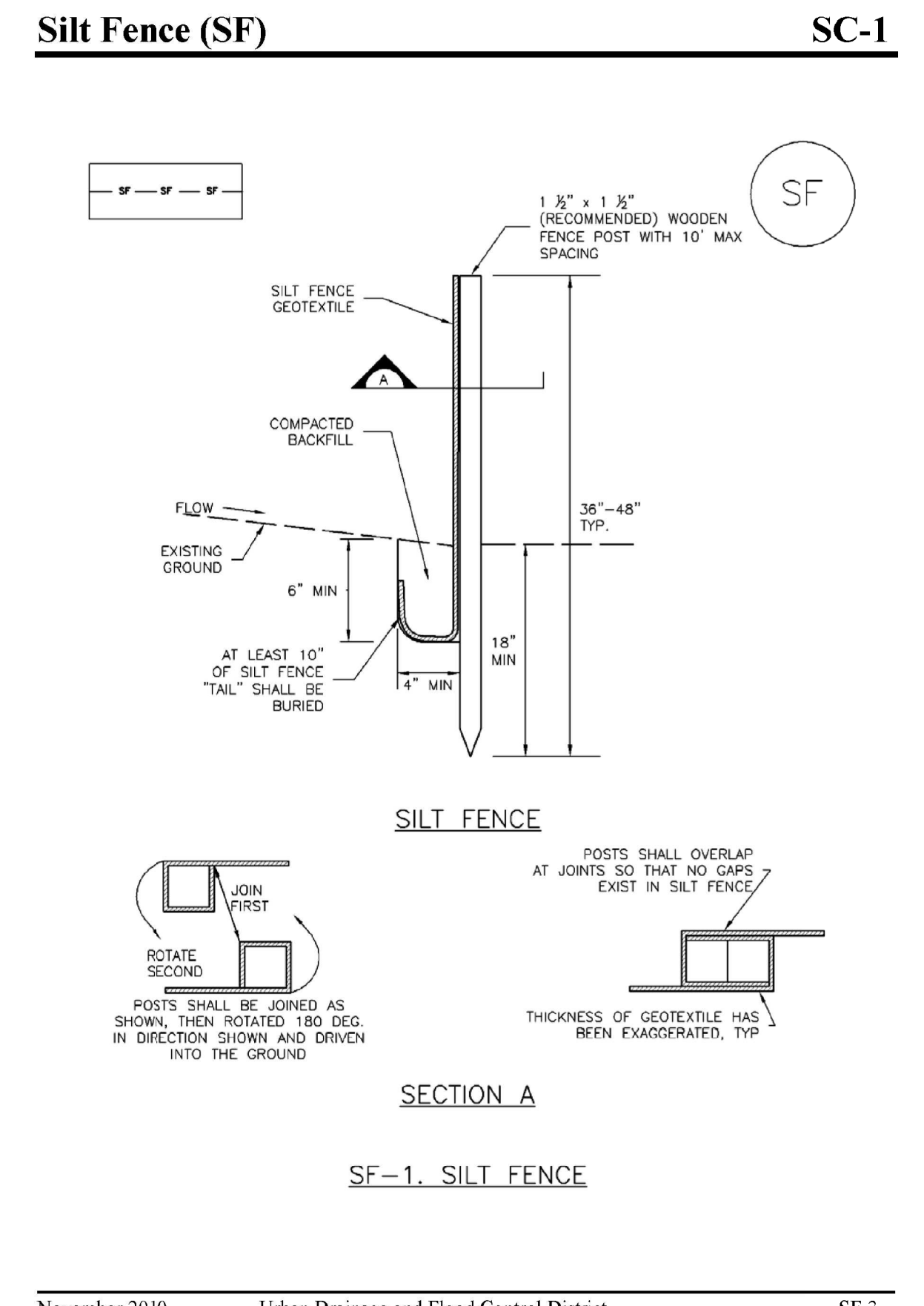
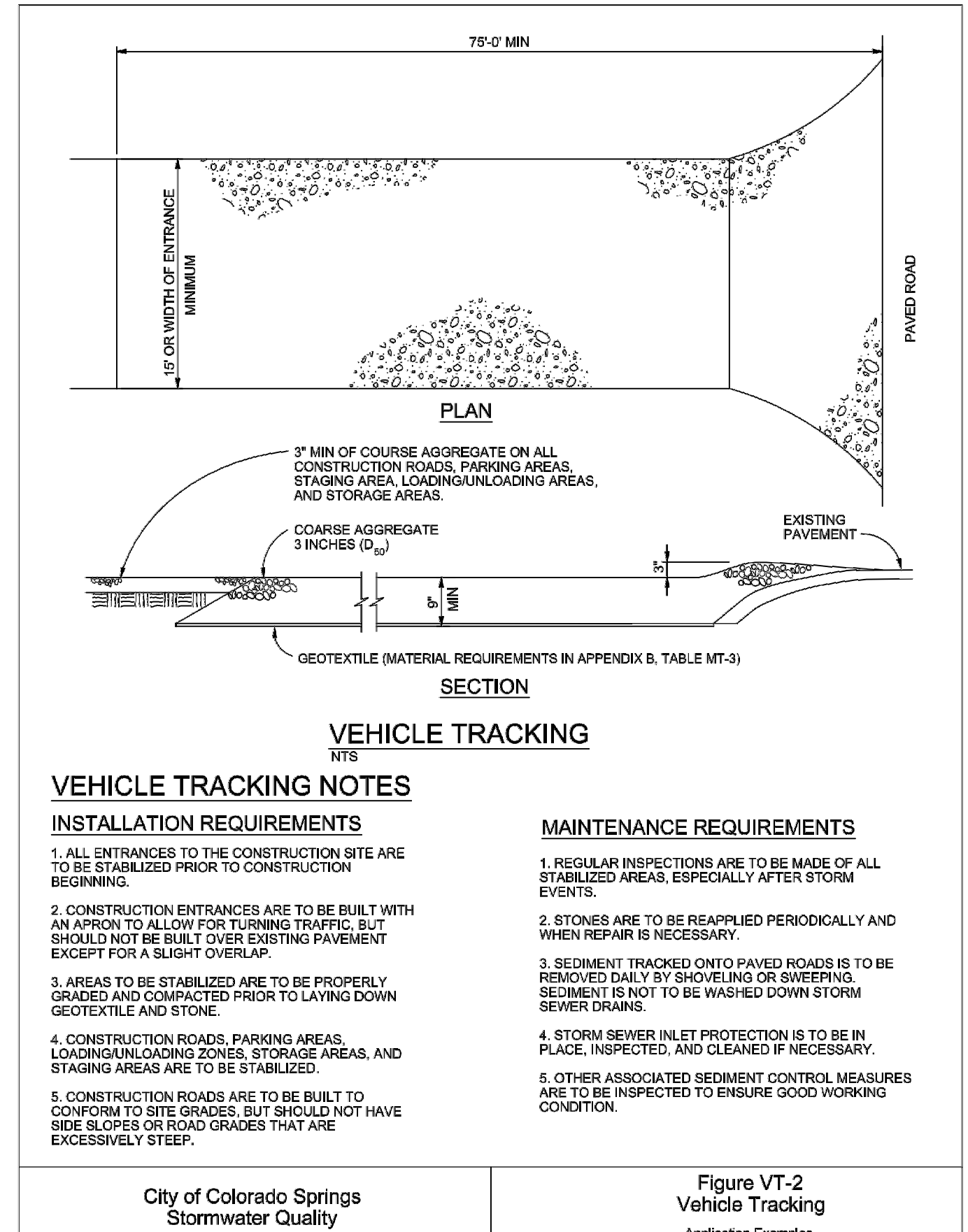
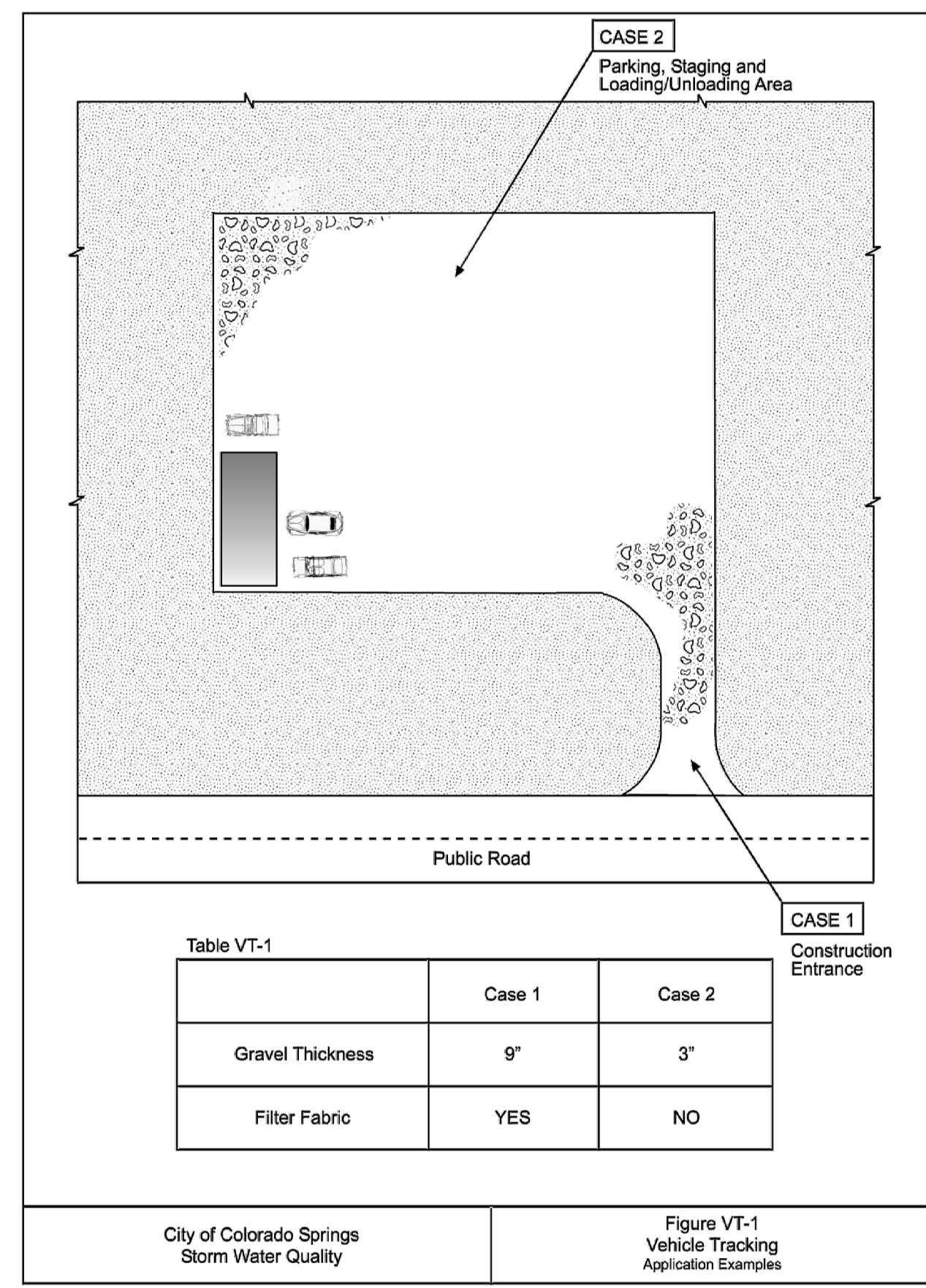
PROJECT NUMBER:
 19015

ISSUED DATE:
 12-03-2020

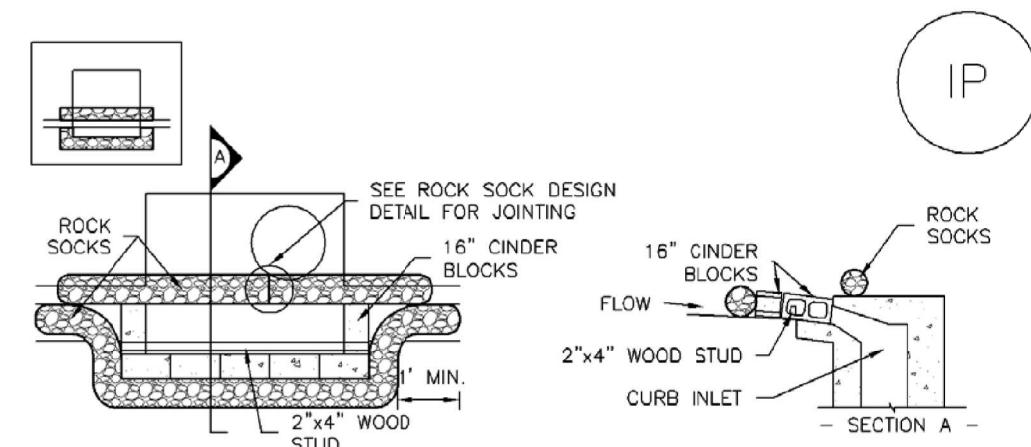
DESIGNED BY:
 TEW

REVIEWED BY:
 RCE

ESCD - Final Phase

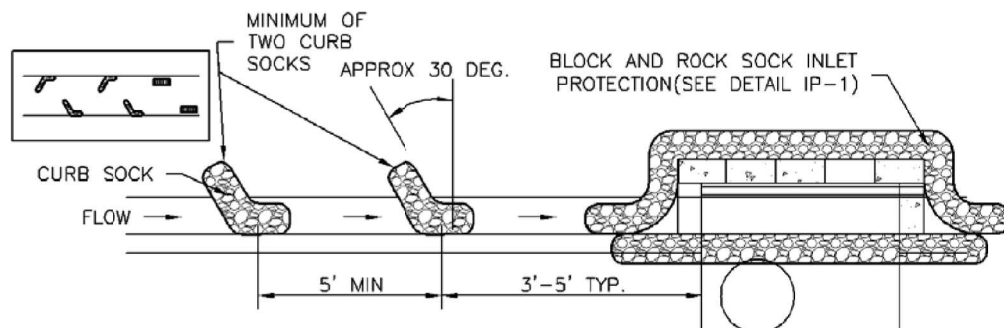


SC-6 Inlet Protection (IP)



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 ADJUTING ONE ANOTHER AND JOINED TOGETHER IN ACCORDANCE WITH ROCK SOCK DESIGN DETAIL.

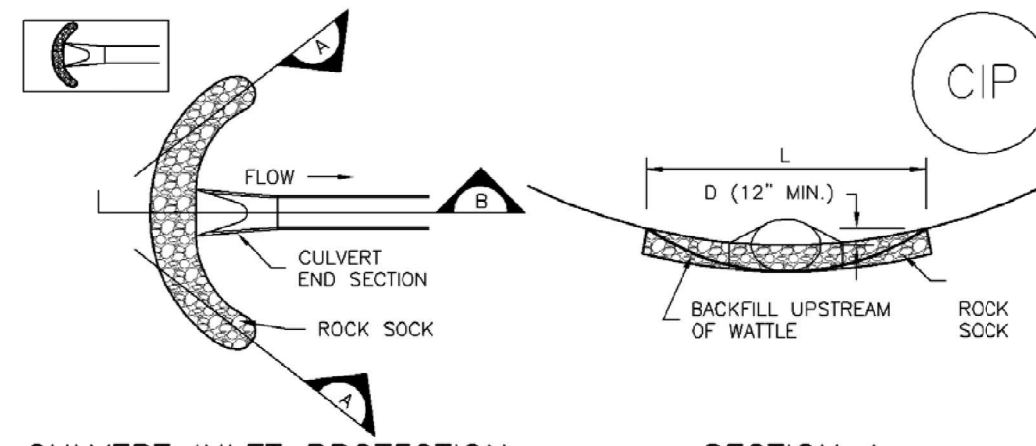


IP-2. CURB ROCK SOCKS UPSTREAM OF INLET PROTECTION

- 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 IN 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



CULVERT INLET PROTECTION PLAN SECTION A
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 $\frac{1}{2}$ 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.

(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.

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

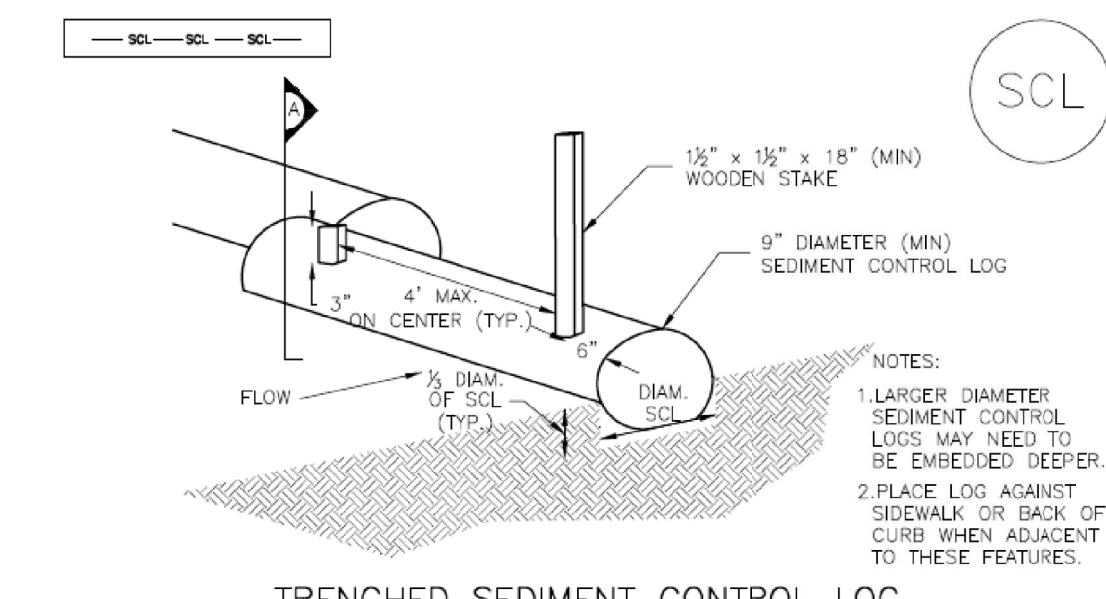
SC-6 Inlet Protection (IP)

- 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 $\frac{1}{4}$ 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.

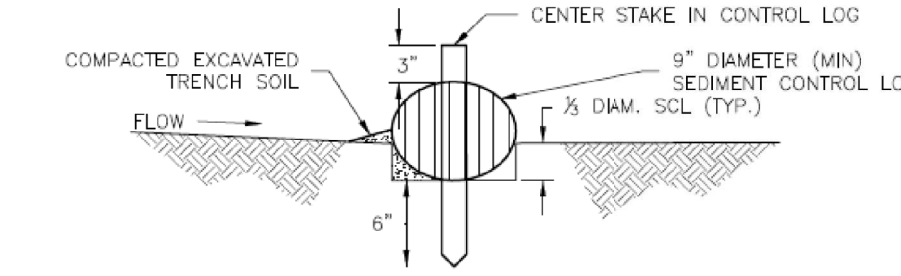
(DETAILS ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)
NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.
NOTE: THE DETAILS INCLUDED 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 DISCOURAGES USE OF PROPRIETARY INLET PROTECTION; HOWEVER, IN THE EVENT PROPRIETARY METHODS ARE USED, THE APPROPRIATE DETAIL FROM THE MANUFACTURER MUST BE INCLUDED IN THE SWMP AND THE BMP MUST BE INSTALLED AND MAINTAINED AS SHOWN IN THE MANUFACTURER'S DETAILS.
NOTE: SOME MUNICIPALITIES DISCOURAGE OR PROHIBIT THE USE OF STRAW BALES FOR INLET PROTECTION. CHECK WITH LOCAL JURISDICTION TO DETERMINE IF STRAW BALE INLET PROTECTION IS ACCEPTABLE.

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

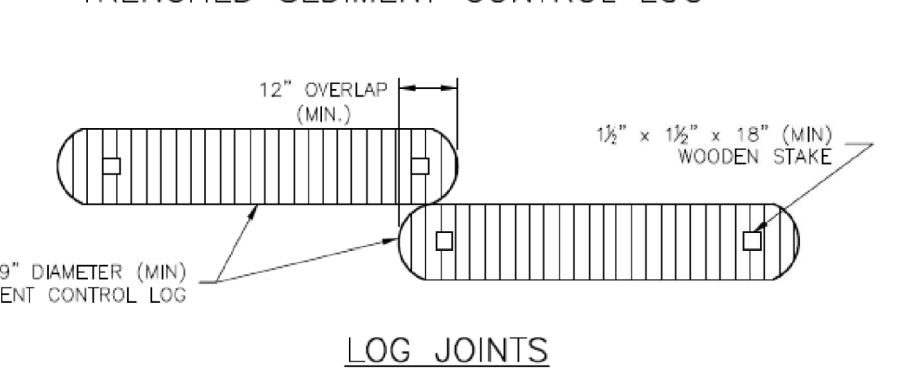
Sediment Control Log (SCL) SC-2



TRENCHED SEDIMENT CONTROL LOG



SECTION A TRENCHED SEDIMENT CONTROL LOG

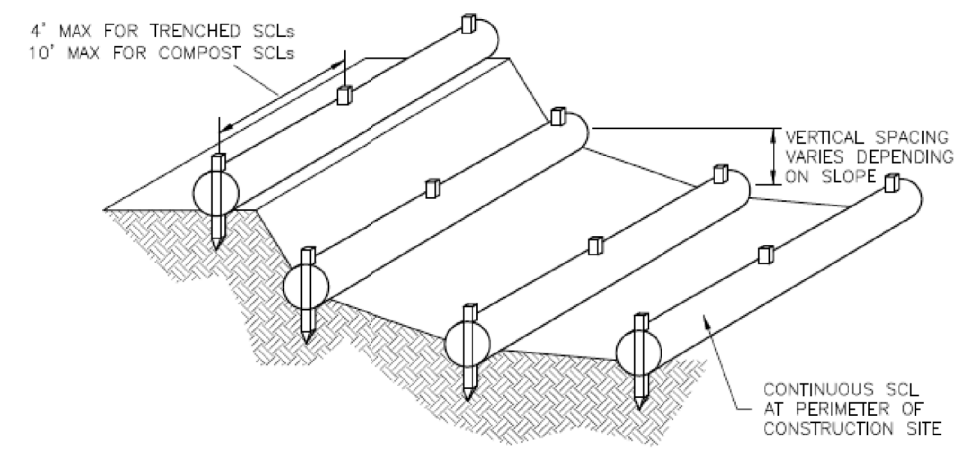


LOG JOINTS

SCL-1. TRENCHED SEDIMENT CONTROL LOG

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

Sediment Control Log (SCL) SC-2



SCL-3. SEDIMENT CONTROL LOGS TO CONTROL SLOPE LENGTH

- 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/GRADING/DEMOLITION/CONSTRUCTION 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 $\frac{1}{2}$ 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 8 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 $\frac{1}{2}$ 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)
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 2015 Urban Drainage and Flood Control District SCL-5
Urban Storm Drainage Criteria Manual Volume 3

SC-2 Sediment Control Log (SCL)

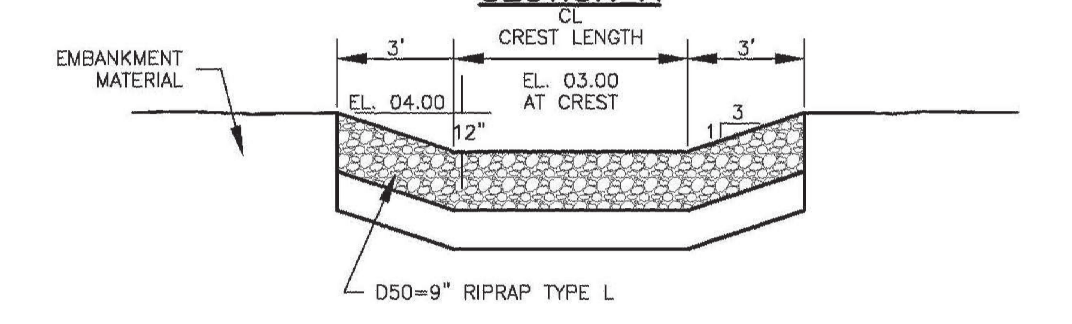
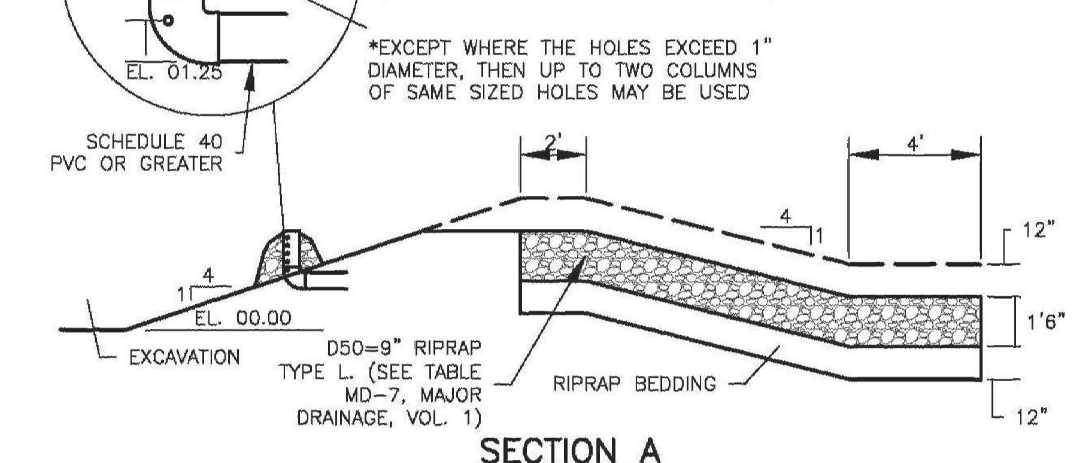
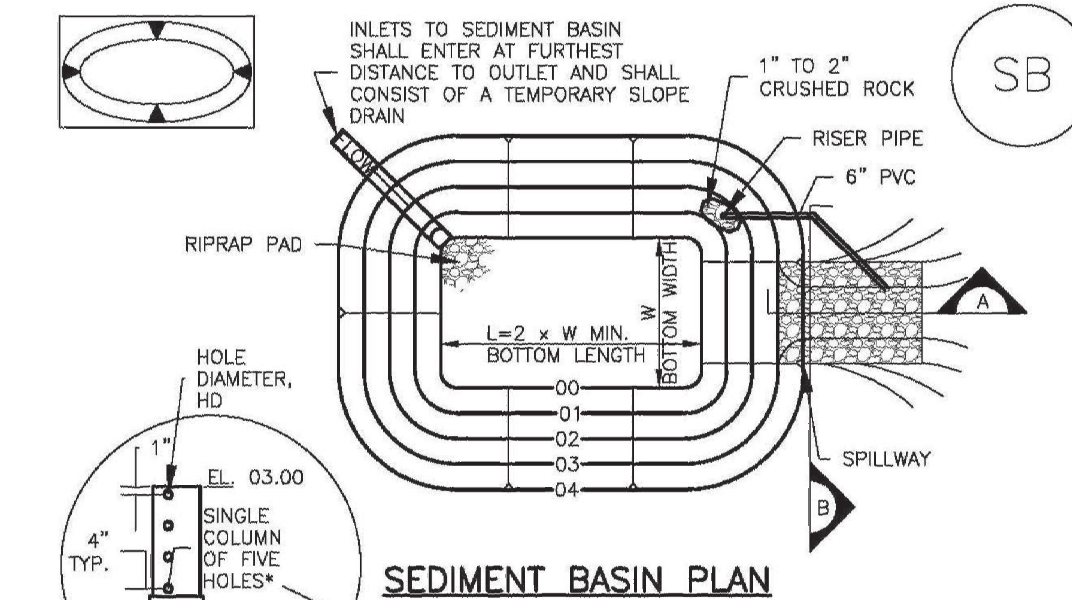
- SEDIMENT CONTROL LOG INSTALLATION NOTES**
- SEE PLAN VIEW FOR LOCATION AND LENGTH OF SEDIMENT CONTROL LOGS.
 - SEDIMENT CONTROL LOGS THAT ACT AS A PERIMETER CONTROL SHALL BE INSTALLED PRIOR TO ANY UPGRADE/GRADING/DEMOLITION/CONSTRUCTION ACTIVITIES.
 - SEDIMENT CONTROL LOGS SHALL CONSIST OF STRAW, COMPOST, 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 $\frac{1}{2}$ 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 8 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 $\frac{1}{2}$ 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)
NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

August 2013 Urban Drainage and Flood Control District November 2015
Urban Storm Drainage Criteria Manual Volume 3

Sediment Basin (SB) SC-7



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	4	1 3/4
4	33 1/2	5	1 3/4
5	39 1/2	6	2 1/4
6	43	7	2 1/4
7	47 1/2	8	2 1/4
8	51	9	2 1/4
9	55	10	2 1/4
10	58 1/2	11	2 1/4
11	61	12	2 1/4
12	64	13	2 1/4
13	67 1/2	14	2 1/4
14	70 1/2	15	2 1/4
15	73 1/2	16	2 1/4

- 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.

August 2013 Urban Drainage and Flood Control District SB-5
Urban Storm Drainage Criteria Manual Volume 3

SC-7 Sediment Basin (SB)

TABLE SB-1. SIZING INFORMATION FOR STANDARD SEDIMENT BASIN

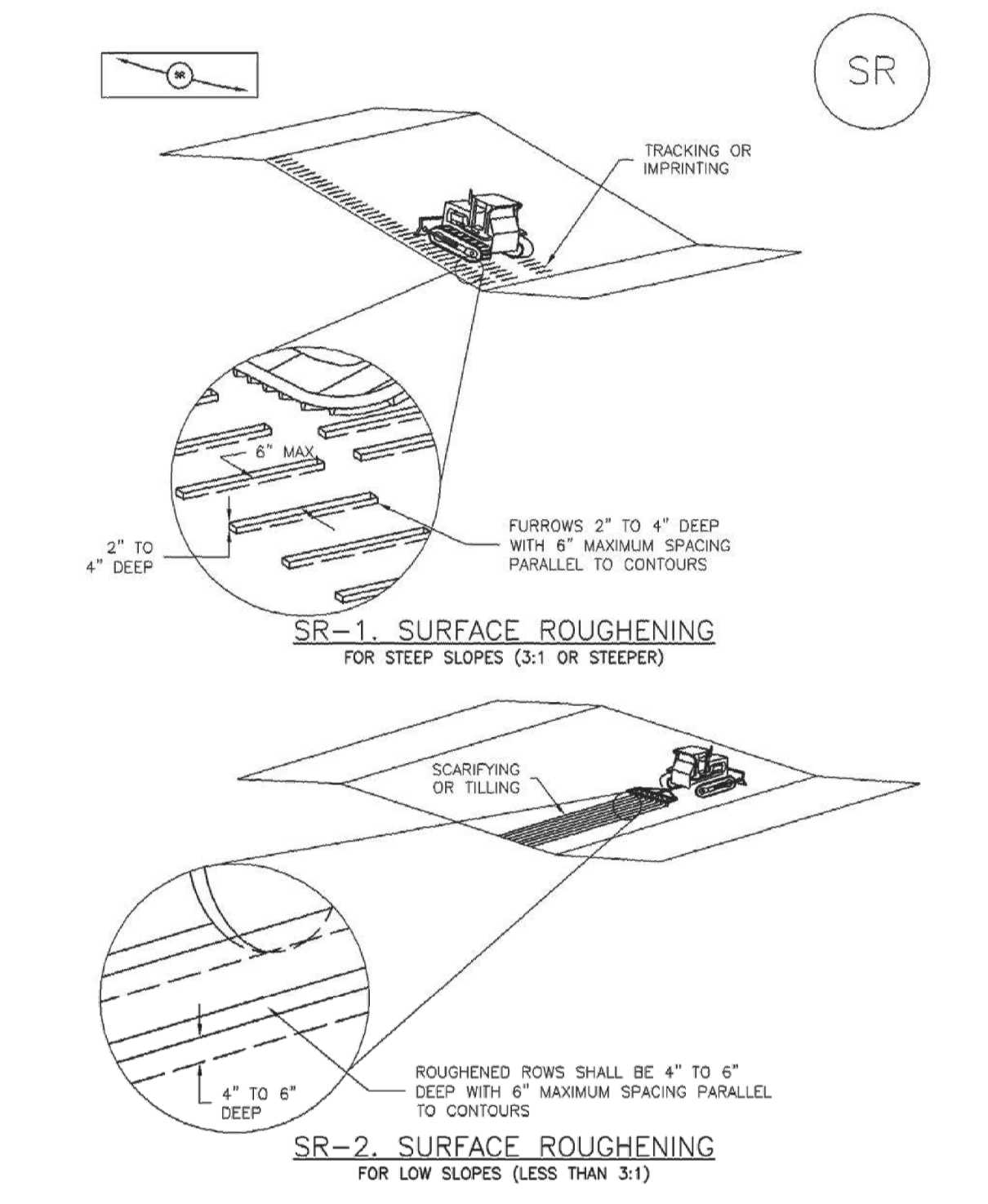
Upstream Drainage Area (rounded to nearest acre), (ac)	Basin Bottom Width (W), (ft)	Spillway Crest Length (CL), (ft)	Hole Diameter (HD), (in)
1	12 1/2	2	3/4
2	21	3	1 1/4
3	28	4	1 3/4
4	33 1/2	5	1 3/4
5	39 1/2	6	2 1/4
6	43	7	2 1/4
7	47 1/2	8	2 1/4
8	51	9	2 1/4
9	55	10	2 1/4
10	58 1/2	11	2 1/4
11	61	12	2 1/4
12	64	13	2 1/4
13	67 1/2	14	2 1/4
14	70 1/2	15	2 1/4
15	73 1/2	16	2 1/4

- 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



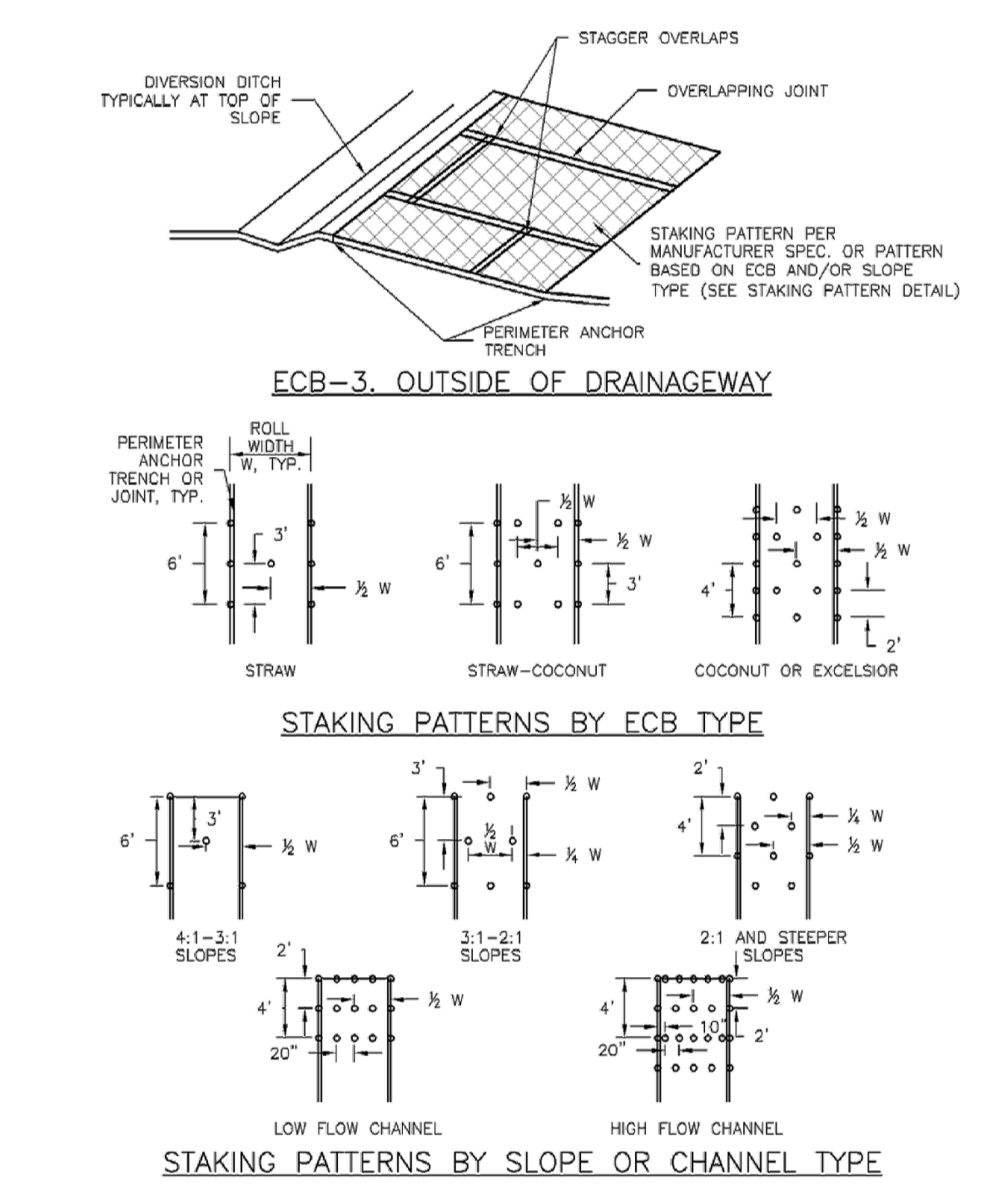
November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 SR-3

EC-1 Surface Roughening (SR)

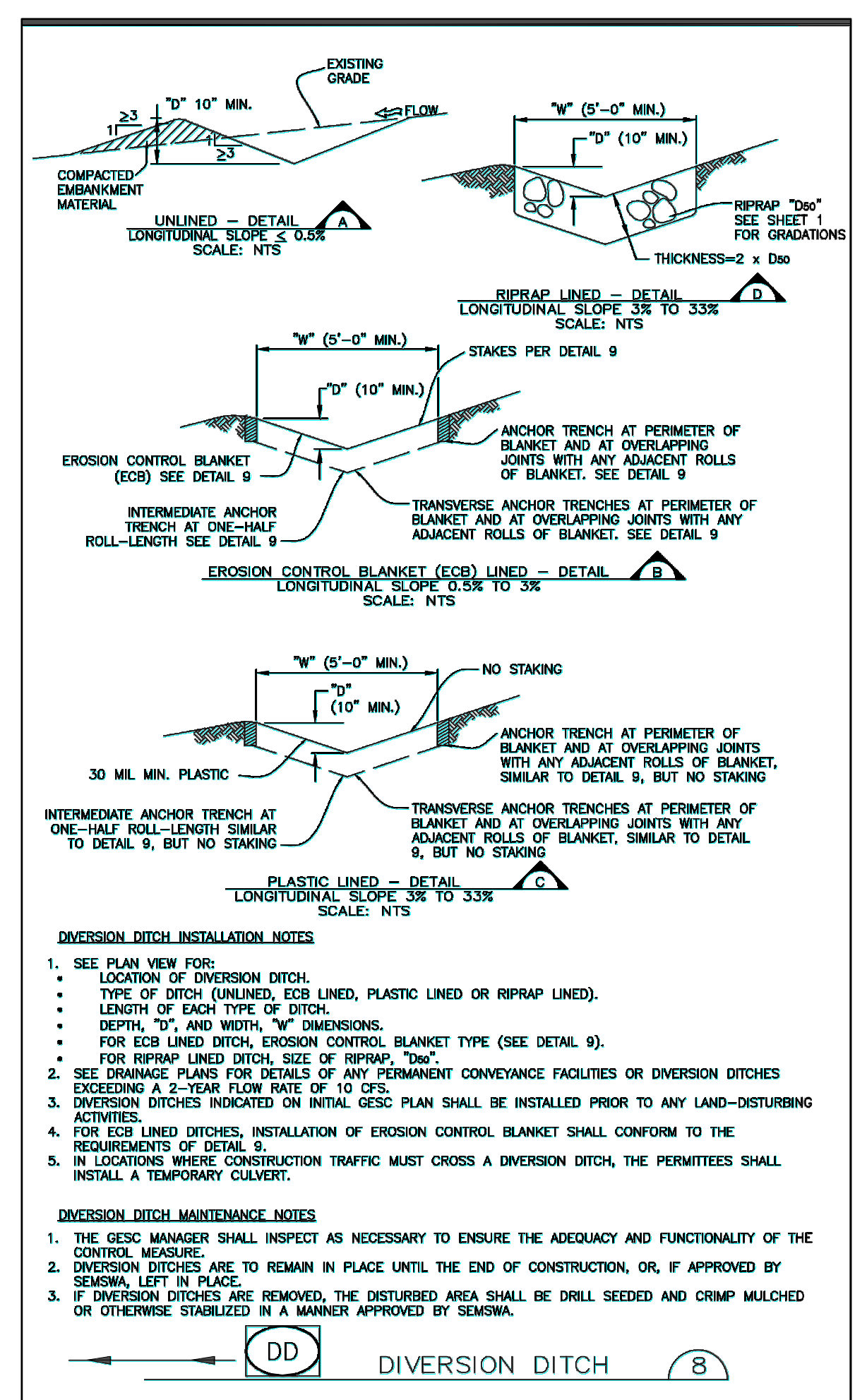
- SURFACE ROUGHENING INSTALLATION NOTES**
- SEE PLAN VIEW FOR:
 - LOCATION(S) OF SURFACE ROUGHENING.
 - SURFACE ROUGHENING SHALL BE PROVIDED PROMPTLY AFTER COMPLETION OF FINISHED GRADING (FOR AREAS NOT RECEIVING TOPSOIL) OR PRIOR TO TOPSOIL PLACEMENT OR ANY FORECASTED RAIN EVENT.
 - AREAS WHERE BUILDING 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



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

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 [†]	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.

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

[‡] 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 ^a Name	Botanical Name	Growth Season ^a	Growth Form	Seeds/ Pound	Pounds of PLS/acre
Alkali Soil Seed Mix					
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
Total					17.75
Fertile Loamy Soil Seed Mix					
Ephraim crested wheatgrass	<i>Agropyron cristatum 'Ephraim'</i>	Cool	Sod	175,000	2.0
Dural hard fescue	<i>Festuca ovina 'durascula'</i>	Cool	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
Total					15.5
High Water Table Soil Seed Mix					
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
Alkat tall wheatgrass	<i>Agropyron elongatum 'Alkat'</i>	Cool	Bunch	79,000	5.5
Total					10.75
Transition Turf Seed Mix[†]					
Ruebans Canadian bluegrass	<i>Poa compressa 'Ruebans'</i>	Cool	Sod	2,500,000	0.5
Dural hard fescue	<i>Festuca ovina 'durascula'</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
Total					7.5

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

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

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

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

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

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 ^a	Growth Form	Seeds/ Pound	Pounds of PLS/acre
Sandy Soil Seed Mix					
Blue grama	<i>Bouteloua gracilis</i>	Warm	Sod-forming bunchgrasses	825,000	0.5
Camper little bluestem	<i>Setischyrium 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
Total					10.25
Heavy Clay, Rocky Foothill Seed Mix					
Ephraim crested wheatgrass [†]	<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 [‡]	<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
Total					17.5

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

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

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

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

[¶] 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

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. Reseed and mulch these areas, as needed.

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

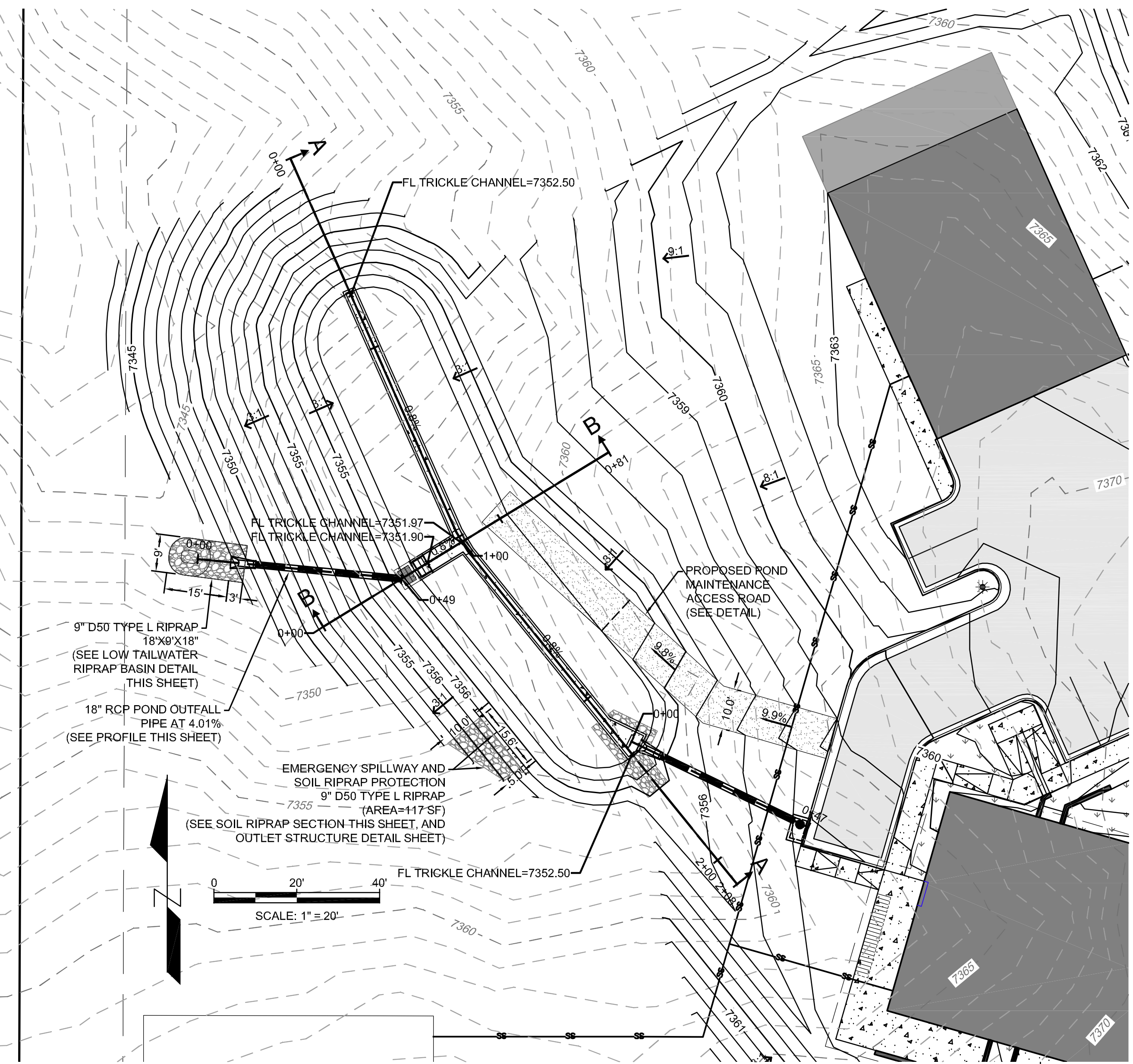
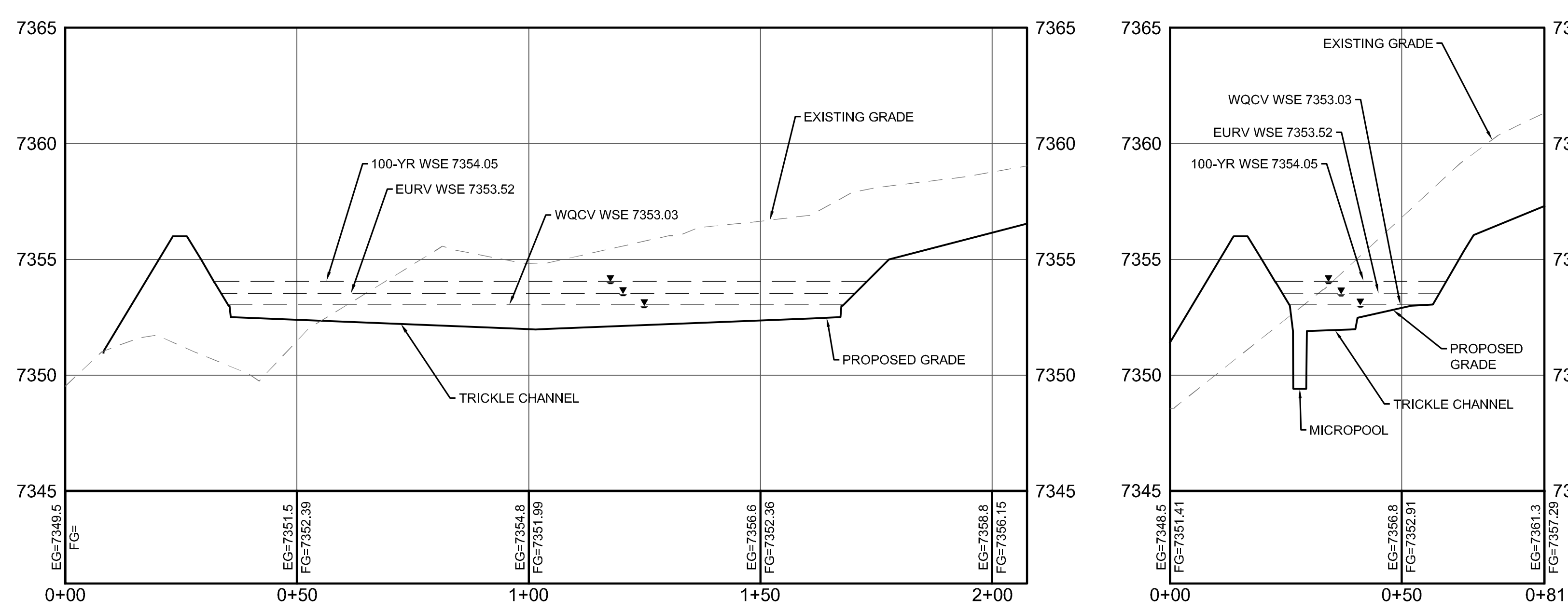
Seeded areas may require irrigation, particularly during extended dry periods. Targeted weed control may also be necessary.

Protect seeded areas from construction equipment and vehicle access.

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

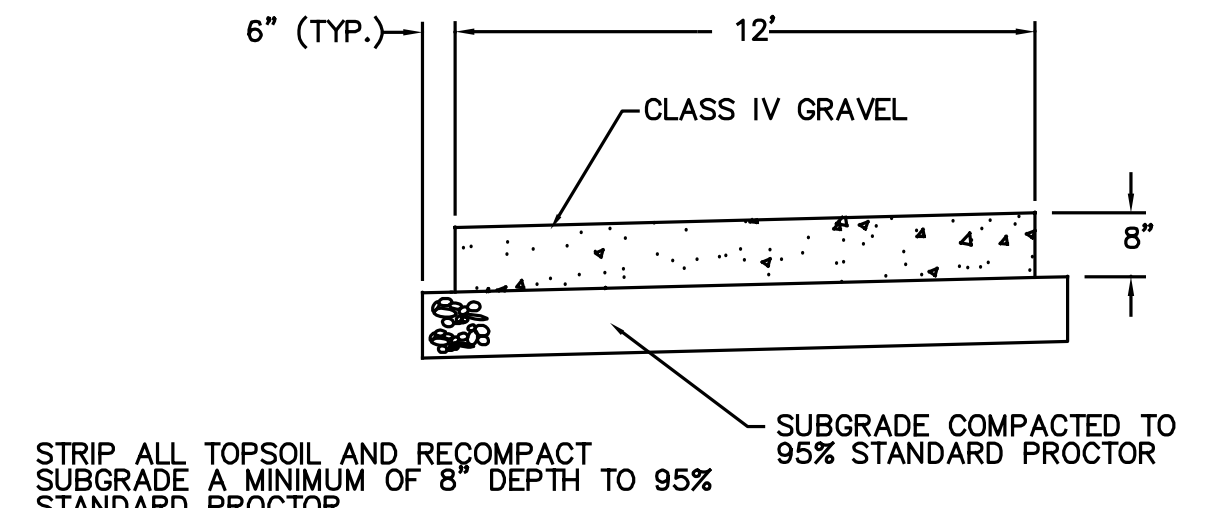
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N1/2 NE1/4 SE1/4 SE1/4 OF SECTION 07, TOWNSHIP 12 SOUTH, RANGE 65 WEST OF THE 6TH P.M., EL PASO COUNTY, COLORADO



Pay Item	Stone Size d50' (Inches)	Percent of Material Smaller Than Typical Stone ²	Typical Stone Dimensions ³ (Inches)	Typical Stone Weight ⁴ (Pounds)
Riprap	9	70-100 50-70 35-50 2-10	15 12 9 3	160 85 35 1.3

¹d50 = nominal stone size
²based on typical rock mass
³equivalent spherical diameter
⁴based on a specific gravity = 2.5

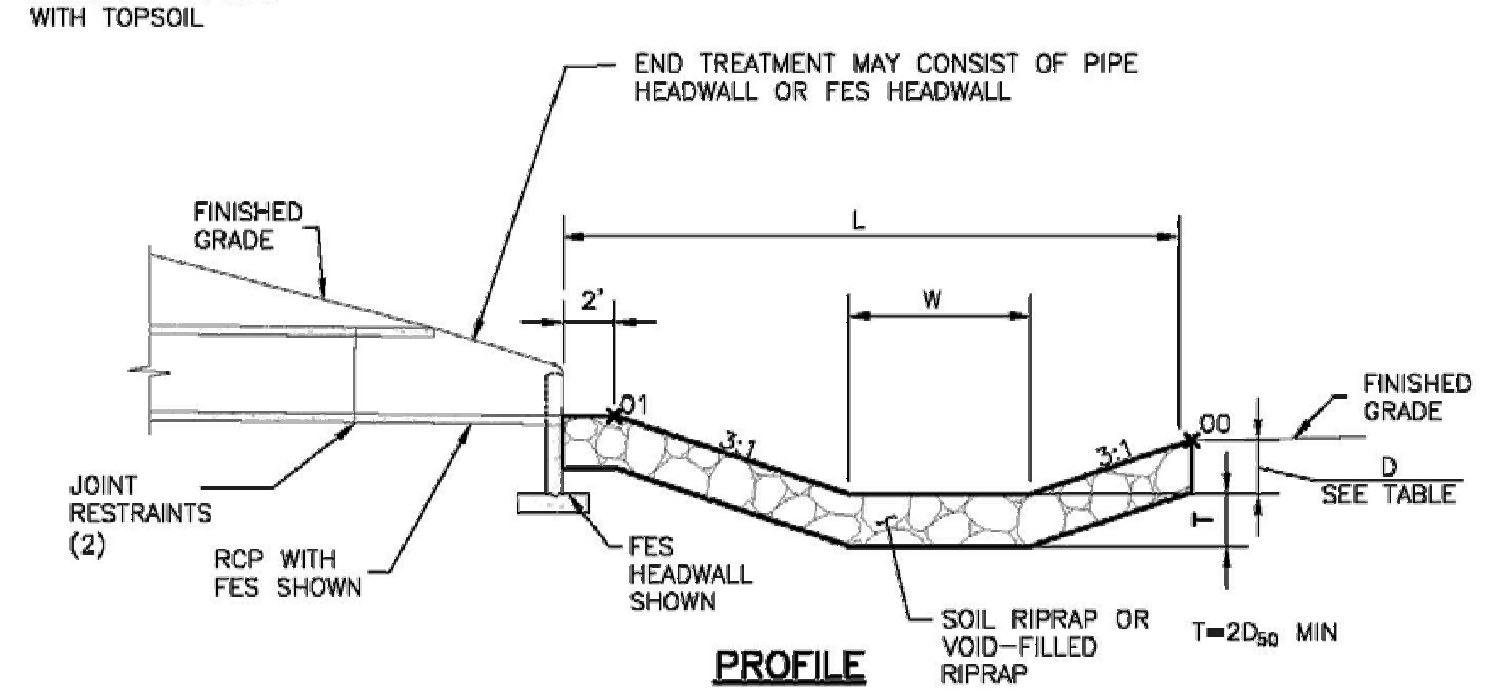
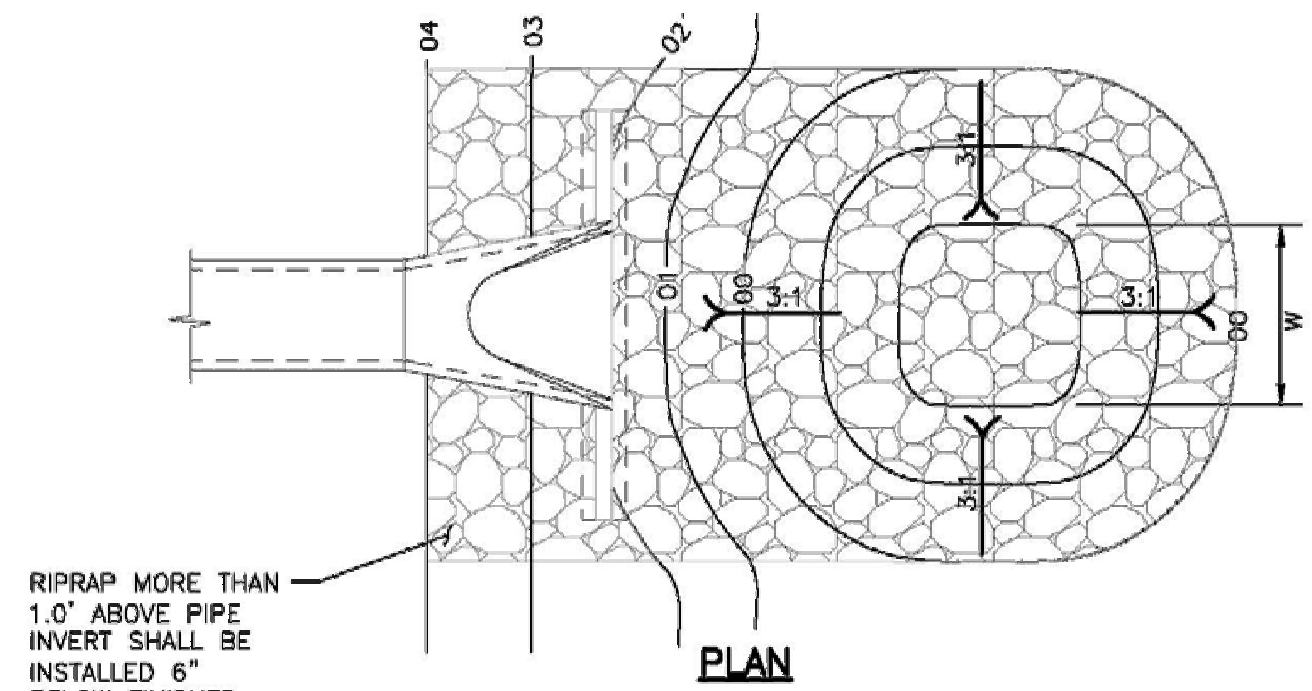


POND MAINTENANCE ROAD DETAIL
N.T.S.

CLASSIFICATION FOR AGGREGATE BASE COURSE

Sieve Size	Mass Percent Passing Square Mesh Sieves						
	LL not greater than 35			LL not greater than 30			
	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7
150 mm (6")			100				
100 mm (4")		100					
75 mm (3")		95-100					
60 mm (2 1/2")	100						
50 mm (2")	95-100			100			
37.5 mm (1 1/2")			90-100	100			
25 mm (1")				95-100	100	100	
19 mm (3/4")				50-90	95-100		
4.75 mm (#4)	30-65			30-50	30-70	30-65	
2.36 mm (#8)					25-55		20-85
75 μm (#200)	3-15	3-15	20 max	3-12	3-15	3-12	5-15

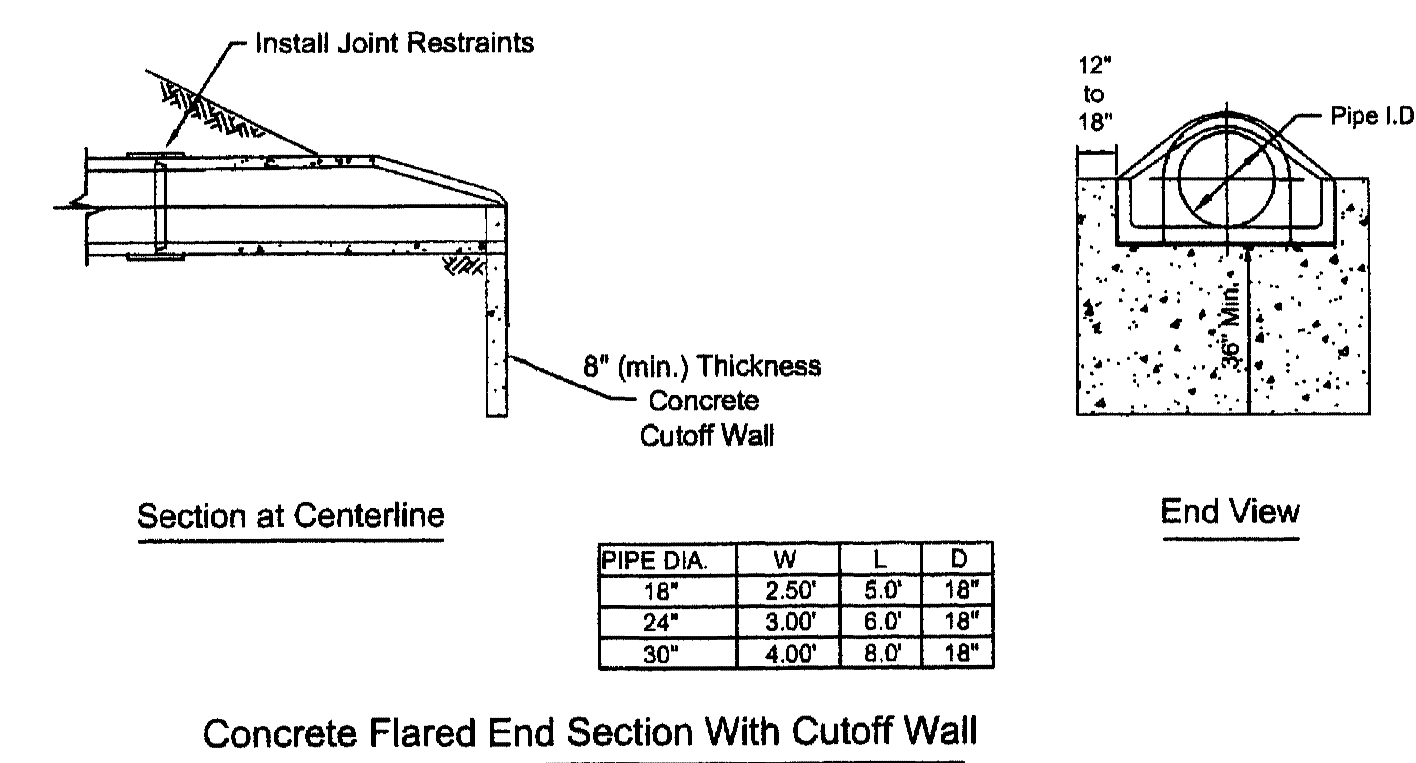
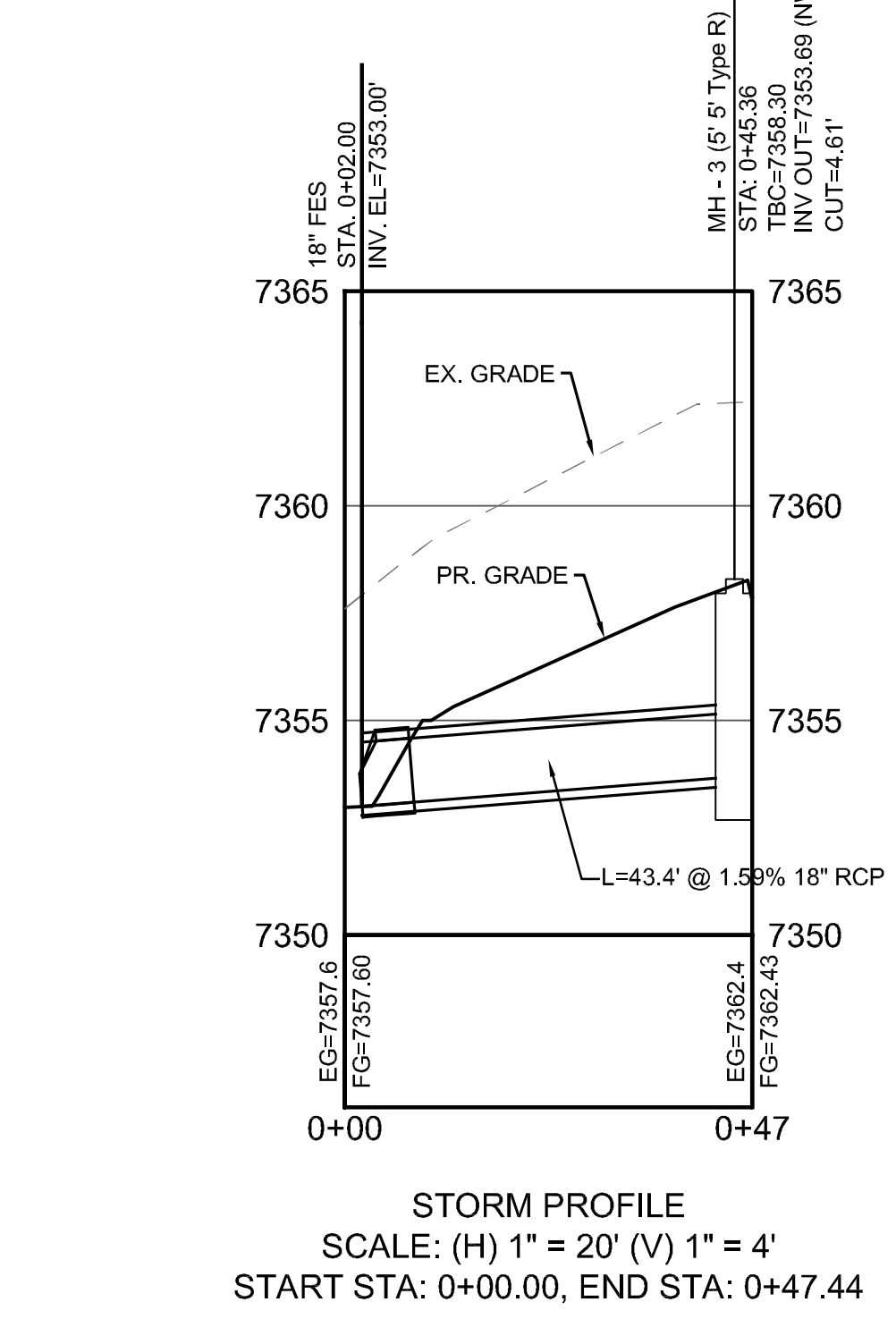
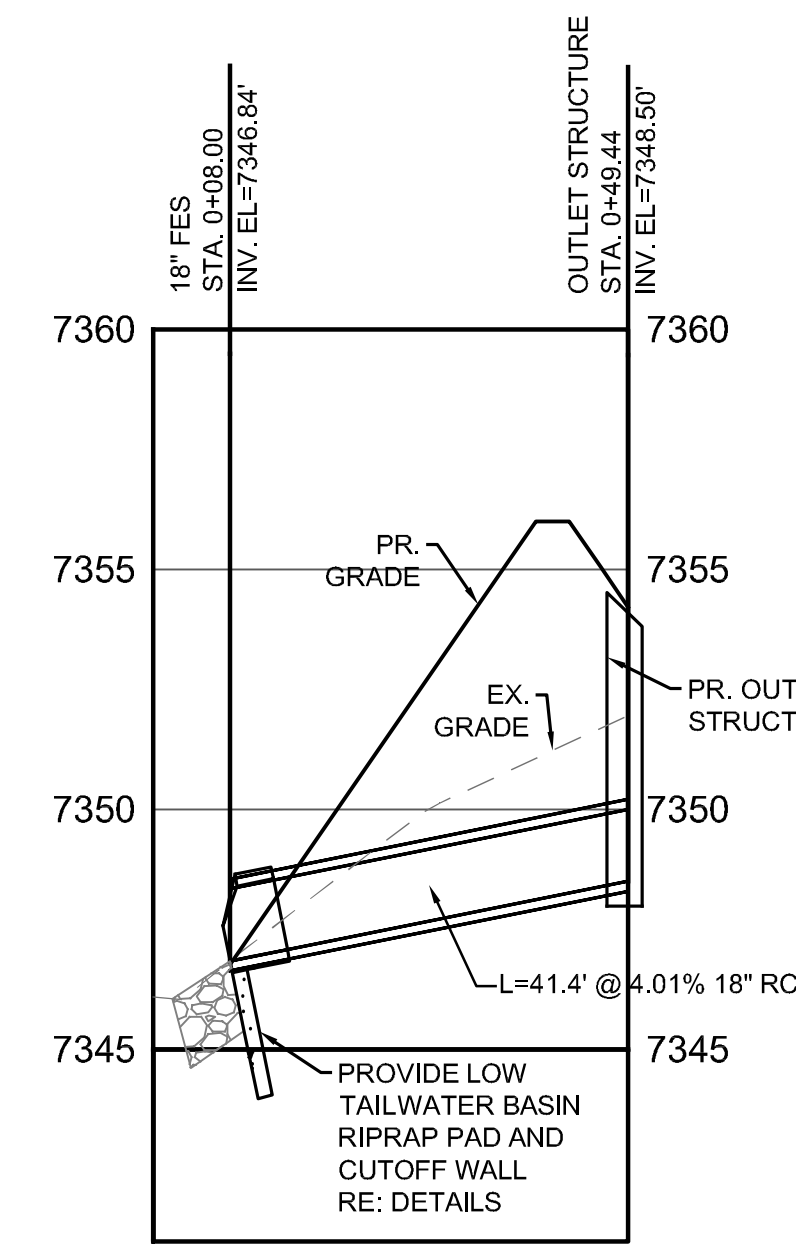
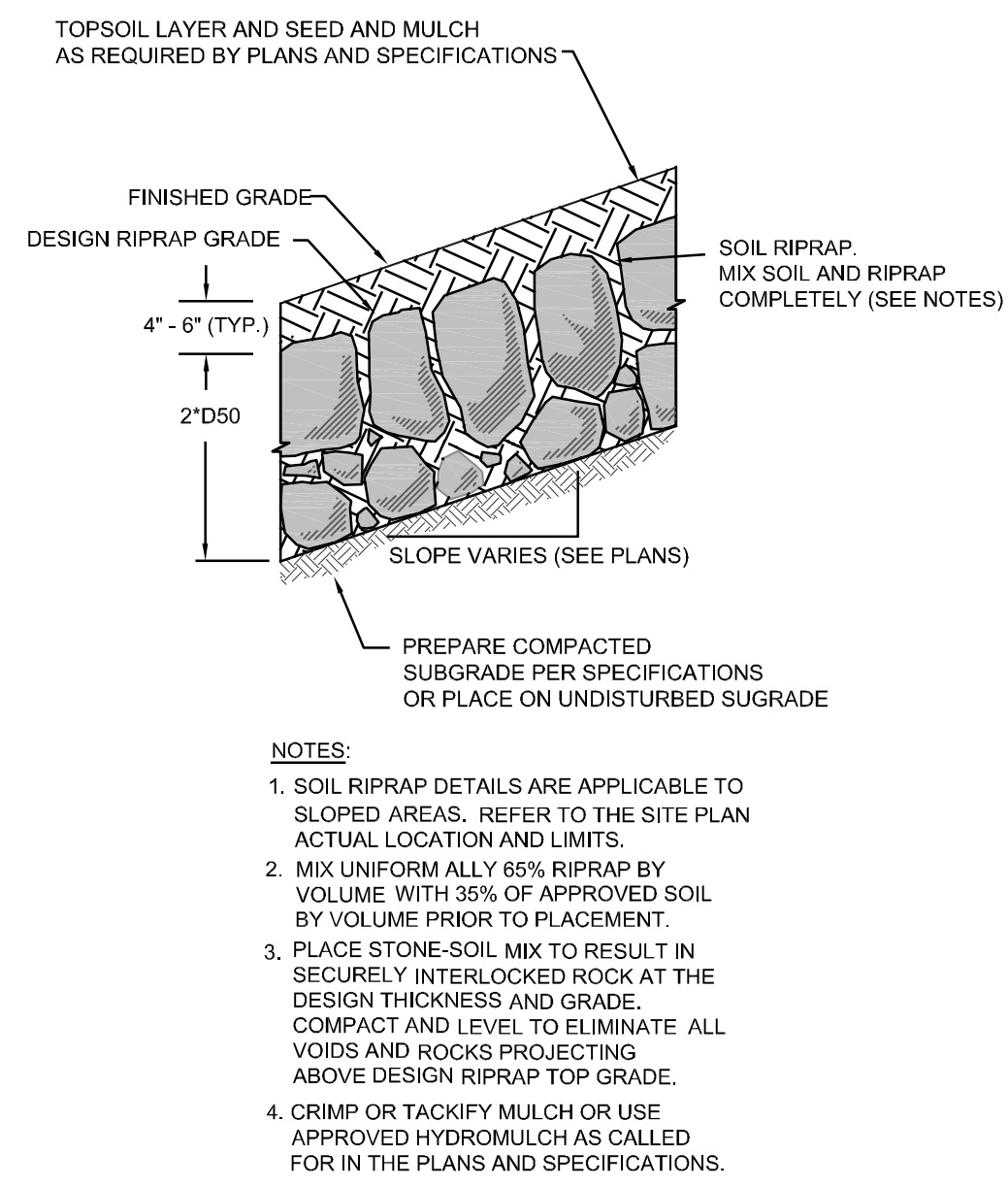
NOTE: Class 3 material shall consist of bank or pit run material.



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

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

LOW TAILWATER RIPRAP BASIN
N.T.S.



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

CONSTRUCTION DOCUMENTS
BLACK FOREST OFFICE
COLORADO SPRINGS, COLORADO

DATE: 1-18-21
BY: TEW

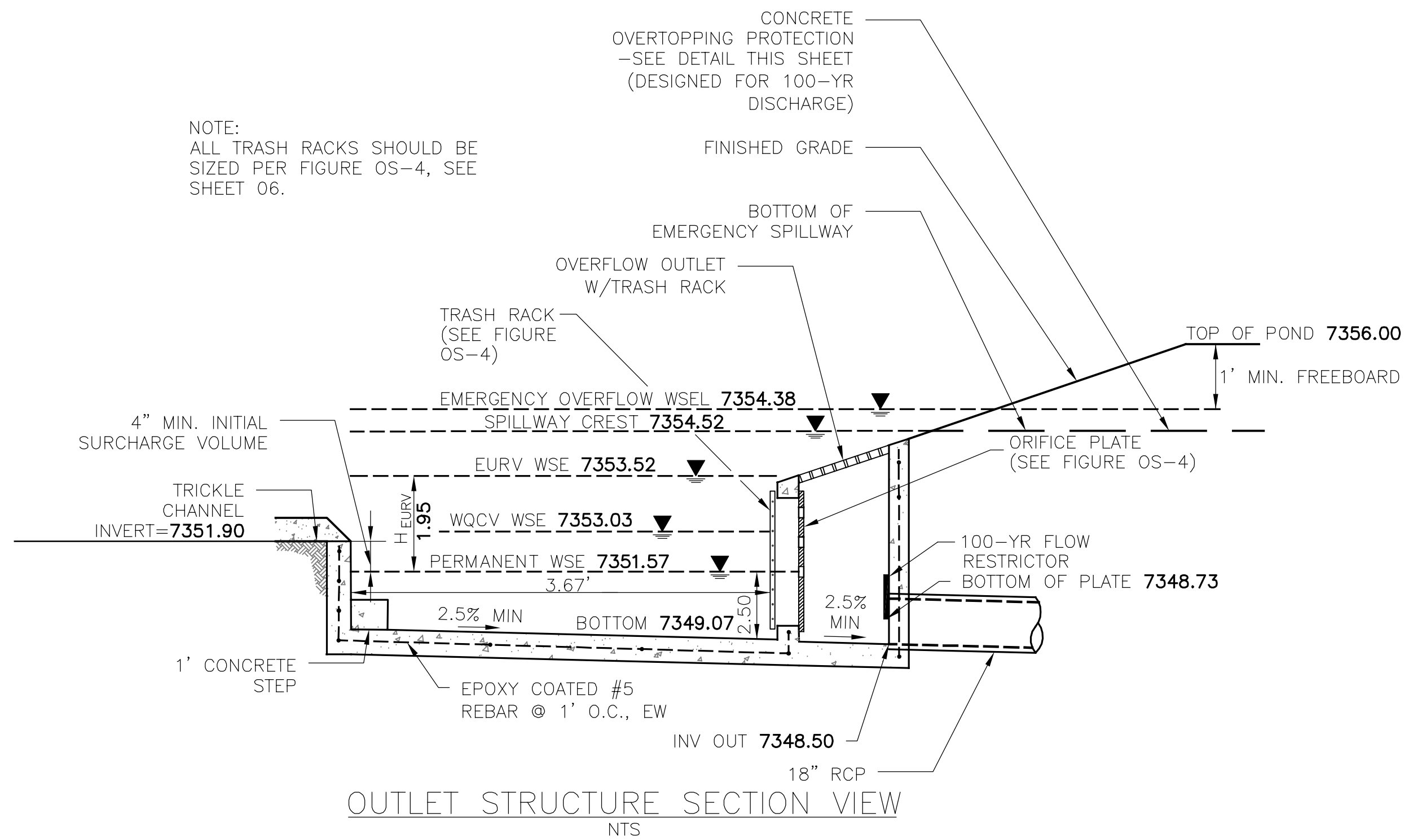
REVISIONS:
1. EL PASO ONLY COMMENTS 1-7-21
2.
3.
4.

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

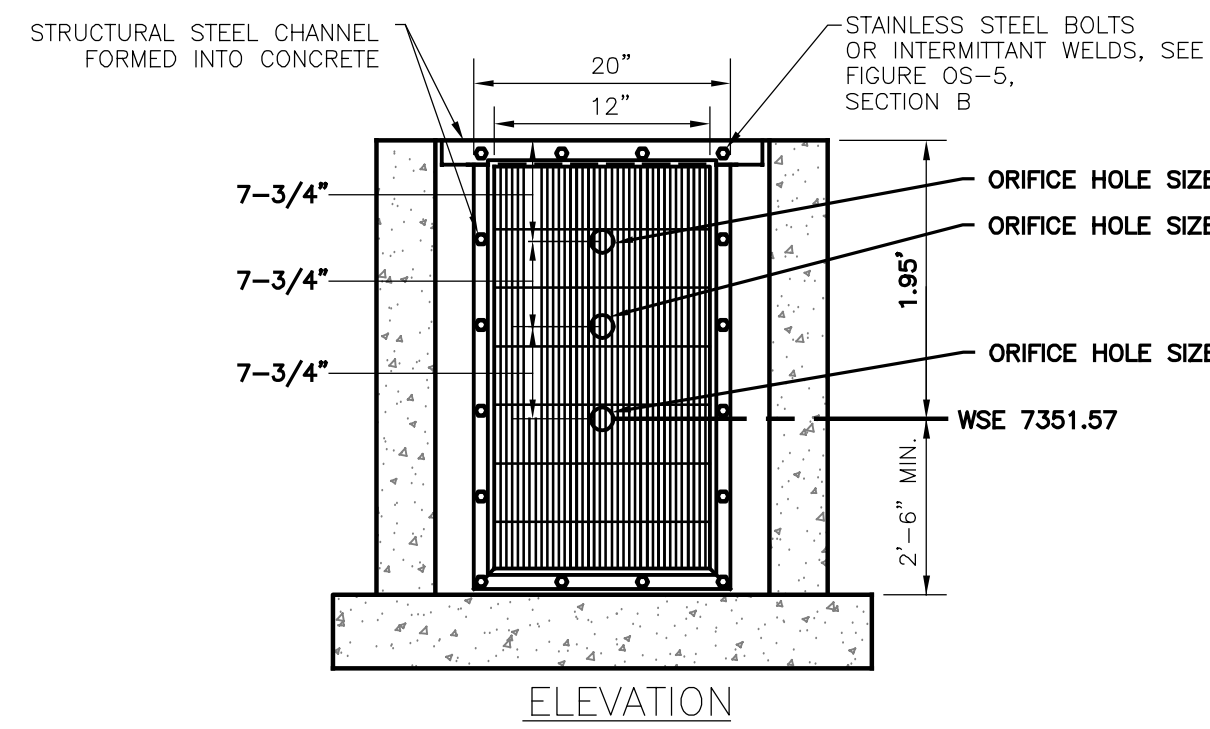
Pond Details

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



OUTLET STRUCTURE SECTION VIEW
NTS



ELEVATION

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.

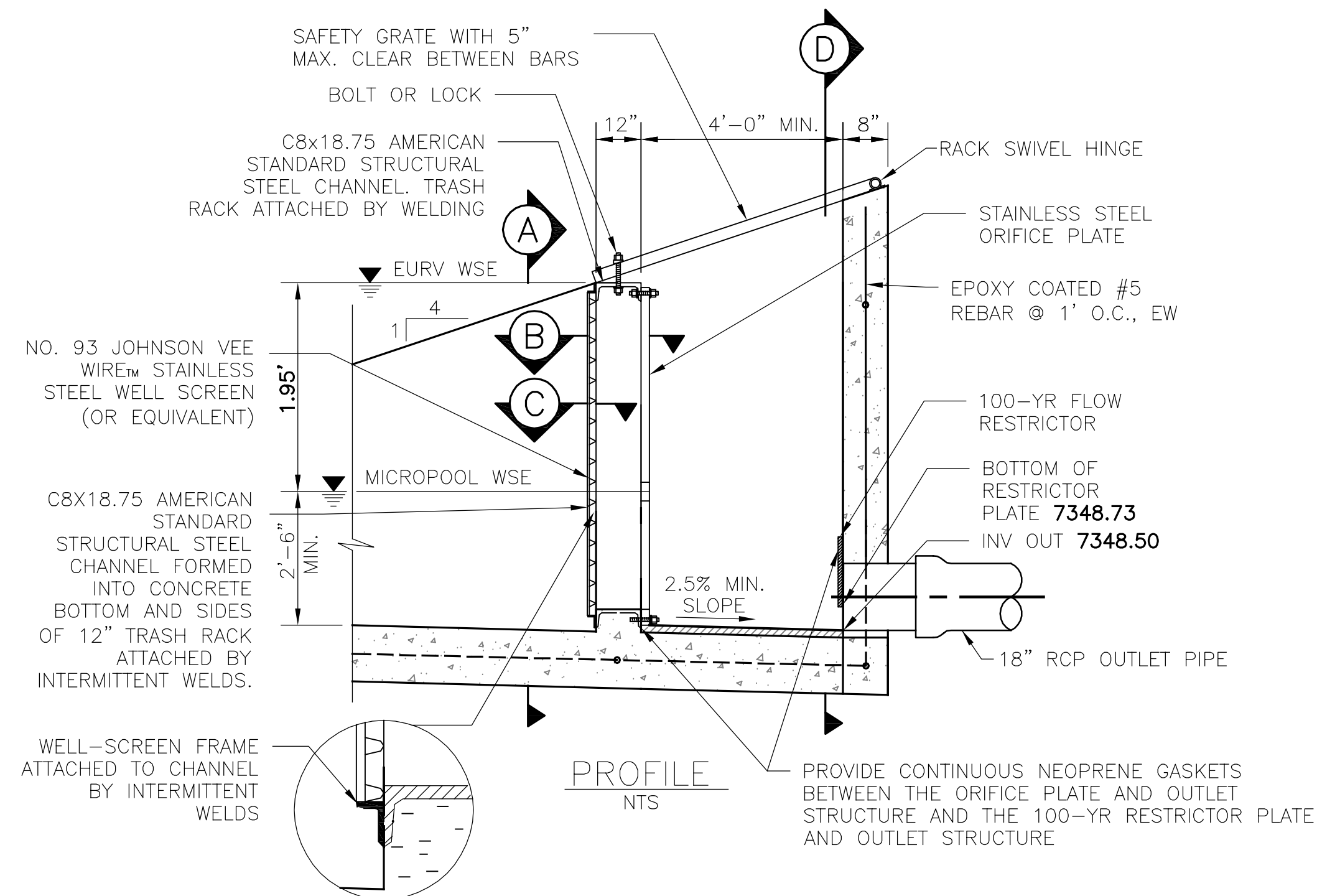
EURV AND WQCV TRASH RACKS:

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.

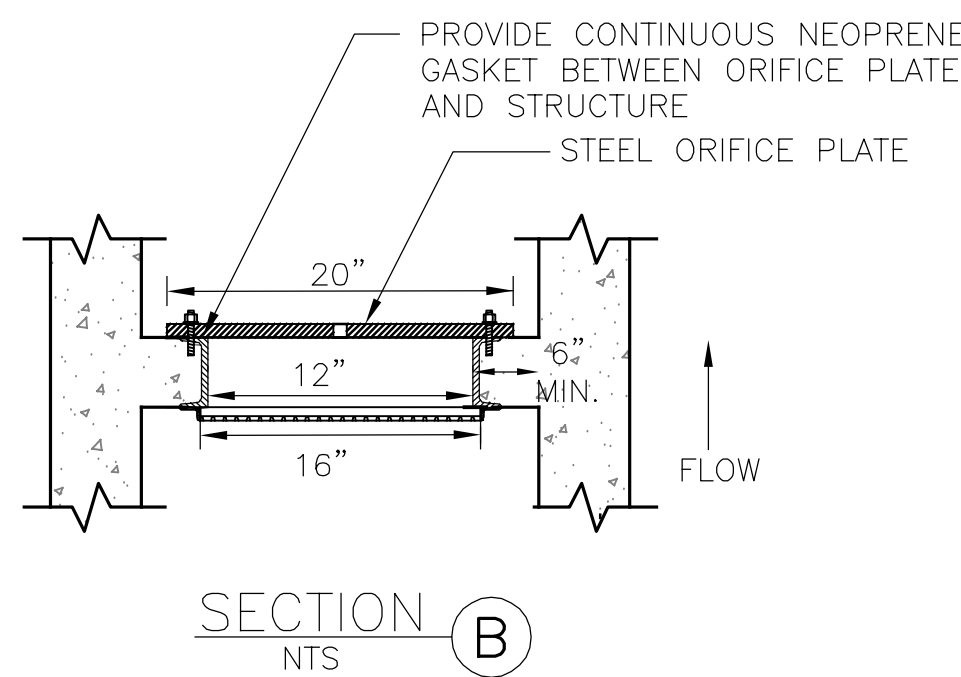
OVERFLOW SAFETY GRATES:

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.

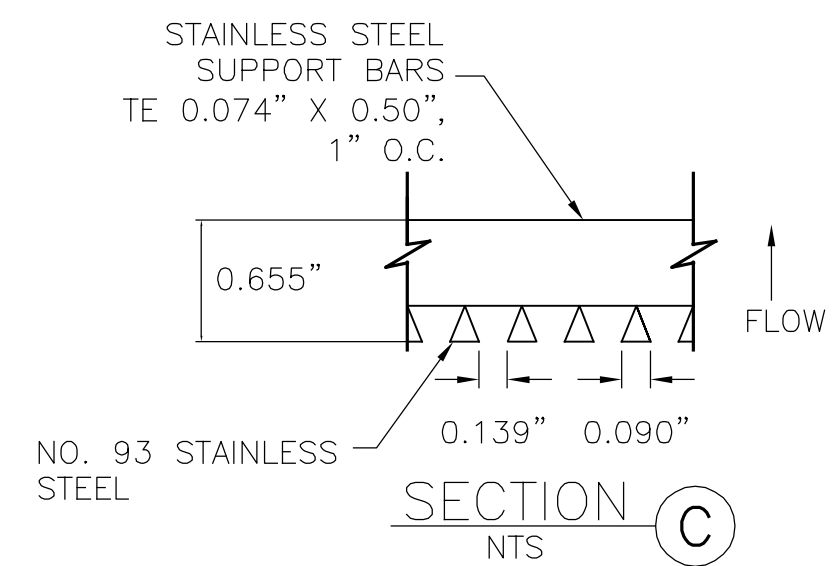
FIGURE OS-4 ORIFICE PLATE AND TRASH RACK DETAILS AND NOTES
NTS



PROFILE
NTS

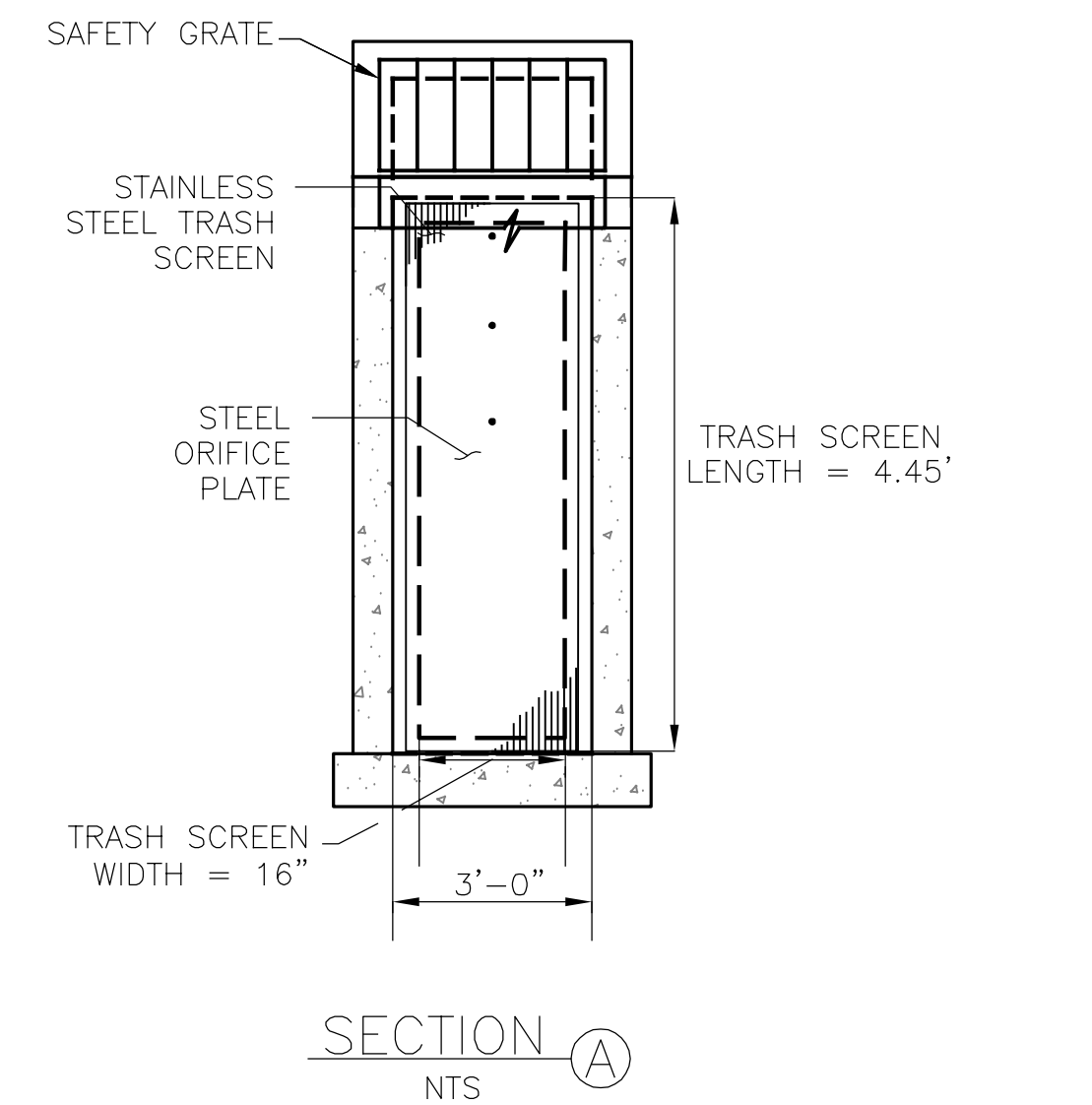


SECTION B
NTS

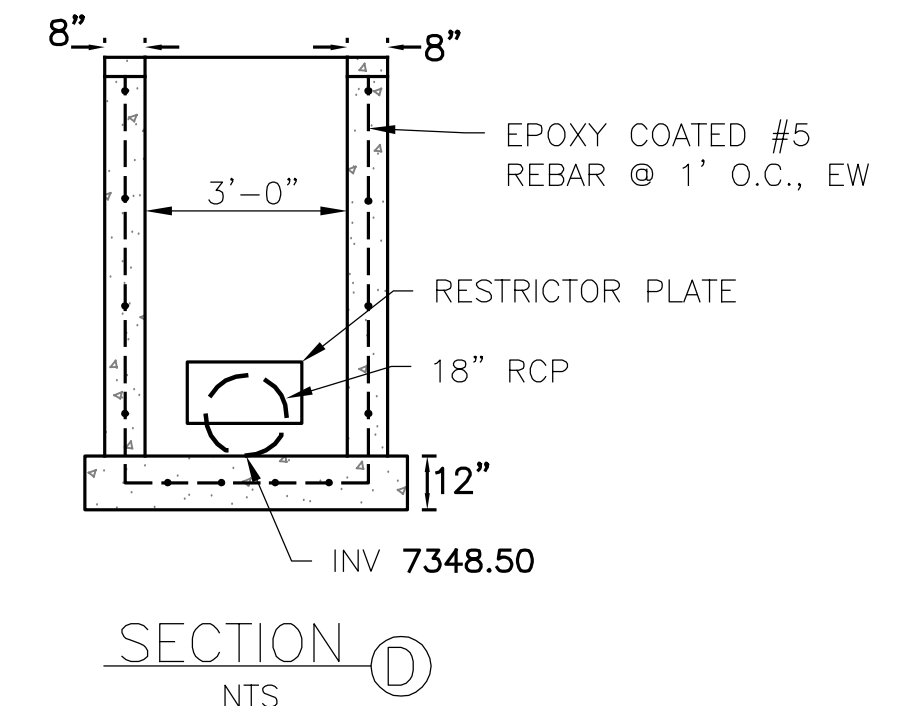


SECTION C
NTS

$$R \text{ VALUE} = (\text{NET OPEN AREA}) / (\text{GROSS RACK AREA}) = 0.60$$

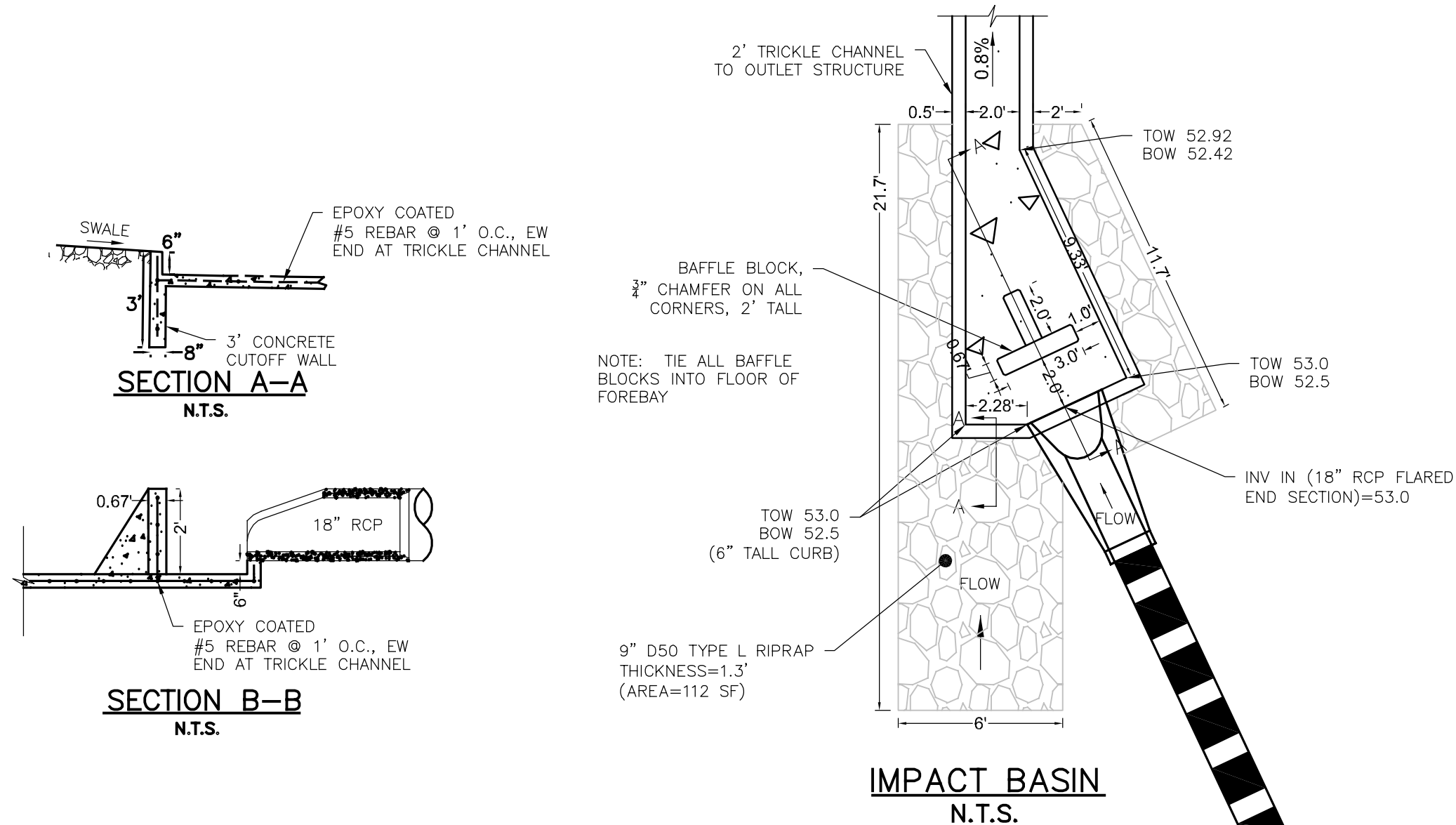


SECTION A
NTS

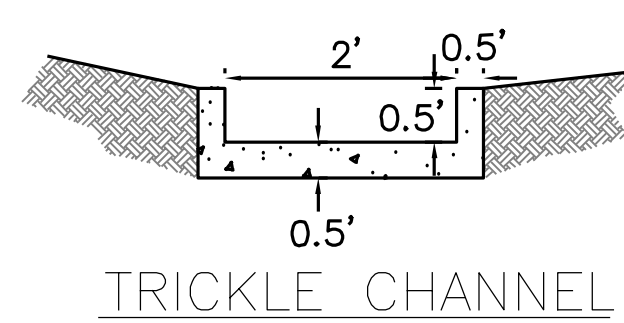


SECTION D
NTS

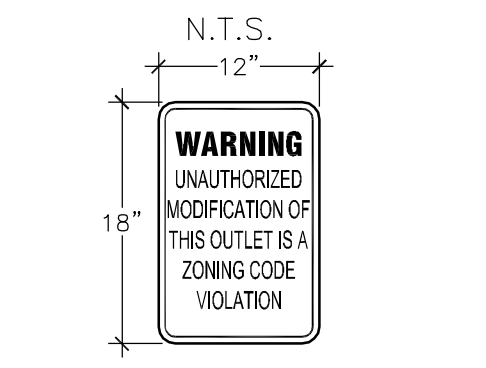
FIGURE OS-5 TYPICAL OUTLET STRUCTURE WITH WELL SCREEN TRASH RACK



IMPACT BASIN
NTS.

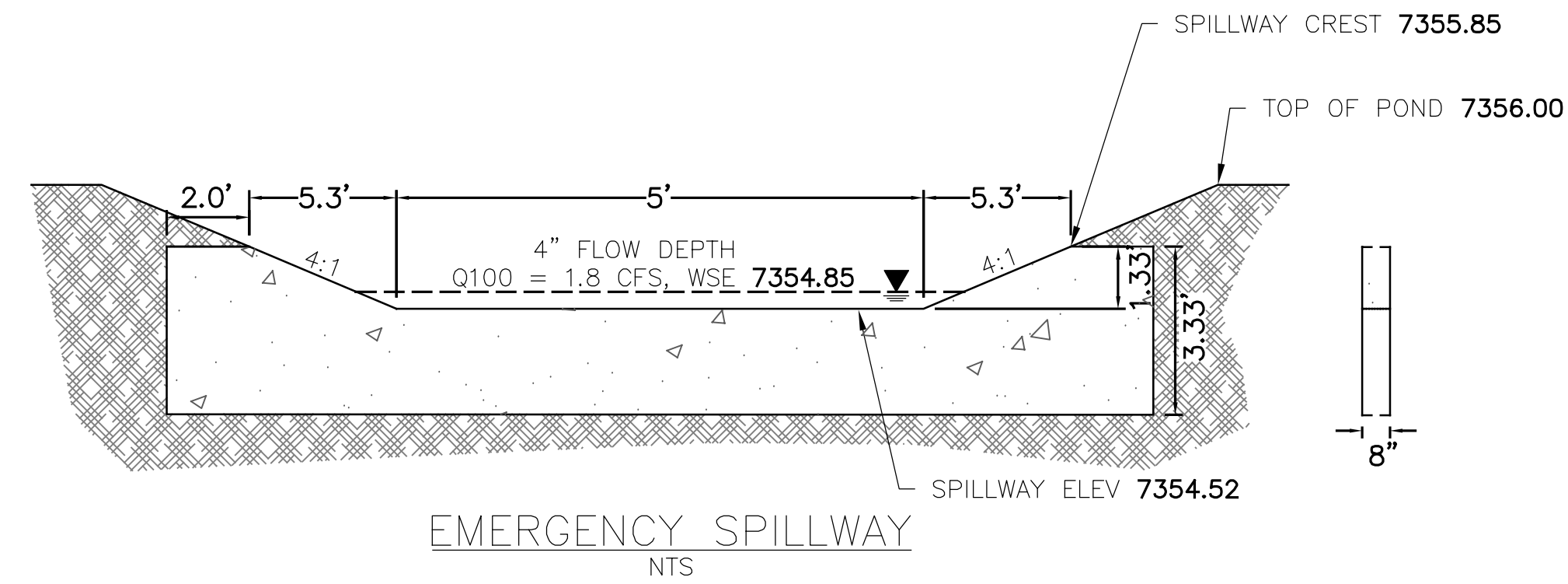


TRICKLE CHANNEL



POND SIGNAGE
NTS.

(TO BE ATTACHED TO THE OUTLET BOX OR POSTED NEARBY)



EMERGENCY SPILLWAY
NTS

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