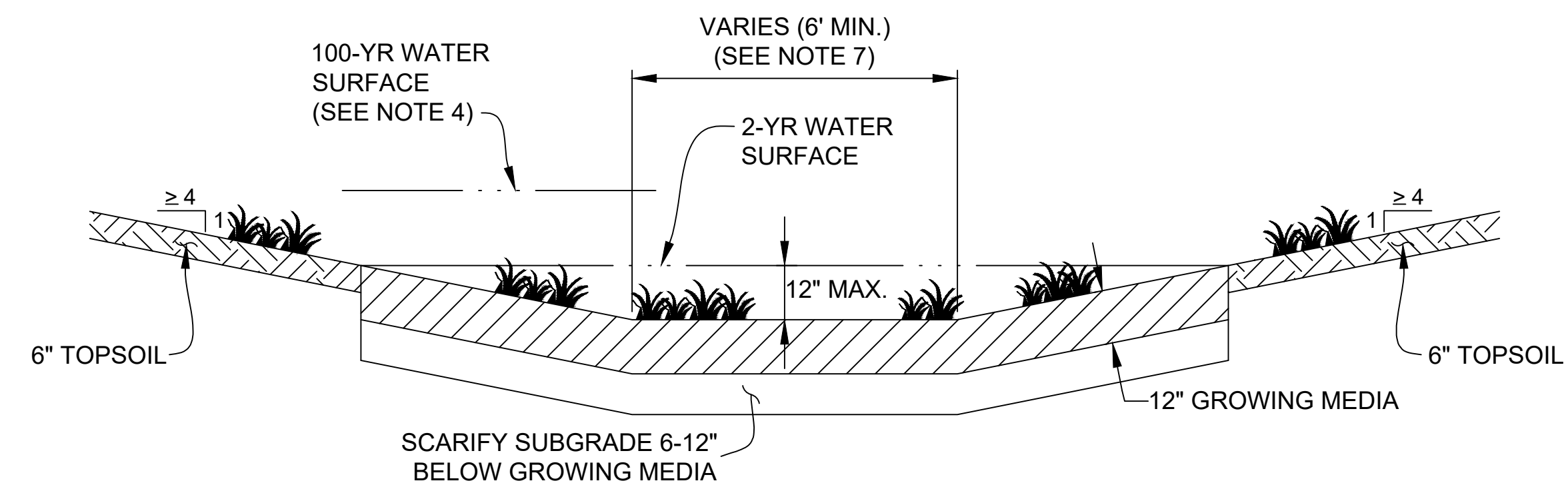


DESIGN NOTES:

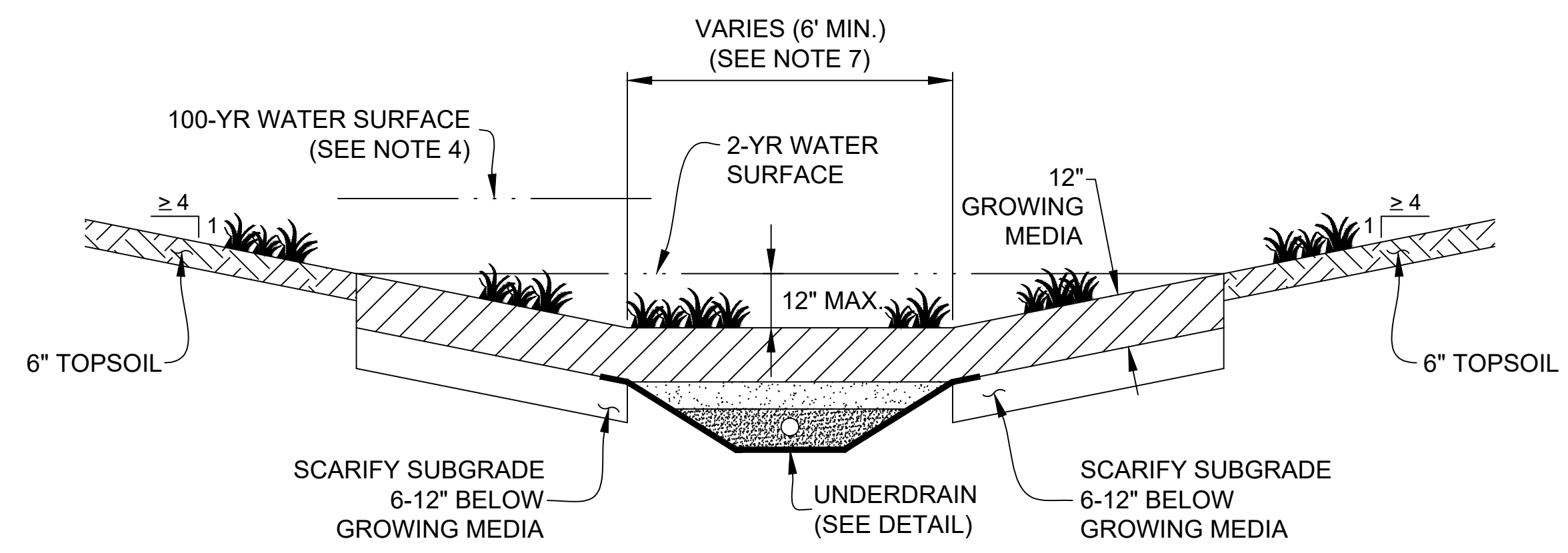
1. AN UNDERDRAIN IS REQUIRED FOR ALL SWALES WITH A SLOPE LESS THAN 2.0% OR WHERE SUBGRADE SOILS ARE NOT SCARIFIED 6-12" PRIOR TO PLACEMENT OF THE GROWING MEDIA. UNDERDRAINS SHALL DAYLIGHT INTO A STORM SEWER, DRAINAGEWAY OR OTHER DESIGNATED DRAINAGE SYSTEM, TYPICALLY A PUBLIC DRAINAGE SYSTEM (NOT CURB AND GUTTER). UNDERDRAIN CLEANOUT DETAILS CAN BE FOUND ON THE GENERAL DETAILS SHEET.
2. UNDERDRAIN SURFACE OUTFALLS SHALL BE PROTECTED WITH A MINIMUM 5'X5' PAD OF TYPE VL SOIL RIPRAP (12" THICK).
3. NON-IRRIGATED GRASS SWALES ARE NOT PERMITTED AS A WATER QUALITY CONTROL MEASURE.
4. SWALE DEPTH AND/OR LIMITS OF FLOODING DURING THE 100-YEAR EVENT SHALL BE DETERMINED AND INDICATED ON THE DESIGN DRAWINGS. GRASS SWALES MUST HAVE CAPACITY FOR THE 100-YEAR EVENT.
5. TRIANGULAR SWALES ARE NOT PERMITTED.
6. APPROVED MATERIAL SELECTIONS AND SPECIFICATIONS FOR THE SELECTED CONTROL MEASURE ARE LOCATED ON THE CONTROL MEASURE MATERIAL SPECIFICATION SHEET.
7. FOR GRASS SWALES BEING CONSTRUCTED TO MEET REGIONAL WATER QUALITY PRETREATMENT REQUIREMENTS (20/10 RULE), THE SWALE BOTTOM WIDTH CAN BE REDUCED TO A MINIMUM OF 3 FEET. GRASS SWALES USED FOR RUNOFF REDUCTION REQUIRE A MINIMUM BOTTOM WIDTH OF 6 FEET.

CONSTRUCTION NOTES: (INCLUDE ON CONSTRUCTION DRAWINGS)

1. BIODEGRADABLE DOUBLE-NET 100% COCONUT EROSION CONTROL BLANKET IS REQUIRED IN ALL NATIVE GRASS SWALES FOR ESTABLISHMENT OF GRASS COVER. BLANKET SHALL EXTEND TO EDGE OF GROWING MEDIA AT A MINIMUM. BLANKET INSTALLATION SHALL BE IN ACCORDANCE WITH THE ARAPAHOE COUNTY GESC MANUAL.
2. WHERE POSSIBLE, IRRIGATION SYSTEMS SHALL BE INSTALLED IN CONJUNCTION WITH FINISH GRADING OF GRASS SWALE. IF IRRIGATION INSTALLATION WILL LAG, SWALE SHALL BE RESTORED TO ORIGINAL CONDITION FOLLOWING INSTALLATION. DISTURBED MEDIA LAYERS SHALL BE RESTORED, GEOTEXTILES AND EROSION CONTROL BLANKETS SHALL BE REPLACED OR PATCHED, AND FINISH GRADES SHALL BE RESTORED TO THE DESIGNED SLOPES. IRRIGATION HEADS SHALL BE PLACED ABOVE THE 2-YEAR WATER SURFACE ELEVATION.
3. IF METHOD OF REVEGATATION (SOD VERSUS SEED) IS REVISED DURING CONSTRUCTION, CONTRACTOR MUST MAKE APPROPRIATE CHANGES TO GRASS SWALE SECTION TO ACHIEVE FINISHED GRADE ELEVATIONS (E.G. MUST ACCOUNT FOR SOD THICKNESS DURING GRADING AND SOIL PREPARATION).



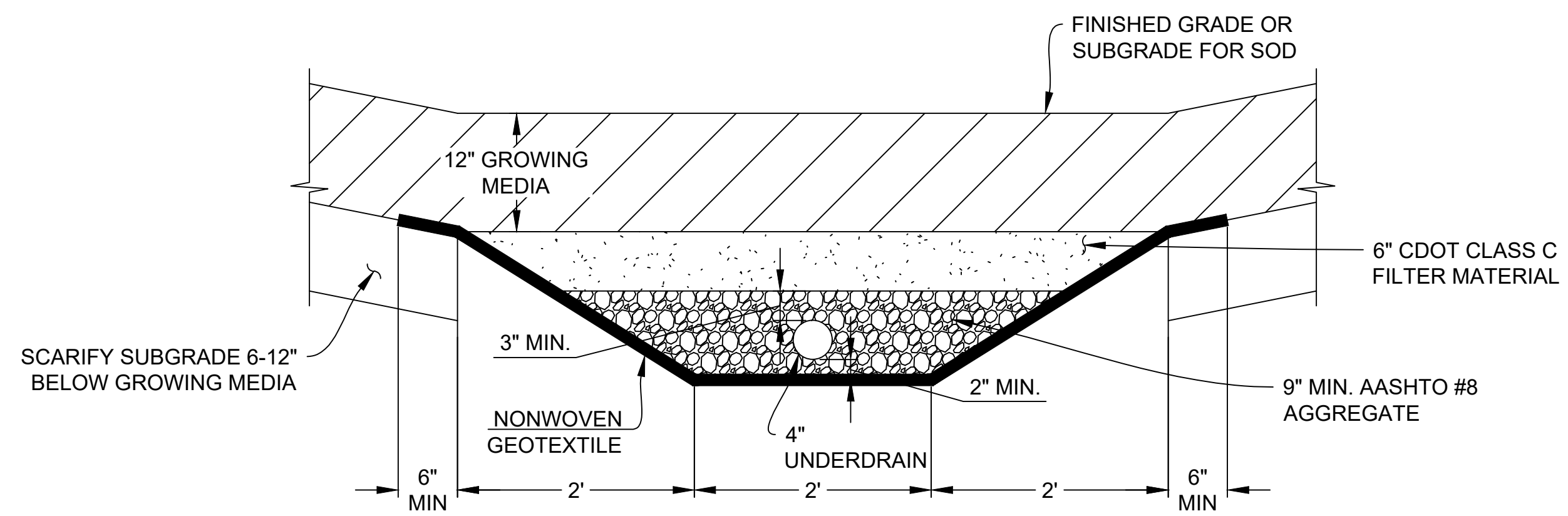
GRASS SWALE WITHOUT UNDERDRAIN (SLOPES ≥ 2%)
N.T.S.



GRASS SWALE WITH UNDERDRAIN (SLOPES < 2%)
N.T.S.

GRASS SWALE DESIGN CRITERIA

	MIN. SLOPE	MAX. SLOPE	MAX. 2-YEAR VELOCITY (fps)
IRRIGATED BLUEGRASS SOD	0.5%	4.0%	4.0
IRRIGATED TURF-FORMING NATIVE GRASS	0.5%	2.5%	3.0



UNDERDRAIN DETAIL
N.T.S.

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REFERENCE:	SCALE:	Standard Plan Revision		
		No.	Date	Description



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GRASS SWALE

**SHEET
1 OF 1**