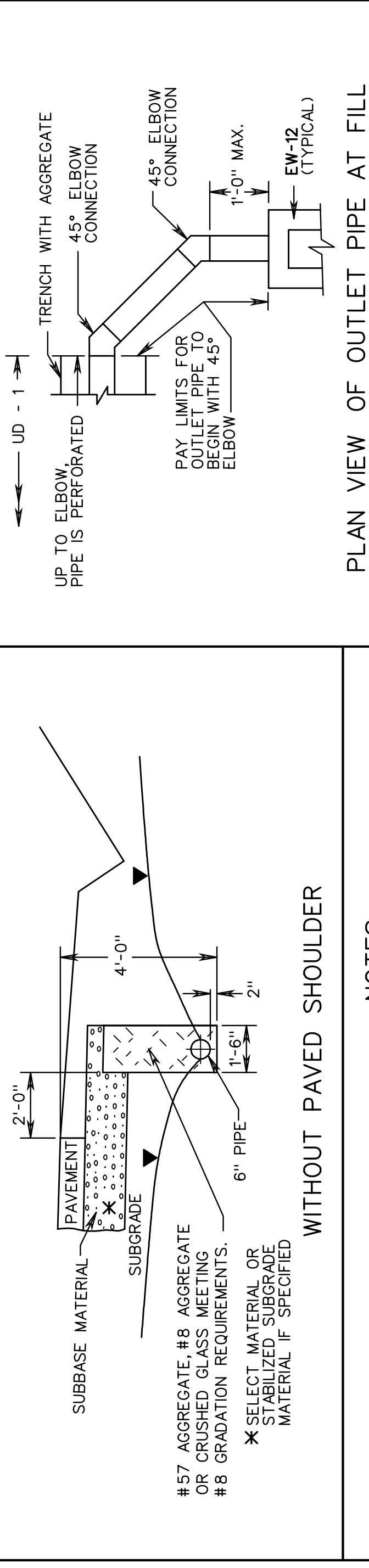
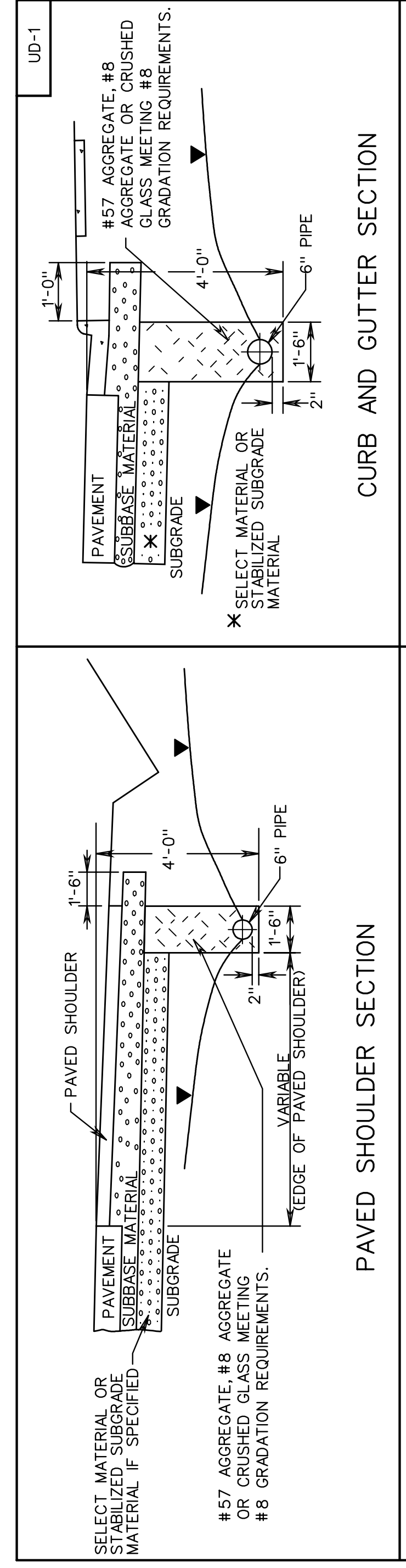


SURVEYED BY \_\_\_\_\_  
SUPERVISED BY \_\_\_\_\_  
DESIGNED BY \_\_\_\_\_

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

REVISED	STATE	FEDERAL AID		STATE		SHEET NO.
		PROJECT	ROUTE	PROJECT	PROJECT	
	VA.					



**NOTES:**

1. WHEN THE LONGITUDINAL PIPE CONNECTS DIRECTLY INTO A DRAINAGE STRUCTURE (DROP INLET, MANHOLE, ECT.), NON-PERFORATED OUTLET PIPES ARE NOT REQUIRED.
2. INVERT ELEVATION AT OUTLET END OF OUTLET PIPE TO BE A MINIMUM OF 1'-0" ABOVE INVERT ELEVATION OF RECEIVING DRAINAGE DITCH OR STRUCTURE.
3. ALL CONNECTIONS (ELBOWS, WYES, ETC.) WITHIN PAY LIMITS FOR OUTLET PIPE ARE TO BE OF THE SAME CRUSHING STRENGTH AS THE OUTLET PIPE.
4. OUTLET PIPE ARE TO BE INSTALLED ON 2% MIN. (3% DESIRABLE) GRADE.
5. THE NORMAL DEPTH OF UNDERDRAIN IS TO BE 4'-0" BELOW THE NEAR EDGE OF PAVEMENT AS SHOWN. THE LONGITUDINAL GRADE OF THE UNDERDRAIN SHALL FOLLOW THAT OF THE ROADWAY WITH A MINIMUM GRADE OF 0.2%.
6. WHERE THE BOTTOM OF SELECT MATERIAL IS GREATER THAN 4'-0" BELOW THE PAVEMENT, THE BOTTOM OF THE UNDERDRAIN IS TO BE CONGRUENT WITH THE BOTTOM OF SELECT MATERIAL AND THE TRENCH DEPTH AND BACKFILL QUANTITY INCREASED ACCORDINGLY.
7. WHEN USED WITH STABILIZED OPEN-GRADED DRAINAGE LAYER, THE BOTTOM OF THE CURB AND OUTLET SHALL BE CONSTRUCTED PARALLEL TO THE SLOPE OF SUBBASE COURSES OUT TO THE DEPTH OF THE PAVEMENT.
8. OUTLET PIPE TO BE SECURELY CONNECTED TO EW-12OR OTHER DRAINAGE STRUCTURE.
9. ▼ DENOTES WATER TABLE.
10. OUTLET PIPE CONFIGURATION TO PROVIDE FOR PASSAGE OF INSPECTION CAMERA WITH 2/2" I.D. HEAD.

**LONGITUDINAL PERFORATED PIPE**

TYPE OF PIPE	CRUSHING STRENGTH
SMOOTH WALL PVC	W.T. 6" NOMINAL DIAMETER .153
CORRUGATED PE	AASHTO M-252

**NON-PERFORATED OUTLET PIPE**

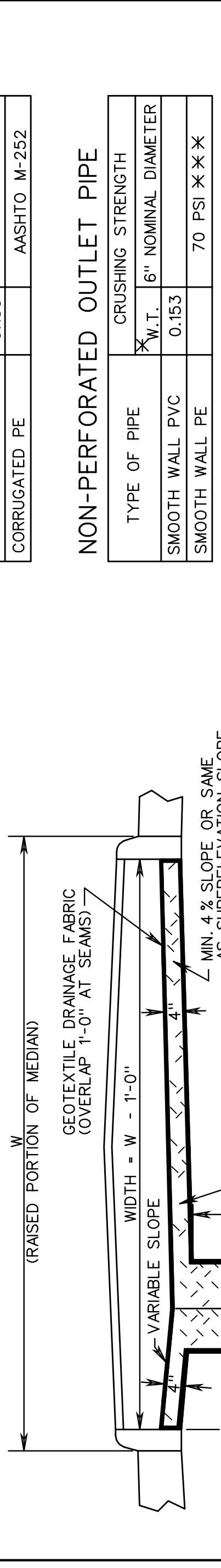
TYPE OF PIPE	CRUSHING STRENGTH
SMOOTH WALL PVC	W.T. 6" NOMINAL DIAMETER .153
SMOOTH WALL PE	70 PSI ***

\*\*\* WALL THICKNESS (MIN) - INCHES  
\*\*\*X TESTED ACCORDING TO ASTM D-2412 AT 5% DEFLECTION.

SPECIFICATION REFERENCE  
240  
501  
701

**STANDARD GROUNDWATER UNDERDRAIN**  
VIRGINIA DEPARTMENT OF TRANSPORTATION

REV 8/07  
108.01



**LONGITUDINAL PERFORATED PIPE**

TYPE OF PIPE	CRUSHING STRENGTH
SMOOTH WALL PVC	W.T. 6" NOMINAL DIAMETER .153
CORRUGATED PE	AASHTO M-252

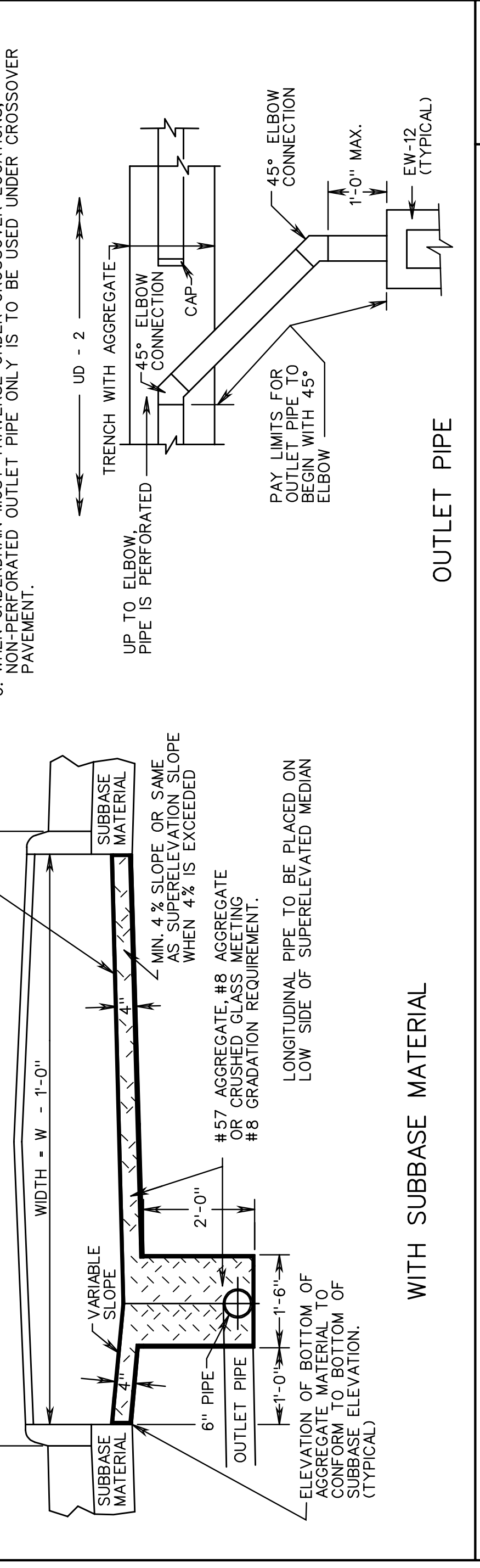
**NON-PERFORATED OUTLET PIPE**

TYPE OF PIPE	CRUSHING STRENGTH
SMOOTH WALL PVC	W.T. 6" NOMINAL DIAMETER .153
SMOOTH WALL PE	70 PSI ***

\*\*\* WALL THICKNESS (MIN) - INCHES  
\*\*\*X TESTED ACCORDING TO ASTM D-2412 AT 5% DEFLECTION.

**NOTES:**

1. WHEN THE LONGITUDINAL PIPE CONNECTS DIRECTLY INTO A DRAINAGE STRUCTURE (DROP INLET, MANHOLE, ECT.), NON-PERFORATED OUTLET PIPES ARE NOT REQUIRED.
2. INVERT ELEVATION AT OUTLET END OF OUTLET PIPE TO BE A MINIMUM OF 1'-0" ABOVE INVERT ELEVATION OF RECEIVING DRAINAGE DITCH OR STRUCTURE.
3. ALL CONNECTIONS (ELBOWS, WYES, ETC.) WITHIN PAY LIMITS FOR OUTLET PIPE ARE TO BE OF THE SAME CRUSHING STRENGTH AS THE OUTLET PIPE.
4. OUTLET PIPE ARE TO BE INSTALLED ON 2% MIN. (3% DESIRABLE) GRADE AND LOCATED AT A MAXIMUM OF 500' APART.
5. OUTLET PIPE TO BE SECURELY CONNECTED TO EW-12OR OTHER DRAINAGE STRUCTURE.
6. WHEN UNDERDRAIN MUST TRAVERSE UNDER CROSSOVER LOCATIONS, NON-PERFORATED OUTLET PIPE ONLY IS TO BE USED UNDER CROSSOVER PAVEMENT.



**STANDARD UNDERDRAIN FOR USE WITH RAISED GRASS MEDIAN STRIPS**  
VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE  
240  
501  
701

REV 8/07  
108.02

REV 8/07  
SPECIAL DESIGN SECTION  
DRAWING NO. A-80

PLAN NO.	PROJECT	FILE NO.	SHEET NO.