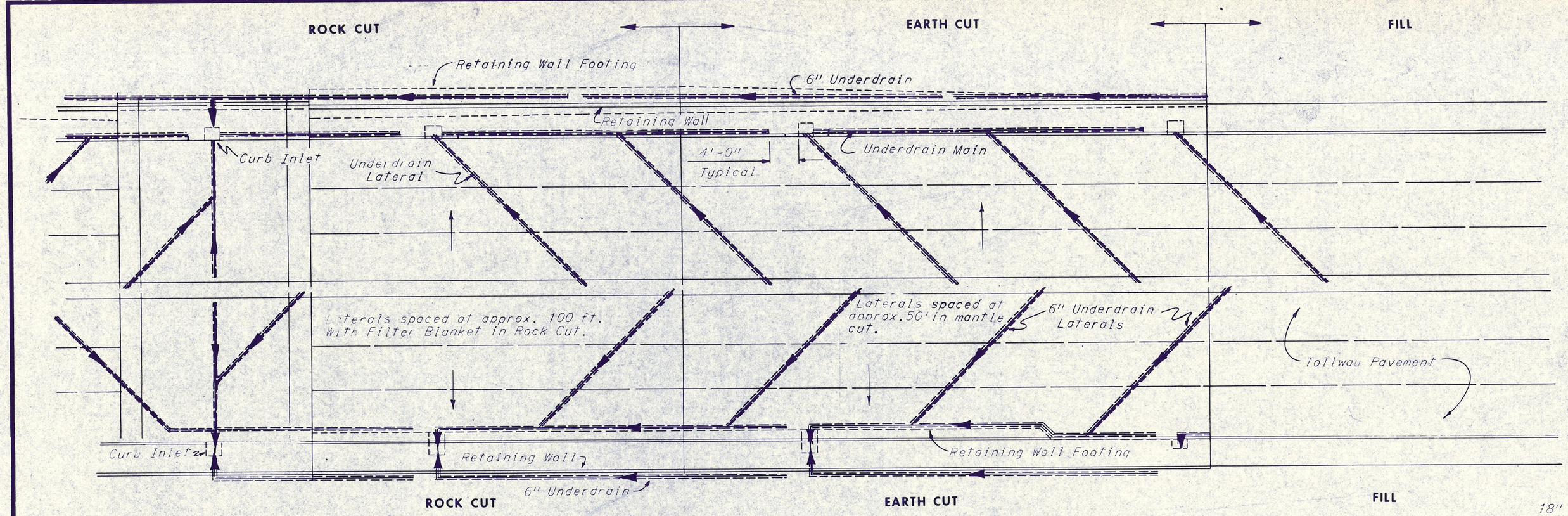
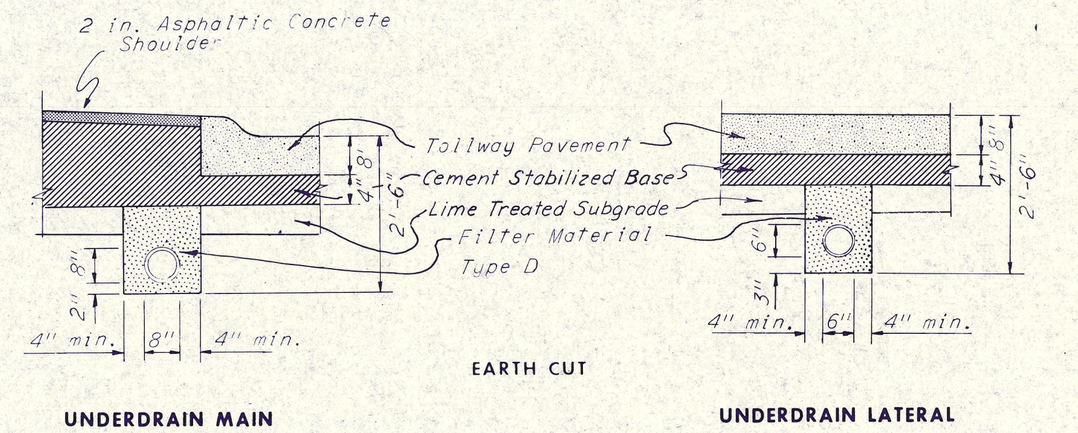
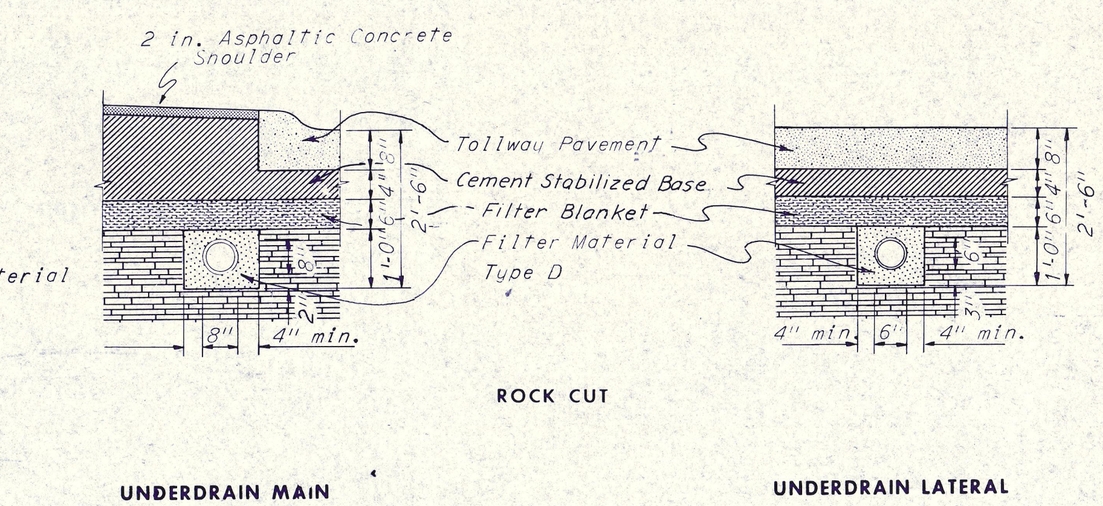
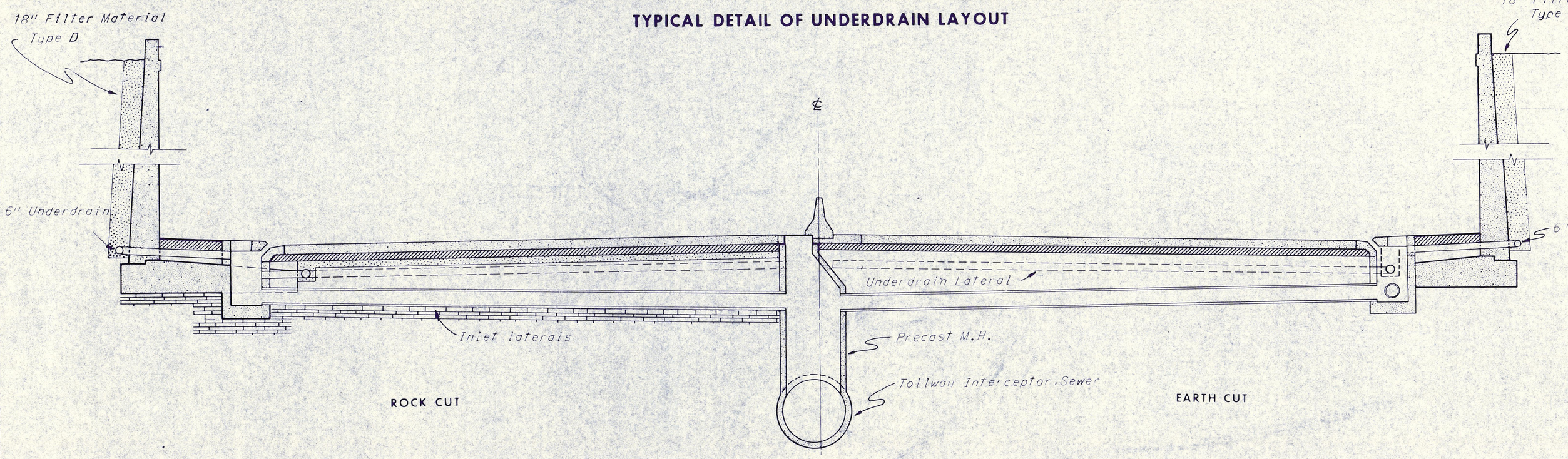


TYPICAL DETAIL OF UNDERDRAIN LAYOUT

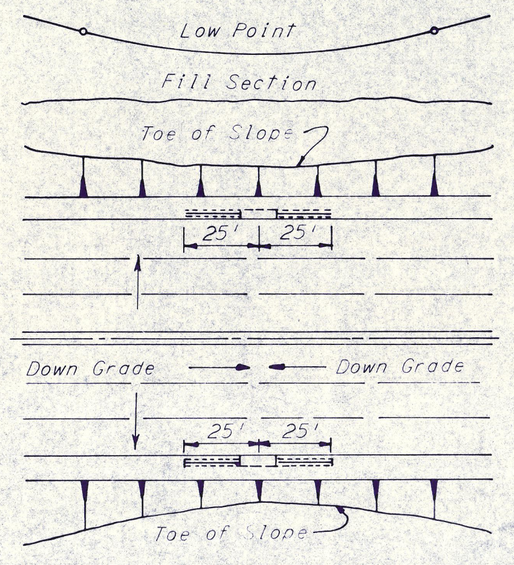




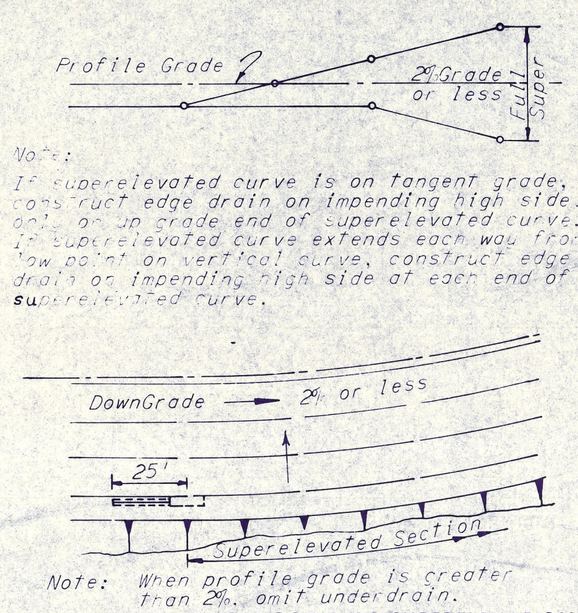
UNDERDRAIN SECTIONS



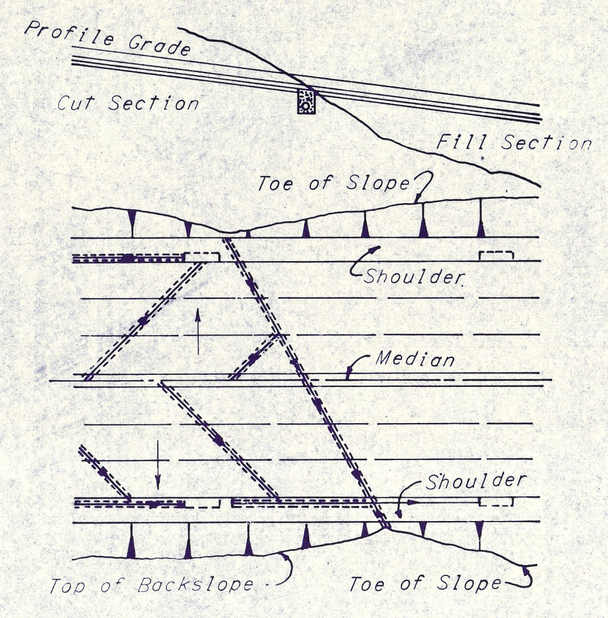
TYPICAL UNDERDRAIN, STORM SEWER, OUTLET, DETAIL



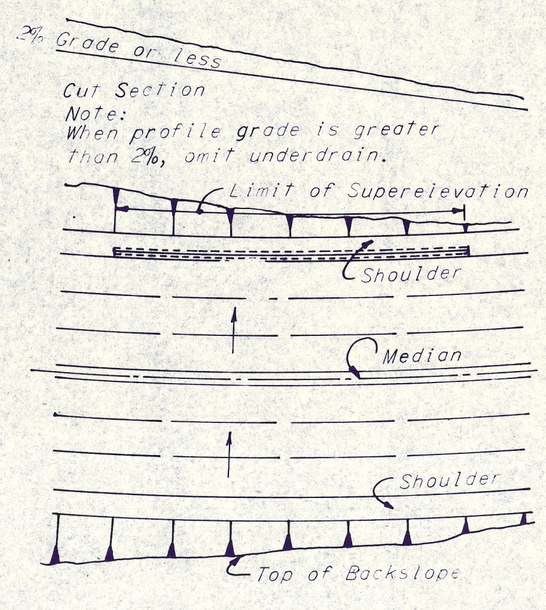
UNDERDRAIN AT LOW POINT OF FILL SECTION



UNDERDRAIN AT LOW POINT OF SUPERELEVATION TRANSITION ON HIGH SIDE



INTERCEPTOR UNDERDRAIN AT MINUS GRADE TRANSITION FROM CUT TO FILL



UNDERDRAIN AT LOW POINT OF SUPERELEVATED SECTION ON LOW SIDE

UNDERDRAIN LOCATION DETAILS

GENERAL NOTES

The details shown on this sheet are not necessarily drawn to scale and are only intended as a general guide for placing and constructing underdrains. The actual location and construction shall be as directed by the Engineer.

Pipe Underdrains and Filter Material shall conform to Item 556 6 Sp. of the specifications. Pipe shall be Type 4, 7, or 9 with a minimum diameter of 6 inches.

The width of underdrain trench varies with the size of the pipe and shall not be less than 1'-2".

All underdrain pipe within granular backfill shall be laid with perforations down.

All underdrain pipe outside the limits of granular backfill shall be underdrain pipe that is not perforated.

Where necessary, granular backfill shall be extended past the minimum limits to completely enclose all pipe laid with perforations down.

One layer of 30# tar paper shall be placed over the top of all granular backfill which is not directly under the pavement and or subbase.

All underdrain pipe shall slope toward the outlet at a minimum rate of 1%.

Approved plugs shall be placed in the upper ends of all pipes.

All pipe fittings are included in the length shown for "Pipe Underdrains".

NO.	REVISION	BY	DATE

TEXAS TURNPIKE AUTHORITY

DALLAS NORTH TOLLWAY

STANDARD UNDERDRAINS

HNTB
HOWARD NEEDLES TAMMEN & BERGENDOFF

SECTION VII

DRAWN GRB	DATE 3-15-83	DESIGNED	DATE
CHECKED PMA	DATE 3-15-83	SCALE None	

STANDARD DRAWING NO. 10

CONTRACT NO. DNT-115