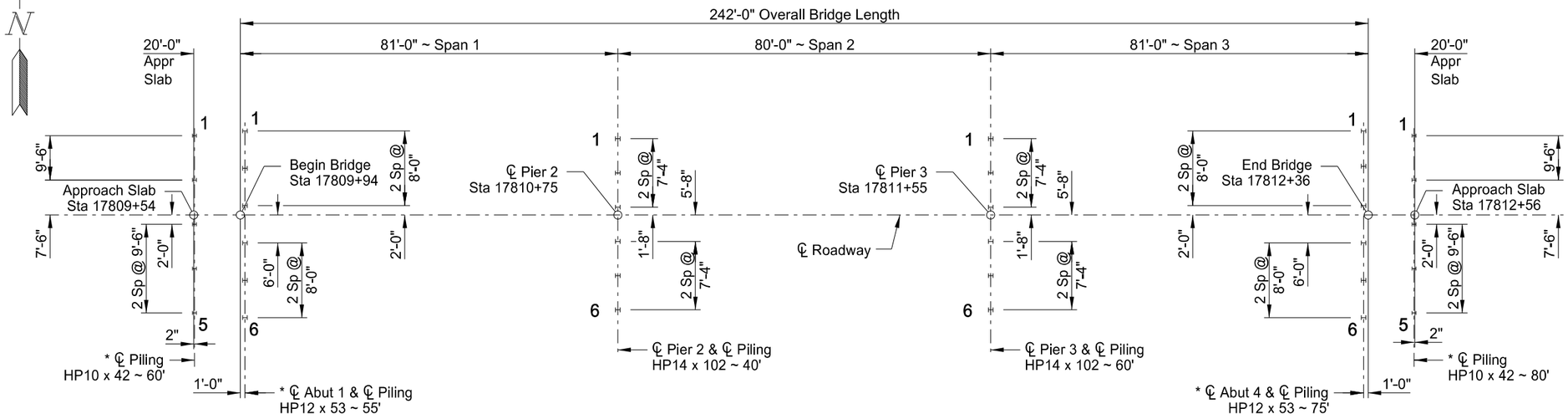
23 U.S.C. 409
NDDOT Reserves All Objections

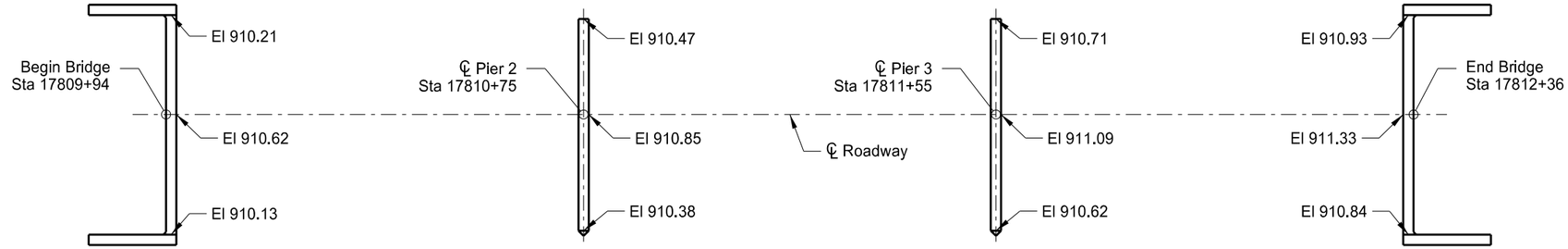
STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	IM-8-094(100)337	170	22



* Do not drive approach slab or abutment piling until all constructed embankment is in place.

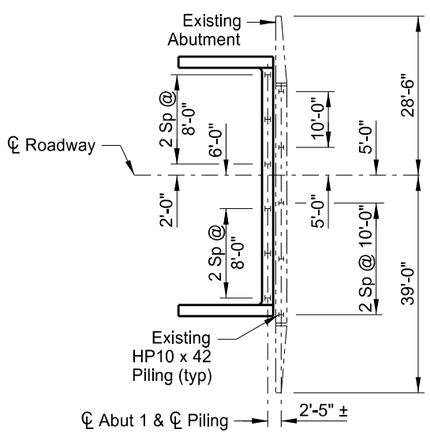
Drive the HP10 x 42 Pile to a bearing resistance of 105 tons.
Drive the HP12 x 53 Pile to a bearing resistance of 130 tons.
Drive the HP14 x 102 Pile to a bearing resistance of 250 tons.

PILING LAYOUT

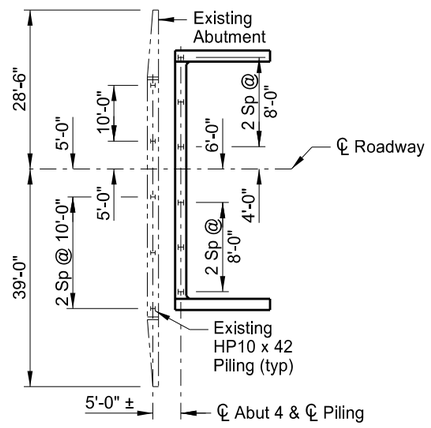


Elevations shown are to top of finished concrete.

BEARING ELEVATIONS



ABUT 1 PILING LAYOUT



ABUT 4 PILING LAYOUT

		PILE COORDINATES	
	PILE	NORTHING	EASTING
WEST APPR SLAB	1	459,997.14	2,823,120.37
	5	459,959.20	2,823,122.58
ABUT 1	1	459,999.35	2,823,141.11
	6	459,959.41	2,823,143.44
PIER 2	1	460,002.34	2,823,221.07
	6	459,965.73	2,823,223.21
PIER 3	1	460,006.99	2,823,300.94
	6	459,970.39	2,823,303.07
ABUT 4	1	460,013.31	2,823,380.71
	6	459,973.38	2,823,383.03
EAST APPR SLAB	1	460,013.52	2,823,401.56
	5	459,975.59	2,823,403.77

NOTE:

For double acting or single acting diesel hammers, calculate the bearing resistance of piles by the following formula:

$$\Phi Rn = \frac{4.5E}{S + 0.2} \times \frac{W + 0.2M}{W + M}$$

Where:

ΦRn = Nominal pile bearing resistance, in pounds. The Φ factor is included in equation.
W = Weight of striking parts (ram), in pounds.
M = Weight of parts being driven, in pounds. Includes pile weight, anvil (if any), driving cap, etc.
E = Energy per blow, in foot-pounds.
S = Average penetration of pile in inches per blow for last ten blows.

For single acting hammers, calculate E by multiplying observed stroke (ft) and W (lbs).

This drawing is preliminary and not for construction or implementation purposes.

PRELIMINARY

MAPLE RIVER

PILING LAYOUT & BEARING ELEVATIONS