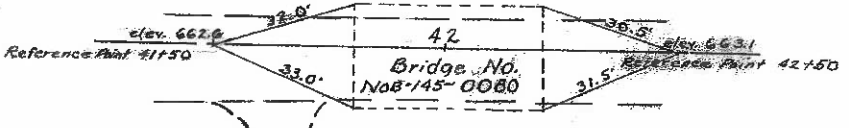
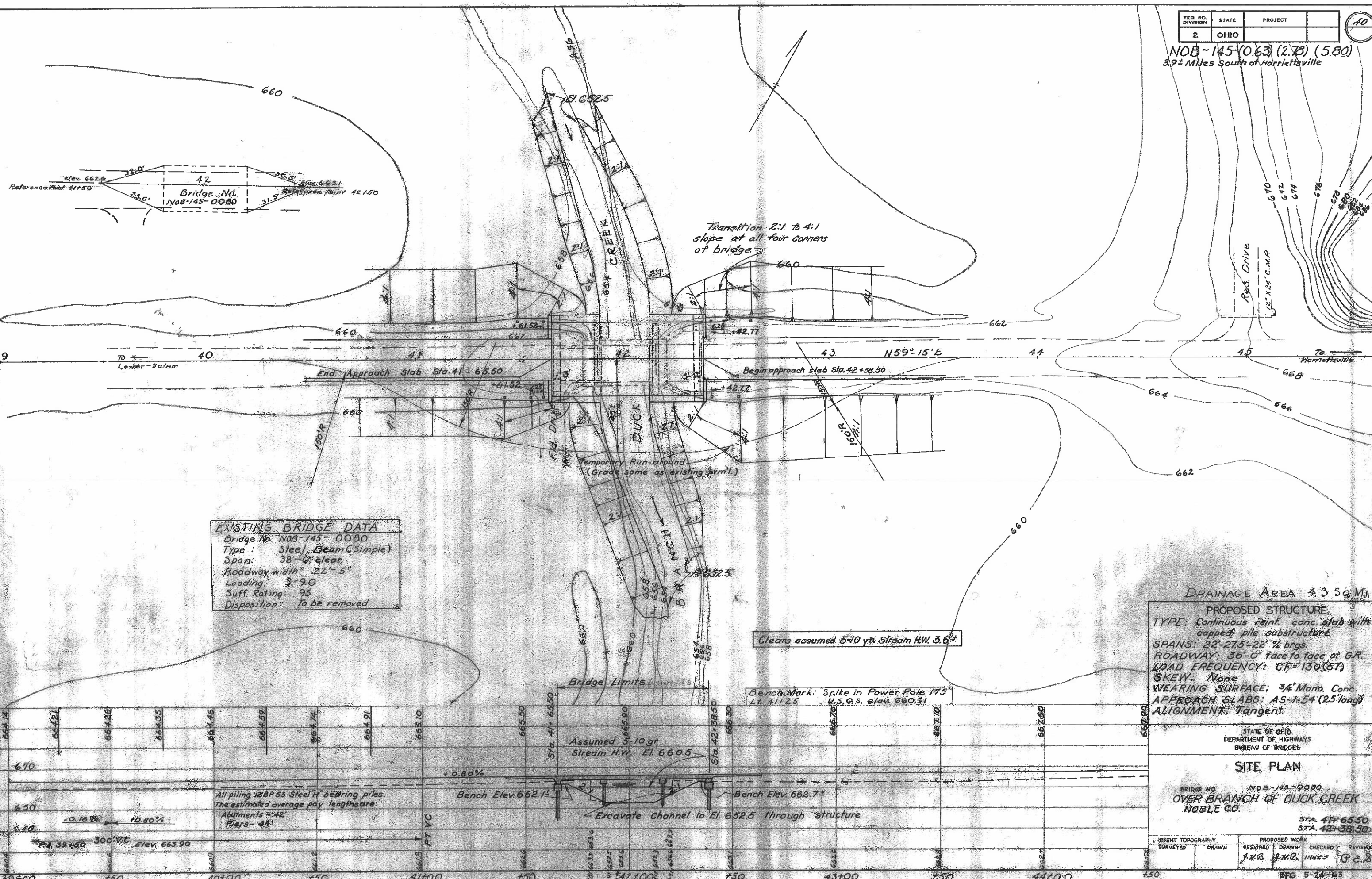


FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		10

NOB-145-063 (2.75) (5.80)
3.9± Miles South of Harriettville



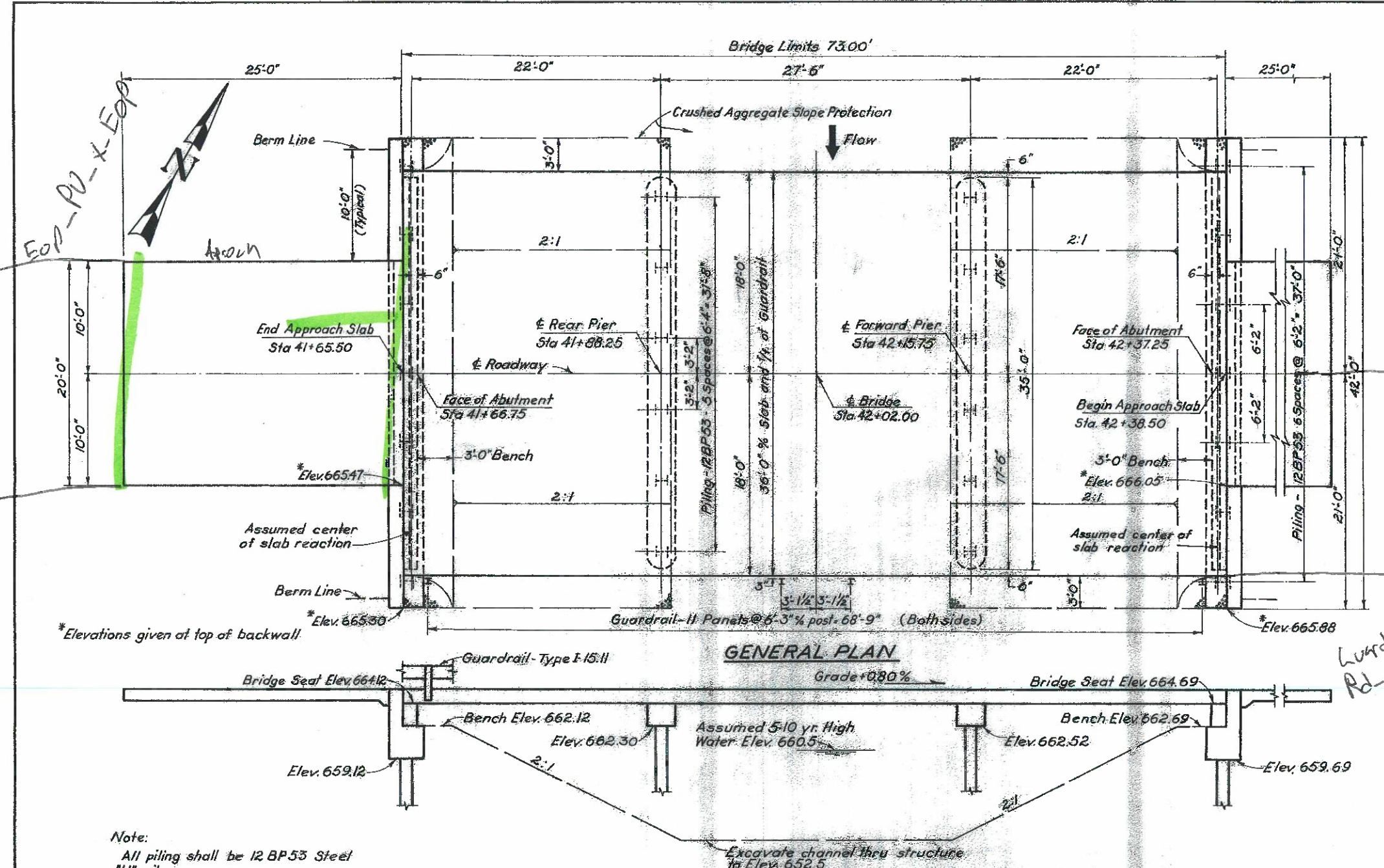
EXISTING BRIDGE DATA
 Bridge No. NOB-145-0080
 Type: Steel Beam (Simple)
 Span: 38'-6" clear.
 Roadway width: 22'-5"
 Loading: S-90
 Suff. Rating: 95
 Disposition: To be removed

DRAINAGE AREA 4.35 SQ. MI.
PROPOSED STRUCTURE
 TYPE: Continuous reinf. conc. slab with capped pile substructure
 SPANS: 22'-27.5"-22' 7/8" brgs.
 ROADWAY: 36'-0" face to face of G.R.
 LOAD FREQUENCY: CF=130(5T)
 SKEW: None
 WEARING SURFACE: 3/4" Mono. Conc.
 APPROACH SLABS: AS-1-54 (25' long)
 ALIGNMENT: Tangent

STATE OF OHIO
 DEPARTMENT OF HIGHWAYS
 BUREAU OF BRIDGES

SITE PLAN
 BRIDGE NO. NOB-145-0080
 OVER BRANCH OF DUCK CREEK
 NOBLE CO.
 STA. 41+65.50
 STA. 42+38.50

PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
		J.N.B.	J.N.B.	INNES	P.E.S.



REINFORCING STEEL LIST

Mark	No.	Length	Weight	Shp.	Bending Diagrams	Mark	No.	Length	Weight	Shp.
Superstructure										
Abutments										
F923	60	19'-0"	3,876	S		R1001	16	18'-11"	1,302	B
A823	95	25'-11"	6,435	S		R801	16	22'-1"	943	B
B823	30	19'-7"	1,569	B		R501	16	21'-7"	360	S
C823	30	17'-1"	1,368	B		R502	136	6'-7"	934	B
D823	15	18'-2"	728	S		R503	8	18'-1"	151	S
E823	15	14'-4"	574	S		R504	24	5'-4"	134	B
G823	30	10'-9"	861	S		R505	28	7'-11"	231	B
H823	28	7'-6"	561	S		R506	8	10'-8"	89	S
J601	32	14'-4"	689	S		R507	16	4'-11"	82	S
K601	16	13'-8"	328	S		R508	24	6'-8"	167	B
M601	74	35'-6"	3,946	S		R509	24	8'-5"	211	B
N601	50	35'-6"	2,666	S		R401	56	5'-5"	203	B
Piers										
P1001	8	35'-6"	1,222	S						
P901	8	32'-6"	884	S						
P501	4	32'-6"	136	S						
P502	56	8'-7"	501	B						
P503	8	6'-4"	53	B						
P401	48	5'-5"	174	B						
Replacement Bars										
RE1001	1	7'-2"		S						
RE901	1	6'-10"		S						
RE801	1	6'-6"		S						
RE601	1	5'-11"		S						
RE501	1	5'-7"		S						
RE401	1	5'-5"		B						

Note:
All piling shall be 12 BP53 Steel "H" piles.

GENERAL NOTES

REFERENCE shall be made to Standard Drawings CS-1-54, A-1-54 & P-1-54 revised 7-16-56, 12-1-54 & 2-2-59 respectively, and to Supplemental Specification S-101 dated 7-12-62.

TEMPORARY RUN-AROUND BRIDGE AND APPROACHES: Load frequency for bridge, CF=30, with unit stresses increased 25% as per the provisions for temporary bridges in the Design Specifications for Highway Structures, T-10, surface course on the approaches. Existing bridge may be moved and used for the run-around bridge without strengthening.

REMOVAL OF EXISTING STRUCTURE: When no longer needed to maintain traffic the existing structure shall be removed.

SLAB THICKNESS is 12 1/2" which includes 3/4" for monolithic wearing surface. Slab Edge Beam shall be provided.

SLAB REINFORCING STEEL CLEARANCE from surface of concrete shall be 2" for the top bars and 1" for the bottom bars.

PILES shall be driven to firm contact with rock. If the length of penetration is approximately equal to the depth to rock according to the bridge foundation investigation report, the firm contact shall be considered as attained when the capacity according to the formula in Sec. S-18.05 is not less than the following value for a pile hammer of the indicated energy rating:
For the abutment piles
35 tons per pile using a 7000 ft. lb. hammer
30 tons per pile using an 11000 ft. lb. hammer
25 tons per pile using a 15000 ft. lb. or greater hammer

For the pier piles
45 tons per pile using a 7000 ft. lb. hammer
40 tons per pile using an 11000 ft. lb. hammer
35 tons per pile using a 15000 ft. lb. or greater hammer

If the energy rating of the hammer is between the ratings as shown above, the required formula capacity shall be determined by interpolation. The design load is 21 tons per pile for the abutment piles and 31 tons per pile for the pier piles.

PIER PILE ENCASEMENT as shown on Sid. Dwg. P-1-54 is not required. The piling shall extend to low water elevation or, if the proposed surface of the ground is above low water, it shall extend to at least one foot below the proposed surface of the ground.

EXCAVATION QUANTITY for both Abutments, in addition to that outlined in Sec. E-2.09, includes the removal of material bounded by the proposed bench, by the front vertical plane described in Sec. E-2.09 and by the finished slope of the cut.

DESIGN DATA:
Concrete Class C - basic unit stress 1,333 p.s.i.
Concrete Class E - basic unit stress 1,133 p.s.i.
Reinforcing Steel - ASTM A15, A16, A180, Deformed, Intermediate or Hard Grade. Basic unit stress 20,000 p.s.i.

ESTIMATED QUANTITIES

Item	Total	Unit	Description	Superst.	Abut.	Piers	Gen'l.
E-2	51	Cu Yds	Unclassified excavation		51		
E-3	1234	Cu Yds	Channel excavation				1234
S-1	118	Cu Yds	Glass "C" concrete, superstructure and pier caps	105		13	
S-4	43	Cu Yds	Glass "E" concrete, abutments		43		
S-4	31,378	Lbs	Reinforcing steel	23,601	4,807	2,970	
S-14	146.00	Lin Ft	Piling (Type 12 BP 53 with galvanized steel posts and bolts)	146.00			
S-15	Lump	Sum	Temporary run-around, bridge, and approach embankment				Lump
S-16	Lump	Sum	First test pile				Lump
S-18	1120	Lin Ft	Steel piles, 12 BP 53		590	530	
S-24	Lump	Sum	Removal of existing structure				Lump
S-29	15	Cu Yds	Porous backfill		15		
S-101	118	Each	Water-reducing, set-retarding admixture	105		13	
I-10	237	Sq Yds	Crushed aggregate slope protection				237

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

GENERAL PLAN & ELEVATION, NOTES, ESTIMATED QUANTITIES & REINFORCING STEEL LIST

BRIDGE No. NOB-145-0080
OVER BRANCH OF DUCK CREEK
NOBLE COUNTY STA 41+65.50
STA 42+38.50

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
J E F	J E F	HARDY MATTHEW	R L D	BFG	5-24-63	

SLAB DATA

Table with columns for LOAD FREQUENCY, SPANS, A, B, C, D, and E bars, F, G, and H bars, J-bars, K-bars, M-bars, and N-bars. Includes sub-columns for Mark, Spcg, Lgth, and dimensions.

Table with columns for LOAD FREQUENCY, SPANS, and QUANTITIES PER FOOT OF WIDTH GUARD RAIL. Includes sub-columns for Concrete, Bitum Wearing Surface, Type C Waterproofing, and Reinforcement.

* Dimension "T" does not include monolithic wearing surface.

BAR SIZE is indicated in the bar mark. The first digit where three digits are used and the first two digits where four are used, indicate the bar size number. For example, A700 is a No. 7 size bar and A1014 is a No. 10 size.

GENERAL: This drawing provides design and general construction details. The project plans for each structure will show span lengths, roadway width, load frequency, skew, curve and super-elevation (if any), elevations, wearing surface, substructure details, estimated quantities, reinforcing steel list and other necessary details and special notes.

SKREW: For bridges with skew, longitudinal bars shall be placed parallel to centerline of roadway and transverse bars parallel to piers and abutments. For skews of 10° or less, longitudinal reinforcement as shown for non-skewed bridges may be used. For skews from 10° to 30°, "F", "G", and "H" bars shall be lengthened and "K" bars shortened an amount equal to 1/150 x R x S x tan θ.

RAILING: Transition between guard rail height on bridge and on approaches shall be made in a distance of 100 feet from each end of bridge. An upper hand rail and longer posts shall be provided if called for on the project plans. Guard rail and hand rail shall be painted white in accordance with section I-15.07 of the Construction and Material Specifications.

REINFORCING STEEL CLEARANCE: Top face of concrete shall be 1/2" for #11 bars, 1/4" for #9 and #10 bars and 1" for all smaller bars. (The above clearances do not include monolithic wearing surface). Where two bars of different size are lapped, the clearance requirement for the larger bar shall also apply to the smaller bar.

DESIGN SPECIFICATIONS: This standard drawing conforms to the requirements of "Design Specifications for Highway Structures" of the State of Ohio, Department of Highways, dated October 1, 1951, together with revisions thereof dated July 15, 1952, April 1, 1954 and February 1, 1955.

R" = Width of slab in feet. S" = Length of middle span in feet. θ" = Skew angle.

Galvanized posts and anchor bolts shall not be painted. Tabulated railing quantity is for the length of railing within the overall length of slab. The price per linear foot of railing includes payment for guard rail, hand rail (if called for), posts, anchors, connections, galvanizing and painting.

REINFORCING STEEL: The "M" bars and "N" bars may be furnished in pairs of equal length, lapped thirty diameters at the centerline of roadway, or they may be furnished in pairs of different length in order to place the lap beyond a longitudinal construction joint at the centerline of roadway, at the option of the contractor. Determination of the pay quantity will be according to the number and length of bars as shown hereon; unless otherwise called for on the project plans.

ADDITIONAL INTERIOR SPANS, similar to middle span, may be incorporated into the structure without change in slab thickness or area of reinforcing steel. In case of added spans, the project plans will show revised details and estimated quantities.

SUPERELEVATION: For bridges on curves the concrete slab shall be super-elevated for full width of deck at the same rate as the approach pavement. The bituminous wearing surface shall be of uniform thickness for the full width of the slab.

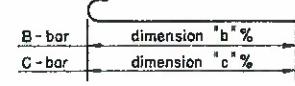
CONCRETE shall be class "C".

CAMBER of 1/800 of the span shall be provided in each span (in addition to any required for conformance with the profile of the highway) to allow for dead load deflection. This is the amount of camber required before falsework is released. To obtain this, proper allowance shall be made for the deflection of falsework members.

EXPANSION: Where the greatest distance between diagonally opposite corners of the superstructure, taking into account the sum of the spans, the width and the skew (if any), exceeds 175 feet, provision shall be made for expansion of the deck.

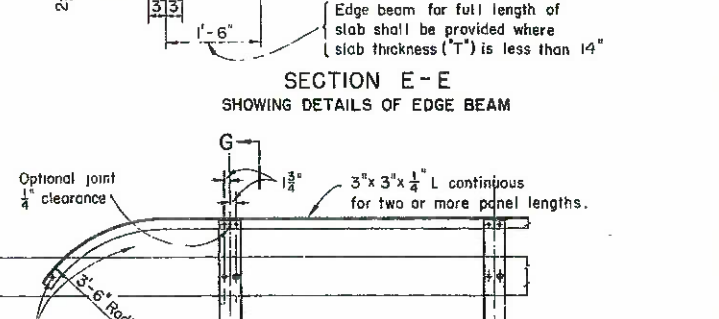
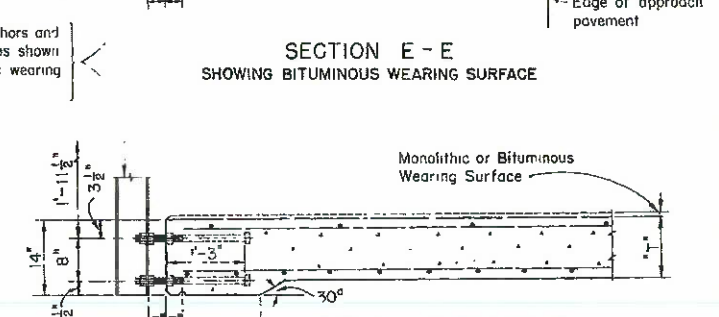
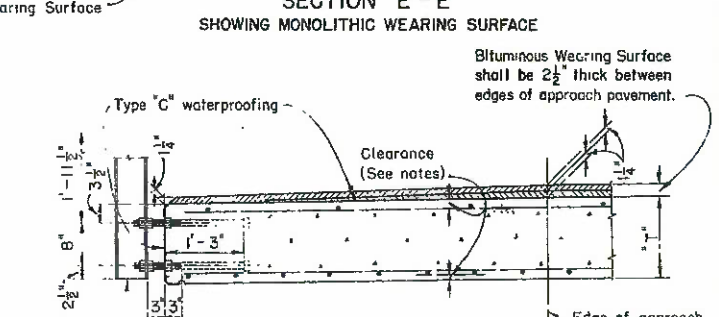
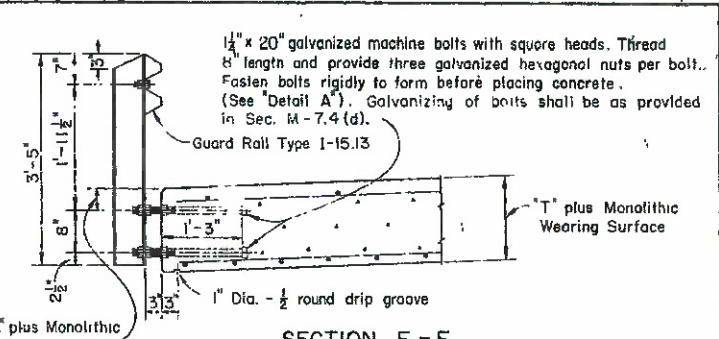
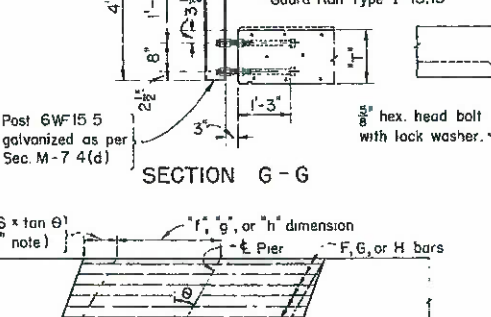
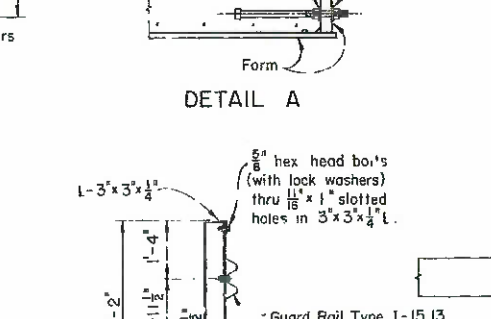
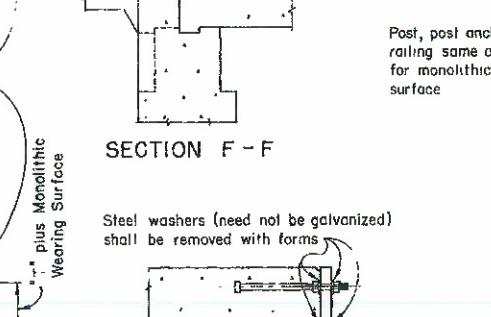
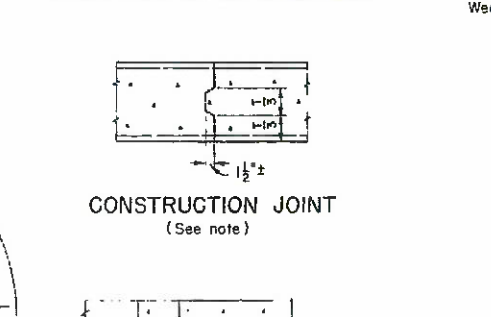
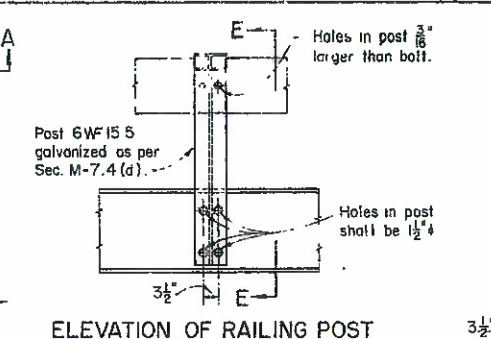
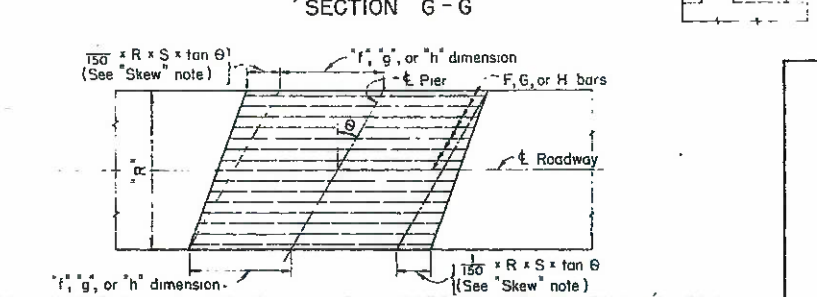
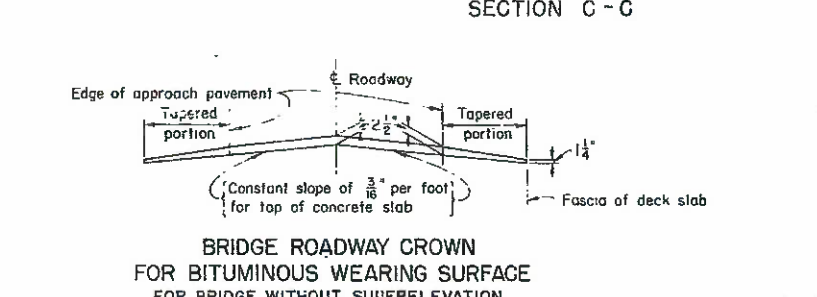
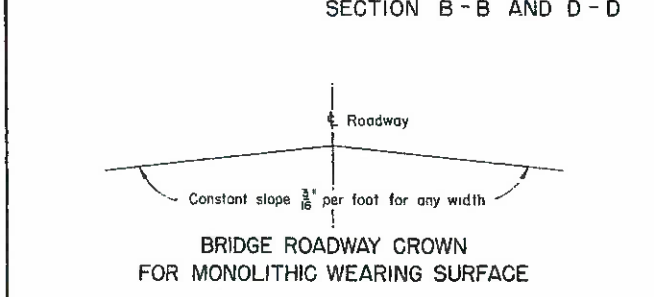
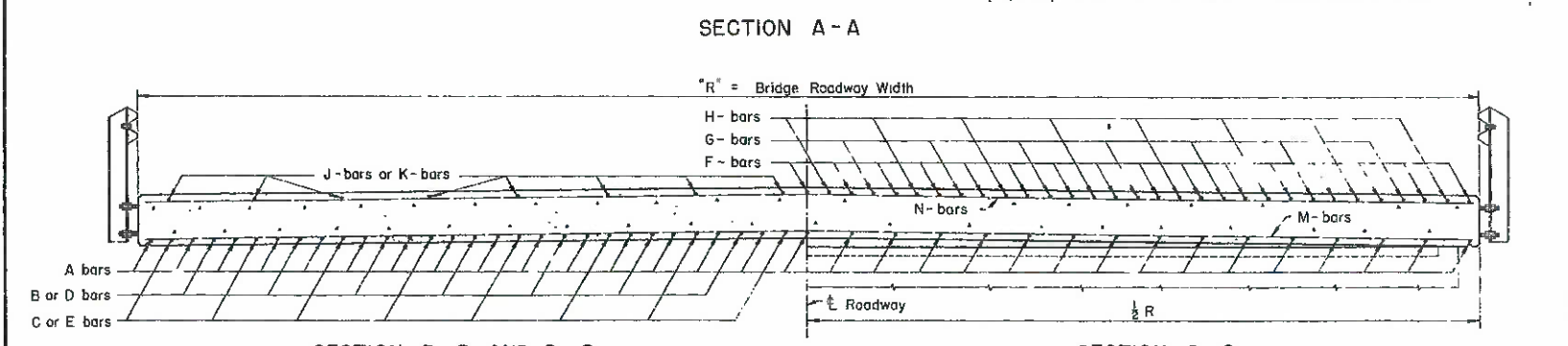
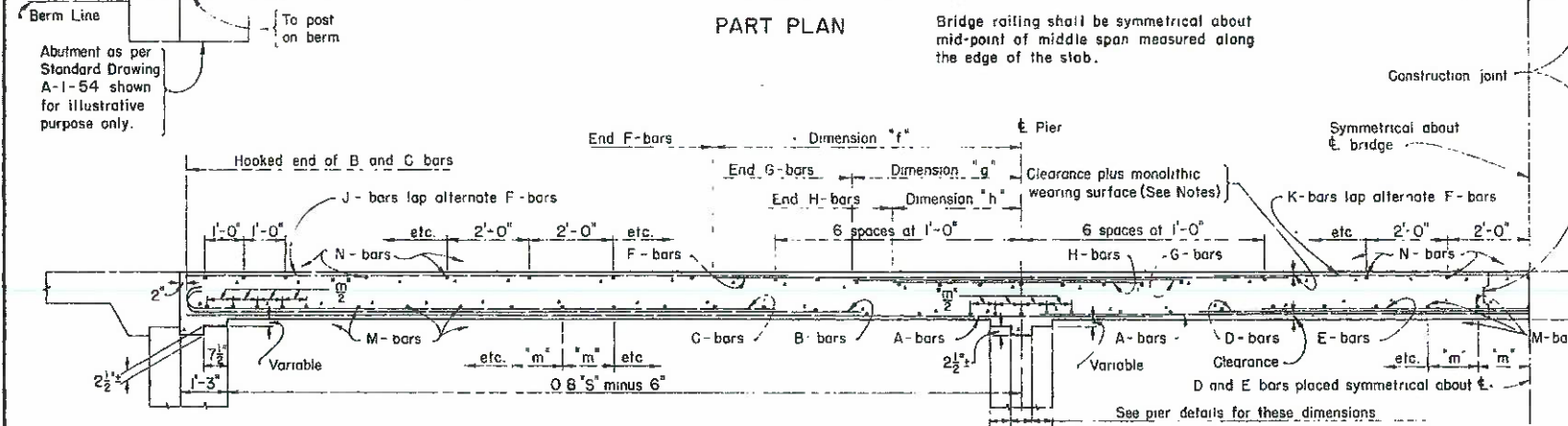
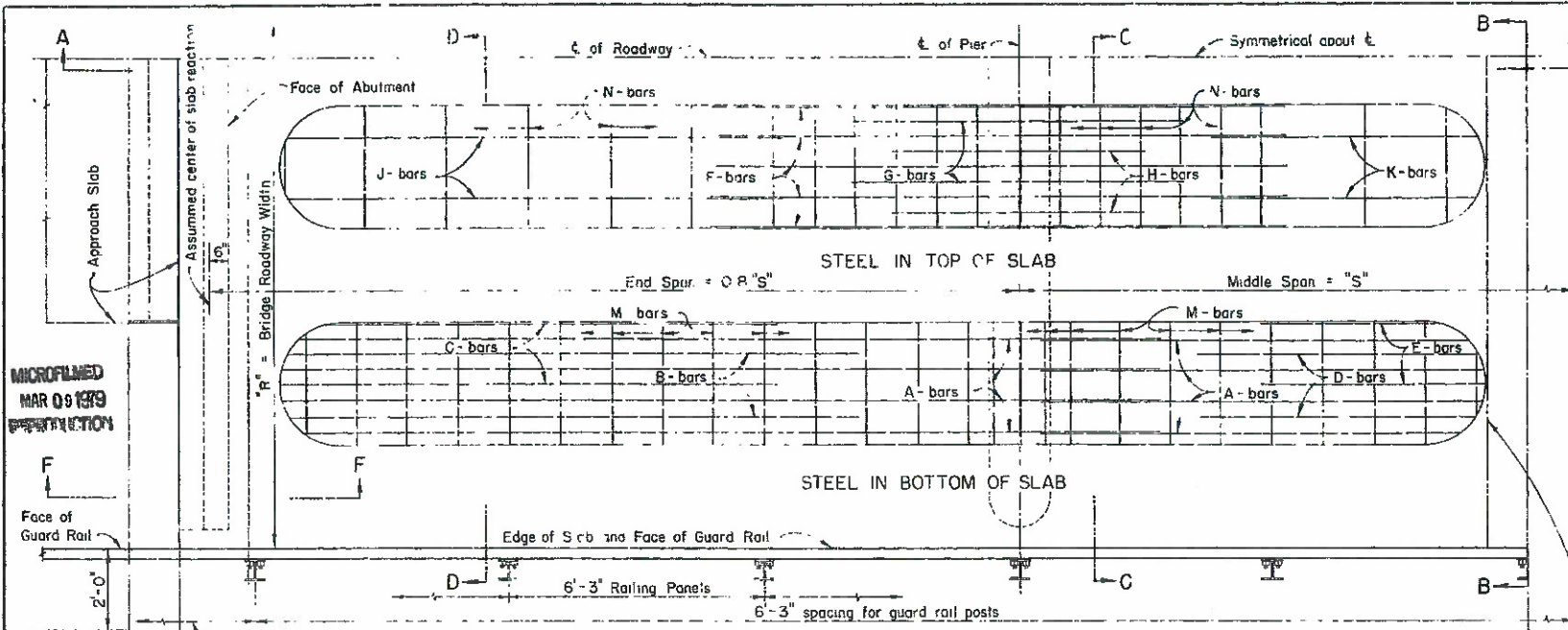
MONOLITHIC WEARING SURFACE shall be 1/2" for Load Frequency of CF=30, 3/4" for CF=130, and 1" for CF=400 and CF=2000. Concrete quantities have been computed on this basis.

* Average thickness of tapered portion. * Thickness for width of approach pavement.



TYPE "C" WATERPROOFING QUANTITY as determined from the table shall have added to it the number of sq. yds on fascia of slab

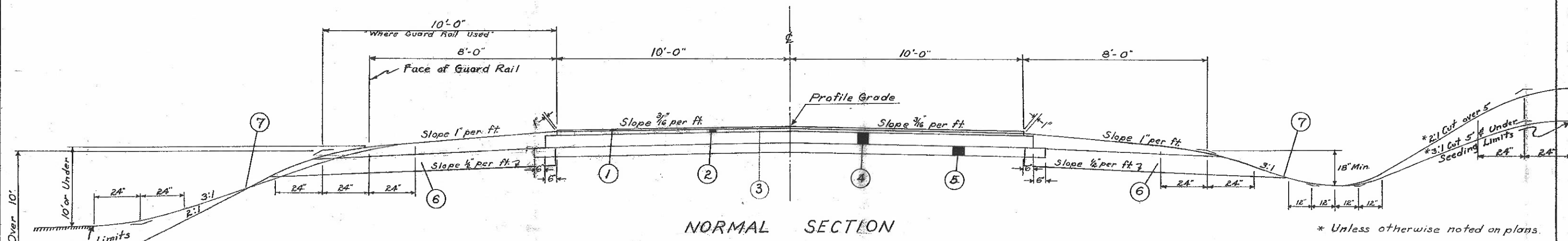
Revisions table and drawing information including drawing number CS-154, date 7-1-54, and sheet number 2 of 2 sheets.



REVISIONS 12-1-54 7-16-58	STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES STANDARD CONTINUOUS SLAB BRIDGE WITHOUT CURBS AND WITH HIGHWAY GUARD RAIL MIDDLE SPAN 20 FEET TO 55 FEET LOAD FREQUENCY: CF = 30, CF = 130, CF = 400, CF = 2000
APPROVED: DATE: 7-1-54 RNL CEJ GFB JCM WRR	DRAWING NUMBER CS-1-54 SHEET NO. 1 OF 2 SHEETS

TYPICAL SECTION

TYPE T-35 ON B-19



NORMAL SECTION

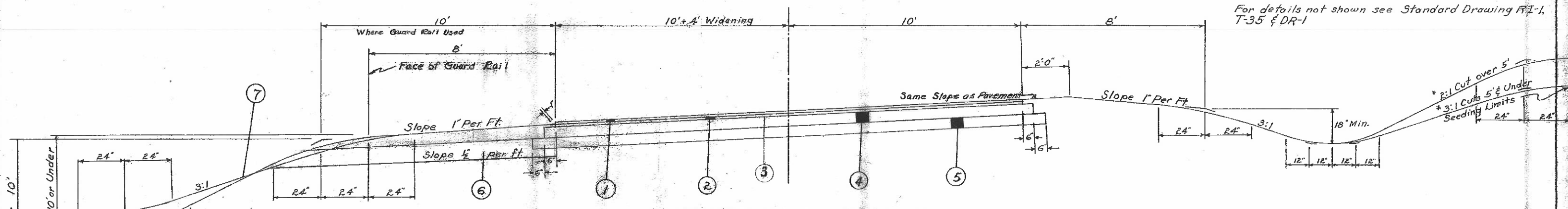
The above Section applies from

Sta. 33+00.00	to	Sta. 41+40.50	=	840.50 Lin Ft.
Sta. 42+03.50	to	Sta. 44+50.00	=	186.50 Lin Ft.
Sta. 152+66.25	to	Sta. 154+75.00	=	208.75 Lin Ft.
Sta. 306+50.00	to	Sta. 313+00.00	=	650.00 Lin Ft.

TOTAL LIN. FT. = 1885.75

DESIGN SPEED 40 M.P.H.

* Unless otherwise noted on plans.



SUPERELEVATED SECTION

The above Section applies from

Sta. 147+00.00	to	Sta. 151+23.75	=	423.75 Lin. Ft.
Sta. 154+75.00	to	Sta. 161+00.00	=	625.00 Lin. Ft.
Sta. 313+00.00	to	Sta. 315+00.00	=	200.00 Lin. Ft.

TOTAL LIN. FT. = 1248.75

1960 TRAFFIC COUNT

Passenger Cars	280
Trucks	
A	40
B	0
C	20
Total	340

NET LENGTH = 1885.75 + 1248.75 = 3134.50 Lin. Ft.

* Thicknesses shown are designed thicknesses as described in Sections F-35.01, B-35.01.

LEGEND

- ① ITEM T-35 1 1/2" Asphaltic Concrete Surface Course, Type 'C' (85-100)
- ② ITEM B-35 1 3/4" Asphaltic Concrete Leveling Course (85-100)
- ③ ITEM T-30 Bituminous Prime Coat, Sec. M-5.7, RT-2 or RT-3 applied at the rate of 0.40 gal per Sq. Yds.
- ④ ITEM B-19 5" Aggregate Base Course
- ⑤ ITEM I-22 4" Subbase
- ⑥ ITEM I-9 Stone Underdrains No. 2
- ⑦ ITEM L-9 Seeding and Protecting

UTILITY OWNERS	
General Telephone Co.	Morton, Ohio
Ohio Fuel Gas Co.	Columbus, Ohio
Washington Corp. Electric Co.	Marietta, Ohio

Approved: John Dowler
DIVISION ENGINEER
Date: 8-20-63