

New Jersey Turnpike Authority

P.O. Box 5042, Woodbridge, NJ 07095



June 1, 2022

Document Change Announcement

2007 Design Manual

Bridge Plan Checklist

DCA2022DM-01

**Subject: Revisions to
Section 3, Appendix A**

Description of Change:

This DCA provides Appendix A that is currently referenced within Section 3 of the Design Manual but was not previously available.

Notice to New Jersey Turnpike Authority Staff and Design Consultants

Effective immediately, all contracts currently in the design phase shall incorporate the revisions herein. For advertised contracts awaiting the opening of bids this revision shall be incorporated via addendum. Contact your New Jersey Turnpike Authority Project Manager for instruction.

The revisions may be accessed on the Authority's webpage: <https://www.njta.com/doing-business/professional-services>

Recommended By:

A handwritten signature in blue ink that reads 'Lamis T. Malak'.

Lamis T. Malak, P.E.
Deputy Chief Engineer - Design

Approved By:

A handwritten signature in blue ink that reads 'Michael Garofalo'.

Michael Garofalo, P.E.
Acting Chief Engineer

Distribution: Senior Staff Engineering, Law, Maintenance & Operations Depts., All Prequalified Consultant Firms, File

APPENDIX A

NJTA BRIDGE PLAN CHECKLIST

TITLE SHEET	
1.	See standard template for title sheets provided on the Authority's website.

KEY PLAN TO STRUCTURES	
2.	Identify location of each structure site that is to be built, altered, or demolished within the contract limits.
3.	Scale is no less than 1" = 200'
4.	Include all existing and new construction with stationing at intervals of 500' and NJ Coordinate Plane grid references.
5.	Show north arrow.
6.	Provide index of drawings.

ESTIMATE OF QUANTITIES	
7.	For repair contracts, coordinate with the Authority's Engineering Department to receive the most current version of the legend and general notes.
8.	Provide a tabulation of pay items for each structure site.
9.	Ensure pay item numbers is in numerical order and each row contains the Authority's assigned Unit Code, Description, and Unit.
10.	Columns for "If and Where Directed" quantities and "As-Built" quantities.
11.	Separate quantities per each stage of construction
12.	Include separate tabulation of items concerning Maintenance and Protection of Traffic and other general items (e.g., mobilization, construction layout, progress schedule, etc.).

GENERAL PLAN AND ELEVATION	
GENERAL PLAN	
13.	Provide general notes, including: <ul style="list-style-type: none"> - design specifications - welding specifications - construction specifications - design live load - design thermal forces - design material properties - future wearing course weight assumed in design - cleaning and painting specifications - seismic design information (performance zone or design category, site class, PGA, S_s, S₁)
14.	Label plan view as "PLAN".
15.	Scale of general plan is no less than 1" = 50' (preferably 1" = 30' or 1" = 20').
16.	Show north arrow.
17.	Show and label all working points, working lines, and centerlines (including abutment bearing lines and pier centerlines).
18.	Show skew angle of bearing lines
19.	Provide Turnpike/Parkway continuous stationing at intervals of 100'. Provide stations and

	elevations along centerline of survey at beginning and ends of bridge and centerline of all substructures.
20.	Provide azimuth of roadway centerline or working line.
21.	Show and label horizontal PC, PCC, and PT points that affect the structure.
22.	Label radius and/or degree of curve for all horizontal curves.
23.	Show lane lines, edge of pavement, roadway protective features, direction of travel, milepost markers, and roadway designation(s).
24.	Show location of bridge and substructures. Provide type of structure, length, and width of bridge.
25.	Tie bridge dimensions to working points.
26.	Define bridge length along centerline. (End of deck to centerline of abutment bearing to centerline of pier to centerline of abutment bearing to end of deck and overall length)
27.	Show approach slab limits.
28.	Dimension roadway, barrier/parapet, sidewalk, and median widths.
29.	Show and label abutment wingwalls.
30.	Show location of deck drains and centerline and station of electrical and lighting facilities.
31.	Show all applicable proposed work areas.
32.	Show existing and proposed utilities and pipes which affect the bridge construction.
33.	Label all drainage facilities within the vicinity of the bridge.
34.	Show stage construction limits, if applicable.
35.	Show type and extent of slope protection, if applicable.
36.	For retaining walls adjoining to the abutments, provide wall name and tie in with station and coordinates.
37.	Temporary facilities, such as sheeting, and detour structures.
38.	Permanent sheeting limits.
39.	Show intersection of bridge roadway centerline with centerlines of roadways above or below. Provide station and angle between centerlines. Provide of right of way lines of the intersecting roadways.
40.	For stream crossings, provide name of stream and direction of flow.
41.	For railroad bridges or crossings, label all tracks and associated right of way lines. Each track shall be identified by the railroad line and branch number, and structure number where applicable, and be identified as active or inactive as determined through coordination with the owner.
42.	Show boring locations.
43.	Vehicular detector loops/pavement sensors for weather and traffic systems. Identify as active or inactive.
44.	Show deck joint types and sizes.
GENERAL ELEVATION	
45.	Label elevation as "ELEVATION".
46.	Scale of general elevation is no less than 1" = 30' (preferably 1" = 16').
47.	Show and label abutments, piers, spans, slope protection, and piling as applicable.
48.	Show and label location of minimum vertical clearance point for each roadway under bridge.
49.	Ensure the elevation depicts the general features below the bridge including those that may affect access such as waterways, ditches, chain link fences, roadway protective features, or other permanent features.

	50. Show existing and proposed ground lines.
	51. Provide bottom of substructure footing elevations.
	52. Show girder, slab, barrier, and railing.
	53. Provide grade of the bridge.
	54. Label bearings as fixed or expansion.
	55. If there is a waterway below the structure, provide 1% Annual Exceedance Probability (100-year) flood elevations and normal water surface elevation, or mean high water where tidal.
	56. Where applicable, provide hydraulic and hydrologic data table, including frequency, drainage area, design discharge, design water surface elevation, and design energy line elevation.

PROFILE	
	57. Provide vertical curve data, including PVI station, PVI elevation, approach grade, departure grade, and curve length. Provide VPT and VPC with station and elevation.
	58. Show minimum vertical clearances.
	59. Show the existing ground line.
	60. Provide existing and proposed elevations at 50' intervals.

TYPICAL SECTION	
	61. Label as "TYPICAL SECTION". Label per span, if more than one. Indicate which direction the view is looking towards.
	62. Provide transverse bridge dimensions. Include roadway width, lane widths, out-to-out width of deck, sidewalk, barrier, and median widths.
	63. Label the existing and proposed cross-slope grades of the roadway.
	64. Provide height of raised median at the gutterline.
	65. Show and label type of barrier and/or railing.
	66. Show and label deck or slab thickness and wearing surface thickness, if applicable.
	67. Show and label girder type and size.
	68. Provide girder spacing for all spans.
	69. Label centerline(s) and baseline of roadway.
	70. Label cross slope on sidewalks and medians.
	71. Show stage construction limits, if applicable.

DEMOLITION DETAILS	
	72. Show and hatch extent of removals. Provide angles and dimensions that tie into existing or proposed working points.
	73. Show all cut lines and provide elevations or dimensions.
	74. Show existing reinforcement and identify what is to be done with any exposed sections.
	75. Show and label removal stages.
	76. Provide notes to explain removals and pay items for removals.

STAGING DETAILS	
	77. Show existing, interim, and final transverse sections. Tie in new centerline, baseline, and working points to existing ones.
	78. Show temporary and permanent barriers.

STAGING DETAILS	
79.	Show applicable cut lines.
80.	Show and label arrows for direction of traffic.
81.	Show and label construction stages.
82.	Show and label sheet piling, if any. Note if sheeting is to be removed or remain in place.
83.	Show and label any utilities and drainage facilities to remain, to be removed, or to be relocated.
84.	Provide notes to explain work and pay items for removals as necessary.

SUBSTRUCTURE DETAILS	
FOOTING PLAN	
85.	Label "FOOTING PLAN".
86.	Provide foundation layout including size and locations of piles or drilled shafts as applicable.
87.	Develop foundation details with pile or drilled shaft details and notes.
88.	Identify direction and angle of pile batter, if applicable.
89.	Tie pile or drilled shaft spacing to working points.
90.	Identify and number the test piles.
91.	Provide load tables for applicable foundations.
ABUTMENT PLAN	
92.	Scale is drawn to $\frac{1}{4}'' = 1'$ (preferably, the scale is no less than $\frac{3}{16}''$).
93.	Show and label working points.
94.	Show and label centerline of bearing.
95.	Show and label centerline and baseline of roadway.
96.	Show centerline of girders and wingwall angles.
97.	Label angle between roadway baseline and centerline of bearing.
98.	Tie abutment and wingwall dimensions, including front face and corners of fillets, to working points and centerline bearing.
99.	Provide girder and concrete pedestal spacing.
100.	Show and label construction joints.
101.	Show and label contraction joints, if applicable.
102.	Provide construction or contraction joint spacing.
103.	Show conduit through abutment backwall, if applicable.
104.	Include large scale corner details for highly skewed bridges and complex corners.
ABUTMENT ELEVATION	
105.	Scale is drawn to $\frac{1}{4}'' = 1'$ (preferably, the scale is no less than $\frac{3}{16}''$).
106.	Provide footing, stem, concrete pedestal, top of backwall, and top of parapet elevations.
107.	Show and label centerline of bridge girders.
108.	Slope bridge seat between concrete pedestals.
109.	Show and label approximate ground line.
110.	Show depth of footing below ground line.
111.	Show opening for conduit through abutment backwall, if applicable.
112.	Show piles or drilled shafts.
113.	Show and label construction and contraction joints and the size of shear key.
114.	Show and label utility blockouts.
115.	Show shear blocks and details as necessary.

SUBSTRUCTURE DETAILS	
	116. Show drainage system.
ABUTMENT SECTION AND DETAILS	
	117. Show and dimension abutment footing, bridge seats, and parapets.
	118. Label types of concrete for each part of section.
	119. Show and label centerline of bearing.
	120. Show and label construction joints and size of shear keys.
	121. Show piling and identify slope of battered piles.
	122. Provide pile spacing.
	123. Show and dimension pile cutoff.
	124. Show and label membrane waterproofing system.
	125. Show drainage pipe and label drainage system.
	126. Provide reinforcement plan and section views of footing, abutment stem, and abutment backwall.
	127. Provide general reinforcement elevation view of abutment.
	128. Show anchor rods, dimension anchor rod spacing, and include anchor rod template note, if applicable.
	129. Show, label, and dimension embedment of all dowels.
	130. Provide reinforcement lap splice lengths.
	131. Provide reinforcement clearances.
PIER PLAN	
	132. Scale is drawn to $\frac{1}{4}'' = 1'$ (preferably, the scale is no less than $\frac{3}{16}''$).
	133. Show and label working points.
	134. Show and label centerline of bearing.
	135. Show and label centerline and baseline of roadway.
	136. Label angle between roadway baseline and centerline of bearing.
	137. Tie pier dimensions, including front face and corners of fillets, to working points and centerline bearing.
	138. Provide girder and concrete pedestal spacing.
	139. Show and label construction joints and identify the nominal size of keyways.
	140. Show and label contraction joints, if applicable.
	141. Provide construction or contraction joint spacing.
PIER ELEVATION	
	142. Scale is drawn to $\frac{1}{4}'' = 1'$ (preferably, the scale is no less than $\frac{3}{16}''$).
	143. Provide footing, pier wall/column, pier cap, and concrete pedestal elevations.
	144. Show and label centerline of bridge girders.
	145. Slope bridge seat between concrete pedestals.
	146. Show and label approximate ground line.
	147. Show depth of footing below ground line.
	148. Show piles or drilled shafts.
	149. Show and label construction and contraction joints and the size of shear keys.
PIER SECTION AND DETAILS	
	150. Show and dimension pier footing, pier wall/column, pier cap, and pedestal.
	151. Show and label centerline of bearing.
	152. Show and label construction joints and size of shear keys.
	153. Show piling and identify slope of battered piles.

SUBSTRUCTURE DETAILS	
	154. Provide pile spacing.
	155. Show and dimension pile cutoff.
	156. Provide reinforcement plan and section views of footing, wall/columns, pier cap, and pedestal.
	157. Provide general reinforcement elevation view of pier.
	158. Show anchor rods, dimension anchor rod spacing, and include anchor rod template note, if applicable.
	159. Show, label, and dimension embedment of all dowels.
	160. Provide reinforcement lap splice lengths.
	161. Provide reinforcement clearances.

SUPERSTRUCTURE DETAILS	
FRAMING PLAN	
	162. Label "FRAMING PLAN".
	163. Scale of framing should not be less than 1" = 20'.
	164. Show north arrow.
	165. Show and label working points.
	166. Provide girder spacing and types of girder.
	167. Show and label fascia girders, centerline of bearings, and centerline of piers.
	168. Label girders.
	169. Provide dimensions of girder off roadway baseline or working points.
	170. Identify bearing type at each location.
	171. Show and label end and intermediate diaphragm spacing, including any additional fascia bay diaphragms required over oncoming traffic lanes to protect against bridge hits.
	172. Dimension angle of diaphragms.
	173. Dimension distance to centerline bearings normal to centerline of pier and along centerline of girders.
	174. Show and label field splice for steel bridges.
GIRDER ELEVATION	
	175. Provide dimensions along girder.
	176. Provide girder dimensions and indicate supplementary requirements for notch testing as applicable.
	177. Call out all applicable welds for built-up members.
	178. Detail all applicable bolt sizes and quantity.
	179. Label bearing stiffeners.
	180. Indicate flange tension zones
	181. Label all longitudinal and transverse stiffeners.
	182. Show and label field splices.
	183. Label centerline of abutment bearing, pier, and field splices.
	184. Dimension shear stud spacing along girder.
	185. Show shear connector details.
	186. Call out reinforcement for concrete beams.
	187. For prestressed concrete beam, fill in calculated prestress losses, minimum concrete strengths, and prestressing strand diameter boxes.
	188. Fill in dimensions for centerline to centerline of bearing, out to out of beam, hold-down

SUPERSTRUCTURE DETAILS	
	location, and initial prestress force, if applicable.
	189. Provide structural steel notes.
STRUCTURAL STEEL DETAILS	
	190. Label angles, plates, and W beams.
	191. Show weld locations, if applicable.
	192. Show details for plates and spacing
	193. Show plan view of end diaphragms.
	194. Show elevation view of typical intermediate diaphragm and/or cross frames.
	195. Provide details of top flange splice plate.
	196. Provide details of bottom flange splice plate.
	197. Provide details of web splice plate.
	198. Show detail of all connections.
	199. Call out all applicable weld types and sizes.
	200. For bolted connections, label hole size, bolt size, and type of bolt.
	201. Provide utility support details, if applicable.
	202. Provide limits of bridge painting and any applicable notes.
STEEL GIRDER CAMBER	
	203. Provide span lengths and overall length.
	204. Divide each span into 10 equal spaces and label per its 10th point ordinate.
	205. Provide camber values to 1/100".
	206. Provide camber for deflection due to structural steel.
	207. Provide camber for deflection due to concrete slab.
	208. Provide camber for deflection due to superimposed dead loads.
	209. Provide camber required for vertical curvature.
	210. Provide diagram that shows the full camber at the top of the girder web plate. Show field splice locations, if applicable. Show and label reference line.
	211. Provide applicable camber table notes.
DECK ELEVATIONS	
	212. Show north arrow.
	213. Show working points.
	214. Label centerline of bearing at abutments and centerline of piers.
	215. Provide angle between baseline of roadway and substructures.
	216. Dimension deck width. Include roadway, lane, barrier, sidewalk, and median widths, as applicable. Callout location of lane lines and other applicable reference lines used to establish deck elevations.
	217. If skewed, show details for corners.
	218. Provide span lengths and out-to-out of deck dimensions.
	219. Show dimension from end of deck to working point.
	220. Provide Typical Deck Section showing roadway, lane, barrier, sidewalk, and median widths, as applicable. Provide cross-slope grades. Callout location of lane line elevations and other applicable reference lines.
	221. Provide Top Deck Elevation table with elevations to 1/100' at lane lines and other applicable reference lines
	222. Provide deck placement sequence.

SUPERSTRUCTURE DETAILS	
DECK REINFORCEMENT PLAN	
	223. Show longitudinal reinforcement, top and bottom.
	224. Show transverse reinforcement bars, top and bottom.
	225. Provide reinforcement lap splices. Alternate lap locations where possible.
	226. Show and label additional reinforcement over piers in stagger detail and in plan.
	227. Provide reinforcement clearances.
	228. Show and label conduit systems, if applicable.
DECK SECTION	
	229. Provide transverse bridge dimensions. Include roadway width, lane widths, out-to-out width of deck, sidewalk, barrier, and median widths.
	230. Label the cross-slope grade of the roadway.
	231. Provide height of raised median at the gutterline.
	232. Show and label type of barrier and/or railing.
	233. Show and label deck or slab thickness and wearing surface thickness, if applicable.
	234. Show and label girder type and size.
	235. Provide girder spacing for all spans.
	236. Label centerline(s) and baseline of roadway.
	237. Label cross slope on sidewalks and medians.
	238. Show stage construction limits, if applicable.
	239. Label top and bottom longitudinal reinforcement and provide spacing.
	240. Label top and bottom transverse reinforcement and provide spacing.
	241. Provide reinforcement lap splices. Alternate lap locations where possible.
	242. Show and label additional reinforcement over piers.
	243. Provide reinforcement clearances.
	244. Show and label barrier and sidewalk reinforcement into deck.
	245. Provide drip V groove on the underside of deck edge.
	246. Show plan view of barrier limits (use break line if needed).
	247. Show elevation view of barrier limits (use break line if needed).
	248. Label longitudinal reinforcement and minimum lap lengths.
	249. Provide control joint spacing. Place control joint at all pier centerline/gutterline intersections.
	250. Show and label centerline of substructures
	251. Label barrier regions located on wingwall/approach panel and bridge deck.
DECK DETAILS	
	252. Provide barrier parapet reinforcement detail.
	253. Provide typical section at deck slab joint.
	254. Provide corner reinforcement detail, as applicable.

MISCELLANEOUS SHEETS	
	255. Provide approach slab plan, elevation, and details.
	256. Provide bearing and sole plate details.
	257. Provide bearing load table.
	258. Include structural jacking details.
	259. Provide typical plan and section of deck joints.
	260. Provide retaining wall limits and elevations.

MISCELLANEOUS SHEETS	
	261. Provide details of temporary support systems.
	262. Provide repair details if needed.
	263. Include conduit and lighting system sheet if required.