Common SNBI Coding Examples

Bill Dittrich – INDOT Bridge Inspection
Jonathan Olson, PE – Butler, Fairman, & Seufert
Kyle Kent, PE – United Consulting Engineers

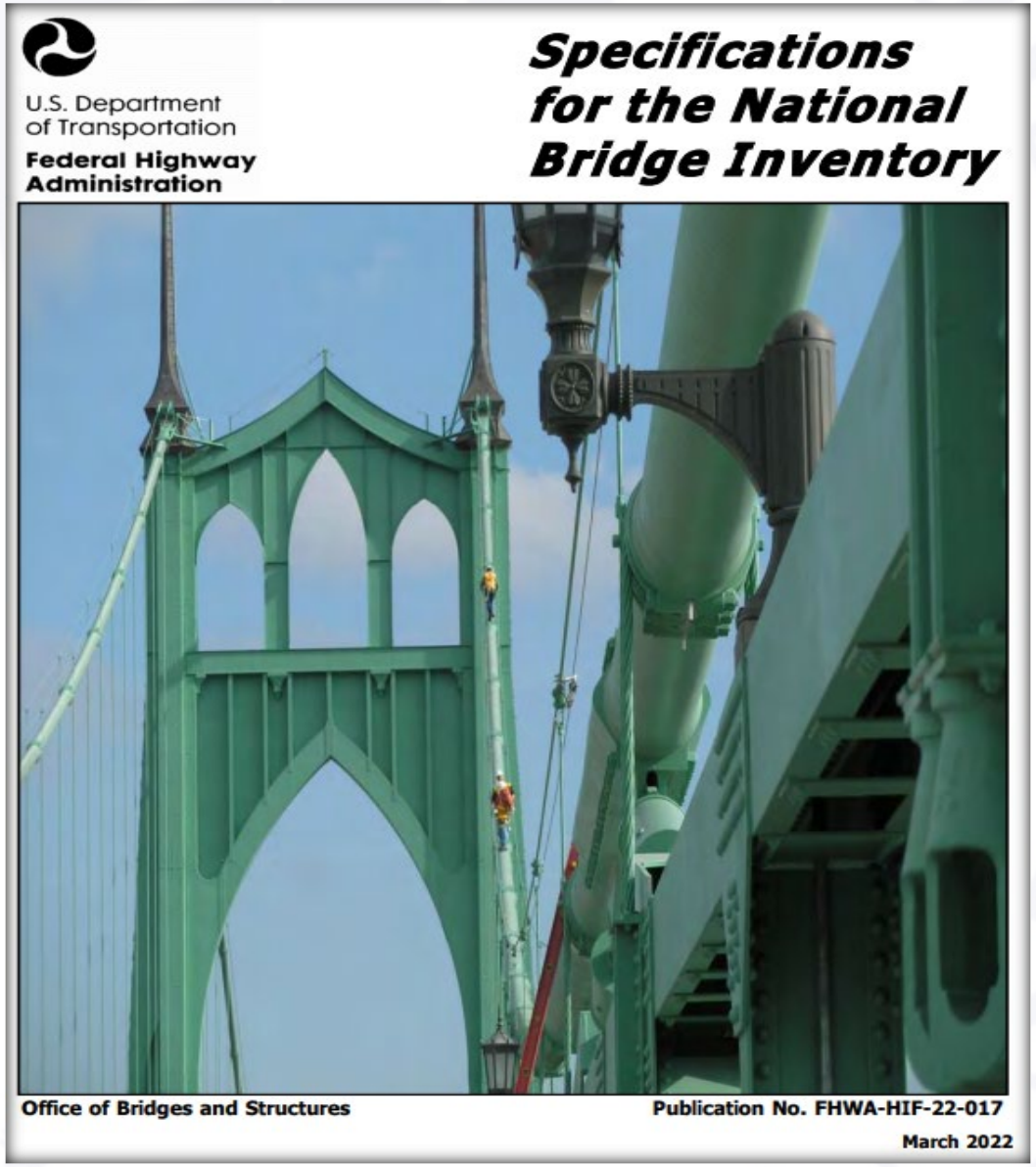
NextLevel INDIANA

Common SNBI Coding Examples

1. Common Bridge Types in Indiana – Bill Dittrich
    a. Span Sets
    b. Substructures
    c. Features
2. Commonly Miscoded Items - Part #1 – Jonathan Olson
3. Commonly Miscoded Items - Part #2 – Kyle Kent

Common SNBI Coding Examples

- SNBI Manual



Common SNBI Coding Examples

- SNBI --- Subsection 2.1: Span Material and Type

  (See page #55 in the SNBI Manual)

Item ID	Data Item
B.SP.01	Span Configuration Designation
B.SP.02	Number of Spans
B.SP.03	Number of Beam Lines
B.SP.04	Span Material
B.SP.05	Span Continuity
B.SP.06	Span Type
B.SP.07	Span Protective System
B.SP.08	Deck Interaction
B.SP.09	Deck Material and Type
B.SP.10	Wearing Surface
B.SP.11	Deck Protective System
B.SP.12	Deck Reinforcing Protective System
B.SP.13	Deck Stay-In-Place Forms

NextLevel INDIANA

Common SNBI Coding Examples

- SNBI --- Subsection 2.1: Span Material and Type

  Span Configuration Designation (See page #56 in the SNBI Manual)

Specification

Report the assigned span configuration designation using one of the following codes.

Code	Description
M##	Main
A##	Approach
C##	Culvert
V##	Culvert extension
W##	Widening

Replace the ## characters in the above codes with sequential numbers, with leading zeros, assigned to each span configuration.

Common SNBI Coding Examples

- SNBI --- Subsection 2.1: Span Material and Type

  Number of Spans (See page #58 in the SNBI Manual)

Specification
Report the number of spans.

Common SNBI Coding Examples

- SNBI --- Subsection 2.1: Span Material and Type

  Number of Beam Lines (See page #59 in the SNBI Manual)

Specification
Report the number of principal beam lines. **Report 1 for bridges where Item B.SP.06 *(Span Type)* is F01, F02, S01, or S02.** **Report 0 for bridges where Item B.SP.06 *(Span Type)* is P01 or P02.**

Common SNBI Coding Examples

- SNBI --- Subsection 2.1: Span Material and Type

Span Material (See pages #60 & 61 in the SNBI Manual)

Specification
Report the principal span material type using one of the following codes.

Code	Description
A01	Aluminum
C01	Reinforced concrete – cast-in-place
C02	Reinforced concrete – precast
C03	Prestressed concrete – pre-tensioned
C04	Prestressed concrete – cast-in-place post-tensioned
C05	Prestressed concrete – precast post-tensioned
CX	Concrete – other
F01	FRP composite – aramid fiber
F02	FRP composite – carbon fiber
F03	FRP composite – glass fiber
FX	FRP composite – other
I01	Iron – cast
I02	Iron – wrought
M01	Masonry – block
M02	Masonry – stone
P01	Plastic – Polyethylene
PX	Plastic - other
S01	Steel – rolled shapes
S02	Steel – welded shapes
S03	Steel – bolted shapes
S04	Steel – riveted shapes
S05	Steel – bolted and riveted shapes
SX	Steel – other

Code	Description
T01	Timber – glue laminated
T02	Timber – nail laminated
T03	Timber – solid sawn
T04	Timber – stress laminated
TX	Timber – other
X	Other

NextLevel INDIANA

Common SNBI Coding Examples

- SNBI --- Subsection 2.1: Span Material and Type

  Span Continuity (See page 62 in the SNBI Manual)

Code	Description
1	Simple or single span
2	Continuous
3	Continuous for live loads only
4	Cantilever
5	Cantilever with pin and hanger
6	Frame
7	Buried

Common SNBI Coding Examples

- SNBI --- Subsection 2.1: Span Material and Type

Span Type (See pages #63 & 64 in the SNBI Manual)

Specification
Report the span type using one of the following codes.

Code	Description
A01	Arch – under fill without spandrel
A02	Arch – open spandrel
A03	Arch – closed spandrel
A04	Arch – through
A05	Arch – tied
B01	Box girder/beam – single
B02	Box girder/beam – multiple adjacent
B03	Box girder/beam – multiple spread
B04	Box girder/beam – segmental
F01	Frame – three-sided
F02	Frame – four-sided
F03	Frame – K-shaped
F04	Frame – delta-shaped

G01	Girder/beam – I-shaped adjacent
G02	Girder/beam – I-shaped spread
G03	Girder/beam – tee-beam
G04	Girder/beam – inverted tee-beam
G05	Girder/beam – double-tee adjacent
G06	Girder/beam – double-tee spread
G07	Girder/beam – channel adjacent
G08	Girder/beam – channel spread
G09	Girder/beam – girder & floor beam
G10	Girder/beam – through girder
GX	Girder/beam – other

L01	Cable – suspension
L02	Cable – cable-stayed
L03	Cable – extradosed
LX	Cable – other
M01	Movable – vertical lift
M02	Movable – bascule
M03	Movable – swing
MX	Movable – other
P01	Pipe - Rigid
P02	Pipe - Flexible

S01	Slab – solid
S02	Slab – voided
T01	Truss – deck
T02	Truss – through
T03	Truss – pony
X01	Other – railroad flat car
X02	Other – ferry transfer
X03	Other – floating
X	Other

NextLevel INDIANA

Common SNBI Coding Examples

- SNBI --- Subsection 2.1: Span Material and Type

Span Protective System (See pages #65 & 66 in the SNBI Manual)

Specification
Report the span protective system using one of the following codes.

Code	Description
0	None
A01	Admixture – internally sealed
A02	Admixture – low permeability
A03	Admixture – polymer impregnated
A04	Admixture – corrosion inhibitor
A05	Admixture – ASR inhibitor
AX	Admixture – other
C01	Coating – paint
C02	Coating – sealer
C03	Coating – hot dip galvanizing
C04	Coating – metalizing/thermal spray
CX	Coating – other
E01	Encasement – concrete
EX	Encasement – other
M01	Membrane – built-up
M02	Membrane – sheet
M03	Membrane – liquid applied
MU	Membrane – unknown
MX	Membrane – other
P01	Patina – uncoated weathering steel
S01	Sacrificial – cathodic, passive
S02	Sacrificial – cathodic, active
SX	Sacrificial – other
T01	Treated – timber preservative
U	Unknown
X	Other

NextLevel INDIANA

Common SNBI Coding Examples

- SNBI --- Subsection 2.1: Span Material and Type

  Deck Interaction (See page 67 in the SNBI Manual)

Code	Description
CS	Composite – shored construction
CU	Composite – unshored construction
IM	Integral or monolithic
NC	Non-composite

Do not report this item when Item B.SP.09 *(Deck Material and Type)* is 0.

Common SNBI Coding Examples

- SNBI --- Subsection 2.1: Span Material and Type

Deck Material and Type (See page #68 in the SNBI Manual)

Code	Description
0	None
A01	Aluminum
C01	Reinforced concrete – cast-in-place
C02	Reinforced concrete – precast
C03	Prestressed concrete – pre-tensioned
C04	Prestressed concrete – cast-in-place post-tensioned
C05	Prestressed concrete – precast post-tensioned
CX	Concrete – other
F01	FRP composite – aramid fiber
F02	FRP composite – carbon fiber
F03	FRP composite – glass fiber
FX	FRP composite – other
S01	Steel – open grid
S02	Steel – filled or partially filled grid
S03	Steel – plate
S04	Steel – orthotropic
S05	Steel – corrugated
SX	Steel – other
T01	Timber – glue laminated
T02	Timber – nail laminated
T03	Timber – solid sawn
T04	Timber – stress laminated
TX	Timber – other
X	Other

NextLevel INDIANA

Common SNBI Coding Examples

- SNBI --- Subsection 2.1: Span Material and Type

Wearing Surface (See page #69 in the SNBI Manual)

Report the predominant wearing surface material type protecting the deck or slab for the span configuration using one of the following codes.

Code	Description
0	None
B01	Bituminous (asphalt)
C01	Concrete – monolithic
C02	Concrete – unmodified
C03	Concrete – latex modified
C04	Concrete – low slump
C05	Concrete – fiber reinforced
C06	Concrete – microsilica
C07	Concrete – polyester
CX	Concrete – other
CU	Concrete – unknown
E01	Earth – gravel or soil
P01	Polymer – epoxy
P02	Polymer – polyester
PX	Polymer – other
S01	Steel
T01	Timber – running planks
X	Other

Do not report this item when Item B.SP.09 *(Deck Material and Type)* is 0.

Common SNBI Coding Examples

- SNBI --- Subsection 2.1: Span Material and Type

Deck Protective System (See page #70 in the SNBI Manual)

Code	Description
0	None
A01	Admixture – internally sealed
A02	Admixture – low permeability
A03	Admixture – polymer impregnated
A04	Admixture – corrosion inhibitor
A05	Admixture – ASR inhibitor
AX	Admixture – other
C01	Coating – paint
C02	Coating – silane/siloxane
C03	Coating – methacrylate
CX	Coating – other

M01	Membrane – built up
M02	Membrane – sheet
M03	Membrane – liquid applied
MU	Membrane – unknown
MX	Membrane – other
P01	Patina – weathering steel
X	Other

Do not report this item when Item B.SP.09 *(Deck Material and Type)* is 0.

NextLevel INDIANA

Common SNBI Coding Examples

- SNBI --- Subsection 2.1: Span Material and Type

Deck Reinforcing Protection System (See page #71 in the SNBI Manual)

Code	Description
0	None
C01	Coating – epoxy coated
C02	Coating – galvanized
C03	Coating – metalized
CX	Coating – other
R01	Reinforcing – stainless, clad
R02	Reinforcing – stainless, solid
R03	Reinforcing – high chromium
R04	Reinforcing – FRP, aramid fiber
R05	Reinforcing – FRP, carbon fiber
R06	Reinforcing – FRP, glass fiber
R07	Reinforcing – FRP, other
RX	Reinforcing – other

S01	Sacrificial – cathodic, passive
S02	Sacrificial – cathodic, active
SX	Sacrificial – other
X	Other

Report this item only if Item B.SP.09 *(Deck Material and Type)* is concrete (i.e. codes C01 to CX).

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Common SNBI Coding Examples

- SNBI --- Subsection 2.1: Span Material and Type

  Deck Stay-In-Place Forms (See page #72 in the SNBI Manual)

Code	Description
0	None
C01	Concrete – reinforced
C02	Concrete – prestressed
F01	FRP composite
M01	Metal
T01	Timber
X	Other

Do not report this item when Item B.SP.09 *(Deck Material and Type)* is 0.

Common SNBI Coding Examples

- SNBI --- Subsection 2.1: Span Material and Type
- Example #1 – Continuous Prestressed Concrete Bulb T-Beam Bridge

  Most data needed to enter in iTAMS for the SNBI can be found on the General Plan Sheet(s).

Common SNBI Coding Examples

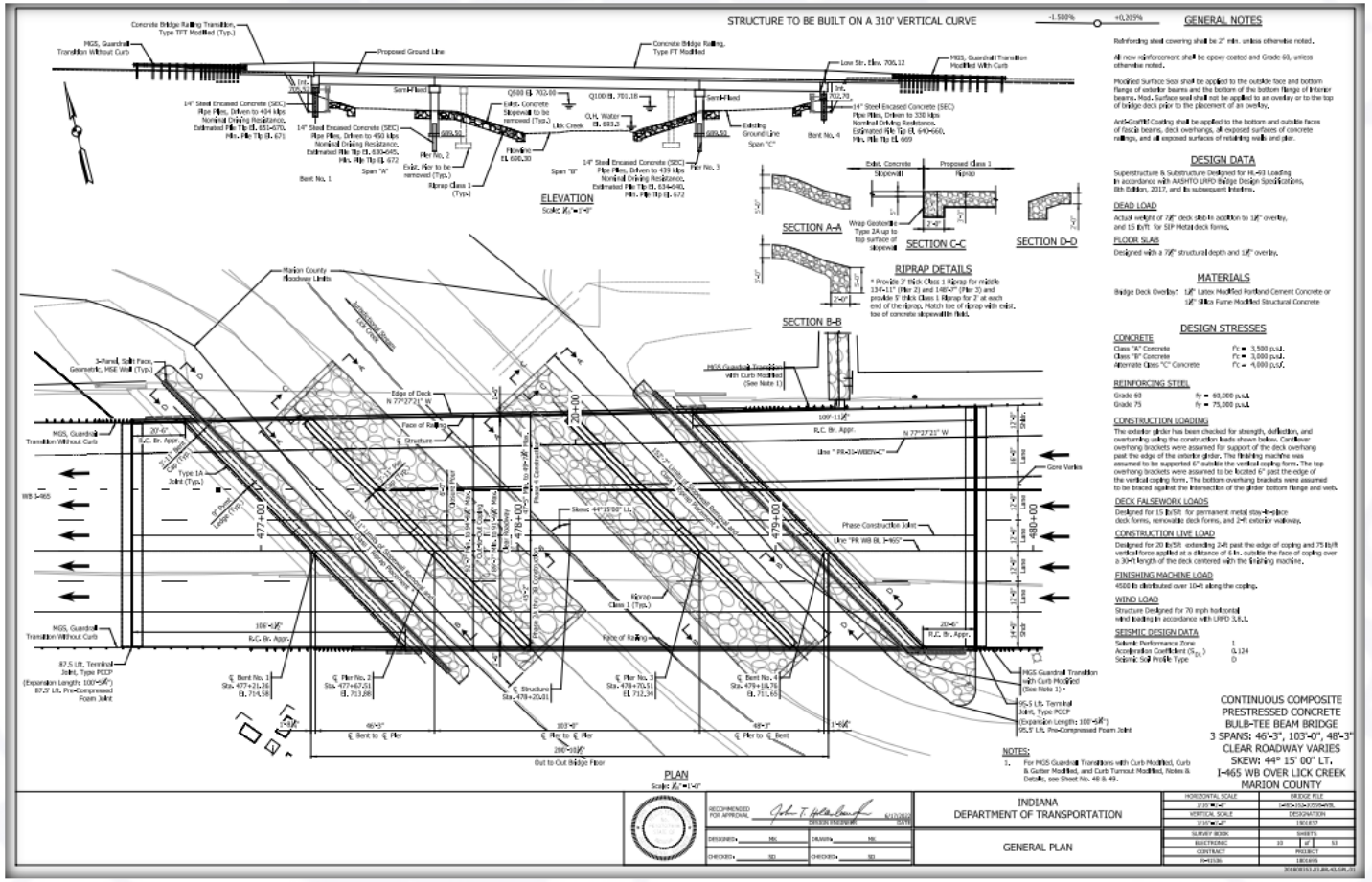
- SNBI --- Subsection 2.1: Span Material and Type
- Example #1 – Continuous Prestressed Concrete Bulb T-Beam Bridge

Common SNBI Coding Examples

- SNBI --- Subsection 2.1: Span Material and Type
- Example #1 – Continuous Prestressed Concrete Bulb T-Beam Bridge

Common SNBI Coding Examples

- SNBI --- Subsection 2.1: Span Material and Type
- Example #1 – Continuous Prestressed Concrete Bulb T-Beam Bridge



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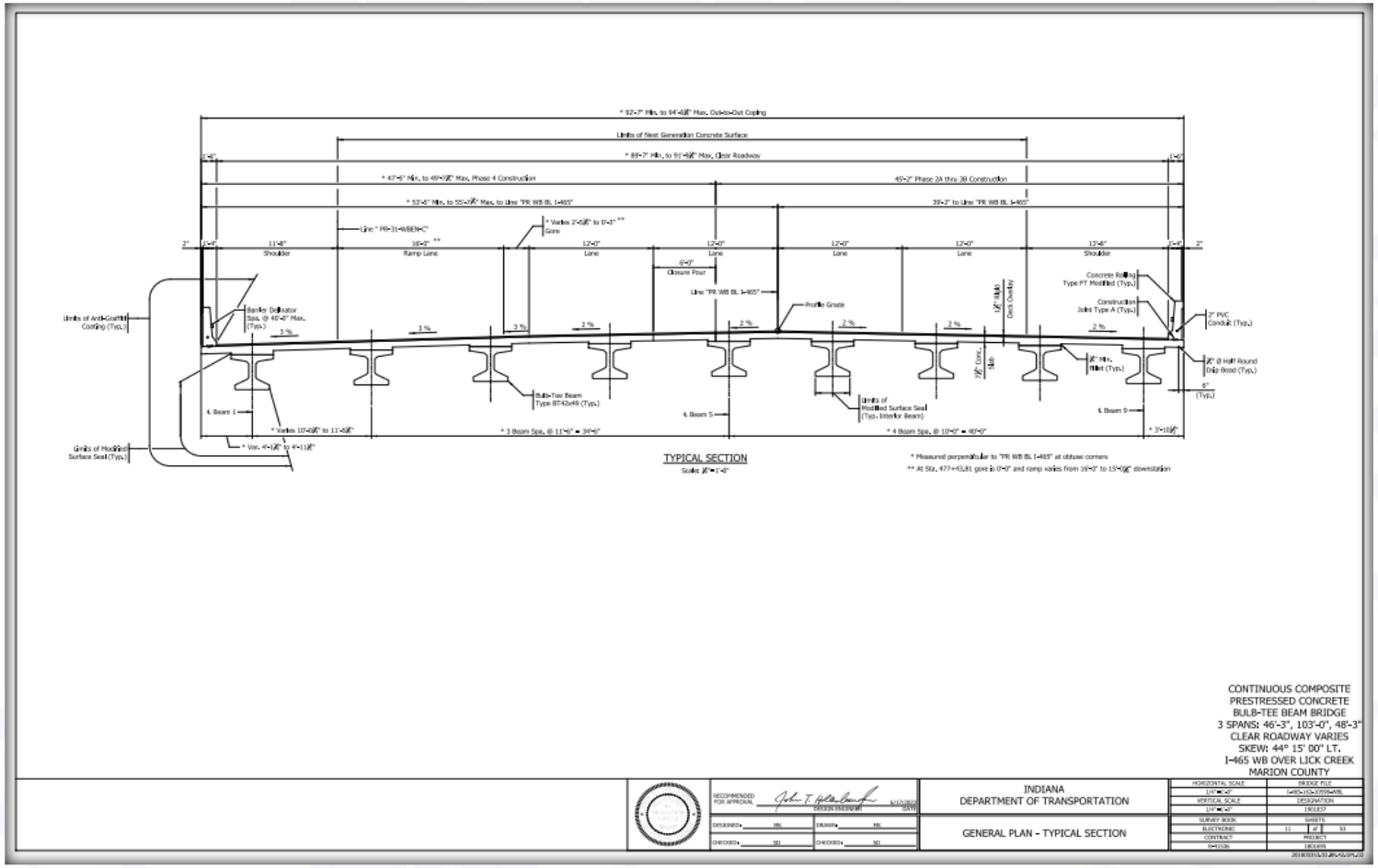
Common SNBI Coding Examples

- SNBI --- Subsection 2.1: Span Material and Type
- Example #1 – Continuous Prestressed Concrete Bulb T-Beam Bridge

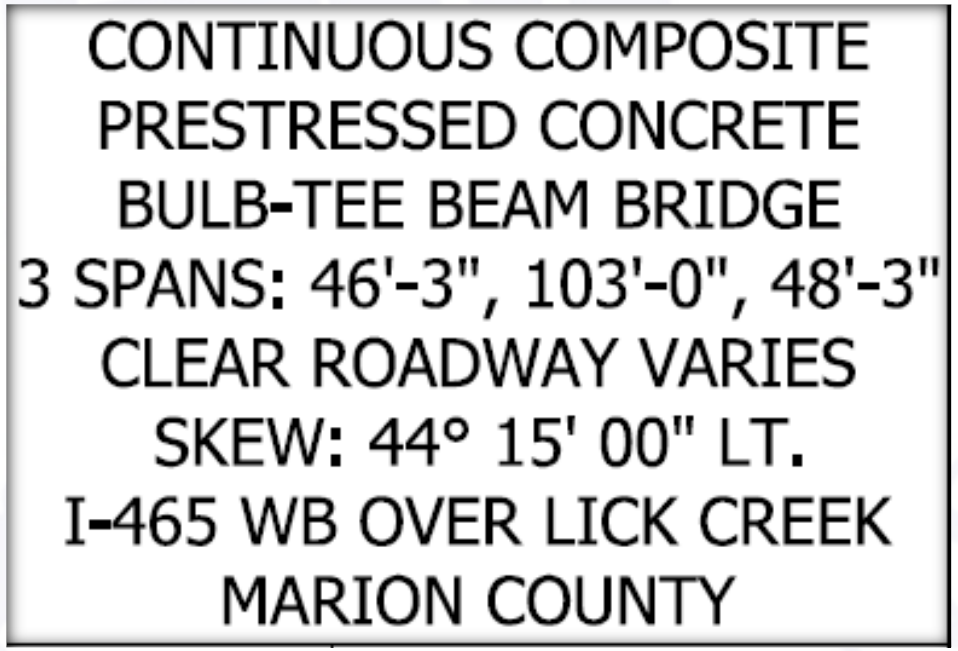


Common SNBI Coding Examples

- SNBI --- Subsection 2.1: Span Material and Type
- Example #1 – Continuous Prestressed Concrete Bulb T-Beam Bridge

The “Title Block” at lower right of the sheet(s) provides a lot of the needed information to complete Subsection 2.1.

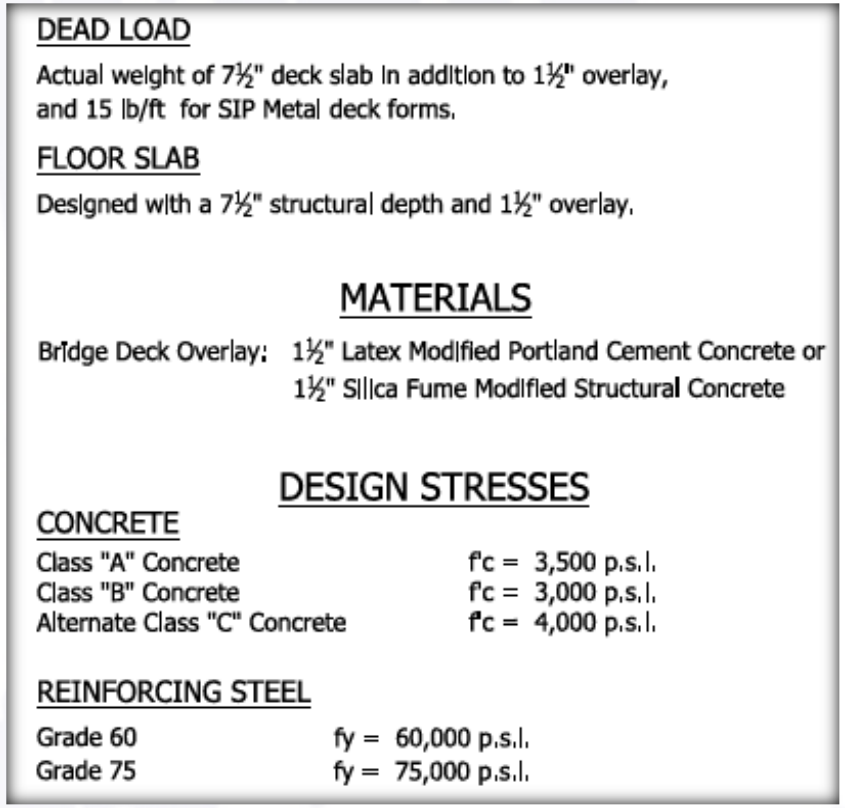
This data can/should then be verified by reviewing the plan sheets.



Common SNBI Coding Examples

- SNBI --- Subsection 2.1: Span Material and Type
- Example #1 – Continuous Prestressed Concrete Bulb T-Beam Bridge

The “Design Data” on the General Plan Sheet(s) should provide additional data.



DEAD LOAD

Actual weight of 7½" deck slab in addition to 1½" overlay, and 15 lb/ft for SIP Metal deck forms.

FLOOR SLAB

Designed with a 7½" structural depth and 1½" overlay.

MATERIALS

Bridge Deck Overlay: 1½" Latex Modified Portland Cement Concrete or
1½" Silica Fume Modified Structural Concrete

DESIGN STRESSES

CONCRETE

Class "A" Concrete	f'c = 3,500 p.s.i.
Class "B" Concrete	f'c = 3,000 p.s.i.
Alternate Class "C" Concrete	f'c = 4,000 p.s.i.

REINFORCING STEEL

Grade 60	fy = 60,000 p.s.i.
Grade 75	fy = 75,000 p.s.i.

Common SNBI Coding Examples

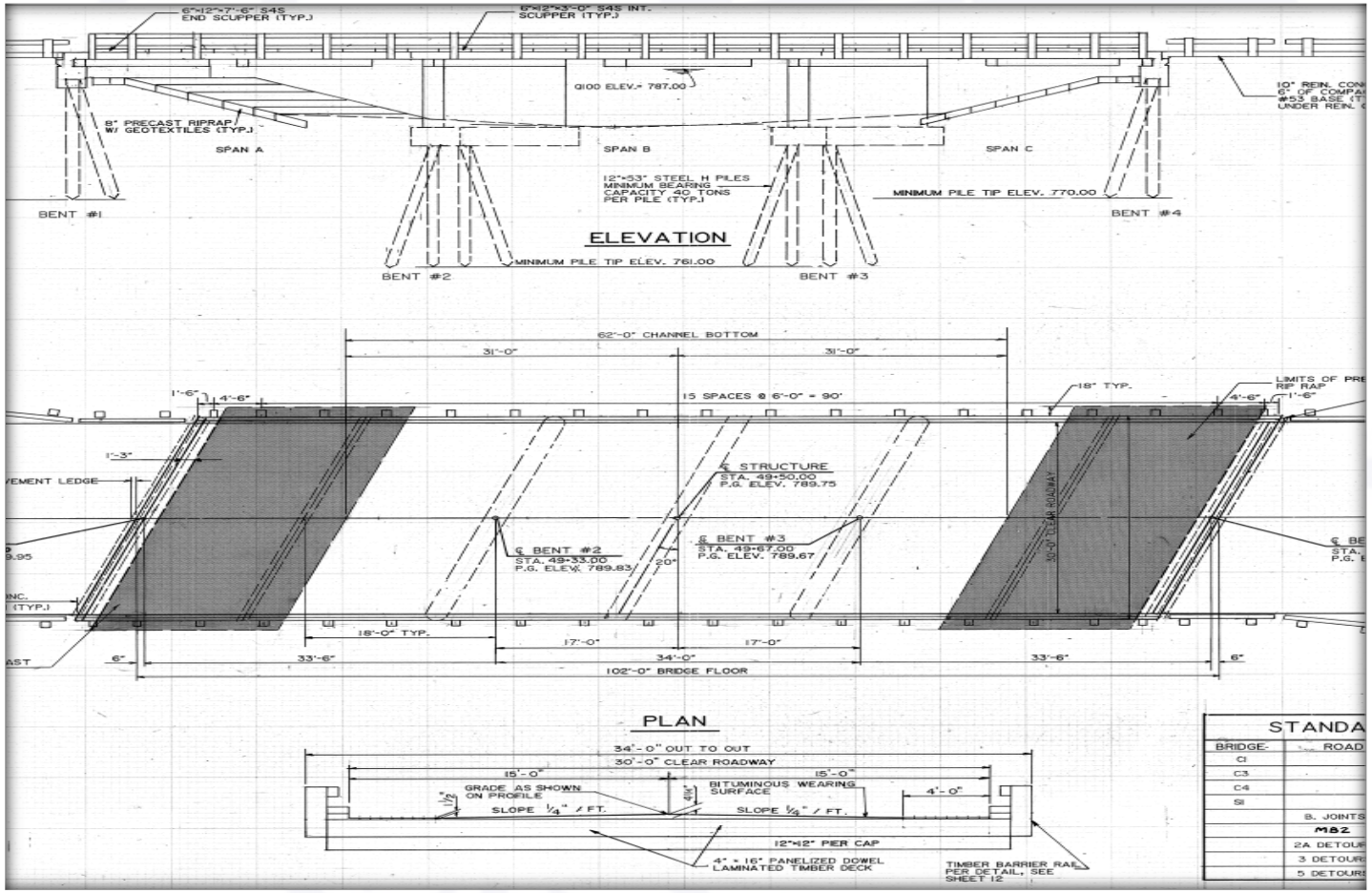
- SNBI --- Subsection 2.1: Span Material and Type
- Example #1 – Continuous Prestressed Concrete Bulb T-Beam Bridge

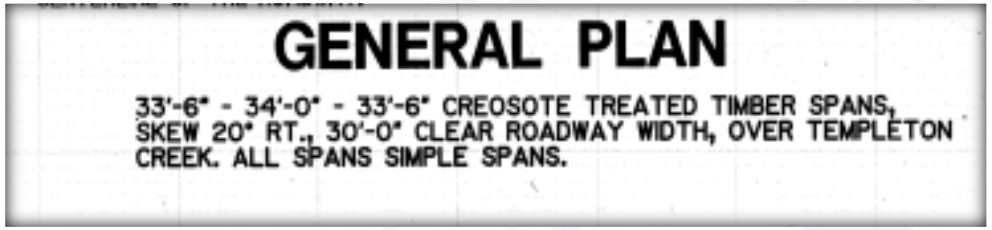
iTAMS SNBI Data

	#1
(B.SP.01) Span Configuration Design...	M. Main
(B.SP.01) Span Configuration Design...	01
(B.SP.02) Number of Spans	3
(B.SP.03) Number of Beam Lines	9
(B.SP.04) Span Material	C03. Prestressed concrete – pre-tens...
(B.SP.05) Span Continuity	3. Continuous for live loads only
(B.SP.06) Span Type	G02. Girder/beam – I-shaped spread
(B.SP.07) Span Protective System	0. None
(B.SP.08) Deck Interaction	CU. Unshored construction
(B.SP.09) Deck Material and Type	C01. Reinforced concrete – cast-in-pl...
(B.SP.10) Wearing Surface	C03. Concrete – latex modified
(B.SP.11) Deck Protective System	0. None
(B.SP.12) Deck Reinforcing Protectiv...	C01. Coating – epoxy coated
(B.SP.13) Deck Stay-In-Place Forms	M01. Metal

Common SNBI Coding Examples

- SNBI --- Subsection 2.1: Span Material and Type
- Example #2 – **Laminated Timber Deck Bridge**





Common SNBI Coding Examples

- SNBI --- Subsection 2.1: Span Material and Type
- Example #2 – Laminated Timber Deck Bridge

Common SNBI Coding Examples

- SNBI --- Subsection 2.1: Span Material and Type
- Example #2 – Laminated Timber Deck Bridge

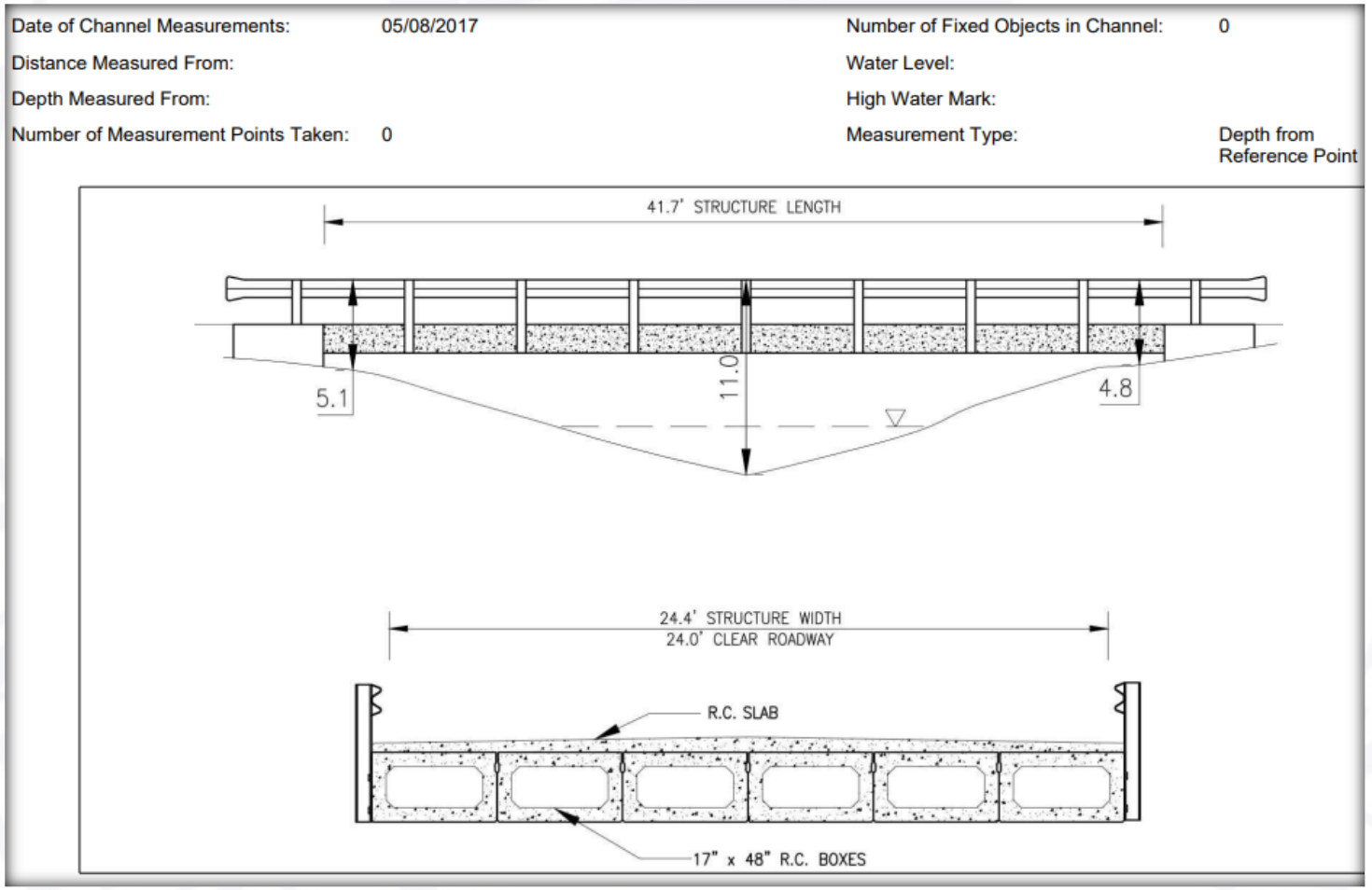
Common SNBI Coding Examples

- SNBI --- Subsection 2.1: Span Material and Type
- Example #2 – Laminated Timber Deck Bridge

	#1
(B.SP.01) Span Configuration Design...	M. Main
(B.SP.01) Span Configuration Design...	01
(B.SP.02) Number of Spans	3
(B.SP.03) Number of Beam Lines	0
(B.SP.04) Span Material	T02. Timber – nail laminated
(B.SP.05) Span Continuity	1. Simple or single span
(B.SP.06) Span Type	S01. Slab – solid
(B.SP.07) Span Protective System	T01. Treated – timber preservative
(B.SP.08) Deck Interaction	CU. Unshored construction
(B.SP.09) Deck Material and Type	T02. Timber – nail laminated
(B.SP.10) Wearing Surface	B01. Bituminous (asphalt)
(B.SP.11) Deck Protective System	0. None
(B.SP.12) Deck Reinforcing Protectiv...	0. None
(B.SP.13) Deck Stay-In-Place Forms	0. None

Common SNBI Coding Examples

- SNBI --- Subsection 2.1: Span Material and Type
- Example #3 – Side-by-side Prestressed Concrete Box Beam Bridge



Common SNBI Coding Examples

- SNBI --- Subsection 2.1: Span Material and Type
- Example #3 – Side-by-side Prestressed Concrete Box Beam Bridge

Common SNBI Coding Examples

- SNBI --- Subsection 2.1: Span Material and Type
- Example #3 – Side-by-side Prestressed Concrete Box Beam Bridge

	#1
(B.SP.01) Span Configuration Design...	M. Main
(B.SP.01) Span Configuration Design...	01
(B.SP.02) Number of Spans	1
(B.SP.03) Number of Beam Lines	6
(B.SP.04) Span Material	C03. Prestressed concrete – pre-tens...
(B.SP.05) Span Continuity	1. Simple or single span
(B.SP.06) Span Type	B02. Box girder/beam – multiple adja...
(B.SP.07) Span Protective System	0. None
(B.SP.08) Deck Interaction	CU. Unshored construction
(B.SP.09) Deck Material and Type	C01. Reinforced concrete – cast-in-pl...
(B.SP.10) Wearing Surface	B01. Bituminous (asphalt)
(B.SP.11) Deck Protective System	0. None
(B.SP.12) Deck Reinforcing Protectiv...	0. None
(B.SP.13) Deck Stay-In-Place Forms	0. None

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Common SNBI Coding Examples

- SNBI --- Subsection 2.2: Substructure Material and Type

  (See page #75 in the SNBI Manual)

Item ID	Data Item
B.SB.01	Substructure Configuration Designation
B.SB.02	Number of Substructure Units
B.SB.03	Substructure Material
B.SB.04	Substructure Type
B.SB.05	Substructure Protective System
B.SB.06	Foundation Type
B.SB.07	Foundation Protective System

Common SNBI Coding Examples

- SNBI --- Subsection 2.2: Substructure Material and Type

  Substructure Configuration Designation

  (See page #76 in the SNBI Manual)

Code	Description
A##	Abutment
P##	Pier or Bent
W##	Widening

Replace the ## characters in the above codes with sequential numbers, with leading zeros, assigned to each substructure configuration.

Common SNBI Coding Examples

- SNBI --- Subsection 2.2: Substructure Material and Type

  Number of Substructure Units (See page #78 in the SNBI Manual)

Specification
Report the number of substructure units.

Common SNBI Coding Examples

- SNBI --- Subsection 2.2: Substructure Material and Type

  Substructure Material (See page #79 in the SNBI Manual)

Code	Description
0	None
A01	Aluminum
C01	Reinforced concrete – cast-in-place
C02	Reinforced concrete – precast
C03	Prestressed concrete – pre-tensioned
C04	Prestressed concrete – cast-in-place post-tensioned
C05	Prestressed concrete – precast post-tensioned
CX	Concrete – other
E01	Earth – reinforced soil
F01	FRP composite – aramid fiber
F02	FRP composite – carbon fiber
F03	FRP composite – glass fiber
FX	FRP composite – other
I02	Iron – cast
I01	Iron – wrought
M01	Masonry – block
M02	Masonry – stone
P01	Plastic – Polyethylene
PX	Plastic – other
S01	Steel – rolled shapes
S02	Steel – welded shapes
S03	Steel – bolted shapes
S04	Steel – riveted shapes
S05	Steel – bolted and riveted shapes
S06	Steel – pipe
SX	Steel – other
T01	Timber – glue laminated
T02	Timber – nail laminated
T03	Timber – solid sawn
T04	Timber – stress laminated
TX	Timber – other
X	Other

NextLevel INDIANA

Common SNBI Coding Examples

- SNBI --- Subsection 2.2: Substructure Material and Type

  Substructure Type (See page #81 in the SNBI Manual)

Code	Description
0	None
A01	Abutment – cantilever/wall
A02	Abutment – stub
A03	Abutment – open/spill through
A04	Abutment – integral
A05	Abutment – semi-integral
A06	Abutment – gravity
A07	Abutment – counterfort
A08	Abutment – pile bent with lagging
A09	Abutment – crib
A10	Abutment – cellular/vaulted
A11	Abutment – reinforced soil
A12	Abutment – footing only
AX	Abutment – other
B01	Bent – column or open
B02	Bent – column with web wall
B03	Bent – pile
B04	Bent – straddle or c-shaped
BX	Bent – other
P01	Pier – wall
P02	Pier – single column
P03	Pier – multiple column
P04	Pier – multiple column with web wall
P05	Pier – straddle or c-shaped
P06	Pier – movable bridge
P07	Pier – tower
P08	Pier – footing only
PX	Pier – other
U	Unknown
X	Other

Common SNBI Coding Examples

- SNBI --- Subsection 2.2: Substructure Material and Type

  Substructure Protective System (See page #83 in the SNBI Manual)

Code	Description
0	None
A01	Admixture – internally sealed
A02	Admixture – low permeability
A03	Admixture – polymer impregnated
A04	Admixture – corrosion inhibitor
A05	Admixture – ASR inhibitor
AX	Admixture – other
C01	Coating – paint
C02	Coating – sealer
C03	Coating – galvanizing/metalizing
CX	Coating – other
E01	Encasement – concrete
EX	Encasement – other
P01	Patina – weathering steel
S01	Sacrificial – cathodic, passive
S02	Sacrificial – cathodic, active
SX	Sacrificial – other
T01	Treated – timber preservative
X	Other

Do not report this item when Item B.SB.04 *(Substructure Type)* is 0.

Common SNBI Coding Examples

- SNBI --- Subsection 2.2: Substructure Material and Type

  Foundation type (See page #85 in the SNBI Manual)

Code	Description
E01	Earth – reinforced soil
F01	Footing – not on rock
F02	Footing – on rock
F03	Footing – on reinforced soil
P01	Pile – steel H-shape
P02	Pile – steel pipe
P03	Pile – concrete, cast-in-place
P04	Pile – prestressed concrete
P05	Pile – timber
P06	Pile – auger cast
P07	Pile – micropile
P08	Pile – composite
P09	Pile – FRP composite
PX	Pile – other
S01	Drilled shaft – single
S02	Drilled shafts – multiple
S03	Caisson
U	Unknown
X	Other

Common SNBI Coding Examples

- SNBI --- Subsection 2.2: Substructure Material and Type

  Foundation Protective System (See page #87 in the SNBI Manual)

Code	Description
0	None
A01	Admixture – internally sealed
A02	Admixture – low permeability
A03	Admixture – polymer impregnated
A04	Admixture – corrosion inhibitor
A05	Admixture – ASR inhibitor
AX	Admixture – other
C01	Coating – paint
C02	Coating – sealer
C03	Coating – galvanizing/metalizing
CX	Coating – other

E01	Encasement – concrete
EX	Encasement – other
P01	Patina – weathering steel
S01	Sacrificial – cathodic, passive
S02	Sacrificial – cathodic, active
SX	Sacrificial – other
T01	Treated – timber preservative
U	Unknown
X	Other

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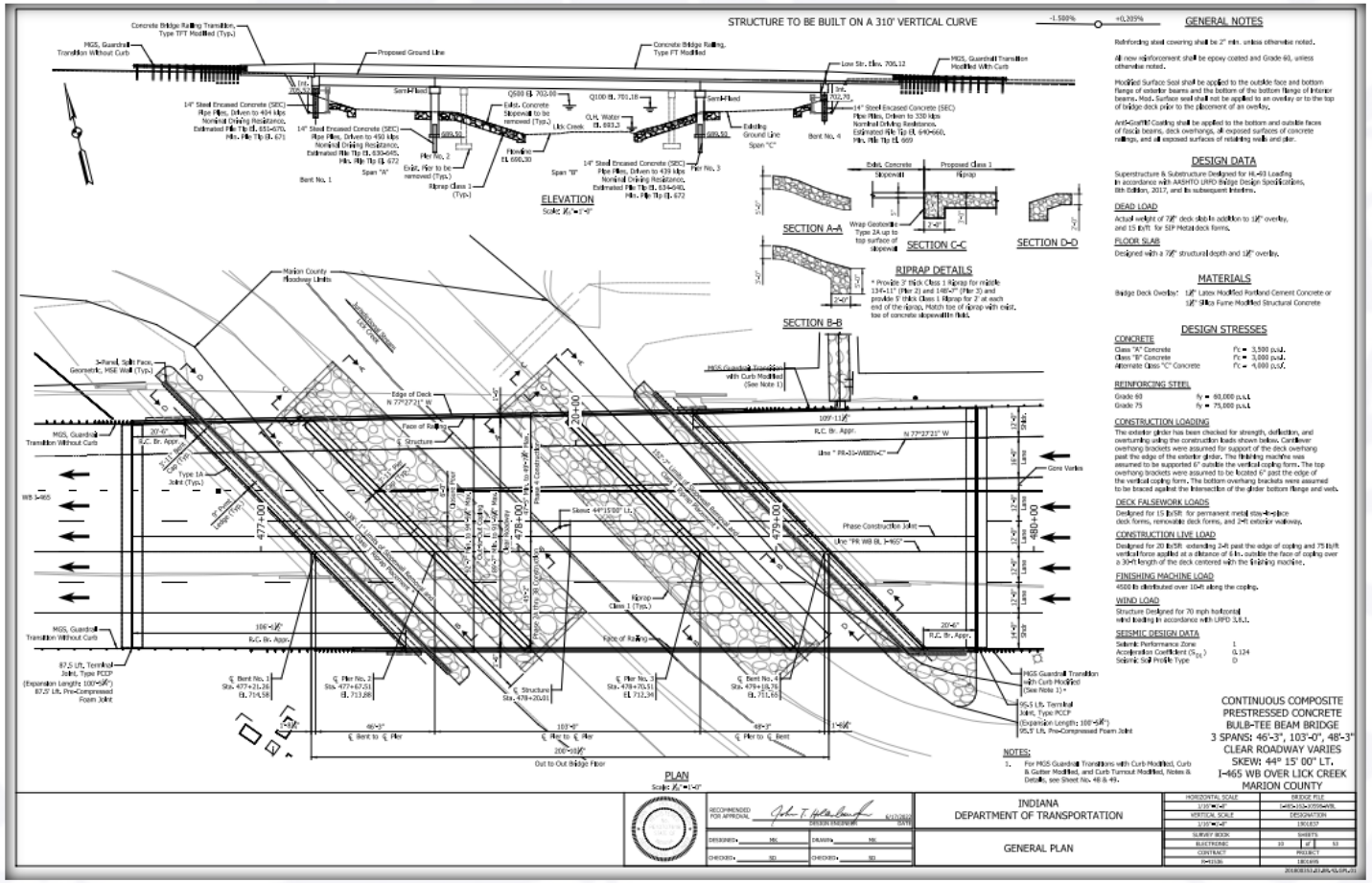
Common SNBI Coding Examples

- SNBI --- Subsection 2.2: Substructure Material and Type
- Example #1 – Continuous Prestressed Concrete Bulb T-Beam Bridge



Common SNBI Coding Examples

- SNBI --- Subsection 2.2: Substructure Material and Type
- Example #1 – Continuous Prestressed Concrete Bulb T-Beam Bridge

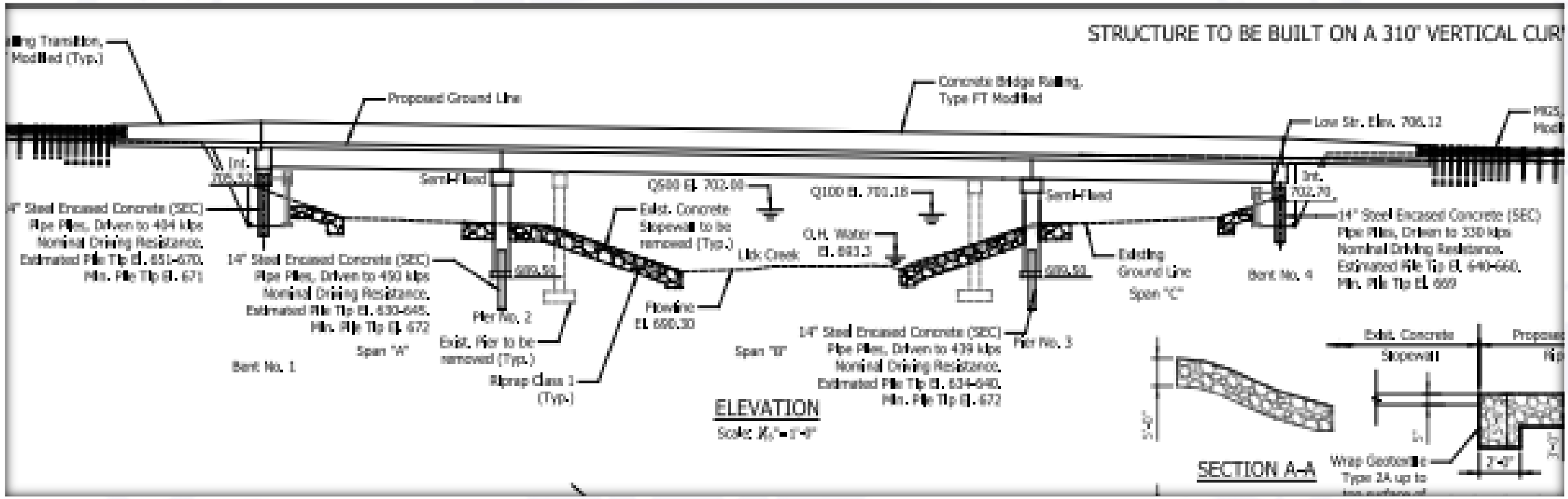
Most data needed to enter in iTAMS for the SNBI can be found on the General Plan Sheet(s).

Common SNBI Coding Examples

- SNBI --- Subsection 2.2: Substructure Material and Type
- Example #1 – Continuous Prestressed Concrete Bulb T-Beam Bridge

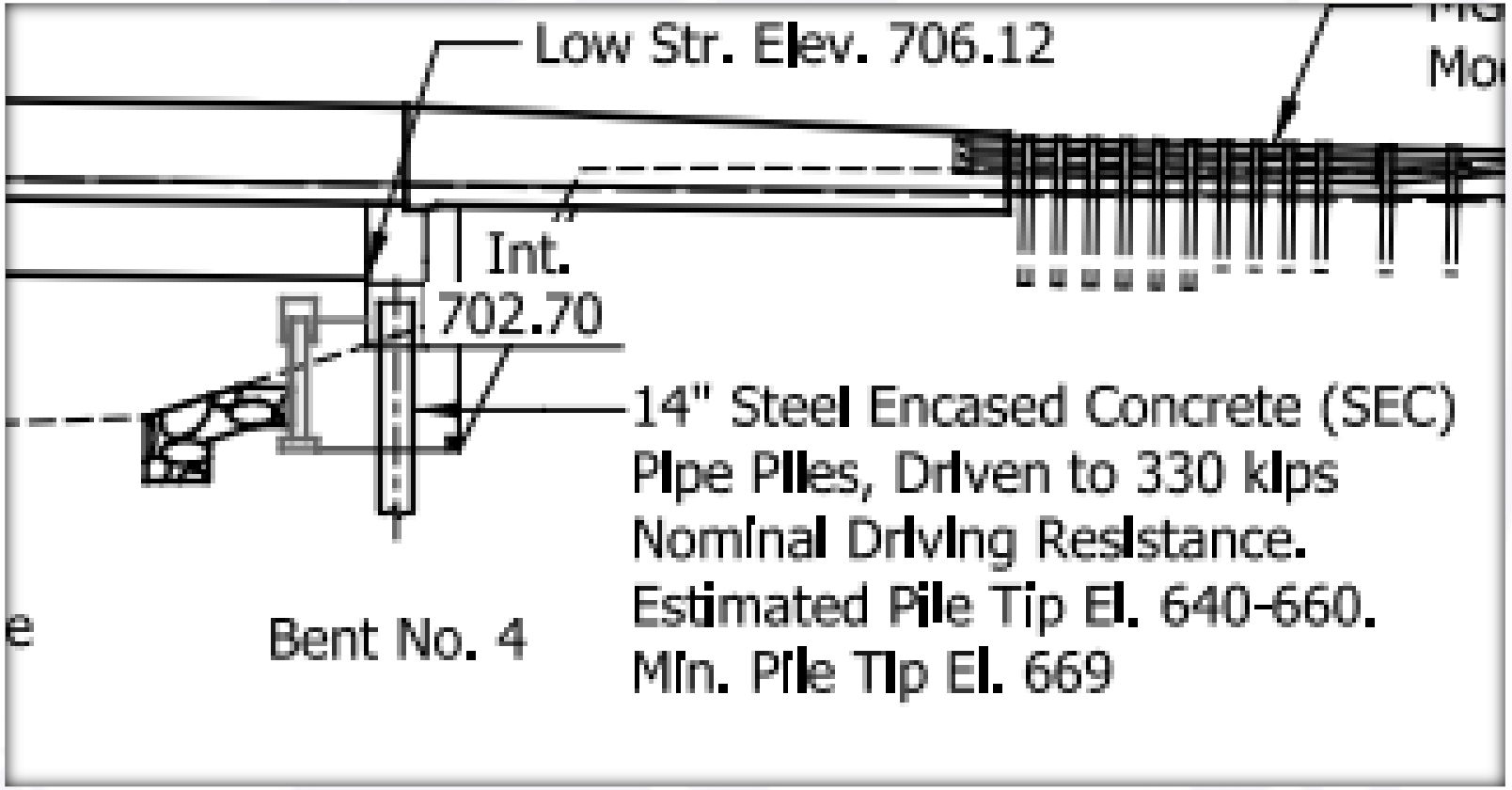
Common SNBI Coding Examples

- SNBI --- Subsection 2.2: Substructure Material and Type
- Example #1 – Continuous Prestressed Concrete Bulb T-Beam Bridge



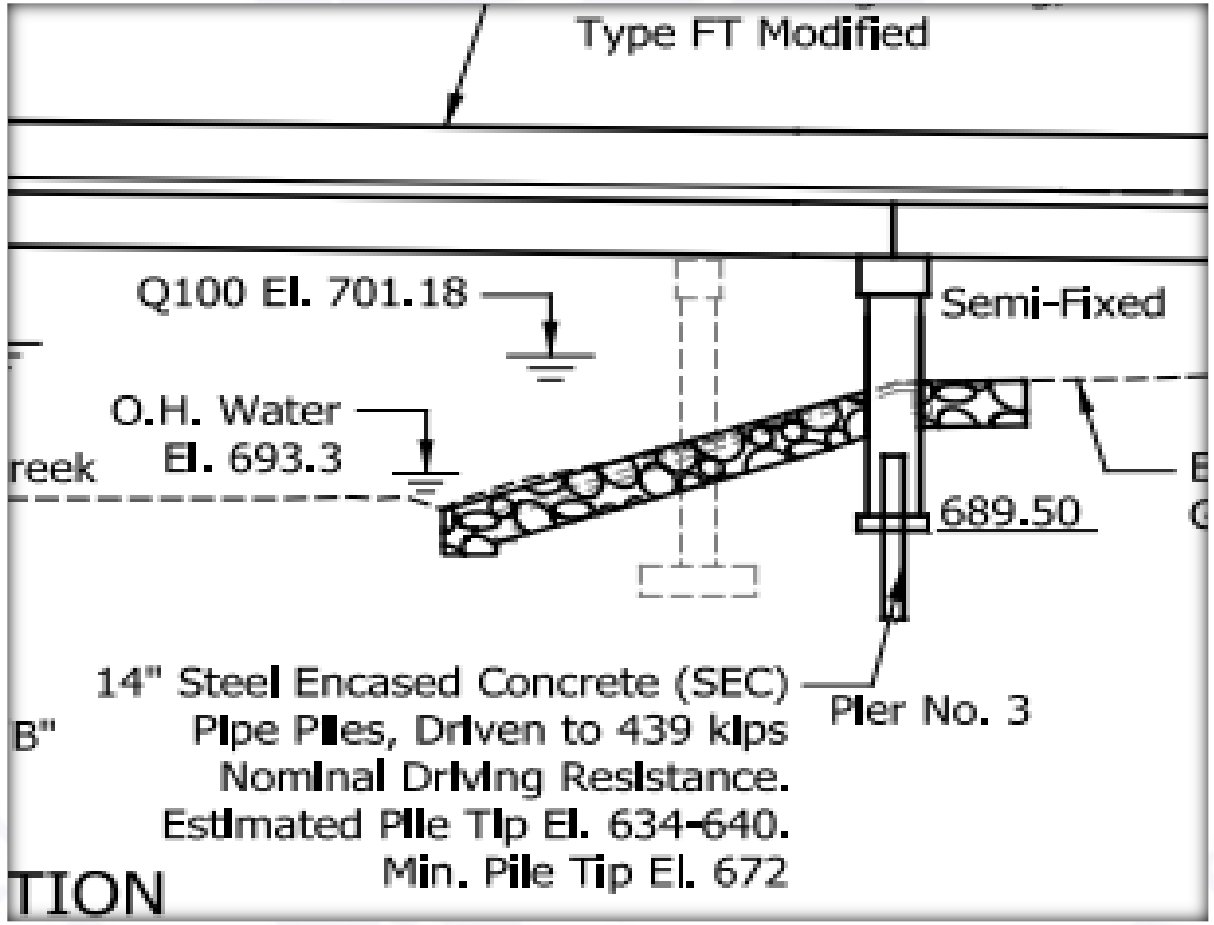
Common SNBI Coding Examples

- SNBI --- Subsection 2.2: Substructure Material and Type
- Example #1 – Continuous Prestressed Concrete Bulb T-Beam Bridge
- Abutments



Common SNBI Coding Examples

- SNBI --- Subsection 2.2: Substructure Material and Type
- Example #1 – Continuous Prestressed Concrete Bulb T-Beam Bridge
- Piers



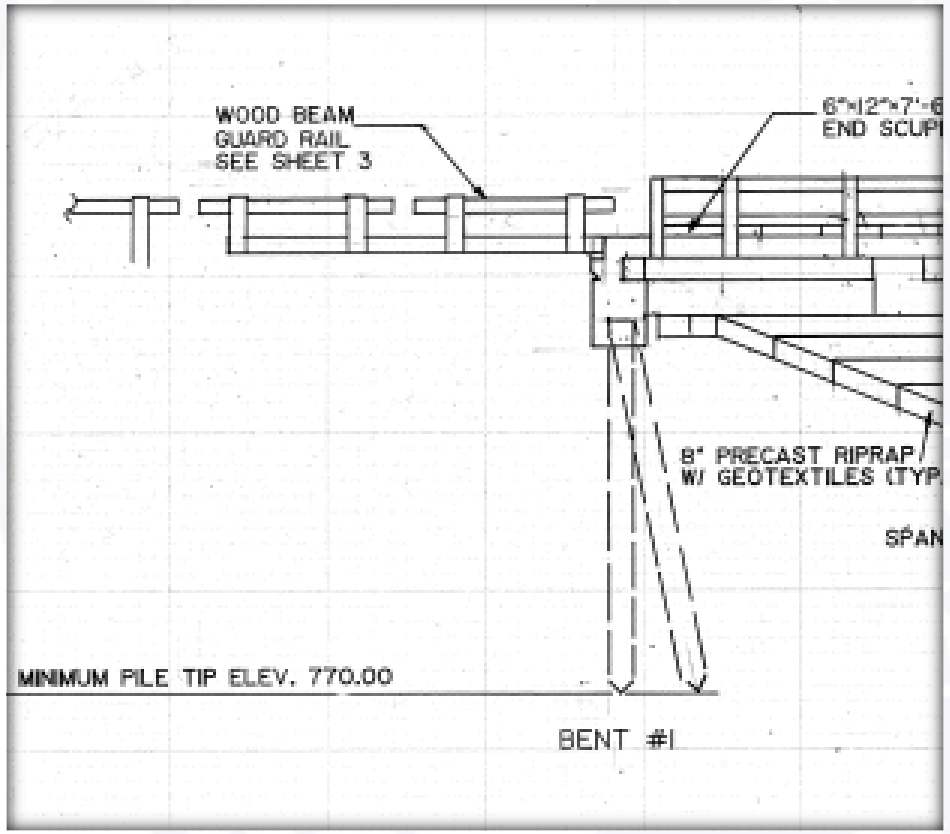
Common SNBI Coding Examples

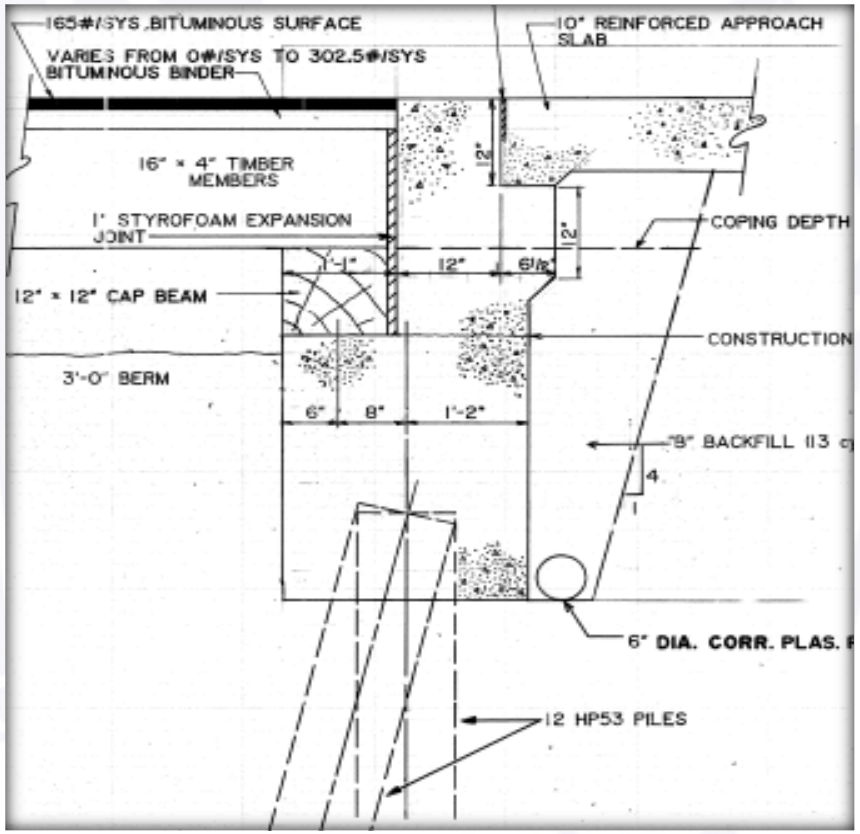
- SNBI --- Subsection 2.2: Substructure Material and Type
- Example #1 – Continuous Prestressed Concrete Bulb T-Beam Bridge
- iTAMS SNBI Data

	#1	#2
(B.SB.01) Substructure Configuration De...	A. Abutment	P. Pier or Bent
(B.SB.01) Substructure Configuratio...	01	01
(B.SB.02) Number of Substructure U...	2	2
(B.SB.03) Substructure Material	C01. Reinforced concrete – cast-in-pl...	C01. Reinforced concrete – cast-in-pl...
(B.SB.04) Substructure Type	A04. Abutment – integral	P01. Pier – wall
(B.SB.05) Substructure Protective Sy...	0	0
(B.SB.06) Foundation Type	P02	P02
(B.SB.07) Foundation Protective Sys...	0	0

Common SNBI Coding Examples

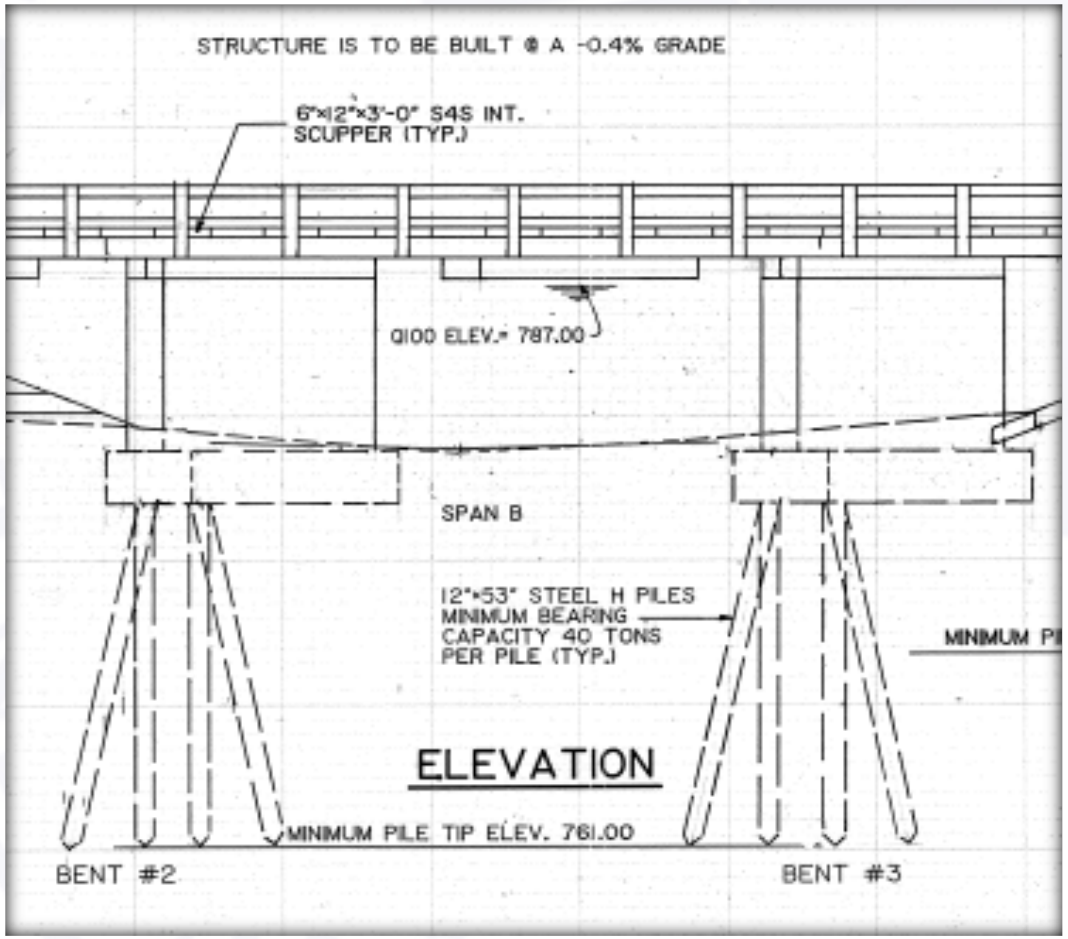
- SNBI --- Subsection 2.2: Substructure Material and Type
- Example #2 –Laminated Timber Deck Bridge
- Abutments





Common SNBI Coding Examples

- SNBI --- Subsection 2.2: Substructure Material and Type
- Example #2 –Laminated Timber Deck Bridge
- Piers



Common SNBI Coding Examples

- SNBI --- Subsection 2.2: Substructure Material and Type
- Example #2 –Laminated Timber Deck Bridge
- iTAMS SNBI Data

	#1	#2
(B.SB.01) Substructure Configuration De...	A. Abutment	P. Pier or Bent
(B.SB.01) Substructure Configuratio...	01	01
(B.SB.02) Number of Substructure U...	2	2
(B.SB.03) Substructure Material	C01. Reinforced concrete – cast-in-pl...	C01. Reinforced concrete – cast-in-pl...
(B.SB.04) Substructure Type	A02. Abutment – stub	P01. Pier – wall
(B.SB.05) Substructure Protective Sy...	0	0
(B.SB.06) Foundation Type	P01	P01
(B.SB.07) Foundation Protective Sys...	0	0

Common SNBI Coding Examples

- SNBI --- Subsection 2.2: Substructure Material and Type
- Example #3 – **Side-by-side Prestressed Concrete Box Beam Bridge**

Common SNBI Coding Examples

- SNBI --- Subsection 2.2: Substructure Material and Type
- Example #3 – Side-by-side Prestressed Concrete Box Beam Bridge

	#1
(B.SB.01) Substructure Configuration De...	A. Abutment
(B.SB.01) Substructure Configuratio...	01
(B.SB.02) Number of Substructure U...	2
(B.SB.03) Substructure Material	C01. Reinforced concrete – cast-in-pl...
(B.SB.04) Substructure Type	A02. Abutment – stub
(B.SB.05) Substructure Protective Sy...	0
(B.SB.06) Foundation Type	U
(B.SB.07) Foundation Protective Sys...	0

Common SNBI Coding Examples

- SNBI --- Section 4: Features

  (See pages #132 and 133 in the SNBI Manual)

SUBSECTION 4.1: FEATURE IDENTIFICATION

Item ID	Data Item
B.F.01	Feature Type
B.F.02	Feature Location
B.F.03	Feature Name

SUBSECTION 4.2: ROUTES

Item ID	Data Item
B.RT.01	Route Designation
B.RT.02	Route Number
B.RT.03	Route Direction
B.RT.04	Route Type
B.RT.05	Service Type

SUBSECTION 4.3: HIGHWAYS

Item ID	Data Item
B.H.01	Functional Classification
B.H.02	Urban Code
B.H.03	NHS Designation
B.H.04	National Highway Freight Network
B.H.05	STRAHNET Designation
B.H.06	LRS Route ID
B.H.07	LRS Mile Point
B.H.08	Lanes on Highway
B.H.09	Annual Average Daily Traffic
B.H.10	Annual Average Daily Truck Traffic
B.H.11	Year of Annual Average Daily Traffic
B.H.12	Highway Maximum Usable Vertical Clearance
B.H.13	Highway Minimum Vertical Clearance
B.H.14	Highway Minimum Horizontal Clearance, Left
B.H.15	Highway Minimum Horizontal Clearance, Right
B.H.16	Highway Maximum Usable Surface Width
B.H.17	Bypass Detour Length
B.H.18	Crossing Bridge Number

SUBSECTION 4.4: RAILROADS

Item ID	Data Item
B.RR.01	Railroad Service Type
B.RR.02	Railroad Minimum Vertical Clearance
B.RR.03	Railroad Minimum Horizontal Offset

SUBSECTION 4.5: NAVIGABLE WATERWAYS

Item ID	Data Item
B.N.01	Navigable Waterway
B.N.02	Navigation Minimum Vertical Clearance
B.N.03	Movable Bridge Maximum Navigation Vertical Clearance
B.N.04	Navigation Channel Width
B.N.05	Navigation Channel Minimum Horizontal Clearance
B.N.06	Substructure Navigation Protection

NextLevel INDIANA

Common SNBI Coding Examples

- SNBI --- Subsection 4.1: Feature Identification

  Feature Type (See page #135 in the SNBI Manual)

Code	Description
H##	Highway
R##	Railroad
P##	Pathway
W##	Waterway
F##	Relief for waterway
B##	Urban feature
D##	Dry terrain or side slope
X##	Other

Replace the ## characters in the above codes with sequential numbers, with leading zeros, assigned to each feature type.

Common SNBI Coding Examples

- SNBI --- Subsection 4.1: Feature Identification

  Feature Location (See page #137 in the SNBI Manual)

Code	Description
C	Carried on bridge
A	Above bridge
B	Below bridge
T	Top level
L	Lower level

Common SNBI Coding Examples

- SNBI --- Subsection 4.1: Feature Identification

  Feature Name (See page #138 in the SNBI Manual)

Report the commonly known name(s) for the feature reported in Item B.F.01 *(Feature Type)*. If the feature has no commonly known name, provide a general description.

For more than one name, report all names with the most common name first.

When applicable, report the route number first followed by other names.

Report multiple names separated by pipe (|) delimiters.

Common SNBI Coding Examples

- SNBI --- Subsection 4.2: Routes

  Route Designation (See page #141 in the SNBI Manual)

Code	Description
R##	Unique Route Designation

Replace the ## characters in the above code with sequential numbers, with leading zeros, assigned to each unique route designation carried on the highway feature (e.g., R01, R02, etc.).

If a highway carries multiple routes, report only those routes that have a route number. If a highway carries only routes without route numbers, report one route designation.

Common SNBI Coding Examples

- SNBI --- Subsection 4.2: Routes

  Route Number (See page #142 in the SNBI Manual)

Report the route number for the route reported in Item B.RT.01 *(Route Designation)*.

Include letters that are used as part of the route numbers.

Report 0 for routes without route numbers.

Common SNBI Coding Examples

- SNBI --- Subsection 4.2: Routes

  Route Directions (See page #143 in the SNBI Manual)

Code	Description
NB	Northbound
EB	Eastbound
SB	Southbound
WB	Westbound
NS	Northbound and Southbound
EW	Eastbound and Westbound

Common SNBI Coding Examples

- SNBI --- Subsection 4.2: Routes

  Route Type (See page #144 in the SNBI Manual)

Code	Description
1	Interstate route
2	U.S. route
3	State route
4	County route
5	City street
6	Federal lands road
7	State lands road
X	Other

Common SNBI Coding Examples

- SNBI --- Subsection 4.2: Routes

  Service Type (See page #145 in the SNBI Manual)

Code	Description
1	Mainline
2	Alternate
3	Bypass
4	Spur
6	Business
7	Ramp, connector, etc.
8	Service or frontage road
X	Other

Common SNBI Coding Examples

- SNBI --- Subsection 4.4: Railroads

  Railroad Service Type (See page #176 in the SNBI Manual)

Report the designated railroad service type for the railroad feature reported in Item B.F.01 *(Feature Type)* using one of the following codes.

Code	Description
F	Freight
FE	Freight - electrified
P	Passenger
PE	Passenger - electrified
M	Multiple services - not electrified
ME	Multiple services - electrified
I	Inactive

Common SNBI Coding Examples

- SNBI --- Subsection 4.4: Railroads

  ## Railroad Minimum Vertical Clearance

  (See page #178 in the SNBI Manual)

Report the minimum vertical clearance for the railroad feature reported in Item B.F.01 *(Feature Type)*, rounded down to the nearest tenth of a foot.

Measure plumb from the top of rails to the lowest bridge restriction or appurtenance (signs, utilities, etc.) attached to the bridge. Appurtenances attached to the bridge that serve only a railroad purpose, such as catenary systems, are excluded from the measurement and do not reduce the vertical clearance measurement.

Report 99.9 when the clearance is 100 feet or greater.

Report this item only when Item B.F.02 *(Feature Location)* is B.

Common SNBI Coding Examples

- SNBI --- Subsection 4.4: Railroads

  Railroad Minimum Horizontal Offset (See page #180 in the SNBI Manual)

Report the minimum horizontal offset for the railroad feature reported in Item B.F.01 *(Feature Type)*, rounded down to the nearest tenth of a foot.

Measure perpendicular from the centerline of the tracks to the nearest substructure unit or toe of slope that is steeper than 1 to 3 (vertical to horizontal).

For multiple tracks with the same railroad service type, report the minimum distance after measuring the offsets in both directions from all tracks.

Report 99.9 when the minimum horizontal offset is 100 feet or greater.

Report this item only when Item B.F.02 *(Feature Location)* is B.

NextLevel INDIANA

Common SNBI Coding Examples

- SNBI --- Subsection 4.5: Navigable Waterways

  Navigable Waterway (See page #184 in the SNBI Manual)

Code	Description
N	Not navigable waters
Y	Navigable waters
U	Navigable waters designation is undetermined

Common SNBI Coding Examples

- SNBI --- Subsection 4.5: Navigable Waterways

Navigation Minimum Vertical Clearance

(See page #185 in the SNBI Manual)

Report the minimum vertical clearance over the waterway feature reported in Item B.F.01 *(Feature Type)*, rounded down to the nearest tenth of a foot.

The reported clearance is from the highest datum plane referenced in the approved permit plans to the lowest superstructure restriction or other appurtenances attached to the bridge over the designated navigation channel.

For all movable bridges, the vertical clearance reported for this item is for the bridge in the closed position (i.e., open to vehicular traffic).

Report the most restrictive clearance when there are multiple designated navigation channels.

Report this item only when Item B.N.01 *(Navigable Waterway)* is Y.

NextLevel INDIANA

Common SNBI Coding Examples

- SNBI --- Subsection 4.5: Navigable Waterways

Movable Bridge Maximum Navigation Vertical Clearance

(See page #187 in the SNBI Manual)

Report the maximum vertical clearance over the waterway feature reported in Item B.F.01 *(Feature Type)*, rounded down to the nearest tenth of a foot.

The reported clearance is from the highest datum plane referenced in the approved permit plans to the lowest superstructure restriction or other appurtenances attached to the bridge over the designated navigation channel, when the movable bridge is in the open position.

Report 999.9 when the bridge provides unlimited vertical clearance over the navigation channel in the open position.

Report this item only when Item B.N.01 *(Navigable Waterway)* is Y and Item B.SP.06 *(Span Type)* begins with M, indicating that the span type is movable.

NextLevel INDIANA

Common SNBI Coding Examples

- SNBI --- Subsection 4.5: Navigable Waterways

  Navigation Channel Width (See page #188 in the SNBI Manual)

Report the navigation channel width for the waterway feature reported in Item B.F.01 *(Feature Type)*, rounded down to the nearest tenth of a foot.

The width is as shown on the approved permit plans, or field measured when the navigation channel changes or is unmarked.

For field measurements, measure the horizontal distance perpendicular to the centerline of the navigation channel. For marked channels measure between the markers designating the limits of the channel at the bridge. For unmarked channels, measure the minimum clear distance between fenders or piers.

If multiple channels exist, report the most restrictive.

Report this item only when Item B.N.01 *(Navigable Waterway)* is Y.

NextLevel INDIANA

Common SNBI Coding Examples

- SNBI --- Subsection 4.5: Navigable Waterways

  ## Navigation Channel Minimum Horizontal Clearance

  (See page #190 in the SNBI Manual)

Report the minimum horizontal clearance for the waterway feature reported in Item B.F.01 *(Feature Type)*, rounded down to the nearest tenth of a foot.

The clearance is the minimum distance from either edge of the navigation channel shown on the approved permit plans, to the face of the nearest bridge substructure unit located within the waterway.

The clearance may be field measured when the placement of navigation markers at the bridge is inconsistent with the permit plans, or if the presence of navigation markers indicates a navigation channel and no permit plans are available.

For field measurements, measure the horizontal distance perpendicular to the centerline of the navigation channel from the markers designating the limits of the channel at the bridge, to the face of the nearest bridge substructure unit located within the waterway.

Report 0 when substructure units in the waterway are the boundaries for the navigation channel.

Report 9999.9 when no substructure unit is within the waterway.

Report this item only when Item B.N.01 *(Navigable Waterway)* is Y.

NextLevel INDIANA

Common SNBI Coding Examples

- SNBI --- Subsection 4.5: Navigable Waterways

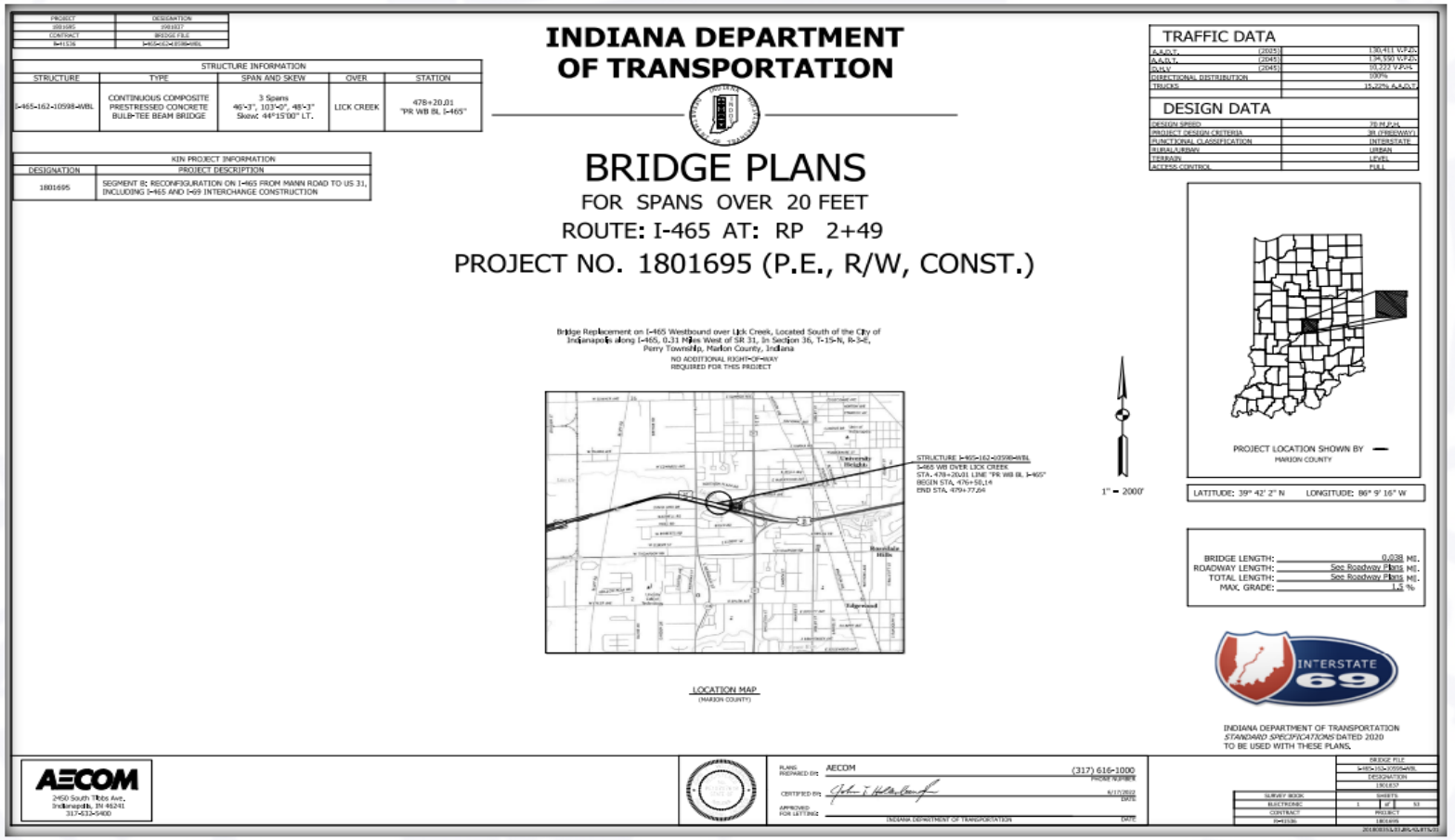
  Substructure Navigation Protection (See page #192 in the SNBI Manual)

Code	Description
0	Navigation protection not required; bridge has been designed or assessed to have adequate capacity to resist anticipated impact loads without collapse.
1	Navigation protection not required; assessment of navigation opening and vessel traffic has determined that there is a low probability that an errant vessel could impact the bridge.
2	Protective system in place and functioning.
3	Protective system in place, but damage or deterioration impacts ability to protect.
4	Protective system in place, but reevaluation of design suggested.
5	No protective system in place, but reevaluation of the need for a protective system is recommended.

Report this item only when Item B.N.01 *(Navigable Waterway)* is Y.

Common SNBI Coding Examples

- SNBI --- Section 4: Features
- Example #1 – Continuous Prestressed Concrete Bulb T-Beam Bridge



INDIANA DEPARTMENT OF TRANSPORTATION

BRIDGE PLANS

FOR SPANS OVER 20 FEET

ROUTE: I-465 AT: RP 2+49

PROJECT NO. 1801695 (P.E., R/W, CONST.)

STRUCTURE INFORMATION

STRUCTURE	TYPE	SPAN AND SKEW	OVER	STATION
I-465-162-10598-WBL	CONTINUOUS COMPOSITE PRESTRESSED CONCRETE BULB-TEE BEAM BRIDGE	3 Spans 46'-3", 103'-0", 48'-3" Skew: 44°15'00" LT.	LICK CREEK	478+20.01 "PR WB SL I-465"

KIN PROJECT INFORMATION

DESIGNATION	PROJECT DESCRIPTION
1801695	SEGMENT B: RECONFIGURATION ON I-465 FROM MANN ROAD TO US 31, INCLUDING I-465 AND I-69 INTERCHANGE CONSTRUCTION

Bridge Replacement on I-465 Westbound over Lick Creek, Located South of the City of Indianapolis along I-465, 0.31 Miles West of SR 31, In Section 36, T-15-N, R-3-E, Perry Township, Marion County, Indiana

NO ADDITIONAL RIGHT-OF-WAY REQUIRED FOR THIS PROJECT

LOCATION MAP (MARION COUNTY)

STRUCTURE I-465-162-10598-WBL I-465 WB OVER LICK CREEK STA. 478+20.01 LINE "PR WB SL I-465" BEGIN STA. 476+58.14 END STA. 479+77.64

1" = 2000'

TRAFFIC DATA

A.A.D.T.	(2025)	130,411 VPD
A.A.D.T.	(2045)	134,590 VPD
D.H.V.	(2045)	10,222 VPH
DIRECTIONAL DISTRIBUTION		100%
TRUCKS		15.22% A.A.D.T.

DESIGN DATA

DESIGN SPEED	70 M.P.H.
PROJECT DESIGN CRITERIA	3R (FREEWAY)
FUNCTIONAL CLASSIFICATION	INTERSTATE
RURAL/URBAN	URBAN
TERRAIN	LEVEL
ACCESS CONTROL	FULL

PROJECT LOCATION SHOWN BY —

MARION COUNTY

LATITUDE: 39° 42' 2" N LONGITUDE: 86° 9' 16" W

BRIDGE LENGTH: 0.038 MI.
ROADWAY LENGTH: See Roadway Plans MI.
TOTAL LENGTH: See Roadway Plans MI.
MAX. GRADE: 1.5 %

INTERSTATE 69

INDIANA DEPARTMENT OF TRANSPORTATION *STANDARD SPECIFICATIONS* DATED 2020 TO BE USED WITH THESE PLANS.

AECOM
2450 South Tibbs Ave.
Indianapolis, IN 46241
317-633-5400

PLANS PREPARED BY: AECOM (317) 616-1000

CERTIFIED BY: 8/17/2022

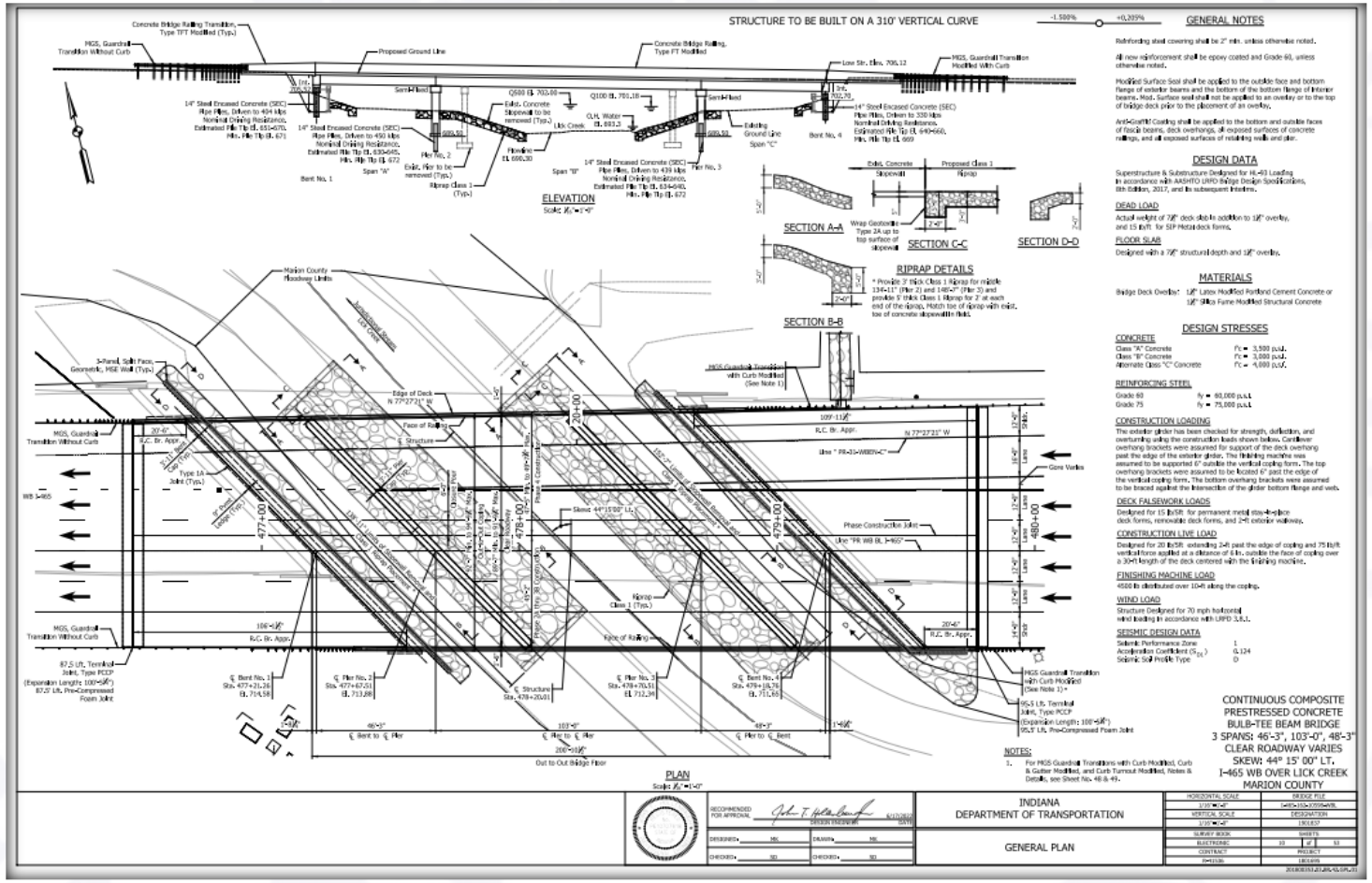
APPROVED FOR LETTING: INDIANA DEPARTMENT OF TRANSPORTATION DATE

BRIDGE FILE: I-465-162-10598-WBL
DESIGNATION: 1801695
CONTRACT:

NextLevel INDIANA

Common SNBI Coding Examples

- SNBI --- Section 4: Features
- Example #1 – Continuous Prestressed Concrete Bulb T-Beam Bridge



Common SNBI Coding Examples

- SNBI --- Section 4: Features

Example #1 – **Continuous Prestressed Concrete Bulb T-Beam Bridge**

The “Title Blocks” on the Title Sheet or the General Plan Sheet provides a lot of the needed information to complete Subsection 2.1.

This data can/should then be verified by reviewing the plan sheets.

PROJECT	DESIGNATION
1801695	1901837
CONTRACT	BRIDGE FILE
R-41536	I-465-162-10598-WBL

STRUCTURE INFORMATION				
STRUCTURE	TYPE	SPAN AND SKEW	OVER	STATION
I-465-162-10598-WBL	CONTINUOUS COMPOSITE PRESTRESSED CONCRETE BULB-TEE BEAM BRIDGE	3 Spans 46'-3", 103'-0", 48'-3" Skew: 44°15'00" LT.	LICK CREEK	478+20.01 "PR WB BL I-465"

CONTINUOUS COMPOSITE
PRESTRESSED CONCRETE
BULB-TEE BEAM BRIDGE
3 SPANS: 46'-3", 103'-0", 48'-3"
CLEAR ROADWAY VARIES
SKEW: 44° 15' 00" LT.
I-465 WB OVER LICK CREEK
MARION COUNTY

ZONTAL SCALE	BRIDGE FILE
1/16"=1'-0"	I-465-162-10598-WBL
RTICAL SCALE	DESIGNATION

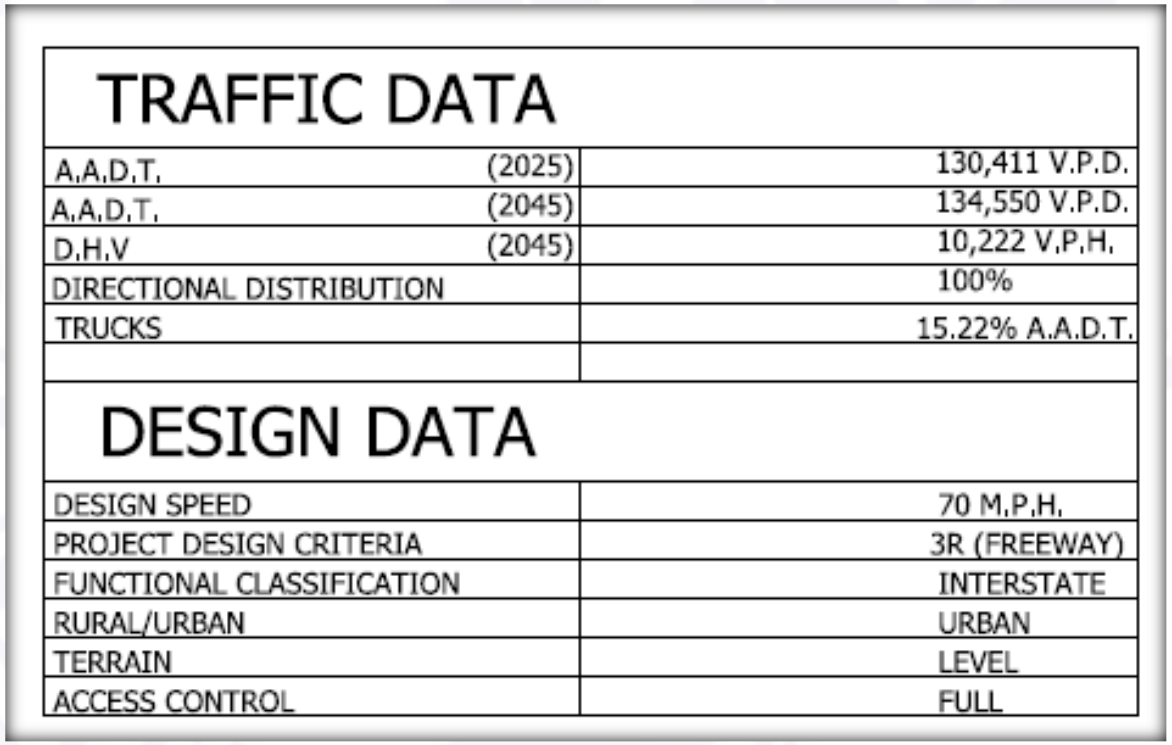
NextLevel INDIANA

Common SNBI Coding Examples

- SNBI --- Section 4: Features

Example #1 – **Continuous Prestressed Concrete Bulb T-Beam Bridge**

The Traffic Data can be found on the “Title Sheet” at the upper right.



TRAFFIC DATA		
A.A.D.T.	(2025)	130,411 V.P.D.
A.A.D.T.	(2045)	134,550 V.P.D.
D.H.V	(2045)	10,222 V.P.H.
DIRECTIONAL DISTRIBUTION		100%
TRUCKS		15.22% A.A.D.T.
DESIGN DATA		
DESIGN SPEED		70 M.P.H.
PROJECT DESIGN CRITERIA		3R (FREEWAY)
FUNCTIONAL CLASSIFICATION		INTERSTATE
RURAL/URBAN		URBAN
TERRAIN		LEVEL
ACCESS CONTROL		FULL

Common SNBI Coding Examples

- SNBI --- Section 4: Features
- Example #1 – Continuous Prestressed Concrete Bulb T-Beam Bridge
- iTAMS SNBI Data

	#1	#2
(B.F.01) Feature Type - Type	H. Highway	W. Waterway
(B.F.01) Feature Type - Number	01	01
(B.F.02) Feature Location	C	B
(B.F.03) Feature Name	I-465 WBL	Lick Creek

Common SNBI Coding Examples

- SNBI --- Section 4: Features
- Example #1 – Continuous Prestressed Concrete Bulb T-Beam Bridge
- iTAMS SNBI Data

	#1
(B.F.01) Feature Type - Type	H. Highway
(B.F.01) Feature Type - Number	01
(B.RT.01) Route designation	R
(B.RT.02) Route Number	465
(B.RT.03) Route Direction	WB. Westbound
(B.RT.04) Route Type	1. Interstate route
(B.RT.05) Service Type	1. Mainline

Common SNBI Coding Examples

- SNBI --- Section 4: Features
- Example #1 – Continuous Prestressed Concrete Bulb T-Beam Bridge
- iTAMS SNBI Data

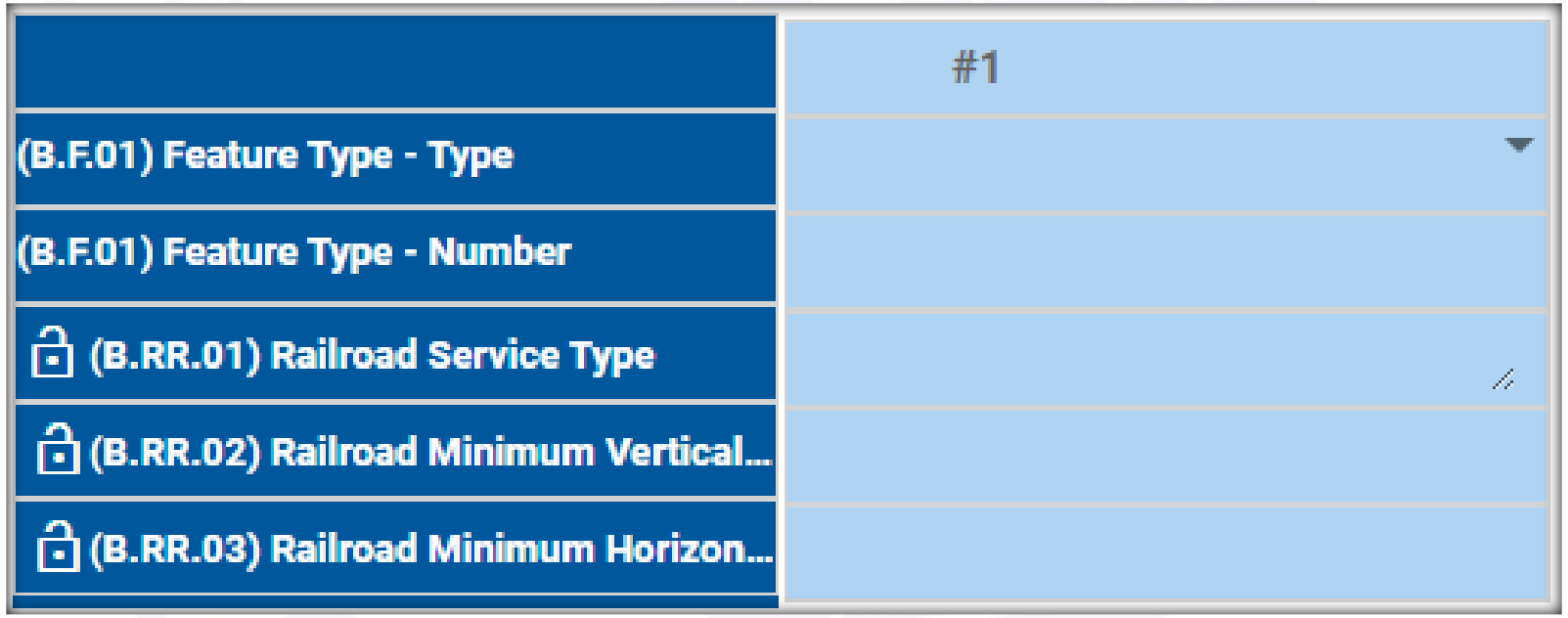
	#1
(B.F.01) Feature Type - Type	H. Highway
(B.F.01) Feature Type - Number	01
(B.H.01) Functional Classification	1. Interstate
(B.H.02) Urban Code	41212. Indianapolis, IN
(B.H.03) NHS Designation	Y. NHS
(B.H.04) National Highway Freight N...	1. Primary Highway Freight System
(B.H.05) STRAHNET Designation	1. STRAHNET route
(B.H.06) LRS Route ID	N
(B.H.07) LRS Mile Point	2.52
(B.H.08) Lanes On Highway	5

(B.H.09) Annual Average Daily Traffic	130411
(B.H.10) Annual Average Daily Truck ...	15
(B.H.11) Year of Annual Average Dail...	2024
(B.H.12) Highway Maximum Usable ...	99.99
(B.H.13) Highway Minimum Vertical ...	99.99
(B.H.14) Highway Minimum Horizont...	
(B.H.15) Highway Minimum Horizont...	
(B.H.16) Highway Maximum Usable ...	89.5
(B.H.17) Bypass Detour Length	1.0
(B.H.18) Crossing Bridge Number	

NextLevel INDIANA

Common SNBI Coding Examples

- SNBI --- Section 4: Features
- Example #1 – Continuous Prestressed Concrete Bulb T-Beam Bridge
- iTAMS SNBI Data



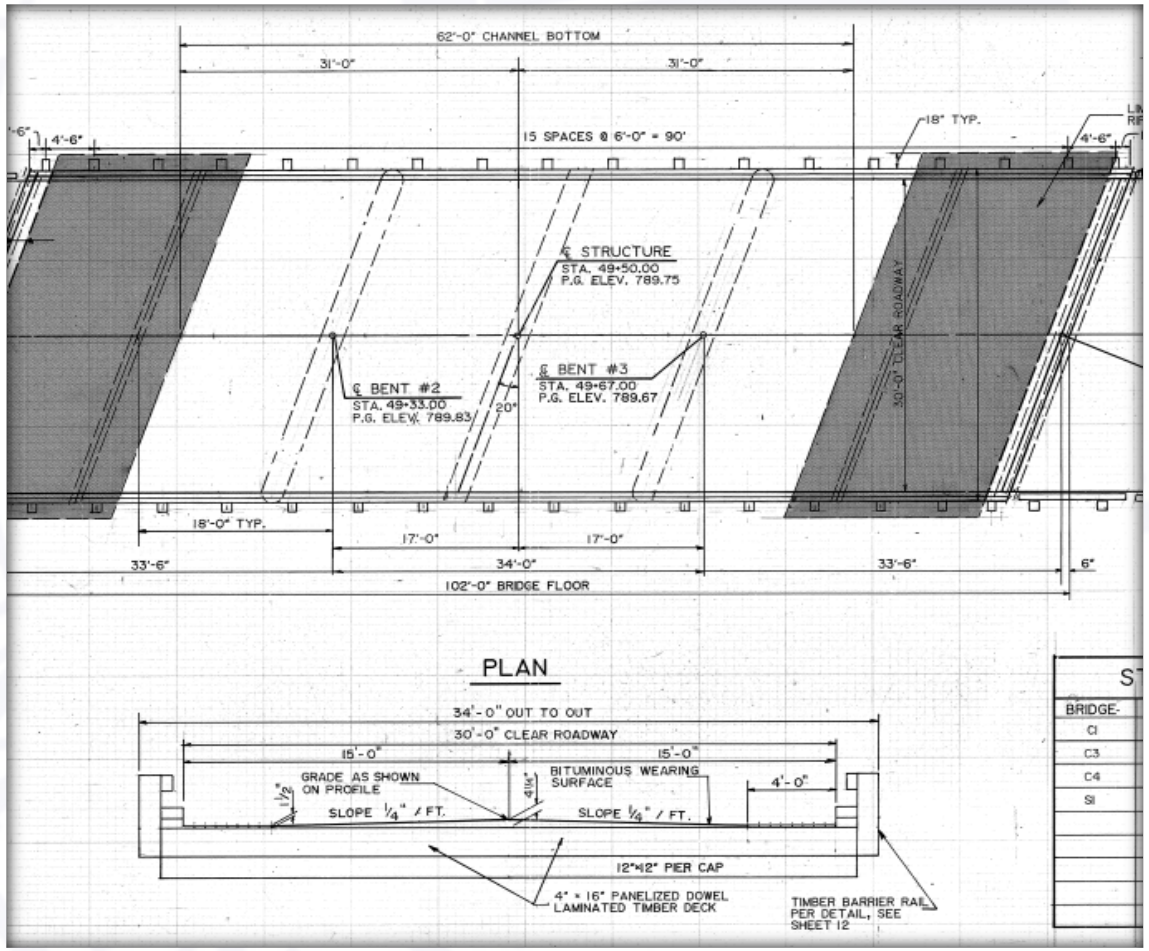
Common SNBI Coding Examples

- SNBI --- Section 4: Features
- Example #1 – Continuous Prestressed Concrete Bulb T-Beam Bridge
- iTAMS SNBI Data

	#1
(B.F.01) Feature Type - Type	W. Waterway
(B.F.01) Feature Type - Number	01
(B.N.01) Navigable Waterway	N
(B.N.02) Navigation Minimum Vertic...	
(B.N.03) Movable Bridge Maximum ...	
(B.N.04) Navigation Channel Width	
(B.N.05) Navigation Channel Minimu...	
(B.N.06) Substructure Navigation Pr...	

Common SNBI Coding Examples

- SNBI --- Section 4: Features
- Example #2 –Laminated Timber Deck Bridge



Common SNBI Coding Examples

- SNBI --- Section 4: Features
- Example #2 – Laminated Timber Deck Bridge

	#1	#2
(B.F.01) Feature Type - Type	H. Highway	W. Waterway
(B.F.01) Feature Type - Number	01	01
(B.F.02) Feature Location	C	B
(B.F.03) Feature Name	PARK ROAD	TEMPLETON CREEK

	#1
(B.F.01) Feature Type - Type	H. Highway
(B.F.01) Feature Type - Number	01
(B.RT.01) Route designation	R01
(B.RT.02) Route Number	0
(B.RT.03) Route Direction	EW
(B.RT.04) Route Type	7
(B.RT.05) Service Type	X

Common SNBI Coding Examples

- SNBI --- Section 4: Features
- Example #2 – Laminated Timber Deck Bridge

	#1
(B.F.01) Feature Type - Type	H. Highway
(B.F.01) Feature Type - Number	01
(B.H.01) Functional Classification	7. Local
(B.H.02) Urban Code	
(B.H.03) NHS Designation	N. Non-NHS
(B.H.04) National Highway Freight N...	N. Not on the NHFN
(B.H.05) STRAHNET Designation	N. Not a STRAHNET route
(B.H.06) LRS Route ID	N
(B.H.07) LRS Mile Point	0.00
(B.H.08) Lanes On Highway	2

(B.H.09) Annual Average Daily Traffic	150
(B.H.10) Annual Average Daily Truck ...	10
(B.H.11) Year of Annual Average Dail...	2020
(B.H.12) Highway Maximum Usable ...	99.9
(B.H.13) Highway Minimum Vertical ...	99.9
(B.H.14) Highway Minimum Horizont...	0
(B.H.15) Highway Minimum Horizont...	
(B.H.16) Highway Maximum Usable ...	22.0
(B.H.17) Bypass Detour Length	6
(B.H.18) Crossing Bridge Number	

NextLevel INDIANA

Common SNBI Coding Examples

- SNBI --- Section 4: Features
- Example #2 – Laminated Timber Deck Bridge

	#1
(B.F.01) Feature Type - Type	
(B.F.01) Feature Type - Number	
(B.RR.01) Railroad Service Type	
(B.RR.02) Railroad Minimum Vertical...	
(B.RR.03) Railroad Minimum Horizon...	

	#1
(B.F.01) Feature Type - Type	W. Waterway
(B.F.01) Feature Type - Number	01
(B.N.01) Navigable Waterway	N
(B.N.02) Navigation Minimum Vertic...	
(B.N.03) Movable Bridge Maximum ...	
(B.N.04) Navigation Channel Width	
(B.N.05) Navigation Channel Minimu...	
(B.N.06) Substructure Navigation Pr...	

NextLevel INDIANA

Common SNBI Coding Examples

- SNBI --- Section 4: Features
- Example #3 – Side-by-side Prestressed Concrete Box Beam Bridge

Common SNBI Coding Examples

- SNBI --- Section 4: Features
- Example #3 – Side-by-side Prestressed Concrete Box Beam Bridge

	#1	#2
(B.F.01) Feature Type - Type	H. Highway	W. Waterway
(B.F.01) Feature Type - Number	01	01
(B.F.02) Feature Location	C	B
(B.F.03) Feature Name	CR 500E	Paint Creek

	#1
(B.F.01) Feature Type - Type	H. Highway
(B.F.01) Feature Type - Number	01
(B.RT.01) Route designation	R01
(B.RT.02) Route Number	500E
(B.RT.03) Route Direction	NS
(B.RT.04) Route Type	4
(B.RT.05) Service Type	1

Common SNBI Coding Examples

- SNBI --- Section 4: Features
- Example #3 – Side-by-side Prestressed Concrete Box Beam Bridge

	#1
(B.F.01) Feature Type - Type	H. Highway
(B.F.01) Feature Type - Number	01
(B.H.01) Functional Classification	7. Local
(B.H.02) Urban Code	
(B.H.03) NHS Designation	N. Non-NHS
(B.H.04) National Highway Freight N...	N. Not on the NHFN
(B.H.05) STRAHNET Designation	N. Not a STRAHNET route
(B.H.06) LRS Route ID	N
(B.H.07) LRS Mile Point	0.00
(B.H.08) Lanes On Highway	2

(B.H.09) Annual Average Daily Traffic	86
(B.H.10) Annual Average Daily Truck ...	5
(B.H.11) Year of Annual Average Dail...	2011
(B.H.12) Highway Maximum Usable ...	99.9
(B.H.13) Highway Minimum Vertical ...	99.9
(B.H.14) Highway Minimum Horizont...	0
(B.H.15) Highway Minimum Horizont...	
(B.H.16) Highway Maximum Usable ...	24
(B.H.17) Bypass Detour Length	3
(B.H.18) Crossing Bridge Number	

NextLevel INDIANA

Common SNBI Coding Examples

- SNBI --- Section 4: Features
- Example #3 – Side-by-side Prestressed Concrete Box Beam Bridge

	#1
(B.F.01) Feature Type - Type	
(B.F.01) Feature Type - Number	
(B.RR.01) Railroad Service Type	
(B.RR.02) Railroad Minimum Vertical...	
(B.RR.03) Railroad Minimum Horizon...	

	#1
(B.F.01) Feature Type - Type	W. Waterway
(B.F.01) Feature Type - Number	01
(B.N.01) Navigable Waterway	N
(B.N.02) Navigation Minimum Vertic...	
(B.N.03) Movable Bridge Maximum ...	
(B.N.04) Navigation Channel Width	
(B.N.05) Navigation Channel Minimu...	
(B.N.06) Substructure Navigation Pr...	

NextLevel INDIANA

Commonly Miscoded Items – Part 1

Concrete Tee-Beams vs. Bulb-Tee Beams

Concrete Tee-Beams

- Common older INDOT design
- Monolithic beam/deck
- CIP deck acts as top flange
- Span Material (Item B.SP.04)
  - Reinforced concrete – cast-in-place (C01)
- Span Type (Item B.SP.06)
  - Girder/beam – tee-beam (G03)

Concrete Tee-Beams vs. Bulb-Tee Beams

Bulb-Tee Beams

- Similar to Prestressed I-Beams
  - Wider flanges
- Span Material (B.SP.04)
  - Prestressed concrete – pre-tensioned (C03)
- Span Type (B.SP.06)
  - Girder/beam – I-shaped spread (G02)

NextLevel INDIANA

Post-Tensioned Bridges

- Old coding guide had these included with prestressed
- SNBI now has options for post-tensioned – **must change coding**!
- Span Material (B.SP.04)
  - Prestressed concrete – **cast-in-place post-tensioned** (C04)
  - Prestressed concrete – **precast post-tensioned** (C05)
- IF prestressed AND post-tensioned, use one of the above (C04 or C05)

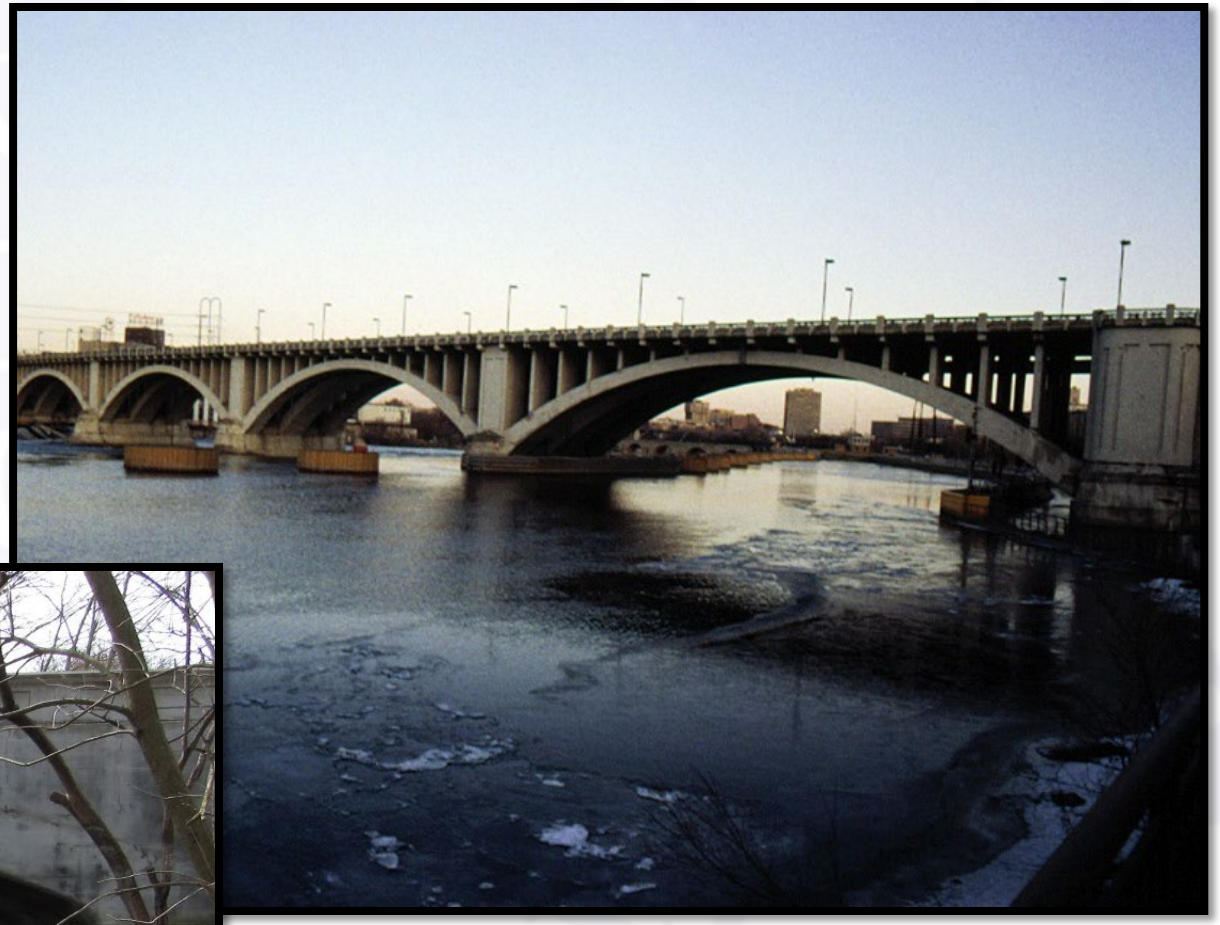
NextLevel INDIANA

Arch Bridges

- Old coding guide options for an arch:
  - Arch – Deck
  - Arch – Thru
  - Culvert
- In SNBI for Span Type (B.SP.06)
  - **Arch – under fill without spandrel (A01)**
    - No spandrel wall
    - On footings
    - No floor

Arch Bridges

- In SNBI for Span Type (B.SP.06)
  - **Arch – open spandrel (A02)**
    - No spandrel wall
    - Arch is below deck level
  - **Arch – closed spandrel (A03)**
    - Spandrel wall contains fill
    - Arch below deck level



NextLevel INDIANA

Arch Bridges

- In SNBI for Span Type (B.SP.06)
  - **Arch – through (A04)**
    - Arches rise above deck level
    - Horizontal forces at abutments
  - **Arch – tied (A05)**
    - Horizontal forces restrained by lower chord (tie)
    - Usually also a through arch

Arch Bridges

Deck Material and Type (B.SP.09)

- Closed spandrel arch
  - These will NOT have a deck unless deck has cantilever over spandrel wall
  - **Continuously reinforced concrete on fill should NOT be treated as a deck**
  - Code “0 – None”
  - Condition rating for Deck = N

Culverts

Span Configuration Designation (B.SP.01)

- M## Main, A## Approach, C## Culvert…

- New Definition of Culvert

  "Use code C for spans that convey water through or under a roadway embankment and are designed hydraulically to take advantage of submergence to increase water carrying capacity"

- No water = not a culvert

Culverts

What happens when you choose Culvert (C##) as span configuration type?

- Does it affect span type (B.SP.06)?
  - NO, span type is independent of span configuration
  - You can choose flexible pipe, arch under fill, frame, or any other span type

Span Type (Partial List)

Code	Description
A01	Arch – under fill without spandrel
A02	Arch – open spandrel
A03	Arch – closed spandrel
A04	Arch – through
A05	Arch – tied
B01	Box girder/beam – single
B02	Box girder/beam – multiple adjacent
B03	Box girder/beam – multiple spread
B04	Box girder/beam – segmental
F01	Frame – three-sided
F02	Frame – four-sided
F03	Frame – K-shaped
F04	Frame – delta-shaped

Culverts

What happens when you choose Culvert (C##) as span configuration type?

- Does it affect condition ratings?
  - Yes – similar to NBI
  - Rate culvert condition (B.C.04)
  - Do not rate superstructure condition (B.C.02) or substructure condition (B.C.03)
  - Typically, will not rate deck condition (B.C.09), but deck condition is based on deck material and type coding (B.SP.09)

Culverts

QUIZ - Is this a culvert or a bridge?

Pipe Arch

- It's a culvert
  - Conveys water under embankment, designed for submergence
  - Use code C01 Culvert for span configuration (B.SP.01)
  - Use code P02 Pipe Flexible for span type (B.SP.06)
  - DO NOT code as Arch
  - Use culvert condition rating

NextLevel INDIANA

Culverts

QUIZ - Is this a culvert or a bridge?

- It's a bridge
  - Not designed for submergence
  - Use code M01 Main for span configuration (B.SP.01)
  - Use code A03 Arch - closed spandrel for span type (B.SP.06)
  - Use superstructure and substructure condition ratings, deck if applicable

Culverts

QUIZ - Is this a culvert or a bridge?

Precast 3-Sided Structure

- It's a culvert
  - Conveys water under embankment, designed for submergence
  - Use code C01 Culvert for span configuration (B.SP.01)
  - Use code F01 Frame Three-Sided for span type (B.SP.06)
  - Use culvert condition rating

Culverts

QUIZ - Is this a culvert or a bridge?

Aluminum 4-Sided Box

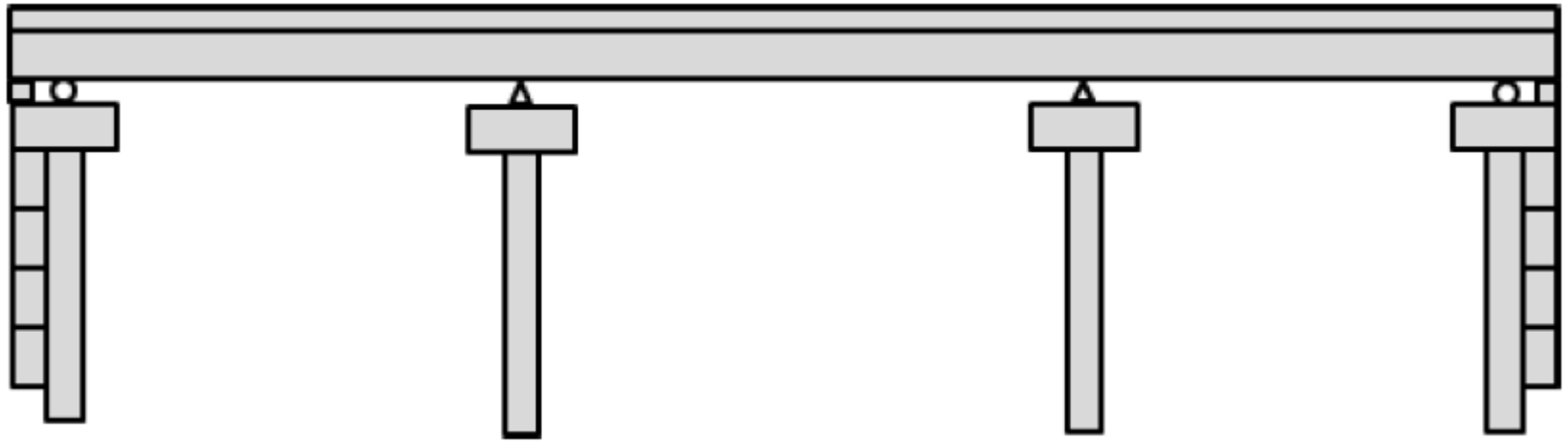
- It's a culvert
  - Conveys water under embankment, designed for submergence
  - Use code C01 Culvert for span configuration (B.SP.01)
  - Use code P02 Pipe Flexible for span type (B.SP.06)
  - Use culvert condition rating

NextLevel INDIANA

Substructure

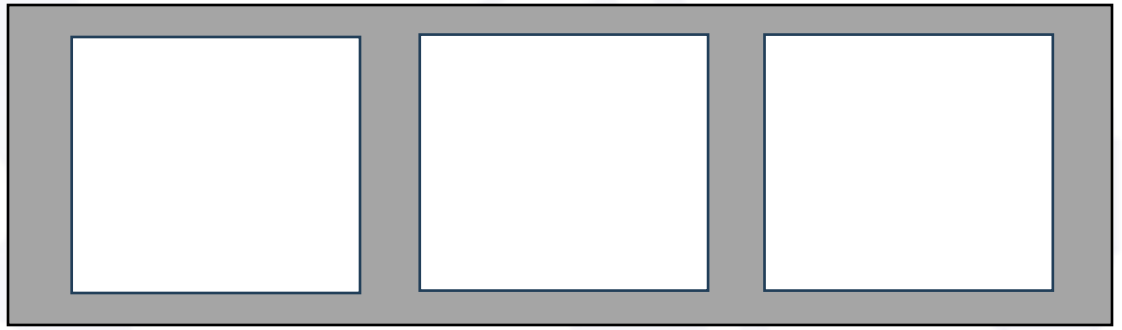
Definitions:

- Abutment - a substructure unit located at end of bridge
  - Forget end bent terminology
- Piers and Bents - intermediate supports for multi-span bridge

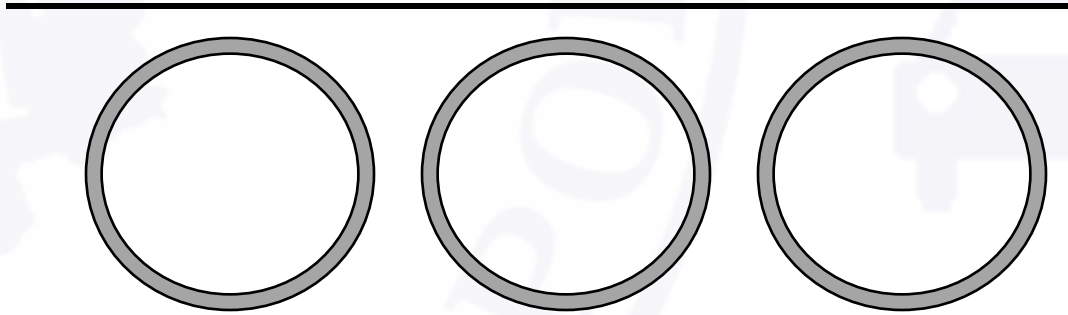


Substructure

- Do rigid frames have Abutments, Piers, or Bents?
  - Yes, substructure items are reported



- Do pipes have Abutments, Piers, or Bents?
  - No, substructure items not reported when span type is a Pipe (P01 or P02)



Substructure

Pier vs. Bent:

“Both piers and bents provide the same function…

…however, a pier has only one footing at each substructure unit (the footing may serve as a pile cap)…

…while a bent has several footings or no footings, as is the case with a pile bent.”

Open Pile Bent

Substructure

Pier vs. Bent:

Multi-Column Pier
on Single Pile Cap

Single Column Pier
on Single Pile Cap

Substructure

Substructure Configuration (B.SB.01)

- A## (Abutment)
- P## (Pier or Bent)
- W## (Widening)

Substructure Type (B.SB.04)

- Need to be consistent with substructure configuration
- A## → use Abutment codes
- P## → use Bent or Pier codes

Substructure Type (Partial List)

A01	Abutment – cantilever/wall
A02	Abutment – stub
A03	Abutment – open/spill through
A04	Abutment – integral
A05	Abutment – semi-integral

B01	Bent – column or open
B02	Bent – column with web wall
B03	Bent – pile
B04	Bent – straddle or c-shaped
BX	Bent – other

P01	Pier – wall
P02	Pier – single column
P03	Pier – multiple column
P04	Pier – multiple column with web wall
P05	Pier – straddle or c-shaped

NextLevel INDIANA

Substructure

Most Common Abutments:

- A01 Cantilever/Wall – Tall abutment with traditional beam seats
- A02 Stub Abutment – Short abutment with traditional beam seats
- A04 Integral – No expansion joint in deck or abutment
- A05 Semi-Integral – Horizontal expansion joint in abutment

If a structure fits the definition for integral/semi-integral AND another type:

- Choose integral/semi-integral

Semi-Integral Abutment

Substructure

Arch Foundations

- Typical arch structure rests directly on footings. How to code?
  - Enter “Footing Only” for Substructure Type (B.SB.04)
  - Enter “0 – None” for Substructure Material (B.SB.03) and Substructure Protective System (B.SB.05)
  - Code remainder of substructure items

Substructure

Unknown Foundations

- Utilize field observations and probing
- Choose likely foundation type if confidence is high
- Otherwise, use “U Unknown” foundation type
- More guidance coming

Commonly Miscoded Items – Part 2

Commonly Miscoded Items – Mult. Types

- Code the Predominant Type
  - Protective Systems
  - Deck Material and Type
  - Wearing Surface
  - Substructure Type (Retrofit)
  - Foundations (Retrofit)
- Code Each Type
  - Span Configuration
  - Superstructure Configuration
  - Substructure Configuration
- Meant to capture out-of-the-ordinary situations

2.1 – SPAN MATERIAL AND TYPE

Wearing Surface		
Format AN (3)	Frequency I	Item ID B.SP.10
Specification		Commentary
Report the predominant wearing surface material type protecting the deck or slab for the span configuration using one of the following codes.		When a span configuration has a combination of wearing surface types, code the predominant wearing surface type based on the deck or slab area.

2.1 – SPAN MATERIAL AND TYPE

Deck Protective System		
Format AN (3)	Frequency I	Item ID B.SP.11
Specification		Commentary
Report the deck protective system for the span configuration using one of the following codes. Code Description 0 None A01 Admixture – internally sealed A02 Admixture – low permeability		Code this item consistent with the predominant material reported in Item B.SP.09 *(Deck Material and Type)*. In cases where the deck may have a combination of protective systems, use the code for the predominant protective system based on protected area. In cases where multiple systems protect the same area, use the code for the outermost protective layer.

NextLevel INDIANA

Commonly Miscoded Items – Mult. Types

- Different substructures, superstructures, etc. *within the same bridge* are coded separately.
  - Some substructures are drilled shafts, and some are wall piers. Each are coded in their own Substructure configuration
- Different elements *within the same unit* require judgment for which is predominant.
  - Within one substructure, there is a hammerhead pier and a widened portion with a pile. Here, we select the predominant substructure type for this unit.
  - Photo technically depicts a widening

NextLevel INDIANA

Commonly Miscoded Items – Widening

- Use only when configuration differs from original
  - Added beam lines
  - Widened wall piers
  - Pier column to support new beams of the same type
- Does not add to total number of spans (B.SP.02)
- Coding allows for independent input of Widening for Span and Substructures. What might this look like?

Commonly Miscoded Items – Widening

- Three-Pipe structure originally
- Fourth pipe of ~~same~~ **different** material added to increase waterway capacity

- Is this a widening according to SNBI?

Answer: No

Answer: Still No

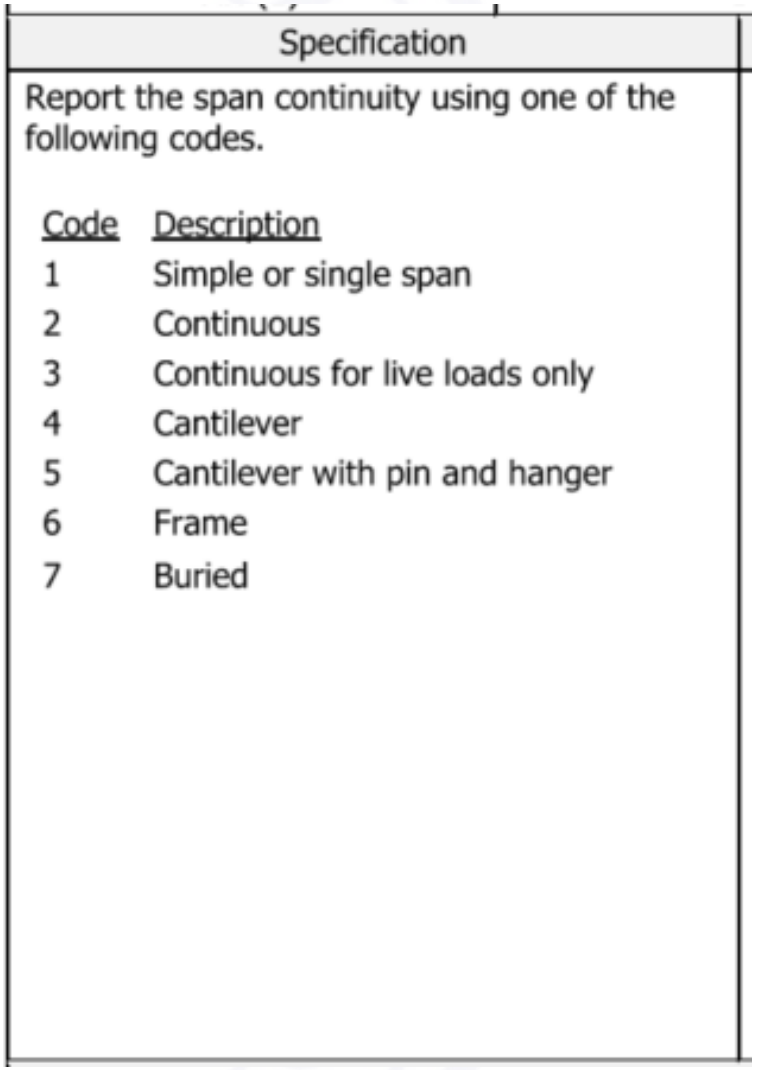
NextLevel INDIANA

Commonly Miscoded Items – Widening

- Four-span main section
  - Span A and D: RC Slab
  - Span B and C: RC Channels
- Two Span Widening
  - Span A and B: ADJ PCBB
- Is the superstructure widened? What about the Substructures?

Commonly Miscoded Items – Span Continuity

- Coded for each span configuration on the bridge (Main, Approach, Widening, etc.)
- “Continuous for Live Loads Only”
  - Were beam continuous when the deck was installed (cured)?
  - If unknown, be consistent with load rating
- Frame vs Buried
  - Use Buried if relying on soil-structure interaction to support vertical loads



Specification
Report the span continuity using one of the following codes.

Code	Description
1	Simple or single span
2	Continuous
3	Continuous for live loads only
4	Cantilever
5	Cantilever with pin and hanger
6	Frame
7	Buried

Commonly Miscoded Items – Span Continuity

- Single-span steel beam bridge with 4” steel grate deck tack-welded to tops of beams

- Simple, continuous, continuous for live load?

Answer: Simple

Commonly Miscoded Items – Span Continuity

- Three-span PCIB bridge with composite concrete deck. Closure pours between beams.

- Continuous? Continuous for Live Load?

Answer:
Continuous for Live Loads

Commonly Miscoded Items – Span Continuity

- Three-span PCIB bridge. Closure pours severely deteriorated.

- Continuous? Continuous for Live Load?

Answer:

Continuous for Live Loads

Commonly Miscoded Items – Span Continuity

- Open Spandrel arch bridge with expansion joints at RC slab approach spans.

- Simple or frame?

Answer: Simple

Commonly Miscoded Items – Span Continuity

- Multi span arch bridge

- Simple, continuous, or frame?

Answer: Continuous

Use code 2 for bridges designed continuous for permanent (dead) loads and live loads. Also, use code 2 for cable stayed and suspension bridges, and for multi-span arches.

NextLevel INDIANA

Commonly Miscoded Items – Span Continuity

- Segmental 3-sided precast box under fill.

- Frame, or buried?

Answer: Frame

NextLevel INDIANA

Commonly Miscoded Items – Deck Interaction

- CS
  - Use when the deck is required to carry self-weight of superstructure.
- CU
  - Most common; beams don't need deck to carry their own weight.
- IM
  - Fabricated from the same material at the same time
- NC
  - Non-composite

Deck Interaction		
Format AN (2)	Frequency I	Item ID B.SP.08
Specification		Commentary
Report the type of interaction between the superstructure and deck for the span configuration using one of the following codes. Code – Description CS – Composite – shored construction CU – Composite – unshored construction IM – Integral or monolithic NC – Non-composite Do not report this item when Item B.SP.09 *(Deck Material and Type)* is 0.		This item captures the type of structural interaction that occurs between the bridge deck and superstructure, which may indicate the importance of the deck to the overall stability and capacity of the bridge. Use code NC to indicate that the deck and the superstructure act independently. Use code CU to indicate that the deck acts composite with the superstructure, and that the superstructure can carry its own self-weight, plus that of the deck concrete prior to curing.

- Remain consistent with load rating assumptions if deck interaction is unknown

NextLevel INDIANA

Commonly Miscoded Items – Deck Interaction

- Single-span steel beam bridge with 4” steel grid deck tack welded to top flanges

- Composite?
- Non-Composite?
- Monolithic?

Answer: Non-Composite

Commonly Miscoded Items – Deck Interaction

- Multi-Span steel beam bridge with 8” concrete deck. Plans show shear studs welded to tops of flanges.

- Composite?
  - Shored or Unshored?
- Non-Composite?
- Monolithic?

Answer: Composite

Commonly Miscoded Items – Deck Interaction

- Single-span CIP RC T-Beam bridge.

- Composite?
  - Shored or Unshored?
- Non-Composite?
- Monolithic?

Answer: Monolithic

NextLevel INDIANA

Commonly Miscoded Items – Wearing Surface

- Patching not considered (Concrete with HMA “patches”)
- Code “0” for no wearing surface
- Sacrificial thickness in deck or slab counts as wearing surface

Commonly Miscoded Items – Wearing Surface

- Do not report this item when Deck Material and Type is coded “0”.
- C01 for monolithic
- C02 for unmodified overlay
- C03 for LMC

Specification

Report the predominant wearing surface material type protecting the deck or slab for the span configuration using one of the following codes.

Code	Description
0	None
B01	Bituminous (asphalt)
C01	Concrete – monolithic
C02	Concrete – unmodified
C03	Concrete – latex modified
C04	Concrete – low slump
C05	Concrete – fiber reinforced
C06	Concrete – microsilica
C07	Concrete – polyester
CX	Concrete – other
CU	Concrete – unknown
E01	Earth – gravel or soil
P01	Polymer – epoxy
P02	Polymer – polyester
PX	Polymer – other
S01	Steel
T01	Timber – running planks
X	Other

Do not report this item when Item B.SP.09 *(Deck Material and Type)* is 0.

Some Fields Not Translated by INDOT

- Many new fields on SNBI that were not in NBI Coding Guide
- SNBI fields with no NBI counterpart will not be translated
- Get familiar with SNBI code
  - Is the field unpopulated or is it meant to be blank?

Coding Questions?

- INDOT Contact:
  - iTAMSHelp@indot.IN.gov

- SNBI Official E-mail:
  - NBIS_SNBI_Questions@dot.gov

Q & A

- Any Questions from the Audience?