BRIDGE MEMORANDUM

Job No.: JXXXXXX **County:** XXXXXXXX **Bridge No.:** AXXXX
Route: AAA (minor) over XXXX Creek **Sheet:** 1 of 1

Final Layout: 2 (10' x 9') Reinforced Concrete Box Culvert

Roadway Width: 24'-0" out-to-out of shoulders
Skew: 48° Left Advance
Loading: HL-93 minus Lane Load, Design Fill = 1.75'
Alignment: Tangent
Profile Grade: VPI Sta. 261+65.05, Elev. 704.55, +1.15% back, -1.09% ahead, L = 300'
Tie Station: 261+65.00 ℄ Route AAA = ℄ Box Culvert
Flow Line Elev.: Upper Flow Line Elevation 692.08, Lower Flow Line Elevation 691.70
Traffic Handling: Structure to be closed to traffic during constuction. See roadway plans for traffic control.
Existing Bridge: SXXXX to be removed per standard specs, estimated cost $10,000 (bridge item, included in estimate)
Channel Cleanout: Provide grading of the channel bottom within the limits of the R/W as needed for the culvert flow line elevations and transition of the channel bed to the culvert opening. Taper channel banks to match end of culvert opening as required (roadway item).

GENERAL NOTES:

- Stationing and profile grade are located along centerline Route AAA.
- Extend 2% cross-slope from edge of shoulder for a distance of 3'-5" and then use 2.5:1 side slope down to headwalls.
- Upstream wings shall be straight and inside of headwall shall be parallel to centerline Route AAA and offset 19'-0" right from centerline Route AAA.
- Downstream wings shall be straight and inside of headwall shall be parallel to centerline Route AAA and offset 19'-0" left from centerline Route AAA.
- Provide bridge guardrail (thrie beam) over culvert in lieu of meeting clear zone requirements. Attach posts to top slab of culvert on eastside and westside (bridge item).
- Bridge anchor sections will be required (roadway item).
- The Corp of Engineers requirements for safe passage of fish and aquatic organisms thru culverts are in compliance for this structure. The invert of the culvert is embedded 12 inches minimum below the natural stream bottom.
- If any part of the top slab is exposed, the roadway fill shall be warped to provide 12" minimum cover (roadway item).
- Streambed and embankment protection to be determined by District (roadway item).
- Realign roadside ditches as required (roadway item).
- Provide right-of-way as required for construction.
- Relocate all utilities as required for construction.
- No conduit, lighting, utility supports, sign supports, fencing or sidewalks are to be included in the final bridge plans.
- Present AADT (2013) = 542; Design AADT (2034) = 785; T = 11%; V = 55 mph.
- Example Culvert Plans: JXXXXXX - AXXXX, Example Guardrail Attachment Plans: JXXXXXX - YXXXX
- This structure is not in an NFIP regulated floodplain. Therefore, a Floodplain Development Permit will not be required.

District contact is XXXXXXXXXX, TPM (XXX) XXX-XXXX.

Bridge contact is XXXXXXXXXXX, SPM (XXX) XXX-XXXX.

Estimated Working / Calendar Days = **25 / 38** (min.)

[1] **FY15 Estimated Construction Cost = $174,000**

[1] Does not include inflation from Planning (3% compounded annually)

Programmed Bridge STIP Amount (Bridge) = $178,000

Hydrologic Data
Drainage Area = 1.99 mi²
Design Flood Frequency = 50 years
Design Flood Discharge = 1221 cfs
Design Flood (D.F.) Elevation = 700.28
Base Flood (100-year)
Base Flood Elevation = 700.60
Base Flood Discharge = 1459 cfs
Estimated Backwater = 1.79 ft
Outlet Velocity = 8.63 ft/s
Roadway Overtopping
Overtopping Flood Discharge = 1270 cfs
Overtopping Flood Frequency = 60 years
Overtopping Flood Elevation = 701.05

SIGN	DATE
Prepared by: XXXXXX XXXXXXXX	Date
SIGN	DATE
Bridge SPM: XXXXXXX XXXXXXXX	Date
SIGN	DATE
District TPM: XXXXXXX XXXXXXXX	Date
SIGN	DATE
District:	Date