



3/17/26

I-5719B_U5800_Submittal S-008-4B Plans
MI-Engineering- Hydraulics Review

General:

- See attached markup set of plans for clarification of some of the comments noted below.
- Recommend removing permit drawing sheet numbers shown on each sheet.
 - [Permit drawings sheet numbers were removed.](#)
- Have pipe slopes and channel dimensions available for all JS streams in case questions come up concerning burial and or sills. Was use of sills in pipes considered by design build team?
 - [Will have the information and discussion in meeting.](#)
- Review any green sheet commitments and discuss if they relate to hydraulic design. The CE document appears to show the project ending at the NC 273 and I-85 interchange but plans show work beyond this point. –
 - [Work beyond NC273 is mill and resurface and replacement of drainage systems per RFP direction.](#)
- Check that supplemental information noted in document “Guidance for Merger Concurrence Point 4B Meeting - Plans Preliminary Hydraulic Design Review” is available during the meeting.
 - [Will have all of this for the meeting.](#)

Title Sheet:

- Once Plans are ready to be sent to agencies for the meeting just label as CP4B PLANS and include date. Do not show submitted and submittal number.
 - [Removed submittal number and revised date.](#)

Sheet 2D-1:

- Recommend removing drainage detail sheets as the complete drainage design has not been approved yet.
 - [Drainage details removed from planset. Will have them ready if needed at meeting.](#)

Plan Sheet 4:

- Show channel realignment into entrance of 72” pipe at station 382+90 -L-.
 - [Channel geometry revised to reflect the comment.](#)
- Adjust proposed channel improvement at outlet of 72” pipe at station 382+90 -L- so it lines up with pipe outlet.



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- Channel geometry revised to reflect the comment.
- Are sills proposed for this pipe?
 - Discussion for meeting.

Plan Sheet 5:

- Use pipe outlet channel improvement with rip rap embedded into stream bed instead of standard rip rap protection at outlet 48" csp right of station 16+25 -Y6RPA-. Carry the rip rap protection beyond bend in stream so stream is protected around bend and flow is directed into natural stream alignment.
 - Riprap revised to show in stream bed and past bend.
- Update highlighted drainage shown on markup.
 - Drainage was updated to reflect the updated roadway.

Plan Sheet 7:

- Check deck drain stations. (see markup)
 - Deck drain stationing updated.

Plan Sheet 8:

- Would it be possible to drain median to left side ditch to minimize direct connections from impervious surfaces to the receiving waters to the maximum extent practicable? per RFP PAGE 406. See mark up.
 - Should be possible, change will be incorporated during redline reviews.
- Recommend keying rip rap into stream bed at outlet of 48" pipe since it is the beginning of the stream at the outlet and outlet velocity is high based on pipe data sheet.
 - Riprap was revised to show key-in to channel bottom.

Plan Sheet 10:

- 72" pipe at station 471+68 -L-. Are sills proposed for this pipe?
 - Discussion for meeting.

Plan Sheet 11:

- Should outfall right of station 489+50 be lined with rip rap all the way to the confluence of creek? See markup.
 - The design includes the use of a drop box and flat pipe to reduce velocities as well as channel protection up to the ROW line. No other work is proposed on the adjacent property and would require additional ROW.
- 8'x8' RCBC station 494+08. Have culvert slope and channel dimensions available and ready for discussion on sills. –
 - Discussion for meeting.



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Plan Sheet 13:

- 84" pipe at station 513+96. Are sills proposed for this pipe?
 - Discussion for meeting.
- There is an area labeled wetland in the survey file right of station 512+50 that may need clarification. It is not shown in the NRTR. –
 - Wetland label removed.
- 60" pipe at station 519+70. Recommend keying rip rap into stream bed at outlet since upstream channel is fully lined with rip rap.
 - Riprap was revised to show key-in to channel bottom.
- Is the intent to rip rap the entire channel and 5' berms on either side of the channel for details 13-4 and 13-13? The details only show lining banks to a depth of 1'.
 - The details have been revised to show the full lining. However, this area is still under investigation and riprap may be reduced from what is currently shown.

Plan Sheet 14:

- 66" pipe at station 42+83 -Y7-. The proposed alignment is not the best way to match the existing channel alignment. Be prepared to defend. Does it result in more channel impacts compared to if a straight alignment was used? Does slope match existing channel slope ect..
 - The offset alignment was requested by the contractor to improve construction sequencing/duration.
- 42" pipe at station 13+59 -Y7TRAIL. Is rip rap needed in outlet channel. The slope of pipe is steep and outlet velocities high. May be good to show it embedded in stream bed.
 - Riprap was revised to show key-in to channel bottom.

Plan Sheet 15:

- 78" pipe at station 555+20 -L-. Are sills proposed for this pipe? It is hard to tell from CSR as they are not specifically mentioned but appear to be shown in inlet and outlet details.
 - Discussion for meeting.

Plan Sheet 20:

- Outlet channel right of station 621+00 -L-. Recommend lining entire channel with rip rap and not just the banks.
 - Riprap was revised to show key-in to channel bottom.
- Is there a wetland boundary on this sheet right of station 627+00 -L-? There is an easement shown in this location. Is there something going on that would impact the wetland?
 - Easement was removed. Wetland boundary confirmed to be off of this sheet. Wetland symbology removed.



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- It appears the Catawba River Buffer zone should be shown on this page. –
 - Buffer zone added to the sheet.

Plan Sheet 24:

- 42 pipe at station 13+59 -Y7TRAIL. Show realignment of stream into entrance of pipe or does pipe need to be extended some at entrance.
 - Stream alignment into pipe was revised. Discussion for meeting regarding the entire stream reach tie-ins with upstream ditches.

Profile Sheet 34 & 35:

- Recommend plotting bridge on these sheets showing pier locations.
 - Bridge was added to the profile.

PsmP:

- It appears UT TO CATAWBA RIVER (stream SBS) should be included in PsmP. See impacts plan sheet 20. –
 - The psmP was revised to include stream SBS.
- Were streams evaluated using SELDM tool for recommendations regarding possible stormwater measures needed?
 - They were not. The RFP does not allow for additional ROW for stormwater treatment. We are evaluating areas where grass lined ditches can be provided as well as detention in the Y7 interchange to provide treatment prior to outfalls.