Meeting Minutes

STIP Project R-2828 (NC 540)

To: Quasi Concurrence Point 4B Merger Meeting Attendees

From: Karl Dauber, P.E.

Meeting Date: May 9, 2019

Location: NCDOT Structures Design Conference Room, Raleigh, NC

Subject: Meeting Minutes for Quasi Concurrence Point 4B Merger Meeting
NC 540 – East of US 401 to I-40/US-70 Interchange
STIP Number R-2828

Rob Ridings	N.C. Division of Water Resources (NCDWR)
Robert Patterson	N.C. Division of Water Resources (NCDWR)
Amy Chapman	N.C. Division of Water Resources (NCDWR)
Eric Alsmeyer	U.S. Army Corps of Engineers (USACE)
Travis Wilson*	N.C. Wildlife Resources Commission (NCWRC)
Dennis Jernigan	NCTA
Jennifer Harris	NCTA
Rodger Rochelle	NCTA
Amy Neidringhaus	NCTA
Roy Bruce	Lochner
Heather Montague	NCDOT Div 5 Environmental
Nikki Thompson	NCDOT Div 5 Environmental
Deanna Riffey	NCDOT/EAU
Mitchell Wimberly	NCDOT Division 5
Jenny Fleming	VHB
Tom Meador	Lane-Blythe JV
Kevin Oswandel	Lane-Blythe JV
Ryan Krakowski	Lane-Blythe JV
Michael Wood	Three Oaks
Nancy Scott	Three Oaks
Hayley Wood	Three Oaks
Karl Dauber	WSP
Rana Stansell	WSP
Nick Novello	WSP
Max Price	Wetherill

A Quasi Concurrence Point 4B meeting was held on May 9, 2019 in the NCDOT Structures Design Conference Room at 12:30 pm. The primary purpose of this meeting was to review the Design Build Team's development of the preliminary drainage design (submitted 30% hydraulic design plans) for STIP Project R-2828. The following summarizes what was discussed.

The meeting began with attendee introductions (see attached attendance sheet), followed by a brief presentation (see attached). Michael Wood provided a project overview and summarized the project's avoidance and minimization efforts to date. Karl Dauber then described the projects' general hydraulic design commitments. Michael then reviewed the anticipated Colonial gas line relocations and associated impacts, which were further explained by Dennis Jernigan. Karl then presented some of the

strategies that the Lane-Blythe JV had developed for temporary crossings of Swift Creek and the associated floodplain, in particular the proposed haul road that runs adjacent to the proposed bridge along and over Swift Creek. The agencies collectively expressed concern regarding the proposed haul road. The discussion concluded with the DB Team committing to re-evaluate access options and submit the findings to NCDOT and the agencies prior to the Quasi 4C meeting for consideration. Karl also noted that there are numerous existing stormwater management/water quality BMPs at the I-40/US 70 interchange area that were constructed for the R-2552 (Clayton Bypass) project as project commitments, and that both the R-2828 and the I-5111 project teams have committed to mitigating impacts to these BMPs so to provide the same level of treatment, or greater.

Karl then facilitated a sheet-by-sheet review of the preliminary hydraulic design plans, identifying likely resource impacts and proposed approaches to mitigate those impacts. A summary of the discussion is provided below:

Plan Set Review General Comments

- Multiple Barrel Culverts - Eric noted to install floodplain bench to maintain low flow conditions
- If single barrel culvert is wider than stream channel, baffles will be used to maintain low flow dimension.
- Backfill with native material to avoid wildlife getting trapped in barrel
- Extend bank stabilization to catch diversions - permanent impact but not stream loss
- Buffers adjacent to ponds to be drained will be quantified in permit but may not be shown on drawings
- Mike asked about an off-set due to stream coming back. NCDOT has typically just paid the mitigation
- On permit drawings make sure wetland and stream labels show up, especially near match lines

Work Areas 1 & 2

Plan Sheet 4

- Stream SBP – will extend bank stabilization to intercept lateral ditches
- Wetland WCD – total take
- Pond on west side of RR is non-JD

Plan Sheet 5

- WCE(1), WCE(2), WCH, and WCI – fill impacts
- SBQ, SBU, SBR, and SBS – fill impacts. Cross pipe provides continued hydrology for SBQ.
- SBQ, SBR – stabilization impacts.
- Pond PM will be drained. Buffer impacts will be included in Permit impact summary.

Plan Sheet 6

- WCJ – fill impacts. Energy Dissipator Basin provided to dissipate flow into wetland.

Plan Sheet 7

- WCL – total take from fill

Plan Sheet 8

- No impacts to WCM.
- WCR – total take from fill
- WCQ – fill impact.
- SBY and SBX – impacts from culverts and stabilization. Will extend bank stabilization for lateral ditches. Impacts due to stream loss beyond culvert should be accounted for.
- Rock plating provided to minimize impacts.

Plan Sheet 9

- No impacts

Plan Sheet 10 (Note: show labels on both sides of match lines)

- Pond PN to be drained. Buffer impacts will be included in Permit impact summary.
- WCN is a total take
- Pond PP to be filled. No buffers.
- WCZ(2) – fill impact downstream of Pond PP. No impact at SE corner of this sheet. Add label

Plan Sheet 11

- WCZ(1), WCZ(2) – fill impacts.
- SCD – no impact
- SCE – impacts from culvert and stabilization.
- SCK – total take from fill.
- SCC – impacts from culvert and stabilization. Rock plating to minimize impact.

Plan Sheet 12

- Pond PQ – to be drained
- Pond PR – to be filled
- WDA – Wetland will be considered a total loss unless supporting info provided to the contrary.
- WCZ(2) – stabilization impact from channel change outfall
- WCZ(1) – fill impact and stabilization impact from channel change outfall

Plan Sheet 13

- Pond PS – no impact
- Pond A – minor fill impact to buffer
- WWD, WDB – fill impacts. Evaluate feasibility of adjusting alignment of Y18B to avoid or minimize impacts.
- WDC, WDE – no impact
- SCF – stabilization impact at outfall

Plan Sheet 14

- WDB – fill impact from roadway approaches only. Add label north of L line.

- Bridge – no impacts to wetlands or buffers from the abutments. Bridge for wetland avoidance, not hydraulics. Not a FEMA crossing. Bents aligned to match flood flows.
- EDBs provided outside limits of wetlands.
- Toe protection will be provided at SE corner along wetlands.
- Riprap apron at southwest corner.

Plan Sheet 15

- WDB – fill impact. Toe protection to be provided. Total take next to fill slope.

Plan Sheet 16

- Pond PT – no impacts. No buffers.
- Pond PU – total take due to fill. No buffers.
- WDF – fill impact. Toe protection to be provided. Direct impacts only.
- WDG(1) – fill impact. Toe protection to be provided. Direct impacts only.

Plan Sheet 17

- Ponds PW and PV – to be drained and filled.
- WDG(1) – fill impacts.
- WDG(2) – fill impacts.
- SCL – fill impact.
- Outfall at 698 eliminated.
- Channel change on south side needed to maintain flow to SCL downstream. Riprap transition to be provided between wetlands and channel. Verify the ditch isn't steep. Add grade control if necessary.
- Lateral ditch on north side needed to convey overland flow to SCM downstream. Over 1800' long. Evaluate the need/feasibility of grade control to maintain wetland hydrology and prevent headcutting.

Plan Sheet 18

- WDH – fill impacts. Add label near SCN.
- SCM - impacts from culvert and stabilization.
- SCN – fill impacts.

Plan Sheet 19

- Pond PY – to be drained. Buffer impacts will be included in Permit impact summary.
- WDI – no impact.
- SCQ – fill impact from channel change. Suggest relocating AET to minimize impacts. Also, JS label appears missing between PSH 19 and 20. Check whether buffers on SCQ should continue through to Plan Sheet 20.

Plan Sheet 20

- WDL – no impact.
- WDJ – fill impact.

- SCP - impacts from culvert and stabilization.
- SCQ – impacts from fill. Will shift EDB out of wetlands, or extend ditch to stream and provide Riprap at Embankment. Check whether buffers on SCQ should continue through to Plan Sheet 19.

Plan Sheet 21

- Pond PZ - No impact.
- WDM – fill impact.
- SCR - impacts from culvert and stabilization. Outlets on north side to be combined.
- It was noted that for cross pipes that are conveying overflow from wetlands, it is not needed to bury invert of pipe, and riprap is not required at upstream end.

Plan Sheet 22

- No direct impacts, but possibly some impacts due to clearing

Plan Sheet 23

- WDO – fill impacts. Stabilization impact from outfall.
- SCT and SCV - impacts from culverts and stabilization. Will provide riprap at embankment for lateral ditches on north side. When temporary diversions are needed, make sure that bank stabilization is extended far enough to cover that work.
- Include impact to WDP from culvert stabilization. Make sure WDP is labeled
- Make sure culvert label (RCBC 8'x8') is legible.

Plan Sheet 24

- WDQ – no impact.
- WDP – fill impact. Direct impacts only.
- WDR – isolated wetland, total take.
- SCY – fill impact, stabilization impact, and channel change. Note loss of segment SDD.
- SCZ – fill impact.
- Keep wetland stream labels same size (don't scale down with drawing)

Plan Sheet 25

- Pond PAC – no impact. Make sure pond shows up on plans and is labeled
- WDT – no impact.
- SCY – Channel change. Will provide riprap at bottom, and sides up to 1' above design depth. Include channel impacts until confluence with SDD.
- Eric noted that the lower end of SCY below L is going to lose its hydrology to the confluence with SDD

Plan Sheet 26

- WDV – fill impact from roadway. No impacts from bridge.
- SDF – Buffer impact at west abutment. Will try to pull back EDB, or provide riprap at embankment. It was decided that extending to stream and using riprap at embankment was

preferred. Hand-clearing of areas under bridges should be noted (this applies to all bridges over wetlands).

Plan Sheet 27

- Two unnamed ponds south of road – to be drained.
- SCY – small buffer impact from EDB on north side.
- WDV – no impact on this sheet.
- Hazardous spill basin with media filter, west of Swift Creek. Move EDB to north side of basin.

Plan Sheet 28

- Mitigation area to be revised to match new R/W line. Hand clear upland areas and wetlands within the mitigation area.
- WDV – fill impact from roadway.
- No deck drains proposed for bridge over Swift Creek.
- SDG (Swift Creek) – interior bridge bents at least 10' from stream banks. Impacts to buffers only from two bents on west side of stream. Minor buffer impact from EDB from Hazardous Spill Basin on east side.
- Possibly add endwall to outlet pipe from HSB. Determine need for junction box along pipe to provide velocity dissipation.

Plan Sheet 38

- No impact.

Plan Sheet 39

- WCX and WCY – no impacts
- SCA – no impact.
- SCB(1) – stabilization impact at outfall (pipe to be upsized for capacity).

Plan Sheet 40 – no impacts.

Plan Sheet 41 – no impacts.

Plan Sheet 42 – no impacts.

Plan Sheet 43 – no impacts.

Plan Sheet 44 – no impacts.

Plan Sheet 45

- Ponds PAB and PBI –stabilization impacts for culvert replacements. Deanna Riffey confirmed that PAB does not have buffers, but PBI does.

Work Area 3

Plan Sheet 29

- WDZ – fill impact from roadway.
- SDJ - impacts from culvert and stabilization.
- Hazardous spill basin with media filter.

- Need to adjust outlet to outside of fill

Plan Sheet 30

- WEA – fill impact, total take.
- SDK SDL - impacts from culvert and stabilization.

Plan Sheet 32

- WEB – no impact
- WEC – fill impacts. Add label to wetland on north side
- WED – stabilization impact at outfall.
- SDL - impacts from culvert and stabilization
- SDM - impacts from culvert and stabilization. Will extend stabilization on north end to stream and provide riprap at embankment. On south side will turn channel and provide riprap transition.
- SDW - impacts from culvert and stabilization.
- SDV – fill impact.
- No embedment needed at upstream end of dual 60" culvert. Reduce size of riprap.
- General comment was made to angle outlets to provide a smooth transition from channel changes into natural streams.

Plan Sheet 33

- Existing pond on east end to be drained. Not JS.
- WEL, WEK, WFC, WFD – no impacts
- WFB – total take due to fill
- WFA – impact from culvert extension and stabilization.
- SDS – fill impact. Separate 15" outfall eliminated. 60" outfall pulled back from SDS.
- SDU - fill impact.
- SDT - impact from culvert extension and stabilization.

Plan Sheet 34 – no impacts

Plan Sheet 35 – no impacts

Plan Sheet 36 – no impacts

Plan Sheet 37

- WED (NW corner of sheet) – no impact
- WEJ – temporary impacts for removal of existing roadway and culverts.
- SDR and SDQ – removal of existing culverts will create new open channels.
- SDX – fill and stabilization impact at upper limit.
- SDT – fill and stabilization impacts. Will provide turn and riprap transition at end of channel change.

Plan Sheet 38 – no impacts

Plan Sheet 46

- Existing unnamed pond – to be drained. Not JS. This pond has not been assigned a label.
- WFG – no impact.
- SDR - impact from culvert extension and stabilization. Investigate missing stream line.

Plan Sheet 47

- WEC – impacts from interior bridge bents. Minor impact from stabilization at end of culvert for SDO. Riprap to be provided at end of lateral ditch at east end of bridge.
- SDV – impact from interior bridge bent. Riprap at embankment to be provided at end of lateral ditch on west end of bridge. Discharge on north side and ditch to flared riprap apron.
- SDO - impact from culvert and stabilization. Junction outlet of 24” pipe into 48” pipe for a single discharge into stream. Evaluate based on velocities if a countersunk pad will work instead of an EDB.

Plan Sheet 48

- WFH – do not drain.
- WEY – total take.
- WFI, WEX – no wetland impacts. Temporary buffer impacts for removal of existing roadway fills.
- Existing hazardous spill basin for roadway no longer needed and will be removed.
- Existing unnamed pond to be drained.
- SET – temporary impacts due to removal of existing culvert, which will result in a new open channel.

Plan Sheet 49

- WEW, WET – no impact.
- WEV – total take due to fill.
- WEU – fill impact. Total take.
- SET – impact from culvert and stabilization. Culvert end point has been adjusted to match revised fill slope. Address apparent conflict with bridge abutment.

Plan Sheet 50

- Existing hazardous spill basin to be modified as needed. Storm drainage system will be shifted back to road to accommodate roadway design revision. Jenny Fleming to provide design calculations from Andy McDaniel.
- WFN(2) – no impacts.
- SEG, SHE – no impacts.

Plan Sheet 51 - removed from project

Plan Sheet 52 - removed from project

Plan Sheet 53 - removed from project

Plan Sheet 54

- No wetland impacts on this sheet.
- SEM – JS line not provided in survey file. Fill slope should not impact stream, but temporary surface water impacts are likely.

Plan Sheet 55

- WEE, WEF, WEG – no impacts
- WFF – stabilization impact from outfall.
- SEK - impact from culvert and stabilization.

Plan Sheet 56

- WFE – no impact.
- SEL, SEV - impact from culvert extension and stabilization. Will combine the outfalls.

Plan Sheet 57

- WEZ – total take due to fill.
- SES - impact from culverts and stabilization. Will combine the outfalls. Ditch to stream and provide riprap at embankment.
- SDO – impact from channel change and roadway fill.

Plan Sheet 58

- WEM, WEQ – no impacts.
- SDG – minor buffer impact due to roadway fill.

Plan Sheet 58A – removed from project.

Action Items

1. DB Team to re-evaluate access options and submit the findings to NCDOT and the agencies prior to the Quasi 4C meeting for consideration.
2. R-2828 and the I-5111 project teams to mitigate impacts to existing BMPs at the I-40/US-70 interchange area.
3. DB Team to incorporate plan sheet comments into the project plans and permit drawings.

Anticipated Quasi Concurrence Point 4C Merger Meeting

The Quasi Concurrence Point 4C Merger Meeting date is anticipated to be August 1, 2019.

5/9/12

R-2828 HYDRO REVIEW

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