

MEMO

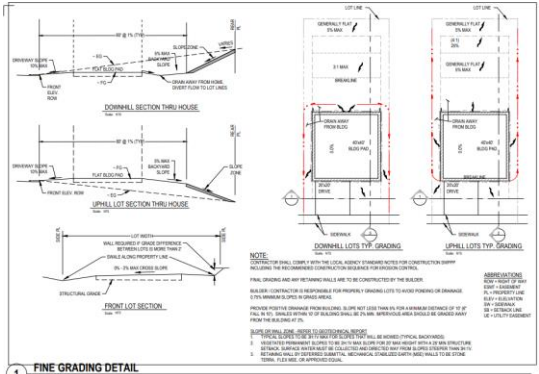
TO: Todd Johnson, Consulting Planner – City of Toledo
FROM: Emily Stephens, P.E.
CC: Mike Johnson, P.E. – Gray & Osborne, Inc.
DATE: January 17, 2023
SUBJECT: Response to Cowlitz Meadows Preliminary Plat Review
 City of Toledo, Lewis County, Washington
 Windsor Project Number 21217

INTRODUCTION

Text if needed

In response to memo from Mike Johnson, P.E.

COMMENTS AND RESPONSES

No.	Comment	Response
1	<p>Page 5: The Stormwater TIR notes that low impact development methods will be used, but the Geotechnical Report included in Appendix B-2 indicates no native infiltration capacity. The report notes that splashblocks will be used, but it is unclear if there will be a sufficient 50-foot flow path from each downspout, with a slope of less than 15 percent; as required per page 717 in the 2019 Manual, given the lot sizes and the presence of steep slopes.</p>	<p>These details are being fine-tuned with the Engineering Plans. Please see the attached, 60% plans that demonstrate the typical lot grading requirements, and splash block details requiring 50-foot minimum flow path from the downspout to the street. Where steep slopes are shown on these grading plans, it's assumed that retaining walls will be constructed, allowing for more flow path outside of steep slopes.</p>  <p>1 FINE GRADING DETAIL SCALE: 1/4" = 1'-0"</p>
2	<p>Page 10: The TIR indicates that the pond's required treatment storage is 77,523 CF with 78,000 CF provided in the pond's design. The preliminary pond cross section provided in</p>	<p>The calculations in both the report and appendices have been updated.</p>



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	Appendix A illustrates a treatment storage of 77,400 CF.	
3	Appendix A: It does not appear that the total impervious surface area for the site sums to 14.3 acres, based on the provided tabulation. Note that the area of the pond that will hold the live storage volume must be included as impervious surface in the model.	All calculations and values have been updated in both the model and report.
4	Appendix A: The report should more clearly demonstrate the assumptions used to determine the site pervious and impervious areas (per-lot roof and driveway coverage, for example), as well as any modeling credits assumed in the analysis. A basin map should be provided illustrating the areas and subbasins evaluated in the pre and post-developed scenarios.	Please see table 1 in the TIR.
5	Appendix C: The modeling in the report includes a 100 percent lawn modeling credit taken for the use of the downspout splashblocks, though a 50-foot flowpath from all splashblocks is critical for the use of this credit. Shorter flowpaths must use a 50 percent lawn/impervious modeling credit, or no credit at all. It is unclear that the appropriate flowpath will be available and that this credit is warranted. Additionally, the Geotechnical Engineer noted that roof runoff should be tied directly into the conveyance system due to high groundwater. Note that if a modeling credit is used, the roof area must be modeled as lawn, not pasture.	The modeling has been updated to show this impervious area credited as lawn and not pasture. See response to comment #1 regarding the 50-foot flow path.
6	Appendix C: The flow control modeling was conducted assuming a modeling credit for the roof areas, while the water quality modeling was conducted assuming all roofs are impervious. It is unclear why a different approach is warranted to size the two parts of the facility. See the previous comment regarding the use of modeling credits for the roof areas.	Modeling has been consolidated into one model only, which utilizes the splash block credits for both flow and water quality requirements.
7	Appendix C: The modeling appears to consider the Point of Compliance to be at the edge of the site, rather than at the discharge from the pond. The Point of Compliance should be considered at the outlet of the pond, which is the point where runoff will encounter the natural downstream drainage course, without the additional bypassed wetland area. This ensures that the flow rates entering the natural drainage	The point of compliance has been moved to the pond outlet. Modeling updated have been made to show compliance with the flow control at this point.



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	area in the wetland will be low enough to prevent erosion of the natural area.	
8	Plans: Based on the preliminary utility layout on Sheet P4 and the Grading Plan on Sheet P5, it is unclear how stormwater from the southern portion of the site (Roads D and E) will reach the proposed pond. Sheet P5 appears to indicate a potential second pond inlet on the south side of the pond, but Sheet P4 only shows a northern pond inlet. Additionally, the Plans do not include the location of the pond outlet.	Grading has been completed to capture more runoff and bring it into the basin. Please see the updated 60% plans as well as the drainage basin map in the updated TIR.
9	Plans: Design of detention basins that are closer than 50 feet to any slope over 15 percent, must be analyzed through a geotechnical analysis to ensure no adverse impact to the slope stability (2019 Manual, page 972). Note that embankments that impound water with a berm height of over 6 feet at the downstream toe, are subject to safety design and review by Ecology (2019 Manual, page 655).	<p>The geotechnical engineer is in the process of running a slope stability analysis. Those results will be included in future submittals.</p> <p>Additionally, we received clarification on the Dam Safety requirements and the impoundment must be 10-acre feet or more to qualify. This pond will not require the safety review. See attached emails correspondence with the DOE.</p>
The following items will need to be addressed in the final Stormwater Report and Engineering Plans		
10	<p>The following must be included with the final stormwater report.</p> <ul style="list-style-type: none"> • Stormwater Site Plan detailing the collection, conveyance, and discharge systems. • Stormwater Pollution Prevention Plan. • Conveyance calculations and wetpool cell sizing calculations. • Design details regarding Minimum Requirement 8 (Wetland Protection), including a wetland hydroperiod analysis. • An offsite analysis. 	Noted. These items will be included in the final stormwater TIR.
11	Page 9: Guidance from the 2019 Manual regarding source control BMPs applicable to all sites or to single-family residential developments should be included in the O&M documentation, per Minimum Requirement 3.	Noted. These items will be included in the final stormwater TIR.
12	Appendix C: The detention pond indicates a 100-year water surface elevation of 270.6 feet, which is more than 1 foot above the riser head. It is recommended that the 100-year water surface elevation be fully contained within the pond berm, and adequate freeboard for this must be indicated on the Final Plans.	Noted. Details to the pond design and grading will be looked at through final engineering.



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13	Appendix C: A wetland hydroperiod analysis must be included in the Final Storm Plan, with input from a critical areas professional.	Noted. We are working through this as we move into 90% plans
14	Appendix D: Note that Figures V-8.10 and V-8.11 of the Manual present the relevant design elements for a combination pond, rather than the separate wetpond and detention pond figures included in this Appendix.	This pond is considered a combined wetpond and detention pond; however, the elements are stacked instead of side by side. The Stormwater Manual does not appear to have any standard details for the stacked approach.
15	Plans: Per the Geotechnical Engineer's recommendations on page 7 and page 13 of the Geotechnical Report (Appendix B-2), permanent cut and fill slopes should not be steeper than 2H:1V. According to the Pond Plan on Sheet P6 and Section C-C on Sheet P7, the pond's southern berm appears to have a slope of 1.7H:1V.	Noted. We are working through this as we move into 90% plans.
16	Plans: Per Ecology's BMP T10.40 (and subsequently BMPs T10.10 and D.1) in the 2019 Manual, there are specific planting requirements for combined detention and wetpool facilities. The Final Plans must incorporate a Landscaping Plan for the proposed stormwater facilities.	Noted. We are working through this as we move into 90% plans.
17	Plans: The Final Plans must include all relevant details for the stormwater system including the pond construction, flow control structure, stabilized overflow route, conveyance structures, outfalls, etc.	Noted. We are working through this as we move into 90% plans.
18	Plans: An appropriate dispersion method must be used to discharge stormwater from the pond into the natural wetland buffer area. The outfall pipe must be tightlined to a suitable discharge location to prevent erosion of the steep slope, with consultation from the Geotechnical Engineer.	Noted. We are working through this as we move into 90% plans.

Contacts

Please contact Emily Stephens of Windsor Engineers at estephens@windsorengineers or 612.351.2331 with any questions.