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TECHNICAL MEMORANDUM

DATE: September 24, 2021
TO: City of Poulsbo
FROM: Rhiannon Sayles, PE, Paul Fendt, PE
SUBJECT: Oslo Bay Apartments - Stormwater Review
CC:
PROJECT NUMBER: 553-2377-121
PROJECT NAME: Task Order Support Services

Parametrix has reviewed the materials provided by the City on September 15, 2021, for the project known as Oslo Bay Apartments, as per the scope of work and agreement between the City and Parametrix. We have reviewed the plans and calculations to evaluate whether the basic elements of the stormwater management and drainage systems will be expected to meet the design guidelines as described by the design engineer. The site was not field reviewed. Key items in the review included:

- Revision Response Matrix dated September 2021 prepared by Oslo Bay Design Team
- Drainage Report dated September 2021 prepared by kpff
- WWHM Modeling files prepared by kpff
- Civil Plans dated September 9, 2021, prepared by kpff
- Hydroperiod Analysis Report dated May 13, 2021, prepared by Clear Creek Solutions
- SR305 Traffic Signal Upgrade Plans prepared by SCJ Alliance
- SR305 and Vetter Road NE Intersection Plans prepared by SCJ Alliance

The following is the status of responses to previous comments followed by a summary of remaining items to be addressed. When the Parametrix summary of the response status is "**The applicant indicates they will provide this information with construction plans.**" it means that we concur that the materials can be provided in the future and at that time a comprehensive review will occur, and that the item is resolved for purposes of this review. Changes may be required during construction plan review due to items the applicant did not chose to address during the land use phase.

Status of Response from 1/15/21 Review Cycle Comments (4/16/21)

1. The predevelopment and post development catchment areas draining to these points must be clarified. *The values for areas draining to the east pond from the drainage report do not match the values draining to the east pond from the hydroperiod analysis.*

   Resolved. The applicant has provided maps that show the predeveloped and post developed area draining to Wetland A on pages 260 and 266 of the drainage report. They also revised Figure 1 of the Hydroperiod Analysis.

2. No calculations found for:
    a. Emergency overflow weir(s)
    b. Dispersion Structures/Diffuser Tees
    c. Cobble for discharge locations

    The applicant indicates that the City agrees with the preliminary overflow weir locations shown on plans and that refined geometry and calculations will be provided with construction plans. Applicant indicates that the dispersion structures were determined with WDFW, the City, local tribal fisheries representatives, and the City's biologist. The outfall will be a non-standard perforated pipe laid perpendicular to the slope with no rock armoring to be detailed on construction plans. As confirmed by the City, there was a preliminary meeting on-site where the location and nature of the outfall dispersion structures was discussed. However, we still need to see proof of concept for outfall dispersion structure, including typical details for the design, sizing, erosion control at the discharge point, attachment to the slope, etc. before we move into the construction document phase.

3. For bypass areas the report shows that the flow control BMP compensates for the uncontrolled bypass area such that the net effect at the point of convergence is the same with or without bypass. However, to bypass area that requires flow control you must also show compliance with the following conditions:
    d. 100-year peak discharge from the bypass area does not exceed 0.4 cfs.
    e. Runoff Treatment requirements applicable to the bypass areas are met.

    This information has still not been provided. Applicant must show in separate modeling (WWHM or MGSFlood) that all the bypass areas do not have a 100-Year peak discharge greater than 0.4 cfs and that runoff treatment is being met for all bypass areas.
    - Applicant has provided the correct information to determine that the 100-year peak discharge is less than 0.4 cfs for the Vetter Road bypass (page 283 of drainage report) but has not provided runoff treatment for this area. Applicant shows BioPod upstream of this area but does not capture this area. Also, BioPod is redundant if treating downstream of detention as indicated in drainage report.
    - For the East and West basin bypass areas the applicant has yet to show that the 0.4 cfs threshold has been met OR that runoff treatment is provided. All the applicant provides in the modeling is enough information to conclude that the proposed BMPs compensate for the bypass flows.

4. Provide WWHM or MGS Flood model for each POC (East and West Basin) to ensure compliance with flow control requirements. Appendix D is illegible and the "eastbasin" WWHM model that was received is empty.

    Resolved. Applicant should consider removing the undisturbed area from the East Basin. It is confusing that tables 6-3 and 6-4 do not add up to table 6-1 or 6-2 for the East Basin.

5. Provide a table that shows the drainage area to each wetland in the pre-developed and post-developed condition to verify hydroperiod analysis.

    Resolved.

6. Correct the discrepancies between the provided WWHM model "westbasin" and tables 6-3, 6-4, 6-5 and 7-1 of the drainage report as highlighted.

    Resolved.

7. If existing stormwater pond is to remain and Road L is decreasing the volume of the existing pond, then calculations must be provided that show the pond is sized correctly for the proposed flows. Where does the pond outfall? Is it designed to infiltrate the 100-year storm?

   Resolved. Applicant showing retaining wall and no disturbance to existing pond. Also showing a revision to the pond outfall.

8. Show crossing utilities and their clearance from the culvert on the stream crossing profile.

   Resolved. Applicant added a sheet to show crossing (C4.35).

9. While a plan was provided for the infiltration gallery serving a portion of the road improvements at and SR 305, there are key issues if this system does not perform as designed, as there are minimal contingency or adjustments that could be made. Notably, the depth of the facility compared to the surrounding area, the upstream west pond possibly contributing groundwater flow, and the generally poor area soil raises some questions. Key site information to assess the facility were not found, including geotechnical information regarding infiltration results and ground water level; underdrain discharge point and connection; and pretreatment if required by CARA (if the soils treatment is insufficient). Please provide this information.

   To resolve this issue the applicant has modeled the West Pond to account for the bypass flows. However, this bypass area (from both Vetter Road and SR305) will never reach the pond. It is not shown how this area will be treated. There is a BioPod shown upstream of this area that would not capture it. Some plans/reports show the old infiltration gallery design, some describe a vault, and some describe a vegetated swale. We need to discuss with the applicant/engineer or obtain additional information to understand the approach and how this is in compliance with the manual. There is insufficient information to review this piece of the design. Note that regardless of whether Vetter Road meets the standards for a high-use site, the entire Project is required to include enhanced treatment and Vetter Road is no exception.

10. All facilities are at least 50’ from the top of any slope greater than 15%.

    Applicant is still not showing 25’ buffer from steep slopes. Instead, they show a 25’ buffer to 30% slopes. The plans must be clear that the 25’ buffer from steep slopes is being maintained.

Status of Response from 4/16/21 Review Cycle Comments

1. Wetland Hydroperiod Analysis cannot be verified. Applicant needs to provide a map showing pre and post development drainage areas to Wetland A. Map must contain drainage areas or an additional table must be provided. Current drainage map in Hydroperiod Analysis Report is blurry and WWHM report in hydroperiod analysis does not match tables 6-1 and 6-3 of the Drainage Report. We are only concerned about the change in flow to Wetland A for this exercise to show compliance with MR #8.

   Resolved.

2. Whether the project meets flow control standards cannot be verified. The MGSFlood Modeling does not match tables 6-1 and 6-3 of the Drainage Report. This must be revised to show compliance with flow control requirements.

   Resolved.

3. The correct buffer from steep slopes is not being provided for the East Pond. Please revise.

   Applicant is still not showing 25' buffer from steep slopes. Instead, they show a 25' buffer to 30% slopes. The plans must be clear that the 25' buffer from steep slopes is being maintained.

4. Calculations must be provided that show the existing stormwater pond to remain in the vicinity of Road L is sized correctly for the proposed flows. Road L is decreasing the volume of the pond.

   Resolved.

5. Applicant needs to provide updated plans and information for the Viking Way and SR 305 intersections.

   To resolve this issue the applicant has modeled the West Pond to account for the bypass flows. However, this bypass area (from both Vetter Road and SR305) will never reach the pond. It is not shown how this area will be treated. There is a BioPod shown upstream of this area that would not capture it. Some plans/reports show the old infiltration gallery design, some describe a vault, and some describe a vegetated swale. We need to discuss with the applicant/engineer or obtain additional information to understand the approach and how this is in compliance with the manual. There is insufficient information to review this piece of the design. Note that regardless of whether Vetter Road meets the standards for a high-use site, the entire Project is required to include enhanced treatment and Vetter Road is no exception.

6. Need preliminary calculations to show feasibility for:
   f. Emergency overflow weir(s)
   g. Dispersion Structures/Diffuser Tees
   h. Cobble for discharge locations

   The applicant indicates that the City agrees with the preliminary overflow weir locations shown on plans and that refined geometry and calculations will be provided with construction plans. Applicant indicates that the dispersion structures were determined with WDFW, the City, local tribal fisheries representatives, and the City's biologist. The outfall will be a non-standard perforated pipe laid perpendicular to the slope with no rock armoring to be detailed on construction plans. As confirmed by the City, there was a preliminary meeting on-site where the location and nature of the outfall dispersion structures was discussed. However, we still need to see proof of concept for outfall dispersion structure, including typical details for the design, sizing, erosion control at the discharge point, attachment to the slope, etc. before we move into the construction document phase.

7. For bypass areas the report shows that the flow control BMP compensates for the uncontrolled bypass area such that the net effect at the point of convergence is the same with or without bypass. However, to bypass area that requires flow control you must also show compliance with the following conditions:
   i. 100-year peak discharge from the bypass area does not exceed 0.4 cfs.
   j. Runoff Treatment requirements applicable to the bypass areas are met.

This information has still not been provided. Applicant must show in separate modeling (WWHM or MGSFlood) that all the bypass areas do not have a 100-Year peak discharge greater than 0.4 cfs and that runoff treatment is being met for all bypass areas.

- Applicant has provided the correct information to determine that the 100-year peak discharge is less than 0.4 cfs for the Vetter Road bypass (page 283 of drainage report) but has not provided runoff treatment for this area. Applicant shows BioPod upstream of this area but does not capture this area. Also, BioPod is redundant if treating downstream of detention as indicated in drainage report.
- For the East and West basin bypass areas the applicant has yet to show that the 0.4 cfs threshold has been met OR that runoff treatment is provided. All the applicant provides in the modeling is enough information to conclude that the proposed BMPs compensate for the bypass flows.

Status of Response from 6/3/21 East Pond Review Cycle Comments

The following should be provided:

1. A minimum stability berm width of 6-feet at the top elevation of the facility.

   Resolved

2. A minimum 12-foot access to any structure (including emergency overflow) or minimum equipment access width for maintenance to all sides of the facility.

   Resolved.

3. A 50-foot setback of the toe of the facility berm from a 15 percent slope.

   Applicant is still not showing 25' buffer from steep slopes. Instead, they show a 25' buffer to 30% slopes. The plans must be clear that the 25' buffer from steep slopes is being maintained.

4. A geotechnical analysis to assess stability of the facility in operation and assess seepage on slopes greater than 40 percent within 200-feet of the toe of the facility.

   The geotechnical analysis provided as an appendix to the drainage report is not shown for the latest iteration of the east pond facility. The stability analysis must be completed for the current design. The stormwater review responsibility is to require this analysis. The efficacy of this report should be confirmed by the Geotechnical reviewer as it is not in our expertise.

5. Suitable protection of the drainageway and slope downstream of the emergency overflow or an alternate strategy to include an emergency overflow structure.

   The applicant indicates they will provide this information with construction plans. We concur this is appropriate with this project element. At that time the emergency spillway must meet all requirements of the SWMMWW Volume V Section 12 BMP D.1.

Thank you for the opportunity to assist you on this project review. Please let us know if you have any questions.