

Horsley Witten Group

Sustainable Environmental Solutions

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August 30, 2024

Ms. Jacki Byerley, Town Planner
Robert Douglas, Conservation Director
36 Bartlett Street
Andover, MA 01810

Ref: Third Peer Review of the Stormwater Design
P&G Andover Manufacturing Center
30 Burt Road, Andover, MA
MassDEP File No. 090-1433

Dear Ms. Byerley, Mr. Douglas, and Board Members:

The Horsley Witten Group, Inc. (HW) is pleased to provide the Andover Planning Board and Conservation Commission with this letter report summarizing our third peer review of the Stormwater Management for the proposed building additions at the P&G Andover Manufacturing Center at 30 Burt Road in Andover, Massachusetts. The plans were prepared for The Gillette Company LLC (Applicant) by Nitsch Engineering. The project includes the construction of a 201,684 square foot (sf) building addition. The Applicant has applied for a Major Non-Residential Project Special Permit and a Special Permit to Reduce the Number of Parking Spaces required under the Andover Zoning Bylaw. The existing site includes catch basins and concrete swales that discharge to the adjacent wetland resource areas. The proposed stormwater management includes deep sump catch basins, water quality units, rain guardians, and four subsurface infiltration systems. The proposed work is within the jurisdiction of the Andover Conservation Commission.

The following additional documents and plans were received by HW in response to our second peer review letter dated August 8, 2024:

- Letter to Andover Planning Board, regarding P&G Andover Manufacturing Center Enhancement Project, prepared by Nitsch Engineering, dated August 27, 2024 (8 pages);
- Outlet Protection Sizing calculations, prepared by Nitsch Engineering, dated August 27, 2024 (1 page);
- Photo of 48-inch outlet (1 page);
- Long-Term Pollution Prevention Plan and Stormwater Operation and Maintenance Plan, prepared by Nitsch Engineering, revised through August 27, 2024 (43 pages); and
- Plans for the P&G Andover Manufacturing Center Enhancement Project, 30 Burt Road, Andover, MA 01810, prepared by Nitsch Engineering, revised through August 27, 2024, including:
 - Site Utility Plan C-501
 - Site Utility Plan C-502
 - Site Utility Plan C-503

- Civil Details IV C-603
- Civil Details V C-604

Stormwater Review

HW has reviewed the documents listed above and has the following comments concerning the stormwater management design in accordance with the Massachusetts Stormwater Handbook (MSH) dated February 2008, and the Town of Andover Stormwater Management and Erosion Control Bylaw and Regulations amended May 11, 2021 (Stormwater Bylaw).

In accordance with Section VI. B. of the Andover Stormwater Bylaw, the Stormwater Management Permit and Narrative provided by an Applicant shall contain sufficient information to verify compliance with the local Stormwater Bylaw and the MassDEP Stormwater Management Handbook (MSH). Below are comments relating to the standards as presented in the MSH. Where the more stringent requirements of the Andover Stormwater Regulations are applicable, those comments are included.

The manufacturing facility expansion is considered a mix of a new development and redevelopment and intends to fully comply with the MassDEP Stormwater Management Standards. The existing 30 Burt Road property is approximately 154.5 acres. The limit of work for the project site encompasses 15.17 acres. The project site includes 9.52 acres of impervious cover under existing conditions and 12.55 acres under proposed conditions for an increase of 3.03 acres (20%).

The following comments correlate with our second peer review letter dated August 8, 2024. Follow up comments are provided in **bold underlined font** were applicable.

1. *Standard 1 states that no new stormwater conveyances (e.g. outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.*
 - a. The Applicant has evaluated two design points that will be associated with the proposed building expansion and site reconfiguration.
 - 1) Design Point 1 (DP-1) is defined as the western wetland, marked with flag series WF#12. The existing outfalls include two 30-inch corrugated metal pipes (CMP), one 48-inch reinforced concrete pipe (RCP), and several concrete swales. One 30-CMP will be replaced and a stone apron added to the outfall, rain guardians are proposed at the concrete swales to provide water quality and reduce erosion to the wetland, the other 30-inch CMP and 48-inch RCP will be maintained. The Applicant has proposed three subsurface infiltration systems (Ponds 1P, 2P, and 3P) to manage the additional roof runoff and most of the proposed parking areas within the watershed. HW recommends that the Applicant provide the riprap apron sizing calculations for the proposed 30-inch CMP. HW further recommends that the Applicant determine if the existing 48-inch RCP outfall is causing erosion in the wetland and consider providing a riprap apron if appropriate.

August 8, 2024: HW was not able to locate the sizing calculations for the riprap apron at the 30-inch CMP. The Applicant has provided a reasonable explanation on why a riprap apron is not appropriate at the outfall of the 48-culvert. However, it did not note whether there is existing erosion occurring at this outfall which if there is, may be worth a conversation with the

Conservation Commission. HW recommends that the Applicant provide additional information in response to comment 1.a.1).

August 30, 2024: The Applicant has provided the riprap apron sizing calculations for the 30-inch CMP outfall. The Applicant has also provided a photo of the 48-inch outfall confirming that there is no erosion currently occurring at this outlet. No further action requested.

- 2) Design Point 2 (DP-2) is defined as the northeast wetland, marked with flag series WF#11. The discharge is an existing 15-inch RCP proposed to be maintained. The Applicant has proposed a subsurface infiltration system (Pond 4P) to manage the increased impervious area. As modeled the subsurface system fully retains the 100-year storm event. However, the Applicant has divided the area into subcatchment areas PR-6 and PR-9. In the HydroCAD model PR-6 is directed through subsurface infiltration system #4. It appears that PR-9 should also be directed into Pond 4P. A small section of Gillette Way appears to flow towards the east but most of surface area within PR-6 and PR-9 is directed into catch basins which are piped into the subsurface infiltration system #4. HW recommends that the Applicant review the catchment areas and the HydroCAD model for DP-2.

August 8, 2024: The Applicant has clarified the direction that PR-9 flows to. HW has no further comment.

2. *Standard 2 requires that stormwater management systems shall be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates.*
 - a. The Applicant has provided a HydroCAD model for the existing and proposed stormwater management to determine the peak rate attenuation and runoff volume for the 2-year, 10-year, 25-year, and 100-year storm events. HW has confirmed the subcatchment areas, the curve numbers, time of concentration flow paths, and the precipitation depths. The values utilized by the Applicant appear reasonable.

August 8, 2024: HW has no further comment.

- b. The Applicant has included a detail for Outlet Control Structure (OCS) 211 for Subsurface System #2 on Sheet C-603. There is one 17-inch vertical orifice shown, the HydroCAD model lists three orifices. HW recommends that the Applicant review the details and the HydroCAD model for consistency.

August 8, 2024: The Applicant has adjusted the size of Subsurface System #2 following additional soil testing. The OCS 211 Detail on Sheet C-603 has been revised. However, the detail and the HydroCAD model differ slightly. The plan and detail list the weirs at elevations 94.25 and 94.75 while the HydroCAD model lists the weirs at elevations 93.75 and 94.25. HW recommends that the Applicant adjust the plans or the HydroCAD model for consistency.

August 30, 2024: The Applicant has revised the weir elevations on Sheet C-502 and C-603 to match the HydroCAD model. No further action requested.

- c. The Applicant has included a detail for Outlet Control Structure (OCS) 234 for Subsurface System #3 on Sheet C-604. There is one 36 inch wide by 10-inch-high vertical orifice shown, the HydroCAD model lists two orifices. HW recommends that the Applicant review the details and the HydroCAD model for consistency.

August 8, 2024: The Applicant has adjusted the size of Subsurface System #3 following additional soil testing. The OCS 234 Detail on Sheet C-604 has been revised. However, the detail and the HydroCAD model differ slightly. The plan and detail call for an 8.0-foot-long weir at elevation 95.25 while the HydroCAD model lists a 6.0-foot-long weir at elevation 95.25. HW recommends that the Applicant adjust the plans or the HydroCAD model for consistency.

August 30, 2024: The Applicant has revised the weir length on Sheet C-503 and C-604 to match the HydroCAD model. No further action requested.

- d. The Applicant has included a detail for OCS 253 for Subsurface System #4 on Sheet C-604. There is one 10-inch vertical orifice shown, the HydroCAD model lists three orifices. Furthermore, the top of the 8-foot weir is called out on the detail at elevation 96.00 and a 48-inch outlet pipe is shown while the HydroCAD model lists a 5-foot weir at elevation 94.25 and a 12-inch outlet pipe. HW recommends that the Applicant review the details and the HydroCAD model for consistency.

August 8, 2024: The Applicant has adjusted the size of Subsurface System #4 following additional soil testing. The OCS 253 Detail on Sheet C-604 has been revised. However, the detail appears to indicate a steel plate weir. A weir was not included in the HydroCAD model. HW recommends that the Applicant clarify the point of the steel plate on detail for OCS 253.

August 30, 2024: The Applicant has eliminated the weir on Sheet C-604 to match the HydroCAD model. No further action requested.

- e. HW recommends that the installation of the infiltration systems are witnessed by a professional engineer. The Town may choose to make this a condition of approval.

August 8, 2024: Suggestion Condition of Approval.

- f. The Applicant has provided a table within the Stormwater Report that compares the Peak Rates of Runoff under existing and proposed conditions for DP1 and DP2. Also, a second table that compares the Volumes of Runoff in accordance with Section VI. B. e. (1) of the Andover Stormwater Bylaw. HW recommends that the Applicant update the tables as needed if any changes to the HydroCAD model are necessary.

August 8, 2024: HW recommends that the Applicant update the tables as needed if any changes to the HydroCAD model are necessary.

August 30, 2024: The Applicant has revised the drawings to match the HydroCAD model. No further action requested.

- g. **August 8, 2024: The Applicant has adjusted the size of Subsurface System #1 following additional soil testing. The OCS 208 Detail on Sheet C-603 has been revised. The detail indicates elevation 93.0 as the bottom of the OCS and the 18-inch outlet pipe. The HydroCAD model matches the elevation of the primary outlet at 93.0. However, the plan view on Sheet C-502 indicates the 18-inch outlet at**

elevation 91.90. HW recommends that the Applicant adjust the plan, detail, and/or the HydroCAD model for consistency.

August 30, 2024: The Applicant appears to have missed this minor error on the drawings. HW recommends that the Applicant raise the outlet elevation of OCS 208 on Sheet C-603 to 93.0.

3. *Standard 3 requires that the annual recharge from post-development shall approximate annual recharge from pre-development conditions.*

- a. The Applicant has conducted several test pits throughout the site. TP-105 and TP-106 are located within the footprint or adjacent to Subsurface System #3. The bottom of TP-105 is elevation 91 and the bottom of Pond 3 is elevation 92. The Applicant has called out groundwater at elevation 90 on Sheet C-603. HW recommends that the Applicant confirm that the Estimated Seasonal High Ground Water (ESHGW) elevation is at least 2 feet below the bottom of the system.

August 8, 2024: The Applicant has modified the design of Subsurface System #3 from 156 Retain-It Conc Infiltration Chambers to 100 Retain Conc Detention Chambers that are lined. The Applicant has eliminated the exfiltration in Subsurface System #3. HW has no further comment.

- b. Test pits TP-101 and TP-102 are located within the footprint of Subsurface System #4. The bottom of the test pits is approximately elevation 92. No water was observed and widely graded gravel with sand was noted in the C layer. HW concurs with the exfiltration rate used of 2.41 inches per hour (iph). However, the bottom of the system is proposed at 91.25, below the observed bottom of the test pit. HW recommends that the Applicant confirm that the ESHGW elevation is at least 2 feet below the bottom of the system.

August 8, 2024: The Applicant has conducted additional soil testing, which indicates that the ESHGW in the footprint of Subsurface System #4 is below elevation 85.0 and the bottom of the system is set at elevation 90.25. The Applicant has provided greater than 4 feet of separation. HW has no further comment.

- c. HW was not able to confirm the provided recharge and recommends that the Applicant include the HydroCAD stage storage calculation print out.

August 8, 2024: The Applicant has provided the requested stage storage print out from the HydroCAD model to confirm the recharge volume provided. HW has no further comment.

- d. The Applicant provided a mounding analysis for Subsurface Infiltration System #3. HW recommends that the Applicant provide documentation for the various variables used in the equation.

August 8, 2024: The Applicant has modified Subsurface System #3 to be detention only and is proposing to line the bottom of the system. HW has no further comment.

4. *Standard 4 requires that the stormwater system be designed to remove 80% Total Suspended Solids (TSS) and to treat 1.0-inch of volume from the impervious area for water quality.*

- a. HW recommends that the Applicant include the closed drainage system calculations. Appendix D references the Closed Drainage System Design. However, the calculations have not been included in the document received by HW.

August 8, 2024: The Applicant has provided the requested calculations. HW finds the values to be reasonable and has no further comment.

- b. HW recommends that the Applicant provide the water quality volume calculations to confirm it has provided 1.0 inch of water quality volume over the impervious area.

August 8, 2024: The Applicant has provided the requested calculations. HW finds the values to be reasonable and has no further comment

- c. HW recommends that the Applicant clarify the water quality units proposed. There is a detail on Sheet C-604. However, the size is not listed.

August 8, 2024: The Applicant has revised the water quality units and has provided the sizing calculations. The details on Sheet C-604 do not include the model information as suggested by the Applicant in its response. HW recommends that the Applicant clarify the models chosen.

August 30, 2024: The Applicant has included the model number on Sheet C-604. No further action requested.

- d. HW notes that the Applicant has provided documentation from a third-party reviewer in Appendix I of the Stormwater Report that supports the TSS removal rate credited to the proposed Rain Guardians.

August 8, 2024: HW has no further comment.

5. *Standard 5 is related to projects with a Land Use of Higher Potential Pollutant Loads (LUHPPL).*

- a. HW recommends that the Applicant confirm that the vehicle trips are less than 1,000 per day. In accordance with the MSH Volume 1, Chapter 1, page 12, parking lots with high-intensity-uses (1000 vehicle trips per day or more) are considered LUHPPLs.

August 8, 2024: The Applicant has confirmed that it has estimated the vehicle trips to be less than 1,000 vehicle trips per day. HW has no further comment.

6. *Standard 6 is related to projects with stormwater discharging into a critical area, a Zone II or an Interim Wellhead Protection Area of a public water supply.*

- a. The site does not discharge to a critical area, a Zone II or an Interim Wellhead Protection Area of a public water supply. Therefore, Standard 6 is not applicable.

August 8, 2024: HW has no further comment.

7. *Standard 7 is related to projects considered Redevelopment. A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural best management practice requirements of Standards 4, 5, and 6. Existing stormwater discharges shall comply with Standard 1 only to the maximum extent practicable. A redevelopment project shall also comply with all other requirements of the Stormwater Management Standards and improve existing conditions.*

- a. The Applicant is proposing a mixture of a new development and redevelopment with an increase of 3.23 acres of impervious cover. The Applicant intends to meet all requirements of the Stormwater Management Standards and does not seek relief under this standard. HW notes that the Applicant has included Rain Guardians to provide TSS removal for runoff coming from a reconfigured parking area. The discharge from subcatchment PR-3 does not meet the required 80% TSS removal. However, it is an area being redeveloped within the site discharging to existing outfalls.

August 8, 2024: HW has no further comment.

8. *Standard 8 requires a plan to control construction related impacts including erosion, sedimentation or other pollutant sources.*

- a. The Applicant has provided Erosion and Sedimentation Control Plans and Details within the plan set that includes 12-inch wattles, perimeter protection, stabilized construction entrance, inlet protection, seeding, dust control, mulching, and netting. The proposed details and notes appear reasonable.

August 8, 2024: HW has no further comment.

- b. The proposed project requires land disturbance of greater than 1 acre. Therefore, a Stormwater Pollution Prevention Plan (SWPPP) per the EPA NPDES Construction General Permit will be required. The Applicant has included a draft SWPPP in Appendix F of the Stormwater Report. HW recommends that the Applicant provide a final copy of the SWPPP signed by the contractor to the Town a minimum of 14 days prior to land disturbance. The Planning Board may choose to require receipt of the SWPPP as a condition of approval.

August 8, 2024: Suggested Condition of Approval.

9. *Standard 9 requires a Long-Term Operation and Maintenance (O & M) Plan to be provided.*

- a. The Applicant has provided a Long-Term Pollution Prevention Plan and Stormwater O&M Plan in Appendix E of the Stormwater Report. As presented it can be easily separated to be standalone document. HW recommends that the O&M Plan be signed by the property owner.

August 8, 2024: Suggested Condition of Approval.

- b. HW recommends that the Applicant include a maintenance log listing each of the stormwater practices individually within the O&M Plan.

August 8, 2024: The Applicant has included the maintenance log as suggested. HW has no further comment.

- c. HW recommends that the Applicant include a simple plan that is drawn to scale and shows the location of all stormwater practices to be inspected and maintained. The plan should also include locations for snow storage. HW further recommends that if feasible the O&M Plan encompass the entire P&G campus and not just the locations included in the Stormwater Report.

August 8, 2024: The Applicant has noted that a simple plan was included with the O&M Plan. HW was not able to locate it in the documentation received. HW request that the Applicant provide the plan as previously suggested.

August 30, 2024: The Applicant has provided the requested sketch in the O&M Plan. No further action requested.

10. *Standard 10 requires an Illicit Discharge Compliance Statement to be provided.*

- a. The Applicant has submitted an Illicit Discharge Compliance Statement signed by the Owner's Representative. HW recommends that the Planning Board request receipt of an Illicit Discharge statement signed by the property owner.

August 8, 2024: Suggested Condition of Approval.

Conclusions

HW is satisfied that the Applicant has adequately addressed our comments. Please contact Janet Bernardo at 857-263-8193 or at jbernardo@horsleywitten.com if you have any questions.

Sincerely,

HORSLEY WITTEN GROUP, INC.



Janet Carter Bernardo, P.E.
Principal