



Carroll Engineering Corporation

September 30, 2010

Timothy J. Tieperman, Township Manager
Warrington Township
852 Easton Road
Warrington, PA 18976

Subject: TEVA Pharmaceuticals – Revised Preliminary Plan (TMPs 50-4-85, -89, -90, -92, -94 & -96)

Dear Mr. Tieperman:

We have reviewed the revised preliminary plans of subdivision and land development for the above referenced project and offer the following comments for consideration by the Warrington Township Board of Supervisors:

I. SUBMISSION

- A. Preliminary Subdivision & Land Development Plans, as prepared by T&M Associates, consisting of forty-two (42) sheets dated May 11, 2010 and last revised September 3, 2010.
- B. Erosion and Sediment Control Narrative, as prepared by T&M Associates, dated August 12, 2010.
- C. Stormwater Management Narrative and Calculations, as prepared by T&M Associates, dated May 11, 2010 and last revised September 2, 2010.
- D. Environmental Impact Assessment Report, as prepared T&M Associates (and other consultants), dated May 11, 2010 and last revised September 3, 2010.

Today's Commitment To Tomorrow's Challenges

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II. GENERAL

The site is located between Limekiln Pike (S.R. 0152), County Line Road (S.R. 2038), Lower State Road (S.R. 3003), Pickertown Road and Mill Creek Road. The six (6) parcels which are owned by Eureka Stone Quarry, Inc. are located within the Q- Quarry Zoning District, the C-1 Commercial Zoning District, the PRD Zoning District, and the PI-1 & PI-2 Planned Industrial Districts. The applicant proposed to subdivide and/or consolidate the existing tax parcels to create four (4) new lots/parcels. The proposed land development will be located on Lot 1 of the subdivision plan and be owned by TEVA Pharmaceuticals, USA. The proposed land development would consist of approximately 138 acres and proposes the construction of a 913,696 square foot distribution center, a 596,640 distribution center, associated access drives, parking and loading areas. The plans also show a proposed spur for Limekiln Pike to be designed by PennDOT which will intersect Lower State Road. Truck access to the site will be taken from Lower State Road and other vehicles will access the site from the proposed Limekiln Pike Spur. Several stormwater management facilities are proposed to address stormwater runoff concerns. The proposed land development is to be served by public water and sewer.

III. REVIEW COMMENTS

A. Zoning Ordinance Comments

This application satisfies all requirements and provisions of the current Warrington Township Zoning Ordinance, with the following exceptions:

1. Section 1306.1 –The buffer yard requirements section of the zoning requirements table on Sheet 3 for the PI-2 zoning district should be revised to state that a 30’ buffer is required along each side and rear property line. The table states that the buffer is required only when adjacent to a residential use. In addition, buffer plantings should be added to the side yard buffer area along the common property line on the northern side of tax parcel 50-4-88 to be in compliance.
2. Section 2319.2.B – Fences in side and rear yards of wood, metal or masonry are not to exceed a height of eight (8) feet. A detail of the proposed fence not exceeding the maximum allowable height should be added to the plans and the fence should be labeled as to material and height on all plans.

B. Subdivision and Land Development Ordinance Waivers Requested

The applicant has requested a waiver from the requirements and provisions of the following sections of the current Warrington Township Subdivision and Land Development Ordinance:

1. Section 304.2, 311.1 & 312.2 – Requesting a partial waiver from the requirement to provide curb, sidewalk and widen existing roads along a portion of the property frontage.
2. Section 319.2.D.(8) – To allow basins to be deeper than the maximum allowable five (5) feet.
3. Section 319.2.D.(12) – To allow basins to be graded steeper than the five (5) horizontal to one (1) vertical maximum allowable slope.
4. Section 319.2.D.(14) – To allow basin bottom slopes of less than two (2) percent.

C. Subdivision and Land Development Ordinance Comments

This application satisfies all requirements and provisions of the current Warrington Township Subdivision and Land Development Ordinance, with the following exceptions:

1. Section 303.10 – The plans show a proposed Spur for Limekiln Pike (S.R. 0152) which is a state highway. All proposed roadway improvements associated with the spur should be clearly shown, labeled and dimensioned on the plans. The applicant will have to provide documentation from PennDOT confirming the proposed Spur design shown on the plans is in accordance with the PennDOT design plans.
2. Section 304.2 – The plans show the proposed Spur for Limekiln Pike (S.R. 0152) having a proposed width of thirty (30) feet. However, Limekiln Pike is classified as a collector street and the minimum width for collector streets with curb is thirty-six (36) feet.
3. Section 306.1 – The minimum radius at the centerline for curves on collector streets shall be five hundred (500) feet. The centerline radius for the Limekiln Pike Spur should be labeled on the site plans to confirm compliance.
4. Section 306.2.A – Street superelevations shall only be required on collector and arterial streets. The Limekiln Pike Spur grading should reflect the required superelevation on horizontal curves per PennDOT Design Manual 2.
5. Section 306.3 – The sight distance shown on the Limekiln Pike Spur looking right from the access drive lists a clear sight distance of 650' ±. However, the sight distance line hits the proposed road grade at station 20+00 prohibiting a clear sight beyond this point. In addition, the profile should include the sight distance looking left from the access drive.

6. Section 306.5 – Vertical curves shall be a minimum length of one hundred (100) feet on collector streets for every one (1) percent change in grade. All but one of the vertical curves shown on the Limekiln Pike Spur profile does not comply with this requirement and should be revised.
7. Section 306.11 – A normal crown shall be provided on all streets, not superelevated, of five-sixteenths (5/16) inch per foot straight slope extending from the edge of pavement to centerline. The road cross section for the Limekiln Pike Spur should be revised to accordingly.
8. Section 306.14 – The plans should be revised to show a minimum curb radius of thirty (30) feet for the Limekiln Pike Spur.
9. Section 311.3 – There shall be a minimum four (4) foot planting strip between the curb and sidewalk. This planting strip should be labeled and dimensioned in the plan views and in the road sections on Sheet 37.
10. Section 311.5 – At corners and pedestrian crossing points, sidewalks shall be extended to the curblines with an adequate apron area for anticipated pedestrian traffic. Handicap ramps meeting ADA requirements are to be shown and labeled at all intersections and pedestrian crossings.
11. Section 317.4 – Where a subdivision or land development is traversed by a watercourse or drainageway, there shall be provided a drainage easement or right-of-way conforming substantially with the line of such watercourse and of such width as will be adequate to preserve natural drainage but not less than twenty (20) feet, or as may be required or directed by the Pennsylvania Department of Environmental Resources.
12. Section 317.7 – Metes and bounds should be provided on all record plans for all proposed utility and sewage pumping station easements. In addition, the record plan should indicate who the proposed easements are in favor of.
13. Section 318.2 – We have the following comments concerning the proposed site grading:
 - a. Top and bottom of wall elevations should be provided for all proposed retaining walls.
 - b. The slope between the high points adjacent to Inlets 156 thru 164 and Inlets 562 thru 567 and the inlet grate is less than 1%.

14. Section 319.2.C.(2) – All inlets must be designed to accommodate the fifty (50) year peak flow rate. The design capacity of all four (4) foot special inlets shall be five and one-half (5.5) cubic feet per second and all six (6) foot special inlets shall be six and one-half (6.5) cubic feet per second. As there are several inlets which have large drainage areas and high runoff coefficients, calculations (in addition to the one-hundred (100) year peak flow rate calculations in the stormwater report) should be provided to show compliance with this section.
15. Section 319.2.C.(4) – All storm drain pipes shall be designed to maintain a minimum grade of one-half (1/2) percent. The slope of the storm pipe between Inlets 500 & 501 is less than the minimum one-half (1/2) percent required.
16. Section 319.2.C.(7) – At all inlets or manholes the minimum allowable headwater depth shall be one (1) foot below the top of the inlet grate or the manhole cover. The top of grate elevations should be added to the storm sewer design calculations to confirm compliance.
17. Section 319.2.D.(8) & (12) – Requires that the maximum depth of water in a detention basin shall be five (5) feet and that the maximum slope of basin embankments shall be five (5) horizontal to one (1) vertical. The applicant is requesting a waiver from these ordinance requirements. Steeper embankment slopes and a deeper basin depth would make it difficult to access the basin bottom for maintenance purposes. The plans show an access path for Basin 1 only. The plans should show an access path from top of berm to basin bottom for each proposed basin. The access path shall be of sufficient width and slope to allow maintenance equipment to access the basin bottom.
18. Section 319.2.D.(10) – Antiseep collars shall be installed around the principal pipe barrel within the normal saturation zone of the detention basin berms at a maximum spacing of fourteen (14) times the minimum projection of the collar measured perpendicular to the pipe. Note 5 in the antiseep collar detail on Sheet 40 states that the maximum collar spacing through the berm is forty (40) feet. This note should be revised and the proposed distance between collars for each basin should be provided in the basin sections.
19. Section 319.2.D.(16).(g) – A detail of the trash rack and antivortex device is to be provided.
20. Section 319.2.D.(17).(b) – Requires landscaping around the perimeter or berm of the basin. The landscaping shall include both evergreen material and deciduous material in the minimum sizes outlined in Section 326(1).

21. Section 328.1.E – The plans state that the wetlands and water courses depicted on the plans were delineated by CMX in February 2010 and Del-Val Environmental Consultants in June 2010. The boundary of some of the wetland areas shown on the plans differ from previously submitted plans dated May 11, 2010. It appears that the investigation performed by Del-Val Environmental Consultants resulted in the revised wetland boundary locations. A copy of all reports concerning environmentally sensitive areas related to this site should be submitted to confirm plan locations. In addition, a wetland report should be sent to DEP and the Army Corps of Engineers to determine if a jurisdictional determination is required. We should be copied on all correspondence.
22. Section 328.2.B – All required permits will have to be acquired for the proposed disturbance to the Type II stream for the construction of access drives and the emergency access lane. We suggest more detail be provided on the plan addressing how the stream encroachment, including mitigation or proposed stream modifications, will be handled in order to obtain DEP approval.
23. Section 328.2.C(1) & (2) – A transition area shall be provided along all type 1 streams and waterbodies, and around all wetlands. In general, an average width of fifty (50) feet beyond the limit of the resource protected land shall be considered environmentally sensitive. An averaging plan will be permitted if the transition area, as averaged, maintains the habitat, flood protection, and water purification functions of the sensitive land areas. Proposed grading and improvements for the Limekiln Pike Spur are located within wetland transition areas. These disturbed transition areas are shown on Sheet 12 however, a revised transition area showing how these disturbed areas are to be mitigated with area matching the disturbed area has not been provided. The mitigated area equivalent to the disturbed area for the Type 1 stream adjacent to Distribution Center 1 must also be provided. In addition, one of the wetland areas and the Type 1 stream list a provided average setback distance. It should be clarified how these setbacks were established and their extent.
24. Section 406.1 – Monuments shall be placed at each change in direction of boundary; two (2) to be placed at each corner of each street intersection and one (1) on both sides of each street at angle points and at the beginning and end of curves; utility easements shall be monumented at their beginning and at their end. Survey note 4 on Sheet 2 and note 22 on Sheet 2 state that monuments will be set as shown on the plans however; proposed monument locations are not shown on the plans.
25. Section 504.5.A(1) – The plans shall be drawn at a scale of one (1) inch equals forty (40) feet, fifty (50) feet or one-hundred (100) feet. Several of the plans do not comply with this requirement. The symbols and text in the plan view on some of the sheets are not legible.

26. Section 504.5.A(7) – The plans shall be a clear legible white paper print. The text sizes on several sheets are inconsistent and some of the text is entirely too small to be legible. All of the plan sheets should have consistent text sizes that are legible. In addition, several of the plan sheets also have incomplete text and text overlaps that should be eliminated for clarity.
27. Section 504.5.A(8) – Plans shall be prepared on sheets no larger than twenty-four (24) inches by thirty-six (36) inches, and all lettering shall be drawn as to be legible if the plan should be reduced to one-half (1/2) the size. The plan size exceeds the required size and the text for notes, signature blocks, etc. is shown too small to be legible if the plans were reduced.
28. Section 504.5.C(2) – The legal right-of-way should be labeled (including width) and the width of all existing streets should be provided on all site plans. In addition, the plans show an existing driveway for the quarry located on proposed Lot 1 being to be developed by TEVA. The intended disposition of this driveway should be provided on the plans. It should also be determined if an access easement will be needed if the driveway is to remain in use by the quarry.
29. Section 504.5.C(3) – The location of all existing monuments with reference noting material is to be provided. The scale of the existing features plan makes finding the monument symbols and text very difficult.
30. Section 504.5.C(5) – The bench mark and elevation used for the topography has been provided as requested. However, the plans state that the boundary and topographic information was provided by ASH Associates, Inc. Additional information such as date of survey and boundary and topographic plan information should be provided.
31. Section 504.5.D(1) – The width, extent and tie in to existing roadway of all proposed roadway improvements for the existing streets are to be provided. The plans show what appear to be improvements along Lower State Road but end abruptly without tying into existing roadway features. In addition, a portion of the proposed paving, curb and sidewalk for the Limekiln Pike Spur is shown outside of the ultimate right-of-way adjacent to the access drive.
32. Section 504.5.D(7) – The Tract Area Summary table on Sheet 1A lists the same site acreage for both the gross site area and the net site area. The net site area should not include any ultimate right-of-way areas show on the plan. The Parcel Data table lists the individual tax parcel areas with a plus/minus symbol (\pm) after the acreage indicating approximate acreages. The actual parcel areas are to be listed on the plans. In addition, the combined gross and net areas listed for each proposed lot does not agree with the tract area listed in the Parcel Data and Tract Area Summary tables.

33. Section 504.5.D(8) – The size of all storm drains, culverts and appurtenances thereof shall be provided. The maximum size of concrete pipe that can fit in a Standard PennDOT inlet box is thirty six (36) inches in diameter. As a good number of proposed storm sewer pipes exceed thirty six (36) inches in diameter the plans should specify the type and size of storm structure proposed for each location.

In addition, storm sewer facilities should be shown for the Limekiln spur road.

D. Stormwater Management Ordinance Comments

This application satisfies all requirements and provisions of the current Warrington Township Stormwater Management Ordinance, with the following exceptions:

1. Section 121.7 – Access to stormwater facilities shall be provided for maintenance and operation. This access shall be a cleared access that is, when possible, approximately twenty (20) feet wide. The plans show an access path to Stormwater management Facility 1 only, however, the access path is not the required twenty (20) feet in width. The plans should be revised to show individual access paths at the required width and at a reasonable slope to the bottom of each proposed stormwater management facility. In addition, a curb depression should be provided to the access path where applicable.
2. Section 122 & 124.3.B – Post-development runoff volume generated from the one (1) year, twenty-four (24) hour design storm must be controlled so that it is released over a minimum of twenty-four (24) hours. The narrative in the stormwater report states that “The 1-year storm from Basin 5’s entire tributary drainage shed (including Basin 4) is released over 25.8 hours”, however the Basin 5 routing calculations do not extend far enough to confirm this.
3. Section 133.B.(1).(a) – The stormwater management plan shall be drawn at a scale of one (1) inch equals one hundred (100) feet or greater. (1”=50’, etc.)
4. Section 133.B.(2).(g) – The stormwater management plan shall bear a certificate, signed and sealed by an individual registered in the Commonwealth of Pennsylvania and qualified to perform such duties, indicating compliance with the provisions of this Part.

E. Water & Sewer

1. The existing sanitary sewer facilities, including the force main and gravity sewer, along Lower State Road should be added to the plans.
2. Our office will coordinate with the applicant’s engineer regarding the routing of the proposed water and sanitary sewer utilities and the connection points to the Township’s existing facilities.

3. We recommend that the water distribution mains and fire hydrants be provided with easements and offered for dedication to the Township. We recommend that the easements be 20' wide centered on the as-built locations of the distribution mains. A note should be added to the plan to indicate the offering for dedication of the mains and easements.
4. Profiles should be provided for all proposed water and sewer mains to ensure that utility conflicts do not exist. In addition, a plan view of the proposed water main along Bradley Road should be included in the plan set.
5. The applicant should provide to the Township's Water and Sewer Department the required peak fire flow demand to determine if the Township's water supply is adequate. In addition, the applicant should verify with the Township Fire Marshal if fire hydrants and/or storz pit connections are required for the project. Their locations should be shown on the plans.
6. All proposed facilities should be shown and labeled on the plan in accordance with Warrington Township Standards including, pipe types, sizes of mains and services, fittings, fire hydrants, valves, and curb boxes.
7. All sanitary sewer and water construction details should be replaced with Warrington Township Standard Details.

F. General Comments

1. Sheet 33 contains details of proposed signs however; the plans do not indicate the location of any proposed signs. The location of all proposed signs and labeling as to type should be added to the plans.
2. The ultimate right-of-way should be labeled (including width) on all site plans.
3. All buffer and setback lines as well as their width should be labeled on all site plans.
4. Note 10 on Sheet 3 refers to a geotechnical report however, a geotechnical report was not included with the plan submission.
5. Sheet 11 shows a boundary area for a soil stockpile to be removed. The limit shown would indicate that the entire overburden area from the quarry is to be removed however; the plans and narrative indicate that a portion of this area is to be untouched. The boundary area line should be revised to indicate more accurately the area to be removed.
6. The profile for the access drive shown on Sheet 36 should be revised to show the crown in the roadway of the Limekiln Pike Spur.

7. The grading plans show a dashed line running around the perimeter of the basins which does not coincide with the 100 year high water elevation location. The meaning of this line should be clarified on the plans and in the plan legends. In addition, this dashed line in Basin 1 does not follow a contour line as it does in other basins.
8. The location and type of all proposed handicap ramps should be provided.
9. The plans should be revised to clearly indicate which handicap parking signs go with which handicap parking spaces.
10. An access for emergency vehicles has been shown at the rear of Distribution Center 2 however; due to the fact that the access path has several curves and is not a consistent distance from the building some method of physically delineating the path on site should be provided. This would be particularly helpful in the winter time if snow covers the path making it difficult to see.
11. Details of the proposed retaining walls should be provided.
12. Grading Note 4 on Sheets 14-19 refers to a detail of a safety fence for walls in excess of 30" in height, however a detail has not been provided on the plans.
13. General utility note 9 on Sheets 13-18 should be revised to reference only bicycle safe inlet grates to be consistent with storm sewer note 2 on the same sheet that states that all inlet grates are to be bicycle safe.
14. The Pre-Development CN table in the stormwater report listing the area and ground cover type for each soil classification should be revised to include the composite CN value for each drainage area.
15. It appears that the storm pipe run from Inlet 590 discharges through the retaining wall and Basin 5 outfall pipes also discharge through a retaining wall. A detail showing these pipes discharging through the retaining walls should be provided.
16. The plan view for Basin 1 shows an endwall inside the basin with an invert of 313.00 and the outlet structure located approximately 30' behind the endwall within the basin embankment. The outlet structure detail on Sheet 40 shows the endwall and inlet box together as a single structure with a 1.30 inch orifice at elevation 313.00. If the outlet structure is to be located per plan location the basin embankment grading would cover up this orifice. The plan view and detail are to be coordinated to reflect the actual design intent and location within the basin.

17. The outlet structure for Basin 1 is labeled as a standard PennDOT inlet box however; the proposed 60" outfall pipe will not physically fit in a standard inlet box.
18. The following comments pertain to the basin outlet structure details and the basin sections on Sheet 40:
 - a. Basin 1 – The outfall pipe length, slope and inverts listed in the basin section do not agree with the outlet structure detail or the calculations in the stormwater report. The outlet structure detail notes that concrete is to be poured into the structure up to the invert elevation of the outfall pipe. However, this would block any discharge from the 1.30" orifice from entering the outlet structure.
 - b. Basin 2 – The invert listed for the basin outfall endwall is incorrect based on upstream invert, length and pipe slope.
 - c. Basin 3 – The outfall pipe length and slope, the emergency spillway width and the outlet structure top elevation do not agree with the data listed in the stormwater report. In addition, the 18' weir shown in the details is not included in the Basin 3 stormwater calculations. The Basin 3 outlet Structure Detail on Sheet 40 lists a bottom of basin elevation of 330.40 which does not agree with the plans or pond report. The emergency spillway width shown in the outlet structure detail does not agree with the width listed in the stormwater report.
19. The top of grate elevation listed in the plan view does not agree with the elevation listed in the Storm Sewer Schedule for storm structure 104.
20. Information concerning the roof drain system such as pipe size, material, inverts, pipe lengths and slopes are to be provided on the plans.
21. The SWM facility #1 grading exhibit plan needs to provide additional information relative to the emergency spillway elevation and maximum water depth.

G. Environmental Impact Assessment

The Environmental Impact Assessment Report (EIA) is dated May 11, 2010, and is in a format representing the outline presented in Appendix G of the Subdivision and Land Development Ordinance, Section 3. Our comments are as follows:

1. MITIGATION MEASURES, Page 13 - Subsection (b) deals with impacts unique to this site. Since large delivery trucks and loading operations are a major component of this project, noise issues are a concern. The applicant has indicated that they will address this with an acoustical engineer as the plans

become more formalized. We realize that the bottom line is conformance to the township ordinances; however, we believe it would be helpful at this time to at least perform, in general terms, a quantitative estimate of the sound level being generated by the truck/loading operations, along with the effect of mitigation measures on this sound level. Landscaping, terrain variation, and distance appear to be the main mitigation factors for this project.

IV. OTHER APPROVALS

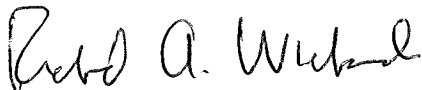
- A. Bucks County Conservation District
- B. Township Fire Marshal
- C. Warrington Township Water and Sewer Department
- D. DEP - Planning Module
- E. DEP - NPDES
- F. PennDOT
- G. Township Fire Marshal
- H. DEP - Planning Module
- I. PennDOT

V. RECOMMENDATION

Carroll Engineering Corporation recommends this application be revised to address the above comments to the satisfaction of the Warrington Township Board of Supervisors.

Very truly yours,

CARROLL ENGINEERING CORPORATION



Richard A. Wieland, P.E.

RAW:cam

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