



Carroll Engineering Corporation

August 11, 2010

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

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

Dear Mr. Tieperman:

We have reviewed the 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 thirty eight (38) sheets (thirty nine (39) including Sheet 1A) dated May 11, 2010.
- B. HEC-RAS Analysis and Report, as prepared by T&M Associates, dated May 11, 2010.
- C. Post-Construction Stormwater Management and Erosion and Sediment Control Report, as prepared by T&M Associates, dated May 11, 2010.
- D. Environmental Impact Assessment Report, as prepared T&M Associates (and other consultants), dated May 11, 2010.
- E. Traffic Impact Study, prepared by McMahon Associates, dated May 2010.

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.

Today's Commitment To Tomorrow's Challenges

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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 202, "Stream Definition" - The applicant has provided calculations for the 100 year floodplain for both the Type I and Type II streams on the site. These floodplain limits should be clearly shown on all applicable plans.
2. Section 1205.1.E(2),(3) & 1305 – The zoning requirements table on Sheets 1A and 2 for the PI-1 & PI-2 zoning districts should be revised to state that an additional requirement for both side and rear yard is as follows: "Except that no industrial building or structure shall be located closer than one hundred (100) feet from any agricultural or residential district boundary line or from an existing residential use".
3. Section 1205.1.E(2) & 1305 – No industrial building or structure shall be located closer than one hundred (100) feet from any agricultural or residential district boundary line or from an existing residential use. Portions of the parking area, both access drives and the security buildings lie within one hundred (100) feet of the PRD zoning district. The plans should be revised to include this side yard line offset from the RA and PRD zoning boundary lines and any structure located within the side yard area is to be relocated.
4. Section 1206.1 – Along each side and rear property line which adjoins an existing residence or residential district, a buffer of one hundred (100) feet including therein and planting of not less than thirty (30) feet in depth shall be provided. Additional plantings will have to be provided adjacent to the existing residential use outparcels to be in compliance with this requirement.
5. Section 1206.1 & 1306.1 – Along each street line a fifteen (15) feet in depth buffer planting area shall be provided including sidewalks and accessways. Additional plantings and sidewalks will have to be provided to be in compliance with this requirement.
6. Section 1306.1 – Along each side and rear property line a buffer planting not less than thirty (30) feet in depth shall be provided. A portion of the proposed parking area and driveway adjacent to Distribution Center 2 are located within the buffer area. In addition, the access drive from Lower State Road, Detention Basins 2 embankment grading and Detention Basin 5 embankment and berm grading as well as endwalls and pipes are also located within the buffer area restricting the placement of required buffer plantings. The buffer yard requirements section of the zoning requirements table on Sheet 1A and 2 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. The plans should be revised to show the required buffer/screening plantings within the entire buffer yard.

7. Section 2101.5 – Where a parking or loading area does not abut on a public right-of-way there shall be provided an access drive per lane of traffic not less than twelve (12) feet in width suitably graded and surfaced not less than eighteen (18) feet in width in all cases where the access is to storage areas or loading and unloading spaces required. The width of the access drives for the loading areas are not in compliance.
8. Section 2101.15 – Parking, access and circulation roads, driveways and loading and unloading areas shall be setback from property lines of unlike uses a distance equal to the buffer requirements stated in both the Zoning Ordinance and the Subdivision and Land Development Ordinance. The access drive from Lower State Road and a portion of the parking area lie within the required buffer areas.
9. Section 2101.16.A – Access drive surfacing must be buffered with a minimum planting strip of ten (10) feet when directly adjacent to building walls except in loading and unloading areas.
10. Section 2102.C.(3) – Ten percent (10%) of minimum parking space requirements shall be held in reserve for future parking expansion and shall be clearly delineated on required submission plans. The plans should indicate which parking spaces are to be held in reserve.
11. Section 2102.C.(4) – An additional five percent (5%) of minimum parking space requirements shall be put into landscaped areas within parking and access road design excluding end of parking bay islands and odd pieces of ground remaining after layout and design of minimum requirements.
12. Section 2104.B – Clear sight distances for each proposed access drive are to be provided to show compliance with this section of the ordinance.
13. Section 2105.A – All nonresidential parking and loading areas and parallel circulation and service lanes shall be separated from adjoining property lines by a planting strip no less than twenty (20) feet in depth, in nonresidential districts.
14. Section 2307.2.B – All outdoor industrial use operations, mechanical equipment and other functional accessories of each building shall have an architectural building material screen or covering which is an integral part of the building envelope and/or which is harmonious with the building design. A note should be added to the record plan addressing how compliance of this requirement will be met for the proposed sewage pump station and the two (2) security buildings which are a part of the site industrial operations.
15. Section 2319.2.A – Fences in Commercial or Industrial Districts are not permitted in front yards.
16. 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.

17. Section 2319.2.D – Every permanent excavation which is a potential hazardous to children or to passersby shall be enclosed by a sturdy fence. Detention Basin 1 poses a hazard to anyone walking along the berm due to the proposed sustained embankment slopes and permanent water depth of at least seven (7) feet. A fence of at least eight (8) feet in height with locking access gates should be provided around the perimeter of the basin for safety reasons.
18. Section 2322 – No live trees of a diameter greater than ten (10) inches measured at a point four (4) feet above grade shall be removed in connection with a land development unless a zoning permit for a specific number of trees in a specific location is first obtained from the Zoning Officer upon recommendation by the Planning Commission.

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 319.2.D. – To allow basins to be graded at 3:1 slopes.
2. Section 319.2.D.12 – To allow basins deeper than five (5) feet in depth.
3. Section 319.2.D.12 – 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 202 – Sheet 1A in titled “Minor Subdivision Plan” however a minor subdivision by definition is the division of a single lot or parcel into two (2) lots, parcels or tract of land. The applicant proposed to subdivide a single parcel into four (4) lots which would be considered a “Major Subdivision”. The plan title and the sheet index should be revised accordingly.
2. Section 303.1, 304.2 & 305.8.C – Widening of existing streets may be necessary where the minimum width outlined in these specifications does not meet with the specific requirements of the individual streets. All proposed roadway improvements to the existing streets are to be clearly shown and labeled on the plans.
3. 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 and labeled 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.
4. Section 304.2 – Limekiln Pike and Lower State Road are both classified collector streets which require sidewalk and curbing. Curbing and sidewalks should be provided along the entire site frontage for Lower State Road and Limekiln Pike. In addition, the width of the ultimate right-of-way along both streets should be labeled on the plans.

5. Section 304.3 – The parking lot paving section detail on Sheet 33 should be revised to show a 3” subbase and the detail should indicate that the paving section also applies to the access drives. In addition, the typical cross sections for Lower State road and Limekiln Pike on the same sheet should be revised to show a 10” base course.
6. Section 309.3 – A highway occupancy permit from PennDOT is required for each proposed access drive which encroaches within the state rights-of-way.
7. Section 310.6 – Requires that the parking stall width shall be a minimum of 9.5’. The plans are not in compliance as they show the proposed parking stall width at 9’.
8. Section 311.1 & 408.1 – Sidewalks shall be provided along all existing abutting streets and along all streets classified as secondary streets or greater. Sidewalks should be shown extending along street frontage to the property limits and along the proposed Limekiln Pike Spur.
9. Section 311.3 – There shall be a minimum four (4) foot planting strip between the curb and sidewalk. The plans should be revised to show compliance.
10. Section 311.5 – At corners and pedestrian crossing points, sidewalks shall be extended to the curbline 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. In addition, sidewalks should be proposed from the existing streets along the access drives to the parking areas.
11. Section 311.6 – Sidewalks adjacent to angle type parking areas shall have a minimum of three (3) feet additional width to permit pedestrian movement beyond the bumper overhang area. As the minimum sidewalk width is four (4) feet, the sidewalks adjacent to the parking areas should be increased to seven (7) feet in width.
12. Section 312.2 & 409.2 – Along all existing streets on which a subdivision or land development abuts, curbs shall be constructed. The limits of proposed curbing including curb tapers should be clearly labeled on the site plans. In addition, the plans indicate that six (6) inch reveal curbing is proposed on site while PennDOT requires eight (8) inch reveal curbing within state rights-of-way, the transition locations between the two curbing depths should be labeled on the plans.
13. Section 317.1 – Note 31 on Sheet 2 makes reference to the dedication of stormwater and storm sewer easements to Warrington Township however, the plans do not indicated that any easements are proposed.
14. 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.

15. 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.
16. Section 318.2 – We have the following comments concerning the proposed site grading:
 - a. The top of grate elevation for Inlet 114 is shown as being more than 2 ½' lower than the 342 contour located approximately 7' away in the access drive.
 - b. The 341 contour surrounding Inlet 124 should be revised to provide a 2% minimum slope to the inlet.
 - c. The slope from the 343.5 spot elevation to the 343 contour and Inlet 201 at the southwest corner of distribution center 2 is less than 2%. Revise to obtain a minimum slope of 2%.
 - d. The slope along the proposed swale at the southeast corner of distribution center 2 from the 343.5 spot elevation to stormwater management facility 2 is less than 2% and should be revised.
 - e. The slope between Endwall 211 and the 330 contour is less than 1%. Revise the grading in this area to obtain a minimum slope of 2%.
 - f. The 344 contours shown on either side of inlets 201 thru 205 should be shown crossing between the inlets and the 344.5 spot elevations rather than run continuously along either side of the inlets.
 - g. The proposed grading in the area of stormwater management facility 1 indicates that slopes of 2:1 are proposed. This area should be regraded to obtain a maximum slope of 3:1.
 - h. The two (2) proposed swales discharging to Inlet 110.1 should be regraded to provide a minimum slope of 2% all the way to the inlet.
 - i. Top and bottom of wall elevations should be provided for all proposed retaining walls.
 - j. The slope from the southeast corner of distribution center 1 to the 345 contour is less than 2%.
 - k. The slope along the curb line in the area of the handicap parking spaces is less than 1%.
 - l. Top and bottom of curb elevations should be provided along the curb line adjacent to Inlets 562 thru 567.
 - m. 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%.

17. Section 319.1.D – All building foundations, grade slabs, and cellar floors located in soils that have a community development limitation degree of moderate to severe seasonal high water table shall be provided with an underdrain system in accordance with this section.
18. Section 319.2.B – Requires that the drainage areas into each stormwater inlet or structure must be delineated on the stormwater drainage plan. The stormwater management report states that “A plan showing individual inlet drainage areas can be found in the provided folder.” However, the drainage area plans provided do not include drainage areas to the inlets.
19. Section 319.2.C.(4) – All storm drain pipes shall be designed to maintain a minimum grade of one-half (1/2) percent; all storm pipes shall have a minimum inside diameter of eighteen (18) inches. The slope of the storm pipe between Inlets 204 & 205 is less than the minimum one-half (1/2) percent required. The size of the storm pipe between Inlets 200 & 201 is less than the minimum 18” diameter required.
20. Section 319.2.C.(9) – A minimum of three (3) feet of cover shall be maintained over all storm drain pipes. The top of storm drain pipes shall be six (6) inches below subgrade elevation. Profiles of the entire storm sewer system should be provided to confirm compliance.
21. Section 319.2.D.(5) – States that maximizing a basin’s depth and side slopes, in contrast to the surrounding topography, in order to *obtain* additional area for building or lot utilization is not acceptable.
22. 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 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.
23. Section 319.2.D.(9) – Whenever possible, the emergency spillway for detention basins shall be constructed on undisturbed earth. Emergency spillways shall be constructed of reinforced concrete, vegetated earth, or concrete rubble. Emergency spillways shall extend along the upstream and downstream berm embankment slopes. The upstream edge of the emergency spillway shall be three (3) feet below the spillway crest elevation. The downstream slope of the spillway shall as a minimum extend to the toe of the embankment. The spillway shall not discharge over earthen fill/or easily eroded material. The minimum capacity of all emergency spillways shall be such that the combined capacity of the emergency spillway and the principal pipe barrel equal the peak flow rate from the one hundred (100) year design storm. The spillway lining locations should be shown and labeled as to material type for each proposed basin. In addition, design calculations for each emergency spillway should be provided to indicate the emergency spillway design flow elevation.

24. 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 in accordance with the requirements of this section. Antiseep collar and key trench locations should be provided in a basin embankment detail.
25. Section 319.2.D.(11) – The minimum freeboard in a basin emergency spillway is one (1) foot above the spillway design elevation and the top of the settled detention basin embankment. Emergency spillway calculations are to be provided to show compliance for each proposed basin.
26. Section 319.2.D.(15) – Energy dissipating devices (rip-rap, end sills, etc.) shall be placed at all basin outlets. The plans should show locations and labeling for all proposed energy dissipating devices. Energy dissipaters should also be installed at basin inflow structures within the basin where there is a potential for erosion to the basin embankment or basin bottom.
27. Section 319.2.D.(16).(c) – A sketch of the berm embankment and outlet structure indicating top elevation, embankment side slopes, top width of embankment, emergency spillway elevation, pipe barrel dimensions, and dimensions and spacing of antiseep collars shall be provided. The emergency spillway lining type and location, the 100 year highwater elevation and basin outlet structure location should also be included.
28. Section 319.2.D.(16).(g) – A detailed plan of the trash rack and antivortex device is to be provided.
29. Section 319.2.D.(17).(a) – Basin floors shall be planted with a growth of either grasses or a meadow effect of native and naturalized wild flowers. The plans should be revised to indicate the location and type of basin plantings required.
30. 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).
31. Section 319.3.A – Note 31 on Sheet 2 proposes that easements for on-site stormwater management facilities be offered for dedication to Warrington Township so that the Township can maintain these facilities and the applicant will provide the Township with a maintenance fee. However, on Sheet 13 the operation and maintenance note states that the owner of the site will be responsible for the maintenance of the stormwater management facilities and item 1 in the waiver request list on Sheets 1A and 2 states that the basins will be maintained by TEVA Pharmaceuticals. The notes should be coordinated to state the intent for ownership and maintenance of the stormwater facility maintenance.
32. Section 324.2 – Additional width of streets adjacent to areas proposed for nonresidential use may be required to assure the free flow of through traffic from vehicles entering or leaving parking areas. A traffic impact study will determine if additional roadway improvements are required to obtain free flow.

33. Section 324.6.A – Raised planting beds in parking areas shall be offset on alternating sides of parking rows. One (1) shade tree shall be planted in each planting bed.
34. Section 324.6.C – A fifteen (15) foot minimum wide raised perimeter planting bed shall be provided around all parking areas except where the parking is adjacent to a building.
35. Section 324.6.D – All parking areas shall have at least one (1) tree, two and one-half (2 ½) caliper minimum for every six (6) parking spaces in single rows. Planting islands are not to be used to fulfill this requirement.
36. Section 325 – Sheet 25 contains a plant schedule and a planting compliance chart however, with the various buffer, screening and street tree requirements it is difficult to tell which proposed plantings are intended for which required planting area to confirm compliance. The planting compliance chart should indicate how many of each type of planting is proposed for each of the areas listed to confirm compliance. It would also be helpful if each of the required planting areas were shaded or outlined and labeled on the plans. In addition, there were a couple of discrepancies between the number of plants listed in the plant schedule and the number of plants shown on the plans.
37. Section 325.3 – States that hardy ground cover shall be used in place of grass in parking areas wherever possible. The plans call for “naturalized grass/wildflower meadow” in and around the parking areas. The specifics of this planting mix should be provided on the plans.
38. Section 325.4.B – Required screening and buffer areas shall consist of at least eighty (80) percent evergreen material and twenty (20) percent deciduous trees and shrubs. All screening and buffer areas should be in compliance with the required planting mix.
39. Section 325.5.B – All storm channels and retention areas shall be graded and planted to effectively naturalize area(s) so as to become an integral and harmonious part of the landscape by contour and type of plant material employed. The plans do not indicate that any plant material is proposed for any of the stormwater management areas.
40. Section 327 – If outdoor refuse collection areas are proposed they should be shown and labeled on the plans and they shall be screened from view and landscaped. If indoor refuse collection is proposed a note should be added to the plans stating so.
41. Section 328.1.B & 2.A – No change or disturbance shall be made to land which is environmentally sensitive including Type II streams, except as otherwise permitted and regulated in this Section and by strict compliance with Federal and State regulations. The plans show that a portion of “Waters of the U.S.” is to be disturbed for the construction of the Limekiln Pike Spur. All required approvals are to be obtained prior to final plan approval.
42. Section 328.1.E – All environmentally sensitive areas shall be evaluated and documented with submission of an impact statement. The plans state that the wetlands and watercourses depicted on the plans were delineated by CMX. 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.

43. 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. An area of proposed grading lies within the transition area for the wetlands adjacent to Distribution Center 1. In addition, proposed paving, curb retaining wall and storm sewer lie within the transition area for the Type 1 stream adjacent to Distribution Center 1. Additional areas of wetland transition disturbance occur in the area of the proposed Limekiln Pike Spur. These disturbed transition areas are to be mitigated with equivalently sized areas elsewhere within the transition areas.
44. Section 329.1 – Service loading and refuse areas shall take access from an internal street. Signs should be located at the access drive off of Lower State Road stating that only trucks are to use this entrance and that other vehicles are to use the Limekiln Pike entrance. The sign location and verbiage should be provided on the plans.
45. Section 329.2 – Service areas shall not be located on the side of the building that faces an external street. The loading area for Distribution Center 1 faces Lower State Road.
46. 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 1A 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.
47. Section 408.2 – It is required to install sidewalks, on-site walks and curbs for convenient circulation and access to all project facilities. Sidewalks and curbing should be provided from existing streets along access drives to proposed buildings.
48. Section 413.1 – The plans show a proposed water service line running from the center of the proposed Limekiln Pike Spur to the proposed buildings. However, the plans do not indicate where this water line will tie into an existing water line. The location, size and material of existing and proposed water mains and services should be provided on the plans.
49. 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 at all.
50. Section 504.5.A(3) – Each sheet shall be numbered and shall show its relationship to the total number of sheets. The plan set contains a Sheet 1A which makes the total number in the set 39 not 38 as shown on all sheets. Sheet 1A should be given a new number, all sheets renumbered and the total number revised to indicate the actual number of sheets in the set.

51. Section 504.5.A(5) – The plans shall bear an adequate legend to indicate clearly which features are existing and which are proposed. All plans should contain an appropriate legend for the existing and proposed features applicable to each individual sheet. In addition, the plans show a continuous line for both existing and proposed roadway features on the existing streets making it difficult to distinguish what if any improvements are proposed.
52. 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.
53. Section 504.5.B(2) – Subdivision plan Sheet 1A shows several existing tax parcels to be subdivided and/or consolidated and lists the owner of record as Eureka Stone Quarry, Inc. The plan also lists TEVA Pharmaceuticals USA as the applicant and equitable owner which implies that TEVA will own the four (4) proposed lots. If this is not the case the plan should clearly indicate the intended owner for each lot/parcel.
54. Section 504.5.B(5) – A north arrow should be provided on Sheet 31.
55. 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.
56. 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.
57. Section 504.5.C(5) – All ground contours shall be taken from U.S. Coast and Geodetic bench marks and run direct to the degree that the actual elevations of the spot points or contours shall be the exact elevations above U.S. Coast and Geodetic datum. The bench mark and elevation used should be provided. In addition, the plans state that the boundary and topographic information were provided by ASH Associates, Inc. Additional information such as date of survey and boundary and topographic plan information should be provided.
58. 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.
59. Section 504.5.D(2) – The proposed lot boundary line for Lot 4 shown on Sheet 1A is not clearly indicated on the plan. The plan should show all lot boundary line and metes and bounds should also be provided for all property lines.

60. Section 504.5.D(5) – A note should be added to the record plans addressing the dedication of areas within the ultimate right-of-way. Metes and bounds are to be provided for all ultimate right-of-way lines.
61. 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 areas listed for each proposed lot does not agree with the tract area listed in the Parcel Data and Tract Area Summary tables.
62. 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.
63. Section 504.5.D(11) – The ultimate right-of-way along the Limekiln Pike spur for Lot 3 should be labeled. Metes and bounds for all ultimate right-of-way lines within Lot 3 should be provided. In addition, a label shown on Sheet 1A within Lot 4 indicates that the future road right-of-way area for the proposed Limekiln Pike Spur to be 2.99 acres while a separate label for Lot 3 area data states that the future road right-of-way area is 2.75 acres. This discrepancy should be clarified.
64. Section 504.5.D(1) – Typical cross-sections and centerline profiles of each proposed street should be provided. Cross-sections and centerline profile for the proposed Limekiln Pike Spur should be provided. Centerline profiles of existing streets showing all proposed improvements should also be provided.
65. Section 504.5.D(16) – The words “Preliminary Plan, Not To Be Recorded” shall be shown on the plans.

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 should show individual access paths at a reasonable slope to each proposed detention basin.
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 proposed detention basins are not in compliance with this requirement. Stormwater release calculations for all proposed detention basins should be provided to show compliance with this water quality requirement.

3. Section 125.1 – To calculate the potential increase in total runoff and peak flow rate resulting from a proposed site development, the “Cover Complex” method will be used. The table in the stormwater report listing the amount of each type of cover for the pre-development drainage areas does not list the weighted CN for each of the existing drainage areas. These CN values should be provide to confirm CN values used in the stormwater hydrographs. The table for the post-development drainage areas and CN values is not complete as data has not been provided for all post-development drainage areas. The post-development CN table lists a CN value for a basin and a bypass area for POI-“D” however; the plans do not indicate that a basin is proposed in this area. In addition, the pre-development time of concentration values calculations in the stormwater report do not agree with the values listed in the pre-development hydrographs and the time of concentration calculations have not been provided for all post-development areas with a time of concentration greater than five (5) minutes. Lengths of some time of concentration paths shown on the drainage plans do not scale to the distances listed in the stormwater report.
4. 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.)
5. Section 133.B.(1).(d) – The stormwater management plan shall bear an adequate legend to indicate clearly which features are existing and which are proposed.
6. 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.
7. Section 133.B.(4).(e) – Plans and profiles of proposed stormwater management facilities including horizontal and vertical location, size, and type of material shall be provided.

E. Traffic

1. It appears the southbound left-turn volume at Limekiln Pike (SR0152) and Lower State Road (SR3003) are significantly lower on the figures (and subsequently used in the analysis) then shown in the provided turning movement count, 350 and 570 vehicles, respectively. This should be verified and corrected if necessary.
2. The TIS states during the existing morning peak hour, which occurs between approximately 7:00 AM to 8:00 AM throughout the study area, the only expected impact from TEVA shift traffic is the addition of Shift Three traffic existing the site. However, the figures and subsequent analysis depict a greater number of trips entering then existing the site during the morning peak hour; 190 and 50 vehicles, respectively. This should be verified and corrected if necessary.
3. It appears the westbound through queue lengths at County Line Road (SR2038) and Kenas Road significantly increase from Without Development to With Development with improvement conditions during the 2013 morning peak hour. Also, the queue lengths during the 2013 weekday afternoon commuter peak hour exceed the provided capacity. Further mitigation techniques should be utilized to decrease this queue length.

4. It appears the following intersections contain movements whose queue lengths significantly increase from Without Development to With Development conditions:
 - a. County Line road and Lower State Road
 - b. County Line Road and Kulp Road
 - c. County Line Road and Stump Road

Further mitigation techniques should be utilized to decrease this queue length.

5. Further explanation should be provided detailing the calculation and methodology of the diversion trips in Appendix H in order to verify results.
6. The provided trip distribution shows all employee trips entering the site via westbound County Line Road will turn left at Lower State Road and proceed to the Limekiln spur to access the site.

However, some vehicles may access the site via Stump Road to Limekiln Pike. If feasible and practical, some trips should be redistributed utilizing Stump Road to access the site.

7. It is noted the submitted TIS conservative assumption of traffic operation conditions has been provided to assume a full occupancy in 2013 when in actuality it will open in 2015.
8. PennDOT will require a Highway Occupancy permit (HOP) application for the access to Limekiln Pike (SR0152) and Lower State road (SR3003). The Township requests the opportunity to review all HOP plan submissions to PennDOT; as well as be given the opportunity to attend all meetings with PennDOT and carbon copied on all correspondence regarding same.
9. For your information, PennDOT has also reviewed the Traffic Impact Study, and has issued a review letter dated June 24, 2010.
10. We reserve the right to make additional comments on new issues upon resubmission due to the complexity of this review.

Preliminary Land Development Plans

1. Signage and striping control at all driveways point of access should be shown.
2. Truck signage and striping control for internal site circulation should be shown.
3. Stop bars and signs should be shown at all internal intersections.
4. The turn lanes for the proposed access should include the appropriate length and taper callouts.
5. All parking spaces should be a minimum of 9.5 feet in width in accordance with Township standards.

6. The applicant must include the location of trash receptacles; in addition the applicant must include truck turning templates to ensure sanitation trucks will be able to navigate within the site to the location of the trash receptacles.
7. It appears the entering truck turning movement at the first internal intersection may impede the trucks exiting the site. This should be verified and corrected if necessary.
8. All truck storage lots should display proper striping and signage as well as turning templates for exiting vehicles movements.
9. Truck turning templates should be completed in accordance with intersection improvements at County Line Road, Lower State Road and Limekiln Pike once the final design has been completed.

F. Water & Sewer

1. This project is located in Sewage Management Area No. 1 served by the Warminster Municipal Authority Treatment Plant. The applicant's engineer projects the sewage flows to be generated by the project to be 5,000 gpd. The applicant must complete PADEP Sewage Facilities Planning for the project.
2. The existing public water and sanitary sewer facilities must be added to the plans.
3. 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.
4. Profiles should be provided for all proposed water and sewer mains to ensure that utility conflicts do not exist.
5. Water mains located in Bradley Road and Limekiln Pike should be looped through the project site to provide adequate fire protection for the distribution centers. The applicant should verify with the Township Fire Marshal if fire hydrants and/or storm pit connections are required for the project. Their locations should be shown on the plans and must be approved by the Township Fire Marshal. The proposed vertical alignment of the water mains and a calculation of the ISO needed fire flows should be provided prior to review by the Fire Marshal.
6. A PADOT Highway Occupancy Permit will be required for connecting to or installing water and/or sewer facilities within the Limekiln Pike and Lower State Road right-of-ways. The application must be sponsored by the Township.
7. All proposed facilities should be shown and labeled on the plan in accordance with Warrington Township Standards including, pipe types, sizes, and fittings, fire hydrants, valves, and curb stops.
8. The Sanitary Sewer Notes should be revised as follows, on all applicable sheets:

- a. Note 1 should be revised to reference the Warrington Township Water & Sewer Department (WTWSD) Standard Specifications and Details for Sanitary Sewer and Water Facilities (latest revision).
 - b. Note 3 should be revised to indicate 6" diameter laterals.
 - c. A Note should be added stating that all sanitary sewer mains and laterals shall have minimum of 4-feet of cover.
9. The Water Line Notes should be revised as follows, on all applicable sheets:
- a. Note 4 should be revised to require restrained mechanical joints and concrete anchorage.
 - b. Note 5 should be revised to indicate that all construction and testing shall be in accordance with Warrington Township Water & Sewer Department (WTWSD) Standard Specifications and Details for Sanitary Sewer and Water Facilities (latest revision).
10. All sanitary sewer and water construction details should be replaced with Warrington Township Standard Details.

G. 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. Item 3 in the waiver request list on Sheets 1A and 2 should be revised to reference Section 319.2.D.14 of the SALDO.
3. The plans show the existing features as well as proposed features as continuous lines. This makes it difficult to distinguish between existing and proposed features especially in determining what roadway improvements are proposed.
4. The plans and the stormwater management report indicate that a one (1) million+ cubic yard stockpile of overburden material from the adjacent quarry is located on site in the area of the proposed stormwater management facility 1. It should be noted on the plans how this overburden and excavation in excess of one hundred (100) feet for the stormwater facility is to be disposed of.
5. The ultimate right-of-way should be labeled (including width) on all site plans.
6. All buffer and setback lines as well as their width should be labeled on all site plans.
7. Information concerning the intended use for the future development area shown at the northwest corner of the site should be provided on the plans.

8. Sheets 10 and 11 indicate areas intended to show the limits of the Type II stream, but are confusing and inconsistent. Please clarify.
9. The Natural Resource Impact Compliance Calculations table on Sheet 11 should be revised to state that the allowable floodplain disturbance is 0.00 acres.
10. Note 10 on Sheet 2 refers to a geotechnical report however, a geotechnical report was not included with the plan submission.
11. The location and type of all proposed handicap ramps should be provided.
12. The plans should be revised to clearly indicate which handicap parking signs go with which handicap parking spaces.
13. The plans propose the installation of four hundred seventy six (476) parking spaces which includes eight (8) handicap accessible spaces. ADA regulations require a total of nine (9) handicap accessible parking spaces with two (2) van accessible spaces for the total number of spaces proposed.
14. An access for emergency vehicles around the perimeter of Distribution Center 2 should be provided. However, the location of proposed stormwater detention basins and steep grades adjacent to the building make access to a large portion of the building extremely difficult without grading and stormwater revisions.
15. A bollard detail is shown on Sheet 33 however the plans and legends do not indicate that any bollards are proposed for this land development.
16. Details of the proposed retaining walls should be provided.
17. Grading Note 4 on Sheets 13-18 refer 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.
18. Sheet 34 contains a detail with a table for rip-rap aprons, sediment basins, temporary risers, inlet snout and baffles however, the tables do not provide any site design information as they are blank.
19. The overall land development plan (Sheet 2) should include the proposed lot numbering as shown on Sheet 1A.
20. 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 9 on the same sheet that states that all inlet grates are to be bicycle safe. In addition, note 9 should state that all inlet grates are to be constructed in accordance with PennDOT RC-34 standards.
21. The hatching identifying individual sheets in the key maps is not clear on some sheets. In addition, it would be helpful if the layout of the proposed development was included within the key map to further clarify the area of the site represented on the plan sheet.

22. The proposed conditions drainage area plans contain overlapping text making it difficult to read. In addition, the drainage plans show a total number of sheets as four (4) however, only three (3) sheets (sheet 4 was not included) were submitted.
23. The proposed drainage area text shown on the existing conditions drainage area plan should be removed.
24. The time of concentration flow paths should be labeled on the drainage area plans and each segment of the flow path should be identified.
25. The post-development drainage area labeling between the plan and stormwater report is not consistent and can be confusing. The labeling for post-development drainage areas should be consistent and coordinated between the drainage area plans, the stormwater management plan and the stormwater calculation pages in the stormwater report.
26. The Basin 3 outlet Structure Detail on Sheet 35 lists a bottom of basin elevation of 330.40 which does not agree with the plans or pond report for basin 3.
27. The plans list a top of grate elevation of 336.00 for the Basin2 outlet structure which does not agree with the outlet structure detail or the pond report.
28. Inlet 594 at Basin 5 is shown as having a top of grate elevation of 307.10 however; it is located between the emergency spillway with an elevation of 308.50 and a proposed 308 contour.
29. It appears that the storm pipe run from Inlet 590 discharges through the retaining wall. A detail showing this pipe discharging through the retaining wall should be provided.
30. The plans show a top of grate elevation of 307.10 for the Basin 5 outlet structure while the outlet structure detail and the pond report list the elevation as being 307.00. Revise accordingly.
31. The pond report for Basin 5 lists an outfall pipe of 60" in diameter with a length of 28' however, the basin outlet structure detail and the plan views do not agree.
32. The invert elevation for the Basin 1 outfall pipe listed in the pond report does not agree with the invert shown in the outlet structure detail or in the plan view. In addition, the emergency spillway elevation listed in the plan view does not agree with the pond report or detail.
33. 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 berm. The outlet structure would not function in the location shown. In addition, the pond report and outlet structure detail do not indicate that there is an endwall and discharge pipe from the endwall entering the outlet structure. The plans, stormwater report and detail are to be revised and coordinated as to provide correct design information.

34. 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.
35. All basin outlet piping shall be Class III reinforced O-ring concrete pipe.
36. The weir crest lengths listed in the stormwater pond reports for the proposed detention basins should be revised to reflect the actual length for each outlet structure type.
37. The plans do not indicate the size, type, length and slope of the basin outfall pipes. All outfall pipes are to be labeled on the plans. Several of the outfall pipes as shown do not scale to the design length listed in the stormwater report.
38. Several of the hydrograph pages in the stormwater report for the 50 year storm are out of sequence.
39. The Basin 1 outlet structure detail should be revised to list the Delta-2 lowest water surface elevation as 313.00 not 320.00. In addition, the detail shows a 1.75" diameter orifice is proposed to drain the basin however, the pond drainage calculation in the stormwater report states that the orifice size is 1.2" in diameter.
40. The Basin 1 outlet structure detail shows what appears to be a pipe with a cap on it and it is labeled 1.75" dia. orifice with screen. The pipe is shown extending above the basin bottom elevation which would make it difficult for the basin to drain completely to the 313.00 elevation listed. The plans should be revised to indicate what type of drain this is and how it functions to drain the basin. In addition, the detail shows a line labeled with an invert of 310.00 but does not indicate what this invert is for.
41. The grading plans show a 309 contour at the bottom of Basin 1 making the basin water surface depth from the 309 contour to the outlet structure orifice (elevation 320.00) eleven (11) feet. However, the calculations for the pond drain design list a depth of only seven (7) feet. The actual proposed depth of the basin must be clarified.
42. The Manhole/Inlet Step detail on Sheet 35 is located within the plan title block and should be relocated.
43. The top of grate elevation listed in the plan view does not agree with the elevation listed in the Storm Sewer Schedule for storm structures 104, 210, 561, 562, 593 & 594. In addition, the top of grate elevation for structure 184 is not provided in plan view.
44. Information concerning the roof drain system such as pipe size, material, inverts, pipe lengths and slopes are to be provided on the plans.
45. The trash rack detail states that it is to be centered over the 1' diameter low flow orifice however; none of the outlet structures have a 1" dia. orifice. The detail should be revised to provide dimensions and state that they are to be centered over the inlet orifice opening without giving an orifice size. It should be noted on the basin outlet structure details if a trash rack is proposed for that structure.

H. 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. OVERVIEW, Page 2 - The next to last paragraph refers to the inclusion of "traffic and fiscal impacts", but these subjects are not addressed in the EIA in any detail.
2. DESCRIPTION OF PROJECT, Page 3 - Reference is made to the loading areas for truck deliveries being located to have the least impact on the surrounding area, given the site and zoning district. Since all of the truck activity is located on the outside perimeter of the buildings, it is not clear how this arrangement is having the least impact on the surrounding areas, as opposed to having the truck loading/unloading activity more shielded from the surrounding area.
3. BIOLOGICAL RESOURCES INVENTORY, Page 6 - Under the heading "Palustrine Emergent Marsh", it would be appropriate to address the subject of the bog turtle in this section. Some clarification would be helpful relative to what considerations were given to this subject, what screening was performed, if any, and how the Pennsylvania Natural Diversity Inventory Environmental Review relates to this subject.
4. LAND USE INVENTORY, Page 7 - Subsection (e) states that the overburden soil will be moved to the quarry property to the north. Since this is a sizeable amount of material, some further clarification of the future location would be helpful in understanding the possible impact of the relocated soil.
5. IMPACTS INVENTORY, Page 9 - The fiscal impact is summarized in one sentence with dollar amounts - the generation of these figures should be included either in this section or as an exhibit.
6. IMPACTS INVENTORY, Page 9 - With respect to community services, the statement is made that the project is not expected to have an adverse affect on "fire" services. Further clarification of this statement is needed in view of the size and height of the proposed buildings.
7. ALTERNATIVE ANALYSIS, Page 9 - The statement is made at the end of the first paragraph that says, "great care has been taken to propose additional berming, buffering, and landscaping". It is not clear from the plans as to where these additional improvements are located. It appears that the berming is minimal and that the landscaping is intended to meet ordinance requirements.

8. ALTERNATIVE ANALYSIS, Page 9 - The wording of the second paragraph seems a little too generalized. Instead of saying "There is no possible alternate layout", I suggest it say that in the applicant's opinion there is no possible alternate layout which still provides the building square footage that the applicant needs. The SALDO Environmental Impact Assessment appendix specifically mentions to comment on alternatives involving the reduction in size of proposed structures or number of structure.
9. ADVERSE IMPACTS, Page 10 - The table relating to the ADVERSE IMPACTS should add a column to indicate whether the affects are primary or secondary as specified in the SALDO Appendix G. In addition, the table should provide more narrative than merely saying, "no probable adverse impact", such as for wildlife. There will be adverse affects that may be integral to any land development, but they still need to be presented as such.
10. ADVERSE IMPACTS, Page 10 - Subsection f. refers to buffering and modifying the site layout. Since this EIA is submitted in conjunction with the By-Right Preliminary Plan, the reference to modifying the site layout to reduce impact seems to be referring to the Preferred Plan which will only apply if a zoning change is approved, and is not a given at this point.
11. MITIGATION MEASURES, Page 11 - Subsection (b) deals with impacts unique to this site. Since large delivery trucks are a major component of this project, more information should be provided relative to noise control and air quality control mitigation measures. Truck noise, including back-up alarms, needs to be considered.

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

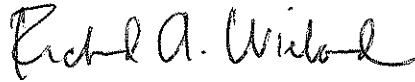
V. RECOMMENDATION

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

Timothy Tieperman, Township Manager
Page 22 of 22
August 11, 2010

Very truly yours,

CARROLL ENGINEERING CORPORATION



Richard A. Wieland, P.E.

RAW:cam

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