ENVIRONMENTAL IMPACT ASSESSMENT REPORT

for

MALIN ROAD DEVELOPMENT

Prepared by:

ROBERT SMILEY, PLANNING CONSULTANT

January 29, 2015

TABLE OF CONTENTS

INTRODUCTION

This Environmental Impact Assessment report was prepared as a component of a land development application for three parcels that collectively comprise a 23.17 acre tract pursuant to the requirements of §175-23.C of the East Whiteland Township Subdivision and Land Development Ordinance(SLDO), Environmental Impact Assessment (EIA). The plan proposes 264 single-family attached (townhome) dwellings and 10.40 acres of open space.

Location

The site is located on the east side of Malin Road in the southeastern portion of the Township, between the Conrail and Amtrak rail lines as shown on the Existing Conditions/Conservation Plan, Sheets 3 & 4 of the Plan Set (hereinafter "Existing Conditions Plan"). The site is located within the East Whiteland Township RRD Residential Revitalization District, which permits a maximum density of 20 dwelling units per gross acre.

Site Development Plan

The Layout Plan, Sheets 8-10 of the Plan Set, shows the Site Development and identifies the number and location of all proposed lots, roads and stormwater management facilities. The overall Plan was designed to address the requirements of §§200-19, 20 & 25.1 of the East Whiteland Township Zoning Ordinance (ZO) and applicable sections of the SLDO. The Demolition Plan (Sheets 5-7) of the Plan Set shows the extent to which the existing buildings and any applicable monitoring wells will be removed. This demolition, as a follow-up to the ongoing site remediation, will clean-up all residual elements of the Bishop Tube operation, resulting in an environmentally safe property and also create a better wetland condition.

Vehicular access to the site is from Malin Road; an emergency access will connect to Village Way. An internal pedestrian network will consist of sidewalks throughout the site linking with trail connections to adjacent trails to the south and businesses along US Route 30 to the north.

All lots will be serviced with public water from Aqua Pennsylvania and public sewer from the East Whiteland Township Municipal Authority via the Valley Forge Sewer Authority. Trash collection will be provided privately by one of the haulers registered with the Township, and all residences are required to recycle.

The method stormwater management proposes 24 subsurface retention/infiltration facilities spread throughout the road network of the land development.

Ownership

The 264 proposed townhome units will be individually owned. The proposed open space and stormwater management facilities will be owned and maintained by a homeowners association.

Phasing

The project will be subdivided according to the following phasing plan:

- Phase 1: 72 Units (#154-225), Malin Road (A), and Road B;
- Phase 2: 39 Units (#226-264);
- Phase 3: 62 Units (#92-153), portion of Road C, and Road D;
- Phase 4: 42 Units (#49-91), portion of Road C, and Road E; and
- Phase 5: 48 Units (#1-48), community center, and balance of Road C.

SITE PHYSICAL RESOURCES

Prior to the preparation of the proposed Layout Plan, the property's physical resources and characteristics were inventoried, mapped and analyzed to help produce an development that complies with the RRD District and creates uses more sensitive to the environmental conditions than past uses of the property. The Existing Conditions Plan shows the site's environmental resources. The resource analysis is discussed below by resource type.

Geological Characteristics

Site geology is an important concern in land development since it influences foundation stability, soil conditions, the availability of groundwater, and porosity. The property is underlain by two geologic formations. The northern third of the property is underlain by the Conestoga formation of limestone (OCc), a mostly sedimentary rock which consists of light-gray, thin-bedded, impure, contorted limestone having shale partings; conglomeratic at base; in the Chester Valley, this includes micaceous limestone in the upper part, phyllite in the middle, and alternating dolomite and limestone in the lower. The Conestoga formation is a good quality foundation for heavy structures with good surface drainage. The southern two-thirds of the property are underlain by the Octoraro formation of albite-chlorite schist (Xo), a mostly metamorphic rock which is a phyllite

that contains some schist, hornblende gneiss, and granitized marble. Moderately resistant to weathering, this formation has good surface drainage and is a quality foundation for heavy structures provided excavation is to sound material.

Topographical Characteristics

The site topography was recorded during the site survey prepared by Dawood Engineering, Inc. & Inland Design at contour intervals of two (2) feet. The Existing Conditions Plan depicts these contours and highlights all areas having slopes of 15-25% and 25%+, as required in the Township ZO and SLDO. Steep slopes of 15-25% and those 25%+ exist on of the property. The steep slope, both 15-25% and 25%+ in the northern third or historically developed portion of the property, has been man-made. While the Township ZO does not distinguish between natural or man-made, it should be taken into account when applying the slope regulations contained in §200-55 of the ZO as they are restrictive toward townhomes.

The low point of the property, approximately 362 feet above sea level, is located at the northeastern corner of the tract in the area of the stream. The property's high point, approximately 500 feet above sea level, is reached at along the south central boundary of the site. A bench mark of 420 feet has been set at the rim elevation of the sanitary manhole along "Malin Road extended" in the west, central portion of the tract.

Soils

The Existing Conditions Map and Table 1 depict the soils on the property, which are mapped according to the USDA Natural Resource Conservation Service and include one Manor soil and two urban soil types. The underlying Octoraro Schist rock formation weathers to form the Manor soil over the southern two-thirds of the site. Past building and impervious coverage activities have created the urban soils.

Soil conditions are an indicator of the local water table and depth to bedrock conditions. Soil conditions can also be used to anticipate the potential infiltration of stormwater. The properties of the soils discussed above are listed in the following table.

Table 1: Site Soils

Symbol	Description	Slope	Available Water Capacity	Drainage Class	Depth to SHWT	Depth to Bedrock	Hydrologic Soil Group
MaD	Manor Loam	15-25%	high (~9.5")	well drained	80"+	72-99"	B
UrgD	Urban Land Conestoga Complex	8-25%	moderate (~7.5")	well drained	80"+	60-99"	B
UugD	Urban Land Udorothents, Schist & Gneiss Complex	8-25%	moderate (~7.5")	well drained	80"+	20-70"	B

Hydrological Characteristics

Surface water characteristics are depicted on the Existing Conditions Plan included in this report. As a function of a property's geologic, topographic and soil conditions, hydrologic characteristics concern stormwater runoff patterns and the quantity and quality of surface water and groundwater.

Stormwater: As discussed above, the proposed plan includes 24 subsurface retention/infiltration facilities design to promote recharge are proposed to address stormwater management, all to be located throughout the road network of the land development.

Groundwater: The property's underlying geologic formations contain a fair amount of ground water. Since domestic water will be supplied by Aqua America, no groundwater will be withdrawn on the site. Groundwater recharge characteristics of the site will be influenced by the addition of imperious coverage (roads, driveways and houses) which will restrict recharge and increase stormwater runoff; however, this will be mitigated by the stormwater management system which incorporates enhanced infiltration in the design.

Flood Hazard District: The Flood Insurance Rate Map for East Whiteland Township (#42029C0160F, dated 9-29-2006) indicates no 100-year floodplain on the property and while a stream traverses the eastern edge of the property, as discussed above neither of the soils depict floodplain characteristics. The Flood Hazard District is defined by §200-55.C(1)(a) of the East Whiteland ZO, as "That land adjoining any perennial or intermittent stream shown on the soil survey maps ... or may be subject to the one-hundred-year flood, which is identified as "Zone A" in the Flood Insurance Rate Maps (FIRMs) dated September 29, 2006,... ."

Surface Water: The property contains an un-named tributary of the Little Valley Creek, located along the eastern boundary of the tract. The PADEP watershed designation is EV Exceptional Value Waters. Additionally, wetlands delineated by Great Valley Environmental, in August 2014, are found along this tributary. Furthermore, Great Valley Environmental delineated "Waters of the United States" on either side of the wet-

land within the northeast corner and a small area in the southeastern portion of the property. The Layout Plan depicts encroachment on that portion of the wetland that facilitates the emergency connection to Village Way. As discussed under the Layout Plan above that as part of the open space, the stream will be contained within a "riparian corridor" that is generally consistent (60-105' in the southern third), except adjacent to the areas of existing development (5-45'), with the requirements of §200-56 of the ZO, which does permit the emergency connection to Village when approved by the Township Engineer.

Vegetation Characteristics

Woodlands exist on the southern two-thirds of the property as shown on the Existing Conditions Plan. Except for an area functioning as a riparian corridor along the eastern edge of the property, the woods will be cleared to provide an area for dwelling units, roads, driveways and lawn areas. Landscaping is proposed within the open space and some street trees are also proposed throughout the site.

Land Use Conditions and Characteristics

The land use section addresses existing and prior uses of the site and any easements, rights-of-way or encumbrances on the property.

Land Cover: As discussed above and shown on the Existing Conditions Plan, the property contains a combination of developed buildings/impervious surfaces and woodlands.

Encumbrances: The Existing Conditions Plan depicts utility easements traversing the northern and western edges of the property: northern property line - an overhead electric line across the property, sanitary sewer and water lines extending to Village Way; western property line, essentially along Malin Road - an underground electric line, 20' sanitary sewer and water lines, natural gas line, and ~40' Sunoco gas transmission line. A 20' sanitary sewer line traverses diagonally southeast across the property. A 20' right-of-way extends south from Malin Road. A 1,300 square foot reservoir exists at the southwest portion of the property.

The property is documented as contaminated by PADEP and is undergoing remediation under the authority of the Hazardous Sites Cleanup Act (HSCA) via the cooperation of the landowner/developer, Township, and PADEP. The property consists of a large area of contaminated groundwater associated with the former Bishop Tube Company. The Bishop Tube Company used and or released hazardous substances into the environment including trichloroethylene (TCE), nitric acid, hydrofluoric acid and various heavy metals including nickel and chromium. TCE is of particular concern since it was detected in groundwater on the former Bishop Tube property and in wells and springs off site. Three distinct source areas of TCE contamination in saturated and unsaturated soil were identified on the former Bishop Tube property. These source areas have caused degradation of groundwater. In addition to groundwater and surface water exposures, TCE vapors from contaminated soil and groundwater may have entered buildings near the source area or from severely contaminated groundwater. The Existing Conditions Plan, besides showing the buildings, depicts 18 test pits and 37 bedrock/overburden monitoring wells exist on the property; most of them located on the northern half of the property.

Adjacent Land Uses: Uses abutting the north consist of the rail line and commercial uses along US Route 30. Single family detached lots are located east of the property. The rail line abuts the south and an industrial property is located to the west of the property.

Historical Resources: None of the 200+ historic sites/resources shown on the Historic Resources Map contained within the Township Comprehensive Plan of 2001 ("Comp Plan")are on the property.

COMMUNITY FACILITIES & SERVICES

Township and related community facilities and service impacts will be upon schools, public safety (police, fire and ambulance), and other services such as libraries and hospitals/health care facilities, and Township recreation.

Schools

The most obvious demand for services will result from the projected 48 school-aged children. A Fiscal Impact Analysis was prepared for a similar development proposal of the property in April 2014 by David C. Babbitt & Associates, LLC, therefore applicable numbers used therein will be either applied here or referenced. The Fiscal Impact Analysis reported that the number of persons per unit is projected to be 2.22 for the townhomes (3 bedroom units are proposed). The number of persons projected to reside in the proposed development at build-out and full occupancy totals 586 (264 townhomes x 2.22 persons/unit). Table 2 depicts this.

The Fiscal Impact Analysis reported that the number of school age children per unit is projected to be 0.21 for the three bedroom townhomes. The number of public school students is determined by multiplying the number of townhomes by the number of school age children per unit, and by the percentage of school age children in East Whiteland Township attending public schools, which is 86.5% according to the 2010 Census. The number of GVSD students projected to reside in the proposed development at build-out and full occupancy totals 48 (264 townhomes x 0.21 students/unit x 86.5%). The 48 Great Valley School District (GVSD) students are projected to be distributed evenly throughout all 13 grades in the public school system. The new students will attend Sugartown ES (~22 students across grades K-5), Great Valley MS (~11 students across grades 6-8), and Great Valley HS (~15 students across grades 9-12). The GVSD reports a third-day enrollment number of 3,933 students for the 2014-15 school year. The 2014-15 enrollment and capacity figures for each applicable school are: Sugartown ES - 509 & 675; Great MS - 955 & 1,100; and Great Valley HS - 1,216 & 1,250.

Table 2: Demographic Characteristics

	Proposed Housing Units[1]	Population per Unit[2]	Total
Household Population	264	2.22	596
School Age Population[3]	264	0.21	48

[1] Housing units are derived from the development plan.
[2] Population and school-age numbers are from the Fiscal Impact Analysis prepared David C. Babbitt & Associates, LLC, April 2014.
[3] School age children attending GVSD from multiplier in Fiscal impact Analysis that uses 2010 U.S. Census percent.

The Fiscal Impact Analysis indicated that the market value of the proposed townhomes is projected to average $350,000 for the large townhomes and $320,000 for the small townhomes. The market value of the proposed development is projected to total $90,000,000 (80 x $320,000 + 184 x $350,000). The market value is translated into assessed value by multiplying by the most recent Chester County common level ratio of 60.2 percent, from the Pennsylvania State Tax Equalization Board. The assessed value of the proposed development at build-out is projected to total $54,180,000.

While the number of units proposed has changed since the April Analysis, the Fiscal Impact Analysis should still be consulted for more detail and methodology. The real estate tax revenue is determined by applying the School District's using the same method as was used for the Township impact, above, except that the School District's 2013-2014 tax millage rate of 20.00 (the School District raised the millage 2.1% from 19.59 effective July 2014) is applied to the assessed value of the proposed development (totaling $54,180,000). The annual real estate tax revenue is projected to total $1,083,600.

The real estate transfer tax revenue from the proposed development is determined by multiplying the market value of the units by the annual housing turnover rate for townhomes of 10.0 percent, and by the School District's tax rate of 0.5 percent of market value. The annual real estate transfer tax revenue is projected to total $45,000, which is an annual revenue figure that does not include the one-time real estate transfer tax revenue from the initial sales of the units over the build-out period, projected to total $450,000.

Public Safety

The following entities provide service to East Whiteland Township.

Police Protection: The East Whiteland Township Police Department (EWPD) provides coverage and is located 1¾ mile from the property at the Township Building on Conestoga Road. The Police Department is comprised of 21 full-time and 11 part-time patrolmen, and 2 person administrative staff. Administrative Staff indicated that the EWPD have responded to approximately 6,000 annual calls over the past few years.

Discussion with the Pennsylvania Association of Chiefs of Police and the Pennsylvania State Police Department of Patrol revealed their use of dedicated versus non dedicated or obligated versus non-obligated time for patrol and manpower allocation, not the use of population based standards for patrol need or allocation of resources. The recommendation from these agencies was the apportioning of calls based upon current base incidents/responses and projected dwellings or population.

Therefore, assuming that each of the 264 new dwellings reported one type of police related incident, the amount of calls could increase about 4% (264 units ÷ 6,000 annual calls = 0.044). This is an inflated number as not all 264 dwellings will place calls. Also, many of EWPD's responses, arrests, and other actions involved non-residents and as well as the local business community.

Fire Protection: The East Whiteland Volunteer Fire Association, on Planebrook Road, provides primary coverage of the Township with State Certified Firefighter/EMTs. Assistance, when needed, is provided by the Malvern, Paoli, and West Whiteland Fire Companies, and from the West Chester Good Fellowship Ambulance Company. The property is just under 2 miles or approximately 5 minutes from the Fire Association via Planebrook Road, US Route 30, and Malin Road.

The proposed public water supply and hydrant systems shown on the Grading & Utility Plan of the Plan Set coupled with a potential response time of 5 minutes, results in the development to be within acceptable standards. Historically, the National Fire Protection Agency has promoted a standard of 10 minute response time based upon 40 mph for emergency vehicles. The number and location of the proposed fire hydrants are subject to recommended by the Township Engineer and the Fire Association.

Other Services

The Paoli Hospital, located east on US Route 30 in neighboring Willistown Township is 2¼ miles from the property. The Chester County Library is located 4¾ miles west on US Route 30 in Exton and offers over 320,000 items to select from. The Malvern Public Library, located 2 miles southeast in the Borough, offers a selection of 30,000 items.

Recreation Facilities

The impact on the Township's park and recreation services by the proposed residential subdivision follows. Table 3 estimates the Township recreational needs created by this development based on the requirement of §175-40.B(1) of the SLDO and standard used in the East Whiteland Township Park and Recreation Plan (hereinafter of 2003 ("P&R Plan"), along with the population projection in Table 2.

Using this analysis, the proposed development will create a slight increase in demand for recreation, but not a significant impact on the level of recreation services currently experienced by Township residents. As shown in Table 3, the 586 new residents in the proposed 264 townhomes project a need for 6.15-9.70 acres of park land, open space and recreation according to population and dwelling based standards of the aforementioned Township documents.

Table 3: Township Recreation Needs

Land	Need Per 1,000[1]	Projected New Residents[2]	Needs @ 16,000sf/10 DU	Projected Demand
Active Park Land	10.50 acres	586	NA	6.15 acres
Park, Open Space & Recreation	NA	NA	264 DU	9.70 acres

[1] East Whiteland Township Parks and Recreation Plan, 2003.
[2] The projected population of the proposed development when complete (see Table 2).
[3] East Whiteland Township SLDO §175-40.B(1) 16,000sf/10 DU for density of 5 or more DU/Ac.

The Layout Plan proposes 10.40 acres of open space, ~4,755 feet of sidewalk, and ~165 feet of trail linking to proposed adjacent trails and sidewalk. As previously mentioned, the open space will be owned and maintained by a homeowners association created in accordance with the ZO. The proposed trail network will be accessible to the public.

The P&R Plan indicates the Township owns approximately 118 acres of publically accessible recreation sites that consist of 70.3 acres of community parks, 7.9 acres of neighborhood parks, 0.5 acre of tot lots, 15.0 acres of nature preserve, and 24.3 acres of open space. These recreation sites collectively contain the following facilities: 2 little league fields, volleyball court, basketball court, 4 tennis courts, soccer field, 4 tot lot/playgrounds, an amphitheater, numerous pathways/trails (both improved and natural), a fishing pier, picnic grove, 2 pavilions, numerous pedestal grills, 2 sets of restroom facilities. In addition to the abovementioned facilities, the Township Park & Recreation website lists the following proposed improvements to two of the existing parks: Swanenburg Property - 2 baseball fields with overlaying soccer fields, a softball/Little League field, playground equipment, basketball courts, multi-use paths connecting to the Chester Valley Trail, a sitting area, a picnic area with pavilion, parking facilities, lighting, restrooms and a concession building; and Valley Creek Park - resurfacing parking areas, lighting, completion of the stone dust walking trail, restroom and pavilion renovations, a multi-piece play structure and a new picnic area.

The P&R Plan concluded that based upon the NRPA standard of 10.5 acres/1,000 persons that the Township with its 118 acres of park land met the standard of 98 acres (9,333 persons in 2000 x 10.5 acres).

The P&R Plan further concluded that even with 109 acres of the 118 acres that are active recreation when only a percentage of some parks and the facilities at the Great Valley MS and HS are included, the Township

meets the standard. The P&R Plan states that based upon the 2020 population projection of 10,500-12,550, the Township should have 110-131 acres of active park land.

Utility Needs

Public utility needs include electric, gas/heating oil, water, sanitary sewer, cable television and telephone. As stated above, the property will utilize public water facilities provided by Aqua PA and public sewer via a Township Authority-owned conveyance system and VFSA operated treatment facility. The current PADEP and Township usage standard for planning proposes is 250 gallons per day (GPD) for each equivalent dwelling unit (EDU), although actual usage for townhomes can be as low as 125 GPD. Using the 250 GPD standard, the addition of 264 new dwelling units will result in water usage of 66,000 GPD. The VFSA will be contacted regarding sewage treatment capacity as a precursor to Planning Module approval process.

As mentioned above, Fiscal Impact Analysis was prepared in April 2014. The real estate tax revenue is determined using the same method as was used for the School District impact, above, except that the Township's 2014-15 real estate tax millage of 0.445 is applied to the projected assessed value of the proposed development of $54,180,000. The annual real estate tax revenue is projected to total $24,110. The real estate transfer tax revenue from the proposed development is determined by multiplying the market value of the units by the annual housing turnover rate for townhomes of 10.0 percent, and by the Township's tax rate of 0.5 percent of market value. The annual real estate transfer tax revenue is projected to total $45,000. As with the School District, this annual revenue figure does not include the one-time real estate transfer tax revenue from the initial sales of the units over the build-out period, projected to total $450,000.

TRANSPORTATION/CIRCULATION

A Traffic Impact Study is submitted under separate cover.

ENVIRONMENTAL QUALITY IMPACTS

As discussed above, this property was the source of significant groundwater pollution and environmental degradation, which will result in the expenditure of hundreds of thousands of dollars for not only the cleanup, but for the hardscape elements (buildings, paving, monitoring wells, etc.) of the site remain. The land development will essentially facilitate the cleanup of an existing negative environmental impact. The balance of the property consists primarily of woodlands, form which very little if any pollution emanates from. The environmental effects during the period of the land development construction will have the potential for increased stormwater runoff, soil erosion, dust and noise. These construction period effects are controllable, however, and measures to restrict construction period stormwater runoff will eliminate soil erosion and adverse impacts on surrounding properties and stormwater runoff quality.

When completed, the principal environmental effects will include some noise associated with residential traffic and living at the site. There will be no soil erosion and, as previously stated, as all development induced runoff will be retained on the site for release at rates equal to or less than those currently experienced.

A trade-off for the environmental impacts of tree removal, wetland and steep slope encroachment is the site remediation, demolition of buildings, and ultimate clean-up of a targeted property.

BENEFICIAL/ADVERSE IMPACTS

The development of this site will have five long-term, beneficial impacts.

- The first positive, and most important, impact of developing this property is the previously mentioned demolition and remediation of the former Bishop Tube facility and adjacent buildings. This property has a longstanding place on the Township list of contaminated sites needing cleanup. The Comp Plan states "With its industrial history, East Whiteland Township has acquired a legacy of environmental contamination." Figure 2.4.5, Other Sensitive Sites, of the Comp Plan depicts the Bishop Tube property as one of four contaminated properties in the Township. The Plan further states that "Another site in need of environmental cleanup is the Bishop Tube manufacturing site south of the Trenton Cutoff rail line and east of the Malin Road extension under the tracks." The current building is massive and creates a "wall" visible from US Route 30; its removal is a visual benefit.

  Figure 2.7.1, Holding Capacity of the Comp Plan identifies the property as Developable & Redeveloped Land. Both the Comp Plan, in Figure 3.3.1 Land Use Plan in the Growth Management section, and the ZO in the RRD, propose development of the property as Community Mixed Use and Residential Revitalization District respectively.

- A second beneficial impact of developing this property is the permanent preservation of the stream and associated riparian corridor as part of the open space. This stream preservation accomplishes a goal of the Comp Plan and ZO by creating a "riparian corridor" that is generally consistent with the requirements of §200-56 of the ZO, particularly in the southern portion of the site.

- Another positive impact of developing this site is the replenishment of the groundwater supply, which will be accomplished through the use of stormwater infiltration.

- The combination of the proposed trail link and sidewalk network within the development implements a goal of the P&R Plan, which shows a high priority trail link on the Proposed Township-wide Trail System Map that connects Malin Road to Village Way through the property.

- Finally, the increased tax revenue from real estate, transfer, and earned income taxes discussed above is a fiscally positive benefit.

The most significant adverse impacts as a result of the development of the site are visual and include the loss of most of the woodlands. The duration of these adverse impacts will be long-term and permanent.

MITIGATION MEASURES

The mitigative measures that are part of this project include both those required by Township ordinances and those unique to the property site. Required mitigation measures as stipulated in the Township SLDO and ZO are the Erosion and Sedimentation Control Plan, Stormwater Management Plan, and a Landscape Plan. Those measures unique to the property developer involve the site remediation, demolition of the existing buildings, and removal of the monitoring wells.

The use of BMP's for stormwater management is another form of mitigation that limits the need for more or larger retention basins through the use of underground detention facilities that provide stormwater management with enhanced infiltration and groundwater recharge.