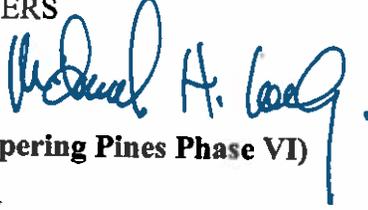


TOWN OF LANSING PLANNING MEMORANDUM

TO: PLANNING BOARD MEMBERS
FROM: MICHAEL H. LONG, AICP 
RE: ASBURY HILL (AKA Whispering Pines Phase VI)
FINAL PLAT SUBDIVISION –
DATE: DECEMBER 9, 2015

The applicant's representative, Larry Fabbri, P.E., is scheduled to appear before the Planning Board at the December 14, 2015 meeting for Final Plat Review of the proposed Asbury Hill (f/k/a Whispering Pines Phase VI) Subdivision proposal. The proposal is revised for 28 +/- lots which are on approximately 68.64 +/- acres on # 40-3-2.12 within the (R1) Residential – Low Density Zone.

This is a follow-up meeting to the Preliminary Plat approval that was held at the May 11, 2015 Planning Board meeting. That meeting included the SEQRA Negative Declaration for the entire project and Final Plat and Site Plan Approval for Lot #7 which was considered Whispering Pines Phase VI – Section 1-A.

The Tompkins County Planning Department has sent a letter dated April 24, 2015, which comments regarding the proposed subdivision plan proposal. In that letter the County Planning Department recommended that the town require designation and maintenance of a 100 foot riparian buffer as measured from the edge of the stream banks on both sides of Gulf Creek and that other stormwater facilities. The Planning Board discussed this in detail at the May 11, 2015 meeting and agreed to allow storm water practices and subsurface changes within this zone. The proposed Final Plat subdivision approval conditions offer the same language as contained within the earlier approval for lot 7.

Project Overview: The original subdivision has been discussed with the earliest map proposed for Whispering Pines Phase VI subdivision dated September 14, 2013. The Planning Board reviewed the sketch plan at its October 7, 2013 meeting and at designated the October 28, 2013 meeting designated it as a as a “Major Subdivision”. The plan was revised and reduced the original 30 lots down to 28 proposed and was presented at the December 8, 2014 meeting. A significant amount of time has been spent on revising and finalizing the Storm Water Pollution Prevention Plan (SWPPP) as the NYS DEC regulations had changed during the review process. The Town Board accepted the waiver request to utilize the 2014 Highway specifications at the November 18, 2015 meeting.

Site Characteristics: The site consists of 68.64+/- acres which is primarily a mix of single family residential and former active crop lands. There is a meandering stream that traverses the site which is a natural feature through the wooded area. A full SWPPP was prepared and submitted with the application for the entire site which has been reviewed by T.G. Miller. Revision has been made to the original SWPPP and a proposed Town of Lansing Drainage District (DD #9) has been submitted to the Town Board for their consideration at the December 16, 2015 meeting.

The proposed overall subdivision plan includes a 2 phased (Lots 1-16 Phase 1) subdivision which would result in 28 lots with four (4) infiltration basins and access proposed as a drainage district to be deeded back to the Town of Lansing. One of the conditions is directed to the proposed "Lot #28 – a Flag Lot" and related site plan approval which would be consider under a condition that the Zoning Board of Appeals (ZBA) grant an area variance to utilize the existing 20 stormwater maintenance access driveway (30 feet is required by the Land Use Ordinance).

Comprehensive Plan / Zoning: The site is in the R1 – Residential Low Density Zone. The area is developed with mixed residential and former agricultural uses. The 2006 Town of Lansing Comprehensive Plan anticipates this to be developed as a residential area, primarily with single family homes.

GML Referral: The proposal was submitted to the Tompkins County Planning Department for 239 GML review. The county responded in a letter dated April 24, 2015 that recommended that "the Planning Board should require the applicant to maintain a 100 foot riparian buffer as measured from the edge of the stream banks on both sides of the perennial stream". This would affect several of the lots within the development. The Planning Board conditioned lot #7 with an earlier approval that permitted some actions with the 100 foot zone for storm water, etc. This proposed Final Plat conditional approval is consistent with the earlier Planning Board approval.

Neighbor Meeting Notices: The Planning staff has sent out notices to notify the adjacent parcels of the proposed action and subdivision plan at the earlier meeting. A "Public Hearing Notice" was formally completed which was held on May 11, 2015. There will be additional neighbor notices sent out for this proposed action as well.

Staff Recommendations: The Planning Board has held the Public Hearing and adopted a SEQRA Negative Declaration for this overall subdivision plan and site plan for Flag lot #28. The Applicant has completed a very detailed SWPPP which was revised and altered due to changing regulations. Additional updates have been completed since the May 11, 2015 Preliminary Plat Approval. The Town Board had already accepted the waiver for highway specifications and proposed Drainage District should be adopted at the December 16, 2015 meeting. Staff recommendation is to issue the Final Plat with the conditions drafted within the proposed resolution. Please feel free to contact me with any additional questions.

December 1,2015

Mr. Thomas Ellis, Chairperson
Town of Lansing Planning Board
Town of Lansing
29 Auburn Road
Lansing, New York 14882

Re: Submission for Final Subdivision Plat Approval

Dear Mr. Ellis:

Attached please find the Final Subdivision Plat for the Asbury Hill Subdivision (formerly known as Whispering Pines VI) as well as the completed SWPPP and materials related to satisfying remaining engineering issues and eventual formation of the drainage district.

I believe our submission is now complete and in answer to all preliminary subdivision approval requests of the Planning Board and various subsequent concerns of staff.

Please do not hesitate to ask for whatever clarification or additional copies of materials you may feel the board may desire. An electronic copy of all materials except the prior engineering report have been resubmitted to the office and could be made available to all interested board members.

Your best effort to hear this matter at your regular meeting on December 14,2015 would be most appreciated.

Sincerely,



Lawrence P. Fabbroni, P.E.,L.S.

xc MIKE LONG

December 1, 2015

Mr. Jack French, Highway Superintendent
Town of Lansing Highway Department
10 Town Barn Road
Lansing, N.Y. 14882

Re: Asbury Hill Subdivision (formerly Whispering Pines VI) & Storm Water Pollution Prevention Plan Review

Dear Jack:

In answer to the remaining items of concern in the letter of Donald M. Harner, P.E., of T.G. Miller, P.C. in his review of the above project materials please find the following:

A. Stormwater Management

SWPPP Narrative:

2. Summary of all WQv, RRV and Cpv with WQv modeled for the 90% (1-inch Storm Event) provided in revised Stormwater Management Summary in Attachment J of SWPPP.
3. Watershed, Drainage Areas Plan revised to include portions of offsite road.
8. Typo, corrected in revised Stormwater Management Summary in Attachment J of SWPPP.
9. Culvert sizes verified, changed in two locations, 18+00 and 20+23 and labeled on plans.

Design Calculations:

1. WQv and RRV calculations are provided, also supported by NYSDEC GI worksheets where they are calculated and presented redundantly. For determination of Cpv required a HydroCad Model of the proposed conditions without any stormwater controls was completed and run. Its engine is the TR-55 method prescribed for this calculation. Modeled output with results are provided in revised Stormwater Management Summary in Attachment J of SWPPP.
4. Ponds 1 and 3 have been revised to show toe of berm armored.
9. All pipe capacities have been checked and model has been revised either by changing the Mannings n from 0.030 for CMP to 0.010 for smooth walled HDPE, also where necessary pipe was upsized.

Drawings

1. Charles Purcell and Mike Long have both indicated that 1"=50' drawings for only the plan and profiles are needed. The balance of the drawings are sufficiently legible at 1"=100' with no need to add to the size or number of those drawings. In addition electronic copies of all drawings are being provided so that enlargements of selected areas can be examined.

2. Phasing also documented in revised SWPPP under 3.0 Project Description.

Stormwater Management Plan

1. Typical homes for the area are shown on every new lot.
2. All Ponds Labeled on revised Plans.
3. A drainage easement map is presented with additional areas recommended by Mr. Harner. A full metes and bounds description of each easement is included on the map for clarity.
4. An existing conveyance path for lots 26,28,30 already exists south of the hedgerow with an existing culvert under the access drive to lot 28 and pond 2. The drainage for these lots is completely off-site with respect to this proposed subdivision.
5. Diversion Swale on Lot #7 extended to clearly show intended conveyance of off site flow around new stormwater management practice.
6. Culvert sizes shown. Inverts are listed for all road crossing culverts on the plan and profile drawings. Driveway culverts for maintenance access to ponds 3 and 4 and the drainageway from the Cayuga Way pond outlet have been added.
8. Bioretention under drain from lot 3 moved such that it does not cross lot 4.
9. Proposed contours labeled clearly on revised pond plans.

Drainage District Plan and Stormwater Easement Map-

1. The district boundaries are shown on the Drainage District Map with a heavy outline. In addition as part of the district formation a metes and bounds description is provided of this district boundary. Lot 22 of Whispering Pines V has been removed from the new district as it was found to be part of the drainage district formed when Whispering Pines V Drainage District was created.
2. Recommendations for vehicle access made by Mr. Harner have been included in the easement boundaries shown on the Drainage Easement map and described by metes and bounds on the map.

Stormwater Pond Plans-

7. Note 6 on end section detail eliminated.
8. Outlet Structures Revised within HydroCAD model such that sizing is verified. See model output in revised Stormwater Management Summary in Attachment J of SWPPP.
9. Pond outlet sloped orifice pipes labeled as to material SCH80 PVC, adjustable valves have been eliminated in design replaced by fixed drilled end caps on the pipes. See Pond Plan and Detail Sheets.
10. The requirement for manhole steps was withdrawn by Mr. Harner.

Stormwater Pond Details

5. Pond topo changes on plans as well as top berm elevation changes on details were made to ensure a foot of freeboard over peak 100-yr water surface elevation.
6. Pond forebay fixed vertical sediment marker detail added to pond detail sheet.

Stormwater Management Details

1. Bioretention detail revised to clearly show 6-inch ponding above mulch layer.
- NYSDEC Notice of Intent

1. No FEMA Flood Plain Map exists for area.
 2. There are no E or F soils on site see soils mapping in appendix 3 of Stormwater Management Summary.
5. Section 7 in SWPPP has been expanded to incorporate 2015 Letter of Record understanding as has Attachment D. Note, return letter from NYOPRHP will be added to Attachment D when received.
 6. No state or federal wetlands or County UNAs have been identified on the site (see appropriate websites). As mentioned above no FEMA Flood Plain Map exists for the area. The plan complies with the Town Planning Board preliminary subdivision approval resolution to prohibit any development activity within 50 feet of the Gulf Stream banks and all but stormwater facilities within 100 feet of the Gulf Stream banks. No development activity is planned in minimal areas subject to Gulf Stream flooding.

Stormwater Drainage District-

6. Asbury Hill has replaced the incorrect heading.
7. This item of the budget presented is a place holder for a first year budget and not an indication of future budgets necessary for subsequent years to be adjusted as part of annual budget process. Historically, this budget amount has been underutilized.
8. The items have been corrected for consistency. However, this item of the budget presented is a place holder for a first year budget and not an indication of future budgets necessary for subsequent years to be adjusted as part of annual budget process. Historically, this budget amount has been underutilized.
9. Two schedules of financing have been presented. One is strictly proportioned according to the acreage of each lot as many other drainage districts in the town have been apportioned. We present a preferred schedule wherein the large acreage lots are given some consideration of a credit since the "developable area of the lots rarely exceeds 2 acres and several lots in this particular subdivision provide buffering of Gulf Stream and include stream setbacks imposed by the Planning Board.

Road Design

3. Missing labels for vertical curves have been added.

Water Design

6. Bedrock is a critical concern for any project in this area of Lansing. A 1 to 2 foot variation in elevation does not historically prompt a need for a hydrant at the absolute apex of the system. Where possible the depth of the watermain will be flattened to eliminate the 1 to 2 foot rise. Air has not proven to be a problem in these slight undulations.

7. Bends have been added on highway horizontal curves to avoid exceeding allowable 3% deflection and keep watermain within highway boundaries.

8. A 10 foot wide easement is provided for lot 28 service along lot 8-9 property line.

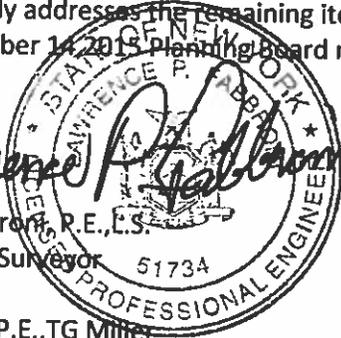
This hopefully fully addresses the remaining items necessary to achieve Final Subdivision Approval at the upcoming December 14, 2015 Planning Board meeting.

Sincerely,



Lawrence P. Fabbro, P.E., L.S.

Project Engineer/Supervisor



- xc. David Herrick, P.E., TG Miller
- Donald Harner, P.E., TG Miller
- Sonia Thaler
- Guy Krogh, Esq., Town Attorney
- Michael Long, Town Planning Consultant
- Kathy Miller, Town Supervisor
- ✓ Tom Ellis, Planning Board Chair

November 4, 2015

Mr. Thomas Ellis, Chairperson
Town of Lansing Planning Board
26 Auburn Road
Lansing, New York 14882

Re: Final Subdivision Submittal-Asbury Hill

Dear Mr. Ellis

Attached please find the complete application and accompanying materials for Final Subdivision Approval of the remaining acreage owned by Richard B. Thaler into 28 lots including enlarging his existing homestead lot. This subdivision now desired to be named Asbury Hill Subdivision received Preliminary Subdivision Approval by your board then known as Whispering Pines VI. With the builder principally in Whispering Pine phases 3-5 involved in other projects it was felt this phase should have its own fresh image and identity.

Since the highway specifications were revised in August by the Town Board, please consider this our formal request to the Planning Board to waive those new regulations and approve the former highway specifications for this project. It is our understanding that such a waiver was provided for projects already in the approval process such as this one that had already received preliminary subdivision approval.

The current submission includes an extensive stormwater management plan as fully contained in an 800 page SWPPP. Subsequent to your approval a drainage district with accompanying restrictions and covenants attached to each lot deed will be proposed to the Town Board for continued maintenance and oversight of the stormwater practices included in this project.

As resolved by your board the Final Subdivision Plat now shows the 50 foot stream setback and 100 foot stream setback lines with accompanying notes to limit activities within the floodway.

We have endeavored to present a thorough and complete final application addressing all the issues raised in earlier plan reviews of this property subdivision.

We look forward to working with your board to address and complete any final issues you may find appropriate to your final approval.

Sincerely



Lawrence P. Fabbroni, P.E.,L.S.

xc. Richard Thaler
Mike Long, Town Planning Consultant
Guy Krogh, Town Attorney
Jack French, Town Highway Superintendent

STORMWATER MANAGEMENT SUMMARY

SITE DATA - GENERAL

Site Notes: This summary is for a proposed single family home development consisting of twenty seven (27) lots, homes, associated asphalt driveway and parking areas, public roads, public water, onsite wastewater treatment (septic system), stormwater management practices/infrastructure, and landscaping on 50.08-AC of land in the Town of Lansing, NY. The project will disturb roughly 15-AC of meadow, brush, weeds, grass, and wooded locations. Of this, there will be 5.03-AC of new impervious surfaces which will yield a site of total of 10% impermeable surface area.

Subcatchment Evaluation: Four drainage areas were used in the stormwater analysis of this proposed subdivision. Reference Drainage Areas Plan Sheet. Drainage Areas 1-4 and their associated design points 1-4. Drainage Area-1 is 10.70-AC in size and consists of proposed lots 1,2,3,4,5,6,&7. Drainage Area -2 is 17.07-AC in size and consists of proposed lots 8,9,10,11,13,14,15,28,22-OffSite, and new road from station 2+80 to station 10+90. (Note: the area of lot 28 excludes easement for existing stormwater pond from previous development. Note also: The area of lot 22 from a previous development is included because new road drainage will change runoff direction and result in it being tributary to new phase of development.) Drainage Area -3 is 11.45-AC in size and consists of proposed lots 12,16,17,18,19,20, and new road from station 10+90 to station 20+24. Drainage Area -4 is 15.86-AC in size and consists of proposed lots 21,22,23,24,25,26, and new road from station 20+24 to station 26+59. Flow from all 4 Drainage Areas enters the Gulf Creek within the same two thousand foot stretch of the water course, so from a practical stand point all could have been considered one Drainage Area. However, in order to incorporate 4-wet ponds at locations which would maximize the number of lots served these 4- Drainage Areas, one for each pond, were helpful for simplifying analysis.

Drainage Area-1, the existing topography moves in an east to west direction over gentle slopes (<2% - 4%) where flow finds its way directly to Gulf Creek, Design Point (DP)-1. Drainage Area-1 has predominately Langford and Erie series soils most all of which are in hydrologic soil class D. For analysis all of Drainage Area-1 was considered to be on hydrologic class D soils. Drainage Area-2, the existing topography moves in an south to north direction over slopes (<3% - 15%) where flow finds its way directly to Gulf Creek, DP-2. Drainage Area-2 has predominately Bath-Valois, Langford and Lordstown series soils, the majority (74%) being hydrologic soil class C, and the balance (26%) being in hydrologic soil class D. For analysis Drainage Area-2 was considered to be 26% hydrologic class D soils and 74% C. Drainage Area-3 the existing topography moves in an south to north direction over slopes (<2% - 6%) where flow finds its way directly to Gulf Creek, DP-3. Drainage Area-3 has predominately Bath-Valois, Ovid, and Wayland series soils the majority (74%) being hydrologic soil class D, and the balance (26%) being in hydrologic soil class C. For analysis Drainage Area-3 was considered to be 26% hydrologic class C soils and 74% D. Drainage Area-4 the existing topography moves in

an south to north direction (excepting lot 26 where topography moves in an east to west direction) over slopes (<2% - 8%) where all flow finds its way directly to Gulf Creek, DP-4. Drainage Area-4 has predominately Bath-Valois, Ovid, Howard, and Lansing series soils the majority (76%) being hydrologic soil class D, and the balance (24%) being in hydrologic soil class C. For analysis Subcatchment-4 was considered to be 24% hydrologic class C soils and 76% D.

Offsite Drainage Area(s): Only one such tributary, the Lakeview Phase III Subdivision Pond discharge on the north west side of onsite Drainage Area-3 has been accommodated through Drainage Area-3 and 4 by a planned drainage channel/swale 2-feet deep by 20-foot wide and a 24-inch diameter smooth wall corrugated polyethylene pipe crossing of proposed road at station 20+25, discharging ultimately to Gulf Creek. The modeled 100-year flow discharge from the Lakeview pond is 27.0-CFS / 2.456-AF.

All proposed subcatchment delineations have been identified as areas in need of water quality treatment due to impacts from construction and added impervious surfaces. Each larger drainage area has been further subdivided into smaller catchments to evaluate specific locations that have been purposely directed to individual treatment practices for water quality treatment and runoff reduction volume. This has been done for twenty six (26) of the twenty seven (27) lots, with perimeter grassed swales and a bioretention practice. Only two (2) lots do not have bioretention practices proposed, lot 19 where it was physically impossible to fit a practice, and lot 22-off site where none was required when lot was approved in an earlier subdivision. All runoff from both lot 19 and 22-off site is routed to wet ponds. Lots 12, 18, 23, 26, and parts of lots 24, and 25 could not have stormwater runoff routed through wet ponds, however all runoff from proposed impermeable surfaces on these lots is routed through bioretention filtration practices. All roadway right-of-way runoff is routed to wet ponds for water quality treatment and runoff rate attenuation purposes. Overall, there are twenty six (26) bioretention practices that have been designed to address green infrastructure runoff reduction volume requirements. Of these twenty six (26) bioretention practices twenty two (22) discharge to wet ponds for further water quality treatment and runoff rate attenuation.

Remaining water quality volume and site runoff quantity controls for the 1, 10 and 100 yr storms have been met through the use of four wet ponds of the micro pool extended detention design. Stormwater runoff from the site is collected by a series of road side ditches/swales, and diversion swales/channels that have been specifically designed to direct flow into each practice. Runoff is attenuated by the practices and slowly outlet through engineered controls where it then continues westerly in Gulf Creek.

Onsite Road Crossing Culvert Sizing: In Drainage Area-2 the road crossing culvert at station 10+91 has been sized 24-inch diameter with a smooth wall corrugated polyethylene pipe to accommodate the peak 100-yr modeled flow through it of 25.85-CFS/1.625-AF. In Drainage Area-3 the road crossing culvert at station 18+10 has been sized 18- inch diameter with a smooth wall corrugated polyethylene pipe to accommodate the peak 100-yr modeled flow through it of 15.97-CFS/0.823-AF. In Drainage Area-4 the road crossing culvert at station 23+37 has been sized 18- inch diameter with a smooth

wall corrugated polyethylene pipe to accommodate the peak 100-yr modeled flow through it of 7.65-CFS/0.461-AF.

Site Control Methods: This project follows the newer DEC design standards on runoff reduction by applying green infrastructure techniques and standard stormwater management practices together to provide source control for added impervious surfaces. The site incorporates twenty six (26) bioretention practices that have been chosen to meet NYSDEC guidance requirements along with four (4) micropool extended detention ponds, standard management practices to supplement.

Rainfall: Rainfall data used in the modeling and analysis was taken from www.precipt.net, from the Northeast Regional Climate Center which is an accepted NYSDEC reference. Rainfall data specific to Tompkins County under consideration, for various 24-hour storm events tabled below:

STORM	24-HOUR RAINFALL
1-year	2.0 inches
10-year	3.41 inches
100-year	5.86 inches

These values were used in modeling for the evaluation of existing and proposed stormwater run-off conditions.

DP-1

RUNOFF REDUCTION VOLUME MANAGEMENT STRATEGY

(See Appendix 1 for Worksheet Analyses)

- 1. Water Quality Volume and Runoff Reduction Stormwater Management Strategy** - Reference modeling results and WQv/RRv worksheets which follow this summary:

The total site water quality volume for DP-1 is

$$\mathbf{WQv = 8,449 CF (0.19 AF)}$$

Of this amount, there was no potential for the conservation of natural areas, protection of riparian areas, tree planting, rooftop disconnection, etc. that would lend to a reduction in total WQv.

$$\mathbf{WQv\ credit = 0 CF (0.00 AF)}$$

Modeling Results Tabled:

(See Appendix 2 for actual modeling data)

*EXISTING
EXISTING FLOW CONDITIONS AT DESIGN POINT (DP1)*

<i>STORM EVENT</i>	<i>PEAK FLOW (CFS)</i>	<i>TOTAL VOLUME (AF)</i>
<i>1-year</i>	<i>4.26</i>	<i>0.380</i>
<i>10-year</i>	<i>14.28</i>	<i>1.154</i>
<i>100-year</i>	<i>35.24</i>	<i>2.839</i>

*PROPOSED
WITHOUT STORMWATER MANAGEMENT
FLOW CONDITIONS AT DESIGN POINT (DP1)*

<i>STORM EVENT</i>	<i>PEAK FLOW (CFS)</i>	<i>TOTAL VOLUME (AF)</i>
<i>1-year</i>	<i>6.99</i>	<i>0.489</i>
<i>10-year</i>	<i>20.44</i>	<i>1.346</i>
<i>100-year</i>	<i>47.05</i>	<i>3.123</i>

*PROPOSED
WITH BIORETENTION AREAS AND PONDS IN-LINE
PROPOSED FLOW CONDITIONS AT DESIGN POINT (DP1)*

<i>STORM EVENT</i>	<i>PEAK FLOW (CFS)</i>	<i>TOTAL VOLUME (AF)</i>
<i>1-year</i>	<i>0.13</i>	<i>0.069</i>
<i>10-year</i>	<i>3.17</i>	<i>0.757</i>
<i>100-year</i>	<i>32.72</i>	<i>2.364</i>

The run-off rates decrease for all the storm events modeled.

Modeling Results Tabled:

(See Appendix 2 for actual modeling data)

*EXISTING
EXISTING FLOW CONDITIONS AT DESIGN POINT (DP1)*

<i>STORM EVENT</i>	<i>PEAK FLOW (CFS)</i>	<i>TOTAL VOLUME (AF)</i>
<i>1-year</i>	<i>4.26</i>	<i>0.380</i>
<i>10-year</i>	<i>14.28</i>	<i>1.154</i>
<i>100-year</i>	<i>35.24</i>	<i>2.839</i>

*PROPOSED
WITHOUT STORMWATER MANAGEMENT
FLOW CONDITIONS AT DESIGN POINT (DP1)*

<i>STORM EVENT</i>	<i>PEAK FLOW (CFS)</i>	<i>TOTAL VOLUME (AF)</i>
<i>1-year</i>	<i>6.99</i>	<i>0.489</i>
<i>10-year</i>	<i>20.44</i>	<i>1.346</i>
<i>100-year</i>	<i>47.05</i>	<i>3.123</i>

*PROPOSED
WITH BIORETENTION AREAS AND PONDS IN-LINE
PROPOSED FLOW CONDITIONS AT DESIGN POINT (DP1)*

<i>STORM EVENT</i>	<i>PEAK FLOW (CFS)</i>	<i>TOTAL VOLUME (AF)</i>
<i>1-year</i>	<i>0.13</i>	<i>0.069</i>
<i>10-year</i>	<i>3.17</i>	<i>0.757</i>
<i>100-year</i>	<i>32.72</i>	<i>2.364</i>

The run-off rates decrease for all the storm events modeled.

**EXISTING
EXISTING FLOW CONDITIONS AT DESIGN POINT (DP2)**

<i>STORM EVENT</i>	<i>PEAK FLOW (CFS)</i>	<i>TOTAL VOLUME (AF)</i>
<i>1-year</i>	<i>3.12</i>	<i>0.389</i>
<i>10-year</i>	<i>14.69</i>	<i>1.420</i>
<i>100-year</i>	<i>41.69</i>	<i>3.858</i>

**PROPOSED
WITHOUT STORMWATER MANAGEMENT
FLOW CONDITIONS AT DESIGN POINT (DP2)**

<i>STORM EVENT</i>	<i>PEAK FLOW (CFS)</i>	<i>TOTAL VOLUME (AF)</i>
<i>1-year</i>	<i>7.40</i>	<i>0.609</i>
<i>10-year</i>	<i>26.92</i>	<i>1.844</i>
<i>100-year</i>	<i>64.20</i>	<i>4.540</i>

**PROPOSED
WITH BIORETENTION AREAS AND PONDS IN-LINE
PROPOSED FLOW CONDITIONS AT DESIGN POINT (DP2)**

<i>STORM EVENT</i>	<i>PEAK FLOW (CFS)</i>	<i>TOTAL VOLUME (AF)</i>
<i>1-year</i>	<i>0.19</i>	<i>0.096</i>
<i>10-year</i>	<i>3.66</i>	<i>1.013</i>
<i>100-year</i>	<i>38.48</i>	<i>3.212</i>

The run-off rates decrease for all the storm events modeled.

*EXISTING
EXISTING FLOW CONDITIONS AT DESIGN POINT (DP3)*

<i>STORM EVENT</i>	<i>PEAK FLOW (CFS)</i>	<i>TOTAL VOLUME (AF)</i>
<i>1-year</i>	<i>3.96</i>	<i>0.345</i>
<i>10-year</i>	<i>14.83</i>	<i>1.120</i>
<i>100-year</i>	<i>38.32</i>	<i>2.860</i>

*PROPOSED
WITHOUT STORMWATER MANAGEMENT
FLOW CONDITIONS AT DESIGN POINT (DP3)*

<i>STORM EVENT</i>	<i>PEAK FLOW (CFS)</i>	<i>TOTAL VOLUME (AF)</i>
<i>1-year</i>	<i>5.71</i>	<i>0.500</i>
<i>10-year</i>	<i>18.39</i>	<i>1.386</i>
<i>100-year</i>	<i>43.20</i>	<i>3.246</i>

*PROPOSED
WITH BIORETENTION AREAS AND PONDS IN-LINE
PROPOSED FLOW CONDITIONS AT DESIGN POINT (DP3)*

<i>STORM EVENT</i>	<i>PEAK FLOW (CFS)</i>	<i>TOTAL VOLUME (AF)</i>
<i>1-year</i>	<i>0.42</i>	<i>0.198</i>
<i>10-year</i>	<i>6.30</i>	<i>0.895</i>
<i>100-year</i>	<i>31.20</i>	<i>2.527</i>

The run-off rates decrease for all the storm events modeled.

**EXISTING
EXISTING FLOW CONDITIONS AT DESIGN POINT (DP4)**

<i>STORM EVENT</i>	<i>PEAK FLOW (CFS)</i>	<i>TOTAL VOLUME (AF)</i>
<i>1-year</i>	<i>4.94</i>	<i>0.476</i>
<i>10-year</i>	<i>18.64</i>	<i>1.548</i>
<i>100-year</i>	<i>48.38</i>	<i>3.955</i>

**PROPOSED
WITHOUT STORMWATER MANAGEMENT
FLOW CONDITIONS AT DESIGN POINT (DP4)**

<i>STORM EVENT</i>	<i>PEAK FLOW (CFS)</i>	<i>TOTAL VOLUME (AF)</i>
<i>1-year</i>	<i>7.23</i>	<i>0.617</i>
<i>10-year</i>	<i>23.26</i>	<i>1.786</i>
<i>100-year</i>	<i>54.06</i>	<i>4.290</i>

**PROPOSED
WITH BIORETENTION AREAS AND PONDS IN-LINE
PROPOSED FLOW CONDITIONS AT DESIGN POINT (DP4)**

<i>STORM EVENT</i>	<i>PEAK FLOW (CFS)</i>	<i>TOTAL VOLUME (AF)</i>
<i>1-year</i>	<i>1.80</i>	<i>0.316</i>
<i>10-year</i>	<i>10.06</i>	<i>1.013</i>
<i>100-year</i>	<i>37.48</i>	<i>2.839</i>

The run-off rates decrease for all the storm events modeled.

TOWN OF LANSING

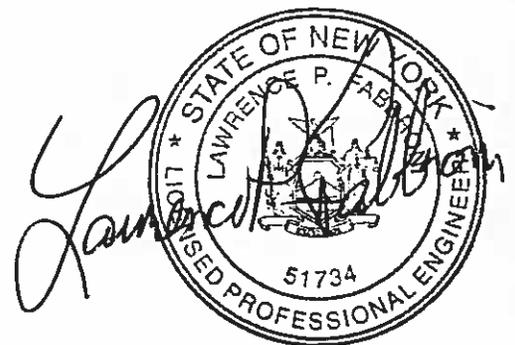
TOMPKINS COUNTY, NEW YORK

OCTOBER 23, 2015

ENGINEER'S REPORT

PROPOSED TOWN OF LANSING
Drainage District : ASBURY HILL Subdivision

PREPARED BY:
Lawrence P. Fabbroni, P.E.
1 Settlement Way
Ithaca, New York 14850



ENGINEER'S REPORT

**PROPOSED TOWN OF LANSING
DRAINAGE DISTRICT: ASBURY HILL SUBDIVISION**

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SECTION 1-INTRODUCTION

ASBURY HILL Subdivision (“the Subdivision”), located in the Town of Lansing, was granted final subdivision approval in 2015. Consequently, the development is regulated under the New York State Department of Conservation (DEC) Permit GP-0-15-002, which regulates stormwater management for construction activity. In accordance with this permit, the Stormwater Management Pollution Prevention Plan (SWPPP) provided a post construction stormwater treatment system consisting of individual lot biofilters and small forebays and ponds.

Since Mr. Richard B. Thaler is no longer able to ensure ongoing maintenance for the post construction stormwater pond and series of swales that convey stormwater to the pond that the SWPPP for phase 5 of Whispering Pines Subdivision provided, these facilities upon further legal direction must remain the responsibility of the existing Drainage District #2: Whispering Pines V Subdivision even though it is within lot 28.

State standards require ongoing maintenance of these practices, and that maintenance responsibility ... shall be vested with a responsible authority by means of a legally binding and enforceable maintenance agreement...” In order to insure ongoing stormwater maintenance, Richard B. Thaler (“the Developer”) has requested that the stormwater practices in the Asbury Hill Subdivision be maintained by the Town and that permanent easements and rights-of-way be granted to the Town of Lansing where out of town highway boundaries or within already existing maintenance easements granted as a part of Drainage District #2:Whispering Pines V Subdivision. In order to secure funding for this maintenance, the Town is pursuing placing the entire ASBURY HILL SUBDIVISION in a Drainage District, which will provide the finances for long-term stormwater practices maintenance.

SECTION 2-SERVICE AREA

The ASBURY HILL Subdivision will involve a total of 27 new lots and an expansion of the Thaler homestead lot on Asbury Road. All the lots are to be included in the Drainage District proposed. It is approximately 70.68 acres.

Table 1: TAX PARCELS IN THE PROPOSED DRAINAGE DISTRICT

TAX MAP PARCEL#/PROPOSED LOT #	OWNER
P.O.40-3-2.12/PROPOSED LOT 1	RICHARD B. THALER
P.O.40-3-2.12/PROPOSED LOT 2	RICHARD B. THALER
P.O.40-3-2.12/PROPOSED LOT 3	RICHARD B. THALER
P.O.40-3-2.12/PROPOSED LOT 4	RICHARD B. THALER
P.O.40-3-2.12/PROPOSED LOT 5	RICHARD B. THALER
P.O.40-3-2.12/PROPOSED LOT 6	RICHARD B. THALER
P.O.40-3-2.12/PROPOSED LOT 7	RICHARD B. THALER
P.O.40-3-2.12/PROPOSED LOT 8	RICHARD B. THALER
P.O.40-3-2.12/PROPOSED LOT 9	RICHARD B. THALER
P.O.40-3-2.12/PROPOSED LOT 10	RICHARD B. THALER
P.O.40-3-2.12/PROPOSED LOT 11	RICHARD B. THALER
P.O.40-3-2.12/PROPOSED LOT 12	RICHARD B. THALER
P.O.40-3-2.12/PROPOSED LOT 13	RICHARD B. THALER
P.O.40-3-2.12/PROPOSED LOT 14	RICHARD B. THALER
P.O.40-3-2.12/PROPOSED LOT 15	RICHARD B. THALER
P.O.40-3-2.12/PROPOSED LOT 16	RICHARD B. THALER
P.O.40-3-2.12/PROPOSED LOT 17	RICHARD B. THALER
P.O.40-3-2.12/PROPOSED LOT 18	RICHARD B. THALER
P.O.40-3-2.12/PROPOSED LOT 19	RICHARD B. THALER
P.O.40-3-2.12/PROPOSED LOT 20	RICHARD B. THALER
P.O.40-3-2.12/PROPOSED LOT 21	RICHARD B. THALER
P.O.40-3-2.12/PROPOSED LOT 22	RICHARD B. THALER
P.O.40-3-2.12/PROPOSED LOT 23	RICHARD B. THALER
P.O.40-3-2.12/PROPOSED LOT 24	RICHARD B. THALER
P.O.40-3-2.12/PROPOSED LOT 25	RICHARD B. THALER
P.O.40-3-2.12/PROPOSED LOT 26	RICHARD B. THALER
P.O.40-3-2.12&40-3-2.2/PROPOSED LOT 27	RICHARD B. THALER
P.O.40-3-2.12&41-2-46 PROPOSED LOT 28	RICHARD B. THALER

SECTION 3- OVERVIEW OF MAINTENANCE RESPONSIBILITIES

Under this proposal, the District will assume maintenance responsibility for the permanent stormwater practices within the District boundary dedicated by the Developer to the Town. The Developer will remain responsible for complying with the requirements of the NYSDEC Permit GP-0-15-002 permit. The roles and responsibilities of the Town and Developer are outlined below.

3.1 Town of Lansing

The Town will be responsible for maintaining stormwater practices within the Subdivision that are dedicated in fee or encumbered by permanent easements, as outlined in the report and shown on the Asbury Hill Final Subdivision Map, shown on easement maps, or shown within the Drainage district. In addition, the Town will be responsible for administration of the Drainage

District, including tracking expenses, assessing fees, and collecting fees to fund ongoing maintenance.

3.2 The Developer(Richard B. Thaler)

Under GP-0-15-002, the individuals who retain permit coverage are responsible for and liable under this permit until a Notice of Termination (NOT) is filed with the NYSDEC. A (NOT) cannot be filed until the site is completely stabilized and all construction is completed, Until that time, the Developer must comply with the following elements of the permit:

- 1) Fees for continuing permit coverage.
- 2) Construction inspections for ongoing construction activity.
- 3) Ensuring final site stabilization
- 4) Responsibility and liability for water violations caused by construction activity within the Subdivision.
- 5) Filing for a (NOT) to terminate permit coverage.

SECTION 4- OVERVIEW OF MAINTENANCE ACTIVITIES

As a part of Whispering Pines V Subdivision the Developer constructed a series of swales that convey runoff to the stormwater pond shown on lot 28 in the Whispering Pines VI Subdivision. The pond receives drainage from the majority of the Whispering Pines V subdivision as well as previously completed phases of the Whispering Pines neighborhood and the Pheasant Meadow Subdivision to the west. As part of this proposal the pond site will remain in private ownership and a part of the maintenance responsibility of Town of Lansing Drainage District #2 Whispering Pines V Subdivision and will not be dedicated to the Town. Easements have been previously granted to the Town for access to the drainage swale abutting Whispering Pines V Lots 24,26,29,and 31 as well as the pond.

As a part of the Asbury Hill Subdivision individual biofilters will be constructed as each lot is developed. Four small forebays and ponds will be constructed to treat the balance of the runoff with a permanent easement for access to the ponds and key drainage ditches leading to the ponds to be granted to the Town.

Maintenance activities for all these practices may include annual inspections, routine maintenance, and emergency repairs. This section outlines some of the routine activities needed to maintain both the long-term pollutant removal and structural integrity of the stormwater practices. These activities are encompassed within six general categories as described below. In addition, Table 2 outlines some of the detailed activities with these categories, together with an estimated frequency.

Inspections

An annual inspection is needed to monitor the forebays and small ponds and swales over time. In the long term, these inspections reduce expenses by allowing the Town to address small problems as they occur with relatively low-cost solutions.

Sediment and Debris Removal

Sediment, trash and other debris accumulate within stormwater practices at a fairly constant rate. As sediment accumulates in stormwater practices, they lose their capacity to treat stormwater. In addition, the sediment can clog outflow pipes and reduce the capacity of channels and swales. Some typical maintenance activities include removing sediment and debris, and unclogging outlet pipes.

Vegetation Management

Vegetation can enhance pollutant removal in some stormwater management practices, but needs to be managed. Mowing is necessary to maintain a safe pond embankment, and to retain the capacity of swales. In addition, algae can create odor issues, and invasive plants such as cattails can create mosquito habitat.

Animals and Nuisances

Some typical nuisance issues for stormwater ponds are mosquitos and burrows. Mosquitos can sometimes breed in ponds, particularly if dense vegetation develops. Some non-toxic methods are available to discourage mosquito breeding. Animal burrows damage pond embankments, and need to be filled immediately.

Erosion

Over time soil erosion can occur at some critical points in a stormwater management practice, particularly when bare soil exists. When erosion occurs, the area needs to be stabilized to prevent damage.

Structural Repairs

Although the stormwater ponds that serve this Subdivision have relatively few moving parts and structural elements, some long term repairs may be needed. These will include replacing or repairing cracked pipes, concrete, and metal grates as needed.

Table 2. STORMWATER MAINTENANCE ACTIVITIES FOR DRAINAGE DISTRICT WHISPERING PINES VI SUBDIVISION

Maintenance Item	Frequency(years)1,2	Practices Where Performed
Inspections		
Inspection	1	Ponds and Swales
Sediment and Debris Removal		
Unclog PVC outlet pipes	2	Ponds
Debris/Trash Removal	1	Ponds, Biofilters and Swales
Remove sediment from forebay	5	Pond
Remove sediment from swales	5	Swales
Dredge ponds	20	Ponds
Remove accumulated sediment in riprap Conveyances, and level spreaders	5	Pond
Vegetation Management		
Mowing	1	Pond embankment & swales
Tree removal from embankment	10	Pond embankment (should be limited by mowing)
Cattail management	1	Ponds
Algae treatment	As needed in early spring	
Animal Nuisance		
Remove animal burrows from Pond embankment	5	Ponds
Mosquito treatment	4months (as needed)	Ponds
Erosion		
Repair areas of erosion	2-5	Pond shoreline,swales,pond Outlets
Replace rip rap channels	20	Within pond & @pond outlet
Structural Repairs		
Repair low spots on embankment	5	Ponds
Repair or replace manhole grates	25	Pond
Replace cracked low flow orifice	2	Pond
Repair cracks in concrete	10	Pond
Replace CMP Barrel	25	Pond
Replace riser structure	50	Pond

1.Maintenance Frequencies derived from the "Stormwater Manager's Resource Center" created by the Center for Watershed Protection, Ellicott City, Maryland.

2. Frequency may vary, and the need for maintenance will be determined by the annual inspection.

SECTION 5- FIRST YEAR MAINTENANCE COST ESTIMATES

This section estimates first year maintenance costs with the goal of establishing an initial assessment rate for land owners of the properties of the District. Over time, these costs will vary based on the occurrence of relatively high cost items. The cost estimates include assumptions regarding the items that will occur within the first year, the extent (e.g. area) of these items, and the unit cost. A first year maintenance plan, along with cost estimates is presented in Table 3.

Table 3. COST OF FIRST YEAR MAINTENANCE

Maintenance item	Description	Unit Cost	Extent	Cost
Inspection	Inspect using forms derived from Appendix G of the "New York Stormwater Design Manual	\$50/hour	8 hours	\$400
Unclog PVC outlet Pipes	Remove accumulated debris from the outlet pipes, possibly by jet Cleaning	\$400	1 time	\$300
Mowing	Mow the pond embankments and And swales	\$300/Ac	3 acres	\$900
Cattail management	Weed Wack cattails in the summer	\$35/hour	4 hours	\$120
Fill animal burrows In embankment	Need to fill with dirt and compact Requires importing some soil	\$200	2 burrows/yr.	\$400
Mosquito treatment	Treat with Mosquito Dunks in Breeding season once per month. 1 Dunk/100sf pond areas 7500	\$2.50/dunk	75 dunks/3x	\$565
Repair Areas of Erosion	Replace topsoil and reseed in two Areas	\$220/area	2 areas	\$440
Repair Low Spots on the embankments	Import soil and compact to achieve original grade	\$500	1	\$500
TOTAL ESTIMATED COST				\$3625

The first year maintenance items are derived from the maintenance frequencies presented in Table 2, with the following assumptions:

- 1) Items listed as annual or more frequent occur within the first year, as the frequency named. The single exception to this rule is algae removal, which is typically an annual activity, but does not usually begin to be necessary until the pond is in place for many years.
- 2) Although unclogging the low flow orifice is assumed to occur once every two years, it is assumed that this will be required in the first year.
- 3) Some erosion occurs within the swales leading to the pond and the practices and will need to be repaired.
- 4) As a contingency, it is assumed that the two five year frequency items, repairing low spots on the embankment and removing animal burrows, occur in the first year.
- 5) Mowing is needed on pond embankments and swales, representing a total of approximately 4 acres.
- 6) Each inspection takes about six hours of staff day, including a site visit by two people, travel time, and report writing.
- 7) Mosquito treatment is achieved using the bacteria *Bacillus thuringiensis* (BTI) in the form of "mosquito dunks", as a solid form of this bacteria placed around the pond edges in vegetation, and cast into the pond as well. Each application will require approximately 90 dunks.
- 8) Cattail management includes cutting "weed whacking" cattails at their base in the late summer.

These items will include stormwater facilities for both Whispering Pines V Subdivision formerly included in Whispering Pines V Subdivision Drainage District 2 and the additions within Asbury Hill Subdivision.

SECTION 6- METHOD OF FINANCING

Estimate of First Year Maintenance Charges

The cost of annual maintenance completed by the Town will be assessed to the owners of taxable land with the Drainage District, based on one unit for each parcel basis since it is expected the impervious area per lot will be fairly equal. Thus, the maintenance charge to each parcel is proposed to be equal for all 29 lots proposed to be in the new Drainage District.

Using the estimated cost of \$3625 derived from Table 3, and the lots listed in Table 1 as shown on the Final Subdivision Plat, the estimated first year maintenance fees are presented in Table 4

TABLE 4. ESTIMATES FIRST YEAR STORMWATER MAINTENANCE FEES

TAX PARCEL	LOT#	OWNER	ACRES	ESTIMATED FEE
P.O.40-3-2.12/PROPOSED LOT 1		RICHARD B. THALER	1.01	\$60
P.O.40-3-2,12/PROPOSED LOT 2		RICHARD B. THALER	1.01	\$60
P.O.40-3-2.12/PROPOSED LOT 3		RICHARD B. THALER	1.01	\$60
P.O.40-3-2.12/PROPOSED LOT 4		RICHARD B. THALER	1.21	\$70
P.O.40-3-2.12/PROPOSED LOT 5		RICHARD B. THALER	1.21	\$70
P.O.40-3-2.12/PROPOSED LOT 6		RICHARD B. THALER	1.64	\$95
P.O.40-3-2.12/PROPOSED LOT 7		RICHARD B. THALER	3.30	\$195
P.O.40-3-2.12/PROPOSED LOT 8		RICHARD B. THALER	1.60	\$95
P.O.40-3-2,12/PROPOSED LOT 9		RICHARD B. THALER	1.60	\$95
P.O.40-3-2.12/PROPOSED LOT 10		RICHARD B. THALER	1.60	\$95
P.O.40-3-2.12/PROPOSED LOT 11		RICHARD B. THALER	1.60	\$95
P.O.40-3-2.12/PROPOSED LOT 12		RICHARD B. THALER	1.60	\$95
P.O.40-3-2.12/PROPOSED LOT 13		RICHARD B. THALER	1.60	\$95
P.O.40-3-2.12/PROPOSED LOT 14		RICHARD B. THALER	1.60	\$95
P.O.40-3-2.12/PROPOSED LOT 15		RICHARD B. THALER	1.60	\$95
P.O.40-3-2.12/PROPOSED LOT 16		RICHARD B. THALER	1.60	\$95
P.O.40-3-2.12/PROPOSED LOT 17		RICHARD B. THALER	1.43	\$85
P.O.40-3-2.12/PROPOSED LOT 18		RICHARD B. THALER	2.41	\$140
P.O.40-3-2.12/PROPOSED LOT 19		RICHARD B. THALER	1.87	\$110
P.O.40-3-2.12/PROPOSED LOT 20		RICHARD B. THALER	1.24	\$70
P.O.40-3-2.12/PROPOSED LOT 21		RICHARD B. THALER	1.00	\$60
P.O.40-3-2.12/PROPOSED LOT 22		RICHARD B. THALER	1.00	\$60
P.O.40-3-2.12/PROPOSED LOT 23		RICHARD B. THALER	2.13	\$125
P.O.40-3-2.12/PROPOSED LOT 24		RICHARD B. THALER	3.88	\$225
P.O.40-3-2.12/PROPOSED LOT 25		RICHARD B. THALER	4.08	\$240
P.O.40-3-2.12/PROPOSED LOT 26		RICHARD B. THALER	2.89	\$170
P.O.40-3-2.12&40-3-2.2/PROP LOT 27		RICHARD B. THALER	8.46	\$480
P.O.40-3-2.12&41-2-46 PROP LOT 28		RICHARD B. THALER	6.77	\$395
TOTAL			\$3625	

Method of Assessment

The charges to finance the costs of this district will be included in the annual Town/County tax bill. Although estimated first year charges are included in this report, the calculated charge will be a reimbursement for actual maintenance activities of each preceding year. The Town will track all maintenance activities and the resulting costs in labor and equipment, and annually adjust the amount to be raised from each district land owner.

APPENDIX A

DESCRIPTION FOR TOWN OF LANSING DRAINAGE DISTRICT, ASBURY HILL SUBDIVISION, TOWN OF LANSING, TOMPKINS COUNTY, STATE OF NEW YORK

That Tract or Parcel of Land situate in the Town of Lansing, County of Tompkins, and State of New York bounded and described as follows:

Beginning at a point being the northwest corner of lot 30 of the Subdivision Plat of Whispering Pines V, thence $N7^{\circ}44'E$ 250 feet; thence $N82^{\circ}09'56"W$ 409.21 feet to the northwest corner of lot 22 at the east boundary of WB Property Group LLC lands subdivided as Cayuga Way; thence $N7^{\circ}48'07"E$ 958.57 feet north along the east boundary of the WB Property Group LLC lands, thence $N82^{\circ}03'28"W$ 307.04 feet west along the north boundary of the WB Property Group LLC lands, thence $N83^{\circ}09'07"W$ 300.65 feet west along the north boundary of the WB Property Group LLC and WB Realty Group LLC lands; thence $N7^{\circ}12'47"E$ 874.40 feet north along the east property boundaries of Breck and Morse; thence $S80^{\circ}45'19"E$ 257.87 feet east along the south property boundary of Armstrong; thence $S82^{\circ}00'48"E$ 736.99 feet east along south property boundary of Armstrong to the centerline of Asbury Road; thence on a curve to the left along the centerline of Asbury Road feet along the north boundary of Thaler T.P. 40-3-2.2 a chord course $S82^{\circ}23'23"E$ 297.59; thence along the centerline of Asbury Road $S82^{\circ}49'51"E$ 698.84 feet the centerline of Warren Road; thence along the centerline of Warren Road $S8^{\circ}14'26"W$ 629.67 feet to the northeast corner of the Zanetti T.P.40-3-3; thence $N81^{\circ}51'50"W$ 209.10 feet to the northwest corner of the Zanetti T.P.40-3-3 thence on an average course $S8^{\circ}08'13"W$ 561.93 feet south along the west boundary of properties along Warren Road to the southwest corner of Sperger T.P. 40-3-6, thence on an average course $S8^{\circ}11'57"W$ 890.80 feet continuing south along the west boundary of properties along Warren Road to the southwest corner of Stevenson T.P. 40-3-13, thence $N77^{\circ}38'24"W$ 26.34 feet to northwest corner of Singh T.P. 41-2-47, thence $N82^{\circ}09'56"W$ 715.00 feet to the point or place of beginning.

The above described area as shown on Map, "Drainage District, Town of Lansing, County of Tompkins, State of New York, , Asbury Hill Subdivision", by Lawrence P. Fabbroni, N.Y.S.L.S.#49682, N.Y.S.P.E.#51734, dated March 20,2015, revised September 29,2015 and November 4,2015.

SECTION 6- METHOD OF FINANCING

Estimate of First Year Maintenance Charges

The cost of annual maintenance completed by the Town will be assessed to the owners of taxable land with the Drainage District, based on one unit for each parcel basis since it is expected the impervious area per lot will be fairly equal. Thus, the maintenance charge to each parcel is proposed to be equal for all 29 lots proposed to be in the new Drainage District.

Using the estimated cost of \$3625 derived from Table 3, and the lots listed in Table 1 as shown on the Final Subdivision Plat, the estimated first year maintenance fees are presented in Table 4

TABLE 4. ESTIMATES FIRST YEAR STORMWATER MAINTENANCE FEES

TAX PARCEL	LOT#	OWNER	ACRES	ESTIMATED FEE
P.O.40-3-2.12/PROPOSED	LOT 1	RICHARD B. THALER	1.01	\$83
P.O.40-3-2,12/PROPOSED	LOT 2	RICHARD B. THALER	1.01	\$83
P.O.40-3-2.12/PROPOSED	LOT 3	RICHARD B. THALER	1.01	\$83
P.O.40-3-2.12/PROPOSED	LOT 4	RICHARD B. THALER	1.21	\$100
P.O.40-3-2.12/PROPOSED	LOT 5	RICHARD B. THALER	1.21	\$100
P.O.40-3-2.12/PROPOSED	LOT 6	RICHARD B. THALER	1.64	\$132
P.O.40-3-2.12/PROPOSED	LOT 7	RICHARD B. THALER	3.30(2 max)	\$165
P.O.40-3-2.12/PROPOSED	LOT 8	RICHARD B. THALER	1.60	\$132
P.O.40-3-2,12/PROPOSED	LOT 9	RICHARD B. THALER	1.60	\$132
P.O.40-3-2.12/PROPOSED	LOT 10	RICHARD B. THALER	1.60	\$132
P.O.40-3-2.12/PROPOSED	LOT 11	RICHARD B. THALER	1.60	\$132
P.O.40-3-2.12/PROPOSED	LOT 12	RICHARD B. THALER	1.60	\$132
P.O.40-3-2.12/PROPOSED	LOT 13	RICHARD B. THALER	1.60	\$132
P.O.40-3-2.12/PROPOSED	LOT 14	RICHARD B. THALER	1.60	\$132
P.O.40-3-2.12/PROPOSED	LOT 15	RICHARD B. THALER	1.60	\$132
P.O.40-3-2.12/PROPOSED	LOT 16	RICHARD B. THALER	1.60	\$132
P.O.40-3-2.12/PROPOSED	LOT 17	RICHARD B. THALER	1.43	\$118
P.O.40-3-2.12/PROPOSED	LOT 18	RICHARD B. THALER	2.41(2max)	\$165
P.O.40-3-2.12/PROPOSED	LOT 19	RICHARD B. THALER	1.87	\$152
P.O.40-3-2.12/PROPOSED	LOT 20	RICHARD B. THALER	1.24	\$100
P.O.40-3-2.12/PROPOSED	LOT 21	RICHARD B. THALER	1.00	\$83
P.O.40-3-2.12/PROPOSED	LOT 22	RICHARD B. THALER	1.00	\$83
P.O.40-3-2.12/PROPOSED	LOT 23	RICHARD B. THALER	2.13(2 max)	\$165
P.O.40-3-2.12/PROPOSED	LOT 24	RICHARD B. THALER	3.88(2 max)	\$165
P.O.40-3-2.12/PROPOSED	LOT 25	RICHARD B. THALER	4.08(2max)	\$165
P.O.40-3-2.12/PROPOSED	LOT 26	RICHARD B. THALER	2.89(2max)	\$165
P.O.40-3-2.12&40-3-2.2/PROP	LOT 27	RICHARD B. THALER	8.46(2max)	\$165
P.O.40-3-2.12&41-2-46 PROP	LOT 28	RICHARD B. THALER	6.77(2max)	\$165
TOTAL			\$3625	