



November 1, 2021 Revised December 1, 2021 Updated December 3, 2021 with Plan revisions

Planning Board  
Town of Wenham  
138 Main Street  
Wenham, MA 01984

*via email & us mail:*

RE: Peer Review  
Definitive Subdivision Plan  
60 Arbor Street, Wenham, MA  
Project No. 5532

Dear Members of the Board:

Thank you for this opportunity to work with the Board in this review of the Definitive Subdivision Plan on Arbor Street. It is our understanding that the Board has requested a full comprehensive review of this submittal for compliance with the Zoning By-law, Rules and Regulations Governing the Subdivision of Land, Stormwater By-laws and the Stormwater Regulations.

The submittal data reviewed includes the following:

1. Definitive Subdivision Application dated 8/17/2021
2. Definitive Subdivision Plan prepared by Decoulos & Company, LLC, dated 8/16/2021
3. Revised Stormwater Report prepared by Decoulos & Company, LLC, dated 10/30/2020
4. Environmental Assessment prepared by Decoulos & Company, LLC, dated 2/10/2021
5. Wenham Planning Board Disapproval of Definitive Subdivision Plan, filed with Wenham Town Clerk on 3/16/2021
6. Order on Summary Judgment vs. Wenham Planning Board by MA Trial Court Superior Court, Docket No. 1677CV01626
7. Response letter from Decoulos & Company dated November 18, 2021.
8. Definitive Subdivision Plan set by Decoulos & Company, LLC dated 12/2/21 for Cover Sheet and sheets C1-C-5, and C-8 and dated 8/16/21 for sheets C6, C7 and sheet C9.

**NOTE:** All updates to this letter as a result of the response letter are shown in red to facilitate the Board's review.

## I. EXECUTIVE SUMMARY OF FINDINGS:

There are many waivers which are needed from the Board and plan revisions in order for this plan to be approved as submitted. Many of the points of discussion with the Applicant's engineer and this office is the assertion that this subdivision is simply for the construction of a single family driveway. While we do not disagree that the end result is a single family driveway, the subdivision process is needed to create the frontage for this single family lot. As such, many waivers from the subdivision regulations are needed to allow the waiver construction standards to allow a single driveway.

It is true that the regulations provide minor streets “may be built to less exacting standards than those hereinafter prescribed for arterial, collector, local or local modified streets” (2.1.1.33) however, the applicant must request permission for these standards to be waived to a less exacting standard that a driveway would require. (NO NEW INFORMATION WITH REVISED PLANS)

## DISCUSSION OF 40' RADIUS

In our first review, this office identified the 40' radius at the intersection required under 4.1.3.5, to be a potentially fatal flaw to the design. Mr. Decoulos has replied that he believes his design, incorporating at small segment of an arc with a 40' radius tangent to a 10' radius meets the requirements.

This office continues to disagree with Mr. Decoulos. He has treated the intersection as a short length of a curve rather than viewing the intersection as a whole. It is our belief that the intent of this regulation is to provide a 40' radius fillet curve for the entire intersection rather than a small segment. If the intent of the subdivision regulations was to allow a small segment instead of a 40' radii transition, the 40' radius segment could have been only 2' long and still meet the requirement. It is our opinion that the intent of this regulation is to allow the edge of pavement to mirror the edge of Right of Way (See section 4.4.5.4) providing adequate room for vehicle turning movements in the intersection and an adequate shoulder.

As designed, the length of the 40' radius is 6.25' with the length of a 10' radius of 24.13' on the northerly side. If the intersection is viewed to include the transition from the existing roadway to where it straightens out on the new roadway then the effective radius is 10'. We note that the vehicle turning diagram shows that the intersection is insufficient to keep the wheels and overhangs within the proposed pavement and that the pavement is skewed and the pavement fillet curve is not tangent to Arbor Street. (please see attached blow up of the turning movements shown in the plans)

Mr. Decoulos discusses the use of compound curves which are not addressed for a minor street in the subdivision regulations. Curvilinear streets are generally encouraged in planning as it slows traffic down. The transition from an access neck to a cul-de-sac has to include a compound curve to provide a smooth transition. We are not disagreeing with this point. We find references to Delaware and California irrelevant. The references to other abutting town's regulations is relevant only as it applies to a waiver. If Mr. Decoulos believes a 10' radius is sufficient for a single house lot developed with these plans, then a waiver from the regulations should be requested. NO NEW INFORMATION WITH REVISED PLAN.

## II. RESOLUTION OF DISAPPROVAL OF DEFINITIVE SUBDIVISION dated March 16, 2021

This section is taken directly from the Planning Board's decision. Several items have been fully resolved with the revisions. Others have either been partially resolved or have created new issues or non-compliance with other sections of the Subdivision Regulations. The most critical item not resolved is the 40' minimum radius for property lines at an intersection. Many of these items are discussed in greater detail further below under Compliance with Subdivision Rules and Regulations.

1. §3.3.3.16.1- No monuments or benchmarks are shown on the grading plan. Four-foot elevation above high water mark not shown. No FEMA mapping information is shown on the Final Plan. Two-foot contour intervals and legends are not shown on the Final Plan.

Partially Resolved. Monuments, benchmarks, legend and contours were added to the Existing Conditions Plan. The cover letter indicates that there was no groundwater or flood plain on the site.

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The flood plain should have been addressed in note form. The presence of an isolated freshwater wetlands indicates that the water table is within several feet of the surface and the 4' above the highest water in 100 years could have been extrapolated from the wetlands. ~~To be~~ NOT resolved with Plan revisions

2. §3.3.3.17.1 - Wherever possible, the utility plan should be included on a separate sheet for clarity. The utility plan is not shown on a separate sheet and should include items as listed under this section. The following is not provided on the Final Plan:
  - o §3.3.3.17.2 - Soil test pit data -not shown on the Plan

~~To be~~ Partially resolved – test data provided. Utility plan shows contours and grading (not needed) but does not show the drainage system. It appears that there may be a conflict with the drainage, water and gas lines in the access neck.

3. §3.3.3.20.1 - A typical roadway cross section is not shown on the Final Plan.

NOT resolved with Plan revisions. The cross section for the 16' for the wide neck has not been provided. The cross section for the 20' width shows a swale where the shoulder is in cut – this is not reflected in the grading plan.

4. §3.3.4.1 - The centerline of the proposed roadway has not been staked at 100-foot intervals with stakes indicating the cut and fill at each, as well as the lot frontages at the time of filing

Resolved

5. §3.3.5.1.1 - Test pits for the storm water system were not provided and specifically not provided in the areas where the system is proposed.

Resolved

6. §3.3.5.2.1 - Test pits have not been submitted and stamped by a Registered Professional Engineer.

Resolved with data shown on the Existing Conditions Plan.

7. §3.3.5.3.1 - Test pits are not shown at 200-foot intervals along the proposed centerline, at cut sections, or at areas of questionable subsurface material. Test pits must also be inspected before backfilling by the Health Agent. The layout of the subsurface test pit program is not shown on the Final Plan.

Resolved

8. §4.1.2.2.2.1 - Lot 7 appears to be a reserve strip not allowed without Board approval. No approval for this strip has been requested.

Resolved

9. §4.1.3.5 - The property line radius at the street intersection is less than 40 feet.

See comments above. NO NEW INFORMATION WITH REVISED PLANS

10. §4.1.5.3 - The profile does not include any vertical curvature.

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This is an on-going difference in opinion. This office has always maintained that the centerline profile is to assist in the construction of the roadway. It is important to note that this technically is a Subdivision and that while this roadway is proposed a minor roadway, waivers are the means to allow this lesser standard roadway. If the applicant's engineer does not want to provide a centerline (of the pavement) profile, it is our opinion that a waiver should be requested.

UPDATE: the grading for the roadway has been modified to raise the high point with a 7-8% grades (scaled from contours) with no vertical curve. If the design engineer does not provide this data, a waiver is required.

11. §4.1.5.4 - The Final Plan (sheet C4- grading plan) does not indicate a cross-slope of 2% on the pavement.

RESOLVED

12. §4.1.5.6 - Where a grade is 4% or greater within 150' of an intersection, a level area of at least 75' in length with a maximum slope of 3% is required. The Final Plan (sheet C4 - grading plan) does not include this condition.

RESOLVED with spot elevations shown on the plan.

13. §4.3.1 -The driveway location at 70 Arbor Street is not shown on the Final Plan and could not be determined as to whether it is within 65' of the centerline of the intersecting street.

The access neck has been offset to show it centered 75' from both driveways at 60 and 70 Arbor Street so it meets or exceeds this requirement. This has shifted the pavement so that it is not centered on the right of way creating other non-compliance with other sections of the Subdivision Regulations.

The centerline is still offset – a waiver from 5.2.2.1 is required for the centerline of the pavement to coincide with the centerline of the right of way. NO NEW INFORMATION WITH REVISED PLANS

14. §4.7.7.2 - Catch basins are not allowed within a driveway cut section as shown (CB #1) on the Final Plan.

Resolved

15. §5.1.5 - The extent of work shown must be in compliance with the standard cross sections shown in Schedules A, B, and C. A typical cross section has not been provided.

PARTIALLY ~~To be~~ resolved with Plan revisions. No cross sections for the 16 wide section has been provided. The cross section for the 20' wide section shows a swale where the shoulder is in a cut – no swale indicated in the grading on the northerly side of the high point.

16. §5.2.4.1 - A level area of at least two feet (2') in width shall be provided from the shoulders to the beginnings of the embankment slopes. It is unclear as to whether or not the Final Plan depict a two-foot wide level area. However, the embankment slope along the northern side of the cul de sac appears to be steeper than 4:1 and very closely graded to the abutter's property.

Partially Resolved. The level area is shown on the Typical Cross Section (sheet C8). However, the Grading Plan (sheet C4) does not reflect the level area in the vicinity of Catchbasin 2 between the 77

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and 76 contours. This area scales as a 2:1 fill embankment. The level area is shown at the base of the cut slope with a 2:1 slope and is graded to the property line. **RESOLVED**

17. §5.4.1.1.1 - The sump depth of a standard catch basin is shown on the detail as 4'-6". However, the catch basin drainage structures all include depths less than 4'-6" on the Final Plan (sheet C4-grading plan).

Resolved. The sump on the Catchbasin Detail (Sheet C8) shows a 4' sump which is consistent with the proposed elevations listed for the catchbasins.

18. §5.4.1.2.a - Reinforced Concrete Pipe is the preferred storm drain pipe material under roadways. However, High Density Polyethylene pipe is proposed and no waiver has been requested.

Partially Resolved. The plans indicate the use of Reinforced Concrete Pipe (RCP) however CCP is indicated in the Drain Manhole detail (sheet C8). **RESOLVED**

19. §5.10.2 - Street trees have not been provided along the roadway at 40' intervals. A waiver has not been requested. The Final Plan was unclear and difficult to determine the locations of the proposed trees.

Partially Resolved. Street trees are shown at 40' intervals. It is unclear as to which trees are proposed, existing to remain or existing to be removed. Two of the species are inappropriate for the locations shown. Please see comments by William Murray, RLA. **NOT To be resolved with Plan revisions. No obvious revisions including incorrect latin name for Wester Red Cedar.**

### III. COMPLIANCE WITH SUBDIVISION RULES AND REGULATIONS: (Letter designations have been added to identify these items)

**A.** 3.1.2.2.4. "Zoning classification and location of any zoning district boundaries that may lie within the locus of the plan, including the location of land lying in the Flood Plain or Wetlands District". The zoning district was noted on Sheet C-2. We recommend that a note that no portion of the land is within the Flood Plain or Wetlands District. **RESOLVED**

**B.** 3.3.3.6. "Aerial photographs to the scale of the site plan shall be required". The aerial shown on the cover sheet is at 1"=400' where the site plan is 1"=30'. The Board should determine if this is acceptable. **RESOLVED**

**C.** 3.3.3.7, 4.1.8.1 and 5.12.1. Lot 7 is not fully dimensioned. There is no street name listed. At a minimum, it is recommended that a private street sign and a stop sign be provided. **RESOLVED**

#### **D.** 3.3.3.15 Profile and 3.3.3.15.1 Profile

The profile is a requirement of all subdivisions as it provides the details required for the vertical alignment to allow the Board to verify compliance with the design standards as well as to provide sufficient information to allow the roadway to be constructed as designed and shows drainage structures. With a standard profile, the centerline of the pavement is the centerline of the Right of Way and typically on a cul-de-sac, the centerline follows the pavement. The standard method to measure the length of the roadway, a straight line measurement is taken perpendicular to the cul-de-sac from where the centerline intersects



at the street line of Arbor Street. A typical profile plan provides sufficient information to allow this centerline to be mathematically calculated and set in the field.

It is strongly recommended that the Board require the applicant's engineer to follow conventional design practices to create a centerline profile which correlates to the centerline of the pavement, from Arbor Street around the cul-de-sac. **This comment remains. The plans should be able to stand on itself and not be tied to getting electronic files from the design engineer (for any number of reasons). If the applicant's engineer will not provide a sufficient information on the plan to allow the roadway to be constructed as proposed, a waiver is needed. NO CHANGES IN PLAN. It is noted that the grading has changed and clearly indicates grades which would require a vertical curve.**

**E. 3.3.3.16.1 Contour Plan**

**Existing and proposed topography at two feet (2') contour intervals and by symbols the highest known high water mark of the last one hundred (100) years. There shall also be indicated by differentiating symbols the contour line four feet (4') above said high water mark. All benchmarks will be noted, as well as items required in Section 3.3.3.9.**

**NOT To be resolved with Plan revisions- no indication of high water mark or 4' above high water mark**

**F. 3.3.3.17.1 The Utility Plan was to be a separate plan for clarity. It is recommended that the applicant's engineer turn off layers, or gray out layers, so that the utility connections are legible. NOT To be resolved with Plan revisions. Plans still have contours (unnecessary for this purpose) and do not show the drainage system. It appears that there are conflicts between the drainage system and the water and gas lines.**

**G. 3.3.3.18.1 and 4.7.7.1. The drainage requires the use of the Rational Method Drainage Calculations are required to be performed using the Rational Formula with a 50 year design storm for street drainage, 100 year for culverts. The calculations utilized the SCS TR-55 method in HydroCAD. This methodology is the preferred method for the Mass DEP Stormwater Regulations but is not consistent with the Subdivision Regulations. It is recommended that a waiver be requested and granted to allow modern stormwater models to be utilized.**

It is noted that the proposed house location is different on the submitted plans than the post development drainage plans, resulting in a greater amount of impervious surfaces than with the house adjacent to the roadway. Should the engineer resolve the other plan deficiencies and waiver issues, it is recommended that the drainage calculations be consistent with the plan submitted.

It is noted that there is a small amount of runoff from the lower portion of the roadway, below Catchbasin 3 and 4 which will flow into Arbor Street. The engineer should evaluate whether this qualifies as de minimus flows and the water quality complies with the Town's MS4 permit and Stormwater Bylaw. **These items to be resolved with revisions. NO NEW INFORMATION ON DRAINAGE PROVIDED. NOT RESOLVED.**

The Stormwater Management Report needs to be stamped by a Professional Engineer and soil test holes for the infiltration system need to be performed by a Soil Evaluator with data shown on the plans. **These items to be resolved with revisions. NO UPDATED STORMWATER MANAGEMENT REPORT – COMMENT REMAINS.**

**H. 3.3.3.20. Cross Sections** The typical cross section on sheet C7 does not meet the Subdivision Standards. This roadway is a minor street (40' right of way) as it is a private dead-end street serving 3 or fewer lots. The regulations allow a 16' paved width and the site plan has 16' along the access neck and 20' around the cul-de-sac.

- the cross section shows a crown, the roadway is graded for superelevation around the cul-de-sac and an irregular crown along the access neck. The no cross sections are provided for these variations. **RESOLVED**
- The cross section provided did not include the requirements for guard rails (5.2.4.2) where the slope is greater than a 4 to 1 vertical downhill or a 2:1 uphill. The grading scales as a 2:1 downgradient on the portion of the cul-de-sac closest to the existing dwelling.

**RESOLVED**

**UPDATE:** the cross section shows a swale adjacent to the 2' leveling area on both the fill and cut areas. These swales are not shown on the grading plan and are not reflected in the proposed grading. A swale is indicated between the roadway and the existing house, but it is not reflected by the proposed contours or by spot elevations

**I. 4.1.4.3, 4.9.1 and 5.5. Sidewalks** A waiver is requested from the requirements of sidewalks – all three sections should be mentioned in the granting of this waiver. **The Board previously indicated support for this waiver request.**

**J. 4.1.5.1, 4.1.5.2 and 5.2.2.1** The centerline profile does not follow the centerline of the pavement to verify this **vertical** requirement. **5.2.2.1 requires the centerline of the pavement to coincide with the centerline of the right-of-way.** The centerline of the pavement is typically shown in the profile to facilitate construction. **NO NEW INFORMATION**

**K. 4.1.5.3** The profile shows a vertical curve which does not relate to the proposed pavement. There is no curve data, no centerline elevations at 25' stations through the curve. **Either plan revisions are needed, or a waiver requested. NO NEW INFORMATION.** Revised grading would clearly require a vertical curve at the high point.

**L. 4.1.7.1** *"The distance between curb line and property line at any intersection shall be the same as along the approach portions of the intersecting streets. Curb and street line radii shall be in accordance with 4.1.3.5."* The access portion of the roadway is skewed and does not align with the centerline of the right-of-way with the new roadway. The proposed pavement of the access neck scales 2' on the right to the right-of-way. The plan does not label the pavement radii so compliance to the radii cannot be assessed. A waiver from this section is required to construct the roadway as shown on the plan. **It is our belief that in this instance "curb line" is synonymous with "edge of pavement" and shows the intent to have a shoulder similar to the existing roadway. NO NEW INFORMATION**

**M. 4.3.1** There is no indication of the geometry of the proposed driveway nor is there a detail indicating compliance with this section requiring a 10' width with a 20' width at the gutter line. **When the geometry is specified in the regulations, the dimensions should be shown to indicate the minimum requirement per the regulations. The absence of dimensions implies that the geometry is not critical for compliance. NO NEW INFORMATION**

**N. 4.6.1. Lot Drainage.** It is recommended that a positive overflow path from Catchbasin 2 be defined towards the front of the lot to prevent water from ponding near the foundation in the event of extreme weather events like this past July with heavy intense rainfall. **PARTIALLY Resolve with Plan revisions. Additional spot grades needed to clearly show positive drainage away from the existing house. No grading is shown for the proposed house.**

O. 4.7.5.4. (8" water main) and 4.7.10 (hydrant) A waiver is requested from the 8" water main to allow a single 1" water service and the hydrant which requires an 8" main. It is recommended that a detail for the water service be provided on the Detail Sheet C8. The water main size was previously waived. **Waiver for both sections recommended.**

P. 4.7.8.1 Electricity – no transformer is shown, screening is required. **Add note stating that screening is required or request waiver. NO NOTE found on the utility plan- WAIVER REQUIRED.**

Q. 4.8.1 and 5.11.1 Sheet C2 does not identify bounds to be set although there is an open square symbol which is commonly used to depict bounds to be set. A key is recommended. Two additional bounds to be set are required at the PC and PT of the 60' radius curve. The specifications for the granite monuments should be added to Sheet C2. **Plan revision proposed. NOTE ADDED but two bounds still missing - LOT 7 at PT of R=60' and at southerly intersection with Arbor St.**

R. 5.1.2. It is recommended that a note be added to the detail sheet indicating that "All construction shall be in accordance with the MassDOT Standard Specifications for Highways and Bridges, 2020 edition." **Plan revision proposed. NOT made.**

S. 5.2.1.5.4 Requires road oil on the pavement foundation. This is an outdated practice and is no longer in use due to environmental concerns. A waiver is recommended. This office does recommend a tackifier coat between the binder coat and finish coat of pavement, as it is similar to the glue in plywood and creates a better, long lasting pavement. **Waiver recommended.**

T. 5.2.4.1 "Where the difference in grade between the roadway shoulder and the existing ground is ten feet (10') or less, in either earth excavation or embankment, a four (4) horizontal to one (1) vertical or flatter slope shall be used; where the difference in grade exceeds ten feet (10'), two (2) horizontal to one (1) vertical is required." While not labeled, it appears a 2:1 slope was used near Catchbasin 2 with less than a 10' fill slope rather than a 4:1 slope. The cut slope above the infiltration area appears to be 9' vertically and a 2.25 :1 slope. This office would recommend a 2:1 on the cut slope and the 4:1 on the fill slope. A waiver is required to maintain the slopes as proposed. **RESOLVED**

U. 5.2.4.2 "Guard rails shall be furnished whenever the slope is greater than four (4) to one (1) vertical downhill or two (2) to one (1) uphill." No guard rail detail was provided or indicated on the plan. A waiver is required to construct the site as currently designed. **RESOLVED**

V. 5.2.5.2 Erosion Control. The following comments relate to the Erosion and Sedimentation Plan, Sheet C3: **(notes to be added to revised plan)**

- The silt sox and fence are shown going across the entrance onto the site. Recommend it terminate on either side of the stabilized construction entrance. **No change**
- The Stabilized Construction Entrance should be large enough to accommodate construction trucks and equipment. **Resolved.**
- It is recommended that there be additional notes added requiring the protection of the infiltration area from vehicular or storage both prior to installation and after to prevent over compaction. Additional notes should be added for its construction given the depth and proximity to the cut slope. **No change**
- The drainage system should be constructed from the downstream site up.
- It is recommended that consideration be given to the use of stump grindings or erosion control mats for temporary slope stabilization where slopes are greater than 3:1. **Resolved.**



- It does not appear that this construction will disturb more than 1 acre, triggering the NPDES requirements for a Construction General Permit (CGP) for this site. However, it is recommended that provisions from the CGP be followed including the temporary stabilization of stockpiles if they are to remain more than 3 weeks, the covering of dumpsters, a designated concrete washout station, etc. **No change- no grading shown for house lot so insufficient information to determine amount of disturbance.**
- It is strongly recommended that verbiage be added to the plan to address extreme weather conditions – rainfall in excess of 2”, flood watches or hurricanes. The silt sacks typically cannot handle intense rainfall resulting in bypass flows or ponding. It is recommended that provisions be made for temporary settling basins, diversion swales, check dams etc. This office has seen the use of crushed stone, stump grinding berms or sandbags as temporary means to control runoff in these extreme conditions. **No change**
- Any additional items from the Stormwater Bylaw submittal requirements in the Wenham Planning Board Rules and Regulations Updated June 6, 2019, including the TSS removal rates. **No new information**

**W. 5.4.1.1.1** The catchbasin sump depth is the 4’ required by the DEP Stormwater Guidelines. The catchbasin frame and grate is not specified. It is noted that the Drain manhole detail refers to a CPP pipe, RCP is required and identified on the drainage plan. **Resolved.** A Drainage Emitter detail is provided but is not specified or identified on the plans. **Eliminated** The 12” drain lines from catchbasins 3 and 4 enter DMH #3 at sharp angles and at the same elevation. The manhole should be evaluated to determine if these pipes fit in the standard 4’ diameter manhole with a minimum of 6” of sidewall between pipes to maintain the structural integrity of the manhole. **Comment remains.**

**X. 5.4.1.1.2** There is less than 3’ of cover over the pipes from Catchbasins 2, 3, and 4. No pipe bedding detail is provided. **Resolved**

**Y. 5.8.1.** No guard rail detail is provided. (see 5.2.4.2). **Resolved**

**Z. 5.9.2.** A note should be added to the plans requiring 4” loam. **Note NOT found**

**AA. 5.10.** The following comments are from William Murray, RLA regarding the Tree and Landscaping Plan:

**The engineer has indicated that revisions will be made if the Tree Warden approves. NO REVISIONS FOUND.**

- The plan is not clear as to which plantings are existing, proposed or to be removed/transplanted.
- There is no loam and seeding specification including soil testing.
- There are no specifications for proposed plantings – size, b&b, pot, nursery grown etc.
- If Elm is specified, it should be specified as a disease resistant variety.
- American Beech is not an appropriate street tree, particularly near the infiltration area because it gets very large and has a shallow spreading root system.
- The Western Rd Cedar has an incorrect name – it is Thuja plicata. It is not appropriate for this location as it grows to 100’+ and prefers moist to wet soils.
- It is recommended that the invasive Norway Maple be identified as to be removed.
- There are no planting details indicating the soils, staking etc.
- There is no screening along the northerly abutter where the roadway results in grading up to the property line. Any trees at or just over the property line should be evaluated to determine if the cuts will remove a significant amount of the root system jeopardizing the survival of the tree.

- White pines typically have low branches when they are young. It is recommended that it not be utilized at the intersection as it may impede sight distances. **Correction, the Western Red Cedar at the intersection was identified as a Pinus strobus, the latin name for White Pine.**
- There are no plantings specified for the cul-de-sac island. Trees and shrubs are recommended.

i. OTHER PLAN COMMENTS:

1. The Fire Truck Site Access Sheet C9, does not identify which piece of apparatus was utilized for this plan preparation. It is recommended that the largest apparatus which typically responds to a call be used in the analysis as well as a common delivery truck.

This turning analysis shows the outline of a vehicle outside of the turning paths on the southerly side of the intersection which is not typical. This analysis, which does not label any of the linework, also seems to indicate that the vehicle will overhang the edge of pavement when making the turns at the intersection. This could be a hazard in the winter with snowbanks and the Board may want to consider requiring this portion of the roadway to be 20' wide, consistent with the cul-de-sac. It is recommended that the Fire Department provide their comments on the acceptability of this condition.

We note that the vehicle turning diagram shows that the intersection is insufficient to keep the wheels and overhangs within the proposed pavement and the pavement fillet curve is not tangent to Arbor Street. (please see attached blow up of the turning movements shown in the plans). It is not clear what the different lines in the diagram represent, either overhangs or tire paths. It is our understanding that the comments from the Fire Department dated July 9, 2020 were for a different entrance configuration with a wider driveway. We strongly recommend that the plans be revised to either show that the vehicle turning movements fit within the edge or pavement or adjustments to the pavement be made to accommodate the fire apparatus.

UPDATE: plans remain unchanged with the vehicle tracking on sheet 10 showing tracking beyond the edge of pavement.

2. There are discrepancies between different sheets within the same submittal data. The grading is shown differently on the Utility Plan C5 than the Grading and Stormwater Management Plan C4. The proposed house in the Stormwater Management Report differs from the house in the plan set. All plans and details should be cross checked for consistency within the submittal documents. **To be addressed with plan revisions. NO NEW INFORMATION to show updated to the Stormwater Management Report**

In summary, **there are many plan revisions which are required and more than just two waivers required for this subdivision to meet the subdivision regulations. We understand that the intent is to build this subdivision roadway so that its appearance is that of a single driveway. However, as the creation of this lot requires the creation of a subdivision roadway, waivers are needed to meet this intent. For those items where this office and the design engineer disagree, the Board may wish to either require plan revisions or have the applicant request relief with waivers.**

**It is our recommendation that the applicant provide an updated list of waivers prior to the Board closing the public hearing on this project so that they will have a complete list to vote on. This list of waivers should be included in the list of waivers on the cover sheet.**

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Thank you for this opportunity to work with the Board. Please contact the undersigned should there be any question or clarification needed.

Very truly yours,  
Places Associates, Inc.

By:



Susan E. Carter, P.E., LEED AP  
President, Director of Engineering

Encl. Enlargement of Turning Movements with Highlights

