Supporting documentation for Watershed Advisory Board Hearing - May 16, 2019

Submitted: May 9, 2019

Re: Permit Application No: 009/19 - Curt Farrell

Crowe Valley Conservation Authority - Letter dated May 1, 2019

In this letter, received from Vicki Woolfrey, my application to build a garage was denied as a result of my proposed development being over the size allowed for them to approve. The recommended size is 500 sq ft and I am proposing a size of 832 sq ft.

The development is in what's considered hazardous lands, necessitating various standards be met. In this case, Ms Woolfrey's main concerns were regarding "processes associated with flooding".

Thank you for this opportunity to speak with you on May 16. I have attached my notes, plans, drawings and photos, which I am confident, will alleviate these concerns, and assure you that the development will meet all required standards and guidelines. I do not take these standards lightly, and have spoken with Ms Woolfrey on a number of occasions, to gain a complete understanding of the issues and requirements. I have also done much research at my site and the surrounding neighborhood, consulted experts and professionals, read numerous publications on these very issues, and have consulted with my neighbors on many occasions. They grew up in this area and have proven to be a wealth of information.

CVCA Staff Recommendation - Watershed Advisory Board Report - May 2, 2019

One of the recommendations was that there is room to erect a 500 sq ft building almost entirely outside the floodplain, minimizing any impact to existing flood hazard and removing the entire structure outside the hazard.

This initially sounds like a good idea. However, in order to position the garage so it meets the elevation requirements of 183.88, it needs to be positioned more westerly on the property. The yard is sloped downwards from west to east, so to build it further east, would necessitate quite a substantial amount of fill to level the yard to the required elevation. The more westerly position would result in no fill requirements at all.

As well, if the garage was only 500 sq ft, it would only extend 19 ft to the east. At this location, the lot slopes south towards the neighbor's yard. There is a possibility that this could cause water runoff onto the neighbor's property. If the garage was 832 sq ft as proposed, it would extend 32 ft east. At that point, the yard no longer slopes south, but changes to slope east towards Sunset Shore Rd resulting in all water flowing onto my yard, into the ditch, and through the culvert to the other side of the road.

Attached is a site plan included with Ms Woolfrey's report, showing elevations in the proposed development area, labeled Exhibit 1

Having a garage the size and location as proposed, would actually assist water drainage off the property towards the road, as well as away from the neighbors yard. There would be a positive change in the direction of waterflow, and would result in no stoppage of waterflow whatsoever. Building a smaller structure would necessitate substantial additional fill, and subsequent drainage issues towards the neighbors yard.

I have discussed the garage development with the neighbors, including my proposed size and location, as well as the proposal from CVCA. The neighbors are very much in favor of me building the garage the size I've proposed, in the location I've proposed. They are happy with the idea that snow would no longer accumulate on their yard in the winter, and once the snow in my yard melts in the spring, it would flow directly out back to the ditch along the road, and not towards their yard. They also like the idea of the additional privacy the garage will provide, for both them and us. They have actually chosen to attend here today to show their support for my application.

Hazardous Lands Policies

Ms Woolfrey, in her report, provides the definition of hazardous lands, which basically, includes all lands that are or could be flooded. In this case, she notes that processes associated with flooding are your main concern with this development.

Water that comes into this area on Sunset Shore Road, normally flows away in two directions. On the east side of the road, there is a small waterway. During the summer it is mostly dried up, but in the spring, and whenever there is a rain, water does accumulate back there. From just south of my property, it flows out of the area in a northerly direction, and into the lake. It also flows out in a southerly direction, under Caverly Lane, and off towards the river.

I have included an aerial photograph showing the roadway (solid line) and the flow of water (dotted line). Labeled Exhibit 2.

At the peak of our flood this spring, I took pictures of my yard, with the proposed garage structure outlined with a few loose boards placed on the ground. As you can see, there was no water in my yard whatsoever. There was water flowing through the ditch to the east of Sunset Shore Rd, but no water breached the road and came onto my property. The whole area was totally dry. In discussion with my neighbors, they have confirmed for me, that water has never crossed the road onto my yard. It crosses Caverly Lane south of here, as my picture shows, but not Sunset Shore Rd. However, if there ever was enough water to rise that high, it would never result in additional erosion, it would simply rise and fall. Water only flows down the ditch, it does not flow through my location. And my garage would not interfere with this process of rising and falling water.

Three photos are attached, showing the footprint of the garage. You can see where the ground slopes both to the east as well as the south. Labeled Exhibit 3, 4 and 5.

Ms Woolfrey's report also outlines the policies and requirements that must be met in order for a development as I am proposing, specifically a detached garage, to be approved. The development will be permitted within a flooding hazard, provided it can be demonstrated that the following conditions have been met.

- There is no feasible alternative site outside of the flooding hazard.

The whole rest of the property is at a lower elevation than the area I am proposing. This is the best choice of location to build my garage.

I have attached Exhibit 6 showing the garage site on an aerial photograph.

- There is not habitable floorspace associated with the building or structure and no opportunity for conversion into habitable floorspace in the future

There are no water lines going to the garage, the garage will not be heated, and I have no plans to insulate and finish the interior. This garage is for storage only, so we can enjoy our property without vehicles and other lake-related items strewn about or stored haphazardly outdoors. It is strictly to enhance the appearance of the property and provide us with what we need to continue enjoying our residence on Crowe Lake.

- The site is not subject to frequent flooding

Water has actually never flooded across the road, and it has never entered the area where the proposed structure will be situated. I have provided pictures, showing the yard at the peak of the current flood this spring.

Please refer to the photographs labeled Exhibits 3, 4 and 5

- The building does not exceed a ground-floor footprint of 46.5 sq m (500 sq ft)

It does exceed this size requirement. However, considering the location, the prevention of any required fill that a smaller structure would demand, and the reduction in water drainage to the neighbor's yard, it actually makes sense to build it bigger. It does demand the question; Why the additional size? The answer is quite straightforward. We purchased this property as our permanent residence, the place where we will retire. We spent extensive time (years) looking for just the right place. When we first saw Crowe Lake, we fell in love with it. And when we found this property, it was absolutely perfect, except it needed a garage to accommodate the belongings required for a home (as compared to a cottage), belongings required for living on the lake, and belongings specifically required to maintain this property. It will be a storage building for our vehicles, motorcycle, utility trailers, boat, ride-on mower, quad, summer furniture over the winter, and all our garden tools and equipment. Having everything stored inside an attractive building will protect and secure our property, and prevent the possibility of having to store items outside. It will enhance our enjoyment, and the appearance of not only our property, but the appearance of the entire neighborhood.

- Risk of property damage and pollution is minimized through site and facility design to ensure no pollution hazard by release of biohazard substance, nutrients, pesticides or chemicals, during a flood event.

The building is only for storage, it's not a shop. And I don't use any of these substances anyway. During a flood event, even though I am meeting the elevation requirements, if water should happen to go into the garage, all items inside will be stored on shelving that will be a foot above the floor. There will be no damage and no pollution.

- The building is securely anchored to either a concrete pad or footings.

An engineered slab has been designed, and the plan drawings, which I have included, show bolts along the outside perimeter, imbedded in the concrete, allowing the walls to be permanently fastened to the pad.

A copy of the plans for the engineered slab are attached as Exhibit 7

- No basement proposed, and crawl space designed to facilitate services only

There will be no basement or crawl space under this building

- Where dry-floodproofing cannot be achieved, wet-floodproofing is undertaken.

Dry flood-proofing will be achieved. By placing the garage in the location as proposed, and meeting the minimum 1:100 flood elevation requirements, there will be no water penetration. The engineer has designed the pad specifically with this flood elevation in mind, so the structure would withstand this type of flooding, if it was to occur. With the building anchored to the pad with bolts (as mentioned above), it will be prevented from shifting or moving during a large flood.

Although not likely to be required, wet flood-proofing standards have also been met. If there was flooding to this area, it would certainly be low velocity and short duration. It would not be flowing, just rising and falling. The interior of the building is not planned to be finished, it will not be habitable, and there will be no hazardous materials that are buoyant, flammable, explosive, or toxic stored there. All other materials will be stored on shelving, off the floor. There will be no mechanical equipment or ductwork in the building, and all electrical equipment and circuits will be above the flood standard. If there was a huge flood, once water levels return to normal, floodwater will drain outside through the large 16 ft overhead door.

With the floodproofing (both wet and dry) as described above, the garage will never displace any potential floodwaters. I know that this is a primary concern for building in a floodplain.

- Grading of land and placement of fill is only permitted in order to raise the proposed structure outside of the floodplain.

With the garage placed where I am proposing, and built the size I am planning, there will be almost no fill requirements. With the elevation requirements met, the building will be outside of the floodplain, and outside of the hazard.

- Electrical circuits must be elevated to a minimum of .3 above the 1:100 year flood hazard elevation.

The garage pad is already above that level, so all the electrical circuits will also, automatically, be above that level.

- The proposed development will not prevent access for emergency works, maintenance, and evacuation

When determining where the garage would be situated on the site, consideration was given regarding Municipal requirements for building offset from the road. The building more than meets those requirements. It also utilises the existing driveway. As a result, it will not interfere with any type of emergency or maintenance access. In Exhibit 6, you can see the position of the garage relative to the roadway and the driveway.

- Potential for surficial erosion has been addressed through submission of proper drainage, erosion and sediment control, and site stabilization/restoration plans.

Building the garage at the proposed size, and in the proposed location, will not affect any of these areas. There will be no erosion or sediment to deal with, as any water flow will go in the same direction as it currently goes, and will actually be greatly reduced in volume. The lot is already landscaped, and will be relandscaped after construction is completed, further ensuring that no erosion takes place. Site stabilization/restoration plans are not required, as it is a minimal slope and restoration will only require a slight amount of fill.

I know that one of the concerns that the Board has, is whether the building will displace water onto adjacent properties. As mentioned previously, by building the garage the size as proposed, in the location as proposed, due to the elevation and slope, it will actually greatly reduce any possible flow of water to the adjacent property.

Exhibit 1 has a number of elevation levels noted on the proposed site, showing the direction of the slope towards the south and east. You can also see the slope direction in Exhibits 3, 4 and 5.

- Natural features and/or ecological functions associated with conservation of land are protected, pollution is prevented, and erosion hazards have been adequately addressed.

No natural features or ecological functions will be altered or affected by this garage. There will be no work being done in or around the garage that would create any type of

pollution. It is for storage only. After construction is completed, all exposed dirt areas will be replanted with grass seed, preventing any erosion, and returning the land to its original natural state.

When we discovered Crowe Lake, we were most impressed with the pure natural beauty of the lake and surrounding area. The pure water for swimming and fishing was a huge bonus! We were also excited that there was no pollution here, and any development that may create pollution, is properly controlled or curtailed.

- The plan has been carried out by a qualified professional with recognised expertise in the appropriate discipline.

The plans for the garage pad, by Trevor Day (Exhibit 7), have been attached to this document. These plans indicate the appropriate elevations and proposed grades with all openings clearly indicated. I have also attached the drawings for the garage building, as Exhibits 8, 9, 10, 11 and 12.

Report Summary

Ms Woolfrey has suggested in her report that I could construct a smaller garage almost entirely outside of the floodplain, placing it outside the hazard, and preventing additional fill from going into the floodplain that could potentially displace water onto an adjacent property, or alter the floodplain dynamic upstream or downstream of my lot.

As I've described previously, the proposed development, both size and location would not result in additional fill entering the floodplain, as any exposed dirt surrounding the structure would be properly landscaped, preventing any alteration of the floodplain dynamic upstream or downstream of my lot. According to my neighbors, water has never reached this area of my lot. As a result, I tend to think that maybe the exact boundaries of the floodplain are somewhat out of date, and may need a slight adjustment in the area of my property, sometime in the future.

However, I have still met all the standards and requirements for both dry and wet floodproofing, as well as the elevation requirements. This in essence, places the structure itself, outside of the floodplain, as well as outside of the hazard, ensuring no potential displacement of water, and preventing any alteration to the floodplain dynamic.

As well, building the garage at the size, and in the location as proposed, will create a positive impact on my neighbors property, ensuring them a major reduction of risk from any possible water flow and flooding in the future.

After many lengthy discussions with my neighbors, they continue to assure me that they are very supportive of my proposed garage development.

My Summary and Conclusions

While doing the research for this development, I have attained a greater understanding of Crowe Lake, it's waterways, and the flow of water between them under normal circumstances, as well as during a major flood. I found it very interesting to actually experience the major flood this spring, and witness what can happen if waterways and floodplains are not managed correctly, with appropriate regulations. This became so evident when witnessing the devastation in other areas of the Province.

As such, I have made every effort to understand the development requirements for lands managed by the Crowe Valley Conservation Authority, to work within these requirements, and create a development that will meet all these requirements.

As you can see from my submission, I have met all the requirements as laid out in Ontario Regulation 159/06, I have met all the requirements as laid out in Section 28 of the Conservation Authorities Act, I have met all the requirements laid out in the CVCA Watershed Regulations Manual, and I have met all the requirements and conditions as stipulated, regarding Hazardous Land development. Excluding, of course, the stated size restriction of 500 sq ft.

I have addressed your concerns, as stated multiple times, specifically, the control of flooding and related processes. I believe I have shown that the development I am proposing will have no effect on the control of flooding and related processes. I have also shown how the proposed development will actually enhance any possible control of flooding and related processes, currently and in the future.

Dry-floodproofing my garage, by building it at the required elevation will result in it never displacing potential floodwaters, and further preventing the need for additional fill, with the result that it will not affect the floodplain dynamic. It will then, in effect, be outside of the floodplain, and outside of the hazard. The additional wet-floodproofing of the garage

will protect it even further, should we experience flood levels beyond our wildest dreams and ensure even further safety and protection from damage.

I have also addressed another of your concerns relative to water flow onto the adjacent property, and have shown that by building the garage the size I am proposing, would extend it further east on the lot, resulting in an enhanced situation regarding runoff from rain and melting snow, as well as disbursement of water should there be a flood. Further to this issue (as mentioned previously), I have discussed this development extensively with the neighbors, and they would prefer (for many reasons) that I build a garage the size I have proposed, rather than the smaller version as suggested in Ms. Woolfrey's report to the Board.

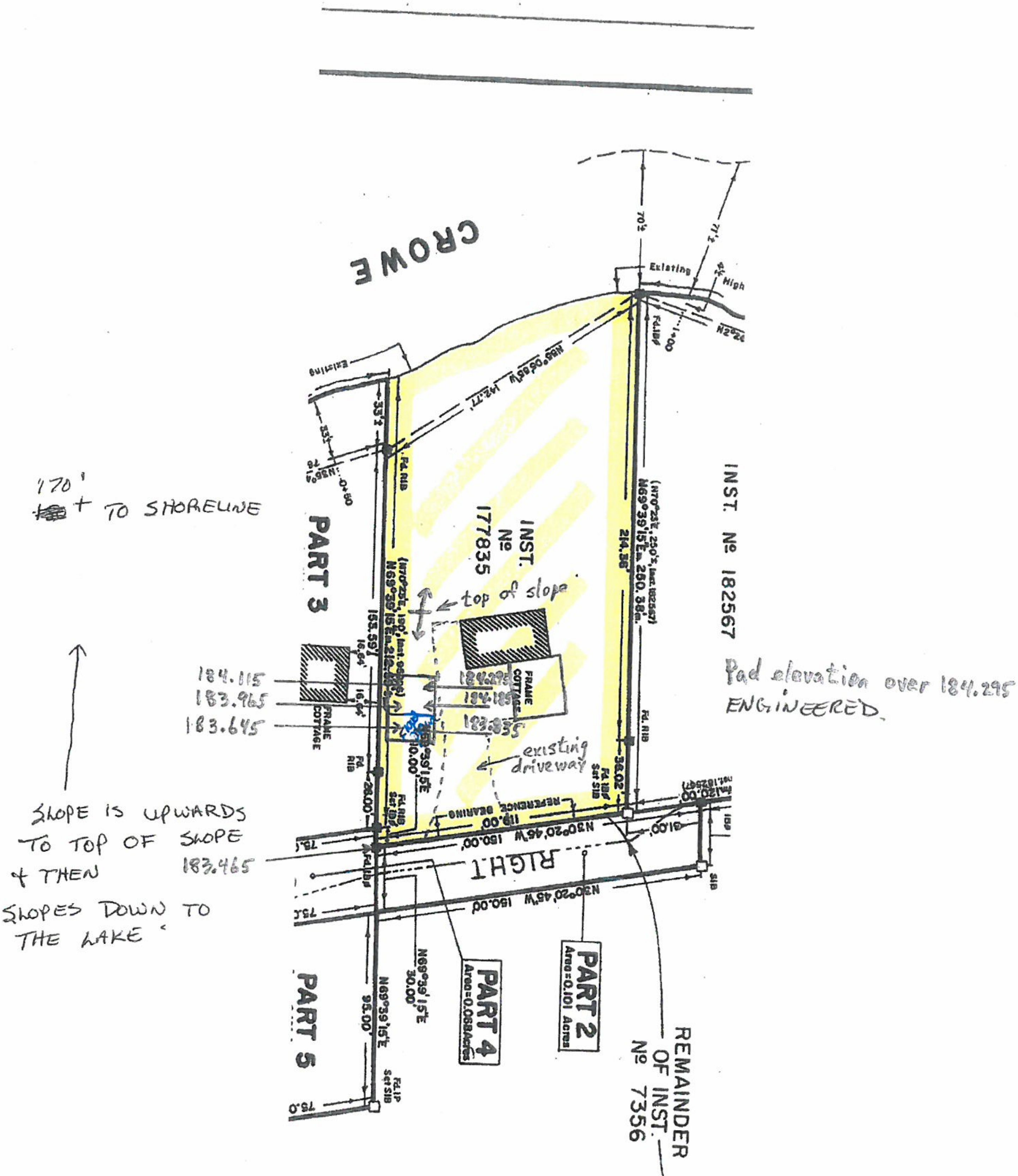
Strange as it may seem, after careful consideration of all conditions and requirements it is apparent that the best choice for building my garage, would be the size I am proposing, in the location I am proposing. I know that it is larger than the size normally approved, but the size under the regulations would indeed create additional problems, and would come up short regarding many of the requirements. All things considered, the proposed development is a much safer and reliable option for the long term.

As a result of the above discussion, I am requesting that the guidelines be relaxed, and I be allowed to build my garage, as I have proposed in my initial application to CVCA.

Thank you for your consideration.

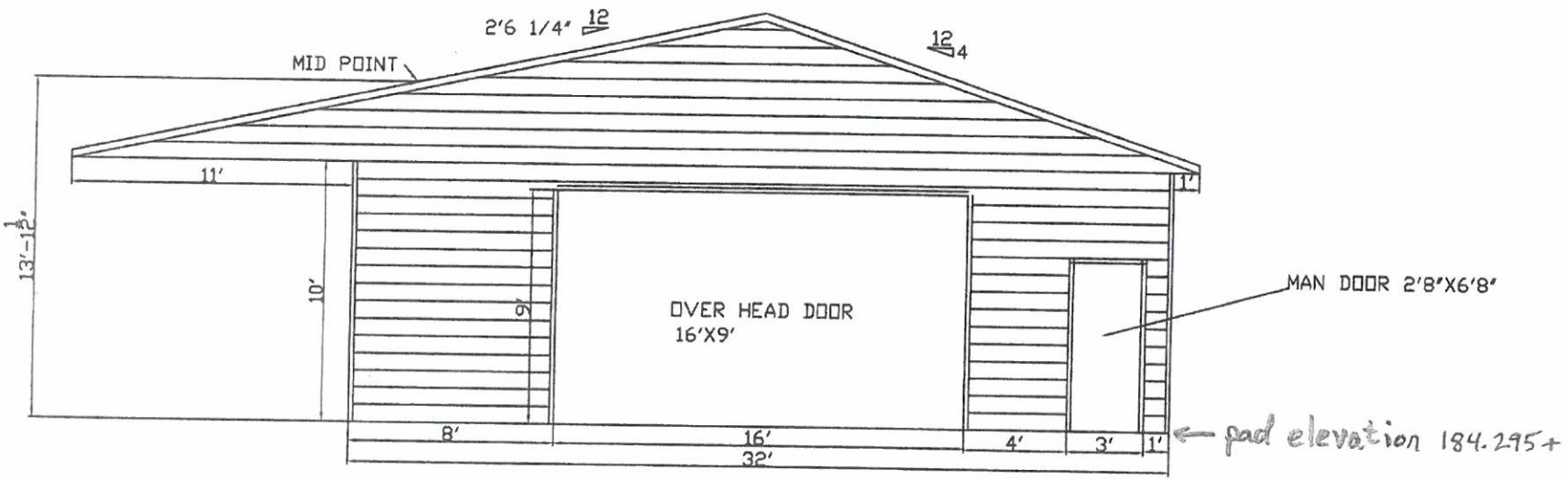
Curt Farrell

Attachments: Exhibits 1 through 12



NATURAL FLOW IS DOWN THE EXISTING DRIVEWAY TO A CULVERT UNDER THE RD.

Exhibit 1



FRONT ELEVATION

← DRIVEWAY →

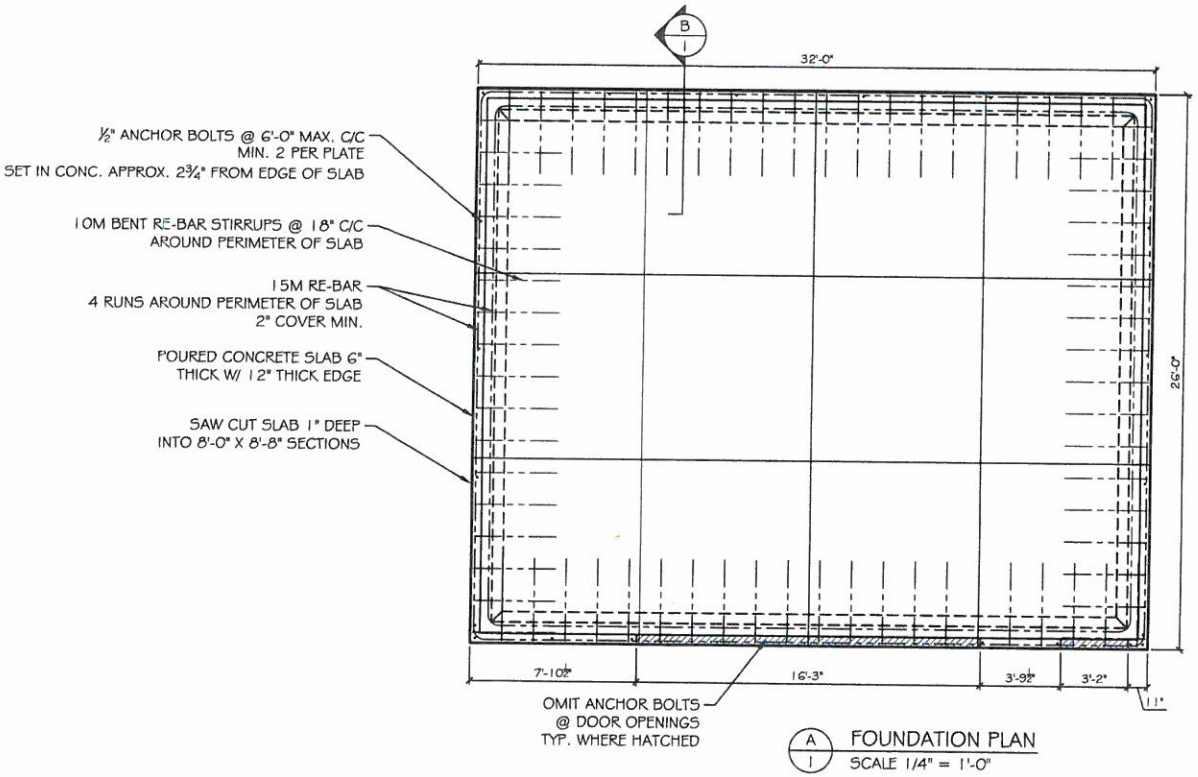

Exhibit 2


Exhibit 3


Exhibit 4


Exhibit 5

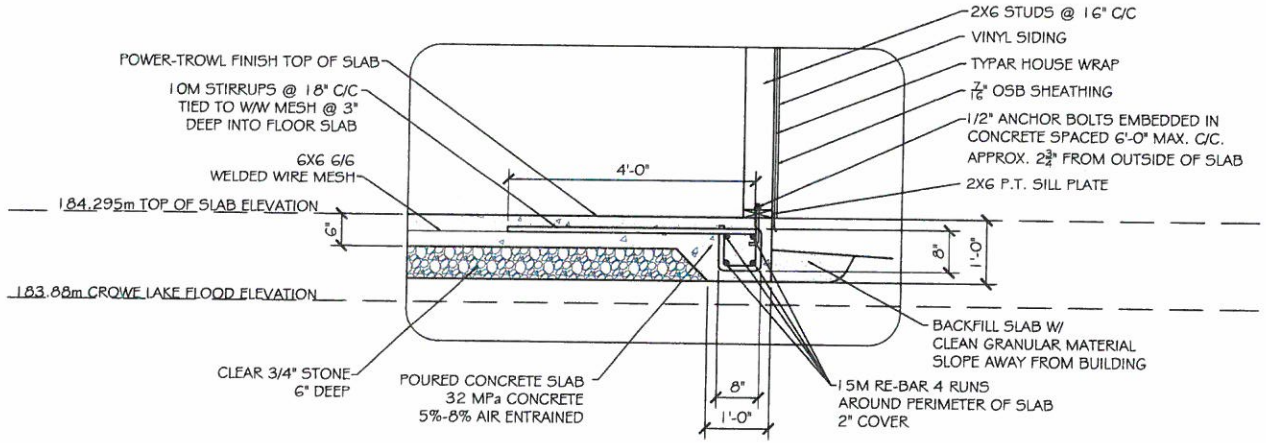

Exhibit 6



A/1 FOUNDATION PLAN
SCALE 1/4" = 1'-0"

FOUNDATION NOTES:

1. CONCRETE MATERIAL TO BE 32 MPa MIN. AGED COMPRESSIVE STRENGTH, 5%-8% AIR ENTRAINED.
2. SPIN TROWEL FINISH SURFACE.
3. EXCAVATE AS REQUIRED TO LEVEL SITE READY FOR FILL AND BUILDING.
4. STRIP ALL ORGANIC TOPSOIL AND ANY UNSATISFACTORY SUBSOIL OFF THE ENTIRE BUILDING FOOTPRINT PLUS A MINIMUM OF 3'-0" ALL AROUND THE OUTSIDE OF THE FOOTPRINT. REMOVE ALL STUMPS AND ROOTS FROM THE FOOTPRINT, BACKFILL HOLES WITH WELL COMPACTED GRANULAR FILL.
5. UP-FILL SITE AS REQUIRED FOR THE BUILDING. USE GOOD CLEAN GRANULAR FILL (CRUSHER RUN/BREAKER RUN FOR THICKER FILL DEPTHS, CLEAR ¾" STONE OR GRANULAR 'A' FOR FINAL TOPPING OF FILL). UP-FILL IN LAYERS WELL MECHANICALLY COMPACTED.
6. "PROOF ROLL" TOP OF FILL WITH VIBRATING PLATE TAMPER OR VIBRATING ROLLER COMPACTOR.
7. ESTABLISH FINAL LEVEL OF THE BUILDING AND FINAL SITE GRADES SO THAT THE SITE IS SLOPED AWAY FROM THE BUILDING ON ALL SIDES. ESTABLISH FINAL EXTERIOR GRADE TO BE 6" BELOW TOP OF SLAB. RAMP UP GRADE AT DOORWAYS TO 1" BELOW TOP OF SLAB.
8. DO NOT SET ONE CORNER OF THE SLAB ON BEDROCK AND THE REST ON FILL. IF BEDROCK IS ENCOUNTERED ENSURE A MINIMUM OF 6" OF FILL OVER THE ROCK AND COMPACT THE REST OF THE UNDER-FLOOR FILL THOROUGHLY.
9. WHERE SITE CONDITIONS REQUIRE DEVIATION FROM THESE PLANS THE BUILDER SHALL NOTIFY THE DESIGNER SO THAT SUITABLE CHANGES TO THE DESIGN CAN BE MADE



B/1 EDGE OF SLAB DETAIL
SCALE 3/4" = 1'-0"

Exhibit 7

LICENSED PROFESSIONAL ENGINEER
T. C. DAY
9029107
25-Feb-19
PROVINCE OF ONTARIO

TREVOR DAY & ASSOCIATES
PLAN - DESIGN - BUILD
BCIN 101814
15 GEORGE ST. WEST
HAVELOCK, ONTARIO,
CANADA, K0L 1Z0
705-778-3291

PROJECT # 930
ISSUED 25-Feb-19
REVISED
FILE NAME FarrellSOG.dwg

DRAWN BY: E.F.
CHECKED BY: TREVOR DAY BCIN 32144
I HAVE REVIEWED & TAKE RESPONSIBILITY FOR THIS DESIGN

CLIENT
CURT FARRELL

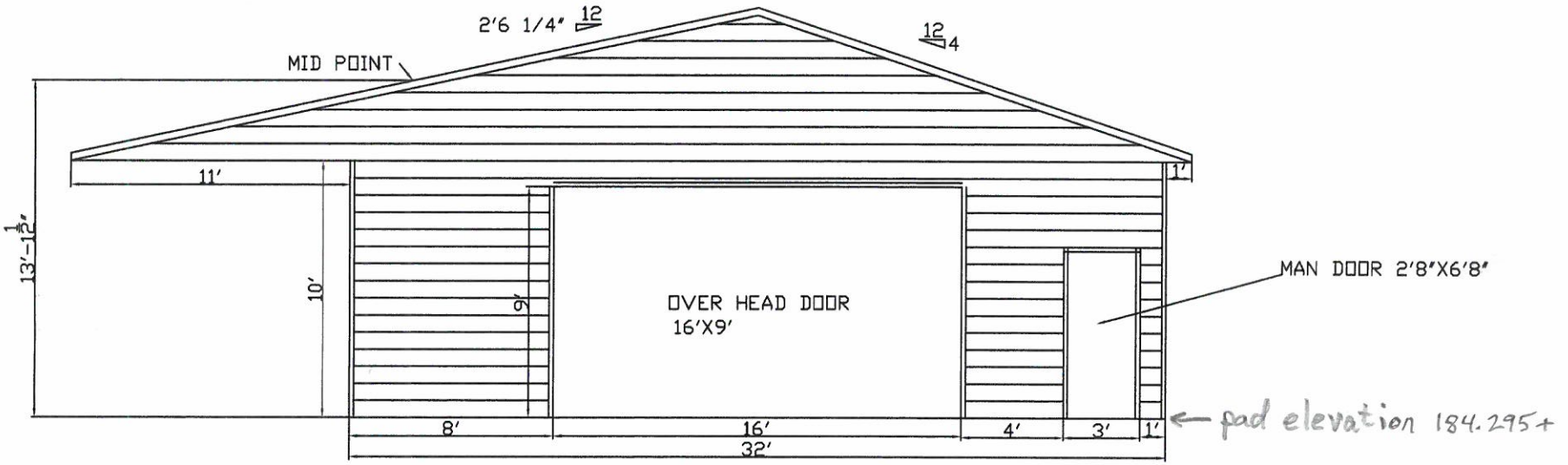
NO.	REVISION	DATE	BY

PROJECT
FARRELL SLAB ON GRADE FOUNDATION
27 SUNSET SHORE RD. MARMORA

SHEET CONTENTS
FOUNDATION PLAN & EDGE OF SLAB DETAIL

SCALE
AS NOTED

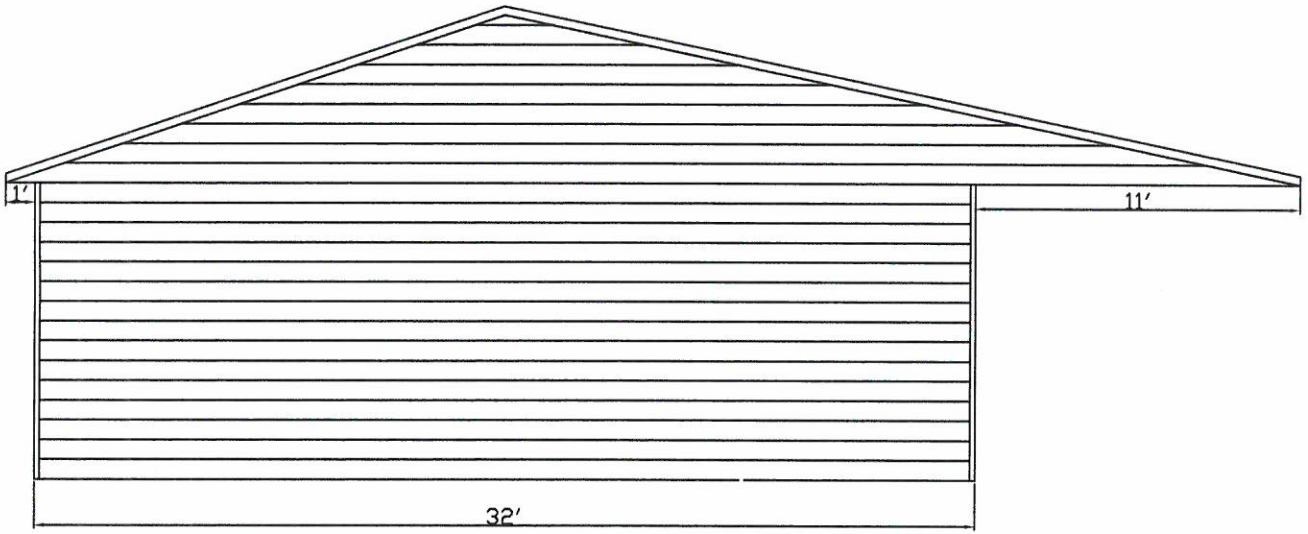
SHEET NO.
1 OF 1



FRONT ELEVATION - facing N

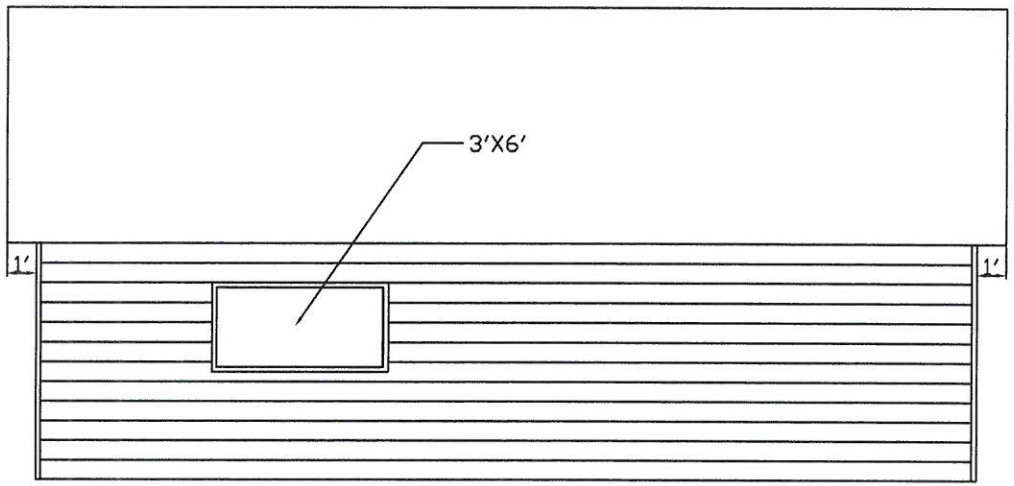
← DRIVEWAY →

Exhibit 8



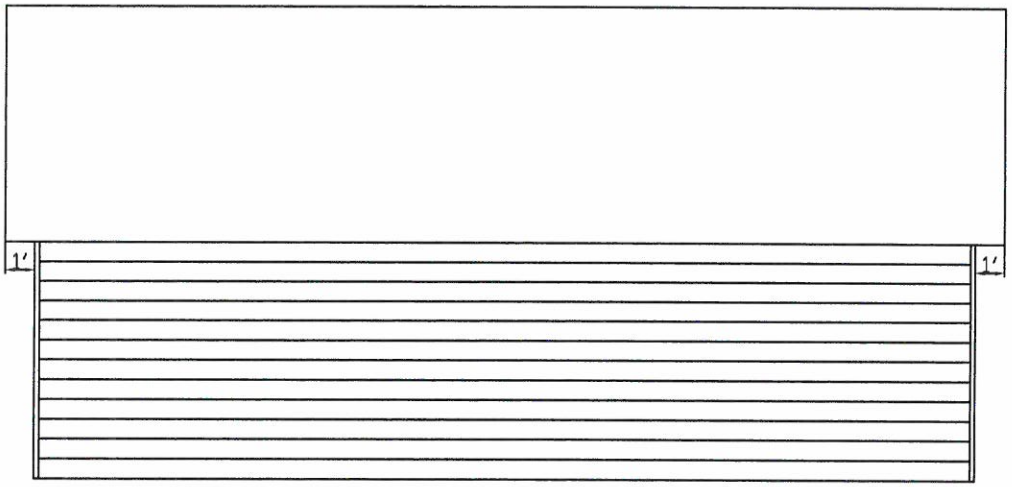
REAR ELEVATION

Exhibit 9



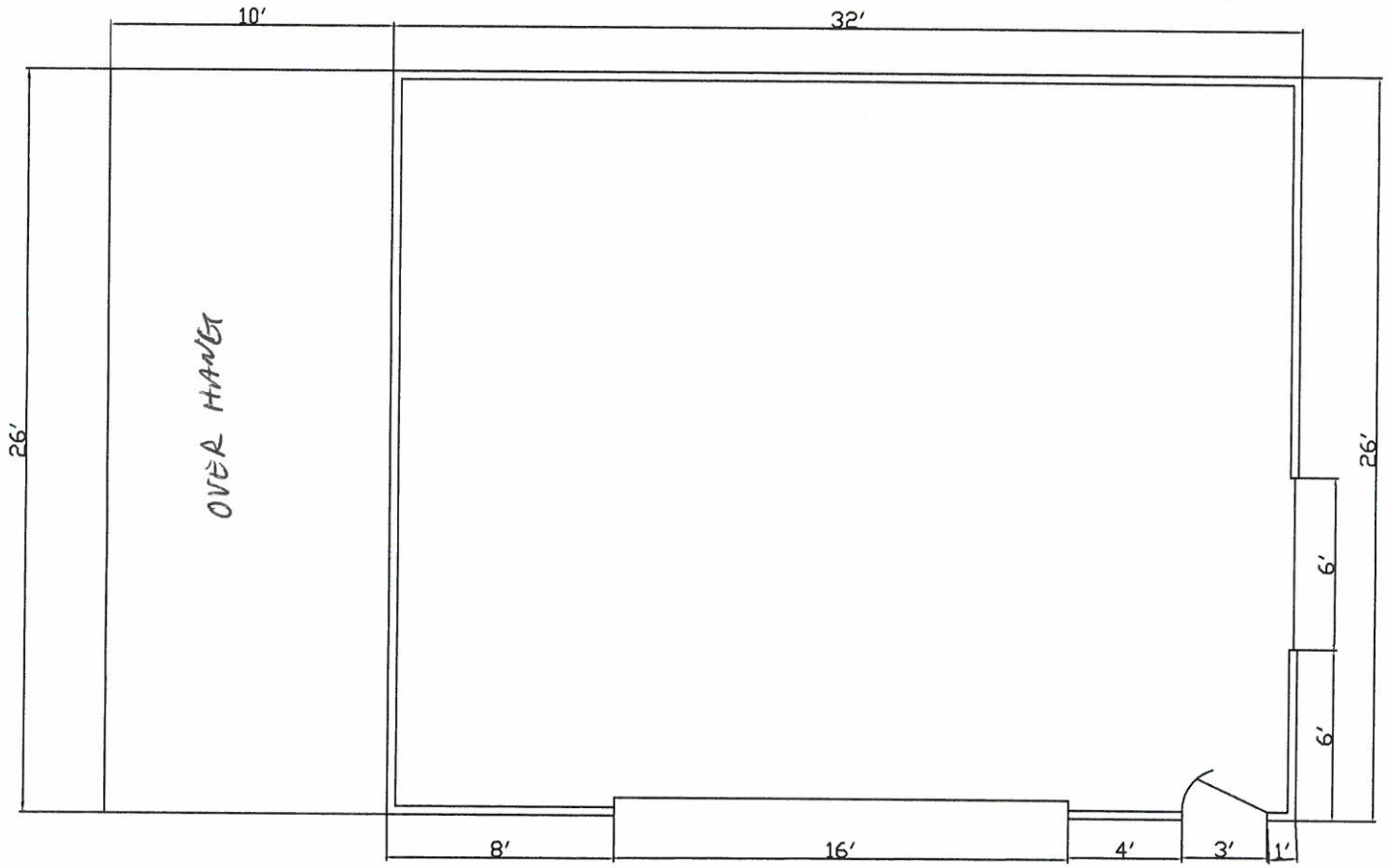
RIGHT SIDE ELEVATION - facing W

Exhibit 10



LEFT SIDE ELEVATION

Exhibit 11



PLAN VIEW

Exhibit 12