

*planning review*

Date: 3.29.2021

From: John Iacoangeli, FAICP  
John Beckett, PLA, ASLA

To: **Chris Weinzapel**  
Zoning Administrator  
Milton Township  
Post Office Box 309  
Kewadin, MI 49648

Project: **Torch River RV Park  
Technical Review**

Request Special Land Use

Location Torch River Road

Parcel # 05-12-006-047-00 (Portion)

Applicant: James and Lori Brewer  
10150 Greenwood Road  
Gladwin, MI 48324

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**Overview**

Development of a 10-acre 80 site RV Park located between Torch River Road and Miller Road with access on Torch River Road.

**Submittals**

Listed below are the submittals that were provided by the Township and Applicant as part of our review.

Title / Description	Date
Supplemental Engineering Summary prepared by GFA	01.26.2021
Supplemental Engineering Memo prepared by GFA	01.24.2021
Architectural Plans by Valley Associates	11.19.2020
Torch River Engineering Plans: (Cover, Site Plan, Stormwater, Utilities)	03.16.2020
Antrim County Conservation District Memorandums	11.25.2020
Olson Bzdok Letter	10.06.2020
Hydrogeologic Considerations for Septic System; A. Kendall, Ph.D.	10.05.2020
Engineering Review; ECT, Tonya Lewandowski	10.06.2020
Photos of Soil Erosion	No Date
Summary of Stormwater Runoff Control Plan, by GFA	03.13.2020

### **Existing Conditions**

The subject property is located in Milton Township that is bounded on the east by Torch River Road and on the west by Miller Road. The property is wooded with significant topographic relief.

### **Applicable Zoning Ordinance Provisions**

The site plan review relied on the documents supplied by Milton Township and the Applicant as noted above. In addition, the plans were reviewed referencing the following sections of the Milton Township Zoning Ordinance,

- Section 117.301 Grade Changes
- Section 117.311 Greenbelts and Landscaping
- Section 117.1602 Special Land Use Review Standards
- Section 117.1605 Recreation Vehicle Seasonal Park
- Section 117.1900 Private Roads
- Section 117.2100 Site Plan Review

### **Site Plan Review**

Per your direction, a site plan review has been completed for the fourteen sheet plan set titled "Torch River RV Park" prepared by GFA Engineers with an issued date of April 27, 2020. This document is supplemented with the petitioner's draft regulations and rules pertaining to the design, operation and management of the park. Excerpts from the draft rules and regulations that pertain to park design and review of the plan include the following:

Trailer, Item 1: Park Models (*mini houses*), Fifth wheels, Travel trailers and Pop-ups will be allowed on the campground. *This list appears to exclude all types of self-propelled motor homes from the campground.*

Trailer, Item 4: Placement of the Camper's trailer on the site is determined by the location of the gravel pad.

Campsite, Item 8: Campsite is designed for one unit only.

Vehicles and Parking, Item 38: No vehicles are allowed on the easements. All vehicles and guest vehicles must be parked on the Camper's campsite. *It is assumed easements refers to the park roads.*

Vehicles and Parking, Item 39: Due to emergency vehicle access, there is no parking on any of the park roads.

## Part One – Ordinance Plan Review Standards And Criteria

Applicable Sections of the Milton Township Zoning Ordinance regarding design and development of the RV park include, but are not necessarily limited to, the following excerpts:

### Zoning Ordinance Section 117.1602 Special Land Use Review Standards

Paragraph (d.), requires that the use (RV Park) be served adequately by essential public facilities and services, such as highways, streets, police and fire protection, storm water drainage, refuse disposal and water and sewage facilities.

Paragraph (g.), states that the proposed use (RV Park) shall ensure that the environment shall be preserved in its natural state, insofar as practical, by minimizing tree and soil removal, and by topographic modifications that result in maximum harmony with adjacent areas.

### Zoning Ordinance Section 117.1605 Recreational Vehicle Seasonal Park

Clause A. Recreational vehicle sites shall occupy at least 3 acres and no more than 10 acres of a parcel that may be more than 10 acres.

Clause B. There shall be no more than an average of 8 sites per acre up to a maximum of 80 sites.

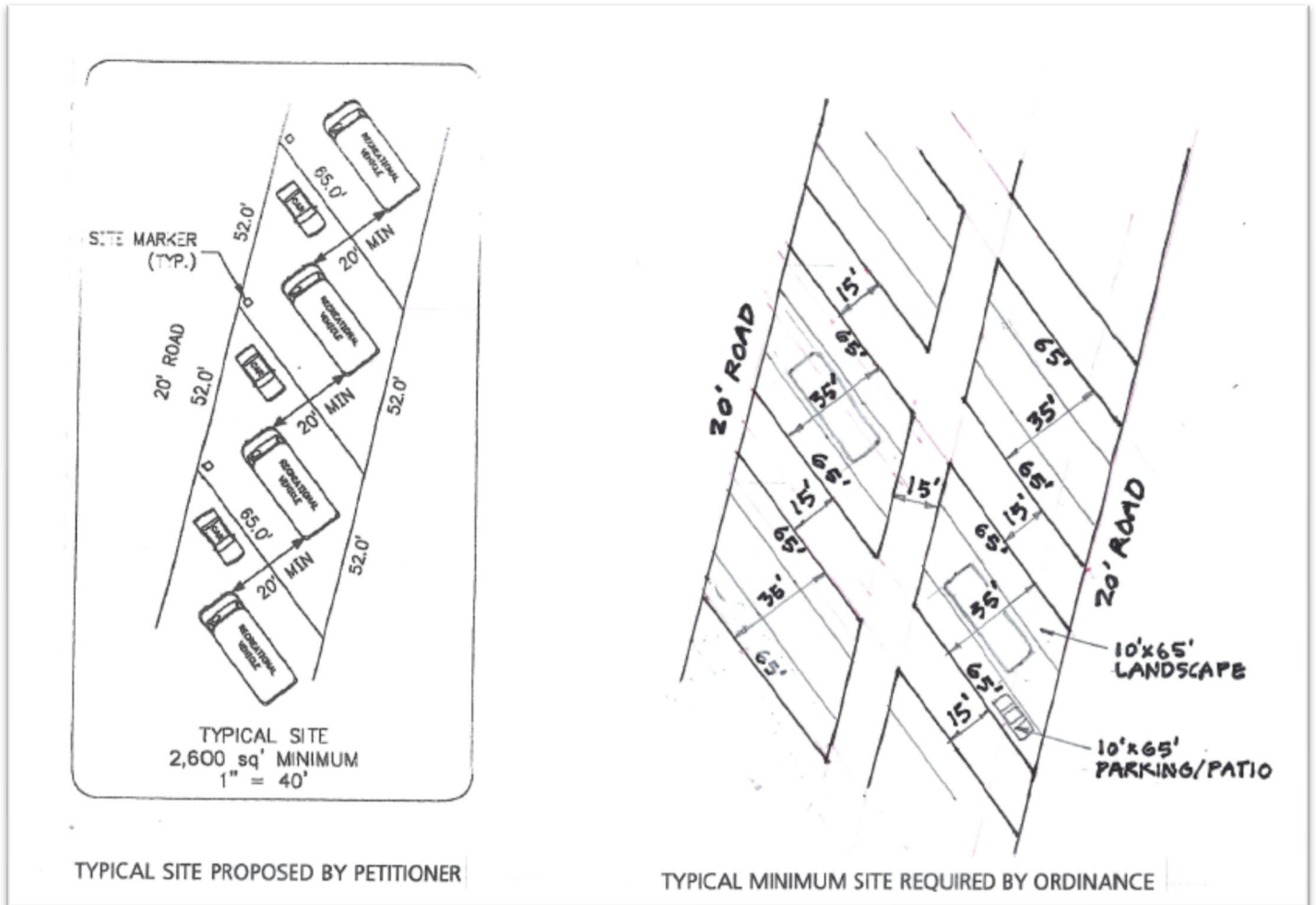
Clause C. The size of a site shall be a minimum of 2,275 square feet, be at least 35 feet wide and 65 feet deep.

1. There shall be a 10-foot by 65-foot strip of landscaping on the driver side of the recreational vehicle. *(Per petitioner's regulations and rules, the RV Park will not accommodate motorhomes, therefore the driver side of the trailer is assumed to be the left side looking forward)*
2. There shall be a 10-foot by 65-foot parking/patio surface on the passenger side of the vehicle. *(Per petitioner's regulations and rules, the RV Park will not accommodate motorhomes, therefore the passenger side of the trailer is assumed to be the right side looking forward)*

Clause D. There shall be at least 15 feet between each site.

*Refer to Figure 1.0 on next page.*

Figure 1.0 RV Site Layout



L. Twenty percent of the acreage of a recreational vehicle park shall be a common area that may include community use facilities such as showers and restrooms and shall include recreational facilities such as playground equipment, basketball courts, etc.

Clause M. All storm water shall be retained on the recreational vehicle park parcel.

Clause O. The park boundary line abutting the entry access road shall have a minimum of 50% screening; all other park boundary lines shall be fully screened per 117.311 (Greenbelts and Landscaping) of the Township Zoning Ordinance.

Zoning Ordinance Section 117.311 Greenbelts and Landscaping

Clause B. Standards: A greenbelt shall be a planting strip, at least (10) ten feet in width, which shall consist of deciduous or evergreen trees or a mixture of both, spaced not more than (30) thirty feet apart, and not less than one (1) row of dense shrubs spaced not more than (95) five feet apart and which grow at least (5) five feet or more in height after (1) one full growing season. The above must be planted and maintained in a healthy growing condition by the property owner. The Planning Commission may require additional greenbelt area or plantings or a particular type of planting, such as evergreen trees, to ensure adequate buffering.

Ordinance Chapter 19, 117.190 Private Roads Minimum Requirements

It is assumed the requirements of this ordinance chapter are not, in total, applicable to this RV Park submission due to the fact the plan involves rental sites all under one ownership rather than individually owned lots, parcels or condominium units as referenced by the ordinance. However, several requirements of the ordinance, regardless of ownership, specifically reference the health, safety and welfare of the public involving accessibility and maneuverability of EMS, Fire and Police emergency vehicles, and are therefore, applicable to review of the RV Park plan. Specifically, these requirements are excerpted from the ordinance as follows:

Clause I, 2 Have a granular soil base of not less than twelve (12) inches in depth of which the top six (6) inches in depth shall be, at minimum, road grade processed gravel.

Clause I, 5 No portion of the road grades shall exceed seven (7) percent. (If the road grade is paved with proper curbing, road grade up to ten (ten) percent may be permitted).

Clause I, 6 Where cul-de-sacs shall be employed (*dead end streets*), the minimum radius shall be fifty (50) feet. Hammer head, wye, or other road end configurations require fifty (50) feet of roadway measured from the intersection of the centerlines.

Michigan Public Health Code, Part 125, Act 368 of 1978

Excerpted Campground Administrative Rules specifically applicable to site plan review of the RV Park are as follows:

R 325.1556 Sites; Size and Arrangement

(1) A site in a campground, unless designated on an approved plan as a walk-in site, shall abut on a roadway, shall be of such size and so arranged to provide space for a recreational unit and vehicle parking, and shall have not less than 15 feet of road frontage width and 1,200 square feet of area.

(4) A campground owner shall locate recreational units or other structures, such as sheds and awnings, to provide an unobstructed path which is not less than 4 feet wide and which extends completely around the recreational unit. A campground owner shall ensure that a permanent structure requiring footings is not located on a campsite.

(6) A campground owner shall ensure that a site is well-drained.

#### R 325.1558 Roads and Vehicles

(2) A campground owner shall ensure that vehicles do not park in the strip of land set aside for a road. A campground owner shall provide space for vehicle parking equal to a minimum of 1.5 the number of sites in a campground. The parking space shall be either on the sites or in a separate parking area.

### **Part Two – Plan Review Comments**

Plan Sheet 1.1 Cover Sheet – No Comment

Plan Sheet 1.2 General Notes – No Comment

#### Plan Sheet 2.1 Site Plan

1. The most obvious deficiency noted on the Typical Site Detail and the Site Plan is the absence of the 15' distance between sites as required by Clause D of the Zoning Ordinance, Recreational Vehicle Seasonal Park. Refer to **Figure 1.0** for an illustration of the difference between the proposed Typical Site Detail and application of the Ordinance requirements to a typical site. The site plan layout will require modification to include the 15' distance between sites even if the size of the sites are reduced to the Ordinance square foot minimum of 2,275 square feet.

2. Neither the Typical Site Detail or the Plan indicate the 10' by 65' strip of landscaping on the driver side of the recreational vehicle or the 10' by 65' parking / patio surface on the passenger side of the recreational vehicle as required by Item C, (1) and (2) of the Zoning Ordinance Recreational Vehicle Seasonal Park. Refer to **Figure 1.0**.

3. Sites 32, 33, 34, 42, 43, 53, 56, 57, 58, 59 and 80 do not have the 65' depth required by Zoning Ordinance Recreational Seasonal Park Clause Cause C.

4. All dead-end streets including SPF-50 Dr., Tequila Sunrise Dr., Teal Appeal Dr. and Bottoms Up Dr. should have a turn-around of sufficient dimension and configuration to allow a vehicle to reverse direction without encroaching on an adjacent recreational vehicle site. This is particularly applicable for emergency vehicle access. The turn-around should consist of a 50 radius cul-de-sac or other configuration described by Item I,6 of Ordinance Chapter 19, Private Roads Minimum Requirements.

5. Considering that up to 80 sites will be served by a single access from Torch River Road, it is recommended that a second means of access be provided for emergency vehicles if the main entrance becomes temporarily blocked. For reference and comparison the Private Roads Ordinance requires a second means of access if the number of lots, parcels or condominium units is 25 or more.

6. The Michigan Public Health Code states the RV Park owner shall provide parking equal to 1.5 times the number of sites. The requirement for the Torch River RV Park is 120 spaces. The Site Plan should indicate how / where these spaces will be provided.

7. The Site Plan should indicate the type, quantity and location of recreational facilities such as playground equipment, basketball courts, etc. as required by Clause I of the Zoning Ordinance Recreational Seasonal Park.

8. A landscape planting plan should be provided indicating quantity and size of plant species to be provided in the required greenbelt areas.

9. The Site Areas table will require revision to reflect required modifications to the Site Plan layout.

10. The Table of Coverage will require revision to reflect required modifications to the Site Plan layout.

#### Plan Sheet 3.1 Site Grading, Drainage and SESC Plan

1. The drawing should include a typical road cross section indicating road crown or cross slope, roadbed materials and depths, shoulder dimension and material if included, ditching or other means of intended storm water conveyance, typical culvert placement, etc.

2. The gravel road gradient from elevation 616 in the vicinity of sta. 3+20 Bikini Way Dr. to the intersection in the vicinity of sta. 1+00 SPF-50 Dr. at elevation 658 is approximately 10.5%. This exceeds the 7% maximum per Item I,5 of Ordinance Chapter 19 Private Roads Minimum Requirements. The road grades should be re-designed or the road should be paved.

3. At a minimum it is also recommended that Bikini Way Dr. be paved from Torch River Rd. to the entrance gate for safety and to minimize gravel and mud tracking onto the main road. If the Petitioner decides to pave the section of road described in 2. above, it is recommended the entirety of Bikini Way Dr. be paved from Torch River Rd. to SPF-50 Dr.

The Grading Plan indicates numerous retaining walls to be installed along selected site boundary lines. The plan should include a typical retaining wall detail indicating wall

material and method of installation. It is noted that when the plan is revised as previously discussed to include the 15' spacing between sites, the grade change may be accommodated in the 15' area eliminating the need for retaining walls.

5. In some site areas, site grading will produce fresh unprotected cut and/or fill slopes up to 1:1 (45%) steepness. It is unlikely that typical slope stabilization methods such as sodding, mulch blankets, etc. will adequately protect the slopes from erosion. The plan should indicate adequate specific slope protection measures to be installed.

### **Part Three – Site Plan Review Summary**

In addition to responding to the individual review comments contained herein, the overall site plan will require significant revisions to achieve an acceptable ordinance compliant submission particularly in light of some of the more impactful deficiencies such as failure to provide the required 15-foot separation between sites, failure to meet the minimum site dimensions on numerous sites, and the number of dead-end drives.

### **Part Four – Other Agency Review Comments**

Mobile Medical – RV Lot numerical identification and clearly marked exit routes. Requesting that sufficient overhead clearance along roadways due to tree cover and clear vision area be maintained at intersections.

Antrim County Road Commission - No formal comment at this time.

Antrim County Sheriff Office – The Sheriff's office recommends a second entrance/exit on Miller Road due to the number RV sites.

Milton Township Fire Department – Letter attached from Fire Chief Jeremy Ball, dated March 29, 2021, regarding their review based on NFPA (National Fire Protection Association) technical publication #1194, 2021 Edition. *(Page 9)*

### **Part Five – Stormwater and Wastewater/Groundwater Review**

These items were reviewed by Barr Engineering and their technical review, dated March 9, 2021. *(Page 13)*





## **Milton Township Fire Department**

P.O. Box 309, 7015 Caim Hwy.

Kewadin, MI. 49648

(231)-264-6694 phone (231)-264-6100 fax

[miltontwpfd@gmail.com](mailto:miltontwpfd@gmail.com)

March 29, 2021

Beckett & Raeder  
Attn: John Iacoangeli  
113 Howard St  
Petoskey, MI. 49770

Dear John,

I wanted to first thank you for mailing me the large prints of the proposed RV park. The plans have been most helpful in reviewing the proposed development.

I just wanted to give you some history on the fire department's involvement in this process to date. I drafted letters to the Milton Township Zoning Administrator office and Planning Commission back on July 14<sup>th</sup> 2020 (after a very brief last minute request to look at the development) outlining any concerns from the Fire Department. I drafted another letter on July 22<sup>nd</sup> 2020 after a significant rainstorm on July 18<sup>th</sup> 2020 created washout conditions in the area from the RV park.

Since then, I have been trying to look into NFPA (National Fire Protection Association) to see if there were any standards related to RV parks. I was able to locate NFPA 1194, 2021 edition outlining a standard for Recreational Vehicle Parks and Campgrounds.

The following noted items are recommendations from the fire department to enhance over all safety to the RV park.

1. **Second road entrance / exit:** Currently there is one proposed entrance / exit off of Torch River Road. NFPA 1194 5.1.1.4.1 states that more than one fire department access road shall be provided when it is determined that a single road could be impaired by vehicle congestion, condition of terrain, climate conditions, or other factors that could limit access.

- a. There is a level of concern that with one entrance / exit that traffic congestion could pose a problem if an evacuation is needed due to a fire. While the road is wide enough (20 ft), An evacuation of patrons could possibly effect the accessibility of fire apparatus to enter and navigate the road in a timely manner during a response.

- b. The main entrance road has a slope and while it will be constructed by incorporating a cellular confinement system equal to or similar to the Geoweb GW30V support system. There is concern with the stability of this road when affected by inclement weather year round, and from the weight of RV's. There is concern for the condition of this road as time goes by. The fire department's heaviest apparatus weighs 55,000 lbs.

- c. Having another access road would enhance our fire fighting capability by providing another entrance / exit to allow for additional fire apparatus to approach from an alternate location, helping with fire attack, and with apparatus placement. With no fire hydrants in place we would have to shuttle water back and forth which means tankers will have to leave and return. It would be imperative that apparatus have a direct route to leave and return with water during an incident. With one entrance / exit there is potential for time delays when tankers are shuttling water or any fire apparatus coming to the incident.

- d. Having another access road would also help with any kind of evacuation of patrons due to public safety responses or weather related incidents when emergencies arise.

- e. The fire department is recommending that a second entrance / exit road be constructed off of Miller road. This entrance / exit would not be used by patrons and would be labeled as Emergency Entrance / Exit only. The road condition would need to be maintained.

2. **Roads within the park:** Currently each road has a road end. There are no turnarounds.

- a. NFPA 1194 5.1.2.4 indicates that turnarounds shall be provided for all dead-end roads over 100 ft. in length, and those designed for use by all types and sizes of camping units shall have a minimum internal radius of 30 ft.

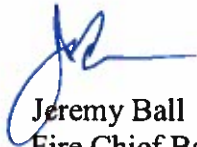
- b. NFPA 1194 5.1.2.5 - Dead end roads - in excess of 100 ft in length shall be provided with approved provisions for the turning around of fire apparatus no greater than every 500 ft and at the closed end.

### 3. **Miscellaneous Safety Items:**

- a. Request that all road names within the park be large road signs that are reflective in nature and highly visible to first responders.
- b. Highly recommend that below each road sign within the park that there is also a reflective sign indicating the range of numbered sites down that road. Ex. Teal Appeal Dr under that sites: 33-57.
- c. Each camping unit site is marked for identification with reflective numbers and easily readable from the recreational street.
- d. The Fire Department as well as other emergency responders shall have access to locking mechanisms on any gate that restricts access. The Fire Department suggests installing a Knox Box at each gate.
- e. A written evacuation plan would need to be created and approved by the Fire Chief. This is outlined in NFPA 1194 6.1.5.
- f. Recommend that there are no overhead obstructions such as low branches over the roadways within the park that may delay first responders whether it's a medical response or fire response.
- g. There is some concern for the condition of the intersection of Cherry Ave and Torch River Road to be able to withstand the added traffic and mobility of such RV traffic.
- h. There is concern of the condition of the perimeter of the park. After the washout back in July 2020, most of the outer perimeter areas washed out. The concern is longevity of keeping this area stable so that RV's parked on outer sites don't have the ground wash away causing RV's to slide down the slope.
- i. Fire safety rules and regulations shall be conspicuously posted by management. This is outlined in NFPA 1194 6.2.1, 6.2.2. The following items shall be included:
  - 1. Telephone number for Fire Department, EMS, Law - 911
  - 2. Non-Emergency number for Fire Department, EMS, and Law
  - 3. Telephone number of the recreational vehicle park or contact Park attendant.
  - 4. Location of nearest public phone (if available on site)
- j. Recommend that a fire extinguisher be installed at both pavilions. The fire extinguisher shall be a multipurpose dry chemical type. Minimum rating of 2-A:20B:C
- k. Recommend that a fire extinguisher be installed in the mechanical / laundry building. Same type of extinguisher outlined in letter j is sufficient. A Smoke Alarm and Carbon Monoxide Alarm are recommended for the mechanical / laundry building.

There have been more safety items and concerns added than in previous communications or letters as time has gone on and there has been some time for research, communications, and evaluations. The Fire Department feels that NFPA 1194 2021 edition Recreational Vehicle Parks and Campgrounds should be incorporated into the plans for the RV Park and that other noted recommendations be included in order for this process to move forward.

Sincerely,

A handwritten signature in blue ink, appearing to read 'JB' with a stylized flourish extending to the right.

Jeremy Ball  
Fire Chief Ball  
Milton Township Fire Department

## Memorandum

**To:** John Iacoangeli, Beckett & Raeder  
**From:** Barr Engineering Co. (Barr)  
**Subject:** Torch River RV Park, Milton Township, Antrim County, MI – Technical Review DRAFT  
**Date:** March 9, 2021  
**Project:** 22/05-1005.00

Barr Engineering Co. (Barr) has prepared this technical memorandum at the request of Beckett & Raeder, on behalf of Milton Township, to summarize our technical review of certain aspects of a Recreational Vehicle (RV) park proposed to be developed in Milton Township, Antrim County, Michigan. As requested, Barr's review was focused on: (1) soil erosion and sedimentation control (SESC) requirements that are applicable to the proposed construction activities and SESC measures proposed by the developer to comply with those requirements and facilitate the proposed construction; and (2) regulatory requirements and proposed plans for management of sanitary wastewater derived from the proposed RV park.

### 1.0 General Project Information

The proposed project is located along Torch River Road, just south of Hopfer Road in Section 6, Township 28 North, Range 8 West in Milton Township, Antrim County, MI. The proposed project includes a 10-acre Recreational Vehicle (RV) park with 80 seasonal campsites, a community well and septic system, shared pavilions and bathroom facilities, and stormwater management systems. The proposed project will require approximately 10 acres of earth disturbance (grading). The project creates an increase of 1.43 acres of impervious ground surfaces from 0 acres (existing) to 1.43 acres (proposed).

Documents reviewed by Barr for the project included:

1. Special Use Permit submittal issued by Gourdie-Fraser on behalf of Torch River RV Park to Milton Township, dated March 16, 2020
2. Torch River RV Park Engineering Plans developed by Gourdie-Fraser and dated March 16, 2020
3. "Summary of Stormwater Runoff Control Plan for Torch River RV Park", developed by Gourdie-Fraser and dated March 13, 2020
4. Correspondence between the Antrim Conservation District and Michigan Department of Environment, Great Lakes, and Energy (EGLE) and the developer regarding various permits, dated between June 9, 2020 and November 25, 2020
5. Letter and supplemental information from Rebecca L. Millican of Olson, Bzdok, and Howard, to Joe Merrilat of Milton Township, dated October 6, 2020

6. "Supplemental Engineering Summary for the Milton Township Planning Commission", developed by Gourdie-Fraser and dated January 24, 2021

## **2.0 Soil Erosion and Sedimentation Control**

### **2.1 Soil Erosion and Sedimentation Control Plan**

The Antrim County Soil Erosion Sedimentation and Stormwater Runoff Control Ordinance states that:

*"A person shall prepare a soil erosion, sedimentation and stormwater control plan for any earth change identified in R323.1704 (an earth change which disturbs one or more acres of land or which is within 500 feet of the water's edge of a lake or stream). A person shall design the soil erosion control plan to effectively reduce accelerated soil erosion and sedimentation and shall identify factors that may contribute to soil erosion or sedimentation, or both."*

Engineering Plan Sheet 3.1 includes Soil Erosion and Storm Water Control notes, locations of silt fence, armored outfalls for stormwater velocity dissipation, and installation details for these measures. The grading plan is unclear in some locations and there appear to be some locations with very steep slopes on the site, including areas with slopes at or exceeding 2H:1V (e.g., in the areas immediately north and south of the bulk of the RV park). Additional sediment control measures during construction and, potentially, permanent slope stability measures may be needed at these locations to prevent erosion and/or slope failure. In particular, runoff appears to leave the site to the north, but no sediment control measures are shown in this location.

### **2.2 Stormwater Control Facilities**

The Antrim County Soil Erosion Sedimentation and Stormwater Runoff Control Ordinance states that:

*"Stormwater control facilities for a developed site shall be planned and designed to reproduce the pre-development hydrology of the site (runoff volume, runoff patterns, peak flows, and/or runoff velocities) to the maximum possible extent."*

Engineering Plan Sheet 3.1 includes stormwater calculations and four proposed stormwater basins around the site. One of the stormwater basins is a detention swale, two of the stormwater basins include an 8" diameter pipe outlet at the invert of the basins, and the last stormwater basin includes an armored overflow. These features are indicated to be designed to manage stormwater for the 24-hour, 25-year storm event. The engineering calculations provided show that the stormwater basins draw down within 12 to 16 hours following the peak inflow, or 24 to 30 hours following the beginning of the precipitation event. Given limitations in the information provided to Barr for the purposes of this review, we could not, however, independently verify the appropriateness of the sizing of these features.

The stormwater design calculations provided in the "Summary of Stormwater Runoff Control Plan" document appear to appropriately represent the topography, soils, and land cover for both the existing and proposed conditions at the site. The calculations include a reasonable assumption that each camper

lot would be approximately 1/3 impervious (parking pad) and 2/3 pervious (grassed patio). However, watershed delineations and areas could not be independently verified given available sources of supporting information (i.e., unscaled watershed boundary maps).

## **2.3 Recommendations – SESC and Stormwater**

1. We recommend that the Township consider requesting certain additional information from the developer for further assessment and requesting certain design changes to the site plans related to SESC and long-term stormwater management as conditions of site plan approval. The existing and proposed watershed maps should be provided by the developer in a format that includes scales and more detailed elevation contours in certain areas of the site to allow for independent verification of the watershed boundaries and areas and, by extension, the appropriateness of the sizing of the proposed stormwater detention features.<sup>1</sup>
2. Proposed grading contours are unclear in the following areas of the site. Additional detail should be provided in a revised grading plan for clarification.
  - a. East of stormwater basin 2
  - b. Between campsites 18-22 and 9-13.
  - c. Between campsites 62-63 and 64.
  - d. South of campsite 8
3. A typical section for the proposed road should be provided to evaluate drainage and conformance with local ordinances.
4. Locations where steep slopes exist or are proposed may require additional sediment control measures during construction (e.g., multiple rows of silt fencing). Slopes in excess of 2H:1V should be provided with additional permanent stabilization measures.
5. The note on Sheet 3.1 of the plans for proposed development runoff volume should be modified to match the quantity from the stormwater model. The value provided appears to have been rounded from that calculated in the model.
6. The note on Sheet 3.1 of the plans for volume of storage required should be modified based on the above comment.

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<sup>1</sup> We acknowledge the detailed information, including HydroCAD calculations, contained in the developer's submittal of March 13, 2020. Information is requested to allow for verification of underlying assumptions in that submittal and carried forward into related design deliverables.

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7. Infiltration basins are encouraged for stormwater management. For infiltration basins or trenches, permanent sediment traps or sediment basins shall be provided for the purpose of collecting sediment before stormwater reaches the infiltration facility.
8. Detention basins shall be designed as extended detention basins to detain runoff on the site for twenty-four (24) hours or more to allow for maximum settling and removal of suspended solids and other pollutants.
9. The Engineering Plans reference the 100-year overflow, however detailed calculations of the 24-hour, 100-year storm event are not included in the stormwater runoff submittals. The 24-hour, 100-year storm shall be modeled and submitted to confirm that the emergency overflow systems for the infiltration and detention basins are designed to safely convey runoff from the 24-hour, 100-year storm. The results of this modeling should be provided to the Township in a supplemental submittal.
10. Sediment control measures, such as silt fence, shall be provided at all locations where runoff leaves the site. Additional sediment control measures may be needed on the north side of the development, north of campsites 22-27 and 40-43. As noted above, additional measures (beyond a single row of silt fence at the toe of the slope) are recommended in areas where slopes are steep.
11. The proposed vegetated level spreaders from stormwater basins 2 and 3 appear to discharge onto steep slopes (at least 2.5H:1V). Additional stabilization measures, potentially including a concrete spillway or apron, should be considered down the slope to limit the risk of erosion from the discharge.

Again, we recommend that the Township request information from the developer that is responsive to the above, along with a revised set of engineering plans for final review and approval.

### **3.0 Wastewater Management and Groundwater Discharge**

Groundwater considerations at the site are primarily focused on the septic system proposed to serve the RV park. The design flow for the system is 6,450 gallons per day according to engineering calculations performed by Gourdie-Fraser in consultation with EGLE. For this flow, the minimum required tank size is 6,450 gallons and the minimum required drain field size is 8,600 square feet. The proposed septic system, which includes a storage tank volume of 10,050 gallons (three 3,350 gallon tanks) and a 13,300 square foot drain field, exceeds these requirements.

The October 6, 2020 letter from Rebecca Millican of Olson, Bzdok & Howard to Joe Merillat of the Milton Township Planning Commission contends that the proposed septic system is undersized because the design flow did not account for wastewater from the proposed bath houses and laundry facilities. The concern is that an undersized system will fail and contaminate groundwater with untreated effluent. However, a November 24, 2020 email from Casey Clement of the Health Department of Northwest



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Michigan to Heidi Shaffer of the Antrim Conservation District states that the proposed septic system was designed to code.

In response, we completed a review of the assumptions underlying the proposed septic volumetric flow rate. The septic system design appears to have used standard design rates of 75 gallons per day for 74 sites with traditional RVs (5,550 gallons per day) and 150 gallons per day for 6 sites with park model RVs (900 gallons per day). On that basis, the proposed system appears to be sized appropriately for a design flow of 6,450 gallons per day. However, the basis for the assumption of 74 traditional RVs and 6 park model RVs is not clear. The project description included with the March 16, 2020 submittal from Gourdie-Fraser to Milton Township Zoning states that the number of park model RVs must be capped at 40 due to septic constraints. A configuration with 40 traditional RVs at 75 gallons per day and 40 park model RVs at 150 gallons per day results in a total design flow of 9,000 gallons per day. For this design flow, the minimum tank size would be 9,000 gallons and the minimum drain field size would be 12,000 square feet. The proposed 10,050-gallon tanks and 13,300 square-foot drain field would appear to be sufficient for this case, though with much less capacity for any additional wastewater.

The "Supplemental Engineering Summary" prepared by the developer's engineer states that wastewater from the bath houses was not included in the design flow calculations because park users would not be simultaneously generating wastewater in their RVs and the bath houses. It is not clear from the available information whether the park will have laundry facilities. The campground construction permit application, dated May 20, 2020 and received by EGLE on June 4, 2020, includes a handwritten note that the park is to have 2 mop sinks and 4 washing machines. However, the construction permit issued by EGLE on October 21, 2020 does not authorize any washing machines.

As indicated above, the septic design information provided to Barr provides a clear basis for establishing the septic capacity, all of which is derived from RVs. Any additional wastewater generation, whether from bath houses or laundry facilities appears to be clearly above and beyond this basis of design. Additionally, we do not believe it is reasonable to assume that a park user cannot simultaneously generate wastewater from both an RV and a bath house or a laundry facility (e.g., a family housed in an RV may have a member in a bath house and other members in the RV, a person doing laundry would likely choose to return to their RV and may generate additional wastewater during the washer cycle time). As such, we agree that additional design capacity or limitation of RV-derived capacity, if necessary, to accommodate water derived from bath houses and/or laundry facilities, may be appropriate.

The October 6, 2020 letter from Rebecca Millican also contends that the proposed drain field locations are in violation of Rule 325.1562 for being located where surface flooding may occur (the primary drain field adjacent to the tanks) and for being beneath a parking area (the reserve drain field under RV sites 70-74). Rule 325.1562(c) states that a soil absorption system shall not be placed "under a roadway or parking lot or paved area." The intent of this rule appears to be to prevent a soil absorption system from being located under a substantial impervious area. It is not clear from the available information whether the park's internal driving areas and RV parking sites will be paved; if so, the reserve drain field location would

clearly violate R 325.1562. If the internal drives and RV parking areas will be gravel or otherwise pervious, it is not clear whether the proposed internal drives and RV parking areas would be considered roadways and parking lots under R 325.1562. As for the primary drain field, it is located at the lowest elevation on the site. Rule 325.1562(h) states that a soil absorption system shall not be placed “where surface flooding may occur.” Overland flow will drain to this area – and Stormwater Basin 3 is also shown as discharging to this area – but the proposed final grade slopes down to the east toward Torch River Road and it is not clear based on available information what the potential for surface flooding in this area might be.

### **3.1 Recommendations – Wastewater Management**

The Township should consider including the following comments or conditions of approval:

1. Verify whether there will be laundry facilities at the park and, if so, that the proposed septic system is appropriately sized to accommodate the proposed quantity of RVs (and the proportion of different types), water derived from on-site bath houses, and laundry wastewater. Existing septic system sizing may be maintained through further limitation of RV loading or a redesigned, larger septic system may be considered.
2. Request more information to verify compliance with Rule 325.1562 regarding the proposed locations of the septic drain fields. Specifically, the potential for surface flooding at the primary drain field location should be assessed to address Rule 325.1562(h) and a detailed description of how the reserve drain field location is in compliance with Rule 325.1562(c) should be provided.