



February 7, 2023

Mr. Paul Kundzins, PE
Deputy Director of Public Works – City Engineer
City of Torrington
140 Main Street
Torrington, CT 06790-5245

**Re: Comment Response Letter
Engineering Review -232 Klug Hill Road - Recreation Vehicle Park, 92 Sites, Associated Amenities-
Site Plan & Special Exception, Applicant: Lelah Campo
SECOND REVIEW-Traffic Report and Turning Paths ONLY.
SLR #20174.00002.80**

Dear Mr. Kundzins,

We are receipt of the memorandum with comments from you dated January 18, 2023 and January 19, 2023, addressed to Jeremy Leifert, City Planner, regarding the above-referenced property. We offer the following bolded responses to the comments contained therein.

C3. JANUARY 19, 2023 COMMENTS:

THE TURNING PATHS AS SHOWN ON THE PLAN VT-1,2,3 SHOW THE TRACKING VERY CLOSE TO OR ON THE CENTERLINE AND VERY CLOSE TO OR ON THE EDGE OF PAVEMENT. SINCE THE DESIGN DOES NOT PROVIDE ANY TYPE OF SHOULDER, THERE IS VERY LITTLE TO NO ROOM FOR ERROR AND HIGH PROBABILITY OF COLLISION. IN THE SHARP CURVE, THE DESIGN TURNING PATHS INDICATE THAT VEHICLES MUST TRACK WITH THE FRONT WHEEL AT THE VERY EDGE OF THE PAVEMENT (WITH NO SHOULDER). WITH THE LEFT DOWNHILL TURN, THE FRONT RIGHT WHEEL IS BLIND TO THE DRIVER MAKING THIS TURN EVEN MORE DANGEROUS WITH NO MARGIN FOR ERROR AND HIGH CHANCE OF DRIVING OFF THE ROAD, OR OVER COMPENSATING THE STEERING OVER THE CENTERLINE AND COLLIDING WITH ONCOMING TRAFFIC.

VERIFY THERE IS ADEQUATE SIGHT DISTANCE IN THE SHARP CURVE IN BOTH DIRECTIONS SUCH THAT EACH APPROACHING DIRECTION CAN SEE THE OPPOSITE APPROACHING VEHICLE.

ROAD WIDTH MUST BE INCREASED IN THIS SHARP CURVE WITH PAINTED WHITE LINE PAVED SHOULDERS TO ALLOW FOR VARIABILITY AND MARGIN OF ERROR. SHOULD TWO LARGE TOWING RV VEHICLES HAVE TO PASS THROUGH THIS CURVE SIMULTANEOUSLY IN OPPOSITE DIRECTIONS THE CHANCE OF COLLISION IS VERY HIGH.

JANUARY 19, 2023 COMMENTS:

LARGE DUALLY PICKUP TRUCKS AND C CLASS MOTORHOMES HAVE OVERALL WIDTHS OF ~9 FEET (CONSIDERING EXTERIOR MIRRORS). GIVEN AN 11' WIDE LANE, (ASSUMING THE VEHICLES IS IN MIDDLE OF THE LANE) THERE IS ONLY 1' ON EACH SIDE, 1' OF THE WIDTH ON THE OUTSIDE WITH NO SHOULDER DOES NOT ALLOW FOR DRIVER VARIABILITY AND MARGIN OF ERROR.

- R3. The horizontal and vertical geometry of the main driveway curve has been adjusted. An updated turning movement for the main driveway curve is attached. The curve width has been adjusted to be 35' wide with gravel shoulders on either side of the curve (1' wide shoulder on the inner and 2' wide shoulder on the outer portion of the curve).**

One-foot-wide gravel shoulders have been added to either side of the driveway portion from Klug Hill Road to the main driveway curve.

We have reviewed the sightlines for the main driveway curve and have confirmed that there are adequate sightlines for both directions of travel.

- C5. THE NEWLY PROVIDED PLAN AND PROFILE SHEETS PP1 AND PP2 SHOW THE MAJORITY OF THE DRIVEWAY AT 10% SLOPE WITH TWO SECTIONS AT 12%. THE OVERALL LENGTH OF THE DRIVEWAY (1500') AT AN AVG SLOPE OF OVER 10% IS PROBLEMATIC ESPECIALLY FOR LARGE HEAVY RV VEHICLES.**

LONG UPHILL GRADES ARE DIFFICULT TO PULL HEAVY TRAILERS UPHILL AND LONG STEEP DOWNHILL GRADES ARE POTENTIALLY DANGEROUS FOR INEXPERIENCED RV DRIVERS UNFAMILIAR WITH TRAILER BRAKE OPERATIONS.

THE MOST NOTICEABLE AND MOST POTENTIALLY DANGEROUS ASPECT OF THE ENTIRE DRIVEWAY DESIGN IS THE LONG STEEP DOWNHILL GRADE TO THE STOP POINT AT KLUG HILL RD. THERE IS A LONG 300 FOOT LENGTH OF MOSTLY 12% GRADE BEFORE THE STOP POINT AT KLUG HILL RD. GIVEN RV TRUCK AND TRAILER COMBINATIONS CAN BE ~50 FEET LONG, SHOULD TWO VEHICLES QUE AT THE STOP SIGN THE THIRD WILL BE STOPPING ON A 12% SLOPE WHICH IS NOT IDEAL AND POTENTIALLY DANGEROUS FOR REAR END COLLISIONS.

IT IS RECOMMENDED THAT THE ACCESS ROAD BE REDESIGNED TO REDUCE THE GRADE APPROACHING KLUG HILL ROAD. IT IS ALSO RECOMMENDED THAT THE VERTICAL GRADE ABOVE THE SHARP CURVE (STA 11+00-12+00) BE REDUCED FOR IN BOTH CASES TO LESSEN THE APPROACH BRAKING.

- R5. The vertical and horizontal geometry of the driveway has been revised to address the concerns about the proposed grade and curvature of the driveway. The proposed slope of the entrance**

and exit lanes near Klug Hill Road have been reduced to meet the requirement of *Section 5.13.2.G.2* of the *City of Torrington Zoning Regulations*, which states "A proposed driveway providing access from a street to seven or more parking spaces shall have a maximum grade of six percent for the first forty feet in from the existing edge of the street's pavement". Additionally, the entrance and exit lanes are now proposed to have a maximum slope of 9.75% and 10% respectively.

The steepest portion of the driveway is designed to have a proposed grade of 11.75% from approximate station (sta.) 6+15 to 10+15. It is our opinion that this proposed grade is acceptable given the relatively straight horizontal geometry of this portion of the driveway in conjunction with the lesser proposed grades up and down gradient of this portion of the driveway.

The vertical and horizontal geometry of the main driveway curve (sta. 10+50 to 13+50) has been adjusted. The proposed grade through the curve has been reduced from 9.75% to 7.50% and the radius of the curve has increased moderately.

C7. DOES THE TIMBER GUIDE RAIL (SHEET SD-9) MEET DOT SPECIFICATIONS FOR GUIDERAIL? LOCATION OF PROPOSED GUIDE RAIL TO BE REVIEWED FROM STA 11+00 TO 3+00.

R7. Per our discussion on Thursday, February 2, 2023, it is our intent to provide computations in support of the wooden guardrail proposed. In order to provide updated plans, we have not yet completed those guardrail computations, but computations will be completed soon. If they cannot be submitted and reviewed prior to the public hearing, we would ask that a Condition of Approval be utilized to allow the further discussions with the City Engineer on the use of the wooden guardrail. If no resolution with City staff can be found, then the applicant would use a Connecticut Department of Transportation (CTDOT) approved guardrail.

Callouts have been added to the site plans calling out the location of the guardrails and that if during construction, if the proposed slope is graded out at 4' horizontal to 1' vertical slope, or greater, then the guardrail can be eliminated.

Four proposed wooden bollards with reflectors have been added to the east of the main driveway curve along with the proposed grading have been revised to be a 4' horizontal to 1' vertical slope in the area of the proposed wooden bollards.

C11. WILL THE PROPOSED 12' CULVERT PIPE AT STA 22+50 HAVE ADEQUATE CAPACITY TO HANDLE ALL THE WATER FROM THE ENTIRE UPSLOPE ROADSIDE DITCH? IS THIS PIPE IDENTIFIED IN THE DRAINAGE REPORT?

- R11. Pipe computations for the three existing pipe culverts and the two proposed pipe culverts are provided, along with a Watershed Map for the culverts. All pipe culverts have enough capacity for the 10-year storm besides Existing (Ex.) Culvert 1. Bypass from Ex. Culvert 1 will continue down the proposed riprap swale reaching any of the four remaining downgradient pipe culverts, which all have enough spare capacity to handle the bypass flow from the Ex. Culvert 1.**
- C32. UTILITIES SHOULD BE SHOWN ON A SEPARATE PLAN. AS THEY ARE SHOWN WITH THE GRADING PLAN. IT IS VERY DIFFICULT TO DETERMINE AND DISTINGUISH BETWEEN PROPOSED UTILITY FEATURES AND CONTOUR LINES. DIFFERENT LINE TYPES SHOULD BE USED SINCE THE SCALE OF THE LTs USED HAVE LARGE LENGTHS OF SOLID LINES BETWEEN THE LETTERS. ARE THERE ANY TRANSFORMERS?
- R32. Comment acknowledged. The Grading and Utilities Sheet has been spilt into two separate sheets to increase clarity. There are five proposed pad mounted transformers and additional callouts for the transformers that have been added to the site plans.**
- C40. PROVIDE CALCULATIONS FOR DEPTH AND SIZE OF RIP RAP IN LINED DITCHES.
- R40. Calculations for the riprap sizing are attached. Please see the Riprap Swale detail on Sheet SD-9 for additional information.**
- C41. Traffic Impact Study:
PROVIDE RATIONALE NARRATIVE SUPPORTING 50/50 WEST/EAST DISTRIBUTION SPLIT AT RTE 4 LISTING DESTINATIONS RELATIVE TO CAMPGROUND CLIENT REQUIREMENTS. (IE SHOPPING, SERVICES AND TOURIST DESTINATIONS).
PROVIDE RESULTS MAPS, FIGURES AND LOS TABLE FOR THE 75/25 SPLIT DISTRIBUTION.
PROVIDE RATIONALE NARRATIVE SUPPORTING 75/25 SPLIT LISTING DESTINATIONS RELATIVE TO CAMPGROUND CLIENT REQUIREMENTS. (IE SHOPPING, SERVICES AND TOURIST DESTINATIONS).
- R41. Our initial study followed the patterns of the existing counts at the Klug Hill Road/Route 4 intersection. Then, following the City's comments, we evaluated a 50/50 distribution as suggested. Upon further evaluation, we felt it may be even more oriented to/from the east and conducted an analysis with 75% to/25% from the east and reported that under all three scenarios, the Klug Hill Road traffic will not impact traffic operations. We feel the 75/25 distribution is the most reflective of anticipated travel patterns. While it represents an estimate traffic distribution, we would suggest that most shopping related trips would be oriented in that direction, as would trips to/from Route 8. Trips to and from the west would largely be to Litchfield Hills destinations. In this regard, as requested, we are attaching the Traffic Figures and Analysis Worksheets**

reflecting the 75/25 distribution.

C42. Storm drainage:

a. THE STORM DRAINAGE REPORT HAS NOT BEEN SIGNED OR CERTIFIED BY A PROFESSIONAL ENGINEER. THE REPORT SHOULD ALSO ADDRESS THE SHEET FLOW ISSUE NOTED BELOW:

R42.a. Signed copies of the Storm Drainage Report by a Professional Engineer have been provided to the Land Use Department for previous submissions. Additional language has been added to the report, discussing the drainage design approach in terms of sheet flow near the RV spaces.

C42. d. THE LACK OF DEFINED DRAINAGE THROUGHOUT THE CAMPSITES IS OF CONCERN SINCE NO DEFINED DITCHES OR SWALES HAVE BEEN PROVIDED, WHICH COULD POSSIBLY RESULT IN LOCALIZED FLOODING OF CAMPSITES.

R42.d. We have reviewed the drainage and grading configuration in the campsite areas with the applicant and City staff. The grading is intended to allow for maximum accessibility and limited drainage infrastructure. While some RV sites lower in grade may experience sheet flows from upgradient sites, the applicant prefers this condition to more formal drainage infrastructure like drainage swales and similar efforts to concentrate runoff which may hinder the ability for RVs moving in and out of the sites.

Please feel free to contact me at (203) 271-1773 should you need any further information.

Sincerely,

SLR Consulting US LLC



Ryan McEvoy, PE
Principal Civil Engineer

Enclosures

cc: Mr. Jeremy Leifert, City Planner – City of Torrington

20174.00002.80.f723.ltr.docx