



DONOHUE & STEARNS, PLC

December 2, 2019

VIA IZIS

Chairman Anthony Hood
D.C. Zoning Commission
441 4th Street, N.W., Suite 200S
Washington, D.C. 20001

Re: ZC Case 19-10/ Valor Development, LLC/ Square 1499

Chairman Hood:

On behalf of my client, Citizens for Responsible Development (“CRD”), I am submitting the attached Reply to the Applicant’s Response to CRD’s Shadow Study (the “Reply”) into the record for Zoning Commission Case No. 19-10.

Pursuant to the Secretary’s November 19, 2019 Procedural Memo, CRD is requesting that the Commission allow the graphics and link contained in the Reply to be submitted into the record. These graphics are not new studies or reports, but rather enhancements and explanations of the effects depicted in the Digital Design & Imaging Service, Inc.’s (“DDIS”) shadow study critique (ZC Docket No. 244), elevation views already part of the record (Docket No. 217) and figures in the New York City CEQR Technical Manual cited by the Applicant. Again, the only tool that DDIS relied upon was the shadow study tool available on the D.C. Office of Zoning website.

We appreciate the Commission’s consideration of these materials.

Thank you,

Edward L. Donohue
Attorney for CRD

Enclosures

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that on **December 2, 2019**, a copy of CRD’s Reply to the Applicant’s Response to CRD’s Shadow Study was served via email, on Advisory Neighborhood Commissions 3E and 3D (3E@anc.dc.gov; 3D@anc.dc.gov), Jeff Kraskin (Jlkraskin@rcn.com)

ZONING COMMISSION
District of Columbia
CASE NO.19-10
EXHIBIT NO.258

for Spring Valley Opponents, William Clarkson (wclarksonv@gmail.com) for Spring Valley Neighborhood Association, John H. Wheeler (johnwheeler.dc@gmail.com) for Ward 3 Vision and counsel for the Applicant, Norman M. Glasgow, Jr. (norman.glasgowjr@hklaw.com).

By:



Edward L. Donohue

Dated: December 2, 2019

Executive Summary

- DDIS was tasked by CRD to review and critique the shadow study produced by Valor's architect Torti Gallas (ZC Docket # 28A7, slides A46-47), not to produce a full, formal shadow study of its own. As such, the DDIS supporting graphics, produced through use of DCOZ 3D imaging, were not intended to be used as a replacement for Valor's study but as a critique and addendum to their study. That being said,
 - Valor is claiming that DDIS intentionally omitted the existing structures and shadows from the critique. This is untrue. The third page of the DDIS critique (ZC Docket # 244, p. 25) clearly shows the proposed Ladybird's shadow relative to the shadows cast by the surrounding low-rise structures.
 - In addition to showing the proposed building's shadow impact, DDIS also showed the existing solar impact of the current retail on lot 807. This before and after comparison is crucial to understanding the impact. This was totally omitted by Valor.
 - Valor is showing the shadow impacts of the development only during **business hours**. This is contrary to industry best practices and ignores the fact the Property abuts a community of single-family residences.
- Valor is claiming that an accurate study should start 1.5 hours after sunrise and stop 1.5 hours before sunset due to the length and angle of the shadows. If this is the case, why does Valor's own shadow study start 3.25 hours after sunrise and end 2.66 hours before sunset in June?
- The deliberate curtailing of the study period by Valor suggests that residents seeing the sun when they wake up or come home from work is not important. If it is not important, then why do Valor's promotional renderings highlight that future Penthouse residents will enjoy full exposure to the sun?
- In addition, DDIS provided an additional close up detail that allows the community and decision makers to see, in isolation, the size and extent of the Ladybird shadow. This image more clearly allows residents to see and count which houses no longer would enjoy early morning or late afternoon sun.
- Valor argues that the solar impact on the surrounding neighborhood is lessened by the fact the existing structures cast their own shadows. While it is fair to argue that these houses already cast shadows, the construction of an 81' tall structure (more than twice as tall the neighboring homes) with a total gross floor area of almost 235,000 square feet will result, in many cases, in these houses no longer being able to cast shadows. This is because they will be in the shadow of the new development during part of the day; they will not receive the light needed to cast shadows.

- Valor references “Shadows occurring earlier and later are long, move fast, and generally blend with shadows from existing structures.” Blending of shadows is more relevant when the objects casting them are similarly scaled. For this Project, there are no other structures within the solar path/angle of the shadow of comparable height or scale. The neighboring houses currently produce shadows in their backyards, but will not once they are completely enveloped in the Ladybird’s shadow on winter mornings and afternoons. The houses, their front lawns, gardens, and roofs, and parts of their backyards will be in the shadow of this building at certain times of year. See the attached graphic (Appendix, Figure 7) to better understand why the argument of blending shadows is rather weak in this particular case due to the scale of the building.
- Furthermore, Valor relies on the NYC’s *CEQR* manual regarding valid times to conduct a solar study. The same manual on the following page depicts a sample solar study, which contradicts this 1.5 hour rule. See *Appendix: Figure 5*.
- Note that this example study starts at 5:57am, which is 32 minutes AFTER sunrise in NYC. It also shows the standard solar study assessment of *every* hour. One might ask: why are they starting the solar study 30 minutes after sunrise? It is because every solar study needs to be taken into the context of the surrounding neighborhood and sunlight-sensitive areas. Note that in the example, there are two “sunlight sensitive resources.” When discussing the Valor development in context to its neighbors, 270° or $\frac{3}{4}$ of the surrounding neighbors are 2-story single family homes and tree-lined streets, and should be considered “sunlight sensitive resources.” One’s home and garden in this culture is considered sensitive.

Critique of Valor's Current Shadow Study

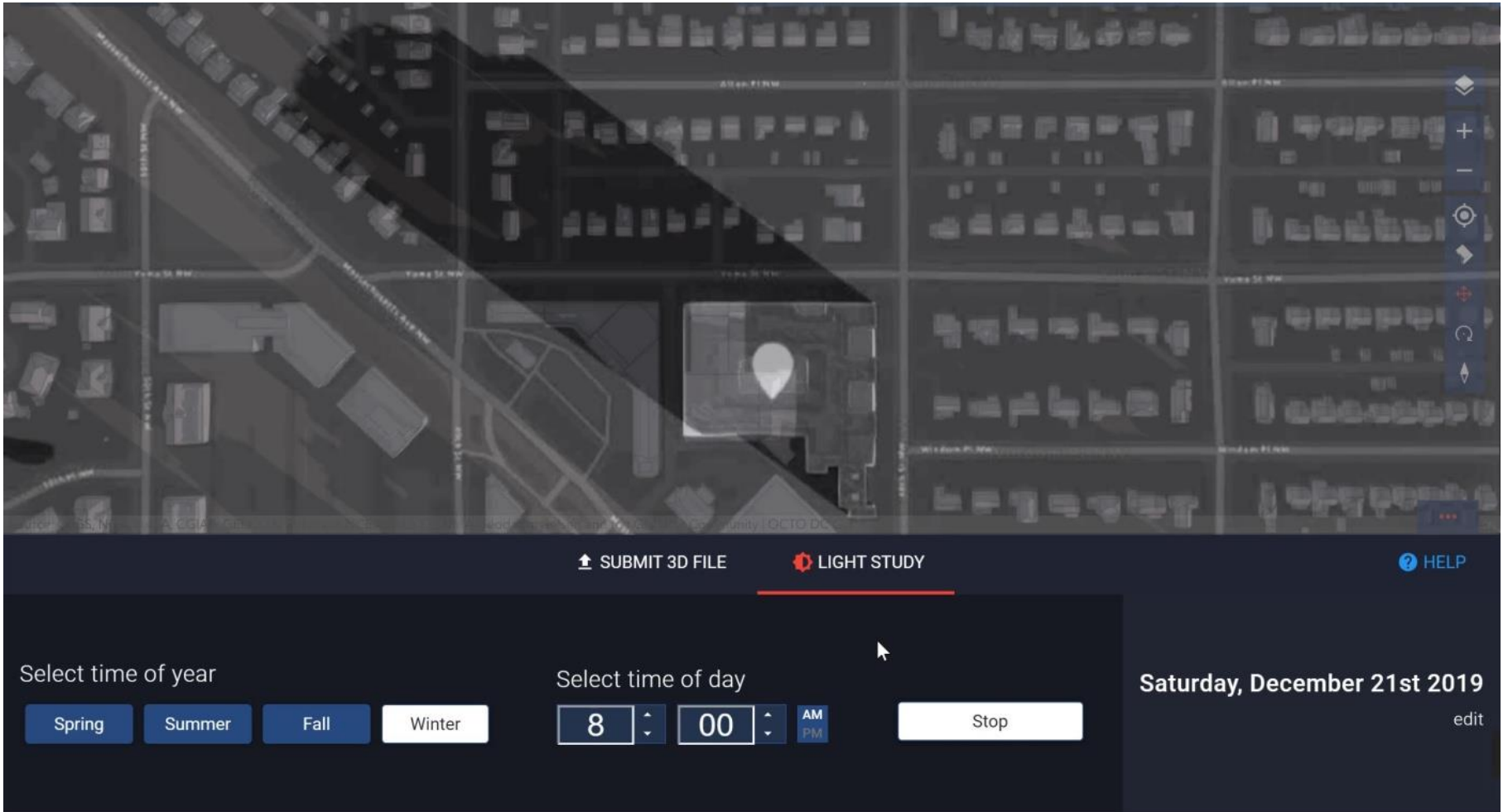


Figure 1: Approximately 24 AU Park single family homes and gardens will have their direct sunlight fully or partly blocked by the proposed Ladybird Building at 8AM on the winter solstice according to the DC Office of Planning's DCOZ3D map tool. Other equally critical seasons and times of day are shown as videos via the link in the appendix.

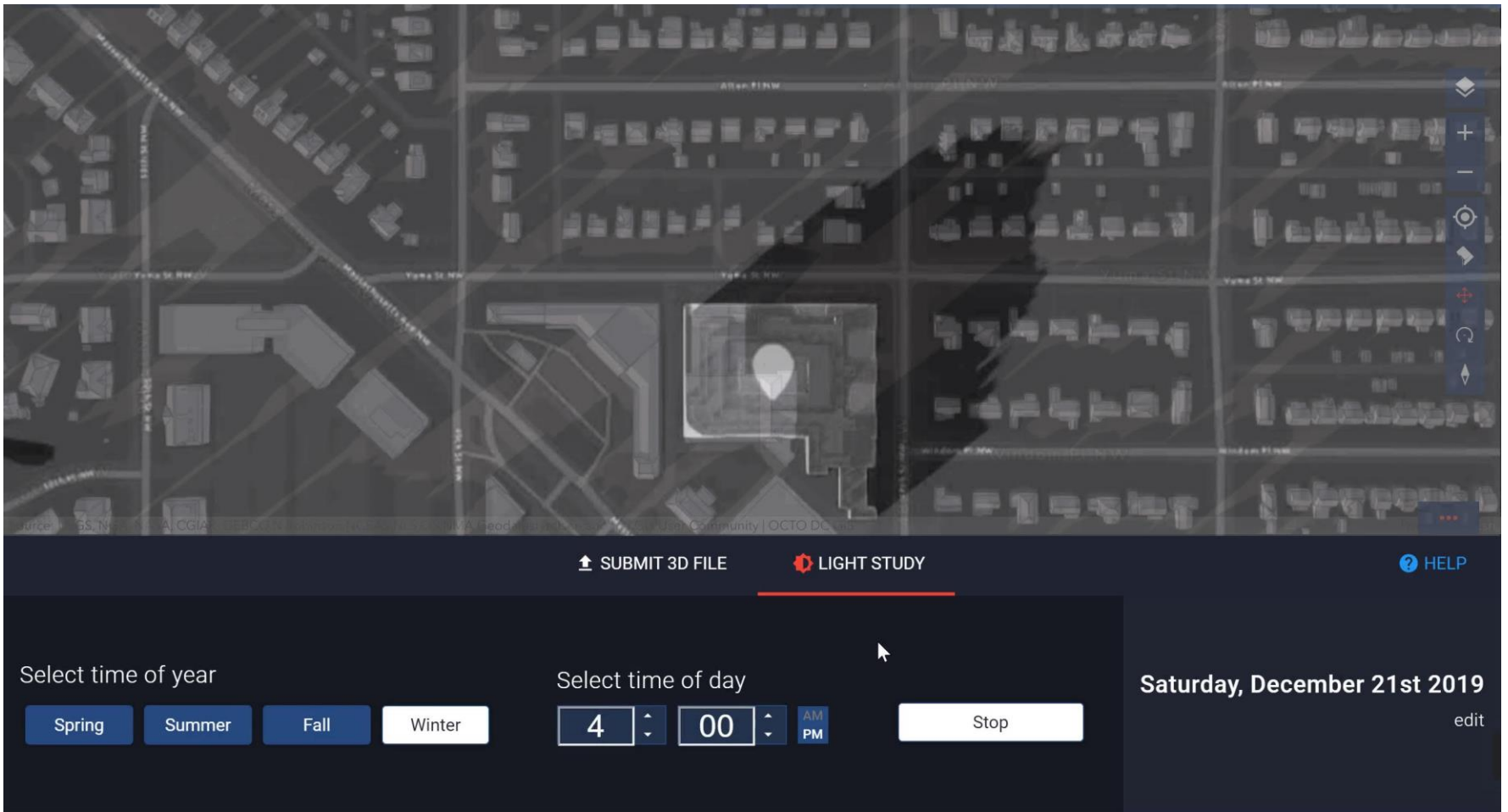


Figure 2: Approximately 16 AU Park single family homes and gardens will have their direct sunlight fully or partly blocked by the proposed Ladybird Building at 4 PM on the winter solstice according to the DC Office of Planning's DCOZ3D map tool. Other equally critical seasons and times of day are shown as videos via the link in the appendix.

Introduction:

Landscape architects, city planners and renewable energy experts consistently rank good solar access as a quantifiable, valuable natural benefit to residential neighborhoods. In the mid-Atlantic region for example two-story homes and gardens organized along East-West gridded residential streets usually enjoy and profit from full exposure to the sun year-round. Mature residential homes and gardens laid out along Yuma, 48th and Windom Place illustrate this desirable exposure to the sun's path at all seasons. Best planning practices, per The American Planning Association and the Dept of Energy* state that high rise buildings can be sited to avoid blocking residential solar access if there are sufficiently wide transition zones between the two land uses.*

However, in this case, the abrupt transition between the proposed Ladybird and Yuma Street's nearest neighbors produces negative solar impacts. Specifically the proposed 81ft-tall Ladybird building is too close to the Yuma St. residences.

The larger issue is that shading of residential lots negatively affects the property owner's full enjoyment of patios, trees, gardens, passive solar collectors, and potential future active solar collectors. Reducing the duration of direct wintertime sunlight can result in homeowners having more costly winter heating bills. Loss of direct and reflected sunlight noticeably changes the aesthetic quality of natural light year round.

As both the Valor study and the DDIS critique show, the nearest homes on 48th Street, Yuma Street, and part of Windom Place will lose direct exposure to the sun at important times of day and seasons of the year. However, as Valor's solar study and marketing renderings both show, the full sweep of the sun now falls on the upper penthouse areas of the Ladybird. These Ladybird residents, in contrast, will enjoy full sunlight.

**Site Planning for Solar Access--A Guidebook for Developers and Site Planners. US. Department of Housing and Urban Development. Office of Policy Development and Research in Cooperation with the US. Department of Energy. American Planning Association. Authors: Duncan Erley & Martin Jaffe.*

Response:

The following topic-by-topic rebuttal illustrates, by concrete comparisons, how the proposed development will negatively block parts of 24 nearby homes at 8am and 16 residential properties in the afternoon in the winter. Other times seasons and times of day are dynamically illustrated in the linked videos in the Appendix. <https://ddis.smugmug.com/Clients-zone/DCOZLadybird/n-ZjdsFj/Ladybird-Solar-Study/>

1. In response to DDIS's critique of Valor's Solar Study, Valor made several claims:
 - a. Valor claimed that DDIS intentionally omitted the existing structures and shadows from the critique. This claim has little merit as Page 3 of the DDIS critique clearly shows the proposed Ladybird's shadow relative to the shadows cast by all the surrounding low rise structures. In fact, Valor uses screen grabs of these DDIS graphics on page 13 and 14 of their own applicant response. **See Appendix: Figures 3 and 4** below for graphic evidence.
 - b. Valor argues that the process of graphically isolating the proposed building's shadow from other building's shadows "provides no value." To make this argument is to disregard standard practices in the data visualization industry. Note that even the NYC CEQR manual, which Valor is quoting, uses this graphic filtering technique in its sample studies. **See Appendix: Figure 6** to see a sample solar study taken directly out of this Valor-cited, NYC manual. In this sample shadow study, only the proposed building and its shadow are shown, not the surrounding developments or existing shadows. This technique is a common practice to highlight just the impact of the proposed structure relative to the existing neighborhood. In addition DDIS provided an additional close up detail that allows the community and decision makers to see, in isolation, the size and extents of the Ladybird shadow. This image more clearly allows residents to see and clearly count which houses would be impacted by the proposed development's shadow.

- c. Valor argues that DDIS's critique "provide(s) no value toward establishing" "existing conditions against which the potential effects of the Project can be assessed." In addition to showing the proposed building's shadow impact, DDIS also showed the existing solar impact of the current retail on lot 807. This before-and-after comparison is crucial to understanding the impact. This was totally omitted by Valor. As in the ground-perspective renderings, it is a flaw not to show existing conditions and context. Without showing existing conditions one cannot understand how a proposed development impacts its surroundings.

Again, Valor's use of DDIS graphics (June 21st 8pm) makes it clear that the proposed development will impact multiple neighboring homes with its shadow and restrict their access to light and solar energy. **See Appendix: Figure 5.** In this example, Valor highlights the solar impact of their development in orange, though intentionally omitting the areas where houses are already casting shadows. Even visually disregarding these areas, at this time of day and year, it is clear that the building will cast a shadow that covers approximately 78,500sqft (1.8 acres) and, depending on time of day, will negatively impact at least a dozen separate homes / lots.

- d. Valor is claiming that an accurate study should start 1.5 hours after sunrise and stop 1.5 hours before sunset due to the length and angle of the shadows. If this is the case, why does Valor's own shadow study start 3.25 hours after sunrise and end 2.66 hours before sunset in June? (ZC Docket # 244, p. 25) Valor is effectively only showing the shadow impacts of the development on a residential neighborhood during **business hours**. Two sides of the Valor property abut a community of single family residences.

(It should also be pointed out that it was only due to CRD's and DDIS earlier expressed concerns with the original solar studies (11/15/2017 and 10/16/2018) that Valor was forced to show any shadows after 4pm throughout the year. Most people work during the day and enjoy their house before and after business hours.)

Furthermore, Valor relies on the NYC's *CEQR* manual regarding valid times to conduct a solar study. In the same manual on the following page is a graphic depicting a sample solar study, which contradicts this 1.5 hour rule. **See Appendix: Figure 6.** Note that this example study starts at 5:57am, which is 32 minutes AFTER sunrise in NYC. It also shows the standard solar study assessment of every hour. One might ask: why are they starting the solar study 30 minutes after sunrise? It is because every solar study needs to be taken into the context of the surrounding neighborhood and sunlight-sensitive areas. Note that in the example, there are two "sunlight sensitive resources." When discussing the Valor development in context to its neighbors, 270° or ¾ of the surrounding neighbors are 2-story, single-family homes and tree-lined streets. The impact on these homes is important and should hold greater weight than the impacts on surrounding commercial areas.

- e. Valor argues that the solar impact on the surrounding neighborhood is lessened by the fact the existing structures cast their own shadows. While it is fair to argue that these houses already cast shadows, the development of an 81' tall structure (more than twice as tall the neighboring homes along Yuma St) will result, in many cases, in these houses no longer being able to cast shadows. This is because they will be in the shadow of the new development and will not receive the light needed to cast shadows. **See Appendix: Figure 7.** This cross-section is another way to visualize the solar impact of the proposed development on its immediate neighbors. Even 1.66 hours after sunrise, the shadow of the Ladybird totally envelopes the residence (4815 Yuma St). The neighboring houses currently produce shadows in their backyards but will not once they are completely enveloped in the shadow on winter mornings and afternoons. The house, its front lawn, gardens, roof, and parts of its backyard will be in the shadow of this building.

- f. Valor references the reason for omitting the times closer to sunrise and sunset is because "Shadows occurring earlier and later are long, move fast, and generally blend with shadows from existing structures."
 - i. In an environment where the structures are all generally the same height and scale, there are facades and areas where light will be reflected, refracted, and diffused. For example, the west-facing façade of a house will "bounce" light back on to the neighboring lot in the afternoon. A tree will cast a shadow, but it will be mottled and diffuse.
 - ii. With a monolithic structure, there is no chance for light to reflect or refract off smaller objects. There is no chance for the light to diffuse. Shadows do not "blend" when there is only a single uniform shadow and darkness created by the larger solid structure. In these cases it is imperative to understand the impact of the proposed development from sunrise to sunset.
 - iii. Furthermore, this argument is not just about the shadows cast, but about access to light. This deliberate curtailing of the study period suggests that residents seeing the sun when they wake up or come home from work is not important. If it is not important, then why do Valor's own promotional renderings showcasing future Penthouse residents enjoying full exposure to the sun?
 - iv. To argue that shadows, and therefore access to light during the 1.5 hour periods after sunrise and before sunset, is not important is to argue that individuals place no value in sunrises or sunsets. This proposed development will effectively shorten the day of many of its neighbors.
 - v. It should also be pointed out that the Valor solar study shows that the proposed Ladybird's penthouse residents (collectively) will get excellent exposure to the sun, including sunrises and sunsets all year through.
 - g. Valor argues that these are standard times shown before the Commission. Nonetheless, the Valor study does not follow industry standards. The fact that others may have shown inadequate shadow studies does not validate the Valor solar study. Additionally, this argument does not take into context the unique nature of solar impacts of a specific development on its surroundings. Each solar study is tailored to prioritize and analyze that site's impact on its surroundings. E.g. if this development was surrounded by fields, very few people would care about the solar impact.
2. DDIS stands by its critique and its decision to highlight the impacts of the proposed Valor development when affected residents are home. Specifically —closer to sunrise and sunset. Casting a shadow on and blocking light from multiple homes is different than casting a shadow on a commercial building, and should be treated as such.

Appendix:

*In addition to the graphics in the Appendix, a more complete dynamic shadow analysis is available at the following link: <https://ddis.smugmug.com/Clients-zone/DCOZLadybird/n-ZjdsFj/Ladybird-Solar-Study/>. Included are all season, hour-by-hour, animated versions of the solar impact of the Ladybird using DCOZ 3D imaging.



Shadow Study Analysis



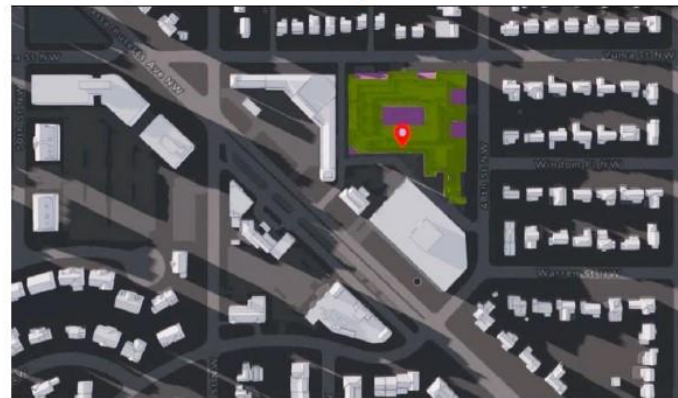
June 21st, 2019 – 6:30AM – Existing Conditions



June 21st, 2019 – 6:30AM – Proposed Conditions



June 21st, 2019 – 8:00PM – Existing Conditions



June 21st, 2019 – 8:00PM – Proposed Conditions

- At 6:30am the shadow of the ladybird will reach 600ft and cover the shopping centers on both sides of Massachusetts Ave.
- At 8pm the shadow will impact more than a dozen homes East and SE of the development. Note these homes currently enjoy full sun at this time.

703.534.7500

www.AirPhotosLIVE.com

Figure 3: Page 3 from DDIS Shadow Study Critique.

Image Description:

1. Shadows cast by existing buildings in and around the project site.
2. Existing shadow lines (red).
3. Proposed project with existing shadow lines (red)
4. New areas of shadow created by the proposed project (orange)



June 21st, 2019 – 8:00PM – Existing Conditions



June 21st, 2019 – 8:00PM – Proposed Conditions



June 21st, 2019 – 8:00PM – Existing Conditions



June 21st, 2019 – 8:00PM – Proposed Conditions

Figure 4: Valor uses DDIS graphics of the proposed development in existing conditions while claiming DDIS omitted this info.



June 21st, 2019 – 8:00PM – Existing Conditions



June 21st, 2019 – 8:00PM – Proposed Conditions

Figure 5: Valor using DDIS graphics to attempt to highlight the impact of the proposed development.

FIGURE 8-7D - TIER 3 SCREENING ASSESSMENT FOR THE JUNE 21 ANALYSIS DAY

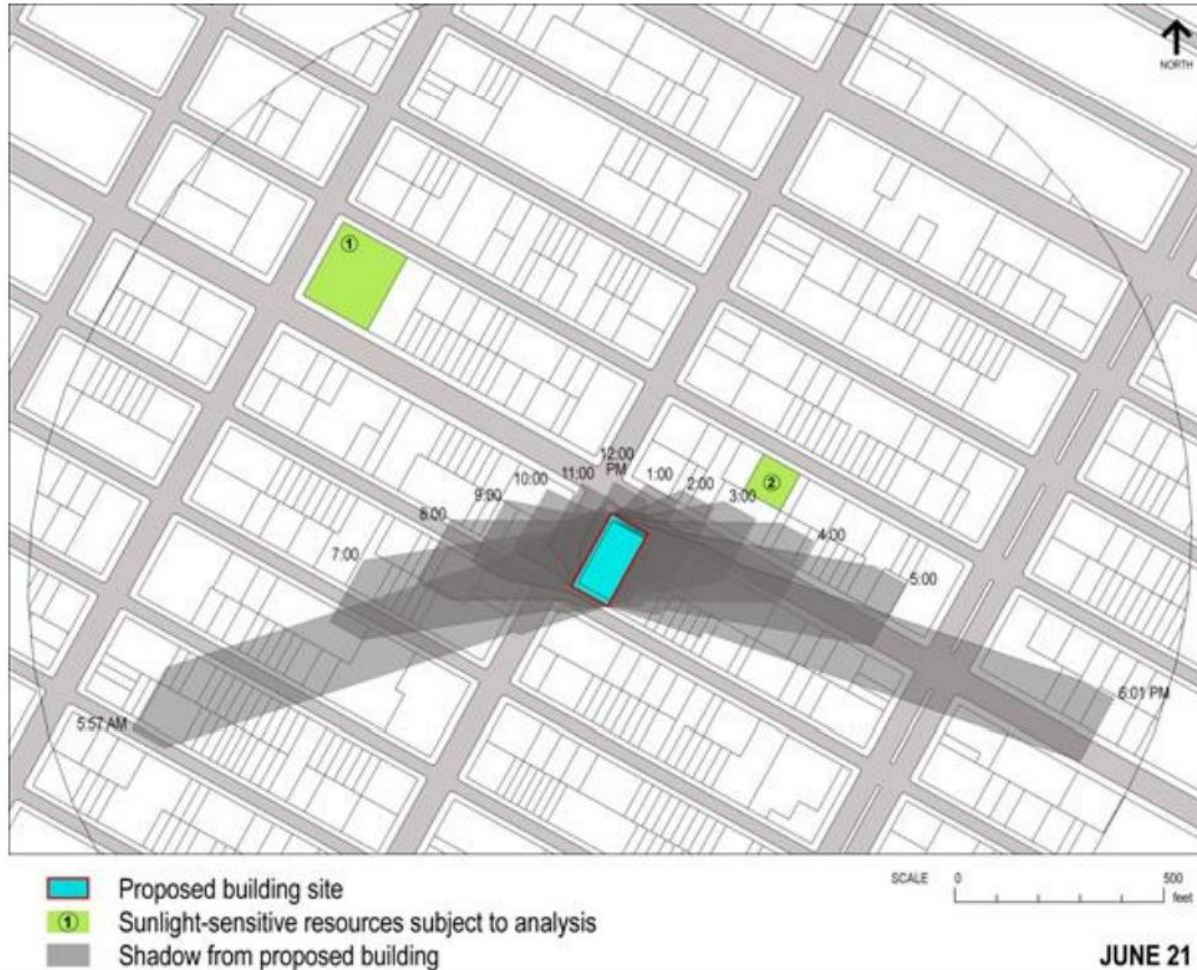


Figure 6: June 21st in NYC – page 8-13 of NYC’s CEQR technical Manual. This study starts 32 minutes after sunrise. The shadow study above shows every hour throughout the day as a composite overlay. This runs contrary to what Valor is claiming is standard for shadow studies by only showing 4 times of day. https://www1.nyc.gov/assets/oec/technical-manual/2014_ceqr_technical_manual_rev_04_27_2016.pdf

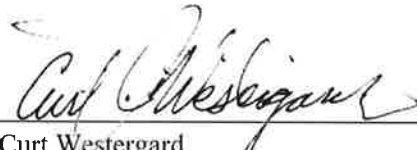
**BEFORE THE ZONING COMMISSION
FOR THE DISTRICT OF COLUMBIA**

**In Re: ZC Case No. 19-10
Valor Development, LLC**

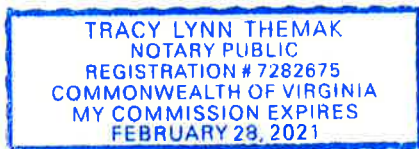
Affidavit


I, Curt Westergard, being duly sworn, submit this Affidavit in support of the CRD's Reply to the Applicant's Response to CRD's Shadow Study (the "Reply") and state the following:

1. I have been designated an expert in visual impact studies in this case.
2. The statements and conclusions in the Reply are based on my knowledge and experience in the visual impact field.
3. The statements and conclusion in the Reply are truthful and accurate and are based on scale modeling tools and methods widely accepted in the visual impact study and digital imaging field.
4. I used SketchUp Pro to build the required model massing. This is the same model that was used in our earlier photo renderings updated to reflect the minor changes in Valor's plans. I verified the location and elevation before importing the model into the DCOZ 3D map. I used the DCOZ shadow study tool to conduct a light study of both current and proposed conditions at (and near) both equinoxes and solstices. I then compared my findings to those reported by Valor.

By: 
Curt Westergard
President and Director of Research
Digital Design & Imaging Service, Inc.

Subscribed and sworn to before me this 2nd day of December, 2019.




Notary Public, D.C.

My commission expires: 2-28-2021