RIPMAN
LIGHTING
CONSULTANTS

3 LEXINGTON STREET
BELMONT, MASSACHUSETTS 02478
(617) 489-3366
(FAX) 489-5223

31 January 2019
Re: GATEWAY CENTER, NEWTON - FAÇADE ILLUMINATION

Mr. Neil Cronin
Senior Planner
City of Newton Planning and Development
Newton City Hall
1000 Commonwealth Avenue
Newton Centre
Newton Centre, MA 02459

Dear Neil:

Per our discussion, I am writing to request approval for our lighting design for façade illumination of the Gateway Center (office building and hotel). The design meets the intent of the Newton Zoning Ordinance.

Should the Planning Board see a waiver as required, we are hereby submitting draft materials for a waiver, and request that you schedule a review for our application..

Executive Summary

The Newton Zoning Ordinance, Section 20-24, copy attached and highlighted, is intended to minimize light emitted towards the sky, and also to limit light trespass on adjacent properties. Section 20-25 allows the Planning Board to grant a waiver if requested and justified.

After two years of mockups and testing, Ripman Lighting Consultants and the property owner have concluded that an uplight solution, properly shielded, actually puts less light into the sky than a code-allowed downlighting solution. See photometric reports attached.

The extensive mockups and testing also led us to conclude that uplighting is a better way to light the structure as a welcoming "gateway" for the City of Newton.

We request your approval to proceed with construction, as the proposed design meets the intent of the ordinance regarding "dark sky" preservation, and meets the criteria for limited light spill on adjacent property.

Background and Process

In 2016, J. F. White Properties hired Ripman Lighting Consultants to evaluate and Upgrade the existing lighting on the Gateway site. Our previous and relevant experience in Newton includes the design of all lighting for Newton North High School. While all exterior lighting was full cutoff, and therefore conforming to the Ordinance requirements regarding dark sky concerns, the location of high light level functions such as the tennis courts immediately abutting neighboring residential property required the design of sophisticated shielding for the fixtures near the property line to meet the overspill requirements. Our shielding design met the requirements of

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the Ordinance, notwithstanding the fact that a number of the concrete bases for site poles for the tennis courts were hard up against the abutting property line. I submit that we have a good record of designing sophisticated shielding for fixtures in service of the intent and criteria of the Ordinance.

In 2017 and 2018 we executed over ten mockups to explore various approaches to lighting the facades of the office building and the hotel. Although the buildings have concrete facades, most of the façade is regressed and the only surfaces which can be readily illuminated are the edges of the floor slabs and spandrels, and the faces of the columns, which are proud of the rest of the façade and create a simple rectangular grid defining the façade.

We explored both downlighting and uplighting schemes. With downlighting, it was judged that the downlighting needed to run the entire perimeter of the roof and core towers in order to present the building as the simple geometric mass that it is. Raking up or down the columns, for instance, made the building look like a forest of columns, with no sense of the mass between.

Selected Photos from Mockups

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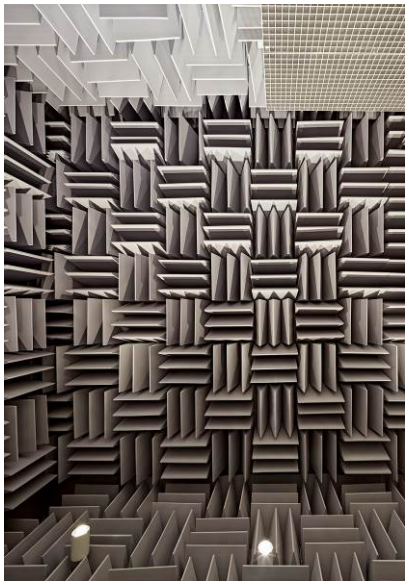
Selected Photos from Mockups of Office Building and Hotel

Our conclusion was that an uplighting scheme using less wattage than the downlighting scheme and properly shielded produced the most handsome rendering of the building.

If the Gateway buildings had flat glass facades, then all the light from an uplighting scheme hitting the façade would be reflected into the sky. However, the grid of slabs and columns acts more like an anechoic baffle, trapping and absorbing much of the uplight. The horizontal surfaces which are illuminated (the undersides of the slabs) face down, so the reflected light goes down rather than up. Downlighting has two drawbacks: the surfaces illuminated face up, reflecting light into the sky, and the horizontal surfaces which are lit are not visible from the street level below.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Our goal is to illuminate the Gateway Center as a landmark for Newton Corner, to brighten the appearance of a pair of buildings which at nighttime can appear gloomy, and to create a welcoming environment when entering the city for the Mass Pike. Our goal has been to do this while minimizing light spill into the night sky, minimizing glare for pedestrians and those in adjacent buildings, and meeting the criteria of the Massachusetts Energy Code. These are the same goals as the Newton Exterior Lighting Ordinance, which are to minimize light spill into the sky and restrict light spill onto adjacent properties.

When illuminating buildings, it sometimes occurs that a full-cutoff down-lighting scheme produces more light into the night sky, reflected off the ground plane and building surfaces, than a properly shielded uplighting scheme, which does not light the ground surfaces. This of course requires that the up-lighting scheme is carefully controlled to put the light onto building surfaces and minimize spill into the night sky.

We have modeled both schemes for the office building in AGI32, the industry-standard photometric calculation program. The downlighting scheme has lighting on the outline of roof with LED full cutoff downlight sources with wattage allowable by Mass Energy Code. The uplighting scheme incorporates with custom louvering to restrict light spill into the sky. This modeling (copy attached) and the associated light distribution diagrams demonstrate that the uplighting scheme with appropriate spill control produces less light into the sky than the downlighting scheme. This is because the downlighting, reflects large quantities of light up into the sky from the ground planes and the illuminated façade planes. On the modelled grid (200’ x 360’, 140’ above the ground), the calculations show 57,600 lumens passing through the grid into the sky with the uplighting scheme, compared with 64,800 lumens for the downlighting scheme – more than ten percent higher.

While the rendering shows only the lighting for the office building, the hotel would be lighted in a similar manner. Work on the hotel is scheduled for a future phase of the project, but we request approval of the hotel as well and the office building.

The up-lighting scheme is more energy efficient, and puts less light into the night sky and creates less bright-light distraction from the light sources when viewed from the ground than the downlighting scheme,. The up-lighting scheme best meets the intent of the Newton Lighting Ordinance, and we request the City's approval of the up-lighting scheme for both the office building and the adjacent hotel on these grounds.

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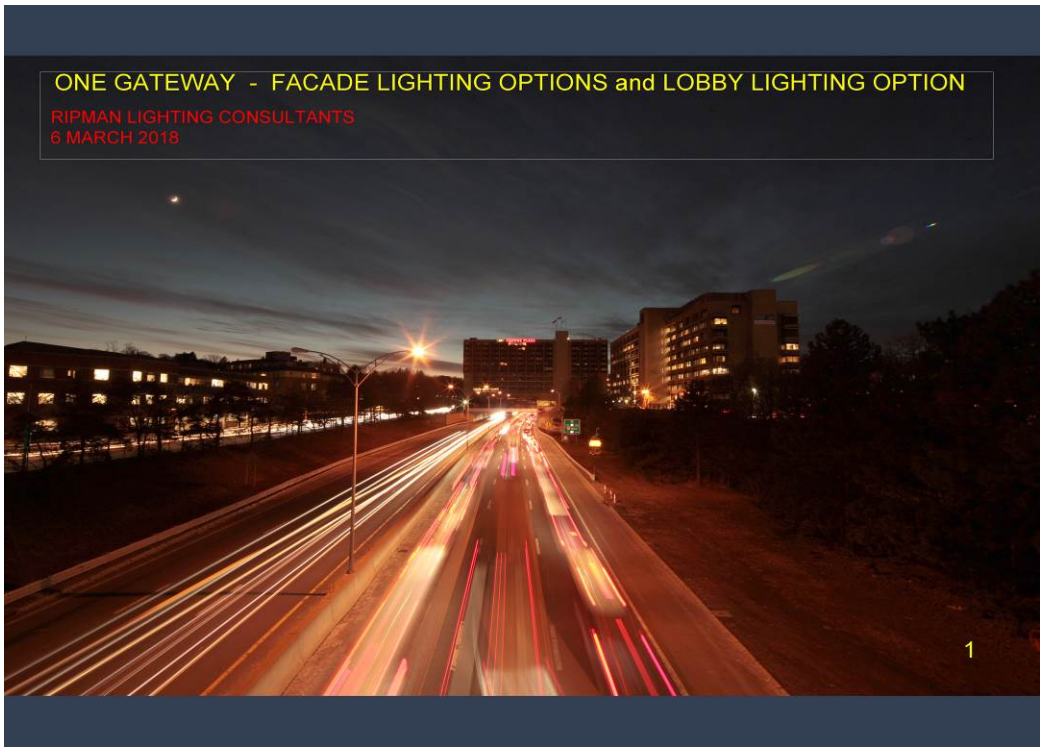
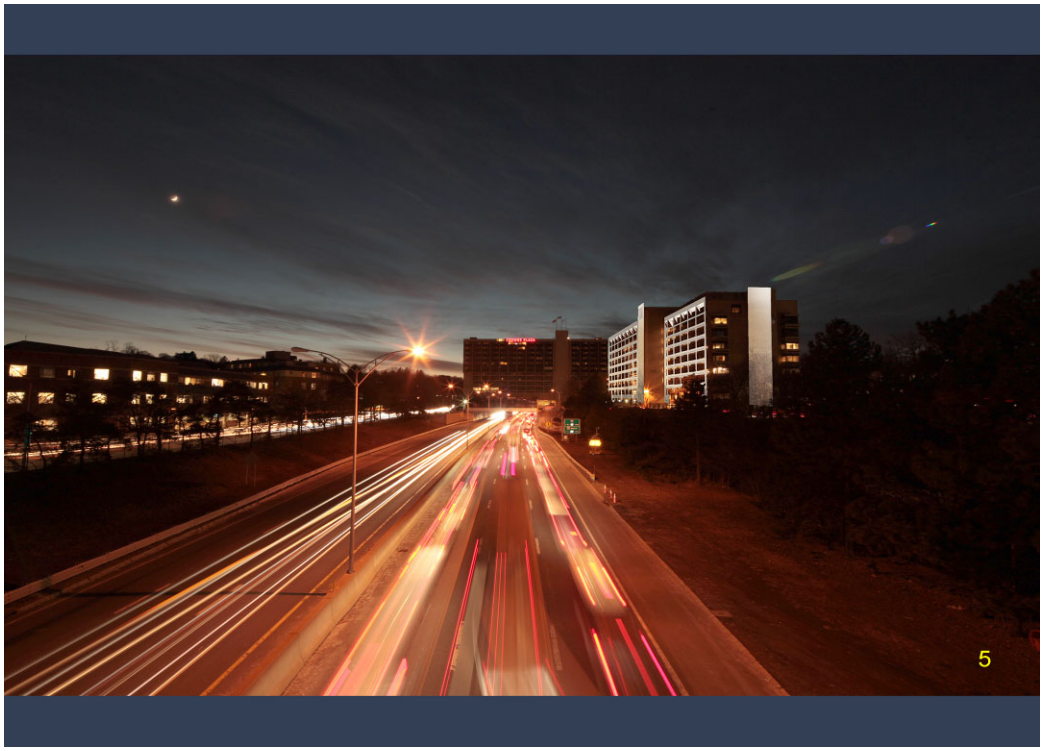
Existing Condition



Proposed Façade Illumination of Office Building



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We request approval of the proposed lighting scheme, since it better meets the intent of the ordinance.

Thank you for the opportunity to meet with you to review our proposed lighting for the Gateway Center.

Respectfully yours,

Christopher Hugh Ripman RA IALD IESNA President
RIPMAN LIGHTING CONSULTANTS
3 Lexington Street
Belmont, MA 024678
(617) 968-5027

J. F. WHITE PROPERTIES, INC.

ONE GATEWAY CENTER
NEWTON, MA 02458-2883
(617) 796-8000
FAX (617) 796-8080

April 22, 2019

Dear Ms. Powers,

You asked for an overview of the lighting project at Gateway Center, the design recommended for façade lighting, its relation to the Newton Zoning Ordinance (requires a waiver since uplighting is proposed as part of the solution), and the basis for the request for waiver (that the proposed design, including uplighting from carefully shielded LED luminaired, puts less light into the sky that a downlighting scheme allowed by the Mass Energy Code and the Newton Ordinance).

Relation between Gateway Center, Gateway Realty Trust, JF White Properties and Ripman Lighting Consultants

Gateway Center is owned by Commonwealth Development LLC as trustee of the Gateway Realty Trust. This ownership would be formally stated in a contract as follows: "Commonwealth Development LLC (formerly Commonwealth Development Group LLC), as TRUSTEE of the GATEWAY REALTY TRUST, a Massachusetts nominee trust, under an Amended and Restated Declaration of Trust dated as of November 30, 1998 (amending and restating a Declaration of Trust dated March 1, 1968, recorded with Middlesex County (South) Registry of Deeds (the "Registry") in Book 11478, Page 134, as amended) and recorded with the Registry in Book 29595, Page 469, as affected by trustee appointments and resignations recorded with the Registry in Book 31343, at Pages 596-598 and Book 31847, at Page 3, as amended, and having offices at One Gateway Center, Newton, Massachusetts 02458". Less formally stated, Gateway Center is owned by Gateway Realty Trust. J. F. White Properties LLC is the property management entity engaged by Gateway Realty Trust to manage Gateway Center. Ripman Lighting Consultants is a consultant contracted by J. F. White Properties LLC.

With respect to the Gateway Center lighting project, through J. F. White Properties LLC, Ripman Lighting Consultants is authorized by property owner Gateway Realty Trust to pursue the petition for waivers on behalf of Gateway Realty Trust.

JF White Properties hired Ripman Lighting Consultants (45 years in business, 4000 projects completed, principal a registered architect in Massachusetts) in 2016 to review the entire property and design an upgrade to existing lighting. Existing conditions were found to be poorly lit in many areas, making them unattractive to pedestrians. Glary legacy wall packs were visible from offsite. And the lack of street lighting along the south side of Washington, where City street lights have been out for three years despite repeated requests from the owners, makes the Washington Street sidewalk dark and dangerous. Further, the building serves as a "gateway" straddling the Mass Pike to the City of Newton, and the owner felt that façade

illumination would be of benefit to both the ownership and the City, in that it would contribute to the sense of the property as being safe and secure, through deployment of appropriate and attractive lighting.

Ripman Lighting Consultants has been working with JF White Properties since 2016 to further this project.

Recommended Design

For all areas except the façade, full cutoff illumination has been recommended and, since it conforms with the Dark Sky requirements of the Newton Zoning Ordinance, has been installed without any need for a waiver. Multiple mockups of façade lighting strategies have been held between 2016 and 2019, leading to the consensus that an uplighting scheme was superior for the following reasons:

- Models run in AGI32 show that the proposed uplighting puts less light into the sky than a code-allowed downlighting scheme.
- Both downlighting and uplighting schemes meet the light trespass requirement of the Newton Zoning Ordinance.
- There is no glare from the uplighting scheme, whereas there would be significant glare from downlighting located at the roof parapet, ten stories above grade.
- Energy consumption is less with the uplighting scheme.
- The building is more attractive when lit from below, because the light illuminates surfaces visible from the ground more effectively that downlighting.

The Newton Zoning Ordinance

The Newton Zoning Ordinance prohibits the use of non-cutoff fixtures for exterior illumination. The assumed rationale for this is to minimize the amount of spill light emitted upwards from site lighting. But the amount of light emitted upwards is not only a function of lighting exiting the fixtures and rising directly into the sky. In addition, one has to calculate the light reflected off building surfaces and the surfaces of the surrounding paving, which also rises into the sky. After modelling both the code-permitted downlighting scheme and the proposed uplighting scheme, it was shown that with proper shielding, the uplighting scheme puts less light into the sky than the permissible downlighting scheme.

Basis for Waiver

The owner and lighting consultant request a waiver, having demonstrated that with proper shielding, the uplighting scheme puts less light into the sky than the downlighting scheme.

Respectfully

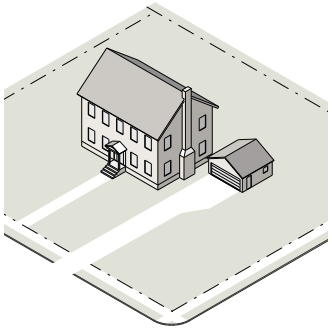
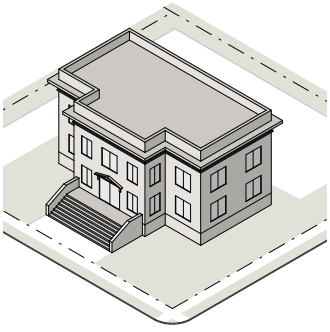
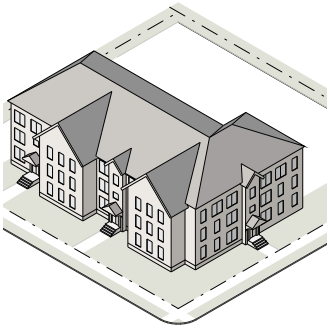
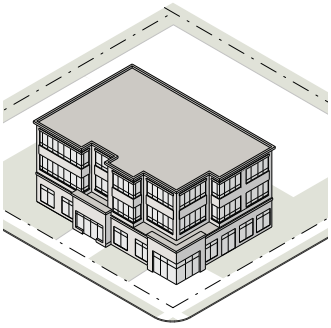
Wayne Smith
Director of Project Management
300 Washington Street, Suite 500
Newton, MA 02458
617-796-8000

Updated 09-01-17

Newton, Massachusetts
Chapter 30: Zoning Ordinance

November 1, 2015



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Sec. 5.3. Stormwater Management

See also Revised Ordinances Chapter 22, Article II, Section 22-22.

A. Whenever the existing contours of the land are altered, the land shall be left in a usable condition, graded in a manner to prevent the erosion of soil and the alteration of the runoff of surface water to or from abutting properties, and shall be substantially landscaped.

B. Projects increasing impervious surface area by more than the lesser of a) 4 percent of lot size or b) 400 square feet, or that involve altering the landscape in such a way that may result in alteration of the runoff of surface water to abutting properties or erosion of soil, shall be reviewed by the Commissioner of Inspectional Services and the City Engineer to ensure compliance with this Sec. 5.3. The Commissioner of Inspectional Services and the City Engineer may reject a project if they believe it will cause runoff of surface water to abutting properties or the erosion of soil.

C. Alteration of attached garage where below required height above grade. In all residential districts, no garage first erected after March 16, 1953, which is an integral part of a dwelling shall be constructed, altered, enlarged, extended or reconstructed where the entrance to such garage is less than 6 inches above the grade established by the City Engineer for the highest point of the back edge of any sidewalk upon which the lot abuts, unless either the Commissioner of Inspectional Services and the City Engineer shall both certify that in their opinion the surface drainage conditions at the location are such as to minimize the danger of flooding of such garage and dwelling. The certificate of opinion required by this Sec. 5.3 may be given either by separate certificate or by endorsement upon the building permit, and shall not be withheld if in fact surface drainage at the location is adequate for the purposes above specified. No certificate of opinion given pursuant to this Sec. 5.3 shall be deemed to be a representation to any person of the accuracy of that opinion nor shall any such certificate involve the City or any officer or employee of the City in any liability to any person.

(Rev. Ords. 1973 §24-19; Ord. No. 190; Ord. No. S-260, 08/03/87; Ord. No. Z-45, 03/16/09)

Sec. 5.4. Fences & Retaining Walls

5.4.1. Fences

Fences are regulated in Revised Ordinances Chapter 5, Article III, Fences.

5.4.2. Retaining Walls

A. Defined. A wall or terraced combination of walls, 4 feet in height or greater, to hold a mass of earth material at a higher position. When a combination of walls is placed within a setback, height is measured from the foot of the lowest wall to the top of the highest wall. For the purposes of this Sec. 5.4, a berm with a slope of 1:1 or greater is to be considered a retaining wall.

B. Standards: The placement of a retaining wall of 4 feet or more within a setback requires a special permit.

(Ord. No. Z-45, 03/16/09)

Sec. 5.5. Landscaping

[Reserved]

Sec. 5.6. Great Ponds

In all business districts, no building, structure or alteration, enlargement or extension located within 300 feet of a great pond as defined under M.G.L. Chapter 131, Section 1 shall be permitted other than under the procedure in Sec. 7.4, with particular concern to the preservation of public view, enjoyment and access to the great pond.

Sec. 5.7. Noise

Noise is not a part of this Chapter, and is regulated in Revised Ordinances Chapter 20, Article II, Noise.

Sec. 5.8. Outdoor Lighting

Outdoor lighting is not a part of this Chapter, and is regulated in Revised Ordinances Chapter 20, Article IV, Light Trespass.

Sec. 5.9. Tree Protection

Tree protection is not a part of this Chapter, and is regulated in Revised Ordinances Chapter 21, Article III, Div. 3, Tree Preservation.

Sec. 11-10 (c) When trash and recyclable materials to be placed for collection

( ) First offense per 365 day period ……..... written warning

( ) Second offense per 365 day period …… $50.00

( ) Third offense and subsequent offenses per 365 day period…….. .....$75.00

(Ord. No. T-126, 3-4-91; Ord. No. T-241, 10-21-91; Ord. No. U-29, 10-3-94; Ord. No. V-8, 2-6-95; Ord. No. V-63, 2-5-96; Ord. No. V-69, 3-4-96; Ord. No. V-193, 8-10-98; Ord. No. V-197, 10-5-98; Ord. No. V-255, 8-9-99; Ord. No. V-275, 12-6-99; Ord. No. X-14, 4-1-02; Ord. No. X-142, 03-21-05; Ord. No. X-175, 05-26-05; Ord. No. X-244, 12-18-06; Ord. No. Z-17, 12-17-07; Ord. No. Z-27, 05-19-08; Ord. No. Z-32, 07-14-08; Ord. No. Z-57, 11-16-09; Ord. No. Z-60, 12-21-09; Ord. No. Z-68, 06-21-10; Ord. No. Z-78, 02-22-11; Ord. No. A-11, 02-04-13; Ord. No. A-14, 03-18-13; Ord. No. A-18, 04-01-13; Ord. No. A-41, 06-16-14; Ord. No. A-50, 12-01-14; Ord. No. A-56, 01-20-15; Ord. No. A-96, 12-05-16)

Secs. 20-22 Reserved.

ARTICLE IV. LIGHT TRESPASS

Sec. 20-23. Definitions.

For purposes of sections 20-23 through 20-28, the following words and phrases shall have the meanings respectively ascribed to them as follows:

Direct Light: Light emitted directly from the lamp, off of the reflector or reflector diffuser, or through the refractor or diffuser lens, of a light source.

Lumen: A unit of light output as that term is defined by international standards. One footcandle is one lumen per square foot. For the purposes of sections 20-23 through 20-27, the lumen-output rating shall be the manufacturer's rating of the light source.

Light Source : A lighting unit consisting of a lamp or lamps together with the parts designed to distribute the light, to position and protect the lamps and to connect the lamps to the power supply. (Ord. No. X-142, 03-21-05)

Sec. 20-24. Light pollution prohibited.

(a) No person shall install or maintain a light source which emits light unless such light source conforms to each of the following requirements:

(1) it shall emit a steady and constant light and shall not emit a flashing or irregular light;

(2) it shall shine downward and not emit any direct light above a horizontal plane through the lowest direct-light-emitting part of such light source.

(b) This section shall not apply to the following light sources:

(1) light sources which are rated at a total that does not exceed 100 lumens; and

(2) light sources which are located entirely within an enclosed structure, provided however, that a structure

with a transparent or translucent roof, dome or cupola shall not constitute an enclosed structure for purposes of this subsection; and

(3) light sources which are required pursuant to state or federal law; and

(4) light sources which are used to illuminate the flag of the United States of America or other flag, or an architectural feature such as a cupola or steeple; and

(5) light sources installed or maintained by the City or a utility to illuminate a public or private way; and

(6) internally illuminated signs which emit light only from a vertical surface, and

(7) festive or holiday light sources which are illuminated on a seasonal basis.

(c) Each installation or maintenance of a light source that does not conform to the requirements of this section shall constitute a separate violation of this section. (Ord. No. X-142, 03-21-05)

Sec. 20-25. Light trespass prohibited.

(a) No person shall install or maintain a light source or light sources which emit(s) light which falls outside the boundaries of the parcel of land upon which the light source(s) is sited, unless 1) such person has the permission of the owner or person in control of the parcel of land upon which the light falls or 2) the illuminance of light measured at any point which is located five or more feet outside of the boundary of the parcel of land upon which the light source is located does not exceed .35 horizontal or .35 vertical footcandles after astronomical twilight, provided however, that during the three-year period immediately following the effective date of this section, the standard shall be .5 horizontal or .5 vertical footcandles after astronomical twilight.

(b) The prohibition against maintaining a light source as set forth in subsection (a) shall not apply between the hours of 6:00 a.m. and 9:30 p.m.

(c) This section shall not apply to the following light sources:

(1) light sources installed or maintained by the City or a utility to illuminate a public or private way; and

(2) light sources which emit light which falls upon the abutting public way and not upon any other property outside the boundaries of the parcel of land upon which the light source is sited; and

(3) light sources which are required pursuant to state or federal law.

(d) Each instance of emitting light upon a parcel of land in violation of this section shall constitute a separate violation of this section.

Sec. 20-26. Waiver.

(a) Upon application by the owner or tenant of a property, the planning and development board may grant a Waiver to allow an exception to the prohibitions contained in section 20-24 and/or section 20-25.

(b) An applicant for a waiver shall submit such information as the planning and development board reasonably requires, including (i) a diagram or plan illustrating the location and extent of the light trespass and/or light pollution; and (ii) evidence of the measures taken by the applicant to abate the light trespass and/or light pollution.

(c) A Waiver may be granted only if the planning and development board determines that literal enforcement of

the section would cause substantial hardship, financial or otherwise, to the applicant or community, taking into account: (i) the extent of light pollution and/or light trespass caused by granting the Waiver; and (ii) whether reasonable efforts have been made to abate the light pollution and/or light trespass.

(d) The planning and development board shall determine the term for each waiver granted hereunder and shall limit each waiver to the days and times that are necessary to achieve the purpose for which the waiver is granted. To the maximum extent possible, consistent with the relief granted, each waiver shall be limited both as to term and the geographic area to which it applies. Such waivers may include other reasonable conditions, as the planning and development board deems appropriate and consistent with the spirit and intent of the section for which the exception is granted.

(e) Except as provided in subsection (f), the planning and development board shall give written notice of such application (i) to the owners of the estates which abut the site for which a waiver is sought and ii) in the case of an application for a waiver from the provisions of section 20-25, to the owners of the estates upon which the light falls or will fall. For purposes of this subsection, the estate(s) located on the opposite side of a public or private way shall be considered abutting. The planning and development board may not grant a waiver until fourteen (14) days following the giving of such notice, during which time such owners may submit comments for the planning and development board's consideration in evaluating the application.

(f) Applications for waivers with terms of not more than thirty (30) days shall not be subject to the notice and comment period set out in subsection (e).

(g) Upon granting a Waiver, the planning and development board shall promptly provide notice thereof to the owners of the estates which abut the site for which the waiver was granted. Such notice shall describe the nature and scope of the waiver, including its duration and conditions. (Ord. No. X-142, 03-21-05)

Sec. 20-27. Enforcement.

(a) City agencies that review applications for construction and alteration of properties covered by the standards set out in sections 20-24 and 20-25 shall inform applicants of such standards.

(b) Boards and commissions that review applications for licenses and permits which allow the conduct of business or other activities at stated locations shall take cognizance of the standards set out in sections 20-24 and 20-25 and shall incorporate them as part of their review of such applications where applicable, consistent with the jurisdiction of such board or commission, provided however that nothing contained in such standards shall restrict a board or commission from imposing more stringent standards. (Ord. No. X-142, 03-21-05)

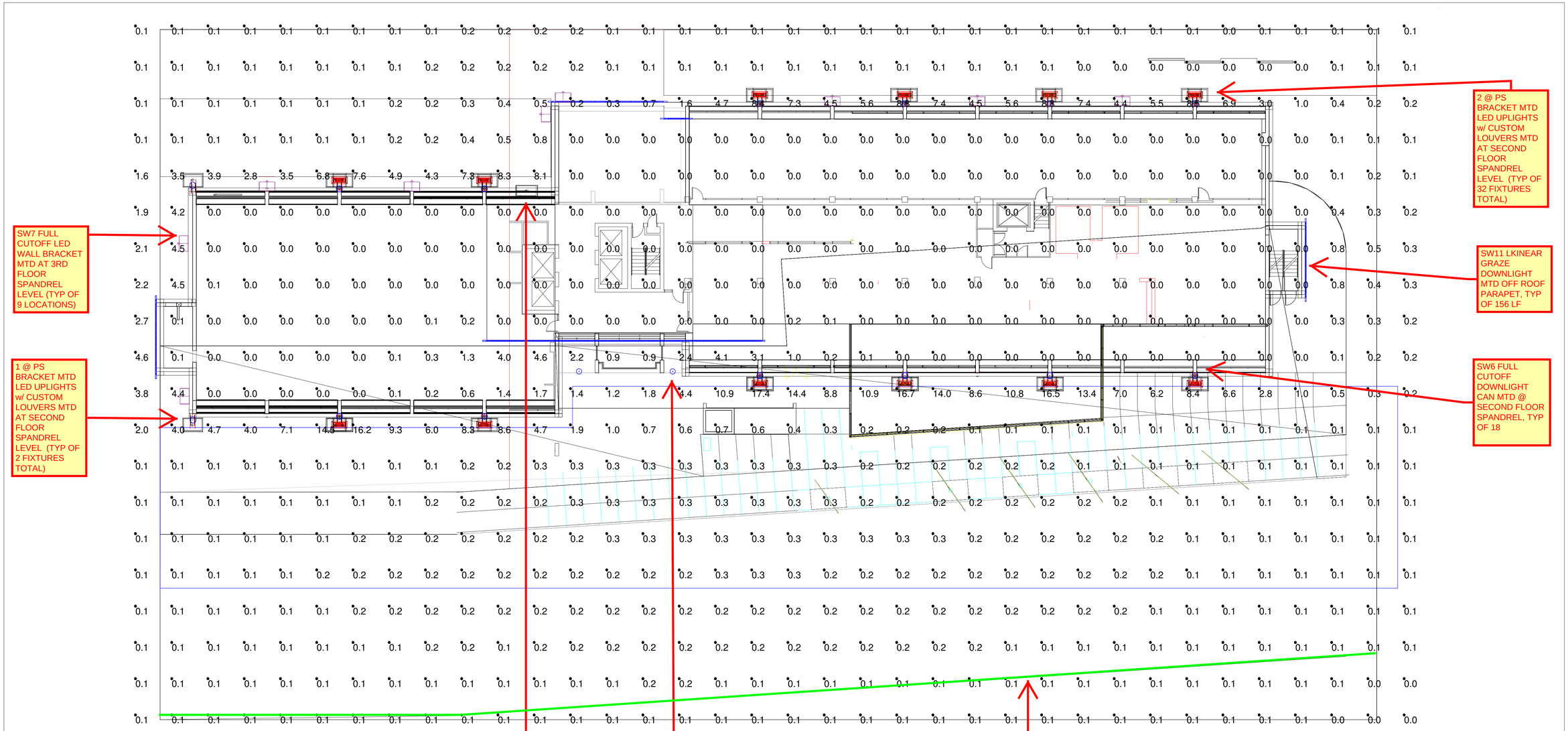
Sec. 20-28. Transitional provisions.

(a) Light sources which are in place and in regular use as of the date of adoption of section 20-24 shall not be subject to the provisions of such section until five years after the effective date hereof.

(b) Light sources which are in place and in regular use as of the date of adoption of section 20-25 shall not be subject to the provisions of such section until two years after the effective date hereof.

(c) Nothing in sections 20-24 and 20-25 shall require the removal or destruction of an existing light source which would be in violation of such section(s) if it were to be used to emit light, so long as such light source is turned off and does not emit light. (Ord. No. X-142, 03-21-05)

Secs. 20-29—20-49. Reserved.



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Calculation Summary							
Project: Sky Plane							
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Sky Plane 140' Above Grade	Illuminance	Fc	0.80	17.4	0.0	N.A.	N.A.

Luminaire Schedule					
Symbol	Qty	Label	Total Lamp Lumens	LLF	Description
	156	SW11	N.A.	1.510	Ecosense L50 9x9 Grazer w/ Louver - LINEAR DOWNLIGHT GRAZER
	34	PS	28619	0.500	PS546 Powershine MK2 S DW Ell - WITH CUSTOM LOUVER
	1	SW3s	16183	0.500	Griven - AL4052USWW
	18	SW6	N.A.	0.950	Ligman - TA-31861-T2-W30 - FULL CUTOFF SIDEMOUNT CAN DOWNLIGHT
	9	SW7	N.A.	0.950	Gardco - 121-32L-1000-NW-G3-4 - FULL CUTOFF WALL BRACKET
	2	RG1	N.A.	0.950	Kim 'Lightvault' - LTV83FF-NF-12L3K

UPLIGHTING SCHEME: FOOTCANDLES INCIDENT FROM BELOW ON "SKY" PLANE
140' AFG (10' ABOVE PENTHOUSE)

UPLIGHTING SCHEME

Drafting & Photometric Consulting
Drafting & Photometric Consulting
Joshua Sedgwick
910-448-7444
www.DraftingandPhotometricConsulting.com

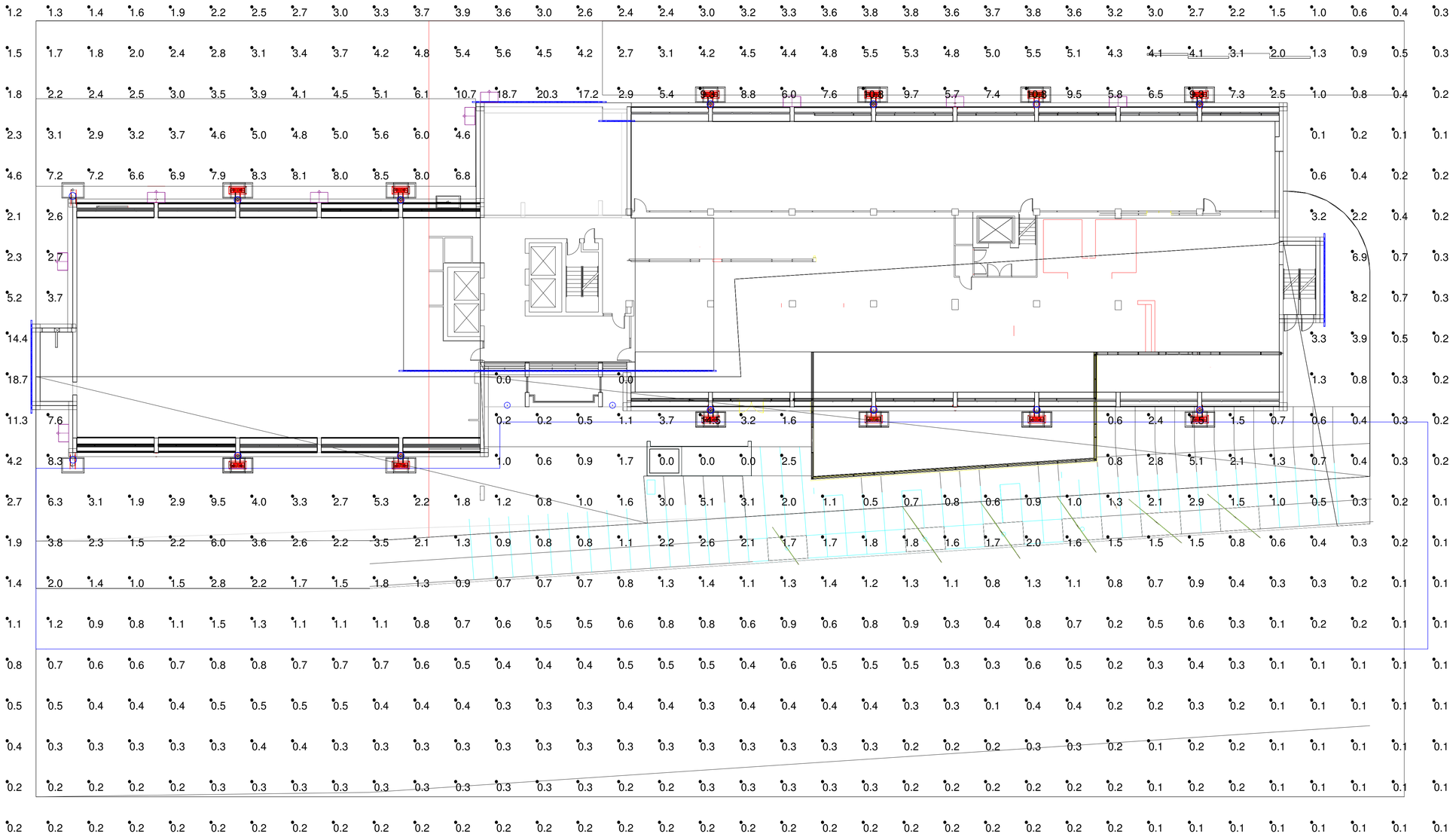
#	Date	Comments

Revisions

Drawn By: J. Sedgwick
Checked By: C. Ripman
Date: 01/29/2019
Scale: 1" = 14'

Gateway Facade Lighting

Uplighting Scheme



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UPLIGHTING SCHEME: INCIDENT ILLUMINATION (HORIZONTAL FOOTCANDLES) AT GRADE

Calculation Summary							
Project: Ground Plane							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Ground Plane	Illuminance	Fc	1.94	20.3	0.0	N.A.	N.A.

UPLIGHTING SCHEME

Drafting & Photometric Consulting
Drafting & Photometric Consulting
Joshua Sedgwick
910-448-7444
www.DraftingandPhotometricConsulting.com

#	Date	Comments

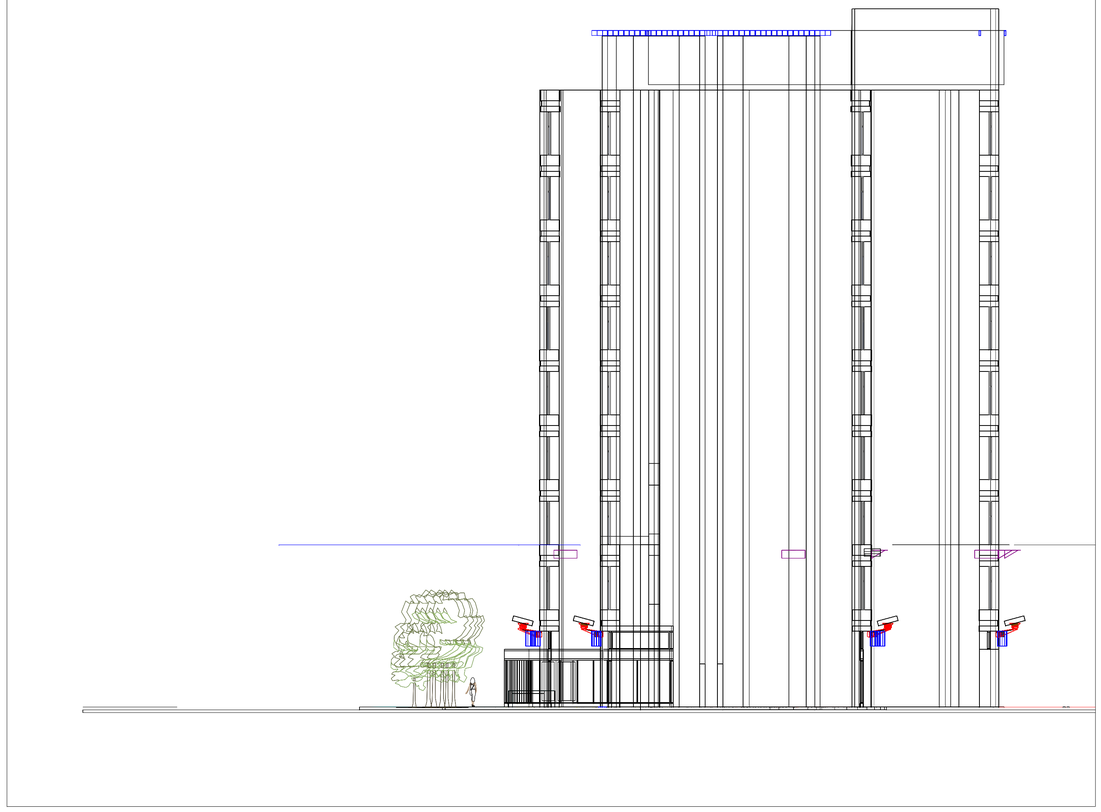
Revisions

Drawn By: J. Sedgwick
Checked By: C. Ripman
Date: 01/29/2019
Scale: 1" = 14'

Gateway Facade Lighting

Uplighting Scheme

West:Right
Scale: 1 inch= 14 Ft.



East:Left
Scale: 1 inch= 14 Ft.

UPLIGHTING SCHEME

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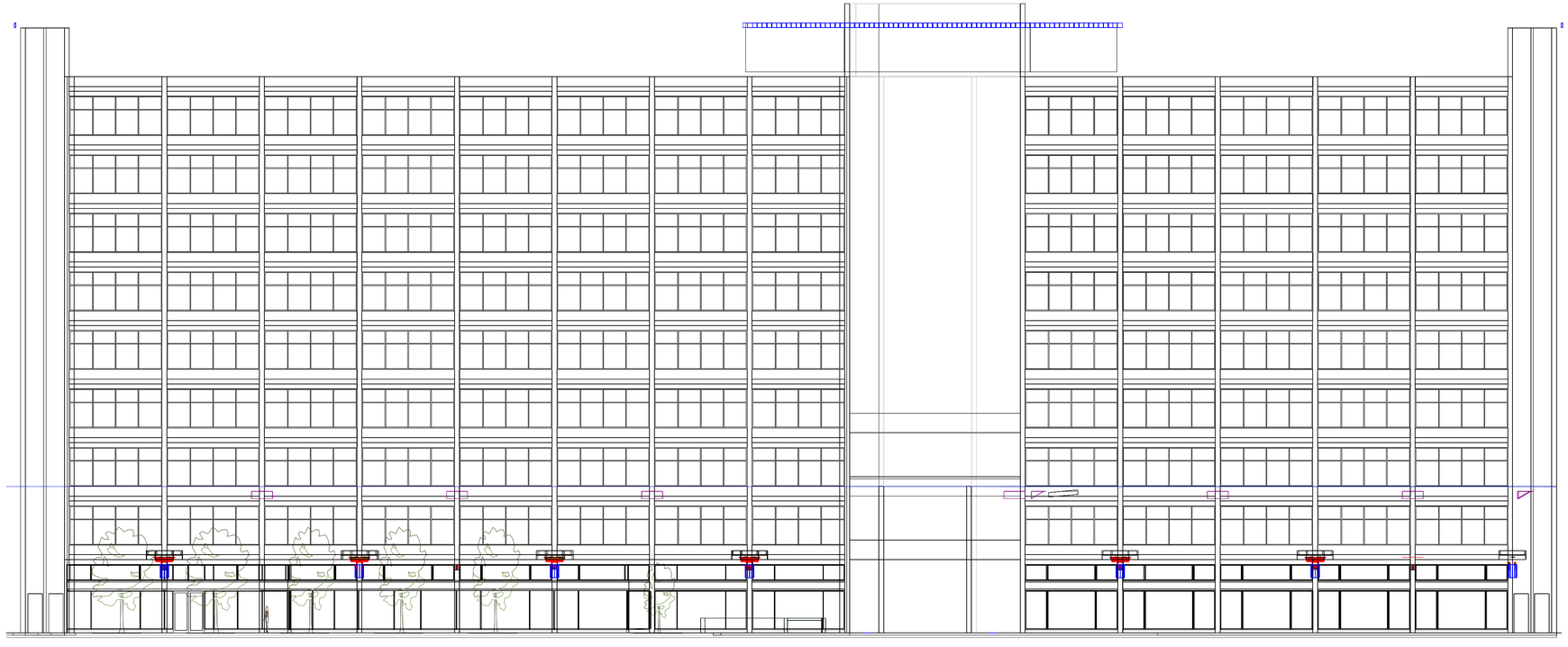
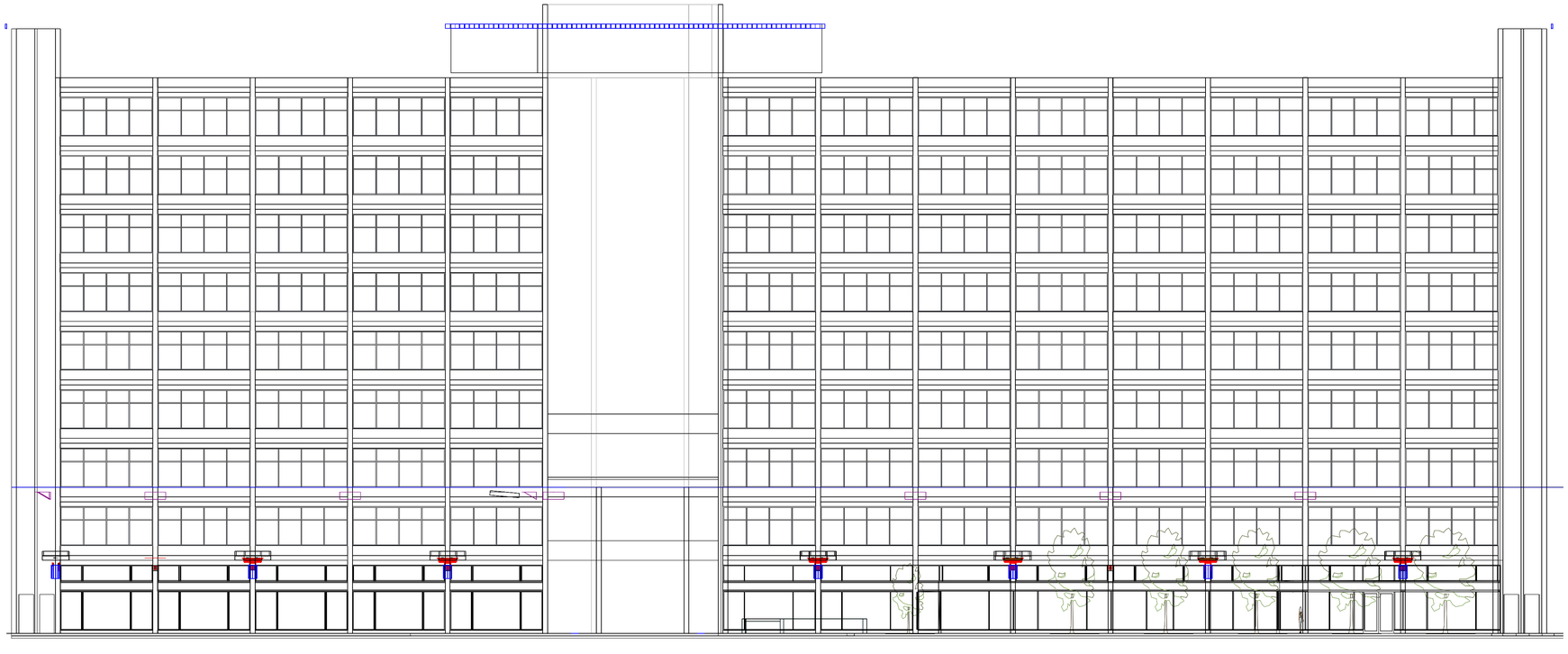
Uplighting Scheme



North:Elevation Rotated-180 Tilted 90
Scale: 1 inch= 14 Ft.



South:Elevation Rotated 0 Tilted 90
Scale: 1 inch= 14 Ft.

UPLIGHTING SCHEME

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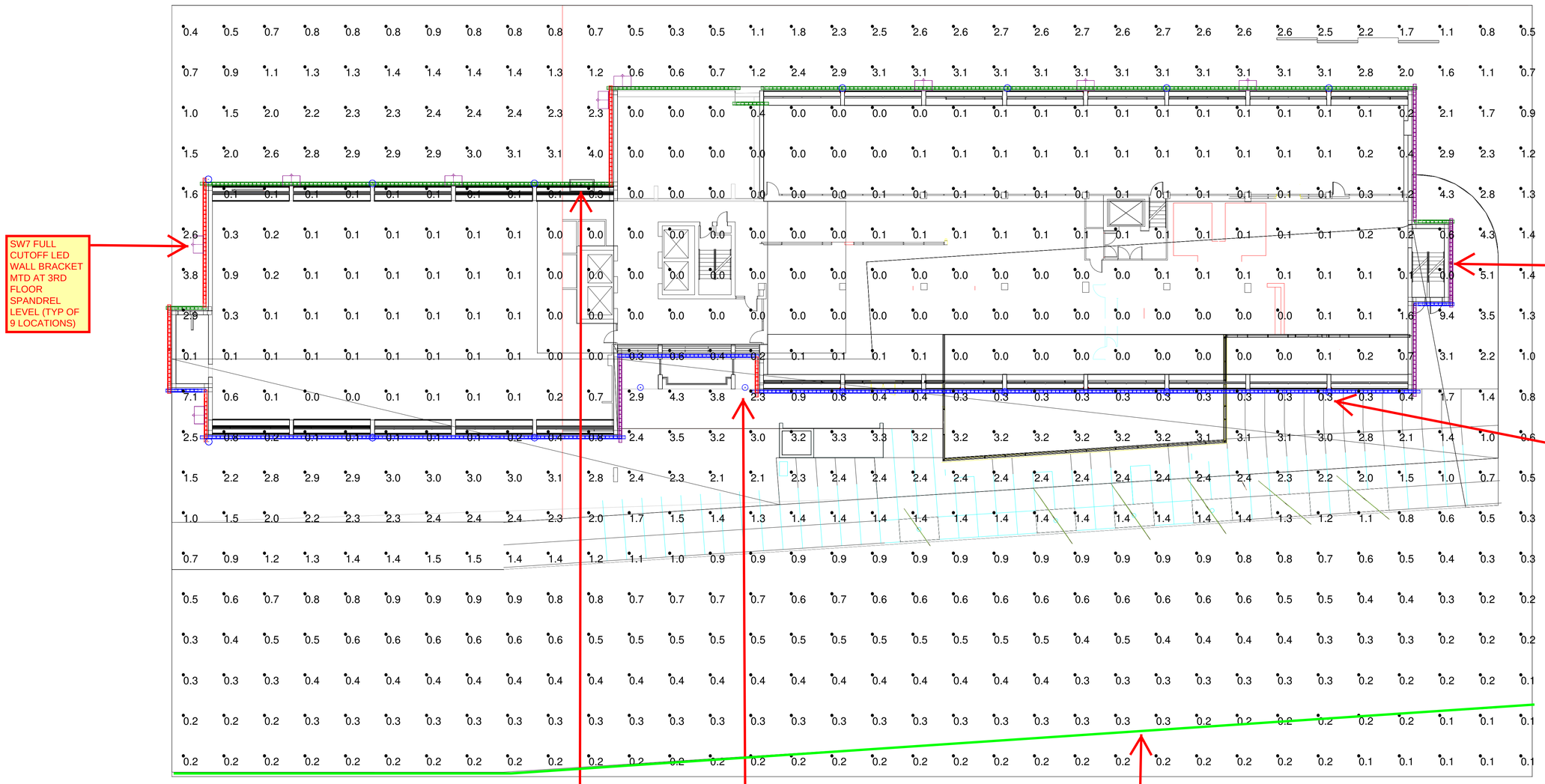

Aerial:Plan Rotated 0 Tilted 0
Scale: 1 inch= 14 Ft.

Calculation Summary							
Project: Sky Plane							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Sky Plane 140' Above Grade	Illuminance	Fc	0.90	9.4	0.0	N.A.	N.A.

DOWNLIGHTING SCHEME: FOOTCANDLES INCIDENT FROM BELOW ON "SKY" PLANE 140' AFG (10' ABOVE PENTHOUSE)

Luminaire Schedule					
Symbol	Qty	Label	Total Lamp Lumens	LLF	Description
	1	SW3s	16183	0.500	Griven - AL4052USWW
	18	SW6	N.A.	0.950	Ligman - TA-31861-T2-W30 - FULL CUTOFF SIDEMOUNT CAN DOWNLIGHT
	9	SW7	N.A.	0.950	Gardco - 121-32L-1000-NW-G3-4 - FULL CUTOFF BRACKET
	314	SW11-D	N.A.	1.510	Ecosense L50 9x9 Grazer w/ Louver - LINEAR DOWNLIGHT GRAZER
	93	SW11-L	N.A.	1.510	Ecosense L50 9x9 Grazer w/ Louver - LINEAR DOWNLIGHT GRAZER
	92	SW11-R	N.A.	1.510	Ecosense L50 9x9 Grazer w/ Louver - LINEAR DOWNLIGHT GRAZER
	315	SW11-U	N.A.	1.510	Ecosense L50 9x9 Grazer w/ Louver - LINEAR DOWNLIGHT GRAZER
	2	RG1	N.A.	0.950	Kim 'Lightvault' - LTV83FF-NF-12L3K

DOWNLIGHTING SCHEME

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01-29-2019
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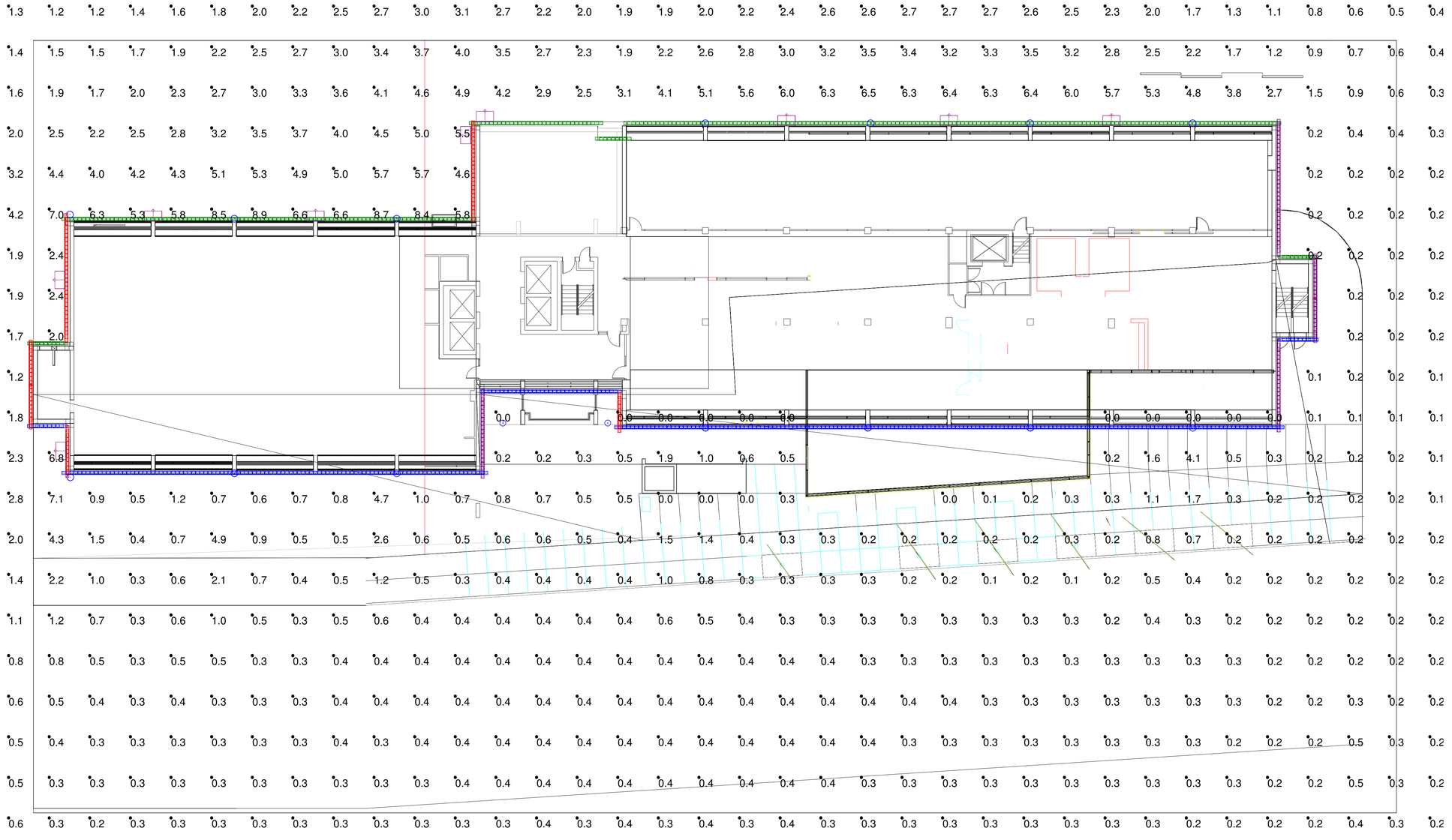
Gateway Facade Lighting

Downlighting Scheme



Site:Plan Rotated 0 Tilted 0
Scale: 1 inch= 14 Ft.

DOWNLIGHTING SCHEME: INCIDENT ILLUMINATION (HORIZONTAL FOOTCANDLES) AT GRADE

Calculation Summary							
Project: Ground Plane							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Ground Plane	Illuminance	Fc	1.20	8.9	0.0	N.A.	N.A.

DOWNLIGHTING SCHEME

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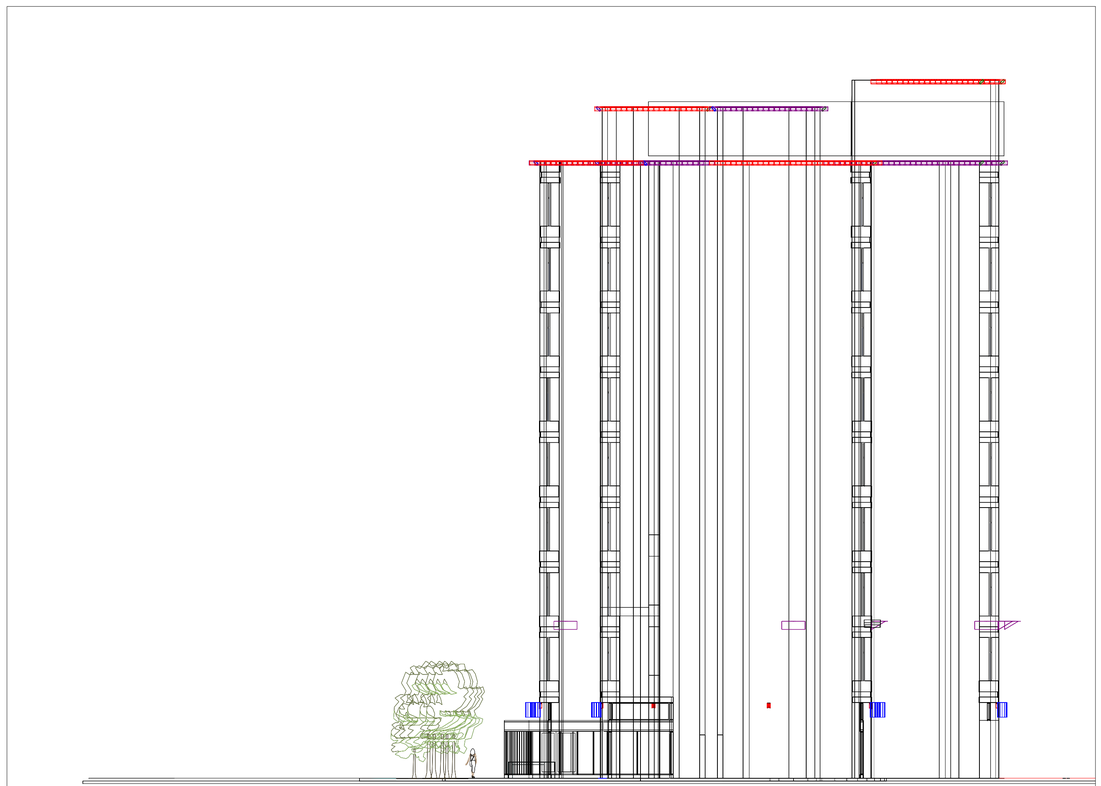
01-29-2019
Scale: 1" = 14'

Gateway Facade Lighting

Downlighting Scheme

West:Left
Scale: 1 inch= 14 Ft.



East:Right
Scale: 1 inch= 14 Ft.

DOWNLIGHTING SCHEME

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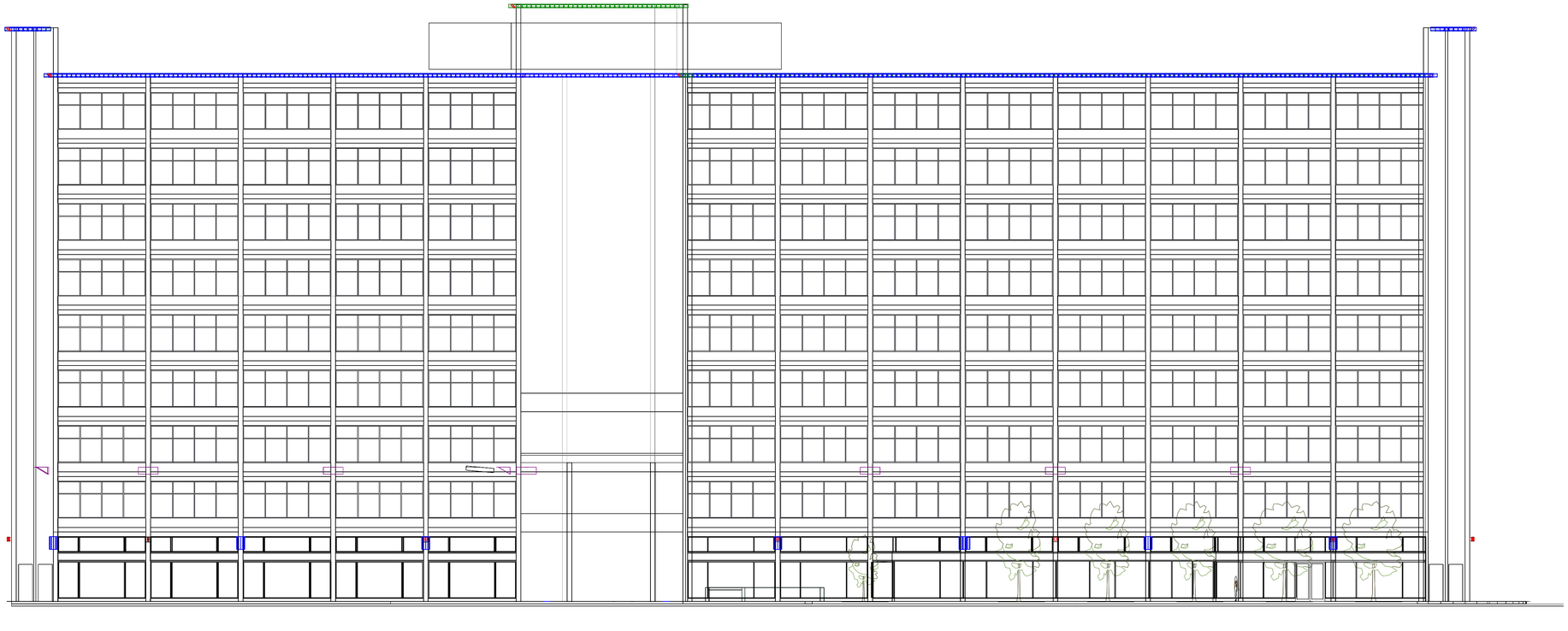

South:Elevation Rotated 0 Tilted 90
Scale: 1 inch= 14 Ft.

North:Elevation Rotated-180 Tilted 90
Scale: 1 inch= 14 Ft.

DOWNLIGHTING SCHEME

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