LIGHTING DESIGN ANALYSIS REPORT

CITY OF DORAL TRAIL LIGHTING IMPROVEMENTS

Turnpike Trail

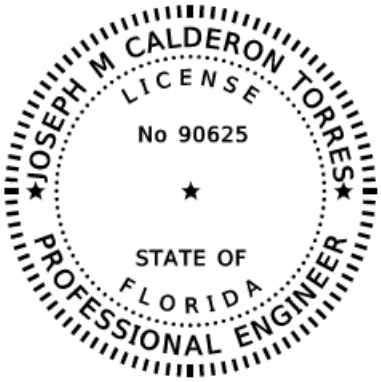
Dressel's Dairy Trail

Beacon Trail

Prepared For:
City of Doral
8401 NW 53rd Terrace
Doral, FL 33166

CITY OF DORAL
For all the right reasons!™

August 16, 2024



THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY

Joseph M Calderon Torres
2024.08.16 17:24:22-04'00'

ON THE DATE ADJACENT TO THE SEAL

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

JOSEPH M. CALDERON TORRES II, PE
P.E. NO. 90625
H.W. LOCHNER, INC.
8750 NW 36TH STREET, SUITE 360
MIAMI, FL 33178
CONTRACT NO.: CA048
VENDOR NO.: # F455418

TABLE OF CONTENTS

1.0 Project Description 1

2.0 Existing Conditions 2

3.0 Roadway Lighting Design Criteria 2

3.1 Design Methodology 2

3.2 Photometric Analysis 3

3.3 Luminaires 4

4.0 Load Analysis 4

5.0 Voltage Drop Calculations 4

6.0 Power Company Coordination 4

7.0 Conclusions 5

Appendix A. LIGHTING PHOTOMETRICS A-1

Appendix B. VOLTAGE DROP CALCULATIONS B-1

Appendix C. LUMINAIRE CATALOG CUT SHEETS C-1

Appendix D. POWER COMPANY COORDINATION D-1

1.0 Project Description

The City of Doral (The City) has asked H.W. Lochner Inc. (Lochner) to design the lighting along several shared use path trails throughout Doral totaling to approximately 4 miles. The goal for these improvements is to enhance pedestrian safety and security, while providing an aesthetically pleasing, energy efficient pedestrian lighting system at the locations listed below and highlighted in Figure 1.

- Turnpike Trail along NW 117th Avenue from NW 25th Street to NW 58th Street
- Dressel's Dairy Trail along NW 58th Street from NW 117th Avenue to NW 107th Avenue
- Greenway Trail from NW 114th Avenue to NW 107th Avenue
- Beacon Trail along NW 25th Street from NW 117th Avenue to west of NW 107th Avenue

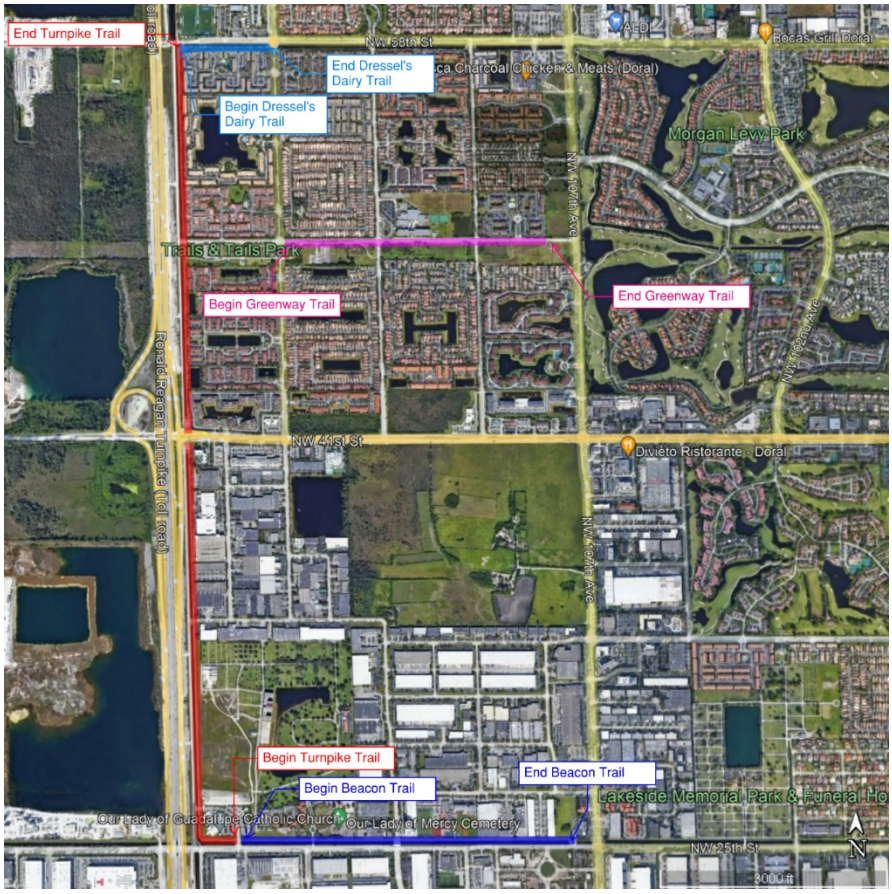


Figure 1: This image highlights the trail areas throughout The City of Doral with proposed lighting.

The purpose for this report is to document the analysis, methodology, and conclusions for the lighting system design for the above-mentioned trails. Photometric analysis will be performed to meet the 2024 FDM Criteria and AASHTO Roadway Lighting Design Guidelines GL-7. The Lighting Design Analysis Report includes, photometric point-to-point calculations, voltage drop calculations, load analysis, and utility coordination.

2.0 Existing Conditions

A walkthrough of each trail has been performed to assess the existing conditions such as overhead utility lines, location of existing and proposed light poles, adjacent residential properties, vegetation which may obscure light, and environmental issues.

Turnpike Trail runs along NW 117th Ave and runs North/South. The 10ft asphalt trail is located between Miami Dade Water and Sewer's Canal and Residential/commercial areas. Portions of the trail run close to right of way and easement boundaries. Additionally, many trees and bushes are located along the East side of the trail. There is no existing lighting along this trail.

Dressel's Dairy trail runs along NW 58th St and runs East/West. The 10ft asphalt trail is located between Miami Dade Water and Sewer's canal and a Residential apartment complex. There is no existing pedestrian lighting along this trail.

Beacon Trail runs along NW 25th St and runs East/West. The 10ft asphalt trail is located between Miami Dade Water and Sewer's canal and various commercial areas. There is no existing pedestrian lighting along this trail.

3.0 Roadway Lighting Design Criteria

3.1 Design Methodology

The *AASHTO Roadway Lighting Design Guide, Seventh Edition* describes two methods, illuminance and luminance, for performing photometric calculations. The illuminance method is used in this report and is congruent with FDOT methods. The level, and uniformity of a lighting system depends on several factors, including the lumen output of the light source, luminaire distribution, mounting height, luminaire position/setback, pole spacing and pole arrangement. Below is a description of terms needed to better understand the design criteria:

- **average initial illuminance** – the average level of horizontal illuminance on the pavement area of a traveled way at the time the lighting system is installed (when lamps are new and luminaires are clean); expressed in average footcandles (fc) for the pavement area.
- **average maintained illuminance** – the average level of horizontal illuminance on the roadway pavement when the output of the lamp and luminaire is diminished by the maintenance factors (light loss factors); expressed in average footcandles (fc) for the pavement area.
- **uniformity ratio** – falls under two categories and is the ratio between the maximum to minimum points and the ratio between the average to minimum points.

Illumination engineering software, AGi32 Version 20.6 was used to perform photometric calculations to facilitate choosing the correct lumen output, distribution, mounting height, position/setback, pole spacing, and pole arrangement for the most cost effective and efficient lighting system. Additionally, RADPT Path lighting luminaire was utilized as a basis of design to match adjacent trail lighting at Trails and Tails Park.

Trails which are adjacent to a state road, such as the Turnpike Trail and Beacon Trail, will use 2024 FDOT FDM criteria and all other trails will use the AASHTO Roadway Lighting Design Guideline (GL-7) criteria. The FDM criteria utilizes average initial illuminance with no consideration for light loss factors, the

AASHTO criteria utilizes average maintained illuminance and accounts for light loss factors. A light loss factor of 0.82 was utilized per manufacturer recommendation based on a design life of 100,000 hours. The lighting criteria for each trail is outlined as follows:

- 2024 FDOT FDM Criteria: Turnpike Trail and Beacon Trail

Illumination Design Criteria			
Roadway and Walkway Classification	**Average Illuminance (fc)**	**Illuminance Uniformity Ratio**	
		(Avg./Min.)	**(Max./Min.)**
FDOT 2024 Florida Design Manual			
Sidewalks and Shared Use Paths/Trails	2.5[1]	4:1 or less	10:1 or less
AASHTO GL-7 Illuminance Design Values			
Pedestrian Ways and Bicycle Way/Trails	2.0[2]	3:1 or Less	N/A
[1] Average initial illuminance value. [2] Average maintained illuminance value.			

Table 1. Shows the design criteria used for determining the lighting system.

The proposed lighting was designed with the following considerations and goals:

- improve public safety and security
- provide day and nighttime aesthetics
- consider environmental issues
- identify the nature of the site (residential, commercial, or industrial)
- use energy efficiently
- control sky glow and light trespass
- standardizing design choices
- simplify maintenance

3.2 Photometric Analysis

Illumination engineering software, AGI32 Version 20.6 was used to perform the Photometric Analysis. The photometric values calculated include the average illuminance in horizontal foot candles and illumination uniformity ratios. The calculation grid for the intersection is bound between the front and back of each shared use path. Calculation points in the grid are spaced every 5 feet longitudinally and 5 feet transversely. The resulting model indicates that the horizontal illumination levels and uniformity meet the design criteria.

Additionally, at areas where lighting is in close proximity to adjacent right of way, the trespass lighting was calculated according to AASHTO Roadway Lighting Design Guidelines (GL-7) recommendations. The lighting zone along the trails is LZ3: Moderately high ambient lighting. This zone is where the vision of human residents and users is adapted to moderately high light levels. Existing lighting is for safety, security, and/or convenience and is uniform/continuous. To mitigate trespass lighting, luminaires are mounted at

10ft and are equipped with house side shields. The maximum light trespass for lighting zone LZ3 is 0.8fc. The resulting model indicates that the light trespass falls below 0.8fc.

The results of the lighting photometric calculations are provided in **Appendix A.**

3.3 Luminaires

Radeon Post top LED luminaires were utilized as the basis of design for the photometric analysis of the trails. These luminaires match the existing luminaires recently installed at the Trails and Tails park. Two luminaire types were utilized to meet the lighting design criteria, 54W and 86W. All lights have a type IV (PATH) type distribution pattern with a 4000K color temperature and are designed for 240V operation. The catalog number for the proposed pedestrian lighting is as follows: RADPT_LED_(P3/P4)_40K_MVOLT_RADPT20_HS. Luminaires are mounted at 10ft. Lighting fixture catalog cut sheets are included in **Appendix C.**

4.0 Load Analysis

Load analysis was performed to determine the conductor and circuit breaker sizes to provide a maximum branch loading percentage of 80% or less as required by National Electrical Code (NEC). The minimum wire size utilized was #8 AWG. The largest wire size utilized was #2 AWG. The calculated demand load shown in the panelboard schedule is assumed to be the highest loading during normal operations of the roadway lighting system. The system is considered to be continuously loaded.

5.0 Voltage Drop Calculations

Load center and service point locations have been with Florida Power and Light. Voltage drop calculations have been performed to determine the wire sizes are sized sufficiently to meet load requirements. Voltage drop calculations were performed for a combination of service feeders and branch circuits. Per the 2024 FDM, the acceptable total system voltage drop is 5% or less. The voltage drop was measured from the point of service to the last load on each branch circuit. The results of the voltage drop calculations are provided in **Appendix B.** Branch conductors and service feeders are adequately sized to maintain the voltage drop of the system below 5%.

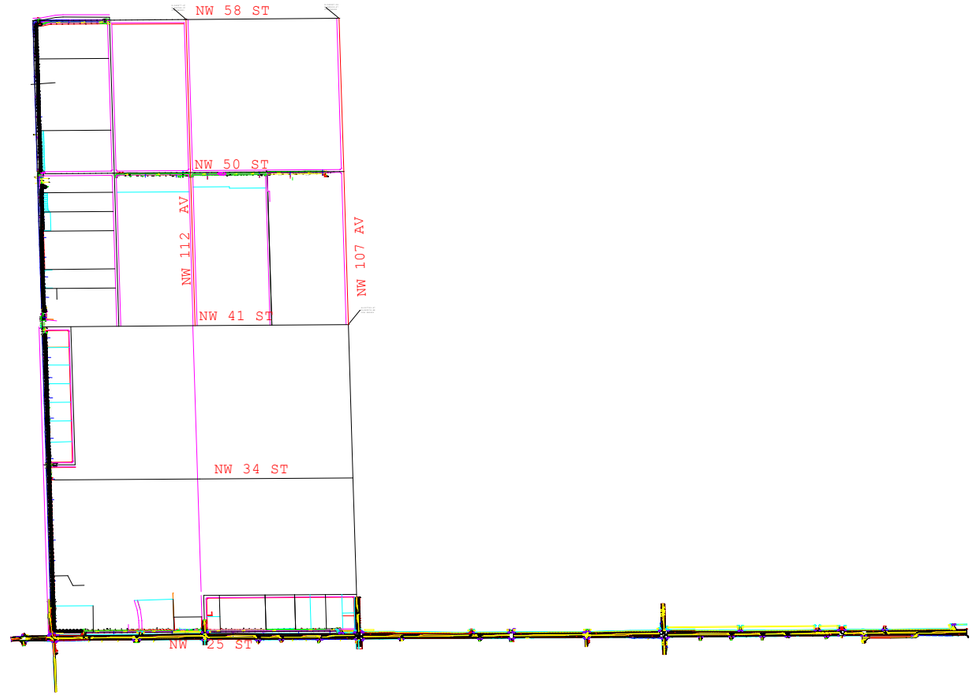
6.0 Power Company Coordination

Lochner started the coordination process by first identifying the local power utility company in the vicinity of the project: Florida Power and Light (FPL). The standard operating voltage for the proposed roadway lighting system is a 240/120V, single phase, 3-wire system. Service points have been coordinated with FPL. There are three service points requested, two are fed overhead from new pole mounted utility transformers, and one is fed underground from an existing pad mounted utility transformer. The confirmation of FPL's point of service, and other information including power service delivery types are included in **Appendix D.**

7.0 Conclusions

- Horizontal and uniformity requirements as defined in the 2024 FDM and AASHTO GL-7 have been met within the project limits.
- Service and branch circuit conductors are adequately sized to have a maximum loading percentage below 80% and a voltage drop of 5% or less for Greenway Trail Lighting.
- Voltage drops and Load analysis to be performed for next submittal for Turnpike, Dressel's Dairy and Beacon Trail.
- Power Company Coordination is currently ongoing and will be included in future submittals.

Appendix A.
LIGHTING PHOTOMETRICS



Luminaire Schedule

Symbol	Qty	Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Watts	Arm	IES Class
⊙	2	Existing Path Lighting	Single	RADPT P3 40K PATH HS	1.000	5197	53.6184	0	Type IV
⊙	163	RADPT P3 40K PATH HS	Single	RADPT P3 40K PATH HS	1.000	5197	53.6184	0	Type IV
⊙	8	RADPT P4 40K PATH HS	Single	RADPT P4 40K PATH HS	1.000	8258	85.6782	0	Type IV

Calculation Summary

Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Light Tresspass 4_Ill_Seg1	Obtrusive - Ill	Fc	0.38	4.0	0.0	N.A.	N.A.
Light Tresspass 4_Ill_Seg2	Obtrusive - Ill	Fc	0.57	9.9	0.0	N.A.	N.A.
Light Tresspass 5_III_Seg 5	Obtrusive - Ill	Fc	0.72	N.A.	N.A.	N.A.	N.A.
Light Tresspass 5_Ill_Seg1	Obtrusive - Ill	Fc	0.18	2.3	0.0	N.A.	N.A.
Light Tresspass 5_Ill_Seg2	Obtrusive - Ill	Fc	0.28	4.3	0.0	N.A.	N.A.
Light Tresspass 5_Ill_Seg3	Obtrusive - Ill	Fc	0.37	2.7	0.0	N.A.	N.A.
Turnpike Trail 1	Illuminance	Fc	2.50	4.76	0.76	3.29	6.26
Turnpike Trail 2	Illuminance	Fc	2.55	4.84	0.73	3.49	6.63
Turnpike Trail 3	Illuminance	Fc	2.58	4.84	0.72	3.58	6.72
Turnpike Trail 4	Illuminance	Fc	2.50	6.13	0.79	3.16	7.76
Turnpike Trail 5	Illuminance	Fc	2.52	4.92	0.79	3.19	6.23

LOCHNER

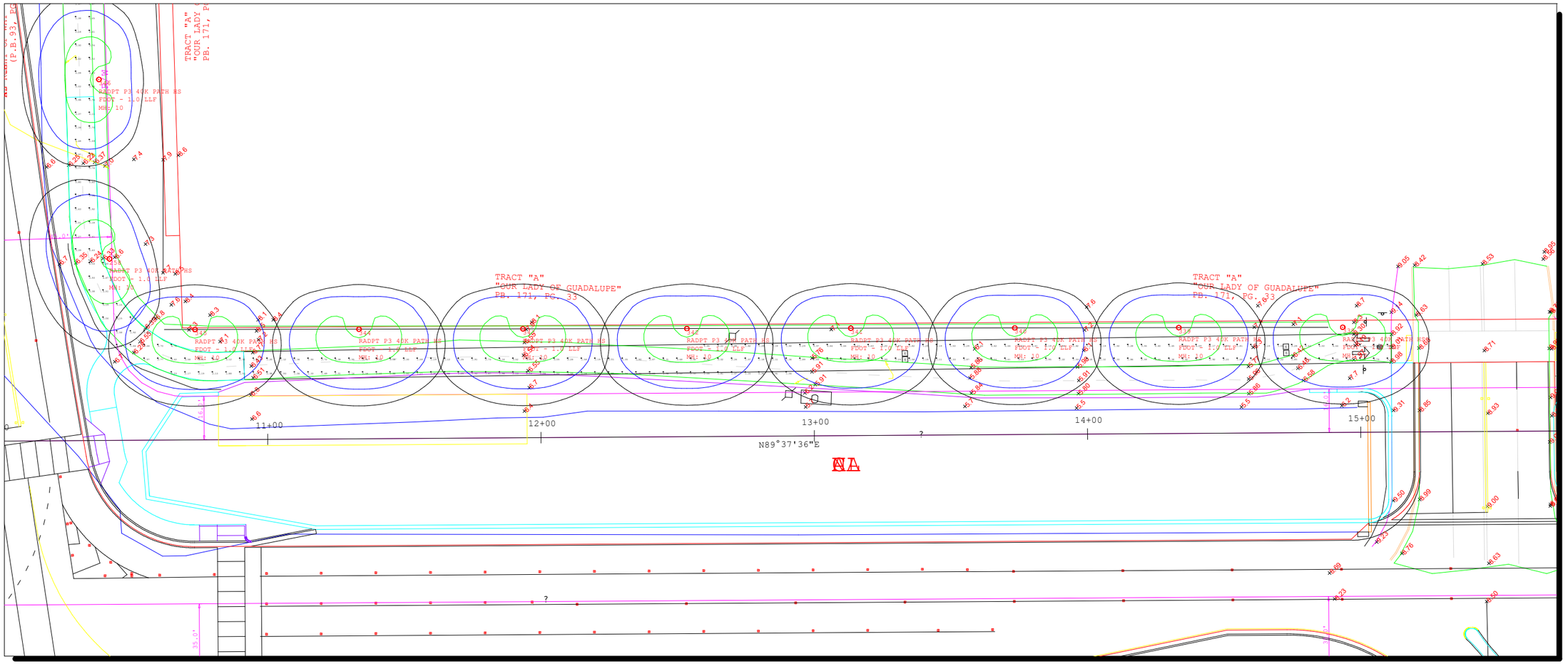
#	Date	Comments

Revisions

Drawn By: JMC
Checked By: LMM
Date:8/16/2024
Scale: NTS

City of Doral Trail Lighting Improvements

Photometric Analysis



View_1:Turnpike Trail 1 - 1

Luminaire Schedule									
Project: Turnpike Trail									
Symbol	Qty	Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Watts	Arm	IES Class
⊙	2	Existing Path Lighting	Single	RADPT P3 40K PATH HS	1.000	5197	53.6184	0	Type IV
⊙	163	RADPT P3 40K PATH HS	Single	RADPT P3 40K PATH HS	1.000	5197	53.6184	0	Type IV
⊙	8	RADPT P4 40K PATH HS	Single	RADPT P4 40K PATH HS	1.000	8258	85.6782	0	Type IV

Calculation Summary							
Project: Turnpike Trail							
Label	**CalcType**	**Units**	**Avg**	**Max**	**Min**	**Avg/Min**	**Max/Min**
Light Tresspass 4_Ill_Seg1	Obtrusive - Ill	Fc	0.38	4.0	0.0	N.A.	N.A.
Light Tresspass 4_Ill_Seg2	Obtrusive - Ill	Fc	0.57	9.9	0.0	N.A.	N.A.
Light Tresspass 5_III_Seg 5	Obtrusive - Ill	Fc	0.72	N.A.	N.A.	N.A.	N.A.
Light Tresspass 5_Ill_Seg1	Obtrusive - Ill	Fc	0.18	2.3	0.0	N.A.	N.A.
Light Tresspass 5_Ill_Seg2	Obtrusive - Ill	Fc	0.28	4.3	0.0	N.A.	N.A.
Light Tresspass 5_Ill_Seg3	Obtrusive - Ill	Fc	0.37	2.7	0.0	N.A.	N.A.
Turnpike Trail 1	Illuminance	Fc	2.50	4.76	0.76	3.29	6.26
Turnpike Trail 2	Illuminance	Fc	2.55	4.84	0.73	3.49	6.63
Turnpike Trail 3	Illuminance	Fc	2.58	4.84	0.72	3.58	6.72
Turnpike Trail 4	Illuminance	Fc	2.50	6.13	0.79	3.16	7.76
Turnpike Trail 5	Illuminance	Fc	2.52	4.92	0.79	3.19	6.23

LOCHNER

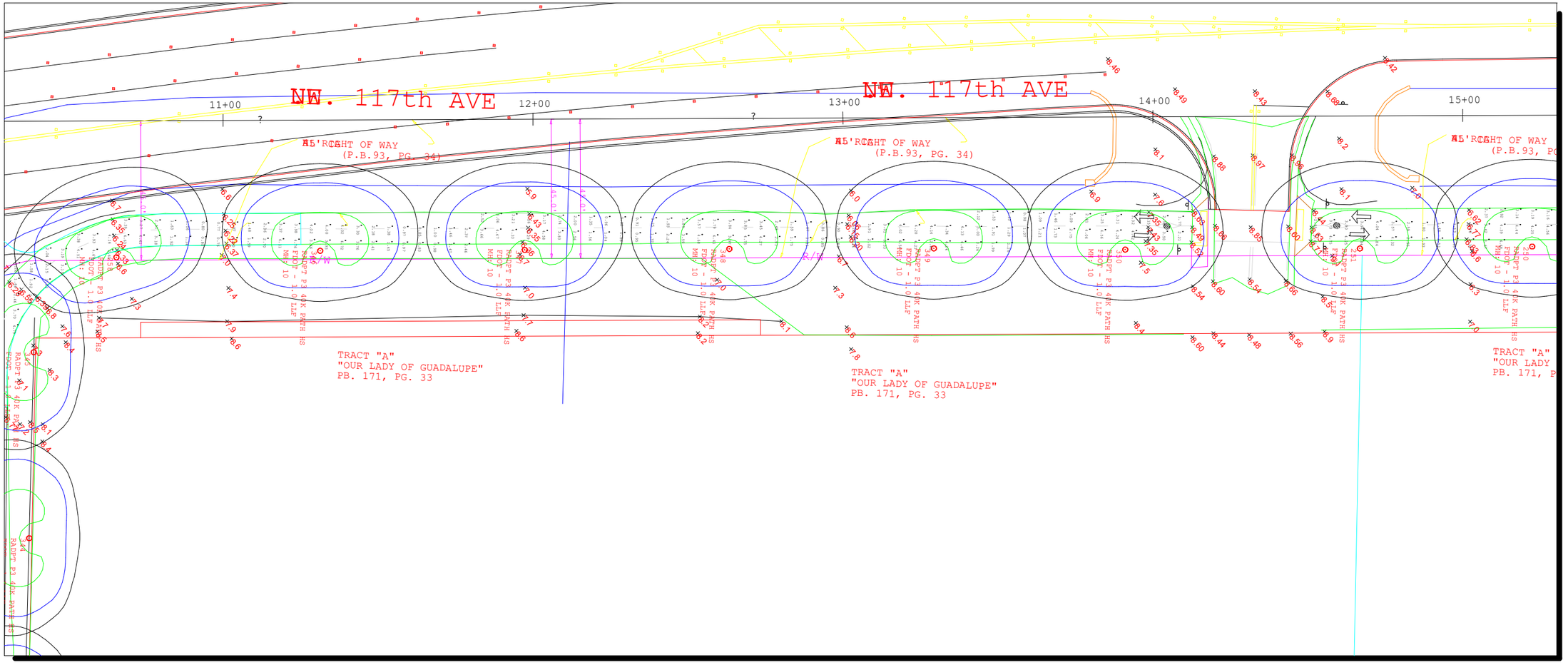
#	Date	Comments

Revisions

Drawn By: JMC
Checked By: LMM
Date:8/16/2024
Scale: NTS

City of Doral Trail Lighting Improvements

Photometric Analysis



View_1:Turnpike Trail 1 - 2

Luminaire Schedule									
Project: Turnpike Trail									
Symbol	Qty	Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Watts	Arm	IES Class
⊙	2	Existing Path Lighting	Single	RADPT P3 40K PATH HS	1.000	5197	53.6184	0	Type IV
⊙	163	RADPT P3 40K PATH HS	Single	RADPT P3 40K PATH HS	1.000	5197	53.6184	0	Type IV
⊙	8	RADPT P4 40K PATH HS	Single	RADPT P4 40K PATH HS	1.000	8258	85.6782	0	Type IV

Calculation Summary							
Project: Turnpike Trail							
Label	**CalcType**	**Units**	**Avg**	**Max**	**Min**	**Avg/Min**	**Max/Min**
Light Tresspass 4_Ill_Seg1	Obtrusive - Ill	Fc	0.38	4.0	0.0	N.A.	N.A.
Light Tresspass 4_Ill_Seg2	Obtrusive - Ill	Fc	0.57	9.9	0.0	N.A.	N.A.
Light Tresspass 5_III_Seg 5	Obtrusive - Ill	Fc	0.72	N.A.	N.A.	N.A.	N.A.
Light Tresspass 5_Ill_Seg1	Obtrusive - Ill	Fc	0.18	2.3	0.0	N.A.	N.A.
Light Tresspass 5_Ill_Seg2	Obtrusive - Ill	Fc	0.28	4.3	0.0	N.A.	N.A.
Light Tresspass 5_Ill_Seg3	Obtrusive - Ill	Fc	0.37	2.7	0.0	N.A.	N.A.
Turnpike Trail 1	Illuminance	Fc	2.50	4.76	0.76	3.29	6.26
Turnpike Trail 2	Illuminance	Fc	2.55	4.84	0.73	3.49	6.63
Turnpike Trail 3	Illuminance	Fc	2.58	4.84	0.72	3.58	6.72
Turnpike Trail 4	Illuminance	Fc	2.50	6.13	0.79	3.16	7.76
Turnpike Trail 5	Illuminance	Fc	2.52	4.92	0.79	3.19	6.23

LOCHNER

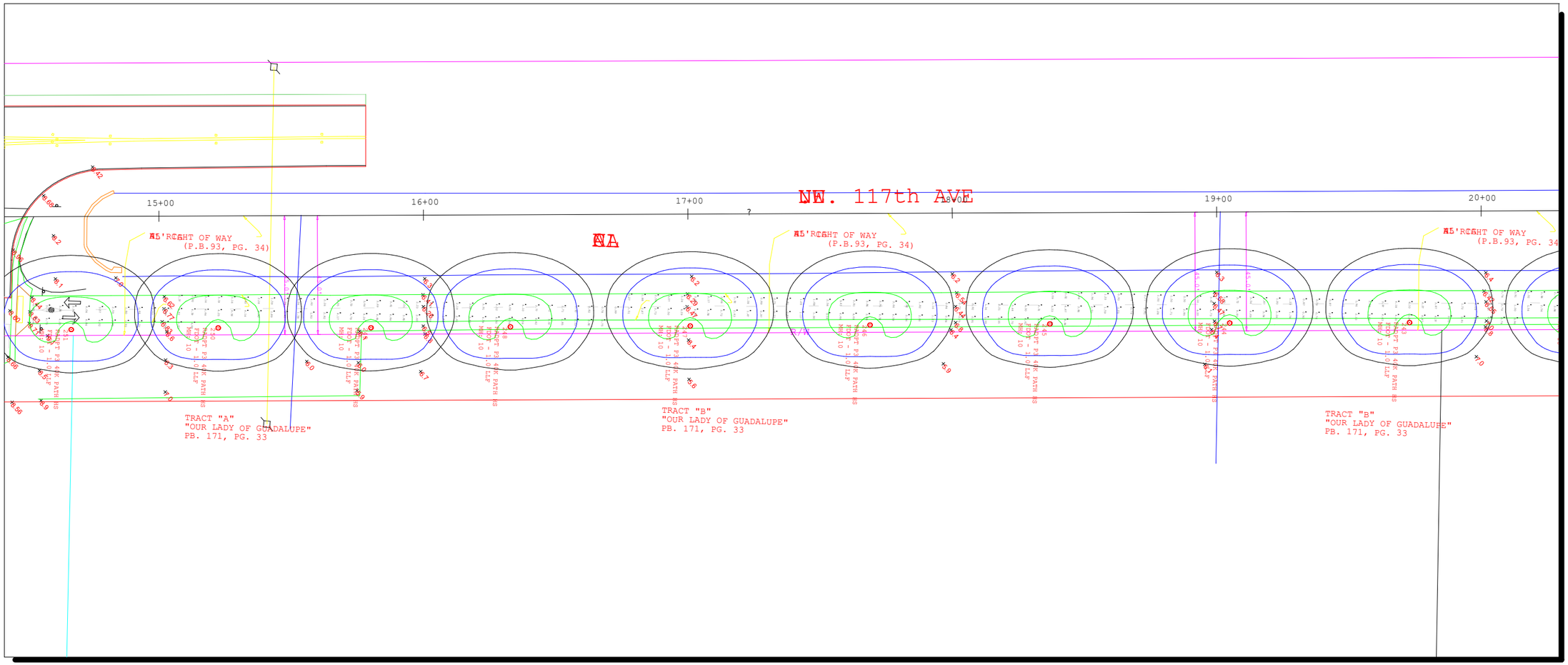
#	Date	Comments

Revisions

Drawn By: JMC
Checked By: LMM
Date:8/16/2024
Scale: NTS

City of Doral Trail Lighting Improvements

Photometric Analysis



View_1:Turnpike Trail 2 - 1

Luminaire Schedule									
Project: Turnpike Trail									
Symbol	Qty	Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Watts	Arm	IES Class
	2	Existing Path Lighting	Single	RADPT P3 40K PATH HS	1.000	5197	53.6184	0	Type IV
	163	RADPT P3 40K PATH HS	Single	RADPT P3 40K PATH HS	1.000	5197	53.6184	0	Type IV
	8	RADPT P4 40K PATH HS	Single	RADPT P4 40K PATH HS	1.000	8258	85.6782	0	Type IV

Calculation Summary							
Project: Turnpike Trail							
Label	**CalcType**	**Units**	**Avg**	**Max**	**Min**	**Avg/Min**	**Max/Min**
Light Tresspass 4_Ill_Seg1	Obtrusive - Ill	Fc	0.38	4.0	0.0	N.A.	N.A.
Light Tresspass 4_Ill_Seg2	Obtrusive - Ill	Fc	0.57	9.9	0.0	N.A.	N.A.
Light Tresspass 5_III_Seg 5	Obtrusive - Ill	Fc	0.72	N.A.	N.A.	N.A.	N.A.
Light Tresspass 5_Ill_Seg1	Obtrusive - Ill	Fc	0.18	2.3	0.0	N.A.	N.A.
Light Tresspass 5_Ill_Seg2	Obtrusive - Ill	Fc	0.28	4.3	0.0	N.A.	N.A.
Light Tresspass 5_Ill_Seg3	Obtrusive - Ill	Fc	0.37	2.7	0.0	N.A.	N.A.
Turnpike Trail 1	Illuminance	Fc	2.50	4.76	0.76	3.29	6.26
Turnpike Trail 2	Illuminance	Fc	2.55	4.84	0.73	3.49	6.63
Turnpike Trail 3	Illuminance	Fc	2.58	4.84	0.72	3.58	6.72
Turnpike Trail 4	Illuminance	Fc	2.50	6.13	0.79	3.16	7.76
Turnpike Trail 5	Illuminance	Fc	2.52	4.92	0.79	3.19	6.23

LOCHNER

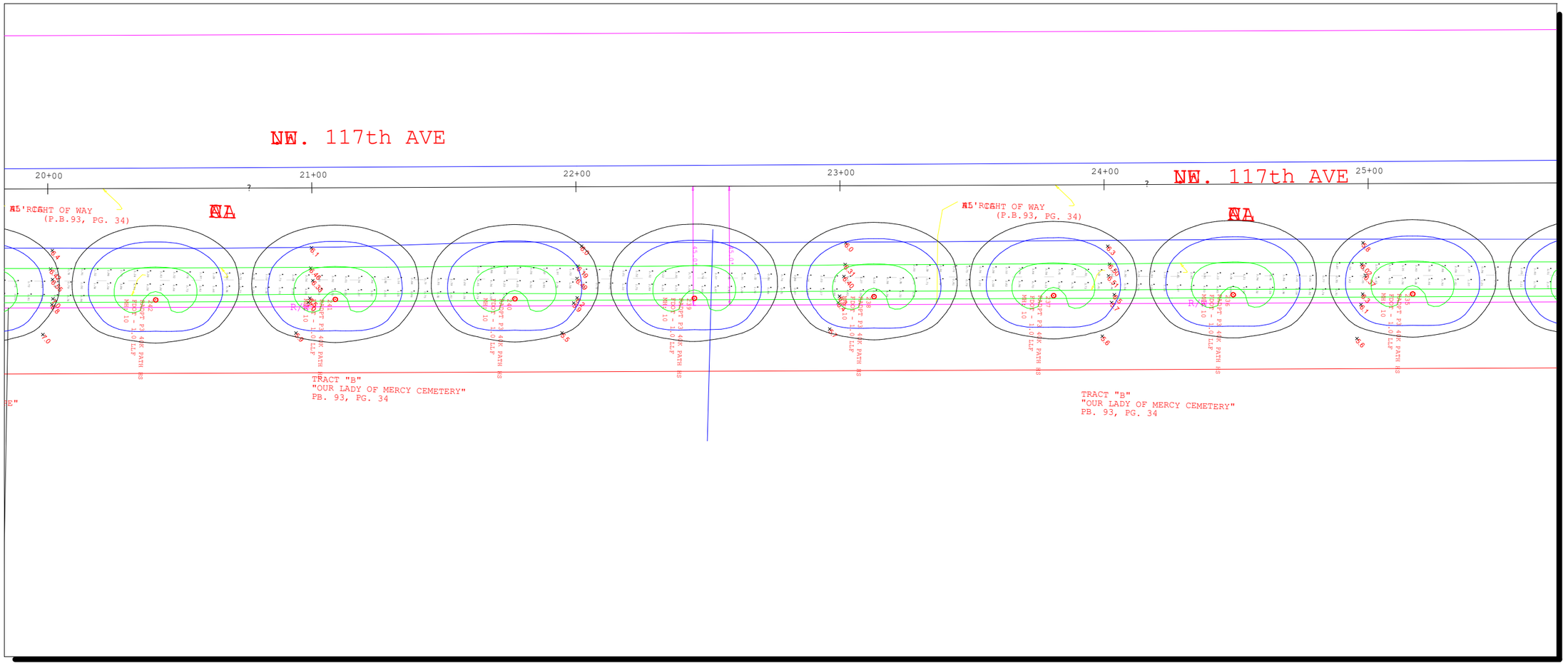
#	Date	Comments

Revisions

Drawn By: JMC
Checked By: LMM
Date:8/16/2024
Scale: NTS

City of Doral Trail Lighting Improvements

Photometric Analysis



View_1:Turnpike Trail 2 - 2

Luminaire Schedule									
Project: Turnpike Trail									
Symbol	Qty	Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Watts	Arm	IES Class
	2	Existing Path Lighting	Single	RADPT P3 40K PATH HS	1.000	5197	53.6184	0	Type IV
	163	RADPT P3 40K PATH HS	Single	RADPT P3 40K PATH HS	1.000	5197	53.6184	0	Type IV
	8	RADPT P4 40K PATH HS	Single	RADPT P4 40K PATH HS	1.000	8258	85.6782	0	Type IV

Calculation Summary							
Project: Turnpike Trail							
Label	**CalcType**	**Units**	**Avg**	**Max**	**Min**	**Avg/Min**	**Max/Min**
Light Tresspass 4_Ill_Seg1	Obtrusive - Ill	Fc	0.38	4.0	0.0	N.A.	N.A.
Light Tresspass 4_Ill_Seg2	Obtrusive - Ill	Fc	0.57	9.9	0.0	N.A.	N.A.
Light Tresspass 5_III_Seg 5	Obtrusive - Ill	Fc	0.72	N.A.	N.A.	N.A.	N.A.
Light Tresspass 5_Ill_Seg1	Obtrusive - Ill	Fc	0.18	2.3	0.0	N.A.	N.A.
Light Tresspass 5_Ill_Seg2	Obtrusive - Ill	Fc	0.28	4.3	0.0	N.A.	N.A.
Light Tresspass 5_Ill_Seg3	Obtrusive - Ill	Fc	0.37	2.7	0.0	N.A.	N.A.
Turnpike Trail 1	Illuminance	Fc	2.50	4.76	0.76	3.29	6.26
Turnpike Trail 2	Illuminance	Fc	2.55	4.84	0.73	3.49	6.63
Turnpike Trail 3	Illuminance	Fc	2.58	4.84	0.72	3.58	6.72
Turnpike Trail 4	Illuminance	Fc	2.50	6.13	0.79	3.16	7.76
Turnpike Trail 5	Illuminance	Fc	2.52	4.92	0.79	3.19	6.23

LOCHNER

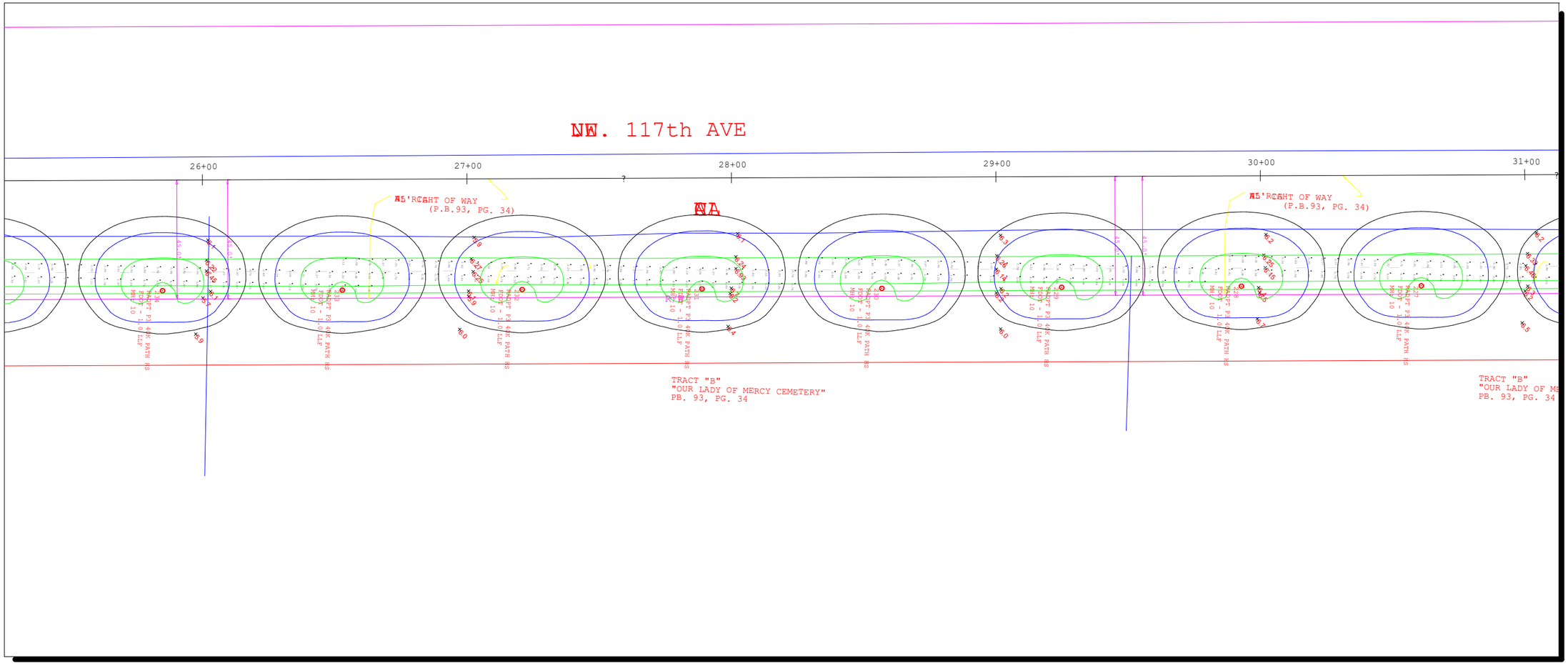
#	Date	Comments

Revisions

Drawn By: JMC
Checked By: LMM
Date:8/16/2024
Scale: NTS

City of Doral Trail Lighting Improvements

Photometric Analysis



View_1:Turnpike Trail 2 - 3

Luminaire Schedule									
Project: Turnpike Trail									
Symbol	Qty	Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Watts	Arm	IES Class
	2	Existing Path Lighting	Single	RADPT P3 40K PATH HS	1.000	5197	53.6184	0	Type IV
	163	RADPT P3 40K PATH HS	Single	RADPT P3 40K PATH HS	1.000	5197	53.6184	0	Type IV
	8	RADPT P4 40K PATH HS	Single	RADPT P4 40K PATH HS	1.000	8258	85.6782	0	Type IV

Calculation Summary							
Project: Turnpike Trail							
Label	**CalcType**	**Units**	**Avg**	**Max**	**Min**	**Avg/Min**	**Max/Min**
Light Tresspass 4_Ill_Seg1	Obtrusive - Ill	Fc	0.38	4.0	0.0	N.A.	N.A.
Light Tresspass 4_Ill_Seg2	Obtrusive - Ill	Fc	0.57	9.9	0.0	N.A.	N.A.
Light Tresspass 5_III_Seg 5	Obtrusive - Ill	Fc	0.72	N.A.	N.A.	N.A.	N.A.
Light Tresspass 5_Ill_Seg1	Obtrusive - Ill	Fc	0.18	2.3	0.0	N.A.	N.A.
Light Tresspass 5_Ill_Seg2	Obtrusive - Ill	Fc	0.28	4.3	0.0	N.A.	N.A.
Light Tresspass 5_Ill_Seg3	Obtrusive - Ill	Fc	0.37	2.7	0.0	N.A.	N.A.
Turnpike Trail 1	Illuminance	Fc	2.50	4.76	0.76	3.29	6.26
Turnpike Trail 2	Illuminance	Fc	2.55	4.84	0.73	3.49	6.63
Turnpike Trail 3	Illuminance	Fc	2.58	4.84	0.72	3.58	6.72
Turnpike Trail 4	Illuminance	Fc	2.50	6.13	0.79	3.16	7.76
Turnpike Trail 5	Illuminance	Fc	2.52	4.92	0.79	3.19	6.23

LOCHNER

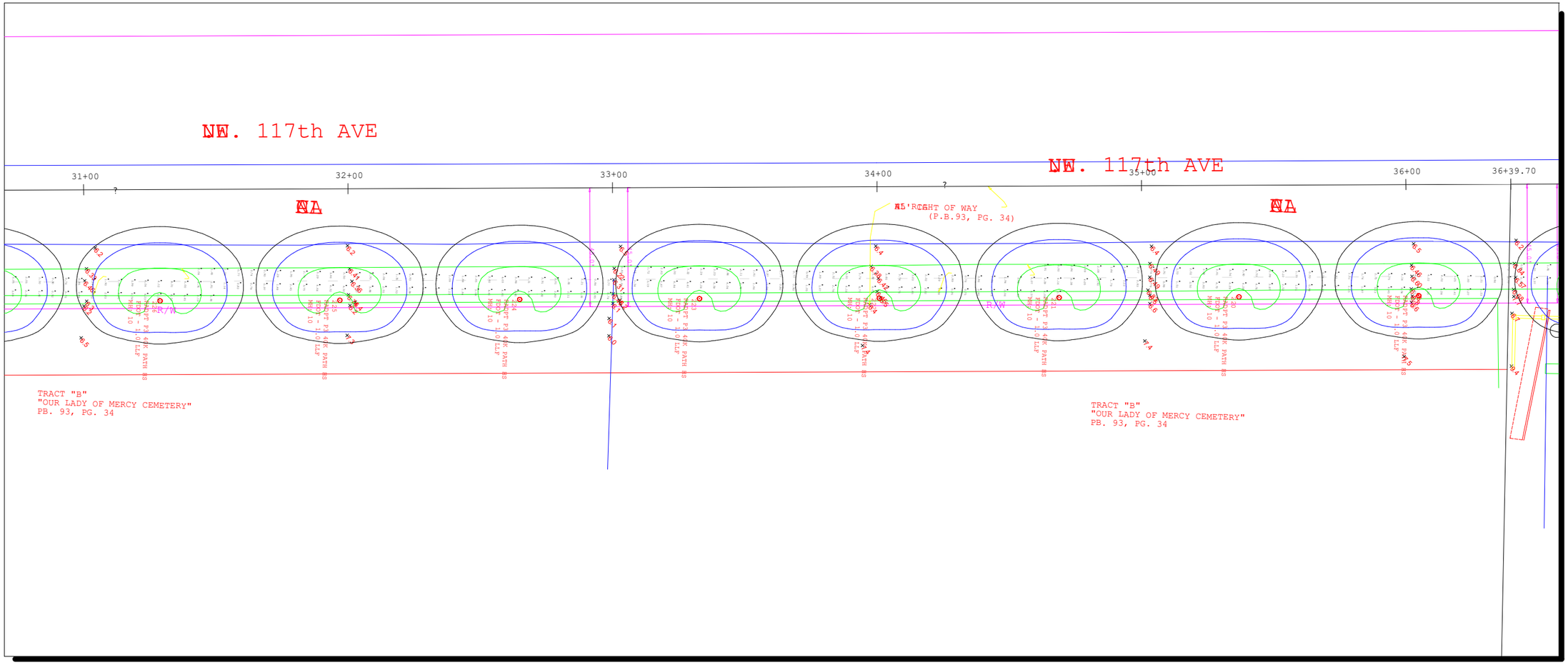
#	Date	Comments

Revisions

Drawn By: JMC
Checked By: LMM
Date:8/16/2024
Scale: NTS

City of Doral Trail Lighting Improvements

Photometric Analysis



View_1:Turnpike Trail 2 - 4

Luminaire Schedule									
Project: Turnpike Trail									
Symbol	Qty	Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Watts	Arm	IES Class
	2	Existing Path Lighting	Single	RADPT P3 40K PATH HS	1.000	5197	53.6184	0	Type IV
	163	RADPT P3 40K PATH HS	Single	RADPT P3 40K PATH HS	1.000	5197	53.6184	0	Type IV
	8	RADPT P4 40K PATH HS	Single	RADPT P4 40K PATH HS	1.000	8258	85.6782	0	Type IV

Calculation Summary							
Project: Turnpike Trail							
Label	**CalcType**	**Units**	**Avg**	**Max**	**Min**	**Avg/Min**	**Max/Min**
Light Tresspass 4_Ill_Seg1	Obtrusive - Ill	Fc	0.38	4.0	0.0	N.A.	N.A.
Light Tresspass 4_Ill_Seg2	Obtrusive - Ill	Fc	0.57	9.9	0.0	N.A.	N.A.
Light Tresspass 5_III_Seg 5	Obtrusive - Ill	Fc	0.72	N.A.	N.A.	N.A.	N.A.
Light Tresspass 5_Ill_Seg1	Obtrusive - Ill	Fc	0.18	2.3	0.0	N.A.	N.A.
Light Tresspass 5_Ill_Seg2	Obtrusive - Ill	Fc	0.28	4.3	0.0	N.A.	N.A.
Light Tresspass 5_Ill_Seg3	Obtrusive - Ill	Fc	0.37	2.7	0.0	N.A.	N.A.
Turnpike Trail 1	Illuminance	Fc	2.50	4.76	0.76	3.29	6.26
Turnpike Trail 2	Illuminance	Fc	2.55	4.84	0.73	3.49	6.63
Turnpike Trail 3	Illuminance	Fc	2.58	4.84	0.72	3.58	6.72
Turnpike Trail 4	Illuminance	Fc	2.50	6.13	0.79	3.16	7.76
Turnpike Trail 5	Illuminance	Fc	2.52	4.92	0.79	3.19	6.23

LOCHNER

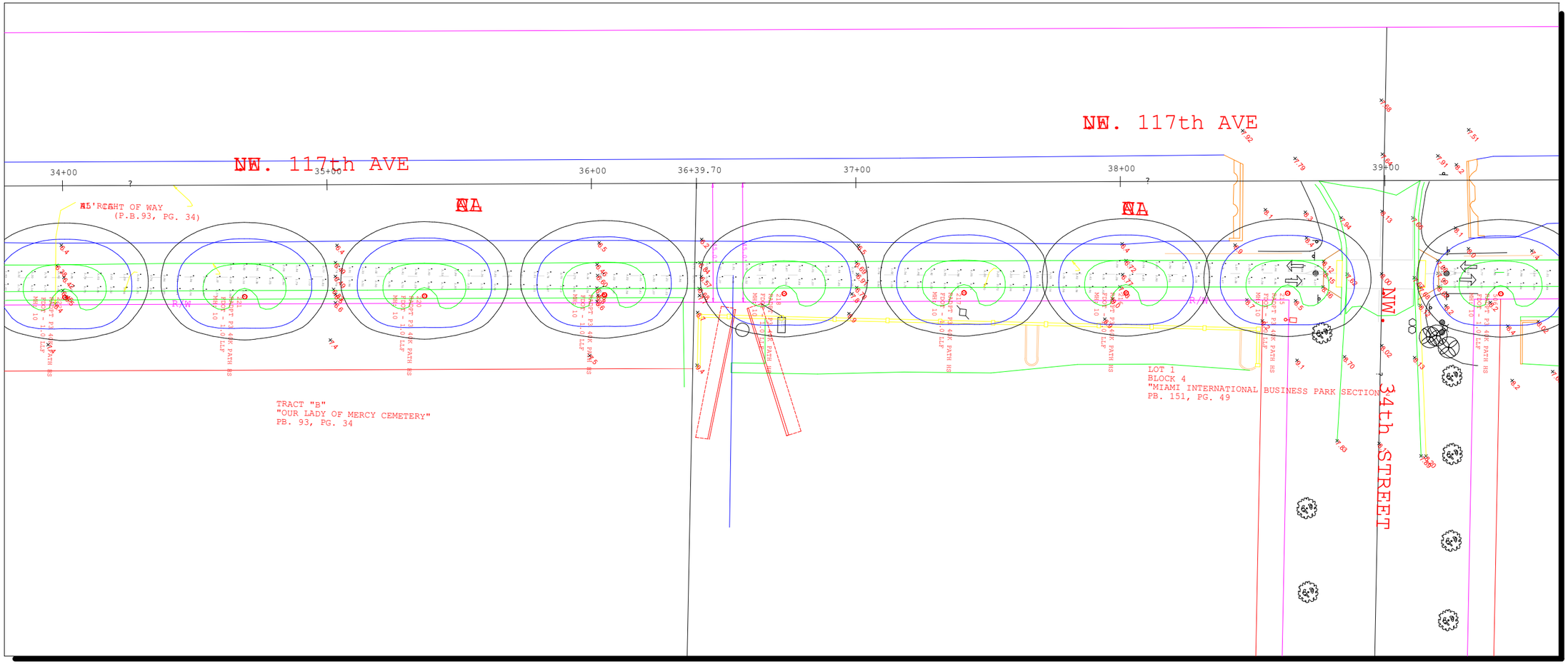
#	Date	Comments

Revisions

Drawn By: JMC
Checked By: LMM
Date:8/16/2024
Scale: NTS

City of Doral Trail Lighting Improvements

Photometric Analysis



View_1:Turnpike Trail 2 - 5

Luminaire Schedule									
Project: Turnpike Trail									
Symbol	Qty	Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Watts	Arm	IES Class
	2	Existing Path Lighting	Single	RADPT P3 40K PATH HS	1.000	5197	53.6184	0	Type IV
	163	RADPT P3 40K PATH HS	Single	RADPT P3 40K PATH HS	1.000	5197	53.6184	0	Type IV
	8	RADPT P4 40K PATH HS	Single	RADPT P4 40K PATH HS	1.000	8258	85.6782	0	Type IV

Calculation Summary							
Project: Turnpike Trail							
Label	**CalcType**	**Units**	**Avg**	**Max**	**Min**	**Avg/Min**	**Max/Min**
Light Tresspass 4_Ill_Seg1	Obtrusive - Ill	Fc	0.38	4.0	0.0	N.A.	N.A.
Light Tresspass 4_Ill_Seg2	Obtrusive - Ill	Fc	0.57	9.9	0.0	N.A.	N.A.
Light Tresspass 5_III_Seg 5	Obtrusive - Ill	Fc	0.72	N.A.	N.A.	N.A.	N.A.
Light Tresspass 5_Ill_Seg1	Obtrusive - Ill	Fc	0.18	2.3	0.0	N.A.	N.A.
Light Tresspass 5_Ill_Seg2	Obtrusive - Ill	Fc	0.28	4.3	0.0	N.A.	N.A.
Light Tresspass 5_Ill_Seg3	Obtrusive - Ill	Fc	0.37	2.7	0.0	N.A.	N.A.
Turnpike Trail 1	Illuminance	Fc	2.50	4.76	0.76	3.29	6.26
Turnpike Trail 2	Illuminance	Fc	2.55	4.84	0.73	3.49	6.63
Turnpike Trail 3	Illuminance	Fc	2.58	4.84	0.72	3.58	6.72
Turnpike Trail 4	Illuminance	Fc	2.50	6.13	0.79	3.16	7.76
Turnpike Trail 5	Illuminance	Fc	2.52	4.92	0.79	3.19	6.23

LOCHNER

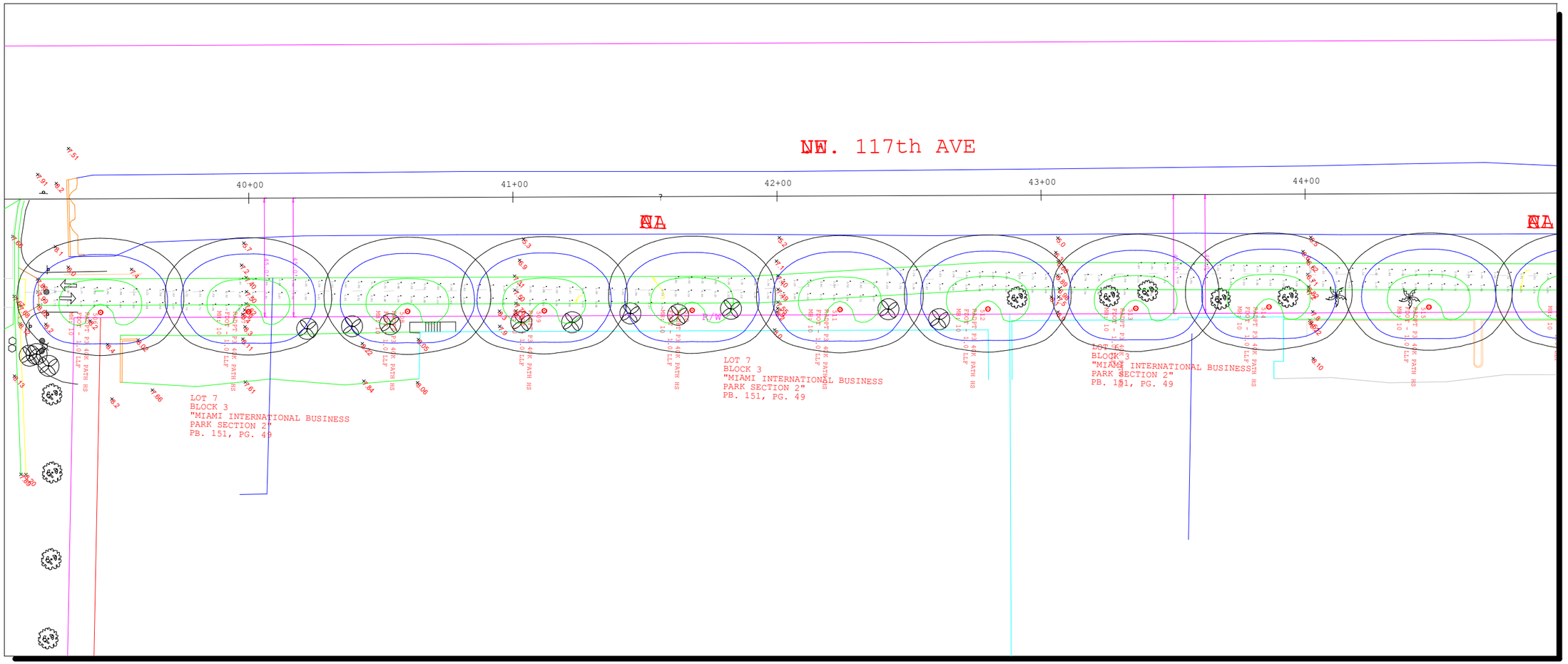
#	Date	Comments

Revisions

Drawn By: JMC
Checked By: LMM
Date:8/16/2024
Scale: NTS

City of Doral Trail Lighting Improvements

Photometric Analysis



View_1:Turnpike Trail 3 - 1

Luminaire Schedule									
Project: Turnpike Trail									
Symbol	Qty	Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Watts	Arm	IES Class
⊙	2	Existing Path Lighting	Single	RADPT P3 40K PATH HS	1.000	5197	53.6184	0	Type IV
⊙	163	RADPT P3 40K PATH HS	Single	RADPT P3 40K PATH HS	1.000	5197	53.6184	0	Type IV
⊙	8	RADPT P4 40K PATH HS	Single	RADPT P4 40K PATH HS	1.000	8258	85.6782	0	Type IV

Calculation Summary							
Project: Turnpike Trail							
Label	**CalcType**	**Units**	**Avg**	**Max**	**Min**	**Avg/Min**	**Max/Min**
Light Tresspass 4_Ill_Seg1	Obtrusive - Ill	Fc	0.38	4.0	0.0	N.A.	N.A.
Light Tresspass 4_Ill_Seg2	Obtrusive - Ill	Fc	0.57	9.9	0.0	N.A.	N.A.
Light Tresspass 5_III_Seg 5	Obtrusive - Ill	Fc	0.72	N.A.	N.A.	N.A.	N.A.
Light Tresspass 5_Ill_Seg1	Obtrusive - Ill	Fc	0.18	2.3	0.0	N.A.	N.A.
Light Tresspass 5_Ill_Seg2	Obtrusive - Ill	Fc	0.28	4.3	0.0	N.A.	N.A.
Light Tresspass 5_Ill_Seg3	Obtrusive - Ill	Fc	0.37	2.7	0.0	N.A.	N.A.
Turnpike Trail 1	Illuminance	Fc	2.50	4.76	0.76	3.29	6.26
Turnpike Trail 2	Illuminance	Fc	2.55	4.84	0.73	3.49	6.63
Turnpike Trail 3	Illuminance	Fc	2.58	4.84	0.72	3.58	6.72
Turnpike Trail 4	Illuminance	Fc	2.50	6.13	0.79	3.16	7.76
Turnpike Trail 5	Illuminance	Fc	2.52	4.92	0.79	3.19	6.23

LOCHNER

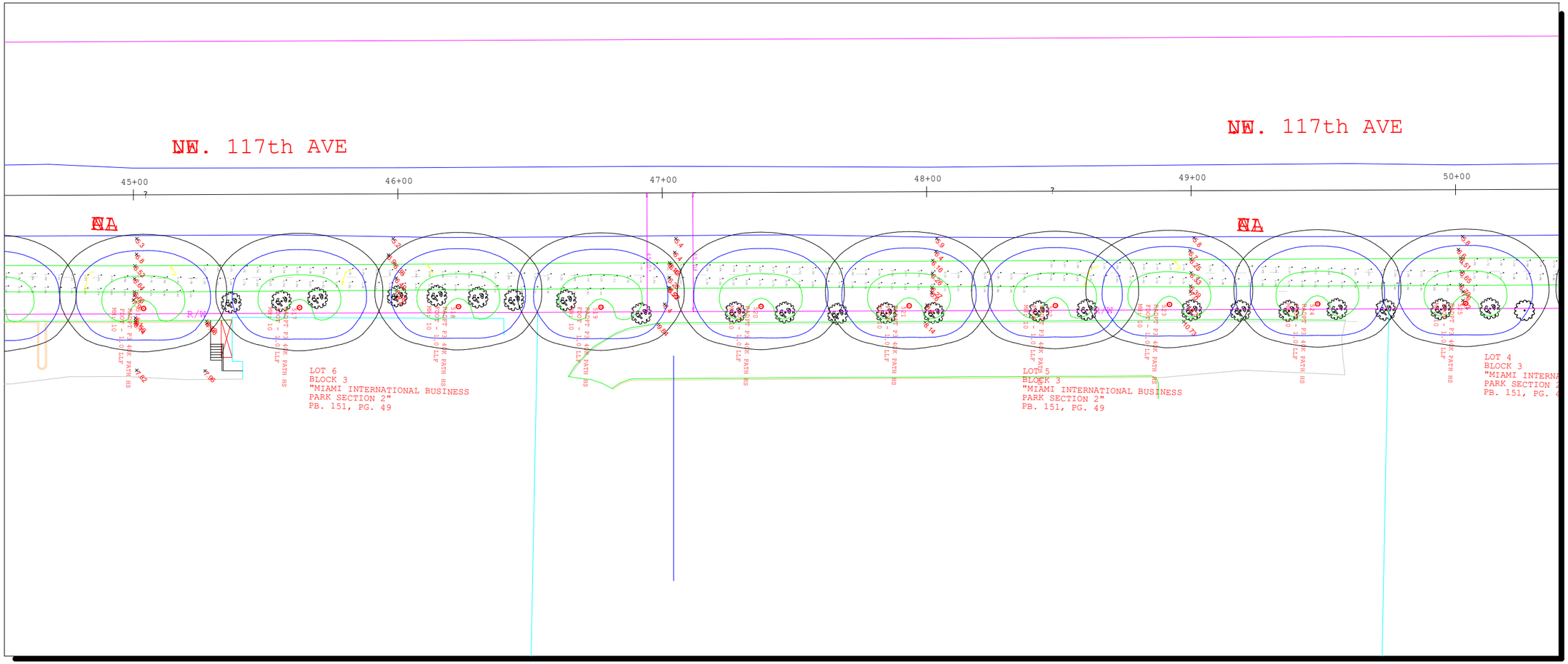
#	Date	Comments

Revisions

Drawn By: JMC
Checked By: LMM
Date:8/16/2024
Scale: NTS

City of Doral Trail Lighting Improvements

Photometric Analysis



View_1:Turnpike Trail 3 - 2

Luminaire Schedule									
Project: Turnpike Trail									
Symbol	Qty	Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Watts	Arm	IES Class
	2	Existing Path Lighting	Single	RADPT P3 40K PATH HS	1.000	5197	53.6184	0	Type IV
	163	RADPT P3 40K PATH HS	Single	RADPT P3 40K PATH HS	1.000	5197	53.6184	0	Type IV
	8	RADPT P4 40K PATH HS	Single	RADPT P4 40K PATH HS	1.000	8258	85.6782	0	Type IV

Calculation Summary							
Project: Turnpike Trail							
Label	**CalcType**	**Units**	**Avg**	**Max**	**Min**	**Avg/Min**	**Max/Min**
Light Tresspass 4_Ill_Seg1	Obtrusive - Ill	Fc	0.38	4.0	0.0	N.A.	N.A.
Light Tresspass 4_Ill_Seg2	Obtrusive - Ill	Fc	0.57	9.9	0.0	N.A.	N.A.
Light Tresspass 5_III_Seg 5	Obtrusive - Ill	Fc	0.72	N.A.	N.A.	N.A.	N.A.
Light Tresspass 5_Ill_Seg1	Obtrusive - Ill	Fc	0.18	2.3	0.0	N.A.	N.A.
Light Tresspass 5_Ill_Seg2	Obtrusive - Ill	Fc	0.28	4.3	0.0	N.A.	N.A.
Light Tresspass 5_Ill_Seg3	Obtrusive - Ill	Fc	0.37	2.7	0.0	N.A.	N.A.
Turnpike Trail 1	Illuminance	Fc	2.50	4.76	0.76	3.29	6.26
Turnpike Trail 2	Illuminance	Fc	2.55	4.84	0.73	3.49	6.63
Turnpike Trail 3	Illuminance	Fc	2.58	4.84	0.72	3.58	6.72
Turnpike Trail 4	Illuminance	Fc	2.50	6.13	0.79	3.16	7.76
Turnpike Trail 5	Illuminance	Fc	2.52	4.92	0.79	3.19	6.23

LOCHNER

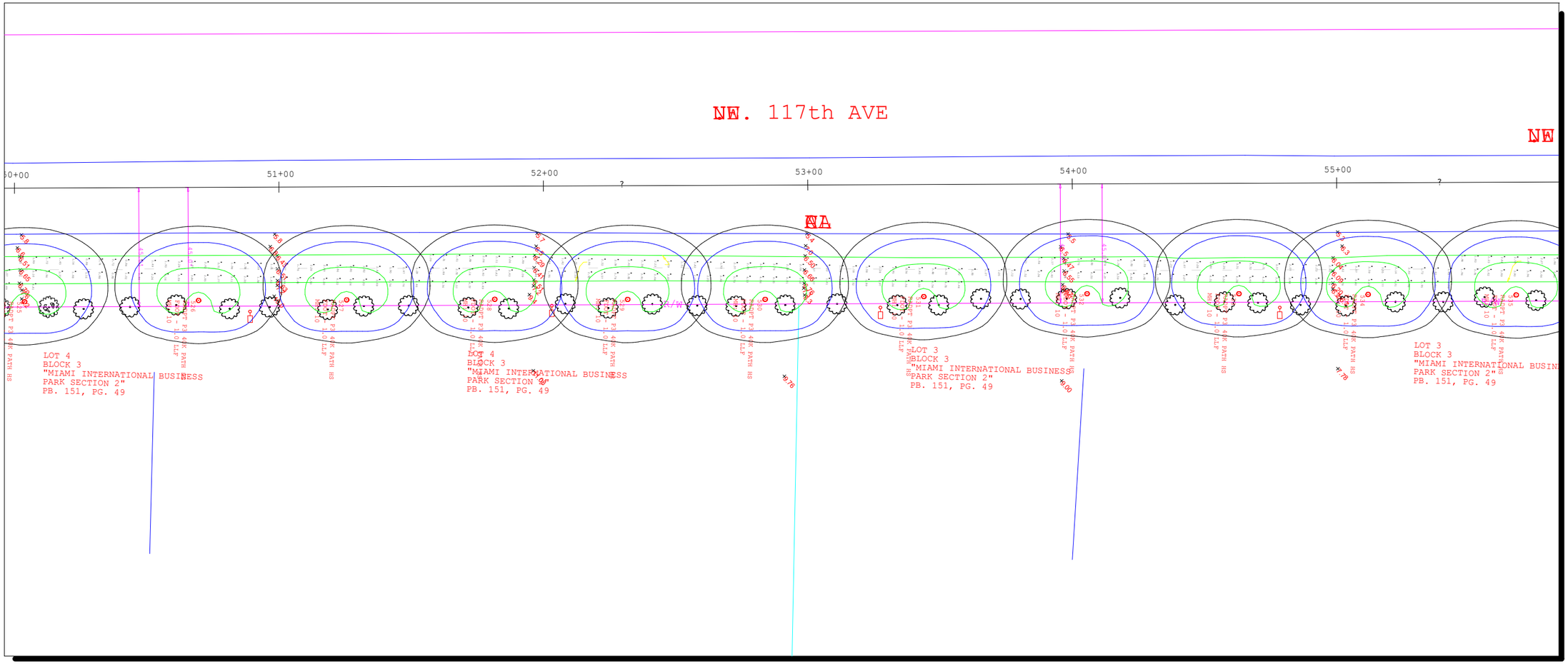
#	Date	Comments

Revisions

Drawn By: JMC
Checked By: LMM
Date:8/16/2024
Scale: NTS

City of Doral Trail Lighting Improvements

Photometric Analysis



View_1:Turnpike Trail 3 - 3

Luminaire Schedule									
Project: Turnpike Trail									
Symbol	Qty	Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Watts	Arm	IES Class
	2	Existing Path Lighting	Single	RADPT P3 40K PATH HS	1.000	5197	53.6184	0	Type IV
	163	RADPT P3 40K PATH HS	Single	RADPT P3 40K PATH HS	1.000	5197	53.6184	0	Type IV
	8	RADPT P4 40K PATH HS	Single	RADPT P4 40K PATH HS	1.000	8258	85.6782	0	Type IV

Calculation Summary							
Project: Turnpike Trail							
Label	**CalcType**	**Units**	**Avg**	**Max**	**Min**	**Avg/Min**	**Max/Min**
Light Tresspass 4_Ill_Seg1	Obtrusive - Ill	Fc	0.38	4.0	0.0	N.A.	N.A.
Light Tresspass 4_Ill_Seg2	Obtrusive - Ill	Fc	0.57	9.9	0.0	N.A.	N.A.
Light Tresspass 5_III_Seg 5	Obtrusive - Ill	Fc	0.72	N.A.	N.A.	N.A.	N.A.
Light Tresspass 5_Ill_Seg1	Obtrusive - Ill	Fc	0.18	2.3	0.0	N.A.	N.A.
Light Tresspass 5_Ill_Seg2	Obtrusive - Ill	Fc	0.28	4.3	0.0	N.A.	N.A.
Light Tresspass 5_Ill_Seg3	Obtrusive - Ill	Fc	0.37	2.7	0.0	N.A.	N.A.
Turnpike Trail 1	Illuminance	Fc	2.50	4.76	0.76	3.29	6.26
Turnpike Trail 2	Illuminance	Fc	2.55	4.84	0.73	3.49	6.63
Turnpike Trail 3	Illuminance	Fc	2.58	4.84	0.72	3.58	6.72
Turnpike Trail 4	Illuminance	Fc	2.50	6.13	0.79	3.16	7.76
Turnpike Trail 5	Illuminance	Fc	2.52	4.92	0.79	3.19	6.23

LOCHNER

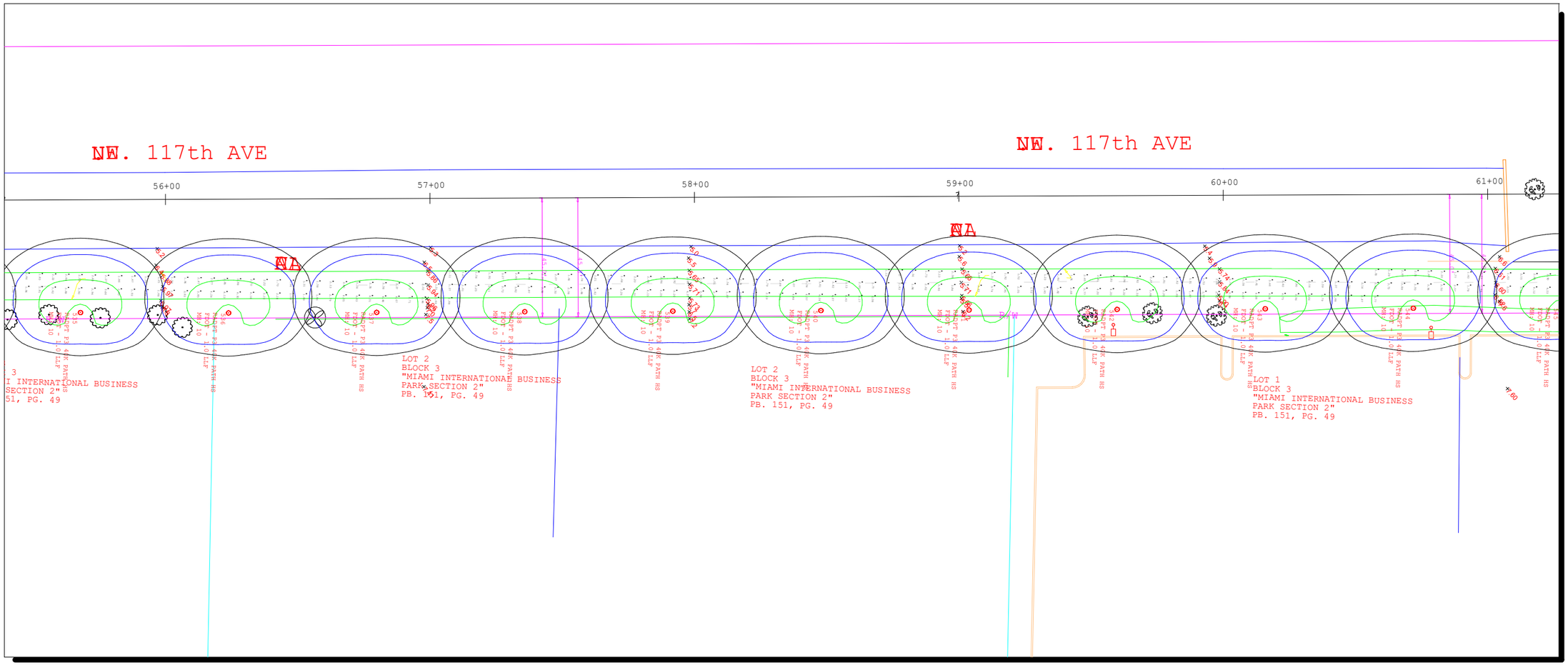
#	Date	Comments

Revisions

Drawn By: JMC
Checked By: LMM
Date:8/16/2024
Scale: NTS

City of Doral Trail Lighting Improvements

Photometric Analysis



View_1:Turnpike Trail 3 - 4

Luminaire Schedule									
Project: Turnpike Trail									
Symbol	Qty	Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Watts	Arm	IES Class
	2	Existing Path Lighting	Single	RADPT P3 40K PATH HS	1.000	5197	53.6184	0	Type IV
	163	RADPT P3 40K PATH HS	Single	RADPT P3 40K PATH HS	1.000	5197	53.6184	0	Type IV
	8	RADPT P4 40K PATH HS	Single	RADPT P4 40K PATH HS	1.000	8258	85.6782	0	Type IV

Calculation Summary							
Project: Turnpike Trail							
Label	**CalcType**	**Units**	**Avg**	**Max**	**Min**	**Avg/Min**	**Max/Min**
Light Tresspass 4_Ill_Seg1	Obtrusive - Ill	Fc	0.38	4.0	0.0	N.A.	N.A.
Light Tresspass 4_Ill_Seg2	Obtrusive - Ill	Fc	0.57	9.9	0.0	N.A.	N.A.
Light Tresspass 5_III_Seg 5	Obtrusive - Ill	Fc	0.72	N.A.	N.A.	N.A.	N.A.
Light Tresspass 5_Ill_Seg1	Obtrusive - Ill	Fc	0.18	2.3	0.0	N.A.	N.A.
Light Tresspass 5_Ill_Seg2	Obtrusive - Ill	Fc	0.28	4.3	0.0	N.A.	N.A.
Light Tresspass 5_Ill_Seg3	Obtrusive - Ill	Fc	0.37	2.7	0.0	N.A.	N.A.
Turnpike Trail 1	Illuminance	Fc	2.50	4.76	0.76	3.29	6.26
Turnpike Trail 2	Illuminance	Fc	2.55	4.84	0.73	3.49	6.63
Turnpike Trail 3	Illuminance	Fc	2.58	4.84	0.72	3.58	6.72
Turnpike Trail 4	Illuminance	Fc	2.50	6.13	0.79	3.16	7.76
Turnpike Trail 5	Illuminance	Fc	2.52	4.92	0.79	3.19	6.23

LOCHNER

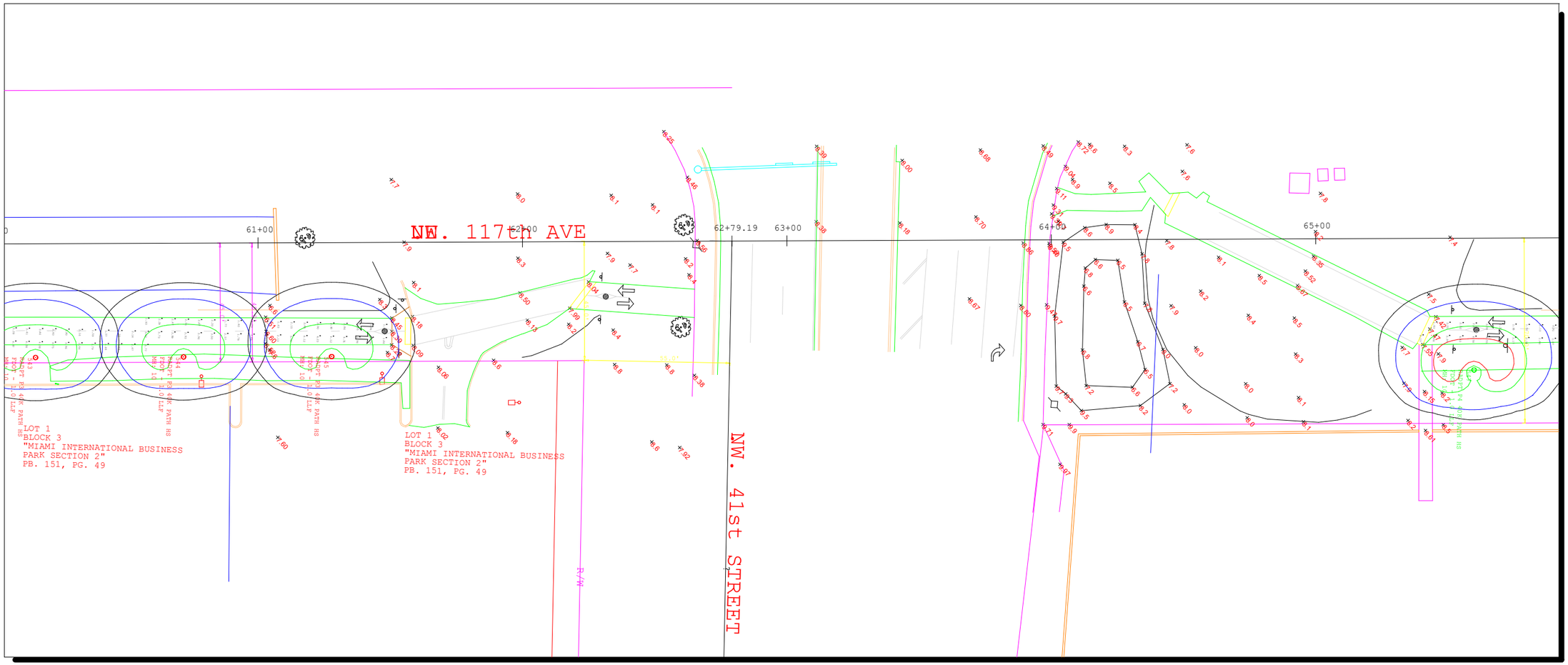
#	Date	Comments

Revisions

Drawn By: JMC
Checked By: LMM
Date:8/16/2024
Scale: NTS

City of Doral Trail Lighting Improvements

Photometric Analysis



View_1:Turnpike Trail 3 - 5

Luminaire Schedule									
Project: Turnpike Trail									
Symbol	Qty	Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Watts	Arm	IES Class
	2	Existing Path Lighting	Single	RADPT P3 40K PATH HS	1.000	5197	53.6184	0	Type IV
	163	RADPT P3 40K PATH HS	Single	RADPT P3 40K PATH HS	1.000	5197	53.6184	0	Type IV
	8	RADPT P4 40K PATH HS	Single	RADPT P4 40K PATH HS	1.000	8258	85.6782	0	Type IV

Calculation Summary							
Project: Turnpike Trail							
Label	**CalcType**	**Units**	**Avg**	**Max**	**Min**	**Avg/Min**	**Max/Min**
Light Tresspass 4_Ill_Seg1	Obtrusive - Ill	Fc	0.38	4.0	0.0	N.A.	N.A.
Light Tresspass 4_Ill_Seg2	Obtrusive - Ill	Fc	0.57	9.9	0.0	N.A.	N.A.
Light Tresspass 5_III_Seg 5	Obtrusive - Ill	Fc	0.72	N.A.	N.A.	N.A.	N.A.
Light Tresspass 5_Ill_Seg1	Obtrusive - Ill	Fc	0.18	2.3	0.0	N.A.	N.A.
Light Tresspass 5_Ill_Seg2	Obtrusive - Ill	Fc	0.28	4.3	0.0	N.A.	N.A.
Light Tresspass 5_Ill_Seg3	Obtrusive - Ill	Fc	0.37	2.7	0.0	N.A.	N.A.
Turnpike Trail 1	Illuminance	Fc	2.50	4.76	0.76	3.29	6.26
Turnpike Trail 2	Illuminance	Fc	2.55	4.84	0.73	3.49	6.63
Turnpike Trail 3	Illuminance	Fc	2.58	4.84	0.72	3.58	6.72
Turnpike Trail 4	Illuminance	Fc	2.50	6.13	0.79	3.16	7.76
Turnpike Trail 5	Illuminance	Fc	2.52	4.92	0.79	3.19	6.23

LOCHNER

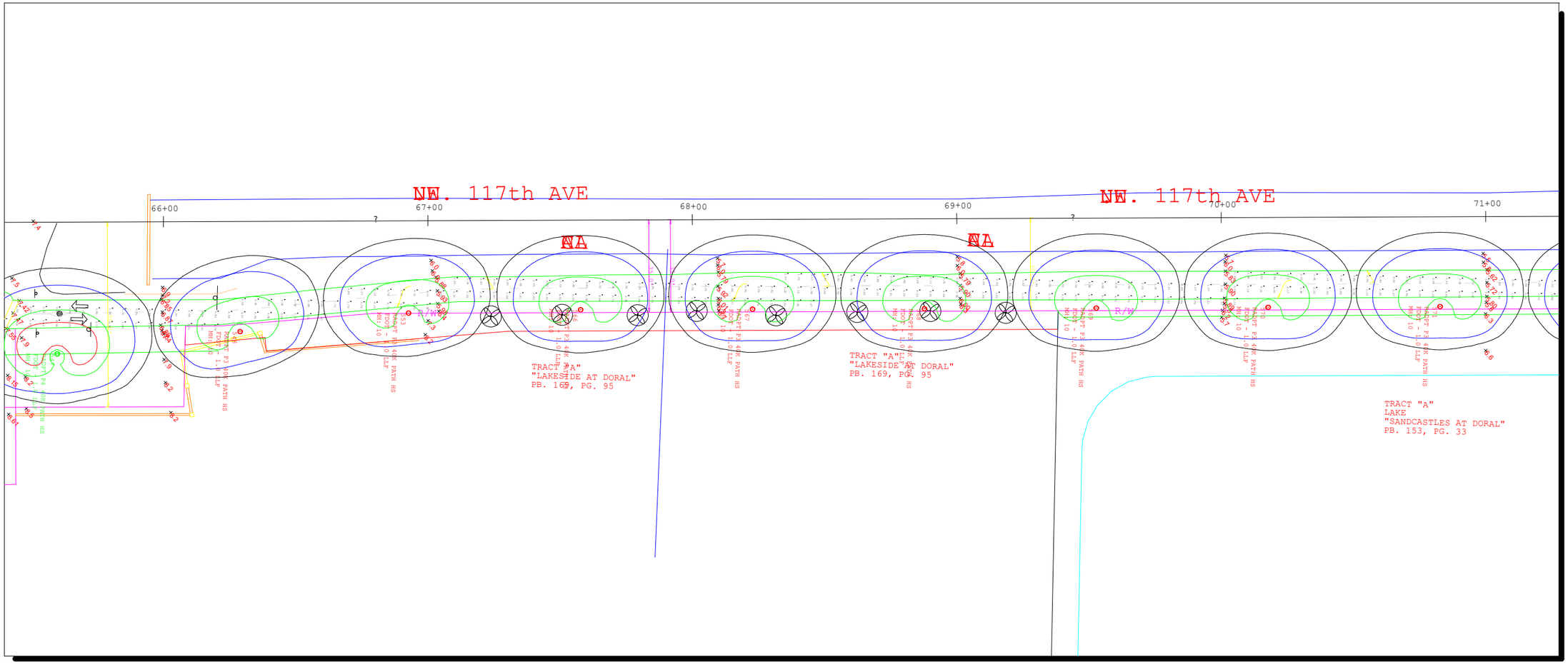
#	Date	Comments

Revisions

Drawn By: JMC
Checked By: LMM
Date:8/16/2024
Scale: NTS

City of Doral Trail Lighting Improvements

Photometric Analysis



View_1:Turnpike Trail 4 - 1

Luminaire Schedule									
Project: Turnpike Trail									
Symbol	Qty	Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Watts	Arm	IES Class
	2	Existing Path Lighting	Single	RADPT P3 40K PATH HS	1.000	5197	53.6184	0	Type IV
	163	RADPT P3 40K PATH HS	Single	RADPT P3 40K PATH HS	1.000	5197	53.6184	0	Type IV
	8	RADPT P4 40K PATH HS	Single	RADPT P4 40K PATH HS	1.000	8258	85.6782	0	Type IV

Calculation Summary							
Project: Turnpike Trail							
Label	**CalcType**	**Units**	**Avg**	**Max**	**Min**	**Avg/Min**	**Max/Min**
Light Tresspass 4_Ill_Seg1	Obtrusive - Ill	Fc	0.38	4.0	0.0	N.A.	N.A.
Light Tresspass 4_Ill_Seg2	Obtrusive - Ill	Fc	0.57	9.9	0.0	N.A.	N.A.
Light Tresspass 5_III_Seg 5	Obtrusive - Ill	Fc	0.72	N.A.	N.A.	N.A.	N.A.
Light Tresspass 5_Ill_Seg1	Obtrusive - Ill	Fc	0.18	2.3	0.0	N.A.	N.A.
Light Tresspass 5_Ill_Seg2	Obtrusive - Ill	Fc	0.28	4.3	0.0	N.A.	N.A.
Light Tresspass 5_Ill_Seg3	Obtrusive - Ill	Fc	0.37	2.7	0.0	N.A.	N.A.
Turnpike Trail 1	Illuminance	Fc	2.50	4.76	0.76	3.29	6.26
Turnpike Trail 2	Illuminance	Fc	2.55	4.84	0.73	3.49	6.63
Turnpike Trail 3	Illuminance	Fc	2.58	4.84	0.72	3.58	6.72
Turnpike Trail 4	Illuminance	Fc	2.50	6.13	0.79	3.16	7.76
Turnpike Trail 5	Illuminance	Fc	2.52	4.92	0.79	3.19	6.23

LOCHNER

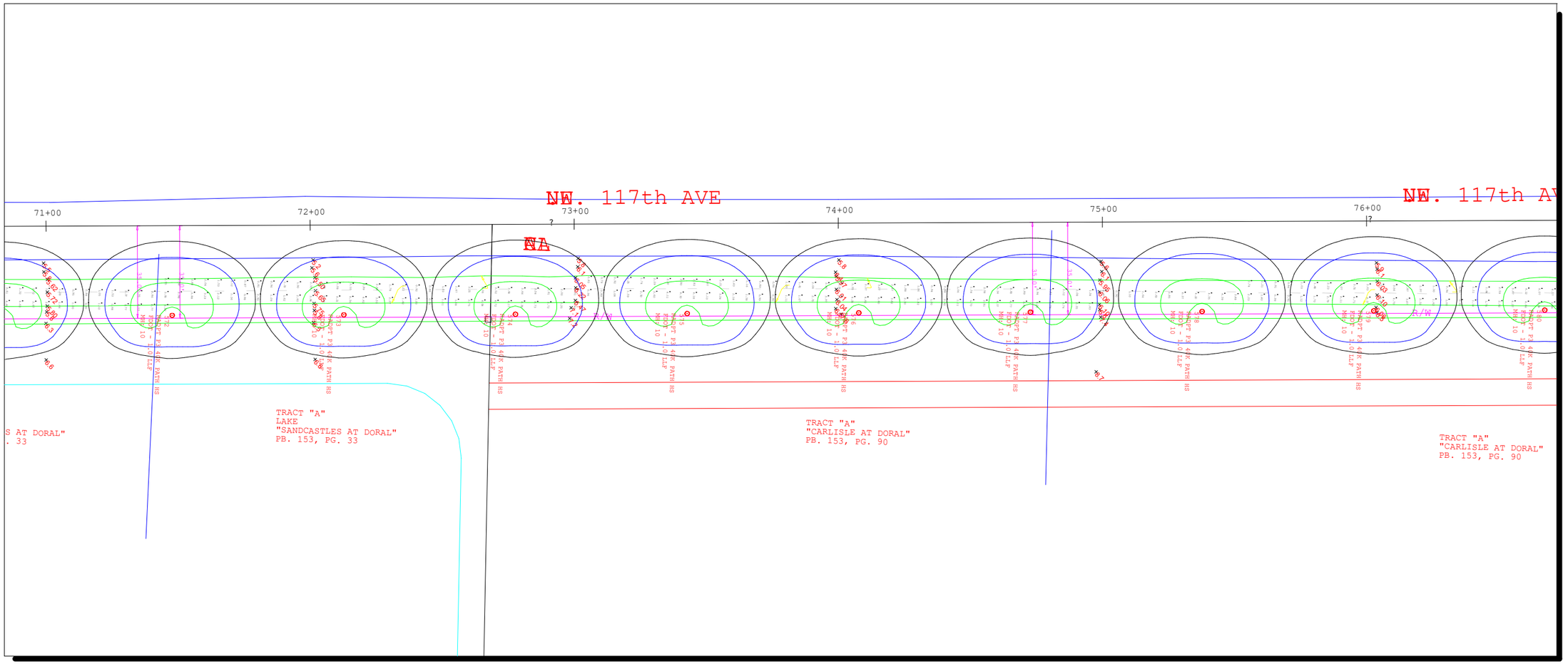
#	Date	Comments

Revisions

Drawn By: JMC
Checked By: LMM
Date:8/16/2024
Scale: NTS

City of Doral Trail Lighting Improvements

Photometric Analysis



View_1:Turnpike Trail 4 - 2

Luminaire Schedule									
Project: Turnpike Trail									
Symbol	Qty	Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Watts	Arm	IES Class
⊙	2	Existing Path Lighting	Single	RADPT P3 40K PATH HS	1.000	5197	53.6184	0	Type IV
⊙	163	RADPT P3 40K PATH HS	Single	RADPT P3 40K PATH HS	1.000	5197	53.6184	0	Type IV
⊙	8	RADPT P4 40K PATH HS	Single	RADPT P4 40K PATH HS	1.000	8258	85.6782	0	Type IV

Calculation Summary							
Project: Turnpike Trail							
Label	**CalcType**	**Units**	**Avg**	**Max**	**Min**	**Avg/Min**	**Max/Min**
Light Tresspass 4_Ill_Seg1	Obtrusive - Ill	Fc	0.38	4.0	0.0	N.A.	N.A.
Light Tresspass 4_Ill_Seg2	Obtrusive - Ill	Fc	0.57	9.9	0.0	N.A.	N.A.
Light Tresspass 5_III_Seg 5	Obtrusive - Ill	Fc	0.72	N.A.	N.A.	N.A.	N.A.
Light Tresspass 5_Ill_Seg1	Obtrusive - Ill	Fc	0.18	2.3	0.0	N.A.	N.A.
Light Tresspass 5_Ill_Seg2	Obtrusive - Ill	Fc	0.28	4.3	0.0	N.A.	N.A.
Light Tresspass 5_Ill_Seg3	Obtrusive - Ill	Fc	0.37	2.7	0.0	N.A.	N.A.
Turnpike Trail 1	Illuminance	Fc	2.50	4.76	0.76	3.29	6.26
Turnpike Trail 2	Illuminance	Fc	2.55	4.84	0.73	3.49	6.63
Turnpike Trail 3	Illuminance	Fc	2.58	4.84	0.72	3.58	6.72
Turnpike Trail 4	Illuminance	Fc	2.50	6.13	0.79	3.16	7.76
Turnpike Trail 5	Illuminance	Fc	2.52	4.92	0.79	3.19	6.23

LOCHNER

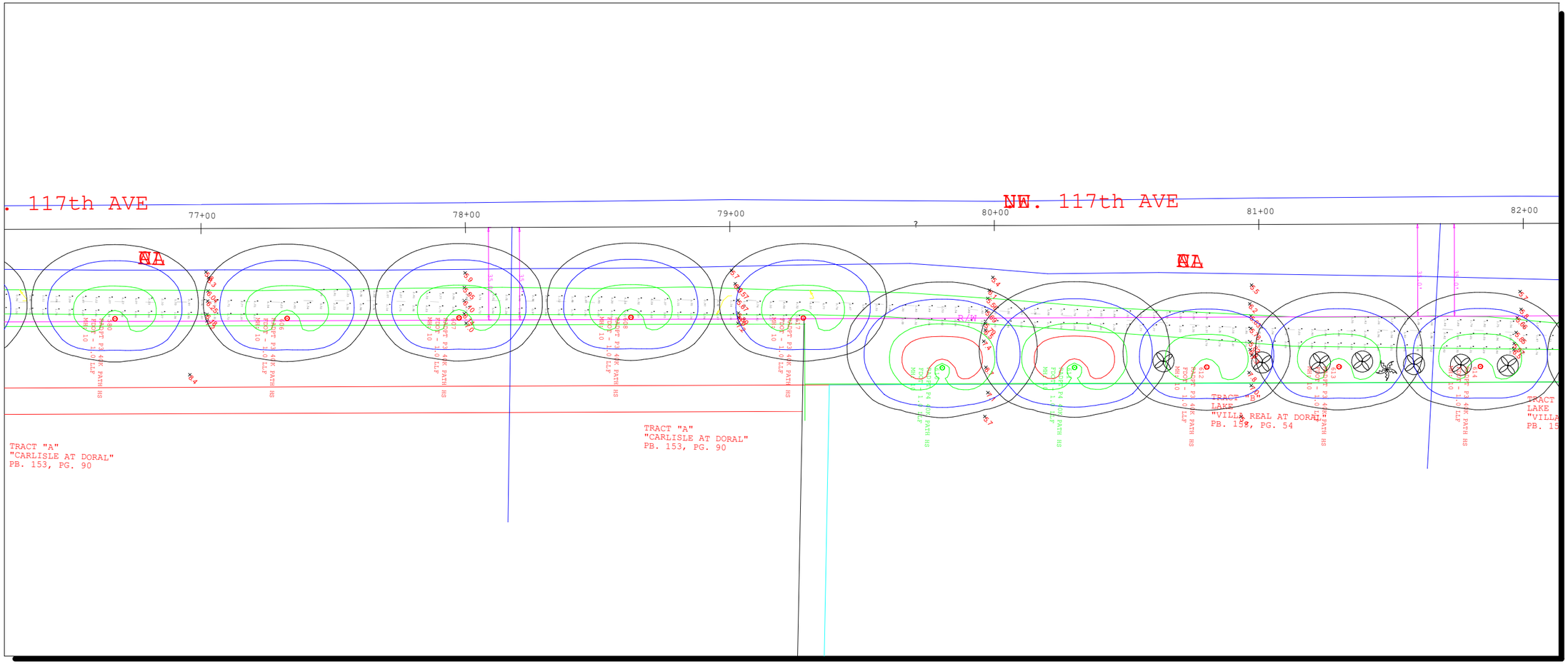
#	Date	Comments

Revisions

Drawn By: JMC
Checked By: LMM
Date:8/16/2024
Scale: NTS

City of Doral Trail Lighting Improvements

Photometric Analysis



View_1:Turnpike Trail 4 - 3

Luminaire Schedule									
Project: Turnpike Trail									
Symbol	Qty	Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Watts	Arm	IES Class
	2	Existing Path Lighting	Single	RADPT P3 40K PATH HS	1.000	5197	53.6184	0	Type IV
	163	RADPT P3 40K PATH HS	Single	RADPT P3 40K PATH HS	1.000	5197	53.6184	0	Type IV
	8	RADPT P4 40K PATH HS	Single	RADPT P4 40K PATH HS	1.000	8258	85.6782	0	Type IV

Calculation Summary							
Project: Turnpike Trail							
Label	**CalcType**	**Units**	**Avg**	**Max**	**Min**	**Avg/Min**	**Max/Min**
Light Tresspass 4_Ill_Seg1	Obtrusive - Ill	Fc	0.38	4.0	0.0	N.A.	N.A.
Light Tresspass 4_Ill_Seg2	Obtrusive - Ill	Fc	0.57	9.9	0.0	N.A.	N.A.
Light Tresspass 5_III_Seg 5	Obtrusive - Ill	Fc	0.72	N.A.	N.A.	N.A.	N.A.
Light Tresspass 5_Ill_Seg1	Obtrusive - Ill	Fc	0.18	2.3	0.0	N.A.	N.A.
Light Tresspass 5_Ill_Seg2	Obtrusive - Ill	Fc	0.28	4.3	0.0	N.A.	N.A.
Light Tresspass 5_Ill_Seg3	Obtrusive - Ill	Fc	0.37	2.7	0.0	N.A.	N.A.
Turnpike Trail 1	Illuminance	Fc	2.50	4.76	0.76	3.29	6.26
Turnpike Trail 2	Illuminance	Fc	2.55	4.84	0.73	3.49	6.63
Turnpike Trail 3	Illuminance	Fc	2.58	4.84	0.72	3.58	6.72
Turnpike Trail 4	Illuminance	Fc	2.50	6.13	0.79	3.16	7.76
Turnpike Trail 5	Illuminance	Fc	2.52	4.92	0.79	3.19	6.23

LOCHNER

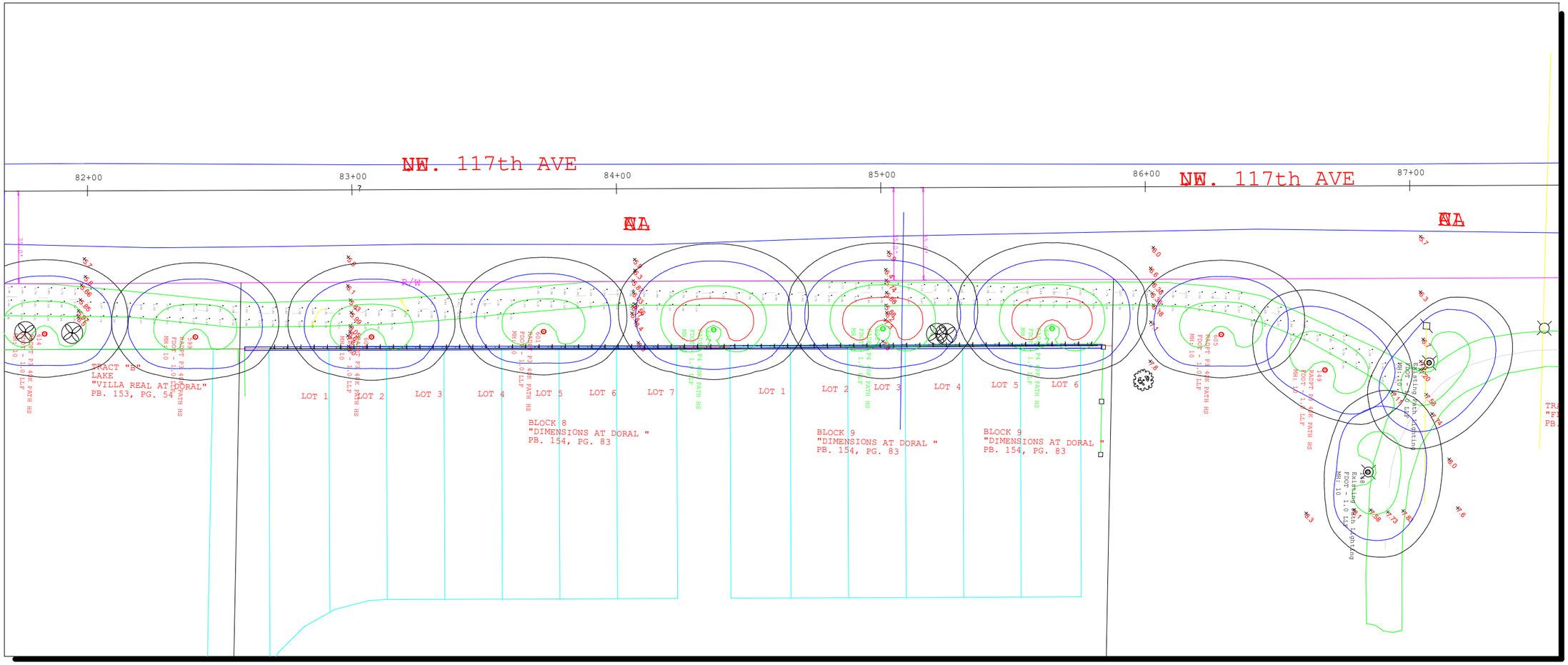
#	Date	Comments

Revisions

Drawn By: JMC
Checked By: LMM
Date:8/16/2024
Scale: NTS

City of Doral Trail Lighting Improvements

Photometric Analysis



View_1:Turnpike Trail 4 - 4

Luminaire Schedule									
Project: Turnpike Trail									
Symbol	Qty	Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Watts	Arm	IES Class
	2	Existing Path Lighting	Single	RADPT P3 40K PATH HS	1.000	5197	53.6184	0	Type IV
	163	RADPT P3 40K PATH HS	Single	RADPT P3 40K PATH HS	1.000	5197	53.6184	0	Type IV
	8	RADPT P4 40K PATH HS	Single	RADPT P4 40K PATH HS	1.000	8258	85.6782	0	Type IV

Calculation Summary							
Project: Turnpike Trail							
Label	**CalcType**	**Units**	**Avg**	**Max**	**Min**	**Avg/Min**	**Max/Min**
Light Tresspass 4_Ill_Seg1	Obtrusive - Ill	Fc	0.38	4.0	0.0	N.A.	N.A.
Light Tresspass 4_Ill_Seg2	Obtrusive - Ill	Fc	0.57	9.9	0.0	N.A.	N.A.
Light Tresspass 5_III_Seg 5	Obtrusive - Ill	Fc	0.72	N.A.	N.A.	N.A.	N.A.
Light Tresspass 5_Ill_Seg1	Obtrusive - Ill	Fc	0.18	2.3	0.0	N.A.	N.A.
Light Tresspass 5_Ill_Seg2	Obtrusive - Ill	Fc	0.28	4.3	0.0	N.A.	N.A.
Light Tresspass 5_Ill_Seg3	Obtrusive - Ill	Fc	0.37	2.7	0.0	N.A.	N.A.
Turnpike Trail 1	Illuminance	Fc	2.50	4.76	0.76	3.29	6.26
Turnpike Trail 2	Illuminance	Fc	2.55	4.84	0.73	3.49	6.63
Turnpike Trail 3	Illuminance	Fc	2.58	4.84	0.72	3.58	6.72
Turnpike Trail 4	Illuminance	Fc	2.50	6.13	0.79	3.16	7.76
Turnpike Trail 5	Illuminance	Fc	2.52	4.92	0.79	3.19	6.23

LOCHNER

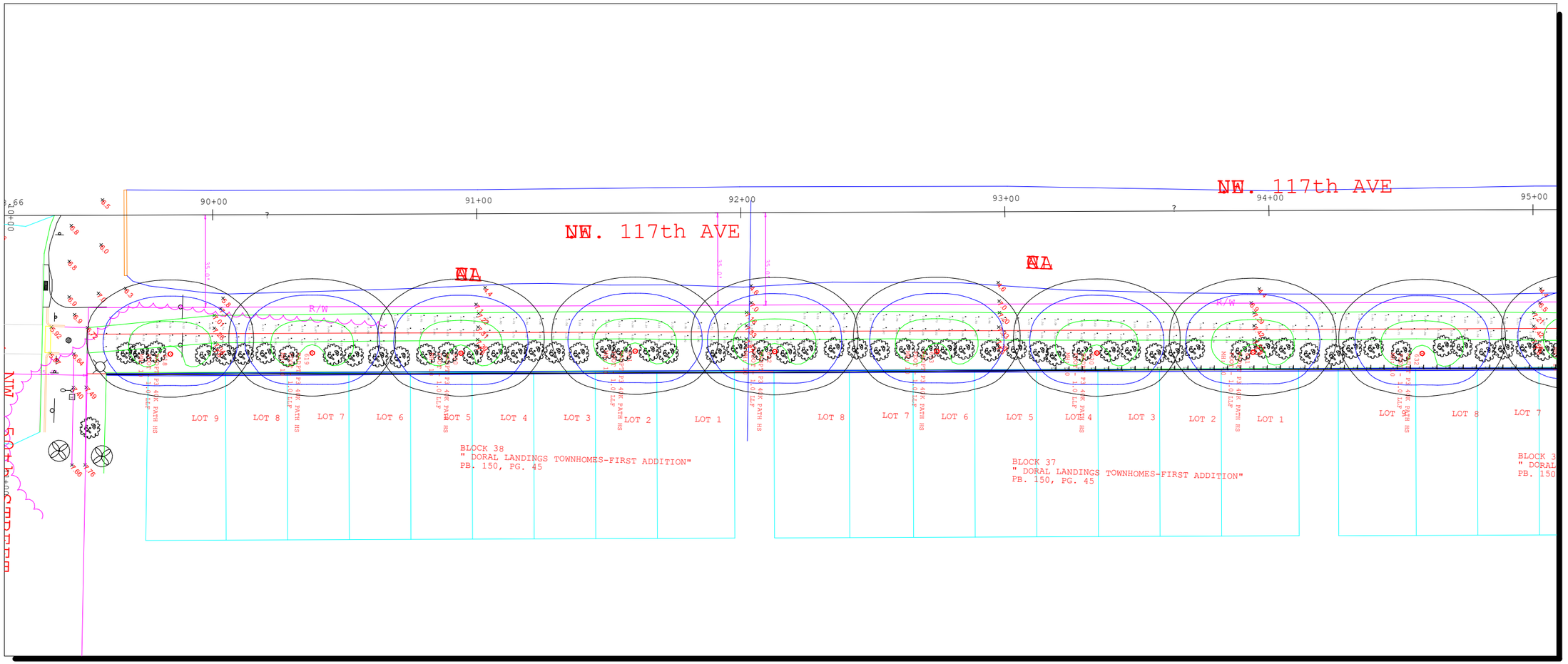
#	Date	Comments

Revisions

Drawn By: JMC
Checked By: LMM
Date:8/16/2024
Scale: NTS

City of Doral Trail Lighting Improvements

Photometric Analysis



View_1:Turnpike Trail 5 - 1

Luminaire Schedule									
Project: Turnpike Trail									
Symbol	Qty	Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Watts	Arm	IES Class
	2	Existing Path Lighting	Single	RADPT P3 40K PATH HS	1.000	5197	53.6184	0	Type IV
	163	RADPT P3 40K PATH HS	Single	RADPT P3 40K PATH HS	1.000	5197	53.6184	0	Type IV
	8	RADPT P4 40K PATH HS	Single	RADPT P4 40K PATH HS	1.000	8258	85.6782	0	Type IV

Calculation Summary							
Project: Turnpike Trail							
Label	**CalcType**	**Units**	**Avg**	**Max**	**Min**	**Avg/Min**	**Max/Min**
Light Tresspass 4_Ill_Seg1	Obtrusive - Ill	Fc	0.38	4.0	0.0	N.A.	N.A.
Light Tresspass 4_Ill_Seg2	Obtrusive - Ill	Fc	0.57	9.9	0.0	N.A.	N.A.
Light Tresspass 5_III_Seg 5	Obtrusive - Ill	Fc	0.72	N.A.	N.A.	N.A.	N.A.
Light Tresspass 5_Ill_Seg1	Obtrusive - Ill	Fc	0.18	2.3	0.0	N.A.	N.A.
Light Tresspass 5_Ill_Seg2	Obtrusive - Ill	Fc	0.28	4.3	0.0	N.A.	N.A.
Light Tresspass 5_Ill_Seg3	Obtrusive - Ill	Fc	0.37	2.7	0.0	N.A.	N.A.
Turnpike Trail 1	Illuminance	Fc	2.50	4.76	0.76	3.29	6.26
Turnpike Trail 2	Illuminance	Fc	2.55	4.84	0.73	3.49	6.63
Turnpike Trail 3	Illuminance	Fc	2.58	4.84	0.72	3.58	6.72
Turnpike Trail 4	Illuminance	Fc	2.50	6.13	0.79	3.16	7.76
Turnpike Trail 5	Illuminance	Fc	2.52	4.92	0.79	3.19	6.23

LOCHNER

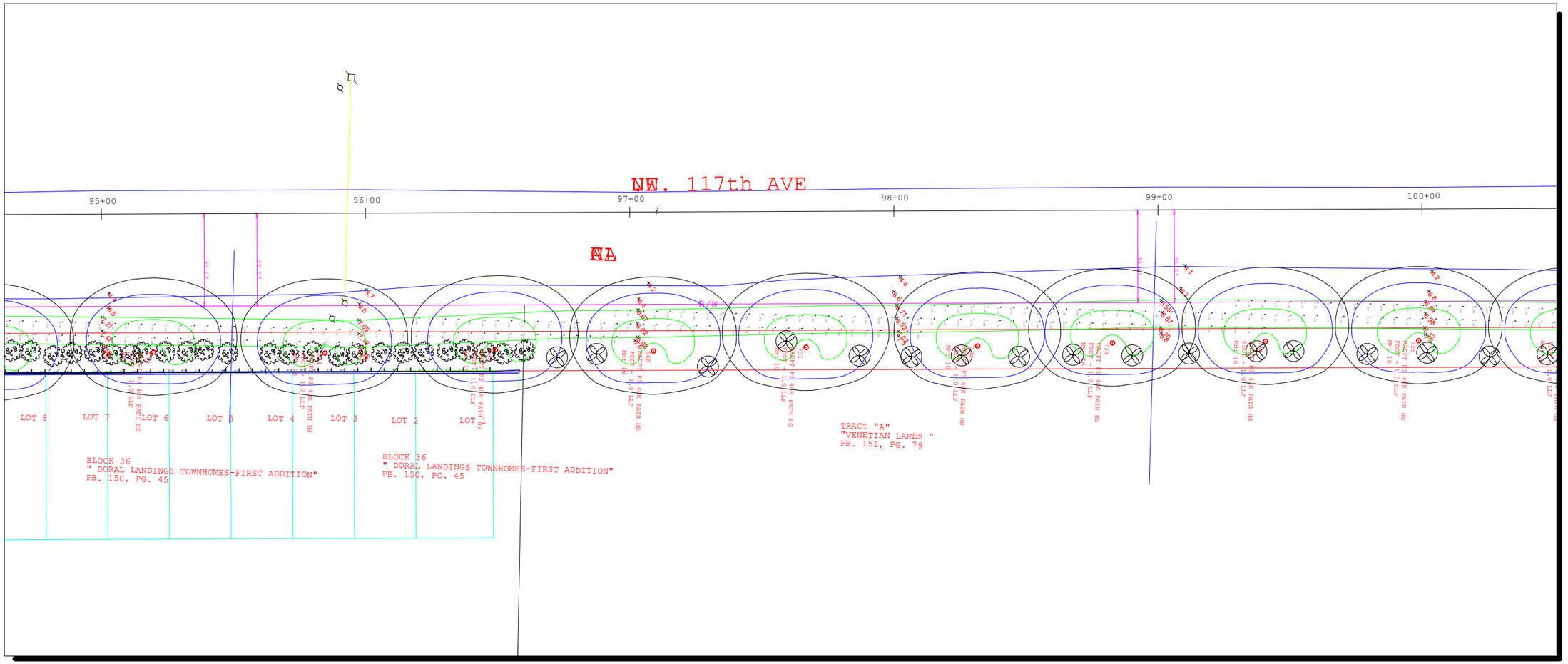
#	Date	Comments

Revisions

Drawn By: JMC
Checked By: LMM
Date:8/16/2024
Scale: NTS

City of Doral Trail Lighting Improvements

Photometric Analysis



View_1:Turnpike Trail 5 - 2

Luminaire Schedule									
Project: Turnpike Trail									
Symbol	Qty	Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Watts	Arm	IES Class
	2	Existing Path Lighting	Single	RADPT P3 40K PATH HS	1.000	5197	53.6184	0	Type IV
	163	RADPT P3 40K PATH HS	Single	RADPT P3 40K PATH HS	1.000	5197	53.6184	0	Type IV
	8	RADPT P4 40K PATH HS	Single	RADPT P4 40K PATH HS	1.000	8258	85.6782	0	Type IV

Calculation Summary							
Project: Turnpike Trail							
Label	**CalcType**	**Units**	**Avg**	**Max**	**Min**	**Avg/Min**	**Max/Min**
Light Tresspass 4_Ill_Seg1	Obtrusive - Ill	Fc	0.38	4.0	0.0	N.A.	N.A.
Light Tresspass 4_Ill_Seg2	Obtrusive - Ill	Fc	0.57	9.9	0.0	N.A.	N.A.
Light Tresspass 5_III_Seg 5	Obtrusive - Ill	Fc	0.72	N.A.	N.A.	N.A.	N.A.
Light Tresspass 5_Ill_Seg1	Obtrusive - Ill	Fc	0.18	2.3	0.0	N.A.	N.A.
Light Tresspass 5_Ill_Seg2	Obtrusive - Ill	Fc	0.28	4.3	0.0	N.A.	N.A.
Light Tresspass 5_Ill_Seg3	Obtrusive - Ill	Fc	0.37	2.7	0.0	N.A.	N.A.
Turnpike Trail 1	Illuminance	Fc	2.50	4.76	0.76	3.29	6.26
Turnpike Trail 2	Illuminance	Fc	2.55	4.84	0.73	3.49	6.63
Turnpike Trail 3	Illuminance	Fc	2.58	4.84	0.72	3.58	6.72
Turnpike Trail 4	Illuminance	Fc	2.50	6.13	0.79	3.16	7.76
Turnpike Trail 5	Illuminance	Fc	2.52	4.92	0.79	3.19	6.23

LOCHNER

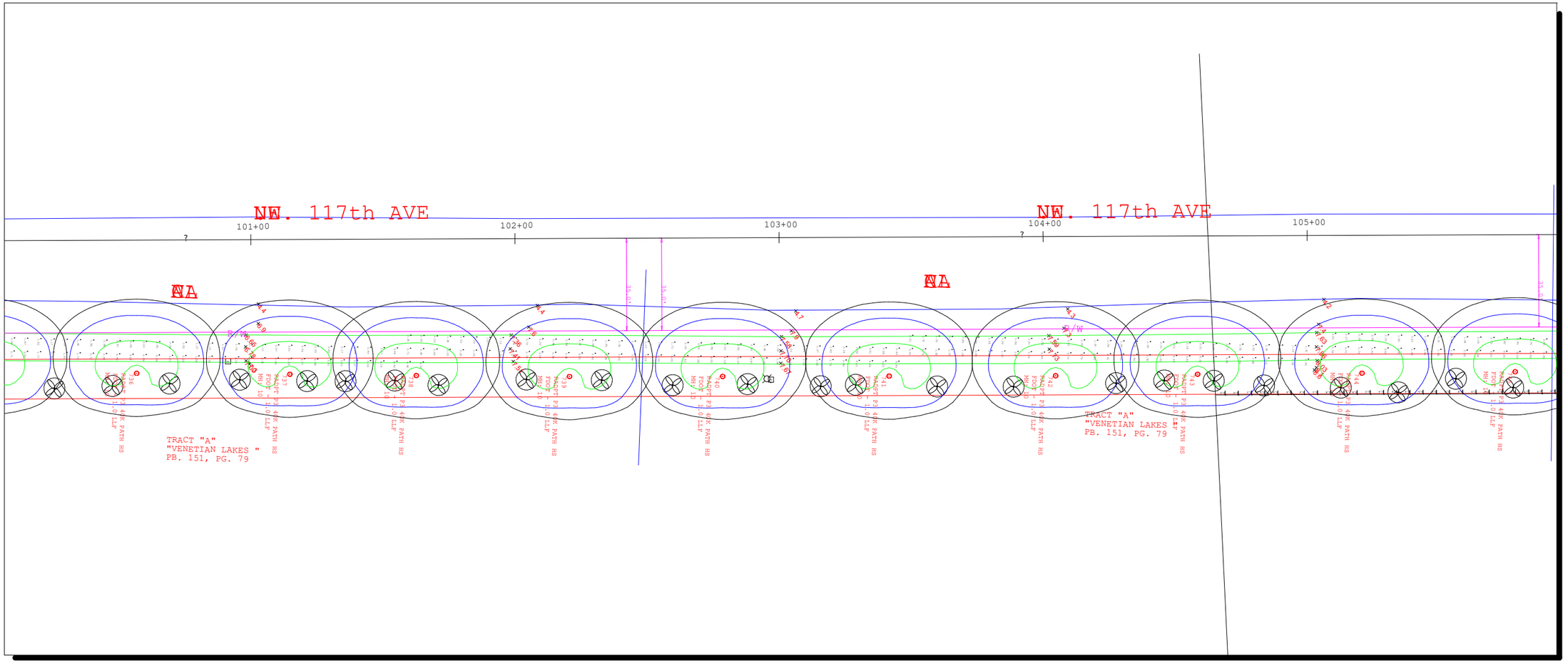
#	Date	Comments

Revisions

Drawn By: JMC
Checked By: LMM
Date:8/16/2024
Scale: NTS

City of Doral Trail Lighting Improvements

Photometric Analysis



View_1:Turnpike Trail 5 - 3

Luminaire Schedule									
Project: Turnpike Trail									
Symbol	Qty	Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Watts	Arm	IES Class
	2	Existing Path Lighting	Single	RADPT P3 40K PATH HS	1.000	5197	53.6184	0	Type IV
	163	RADPT P3 40K PATH HS	Single	RADPT P3 40K PATH HS	1.000	5197	53.6184	0	Type IV
	8	RADPT P4 40K PATH HS	Single	RADPT P4 40K PATH HS	1.000	8258	85.6782	0	Type IV

Calculation Summary							
Project: Turnpike Trail							
Label	**CalcType**	**Units**	**Avg**	**Max**	**Min**	**Avg/Min**	**Max/Min**
Light Tresspass 4_Ill_Seg1	Obtrusive - Ill	Fc	0.38	4.0	0.0	N.A.	N.A.
Light Tresspass 4_Ill_Seg2	Obtrusive - Ill	Fc	0.57	9.9	0.0	N.A.	N.A.
Light Tresspass 5_III_Seg 5	Obtrusive - Ill	Fc	0.72	N.A.	N.A.	N.A.	N.A.
Light Tresspass 5_Ill_Seg1	Obtrusive - Ill	Fc	0.18	2.3	0.0	N.A.	N.A.
Light Tresspass 5_Ill_Seg2	Obtrusive - Ill	Fc	0.28	4.3	0.0	N.A.	N.A.
Light Tresspass 5_Ill_Seg3	Obtrusive - Ill	Fc	0.37	2.7	0.0	N.A.	N.A.
Turnpike Trail 1	Illuminance	Fc	2.50	4.76	0.76	3.29	6.26
Turnpike Trail 2	Illuminance	Fc	2.55	4.84	0.73	3.49	6.63
Turnpike Trail 3	Illuminance	Fc	2.58	4.84	0.72	3.58	6.72
Turnpike Trail 4	Illuminance	Fc	2.50	6.13	0.79	3.16	7.76
Turnpike Trail 5	Illuminance	Fc	2.52	4.92	0.79	3.19	6.23

LOCHNER

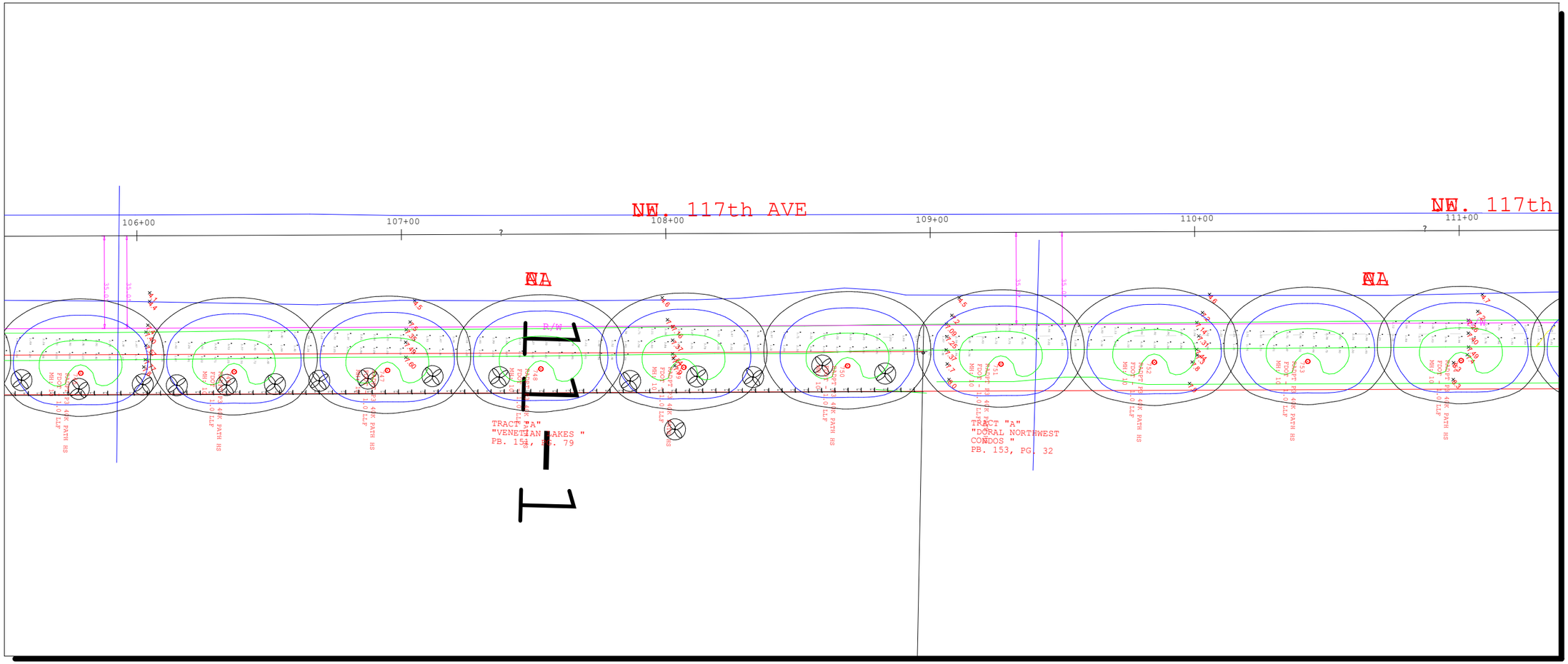
#	Date	Comments

Revisions

Drawn By: JMC
Checked By: LMM
Date:8/16/2024
Scale: NTS

City of Doral Trail Lighting Improvements

Photometric Analysis



View_1:Turnpike Trail 5 - 4

Luminaire Schedule

Project: Turnpike Trail

Symbol	Qty	Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Watts	Arm	IES Class
	2	Existing Path Lighting	Single	RADPT P3 40K PATH HS	1.000	5197	53.6184	0	Type IV
	163	RADPT P3 40K PATH HS	Single	RADPT P3 40K PATH HS	1.000	5197	53.6184	0	Type IV
	8	RADPT P4 40K PATH HS	Single	RADPT P4 40K PATH HS	1.000	8258	85.6782	0	Type IV

Calculation Summary

Project: Turnpike Trail

Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Light Tresspass 4_Ill_Seg1	Obtrusive - Ill	Fc	0.38	4.0	0.0	N.A.	N.A.
Light Tresspass 4_Ill_Seg2	Obtrusive - Ill	Fc	0.57	9.9	0.0	N.A.	N.A.
Light Tresspass 5_III_Seg 5	Obtrusive - Ill	Fc	0.72	N.A.	N.A.	N.A.	N.A.
Light Tresspass 5_Ill_Seg1	Obtrusive - Ill	Fc	0.18	2.3	0.0	N.A.	N.A.
Light Tresspass 5_Ill_Seg2	Obtrusive - Ill	Fc	0.28	4.3	0.0	N.A.	N.A.
Light Tresspass 5_Ill_Seg3	Obtrusive - Ill	Fc	0.37	2.7	0.0	N.A.	N.A.
Turnpike Trail 1	Illuminance	Fc	2.50	4.76	0.76	3.29	6.26
Turnpike Trail 2	Illuminance	Fc	2.55	4.84	0.73	3.49	6.63
Turnpike Trail 3	Illuminance	Fc	2.58	4.84	0.72	3.58	6.72
Turnpike Trail 4	Illuminance	Fc	2.50	6.13	0.79	3.16	7.76
Turnpike Trail 5	Illuminance	Fc	2.52	4.92	0.79	3.19	6.23

LOCHNER

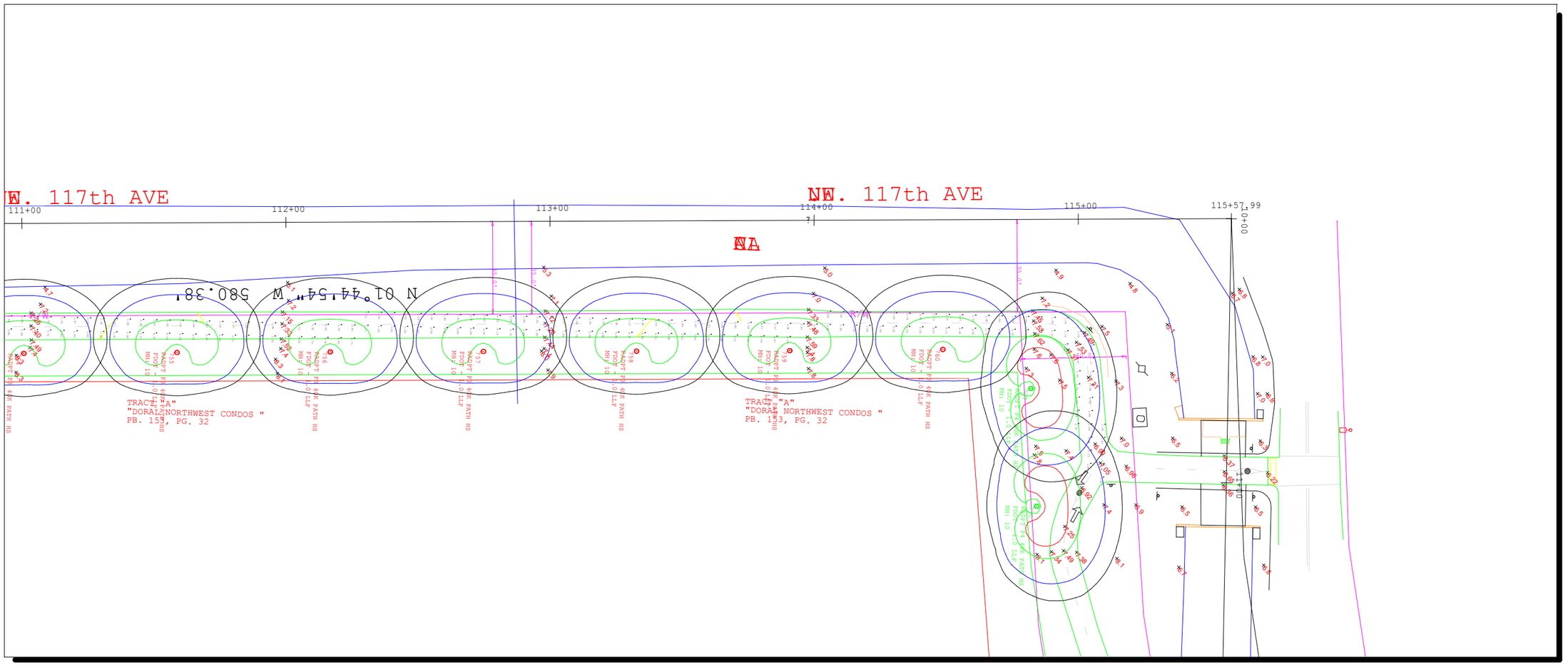
#	Date	Comments

Revisions

Drawn By: JMC
Checked By: LMM
Date:8/16/2024
Scale: NTS

City of Doral Trail Lighting Improvements

Photometric Analysis



View_1:Turnpike Trail 5 - 5

Luminaire Schedule									
Project: Turnpike Trail									
Symbol	Qty	Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Watts	Arm	IES Class
⊙	2	Existing Path Lighting	Single	RADPT P3 40K PATH HS	1.000	5197	53.6184	0	Type IV
⊙	163	RADPT P3 40K PATH HS	Single	RADPT P3 40K PATH HS	1.000	5197	53.6184	0	Type IV
⊙	8	RADPT P4 40K PATH HS	Single	RADPT P4 40K PATH HS	1.000	8258	85.6782	0	Type IV

Calculation Summary							
Project: Turnpike Trail							
Label	**CalcType**	**Units**	**Avg**	**Max**	**Min**	**Avg/Min**	**Max/Min**
Light Tresspass 4_Ill_Seg1	Obtrusive - Ill	Fc	0.38	4.0	0.0	N.A.	N.A.
Light Tresspass 4_Ill_Seg2	Obtrusive - Ill	Fc	0.57	9.9	0.0	N.A.	N.A.
Light Tresspass 5_III_Seg 5	Obtrusive - Ill	Fc	0.72	N.A.	N.A.	N.A.	N.A.
Light Tresspass 5_Ill_Seg1	Obtrusive - Ill	Fc	0.18	2.3	0.0	N.A.	N.A.
Light Tresspass 5_Ill_Seg2	Obtrusive - Ill	Fc	0.28	4.3	0.0	N.A.	N.A.
Light Tresspass 5_Ill_Seg3	Obtrusive - Ill	Fc	0.37	2.7	0.0	N.A.	N.A.
Turnpike Trail 1	Illuminance	Fc	2.50	4.76	0.76	3.29	6.26
Turnpike Trail 2	Illuminance	Fc	2.55	4.84	0.73	3.49	6.63
Turnpike Trail 3	Illuminance	Fc	2.58	4.84	0.72	3.58	6.72
Turnpike Trail 4	Illuminance	Fc	2.50	6.13	0.79	3.16	7.76
Turnpike Trail 5	Illuminance	Fc	2.52	4.92	0.79	3.19	6.23

LOCHNER

#	Date	Comments

Revisions

Drawn By: JMC
Checked By: LMM
Date:8/16/2024
Scale: NTS

City of Doral Trail Lighting Improvements

Photometric Analysis

Luminaire Location Summary

LumNo	Label	Insertion Point X	Insertion Point Y	MH	Orient	Tilt
147	Existing Path Lighting	858299.599	540110.105	10	51.061	0
148	Existing Path Lighting	858341.49	540088.074	10	84.864	0
149	RADPT P3 40K PATH HS	858303.33	540070.803	10	153.36	0
215	RADPT P3 40K PATH HS	858422.836	535267.621	10	181.583	0
216	RADPT P3 40K PATH HS	858424.325	535206.583	10	181.557	0
217	RADPT P3 40K PATH HS	858425.933	535145.306	10	181.723	0
218	RADPT P3 40K PATH HS	858428.027	535077.339	10	181.918	0
219	RADPT P3 40K PATH HS	858430.304	535009.377	10	181.918	0
220	RADPT P3 40K PATH HS	858432.537	534941.413	10	181.76	0
221	RADPT P3 40K PATH HS	858434.625	534873.445	10	181.76	0
222	RADPT P3 40K PATH HS	858436.648	534805.475	10	181.673	0
223	RADPT P3 40K PATH HS	858438.633	534737.504	10	181.673	0
224	RADPT P3 40K PATH HS	858440.746	534669.537	10	181.806	0
225	RADPT P3 40K PATH HS	858442.889	534601.571	10	181.806	0
226	RADPT P3 40K PATH HS	858444.905	534533.601	10	181.503	0
227	RADPT P3 40K PATH HS	858446.689	534465.625	10	181.503	0
228	RADPT P3 40K PATH HS	858448.666	534397.654	10	181.865	0
229	RADPT P3 40K PATH HS	858450.879	534329.69	10	181.865	0
230	RADPT P3 40K PATH HS	858453.088	534261.726	10	181.712	0
231	RADPT P3 40K PATH HS	858455.12	534193.757	10	181.712	0
232	RADPT P3 40K PATH HS	858457.151	534125.787	10	181.712	0
233	RADPT P3 40K PATH HS	858459.183	534057.817	10	181.712	0
234	RADPT P3 40K PATH HS	858461.215	533989.847	10	181.712	0
235	RADPT P3 40K PATH HS	858463.246	533921.878	10	181.712	0
236	RADPT P3 40K PATH HS	858465.355	533853.91	10	181.826	0
237	RADPT P3 40K PATH HS	858467.522	533785.945	10	181.826	0
238	RADPT P3 40K PATH HS	858469.69	533717.98	10	181.826	0
239	RADPT P3 40K PATH HS	858472.12	533650.024	10	182.254	0
240	RADPT P3 40K PATH HS	858474.131	533582.053	10	181.693	0
241	RADPT P3 40K PATH HS	858476.14	533514.083	10	181.693	0
242	RADPT P3 40K PATH HS	858478.149	533446.113	10	181.693	0
243	RADPT P3 40K PATH HS	858480.142	533378.142	10	181.678	0
244	RADPT P3 40K PATH HS	858482.133	533310.171	10	181.678	0
245	RADPT P3 40K PATH HS	858484.315	533242.206	10	181.842	0
246	RADPT P3 40K PATH HS	858486.501	533174.241	10	181.842	0
247	RADPT P3 40K PATH HS	858488.666	533106.276	10	181.814	0
248	RADPT P3 40K PATH HS	858490.818	533038.31	10	181.814	0
249	RADPT P3 40K PATH HS	858492.552	532985.595	10	181.638	0
250	RADPT P3 40K PATH HS	858494.163	532927.859	10	181.638	0
251	RADPT P3 40K PATH HS	858496.277	532872.317	10	181.638	0
258	RADPT P3 40K PATH HS	858509.8	532471.339	10	198.703	0
338	RADPT P3 40K PATH HS	858961.098	532446.315	10	270.112	0
339	RADPT P3 40K PATH HS	858901.098	532446.198	10	270.112	0
340	RADPT P3 40K PATH HS	858841.098	532446.081	10	270.112	0
341	RADPT P3 40K PATH HS	858781.098	532445.964	10	270.112	0
342	RADPT P3 40K PATH HS	858721.099	532445.847	10	270.112	0
343	RADPT P3 40K PATH HS	858661.099	532445.731	10	270.112	0
344	RADPT P3 40K PATH HS	858601.099	532445.614	10	270.112	0
345	RADPT P3 40K PATH HS	858541.099	532445.497	10	270.112	0
346	RADPT P3 40K PATH HS	858505.945	532537.011	10	181.771	0
347	RADPT P3 40K PATH HS	858503.905	532602.98	10	181.771	0
348	RADPT P3 40K PATH HS	858501.831	532668.948	10	181.866	0
349	RADPT P3 40K PATH HS	858499.909	532734.919	10	181.336	0
350	RADPT P3 40K PATH HS	858498.647	532796.648	10	181.245	0
506	RADPT P3 40K PATH HS	858420.895	535348.231	10	181.75	0
507	RADPT P3 40K PATH HS	858419.185	535404.205	10	181.75	0
508	RADPT P3 40K PATH HS	858417.402	535464.407	10	181.718	0
509	RADPT P3 40K PATH HS	858415.817	535516.155	10	181.718	0
510	RADPT P3 40K PATH HS	858414.138	535572.13	10	181.718	0
511	RADPT P3 40K PATH HS	858412.417	535628.103	10	181.782	0

Luminaire Location Summary

LumNo	Label	Insertion Point X	Insertion Point Y	Z	Orient	Tilt
512	RADPT P3 40K PATH HS	858410.676	535684.076	10	181.782	0
513	RADPT P3 40K PATH HS	858408.935	535740.049	10	181.782	0
514	RADPT P3 40K PATH HS	858407.071	535790.445	10	181.75	0
515	RADPT P3 40K PATH HS	858405.508	535850.969	10	181.75	0
516	RADPT P3 40K PATH HS	858403.798	535907.971	10	181.75	0
517	RADPT P3 40K PATH HS	858401.858	535966.926	10	181.75	0
518	RADPT P3 40K PATH HS	858399.919	536027.027	10	181.75	0
519	RADPT P3 40K PATH HS	858398.669	536080.846	10	181.75	0
520	RADPT P3 40K PATH HS	858396.781	536141.365	10	181.743	0
521	RADPT P3 40K PATH HS	858395.078	536197.339	10	181.743	0
522	RADPT P3 40K PATH HS	858393.492	536252.609	10	181.743	0
523	RADPT P3 40K PATH HS	858391.946	536295.748	10	181.743	0
524	RADPT P3 40K PATH HS	858390.243	536351.723	10	181.743	0
525	RADPT P3 40K PATH HS	858388.54	536407.697	10	181.743	0
526	RADPT P3 40K PATH HS	858386.28	536473.445	10	181.759	0
527	RADPT P3 40K PATH HS	858384.561	536529.418	10	181.759	0
528	RADPT P3 40K PATH HS	858382.842	536585.392	10	181.759	0
529	RADPT P3 40K PATH HS	858381.582	536635.632	10	181.759	0
530	RADPT P3 40K PATH HS	858380.149	536687.592	10	181.759	0
531	RADPT P3 40K PATH HS	858377.537	536747.556	10	182.496	0
532	RADPT P3 40K PATH HS	858374.811	536809.237	10	182.496	0
533	RADPT P3 40K PATH HS	858373.268	536866.648	10	181.334	0
534	RADPT P3 40K PATH HS	858372.25	536915.465	10	181.334	0
535	RADPT P3 40K PATH HS	858370.946	536971.45	10	181.334	0
536	RADPT P3 40K PATH HS	858369.604	537027.433	10	181.75	0
537	RADPT P3 40K PATH HS	858367.895	537083.407	10	181.75	0
538	RADPT P3 40K PATH HS	858366.185	537139.381	10	181.75	0
539	RADPT P3 40K PATH HS	858364.475	537195.355	10	181.75	0
540	RADPT P3 40K PATH HS	858362.765	537251.329	10	181.75	0
541	RADPT P3 40K PATH HS	858361.056	537307.303	10	181.75	0
542	RADPT P3 40K PATH HS	858359.346	537363.277	10	181.75	0
543	RADPT P3 40K PATH HS	858357.636	537419.251	10	181.75	0
544	RADPT P3 40K PATH HS	858355.927	537475.225	10	181.75	0
545	RADPT P3 40K PATH HS	858354.293	537531.201	10	181.646	0
547	RADPT P4 40K PATH HS	858347.872	537963.157	10	182.531	0
548	RADPT P3 40K PATH HS	858337.631	538032.042	10	195.312	0
553	RADPT P3 40K PATH HS	858328.921	538095.523	10	187.586	0
566	RADPT P3 40K PATH HS	858325.921	538160.553	10	181.704	0
567	RADPT P3 40K PATH HS	858323.99	538225.524	10	181.669	0
568	RADPT P3 40K PATH HS	858322.097	538290.497	10	181.669	0
569	RADPT P3 40K PATH HS	858320.125	538355.467	10	181.786	0
570	RADPT P3 40K PATH HS	858318.098	538420.436	10	181.786	0
571	RADPT P3 40K PATH HS	858316.072	538485.404	10	181.786	0
572	RADPT P3 40K PATH HS	858314.066	538550.373	10	181.706	0
573	RADPT P3 40K PATH HS	858312.131	538615.345	10	181.706	0
574	RADPT P3 40K PATH HS	858310.192	538680.316	10	181.759	0
575	RADPT P3 40K PATH HS	858308.197	538745.285	10	181.759	0
576	RADPT P3 40K PATH HS	858306.203	538810.255	10	181.757	0
577	RADPT P3 40K PATH HS	858304.21	538875.225	10	181.757	0
578	RADPT P3 40K PATH HS	858302.222	538940.194	10	181.735	0
579	RADPT P3 40K PATH HS	858300.254	539005.164	10	181.735	0
580	RADPT P3 40K PATH HS	858298.251	539069.878	10	181.468	0
599	RADPT P3 40K PATH HS	858302.225	539643.505	10	181.785	0
600	RADPT P3 40K PATH HS	858300.462	539710.096	10	181.364	0
601	RADPT P3 40K PATH HS	858296.679	539775.073	10	181.826	0
602	RADPT P4 40K PATH HS	858294.247	539839.344	10	181.833	0
603	RADPT P4 40K PATH HS	858292.2	539903.312	10	181.833	0
604	RADPT P4 40K PATH HS	858290.408	539967.286	10	181.294	0
605	RADPT P3 40K PATH HS	858290.981	540031.269	10	181.468	0
606	RADPT P3 40K PATH HS	858296.37	539134.955	10	181.707	0

LOCHNER

#	Date	Comments

Revisions

Drawn By: JMC
Checked By: LMM
Date:8/16/2024
Scale: NTS

City of Doral Trail Lighting Improvements

Photometric Analysis

Luminaire Location Summary						
		Insertion Point				
LumNo	Label	X	Y	MH	Orient	Tilt
607	RADPT P3 40K PATH HS	858294.434	539199.927	10	181.707	0
608	RADPT P3 40K PATH HS	858292.498	539264.898	10	181.707	0
610	RADPT P4 40K PATH HS	858308.455	539383.115	10	181.676	0
611	RADPT P4 40K PATH HS	858306.993	539433.094	10	181.676	0
612	RADPT P3 40K PATH HS	858305.53	539483.072	10	181.676	0
613	RADPT P3 40K PATH HS	858304.068	539533.051	10	181.676	0
614	RADPT P3 40K PATH HS	858302.581	539586.468	10	181.732	0
617	RADPT P3 40K PATH HS	858291.032	539330.053	10	181.707	0
618	RADPT P3 40K PATH HS	858276.788	540386.249	10	181.492	0
619	RADPT P3 40K PATH HS	858274.928	540439.95	10	181.492	0
620	RADPT P3 40K PATH HS	858273.496	540496.254	10	181.492	0
621	RADPT P3 40K PATH HS	858271.011	540562.185	10	181.372	0
622	RADPT P3 40K PATH HS	858269.76	540615.007	10	181.372	0
623	RADPT P3 40K PATH HS	858268.041	540676.402	10	181.372	0
630	RADPT P3 40K PATH HS	858267.068	540736.961	10	181.147	0
631	RADPT P3 40K PATH HS	858265.225	540796.049	10	181.577	0
632	RADPT P3 40K PATH HS	858263.943	540860.087	10	181.204	0
633	RADPT P3 40K PATH HS	858260.136	540921.697	10	181.204	0
634	RADPT P3 40K PATH HS	858258.739	540986.566	10	183.188	0
635	RADPT P3 40K PATH HS	858255.797	541051.087	10	183.814	0
668	RADPT P3 40K PATH HS	858254.676	541110.958	10	182.433	0
729	RADPT P4 40K PATH HS	858211.883	542883.491	10	96.819	0
730	RADPT P4 40K PATH HS	858256.326	542886.859	10	92.718	0
731	RADPT P3 40K PATH HS	858251.726	541168.666	10	182.702	0
732	RADPT P3 40K PATH HS	858249.508	541233.581	10	182.126	0
733	RADPT P3 40K PATH HS	858246.99	541284.568	10	182.126	0
734	RADPT P3 40K PATH HS	858244.839	541342.528	10	182.126	0
735	RADPT P3 40K PATH HS	858243.031	541400.498	10	181.191	0
736	RADPT P3 40K PATH HS	858241.825	541458.486	10	181.191	0
737	RADPT P3 40K PATH HS	858240.619	541516.473	10	181.191	0
738	RADPT P3 40K PATH HS	858239.873	541564.368	10	181.191	0
739	RADPT P3 40K PATH HS	858238.666	541622.356	10	181.554	0
740	RADPT P3 40K PATH HS	858237.093	541680.334	10	181.554	0
741	RADPT P3 40K PATH HS	858235.29	541743.359	10	181.554	0
742	RADPT P3 40K PATH HS	858233.486	541806.384	10	181.554	0
743	RADPT P3 40K PATH HS	858231.474	541860.092	10	182.036	0
744	RADPT P3 40K PATH HS	858229.414	541922.312	10	182.036	0
745	RADPT P3 40K PATH HS	858227.353	541980.275	10	182.036	0
746	RADPT P3 40K PATH HS	858225.277	542038.238	10	182.052	0
747	RADPT P3 40K PATH HS	858223.2	542096.201	10	182.052	0
748	RADPT P3 40K PATH HS	858221.123	542154.163	10	182.052	0
749	RADPT P3 40K PATH HS	858219.045	542208.163	10	182.052	0
750	RADPT P3 40K PATH HS	858216.87	542270.085	10	182.191	0
751	RADPT P3 40K PATH HS	858214.653	542328.043	10	182.191	0
752	RADPT P3 40K PATH HS	858212.436	542386.001	10	182.191	0
753	RADPT P3 40K PATH HS	858210.574	542443.971	10	181.84	0
754	RADPT P3 40K PATH HS	858208.712	542501.941	10	181.84	0
755	RADPT P3 40K PATH HS	858206.85	542559.911	10	181.84	0
756	RADPT P3 40K PATH HS	858205.065	542617.884	10	181.675	0
757	RADPT P3 40K PATH HS	858203.37	542675.859	10	181.675	0
758	RADPT P3 40K PATH HS	858201.675	542733.835	10	181.675	0
759	RADPT P3 40K PATH HS	858199.955	542791.809	10	181.971	0
760	RADPT P3 40K PATH HS	858197.96	542849.775	10	181.971	0

Luminaire Location Summary						
		Insertion Point				
LumNo	Label	X	Y	Z	Orient	Tilt

LOCHNER

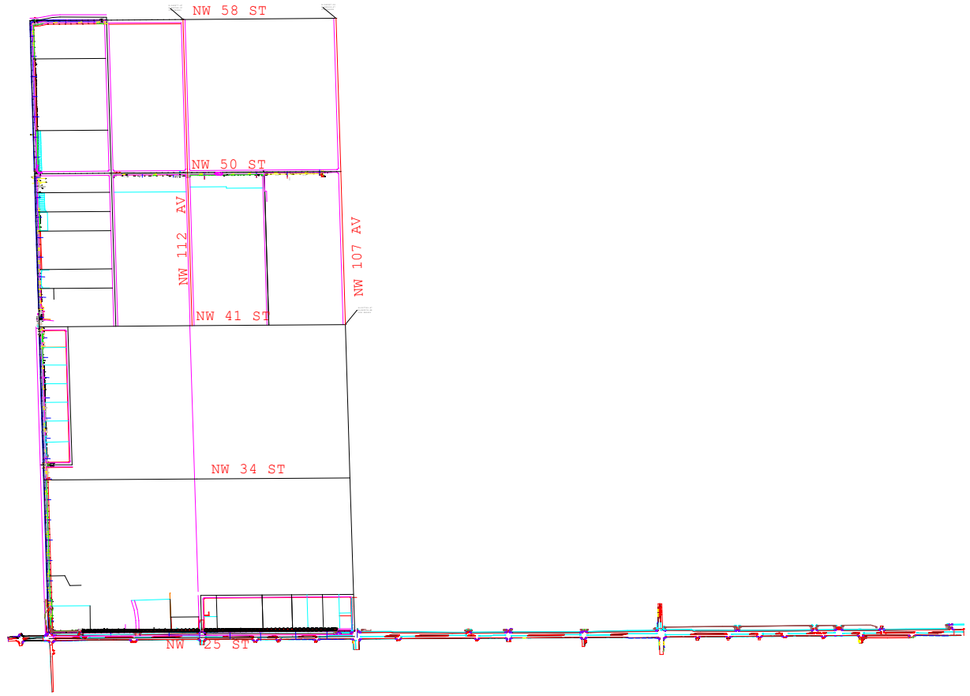
#	Date	Comments

Revisions

Drawn By: JMC
Checked By: LMM
Date:8/16/2024
Scale: NTS

City of Doral Trail Lighting Improvements

Photometric Analysis



Luminaire Schedule

Symbol	Qty	Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Watts	Arm	IES Class
	18	RADPT P3 40K PATH HS	Single	RADPT P3 40K PATH HS	1.000	5197	53.6184	0	Type IV
	47	RADPT P4 40K PATH HS	Single	RADPT P4 40K PATH HS	1.000	8258	85.6782	0	Type IV

Calculation Summary

Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Beacon Trail 1	Illuminance	Fc	2.56	5.6	0.8	3.20	7.00
Beacon Trail 2	Illuminance	Fc	2.50	6.2	0.7	3.57	8.86
Beacon Trail 3	Illuminance	Fc	2.60	6.8	0.8	3.25	8.50

LOCHNER

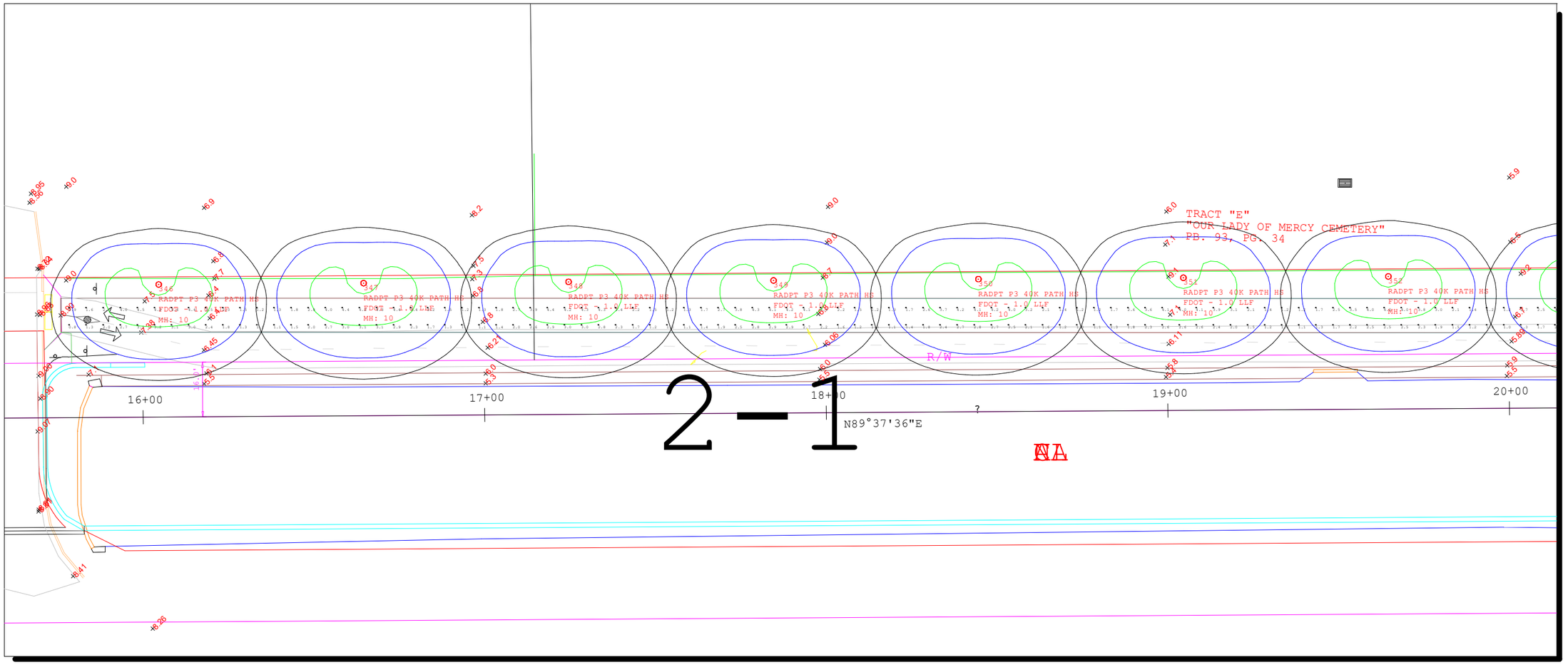
#	Date	Comments

Revisions

Drawn By: JMC
Checked By: LMM
Date:8/16/2024
Scale: NTS

City of Doral Trail Lighting Improvements

Photometric Analysis



View_1:Beacon Trail 1 - 1

Luminaire Schedule									
Project: Beacon Trail									
Symbol	Qty	Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Watts	Arm	IES Class

Calculation Summary							
Project: Beacon Trail							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Beacon Trail 1	Illuminance	Fc	2.56	5.6	0.8	3.20	7.00
Beacon Trail 2	Illuminance	Fc	2.50	6.2	0.7	3.57	8.86
Beacon Trail 3	Illuminance	Fc	2.60	6.8	0.8	3.25	8.50

LOCHNER

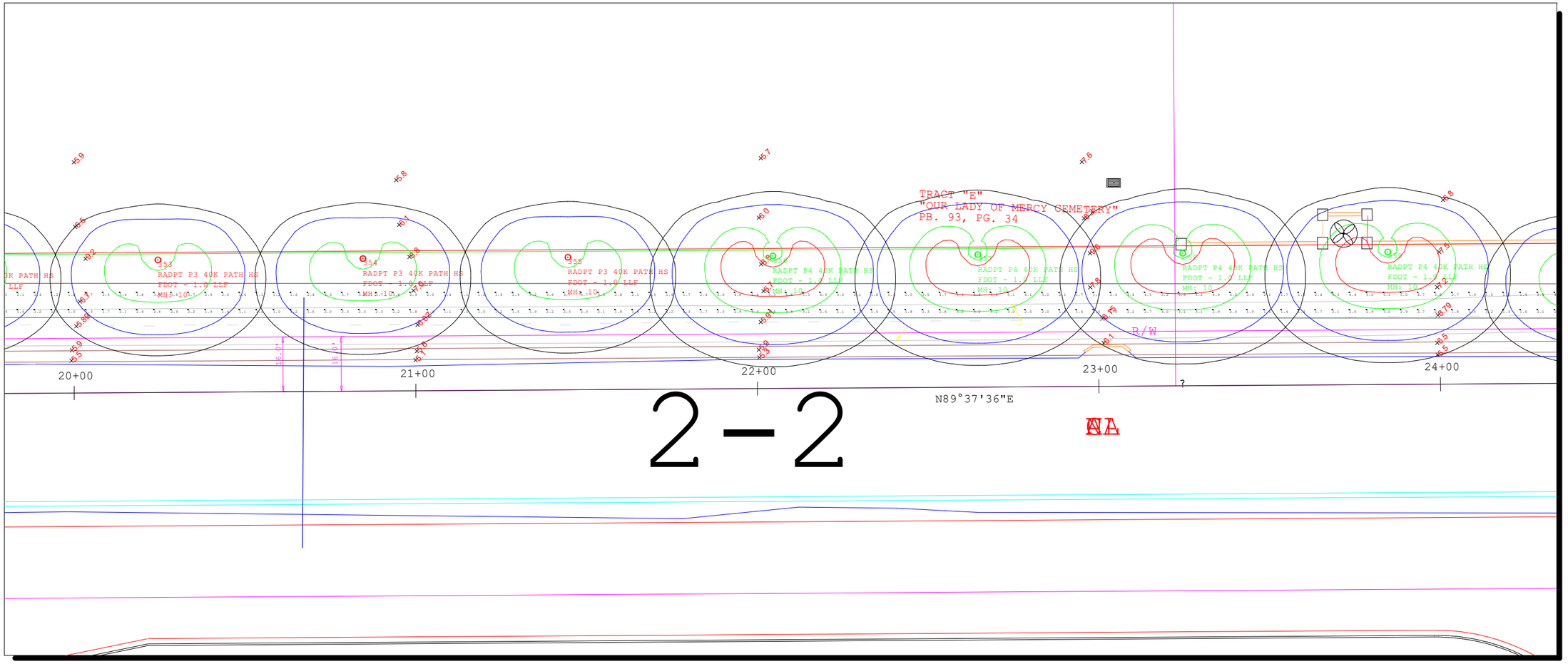
#	Date	Comments

Revisions

Drawn By: JMC
Checked By: LMM
Date:8/16/2024
Scale: NTS

City of Doral Trail Lighting Improvements

Photometric Analysis



View_1:Beacon Trail 1 - 2

Luminaire Schedule									
Project: Beacon Trail									
Symbol	Qty	Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Watts	Arm	IES Class

Calculation Summary							
Project: Beacon Trail							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Beacon Trail 1	Illuminance	Fc	2.56	5.6	0.8	3.20	7.00
Beacon Trail 2	Illuminance	Fc	2.50	6.2	0.7	3.57	8.86
Beacon Trail 3	Illuminance	Fc	2.60	6.8	0.8	3.25	8.50

LOCHNER

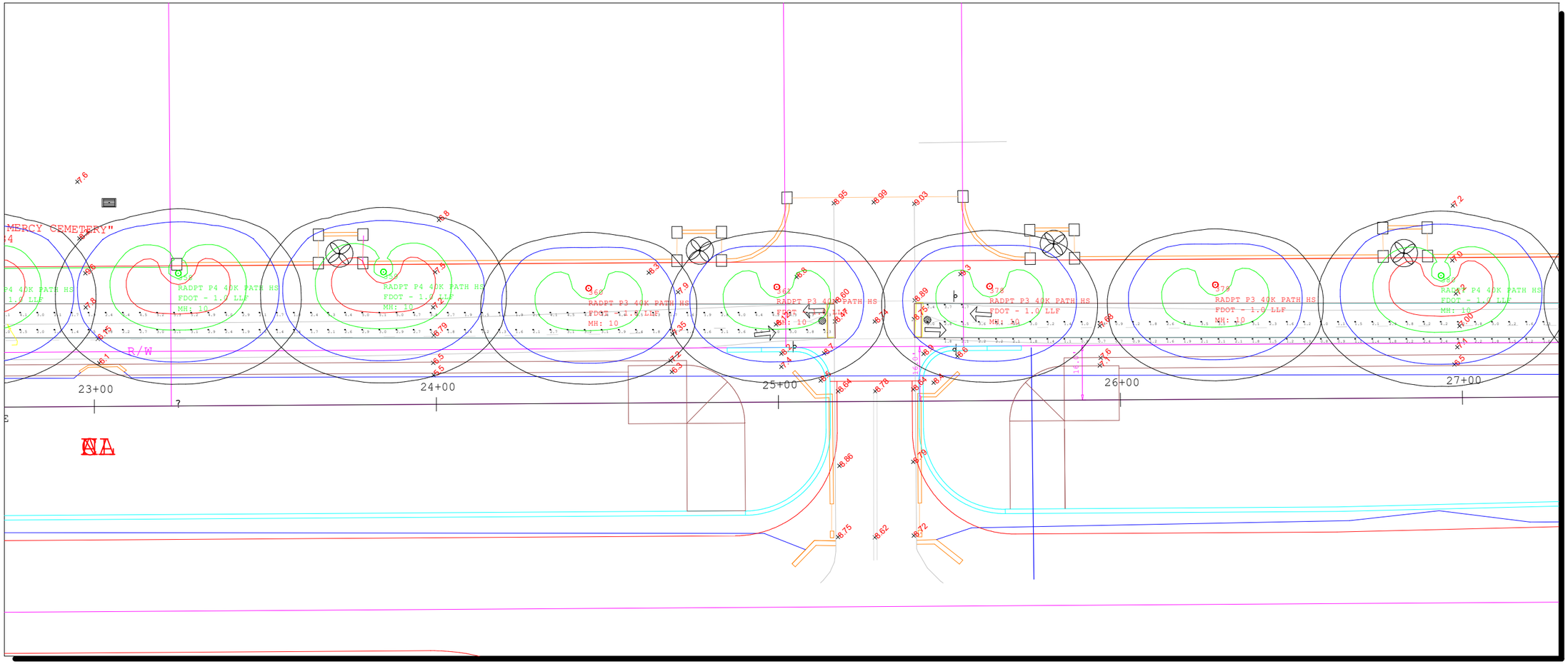
#	Date	Comments

Revisions

Drawn By: JMC
Checked By: LMM
Date:8/16/2024
Scale: NTS

City of Doral Trail Lighting Improvements

Photometric Analysis



View_1:Beacon Trail 1 - 3

Luminaire Schedule									
Project: Beacon Trail									
Symbol	Qty	Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Watts	Arm	IES Class

Calculation Summary							
Project: Beacon Trail							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Beacon Trail 1	Illuminance	Fc	2.56	5.6	0.8	3.20	7.00
Beacon Trail 2	Illuminance	Fc	2.50	6.2	0.7	3.57	8.86
Beacon Trail 3	Illuminance	Fc	2.60	6.8	0.8	3.25	8.50

LOCHNER

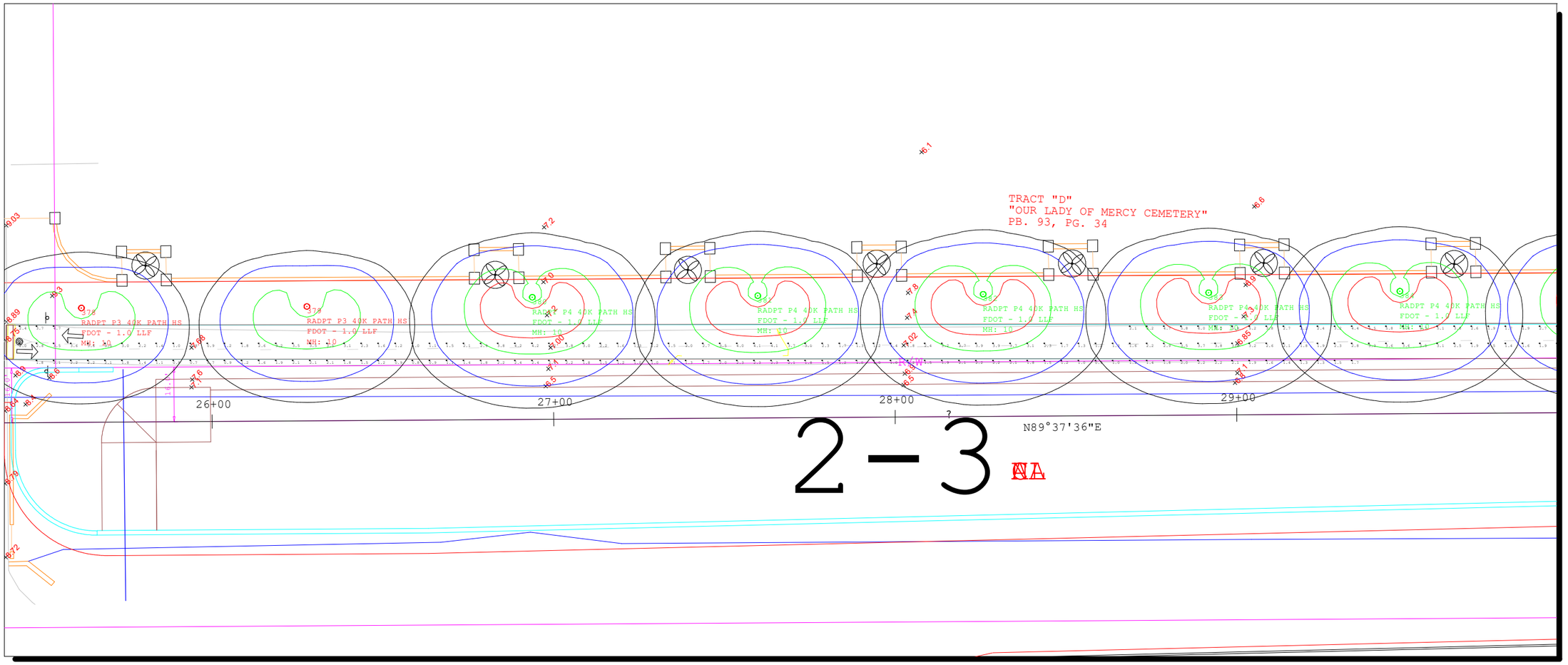
#	Date	Comments

Revisions

Drawn By: JMC
Checked By: LMM
Date:8/16/2024
Scale: NTS

City of Doral Trail Lighting Improvements

Photometric Analysis



View_1:Beacon Trail 2 - 1

Luminaire Schedule									
Project: Beacon Trail									
Symbol	Qty	Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Watts	Arm	IES Class

Calculation Summary							
Project: Beacon Trail							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Beacon Trail 1	Illuminance	Fc	2.56	5.6	0.8	3.20	7.00
Beacon Trail 2	Illuminance	Fc	2.50	6.2	0.7	3.57	8.86
Beacon Trail 3	Illuminance	Fc	2.60	6.8	0.8	3.25	8.50

LOCHNER

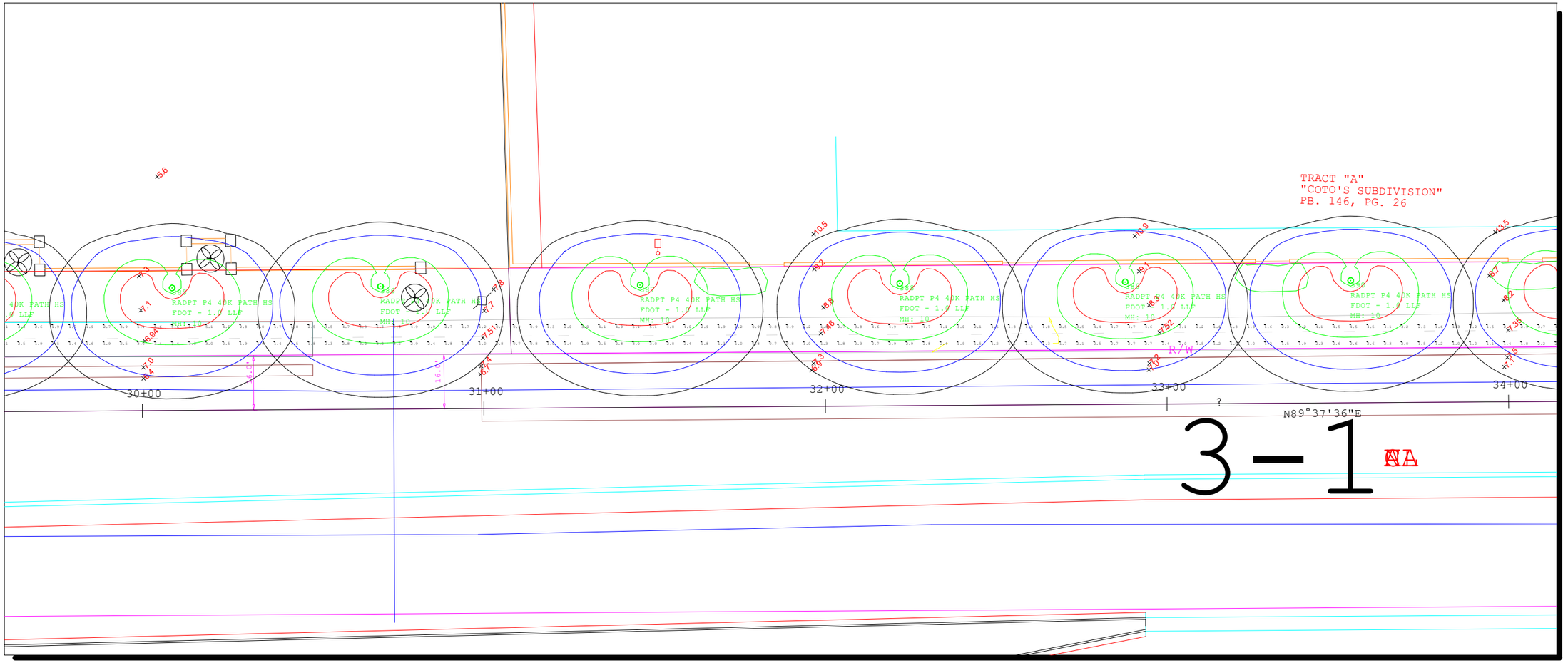
#	Date	Comments

Revisions

Drawn By: JMC
Checked By: LMM
Date:8/16/2024
Scale: NTS

City of Doral Trail Lighting Improvements

Photometric Analysis



View_1:Beacon Trail 2 - 2

Luminaire Schedule									
Project: Beacon Trail									
Symbol	Qty	Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Watts	Arm	IES Class

Calculation Summary							
Project: Beacon Trail							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Beacon Trail 1	Illuminance	Fc	2.56	5.6	0.8	3.20	7.00
Beacon Trail 2	Illuminance	Fc	2.50	6.2	0.7	3.57	8.86
Beacon Trail 3	Illuminance	Fc	2.60	6.8	0.8	3.25	8.50

LOCHNER

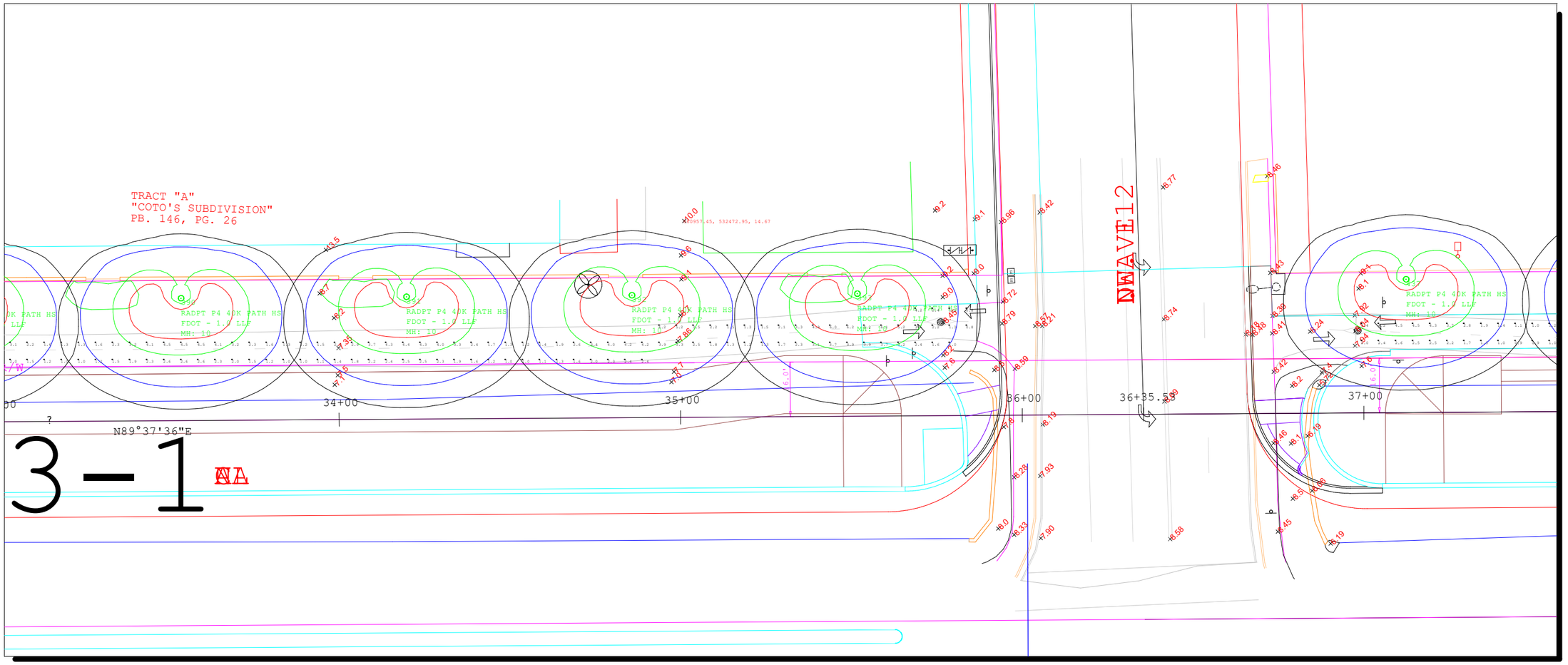
#	Date	Comments

Revisions

Drawn By: JMC
Checked By: LMM
Date:8/16/2024
Scale: NTS

City of Doral Trail Lighting Improvements

Photometric Analysis



View_1:Beacon Trail 2 - 3

Luminaire Schedule									
Project: Beacon Trail									
Symbol	Qty	Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Watts	Arm	IES Class

Calculation Summary							
Project: Beacon Trail							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Beacon Trail 1	Illuminance	Fc	2.56	5.6	0.8	3.20	7.00
Beacon Trail 2	Illuminance	Fc	2.50	6.2	0.7	3.57	8.86
Beacon Trail 3	Illuminance	Fc	2.60	6.8	0.8	3.25	8.50

LOCHNER

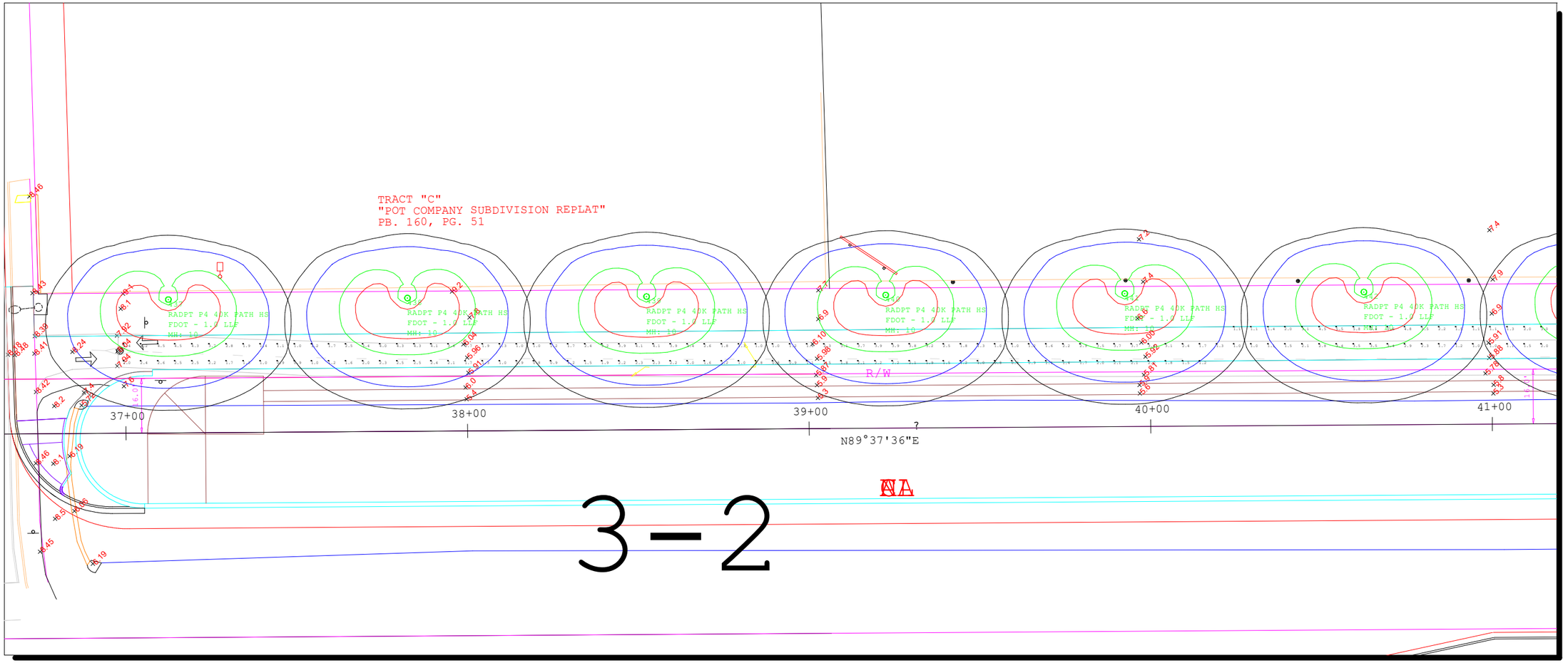
#	Date	Comments

Revisions

Drawn By: JMC
Checked By: LMM
Date:8/16/2024
Scale: NTS

City of Doral Trail Lighting Improvements

Photometric Analysis



View_1:Beacon Trail 3 - 1

Luminaire Schedule									
Project: Beacon Trail									
Symbol	Qty	Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Watts	Arm	IES Class

Calculation Summary							
Project: Beacon Trail							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Beacon Trail 1	Illuminance	Fc	2.56	5.6	0.8	3.20	7.00
Beacon Trail 2	Illuminance	Fc	2.50	6.2	0.7	3.57	8.86
Beacon Trail 3	Illuminance	Fc	2.60	6.8	0.8	3.25	8.50

LOCHNER

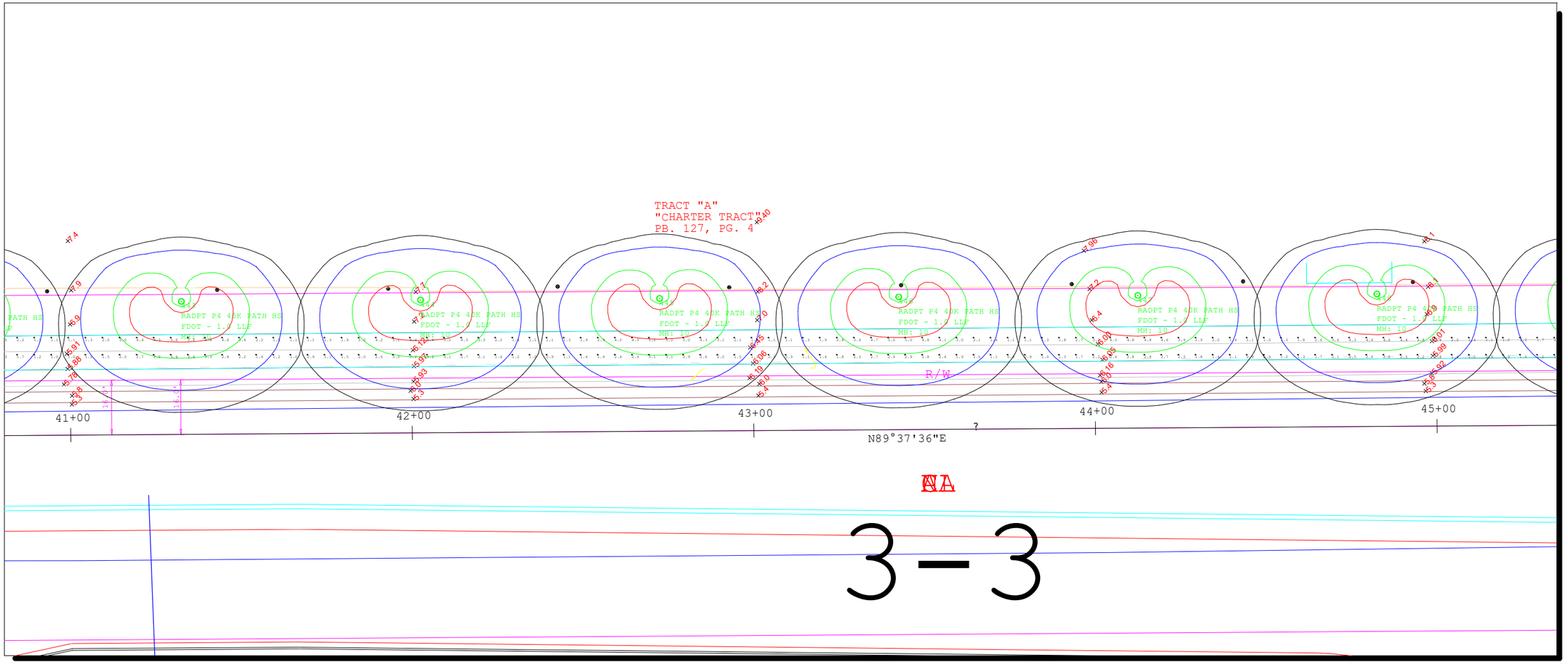
#	Date	Comments

Revisions

Drawn By: JMC
Checked By: LMM
Date:8/16/2024
Scale: NTS

City of Doral Trail Lighting Improvements

Photometric Analysis



View_1:Beacon Trail 3 - 2

Luminaire Schedule									
Project: Beacon Trail									
Symbol	Qty	Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Watts	Arm	IES Class

Calculation Summary							
Project: Beacon Trail							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Beacon Trail 1	Illuminance	Fc	2.56	5.6	0.8	3.20	7.00
Beacon Trail 2	Illuminance	Fc	2.50	6.2	0.7	3.57	8.86
Beacon Trail 3	Illuminance	Fc	2.60	6.8	0.8	3.25	8.50

LOCHNER

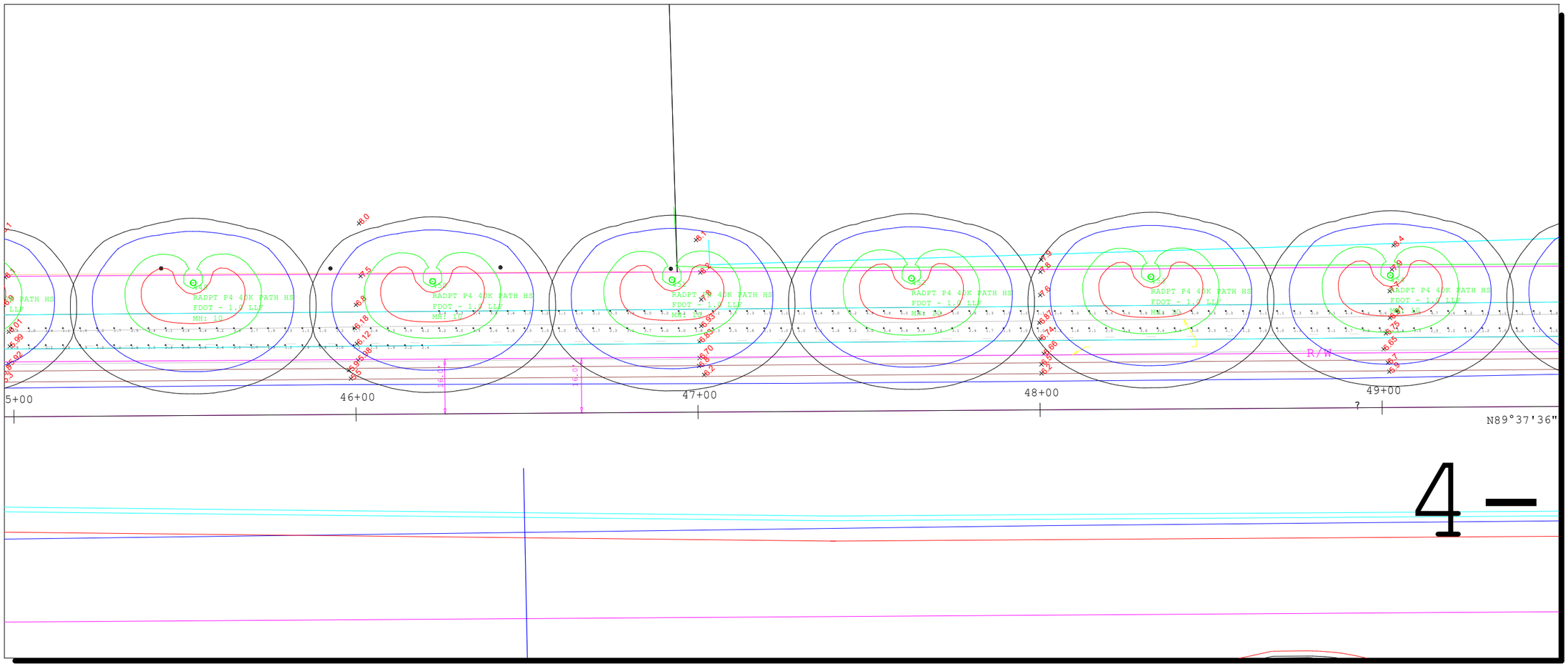
#	Date	Comments

Revisions

Drawn By: JMC
Checked By: LMM
Date:8/16/2024
Scale: NTS

City of Doral Trail Lighting Improvements

Photometric Analysis



View_1:Beacon Trail 3 - 3

Luminaire Schedule									
Project: Beacon Trail									
Symbol	Qty	Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Watts	Arm	IES Class

Calculation Summary							
Project: Beacon Trail							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Beacon Trail 1	Illuminance	Fc	2.56	5.6	0.8	3.20	7.00
Beacon Trail 2	Illuminance	Fc	2.50	6.2	0.7	3.57	8.86
Beacon Trail 3	Illuminance	Fc	2.60	6.8	0.8	3.25	8.50

LOCHNER

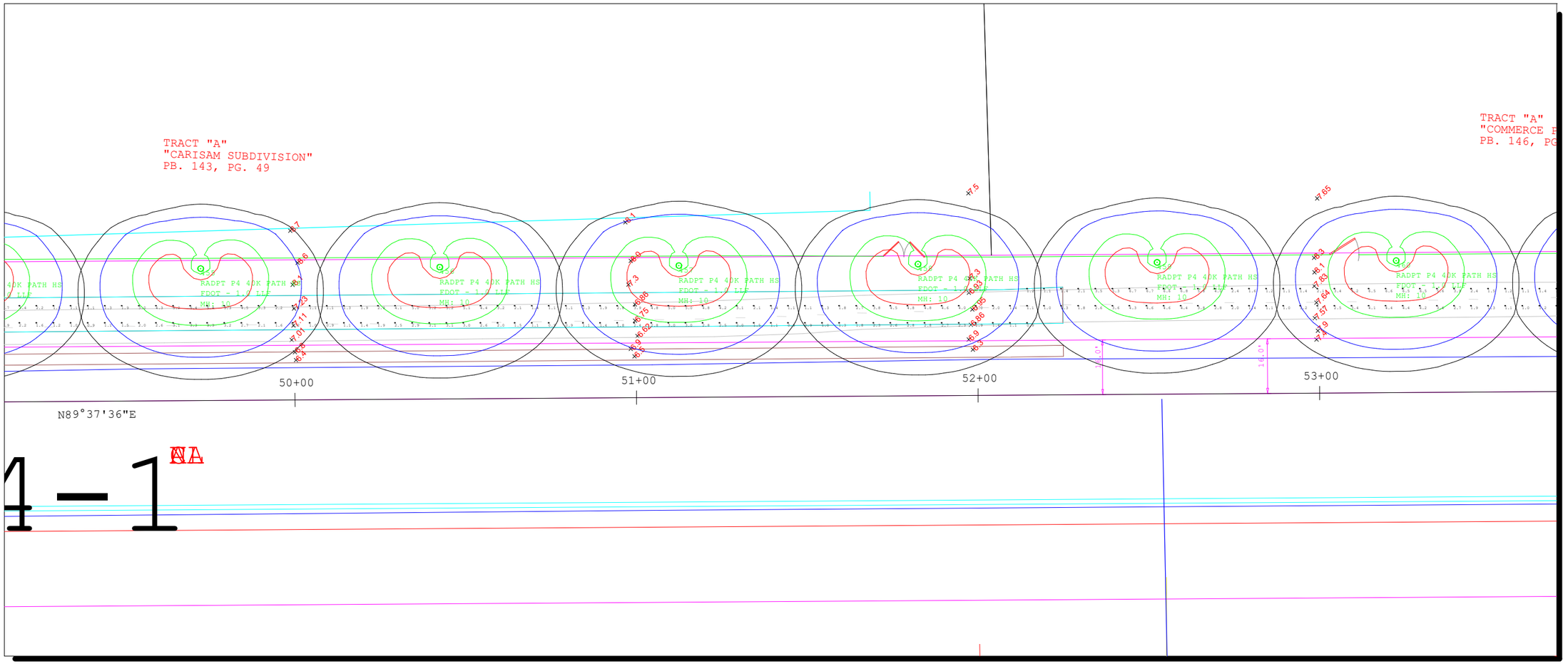
#	Date	Comments

Revisions

Drawn By: JMC
Checked By: LMM
Date:8/16/2024
Scale: NTS

City of Doral Trail Lighting Improvements

Photometric Analysis



View_1:Beacon Trail 3 - 4

Luminaire Schedule									
Project: Beacon Trail									
Symbol	Qty	Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Watts	Arm	IES Class

Calculation Summary							
Project: Beacon Trail							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Beacon Trail 1	Illuminance	Fc	2.56	5.6	0.8	3.20	7.00
Beacon Trail 2	Illuminance	Fc	2.50	6.2	0.7	3.57	8.86
Beacon Trail 3	Illuminance	Fc	2.60	6.8	0.8	3.25	8.50

LOCHNER

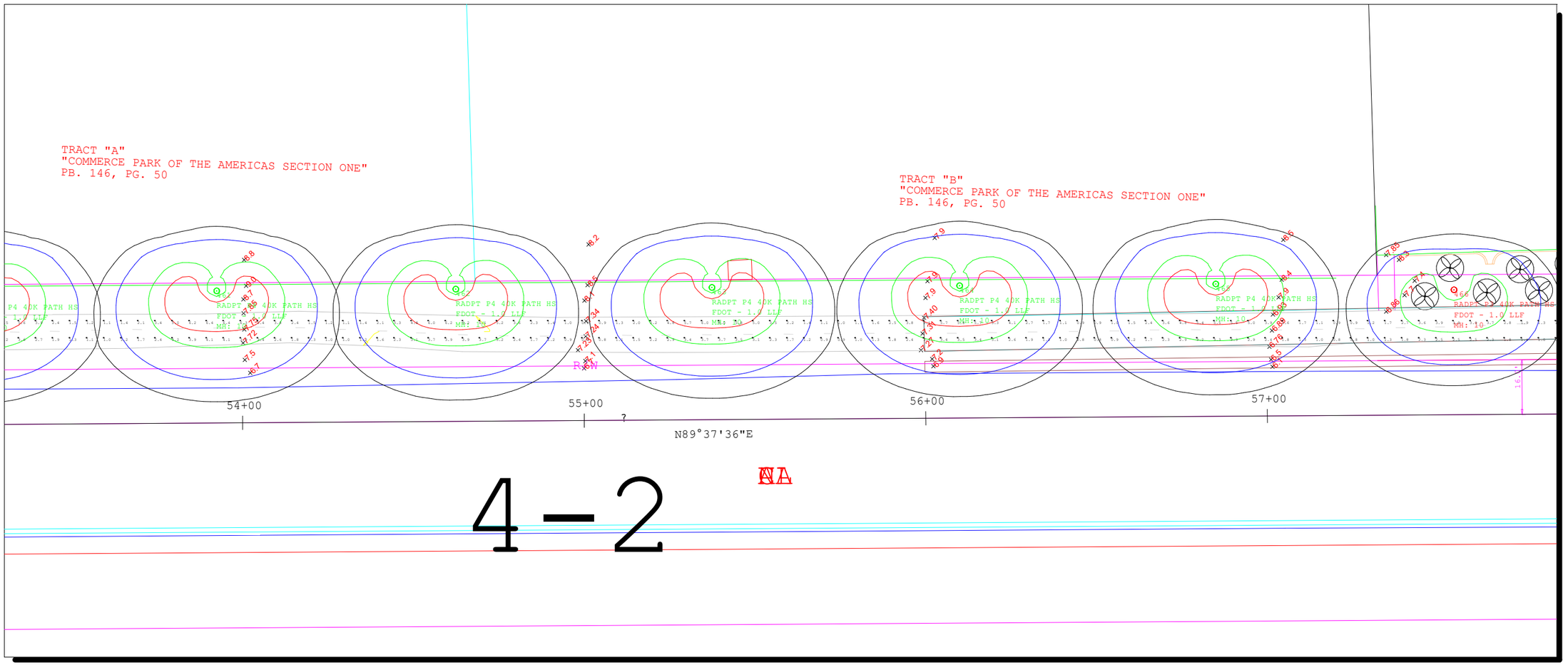
#	Date	Comments

Revisions

Drawn By: JMC
Checked By: LMM
Date:8/16/2024
Scale: NTS

City of Doral Trail Lighting Improvements

Photometric Analysis



View_1:Beacon Trail 3 - 5

Luminaire Schedule									
Project: Beacon Trail									
Symbol	Qty	Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Watts	Arm	IES Class

Calculation Summary							
Project: Beacon Trail							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Beacon Trail 1	Illuminance	Fc	2.56	5.6	0.8	3.20	7.00
Beacon Trail 2	Illuminance	Fc	2.50	6.2	0.7	3.57	8.86
Beacon Trail 3	Illuminance	Fc	2.60	6.8	0.8	3.25	8.50

LOCHNER

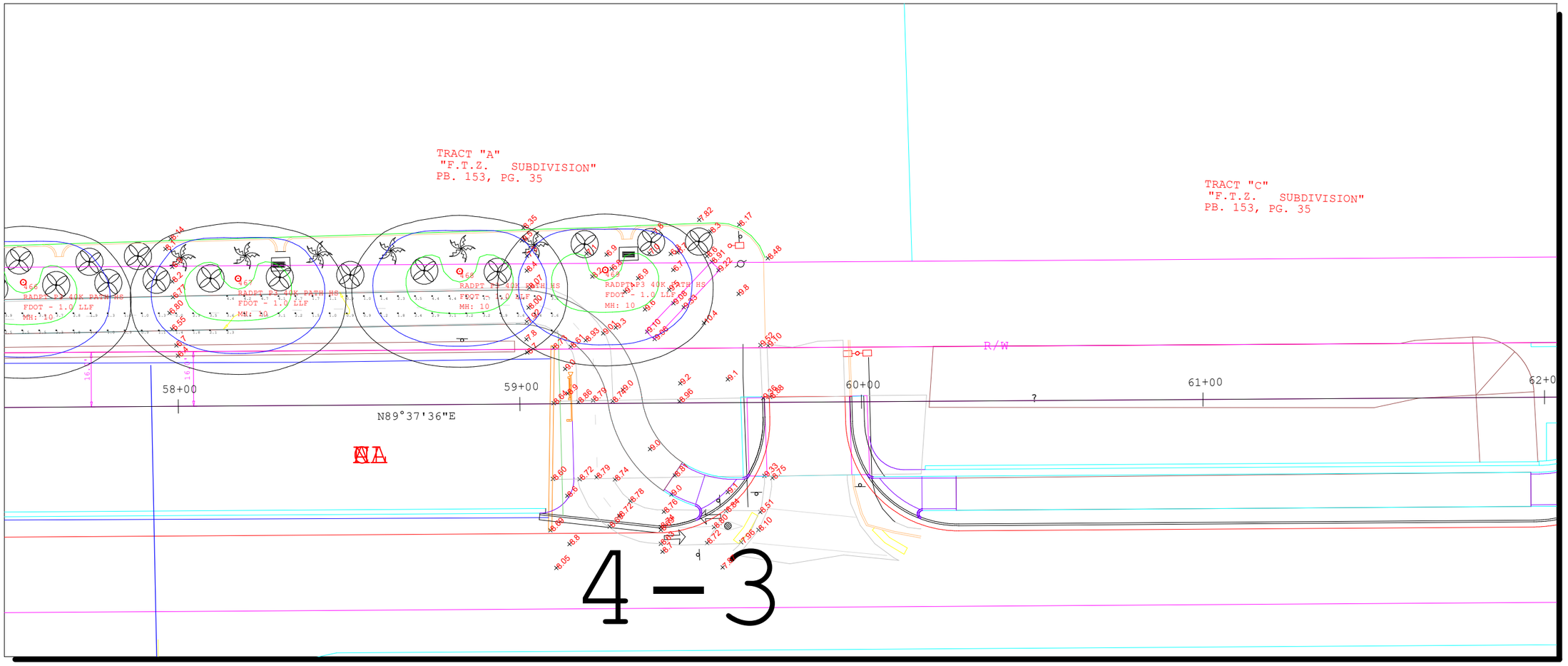
#	Date	Comments

Revisions

Drawn By: JMC
Checked By: LMM
Date:8/16/2024
Scale: NTS

City of Doral Trail Lighting Improvements

Photometric Analysis



View_1:Beacon Trail 3 - 6

Luminaire Schedule									
Project: Beacon Trail									
Symbol	Qty	Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Watts	Arm	IES Class

Calculation Summary							
Project: Beacon Trail							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Beacon Trail 1	Illuminance	Fc	2.56	5.6	0.8	3.20	7.00
Beacon Trail 2	Illuminance	Fc	2.50	6.2	0.7	3.57	8.86
Beacon Trail 3	Illuminance	Fc	2.60	6.8	0.8	3.25	8.50

LOCHNER

#	Date	Comments

Revisions

Drawn By: JMC
Checked By: LMM
Date:8/16/2024
Scale: NTS

City of Doral Trail Lighting Improvements

Photometric Analysis

Luminaire Location Summary						
		Insertion Point				
LumNo	Label	X	Y	MH	Orient	Tilt
346	RADPT P3 40K PATH HS	859072.271	532447.379	10	270.374	0
347	RADPT P3 40K PATH HS	859132.27	532447.771	10	270.374	0
348	RADPT P3 40K PATH HS	859192.269	532448.163	10	270.374	0
349	RADPT P3 40K PATH HS	859252.267	532448.555	10	270.374	0
350	RADPT P3 40K PATH HS	859312.266	532448.946	10	270.374	0
351	RADPT P3 40K PATH HS	859372.265	532449.338	10	270.374	0
352	RADPT P3 40K PATH HS	859432.264	532449.73	10	270.374	0
353	RADPT P3 40K PATH HS	859492.262	532450.122	10	270.374	0
354	RADPT P3 40K PATH HS	859552.261	532450.514	10	270.374	0
355	RADPT P3 40K PATH HS	859612.26	532450.905	10	270.374	0
356	RADPT P4 40K PATH HS	859672.259	532451.297	10	270.374	0
357	RADPT P4 40K PATH HS	859732.257	532451.689	10	270.374	0
358	RADPT P4 40K PATH HS	859792.256	532452.081	10	270.374	0
359	RADPT P4 40K PATH HS	859852.255	532452.473	10	270.374	0
360	RADPT P3 40K PATH HS	859912.25	532447.694	10	270.374	0
361	RADPT P3 40K PATH HS	859967.248	532448.085	10	270.374	0
378	RADPT P3 40K PATH HS	860029.459	532448.273	10	270.38	0
379	RADPT P3 40K PATH HS	860095.458	532448.711	10	270.38	0
380	RADPT P4 40K PATH HS	860161.448	532451.424	10	270.38	0
381	RADPT P4 40K PATH HS	860227.447	532451.862	10	270.38	0
382	RADPT P4 40K PATH HS	860293.445	532452.3	10	270.38	0
383	RADPT P4 40K PATH HS	860359.444	532452.737	10	270.38	0
384	RADPT P4 40K PATH HS	860415.443	532453.175	10	270.38	0
385	RADPT P4 40K PATH HS	860476.441	532453.613	10	270.38	0
386	RADPT P4 40K PATH HS	860537.44	532454.051	10	270.38	0
387	RADPT P4 40K PATH HS	860613.438	532454.489	10	270.38	0
388	RADPT P4 40K PATH HS	860689.437	532454.927	10	270.38	0
389	RADPT P4 40K PATH HS	860755.435	532455.364	10	270.38	0
390	RADPT P4 40K PATH HS	860821.434	532455.802	10	270.38	0
391	RADPT P4 40K PATH HS	860887.432	532456.24	10	270.38	0
392	RADPT P4 40K PATH HS	860953.431	532456.69	10	270.396	0
393	RADPT P4 40K PATH HS	861019.429	532457.146	10	270.396	0
437	RADPT P4 40K PATH HS	861180.081	532461.374	10	270.361	0
438	RADPT P4 40K PATH HS	861250.079	532461.816	10	270.361	0
439	RADPT P4 40K PATH HS	861320.078	532462.257	10	270.361	0
440	RADPT P4 40K PATH HS	861390.076	532462.699	10	270.361	0
441	RADPT P4 40K PATH HS	861460.075	532463.14	10	270.361	0
442	RADPT P4 40K PATH HS	861530.074	532463.582	10	270.361	0
443	RADPT P4 40K PATH HS	861600.072	532464.023	10	270.361	0
444	RADPT P4 40K PATH HS	861670.071	532464.465	10	270.361	0
445	RADPT P4 40K PATH HS	861740.069	532464.906	10	270.361	0
446	RADPT P4 40K PATH HS	861810.068	532465.348	10	270.361	0
447	RADPT P4 40K PATH HS	861880.067	532465.789	10	270.361	0
448	RADPT P4 40K PATH HS	861950.065	532466.231	10	270.361	0
449	RADPT P4 40K PATH HS	862020.064	532466.673	10	270.361	0
450	RADPT P4 40K PATH HS	862090.063	532467.114	10	270.361	0
451	RADPT P4 40K PATH HS	862160.061	532467.556	10	270.361	0
452	RADPT P4 40K PATH HS	862230.06	532467.997	10	270.361	0
453	RADPT P4 40K PATH HS	862300.058	532468.439	10	270.361	0
454	RADPT P4 40K PATH HS	862370.057	532468.88	10	270.361	0
455	RADPT P4 40K PATH HS	862440.056	532469.322	10	270.361	0
456	RADPT P4 40K PATH HS	862510.054	532469.763	10	270.361	0
457	RADPT P4 40K PATH HS	862580.053	532470.205	10	270.361	0
458	RADPT P4 40K PATH HS	862650.051	532470.655	10	270.414	0
459	RADPT P4 40K PATH HS	862720.05	532471.161	10	270.414	0
460	RADPT P4 40K PATH HS	862790.048	532471.668	10	270.414	0
461	RADPT P4 40K PATH HS	862860.046	532472.174	10	270.414	0
462	RADPT P4 40K PATH HS	862930.044	532472.681	10	270.414	0
463	RADPT P4 40K PATH HS	863005.042	532473.187	10	270.414	0
464	RADPT P4 40K PATH HS	863077.54	532473.693	10	270.414	0

Luminaire Location Summary						
		Insertion Point				
LumNo	Label	X	Y	Z	Orient	Tilt
465	RADPT P4 40K PATH HS	863152.539	532474.2	10	270.414	0
466	RADPT P3 40K PATH HS	863222.28	532472.498	10	270.414	0
467	RADPT P3 40K PATH HS	863285.164	532473.608	10	270.414	0
468	RADPT P3 40K PATH HS	863350.033	532475.719	10	270.414	0
469	RADPT P3 40K PATH HS	863392.664	532476.108	10	270.414	0

LOCHNER

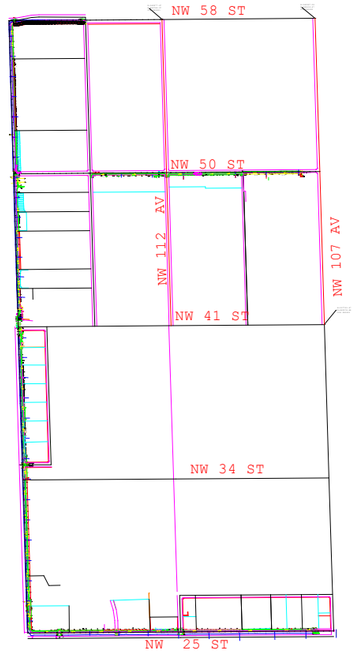
#	Date	Comments

Revisions

Drawn By: JMC
Checked By: LMM
Date:8/16/2024
Scale: NTS

City of Doral Trail Lighting Improvements

Photometric Analysis



Luminaire Schedule									
Symbol	Qty	Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Watts	Arm	IES Class
	17	RADPT P3 40K PATH HS_LLF	Single	RADPT P3 40K PATH HS	0.820	5197	53.6184	0	Type IV
	6	RADPT P4 40K PATH HS_LLF	Single	RADPT P4 40K PATH HS	0.820	8258	85.6782	0	Type IV

Calculation Summary							
Label	**CalcType**	**Units**	**Avg**	**Max**	**Min**	**Avg/Min**	**Max/Min**
Dressel's Dairy Trail 1	Illuminance	Fc	2.01	6.15	0.93	2.16	6.61

LOCHNER

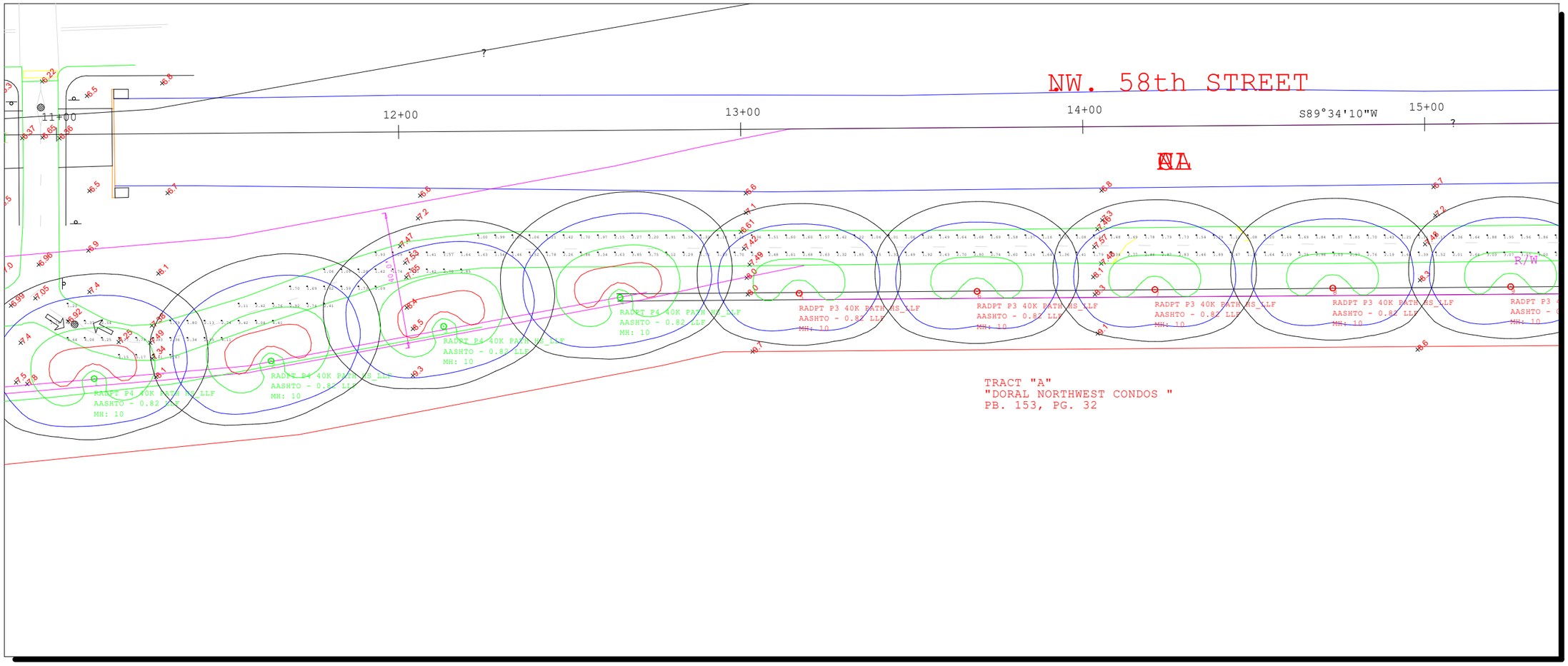
#	Date	Comments

Revisions

Drawn By: JMC
Checked By: LMM
Date:8/7/2024
Scale: NTS

City of Doral Trail Lighting Improvements

Photometric Analysis



View_1:Dressel's Dairy Trail 1 - 1

Luminaire Schedule									
Project: Dressel's Dairy Trail									
Symbol	Qty	Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Watts	Arm	IES Class
	17	RADPT P3 40K PATH HS_LLF	Single	RADPT P3 40K PATH HS	0.820	5197	53.6184	0	Type IV
	6	RADPT P4 40K PATH HS_LLF	Single	RADPT P4 40K PATH HS	0.820	8258	85.6782	0	Type IV

Calculation Summary							
Project: Dressel's Dairy Trail							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Dressel's Dairy Trail 1	Illuminance	Fc	2.01	6.15	0.93	2.16	6.61

LOCHNER

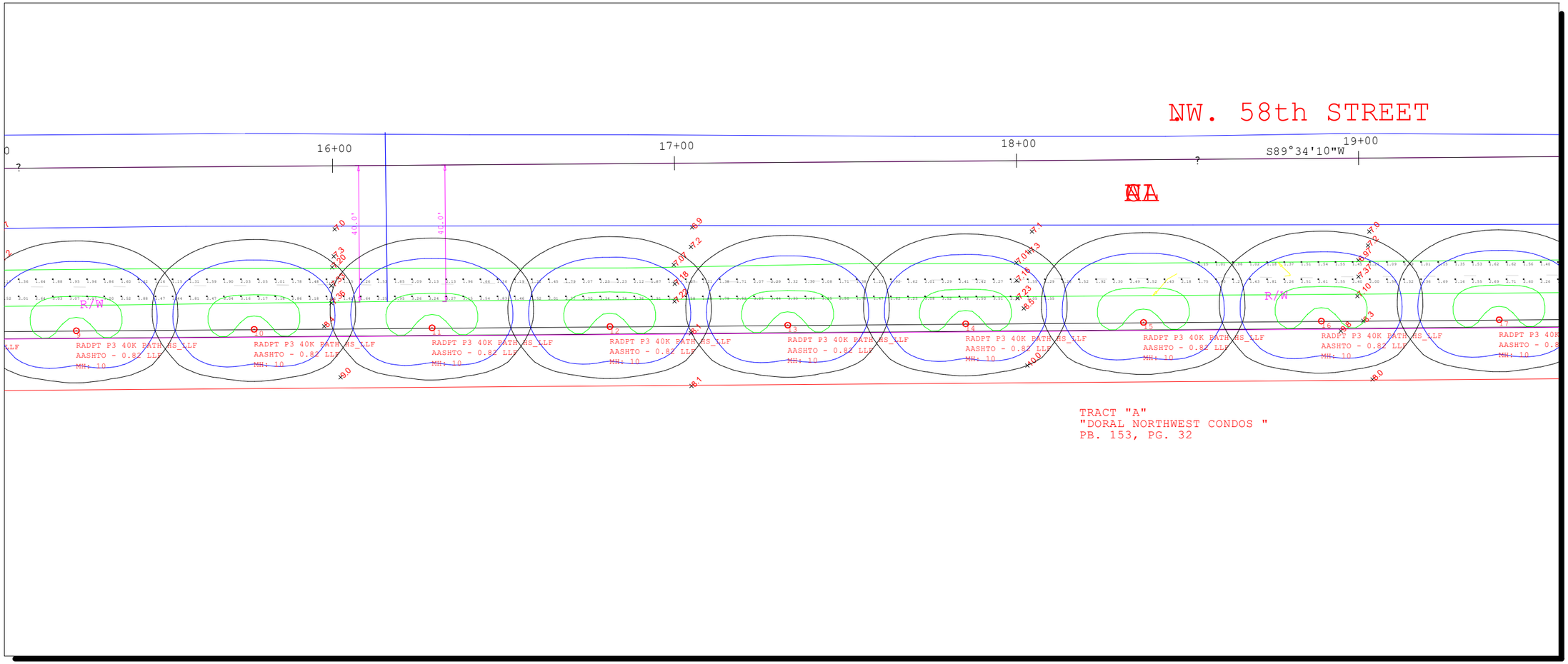
#	Date	Comments

Revisions

Drawn By: JMC
Checked By: LMM
Date:8/7/2024
Scale: NTS

City of Doral Trail Lighting Improvements

Photometric Analysis



View_1:Dressel's Dairy Trail 1 - 2

Luminaire Schedule

Project: Dressel's Dairy Trail

Symbol	Qty	Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Watts	Arm	IES Class
	17	RADPT P3 40K PATH HS_LLF	Single	RADPT P3 40K PATH HS	0.820	5197	53.6184	0	Type IV
	6	RADPT P4 40K PATH HS_LLF	Single	RADPT P4 40K PATH HS	0.820	8258	85.6782	0	Type IV

Calculation Summary

Project: Dressel's Dairy Trail

Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Dressel's Dairy Trail 1	Illuminance	Fc	2.01	6.15	0.93	2.16	6.61

LOCHNER

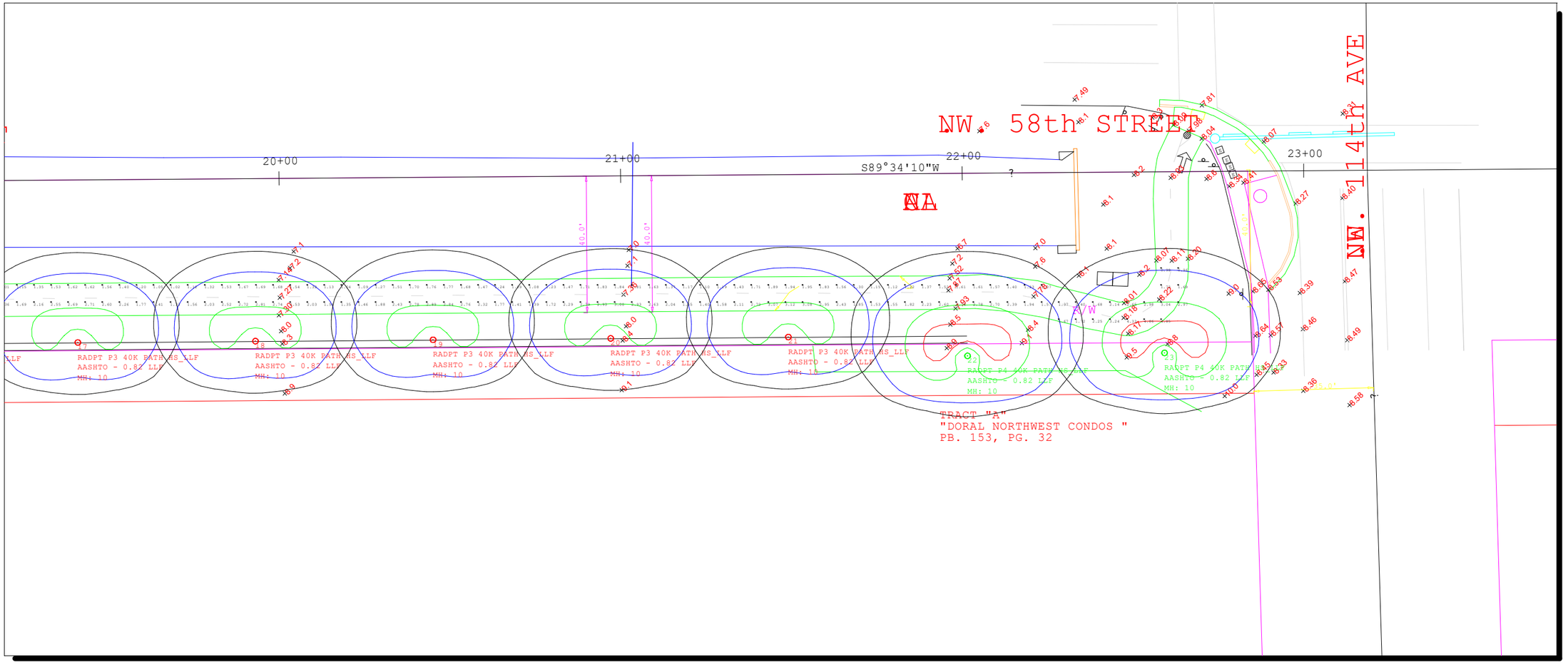
#	Date	Comments

Revisions

Drawn By: JMC
Checked By: LMM
Date:8/7/2024
Scale: NTS

City of Doral Trail Lighting Improvements

Photometric Analysis



View_1:Dressel's Dairy Trail 1 - 3

Luminaire Schedule									
Project: Dressel's Dairy Trail									
Symbol	Qty	Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Watts	Arm	IES Class
	17	RADPT P3 40K PATH HS_LLF	Single	RADPT P3 40K PATH HS	0.820	5197	53.6184	0	Type IV
	6	RADPT P4 40K PATH HS_LLF	Single	RADPT P4 40K PATH HS	0.820	8258	85.6782	0	Type IV

Calculation Summary							
Project: Dressel's Dairy Trail							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Dressel's Dairy Trail 1	Illuminance	Fc	2.01	6.15	0.93	2.16	6.61

LOCHNER

#	Date	Comments

Revisions

Drawn By: JMC
Checked By: LMM
Date:8/7/2024
Scale: NTS

City of Doral Trail Lighting Improvements

Photometric Analysis

Luminaire Location Summary						
		Insertion Point				
LumNo	Label	X	Y	MH	Orient	Tilt
1	RADPT P4 40K PATH HS_LLF	858256.5	542887.032	10	95.392	0
2	RADPT P4 40K PATH HS_LLF	858308.231	542892.217	10	104.937	0
3	RADPT P4 40K PATH HS_LLF	858358.685	542902.329	10	102.068	0
4	RADPT P4 40K PATH HS_LLF	858410.253	542910.811	10	99.408	0
5	RADPT P3 40K PATH HS_LLF	858462.636	542911.996	10	90.631	0
6	RADPT P3 40K PATH HS_LLF	858514.632	542912.569	10	90.631	0
7	RADPT P3 40K PATH HS_LLF	858566.63	542913.104	10	90.468	0
8	RADPT P3 40K PATH HS_LLF	858618.628	542913.529	10	90.468	0
9	RADPT P3 40K PATH HS_LLF	858670.626	542913.954	10	90.468	0
10	RADPT P3 40K PATH HS_LLF	858722.624	542914.378	10	90.468	0
11	RADPT P3 40K PATH HS_LLF	858774.623	542914.796	10	90.44	0
12	RADPT P3 40K PATH HS_LLF	858826.621	542915.195	10	90.44	0
13	RADPT P3 40K PATH HS_LLF	858878.62	542915.595	10	90.44	0
14	RADPT P3 40K PATH HS_LLF	858930.618	542915.994	10	90.44	0
15	RADPT P3 40K PATH HS_LLF	858982.617	542916.394	10	90.44	0
16	RADPT P3 40K PATH HS_LLF	859034.615	542916.794	10	90.44	0
17	RADPT P3 40K PATH HS_LLF	859086.614	542917.193	10	90.44	0
18	RADPT P3 40K PATH HS_LLF	859138.612	542917.593	10	90.44	0
19	RADPT P3 40K PATH HS_LLF	859190.611	542917.992	10	90.44	0
20	RADPT P3 40K PATH HS_LLF	859242.609	542918.392	10	90.44	0
21	RADPT P3 40K PATH HS_LLF	859294.608	542918.791	10	90.44	0
22	RADPT P4 40K PATH HS_LLF	859347.07	542913.279	10	90.44	0
23	RADPT P4 40K PATH HS_LLF	859404.741	542914.149	10	90.44	0

Luminaire Location Summary						
		Insertion Point				
LumNo	Label	X	Y	Z	Orient	Tilt

LOCHNER

#	Date	Comments

Revisions

Drawn By: JMC
Checked By: LMM
Date:8/7/2024
Scale: NTS

City of Doral Trail Lighting Improvements

Photometric Analysis

Appendix B.
VOLTAGE DROP CALCULATIONS

SINGLE PHASE CIRCUIT VOLTAGE DROP CALCULATIONS

PROJECT NAME: City of Doral Trail Lighting Improvements
LOCATION DESCRIPTION: Voltage Drop - LC-A, CKT No.1

OVERALL CIRCUIT VOLTAGE DROP (V) =	**11.75 V**	
OVERALL CIRCUIT VOLTAGE DROP (%) =	**4.90%**	**PASS**
PASS/FAIL THRESHOLD (%) =	5%	

TOTAL CIRCUIT AMPS =	12.75 A
OPERATING VOLTAGE =	240 V
OPERATING pf =	0.85

WIRE SIZE (AWG)	AMPS	IMPEDANCE PER 1000FT	DISTANCE	V DROP	WATTAGE	LOCATION
2	32.78 A	0.19 Ω	10 ft	0.12 V		Service Point to LC-A
2	12.75 A	0.19 Ω	740 ft	3.59 V		P-1 to LC-A
2	12.75 A	0.19 Ω	58 ft	0.28 V	54 W	P-1 Turnpike
2	12.50 A	0.19 Ω	60 ft	0.29 V	54 W	
2	12.25 A	0.19 Ω	60 ft	0.28 V	54 W	
2	12.00 A	0.19 Ω	60 ft	0.27 V	54 W	
2	11.75 A	0.19 Ω	60 ft	0.27 V	54 W	
2	11.50 A	0.19 Ω	60 ft	0.26 V	54 W	
2	11.25 A	0.19 Ω	60 ft	0.26 V	54 W	
2	11.00 A	0.19 Ω	60 ft	0.25 V	54 W	
2	10.75 A	0.19 Ω	50 ft	0.20 V	54 W	
2	10.50 A	0.19 Ω	66 ft	0.26 V	54 W	
2	10.25 A	0.19 Ω	66 ft	0.26 V	54 W	
2	10.00 A	0.19 Ω	66 ft	0.25 V	54 W	
2	9.75 A	0.19 Ω	66 ft	0.24 V	54 W	
2	9.50 A	0.19 Ω	62 ft	0.22 V	54 W	
2	9.25 A	0.19 Ω	76 ft	0.27 V	54 W	
2	9.00 A	0.19 Ω	56 ft	0.19 V	54 W	
2	8.75 A	0.19 Ω	58 ft	0.19 V	54 W	
2	8.50 A	0.19 Ω	53 ft	0.17 V	54 W	
2	8.25 A	0.19 Ω	68 ft	0.21 V	54 W	
2	8.00 A	0.19 Ω	68 ft	0.21 V	54 W	
2	7.75 A	0.19 Ω	68 ft	0.20 V	54 W	
2	7.50 A	0.19 Ω	68 ft	0.19 V	54 W	
2	7.25 A	0.19 Ω	68 ft	0.19 V	54 W	
2	7.00 A	0.19 Ω	68 ft	0.18 V	54 W	
2	6.75 A	0.19 Ω	68 ft	0.17 V	54 W	
2	6.50 A	0.19 Ω	68 ft	0.17 V	54 W	
2	6.25 A	0.19 Ω	68 ft	0.16 V	54 W	
2	6.00 A	0.19 Ω	68 ft	0.16 V	54 W	
2	5.75 A	0.19 Ω	68 ft	0.15 V	54 W	
2	5.50 A	0.19 Ω	68 ft	0.14 V	54 W	
2	5.25 A	0.19 Ω	68 ft	0.14 V	54 W	
2	5.00 A	0.19 Ω	68 ft	0.13 V	54 W	
2	4.75 A	0.19 Ω	68 ft	0.12 V	54 W	
2	4.50 A	0.19 Ω	68 ft	0.12 V	54 W	
2	4.25 A	0.19 Ω	68 ft	0.11 V	54 W	
2	4.00 A	0.19 Ω	68 ft	0.10 V	54 W	
2	3.75 A	0.19 Ω	68 ft	0.10 V	54 W	
2	3.50 A	0.19 Ω	68 ft	0.09 V	54 W	
2	3.25 A	0.19 Ω	68 ft	0.08 V	54 W	
2	3.00 A	0.19 Ω	68 ft	0.08 V	54 W	
2	2.75 A	0.19 Ω	68 ft	0.07 V	54 W	
2	2.50 A	0.19 Ω	68 ft	0.06 V	54 W	
2	2.25 A	0.19 Ω	68 ft	0.06 V	54 W	
2	2.00 A	0.19 Ω	68 ft	0.05 V	54 W	
2	1.75 A	0.19 Ω	68 ft	0.05 V	54 W	
2	1.50 A	0.19 Ω	68 ft	0.04 V	54 W	
2	1.25 A	0.19 Ω	68 ft	0.03 V	54 W	
2	1.00 A	0.19 Ω	68 ft	0.03 V	54 W	
2	0.75 A	0.19 Ω	68 ft	0.02 V	54 W	
2	0.50 A	0.19 Ω	62 ft	0.01 V	54 W	
2	0.25 A	0.19 Ω	61 ft	0.01 V	54 W	P-51 (turnpike)

Note 1: Luminaire wattages and loads at 240V and 0.9 pf.

Wattage	**Amps**
54 W	0.25 A
86 W	0.40 A

Note 2: Voltage Drop (VD) Equation:
VD = (2 x IMPEDANCEx DISTANCE/1000ft x AMPS)
IMPEDANCE is derived from Table 9, NEC 2020, Using PVC Conduits, Copper Conductors

OVERALL CIRCUIT VOLTAGE DROP (V) =	11.75

SINGLE PHASE CIRCUIT VOLTAGE DROP CALCULATIONS

PROJECT NAME: City of Doral Trail Lighting Improvements
LOCATION DESCRIPTION: Voltage Drop - LC-A, CKT No.2

OVERALL CIRCUIT VOLTAGE DROP (V) =	**9.35 V**	
OVERALL CIRCUIT VOLTAGE DROP (%) =	**3.89%**	**PASS**
PASS/FAIL THRESHOLD (%) =	5%	

TOTAL CIRCUIT AMPS =	11.46 A
OPERATING VOLTAGE =	240 V
OPERATING pf =	0.85

WIRE SIZE (AWG)	AMPS	IMPEDANCE PER 1000FT	DISTANCE	V DROP	WATTAGE	LOCATION
2	32.78 A	0.19 Ω	10 ft	0.12 V		Service Point to LC-A
8	11.46 A	0.69 Ω	20 ft	0.32 V		PB to LC-A
8	2.90 A	0.69 Ω	20 ft	0.08 V	86 W	P-11 to PB
8	2.50 A	0.69 Ω	60 ft	0.21 V	54 W	
8	2.25 A	0.69 Ω	60 ft	0.19 V	54 W	
8	2.00 A	0.69 Ω	60 ft	0.17 V	54 W	
8	1.75 A	0.69 Ω	60 ft	0.14 V	54 W	
8	1.50 A	0.69 Ω	60 ft	0.12 V	54 W	
8	1.25 A	0.69 Ω	60 ft	0.10 V	54 W	
8	1.00 A	0.69 Ω	60 ft	0.08 V	54 W	
8	0.75 A	0.69 Ω	60 ft	0.06 V	54 W	
8	0.50 A	0.69 Ω	60 ft	0.04 V	54 W	
8	0.25 A	0.69 Ω	60 ft	0.02 V	54 W	P-1 (beacon)
8	8.56 A	0.69 Ω	20 ft	0.24 V	86 W	P-12 to PB
8	8.17 A	0.69 Ω	60 ft	0.68 V	86 W	
8	7.77 A	0.69 Ω	60 ft	0.64 V	86 W	
8	7.37 A	0.69 Ω	60 ft	0.61 V	54 W	
8	7.12 A	0.69 Ω	55 ft	0.54 V	54 W	
8	6.87 A	0.69 Ω	62 ft	0.59 V	54 W	
8	6.62 A	0.69 Ω	66 ft	0.60 V	54 W	
8	6.37 A	0.69 Ω	66 ft	0.58 V	86 W	
8	5.97 A	0.69 Ω	66 ft	0.54 V	86 W	
8	5.57 A	0.69 Ω	66 ft	0.51 V	86 W	
8	5.18 A	0.69 Ω	66 ft	0.47 V	86 W	
8	4.78 A	0.69 Ω	56 ft	0.37 V	86 W	
8	4.38 A	0.69 Ω	61 ft	0.37 V	86 W	
8	3.98 A	0.69 Ω	61 ft	0.34 V	86 W	
8	3.58 A	0.69 Ω	76 ft	0.38 V	86 W	
8	3.19 A	0.69 Ω	76 ft	0.33 V	86 W	
8	2.79 A	0.69 Ω	66 ft	0.25 V	86 W	
8	2.39 A	0.69 Ω	66 ft	0.22 V	86 W	
8	1.99 A	0.69 Ω	66 ft	0.18 V	86 W	
8	1.59 A	0.69 Ω	66 ft	0.15 V	86 W	
8	1.19 A	0.69 Ω	66 ft	0.11 V	86 W	
8	0.80 A	0.69 Ω	161 ft	0.18 V	86 W	
8	0.40 A	0.69 Ω	70 ft	0.04 V	86 W	P-33 (Beacon)

Note 1: Luminaire wattages and loads at 240V and 0.9 pf.

Wattage	**Amps**
54 W	0.25 A
86 W	0.40 A

Note 2: Voltage Drop (VD) Equation:
VD = (2 x IMPEDANCEx DISTANCE/1000ft x AMPS)
IMPEDANCE is derived from Table 9, NEC 2020, Using PVC Conduits, Copper Conductors

OVERALL CIRCUIT VOLTAGE DROP (V) = 9.35

SINGLE PHASE CIRCUIT VOLTAGE DROP CALCULATIONS

PROJECT NAME: City of Doral Trail Lighting Improvements
LOCATION DESCRIPTION: Voltage Drop - LC-A, CKT No.3

OVERALL CIRCUIT VOLTAGE DROP (V) = **11.47 V**
OVERALL CIRCUIT VOLTAGE DROP (%) = **4.78%** **PASS**
PASS/FAIL THRESHOLD (%) = 5%

TOTAL CIRCUIT AMPS = 8.56 A
OPERATING VOLTAGE = 240 V
OPERATING pf = 0.85

WIRE SIZE (AWG)	AMPS	IMPEDANCE PER 1000FT	DISTANCE	V DROP	WATTAGE	LOCATION
2	32.78 A	0.19 Ω	10 ft	0.12 V		Service Point to LC-A
2	11.75 A	0.19 Ω	1538 ft	6.87 V	86 W	P-34 to LC-A
2	11.35 A	0.19 Ω	70 ft	0.30 V	86 W	
2	10.95 A	0.19 Ω	70 ft	0.29 V	86 W	
2	10.56 A	0.19 Ω	70 ft	0.28 V	86 W	
2	10.16 A	0.19 Ω	70 ft	0.27 V	86 W	
2	9.76 A	0.19 Ω	70 ft	0.26 V	86 W	
2	9.36 A	0.19 Ω	70 ft	0.25 V	86 W	
2	8.96 A	0.19 Ω	70 ft	0.24 V	86 W	
2	8.56 A	0.19 Ω	70 ft	0.23 V	86 W	
2	8.17 A	0.19 Ω	70 ft	0.22 V	86 W	
2	7.77 A	0.19 Ω	70 ft	0.21 V	86 W	
2	7.37 A	0.19 Ω	70 ft	0.20 V	86 W	
2	6.97 A	0.19 Ω	70 ft	0.19 V	86 W	
2	6.57 A	0.19 Ω	70 ft	0.17 V	86 W	
2	6.18 A	0.19 Ω	70 ft	0.16 V	86 W	
2	5.78 A	0.19 Ω	70 ft	0.15 V	86 W	
2	5.38 A	0.19 Ω	70 ft	0.14 V	86 W	
2	4.98 A	0.19 Ω	70 ft	0.13 V	86 W	
2	4.58 A	0.19 Ω	70 ft	0.12 V	86 W	
2	4.19 A	0.19 Ω	70 ft	0.11 V	86 W	
2	3.79 A	0.19 Ω	70 ft	0.10 V	86 W	
2	3.39 A	0.19 Ω	70 ft	0.09 V	86 W	
2	2.99 A	0.19 Ω	70 ft	0.08 V	86 W	
2	2.59 A	0.19 Ω	70 ft	0.07 V	86 W	
2	2.19 A	0.19 Ω	75 ft	0.06 V	86 W	
2	1.80 A	0.19 Ω	73 ft	0.05 V	86 W	
2	1.40 A	0.19 Ω	75 ft	0.04 V	86 W	
2	1.00 A	0.19 Ω	70 ft	0.03 V	54 W	
2	0.75 A	0.19 Ω	63 ft	0.02 V	54 W	
2	0.50 A	0.19 Ω	65 ft	0.01 V	54 W	
2	0.25 A	0.19 Ω	43 ft	0.00 V	54 W	P-65

Note 1: Luminaire wattages and loads at 240V and 0.9 pf.

Wattage	**Amps**
54 W	0.25 A
86 W	0.40 A

Note 2: Voltage Drop (VD) Equation:
VD = (2 x IMPEDANCEx DISTANCE/1000ft x AMPS)
IMPEDANCE is derived from Table 9, NEC 2020, Using PVC Conduits, Copper Conductors

OVERALL CIRCUIT VOLTAGE DROP (V) = 11.47

SINGLE PHASE CIRCUIT VOLTAGE DROP CALCULATIONS

PROJECT NAME: City of Doral Trail Lighting Improvements
LOCATION DESCRIPTION: Voltage Drop - LC-B, CKT No.1

OVERALL CIRCUIT VOLTAGE DROP (V) =	**8.51 V**	
OVERALL CIRCUIT VOLTAGE DROP (%) =	**3.54%**	**PASS**
PASS/FAIL THRESHOLD (%) =	5%	

TOTAL CIRCUIT AMPS =	9.24 A
OPERATING VOLTAGE =	240 V
OPERATING pf =	0.85

WIRE SIZE (AWG)	AMPS	IMPEDANCE PER 1000FT	DISTANCE	V DROP	WATTAGE	LOCATION
2	20.23 A	0.19 Ω	10 ft	0.08 V		Service Point to LC-B
6	9.24 A	0.44 Ω	30 ft	0.24 V	54 W	P-93 to LC-B
6	8.99 A	0.44 Ω	58 ft	0.46 V	54 W	
6	8.74 A	0.44 Ω	58 ft	0.45 V	54 W	
6	8.49 A	0.44 Ω	58 ft	0.43 V	54 W	
6	8.24 A	0.44 Ω	58 ft	0.42 V	54 W	
6	7.99 A	0.44 Ω	58 ft	0.41 V	54 W	
6	7.74 A	0.44 Ω	58 ft	0.40 V	54 W	
6	7.49 A	0.44 Ω	58 ft	0.38 V	54 W	
6	7.24 A	0.44 Ω	58 ft	0.37 V	54 W	
6	6.99 A	0.44 Ω	58 ft	0.36 V	54 W	
6	6.74 A	0.44 Ω	58 ft	0.34 V	54 W	
6	6.49 A	0.44 Ω	58 ft	0.33 V	54 W	
6	6.24 A	0.44 Ω	58 ft	0.32 V	54 W	
6	5.99 A	0.44 Ω	58 ft	0.31 V	54 W	
6	5.74 A	0.44 Ω	58 ft	0.29 V	54 W	
6	5.49 A	0.44 Ω	58 ft	0.28 V	54 W	
6	5.24 A	0.44 Ω	63 ft	0.29 V	54 W	
6	4.99 A	0.44 Ω	58 ft	0.25 V	54 W	
6	4.74 A	0.44 Ω	58 ft	0.24 V	54 W	
6	4.49 A	0.44 Ω	58 ft	0.23 V	54 W	
6	4.24 A	0.44 Ω	58 ft	0.22 V	54 W	
6	3.99 A	0.44 Ω	58 ft	0.20 V	86 W	
6	3.59 A	0.44 Ω	58 ft	0.18 V	86 W	
6	3.19 A	0.44 Ω	58 ft	0.16 V	54 W	
6	2.94 A	0.44 Ω	58 ft	0.15 V	54 W	
6	2.69 A	0.44 Ω	58 ft	0.14 V	54 W	
6	2.44 A	0.44 Ω	58 ft	0.12 V	54 W	
6	2.19 A	0.44 Ω	58 ft	0.11 V	54 W	
6	1.94 A	0.44 Ω	58 ft	0.10 V	54 W	
6	1.69 A	0.44 Ω	58 ft	0.09 V	86 W	
6	1.30 A	0.44 Ω	58 ft	0.07 V	86 W	
6	0.90 A	0.44 Ω	58 ft	0.05 V	86 W	
6	0.50 A	0.44 Ω	58 ft	0.03 V	54 W	
6	0.25 A	0.44 Ω	55 ft	0.01 V	54 W	P-126

Note 1: Luminaire wattages and loads at 240V and 0.9 pf.

Wattage	**Amps**
54 W	0.25 A
86 W	0.40 A

Note 2: Voltage Drop (VD) Equation:
VD = (2 x IMPEDANCEx DISTANCE/1000ft x AMPS)
IMPEDANCE is derived from Table 9, NEC 2020, Using PVC Conduits, Copper Conductors

OVERALL CIRCUIT VOLTAGE DROP (V) = 8.51

SINGLE PHASE CIRCUIT VOLTAGE DROP CALCULATIONS

PROJECT NAME: City of Doral Trail Lighting Improvements
LOCATION DESCRIPTION: Voltage Drop - LC-B, CKT No.2

OVERALL CIRCUIT VOLTAGE DROP (V) =	**11.97 V**	
OVERALL CIRCUIT VOLTAGE DROP (%) =	**4.99%**	**PASS**
PASS/FAIL THRESHOLD (%) =	5%	

TOTAL CIRCUIT AMPS =	10.99 A
OPERATING VOLTAGE =	240 V
OPERATING pf =	0.85

WIRE SIZE (AWG)	AMPS	IMPEDANCE PER 1000FT	DISTANCE	V DROP	WATTAGE	LOCATION
2	20.23 A	0.19 Ω	10 ft	0.08 V		Service Point to LC-B
2	10.99 A	0.19 Ω	432 ft	1.80 V	86 W	P-92(turnpike) to LC-B
2	10.59 A	0.19 Ω	56 ft	0.23 V	54 W	P-91
2	10.34 A	0.19 Ω	56 ft	0.22 V	54 W	
6	10.09 A	0.44 Ω	56 ft	0.50 V	54 W	
6	9.84 A	0.44 Ω	56 ft	0.49 V	54 W	
6	9.59 A	0.44 Ω	56 ft	0.47 V	54 W	
6	9.34 A	0.44 Ω	56 ft	0.46 V	54 W	
6	9.09 A	0.44 Ω	56 ft	0.45 V	54 W	
6	8.84 A	0.44 Ω	56 ft	0.44 V	54 W	
6	8.59 A	0.44 Ω	56 ft	0.42 V	54 W	
6	8.34 A	0.44 Ω	56 ft	0.41 V	54 W	
6	8.09 A	0.44 Ω	56 ft	0.40 V	54 W	
6	7.84 A	0.44 Ω	49 ft	0.34 V	54 W	
6	7.59 A	0.44 Ω	58 ft	0.39 V	54 W	
6	7.34 A	0.44 Ω	62 ft	0.40 V	54 W	
6	7.09 A	0.44 Ω	60 ft	0.37 V	54 W	
6	6.84 A	0.44 Ω	52 ft	0.31 V	54 W	
6	6.59 A	0.44 Ω	50 ft	0.29 V	54 W	
6	6.34 A	0.44 Ω	56 ft	0.31 V	86 W	
6	5.94 A	0.44 Ω	56 ft	0.29 V	86 W	
6	5.55 A	0.44 Ω	66 ft	0.32 V	86 W	
6	5.15 A	0.44 Ω	56 ft	0.25 V	86 W	
6	4.75 A	0.44 Ω	56 ft	0.23 V	54 W	
6	4.50 A	0.44 Ω	43 ft	0.17 V	54 W	
6	4.25 A	0.44 Ω	55 ft	0.21 V	54 W	
6	4.00 A	0.44 Ω	56 ft	0.20 V	54 W	
6	3.75 A	0.44 Ω	61 ft	0.20 V	54 W	
6	3.50 A	0.44 Ω	54 ft	0.17 V	54 W	
6	3.25 A	0.44 Ω	60 ft	0.17 V	54 W	
6	3.00 A	0.44 Ω	59 ft	0.16 V	54 W	
6	2.75 A	0.44 Ω	57 ft	0.14 V	54 W	
6	2.50 A	0.44 Ω	61 ft	0.13 V	54 W	
6	2.25 A	0.44 Ω	50 ft	0.10 V	54 W	
6	2.00 A	0.44 Ω	56 ft	0.10 V	54 W	
6	1.75 A	0.44 Ω	56 ft	0.09 V	54 W	
6	1.50 A	0.44 Ω	56 ft	0.07 V	54 W	
6	1.25 A	0.44 Ω	56 ft	0.06 V	54 W	
6	1.00 A	0.44 Ω	52 ft	0.05 V	54 W	
6	0.75 A	0.44 Ω	60 ft	0.04 V	54 W	
6	0.50 A	0.44 Ω	56 ft	0.02 V	54 W	
6	0.25 A	0.44 Ω	80 ft	0.02 V	54 W	P-52 (Turnpike)

Note 1: Luminaire wattages and loads at 240V and 0.9 pf.

Wattage	**Amps**
54 W	0.25 A
86 W	0.40 A

Note 2: Voltage Drop (VD) Equation:
VD = (2 x IMPEDANCEx DISTANCE/1000ft x AMPS)
IMPEDANCE is derived from Table 9, NEC 2020, Using PVC Conduits, Copper Conductors

OVERALL CIRCUIT VOLTAGE DROP (V) =	11.97

SINGLE PHASE CIRCUIT VOLTAGE DROP CALCULATIONS

PROJECT NAME: City of Doral Trail Lighting Improvements
LOCATION DESCRIPTION: Voltage Drop - LC-C, CKT No.1

OVERALL CIRCUIT VOLTAGE DROP (V) = **10.12 V**
OVERALL CIRCUIT VOLTAGE DROP (%) = **4.22%** **PASS**
PASS/FAIL THRESHOLD (%) = 5%

TOTAL CIRCUIT AMPS = 7.90 A
OPERATING VOLTAGE = 240 V
OPERATING pf = 0.85

WIRE SIZE (AWG)	AMPS	IMPEDANCE PER 1000FT	DISTANCE	V DROP	WATTAGE	LOCATION
4	17.79 A	0.29 Ω	10 ft	0.10 V		Service Point to LC-C
8	7.90 A	0.69 Ω	30 ft	0.33 V	54 W	P-140 to LC-C
8	7.65 A	0.69 Ω	58 ft	0.61 V	54 W	
8	7.40 A	0.69 Ω	58 ft	0.59 V	54 W	
8	7.15 A	0.69 Ω	58 ft	0.57 V	54 W	
8	6.90 A	0.69 Ω	58 ft	0.55 V	54 W	
8	6.65 A	0.69 Ω	58 ft	0.53 V	54 W	
8	6.40 A	0.69 Ω	58 ft	0.51 V	54 W	
8	6.15 A	0.69 Ω	58 ft	0.49 V	54 W	
8	5.90 A	0.69 Ω	58 ft	0.47 V	54 W	
8	5.65 A	0.69 Ω	58 ft	0.45 V	54 W	
8	5.40 A	0.69 Ω	58 ft	0.43 V	54 W	
8	5.15 A	0.69 Ω	58 ft	0.41 V	54 W	
8	4.90 A	0.69 Ω	58 ft	0.39 V	54 W	
8	4.65 A	0.69 Ω	63 ft	0.40 V	54 W	
8	4.40 A	0.69 Ω	58 ft	0.35 V	54 W	
8	4.15 A	0.69 Ω	58 ft	0.33 V	54 W	
8	3.90 A	0.69 Ω	58 ft	0.31 V	54 W	
8	3.65 A	0.69 Ω	58 ft	0.29 V	54 W	
8	3.40 A	0.69 Ω	58 ft	0.27 V	54 W	
8	3.15 A	0.69 Ω	58 ft	0.25 V	54 W	
8	2.90 A	0.69 Ω	58 ft	0.23 V	54 W	
8	2.65 A	0.69 Ω	58 ft	0.21 V	54 W	
8	2.40 A	0.69 Ω	58 ft	0.19 V	54 W	
8	2.15 A	0.69 Ω	58 ft	0.17 V	54 W	
8	1.90 A	0.69 Ω	58 ft	0.15 V	54 W	
8	1.65 A	0.69 Ω	58 ft	0.13 V	54 W	
8	1.40 A	0.69 Ω	58 ft	0.11 V	54 W	
8	1.15 A	0.69 Ω	58 ft	0.09 V	54 W	
8	0.90 A	0.69 Ω	58 ft	0.07 V	54 W	
8	0.65 A	0.69 Ω	58 ft	0.05 V	54 W	
8	0.40 A	0.69 Ω	55 ft	0.03 V	86 W	P-170 (Turnpike)

Note 1: Luminaire wattages and loads at 240V and 0.9 pf.

Wattage	**Amps**
54 W	0.25 A
86 W	0.40 A

Note 2: Voltage Drop (VD) Equation:
VD = (2 x IMPEDANCEx DISTANCE/1000ft x AMPS)
IMPEDANCE is derived from Table 9, NEC 2020, Using PVC Conduits, Copper Conductors

OVERALL CIRCUIT VOLTAGE DROP (V) = 10.12

SINGLE PHASE CIRCUIT VOLTAGE DROP CALCULATIONS

PROJECT NAME: City of Doral Trail Lighting Improvements
LOCATION DESCRIPTION: Voltage Drop - LC-C, CKT No.2

OVERALL CIRCUIT VOLTAGE DROP (V) =	**10.35 V**	
OVERALL CIRCUIT VOLTAGE DROP (%) =	**4.31%**	**PASS**
PASS/FAIL THRESHOLD (%) =	5%	

TOTAL CIRCUIT AMPS =	6.64 A
OPERATING VOLTAGE =	240 V
OPERATING pf =	0.85

WIRE SIZE (AWG)	AMPS	IMPEDANCE PER 1000FT	DISTANCE	V DROP	WATTAGE	LOCATION
2	17.79 A	0.19 Ω	10 ft	0.07 V		Service Point to LC-C
4	6.64 A	0.29 Ω	1765 ft	6.80 V		P-145 (turnpike) to LC-C
6	6.64 A	0.44 Ω	50 ft	0.29 V	86 W	P-1(Dres.) to P-145(turn.)
6	6.24 A	0.44 Ω	48 ft	0.26 V	86 W	
6	5.84 A	0.44 Ω	50 ft	0.26 V	86 W	
6	5.44 A	0.44 Ω	52 ft	0.25 V	86 W	
6	5.05 A	0.44 Ω	52 ft	0.23 V	54 W	
6	4.80 A	0.44 Ω	52 ft	0.22 V	54 W	
6	4.55 A	0.44 Ω	52 ft	0.21 V	54 W	
6	4.30 A	0.44 Ω	52 ft	0.20 V	54 W	
6	4.05 A	0.44 Ω	52 ft	0.19 V	54 W	
6	3.80 A	0.44 Ω	52 ft	0.17 V	54 W	
6	3.55 A	0.44 Ω	52 ft	0.16 V	54 W	
6	3.30 A	0.44 Ω	52 ft	0.15 V	54 W	
6	3.05 A	0.44 Ω	52 ft	0.14 V	54 W	
6	2.80 A	0.44 Ω	52 ft	0.13 V	54 W	
6	2.55 A	0.44 Ω	52 ft	0.12 V	54 W	
6	2.30 A	0.44 Ω	52 ft	0.11 V	54 W	
6	2.05 A	0.44 Ω	52 ft	0.09 V	54 W	
6	1.80 A	0.44 Ω	52 ft	0.08 V	54 W	
6	1.55 A	0.44 Ω	52 ft	0.07 V	54 W	
6	1.30 A	0.44 Ω	52 ft	0.06 V	54 W	
6	1.05 A	0.44 Ω	52 ft	0.05 V	54 W	
6	0.80 A	0.44 Ω	52 ft	0.04 V	86 W	
6	0.40 A	0.44 Ω	52 ft	0.02 V	86 W	P-23 (Dressel's)

Note 1: Luminaire wattages and loads at 240V and 0.9 pf.

Wattage	**Amps**
54 W	0.25 A
86 W	0.40 A

Note 2: Voltage Drop (VD) Equation:
VD = (2 x IMPEDANCEx DISTANCE/1000ft x AMPS)
IMPEDANCE is derived from Table 9, NEC 2020, Using PVC Conduits, Copper Conductors

OVERALL CIRCUIT VOLTAGE DROP (V) = 10.35

SINGLE PHASE CIRCUIT VOLTAGE DROP CALCULATIONS

PROJECT NAME: City of Doral Trail Lighting Improvements
LOCATION DESCRIPTION: Voltage Drop - LC-C, CKT No.3

OVERALL CIRCUIT VOLTAGE DROP (V) =	**1.84 V**	
OVERALL CIRCUIT VOLTAGE DROP (%) =	**0.77%**	**PASS**
PASS/FAIL THRESHOLD (%) =	5%	

TOTAL CIRCUIT AMPS =	3.25 A
OPERATING VOLTAGE =	240 V
OPERATING pf =	0.85

WIRE SIZE (AWG)	AMPS	IMPEDANCE PER 1000FT	DISTANCE	V DROP	WATTAGE	LOCATION
2	17.79 A	0.19 Ω	10 ft	0.07 V		Service Point to LC-C
8	3.25 A	0.69 Ω	40 ft	0.18 V	54 W	P-139 to LC-C
8	3.00 A	0.69 Ω	54 ft	0.22 V	54 W	
8	2.75 A	0.69 Ω	56 ft	0.21 V	54 W	
8	2.50 A	0.69 Ω	66 ft	0.23 V	54 W	
8	2.25 A	0.69 Ω	53 ft	0.16 V	54 W	
8	2.00 A	0.69 Ω	62 ft	0.17 V	54 W	
8	1.75 A	0.69 Ω	61 ft	0.15 V	54 W	
8	1.50 A	0.69 Ω	59 ft	0.12 V	54 W	
8	1.25 A	0.69 Ω	64 ft	0.11 V	54 W	
8	1.00 A	0.69 Ω	62 ft	0.09 V	54 W	
8	0.75 A	0.69 Ω	65 ft	0.07 V	54 W	
8	0.50 A	0.69 Ω	65 ft	0.04 V	54 W	
8	0.25 A	0.69 Ω	60 ft	0.02 V	54 W	P-127 (turnpike)

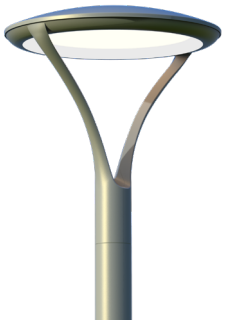
Note 1: Luminaire wattages and loads at 240V and 0.9 pf.

Wattage	**Amps**
54 W	0.25 A
86 W	0.40 A

Note 2: Voltage Drop (VD) Equation:
VD = (2 x IMPEDANCEx DISTANCE/1000ft x AMPS)
IMPEDANCE is derived from Table 9, NEC 2020, Using PVC Conduits, Copper Conductors

OVERALL CIRCUIT VOLTAGE DROP (V) = 1.84

Appendix C.
LUMINAIRE CATALOG CUT SHEETS



Radean Post Top
LED Area Luminaire

Catalog Number

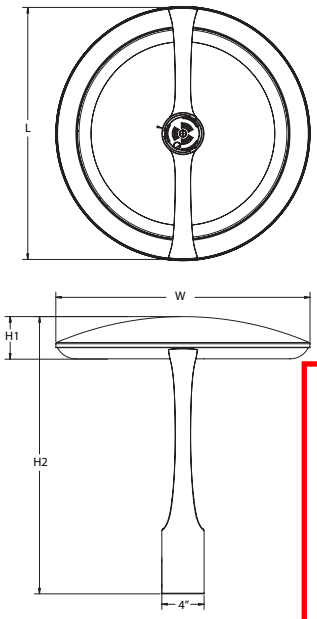
Notes

Type

Hit the Tab key or mouse over the page to see all interactive elements.

Specifications

EPA:	1.02 ft² (0.105 m²)
Length:	24" (61cm)
Width:	24" (61cm)
H1 Luminaire Height:	4" (10.16cm)
H2 Luminaire Height:	26" (66.04cm)
Weight:	38lbs (17.24Kg)



Introduction

The architecturally-inspired shape of the RADEAN™ post top area luminaire embodies the grace and strength of the RADEAN family. The twin copper-core cast aluminum arms support the slender superstructure, creating a beautiful sculpture by day transforming into a beacon of comfort by night. Triangular arms redirect reflection maintaining its visually quiet appearance. With sleek lines and simple silhouettes, these LED luminaires use specialized lighting and visual comfort to transform common areas like courtyards, outdoor retail locations, universities and corporate campuses into

10ft mounting height:
RADPT_LED_P3_40K_PATH_MVOLT_RADPT20_HS
RADPT_LED_P4_40K_PATH_MVOLT_RADPT20_HS

Ordering Information

EXAMPLE: RADPT LED P3 30K SYM MVOLT PT4 PE DNAXD

RADPT LED

Series	Performance package	Color temperature	Distribution	Voltage	Mounting *(required)*
RADPT LED	P1 3,000 Lumens P2 5,000 Lumens P3 7,000 Lumens P4 10,000 Lumens P5 15,000 Lumens	27K 2700K 30K 3000K 35K 3500K 40K 4000K 50K 5000K	SYM Symmetric type V ASY Asymmetric type IV PATH Pathway Type III	MVOLT[2] 120[2] 208[2] 240[2] 277[2] 347 480	PT4[3] Slips inside a 4" OD round metal pole RADPT20 Slips over a 2 3/8" diameter tenon (4" tall tenon required) RADPT25 Slips over a 2 7/8" diameter tenon (4" tall tenon required)

Control options	Other options		Finish *(required)*	
Shipped installed	SF Single Fuse[2]	**Shipped installed**	DDBXD Dark bronze	DDBTXD Textured dark bronze
NLTAIR2 nLight AIR 2.0 enabled[4]	DF Double Fuse[2]	HS Houseside shield[6]	DBLXD Black	DBLBXD Textured black
PE Button photocell[4]	R90 Rotated optics[5]		DNAXD Natural aluminum	DNATXD Textured natural aluminum
FAO Field adjustable output[4]			DWHXD White	DWHGXD Textured white

Ordering Information

Accessories

Ordered and shipped separately.

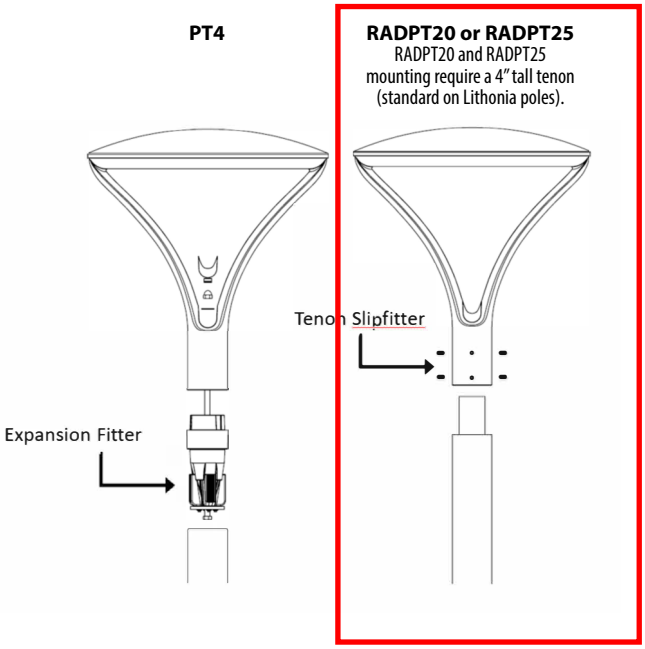
RADHS	Houseside shield (shield is white)
RADCS DDBXD U	Decorative clamshell base for 4" RSS pole (specify finish)
RADFBC DDBXD U	Full base cover for 4" RSS pole (specify finish)

For more control options, visit DTL and ROAM online.

NOTES

1. 2700K and 3500K may require extended lead-times.
2. MVOLT driver operates on any line voltage from 120-277V (50/60 Hz). Single fuse (SF) requires 120, 277 or 347 voltage option. Double fuse (DF) requires 208, 240 or 480 voltage option.
3. Requires nominal 4" round straight metal pole.
4. NLTAIR2 not available with PE or FAO. Must link to external nLight Air network. Does not include occupancy sensor. For more information refer to rSBOR pole mount sensor.
5. For left rotation, select R90 and rotate luminaire 180° on pole.
6. Also available as a separate accessory; see Accessories information at left. HS not available with R90. Shield is field rotatable shield in 180° increments.

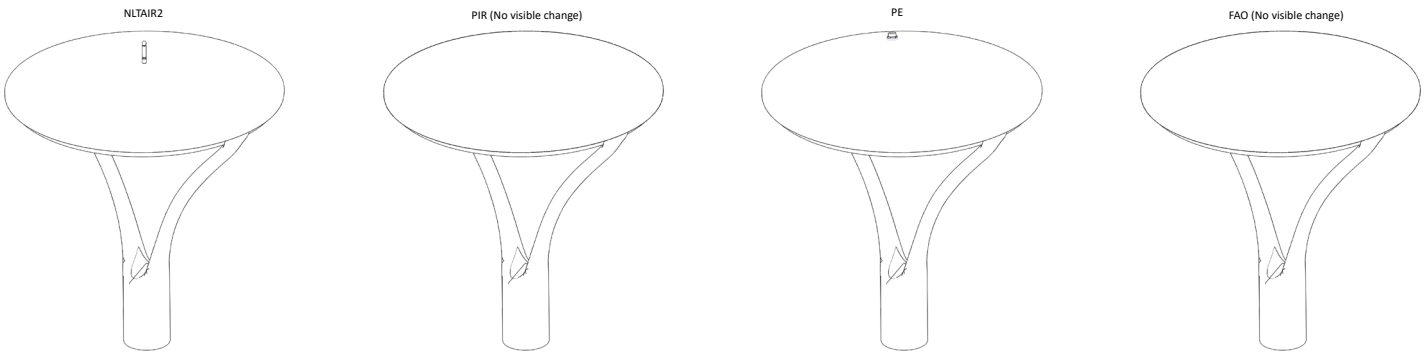
Mounting



Recommended Poles for use with RADEAN RADPT LED Luminaires.			
Acuity Part Number	**Description**	**For luminaires**	**Used with Mounting**
RSS 10 4B PT DDBXD	10' Round Straight Steel - 4" O.D. - Open Top	RADPT LED	PT4
RSS 12 4B PT DDBXD	12' Round Straight Steel - 4" O.D. - Open Top	RADPT LED	PT4
RSS 14 4B PT DDBXD	14' Round Straight Steel - 4" O.D. - Open Top	RADPT LED	PT4
RSS 16 4B PT DDBXD	16' Round Straight Steel - 4" O.D. - Open Top	RADPT LED	PT4
RSS 18 4B PT DDBXD	18' Round Straight Steel - 4" O.D. - Open Top	RADPT LED	PT4
RSS 20 4B PT DDBXD	20' Round Straight Steel - 4" O.D. - Open Top	RADPT LED	PT4
RSS 25 4B PT DDBXD	25' Round Straight Steel - 4" O.D. - Open Top	RADPT LED	PT4
RSS 10 4B T20 DDBXD	10' Round Straight Steel - 4" O.D. - Tenon Top	RADPT LED	RADPT20
RSS 12 4B T20 DDBXD	12' Round Straight Steel - 4" O.D. - Tenon Top	RADPT LED	RADPT20
RSS 14 4B T20 DDBXD	14' Round Straight Steel - 4" O.D. - Tenon Top	RADPT LED	RADPT20
RSS 16 4B T20 DDBXD	16' Round Straight Steel - 4" O.D. - Tenon Top	RADPT LED	RADPT20
RSS 18 4B T20 DDBXD	18' Round Straight Steel - 4" O.D. - Tenon Top	RADPT LED	RADPT20
RSS 20 4B T20 DDBXD	20' Round Straight Steel - 4" O.D. - Tenon Top	RADPT LED	RADPT20
RSS 25 4B T20 DDBXD	25' Round Straight Steel - 4" O.D. - Tenon Top	RADPT LED	RADPT20

* Customer must verify pole loading per required design criteria and specified wind speed. Consult pole specification sheet for additional details.

Control Options



Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown. Contact factory for performance data on any configurations not shown here.

Performance Package	Input Wattage	Distribution	2700K					3000K					3500K					4000K					5000K				
			Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
P1	25	ASY	2,924	2	1	2	115	3,022	2	2	2	119	3,095	2	2	2	122	3,168	2	2	2	125	3,168	2	2	2	125
		PATH	2,529	2	1	2	100	2,613	2	2	2	103	2,676	2	2	2	105	2,739	2	2	2	108	2,739	2	2	2	108
		SYM	3,086	2	1	1	121	3,189	2	1	1	126	3,266	2	1	1	129	3,344	2	1	1	132	3,344	2	1	1	132
P2	38	ASY	4,521	3	2	3	119	4,672	3	2	3	123	4,785	3	2	3	126	4,898	3	2	3	129	4,898	3	2	3	129
		PATH	3,909	2	2	2	103	4,040	2	2	2	106	4,137	2	2	2	109	4,235	3	2	3	111	4,235	3	2	3	111
		SYM	4,772	2	2	1	126	4,931	3	2	1	130	5,050	3	2	1	133	5,169	3	2	1	136	5,169	3	2	1	136
P3	54	ASY	6,387	3	2	3	119	6,600	3	2	3	123	6,760	3	2	3	126	6,919	3	2	3	129	6,919	3	2	3	129
		PATH	5,523	3	2	3	103	5,707	3	2	3	106	5,845	3	2	3	109	5,983	3	2	3	112	5,983	3	2	3	112
		SYM	6,741	3	2	2	126	6,966	3	2	2	130	7,135	3	2	2	133	7,303	3	2	2	136	7,303	3	2	2	136
P4	86	ASY	10,150	4	2	4	118	10,489	4	2	4	122	10,742	4	2	4	125	10,996	4	2	4	128	10,996	4	2	4	128
		PATH	8,777	3	2	3	102	9,070	3	2	3	106	9,289	3	2	3	108	9,509	3	2	3	111	9,509	3	2	3	111
		SYM	10,713	3	2	2	125	11,071	3	2	2	129	11,338	3	2	2	132	11,606	3	2	2	135	11,606	3	2	2	135
P5	123	ASY	14,250	4	2	4	116	14,724	4	2	4	120	15,081	4	3	4	123	15,437	4	3	4	126	15,437	4	3	4	126
		PATH	12,322	4	2	4	101	12,733	4	3	4	104	13,041	4	3	4	106	13,349	4	3	4	109	13,349	4	3	4	109
		SYM	15,040	4	2	3	123	15,541	4	2	3	127	15,917	4	2	3	130	16,293	4	2	3	133	16,293	4	2	3	133

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		LAT Factor
0°C	32°F	1.06
5°C	41°F	1.05
10°C	50°F	1.04
15°C	59°F	1.02
20°C	68°F	1.01
25°C	**77°F**	**1.00**
30°C	86°F	0.99
35°C	95°F	0.98
40°C	104°F	0.96

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the **RADPT LED** platform in a **25°C ambient**, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Projected LED Lumen Maintenance				
	0	25,000	50,000	100,000
P1	1.00	0.96	0.91	0.82
P2	1.00	0.96	0.91	0.82
P3	1.00	0.96	0.91	0.82
P4	1.00	0.96	0.91	0.82
P5	1.00	0.95	0.89	0.78

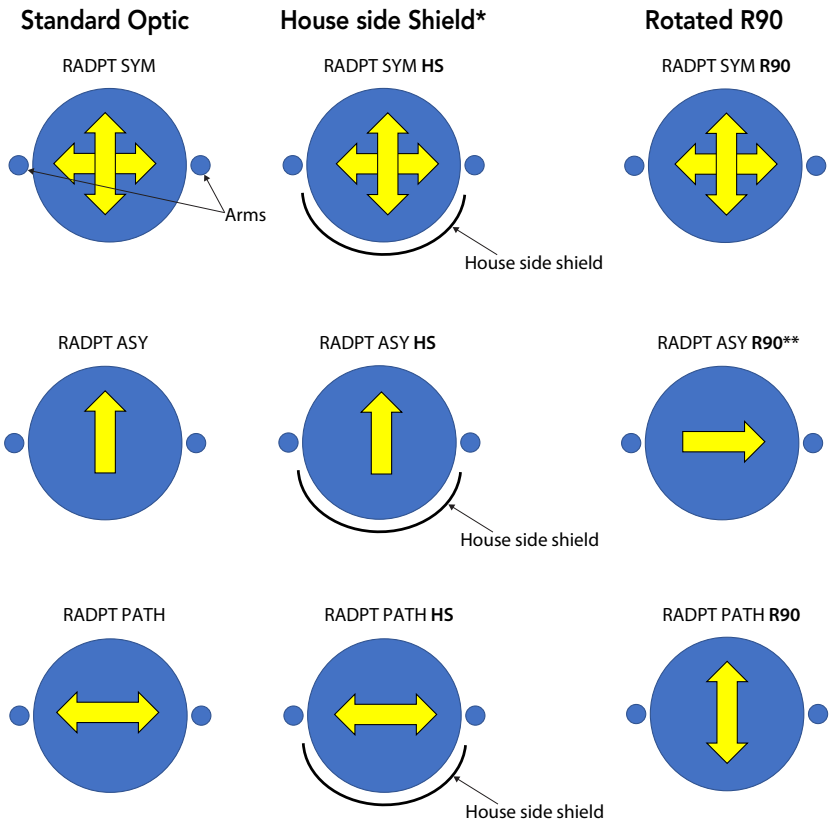
Electrical Load

Lumen Package	LED Drive Current	Voltage	Wattage		Current (A)					
					120	208	240	277	347	480
P1	500	42.8	21.4	Input Current	0.22	0.13	0.11	0.1	0.08	0.06
				System Watts	26	26	26	27	25	26
P2	770	43	33.1	Input Current	0.33	0.19	0.16	0.14	0.11	0.08
				System Watts	39	39	39	39	38	38
P3	1100	43.2	47.5	Input Current	0.46	0.26	0.23	0.2	0.16	0.12
				System Watts	55	54	54	54	54	54
P4	900	87.3	78.6	Input Current	0.73	0.42	0.36	0.32	0.25	0.18
				System Watts	87	86	86	86	86	86
P5	1250	88.2	110.2	Input Current	1	0.58	0.5	0.44	0.35	0.25
				System Watts	120	119	119	119	120	120

Orientation Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's RADPT LED homepage.

Isofootcandle plots are considered to be representative of available optical distributions.



*HS not available with R90
**For L90, use R90 and rotate luminaire 180° on pole

FEATURES & SPECIFICATIONS

INTENDED USE
Pedestrian areas such as parks, campuses, pathways, courtyards and pedestrians malls.

CONSTRUCTION
Single-piece die-cast aluminum housing with nominal wall thickness of 0.125" on a 6mm thick acrylic waveguide is fully gasketd with a single piece tubular silicone gasket.

FINISH
Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Standard Super Durable colors include dark bronze, black, natural aluminum and white. Available in textured and non-textured finishes.

OPTICS
6MM thick acrylic waveguide with 360° flexible LED board. Available in 2700K, 3000K, 3500K, 4000K and 5000K (80CRI) CCT configurations.

ELECTRICAL
Light engine consists of 96 high-efficacy LEDs mounted to a flexible circuit board and aluminum heat sink, ensuring optimal thermal management and long life. Fixtures ship standard with 0-10v dimming driver. Class 1 electronic driver has a power factor >90%, THD <20%, and has an expected life of 100,000 hours with <1% failure rate. Easily-serviceable 10kV surge protection device meets a minimum Category C Low for operation (per ANSI/IEEE C62.41.2).

INSTALLATION
Standard post-top PT4 type mounting configuration fits into a 4" OD open pole top (round pole only). Alternate tenon (2-3/8" or 2-7/8") mounting also available and require 4" tall tenons.

LISTINGS
CSA certified to U.S. and Canadian standards. Luminaire is IP65 rated. Rated for -40°C minimum ambient.

DesignLights Consortium® (DLC) Premium qualified product and DLC qualified product. Not all versions of this product may be DLC Premium qualified or DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

International Dark-Sky Association (IDA) Fixture Seal of Approval (FSA) is available for all products on this page utilizing 3000K color or less. U.S. Patent No. D925,088S

BUY AMERICAN ACT
This product is assembled in the USA and meets the Buy America(n) government procurement requirements under FAR, DFARS and DOT regulations. Please refer to www.acuitybrands.com/resources/buy-american for additional information.

WARRANTY
5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

Appendix D.
POWER COMPANY COORDINATION

Calderon Torres, Joseph

From: Park, Allison <Allison.Park@fpl.com>
Sent: Friday, August 9, 2024 12:47 PM
To: Calderon Torres, Joseph; Dopazo, Gabriel
Cc: Jaureguy, Alejandro; 21994 - City of Doral Trail Lighting; Pedro Ugas; Lazaro Quintero (PR)
Subject: RE: 23090 City of Doral Pedestrian Trail Improvements

Hello,

The cost for load canter A installation is $3,911. Please advise if you will use the same SAP information for both jobs.

Best Regards,

Allison Park
Engineer II
West Dade Service Center – FPL
(305)599-2434
Email: Allison.Park@fpl.com

Please contact me with any questions or concerns. If you cannot reach me, feel free to contact my Engineering Leader Bruno Bravo at (o) 305-599-4010 or Bruno.Bravo@fpl.com.

Visit the new FPL Project Portal at FPL.com/construction to manage your FPL residential and commercial construction projects including milestones.

From: Park, Allison
Sent: Thursday, August 8, 2024 8:34 AM
To: Calderon Torres, Joseph <jcalderon@hwlochner.com>; Dopazo, Gabriel <Gabriel.Dopazo@fpl.com>
Cc: Jaureguy, Alejandro <ajaureguy@hwlochner.com>; 21994 - City of Doral Trail Lighting <21994@hwlochner.com>; Pedro Ugas <pedrou@hadonne.com>; Lazaro Quintero (PR) <Lazaro.Quintero@cityofdoral.com>
Subject: RE: 23090 City of Doral Pedestrian Trail Improvements

Hi All,

The cost of the transformer install for load center C is $3,463.00. Please fill out the attached SAP form to proceed with the installation. I will have the coast for load center A next week.

Best Regards,

Allison Park
Engineer II
West Dade Service Center – FPL
(305)599-2434
Email: Allison.Park@fpl.com

Please contact me with any questions or concerns. If you cannot reach me, feel free to contact my Engineering Leader Bruno Bravo at (o) 305-599-4010 or Bruno.Bravo@fpl.com.

Visit the new FPL Project Portal at FPL.com/construction to manage your FPL residential and commercial construction projects including milestones.

From: Park, Allison
Sent: Thursday, July 25, 2024 2:12 PM
To: Calderon Torres, Joseph <jcalderon@hwlochner.com>; Dopazo, Gabriel <Gabriel.Dopazo@fpl.com>
Cc: Jaureguy, Alejandro <ajaureguy@hwlochner.com>; 21994 - City of Doral Trail Lighting <21994@hwlochner.com>; Pedro Ugas <pedrou@hadonne.com>; Lazaro Quintero (PR) <Lazaro.Quintero@cityofdoral.com>
Subject: RE: 23090 City of Doral Pedestrian Trail Improvements

Let's do Tuesday at 11 am! Can you please send a teams meeting invite?

Best Regards,

Allison Park
Engineer II
West Dade Service Center – FPL
(305)599-2434
Email: Allison.Park@fpl.com

Please contact me with any questions or concerns. If you cannot reach me, feel free to contact my Engineering Leader Bruno Bravo at (o) 305-599-4010 or Bruno.Bravo@fpl.com.

Visit the new FPL Project Portal at FPL.com/construction to manage your FPL residential and commercial construction projects including milestones.

From: Calderon Torres, Joseph <jcalderon@hwlochner.com>
Sent: Thursday, July 25, 2024 10:39 AM
To: Park, Allison <Allison.Park@fpl.com>; Dopazo, Gabriel <Gabriel.Dopazo@fpl.com>
Cc: Jaureguy, Alejandro <ajaureguy@hwlochner.com>; 21994 - City of Doral Trail Lighting <21994@hwlochner.com>; Pedro Ugas <pedrou@hadonne.com>; Lazaro Quintero (PR) <Lazaro.Quintero@cityofdoral.com>
Subject: RE: 23090 City of Doral Pedestrian Trail Improvements

Good morning Allison,

Can we do Tuesday morning (after 10am) or afternoon (after 2:30pm)?

Thank you,

Joseph M. Calderon Torres II, P.E.
Senior Electrical Engineer
Lochner

8750 NW 36th Street, Suite 360, Miami, FL 33178
P: 305.503.9873 | **M**: 407.744.7595

www.hwlochner.com

(PE: FL, IL, IN, KS, KY, MO, OK, PA, SD, TX, UT)

From: Park, Allison <Allison.Park@fpl.com>
Sent: Wednesday, July 24, 2024 4:11 PM
To: Calderon Torres, Joseph <jcalderon@hwlochner.com>; Dopazo, Gabriel <Gabriel.Dopazo@fpl.com>
Cc: Jaureguy, Alejandro <ajaureguy@hwlochner.com>; 21994 - City of Doral Trail Lighting <21994@hwlochner.com>; Pedro Ugas <pedrou@hadonne.com>; Lazaro Quintero (PR) <Lazaro.Quintero@cityofdoral.com>
Subject: RE: 23090 City of Doral Pedestrian Trail Improvements

HI Joseph,

My calendar for next week is clear except for Wednesday. What day works best for you?

Best Regards,

Allison Park
Engineer II
West Dade Service Center – FPL
(305)599-2434
Email: Allison.Park@fpl.com

Please contact me with any questions or concerns. If you cannot reach me, feel free to contact my Engineering Leader Bruno Bravo at (o) 305-599-4010 or Bruno.Bravo@fpl.com.

Visit the new FPL Project Portal at FPL.com/construction to manage your FPL residential and commercial construction projects including milestones.

From: Calderon Torres, Joseph <jcalderon@hwlochner.com>
Sent: Wednesday, July 24, 2024 3:25 PM
To: Park, Allison <Allison.Park@fpl.com>; Dopazo, Gabriel <Gabriel.Dopazo@fpl.com>
Cc: Jaureguy, Alejandro <ajaureguy@hwlochner.com>; 21994 - City of Doral Trail Lighting <21994@hwlochner.com>; Pedro Ugas <pedrou@hadonne.com>; Lazaro Quintero (PR) <Lazaro.Quintero@cityofdoral.com>
Subject: RE: 23090 City of Doral Pedestrian Trail Improvements

Good afternoon Allison,

Thank you for the info!

Are you available next week to discuss FPL's permitting requirements for the three service points mentioned below?

Please let me know what dates/times work for you.

Have a good day,

Joseph M. Calderon Torres II, P.E.
Senior Electrical Engineer
Lochner

8750 NW 36th Street, Suite 360, Miami, FL 33178
P: 305.503.9873 | **M**: 407.744.7595

www.hwlochner.com

(PE: FL, IL, IN, KS, KY, MO, OK, PA, SD, TX, UT)

Joseph M. Calderon Torres II, P.E.
Senior Electrical Engineer
Lochner

8750 NW 36th Street, Suite 360, Miami, FL 33178
P: 305.503.9873 | **M**: 407.744.7595

www.hwlochner.com

(PE: FL, IL, IN, KS, KY, MO, OK, PA, SD, TX, UT)

From: Park, Allison <Allison.Park@fpl.com>
Sent: Tuesday, July 2, 2024 12:03 PM
To: Calderon Torres, Joseph <jcalderon@hwlochner.com>; Dopazo, Gabriel <Gabriel.Dopazo@fpl.com>
Cc: Jaureguy, Alejandro <ajaureguy@hwlochner.com>; 21994 - City of Doral Trail Lighting <21994@hwlochner.com>; Pedro Ugas <pedrou@hadonne.com>; Lazaro Quintero (PR) <Lazaro.Quintero@cityofdoral.com>
Subject: RE: 23090 City of Doral Pedestrian Trail Improvements

Hi Joseph,

I apologize for the delay. There is an existing single phase 120/240 low style pad mount transformer to the north of the switch cabinet that has plenty of room for your connection for Load Center B. To connect this load center to power, you will bring your conduit to the transformer and bring it in during a standby appointment. Then when you pass inspection, we will schedule another appointment and you will pull the cable into the conduit and our crews will tap you in.

This location will not require any design work. Gabriel will be able to assist you with scheduling these necessary appointments. Thank you

Best Regards,

Allison Park
Engineer II
West Dade Service Center – FPL
(305)599-2434
Email: Allison.Park@fpl.com

Please contact me with any questions or concerns. If you cannot reach me, feel free to contact my Engineering Leader Bruno Bravo at (o) 305-599-4010 or Bruno.Bravo@fpl.com.

Visit the new FPL Project Portal at FPL.com/construction to manage your FPL residential and commercial construction projects including milestones.

From: Calderon Torres, Joseph <jcalderon@hwlochner.com>
Sent: Monday, June 10, 2024 4:29 PM
To: Park, Allison <Allison.Park@fpl.com>; Dopazo, Gabriel <Gabriel.Dopazo@fpl.com>
Cc: Jaureguy, Alejandro <ajaureguy@hwlochner.com>; 21994 - City of Doral Trail Lighting <21994@hwlochner.com>; Pedro Ugas <pedrou@hadonne.com>; Lazaro Quintero (PR) <Lazaro.Quintero@cityofdoral.com>
Subject: RE: 23090 City of Doral Pedestrian Trail Improvements

Good afternoon Allison,

For Load Center B, were you able to verify that there is space on the existing switch cabinet to run a new pad mounted transformer?

Thank you,

Joseph M. Calderon Torres II, P.E.
Senior Electrical Engineer

Lochner

8750 NW 36th Street, Suite 360, Miami, FL 33178
P: 305.503.9873 | **M**: 407.744.7595

www.hwlochner.com

(PE: FL, IL, IN, KS, KY, MO, OK, PA, SD, TX, UT)

From: Park, Allison <Allison.Park@fpl.com>
Sent: Tuesday, May 14, 2024 10:21 AM
To: Calderon Torres, Joseph <jcalderon@hwlochner.com>; Dopazo, Gabriel <Gabriel.Dopazo@fpl.com>
Cc: Jaureguy, Alejandro <ajaureguy@hwlochner.com>; 21994 - City of Doral Trail Lighting <21994@hwlochner.com>; Pedro Ugas <pedrou@hadonne.com>; Lazaro Quintero (PR) <Lazaro.Quintero@cityofdoral.com>
Subject: RE: 23090 City of Doral Pedestrian Trail Improvements

Good morning,

I have reviewed the attached and to proceed with the design I want to make sure we are all on the same page.

Load center A- The option you sent is feasible. We will work on the design to hang the new transformer and we would have to install a service pole across from the canal and then go to your weather head. For the service pole we will need a permit from the city to install in ROW. The middle pole (thicker and taller) is a transmission pole. To use that as the middle connection we need a transmission permit. If they approve the connection, we will be able to do it the same was the existing is set up. If not, we will have to install two service poles here.
Load center B – That padmounted equipment is a switch cabinet, not a transformer. We are going to send a crew to open the switch cabinet to let us know if there is space so we could run a new pad mounted transformer out of it. If it is full, we will need to revisit how we are going to feed this load center.
Load center C – The best option here is option 2. Like Load center A we would hang a transformer on the existing pole and then install a service pole across the canal. This will not require a transmission permit. Just a city permit to install the pole in the ROW.

I hope this helps in moving forward. I should have proposed designs for the 3 locations ready and approved in the coming weeks and then I will have job cost estimates.

Best Regards,

Allison Park
Engineer II
West Dade Service Center – FPL
(305)599-2434
Email: Allison.Park@fpl.com

Please contact me with any questions or concerns. If you cannot reach me, feel free to contact my Engineering Leader Bruno Bravo at (o) 305-599-4010 or Bruno.Bravo@fpl.com.

Visit the new FPL Project Portal at FPL.com/construction to manage your FPL residential and commercial construction projects including milestones.

From: Calderon Torres, Joseph <jcalderon@hwlochner.com>
Sent: Monday, April 29, 2024 7:25 PM
To: Park, Allison <Allison.Park@fpl.com>; Dopazo, Gabriel <Gabriel.Dopazo@fpl.com>
Cc: Jaureguy, Alejandro <ajaureguy@hwlochner.com>; 21994 - City of Doral Trail Lighting <21994@hwlochner.com>; Pedro Ugas <pedrou@hadonne.com>; Lazaro Quintero (PR) <Lazaro.Quintero@cityofdoral.com>; De la cruz mendez, Maria <Maria.Delacruzmendez@fpl.com>
Subject: RE: 23090 City of Doral Pedestrian Trail Improvements
Importance: High

Good afternoon Allison and Gabriel,

We had previously discussed the available service points for this project on 2/20/2024, but I have not heard back from FPL since then.

I have attached marked up plans, aerials, and service point details showing the proposed locations, voltages, and loads.

Please review attached and confirm the 3 proposed service point locations.

If there are any issues with the proposed service point locations, please notify me and identify the nearest possible service location with 240/120V, 3 wire available.

Also, please include any additional costs/fees associated with each service point, including if primary extension is required at any location.

Please contact me if you have any comments or questions.

Thank you,

Joseph M. Calderon Torres II, P.E.
Senior Electrical Engineer
Lochner

8750 NW 36th Street, Suite 360, Miami, FL 33178
P: 305.503.9873 | **M**: 407.744.7595

www.hwlochner.com

(PE: FL, IL, IN, KS, KY, MO, OK, PA, SD, TX, UT)

From: Pedro Ugas <pedrou@hadonne.com>
Sent: Thursday, February 15, 2024 4:32 PM
To: Calderon Torres, Joseph <jcalderon@hwlochner.com>; Dopazo, Gabriel <Gabriel.Dopazo@fpl.com>
Cc: Park, Allison <Allison.Park@fpl.com>; Lazaro Quintero (PR) <Lazaro.Quintero@cityofdoral.com>
Subject: RE: 23090 City of Doral Pedestrian Trail Improvements

Good afternoon Gabriel,
I am available tomorrow Friday in the afternoon and anytime on Tuesday.
Please let us know what works best for you and I will set up a TEAMs meeting.
Regards,

Pedro Ugas
Principal / Utility Coordination and SUE Manager
E: pedrou@hadonne.com
O: +1 (305) 266-1188
C: +1 (305) 431-9096
F: +1 (305) 207-6845
HADONNE | 1985 NW 88th Court, Suite 201 | Doral, Florida 33172 | www.hadonne.com
Land Surveyors and Mappers | Subsurface Utility Engineering | Utility Coordinators

---

From: Calderon Torres, Joseph <jcalderon@hwlochner.com>
Sent: Thursday, February 15, 2024 4:27 PM
To: Dopazo, Gabriel <Gabriel.Dopazo@fpl.com>; Pedro Ugas <pedrou@hadonne.com>
Cc: Park, Allison <Allison.Park@fpl.com>; Lazaro Quintero (PR) <Lazaro.Quintero@cityofdoral.com>
Subject: RE: 23090 City of Doral Pedestrian Trail Improvements

Good afternoon Gabriel,

I am currently available to discuss the electrical design anytime Friday and Tuesday.

Please see attached for the latest plans and preferred load center/ service point locations.

Thank you,

Joseph M. Calderon Torres II, P.E.
Senior Electrical Engineer
(PE: FL, IL, IN, KS, KY, MO, OK, PA, TX, UT)
LOCHNER
8750 NW 36th Street, Suite 360
Miami, Florida 33178
P 305.503.9873
C 407.744.7595
hwlochner.com

From: Dopazo, Gabriel <Gabriel.Dopazo@fpl.com>
Sent: Thursday, February 15, 2024 3:52 PM
To: Pedro Ugas <pedrou@hadonne.com>
Cc: Calderon Torres, Joseph <jcalderon@hwlochner.com>; Park, Allison <Allison.Park@fpl.com>
Subject: RE: 23090 City of Doral Pedestrian Trail Improvements

[EXTERNAL EMAIL] This is an external email. **NEVER CLICK or OPEN** unexpected links or attachments. **NEVER** provide User ID or Password. If this email seems suspicious, forward the email to spam for inspection.

Hi Pedro,

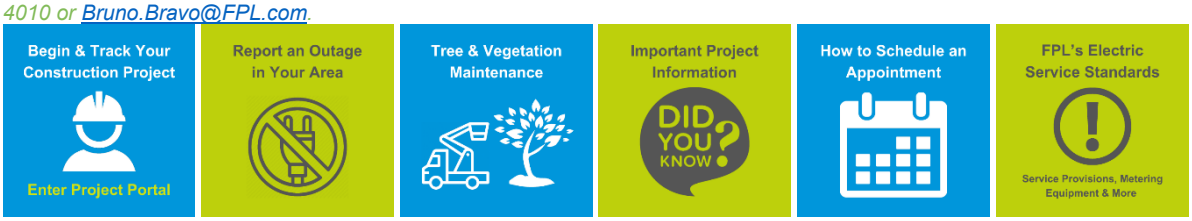
I apologize for any delays. I think this project would greatly benefit from a teams meeting. Please let me know when you are able to discuss electrical plans and I will set it up. I can do tomorrow or Tuesday. Please let me know.

Additionally, please send me electrical plans should you have them.

Regards,

Gabriel L. Dopazo
Associate Engineer
West Dade Service Center – FPL
6195 NW 82nd Ave,
Miami, FL 33166
Office: (305) 599-4043 Cell: (305) 561-9074
Email: Gabriel.Dopazo@FPL.com

*Visit the **FPL Project Portal** by visiting the link below to manage your FPL Residential and Commercial construction projects.*
Get information on construction services and project types, apply for your construction project, track project milestones, manage your project team and more.
Please contact me with any questions or concerns. If you cannot reach me, feel free to contact my Engineering Leader Bruno Bravo at (o) (305) 599-4010 or Bruno.Bravo@FPL.com.



From: Pedro Ugas <pedrou@hadonne.com>
Sent: Saturday, February 10, 2024 1:12 PM
To: Dopazo, Gabriel <Gabriel.Dopazo@fpl.com>
Cc: Calderon Torres, Joseph <jcalderon@hwlochner.com>; Vargas, Angel <Angel.Vargas@fpl.com>; De la cruz mendez, Maria <Maria.Delacruzmendez@fpl.com>
Subject: RE: 23090 City of Doral Pedestrian Trail Improvements

Good afternoon, Gabriel,
Hope this email finds you well. Once again, I am reaching out to you asking for your help. We have previously requested marked plans showing your existing facilities on the above referenced project as well as confirmation on the service points locations to fee proposed lighting. As of today, we have not received a response from your office. Please understand our sense of urgency. We cannot finalize our lighting plans

until we receive confirmation from FPL on the proposed availability and location of service points. We are currently behind schedule in our submittal to the City of Doral.

If you have any questions, require additional information or if there is anything that we can do to help you expedite a response, please do not hesitate to contact me.
Regards,

Pedro Ugas
Principal / Utility Coordination and SUE Manager
E: pedrou@hadonne.com
O: +1 (305) 266-1188
C: +1 (305) 431-9096
F: +1 (305) 207-6845
HADONNE | 1985 NW 88th Court, Suite 201 | Doral, Florida 33172 | www.hadonne.com
Land Surveyors and Mappers | Subsurface Utility Engineering | Utility Coordinators

---

From: Pedro Ugas
Sent: Saturday, January 20, 2024 10:50 AM
To: Dopazo, Gabriel <Gabriel.Dopazo@fpl.com>
Cc: Calderon Torres, Joseph <jcalderon@hwlochner.com>; angel.vargas@fpl.com; De la cruz mendez, Maria <Maria.Delacruzmendez@fpl.com>
Subject: RE: 23090 City of Doral Pedestrian Trail Improvements

Good morning Gabriel,

I hope this email finds you well. It has been over two months since we reached out to FPL requesting information.
As of today, we have not received a response from your office. Please understand our sense of urgency. We cannot finalized our lighting plans until we receive confirmation from FPL on the proposed availability and location of service points. We are currently behind schedule in our submittal to the City of Doral.

If you have any questions, require additional information or if there is anything that we can do to help you expedite a response, please do not hesitate to contact me.
Regards,

Pedro Ugas
Principal / Utility Coordination and SUE Manager
E: pedrou@hadonne.com
O: +1 (305) 266-1188
C: +1 (305) 431-9096
F: +1 (305) 207-6845
HADONNE | 1985 NW 88th Court, Suite 201 | Doral, Florida 33172 | www.hadonne.com
Land Surveyors and Mappers | Subsurface Utility Engineering | Utility Coordinators

---

From: Pedro Ugas
Sent: Monday, January 8, 2024 3:16 PM
To: Dopazo, Gabriel <Gabriel.Dopazo@fpl.com>
Cc: Calderon Torres, Joseph <jcalderon@hwlochner.com>; angel.vargas@fpl.com; De la cruz mendez, Maria <Maria.Delacruzmendez@fpl.com>
Subject: RE: 23090 City of Doral Pedestrian Trail Improvements

Good afternoon, Gabriel,

Following up on our request for record drawings and service points. It is my understanding that Maria covers the area north of NW 58th Street and that you cover the area south.

We are in desperate need of your help. We cannot finalize the plans until we are able to get confirmation from FPL on the proposed locations for service points to service the proposed trail lighting.
I hope that you please understand our sense of urgency. We have been trying to get a response from FPL since late October and have not received one.

If you have any questions, require additional information, or if there is anything that we can do to help you expedite a response, please do not hesitate to call me.
Regards,

Pedro Ugas
Vice-President / Utility Coordination and SUE Manager
E: pedrou@hadonne.com
O: +1 (305) 266-1188
C: +1 (305) 431-9096
F: +1 (305) 207-6845
HADONNE | 1985 NW 88th Court, Suite 201 | Doral, Florida 33172 | www.hadonne.com
Land Surveyors and Mappers | Subsurface Utility Engineering | Utility Coordinators

---

From: Pedro Ugas
Sent: Wednesday, January 3, 2024 7:27 AM
To: 'De la cruz mendez, Maria' <Maria.Delacruzmendez@fpl.com>
Cc: 'Calderon Torres, Joseph' <jcalderon@hwlochner.com>; 'Dopazo, Gabriel' <Gabriel.Dopazo@fpl.com>; 'angel.vargas@fpl.com' <angel.vargas@fpl.com>
Subject: RE: 23090 City of Doral Pedestrian Trail Improvements

Good morning and Happy New Year to all,

Maria,
I am following up on the below request. We are scheduled to submit plans to the City early next week and would need to include the final locations for service points.
If there is anything that we can do to help you expediate a response, please do not hesitate to reach out.
As always, your assistance int these matters is highly appreciated.
Regards,

Pedro Ugas
Principal / Utility Coordination and SUE Manager
E: pedrou@hadonne.com
O: +1 (305) 266-1188
C: +1 (305) 431-9096
F: +1 (305) 207-6845
HADONNE | 1985 NW 88th Court, Suite 201 | Doral, Florida 33172 | www.hadonne.com
Land Surveyors and Mappers | Subsurface Utility Engineering | Utility Coordinators

---

From: Pedro Ugas
Sent: Wednesday, December 20, 2023 9:52 AM
To: De la cruz mendez, Maria <Maria.Delacruzmendez@fpl.com>
Cc: Calderon Torres, Joseph <jcalderon@hwlochner.com>; Dopazo, Gabriel <Gabriel.Dopazo@fpl.com>; angel.vargas@fpl.com
Subject: RE: 23090 City of Doral Pedestrian Trail Improvements

Good morning Maria/Angel,
Hope this email finds you well. We are hoping to get the marked ups and service points locations confirm by the end of this week.
Plans submittal is scheduled for the first week of January and we will need to include this information in the package to the City.

If you have any questions, require additional information or if there is anything that we can do to help you expedite a response, please do not hesitate to me.
As always, your assistance is greatly appreciated.
Regards,

Pedro Ugas
Principal / Utility Coordination and SUE Manager
E: pedrou@hadonne.com
O: +1 (305) 266-1188
C: +1 (305) 431-9096
F: +1 (305) 207-6845
HADONNE | 1985 NW 88th Court, Suite 201 | Doral, Florida 33172 | www.hadonne.com
Land Surveyors and Mappers | Subsurface Utility Engineering | Utility Coordinators

---

From: Pedro Ugas
Sent: Tuesday, December 12, 2023 10:32 AM
To: De la cruz mendez, Maria <Maria.Delacruzmendez@fpl.com>
Cc: Calderon Torres, Joseph <jcalderon@hwlochner.com>; Dopazo, Gabriel <Gabriel.Dopazo@fpl.com>; angel.vargas@fpl.com
Subject: RE: 23090 City of Doral Pedestrian Trail Improvements

Good morning Maria,

Hope this email finds you well. As a follow up to our telephone conversation, would you please provide us records/marked plans of your existing facilities within the limits of our projects. Also, we are working on completing the design of the lights and need to get confirmation on the proposed locations for the service points.

Should you have any questions, require additional information or would like to discuss further, please do not hesitate to contact me.
As always, your assistance in these matters is greatly appreciated.
Regards,

Pedro Ugas
Principal / Utility Coordination and SUE Manager
E: pedrou@hadonne.com
O: +1 (305) 266-1188
C: +1 (305) 431-9096
F: +1 (305) 207-6845
HADONNE | 1985 NW 88th Court, Suite 201 | Doral, Florida 33172 | www.hadonne.com
Land Surveyors and Mappers | Subsurface Utility Engineering | Utility Coordinators

---

From: Pedro Ugas
Sent: Monday, December 4, 2023 3:07 PM
To: Dopazo, Gabriel <Gabriel.Dopazo@fpl.com>
Cc: De la cruz mendez, Maria <Maria.Delacruzmendez@fpl.com>; Mcaskill, Emma <Emma.Mcaskill@fpl.com>; Calderon Torres, Joseph <jcalderon@hwlochner.com>
Subject: FW: 23090 City of Doral Pedestrian Trail Improvements

Good afternoon Gabriel,
Following up on the below email. It is extremely important that we stablished the source of power (service points) to fee our proposed lighting on the above referenced project. I have previously provided you the attached plans. We identified some ideal locations for service points on the project layout sheet of the plans. We're looking for 120V/240V Single phase 3 wire service points within our project limits, ideally 3 locations

along turnpike trail, 2 beacon trail, and 1 for Dressel's dairy. We intend to utilize the existing service point and load center for the new lighting along greenway trail.
If you should have any questions, require additional information, or would like to discuss further, please do not hesitate to contact me.
Your assistance in these matters is greatly appreciated.
Regards,

Pedro Ugas
Principal / Utility Coordination and SUE Manager
E: pedrou@hadonne.com
O: +1 (305) 266-1188
C: +1 (305) 431-9096
F: +1 (305) 207-6845
HADONNE | 1985 NW 88th Court, Suite 201 | Doral, Florida 33172 | www.hadonne.com
Land Surveyors and Mappers | Subsurface Utility Engineering | Utility Coordinators

---

From: Pedro Ugas
Sent: Tuesday, November 28, 2023 8:58 AM
To: Dopazo, Gabriel <Gabriel.Dopazo@fpl.com>; De la cruz mendez, Maria <Maria.Delacruzmendez@fpl.com>
Cc: Mcaskill, Emma <Emma.Mcaskill@fpl.com>
Subject: RE: 23090 City of Doral Pedestrian Trail Improvements

Good morning Gabriel,

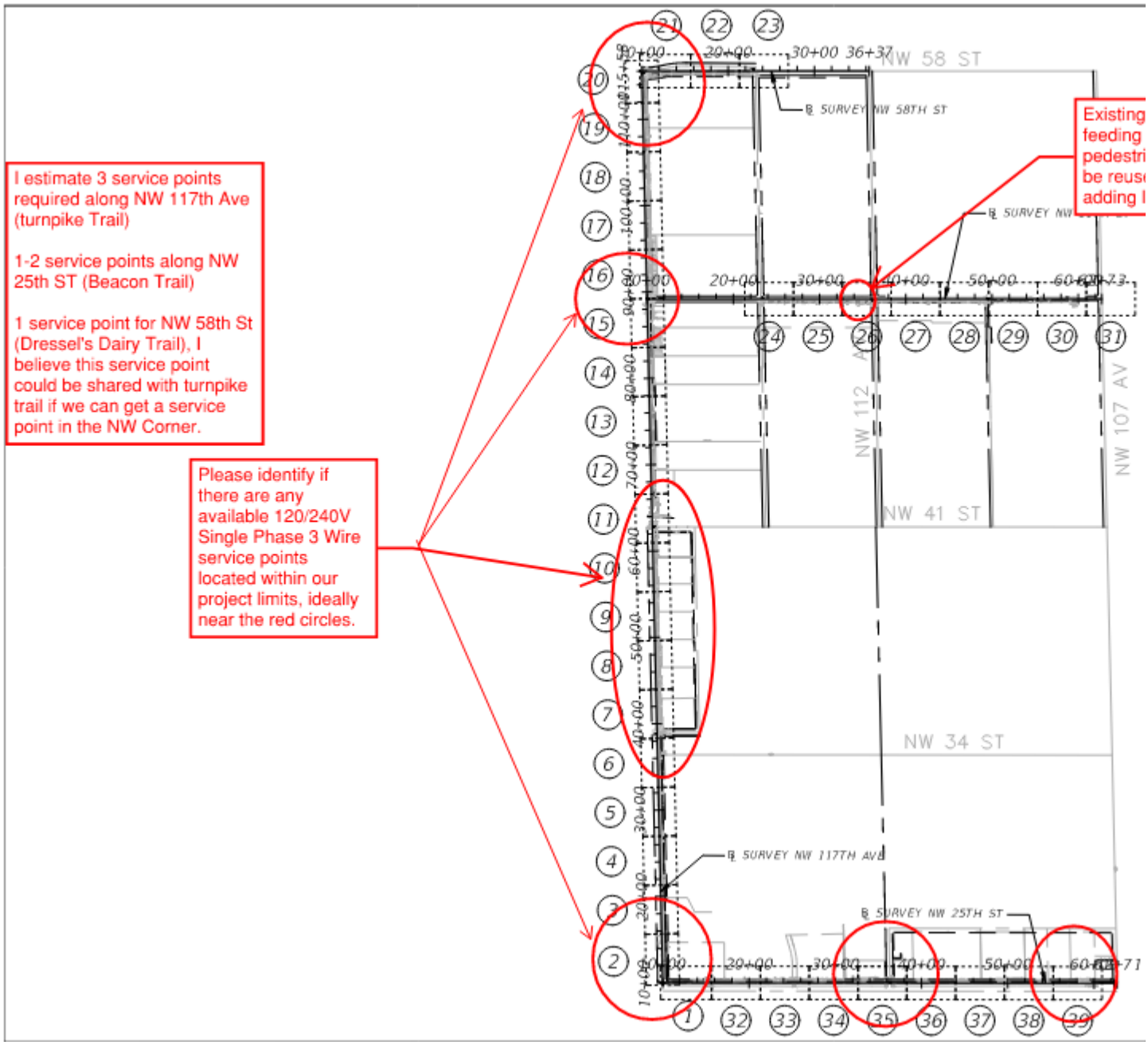
Thank you for your prompt response, much appreciated. As it pertains to our request for records of your facilities, I mostly work on FDOT projects and although this is a City of Doral project, I never had any issues with getting marked plans and/or record of your facilities in response to a similar request.

I deal with Emma (copied) on FDOT projects in Dade County, Byron Sample in Broward and other FPL representatives throughout the state and again never had any issues. Please keep in mind, we are currently in the process of completing the design of the project and our objective is to avoid impacting yours and other UAOs facilities within the limits of the project.

It is my understanding that locates are typically reserved for activities prior to or during construction, and as mentioned, we are currently on the design phase of the project.

In addition, as part of the scope of work, we are adding lighting to the trails. Please see attached preliminary lighting plans. We identified some ideal locations for service points on the project layout sheet of the plans. We're looking for 120V/240V Single phase 3 wire service points within our project limits, ideally 3 locations along turnpike trail, 2 beacon trail, and 1 for Dressel's dairy. We intend to utilize the existing service point and load center for the new lighting along greenway trail.

If you have any questions, require additional information or if there is anything that we can do to help you expedite this request, please do not hesitate to contact me. As always, your assistance in these matters is greatly appreciated.
Regards,
Pedro Ugas



Pedro Ugas
Vice-President / Utility Coordination and SUE Manager
E: pedrou@hadonne.com
O: +1 (305) 266-1188
C: +1 (305) 431-9096
F: +1 (305) 207-6845
HADONNE | 1985 NW 88th Court, Suite 201 | Doral, Florida 33172 | www.hadonne.com
Land Surveyors and Mappers | Subsurface Utility Engineering | Utility Coordinators

---

From: Dopazo, Gabriel <Gabriel.Dopazo@fpl.com>
Sent: Monday, November 27, 2023 3:37 PM
To: Pedro Ugas <pedrou@hadonne.com>; De la cruz mendez, Maria <Maria.Delacruzmendez@fpl.com>
Subject: RE: 23090 City of Doral Pedestrian Trail Improvements

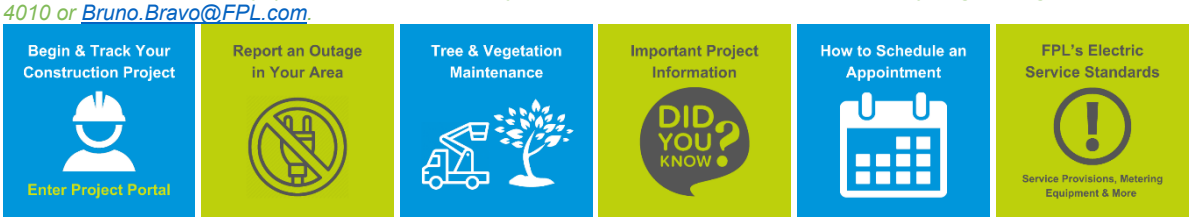
Hi Pedro,

I apologize for any lack of communication. Unfortunately, we are unable to provide record drawings of FPLs facilities, it is a company policy. Would locating all currently available sources of 120/240 be adequate to serve your needs?

Regards,

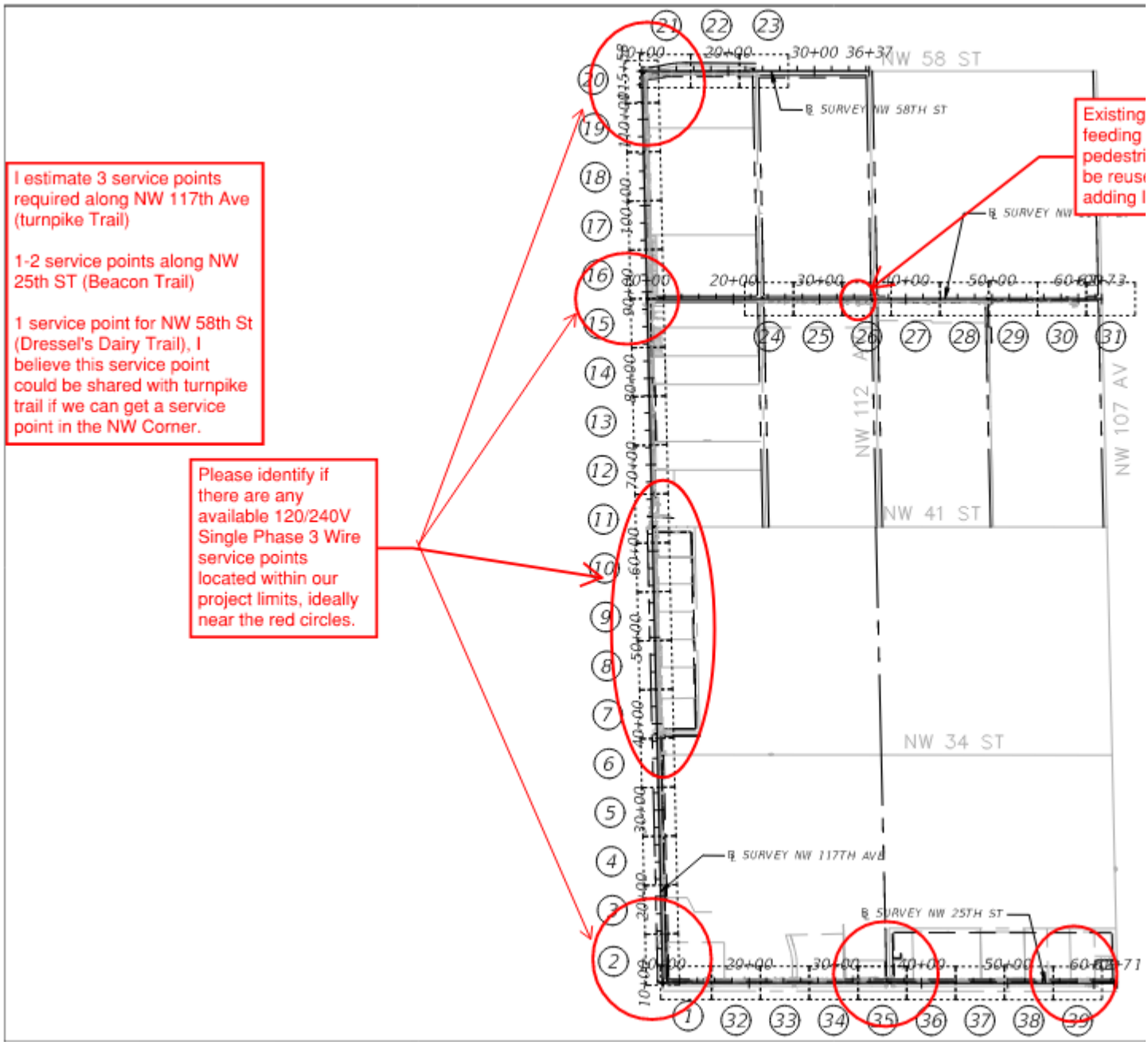
Gabriel L. Dopazo
Associate Engineer
West Dade Service Center – FPL
6195 NW 82nd Ave,
Miami, FL 33166
Office: (305) 599-4043 Cell: (305) 561-9074
Email: Gabriel.Dopazo@FPL.com

*Visit the **FPL Project Portal** by visiting the link below to manage your FPL Residential and Commercial construction projects.*
Get information on construction services and project types, apply for your construction project, track project milestones, manage your project team and more.
Please contact me with any questions or concerns. If you cannot reach me, feel free to contact my Engineering Leader Bruno Bravo at (o) (305) 599-4010 or Bruno.Bravo@FPL.com.



From: Pedro Ugas <pedrou@hadonne.com>
Sent: Monday, November 27, 2023 2:29 PM
To: Dopazo, Gabriel <Gabriel.Dopazo@fpl.com>; De la cruz mendez, Maria <Maria.Delacruzmendez@fpl.com>
Subject: FW: 23090 City of Doral Pedestrian Trail Improvements

Good afternoon, Gabriel/Maria,
Plans for the above referenced projects were sent to you back in October 23rd of this year. We have yet to receive a response from your office.
It is extremely important that we receive any available as-built/records of your existing facilities within the limits of the projects. In addition, as part of the scope of work, we are adding lighting to the trails. Please see attached for a preliminary progress print of the lighting plans for the City of Doral Trails Project. We identified some ideal locations on the project layout sheet of the plans. We're looking for 120V/240V Single phase 3 wire service points within our project limits, ideally 3 locations along turnpike trail, 2 beacon trail, and 1 for Dressel's dairy. We intend to utilize the existing service point and load center for the new lighting along greenway trail.



Pedro Ugas
Vice-President / Utility Coordination and SUE Manager
E: pedrou@hadonne.com
O: +1 (305) 266-1188
C: +1 (305) 431-9096
F: +1 (305) 207-6845
HADONNE | 1985 NW 88th Court, Suite 201 | Doral, Florida 33172 | www.hadonne.com
Land Surveyors and Mappers | Subsurface Utility Engineering | Utility Coordinators

From: Pedro Ugas
Sent: Monday, October 23, 2023 2:31 PM
To: LOW, STEVE <sl4504@att.com>; Davidson, Ricardo A <RicardoA_Davidson@comcast.com>; Chong, Patrick A. (WASD) <Patrick.Chong@miamidade.gov>; jose_martinez3@comcast.com; Dopazo, Gabriel <Gabriel.Dopazo@fpl.com>; De la cruz mendez, Maria <Maria.Delacruzmendez@fpl.com>; tristan.simon-ponce@nexteraenergy.com
Subject: FW: 23090 City of Doral Pedestrian Trail Improvements

Good afternoon all,
Just a follow up to my previous email. If you have not done so already, please provide marked plans and/or available as-builts/record drawings of you existing facilities within the limits of the above referenced projects. If you do not own facilities within the limits of our project, please advise us in writing.
Should you have any questions or require additional information, please do not hesitate to contact me.
Regards,

Pedro Ugas
Principal / Utility Coordination and SUE Manager
E: pedrou@hadonne.com
O: +1 (305) 266-1188
C: +1 (305) 431-9096
F: +1 (305) 207-6845
HADONNE | 1985 NW 88th Court, Suite 201 | Doral, Florida 33172 | www.hadonne.com
Land Surveyors and Mappers | Subsurface Utility Engineering | Utility Coordinators

---

From: Pedro Ugas
Sent: Tuesday, October 3, 2023 10:30 AM
To: LOW, STEVE <sl4504@att.com>; Davidson, Ricardo A <RicardoA_Davidson@comcast.com>; Chong, Patrick A. (WASD) <Patrick.Chong@miamidade.gov>; Mcaskill, Emma <Emma.Mcaskill@fpl.com>; jose_martinez3@comcast.com; Dillman, Gretchen <Gretchen.Dillman@fpl.com>; Chong, Patrick A. (WASD) <Patrick.Chong@miamidade.gov>; Haskett, Danny <Danny.Haskett@crowncastle.com>; tristan.simon-ponce@nexteraenergy.com
Subject: 23090 City of Doral Pedestrian Trail Improvements

Good morning all,

They City of Doral is proposing to improve the following pedestrian trails:

- Beacon Trail running north of the canal (NW 25th Street) from west of NW 107th Avenue to the entrance to our Lady of Guadalupe Church.
- Dressel's Dairy Trail running south of the canal (NW58th Street) from NW 117th Avenue to NW 114th Avenue
- Turnpike Trail running east of the canal (NW 117th Avenue) from NW 25th Street to NW 58th Street
- Greenway Trail running along the south side of NW 50th Street from NW 114th Avenue to east of NW 109th Avenue

Facilities owned or maintained by your utility agency/owner (UAO) may require relocation or adjustment as necessitated by this improvement. We are providing the accompanying information in an effort to better coordinate the sed work and minimize any expense which may be incurred by our agencies.

The work encompassed by this project is as follows:

- **Widening/Reconstruction of existing trail, Lighting**

We ask that you please provide us any available as-builts/records drawings of your existing and/or proposed facilities within the limits of our project or the attached set of plans should be marked to show the location of your existing or proposed facilities. Please return one marked up set of plans to this office along with your transmittal. *If you do not owned facilities within the limits of this project, please advise us in writing.*
Your response to this transmittal on or before ***10/27/2023*** will enable us to maintain this schedule; an electronic submittal is recommended.

Should you have any questions or require additional information, please do not hesitate to contact me.
Regards,

Pedro Ugas
Principal / Utility Coordination and SUE Manager
E: pedrou@hadonne.com
O: +1 (305) 266-1188

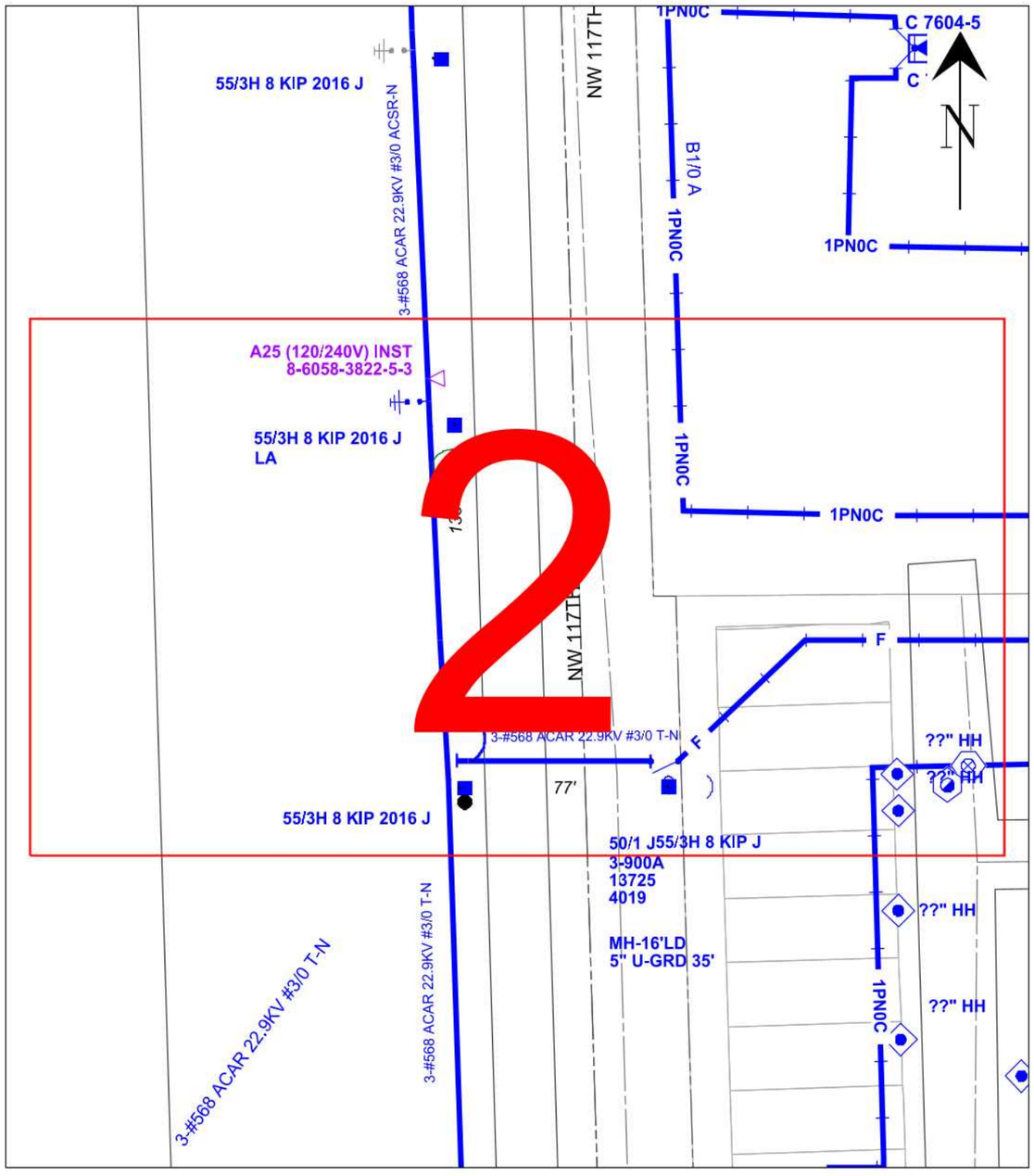
C: +1 (305) 431-9096
F: +1 (305) 207-6845
HADONNE | 1985 NW 88th Court, Suite 201 | Doral, Florida 33172 | www.hadonne.com

Land Surveyors and Mappers | Subsurface Utility Engineering | Utility Coordinators

Cover Sheet: WR#13353399

Page 1 of 2

[ ] INACCESSIBLE [ ] 12KV [ ] 13KV [ ] FUTURE 23KV [X] 23KV [ ] FUTURE 25KV [ ] 25KV [ ] SALT SPRAY [ ] ROCK



GENERAL NOTES
- NOTIFY CUSTOMERS OF TEMPORARY POWER AND TRAFFIC INTERRUPTIONS.
- PROVIDE WARNING SIGNALS FOR PEDESTRIANS AND TRAFFIC SIGNALS FOR MOTORISTS.
- SERVICE TO TRAFFIC SIGNAL, SCHOOL FLASHING SIGNAL, AND LIFT STATIONS MUST REMAIN ENERGIZED AT ALL TIMES.

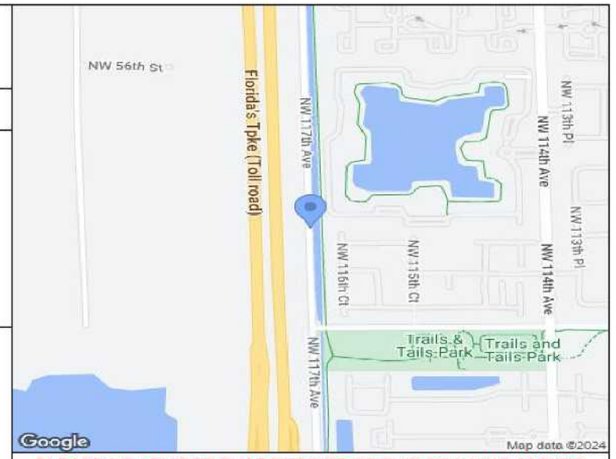
STAKING NOTES:-INTERMEDIATE POLES: STAKE POLES IN-LINE AT STATED DISTANCES.
-POLE REPLACEMENT: STAKE POLES IN-LINE AND WITHIN 2' OF EITHER SIDE
OF EXISTING POLE UNLESS OTHERWISE NOTED.
-ALL POLES STAKED WITH FIELD SIDE FACE AT R/W LINE UNLESS OTHERWISE NOTED.
-SEE BELOW FOR ADDITIONAL DETAILED STAKING NOTES.

GENERAL GROUNDING, GUYING, AND U-GUARD NOTES
BOND WIRE (DCS D-2.0.0, FIG. 1 - 3 AND D-7.0.0, DETAIL A AND B)
- ATTACH BOND WIRE TO THE GUY WIRE AND DO NOT ATTACH TO PREFORMED GRIP.
STREET LIGHT BRACKETS (DCS H-11.0.0, FIG. 1- 4 AND DCS H-11.1.0, FIG. 1 – 5)
- GROUND ALL STREET LIGHT BRACKETS (I.E. TO POLE BOND IF GROUND RODS ARE REQUIRED OR TO SYSTEM NEUTRAL IF NO GROUND RODS ARE REQUIRED.
U-GUARDS (DCS UH-14.0.0 AND UH-14.0.2)
- WOOD POLES: USE TAPCON FASTENERS IN ALL BASE SECTION HOLES AND EVERY OTHER HOLE OF TOP SECTIONS.
- CONCRETE POLES: USE AT LEAST 10 TAPCON FASTENERS PER 10 FOOT U-GUARD SECTION AND AT LEAST 6 TAPCON FASTENERS FOR SHORTER SECTIONS.
BACK PLATE (DCS UH-14.0.1)
- REQUIRED ON FIRST 10 FOOT SECTION ABOVE GROUND (WOOD AND CONCRETE POLES).
GUYING (DCS D-2.0.0)
- GUYS SHALL HAVE A GUY MARKER (GUY GUARD) INSTALLED AT ALL LOCATIONS.
RISER (DCS G-10.1.0 AND G-10.2.0)
- BOND ALL METAL RISER CONDUITS ON POLES.
GROUND RODS (DCS G-3.0.1)
- TOP MUST BE A MINIMUM OF 6 INCHES BELOW GRADE.

CALL SUNSHINE #811
48 HOURS BEFORE YOU DIG

LOCATE MARKINGS COLOR CODE

RED	ELECTRIC	BLUE	WATER
YELLOW	GAS-OIL-STEAM	GREEN	SEWER
PINK	TEMP. SURVEY MARKINGS	ORANGE	CABLE TV
WHITE	PROPOSED EXCAVATION		



PLEASE BE ADVISED THAT RECEIPT OF THIS DRAWING AND/OR SURVEY, WHICH IS AN APPROXIMATION, DOES NOT RELIEVE YOU OF ANY STATUTORY OBLIGATIONS, INCLUDING THE PROVISIONS CONTAINED IN SECTION 556, FLORIDA STATUTES.
CALL 811 (Sunshine811) PRIOR TO ANY EXCAVATION ACTIVITIES

CONSTRUCTION NOTES:

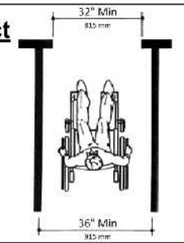
THE PURPOSE OF THE JOB IS TO INSTALL (1) 25 kVA 120/240 AETX TO SERVE NEW LIGHTING PROJECT ON DORAL PEDESTIRAN TRIAL.

LOC 1: ON EXISTING 50/3H CONCRETE POLE INSTALL (1) 25 kVA 120/240 AETX (DCS I-9.1.0)
TLN: 8-6058-3822-5-3

MOT: 602
FEEEDER: SEAGULL (10162)
SAFTEY: CAUTION WORK BEING DONE ON FEEDER AND WORK NEAR CANAL
POLE ID:326159213
SERVICE DROP TO BE INSTALLED ON LATER SMO.

CPM:GABRIEL DOPAZO(305)561-9074

American Disabilities Act
If pole placement location does not meet the minimum single point distance of 32" from edge of curb or back of sidewalk, contact your Production Lead, for further instructions.



Easement? [ ]	Tree Work? [ ]	Tree Access? [ ]	Tree Staking Req'd? [ ]	
Designer/Stake? [ ]	CT/Special Mtr? [ ]	Work with SMO? [ ]	Survey/Stake? [ ]	
POLE LINE FT:	POLE LINE FT. ON TRANSM. POLES:	TRENCH FT:	DUCT BANK FT:	
PERMIT REQ'D	CITY [ ]	COUNTY RD [ ]	COUNTY AIR [ ]	STATE RD [ ]
	WMD [ ]	RR XING [ ]	DR. DIST. [ ]	TRANSM. [ ]
Requested Tel. Co. Set Poles? [ ]	Requested Tel. Co. Transfer? [ ]	Request CATV Transfer? [ ]		

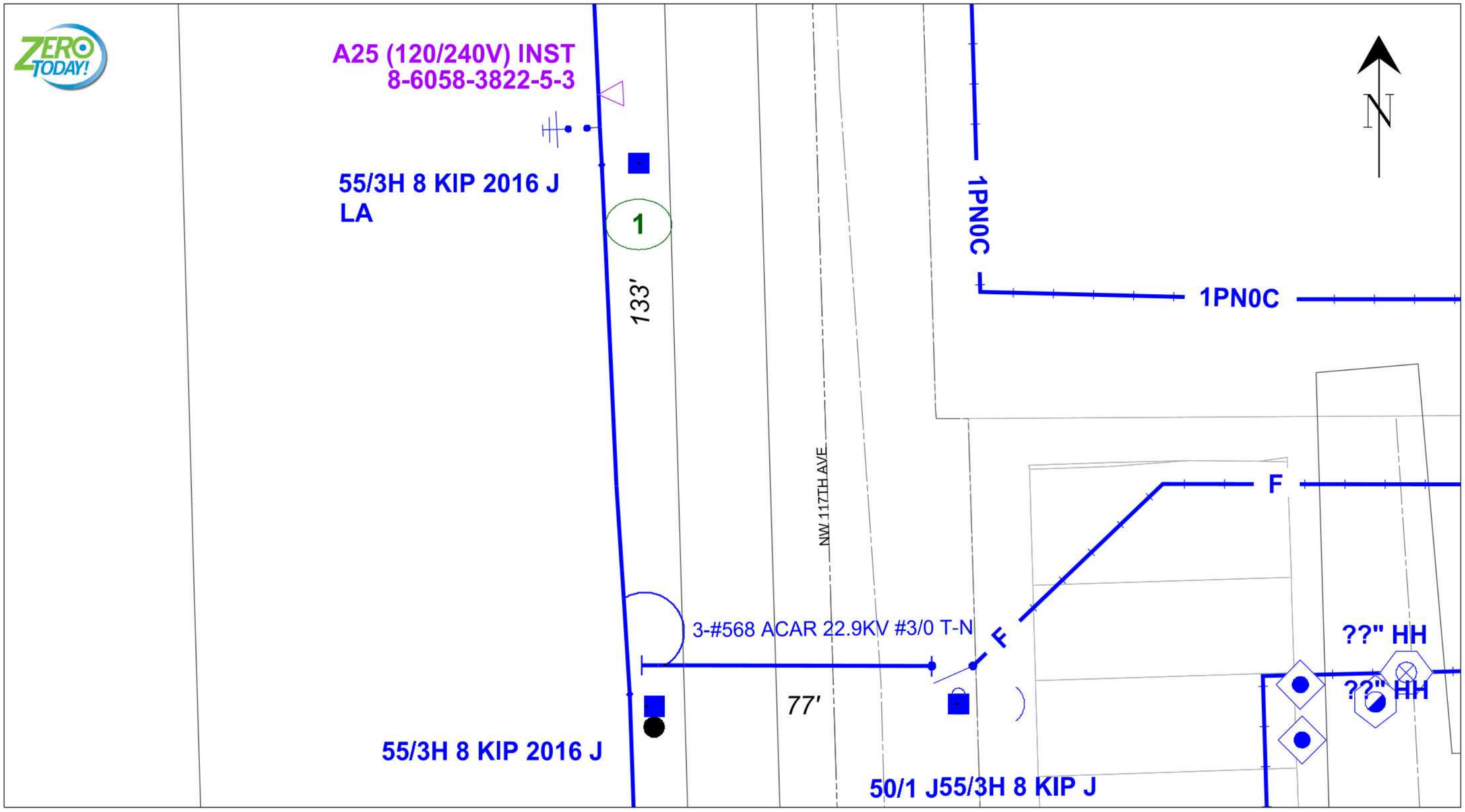
Job Owner:	Gabriel Dopazo	M/A: WD	Township: 53 Range: 39 Section 24
Designer:	Allison Park	Load Center C - INST 25KVA 120/240 AETX & SVC POLE	
Date:	08/07/2024		
Scale: 1" = 51'		5160 NW 116TH CT, DORAL, FL, 33178	
0' 51' 103'		Dwg No. 13353399_11x17 OH.xml	Map No. AY0259
		WR: 13353399	Page 1 of 2

PLOT DATE/TIME: 08/07/2024 16:21:36 PRINTED BY: axp09n6 Size: 11 x 17

IPC	DATE	REVISION
1		
2		
3		
4		

FEEDERS:	SEAGULL 10162

[ ] INACCESSIBLE [ ] 12KV [ ] 13KV [ ] FUTURE 23KV [X] 23KV [ ] FUTURE 25KV [ ] 25KV [ ] SALT SPRAY [ ] ROCK



IPC	DATE
1	
2	
3	
4	

REVISION

PRINTED BY: axp09n6 Size: 11 x 17

PLOT DATE/TIME: 08/07/2024 16:21:37

AS-BUILT CREW PRINT		AS-BUILT COPY	
Foreman's Signature	Date	Initials	Cert. Date

Job CERTIFIED COMPLETED as shown on this AS-BUILT print. Material changes shown on ROS.

Supervisor's Signature Date

All required ground rods have been driven & verified to be within FPL standards. Values are shown at all locations.

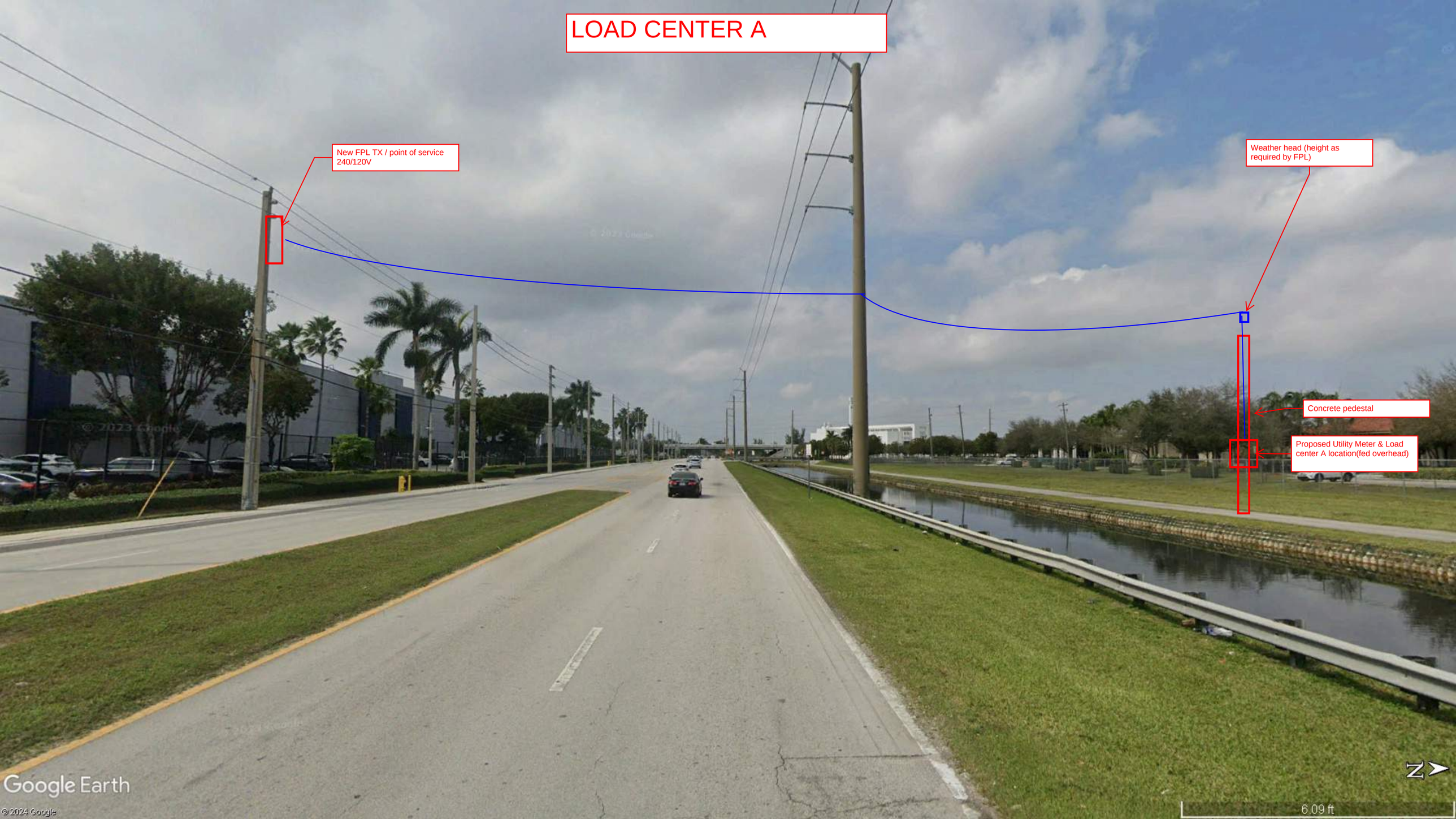
Foreman's Signature Date

Easement? [ ]	Tree Work? [ ]	Tree Access? [ ]	Tree Staking Req'd? [ ]	
Designer/Stake? [ ]	CT/Special Mtr? [ ]	Work with SMO? [ ]	Survey/Stake? [ ]	
POLE LINE FT:	POLE LINE FT. ON TRANSM. POLES:	TRENCH FT:	DUCT BANK FT:	
PERMIT REQ'D	CITY [ ]	COUNTY RD [ ]	COUNTY AIR [ ]	STATE RD [ ]	FAA [ ]
	WMD [ ]	RR XING [ ]	DR. DIST. [ ]	TRANSM. [ ]	
Requested Tel. Co. Set Poles? [ ]	Requested Tel. Co. Transfer? [ ]	Request CATV Transfer? [ ]		

FPL

Job Owner:	Gabriel Dopazo	M/A: WD	Township: 53 Range: 39 Section 24
Designer:	Allison Park	Load Center C - INST 25KVA 120/240 AETX & SVC POLE	
Date:	08/07/2024		
Scale: 1" = 24'		5160 NW 116TH CT, DORAL, FL, 33178	
0' 24' 49'		Dwg No. 13353399_11x17 OH.xml	Map No. AY0259
		WR: 13353399	Page 2 of 2


LOAD CENTER A
Jackie Gleason's Mausoleum
Morin Family Mausoleum
Our Lady of Guadalupe Catholic Church
Our Lady of Mercy Cemetery
PROPOSED UTILITY METER & LOAD CENTER A
8.5kW Load
240/120V, 1 phase, 3 wire,
60A, 2 pole, Main
20A, 1 pole, Branch, CKT A-1
20A, 1 pole, Branch, CKT A-2
example of existing overhead connection
Beacon Trail Start
Turnpike Trail Lighting Start
Turnpike Trail
Turnpike Trail
Beacon Trail
Beacon Trail
FPL Crossing
Proposed FPL Point of Service, new Utility Transformer
NW 117th Ave
Turnpike Trail
NW 25th St
NW 25th St
NW 25th St
NW 25th St
US Post Office-International
Miami-Dade Police
Telefonica
NW 117th Ave
NW 114th Ave
Google Earth
N
500 ft


LOAD CENTER A
New FPL TX / point of service 240/120V
Weather head (height as required by FPL)
Concrete pedestal
Proposed Utility Meter & Load center A location(fed overhead)
Google Earth
© 2024 Google
6.09 ft


Example of existing connection at NW 25th & NW 117th (see load center A)
Google Earth
© 2024 Google
6.40 ft

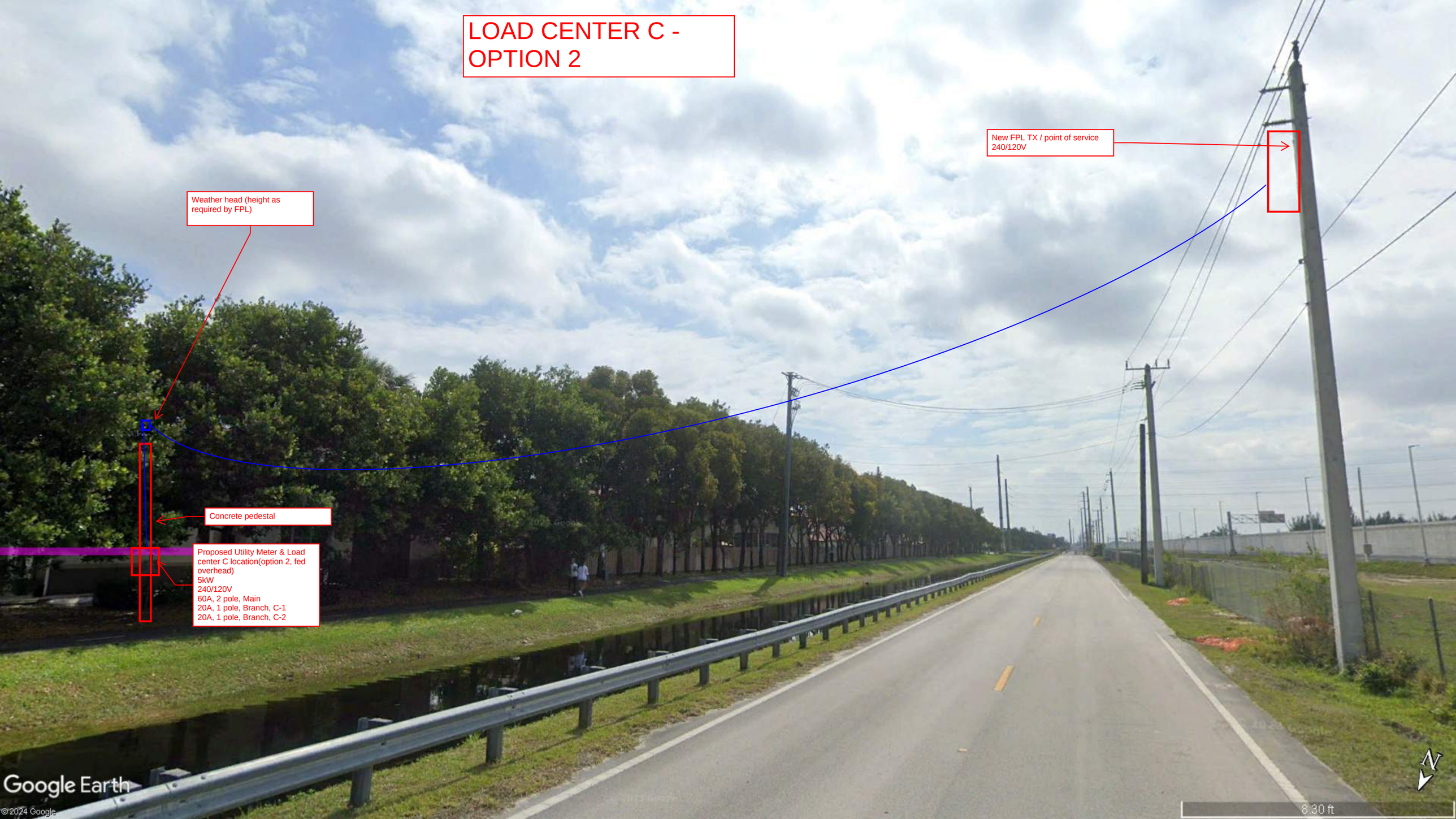

LOAD CENTER B
FPL Pad Mounted Transformers
Proposed Load Center B
6kW Load
60A, 2 pole, Main
20A, 1 Pole, Branch, CKT B-1
20A, 1 Pole, Branch, CKT B-2
Turnpike Trail
Ronald Reagan Tpke (Toll road)
NW 41st St
NW 43rd Terrace
NW 44th Terrace
NW 39th St
NW 115th Ave
NW 114th Ave
NW 113th Pl
NW 113th Ct
NW 112th Ct
Camden Doral Villas Apartment Townhomes
Power E-Saver ProVision Cylinders
Fajas Colombianas
Maiu
SAND CASTLES AT DORAL
Made to Last Creations Miami Custom Gift Shop
Celfast Distributors Corporation
Sophistichic
SERVICES & SOLUTIONS MDJ
Global Accountant Network
AMLI Doral
Graziano's Mercado Doral
Hampton Inn & Suites Miami-Doral/...
Las Vegas Cuban Cuisine
Soya Sushi Bar
Load and unload to Doral Shop
Public Storage
Denny's
McDonald's
TUMBLE USA
Mintownparty
Google Earth
Image Landsat / Copernicus
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
N
600 ft


LOAD CENTER B
FPL PAD Mounted Transformer,
(secondary voltage unknown)
Acceptable voltages:
240V/120V, 3 wire,
480/240V, 3 wire
480V, 2 Wire,
Proposed Load Center B
240/120V, 1 phase,
6kW Load
60A, 2 pole, Main
20A, 1 Pole, Branch, CKT B-1
20A, 1 Pole, Branch, CKT B-2
Customer owned Step down transformer can be provided to achieve 240V/120V.
Google Earth
© 2024 Google
4.01 ft
N

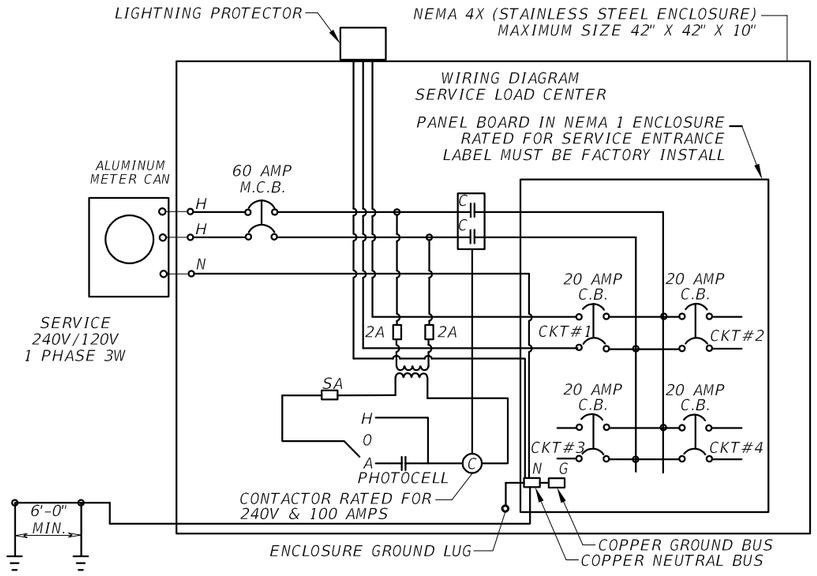

LOAD CENTER C
PROPOSED FPL POINT OF SERVICE, OVERHEAD, (OPTION 2)
PROPOSED LOAD CENTER C LOCATION with weather head, overhead fed (OPTION 2)
5kW
240/120V
60A, 2 pole, Main
20A, 1 pole, Branch, C-1
20A, 1 pole, Branch, C-2
PROPOSED FPL POINT OF SERVICE, (OPTION 1)
FPL Crossing
PROPOSED LOAD CENTER C LOCATION (OPTION 1)
5kW
240/120V
60A, 2 pole, Main
20A, 1 pole, Branch, C-1
20A, 1 pole, Branch, C-2
Ronald Reagan Tpke
NW 117th Ave
Turnpike Trail
NW 114th Ave
NW 113th Pl
NW 116th Ct
NW 115th Ct
NW 53rd Ln
NW 52nd Ln
NW 52nd St
NW 51st Ln
NW 51st Terrace
NW 50th Terrace
NW 50th St
Gisela Kati Art Jewelry
Verona Atelier Art & Design
MaidPro Doral
Doral Landings Guard House
Doral Landings East
The Camera Wedding
Greenway Trail Start
Runing Doral
Trails & Tails Park
Trails and Tails Park
29
Google Earth
Image © 2024 Airbus
N
500 ft


LOAD CENTER C - OPTION 1
FPL Point of Service, new Utility Transformer. Primary Extension? or overhead service.
PROPOSED LOAD CENTER C, UTILITY METER LOCATION
5kW
240/120V
60A, 2 pole, Main
20A, 1 pole, Branch, C-1
20A, 1 pole, Branch, C-2
© 2023 Google
Google Earth
© 2024 Google
6.78 ft
N

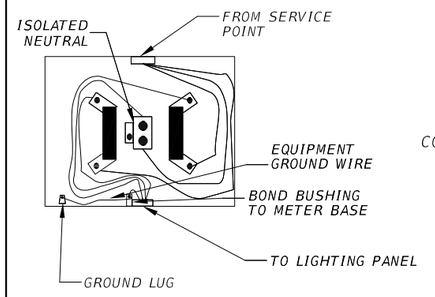
LOAD CENTER C - OPTION 2



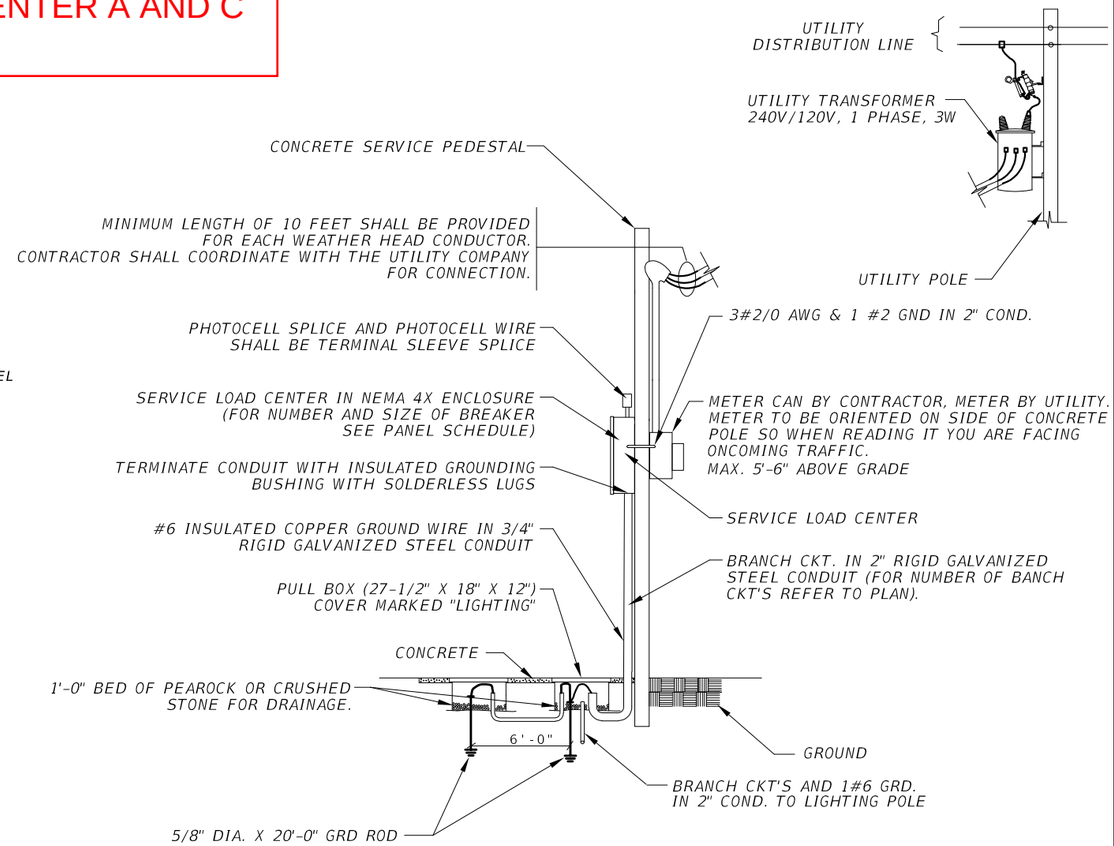
LOAD CENTER A AND C



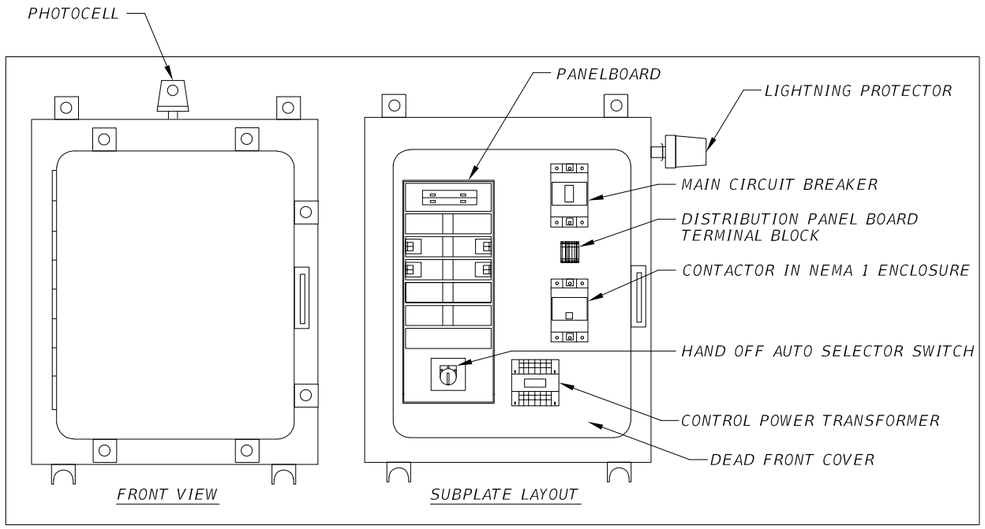
WIRING DIAGRAM SERVICE LOAD CENTER
NTS



METER SOCKET DETAIL
NTS



SERVICE POINT DETAIL
NTS



LIGHTING CONTROL CENTER
NTS

NOTES:

1. ALL WIRES EXTERNAL TO CONTROL CABINET TO BE TERMINATED TO A TERMINAL.
2. PROVIDE SIGNED AND SEALED STRUCTURAL PLANS AND CALCULATIONS FOR THE PRESTRESSED CONCRETE POLE.
3. PROVIDE ALUMINUM METER APPROVED BY FPL WITH A GROUND LUG, BYPASS MECHANISM WITH LEVER AND ISOLATED NEUTRAL

PANEL BOARD SCHEDULE

NEMA-1 1Ø,3W,240/120 V (2P - 100 A MCB)
10,000 RMS SYMETRICAL SURF-MTD

CKT NO	SERVING	KVA	AMPS	FUSE	WIRE/CONDUCT
A-1		--	--		

NUMBERS OF BRANCH CKT. BREAKERS AS REQUIRED

CONTINUOUS LOADS= ---- VA
25% CONT. LOAD= ---- VA
TOTAL= ---- VA

$Amp = \frac{VA}{V}$

PANEL BOARD SCHEDULE

NEMA-1 1Ø,3W,240/120 V (2P - 100 A MCB)
10,000 RMS SYMETRICAL SURF-MTD

CKT NO	SERVING	KVA	AMPS	FUSE	WIRE/CONDUCT
C-1		--	--	20	

NUMBERS OF BRANCH CKT. BREAKERS AS REQUIRED

CONTINUOUS LOADS= ---- VA
25% CONT. LOAD= ---- VA
TOTAL= ---- VA

$Amp = \frac{VA}{V}$

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

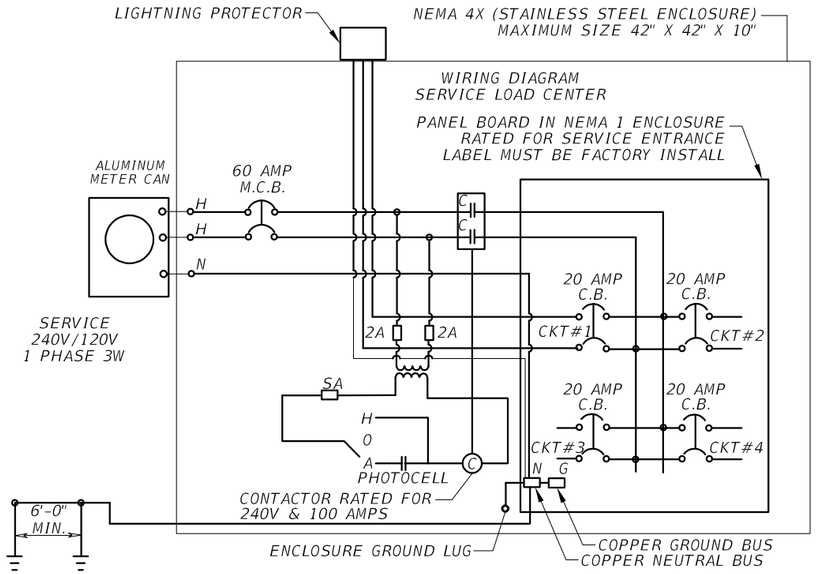
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
_____	_MIAMI-DADE_	_____

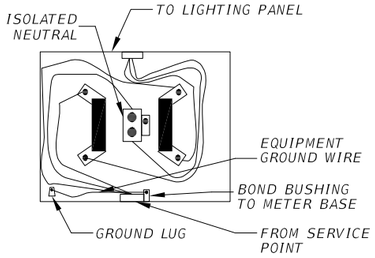
___ELECTRICAL_POWER/___
SERVICE_DETAIL-EXHIBIT08

SHEET NO.
_____

$USER$ $DATE$ $TIME$ $FILE$

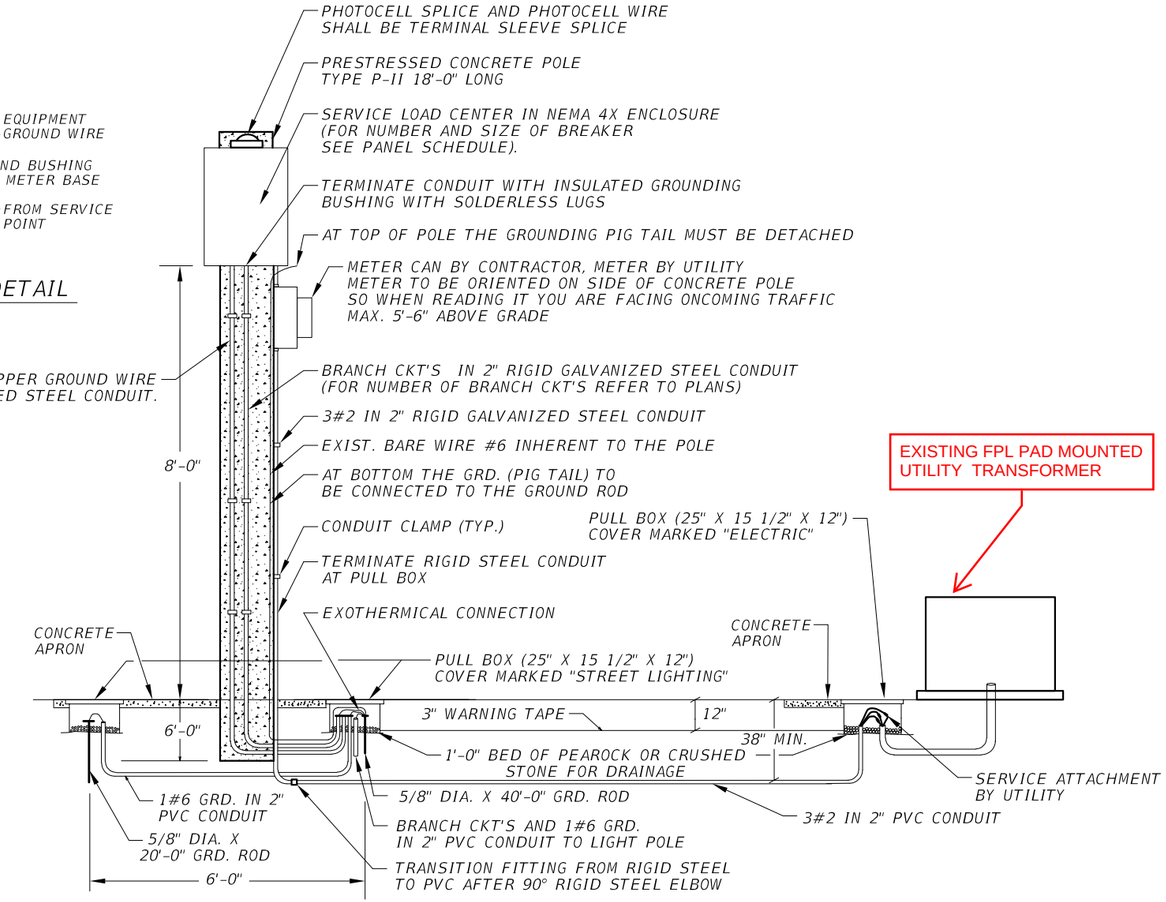


WIRING DIAGRAM SERVICE LOAD CENTER
NTS

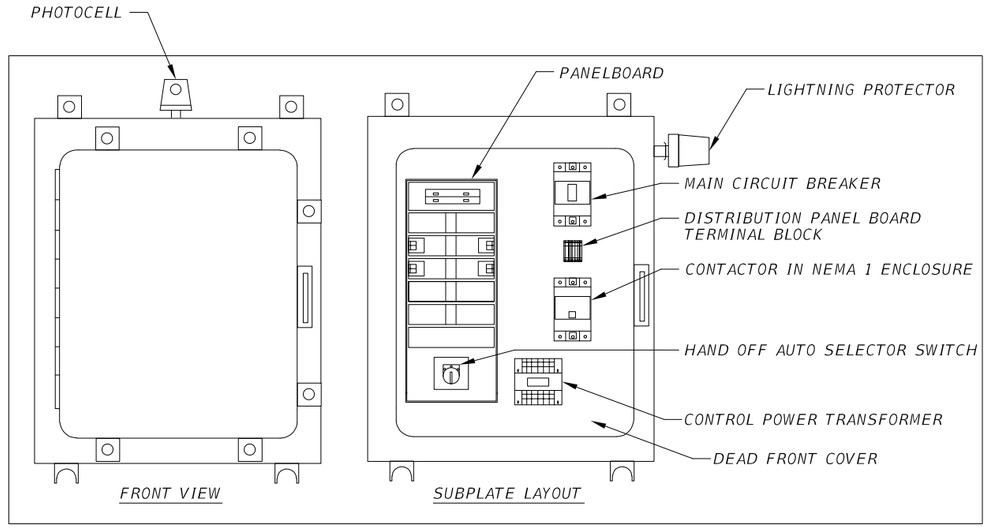


METER SOCKET DETAIL
NTS

#6 AWG INSULATED COPPER GROUND WIRE
IN 3/4" RIGID GALVANIZED STEEL CONDUIT.



SERVICE POINT DETAIL
NTS



LIGHTING CONTROL CENTER
NTS

PANEL BOARD SCHEDULE

NEMA-1 10,3W,240/120 V (2P - 100 A MCB)
10,000 RMS SYMETRICAL SURF-MTD

CKT NO	SERVING	KVA	AMPS	FUSE	WIRE/CONDUCT
B-1		--	--	20	

NUMBERS OF BRANCH CKT. BREAKERS AS REQUIRED

CONTINUOUS LOADS= ---- VA
25% CONT. LOAD= ---- VA
TOTAL= ---- VA

$Amp = \frac{VA}{V}$

LOAD CENTER B

NOTES:

1. ALL WIRES EXTERNAL TO CONTROL CABINET TO BE TERMINATED TO A TERMINAL.
2. PROVIDE SIGNED AND SEALED STRUCTURAL PLANS AND CALCULATIONS FOR THE PRESTRESSED CONCRETE POLE.
3. PROVIDE ALUMINUM METER APPROVED BY FPL WITH A GROUND LUG, BYPASS MECHANISM WITH LEVER AND ISOLATED NEUTRAL

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
_____	_MIAMI-DADE_	

___ELECTRICAL_POWER/___
SERVICE_DETAIL-EXHIBIT07

SHEET NO.
_____

$USER$ $DATE$ $TIME$ $FILE$