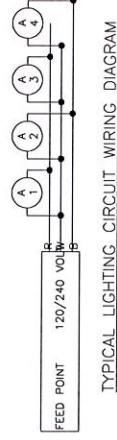


CITY OF DULUTH, MINNESOTA

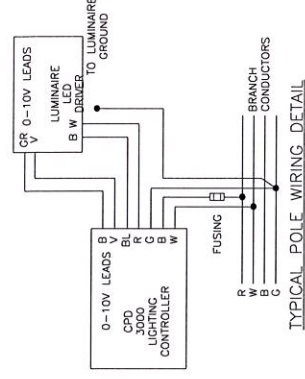
CITY WIDE STREET LIGHTING UPGRADES

LEGEND AND EQUIPMENT SCHEDULE		
SYMBOL	DESCRIPTION	NOTES:
(3)	INSTALL LED LUMINAIRE - HOLOPHANE PTU POST TOP	70W AND 105W LED
(4)	INSTALL LED LUMINAIRE - LEOTEK ARIETA	65W AND 156W LED
(5)	INSTALL LED LUMINAIRE - HOLOPHANE WASHINGTON POST TOP	105W LED
(6)	INSTALL LED LUMINAIRE - HALLBROOK PENDANT LED LUMINAIRE & ARM ASSEMBLY	105W LED
(7)	INSTALL LED RETROFIT KIT - HOLOPHANE BERN PENDANT	105W LED
(8)	INSTALL LED RETROFIT KIT - HOLOPHANE GRANVILLE	80W LED
(9)	INSTALL LED RETROFIT KIT - STERNBERG 1910 LED PENDANT	58W LED
(10)	INSTALL LED RETROFIT KIT - STERNBERG C793 LED ACORN	58W AND 91W LED
(11)	INSTALL LED RETROFIT KIT - SUN VALLEY LCCR LED ACORN	90W LED
(12)	INSTALL NEW LIGHTING CONTROLLER	POWERLINE MESH NETWORK

NOTE: ALL LED LUMINAIRES, RETROFIT KITS, AND LIGHTING CONTROLLERS WILL BE FURNISHED BY THE CITY OF DULUTH TO THE CONTRACTOR.



TYPICAL LIGHTING CIRCUIT WIRING DIAGRAM



TYPICAL POLE WIRING DETAIL



3 4 LUMINAIRE UPGRADES AT THIS LOCATION.

PROJECT LIMITS

E 1st St

12th Ave. E.

13th Ave. E.

DRAWN BY: ADD/TPY
DESIGNER: KET
CHECKED BY: MAB
DESIGN TEAM

NO. BY DATE

REVISIONS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY CLOSE PERSONAL SUPERVISION AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Matthew J. Borg, PE
10/19/2015
Date: 10/19/2015
Lic. No. 43913



SEH
P.O. BOX 100
418 W. SUPERIOR ST. STE. 200
DULUTH, MN 55802-1512
www.sehinc.com

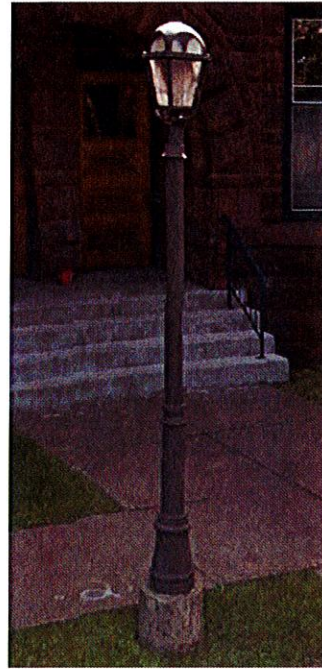
CITY WIDE STREET
LIGHTING UPGRADES
DULUTH, MINNESOTA

1ST STREET
12TH AVE. EAST - 13TH AVE. EAST

FILE NO.
DULUT 134185

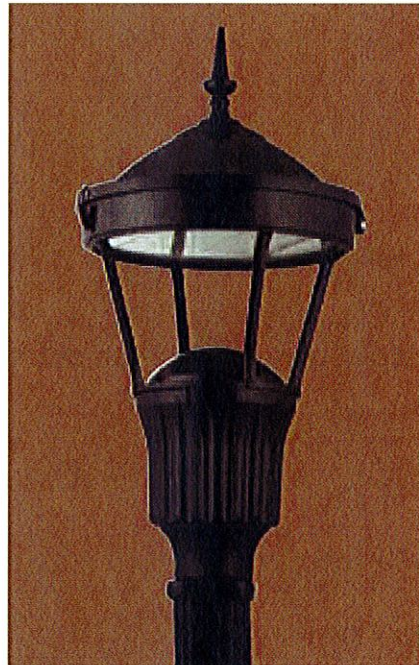
1
17

1st Street – 12th to 13th Avenue East



Remove Existing Sternberg Riverwalk Coach – 70W HPS (86W). Remove pole riser conductors. 4 total luminaires.

3



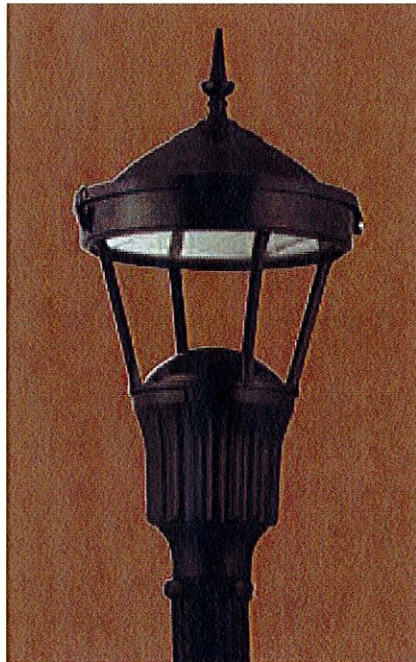
Install City furnished Holophane PTU Post-Top LED Luminaire and powerline lighting controller. Furnish and install (3) # 12 XHHW conductors from branch circuiting to luminaire including all necessary fusing and splicing equipment.

Wallace Avenue – East 4th Street to Arrowhead Road



Remove existing Holophane Post-top. Remove pole riser conductors. 31 total luminaires.

3



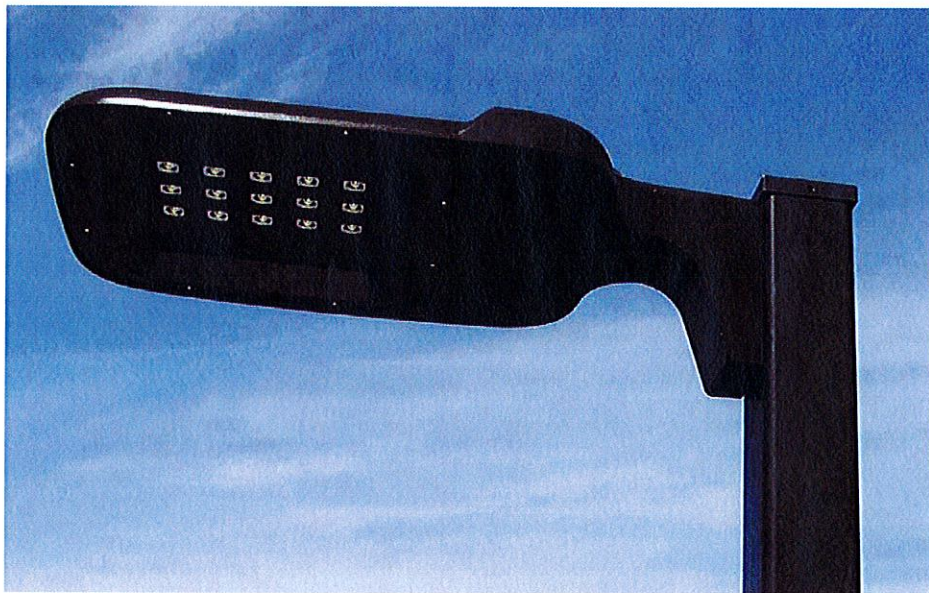
Install City furnished Holophane PTU Post-Top LED Luminaire. Furnish and install (3) # 12 XHHW conductors from branch circuiting to luminaire including all necessary fusing and splicing equipment.

2nd Street – 21st to 25th Avenue West



Remove existing Sterner Executive Shoebox. Remove pole riser conductors. 15 total luminaires.

4



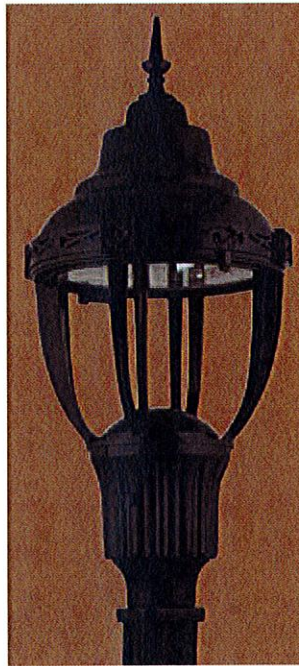
Install City furnished Leotek Arieta LED Luminaire with shorting cap. Furnish and install (3) # 12 XHHW conductors from branch circuiting to luminaire including all necessary fusing and splicing equipment.

61st Avenue East – London Road to Superior Street

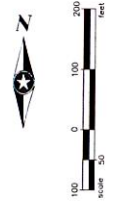


Remove existing Sterner Post Top Marina Style. Remove pole riser conductors. 5 total luminaires.

5



Install City furnished Holophane Washington Post Top LED Luminaire. Furnish and install (3) # 12 XHHW conductors from branch circuiting to luminaire including all necessary fusing and splicing equipment.



DRAWN BY: <u>ADJ/TPY</u>																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
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SEH
PHONE: 715.271.3000
418 W. SUPERIOR ST. STE 200
DULUTH, MN 55802-1512
www.sehinc.com

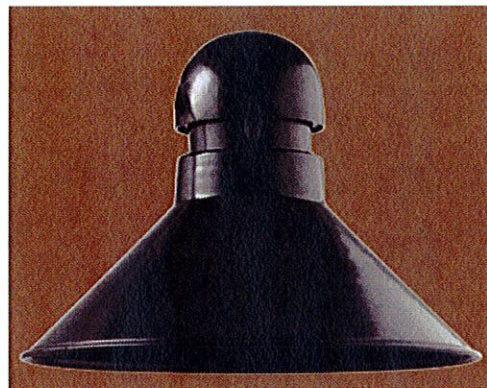
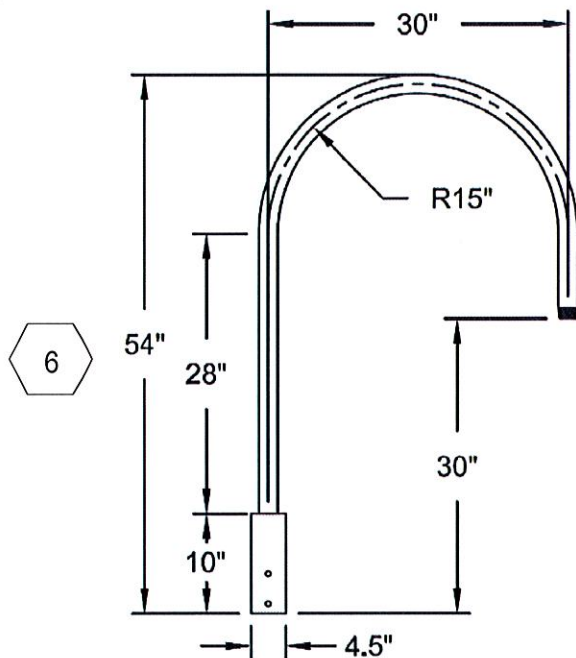
PROJECT NO. 43913
DATE: 10/19/2015
PROJECT: Morgan Park, Duluth, MN

DESIGNED BY: KT
CHECKED BY: MLB
DRAWN BY: ADJ/TPY

Morgan Park – 88th Avenue West from Concord Street to Hilton Street



Remove existing Architectural Area Lighting Pendant and Shepard Hook arm assembly. Remove pole riser conductors. 30 total luminaires.



Install City furnished Hallbrook Pendant LED Luminaire and Arm Assembly and powerline lighting controller. Furnish and install (3) # 12 XHHW conductors from branch circuiting to luminaire including all necessary fusing and splicing equipment.



DRAWN BY: _____ ACO/TPY
DESIGNER: _____ KT
CHECKED BY: _____ MJB
DESIGN TEAM

[illegible]

REVISIONS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY
DIRECT SUPERVISION AND THAT I AM A FULLY LICENSED PROFESSIONAL
ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Matthew J. Borf
Matthew J. Borf, PE
Date: 10/19/2015 Lic. No. 45913



PHONE: 218.279.3000
418 W SUPERIOR ST STE 200
DULUTH, MN 55802-1512
www.sehinc.com

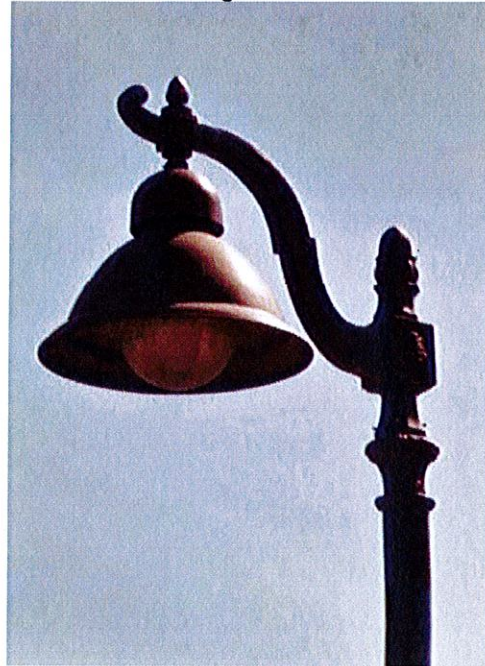
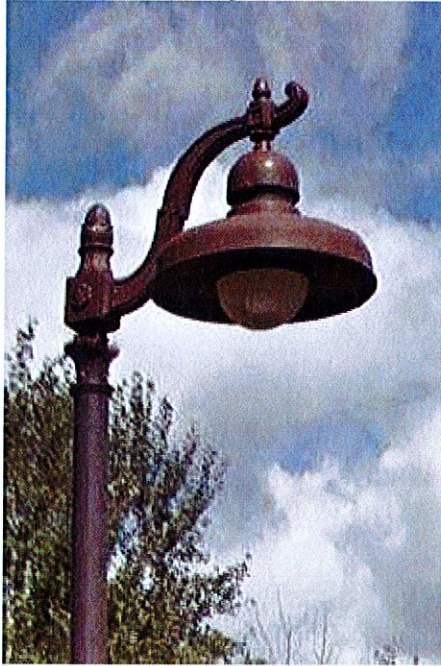
**CITY WIDE STREET
LIGHTING UPGRADES
DULUTH, MINNESOTA**

HAWK RIDGE ESTATES

FILE NO.
DULUT 134195

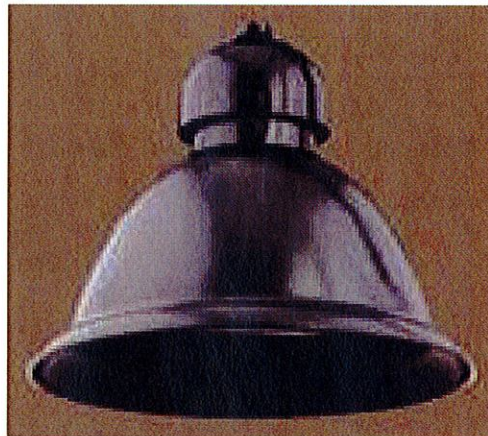
6	17
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Hawk Ridge – Snowy Owl Circle, Bald Eagle Trail, Broadwing Drive, Redtail Drive



Remove existing Holophane Vienna and Bern. Remove pole riser conductors. 10 total Luminaires.

7



Install City furnished Holophane Bern Pendant LED Retrofit Kit. Install 13 City furnished powerline lighting controllers. Furnish and install (3) # 12 XHHW conductors from branch circuiting to luminaire including all necessary fusing and splicing equipment.



PROJECT LIMITS

Middle Rd

W220

11

12

10

12

2

WE HEREBY CERTIFY THAT THE ABOVE IS A TRUE AND CORRECT COPY OF THE RECORDS OF THE BOARD OF SUPERVISORS AND

10/19/2019

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY
DIRECT SUPERVISION AND THAT I AM A FULLY LICENSED PROFESSIONAL
ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.



Matthew J. Bolt, PE

Lic. No. 43913
Date: 10/19/2015

PHONE: 218.279.3000
418 W SUPERIOR ST STE 200
DULUTH, MN 55802-1512
www.sethinc.com

CITY WIDE STREET
LIGHTING UPGRADES
DULUTH, MINNESOTA

MIDDLE ROAD

FILE NO. DULUT 134195	7/17
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DRAWN BY: ACG/TPY
DESIGNER: KT
CHECKED BY: MJB
DESIGN TEAM

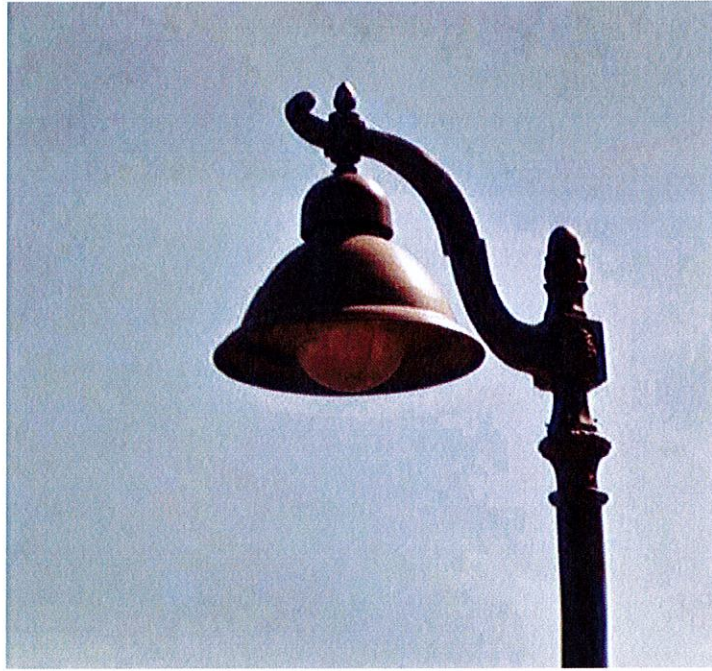
REVISIONS

	NO.	BY	DATE
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DESIGN TEAM

S:\AE\0\DLUT\134195\5-final-dsgn\51-drawings\10-Civil\cdd\cwg\p\shits\northland estes.dwg 10/15/2015 1:59 PM tngsdal

Middle Road

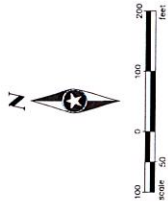


Remove existing Holophane Bern. Remove pole riser conductors. 9 total luminaires.



7

Install City furnished Holophane Bern Pendant LED Retrofit Kit and powerline lighting controller. Furnish and install (3) # 12 XHHW conductors from branch circuiting to luminaire including all necessary fusing and splicing equipment.



7 LUMINAIRE UPGRADES AT THIS LOCATION.

DRAWN BY: ADJ/TJP
 DESIGNED BY: KT
 CHECKED BY: MJB
 DESIGN TEAM

NO. BY DATE

REVISIONS

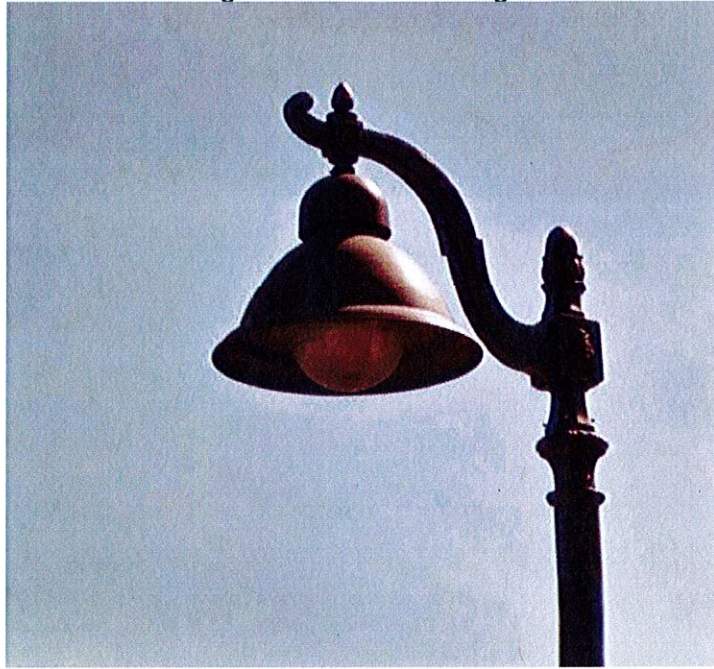
DATE: 10/19/2015
 L.S. No. 43913
 Minnesota J. Paul PC
 ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA
 PROJECT NO. 134195
 CITY WIDE STREET LIGHTING UPGRADES DULUTH, MINNESOTA



PHONE: 754-278-3000
 418 W. BARRACLOUGH ST. SUITE 200
 DULUTH, MN 55812-1512
 WWW.SEH-FL.COM

CITY WIDE STREET LIGHTING UPGRADES DULUTH, MINNESOTA
 NORTH-RIDGE ESTATES
 NORTH-RIDGE DRIVE

Northridge Estates – Northridge Drive



Remove existing Holophane Bern. Remove pole riser conductors. 7 total luminaires.

7

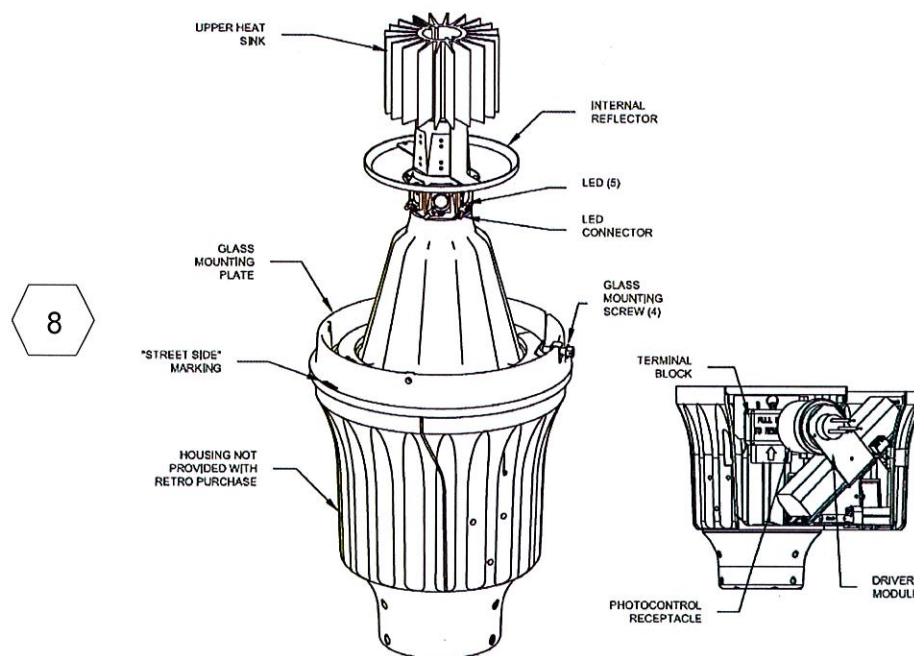


Install City furnished Holophane Bern Pendant LED Retrofit Kit and powerline lighting controller. Furnish and install (3) # 12 XHHW conductors from branch circuiting to luminaire including all necessary fusing and splicing equipment.

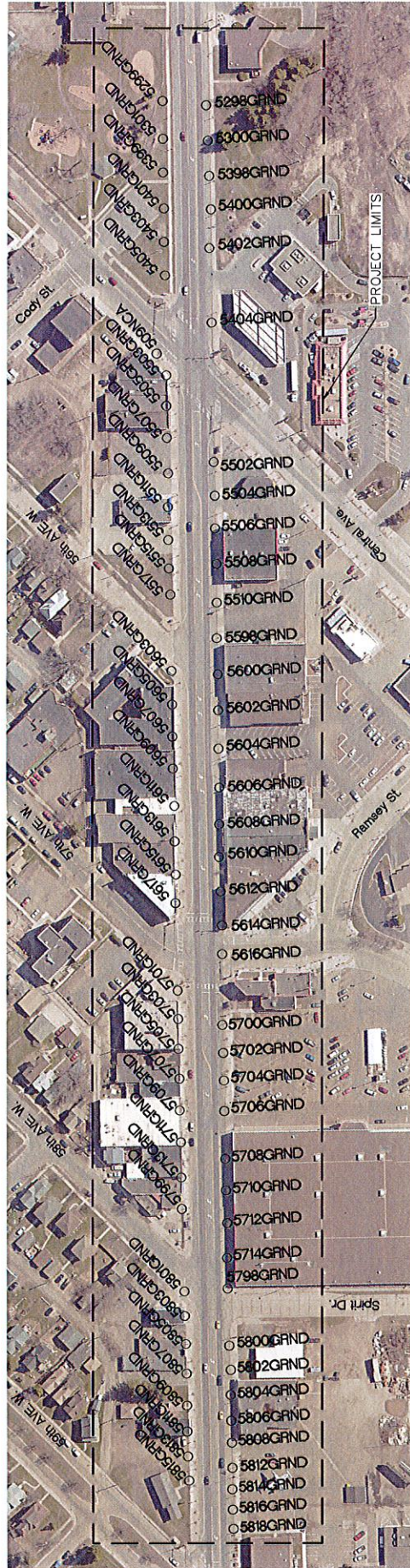
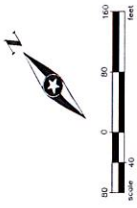
3rd Street – 21st Avenue West to Vernon Street



Remove existing Holophane internal (HPS) lamp and ballast assembly. Remove pole riser conductors. 25 total luminaires.



Install City furnished Holophane Granville LED Retrofit Kit and power line controller. Furnish and install (3) # 12 XHHW conductors from branch circuiting to luminaire including all necessary fusing and splicing equipment.

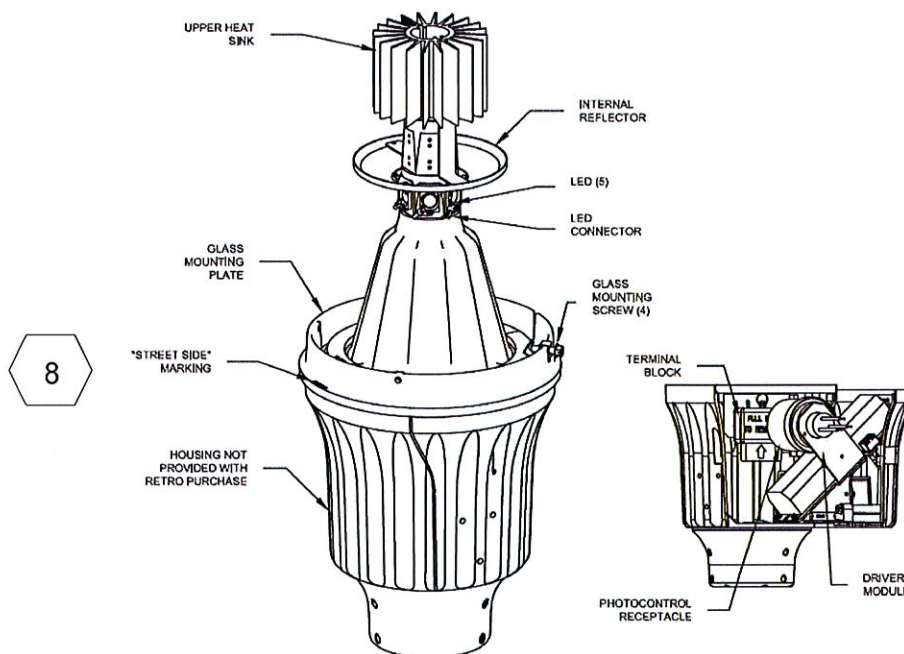
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Central Avenue-Grand Avenue to I-35. Grand Avenue – Central Avenue to 59th Avenue West

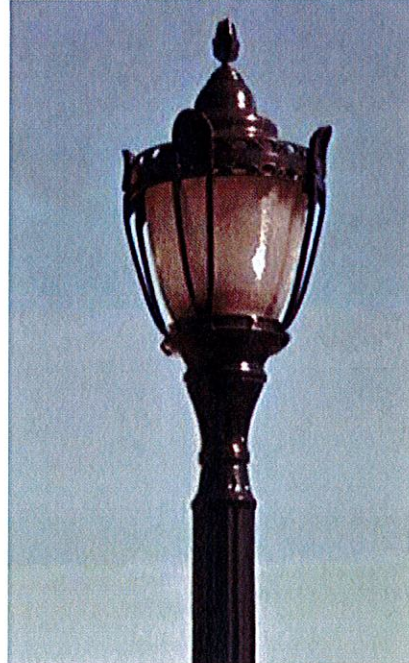
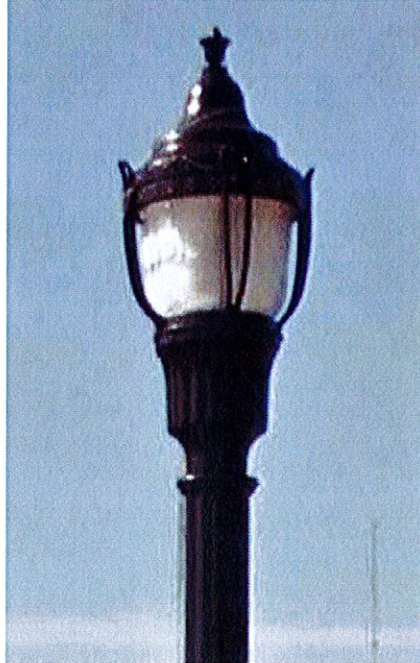


Remove existing Holophane Granville. Remove pole riser conductors. 181 total luminaires.

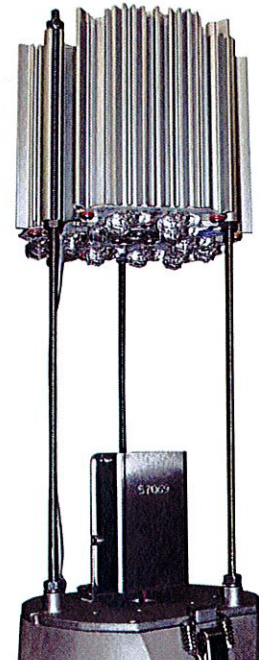
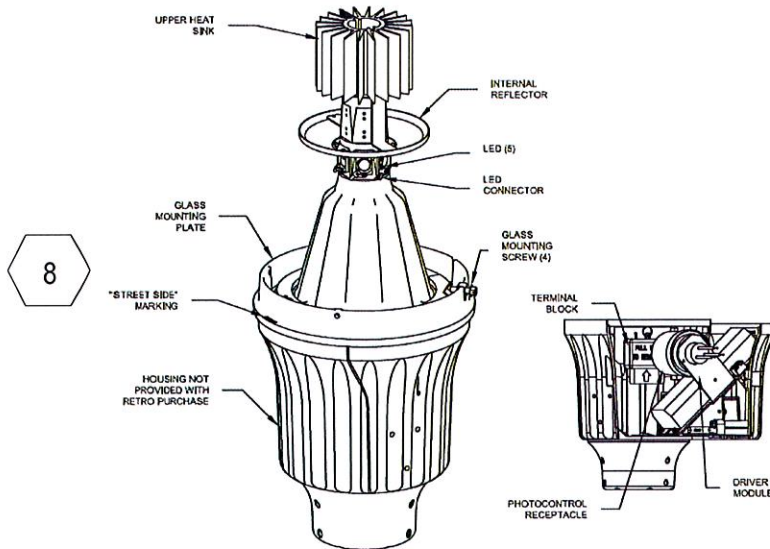


Install City furnished Holophane Granville LED Retrofit Kit and powerline lighting controller. Furnish and install (3) # 12 XHHW conductors from branch circuiting to luminaire including all necessary fusing and splicing equipment.

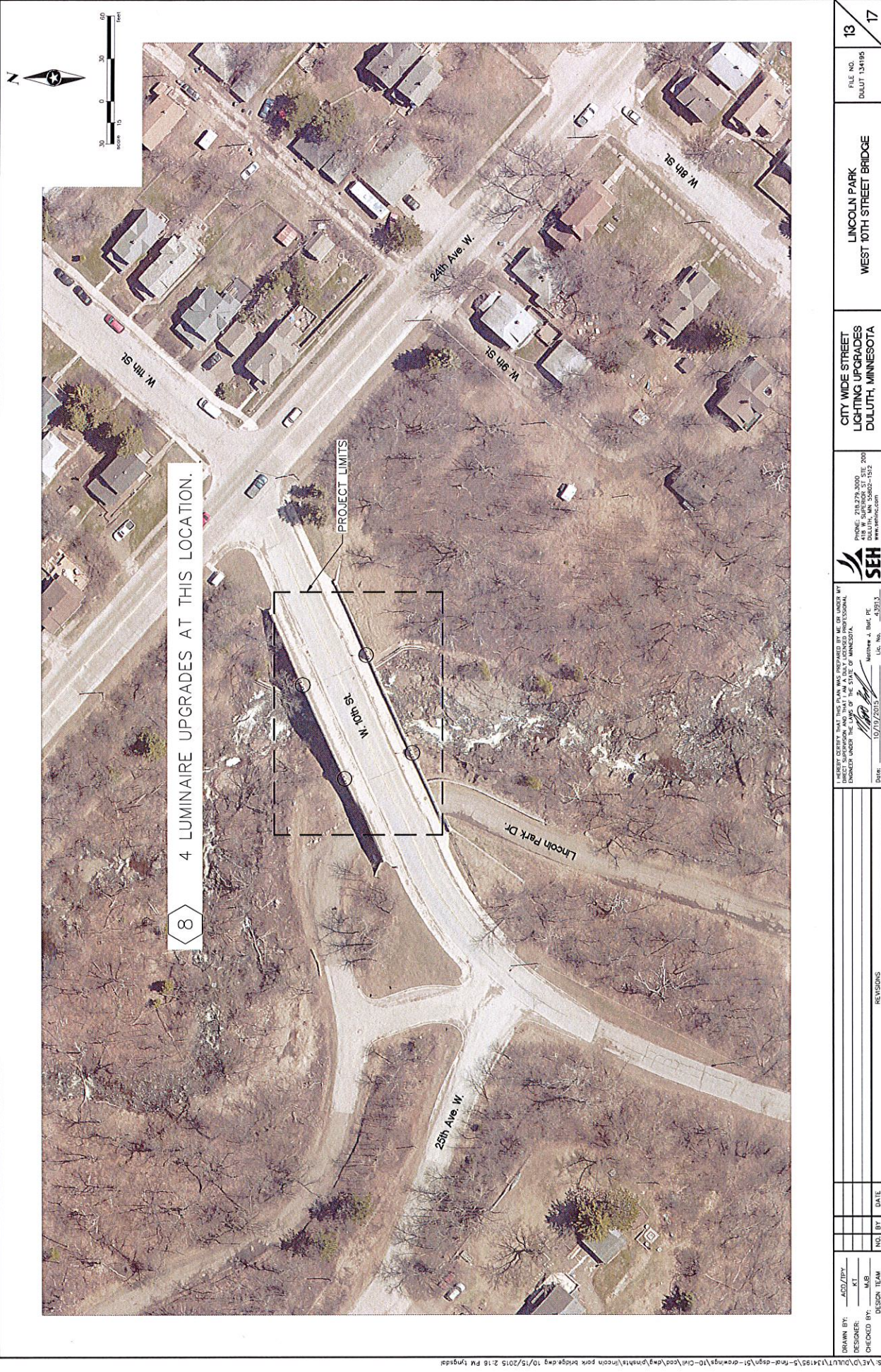
Harbor Highlands – Village View Drive, Harbor Highland Drive, West 11th St., Red Rock Trail,
Lake Avenue, 1st Ave. East.



Remove existing Holophane Granville & Sternberg G793 Acorns. Remove pole riser conductors. 18 total luminaires – 6 Holophane and 12 Sternberg.



Install City furnished Holophane Granville LED Retrofit Kit or Sternberg G793 LED Acorn Retrofit Kits and power line controllers. Furnish and install (3) # 12 XHHW conductors from branch circuiting to luminaire including all necessary fusing and splicing equipment.

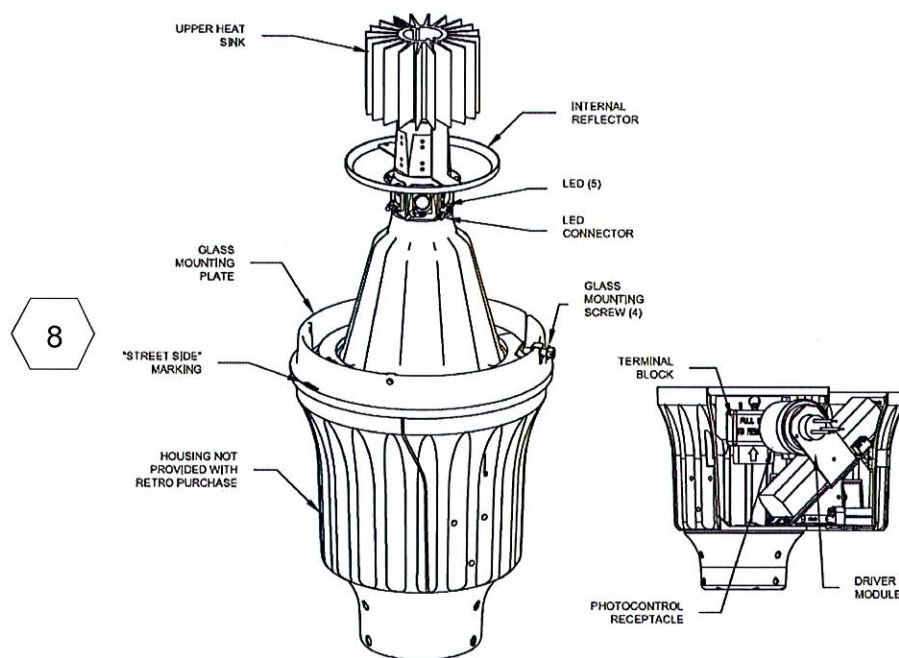


DRAWN BY: ACD/TPY		DESIGN TEAM		NO.	BY	DATE	REVISIONS		I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY CLOSE PERSONAL SUPERVISION AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  Matthew J. Bied, PE Date: 10/19/2015 Lic. No. 43913		 SEH ENGINEERING 1115 W. SUPERIOR ST. STE. 2000 DULUTH, MN 55802-1512 PH: 218.825.1800 FAX: 218.825.1805 WWW.SEH-ENGINEERING.COM	CITY WIDE STREET LIGHTING UPGRADES DULUTH, MINNESOTA	LINCOLN PARK WEST 10TH STREET BRIDGE	FILE NO. DULUT 134195	13																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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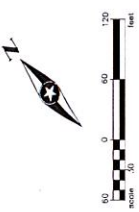
Lincoln Park – West 10th Street Bridge



Remove existing Holophane Utility Granville. Remove pole riser conductors. 4 total luminaires.



Install City furnished Holophane Granville LED Retrofit Kit and powerline lighting controller. Furnish and install (3) # 12 XHHW conductors from branch circuiting to luminaire including all necessary fusing and splicing equipment.



8 LUMINAIRE UPGRADES AT THIS LOCATION.

9

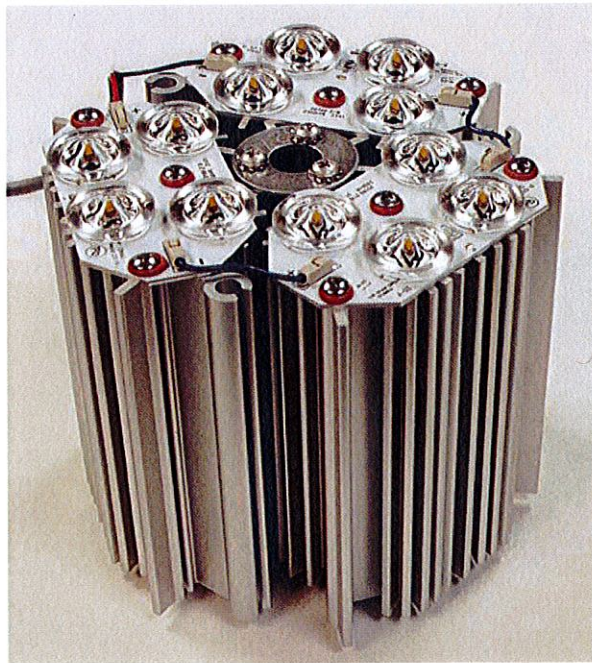
DRAWN BY: <u>ADD/TPP</u>										CITY WIDE STREET LIGHTING UPGRADES										EAST 8TH STREET BRIDGE										FILE NO.										14																			
DESIGNER: <u>KT</u>										DULUTH, MINNESOTA										14TH AVE. EAST - 15TH AVE. EAST										DULUT 134195										17																			
CHECKED BY: <u>M.B</u>										REVISIONS																																																	
DESIGN TEAM										NO. BY										DATE																																							

8th Street Bridge – 14th to 15th Avenue East



Remove existing Sternberg 1910 Pendant. Remove pole riser conductors. 8 total luminaires.

9



Install City furnished Sternberg 1910 LED Pendant Retrofit Kit and powerline lighting controller. Furnish and install (3) # 12 XHHW conductors from branch circuiting to luminaire including all necessary fusing and splicing equipment.



35 LUMINAIRE UPGRADES AT THIS LOCATION.

DRAWN BY:	ACO/TPY			
DESIGNER:	KT			
CHECKED BY:	MJB			
DESIGN TEAM				
		NO.	BY	DATE

ACO/IPY
KT
Y: MJB
DESIGN TEAM

NO.	BY	DATE

[illegible][illegible]

REVISIONS

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I HEREBY CERTIFY
DIRECT SUPERVISOR
ENGINEER UNDER

19/2015

Matthew J. Balf, PE
Lic. No. 43913



PHONE: 418 W. DULUTH
WWW.SCH

279.3000
RIOR ST STE 200
55802-1512
com

CITY WIDE :
LIGHTING UP
DULUTH, MINN.

STREET
ADES
SOTA

LOWE
WEST 10TH ST

WEDMONT
ST - TRINITY

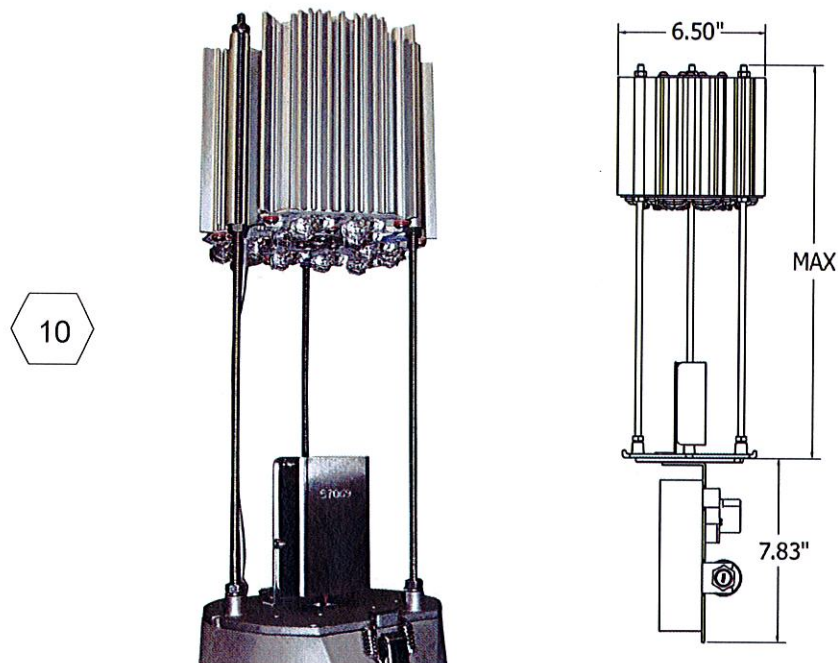
AD	FILE DULUT 1
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16	17
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Lower Piedmont Avenue – W. 4th Street to Trinity Road

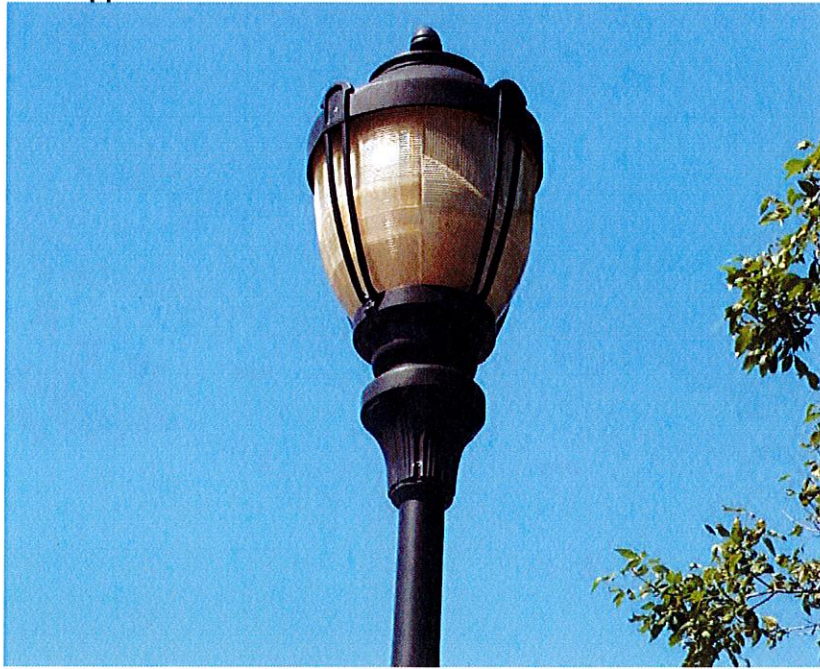


Remove existing Sternberg G793 Acorn. Remove pole riser conductors. 86 total luminaires.



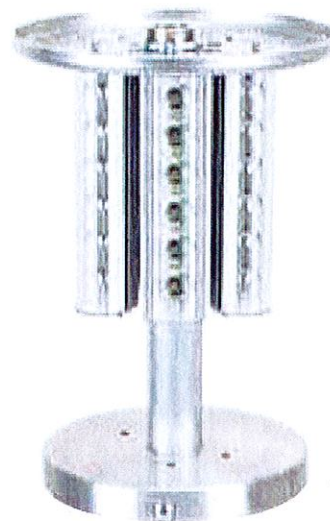
Install City furnished Sternberg G793 LED Acorn Retrofit Kit and powerline lighting controller. Furnish and install (3) # 12 XHHW conductors from branch circuiting to luminaire including all necessary fusing and splicing equipment.

Upper Piedmont – Hutchinson Road to Haines Road



Remove existing Sun Valley LCGR Acorn. Remove pole riser conductors. 49 total luminaires.

11



Install City furnished Sun Valley LCGR LED Acorn Retrofit Kit and powerline lighting controller. Furnish and install (3) # 12 XHHW conductors from branch circuiting to luminaire including all necessary fusing and splicing equipment.