2.10. LIGHTING DESIGN

2.10.1. IVINS CITY STANDARD STREET LIGHT

Ivins City has selected the Spectra™ Large light fixture system as manufactured by Architectural Areal Lighting (AAL) as a standard for City street lights. All streetlights installed on public streets must use the Spectra™ system as herein described. Refer to AAL website at http://www.aal.net. The City will pre-purchase poles, luminaires, and bases and keep these materials in stock for developers to use and reimburse the City to prevent suppliers from profiteering from the sole source manufacturer.

Table 2.10.1

Road Classification	R/W Width	Pole Height	Spectra Fixture	Lamp ~~Ballast~~	Maximum Spacing	Minimum Spacing	Bollards on Paths	Roundabouts
Major Arterial	100	18	SP1 ~~IND~~	~~150W HPS~~LED	500'	250'	Yes	~~n/a~~4 Lights
Minor Arterial	80/85	18	SP1 ~~IND~~	~~150W HPS~~LED	500'	250'	Yes	4 Lights
Major Collector	66	14	SP12 ~~IND~~	~~100W HPS~~LED	400'	200'	Yes	n/a
Minor Collector	60	14	SP12 ~~IND~~	~~100W HPS~~LED	400'	200'	No	n/a
Residential Collector	55	14	SP12 ~~IND~~	~~100W HPS~~LED	n/a	125'	No	n/a
Residential	50	14	SP12 ~~IND~~	~~100W HPS~~LED	n/a	125'	No	n/a
Residential Entrance	n/a	14	SP12 ~~IND~~	~~100W HPS~~LED	n/a	125'	N/a	n/a

R/W: Right of Way
HPS: High Pressure Sodium

A. Light fixture:

1. Light fixture shall be AAL Large Scale Spectra™ Model SP1 ~~IND ULS or SP2 IND ULS~~ with a straight hood, clear lens cover, LED lighting, 3000 K color temperature, and Corten color paint finish over the entire hood and body in accordance with Table ~~14.1~~2.10.1.

~~1.~~2. Fixture shall be retrofitted with an orange/amber acrylic lens cover provided by the City over the LEDs to lower color temperature to mimic high pressure sodium (approx.. 2200 K).

~~2.~~3. Fixture shall be equipped to cast an asymmetrical Type 3 light pattern for road side installations. ~~Fixture shall cast a symmetrical Type 5 light pattern for median installations.~~

~~3.~~4. ~~Fixture shall be glare free with an indirect lighting system that meets IES definition of "full cutoff" for night sky protection. Lamp Ballast shall be as identified in Table 2.10.1~~Fixture shall minimize uplighting and meet the IES definition of cutoff light fixture.

B. Photocell:

1. When metered, locate photocell at meter base. Otherwise, ~~P~~photocell shall be housed in an AAL Model PCA-C rotatable housing as manufactured by AAL.

- Housing and photocell is mounted on top of pole and directly beneath light fixture on single fixture mounts or directly beneath the twin arm mount structure for double fixture mounts.

2. Rotatable housing shall be oriented to point photocell in direction of least luminance from adjacent light fixtures.

3. Housing shall be locked into place in accordance with manufacturer's recommendations.

C. Pole:

1. Poles shall be aluminum ~~Model PR4~~ as manufactured by AAL as per the following table:~~.~~

Table 2.10.2

Road Classification	Pole Height	Base Cover	Diameter	Wall Thickness	Model Designation
Major Arterial	18	DB10	5"	0.250"	5R18-250
Minor Arterial	18	DB10	5"	0.250"	5R18-250
Major Collector	14	PR4	4"	0.226"	4R14-226
Minor Collector	14	PR4	4"	0.226"	4R14-226
Residential Collector	14	PR4	4"	0.226"	4R14-226
Residential	14	PR4	4"	0.226"	4R14-226
Resdiential Entrance	14	PR4	4"	0.226"	4R14-226

2. Poles shall be cast aluminum A356 alloy free of any porosity, foreign materials, or cosmetic fillers and shall be heat treated to a T-6 condition, of uniform wall thickness with no warping or mold shifting.

~~3. Aluminum poles shall have a 4 inch outside diameter with 0.226 inch wall thickness regardless of height.~~

3. Poles shall be bolted into a cast in place concrete foundation with breakaway bolts. Bolt size, length and pattern shall be according to the manufacturer.

4. Pole base shall be decorative for Major and Minor Arterials, AAL Model Designation DB10 and shall also include a cast aluminum receptacle with a GFCI receptacle included, AAL Model Designation RBC-GFI.

D. Twin Arm Mounts: All light poles placed in medians on arterial or major collector roads shall be mounted with a twin arm mount AAL Model TAP1 ~~(for SP1) or Model TAP2 (for SP2)~~ for the placement of double fixtures.

E. Street Signage: Where poles are located at intersections, street signs shall be attached to pole.

F. Color: Poles, Base Covers, Arm Mounts, Adapters, Photocell Housing and Fixtures shall match in color and shall all be a standard color of CORTEN (CRT) as manufactured by AAL.

G. Power Source: Power source shall be as per Rocky Mountain Power requirements.

1. Option A: Direct connect via fused junction box per Standard Drawing No. L-04.

2. Option B: Connect with service meter pedestal. Service pedestal shall be a manufactured fully contained rainproof (NEMA Type 3R Enclosure) cabinet no larger than 12-inches x 12-inches x 63-inches tall with fully hinged meter section cover and window for meter reading. Milbank A-Style CP3A or equal. When plug in receptacles or irrigation timers are on the service this option shall be required.

~~G.~~H. Banner Arms: On arterials, banner arms for a 24-inch by 72-inch banner shall be provided. When the light is installed in the median, the light shall be equipped with dual banners.

2.10.2. STREETLIGHT LOCATIONS

Streetlights shall be placed in accordance with the following:

A. Traffic Signalized Intersections:

1. All signalized intersections shall have Spectra™ SP1 ~~IND 150 Watt HPS~~ fixtures located on top of the signal pole.

2. The signal pole and signal cross arm shall match the AAL CORTEN color as best as possible.

B. Residential Entrances:

1. All residential developments accessed from arterial or collector roads shall have a streetlight consisting of a 14-foot pole mounted with a single Spectra™ ~~SP2/IND3/ULS 100 Watt HPS~~SP1 fixture.

2. A residential entrance light will not be required if an adjacent residential entrance light is located within 125 feet on any arterial or major collector or within 250 feet on minor or residential collectors.

C. Major Arterials (Highway 91):

1. Streetlights, consisting of 18-foot poles mounted with single Spectra™ SP1~~/IND3/ULS 150 Watt HPS~~ fixtures, shall be located at all intersections with collector roads, located on two corners, and located diagonally across the intersection.

2. Only one light is required on T-intersections.

3. In commercial areas, twin arm mounted poles will be required in the street median in accordance with Table 2.10.1

D. Arterials (Snow Canyon Parkway/Center Street/Highway 91):

1. Streetlights, consisting of 18-foot poles mounted with single Spectra™ SP1~~/IND3/ULS 150 Watt HPS~~ fixtures, shall be located at all intersections with collector roads, located on two corners, and located diagonally across the intersection.

2. Only one light is required on T-intersections.

3. Twin arm Spectra™ SP1~~/IND5/ULS 150 Watt HPS~~ fixtures mounted on 14-foot poles will be required in the street medians in accordance with Table 2.10.1.

E. Major Collectors:

1. Streetlights, consisting of 14-foot poles mounted with single Spectra™ SP12~~/IND3/ULS 100 Watt HPS~~ fixtures, shall be located at all intersections with collector roads, located on two corners, and located diagonally across the intersection.

2. Only one light is required on T-intersections.

3. Twin arm SpectraTM SP12~~/IND5/ULS 100 Watt HPS~~ fixtures mounted on 14-foot poles will be required in the street medians in accordance with Table 2.10.1.

F. Minor/Residential Collectors:

1. A streetlight, consisting of a 14-foot pole mounted with a single Spectra™ SP12~~/IND3/ULS 100 Watt HPS~~ fixture, shall be located at all intersections with collector roads, located on one corner of the intersection.

2.10.3. IVINS CITY STANDARD BOLLARD FOR PAVED TRAILS

Ivins City has selected the Bounce Bollard light fixture system as manufactured by Kim Lighting as a standard for all trail lighting. Refer to Kim website at http://www.kimlighting.com/.

A. Bollard Fixture:

1. Bollard fixture shall be the Bounce Bollard Model No. BNB1 as manufactured by Kim Lighting.

2. Lighting element shall be ~~70 Watt HPS~~LED with the Type 3 light distribution (27L) and 3000K color temperature (3K).

~~2.~~3. Fixture shall be retrofitted by replacing the clear lens with an orange/amber acrylic lens as provided by the City to further reduce the color temperature to mimic high pressure sodium (approx. 2200 K).

~~3.~~4. Fixture shall include Optional Matte Black Body Cap (Cat. No. BBC) to meet IES designation for "~~full~~ cutoff".

B. Color: Bollard shall be a standard color of Dark Bronze as manufactured by Kim Lighting.

C. Locations: Bollard lighting of trails will be required on all arterial and major collector roads.

D. Spacing: Bollards shall be placed at a target spacing of 80 feet with a maximum spacing of 90 feet along these trails.

2.10.4. REQUIREMENTS FOR NEW DEVELOPMENT

A. Conduit, wiring and streetlights shall be installed at the developer's expense in all new and proposed subdivisions or commercial areas.

B. Those subdivisions and commercial areas will be lighted in accordance with a written plan that addresses intersections, public facilities, trails and crosswalks. (See Zoning Ordinance Chapter 11 for details)

C. Non-Standard Lighting for New Development.

1. In the event that a new subdivision or commercial area presents a written lighting plan that uses non-standard streetlights, the plan must be approved by the Planning and Zoning Commission and the City Council.

2. All costs associated with installation, operation and maintenance of non-standard lights shall be by other than Ivins City.

3. All non-standard lighting must meet the requirements of Ivins City Outdoor Lighting Ordinance (Ord. No. 2007-11).

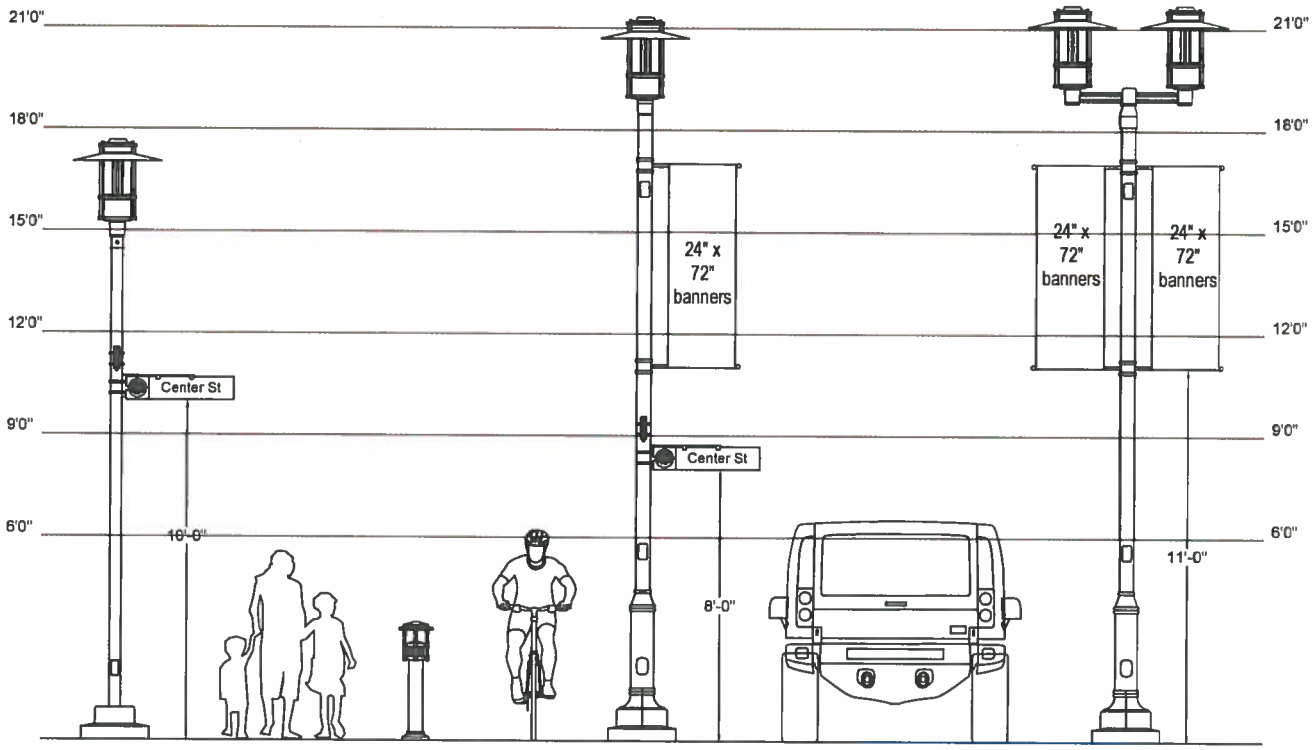
D. Exceptions may be made by the City Engineer or Public Works Director on the location of lighting if crosswalks and street signs along collector and arterial streets are provided with alternative lighting as proposed by a developer.

2.10.5. EXISTING SUBDIVISIONS

A. Existing subdivisions which do not want streetlights shall not be required to install them.

B. In the event a resident living in an established, built-out area requests the installation of a street light, the resident must have the approval and signatures of all adjoining residents impacted by the street light installation, and the City Council. The requesting resident is responsible for costs associated with the street light and its installation. The City will assume ownership after installation.

C. If an existing subdivision or project has non-standard lights installed, approval may be given to continue the non-standard street lights. All non-standard lights shall not be maintained by Ivins City unless already under Ivins City maintenance.



14' Pole

Collectors
For street corners

Bollard

On Trails adjacent to Arterials and Major Collectors

18' Pole

Arterials
For street corners

18' Pole - Double

Arterials
For median placements

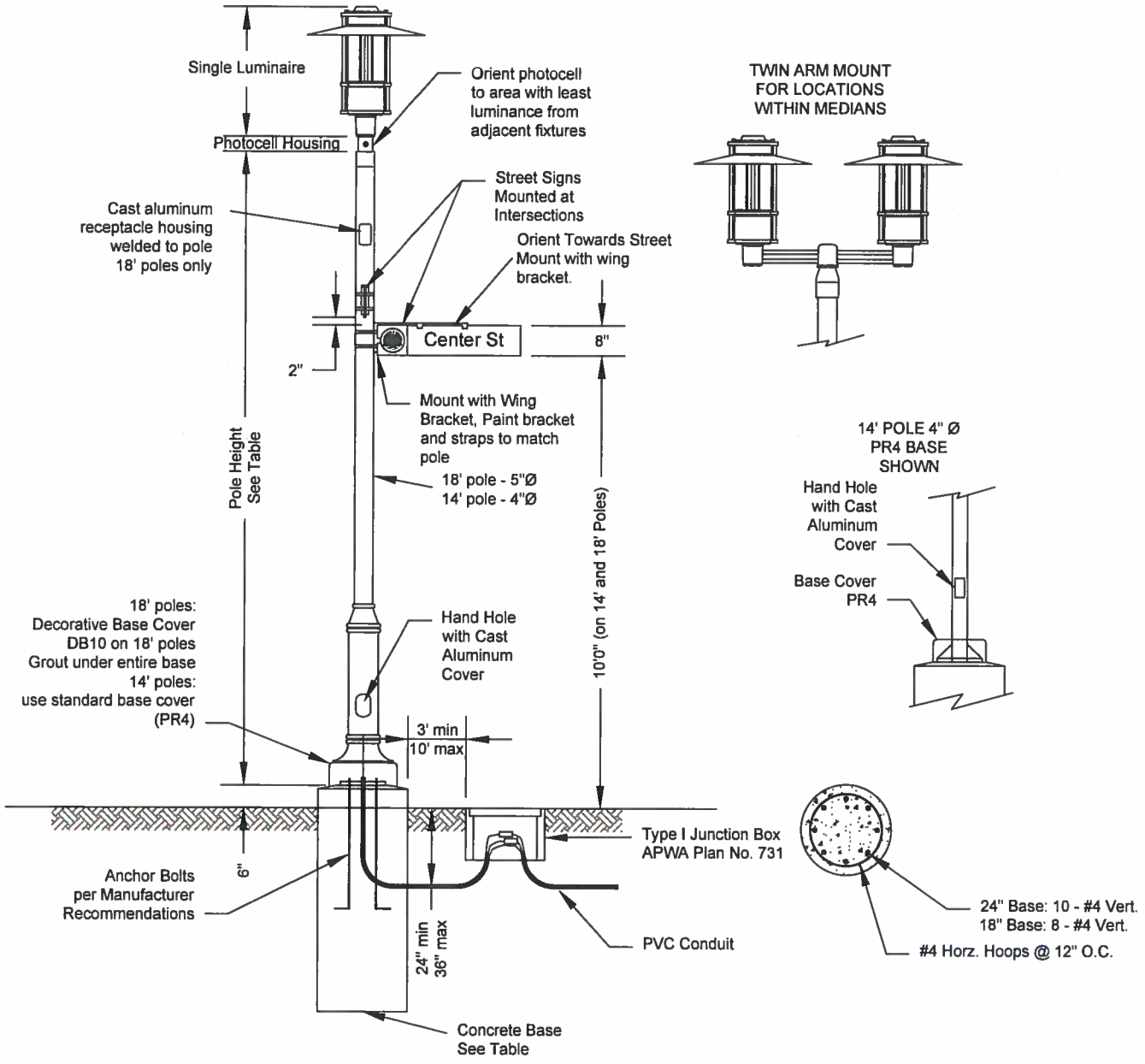
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IVINS CITY

STREET LIGHTING PERSPECTIVE

Standard Drawing L-01



Pole Height Table

Road	R/W	Pole Height	Luminaire	Pole/Base
Major Arterial	100'	18'	SP1	5" (5R18 DB10)
Minor Arterial	80/85'	18'	SP1	5" (5R18 DB10)
Major Collector	66'	14'	SP1	4" (4R14 PR4)
Minor Collector	60'	14'	SP1	4" (4R14 PR4)
Residential Collector	55'	14'	SP1	4" (4R14 PR4)
Residential	50'	14'	SP1	4" (4R14 PR4)
Residential Entrance	n/a	14'	SP1	4" (4R14 PR4)

Concrete Base Table

Pole Height	Base Depth	Base Diameter
18'	6'	24"
14'	4'	18"

Mfg: Area Architectural Lighting (www.aal.net)
Catalog Numbers

18' pole single luminaire: SP1-STR-ULS-Y3-32LED-3K-CRT-AD5-DB10-5R18-250-RBC-GFI
18' pole dual luminaire: SP1-STR-ULS-Y3-32LED-3K-CRT-AD5-TAP1-DB10-5R18-250-RBC-GFI
14' pole single luminaire: SP1-STR-ULS-Y3-32LED-3K-CRT-PR4-4R14-226
Optional: PCA-C (rotatable photocell housing)

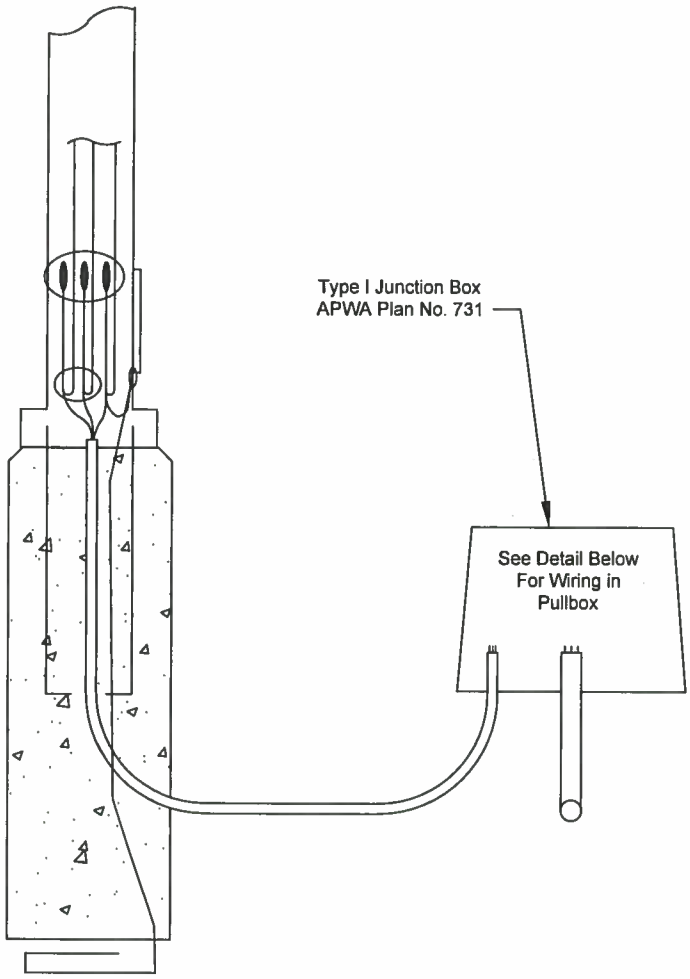
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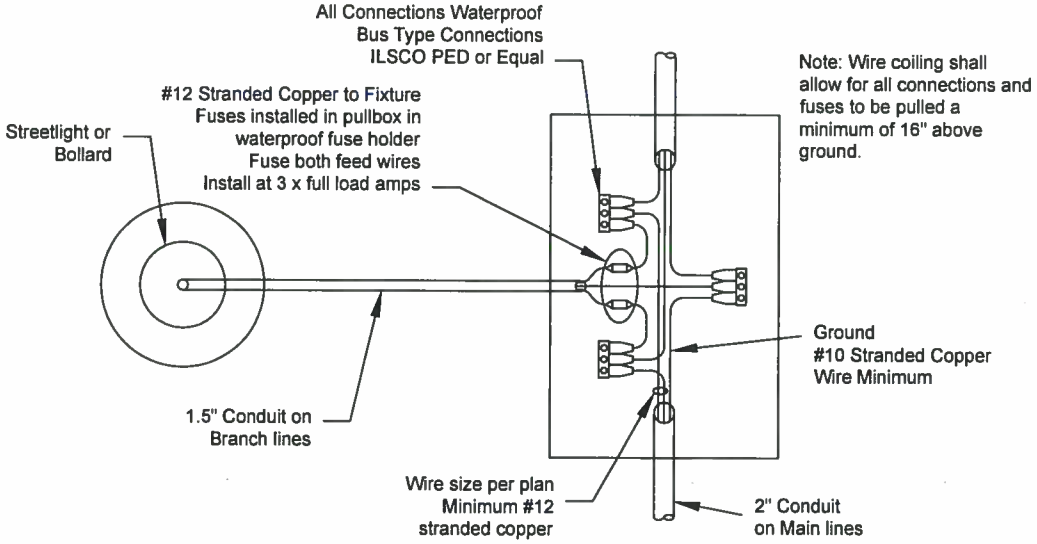
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STREET LIGHTING

Standard Drawing L-02





PULL BOX CONNECTION
DETAILS

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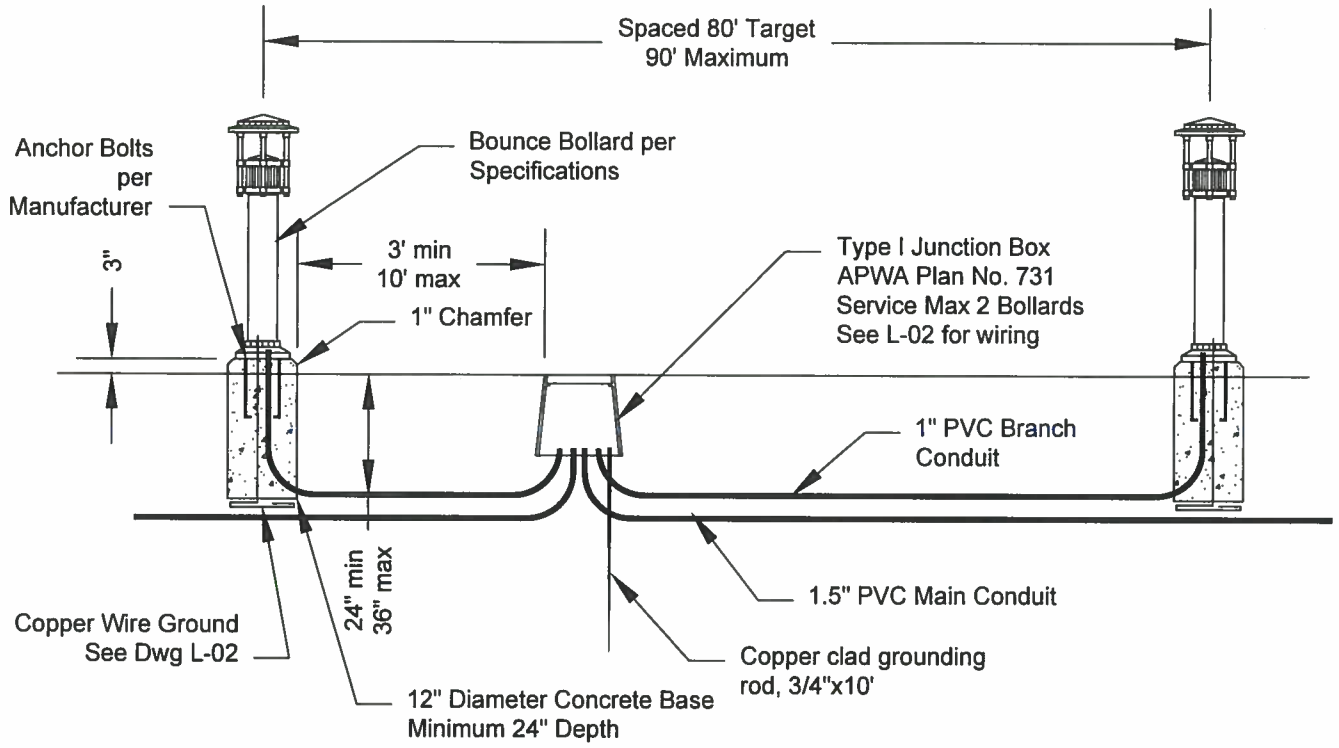
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STREET LIGHT WIRING DETAIL

Standard Drawing L-03

Notes:

1. Junction Box shall be plastic when in landscape areas and polymer concrete when in paved areas.
2. APWA Section 26 56 19, Roadway Lighting.
3. Bollard Specifications:
   MFR: Kim Lighting (www.kimlighting.com)
   Model: Bounce Bollard, 27 LED Type 3 Distribution, Color Temp. 3000K, Finish dark bronze with dark sky compliant Black Body Cap
   Catalog #: BNB1-27L-3K-UV-DB-BBC (Voltage as determined by plans/elecrician)



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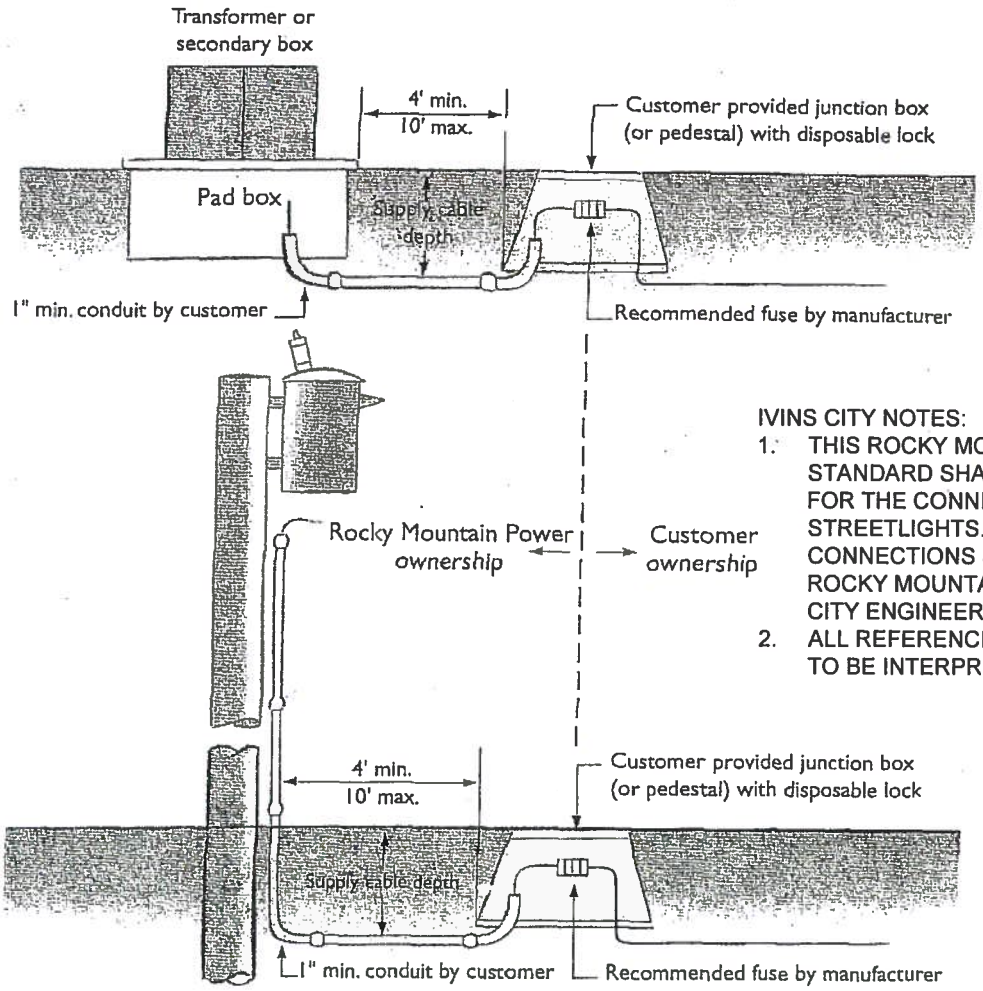
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BOLLARD DETAIL

Standard Drawing L-04

Streetlight Point-of-Disconnect Diagram



IVINS CITY NOTES:

1. THIS ROCKY MOUNTAIN POWER STANDARD SHALL BE THE STANDARD FOR THE CONNECTION OF ALL IVINS CITY STREETLIGHTS. ALTERNATIVE TYPES OF CONNECTIONS SHALL BE APPROVED BY ROCKY MOUNTAIN POWER AND IVINS CITY ENGINEER.
2. ALL REFERENCES TO "CUSTOMER" ARE TO BE INTERPRETED AS IVINS CITY.

Customer is responsible for:

- Providing and installing a junction box or pedestal, conduit, fusing and customer-owned wire. The junction box or pedestal must be strong enough for incidental traffic areas
- Coordinating with Rocky Mountain Power on junction box or pedestal location and all digging within the vicinity of Rocky Mountain Power facilities
- Ensuring that construction of new or remodeled installations conform to applicable provisions of the NEC State Rules, as well as city and county codes

Rocky Mountain Power is responsible for:

- Making the connection within Rocky Mountain Power facilities (transformer or secondary box)

ROCKY MOUNTAIN POWER

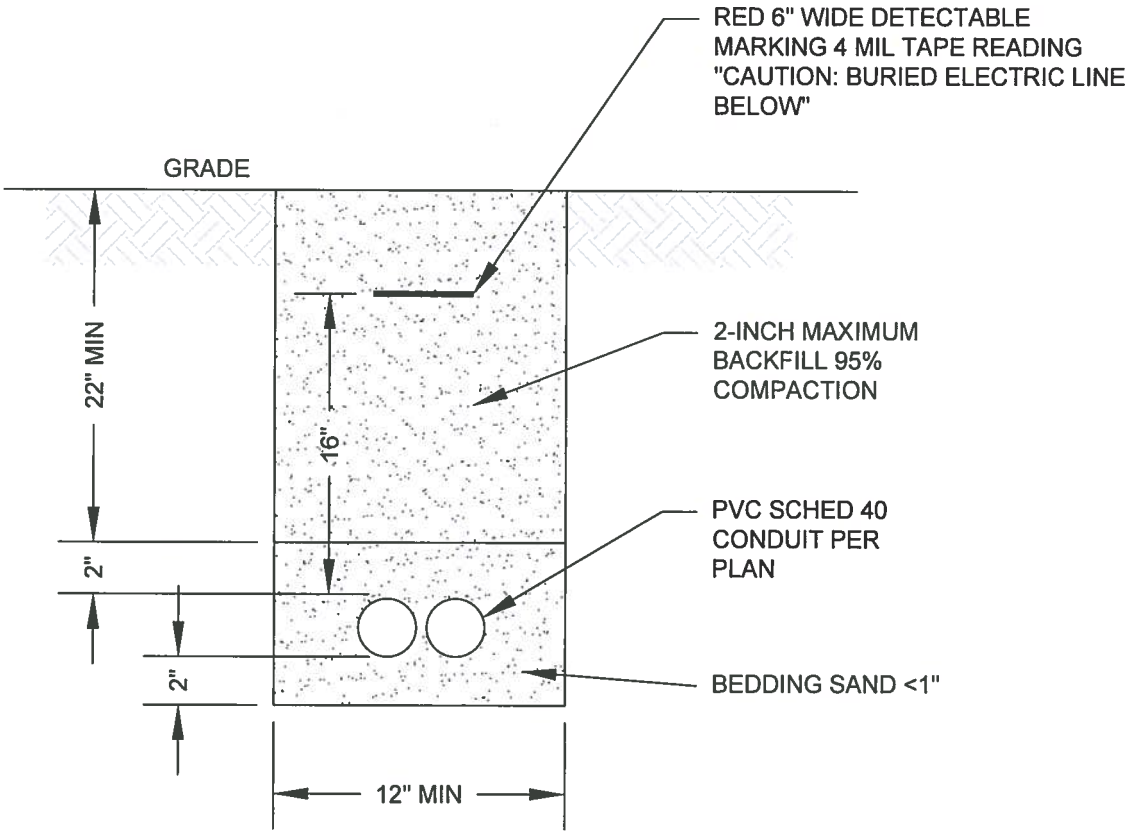
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STREET LIGHT CONNECTION TO ROCKY MOUNTAIN POWER

Standard Drawing L-05



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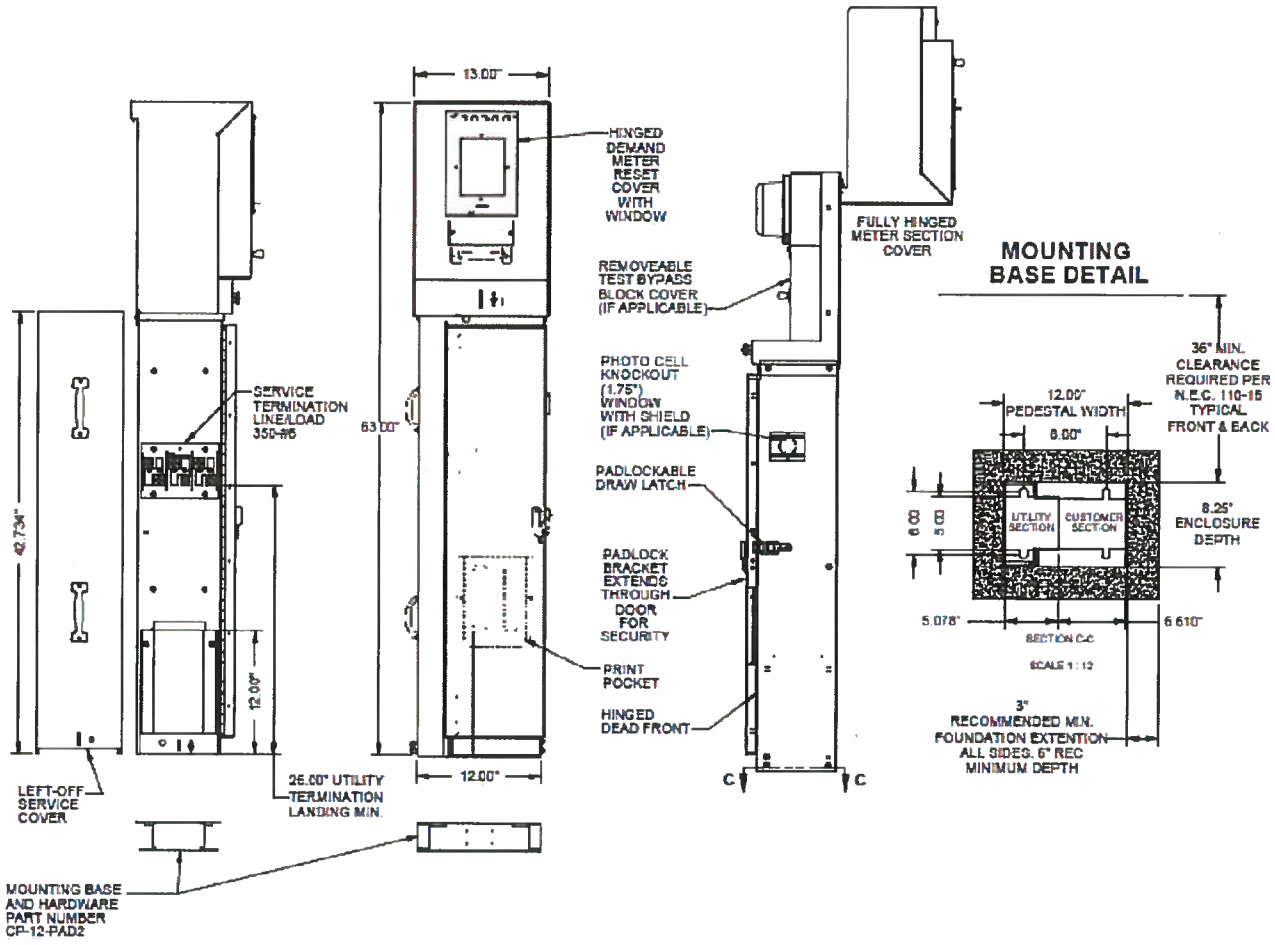
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IVINS CITY

STREET LIGHT CONDUIT TRENCH DETAIL

Standard Drawing L-06

"A" STYLE SLIMLINE METERED COMMERCIAL PEDESTAL



NOTES:

1. MILBANK "A" STYLE SLIMLINE CP3A OR SIMILAR EQUAL 100 AMP SERVICE PEDESTAL.
2. SET ON A 18" X 18" X 10" CONCRETE BASE USING MOUNTING BASE HARDWARE OPTION PER MFR RECOMMENDATIONS.
3. FINISH COLOR: MATCH TO NERD BROWN CLC 1284N BY KWAL-HOWELL, FORMULA: AV-0590,LB-4Y24, RO-736, TW-36
4. SET BACK TO EDGE OF RIGHT-OF-WAY NO CLOSER THAN 3' TO NEAREST WALL.
5. SET PHOTOCELL ON SERVICE PEDESTAL.

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ELECTRICAL METER SERVICE PEDESTAL

Standard Drawing L-07