

STATE OF	PROJECT	SHEET	TOTAL
SOUTH DAKOTA	085-471	1	17
Plotting [	)ate: 12/16/2014		

# INDEX OF SHEETS

1:	Title Sheet and Layout Map
2-4:	General Notes
5:	Table of luminaire pole repairs
6-9:	Aerial Views
10-13:	Footing extension details
14-15:	Luminaire pole standard plates
16-17:	Traffic Control standard plates
	1: 2-4: 5: 6-9: 10-13: 14-15: 16-17:



# CITY MAP BELLE FOURCHE BUTTE COUNTY – SOUTH DAKOTA T 9 N-R 6 E

-ILE - ... \BELLE\_TITLE. DGN

# **ESTIMATE OF QUANTITIES**

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
460E0300	Breakout Structural Concrete	0.4	CuYd
462E0100	Class M6 Concrete	0.9	CuYd
480E0100	Reinforcing Steel	160	Lb
480E0507	No. 7 Rebar Splice	32	Each
634E0010	Flagging	24	Hour
634E0100	Traffic Control	493	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0420	Type C Advance Warning Arrow Panel	3	Each
635E7500	Remove and Reset Luminaire Pole	4	Each
900E2030	Miscellaneous Work	16	Site

# **ENVIRONMENTAL COMMITMENTS**

An Environmental Commitment is a measure that SDDOT commits to implement in order to avoid, minimize, and/or mitigate a real or potential environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency mentioned below with permitting authority can influence a project if perceived environmental impacts have not been adequately addressed. Unless otherwise designated, the Contractor's primary contact regarding matters associated with these commitments will be the Project Engineer. These environmental commitments are not subject to change without prior written approval from the SDDOT Environmental Office. The environmental commitments associated with this project are as follows:

# COMMITMENT B2: WHOOPING CRANE

The Whooping Crane is a spring and fall migratory bird in South Dakota that is about 5 feet tall and typically stops on wetlands, rivers, and agricultural lands along their migration route. An adult Whooping Crane is white with a red crown and a long, dark, pointed bill. Immature Whooping Cranes are cinnamon brown. While in flight, their long necks are kept straight and their long dark legs trail behind. Adult Whooping Cranes' black wing tips are visible during flight.

#### Action Taken/Required:

Harassment or other measures to cause the Whooping Crane to leave the site is a violation of the Endangered Species Act. If a Whooping Crane is sighted roosting in the vicinity of the project, borrow pit, or staging site associated with the project, cease construction activities in the affected area until the Whooping Crane departs and contact the Project Engineer. The Project Engineer will contact the Environmental Office so that the sighting can be reported to USFWS.

# COMMITMENT E: STORM WATER

Construction activities constitute less than 1 acre of disturbance.

# Action Taken/Required:

At a minimum and regardless of project size, appropriate erosion and sediment control measures must be installed to control the discharge of pollutants from the construction site.

# COMMITMENT H: WASTE DISPOSAL SITE

The Contractor shall furnish a site(s) for the disposal of construction and/or demolition debris generated by this project.

# Action Taken/Required:

Construction and/or demolition debris may not be disposed of within the State ROW.

The waste disposal site(s) shall be managed and reclaimed in accordance with the following from the General Permit for Highway, Road, and Railway Construction/Demolition Debris Disposal Under the South Dakota Waste Management Program issued by the Department of Environment and Natural Resources.

The waste disposal site(s) shall not be located in a wetland, within 200 feet of surface water, or in an area that adversely affects wildlife, recreation, aesthetic value of an area, or any threatened or endangered species, as approved by the Project Engineer.

If the waste disposal site(s) is located such that it is within view of any ROW, the following additional requirements shall apply:

1. Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials shall be buried in a trench completely separate from wood debris. The final cover over the construction and/or demolition debris shall consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the State ROW shall be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor shall control the access to waste disposal sites not within the State ROW through the use of fences, gates, and placement of a sign or signs at the entrance to the site stating "No Dumping Allowed".

2. Concrete and asphalt concrete debris may be stockpiled within view of the ROW for a period of time not to exceed the duration of the project. Prior to project completion, the waste shall be removed from view of the ROW or buried and the waste disposal site reclaimed as noted above.

The above requirements will not apply to waste disposal sites that are covered by an individual solid waste permit as specified in SDCL 34A-6-58, SDCL 34A-6-1.13, and ARSD 74:27:10:06.

Failure to comply with the requirements stated above may result in civil penalties in accordance with South Dakota Solid Waste Law, SDCL 34A-6-1.31.

All costs associated with furnishing waste disposal site(s), disposing of waste, maintaining control of access (fence, gates, and signs), and reclamation of the waste disposal site(s) shall be incidental to the various contract items.

# COMMITMENT I: HISTORICAL PRESERVATION OFFICE CLEARANCES

The SDDOT has obtained concurrence with the State Historical Preservation Office (SHPO or THPO) for all work included within the project limits and all designated option borrow sites provided within the plans.

# Action Taken/Required:

All earth disturbing activities not designated within the plans require review of cultural resources impacts. This work includes, but is not limited to: staging areas, borrow sites, waste disposal sites, and all material processing sites.

The Contractor shall arrange and pay for a cultural resource survey and/or records search. The Contractor has the option to contact the state Archaeological Research Center (ARC) at 605-394-1936 or another qualified archaeologist, to obtain either a records search or a cultural resources survey. A record search might be sufficient for review; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

The Contractor shall provide ARC with the following: a topographical map or aerial view on which the site is clearly outlined, site dimensions, project number, and PCN. If applicable, provide evidence that the site has been previously disturbed by farming, mining, or construction activities with a landowner statement that artifacts have not been found on the site.

The Contractor shall submit the records search or cultural resources survey report and if the location of the site is within the current geographical or historic boundaries of any South Dakota reservation to SDDOT Environmental Engineer, 700 East Broadway Avenue, Pierre, SD 57501-2586 (605-773-3180). SDDOT will submit the information to the appropriate SHPO/THPO. Allow **30 Days** from the date this information is submitted to the Environmental Engineer for SHPO/THPO review.

If evidence for cultural resources is uncovered during project construction activities, then such activities shall cease and the Project Engineer shall be immediately notified. The Project Engineer will contact the SDDOT Environmental Engineer in order to determine an appropriate course of action.

SHPO/THPO review does not relieve the Contractor of the responsibility for obtaining any additional permits and clearances for staging areas, borrow sites, waste disposal sites, or material processing sites that affect wetlands, threatened and endangered species, or waterways. The Contractor shall provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

STATE OF	PROJECT	SHEET	TOTAL SHEETS
SOUTH DAKOTA	085-471	2	17

#### SCOPE OF WORK

Work on this project involves a wide range of repairs to various types of luminaire poles. Four luminaire pole footings are to be extended. Fifteen luminaire pole sites require miscellaneous repairs. Refer to the table of luminaire repairs for details.

#### **SEQUENCE OF OPERATIONS**

Luminaire poles and luminaire heads shall remain in service during hours of darkness. Necessary repairs shall not take the luminaire out of service during the nighttime hours. The exception to this would be the luminaire pole footing extension which requires removal of the luminaire pole for several days to allow the concrete to obtain required strength. The luminaire pole shall be operational within 5 calendar days of the concrete obtaining required strength.

### **GENERAL NOTES**

The Contractor shall adequately support the luminaire poles during the repair process. Any damage caused to the sidewalk, poles, pole bases, or any other component of the luminaire shall be repaired or replaced by the Contractor at his expense. The Engineer shall have final approval of any repairs or replacements that are required. All costs associated with supporting the luminaire poles during the repair process shall be incidental to the contract unit price for MISCELLANEOUS WORK.

#### **ORIGINAL SHOP PLANS**

The SDDOT has the original shop plans for the luminaire poles on file. The SDDOT will make these original shop plans available to the successful Contractor upon award of the project. These original shop plans will also be made available, upon request to the Belle Fourche Area Office, to any bidders of this project. Original shop plans will be provided in PDF format.

#### **REPLACEMENT PARTS**

All replacement parts on this contract shall be obtained from the company that furnished the original luminaire components. Replacement washers and shims shall be approved by the pole manufacturer.

Replacement parts shall have the same protective coating as the original components.

The Contractor shall be responsible for furnishing certification for replacement parts per the SDDOT Materials Manual.

## **ORIGINAL LUMINAIRE POLE SUPPLIER CONTACT INFORMATION**

#### SUPPLIER

Valmont Industries, Inc. http://www.valmont.com/valmont/products/pole-structures One Valmont Plaza Omaha, Nebraska 68154-5215 402-963-1000 Fax: 402-963-1198

# SUPPLIER

#### Millerbernd Manufacturing Company

http://www.millerberndmfg.com/steel lighting poles/ Steve Klobe Regional Manager ND,SD & MN Inside Sales Customer Service 320-485-2111 sklobe@millerberndmfg.com

# UTILITIES

Utilities are not planned to be affected on this project. If utilities are identified near the improvement area through the SD One Call Process as required by South Dakota Codified Law 49-7A and Administrative Rule Article 20:25, the Contractor shall contact the Project Engineer to determine modifications that will be necessary to avoid utility impacts.

# **TRAFFIC CONTROL**

Traffic control shall be per the standard plates included in this set of plans. Flaggers shall be utilized as necessary. A lane closure shall be in place if any activity impacts a lane of traffic. All lanes should be open to traffic during nonworking hours.

Removing, relocating, covering, salvaging and resetting of existing traffic control devices, including delineation, shall be the responsibility of the Contractor. Cost of this work shall be incidental to the various contract items unless otherwise specified in the plans. Delineators and signs damaged or lost shall be replaced by the Contractor at no cost to the State.

Storage of vehicles and equipment shall be as near the right-of-way line as possible. Contractor's employees should mobilize at a location off the right-ofway and arrive at the work sites in a minimum number of vehicles necessary to perform the work. Indiscriminate driving and parking of vehicles within the right-of-way will not be permitted. Any damage to the vegetation, surfacing, embankment, delineators and existing signs resulting from such indiscriminate use shall be repaired and/or restored by the Contractor, at no expense to the State, and to the satisfaction of the Engineer.

Work zones for luminaire repair shall not exceed 2000' in length without prior approval from the Engineer.

Traffic approaching the project from intersecting roadways, streets, and approaches must be adequately accommodated. Major intersections or large commercial entrances may require additional signing, flaggers, and channelizing devices on a temporary basis until work activities pass these areas.

The bottom of signs on portable or temporary supports shall not be less than seven feet above the pavement in urban areas and one foot above the pavement in rural areas. Portable sign supports may be used as long as the duration is less than 3 days. If the duration is more than 3 days the signs shall be on fixed location, ground mounted, breakaway supports.

The Contractor shall provide documentation that all breakaway sign supports comply with FHWA NCHRP Report 350 or MASH crash-worthy requirements. The Contractor shall provide installation details at the preconstruction meeting for all breakaway sign support assemblies.

#### **TRAFFIC CONTROL (CONTINUED)**

The Contractor shall accommodate pedestrian traffic, including those with disabilities. Bicycle traffic shall also be accommodated.

Traffic Control units, as shown in the Estimate of Quantities, are estimates. The Contractor's operation may require adjustments in quantities, either more or less. Payment will be for those signs actually ordered by the Engineer and used.

The quantity of signs and arrow panels paid for will be for the greatest number of installations in place at any one time regardless of the number of set-ups on the project.

		CONVENTIONAL ROAD				
SIGN CODE	DESCRIPTION	NUMBER	SIGN SIZE	UNITS PER SIGN	UNITS	
W4-2	LEFT or RIGHT LANE ENDS (symbol)	3	48" x 48"	34	102	
W20-1	ROAD WORK AHEAD	4	48" x 48"	34	136	
W20-4	ONE LANE ROAD AHEAD	1	48" x 48"	34	34	
W20-5	LEFT or RIGHT LANE CLOSED AHEAD	3	48" x 48"	34	102	
W20-7	FLAGGER (symbol)	1	48" x 48"	34	34	
W21-5	SHOULDER WORK	1	48" x 48"	34	34	
G20-2	END ROAD WORK	3	36" x 18"	17	51	
TOTAL UNITS 493						

# **REMOVE AND RESET LUMINAIRE POLE**

luminaire poles.

All costs associated with removing and resetting the luminaire poles shall be incidental to the contract unit price for REMOVE AND RESET LUMINAIRE POLE. Each luminaire pole requiring this work shall constitute 1 Site for payment purposes.

Any removal of luminaire poles to make repairs to the pole or replace parts on the pole will not constitute payment of the contract item Remove and Reset Luminaire Pole as this work does not require removal of the pole from the pole base.

# **INSTALL WASHER AND/OR SHIMS**

The Table of Luminaire Repair indicates 14 luminaire pole sites which require the installation of washers or shims on the base connection or breakaway assembly.

All costs associated with furnishing and installing washers or shims shall be incidental to the contract unit price per site for MISCELLANEOUS WORK. Each luminaire pole requiring this work shall constitute 1 Site for payment purposes, regardless of the number of washers or shims installed.

The Contractor shall be responsible for reviewing the original shop plans and working with the original supplier to determine the proper hardware to install at each location.

All costs associated with tightening any in place anchor rod nuts shall be incidental to the contract unit price per site for MISCELLANEOUS WORK. Anchor bolts shall be tightened in accordance with Section 635 of the 2004 Specifications and the Supplemental Specifications to the 2004 Specifications.

	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		085-471	3	17

# ITEMIZED LIST FOR TRAFFIC CONTROL

The Table of Luminaire Repair indicates 4 luminaire pole sites which require the footings to be extended. This work will require the removal and resetting of 4

#### **TIGHTEN LUMINAIRE HEAD**

Type D Permanent Seed Mixture shall consist of the following:

The Table of Luminaire Repair indicates 1 luminaire pole site which requires tightening of the luminaire head.

The Contractor shall tighten the luminaire head at Structure No. L15866029. All costs associated with tightening the luminaire head shall be incidental to the contract unit price for MISCELLANEOUS WORK. The luminaire pole requiring this work shall constitute 1 Site for payment purposes.

# **REPLACE / REPAIR / ACCESS COVER**

The Table of Luminaire Repair indicates 1 luminaire pole site which requires repairs and or reattachment of the hand hole access cover.

The Contractor shall repair the access panel at Structure No. L15876011. The luminaire pole requiring this work shall constitute 1 Site for payment purposes.

If the present attachment for the access cover is damaged and/or does not adequately secure the access cover in place, the Contractor shall be responsible for preparing and implementing a plan that adequately secures the access cover and still allows for easy removal of the access cover.

All costs associated with furnishing and installing an access cover and/or making repairs to allow for the securing of an access cover shall be incidental to the contract lump sum price for MISCELLANEOUS WORK.

## **MISCELLANEOUS WORK**

The contract item Miscellaneous Work encompasses several items of work as indicated in the various Tables of Luminaire/Signal Repair. Each item of work indicated under the contract item Miscellaneous Work shall constitute one payment of the contract item MISCELLANEOUS WORK.

#### LUMINAIRE POLE FOOTING EXTENSION

The Contractor shall extend the luminaire pole footing for Structure Numbers L15340036, L15876008, L15876010, L15876011 located on Highway 85 in Belle Fourche. Refer to the Luminaire Pole Footing Extension details in these plans. Any excavation and restoration of the area shall be incidental to the contract unit prices for extending the concrete footings. The Contractor shall be responsible for storing the luminaire poles while the footings are being extended.

All costs associated with reconnecting the power to the luminaire poles shall be incidental to the contract unit prices for extending the concrete footings.

The topsoil at structure number L15340036 and L15876011 shall be placed flush with the top of the concrete pole footing. The area shall be shaped to provide positive drainage away from the pole bases. Type D Permanent Seed shall be used to seed the disturbed area.

All costs associated with seeding these areas shall be incidental to the contract unit prices for extending the concrete footings.

All permanent seed shall be planted in the topsoil at a depth of 1/4" to 1/2".

All seed broadcast must be raked or dragged in (incorporated) within the top  $\frac{1}{2}$ " to  $\frac{1}{2}$ " of topsoil when possible. This requirement may be waived by the Engineer during construction when raking or dragging is deemed not feasible by conventional methods.

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/1000 SqFt)
Kentucky Bluegrass	Avalanche, Appalachian, Wildhorse, Blue Bonnet	1.4
Perennial Ryegrass	Turf Type Varieties	1.4
Creeping Red Fescue	Epic, Boreal	1.4
Chewings Fescue	Ambrose, K2, VNS, Zodiac	1.4
Alkali Grass	Fults, Fults II, Quill, Salty	1.4
	Total:	7

	STATE OF	PROJECT	SHEET	TOTAL
SO DAF	SOUTH DAKOTA	085-471	4	17

# **TABLE OF LUMINAIRE REPAIRS**

Structuro #	County	City	Highway #		Latitudo	Longitudo	State Recommendations	Extend	Miscellaneous
1153/0036	Butte	Belle Fourche	085	Lot Dest	44 66112	-103 85/183	Extend footing to match grade elevation	1	WOIK
115876008	Butte	Belle Fourche	085	Label 25, 85 & Butte St	44.00112	-103.85483	Extend footing to match grade elevation.	1	
115876010	Butte	Belle Fourche	085		44.07821	-103.85382	Extend footing to match grade elevation.	1	
113870010	Dutte	Delle i Odrene	085	Laber 24	44.07518	-103.85585	Extend footing to match grade elevation.	<b>1</b>	
L15876011	Butte	Belle Fourche	085	Label 6	44.67966	-103.85351	access panel security to the base and remove tape.	1	1
L15340001	Butte	Belle Fourche	085	Label 73	44.64428	-103.85991	Install ASTM F436/ASTM F959 Heavy Washers under anchor rod nuts.		1
L15340002	Butte	Belle Fourche	085	Label 72	44.64475	-103.85991	Install ASTM F436/ASTM F959 Heavy Washers under anchor rod nuts.		1
							Install ASTM F436/ASTM F959 Heavy Washers		
L15340003	Butte	Belle Fourche	085	Label 71	44.64523	-103.8599	under anchor rod nuts.		1
							Install ASTM F436/ASTM F959 Heavy Washers		
L15340004	Butte	Belle Fourche	085	Label 70	44.64568	-103.8599			1
							Install ASTM F436/ASTM F959 Heavy Washers		
L15340005	Butte	Belle Fourche	085	Label 69	44.64616	-103.85989			1
145240000	D. H.		0.05			102.0500	Install ASTM F436/ASTM F959 Heavy Wasners		
L15340006	Butte	Belle Fourche	085	Label 68	44.64663	-103.8599	Install shims under the base to correct the pole		1
L15340020	Butte	Belle Fourche	085	Label 53	44.65346	-103.85879	from leaning.		1
115866020	Putto	Pollo Fourcho	085	95 % Crant St	44 67225	102 95249	Install larger and thicker washers (ASTM F436 or ASTM F959) on anchor rod nuts to increase contact area with base.		1
L13800020	Butte	Belle Fourche	065		44.07255	-103.83348	Install ASTM F436/ASTM F959 Heavy Washers		1
L15866021	Butte	Belle Fourche	085	85 & Grant St.	44.67235	-103.85377	under anchor rod nuts.		1
115866024	Butte	Belle Fourche	085	NA	44 67288	-103 85352	Install larger and thicker washer (ASTM F436 /ASTM F959) on anchor rod nuts to increase contact area with base.		1
	Dutte		005		44.67242	102.0525	Install larger and thicker washer (ASTM F436 or ASTM F959) on anchor rod nuts to increase contact area with base		
L15866026	Butte	Belle Fourche	085	NA	44.67313	-103.8535			1
145000007	D++ -	Della Farraha	005	<b>N</b> 1 A	44 6704 4	102 05275	under anchor rod puts		
L15866027	Butte	Belle Fourche	085	NA	44.6/314	-103.85375	Install larger and thicker weshers (ASTM FACC ar		1
L15866028	Butte	Belle Fourche	085	85 & Faulk St.	44.67343	-103.85353	ASTM F959) on anchor rod nuts to increase contact area with base.		1
L15866029	Butte	Belle Fourche	085	85 & Faulk St.	44.67342	-103.85379	Install proper inside diameter washers (ASTM F436 or ASTM F959) on anchor rods. Tighten luminaire head.		2

STATE OF	PROJECT	SHEET	TOTAL SHEETS
DAKOTA	085-471	5	17



STATE OF	PROJECT		TOTAL SHEETS
DAKOTA	085-471	6	17



STATE OF	PROJECT	SHEET	TOTAL SHEETS
DAKOTA	085-471	7	17



STATE OF	PROJECT	SHEET	TOTAL SHEETS
SOUTH DAKOTA	085-471	8	17



STATE OF	PROJECT	SHEET	TOTAL SHEETS
DAKOTA	085-471	9	17

- Design Specifications: AASHTO Standard Specifications for Highway Bridges, 2002 Edition and AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals, 2009 Edition.
- Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 2004 Edition and required Provisions, Supplemental Specifications and Special Provisions as included in the Proposal.

#### **GENERAL NOTES-**

- 1. Luminaire Pole Footing Extension shall be constructed in conformance with Section 635 of the Specifications.
- 2. All exposed edges shall be chamfered  $\frac{3}{4}$ ".
- 3. All reinforcing steel shall conform to ASTM A615 Grade 60.
- 4. All concrete shall be Class M6.
- 5. Unit Stresses: Concrete fc = 1800 psi Reinforcing Steel f's = 24000 psi
- 6. All anchor rod extension couplings shall be certified to obtain at least 125 percent of the yield stress of the anchor rod. The threads of the couplings must be compatible with the anchor rods. All costs involved with furnishing and installing of the anchor rods, nuts and couplings shall be incidental to the contract unit price per cubic yard for Class M6 Concrete.
- 7. Anchor rods shall match or exceed existing. As per shop plans:
- a. Anchor rods shall be 1  $\frac{1}{4}$ " diameter and conform to ASTM F1554. Grade 105.
- b. Anchor rods shall be galvanized per ASTM F2329. Thread to be Class 2A per American Standard B1.1, (.030 oversize after galvanizing).
- 8. All rods to be rolled thread.
- 9. No welding is allowed on anchor rods.
- 10. Original construction plans allowed the option of 6 No. 8 H1 bars or 8 No. 7 H1 bars. Quantities are based on 8 - No. 7 H1 bars. Actual steel used shall be field verified by Contractor to match existing steel. Payment for reinforcing steel shall be for plans quantity

#### DESIGN MIX OF CONCRETE

The type of cement, concrete strength requirements, aggregate requirements, slump and air requirements for the contract item Class M6 Concrete shall conform to the requirements of Section 462 of the Specification.

#### BREAKOUT STRUCTURAL CONCRETE

- This work shall consist of breaking out and disposing of structural concrete and spiral reinforcement. All broken out concrete and other discarded material shall be disposed of on a site obtained by the Contractor and approved by the Engineer.
- 2. To insure straight break lines,  $\frac{3}{4}$ " deep saw cuts will be required at the lines defining the breakout llines.
- 3. Salvage all of the vertical reinforcing steel, anchor bolts and conduit in the footing to be used in new construction. Care shall be taken not to damage the existing vertical reinforcing steel, anchor rods and conduit during the breakout operations. These reinforcing bars, anchor rods and all concrete surfaces in the breakout area on which new concrete is to be cast shall be thoroughly cleaned by sandblasting to the satisfaction of the Engineer prior to placement of new concrete.
- 4. Any additional breakout required due to spalling or cracking of the existing footing will be determined by the Engineer. Where additional breakout is required, care shall be taken not to damage any of the existing reinforcing steel. All steel will be left in place and thoroughly cleaned by sandblasting.
- 5. Plans quantity payment will be full compensation for this item regardless of the quantity actually broken out.
- 6. Breakout Structural Concrete will be paid for at the contract unit price per cubic yard. This payment shall be full compensation for furnishing all materials, labor, tools and equipment necessary or incidental to breaking out the structural concrete. Payment includes, but is not limited to, excavation required to perform the required breakout, saw cutting, breaking out concrete, cleaning and sandblasting reinforcing steel and concrete surfaces, and removing and disposing of all waste materials to satisfactorily complete the work.



SECTION A - A



ELEVATION

Existing Footing -



Saw Cut Line ·

**ELEVATION - BREAKOUT DETAILS** 

# DETAILS FOR LUMINAIRE POLE FOOTING EXTENSION L15340036 PCN I3NC BUTTE COUNTY S. D. DEPT. OF TRANSPORTATION NOVEMBER 2014 (1) OF (1)

	DESIGNED BY	CK. DES. BY	DRAFTED BY	$1/$ $\cdot n h$
	JMH	BB	MG	Kevn 1. boeden
PORTATION	BUTEI3NC	I3NCGA01		BRIDGE ENGINEER

- Design Specifications: AASHTO Standard Specifications for Highway Bridges, 2002 Edition and AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals, 2009 Edition.
- Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 2004 Edition and required Provisions, Supplemental Specifications and Special Provisions as included in the Proposal.

#### **GENERAL NOTES-**

- Luminaire Pole Footing Extension shall be constructed in conformance with Section 635 of the Specifications.
- 2. All exposed edges shall be chamfered  $\frac{3}{4}$ ".
- 3. All reinforcing steel shall conform to ASTM A615 Grade 60.
- 4. All concrete shall be Class M6.
- 5. Unit Stresses: Concrete fc = 1800 psi Reinforcing Steel f's = 24000 psi
- 6. All anchor rod extension couplings shall be certified to obtain at least 125 percent of the yield stress of the anchor rod. The threads of the couplings must be compatible with the anchor rods. All costs involved with furnishing and installing of the anchor rods, nuts and couplings shall be incidental to the contract unit price per cubic yard for Class M6 Concrete.
- 7. Anchor rods shall match or exceed existing. As per shop plans:
- a. Anchor rods shall be 1" diameter and conform to ASTM F1554. Grade 105.
- b. Anchor rods shall be galvanized per ASTM F2329. Thread to be Class 2A per American Standard B1.1, (.030 oversize after galvanizing).
- 8. All rods to be rolled thread.
- 9. No welding is allowed on anchor rods.
- 10. Original construction plans allowed the option of 6 No. 8 H2 bars or 8 No. 7 H2 bars. Quantities are based on 8 - No. 7 H2 bars. Actual steel used shall be field verified by Contractor to match existing steel. Payment for reinforcing steel shall be for plans quantity

#### DESIGN MIX OF CONCRETE

The type of cement, concrete strength requirements, aggregate requirements, slump and air requirements for the contract item Class M6 Concrete shall conform to the requirements of Section 462 of the Specification.

## BREAKOUT STRUCTURAL CONCRETE

- This work shall consist of breaking out and disposing of structural concrete and spiral reinforcement. All broken out concrete and other discarded material shall be disposed of on a site obtained by the Contractor and approved by the Engineer.
- 2. To insure straight break lines,  $\frac{3}{4}$ " deep saw cuts will be required at the lines defining the breakout llines.
- 3. Salvage all of the vertical reinforcing steel, anchor bolts and conduit in the footing to be used in new construction. Care shall be taken not to damage the existing vertical reinforcing steel, anchor rods and conduit during the breakout operations. These reinforcing bars, anchor rods and all concrete surfaces in the breakout area on which new concrete is to be cast shall be thoroughly cleaned by sandblasting to the satisfaction of the Engineer prior to placement of new concrete.
- 4. Any additional breakout required due to spalling or cracking of the existing footing will be determined by the Engineer. Where additional breakout is required, care shall be taken not to damage any of the existing reinforcing steel. All steel will be left in place and thoroughly cleaned by sandblasting.
- 5. Plans quantity payment will be full compensation for this item regardless of the quantity actually broken out.
- 6. Breakout Structural Concrete will be paid for at the contract unit price per cubic yard. This payment shall be full compensation for furnishing all materials, labor, tools and equipment necessary or incidental to breaking out the structural concrete. Payment includes, but is not limited to, excavation required to perform the required breakout, saw cutting, breaking out concrete, cleaning and sandblasting reinforcing steel and concrete surfaces, and removing and disposing of all waste materials to satisfactorily complete the work.



SECTION A - A



**ELEVATION** 

Existing Footing -



▲ No. 7 Rebar Splice

Quantities based on original construction plans using 8 - No. 7 H2 bars, match existing reinforcing steel.

Each

8

★ Dimension may vary to accommodate mechanical splice.



# **ELEVATION - BREAKOUT DETAILS**



NOVEMBER 2014

(1) OF (

	DESIGNED BY	CK. DES. BY	DRAFTED BY	1. nr
	JMH	BB	MG	Kum 1. bocden
PORTATION	BUTEI3NC	I3NCGB01		BRIDGE ENGINEER

- Design Specifications: AASHTO Standard Specifications for Highway Bridges, 2002 Edition and AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals, 2009 Edition.
- Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 2004 Edition and required Provisions, Supplemental Specifications and Special Provisions as included in the Proposal.

#### **GENERAL NOTES-**

- Luminaire Pole Footing Extension shall be constructed in conformance with Section 635 of the Specifications.
- 2. All exposed edges shall be chamfered  $\frac{3}{4}$ ".
- 3. All reinforcing steel shall conform to ASTM A615 Grade 60.
- 4. All concrete shall be Class M6.
- 5. Unit Stresses: Concrete fc = 1800 psi Reinforcing Steel f's = 24000 psi
- 6. All anchor rod extension couplings shall be certified to obtain at least 125 percent of the yield stress of the anchor rod. The threads of the couplings must be compatible with the anchor rods. All costs involved with furnishing and installing of the anchor rods, nuts and couplings shall be incidental to the contract unit price per cubic yard for Class M6 Concrete.
- 7. Anchor rods shall match or exceed existing. As per shop plans:
- a. Anchor rods shall be 1" diameter and conform to ASTM F1554. Grade 105.
- b. Anchor rods shall be galvanized per ASTM F2329. Thread to be Class 2A per American Standard B1.1, (.030 oversize after galvanizing).
- 8. All rods to be rolled thread.
- 9. No welding is allowed on anchor rods.
- 10. Original construction plans allowed the option of 6 No. 8 H3 bars or 8 No. 7 H3 bars. Quantities are based on 8 - No. 7 H3 bars. Actual steel used shall be field verified by Contractor to match existing steel. Payment for reinforcing steel shall be for plans quantity

#### DESIGN MIX OF CONCRETE

The type of cement, concrete strength requirements, aggregate requirements, slump and air requirements for the contract item Class M6 Concrete shall conform to the requirements of Section 462 of the Specification.

#### BREAKOUT STRUCTURAL CONCRETE

- This work shall consist of breaking out and disposing of structural concrete and spiral reinforcement. All broken out concrete and other discarded material shall be disposed of on a site obtained by the Contractor and approved by the Engineer.
- 2. To insure straight break lines,  $\frac{3}{4}$ " deep saw cuts will be required at the lines defining the breakout lines.
- 3. Salvage all of the vertical reinforcing steel, anchor bolts and conduit in the footing to be used in new construction. Care shall be taken not to damage the existing vertical reinforcing steel, anchor rods and conduit during the breakout operations. These reinforcing bars, anchor rods and all concrete surfaces in the breakout area on which new concrete is to be cast shall be thoroughly cleaned by sandblasting to the satisfaction of the Engineer prior to placement of new concrete.
- 4. Any additional breakout required due to spalling or cracking of the existing footing will be determined by the Engineer. Where additional breakout is required, care shall be taken not to damage any of the existing reinforcing steel. All steel will be left in place and thoroughly cleaned by sandblasting.
- 5. Plans quantity payment will be full compensation for this item regardless of the quantity actually broken out.
- 6. Breakout Structural Concrete will be paid for at the contract unit price per cubic yard. This payment shall be full compensation for furnishing all materials, labor, tools and equipment necessary or incidental to breaking out the structural concrete. Payment includes, but is not limited to, excavation required to perform the required breakout, saw cutting, breaking out concrete, cleaning and sandblasting reinforcing steel and concrete surfaces, and removing and disposing of all waste materials to satisfactorily complete the work.



SECTION A - A



ELEVATION

Existing Footing -



★ Dimension may vary to accommodate mechanical splice.



# **ELEVATION - BREAKOUT DETAILS**



	DESIGNED BY JMH	CK. DES. BY BB	DRAFTED BY MG	Kevin M. Coeden
PORTATION	BUTEI3NC	I3NCGC01		BRIDGE ENGINEER

- Design Specifications: AASHTO Standard Specifications for Highway Bridges, 2002 Edition and AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals, 2009 Edition.
- Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 2004 Edition and required Provisions, Supplemental Specifications and Special Provisions as included in the Proposal.

#### **GENERAL NOTES-**

- Luminaire Pole Footing Extension shall be constructed in conformance with Section 635 of the Specifications.
- 2. All exposed edges shall be chamfered  $\frac{3}{4}$ ".
- 3. All reinforcing steel shall conform to ASTM A615 Grade 60.
- 4. All concrete shall be Class M6.
- 5. Unit Stresses: Concrete f'c = 1800 psi Reinforcing Steel f's = 24000 psi
- 6. All anchor rod extension couplings shall be certified to obtain at least 125 percent of the yield stress of the anchor rod. The threads of the couplings must be compatible with the anchor rods. All costs involved with furnishing and installing of the anchor rods, nuts and couplings shall be incidental to the contract unit price per cubic yard for Class M6 Concrete.
- 7. Anchor rods shall match or exceed existing. As per shop plans.
- a. Anchor rods shall be 1" diameter and conform to ASTM F1554. Grade 105.
- b. Anchor rods shall be galvanized per ASTM F2329. Thread to be Class 2A per American Standard B1.1, (.030 oversize after galvanizing).
- 8. All rods to be rolled thread.
- 9. No welding is allowed on anchor rods.
- 10. Original construction plans allowed the option of 6 No. 8 H4 bars or 8 No. 7 H4 bars. Quantities are based on 8 - No. 7 H4 bars. Actual steel used shall be field verified by Contractor to match existing steel. Payment for reinforcing steel shall be for plans quantity

#### DESIGN MIX OF CONCRETE

The type of cement, concrete strength requirements, aggregate requirements, slump and air requirements for the contract item Class M6 Concrete shall conform to the requirements of Section 462 of the Specification.

#### BREAKOUT STRUCTURAL CONCRETE

- This work shall consist of breaking out and disposing of structural concrete and spiral reinforcement. All broken out concrete and other discarded material shall be disposed of on a site obtained by the Contractor and approved by the Engineer.
- 2. To insure straight break lines,  $\frac{3}{4}$ " deep saw cuts will be required at the lines defining the breakout lines.
- 3. Salvage all of the vertical reinforcing steel, anchor bolts and conduit in the footing to be used in new construction. Care shall be taken not to damage the existing vertical reinforcing steel, anchor rods and conduit during the breakout operations. These reinforcing bars, anchor rods and all concrete surfaces in the breakout area on which new concrete is to be cast shall be thoroughly cleaned by sandblasting to the satisfaction of the Engineer prior to placement of new concrete.
- 4. Any additional breakout required due to spalling or cracking of the existing footing will be determined by the Engineer. Where additional breakout is required, care shall be taken not to damage any of the existing reinforcing steel. All steel will be left in place and thoroughly cleaned by sandblasting.
- 5. Plans quantity payment will be full compensation for this item regardless of the quantity actually broken out.
- 6. Breakout Structural Concrete will be paid for at the contract unit price per cubic yard. This payment shall be full compensation for furnishing all materials, labor, tools and equipment necessary or incidental to breaking out the structural concrete. Payment includes, but is not limited to, excavation required to perform the required breakout, saw cutting, breaking out concrete, cleaning and sandblasting reinforcing steel and concrete surfaces, and removing and disposing of all waste materials to satisfactorily complete the work.



SECTION A - A



ELEVATION

Existing Footing -



**ELEVATION - BREAKOUT DETAILS** 

Saw Cut Line



	DESIGNED BY	CK. DES. BY	DRAFTED BY	$1/\cdot n/$
	JMH	BB	MG	Kevn 1. boeden
PORTATION	BUTEI3NC	I3NCGD01		BRIDGE ENGINEER







	STATE OF SOUTH		PROJECT	SHEET	TOTAL SHEETS		
		085-47	71	15	17		
	Plotting Date:	12/03					
eter Rigid With							
	One Ancho For Signo	or Rod   I Pole F	Diameter (Max.) ootings)				
		* * For Pol	r Signal le Footings				
	Footing depth as specified in the plans	When dir to be u or belle orovided	rect burial is sed a bushing and shall be 1.				
 		2"for N	o. 3 Spiral Ties or A Spiral Ties				
cular ties may be used in lieu of the inches apart except for the top two b. 4 ties shall be spaced 6 inches apart ed 3 inches apart. The ties shall be ered around the cage.							
ons for footi	ng mater	ials.			-		
es to 6 inches slip plane or	s above f fracture	footing plane	for fixed for		ī		
all phases of construction until poles are cing steel cage. If the anchor rods "it, contact the Office of Bridge Design will be made for the redesigned footing.							
crete has attained design strength							
reakaway pole n all direction breakaway pol	e shall be s. The Co le locatio	flat, th ontracto ons.	nough not or may be September 6, 2013				
POLE FOOTING	;		plate NUMBER 635.55				
			Sheet I of I				



Posted Speed	Spacing of Advance Warning Signs	Spacing of Channelizing	g Warnin
Work	SIGNS (Faat)	(Faa+)	
		(6)	
0 - 30	200	25	-
35 - 40	350	25	-
45 - 50	500	50	1
55	750	50	1
60 - 65	1000	50	
For low-v with shor roadways to road direction The ROAD WORK sign duration For tack when flag FRESH OIL in advance areas. Flashing may be u advance The chan or 42" coi Channeliz	Channelizing Devi rolume traffic s t work zones o where the flag users approachin s, a single flagge WORK AHEAD and is may be omitte operations (I ho and/or flush si ggers are not b sign (W21-2) shal ce of the liquid warning lights an used to call atte warning signs. nelizing devices nes.	ce ituations n straight ger is visib ng from bot er may be u the END RO ad for shor our or less). eal operation eing used, t Il be display asphalt nd/or flags ention to th shall be dru	le th Jsed. AD t ns, he ed Joz
Channeliz be used control ir required. The buff	ing devices and at intersecting terspace should	the work flaggers sh roads to traffic as be extende	all all
The lengt	ofore a horizond provide adequa for the flagger ed vehicles. th of A may be conditions.	al or vertic te sight and queue adjusted to <b>S</b> <b>D</b>	



Publishe	d Date: 4th Qtr. 2014	1	S D D O T		GUI 4–L	DES ANE
						ł
Longituc to fit p horizont other s	tinal dimensions m project condition tal curves, vertic ite restrictions.	ay be is such al curv	adju as es, c	isted and		
shall be term ope	used for overniç arations.	ght and	I lor	ig —		
42" cone of the if setur any nigt	s may be used in drums shown in o will not be use nt time hours.	n place the tap d durin	oer g			
	nelizing Device sl s or drums	hall be	42 <b>"</b>			
cones © Refle	actorized Drum					
* Spacir	ng to be every	40' for	42"			
55	750	660		50	*	
<u> 35 - 40</u> 45 - 50	<u> </u>	<u> </u>		25	*	-
0 - 30	200	180		25		
Work (MPH)		(Feet)	(	Feet	)	
Prior to	Signs	Length	D	evice	zing s	1
Posted	Spacing of	Tabar	Spo	icing	of	

