

STATE OF	PROJECT	SHEET	TOTAL
SOUTH DAKOTA	0001-391	1 34	34

Plotting Date: 04/01/2016



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ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0197	Mobilization 1	5	Each
009E0198	Mobilization 2	4	Each
110E0700	Remove 3 Cable Guardrail	200	Ft
110E0730	Remove Beam Guardrail	300.0	Ft
110E0770	Remove W Beam Guardrail Breakaway Cable Terminal	1	Each
110E0790	Remove W Beam Guardrail Deformed End	1	Each
110E0800	Remove W Beam Guardrail End Terminal	1	Each
110E6230	Remove W Beam Guardrail for Reset	25.0	Ft
120E0600	Contractor Furnished Borrow Excavation	25	CuYd
260E1090	Base Course, State Furnished	25.0	Ton
629E0225	Reset High Tension Cable Guardrail Terminal Post	5	Each
629E0300	3 Cable Guardrail Slip Base Anchor Assembly	1	Each
629E0400	3 Cable Guardrail Anchor Assembly	1	Each
629E0454	Retension High Tension 4 Cable Guardrail	450	Ft
629E1000	Repair 3 Cable Guardrail	3,750	Ft
629E1100	3 Cable Guardrail End Post	10	Each
629E1102	3 Cable Guardrail Intermediate Post	130	Each
629E1103	3 Cable Guardrail Slip Base Anchor Post	2	Each
629E1104	3 Cable Guardrail Post, Winter	75	Each
629E1106	Drive Down 3 Cable Guardrail Post	20	Each
629E1108	Reset 3 Cable Guardrail Post	25	Each
629E1110	Cable Anchor Bracket	1	Each
629E1112	Cable Splice	5	Each
629E1114	3 Cable Guardrail J Hook Bolt	400	Each
629E1117	Turnbuckle Assembly	5	Each
629E1118	Spring Cable End Assembly with Turnbuckle	10	Each
629E1120	W Beam to 3 Cable Transition Bracket	4	Each
629E1122	3 Cable Guardrail End Post Cap	7	Each
629E1144	High Tension 4 Cable Guardrail Post	5	Each
629E1159	High Tension 4 Cable Guardrail Post and Sleeve	5	Each
629E1164	High Tension 4 Cable Guardrail Sleeve	5	Each
629E1170	High Tension Cable Guardrail Terminal Post	5	Each
629E1174	Hardware for High Tension Cable Attachment to Terminal Post	5	Each
629E1175	Hardware for High Tension Cable Attachment to Post	5	Each
629E1180	High Tension Cable Guardrail Post Strap	5	Each
629E1181	High Tension Cable Guardrail Cable Spacer	5	Each

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
629E2115	Cable	50	Ft
630E0200	Straight Class A Thrie Beam Rail	100.0	Ft
630E0210	Straight Class B Thrie Beam Rail	50.0	Ft
630E1200	Straight Class A W Beam Rail	175.0	Ft
630E1210	Straight Class B W Beam Rail	100.0	Ft
630E2000	W Beam to Thrie Beam Guardrail Transition	2	Each
630E2010	W Beam Guardrail End Terminal	1	Each
630E2030	W Beam Guardrail Breakaway Cable Terminal	1	Each
630E2110	Beam Guardrail Post and Block	60	Each
630E2120	Beam Guardrail Post and Block, Winter	15	Each
630E2205	Breakaway Cable Terminal End Post	5	Each
630E2210	Breakaway Cable Terminal End Rail	3	Each
630E2215	W Beam Guardrail End Section Buffer	2	Each
630E5160	Reset W Beam Rail	12.5	Ft
630E5220	Reset Rubrail	12.5	Ft
630E5520	Drive Down Beam Guardrail Post	10	Each
630E5530	Remove and Reset Beam Guardrail Post and Block	10	Each
632E2220	Guardrail Delineator	10	Each
634E0010	Flagging	10.0	Hour
634E0110	Traffic Control Signs	1,300	SqFt
634E0120	Traffic Control, Miscellaneous	1	LS
634E0280	Type 3 Barricade, 8' Single Sided	9	Each
634E0420	Type C Advance Warning Arrow Board	1	Each
910E1070	Labor and Equipment	5	Hour

ESTIMATE OF QUANTITIES

The Contractor shall furnish and install guardrail material as per the Contract Proposal. The quantities for each item are estimated to establish a pay unit. The actual amount of work required may vary greatly from the Estimate of Quantities. There will be no negotiation for overruns or underruns on this contract.

SPECIFICATIONS

Standard Specifications for Roads & Bridges, 2015 Edition and Required Provisions, Supplemental Specifications and Special Provisions as included in the Proposal.

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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 B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES

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 Public ROW.

The waste disposal site(s) shall be managed and reclaimed in accordance with the following from the General Permit for 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:

Construction and/or demolition debris consisting of concrete, 1. 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 Public 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 Public ROW through the use of fences, gates, and placement of a sign or signs at the entrance to the site stating "No Dumping Allowed".

Concrete and asphalt concrete debris may be stockpiled within 2. 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.

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 department designated sources and designated option material sources, stockpile sites, storage areas, and waste 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: Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas.

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.

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 Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas 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.

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COMMITMENT I: HISTORICAL PRESERVATION OFFICE

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

COMPLETION DATE

The contract will become effective on July 1, 2016 and will expire on June 15. 2017.

SCOPE OF WORK

This project consists of guardrail repair within the section of Interstate 90 located in the South Dakota Department of Transportation Winner Area, as ordered by the Engineer. This stretch of Interstate is located in Jackson, Jones, and Lyman Counties from MRM 130.3 to MRM 251.6. The Winner Area Engineer will inform the Contractor of any areas that are to be exempted from guardrail repair due to active construction projects. This information will detail the exemption limits from Mile Reference Marker to Mile Reference Marker and date to date that quardrail repair will not be conducted.

MOBILIZATION

Mobilization 1 is the cost of mobilization per each time the Contractor mobilizes to the project at the request of the Winner Area Engineer, or his designated representative, to perform guardrail repair within the Winner Area east of the bridge structure located on Highway 83 over Interstate 90 (Winner Area East of Murdo). This structure is located at MRM 192.65.

Mobilization 2 is the cost of mobilization per each time the Contractor mobilizes to the project at the request of the Winner Area Engineer, or his designated representative, to perform guardrail repair within the Winner Area, at or west of the bridge structure located on Highway 83 over Interstate 90 (Winner Area West of Murdo). This structure is located at MRM 192.65.

Mobilization will be paid once each time the Contractor is required to mobilize to repair guardrail, regardless of the number of sites requiring repair within the project limits. Mobilization will be paid at the higher of the two Mobilization bid items if the Contractor is required to repair guardrail at sites both east and west of the dividing line located at MRM 192.65.

PROGRESS PAYMENTS

At the preconstruction meeting the Contractor will be given a Billing Sheet to record the work done at the repair areas. This sheet shall be used by the Contractor to record the location of each repair site and the materials required to make repairs.

Progress payments will be prepared upon receipt of the Billing Sheet from the Contractor for repairs completed.

UTILITIES

The Contractor is required to comply with South Dakota Codified Law and Administrative Rule addressing excavation activities. Notification of Utility companies will be in accordance with Section 5.6 of the Specifications. South Dakota One Call phone number is 1-800-781-7474.

GENERAL MAINTENANCE OF TRAFFIC

The Contractor shall designate an employee whose primary responsibility is for the maintenance of traffic. The name and phone number of person or persons shall be provided to the SD Department of Transportation (605-842-0810), SD Highway Patrol State Radio (email to Jason.Husby@state.sd.us), the Jackson County Sheriff Department (605-837-2285), the Jones County Sheriff Department (605-669-7111), and the Lyman County Sheriff Department (605-869-2267).

The plan quantity for Traffic Control Signs is based on the Contractor mobilizing five times to repair guardrail and the required number of traffic control devices to construct one work zone for each mobilization. Additional traffic control devices will be measured and paid if the Contractor has a large enough crew to work at two work sites simultaneously. Signs that are reused at different sites during the same mobilization shall be paid for only once. Signs that have tabs or are hinged to expedite changing the message will be considered as one sign for payment. Traffic control signs and Type 3 barricades will be measured and paid each time the Contractor is mobilized to repair guardrail. The Type C Advance Warning Arrow Board bid item, if used, shall be paid for only once for the time duration of this project.

Equipment will be confined to the shoulder, a driving lane closed to traffic, or a passing lane closed to traffic. Closure of both driving and passing lanes simultaneously will not be permitted. The Contractor shall not cross interstate medians to travel between work sites in opposite interstate lanes. Contractor employees will not be allowed to use the SDDOT maintenance crossovers.

Work activities shall be conducted during davlight hours only. Traffic shall be returned to the normal driving lanes during non-working hours. All construction operations shall be conducted in the general direction of traffic movement

All equipment and vehicles entering or exiting the roadway, traveling on the shoulders, traveling at speeds less than 40 MPH between work sites, or working within the right-of-way shall be equipped with an activated 360 degree, SAE J845, Class II or higher warning light to warn the traveling public.

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.

Traffic control shall be in accordance with Section 634 of the specifications and the plan notes. All traffic control devices are to be in like new condition. Any traffic control device that warrants replacement due to its poor condition or absence shall be replaced immediately by the Contractor at his expense.

Contractor shall use flaggers and 45 MPH Advisory Speed Plates as needed to regulate traffic to provide a safe working environment for Contractor workers and inspection personnel. The advisory speed plates (W13-1P) shall be 30" x 30" and shall be installed in conjunction with the "Right Lane Closed Ahead" (W20-5) signs as shown on Standard Plate 634.64. The flagger symbol sign (W20-7) shall be placed a minimum of 500 feet in front of flagger station.

GENERAL GUARDRAIL REPAIR

The Contractor may be required to furnish some items that are not listed in the Contract Proposal. The Contractor shall furnish the invoice and will be paid invoice cost plus shipping, handling, taxes and 10 percent for profit. The Contractor is required to receive prior approval from the Engineer before making these purchases. Installation cost for these additional items shall be incidental to the contract unit prices for the various items. Cost to remove and dispose of damaged guardrail items shall be incidental to the contract unit prices for the various items. The Contractor and Engineer shall negotiate installation costs for added items which vary significantly from contract bid items.

HIGH TENSION GUARDRAIL

explanation of each bid item.

Trinity Highway Products CASS-S3 4-Cable Guardrail Safety System will be repaired and reinstalled in accordance with manufacturer details and instructions shown in these plans.

629E0225Reset High Tension Cable Guardrail Terminal Post1Each629E0454Retension High Tension 4 Cable Guardrail2Ft629E1112Cable Splice3Each629E1112Cable Splice3Each629E1117Turnbuckle Assembly4Each629E1144High Tension 4 Cable Guardrail Post5Each629E1159High Tension 4 Cable Guardrail Post and Sleeve6Each629E1164High Tension 4 Cable Guardrail Post and Sleeve7Each629E1170High Tension Cable Guardrail Sleeve7Each629E1170High Tension Cable Guardrail Terminal Post8Each629E1174Hardware For High Tension Cable Attachment To Terminal Post9Each629E1175Hardware For High Tension Cable Attachment To Post10Each629E1180High Tension Cable Guardrail Post Strap11Each629E1181High Tension Cable Guardrail Post Attachment To Post11Each629E1180High Tension Cable Guardrail Post Strap11Each629E1181High Tension Cable Guardrail Post Strap12Each629E1181High Tension Cable Guardrail Cable Spacer13Ft	BID ITEM NUMBER	ITEM	PAYMENT INFO.	UNIT
629E0454Retension High Tension 4 Cable Guardrail2Ft629E1112Cable Splice3Each629E1117Turnbuckle Assembly4Each629E1144High Tension 4 Cable Guardrail Post5Each629E1159High Tension 4 Cable Guardrail Post and Sleeve6Each629E1164High Tension 4 Cable Guardrail Post and Sleeve6Each629E1164High Tension 4 Cable Guardrail Sleeve7Each629E1170High Tension Cable Guardrail Terminal Post8Each629E1174Hardware For High Tension Cable 	629E0225	Reset High Tension Cable Guardrail Terminal Post	1	Each
629E1112Cable Splice3Each629E1117Turnbuckle Assembly4Each629E1144High Tension 4 Cable Guardrail Post5Each629E1159High Tension 4 Cable Guardrail Post and Sleeve6Each629E1164High Tension 4 Cable Guardrail Sleeve7Each629E1170High Tension Cable Guardrail 	629E0454	Retension High Tension 4 Cable Guardrail	2	Ft
629E1117Turnbuckle Assembly4Each629E1144High Tension 4 Cable Guardrail Post5Each629E1159High Tension 4 Cable Guardrail Post and Sleeve6Each629E1164High Tension 4 Cable Guardrail Sleeve7Each629E1170High Tension Cable Guardrail Terminal Post7Each629E1174High Tension Cable Guardrail Terminal Post8Each629E1175Hardware For High Tension Cable Attachment To Terminal Post9Each629E1175Hardware For High Tension Cable Attachment To Post10Each629E1180High Tension Cable Guardrail Post Strap11Each629E1181High Tension Cable Guardrail Post Strap11Each629E1181High Tension Cable Guardrail Post Strap11Each629E1181High Tension Cable Guardrail Post Strap12Each629E1181High Tension Cable Guardrail Cable Spacer13Ft	629E1112	Cable Splice	3	Each
629E1144High Tension 4 Cable Guardrail Post5Each629E1159High Tension 4 Cable Guardrail Post and Sleeve6Each629E1164High Tension 4 Cable Guardrail Sleeve7Each629E1170High Tension Cable Guardrail Terminal Post8Each629E1174Hardware For High Tension Cable Attachment To Terminal Post9Each629E1175Hardware For High Tension Cable Attachment To Post10Each629E1180High Tension Cable Guardrail Post Attachment To Post11Each629E1181High Tension Cable Guardrail Post Strap11Each629E1181High Tension Cable Guardrail Post Strap11Each629E1181High Tension Cable Guardrail Post Strap11Each629E1181High Tension Cable Guardrail Post Strap11Each629E1181High Tension Cable Guardrail Post Cable Spacer13Ft	629E1117	Turnbuckle Assembly	4	Each
629E1159High Tension 4 Cable Guardrail Post and Sleeve6Each629E1164High Tension 4 Cable Guardrail Sleeve7Each629E1170High Tension Cable Guardrail Terminal Post8Each629E1174Hardware For High Tension Cable Attachment To Terminal Post9Each629E1175Hardware For High Tension Cable Attachment To Post10Each629E1175Hardware For High Tension Cable Attachment To Post11Each629E1180High Tension Cable Guardrail Post Strap11Each629E1181High Tension Cable Guardrail Post Cable Spacer12Each629E1181High Tension Cable Guardrail Cable Spacer13Ft	629E1144	High Tension 4 Cable Guardrail Post	5	Each
629E1164High Tension 4 Cable Guardrail Sleeve7Each629E1170High Tension Cable Guardrail Terminal Post8Each629E1174Hardware For High Tension Cable Attachment To Terminal Post9Each629E1175Hardware For High Tension Cable 	629E1159	High Tension 4 Cable Guardrail Post and Sleeve	6	Each
629E1170High Tension Cable Guardrail Terminal Post8Each629E1174Hardware For High Tension Cable Attachment To Terminal Post9Each629E1175Hardware For High Tension Cable Attachment To Post10Each629E1180High Tension Cable Guardrail Post 	629E1164	High Tension 4 Cable Guardrail Sleeve	7	Each
629E1174Hardware For High Tension Cable Attachment To Terminal Post9Each629E1175Hardware For High Tension Cable Attachment To Post10Each629E1180High Tension Cable Guardrail Post Strap11Each629E1181High Tension Cable Guardrail Cable Spacer12Each629E2115Cable13Ft	629E1170	High Tension Cable Guardrail Terminal Post	8	Each
629E1175Hardware For High Tension Cable Attachment To Post10Each629E1180High Tension Cable Guardrail Post Strap11Each629E1181High Tension Cable Guardrail Cable Spacer12Each629E2115Cable13Ft	629E1174	Hardware For High Tension Cable Attachment To Terminal Post	9	Each
629E1180High Tension Cable Guardrail Post Strap11Each629E1181High Tension Cable Guardrail Cable Spacer12Each629E2115Cable13Ft	629E1175	Hardware For High Tension Cable Attachment To Post	10	Each
629E1181High Tension Cable Guardrail Cable Spacer12Each629E2115Cable13Ft	629E1180	High Tension Cable Guardrail Post Strap	11	Each
629E2115 Cable 13 Ft	629E1181	High Tension Cable Guardrail Cable Spacer	12	Each
	629E2115	Cable	13	Ft

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The following bid items shall be used when the Engineer directs the Contractor to repair High Tension 4 Cable Guardrail Systems. The primary expected repairs are listed in the table, followed by an

High Tension Guardrail Bid Items

High Tension Guardrail Bid Items Payment Information Explanation

1. This item to be used when a terminal post needs to be reset if the cable was released after post was struck. Post needs to be in good working condition. Payment includes cost for resetting the terminal post including, hardware, tensioning cable, labor, equipment, and incidentals.

2. Payment includes cost for all labor and equipment to tension the high tension 4 cable guardrail to current specifications. Measurement shall be measured to the nearest foot from the center of anchor assembly to center of anchor assembly. For example: If the system utilizes four anchor footings in the anchor assembly, then the center of the anchor assembly would be centered between the second and third footing.

3. Bid item may be used for splicing high tension cable guardrail or low tension standard 3 cable guardrail. Payment for cable splice includes cost for cutting cable as necessary, furnishing and installing the cable splice, labor, equipment, and incidentals.

4. Bid item may be used for furnishing and installing turnbuckle assembly for high tension or low tension cable guardrail. This item is used for a typical repair if a turnbuckle is damaged and a new one needs to be installed. Payment for turnbuckle assembly includes cost for cutting the cable as necessary, furnishing and installing the turnbuckle assembly, labor, equipment, and incidentals.

5. Bid item may be used for furnishing and installing a high tension 4 cable guardrail post. This item is used for a typical repair if a high tension 4 cable guardrail post is damaged and a new one needs to be installed. Payment includes cost for furnishing and installing a high tension 4 cable guardrail post, new hardware, labor, equipment, and incidentals.

6. Bid item may be used for furnishing and installing a high tension 4 cable guardrail post and sleeve. This item is used for a typical repair if a high tension 4 cable guardrail post and sleeve is damaged and a new one needs to be installed. Payment includes cost for furnishing and installing a high tension 4 cable guardrail post and sleeve, new hardware, labor, equipment, and incidentals.

7. Bid item may be used for furnishing and installing a high tension 4 cable guardrail sleeve. This item is used for a typical repair if a high tension 4 cable guardrail sleeve is damaged and a new one needs to be installed. Payment includes cost for furnishing and installing a high tension 4 cable guardrail sleeve, new hardware, resetting post, labor, equipment, and incidentals.

8. Bid item may be used for furnishing and installing a high tension cable guardrail terminal post. This item is used for a typical repair if a high tension cable guardrail terminal post is damaged and a new one needs to be installed. Use this item even if there is only one terminal post for the anchorage system as some systems has a terminal post for every cable and have multiple footings and terminal posts depending on the number of cables. Payment includes cost for furnishing and installing a high tension cable guardrail terminal post, new hardware, labor, equipment, and incidentals.

9. Bid item may be used for furnishing and installing the hardware for a high tension cable guardrail terminal post. This item is used for a typical repair if a high tension cable guardrail terminal post is struck and releases the cable(s). Use this item when the terminal post is in good condition and only new hardware and resetting the terminal post is necessary. Payment includes cost for furnishing and installing hardware for the high tension cable attachment to terminal post, resetting terminal post, labor, equipment, and incidentals.

10. Bid item may be used for furnishing and installing the hardware for a high tension cable attachment to post. This item is used for a typical repair if the hardware was damaged by a snow plow or other crash. Use this item when the post is in good condition and only new hardware is necessary. The quantity and unit for the bid item is one "Each" for one attachment, i.e. if all attachments are damaged on a high tension 4 cable guardrail post then the quantity would be 4. Payment includes cost for furnishing and installing hardware for the high tension cable attachment to post, labor, equipment, and incidentals.

11. This bid item is specific to products from Trinity known as the CASS high tension cable barrier. Use this item when only the post strap needs to be replaced. This part would be included in the price of the post if a new post is needed. Payment includes cost for furnishing and installing the high tension cable guardrail post strap, labor, equipment, and incidentals.

12. This bid item is specific to products from Trinity known as the CASS high tension cable barrier. This part typically has white or yellow reflectorized delineation on it. Use this item when only the cable spacer needs to be replaced. This part would be included in the price of the post if a new post is needed. Payment includes cost for furnishing and installing the high tension cable guardrail cable spacer, labor, equipment, and incidentals.

13. This bid item will be used for furnishing and installing cable for high tension (prestretched) or low tension (prestretched or non-pre-stretched) cable guardrail for a typical repair if a cable is damaged and a new piece needs to be installed. Payment for each cable includes cost for cutting the cable as necessary, furnishing and installing the cable, labor, equipment, and incidentals.

GUARDRAIL

1. When guardrail adjoining bridge ends is ordered to be repaired, the contractor will replace with the same size and type as existing type of guardrail. Post spacing will be in accordance with current specifications. See Standard Plates 630.15, 630.20, 630.21, and 630.50 for post spacing and post length requirements.

- Product List.
- date.
- these conditions.

- situation.

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2. When the SDDOT instructs the Contractor to replace a W Beam guardrail end terminal, the new W Beam guardrail end terminal shall be of the same type (flared or tangent) that was originally installed. The costs for furnishing and installing the tangent and flared W Beam guardrail end terminals shall be incidental to the contract unit price per each for "W Beam Guardrail End Terminal". All W Beam guardrail end terminals that are replaced shall meet the minimum Test Level 3 requirements of NCHRP Report Number 350 or the Manual for Assessing Safety Hardware (MASH) 2009 and shall be listed on the South Dakota Department of Transportation Approved

3. If the ground condition at the site is frozen or has large snow amounts, the portion of embankment and surfacing modification that does not affect quardrail installation or performance will be completed as soon as conditions permit, prior to contract completion

4. "Beam Guardrail Post and Block. Winter" is the additional cost for removal and installation of guardrail posts when there is in excess of one foot of solid frozen ground at the work site. This contract unit price will be an additional payment for each post installed under

5. "3 Cable Guardrail Post, Winter" is the additional cost for removal and installation of a 3 Cable Guardrail Post (I Beam or Flanged Channel) when there is in excess of one foot solid frozen ground at the work site. This contract unit price will be an additional payment for each post installed under these conditions.

6. "Remove and Reset Beam Guardrail Post & Block" includes removal of wood guardrail post and block and resetting it to proper alignment with the Beam Guardrail. Payment for this work will be the same in frozen or unfrozen ground.

7. "Repair 3 Cable Guardrail" includes the cost for replacing and repairing damaged cable, realigning posts, and the tensioning of the entire run of three cable guardrail. Payment for this item is applicable only when broken cable is repaired or the existing cable rail requires realigning and tensioning.

8. "3 Cable Guardrail Intermediate Post" includes the cost for both I Beam and Flanged type of posts. The post for this item shall be furnished and installed consistent with the type of posts presently in place at the proposed repair site.

9. "Beam Guardrail Post and Block" shall include the appropriate size wood block. The Engineer shall designate the proper post length of six, six and one-half, or seven feet as needed to fit the repair

GUARDRAIL (CONTINUED)

- 10. The Contractor shall place state furnished asphalt optimix material around the posts to fill and level any voids created by the driving of the posts through the asphalt. This material will be available at the SDDOT Murdo Maintenance Yard. The material shall be placed 1/2" high around the post to force the water to drain away from the post. This material shall be compacted to the satisfaction of the Engineer.
- 11. The Contractor shall replace any damaged guardrail delineation which cannot be repaired by bolting/riveting to new posts or guardrail installed by Contractor. See Standard Plate 632.40 for guardrail delineation requirements. The "Guardrail Delineator" bid item will be used to compensate the contractor for this work.

LABOR AND EQUIPMENT

The Contractor may be required to clean out snow from around the guardrail and posts during the winter period. All costs to remove snow away from the work area necessary to complete the requested guardrail repair work, including labor, equipment, and incidentals shall be incidental to the contract unit price per hour for Labor and Equipment.

BASE COURSE, STATE FURNISHED

The Contractor may be required to install Base Course, State Furnished on this project. This base course shall be compacted to the satisfaction of the Engineer.

Base Course. State Furnished will be available from the SDDOT Maintenance Yards located at Kadoka, legal description of NW1/4, Section 32, T2S, R21E; (Exit 150) and Reliance, legal description of SW1/4, Section 35, T105N, R73W; (Exit 250). This material can be used without testing.

The Base Course, State Furnished is royalty free to the Contractor.

The final quantity to be paid will be based on loose volume of cubic vards hauled in each truckload. All costs for placement of base material shall be incidental to the contract unit price per cubic vard for "Base Course, State Furnished".

All other requirements of the specifications for Base Course shall apply.

This project will use a conversion factor of 1.5 ton per cubic yard for this material.

STATE FURNISHED ASPHALT OPTIMIX MATERIAL

The Contractor may be required to place state furnished asphalt optimix on this project around the guardrail posts to ensure proper drainage.

The asphalt optimix material is located in the SDDOT Maintenance Yard located at Murdo, legal description of NE1/4. Section 13, T2S, R28E: (Exit 192). This material is royalty free to the Contractor. Furnish cost to the State for state furnished asphalt optimix type material is \$81.00 per ton.

Placement of this material will be incidental to the related bid items for this contract.

CONTRACTOR FURNISHED BORROW EXCAVATION

The Contractor shall provide a suitable site for Contractor furnished borrow material. The borrow material shall be approved by the Engineer. The final quantity to be paid will be based on loose volume of cubic yards hauled in each truckload. All costs for placements of borrow material shall be incidental to the contract unit price per cubic yard for "Contractor Furnished Borrow Excavation". Compaction of borrow material shall be to the satisfaction of the Engineer. The Contractor is responsible for obtaining all required permits and clearances for the borrow site.

Restoration of the Contractor furnished borrow site shall be the responsibility of the Contractor.

RESTORATION OF DISTURBED AREAS

Areas disturbed as a result of work necessary under this Contract shall be reshaped and/or restored to the satisfaction of the Engineer.

Slopes and berms disturbed shall be leveled and excess material removed. Area shall be tilled to the minimum depth of three inches and seeded with Intermediate Wheatgrass (Oahe) at the rate of one-half (1/2) pound "Pure Live Seed" per 1000 square feet. The seed shall be noxious weed free. Cost for reshaping, leveling, removal of excess material, tilling, and seeding disturbed areas on the slopes and berms shall be incidental to the contract unit price for the various items.

REFLECTORIZED SHEETING REQUIRMENTS FOR TEMPORARY TRAFFIC CONTROL DEVICES

followina:

Temporary traffic control devices, including signs, drums, cones, tubular markers, barricades, vertical panels, and direction indicator barricades shall be reflectorized with sheeting applied to a satisfactory backing. For all temporary traffic control warning signs, the reflective sheeting shall meet or exceed the standards of Type VII, Type VIII, Type IX, or Type XI as defined by AASHTO M 268 (ASTM D4956). For all other temporary traffic control signs, the reflective sheeting shall meet or exceed the standards of Type IV, Type V, Type VII, Type VIII, Type IX, or Type XI as defined by AASHTO M 268 (ASTM D4956). For barricades, vertical panels, and direction indicator barricades; the reflective sheeting shall meet or exceed the standards of Type III as defined by AASHTO M 268 (ASTM D4956). Round surfaced temporary traffic control devices including, but not limited to; drums, cones, and tubular markers shall be reflectorized with reflectorized sheeting meeting or exceeding the standards of Type IV as defined by AASHTO M 268 (ASTM D4956). All orange colored material shall be fluorescent.

		000I-391 PCN i42V			
SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W4-2	LEFT or RIGHT LANE ENDS (symbol)	2	48" x 48"	16	32
W7-3aP	NEXT MILES (plaque)	2	36" x 30"	8	16
W13-1P	ADVISORY SPEED 45 MPH (plaque)	2	30" x 30"	6	12
W20-1	ROAD WORK AHEAD	3	48" x 48"	16	48
W20-5	LEFT or RIGHT LANE CLOSED AHEAD	2	48" x 48"	16	32
W20-7	FLAGGER (symbol)	2	48" x 48"	16	32
W21-5a	LEFT or RIGHT SHOULDER CLOSED	2	48" x 48"	16	32
W21-5b	LEFT or RIGHT SHOULDER CLOSED AHEAD	2	48" x 48"	16	32
G20-2	END ROAD WORK	3	48" x 24"	8	24
	000i-391 PCN 142V TRAFFI	C CONTRO	L SIGNS	(SQFT)	260

TYPE 3 BARRICADES			
ITEM DESCRIPTION QUANTITY			
Type 3 Barricade, 8' Single Sided	9	Each	

ARROW BOARDS

ITEM DESCRIPTION Type C Arrow Board

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
DAKOTA	0001-391	6	34

Delete the first paragraph of Section 984.1 and replace with the

ITEMIZED LIST OF TRAFFIC CONTROL DEVICES

QU	ANTITY
1	Each



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DAKO.	ΤA

NO.

NOTES:

1. CASS-S3 4-CABLE (4:1) HAS BEEN SUCCESSFULLY TESTED AND ACCEPTED TO NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM REPORT 350 TEST LEVEL 3 (NCHRP 350 TL3) FOR VARIOUS POST SPACING WHEN INSTALLED ON A LEVEL 3 (NOHEP 350 TE3) FOR VARIOUS POST SPACING WHEN INSTALLED ON 411 OR FLATTER 8LOPE. CAS-53 4-CABLE (41) HAS BEEN SUCCESSFULLY TESTED AND ACCEPTED TO NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM REPORT 350 TE31 LEVEL 4 (NOHRP 350 TL4) FOR VARIOUS POST SPACING WHEN INSTALLED ON A 41 OR FLATTER 8LOPE. ADDITIONAL INFORMATION CAN BE FOUND IN FHWA ACCEPTANCE LETTER B-141F.

2. CASS CABLE TERMINAL (CCT) HAS BEEN SUCCESSFULLY TESTED AND ACCEPTED TO NCHRP TL3. AN NCHRP 350 TL3 APPROVED TERMINAL (CCT) OR CASS-53 4-CABLE (4:1) TRANSITION (VARIOUS) SHALL BE USED ON APPROACH AND DEPARTURE TERMINATIONS WHEN CASS-53 4-CABLE (4:1) IS INSTALLED ON THE NATIONAL HIGHWAY SYSTEM (N-IS). IF A NON-CRASHWORTHY ANCHOR (CCA) IS USED TO TERMINATE THE CABLE SYSTEM, THE NON-CRASHWORTHY ANCHOR MUST BE EITHER SHIELDED OR LOCATED SO THAT A VEHICLE IMPACTING THE CABLE CAN NOT IMPACT THE NON-CRASHWORTHY ANCHOR.

3. CASS-53 4-CABLE (4:1) SHALL BE INSTALLED ON SHOULDERS OR MEDIANS WITH SLOPES OF 4:1 OR FLATTER WITHOUT OBSTRUCTIONS, DEPRESSIONS, ETC. THAT MAY SIGNIFICANTLY AFFECT THE STABILITY OF AN ERRANT VEHICLE. ETC. THAT MAY SUMPRICANTLY AFFECT THE STABLED TOP AN EXEMANT VEHICLE. CA35.45 4-CABLE (4.11) MUST BE INSTALLED & MAXIMUM OF FOUR (4) FEET FROM THE BREAK POINT. GRADING OF SITE AND/OR APPROPRIATE FILL MATERIALS MAY BE REQUIRED. THE DESIGNER/INSTALLER SHALL "FLATTEN" OR "ROUND" VARIOUS TOPOGRAPHICAL INCONSISTENCIES THAT COULD INTER-REFE WITH THE ABILITY OF THE INSTALLER TO CONSISTENTLY MAINTAIN THE DESIGN HEIGHT (IN RELATION TO THE TERRAIN) OF THE CASES. PLEASE DONES IN THE CASE MANUAL OF DEPENDENTLY MAINTAIN THE DESIGN HEIGHT (IN RELATION TO THE TERRAIN) OF THE CASES. PLEASE CONSULT THE CASS MANUALIS) FOR INSTALLATIONS IN "DITCH SECTIONS".

CASS-S3 4-CABLE (4:1) POST SPACING MAY BE MODIFIED TO AVOID OBSTACLES THAT CONFLICT WITH THE INSTALLATION OF CASS-S3 4-CABLE (4:1) UNE POSTS. NO POST SPACE CAN EXCED THE MAXIMUM POST SPACE LIMIT OF 21-07, OR MAXIMUM POST SPACING ALLOWED BY PROJECT ENGINEER-WHICHEVER IS LESS. REDUCING OR INCREASING POST SPACING AFFECTS DEFLECTION, CASS-53 4-CABLE (4:1) MAY BE LATERALLY TRANSFERRED AT A RATE NOT TO EXCEED 30:1.

5. POST FOUNDATIONS MAY BE DRILLED THROUGH EXISTING PAVEMENT. TRINITY MAY ALLOW THE USE OF ALTERNATE LINE POST FOOTINGS IF SYSTEM IS INSTALLED WITH AN ACCEPTABLE MOWSTRIP APPLICATION - PLEASE CONTACT TRINITY.

6. FOR AESTHETIC PURPOSES TRINITY RECOMMENDS ALL SLEEVES, DRIVEN POSTS, AND LOWER CABLE RELEASE POSTS TO BE INSTALLED REASONABLY PLUMB (APPROXIMATELY 1/8" PER FOOT).

7. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,000 P.S.I. PRIOR TO TENSIONING THE SYSTEM. TRINITY RECOMMENDS THE CONCRETE TO BE VIBRATED IN ACCORDANCE WITH THE LATEST APPLICABLE AGENCY SPECIFICATION.

8. CASS-63 4-CABLE (4:1) SHALL BE INSTALLED IN WELL-DRAINED, COMPACTED, NORRY REPORT 350 STANDARD SOILS. IF SOIL DOESN'T MEET THIS CLASSIFICATION, IF SOLID ROCK/CONCRETE IS ENCOUNTERED BELOW GRADE OR IF SOIL IS SUSCEPTABLE TO SEVERE FREEZE/THAW CYCLES, PLEASE CONTACT TRINITY ABOUT ALTERNATE FOOTING DESIGN(S). TRINITY SUGGESTS THE USE OF 'MOW STRIPS' FOR EROSION PREVENTION AND EASE OF MAINTENANCE / INSTALLATION.

9. WHEN THE SYSTEM & TERMINAL IS INSTALLED ENTIRELY ON A 4:1 OR FLATTER SLOPE, THE DEPTH OF THE CONCRETE FOOTINGS <u>SHALL</u> BE INCREASED BY 6". (SEE DRAWING 33-742) ALL OTHER DIMENSIONS, VARIOUS SPECIFICATIONS AND SOL QUALIFICATIONS REMAIN IN PLACE AND MUST BE FOLLOWED.

10. PLEASE SEE SPECIFYING AGENCY (OR MUTCO) FOR PROPER "BARRIER" DELINEATION.

11. PLEASE CONTACT TRINITY OR CONSULT THE DESIGN, INSTALLATION, OR REPAIR MANUAL(S) FOR ADDITIONAL INFORMATION.

TRINITY HIGHWAY PRODUCTS, LLC. EMAIL: 2525 STEMMONS FREEWAY PRODUCT.INFO@TRIN.NET DALLAS, TX 75207 PHONE: (800) 644-7976

OPTION	CASS-TL3-S3 POST OFTIONS	
1	CCT - TERMINAL POST 1 - 9 - IN CONCRETE	
2	OCT -TERMINAL POST 1 - 9 - WITH SOIL PLATE	
3	CASS-S3 POST - IN CONCRETE	
4	CASS-S3 POST - DRIVEN	
5	CASS-S3 POST - BASE-PLATED	
6	CASS-S3 POST - IN DRIVEN SLEEVE	
	6A - DRIVEN SLEEVE - WITH NOTCH	
	68 - DRIVEN SLEEVE - WITH SOIL PLATE	

The deterings and the information at travely are sognified by Totell's High-Mey PRODUCTS, LLC (2009) CASS-S3 (6:1 SLOPE) SHIPPING WT NOTE and property of FRINTY RE-WAY PRODUCTS LLC: Net 4-CABLE GUARDRAIL DRW EAS ITAZOID His-way PRODUCTS LLC webber the drivings for auch information is to be used for why publicle university for their for which being spectrasty branched from TROPTY His-have a PRODUCTS SAFETY SYSTEM SHE 1 OF 5 SUE D IC IN MANY RODALING BUT PRODUCTS, LLC SS-743 0 PROJ CASS-53_6:1



STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
DAKOTA	0001-391	8	34

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Action Action<	+	5817 5818	OCT CABLE	ASSEMBLY-TOP	54'-4"	RHT.	LHT.	58.3
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STRE CABLE FIELD SPLICE SECTION 557 R.H.T. NONE 572 STRE CABLE FIELD SPLICE SECTION 557 R.H.T. NONE 552 STRE CABLE FIELD SPLICE SECTION 557 R.H.T. NONE 552 STRE CABLE FIELD SPLICE SECTION 557 R.H.T. NONE 552 STRE CABLE FIELD SPLICE SECTION 550 R.H.T. NONE 552 STRE CABLE FIELD SPLICE SECTION 557 R.H.T. NONE 552 STRE CABLE FIELD SPLICE SECTION 450 R.H.T. NONE 452 STRE CABLE FIELD SPLICE SECTION 450 R.H.T. NONE 452 STRE CABLE FIELD SPLICE SECTION 450 R.H.T. NONE 452 STRE CABLE FIELD SPLICE SECTION 357 R.H.T. NONE 452 STRE CABLE FIELD SPLICE SECTION 357 R.H.T. NONE 453 STRE CABLE FIELD SPLICE SECTION 357 R.H.T. NONE 453 STRE CABLE FIELD SPLICE SECTION 357 R.	+	5787	CABLE FIELD	D SPLICE SECTION	700' 575'	RHT.	NONE	676,4
ST41 CABLE FIELD SPLICE SECTION 629 R.H.T. MONE 680.4 ST83 CABLE FIELD SPLICE SECTION 550 R.H.T. MONE 680.4 ST81 CABLE FIELD SPLICE SECTION 550 R.H.T. MONE 680.4 ST78 CABLE FIELD SPLICE SECTION 552 R.H.T. MONE 680.4 ST78 CABLE FIELD SPLICE SECTION 552 R.H.T. MONE 452.5 ST78 CABLE FIELD SPLICE SECTION 450 R.H.T. MONE 452.5 ST78 CABLE FIELD SPLICE SECTION 450 R.H.T. MONE 452.5 ST78 CABLE FIELD SPLICE SECTION 450 R.H.T. MONE 452.5 ST78 CABLE FIELD SPLICE SECTION 452 R.H.T. MONE 452.5 ST88 CABLE FIELD SPLICE SECTION 450 R.H.T. MONE 452.5 ST65 CABLE FIELD SPLICE SECTION 350 R.H.T. MONE 352.5 ST65 CABLE FIELD SPLICE SECTION 350 R.H.T. MONE 352.5 ST65 CABLE FIELD SPLICE SECTION 350 R.H.T. MONE 343.5 ST64 CABLE FIELD SPLICE SECTION 350 R.H.T. MON	1	5785	CABLE FIELD	SPLICE SECTION	650'	RHT.	NONE	628.3
1752 CABLE FIELD SPUCE SECTION 572 R.H.T. NONE 532 1761 CABLE FIELD SPUCE SECTION 520 R.H.T. NONE 532 1778 CABLE FIELD SPUCE SECTION 520 R.H.T. NONE 532 1778 CABLE FIELD SPUCE SECTION 520 R.H.T. NONE 452 1778 CABLE FIELD SPUCE SECTION 420 R.H.T. NONE 453 1775 CABLE FIELD SPUCE SECTION 420 R.H.T. NONE 431 1783 CABLE FIELD SPUCE SECTION 420 R.H.T. NONE 431 1785 CABLE FIELD SPUCE SECTION 420 R.H.T. NONE 431 1785 CABLE FIELD SPUCE SECTION 320 R.H.T. NONE 331 1785 CABLE FIELD SPUCE SECTION 320 R.H.T. NONE 331 1785 CABLE FIELD SPUCE SECTION 320 R.H.T. NONE 331 1785 CABLE FIELD SPUCE SECTION 320 R.H.T. NONE 342 1785 CABLE FIELD SPUCE SECTION 320 R.H.T.	+	5784	CABLE FIELD	D SPLICE SECTION	625°	RHT.	NONE	604.2
STRI CABLE FIELD SPUCE SECTION SS0 R.H.T. MONE SS2. STRI CABLE FIELD SPUCE SECTION SS0 R.H.T. MONE SS2. STRI CABLE FIELD SPUCE SECTION SS0 R.H.T. MONE SS2. STRI CABLE FIELD SPUCE SECTION 450 R.H.T. MONE 453. STRI CABLE FIELD SPUCE SECTION 450 R.H.T. MONE 453. STRI CABLE FIELD SPUCE SECTION 450 R.H.T. MONE 453. STRID CABLE FIELD SPUCE SECTION 300 R.H.T. MONE 351. STRID CABLE FIELD SPUCE SECTION 300 R.H.T. MONE 352. STRID CABLE FIELD SPUCE SECTION 300 R.H.T. MONE 351. STRID CABLE FIELD SPUCE SECTION 300 R.H.T. MONE 351. STRID CABLE FIELD SPUCE SECTION 300 R.H.T. MONE 351. STRID CABLE FIELD SPUCE SECTION 300 R.H.T. MONE 351. STRID CABLE FIELD SPUCE SECTION 300 R.H.T. MONE 351. STRID CABLE FIELD SPUCE SECTION 300 R.H.T. MONE 35	1	5782	CABLE FIELD	D SPLICE SECTION	575	RHT.	NONE	556.1
STRE CABLE HELD SPUCE SECTION SCO RLT NONE 4532 STRE CABLE FIELD SPUCE SECTION 473 R.H.T. NONE 4533 STRE CABLE FIELD SPUCE SECTION 4437 R.H.T. NONE 4433 STRE CABLE FIELD SPUCE SECTION 4437 R.H.T. NONE 4433 STRE CABLE FIELD SPUCE SECTION 4437 R.H.T. NONE 3433 STRE CABLE FIELD SPUCE SECTION 3370 R.H.T. NONE 3433 STRE CABLE FIELD SPUCE SECTION 3320 R.H.T. NONE 3433 STRE CABLE FIELD SPUCE SECTION 3220 R.H.T. NONE 2434 STRE CABLE FIELD SPUCE SECTION 3220 R.H.T. NONE 2434 STRE CABLE FIELD SPUCE SECTION 3220 R.H.T. NONE 1471 STRE CABLE FIELD SPUCE SECTION 320 R.H.T. NONE 1471 STRE CABLE FIELD SPUCE SECTION 320 R.H.T. NONE 1471 STRE CABLE FIELD SPUCE SECTION 320 <td< td=""><td>+</td><td>5781</td><td>CABLE FIELD</td><td>D SPLICE SECTION</td><td>550'</td><td>RHT.</td><td>NONE</td><td>532.1</td></td<>	+	5781	CABLE FIELD	D SPLICE SECTION	550'	RHT.	NONE	532.1
STR CABLE FIELD SPLICE SECTION 475 R.H.T. NONE 4553 STR CABLE FIELD SPLICE SECTION 4207 R.H.T. NONE 4553 STR CABLE FIELD SPLICE SECTION 4207 R.H.T. NONE 4553 STR CABLE FIELD SPLICE SECTION 307 R.H.T. NONE 3553 STR CABLE FIELD SPLICE SECTION 327 R.H.T. NONE 3553 STR CABLE FIELD SPLICE SECTION 327 R.H.T. NONE 3553 STR CABLE FIELD SPLICE SECTION 327 R.H.T. NONE 2353 STR CABLE FIELD SPLICE SECTION 2307 R.H.T. NONE 2414 STR CABLE FIELD SPLICE SECTION 2307 R.H.T. NONE 2414 STR CABLE FIELD SPLICE SECTION 2307 R.H.T. NONE 1425 STR CABLE FIELD SPLICE SECTION 2307 R.H.T. NONE 1421 STR CABLE FIELD SPLICE SECTION 1507 R.H.T. NONE 1421 STR CABLE FIELD SPLICE SECTION 1507	+	5779	CABLE FIEL	SPLICE SECTION	500	RHT.	NONE	484.0
STORE FILL STUCE SECTION 200 R.H.T. NONE 4314 STORE CABLE FIELD SPLICE SECTION 200 R.H.T. NONE 387.2 STORE CABLE FIELD SPLICE SECTION 300 R.H.T. NONE 387.2 STORE CABLE FIELD SPLICE SECTION 320 R.H.T. NONE 387.2 STORE CABLE FIELD SPLICE SECTION 320 R.H.T. NONE 237.2 STORE CABLE FIELD SPLICE SECTION 320 R.H.T. NONE 237.2 STORE CABLE FIELD SPLICE SECTION 320 R.H.T. NONE 237.2 STORE CABLE FIELD SPLICE SECTION 220 R.H.T. NONE 237.2 STORE CABLE FIELD SPLICE SECTION 220 R.H.T. NONE 171.4 STORE CABLE FIELD SPLICE SECTION 120 R.H.T. NONE 171.4 STORE CABLE FIELD SPLICE SECTION 120 R.H.T. NONE 171.4 STORE CABLE FIELD SPLICE SECTION 120 R.H.T. NONE 171.4 STORE CABLE FIELD SPLICE SECTION 120 R.H.T. NONE 171.4 STORE CABLE FIELD SPLICE SECTION 120 R.H.T. NONE 171.4 STORE CABLE FIELD SPLICE SECTION 120 R.H.T. NONE 171.4 STORE CABLE F	Ŧ	5778	CABLE FIELD	SPLICE SECTION	475	RHT.	NONE	459.9
ST69 CABLE FIELD SPLICE SECTION 400° R.H.T. NONE 387.3 ST68 CABLE FIELD SPLICE SECTION 300° R.H.T. NONE 383.3 ST65 CABLE FIELD SPLICE SECTION 320° R.H.T. NONE 313.3 ST65 CABLE FIELD SPLICE SECTION 320° R.H.T. NONE 233.3 ST65 CABLE FIELD SPLICE SECTION 320° R.H.T. NONE 231.3 ST65 CABLE FIELD SPLICE SECTION 220° R.H.T. NONE 243.1 ST64 CABLE FIELD SPLICE SECTION 220° R.H.T. NONE 243.1 ST65 CABLE FIELD SPLICE SECTION 200° R.H.T. NONE 147.4 ST65 CABLE FIELD SPLICE SECTION 150° R.H.T. NONE 147.4 ST65 CABLE FIELD SPLICE SECTION 150° R.H.T. NONE 147.4 ST65 CABLE FIELD SPLICE SECTION 150° R.H.T. NONE 147.4 ST65 CABLE FIELD SPLICE SECTION 150° R.H.T. NONE 147.4 ST65 CABLE FIELD SPLICE SECTION<	t	5775	CABLE FIELD	D SPLICE SECTION	425	RHT.	NONE	411.2
3130 WARLE FIELD SPLICE SECTION 322 R.H.T. NONE 3232 5765 CABLE FIELD SPLICE SECTION 322 R.H.T. NONE 3352 5765 CABLE FIELD SPLICE SECTION 322 R.H.T. NONE 3352 5765 CABLE FIELD SPLICE SECTION 322 R.H.T. NONE 3352 5765 CABLE FIELD SPLICE SECTION 3207 R.H.T. NONE 3352 5765 CABLE FIELD SPLICE SECTION 2207 R.H.T. NONE 2351 5761 CABLE FIELD SPLICE SECTION 2007 R.H.T. NONE 1352 5765 CABLE FIELD SPLICE SECTION 1007 R.H.T. NONE 1412 5765 CABLE FIELD SPLICE SECTION 1207 R.H.T. NONE 1412 5765 CABLE FIELD SPLICE SECTION 1207 R.H.T. NONE 1412 5755 CABLE FIELD SPLICE SECTION 307 R.H.T. NONE 1412 5755 CABLE FIELD SPLICE SECTION 307 R.H.T. NONE 1412 5755 CABLE FIELD SPLICE SECTION 307 R.H.T. NONE 1412 5755 CABLE FIELD SPLICE SECTION 307 R.H.T. NONE	Ŧ	5769	CABLE FIELD	D SPLICE SECTION	400	RHT.	NONE	387.2
ST65 CABLE FIELD SPLICE SECTION 322" R.H.T. NONE 315. ST65 CABLE FIELD SPLICE SECTION 275" R.H.T. NONE 251. ST64 CABLE FIELD SPLICE SECTION 275" R.H.T. NONE 251. ST64 CABLE FIELD SPLICE SECTION 250" R.H.T. NONE 241. ST64 CABLE FIELD SPLICE SECTION 200" R.H.T. NONE 241. ST64 CABLE FIELD SPLICE SECTION 200" R.H.T. NONE 241. ST65 CABLE FIELD SPLICE SECTION 150" R.H.T. NONE 141. ST65 CABLE FIELD SPLICE SECTION 150" R.H.T. NONE 141. ST65 CABLE FIELD SPLICE SECTION 100" R.H.T. NONE 151. ST55 CABLE FIELD SPLICE SECTION 25" R.H.T. NONE 27. ST65 CABLE FIELD SPLICE SECTION 25" R.H.T. NONE 27. ST55 CABLE FIELD SPLICE SECTION 5" R.H.T. NONE 27. St64 CABLE FIELD SPLICE SECTION 5" </td <td>+</td> <td>5767</td> <td>CABLE FIEL</td> <td>SPLICE SECTION</td> <td>350</td> <td>RHT.</td> <td>NONE</td> <td>339.7</td>	+	5767	CABLE FIEL	SPLICE SECTION	350	RHT.	NONE	339.7
3153 GABLE FIELD SPLICE SECTION 200 R.H.T. NONE 2213 3763 GABLE FIELD SPLICE SECTION 250 R.H.T. NONE 2414 3763 GABLE FIELD SPLICE SECTION 220 R.H.T. NONE 2414 3763 GABLE FIELD SPLICE SECTION 220 R.H.T. NONE 2414 3764 GABLE FIELD SPLICE SECTION 220 R.H.T. NONE 1414 3765 GABLE FIELD SPLICE SECTION 120 R.H.T. NONE 1417 3755 GABLE FIELD SPLICE SECTION 125 R.H.T. NONE 1417 3755 GABLE FIELD SPLICE SECTION 125 R.H.T. NONE 1423 3755 GABLE FIELD SPLICE SECTION 100 R.H.T. NONE 1417 3755 GABLE FIELD SPLICE SECTION 25 R.H.T. NONE 213 3755 GABLE FIELD SPLICE SECTION 25 R.H.T. NONE 213 3755 GABLE FIELD SPLICE SECTION 25 R.H.T. NONE 213 3755 GABLE FIELD SPLICE SECTION 25 R.H.T. NONE 213 3755 GABLE FIELD SPLICE SECTION 5 R.H.T. NONE 213 <td>Ŧ</td> <td>5765</td> <td>CABLE FIELD</td> <td>SPLICE SECTION</td> <td>325</td> <td>RHT.</td> <td>NONE</td> <td>315.7</td>	Ŧ	5765	CABLE FIELD	SPLICE SECTION	325	RHT.	NONE	315.7
ST63 CABLE FIELD SPLICE SECTION 250" R.H.T. NONE 243.1 ST63 CABLE FIELD SPLICE SECTION 222" R.H.T. NONE 243.1 ST61 CABLE FIELD SPLICE SECTION 220" R.H.T. NONE 155.1 ST61 CABLE FIELD SPLICE SECTION 175" R.H.T. NONE 157.1 ST55 CABLE FIELD SPLICE SECTION 125" R.H.T. NONE 147.1 ST55 CABLE FIELD SPLICE SECTION 125" R.H.T. NONE 157.1 ST55 CABLE FIELD SPLICE SECTION 20" R.H.T. NONE 151.1 ST55 CABLE FIELD SPLICE SECTION 30" R.H.T. NONE 151.1 ST55 CABLE FIELD SPLICE SECTION 30" R.H.T. NONE 151.1 ST55 CABLE FIELD SPLICE SECTION 30" R.H.T. NONE 151.1 ST55 CABLE FIELD SPLICE SECTION 25" R.H.T. NONE 151.1 ST55 CABLE FIELD SPLICE SECTION 5" R.H.T. NONE 151.1 ST55 CABLE FIELD SPLICE SECTION	t	5764	CABLE FIELD	SPLICE SECTION	275	RHT.	NONE	267.6
3741 CABLE FIELD SPLICE SECTION 202 R.H.T. NONE 2194 5760 CABLE FIELD SPLICE SECTION 1775 R.H.T. NONE 1714 5759 CABLE FIELD SPLICE SECTION 1227 R.H.T. NONE 1714 5759 CABLE FIELD SPLICE SECTION 1227 R.H.T. NONE 1233 5757 CABLE FIELD SPLICE SECTION 1207 R.H.T. NONE 1233 5755 CABLE FIELD SPLICE SECTION 207 R.H.T. NONE 1233 5755 CABLE FIELD SPLICE SECTION 207 R.H.T. NONE 1233 5755 CABLE FIELD SPLICE SECTION 207 R.H.T. NONE 1333 5755 CABLE FIELD SPLICE SECTION 207 R.H.T. NONE 1333 5755 CABLE FIELD SPLICE SECTION 307 R.H.T. NONE 1333 5755 CABLE FIELD SPLICE SECTION 207 R.H.T. NONE 1334 104 CABLE FIELD SPLICE SECTION 207 R.H.T. NONE 1334 1150 SECTION 5 R.H.T. NONE 1334 116 SECTION 5 R.H.T. NONE 1434 117 CABLE FI	Ŧ	5763	CABLE FIELD	SPLICE SECTION	250	RHT.	NONE	243.5
ST60 CABLE FIELD SPLICE SECTION 175" R.H.T. NONE 1714 ST60 CABLE FIELD SPLICE SECTION 150" R.H.T. NONE 1477. ST55 CABLE FIELD SPLICE SECTION 125" R.H.T. NONE 1427. ST55 CABLE FIELD SPLICE SECTION 120" R.H.T. NONE 122. ST55 CABLE FIELD SPLICE SECTION 27 R.H.T. NONE 123. ST55 CABLE FIELD SPLICE SECTION 27 R.H.T. NONE 127. ST55 CABLE FIELD SPLICE SECTION 25 R.H.T. NONE 127. ST55 CABLE FIELD SPLICE SECTION 25 R.H.T. NONE 17.1 ST55 CABLE FIELD SPLICE SECTION 25 R.H.T. NONE 127. ST55 CABLE FIELD REPAIR SECTION 25 R.H.T. NONE 127. Station SECTION 25 R.H.T. NONE 127. Station SECTION 25 R.H.T. NONE 127. Station SECTION SECTION 25 R.H.T.	+	5761	CABLE FIELD	SPLICE SECTION	200	RHT	NONE	195.4
STSS CABLE FIELD OF DUCE SECTION 120 R.H.T. NONE 123 STSS CABLE FIELD SPLICE SECTION 100 R.H.T. NONE 123 STSS CABLE FIELD SPLICE SECTION 127 R.H.T. NONE 123 STSS CABLE FIELD SPLICE SECTION 207 R.H.T. NONE 123 STSS CABLE FIELD SPLICE SECTION 257 R.H.T. NONE 133 STSS CABLE FIELD SPLICE SECTION 257 R.H.T. NONE 133 STSS CABLE FIELD SPLICE SECTION 257 R.H.T. NONE 277 Stat CABLE FIELD SPLICE SECTION 257 R.H.T. NONE 277 Stat CABLE FIELD SPLICE SECTION 257 R.H.T. NONE 277 Stat CABLE FIELD REPAIR SECTION 257 R.H.T. NONE 277 Stat CABLE FIELD REPAIR SECTION 257 R.H.T. NONE 277 Stat CABLE FIELD REPAIR SECTION 257 R.H.T. 101 101 Stat CABLE FIELD REPAIR SECTION 257 R.	Ŧ	5760	CABLE FIELD	SPLICE SECTION	175	RHT.	NONE	171.4
STST CABLE FIELD SPLICE SECTION 100 R.H.T. NONE 952. STSE CABLE FIELD SPLICE SECTION 207 R.H.T. NONE 752. STSE CABLE FIELD SPLICE SECTION 207 R.H.T. NONE 751. STSE CABLE FIELD SPLICE SECTION 207 R.H.T. NONE 27.1 SR40 CABLE FIELD SPLICE SECTION 207 R.H.T. NONE 27.1 SR40 CABLE FIELD SPLICE SECTION 207 R.H.T. NONE 27.1 SR40 CABLE FIELD SPLICE SECTION 207 R.H.T. NONE 27.1 SR40 CABLE FIELD SPLICE SECTION 207 R.H.T. NONE 27.1 SR40 CABLE FIELD SPLICE SECTION 207 R.H.T. NONE 27.1 SR40 CABLE FIELD SPLICE SECTION ABOVE, 10.1 10.1 10.1 VARIES - (SEE FARLE ABOVE) CABLE TERMINAL - 1 0.2 207 207 207 VARIES - (SEE TABLE ABOVE) CABLE TERMINAL - 1 CABLE TERMINAL - 2 1 1 1 VARIES - (SEE TABLE ABOVE) CABLE TERMINAL - 1 CABLE TERMINAL - 2 1 1 1 PRE-STRETCHED	t	5758	CABLE FIELD	D SPLICE SECTION	125	RHL	NONE	147.3
Install whethe precharge section 13 Ref 1 None (1) 5755 CABLE FIELD SPUCE SECTION 30 R.H.T. NONE 27.1 5840 CABLE FIELD SPUCE SECTION 25 R.H.T. NONE 27.1 5840 CABLE FIELD SPUCE SECTION 25 R.H.T. NONE 27.1 5840 CABLE FIELD SPUCE SECTION 25 R.H.T. L.H.T. 10.8 PRE-STRETCHED SPUCE SECTIONS ABOVE, 17.1 10.9 10.9 10.9 CABLE TERMINAL-1 CABLE TERMINAL-2 10.9 10.9 10.9 10.9 CORE CABLE TERMINAL-1 CABLE TERMINAL-2 10.9 10.9 10.9 10.9 CABLE TERMINAL-1 CABLE TERMINAL-1 CABLE TERMINAL-2 10.9 10.9 10.9 10.9 CABLE TERMINAL-1 CABLE TERMINAL-2 <td>_</td> <td>5757</td> <td>CABLE FIELD</td> <td>SPLICE SECTION</td> <td>100'</td> <td>RHT.</td> <td>NONE</td> <td>99.1</td>	_	5757	CABLE FIELD	SPLICE SECTION	100'	RHT.	NONE	99.1
STS4 CABLE FIELD SPUCE SECTION 25 R.H.T. NONE 27.1 S843 CABLE FIELD REPAIR SECTION 5 R.H.T. L.H.T. 10.3 S R.H.T. L.H.T. 10.3 10.3 CABLE FIELD REPAIR SECTION ABOVE, 10.3 10.3 C NOTES: CABLE TERMINAL-1 CABLE TERMINAL-2 5 CABLE TERMINAL-1 CABLE TERMINAL-2 5 5 5 CABLE TERMINAL-1 CABLE TERMINAL-2 5 5 5 CREE TABLE ABOVE) CABLE TERMINAL-2 5 5 5 5 CREE TABLE ABOVE) CABLE TERMINAL-2 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 7 5 5 7 5 5 7 5 5 7	Ŧ		CABLE FIELD	D SPLICE SECTION	50'	RHT.	NONE	51.1
I SONE TOURE PIECO REPORT SECTIONS ABOVE, IV 110 REGULT PLAND THREADED STUD ASSEMBLY CABLE TERMINAL-1 CABLE TERMINAL-1 (SEE TABLE ABOVE) CABLE TERMINAL-1 (SEE TABLE ABOVE) PRE-STRETCHED CABLE ASSEMBLY OTES: IN LIEU OF BLACK SPACER STODS SUPPLY YELLOW REFLECTIVE SPACER STOTE OR WHITE REFLECTIVE SPACER STODS SUPPLY YELLOW REFLECTIVE SPACER STOTE OR WHITE REFLECTIVE SPACER STODS SUPPLY YELLOW REFLECTIVE SPACER STOTE OR WHITE REFLECTIVE SPACER STODS SUPPLY YELLOW REFLECTIVE SPACER STOTE OR WHITE REFLECTIVE SPACER STODS SUPPLY YELLOW REFLECTIVE SPACER STOTE OR WHITE REFLECTIVE SPACER STODS SUPPLY YELLOW REFLECTIVE SPACER STOTE IF INTERPREPENCE OCCURS BETWEEN THE CABLE SPLICE AND CASS-TL3 POST, SUPPLY A SPLICE NTERPREPICE POST. LONG SPLICE POST 34035G IN LIEU OF SHORT CASS-63 POST 34035G SHORT SPLICE POST 34035G IN LIEU OF SHORT CASS-63 POST 34035G SHORT SPLICE POST 34035G IN LIEU OF SHORT CASS-63 POST 34035G SHORT SPLICE POST 34035G IN LIEU OF SHORT CASS-63 POST 34035G SHORT SPLICE POST 34035G IN LIEU OF SHORT CASS-63 POST 34035G SHORT SPLICE POST 34035G IN LIEU OF SHORT CASS-63 POST 34035G SHORT SPLICE POST 34035G IN LIEU OF SHORT CASS-63 POST 34035G SHORT SPLICE POST 34035G IN LIEU OF SHORT CASS-63 POST 34035G SHORT SPLICE POST 34035G IN LIEU OF SHORT CASS-63 POST 34035G SHORT SPLICE POST 34035G IN LIEU OF SHORT CASS-63 POST 34035G SHORT SPLICE POST 34035G IN LIEU OF SHORT CASS-63 POST 34035G SHORT SPLICE POST 34035G IN LIEU OF SHORT CASS-63 POST 34035G SHORT SPLICE POST 34035G IN LIEU OF SHORT CASS-63 POST 34035G SHORT SPLICE POST 34035G IN LIEU OF SHORT CASS-63 POST 34035G SHORT SPLICE POST 34035G IN LIEU OF SHORT CASS-63 POST 34035G SHORT SPLICE POST 34035G IN LIEU OF SHORT CASS-63 POST 34035G SHORT SPLICE POST 34035G IN LIEU OF SHORT CASS-63 POST 34035G SHORT SPLICE POST 34035G IN LIEU OF SHORT CASS-63 POST 34035G SHORT SPLICE POST 34035G IN LIEU OF SHORT CASS-63 POST 34035G SHORT SPLICE POST 34035G SHORT SPLICE POST STOPS SHORT POST STOPS SHORT SPLICE POST STOPS SUPPLY: CASLE THERMORE POST STOPS SHORT POST		5755	Ser Bernet i The ber			RHT	NONE	27.1
CABLE TERMINAL-1 (SEE TABLE ABOVE) CABLE TERMINAL-1 (SEE TABLE ABOVE) CABLE TERMINAL-2 (SEE TABLE ABOVE) CABLE TABLE ABOVE) PRE-STRETCHED CABLE ASSEMBLY DTES: IN LIEU OF BLACK SPACER S700B SUPPLY YELLOW REFLECTIVE SPACER S701B OR WHITE REFLECTIVE SPACER S702 (A SREDURED PER PROJECT PLANS) IN LIEU OF BLACK SPACER S7020 SUPPLY YELLOW REFLECTIVE SPACER S701B OR WHITE REFLECTIVE SPACER S702 (A SREDURED PER PROJECT PLANS) IN THERFERENCE OCCURS BETWEEN THE CABLE SPLICE AND CASS-TILS POST, SUPPLY A SPLICE NTERPERENCE POST. LONG SPLICE POST 340361G IN LIEU OF SHORT CASS-63 POST 34036G SHORT SPLICE POST 340363 IN LIEU OF SHORT CASS-63 POST 34036G SHORT SPLICE POST 340363 IN LIEU OF SHORT CASS-63 POST 340366 SHORT SPLICE POST 340363 IN LIEU OF SHORT CASS-63 POST 340366 SHORT SPLICE POST 340363 IN LIEU OF SHORT CASS-63 POST 340366 SHORT SPLICE POST 340363 IN LIEU OF SHORT CASS-63 POST 340366 SHORT SPLICE POST 340363 IN LIEU OF SHORT CASS-63 POST 340366 SHORT SPLICE POST 340363 IN LIEU OF SHORT CASS-63 POST 340366 SHORT SPLICE POST 340363 IN LIEU OF SHORT CASS-63 POST 340366 SHORT SPLICE POST 340363 IN LIEU OF SHORT CASS-63 POST 340366 SHORT SPLICE POST 340363 IN LIEU OF SHORT CASS-63 POST 340366 SHORT SPLICE POST 340363 IN LIEU OF SHORT CASS-63 POST 340366 SHORT SPLICE POST 340363 IN LIEU OF SHORT CASS-63 POST 340366 SHORT SPLICE POST 340363 IN LIEU OF SHORT CASS-63 POST 340366 SHORT SPLICE POST 340363 IN LIEU OF SHORT CASS-63 POST 340366 SHORT SPLICE POST 340363 IN LIEU OF SHORT CASS-63 POST 340366 SHORT SPLICE POST 340463 IN LIEU OF SHORT CASS-63 POST 340366 SHORT SPLICE POST 340456 SHORT SPLICE POST 340456 SHORT SPLICE POST 340457 SHORT SPLICE POST 34057 SHORT SPLICE POST 340457 SHORT SPLICE POST 34045		5755 5754 5840 5840 E STAND (1) Right SACH.	CABLE FIELD CABLE FIELD 3 WRD FIELD 3 HT HAND THE	D SPLICE SECTION D REPAIR SECTION SPLICE SECTIONS AL READED STUD ASSE	BOVE,	RHT.	LAT.	10.6
CABLE TERMINAL-1 (SEE TABLE ABOVE) CABLE TERMINAL-1 (SEE TABLE ABOVE) CABLE ABOVE) CABLE TABLE ABOVE) PRE-STRETCHED CABLE ASSEMBLY OTES: IN LIEU OF BLACK SPACER STORE SUPPLY YELLOW REFLECTIVE SPACER STORE OR WHITE REFLECTIVE SPACER STORE SUPPLY YELLOW REFLECTIVE SPACER STORE OR WHITE REFLECTIVE SPACER STORE SUPPLY YELLOW REFLECTIVE SPACER STORE OR WHITE REFLECTIVE SPACER STORE SUPPLY YELLOW REFLECTIVE SPACER STORE OR WHITE REFLECTIVE SPACER STORE SUPPLY YELLOW REFLECTIVE SPACER STORE OR WHITE REFLECTIVE SPACER STORE SUPPLY IN LIEU OF BLACK SPACER STORE SUPPLY YELLOW REFLECTIVE SPACER STORE OR WHITE REFLECTIVE SPACER STORE SUPPLY LONG SPUCE POST 3405G IN LIEU OF LONG CASS-63 POST 34035G SHORT SPUCE POST 3405G IN LIEU OF SHORT CASS-63 POST 34035G SHORT SPUCE POST 3405G IN LIEU OF SHORT CASS-63 POST 34035G SHORT SPUCE POST 3405G IN LIEU OF SHORT CASS-63 POST 34035G SHORT SPUCE POST 3405G IN LIEU OF SHORT CASS-63 POST 34035G SHORT SPUCE POST STORE SUPPLY: CABLE THERMOMETER STORE CABLE THERMOMETER STORE CABLE THERMOMETER STORE		5755 5754 5840 E STAND (11) BIGH FACH.	CABLE FIELD CABLE FIELD S ANNO FIELD S AT HAND THE	D SPUCE SECTION D REPAIR SECTION SPLICE SECTIONS AI SPLICE SECTIONS AI SPLICE SECTIONS AI SPLICE SECTIONS AI	BOVE, MBLY	RAT	LAT.	10.6
CONSTRUCTION C		5755 5754 5840 6840 (11) BIGH	CABLE FIELD CABLE FIELD SARD FIELD 8 THAND THE	D SPLICE SECTION D REPAIR SECTIONS AL SPLICE SECTIONS AL SEADED STUD ASSE VARIES - (SEE PARTS	S BOVE, MBLY HIST ABOVE)	RHT		10.8
PRE-STRETCHED CABLE ASSEMBLY OTES: IN LIEU OF BLACK SPACER 57008 SUPPLY YELLOW REFLECTIVE SPACER 57018 OR WHITE REFLECTIVE SPACER 5702. (AS REDUIRED PER PROJECT PLANS) IF INTERFERENCE OCCURS BETWEEN THE CABLE SPLICE AND CASS-TL3 POST, SUPPLY A SPLICE INTERFERENCE POST. LONG SPLICE POST 34051G IN LIEU OF SHORT CASS-63 POST 34035G SHORT SPLICE POST 34061G IN LIEU OF SHORT CASS-63 POST 34045G IF REQUIRED PER PROJECT PLANS SUPPLY: CABLE PULLING TOOL 59508 CABLE THERMOMETER 57058		5755 5754 5840 5840 (11) BIGH FACH.		DEPUCE SECTION DREPAIR SECTION SPLICE SECTIONS AN SEADED STUD ASSE WRIES - (SEE PARTS TERMINAL - 1 BLE ABOVE)	S S NBLY LIST ABOVE) CABLE TERMIN (SEE TABLE AB	(AL-3 10VE)	LAT	10.i
OTES: IN LIEU OF BLACK SPACER 57008 SUPPLY YELLOW REFLECTIVE SPACER 57018 OR WHITE REFLECTIVE SPACER 5702. (AS REDUIRED PER PROJECT PLANS) IF INTERPERENCE OCCURS BETWEEN THE CABLE SPLICE AND CASS-TL3 POST, SUPPLY A SPLICE INTERFERENCE POST. LONG SPLICE POST 34045G IN LIEU OF LONG CASS-63 POST 34035G SHORT SPLICE POST 34045G IN LIEU OF SHORT CASS-63 POST 34045G IF REQUIRED PER PROJECT PLANS SUPPLY: CABLE PULLING TOOL 58508 CABLE THERMOMETER 57268		5755 5754 5840 E STAND (11) <u>RIGH</u> ACH		DEPUCE SECTION DREPAIR SECTION SPLICE SECTIONS AI SEADED STUD ASSE VARIES - (SEE PARTS TERMINAL - 1 BLE ABOVE)	S S NBLY CABLE TERMIN (SEE TABLE AB	INL-3 KVVE)		10.1
IN LIEU OF BLACK SPACER 5700B SUPPLY YELLOW REFLECTIVE SPACER 5701B OR WHITE REFLECTIVE SPACER 5702 (XS REDUIRED PER PROJECT PLANS) IF INTERFERENCE OCCURS BETWEEN THE CABLE SPLICE AND CASS-TL3 POST, SUPPLY A SPLICE INTERFERENCE POST. LONG SPLICE POST 3403/51G IN LIEU OF LONG CASS-53 POST 3403/5G SHORT SPLICE POST 3404/5G IN LIEU OF SHORT CASS-63 POST 3404/5G IF REQUIRED PER PROJECT PLANS SUPPLY: CABLE FULLING TOOL SSIGB CABLE THERMOMETER 5778B CABLE THERMOMETER 5778B		5755 5754 5840 5840 (11) RIGE FACH		DREPAIR SECTION SPLICE SECTIONS AI SEADED STUD ASSE VARIES - (SEE PARTS TERMINAL - 1 BLE ABOVE) TERMINAL - 1 BLE ABOVE) TERMINAL - 1 BLE ABOVE) TERMINAL - 1 BLE ABOVE)	SOVE, MBLY CABLE TERMIN (SEE TABLE AB		LAT	10.4
OR WHITE REFLECTIVE SPACER \$702. (AS REDUIRED PER PROJECT PLANS) IF INTERFERENCE OCCURS BETWEEN THE CABLE SPLICE AND CASS-TL3 POST, SUPPLY A SPLICE INTERFERENCE POST. LONG SPLICE POST 34051G IN LIEU OF LONG CASS-63 POST 34035G SHORT SPLICE POST 34049G IN LIEU OF SHORT CASS-63 POST 34045G IF REQUIRED PER PROJECT PLANS SUPPLY: CABLE PULLING TOOL \$8508 CABLE THERMOMETER \$3798 CABLE THERMOMETER \$3798		5755 5754 5840 5840 E STANC (1) <u>BiGH</u> SACH.			SOVE, MBLY CABLE TERMIN (SEE TABLE AB BLE ASSE!	INL-3 KVE)		10.4
SUPPLY A SPLICE INTERFERENCE POST. LONG SPLICE POST 34051G IN LIEU OF LONG CASS-63 POST 34036G SHORT SPLICE POST 34049G IN LIEU OF SHORT CASS-63 POST 34045G IF REQUIRED PER PROJECT PLANS SUPPLY: CABLE PULLING TOOL 59508 CABLE THERMOMETER 53798 CABLE THERMOMETER 53798		5755 5754 5784 5840 5840 E STANE E STANE (11) RIGE EACH.		SPLICE SECTION SPLICE SECTIONS AI SEADED STUD ASSE VARIES - (SEE PARTS VARIES - (SEE PARTS) VARIES - (SEE PARTS VARIES - (SEE PARTS) VARIES -	SOVE, MBLY CABLE TERMIN (SEE TABLE AB BLE ASSE!		SPACE	10.4
IF REQUIRED PER PROJECT PLANS SUPPLY: CABLE FULLING TOOL 59508 CABLE TENSION METER 58798 CABLE THERMOMETER 57058		E STAND (1) BIGH ACH		SPLICE SECTION DREPAIR SECTION SPLICE SECTIONS AN READED STUD ASSE ARIES - (SEE PARTS RETCHED CA (SPACER 57008 SU) SCIVE SPACER 57008 SU)	SOVE, MBLY CABLE TERMIN (SEE TABLE AB BLE ASSE/ PPLY YELLOW R 2. (AS REDUIRED		SPACES	10.4 5 R 5701B W8) 3 POST.
CABLE FULLING TOOL SSOB CABLE TENSION METER 5878B CABLE THERMOMETER 5705B		E STAND ST55 ST55 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST54 ST55 ST54 ST54 ST55 ST54 ST55 ST54 ST55 ST54 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST55 ST5	CABLE FIEL CABLE FIELD S AT HAND FIELD S AT HAND THE CABLE TA CABLE TA CABL	DEPUCE SECTION DREPAIR SECTION SPLICE SECTIONS AN SEADED STUD ASSE ARIES - (SEE PARTS CRETCHED CA RETCHED CA SPACER S7008 SUI COTVE SPACER S7008 SUI SCITVE SPACER S7008 SUI	AND THE CABLE SS	ML-3 KOVE) MBLY MBLY PEFECTIVIC PLICE AND B3 POST 34 8-63 POST 34	SPACED SPACED SECT PLA CASS-TL 236G 340450	10.4 5 7 8 57018 W8) 3 POST,
		E STAND E STAND (11) BIGH ACH ITES: IN LI OR V IF IN SUPP SHO IF RS	CABLE FIEL CABLE FIELD CABLE FIELD CABLE FIELD S IT HAND THE CABLE TO CABLE	SPLICE SECTION DREPAIR SECTION SPLICE SECTIONS AN SEADED STUD ASSE VARIES - (SEE PARTS CARLES - (SEE PARTS) CARLES - (SEE PARTS)	ABLE ASSEM ASSEMANTING ABLE ASSEM BLE ASSEM ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTING ASSEMANTI	ML-3 KOVE) MBLY MBLY PER PRO PLICE AND 53 POST 34 54-63 POST	SPACE JECT PL/ CASS-TL 036G 34045G	10.4 10.4 10.4 10.4 10.4 10.4 10.4 10.4
		E STANE STSS STSS SR40 E STANE E S	CABLE FIEL CABLE FIEL	DEPUCE SECTION DREPAIR SECTION SPLICE SECTIONS AN SEACED STUD ASSE ARIES - (SEE PARTS RETCHED CA SEACER STODE SU CETVE SPACER STODE SU CETVE STODE SU STODE SECTION S TOOL SECTION STODE METER STODE METER STODE	ABLE ABOVE, MBLY CABLE TERMIN (SEE TABLE AB BLE ASSE/ BLE ASSE/ PPLY YELLOW R 2. (AS REDUIRED NTHE CABLE SP SF LONG CASS- OF SHORT CAS	MBLY MBLY MBLY MBLY MBLY MBLY MBLY MBLY	SPACED JECT PL/ CASS-TL 034045G	10.4 5 75 8 57018 W8) 3 POST,



STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
DAKOTA	0001-391	9	34

FAHRENHEIT	STD. CAELE	I PRE-STRETCHED
DEGREES	LB/FORCE	LB/FORCE
<=-15	8800	7500
-10	8600	7300
-5	6400	7100
D	8200	7000
5	8000	6800
10	7800	6600
15	7600	6500
20	7400	6300
25	7200	6100
30	7000	6000
35	6800	5600
40	6600	5600
45	6400	5500
50	6200	5300
55	6000	5100
6Q	5800	5000
65	5600	4800
70	5400	4600
75	5200	4500
80	5000	4300
85	4800	4100
90	4600	4000
95	4400	3600
100	4200	3600
105	4000	3500
110	3800	3300
115	3600	3100
120	3400	3000
125	3200	2800
130	3000	2703
135	2900	2600
140	2700	2500
145	2500	2400
150	2400	2300
160	2200	2100
170	2000	1900
180	1800	1700
190	1600	1500
200	1400	1300

ALLOWABLE DEVIATION FROM CHART IN TANGENT SECTIONS: +600, -200 POUNDS/FORCE.

CABLE TENSION READINGS ARE TYPICALLY HIGHER IN CURVED CABLE SECTIONS.

NOTE:

1. TURNBUCKLES SHALL BE INSTALLED WITH A MINIMUM OF 1-1/2" THREAD ENGAGEMENT. TO ALLOW FOR MAINTENANCE/REPAIR ADJUSTMENTS AT A LATER DATE, TRINITY SUGGESTS INSTALLER UTILIZE NO MORE THAN 4" THREAD ENGAGEMENT.

2. WHEN CUTTING CABLE LENGTHS IN THE FIELD FROM CABLE REELS, IT MAY BE PERMISSIBLE TO UTILIZE A CABLE TORPEDO SPLICE (40993) BETWEEN TURNBUCKLES. DO NOT USE FOR CABLE LENSTH SHORTER THAN 100. PLEASE CONTACT TRINTY, CONSULT TRINTY'S MANUAL OR SPECIFIC AGENCY TO DETERMINE IF APPROPRIATE FOR SPECIFIC APPLICATION.

The classings and the information answer	The second second shall be a second second	SPEC				
HER-WAY PRODUCTS LLC (2005)	CASS-S3 (6:1 SLOPE)	SHIPPING WE				
AND THE NOW DECEMPTION OF TREETY HER-WAY PRODUCTS LLC: MARKING	4-CABLE GUARDRAIL	DRW LAS	110422010			
the develop for any purpose strike their the	SAFETY SYSTEM	CHK:				
for which it was specificary sumariad	SALETI STOLEM	SHT 3 OF 5	aze D			
LC, nor is any represented interaction of the second	TRINTY HIGHWAY	DWD NO:	RET			
PROJ CASS-53 6:1	PRODUCTS, LLC	SS-743				





STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
DAKOTA	0001-391	11	34

	PA	RIS LIST	- OCT TERMINAL POST No. 4-7 W	TH SOIL PLATE
	OTY P	AT No	TILE	Lbs / Each
	4	32456 5	A DAT MACHER NUT (AS53)	0.01
	2	37446	A LEY NUT (A102 342	0.01
	2	47.700		0.02
	4	58250 0	ABLE LOCK BOLT 1A307	0.05
	2	9021G E	EARING ANGLE (A36)	3,81
	1	33903A 3	SO-TL3 TERMINAL POST W SOIL P	LATE 42.25
	PAS	TSUST	COT TERMINAL POST No. 8-9 - W	TH SOL PLATE
£	OTY P	ART NO	TILE	Ebs/Each
	4	32456 6	15 DIA, HEX NUT (AS63)	0.01
	4	58256 (ABLE LOCK BOLT (A307)	0.12
	1940	anser 1	CONTRACTOR SOLP	unic 46.02
	P/	RTSUS	T-OCT TERMINAL POST No. 8-9-1	N CONCRETE
	QTY P	WRT NO	TITLE	Lbs/Each
	4	58360	ARIE LOCK BOLT (ASTT	0.01
	1	5836R	CONCRETE REINFORCING RING	0.12
	1	58378 8	LEEVE CAP - CASS-TERMINAL PC	GT 0.12
	1	5839B	LEEVE COVER - S3 ANCHOR POS	T 0.11
0	2	5915B #	A REBAR - TERMINAL POST	1.78
47790	1	339088	LEEVE - TERMINAL LINE POST	13.80
	1 3	339556 3	SO-TLA TERMINAL POST	32.42
	(3133)	HAT	POST OPTION 1 SHOWN (COT TERMINAL POST 4 IN CONGRETE)	9
	DTY PART	No	TITLE	Lbs/Each
	4 490 B 490	2G 1" FL	AT WASHER (F436)	0.11
	1 563	2G CRP	- 4th CABLE ASSEMBLY (50-51	116.90
	1 581	TG CRP	TOP CABLE ASSEMBLY (54'3')	107.57
	1 58	BG CRP	MIDDLE CABLE ASSEMBLY #8-0	3 98.06
	1 58	ING CRP	BOTTOM CABLE ASSEMBLY 1414	51 88.90
	4 320	SGICAS	S CABLE ERVICET	197
	utr PART 4 490 8 490 1 565 1 581 1 581 1 581 1 581 1 582 1 583	NG 2G 1" FL 2G CRP 7G CRP 8G CRP 9G CRP	TITLE AT WASHER (F236) EX NUT (A194 2H) - 4th CABLE ASSEMBLY (60-67) - TOP CABLE ASSEMBLY (64-37) - MIDDLE CABLE ASSEMBLY (64-37) - BOTTOM CABLE ASSEMBLY (64-37) - BOTTOM CABLE ASSEMBLY (64-37)	Lbs / Each 0.1: 0.3: 116.90 107.95 7] \$6.00 97] \$8.90

GENERAL NOTES:

Either flanged channel steel posts or S3x5.7 steel I beam posts shall be used, but post type shall be consistent thoughout the project. The S3x5.7 Steel I Beam post shall be used for the end posts.

All costs associated with furnishing and constructing the 3 cable guardrail anchor assembly including the concrete anchor, cable anchor bracket, compensating device, steel turnbuckle cable assembly, and necessary hardware shall be incidental to the contract unit price per each for "3 Cable Guardrail Anchor Assembly".

All costs associated with furnishing and constructing the 3 cable guardrail including posts, cable, cable splices, and hardware shall be incidental to the contract unit price per foot for "3 Cable Guardrail".

The following table and criteria shall apply to the arrangement of the Spring Cable End Assemblies (Compensation Devices) and Turnbuckle Cable End Assemblies:

LENGTH OF CABLE RUN	CRITERIA FOR ARRANGEMENT OF THE SPRING CABLE END ASSEMBLIES (COMPENSATION DEVICES) AND TURNBUCKLE CABLE END ASSEMBLIES
Less than 500'	Use turnbuckle on the approaching traffic end and compensating device on the other end of each individual cable, except in the W Beam to 3 Cable Transition where all compensating devices shall be provided at the bridge ends.
Greater than 500' to 1000'	Use compensating device on each end of each individual cable.
Greater than 1000'	Start new run by interlacing at last parallelpost as shown on sheet 2 of 6.

All Compensating Devices shall be attached to the cable anchor bracket when one end of the run is attached to a bridge.

Compensating Devices must have a spring rate of 450 \pm 50 pounds per inch and shall have a total available travel of 6 inches minimum.

The cable shall be retensioned after the initial 2 week pretension period in accordance with the following table:

CABLE TENSIONING SPECIFICATIONS														
Temperature Range (Degree F)	-20 to -11	-10 to -1	0 to 9	10 †o 19	20 †o 29	30 †o 39	40 †o 49	50 †o 59	60 †o 69	70 †o 79	80 †0 89	90 †o 99	100 †o 109	110 †o 120
Spring Compression (Inch)	4 ¹ /4	4	3¾	31/2	31⁄4	3	2¾	2 ¹ /2	2 ¹ /4	2	13⁄4	11/2	11/4	I

POST SPACING FOR HOP	RIZONTAL CURVES
Roadway & Curvature	Maximum Post Spacing (Ft)
I° and Less	16'
Greater than 1° to 8°	12'
Greater than 8° to 13°	8'
Greater than 13°	NOT ALLOWED

December 16, 2015

S PLATE NUMBER D D D O T **3 CABLE GUARDRAIL** 629.01 (LOW TENSION) Published Date: 1st Qtr. 2016 Sheet I of 6

Interm 1000 Maximum Interm 1000 Maximum Slip Base Anchor Linterm Assembly 2 cable Assembly 3 cable Assembly <	JODDS Anchor (Typ.) See Detail F	* *16'-0" **16'-0" **** * (-1/4",
Iono' Maximum Um Um Um Litermediate 3 Cable drail Anchorage Section 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0" 2'-0"	See Detail A & B and General Notes	<u>*16'-0"</u> Installation Line PLAN VIEW itermediate Anchorage Section)







Plot Scale -

lotted From - trwi1

..\S629 01 3 4.





ale - 1:200

Plotted From - trwi1nt

	STATE OF		PROJECT	SHEET	TOTAL
	SOUTH DAKOTA		0001-391	14	34
	Plotting Date:	04/0	1/2016		
	BACK VIEW	P 99. Grade 60.			
	0ng <u>% 1%</u> SIDE VIEW W	END POST CAN ccordance with ASTM A49	th ASTM A563 Grade DH. green enamel.		
	FRONT VIE	ath steel in a	36. conformance wi ih quality dark		
7/6 " Dio.	ALTERNATE ANCHOR PLATE	NNEL STEEL POST 3LE GUARDRAIL 1 be produced from high strer	mance with ASTM A709, Grade h ASTM A307. Nut shall be in c dance with ASTM F2329. plate shall be a baked on hig unfinished.		
76" Dia 179.) 179.) 179.) 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170. 170.	ANCHOR PLATE	FLANGED CHAN GENERAL NOTES: FOR 3 CAB Flanged channel steel posts shall	Anchor plates shall be in confor Bolt shall be in conformance with Bolt shall be in conformance with Bolt shall be galvanized in accor Finish for the post and anchor Alternate anchor plate may be u		
3 CABLE GUARDRAIL (LOW TENSION)			PLATE NUMBER 629.01		
			Sheet 6 of 6		



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Plotted From - trwi1nt







- Plotted From - trwi1nt23

ot Scale -

	STATE OF			PROJ	IECT		SHEET	TOTAL SHEETS	
	SOUTH DAKOTA			0001-3	391		16	34	
'-4∛₄" '-7" (Post Length)	Plotting Dat		04/0 ⁻	u/2016	291	including	10		
ncrete to b of lower te)	74	ANCHOR PC	rm to ASTM A709,Grade 3	ave a minimum tensile str		ip base anchor assembly b post, anchor post, stee cidental to the contract			
S3x5.7 Steel Post ANCHOR POST PLATE			section. Post and plates shall confor ASTM A123.	ree strands (7 wires per strand) and h	\SHTO MI03 (ASTM 27-73) grade U-60-30.	l constructing the 3 cable guardrail sli sket, anchor bolts, plates, slip base stut ps, and necessary hardware shall be inc rail Slip Base Anchor Assembly".			02 03.dan
and and a constraints of the second s	KEEPER PLATE	ENERAL NOTES:	nchor post shall be a 53x5.7 rolled ste hall be galvanized in accordance with A	4" round wire cable shall consist of thr of 25,000 pounds.	ast steel elements shall conform to AA	Il costs associated with furnishing and he concrete anchor, cable anchor brac urnbuckles, cable ends, U-bolt cable clip urit price per each for "3 Cable Guardr			File\S629 10
					NUMBER				
ANCHOR ASSEMBLY				5	bż	3 of 3			





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	STATE OF		PROJE	ECT	SHEET	TOTAL SHEETS
	DAKOTA		0001-391			34
	Plotting Date:	04/0)1/2016			
 (a) 4:1 inslope (b) 4:1 inslope (c) 4:1 inslope (c)	The W beam guardrail flared end terminal shall be installed according to the manufacturer's installation instructions. The W beam guardrail flared end terminal shall be installed according to the manufacturer's installation instructions. ** An adhesive object marker shall be placed on the end section buffer or extruder after placement of the end section buffer or extruder. The adhesive object marker dimensions may be 16" x 16" or other variation.	The subject marker are section butter or extruder. A minimum of 256 square incres of object marker reflective sheeting area is required. The reflective sheeting shall be fluorescent yellow super or very high intensity. All costs for furnishing and installing the adhesive object marker shall be incidental to various contract items.	Asphalt concrete shall be the same type used elsewhere on the project or shall be as specified in the plans. If asphalt concrete is not specified in the plans, the asphalt concrete shall conform to the Specifications for D "Asphalt Concrete Composite."	The groundar material shall be the same type used elsewhere on the project or shall be as specified in the plans. The groundar material type is not specified in the plans, the material shall conform to the Specifications for "Base Course". The granular material shall be placed the same thickness as the mainline surfacing or as provide the same thickness as the mainline surfacing or as the plans. The plans.		
RDRAIL FLARED) end tei	RMINAL		-		
			S	heet I of I		

Scale - 1:20

	STATE OF	PROJECT		SHEET	TOTAL SHEETS	
	SOUTH DAKOTA	0001-391		91 2		34
	Plotting Date:	04/01/2016				
F 0.11' C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C <th>Asphalt concrete shall be the same type used elsewhere on the project or shall be as specified in the plans. If asphalt concrete is not specified in the plans, the asphalt concrete shall conform to the Specifications for "Asphalt Concrete Composite." Granular material shall be the same type used elsewhere on the project or shall be as specified in the</th> <th>specifications in granular material type is not specified in the prants, the material shall be placed the same thickness as the mainline surfacing or as specified in the plans. ****An adhesive object marker shall be placed on the end section buffer after placement of the end section buffer after buffer after placement of the end section buffer after buffer buffer</th> <th>the end section buffer. A minimum of 256 square inches of object marker reflective sheeting area is required. The reflective sheeting shall be fluorescent yellow super or very high intensity. All costs for furnishing and installing the adhesive object marker shall be incidental to various contract items.</th> <th> Construction of the weak of the weak of the weak of the the the the the the the the the the</th> <th></th> <th></th>	Asphalt concrete shall be the same type used elsewhere on the project or shall be as specified in the plans. If asphalt concrete is not specified in the plans, the asphalt concrete shall conform to the Specifications for "Asphalt Concrete Composite." Granular material shall be the same type used elsewhere on the project or shall be as specified in the	specifications in granular material type is not specified in the prants, the material shall be placed the same thickness as the mainline surfacing or as specified in the plans. ****An adhesive object marker shall be placed on the end section buffer after placement of the end section buffer after buffer after placement of the end section buffer after buffer buffer	the end section buffer. A minimum of 256 square inches of object marker reflective sheeting area is required. The reflective sheeting shall be fluorescent yellow super or very high intensity. All costs for furnishing and installing the adhesive object marker shall be incidental to various contract items.	 Construction of the weak of the weak of the weak of the the the the the the the the the the		

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STATE OF	PROJECT	SHEET	TOTAL SHEETS
DAKOTA	0001-391	29	34
Plotting Date:	04/01/2016		

				-	TOTAL
	STATE OF SOUTH		PROJECT	SHEET	SHEETS
		0001-391		30	34
	Fiolung Date:	04/01			
<pre></pre>	 Finished embankment surfacing cross slope shall be the same as the roadway cross slope. Finished embankment surfacing cross slope transition. 	 Finished embankment surfacing cross slope shall be 10:1, however, a cross slope flatter than 10:1 may be used to obtain the 6" minimum thickness of granular material. 	CENERAL NOTES: Asphalt concrete shall be the same type used elsewhere on the project or shall be as Asphalt concrete shall be the same type used elsewhere on the plans, the asphalt concrete shall conform to the Specifications for "Asphalt Concrete Composite." Granular material shall be the same type used elsewhere on the project or shall be as specified in the plans. If granular material type is not specified in the plans, the material shall conform to the Specifications for "Base Course".		
ъ С			February IO, 2014		
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l median protection			Sheet I of I		
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Published Date: 1st Qtr. 2016	S D D O T	DELINEATION
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