

STORM WATER PERMIT None Required

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| DAKOTA | 090 E-451 | 1 | 16 |
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INDEX OF SHEETS

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ESTIMATE OF QUANTITIES

| BID ITEM NUMBER | ITEM | QUANTITY | UNIT |
|--------------------|------------------------------------|----------|------|
| 009E0010 | Mobilization | Lump Sum | LS |
| 110E0300 | Remove Concrete Curb and/or Gutter | 12 | Ft |
| 110E1100 | Remove Concrete Pavement | 7.6 | SqYd |
| 120E0010 | Unclassified Excavation | 15 | CuYd |
| 230E0020 | Contractor Furnished Topsoil | 610 | CuYd |
| 260E2010 | Gravel Cushion | 37.0 | Ton |
| 380E1000 | 6" Miscellaneous PCC Pavement | 11.8 | SqYd |
| 380E1070 | 10" Miscellaneous PCC Pavement | 69.0 | SqYd |
| 380E6110 | Insert Steel Bar in PCC Pavement | 70 | Each |
| 634E0110 | Traffic Control Signs | 219.0 | SqFt |
| 634E0120 | Traffic Control, Miscellaneous | Lump Sum | LS |
| 634E0275 | Type 3 Barricade | 2 | Each |
| 634E0420 | Type C Advance Warning Arrow Board | 1 | Each |
| 650E0090 | Type B69 Concrete Curb and Gutter | 98 | Ft |
| 650E4689 | Modified Type P9 Concrete Gutter | 34 | Ft |
| 730E0210 | Type F Permanent Seed Mixture | 31 | Lb |
| 731E0100 | Fertilizing | 52 | Lb |
| 732E0250 | Fiber Mulching | 799 | Lb |
| 734E0102 | Type 2 Erosion Control Blanket | 1,866 | SqYd |
| 900E5147 | Articulated Concrete Mattress | 120.0 | SqYd |

SPECIFICATIONS

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

ENVIRONMENTAL COMMITMENTS

The SDDOT is committed to protecting the environment and uses Environmental Commitments as a communication tool for the Engineer and Contractor to ensure that attention is given to avoid, minimize, and/or mitigate an environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency with permitting authority can delay a project if identified 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. During construction, the Project Engineer will verify that the Contractor has met Environmental Commitment requirements. These environmental commitments are not subject to change without prior written approval from the SDDOT Environmental Office.

Additional guidance on SDDOT's Environmental Commitments can be accessed through the Environmental Procedures Manual found at: <https://dot.sd.gov/media/documents/EnvironmentalProceduresManual.pdf >

For guestions regarding change orders in the field that may have an effect on an Environmental Commitment, the Project Engineer will contact the Environmental Engineer at 605-773-3180 or 605-773-4336 to determine whether an environmental analysis and/or resource agency coordination is necessary.

Once construction is complete, the Project Engineer will review all environmental commitments for the project and document their completion.

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 pits, or staging areas associated with the project, cease construction activities in the affected area until the Whooping Crane departs and immediately contact the Project Engineer. The Project Engineer will contact the Environmental Office so that the sighting can be reported to USFWS.

COMMITMENT C: WATER SOURCE

The Contractor will not withdraw water with equipment previously used outside the State of South Dakota or previously used in aquatic invasive species waters within South Dakota without prior approval from the SDDOT Environmental Office. Thoroughly wash all construction equipment to prevent and control the introduction and spread of invasive species into the project vicinity.

Action Taken/Required:

The Contractor will obtain the necessary permits from the regulatory agencies such as the South Dakota Department of Environment and Natural Resources (DENR) and the United States Army Corps of Engineers (USACE) prior to water extraction activities.

Additional information and mapping of Aquatic Invasive Species in South Dakota can be accessed at: http://sdleastwanted.com/maps/default.aspx.

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

Action Taken/Required:

ROW.

The waste disposal site(s) will 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) will 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 Environmental Office and the Project Engineer.

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

- Dumping Allowed".
- 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) will be incidental to the various contract items.

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Construction and/or demolition debris may be disposed of within the Public

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

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

COMMITMENT I: HISTORICAL PRESERVATION OFFICE CLEARANCES

State Historical Preservation Office (SHPO or THPO) concurrence has not been obtained for this project.

Action Taken/Required:

All earth disturbing activities not designated within the plans require a cultural resource review prior to scheduling the pre-construction meeting. 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 will arrange and pay for a record search and when necessary, a cultural resource survey. 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 if the site was previously surveyed; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

The Contractor will provide ARC with the following: a topographical map or aerial view of 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 will submit the cultural resources survey report to SDDOT Environmental Office, 700 East Broadway Avenue, Pierre, SD 57501-2586. 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.

In the event of an inadvertent discovery of human remains, funerary objects, or if evidence of cultural resources is identified during project construction activities, then such activities will immediately cease and the Project Engineer will be immediately notified. The Project Engineer will contact the SDDOT Environmental Office to determine an appropriate course of action.

The Contractor is responsible 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 will not utilize a site known or suspected of having contaminated soil or water. The Contractor will provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

UNCLASSIFIED EXCAVATION

Unclassified excavation is provided for removal of material and site preparation prior to placement of 10" Miscellaneous PCC Pavement and for reshaping of erosional areas. Excavated waste material may be used to shape behind the new PCC Pavement. Any excess excavated material not used for the project will be treated as waste material.

SAWCUTTING EXISTING CURB AND GUTTER

Where Curb and Gutter and pavement is removed the Contractor will saw the existing Curb and Gutter to a vertical face perpendicular to the roadway. The cost for sawcutting will be incidental to the contract unit price per foot for Remove Concrete Curb and/or Gutter.

Note to Contractor:

The existing C&G at exit 32 is poured monolithically with a portion of the pavement. Additional work beyond normal curb and gutter removal will be reauired.

GRAVEL CUSHION

Gravel Cushion will be placed to a depth of 5" and compacted to the satisfaction of the Engineer prior to placement of the 10" Miscellaneous PCC Pavement at Exit 30.

Gravel Cushion will also be used for Curb and Gutter installation at all three locations.

Water for compaction will be to the satisfaction of the Engineer.

All cost for water for compaction will be incidental to the unit price per ton for Gravel Cushion.

STEEL BAR INSERTION

Steel bars will be used to tie new pavement and curb and gutter to the existing pavement.

The Contractor will insert the Steel Bars (No.5 x 30 inch epoxy coated deformed tie bars) into drilled holes in the existing concrete pavement. An epoxy resin adhesive must be used to anchor the steel bar in the drilled hole.

The steel bars will be cut to the specified length by sawing or shearing and will be free from burring or other deformations.

Epoxy coated deformed steel bars will be inserted on 48-inch centers in the longitudinal joint and will be placed a minimum of 15 inches from the existing transverse contraction joint.

SEQUENCE OF OPERATIONS

The Contractor will submit a sequence of operations for approval two weeks prior to the preconstruction meeting.

GENERAL TRAFFIC CONTROL

Existing guide, route, informational logo, regulatory, and warning signs will be temporarily reset and maintained during construction. Removing, relocating, covering, salvaging, and resetting of existing traffic control devices, including delineation, will be the responsibility of the Contractor. Cost for this work will be incidental to the contract unit prices for the various items unless otherwise specified in the plans. Any delineators and signs damaged or lost will be replaced by the Contractor at no cost to the State.

All temporary traffic control sign locations will be set in the field by the Contractor and verified by the Engineer prior to installation.

All construction operations will be conducted in the general direction of traffic movement.

If there is a discrepancy between the traffic control plans, standard plates, and the MUTCD, whichever is more stringent will be used, as determined by the Engineer.

Unless otherwise stated in these plans, work will not be allowed during hours of darkness.

Fixed location signing placed more than 4 calendar days prior to the start of construction will be covered or laid down until the time of construction. The covers must be approved by the Engineer prior to installation. The cost of materials, labor, and equipment necessary to complete this work will be incidental to other contract items. No separate payment will be made.

All fixed location signs, sign posts, and breakaway bases will be removed within 7 calendar days following pavement marking.

traveled way

| | | | NAL ROAD |) | |
|--------------|----------------------------------|--------------------|-----------|---------------------|------|
| SIGN CODE | SIGN DESCRIPTION | NUMBER | SIGN SIZE | SQFT PER SIGN | SQFT |
| W4-2 | LEFT or RIGHT LANE ENDS (symbol) | 2 | 48" x 48" | 16.0 | 32.0 |
| W5-4 | RAMPNARROWS | 2 | 48" x 48" | 16.0 | 32.0 |
| W20-1 | ROAD WORK AHEAD | 6 | 48" x 48" | 16.0 | 96.0 |
| W20-5 | LEFT or RIGHT LANE CLOSED AHEAD | 2 | 48" x 48" | 16.0 | 32.0 |
| G20-2 | END ROAD WORK | 6 | 36" x 18" | 4.5 | 27.0 |
| | | CON DETOUR S | 219.0 | | |

CONTRACTOR FURNISHED TOPSOIL

The Contractor will be required to furnish and place 4 inches of topsoil on areas as determined by the Engineer during construction.

At Exit 30 EB On Ramp Topsoil will placed at various locations adjacent to the south side of the EB On Ramp as directed by the Engineer.

At the Exit 32 EB on ramp Topsoil will be placed at various locations between EB I-90 and the EB On Ramp as directed by the Engineer

Contractor furnished topsoil will be free from stones, coarse gravel, or similar objects larger than 3/4 inch in diameter. Brush, stumps, roots, wood, objectionable weeds, liter, or any other material which may be harmful to plant growth will not be allowed. Organic material will be decomposed.

All costs to furnish and place the Contractor furnished topsoil will be incidental to the contract unit price per cubic yard for Contractor Furnished Topsoil.

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At no time will a vertical drop-off of greater than 3 inches be left overnight adjacent to the traveled way. The Contractor will utilize embankment material to ensure a 3-inch vertical drop-off is not exceeded. The slope of the embankment material will not be steeper than a 4:1 within 30 feet of the

INVENTORY OF TRAFFIC CONTROL DEVICES

FERTILIZING

A commercial fertilizer with a minimum guaranteed analysis of 13-13-13, 18-46-0, 11-52-0, or an approved alternate fertilizer sold for use as a lawn starter fertilizer will be applied to all areas designated for permanent seeding. The application rate of fertilizer will be 3 pounds per 1,000 square feet.

PERMANENT SEEDING

The areas to be seeded consist of all newly graded areas within the project limits except for the top of roadways and temporary easements under cultivation.

Type F Permanent Seed Mixture will consist of the following:

| Grass Species | Variety | Pure Live Seed (PLS) (Pounds/Acre) |
|---|--|--|
| Western Wheatgrass | Arriba, Flintlock, Rodan, Rosana, Walsh | 21 |
| Green Needlegrass | Lodorm, AC Mallard Ecovar | 12 |
| Sideoats Grama | Butte, Pierre | 9 |
| Blue Grama | Bad River | 6 |
| Oats or Spring Wheat: April through May; | | 30 |
| Winter Wheat: August through November | | |
| | Total: | 78 |

FIBER MULCHING

Fiber mulch will be applied in a separate operation following permanent seeding.

An additional 2% by weight of tackifier will be added to the fiber mulch product selected from the approved product list. If the product selected has guar gum tackifier included, then the additional 2% of tackifier will be guar gum. If the product selected has synthetic tackifier included, then the additional 2% of tackifier will be synthetic.

Fiber mulch will be applied at the rate of 2,000 pounds per acre.

The Contractor will allow the fiber mulch to cure a minimum of 18 hours prior to watering or any storm event to ensure proper cohesion between the soil and fiber particles.

All costs for the additional tackifier added to the fiber mulch including labor, equipment, and materials will be incidental to the contract unit price per pound for "iber Mulching.

The fiber mulch provided will be from the approved product list. The approved product list for fiber mulch may be viewed at the following internet site:

http://apps.sd.gov/HC60ApprovedProducts/main.aspx

EROSION CONTROL BLANKET

At Exit 30 EB On Ramp erosion control blanket will be placed adjacent to the concrete pavement of the EB On Ramp as directed by the Engineer.

At Exit 32 EB On Ramp erosion control blanket will be placed adjacent to the concrete pavement of the EB I-90 lane as directed by the Engineer.

ARTICULATED CONCRETE MATTRESS

Articulated concrete mattress will be installed at locations noted in the table and at locations determined by the Engineer during construction.

Installation of the articulated concrete mattress will be in accordance with the manufacturer's installation instructions.

All costs for furnishing and installing the articulated concrete mattress including hauling, materials, equipment, labor, necessary excavation, and incidentals necessary will be paid for at the contract unit price per square yard for Articulated Concrete Mattress.

The articulated concrete mattress will be as shown below or an approved equal:

Product

Standard Flexamat

Flexamat Permanent Site Solutions Cincinnati, Ohio Phone: (513) 772-6690 www.flexamat.com

Manufacturer

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| | Table of Material Quantities | | | | | | | | | | | | | | |
|----------|------------------------------|----------|-------------|----------|----------|---------------|---------|---------------|--------------|------------|---------|-------------|----------|-----------|-------------|
| | | | Remove | | Modified | | | | | | Type 2 | | | Type F | |
| | | Remove | Concrete | Type B69 | Type P9 | 6" | | 10" | Insert Steel | Contractor | Erosion | | | Permanent | Articulated |
| | Unclassified | Concrete | Curb and/or | Curb & | Concrete | Miscellaneous | Gravel | Miscellaneous | Bar in PCC | Furnished | Control | | Fiber | Seed | Concrete |
| | Excavation | Pavement | Gutter | Gutter | Cutter | PCC Pavement | Cushion | PCC Pavement | Pavement | Topsoil | Blanket | Fertilizing | Mulching | Mixture | Mattress |
| Location | (CuYd) | (SqYd) | (Ft) | (Ft) | (Ft) | (SqYd) | (Ton) | (SqYd) | (Each) | (CuYd) | (SqYd) | (Lbs) | (Lbs) | (Lbs) | (SqYd) |
| Exit 14 | | | 6 | 34 | 17 | 5.9 | 6.2 | | 19 | 10 | | 1.8 | 27.4 | 1.0 | 40 |
| Exit 30 | 15 | 7.6 | | | | | 22.0 | 69.0 | 26 | 300 | 933 | 25.1 | 385.8 | 15.0 | |
| Exit 32 | | | 6 | 64 | 17 | 5.9 | 8.8 | | 25 | 300 | 933 | 25.1 | 385.8 | 15.0 | 80 |
| Total | 15 | 7.6 | 12 | 98 | 34 | 11.8 | 37.0 | 69.0 | 70 | 610 | 1866 | 52 | 799 | 31 | 120 |

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EXIT 30 - 190 PCC PAVEMENT JOINT LAYOUT

LEGEND:

Insert Steel Bar —— SB —— SB ——



10" Misc. PCCP will be poured monolithically with curb and gutter as per Standard Plate 380.11. Transverse contraction joints will match existing joints. Dowel bars will not be required

SD 34 (Lazelle Street) N \bigcirc Special Reinforcement Fillet Area See Detail Above and Note A (69.0 SqYd) 1.90 Eastbound On Ramp Exit 30

Note A:

Special Reinforcement PCCP Area will be reinforced with #5 rebar 18" on center, both directions. Cost for furnishing and placing the rebar will be incidental to the contract unit price per square yard for "10" Miscellaneous PCC Pavement".



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No. 5 Deformed Steel Bars spaced 18" Center to center



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MODIFIED TYPE P9 CONCRETE GUTTER



TRANSVERSE SECTION

The stated radii on the plans and cross sections refer to this line and it shall also be the basis for horizontal linear foot measurement and payment.



GENERAL NOTES:

The concrete for the Modified Type P9 Concrete Gutter shall comply with the requirements of the Standard Specifications for Class M6 Concrete.

When concrete gutter longitudinally adjoins new concrete pavement, the method of attachment shall be by one of the methods shown on Standard Plate 380.11.

Transverse contraction joints shall be constructed at 10' intervals in the concrete gutter except when concrete gutter is constructed adjacent to mainline PCC pavement. When concrete gutter is constructed adjacent to mainline PCC pavement, a transverse contraction joint shall be constructed in the concrete gutter at each mainline PCC pavement transverse contraction joint location.

When concrete gutter is placed monolithically with mainline PCC pavement. the transverse contraction joints in the concrete gutter shall be sawed and sealed the same as the transverse contraction joints in the mainline PCC pavement.

When concrete gutter is not placed monolithically with the mainline PCC pavement and when the adjacent mainline surfacing is not PCC concrete, the transverse contraction joints in the concrete gutter shall be 1 1/2 inches deep if formed in the fresh concrete using a suitable grooving tool. If a saw is used to cut the contraction joints, then the depth of the joint shall be at least 1/4 the thickness of the concrete.

Curb along 6" Miscellaneous PCC Pavement will be poured monolithically and will be measured and paid as 6" Miscellaneous PCC Pavement.



Flexamat Typical Section

Recess Block to Existing Grade Height





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| SAWED | | Poured Monolithically) | BARS | | | |
| | | | | | | |
| Sawed Joint filled | with Hot — | 1/4" | | | | |
| | nt Sealer | | | | | |
| ר אין אין New | PCC Pavem | | w PCC Pave | ement • | | |
| | | 15" |] | Δ | | |
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| | | | uro. | | | |
| | | No. 5 Epoxy Coated Deformed | Tie Bars | | | |
| | | | | | | |
| | T = F | Pavement Thickness | | | | |
| | | | | | | |
| GENERAL NOTES (For the de | tail above): | | | | | |
| The epoxy coated deformed tie | bars will be | spaced in accordance with the t | following ta | ble. | | |
| | | | | | | |
| | Transv | erse Contraction Number of | | | | |
| | Jo | Dint Spacing Tie Bars | | | | |
| | 1 | 10.5' to 14' 3 | | | | |
| | | 14.5' to 18' 4 18.5' to 22' 5 | | | | |
| | | | | | | |
| The tie bars will be placed a mi | nimum of 15 | inches from the transverse con | traction join | its. | | |
| The required number of tie bars a maximum space of 48 inches | as shown in center to ce | n the table will be uniformly space nter. The maximum tie bar spa | ced within e cing will ap | ach panel with ply to tie bars | | |
| within each panel. | | | | | | |
| The first saw cut to control crac | king will be a | a minimum of 1/3 the thickness of the width for the installation of the | of the pave | ment. Additional | | |
| sealer is necessary. | | | | | | |
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| | | | | June 26, 20 | 9 | |
| | S | | | PLATE NUMBER | , | |
| | | PCC PAVEMENT LONGITUDINAL | 380.10 | | | |
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| I Work (Feet) 0 - 30 25 35 - 45 25 50 50 * 60 - 80 50 * 60 - 80 50 * * Spacing is 40' for 42" cones. Channelizing Device A" White Temporary Pavement Marking * Need and safe speed to be determined by the Highway Authority. | | S D | Γ | | GUID | ES I | FOF |
|--|--|--------|---|--|------|------|-----|
| Work (Feet) (M.P.H.) (G) 0 - 30 25 35 - 45 25 50 50 * 60 - 80 50 * * Spacing is 40' for 42" cones. Channelizing Device 4" White Temporary Pavement Marking ** Need and safe speed to be determined by the Highway Authority. | Temporary pavement markings shall be used if traffic control must remain overnight The channelizing devices shall be drums or 42° cones if traffic control must remain overnight. Truck off-tracking should be considered when determining whether the IO-foot minimum lane width is adequate. | | ţ | | ţ | | |
| | Work (Feet) (M.P.H.) (G) 0 - 30 25 35 - 45 25 50 50 * 60 - 80 50 * * Spacing is 40' for 42" cones Channelizing Device 4" White Temporary Pavement Marking ** Need and safe speed to be determined by the Highway Authority. | | | | Ý | 7 | |













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