

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	127-172	1	16
Plotting Date: 02/15/2012			

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED

PROJECT 127-172
SD HIGHWAY 127
ROBERTS COUNTY

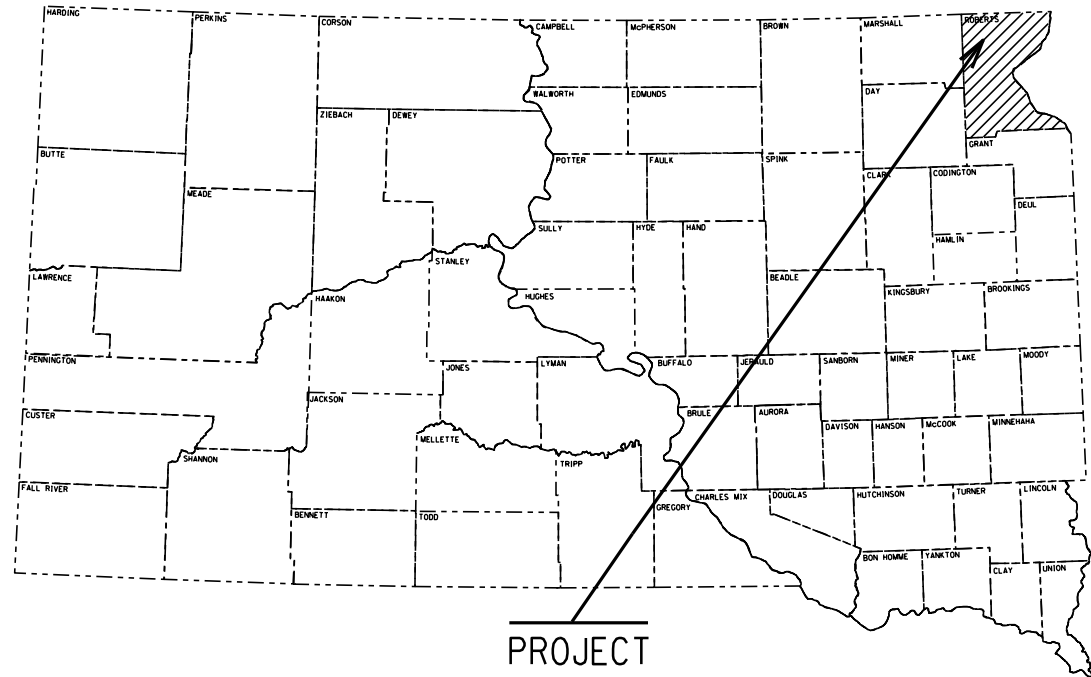
REPLACE TWIN 54" CULVERTS

PCN 12GG

INDEX OF SHEETS

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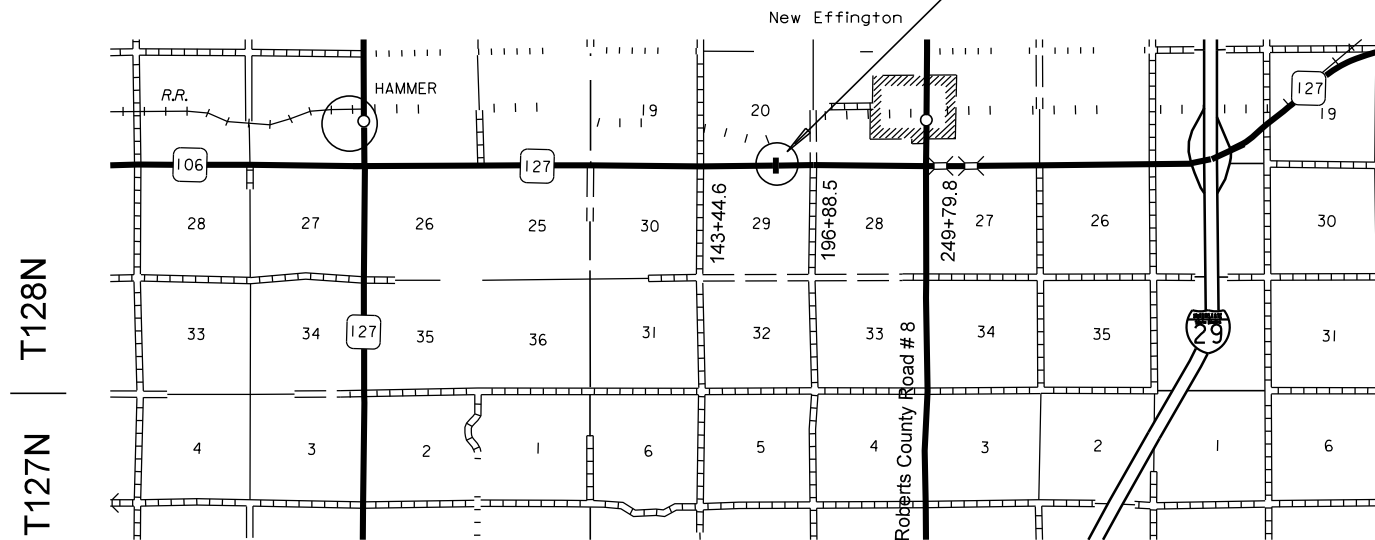
PLOT SCALE - 1"=900'



PROJECT

127-172
STA. 189+69
MRM 230.65

R51W | R50W



DESIGN DESIGNATION
127-172 - PCN 12GG

ADT (2010)	710
ADT (2030)	736
DHV	79.5
D	50%
T DHV	8.6%
T ADT	18.8%

STORM WATER PERMIT
Major Receiving Body of Water: Local Potholes
Total Project Area: 0.31 Acres
Area Disturbed: 0.22 Acres
Project Begin Point: 45.848771, -96.940784

GROSS LENGTH	88	FEET	0.017	MILES
LENGTH OF EXCEPTIONS	0	FEET	0.000	MILES
NET LENGTH	88	FEET	0.017	MILES

PLOTTED FROM - TRVAINT14

FILE - ... \TITLE.DGN

PLOT NAME - 1

ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	Quantity	UNIT
009E0010	Mobilization	Lump Sum	LS
110E0500	Remove Pipe Culvert	140	Ft
110E1010	Remove Asphalt Concrete Pavement	391	SqYd
110E1700	Remove Silt Fence	50	Ft
120E0600	Contractor Furnished Borrow	111	CuYd
120E9000	Pit Run Material	956	Ton
260E1010	Base Course	190	Ton
320E1200	Asphalt Concrete Composite	130.4	Ton
421E0100	Pipe Culvert Undercut	91	CuYd
450E0212	54" RCP Class 2, Furnish	140	Ft
450E0220	54" RCP, Install	140	Ft
450E2040	54" RCP Flared End, Furnish	4	Each
450E2041	54" RCP Flared End, Install	4	Each
634E0100	Traffic Control	658	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
700E0110	Class A Riprap	46	Ton
700E0310	Class C Riprap	160	Ton
734E0010	Erosion Control	Lump Sum	LS
734E0604	High Flow Silt Fence	100	Ft
734E0610	Mucking Silt Fence	13.9	CuYd
734E0620	Repair Silt Fence	50	Ft
831E0110	Type B Drainage Fabric	288	SqYd

SPECIFICATIONS

Standard Specifications for Roads and Bridges, 2004 Edition and Required Provisions, Supplemental Specifications and/or Special Provisions as included in the Proposal.

SEQUENCE OF OPERATIONS

The following Sequence of Operations shall be adhered to. Any changes must be approved in writing by the Area Engineer prior to changes being made.

1. Install traffic control signage and close roadway to traffic.
2. Complete dewatering of site as needed.
3. Complete topsoil removal and stockpile topsoil.
4. Complete asphalt concrete removal.
5. Complete culvert removal / replacement.
6. Complete pipe backfill.
7. Complete base course placement operations.
8. Complete repairs of shoulder inslopes.
9. Complete riprap placement.
10. Complete asphalt paving operations.
11. Complete erosion control and all remaining project items.
12. Remove traffic control and open roadway to traffic.

GENERAL NOTES

All waste and excess material generated from the various construction activities shall be removed from the ROW as determined by the Engineer.

TRAFFIC CONTROL

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

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

Work activities during non-daylight hours are subject to prior approval.

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

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

To facilitate the replacement of 54" Cross Pipes it will be necessary for the Contractor to close the site location on SD 127. The Contractor shall notify the SDDOT a minimum of 10 days prior to beginning the project so that proper closure notice can be given. The Contractor shall close SD 127 according to the Road Closure Layout provided. At no time shall work commence without proper notification or signing in place.

WATER SOURCE

The Contractor shall not withdraw water with equipment previously used outside the State of South Dakota without prior approval from the DOT Environmental Office.

The DOT Environmental Office contact is the Environmental Project Scientist, 605-773-3268. The WATER SOURCE plan note does not relieve the Contractor of his/her responsibility to obtain the necessary permits from other agencies such as the Department of Environment and Natural Resources (DENR) and the United States Army Corps of Engineers (COE).

UTILITIES

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

WASTE DISPOSAL SITE

The Contractor will be required to furnish a site(s) for the disposal of construction/demolition debris generated by this project.

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

The waste disposal site(s) shall be managed and reclaimed in accordance with the following from the Administrative Rules of South Dakota (Solid Waste) Article 74:27 administered 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 Engineer.

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

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

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

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

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

HISTORICAL PRESERVATION OFFICE CLEARANCES

To obtain State Historical Preservation Office (SHPO) clearance, a cultural resources survey may need to be conducted by a qualified archaeologist. In lieu of a cultural resources survey, the Contractor could request a records search

HISTORICAL PRESERVATION OFFICE CLEARANCES (Continued)

from Jim Donohue, State Archaeological Research Center (SARC). Provide SARC 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 no artifacts have been found on the site. The Contractor shall arrange and pay for the cultural resource survey and/or records search.

If any earth disturbing activities occur within the current geographical or historic boundaries of any South Dakota reservation, the Contractor shall obtain Tribal Historical Preservation Office (THPO) clearance. If no THPO exists, the required SHPO clearance shall suffice, with documentation of Tribal contact efforts provided to SHPO.

To facilitate SHPO or THPO responses, the Contractor should submit a records search or cultural resources survey report to the DOT Environmental Engineer, 700 East Broadway Avenue, Pierre, SD 57501-2586 (605-773-3268). Allow 30 days from the date this information is submitted to the Environmental Engineer for SHPO/THPO approval. The Contractor is responsible for obtaining all required permits and clearances for staging areas, borrow sites, waste disposal sites, and all material processing sites. The Contractor shall provide the required permits and clearances to the Engineer at the preconstruction meeting.

WORK AFFECTING WATERWAYS

Storm Water

The Contractor is advised this project is regulated under the Phase II Storm Water Regulations and must receive coverage under the DENR General Permit for Construction Activities. A Notice of Intent (NOI) will be submitted to DENR a minimum of 15 days prior to project start by the DOT Environmental Office. A letter must be received from DENR that acknowledges project coverage under this general permit before project start. The Contractor is advised that permit coverage may also be required by offsite activities, such as borrow and staging areas, which are the responsibility of the Contractor.

A major component of the storm water construction permit is development and implementation of a storm water pollution prevention plan (SWPPP). This plan is a joint effort and responsibility of the DOT and the Contractor. The SWPPP is a dynamic document and is to be available on-site at all times. Information on storm water requirements and SWPPP are available on the following websites:

DOT: http://www.sddot.com/pe/projdev/environment_stormwater.asp
 DENR: <http://www.denr.sd.gov/des/sw/stormwater.aspx>

Surface Water Quality

The Contractor is advised the South Dakota Surface Water Quality Standards, administered by the Department of Environment and Natural Resources (DENR), apply to this project.

Surface Water Discharge

If construction dewatering is required, the Contractor is required to obtain a Surface Water Discharge Permit from the DENR. Contact the DENR Surface Water Program at 605-773-3351 to apply for a permit.

CONTRACTOR FURNISHED BORROW

The Contractor shall provide a suitable site for Contractor furnished borrow material. The Contractor is responsible for obtaining all required permits and clearances for the borrow site. The borrow material shall be approved by the Engineer.

Contractor Furnished Borrow shall be used to repair inslopes to the satisfaction of the Engineer. along the project in preparation to receive Riprap. The plans quantity for CONTRACTOR FURNISHED BORROW as shown in the Estimate of Quantities will be the basis of payment for this item.

Compaction of Contractor Furnished Borrow on the inslopes shall be to the satisfaction of the Engineer.

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

PIPE REPLACEMENT

At the time these plans were prepared, the twin pipe location was partially flooded and significant measures to dewater the site can be anticipated. The Contractor is encouraged to thoroughly investigate the site prior to bidding. No separate payment for dewatering will be made.

Prior to working on the site, a complete dewatering plan shall be submitted for approval to the Engineer.

After the existing pipes have been removed, the area shall be undercut to a depth of 1 foot and backfilled with pit run material. Compaction of the backfill material shall be to the satisfaction of the Engineer. The undercut area shall extend 2 feet from the outermost diameter on both sides of the pipe with the back of the excavated area being sloped at a 2:1 upward to the top of the roadway surface.

Pipe flow line shall be as shown on the typical pipe section layout. This may require that ditches be excavated in each direction from the pipe ends to maintain proper water flow through the pipe. The excavated material shall become the property of the Contractor for his disposal and may be used as Contractor Furnished Borrow. All costs associated with this work shall be incidental to various bid items.

The remainder of the pipe shall be backfilled with pit run as approved by the Engineer. The pit run shall be tapered outward at a slope of 2:1 to eliminate a vertical trench of granular backfill material. Compaction of backfilled material shall be to the satisfaction of the Engineer.

All costs excavate and dispose of the material to the bottom of the pipe and slope the excavating limits at a 2:1 backslope shall be incidental to the contract unit price per ton for PIT RUN MATERIAL. All removed pipes shall become the property of the Contractor for his disposal. Pipe culvert undercut shall be paid for at the contract unit price for PIPE CULVERT UNDERCUT per Cubic Yard.

Pit Run Material shall be used as backfill up to 1.5' below the existing pavement. A depth of 1' of Base Course shall be placed above the pit run backfill. A depth of 6" of Asphalt Concrete Composite shall be placed on compacted Base Course prior to opening the roadway to traffic.

TABLE OF MAINLINE CROSS PIPE REPLACEMENT, BACKFILL AND SURFACING

Station	Pit Run (ton)	Base Course (ton)	Asphalt Concrete Composite (ton)	Distance From Road Surface to Pipe Flowline measured at Centerline	Distance from Centerline of Pipes to End of 2:1 Slope (Feet) Ah & Bk
SD 127 189+69	956	190	130.4	9.5'	44
Totals	956	190	130.4		

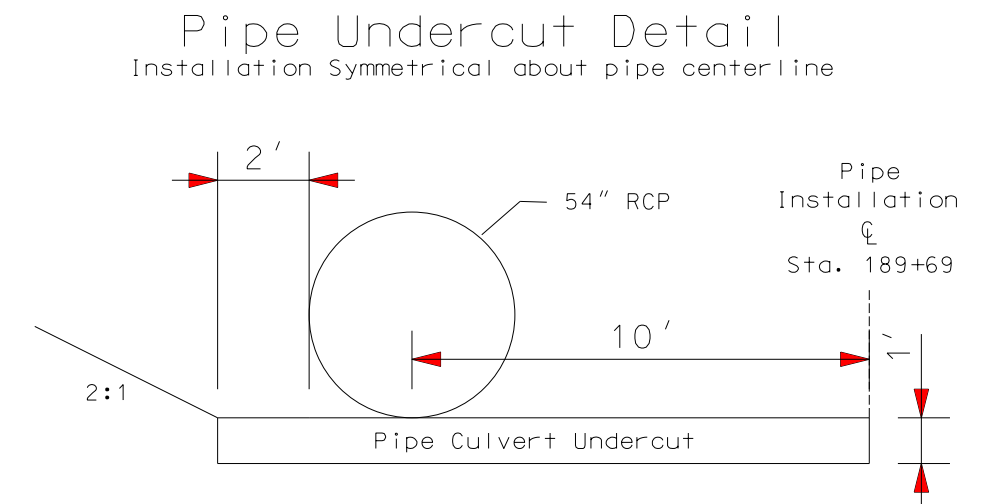
PIPE CULVERT UNDERCUT

The Table of Pipe Culvert Undercut is intended to be used to establish an estimated quantity of Pipe Culvert Undercut for bidding purposes only. The depth of undercut is an estimate and the actual depth necessary shall be determined during construction. Pipes shown may or may not require undercutting. The Engineer will determine which pipe shall be undercut in accordance with Section 421 of the Standard Specifications.

TABLE OF PIPE CULVERT UNDERCUT

Station	Undercut Depth(ft)	Quantity (Cu Yd)
SD 127 189+69	1	91
Total		91

The Pipe shall be undercut according to the limits shown in the below detail.



SAWING IN EXISTING SURFACING

Where new Asphalt Concrete Pavement is placed adjacent to existing asphalt concrete the existing asphalt concrete shall be sawed full depth to a true line with a vertical face. No separate payment shall be made for sawing.

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INSLOPE EMBANKMENT

Prior to placing the Contractor Furnished Borrow for construction of new embankment, the Contractor shall remove and stockpile 3 inches of in place topsoil from the construction areas. On completion of construction operations this salvaged topsoil shall be spread evenly over the newly constructed embankment inslopes. The Contractor is responsible for arranging an agreement with the landowner for topsoil replacement in borrow areas. Removal and replacement of topsoil will not be measured for payment but shall be incidental to the contract unit price per cubic yard for CONTRACTOR FURNISHED BORROW.

Fill material used for slope flattening shall be obtained from Contractor furnished sources and approved by the Engineer.

Compaction of inslope embankments shall be to the satisfaction of the Engineer.

It is not anticipated that water for compaction will be required. However, if in the opinion of the Engineer the fill material is extremely dry, water may be ordered and placed to the satisfaction of the Engineer. All costs for any added water shall be incidental to the contract unit price per cubic yard for CONTRACTOR FURNISHED BORROW.

Excavation quantities are computed using the volume of embankment plus 30% for shrinkage. Basis of payment will be plans quantity of CONTRACTOR FURNISHED BORROW. No separate field measurements will be taken. All material used for embankment shall be approved by the Engineer.

Haul of embankment material on established traveled roadways shall be limited to trucks or small scrapers hauling legal loads and which do not sustain damage to the roadway, as approved by the Engineer. Hauling of material in the roadway ditches will not be allowed.

Additional excavation may be required to ensure positive drainage into and out of extended culverts. Excavated material shall be incorporated into the slope embankment.

The Contractor shall be responsible for restoration of any areas disturbed outside the limits of the work area.

PIT RUN MATERIAL

The Pit Run Material shall be furnished by the Contractor. Compaction of the Pit Run Material shall be by the Ordinary Compaction Method. The cost of the Pit Run Material shall include crushing, screening, and adding rock, if necessary, to attain the specified gradation. Pit Run Material hauled to the Project site shall meet gradation requirements as stated below. No on site blending of material shall be permitted.

Aggregate for Pit Run Material shall conform to the following gradation requirements:

Passing 6 inch Sieve 100%
 Passing No. 4 Sieve 0-60%
 Passing No. 200 Sieve 0-20%

BASE COURSE

Aggregate for Base Course shall conform to the Standard Specifications, except that the density of Base Course shall be by the Ordinary Compaction Method.

Base Course shall be utilized as the top 1' of backfill of the pipe.

WATER FOR COMPACTION OF GRANULAR MATERIALS

Cost of water for compaction of the Base Course shall be incidental to the contract unit price for the various contract items. Six percent, plus or minus, moisture will be required at the time of compaction unless otherwise directed by the Engineer.

ASPHALT CONCRETE COMPOSITE

Mineral aggregate for the Asphalt Concrete Composite shall conform to the requirements of the Standard Specifications for Class E, Type 1.

All other requirements in the Standard Specifications for Asphalt Concrete Composite shall apply.

The asphalt binder used in the mixture shall be a PG 58-28, PG 64-22, PG 64-28, or PG 64-34 Asphalt Binder.

Asphalt Concrete Composite shall be paver laid in lifts not exceeding 3" in depth.

It can be anticipated that hand work will be required to shape the asphalt concrete due to the small area surfaced.

DRAINAGE FABRIC AND RIPRAP

Riprap used on the project shall be Class A and Class C conforming to Section 830 of the Standard Specifications.

The drainage fabric and riprap shall be placed as per the Typical Sections and Project Detail Layouts. The intension is that Class A Riprap shall be placed inside the clear zone and Class C Riprap shall be placed outside the clear zone. The limits of riprap placement may be adjusted in the field by the Engineer.

CLASS A RIPRAP shall be measured and paid for by the ton in place as shown on the weigh ticket which shall accompany each load.

CLASS C RIPRAP shall be measured and paid for by the ton in place as shown on the weigh ticket which shall accompany each load.

TYPE B DRAINAGE FABRIC will be measured and paid for by the square yard of surface area, including vertical surfaces covered by fabric. Payment shall be full compensation for furnishing and placing the fabric and for all labor, equipment, materials, and incidentals necessary to prepare the area for satisfactory placement of the drainage fabric.

EROSION CONTROL

On completion of embankment construction and replacement of topsoil, all disturbed areas within the right-of-way shall be seeded with Intermediate Wheatgrass (Oahe) at the rate of 1/2 pound Pure Live Seed (PLS) per 1000 square feet. Hand seeding devices will be allowed, as approved by the Engineer. All newly seeded areas shall be raked to the satisfaction of the Engineer. Seeding will not be measured for payment but shall be incidental to the contract lump sum price for EROSION CONTROL.

Plans quantity will be the basis of payment for this item.

It is estimated that 2 pounds of PLS will be required to seed the newly constructed in slopes and additional areas of excavation to ensure drainage.

Fertilizer and Mulch will not be required on the project.

HIGH FLOW SILT FENCE

The high flow silt fence fabric provided shall be from the approved product list. The approved product list for high flow silt fence may be viewed at the following internet site:

<http://www.state.sd.us/Applications/HC54ApprovedProducts/main.asp>

High flow silt fence shall be placed at locations that will minimize siltation of adjacent streams, lakes, dams, or drainage areas as determined by the Engineer during construction. Refer to Standard Plate 734.05 for details.

A quantity of 100 feet of High Flow Silt Fence has been added to the Estimate of Quantities for temporary sediment control. If needed for temporary sediment control, High Flow Silt Fence shall be placed at the direction of the Engineer.

MUCKING SILT FENCE

Mucking silt fence shall consist of removing muck trapped by the silt fence and spreading the material evenly over the adjacent area to conform to the existing grade.

REMOVE SILT FENCE

Silt fence shall be removed when vegetation is established. Some or all of the silt fence may be left on the project until vegetation is established.

STORM WATER POLLUTION PREVENTION PLAN CHECKLIST

(The numbers right of the title headings are **reference numbers** to the GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES)

❖ SITE DESCRIPTION (4.2 1)

- **Project Limits: See Title Sheet (4.2 1.b)**
- **Project Description: See Title Sheet (4.2 1.a.)**
- **Site Map(s): See Title Sheet and Plans (4.2 1.f. (1)-(6))**
- **Major Soil Disturbing Activities** (check all that apply)
 - Clearing and grubbing
 - Excavation/borrow
 - Grading and shaping
 - Filling
 - Cutting and filling
 - Other (describe):
- **Total Project Area** 0.31 Acres **(4.2 1.b.)**
- **Total Area To Be Disturbed** 0.22 Acres **(4.2 1.b.)**
- **Existing Vegetative Cover (%)** 50 %
- **Soil Properties:** AASHTO Soil Classification A-4, A-6, A-7 **(4.2 1. d.)**
- **Name of Receiving Water Body/Bodies** Local Potholes **(4.2 1.e.)**

❖ ORDER OF CONSTRUCTION ACTIVITIES (4.2 1.c.)

(Stabilization measures shall be initiated as soon as possible, but in no case later than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased. Initiation of final or temporary stabilization may exceed the 14-day limit if earth disturbing activities will be resumed within 21 days.)

Install traffic control signage and close roadway to traffic.
Complete dewatering of site as needed.
Complete topsoil removal and stockpile.
Complete asphalt concrete removal.
Complete culvert removal / replacement.
Complete pipe backfill.
Complete base course placement operations.
Complete asphalt paving operations.
Complete repairs of shoulder inslopes.
Complete riprap placement.
Complete erosion control and all remaining project items.
Remove traffic control and open roadway to traffic.

❖ EROSION AND SEDIMENT CONTROLS (4.2 2.a.(1)(a)-(f))

(Check all that apply)

- **Stabilization Practices (See Detail Plan Sheets)**
 - Temporary Seeding (Cover Crop Seeding)
 - Permanent Seeding
 - Sodding
 - Planting (Woody Vegetation for Soil Stabilization)
 - Mulching (Grass Hay or Straw)
 - Hydraulic Mulch (Wood Fiber Mulch)
 - Soil Stabilizer
 - Bonded Fiber Matrix
 - Erosion Control Blankets or Mats
 - Vegetation Buffer Strips
 - Roughened Surface (e.g. tracking)
 - Dust Control
 - Other:

➤ **Structural Temporary Erosion and Sediment Controls**

- Silt Fence
- Floating Silt Curtain
- Straw Bale Check
- Temporary Berm
- Temporary Slope Drain
- Straw Wattles or Rolls
- Turf Reinforcement Mat
- Rip Rap
- Gabions
- Rock Check Dams
- Sediment Traps/Basins
- Inlet Protection
- Outlet Protection
- Surface Inlet Protection (Area Drain)
- Curb Inlet Protection
- Stabilized Construction Entrances
- Entrance/Exit Equipment Tire Wash
- Interceptor Ditch
- Concrete Washout Area
- Temporary Diversion Channel
- Work Platform
- Temporary Water Barrier
- Temporary Water Crossing
- Other:

➤ **Wetland Avoidance**

Will construction and/or erosion and sediment controls impinge on regulated wetlands? Yes No If yes, the structural and erosion and sediment controls have been included in the total project wetland impacts and have been included in the 404 permit process with the USACE.

➤ **Storm Water Management (4.2 2.b., (1) and (2))**

Storm water management will be handled by temporary controls outlined in "EROSION AND SEDIMENT CONTROLS" above, and any permanent controls needed to meet permanent storm water management needs in the post construction period. Permanent controls will be shown on the plans and noted as permanent.

➤ **Other Storm Water Controls (4.2 2.c., (1) and (2))**

▪ **Waste Disposal**

All liquid waste materials will be collected and stored in sealed metal containers approved by the project engineer. All trash and construction debris from the site will be deposited in the approved containers. Containers will be serviced as necessary, and the trash will be hauled to an approved disposal site or licensed landfill. All onsite personnel will be instructed in the proper procedures for waste disposal, and notices stating proper practices will be posted in the field office. The general contractor's representative responsible for the conduct of work on the site will be responsible for seeing waste disposal procedures are followed.

▪ **Hazardous Waste**

All hazardous waste materials will be disposed of in a manner specified by local or state regulations or by the manufacturer. Site personnel will be instructed in these practices, and the individual designated as the contractor's on-site representative will be responsible for seeing that these practices are followed.

▪ **Sanitary Waste**

Portable sanitary facilities will be provided on all construction sites. Sanitary waste will be collected from the portable units in a timely manner by a licensed waste management contractor or as required by any local regulations.

❖ Maintenance and Inspection (4.2 3. and 4.2 4.)

➤ **Maintenance and Inspection Practices**

- Inspections will be conducted at least one time per week and after a storm event of 0.50 inches or greater.
- All controls will be maintained in good working order. Necessary repairs will be initiated within 24 hours of the site inspection report.
- Silt fence will be inspected for depth of sediment and for tears in order to ensure the fabric is securely attached to the posts and that the posts are well anchored. Sediment buildup will be removed from the silt fence when it reaches 1/3 of the height of the silt fence.
- Sediment basins and traps will be checked. Sediment will be removed when depth reaches approximately 50 percent of the structure's capacity, and at the conclusion of the construction.
- Check dams will be inspected for stability. Sediment will be removed when depth reaches 1/2 the height of the dam.
- All seeded areas will be checked for bare spots, washouts, and vigorous growth free of significant weed infestations.
- Inspection and maintenance reports will be prepared on form DOT 298 for each site inspection, this form will also be used to document changes to the SWPPP. A copy of the completed inspection form will be filed with the SWPPP documents.
- The SDDOT Project Engineer and contractor's site superintendent are responsible for inspections. Maintenance, repair activities are the responsibility of the contractor. The SDDOT Project Engineer will complete the inspection and maintenance reports and distribute copies per the distribution instructions on DOT 298.

❖ Non-Storm Water Discharges (3.0)

The following non-storm water discharges are anticipated during the course of this project (check all that apply).

- Discharges from water line flushing.
- Pavement wash-water, where no spills or leaks of toxic or hazardous materials have occurred.
- Uncontaminated ground water associated with dewatering activities.

❖ Materials Inventory (4.2. 2.c.(2))

The following materials or substances are expected to be present on the site during the construction period. These materials will be handled as noted under the headings "EROSION AND SEDIMENT CONTROLS" and "SPILL PREVENTION" (check all that apply).

- Concrete and Portland Cement
- Detergents
- Paints
- Metals
- Bituminous Materials
- Petroleum Based Products
- Cleaning Solvents
- Wood
- Cure
- Texture
- Chemical Fertilizers
- Other:

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❖ **Spill Prevention (4.2 2.c.(2))**

➤ **Material Management**

▪ Housekeeping

- Only needed products will be stored on-site by the contractor.
- Except for bulk materials the contractor will store all materials under cover and in appropriate containers.
- Products must be stored in original containers and labeled.
- Material mixing will be conducted in accordance with the manufacturer's recommendations.
- When possible, all products will be completely used before properly disposing of the container off site.
- The manufacturer's directions for disposal of materials and containers will be followed.
- The contractor's site superintendent will inspect materials storage areas regularly to ensure proper use and disposal.
- Dust generated will be controlled in an environmentally safe manner.
- Vegetation areas not essential to the construction project will be preserved and maintained as noted on the plans.

▪ Hazardous Materials

- Products will be kept in original containers unless the container is not resealable.
- Original labels and material safety data sheets will be retained in a safe place to relay important product information.
- If surplus product must be disposed of, manufacturer's label directions for disposal will be followed.
- Maintenance and repair of all equipment and vehicles involving oil changes, hydraulic system drain down, de-greasing operations, fuel tank drain down and removal, and other activities which may result in the accidental release of contaminants will be conducted on an impervious surface and under cover during wet weather to prevent the release of contaminants onto the ground.
- Wheel wash water will be collected and allowed to settle out suspended solids prior to discharge. Wheel wash water will not be discharged directly into any storm water system or storm water treatment system.
- Potential pH-modifying materials such as: bulk cement, cement kiln dust, fly ash, new concrete washings, concrete pumping, residuals from concrete saw cutting (either wet or dry), and mixer washout waters will be collected on site and managed to prevent contamination of storm water runoff.

➤ **Product Specific Practices (6.8)**

▪ Petroleum Products

All on-site vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled.

▪ Fertilizers

Fertilizers will be applied only in the amounts specified by the SDDOT. Once applied, fertilizers will be worked into the soil to limit the exposure to storm water. Fertilizers will be stored in an enclosed area. The contents of partially used fertilizer bags will be transferred to sealable containers to avoid spills.

▪ Paints

All containers will be tightly sealed and stored when not required for use. The excess will be disposed of according to the manufacturer's instructions and any applicable state and local regulations.

▪ Concrete Trucks

Contractors will provide designated truck washout areas on the site. These areas must be self contained and not connected to any storm water outlet of the site. Upon completion of construction washout areas will be properly stabilized.

➤ **Spill Control Practices (4.2 2 c.(2))**

In addition to the previous housekeeping and management practices, the following practices will be followed for spill prevention and cleanup if needed.

- For all hazardous materials stored on site, the manufacturer's recommended methods for spill clean up will be clearly posted. Site personnel will be made aware of the procedures and the locations of the information and cleanup supplies.
- Appropriate cleanup materials and equipment will be maintained by the contractor in the materials storage area on-site. As appropriate, equipment and materials may include items such as brooms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, sawdust, and plastic and metal trash containers specifically for clean up purposes.
- All spills will be cleaned immediately after discovery and the materials disposed of properly.
- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- After a spill a report will be prepared describing the spill, what caused it, and the cleanup measures taken. The spill prevention plan will be adjusted to include measures to prevent this type of spill from reoccurring, as well as clean up instructions in the event of reoccurrences.
- The contractor's site superintendent, responsible for day-to-day operations, will be the spill prevention and cleanup coordinator. The contractor is responsible for ensuring that the site superintendent has had appropriate training for hazardous materials handling, spill management, and cleanup.

➤ **Spill Response (4.2 2 c.(2))**

The primary objective in responding to a spill is to quickly contain the material(s) and prevent or minimize migration into storm water runoff and conveyance systems. If the release has impacted on-site storm water, it is critical to contain the released materials on-site and prevent their release into receiving waters. If a spill of pollutants threatens storm water or surface water at the site, the spill response procedures outlined below must be implemented in a timely manner to prevent the release of pollutants.

- The contractor's site superintendent will be notified immediately when a spill or the threat of a spill is observed. The superintendent will assess the situation and determine the appropriate response.
- If spills represent an imminent threat of escaping erosion and sediment controls and entering receiving waters, personnel will be directed to respond immediately to contain the release and notify the superintendent after the situation has been stabilized.
- Spill kits containing appropriate materials and equipment for spill response and cleanup will be maintained by the contractor at the site.

- If oil sheen is observed on surface water (e.g. settling ponds, detention ponds, swales), action will be taken immediately to remove the material causing the sheen. The contractor will use appropriate materials to contain and absorb the spill. The source of the oil sheen will also be identified and removed or repaired as necessary to prevent further releases.

- If a spill occurs the superintendent or the superintendent's designee will be responsible for completing the spill reporting form and for reporting the spill to SD DENR.
- Personnel with primary responsibility for spill response and clean up will receive training by the contractor's site superintendent or designee. The training must include identifying the location of the spill kits and other spill response equipment and the use of spill response materials.
- Spill response equipment will be inspected and maintained as necessary to replace any materials used in spill response activities.

❖ **Spill Notification**

In the event of a spill, the contractor's site superintendent will make the appropriate notification(s), consistent with the following procedures:

- A release or spill of a regulated substance (includes petroleum and petroleum products) must be reported to DENR immediately **if any one of the following** conditions exists:
 - The discharge threatens or is in a position to threaten the waters of the state (surface water or ground water).
 - The discharge causes an immediate danger to human health or safety.
 - The discharge exceeds 25 gallons.
 - The discharge causes a sheen on surface water.
 - The discharge of any substance that exceeds the ground water quality standards of ARSD (Administrative Rules of South Dakota) chapter 74:51:01.
 - The discharge of any substance that exceeds the surface water quality standards of ARSD chapter 74:51:01.
 - The discharge of any substance that harms or threatens to harm wildlife or aquatic life.
 - The discharge of crude oil in field activities under SDCL (South Dakota Codified Laws) chapter 45-9 is greater than 1 barrel (42 gallons).

To report a release or spill, call DENR at 605-773-3296 during regular office hours (8 a.m. to 5 p.m. Central time). To report the release after hours, on weekends or holidays, call State Radio Communications at 605-773-3231. Reporting the release to DENR does not meet any obligation for reporting to other state, local, or federal agencies. Therefore, the responsible person must also contact local authorities to determine the local reporting requirements for releases. DENR recommends that spills also be reported to the National Response Center at (800) 424-8802.

❖ **Construction Changes (4.4)**

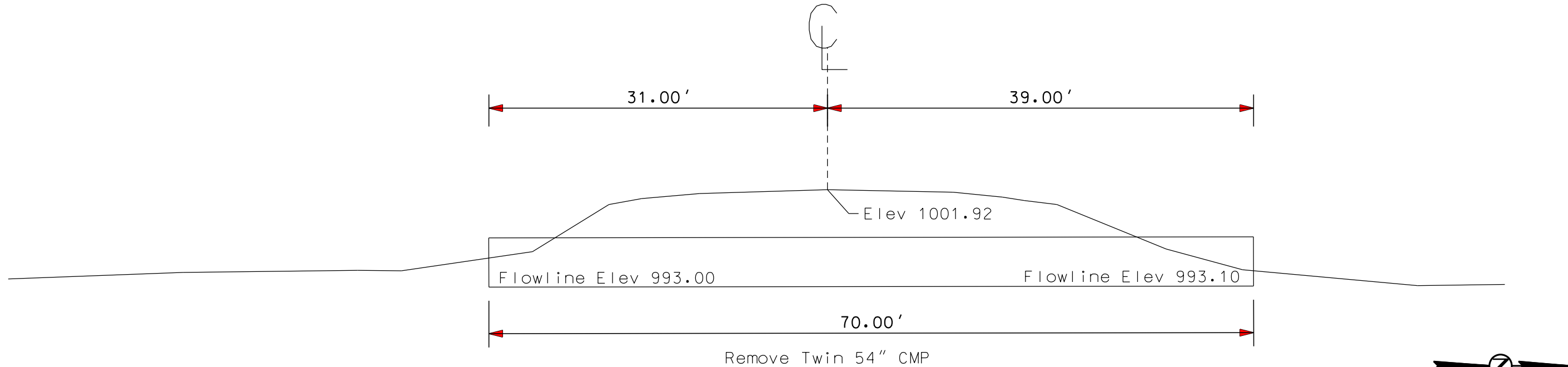
When changes are made to the construction project that will require alterations in the temporary erosion controls of the site, the Storm Water Pollution Prevention Plan (SWPPP) will be amended to provide appropriate protection to disturbed areas, all storm water structures, and adjacent waters. The SDDOT Project Engineer will modify the SWPPP plan (DOT 298) and drawings to reflect the needed changes. Copies of changes will be routed per DOT 298. Copies of forms and the SWPPP will be retained in a designated place for review over the course of the project.

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	127-172	8	16
Plotting Date: 02/14/2012			

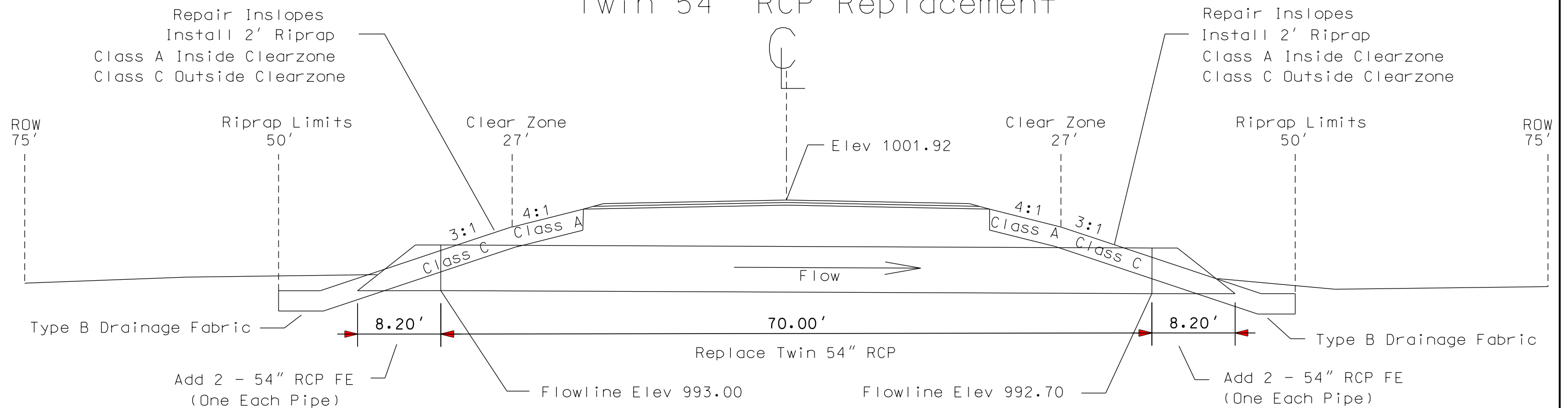
TYPICAL PIPE SECTION

SD 127 Sta. 189+69

Twin 54" CMP In place



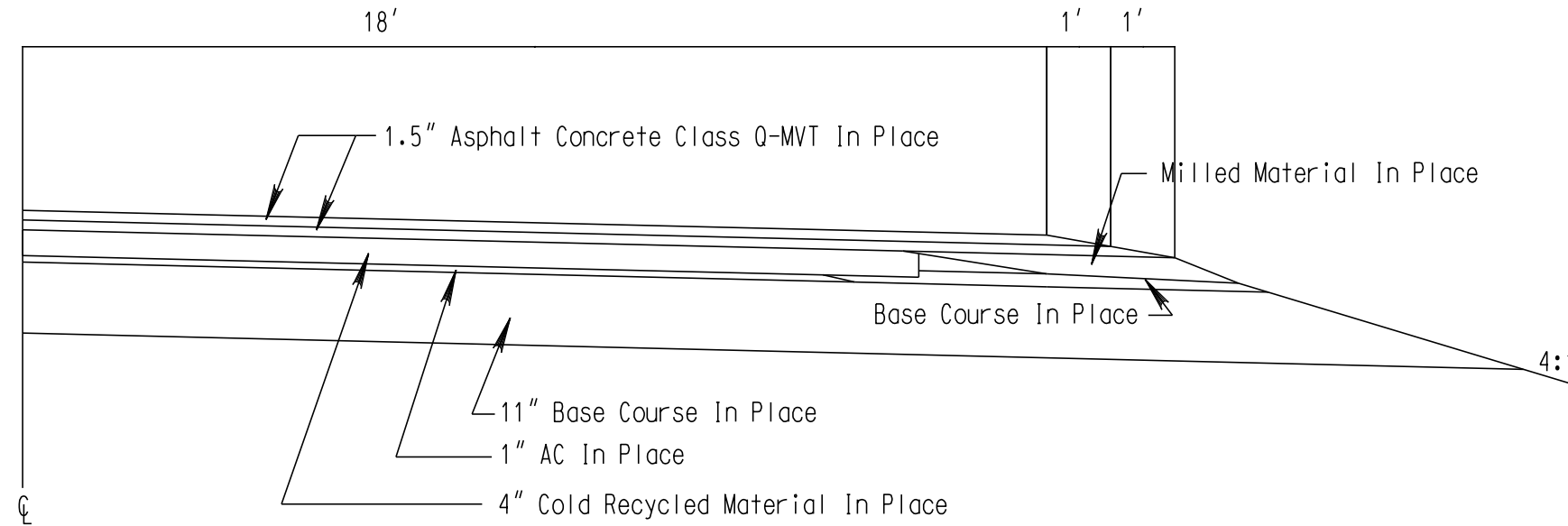
Twin 54" RCP Replacement



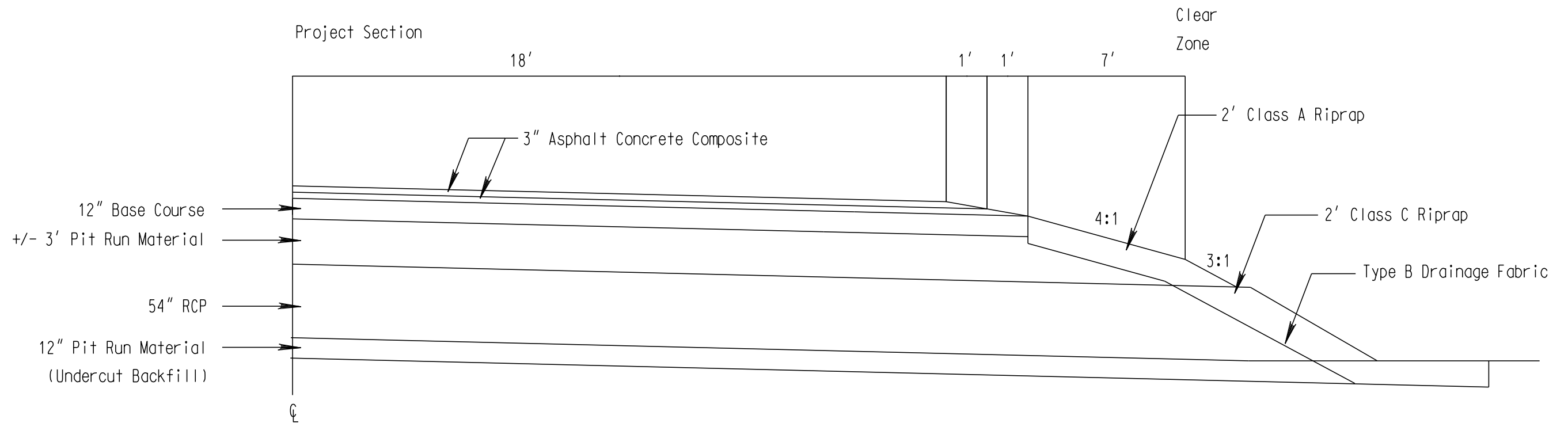
Benchmark: Rebar with Guards 45' west of Pipe
 Next to No Passing Zone Sign North Side
 Elevation 1000.00

TYPICAL SECTIONS
127-172
PCN i2gg
Sta. 189+25 to 190+13

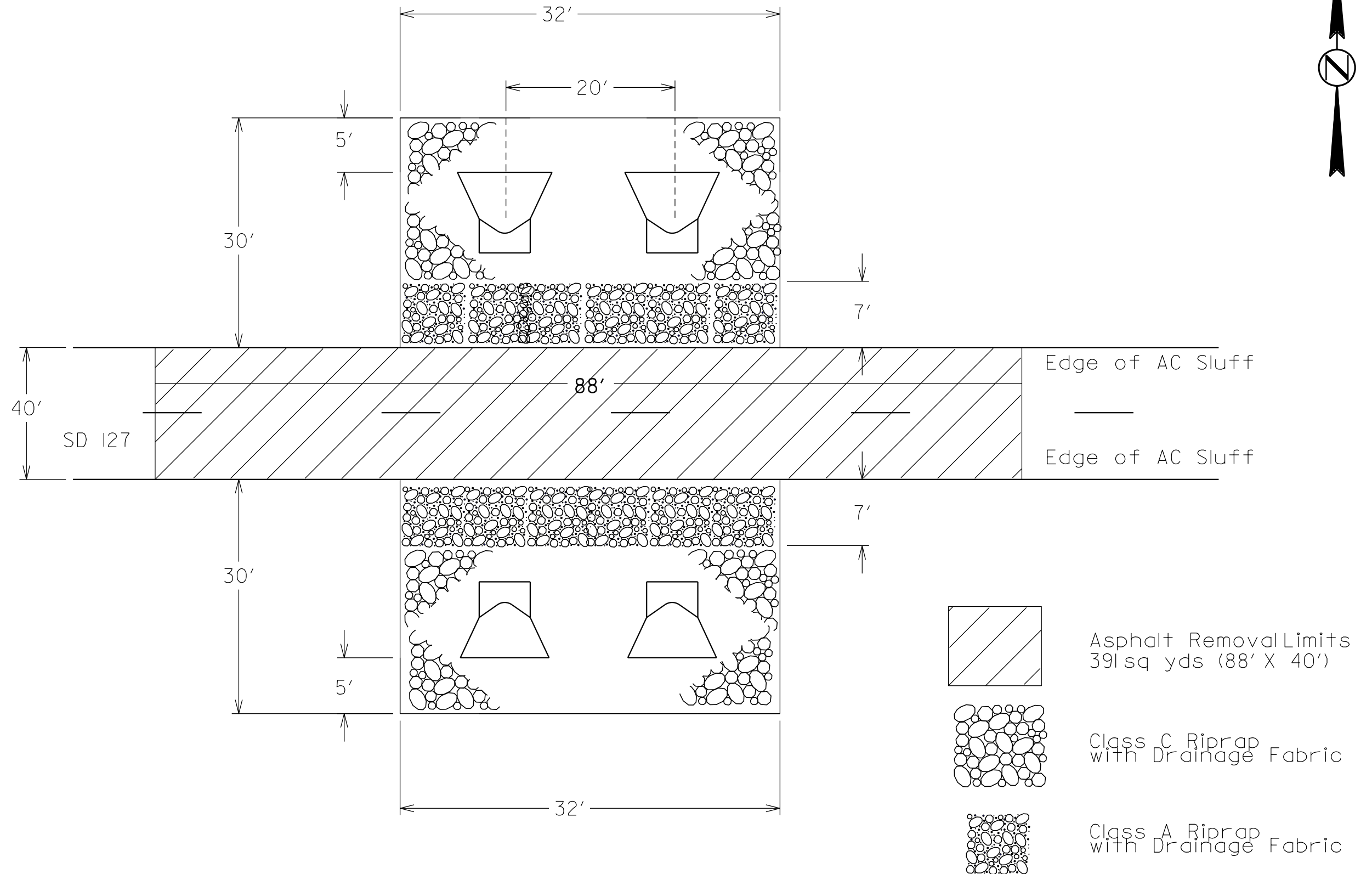
Existing Surfacing Section



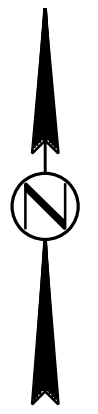
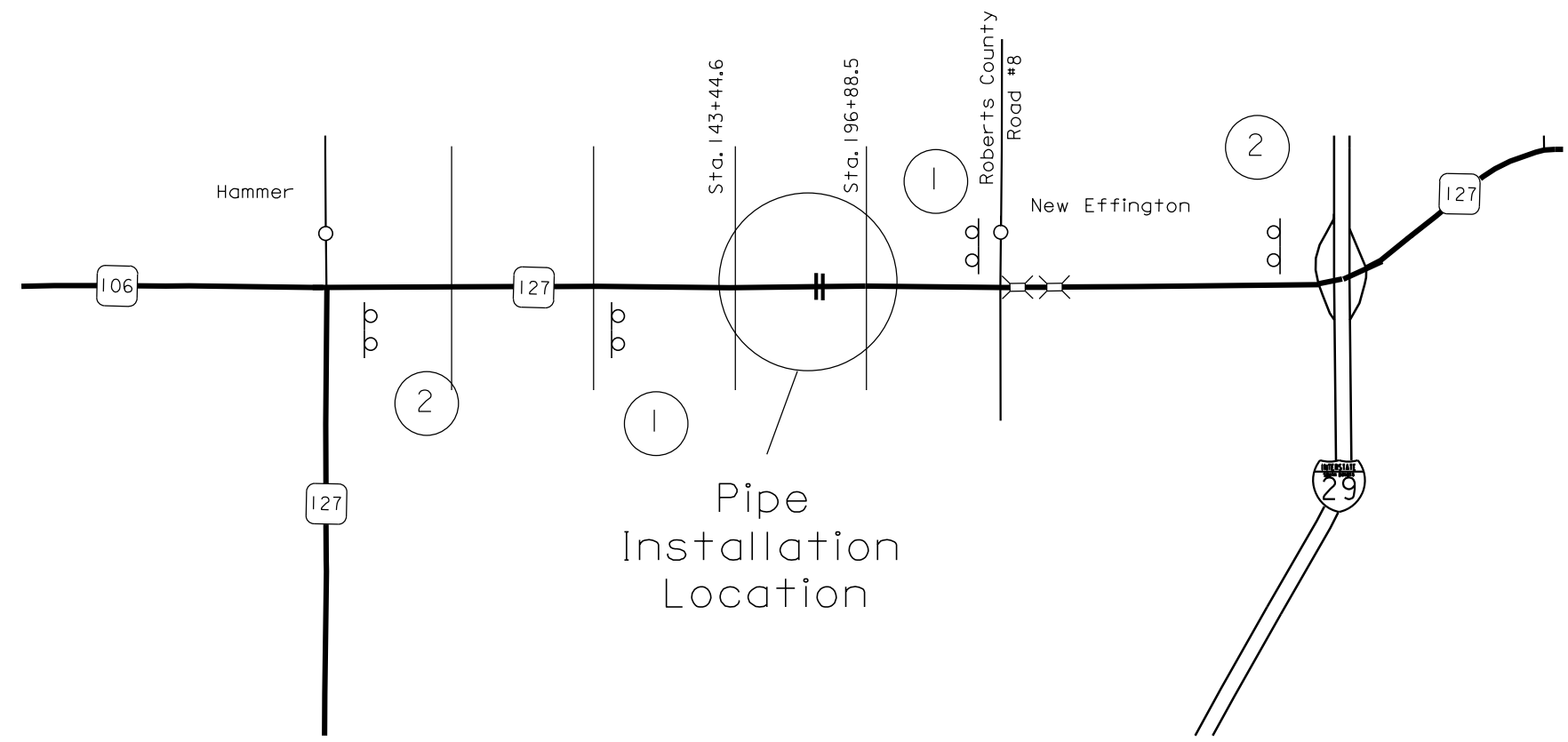
Project Section



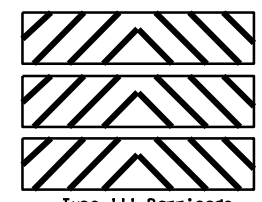
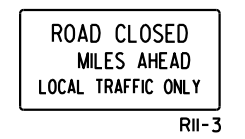
PROJECT DETAIL LAYOUT



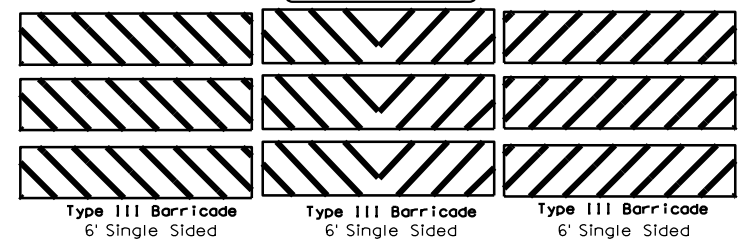
ROAD CLOSURE LAYOUT



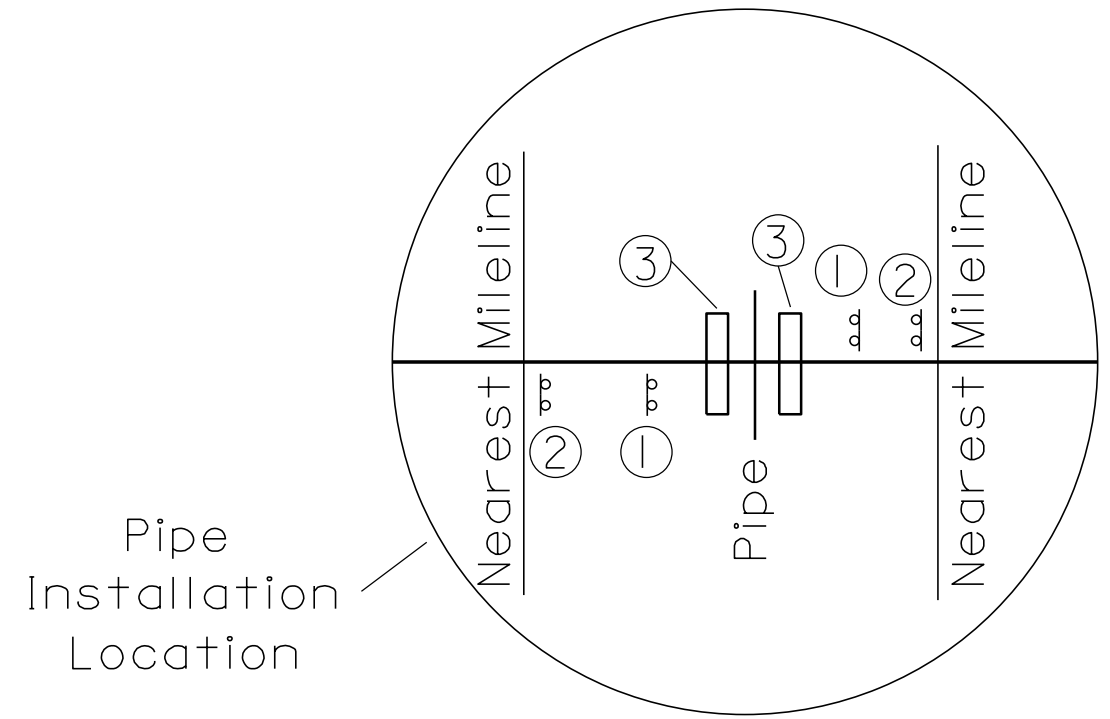
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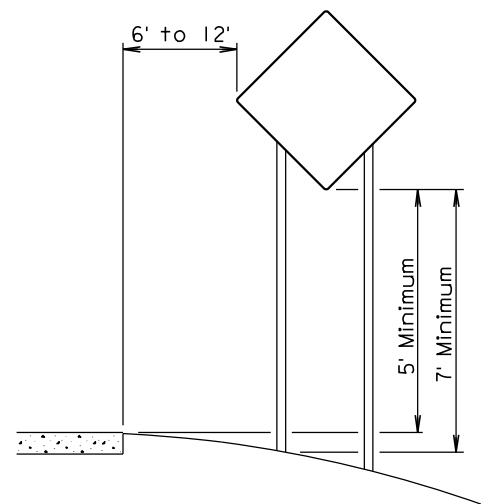


2

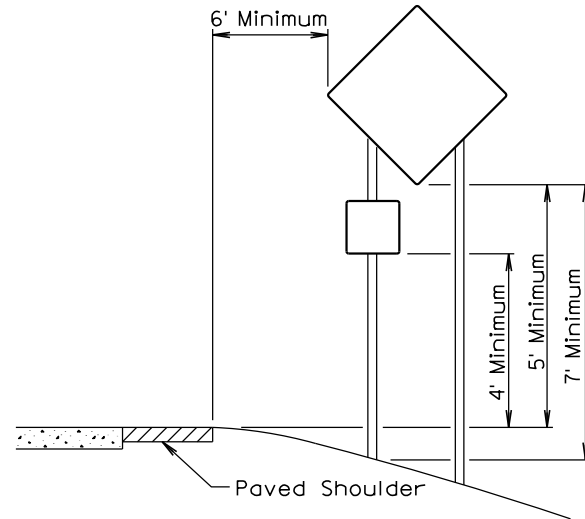


3

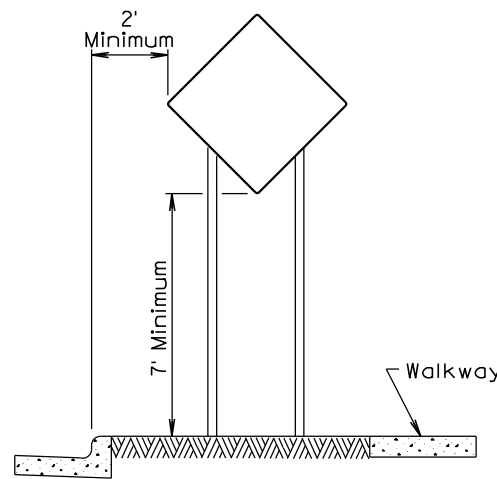




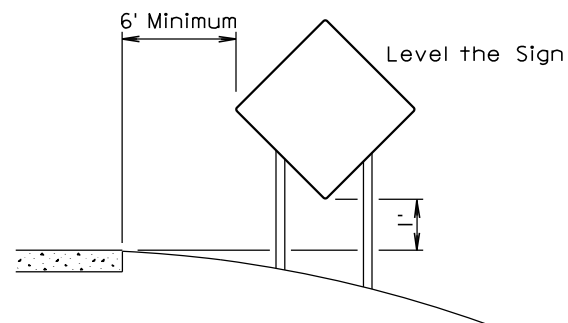
RURAL DISTRICT



RURAL DISTRICT WITH
SUPPLEMENTAL PLATE



URBAN DISTRICT



RURAL DISTRICT
3 DAY MAXIMUM

February 14, 2011

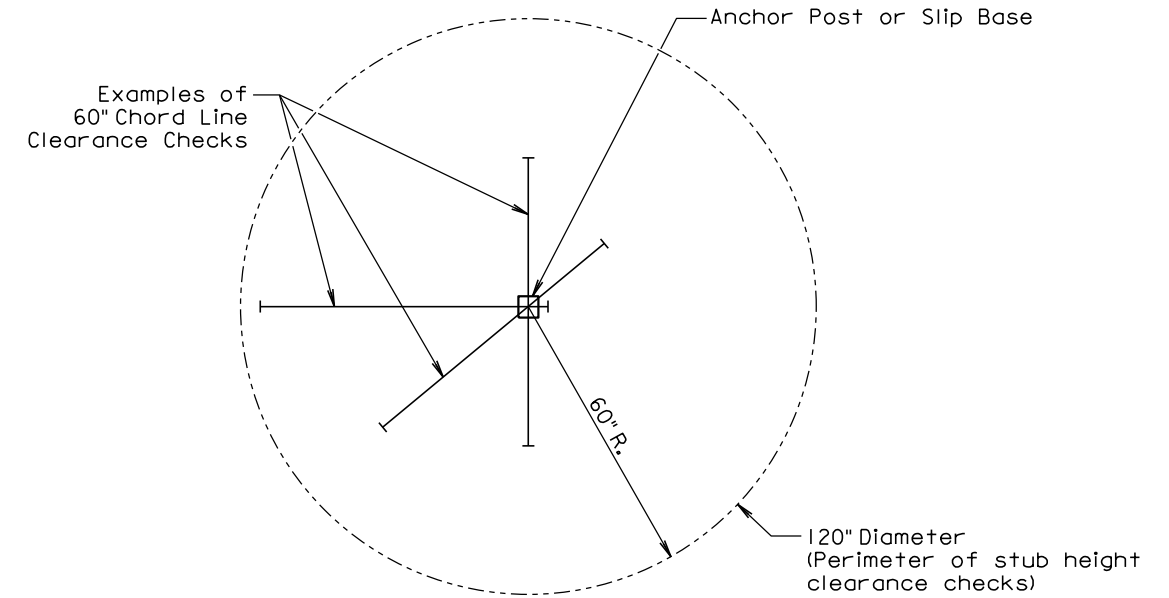
Published Date: 1st Qtr. 2012

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CRASHWORTHY SIGN SUPPORTS
(Typical Construction Signing)

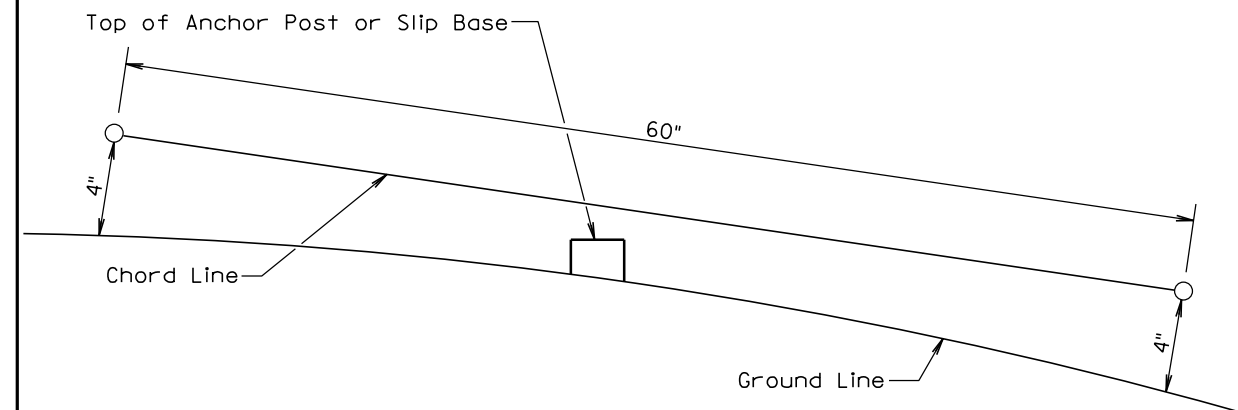
PLATE NUMBER
634.85

Sheet 1 of 1



PLAN VIEW

(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

The top of anchor posts and slip bases SHALL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

At locations where there is curb and gutter adjacent to the breakaway sign support, the stub height shall be a maximum of 4" above the ground line at the localized area adjacent to the breakaway support stub.

The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

July 1, 2005

Published Date: 1st Qtr. 2012

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BREAKAWAY SUPPORT STUB CLEARANCE

PLATE NUMBER
634.99

Sheet 1 of 1

ITEMIZED LIST FOR TRAFFIC CONTROL

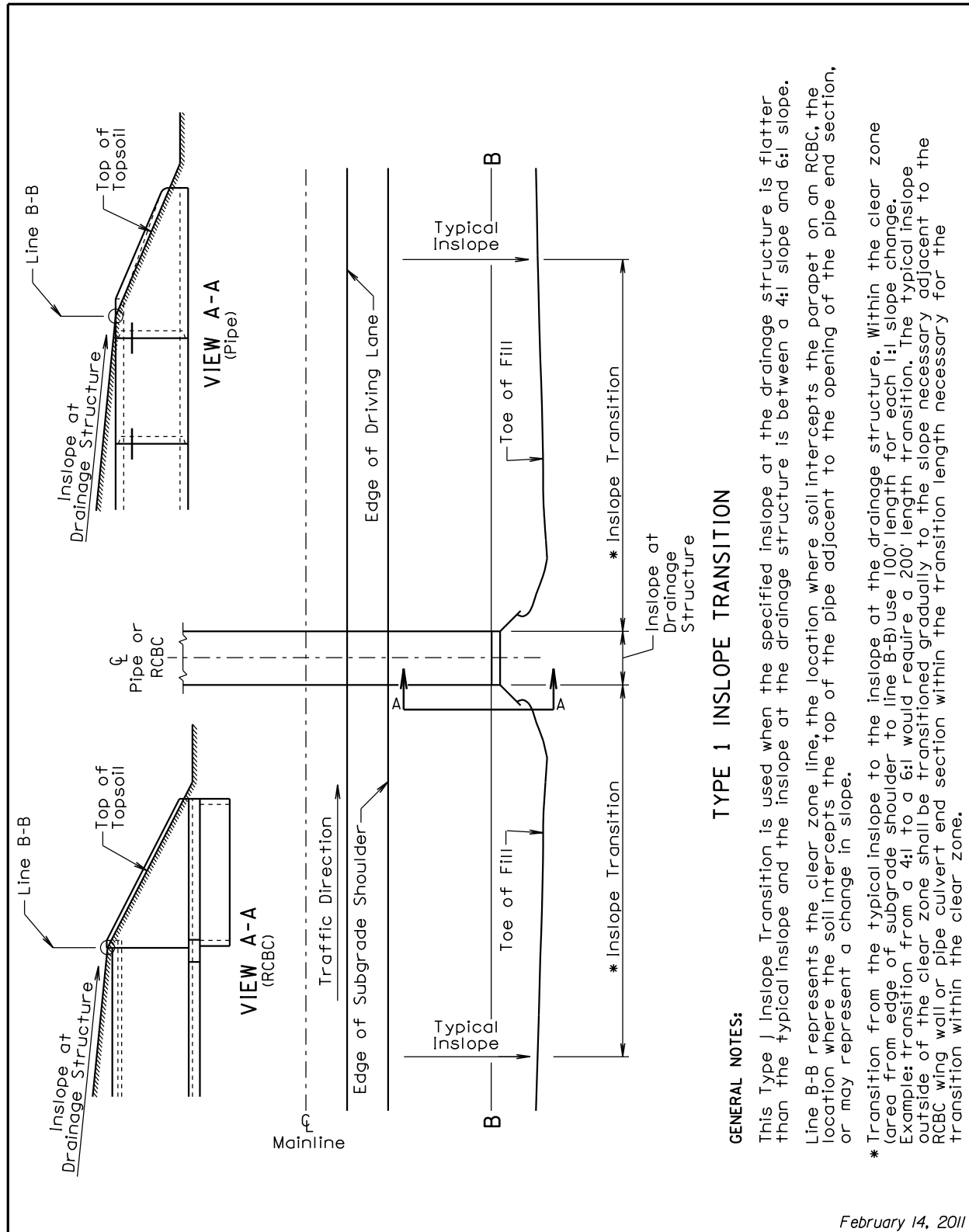
SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
R11-2	48" x 30"	ROAD CLOSED	2	27	54
R11-3	60" x 30"	ROAD CLOSED ## MILES AHEAD LOCAL TRAFFIC ONLY	4	30	120
W20-3	48" x 48"	ROAD CLOSED #### FT. OR AHEAD	4	34	136
*****	*****	TYPE III BARRICADE - 6 FT. SINGLE SIDED	6	30	180
*****	*****	TYPE III BARRICADE - 6 FT. DOUBLE SIDED	4	42	168
TOTAL UNITS					658

If a sign is required on a project and not listed in the above inventory, the units per sign will be determined as follows:

Signs 36" x 36" will be measured at 27 units each and signs 48" x 48" will be measured at 34 units each, otherwise:

If a sign measures less than 25" high and 25" wide the units per sign will be computed as sign size (sq ft) x 3.

If a sign measures between 23H" and 37H" the units per sign will be computed as sign size (sq ft) x 1.2 +15.



TYPE 1 INSLOPE TRANSITION

GENERAL NOTES:

This Type J Inslope Transition is used when the specified inslope at the drainage structure is flatter than the typical inslope and the inslope at the drainage structure is between a 4:1 slope and 6:1 slope. Line B-B represents the clear zone line, the location where soil intercepts the parapet on an RCBC, the location where the soil intercepts the top of the pipe adjacent to the opening of the pipe end section, or may represent a change in slope.

* Transition from the typical inslope to the inslope at the drainage structure. Within the clear zone (area from edge of subgrade shoulder to line B-B) use 100' length for each 1:1 slope change. Example: transition from a 4:1 to a 6:1 would require a 200' length transition. The typical inslope outside of the clear zone shall be transitioned gradually to the slope necessary adjacent to the RCBC wing wall or pipe culvert end section within the transition length necessary for the transition within the clear zone.

February 14, 2011

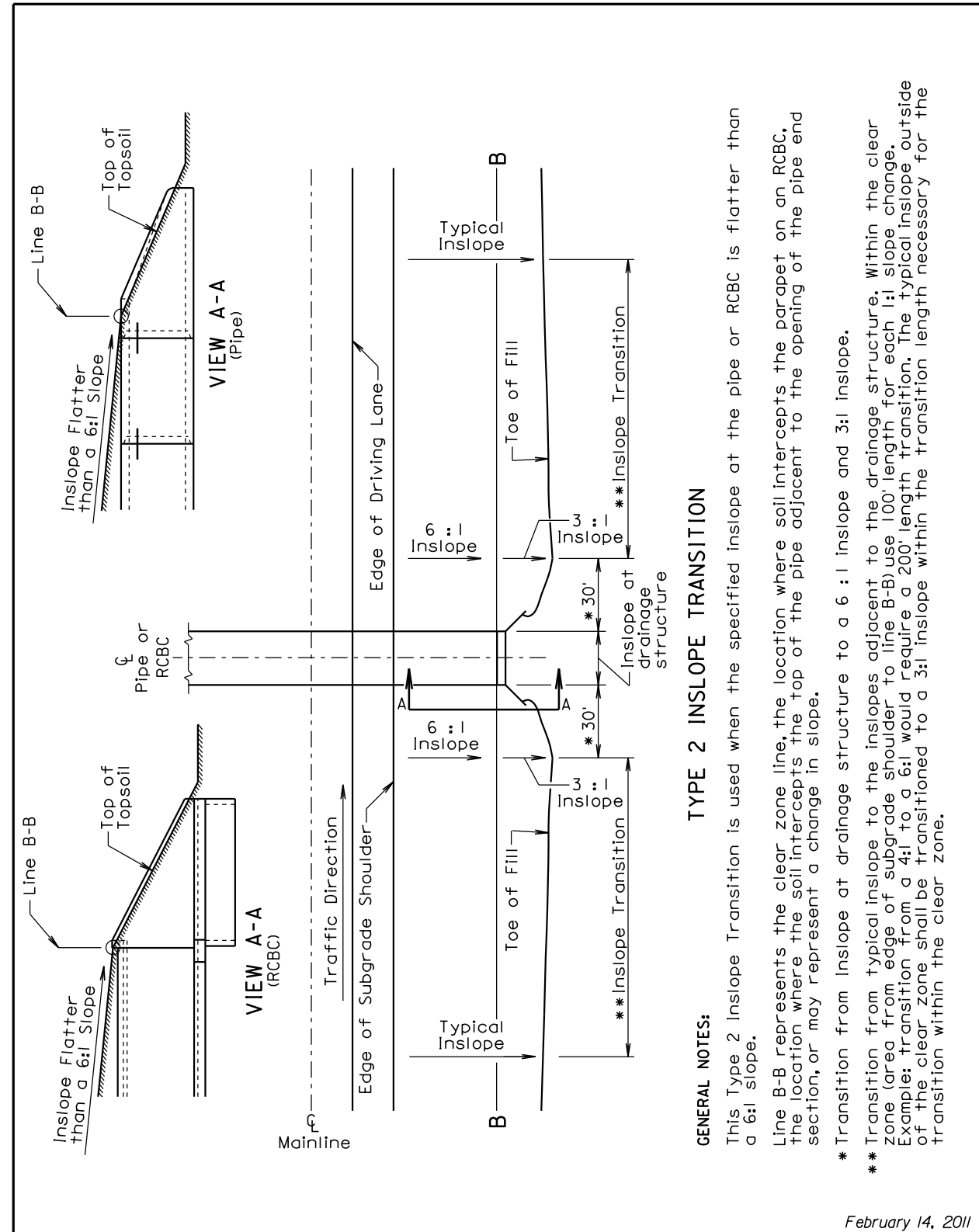
Published Date: 1st Qtr. 2012

SDOT

**INSLOPE TRANSITIONS AT PIPE CULVERTS
OR REINFORCED CONCRETE BOX CULVERTS**

PLATE NUMBER
120.05

Sheet 1 of 2



TYPE 2 INSLOPE TRANSITION

GENERAL NOTES:

This Type 2 Inslope Transition is used when the specified inslope at the pipe or RCBC is flatter than a 6:1 slope. Line B-B represents the clear zone line, the location where soil intercepts the parapet on an RCBC, the location where the soil intercepts the top of the pipe adjacent to the opening of the pipe end section, or may represent a change in slope.

* Transition from inslope at drainage structure to a 6:1 inslope and 3:1 inslope.

** Transition from typical inslope to the inslopes adjacent to the drainage structure. Within the clear zone (area from edge of subgrade shoulder to line B-B) use 100' length for each 1:1 slope change. Example: transition from a 4:1 to a 6:1 would require a 200' length transition. The typical inslope outside of the clear zone shall be transitioned to a 3:1 inslope within the transition length necessary for the transition within the clear zone.

February 14, 2011

Published Date: 1st Qtr. 2012

SDOT

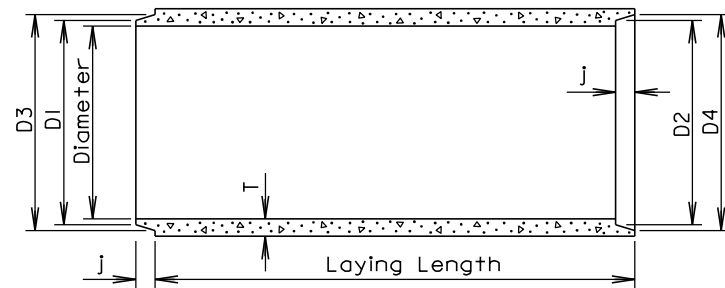
**INSLOPE TRANSITIONS AT PIPE CULVERTS
OR REINFORCED CONCRETE BOX CULVERTS**

PLATE NUMBER
120.05

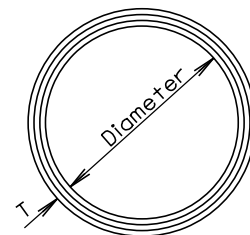
Sheet 2 of 2

TOLERANCES IN DIMENSIONS

Diameter: $\pm 1.5\%$ for 24" Dia. or less and $\pm 1\%$ or $\frac{3}{8}$ " whichever is more for 27" Dia. or greater.
 Diameters at Joints: $\pm 3/16$ " for 30" Dia. or less and $\pm 1/4$ " for 36" or greater.
 Length of joint (j): $\pm 1/4$ ".
 Wall thickness (T): not less than design T by more than 5% or $\frac{3}{16}$ ", whichever is greater.
 Laying length: shall not underrun by more than $\frac{1}{2}$ ".



LONGITUDINAL SECTION



END VIEW

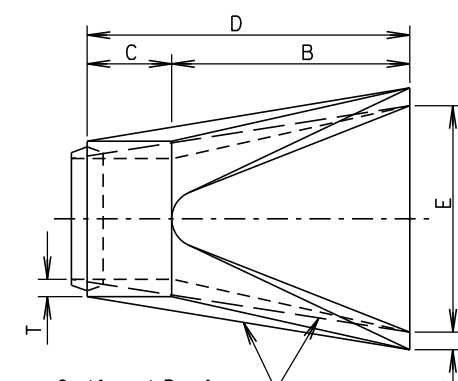
GENERAL NOTES:

Construction of R. C. P. shall conform to the requirements of Section 990 of the Standard Specifications for Roads and Bridges.

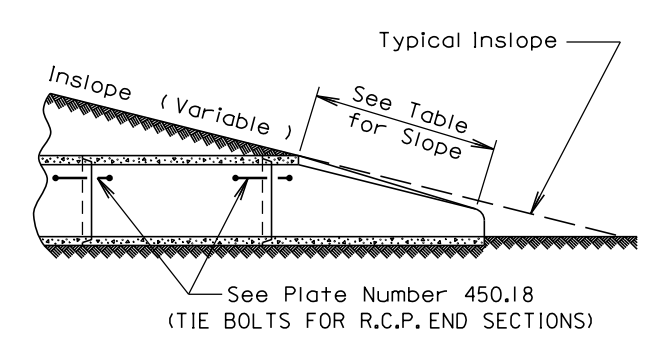
Not more than 2 four foot sections shall be permitted near the ends of any culvert. Four foot lengths shall be used only to secure the required length of culvert.

Diam. (in.)	Approx. Wt. /Ft. (lb.)	T (in.)	J (in.)	D1 (in.)	D2 (in.)	D3 (in.)	D4 (in.)
12	92	2	1 3/4	13 1/4	13 5/8	13 7/8	14 1/4
15	127	2 1/4	2	16 1/2	16 7/8	17 1/4	17 5/8
18	168	2 1/2	2 1/4	19 5/8	20	20 3/8	20 3/4
21	214	2 3/4	2 1/2	22 7/8	23 1/4	23 3/4	24 1/8
24	265	3	2 3/4	26	26 3/8	27	27 3/8
27	322	3 1/4	3	29 1/4	29 5/8	30 1/4	30 5/8
30	384	3 1/2	3 1/4	32 3/8	32 3/4	33 1/2	33 5/8
36	524	4	3 3/4	38 3/4	39 1/4	40	40 1/2
42	685	4 1/2	4	45 1/8	45 5/8	46 1/2	47
48	867	5	4 1/2	51 1/2	52	53	53 1/2
54	1070	5 1/2	4 1/2	57 7/8	58 3/8	59 3/8	59 7/8
60	1296	6	5	64 1/4	64 3/4	66	66 1/2
66	1542	6 1/2	5 1/2	70 5/8	71 1/8	72 1/2	73
72	1810	7	6	77	77 1/2	79	79 1/2
78	2098	7 1/2	6 1/2	83 3/8	83 7/8	85 5/8	86 1/8
84	2410	8	7	89 3/4	90 1/4	92 1/8	92 5/8
90	2740	8 1/2	7	95 3/4	96 1/4	98 1/8	98 5/8
96	2950	9	7	102 1/8	102 5/8	104 1/2	105
102	3075	9 1/2	7 1/2	109	109 1/2	111 1/2	112
108	3870	10	7 1/2	115 1/2	116	118	118 1/2

March 31, 2000



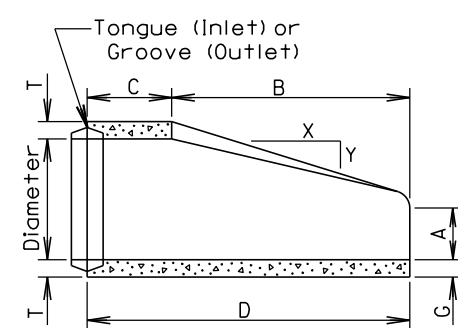
TOP VIEW



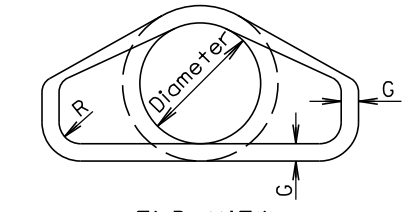
SLOPE DETAIL

GENERAL NOTES:

Lengths of concrete pipe shown on Plan Sheets are between flared Ends only.
 Construction of R.C.P. Flared End shall conform to the requirements of Section 990 of the Standard Specifications for Roads and Bridges.



LONGITUDINAL SECTION



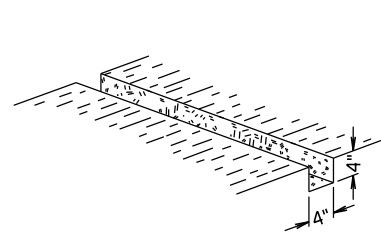
END VIEW

Dia. (in.)	Approx. Wt. of Section (lbs.)	Approx. Slope (X to Y)	T (in.)	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	G (in.)	R (in.)
12	530	2.4: 1	2	4	24	48 7/8	72 7/8	24	2	1 1/2
15	740	2.4: 1	2 1/4	6	27	46	73	30	2 1/4	1 1/2
18	990	2.3: 1	2 1/2	9	27	46	73	36	2 1/2	1 1/2
21	1280	2.4: 1	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	1 1/2
24	1520	2.5: 1	3	9 1/2	43 1/2	30	73 1/2	48	3	1 1/2
27	1930	2.5: 1	3 1/4	10 1/2	49 1/2	24	73 1/2	54	3 1/4	1 1/2
30	2190	2.5: 1	3 1/2	12	54	19 3/4	73 3/4	60	3 1/2	1 1/2
36	4100	2.5: 1	4	15	63	34 3/4	97 3/4	72	4	1 1/2
42	5380	2.5: 1	4 1/2	21	63	35	98	78	4 1/2	1 1/2
48	6550	2.5: 1	5	24	72	26	98	84	5	1 1/2
54	8240	2: 1	5 1/2	27	65	33 1/4	98 1/4	90	5 1/2	1 1/2
60	8730	1.9: 1	6	35	60	39	99	96	5	1 1/2
66	10710	1.7: 1	6 1/2	30	72	27	99	102	5 1/2	1 1/2
72	12520	1.8: 1	7	36	78	21	99	108	6	1 1/2
78	14770	1.8: 1	7 1/2	36	90	21	111	114	6 1/2	1 1/2
84	18160	1.6: 1	8	36	90 1/2	21	111 1/2	120	6 1/2	1 1/2
90	20900	1.5: 1	8 1/2	41	87 1/2	24	111 1/2	132	6 1/2	6

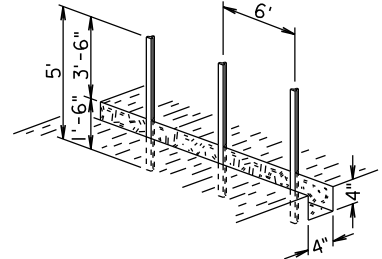
March 31, 2000

MANUAL HIGH FLOW SILT FENCE INSTALLATION

① EXCAVATE TRENCH

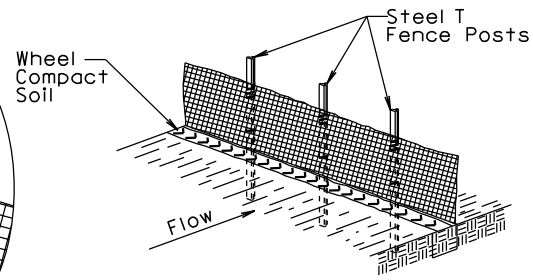
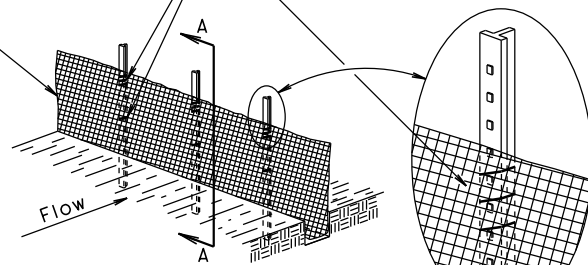


② DRIVE STEEL T FENCE POSTS



Attach the silt fence fabric with a total of 4 plastic or wire ties per post. Three ties shall be used at the top and 1 tie shall be approximately at mid-point of the post.

Fabric for silt fence shall be 36" minimum width.



③ ATTACH SILT FENCE FABRIC

④ BACKFILL TRENCH AND WHEEL COMPACT SOIL

Silt Fence Fabric

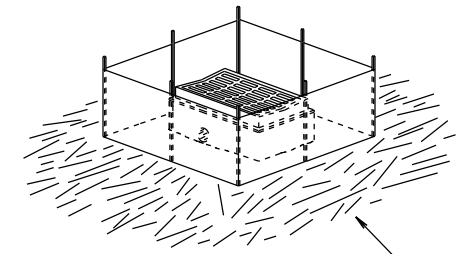
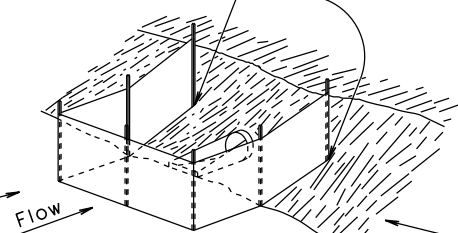
Steel T Fence Post

8" staples shall be placed at each post to secure the silt fence fabric to the bottom of the trench.

Plastic or Wire Ties

SECTION A-A

The elevation at these locations shall be, at a minimum, higher than the top of the silt fence fabric at its lowest elevation.



Post spacing shall be 3' for these types of applications of silt fence. All other components of the silt fence shall be the same as shown above.

The silt fence length and width may be adjusted due to a larger pipe, multiple pipe, or other circumstances during construction as determined by the Engineer.

December 23, 2003

Published Date: 1st Qtr. 2012

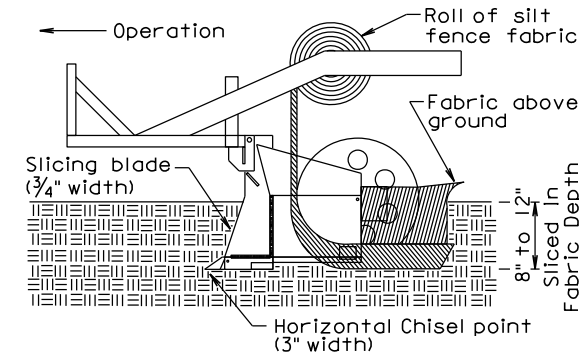
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HIGH FLOW SILT FENCE

PLATE NUMBER
734.05

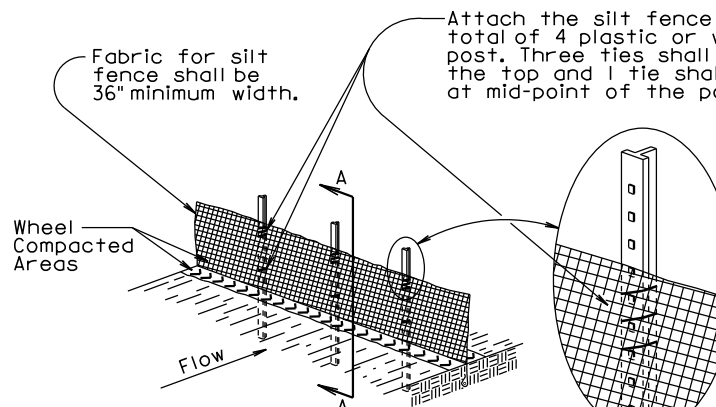
Sheet 1 of 2

MACHINE SLICED HIGH FLOW SILT FENCE INSTALLATION

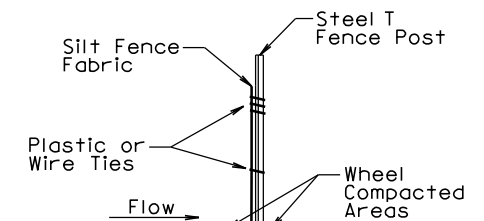


① INSTALL SILT FENCE FABRIC BY MACHINE SLICING METHOD.

② WHEEL COMPACT SOIL ABOVE SLICED IN PORTION OF FABRIC AND THEN DRIVE STEEL T FENCE POSTS.

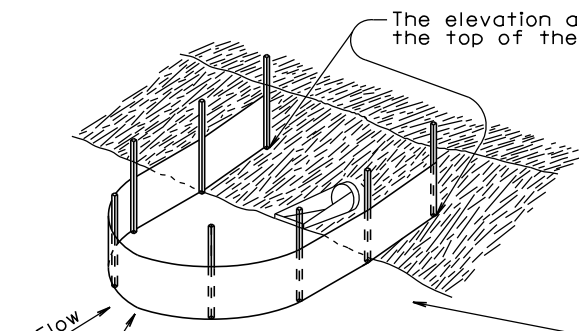


③ ATTACH SILT FENCE FABRIC



SECTION A-A

The elevation at these locations shall be, at a minimum, higher than the top of the silt fence fabric at its lowest elevation.



The silt fence length and width may be adjusted due to a larger pipe, multiple pipe, or other circumstances during construction as determined by the Engineer.

The radius of the silt fence shall be the minimum capable by the slicing machine. The post spacing shall be 3' for these types of applications of silt fence. All the other components of the silt fence shall be the same as shown above.

GENERAL NOTE:

If a trench can not be dug or the silt fence fabric can not be sliced in due to the type of earthen material (such as rock), then a row of 30 to 40 pound sandbags butted end to end shall be provided on top of the extra length of silt fence fabric to prevent underflow.

December 23, 2003

Published Date: 1st Qtr. 2012

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HIGH FLOW SILT FENCE

PLATE NUMBER
734.05

Sheet 2 of 2