

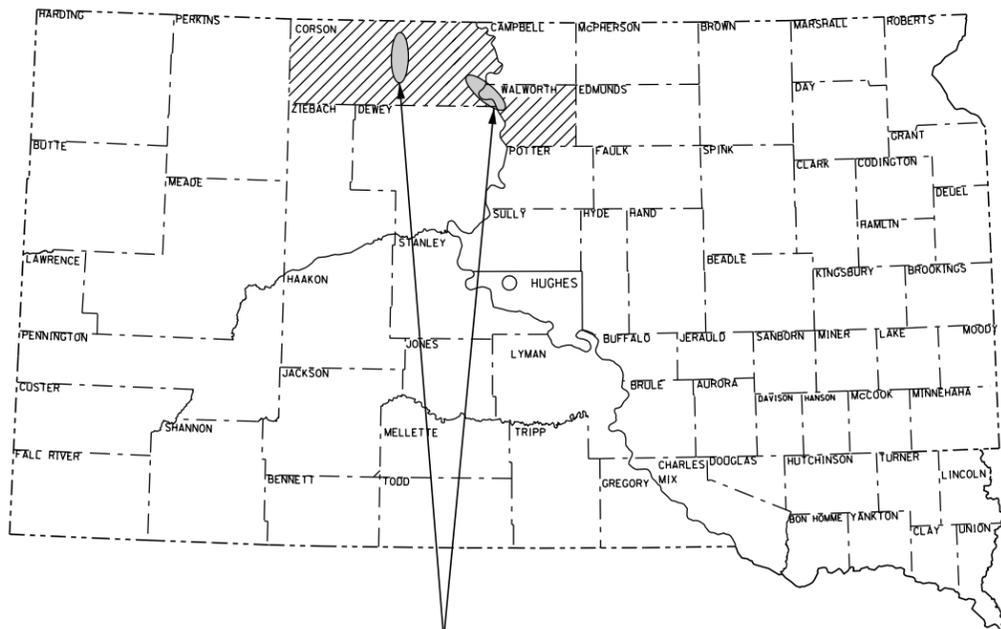
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0012(162)173 & P 0065(12)226	1	54

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED
NH 0012(162)173 & P 0065(12)226
US HIGHWAY 12 & SD HIGHWAY 65
CORSON & WALWORTH COUNTIES

R.O.W. PLANS, SCOUR PROTECTION, & EROSION REPAIR

PCN 032A & 029Q



PROJECT

DESIGN DESIGNATION

(STR. 16-665-200)
ADT (2013) 977
ADT (2033) 1333
DHV 226.6
D 51%
T DHV 9.9%
T ADT 21.8%
V 65 MPH

DESIGN DESIGNATION

(STR. 65-000-020)
ADT (2013) 2284
ADT (2033) 3106
DHV 525.9
D 51%
T DHV 6.5%
T ADT 14.4%
V 65 MPH

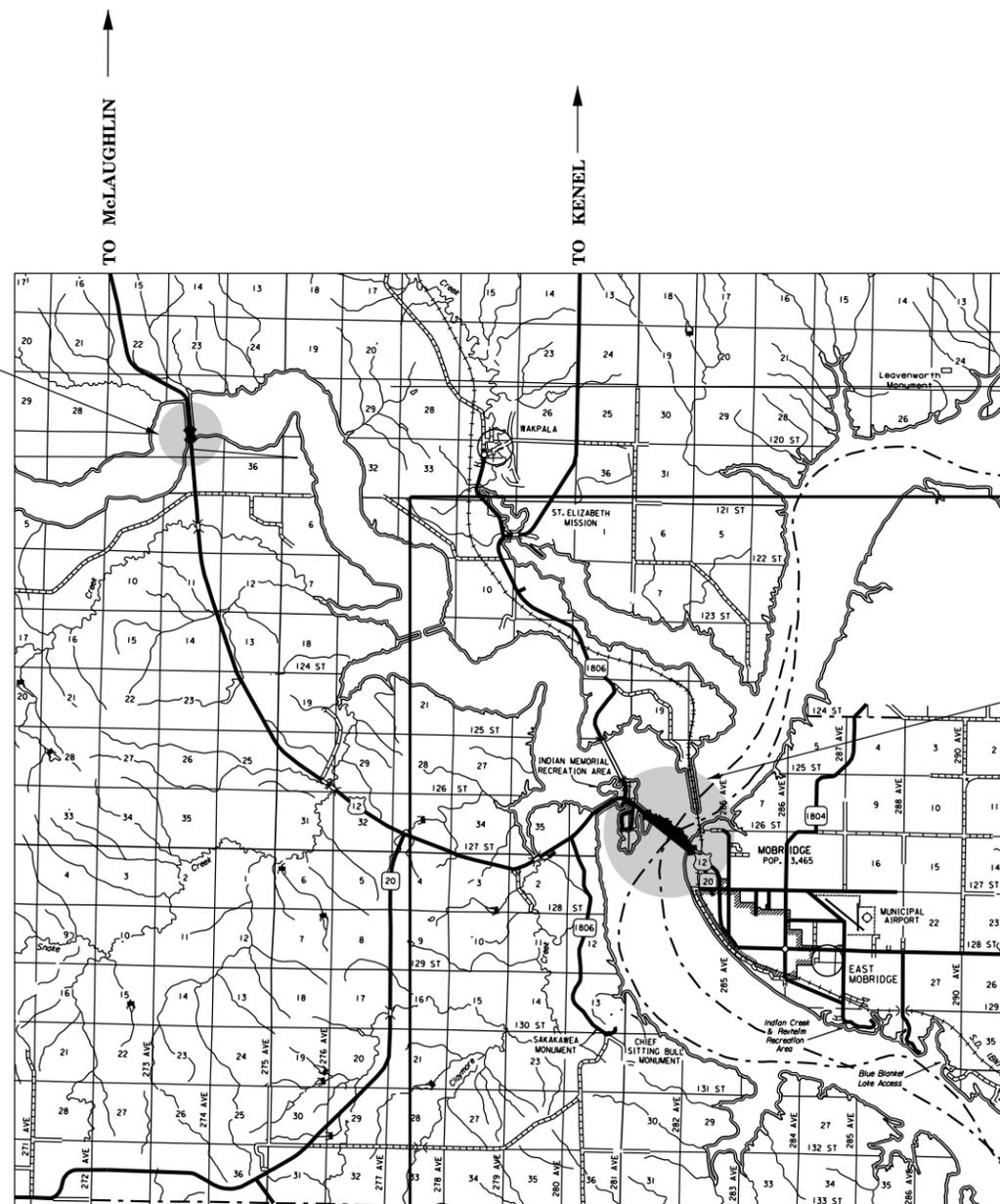
STORM WATER PERMIT

NH 0012(162)173 ~ PCN 032A
Str. 65-000-020
Major Receiving Body of Water: Missouri River
Area Disturbed: 1.88 Acres
Total Project Area: 2.47 Acres
Approx. Begin Lat/Long 45° 33' 40"N 100° 27' 41"W

NH 0012(162)173 ~ PCN 032A
Str. 16-665-200
Major Receiving Body of Water: Grand River
Area Disturbed: 3.17 Acres
Total Project Area: 4.52 Acres
Approx. Begin Lat/Long 45° 39' 35"N 100° 38' 21"W

STR. 16-665-200
OVER GRAND RIVER
550 FT = 0.1 MILE
US 12 MRM 173.40

STR. 65-000-020
OVER MISSOURI RIVER
5058.5 FT = 0.958 MILE
US 12 MRM 187.15



CORSON COUNTY
WALWORTH COUNTY

T 19 N
T 18 N

TO SELBY

TO TRAIL CITY

DEWEY COUNTY WALWORTH COUNTY

R 28 E

R 29 E

R 30 E

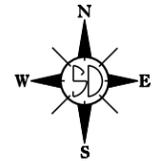
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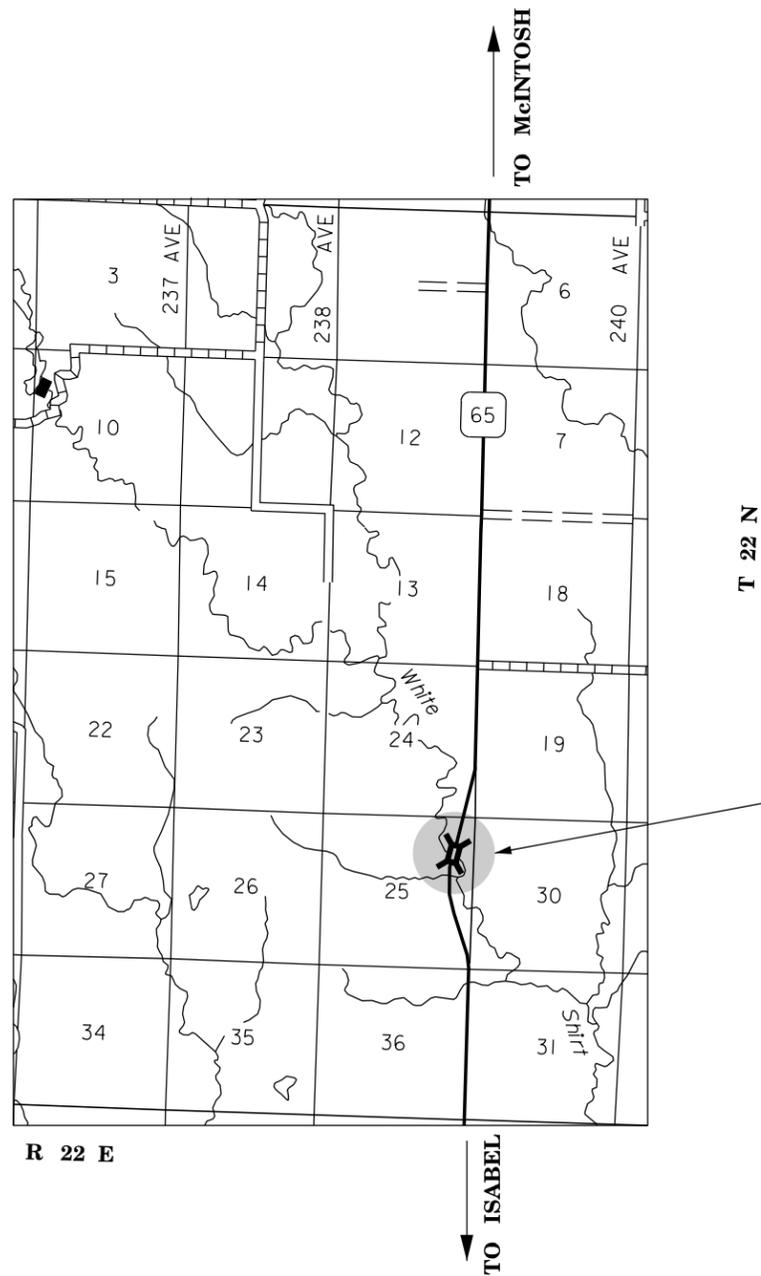
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0012(162)173 & P 0065(12)226	2	54

STATE OF SOUTH DAKOTA
 DEPARTMENT OF TRANSPORTATION
 PLANS FOR PROPOSED
NH 0012(162)173 & P 0065(12)226
US HIGHWAY 12 &
SD HIGHWAY 65
CORSON & WALWORTH COUNTIES



R.O.W. PLANS, SCOUR PROTECTION, & EROSION REPAIR

PCN 032A & 029Q



STR. 16-328-073
OVER WHITE SHIRT CREEK
151.5 FT = 0.0287 MILE
SD 65 MRM 226.46

P 0065(12)226 ~ PCN 029Q
 Str. 16-328-073
 Major Receiving Body of Water: White Shirt Creek/Grand River
 Area Disturbed: 1.18 Acres
 Total Project Area: 1.68 Acres
 Approx. Begin Lat/Long 45° 50' 37" N 101° 19' 51"W

DESIGN DESIGNATION

(STR. 16-328-073)

ADT (2013)	199
ADT (2033)	272
DHV	46.2
D	51%
T DHV	13.6%
T ADT	29.8%
V	65 MPH

ESTIMATE OF QUANTITIES

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
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NH 0012(162)173 - PCN 032A

P 0065(12)226 - PCN 029Q

Revised by JJR on 05/20/14
Revised by JJR on 05/21/14

General:

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
110E1700	Remove Silt Fence	462	Ft
110E7802	Remove Fence for Reset	913	Ft
120E0010	Unclassified Excavation	1,129	CuYd
230E0100	Remove and Replace Topsoil	Lump Sum	LS
620E4100	Reset Fence	913	Ft
634E0010	Flagging	60	Hour
634E0100	Traffic Control	612	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
734E0010	Erosion Control	Lump Sum	LS
734E0154	12" Diameter Erosion Control Wattle	200	Ft
734E0165	Remove and Reset Erosion Control Wattle	50	Ft
734E0602	Low Flow Silt Fence	1,885	Ft
734E0610	Mucking Silt Fence	131	CuYd
734E0620	Repair Silt Fence	462	Ft

Structure Number 65-000-020:

Bid Item Number	Item	Quantity	Unit
250E0010	Incidental Work	Lump Sum	LS
250E0030	Incidental Work, Structure	Lump Sum	LS
460E0174	Concrete Patching Material, Miscellaneous	3.0	CuFt
460E0300	Breakout Structural Concrete	0.1	CuYd
700E0310	Class C Riprap	3,320.8	Ton
831E0110	Type B Drainage Fabric	4,065	SqYd

Structure Number 16-665-200:

Bid Item Number	Item	Quantity	Unit
700E0210	Class B Riprap	3,699.9	Ton
831E0110	Type B Drainage Fabric	3,996	SqYd

General:

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
110E0600	Remove Fence	313	Ft
110E1700	Remove Silt Fence	197	Ft
110E7802	Remove Fence for Reset	117	Ft
120E0010	Unclassified Excavation	600	CuYd
230E0100	Remove and Replace Topsoil	Lump Sum	LS
620E0020	Type 2 Right-of-Way Fence	514	Ft
620E0515	Type 1A Temporary Fence	878	Ft
620E1020	2 Post Panel	14	Each
620E1030	3 Post Panel	4	Each
620E4100	Reset Fence	117	Ft
634E0010	Flagging	20	Hour
634E0100	Traffic Control	306	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
734E0010	Erosion Control	Lump Sum	LS
734E0154	12" Diameter Erosion Control Wattle	100	Ft
734E0165	Remove and Reset Erosion Control Wattle	25	Ft
734E0602	Low Flow Silt Fence	789	Ft
734E0610	Mucking Silt Fence	55	CuYd
734E0620	Repair Silt Fence	197	Ft

Structure Number 16-328-073:

Bid Item Number	Item	Quantity	Unit
700E0310	Class C Riprap	3,720.4	Ton
831E0110	Type B Drainage Fabric	2,703	SqYd

ENVIRONMENTAL COMMITMENTS NOTES

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0012(162)173 & P 0065(12)226	4	54

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 B4: BALD EAGLE

Bald eagles are known to occur in this area.

Action Taken/Required:

If a nest is observed within one mile of the project site, notify the Project Engineer immediately so that he/she can consult with the Environmental Office for an appropriate course of action.

COMMITMENT C: WATER SOURCE

The Contractor shall not withdraw water with equipment previously used outside the State of South Dakota without prior approval from the SDDOT Environmental Office. Thoroughly wash all construction equipment before entering South Dakota to reduce the risk of invasive species introduction into the project vicinity.

Action Taken/Required:

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

COMMITMENT D: WATER QUALITY STANDARDS

COMMITMENT D1: SURFACE WATER QUALITY

PCN 029Q: White Shirt Creek is classified as fish and wildlife propagation, recreation, irrigation, and stock watering waters. Because of these beneficial uses, special construction measures may have to be taken to ensure that this water body is not impacted.

PCN 032A: Missouri River is classified as cold water permanent fish and wildlife propagation, recreation, irrigation, and stock watering waters. Because of these beneficial uses, special construction measures may have to be taken to ensure that this water body is not impacted. The total suspended solid standard is 30 mg/L.

The Grand River is classified as warm water permanent fish and wildlife propagation, recreation, irrigation, and stock watering waters. Because of these beneficial uses, special construction measures may have to be taken to ensure that this water body is not impacted. The total suspended solid standard is 90 mg/L.

Action Taken/Required:

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. Special construction measures shall be taken to ensure the above standard(s) of the surface waters are maintained and protected.

COMMITMENT D2: SURFACE WATER DISCHARGE

The Missouri River, Grand River, and White Shirt Creek are classified as fish and wildlife propagation, recreation, irrigation, and stock watering waters. Because of these beneficial uses, special construction measures may have to be taken to ensure that this water body is not impacted.

Action Taken/Required:

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

COMMITMENT E: STORM WATER

Construction activities constitute 1 acre or more of earth disturbance.

Action Taken/Required:

The DENR and the US Environmental Protection Agency (EPA) have issued separate general permits for the discharge of storm water runoff. The DENR permit applies to discharges on state land and the EPA permit applies to discharges on federal or reservation land. The Contractor is advised this project is regulated under the Phase II Storm Water Regulations and must receive coverage under the 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 off-site activities, such as borrow and staging areas, which are the responsibility of the Contractor.

The Contractor shall adhere to the "Special Provision Regarding Storm Water Discharges to Waters of the State".

The Contractor shall adhere to the "Special Provision Regarding Storm Water Discharge to Waters of the United States within Indian Reservations".

A major component of the storm water construction permits is development and implementation of a Storm Water Pollution Prevention Plan (SWPPP), which is a joint effort and responsibility of the SDDOT and the Contractor. Erosion control measures and best management practices will be implemented in accordance with the SWPPP. The SWPPP is a dynamic document and is to be available on-site at all times.

Information on storm water permits and SWPPPs are available on the following websites:

SDDOT: <http://sddot.com/transportation/highways/environmental/stormwater/Default.aspx>

DENR: <http://www.denr.sd.gov/des/sw/stormwater.aspx>

EPA: http://cfpub.epa.gov/npdes/home.cfm?program_id=6

ENVIRONMENTAL COMMITMENTS NOTES

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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:

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

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

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

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

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

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

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

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

COMMITMENT I: HISTORICAL PRESERVATION OFFICE CLEARANCES

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

Action Taken/Required:

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

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

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

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

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

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

COMMITMENT J: CONSTRUCTION PRACTICES FOR TEMPORARY WORKS IN WATERWAYS OF THE U.S.

The Contractor is advised that special construction measures have to be taken to ensure that the waterways of the U.S. are not impacted.

Action Taken/Required:

No excavation shall be made below the ordinary high water elevation in waterways outside of caissons, cribs, cofferdams, steel piling, or sheeting; and the natural streambed shall not be disturbed unless specified by the plans and under the observation of the Project Engineer. Refer to the Table of U.S. Waterways to Protect for ordinary high water elevations.

All dredged or excavated materials shall be placed at a site above the ordinary high water elevation in a confined area (not classified as a wetland) that is a minimum of 50 feet away from concentrated flows of storm water, drainage courses, and inlets to prevent return of such material to the waterway.

The construction of temporary work platforms, crossings, or berms below the ordinary high water elevation will be allowed provided that all material placed below the ordinary high water elevation consists of Class B or larger riprap.

All temporary caissons, cribs, cofferdams, steel piling, sheeting, work platforms, crossings, and berms shall be removed with minimal disturbance to the streambed. Proper construction practices shall be used to minimize increases in suspended solids and turbidity in the waterway.

Bridge berms, wing dams, traffic diversions, channel reconstruction, grading, etc. shall be constructed in close conformity with the plans to ensure that the hydraulic capacity of the waterway is not changed.

Temporary waterway crossings required for the Contractors construction operations shall be constructed with an adequate drainage structure size and minimum fill height to reduce the potential for upstream flooding. The Contractor will be responsible for sizing the temporary drainage structure for these crossings.

Table of U.S. Waterways to Protect

PCN	Waterway	Ordinary High Water Elevation
032A	Grand River	1617.00
032A	Missouri River	1617.00
029Q	White Shirt Creek	2029.68

COMMITMENT N: SECTION 404 PERMIT

The SDDOT has obtained a Section 404 Permit from the US Army Corps of Engineers for the permanent actions associated with this project.

Action Taken/Required:

The Contractor shall comply with all requirements contained in the Section 404 permit.

The Contractor shall also be responsible for obtaining a Section 404 permit for any dredge, excavation, or fill activities associated with staging areas, borrow sites, waste disposal sites, or material processing sites that affect wetlands or waters of the United States.

STORM WATER POLLUTION PREVENTION PLAN CHECKLIST

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0012(162)173 & P 0065(12)226	6	54

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):

STRUCTURE NUMBER 16-328-073

- **Total Project Area** 1.68 ACRES (4.2 1.b.)
- **Total Area To Be Disturbed** 1.18 ACRES (4.2 1.b.)
- **Existing Vegetative Cover (%)** 70
- **Soil Properties:** AASHTO Soil or USDA-NRCS Soil Series
Classification: Havrelon Loam, Channeled (4.2 1. d.)
- **Name of Receiving Water Body/Bodies** White Shirt Creek/Grand River (4.2 1.e.)

STRUCTURE NUMBER 16-665-200

- **Total Project Area** 4.52 ACRES (4.2 1.b.)
- **Total Area To Be Disturbed** 3.17 ACRES (4.2 1.b.)
- **Existing Vegetative Cover (%)** 70
- **Soil Properties:** AASHTO Soil or USDA-NRCS Soil Series
Classification: Bullcreek Clay & Sansarc-Opal-Dupree Clays (4.2 1. d.)
- **Name of Receiving Water Body/Bodies** Grand River (4.2 1.e.)

STRUCTURE NUMBER 65-000-020

- **Total Project Area** 2.47 ACRES (4.2 1.b.)
- **Total Area To Be Disturbed** 1.88 ACRES (4.2 1.b.)
- **Existing Vegetative Cover (%)** 70
- **Soil Properties:** AASHTO Soil or USDA-NRCS Soil Series
Classification: Gravel Pits & Sully Silt Loam (4.2 1. d.)
- **Name of Receiving Water Body/Bodies** Missouri River (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 perimeter protection where runoff sheets from the site.**
- **Install channel and ditch bottom protection.**
- **Remove and store topsoil.**
- **Stabilize disturbed areas.**
- **Complete final grading.**
- **Reseed areas disturbed by removal activities.**

❖ 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 $\frac{1}{3}$ 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 $\frac{1}{2}$ 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.

STORM WATER POLLUTION PREVENTION PLAN CHECKLIST

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❖ **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:

❖ **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 re-sealable.
- 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 cleanup 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 cleanup 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 cleanup 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.

STORM WATER POLLUTION PREVENTION PLAN CHECKLIST

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0012(162)173 & P 0065(12)226	8	54

❖ 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.

CERTIFICATIONS

➤ Certification of Compliance with Federal, State, and Local Regulations

The Storm Water Pollution Prevention Plan (SWPPP) for this project reflects the requirements of all local municipal jurisdictions for storm water management and sediment and erosion control as established by ordinance, as well as other state and federal requirements for sediment and erosion control plans, permits, notices or documentation as appropriate.

➤ South Dakota Department of Transportation

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.



Authorized Signature (See the General Permit, Section 6.7.1.C.)

➤ Prime Contractor

This section is to be executed by the General Contractor after the award of the contract. This section may be executed any time there is a change in the Prime Contractor of the project.

I certify under penalty of law that this document and all attachments will be revised or maintained under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Authorized Signature

CONTACT INFORMATION

➤ Contractor Information:

- Prime Contractor Name:
- Contractor Contact Name:
- Address:
- Address:
- City: State: Zip:
- Office Phone: Field:
- Cell Phone: Fax:

➤ Erosion Control Supervisor

- Name:
- Address:
- Address:
- City: State: Zip:
- Office Phone: Field:
- Cell Phone: Fax:

➤ SDDOT Project Engineer

- Name:
- Business Address:
- Job Office Location:
- City: State: Zip:
- Office Phone: Field:
- Cell Phone: Fax:

➤ SD DENR Contact Spill Reporting

- Business Hours Monday-Friday (605) 773-3296
- Nights and Weekends (605) 773-3231

➤ SD DENR Contact for Hazardous Materials.

- (605) 773-3153

➤ National Response Center Hotline

- (800) 424-8802.

SPECIFICATIONS

Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 2004 Edition and Required Provisions, Supplemental Specifications and Special Provisions as included in the Proposal.

SCOPE OF WORK

The work required within these projects includes, but is not limited to, the following items, not listed in order of execution.

1. Remove R.O.W Fence
2. Remove for Reset R.O.W. Fence
3. Install Temporary R.O.W. Fence
4. Remove/Stockpile Topsoil
5. Remove/Salvage Existing Riprap
6. Slope Grading
7. Drainage Fabric & Riprap Placement
8. Replace Topsoil
9. Install New R.O.W. Fence
10. Permanent Seeding & Mulching of Disturbed Areas

The Contractor is encouraged to inspect the project sites prior to bidding to evaluate the extent of work that will be required for construction.

SEQUENCE OF OPERATIONS

The Contractor may perform work on the erosion areas during daylight hours only, unless additional hours are approved by the Engineer. Daylight hours are considered to be ½ hour before sunrise until ½ hour after sunset.

The Contractor shall submit his/her proposed sequence of operations for the Engineer's approval at least two week prior to the preconstruction meeting.

Traffic shall be maintained through the project at ALL Times.

The Contractor needs to pay particular attention to the water level at each structure while planning work. Work will need to be accomplished when the water level is below the lowest work elevations shown in the Environmental Commitment Notes.

Once the deck drain work on Structure 65-000-020 begins, work shall proceed in a continuous manner. Additional flagging hours have been set up to complete the work.

UTILITIES

The Contractor shall be aware that the existing utilities shown in the plans were surveyed prior to the design of this project and might have been relocated or replaced by a new utility facility prior to construction of this project or might not require adjustment and may remain in its current location. The Contractor shall contact each utility owner and confirm the status of all existing and new utility facilities. The utility contact information is provided elsewhere in the plans or bidding documents.

Utilities are 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 Engineer to determine modifications that will be necessary to avoid utility impacts.

TRAFFIC CONTROL

The Contractor shall designate an employee who will be available 24 hours/day, 7 days/week to be responsible for the maintenance of traffic during periods of repair work. The person so designated must have training and experience in the field of construction traffic control and be knowledgeable about the Manual on Uniform Traffic Control Devices (MUTCD). The cost of the traffic control person shall be incidental to the contract lump sum price for Traffic Control, Miscellaneous. The Engineer must approve the employee selected. The name and phone number of person(s) shall be provided to the SD Department of Transportation (605-845-3844), Mobridge Area Dispatch (605-845-5000) SD Highway Patrol (Pierre State Radio (605-773-3536)), Corson County Sheriff's Department (605-273-4210) & Walworth County Sheriff's Department (605-649-7600).

Channelizing devices in a series shall be of the same type.

Channelizing drums shall be of a two part construction with breakaway bases.

All traffic control devices shall be in "like new" condition.

GENERAL MAINTENANCE OF TRAFFIC

Removing, relocating, covering, salvaging and resetting of existing traffic control devices, including delineation, shall be the responsibility of the Contractor. Cost for this work shall be incidental to the contract unit prices for the various items unless otherwise specified in the plans. Any 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 outside the clear zone (30') and as near as possible to the right-of-way line. Contractor's employees should mobilize at a location off the right-of-way and arrive at the work site 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.

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

Access to businesses and residences along the project shall be maintained at all times, unless arrangements are made between the Contractor and business or residence owners to provide an alternative entrance during construction.

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

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

The Contractor shall provide documentation that all breakaway sign supports comply with FHWA NCHRP Report 350 or MASH crash-worthy requirements.

GENERAL MAINTENANCE OF TRAFFIC (Continued)

The Contractor shall provide installation details at the preconstruction meeting for all breakaway sign support assemblies.

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

REMOVING, STOCKPILING, AND REPLACING TOPSOIL

The Contractor will be required to remove and salvage 4 inches of the existing topsoil down a portion of the inslope throughout the entire length of the riprap installation, reprofiling areas and at areas where the Engineer determines to be necessary based on the amount of disturbance to the existing topsoil due to the Contractor's operation.

The Contractor shall stockpile the material at a site approved by the Engineer, and/or windrow the material near the disturbed areas to control potential sediment runoff as determined by the Engineer.

The replacement of topsoil shall be spread evenly throughout all disturbed areas upon completion of the work. Any clumps larger than 3 inches shall be broken up prior to seeding the areas.

All topsoil removal, stockpiling, salvaging, windrowing, and replacement shall be done as according to the plans and/or as directed by the Engineer.

All cost associated with removing, salvaging, stockpiling, windrowing, and replacing topsoil shall be incidental to the contract lump sum price for "Remove and Replace Topsoil".

Measurement of topsoil quantities will not be made; however for informational purposes only, the Table of Estimated Topsoil Removal and Replacement shows the estimated topsoil removal and replacement throughout the projects within this Contract.

TABLE OF ESTIMATED TOPSOIL REMOVAL AND REPLACEMENT

PCN 032A:

Location	Topsoil Removal & Replacement (CuYd)
Grand River	330
Missouri River	314
Total:	644

PCN 029Q:

Location	Topsoil Removal & Replacement (CuYd)
White Shirt Creek	267
Total:	267

RIPRAP

General: The riprap slope shall be established as shown on the cross sections and shall be placed to the satisfaction of the Engineer and by following the Standard Specifications.

Prior to riprap placement, it will be necessary to re-construct the embankment necessary to insure the proper profile of the embankment is re-established.

All disturbed areas beyond the riprap placement and other areas disturbed due to construction activities shall be restored to the satisfaction of the Engineer.

A factor of 1.4 tons per cubic yard was used to convert cubic yard to Tons.

Drainage fabric shall be placed underneath and up the sides of the riprap. The fabric shall conform to Section 831 of the Standard Specifications.

Type B Drainage Fabric will be measured and paid for by the square yard of surface area of fabric accepted complete in place on the project. Measurement will not include fabric required for lapped seams or joints. Payment will be full compensation for furnishing the drainage fabric and for all labor, equipment, materials, and incidentals necessary to prepare the area for the fabric and to satisfactory install the drainage fabric.

PCN 029Q:

ABUTMENT:

Fill and reshape both abutments to match existing slopes as per the proposed layout. The southwest apron will use a 3:1 slope that will blend into a 4:1 side slope as it merges into the channel under the bridge. Under the structure a 6:1 slope shall be used to match the existing terrain, but at the very top a small layer of 2:1 slopes should be used to bring the riprap to 2'-0". On the northeast abutment the 6:1 slopes should taper into a 4:1 slope to match existing and on the southeast a 6:1 should match existing. Except for the southwest abutment the launchable keys should all taper up from the channel bottom to match the existing grade back from the abutment.

The entire apron on the southwest corner shall extend down to the estimated channel bottom elevation of 2029.18' (verify in field). A Class C Riprap apron 2'-6" thick is required throughout the whole structure with a Type B Drainage Fabric extending under the launchable key. A 22'-0" wide by 4'-0" deep launchable key shall be installed around the outer limits of the apron. A key trench on the edges of the riprap apron where the toe key does not exist shall be installed. This edge detail key shall have a bottom width three times the apron thickness of 7'-6" and a depth of the apron thickness 2'-6". The Apron Edge Detail can be seen on sheet 23.

CHANNEL:

A 2'-6" thick apron of Class C Riprap shall be placed with 4:1 side slopes between bents #3 and #4. Type B Drainage Fabric shall be placed under this riprap layer.

The bed elevation is estimated at 2029.18 feet and should be verified in the field. This elevation (2029.18 feet) places the new channel bed six inches below the original design flow line elevation.

RIPRAP (Continued)

PIERS:

At Bents #3 and #4, place at each column a 28'-11" by 9'-4" square of Class C Riprap that is 6'-6" thick with Type B Drainage Fabric. The filter should only extend to 2/3 of the total extent of the riprap. This is to help prevent undermining of the filter fabric beneath the riprap.

PCN 032A: Grand River

Shape the cut bank and place Type B Drainage Fabric and Class B Riprap from Station 2+20 to Station 3+13.63, Rt. and from Station 2+00 to Station 3+02.21, Lt. A minimum of 2'-6" feet of riprap shall be placed on a 4:1 slope and keyed in at the toe 5 feet. The bridge berm face shall be armored to elevation 1630±. The riprap slope shall warp into the existing riprap berm slopes on the southern abutment. Warp the riprap right of centerline into the existing riprap tower berm near Station 2+00±, Rt. Shape the slope above the boat ramp to improve ramp access. Warp the soil slope into the riprap slope ahead from Station 1+00± to Station 2+00±, Lt.

Shape the cut bank and place Type B Drainage Fabric and Class B Riprap from Station 8+05.53 to Station 9+28.72, Rt. and from Station 8+14.60 to Station 9+20, Lt. A minimum of 2'-6" feet of riprap shall be placed on a 4:1 slope and keyed in at the toe 5 feet. The 4:1 bridge berm face shall be armored from elevation 1610± to elevation 1640±. The riprap slope shall warp into the existing riprap berm slopes on the northern abutment. Warp the riprap right of centerline into the existing riprap tower berm near Station 9+28.72, Rt. Warp the riprap slope into the slope ahead and shape the existing slope to the satisfaction of the Engineer.

PCN 032A: Missouri River

Shape the existing cut bank and place Type B Drainage Fabric and Class C Riprap from Station 0+00 to Station 5+23. A minimum of 3 feet of rip rap shall be placed on a 2:1 slope and keyed in at the toe. The 2:1 bridge berm face shall be armored from elevation 1610± to elevation 1640±. The riprap slope shall warp into the existing slopes on either side of the berm slope. Transitioning out of the riprap key as the riprap slope warps to natural ground from Station 3+56 to Station 5+23. The pier footing located at Station 1+89 to Station 2+14, 14.5' Lt. shall not be disturbed by riprap construction operations. The existing riprap from Station -0+58 to Station 1+80 shall be salvaged for use in re-construction.

PCN 032A:

Location	Class B Riprap (Tons)	Class C Riprap (Tons)	Incidental Work (Salvaged Riprap) (Tons)
Grand River	3,699.9	0	0
Missouri River	0	3,320.8	946.0
Total:	3,699.9	3,320.8	946.0

PCN 029Q:

Location	Class C Riprap (Ton)	Incidental Work (Salvaged Riprap) (Tons)
White Shirt Creek	6,720.4	0
Total:	6,720.4	0

UNCLASSIFIED EXCAVATION

Material as shown in the plans, table of unclassified excavation, and cross sections shall be removed to re-establish the desired embankment profile. It is anticipated that the majority of the removed material shall be wasted. The unclassified material shall be placed as shown in the applicable plan sheets and/or to the satisfaction of the Engineer. For information only, the plans quantity and excavation to achieve the riprap footprint for Unclassified Excavation is shown in the Table of Unclassified Excavation. Payment for the bid item "Unclassified Excavation" shall be paid for at the plan quantity for overburdened material. Once the overburdened material has been removed, payment for "Unclassified Excavation" to achieve the riprap footprint shall be incidental to the placement of the riprap.

A shrinkage factor of 30% was used.

TABLE OF UNCLASSIFIED EXCAVATION

PCN 032A:

Location	Excavation Quantity (Overburden Material) (CuYd)	Excavation Quantity (Incidental to Riprap) (CuYd)	Place Back Quantity +30% (CuYd)
Grand River	710	2,010	302
Missouri River	419	3,419	161
Total:	1,129	5,429	463

PCN 029Q:

Location	Excavation Quantity (Overburden Material) (CuYd)	Excavation Quantity (Incidental to Riprap) (CuYd)	Place Back Quantity +30% (CuYd)
White Shirt Creek	600	2,000	10
Total:	600	2,220	10

WATER FOR EMBANKMENT

When, in the opinion of the Engineer, the fill material is dry, water may be ordered and placed to the satisfaction of the Engineer. The moisture content for compaction shall be approximately optimum moisture for the material unless otherwise directed by the Engineer. The cost of water shall be incidental to the contract unit price per cubic yard for "Unclassified Excavation". For informational purposes only, it has been estimated that if water is needed it shall be at the rate of 10 gallons per cubic yard of material. An estimated 0.10 MGal of water is required for PCN 029Q and 4.63 MGal of water is required for PCN 032A.

Revised by JJR on 05/20/2014

EROSION CONTROL WATTLE

Erosion control wattles for restraining the flow of runoff and sediment shall be installed at locations determined by the Engineer during construction. Refer to Standard Plate 734.06 for details.

The placement of the erosion control wattles will be determined by the Engineer.

The Contractor shall provide certification that the erosion control wattles do not contain noxious weed seeds.

Erosion control wattles shall remain on the project until vegetation has been established.

The erosion control wattle provided shall be from the approved product list. The approved product list for erosion control wattle may be viewed at the following internet site:

<http://sddot.com/business/certification/products/Default.aspx>

REMOVE AND RESET EROSION CONTROL WATTLE

Erosion control wattles may be removed and reset as necessary as work progresses. The erosion control wattles removed and reset shall be in useable condition. All costs for removing and resetting the erosion control wattles shall be incidental to the contract unit price per foot for "Remove and Reset Erosion Control Wattle".

MYCORRHIZAL INOCULUM

Mycorrhizal inoculum shall consist of mycorrhizal fungi spores and mycorrhizal fungi-infected root fragments in a solid carrier. The carrier may include organic materials, calcinated clay, or other materials consistent with application and good plant growth. The supplier shall provide certification of the fungal species claimed and the live propagule count. The inoculum shall include the following fungal species:

- Glomus intraradices* 25%
- Glomus aggregatu* 25%
- Glomus mosseae* 25%
- Glomus etunicatum* 25%

All seed shall be inoculated by the seed supplier with a minimum of 100,000 live propagules of mycorrhizal fungi per acre. All costs of inoculating the seed shall be incidental to the contract lump sum price for Erosion Control.

The mycorrhizal inoculum shall be from the list below or an approved equal:

<u>Product</u>	<u>Manufacturer</u>
MycoApply	Mycorrhizal Applications, Inc. Grants Pass, OR Phone: 1-866-476-7800 http://www.mycorrhizae.com/

EROSION CONTROL

The areas disturbed as a result of work on these projects shall be restored and/or reshaped to the satisfaction of the Engineer. All disturbed areas beyond the riprap limits shall be seeded and mulched.

All permanent seed shall be planted in the topsoil at a depth of ¼" to ½". Hand seeding devices approved by the Engineer will be allowed. All seed broadcast must be raked or dragged in (incorporated) within the top ¼" to ½" of topsoil when possible. This requirement may be waived by the Engineer during construction when raking or dragging is deemed not feasible by conventional methods.

Seed Mixture shall consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Flintlock, Rodan, Rosana	7
Green Needlegrass	Lodorm	4
Sideoats Grama	Butte, Killdeer, Pierre, Trailway	3
Little Bluestem or Buffalograss or Blue Grama	Badlands, Itasca, Bowie, Cody, Tatanka, Bad River, Willis	2
Regreen or QuickGuard: all year; Oats or Spring Wheat: April through May; Winter Wheat: August through November		10
Total:		26

It is estimated that 0.91 acres shall be disturbed throughout the aforementioned areas. Application of fertilizer will not be required on this project.

Bales with noxious weed contamination will be rejected and the Contractor will be required to remove the contaminated bales from the project.

All costs associated with furnishing and placing the seed, inoculum, and mulch along with the labor, equipment, and all incidentals needed to satisfactorily complete the work shall be paid for at the contract lump sum price for "Erosion Control".

LOW FLOW SILT FENCE

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

<http://apps.sd.gov/Applications/HC54ApprovedProducts/main.asp>

Low flow silt fence shall be placed at locations that will minimize the siltation of adjacent streams, lakes, dams, or drainage areas as determined by the Engineer during construction. Refer to Standard Plate 734.04 for details.

An estimate of Low Flow Silt Fence has been added to the Estimate of Quantities and for temporary sediment control at each riprap location.

TABLE OF LOW FLOW SILT FENCE

PCN 032A:

Location	Quantity (Ft)
Grand River	1173
Missouri River	632
Additional Quantity:	80
Total:	1885

PCN 029Q:

Location	Quantity (Ft)
White Shirt Creek	749
Additional Quantity:	40
Total:	789

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 the entire silt fence may be left on the project until vegetation is established as determined by the Engineer.

INCIDENTAL WORK

The Contractor will be required to remove/salvage the existing field stone and remove the existing fabric on the Missouri River bank prior to placing the new riprap.

All salvaged field stone replaced on the bank slope shall not be contaminated with dirt and/or other foreign material.

It is estimated that 946 tons (for informational purposes only) of existing riprap will be required to be removed, salvaged, and replaced throughout the aforementioned areas and 929 square yard of fabric to be removed.

All of the removed fabric shall become property of the Contractor.

All costs associated with the removal, salvage/stockpile, and placement of the existing field stone along with all incidentals needed to complete the work shall be incidental to the contract lump sum price for "Incidental Work". The cost for the new placement of fabric shall be paid for at the contract unit price per square yard of "Type B Drainage Fabric".

Instrumentation

Inclinometers have been installed onsite at the Missouri River. All instruments within the work area that are active shall be flagged by the State prior to construction and preserved for future use. The Contractor will be responsible for reinstalling instrumentation destroyed during grading operations at their own expense. The type and location of each instrument to be preserved is listed in the table below:

Instrument Type	Location
Inclinometer	Missouri River – Station 1+85, 108' Rt.
Inclinometer	Missouri River – Station 2+41, 104' Rt.

RIGHT-OF-WAY (ROW) FENCE

General:

Where fence is being removed, reset, and replaced the Contractor shall install the fence on the same alignment and/or as detailed in the plans as determined by the Engineer. It shall be the Contractor's responsibility to preserve the existing fence alignment. Refer to the "Plan View" sheets for fence locations and details.

Remove Fence for Reset:

The Contractor shall remove fence at the locations denoted in the plans to gain access to the project sites with equipment and materials needed.

All costs associated with removal of the fence and resetting the fence shall be incidental to the contract unit price per foot for "Remove Fence for Reset" and "Reset Fence".

Type 1A Temporary Fence:

The Contractor shall be responsible for erecting temporary fencing as required to maintain control of livestock and prevent livestock from leaving the pasture near the work areas.

It shall be the responsibility of the Contractor to contact the landowner(s) to determine the need/location of the temporary fence.

All costs associated with the temporary fencing shall be incidental to the contract unit price per foot for "Type 1A Temporary Fence".

Type 2 Right-of-Way Fence:

The Contractor shall install new Type 2 Right-of-Way fence at the locations denoted in the plans and/or as directed by the Engineer.

All costs associated with the Type 2 Right-of-Way fence shall be incidental to the contract unit price per foot for "Type 2 Right-of-Way Fence".

RIGHT-OF-WAY (ROW) FENCE (Continued)

Revised by JJR on 05/21/2014

Post Panels:

Where fence is being removed and replaced with new Right-of-Way fence the new 2 Post Panels or 3 Post Panels shall be installed where new fence ties into the existing fence. Payment shall be full compensation for furnishing material, (including posts, brace post, diagonal brace wire, and dowels), labor, equipment and all incidentals necessary to construct the post panels and shall be paid for at the contract unit price per each for "2 Post Panel" or "3 Post Panel".

The E-Z Brace or an approved equal may be utilized as an alternate horizontal brace in the brace panels if approved by the Engineer. The E-Z Brace shall be attached to each wood post utilizing two 5/16" x 3" lag screws. Holes of appropriate diameter, based on wood post condition, shall be drilled before placement of lag screws.

The following are contacts regarding the E-Z Brace:

Roger Papka E-Z Brace 1160 Karen St. Watertown, SD 57201 605-881-6142	Dennis Mack E-Z Brace 108 18 th St. NE Watertown, SD 57201 605-881-4990
---	--

SIGN TABULATION

NH 0012(162)173 PCN 032A

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2	36" x 18"	END ROAD WORK	4	17	68
W8-6	48" x 48"	TRUCK CROSSING	4	34	136
W20-1	48" x 48"	ROAD WORK ##### FT. OR AHEAD	4	34	136
W20-7	48" x 48"	FLAGGER	4	34	136
W21-5	48" x 48"	SHOULDER WORK	4	34	136
TOTAL UNITS					612

P 0065(12)226 PCN 029Q

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2	36" x 18"	END ROAD WORK	2	17	34
W8-6	48" x 48"	TRUCK CROSSING	2	34	68
W20-1	48" x 48"	ROAD WORK ##### FT. OR AHEAD	2	34	68
W20-7	48" x 48"	FLAGGER	2	34	68
W21-5	48" x 48"	SHOULDER WORK	2	34	68
TOTAL UNITS					306

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0012(162)173 & P.0065(12)226	13	54

SCOPE OF BRIDGE WORK & SEQUENCE OF OPERATIONS

All work on this structure shall be accomplished with the traffic control shown elsewhere in the plans.

1. Remove deck drain extensions at the locations shown in the plans.
2. Breakout concrete at the locations and to the limits shown in the plans.
3. Plug the deck drain and place concrete patching material.

DECK DRAIN EXTENSION REMOVAL

1. This work shall consist of removing the deck drain extensions and drain grates at the plan specified locations.
2. The deck drain extensions shall be removed by detaching the bolted connections to the girders and stringers.
3. All labor and equipment necessary to remove the deck drain extensions and drain grates shall be incidental to the contract lump sum price for "Incidental Work, Structure".

CONCRETE BREAKOUT

1. The existing deck shall be broken out to the limits shown on the plans. Breakout limits shall be defined with a 3/4" deep sawcut (unless specified otherwise in these plans), where practical, as approved by the Engineer. Reinforcing steel that is exposed shall be cleaned and straightened to the satisfaction of the Engineer. Care shall be taken not to damage the existing reinforcing steel during concrete breakout. Any reinforcing steel that is damaged during concrete breakout shall be replaced or repaired, as approved by the Engineer, by the Contractor at no cost to the Department.
2. All broken out concrete shall be disposed of by the Contractor. Any disposal of discarded material shall be in accordance with the Environmental Commitments.
3. During concrete removal operations, no broken out concrete shall be allowed to fall into the Missouri River.
4. The contract unit price per cubic yard for "Breakout Structural Concrete" shall include breaking out concrete, cleaning, straightening existing reinforcing steel and disposal of all broken out material.

CONCRETE PATCHING MATERIAL

1. Concrete patching material shall be used to repair the concrete breakout areas and fill the existing deck drains.
2. Upon completion of the concrete removal and immediately prior to placing any concrete patching material into the concrete removal areas, the removal areas shall be thoroughly cleaned of loose and foreign material by abrasive blasting. The surface profile of the area to receive the patching material shall be in accordance with the manufacturer's recommendations. The abrasive blasting shall be to the extent that all surface laitance is removed. Abrasive blast cleaning shall expose the coarse aggregate and remove rust from any exposed reinforcing steel. After abrasive blasting, the surface shall be cleaned by the use of compressed air to the satisfaction of the Engineer. The air compressor used for cleaning shall be equipped with trap devices capable of providing moisture-free and oil-free air at a recommended pressure of 90 psi.
3. The concrete patching material shall consist of the following product or an approved equal (as approved by the Bridge Construction Engineer in the Office of Bridge Design).

HD-50
Dayton Superior Chemical Division
402 South First Street
Oregon, IL, 61061
Telephone (815) 732-3136 or (800) 745-3707
Fax (815) 732-2866

The concrete patching material shall be applied and cured as recommended by the Manufacturer and as approved by the Engineer.

4. Concrete Patching Material, Miscellaneous will be measured to nearest 0.1 cubic feet as determined from the theoretical yield per bag of Concrete Patching Material, Miscellaneous. Concrete Patching Material, Miscellaneous will be paid for at the contract unit price per cubic foot. Payment will be full compensation for all labor, equipment, materials, and all incidental work required to abrasive blast clean the removal areas, and furnish, place and cure the concrete patching material within the removal areas.

HORIZONTAL ALIGNMENT DATA

P 0065(12)226 PCN 029Q

Type	Station	Tangent	Bearing	Northing	Easting
POB	252+95.60			738547.953	1629955.073
		TL=2845.23	S 13°30'44" W		
TS	281+40.83			735781.476	1629290.277
		LS =300'			
SC	284+40.83			735488.637	1629225.290
		Δ=2°0'00"			
CS	296+64.16			734275.126	1629261.753
		LS =300'			
ST	299+64.16			733986.717	1629344.205
		TL= 1381.94	S 16°57'16" E		
POE	313+46.10			732664.840	1629747.194
POB	22+17			735617.694	1629462.970
POE	27+84			736100.651	1629166.204
POB	32+18			735711.200	1629074.050
POE	37+82			736006.752	1629555.030

NH 0012(162)173 PCN 032A Str. 16-665-200

Type	Station	Tangent	Bearing	Northing	Easting
POB	0+00			666295.438	1805057.834
		TL= 1059.82	N 5°30'40" W		
POE	10+59.82			667350.360	1804956.051

NH 0012(162)173 PCN 032A Str. 65-000-020

Type	Station	Tangent	Bearing	Northing	Easting
POB	0+00.00			630068.813	1850181.667
		TL= 589.36	N 38°20'18" E		
POE	5+89.36			630531.080	1850547.248

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System.
North Zone (NAD 83/11) SF = 0.9999176
The elevations shown on this sheet are based on NAVD 88.

CONTROL DATA

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0012(162)173 & P 0065(12)226	15	54

P 0065(12)226 PCN 029Q

POINT	STATION	OFFSET	DESCRIPTION	NORTHING	EASTING	ELEVATION
CP002			SDDOT Maintenance McIntosh Yard	765983.311	1625098.826	2315.34
CP200			SD 63 2.5 mi S of US 12	749414.320	1630115.119	2245.94
U427			SD 63 2 mi S of US 12	753000.588	1630159.410	2247.08
BM 12-128.81			HARN point (PID AC7895) (3 mi W of McIntosh on US 12)	763880.109	1610954.731	2295.81
BM V 428			HARN point (PID QS0624) Corson County Courthouse	764157.960	1625607.308	2309.08
CP99			SD 63 8 mi S of US 12	721891.935	1629825.732	2145.26
CPnail	301+39.5	62' RT	SD 63 5.5 mi S of US 12	733800.967	1629336.000	2062.19
029q1242			SD 63 6.5 mi S of US 12	729176.004	1629820.128	2082.27
CP100			SD 63 8 mi S of US 12	694890.530	1626797.106	2067.46

NH 0012(162)173 PCN 032A Str. 16-665-200

POINT	STATION	OFFSET	DESCRIPTION	NORTHING	EASTING	ELEVATION
BM 12-181.52			(PID AI4142) (8.2 mi. E of Mobridge on US 12)	631529.525	1824579.362	1763.17
CP1			US12 0.9 mi S of Grand River	661680.829	1805343.085	1765.68
CP2			US12 2.9 mi S of Grand River	651100.145	1807415.925	1671.89

NH 0012(162)173 PCN 032A Str. 65-000-020

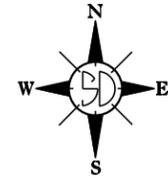
POINT	STATION	OFFSET	DESCRIPTION	NORTHING	EASTING	ELEVATION
CP1			SDDOT Maintenance Mobridge Yard	628391.135	1851848.727	1676.51
CP2			County BM 12-187.59	628770.285	1852076.627	1676.81
CP3			County BM 12-191.95	621600.480	1869421.950	1776.09
FAAMBGA			Mobridge Airport (PID QS0957)	624263.490	1865024.850	1699.72

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System.
 North Zone (NAD 83/11) SF = 0.9999176
 The elevations shown on this sheet are based on NAVD 88.

PLAN VIEW (RIPRAP)

SD-65 - Str. No. 16-328-073

OVER THE WHITE SHIRT CREEK



LOW FLOW SILT FENCE (374 ft)
 FM STA. 281+65 40' R TO STA. 281+65 126' R (86 ft)
 FM STA. 281+65 126' R TO STA. 281+25 166' R (57 ft)
 FM STA. 281+25 166' R TO STA. 279+98 120' R (134 ft)
 FM STA. 279+98 120' R TO STA. 279+58 80' R (57 ft)
 FM STA. 279+58 80' R TO STA. 279+58 40' R (40 ft)

REMOVE & RESET FENCE (117 ft)
 FM STA. 281+40 75' R TO STA. 281+75 75' R (35 ft)
 FM STA. 279+48 75' R TO STA. 279+60 75' R (12 ft)
 FM STA. 279+24 75' L TO STA. 279+59 75' L (35 ft)
 FM STA. 281+40 75' L TO STA. 281+75 75' L (35 ft)

REMOVE FENCE (313 ft)
 FM STA. 279+60 75' R TO STA. 281+40 75' R (180 ft)
 FM STA. 279+59 75' L TO STA. 281+40 75' L (181 ft)

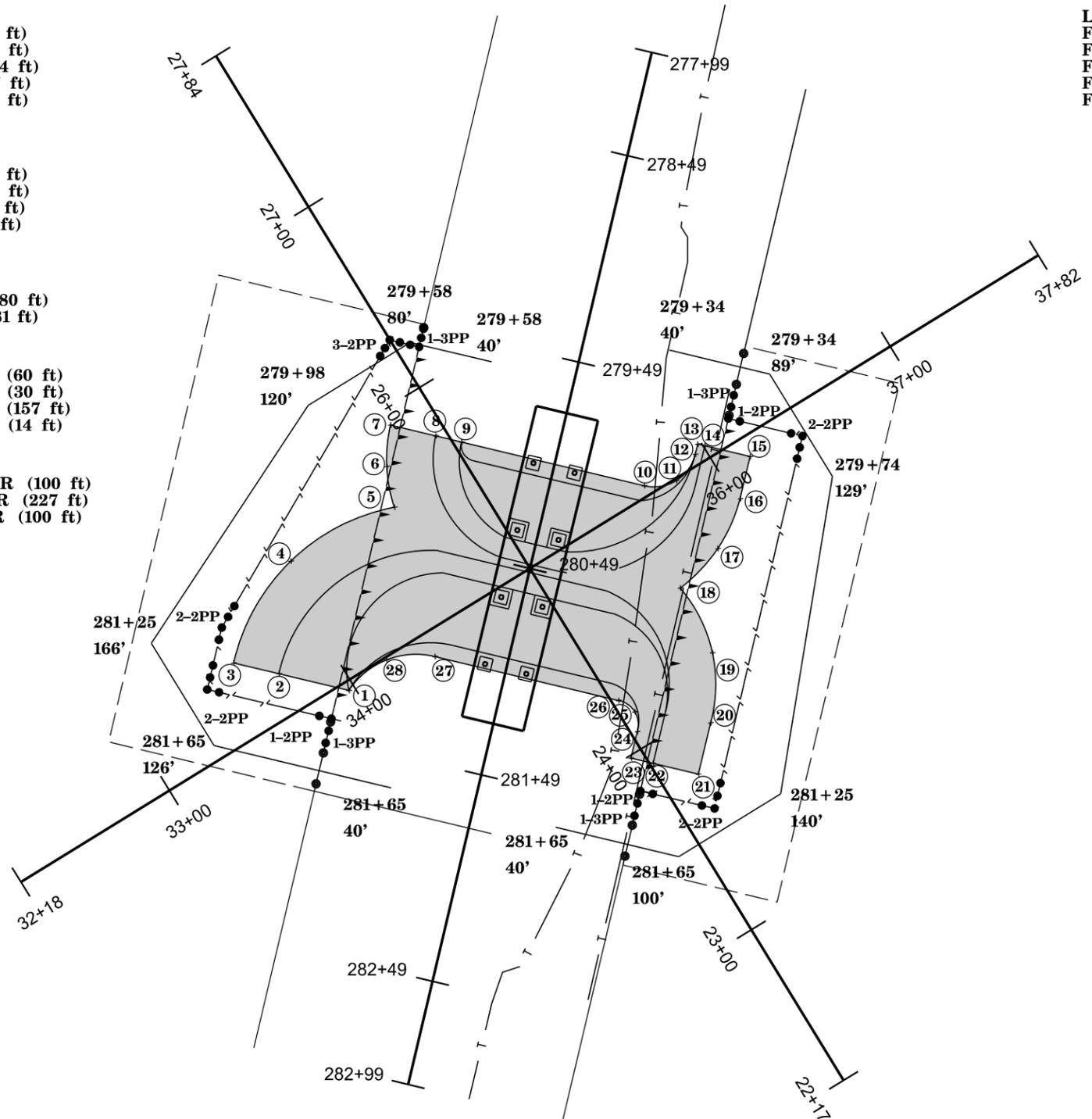
Type 2 Right-of-Way Fence (261 ft)
 FM STA. 281+40 75' R TO STA. 281+40 135' R (60 ft)
 FM STA. 281+40 135' R TO STA. 281+10 135' R (30 ft)
 FM STA. 281+10 135' R TO STA. 279+59 89' R (157 ft)
 FM STA. 279+59 89' R TO STA. 279+59 75' R (14 ft)

Type 1A Temporary Fence (427 ft)
 FM STA. 279+48 76' R TO STA. 279+48 175' R (100 ft)
 FM STA. 279+48 175' R TO STA. 281+75 175' R (227 ft)
 FM STA. 281+75 175' R TO STA. 281+75 75' R (100 ft)

LOW FLOW SILT FENCE (375 ft)
 FM STA. 281+65 40' L TO STA. 281+65 100' L (60 ft)
 FM STA. 281+65 100' L TO STA. 281+25 140' L (57 ft)
 FM STA. 281+25 140' L TO STA. 279+74 129' L (152 ft)
 FM STA. 279+74 129' L TO STA. 279+34 89' L (57 ft)
 FM STA. 279+34 89' L TO STA. 279+34 40' L (49 ft)

Type 2 Right-of-Way Fence (253 ft)
 FM STA. 281+39 75' L TO STA. 281+39 111' L (36 ft)
 FM STA. 281+39 111' L TO STA. 279+59 111' L (181 ft)
 FM STA. 279+59 111' L TO STA. 279+59 75' L (36 ft)

Type 1A Temporary Fence (451 ft)
 FM STA. 279+24 75' L TO STA. 279+24 175' L (100 ft)
 FM STA. 279+24 175' L TO STA. 281+75 175' L (251 ft)
 FM STA. 281+75 175' L TO STA. 281+75 75' L (100 ft)



LEGEND

- RIPRAP LAYOUT
- LOW FLOW SILT FENCE
- REMOVE & RESET FENCE
- REMOVE FENCE
- TYPE 2 RIGHT-OF-WAY FENCE
- TELEPHONE
- TYPE 1A TEMPORARY FENCE

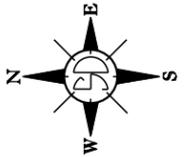
RIPRAP LIMITS				
Location	Northing	Easting	Station	Offset
1	735801.487	1629229.141	281+24.69	69.81
2	735809.382	1629196.079	281+24.69	103.80
3	735814.492	1629174.678	281+24.69	125.81
4	735862.517	1629201.718	280+71.63	110.66
5	735887.883	1629250.648	280+35.66	68.96
6	735907.086	1629247.078	280+17.76	76.89
7	735926.537	1629248.855	279+98.50	79.68
8	735921.551	1629270.283	279+98.50	57.68
9	735918.641	1629282.472	279+98.50	45.15
10	735898.021	1629368.825	279+98.50	43.63
11	735900.434	1629383.941	279+92.78	57.77
12	735912.828	1629392.923	279+78.65	63.63
13	735917.692	1629394.085	279+73.65	63.63
14	735916.878	1629397.490	279+73.65	67.13
15	735911.769	1629418.889	279+73.65	89.13
16	735891.875	1629414.133	279+94.15	89.13
17	735868.420	1629403.564	280+19.41	84.30
18	735849.773	1629385.840	280+41.62	71.39
19	735819.299	1629401.071	280+67.77	93.28
20	735785.613	1629400.061	281+00.13	100.12
21	735762.020	1629394.420	281+24.97	100.11
22	735767.130	1629373.022	281+24.97	78.11
23	735769.629	1629362.554	281+24.97	67.35
24	735782.105	1629365.533	281+12.15	67.35
25	735791.403	1629365.533	281+02.36	64.08
26	735796.733	1629356.689	280+99.84	55.35
27	735817.468	1629269.856	280+99.84	33.92
28	735815.910	1629246.974	281+06.55	55.82

DRAWING NOT TO SCALE

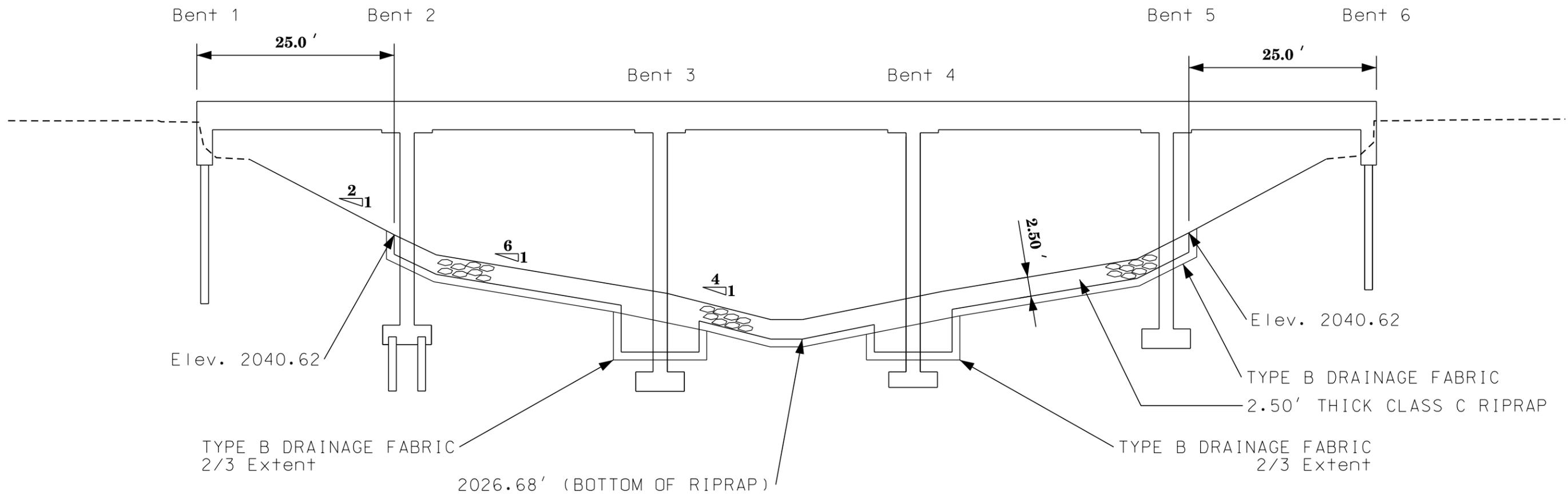
TYPICAL SECTION

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0012(162)173 & P 0065(12)226	18	54

Plotting Date: 05/15/2014



Str. No. 16-328-073 ~ MRM 226.46
SECTION 25, T22N, R22E



DRAWING NOT TO SCALE

ROW PLAN (029Q)

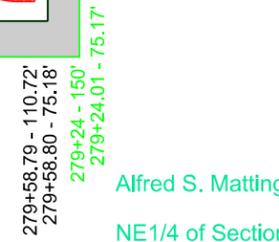
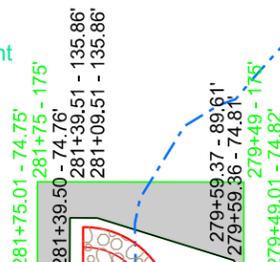
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0012(162)173, +...	19	54
Plotting Date: 05/16/2014		Rev. 05-02-2014 by NAS	

Sec. 25 - T22N - R22E

Paige Arnold & Aaron Arnold

NE1/4 of Section 25 - Township 22 North -
Range 22 East of the BHM,
lying west of Hwy 65

Parcel 1
0.17 ac Permanent Easement
(7530 sq ft), more or less



Alfred S. Mattingly

NE1/4 of Section 25 - Township 22 North -
Range 22 East of the BHM,
lying east of Hwy 65

Parcel 2
0.15 ac Permanent Easement
(6445 sq ft), more or less

Parcel 1
279+49.01 to 281+75.01 R
Temporary Easement for
cut & fill containing 0.34 ac
(15119 sq ft), more or less

Parcel 2
279+24.01 to 281+75.01 L
Temporary Easement for
cut & fill containing 0.28 ac
(12326 sq ft), more or less



1/4 Line

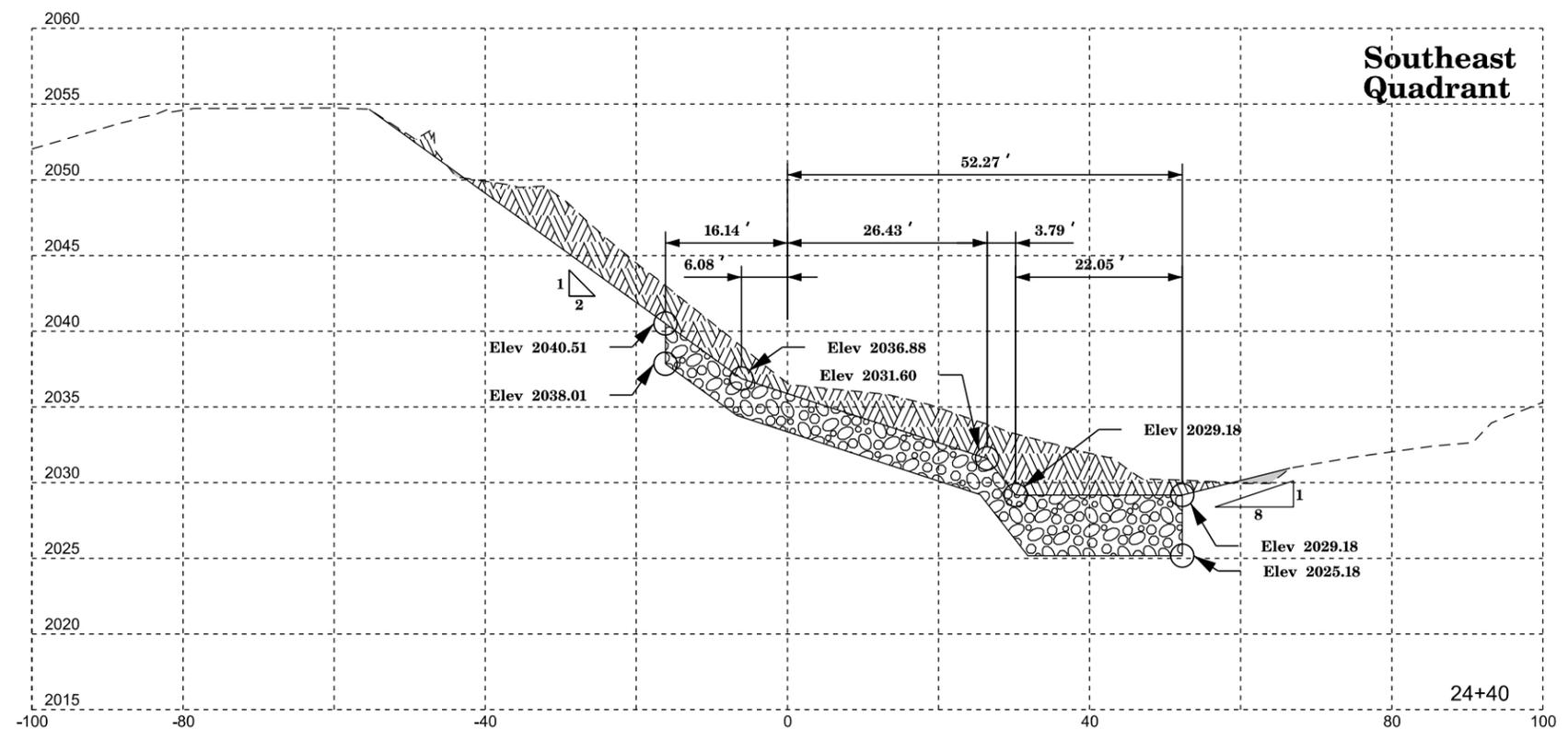
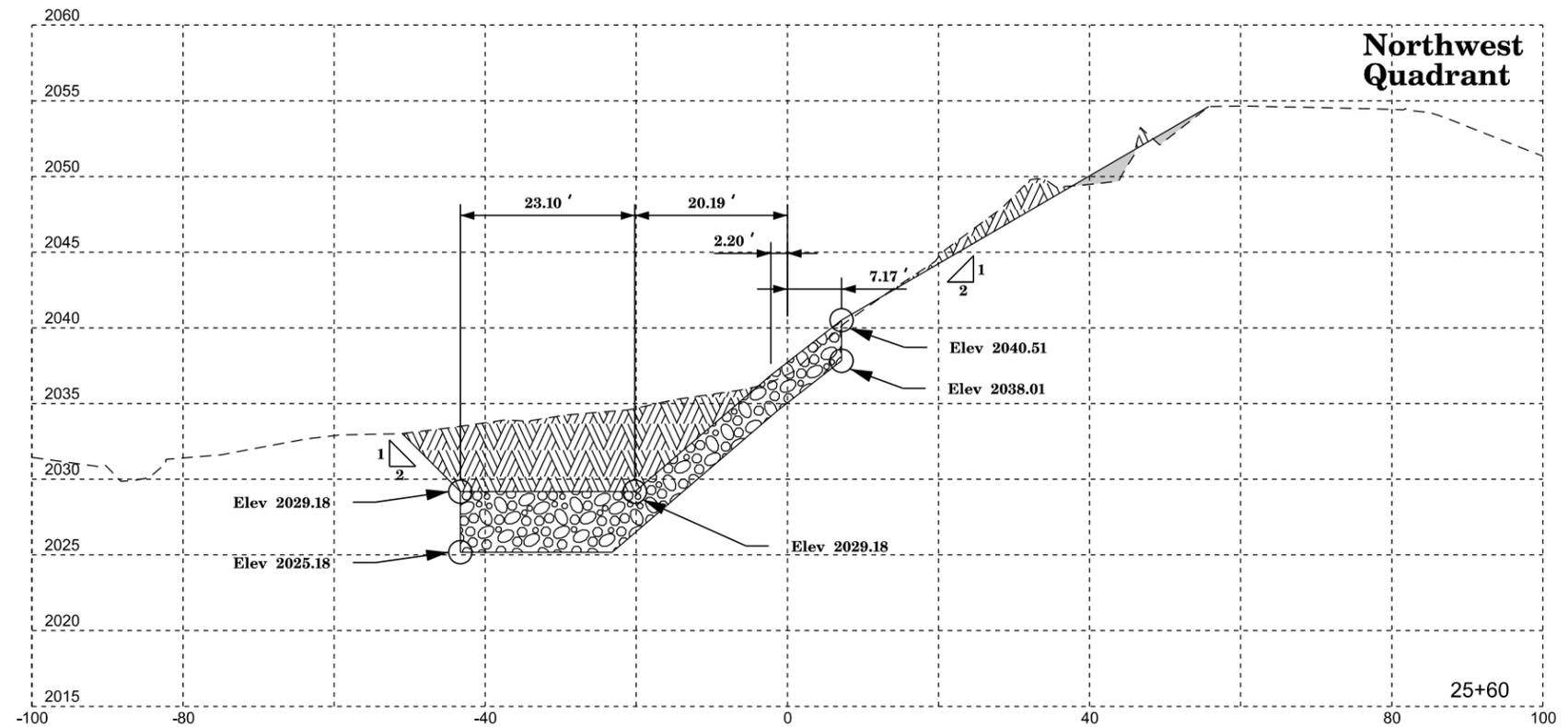
Section Line

Section Line

Plot Scale - 1:200

Plotted From - trpr15107

File - U:\trproj\cons\029Q\00row.dgn

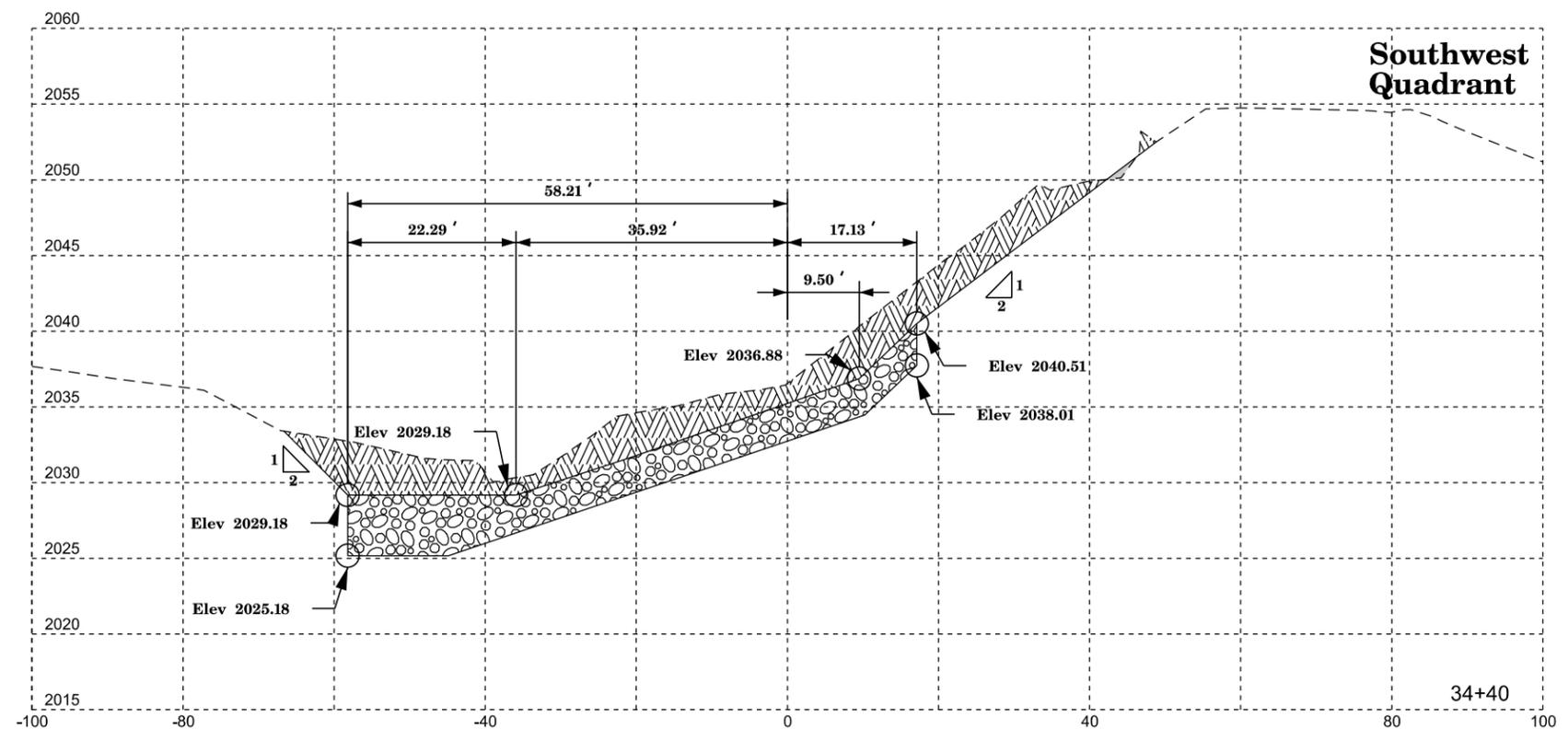
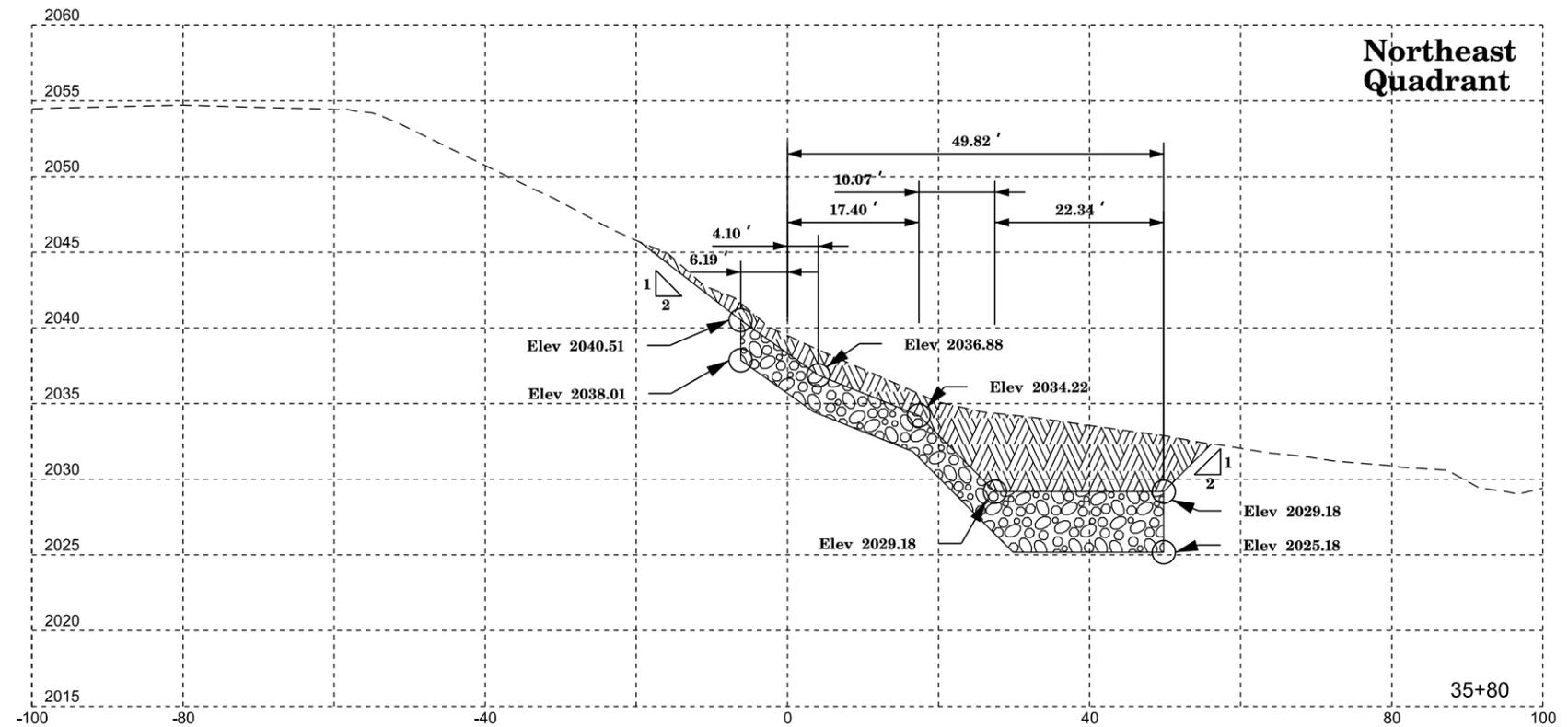


Note: Match Riprap to existing slopes as close as possible, verify in field by Engineer. Also, the Contractor shall slope grade to blend existing ground with riprap.

LEGEND

-  Class C RipRap
-  Excavation Material
-  Fill Material
-  Existing Ground Line

DRAWING NOT TO SCALE

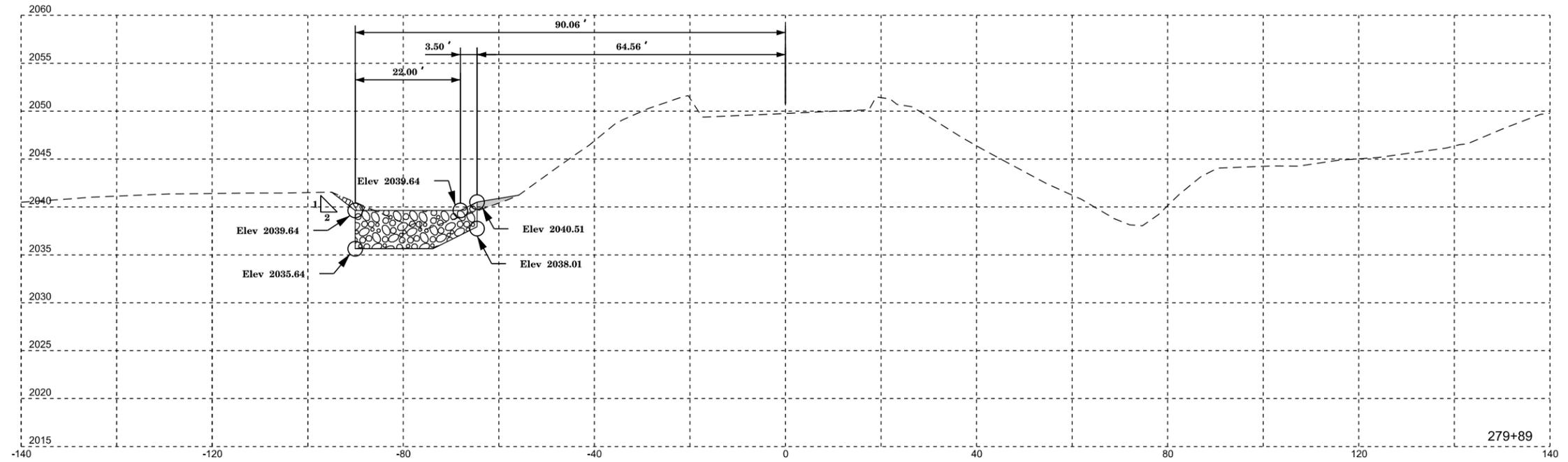


Note: Match Riprap to existing slopes as close as possible, verify in field by Engineer. Also, the Contractor shall slope grade to blend existing ground with riprap at a 2:1 slope.

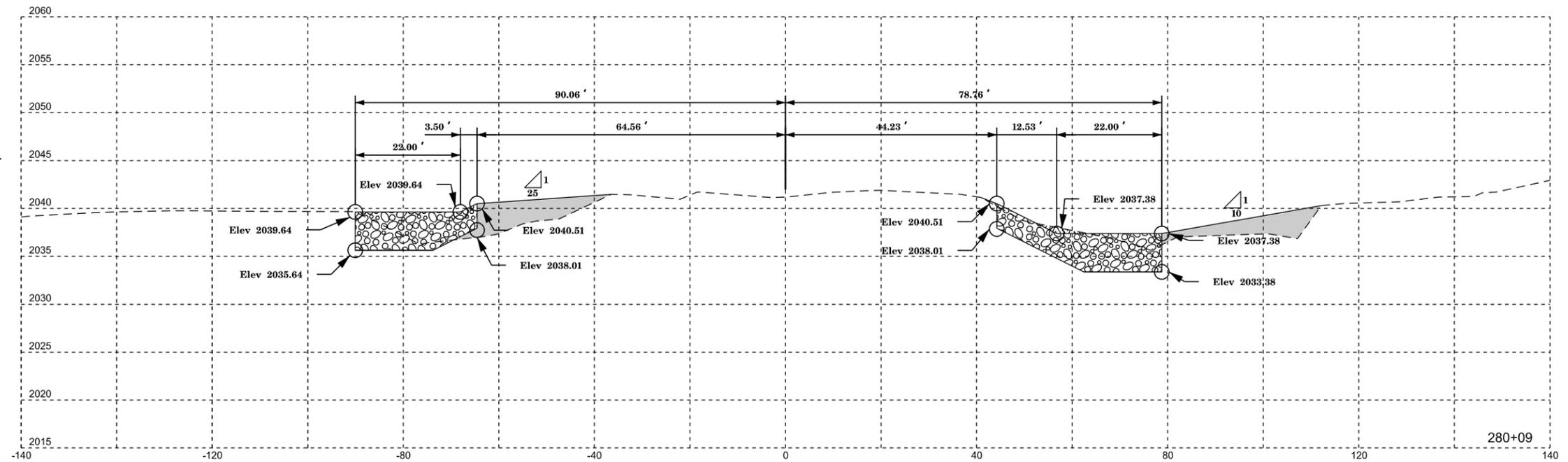
LEGEND

-  Class C RipRap
-  Excavation Material
-  Fill Material
-  Existing Ground Line

DRAWING NOT TO SCALE



Abutment #1



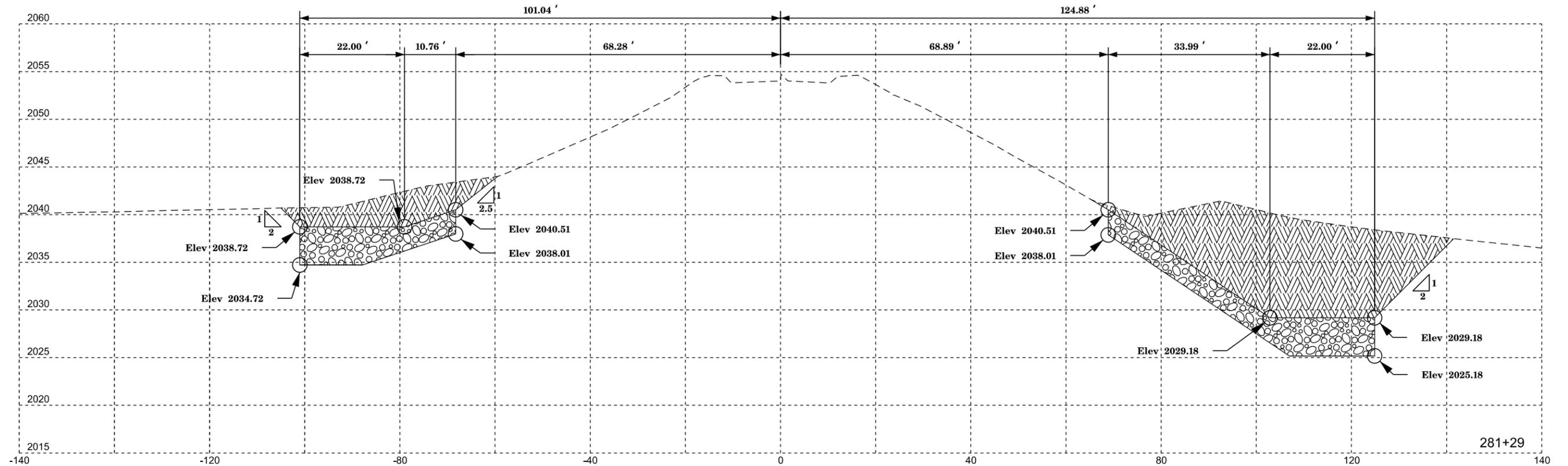
Abutment #1

Note: Match Riprap to existing slopes as close as possible, verify in field by Engineer. Also, the Contractor shall slope grade to blend existing ground with riprap.

LEGEND

-  Class C RipRap
-  Excavation Material
-  Fill Material
-  Existing Ground Line

DRAWING NOT TO SCALE

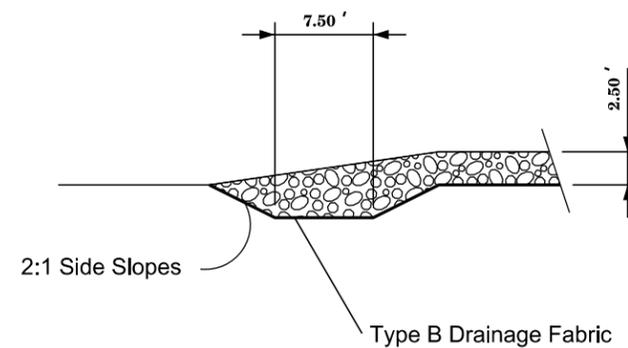


Abutment #6

Note: Match Riprap to existing slopes as close as possible, verify in field by Engineer. Also, the Contractor shall slope grade to blend existing ground with riprap.

LEGEND

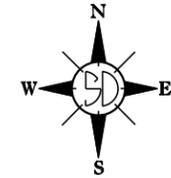
-  Class C RipRap
-  Excavation Material
-  Fill Material
-  Existing Ground Line



Apron Edge Detail

DRAWING NOT TO SCALE

From Sta. 279+73.65 63.63' Rt. to Sta. 279+78.65 63.63' Rt.
From Sta. 281+12.15 67.35' Rt. to Sta. 281+24.97 67.35' Rt.



PLAN VIEW (RIPRAP)

US-12 ~ Str. No. 65-000-020 SOUTHEAST END OF THE MISSOURI RIVER BRIDGE

RIPRAP LIMITS				
Location	Northing	Easting	Station	Offset
1	630193.127	1850250.170	0+33.31	83.55
2	630171.298	1850162.911	0+00.00	0.00
3	630246.076	1850173.012	0+75.46	0.00
4	630280.875	1850180.366	1+11.09	0.00
5	630313.345	1850194.885	1+46.73	0.00
6	630478.061	1850325.149	3+56.73	0.00
7	630522.162	1850394.683	4+40.00	0.00
8	630525.957	1850476.790	5+23.12	0.00
9	630505.852	1850476.790	5+27.10	19.68
10	630490.718	1850411.636	4+48.58	34.91
11	630453.746	1850355.894	3+60.70	39.05
12	630440.160	1850373.073	3+64.27	60.81
13	630275.445	1850242.809	1+33.19	60.13
14	630233.055	1850232.725	0+70.55	60.92

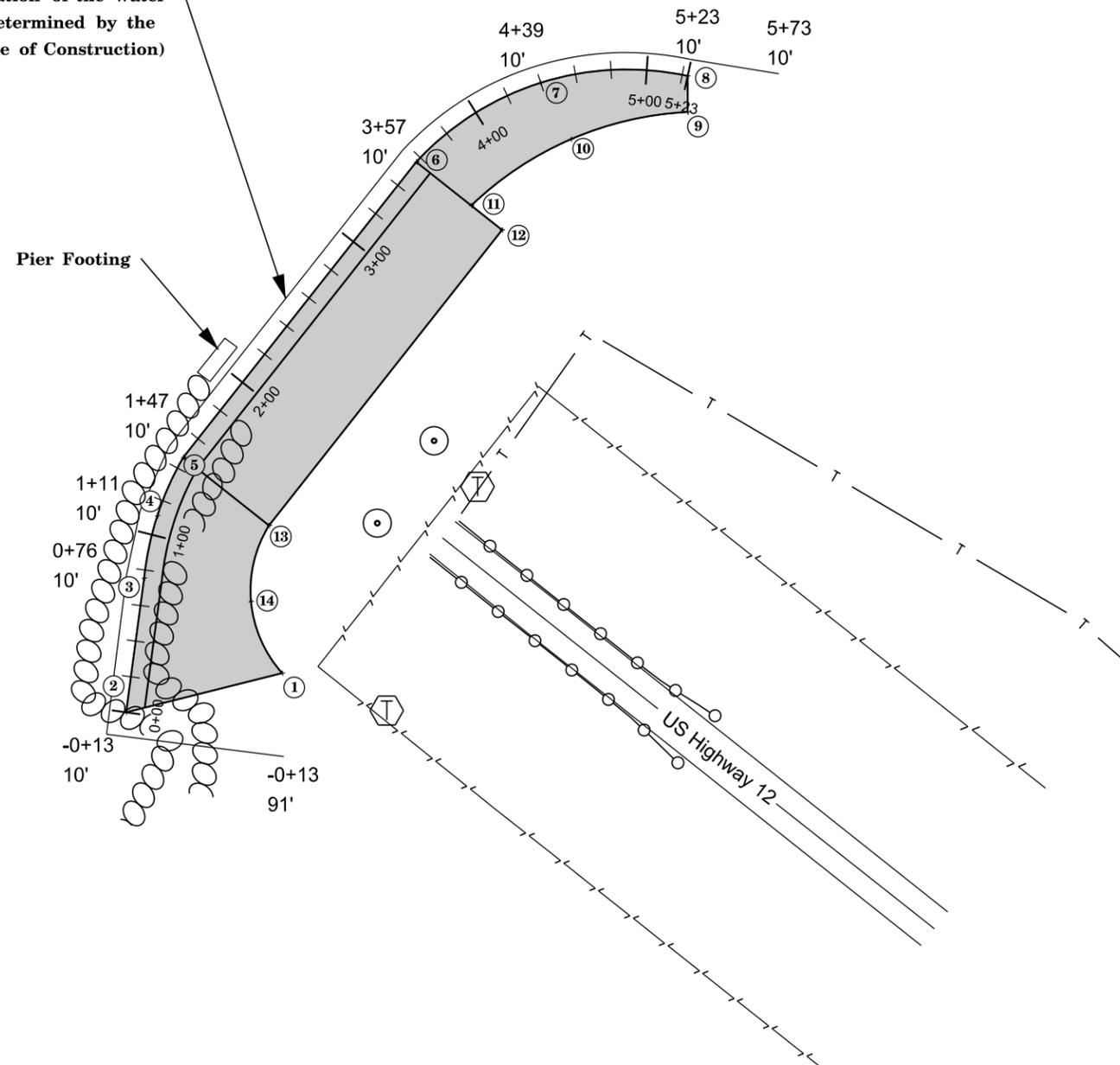
Low Flow Silt Fence (Location Will Depend on the Location of the Water Level and Will be Determined by the Engineer at the Time of Construction)

LOW FLOW SILT FENCE (632 ft)
 FM STA. -0+13 91' R TO STA. -0+13 10' L (101 ft)
 FM STA. -0+13 10' L TO STA. 0+76 10' L (89 ft)
 FM STA. 0+76 10' L TO STA. 1+11 10' L (35 ft)
 FM STA. 1+11 10' L TO STA. 1+47 10' L (36 ft)
 FM STA. 1+47 10' L TO STA. 3+57 10' L (210 ft)
 FM STA. 3+57 10' L TO STA. 4+39 10' L (92 ft)
 FM STA. 4+39 10' L TO STA. 5+23 10' L (84 ft)
 FM STA. 5+73 10' L TO STA. 5+73 10' L (50 ft)

REMOVE & RESET FENCE (220 ft)
 FM STA. 1+55 0' L TO STA. 1+55 10' L (10 ft)
 FM STA. 1+55 10' L TO STA. 3+55 10' L (200 ft)
 FM STA. 3+55 10' L TO STA. 3+55 0' L (10 ft)

LEGEND

-  RIPRAP LIMITS
-  INCIDENTAL WORK
-  LOW FLOW SILT FENCE
-  REMOVE & RESET FENCE
-  TELEPHONE LINE
-  TELEPHONE BOX
-  INCLINOMETER



DRAWING NOT TO SCALE

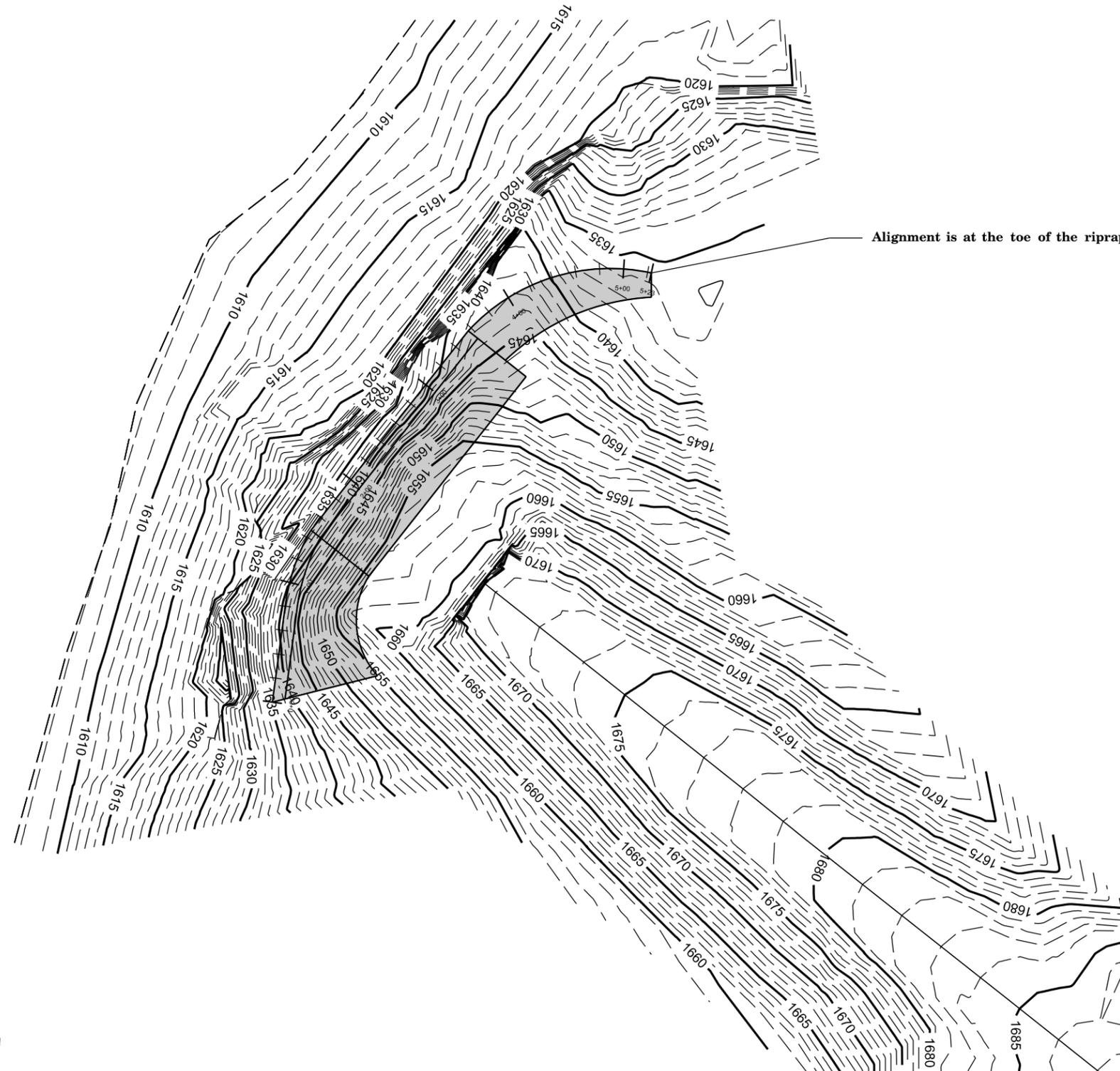
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0012(162)173 & P 0065(12)226	25	54

Plotting Date: 05/21/2014

Revised by JJR on 05/21/2014



PLAN VIEW (CONTOURS) US-12 ~ Str. No. 65-000-020 SOUTHEAST END OF THE MISSOURI RIVER BRIDGE



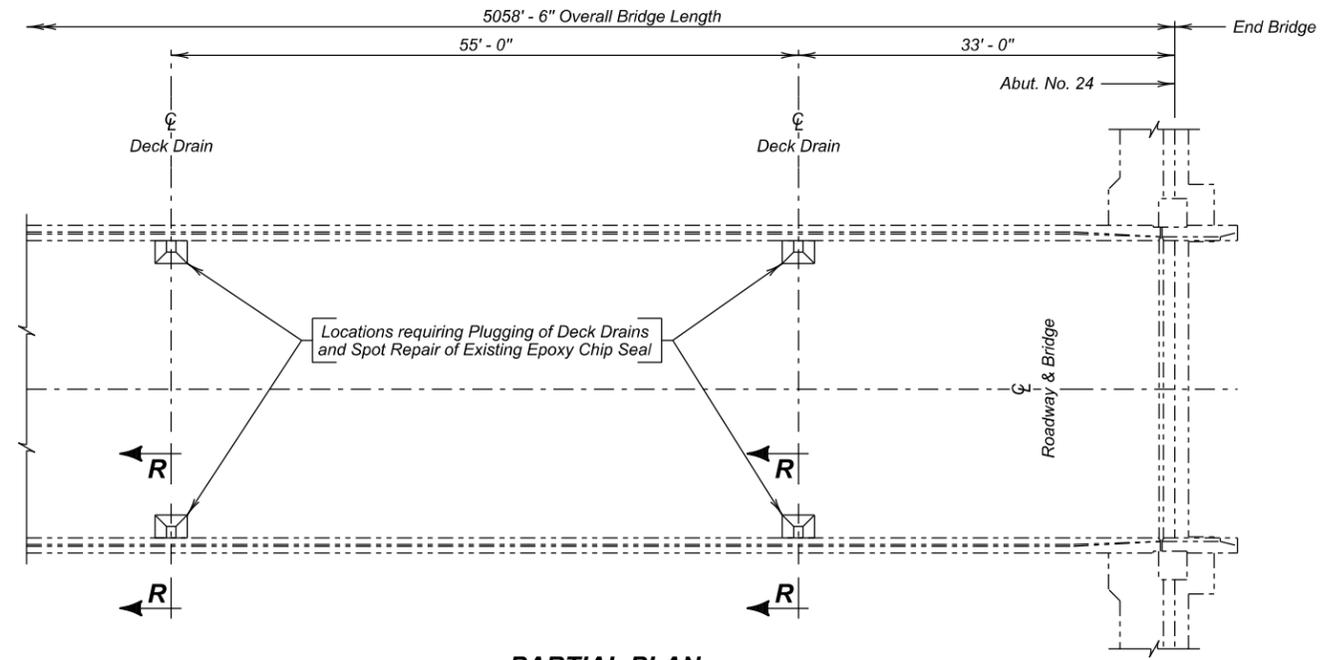
LEGEND

- RIPRAP LIMITS
- 1 FOOT ELEVATION LINE
- 5 FOOT ELEVATION LINE

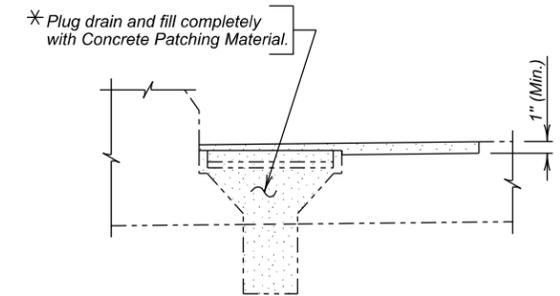
DRAWING NOT TO SCALE

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0012(162)173 & P 0065(12)226	26	54

Revised by JJR on 06022014

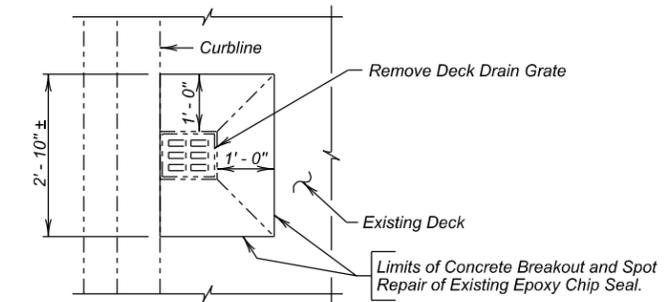


PARTIAL PLAN

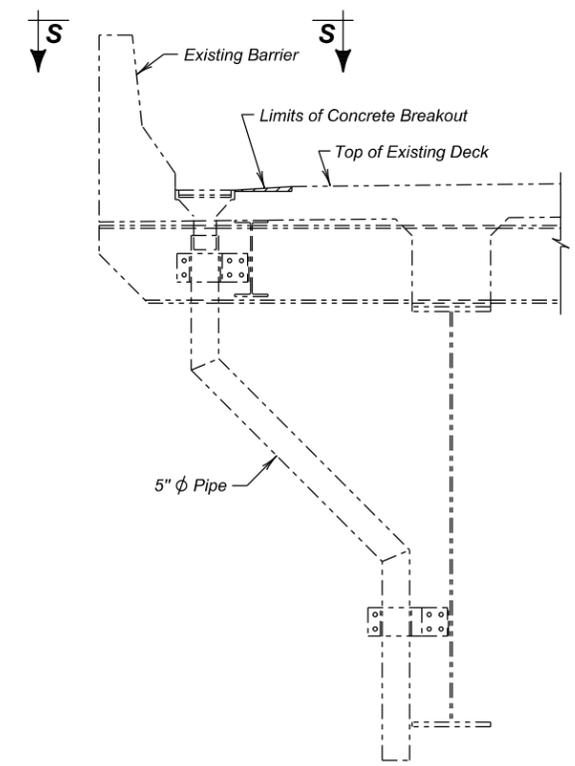


DETAIL "Z"

* The Contractor shall submit a procedure for plugging the deck drain to the Engineer a minimum of 7 days prior to filling the deck drain with Concrete Patching Material.

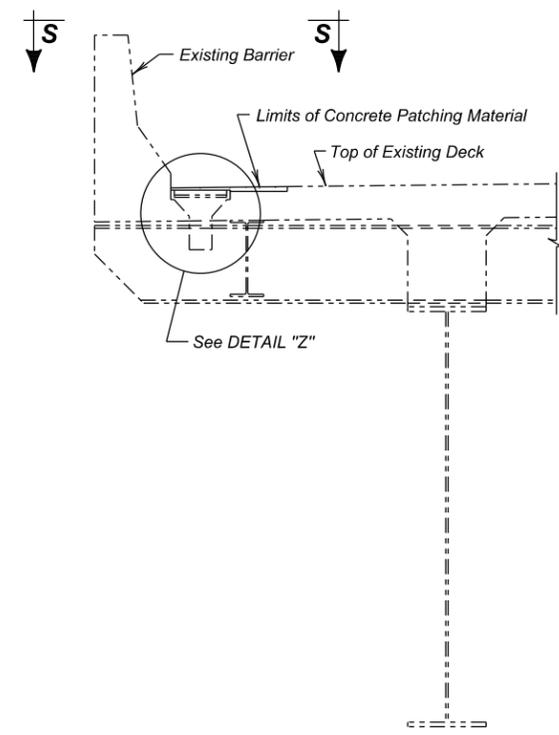


VIEW S - S



SECTION R - R

(Before Modification & Showing Concrete Removal)



SECTION R - R

(After Modification & Showing Concrete Patching Material)

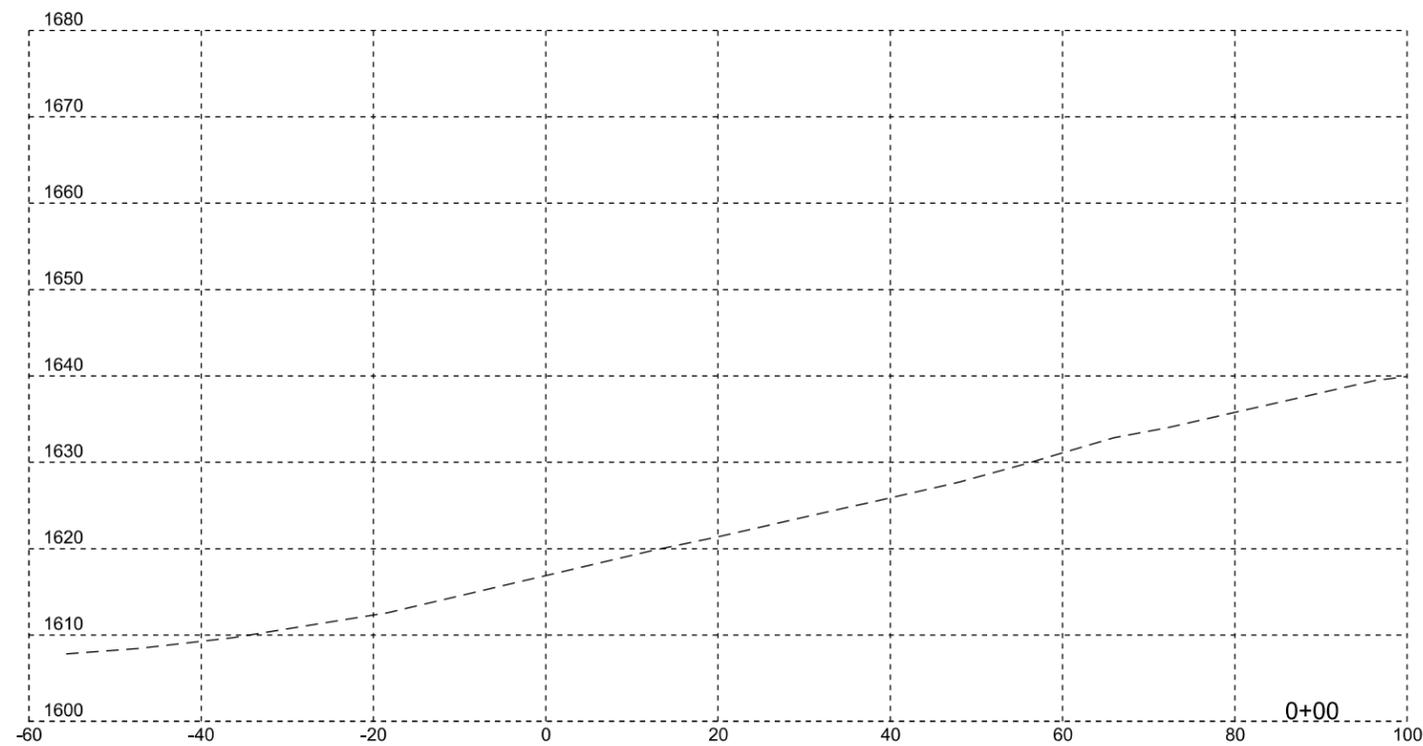
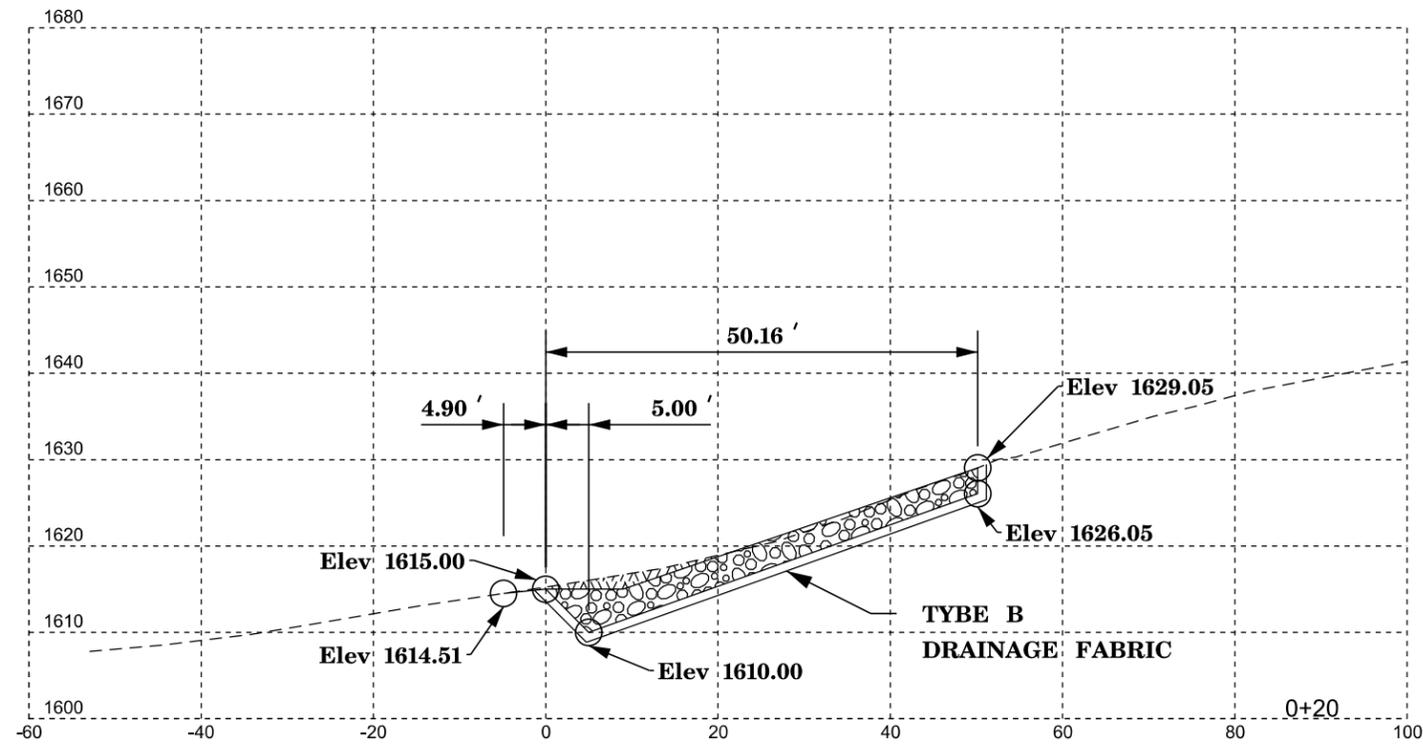
ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Incidental Work, Structure	LS	Lump Sum
Breakout Structural Concrete	CuYd	0.1
Concrete Patching Material, Miscellaneous	CuFt	3.0

DRAIN PLUGGING DETAILS

FOR
5058' - 6" BRIDGE OVER OAHE RESERVOIR
 26' - 0" ROADWAY 0° SKEW
 OVER LAKE OAHE SEC. 13-T124N-R80W
 STR. NO. 65-000-020 NH 0012(162)173

WALWORTH COUNTY
 S. D. DEPT. OF TRANSPORTATION
 APRIL 2014

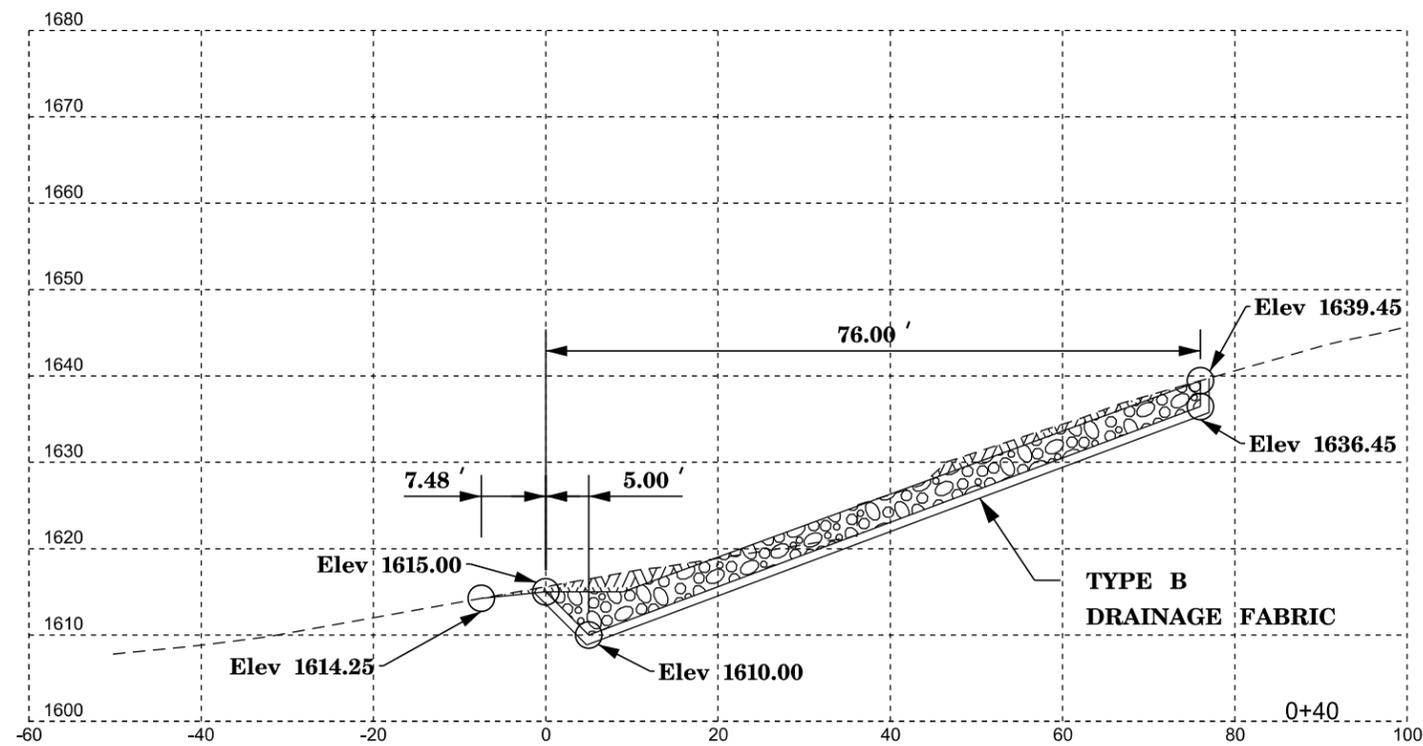
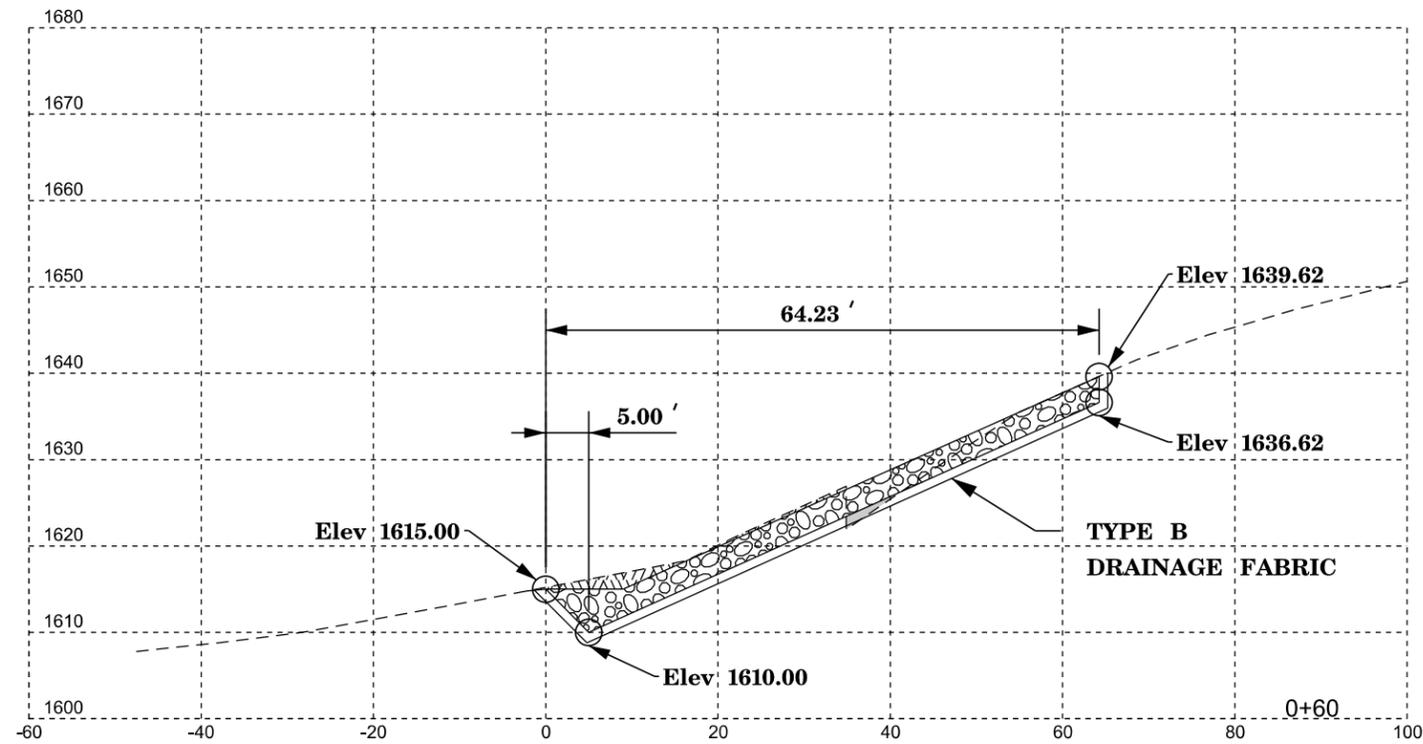
DESIGNED BY NP WLTH032A	CK. DES. BY BWS 032APA01	DRAFTED BY NP	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
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LEGEND

-  Class B RipRap
-  Excavation Material
-  Fill Material
-  Existing Ground Line

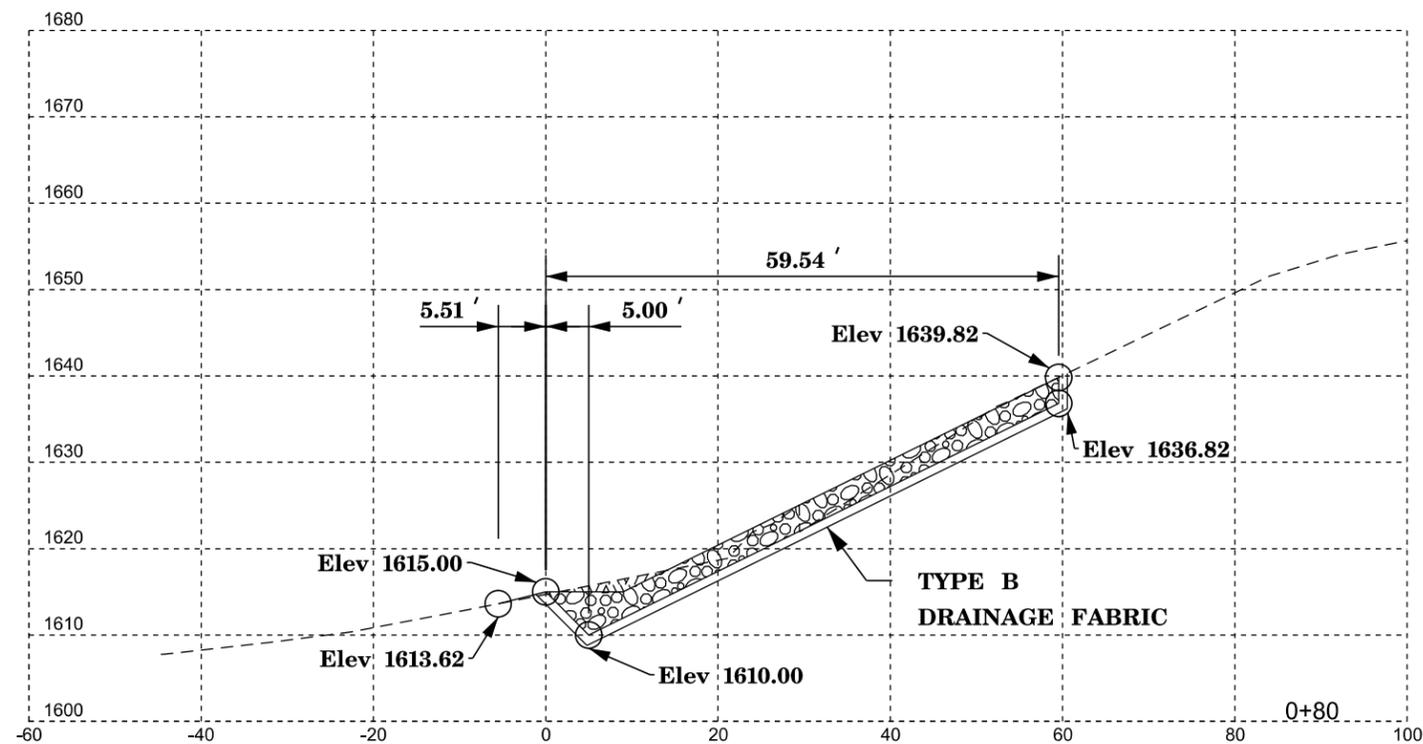
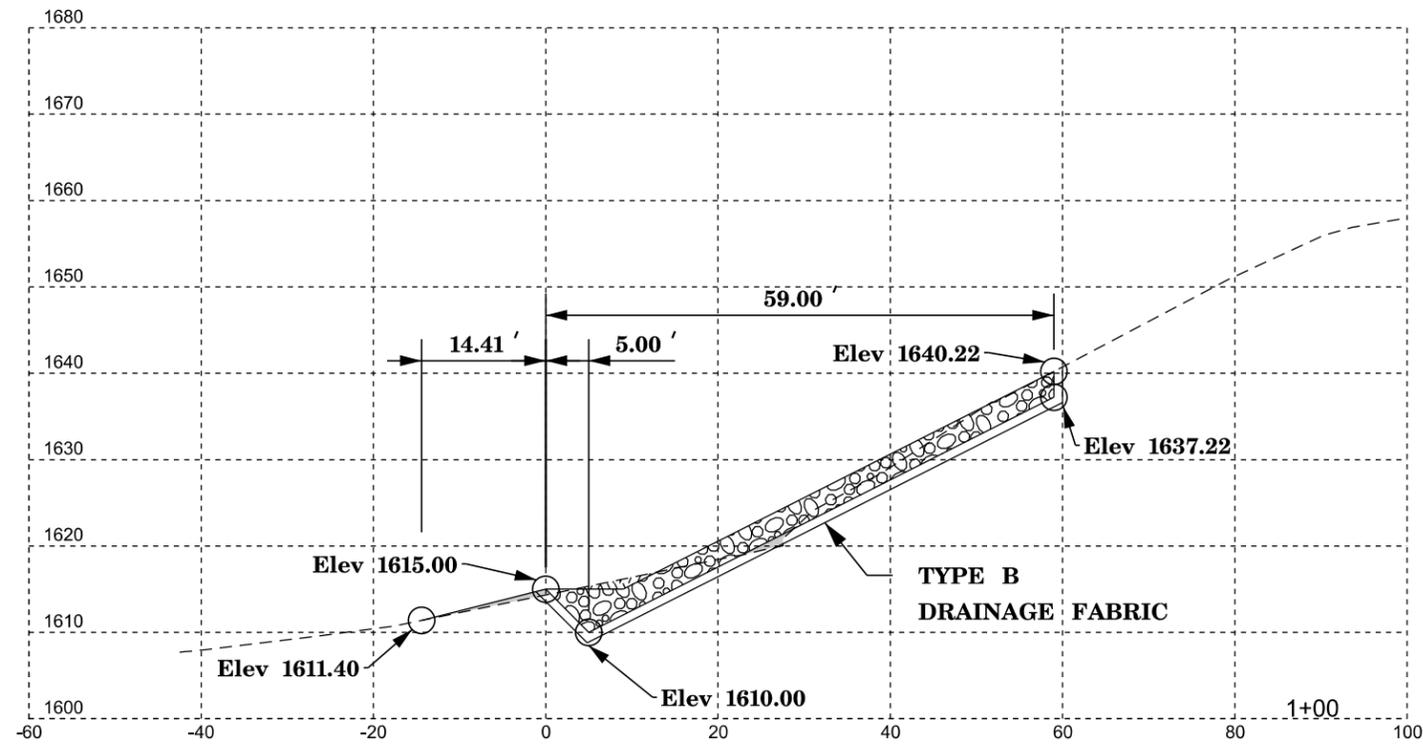
DRAWING NOT TO SCALE



LEGEND

-  Class B RipRap
-  Excavation Material
-  Fill Material
-  Existing Ground Line

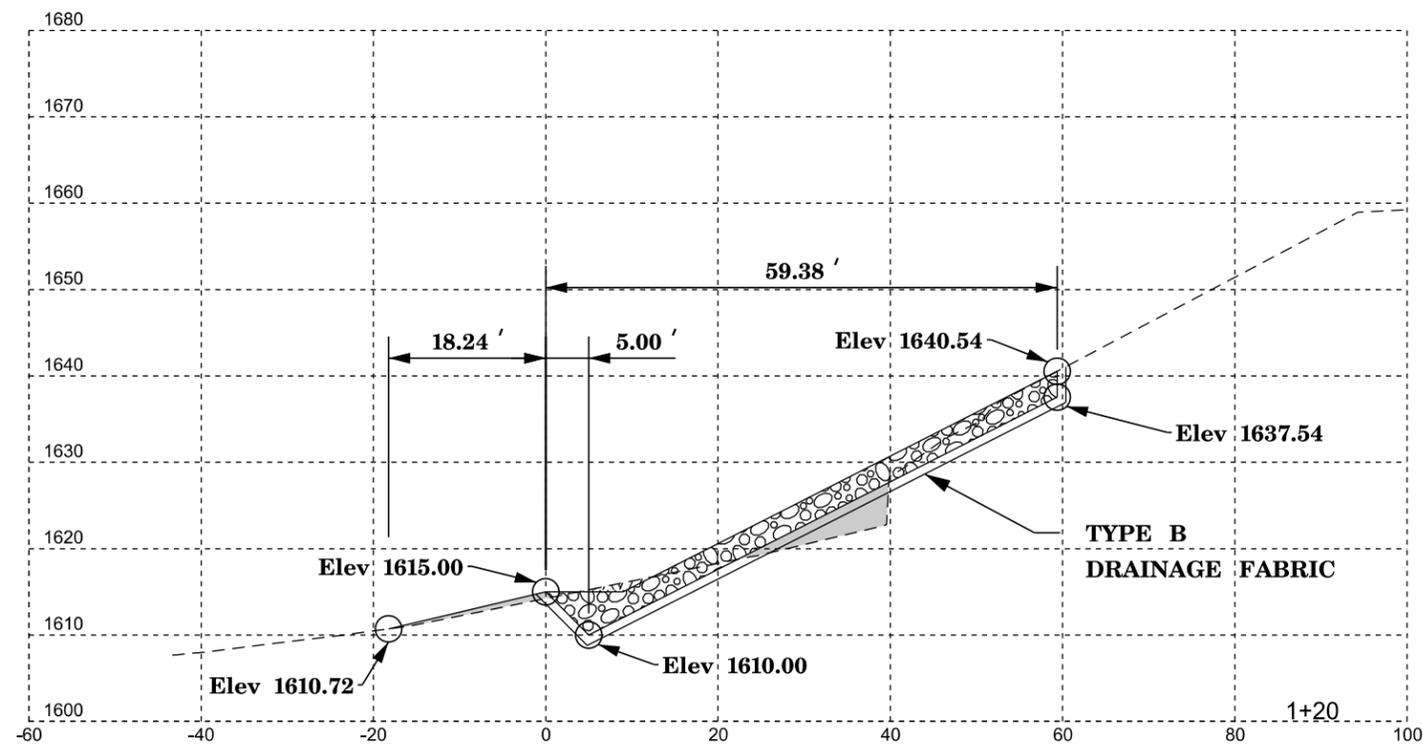
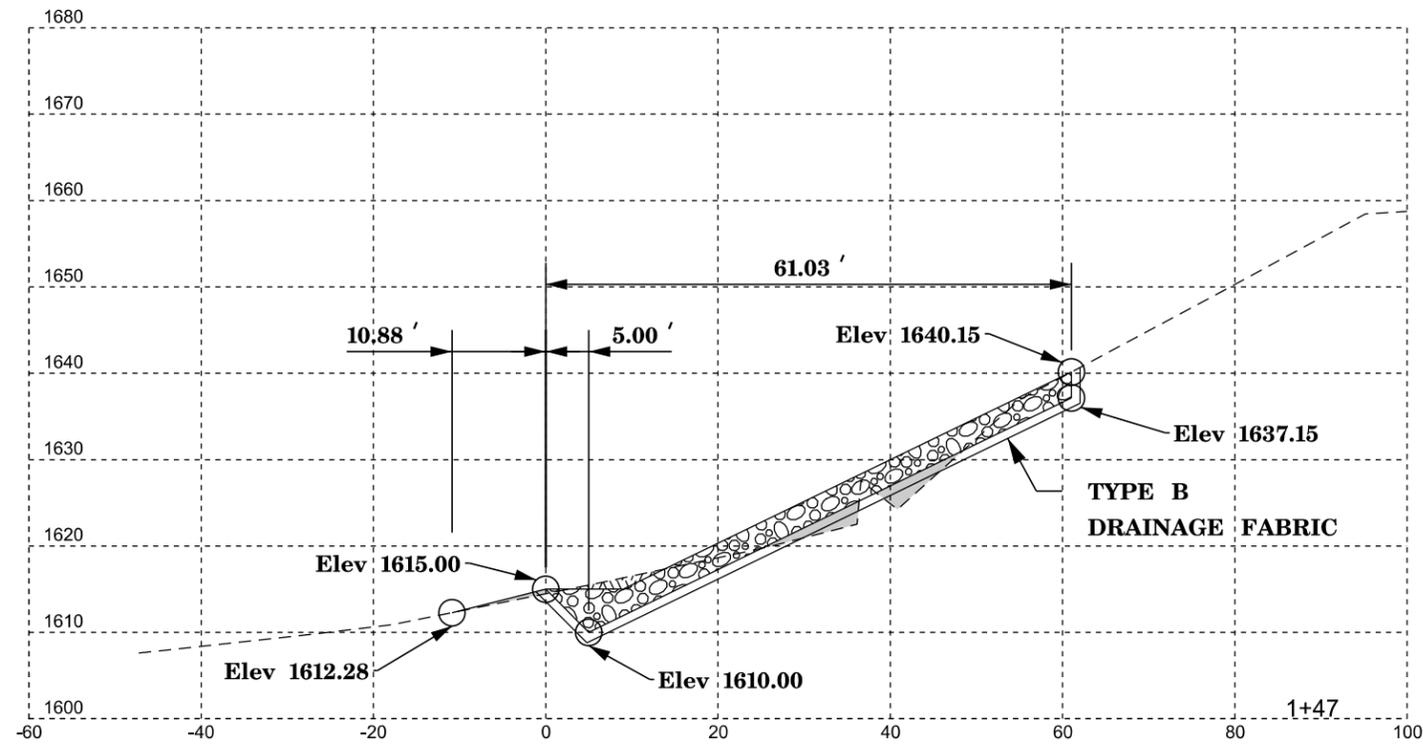
DRAWING NOT TO SCALE



LEGEND

-  Class B RipRap
-  Excavation Material
-  Fill Material
-  Existing Ground Line

DRAWING NOT TO SCALE

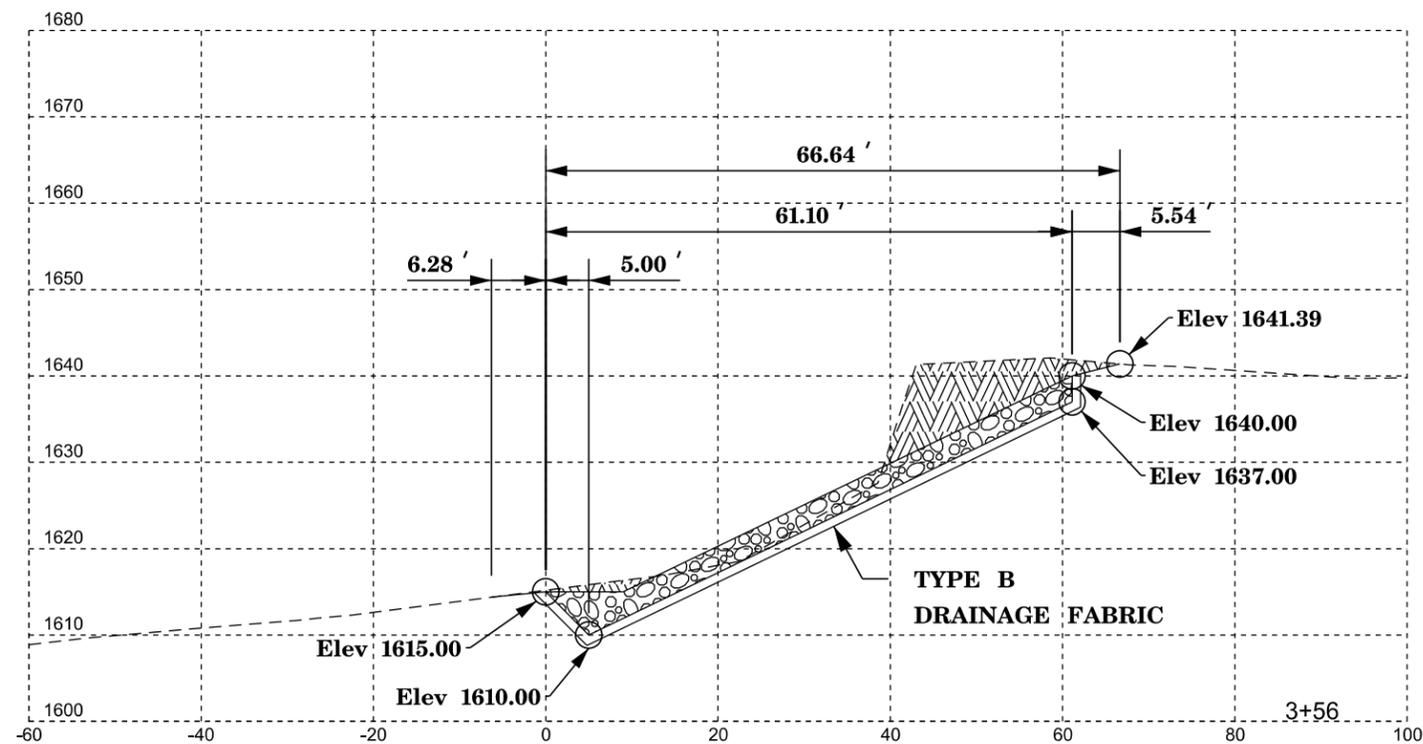
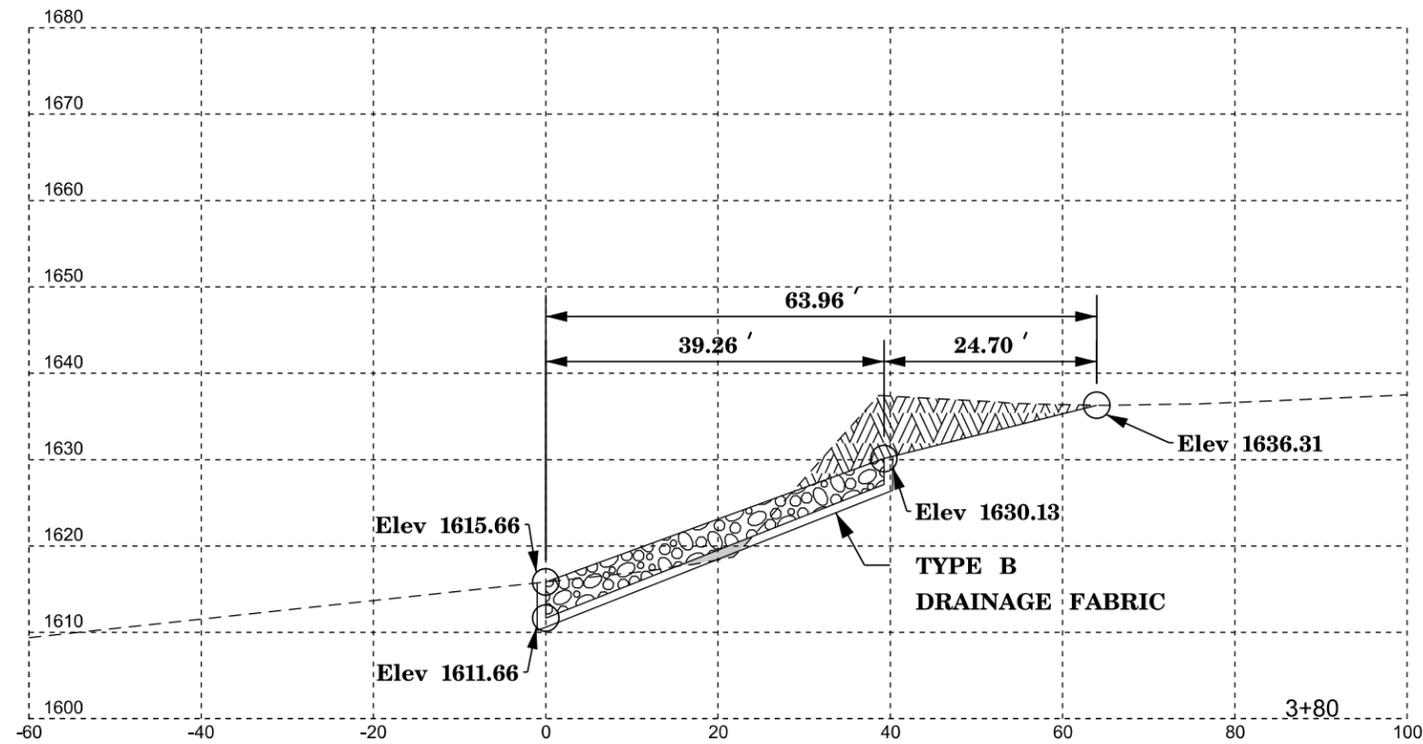


LEGEND

-  Class B RipRap
-  Excavation Material
-  Fill Material
-  Existing Ground Line

DRAWING NOT TO SCALE

Note: From station 1+47 to station 3+56 shall be a typical Section. All elevations shall be constant through this area.

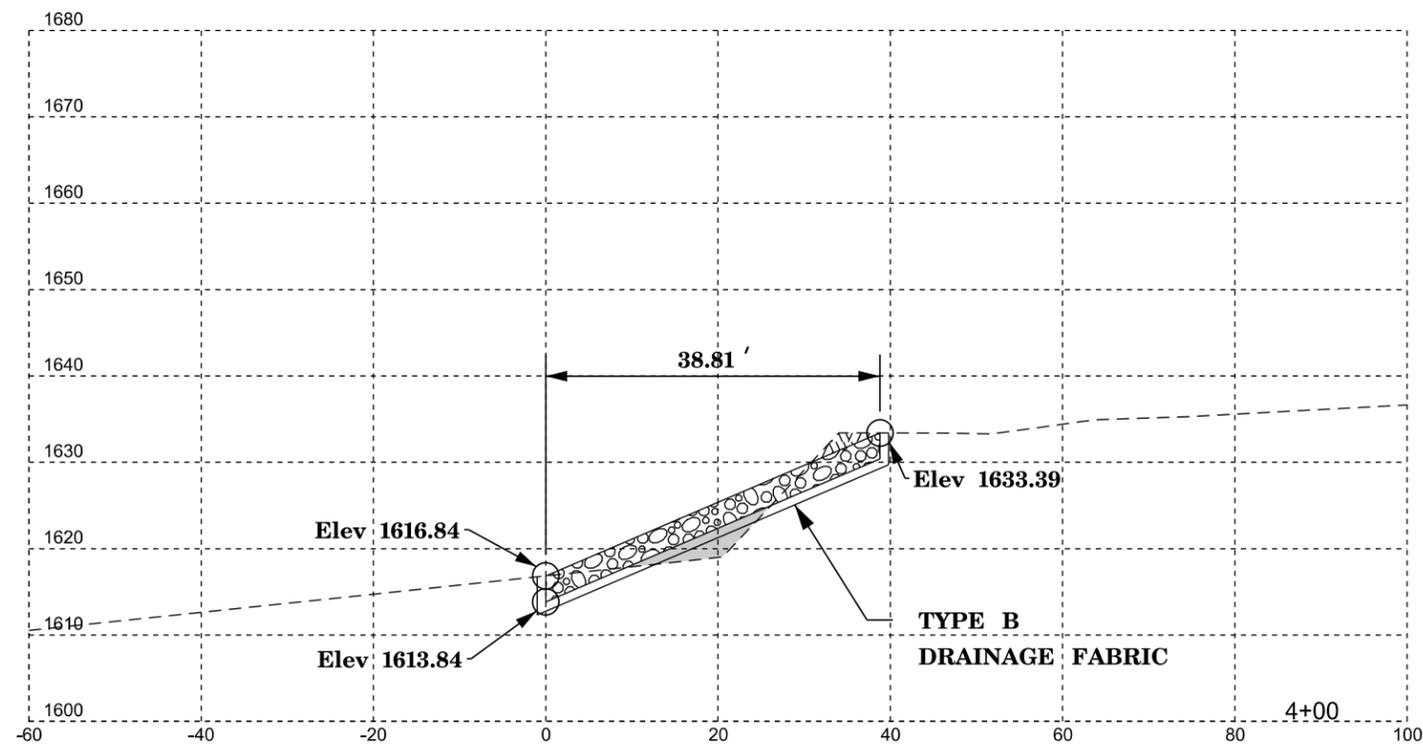
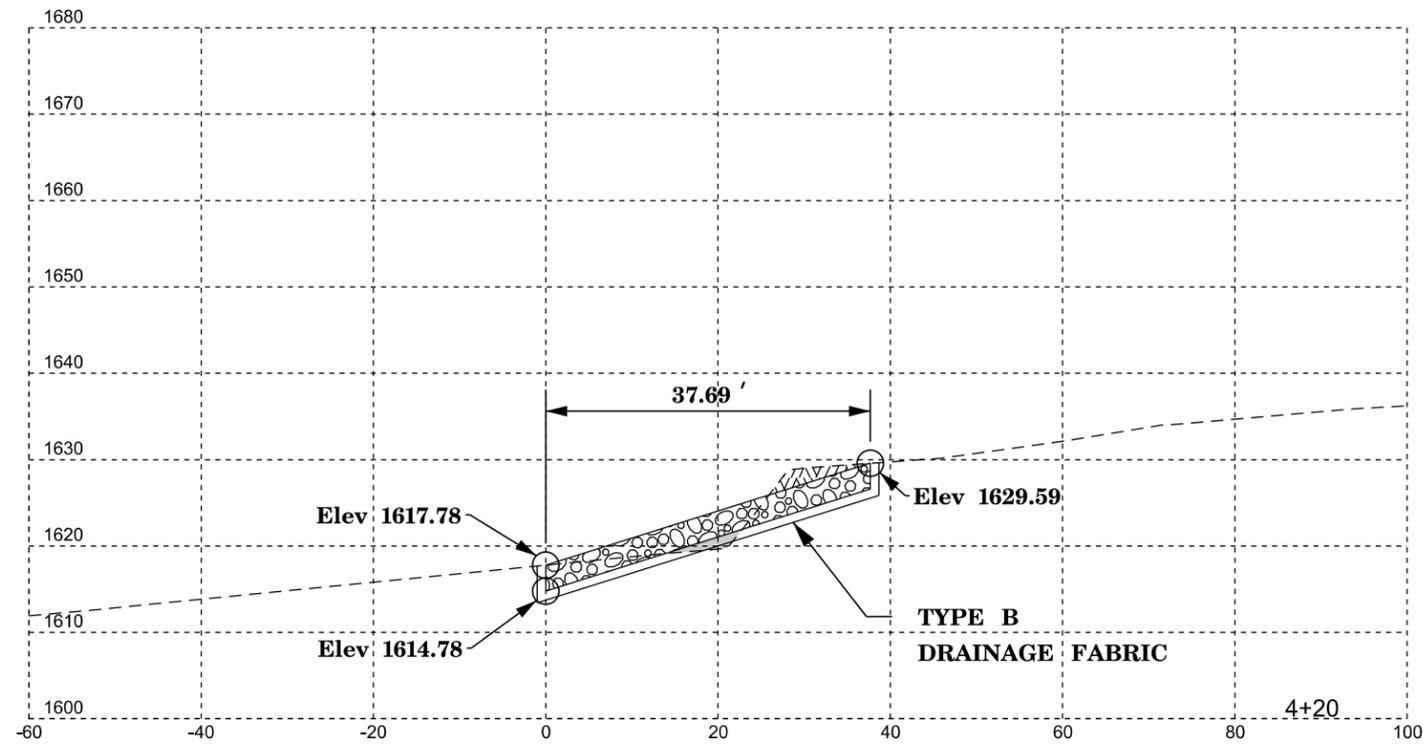


LEGEND

-  Class B RipRap
-  Excavation Material
-  Fill Material
-  Existing Ground Line

DRAWING NOT TO SCALE

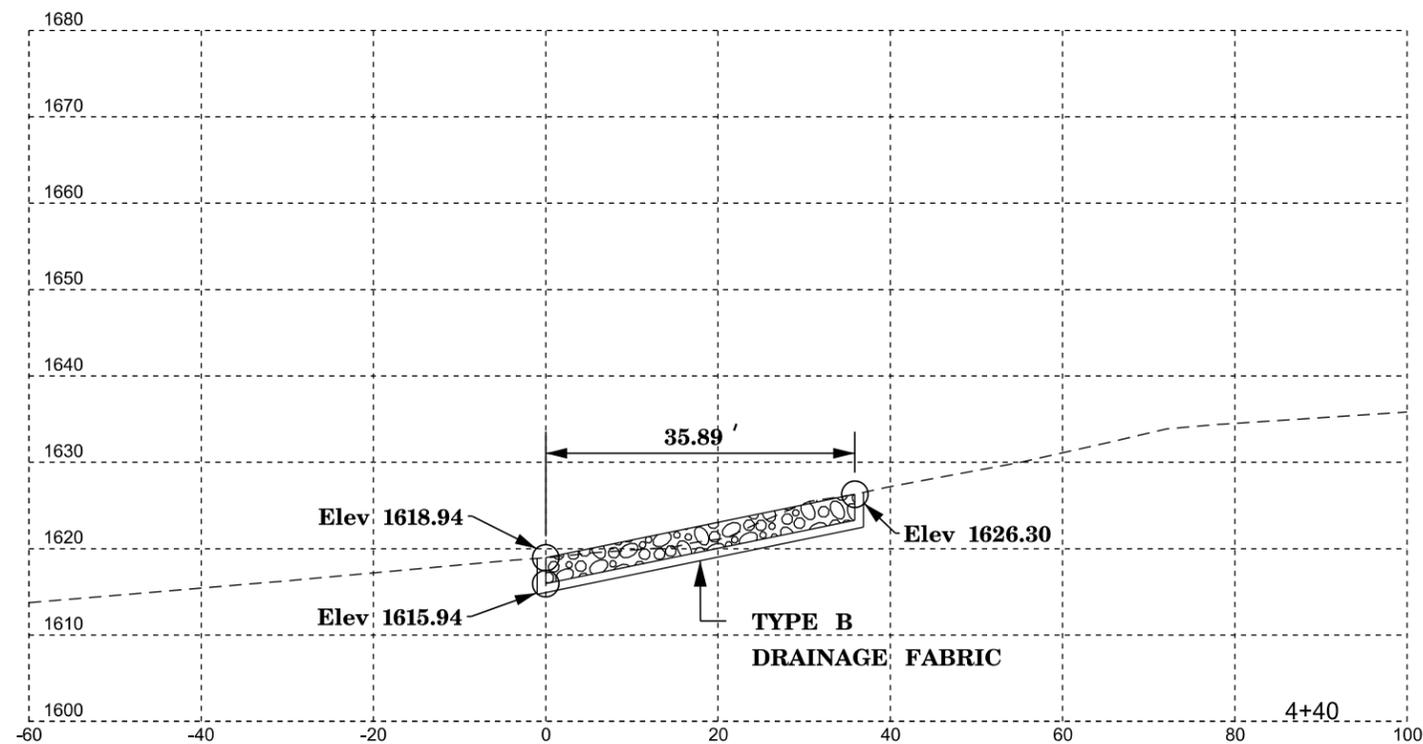
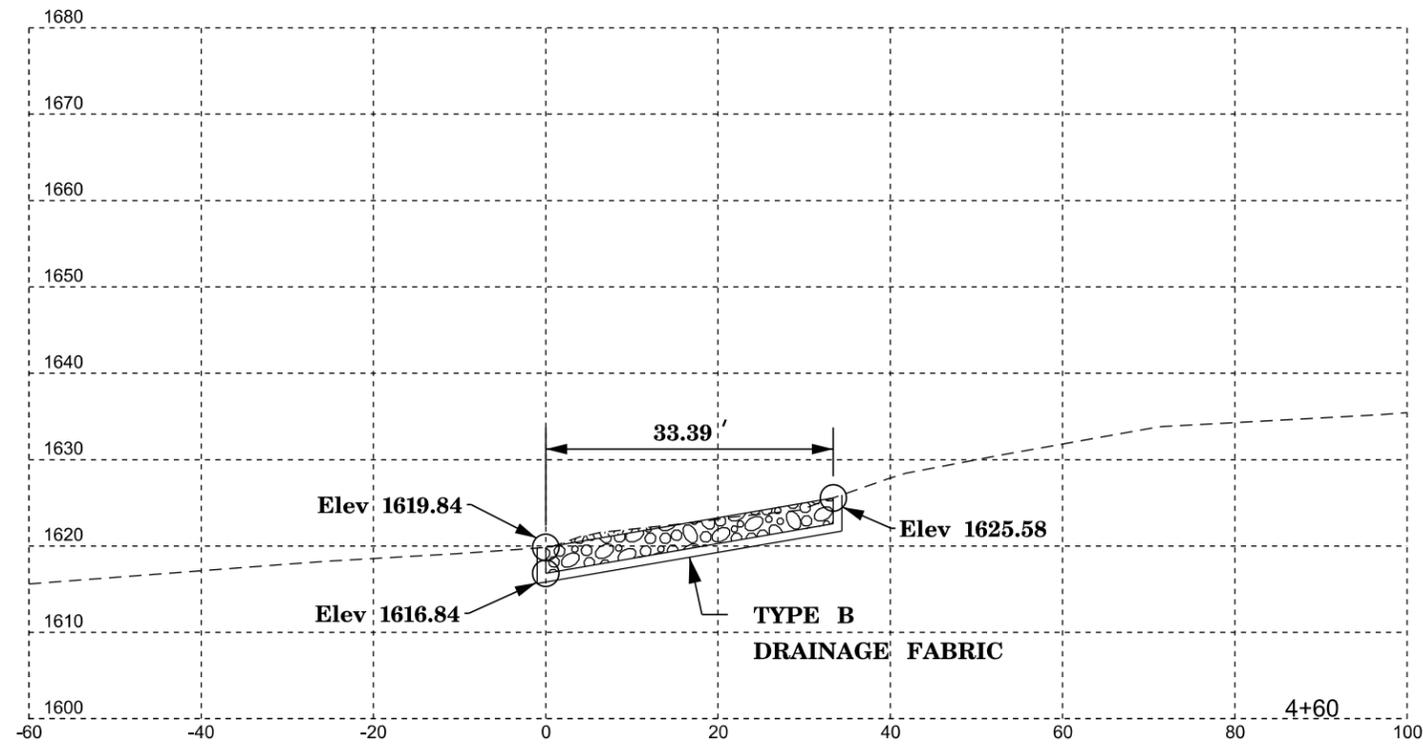
Note: From station 1+47 to station 3+56 shall be a typical Section. All elevations shall be constant through this area.



LEGEND

-  Class B RipRap
-  Excavation Material
-  Fill Material
-  Existing Ground Line

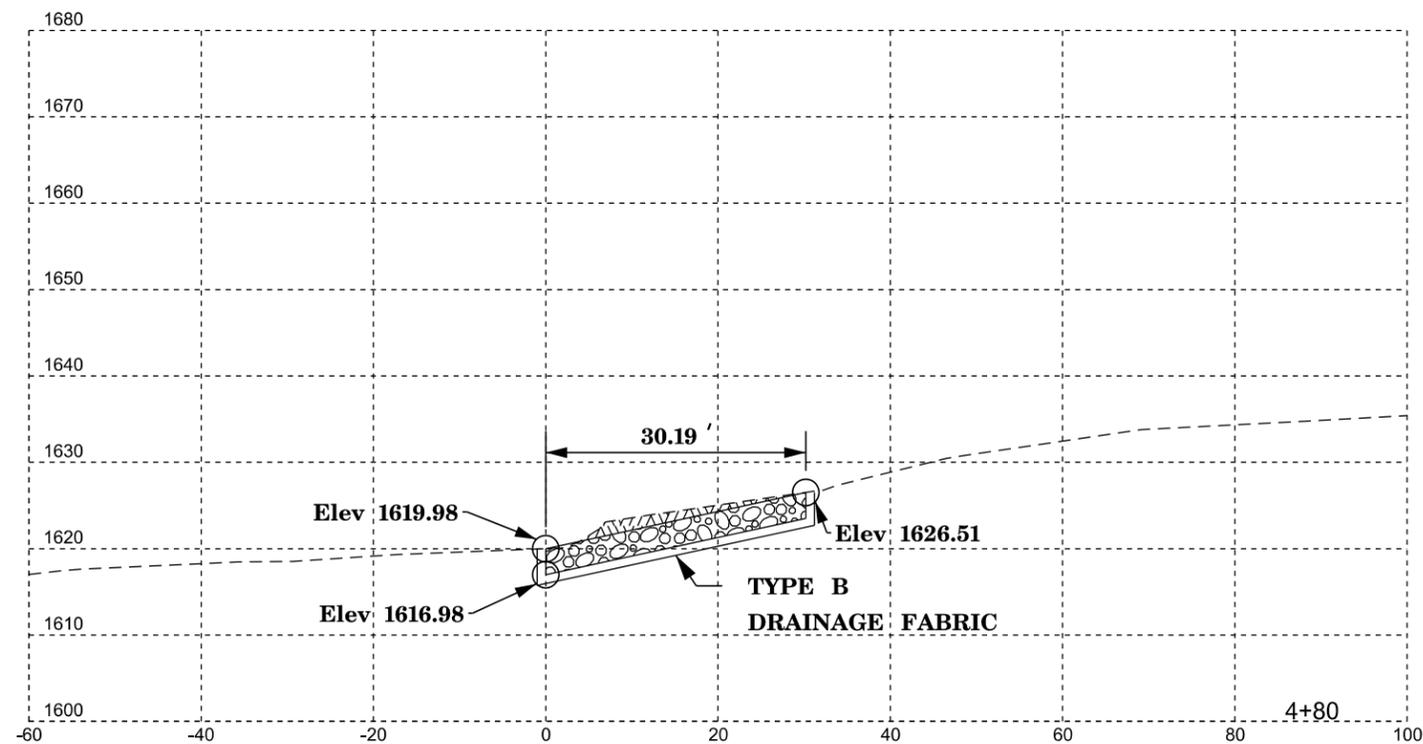
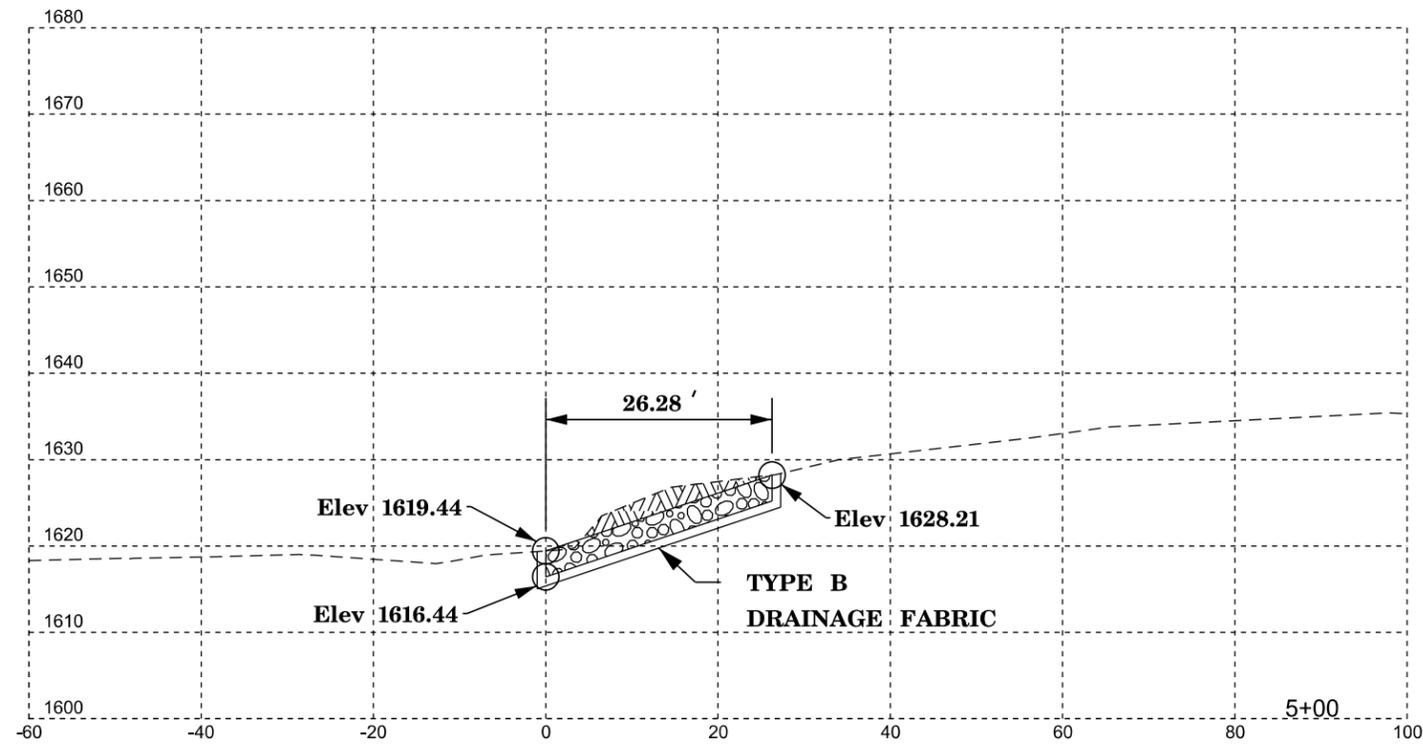
DRAWING NOT TO SCALE



LEGEND

-  Class B RipRap
-  Excavation Material
-  Fill Material
-  Existing Ground Line

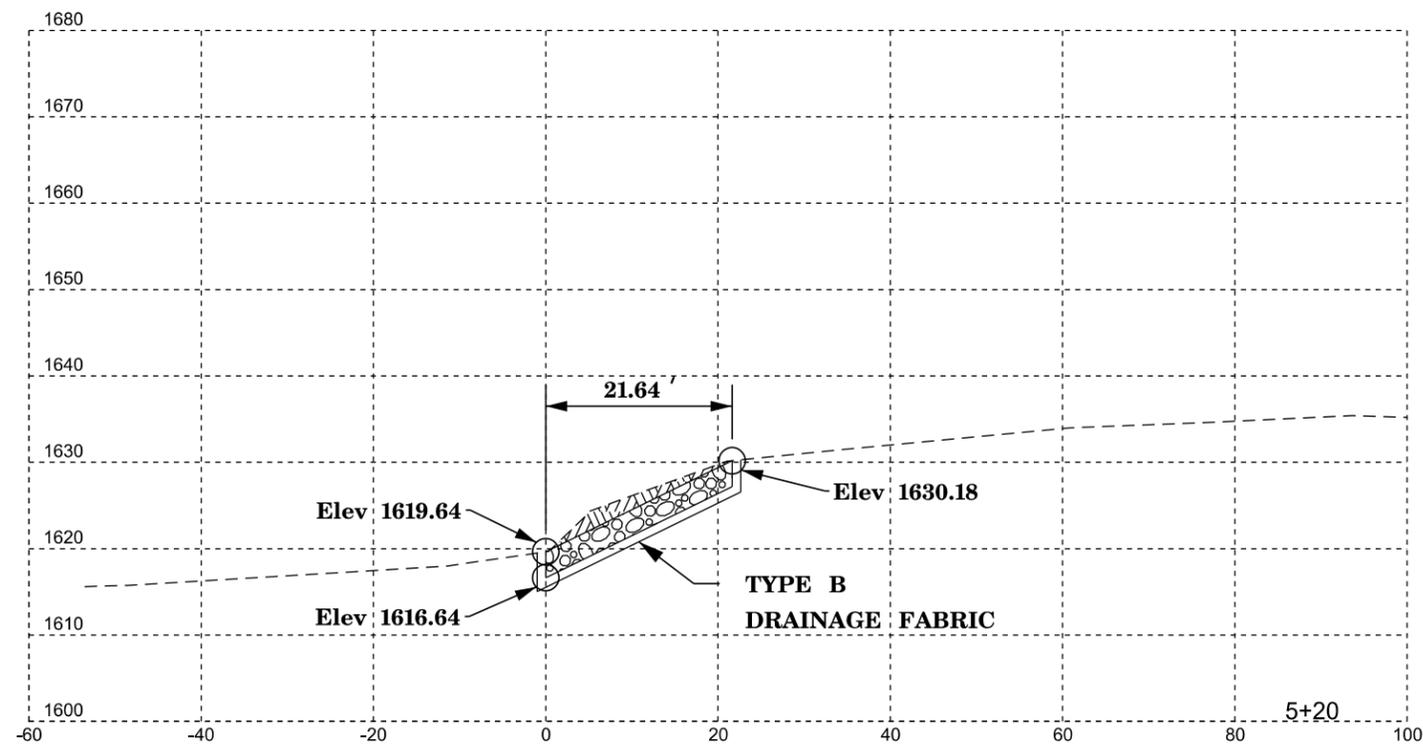
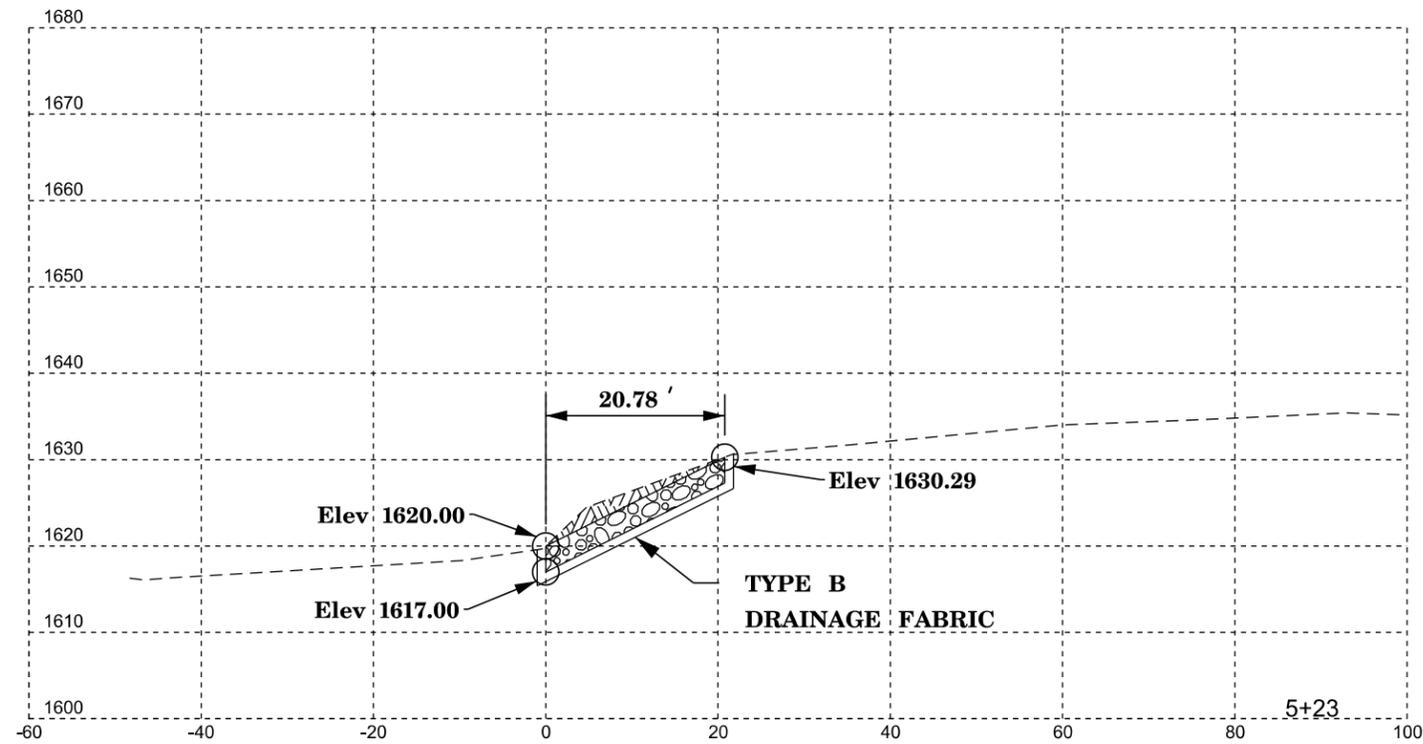
DRAWING NOT TO SCALE



LEGEND

-  Class B RipRap
-  Excavation Material
-  Fill Material
-  Existing Ground Line

DRAWING NOT TO SCALE



LEGEND

-  Class B RipRap
-  Excavation Material
-  Fill Material
-  Existing Ground Line

DRAWING NOT TO SCALE

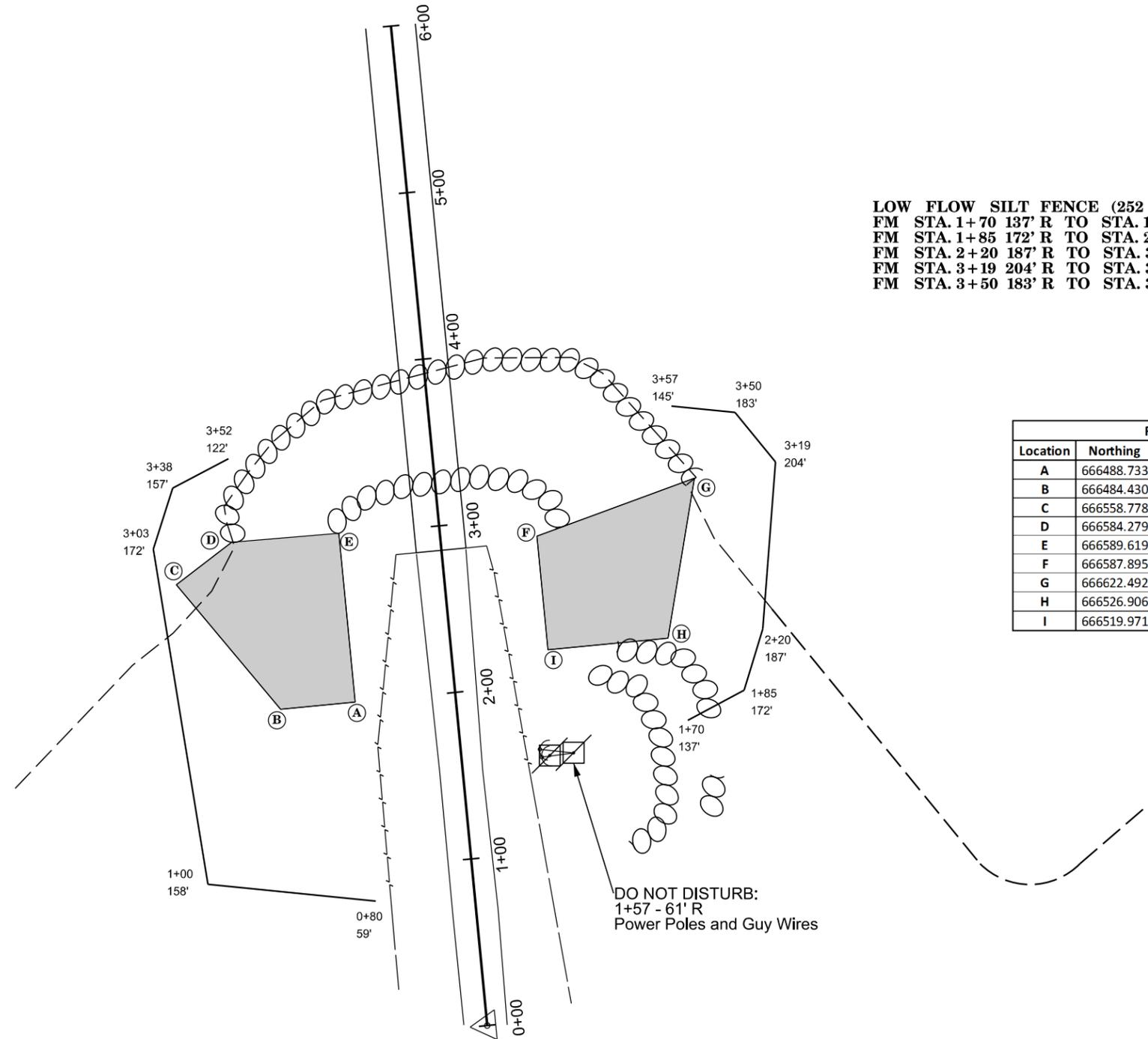


PLAN VIEW (RIPRAP) US-12 - Str. No. 16-665-200 SOUTH ABUTMENT GRAND RIVER BRIDGE

LOW FLOW SILT FENCE (380 ft)
 FM STA. 0+80 59' L TO STA. 1+00 158' L (101 ft)
 FM STA. 1+00 158' L TO STA. 3+03 172' L (203 ft)
 FM STA. 3+03 172' L TO STA. 3+38 157' L (38 ft)
 FM STA. 3+38 157' L TO STA. 3+52 122' L (38 ft)

REMOVE & RESET FENCE (397 ft)
 FM STA. 0+85 27' L TO STA. 1+72 50' L (92 ft)
 FM STA. 1+72 50' L TO STA. 2+85 27' L (115 ft)
 FM STA. 2+85 27' L TO STA. 2+85 27' R (54 ft)
 FM STA. 2+85 27' R TO STA. 2+69 30' R (17 ft)
 FM STA. 2+69 30' R TO STA. 1+50 40' R (119 ft)

LOW FLOW SILT FENCE (252 ft)
 FM STA. 1+70 137' R TO STA. 1+85 172' R (38 ft)
 FM STA. 1+85 172' R TO STA. 2+20 187' R (38 ft)
 FM STA. 2+20 187' R TO STA. 3+19 204' R (100 ft)
 FM STA. 3+19 204' R TO STA. 3+50 183' R (38 ft)
 FM STA. 3+50 183' R TO STA. 3+57 145' R (38 ft)



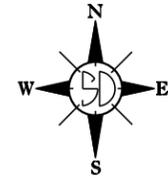
RIPRAP LIMITS				
Location	Northing	Easting	Station	Offset
A	666488.733	1804978.713	2+00.00	60.19
B	666484.430	1804934.112	2+00.00	105.00
C	666558.778	1804871.683	2+80.00	160.00
D	666584.279	1804904.775	3+02.21	124.61
E	666589.619	1804968.979	3+01.35	60.19
F	666587.895	1805087.596	2+88.25	57.71
G	666622.492	1805181.871	3+13.63	154.87
H	666526.906	1805166.105	2+20.00	130.00
I	666519.971	1805094.225	2+20.00	57.79

LEGEND

- RIPRAP LIMITS
- LOW FLOW SILT FENCE
- REMOVE & RESET FENCE
- EXISTING WATER LINE
- POWER POLE
- GUY WIRE

DRAWING NOT TO SCALE

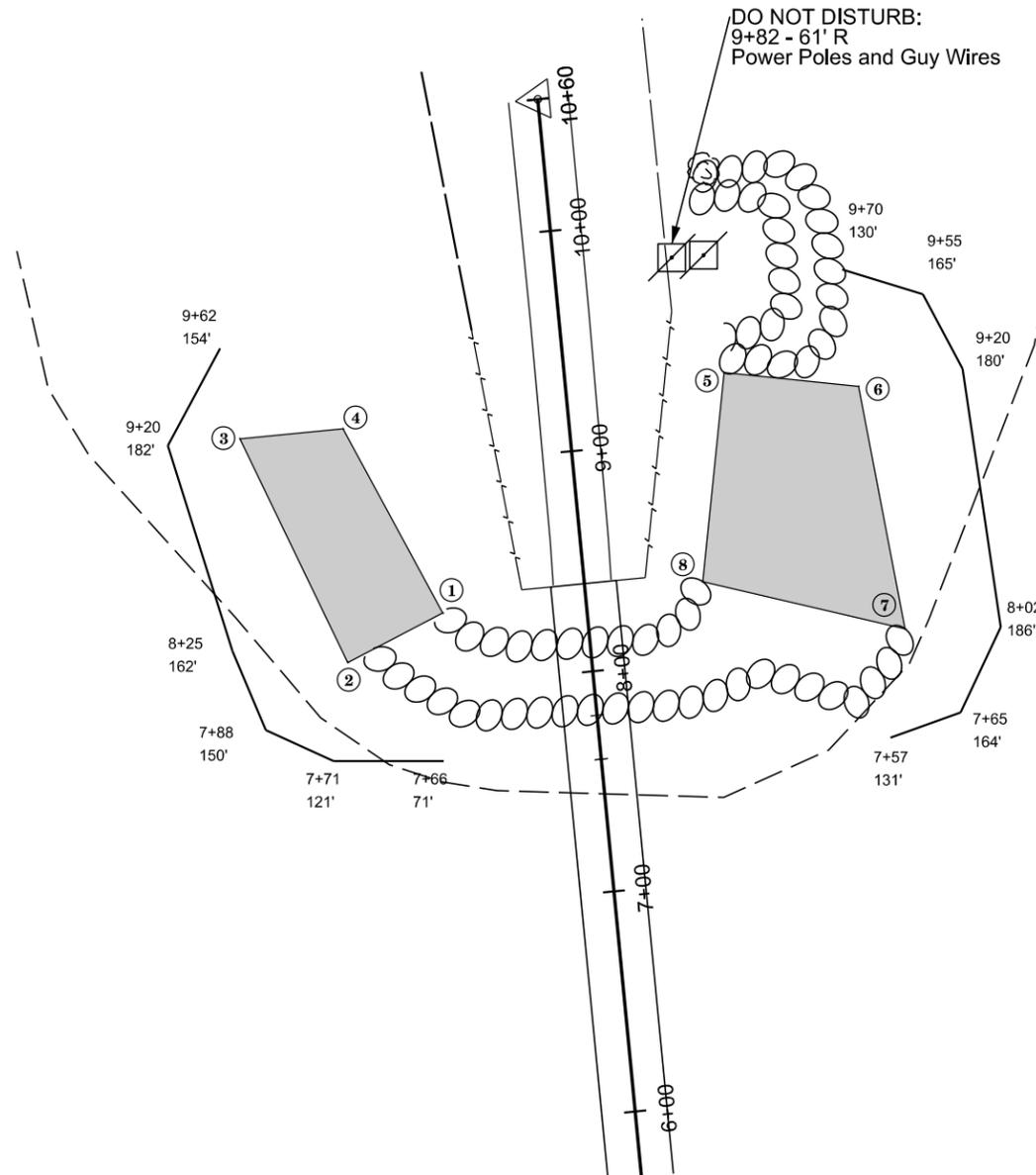
PLAN VIEW (RIPRAP) US-12 - Str. No. 16-665-200 NORTH ABUTMENT GRAND RIVER BRIDGE



LOW FLOW SILT FENCE (270 ft)
 FM STA. 7+66 71' L TO STA. 7+71 121' L (50 ft)
 FM STA. 7+71 121' L TO STA. 7+88 150' L (34 ft)
 FM STA. 7+88 150' L TO STA. 8+25 162' L (39 ft)
 FM STA. 8+25 162' L TO STA. 9+20 182' L (97 ft)
 FM STA. 9+20 182' L TO STA. 9+62 154' L (50 ft)

REMOVE & RESET FENCE (296 ft)
 FM STA. 9+59 40' L TO STA. 8+40 29' L (119 ft)
 FM STA. 8+40 29' L TO STA. 8+40 27' R (56 ft)
 FM STA. 8+40 27' R TO STA. 9+59 51' R (121 ft)

LOW FLOW SILT FENCE (271 ft)
 FM STA. 7+57 131' R TO STA. 7+65 164' R (34 ft)
 FM STA. 7+65 164' R TO STA. 8+02 186' R (43 ft)
 FM STA. 8+02 186' R TO STA. 9+20 180' R (118 ft)
 FM STA. 9+20 180' R TO STA. 9+55 165' R (38 ft)
 FM STA. 9+55 165' R TO STA. 9+70 130' R (38 ft)

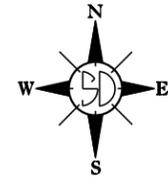


RIPRAP LIMITS				
Location	Northing	Easting	Station	Offset
1	667118.041	1804912.994	8+32.71	65.17
2	667095.691	1804869.908	8+14.60	110.20
3	667196.857	1804820.969	9+20.00	149.20
4	667201.370	1804867.752	9+20.00	102.20
5	667226.801	1805040.579	9+28.72	72.27
6	667220.535	1805101.472	9+16.63	132.28
7	667110.956	1805122.628	8+05.53	142.82
8	667132.216	1805030.846	8+35.50	53.50

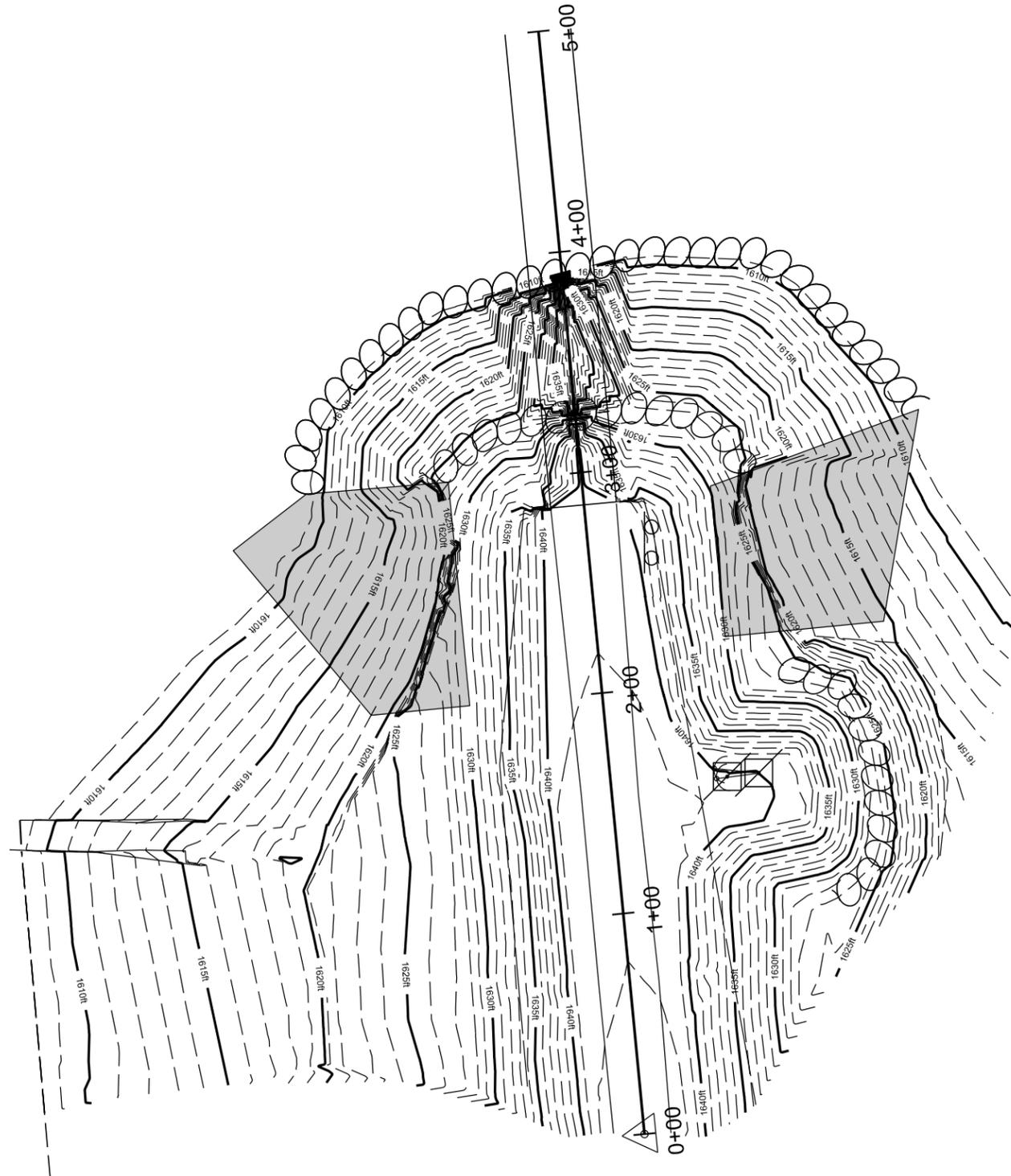
LEGEND

- RIPRAP LIMITS
- LOW FLOW SILT FENCE
- REMOVE & RESET FENCE
- EXISTING WATER LINE
- POWER POLE
- GUY WIRE

DRAWING NOT TO SCALE



PLAN VIEW (CONTOURS) US-12 - Str. No. 16-665-200 SOUTH ABUTMENT GRAND RIVER BRIDGE

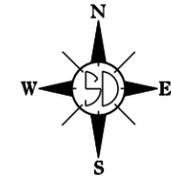


LEGEND

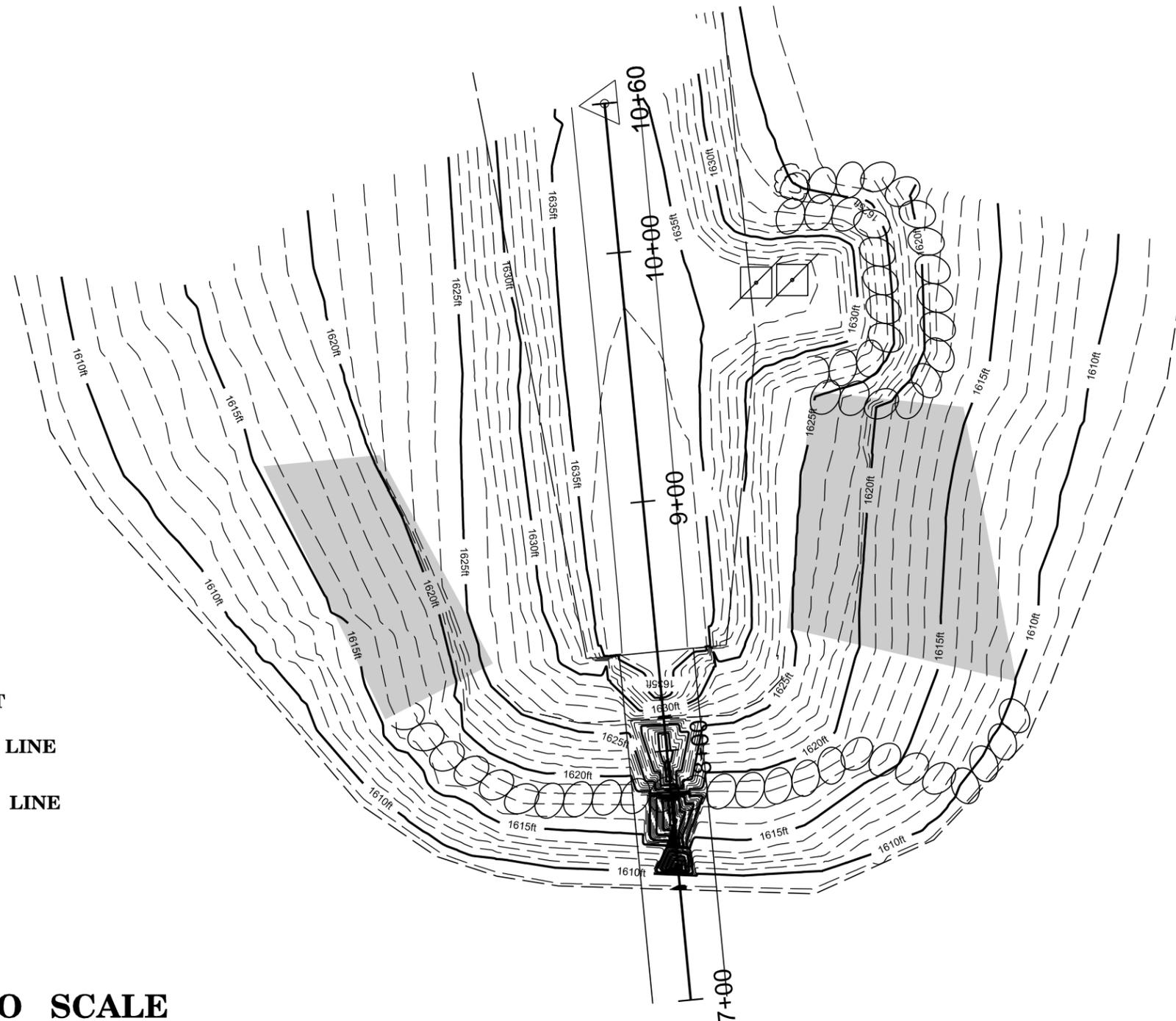
-  RIPRAP PLACEMENT
-  1 FOOT ELEVATION LINE
-  5 FOOT ELEVATION LINE
-  POWER POLE
-  GUY WIRE

DRAWING NOT TO SCALE

Revised by JJR on 05/21/2014



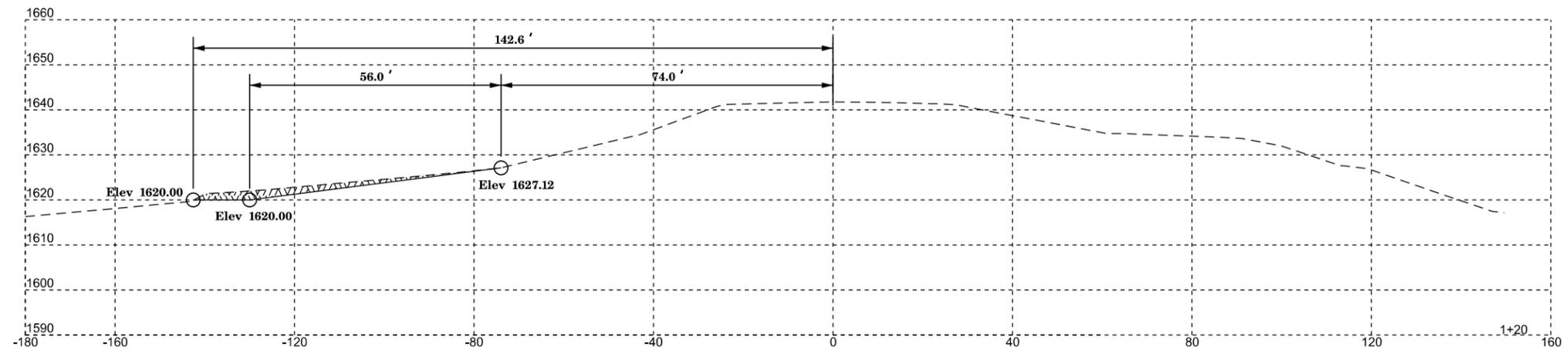
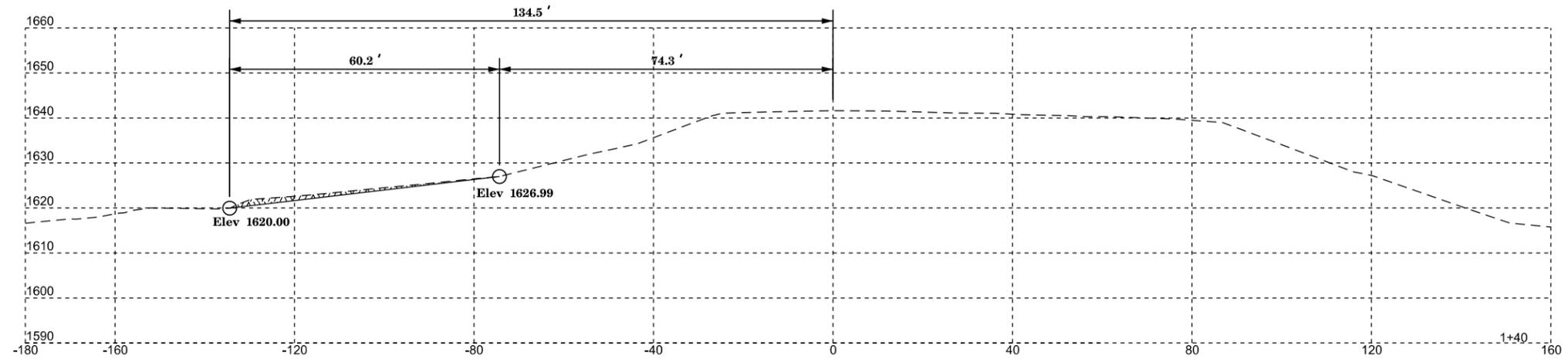
PLAN VIEW (CONTOURS) US-12 - Str. No. 16-665-200 NORTH ABUTMENT GRAND RIVER BRIDGE



LEGEND

-  RIPRAP PLACEMENT
-  1 FOOT ELEVATION LINE
-  5 FOOT ELEVATION LINE
-  POWER POLE
-  GUY WIRE

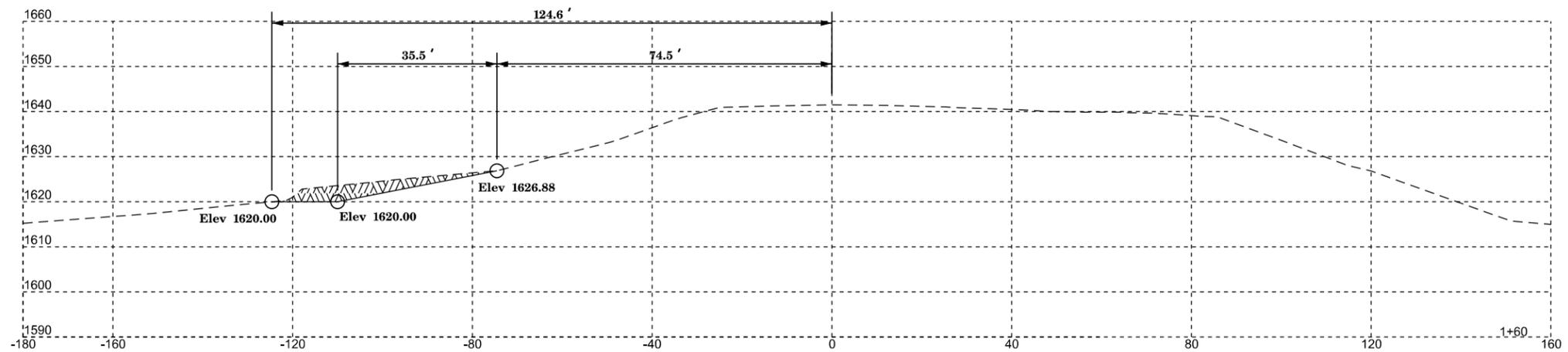
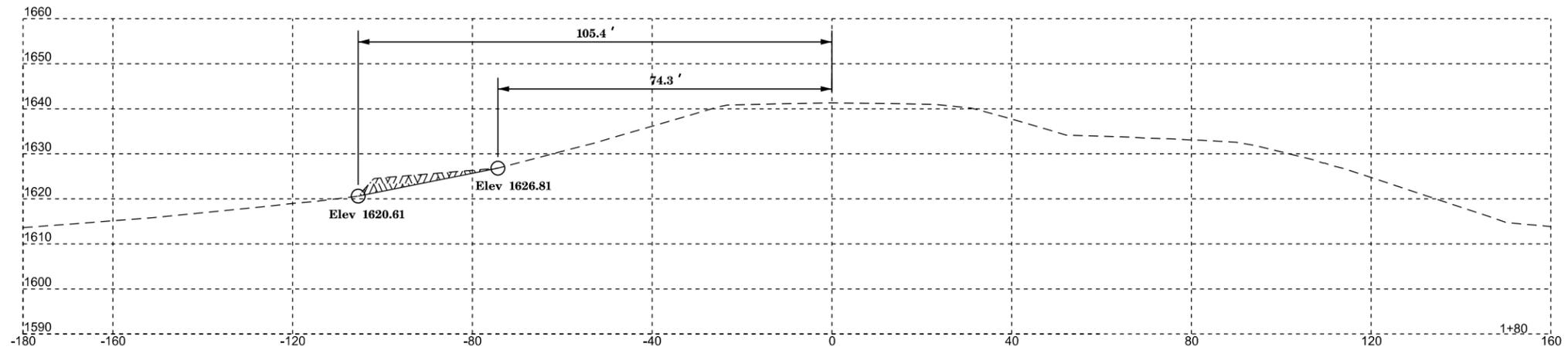
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LEGEND

-  **Class B RipRap**
-  **Excavation Material**
-  **Fill Material**
-  **Existing Ground Line**

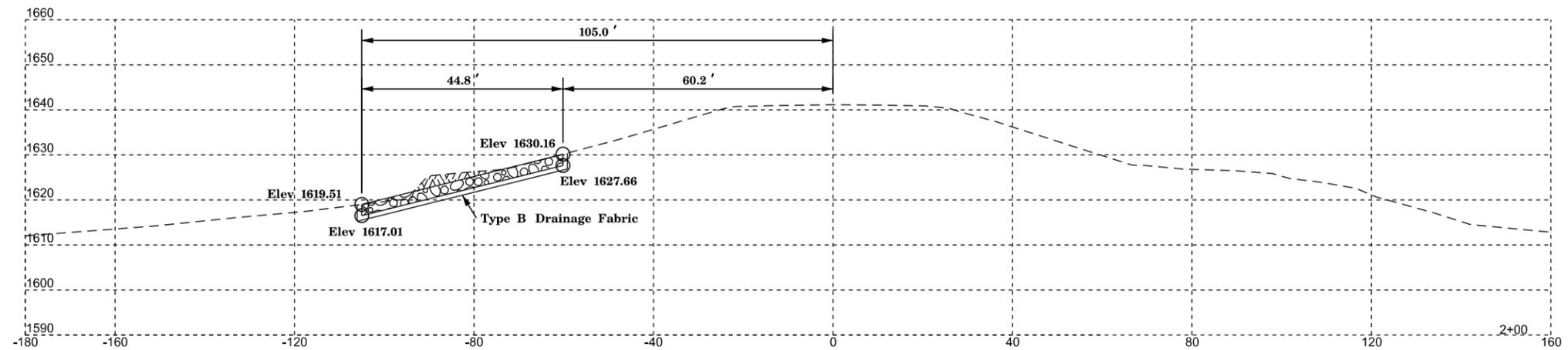
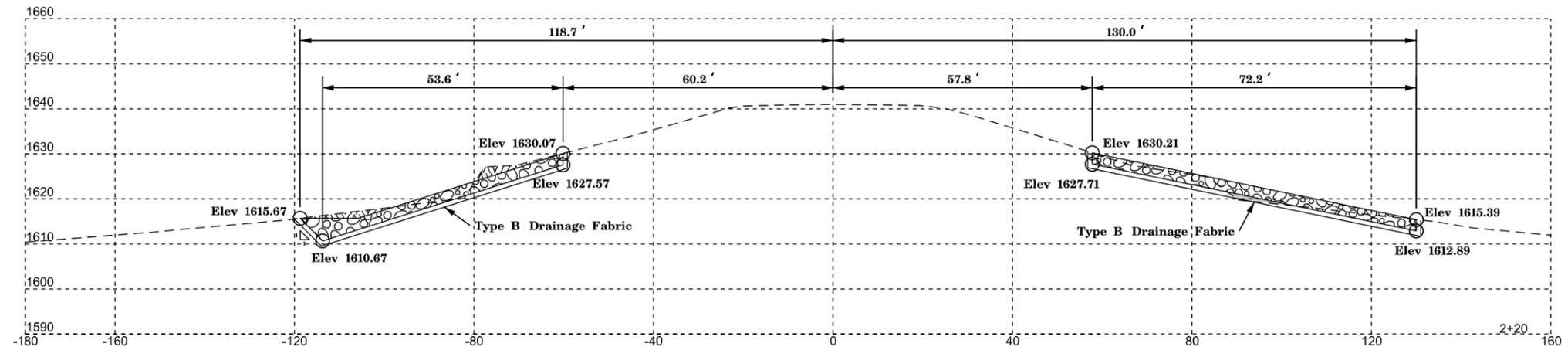
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LEGEND

-  **Class B RipRap**
-  **Excavation Material**
-  **Fill Material**
-  **Existing Ground Line**

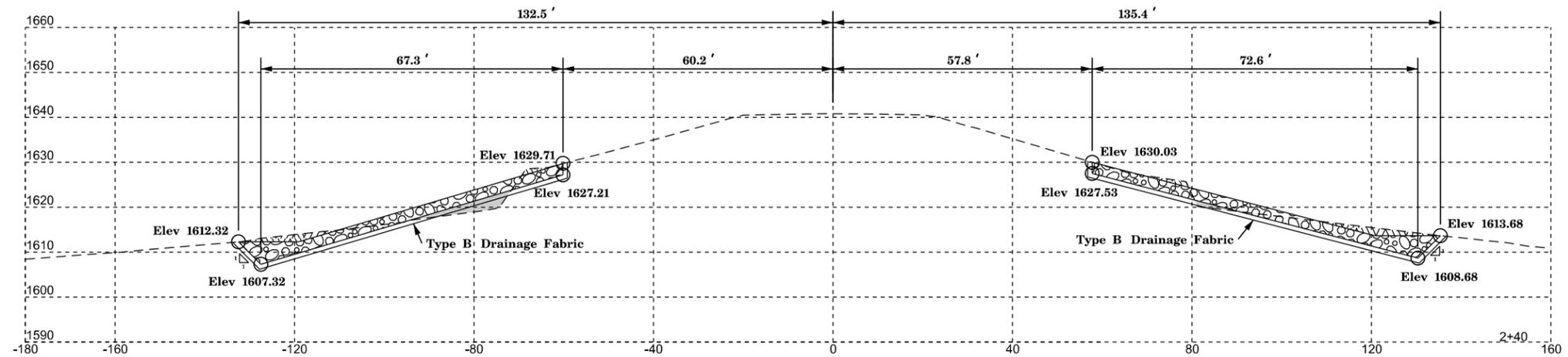
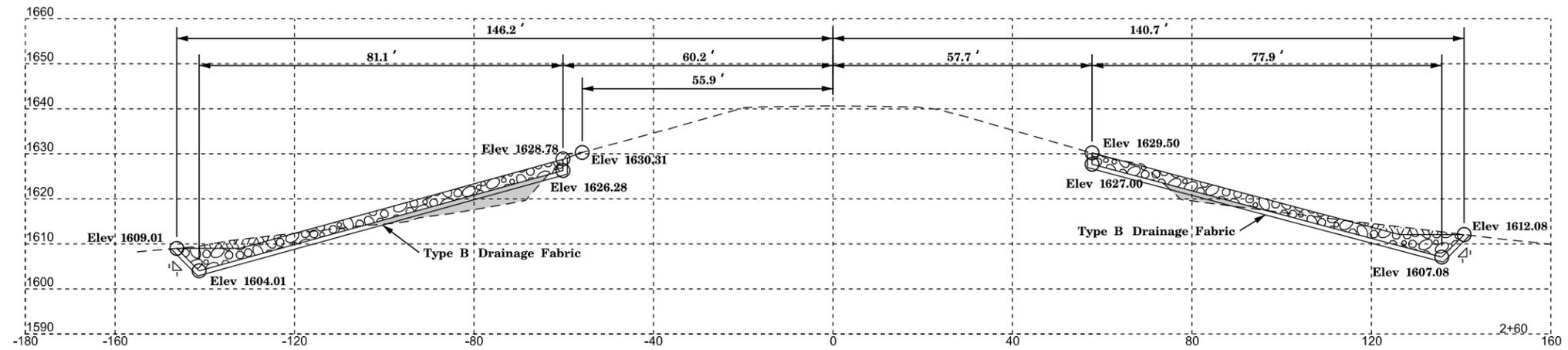
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LEGEND

-  Class B RipRap
-  Excavation Material
-  Fill Material
-  Existing Ground Line

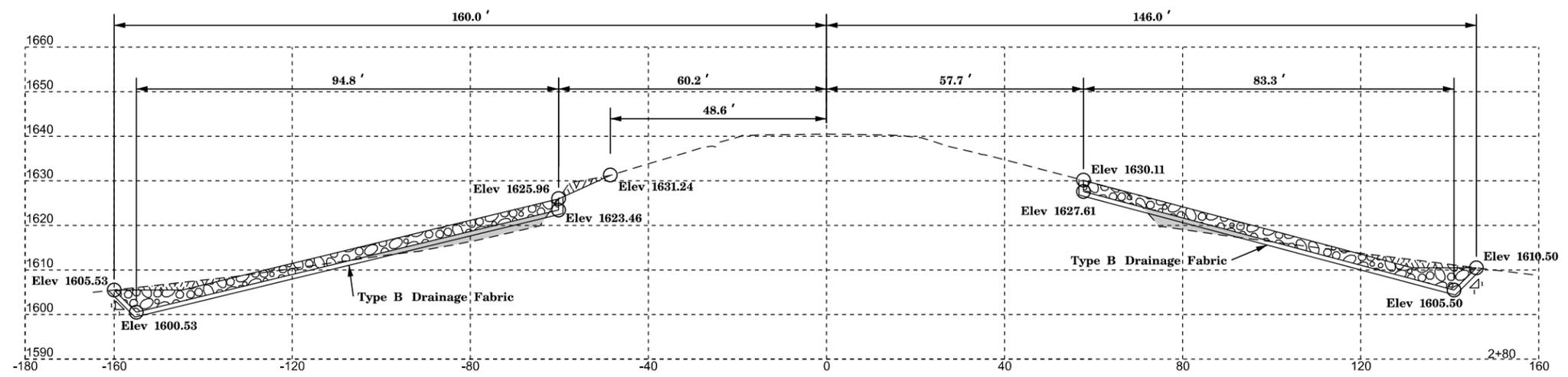
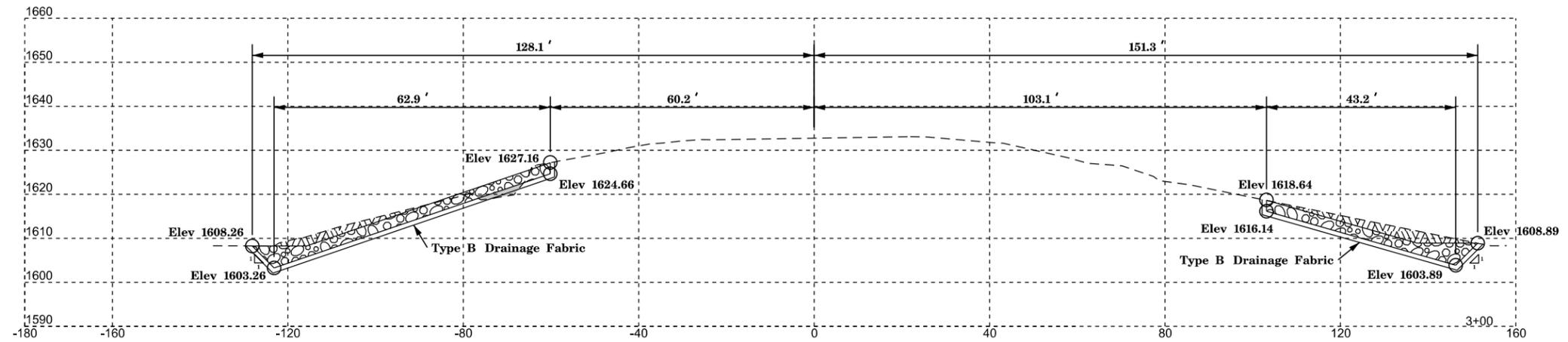
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LEGEND

-  Class B RipRap
-  Excavation Material
-  Fill Material
-  Existing Ground Line

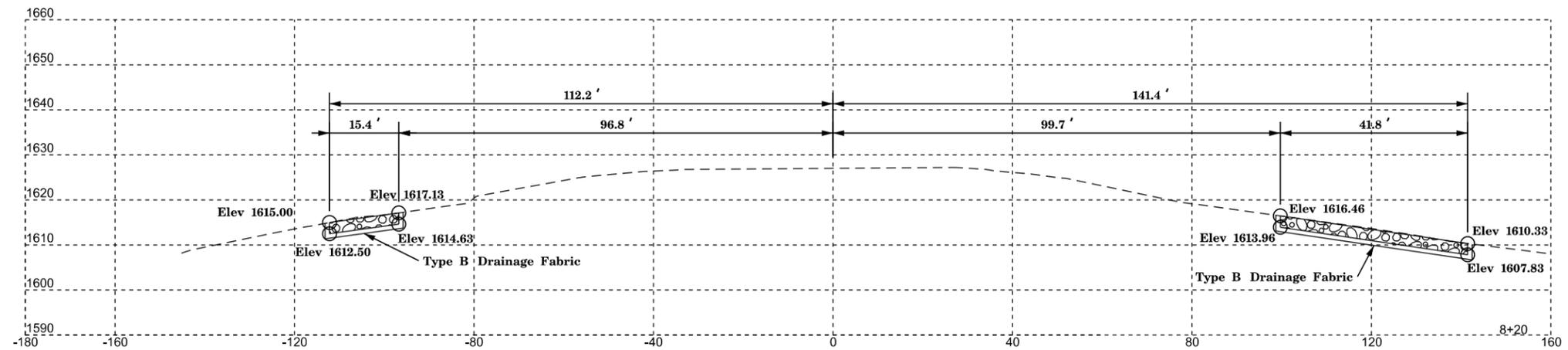
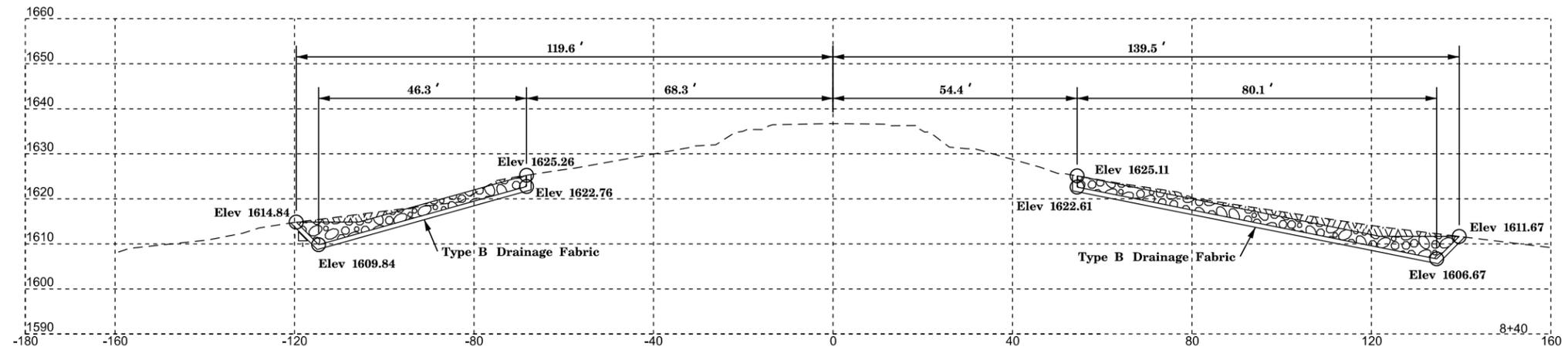
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LEGEND

-  Class B RipRap
-  Excavation Material
-  Fill Material
-  Existing Ground Line

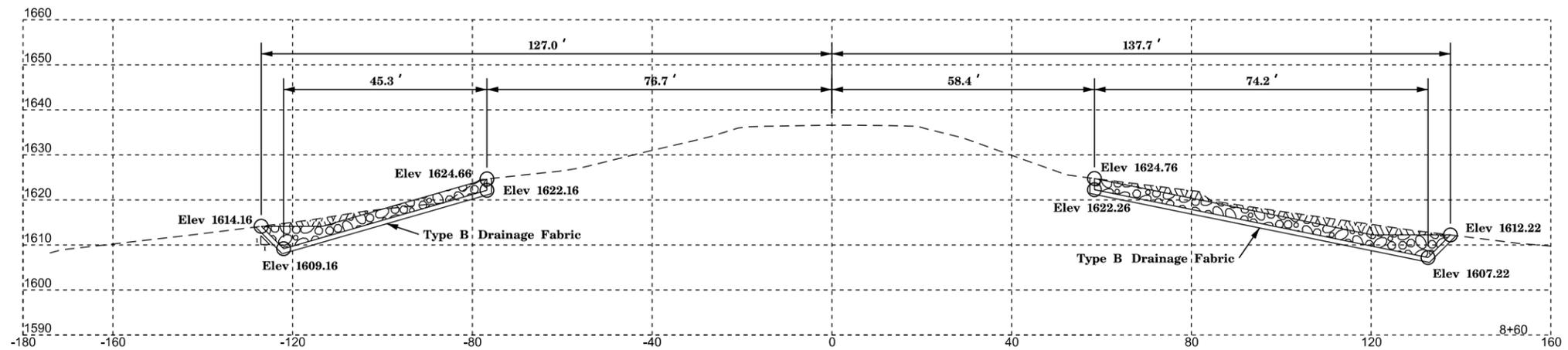
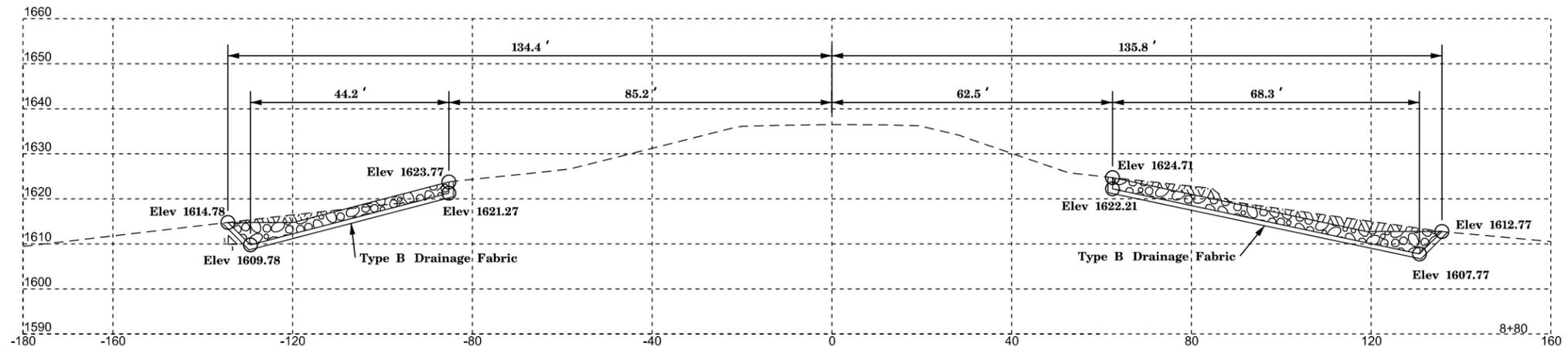
DRAWING NOT TO SCALE



LEGEND

-  Class B RipRap
-  Excavation Material
-  Fill Material
-  Existing Ground Line

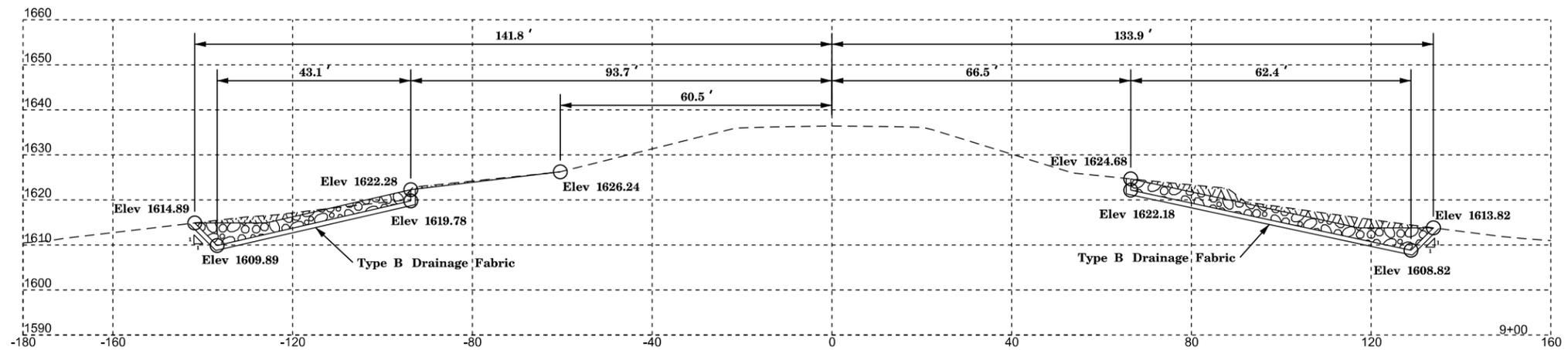
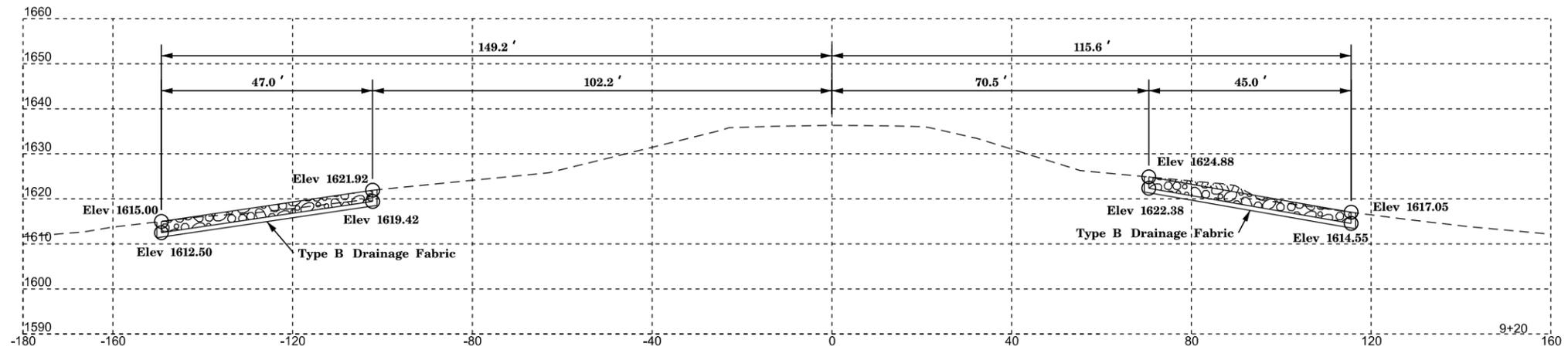
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LEGEND

-  Class B RipRap
-  Excavation Material
-  Fill Material
-  Existing Ground Line

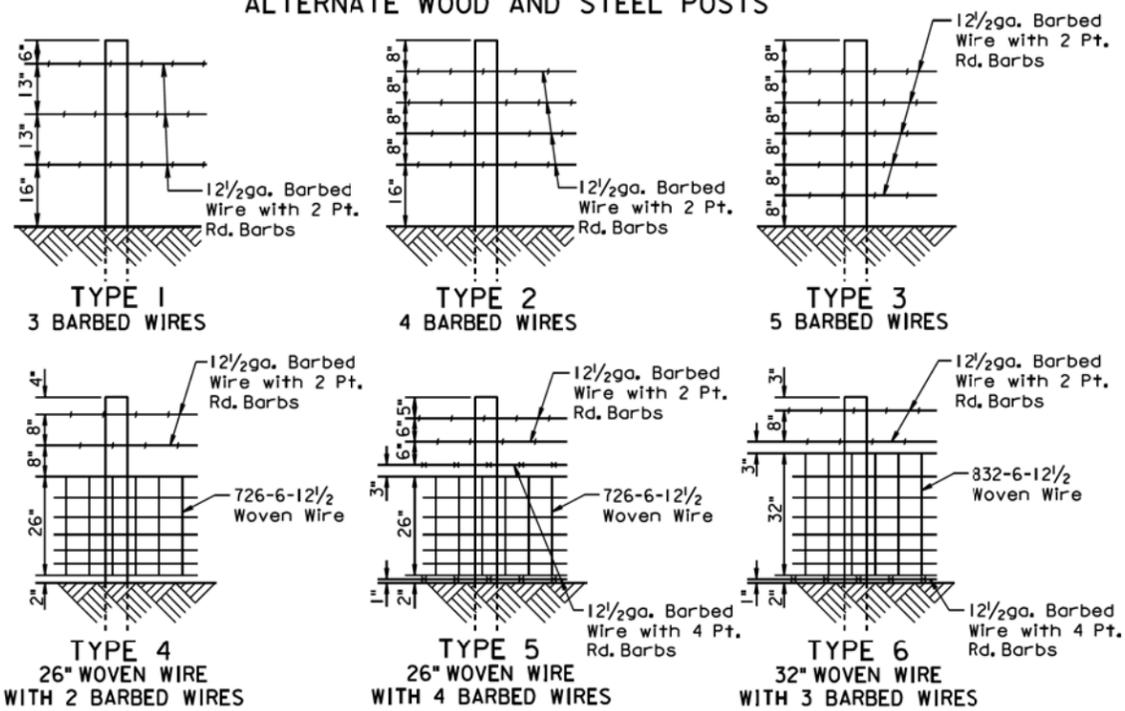
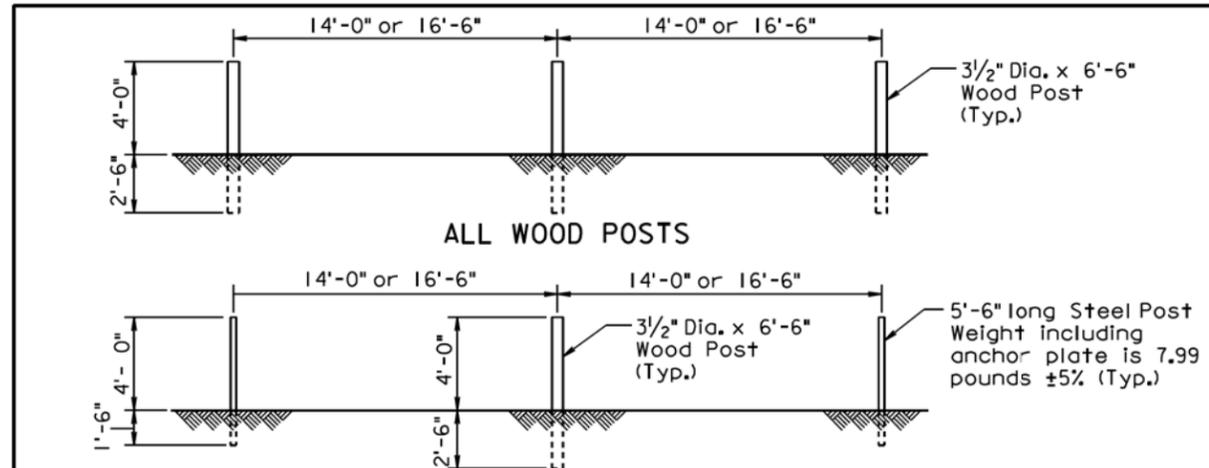
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LEGEND

-  Class B RipRap
-  Excavation Material
-  Fill Material
-  Existing Ground Line

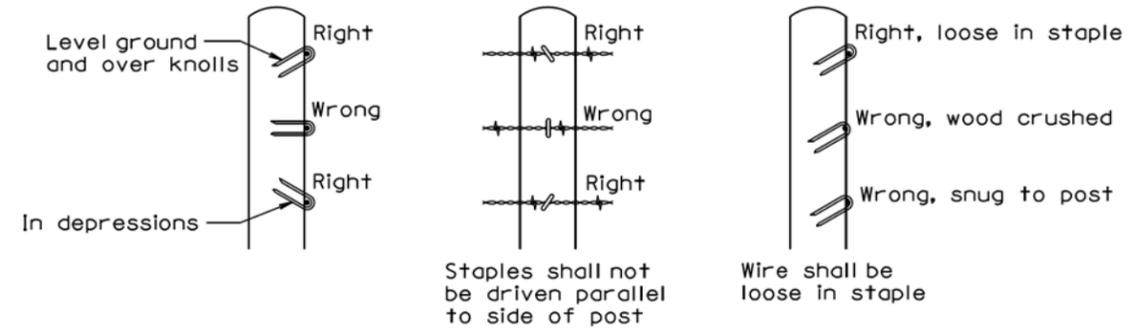
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TYPE OF FENCE	LINE POST SPACING	BARBED WIRE		WOVEN WIRE
		WIRE GAUGE	NUMBER AND SHAPE OF BARBS	STYLE OR DESIGN NO.
1	3 Barbed Wires	16'-6"	12 1/2 2 Point Round	---
2	4 Barbed Wires	16'-6"	12 1/2 2 Point Round	---
3	5 Barbed Wires	16'-6"	12 1/2 2 Point Round	---
4	26" Woven Wire with 2 Barbed Wires	14'-0"	12 1/2 2 Point Round	726-6-12 1/2
5	26" Woven Wire with 4 Barbed Wires	14'-0"	12 1/2 2 wires with 2 Pt. Rd., 2 wires with 4 Pt. Rd.	726-6-12 1/2
6	32" Woven Wire with 3 Barbed Wires	14'-0"	12 1/2 2 wires with 2 Pt. Rd., 1 wire with 4 Pt. Rd.	832-6-12 1/2

GENERAL NOTES:
 Fence types designated on the plans that are followed by the letter S shall have smooth (barbless) wires.
 When type 5S or 6S is designated the bottom wire may be barbed, smooth, or left off.
 All degrees of curvature stated for fence are at centerline of roadway.
 September 14, 2009

S D D O T	RIGHT-OF-WAY FENCE	PLATE NUMBER 620.01
	Published Date: 2nd Qtr. 2014	Sheet 1 of 1



STAPLE INSTALLATION

GENERAL NOTES:

The Right-of-Way fence shall consist of barbed wire or a combination of woven wire and barbed wire. The barbed wire and/or woven wire shall be fastened to all wood posts or fastened to alternating wood and steel posts. Only wood posts shall be used for brace panels. Gates shall be of the type designated in the plans or as otherwise directed by the Engineer. Fence shall be constructed conforming to the details on the standard plates and in the plans unless otherwise directed by the Engineer.

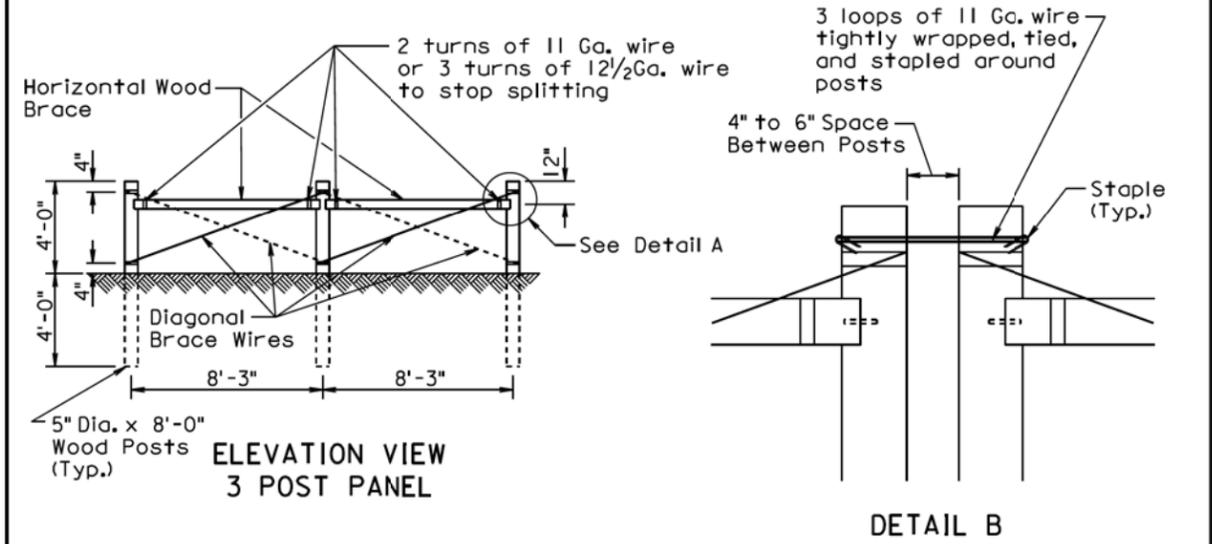
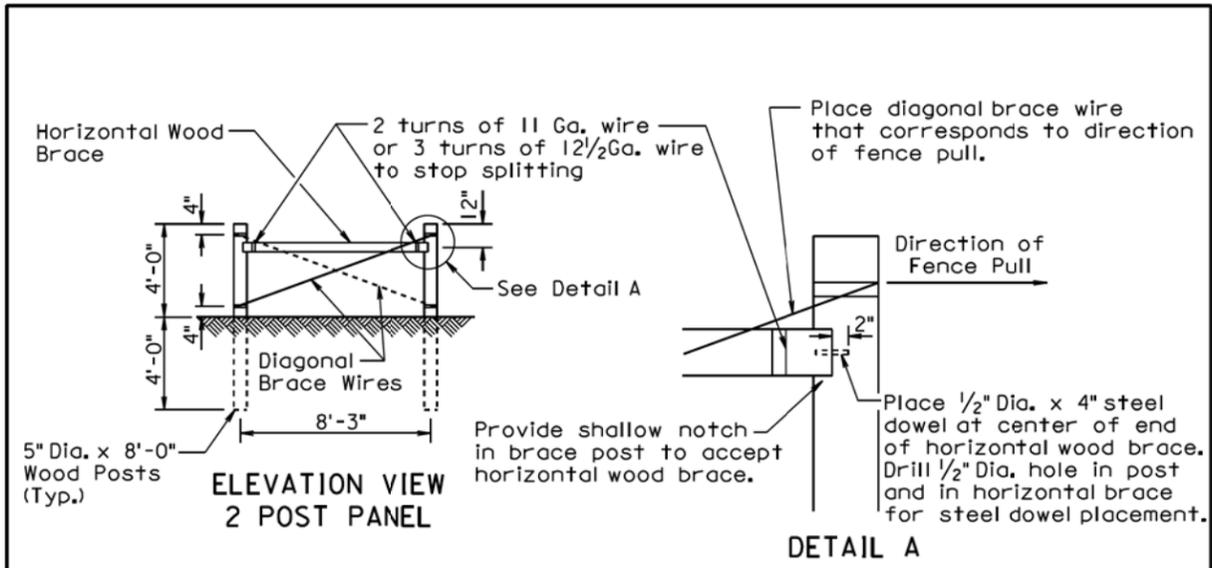
Right-of-Way fence on Interstate Projects shall be constructed one foot within the Interstate Right-of-Way lines except at bridge openings, cattle passes, and as otherwise directed by the Engineer.

Right-of-Way fence other than on Interstate Projects shall be constructed within one foot of the Right-of-Way on the Landowner's side except at bridge openings, cattle passes, and as otherwise directed by the Engineer.

Barbs shall be fabricated from zinc coated 14 ga. wire. Two point barbs shall be wrapped twice around one main strand at 4" spacings and the four point barbs shall be interlocked and wrapped around both main strands at 5" spacings.

The gages of wire and wood post lengths and sizes are the minimum acceptable unless otherwise specified in the plans. The tolerances for steel posts shall be as stated in AASHTO M281. Woven wire shall conform to design and specifications of ASTM A116 and barbed wire shall conform to ASTM A121.

S D D O T	STAPLE INSTALLATION AND GENERAL RIGHT-OF-WAY FENCE NOTES	PLATE NUMBER 620.02
	Published Date: 2nd Qtr. 2014	Sheet 1 of 1



GENERAL NOTES:

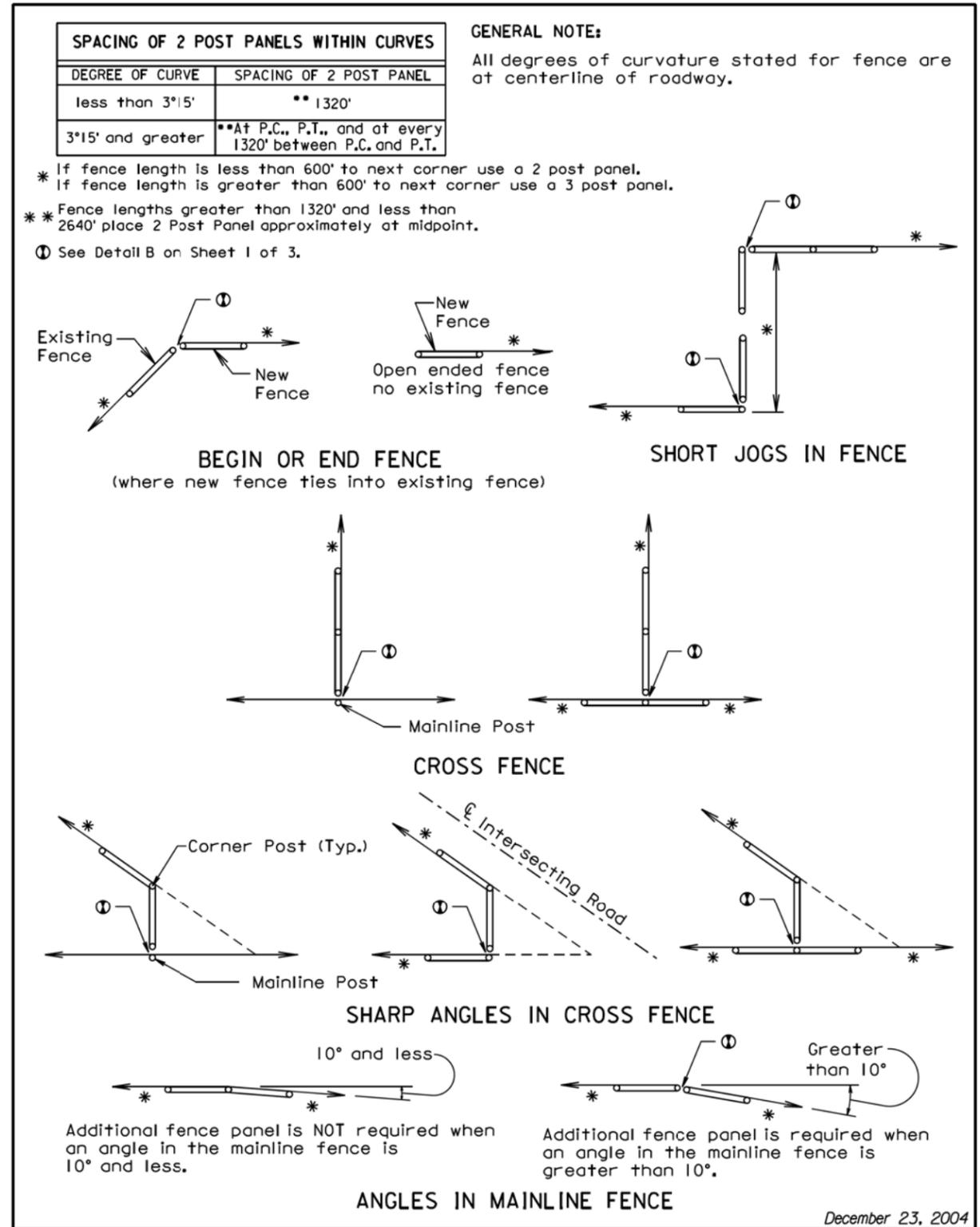
Two Post Panels shall be installed at least every 1320' between corners.

Two Post Panels shall be installed at any sharp vertical angle crest points and as directed by the Engineer.

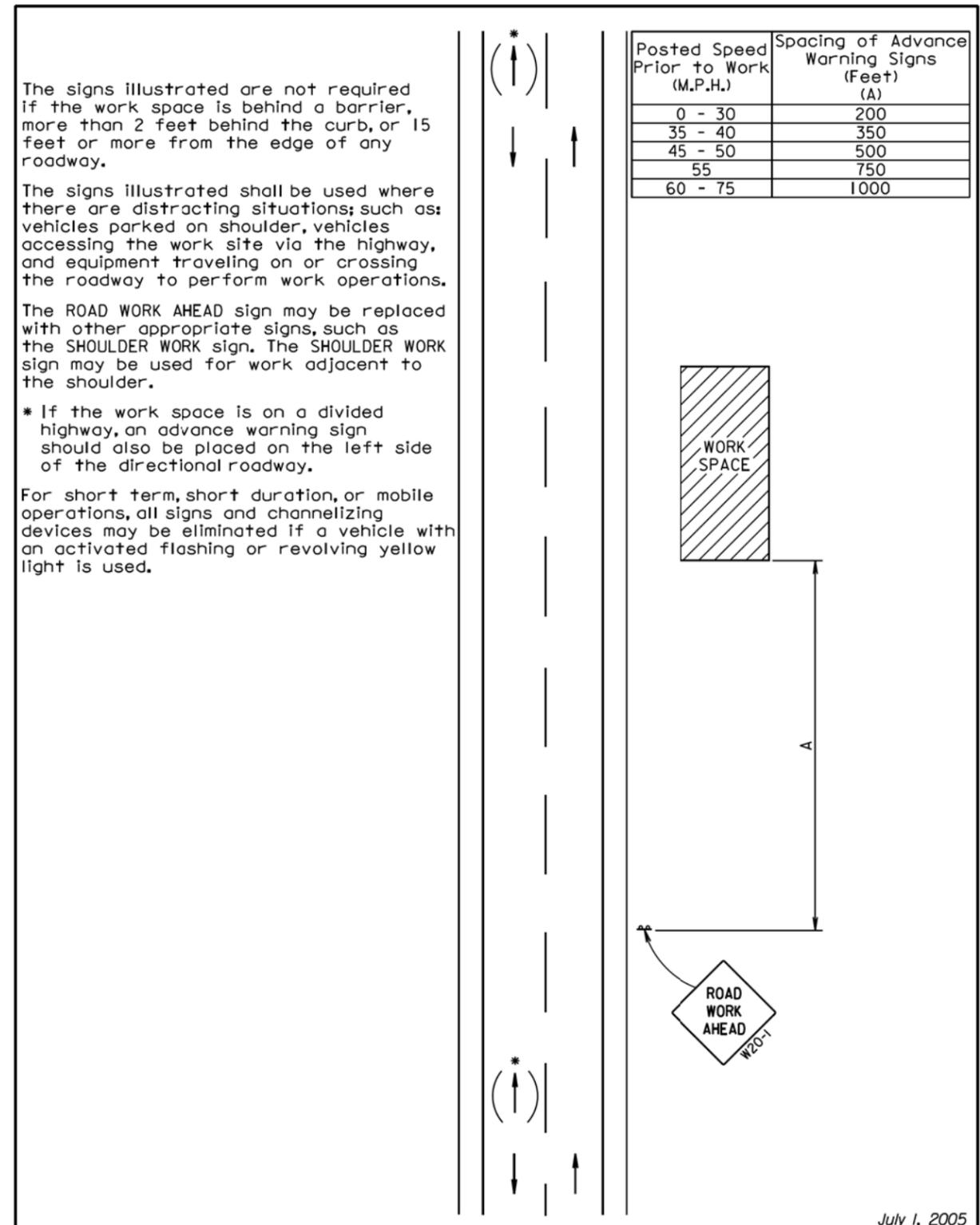
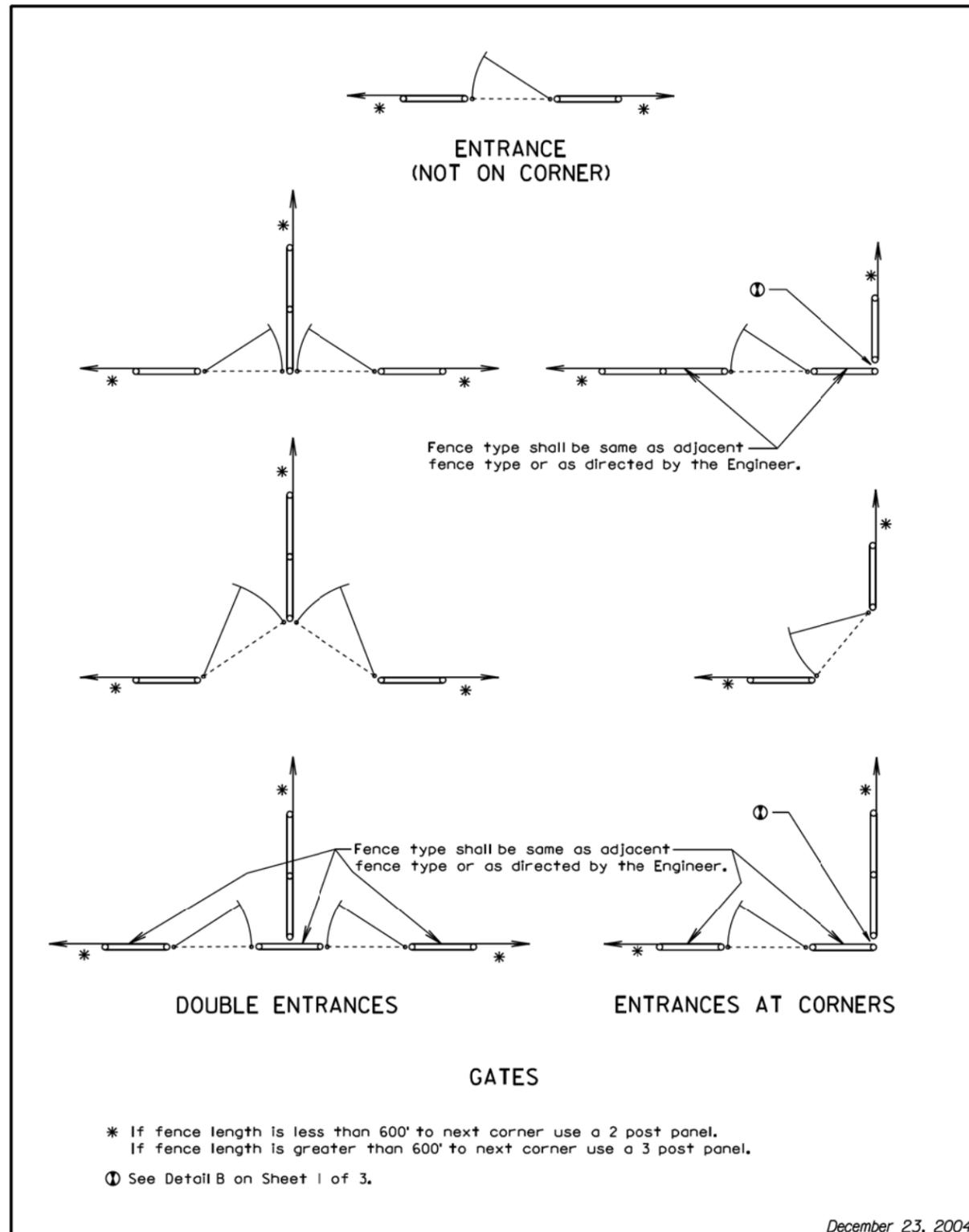
Horizontal wood braces shall consist of 4" dia. x 8' wood posts or rough 4" x 4" x 8' timbers.

Diagonal brace wires shall be fabricated with 4 strands of 9 Ga. galvanized wire twisted tight. The diagonal brace wires shall be installed in accordance with the direction of the fence pull. Two diagonal brace wires are required if fence pull is in both directions.

December 23, 2004



December 23, 2004



Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	25
35 - 40	350	25
45 - 50	500	50
55	750	50
60 - 65	1000	50

- Flagger
- Channelizing Device

For low-volume traffic situations with short work zones on straight roadways where the flagger is visible to road users approaching from both directions, a single flagger may be used.

The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short duration operations (1 hour or less).

For tack and/or flush seal operations, when flaggers are not being used, the FRESH OIL sign (W21-2) shall be displayed in advance of the liquid asphalt areas.

Flashing warning lights and/or flags may be used to call attention to the advance warning signs.

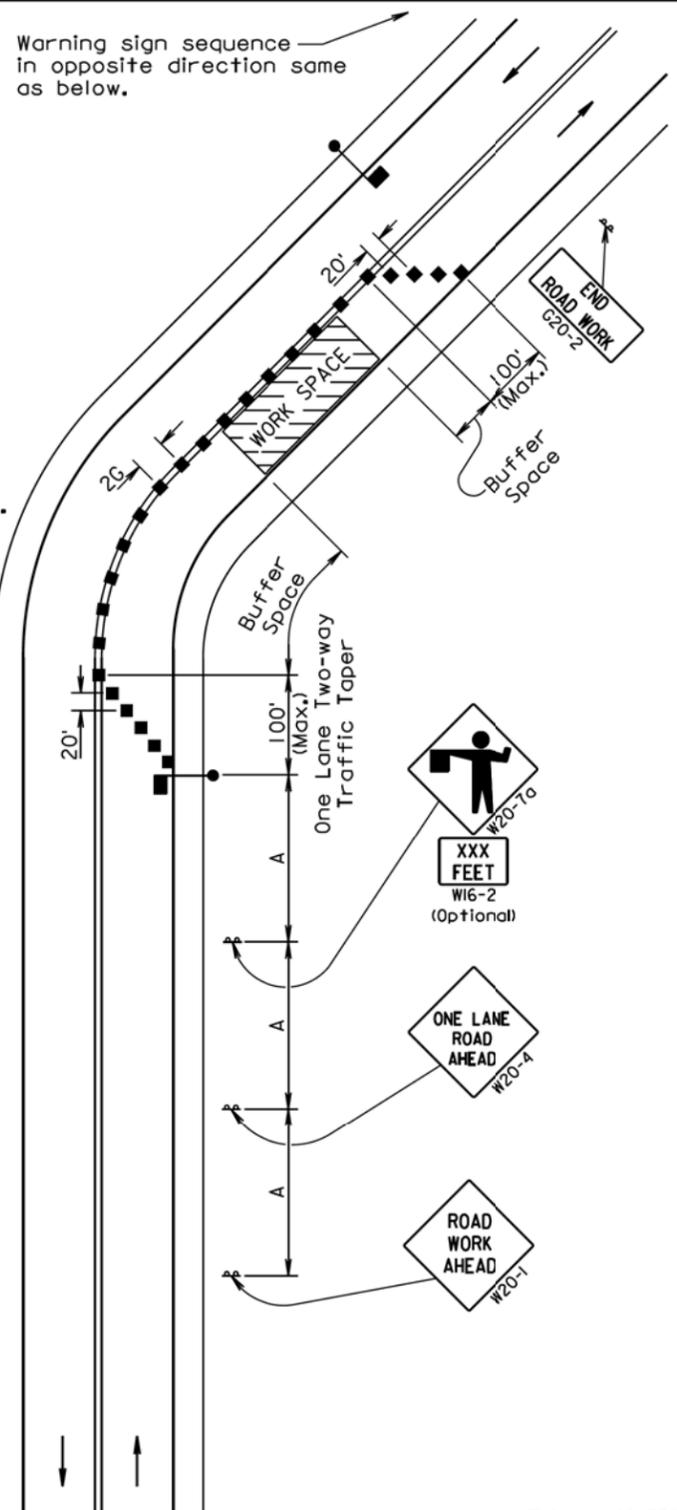
The channelizing devices shall be drums or 42" cones.

Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.

2-020
END ROAD WORK
G20-2

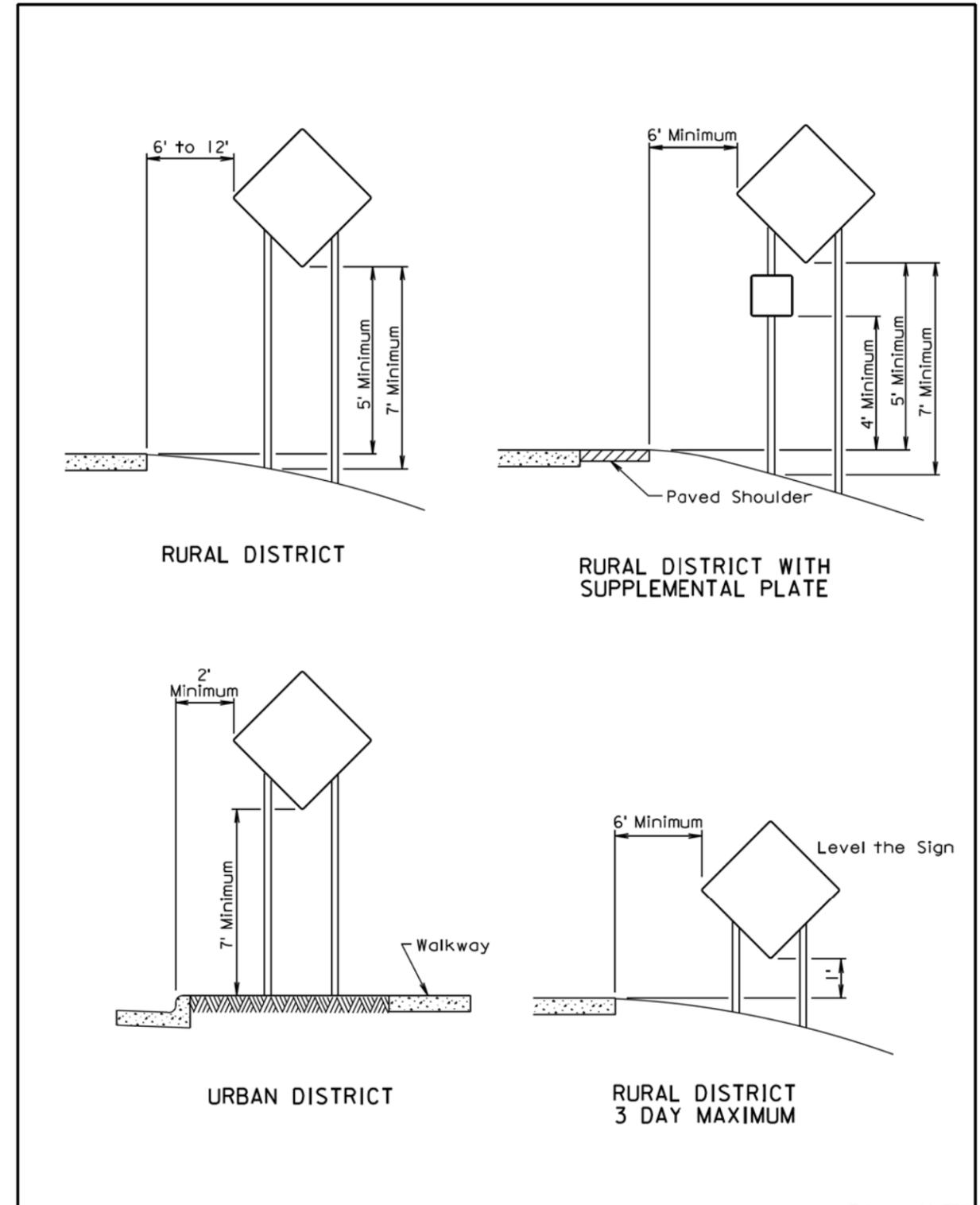
Channelizing devices and flaggers shall be used at intersecting roads to control intersecting road traffic as required.

The buffer space should be extended so that the two-way traffic taper is placed before a horizontal or vertical curve to provide adequate sight distance for the flagger and queue of stopped vehicles.



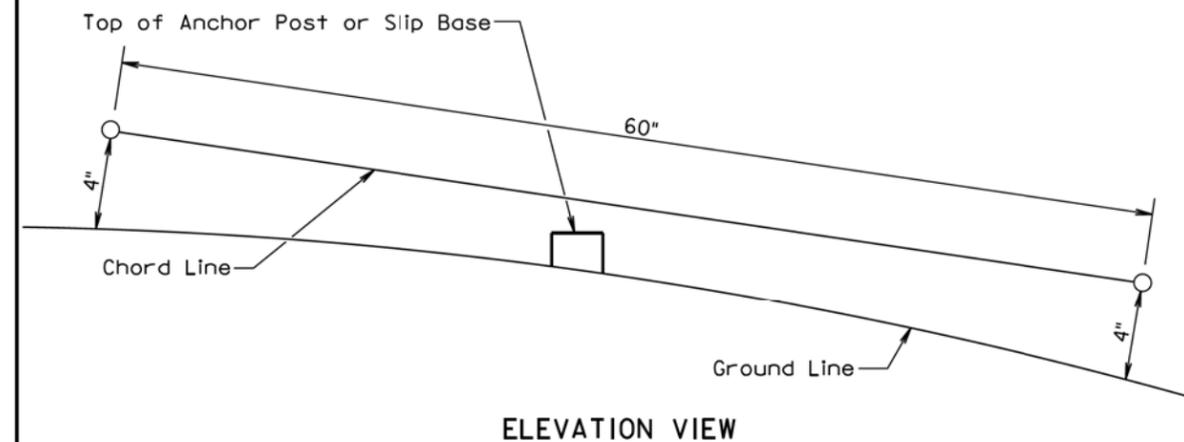
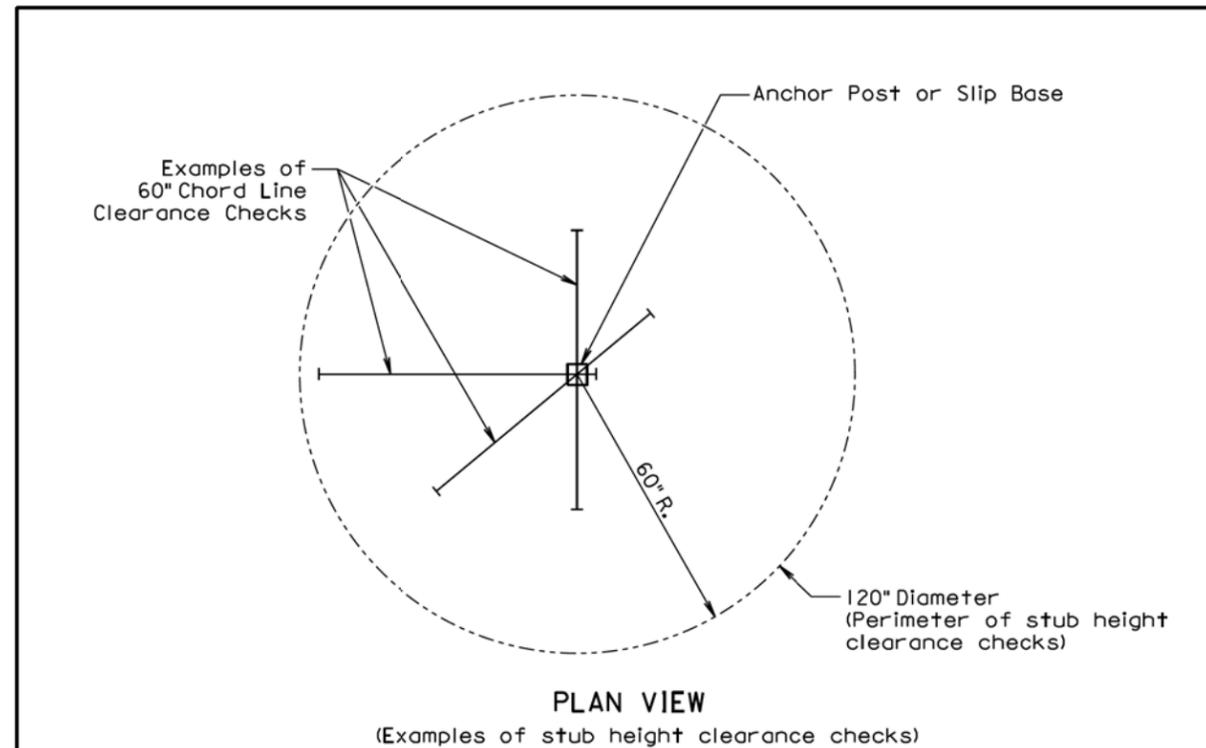
February 14, 2011

Published Date: 2nd Qtr. 2014	S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE WITH FLAGGER PROVIDED	PLATE NUMBER 634.23
			Sheet 1 of 1



February 14, 2011

Published Date: 2nd Qtr. 2014	S D D O T	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER 634.85
			Sheet 1 of 1



GENERAL NOTES:

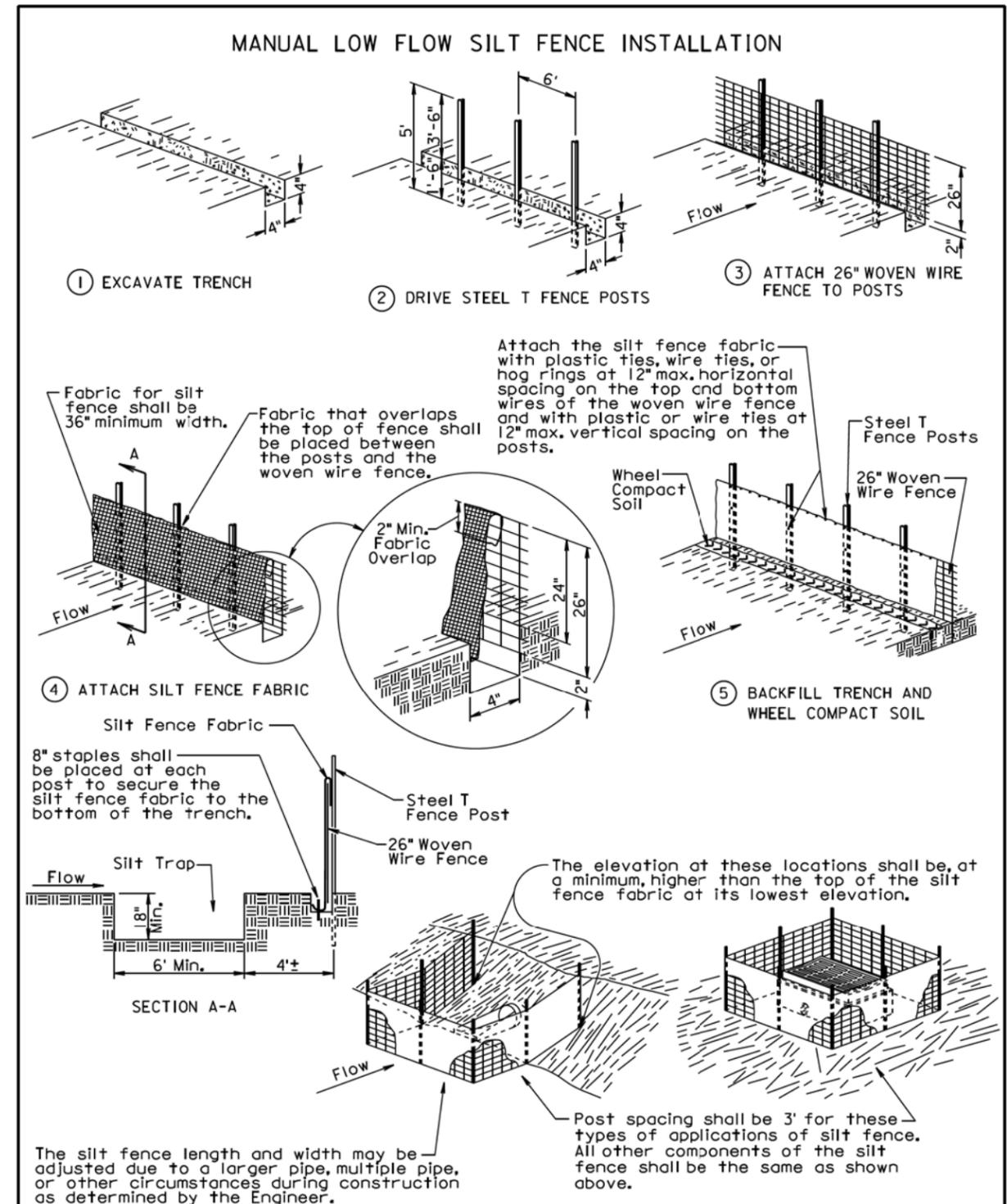
The top of anchor posts and slip bases SHALL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

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

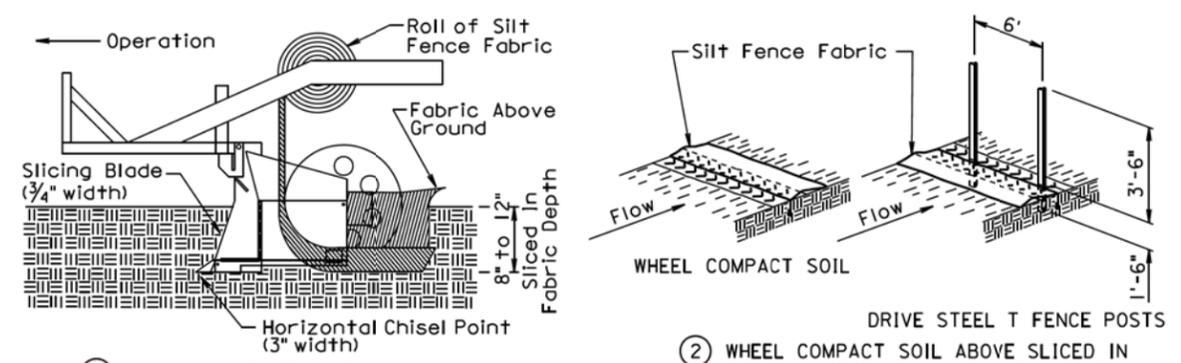
S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
		Sheet 1 of 1
		Published Date: 2nd Qtr. 2014



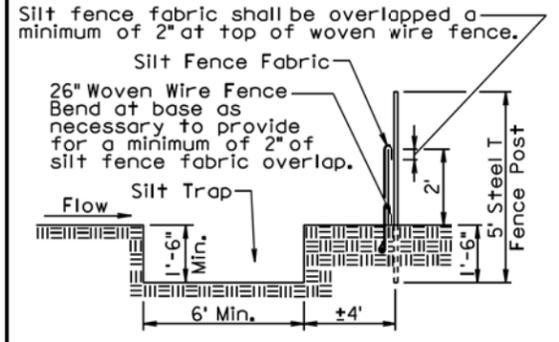
December 23, 2003

S D D O T	LOW FLOW SILT FENCE AND SILT TRAP	PLATE NUMBER 734.04
		Sheet 1 of 2
		Published Date: 2nd Qtr. 2014

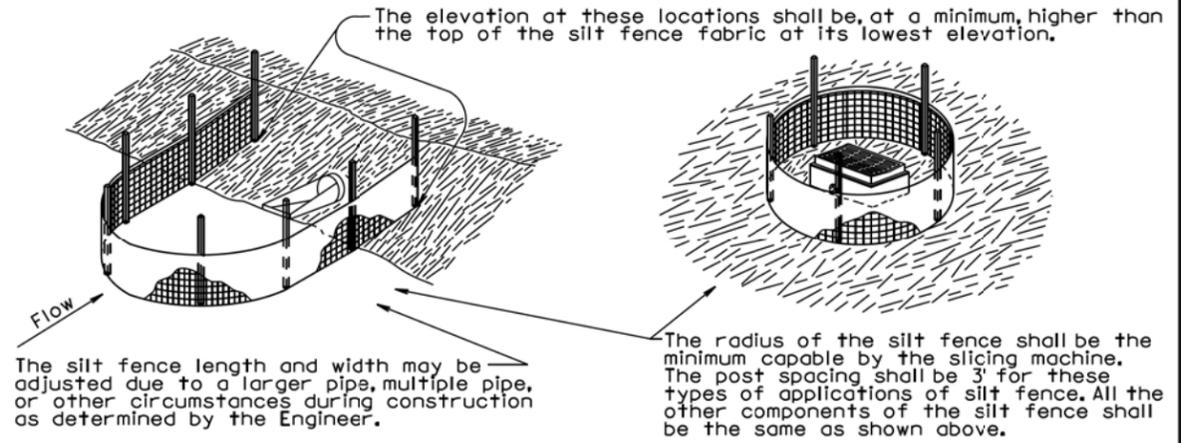
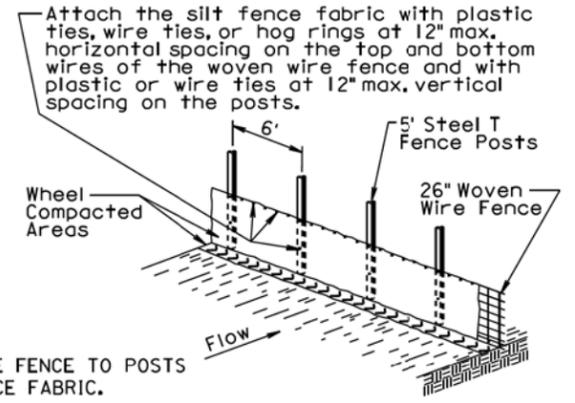
MACHINE SLICED LOW FLOW SILT FENCE INSTALLATION



- INSTALL SILT FENCE FABRIC BY MACHINE SLICING METHOD.
- WHEEL COMPACT SOIL ABOVE SLICED IN PORTION OF FABRIC AND THEN DRIVE STEEL T FENCE POSTS.



- ATTACH 26" WOVEN WIRE FENCE TO POSTS AND ATTACH SILT FENCE FABRIC.

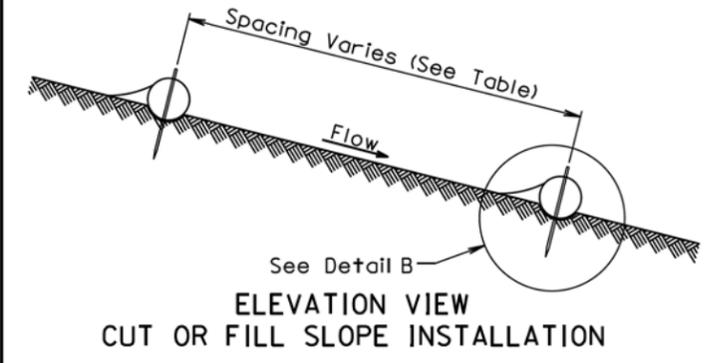


GENERAL NOTES:

A silt trap shall be provided when specified by a plan note. All costs for constructing the silt trap shall be incidental to the contract unit price per cubic yard for "Silt Trap".

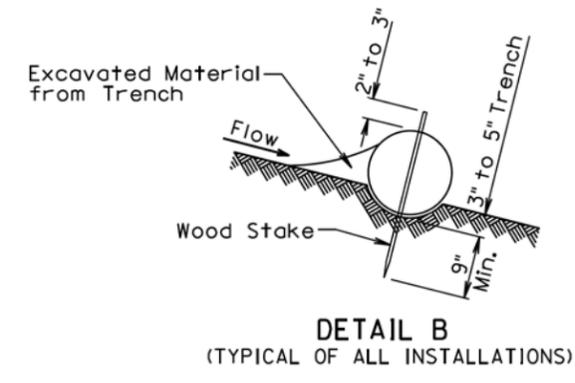
If a trench can not be dug or the silt fence fabric can not be sliced in due to the type of earthen material (such as rock), then a row of 30 to 40 pound sandbags butted end to end shall be provided on top of the extra length of silt fence fabric to prevent underflow.

December 23, 2003

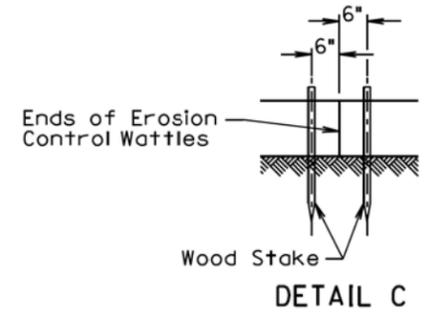


Slope	Spacing (Ft)
1:1	10
2:1	20
3:1	30
4:1	40

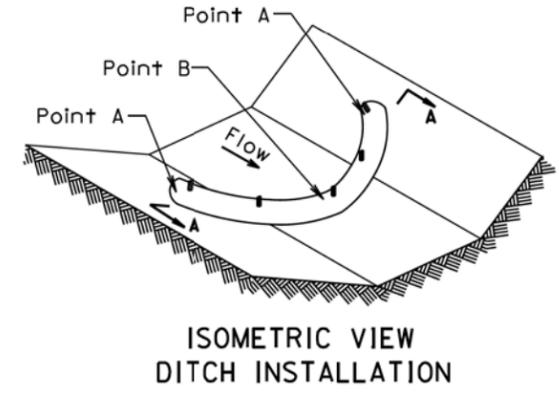
ELEVATION VIEW CUT OR FILL SLOPE INSTALLATION



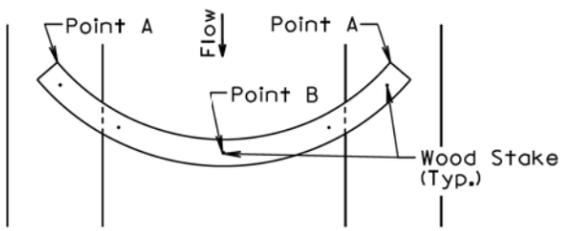
DETAIL B (TYPICAL OF ALL INSTALLATIONS)



DETAIL C

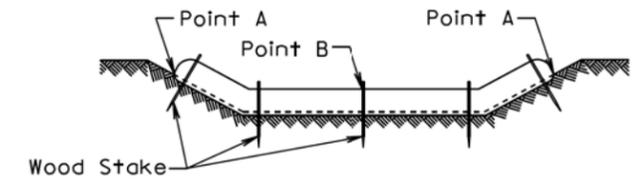


ISOMETRIC VIEW DITCH INSTALLATION



PLAN VIEW DITCH INSTALLATION

Grade	Spacing (Ft)
2%	150
3%	100
4%	75
5%	50



SECTION A-A

December 23, 2004

GENERAL NOTES:

At cut or fill slope installations, wattles shall be installed along the contour and perpendicular to the water flow.

At ditch installations, point A must be higher than point B to ensure that water flows over the wattle and not around the ends.

The Contractor shall dig a 3" to 5" trench, install the wattle tightly in the trench so that daylight can not be seen under the wattle, and then compact the soil excavated from the trench against the wattle on the uphill side. See Detail B.

The stakes shall be 1"x2" or 2"x2" wood stakes, however, other types of stakes such as rebar may be used only if approved by the Engineer. The stakes shall be placed 6" from the ends of the wattles and the spacing of the stakes along the wattles shall be 3' to 4'.

Where installing running lengths of wattles, the Contractor shall butt the second wattle tightly against the first and shall not overlap the ends. See Detail C.

The Contractor and Engineer shall inspect the erosion control wattles once every week and within 24 hours after every rainfall event greater than 1/2". The Contractor shall remove, dispose, or reshape the accumulated sediment when necessary as determined by the Engineer.

Sediment removal, disposal, or necessary shaping shall be as directed by the Engineer. All costs for removing accumulated sediment, disposal of sediment, and necessary shaping shall be incidental to the contract unit price per cubic yard for "Remove Sediment".

All costs for furnishing and installing the erosion control wattles including labor, equipment, and materials shall be incidental to the contract unit price per foot for the corresponding erosion control wattle bid item.

All costs for removing the erosion control wattle from the project including labor, equipment, and materials shall be incidental to the contract unit price per foot for "Remove Erosion Control Wattle".

December 23, 2004

<i>Published Date: 2nd Qtr. 2014</i>	S D D O T	EROSION CONTROL WATTLE	PLATE NUMBER
			734.06
			Sheet 2 of 2