AIRPORT ADDITION DEVELOPMENT

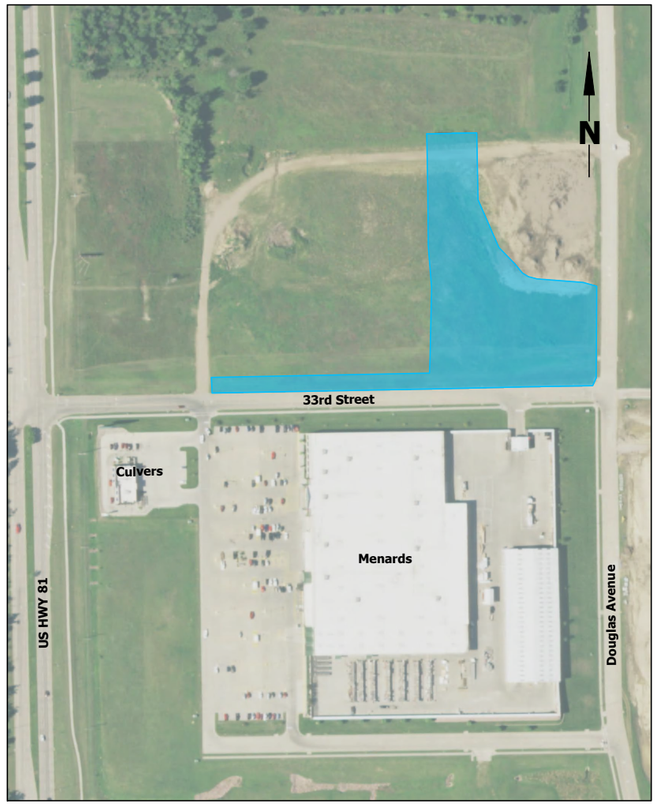
SITE GRADING AND STORM SEWER

YANKTON, SD 57078

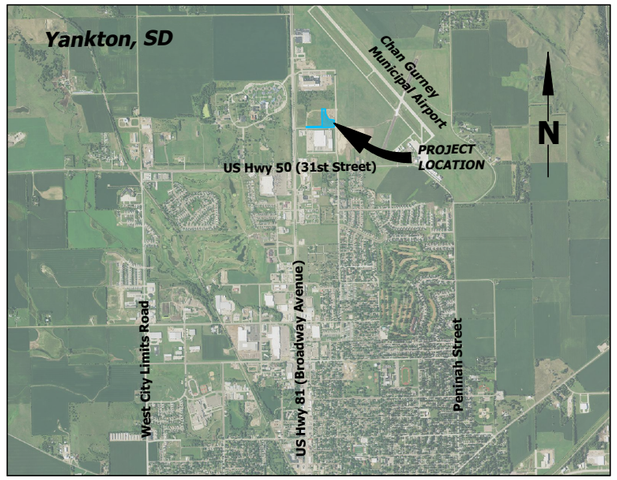
CLIENT: ***CITY OF YANKTON***
416 Walnut St.
Yankton, SD 57078
PH: 605.668.5200

SEI PROJECT #: 21301

LOCATION MAP (LOCAL):



VICINITY MAP (REGIONAL):



LEGEND OF LINE TYPES:

- CENTERLINE
- PROPERTY LINE
- SECTION LINE
- QUARTER LINE
- MAJOR CONTOUR (1400)
- MINOR CONTOUR (1402)
- WATER MAIN (W)
- STORM SEWER (ST)
- SANITARY SEWER (S)
- SANITARY SEWER FORCE MAIN (FM)
- COMBINED SEWER (CS)
- GAS MAIN (G)
- UNDERGROUND POWER (UP)
- OVERHEAD POWER (OP)
- FIBER OPTIC (F)
- CONC. CURB & GUTTER
- APPROACH
- WOOD FENCE
- CHAIN LINK FENCE
- BARBED WIRE FENCE

LEGEND OF SYMBOLS:

- DECIDUOUS TREE (30")
- CONIFEROUS TREE (8")
- TREE STUMP (18")
- SHRUB
- SIGN
- PARKING METER POST
- MAIL BOX
- FLAGPOLE
- SPRINKLER HEAD
- GAS VALVE
- TRAFFIC SIGNAL LIGHT
- POWER POLE
- GUY WIRE
- STREET LIGHT
- FLOOD LIGHT
- HISTORICAL STREET LIGHT
- UTILITY CLOSURE
- WELL
- WATERMAIN SHUTOFF
- FIRE HYDRANT
- WATERMAIN VALVE & BOX
- WATERMAIN CAP
- UTILTIY CLEANOUT
- UTILTIY RISER
- UTILITY METER
- STORM SEWER MANHOLE
- SANITARY MANHOLE
- WATER MANHOLE
- ELECTRIC MANHOLE
- TELEPHONE MANHOLE
- FIBER OPTIC MANHOLE

SHEET INDEX:

UTILITY PROVIDER LIST:

CITY OF YANKTON
STREETS & ENGINEERING
ADAM HABERMAN
OFF: (605) 668-5251
CELL: (605) 661-1616
ahaberman@cityofyankton.org

CITY OF YANKTON
SANITARY SEWER & WATER
KYLE GOODMANSON
OFF: (605) 668-2029
CELL: (605) 660-6704
kgoodmanson@cityofyankon.org

CITY OF YANKTON
STORM SEWER
BRAD BIES
OFF: (605) 668-5251
bbies@cityofyankon.org

B-Y WATER DISTRICT
TERRY WOOTTON
OFF: (605) 463-2531
byh20@hcinet.net

NORTHWESTERN ENERGY
BRAD WENANDE
OFF: (605) 665-7459
brad.wenande@northwestern.com

VAST BROADBAND
JAY MORRISON
OFF: (605) 306-5099

MIDCO
AL MULLINX
OFF: (605) 274-8546

MIDAMERICAN ENERGY COMPANY
NICOLLE RASMUSSON
OFF: (605) 373-6081

Drawings indicate general utility locations only. Neither the correctness or completeness of locations are guaranteed.

Prior to excavation contact:
SOUTH DAKOTA ONE CALL (1-800-781-7474)

PLANS ISSUED BY:
CIVIL ENGINEER / SURVEYOR

STOCKWELL

STOCKWELL ENGINEERS, INC.
201 WALNUT STREET
YANKTON, SD 57078
PH: 605.665.8092
FAX: 605.338.8750

BID SET

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8738
GAARD A. ROPS
SOUTH DAKOTA

I, Gaard A. Rops, hereby certify that these plans, except where otherwise indicated, were prepared by me, or under my direct supervision and that I am a duly registered engineer under the laws of the State of South Dakota.

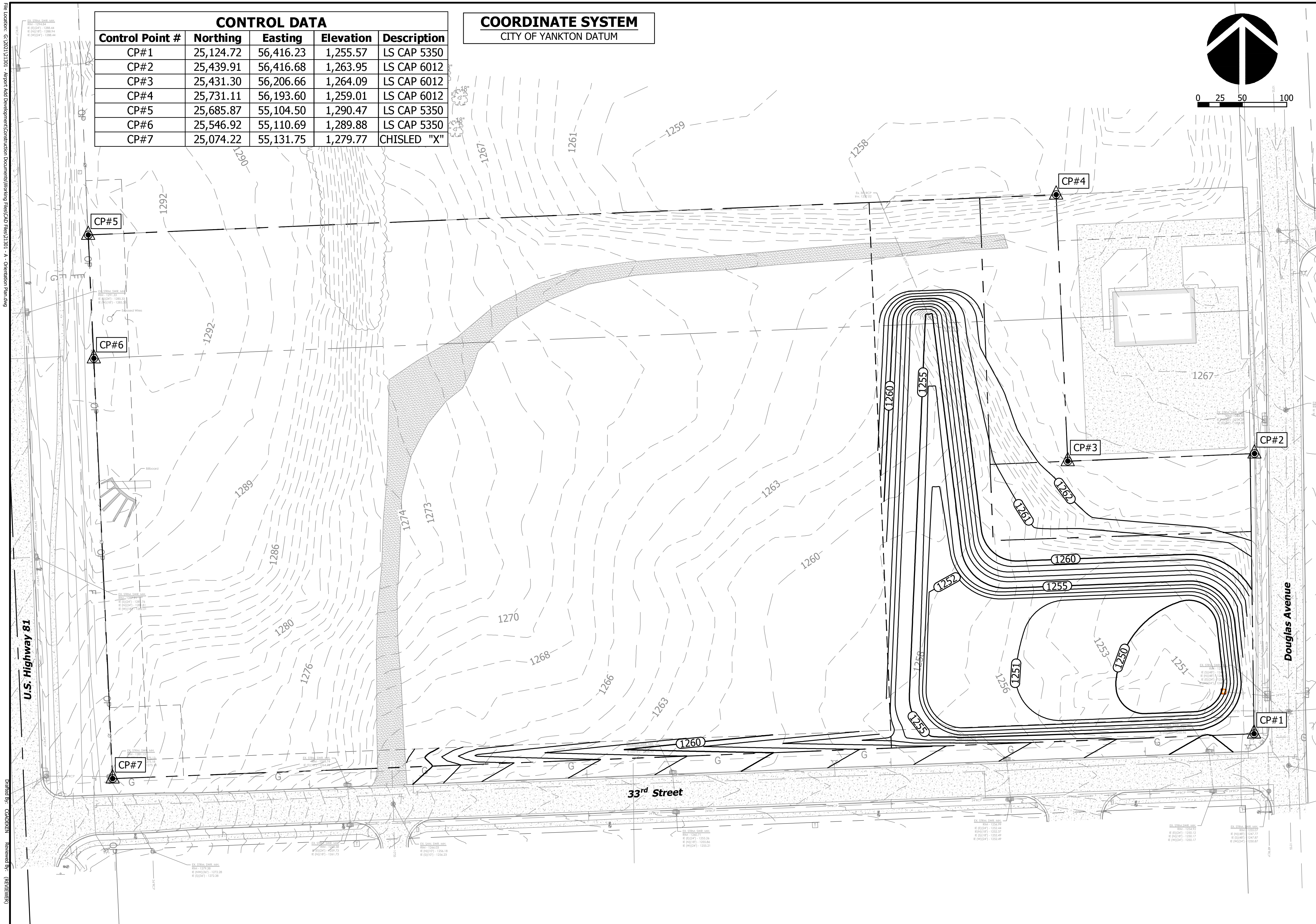
Gaard A Rops, P.E. S.D. No. 8738 6/14/22 Date

CONTROL DATA

Control Point #	Northing	Easting	Elevation	Description
CP#1	25,124.72	56,416.23	1,255.57	LS CAP 5350
CP#2	25,439.91	56,416.68	1,263.95	LS CAP 6012
CP#3	25,431.30	56,206.66	1,264.09	LS CAP 6012
CP#4	25,731.11	56,193.60	1,259.01	LS CAP 6012
CP#5	25,685.87	55,104.50	1,290.47	LS CAP 5350
CP#6	25,546.92	55,110.69	1,289.88	LS CAP 5350
CP#7	25,074.22	55,131.75	1,279.77	CHISLED "X"

COORDINATE SYSTEM

CITY OF YANKTON DATUM



STOCKWELL
WWW.STOCKWELLENGINEERS.COM
STOCKWELL ENGINEERS, INC.
201 WALNUT STREET
YANKTON, SD 57078
PH: 605.665.8092
FAX: 605.665.0523

City of Yankton South Dakota

AIRPORT ADDITION DEVELOPMENT

SITE GRADING PLAN & STORM SEWER

YANKTON, SOUTH DAKOTA 57078

SEI PROJECT #: 21301

Time Stamp: 6/13/2022 3:53 PM

BID SET

ORIENTATION / CONTROL DATA PLAN

A-2

Drafted By: CGADEKEN Reviewed By: (REVIEWER)

Item No.	Item Description	Unit	Approx QTY
General Items			
1	Mobilization	LS	1
2	Clearing	LS	1
3	Incidental Work	LS	1
4	Unclassified Excavation	CuYd	12,120
5	Permanent Seed Mix A	Lbs	665
6	Fertilizer	Lbs	1,275
7	Mulching	Ton	8
8	Erosion Control Blanket	SqYd	6,490
9	Vehicle Tracking Control	Each	1
10	Silt Fence	LF	955
11	Mucking Silt Fence	CuYd	2
12	Repair Silt Fence	LF	20
13	9" Erosion Control Wattle	LF	60
14	Inlet Protection	Each	4
15	Sediment Basin Horshoe Filter	Each	1
16	Class B Rip-Rap	Ton	25
17	Street Sweeping	Hour	10
18	Topsoil Stirpping	CuYd	3,065
19	Placing Topsoil	CuYd	3,065
20	Mowing	Each	1
21	Turf Grass Weed Control	Each	1
22	Pond Outlet Structure	Each	1

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City of Yankton SOUTH DAKOTA Where Life Flows

AIRPORT ADDITION DEVELOPMENT
SITE GRADING PLAN & STORM SEWER
YANKTON, SOUTH DAKOTA 57078
SEI PROJECT #: 21301

REGISTERED PROFESSIONAL ENGINEER
8736
GAMOLA
HOPS
SOUTH DAKOTA
6-13-22

Time Stamp: 6/13/2022 5:01 PM

BID SET

ESTIMATE OF QUANTITIES

B-1

21301 - General

GENERAL NOTES

PROJECT SCOPE

This project consists of the site grading and storm sewer installation on the Airport Addition Development. Grading will include fine grading of the entire site and construction of a proposed detention pond with new outlet structure. Work will also include storm sewer installation, including inlets, junction boxes and flared end sections. Site will be protected with temporary and permanent erosion control measures.

SPECIFICATIONS TO BE USED

The most current edition of the City of Yankton General Conditions for Public Improvements and Supplemental Standard Specifications, the most current edition of the South Dakota Department of Transportation (SDDOT) Standard Specifications for Roads and Bridges with Supplemental Specifications and Errata and required provisions, supplemental specifications, and/or special provisions, together with the City of Yankton's general conditions and specifications as included in the Project Manual are hereby made a part of these specifications in their entirety unless otherwise revised, deleted, or supplemented herein.

The South Dakota Department of Transportation Standard Specifications for Roads and Bridges with Supplemental Specifications and Errata can be downloaded from the SDDOT's website at http://www.sddot.com. The City of Yankton's general conditions and specifications are included in the Project Manual.

ORDER OF PRECEDENCE

If conflicts arise, the order of precedence of the contract documents shall be as follows: Plans over Special Provisions over Supplemental Specifications over City of Yankton Specifications over SDDOT Supplemental Specifications and Errata over SDDOT Standard Specifications for Roads and Bridges.

CONSTRUCTION LIMITS

The construction grading limits are indicated in the plans. Material and equipment storage and staging will be allowed on the property. Vehicle and equipment traffic shall be limited to the construction limits. All paved streets adjacent to the project are to be cleaned at the end of each working day.

It shall be the responsibility of the contractor to coordinate with the property owners relating to their property and any subsequent damages.

CONTRACTOR SAFETY REQUIREMENTS

The Contractor is responsible for following all local, state, and federal rules and regulations regarding site safety. The Contractor is solely responsible for site safety from the issuance of the Notice to Proceed until Final Acceptance. The City shall not be responsible for the Contractor's failure to follow all applicable rules and regulations.

CITY TOBACCO POLICY

The use of tobacco products is prohibited in all City-owned and City-shared buildings, facilities, vehicles, parking lots, equipment, worksites, and walkways leading into City facilities. This policy does not extend to work occurring within the right of way.

For purposes of this policy, tobacco is defined as any product made or derived from tobacco that is intended for human consumption, including any component, part, or accessory of a tobacco product. Tobacco is also defined and includes all forms of nicotine delivery devices, which may or may not include actual tobacco (such as electronic cigarettes).

GRADE STAKES, BENCHMARKS AND MONUMENTS

All stakes, stones, and monuments now in place and marking lines and corners of boundaries which are likely to be affected by the work herein provided for shall be carefully preserved by the Contractor. In no case, shall any excavation be made within five feet (5') of any such stake, stone or monument until they have been properly reset, witnessed, or otherwise cared for by the Engineer and permission is given to proceed with the work.

All lines, grade stakes, and benchmarks set by the Engineer in connection with the work herein provided for shall be carefully preserved by the Contractor and shall not be disturbed nor moved from the exact position and elevation as set by the Engineer. No excavated material shall be thrown over or against said stakes and, except where necessary to remove the stakes as the work progresses, all stakes shall be carefully preserved in the original position and elevation until the work has passed final inspection and been accepted. Stakes, which must be removed as the work progresses shall be so removed only upon the order of the Engineer.

All stakes, stones, monuments, and benchmarks disturbed or removed through carelessness or without proper authority will be reset at the expense of the Contractor.

DRAINAGE

Drainage is the Contractor's responsibility. Contractor shall be aware of existing drainage conditions and facilities and shall provide for drainage during all phases of construction. Damage caused by improper temporary drainage facilities shall be repaired at the Contractor's expense and to the satisfaction of the Engineer.

UTILITIES

All utilities shall be verified by the Contractor prior to starting work. Any time existing utilities impede the progress of work, the Contractor shall immediately notify the Engineer.

All utilities, whether privately or publicly owned, shall be moved, relocated, and/or replaced as necessary, by the respective utility company or companies except as noted in the plans. These modifications shall take place in advance of construction when applicable or when advised by the Engineer. No payment shall be made to the Contractor unless specified in the contract documents.

The Contractor shall safeguard all utilities and coordinate his efforts to coincide with utility work by others in order to minimize inconvenience to the public and utility companies. When pipe utility installation crosses existing utilities, the Contractor shall be responsible for supporting the utilities in a manner that is acceptable to the owner of the utility. Any damage caused to the utilities due to Contractor carelessness shall be repaired at the Contractor's expense to the satisfaction of the utility owner.

Abandoned utilities (gas lines, telephone lines, etc.) encountered during construction shall be removed and disposed of by the Contractor. Costs associated with this work shall be incidental to the various bid items associated with work adjacent to the abandoned utility.

The Contractor shall be responsible for the coordination of all work associated with the disturbance, removal, or replacement of unidentified metallic natural gas mains or services when encountered. The Contractor shall, in advance and prior to proceeding with the work, coordinate with the City of Yankton, Northwestern Energy, and all other companies related to the associated work.

Existing utility locations shown on drawings are approximate. There is no guarantee that the utilities shown include all such utilities or that the locations indicated are exact. The Contractor shall contact South Dakota One Call system to verify locations of all existing utilities prior to excavation.

The Contractor shall be responsible for notifying South Dakota One Call 1-800-781-7474 to have utilities field located.

The following utility companies are known to have facilities in the vicinity of the project:

City of Yankton Environmental Serv.
Kyle Goodmanson
315 W. Riverside Dr.
Yankton, SD 57078
(605) 668-5270

MidAmerican Energy Company
Nicolle Rasmusson
1200 S Blauvelt
Sioux Falls, SD 57105
(605) 373-6081

Northwestern Energy
Brad Wenande
313 Cedar Street
Yankton, SD 57078
(605) 665-7459

Century Link
Doug Wudel
125 S. Dakota Avenue
Sioux Falls, SD 57104
(605)-339-5307

The Contractor shall cooperate with and coordinate his efforts to work with the utility companies and their contractors. Each bidder shall be responsible prior to bid letting, for determining the effects of utility work on the project work scope and schedule and shall account for all such effects in his bid. No consideration will be given to the Contractor after the bid letting on account of utility work done by others.

PROTECTION OF EXISTING SANITARY SEWER, WATER MAIN AND STORM SEWER SYSTEMS

For the protection of existing public underground utilities and the surrounding work area, consideration shall be given to isolating portions of the existing water distribution system within the construction limits while maintaining fire protection. During underground utility installation, such as, but not limited to, sanitary sewer, water main, storm sewer, etc., in the proximity of existing water main and/or water services, the existing water main distribution shall be isolated within the work area. Upon receiving notice from the Contractor 24 hours in advance of any work, City staff will operate designated water valves, where appropriate, to isolate the work area as much as reasonably possible. The Contractor shall become aware of the location and status (open/closed) of any designated isolation valves(s). City Engineering staff and or Utility Maintenance staff shall be notified immediately in the event of a water service emergency or interruption. It will be permissible for the Contractor to operate the designated valve(s) in the event of an emergency provided they furnish a valve operating key.

Existing sanitary sewer lines and manholes within the construction limits shall be protected at all times during construction. The upstream ends of existing sanitary sewer lines downstream from new sanitary sewer construction shall be plugged at locations to be approved by the Engineer. Water, stone, dirt, gravel, asphalt, concrete or any other debris shall not be allowed to enter the City's sanitary sewer system during flushing operations or at any other time. Construction taking place in the vicinity of any existing City sanitary sewer lines or manholes shall not cause any inflow of surface water, ground water, water from damaged water lines, or debris to enter the City's sanitary sewer system. The Contractor shall be responsible for any damages incurred to the City's sanitary sewer system and/or private property and any actions imposed by SD DANR due to spills or overflows.

The Contractor shall ensure that all manholes are secured, protected and watertight at the end of each workday. Under no circumstances shall an uncompleted or completed manhole be left uncovered, unprotected or not watertight overnight.

Existing storm sewer inlets and pipes within the construction limits shall be protected from the entrance of stone, dirt, gravel, asphalt, concrete or any other debris during construction.

After verification, the Contractor shall coordinate information with the Engineer.

WASTE DISPOSAL SITE

All material generated from this project for disposal must be disposed of at a state-permitted solid waste disposal site. Depending on what material is generated and whether it is contaminated or uncontaminated will determine which permitted facility can accept it. Permitted facilities include construction and demolition debris sites, restricted use sites, and regional landfills. The Contractor can contact the City of Yankton to identify locally permitted disposal sites for various categories of contaminated and uncontaminated materials.

All costs associated with disposing of waste shall be incidental to the various contract items.

PRECONSTRUCTION MEETING

A meeting with the City of Yankton, Engineer of Record and Contractor is required prior to the construction.

DEWATERING

Groundwater is not anticipated to be encountered during excavation although dewatering may be needed to perform the contract work. There is no separate bid item for dewatering and all costs associated shall be incidental to the various related bid items.

If necessary, the Contractor will be responsible to obtain a dewatering permit from the DANR.

It shall be the responsibility of the Contractor to discharge and dispose of the water in an approved manner. No water shall be allowed to enter the sanitary sewer. The Contractor shall dispose of water in a suitable manner without damage to adjacent property. The water shall be filtered using an approved method to remove sand and fine-sized soil particles before disposal into any drainage system. Discharge from dewatering operations shall be controlled to prevent erosion and scour.

The Contractor is responsible for obtaining a Temporary Water Use Permit from the SD DANR prior to commencing dewatering operations. Prior to excavating, the Contractor shall submit for review a dewatering plan to be approved by the Engineer.

STOCKWELL
STOCKWELL ENGINEERS, INC.
201 WALNUT STREET
YANKTON, SD 57078
PH: 605.665.8092
FAX: 605.665.0523

City of Yankton SOUTH DAKOTA Where it's Now here.

AIRPORT ADDITION DEVELOPMENT
SITE GRADING PLAN & STORM SEWER
YANKTON SD, SOUTH DAKOTA
SEI Project #: 21414

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8738
GAARDA, JOPS
SOUTH DAKOTA
6/13/22

Plot Time: 6/13/2022 3:58 PM

BID SET

GENERAL NOTES

C-1

REMOVALS

CLEARING

The lump sum payment for "Clearing" will be full compensation for all removal and disposal of trees less than six (6) inches in diameter, stumps, roots, and other vegetation designated for removal and mowing as required. The Engineer will establish construction limit lines prior to the start of clearing operations. The Engineer, at the start of the project, will mark the clearing limits.

Organic material shall not be used as fill in trenches or embankment. The Contractor shall dispose of all trees, brush, stumps, roots and other remains in a legal manner. Burying or burning of debris on or adjacent to the project shall be prohibited.

Erosion control measures shall be installed and functioning prior to clearing and excavation. See erosion control plans and notes.

BILLBOARD FOOTINGS

Existing billboard footings have remained following the removal of the billboard structure. Footing include steel I-beam frames and concrete footings. Contractor shall fully remove the footing in its entirety and dispose of at an appropriate site. Payment for removal of footings is included in the contract unit price per each for "Remove Billboard Footing".

REMOVAL OF EXISTING CONCRETE PAVEMENT

The concrete pavement shall be disposed of by the Contractor at a site approved by the Engineer. Payment for concrete pavement removal is included in the contract unit price per square yard for "Remove Concrete Pavement". Payment shall be at the contract unit price per square yard, regardless of variations in thickness.

GRADING

TABLE OF EARTHWORK QUANTITIES	
	Quantity (CY)
Excavation	12,120
Embankment	5,620
Shrinkage +/- 30%	880
Waste	6,500
Total Unclassified Excavation	12,120

Topsoil stripping and placing is not included in the earthwork quantities. Stripping and placing of topsoil will be paid under "Topsoil Stripping" and "Placing Topsoil" bid items, respectively.

SOIL BORINGS

No soil borings have been taken for this project. Bidders are expected to examine the site and obtain their own soil boring logs as they see fit and arrive at their own conclusions regarding the character and locations of materials to be encountered. All Contractors desiring to take soil borings on this project must obtain permission from the property owners involved and from the Engineer.

UNCLASSIFIED EXCAVATION

Excavate the existing subgrade to provide for the required depth of aggregate base course and asphalt surfacing or aggregate base course and concrete surfacing. Earthwork shall be performed as shown on appropriate cross sections.

Due to the difficulty in making field measurements on this project and to expedite final payment, the computed quantity of Unclassified Excavation shall be the basis of payment for this item. No field measurements will be made for payments except when changes from the plan shown construction limits are ordered by the Engineer.

All excavations made for underground utilities are incidental to the installation of that utility. All spoil material removed for pipe installation is the property of the Owner and is to be spread out and wasted onsite. All spoil material and costs for wasting it are incidental to pipe installation costs.

The excess soil resulting from earthwork activities, if any, shall become the property of the Owner and the Contractor shall be responsible to spread out and waste this material at a location near the project.

Water for compaction of subgrade and embankments shall be provided by the contractor and used to maintain soil at 1 to 4 percent below optimum moisture content to obtain required density. Compaction of subgrade and embankments shall be governed by the specified density method. Compaction of embankment shall be no less than 95% of Standard proctor density.

Separate payment will not be made for water used for compaction of subgrade.

SHRINKAGE FACTOR

Embankment +30%

SITE RESTORATION

The contractor shall restore all areas disturbed by construction. Following completion of grading operations, topsoil shall be spread evenly over the disturbed areas to a depth of 6 inches. Any excess construction material in the disturbed area shall be removed prior to installation of topsoil.

TOPSOIL STRIPPING

Prior to starting construction operations, a sufficient volume of topsoil shall be removed from the construction limits to cover the disturbed areas and will be paid for under the bid item "Topsoil Stripping".

Due to the difficulty in making field measurements on this project and to expedite final payment, the computed quantity of Topsoil Stripping shall be the basis of payment for this item. No field measurements will be made for payments except when changes from the plan shown construction limits are ordered by the Engineer.

PLACING TOPSOIL

The topsoil shall be smooth, uniform, and free of stones 1 inch or larger in any dimension, roots and other extraneous or undesirable material harmful to plant growth.

The thickness will be approximately 4 inches within the right-of-way and 6 inches on temporary easements and will be paid under the bid item "Placing Topsoil".

Due to the difficulty in making field measurements on this project and to expedite final payment, the computed quantity of Placing Topsoil shall be the basis of payment for this item. No field measurements will be made for payments except when changes from the plan shown construction limits are ordered by the Engineer.

STORM DRAINAGE

INLETS AND JUNCTION BOXES

Storm drainage inlets and junction boxes shall be paid for per each per structure type, including pond outlet structure.

CONNECT TO EXISTING PIPE

If a male/female joint of similar type is not available to connect new pipe to existing pipe, a concrete collar shall be installed. The collar shall be Class M-6 concrete and shall be 6 inches in depth and 2 feet wide with wire mesh reinforcement. All costs for connecting to existing pipe shall be incidental to the various pipe bid items.

STOCKWELL

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201 WALNUT STREET
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City of Yankton SOUTH DAKOTA
Where it's Nice to be Here

AIRPORT ADDITION DEVELOPMENT
SITE GRADING PLAN & STORM SEWER
YANKTON SD, SOUTH DAKOTA
SEI Project #: 21414

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8738
GAARDA
ROPS
SOUTH DAKOTA
6/13/22

Plot Time: 6/13/2022 3:58 PM

BID SET

GENERAL NOTES

C-2

LEGEND

- SEED MIX
- EROSION CONTROL BLANKET
- 1200 - PROPOSED CONTROUR
- 1200 - EXISTING CONTOUR
- DRAINAGE FLOW
- SF - SILT FENCE
- W - EROSION CONTROL WATTLE
- SB - SEDIMENT BASIN HORSESHOE FILTER
- GRADING LIMITS
- VTC - VEHICLE TRACKING CONTROL
- RIP-RAP
- INLET PROTECTION

QUANTITIES

665 LB - SEED MIX
1,275 LB - FERTILIZING
8 TN - MULCHING
25 TN - RIP-RAP
6,490 SY - EROSION CONTROL BLANKET
1 EA - TEMPORARY VEHICLE TRACKING CONTROL
4 EA - INLET PROTECTION
955 LF - SILT FENCE
60 LF - 9" SEDIMENT CONTROL WATTLE
1 EA - SEDIMENT BASIN HORSESHOE FILTER

GENERAL NOTES

1. AT NO TIME SHALL ANY WATERS FROM THIS PROJECT ENTER THE STORM SEWER OR LEAVE THE PROJECT LIMITS WITHOUT EXPOSURE TO A SEDIMENT FILTRATION DEVICE. ALL DROP INLETS, MANHOLES AND JUNCTION BOXES (EXISTING OR NEW) SHALL HAVE SEDIMENT CONTROL DEVICES PLACED AROUND THEIR PERIMETER DURING ALL STAGES OF CONSTRUCTION EXCEPT DURING THE PLACEMENT OF THE FINAL SURFACING. THIS MAY NECESSITATE MULTIPLE INSTALLATIONS OF THE SEDIMENT CONTROL DEVICES AT THE SAME LOCATION.
2. ALL PAVED STREETS/PARKING AREAS ADJACENT TO THE SITE SHALL BE SWEPT CLEAN AT THE END OF EACH DAY.
3. ANY DISCHARGE OF GROUNDWATER FROM THIS SITE TO THE CITY'S STORM SEWER SYSTEM IS NOT AUTHORIZED WITHOUT:
   - SUBMITTAL OF MONITORING DATA TO SD DENR TO DETERMINE WHAT TYPE OF SURFACE WATER DISCHARGE PERMIT WOULD BE NECESSARY.
   - APPROPRIATE SD DENR PERMIT MUST BE OBTAINED PRIOR TO ANY DISCHARGE,
4. IF GROUNDWATER IS DISCOVERED, THEN A PROFESSIONAL GROUNDWATER AND ENVIRONMENTAL CONSULTANT SHALL REVIEW THE PLAN FOR GROUNDWATER HAZARDS, BOTH DURING CONSTRUCTION AND POST CONSTRUCTION, AND SUBMIT FINDINGS, SUGGESTIONS, AND/OR MITIGATION TO THE CITY FOR REVIEW OR CERTIFY THAT PROPOSED WORK IN AND AROUND CONSTRUCTION SITE IS CLASSIFIED AS NON-HAZARDOUS.

0 25 50 100

STOCKWELL
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YANKTON, SD 57078
PH: 605.665.8092
FAX: 605.665.0523

City of Yankton SOUTH DAKOTA Where It All Starts Here

AIRPORT ADDITION DEVELOPMENT
SITE GRADING PLAN & STORM SEWER
YANKTON, SOUTH DAKOTA 57078

SEI PROJECT #: 21301

REGISTERED PROFESSIONAL ENGINEER 8738 GARRD A. ROOS SOUTH DAKOTA 6/13/22

Time Stamp: 6/13/2022 5:00 PM

BID SET

EROSION CONTROL PLAN

D-5

Drafted By: CDA/DEKEN Reviewed By: (REVIEWER)

STOCKWELL
WWW.STOCKWELLENGINEERS.COM
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201 WALNUT STREET
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City of Yankton South Dakota

AIRPORT ADDITION DEVELOPMENT

SITE GRADING PLAN & STORM SEWER

YANKTON, SOUTH DAKOTA 57078

SEI PROJECT #: 21301

REGISTERED PROFESSIONAL ENGINEER 8736 GAARD A. ROPS SOUTH DAKOTA 6/14/22

Time Stamp: 6/13/2022 4:30 PM

BID SET

EXISTING CONDITIONS / REMOVALS

E-1

File Location: G:\2021\21301 - Airport Add Development\Construction Documents\Working Files\CAD Files\21301 - E - Removals.dwg

Drafted By: GGADEKEN Reviewed By: (REVIEWER)

Storm Water Pollution Prevention Plan (SWPPP)

Also known as an Erosion and Sediment Control Plan (ESCP)

NARRATIVE

OWNER

City of Yankton
416 Walnut Street
Yankton, SD 57078
City Administrator: Adam Haberman
Email Address: ahaberman@cityofyankton.org
Phone Number: 605 668-5251

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.

Name: _____
Printed Name

Signed: _____
Owner / Developer Date

DESIGN ENGINEER

Stockwell Engineers, Inc.
201 Walnut St.
Yankton, SD 57078
Registered Engineer: Gaard A. Rops
Email Address: grops@stockwellengineers.com
Phone Number: 605 338-6668

This SWPPP appears to fulfill the technical criteria for erosion control and the requirements of the City of Yankton. I understand that additional erosion and sediment control measures may be needed if unforeseen erosion problems occur or if the submitted plan does not function as intended. The requirements of this plan shall run with the land and be the obligation of the **Primary Responsible Party** until such time as the plan is properly completed, modified or voided.

Signed: _____
Name/Title Date

PRIME CONTRACTOR

The "Department of Agriculture and Natural Resources - Contractor Certification Form" (SD Form – 2110LD) is to be executed by the Prime Contractor or his representative after the award of the contract. Work may not begin on the project until this section is signed.

The form certifies under penalty of law that the Contractor understands and will comply with the terms and conditions of the Surface Water Discharge General Permit for Storm Water Discharges Associated with Construction Activities for the Project.

NOTICE OF INTENT

A Notice of Intent (NOI) for coverage under the General Permit for Storm Water Discharges Associated with Construction Activities has been submitted to the SD DANR and the permit number is SDRXXXXXX. A copy of the permit may be downloaded from
http://denr.sd.gov/des/sw/IPermits/ConstructionGeneralPermit2010.pdf

MODIFICATIONS TO THE SWPPP

The Engineer may order changes to the SWPPP and/or the Contractor is responsible to request changes to the SWPPP if unforeseen changes occur, or the SWPPP does not perform as intended, or to improve the effectiveness of the SWPPP, or to comply with the SD DENR permit. The Engineer will evaluate and determine if any Contractor requested changes to the SWPPP should be made. The Contractor is responsible to implement these changes as soon as practical. All approved changes to the SWPPP must be documented by the Engineer.

INSPECTIONS

The Contractor and Engineer will be required to perform inspections on the project at the following minimum frequency until the site has reached final stabilization and a Notice of Termination is submitted to the SDDANR:

1. Prior to the removal of any surfacing or topsoil.
2. Once every seven calendar days (minimum). When runoff is unlikely due to winter conditions the inspections may be reduced to once a month.
3. Within 24 hours after every rainfall of ½ inch or greater.
4. After a snow melt that causes erosion.
5. Within 24 hours of a complaint being made to the Contractor or Engineer.

The Engineer reserves to right to perform inspections more frequently than identified and additional inspections will be made if obvious items of non-compliance exist. If the Contractor fails to attend any inspection it does not relieve them of their responsibility to comply with any corrective or maintenance actions needed.

Items noted as being non-compliant or needing maintenance as a result of the inspections must be corrected as soon as practical. The site shall continue to be considered in non-compliance until the issue has been corrected to the satisfaction of the Engineer.

Any price adjustment or formal enforcement actions taken by the City, State or Federal governments for the failure to implement the accepted ESCP is the Contractor's sole responsibility and shall not be a reimbursable expense to the City of Yankton.

NOTICE OF TERMINATION

The Contractor is responsible for complying with the SWPPP until a Notice of Termination (NOT) of coverage under the General Permit has been issued. The N.O.T. will be prepared by the Engineer for submittal to the City and then the SDDENR when all storm water discharges covered by the permit are eliminated and final stabilization has been achieved on all portions of the site for which the permittee is responsible. Final stabilization means either or a combination of:

1. All soil disturbing activities at the site have been completed and a uniform perennial vegetative cover with a density of 70% of the native cover for unpaved areas and areas not covered by permanent structures has been established, or equivalent permanent stabilization measures (such as the use of riprap, gabions, or geotextiles) have been employed; or

2. For construction projects on land used for agricultural purposes, final stabilization may be accomplished by returning the disturbed land to its pre-construction agricultural use. Areas disturbed that were not previously used for agricultural activities, such as buffer strips immediately adjacent to "waters of the state," and areas which are not being returned to their pre-construction agricultural use must meet the final stabilization criteria in (**1**) above.

PROJECT DESCRIPTION

The project consists of the outlet structure, grading, and erosion control measures for pond construction. The proposed project will be north of 33rd Street and west of Douglas Avenue.

EXISTING SITE CONDITIONS

The site is currently undeveloped. The site generally drains form the north to the south. Storm water currently drains overland until it reaches existing city municipal storm sewer system and ultimately drains to the Missouri River.

ADJACENT AREAS

The project is bordered on the south by a developed commercial property, on the east is Douglas Avenue, on the south is 33rd Street and to the west is U.S. Highway 81.

SOILS

The soils within the disturbed areas consist of silty clay loams. These soils are moderately well drained on slopes of 0 to 6%. These soils are of the Hydrologic Soil Group B/C and are slightly erodible.

AREA AND VOLUME DISTURBED

The approximate surfaced area to be disturbed is 3.8 acres.

EROSION/SEDIMENT CONTROL SEQUENCE AND TIME SCHEDULE

The following paragraph(s) are intended to provide a guideline to the Contractor for the installation of initial erosion and sediment control measures and implementation of the erosion control plan during construction. The timeline and sequence are for reference only and may change depending on the Contractor's sequence of operations and must be approved by the Engineer prior to making changes.

Time Schedule:
Anticipated start date of construction is Summer of 2022.
Install preliminary erosion control measures such as silt fence, inlet protection and sediment basin prior to beginning grading activities in each phase.
Substantially complete all phases by Fall of 2022.
Place seed mix and sod no more than 14 days after final grading work is complete.
Install erosion control measures such as seed, mulch, wattles, inlet protection, erosion control blanket, riprap, and any other measures deemed necessary by the Engineer upon completion of final grading.

PERMANENT STABILIZATION MEASURES

Seed and riprap will be used for permanent stabilization of all disturbed areas not paved throughout the project limits.

STORMWATER MANAGEMENT CONSIDERATIONS

Storm water shall generally flow towards existing or proposed storm sewer inlets with inlet protection. If directly off site, storm water will need to pass through erosion control wattles and silt fencing during construction where it will be treated and released onto the existing adjacent roadway or onsite ponds. The storm water ultimately discharges out of the site at the southeast corner of the site which ultimately drains to the Missouri River.

GOOD HOUSEKEEPING

Nonstructural BMPs such as good housekeeping measures can, to some degree, prevent the deposition of pollutants on the urban landscape or remove pollutants at their source. The source of pollutants for assimilation into storm water is the land surface itself, especially the impervious surfaces in the urban area. Thus, it is expected that when nonstructural measures are effectively implemented, they will reduce the amount of pollutants being deposited on land surfaces for eventual contact with storm water and transported to the receiving water system. Therefore, the Contractor should evaluate and determine which appropriate good housekeeping measures listed below could be used.

Operation and Maintenance: To assure that equipment and work related processes are working well, the following practices can be implemented:

1. Maintain dry and clean floors and ground surfaces by using brooms, shovels, vacuum cleaners, or cleaning machines rather than wet cleanup methods.
2. Regularly pick up and dispose of garbage and waste material.
3. Make sure all equipment and related processes are working properly and preventative maintenance is kept up with on both.
4. Routinely inspect equipment and processes for leaks or conditions that could lead to discharges of chemicals or contact of storm water with raw

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AIRPORT ADDITION DEVELOPMENT
SITE GRADING PLAN & STORM SEWER
YANKTON SD, SOUTH DAKOTA
SEI Project #: 21414

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8739
GAARD A. ROPS
SOUTH DAKOTA

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materials, intermediate materials, waste materials, or products used on site.
5. Assure all spill cleanup procedures are understood by employees. Training of employees on proper cleanup procedures shall be implemented.
6. Designate separate areas of the site for auto parking, vehicle refueling, and routine maintenance.
7. Clean up leaks, drips, and other spills immediately.
8. Cover and maintain dumpsters and waste receptacles.

Material Storage Practices: Improperly storing material on site can lead to the release of materials and chemicals that can cause storm water runoff pollution. Proper storage techniques include the following:
1. Provide adequate aisle space to facilitate material transfer and ease of access for inspection.
2. Store containers, drums, and bags away from direct traffic routes to prevent accidental spills.
3. Stack containers according to manufacturer's instructions to avoid damaging the containers from improper weight distribution.
4. Store containers on pallets or similar devices to prevent corrosion of containers that results from containers coming in contact with moisture on the ground.
5. Store toxic or hazardous liquids within curbed areas or secondary containers.
6. Assign responsibility of hazardous material inventory to a limited number of people who are trained to handle such materials.

Material Inventory Practices. An up-to-date inventory kept on all materials (both hazardous and nonhazardous) present on site will help track how materials are stored and handled onsite, and identify which materials and activities pose the most risk to the environment. The following description provides the basic steps in completing a material inventory:
1. Identify all chemical substances present at work site. Perform a walk-through of the site, review purchase orders, list all chemical substances used, and obtain Material Safety Data Sheets (MSDS) for all chemicals.
2. Label all containers. Labels shall provide name and type of substance, stock number, expiration date, health hazards, handling suggestions, and first aid information. This information can also be found on an MSDS.
3. Clearly mark on the hazardous materials inventory which chemicals require special handling, storage, use, and disposal considerations. Decisions on the amounts of hazardous materials that are stored on site shall include an evaluation of any emergency control systems that are in place. All storage areas shall be designed to contain any spills.

Training and Participation. Frequent and proper training in good housekeeping techniques reduces the possibility of chemicals or equipment that will be mishandled. Reducing waste generation is another important pollution prevention technique. The following are ways to get people involved in good housekeeping practices:
1. Provide information sessions on good housekeeping practices in training programs.
2. Discuss good housekeeping at meetings.
3. Publicize pollution prevention concepts through posters or signs.

SPILL PREVENTION AND RESPONSE

Chemical and petroleum product spills of toxic or hazardous material will be reported to the appropriate federal, state, and/or local government agency. All spills will be cleaned up immediately after discovery.

METHODS OF ENSURING SURFACE WATER QUALITY

The Contractor shall be responsible to ensure no sediment laden waters leave the project without exposure to an erosion or sediment control device.

The only non-storm water discharge allowed by the General Permit for Storm Water Discharges Associated with Construction Activities is uncontaminated ground water or waters, used as a best management practice, to wash vehicles and control dust. It is the responsibility of the Contractor to obtain a General permit to discharge under the South Dakota Surface Water Discharge System for temporary discharge activities in South Dakota (dewatering permit) for all other non-storm water discharges. All monitoring, testing, and other requirements of the dewatering permit are the responsibility of the Contractor.

Pumping (mechanically discharging) sediment laden water including ponded storm water or contaminated trench dewatering into the storm sewer or off the project site is not covered under the General Permit. It is the responsibility of the Contractor to obtain and comply with a dewatering permit for these activities. The Engineer may notify the SDDANR if the Contractor is observed pumping sediment laden water into the storm sewer or off site. Pumping sediment laden water through inlet protection is not allowed as a BMP.

In lieu of pumping sediment laden water the following are some methods the Contractor may use to control sediment laden water.

- The best method is for the Contractor to maintain positive drainage during all phases of the project to prevent water from ponding on the project.
- Treat the sediment laden water onsite through the use of filter bags, deflocculating chemicals, sediment basins, or a portable containment system.
- Pump or discharge the water to other portions of the site. This is allowed if the waters do not leave the project limits.

No payment will be made to the Contractor to comply with a dewatering permit unless otherwise specified and it will be considered incidental to the various bid items.

AGENCY COORDINATION

Are wetlands an issue? No

If wetlands are an issue, has a determination been made by the US Army Corps of Engineers? N/A

Does the State Historical Preservation Office (SHPO) need to review these plans? No

Does the SD Game Fish and Parks need to review these plans? No

Does the US Fish and Wildlife Service need to review these plans? No

MODIFICATIONS OF EROSION AND SEDIMENT CONTROL DEVICES TO PREVENT PROPERTY DAMAGE

The Contractor is responsible to maintain drainage. In the event that an erosion or sediment control device is obstructing drainage and damage to property is possible the Contractor may temporarily modify or remove the device to facilitate drainage. An example is inlet protection in a sump location surrounded by buildings. If a device is removed for this purpose, the Contractor shall immediately notify the Engineer to discuss and implement alternatives to comply with the SWPPP and General Permit.

SOIL SURFACE STABILIZATION PRACTICES

After construction begins, soil surface stabilization shall be applied within 14 days to all disturbed areas that may not be at final grade but will remain dormant (undisturbed) for periods longer than 21 calendar days. Within 14 days after final grade is reached on any portion of the site, permanent or temporary soil surface stabilization shall be applied to disturbed areas and soil stockpiles. The following table lists the amount of time various erosion control measures are applicable.

Maximum Time Limits of Land Exposures for Selection of Erosion Controls

Erosion Control Method	Maximum Allowable Period of Exposure (Months)
Surface Roughening	1
Mulching	12
Temporary Revegetation	12 – 24
Permanent Revegetation	24 Or More
Soil Stockpile Revegetation	2
Early Application of Road Base	1

MAINTENANCE

The Contractor is responsible for maintaining and repairing all temporary erosion control, sediment control, and permanent erosion control measures until the Notice of Termination is filed. No payment will be made to the Contractor for maintaining or repairing these items unless otherwise specified. General maintenance requirements are listed but are not all inclusive and additional measures may need to be taken to comply with the General Permit and SWPPP.

REMOVAL OF TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES

The Contractor is responsible to remove all temporary erosion control and sediment control devices when the site reaches final stabilization. No payment will be made to the Contractor for removing these items unless otherwise specified. The Engineer may order specific temporary erosion control and sediment control devices to remain in place past final stabilization. The Contractor will not be responsible to remove these items.

SEDIMENT CONTROL MEASURES

INSTALLATION OF SEDIMENT CONTROL MEASURES

The Contractor shall not begin the removal of surfacing or topsoil within the applicable work area until all applicable sediment control measures are placed. Sediment control measures shall be installed as necessary as construction progresses and these sediment control devices shall be installed within 24 hours at locations identified on the SWPPP.

TEMPORARY VEHICLE TRACKING CONTROL

Maintenance Requirements: Temporary vehicle tracking control should be inspected frequently to ensure that mud and dirt or not being tracked onto the roadway. Temporary vehicle tracking control material must be cleaned or replaced when the effectiveness of dirt removal is reduced.

Measurement: Temporary vehicle tracking control will be measured per each. Additional measurement will not be made for temporary vehicle tracking control that has been maintained, which includes replacement or repair at individual locations or for vehicle tracking control removed and reset in the same location to facilitate the contractor's method of operation.

Payment: Temporary vehicle tracking control will be paid for at the contract unit price per each. Payment shall be full compensation for all materials, labor, equipment, and incidentals required to install, maintain, and remove the temporary vehicle tracking control.

SILT FENCE

Maintenance Requirements: Areas of damage including water damage, fabric tears, and failures shall be repaired. When accumulated, sediment reaches one half of the height of the fence, new silt fence shall be installed. When site conditions require that silt fence be cleaned and mucked out, rather than replaced, care must be taken to ensure the existing silt fence is not damaged.

Mucking silt fence is the removal of muck trapped by the silt fence as described above. Removed muck should be spread out and stabilized within the projects limits or at an alternate location approved by the Engineer.

Repair Silt Fence shall consist of repairing silt fence to meet installation requirements specified in the plans.

Measurement:

Silt Fence will be measured to the nearest foot.

Mucking Silt Fence will be measured to the nearest cubic yard.

Repair Silt Fence will be measured to the nearest foot. Repair silt fence will only be measured if the corresponding bid item has been included in the plans. If included, repair silt fence will only be measured when needed for damage caused by runoff. No measurement will be made for silt fence damaged by the contractor's methods and operations.

Remove Silt Fence will be measured to the nearest foot.

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Payment:

Silt Fence will be paid for at the contract unit price per foot. Payment shall be full compensation for furnishing, installing, maintaining except as otherwise noted, labor, equipment and incidentals.

Mucking Silt Fence will be paid for at the contract unit price per cubic yard. Payment will be full compensation for labor, equipment and incidentals required to remove, spread this material evenly over the adjacent area as determined by the Engineer, and seed.

Repair Silt Fence will be paid for at the contract unit price per foot if specified. Payment shall be full compensation for repair and inspection of the silt fence. If the corresponding bid item has not been included in the plans, repairing silt fence will be considered incidental to the contract.

Remove Silt Fence will be paid for at the contract unit price per foot. Payment shall be full compensation for labor, equipment, and incidentals.

STREET SWEEPING

Construction Requirements: Street sweeping is required during construction and before final completion of work to keep streets adjacent to and within the project area clean. The minimum equipment to be used for street sweeping shall be a skid loader with a pickup broom attachment or engineer approved equal. No rotary broom without the pickup broom attachment/containment system will be acceptable to perform this work.

Maintenance: Sweeping shall be performed as needed to remove tracked mud from the roadway. Daily sweeping may be necessary if project conditions warrant.

Measurement: Street sweeping will be measured to the nearest tenth of an hour.

Payment: Street sweeping will be paid for at the contract unit price per hour. Payment shall be full compensation for all labor, equipment, and incidentals.

INLET PROTECTION

Maintenance Requirements: Accumulated sediment should be removed and disposed of on site. Device should be cleaned or replaced if standing water is evident 48 hours after a rain event. Damaged devices must be repaired.

Measurement: Inlet protection will be measured per each type installed. Additional measurement will be made when a different type of inlet protection is installed at each location. No additional measurement will be made when the same type of inlet protection is removed and reinstalled at the same location.

Payment: Inlet protection will be paid for at the contract unit price per each. Payment shall be full compensation for all materials, labor, equipment, and incidentals required to install, maintain, and remove the inlet protection.

SEDIMENT CONTROL WATTLE

Construction Requirements: The Contractor shall provide certification that the sediment control wattles do not contain noxious weed seeds.

Maintenance: Sediment should be removed on a routine basis when the level of sedimentation reaches one-half the height of the exposed wattle. Damaged areas should be repaired immediately until the vegetation is established and growing through the material.

Measurement: Sediment control wattles shall be measured to the nearest foot.

Payment: Sediment control wattles shall be paid for at the contract unit price per lineal foot. Payment for all materials, labor and equipment necessary to install, maintain, repair, and remove the sediment control wattles shall be included in the contract unit price per lineal foot.

Materials: The erosion control wattle shall be 12" diameter with biodegradable netting and selected from the manufacturers listed below, or approved equal:

Manufacturer Product Name
American Excelsior Company Curlex Sediment Log
Arlington, TX
Phone: 1-800-777-7645
www.amerexcel.com

Western Excelsior CorporationAspen Fiber Logs and Straw Logs
Mancos, CO
Phone: 1-800-833-8573
www.westernexcelsior.com

R.H. Dyck Inc. Earth-saver Rice Straw Wattles
Winters, CA
Phone: 1-530-662-7700
www.earth-savers.com

PERMANENT EROSION CONTROL MEASURES

INSTALLATION OF PERMANENT EROSION CONTROL MEASURES

This work shall be done as soon as possible after finish grading and topsoil placement is completed, and if practical, prior to seeding, fertilizing, and mulching of adjacent areas. At a minimum, the work must be completed within the timeframes listed within the Soil Surface Stabilization Practices notes.

TOPSOIL

Topsoil will be placed over all designated areas to a depth of 6 inches. The placement of the topsoil shall be completed within 5 days of final grading. Soil stabilization shall be in accordance with the SWPPP.

Salvaged Topsoil:
Topsoil salvaged will not be required to be screened. Pulverizing will still be required. Topsoil shall be smooth, uniform and free of stones 1 inch or larger in any dimension, roots and other extraneous or undesirable material harmful to plant growth.

If the Contractor chooses to use Contractor furnished topsoil instead of salvaged topsoil, no additional compensation will be made for their efforts.

SEEDBED PREPARATION

The initial preparation of the newly graded area for seeding shall consist of removing existing grass, vegetation and turf. Do not mix into topsoil. Loosen soil to a depth of at least 4 inches. Remove stones larger than 1" in any dimension, sticks, roots, trash and other extraneous matter. Grade to within +/- 0.5" of the finish elevation. Roll and rake, remove ridges, pulverize soil clods to less than 1" and fill depressions to meet finish grades. The Contractor will need prior authorization from the Engineer to commence seeding. Seedbed preparation shall be incidental to the appropriate "Seed Mixture" pay item.

SEED TESTING

Seed shall be tested within 9 months prior to planting, exclusive of the calendar month in which the test was completed. Testing shall be performed in accordance with SD Standard Specification for Roads and Bridges Section 730.2C. The certified test report shall be furnished to the Engineer prior to the start of the seeding operations.

LABELING

Each bag of seed delivered to the project shall bear a tag which conforms to the SD Standard Specifications for Roads and Bridges Section 730.2D. There will be no payment for seed used without the proper labeling.

SEEDING

Construction Requirements: Seeding and fertilizing shall comply with sections 730 and 731 of the SDDOT Standard Specifications for Roads and Bridges except as noted below. Seasonal limitations have been designated below. If seasonal limitations cannot be met, then an alternate soil stabilization practice must be used. Payment will be made to the Contractor for these alternate practices if caused by the conditions and sequencing of the plans and/or specifications and not the result of the Contractor's negligence.

Seed Mixes:

When to Plant:
Spring: April – June 15
Fall: August – Early September
Dormant: November – Freeze Up

Specifications:
Minimum Purity 97% and Minimum Germination 85%
Maximum Other Crop Content 0.10% and Maximum Weed Content 0.10%
Components and/or percentages of the above blend may vary

Seed Mixture A:
Millborn Seeds – Developer's Mix

NATIVE GRASSES	
Common Name	**PLS LBS / 1 ACRE**
Oats	44
Annual Ryegrass	35
Perennial Ryegrass	35
Creeping Red Fescue	27
Kentucky Bluegrass	17
Chewings Fescue	17
TOTALS	**175**

Seed shall be delivered to the project in bags with seed tags attached. The tags will be collected from the bags by the Engineer during seeding. See plan notes on Labeling. Seed shall be applied using a press drill or slit seeder in all areas where possible. Hand seeding will be kept to a minimum and only done when site conditions prohibit the use of a drill or slit seeder.

These rates shall be doubled if seed is broadcast and shall be increased by 50 percent if the seeding is applied through hydraulic seeding. Hydraulic seeding may be substituted for drilling only where slopes are steeper than 3:1. If hydraulic seeding is used, hydraulic mulching shall be done as a separate operation. All seed shall be drilled in with an approved drill and incorporated to the top ¼" +/- of topsoil. Small areas not accessible with a drill may be broadcast and dragged or raked in.

Mycorrhizal Inoculum: This shall be applied with the above seed mixes. It 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 wetland and native seed shall be inoculated with a minimum of 100,000 live propagules of mycorrhizal fungi per acre. All turf seed shall be inoculated with a minimum of 1,000,000 live propagules of mycorrhizal fungi per acre. All costs of inoculating the seed shall be incidental to the contract unit price per pound for the corresponding permanent seed mixture. The Mycorrhizal Inoculum will be incidental to the specified seed mix.

Seed will be measured and paid for in accordance with the SD Standard Specifications for Roads and Bridges Section 730.4 and 730.5.

TURF MAINTENANCE (SEED MIXTURE A)

Maintain and establish turf until October 1, 2022 by watering, fertilizing, weeding, mowing, trimming, replanting, and performing other operations as required to establish healthy, viable turf. Roll, regrade, and replant bare or eroded areas and

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remulch to produce a uniformly smooth turf. Provide materials and installation the same as those used in the original installation.

1. Fill in as necessary soil subsidence that may occur because of settling or other processes. Replace materials and turf damaged or lost in areas of subsidence.
2. Apply treatments as required to keep turf and soil free of pests and pathogens or disease. Use integrated pest management practices whenever possible to minimize the use of pesticides and reduce hazards.

At end of maintenance period, a healthy, uniform, close stand of grass shall be established, free of weeds and surface irregularities, with coverage exceeding 70% of the native cover. Bare spots or locations of erosion shall be identified Fall 2022 and re-seeded by the contractor Fall 2022 or Spring 2023. This additional material and labor shall be at no additional cost to the owner.

Mowing: Mow turf as soon as top growth is tall enough to cut. Repeat mowing to maintain specified height without cutting more than one-third of grass height. Remove no more than one-third of grass-leaf growth in initial or subsequent mowings. Do not delay mowing until grass blades bend over and become matted. Do not mow when grass is wet. Schedule initial and subsequent mowings to maintain to a height of 2 to 3 inches. Turf mowing shall be paid for on a per each basis each time all turf grass areas are mowed per the requirements above and at the discretion of the engineer. Approximate area of turf grass is 19.0 acres. Payment shall be full compensation for all labor, equipment, and incidentals.

Turf Post-fertilization: Apply slow-release fertilizer after initial mowing, Fall 2022, Spring 2023, Summer 2023, and Fall 2023. Fertilizer shall be applied when grass is dry.

Weed Control: Legumes and noxious weeds shall be controlled in all newly seeded turf areas by hand pulling and/or inoculation for the duration of the maintenance period. Inoculation must be performed in accordance with the manufacturer's recommendations and all applicable federal, state, and local laws and ordinances. The Contractor is responsible for keeping all required chemical application records, and must provide them to the Engineer upon request. The inoculation product must be approved by the Engineer prior to application.

More than one weed control application may be required depending on site conditions. The amount of weed control required on the project will be at the discretion of the Engineer. A pre-emergent application is recommended.

All materials, equipment, tools, labor and other appurtenances required to control all legumes and noxious weeds throughout the maintenance period will be paid for at the contract unit price per each application for "Turf Grass Weed Control".

FERTILIZING

Fertilizer Type: For use in both seed and sod applications. Fertilizer shall have a minimum guaranteed analysis of 13-13-13 with a minimum of 25% SCU for slow release properties. The application rate shall be 335 lbs/acre. Any other fertilizer analysis and/or application rate must be approved by the Engineer prior to application.

Fertilizer shall be delivered to the site in bags, each fully labeled, conforming to the specifications and bearing the name and warranty of the producer. Appropriate documentation shall be given to the Engineer for approval prior to application. Fertilizer will be measured and paid for in accordance with the SD Standard Specifications for Roads and Bridges Section 731.4 and 731.5.

MULCHING

Following permanent seeding, grass hay or straw mulch conforming to section 732 of the SDDOT Standard Specifications shall be applied at the rate of 2 tons per acre at locations shown on the erosion control plan sheets.

Maintenance: Look for small areas of erosion or where the mulch has washed away which typically occurs after a heavy rain. All areas of failure should be repaired. Payment will be at the contract unit price for mulched areas maintained and repaired.

RIP RAP

Riprap shall be **Class B** and installed in the areas identified on the plans and shall conform to Section 700 of the SDDOT Standard Specifications. The fabric for rip rap shall conform to Section 831-Type B.

EROSION CONTROL BLANKET

Construction Requirements: The Contractor shall provide certification that the erosion control blankets do not contain noxious weed seeds.

Maintenance: Damaged areas should be repaired immediately until the vegetation is established and growing through the material.

Measurement: Erosion control blanket shall be measured to the nearest square yard.

Payment: Erosion control blanket shall be paid for at the contract unit price per square yard. Payment for all materials, labor and equipment necessary to install, and maintain erosion control blanket shall be included in the contract unit price per square yard.

Manufacturer	Product Name
American Excelsior Company Arlington, TX Phone: 1-800-777-7645 www.amerexcel.com	Curlex Single Net (Curlex I)

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D-4

KEYNOTES

1. INSTALL 25 TN CLASS B RIP-RAP
2. CONSTRUCT JB#2 (4'X4') CONNECT TO EXISTING 24" RCP OUTLET STRUCTURE WITH FRAME AND GRATE
   - RIM = 1254.25
   - INVERT(24")(E) = 1248.88
   - INVERT(8" ORIFICE)(W) = 1248.88

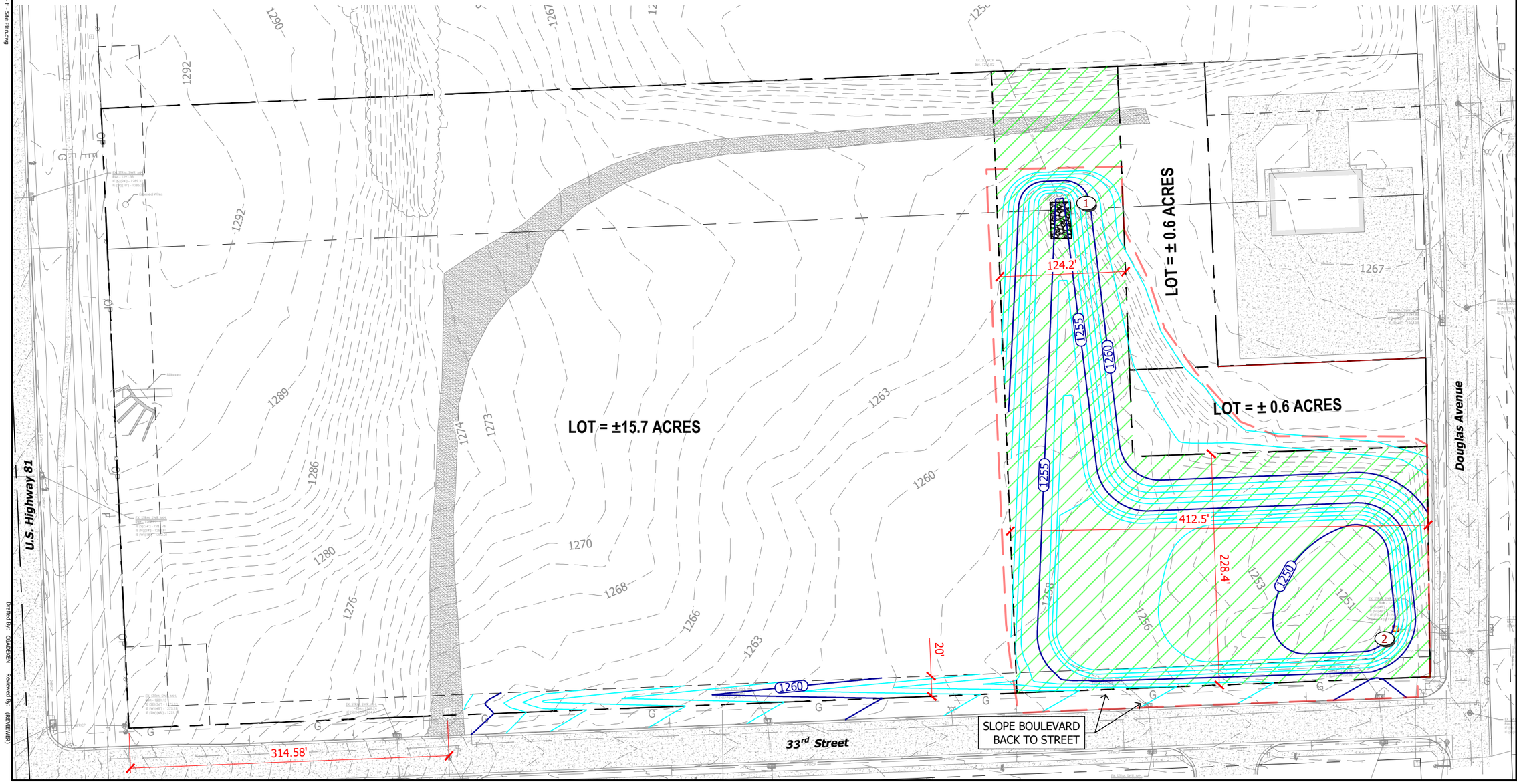
LEGEND

- GRADING LIMITS
- 1290 - EXISTING CONTOUR
- 1290 - PROPOSED CONTOUR
- (D) - PROPOSED STORM SEWER OUTLET STRUCTURE
- PROPOSED RIP-RAP
- PROPOSED DRAINAGE EASEMENT

DRAINAGE EASEMENT

141,842 SQFT. OR ±3.26 Acres

0 25 50 100



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City of Yankton SOUTH DAKOTA Where Life Flows

AIRPORT ADDITION DEVELOPMENT

SITE GRADING PLAN & STORM SEWER

YANKTON, SOUTH DAKOTA 57078

SEI PROJECT #: 21301

REGISTERED PROFESSIONAL ENGINEER
9738
GAARDE A. KORB
SOUTH DAKOTA
6/13/22

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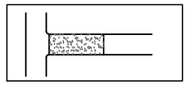
BID SET

SITE PLAN

F-1

Drafted By: CGARDEN Reviewed By: (REVIEWER)



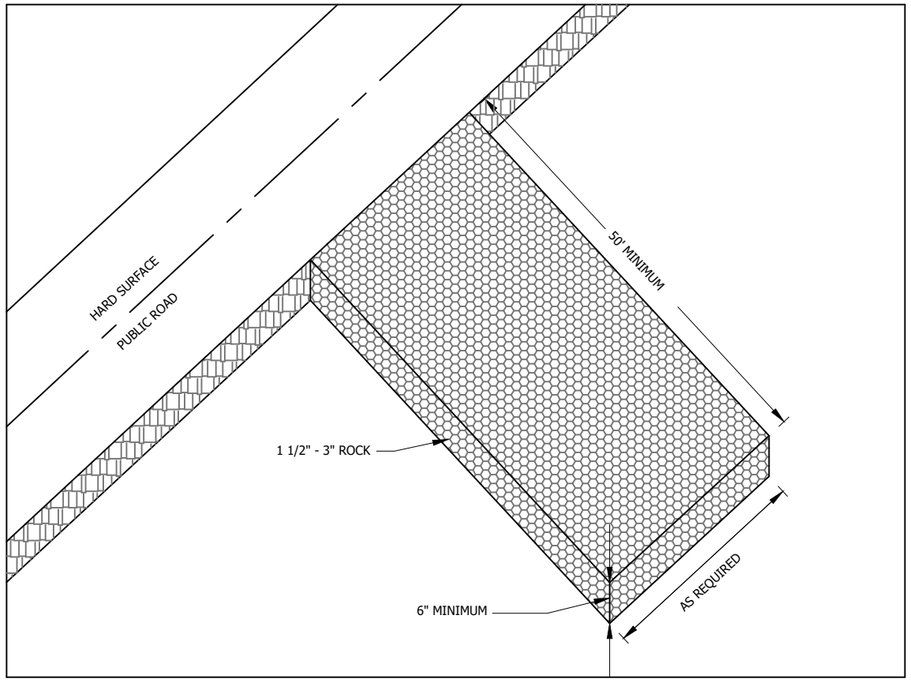
VTC

DEFINITION:

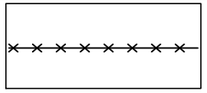
A STONE STABILIZED PAD LOCATED AT POINTS OF VEHICULAR INGRESS AND EGRESS ON A CONSTRUCTION SITE.

PURPOSES:

TO REDUCE THE AMOUNT OF MUD TRANSPORTED ONTO PUBLIC ROADS BY MOTOR VEHICLES OR RUNOFF.



TEMPORARY VEHICLE TRACKING CONTROL



SF

DEFINITION:

A TEMPORARY SEDIMENT BARRIER CONSISTING OF A FILTER FABRIC STRETCHED ACROSS AND ATTACHED TO SUPPORTING POSTS AND ENTRENCHED. THE SILT FENCE IS A TEMPORARY LINEAR BARRIER CONSTRUCTED OF SYNTHETIC FILTER FABRIC AND SUPPORTED BY WOODEN OR STEEL POSTS.

PURPOSES:

1. TO INTERCEPT AND DETAIN SMALL AMOUNTS OF SEDIMENT FROM DISTURBED AREAS DURING CONSTRUCTION OPERATIONS IN ORDER TO REDUCE SEDIMENT IN RUNOFF FROM LEAVING THE SITE.
2. TO DECREASE THE VELOCITY OF SHEET FLOWS AND LOW-TO-MODERATE LEVEL CONCENTRATED FLOWS.

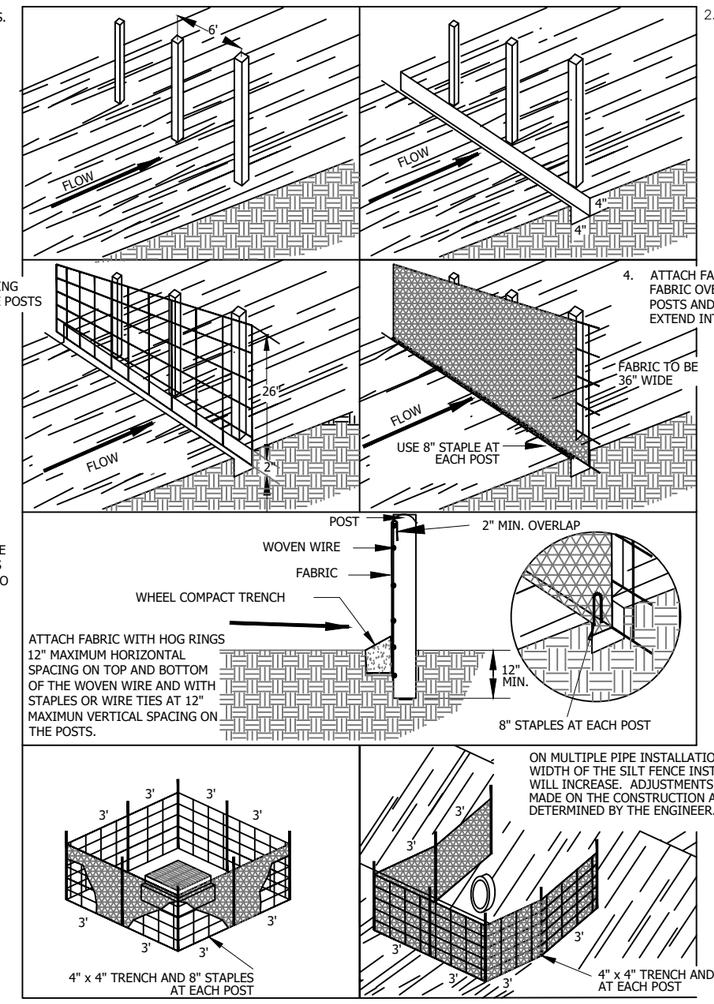
1. SET POSTS.

2. EXCAVATE A 4" X 4" TRENCH UPSLOPE ALONG THE POSTS.

3. ATTACH A SUPPORTING WIRE FENCE TO THE POSTS

4. ATTACH FABRIC, SANDWICH FABRIC OVERLAP BETWEEN POSTS AND WIRE AND EXTEND INTO TRENCH.

5. BACKFILL TRENCH. IF ROCK TYPE SOILS ARE ENCOUNTERED, UTILIZE 30 TO 40 LB SANDBAGS BUTTED END TO END TO PREVENT UNDERFLOW.



FENCE MATERIAL SHALL CONFORM TO GEOTEXTILE SPECIFICATIONS, SECTION 831 OF SDDOT STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES, LATEST EDITION.

SILT FENCE (WOOVEN WIRE)

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City of Yankton SOUTH DAKOTA Where Life Flows

AIRPORT ADDITION DEVELOPMENT
SITE GRADING PLAN & STORM SEWER
YANKTON, SOUTH DAKOTA 57078

SEI PROJECT #: 21301

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8736
GAARD A. ROPS
SOUTH DAKOTA

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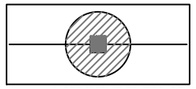
BID SET

STANDARD DETAILS

G-1



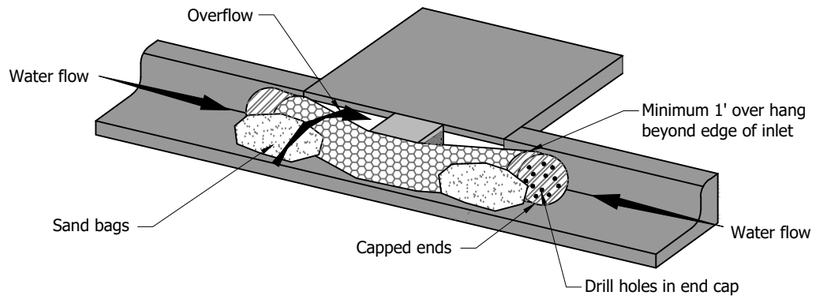
IP

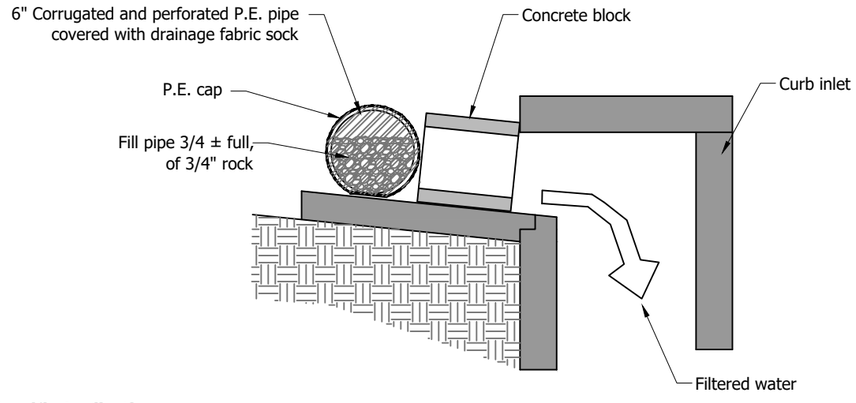
DEFINITION:

A SEDIMENT FILTER OR AN EXCAVATED IMPOUNDING AREA AROUND A STORM DRAIN DROP INLET OR CURB INLET. TO BE USED AT SUMP CONDITIONS.

PURPOSES:

TO REDUCE SEDIMENT FROM ENTERING STORM DRAINAGE SYSTEMS PRIOR TO PERMANENT STABILIZATION OF DISTURBED AREAS.



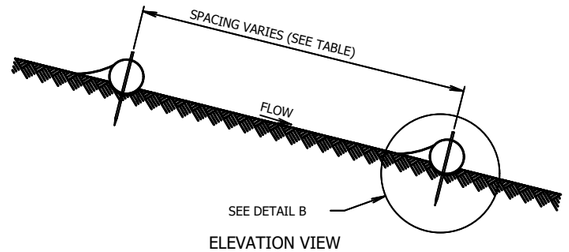


Specific Application:

This method of inlet protection is applicable at curb inlets where ponding in front of the structure is not likely to cause inconvenience or damage to adjacent structures and unprotected areas. Clean out as necessary to prevent blockage of runoff conveyance.

CORRUGATED PIPE AND FABRIC INLET PROTECTION - OVERFLOW

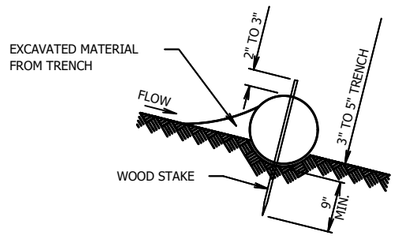
W



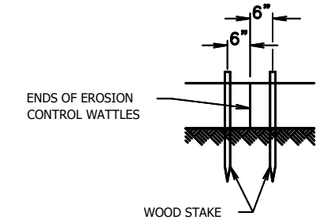
ELEVATION VIEW
CUT OR FILL SLOPE INSTALLATION

CUT OR FILL SLOPE INSTALLATION	
SLOPE	SPACING (FT)
1:1	10
2:1	20
3:1	30
4:1	40

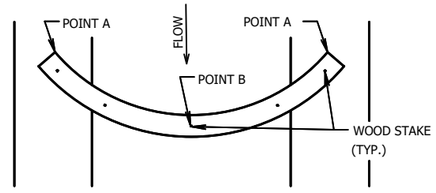
NOTE: IF ONLY ONE WATTLE IS REQUIRED, THE SLOPE SHALL NOT EXCEED 20:1.



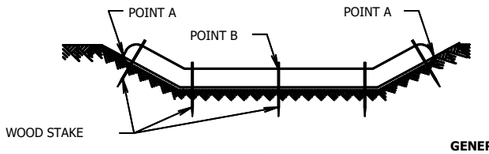
DETAIL B
(TYPICAL OF ALL INSTALLATIONS)



DETAIL C



PLAN VIEW
DITCH INSTALLATION



SECTION A-A

DITCH INSTALLATION	
GRADE	SPACING (FT)
2%	150
3%	100
4%	75
5%	50

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.

SEDIMENT CONTROL WATTLE

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City of Yankton SOUTH DAKOTA Where Nature Meets

AIRPORT ADDITION DEVELOPMENT
SITE GRADING PLAN & STORM SEWER
YANKTON, SOUTH DAKOTA 57078
SEI PROJECT #: 21301

REGISTERED PROFESSIONAL ENGINEER
No. 8778
GAARD A. REPS
SOUTH DAKOTA
6/14/22

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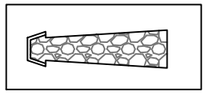
BID SET

STANDARD DETALS

G-2



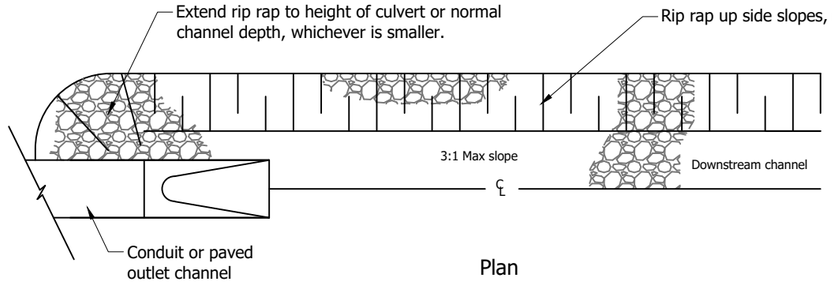
OP

Definition:

STRUCTURALLY LINED APRONS OR OTHER ACCEPTABLE ENERGY DISSIPATING DEVICES PLACED AT THE OUTLETS OF PIPES OR PAVED CHANNEL SECTIONS.

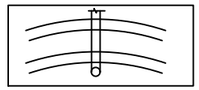
Purposes:

TO PREVENT SCOUR AT STORM WATER OUTLETS AND TO MINIMIZE THE POTENTIAL FOR DOWNSTREAM EROSION BY REDUCING THE VELOCITY OF CONCENTRATED STORM WATER FLOWS.

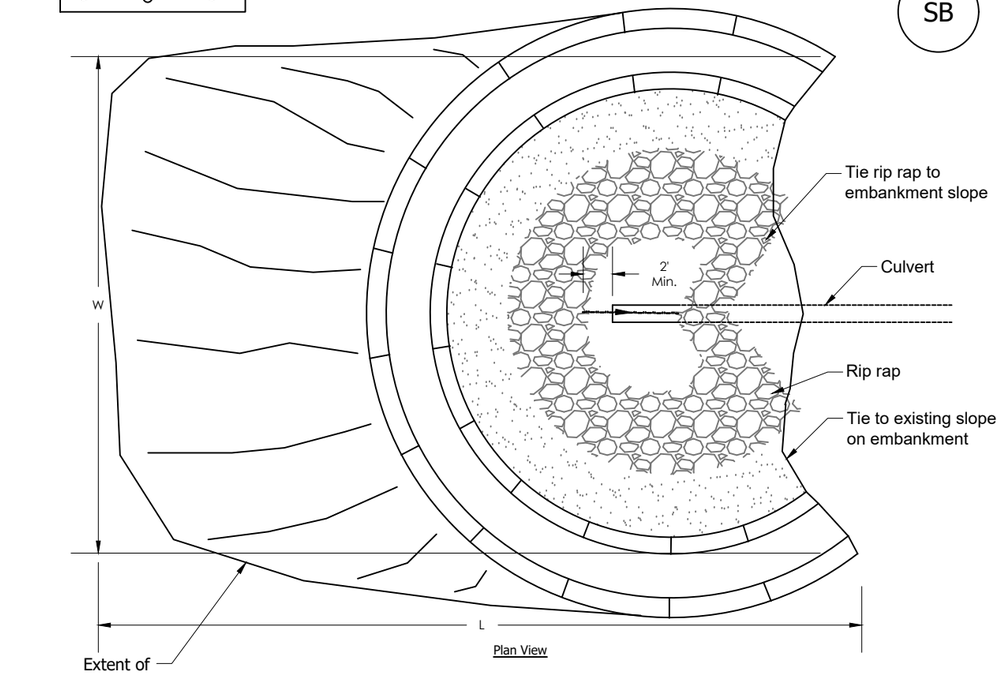


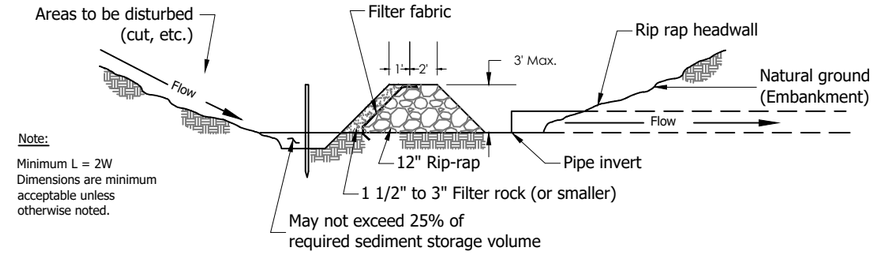
Quantity and size of rip rap to be determined by design. All rip rap shall be underlaid by a suitable filter fabric.

RIP-RAP OUTLET PROTECTION



SB





Note:

Minimum L = 2W
Dimensions are minimum acceptable unless otherwise noted.

Section Thru Basin, Filter and Culvert Pipe

No Scale

Note:

Gravel & rip rap filter berm basin detail is designed to protect existing pipe inverts that drain 50 acres or less.
* Existing topography may provide for required storage volume without excavation

Volume Required = 68,400 CF
Volume Provided = 102,200 CF
Bottom Elevation = 1249.00
Top Elevation = 1252.00

SEDIMENT BASIN HORSESHOE FILTER

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City of Yankton SOUTH DAKOTA Where Nature Meets

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SITE GRADING PLAN & STORM SEWER
YANKTON, SOUTH DAKOTA 57078
SEI PROJECT #: 21301

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8778
GAARD A. RIPS
SOUTH DAKOTA
6/13/22

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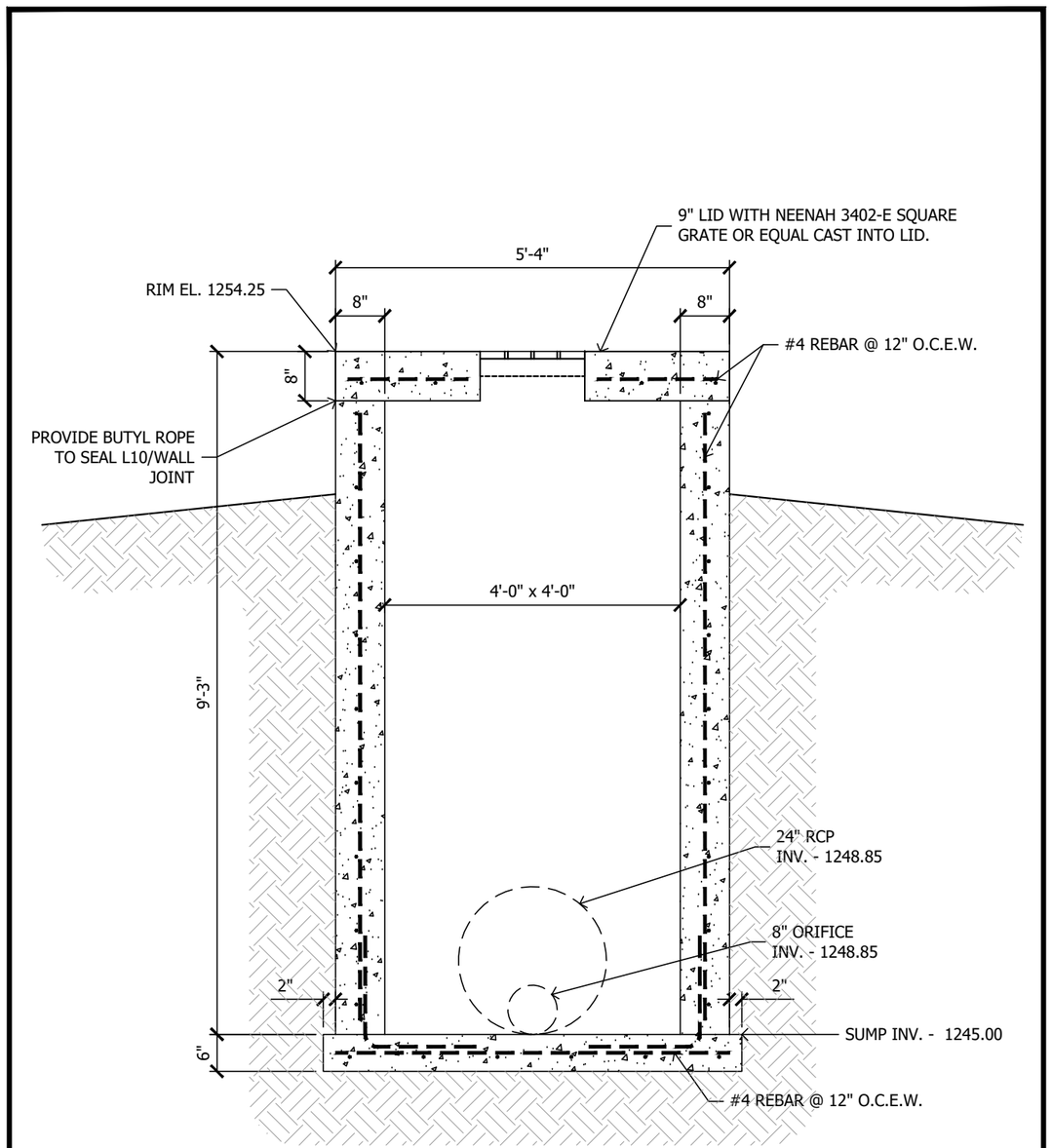
EROSION CONTROL DETAILS

G-3



OUTLET STRUCTURE DETAIL

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City of Yankton SOUTH DAKOTA Where Life Flows

AIRPORT ADDITION DEVELOPMENT
SITE GRADING PLAN & STORM SEWER
YANKTON, SOUTH DAKOTA 57078
SEI PROJECT #: 21301

REGISTERED PROFESSIONAL ENGINEER
REVIEWED
6/7/22
GARRD A. HOPS
SOUTH DAKOTA
6/14/22

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BID SET

STANDARD DETAILS

G-4