



Department of Transportation

Office of Project Development

700 E Broadway Avenue

Pierre, South Dakota 57501-2586 605/773-3268

FAX: 605/773-2614

February 10, 2016

ADDENDUM NO. 1

RE: Item #3, February 17, 2016 Letting - IM 0901(162)14, P 014A(11)8, PCN 020U, 0217, Lawrence County - Reconstruct Interchange, Reconfigure Ramps, & Reconfigure Service Road

TO WHOM IT MAY CONCERN:

The following addenda to the plans shall be inserted and made a part of your proposal for the referenced project.

SPECIAL PROVISIONS:

Please remove the Special Provisions checklist and replace with attached Special Provisions checklist revised 2/5/16. "Special Provision for Cooperation by Contractor and Department" dated 2/5/16 was added.

Please add the "Special Provision for Cooperation by Contractor and Department", dated 2/5/16 after the "Special Provision for Contract Time", dated 1/7/16.

BID ITEM FILE: *Bidders must log in to retrieve the addendum bid item file that must be loaded into the SDEBS to incorporate the revisions listed here.*

Bid Items were added:

Bid Item 009E4330 "Project Management, Category III"

Bid item 210E3510 "Heavy Roadway Shaping"

Quantities for Bid Items were changed:

Bid Item 120E6100 "Water for Embankment" changed from 5,321.0 to 5,653.2 MGal

Bid Item 260E1010 "Base Course" changed from 42,849 to 49,540 Ton

Bid Item 634E0010 "Flagging" changed from 400 to 450 Hour

Bid Item 635E4040 "4 Section Vehicle Signal Head" changed from 15 to 16 Each

Bid Item 831E1010 "Geogrid Reinforcement" changed from 3,364 to 20,505 SqYd

PLANS: Please destroy sheets A2, A3, A5, B2, B5, B6, B7, B9, B10, B43, B62, B63, B71, B72, C2, C5, C8, D7, E71, F2, F7, and L2 and replace with the enclosed sheets, dated 1/28/16, 1/29/16, 2/1/16, 2/2/16, 2/3/16. Sheet B15A was added.

Sheet A2: Grading – Section B (020U)

Bid Item 009E4330 "Project Management, Category III" was added

Bid Item 260E1010 "Base Course" was added

Bid Item 831E1010 "Geogrid Reinforcement" was added

- Sheet A3:** Traffic Control – Section C (020U)
Quantities for Bid Item 634E0010 “Flagging” changed from 300 to 350 Hour
- Sheet A5:** Surfacing – Section F (020U)
Bid Item 120E6100 “Water for Embankment” was added
Bid item 210E3510 “Heavy Roadway Shaping” was added
- Signal and Lighting – Section L (020U)
Quantities for Bid Item 635E4040 “4 Section Vehicle Signal Head” changed from 15 to 16 Each
- Sheet B2:** PCN 020U
Bid Item 009E4330 “Project Management, Category III” was added
Bid Item 260E1010 “Base Course” was added
Bid Item 831E1010 “Geogrid Reinforcement” was added.
- Sheets B5, B6 & B10:** Stationing for Undercutting was updated.
- Sheet B7 & B9:** Stationing for Undercutting in Section F was added.
- Sheet B15A:** Sheet was added for Berm Notes and Quantities for Base Course and Geogrid Reinforcement.
- Sheet B43:** Typical Section for Stationing for Undercutting was updated.
- Sheets B62, B63, B71 & B72:** Profile for Stationing for Undercutting was updated.
- Sheet C2:** PCN 020U
Quantities for Bid Item 634E0010 “Flagging” changed from 300 to 350 Hour
- Sheet C5:** TRAFFIC CONTROL – GENERAL NOTES (Cont.) note was revised to remove Item 12.
- Sheet C8:** TEMPORARY PEDESTRIAN FACILITY (IES) FOR TEMPORARY PEDESTRIAN ACCESS ROUTE (TPAR) note was revised to address payment for flagging.
- Sheet D7:** STREET SWEEPING note was revised.
- Sheet E71:** MSE RETAINING WALL GENERAL NOTES were revised (Federal Color Number for wall panel was updated).
- Sheet F2:** PCN 020U
Bid Item 120E6100 “Water for Embankment” was added
Bid item 210E3510 “Heavy Roadway Shaping” was added
- HEAVY ROADWAY SHAPING note and TABLE OF HEAVY ROADWAY SHAPING were added.
- Sheet F7:** 11” & 9” NONREINFORCED CONCRETE PAVEMENT note was revised.
- Sheet L2:** PCN 020U
Quantities for Bid Item 635E4040 “4 Section Vehicle Signal Head” changed from 15 to 16 Each

Sincerely,

Sam Weisgram
Engineering Supervisor

SW/cj

CC: Todd Seaman, Rapid City Region Engineer
Tammy Williams, Belle Fourche Area Engineer

REV. 2/5/16

SPECIAL PROVISIONS

PROJECT NUMBER(S): IM 0901(162)14, P 014A(11)8 PCN: 020U, 0217

TYPE OF WORK: RECONSTRUCT INTERCHANGE, RECONFIGURE RAMPS, & RECONFIGURE SERVICE ROAD

COUNTY: LAWRENCE

The following clauses have been prepared subsequent to the Standard Specifications for Roads and Bridges and refer only to the above described improvement, for which the following Proposal is made.

The Contractor's attention is directed to the need for securing from the Department of Environment & Natural Resources, Foss Building, Pierre, South Dakota, permission to remove water from public sources (lakes, rivers, streams, etc.). The Contractor should make his request as early as possible after receiving his contract, and insofar as possible at least 30 days prior to the date that the water is to be used.

Lisa Johnson is the official in charge of the Spearfish Career Center for Lawrence County.

THE FOLLOWING ITEMS ARE INCLUDED IN THIS PROPOSAL FORM:

Special Provision for Contract Time, dated 1/7/16.

Special Provision for Cooperation by Contractor and Department, dated 2/5/16.

Special Provision for Alternate Bidding, dated 12/30/15.

Special Provision Regarding Combination Bids, dated 1/5/16.

Special Provision for Informal Partnering, 5/3/07.

Special Provision for On-The-Job Training Program, dated 7/10/12.

Special Provision for Traffic Control Supervisor, dated 12/30/15.

Special Provision for Prosecution and Progress, dated 1/20/15.

Special Provision for Subletting of Contract, dated 12/30/15.

Special Provision Regarding Right of Entry, dated 1/7/16.

Agreement to Sell Materials.

Special Provision for Contractor Staking with Machine Control Grading Option, dated 12/30/15.

Special Provision for Concrete Penetrating Sealer, dated 2/22/10.

Special Provision for Contractor Furnished Mix Designs for PCC Pavement, dated 6/19/15.

Special Provision for PI PCC Pavement Smoothness with 0.2” Blanking Band, dated 7/21/15.

Special Provision for Mechanically Stabilized Earth (Large Panel) Walls, dated 8/12/15.

Special Provision for Stainless Reinforcing Steel, dated 9/2/15.

List of Utilities.

Special Provision for Contractor Administered Preconstruction Meeting, dated 4/18/13.

Fuel Adjustment Affidavit, DOT form 208 dated 7/15.

Standard Title VI Assurance, dated 7/14/08.

Special Provision For Disadvantaged Business Enterprise, dated 5/20/15.

Special Provision For EEO Affirmative Action Requirements on Federal and Federal-aid Construction Contracts, dated 9/1/97.

Special Provision For Required Contract Provisions Federal-aid Construction Contracts, Form FHWA 1273 (Rev. May/1/12), dated 4/30/13.

Required Contract Provisions Federal-aid Construction Contracts, Form FHWA 1273 (Rev. 5/1/12).

Special Provision for Cargo Preference Act, dated 1/20/16.

Special Provision Regarding Minimum Wage on Federal-Aid Projects, dated 4/30/13.

Wage and Hour Division US Department of Labor Washington DC.

- US Dept. of Labor Decision Number SD150001, dated 10/9/15.

Special Provision for Price Schedule for Miscellaneous Items, dated 10/14/15.

Special Provision Regarding Storm Water Discharge, dated 5/3/13.

General Permit for Storm Water Discharges Associated with Construction

Activities, dated 2/1/10. <http://denr.sd.gov/des/sw/IPermits/ConstructionGeneralPermit2010.pdf>

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**STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION**

**SPECIAL PROVISION
FOR
COOPERATION BY CONTRACTOR AND DEPARTMENT**

FEBRUARY 5, 2016

Delete Section 5.5 of the specifications and replace with the following:

5.5 COOPERATION BY CONTRACTOR AND DEPARTMENT - The Department will supply the Contractor with the number of sets of plans and related contract documents noted in the proposal, 1 of which the Contractor will have available on the project.

A. General: The Contractor will give the work the constant attention necessary to facilitate the progress, supervise, and direct all the work of the Contractor and all subcontractors to completely and efficiently perform work in accordance with the contract documents.

All subcontractors will communicate directly with the Contractor regarding questions about site readiness for construction, current activities of the Contractor and other subcontractors, and any other scheduling types of questions. The Contractor and all subcontractors will cooperate with the Engineer, inspectors, and other contractors.

B. Management and Supervision: The Contractor will provide the management and supervision required by this specification, and in accordance with this specification, regardless of the amount of work subcontracted.

Prior to the preconstruction meeting, the Contractor will provide the Project Engineer written designation of the Project Manager and the Project Superintendent. If the Contractor desires to make changes in designated individuals for Project Manager and Project Superintendent following the preconstruction meeting, the change must be submitted in writing or by email to the Project Engineer in advance of the change. For each crew (Contractor and subcontractor) working on the project, the crew will have a crew working superintendent/foreman.

The project category is defined in the Notice to Contractors.

The following titles, definitions, and responsibilities for Contractor and subcontractor management and supervision will be used by the Department.

1. Titles and Definitions:

- a. **Project Manager:** A Contractor employee that is the designated decision making authority for the Contractor and all subcontractors. For category I and II projects, the Project Manager and the Project Superintendent may be the same individual.
- b. **Project Superintendent:** A Contractor employee that is in responsible charge of the contract work and directs the daily project operations. For category I and II projects, the Contractor may designate a willing and capable subcontractor employee as the Project Superintendent.
- c. **Contractor or Subcontractor Working Superintendent/Foreman:** An employee of the Contractor or subcontractor that directs a group of employees working for the Contractor or subcontractor to complete a specific type of work the Contractor or subcontractor has contracted to complete.

2. Responsibilities:

- a. **Project Manager:** The Project Manager will:
 - 1) Be accessible to the Project Engineer as required in Section 5.5 C.
 - 2) Be capable of reading and understanding the plans and specifications and is experienced in and capable of accomplishing the type of work being performed.
 - 3) Schedule and lead the preconstruction meeting.
 - 4) Manage the submittal and approval process.
 - 5) Manage the project scheduling and schedule updating process including leading the schedule update meetings which may be led in person or remotely. This responsibility may be assigned to a willing and capable subcontractor employee for category I and II projects. Assignment of the duties to a subcontractor does not relieve the Contractor of the overall management responsibilities on the project.
 - 6) Coordinate and manage all subcontractors including, but not limited to, subcontractor approval, general performance, schedule integration, and accessibility. Contractors and subcontractors are expected to be on site and completing work according to the project schedule throughout the life of the project such that the periods of non-construction activity are kept to a minimum.

- 7) Be the designated person with final decision making authority for the Contractor and subcontractors.
- 8) Be the designated Contractor employee to negotiate with the Project Engineer for any contract component with monetary or contract time implications including, but not limited to; change orders, time extensions, and price adjustments. The duties of contract components with monetary or contract time implications must remain with an employee of the Contractor for all category projects.
- 9) If the Engineer determines, in his or her sole discretion, the designee is not fulfilling their assigned role for one or more of the responsibilities, the Engineer will provide written or email notice identifying the insufficient duties and the Contractor will immediately reassign those duties to a designated, willing, and capable individual, as needed, to fulfill the identified duties.

b. Project Superintendent: The Project Superintendent will:

- 1) Be accessible to the Project Engineer as required in Section 5.5 C.
- 2) Be capable of reading and understanding the plans and specifications and is experienced in and capable of accomplishing the type of work being performed.
- 3) Direct the daily project operations in accordance with the construction schedule.
- 4) As appropriate for the project category and at a frequency that is mutually agreed upon with the Engineer, lead construction progress meetings including look-ahead scheduling and planned activities of subcontractors.
- 5) For category III projects, prepare construction progress meeting agendas and designate a Contractor or subcontractor employee to take general notes of the meeting including, but not limited to, future action items, party responsible for future actions items, condensed summary of major issues discussed. The designated individual will distribute the notes to all key project supervision including the Department and affected utilities within a reasonable timeframe mutually agreed upon by the Project Superintendent and Project Engineer. If no timeframe is agreed upon, the designated individual will distribute the notes no later than the end of the next

business day. This practice is also recommended when construction progress meetings are held for category I & II projects.

- 6) When construction progress meetings are not held, update the Project Engineer on changes to subcontractor activities.
- 7) Oversee and direct the daily work activities of all subcontractors on the project. Contractors and subcontractors are expected to be on site and completing work according to the project schedule throughout the life of the project such that the periods of non-construction activity are kept to a minimum.
- 8) Be the designated representative for the Contractor and subcontractors with decision making authority for the Contractor and subcontractors to seek clarification and interpretation of contract document requirements from the Project Engineer.
- 9) Work through the Project Manager to negotiate with the Project Engineer for any contract component with monetary or contract time implications including, but not limited to; change orders, time extensions, and price adjustments.
- 10) If the Engineer determines, in his or her sole discretion, the designee is not fulfilling their assigned role for one or more of the responsibilities, the Engineer will provide written or email notice identifying the insufficient duties and the Contractor will immediately reassign those duties to a designated, willing, and capable individual, as needed, to fulfill the identified duties.

c. Contractor or Subcontractor Working Superintendent/Foreman: A designated employee of the Contractor or subcontractor who will:

- 1) Direct a group of employees working for their respective company to complete a specific type of work their respective company has contracted to complete.
- 2) Be onsite during the progress of the type of work assigned.
- 3) Be capable of reading and understanding the plans and specifications and is experienced in and capable of accomplishing the type of work being performed.
- 4) Work with the Project Manager or the Project Superintendent or both to update the progress schedule for assigned work.

- 5) As appropriate for the project category type, participate in portions of construction progress meetings involving their respective company's specific work being performed.
- 6) Update the Project Superintendent on changes to activities when progress meetings are not held as planned.
- 7) Be the designated representative for the assigned construction staff to seek clarification and interpretation of contract document requirements from the Project Engineer.
- 8) Work through the Project Superintendent or the Project Manager or both for any contract component with monetary or contract time implications including, but not limited to; change orders, time extensions, and price adjustments.

C. Contractor Accessibility Guidelines by Project Category: The following are guidelines for the Project Manager and Project Superintendent to be accessible to the Project Engineer. The Contractor and Project Engineer will agree upon the specific requirements to be used during the preconstruction meeting. The Contractor and Project Engineer may agree to either a shorter or longer accessibility requirement. If no alternate set of requirements are agreed upon, the guidelines listed in this specification will be the requirements. During construction of the project, the Contractor and Project Engineer may mutually agree to revise the agreement, if necessary, in writing or by email for specific needs during the project.

1. Category I and II:

a. Project Manager:

- 1) Will be available by phone or other mutually available technology with a response time within 2 business days.

b. Project Superintendent:

- 1) May be off site with prior notice to the Project Engineer.
- 2) When off site, the Project Superintendent will be available by phone with a response time within 1 business day, or on site as scheduled.

2. Category III:

a. Project Manager:

- 1) Will be available by phone or other mutually available technology with a response time within 1 business day.

b. Project Superintendent:

- 1) May be off site with prior notice to the Project Engineer.
- 2) When off site, the Project Superintendent will be available by phone with a response time of the same business day, or on site as scheduled.

D. Department Accessibility Guidelines: The following are guidelines for the Project Engineer and Engineering Supervisor to be accessible to the Contractor and are to be agreed upon during the preconstruction meeting. If weekend work is anticipated, the Contractor will provide notice to the Project Engineer by Thursday of the same week. The Contractor and Project Engineer will agree upon the specific requirements to be used during the preconstruction meeting. The Contractor and Project Engineer may agree to either a shorter or longer accessibility requirement. If no alternate set of requirements are agreed upon, the guidelines listed in this specifications will be the requirements. During construction of the project, the Contractor and Project Engineer may mutually agree to revise the agreement, if necessary, in writing or by email for specific needs during the project. The Department will submit changes in designated Department individuals, either temporarily or permanently, for Field Technician, Project Engineer, or Engineering Supervisor in writing or by email to the Contractor's designated Project Manager and Project Superintendent in advance of the change.

1. Category I, II, and III:

a. Field Technician:

- 1) Will to be on site during the construction of their assigned work activities and will be available to the Project Superintendent and associated Working Superintendent/Foreman while these work activities are performed.
- 2) May be off site during work activities that do not require testing or inspecting.
- 3) Will participate in progress meetings when invited by the Project Engineer.

b. Project Engineer:

- 1) Will be available by phone with a response time of the same business day or on site within 1 business day for Category I & II projects and within 1/2 business day for Category III projects.
- 2) When off site for more than 1 business day, the Project Engineer will notify the Project Superintendent and any Working Superintendent/Foremen and will remain available by phone with a response time of the same business day or on site within 1 business day.

c. Engineering Supervisor:

- 1) Will be available to Project Manager and Project Superintendent through the Project Engineer by phone or other mutually available technology with a response time of 1 business day or on site within 2 business days.

E. Project Management Payment: Project management will be paid for at the contract lump sum price. Payment will be full compensation for all costs associated with providing project management and performing all related duties.

Payment for project management will be made as follows:

1. 20% of contract item lump sum price upon designation of Project Manager and Project Superintendent.
2. 50% of contract item lump sum price when construction project is 25% completed.
3. 75% of contract item lump sum price when construction project is 50% completed.
4. 90% of contract item lump sum price when construction project is 75% completed.
5. 100% of contract item price when construction project is 100% completed and the Area Office has issued the Acceptance of Field Work in accordance with Section 5.16.

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ESTIMATE OF QUANTITIES AND ENVIRONMENTAL COMMITMENTS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0901 (162)14/P 014A (11) 8	A2	A9

Grading – Section B (IM 0901(162)14)

Grading – Section B (IM 0901(162)14) Continued

Revised Date: 2/8/2016 AMO

Grading – Section B (IM 0901(162)14) Continued

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E3230	Grade Staking	12.277	Mile
009E3245	Final Cross Section Survey	4.821	Mile
009E3250	Miscellaneous Staking	4.821	Mile
009E3280	Slope Staking	4.821	Mile
009E3290	Structure Staking	3	Each
009E3300	Three Man Survey Crew	40.0	Hour
009E4300	Construction Schedule, Category III	Lump Sum	LS
009E4330	Project Management, Category III	Lump Sum	LS
100E0100	Clearing	Lump Sum	LS
110E0400	Remove Drop Inlet	7	Each
110E0600	Remove Fence	160	Ft
110E0655	Remove Interim Crossover Closure	600	Ft
110E0700	Remove 3 Cable Guardrail	586	Ft
110E0740	Remove 3 Cable Guardrail Anchor Assembly	4	Each
110E1510	Remove Luminaire Pole	1	Each
110E1515	Remove Luminaire Arm	1	Each
110E6000	Remove 3 Cable Guardrail for Reset	2,120	Ft
110E6010	Remove 3 Cable Guardrail Anchor Assembly for Reset	1	Each
110E7510	Remove Pipe End Section for Reset	6	Each
110E7800	Remove Chain Link Fence for Reset	740	Ft
110E7802	Remove Fence for Reset	300	Ft
120E0010	Unclassified Excavation	291,481	CuYd
120E0500	Option Borrow Excavation	239,629	CuYd
120E0900	Contaminated Material Excavation	100	CuYd
120E2000	Undercutting	70,764	CuYd
120E6100	Water for Embankment	4,892.0	MGal
250E0020	Incidental Work, Grading	Lump Sum	LS
260E1010	Base Course	6,691.0	Ton
380E2564	4" Barrier Type Colored Median PCC Pavement	1,769.0	SqYd
380E3540	8" PCC Approach Pavement	63.0	SqYd
421E0100	Pipe Culvert Undercut	119	CuYd
450E0112	15" RCP Class 2, Furnish	22	Ft
450E0120	15" RCP, Install	22	Ft
450E0122	18" RCP Class 2, Furnish	2,290	Ft
450E0130	18" RCP, Install	2,290	Ft
450E0142	24" RCP Class 2, Furnish	920	Ft
450E0150	24" RCP, Install	920	Ft
450E0182	36" RCP Class 2, Furnish	62	Ft
450E0184	36" RCP Class 4, Furnish	214	Ft
450E0190	36" RCP, Install	266	Ft
450E0222	60" RCP Class 2, Furnish	162	Ft
450E0230	60" RCP, Install	162	Ft
450E0700	RCP Tee, Furnish	1	Each

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
450E2008	18" RCP Flared End, Furnish	2	Each
450E2009	18" RCP Flared End, Install	2	Each
450E2028	36" RCP Flared End, Furnish	1	Each
450E2029	36" RCP Flared End, Install	1	Each
450E2304	18" RCP Safety End, Furnish	1	Each
450E2307	18" RCP Safety End, Install	1	Each
450E4758	18" CMP 14 Gauge, Furnish	298	Ft
450E4760	18" CMP, Install	298	Ft
450E4768	24" CMP 14 Gauge, Furnish	408	Ft
450E4770	24" CMP, Install	408	Ft
450E4798	42" CMP 14 Gauge, Furnish	26	Ft
450E4800	42" CMP, Install	26	Ft
450E5010	18" CMP Elbow, Furnish	4	Each
450E5011	18" CMP Elbow, Install	4	Each
450E5025	36" CMP Elbow, Furnish	1	Each
450E5026	36" CMP Elbow, Install	1	Each
450E5211	18" CMP Flared End, Furnish	2	Each
450E5212	18" CMP Flared End, Install	2	Each
450E8009	18" RCP to CMP Transition, Furnish	1	Each
450E8010	18" Pipe Transition, Install	1	Each
450E9001	Reset Pipe End Section	6	Each
462E0100	Class M8 Concrete	74.0	CuYd
480E0100	Reinforcing Steel	10,914	Lb
530E0300	Type C Concrete Retaining Wall	75	SqFt
600E0300	Type III Field Laboratory	1	Each
620E4100	Reset Fence	300	Ft
621E0160	6' Chain Link Fence with Tension Wired Top	738	Ft
621E0520	Reset Chain Link Fence	740	Ft
629E0100	3 Cable Guardrail	1,248	Ft
629E0200	Reset 3 Cable Guardrail	2,120	Ft
629E0400	3 Cable Guardrail Anchor Assembly	4	Each
629E0410	Reset 3 Cable Guardrail Anchor Assembly	1	Each
630E0110	Straight Double Class A Thrie Beam Guardrail with Wood Posts	60.0	Ft
630E1010	Straight Class A W Beam Guardrail with Wood Posts	875.0	Ft
630E2000	W Beam to Thrie Beam Guardrail Transition	4	Each
630E2020	W Beam Guardrail Tangent End Terminal	4	Each
650E0090	Type B69 Concrete Curb and Gutter	5,268	Ft
650E0390	Type BL69 Concrete Curb and Gutter	4,237	Ft
650E1090	Type F69 Concrete Curb and Gutter	363	Ft
650E1390	Type FL69 Concrete Curb and Gutter	615	Ft
650E4660	Type P8 Concrete Gutter	133	Ft
650E6280	8" Concrete Valley Gutter	44.0	SqYd
651E0060	6" Concrete Sidewalk	19,181	SqFt
651E0160	6" Reinforced Concrete Sidewalk	140	SqFt

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
651E7000	Type 1 Detectable Warnings	198	SqFt
670E1200	Type B Frame and Grate Assembly	17	Each
670E2200	Type C Frame and Grate	12	Each
670E4205	Type M Frame and Grate Assembly	5	Each
670E5300	3' x 4' Drop Inlet Cover	4	Each
670E5340	4' x 11' Precast Concrete Type S Drop Inlet Lid	4	Each
670E5400	Precast Drop Inlet Collar	17	Each
671E4548	48" Manhole Cone Section	3.0	Ft
671E5502	2" Adjusting Ring for Manhole	2	Each
671E6009	Type A9 Manhole Frame and Lid	3	Each
671E7010	Adjust Manhole	1	Each
671E8000	Reconstruct Manhole	3	Each
720E1015	Bank and Channel Protection Gabion	19.5	CuYd
831E1010	Geogrid Reinforcement	17,141	SqYd
900E0010	Refurbish Single Mailbox	1	Each

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 11714
THOMAS W. ANZIA
SOUTH DAKOTA
2/8/16
DRAINAGE RESPONSIBILITY

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 11386
MICHELLE K. STEVENS
SOUTH DAKOTA
2/8/16
Roadway Responsibility

ESTIMATE OF QUANTITIES AND ENVIRONMENTAL COMMITMENTS

Grading – Section B (P 014A(11)8)

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0901 (162)14/P 014A (11) 8	A3	A9

Revised Date: 2/3/2016 AMO

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E3230	Grade Staking	1.020	Mile
009E3245	Final Cross Section Survey	0.237	Mile
009E3250	Miscellaneous Staking	0.237	Mile
009E3280	Slope Staking	0.237	Mile
100E0100	Clearing	Lump Sum	LS
110E0400	Remove Drop Inlet	1	Each
110E0605	Remove Chain Link Fence	350	Ft
110E7800	Remove Chain Link Fence for Reset	105	Ft
120E0010	Unclassified Excavation	13,655	CuYd
120E0500	Option Borrow Excavation	28,407	CuYd
120E2000	Undercutting	4,336	CuYd
120E6100	Water for Embankment	429.0	MGal
250E0020	Incidental Work, Grading	Lump Sum	LS
380E2564	4" Barrier Type Colored Median PCC Pavement	626.0	SqYd
450E0122	18" RCP Class 2, Furnish	192	Ft
450E0130	18" RCP, Install	192	Ft
450E2009	18" RCP Flared End, Furnish	1	Each
450E2009	18" RCP Flared End, Install	1	Each
450E4758	18" CMP 14 Gauge, Furnish	56	Ft
450E4760	18" CMP, Install	56	Ft
450E6010	18" CMP Elbow, Furnish	2	Each
450E6011	18" CMP Elbow, Install	2	Each
450E6211	18" CMP Flared End, Furnish	1	Each
450E6212	18" CMP Flared End, Install	1	Each
462E0100	Class M8 Concrete	11.4	CuYd
480E0100	Reinforcing Steel	1,805	Lb
621E0520	Reset Chain Link Fence	105	Ft
650E1090	Type F69 Concrete Curb and Gutter	2,358	Ft
650E1390	Type FL69 Concrete Curb and Gutter	1,706	Ft
651E5000	Sidewalk Drain	16.0	Ft
670E1200	Type B Frame and Grate Assembly	3	Each
670E5340	4' x 11' Precast Concrete Type S Drop Inlet Lid	1	Each
670E6400	Precast Drop Inlet Collar	3	Each
671E4548	48" Manhole Cone Section	1.0	Ft
671E5502	2" Adjusting Ring for Manhole	1	Each
671E6009	Type A9 Manhole Frame and Lid	1	Each
720E1015	Bank and Channel Protection Gabion	9.0	CuYd

Traffic Control – Section C (IM 0901(162)14)

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
110E0655	Remove Interim Crossover Closure	448	Ft
110E7000	Remove Crossover Closure for Reset	1,344	Ft
629E9010	Interim Crossover Closure	448	Ft
629E9050	Reset Crossover Closure	1,344	Ft
632E2520	Type 2 Object Marker	6	Each
634E0010	Flagging	350.0	Hour
634E0110	Traffic Control Signs	2,011	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0135	Traffic Control Supervisor	Lump Sum	LS
634E0260	Type 3 Barricade, 6' Single Sided	12	Each
634E0265	Type 3 Barricade, 6' Double Sided	15	Each
634E0280	Type 3 Barricade, 8' Single Sided	1	Each
634E0330	Temporary Raised Pavement Markers	186,738	Ft
634E0420	Type C Advance Warning Arrow Board	2	Each
634E0525	Linear Delineation System Panel, Barrier Mounted	1,129	Each
634E0560	Remove Pavement Marking, 4" or Equivalent	252,938	Ft
634E0630	Temporary Pavement Marking	40.0	Mile
634E0700	Traffic Control Movable Concrete Barrier	565	Each
634E0705	Remove and Reset Traffic Control Movable Concrete Barrier	265	Each
634E0750	Temporary Concrete Barrier End Protection	7	Each
634E0755	Remove and Reset Temporary Concrete Barrier End Protection	7	Each
634E0760	Temporary Concrete Barrier End Protection Module Set or Repair Kit	2	Each
634E0915	Short Term Temporary Traffic Control Signal	5	Site
634E1002	Detour Signing	682.0	SqFt
634E1215	Contractor Furnished Portable Changeable Message Sign	8	Each
634E2010	Temporary Pedestrian Facility(s)	Lump Sum	LS

Traffic Control – Section C (P 014A(11)8)

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
634E0010	Flagging	100.0	Hour
634E0110	Traffic Control Signs	529	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0260	Type 3 Barricade, 6' Single Sided	6	Each
634E0265	Type 3 Barricade, 6' Double Sided	7	Each
634E0330	Temporary Raised Pavement Markers	25,207	Ft
634E0560	Remove Pavement Marking, 4" or Equivalent	61,807	Ft
634E0630	Temporary Pavement Marking	9.0	Mile
634E0915	Short Term Temporary Traffic Control Signal	2	Site



INDEX OF SHEETS

A1 and A2 Estimate of Quantities for Sections B,C,D,E, F, H, L, M, and S
 A3 to A8 Environmental Commitments

ESTIMATE OF QUANTITIES AND ENVIRONMENTAL COMMITMENTS

Surfacing Alt. A – Section F (IM 0901(162)14)

Revised Date: 2/1/2016 AMO

Section E (IM 0901(162)14) Structure 41-116-088 Zinc and Epoxy Dual Coated Alt. B

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
480E0250	Zinc and Epoxy Dual-Coated Reinforcing Steel	385,150	Lb

Surfacing – Section F (IM 0901(162)14)

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
004E0050	Remove Traffic Diversion(s)	Lump Sum	LS
008E3320	Checker	Lump Sum	LS
110E0300	Remove Concrete Curb and Gutter	1,879	Ft
110E0415	Remove Edge Drains	Lump Sum	LS
110E0655	Remove Interim Crossover Closure	256	Ft
110E1020	Remove Asphalt Concrete Pavement	12,399.8	CuYd
110E1105	Remove Concrete Pavement	10,020.7	CuYd
110E1110	Remove Concrete Approach Pavement	356.2	SqYd
110E1140	Remove Concrete Sidewalk	401.1	SqYd
110E1640	Remove Granular Material	17,462.7	CuYd
110E7000	Remove Crossover Closure for Reset	416	Ft
120E0010	Unclassified Excavation	48,310	CuYd
120E8100	Water for Embankment	332.2	MGal
120E6200	Water for Granular Material	959.9	MGal
210E2000	Shoulder Shaping	5,347	Mile
210E3510	Heavy Roadway Shaping	23,302.8	SqYd
260E1010	Base Course	24,712.4	Ton
260E2010	Gravel Cushion	48,921.0	Ton
270E0020	Salvage and Stockpile Asphalt Mix Material	3,192.3	Ton
320E1200	Asphalt Concrete Composite	200.0	Ton
320E5010	Saw and Seal Shoulder Joint	28,235	Ft
320E7012	Grind 12" Rumble Strip or Stripe in Asphalt Concrete	2.8	Mile
330E0010	MC-70 Asphalt for Prime	47.5	Ton
330E0100	SS-1h or CSS-1h Asphalt for Tack	8.6	Ton
330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	4.7	Ton
330E2000	Sand for Flush Seal	1.6	Ton
380E0070	9" Nonreinforced PCC Pavement	42,652.5	SqYd
380E0110	11" Nonreinforced PCC Pavement	53,418.7	SqYd
380E6000	Dowel Bar	50,374	Each
380E6110	Insert Steel Bar in PCC Pavement	96	Each
410E2000	Mechanical Sealant Expansion Joint	345.4	Ft
630E0000	Remove Crossover Closure	416	Ft

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
320E0004	PG 58-28 Asphalt Binder	389.3	Ton
320E1070	Class HR Asphalt Concrete	9,734.4	Ton

Surfacing Alt. B – Section F (IM 0901(162)14)

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
320E0004	PG 58-28 Asphalt Binder	359.9	Ton
320E1070	Class HR Asphalt Concrete	9,996.7	Ton

Surfacing – Section F (P 014A(11)8)

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E3320	Checker	Lump Sum	LS
110E0300	Remove Concrete Curb and Gutter	860	Ft
110E1020	Remove Asphalt Concrete Pavement	1,350.0	CuYd
110E1140	Remove Concrete Sidewalk	232.1	SqYd
110E1640	Remove Granular Material	3,722.2	CuYd
120E0010	Unclassified Excavation	5,529	CuYd
120E6200	Water for Granular Material	63.0	MGal
260E1010	Base Course	1,030.6	Ton
260E2010	Gravel Cushion	4,216.5	Ton
270E0020	Salvage and Stockpile Asphalt Mix Material	207.7	Ton
330E0010	MC-70 Asphalt for Prime	1.2	Ton
330E0100	SS-1h or CSS-1h Asphalt for Tack	0.6	Ton
330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	0.2	Ton
330E2000	Sand for Flush Seal	4.2	Ton
380E0070	9" Nonreinforced PCC Pavement	9,768.0	SqYd
380E6000	Dowel Bar	6,127	Each

Surfacing Alt. A – Section F (P 014A(11)8)

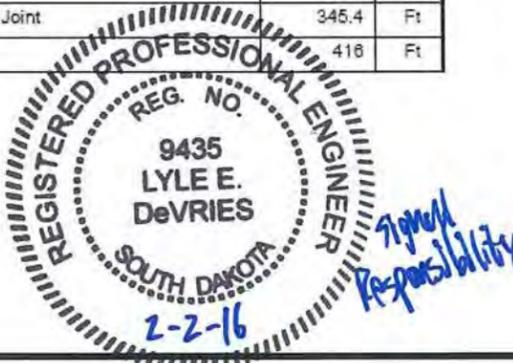
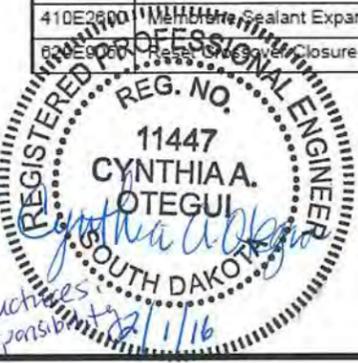
BID ITEM NUMBER	ITEM	QUANTITY	UNIT
320E0004	PG 58-28 Asphalt Binder	26.0	Ton
320E1070	Class HR Asphalt Concrete	646.3	Ton

Surfacing Alt. B – Section F (P 014A(11)8)

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
320E0004	PG 58-28 Asphalt Binder	23.9	Ton
320E1070	Class HR Asphalt Concrete	663.8	Ton

Signal and Lighting – Section L (IM 0901(162)14)

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
110E1510	Remove Luminaire Pole	1	Each
110E1520	Remove Signal Equipment	Lump Sum	LS
110E1530	Remove Signal Pole Footing	15	Each
110E1540	Remove Luminaire Pole Footing	1	Each
110E5100	Salvage Luminaire Pole	15	Each
110E5110	Salvage Signal Equipment	Lump Sum	LS
632E5000	Single Beam Sign Bridge	1	Each
635E0050	Breakaway Base Luminaire Pole with Arm, 50' Mounting Height	34	Each
635E2000	Pedestal Signal Pole	4	Each
635E2125	Signal Pole with 25' Mast Arm and Luminaire Arm	1	Each
635E2145	Signal Pole with 45' Mast Arm and Luminaire Arm	1	Each
635E2155	Signal Pole with 55' Mast Arm and Luminaire Arm	1	Each
635E2160	Signal Pole with 60' Mast Arm and Luminaire Arm	2	Each
635E2165	Signal Pole with 65' Mast Arm and Luminaire Arm	2	Each
635E3340	Roadway Luminaire, 400 Watt with Photoelectric Cell	44	Each
635E3530	Under Bridge Deck Luminaire, 250 Watt	14	Each
635E4030	3 Section Vehicle Signal Head	15	Each
635E4040	4 Section Vehicle Signal Head	16	Each
635E5020	2' Diameter Footing	298.0	Ft
635E5030	3' Diameter Footing	89.0	Ft
635E5100	Controller Cabinet Footing	1	Each
635E5301	Type 1 Electrical Junction Box	41	Each
635E5302	Type 2 Electrical Junction Box	18	Each
635E5303	Type 3 Electrical Junction Box	9	Each
635E5304	Type 4 Electrical Junction Box	3	Each
635E5360	Surface Mounted Junction Box	11	Each
635E5400	Electrical Service Cabinet	2	Each
635E5430	Traffic Signal Controller	3	Each
635E5440	Master Controller	1	Each
635E5500	Meter Socket	2	Each
635E5520	Video Detection System	3	Each
635E5580	Emergency Vehicle Preemption Unit	3	Each
635E5570	Optical Detector	11	Each
635E5900	Pedestrian Push Button	16	Each
635E5910	Pedestrian Push Button Pole	12	Each
635E5922	Pedestrian Signal Head with Countdown Timer	16	Each
635E5930	Pedestrian Crossing Sign	16	Each
635E7530	Relocate Signal Equipment	Lump Sum	LS
635E8020	2" Rigid Galvanized Steel Conduit	1,720	Ft
635E8030	3" Rigid Galvanized Steel Conduit	1,530	Ft
635E8120	2" Rigid Conduit, Schedule 40	11,200	Ft
635E8130	3" Rigid Conduit, Schedule 40	1,780	Ft
635E8140	4" Rigid Conduit, Schedule 40	70	Ft
635E8220	2" Rigid Conduit, Schedule 80	1,720	Ft



SECTION B ESTIMATE OF QUANTITIES

IM 0901 (162) 14 – PCN 020U

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E3230	Grade Staking	12.277	Mile
009E3245	Final Cross Section Survey	4.821	Mile
009E3250	Miscellaneous Staking	4.821	Mile
009E3280	Slope Staking	4.821	Mile
009E3290	Structure Staking	3	Each
009E3300	Three Man Survey Crew	40	Hour
009E4300	Construction Schedule, Category III	Lump Sum	LS
009E4330	Construction Management, Category III	Lump Sum	LS
100E0100	Clearing	Lump Sum	LS
110E0400	Remove Drop Inlet	7	Each
110E0600	Remove Fence	160	Ft
110E0655	Remove Interim Crossover Closure	600	Ft
110E0700	Remove 3 Cable Guardrail	586	Ft
110E0740	Remove 3 Cable Guardrail Anchor Assembly	4	Each
110E1510	Remove Luminaire Pole	1	Each
110E1515	Remove Luminaire Arm	1	Each
110E6000	Remove 3 Cable Guardrail for Reset	2120	Ft
110E6010	Remove 3 Cable Guardrail Anchor Assembly for Reset	1	Each
110E7510	Remove Pipe End Section for Reset	6	Each
110E7800	Remove Chain Link Fence for Reset	740	Ft
110E7802	Remove Fence for Reset	300	Ft
120E0010	Unclassified Excavation	291,481	CuYd
120E0500	Option Borrow Excavation	239,629	CuYd
120E0900	Contaminated Material Excavation	100	CuYd
120E2000	Undercutting	70,764	CuYd
120E6100	Water for Embankment	4,892	MGal
250E0020	Incidental Work, Grading	Lump Sum	LS
260E1010	Base Course	6,691	Ton
380E2564	4" Barrier Type Colored Median PCC Pavement	1,769	SqYd
380E3540	8" PCC Approach Pavement	63	SqYd
421E0100	Pipe Culvert Undercut	119	CuYd
450E0112	15" RCP Class 2, Furnish	22	Ft
450E0120	15" RCP, Install	22	Ft
450E0122	18" RCP Class 2, Furnish	2,290	Ft
450E0130	18" RCP, Install	2,290	Ft
450E0142	24" RCP Class 2, Furnish	920	Ft
450E0150	24" RCP, Install	920	Ft
450E0182	36" RCP Class 2, Furnish	52	Ft
450E0184	36" RCP Class 4, Furnish	214	Ft
450E0190	36" RCP, Install	266	Ft
450E0222	60" RCP Class 2, Furnish	162	Ft
450E0230	60" RCP, Install	162	Ft
450E0700	RCP Tee, Furnish	1	Each
450E0701	RCP Tee, Install	1	Each
450E2008	18" RCP Flared End, Furnish	2	Each
450E2009	18" RCP Flared End, Install	2	Each
450E2028	36" RCP Flared End, Furnish	1	Each
450E2029	36" RCP Flared End, Install	1	Each
450E2304	18" RCP Safety End, Furnish	1	Each
450E2307	18" RCP Safety End, Install	1	Each
450E4758	18" CMP 14 Gauge, Furnish	298	Ft
450E4760	18" CMP, Install	298	Ft
450E4768	24" CMP 14 Gauge, Furnish	408	Ft
450E4770	24" CMP, Install	408	Ft

450E4798	42" CMP, 14 Gauge, Furnish	26	Ft
450E4800	42" CMP, Install	26	Ft
450E5010	18" CMP Elbow, Furnish	4	Each
450E5011	18" CMP Elbow, Install	4	Each
450E5025	36" CMP Elbow, Furnish	1	Each
450E5026	36" CMP Elbow, Install	1	Each
450E5211	18" CMP Flared End, Furnish	2	Each
450E5212	18" CMP Flared End, Install	2	Each
450E8009	18" RCP to CMP Transition, Furnish	1	Each
450E8010	18" Pipe Transition, Install	1	Each
450E9001	Reset Pipe End Section	6	Each
462E0100	Class M6 Concrete	74	CuYd
480E0100	Reinforcing Steel	10,914	Lb
530E0300	Type C Concrete Retaining Wall	75	SqFt
600E0300	Type III Field Laboratory	1	Each
620E4100	Reset Fence	300	Ft
621E0160	6' Chain Link Fence with Tension Wired Top	738	Ft
621E0520	Reset Chain Link Fence	740	Ft
629E0100	3 Cable Guardrail	1,248	Ft
629E0200	Reset 3 Cable Guardrail	2120	Ft
629E0400	3 Cable Guardrail Anchor Assembly	4	Each
629E0410	Reset 3 Cable Guardrail Anchor Assembly	1	Each
630E0110	Straight Double Class A Thrie Beam Guardrail with Wood Posts	50	Ft
630E1010	Straight Class A W Beam Guardrail with Wood Posts	875	Ft
630E2000	W Beam to Thrie Beam Guardrail Transition	4	Each
630E2020	W Beam Guardrail Tangent End Terminal	4	Each
650E0090	Type B69 Concrete Curb and Gutter	5,268	Ft
650E0390	Type BL69 Concrete Curb and Gutter	4,237	Ft
650E1090	Type F69 Concrete Curb and Gutter	363	Ft
650E1390	Type FL69 Concrete Curb and Gutter	615	Ft
650E4660	Type P6 Concrete Gutter	133	Ft
650E6280	8" Concrete Valley Gutter	44	SqYd
651E0060	6" Concrete Sidewalk	19,181	SqFt
651E0160	6" Reinforced Concrete Sidewalk	140	SqFt
651E7000	Type 1 Detectable Warnings	198	SqFt
670E1200	Type B Frame and Grate Assembly	17	Each
670E2200	Type C Frame and Grate	12	Each
670E4205	Type M Frame and Grate Assembly	5	Each
670E5300	3' x 4' Drop Inlet Cover	4	Each
670E5340	4' x 11' Precast Concrete Type S Drop Inlet Lid	4	Each
670E5400	Precast Drop Inlet Collar	17	Each
671E4548	48" Manhole Cone Section	3	Ft
671E5502	2" Adjusting Ring for Manhole	2	Each
671E6009	Type A9 Manhole Frame and Lid	3	Each
671E7010	Adjust Manhole	1	Each
671E8000	Reconstruct Manhole	3	Each
720E1015	Bank & Channel Protection Gabion	19.5	CuYd
831E1010	Geogrid Reinforcement	17,141	SqYd
900E0010	Refurbish Single Mailbox	1	Each

P 014A (11) 8 – PCN 0217

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E3230	Grade Staking	1.02	Mile
009E3245	Final Cross Section Survey	0.237	Mile
009E3250	Miscellaneous Staking	0.237	Mile
009E3280	Slope Staking	0.237	Mile
100E0100	Clearing	Lump Sum	LS
110E0400	Remove Drop Inlet	1	Each

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0901 (162)14/P 014A (11) 8	B2	B192

Revised Date: 2/8/2016 AMO

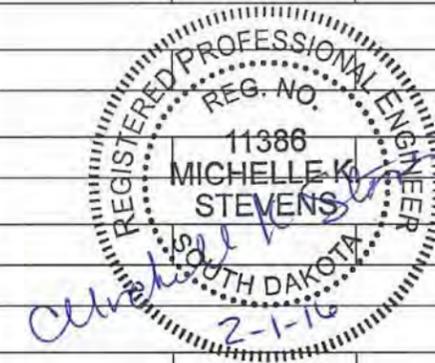
110E0605	Remove Chain Link Fence	350	Ft
110E7800	Remove Chain Link Fence for Reset	105	Ft
120E0010	Unclassified Excavation	13,655	CuYd
120E0500	Option Borrow Excavation	28,407	CuYd
120E2000	Undercutting	4,336	CuYd
120E6100	Water for Embankment	429	MGal
250E0020	Incidental Work, Grading	Lump Sum	LS
380E2564	4" Barrier Type Colored Median PCC Pavement	626	SqYd
450E0122	18" RCP Class 2, Furnish	192	Ft
450E0130	18" RCP, Install	192	Ft
450E2008	18" RCP Flared End, Furnish	1	Each
450E2009	18" RCP Flared End, Install	1	Each
450E4758	18" CMP 14 Gauge, Furnish	56	Ft
450E4760	18" CMP, Install	56	Ft
450E5010	18" CMP Elbow, Furnish	2	Each
450E5011	18" CMP Elbow, Install	2	Each
450E5211	18" CMP Flared End, Furnish	1	Each
450E5212	18" CMP Flared End, Install	1	Each
462E0100	Class M6 Concrete	11.4	CuYd
480E0100	Reinforcing Steel	1,805	Lb
621E0520	Reset Chain Link Fence	105	Ft
650E1090	Type F69 Concrete Curb and Gutter	2,358	Ft
650E1390	Type FL69 Concrete Curb and Gutter	1,706	Ft
651E5000	Sidewalk Drain	16	Ft
670E1200	Type B Frame and Grate Assembly	3	Each
670E5340	4' x 11' Precast Concrete Type S Drop Inlet Lid	1	Each
670E5400	Precast Drop Inlet Collar	3	Each
671E4548	48" Manhole Cone Section	1	Ft
671E5502	2" Adjusting Ring for Manhole	1	Each
671E6009	Type A9 Manhole Frame and Lid	1	Each
720E1015	Bank & Channel Protection Gabion	9.0	CuYd



TABLE OF EXCAVATION QUANTITIES BY BALANCES

Revised Date: 1/29/2016 AMO

Station to	Station	EXCAVATION				^ Out-of-Balance Exc. (CuYd)	** Waste (CuYd)	HAUL			
		Excavation (CuYd)	* Undercut (CuYd)	* Option Borrow Exc. (CuYd)	Total Excavation (CuYd)			** Dead Haul (CuYdSta)	** Option Borrow Haul (CuYdSta)	** Haul (CuYdSta)	**Out-of-Balance Haul (CuYdSta)
IM 0901 (162) 14 – PCN 020U											
27th Street (Area A)											
10+48.11	13+70.98	2,127	766	0	2,893	0	1,925	0	0	14,600	0
27th Street (Area B)											
24+86.89	33+20.36	13,382	2,997	0	16,379	0	6,066	0	0	121,300	0
Colorado Boulevard (Area D)											
92+45.97	99+63.00	3,851	2,972	16,133	22,956	0	0	629,200	122,600	0	0
I-90 (Area E) includes Ramp C, Ramp G, & Portion of SB 27th Street											
EB 719+50.00	EB 756+00.00	51,578	15,674	25,838	93,090	3,656	0	1,007,700	620,100	0	0
I-90 (Area F) includes Ramp B, Ramp F, & Portion of NB 27th Street											
EB 756+00.00	EB 790+50.00	26,450	15,504	138,265	190,219	0	0	5,392,300	2,640,900	0	0
I-90 (Area G) includes Ramp D, Ramp H, & Portion of SB 27th Street											
WB 719+50.00	WB 756+00.00	67,362	16,005	0	83,367	0	3,656	0	0	87,700	0
I-90 (Area H) includes Ramp A, Ramp E, & Portion of NB 27th Street											
WB 756+00.00	WB 790+50.00	30,057	16,234	56,593	102,884	6,066	0	2,207,100	1,131,900	0	0
#Ramp C Diversion (Area E)											
0+00.00	5+34.00		0								2,300
#Ramp B Diversion (Area F)											
0+04.00	13+88.00		277								16,800
#Ramp B Crossover (Area F)											
0+00.00	5+67.00		122								100
#Ramp D Crossover (Area G)											
0+07.00	6+89.00		0								0
IM 0901 (162) 14 – PCN 020U Continued											
#Ramp A Detour (Area H)											
2+66.00	12+56.00		113								97,600
#Ramp A Crossover (Area H)											
0+00.00	5+22.00		100								100
IM 0901 (162) 14 Total		194,807	70,764	236,829	511,788	9,722	11,647	9,236,300	4,515,500	223,600	61,000
P 014A (11) 8 – PCN 0217											
US Hwy 14A (Area C)											
79+00.00	92+45.97	8,254	4,336	28,407	40,997	1,925	0	1,107,900	215,900	0	0
P 014A (11) 8 Total		8,254	4,336	28,407	40,997	1,925	0	1,107,900	215,900	0	0



* The quantities for these items are in the Estimate of Quantities under their respective bid items.
 ** The quantities for these items are for information only.
 ^ Out-of-Balance Excavation is material obtained from waste generated from excavation from other balances. The quantity of Out-of-Balance Excavation is paid for once and is included in the Unclassified Excavation total.
 # Diversions, Detours, and Crossovers are for information only excluding undercut quantities.

EARTHWORK BALANCE SUMMARY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0901(162)14 P 014A(11)8	B6	B192

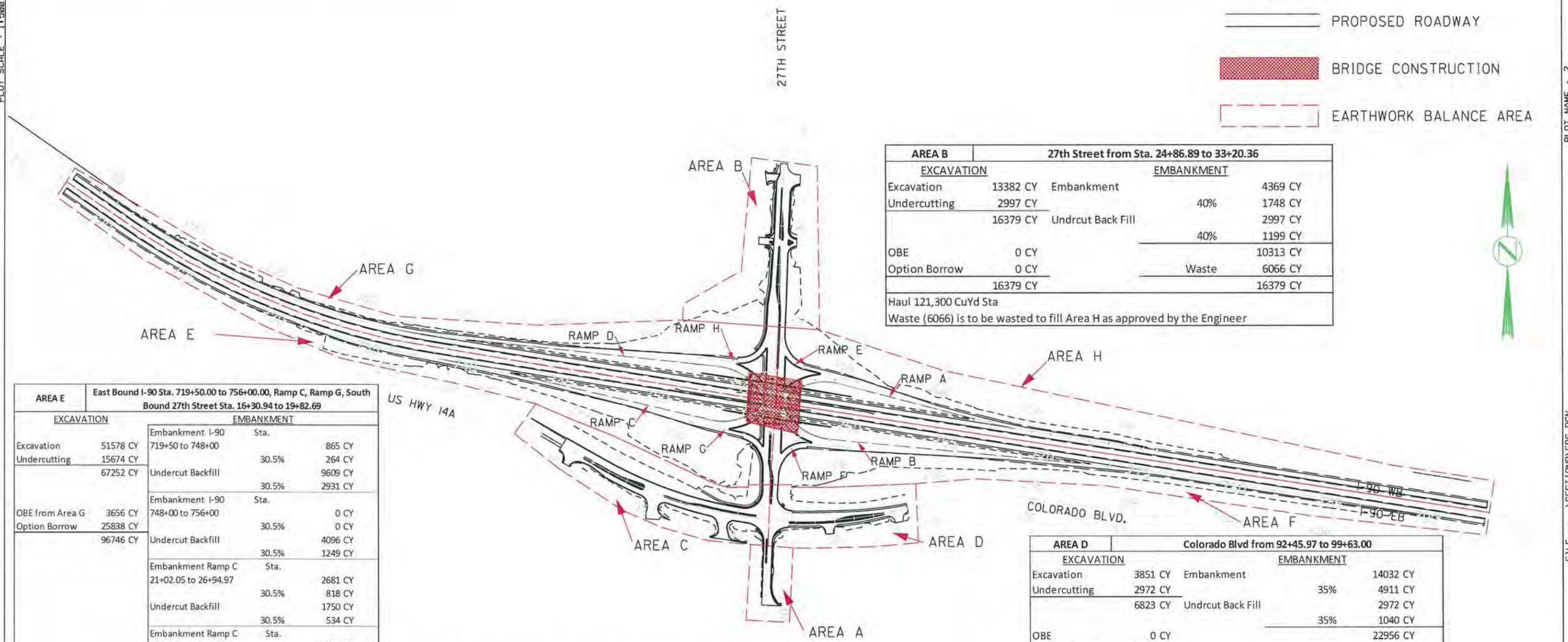
Plotting Date: 2/1/2016
Revised Date: 1/29/2016 AMO

LEGEND

-  PROPOSED ROADWAY
-  BRIDGE CONSTRUCTION
-  EARTHWORK BALANCE AREA

PLOT SCALE - 1:500

PLOT NAME - 2



AREA B		27th Street from Sta. 24+86.89 to 33+20.36	
EXCAVATION		EMBANKMENT	
Excavation	13382 CY	Embankment	4369 CY
Undercutting	2997 CY	40%	1748 CY
	16379 CY	Undrcut Back Fill	2997 CY
		40%	1199 CY
OBE	0 CY		10313 CY
Option Borrow	0 CY	Waste	6066 CY
	16379 CY		16379 CY

Haul 121,300 CuYd Sta
Waste (6066) is to be wasted to fill Area H as approved by the Engineer

AREA E		East Bound I-90 Sta. 719+50.00 to 756+00.00, Ramp C, Ramp G, South Bound 27th Street Sta. 16+30.94 to 19+82.69	
EXCAVATION		EMBANKMENT	
Excavation	51578 CY	Embankment I-90 Sta. 719+50 to 748+00	865 CY
Undercutting	15674 CY	30.5%	264 CY
	67252 CY	Undercut Backfill	9609 CY
		30.5%	2931 CY
OBE from Area G	3656 CY	Embankment I-90 Sta. 748+00 to 756+00	0 CY
Option Borrow	25838 CY	30.5%	0 CY
	96746 CY	Undercut Backfill	4096 CY
		30.5%	1249 CY
		Embankment Ramp C Sta. 21+02.05 to 26+94.97	2681 CY
		30.5%	818 CY
		Undercut Backfill	1750 CY
		30.5%	534 CY
		Embankment Ramp C Sta. 26+94.97 to 33+50.72	36932 CY
		30.5%	11264 CY
		Embankment Ramp G	6920 CY
		30.5%	2111 CY
		Undercut Backfill	155 CY
		30.5%	47 CY
		Embankment SB 27th St. Sta. 16+30.94 to 19+82.69	11062 CY
		30.5%	3374 CY
		Undercut Backfill	64 CY
		30.5%	19 CY
		Waste	96746 CY
			0 CY
			96746 CY

AREA C		US HWY 14A from 79+00.00 to 92+45.97	
EXCAVATION		EMBANKMENT	
Excavation	8254 CY	Embankment	27458 CY
Undercutting	4336 CY	35%	9610 CY
	12590 CY	Undrcut Back Fill	4336 CY
		35%	1518 CY
OBE from Area A	1925 CY		42922 CY
Option Borrow	28407 CY	Waste	0 CY
	42922 CY		42922 CY

AREA D		Colorado Blvd from 92+45.97 to 99+63.00	
EXCAVATION		EMBANKMENT	
Excavation	3851 CY	Embankment	14032 CY
Undercutting	2972 CY	35%	4911 CY
	6823 CY	Undrcut Back Fill	2972 CY
		35%	1040 CY
OBE	0 CY		22956 CY
Option Borrow	16133 CY	Waste	0 CY
	22956 CY		22956 CY

AREA A		27th Street from Sta. 10+48.11 to 13+70.98	
EXCAVATION		EMBANKMENT	
Excavation	2127 CY	Embankment	8 CY
Undercutting	766 CY	25%	2 CY
	2893 CY	Undrcut Back Fill	766 CY
		25%	191 CY
OBE	0 CY		968 CY
Option Borrow	0 CY	Waste	1925 CY
	2893 CY		2893 CY

Haul 14,600 CuYd Sta
Waste (1925) is to be wasted to fill Area C as approved by the Engineer

Dead Haul 1,007,700 CuYd Sta
Option Borrow Haul 620,100 CuYd Sta
Out of Balance Excavation is to be obtained from Area G and will be paid for only once as unclassified excavation.
Option Borrow is to be obtained from Pit Area #1

Dead Haul 1,107,900 CuYd Sta
Option Borrow Haul 215,900 CuYd Sta
Out of Balance Excavation is to be obtained from 27th Street (Area A) and will be paid for only once as unclassified excavation.
Option Borrow is to be obtained from Pit Area #1.

Dead Haul 629,200 CuYd Sta
Option Borrow Haul 122,600 CuYd Sta
Option Borrow is to be obtained from Pit Area #1.



PLOTTED FROM - SOELLNER

FILE - ... \SECTION\EBBS.DGN

EARTHWORK BALANCE SUMMARY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0901(162)14 P 014A(11)8	B7	B192

Plotting Date: 2/1/2016
Revised Date: 1/29/2016 AMO

AREA G		West Bound I-90 Sta. 719+50.00 to 756+00.00, Ramp D, Ramp H, South Bound 27th Street Sta. 22+10.76 to 24+86.89	
EXCAVATION		EMBANKMENT	
Excavation	67362 CY	Embankment I-90 Sta. 719+50 to 748+00	151 CY
Undercutting	16005 CY	23%	35 CY
	83366 CY	Undercut Backfill	9558 CY
		23%	2198 CY
OBE	CY	Embankment I-90 Sta. 748+00 to 756+00	23 CY
Option Borrow	0 CY	23%	5 CY
	83366 CY	Undercut Backfill	3495 CY
		23%	804 CY
		Embankment Ramp D Sta. 30+47.00 to 38+60.00	672 CY
		23%	155 CY
		Undercut Backfill	2204 CY
		23%	507 CY
		Embankment Ramp D Sta. 38+60.00 to 45+27.00	32357 CY
		23%	7442 CY
		Undercut Backfill	222 CY
		23%	51 CY
		Embankment Ramp H	14303 CY
		23%	3290 CY
		Undercut Backfill	93 CY
		23%	21 CY
		Embankment SB 27th St. Sta. 22+10.76 to 24+86.89	1295 CY
		23%	298 CY
		Undercut Backfill	433 CY
		23%	100 CY
		Waste	79710 CY
			3656 CY
			83366 CY

Haul 87,700 CuYd Sta
Waste (3656) is to be wasted to fill Area E as approved by the Engineer

AREA H		West Bound I-90 Sta. 756+00.00 to 790+50.00, Ramp A, Ramp E, North Bound 27th Street Sta. 22+10.76 to 24+86.89	
EXCAVATION		EMBANKMENT	
Excavation	30057 CY	Embankment I-90 Sta. 756+00 to 762+00	0 CY
Undercutting	16234 CY	21.3%	0 CY
	46292 CY	Undercut Backfill	2588 CY
		21.3%	551 CY
OBE from Area B	6066 CY	Embankment I-90 Sta. 762+00 to 775+00	1497 CY
Option Borrow	56593 CY	21.3%	319 CY
	108951 CY	Undercut Backfill	7109 CY
		21.3%	1514 CY
		Embankment I-90 Sta. 775+00 to 790+50	237 CY
		21.3%	50 CY
		Undercut Backfill	5162 CY
		21.3%	1100 CY
		Embankment Ramp A Sta. 13+00.99 to 17+87.94	41435 CY
		21.3%	8826 CY
		Embankment Ramp A Sta. 17+87.94 to 22+17.43	2699 CY
		21.3%	575 CY
		Undercut Backfill	1296 CY
		21.3%	276 CY
		Embankment Ramp E	21846 CY
		21.3%	4653 CY
		Undercut Backfill	0 CY
		21.3%	0 CY
		Embankment NB 27th St. Sta. 22+10.76 to 24+86.89	5871 CY
		21.3%	1250 CY
		Undercut Backfill	79 CY
		21.3%	17 CY
		Waste	108951 CY
			0 CY
			108951 CY

Dead Haul 2,207,100 CuYd Sta
Option Borrow Haul 1,131,900 CuYd Sta
Out of Balance Excavation is to be obtained from Area B 27th Street and will be paid for only once as unclassified excavation.
Option Borrow is to be obtained from Pit Area #1.

AREA F		East Bound I-90 Sta. 756+00.00 to 790+50.00, Ramp B, Ramp F, North Bound 27th Street Sta. 16+30.94 to 19+82.69	
EXCAVATION		EMBANKMENT	
Excavation	26450 CY	Embankment I-90 Sta. 756+00 to 762+00	2 CY
Undercutting	15504 CY	27.0%	1 CY
	41953 CY	Undercut Backfill	2797 CY
		27.0%	755 CY
OBE	0 CY	Embankment I-90 Sta. 762+00 to 775+00	1099 CY
Option Borrow	138265 CY	27.0%	297 CY
	180218 CY	Undercut Backfill	5908 CY
		27.0%	1595 CY
		Embankment I-90 Sta. 775+00 to 790+50	1457 CY
		27.0%	393 CY
		Undercut Backfill	6653 CY
		27.0%	1796 CY
		Embankment Ramp B Sta. 12+79.81 to 17+43.27	43953 CY
		27.0%	11867 CY
		Embankment Ramp B Sta. 17+43.27 to 27+97.98	45508 CY
		27.0%	12287 CY
		Undercut Backfill	145 CY
		27.0%	39 CY
		Embankment Ramp F	17363 CY
		27.0%	4688 CY
		Embankment NB 27th St. Sta. 16+30.94 to 19+82.69	17019 CY
		27.0%	4595 CY
		Waste	180218 CY
			0 CY
			180218 CY

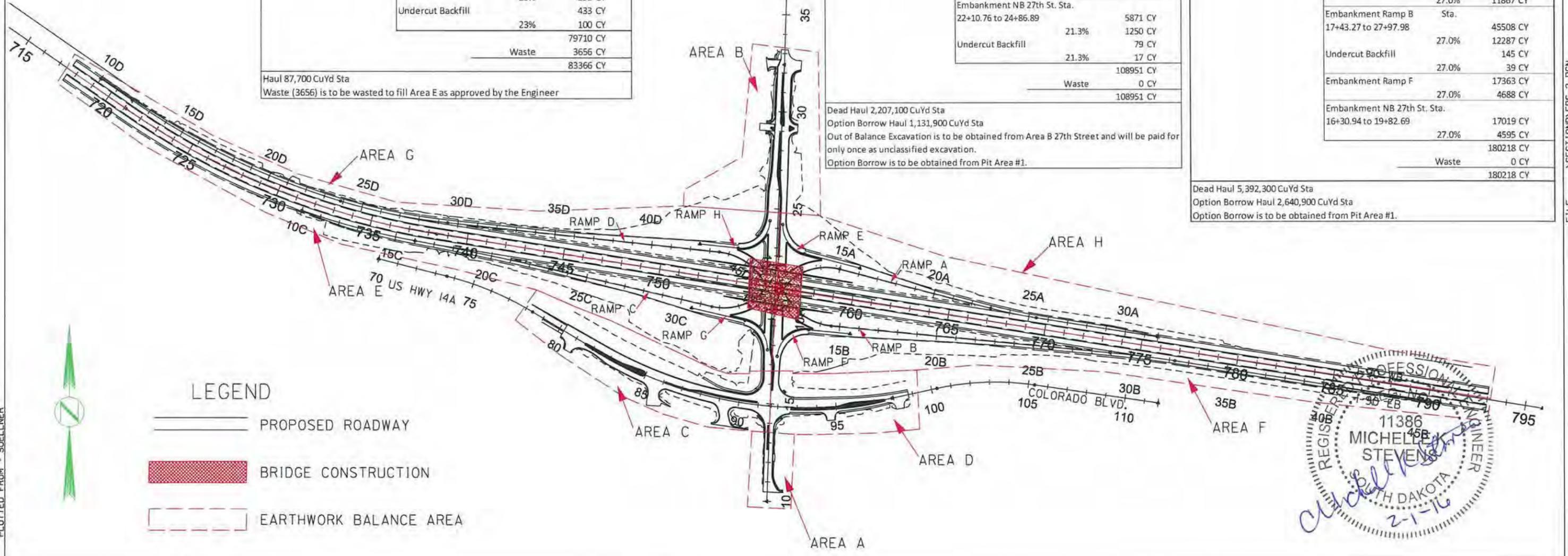
Dead Haul 5,392,300 CuYd Sta
Option Borrow Haul 2,640,900 CuYd Sta
Option Borrow is to be obtained from Pit Area #1.

PLOT SCALE - 1:500

PLOTTED FROM - SOELLNER

PLOT NAME - 3

FILE - ... \SECTION\EBBS-2.DGN



LEGEND

	PROPOSED ROADWAY
	BRIDGE CONSTRUCTION
	EARTHWORK BALANCE AREA



TABLE OF UNCLASSIFIED EXCAVATION

	IM 0901 (162) 14	P 014A (11) 8
Excavation	194,807	8,254
Undercut	70,764	4,336
Topsoil	9,100	1,065
Exc. For Deep Pipe Removal	16,810	0
Total	291,481	13,655

See Section F for additional unclassified excavation quantities.

PROCEDURES FOR DETERMINING UNCLASSIFIED EXCAVATION QUANTITY

When plan quantities are used for payment, the Unclassified Excavation quantity shall be used for final payment. The following paragraphs are general earthwork information and information in regards to computing the Unclassified Excavation quantity when final cross sections are taken in the field:

The Unstable Material Excavation quantity is included in the Excavation quantity listed in the Table of Unclassified Excavation. When finalizing a project, the Unstable Material Excavation quantity shall be added to the Excavation quantity to compute the Unclassified Excavation quantity.

Out-of-Balance Excavation is material obtained from waste generated from excavation from other balances. The quantity of Out-of-Balance Excavation is included in the Excavation quantity in the balance where it is excavated and is paid for once as Unclassified Excavation.

The Topsoil quantity in the Table of Unclassified Excavation is an estimate. When finalizing a project, the total quantity of field measured Topsoil shall be used in place of the estimated Topsoil quantity. The quantity of Topsoil from the cuts will be paid for twice as Unclassified Excavation, as it will be in both the Excavation and Topsoil quantities. This will be full compensation for Excavation, which includes necessary undercutting to provide space for placement of topsoil.

The Excavation quantities from individual balances and the Table of Unclassified Excavation have been reduced by the volume of in place surfacing that will be removed and/or salvaged.

TABLE OF OPTION BORROW EXCAVATION

	(CuYd)
Option Borrow Excavation IM 0901 (162) 14	236,829
Option Borrow Excavation P 014A (11) 8	28,407
Topsoil in Option Borrow Pit	2,800
Total:	268,036

HAUL

Included in the Table of Excavation Quantities by Balances are Dead Haul, Option Borrow Haul, Out-of-Balance Haul and Haul. They are not pay items and are for informational purposes only.

Dead Haul: Estimated quantity (CuYdSta) for moving borrow excavation material or option borrow excavation material from the borrow or option borrow site to the centerline mainline station listed in the Table of Borrow Pits.

Option Borrow Haul: Estimated quantity (CuYdSta) for moving option borrow excavation material from the centerline mainline station listed in the Table of Borrow Pits to the locations where it is needed throughout the earthwork balance.

Out-of-Balance Haul: Estimated quantity (CuYdSta) for moving material from an earthwork balance to another earthwork balance

Haul: Estimated quantity (CuYdSta) for moving unclassified excavation material to the locations where it is needed throughout the earthwork balance.

Extra Haul: Haul which is more than the necessary haul or Average Haul. In regards to Extra Haul compensation, no Extra Haul compensation will be made for haul distances less than 5 stations. When payment for "Extra Haul" is authorized, the distance used for "Extra Haul" calculations will be that in excess of 5 stations.

UNDERCUTTING

In all cut sections for mainline and ramps, the earthen subgrade shall be undercut 2 feet below the earthen subgrade surface. In all cut sections for 27th Street, Colorado Boulevard, US HWY 14A, diversions, crossovers and detour the earthen subgrade shall be undercut 1 foot below the earthen subgrade surface. The undercut material or other suitable material, as directed by the Engineer, shall then be replaced and compacted to the density specified for the section being constructed.

Shallow embankment sections, fills less than 2 feet in height measured at the finished subgrade shoulders, shall be undercut to ensure a minimum 2 foot height of earth embankment for the entire width of roadbed. The upper 6 inches of undercut material that consists of topsoil with a high humus content shall be used as topsoil, placed in the fill slopes outside the shoulders of the earthen subgrade, or placed in the lower portion (below 4 foot depth) in fills which are greater than 4 feet in height. The remaining undercut soil and soil obtained from adjacent excavation (excluding the upper 6 inches) shall then be replaced and compacted to the density specified for the section being constructed.

The plan shown quantity will be the basis of payment. However, if there are additional areas of undercut other than what is shown in the plans, the Engineer shall direct removal of these areas and the additional areas will be measured according to the Engineer.

See Section F for additional information for undercutting on I-90 between sections 717+60 and 719+50 and between stations 790+50 and 793+00.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0901 (162)14/P 014A (11) 8	B9	B192

Revised Date: 1/29/2016 AMO



Revised Date: 1/29/2016 AMO

IM 0901 (162) 14 – PCN 020U

TABLE OF UNDERCUTTING

Station to	Station	Depth (Ft)	Quantity (CuYd)
EB I-90			
719+50.00	748+00.00	2	9,609
748+00.00	756+00.00	2	4,096
756+00.00	762+00.00	2	2,798
762+00.00	775+00.00	2	5,908
775+00.00	790+50.00	2	6,653
WB I-90			
719+50.00	748+00.00	2	9,558
748+00.00	756+00.00	2	3,495
756+00.00	762+00.00	2	2,588
762+00.00	775+00.00	2	7,109
775+00.00	790+50.00	2	5,162
27th Street			
12+65.00	13+70.98	1	766
24+86.89	33+20.36	1	2,997
SB 27th Street			
18+50.00	19+00.00	1	64
22+58.01	24+86.89	1	433
NB 27th Street			
23+50.00	24+86.89	1	79
Colorado Blvd			
93+60.00	99+63.06	1	2,972
Ramp A			
17+00.00	22+17.43	2	1,296
Ramp B			
26+00.00	27+97.98	2	145
Ramp C			
21+02.05	26+94.97	2	1,750
Ramp D			
30+47.00	38+60.00	2	2,204
38+60.00	39+50.00	2	222
Ramp G			
13+50.00	14+00.51	2	155
Ramp H			
13+00.00	13+22.29	2	93
Ramp A Detour			
4+00.00	6+00.00	1	113
Ramp A Crossover			
3+50.00	4+50.00	1	100
Ramp B Crossover			
2+00.00	3+50.00	1	122
Ramp B Diversion			
2+00.00	15+00.00	1	277
Total:			70,764

P 014A (11) 8 – PCN 0217

US HWY 14A			
79+00.00	93+60.00	1	4,336
Total:			4,336

UNSTABLE MATERIAL EXCAVATION

The areas of unstable material excavation are drawn on the cross sections with a normal depth of 2 feet. The estimated quantity of 9,814 cubic yards of unstable material excavation shall be paid for at the contract unit price per cubic yard for "Unclassified Excavation".

All areas designated as Unstable shall be excavated. The unstable material excavated on this project shall be placed outside the subgrade shoulder in fill sections or stockpiled and used as topsoil.

Field measurement of unstable material excavation shall not be made. However, if there are additional areas of unstable material excavation other than what is shown in the plans, the Engineer shall direct removal of these areas and the additional areas will be measured according to the Engineer.

IM 0901 (162) 14 – PCN 020U

TABLE OF UNSTABLE MATERIAL EXCAVATION

Station to	Station	Depth (Ft)	Quantity (CuYd)
Ramp A			
14+50	16+00	2	1,240
Ramp B			
20+00	25+00	2	4,504
Ramp C			
32+00	33+00	2	1,553
Ramp D			
43+50	44+50	2	2,517
Total:			9,814

TABLE OF BORROW PITS

Site	Station	L/R	Dead Haul Distance (Sta)	Option Borrow Exc. (CuYd)	Dead Haul (CuYdSta)
1	755+00		3,900	268,036	10,453,400

Stations in the above table are not pit locations, but stations where the borrow is interjected into the earthwork balance for haul calculations.

The quantities listed in the above table for Dead Haul are for information only. The Dead Haul quantities are also included in the Table of Excavation Quantities by Balances.

The quantities listed in the above table for Borrow Excavation and Option Borrow Excavation are also included in the Table of Excavation Quantities by Balances.

Archeological clearance has been obtained for area at Sta. 740+00 to 744+50 – 500' LT. On option was not obtained at this location, but the landowner is willing to discuss potential borrow at this location. Contact the Rapid City Region Materials Engineer (605-394-1630) for additional information.



IM 0901 (162) 14 – PCN 020U

The berm on the 27th Street structure will be constructed with the following requirements:

- 1) The limits of berm construction requirements will be increased from 100 feet to 250 feet in length from both ends of the new structure. The width of the berm limits will be 250 feet on both sides of the new 27th St. alignment.
- 2) Minimum compaction of the soil within the berm limits will be 97% of the maximum standard proctor dry density.
- 3) The zone requirements within the berm limits will be modified as follows:

Zone	Depth (ft.)	Min. required tests
1	0-1	1
2	1-3	1
3	3-5	1
4	5 to Bottom	1 per 3 vertical feet

- 4) The zone requirement will be in force for all phases of staged construction. For example, if the berm on the west side of centerline is constructed separately from the east side, testing by zone will be required on both sides of centerline. If there are any question regarding testing frequency, contact the SDDOT Geotechnical Engineering Activity (605)-773-3725.
- 5) All new embankment will be benched into the existing slopes as per Section 120.3.B.1
- 6) Within the berm limits, the upper 1.5 feet of subgrade under the roadway and gore area will be constructed with reinforced base course. A 6 inch lift of base course will be place on top of the subgrade soil and compacted. A layer of biaxial geogrid will be placed on top of the first lift of base course. The remaining 1 foot of base course will then be placed and compacted in a minimum of two lifts.
- 7) A total of 17,141 square yards of Geogrid Reinforcement have been included in the materials quantities. This quantity is assumed to cover 14,905 square yards. of subgrade. The bid quantity has been increased by 15% to account for overlaps. The Geogrid Reinforcement will be paid for at the contract unit price per square yard for "Geogrid Reinforcement". The subgrade will be paid for at the contract unit price per ton for "Base Course".

The top of the subgrade shall be prepared by smoothing the surface of the subgrade to minimize any ruts, ridges, and depressions. Any rocks or other protrusions that might damage the geogrid will be removed. The geogrid will overlapped a minimum of 2 feet.

The geogrid will be placed as taut as possible with minimal wrinkles. Placement will be done so that subsequent granular cover material does not shove, wrinkle or distort the in place geogrid. The overlaps will be shingled in a manner that assures granular material will not be forced under the geogrid during backfilling operations. The geogrid may be held in place with small piles of granular material or staples. No traffic will be allowed on the uncovered geogrid.

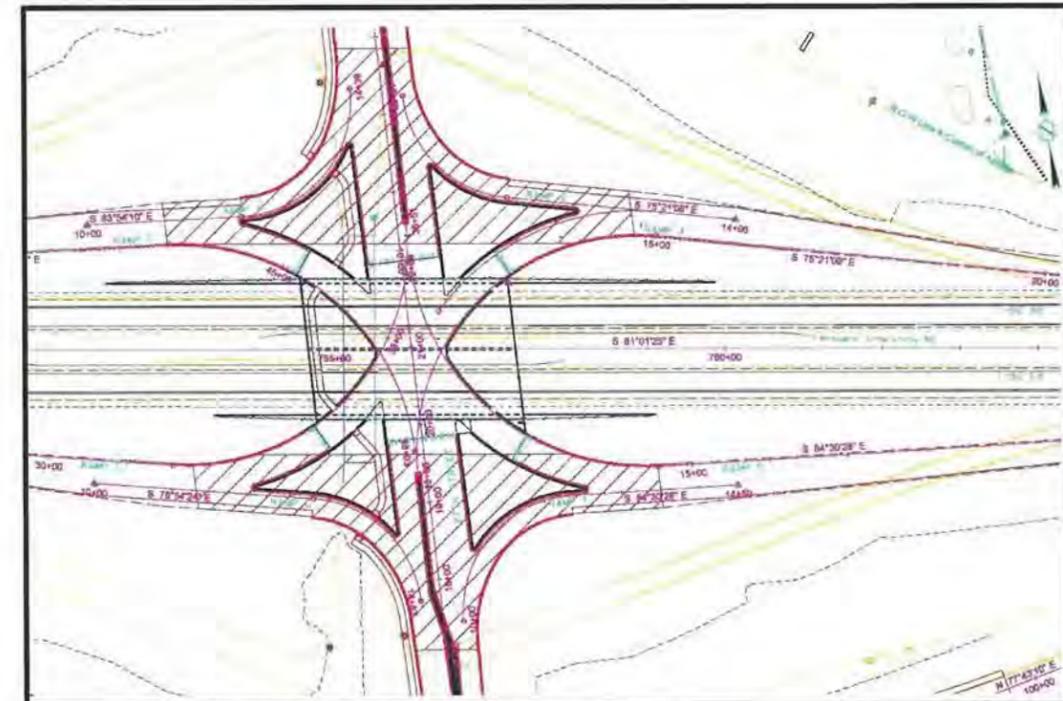
Granular material will be dumped at least 20 feet behind the leading edge of the backfill and pushed into place with a loader or dozer from the covered areas to the uncovered areas. No traffic will be allowed on the uncovered geogrid.

Geogrid Specification:

The geogrid will be a biaxial grid of single layer construction. Vibratory welded, integrally formed or woven and coated geogrids will be acceptable. Grids with laser welded grid junctions will not be allowed. The geogrid will be certified by the supplier to meet the following specification prior to installation:

Property	Test	MARV
Wide Width Strip Tensile Strength (Ultimate)	ASTM D 6637 Method B	1300lb/ft MD and XD

The geogrid will be certified by the supplier to meet this specification prior to installation.



Note: Cross hatch represents the limits of the base course and geogrid reinforcement material

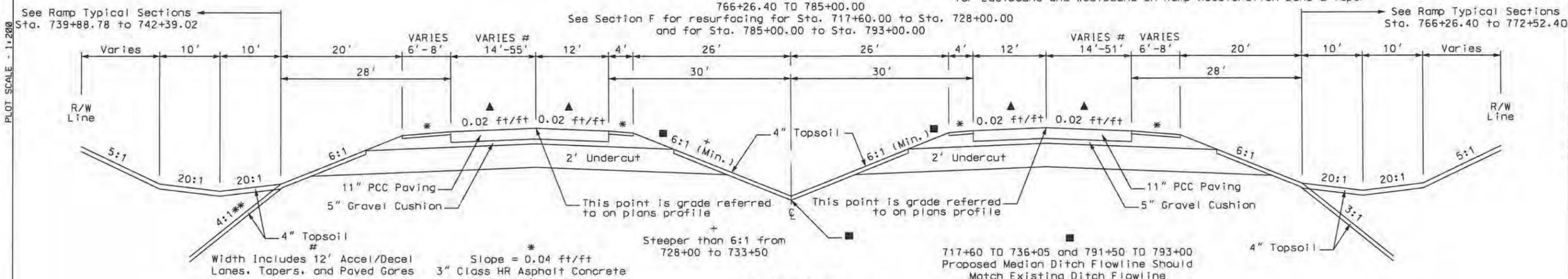


TYPICAL GRADING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0901(162)14 P 014A(11)8		

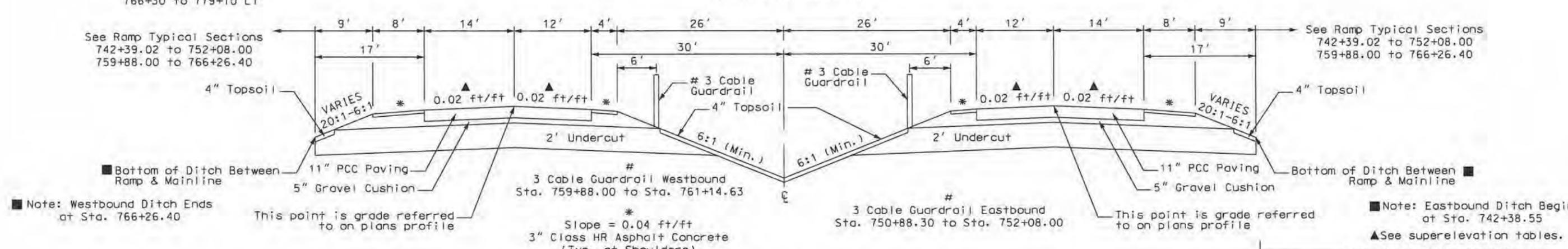
Plotting Date: 2/1/2016
Revised Date: 1/29/2016 AMO

Note: Sta. 719+50.00 to Sta. 728+00.00 Improvements Limited to Widening for Eastbound and Westbound On Ramp Acceleration Lane & Taper



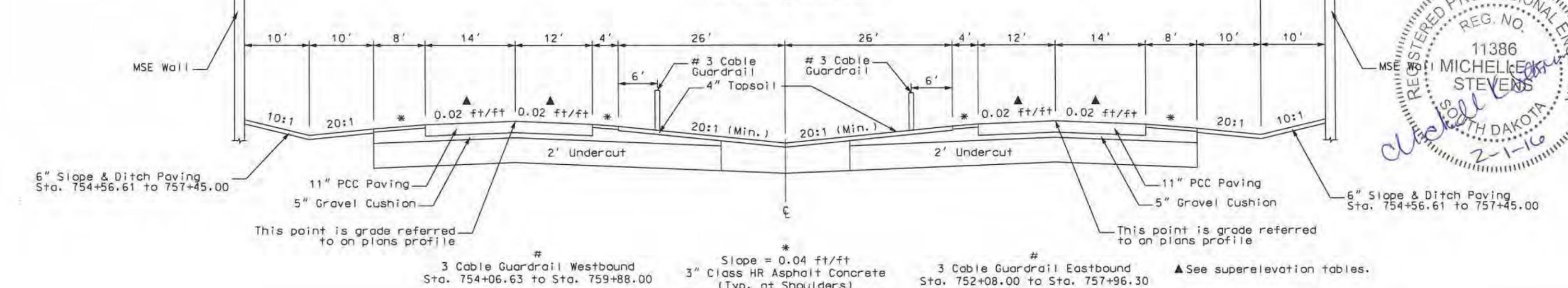
Mainline

742+39.02 TO 752+08.00
759+88.00 TO 766+26.40



Mainline

752+08.00 TO 759+88.00



PLOT SCALE - 1:1200

PLOT NAME - 6

PLOTTED FROM - SOELLNER

FILE - ... \SECTION\TYP.DGN

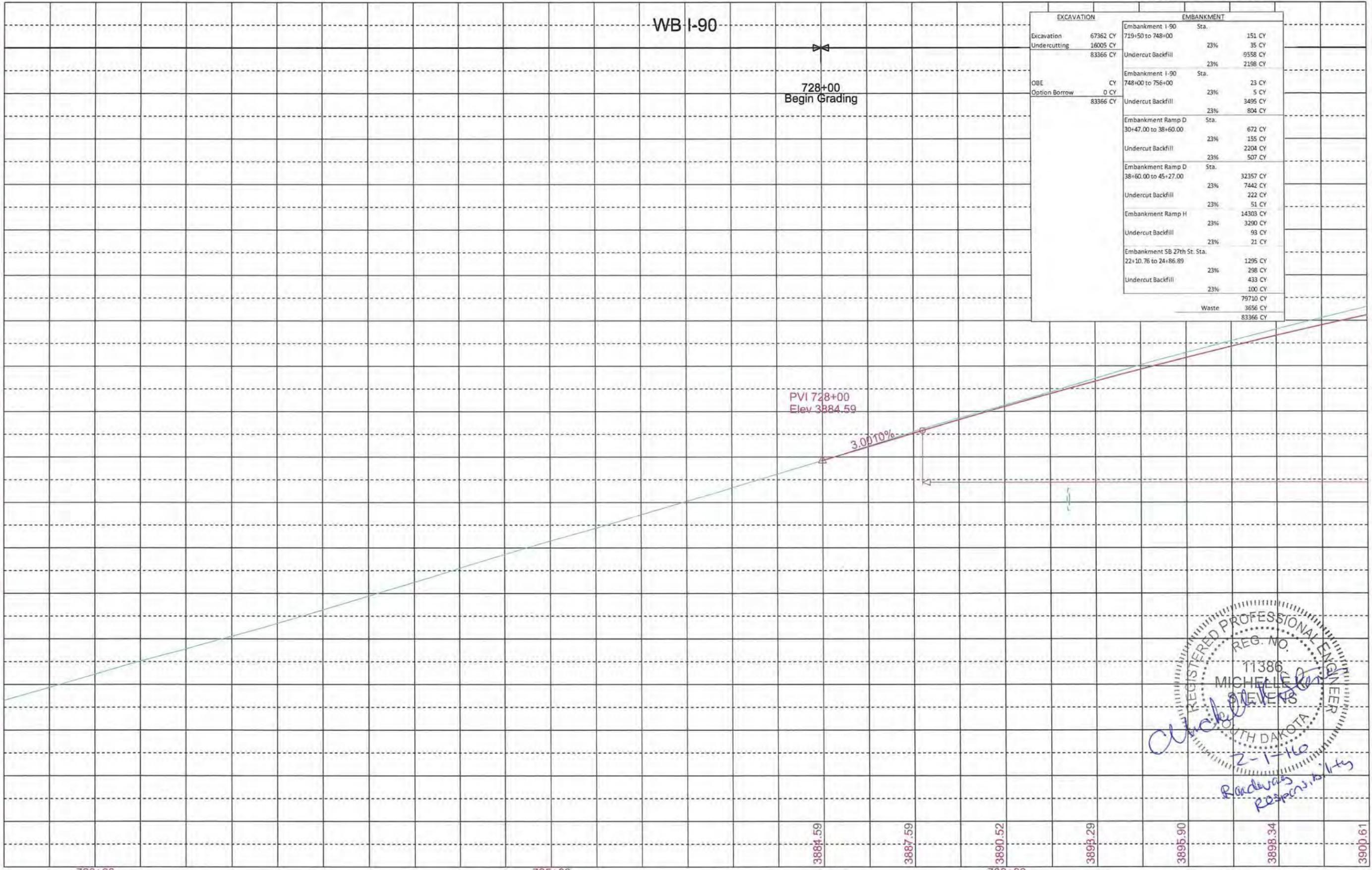
Plotting Date: 2/1/2016
Revised Date: 1/29/2016 AMO

PLOT SCALE - 1:100

PLOT NAME - 24

PLOTTED FROM - SOELLNER

FILE - ... \SECTION\MAIN\719V-WB.DGN



EXCAVATION		EMBANKMENT	
Excavation	67362 CY	Embankment I-90	151 CY
Undercutting	16005 CY	719+50 to 748+00	23% 35 CY
	83366 CY	Undercut Backfill	9558 CY
			23% 2198 CY
OBE	0 CY	Embankment I-90	23 CY
Option Borrow	0 CY	748+00 to 756+00	5 CY
	83366 CY	Undercut Backfill	3495 CY
			23% 804 CY
		Embankment Ramp D	672 CY
		30+47.00 to 38+60.00	23% 155 CY
		Undercut Backfill	2204 CY
			23% 507 CY
		Embankment Ramp D	32357 CY
		38+60.00 to 45+27.00	23% 7442 CY
		Undercut Backfill	222 CY
			23% 51 CY
		Embankment Ramp H	14303 CY
		Undercut Backfill	3290 CY
			23% 93 CY
			23% 21 CY
		Embankment SB 27th St. Sta.	1295 CY
		22+10.76 to 24+86.89	23% 298 CY
		Undercut Backfill	433 CY
			23% 100 CY
		Waste	79710 CY
			83366 CY

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 11386
MICHELLE STEVENS
SOUTH DAKOTA
2-1-16
Roadway Responsibility

720+00

725+00

730+00

3884.59

3887.59

3890.52

3893.29

3896.90

3898.34

3900.61

Plotting Date: 2/1/2016
Revised Date: 1/29/2016 AMO

PLOT SCALE - 1"=100'

PLOT NAME - 25
FILE - ... \SECTION\MAIN\719V-EB.DGN

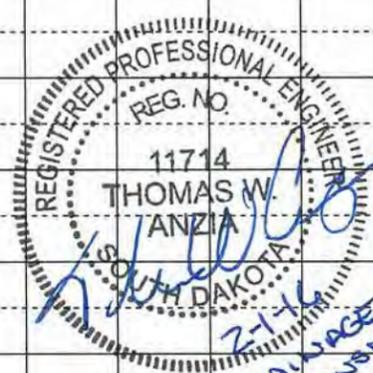
EXCAVATION		EMBANKMENT	
Excavation	51578 CY	Embankment I-90 719+50 to 748+00	Sta. 865 CY
Undercutting	15674 CY	Undercut Backfill	30.5% 264 CY
	67252 CY		30.5% 9609 CY
			30.5% 2931 CY
OBE from Area G	3656 CY	Embankment I-90 748+00 to 756+00	Sta. 0 CY
Option Borrow	25838 CY	Undercut Backfill	30.5% 0 CY
	96746 CY		30.5% 4096 CY
			30.5% 1249 CY
		Embankment Ramp C 21+02.05 to 26+94.97	Sta. 2681 CY
		Undercut Backfill	30.5% 818 CY
			30.5% 1750 CY
			30.5% 534 CY
		Embankment Ramp C 26+94.97 to 33+50.72	Sta. 36932 CY
			30.5% 11264 CY
		Embankment Ramp G	30.5% 6920 CY
		Undercut Backfill	30.5% 2111 CY
			30.5% 155 CY
			30.5% 47 CY
		Embankment SB 27th St. 16+30.94 to 19+82.69	Sta. 11062 CY
			30.5% 3374 CY
		Undercut Backfill	30.5% 64 CY
			30.5% 19 CY
		Waste	96746 CY
			0 CY
			96746 CY

EB I-90

728+00
Begin Grading

PVI 728+00
Elev 3883.39

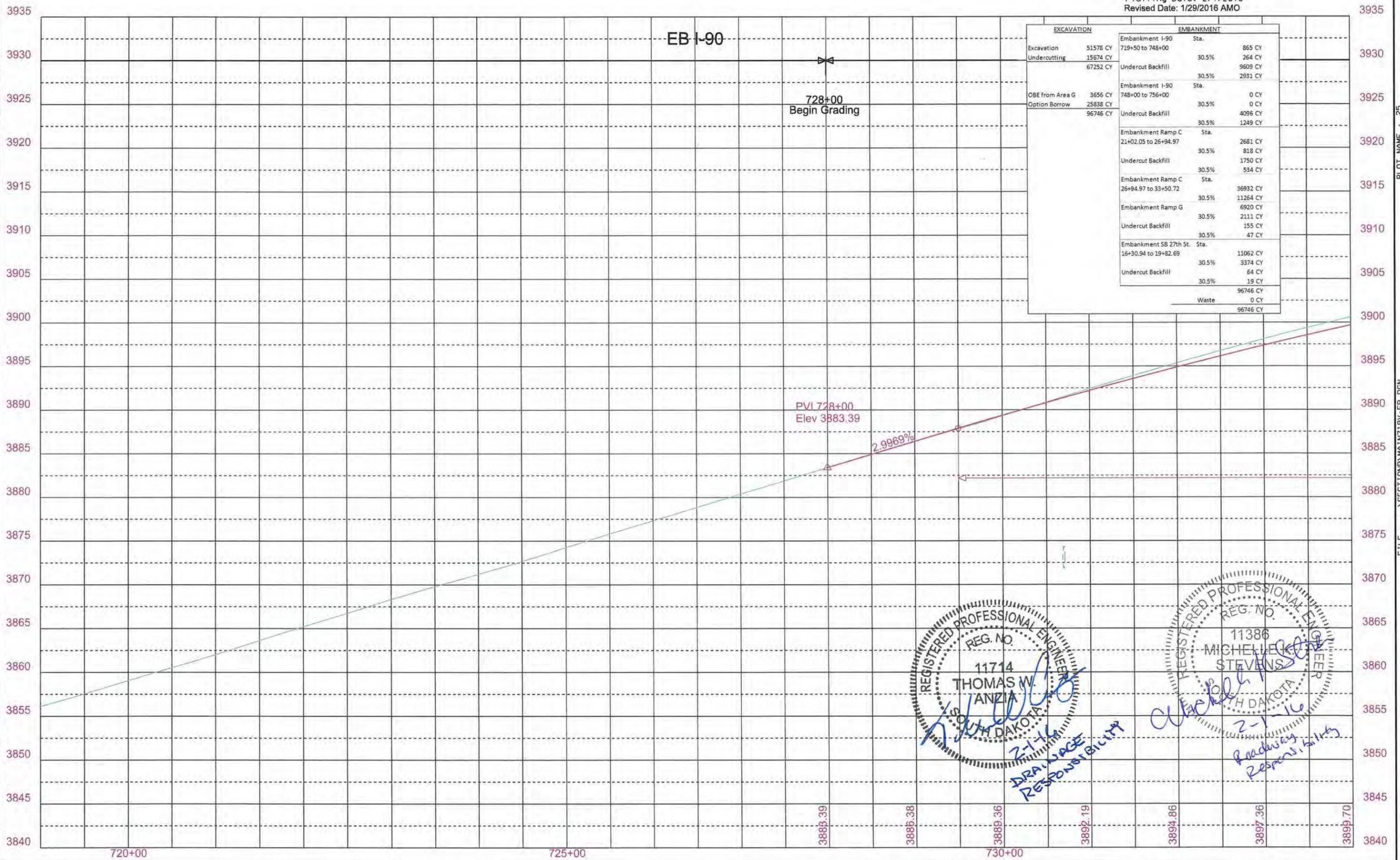
2.9969%



DRAINAGE
RESPONSIBILITY



PLOTTED FROM - SOELLNER



720+00

725+00

730+00

3883.39

3885.38

3889.36

3892.19

3894.86

3897.36

3899.70

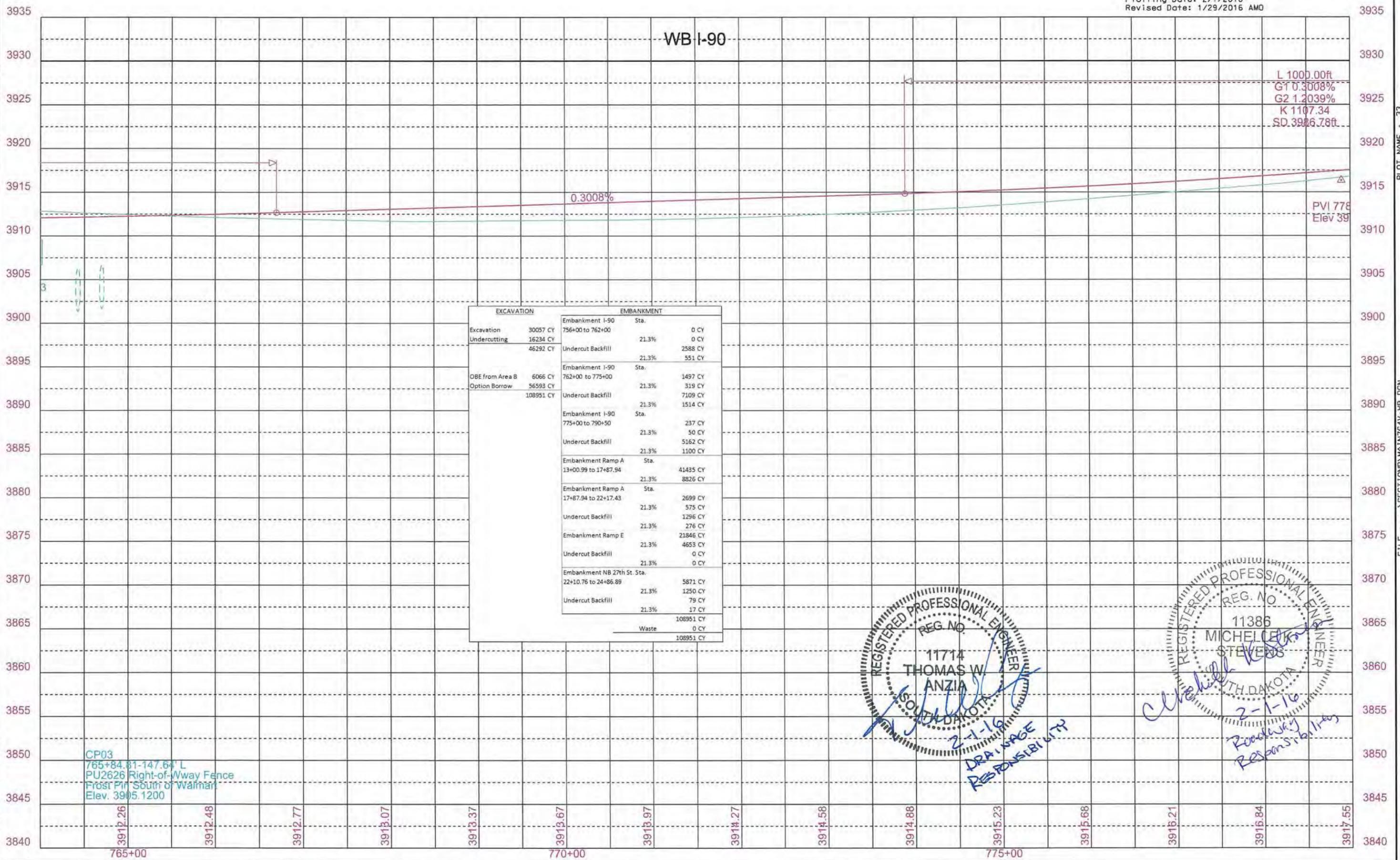
Plotting Date: 2/1/2016
Revised Date: 1/29/2016 AMO

PLOT SCALE - 1:100

PLOT NAME - 33

PLOTTED FROM - SOELLNER

FILE - ... \SECTION\MAIN764V-WB.DGN



WB I-90

0.3008%

L 1000.00ft
G1 0.3008%
G2 1.2039%
K 1107.34
SD 3986.78ft

PVI 778
Elev 3915

EXCAVATION		EMBANKMENT	
Excavation	30057 CY	Embankment I-90 Sta. 756+00 to 762+00	0 CY
Undercutting	16234 CY		21.3% 0 CY
	46292 CY	Undercut Backfill	2588 CY
			21.3% 551 CY
OBE from Area B	6066 CY	Embankment I-90 Sta. 762+00 to 775+00	1497 CY
Option Borrow	56593 CY		21.3% 319 CY
	108951 CY	Undercut Backfill	7109 CY
			21.3% 1514 CY
		Embankment I-90 Sta. 775+00 to 790+50	237 CY
			21.3% 50 CY
		Undercut Backfill	5162 CY
			21.3% 1100 CY
		Embankment Ramp A Sta. 13+00.99 to 17+87.94	41435 CY
			21.3% 8826 CY
		Embankment Ramp A Sta. 17+87.94 to 22+17.43	2699 CY
			21.3% 575 CY
		Undercut Backfill	1296 CY
			21.3% 276 CY
		Embankment Ramp E	21846 CY
			21.3% 4653 CY
		Undercut Backfill	0 CY
			21.3% 0 CY
		Embankment NB 27th St. Sta. 22+10.76 to 24+86.89	5871 CY
			21.3% 1250 CY
		Undercut Backfill	79 CY
			21.3% 17 CY
			108951 CY
		Waste	0 CY
			108951 CY

CP03
765+84.81-147.64 L
PU2626 Right-of-Wway Fence
Frost Pin South of Walmart
Elev. 3905.1200

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 11714
THOMAS W. ANZIA
SOUTH DAKOTA
2-1-16
DRAWSAGE RESPONSIBILITY

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 11386
MICHELLE STEVENS
SOUTH DAKOTA
2-1-16
Professional Responsibility

765+00

770+00

775+00

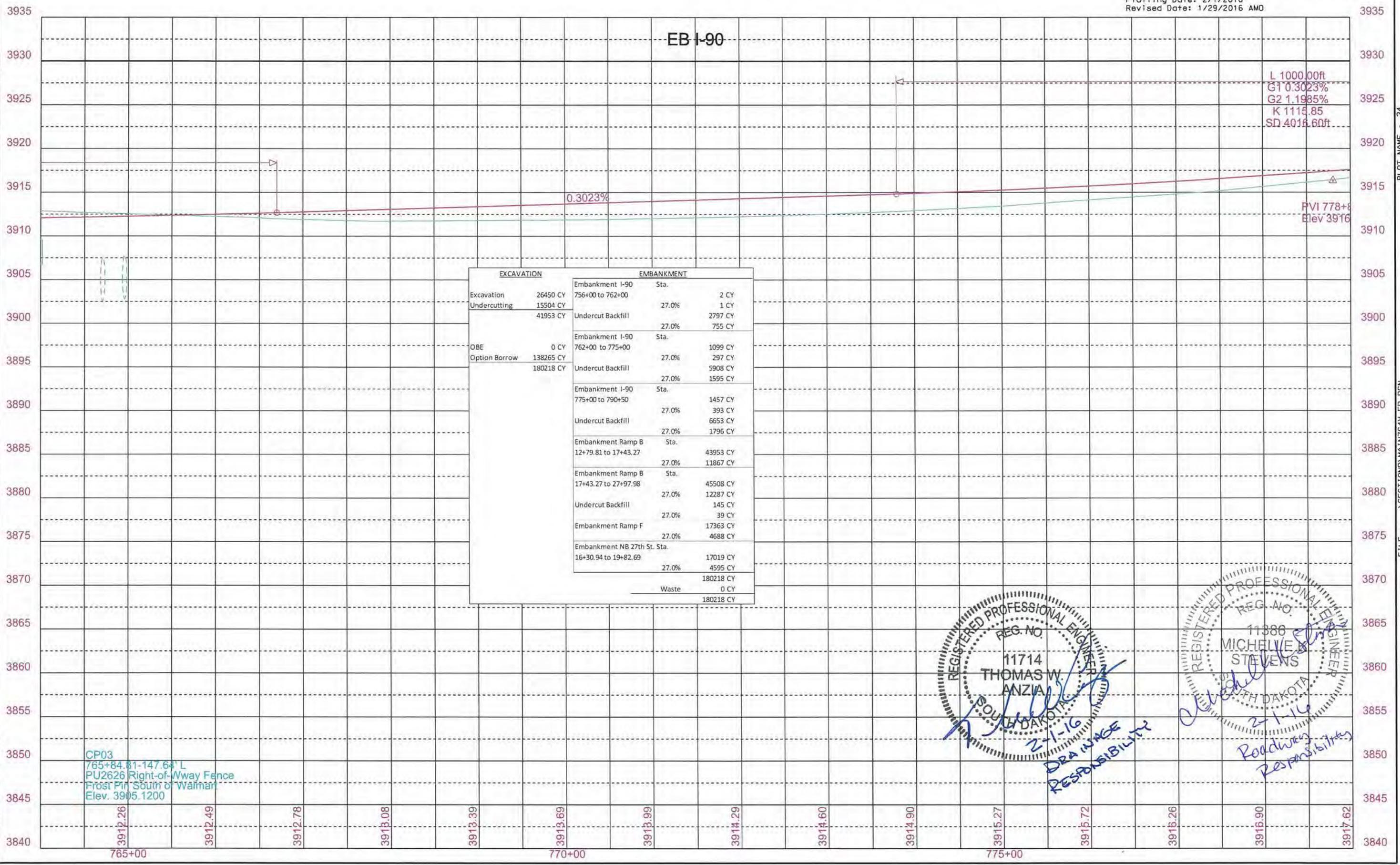
Plotting Date: 2/1/2016
Revised Date: 1/29/2016 AMO

PLOT SCALE - 1:100

PLOT NAME - 34

PLOTTED FROM - SOELLNER

FILE - ... \SECTION\NA1764V-EB.DGN



EB I-90

L 1000.00ft
G1 0.3023%
G2 1.1985%
K 1115.85
SD 4016.60ft

0.3023%

FVI 778+8
Elev 3916

EXCAVATION		EMBANKMENT	
Excavation	26450 CY	Embankment I-90	Sta. 756+00 to 762+00
Undercutting	15504 CY		27.0%
	41953 CY	Undercut Backfill	2797 CY
			755 CY
OBE	0 CY	Embankment I-90	Sta. 762+00 to 775+00
Option Borrow	138265 CY		27.0%
	180218 CY	Undercut Backfill	5908 CY
			1595 CY
		Embankment I-90	Sta. 775+00 to 790+50
			27.0%
		Undercut Backfill	1457 CY
			393 CY
			6653 CY
			1796 CY
		Embankment Ramp B	Sta. 12+79.81 to 17+43.27
			27.0%
			43953 CY
			11867 CY
		Embankment Ramp B	Sta. 17+43.27 to 27+97.98
			27.0%
			45508 CY
			12287 CY
		Undercut Backfill	145 CY
			39 CY
		Embankment Ramp F	17363 CY
			27.0%
			4688 CY
		Embankment NB 27th St.	Sta. 16+30.94 to 19+82.69
			27.0%
			17019 CY
			4595 CY
			180218 CY
		Waste	0 CY
			180218 CY



2-1-16
DRAWING RESPONSIBILITY

2-1-16
Roadway Responsibility

CP03
765+84.81-147.64 L
PU2626 Right-of-Way Fence
Frost Pin South of Walmart
Elev. 3905.1200

765+00

770+00

775+00

SECTION C ESTIMATE OF QUANTITIES

IM 09001(162)1-PCN 020U

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
110E0655	Remove Interim Crossover Closure	448	Ft
110E7000	Remove Crossover Closure for Reset	1344	Ft
629E9010	Interim Crossover Closure	448	Ft
629E9050	Reset Crossover Closure	1344	Ft
632E2520	Type 2 Object Marker	6	Each
634E0010	Flagging	350	Hour
634E0110	Traffic Control Signs	2011	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0135	Traffic Control Supervisor	Lump Sum	LS
634E0260	Type 3 Barricade, 6' Single Sided	12	Each
634E0265	Type 3 Barricade, 6' Double Sided	15	Each
634E0280	Type 3 Barricade, 8' Single Sided	1	Each
634E0330	Temporary Raised Pavement Markers	186738	Ft
634E0420	Type C Advance Warning Arrow Board	2	Each
634E0525	Linear Delineation System Panel, Barrier Mounted	1129	Each
634E0560	Remove Pavement Marking, 4" or Equivalent	252938	Ft
634E0630	Temporary Pavement Marking	40	Mile
634E0700	Traffic Control Movable Concrete Barrier	565	Each
634E0705	Remove and Reset Traffic Control Movable Concrete Barrier	265	Each
634E0750	Temporary Concrete Barrier End Protection	7	Each
634E0755	Remove and Reset Temporary Concrete Barrier End Protection	7	Each
634E0760	Temporary Concrete Barrier End Protection Module Set or Repair Kit	2	Each
634E0915	Short Term Temporary Traffic Control Signal	5	Site
634E1002	Detour Signing	682	SqFt
634E1215	Contractor Furnished Portable Changeable Message Sign	8	Each
634E2010	Temporary Pedestrian Facility(s)	Lump Sum	LS

P 014A(11)8-PCN 0217

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
634E0010	Flagging	100	Hour
634E0110	Traffic Control Signs	529	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0260	Type 3 Barricade, 6' Single Sided	6	Each
634E0265	Type 3 Barricade, 6' Double Sided	7	Each
634E0330	Temporary Raised Pavement Markers	25207	Ft
634E0560	Remove Pavement Marking, 4" or Equivalent	61807	Ft
634E0630	Temporary Pavement Marking	9	Mile
634E0915	Short Term Temporary Traffic Control Signal	2	Site

SEQUENCE OF OPERATIONS

The traffic control plans show more detailed limits of construction for each phase. Address resetting/removing signs, light poles, and utilities and maintaining positive drainage during construction of each phase as per the general notes. Posted speed limit on I-90 through construction zones is 55 MPH.

The intent of the sequence of operations shown in the plans is to have the least amount of negative, adverse impact on the traveling public and adjacent businesses. Requests to deviate from the sequence of operations shall be submitted in writing to the Engineer for review. Approval of an alternate sequence of operations will only be allowed when the proposed changes meet with the Department's intent for traffic control and sequencing of the work. An alternate sequence shall be submitted for review a minimum of one week prior to potential implementation and approved by the Engineer prior to Work.

PHASE 1

1. Maintain traffic on existing roadways
2. Construct temporary EB on ramp crossover from Sta. 765+50 to Sta. 776+00 (posted ramp speed 45 MPH), per MUTCD Typical Application 40
3. Construct temporary pavement along SB 27th Street from Sta. 26+50 to Sta. 32+30
4. Prepare WB I-90 for two-way one-lane traffic configuration

PHASE 2A

1. Shift EB I-90 traffic to WB I-90 two-way one-lane traffic configuration using previously constructed median crossovers
2. Construct temporary ramp for EB off ramp
3. Construct temporary concrete barriers and impact attenuators along the EB on ramp from beginning to Sta. 17+50 on north side and Sta. 14+00 to Sta. 17+00 on the south side, the WB off ramp from Sta. 15+00 to Sta. 17+50 on south side, and along WB I-90 from Sta. 746+00 to Sta. 764+00 on the north side and from Sta. 746+00 to Sta. 765+50 on the south side
4. Construct EB I-90 from Sta. 717+60 to Sta. 793+00 with the exception of Sta. 740+00 to Sta. 748+30 and Sta. 765+30 to Sta. 770+00.
5. Construct I-90 median from Sta. 717+60 to Sta. 790+00 with the exception of Sta. 740+00 to Sta. 748+30 and Sta. 765+30 to Sta. 776+00. Construct south portion of I-90 median from Sta. 790+00 to Sta. 793+00
6. Construct temporary ramp for EB on ramp including drainage pipe extensions
7. Construct EB off ramp from Sta. 10+00 to Sta. 25+80 and from Sta. 27+00 to Sta. 33+60
8. Construct EB on ramp from Sta. 12+50 to Sta. 16+50 and from Sta. 25+50 to Sta. 46+00
9. Construct WB off ramp from Sta. 13+00 to Sta. 16+00
10. Construct bridge bent, abutments, and MSE walls for east half of the 27th Street Bridge (Bridge/MSE walls Phase I construction).
11. Shift 27th Street traffic to the west side from Sta. 24+00 to Sta. 32+20



TRAFFIC CONTROL – GENERAL NOTES (Cont.)

11. The Contractor shall coordinate embankment operations and pipe installations so that drainage is continuous, but does not damage new grading sections. If necessary, temporary plugs and/or temporary tie-ins to existing pipes may be used to avoid damage to new or existing grade. The cost to install, maintain, and remove these temporary plugs or tie-ins shall be incidental to the contract lump sum price for Incidental Work, Grading.
12. This note was intentionally left blank
13. The Contractor shall plan his pipe backfill operations such that any open trenches adjacent to traffic are completely backfilled before nightfall to a distance of 30' from the edgeline. In addition, a flagger will be required for any open trenches adjacent to traffic.
14. Permanent traffic control items shall be installed prior to opening the completed roadway to traffic.
15. Parking of equipment during non-working hours shall be in locations that do not hinder the visibility of or access to adjacent businesses.
16. Barrels shall be placed every 300' along the shoulder edges for both directions of traffic on I-90, as directed by the Engineer.
17. Pile driving will only be allowed from 8:00 A.M. to 8:00 P.M. When darkness falls before 8:00 P.M, refer to specifications.
18. The Contractor shall coordinate all work activities with all utility adjustments. The utility adjustments will have to be done in Phases to match the sequence of operations. The Utilities will have 7 days to place and backfill, to 3' above their utility lines, after the trench has been dug.
19. The following intersections shall be kept open at all times: 1st Avenue and 27th Street, US 14A and 27th Street (north), & Colorado Boulevard and 27th Street (south).
20. The Contractor shall hold weekly public meetings. Also, prior to the start of any work on the project, the Contractor shall hold an initial public meeting to discuss project sequences, traffic control, goals, etc. The Contractor will be responsible for securing a time and location for these meetings. All costs for this work will be incidental to the various bid items.
21. Throughout the project, the Contractor must maintain local traffic and access to businesses and residences at all times. Adequate passage and ramping shall be provided. The Contractor shall keep businesses and residents informed of construction sequences in areas which have a direct effect on their accesses.
22. During non-work hours a maximum 3" drop off and 4:1 slope must be maintained adjacent to the traveled roadway. Drop off conditions greater than 3 inches shall not be left overnight and actions taken to mitigate the concern such as placement of a material wedge. No extra payment will be made for this work. W8-17 Shoulder Drop Off signs shall be provided to

warn of a difference in elevation 3 inches or greater. Low shoulder signs shall be used to warn of a low shoulder with a difference in elevation of less than 3 inches.

23. If the Contractor chooses to work within the clear zone of the roadway in a location not detailed in the plans, the Contractor shall submit a traffic control detail indicating how traffic will be maintained past the work area to the Engineer prior to the work for consideration and approval.
 - Interstates – 30 Feet
 - Urban Roadways –
 1. A minimum of 2' behind the back of curb and gutter.
 2. A minimum of 20' if no barrier curb and gutter protection.
24. Any additional traffic control devices, other than those detailed in the plans, will not be paid for unless approved by the Engineer.
25. Contractors' equipment and trucks will not be allowed to enter or exit lanes used by traffic, or cross opposing traffic on I-90. The Contractor shall submit a plan in writing detailing how haul vehicles will enter and exit the work site.
26. Traffic shall cross medians at median crossover locations built specifically for the maintenance of through traffic.
27. Routing traffic onto the asphalt shoulders during any phase of the construction will not be allowed.
28. Signing for the crossovers and the two way traffic section shall be installed on fixed location, ground mounted supports and per Standard Plate 634.66.
29. Existing speed limit signs within the project shall be covered when the displayed speed limit is not appropriate. Regulatory speed limit signing installed on ramps shall be changed as mainline regulatory speeds change. Any signs damaged shall be replaced in kind at the Contractor's expense.
30. The Contractor shall install a TWO WAY TRAFFIC symbol sign and a DO NOT PASS sign at each end of the project as detailed in these plans on the head to head traffic section. DO NOT PASS and TWO WAY TRAFFIC warning signs shall be installed adjacent to the two-way traffic section after each on ramp.
31. When work at the begin/end of the project is immediately adjacent to the through traffic in the median crossovers, the Contractor shall take extra precautions to ensure the safety of the through traffic. The following are to be provided in advance of the crossover to safely guide traffic through the crossover past the manned work site:
 - Reduced Speed Ahead sign
 - Regulatory Speed Limit sign (with appropriate speed)
 - Flagger sign
 - Adjust Advisory Speed Plates on reverse curve Signs
 - Additional flagger(s)
 Other devices as deemed necessary may be used.
32. One fixed location, ground mounted "Highway Workers Give 'Em a Brake" sign shall be installed 2000' in advance of the Road Work Next XX Miles signs for eastbound and westbound directions of travel. The signs shall be mounted to the right of the roadway a minimum of 16' from the edge of the shoulder to the inside edge of the sign and shall be breakaway.

REMOVE PAVEMENT MARKING 4", OR EQUIVALENT

All pavement marking paint removals shall be done as directed by the Engineer. Existing pavement marking tape shall be removed by the heat and remove method. Cost for removing pavement marking shall be incidental to the contract unit price per foot for Remove Pavement Marking, 4" or Equivalent. Existing pavement marking which conflicts with the desired traffic patterns detailed in traffic control layouts in the plans shall be removed by the Contractor unless otherwise shown.

TEMPORARY PAVEMENT MARKING

Temporary Pavement Marking shall be used on all temporary surfacing, or surfacing which is to be removed, or as directed by the Engineer.

Payment for temporary pavement marking will be by the mile per 4" line or equivalent. Any temporary pavement marking arrows that are needed will be paid for as 250' of Temporary Pavement Marking. Payment will be for all costs to furnish, and install temporary pavement markings.

Temporary pavement marking on the project shall consist of:

1. 4" painted edgelines along the head to head traffic section on the Interstate mainline,
2. Two 4" double yellow lines of raised pavement markers on centerline of the head to head traffic section on the interstate,
3. Temporary 4" double yellow centerline pavement markings on 27th Street,
4. Temporary lane divider lines on 27th Street,
5. Temporary flexible vertical markers (tabs) for lane closure tapers,
6. Temporary 4" double yellow centerline pavement markings on US14A and Colorado Boulevard,
7. Edgelines on US14A and Colorado Boulevard,

Payment for temporary pavement marking will be by the mile per 4" line or equivalent. Any temporary pavement marking arrows that are needed will be paid for as 250' of Temporary Pavement Marking. Payment will be for all costs to furnish and install temporary pavement markings, including costs to remove and properly dispose of temporary flexible vertical markers (tabs).

FLAGS

Flags shall be installed on traffic control signs as shown in the plans and as directed by the Engineer. All costs associated with flags shall be incidental to the contract lump sum price for "Traffic Control, Miscellaneous."

HAZARD IDENTIFICATION BEACON

Hazard identification beacons (warning lights) will be utilized on "Stop", "Do Not Enter", and "Wrong Way" signs and on other signs as directed by the Engineer. The beacon shall be a "Shielded Type B Warning Light" conforming to the latest edition of the MUTCD. Red color lens shall only be used on

"Stop", "Do Not Enter" and "Wrong Way" signs. Yellow color lens shall be used on all other signs and channelizing devices. All costs associated with hazard identification beacons (warning lights) shall be incidental to the contract lump sum price for "Traffic Control, Miscellaneous."



TEMPORARY FLEXIBLE VERTICAL MARKERS (TABS)

Temporary Flexible Vertical Marker (Tabs) shall be used for lane closure tapers or lane shift tapers and shall be installed at 5' spacing. Tabs used for tapers and shifts will not be measured for payment. All costs associated to furnish, install, maintain (including replacement as required by the Engineer at no added cost to the Department), and remove all markers will be incidental to the contract lump sum price for "Traffic Control, Miscellaneous."

TEMPORARY PEDESTRIAN FACILITY (IES) FOR TEMPORARY PEDESTRIAN ACCESS ROUTE (TPAR)

The Contractor shall develop and provide for a continuous Temporary Pedestrian Accessible Route (TPAR) for this Project. The TPAR shall clearly address all non-motorized users in the construction zone. The Contractor shall submit this plan to the Engineer prior to the scheduling of the pre-construction meeting. The pre-construction meeting will not be allowed to be scheduled until this document is submitted.

The TPAR must have a minimum width of 48 inches (4 feet) and guide pedestrians through and/or around the Project by using devices such as signage, barricades, and temporary curb ramps or blended transitions. The TPAR shall provide unimpeded access along the full length of the project on one side of the street or the other, with a minimum of 1 crossing per block. The Contractor shall provide flagging to assist pedestrians to cross the work zone during periods of construction traffic at the pedestrian crossing locations. All flagging for pedestrian crossings shall be paid for as Flagging.

Where the TPAR is exposed to adjacent construction, excavation drop-offs, traffic, or other hazards, it shall be protected with a pedestrian barricade or channelizing device. All TPARs must have a smooth, level, firm, stable, slip resistant surface and shall meet the applicable requirements of the Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way. This work may include but is not limited to sawing existing sidewalk to leave half in place, staging sidewalk removal and construction to maintain access, installing safety fence around work areas, and construction and removal of temporary boardwalk. The Contractor shall determine the actual location of temporary access during construction and shall be approved by the Engineer. All costs, labor and materials for this work shall be incidental to the contract lump sum price for "Temporary Pedestrian Facility(s)".

The Contractor shall provide and update a weatherproof map of the unrestricted paths and crossing locations to be posted at each intersection quadrant and business. All costs, labor and materials for this work shall be incidental to the contract lump sum price "Temporary Pedestrian Facility(s)". All information regarding the TPAR shall be communicated through the Public Information Specialist.

The Contractor shall schedule and coordinate the replacement of the pedestrian access to accommodate the needs of the business and residences. Existing sidewalks shall be left in-place until such time that it is required to remove them to accommodate new construction. Pedestrian access will be provided to businesses and to buildings without alternate public entrances. Where disrupted by construction, the Contractor must provide a continuous TPAR for all areas disrupted by construction throughout all phases of construction.

For technical provisions on TPAR, the Contractor is directed to the Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way at: <http://www.access-board.gov/guidelines-and-standards/streets-sidewalks/>

[public-rights-of-way/proposed-rights-of-way-guidelines.htm](http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/mutcd2009r1r2edition.pdf) and Chapter 6D of the Manual on Uniform Traffic Control Devices 2012 revision (MUTCD) at <http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/mutcd2009r1r2edition.pdf>.

The Contractor shall notify the Engineer in writing at least 72 hours prior to the start of any construction operation that will necessitate a change in pedestrian access. Traffic control devices must allow for an accessible route through the Project. TPAR pedestrian barricades and channelizing devices shall be continuous, stable, and non-flexible and shall consist of a wall, fence, or enclosures. The base of any traffic control devices shall be a continuous raised barrier of no more than 6 inches in height and must allow for drainage. The purpose of this barrier is to provide a continuous way-finding device for the visually impaired; therefore the barrier shall not have any points that might catch a person who is using a cane for a guide. The Devices shall provide a continuous surface or upper rail at a minimum 3 feet above the ground or walkway surface. Support members shall not protrude into the path. Whenever possible the TPAR shall only utilize in-place street crossings. TPAR must be regularly inspected and updated depending on Project staging.

No pedestrian curb ramp or blended transition work shall occur concurrently at adjacent intersections.

The Contractor shall be responsible for maintaining the TPAR within this Project. The Contractor shall furnish the name, addresses, and phone number of at least one individual responsible for the placement and maintenance of TPAR. This individual shall be "on call" 24 hours per day, seven days per week during the times any devices, furnished and installed by the Contractor, are in place. The required information shall be submitted to the Engineer at the pre-construction meeting.

The Contractor shall be expected to answer calls immediately and begin corrective measures needed within one hour. If the Contractor is negligent in correcting the deficiency within one hour of notification the Contractor shall be subject to a temporary project shutdown or monetary damages being assessed through a specification deviation.

PROTECTION OF PEDESTRIANS

Orange safety fence shall be used to protect pedestrian traffic from open excavations. Where the fence is adjacent to pedestrian facilities, a continuously detectable edging should be provided. The detectable edging shall meet the requirements of Section 6F.74 of the MUTCD. All costs to furnish, install, and maintain the safety fence shall be incidental to the contract lump sum price for Traffic Control, Miscellaneous.

TRAFFIC CONTROL SUPERVISOR

See Special Provision for Traffic Control Supervisor requirements.

REDUCED SPEED LIMITS

The R2-1 Speed Limit 45 and W3-5 Speed Reduction (45 MPH) signs shown on Standard Plate 634.63 are to be used for manned spaces. When no work is being performed within a lane closure and there is need to reduce the speed, the R2-1 Speed Limit 45 and W3-5 Speed Reduction (45 MPH) signs shown on Standard Plate 634.63 shall be replaced with R2-1 Speed Limit and W3-5 Speed Reduction signs with the speed as determined by the Engineer.

The signs shall be installed in advance of the lane closure taper and the minimum spacing between signs shall be 500'.

MAINTENANCE OF APPROACHES DURING GRADING OPERATIONS

Grading operations shall be conducted such that access to individual entrances shall be maintained at all times throughout the life of the project.

DELINEATION OF INTERSECTING ROADS AND ENTRANCES

Driveways, streets, and roadways that enter the project shall be delineated such that they are clearly visible during all hours. Freestanding, reflective traffic control devices shall be used. Cost for this delineation shall be incidental to the contract lump sum price for Traffic Control, Miscellaneous.

BLOCKOUTS

It is anticipated there will be several areas that will require blockouts to maintain access to approaches and side roads. Access to these areas will be required to be maintained at all times. The Contractor shall coordinate his operations accordingly.



Revised Date: 2/3/2016 CDT

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0901 (162)14/P 014A (11) 8	D7	D34

SEDIMENT CONTROL AT INLETS WITH FRAMES AND GRATES (Cont.)

		31+65.45	L	RAMP C	1
		33+63.00	L	RAMP C	1
Silt Trapper	Storm Water Solutions Lakeville, MN Phone: 1-952-461-4376 www.silttrapper.com	43+55.00	R	RAMP D	1
		45+32.00	R	RAMP D	1
		10+51.25	R	27 TH ST.	1
		16+38.00	L	27 TH ST.	1
DIP Basket	Skyview Construction Co., LLC Waubay, SD Phone: 1-605-520-0555 www.skyviewconst.com	16+38.00	R	27 TH ST.	1
		18+70.00	L	27 TH ST.	1
		18+44.00	R	27 TH ST.	1
		23+55.00	L	27 TH ST.	1
FLEXSTORM Inlet Filters	Inlet and Pipe Protection, Inc. Naperville, IL Phone: 1-866-287-8655 www.inletfilters.com	23+25.00	R	27 TH ST.	1
		27+16.00	R	27 TH ST.	1
		27+16.00	L	27 TH ST.	1
		28+42.00	-	27 TH ST.	1
GR-8 Guard or Combo Guard	ERTEC Environmental Systems LLC Alameda, CA Phone: 1-866-521-0724 www.ertecsystems.com	28+47.51	L	27 TH ST.	1
		28+56.00	L	27 TH ST.	1
		29+93.62	L	27 TH ST.	1
					Total: 35

**TABLE OF SEDIMENT CONTROL AT TYPE S REINFORCED CONCRETE DROP INLETS BEFORE THE PLACEMENT OF SURFACING
IM 0901 (162) 14 - PCN 020U**

Station	L/R	Clear Opening Width (Ft)	Quantity* (Ft)
13+60	27'L		30
13+60	28'R		30
Total:			60

* Quantity shown is the minimum length required and shall be the basis of payment.

**TABLE OF SEDIMENT CONTROL AT TYPE S REINFORCED CONCRETE DROP INLETS AFTER PLACEMENT OF SURFACING
IM 0901 (162) 14 - PCN 020U**

Station	L/R	Clear Opening Width (Ft)	Quantity* (Ft)
30+44	38'L		30
31+10	40'R		30
Total:			60

**TABLE OF SEDIMENT CONTROL AT TYPE S REINFORCED CONCRETE DROP INLETS AFTER PLACEMENT OF SURFACING
P 014A (11) 8 - PCN 0217**

88+54	46'L		30
Total:			30

* Quantity shown is the minimum length required and shall be the basis of payment.

DEWATERING AND SEDIMENT COLLECTING

The Contactor has the option to treat sediment laden water trapped within the project limits with the DEWATERING AND SEDIMENT COLLECTION SYSTEM as detailed in these plans, or the Contractor may elect to transport sediment laden water off the project.

If the Contractor elects to transport sediment laden water off the project, no additional payment for loading, transporting, and labor costs will be made. Water transported off the project limits shall not be disposed of in an area where it can enter a waterway. The disposal site must be approved by the Engineer.

STREET SWEEPING

Vehicle tracking of sediment from the construction site shall be minimized. Street sweeping shall be used if erosion and sediment control best management practices are not adequate to prevent sediment from being tracked onto the street.

The Contractor shall use a pickup broom having integral self-contained storage to clean the roadway. For further information regarding sweeping, reference Section 4.5 of the Specifications.

**TABLE OF SEDIMENT CONTROL AT INLETS WITH FRAMES AND GRATES
P 014A (11) 8 - PCN 0217**

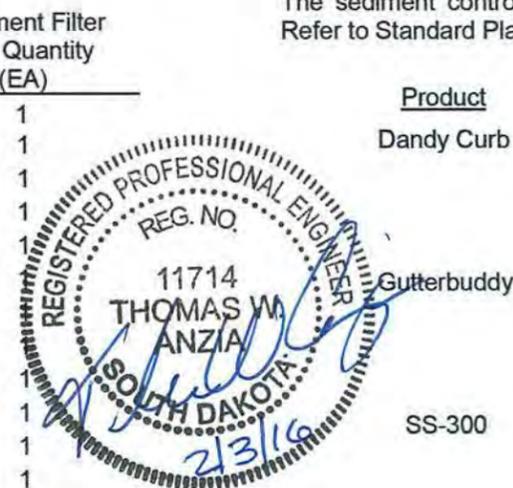
		98+27.07	R	COLORADO BLVD.	1
		81+20.00	L	COLORADO BLVD.	1
		82+80.92	L	COLORADO BLVD.	1
		88+53.02	L	COLORADO BLVD.	1
					Total: 4

SEDIMENT CONTROL AT TYPE S REINFORCED CONCRETE DROP INLETS

The sediment control device provided shall be from the list shown below. Refer to Standard Plate 734.11 for details.

**TABLE OF SEDIMENT CONTROL AT INLETS WITH FRAMES AND GRATES
IM 0901 (162) 14 - PCN 020U**

Station	L/R	Location	Sediment Filter Bag Quantity (EA)
744+00.00	L	I-90	1
744+00.00	R	I-90	1
753+00.00	L	I-90	1
753+00.00	-	I-90	1
753+00.00	R	I-90	1
755+90.00	L	I-90	1
758+75.00	L	I-90	1
759+55.00	L	I-90	1
759+55.00	-	I-90	1
759+55.00	R	I-90	1
761+67.25	L	I-90	1
761+67.25	-	I-90	1
761+67.25	R	I-90	1
764+00.00	R	I-90	1
12+89.00	R	RAMP A	1
14+93.00	R	RAMP A	1
12+64.27	L	RAMP B	1
14+50.50	L	RAMP B	1



Product	Manufacturer
Dandy Curb	Dandy Products Inc. Dublin, OH Phone: 1-800-591-2284 www.dandyproducts.com
Gutterbuddy	ACF Environmental Richmond, VA Phone: 1-800-448-3636 www.acfenvironmental.com
SS-300	Silt-Saver, Inc. Conyers, GA Phone: 1-888-382-7458 www.siltsaver.com
Curb Inlet Guard	ECTEC Environmental Systems LLC Alameda, CA Phone: 1-866-521-0724 www.ertecsystems.com

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0901(162)14 P 014A(11)8	E71	E74

ESTIMATE OF STRUCTURE QUANTITIES

DESCRIPTION	QUANTITY	UNIT	REMARKS
*Structure Excavation, Retaining Wall	2,685	CuYd	
Footing Undercut	2,857	CuYd	
*Granular Backfill for MSE Large Panel Wall	12,339	CuYd	
MSE (Large Panel) Wall - Furnish	17,832	SqFt	See Spec. Provision
MSE (Large Panel) Wall - Install	17,832	SqFt	See Spec. Provision

*Initial design calculations by the SDDOT show the minimum reinforcement lengths required for this project are 0.8 x the sum of the wall height and embankment height behind the wall. Estimated quantities provided are based on these lengths. If the wall designer's proprietary system results in lengths shorter than this requirement they shall contact the Geotechnical Engineering Activity prior to the submittal of shop drawings and design calculations to discuss and obtain approval for using the reduced reinforcement lengths.

SPECIFICATIONS FOR BRIDGE

- Design Specifications: AASHTO LRFD Bridge Design Specifications, 2012 Edition with 2013 interims.
- Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 2015 Edition and Required Provisions, Supplemental Specifications and Special Provisions as included in the proposal.

MSE RETAINING WALL GENERAL NOTES

- The concrete facing panels for the wall shall be square.
- Reinforcing steel in wall panels shall be epoxy coated.
- Panel front face surface texture shall be wall manufacturer's standard "Ashlar Stone" finish. Panel color shall be tan (Federal Standard 595B Color 30475). Three color samples shall be submitted to the Area Engineer for approval.
- The wall coping shall be precast and shall be colored brown (Federal Standard 595B Color 30045).
- Horizontal dimensions shown are measured along front face of retaining wall.
- Top of wall elevations shown are at top of precast concrete coping.
- A 24-inch (minimum inside diameter) steel casing shall be installed at abutment pile locations prior to the placing and compacting of fill for construction of the proprietary walls. Sixty-eight (68) casings are required. See bridge plans for pile and casing locations. The Contractor's method of installing casing shall be submitted to the Engineer for approval a minimum of 2 weeks prior to construction. Casings shall be cut off 3" below the bottom of the abutment footing. The type of casing proposed by the Contractor shall be of sufficient strength to withstand all forces including those from earth pressure and shall be approved by the Engineer. The cost of furnishing and installing the casings shall be incidental to the contract unit price per cubic yard for Granular Backfill for MSE Large Panel Wall.

- The Contractor shall take necessary precautions to prevent displacement of the casings during placing and compacting fill material within close proximity of the casings. Granular Backfill material within three feet of the casings shall be placed in lifts and compacted as directed by the Engineer to obtain required density.
- If the Designer of the MSE Large Panel Wall determines that "sliding" controls the reinforcement length during the design of the wall, the Designer shall consult the Department's Geotechnical Engineering Activity for possible alternatives that may be more economical than lengthening the reinforcement.
- A structural extension of the connection of the wall panel to the soil reinforcement shall be used whenever necessary to avoid the cutting or excessive skewing (greater than 15 degrees) of the soil reinforcements at pile casings. Soil reinforcement shall be placed a minimum of 4 inches from the steel H-pile casings.
- A layer of Type B Drainage Fabric shall be placed over the top of the Granular Backfill for MSE Large Panel Wall material prior to placing any soil over the granular backfill. The intent of this fabric is to act as a separator and keep fines from intruding into the granular material. All costs in furnishing and installing the Type B Drainage Fabric shall be incidental to the contract unit price per cubic yard for Granular Backfill for MSE Large Panel Wall.
- The Wall Designer shall use the soil parameters provided in the plans unless prior communication and approval has been provided through the Department's Geotechnical Engineering Activity.
- The Wall Designer shall use all necessary live loads and dead loads in the design of the wall reinforcement required by AASHTO. If the Designer has any questions about what loads are needed for the wall design the Geotechnical Engineering Activity shall be contacted.
- The groundwater elevations as of December 2012 are listed on the Site Plan and Subsurface Profile sheets.
- To accommodate traffic, the walls will need to be built in phases. It is anticipated that some excavation and temporary retaining of the existing embankment will be required to construct the first phase of the MSE retaining wall. Include details for retaining the existing embankment and phased construction of the MSE wall in the shop plans.

FOUNDATION UNDERCUT

Undercut the wall footprint to 2 feet below the bottom of the leveling pad. The limits of the undercut shall extend from 2 feet in front of the wall to 2 feet beyond the end of the reinforcement. The limits shall also include from 3 feet before the beginning of the wall to 3 feet past the end of the wall. The undercut shall be backfilled up to the top of the leveling pad with granular material conforming to the requirements of aggregate base course in Section 882 of the Specifications. Prior to placing any aggregate base course material, all spoil or loose material shall be removed and the area wetted then proof rolled to ensure adequate density. All costs involved with the foundation undercut shall be paid for at the contract unit price per cubic yard for Footing Undercut.

UNDERDRAINS

- An underdrain pipe shall be placed behind the concrete leveling pad immediately on top of the aggregate base course material. Placement of pipe shall ensure that positive drainage of the reinforced and retained materials behind the wall is maintained at all times. Outlet underdrains as shown on the layout sheet with a 2.0% minimum slope.
- Underdrains shall consist of 4" diameter corrugated polyethylene drainage tubing conforming to Section 990 of the Construction Specifications.
- All costs in furnishing and installing the underdrains shall be incidental to the contract unit price per square foot for MSE Large Panel Wall, Install.

CHAIN LINK FENCE

- A chain link fence is to be placed along the MSE retaining walls. The fence shall be colored brown (Federal Standard 595B Color 30045) to match the color of the Bridge Railing. See Section B – Grading Plans for details.
- To accommodate the fence post footings, 10" diameter by 3' - 6" long casings are to be embedded into the reinforced wall backfill. Spacing of the casings shall be coordinated with the chain link fence installer. Casings shall be rigid and able to withstand backfilling operations without deformation.
- All costs in furnishing and installing the casings shall be incidental to the contract unit price per cubic yard for Granular Backfill for MSE Large Panel Wall.

GEOGRID REINFORCEMENT AND GRANULAR MSE BACKFILL

- For geogrid specifications see Notes 1 through 4 for GEOGRID REINFORCEMENT on Sheet E9.
- Granular MSE backfill will be dumped at least 20 feet behind the leading edge of the backfill and pushed into place with a loader or dozer from the covered area to the uncovered areas. No traffic will be allowed on the uncovered geogrid.



ESTIMATE OF STRUCTURE QUANTITIES AND NOTES FOR M.S.E. LARGE PANEL RETAINING WALL

ADJACENT TO INTERSTATE 90

AUGUST 2015

2 5

DESIGNED BY: CAO LAW020U	DRAWN BY: CAO 020UDSPG	CHECKED BY: RAD	BRIDGE ENGINEER
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SECTION F ESTIMATE OF QUANTITIES FOR PCN 020U

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
004E0050	Remove Traffic Diversion(s)	Lump Sum	LS
009E3320	Checker	Lump Sum	LS
110E0300	Remove Concrete Curb and Gutter	1,979	Ft
110E0415	Remove Edge Drains	Lump Sum	LS
110E0655	Remove Interim Crossover Closure	256	Ft
110E1020	Remove Asphalt Concrete Pavement	12,399.8	CuYd
110E1105	Remove Concrete Pavement	10,020.7	CuYd
110E1110	Remove Concrete Approach Pavement	356.2	SqYd
110E1140	Remove Concrete Sidewalk	401.1	SqYd
110E1640	Remove Granular Material	17,452.7	CuYd
110E7000	Remove Crossover Closure for Reset	416	Ft
120E0010	Unclassified Excavation	48,310	CuYd
120E6100	Water for Embankment	332.2	MGal
120E6200	Water for Granular Material	959.9	MGal
210E2000	Shoulder Shaping	5.347	Mile
210E3510	Heavy Roadway Shaping	23,302.8	SqYd
260E1010	Base Course	24,712.4	Ton
260E2010	Gravel Cushion	48,921.0	Ton
270E0020	Salvage and Stockpile Asphalt Mix Material	3,192.3	Ton
320E1200	Asphalt Concrete Composite	200.0	Ton
320E5010	Saw and Seal Shoulder Joint	28,235	Ft
320E7012	Grind 12" Rumble Strip or Stripe in Asphalt Concrete	2.9	Mile
330E0010	MC-70 Asphalt for Prime	47.5	Ton
330E0100	SS-1h or CSS-1h Asphalt for Tack	8.6	Ton
330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	4.7	Ton
330E2000	Sand for Flush Seal	1.6	Ton
380E0070	9" Nonreinforced PCC Pavement	42,652.5	SqYd
380E0110	11" Nonreinforced PCC Pavement	53,418.7	SqYd
380E6000	Dowel Bar	50,374	Each
380E6110	Insert Steel Bar in PCC Pavement	96	Each
410E2600	Membrane Sealant Expansion Joint	345.4	Ft
629E9050	Reset Crossover Closure	416	Ft

ALTERNATE A FOR PCN 020U

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
320E0004	PG 58-28 Asphalt Binder	389.3	Ton
320E1070	Class HR Asphalt Concrete	9,734.4	Ton

ALTERNATE B FOR PCN 020U

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
320E0004	PG 58-28 Asphalt Binder	359.9	Ton
320E1070	Class HR Asphalt Concrete	9,996.7	Ton

SECTION F ESTIMATE OF QUANTITIES FOR PCN 0217

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E3320	Checker	Lump Sum	LS
110E0300	Remove Concrete Curb and Gutter	860	Ft
110E1020	Remove Asphalt Concrete Pavement	1,350.0	CuYd
110E1140	Remove Concrete Sidewalk	232.1	SqYd
110E1640	Remove Granular Material	3,722.2	CuYd
120E0010	Unclassified Excavation	5,529	CuYd
120E6200	Water for Granular Material	63.0	MGal
260E1010	Base Course	1,030.6	Ton
260E2010	Gravel Cushion	4,216.5	Ton
270E0020	Salvage and Stockpile Asphalt Mix Material	207.7	Ton
330E0010	MC-70 Asphalt for Prime	1.2	Ton
330E0100	SS-1h or CSS-1h Asphalt for Tack	0.6	Ton
330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	0.2	Ton
330E2000	Sand for Flush Seal	4.2	Ton
380E0070	9" Nonreinforced PCC Pavement	9,768.0	SqYd
380E6000	Dowel Bar	6,127	Each

ALTERNATE A FOR PCN 0217

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
320E0004	PG 58-28 Asphalt Binder	26.0	Ton
320E1070	Class HR Asphalt Concrete	646.3	Ton

ALTERNATE B FOR PCN 0217

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
320E0004	PG 58-28 Asphalt Binder	23.9	Ton
320E1070	Class HR Asphalt Concrete	663.8	Ton

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	IM 0901(162)14 & P 014A(11)8	F2	F69

Revised: 28 Jan 16, RML

SURFACING THICKNESS DIMENSIONS

Plans tonnage will be applied even though the thickness may vary from that shown on the plans.

At those locations where material must be placed to achieve a required elevation, plans tonnage may be varied to achieve the required elevation.

CONTROL OF ACCESS

If a Contractor's operations would require access to the interstate ROW in any locations not currently designated as public access, prior approval must be obtained from the Department. All requests will be reviewed on the basis of safety and construction sequencing. A contractor shall not assume that all requests will be granted.

The Contractor shall be responsible for all safety control and signing measures.

The request for access shall be provided in writing to the Engineer two weeks in advance of any proposed break in control of access.

HEAVY ROADWAY SHAPING

Heavy Roadway Shaping shall be performed full roadway width in accordance with the Standard Specifications.

Included in the Estimate of Surfacing Quantities is "Water for Embankment" for shaping and recompaction.

TABLE OF HEAVY ROADWAY SHAPING

Location	Heavy Roadway Shaping (Sq. Yds.)	Water for Embankment (Mgal)
717+60 to 728+00 EBL	6407.4	91.7
717+60 to 728+00 WBL	6879.7	97.6
785+00 to 793+00 EBL	5126.8	73.0
785+00 to 793+00 WBL	4888.9	69.9
TOTAL	23302.8	332.2

ALKALI SILICA REACTIVITY

Fine aggregate shall conform to Section 800.2.D Alkali Silica Reactivity (ASR) Requirements.

Below is a list of known fine aggregate sources and the average corresponding 14 day expansion values:

Source	Location	Expansion Value
Bachman	Winner, SD	0.335*
Bitterman	Delmont, SD	0.316*
Concrete Materials	Corson, SD	0.170
Croell	Hot Springs, SD	0.089
Croell	Wasta, SD	0.212
Emme Sand & Gravel	Oneil, NE	0.217
Fisher S&G – Mickelson Pit	E. of Nisland, SD	0.129
Fisher S&G - Vallery Pit	Nisland, SD	0.110
Fisher S&G	Rapid City, SD	0.092
Fisher S&G	Spearfish, SD	0.053
Fisher S&G	Wasta, SD	0.159
Fuchs	Pickstown, SD	0.275*
Higman	Akron, IA	0.203
Higman	Hudson, SD	0.187
Hilde	Madison, SD	0.116
Jensen	Herried, SD	0.276*
L.G. Everist	Brookings, SD	0.186
L.G. Everist	Hawarden, IA	0.166
L.G. Everist	Summit, SD	0.178
Morris	Blunt, SD	0.192
Morris - Richards Pit	Onida, SD	0.188
Myrl & Roys - East Sioux Quarry	NE Sioux Falls, SD	0.214
Myrl & Roys - Nelson Pit	Sioux Falls, SD	0.156
Northern Concrete Agg.	Rauville, SD	0.113
Northern Concrete Agg.	Luverne, MN	0.133
Opperman - Gunvordahl Pit	Burke, SD	0.362*
Opperman - Cahoy Pit	Herrick, SD	0.307*
Opperman - Jones Pit	Burke, SD	0.321*
Opperman - Randall Pit	Pickstown, SD	0.239
Pete Lien & Sons	Creston, SD	0.158
Pete Lien & Sons	Oral, SD	0.129
Pete Lien & Sons	Wasta, SD	0.192
Thorpe Pit	Britton, SD	0.098
Wagner Building Supplies	Pickstown (Wagner), SD	0.241
Winter Brothers- Whitehead Pit	Brookings, SD	0.197

* These sources will require Type V cement in the concrete mix design and Class F (Modified) fly ash as specified.

The Department will use the running average of the last three known expansion test results or less for determining acceptability of source and the required Type of cement. These expansion results are reported in the preceding table. Additional testing, when requested by the Contractor, will be performed by the Department at the Contractor's expense.

The values listed in the table are intended for use in bidding. If a previously tested pit by SDDOT with acceptable test values (less than 0.250) is discovered after letting to require Type V cement (greater than 0.250) the Department will accept financial responsibility for the change from Type II to Type V cement.

Type II or Type V cement will not change the requirement for the fly ash. The cost for either type of cement shall be subsidiary to the contract item.

11" & 9" NONREINFORCED CONCRETE PAVEMENT

The fine aggregate shall be screened over a 1 inch square opening screen just prior to introduction into the concrete paving mix. The Contractor will screen all of the aggregate to prevent the incorporation of foreign materials (ie: mud balls) into the concrete mix.

Fine aggregate shall conform to Section 800.2 D, Alkali Silica Reactivity (ASR) Requirements, of the Specifications.

The transverse contraction joints shall be perpendicular to the centerline as detailed in the standard plates for PCC Pavement Dowel Bar Assembly for Transverse Contraction Joints and PCC Pavement Transverse Contraction Joint Spacing. In multilane areas the transverse contraction joints shall be perpendicular to the centerline and be in a straight line across the width of the pavement. In special situations the Engineer may pre-approve transverse contraction joints that do not meet these requirements. All nonconforming transverse contraction joints shall be removed at the Contractor's expense. Any method of placement that cannot produce these requirements shall not be allowed to continue.

There will be no direct payment for trimming of the Gravel Cushion. The trimming will be considered incidental to the related items required for PCC Pavement. Trimming shall be performed as required by Section 380.3 C. of the Specifications.

A construction joint will be sawed whenever new concrete pavement is placed adjacent to existing concrete pavement.

Concrete used in Portland cement concrete pavement shall conform to the Special Provision for Contractor Furnished Mix Design for PCC Pavement.

The following locations shall be tested for smoothness with a Contractor furnished and operated 25 foot California style profilograph in accordance with Section 380.3 of the Specifications:

- I 90 - Sta. 717+60 to Sta. 793+00 WBL Driving and Passing Lanes
- I 90 - Sta. 717+60 to Sta. 793+00 EBL Driving and Passing Lanes

The following locations shall be tested for smoothness with a Contractor furnished and operated 25 foot California style profilograph in accordance with the Special Provision for PI PCC Pavement Smoothness (Non-overlay):

- On Ramp Acceleration Lane, Exit 14 WBL and EBL
- Off Ramp Acceleration Lane, Exit 14 WBL and EBL

I-90 WB/EB including all ramp mainlines will be longitudinally tined. All remaining areas (27th Street, Colorado Blvd, intersecting streets, and entrances) will receive a heavy carpet drag.

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	IM 0901(162)14 & P 014A(11)8	F7	F69

Revised: 29 Jan 16, RML

11" & 9" NONREINFORCED CONCRETE PAVEMENT (CONTINUED)

See Standard Plate 380.15 for placement of PCC Pavement Rumble Strips. Payment for forming rumble strips including labor, materials and incidentals shall be incidental to the contract unit price per square yard for 11" NONREINFORCED PCC PAVEMENT.

PCC PAVEMENT RUMBLE STRIPS, for information only	
Location	PCCP Rumble Strips
	mile
PCCP Shoulder	1.73

* 11" NONREINFORCED PCC PAVEMENT	
LOCATION	11" NONREINFORCED PCC PAVEMENT SQ.YDS.
I-90 Mainline	
Sta. 717+60 to Sta. 793+00 WB	21,782.2
Sta. 717+60 to Sta. 793+00 EB	21,782.2
I-90 Ramp Gore Areas	
Exit 14 WB On Ramp	3,289.6
Exit 14 WB Off Ramp	1,653.9
Exit 14 EB Off Ramp	2,231.2
Exit 14 EB On Ramp	2,679.6
TOTAL	53,418.7

* Transverse contraction joints in 11" Nonreinforced PCC Pavement will be sealed with Low Modulus Silicone Sealant, standard plate 380.06.

SECTION L ESTIMATE OF QUANTITIES

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0901 (162)14 / P014A (11)	L2	L63

Revised Date: 2/02/2016 LCL

PROJECT – IM 0901(162)14

PROJECT – IM 0901(162)14 (Continued)

PROJECT – P 014A(11)8

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
110E1510	Remove Luminaire Pole	1	Each
110E1520	Remove Signal Equipment	Lump Sum	LS
110E1530	Remove Signal Pole Footing	15	Each
110E1540	Remove Luminaire Pole Footing	1	Each
110E5100	Salvage Luminaire Pole	15	Each
110E5110	Salvage Signal Equipment	Lump Sum	LS
632E5000	Single Beam Sign Bridge	1	Each
635E0050	Breakaway Base Luminaire Pole with Arm, 50' Mounting Height	34	Each
635E2000	Pedestal Signal Pole	4	Each
635E2125	Signal Pole with 25' Mast Arm and Luminaire Arm	1	Each
635E2145	Signal Pole with 45' Mast Arm and Luminaire Arm	1	Each
635E2155	Signal Pole with 55' Mast Arm and Luminaire Arm	1	Each
635E2160	Signal Pole with 60' Mast Arm and Luminaire Arm	2	Each
635E2165	Signal Pole with 65' Mast Arm and Luminaire Arm	2	Each
635E3340	Roadway Luminaire, 400 Watt with Photoelectric Cell	44	Each
635E3530	Under Bridge Deck Luminaire, 250 Watt	14	Each
635E4030	3 Section Vehicle Signal Head	15	Each
635E4040	4 Section Vehicle Signal Head	16	Each
635E5020	2' Diameter Footing	298	Ft
635E5030	3' Diameter Footing	89	Ft
635E5100	Controller Cabinet Footing	1	Each
635E5301	Type 1 Electrical Junction Box	41	Each
635E5302	Type 2 Electrical Junction Box	18	Each
635E5303	Type 3 Electrical Junction Box	9	Each
635E5304	Type 4 Electrical Junction Box	3	Each
635E5360	Surface Mounted Junction Box	11	Each
635E5400	Electrical Service Cabinet	2	Each
635E5430	Traffic Signal Controller	3	Each
635E5440	Master Controller	1	Each
635E5500	Meter Socket	2	Each
635E5520	Video Detection System	3	Each
635E5560	Emergency Vehicle Preemption Unit	3	Each
635E5570	Optical Detector	11	Each
635E5900	Pedestrian Push Button	16	Each
635E5910	Pedestrian Push Button Pole	12	Each
635E5922	Pedestrian Signal Head with Countdown Timer	16	Each
635E5930	Pedestrian Crossing Sign	16	Each
635E7530	Relocate Signal Equipment	Lump Sum	LS
635E8020	2" Rigid Galvanized Steel Conduit	1720	Ft
635E8030	3" Rigid Galvanized Steel Conduit	1530	Ft
635E8120	2" Rigid Conduit, Schedule 40	11200	Ft
635E8130	3" Rigid Conduit, Schedule 40	1780	Ft
635E8140	4" Rigid Conduit, Schedule 40	70	Ft
635E8220	2" Rigid Conduit, Schedule 80	1720	Ft
635E8230	3" Rigid Conduit, Schedule 80	1530	Ft

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
635E9012	1/C #2 AWG Copper Wire	18550	Ft
635E9014	1/C #4 AWG Copper Wire	20940	Ft
635E9016	1/C #6 AWG Copper Wire	8920	Ft
635E9020	1/C #10 AWG Copper Wire	31730	Ft
635E9202	2/C #12 AWG IMSA Copper Cable, K1	100	Ft
635E9204	4/C #12 AWG IMSA Copper Cable, K1	3350	Ft
635E9207	7/C #12 AWG IMSA Copper Cable, K1	2700	Ft
635E9212	12/C #12 AWG IMSA Copper Cable, K1	690	Ft
635E9219	19/C #12 AWG IMSA Copper Cable, K1	870	Ft
635E9224	24/C #12 AWG IMSA Copper Cable, K1	1360	Ft
635E9710	2/C #10 AWG Copper Pole and Bracket Cable	3140	Ft
635E9800	Preemption Cable	2570	Ft
635E9900	Video Cable	1720	Ft
635E9912	12 Strand Fiber Optic Cable	2120	Ft

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
110E1540	Remove Luminaire Pole Footing	4	Each
635E0050	Breakaway Base Luminaire Pole with Arm, 50' Mounting Height	4	Each
635E3340	Roadway Luminaire, 400 Watt with Photoelectric Cell	4	Each
635E5020	2' Diameter Footing	128	Ft
635E5301	Type 1 Electrical Junction Box	5	Each
635E5302	Type 2 Electrical Junction Box	4	Each
635E5400	Electrical Service Cabinet	2	Each
635E5500	Meter Socket	2	Each
635E7500	Remove and Reset Luminaire Pole	4	Each
635E8020	2" Rigid Galvanized Steel Conduit	820	Ft
635E8030	3" Rigid Galvanized Steel Conduit	530	Ft
635E8120	2" Rigid Conduit, Schedule 40	850	Ft
635E8220	2" Rigid Conduit, Schedule 80	820	Ft
635E8230	3" Rigid Conduit, Schedule 80	530	Ft
635E9012	1/C #2 AWG Copper Wire	3140	Ft
635E9014	1/C #4 AWG Copper Wire	8130	Ft
635E9016	1/C #6 AWG Copper Wire	1570	Ft
635E9020	1/C #10 AWG Copper Wire	7850	Ft
635E9710	2/C #10 AWG Copper Pole and Bracket Cable	600	Ft

