SPECIAL PROVISIONS
&
SUPPLEMENTAL SPECIFICATIONS

CSI-Inch/Pound

Project No:	**F-0266(62)3**
PIN Desc:	**SR-266; Auto Blvd/Main St Intersection Imps**
Concept:	**Highway Safety Improvement**
Location:	**SR-266; MP 3.27 - 3.45**
County:	**SALT LAKE**
Bid Opening:	**April 21, 2015**

Date

THIS PROJECT REQUIRES USING THE ELECTRONIC CERTIFIED PAYROLL PROGRAM. SEE ATTACHMENT TO NOTICE TO CONTRACTORS. THIS IS A P+T PROJECT.

UDOT Keeping Utah Moving

Project # F-0266(62)3
Pin # 11405

November 20, 2014

2012 - Standards

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Federal Projects With Full Size Plan Sheets

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11.	01315S	Public Information Services – Special Provision (02/26/15)
12.	01355M	Environmental Compliance – Supplemental Specification (10/31/13)
13.	01455M	Materials Quality Requirements – Materials Special Provision (04/17/13)
14.	01456M	Materials Dispute Resolution – Supplemental Specification (02/28/13)
15.	01557S	Maintenance of Traffic (MOT) - Special Provision (06/25/09)
16.	01571	Temporary Environmental Controls – Supplemental Specification (11/06/14)
17.	01571M	Temporary Environmental Controls – Modification (11/10/14)
18.	01721M	Survey – Supplemental Specification (04/25/13)
19.	02056M	Embankment, Borrow, and Backfill – Supplemental Specification (02/27/14)
20.	02221M	Remove Structure and Obstruction – Modification (12/10/14)
21.	02229S	Temporary Retaining Wall – Special Provision (12/10/14)
22.	02316M	Roadway Excavation – Supplemental Specification (06/26/14)
23.	02317M	Structural Excavation – Supplemental Specification (02/27/14)
24.	02411S	Relocate Fire Hydrant – Special Provision (11/04/14)
25.	02610	Drainage Pipe – Supplemental Specification (02/27/14)
26.	02735M	Micro-Surfacing – Materials Special Provision (10/10/13)
27.	02741M	Hot Mix Asphalt – Materials Special Provision (09/08/14)
28.	02742S	Project Specific Surfacing Requirements – Department Special Provision (11/06/14)
29.	02746M	Hydrated Lime – Materials Special Provision (11/14/12)
30.	02765M	Pavement Marking Paint – Supplemental Specification (06/26/14)
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Federal Projects With Full Size Plan Sheets

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34.	02821M	Chain Link Fencing and Gates – Supplemental Specification (02/28/13)
35.	02831S	Retaining Wall – Alternate Systems – Special Provision (12/10/14)
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40.	02891M	Traffic Sign – Supplemental Specification (02/28/13)
41.	02892M	Traffic Signal - Modification (08/21/14)
42.	02924S	Invasive Weed Control – Department Special Provision (02/28/13)
43.	02934S	Cobble Rock - Special Provision (08/25/14)
44.	03055M	Portland Cement Concrete – Supplemental Specification (04/25/13)
45.	03211M	Reinforcing Steel and Welded Wire – Supplemental Specification (10/25/12)

I. 2012 Standard Specifications and Standard Drawings

The 2012 State of Utah Standard Specifications for Road and Bridge Construction and Standard Drawings Books apply on this project as static Specification and Drawing Books as well as all other applicable specification and drawing changes.

Refer to Part XV for other project specific specifications.

II. List of Supplemental Drawings

This page will be periodically updated to list all approved drawings by date of issue. Include Supplemental Drawings that are applicable to the project at the end of the Plan Set. Update Plan Set Sheet 1A with a listing of the applicable Supplemental Drawings.

Issue Date: September 19, 2012

Revised August 30, 2012

BA 2E	Precast Concrete Half Barrier – 32 Inch New Jersey Shape
BA 3L	Precast Concrete Constant Slope Half Barrier – 42 Inch
BA 4B4	W-Beam Guardrail Median Barrier Transition Hardware and Layout
BA 4D1	W-Beam Guardrail Installations
BA 4E2	W-Beam Guardrail with Curb and Gutter ≥ 5 Inches
BA 4F1	W-Beam Guardrail Buried In Backslope Terminal
BA 4H4	W-Beam Guardrail with Precast Barrier For Span ≥ 25 Ft
CB 11	Precast Concrete Standard Manhole
DD 14B	Typical Rural 2 Lane Road Intersection (Low Speed)
GW 5A	Pedestrian Access
GW 5B	Pedestrian Access
GW 5C	Pedestrian Access
SN 14D	Freeway Sign Frame Fabrication Details
SN 14E	Freeway Sign Bracket Details
TC 1	Traffic Control Drawing Series General Notes
TC 2B	Work Zone Signing
TC 3A	Hazard Mitigation
TC 4A	Standard Work Zone Signing General
TC 4B1	Reduced Speed Work Zone Signing General
TC 4B2	Reduced Speed Shoulder Work Zone Signing General
TC 4C	Traffic Control Project Limit Signing
TC 4D2	Work Zone Specialty Signs
TC 7	Median Crossover and 2-Lane, 2-Way Diversion
TC 18	Blunt End Protection for W-Beam Guardrail and Concrete Barrier
TC 19	Construction Access Points for Speeds of 55 MPH and Greater

Issue Date: November 14, 2012

Revised October 25, 2012

PV 03	Concrete Pavement Details 1 of 2
PV 04	Concrete Pavement Details 2 of 2

Issue Date: March 14, 2013

Revised February 28, 2013

AT 5A	Ramp Meter Detection Layout
AT 5B	Ramp Meter Queue Detection Layout
AT 5C	Ramp Meter Detection Zone Number Assignment
BA 4D3	W-Beam Guardrail Typical Line Post Embedment Special Conditions
CB 11	Precast Concrete Standard Manhole
DD 8	Structural Geometric Design Standards for Clearances
GW 4A	Concrete Driveways and Sidewalks
GW 4B	Concrete Driveways and Sidewalks
GW 5A	Pedestrian Access
GW 5B	Pedestrian Access
GW 5C	Pedestrian Access
GW 11	Sidewalks and Shoulders On Urban Roadways
PV 9	Dowel Bar Retrofit
SL 16	Solar Traffic Counting Station
SN 10A	Slipbase Sign Base (B3) Hardware
SN 10B	Slipbase Sign Base (B3) Installation
TC 3A	Hazard Mitigation

Issue Date: May 9, 2013

Revised April 25, 2013

AT 18	Utility Marker Post Details
GW 12A1	Active Pedestrian Controls for Railroad Crossings Sheet 1 of 2
GW 12A2	Active Pedestrian Controls for Railroad Crossings Sheet 2 of 2
GW 12B1	Passive Pedestrian Controls for Railroad Crossings Sheet 1 of 2
GW 12B2	Passive Pedestrian Controls for Railroad Crossings Sheet 2 of 2
GW 12C1	Pedestrian Controls Semi-Exclusive Railroad Alignments Sheet 1 of 2
GW 12C2	Pedestrian Controls Semi-Exclusive Railroad Alignments Sheet 2 of 2
GW 12D	Pedestrian Controls Street Running Railroad Alignment Signalized Intersections
GW 12E	Pedestrian Controls Street Running Railroad Alignment Unsignalized Intersections

Issue Date: July 17, 2013

Revised June 27, 2013

AT 6	Conduit Details
CC 8A	Grading and Installation Details Crash Cushion Type G
CC 8B	Grading and Installation Details for “3R” Projects End Treatment Type G
DD 18	Utility Location Requirements
ST 9	Location of Bicycle Detector Pavement Markings at Intersection
ST 10	Location of Bicycle Detector Pavement Markings in Bicycle Lane

Issue Date: September 16, 2013

Revised August 29, 2013

BA 4C1	W-Beam Guardrail Anchor Type 1
BA 5B1	Cable Barrier Placement
BA 5J1	Cable Barrier Median Hazard Protection
BA 5J2	Cable Barrier Span Greater Than or Equal 15 Ft to Less Than or Equal 30 Ft
ST 10	Location of Bicycle Detector Pavement Markings in Bicycle Lane

Issue Date: November 21, 2013

Revised October 31, 2013

AT 11A	CCTV Pole Mounting Details
AT 11B	Non-Intrusive Detector Mounting Details
AT 11C	Pole Mounted Cabinet Bracket
AT 15	RWIS Site and Foundation Details
AT 16	RWIS Tower Base and Service Pad Layout
AT 17	RWIS Ground Rod Installation and Tower Grounding
BA 1E	Concrete Barrier Column Protection
BA 4B3	W-Beam Guardrail Transition Curb Sections
BA 4G	W-Beam Guardrail Curve Breakaway Details
BA 5D1	Median Cable Barrier W-Beam Double Sided and Freeway Crossover Anchor System (Type C; C.A.T., Brakemaster)
BA 5D2	Median Cable Barrier W-Beam Double Sided and Freeway Crossover Anchor System (Type C; FLEAT-MT)
GW 1B	Raised Island and Plowable End Section
GW 1D	Median Reflector Details
GW 5C	Pedestrian Access
PV 10	Utility Orientation/Adjustments in PCCP
SL 6	Signal Head Details
SN 2A	School Speed Limit Assembly
SN 3	Overhead School Speed Limit Assembly
SN 6	Speed Reduction Sign Sequence
SN 13A	Tubular Steel Sign Mounting Requirements

TC 4D1	Work Zone Specialty Signs
TC 4D2	Work Zone Specialty Signs
TC 17	Traffic Control Work Zone Guardrail Intermediate End Protection

Issue Date: March 13, 2014

Revised February 27, 2014

BA 1E	Concrete Barrier Column Protection
DG 3	Fill Height for Plastic and Concrete Pipe
DG 4	Pipe Minimum Cover
DG 5	Drainage Pipe Installation
DG 10	Miscellaneous Pipe Details
SN 13C	Mounting Bar Placement for Small Signs

Issue Date: July 14, 2014

Revised June 26, 2014

BA 1A2	Concrete Barrier General Notes and Standard Details 2 of 2
BA 2A	Precast Concrete Barrier – 32 Inch New Jersey Shape
BA 2C	Precast Concrete Barrier – 32 Inch New Jersey Shape, Median Small Sign Section
BA 2D	Cast-In-Place Concrete Barrier – 32 Inch New Jersey Shape, 42 Inch Constant Slope Barrier Transition
BA 2E	Precast Concrete Half Barrier – 32 Inch New Jersey Shape
BA 4G	W-Beam Guardrail Curve Breakaway Details
BA 5B1	Cable Barrier Placement
BA 5B2	Cable Barrier Placement
GW 1C	Raised Island Details
PV 3	Concrete Pavement Details 1 of 2
SL 16	Solar Traffic Counting Station
TC 2C	Work Zone Advanced Warning Arrow Boards

Issue Date: November 20, 2014

Revised November 6, 2014

GW 5A	Pedestrian Access
GW 5B	Pedestrian Access
GW 5C	Pedestrian Access
GW 5D	Pedestrian Access
PV 3	Concrete Pavement Details 1 of 2
SL 1A	Traffic Signal Mast Arm Pole and Luminaire Extension
SL 4	Traffic Signal Mast Arm Pole Foundation
SL 7	Pedestrian Signal Assembly
SN 2A	School Speed Limit Assembly

Federal Projects With Full Size Plan Sheets

SN 16A	Multi-Directional Breakaway Base for Steel I-Beam Supports, General Notes
SN 16B	Multi-Directional Breakaway Base for Steel I-Beam Sign Supports, Two Posts
SN 16C	Multi-Directional Breakaway Base for Steel I-Beam Sign Supports, Three Posts
SN 16D	Multi-Directional Breakaway Base for Steel I-Beam Sign Supports, Foundation Details
SN 16E	Multi-Directional Breakaway Base for Sign Post, (B7A)
SN 16F	Multi-Directional Breakaway Base for Sign Post, (B7B)
SN 16G	Multi-Directional Breakaway Base for Sign Post, (B7C)
SN 16H	Multi -Directional Breakaway Base for Round Pipe Single Post, (B7D)
SN 16I	Multi -Directional Breakaway Base for Round Pipe Double Post, (B7D)
ST 9	Location of Bicycle Detector Pavement Markings at Intersection
ST 10	Location of Bicycle Detector Pavement Markings in Bicycle Lane
TC 14A	Traffic Control Flagging Operation
TC 14B	Reduced Speed Signing for Pilot Car Operation (Conventional Roads)

III. Materials Minimum Sampling and Testing Requirements

Follow the requirements of the Materials Minimum Sampling and Testing Requirements: http://www.udot.utah.gov/go/mstr

IV. Notice to Contractors

NOTICE TO CONTRACTORS

Sealed proposals will be received by the Utah Department of Transportation UDOT/DPS Building (4th Floor), 4501 South 2700 West, Salt Lake City, Utah. 84114-8220, until 2 o'clock p.m. Tuesday, April 21, 2015, and at that time the download process of bids from the Project Delivery System to UDOT will begin, with the public opening of bids scheduled at 2:30 for SR-266; Auto Blvd/Main St Intersection Imps, Highway Safety Improvement of SR-266; MP 3.27 - 3.45 in SALT LAKE County, the same being identified as Federal Aid Project No: F-0266(62)3.

Federal Regulations:
Davis-Bacon wages apply to this project and are made a part of these contract documents as required in the provisions of the Federal-Aid Highway Act of 1968. This contract is subject to all appropriate Federal Laws, including Title VI of the Civil Rights Act of 1964 and the Fair Labor Standards Act of 1938, (52 Stat. 1060).
SEE CERTIFIED PAYROLL SPECIAL REQUIREMENTS ATTACHEMENT.

Project Location: SR-266; MP 3.27 - 3.45

The principal items of work are as follows (for all items of work see attachment):
MSE Wall R-761(Est. Lump Qty: 1906 sq ft)
Traffic Signal System 4500 South & Main St
Mobilization

The project is to be completed: to be determined by competitive bid.

Other Requirements:
All project bidding information, including Specifications and Plans, can be viewed, downloaded, and printed from UDOT's Project Development Construction Bid Opening Information website, http://www.udot.utah.gov/cns/bidopeninfo.htm. To bid on UDOT projects, bidders must use UDOT's Electronic Bid System (EBS). The EBS software is also available on this website.

Project information can also be reviewed at the main office in Salt Lake City, its Region offices, and its District offices in Price, Richfield, and Cedar City.

Project Plans cannot be downloaded or printed from the website unless your company is registered with UDOT. Go to UDOT's website to register. Registered companies may also obtain a **CD**, that contains the Specifications and Plans, from the main office, 4501 South 2700 West, Salt Lake City, (801) 965-4346, for a fee of $20.00, plus tax and mail charge, if applicable, none of which will be refunded.

As required, a contractor's license must be obtained from the Utah Department of Commerce.

Each bidder must submit an electronic bid bond from an approved surety company using UDOT's Electronic Bid System (EBS); or in lieu thereof, cash, certified check, or cashier's check for not less than 5% of the total amount of the bid, made payable to the Utah Department of Transportation, showing evidence of good faith and a guarantee that if awarded the contract, the bidder will execute the contract and furnish the contract bonds as required.

The right to reject any or all bids is reserved.

If you need an accommodation under the Americans with Disabilities Act, contact the Construction Division at (801) 965-4346. Please allow three working days.

Additional information may be secured at the office of the Utah Department of Transportation, (801) 965-4346.

Dated this 28th day of March, 2015.

UTAH DEPARTMENT OF TRANSPORTATION
Carlos M. Braceras, P.E., Director

Revised Date:

Revised December 3, 2012

NOTICE TO CONTRACTORS

Special Requirements Attachment
CERTIFIED PAYROLL

Effective as of 11/02/2009, construction contractors awarded a Federal-aid construction project are required to submit weekly certified payrolls to the Utah Department of Transportation using the (UDOT) Electronic Certified Payroll Program available in the UDOT Project Development Business System (PDBS). Submittal may be accomplished using one of two available options;

Option 1

The Contractor creates and continues to use the company's existing payroll software program to import the weekly certified payroll.

The software program format utilized by the Contractor must be certified by UDOT prior to the first import submittal.

Option 2

The Contractor can access and utilize the Contractor Module in PDBS and enter the certified payroll information and submit to the UDOT project office. After the first payroll submission, personal addresses and full social security numbers are not to be used. After the first payroll submission of an employee, contractors and subcontractors must use the last four digits of the employee's social security number as an identifier.

Effective as of December 3, 2012, a $50 disincentive will be charged for each payroll not entered into the UDOT Electronic Certified Payroll Program within 7 days of the Payroll Date. This disincentive applies to both the General Contractor and all Subcontractors where Davis Bacon Wages apply.

For questions contact the Civil Rights Office.

V. Bidding Schedule

Utah Department of Transportation
Bidder's Schedule

Bid Opening Date: 4/21/2015
Region: REGION 2
Project Number: F-0266(62)3
County: SALT LAKE
PIN Description: SR-266; Auto Blvd/Main St Intersection Imps
Concept: Highway Safety Improvement
Location: SR-266; MP 3.27 - 3.45

Funding: FEDERAL
Bid Items Version#: 1
DBE Goal: 8.00%

#	Item	Description	Quantity	Unit
10 - ROADWAY				
1	00830001U	Equal Opportunity Training	125	hour
2	01285001P	Mobilization	1	lump sum
3	01315001*	Public Information Services	1	lump sum
4	01554000P	Traffic Control	1	lump sum
5	01557000*	Maintenance of Traffic (MOT)	1	lump sum
6	01571002*	Check Dam (6 Inch Bag - Stone Filled)	100	foot
7	015710030	Silt Fence	601	foot
8	01571007*	Drop-Inlet Barrier Filter Insert	8	each
9	01571007P	Drop-Inlet Barrier - 18 Inch Fiber Roll	235	foot
10	015720020	Dust Control and Watering	26	1000 gallons
11	018920010	Reconstruct Catch Basin	1	each
12	018920030	Reconstruct Meter Box	3	each
13	020560005	Borrow (Plan Quantity)	29	cubic yard
14	020560020	Granular Borrow	828	ton
15	020560060	Free Draining Granular Backfill (Plan Quantity)	79	cubic yard
16	020750010	Geotextiles - Separation	373	square yard
17	02221001*	Remove Retaining Wall	112	foot
18	022210030	Remove Catch Basin	3	each
19	022210050	Remove Tree	7	each
20	022210080	Remove Fence	272	foot
21	022210095	Remove Pipe Culvert	17	foot
22	022210110	Remove Concrete Sidewalk	1102	square yard
23	022210115	Remove Concrete Driveway	75	square yard
24	022210120	Remove Concrete Curb	643	foot
25	022210125	Remove Concrete Curb and Gutter	1792	foot
26	022210165	Remove Asphalt Pavement	834	square yard
27	02221199*	Remove Step	1	each
28	02221200*	Relocate Tree Grate and Frame	5	each
29	02221201*	Relocate Park Bench	2	each
30	02221202*	Relocate Trash Can	1	each
31	02221203*	Relocate Newspaper Vending Machine	1	each
32	02221204*	Remove Bus Shelter	1	each
33	02221205*	Remove Sign Foundation	1	each
34	022310020	Clearing and Grubbing (Plan Quantity)	1	acre
35	02316002P	Roadway Excavation (Plan Quantity)	617	cubic yard
36	02411002*	Relocate Fire Hydrant	1	each
37	02610138P	15 Inch Irrigation/Storm Drain, Class C, smooth	7	foot
38	02610139P	18 Inch Irrigation/Storm Drain, Class C, smooth	12	foot
39	02622002P	Underdrain 12 inch	305	foot
40	026330060	5 Foot Standard Manhole 3 ft to 5 ft Deep - CB 11	1	each
41	026330120	Concrete Drainage Structure 3 ft to 5 ft Deep - CB 9	3	each

Note: Item numbers ending with "" or "P" identify a change to the Standard Specification, Supplemental Specifications or Measurement and payment. Read all related documents carefully.

Utah Department of Transportation
Bidder's Schedule

Bid Opening Date: 4/21/2015
Project Number: F-0266(62)3
PIN Description: SR-266; Auto Blvd/Main St Intersection Imps
Concept: Highway Safety Improvement
Location: SR-266; MP 3.27 - 3.45

Region: REGION 2
County: SALT LAKE

Funding: FEDERAL
Bid Items Version#: 1 **DBE Goal:**

#	Item	Description	Quantity	Unit
10 - ROADWAY				
42	026330130	Concrete Drainage Structure 5 ft to 7 ft Deep - CB 9	2	each
43	026350045	Solid Cover and Frame - GF 5	1	each
44	027210010	Untreated Base Course	794	ton
45	027350010	Micro-Surfacing	9286	square yard
46	027410050	HMA - 1/2 inch	825	ton
47	02765003P	Remove Pavement Marking Paint	5400	foot
48	027650040	Remove Pavement Message	12	each
49	027650050	Pavement Marking Paint	69	gallon
50	027680105	Pavement Message (Preformed Thermoplastic)	26	each
51	027680115	Pavement Message (Preformed Thermoplastic Stop Line, Crosswalks - 12 inch)	772	foot
52	02771001P	Concrete Curb Type B4	34	foot
53	02771002P	Concrete Curb Type B5	965	foot
54	02771003P	Concrete Curb and Gutter Type B1	1733	foot
55	02771004P	Modified Concrete Curb Type B4	88	foot
56	02771005P	Modified Concrete Curb and Gutter Type B1	7	foot
57	02771006P	Concrete Driveway Flared, 7 inch Thick	703	square foot
58	02771007P	8 Inch Curb	135	foot
59	02771008P	Corner Pedestrian Access Ramp	4	each
60	027710100	Plowable End Section	4	each
61	027760010	Concrete Sidewalk	6756	square foot
62	027760030	Concrete Flatwork 4 inch thick	1808	square foot
63	027760040	Concrete Flatwork 6 inch thick	60	square foot
64	028210042	Chain Link Fence, Type I with Barb Wire Arm	287	foot
20 - STRUCTURES				
	Description: R-761			
65	02229000*	Temporary Retaining Wall	1	lump sum
66	02831002*	MSE Wall R-761(Est. Lump Qty: 1906 sq ft)	1	lump sum
30 - LANDSCAPING				
67	02075004P	Geotextiles - Weed Barrier	5237	square foot
68	02221206*	Install Tree Well	5	each
69	02813000*	Pressurized Irrigation System	1	each
70	02813001*	Root Watering System	18	each
71	029120010	Contractor Furnished Topsoil	37	square yard
72	029220060	Turf Sod	332	square foot
73	02932008D	Plant - 3 inch Caliper	6	each
74	02934000*	Cobble Rock	582	square yard

Note: Item numbers ending with "" or "P" identify a change to the Standard Specification, Supplemental Specifications or Measurement and payment. Read all related documents carefully.

Utah Department of Transportation
Bidder's Schedule

Bid Opening Date: 4/21/2015
Project Number: F-0266(62)3
PIN Description: SR-266; Auto Blvd/Main St Intersection Imps
Concept: Highway Safety Improvement
Location: SR-266; MP 3.27 - 3.45

Region: REGION 2
County: SALT LAKE

Funding: FEDERAL
Bid Items Version#: 1 **DBE Goal:**

#	Item	Description		Quantity	Unit
40 - SIGNING					
75	028910028	Sign Type A-1, 12 Inch X 36 Inch		4	each
76	028910042	Sign Type A-1, 24 inch x 24 inch		2	each
77	02891005P	Sign Type A-1, 18 inch X 30 inch		2	each
78	028910060	Sign Type A-1, 30 inch X 30 inch		1	each
79	02891006P	Sign Type A-1, 30 inch X 36 inch		1	each
80	028910270	Remove Sign Less Than 20 Square Feet		4	each
81	028910285	Relocate Sign Less Than 20 Square Feet		4	each
82	028910300	Small Sign Tubular Steel Post Base (B1)		7	each
83	028910320	Slipbase Sign Base (B3)		2	each
84	028910355	Sign Post P1		9	each
50 - SIGNALS					
85	02892001D	Traffic Signal System 4500 South & Main St		1	lump sum
60 - LIGHTING					
86	16525001D	Highway Lighting System		1	lump sum
180 - TIME AND/OR LANE RENTAL					
87	00221000*	Contract Time	Date Range: 60 - 90	0	calendar day

Note: Item numbers ending with "" or "P" identify a change to the Standard Specification, Supplemental Specifications or Measurement and payment. Read all related documents carefully.

VI. Measurement and Payment

Measurement and Payment

Project # F-0266(62)3

03/10/2015 01:39:34 AM

Item #	Bid Item Number	Bid Item Name	UOM
1	00830001U	Equal Opportunity Training	hour
		Training Commitments listed in the Table of Contents for Federal projects, XI – 5 http://www.udot.utah.gov/main/f?p=100:pg::::1:T,V:1940	
2	01285001P	Mobilization	lump sum
		The lesser of 25% of mobilization or 2.5% of contract paid with first estimate or: The lesser of 50% of mobilization or 5% of contract paid with any estimate following completion of 5% of contract The lesser of 75% of mobilization or 7.5% of contract paid with any estimate following completion of 10% of contract The lesser of 100% of mobilization or 10% of contract paid with any estimate following completion of 20% of contract Amount bid in excess of 10% of contract price paid with project acceptance final. Includes all costs associated with inspection and cleanup crew according to Section 00725. Includes all costs associated with installing, moving, and removing a Temporary Security Fence for work done on the Northwest corner Salt Lake County property. See Specification Section 00555M.	
3	01315001*	Public Information Services	lump sum
4	01554000P	Traffic Control	lump sum
		25% of the bid item amount paid with first estimate. Remaining portion of bid item paid as a percentage of the contract completed with each subsequent estimate. Includes all temporary paint markings and messages required for traffic control during all phases of work including micro-surfacing cure time. Includes temporary stop bars, messages, and crosswalks during microsurface cure time. Includes removal of temporary striping. All existing and temporary striping must be removed prior to placing Microsurface.	
5	01557000*	Maintenance of Traffic (MOT)	lump sum
		Provide four VMS signs, 7 days prior to start of construction and during construction activities. Provide two additional VMS signs in addition to the four, available upon request by the Engineer at no additional cost to the Department. Amount Paid — When Paid 25% of the bid item amount. — With first estimate 25% of the bid item amount paid with first estimate. Remaining portion of bid item paid as a percentage of the contract completed with each subsequent estimate. Remaining portion of bid item paid as a percentage of the contract completed. — With each subsequent estimate	
6	01571002*	Check Dam (6 Inch Bag - Stone Filled)	foot
		Measured along center of bag	
7	015710030	Silt Fence	foot
8	01571007*	Drop-Inlet Barrier Filter Insert	each
9	01571007P	Drop-Inlet Barrier - 18 Inch Fiber Roll	foot
		Measured along centerline of fiber roll	
10	015720020	Dust Control and Watering	1000 gallons
11	018920010	Reconstruct Catch Basin	each
12	018920030	Reconstruct Meter Box	each
13	020560005	Borrow (Plan Quantity)	cubic yard
		In final position	
14	020560020	Granular Borrow	ton
		In final position	
15	020560060	Free Draining Granular Backfill (Plan Quantity)	cubic yard
16	020750010	Geotextiles - Separation	square yard
		Measurement does not include overlaps	
17	02221001*	Remove Retaining Wall	foot
		Includes removal of wall facing blocks, footings, stabilization grid/fabric, wall backfill, wall drainage system, and any other excavation	

Item #	Bid Item Number	Bid Item Name	UOM
		required to completely remove the wall to allow for construction of the new wall. Contractor has the option to re-use existing wall backfill and blocks in the new wall if the contactor verifies the materials meet the specifications 02831S, 02832S, 02835S, and 02836S. The import of new materials are incidental to the wall lump sum price. A change order will not be issued if the existing materials are not suitable and cannot meet specifications. Temporary retaining wall must be placed prior to removal of wall. See R-761 wall drawings.	
18	022210030	Remove Catch Basin	each
19	022210050	Remove Tree	each
20	022210080	Remove Fence	foot
		Includes all line posts, brace posts, and foundations	
21	022210095	Remove Pipe Culvert	foot
22	022210110	Remove Concrete Sidewalk	square yard
		Use the area of horizontal projection to calculate the area of steps	
23	022210115	Remove Concrete Driveway	square yard
24	022210120	Remove Concrete Curb	foot
25	022210125	Remove Concrete Curb and Gutter	foot
26	022210165	Remove Asphalt Pavement	square yard
		Regardless of the depth A. Does not include discontinued roads within the limits of the new roadbed or roads that are disturbed in performing other items of work. B. Exclude from measurement and payment under "Roadway Excavation."	
27	02221199*	Remove Step	each
28	02221200*	Relocate Tree Grate and Frame	each
		Includes salvage and storage for re-installation.	
29	02221201*	Relocate Park Bench	each
		Includes salvage and storage for re-installation.	
30	02221202*	Relocate Trash Can	each
		Includes salvage and storage for re-installation.	
31	02221203*	Relocate Newspaper Vending Machine	each
32	02221204*	Remove Bus Shelter	each
33	02221205*	Remove Sign Foundation	each
		Includes all labor and equipment necessary to remove the DI commercial sign foundation to 4 feet below existing grade.	
34	022310020	Clearing and Grubbing (Plan Quantity)	acre
		Calculated to the nearest 0.10 acre	
35	02316002P	Roadway Excavation (Plan Quantity)	cubic yard
		Includes asphalt pavement removal in full depth pavement areas.	
36	02411002*	Relocate Fire Hydrant	each
		Includes all labor, equipment , pipe, valves, bends, mechanical restraints and materials necessary to complete this item. includes replacing entire fire hydrant assembly and water line out to the water main valve in the road.	
37	02610138P	15 Inch Irrigation/Storm Drain, Class C, smooth	foot
		A. Measured along centerline of pipe. B. Connections to drainage structures or features are incidental to construction and no separate payment will be made for this work. C. Department will make no separate payment for required inspection and testing. D. Trench Backfill material between top of pipe bedding and bottom of surfacing Granulr Borrow is incidental to pipe price. Contractor to weigh between using compacting native material vs import of readily compactable UDOT spec Granular Borrow or Granular BackfillBorrow. E. Includes sawcut.	
38	02610139P	18 Inch Irrigation/Storm Drain, Class C, smooth	foot
		A. Measured along centerline of pipe. B. Connections to drainage structures or features are incidental to construction and no separate payment will be made for this work. C. Department will make no separate payment for required inspection and testing. D. Trench Backfill material between top of pipe bedding and bottom of surfacing Granulr Borrow is incidental to pipe price. Contractor to weigh between using compacting native material vs import of readily compactable UDOT spec Granular Borrow or Granular BackfillBorrow.	

Item #	Bid Item Number	Bid Item Name	UOM
		E. Includes sawcut.	
39	02622002P	Underdrain 12 inch	foot
		A. Measured along centerline of pipe. B. Connections to drainage structures or features are incidental to construction and no separate payment will be made for this work. C. Department will make no separate payment for required inspection and testing. D. Trench Backfill material between top of geotextile wrapping and bottom of surfacing Granular Borrow is incidental to pipe price. Contractor to weigh between using compacting native material vs import of readily compactable UDOT spec Granular Borrow or Granular BackfillBorrow. E. Includes sawcut.	
40	026330060	5 Foot Standard Manhole 3 ft to 5 ft Deep - CB 11	each
		A. Consists of all necessary materials required to make a complete drainage structure including but not limited to the following: Concrete, reinforcing steel, grate and frame, manhole steps, and any other items required in standard drawings. B. The connection to any pipe culvert or other drainage feature will be incidental to construction and no separate payment will be made for this work. C. The Department will pay a percentage of the unit bid price in addition to the price for each structure, proportional to volume changes (example: a 4 ft deep box increased by 1.5 ft, the percentage of increase in payment is 1.5 ÷ 4 x 100) for any required field changes larger than 1 foot of specified plan dimensions. D. The Department will make no separate payment for testing upon failure of visual inspection.	
41	026330120	Concrete Drainage Structure 3 ft to 5 ft Deep - CB 9	each
		A. Consists of all necessary materials required to make a complete drainage structure including but not limited to the following: Concrete, reinforcing steel, grate and frame, manhole steps, and any other items required in standard drawings. B. The connection to any pipe culvert or other drainage feature will be incidental to construction and no separate payment will be made for this work. C. The Department will pay a percentage of the unit bid price in addition to the price for each structure, proportional to volume changes (example: a 4 ft deep box increased by 1.5 ft, the percentage of increase in payment is 1.5 ÷ 4 x 100) for any required field changes larger than 1 foot of specified plan dimensions. D. The Department will make no separate payment for testing upon failure of visual inspection.	
42	026330130	Concrete Drainage Structure 5 ft to 7 ft Deep - CB 9	each
		A. Consists of all necessary materials required to make a complete drainage structure including but not limited to the following: Concrete, reinforcing steel, grate and frame, manhole steps, and any other items required in standard drawings. B. The connection to any pipe culvert or other drainage feature will be incidental to construction and no separate payment will be made for this work. C. The Department will pay a percentage of the unit bid price in addition to the price for each structure, proportional to volume changes (example: a 4 ft deep box increased by 1.5 ft, the percentage of increase in payment is 1.5 ÷ 4 x 100) for any required field changes larger than 1 foot of specified plan dimensions. D. The Department will make no separate payment for testing upon failure of visual inspection.	
43	026350045	Solid Cover and Frame - GF 5	each
		Refer to UDOT Standard Drawing Series GF 5	
44	027210010	Untreated Base Course	ton
45	027350010	Micro-Surfacing	square yard
46	027410050	HMA - 1/2 inch	ton
		Includes aggregates, asphalt binder, hydrated lime, tack coat, and other additives, etc.	
47	02765003P	Remove Pavement Marking Paint	foot
		Per foot each line removed regardless of width. Unauthorized removals will not be paid for.	
48	027650040	Remove Pavement Message	each
		A. Measure each letter or single arrow as one pavement message. B. Measure two-headed arrows as two pavement messages. C. Unauthorized removals will not be paid for.	
49	027650050	Pavement Marking Paint	gallon
50	027680105	Pavement Message (Preformed Thermoplastic)	each
		Measurement	

Item #	Bid Item Number	Bid Item Name	UOM
		A. Letter = one message B. Arrow = one message C. Multi-headed arrow = one message per arrow D. School crossbars = one message per 24 inch x 10 ft bar E. Crosswalk = two message per lane and two messages per shoulder F. Stop Bar = one message per lane and one message per shoulder G. Railroad crossing markings = seven messages per lane 1. R = one message each (two required) 2. X = two messages 3. Transverse Bar = one message each (two required) 4. Stop Bar = one message H. Include all costs for the Manufacturer's Service Representative and other technical assistance in the contract unit price.	
51	027680115	Pavement Message (Preformed Thermoplastic Stop Line, Crosswalks - 12 inch)	foot
		By the foot of 12 inch wide line according to Standard Drawings.	
52	02771001P	Concrete Curb Type B4	foot
		Measured along the roadway face. Includes excavation. Untreated base course will be paid separately.	
53	02771002P	Concrete Curb Type B5	foot
		Measured along the roadway face. Includes dowel bars. Untreated base course will be paid separately. Includes median reflectors and curb paint as shown on the standard plans. Includes the paint and reflectors on the plowable end sections.	
54	02771003P	Concrete Curb and Gutter Type B1	foot
		Measured along the roadway face. Includes excavation. Untreated base course will be paid separately.	
55	02771004P	Modified Concrete Curb Type B4	foot
		Measured along the roadway face. Includes reinforcing steel. Includes excavation. Untreated base course will be paid separately.	
56	02771005P	Modified Concrete Curb and Gutter Type B1	foot
		Measured along the roadway face. Includes excavation. Untreated base course will be paid separately.	
57	02771006P	Concrete Driveway Flared, 7 inch Thick	square foot
		Include Radius and Flares. Includes excavation. Untreated base course will be paid separately. Includes all labor, equipment, and materials necessary for a complete driveway. The curb cut will remain part of the curb and gutter installation.	
58	02771007P	8 Inch Curb	foot
		Includes excavation. Includes all labor, equipment, and materials necessary for installation. Untreated base course will be paid separately.	
59	02771008P	Corner Pedestrian Access Ramp	each
		Includes all labor, equipment, and materials necessary for a complete pedestrian access ramp according to GW Series Standard Drawings. The curb cut will remain part of the curb and gutter installation. Untreated base course will be paid separately.	
60	027710100	Plowable End Section	each
		Includes excavation and untreated base course.	
61	027760010	Concrete Sidewalk	square foot
		Includes excavation and untreated base course.	
62	027760030	Concrete Flatwork 4 inch thick	square foot
		Includes excavation and untreated base course.	
63	027760040	Concrete Flatwork 6 inch thick	square foot
		Includes excavation and untreated base course.	
64	028210042	Chain Link Fence, Type I with Barb Wire Arm	foot
		Measured parallel to the ground along the fence. Includes line posts, less openings.	
65	02229000*	Temporary Retaining Wall	lump sum
		Includes all equipment, materials, and labor to design and install a complete temporary retaining wall as required on the plans and in Section 02229.	
66	02831002*	MSE Wall R-761 (Est. Lump Qty: 1906 sq ft)	lump sum
		A. Includes all equipment, materials, and labor to design and install a complete wall system as required in the	

Item #	Bid Item Number	Bid Item Name	UOM
		drawings and specifications. B. Contractor has the option to re-use existing wall backfill and blocks in the new wall if the Contractor verifies the materials meet the Sections 02831, 02832, 02835, and 02836. C. The import of new materials are incidental to the wall lump sum price. A change order will not be issued if the existing materials are not suitable and cannot meet specifications.	
67	02075004P	Geotextiles - Weed Barrier	square foot
		Measurement does not include overlaps	
68	02221206*	Install Tree Well	each
		Includes all materials, equipment, and labor to construct tree well cutout and form work in new parkstrip. Includes all materials and for the tree grate frame.	
69	02813000*	Pressurized Irrigation System	each
		Includes all materials , equipment, and labor to re-establish the irrigation system on the southwest corner of the intersection.	
70	02813001*	Root Watering System	each
		Includes all items shown on sheet DT-15	
71	029120010	Contractor Furnished Topsoil	square yard
72	029220060	Turf Sod	square foot
73	02932008D	Plant - 3 inch Caliper	each
		Tree species required is: Japanese Zelkova (Zelkova Serrata)	
74	02934000*	Cobble Rock	square yard
		Install at depths shown on the plans. Match existing cobble rock type, size, and color.	
75	028910028	Sign Type A-1, 12 Inch X 36 Inch	each
		Includes frame or mounting bar as required in SN Series Standard Drawings.	
76	028910042	Sign Type A-1, 24 inch x 24 inch	each
		Includes frame or mounting bar as required in SN Series Standard Drawings.	
77	02891005P	Sign Type A-1, 18 inch X 30 inch	each
		Includes frame or mounting bar as required in SN Series Standard Drawings.	
78	028910060	Sign Type A-1, 30 inch X 30 inch	each
		Includes frame or mounting bar as required in SN Series Standard Drawings.	
79	02891006P	Sign Type A-1, 30 inch X 36 inch	each
		Includes frame or mounting bar as required in SN Series Standard Drawings.	
80	028910270	Remove Sign Less Than 20 Square Feet	each
81	028910285	Relocate Sign Less Than 20 Square Feet	each
		Includes removal and disposal of existing concrete sign base.	
82	028910300	Small Sign Tubular Steel Post Base (B1)	each
		Includes installation of socket, wedge, and concrete foundation as required by SN Series Standard Drawings.	
83	028910320	Slipbase Sign Base (B3)	each
		Includes installation of top casting, stub base, concrete foundation, and core drilling as required by SN Series Standard Drawings.	
84	028910355	Sign Post P1	each
		Includes post and all hardware to mount sign to post as required by SN Series Standard Drawings.	
85	02892001D	Traffic Signal System 4500 South & Main St	lump sum
		Includes all labor, equipment, installation of state furnished materials, power source connection, mast arm mounted signs, and materials necessary to provide a complete and fully operational signal system. Includes all removal items on sheet SG-S1. Includes installation of 1-2" and 1-6" conduit for use by Murray Power. Includes all transport and shipping costs to deliver and pickup black powder coated signal poles and all black powder coated items from UDOT yard and powder coat plant in Lindon, UT	

Item #	Bid Item Number	Bid Item Name	UOM
86	16525001D	Highway Lighting System	lump sum
		Includes all labor, equipment, and materials necessary to install items on the LT sheets and sheet LT-S1. Includes all irrigation and lighting items as shown on the lighting plans and lighting schedule.	

VII. Standard Drawings Index

STANDARD DRAWINGS INDEX (Supplemental Issue #10, November 20, 2014)
UTAH DEPARTMENT OF TRANSPORTATION

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AT 5B	Ramp Meter Queue Detection Layout	02/28/13
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AT 7B	Precast Concrete Fiber Optic and Utility Vault Details	01/01/12
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AT 9	ATMS Cabinet Disconnect and Transformer Frame	01/01/12
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BA 2A	Precast Concrete Barrier – 32 Inch New Jersey Shape	06/26/14

Federal Projects With Full Size Plan Sheets

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BA 2C	Precast Concrete Barrier – 32 Inch New Jersey Shape, Median Small Sign Section	06/26/14
BA 2D	Cast-In-Place Concrete Barrier – 32 Inch New Jersey Shape, 42 Inch Constant Slope Barrier Transition	06/26/14
BA 2E	Precast Concrete Half Barrier – 32 Inch New Jersey Shape	06/26/14
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BA 3A3	Cast-In-Place Concrete Constant Slope Barrier – 42 Inch 3 of 3	01/01/12
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CC 1	Crash Cushion and End Treatment Markings	01/01/12
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CC 3	Crash Cushion and End Treatments Drainage Details Guideline B	01/01/12
CC 4A	Details for Placement Crash Cushions Type A, B, And D	01/01/12
CC 4B	Crash Cushion Mounted On Median Island	01/01/12
CC 4C	Crash Cushion Split Median Island w/RR Crossing	01/01/12
CC 5A	Grading and Placement Details Crash Cushion Type C Brakemaster	01/01/12
CC 5B	Grading and Placement Details Crash Cushion Type C C.A.T	01/01/12
CC 5C	Grading and Placement Details Crash Cushion Type C FLEAT-MT	01/01/12
CC 6	Crash Cushion Type E Sand Barrel Details	01/01/12
CC 7A	Grading and Installation Details End Treatment Type F Quad Trend 350	01/01/12
CC 7B	Grading and Installation Details End Treatment Type F BEAT-SSCC	01/01/12
CC 8A	Grading and Installation Details Crash Cushion Type G	06/27/13
CC 8B	Grading and Installation Details for “3R” Projects End Treatment Type G	06/27/13
CC 9A	Grading and Installation Details End Treatment Type H	01/01/12
CC 9B	Maintenance Only Grading and Installation Details End Treatment Type H	01/01/12

Diversion Boxes (DB)

DB 1A	Standard Diversion Box/Cover Plate/Grating for 18 Inch DIA. or 24 Inch DIA. Pipe	01/01/12
DB 1B	Standard Diversion Box Hinged Lid Details for 18 Inch DIA or 24 Inch DIA Pipe	01/01/12

DB 1C	Standard Diversion Box Bicycle Safe Grating Details for 18 Inch DIA or 24 Inch DIA Pipe	01/01/12
DB 1D	Standard Diversion Box Three Gate Box Sections for 18 Inch DIA or 24 Inch DIA Pipe	01/01/12
DB 1E	Standard Diversion Box Three Gate Box Sections for 18 Inch DIA or 24 Inch DIA Pipe	01/01/12
DB 1F	Standard Diversion Box Three Gate Box Sections for 18 Inch DIA or 24 Inch DIA Pipe	01/01/12
DB 2A	Standard Diversion Box w/Interchangeable Walls, Bottom Slab, Walls, and Apron Details	01/01/12
DB 2B	Standard Diversion Box w/Interchangeable Walls, Quantities Schedule	01/01/12
DB 2C	Standard Diversion Box w/Interchangeable Walls, Hand Slide Gate Details	01/01/12
DB 2D	Standard Diversion Box Type G Hand Slide Gate Details	01/01/12
DB 2E	Standard Diversion Box Hinged Lid (Solid Cover Plate) Type A Details Type I Plan	01/01/12
DB 2F	Standard Diversion Box Hinged Lid (Solid Cover Plate) Type A Details Type II Plan	01/01/12
DB 2G	Standard Diversion Box Hinged Lid Solid Cover Type B Details	01/01/12
DB 2H	Standard Diversion Box Hinged Lid Solid Cover Type B and C Details	01/01/12
DB 3A	Standard Diversion Box with Manhole Cover Situation and Layout	01/01/12
DB 3B	Standard Diversion Box with Manhole Cover Up to 42 Inch RCP and Up To 54 Inch CMP	01/01/12
DB 3C	Standard Diversion Box with Manhole Cover 48 Inch to 72 Inch RCP and 60 Inch to 84 Inch CMP	01/01/12
DB 4	Standard Transition Concrete Lined Ditch to Pipe or Diversion Box	01/01/12

Design Drawings (DD)

DD 1	Superelevation, Widening, and Edge Detail	01/01/12
DD 2	Surface Ditch, Benched Slope, and Cut Ditch Details	01/01/12
DD 3	Climbing Lanes	01/01/12
DD 4	Geometric Design for Freeways (Roadway)	01/01/12
DD 5A	Entrance and Exit Ramps At Crossroads	01/01/12
DD 5B	Entrance and Exit Ramps At Crossroads	01/01/12
DD 6	Entrance and Exit Ramp Geometrics	01/01/12
DD 7	Freeway Crossover	01/01/12
DD 8	Structural Geometric Design Standards for Clearances	02/28/13
DD 9	Structural Geometric Design Standards	01/01/12
DD 10	Rural Multi Lane Highways Other Than Freeways	01/01/12
DD 11	Rural Two Lane Highways	01/01/12
DD 12	Frontage and Access Roads (Under 50 ADT)	01/01/12

DD 13A	Typical Rural 2 Lane Road T-Intersection (High Speed)	01/01/12
DD 13B	Typical Rural 2 Lane Road T-Intersection (Low Speed) 40 MPH or Less	01/01/12
DD 14A1	Typical Rural 2 Lane Road Intersection (High Speed) 45 MPH or Higher	01/01/12
DD 14A2	Typical Rural 2 Lane Road Intersection (High Speed) with Left Turn Acceleration Lane	01/01/12
DD 14B	Typical Rural 2 Lane Road Intersection (Low Speed)	08/30/12
DD 15	Embankment for Bridge Placement	01/01/12
DD 16	Grade-Separated Arterials Other Than Freeways 50 to 60 MPH	01/01/12
DD 17	Clear Zone and Lateral Offset to Obstruction	01/01/12
DD 18	Utility Location Requirements	06/27/13

Drainage (DG)

DG 1	Fill Height for Metal Pipe (Steel)	01/01/12
DG 2	Fill Height for Metal Pipe (Aluminum)	01/01/12
DG 3	Fill Height for Plastic and Concrete Pipe	02/27/14
DG 4	Pipe Minimum Cover	02/27/14
DG 5	Drainage Pipe Installation	02/27/14
DG 6	Safety Slope End Section for Circular and Arched Pipes	01/01/12
DG 7	Gasketed Joints or Coupling Bands for CMP	01/01/12
DG 8	Metal Culvert End Section	01/01/12
DG 9	Concrete Pipe Culvert End Sections	01/01/12
DG 10	Miscellaneous Pipe Details	02/27/14

Environmental Controls (EN)

EN 1	Temporary Erosion Control (Check Dams)	01/01/12
EN 2	Temporary Erosion Control (Silt Fence)	01/01/12
EN 3	Temporary Erosion Control (Slope Drain and Temporary Berm)	01/01/12
EN 4	Temporary Erosion Control (Drop Inlet Barriers)	01/01/12
EN 5	Temporary Erosion Control (Pipe Inlet and Gutter Inlet Barriers)	01/01/12
EN 6	Temporary Erosion Control (Sediment Trap and Stabilized Construction Entrance)	01/01/12
EN 7	Temporary Erosion Control (Straw Bale Barrier)	01/01/12

Fence and Gates (FG)

FG 1A	Right Of Way Fence and Gates (Wood Post)	01/01/12
FG 1B	Right Of Way Fence and Gates (Wood Post)	01/01/12
FG 2A	Right Of Way Fence and Gates (Metal Post)	01/01/12
FG 2B	Right Of Way Fence and Gates (Metal Post)	01/01/12
FG 3	Swing Gates Type I for Gates Less Than 17 FT	01/01/12

FG 4A	Standard Wildlife Escape Ramp Details	01/01/12
FG 4B	High Migratory Wildlife Escape Ramp Details	01/01/12
FG 4C	Corner Brace Wildlife Escape Ramp Details	01/01/12
FG 4D	Wildlife Pole Fence Detail	01/01/12
FG 5	Swing Gates Type II for Gates Wider Than 17 FT	01/01/12
FG 6	Chain Link Fence	01/01/12

Grates, Frames, and Trash Racks (GF)

GF 1	Manhole Frame and Grated Cover	01/01/12
GF 2	Manhole Frame and Solid Cover	01/01/12
GF 3	Rectangular Grate and Frame	01/01/12
GF 4	Directional Flow Grate and Frame	01/01/12
GF 5	Solid Cover and Frame	01/01/12
GF 6	Manhole Steps	01/01/12
GF 7	Standard Screw Gate and Frame	01/01/12
GF 8	2 FT x 2 FT Grate and Frame	01/01/12
GF 9	28 Inches x 24 Inches Directional Flow Grate and Frame	01/01/12
GF 10	Standard Trash Racks 90 Degree Crossing Angle	01/01/12
GF 11	Standard Trash Racks	01/01/12
GF 12	Standard Trash Racks	01/01/12
GF 13	Open Curb Inlet Grate and Frame	01/01/12
GF 14	Solid Cover for Std Dwg DB 1	01/01/12
GF 15	Standard Screw Grate and Frame	01/01/12
GF 16	Perpendicular Grate and Frame	01/01/12

General Road Work (GW)

GW 1A	Raised Island	01/01/12
GW 1B	Raised Island and Plowable End Section	10/31/13
GW 1C	Raised Island Details	06/26/14
GW 1D	Median Reflector Details	10/31/13
GW 2	Concrete Curb and Gutter Types	01/01/12
GW 3	Concrete Curb and Gutter Details	01/01/12
GW 4A	Concrete Driveways and Sidewalks	02/28/13
GW 4B	Concrete Driveways and Sidewalks	02/28/13
GW 5A	Pedestrian Access	**11/06/14**
GW 5B	Pedestrian Access	**11/06/14**
GW 5C	Pedestrian Access	**11/06/14**
GW 5D	Pedestrian Access	**11/06/14**
GW 6	Right Of Way Marker	01/01/12
GW 7	Newspaper and Mailbox Stop Layout	01/01/12
GW 8	Newspaper and Mailbox Supports	01/01/12
GW 9A	Delineation Hardware	01/01/12
GW 9B	Linear Delineation Panel and Installation Details	01/01/12
GW 10	Delineation Application	01/01/12
GW 11	Sidewalks and Shoulders On Urban Roadways	02/28/13

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GW 12A1	Active Pedestrian Controls for Railroad Crossings Sheet 1 of 2	04/25/13
GW 12A2	Active Pedestrian Controls for Railroad Crossings Sheet 2 of 2	04/25/13
GW 12B1	Passive Pedestrian Controls for Railroad Crossings Sheet 1 of 2	04/25/13
GW 12B2	Passive Pedestrian Controls for Railroad Crossings Sheet 2 of 2	04/25/13
GW 12C1	Pedestrian Controls Semi-Exclusive Railroad Alignments Sheet 1 of 2	04/25/13
GW 12C2	Pedestrian Controls Semi-Exclusive Railroad Alignments Sheet 2 of 2	04/25/13
GW 12D	Pedestrian Controls Street Running Railroad Alignment Signalized Intersections	04/25/13
GW 12E	Pedestrian Controls Street Running Railroad Alignment Unsignalized Intersections	04/25/13

Paving (PV)

PV 1	Joints for Highways with Concrete Traffic Lanes and Shoulders	01/01/12
PV 2	Pavement/Approach Slab Details	01/01/12
PV 3	Concrete Pavement Details 1 of 2	**11/06/14**
PV 4	Concrete Pavement Details 2 of 2	10/25/12
PV 5	Urban Concrete Pavement Details	01/01/12
PV 6A	Rumble Strip Shoulder Details	01/01/12
PV 6B	Rumble Strips Depth and Location Details	01/01/12
PV 7	Rumble Strips Typical Applications	01/01/12
PV 8A	Rumble Strips Centerline Application	01/01/12
PV 8B	Rumble Strips Centerline Application	01/01/12
PV 9	Dowel Bar Retrofit	02/28/13
PV 10	Utility Orientation/Adjustments in PCCP	10/31/13

Signals (SL)

SL 1A	Traffic Signal Mast Arm Pole and Luminaire Extension	**11/06/14**
SL 1B	Traffic Signal Mast Arm Pole and Luminaire Extension	01/01/12
SL 2	Traffic Signal Mast Arm Details 30 FT Thru 75 FT	01/01/12
SL 3	Underground Service Pedestal Details	01/01/12
SL 4	Traffic Signal Mast Arm Pole Foundation	**11/06/14**
SL 5	Traffic Signal Pole	01/01/12
SL 6	Signal Head Details	10/31/13
SL 7	Pedestrian Signal Assembly	**11/06/14**
SL 8	Traffic Signal Cabinet Base Details	01/01/12
SL 9	Traffic Signal Loop Detector Details	01/01/12
SL 10	Traffic Counting Loop Detector Details	01/01/12
SL 11	Highway Luminaire Pole Ground Mount	01/01/12
SL 12	Luminaire Slip Base Details	01/01/12

SL 13	Highway Luminaire Pole Barrier Mount	01/01/12
SL 14	Highway Luminaire Pole Foundation Extension	01/01/12
SL 15	Single Transformer Substation Details	01/01/12
SL 16	Solar Traffic Counting Station	06/26/14

Signs (SN)

SN 1	Signs At Railroad Crossings	01/01/12
SN 2A	School Speed Limit Assembly	**11/06/14**
SN 2B	School Speed Limit Assembly	01/01/12
SN 3	Overhead School Speed Limit Assembly	10/31/13
SN 4	Object Markers "T" Intersection and Pavement Transition Guidance	01/01/12
SN 5	Typical Installation for Milepost Signs	01/01/12
SN 6	Speed Reduction Sign Sequence	10/31/13
SN 7A	Placement of Ground Mount Signs	01/01/12
SN 7B	Placement of Ground Mount and Barrier Mount Signs	01/01/12
SN 8A	Temporary Use Ground Mounted Timber Sign Post	01/01/12
SN 8B	Temporary Use Ground Mounted Square Steel Sign Post	01/01/12
SN 9A	Small Sign Tubular Steel Post Base with Concrete (B1) (Socket System)	01/01/12
SN 9B	Small Sign Tubular Steel Post Base (B2A) (Triangular Steel Anchor System)	01/01/12
SN 9C	Small Sign Tubular Steel Post Base with Concrete (B2B) (Triangular Steel Anchor System in Concrete)	01/01/12
SN 10A	Slipbase Sign Base (B3) Hardware	02/28/13
SN 10B	Slipbase Sign Base (B3) Installation	02/28/13
SN 11A	Surface Mounted Tubular Steel Sign Base (B4A)	01/01/12
SN 11B	Side Mounted Tubular Steel Sign Base (B4B)	01/01/12
SN 12A	Barrier Mounted Tubular Steel Sign Bases (B5A and B5B)	01/01/12
SN 12B	Barrier Mounted Tubular Steel Sign Bases 20 SQ Ft or Less	01/01/12
SN 13A	Tubular Steel Sign Mounting Requirements	10/31/13
SN 13B	Tubular Steel Sign Mounting Hardware	01/01/12
SN 13C	Mounting Bar Placement for Small Signs	02/27/14
SN 14A	Freeway Sign Post Requirements	01/01/12
SN 14B	Freeway Sign Base and Post Requirements (B6A-B6B-B6C)	01/01/12
SN 14C	Freeway Sign Foundation and Fuse Plate Requirements	01/01/12
SN 14D	Freeway Sign Frame Fabrication Details	08/30/12
SN 14E	Freeway Sign Bracket Details	08/30/12
SN 15	Mounting Brackets and Clamps	01/01/12
SN 16A	Multi-Directional Breakaway Base for Steel I-Beam Supports, General Notes	**11/06/14**
SN 16B	Multi-Directional Breakaway Base for Steel I-Beam Sign Supports, Two Posts	**11/06/14**
SN 16C	Multi-Directional Breakaway Base for Steel I-Beam Sign Supports, Three Posts	**11/06/14**

SN 16D	Multi-Directional Breakaway Base for Steel I-Beam Sign Supports, Foundation Details	**11/06/14**
SN 16E	Multi-Directional Breakaway Base for Sign Post, (B7A)	**11/06/14**
SN 16F	Multi-Directional Breakaway Base for Sign Post, (B7B)	**11/06/14**
SN 16G	Multi-Directional Breakaway Base for Sign Post, (B7C)	**11/06/14**
SN 16H	Multi -Directional Breakaway Base for Round Pipe Single Post, (B7D)	**11/06/14**
SN 16I	Multi -Directional Breakaway Base for Round Pipe Double Post, (B7D)	**11/06/14**
SN 17	Freeway Crossover Signing	01/01/12
SN 18	Chevron Alignment Signs	01/01/12

Striping (ST)

ST 1	Typical Pavement Markings No Pass Zone and Lane Reduction	01/01/12
ST 2	Typical Pavement Markings Entrance Ramps	01/01/12
ST 3A	Typical Pavement Markings Exit Ramps	01/01/12
ST 3B	Typical Pavement Markings Exit Ramps	01/01/12
ST 4	Crosswalks, Parking, and Intersection Approaches	01/01/12
ST 5	Painted Median and Auxiliary Lane Details	01/01/12
ST 6	Passing/Climbing Lanes	01/01/12
ST 7	Pavement Markings at Railroad Crossing	01/01/12
ST 8	School Crossing and School Message	01/01/12
ST 9	Location of Bicycle Detector Pavement Markings at Intersection	**11/06/14**
ST 10	Location of Bicycle Detector Pavement Markings in Bicycle Lane	**11/06/14**

Structures and Walls (SW)

SW 1A	Welded End Guard Unit	01/01/12
SW 1B	Precast Concrete Cattle Guard	01/01/12
SW 2	Noise Wall Placement Options	01/01/12
SW 3A	Precast Concrete Noise Wall 1 of 2	01/01/12
SW 3B	Precast Concrete Noise Wall 2 of 2	01/01/12
SW 4A	Precast Concrete Retaining/Noise Wall 1 of 3	01/01/12
SW 4B	Precast Concrete Retaining/Noise Wall 2 of 3	01/01/12
SW 4C	Precast Concrete Retaining/Noise Wall 3 of 3	01/01/12
SW 5	Precast Pilaster Post	01/01/12
SW 6	Precast Concrete Panel Surface Texture Options	01/01/12

Traffic Control (TC)

TC 1	Traffic Control Drawing Series General Notes	08/30/12
TC 2A	Work Zone Channelization Devices	01/01/12
TC 2B	Work Zone Signing	08/30/12
TC 2C	Work Zone Advanced Warning Arrow Boards	06/26/14
TC 2D	Delineator Mounted Work Zone Sign Bracket	01/01/12

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TC 3A	Hazard Mitigation	02/28/13
TC 3B	Hazard Mitigation and Positive Protection Devices	01/01/12
TC 4A	Standard Work Zone Signing General	08/30/12
TC 4B1	Reduced Speed Work Zone Signing General	08/30/12
TC 4B2	Reduced Speed Shoulder Work Zone Signing General	08/30/12
TC 4C	Traffic Control Project Limit Signing	08/30/12
TC 4D1	Work Zone Specialty Signs	10/31/13
TC 4D2	Work Zone Specialty Signs	10/31/13
TC 5	Traffic Control Urban Intersection with Roadways Under 50 MPH	01/01/12
TC 6	Temporary Pedestrian Access Route	01/01/12
TC 7	Median Crossover and 2-Lane, 2-Way Diversion	08/30/12
TC 8	Traffic Control Lane Closure	01/01/12
TC 9	Work Zone Business Access Signing	01/01/12
TC 10	Traffic Control Expressway and Freeway Crossover/Turn Around	01/01/12
TC 11	Traffic Control Exit Ramp Gore	01/01/12
TC 12	Traffic Control Entrance Ramp Gore	01/01/12
TC 13	Traffic Control Shoulder Haul Road	01/01/12
TC 14A	Traffic Control Flagging Operation	**11/06/14**
TC 14B	Reduced Speed Signing for Pilot Car Operation (Conventional Roads)	**11/06/14**
TC 15	Traffic Control 2 Lane/2 Way Seal Coat with Cover Material	01/01/12
TC 16	Traffic Control for Non-Durable Pavement Marking	01/01/12
TC 17	Traffic Control Work Zone Guardrail Intermediate End Protection	10/31/13
TC 18	Blunt End Protection for W-Beam Guardrail and Concrete Barrier	08/30/12
TC 19	Construction Access Points for Speeds of 55 MPH and Greater	08/30/12

VIII. Use of Minority or Women Owned Banks

Federal Department of Transportation regulations and the Utah Department of Transportation encourage all contractors and suppliers to thoroughly investigate the services offered by banks controlled or owned by minorities or women and utilize their services as when possible.

IX. Bid Conditions
DISADVANTAGED BUSINESS ENTERPRISE (DBE)

POLICY

"Policy Statement"

It is the policy of the DEPARTMENT to take all necessary and reasonable actions to ensure that DBEs as defined herein shall have equal opportunity to participate in the performance of contracts financed in whole or in part with US Department of Transportation (DOT) funds under this agreement as modified herein.

"Objectives"

The objectives of this policy are to:

1. Ensure nondiscrimination in the award and administration of DOT assisted contracts;

2. Create a level playing field on which DBEs can compete fairly for DOT assisted contracts;

3. Ensure that the DBE program is narrowly tailored in accordance with applicable law;

4. Ensure that only firms that fully meet *49 CFR 26* eligibility standards are permitted to participate as DBEs;

5. Remove barriers to the participation of DBEs in Federal aid contracts;

6. Assist the development of firms that can compete successfully in the marketplace outside the DBE program; and

7. Provide appropriate flexibility in establishing and providing opportunities for DBEs.

"Responsibilities"

Implementation of the DBE Program is accorded the same priority as compliance with all other legal obligations incurred by the DEPARTMENT in financial assistance agreements with DOT.

1. The Civil Rights Manager shall be the DBE liaison officer, who shall have direct, independent access to the Executive Director concerning DBE program matters. The Civil Rights manager shall be responsible for

implementing all aspects of the DBE program. Adequate staff will be assigned to administer the DBE program.

2. The ENGINEER is responsible for supervision of the DBE participation covered by the Contract.

DBE BID AND PERFORMANCE CONDITIONS

"Obligations"

The contractor, subcontractor, service provider, or supplier at any lower tier shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the DEPARTMENT deems appropriate.

"Assurances"

Each contract between the DEPARTMENT and the Contractor and each subcontract at any lower tier must include the following assurance:

> The contractor, sub recipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the DEPARTMENT deems appropriate.

A. CONTRACT GOAL

1. The DEPARTMENT has determined that one or more can reasonably be expected to compete for the work contained in the proposal for this project. It is, therefore, the goal of the DEPARTMENT that DBE firms shall have an affirmative action opportunity to contract for the following percentage of work under this contract:

   a. If the indicated DBE percent of the *CONTRACT DBE GOAL* is greater than 0.0 percent, complete Part A of the DBE BID ASSURANCE. Refer to Bidding Requirements, Section D, Subsection 1,a, of this Special Provision. (The commitment dollar amount up to the amount of the assigned goal is Race Conscious DBE participation. Any commitment dollar amount in excess of the assigned goal is Race Neutral Participation.)

b. If the indicated DBE percent of the *CONTRACT DBE GOAL* is 0.0 percent, complete Part B of the DBE BID ASSURANCE. Refer to Bidding Requirements, Section D, Subsection 1,b, of this Special Provision. (Any commitment to a DBE is Race Neutral Participation.)

CONTRACT DBE GOAL: _____8_____ Percent

c. At the time of Bid on Additive Projects, DBE commitment can only be made on Base bid items. No Additive bid items may be committed.

2. GOALS

a. GOAL FOR BID EVALUATION

The above entered DBE percentage is a goal for bid evaluation to determine responsiveness of the proposal as it relates to this specification. Percentages for bidding purposes shall be calculated using dollar values and quantities as shown in proposals received for this project. Bidders shall compute the percentage of their DBE commitment by dividing the dollar amount of subcontract work that is being committed to certified DBE firms by the total dollar amount of the proposal. This will be the percentage of their DBE commitment to be used by the Electronic Bidding System (EBS) software.

b. RACE CONSCIOUS GOAL

DBE participation on projects that are assigned a Goal for Bid Evaluation that is greater than 0.0 percent is *race conscious* and the DBE commitment becomes a contract specification upon award. The Bidder must submit with its Bid Proposal a *DBE Commitment,* prepared within the EBS software, that indicates:

(1) Name of DBE firm
(2) Work items to be performed
(3) Total dollar amount of commitment

If the DBE commitment does not meet or exceed the assigned goal, the Bidder must submit with the Bid Proposal documentation of good faith efforts.

c. RACE NEUTRAL GOAL

DBE participation on projects that are assigned 0.0 percent Goal for Bid Evaluation is *race neutral* and does not become a contract specification upon award. The Bidder must take equal opportunity action to allow DBEs to compete for and perform on subcontracts. Only work classifications that the Bidder will subcontract need to be considered in evaluating equal opportunity action in the bid preparation. Contacts that have been made with DBE firms regarding potential work to be subcontracted and the results of such contacts are to be submitted with the EBS prepared Bid Proposal in *Race Neutral DBE Documentation* which contains:

(1) The work classifications that will be subcontracted.
(2) DBE firms contacted.
(3) Result of contact
(4) Name of anticipated DBE subcontractor(s)
(5) Anticipated work items to be performed by DBEs.
(6) Anticipated dollar amount of subcontract(s).

NOTE: In the EBS (Electronic Bidding System):
Use the Quote Comparison to document item (1).
Use the DBE Contact Log to document items (2) and (3).
Use the DBE Commitment to document items (4), (5), and (6).

The *Race Neutral DBE Documentation* is required to document equal opportunity action and to assist UDOT with DBE reporting and DBE goal setting. Use the EBS functions in above NOTE as the Race Neutral DBE Documentation.

d. GOAL FOR CONTRACT PERFORMANCE

The Bidder's *DBE Commitment* becomes an attachment to the Bid Proposal and is a condition of award, and thereby becomes a contract specification. Upon award, this Race Conscious DBE Commitment also becomes the minimum goal for contract performance.

Commitments to DBEs that exceed the Goal for Bid Evaluation will be considered as both race conscious and race neutral. The dollar amount of the Goal for Bid Evaluation will be considered to be race conscious participation. Any dollar amounts in excess of the Goal for Bid Evaluation will be considered as race neutral participation.

It is the intent of this Special Provision that the DBE Firm(s) listed for *race conscious* participation, as a minimum level of participation, will perform to the extent indicated in the Bidder's DBE Commitment. The minimum level of DBE participation includes:

(1) Indicated DBE firm(s),
(2) Indicated work item(s) (bid items),
(3) Indicated total dollar amounts.

Listed bid items shall be considered to be committed in their entirety unless Bidders designate otherwise in their DBE Commitment. If the DBE will perform only a part of the bid item, i.e., haul only, the Bidder must indicate what part the DBE will perform (Partial Performance). If the DBE will perform only a part of the quantity of the bid item, the Bidder must indicate the estimated quantity of the work to be performed by the DBE (Partial Quantity).

Substitutions of DBE subcontractor(s), work item(s), or decreases of total dollar amount(s) as indicated in the Bidder's DBE Commitment will not be allowed without prior submission of written justification to the ENGINEER and approval of the ENGINEER and the Civil Rights Manager.

After award of a contract, substitutions will not be allowed without prior submission of a written “hold harmless” statement from the DBE.

*Any change by the Contractor or the Department in the DBE Commitment requires that the change is approved by a Change Order by the Civil Rights Office.

Substitution of race neutral participation in excess of the Goal for Bid Evaluation requires equal opportunity efforts to substitute with other DBE participation.

**DEPARTMENT generated decreases of quantities in individual bid items do not require prior approval of the Civil Rights Manager—but must be fully justified by the ENGINEER at the conclusion of the project in the Explanation of Overruns and Under-runs Statement*. The ENGINEER’S justification shall show the total estimated quantity, the final pay quantity as shown on the final estimate invoice, the quantity of the under-run, and the percent of under-run of the individual item. The explanation for the under-run shall

include the reasons for the under-run and shall include as much detail as possible.

There is a difference between the under-run of quantity on individual bid items versus the under-run of DBE commitment on DBE committed bid items, in the approval process. Refer to asterisks (*) above.

e. GOAL FOR FINAL COMPLIANCE

Percentages for final compliance shall be based on actual payments to DBEs. Over-runs and under-runs in individual contract items may require adjustments in the predetermined DBE percentage for a project if those items were not related to DBE performance. "The predetermined percentage for a project" refers to the percentage of the Contractor's DBE Commitment that becomes a contract specification upon award.

B. DEFINITIONS

For the purpose of this Special Provision, the following terms are defined:

1. Contract means a legally binding relationship obligating a seller to furnish supplies or services including but not limited to, construction and professional services, and the buyer to pay for them.
2. Contractor means one who participates, through a contract or subcontract (at any tier).

3. Disadvantaged Business Enterprise or DBE means a for profit small business concern.

   a. That has been certified to DBE status by the UUCP.

   b. That is at least 51 per cent owned by one or more individuals who are both socially and economically disadvantaged or, in the case of a corporation, in which 51 per cent of the stock of which is owned by one or more such individuals; and

   c. Whose management and daily business operations are controlled by one or more of the socially and economically disadvantaged individuals who own it.

   d. Whose size is limited to average annual gross receipts of $22,041,000 over the previous three fiscal years. The Secretary of Transportation may adjust this amount from time to time for inflation.

OR

Whose size is limited to the current SBA Business size standard(s) found in 23 CFR part 121 appropriate to the type(s) of work the firm seeks to perform in DOT-assisted contracts.

4. DBE Goals mean:

   a. UDOT's overall goal on DOT-assisted projects. The current approved DBE Goal and Methodology can be found at the following website:

      http://www.udot.utah.gov/main/f?p=100:pg:0:::1:T,V:2250,

   b. The race neutral portion of the overall goal reflects the level of DBE participation that would be expected absent the effects of discrimination.

   c. There is an implied DBE goal on projects with no goals (0.0 percent) that have subcontracting opportunities.

   d. The race neutral portion of the overall goal reflects the level of DBE participation that will be achieved in response to assigned DBE goals. The race conscious portion of the overall goal reflects the level of DBE participation that will be achieved in reponse to the assigned DBE project goals.

5. DBE Joint Venture means an association of a DBE firm and one or more other firms to carry out a single, for profit business enterprise, for which the parties combine their property, capital, efforts, skills, and knowledge, and in which the DBE is responsible for a distinct, clearly defined portion of the work of the contract and whose share in the capital contribution, control, management, risks, and profits of the joint venture to a degree commensurate with its ownership interest.

   The DEPARTMENT's Civil Rights Office prior to bid opening must approve a DBE joint venture in order to be utilized for the satisfaction of contract DBE goals. A DBE Joint Venture application must be submitted allowing ample lead-time for the Civil Rights Office to review, evaluate, and verify information provided for in the application. An interview of the applicant may be necessary at the discretion of the DEPARTMENT prior to approval of the application. If an interview is deemed necessary it will be scheduled at the convenience of all parties.

6. Equal Opportunity Action requires individuals to be considered on the basis of individual capacities and not on the basis of any characteristics generally attributed to the group.

   If a bidder requests or accepts bids for subcontract work, the bidder will request and accept bids from DBEs in the work classifications that potentially will be subcontracted.

7. Good Faith Efforts means efforts to achieve a DBE goal or other requirements of this part that by their scope, intensity, and appropriateness to the objective, can reasonably be expected to fulfill the program requirements.

8. Lack of Financial Fitness is a performance-based definition based solely on failure to pay promptly. There is no reference to financial status or financial capability.

9. Prompt Payment means payment made no later than 30 work days after receipt of payment by the Contractor or Subcontractor, Service Provider or Supplier at any lower tier.

10. Race Conscious measure or program is focused specifically on assisting only DBEs, including women-owned DBEs. UDOT must establish contract goals to meet any portion of its overall DBE goal that it does not project being able to meet using race neutral means. To ensure that the DBE program continues to be narrowly tailored to overcome the effects of discrimination, UDOT must adjust the use of contract goals as follows:

    a. If during the course of any year it is determined that the overall goal will be exceeded, UDOT will reduce or eliminate the use contract goals to the extent necessary to ensure that the use of contract goals does not result in exceeding the overall goal.

    b. If it is determined that UDOT will fall short of its overall goal, then appropriate modifications in the use of race neutral and/or race conscious measures will be made to allow UDOT to meet the overall goal.

11. Race Neutral measure or program is one that is, or can be, used to assist all small businesses. UDOT must meet the maximum feasible portion if its overall DBE goal by using race -neutral means of facilitating DBE participation. Race neutral DBE participation includes:

    a. Any time a DBE wins a prime contract through customary competitive procurement procedures,

b. Is awarded a subcontract on a prime contract that does not carry a DBE goal,

c. Is awarded a subcontract from a prime contractor that did not consider its DBE status in making the award even if there is a DBE goal.

For the purposes of this part, race-neutral includes gender-neutrality.

12. Regular Employee is a person who:

a. Would be working for the DBE firm on any other subcontract with any other contractor.

b. Is a permanent employee of the DBE firm

Or

Has been recruited through the traditional recruitment and/or employment centers

c. Has not recently been employed by the prime contractor on the present project, another subcontractor on the present project, or the renter-lesser of equipment being used on the present project.

d. Is not a member of a construction crew that regularly works for a non-DBE.

e. Is not a licensed contractor who is at the time “unemployed” or “between jobs.”

13. Regular Equipment is owned or leased and operated on a long term agreement and not on an *ad hoc* or contract by contract agreement.

a. The equipment would be used by the DBE firm on any other subcontract with any other contractor.
b. The equipment would be owned by the DBE firm.

Or

The equipment would be leased/rented from traditional equipment lease/rental sources.

c. The DBE firm would have a rental/lease agreement for any rented or leased equipment.

d. The equipment cannot belong to:

(1.) Prime Contractor
(2.) Another subcontractor on the present project.
(3.) Supplier of materials being installed by the DBE firm.

e. The equipment cannot come from another contractor fully operated.

14. Reasonable Bid

This is a bid the DEPARTMENT would accept if it were the only bid submitted. Generally, this is a bid within 10 percent of the Engineer's Estimate.

15. Responsible Bidder

A responsible bidder has the apparent ability and capacity to perform the contract requirements.

In addition to normal prequalification, a responsible bidder is defined as one who has signed (manually or electronically) and submitted with the bid the DBE Bid Conditions Assurance of good faith effort included as Part I of this Special Provision certifying the intention to meet the DBE goal of a proposed contract or to continue good faith effort to do so. These goals may be met by subcontracting or leasing contracts with a DBE or purchasing material from a DBE insofar as the work or material becomes a part of a proposed contract.

16 Responsive Bidder

a. A responsive bidder is a bidder who unequivocally offers to provide services or supplies in conformity with the material terms of the solicitation. In addition to normal prequalification and other bidding requirements, a responsive bidder in relationship to this Special Provision is defined as one who submits evidence of proposed subcontract performance with certified DBE firms to achieve the required dollar amount necessary to achieve the percentage goal.

b. Bidders may be considered as presumptively responsive if they have failed to satisfy the advertised DBE goal set for the proposed contract but have certified in their bid that good faith efforts have been expended to meet the goal and that they will continue during the performance of the contract to locate, solicit, and involve DBE firms in contract performance. Documentation of the bidder's good faith efforts must be included with the bid package of the

DEPARTMENT's review and assessment. Failure to do so shall render the bid non-responsive. The DEPARTMENT will reject the bid.

17. Satisfactory Completion of a subcontract occurs when:

    a. The subcontractor has satisfactorily completed in all respects the work under the Contract.

    b. The Contractor and the subcontractor have notified the ENGINEER in writing that the work of the subcontractor has been completed.

    c. The Engineer will be given a reasonable length of time to check quantities if necessary. Checking quantities does not guarantee the absolute correctness of quantities.

    d. The Contractor and the subcontractor have satisfactorily executed and delivered to the ENGINEER all documents, certificates and proofs of compliance required by the Contract. The satisfactory execution and delivery of these documents, certificates and proofs of compliance to the ENGINEER is a material requirement of the contract.

    e. The ENGINEER accepts in writing the work of the subcontract.

    f. Satisfactory Completion refers only to payment of retainage and accrued interest. A determination of Satisfactory Completion and payment in full for work performed does not relieve the contractor nor the subcontractor from any contractual obligation.

18. Satisfactory Performance means work performed and materials furnished in conformity with the plans and specifications.

19. Service Provider means a broker or a middle man. A business person who buys, sells or performs a service for another in exchange for a mark up or commission.

20. Socially and Economically Disadvantaged Individuals means any individual who is a citizen (or lawful admitted permanent resident) of the United States and who is:

    a. Any individual who the DEPARTMENT finds to be a socially and economically disadvantaged individual on a case-by-case basis.

b. Any individual in the following groups, members of which are rebuttably presumed to be socially and economically disadvantaged:

(1) "Black Americans," which includes persons having origins in any of the black racial groups of Africa;

(2) "Hispanic Americans," which includes persons of Mexican, Puerto Rican, Cuban, Dominican, Central or South American or other Spanish or Portuguese culture or origin, regardless of race;

(3) "Native Americans," which includes persons who are American Indians, Eskimos, Aleuts, or Native Hawaiians;

(4) "Asian-Pacific Americans," which includes persons whose origins are from Japan, China, Taiwan, Korea, Burma (Myanmar), Vietnam, Laos, Cambodia (Kampuchea), Thailand, Malaysia, Indonesia, the Philippines, Brunei, Samoa, Guam, the U.S.Trust Territories of the Pacific Islands, (Republic of Palau), the Commonwealth of the Northern Mariana Islands, Macao, Fiji, Tonga, Kirbati, Juvalu, Nauru, Federated States of Micronesia, or Hong Kong;

(5) "Subcontinent Asian Americans," which includes persons whose origins are from India, Pakistan, Bangladesh, Bhutan, the Maldives Islands, Nepal or Sri Lanka.

(6) Women.

(7) Any additional groups whose members are designated as socially and economically disadvantaged by the SBA, at such time as the SBA designation becomes effective.

21. <u>Subcontractor</u>

A subcontracting arrangement is generally considered to exist when a person or firm assumes an obligation to perform a part of the contract work and the following conditions are present.

a. The person or firm performing the work is particularly experienced and equipped for such work.

b. Compensation is related to the amount of work accomplished rather than being on an hourly basis.

c. Choice of work methods, except as restricted by the specifications, and the furnishing and controlling of labor and equipment are exercised by the subcontractor with only general supervision being executed by the prime contractor.

d. Personnel involved in the operation are under the direct supervision of the subcontractor and are included on the subcontractor's payroll.

All conditions involved shall be considered and no one condition alone will normally determine whether a subcontract actually exists. In all cases, a DBE subcontractor must be an independent organization, and the ownership and control by the socially and economically disadvantaged individual(s) must be real and continuing. The prime contractor, a subcontractor, or a supplier shall not be responsible for the various operating and management activities of a DBE firm.

22. Supplier

Provides or furnishes materials, goods or services that may be incorporated into the project. The supply transaction is to be documented by an appropriate purchase agreement that includes the required provisions for Federal-aid construction projects.

23. UUCP The Utah Unified Certification Program (UUCP) provides “one-stop shopping” to applicants for DBE certification, such that an applicant is required to apply only once for a DBE certification that is honored by all recipients of Federal-aid Funds in the State of Utah.

C. DETERMINATION OF DBE CONTRACTOR’S ELIGIBILITY BY UUCP

1. Any Contractor may apply to the UUCP for status as a DBE. Applications shall be made on forms provided by the UUCP entitled “UNIFORM CERTIFICATION APPLICATION” or “Information for Determining DBE Joint Venture Eligibility,” Form No. R-817. Application need not be made in connection with a particular bid. Only work contracted to certified DBE prime contractors or subcontractor to firms that have applied for and have been granted status as a DBE by the UUCP shall be considered toward contract goals as established in Subsection A.

2. It shall be the Contractor’s responsibility to submit a DBE application so that the UUCP has time to review it. The UUCP will review applications in a timely manner but is not committed to approve DBE status within any given period of time. The UUCP must have ample lead time to review, evaluate, and verify information provided with an application.

3. The DEPARTMENT shall maintain a UUCP Unified DBE Directory of DBE Contractors, vendors, service providers and suppliers that is updated as changes occur for the purpose of providing a reference source to assist any bidder in meeting the requirements of this bid condition. Bidders must use the most current DBE information available on the web site when submitting bids. A current UUCP DBE directory representing certified DBE Contractors is available through the UDOT Civil Rights Office, and also on the Internet at (click on this link):

   http://www.udot.utah.gov/main/f?p=100:pg:::::V,T:,198

   An electronic file of the UUCP DBE Directory is available for downloading to use in the Electronic Bidding System (EBS) at the following URL (click on this link):

   http://www.udot.utah.gov/main/f?p=100:pg:::::V,T:,317

4. In meeting the requirements of this bid condition, bidders are in no way limited to the DBE Directory referred to in 3 above in seeking out and negotiating with the DBE Contractors and determining which items of work shall be subcontracted to DBE Contractors. Bidders shall exercise their own judgments in selecting any subcontractor to perform any portion of the work.

   The UUCP prior to bid opening must grant DBE status to any DBE Contractor or DBE Joint Ventures. DBE credit will not be allowed toward *race conscious* goals for a firm or joint venture that has not been DBE certified by the UUCP.

D. BIDDING REQUIREMENTS

All bidders must satisfy the bidding requirements of this part. A DBE prime contractor's performance does not count toward fulfilling the DBE goal. A prime bidder who is a DBE contractor shall meet the DBE goal by using DBE subcontractors or by using good faith efforts.

1. DBE Bid Assurance

   a. Race Conscious Goal
   For a bid with a DBE goal greater than 0.0 percent to be considered responsive, *Part* A of the DBE Bid Assurance must be completed and included in the BID PROPOSAL, certifying that they will meet or exceed the Goal for Bid Evaluation established in Subsection A, or that they fail to meet the goal but have and will put forth good faith effort to meet or exceed the goal of the DBE program. *The EBS software based upon the entry of the DBE Commitment and/or*

the Good Faith Documentation into EBS will complete part A of the DBE Bid Assurance. In either event, the Contractor shall continue efforts to consider and utilize DBE firms during the performance of the contract.

b. Race Neutral Goal

For a bid with a DBE goal of 0.0 percent to be considered responsive, *Part B* of the DBE Bid Assurance must be included in the BID PROPOSAL certifying that the Bidder has utilized equal opportunity action to allow DBE's to compete for and perform on subcontracts. *Part B* of the DBE Bid Assurance will be completed based upon the following information entered into EBS:

(1) Bids with no subcontracting opportunities

Bidders who intend to do all the work with their own organization will indicate this in EBS on the Bid Submission Checklist and Forms window. EBS will subsequently indicate on Part B of the DBE Bid Assurance that the Bidder does not intend to sublet a portion of the contract work.

After the award of the bid, in the event that a Contractor indicates that he does not intend to sublet any work and subsequently determines to sublet a portion of the work, the Contractor:

(a) must justify why subcontract quotes were not a part of the Bid Proposal,

(b) must utilize equal opportunity action to allow DBEs to compete for and perform on the work to be sublet,

(c.) must submit the required Race Neutral Documentation with the proposed subcontract.

NOTE: The Contractor may use the 'DBE Contact Log' and 'Quote Comparison' functions in EBS to develop the above requirements for documentation.

(2.) Bids with subcontracting opportunities

Race Neutral measure or program is one that is, or can be, used to assist all small businesses. UDOT must meet the maximum feasible portion if its overall DBE goal by using race -neutral means of facilitating DBE participation.

Bidders who solicit non-DBE subcontract quotes will utilize equal opportunity action to allow DBEs to compete for and perform on subcontracts. If the Bidder has selected 'Intend to Sublet' on the 'Bid Submission Checklist and Forms' window in the EBS software, Part B of the DBE Bid Assurance will indicate that the Bidder intends to sublet a portion of the contract work.

The results of the equal opportunity actions will be included with the EBS prepared Bid Proposal as a *Race Neutral Documentation*. Part B of the Bid Assurance Form will indicate the existence of any of the following types of Race Neutral Documentation that the Bidder has entered into EBS:

(a) DBE Commitment

(b) DBE Contact Log

(c) Quote Comparison

In either event, the Contractor shall continue efforts to consider and utilize DBE firms during the performance of the contract.

2. DBE Commitment

For a bid to be considered responsive, Bidders shall submit the following information regarding DBE compliance with the EBS prepared Bid Proposal:

Submit a DBE Commitment of work that will be subcontracted to certified DBE firm(s) as listed in the UUCP's Directory or DBE firms that have been approved by the UUCP prior to bid opening.

a. The names of DBE firms that will participate in the contract;

b. A specific description of the work each named DBE firm will perform (list specific bid items). Listed bid items shall be considered to be committed in their entirety unless Bidders designate otherwise in their DBE Commitment.

(1.) If mobilization is a bid item that is partially committed to a DBE, indicate the dollar amount of the DBE mobilization.

(2.) If a partial quantity is committed to a DBE, indicate the quantity committed to the DBE.

(3.) If a partial performance of an item is committed to a DBE, explain what part of the item the DBE will perform;

c. The dollar amount of participation by each named DBE firm;

d. If the contract goal is not met, evidence of good faith efforts.

The DBE Commitment is to be included in the bid prepared within, and said information will be kept confidential and will not be reviewed unless the Contractor is otherwise determined to be the low Bidder or the DEPARTMENT elects to review said information in making its determination as to award of the contract.

3. Race Neutral Commitment

For a bid to be considered responsive, Bidders shall submit the following information regarding equal opportunity compliance with their EBS prepared Bid Proposal:

Submit a Race Neutral DBE Commitment of work that will be subcontracted to certified DBE firm(s) as listed in UUCP DBE Directory or DBE firms that have been approved by the DEPARTMENT prior to bid opening. The DBE Commitment will include:

a. The bid item(s) or work classification(s) that will be subcontracted;

b. The DBE firms that have been contacted. A reasonable number of DBEs available to perform the anticipated subcontract work must be contacted. The DBE firms must be given a reasonable amount of time to develop subcontract quotes.

c. The results of the contacts with the DBE firms

d. Name(s) of anticipated DBE subcontractor(s)

e. Anticipated work items to be performed by DBE(s)

f. Anticipated dollar amount of subcontract(s).

A specific description of the work each named DBE firm will perform (list specific bid items). Listed bid items shall be considered to be committed in their entirety unless Contractors designate otherwise in their DBE commitment.

(1.) If mobilization is a bid item that is partially committed to a DBE, indicate the dollar amount of the DBE mobilization.

(2.) If a partial quantity is committed to a DBE, indicate the quantity committed to the DBE.

(3.) If a partial performance of an item is committed to a DBE, explain what part of the item the DBE will perform;

NOTE: In the EBS (Electronic Bidding System):
Use the quote comparison to document item (a)
Use the contact log to document items (b) and (c).
Use the DBE commitment to document items (d), (e), and (f).

The *Race Neutral Documentation* submitted in the EBS prepared bid, will be kept confidential and not reviewed unless the Contractor is otherwise determined to be the low Bidder or the DEPARTMENT elects to review said information in making their determination as to award of the contract.

4. DBE Written Confirmation

Low Bidder shall submit to the Director of Construction & Materials within three (3) work days after the bid opening written confirmation from each DBE that it is participating in the contract as provided in the Prime Contractor's DBE Commitment or Race Neutral Documentation. The written confirmation shall include the following information:

a. A description of the work that will be performed (list specific bid items). Listed bid items shall be considered to be committed in their entirety unless Contractors designate otherwise in their DBE commitment.

(1) If mobilization is a bid item that is partially committed, please confirm the dollar amount of the mobilization to be performed.

(2) If a partial quantity is committed, confirm the quantity to be performed.

(3) If a partial performance of an item is committed, confirm what part of the item will be performed.

(4) Unit bid prices for each bid item that is committed to a DBE.

(5) Total dollar amounts (mathematical extensions) for each bid item that is committed to a DBE

b. The dollar amount of participation by each named DBE firm.

5. Good Faith Efforts

Bidders who fail to meet the DBE goal for bid evaluation must demonstrate with documentary evidence that they made good faith efforts to do so. Bidders are required to include the Good Faith Efforts Documentation with the EBS prepared Bid Proposal. The said information will be kept confidential and not reviewed unless the Bidder is otherwise determined to be the low Bidder or UDOT and authorized representatives elect to review said information in making their determination as to award of the contract. For the bid to be considered responsive, Bidders shall include with the BID PROPOSAL specific documentary evidence that good faith efforts have been made to meet the goal.

Attached hereto and marked Exhibit A, and by this reference made a part hereof, is a list of actions that may be used to prove the kinds of efforts prospective Bidders should consider in their attempts to demonstrate good faith efforts. The list of actions, as contained in Exhibit A, is not intended to be an exclusive list of efforts that a prospective Bidder may wish to consider in demonstrating good faith efforts to satisfy DBE participation requirements. The determination of good faith efforts shall be based upon the information and documentation of the actions supplied by the Bidder with the bid proposal. The DEPARTMENT reserves the right to investigate and verify such information or to request the low dollar Bidder to clarify information submitted at the time of bid.

6. Award of the Contract

The award of the contract, if awarded, will be made to the apparent successful responsive, responsible Bidder who submitted a reasonable bid for the contract and has complied with this Subsection D.

7. Administrative Reconsideration

Good faith efforts as used herein shall be determined on a case by case basis. If it is determined that the apparent low Bidder has failed to meet the requirements of Exhibit A, the bidder will be provided an opportunity for administrative reconsideration.

a. Official(s) who did not take part in the original determination will perform the administrative reconsideration..

b. The Bidder will have the opportunity to provide to written documentation or argument concerning the issue of whether it met the goal or made adequate good faith efforts to do so.

c. The Bidder will have the opportunity to meet in person with the reconsideration official to discuss the issue of whether it met the goal or made adequate good faith efforts to do so.

d. The Bidder will be notified in writing of the decision and the basis for the decision.

e. The reconsideration decision is administratively final and is not appealable to FHWA nor to the DOT.

E. COUNTING DBE PARTICIPATION TOWARD GOALS FOR BID EVALUATION

1. The DEPARTMENT will recognize and grant DBE credit toward the goal for bid evaluation (*race conscious* goals) for work committed to DBE subcontractors ONLY in the types of work for which DBE certification has been granted by the UUCP prior to bid opening. It is necessary that all bidders refer to the UUCP DBE Directory for direction and guidance. A current copy of the DBE directory is available through the Civil Rights Office and on the Internet at (click on this link):

   http://www.udot.utah.gov/main/f?p=100:pg:::::V,T:,198

   An electronic file of the DBE Directory is available for downloading to use in the Electronic Bidding system (EBS) at the following URL (click on this link):

   http://www.udot.utah.gov/main/f?p=100:pg:::::V,T:,317

2. The DEPARTMENT will grant DBE credit toward *race neutral* goals for work performed by firms who are not DBE certified prior to bid opening or who bid types of work for which DBE certification has not been granted by the DEPARTMENT prior to bid opening but subsequently are granted DBE certification.

3. Commitments to DBEs that exceed the Goal for Bid Evaluation will be considered as both race conscious and race neutral. The dollar amount of the Goal for Bid Evaluation will be considered to be race conscious participation. Any dollar amounts in excess of the Goal for Bid Evaluation will be considered as race neutral participation.

4. When a DBE bids as a prime contractor and utilizes themselves as a DBE participant, their commitment will be counted as race neutral, therefore this prime must meet the goal by using other DBE subcontractors.

F. COUNTING DBE PARTICIPATION TOWARD GOALS FOR PERFORMANCE

Subcontracts to DBEs that exceed the *Goal For Bid Evaluation* will be considered in part as race conscious participation and in part as race neutral participation. Any dollar amounts in excess of the *Goal For Bid Evaluation* will be considered as race neutral participation.

It is intended that the Contractor shall utilize the subcontractors designated in the DBE Commitment in the performance of the contract. Any changes in the Contractor's DBE Commitment, such as substitution of a DBE subcontractor, substitution of contract items, or decrease in total dollar amount must be approved by the DEPARTMENT and must be covered by a Change Order. Unauthorized substitutions or eliminations may result in the imposition of sanctions. Failure to meet the Goal for Performance, that is established at the time of award by the Contractor's DBE Commitment, without adequate justification, including concurrence of the ENGINEER and Civil Rights Manager, shall result in the imposition of sanctions as provided in Part I of this Special Provision.

1. Only the value of the work actually performed by the DBE will count toward DBE goals.

2. Contractors may count toward their contract goals a portion of the total dollar value of a contract with a joint venture eligible under the standards of this bid condition equal to the percentage of the ownership and controls of the DBE partner in the joint venture.

3. The ENGINEER will recognize and grant DBE credit for work subcontracted and performed by DBE subcontractors ONLY in the types of work for which DBE certification has been granted by the UUCP prior to bid opening. It is necessary that all Bidders refer to the UUCP'DBE Directory for direction and guidance. A current copy of the UUCP DBE directory is available through the Civil Rights Office and on the Internet at (click on this link):

   http://www.udot.utah.gov/main/f?p=100:pg:::::V,T:,198

   An electronic file of the DBE Directory is available for downloading to use in the Electronic Bidding system (EBS) at the following URL (click on this link):

   http://www.udot.utah.gov/main/f?p=100:pg:::::V,T:,317

4. Contractors may count toward their goals only the value of the work actually performed by the DBE toward the DBE goals.

    a. Work performed by the DBE's own forces using "regular employees" and "regular equipment."

    b. The cost of supplies and materials obtained and purchased by the DBE and equipment leased for the work of the contract.

    c. Work that a DBE subcontracts to a lower tier DBE firm.

5. Contractors may not count toward the DBE goals:

    a. Supplies and material purchased and equipment leased by the DBE from the prime Contractor or its affiliates or another subcontractor on the project.

    b. Work that a DBE subcontracts to a lower tier non-DBE firm.

6. Contractors may count toward their goals only expenditures to a DBE that performs a commercially useful function in the work of the contract.

    a. A DBE performs a "commercially useful function" when it is responsible for the execution of the work of the contract and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. To perform a commercially useful function, the DBE must also be responsible, with respect to materials and supplies used on the contract, for negotiating price, determining quality and quantity, ordering the material, and installing (where applicable) and paying for the material itself.

    b. The DEPARTMENT shall evaluate the amount of work subcontracted, industry practices, whether the amount the firm is to be paid under the contract is commensurate with the work it is actually performing and the DBE credit claimed for its performance of the work, and other relevant factors.

    c. A DBE does not perform a commercially useful function if its role is limited to that of an extra participant in a transaction, contract, or project through which funds are passed in order to obtain the appearance of DBE participation. In determining whether a DBE is such an extra participant, the DEPARTMENT must examine similar transactions, particularly those in which DBEs do not participate.

d. A DBE does not perform a commercially useful function if it does not perform or exercise responsibility for at least 30 percent of the total cost of its contract with its own work force, or the DBE subcontracts a greater portion of the work of a contract than would be expected on the basis of normal industry practice for the type of work involved.

7. The DEPARTMENT shall use the following factors in determining whether a DBE trucking company is performing a commercially useful function:

a. The DBE must itself own and operate at least one fully licensed, insured, and operational truck used on the contract.

b. The DBE must be responsible for the management and supervision of the entire trucking arrangement for the purpose of meeting DBE goals.

c. The DBE receives credit for the total value of the transportation services it provides on the contract using trucks it owns, insures, and operates using drivers it employs.

d. The DBE may lease trucks from another DBE firm, including an owner-operator who is certified as a DBE. The DBE who leases trucks from another DBE receives credit for the total value of the transportation services the lessee DBE provides on the contract.

e. The DBE may also lease trucks from a non-DBE firm, including from an owner-operator. The DBE who leases trucks from a non-DBE is entitled to credit *for the total value of the transportation services provided by non-DBE lessees not to exceed the value of transportation services provided by DBE-owned trucks on the contract. Additional participation by non-DBE lessees receives credit only for the fee or commission it receives as a result of the lease arrangement.*

Example: *Leases two trucks from DBE Firm Y and six trucks from non-DBE Firm Z. DBE credit would be awarded for the total value of transportation services provided by Firm X and Firm Y, and may also be awarded for the total value of transportation services provided by four of the six trucks provided by Firm Z. In all, full credit would be allowed for the participation of eight trucks. With respect to the other two trucks provided by Firm Z, DBE credit could be awarded only for the fees or commissions pertaining to those trucks Firm X receives as a result of the lease with Firm Z.*

f. For purposes of this paragraph (d), a lease must indicate that the DBE has exclusive use of and control over the truck. This does not preclude the leased truck from working for others during the term of the lease with the consent of the DBE, so long as the lease gives the DBE absolute priority for use of the leased truck. Leased trucks must display the name and identification number of the DBE.

8. Contractors may count expenditures with DBEs for materials or supplies as provided in the following:

a. If the materials or supplies are obtained from a DBE manufacturer, 100 percent of the cost of the materials or supplies counts toward DBE goals.

For purposes of this paragraph, a manufacturer is a firm that operates or maintains a factory or establishment that produces, on the premises, the materials, supplies, articles, or equipment required under the contract and of the general character described by the specifications.

b. If the materials or supplies are purchased from a DBE regular dealer, 60 percent of the cost of the materials or supplies counts toward DBE goals.

For purposes of this paragraph, a regular dealer is a firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials, supplies, articles or equipment of the general character described by the specifications and required under the contract are bought, kept in stock, and regularly sold or leased to the public in the usual course of business.

(1) To be a regular dealer, the firm must be an established, regular business that engages, as its principal business and under its own name, in the purchase and sale or lease of the products in question.

(2) A firm may be a regular dealer in such bulk items as petroleum products, steel, cement, gravel, stone, or asphalt without owning, operating or maintaining a place of business if the firm both owns and operates distribution equipment for the products. Any supplementing of regular dealers' own distribution equipment shall be by a long-term lease agreement and not on an *ad hoc* or contract-by-contract basis.

(3) Packagers, brokers, manufacturers representatives, or other persons or firms who arrange, or expedite, transactions are not regular dealers.

(4) A DBE trucking company that picks up a product from a manufacturer or regular dealer and delivers the product to the Contractor performs a delivery service. Credit will not be given based on a percentage of the cost of the product; credit will be allowed only for the cost of the transportation service.

9. If the materials or supplies are purchased from a service provider, the fees or commission charged for assistance in the procurement of the materials and supplies, or fees or transportation charges for the delivery of materials or supplies, count toward the DBE goals.

A Service Provider is a business that is neither a manufacturer nor a regular dealer but simply transfers title of a product from manufacturer to ultimate purchaser or a firm that puts a product into a container for delivery. A service provider charges a fee or a commission for assistance in the procurement of the materials and supplies, or fees or transportation for the delivery of materials or supplies required on a job site.

a. Only the fees, commissions, or transportation performed by the DBE service provider count toward the DBE goals. The DEPARTMENT must determine that the fees are reasonable and not excessive as compared with fees customarily allowed for similar services.

b. No portion of the cost of the materials and supplies count toward the DBE goals. Documentary evidence of the supply agreements, i.e., sales contract, purchase order, etc., shall be submitted to the Resident Engineer or Consultant Engineer at the Preconstruction Conference. The agreement shall set forth the estimated quantities, unit prices, total dollar amounts, material guarantees, delivery, and payment requirements including the requirements listed part E, 4, e, of this DBE Special Provision.

10. Prompt payment for the work accomplished is an integral part of the concept of commercially useful function.

See Section F, Subsection 6,a for a definition of “commercially useful function.”

G. CONTRACTOR'S RESPONSIBILITY

1. It is the Contractor's responsibility to determine the level of professional competence and financial responsibility of any proposed DBE subcontractor. The Contractor shall ascertain that the proposed DBE subcontractor is particularly experienced and equipped for the work of the subcontract.

2. It is the Contractor's responsibilities to monitor and assure that DBE's listed to fulfill DBE goals perform a commercially useful function.

H. DBE SUBCONTRACTOR'S FAILURE TO PERFORM SUCCESSFULLY

If, during the performance of the contract, the Prime Contractor determines that a DBE subcontractor is unable to perform successfully, the Contractor shall make good faith efforts to replace the DBE subcontractor with another DBE to fulfill the Goal for Bid Evaluation. For Race Conscious DBE participation, the Contractor shall consider the uncompleted DBE committed work items as well as other work items as a part of the good faith efforts. All substitutions of DBE subcontractors shall receive prior approval by the DEPARTMENT.

The Contractor shall not substitute DBE subcontractor(s), work item(s), nor decrease dollar amount(s) as indicated in the Contractor's DBE Commitment without prior submission of written justification to the ENGINEER and without prior approval of the ENGINEER and the Civil Rights Manager.

The Contractor shall not substitute DBE subcontractor(s), work item(s), nor decrease dollar amount(s) as indicated in the Contractor's DBE Commitment Substitutions without prior submission of a written statement from the DBE consenting to the substitution or decrease and holding the ENGINEER harmless for approving the substitution.

Unauthorized substitutions of the DBE(s), under-runs of work item(s), or decreases in dollar amount(s) may result in the imposition of sanctions as allowed under Section I.

UDOT reserves the right to authorize completion of the work that was subcontracted to a DBE who is unable to perform successfully by either of the following methods:

1. Approve, at no additional cost to the DEPARTMENT, a replacement DBE subcontractor and, when appropriate, modify the contract to provide for reasonable extra time necessary to obtain a DBE replacement at no additional cost to the DEPARTMENT.

2. Direct the Contractor to perform at unit bid prices. In the event this option is selected, the percentage DBE goal will be adjusted as may be appropriate.

I. SANCTIONS

1. The Contractor's DBE Commitment becomes a 3-part commitment comprised of the DBE Contractor(s), work item(s) and dollar amount(s). The Commitment becomes a contract specification upon award of the contract and becomes the minimum goal for contract performance.

   If the Contractor fails to achieve the minimum goal, established in the contract at the time of the award of the contract or later modified, the contract payments shall be reduced as a liquidated damage and not as a penalty by an amount equal to the dollar amount of work not performed by the DBE. The dollar amount of any sanction will be computed using the unit prices indicated in the DBE subcontract

   Exceptions:

   a. Any authorized adjustment in the DBE Commitment that has been approved by the ENGINEER and Civil Rights Manager.

   b. Race neutral participation.

2. The ENGINEER shall deduct maximum points for *Compliance with EEO* when completing the *Contract Performance Report.*

J. RECORD KEEPING

1. The DEPARTMENT must create and maintain a Bidders list consisting of all firms bidding on prime contracts and bidding or quoting subcontractors on DOT-assisted projects. For every firm, the following information must be submitted annually:

   a. Firm name

   b. Firm address

   c. Firm's status as a DBE or non-DBE

   d. Age of firm

   e. Annual gross receipts of the firm.

Every firm bidding or quoting as a prime or subcontractor at any level on DOT-assisted projects must register annually with UDOT.

NOTE: Items (a) and (b) should be completed in the EBS software by using the 'Quote Comparison' and submitted with your bid.

2. With the bid or no later than 10 work days after bid opening date, each and every prime bidder must submit to The DEPARTMENT a list of all firms bidding and/or quoting as subcontractors, service providers or suppliers.* The Prime Bidder must also submit for each and every firm sub-quoting the following information:

   a. Firm Name

   b. Firm address

   c. Work classification(s) bid by subcontractor, service provider or supplier:

      (1) Building
      (2) Concrete: Curb & gutter, Flatwork, Inlet Boxes, etc.
      (3) Concrete: Structural
      (4) Consulting firms
      (5) Demolition
      (6) Electrical: Hwy lighting, signals & fiber optics
      (7) Equipment rentals and sales
      (8) Excavation
      (9) Fencing
      (10) Grading
      (11) Guardrail
      (12) Landscaping & erosion control
      (13) Miscellaneous
      (14) Painting: Highway structures
      (15) Painting: Highway striping & painted messages
      (16) Paving: Asphalt highway & runway, etc.
      (17) Paving: Concrete
      (18) Paving: Miscellaneous
      (19) Pipe Culverts, drainage, sewer & water
      (20) Reconstruction : Manholes, etc.
      (21) Rotomilling
      (22) Sawing & sealing
      (23) Signs permanent
      (24) Steel reinforcing
      (25) Steel structural
      (26) Surveying
      (27) Traffic Control: Flagging

(28) Traffic Control: Temp. Signs and Devices
(29) Trucking
(30) Supplier: Manufacturer
(31) Supplier: Regular Dealer
(32) Supplier: Service Provider

*NOTE: This requirement can be met with the 'Quote Comparison' function in EBS. The report must be printed and faxed to the Civil Rights Department at (801) 965-4101.

Exhibit A

Suggested Actions and Required Documentation to Demonstrate
Good Faith Efforts to Comply With DBE Requirements

A Bidder must show that it took necessary and reasonable steps to achieve a DBE goal that, by their scope, intensity, and appropriateness, can reasonably be expected to fulfill the program requirement. The efforts employed should be those that would be taken if a Bidder were actively and aggressively trying to obtain DBE participation sufficient to meet the DBE contract. Goal. Mere *pro forma* efforts are not good faith efforts to meet the DBE contract requirements.

Documentary evidence of each action taken must be submitted with the Bid Proposal.

The following is taken, with some modification, from CFR 49 Part 26, Appendix A. It is not intended to be a mandatory checklist, nor is it intended to be exclusive or exhaustive.

GUIDANCE CONCERNING GOOD FAITH EFFORTS

I. When the DEPARTMENT establishes a contract goal on a Federal aid contract, a Bidder must, in order to be responsive, make good faith efforts to meet the goal. The Bidder can meet this requirement in either of two ways:

A. The Bidder can meet the goal, documenting commitments for participation by DBE firms sufficient for this purpose.

B. If it doesn't meet the goal, the Bidder can document adequate good faith efforts. This means that the Bidder must show that it took all necessary and reasonable steps to achieve a DBE goal or other requirement of this part that, by their scope, intensity, and appropriateness to the objective, could reasonably be expected to obtain sufficient DBE participation, even if they were not fully successful.

II. In any situation in which the DEPARTMENT has established a contract goal, CFR 49, Part 26 requires UDOT to use the good faith efforts mechanism of this part. It is up to the DEPARTMENT to make a fair and reasonable judgment whether a Bidder that did not meet the goal made adequate good faith efforts. It is important for the DEPARTMENT to consider the quality, quantity, and intensity of the different kinds of efforts that the Bidder has made. The efforts employed by the Bidder should be those that one could reasonably expect a Bidder to take if the Bidder were actively and aggressively trying to obtain DBE participation sufficient to meet the DBE contract goal. Mere pro forma efforts are not good faith efforts to meet the DBE contract requirements. The DEPARTMENT emphasizes, however, that its determination concerning the sufficiency of the firm's good faith efforts is a judgment call: meeting quantitative formulas is not required.

III The U. S. Department of Transportation also strongly cautions the DEPARTMENT against requiring that a Bidder meet a contract goal (i.e., obtain a specified amount of DBE participation) in order to be awarded a contract, even though the Bidder makes an adequate good faith efforts showing. This rule specifically prohibits UDOT from ignoring bona fide good faith efforts.

IV. The following is a list of types of actions that UDOT should consider as part of the Bidder’s good faith efforts to obtain DBE participation. It is not intended to be a mandatory checklist, nor is it intended to be exclusive or exhaustive. Other factors or types of efforts may be relevant in appropriate cases.

A. Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising and/or written notices) the interest of all certified DBEs who have the capability to perform the work of the contract. The Bidder must solicit this interest within sufficient time to allow the DBEs to respond to the solicitation. The Bidder must determine with certainty if

the DBEs are interested by taking appropriate steps to follow up initial solicitations.

B. Selecting portions of the work to be performed by DBEs in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the prime Contractor might otherwise prefer to perform these work items with its own forces.

C. Providing interested DBEs with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.

D. Negotiating in good faith with interested DBEs.

(1) It is the Bidder's responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBEs that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBEs to perform the work.

(2) A Bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration.

(a) The fact that there may be some additional costs involved in finding and using DBEs is not in itself sufficient reason for a bidder's failure to meet the contract DBE goal, as long as such costs are reasonable.

(b) No specific price differential has been established by 49 CFR 26. This approach allows flexibility.

(c) Along with the reasonableness of the cost necessarily comes the fact that prime Contractors are not expected to bear unreasonable costs.

(d) Any burden that a non-DBE subcontractor might face is also limited by the reasonableness of competing bids.

(3) The ability or desire of a prime Contractor to perform the work of a contract with its own organization does not relieve the Bidder of the responsibility to make good faith efforts. Prime Contractors are not, however, required to accept higher quotes from DBEs if the price difference is excessive or unreasonable.

(4) The ability or desire of a prime Contractor to bundle the work of a subcontractor who wishes to perform all the work of the subcontract with its own organization does not relieve the Bidder of the responsibility to require a subcontractor to make good faith efforts. Subcontractors are not required to accept higher quotes from lower tier DBEs if the price difference is excessive or unreasonable.

E. Not rejecting DBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities. The Contractor's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the Contractor's efforts to meet the project goal.

F. Making efforts to assist interested DBEs in obtaining bonding, lines of credit, or insurance as required by the recipient or Contractor.

G. Making efforts to assist interested DBEs in obtaining necessary equipment, supplies, materials, or related assistance or services.

H. Effectively using the services of available minority/women community organizations; minority/women Contractors' groups; local, state, and Federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of DBEs.

NOTE: The DBE 'Contact Log' in EBS, submitted as part of the Bid Proposal, can be used to document the following efforts:

IV. A.
IV. C.
IV. D. (1)

The 'Quote Comparison' in EBS, submitted as part of the Bid Proposal, can be used to document the following efforts:

IV. B.
IV. D. (3)

V. In determining whether a Bidder has made good faith efforts, the DEPARTMENT may take into account the performance of other Bidders in meeting the contract. For example, when the apparent successful Bidder fails to meet the contract goal, but others meet it, UDOT may reasonably raise the question of whether, with additional reasonable efforts, the apparent successful bidder could have met the goal. If the apparent successful Bidder fails to meet the goal, but meets or exceeds the average DBE participation obtained by other Bidders, you may view this, in conjunction with other factors, as evidence of the apparent successful Bidder having made good faith efforts.

Submit with the Bid Proposal documentary evidence to prove that good faith efforts were accomplished:

1. Submit copies of all solicitations: correspondence, faxes, advertisements, telephone logs with dates, times, names of persons contacted, nature of conversation, DBEs' responses, and etc.

2. If DBEs submitted quotes that were not used because the range of additional costs was determined to be excessive or unreasonable, submit the range that has been determined by the Bidder to be a reasonable range of additional costs and explain how that range was determined.

3. As a part of demonstrating a reasonable range of additional costs, submit copies of all subcontractor quotes, copies of spread sheet(s) which compare all DBE quotes with non-DBE quotes and which include bid item(s) quoted, work classifications, quantities, prices, and dollar amounts.

4. Submit a narrative of specific names and types of information, assistance, considerations given, and efforts to assist DBEs under Item IV, subparts C through F.

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DBE BID ASSURANCE
COMPLETE ONLY PART A. OR PART B.

PART A. RACE CONSCIOUS DBE PARTICIPATION SPECIFIC ASSIGNED *CONTRACT DBE GOAL* FOR BID EVALUATION____8____PERCENT

If the DBE goal which is indicated in Section A, CONTRACT GOAL, of APPENDIX A, BID CONDITIONS, DISADVANTAGED BUSINESS ENTERPRISE (DBE) is greater than 0.0 percent, complete only Part A, and submit *DBE Commitment*, and if applicable, *Documentation of Good Faith Efforts*.

By signing the BID REPORT (either manually or electronically), it is understood that those individuals who sign as owners or authorized representatives of the Bidder, have read and are familiar with APPENDIX A, SPECIAL PROVISION, BID CONDITIONS, DISADVANTAGED BUSINESS ENTERPRISE and hereby certify that good faith efforts have been utilized to meet or exceed the goal of the DBE Program as established by the DBE Special Provision.

Indicate intended DBE commitment.

_____ We intend to meet or exceed the contract goals as per the DBE Commitment which is submitted with the Bid Proposal.

RACE CONSCIOUS AND RACE NEUTRAL COMMITMENT _____ PERCENT

_____ We fail to meet the advertised goal. This firm commits to DBE participation as per the DBE Commitment that is submitted with the EBS Bid Proposal and to continue Good Faith Efforts throughout the performance of the project. Documentation of Good Faith Efforts is submitted with the Bid Proposal, including:

1. DBE Contact Log Report
2. Quote Comparison Report

PART B. RACE NEUTRAL DBE PARTICIPATION ASSIGNED *CONTRACT DBE GOAL* FOR BID EVALUATION _____ PERCENT

If the DBE goal, which is indicated in Section A, CONTRACT GOAL, of APPENDIX A, BID CONDITIONS, DISADVANTAGED BUSINESS ENTERPRISE (DBE) is 0.0 percent, complete only Part B and submit *Race Neutral DBE Information*.

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By signing the BID REPORT (either manually or electronically), it is understood that those individuals who sign as owners or authorized representatives of the Bidder, have read and are familiar with APPENDIX A, SPECIAL PROVISION, BID CONDITIONS, DISADVANTAGED BUSINESS ENTERPRISE and hereby certify that equal opportunity action has been utilized to allow DBEs to compete for and perform on subcontracts.

_____ We do not intend to sublet a portion of the contract work.

_____ We intend to sublet a portion of the contract work. Our firm has taken equal opportunity action to allow DBEs to compete for and perform on subcontracts. Any DBEs utilized by our firm for DBE participation at the time of bid, on a 0.0 percent project goal, will become Race Neutral DBE Information.

X. Attention Contractors
E.E.O. Affirmative Action Requirements on
Federal and Federal-Aid Construction Contracts of $10,000 or More

Include the Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity, Executive Order (EO) 11246, as amended (incorporated by reference & Appendix A - below) and the Standard Federal Equal Employment Opportunity Construction Contract Specifications set forth in §60-4.3 (incorporated by reference) in all requests for bids/solicitations on all contracts and subcontracts of $10,000 or more

Include in Appendix A, Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity, the goals established by the Office of Federal Contract Compliance Programs (OFCCP) for minority and female participation in each craft on all contracts and subcontracts.

APPENDIX A (EO 11246)

The OFCCP goals for minority representation in each trade are shown below. The goal for female utilization (6.9 percent) applies to all contracts and subcontracts irrespective of their geographical location.

COUNTY	GOAL	COUNTY	GOAL	COUNTY	GOAL
Beaver	12.6	Box Elder	5.1	Cache	5.1
Carbon	5.1	Daggett	5.1	Davis	6.0
Duchesne	5.1	Emery	5.1	Garfield	12.6
Grand	10.2	Iron	12.6	Juab	5.1
Kane	12.6	Millard	5.1	Morgan	5.1
Piute	5.1	Rich	5.1	Salt Lake	6.0
San Juan	10.2	Sanpete	5.1	Sevier	5.1
Summit	5.1	Tooele	6.0	Uintah	5.1
Utah	2.4	Wasatch	5.1	Washington	12.6
Wayne	5.1	Weber	6.0		

These goals are applicable to all contractors' or subcontractors' construction work (whether or not it is Federal or Federally assisted) performed in the covered area.

The Bidder's attention is called to the "Equal Opportunity Clause" (form FHWA 1273- II 1 b, included in this contract) and the "Standard Federal Equal Employment Specifications" set forth in 41 CFR Part 60-4 (incorporated by reference).

Compliance with the Executive Order and the regulations in 41 CFR part 60-4 is based on the implementation of the "Equal Opportunity Clause," specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and the efforts to meet the goals.

Provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification lists the name, address and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract will be performed.

Under Section 303 of EO 11246, only the U. S. Department of Labor (DOL) has the authority to determine compliance with EO 11246 and its implementing regulations. The Federal Highway Administration (FHWA) and the State highway agency (UDOT) do not have independent authority to determine compliance with EO 11246, 41 CFR Chapter 60, or the minority and female participation goals established by the Office of Federal Contract Compliance Programs (OFCCP), pursuant to 41 CFR Chapter 60.

If the State highway agency (UDOT) or the FHWA becomes aware of any possible violations of EO 11246 or 41 CFR Chapter 60, each has the authority and the responsibility to notify the OFCCP.

APPENDIX B

As used in these specifications:

a. Covered area: The geographical area described in the solicitation from which this contract resulted;
b. Director: Director, Office of Federal Contract Compliance Programs, United State Department of Labor, or any person to whom the Director delegates authority;
c. Employer identification number: The Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.
d. Minority includes:
    (i) Black (all persons having origins in any of the black African racial groups not of Hispanic origin);
    (ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
    (iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
    (iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

XI. Specific Equal Employment Opportunity Responsibilities

1. General

   a. The State Transportation Agency (STA) and Federal Highway Administration (FHWA) have the authority and the responsibility to ensure compliance with 23 USC Section 140 and Title VI of the Civil Rights Act of 1964, as amended, and related regulations, including 49 CFR Parts 21 and 23, and 23 CFR Parts 200, 230, and 633. Pursuant to this authority, the STA and the FHWA will conduct compliance reviews of contractors on federally funded highway projects to determine compliance with these laws and related regulations. The STA will prepare complete, written reports of findings of the compliance reviews. The FHWA will analyze the reports, and the evidence on which they are based.

   b. A contractor's EO requirements are in the contract provisions referenced in the FHWA-1273 (included herein). These include contractor acceptance of Section II, 1 c, and the obligation of the contractor to comply with specific EO activities at a minimum.

   c. Submit form PR-1391 in July and at other times when such information is required by the STA or the FHWA; and submit other documentation and reports as requested by the STA or the FHWA.

2. Equal Employment Opportunity (EEO)

   a. Where minorities and women have been excluded from certain classifications in a contractor's work force, the EEO affirmative action requirements specified in the contract will be implemented in good faith to provide EEO.

   b. The contractor will use the avenue afforded by the Training Special Provision (included herein) to increase minority and female employment in crafts where they have been underrepresented.

3. Minority and Female Average Availability Percentages – Utah

   a. Average percentages for minority (M) and female (F) availability in each trade, by County, are shown below. Availability is defined as "an estimate of the number of qualified minorities or women available for employment in a given job group."

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COUNTY	M	F	COUNTY	M	F	COUNTY	M	F	COUNTY	M	F
Beaver	6.8	3.0	Box Elder	9.9	5.0	Cache	9.9	5.0	Carbon	12.3	3.0
Daggett	12.3	3.0	Davis	8.9	3.0	Duchesne	12.3	3.0	Emery	15.5	5.0
Garfield	15.5	5.0	Grand	15.5	5.0	Iron	6.8	3.0	Juab	8.2	4.0
Kane	15.5	5.0	Millard	6.8	3.0	Morgan	11.1	3.0	Piute	15.5	5.0
Rich	9.9	5.0	Salt Lake	21.6	5.0	San Juan	15.5	5.0	Sanpete	8.2	4.0
Sevier	15.5	5.0	Summit	11.1	3.0	Tooele	8.2	4.0	Uintah	12.3	3.0
Utah	11.9	4.0	Wasatch	11.1	3.0	Washington	10.0	4.0	Wayne	15.5	5.0
Weber	17.8	5.0									

b. The use of these average percentages in no way precludes the contractor from performing and documenting good faith efforts to recruit and employ minorities and females.

4. Compliance Determinations

a. The list below is a set of “Good-Faith Efforts” criterion established in FHWA’s regulatory and policy requirements that may be used to determine a contractor’s good faith efforts:

1. Contractor’s EEO Policy
2. Dissemination of the EEO Policy
3. Authority and Responsibility of EEO Officer
4. Periodic EEO meetings (EEO indoctrination)
5. Notices/posters on bulletin board
6. Advertising as an “EEO Employer”
7. Recruitment – Systematic and direct recruitment efforts with sources likely to yield minorities and women
8. Educate all new supervisors within 30 days of reporting to duty
9. Encourage present employees to refer minorities and women
10. Evaluates the spread of wages to determine whether discrimination exists
11. Investigates all complaints, promptly, and appropriate corrective action is taken
12. Assist in locating, qualifying, and increasing the skills of minorities and women
13. Fully uses training programs and advises employees and applicants of opportunities
14. Minorities and women exist in contractor’s training program
15. Ensure nonsegregated facilities
16. Minorities and women are employed in all occupations, crafts, and job classifications on an equal basis
17. Procedures establishing the monitoring of subcontractors’ compliance with nondiscrimination, EO and EEO obligations

18. The need for adequate records and reports
19. Minorities and women reach accumulating work hours expected based on their representation

b. Affirmative Action is determined based on the evaluation of the contractor's compliance with all of the above good faith efforts and on the contractor's efforts to achieve maximum results from the actions.

c. A contractor is in compliance when there is no evidence of discrimination in employment, training, DBE, Indian Preference provisions, equal opportunity requirements, or evidence every good faith effort has been made.

5. Training Special Provisions

This Training Special Provisions supersedes subparagraph II 6b of the FHWA-1273, and is an implementation of 23 U.S.C.C.140 (a).

Provide training as follows as part of the equal employment opportunity affirmative action program:

Provide on-the-job training aimed at developing full journeymen in the type of trade or job classification involved.

The number of training hours to be trained under the special provision is **125 hours** (amount to be filled in by the State Highway Department (STA)).

If a portion of the contract work is subcontracted, determine how many, if any, of the trainees are to be trained by the Subcontractor. Make this training special provision applicable to the subcontract. Retain the primary responsibility for meeting the training requirements imposed by this special provision. Where feasible, 25 percent of apprentices or trainees in each occupation will be in their first year of apprenticeship or training.

Distribute the number of trainees among the work classifications on the basis of needs and the availability of journeymen in the various classifications within a reasonable area of recruitment. Prior to commencing construction, submit to the State highway agency for approval the number of trainees to be trained in each selected classification and training program to be used. Specify the starting time for training in each of the classifications. The STA gives credit for each trainee employed on the contract work that is currently enrolled or becomes enrolled in an approved program. Reimbursement is made for the trainees as specified in this provision.

Training and upgrading of minorities and women toward journeyman status is a primary objective of this Training Special Provision. Enroll minority trainees and women (e.g., by conducting systematic and direct recruitment through public and private likely to yield minority and women trainees) to the extent that such persons are available within a reasonable area of recruitment. Demonstrate the steps taken to achieve compliance with Federal Projects With Full Size Plan Sheets this Training Special Provision. This training commitment is not intended nor used to discriminate against any applicant for training, whether a member of a minority group or not.

Do not employ a trainee in any classification in which they have successfully completed a training course leading to journeyman status or in which they have been employed as a journeyman. Include appropriate questions in the employee application or by other suitable means to satisfy this requirement. Document the findings in each case. The training program selected, and approved by the STA and the FHWA, establishes the minimum length and type of training for each classification in that program. The STA and the FHWA approves a program if it meets the equal employment opportunity obligations and qualification of the average trainee for journeyman status in the classification concerned by the end of the training period. Furthermore, apprenticeship programs registered with the U.S. Department of Labor, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau and training programs approved but not necessarily sponsored by the U.S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and training are considered acceptable if administered in a manner consistent with the equal employment obligations of Federal-aid highway construction contracts. Approval or acceptance of a training program is obtained from the State prior to commencing work on the classification covered by the program.

Provide training in the construction crafts rather than clerk typists or secretarial-type positions. Training is permissible in lower level management positions such as office engineers, estimators, timekeepers, etc., where the training is oriented toward construction applications. Training in the laborer classification if approved by the division office. Some off-site training is permissible as long as the training is an integral part of an approved training program and does not comprise a significant part of the overall training.

Trainees are paid at least 60 percent of the appropriate minimum journeyman's rate specified in the contract for the first half of the training period, 75 percent for the third quarter of the training period, and 90 percent for the last quarter of the training period, unless apprentices or trainees in an approved existing program are enrolled as trainees on this project. In that case, the appropriate rates approved by the Departments of Labor or Transportation in connection with the existing program shall apply to all trainees being trained for the same classification who are covered by this Training Special Provision.

Furnish the trainee a copy of the program to be followed in providing the training. Provide each trainee with a certification showing the type and length of training satisfactorily completed.

Provide for the maintenance of records and furnish periodic reports documenting their performance under this Training Special Provision. UDOT form, Monthly Training Summary satisfies this reporting requirement. Contractor will accomplish entry of this information electronically by entry into PDBS at least monthly for the duration of the project.

a. Training Program Description: As part of the Equal Employment Opportunity Affirmative Action Program, the Contractor shall provide on-the-job training aimed at developing full journey status in the type of trade or job classification involved. The number of hours of training to be provided under this contract will be as shown on the bid schedule. Apprentices must be enrolled in an Office of Apprenticeship Training Employer and Labor Services (OATELS - formerly BAT) approved program; or if employee is a foreign born and English challenged worker, enrolled in the AGC Daily Dose English Program.

Following their *Daily Dose English Program* training, each trainee will be allowed a maximum of 600 hours towards his or her journeyman certification when enrolling in an apprenticeship program.

b. OBJECTIVE: Training and upgrading of minorities and women toward journey status is the primary objective of this program. The Contractor shall enroll minorities and/or women, where possible, and document good faith efforts prior to the hire of non-minority males in order to demonstrate compliance with this Training Special Provision. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

c. DAILY DOSE PROGRAM: Only those employees who have a language barrier are eligible to enroll in the Daily Dose Program and receive credit towards their journeyman certification.

Contractors utilizing the Daily Dose Program will receive credit of twenty hours per week up to a maximum of 600 hours for reimbursement towards a training goal per project, subject to verification; and/or credit of twenty hours per week up to a maximum of one half of assigned hours if the training goal is 600 hours or less on a project.

Employees enrolled only in the AGC Daily Dose Program working on a project will be compensated at a wage of 50 percent of the base rate for the specific classification to which they are assigned, but not less than the laborer rate in the wage determination for the project – whichever is greater.

An employee enrolled in the AGC Daily Dose Program may be concurrently enrolled in an approved apprenticeship program at any point prior to completion of the 600-hour program, based on language skill level commensurate with the approved apprenticeship program. Once enrolled in a defined apprenticeship program, compensation will be assigned at the period of apprenticeship employee is placed. Employee will be required to continue and/or complete the Daily Dose Program of 600 hours established while employed by the contractor.

d. PROJECT TRAINING GOAL: The formula for determining the training goal specified in the Training Special Provision shall be as follows:

DESCRIPTION	SAMPLE				
Engineer's estimate times 33% equals total labor dollars.	$25,000,000	X	33%	=	$8,250,000
Total labor $ divided by $50/hr equals total labor hours.	$8,250,000	÷	*$50/hr	=	165,000 hrs.
Total labor hours times 5% equals project training hours.	165,000 hrs.	X	5%	=	8,250 hrs.

*$50.00 = labor cost per hour per employee – to be adjusted periodically to accommodate increase in cost.

e. GENERAL: Prior to beginning construction on the contract, the Contractor shall submit Form OJT100 indicating the training program to be used, the number of hours of training to be provided by classification, and the anticipated starting time for training in each selected classification.

f. Training should begin within 2 weeks of the anticipated start dates of project as outlined on the OJT 100 Form, unless otherwise authorized by the Resident Engineer (RE). Only after submission of documentation by the Contractor and approval by the RE, of efforts made in good faith, will authorization of a delay be made.

g. The Contractor shall review annually the training and promotion potential of minority and women employees and shall encourage eligible employees to apply for such training and promotion.

h. METHOD OF MEASUREMENT: The Contractor will be credited for each approved apprentice/trainee employed on the project and reimbursed on the basis of hours worked in the program to which he/she is indentured, as listed on the certified payrolls, and reported monthly, by the Contractor in the UDOT PDBS Contractor module, OJT Hours Worked screen. There shall be no credit for training provided under this section prior to the Contractor's submittal and approval by the RE of the Apprentice/Trainee Certification from the appropriate agency. This certification expires 90 days from the date of issue, and must be renewed by the Contractor in order to keep the apprentice/trainee's hours eligible for reimbursement.

i. BASIS OF PAYMENT: Payment for contractor participating in the AGC Daily Dose program will be made at a rate of $10.00 a hour, 20 hours per week, up to a maximum of 600 hours per project unless otherwise specified in accordance with 5,C of this provision. Payment will be made at the contract unit price of $10.00 for each hour of approved apprenticeship training actually provided. If the contractor provides training for more than the number of hours specified on the bid schedule, the payment of $10.00 per hour continues to be paid for all hours of training provided, up to a maximum of double the assigned goal. No reimbursement will be provided to the contractor for hours in excess of twice the assigned training goal per project. All reimbursement payments made to the contractor for training must be paid to the agency administering the training program. Certified documentation showing the payment to the training agency is required to be submitted to the UDOT Civil Rights EEO and Labor Specialist when the project is complete.

A contractor will have fulfilled his/her responsibilities under this Training Special Provision if he/she has provided acceptable training to the number of trainees specified on the OJT100 and the number of hours specified and shown on the bid schedule. EXAMPLE (a): Training Goal = 750 hours; Hours specified on bid schedule = 750. Contractor may use any number of trainees to satisfy the number of hours specified on the bid schedule but the number of trainees specified on the Form OJT100 must be used unless change is approved by RE. EXAMPLE (b): Training Goal = 2000 hours; Hours specified on bid schedule = 2,000. Contractor may use any number of trainees to satisfy the number of hours specified on the bid schedule.

Any request for adjustment to the OJT Training Form or goal MUST be submitted and approved by the UDOT Civil Rights Office prior to substantial completion of project. Good Faith Efforts and mitigating circumstances will be considered in approval process.

LIQUIDATED DAMAGES: Where the Contractor has failed, by the end of the project, to provide the required number of hours of training and has failed to submit acceptable good faith efforts documentation which establishes exactly why he/she was unable to do so, the Contractor will be assessed an amount equal to the following damages to be deducted from the final progress payment:

DESCRIPTION	**SAMPLE**				
Number of hours of training not provided, times the journey worker hourly scale plus benefits	**HOURS OF TRAINING NOT PROVIDED**	***JOURNEY WORKER**	**BASE PLUS FRINGE**	**TOTAL HOURLY WAGE OF TRAINEE**	**DAMAGES**
	600	OPERATOR – Blade Smooth/Finish	23.80 + 9.76	= 33.56	20,136.00
	500	CARPENTER	16.13 + 2.80	= 18.93	9,465.00
	600	IRONWORKER	21.84 + 9.92	= 31.76	19,056.00
	700	OPERATOR – Bulldozer	18.05 + 7.08	= 25.13	17,591.00
Total training hours not provided	2,400		**Project Total Damages**		66,248.00

*The journey worker scale is based on the classification identified in the approved programs submitted previously on the form OJT100.

Federal Projects With Full Size Plan Sheets

(This form OJT100 replaces the required Training Letter of Commitment and is to be completed and submitted to the UDOT Resident Engineer before or at the pre-construction meeting for the project. Form is found on the UDOT web site, Construction forms, DBE, EEO and Labor Forms).

Form OJT100 Rev. 12/06	**TRAINING COMMITMENT FORM**	**Date:**

Project #		**Location**	
Company			
Address			

City		**State**		**ZIP**		**Phone**	

Craft/Classification	**Training Program**	**# Trainees**	**Starting Date**	**Approx # Hrs**

Signature	**Title**	**Date**

XII. Title VI Appendix A and E

Title VI of the Civil Rights Act of 1964 – Non – Discrimination Notice; Attachment A

NON-DISCRIMINATION NOTICE

In accordance with Title VI of the Civil Rights Act of 1964, 78 Stat. 252, 42 U.S.C 2000d to 2000d-4 and the Title 49, Code of Federal Regulations. The text below, in its entirety, is in all contracts entered into by UDOT. All of the text except the final section, entitled "Incorporation of Provisions," should be included in any contract entered into by any UDOT contractor.

During the performance of this contract, for itself, its assignees and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

A. COMPLIANCE WITH TITLE VI OF THE CIVIL RIGHTS ACT OF 1964 FOR FEDERAL-AID CONTRACTS

1. **Compliance with Regulations:** The contractor shall comply with the Regulation relative to nondiscrimination in Federally-assisted programs of the Department of Transportation (hereinafter, "DOT") Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time, (hereinafter referred to as Regulations), which are herein incorporated by reference and made a part of this contract.

2. **Nondiscrimination:** The Contractor, with regard to the work performed by it during the contract, shall not discriminate on the grounds of race, color, sex, age, disability, income status, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor shall not participate either directly or indirectly in the discrimination prohibited by section 21.5 of the Regulations, including employment practices when the contract covers a program set forth in Appendix B of the Regulations.

3. **Solicitations for Subcontractors, Including Procurements of Materials and Equipment:** In all solicitations either by competitive bidding or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the contractor of the contractor's obligations under this contract and the Regulations relative to nondiscrimination on the grounds of race, color, sex, age, disability, income status, or national origin.

4. **Information and Reports:** The contractor shall provide all information and reports required by the Regulations or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the (Recipient) or the (Name of Appropriate Administration) to be pertinent to ascertain compliance with such Regulations, orders and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish this information the contractor shall so certify to the (Recipient), or the (Name of Appropriate Administration) as appropriate, and shall set forth what efforts it has made to obtain the information.

5. **Sanctions for Noncompliance:** In the event of the contractor's noncompliance with the nondiscrimination provisions of this contract, the (Recipient) shall impose such contract sanctions as it or the (Name of Appropriate Administration) may determine to be appropriate, including, but not limited to:

   a. Withholding of payments to the contractor under the contract until the contractor complies, and/or

   b. Cancellation, termination or suspension of the contract, in whole or in part.

6. **Incorporation of Provisions:** The contractor shall include the provisions of paragraphs (1) through (6) in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations, or directives issued pursuant thereto.

The contractor shall take such action with respect to any subcontractor procurement as the (Recipient) or the (Name of Appropriate Administration) may direct as a means of enforcing such provisions including sanctions for noncompliance: Provided, however, that, in the event a contractor becomes involved in, or is threatened with litigation with a subcontractor or supplier as a result of such direction, the contractor may request the (Recipient) to enter into such litigation to protect the interests of the (Recipient), and, in addition, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

Federal Projects With Full Size Plan Sheets

Title VI of the Civil Rights Act of 1964 – Non – Discrimination Notice; Attachment E

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

Pertinent Non-Discrimination Authorities:

- Title Vl of the Civil Rights Act of 1964 (42 U.S.C. § 2000d *et seq.*, 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin); and 49 CFR Part 21.
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Federal-Aid Highway Act of 1973, (23 U.S.C. § 324 *et seq.),* (prohibits discrimination on the basis of sex);
- Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 *et seq.),* as amended, (prohibits discrimination on the basis of disability); and 49 CFR Part 27;
- The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 610 l*et seq.),* (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982, (49 USC § 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether suh programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131 – 12189) as implemented by Department of Transportation regulations at 49 C.F.R. parts 37 and 38;
- The Federal Aviation Administration's Non-discrimination statute (49 U.S.C. §47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-lncome Populations, which ensures discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);
- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 et seq).

FHWA-1273 -- Revised May 1, 2012

XIII. Required Contract Provisions
FEDERAL-AID CONSTRUCTION CONTRACTS

I. General
II. Nondiscrimination
III. Nonsegregated Facilities
IV. Davis-Bacon and Related Act Provisions
V. Contract Work Hours and Safety Standards Act Provisions
VI. Subletting or Assigning the Contract
VII. Safety: Accident Prevention
VIII. False Statements Concerning Highway Projects
IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
X. Compliance with Governmentwide Suspension and Debarment Requirements
XI. Certification Regarding Use of Contract Funds for Lobbying

ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).

   The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

   Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

   Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding $10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. **Equal Employment Opportunity:** Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

   a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.

   b. The contractor will accept as its operating policy the following statement:

   "It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

2. **EEO Officer:** The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. **Dissemination of Policy:** All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

   a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the

contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. **Recruitment:** When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. **Personnel Actions:** Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of

each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. **Selection of Subcontractors, Procurement of Materials and Leasing of Equipment:** The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

   a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.

   b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. **Assurance Required by 49 CFR 26.13(b):**

   a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

   b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.

11. **Records and Reports:** The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

   a. The records kept by the contractor shall document the following:

      (1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

      (2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

      (3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

   b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term

"facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding $2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 “Contract provisions and related matters” with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages

a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH–1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b. (1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and basic records

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b. (1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g. , the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division Web site at http://www.dol.gov/esa/whd/forms/wh347instr.htm or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency.

(2) Each payroll submitted shall be accompanied by a “Statement of Compliance,” signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH–347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and trainees

a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

5. **Compliance with Copeland Act requirements.** The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

6. **Subcontracts.** The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

7. **Contract termination: debarment.** A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. **Compliance with Davis-Bacon and Related Act requirements.** All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. **Disputes concerning labor standards.** Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. **Certification of eligibility.**

    a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

    b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

    c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The following clauses apply to any Federal-aid construction contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

1. **Overtime requirements.** No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. **Violation; liability for unpaid wages; liquidated damages.** In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.

3. **Withholding for unpaid wages and liquidated damages.** The FHWA or the contacting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.

4. **Subcontracts.** The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

   a. The term “perform work with its own organization” refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

      (1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;

      (2) the prime contractor remains responsible for the quality of the work of the leased employees;

      (3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and

      (4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

   b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is

evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.

2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost $25,000 or more – as defined in 2 CFR Parts 180 and 1200.

1. Instructions for Certification – First Tier Participants:

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. “First Tier Covered Transactions” refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov), which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

2. Instructions for Certification - Lower Tier Participants:

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost $25,000 or more - 2 CFR Parts 180 and 1200)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. “First Tier Covered Transactions” refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000 (49 CFR 20).

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

   a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

   b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

ATTACHMENT A - EMPLOYMENT AND MATERIALS PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS ROAD CONTRACTS

This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1 During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

XIV. Wage Rates Applicable

GENERAL DECISION FILE FOR PROJECTS REPORT

Date: 3/26/2015

Project #: F-0266(62)3

General Decision #: UT20150065 **Modification:** 0 **Publication Date:** 01/02/2015

Counties: SALT LAKE, UT

Contractor Code		Hourly Rate	Fringes
110276	(2a) Blade/Grader	$25.89	15.65
110345	(3) Front End Loader (Over 5 cu. yds.), Backhoe Loader Combination, Rotomill	$25.37	15.65
110357	(4) Asphalt Laydown Machine, Asphalt Paver, Bulldozer, Front End Loader (2 to 5 cu. yds.), Grade Setter, Scraper, Oil Distributor	$24.37	15.65
110347	(5) Asphalt Roller, Front End Loader (Under 2 cu. yds.), Horizontal Directional Drill	$23.37	15.65
110296	(6) Screed	$22.41	15.65
110297	(7) Roller (Dirt and Grade Compaction)	$21.50	15.65
110332	Crane (35 to 100 tons) -2	$26.99	15.65
110333	Crane (Over 100 tons) -1	$28.33	15.65
110331	Crane (Under 35 tons) -3	$25.70	15.65
110341	Crane Oiler -5	$22.59	15.65
110348	Crane Piledriver 5	$22.59	15.65
110211	Operator: Power Equipment: (1) Mechanic	$27.55	15.65
120265	IRONWORKER, STRUCTUAL	$26.18	17.45

GENERAL DECISION FILE FOR PROJECTS REPORT

Date: 3/26/2015

Project #: F-0266(62)3

General Decision #: UT20150065 **Modification:** 0 **Publication Date:** 01/02/2015

Counties: SALT LAKE, UT

Contractor Code		Hourly Rate	Fringes
120261	IRONWORKER, REINFORCING	$26.61	11.60
130012	LABORER: (1) Traffic Control, sets cones and barrels	$20.59	8.65
130071	LABORER: (4) Asphalt Raker, Asphalt Shoveler	$21.11	8.65
140241	CARPENTER, Includes Form Work	$18.03	3.44
140015	CEMENT MASON/CONCRETE FINSHER	$16.53	2.79
140277	ELECTRICIAN, Includes Low Voltage Wiring for Traffic Cameras and Installation of Traffic Signals	$21.56	5.00
140017	LABORER: Common or General	$12.86	2.66
140019	LABORER: Flagger	$7.43	1.57
140023	LABORER: Grade Checker	$12.87	3.59
140020	LABORER: Landscape	$12.27	2.66
140021	LABORER: Mason Tender-Cement/Concrete	$13.17	3.21
140022	LABORER: Pipelayer	$12.60	2.79
140091	LABORER: Power Tool Operator: (Chain/Concrete Saw, Dirt Compactor (Hand Held), Hand Held Drill and Jackhammer Only)	$13.75	4.65

GENERAL DECISION FILE FOR PROJECTS REPORT

Date: 3/26/2015

Project #: F-0266(62)3

General Decision #: UT20150065 **Modification:** 0 **Publication Date:** 01/02/2015

Counties: SALT LAKE, UT

Contractor Code		Hourly Rate	Fringes
140039	OPERATOR: Backhoe/Excavator/Trackhoe	$17.96	6.81
140278	OPERATOR: Bobcat/Skid Steer/Skid Loader	$13.06	3.31
140327	OPERATOR: Broom/Sweeper	$16.78	6.55
140031	OPERATOR: Concrete Finishing Machine	$18.76	6.55
140032	OPERATOR: Concrete Pump, Truck Mounted	$19.18	4.23
140033	OPERATOR: Rock Chip Spreader	$16.29	7.08
140038	OPERATOR: Tractor	$18.01	6.73
140076	OPERATOR: Trencher	$24.35	6.70
140041	PAINTER (Parking Lot and Highway Striping Only)	$14.05	1.62
140089	SIGN INSTALLER (Permanent and Temporary Road Signs Only)	$12.27	2.66
150055	TRUCK DRIVER (Water, Fuel & Oil Tank): 1,200 gal. to less than 2,500 gal.	$19.61	11.33
150059	TRUCK DRIVER (Water, Fuel & Oil Tank): 10,000 gal. to less than 15,000 gal.	$20.56	11.33
150106	TRUCK DRIVER (Water, Fuel & Oil Tank): 15,000 gal. to less than 20,000 gal	$20.81	11.33

GENERAL DECISION FILE FOR PROJECTS REPORT

Date: 3/26/2015

Project #: F-0266(62)3

General Decision #: UT20150065 **Modification:** 0 **Publication Date:** 01/02/2015

Counties: SALT LAKE, UT

Contractor Code		Hourly Rate	Fringes
150056	TRUCK DRIVER (Water, Fuel & Oil Tank): 2,500 gal. to less than 4,000 gal.	$19.76	11.33
150061	TRUCK DRIVER (Water, Fuel & Oil Tank): 20,000 gal. to less than 25,000 gal.	$21.16	11.33
150062	TRUCK DRIVER (Water, Fuel & Oil Tank): 25,000 gal. and over.	$21.31	11.33
150057	TRUCK DRIVER (Water, Fuel & Oil Tank): 4,000 gal. to less than 6,000 gal.	$20.06	11.33
150058	TRUCK DRIVER (Water, Fuel & Oil Tank): 6,000 gal. to less than 10,000 gal.	$20.31	11.33
150054	TRUCK DRIVER (Water, Fuel & Oil Tank): less than 1,200 gal.	$19.49	11.33
150049	TRUCK DRIVER (Dump Truck, Bottom-end or side): 105 cu. yds. to less than 130 cu. yds.	$20.83	11.33
150044	TRUCK DRIVER (Dump Truck, Bottom-end or side): 14 cu. yds. to less than 35 cu. yds.	$19.91	11.33
150045	TRUCK DRIVER (Dump Truck, Bottom-end or side): 35 cu. yds. to less than 55 cu. yds.	$20.11	11.33
150046	TRUCK DRIVER (Dump Truck, Bottom-end or side): 55 cu. yds. to less than 75 cu. yds.	$20.31	11.33
150047	TRUCK DRIVER (Dump Truck, Bottom-end or side): 75 cu. yds. to less than 95 cu. yds	$20.51	11.33
150043	TRUCK DRIVER (Dump Truck, Bottom-end or side): 8 cu. yds. to less than 14 cu. yds.	$19.76	11.33
150048	TRUCK DRIVER (Dump Truck, Bottom-end or side): 95 cu. yds. to less than 105 cu. yds.	$20.71	11.33

GENERAL DECISION FILE FOR PROJECTS REPORT

Date: 3/26/2015

Project #: F-0266(62)3

General Decision #: UT20150065 **Modification:** 0 **Publication Date:** 01/02/2015

Counties: SALT LAKE, UT

Contractor Code		Hourly Rate	Fringes
150042	TRUCK DRIVER (Dump Truck, Bottom-end or side): Less than 8 cu. yds.	$19.61	11.33
150099	TRUCK DRIVER (Lowboy)	$21.68	11.33
150051	TRUCK DRIVER (Oil Distribution)	$20.31	11.33
150052	TRUCK DRIVER (Pickup)	$19.44	11.33
150053	TRUCK DRIVER (Sweeper)	$19.76	11.33

Note: Executive Order (EO) 13658 establishes an hourly minimum wage of $10.10 for 2015 that applies to all contracts subject to the Davis-Bacon Act for which the solicitation is issued on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.10 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

XV. Special Provisions and Supplemental Specifications

Supplemental Specification
2012 Standard Specification Book

SECTION 00120M

BIDDING REQUIREMENTS AND CONDITIONS

Delete Article 1.15, paragraph A20 and replace with the following:

20. Unsatisfactory performance on previous or current contracts or serving probation for actions on another project.

Delete Article 1.15, paragraph B and replace with the following:

B. The bidder may appeal in writing to the UDOT Deputy Director according to Utah Code Section 63G-6-801 through 806, as amended if the Department refuses to accept a proposal for any of the foregoing reasons.

Delete Article 1.17 and replace with the following:

1.17 PROPOSAL DELIVERY

A. Electronically transmit the proposal before the time specified in the Notice to Contractors.

B. A manually submitted bid must include both a signed hard copy and electronic version. Electronic media device (CD/Flash Drive) must not be blank or unreadable and must contain the correct electronic bid items txt file in the indicated format.
   1. File format- Proj#_UDOTContractorID_bidopendate.txt
   2. The signed hard copy takes precedence over a manually delivered electronic version in the case of discrepancies or initialed changes to unit prices or DBE commitment.

Delete Article 1.18 and replace with the following:

1.18 WITHDRAWING OR REVISING PROPOSALS

A. A proposal may be withdrawn or revised before the time set for receiving proposals.

B. Provide the request for withdrawal to the Department with a telephone call followed by documented electronic communications including a company authorized signature and the UDOT Contractor ID before the time set for receiving proposals.

C. Revise and save bid proposal using the current version of the Department's Electronic Bid System. Transmit to Department authorized repository before the time set for receiving proposals.

Delete Article 1.20 and replace with the following:

1.20 SUSPENSION

A. A Contractor will be placed on suspension if its Contractor ratings performed by the Department do not meet the minimum standard outlined in the Contractor rating process for any Department or Department administered projects.

1. The Contractor will not be allowed to bid on Department or Department administered projects while on suspension.

Add Article 1.21, paragraph A14

14. Contractor ratings performed by the Department do not meet the minimum standard outlined in the Contractor rating process.

Add Article 1.27:

1.27 PUBLIC OPENING OF PROPOSALS

A. Proposals are publicly opened at the time indicated in the invitation for bids.

Add Article 1.28:

1.28 CONTRACTOR LICENSING

A. Apply and conform to the laws of Utah relative to the licensing of contractors.

1. A contractor's license is required before submission of a bid, except that a contractor may submit a bid on a Federal-aid highway project without having first obtained a license, provided that such contractor, before undertaking any construction under that bid (before notice to proceed), must be licensed in Utah.

2. Failure to do so will result in forfeiture of award.

B. Obtain a commercial license to perform work in Utah.
   1. A license will be required to proceed with work.
   2. All license requirements and application to perform heavy highway construction in the state of Utah requires the applicable license for the category of work being performed.
      a. The Prime contractor is required to hold an E-100 classification title/code or the applicable license relating to their specific category of work being performed.
      b. A Sub-contractor is required to hold the applicable license relating to their specific category of work being performed. Licensing is governed by:

      Utah Department of Commerce
      Occupational/Professional Licensing
      P O Box 145741
      Salt Lake City, UT 84114-6741
      (801)530-6628

November 4, 2014

SPECIAL PROVISION

PROJECT # F-0266(62)3
PIN # 11405

SECTION 00221S

BIDDING CONTRACT TIME

Add Section 00221

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Procedures for bidding contract time for the Price + Time bidding process.
   1. Includes incentive/disincentive for early/late completion of project milestones.

B. Description of time component pricing, and time related incentive or disincentive.
   1. Refer to Section 00515M for information regarding bidding time and determination of the low bidder.
   2. Time is a bid item that captures societal costs and is used for evaluation of the low bidder. Incentive/Disincentive is the only time related payment. Refer to this Section, article 1.7.

1.2 RELATED SECTIONS

A. Section 00515M: Contract Award And Execution

B. Section 00555: Prosecution and Progress

1.3 REFERENCES Not Used

1.4 DEFINITIONS Not Used

1.5 SUBMITTALS Not Used

1.6 TIME COMPONENT

A. Determine the bid price for the time component as follows.
   1. Measure contract time in calendar days.
   2. Determine the number of consecutive calendar days required between each start milestone and finish milestone in Table 1.
      a. Consider all requirements of the contract when determining the number of calendar days,
      b. Include the days of the start milestone and finish milestone in the number of calendar days.

B. The Department does not guarantee that any milestone can be completed in the minimum calendar days shown in Table 1.

C. Bidders are responsible to complete the milestones within the time bid and according to project requirements.

D. The Department will consider the bid non-responsive if the bidder:
   1. Does not submit a bid for the time component.
   2. Submits a time component bid for any awardable portion of the contract which is outside the minimum or maximum range.

E. Negative amounts are not permitted for time related bid items.

F. Time is bid in calendar days. Consider seasonal project specific weather conditions during bid preparation.

Table 1

Determination of Calendar Days						
A	**B**	**C**	**D**	**E**	**F**	**G**
TIME SEGMENT	**START MILESTONE**	**FINISH MILESTONE**	**TIME-RELATED COST-RATE**	**TIME-RELATED COST-RATE METHOD**	**MIN**	**MAX**
			Dollars per calendar day	User Cost or Liquidated Damages	Calendar days	Calendar Days
1	Flexible Start. See Section 00555M Article 1.7	Substantial Completion	$1200	Liquidated Damages	60	90

1.7 INCENTIVES/DISINCENTIVES RELATED TO "TIME"

A. Contract time related charges are determined by multiplying the number of calendar days accrued for each time segment by its corresponding time related cost rate and summing the products.

B. Document accrued time charges per time segment for the duration of the project.

C. Payments or deductions to the Contractor will be based on the difference between the time related bid amounts and the actual time charges assessed for the completed project.
   1. Payment for the incentive will be made in the project accounting system after substantial completion.
   2. Deduction for any milestone disincentive will be made on the first progress payment after the total number of calendar days bid for a milestone has passed without completion as defined in Table 1.

D. Incentive
   1. The Contractor is eligible for incentive when a milestone is achieved before the number of calendar days bid as determined by the Department.
   2. Payment is made at the rate shown in column D for the difference between the number of calendar days bid and the actual number of calendar days used to achieve the milestone when Column E is defined as "User Cost."
   3. Payment is made at the rate shown in the schedule of liquidated damages in Section 00555 based on the original contract amount when Column E is defined as "Liquidated Damages."
   4. The maximum dollar amount eligible for incentive payment for all combined milestones is **$12,000**.

E. Disincentive
   1. When the time related cost in Column E is defined as "User Cost."
      a. The Contractor is assessed a disincentive when a milestone is not achieved within the number of calendar days bid as determined by the Department.
      b. Disincentive is assessed at the rate shown in column D for the difference between the number of calendar days bid and the actual number of calendar days used to achieve the milestone.
      c. There is no maximum dollar amount for disincentive charges.
      d. Liquidated damages are charged in addition to disincentive for the difference between the maximum calendar days and

the actual number of days to achieve the milestone if milestone completion is not achieved prior to the maximum calendar days shown in Table 1. Refer to Section 00555.

2. When the time related cost in Column E is defined as “Liquidated Damages.”
   a. The Contractor is assessed disincentive at the rate shown in the schedule of liquidated damages in Section 00555 based on the original contract amount.
   b. Disincentive is assessed for the difference between the number of calendar days bid and the actual number of calendar days used to achieve the milestone.
   c. Disincentive applies until milestone completion or the maximum calendar days defined in Column G, whichever occurs first.

F. Liquidated Damages
   1. Liquidated damages are assessed according to Section 00555 for the difference between the number of maximum calendar days from Column G and the actual number of calendar days used to achieve the milestone.

G. Timeline of Incentive, Disincentive, and Liquidated Damages
   1. Refer to Figure 1

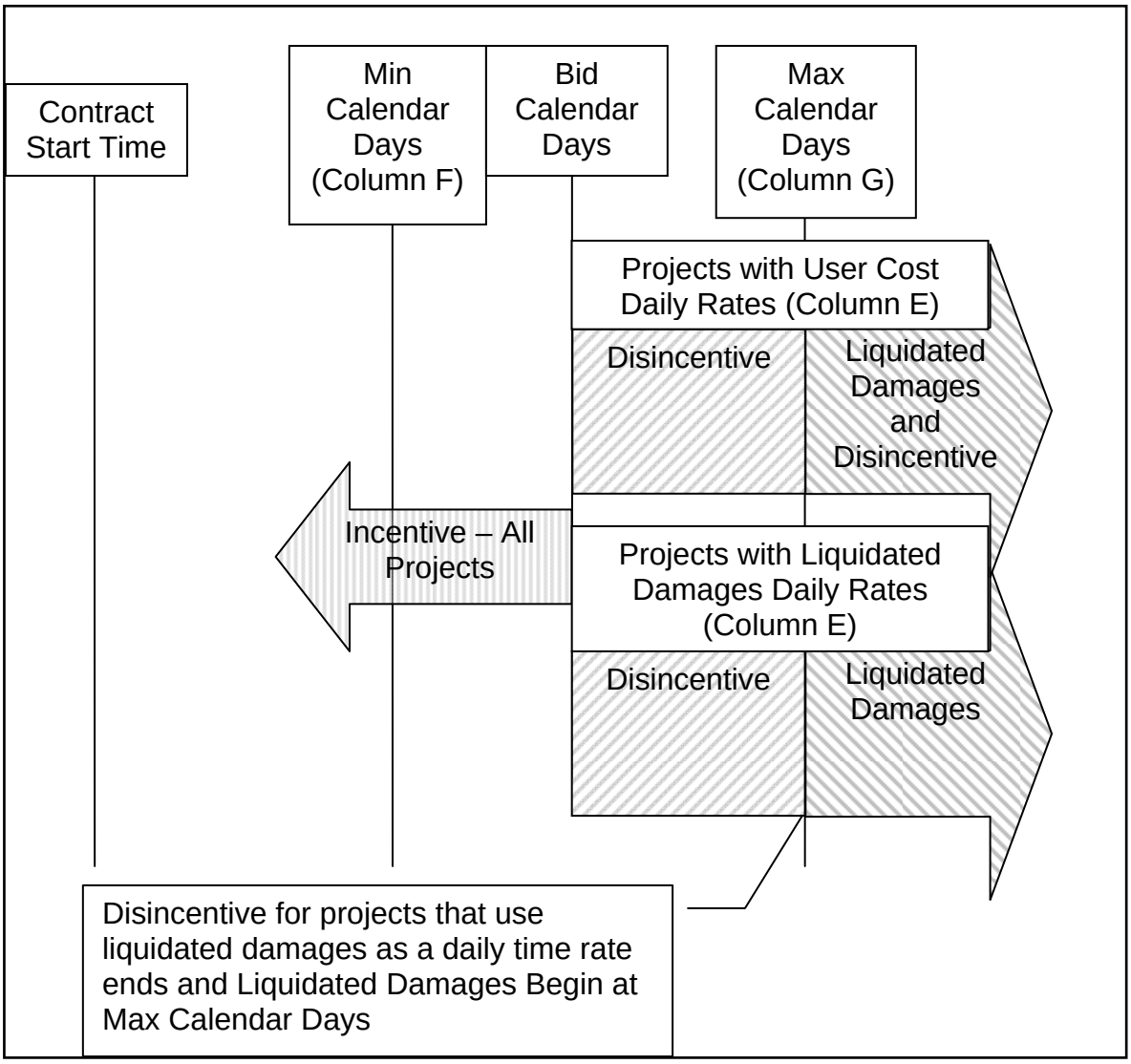

Figure 1 – Timeline of Incentive, Disincentive, and Liquidated Damages

PART 2 PRODUCTS Not Used

PART 3 EXECUTION Not Used

END OF SECTION

September 15, 2014

SPECIAL PROVISION

PROJECT # F-0266(62)3
PIN # 11405

SECTION 00515M

CONTRACT AWARD AND EXECUTION

Delete Article 1.6 and replace with the following:

1.6 PROPOSAL CONSIDERATION

A. This project uses a price + time or price + time + lane rental bidding process. These processes provide:
   1. For the determination of the low bidder based on the price of construction plus the costs associated with contract time and lane rental.
   2. An incentive/disincentive for completion of project time-related milestones based on durations established by Contractor bid as applicable.
   3. An incentive/disincentive for minimizing duration of lane and shoulder closures based on durations established by Contractor bid as applicable.

B. The Department publicly opens properly executed proposals using the current version of the Electronic Bid System (EBS) to compare bids on the basis of the summation of the products of the quantities and the unit bid prices.
   1. The Department makes the results of the comparisons available to the public.
   2. The unit bid prices govern if a discrepancy exists between unit bid prices and extensions.

C. The Department reserves the right to reject any or all proposals, waive technicalities, or advertise for new proposals.

D. The bidder can request withdrawal of a bid after bid opening by:
   1. Submitting to the Director for Construction and Materials a notarized affidavit within 24 hours after bid opening declaring a clerical or mathematical error in bid preparation.
   2. Submitting accompanying declaration with original work sheets used in bid preparation.
   3. Describing specific errors in detail.

4. Verifying that error has a significant monetary effect in the amount of 3 percent of the bid or greater.

E. The bidder may not request bid withdrawal for judgmental errors.

Delete Article 1.11, paragraph A and replace with the following:

A. The awarded Contractor must return the signed contracts, properly executed contract bonds, National Safety Rating Scores, and all required insurances to the Department within 20 calendar days after notice of award.
   1. The bidder can withdraw the proposal without penalty if the Department does not execute the contract within 30 calendar days after receiving requisite signed contracts, bonds, and insurances.
   2. The contract is not considered in effect until executed by all parties.

August 19, 2014

SPECIAL PROVISION

PROJECT # F-0266(62)3
PIN # 11405

SECTION 00555M

PROSECUTION AND PROGRESS

Delete Article 1.7 and replace with the following:

1.7 NOTICE TO PROCEED

A. Proceed with work after receipt of written notice from the department.

B. Time charges begin based on the following:
   1. The contractor notifies the Engineer in writing of the desired start date.
   2. The start must be on or after the Early Start Date and before the Late Start date as defined below:
      a. Early Start Date – April 30, 2015
      b. Late Start Date – June 8, 2015
   3. If the contractor fails to notify the Engineer two weeks prior to the Late Start Date, then contract times begins on the Late Start Date.

C. Notify the Engineer at least two weeks before beginning work.

Delete Article 1.11 and replace with the following:

1.11 LIMITATION OF OPERATIONS

A. Failure of the Contractor to cease work and open the roadway to traffic as specified in this article will result in additional charges to the Contractor. These charges are in addition to the daily liquidated damages set forth in section 00221S and will be assessed as a disincentive. The disincentive rate will be assessed at a rate of $1,200 per hour.

B. Sunday and Category II Holiday Work
   1. Do not perform any work without written approval except for repairing or servicing equipment, protecting work, maintaining or curing concrete, and maintaining traffic on Category II holidays as defined in Section 00570, and on holiday weekends as defined below:

a. Memorial Day – 3:30 pm Friday May 22 to 6:00 am Tuesday May 26.
b. 4th of July – 12:00 pm Thursday July 2 to 6:00 am Monday July 6.
c. Pioneer Day – 3:30 pm Thursday July 23 to 6:00 am Monday July 27.
d. Labor Day – 3:30 pm Friday September 4 to 6:00 am Tuesday September 8.

2. Provide advance notice to the Engineer no later than noon on the Wednesday before any Category I holiday work, except Veteran's Day, as defined in Section 00570, unless otherwise restricted in the contract.
    a. Provide the Engineer 3 days notice before working on Veteran's Day.

C. Working Hours and Construction Access
1. Night Work
    a. Provide five calendar day notice before starting night work.
    b. Provide adequate lighting for performing satisfactory inspection and construction operations.
    c. Control noise and vibration according to Section 01355.
    d. The Contractor is responsible for obtaining night work permits. Coordinate with James Bennett at Salt Lake Valley Health Department (385-468-3793 jbennett@slco.org) and fill out a Temporary Noise Permit Application at least 10 days prior to starting night work.
2. Primary access to the project is to be made from 4500 South and Main Street.
    a. Construction vehicles are not allowed on local roads except within the extents of construction as shown in the plans.
    b. Any deviations from this are to be approved by Murray City and coordinated with the Engineer.

D. Placement of Signal Mast Arms
a. Place signal mast arms Sunday 12:00 am to 9:00 am. Utah Highway Patrol must be present for traffic control during mast arm placement. All costs associated with Utah Highway Patrol are incidental to the lump sum signal cost. Coordinate mast arm placement with Murray Power and maintain all minimum clearances from overhead power.
b. New signal mast arms are in conflict with existing signal poles and mast arms for the installation of P3 and P4. Sequence signal pole installation to minimize signal down time. Do not exceed 4 hrs of signal down time. Utah Highway Patrol must be present for traffic control during pole placement. Contact Shaun Montgomery at 801-

514-9283 eight days in advance to schedule signal turn-on and final inspection.

E. Traffic Limitations

1. Minimize interference with traffic during performance of the work.
   a. 4500 South
      i. Maintain pedestrian traffic through the project at all times.
      ii. Maintain minimum 11' lane widths at all times.
      iii. Maintain eastbound lanes as shown in Table 1.11a.
      iv. Maintain westbound lanes as shown in Table 1.11b.
      v. Do not close lanes if no work is taking place.
   b. Main Street
      i. Maintain pedestrian traffic through the project at all times.
      ii. Maintain minimum 11' Thru/Right and Left Turn lane widths at all times.
      iii. Maintain minimum 15' Receiving Lane widths at all times.
      iv. The northbound left turn lane may be closed and left turn traffic detoured to the frontage road.
      v. Maintain southbound lanes as shown in Table 1.11c.
      vi. Maintain northbound lanes as shown in Table 1.11d.
      vii. Do not close lanes if no work is taking place.

2. Provide uninterrupted service for mail delivery, UTA buses, and garbage removal.

F. Variable Message Signs (VMS)

1. Provide four VMS signs, 7 days prior to start of construction and during construction activities. Provide two additional VMS signs in addition to the four, available upon request by the Engineer at no additional cost to the Department.
   a. Coordinate the location and message with the Engineer and Region Traffic Engineer.
   b. The cost of the Variable Message signs is included in the maintenance of traffic item.

G. Property Owner Access:

1. Notify all property owners/occupants 48 hours in advance of any closure or partial closure of direct access to their property.
   a. Closure of access is permitted only for asphalt paving and driveway work. Maintain driveway access open when no work is taking place. Maximum closure is 7 calendar days.
   b. Re-establish access as soon as concrete minimum strength is obtained.

c. Rich Laudie, DI Store Manager, 801-262-6467, laudierd@ldschurch.org.

d. Omar Saif, Tim Dahle Nissan, 801-263-3656 Pat@LSM 801-269-9888 (Maintains landscape area on southwest corner).

H. UTA Signs and Bus Routes

1. Contact the Utah Transit Authority (UTA) within two (2) weeks after Notice to Proceed (NTP) and identify to UTA who the Contractor's point of contact is. Provide contact information to UTA and provide UTA with a construction schedule for the project. If at any time during the project the Contractor's point of contact changes, or the construction schedule changes, provide this information to UTA within 48 hours (2 business days). See signing plans for temporary relocation of UTA bus stop to north of DI driveway.
2. Notify UTA thirty (30) days prior to any road closures, lane closures, or any other construction activity that would affect the route of, or cause delays to, any of the bus routes of UTA.
3. The contact individual at UTA is _Mike Clara, mclara@rideuta.com, 801-673-7766_

I. Right-of-Way Limitations

1. On portions of SR-266 (4500 South) and Main Street, work may commence on existing UDOT or City owned Rights of Way and properties cleared for construction as part of this project.
2. The Contractor shall verify legal rights for entry are obtained before construction activities occur on any property.
3. For legal rights for entry obtained after the date of this agreement, the Contractor must obtain written approval from the Resident Engineer before entering upon those properties.
4. No physical entry is allowed on the properties listed in Table 2 until UDOT has secured a right of entry on the property.
5. None of the properties listed in Table 2 shall be on the critical path until the committed clearance date as shown in Table 2.
6. Do not enter or commence work on any property unless the necessary legal rights for entry are obtained. Contractor is responsible to enforce this requirement with the subcontractors. Any physical entry on the property without the necessary legal rights for entry is considered trespassing. Contractor assumes all liability for any trespass. Contractor will indemnify, defend, and hold harmless the State of Utah, UDOT, its employees and agents from and against all claims, damages, injuries, suits and costs, including attorneys' fees, or increased costs caused by the Contractor's entry upon parcels without having the necessary legal rights for entry.

Table 2: Right-of-Way Limitations

Parcel Number	Tax ID Number	Owner	Anticipated Occupancy/Availability
102	21-01-426-005	Utah Transit Authority	March 20, 2015
104	22-06-152-010	Corporation of the Presiding Bishop of the Church of Jesus Christ of Latter Day…	May 18, 2015
105	22-06-152-025	Utah Transit Authority	March 20, 2015

7. Coordinate with the property maintenance at Deseret Industries on the Northeast corner to allow for relcoation of their sign, lighting, and sprinkler systems.

   Contacts: Rich Laudie, DI Store Manager, 801-262-6467, laudierd@ldschurch.org.
   Jonathan Johnson, DI Regional Facilities Manager 801-240-7172

8. Coordinate with Salt Lake County on the Northwest corner for work impacting their parking lot. Install temporary fence with barb wire to secure the Salt Lake County facility at all times until permanent fence is installed. The cost of the temporary fence with barb wire and maintaining the fence is incidental to the mobilization bid item.

J. Remove all existing and temporary striping prior to placing Microsurface. Apply first coat of Pavement Marking Paint immediately after applying Microsurface. Apply Second Coat of Pavement Marking Paint 15 to 30 days after first coat of paint has been applied. Wait 2 weeks before applying Thermoplastic Messages to Microsurface. Apply temporary marking paint for stop bars, crosswalks, and messages after placing microsurface. Offset temporary markings from permanent thermoplastic locations to avoid placing thermoplastic on top of paint.

<table>
<tr><th colspan="8">Table 1.11a: Lane Closure Reference Table (4500 South Eastbound)</th></tr>
<tr><th>Time</th><th>Sunday</th><th>Monday</th><th>Tuesday</th><th>Wednesday</th><th>Thursday</th><th>Friday</th><th>Saturday</th></tr>
<tr><td colspan="8">4500 South Eastbound</td></tr>
<tr><td>0:00</td><td rowspan="22">1 THRU LANE OPEN</td><td rowspan="6">1 THRU LANE OPEN</td><td rowspan="6">1 THRU LANE OPEN</td><td rowspan="6">1 THRU LANE OPEN</td><td rowspan="6">1 THRU LANE OPEN</td><td rowspan="6">1 THRU LANE OPEN</td><td rowspan="8">1 THRU LANE OPEN</td></tr>
<tr><td>1:00</td></tr>
<tr><td>2:00</td></tr>
<tr><td>3:00</td></tr>
<tr><td>4:00</td></tr>
<tr><td>5:00</td></tr>
<tr><td>6:00</td><td rowspan="4">3 THRU LANES OPEN</td><td rowspan="4">3 THRU LANES OPEN</td><td rowspan="4">3 THRU LANES OPEN</td><td rowspan="4">3 THRU LANES OPEN</td><td rowspan="4">3 THRU LANES OPEN</td></tr>
<tr><td>7:00</td></tr>
<tr><td>8:00</td><td rowspan="14">2 THRU LANES OPEN</td></tr>
<tr><td>9:00</td></tr>
<tr><td>10:00</td><td rowspan="12">2 THRU LANES OPEN</td><td rowspan="12">2 THRU LANES OPEN</td><td rowspan="12">2 THRU LANES OPEN</td><td rowspan="12">2 THRU LANES OPEN</td><td rowspan="12">2 THRU LANES OPEN</td></tr>
<tr><td>11:00</td></tr>
<tr><td>12:00</td></tr>
<tr><td>13:00</td></tr>
<tr><td>14:00</td></tr>
<tr><td>15:00</td></tr>
<tr><td>16:00</td></tr>
<tr><td>17:00</td></tr>
<tr><td>18:00</td></tr>
<tr><td>19:00</td></tr>
<tr><td>20:00</td></tr>
<tr><td>21:00</td></tr>
<tr><td>22:00</td><td rowspan="2">1 THRU LANE OPEN</td><td rowspan="2">1 THRU LANE OPEN</td><td rowspan="2">1 THRU LANE OPEN</td><td rowspan="2">1 THRU LANE OPEN</td><td rowspan="2">1 THRU LANE OPEN</td></tr>
<tr><td>23:00</td><td>1 THRU LANE OPEN</td></tr>
<tr><td colspan="8">MAINTAIN LEFT TURN LANE OPEN AT ALL TIMES. SHOULDER CLOSURES ARE ALLOWED AT ALL TIMES.</td></tr>
</table>

<table>
<tr><th colspan="8">Table 1.11b: Lane Closure Reference Table (4500 South Westbound)</th></tr>
<tr><th>Time</th><th>Sunday</th><th>Monday</th><th>Tuesday</th><th>Wednesday</th><th>Thursday</th><th>Friday</th><th>Saturday</th></tr>
<tr><td colspan="8">4500 South Westbound</td></tr>
<tr><td>0:00</td><td rowspan="9">1 THRU LANE OPEN</td><td rowspan="5">1 THRU LANE OPEN</td><td rowspan="5">1 THRU LANE OPEN</td><td rowspan="5">1 THRU LANE OPEN</td><td rowspan="5">1 THRU LANE OPEN</td><td rowspan="5">1 THRU LANE OPEN</td><td rowspan="6">1 THRU LANE OPEN</td></tr>
<tr><td>1:00</td></tr>
<tr><td>2:00</td></tr>
<tr><td>3:00</td></tr>
<tr><td>4:00</td></tr>
<tr><td>5:00</td><td rowspan="4">3 THRU LANES OPEN</td><td rowspan="4">3 THRU LANES OPEN</td><td rowspan="4">3 THRU LANES OPEN</td><td rowspan="4">3 THRU LANES OPEN</td><td rowspan="4">3 THRU LANES OPEN</td></tr>
<tr><td>6:00</td></tr>
<tr><td>7:00</td><td rowspan="17">2 THRU LANES OPEN</td></tr>
<tr><td>8:00</td></tr>
<tr><td>9:00</td></tr>
<tr><td>10:00</td><td rowspan="8">2 THRU LANES OPEN</td><td rowspan="5">2 THRU LANES OPEN</td><td rowspan="5">2 THRU LANES OPEN</td><td rowspan="5">2 THRU LANES OPEN</td><td rowspan="5">2 THRU LANES OPEN</td><td rowspan="5">2 THRU LANES OPEN</td></tr>
<tr><td>11:00</td></tr>
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<tr><td>14:00</td></tr>
<tr><td>15:00</td><td rowspan="4">3 THRU LANES OPEN</td><td rowspan="4">3 THRU LANES OPEN</td><td rowspan="4">3 THRU LANES OPEN</td><td rowspan="4">3 THRU LANES OPEN</td><td rowspan="4">3 THRU LANES OPEN</td></tr>
<tr><td>16:00</td></tr>
<tr><td>17:00</td></tr>
<tr><td>18:00</td></tr>
<tr><td>19:00</td><td rowspan="3">2 THRU LANES OPEN</td><td rowspan="3">2 THRU LANES OPEN</td><td rowspan="3">2 THRU LANES OPEN</td><td rowspan="3">2 THRU LANES OPEN</td><td rowspan="3">2 THRU LANES OPEN</td></tr>
<tr><td>20:00</td></tr>
<tr><td>21:00</td></tr>
<tr><td>22:00</td><td rowspan="2">1 THRU LANE OPEN</td><td rowspan="2">1 THRU LANE OPEN</td><td rowspan="2">1 THRU LANE OPEN</td><td rowspan="2">1 THRU LANE OPEN</td><td rowspan="2">1 THRU LANE OPEN</td><td rowspan="2">1 THRU LANE OPEN</td></tr>
<tr><td>23:00</td></tr>
<tr><td colspan="8">MAINTAIN LEFT TURN LANE OPEN AT ALL TIMES. SHOULDER CLOSURES ARE ALLOWED AT ALL TIMES.</td></tr>
</table>

Table 1.11c: Lane Closure Reference Table (Main Street Southbound)							
Time	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
MAIN STREET SOUTHBOUND							
0:00	1 THRU/RIGHT LANE, 1 LEFT TURN LANE, AND 1 RECEIVING LANE OPEN	1 THRU/RIGHT LANE, 1 LEFT TURN LANE, AND 1 RECEIVING LANE OPEN	1 THRU/RIGHT LANE, 1 LEFT TURN LANE, AND 1 RECEIVING LANE OPEN	1 THRU/RIGHT LANE, 1 LEFT TURN LANE, AND 1 RECEIVING LANE OPEN	1 THRU/RIGHT LANE, 1 LEFT TURN LANE, AND 1 RECEIVING LANE OPEN	1 THRU/RIGHT LANE, 1 LEFT TURN LANE, AND 1 RECEIVING LANE OPEN	1 THRU/RIGHT LANE, 1 LEFT TURN LANE, AND 1 RECEIVING LANE OPEN
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22:00							
23:00							

Table 1.11d: Lane Closure Reference Table (Main Street Northbound)							
Time	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
MAIN STREET NORTHBOUND							
0:00	1 THRU/RIGHT LANE AND 1 RECEIVING LANE OPEN	1 THRU/RIGHT LANE AND 1 RECEIVING LANE OPEN	1 THRU/RIGHT LANE AND 1 RECEIVING LANE OPEN	1 THRU/RIGHT LANE AND 1 RECEIVING LANE OPEN	1 THRU/RIGHT LANE AND 1 RECEIVING LANE OPEN	1 THRU/RIGHT LANE AND 1 RECEIVING LANE OPEN	1 THRU/RIGHT LANE AND 1 RECEIVING LANE OPEN
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22:00							
23:00							

END OF SECTION

Supplemental Specification
2012 Standard Specification Book

SECTION 00570M

DEFINITIONS

Delete Article 1.6, paragraph A45 and replace with the following:

45. MUTCD Utah Manual on Uniform Traffic Control Devices (This applies to all references to the MUTCD in Department Standard Specifications and Drawings, Supplemental Specifications and Drawings, Special Provisions, and Plan Sheets.) Refer to http://www.udot.utah.gov/go/standardsreferences for a link to the Utah MUTCD.

Delete Article 1.7, paragraph A38 and replace with the following:

38. **Debarment** – Action taken by the Department or federal government pursuant to policies or regulations that prohibits a person or company from performing work on a public project.

Delete Article 1.7, paragraph A49, Table 1 and replace with the following:

Table 1

Holiday Categories	
Category I	**Category II**
Martin Luther King, Jr. Day	New Year's Day
Presidents' Day	Memorial Day
Columbus Day	Independence Day
Veteran's Day	Pioneer Day
	Labor Day
	Thanksgiving Day
	Christmas Day

Delete Article 1.7, paragraph A66 through A104 and replace with the following:

66. **Probation** – Action taken by the Department pursuant to Department policies that prohibits a person or company from bidding on Department or Department administered projects.

67. **Profile Grade** – The trace of a vertical plane intersecting the top surface of the proposed wearing surface, usually along the longitudinal centerline of the roadbed. Profile grade means either elevation or gradient of such trace according to the context.
68. **Project** – The specific section of the highway or other specific property on which construction is to be performed together with all improvements to be constructed under the contract.
69. **Proposal** – A bidder's written response to a Department request for proposals. See Value Engineering Change Proposal.
70. **Responsible Bidder** – A bidder able to perform the specified work as determined by the Department.
71. **Responsive Bid** – A bid that meets all requirements of the invitation for bids.
72. **Resources** – The labor, equipment, materials, and incidentals necessary to perform work on a contract bid item or other element of work.
73. **Right-of-Way** – A general term denoting land, property, or interest acquired for or devoted to transportation purposes.
74. **Roadbed** – The graded portion of highway within top and side slopes, prepared as a foundation for the pavement structure and shoulders.
75. **Roadbed Material** – Material in cuts, embankments, and embankment foundations from the subgrade down that supports the pavement structure.
76. **Roadside** – The areas between the outside edges of the shoulders and the right-of-way boundaries including unpaved median areas between inside shoulders of divided highways and areas within interchanges.
77. **Roadside Development** – Items necessary for the preservation or replacement of landscape materials. Features may include suitable plantings and other improvements or ground cover to preserve and enhance the appearance and stability of the highway right-of-way or acquired easements for scenic improvements.
78. **Roadway** – The portion of a highway within the construction limits.
79. **Shoulder** – The portion of the roadway adjacent to the traveled way where vehicles may stop for emergencies and which supports base and surface courses.
80. **Sidewalk** – That portion of the roadway constructed exclusively for pedestrian use.
81. **Significant Change in Character of Work –** Work that differs materially in kind or nature from that involved or included in the original contract or results in the total quantity of a major contract item, as defined in this section, varying from the original contract quantity by more than 25 percent.
82. **Site of Work –** As defined in Title 29 CFR Part 5.2 (l).

83. **Specifications** – The compilation of provisions and requirements for the performance of prescribed work.
    a. **Special Provisions** – A unique specification or a modification or revision to the standard specifications applicable to an individual contract.
    b. **Supplemental Specifications** – Approved additions and revisions to the Standard Specifications.
    c. **Standard Specifications** – Specifications approved for general application and repetitive use.
84. **Specifications Format** – See the Specification Writer's Guide. Refer to http://www.udot.utah.gov/go/standardsreferences. The titles or headings of the sections, parts, articles, paragraphs, and sub-paragraphs in Standard Specifications and Special Provisions are intended for convenience of reference and have no bearing on their interpretation.
85. **Stabilization** – Modification of soils or aggregates by incorporating materials that increases load-bearing capacity, firmness, and resistance to weathering or displacement.
86. **State** – The State of Utah acting through its authorized representative.
87. **Structures** – Bridges, culverts, catch basins, drop inlets, retaining walls, cribbing, manholes, endwalls, buildings, sewers, service pipes, underdrains, foundation drains, and other such features that may be encountered in the work.
88. **Subcontractor** – An individual or legal entity to which a Contractor sublets part of the work.
89. **Substantial Completion** – Substantially complete. The day, determined by the Engineer, when all of the following have occurred:
    a. The public, including vehicles and pedestrians, has full and unrestricted use and benefit of the facilities both from the operational and safety standpoint including all Intelligent Transportation Systems (ITS) and Advanced Traffic Management Systems (ATMS).
    b. All safety features are installed and fully functional, including, but not limited to, illumination, signing, pavement markings, all coats of striping paint, barrier, guardrail, impact attenuators, delineators, and all other safety appurtenances.
    c. All remaining bid items in the contract are complete in addition to safety features. Only minor corrective work and replacement of temporary substitute facilities remains for physical completion.
    d. The Contractor and Engineer mutually agree that all work remaining will be performed without lane closures, trail or sidewalk closures, or further delays, disruption, or impediment to the public.

90. **Substructure** – All of the structure below the girders or main load carrying members of simple and continuous span bridges, including abutments, bent caps, columns, bents, footings, wingwalls, and skewbacks of arches.
91. **Superintendent** – The Contractor's authorized employee in responsible charge of the work.
92. **Superstructure** – All of the structure except the substructure as defined in this section.
93. **Surety** – The legal entity or individual, other than the Contractor, executing a bond furnished by the Contractor.
94. **Time Related Cost (Time component)** – A bid item that identifies a daily value based on user costs or liquidated damages. Time value is the sum of the products of the time-related cost rates multiplied by the time bid by the Contractor to achieve the milestones specified.
95. **Town, City, or District** – A subdivision of the county used to designate or identify the location of the contract.
96. **Traveled Way** – The portion of the roadway designated for the movement of vehicles, excluding shoulders and auxiliary lanes.
97. **Unbalanced Bid**
    a. **Mathematically Unbalanced** – A bid containing lump sum or unit bid items that do not include reasonable actual costs plus a reasonable proportionate share of the bidder's anticipated profit, overhead costs, and other indirect costs.
    b. **Materially Unbalanced** – A mathematically unbalanced bid that generates a reasonable doubt that awarding the contract to the bidder will result in the lowest ultimate cost to the Department.
98. **Unrestricted Traffic** – No traffic control measures in use that obstruct, delay, or in any way impede traffic flow, other than those specifically permitted in the contract.
99. **User Costs** – Costs incurred by the traveling public due to construction activities.
100. **Utility** – All privately, publicly, or cooperatively owned lines, facilities, and systems for producing, transmitting, or distributing communications, power, heat, gas, oil, water, waste, and storm water not connected with the highway drainage, signal systems, and other products that directly or indirectly serve the public. The utility company.
101. **Value Engineering Change Proposal** – A change proposed by the Contractor and considered by the Department intended to result in project cost savings to contract pay items without reducing the essential functions and characteristics of the project. Refer to Section 00725.

102. **Work** – The elements, activities, and incidentals necessary to complete a project (including labor, materials, equipment, and the interim products and stages attained in the course of reaching completion), and all alterations, amendments, or extensions made by change order or other written orders of the Engineer.

103. **Working Day** – Any calendar day, except:
    a. Saturdays, Sundays, and contract-designated holidays.
    b. Days between December 1 and February 29, inclusive.
    c. Days when the Contractor is specifically required by the contract or letter from the Engineer to suspend operations through no fault of the Contractor.
    d. Days when the Engineer determines that inclement weather or adverse conditions interfere with the progress of the work.
        1) When the Engineer determines that inclement weather prevents the Contractor from working with at least 75 percent of the normal labor and equipment force engaged in the work for at least 60 percent of the normal working day.
        2) When inclement weather stops the Contractor from beginning work at the normal starting hour and the crew is released as a result, it is not considered a working day even though conditions may improve and the major portion of the day could be considered suitable for operations.

104. **Working Drawings** – Drawings produced by the Contractor that supplement the contract drawings to provide information not included in the contract documents but that is required to fabricate, erect, transport, or temporarily support the structure or structural elements in the completion of the work. Working drawings do not supersede the contract drawings.

105. **Written Permission of the Engineer** – A letter signed by the Engineer granting specific permission and outlining limitations of the permission.

January 23, 2012

SPECIAL PROVISION

PROJECT # F-0266(62)3
PIN # 11405

SECTION 00725M

SCOPE OF WORK

Delete Article 1.2 and replace with the following:

1.2 RELATED SECTIONS

A. Section 00221S: Bidding Contract Time

B. Section 00555: Prosecution and Progress

C. Section 00570: Definitions

D. Section 00727: Control of Work

E. Section 01282: Payment

F. Section 01355: Environmental Compliance

G. Section 01554: Traffic Control

H. Section 01741: Final Cleanup

Add Article 1.19, paragraph J5:

5. Time savings resulting from a VECP are not financially compensated to the Contractor above the maximum dollar amount eligible for incentive payment as specified in Section 00221S.

August 20, 2014

SPECIAL PROVISION

PROJECT # F-0266(62)3
PIN # 11405

SECTION 00727M

CONTROL OF WORK

Add the following to Article 1.11:

H. Notify the utility contacts identified in the contract documents 10 days prior to working around their respective utilities. Notify Blue Stakes before excavating as required by State Code.

I. Hold weekly utility schedule coordination meetings with utility company representatives.

J. The utility relocation/adjustment summary provided herein is for assistance in scheduling work with the utility companies. Additional utility conflicts and adjustments may be encountered during construction. Existing utilities within the new roadway section and side street roadway sections that are not relocated or adjusted to accommodate the project will be protected in place.

1. Century Link
   a. Century Link will relocate telephone lines that are in conflict with the retaining wall along the northwest side of the intersection. Century Link will lower telephone lines impacted by the new pavement section between the sawcut lines and the new curb and gutter.
   b. Century Link will relocate the telephone boxes at 38+81.70 LT 62.02 and 37+71.20 LT 54.00.
   c. Century Link will relocate or protect in place the splice pit at 38+89.01 LT 48.65.
   d. Century Link will relocate their lines at the following locations:
      35+61.94 LT 56.68 TO 37+96.92 LT 41.36 (2 LINES)
      35+61.94 LT 56.68 TO 37+71.20 LT 54.00
   e. Century Link will lower their lines at the following locations:
      38+60.61 LT 51.65 TO 38+81.70 LT 62.02
      37+71.20 LT 54.00 TO 38+10.35 LT 54.74
      38+04.07 RT 93.29 TO 38+40.68 RT 89.34
      38+61.89 LT 44.27 38+89.01 LT 48.65 (3 LINES)

38+81.70 LT 62.02 40+00.00 LT 48.23 (2 LINES)
38+81.70 LT 62.02 TO 39+04.58 LT 53.76
38+89.01 LT 48.65 TO 39+04.58 LT 53.76
38+04.07 RT 93.29 TO 38+40.68 RT 89.34
MAIN STREET 3+35.50 RT 46.10 TO 5+35.99 RT 27.26

f. Utility must remain fully operational at all times during the project.

2. Comcast
   a. Comcast will lower their lines at 3+61.39 RT 26.20 to 5+27.92 RT 22.49.
   b. Comcast will relocate the CATV riser at 3+61.39 RT 26.20.
   c. Comcast will bury their overhead lines from 1+94.66 RT 35.02 TO 3+62.00 RT 27.75 in coordination with Murray Power.
   d. Comcast will relocate overhead line from 37+00 RT 96 to 40+25 RT 68.
   e. Utility must remain fully operational at all times during the project.
3. Murray Power
   a. Murray Power will bury their overhead lines from 1+94.66 RT 35.02 TO 3+62.00 RT 27.75 in coordination with Comcast.
   b. Murray Power will remove the power pole at 3+62.00 RT 27.75
   c. Murray Power will remove the guy anchor at 3+72.10 RT 26.85.
   d. Murray Power will relocate the transformers at 3+90.27 RT 27.85 and 3+97.14 RT 28.31
   e. Murray Power will lower to grade the electric boxes as 3+78.01 LT 28.06 and 3+80.74 LT 23.43
   f. Utility must remain fully operational at all times during the project.

4. Questar
   a. Questar will lower the 2” gas line at 37+74.68 RT 80.86 TO 38+20.78 RT 75.87.
   b. Coordinate with Questar for on-site inspections when installing the pavement section near other existing gas lines.
   c. Protect all other gas lines in place.
   d. Utility must remain fully operational at all times during the project.
5. Zayo
   a. Protect in place their line at 37+90.91 RT 71.28 TO 38+29.13 RT 79.46. Testholes did not locate the line. Zayo said the lines are at sufficient depth so as to not be affected by the project. Utility must remain fully operational at all times during the project.
6. JVWCD

a. JVWCD will relocate their manhole at 38+06.54 RT 73.87 and the vent at 38+05.96 RT 77.53. Utility must remain fully operational at all times during the project.

7. Verizon
   a. Verizon will lower the fiber optic line at 3+43.40 RT 60.31 TO 4+15.10 RT 19.94.
   b. Verizon will relocate the communication box at 3+76.74 RT 28.47.
8. Cottonwood ID Sewer
   a. No work is anticipated, protect in place. Utility must remain fully operational at all times during the project.
9. Integra Telecomm
   a. Integra will relocate overhead line from 37+00 RT 96 to 40+25 RT 68. Utility must remain fully operational at all times during the project.
10. Mount Olympus ID Sewer
    a. No work is anticipated, protect in place. Utility must remain fully operational at all times during the project.
11. Murray City Corporation Water/Sewer
    a. Contractor to Relocate Fire Hydrant. Utility must remain fully operational at all times during the project.
12. Utopia
    a. No work is anticipated, protect in place. Utility must remain fully operational at all times during the project.
13. UDOT ATMS
    a. No work is anticipated, protect in place. See Detail Sheet DT-12
14. XO
    a. XO will relocate overhead line from 37+00 RT 96 to 40+25 RT 68.

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SECTION 00727M

CONTROL OF WORK

Delete Article 1.28, paragraph B and replace with the following:

B. Employ a qualified safety person.
   1. Required qualifications
      a. Verifiable broad based safety background.
      b. One of the following degrees or certifications:
         1) College degree in Occupational Safety & Health (OSH) related field
         2) Associate Safety Professional (ASP)
         3) Certified Safety Professional (CSP)
         4) Certified Industrial Hygienist (CIH)
         5) Construction Health and Safety Technician (CHST)
         6) Associate in Risk Management (ARM)
         7) OSHA 500, or other nationally recognized OSH related field certification approved by UDOT Risk Management
      c. Must stay current on certification via the OSHA 502 or equivalent of 8 Continuing Education Units (CEU) in OSH related fields every 3years.
   2. Responsibilities
      a. Perform on-site safety inspections on a monthly basis, for jobs 45 days or longer in duration. Refer to the UDOT Safety and Health Manual.
      b. Coordinate all safety related efforts with the on-site competent safety person.
      c. Cannot perform production-related responsibilities on the project.

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SECTION 00820M

LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC

Delete Article 1.13 and replace with the following:

1.13 PROTECTING AND RESTORING PROPERTY AND LANDSCAPE

A. Preserve public and private property during the work.

B. Do not perform work on public or private property if the legal right to access the property has not been secured. All damage as a result of trespass will be the financial responsibility of the Contractor including additional acquisition costs.

C. The Engineer verifies the location of monuments and property line markers and provides written approval before they are moved, disturbed, or damaged.

D. Accept liability for any damage to public or private property resulting from defective work, materials, or non-execution of the contract until contract completion.

E. Restore damaged property and items removed temporarily during construction to a condition similar or equal to that existing before the damage at no cost to the Department.

F. Temporarily discontinue work if remains of prehistoric dwelling sites or artifacts of historical or archeological significance are encountered. Refer to Section 01355.

Delete Article 1.17, paragraph C and replace with the following:

C. Contractor and the Department agree to provide each other with a copy of the summons and complaint within a reasonable time if served with a lawsuit or Notice of Claim. Do not file a responsive pleading on behalf of the Department until receiving written notice that the Department chooses to have Contractor handle the defense. The Department will provide the Contractor such written notice in a timely manner allowing the Contractor adequate time to respond to the summons.

Delete Article 1.17, paragraph F3 and replace with the following:

3. Notify claimants of denied or partially denied claims of $5,000 or less of their right to request re-examination by the
   UDOT Claims Re-Examination Board
   4501 South 2700 West
   West Valley City, UT 84114-8430
   Phone: (801) 965-4715
   a. The information provided to the claimant includes:
      1) A time deadline for requesting re-examination equal to seven days after notification of denial or partial denial
      2) Address and name of the person to whom it should be directed
      3) General information helpful in making a determination

Delete Article 1.18, paragraph B.2.a and replace with the following:

a. Provide General Liability insurance with the following minimum limits of liability:
   1) $1 million Bodily Injury and Property Damage – Each Accident
   2) $3 million General Aggregate
   3) $3 million Products and Complete Operations Annual Aggregate

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SECTION 01282M

PAYMENT

Delete Article 1.8, paragraph A1 and replace with the following:

1. The Department does not allow compensation for loss of expected reimbursement, or loss of anticipated profits suffered or claimed by the Contractor resulting either directly from such alterations or indirectly from unbalanced allocation among the contract items of overhead expense and subsequent loss of expected reimbursement or from any other cause.

Delete Article 1.9, paragraphs C and D and replace with the following:

C. Negotiated lump sum or unit prices for changes to the contract work will be based on the Contractor's estimate to do the work as validated by the Engineer's independent cost assessment. Support the price with a detailed cost estimate that includes the following information:
   1. Estimated Labor hours based on agreed upon productivity rates.
      a. Use the actual cost of wages and benefits for the labor rates applied to the estimated man-hours.
      b. Include certified accounting records verifying these costs or make them available upon request of the Engineer.
   2. Estimated Material quantities based on agreed upon quantities.
      a. Use actual material costs as verified by supplier estimates or invoices.
      b. Use agreed to production rates for material produced on site.
   3. Estimated Equipment hours based on agreed upon productivity rates.
      a. Use the lesser of the following for determining equipment costs:
         1) Rental rates obtained from the Rental Rate Blue Book for Construction Equipment according to this Section article 1.11.

2) Actual cost of the equipment to the Contractor based on internal equipment billing rates or actual rental rates supported by rental agreements for equipment applied to the estimated equipment hours. Include certified accounting records substantiating these costs or make them available upon request of the Engineer.

4. A 15 percent markup will be paid on all expenses identified above. This markup compensates the Contractor for home office overheads and profit.
5. The following additional markups will be allowed on the total of all work according to change order performed solely by subcontractors:
   a. 15 percent markup on first $75,000 of total subcontracted work.
   b. 10 percent markup on total of subcontracted work between $75,000 up to $250,000.
   c. 7.5 percent markup on total of subcontracted work exceeding $250,000.
6. No other expenses will be compensated unless approved by the Engineer.

Delete Article 1.10, paragraph A2 and replace with the following:

2. The Department does not compensate for the following:

   a. Labor inefficiencies caused by the Contractor.
   b. Consequential damages, including but not limited to, loss of bonding capacity, loss of bidding opportunities, and insolvency.
   c. Attorney's fees, claims preparation expenses, or litigation costs.

Delete Article 1.11 and replace with the following:

1.11 FORCE ACCOUNT

A. The Engineer may require the Contractor to work on a force account basis for the convenience of the Department or when the Contractor and Engineer are unable to negotiate an agreed upon price for changed or added work. Costs reimbursed according to this Section are considered full and complete compensation for the work performed.

B. Labor will be reimbursed at the actual cost of wages, benefits and burdens. A 15 percent markup will be paid on all labor expenses. This markup compensates the Contractor for field overheads, home office overheads and profit.

1. Provide daily field records showing the labor hours charged to the force account work. The Engineer must approve these records daily.
2. Include certified accounting records verifying these costs or make them available upon request of the Engineer.

C. Materials installed and accepted by the Engineer as part of the force account work will be paid for at actual cost plus a 15 percent markup. The markup compensates the Contractor for field overheads, home office overheads and profit.

1. Provide daily field records showing the materials installed as part of the force account work. The Engineer must review and approve these records daily.
2. Include copies of invoices and certified accounting records verifying these costs or make them available upon request of the Engineer.

D. Compensation for Equipment

1. The Department will pay the following:

a. Hourly rates for machinery or special equipment, excluding small tools, authorized by the Engineer. Hourly rental rates are determined by the monthly rental rate found in the Rental Rate Blue Book for Construction Equipment divided by 176. The total hourly rates have been computed from equipment costs currently in effect and do not include costs for operating personnel.

Obtain this publication through:
Equipment Watch
1735 Technology Drive, Suite 410
San Jose, CA 95110-1313
Phone: (800) 669-3282
Fax: (800) 224-3527
Refer to http://www.udot.utah.gov/go/standardsreferences.

The rates require adjustment by a Regional Factor and a Depreciation Factor with operating and standby rates established as follows:

1) Operating Rate – Hours the equipment is actually in use. This includes ownership and operating costs adjusted for depreciation and region factors.

2) Standby Rate – Compensation for equipment required to be at the work site but not operating. This rate is 50 percent of the adjusted ownership and operating costs computed above. The duration of allowable standby time must be approved in writing by the Engineer with a maximum of eight hours per day or 40 hours in a week.

3) The Department uses the shown capacity that is closest to the manufacturers when the manufacturer's rated capacity falls between those shown in the Rental Rate Blue Book for Construction Equipment.

4) Agree upon all rates in writing before beginning work.

5) Obtain approval from the Engineer for any equipment rental rates not provided before the start of any force account work.

2. The Department does not pay for pickup trucks used solely for transportation.

3. Provide daily field records showing the equipment hours charged to the force account work. The Engineer must review and approve these records daily.

4. Provide certified accounting records verifying these costs.

E. Subcontract work will be reimbursed in the same manner as the Contractor's work is reimbursed as described above.

1. The following additional markups will be allowed on the total of all work according to force account performed soley by subcontractors:

   a. 15 percent markup on first $75,000 of total subcontracted work.

   b. 10 percent markup on total of subcontracted work between $75,000 up to $250,000.

   c. 7.5 percent markup on total of subcontracted work exceeding $250,000.

2. Provide daily field records showing the subcontract labor, material, and equipment charged to the force account work. The Engineer must review and approve these records daily.

3. Provide certified accounting records verifying these costs.

Delete Article 1.12 paragraph C and replace with the following:

C. Payments are based on estimates prepared by the Engineer of the value of work performed and materials in place under the contract and for payment for material on hand according to this Section. Payment will not be made for material and work without complete acceptance documentation.

Delete Article 1.13 title and paragraph A and replace with the following:

1.13 PAYMENT FOR MATERIAL ON HAND (Stockpile)

A. Present the delivery copies of invoices. The Department may include advance partial payments for acceptable nonperishable materials purchased expressly for incorporation in the work when delivered in the vicinity of the project or stored in approved storage place.

1. The Engineer determines the amount to be included in the estimate but in no case will the amount exceed the value of the materials as shown on the delivery invoice or 75 percent of the in-place price, whichever is less.
2. Furnish evidence that the stockpiled materials are irrevocably obligated to the project when the approved storage location is other than the project site.
3. The Department does not pay when the invoice value of such materials, as determined by the Engineer, amounts to less than $2,000 or if materials are to be stored less than 30 calendar days, unless otherwise specified.
   a. The Department will waive the 30 day limit and pay advance payment for Pavement Marking Tape if the Pavement Marking Tape placement is delayed more than one week beyond the original CPM schedule date.
4. Furnish the Engineer certified paid invoices or a certified statement with a copy of the check showing payment within 60 calendar days following the date of the estimate invoice on which the stockpile material is to be paid by the Department.
5. Material will be removed from the next partial estimate as stockpiled materials if proper invoices showing payment to the supplier is not received.

Add Article 1.14, paragraph A4:

4. An affidavit is required from all Subcontractors certifying they have been paid for all labor and materials incorporated into the project.

Delete Article 1.15, paragraph A3 and replace with the following:

3. This provision is automatically invoked and becomes effective when the change in the cost of fuel warrants the adjustment during the course of construction of the project and remains in effect for the duration of the project.
   a. Adjustments are then made on all future partial estimates.

February 26, 2015

SPECIAL PROVISION

PROJECT # F-0266(62)3
PIN # 11405

SECTION 01315S

PUBLIC INFORMATION SERVICES

Delete Section 01315 and replace with the following:

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Responsibilities of Contractor Public Information Contact for the duration of a project.

1.2 RELATED SECTIONS

A. Section 01554: Traffic Control

B. Section 00555: Prosecution and Progress

1.3 REFERENCES **Not Used**

1.4 DEFINITIONS **Not Used**

1.5 SUBMITTALS **Not Used**

1.6 PERFORMANCE REQUIREMENT

A. Designate a Public Information Contact.
   1. Responsible to provide as-needed public information services to and coordinate with the Third-Party Public Involvement Manager and the Resident Engineer.
      a. Public Information Contact duties take precedence over other assigned duties.
      b. Public Information Contact must not be the project superintendent.

1.7 PUBLIC INFORMATION CONTACT RESPONSIBILITIES

A. Assist the Third-Party Public Involvement Manager in maintaining and documenting weekly or as-needed communication and project updates to UDOT Public Information Manager, affected residents, businesses, organizations, and public agencies such as local emergency services, government officials, business owners, advocate groups, transit authorities and other stakeholders.

B. Work with the Third-Party Public Involvement Manager, as needed, to produce and distribute printed fliers.

   1. Provide the following information for fliers:
      a. Project name
      b. Description of work to be done including completion dates
      c. Work locations
      d. Lane restrictions and directions
      e. Traffic management plans or detours
      f. Work times and days of the week
      g. Impacts to accesses
      h. Schedule for coming week

C. Assist the Third-Party Public Involvement Manager, as needed, in meeting with and responding to stakeholders about project activities and schedule.

D. Respond to Third-Party Public Involvement Manager within three business days for all issues received from the project hotline/email and referred to the contractor for action. Response should include issue resolution or a specific plan for resolution. (Emergencies** require an immediate response.)

E. Provide information about project activities affecting traffic flow 48 hours in advance to the Third-Party Public Involvement Manager, Resident Engineer and UDOT Public Information Manager. For unanticipated traffic flow impacts, immediately notify this group with location, reason, anticipated duration and mitigation strategy. Within 24 hours of the unanticipated traffic flow impacts, provide the group avoidance, prevention and/or reduction strategies that the Contractor intends to employ to avoid or minimize such an impact in the future.

F. Coordinate with the Third-Party Public Involvement Manager, Resident Engineer, UDOT Public Information Manager and applicable nearby projects when planning activities or detour routes that affect traffic and access. Assist with devising and implementing appropriate communication for affected stakeholders.

G. Provide information to Third-Party Public Involvement Manager and Resident Engineer immediately after safety-related (internal and external) issues are discovered. Information should include issue resolution or a specific plan for resolution. Provide pictures with date and time identification as documentation of the safety-related issues.

H. Notify Third-Party Public Involvement Manager immediately after discovery of previously unknown construction activities that require immediate public information action (e.g. activities that disrupt planned life, travel or business function).

I. Notify Third-Party Public Involvement Manager at least 14 days in advance of any construction activities that will impact homes, businesses, schools, communications or transportation.

J. Notify Third-Party Public Involvement Manager at least 10 days in advance of construction activities that affect utilities.*

K. Assist the Third-Party Public Involvement Manager in expanding and updating the existing online project stakeholder database with contact information and notes recapping stakeholder discussions, resolution and actions.

L. Participate in initial pre-construction canvassing and public meet-the-project-team meetings. (Anticipate groups of 30-50 stakeholders per meeting.)

M. Establish relationships with local emergency personnel before construction starts to plan how to work with them in an emergency. Include Third-Party Public Involvement Manager in status and plans for communications with these personnel. Third-Party Public Involvement Manager can assist in the development of this plan and contact with local emergency response personnel.

N. Forward all media inquiries, written and verbal, regarding the project to the UDOT media hotline at 801-746-9932.

O. Refer to Section 00555.

*Contractor could give Third-Party Public Involvement Manager or property owner a three-day window of time when the impact will occur at least 10 days in advance and then follow-up on the day if the time is unknown.

**Emergencies are defined as any unforeseen impact that disrupts planned life, travel or business function.

1.8 PAYMENT PROCEDURES

A. Department makes:
   1. Partial payments for the pay item Public Information Services as the work progresses when the Contractor provides public information services according to this specification.
   2. Payments based on a percentage of project completion.

B. The Engineer and the Region Public Involvement Manager monitor and evaluate the Public Information Coordinator and all public information services. Failure to provide public information services according to this specification results in a weekly deduction of between $1,000 and $10,000.

PART 2 PRODUCTS

2.1 OFFICE SPACE AND EQUIPMENT

A. Provide labor and material required to perform the duties and responsibilities of this section.

PART 3 EXECUTION

3.1 ESTABLISH LOCAL PUBLIC INFORMATION SERVICES

A. Provide office address and local or toll-free telephone number.
   1. Establish and publish office hours, working days and telephone number for internal use.

B. Provide telephone number (established and communicated by the Third-Party Public Involvement Manager) to sign manufacturer or Traffic Control Maintainer for placement on Construction Zone Information Sign. Refer to TC Series Standard Drawings and Section 01554.

END OF SECTION

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SECTION 01355M

ENVIRONMENTAL COMPLIANCE

Delete Article 3.7, paragraph A1 and replace with the following:

1. Cultural and Paleontological – Initiate consultation with a Department staff archaeologist to determine cultural resource survey needs and clearance requirements. The Department staff archaeologist provides clearance to the Engineer through written notification.

April 17, 2013

SPECIAL PROVISION

PROJECT # F-0266(62)3
PIN # 11405

SECTION 01455M

MATERIAL QUALITY REQUIREMENTS

Delete Article 1.16, paragraph B1 and replace with the following:

1. All manufacturing processes of the steel and iron material in a product such as melting, rolling, extruding, machining, bending, grinding, drilling, and coating must occur within the United States.

Delete Article 1.16, paragraph C1c and replace with the following:

c. Material descriptions, quantities, and means of material identification such as heat numbers, lot numbers, and other industry identification markings for each process the material underwent so the final product can be tracked through a step process from melting to final product.
d. Tracking quantities is not required for coating operations and for mill certifications.

Delete Article 1.16, paragraph D1 and replace with the following:

1. Track the use of all permanent foreign steel incorporated in the project.

Delete Article 1.16, paragraph E and replace with the following:

E. The following are exempt from Buy America except as noted:

1. Temporary steel or iron materials.
2. Materials left in place for the Contractor's convenience.
3. Nuts, bolts, washers, screws, tie wire, concrete chairs, spacers, lifting hooks, mailboxes, irrigation sprinkler components, and other miscellaneous steel or iron parts that are considered common, off-the-shelf products.

4. Fencing stays, clips, staples, or other miscellaneous fencing components.
5. Manufactured products that are less than 90 percent steel or iron content when it is delivered to the job site for installation.
    a) Pre-cast items such as pipe, manholes, and drainage boxes must meet the Buy America requirements.
6. The major steel and iron components of the following and other similar assemblies must meet the requirements of Buy America:
    a) Guardrail, guardrail posts, end sections, terminals, cable barrier, steel or iron pipe, conduit, grates, manhole covers and risers, mast arms, poles, standards, trusses, supporting structural members for signs, luminaires, and traffic control systems
    b) The miscellaneous steel or iron components, subcomponents, and hardware necessary to encase, assemble, and construct these items are exempt from Buy America Requirements.

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SECTION 01456M

MATERIALS DISPUTE RESOLUTION

Delete Article 1.6, paragraph C and replace with the following:

C. Include the following items in the engineering analysis where applicable:
   1. Data supporting the Contractor's test results. Data must be based on project quality control testing.
      a. Split sample testing performed within the applicable contract.
      b. Contractor's test data for the disputed results along with all supporting test data and calculations for calculated values such as bulk specific gravity, maximum specific gravity, and ignition oven results for disputing VMA in asphalt concrete.
      c. Successful laboratory correlation information when required by material specification.
   2. Slump, air, yield, and similar items for disputing compressive strength of Portland cement concrete.
   3. Statistical analysis or identification of outliers.
   4. Procedures or issues leading to disputed acceptance test results.
   5. Incentive/Disincentive calculations based on both Contractor and Department test values, individually.

June 25, 2009

SPECIAL PROVISION

PROJECT # F-0266(62)3
PIN # 11405

SECTION 01557S

MAINTENANCE OF TRAFFIC (MOT)

Add Section 01557:

PART 1 GENERAL

1.1 SECTION INCLUDES

A. MOT Maintainer

B. Maintenance of Traffic (MOT) plans, Materials, and labor necessary for implementation.

C. Variable message signs and construction signs

1.2 RELATED SECTIONS

A. Section 00555: Prosecution and Progress

B. Section 01554: Traffic Control

C. Section 02891: Traffic Signs

1.3 REFERENCES

A. Manual on Uniform Traffic Control Devices, Latest Edition (MUTCD).

1.4 DEFINITIONS

A. Maintenance of Traffic (MOT): The work necessary to advise the public of changes to normal traffic flow, and to indicate planned detours and alternate routes to closed roads. Use solely as advisory information to the public.

1.5 SUBMITTALS

A. Daily inspection reports on a form acceptable to the Engineer.

B. Proposed MOT plan to the Engineer for approval if a construction phase is proposed that is not covered by a Department supplied MOT plan.
   1. Submit proposed MOT plan to the Engineer 10 working days before the proposed MOT plan is to be implemented.

1.6 POST-BID REQUIREMENTS

A. Department provides MOT plans to be implemented as part of the bid package.

B. Attend a mandatory meeting as detailed in Section 01554.

C. Attendees of the mandatory meeting will review the Contractor's submitted traffic control plans and the Department's supplied MOT plans for compatibility. Modify plans where necessary, as set forth in Section 01554.

D. Do not begin work on the project until written approval of the MOT plan is received from the Engineer. No item of work can begin until the approved MOT plan is implemented for that phase of work.

1.7 MOT MAINTAINER

A. The Traffic Control Maintainer, as specified in Section 01554 is responsible for maintenance of MOT on the project. The Department makes no separate payment for maintenance of MOT.

B. Inspect MOT devices daily for compliance with the MOT plans.

1.8 MAINTENANCE OF MOT DEVICES

A. Maintain traffic control devices per Section 01554.

1.9 WAGE RATES FOR TRAFFIC CONTROL PERSONNEL (FEDERAL AID JOBS ONLY)

A. Refer to Section 01554 for wage rate information.

1.10 PAYMENT PROCEDURES

A. Partial Payments - Based on the percentage of the project completed, excluding the cost of MOT.
   1. Failure to comply with any of the requirements of this special provision will result in non-compliance.

B. Price Adjustments:
   1. The Department reduces payment if the MOT implemented is not in compliance with the approved MOT plan, as determined by the Engineer.
   2. The amount per day by which the Contractor's compensation will be reduced is calculated using the greater of the following:
      a. The daily charge in the Schedule of Liquidated Damages found in Section 00555 or
      b. The Contract lump sum bid price for MOT divided by the number of Contract days.

C. Payment for change in scope: Negotiate a price adjustment for MOT if the Engineer orders a change in the scope of work that requires modification to the approved MOT Plan.

PART 2 PRODUCTS

2.1 SIGNS

A. Refer to Section 02891.

B. Use type and configuration as directed by the MOT plans.

2.2 VARIABLE MESSAGE SIGNS (VMS)

A. Advance warning device
   1. Conform to guidelines set forth in Section 6F.55 of the MUTCD.
   2. Messages can be changed on-site and by dial-up modem

PART 3 EXECUTION

3.1 MODIFICATION OF MOT PLANS

A. Engineer may modify the MOT plans at any time.

B. Implement changes to the MOT plan before the end of the work shift.

C. Each phase of construction must be covered by an approved MOT plan.
   1. Do not begin work until the proposed MOT plan is approved for use, and has been fully implemented.

3.2 TRAFFIC CONTROL DEVICES

A. Installation and Maintenance:
   1. Install appropriate devices for each construction phase as identified in the appropriate MOT plan.
   2. Maintain devices to provide proper, continuous functionality.
   3. Wash devices weekly unless conditions warrant more frequent cleaning.
   4. Replace any device missing any part of the message or background.

B. Channelizing Devices: Use as directed by the MOT plan.
   1. Furnish a daily record of the number and location of all traffic control devices in use.
   2. Remove devices from the site of work when they are not needed for the immediate control of traffic.

3.3 VARIABLE MESSAGE SIGN (VMS)

A. The Department retains control of messages appearing on the VMS. Do not change the location or the message configuration of the VMS unless directed to by the Engineer in writing.

B. Place in view of oncoming traffic without obstructing traffic flow. Relocate VMS to match field conditions at no additional cost to Department.

C. Provide dial-up modem number to the Engineer.

D. Use necessary traffic control devices with VMS to provide safe operation.

E. Remove devices from the site of work when they are not needed for the immediate control of traffic.

F. Unless directed by the Engineer, display advance notification VMS messages for a minimum of seven days prior to any traffic impacts such as start of work, change in traffic directions, etc. at each end of the project.

G. Make four VMS signs available at all times during the project to be used as directed by the Engineer at no additional cost to the Department. Make two additional VMS signs in addition to the four, available upon request by the Engineer at no additional cost to the Department.

3.4 COORDINATION OF SIGNAL OPERATIONS

A. Notify the Engineer seven days prior to implementing a MOT plan (detour plans and alternate route plans) or any traffic control plan that impacts signal operations to allow the Engineer to coordinate any necessary signal timing adjustments with the TOC (Traffic Operations Center).

B. Changes to traffic signal operations will be done by the Department.

END OF SECTION

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SECTION 01571

TEMPORARY ENVIRONMENTAL CONTROLS

Delete Section 01571 and replace with the following:

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Requirements for controlling erosion and preventing sediment laden runoff from leaving the construction site and areas under the Contractor's control.

B. Requirements for installing, inspecting, maintaining, and removing temporary erosion and sediment control measures.

C. Materials and procedures for installing and removing temporary environmental fencing.

1.2 RELATED SECTIONS Not Used

1.3 REFERENCES

A. AASHTO M 288: Geotextile Specifications for Highway Applications

B. UDOT Erosion and Sediment Control Field Guide

C. Utah General Permit for Discharges from Construction Activities No. UTRC00000.

1.4 DEFINITIONS

A. Check Dam – A fiber roll or stone structure placed across a ditch to slow velocity and intercept and trap sediment.

B. Drop Inlet Barrier – A fiber roll or silt fence placed around a drop inlet that intercepts and traps sediment.

C. Fiber Roll – A tube-like structure of encased natural materials used to intercept and trap sediment in a sheet flow situation.

D. Gutter Inlet Barrier – A protective barrier placed around a gutter inlet that intercepts and traps sediment before it enters the inlet.

E. Pipe Inlet Barrier – A barrier protecting a pipe inlet that intercepts and traps sediment before it enters the pipe.

F. Sediment Trap – An excavated basin usually installed at low points on a construction site that intercepts and traps sediment.

G. Silt Fence – A geotextile fabric fence used to intercept and trap sediment in a sheet flow situation.

H. Slope Drain – A polyethylene pipe placed on a slope to collect and transport storm runoff down the face of a slope until permanent drainage facilities are installed or vegetation growth is adequate.

I. Stabilized Construction Entrance – A layer of rock placed at a construction site entrance or exit that removes mud from vehicle tires to prevent tracking onto a paved road.

J Straw Bale Barrier – Straw bales placed end to end, used where a silt fence would fail. Install to intercept and trap sediment.

K. Temporary Berm – A ridge of compacted soil with or without a shallow ditch that diverts storm runoff from a slope to a controlled release point.

L Temporary Environmental Fence – A visual barrier used to delineate and prevent encroachment on sensitive areas.

1.5 SUBMITTALS

A. Submit a signed copy of the Notice of Intent (NOI) to the Engineer before beginning any earth disturbing activities on projects that disturb more than one acre.

B. Environmental Control Supervisor (ECS), Certificate of Training
   1. Certification to the Engineer that the ECS selected for the project has completed Department's online ECS training and passed the ECS examination.

1.6 PAYMENT PROCEDURES

A. Payment for the items associated with this section includes all costs for labor, equipment, and materials for installation, inspection, maintenance, and removal as required.

B. Work required by the ECS will be paid under that item when a bid item has been included in the contract for an ECS. Work listed in this Section will still need to be performed by the Contractor and paid under the individual erosion and sediment control measures when a bid item for an ECS is not included on the project.

C. Liquidated Damages
   1. Liquidated damages are assessed against the Contractor in the amount of $500 for each calendar day or portion thereof the project is not in compliance with all required permits and regulations. The damages assessed are increased to $1,000 per day if the contractor remains in non-compliance after three days and increased to $1,500 per day if the Contractor remains not in compliance after seven days.
   2. Any fines issued by regulatory agencies against the Department are added to the liquidated damages assessed to the Contractor.
   3. No extension of contract time is allowed for any delay resulting directly or indirectly from a violation of environmental requirements.

PART 2 PRODUCTS

2.1 MATERIALS

A. Check Dams
   1. Fiber Roll
      a. Use 12 inch diameter fiber roll selected from products included on the Department Approved Products List for Fiber Rolls.
      b. Wood Stakes – 1 inch square by 18 inches long.
      c. Channel Liner – Use products included on the Department Approved Products List for Channel Liners.
   2. Stone
      a. Angular, well-graded, within 2 to 6 inches in diameter.

B. Silt Fence
   1. Silt Fence Fabric – Refer to AASHTO M 288, Table 7 – Temporary Silt Fence Property Requirements
   2. Wood Post – Nominal 2 inch square by 4 ft long.
   3. Fasteners – Staples, wire, zip ties, or nails sufficient to maintain fabric attachment to post.

C. Fiber Roll
   1. Use 12 inch diameter fiber roll selected from products included on the Department Approved Products List for Fiber Rolls.
   2. Wood Stakes – Nominal 1 inch square by 18 inches long.

D. Slope Drain
   1. 12 inch diameter single wall polyethylene pipe
   2. Polyethylene end section
   3. Loose Riprap
   4. Wood Stakes – Nominal 2 inch square by 3 ft long.

E. Temporary Berm
   1. Existing Soil

F. Drop Inlet Barriers
   1. Fiber Roll
      a. Use 18 inch diameter fiber roll selected from products included on the Department Approved Products List for Fiber Rolls.
      b. Wood stakes – Nominal 2 inch square by 2 feet long.
   2. Stone – Angular, well-graded within 2 to 6 inch diameter.
   3. Silt Fence – Refer to AASHTO M 288, Table 6 – Temporary Silt Fence Property Requirements.
      a. Wood stud: 2 inches x 4 inches nominal.

G. Pipe Inlet Barrier
   1. Stone – Well-graded within 2 to 6 inch in diameter.
   2. Fiber Roll
      a. Use 18 inch diameter fiber roll selected from products included on the Department Approved Products List for Fiber Rolls.
      b. Wood stakes – Nominal 2 inch square by 2 ft long.

H. Curb Inlet Barrier
   1. Fiber Roll – 9 inch minimum diameter selected from products included on the Department Approved Products List for Fiber Rolls.
   2. Sand Bags – 14 inch x 26 inch, UV stabilized polypropylene bags, 50 lb capacity with attached ties.
   3. Sand

I. Sediment Trap
   1. Loose Riprap – Refer to Section 02373.

J. Stabilized Construction Entrance
   1. Stone – 2 to 3 inch diameter.

K. Straw Bale Barrier
   1. Straw Bales – Obtained from weed-free fields that have been certified by the Utah Department of Agriculture.

L. Temporary Environmental Fence
   1. Fence Fabric
      a. Polyethylene, high-density, UV stabilized
      b. Width, 4 ft minimum
      c. Color, Orange
   2. Posts
      a. Wood Post – Nominal 2 inch square by 4 ft long.
      b. Fasteners – Staples, wire, zip ties, or nails sufficient to maintain fabric attachment to post.

PART 3 EXECUTION

3.1 PERMIT COMPLIANCE

(Only for projects disturbing one or more acres of ground)

A. Complete the remaining sections of the Storm Water Pollution Prevention Plan (SWPPP) provided by the Department and sign the SWPPP before submitting the Notice of Intent (NOI).

B. Obtain permit coverage and renewals at the Contractor's expense under the Utah General Permit for Discharges from Construction Activities by completing and submitting the online NOI form located on the Utah Division of Water Quality web site. Refer to http://www.udot.utah.gov/go/standardsreferences.

C. Post documentation of permit coverage on the project site in a publicly assessable location.
   1. Include permit tracking number and contractor's contact name, phone number or email address or both.

D. Do not begin any earth-disturbing activity until the NOI form has been completed online and submitted to the Division of Water Quality.

E. Comply with the requirements of Utah General Permit for Discharges from Construction Activities – Permit No. UTRC00000. Refer to http://www.udot.utah.gov/go/standardsreferences

F. Modify the SWPPP whenever changes are made to the construction plans, stormwater control measures, pollution prevention measures, or other activities at project site that are no longer accurately reflected in the SWPPP.
   1. Document and sign the modifications in the SWPPP within 7 calendar days.

G. Install sediment control measures along the project perimeter and those protecting surface waters and wetlands before starting earth-disturbing activity.

H. Provide and maintain a 50-foot no disturbance buffer around surface waters or equivalent sediment control measures (See Permit 2.1.2) unless the project qualifies under a compliance alternative.

I. Obtain written approval from the Engineer to change the SWPPP.

J. Designate an ECS to work directly with the Engineer's designated ECS and be available as needed to coordinate the SWPPP, inspect and maintain erosion control devices, and resolve other sediment and erosion control issues.

K. Maintain a copy of the prepared SWPPP on the project site at all times and attach the following items as they occur through project construction:
   1. Any changes made to the SWPPP
   2. Inspection forms
   3. Corrective Actions

L. Minimize sediment trackout onto offsite streets, other paved surfaces, or sidewalks from vehicles exiting the construction site.

M. Follow the Permit if a conflict occurs between erosion and sediment control plans or specifications and the Utah General Permit for Discharges from Construction Activities.

3.2 INSTALLATION

A. The control measures in the SWPPP are illustrative.
   1. Adapt measures in the field to meet their intended purpose and implement appropriate control measures through all phases of the project.
   2. Make required changes to the SWPPP to accommodate construction sequencing with the approval of the Engineer.

B. Install additional control measures as directed by the Engineer.

C. Follow installation procedures outlined in the EN Series Standard Drawings and the UDOT Erosion and Sediment Control Field Guide.

D. Provide or construct control measures such as check dams, silt fence, slope drains, drop inlet barriers, sediment traps, and other sediment and erosion control devices or methods to reduce construction site erosion and prevent sediment laden runoff from leaving the site.

E. Initiate soil stabilization measures whenever earth-disturbing activities have permanently ceased on any portion of the site but in no case longer than 14 days.

F. Initiate soil stabilization measures whenever earth-disturbing activities have temporarily ceased on any portion of the site where grading, excavation, or topsoil placement operations will not resume for a period of 14 or more calendar days but such activities will resume in the future.

G. Document on the inspection form the date when earth-disturbing activities temporarily ceased on an area.

H. Refer to the Utah General Permit for Discharges from Construction Activities Part 2.2 for what defines initiation of stabilization.

I. Install temporary environmental fence in the required locations before construction activities begin.
   1. Install posts at a 12 ft maximum spacing so the fence does not sag more than 2 inches between posts.
   2. Weave the fence over the support posts alternating every two loops and secure it to the posts with fasteners.

3.3 INSPECTION

A. Inspect all denuded areas during construction to determine potential erosion problems. Apply control measures as required.

B. Conduct SWPPP inspections at least once a week upon beginning earth-disturbing activities and within 24 hours after any storm event ½ inch or greater. Conduct inspections at least once a month for areas that are temporarily or permanently stabilized and in cases where the ground is frozen, suspend inspections until thawing conditions begin to occur.
   1. Include the Engineer's ECS on all inspections.
   2. Complete a Division of Water Quality inspection form during each inspection and submit it to the Engineer within 24 hours of the inspection. Include the following information:
      a. Names of personnel attending and date of the inspection.
      b. List of problems identified in the previous inspection and note whether or not corrections have been made.
      c. List by location, all earth-disturbing activities since previous inspection.
      d. List by location, erosion and sediment control measures installed since previous inspection.

e. List by location, new and unresolved problems encountered with specific erosion control measures. Describe solutions to be implemented.

f. Sign the inspection form.

C. Accommodate inspections requested by regulatory agencies.

3.4 MAINTENANCE

A. Maintain sediment control devices to function properly until all disturbed areas draining to them are stabilized.

B. Remove and properly dispose of sediment when it has accumulated half way up the overall structure height or when it interferes with the performance of the structure.

C. Dispose of sediment removed from erosion control structures in a manner acceptable to the Engineer.

3.5 REMOVAL

A. Remove temporary sediment and erosion control devises as indicated below:

1. Remove check dams in cut ditches when the areas draining to the cut ditch have been seeded and mulched or blanketed and the ditch has been permanently lined.
2. Remove drop inlet and curb inlet protection when the areas draining to them have been stabilized.
3. Remove silt fence and fiber rolls when the areas draining to them have been seeded and mulched or blanketed. Do not remove silt fence or fiber rolls protecting a wetland or waterway unless the surrounding area meets final stabilization requirements.

B. Remove temporary environmental fence and posts upon completion of construction.

1. Temporary environmental fence and all components become property of the Contractor when construction is complete.

3.6 PERMIT CLOSE-OUT

(Only for projects that obtained a permit)

A. Obtain approval from Engineer through the Region Landscape Architect that all permit requirements for final close-out under the Contractor's control have been met before terminating the permit.

B. Close-out the Utah General Permit for Discharges from Construction Activities by submitting a Notice of Termination (NOT) form to the Division of Water Quality along with a signed copy to the Engineer on project locations that receive less than 20 inches of average annual precipitation.

C. Transfer the permit to the Department as directed by procedures identified in the permit on project locations that receive more than 20 inches of average annual precipitation and the project has not met final stabilization requirements upon project close-out.

END OF SECTION

November 10, 2014

SPECIAL PROVISION

PROJECT # F-0266(62)3
PIN # 11405

SECTION 01571M

TEMPORARY ENVIRONMENTAL CONTROLS

Add the following to Paragraph 1.5 SUBMITTALS:

C. Submit all manufacturer's information and specifications for Drop Inlet Filter Insert to Engineer for approval prior to installation.
D. Submit a sample and all manufacturer's information and specifications for mono-filament weave bag to Engineer for approval prior to installation.

Add the following to Part 1 GENERAL:

1.7 ALTERNATIVE TYPES

A. Drop Inlet Barrier Filter Insert:
   1. A sediment control device that hangs from the drop inlet grate and is made from a permeable geotextile fabric. The filter prevents silt and sediment from entering the storm drain system.
B. Check Dam (6" Bag – Stone Filled):
   1. A structure comprised of a mono-filament weave bag, filled with stone that is placed across a ditch or gutter to intercept and trap sediment. Construct so water will flow over a low point at the face of the gutter or in the middle of the dam and not around the sides.
C. Drop inlet Barrier (6" Bag - Stone Filled):
   1. A barrier comprised of mono-filament weave bag(s), filled with stone that is placed around a drop inlet that intercepts and traps sediment.
D. Fiber Roll:
   1. Fiber Roll for use as perimeter control will be selected from the list of approved materials provided by the Region Landscape Architect.

Add the following to Part 2 PRODUCTS:

2.2 ALTERNATIVE MATERIALS:

A. Filter Insert:
   1. Woven Geotextile Fabric:
      a. Submit manufacturer's information and material specification to Engineer for approval prior to installation.
      b. Dimensions: Size to accommodate drop inlet dimensions
      c. Made of woven, high UV resistant Polypropylene, monofilament fabric or approved equal.
      d. Flow Rate: 200 – 300 gpm
      e. Sieve: US Standard Sieve #20-30
   2. Strapping:
      a. 2" min. width weather resistant polypropylene webbing
      b. Number and configuration sufficient to facilitate removal of insert and assure that insert will not fail (releasing material into the store drain) during use or maintenance.

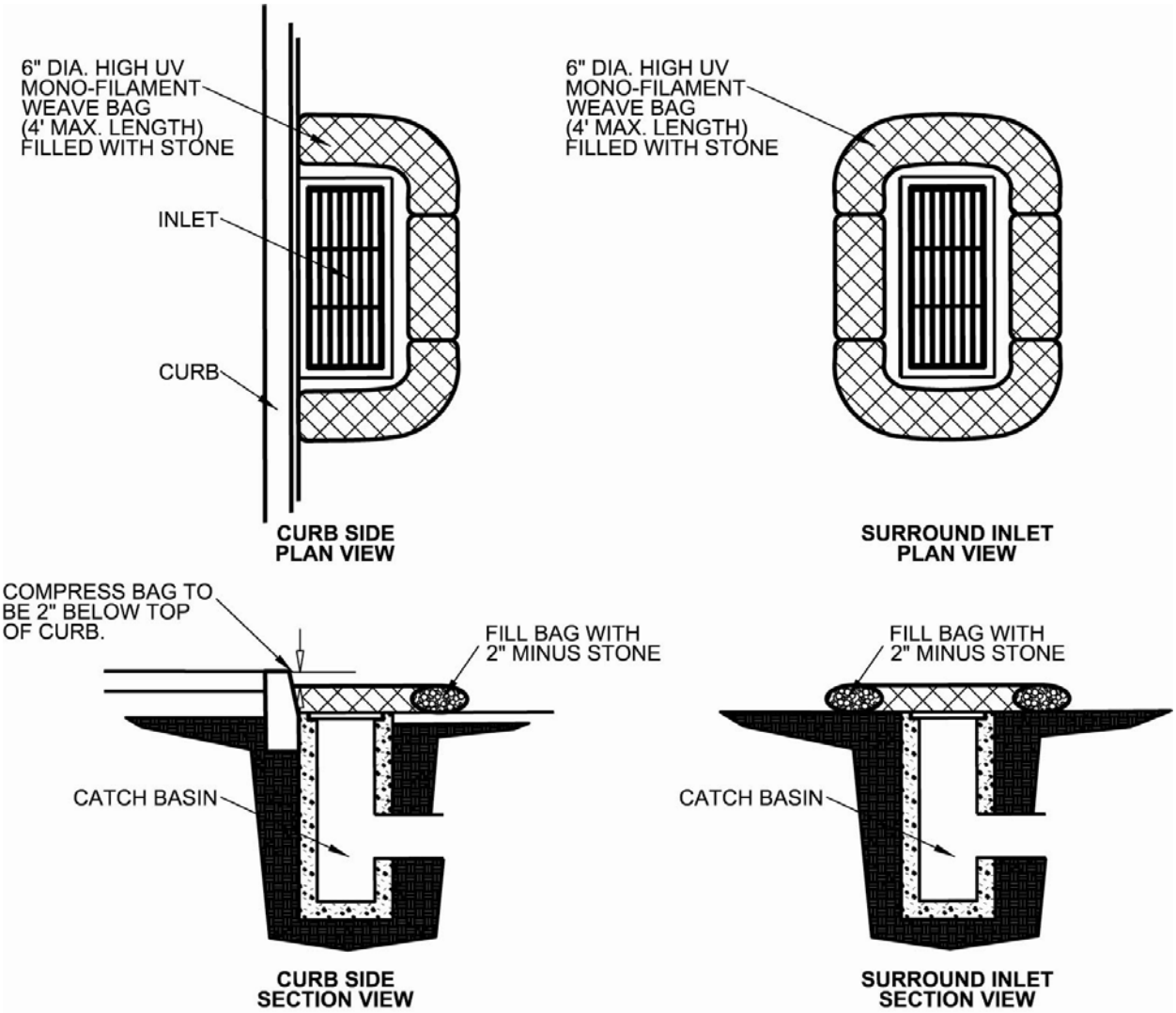
B. 6" Bag – Stone Filled:
   1. Mono-filament Weave Bag:
      a. Submit manufacturer's information and material specification to Engineer for approval prior to installation.
      b. Bag Dimensions: 6 inch minimum diameter; 4 foot maximum length
      c. Bag Construction: Heat sealed to prevent rupture at longitudinal seam and made of High UV Mono-Filament Weave or approved equal.
      c. Bag Closures: Per manufacturer's recommendation or approved equal.
   2. Stone Fill: Well-graded, 2 inches in diameter or less.

Add the following to Part 3 EXECUTION:

Add the following to Paragraph 3.2 INSTALLTION:

G. Drop Inlet Filter Insert: Install per manufactures specification at location indicated on the plans.

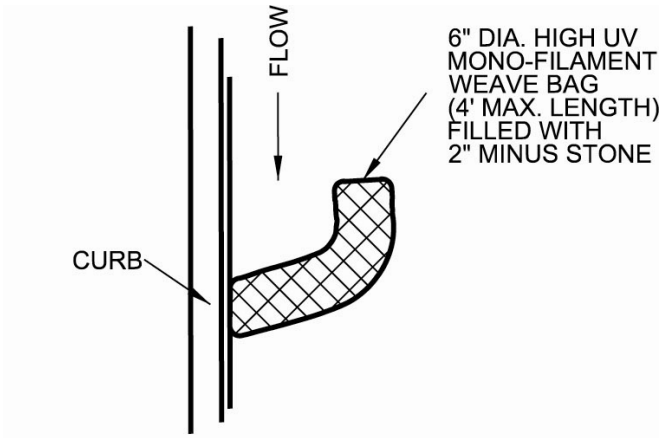
Add the following to Details as supplemental information:



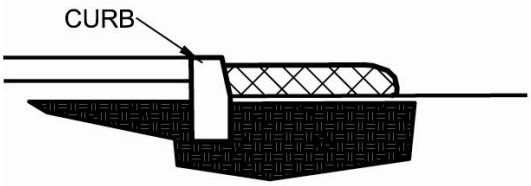
NOTES:
1. FILL BAG PER MANUFACTURERS SPECIFICATION. DO NOT OVERFILL BAG. FILLING OF BAG MUST ALLOW FOR BENDING AND COMPRESSION OF THE BAG WITHOUT BURSTING.

2. CLOSE ENDS OF BAG PER MANUFACTURER'S SPECIFICATION OR AS APPROVED BY ENGINEER.

DROP - INLET BARRIER (6" BAG - STONE FILLED)



PLAN VIEW



SECTION VIEW

NOTES:
1. FILL BAG PER MANUFACTURERS SPECIFICATION. DO NOT OVERFILL BAG. FILLING OF BAG MUST ALLOW FOR BENDING AND COMPRESSION OF THE BAG WITHOUT BURSTING.

2. CLOSE ENDS OF BAG PER MANUFACTURER'S SPECIFICATION OR AS APPROVED BY ENGINEER.

CHECK DAM (6" BAG - STONE FILLED)

END OF SECTION

Supplemental Specification
2012 Standard Specification Book

SECTION 01721M

SURVEY

Delete Article 1.3 and replace with the following:

1.3 REFERENCES

A. UDOT Mapping and Aerial Photogrammetry Manual

Delete Article 1.5, paragraph C and replace with the following:

C. Submit a statement before beginning work indicating all Department provided horizontal and vertical control has been field checked and the control has been determined to be accurate within the tolerances specified in the Mapping and Aerial Photogrammetry Manual. Refer to http://www.udot.utah.gov/go/standardsreferences. Attach field survey information used to verify control. Notify the Engineer verbally and in writing if discrepancies are found.

Supplemental Specification
2012 Standard Specification Book

SECTION 02056M

EMBANKMENT, BORROW, AND BACKFILL

Delete Article 1.4, paragraph A and replace with the following:

A. Well-graded material – Material having an even distribution of different particle sizes. This even distribution of particles of different sizes results in a dense mass upon compaction.

Delete Article 2.9, and replace with the following:

2.9 PIPE FOUNDATION, BEDDING, AND BACKFILL

A. Pipe Foundation (When Required)
   1. Classification A-1. Refer to AASHTO M 145.
   2. Use suitable backfill material or granular backfill borrow when directed by Engineer.
   3. Use Free-Draining Granular Backfill or other uniformly graded materials only with the approval of the engineer and only if enclosed with an appropriate drainage geotextile. Refer to Section 02075.
   4. Overexcavate and replace unsuitable materials according to Section 02317 when directed by the Engineer.

B. Pipe Bedding and Backfill
   1. Classification A-1. Refer to AASHTO M145.
   2. Non-plastic, well-graded material.
   3. Maximum aggregate size is 1½ inches for plastic pipe, 2 inches for all other pipes.

C. Other materials/trench configurations for pipe bedding and backfill may be used only upon approval of the Contractor's engineering proposal. Proposals using this option may include the use of native material or uniformly graded materials enclosed in an appropriate drainage geotextile. The Department decides whether or not to consider or approve the Contractor's engineering proposal. Any proposal must include all of the following:
   1. Stamped drawings and specifications signed and sealed by a Professional Engineer licensed in the state of Utah.

2. Evaluation of site specific conditions and surrounding soils, including potential for migration of fines.
3. A structural evaluation of the pipe support system for the proposed pipe that includes the pipe structural capacity and the depth of fill.
4. Complete bedding or backfill source information including gradation, soil classification, and laboratory testing reports.

Delete Article 3.3, paragraphs C and D and replace with the following:

C. Structural Backfill Placement includes bridges, foundation, box culverts, drains, and other structures.
   1. Place suitable backfill material in structural backfill sections. Refer to Section 02317.
      a. Use granular backfill borrow when specified.
   2. Use appropriate compaction equipment adjacent to abutments, backwalls, approach slabs, wing walls, retaining walls, and other structures.

D. Pipe Foundation, Bedding, and Backfill
   1. Refer to Section 02317 and DG Series Standard Drawings for excavation and over-excavation requirements.
   2. Imported material for pipe bedding and pipe backfill and embankment in the pipe trench are incidental when constructed according to the plans and specifications. No separate measurement or payment for these items will be made except for pipe foundation work or other over-excavation of unsuitable material beyond the limits indicated in the contract.
   3. Place uniform layers of pipe backfill on both sides of the pipe.
   4. Use compaction equipment smaller than the trench width between the pipe and the trench wall. Expand the width of the trench to accommodate necessary compaction equipment .
   5. Fully compact the haunch areas. Hand-tamp areas where compaction equipment cannot compact the soil.

December 10, 2014

SPECAL PROVISION

PROJECT # F-0266(62)3
PIN # 11405

SECTION 02221M

REMOVE STRUCTURE AND OBSTRUCTION

Delete Article 1.1, paragraph B and replace with the following:

B. Salvage as specified, reinstall as specified, or dispose of in an approved manner.

Add the following to PART 3:

3.24 RELOCATE TREE GRATE AND INSTALL TREE WELL

A. Remove tree grates and frames and store in safe location. Tree grates and frames are the property of the contractor during construction.

B. Install tree well concrete form cutouts in new parkstrip to the dimensions required to reinstall the tree grates.

C. Reinstall tree grates in final location as shown on the plans when final grading, tree planting, and concrete installation is complete.

3.25 RELOCATE PARK BENCHES AND TRASH CAN

A. Remove and store in safe location. Park benches and Trash can are the property of the contractor during construction.

B. At the discretion of the engineer, install in a temporary location for use at the temporary bus stop location.

C. Reinstall in final location as shown on the plans when final grading and concrete installation is complete.

3.26 RELOCATE NEWSPAPER VENDING MACHINE

A. Contact supplier of newspapers for the vending machine and agree upon temporary location with them.

B. Reinstall in final location as shown on the plans when final grading and concrete installation is complete.

3.27 REMOVE BUS SHELTER

A. Remove bus stop shelter and salvage to UTA. Contact Mike Clara at UTA two weeks prior to removing bus stop shelter. 801-673-7766, mclara@rideuta.com

B. UTA will install a new bus stop shelter after the contractor completes the roadway work.

C. Coordinate with UTA in the establishment of temporary bus stop facilities.

D. Remove existing concrete bus shelter pad and reinstall new concrete pad in accordance with the plans.

3.28 REMOVE STEP

A. Remove step from front of building as shown on the plans. Cut Concrete steps and rebar to prevent any damage to the building.

3.29 REMOVE RETAINING WALL

A. Remove the existing retaining wall between the limits shown on the wall plans to allow for construction of the new wall R-761.

B. Do not remove existing retaining wall before completing installation of temporary retaining wall according to Specification Section 02229. Do not disturb soil beyond 9 feet from front face of new retaining wall R-761. See R-761 Wall Plans.

C. Contractor may re-use wall blocks and backfill materials in the new wall R-761. All re-used materials must meet Specification Sections 02056, 02831, 02832, 02835, and 02836.

3.30 REMOVE SIGN FOUNDATION

A. Remove the existing Deseret Industries commercial sign foundation to 3 feet below the finish grade.

B. The Deseret Industries will remove and salvage the sign from the foundation. Contact Rich Laudie, DI Store Manager, 801-262-6467, laudierd@ldschurch.org, 3 weeks prior to beginning work in the area of the sign.

December 10, 2014

SPECIAL PROVISION

PROJECT # F-0266(62)3
PIN # 11405

SECTION 02229S

TEMPORARY RETAINING WALL

Add Section 02229:

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Furnish design, working drawings, materials, and construct temporary retaining wall as needed. Construct temporary retaining wall to protect power pole, utilities, and building foundation between Retaining Wall R-761 stations 100+37 to 101+74. See Section A-A on R-761 structure drawings sheet 2 of 5.

1.2 RELATED SECTIONS

A. Section 02221: Remove Structure and Obstruction

B. Section 02317: Structural Excavation

C. Section 03055: Portland Cement Concrete

D. Section 03211: Reinforcing Steel and Welded Wire

E. Section 03310: Structural Concrete

F. Section 05120: Structural Steel

1.3 REFERENCES

A. AASHTO LRFD Bridge Design Specifications, current edition.

1.4 DEFINITIONS

A. Working Drawings – Drawings produced by the Contractor that supplement the contract drawings to provide information not included in the contract documents but that is required to fabricate, erect, transport or temporarily support the structure or structural elements in the completion of the work. Working drawings do not supersede the contract drawings.

B. Approval of Working Drawings – Acceptance by the Department for use on the project. The Department will review working drawings for general conformance with the design concept and compliance with the contract documents. Review and approval do not relieve the Contractor from responsibility for errors, correctness of details, conformance to the contract, and the successful completion of the work

1.5 SUBMITTALS

A. Working Drawings

1. Temporary retaining wall drawings for approval.
   a. Include detailed plans for temporary retaining walls.
   b. Include design calculations and supporting data
   c. Include measures that will be taken during construction to alleviate all impacts on adjacent utilities and building.
   d. Design temporary works according to the current edition of the AASHTO LRFD Bridge Construction Specifications, Section 3 (Temporary Works).
   e. Design temporary retaining wall to support at least the following loads:
      1) Earth Pressure
      2) Live Load Surcharge
      3) Construction Live Loads
   f. Contractor will be responsible for determining the load conditions required for design and any miscellaneous requirements
   g. Provide the seal of a Professional Engineer (PE) or Professional Structural Engineer (SE) licensed in the State of Utah.
   h. Do not begin work until receiving the Engineer's approval of the drawings and calculations.
2. Prepare drawings according to the following:
   a. Submit drawings electronically in PDF format. Use 11 x 17 inch sheets with a 1½ inch blank margin on the left edge. Place the following information in the title block in the lower right corner of each sheet:

1) State Project Designation
2) State Project Name
3) State Structure Number
4) Contractor, Fabricator, or Erector Name
5) Contractor, Fabricator, or Erector Drawing Number
6) Contractor, Fabricator, or Erector Sheet Number

b. Revise and resubmit drawings when directed by the Department.

c. Provide the seal of a PE or SE licensed in the State of Utah when required in the contract. Place the seal in the lower right corner of each sheet when required.

3. Prepare engineering calculations according to the following:

a. Submit calculations electronically in PDF format. Use 8½ x 11 inch sheets with a 1 inch blank margin on the left edge or 11 x 17 inch sheets with a 1½ inch blank margin on the left edge. Title block location is at the top of 8½ x 11 inch sheets or the lower right corner of 11 x 17 inch sheets. Place the following information in the title block:

1) State Project Designation
2) State Project Name
3) State Structure Number
4) Contractor, Fabricator, or Erector Name
5) Contractor, Fabricator, or Erector Drawing Number
6) Contractor, Fabricator, or Erector Sheet Number

b. Provide the seal of a PE or SE licensed in the State of Utah on all engineering calculations. Place the seal on the calculation cover sheet.

c. Certify that engineering calculations have been checked according to the Department QC/QA Procedures.

4. Allow the Engineer 14 calendar days to review and approve working drawings and supporting calculations.

a. This review period applies each time the drawings and calculations are submitted.

b. No contract time extension will be allowed for any temporary retaining wall re- submittals and reviews.

5. Do not deviate from the approved drawings unless authorized in writing by the Engineer. Assume the responsibility for costs incurred due to faulty detailing or fabrication.

PART 2 PRODUCTS

2.1 TEMPORARY RETAINING WALLS

A. As specified by the temporary retaining wall design working drawings and design calculations submittal.

B. Use materials able to sustain the stresses required by the temporary retaining wall design.

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

A. Temporary retaining wall required during excavation and construction of Retaining Wall R-761 between stations 100+37 to 101+74. The contractor cannot disturb soil beyond 9 feet from the front face of Wall R-761 within the station limits above. See Section A-A on R-761 structure drawings sheet 2 of 5.

3.2 TEMPORARY RETAINING WALL PLANS

A. Show specific details that reflect the specific construction staging requirements of the wall or other work item.

3.3 TEMPORARY RETAINING WALL CONSTRUCTION

A. Follow the requirements of Sections 03055, 03211, 03310, and 05120 for construction of temporary retaining wall.

B. Follow the requirements of Section 02317 for structural excavation.

3.4 MISCELLANEOUS REQUIREMENTS

A. Maintain the stability of all temporary retaining walls during all phases of construction. Locate and protect utilities.

B. Determine and demonstrate the appropriate drivability of any proposed piles or sheet piles.

C. Control and monitor vibrations induced by construction of the temporary retaining walls. Damage caused to adjacent structures or utilities will be repaired at no cost to the Department.

D. Obtain approval from the Engineer prior to removal of temporary retaining walls. Request approval in writing at least 14 days prior to commencement of the work. Engineer will provide written response within 7 days of the request.

E. Remove temporary retaining wall (down to 2 feet below finished grade line) prior to final inspection.

END OF SECTION

Supplemental Specification
2012 Standard Specification Book

SECTION 02316M

ROADWAY EXCAVATION

Delete Article 3.5, paragraph C and replace with the following:

C. Remove material in all cut sections to the depth shown. Scarify to an 8 inch depth and compact subgrade to at least 90 percent of maximum laboratory density before placing pavement section.

Supplemental Specification
2012 Standard Specification Book

SECTION 02317M

STRUCTURAL EXCAVATION

Delete Article 1.4 and replace with the following:

1.4 DEFINITIONS

A. Unsuitable material – Material not meeting specifications, organic materials, frozen lumps, soils such as peat or bog, and over-saturated silts, clays, or sands whose water content prevents appropriate compaction.

November 4, 2014

SPECIAL PROVISION

PROJECT # F-0266(62)3
PIN # 11405

SECTION 02411S

RELOCATE FIRE HYDRANT

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Local agencies, standards to follow for each agency, contacts, and inspection instructions.

1.2 RELATED SECTIONS Not Used

1.3 REFERENCES Not Used

1.4 DEFINITIONS Not Used

1.5 SUBMITTALS

A. Contractor submits all signed Certificates of Compliance, to the Engineer, for materials involved in associated work. (The form can be found in the UDOT Materials Minimum Sampling and Testing forms).

B. If the Local Agency performs any inspections, the local agency inspector submits progress reports to the Engineer at the end of each day.

1.6 LOCAL AGENCIES AND STANDARDS

A. The project includes relocation and construction of public improvements for Murray City.

C. The public improvements include fire hydrant installation, connecting water lines, and appurtenance parts.

D. When placing public utility improvements use local city standards for pipe zone bedding, backfill and compaction, outside the pipe zone meet UDOT standards, refer to UDOT DG series Standard Drawings.

E. Install the public improvements according to the following standards:
   1. Murray City: Use the Murray City Water Specifications and Requirements and the 2007 Edition of the American Public Works Association (APWA) Standard Specifications & Plans. Murray City standards supersede APWA.

1.7 WEB SITE SPECIFICATION ADDRESSES

A. The location of APWA Manual of Standard Specifications and Plans are found on the Web site at:
   http://utah.apwa.net/
B. The location of Murray City Water Specifications and Requirements are found on the Web site at:
   http://murray.utah.gov/DocumentCenter/Home/View/510

1.8 CONTACTS

A. The Contractor notifies the affected city or agency 5 working days prior to utility work or relocations. The anticipated utility impacts are associated with the following cities or agencies:

   1. Danny Astill, Murray City Water, 801-550-4725

1.9 INSPECTION

A. As part of the Contract there is a fire hydrant and appurtenant parts that are to be relocated and/or replaced. The City and/or Agency may provide an inspector for this work. The local agency will:
   1. Notify the Engineer when they arrive and when they leave the project site.
   2. Notify the Engineer of any work found to be unacceptable within normal work hours (8 am to 5 pm). The Engineer makes written notification to the Contractor of any corrective measures to be made.
   3. Keep a daily progress report of any inspections.

PART 2 PRODUCTS

2.1 MURRAY CITY SPECIFICATIONS

A. See Murray City Water Specifications and Requirements on the Web at:
   http://murray.utah.gov/DocumentCenter/Home/View/510

PART 3 EXECUTION

3.1 DISCREPANCIES AND CONFLICTS

A. Where discrepancies and conflicts exist between local agency standards and UDOT standards, specifications, and minimum sampling and testing requirements, the more stringent standards will govern.

3.2 MURRAY CITY SPECIFICATIONS

A. See Murray City Water Specifications and Requirements on the Web at: http://murray.utah.gov/DocumentCenter/Home/View/510

END OF SECTION

Supplemental Specification
2012 Standard Specification Book

SECTION 02610

DRAINAGE PIPE

Delete Section 02610 and replace with the following:

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Materials and procedures for installing drainage pipe.

B. Class, type, and size designations for drainage pipe.

C. Inspection and acceptance.

1.2 RELATED SECTIONS

A. Section 01282: Payment

B. Section 02056: Embankment, Borrow, and Backfill

C. Section 02317: Structural Excavation

1.3 REFERENCES

A. AASHTO M 36: Corrugated Steel Pipe, Metallic-Coated, for Sewers and Drains

B. AASHTO M 167: Corrugated Steel Structural Plate, Zinc-Coated, for Field-Bolted Pipe, Pipe-Arches, and Arches

C. AASHTO M 170: Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe

D. AASHTO M 196: Corrugated Aluminum Pipe for Sewers and Drains

E. AASHTO M 197: Aluminum Alloy Sheet for Corrugated Aluminum Pipe

F. AASHTO M 198: Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants

G. AASHTO M 207: Reinforced Concrete Elliptical Culvert, Storm Drain and Sewer Pipe

H. AASHTO M 219: Corrugated Aluminum Alloy Structural Plate for Field-Bolted Pipe, Pipe-Arches, and Arches

I. AASHTO M 243: Field Applied Coating of Corrugated Metal Structural Plate for Pipe, Pipe Arches, and Arches

J. AASHTO M 245: Corrugated Steel Pipe, Polymer Precoated, for Sewers and Drains

K. AASHTO M 246: Steel Sheet, Metallic-Coated and Polymer-Precoated for Corrugated Steel Pipe

L. AASHTO M 274: Steel Sheet, Aluminum-Coated (Type 2), for Corrugated Steel Pipe

M. AASHTO M 294: Corrugated Polyethylene Pipe, 300- to 1500-mm (12- to 60-in.) Diameter

N. AASHTO M 304: Poly (Vinyl Chloride) (PVC) Profile Wall Drain Pipe and Fittings Based on Controlled Inside Diameter

O. AASHTO M 330: Polypropylene Pipe

P. AASHTO MP 20: Steel Reinforced Polyethylene Pipe

Q. AASHTO PP 63: Pipe Joint Selection for Highway Culvert and Storm Drains

R. AASHTO LRFD Bridge Construction Specifications

S. ASTM A 849: Post-Applied Coatings, Pavings, and Linings for Corrugated Steel Sewer and Drainage Pipe

T. ASTM C 443: Joints for Concrete Pipe and Manholes, Using Rubber Gaskets

U. ASTM D 1056: Flexible Cellular Materials—Sponge or Expanded Rubber

V. ASTM D 1784: Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds

W. ASTM D 3212: Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals

X. ASTM D 3350: Polyethylene Plastics Pipe and Fittings Materials

Y. ASTM F 477: Elastomeric Seals (Gaskets) for Joining Plastic Pipe

Z. ASTM F 949: Poly(Vinyl Chloride) (PVC) Corrugated Sewer Pipe With a Smooth Interior and Fittings

AA. ASTM F 2562: Steel Reinforced Thermoplastic Ribbed Pipe and Fittings for Non-Pressure Drainage and Sewerage

BB. ASTM F 2881: Polypropylene Pipe

CC. National Transportation Product Evaluation Program (NTPEP)

DD. Occupation Safety and Health Administration (OSHA)

EE. UDOT Minimum Sampling and Testing Requirements

FF. UDOT Quality Management Plan 505

1.4 DEFINITIONS

A. The following definitions apply to this Section and the DG Series Standard Drawings.
   1. Backfill – Material used to fill the trench or excavation, exclusive of bedding material.
   2. Bedding Material – Material on which a pipe is supported.
   3. Cover – The vertical dimension above the crown to the finished fill elevation or pavement surface.
   4. Crown – The top or highest point of a pipe.
   5. Culvert – A pipe, open on both ends, that conveys surface runoff through an embankment.
   6. Distortion – A deviation from a pipe's original shape due to earth pressure or surface loads.
   7. Down Drain – A pipe that is connected to a drainage structure that drains vertically down to a surface below.
   8. Drainage pipe – A pipe that conveys water regardless of shape and material type such as culverts, irrigation pipes, and storm drains.
   9. End Section – A structure made of steel or concrete, attached to the ends of a pipe to retain the embankment and provide anchorage.
   10. Foundation – The natural ground or prepared base.

11. Haunch – The area of backfill material placed under the pipe, between the spring line and the bottom of the pipe.
12. Headwall – A concrete wall placed at the end of a pipe to serve one or more of the following purposes:
    a. Protect embankment fill from scour or undermining
    b. Increase hydraulic efficiency
    c. Alter the direction of flow
    d. Anchor the pipe
    e. Provide needed structural support
13. Invert – The floor, bottom, or lowest part of the internal cross section of a pipe.
14. Irrigation Pipe – A pipe designed to convey seasonal irrigation water.
15. NASSCO – National Association of Sewer Service Companies.
16. NHS – National Highway System.
17. Nominal Diameter – The inside diameter of the pipe as specified in the plans.
18. NTPEP – National Transportation Product Evaluation Program
19. Pipe Corrosion Classifications:
    a. Class A – Pipe used in mostly non-reactive soils that requires no special materials, treatments, or coatings.
    b. Class B – Pipe used in moderately reactive and corrosive soils.
    c. Class C – Pipe used in soils that are highly reactive and corrosive.
    d. Class D – Untreated structural plate pipe used in mostly non-reactive and non-corrosive soils.
    e. Class E – Structural plate pipe used in highly reactive and corrosive soils.
20. Pipe Interior Roughness:
    a. Corrugated – Interior surface that is formed into a series of alternating crests and valleys with a Manning's "n" coefficient greater than 0.013.
    b. Smooth Lined – Interior surface that is essentially smooth, with a Manning's "n" coefficient less than or equal to 0.013.
21. Pipe Sample Unit – The length of pipe from inlet to outlet or from drainage structure to drainage structure.
22. Rise – The maximum vertical dimension of a pipe arch.
23. Slope drain – A pipe that is placed along the face of a cut or fill slope.
24. Span – The maximum horizontal dimension of a pipe arch.
25. Spring Line – The location of the maximum horizontal dimension of a pipe.
26. Storm Drain – A pipe that conveys surface drainage from one drainage structure to another or an outfall.

27. Working Drawings – Drawings produced by the Contractor that supplement the contract drawings to provide information not included in the contract documents but that are required to fabricate, erect, transport or temporarily support the structure or structural elements in the completion of the work.
    a. Approval of Working Drawings - Acceptance by the Department for use on the project.

1.5 SUBMITTALS

A. Manufacturer's Certificate of Compliance for the following:
    1. Material, structural, and coating according to requirements of Table 5.
    2. Pipe joints according to AASHTO PP 63. Refer to this Section, article 2.2.
    3. Concrete pipe manufacturer is prequalified according to UDOT Quality Management Plan 505, Precast/Prestressed Concrete Structures.
    4. Thermoplastic pipe manufacturer is compliant with the AASHTO NTPEP for the diameter of pipe specified in the plans.

B. Manufacturer's installation instructions for each type of pipe used and any incidental materials required for installation.

C. NASSCO pipe inspection certification.

D. Inspection reports. Refer to this Section, article 1.6.

E. Installation plan and working drawings for structural plate pipe. Refer to this Section, article 2.1 paragraph E.
    1. Working drawings must be sealed by a Professional Engineer (PE) or Professional Structural Engineer (SE) licensed in the State of Utah.

F. Repair plan when required according to this Section, article 1.6 paragraph D.

1.6 ACCEPTANCE

A. General

1. Inspect pipes after installation and placement of backfill according to Table 1 and Table 2.

Table 1

Roadway Functional Classification	Percent of Pipes to Inspect*
Interstate Freeways, NHS Highways and Arterials	100
Collectors and Local Roads	50

* Indicated in the project plans

Table 2

Pipe Testing Requirements				
Pipe Size	Visual		Deflection*	
	Manual	Remote	Manual	Mandrel**
≤ 48–inch dia.		X		X
> 48–inch dia.	X		X	

* Deflection testing is required for circular metal and thermoplastic pipe only

** A manual inspection or other method may be performed in place of a mandrel inspection with the approval of the Engineer

2. The Engineer will determine which pipe sample units to inspect when the percentage of pipes to inspect is less than 100 percent.
   a. Inspect additional pipe sample units with apparent defects or as directed by the engineer.
      1) Repair or replacement will be at the contractor's expense if pipe does not meet the acceptance criteria in this article.
      2) The Department will pay for the cost of additional inspection if pipe meets the acceptance criteria in this article.
3. Perform inspections so that pipe sample units and required repairs are accepted by the Engineer before placing pavement or finished grade. Exceptions to this requirement are at the discretion of the Engineer.

4. The Department will not make final payment for a pipe installation until the pipe has been inspected and accepted according to this article.
    a. Refer to Section 01282 regarding progress payments and payment for material on hand.
    b. Protect all pipe from damage throughout the duration of the project.
5. No inspection is required for any slope drain or down drain. No inspection is required for a pipe extension or pipe sample unit that is less than 20 ft long.
6. Clean and flush the pipe with water immediately before the inspection.
    a. Remove all material or debris from pipes.
    b. Do not discharge debris into other pipes, structures, or drainage ditches.
7. Submit an inspection report to the Engineer for each pipe sample unit as specified in this article for remote and manual inspections within five calendar days of completing inspection.
    a. The Engineer will determine acceptance within seven calendar days of receipt of complete inspection reports.
8. Notify the Engineer at least 24 hours before performing a mandrel inspection or a manual inspection of a pipe.

B. Remote Inspection
1. Perform remote inspection for pipes with a nominal diameter less than 48 inches using closed-circuit television (CCTV) video inspection and a mandrel test as outlined below.
2. Remote video inspection operator is to have a current NASSCO certification.
3. CCTV Equipment: Record video using a crawler mounted camera capable of panning and tilting to a 90 degree angle with the axis of the pipe and rotating 360 degrees.
4. CCTV Inspection: Produce a picture quality that satisfies the Engineer. Repeat unsatisfactory inspections at no additional cost to the Department. Use the video image to determine horizontal and vertical alignment deviations, joints gaps, and pipe damage.
    a. Center the camera head in the pipe both vertically and horizontally and use lighting sufficient to allow a clear picture of the entire periphery of the pipe.
    b. Do not move the crawler through the pipe at a speed greater than 30 ft/minute. Stop the crawler and video the entire circumference at each joint. Stop the crawler and zoom when necessary to video defects.

c. Video image must be continuously illuminated, clear, focused, and free from roll, static, or other image distortion qualities that may prevent the reviewer from evaluating the pipe's condition.
    1) Calibrate the video's lighting and focus to view the internal markings within the pipe.
d. Superimpose the pipe identification and location within the pipe on the video recording.
e. Document all defects with captions in the video.
    1) Note the defect at each location and provide a still image of the defective area in the inspection report.
    2) Document all cracks and joint separations.

5. Mandrel Inspection: Used for circular metal and thermoplastic pipes only.
    a. Perform the mandrel inspection for pipes in the presence of the Engineer or representative according to Table 2.
    b. Provide a mandrel that meets the following requirements to determine pipe deflection:
        1) The diameter of the mandrel, whether it is fixed or variable size, must be verified with a proving ring or other method according to manufacturer's guidelines.
        2) Contains at least nine equally spaced runners (40 degree angles).
        3) Length not less than the diameter.
    c. Provide a proving ring to verify mandrel size when requested by the Engineer.
    d. Mandrel Inspection Procedure
        1) Pull a mandrel that is 5 percent less than the pipe nominal inside diameter.
        2) The inspection is complete if the mandrel passes through at 5 percent.
        3) Accomplish the following before completing the inspection if the mandrel cannot pass through:
            a) Record the maximum distance achieved from the inlet side.
            b) Remove the mandrel and continue the inspection from the outlet end of the pipe toward the inlet end. Record the maximum distance achieved from the outlet side.
            c) Repeat with the mandrel set to 7.5 percent less than the pipe nominal inside diameter.

6. Prepare an Inspection Report and include:
    a. A video recording of each pipe inspection in a digital format.
    b. The project number, date, and time of the inspection for each pipe inspection, the pipe identification used in the plan set, and type and size of pipe.

c. Written and still image documentation of locations where alignment deviations, joint gaps, pipe damage, and any other deficiencies were observed.

d. The size of the mandrel and whether or not it was successfully pulled through the pipe.

1) Mandrel size and maximum distance pulled from each side of the pipe if the mandrel was not able to pass.

C. Manual Inspection

1. Perform manual inspection for pipes in the presence of the Engineer or representative according to Table 2.

a. Follow OSHA requirements for inspecting confined entry spaces.

2. Perform the following inspection:

a. Deflection (for circular metal and thermoplastic pipes only). Perform a mandrel inspection or take the following measurements every 10 ft along the length of the pipe to the nearest ¼ inch:

1) Vertically from the crown to invert

2) Horizontally at the spring line

3) Two measurements, each diagonally at 45 degrees to the pipe springline

b. Cracks – Measure observed cracks using a feeler gauge capable of measuring 0.01 inch. Other measuring devices may be used when approved by the Engineer.

c. Gaps – Measure and record the widest gap at each joint to the nearest ¼ inch.

3. Inspection Report

a. Include the project number, date and time of the inspection, the pipe identification used in the plan set, and type and size of pipe.

1) Document inspection results for deflection and observations of alignment deviations, joint gaps, and pipe damage. Include the type and location along the pipe for each measurement along with still images for each observation.

D. Acceptance

1. Each pipe sample unit is accepted after verifying that the allowable tolerances for the following requirements have been met:

a. Horizontal and vertical alignment deviations

b. Deflection

c. Joints gaps

d. Damage

2. Repair or replace damaged or improperly installed pipes at no cost to the Department.

3. Evaluate each pipe that does not meet the acceptance criteria described in this article and recommend appropriate action. Submit documentation that has been signed and sealed by a Professional Engineer (P.E.), competent in the structural design of pipe material being evaluated, either:
   a. No repair is required for the pipe to function and maintain its structural integrity over its design life.
   b. A repair is required to allow the pipe to function and maintain its structural integrity over its design life.
      1) Submit repair plans to the Engineer, obtain written approval from the Engineer before performing work.
      2) Inspect the repaired portion of the pipe and any feature potentially affected by the repair.
4. Alignment
   a. Evaluate each pipe that exceeds the alignment tolerances shown in Table 3 and recommend appropriate action.
   b. Evaluate each pipe that has areas where ponding occurs and recommend appropriate action.

Table 3

Installation Alignment Tolerances		
Design Grade	**Horizontal**	**Vertical***
		inch/100 ft
> 1%	Horizontal joint deflections not to exceed industry standards	1½
0.5% - 1%		1
< 0.5%		½

* Increase tolerance by 50 percent for culverts.

5. Distortion – Based on the percentage change from the nominal diameter.
   a. Evaluate each pipe with a distortion between 5 percent and 7.5 percent and recommend appropriate action.
   b. Remove and replace each pipe with a distortion greater than 7.5 percent.

6. Joint Gaps
   a. Evaluate each pipe joint with a gap exceeding the tolerance specified in Table 4 and recommend appropriate action according to manufacturer's recommendations.

Table 4

Joint Gap Tolerances	
Nominal Diameter (inches)	**Joint Gap (inches)**
12 to 36	0.75
42 to 48	1.00
54 to 90	1.25
96 to 144	1.75

   b. Repair joints showing visible signs of soil or water infiltration according to the approved plans submitted.
7. Damage – Fractures, cracks, or other defects passing through the walls or joints sufficient to impair strength, durability, function or product serviceability. Evaluate damage and recommend appropriate action according to this Section, Article 1.6 paragraph D.3.
   a. Metal pipe – Repair damaged, delaminated, or scaled coating on metal pipe according to the approved plans submitted.
   b. Plastic pipe – Evaluate pipes that show the following signs:
      1) Damaged pipe cross section such as dents, cuts, cracks, breaks, fractures, or deformations.
   c. Reinforced concrete pipe
      1) Evaluate pipes that show the following:
         a) Cracks between 0.01 inch and 0.10 inch
         b) Damaged pipe cross section such as breaks or fractures
         c) Broken bells or spigots
      2) Remove and replace pipe that show the following:
         a) Exposed reinforcing steel
         b) Imperfect proportioning mixing and casting such as honeycomb or open texture
      3) Repair or replace reinforced concrete pipe if cracks are greater than 0.10 inch.

PART 2 PRODUCTS

2.1 PIPE

A. General – pipes are identified according to interior roughness, joint type, diameter or span and rise, and corrosion class.

1. Provide the type of pipe specified in the plans with the following exceptions:
   a. Provide any pipe type that meets the interior roughness requirements of Table 5 and the specified pipe joint rating and corrosion classification when no material type is specified in the plans.
   b. Substitutions to a higher pipe corrosion classification are allowed.
2. Do not change the material type, strength, or thickness of the pipe along an installation unless approved in writing by the Engineer.
3. Use the cover over the pipe to determine the strength or thickness. Refer to the DG Series Standard Drawings.
4. Internally label each section of pipe with the manufacturer's name or trademark, nominal diameter, and manufacture date. Include the pipe class, gauge, and coating according to the pipe material type.
   a. Place the pipe so that the location of the label is above the spring line of the pipe.

Table 5

AASHTO/ASTM Specifications for Pipe					
Interior Roughness and Material Type	**Corrosion Class**				
	A	**B**	**C**	**D**	**E**
Corrugated					
Corrugated steel pipe and pipe arch	M 36	M 36 Polymeric Coating (outside only) M 245 & M 246 ASTM A 849 or Aluminized Type II Steel M 274	M 36 Polymeric Coating (both sides) M 245 & M 246 ASTM A 849	N/A	N/A
Corrugated aluminum pipe and pipe arch	M 196 M 197	M 196 M 197	M 196 M 197	N/A	N/A
Corrugated polyethylene (HDPE) pipe	M 294 ASTM D 3350	M 294 ASTM D 3350	M 294 ASTM D 3350	N/A	N/A
Smooth Lined					
Smooth lined corrugated polyethylene (HDPE) pipe	M 294 ASTM D 3350	M 294 ASTM D 3350	M 294 ASTM D 3350	N/A	N/A
Smooth lined polyvinyl chloride (PVC) pipe	M 304 & ASTM F 949 Cell Class # 12454C ASTM D 1784	M 304 & ASTM F 949 Cell Class # 12454C ASTM D 1784	M 304 & ASTM F 949 Cell Class # 12454C ASTM D 1784	N/A	N/A
Smooth lined polypropylene pipe	M 330 ASTM F 2881	M 330 ASTM F 2881	M 330 ASTM F 2881	N/A	N/A
Steel reinforced thermoplastic ribbed pipe	MP 20 ASTM F 2562	MP 20 ASTM F 2562	MP 20 ASTM F 2562	N/A	N/A
Spiral rib steel pipe and pipe arch	M 36	M 36 Polymeric Coating (outside only) M 245 & M 246, ASTM A 849 or Aluminized Type II Steel M 274	M 36 Polymeric Coating (both sides) M 245 & M 246 ASTM A 849	N/A	N/A
Spiral rib aluminum pipe and pipe arch	M 196 M 197	M 196 M 197	M 196 M 197	N/A	N/A
Reinforced concrete pipe	M 170 Type II Cement	M 170 Type II Cement	M 170 Type V Cement	N/A	N/A
Elliptical reinforced concrete pipe	M 207 Type II Cement	M 207 Type II Cement	M 207 Type V Cement	N/A	N/A

AASHTO/ASTM Specifications for Structural Plate Pipe					
Interior Roughness and Material Type	**Corrosion Class**				
	A	**B**	**C**	**D**	**E**
Corrugated					
Structural steel plate pipe and pipe arch	N/A	N/A	N/A	M 167	M 167 M 243
Aluminum alloy structural plate pipe and pipe arch	N/A	N/A	N/A	M 219	M 219

B. Reinforced Concrete Pipe
   1. Concrete pipe manufacturer is pre-qualified according to UDOT QMP 505.
   2. Do not cast lift holes except for circular pipe that has a nominal diameter greater than 54 inches or any elliptical pipe.
      a. Fill lift holes with a plug supplied by the manufacturer or with non-shrink grout according to the pipe manufacturer's recommendations.

C. Metal Pipe
   1. Do not allow pipes of different types of metal to contact each other.
   2. Use matching materials to make direct extensions of existing pipes.
   3. Do not use aluminum pipe when a paved invert is required unless protective measures are taken.
   4. Class B Aluminized Type II Steel is acceptable only when the minimum metal thickness is 16 gauge and where pH is greater than 5.5 and less than 8.5 and soil resistivity is greater than 1,500 ohm-centimeters.

D. Thermoplastic Pipe
   1. HDPE pipe – Do not use greater than 60 inch diameter.
      a. HDPE pipe manufacturer is compliant with NTPEP.
   2. PVC pipe – Do not use greater than 36 inch diameter.
   3. Do not use in permanent above ground installations unless approved in writing by the Engineer.

E. Structural Plate Pipe
   1. Spray or brush-coat all areas of aluminum pipe contacting concrete with an asphalt mastic or tar based material at least 0.05 inch thick. Refer to AASHTO M 243.
   2. Assembly
      a. Provide the Engineer an installation plan and working drawings showing the position of each plate and the assembly order.

b. Do not begin work until working drawings have been approved.
   1) The Department will review working drawings for general conformance with the design concept and compliance with the contract documents.
   2) Approval does not relieve the Contractor from responsibility for errors, correctness of details, conformance to the contract, and the successful completion of the work.
c. Follow the manufacturer's instructions.

F. Steel Reinforced Thermoplastic Ribbed Pipe
1. Do not use greater than 60 inch diameter.
2. Do not use in permanent above ground installations unless approved in writing by the Engineer.

G. Polypropylene Pipe
1. Do not use greater than 60 inch diameter.
2. Do not use in permanent above ground installations, unless approved in writing by the Engineer.

2.2 JOINTS OR COUPLING BANDS

A. General
1. Supply pipe joints that have been evaluated according to AASHTO PP 63.
   a. Culverts – Meet the silt-tight joint requirements of at least 2 psi for all culverts except where project plans or specifications require a higher pressure rating.
   b. Storm Drains and Irrigation Pipes – Meet the leak resistant joint requirements of at least 10.8 psi for all storm drains and irrigation pipes except where project plans or specifications require a higher pressure rating.
2. Comply with manufacturer's recommendations for connecting pipes and for connecting pipe to end sections, concrete headwalls, catch basins, and similar structures.
3. Elliptical, arched, and structural plate pipes are not pressure rated.

B. Reinforced Concrete Pipe
1. Use a rubber gasket joint that meets the requirements of ASTM C 443 for circular reinforced concrete pipe.
2. Use a mastic joint sealant that meets the requirements of AASHTO M 198 for elliptical reinforced concrete pipe.

C. Metal Pipe

1. Use an external corrugated connecting band with a neoprene sleeve/flat gasket. Refer to ASTM D 1056.
   a. Continuous one piece construction closed-cell neoprene, skin on all sides.
   b. Minimum thickness of ⅜ inch and no less than the width of the connection band used.
2. Re-roll ends of helically corrugated pipe to form at least two full annular corrugations each before being joined.
3. Refer to AASHTO LRFD Bridge Construction Specifications and AASHTO M 36 or M 245 with the following modifications for external corrugated connecting bands:
   a. Use bands of the same or better corrosion class as the pipe. Maintain a minimum thickness of 16 gauge but not less than a 2 gauge step lighter than the pipe gauge.
   b. Use bands with projections (dimple bands) only in extension of existing pipes or a field cut where annular corrugations do not exist.

D. Thermoplastic Pipe

1. Use bell and spigot joints with an elastomeric rubber seal that meets the requirements of ASTM F 477.

E Steel Reinforced Thermoplastic Ribbed Pipe

1. Use pipe joints that meet the requirements of ASTM D 3212.

2.3 PIPE BEDDING AND BACKFILL

A. Refer to Section 02056.

PART 3 EXECUTION

3.1 PREPARATION

A. Excavation

1. Refer to Section 02317.
2. Keep trenches free from water.

B. Foundation

1. Grade and prepare the bottom of the trench to provide a firm and uniform bearing throughout the entire length of the pipe. Do not use blocking to bring the pipe to grade.
2. Shape the foundation to have recesses to fit any projecting hubs or bells.

3.2 INSTALLATION

A. Refer to DG Series Standard Drawings, Standard Specifications, AASHTO LRFD Bridge Construction Specifications, and manufacturer's installation requirements for installing all types of pipe. Adhere to the more stringent requirement if there is a conflict between any of the above installation requirements.

B. Pipe Bedding
   1. Refer to Section 02056 and DG Series Standard Drawings for bedding requirements.
   2. Place the bottom of the pipe in contact with the bedding throughout its full length.
   3. Shape the bedding to have recesses to fit any projecting hubs or bells.

C. Pipe Placement
   1. Check pipe for alignment and grade when joining the sections.
   2. Remove and relay or replace pipe that is out of alignment, settled, or damaged.
   3. Verify joints are assembled properly.

D. Pipe Backfill
   1. Refer to Section 02056 for backfill requirements.
   2. Test frequency according to UDOT Minimum Sampling and Testing Requirements and Section 02056.

E. Provide adequate cover and protect pipe during project construction.

END OF SECTION

October 10, 2013

SPECIAL PROVISION

PROJECT # F-0266(62)3
PIN # 11405

SECTION 02735M

MICRO-SURFACING

Delete Article 1.3, paragraph Q through S and replace with the following:

Q. AASHTO PP 72-11: Recovering Residue from Emulsified Asphalt Using Low-Temperature Evaporative Techniques

R. ASTM D 6372: Testing and Construction of Micro-Surfacing

S. ASTM D 7405: Multiple Stress Creep and Recovery (MSCR) of Asphalt Binder Using a Dynamic Shear Rheometer

Delete Table 3 and replace with the following:

Table 3

Modified Emulsion Residue By Distillation		
Test Method	**Description**	**Specification**
AASHTO T 49	Penetration, 25° C	40-90
AASHTO T 53	Softening point	57° C Min
AASHTO T 59-modified (a)	Residue by distillation	62% Min.
AASHTO T 316	Rotational Viscosity 135° C	650 CPS Min
Modified Emulsion Residue By Evaporation, AASHTO PP 72-11 Procedure B		
AASHTO T 315 (b)	Original DSR, G* at 58º C, kPa	7 - 14
AASHTO T 315 (b)	Original DSR, G* at 64º C, kPa	4 - 8
AASHTO T 315 (b)	Original DSR, Phase Angle, δ, at 58º C	75 Max.
ASTM D 7405 (b)	Multiple Stress Creep Recovery (MSCR) at 64º C, % recovery at 3.2 kPa stress level	25 Min.

(a) Modified distillation procedure – Heat emulsion residue to 177 ± 5° C and maintain that temperature for 20 min. Perform the distillation within 60 ± 15 min.

(b) Do not reheat on completion of evaporation. Complete residue testing within 48 hr of performing the evaporation procedure. Pull small specimens from the evaporation sample for rheological testing and ball by hand using gloves that will not affect the residue such as nitrile gloves.

September 8, 2014

SPECIAL PROVISION

Project Number # F-0266(62)3
Pin # 11405

SECTION 02741M

Hot Mix Asphalt (HMA)

Delete Article 1.6, paragraph D8 and replace with the following:

8. The Department will reject the lot according to Table 1.

Delete Article 1.6, paragraph E1 and replace with the following:

1. According to Table 1.

Delete Table 1 and replace with the following:

Table 1

Incentive/Disincentive for Asphalt Binder Content, and Density	
PT Based on Min. Four Samples	**Incentive/Disincentive (Dollars/Ton)**
>99	1.50
96-99	1.00
92-95	0.60
88-91	0.00
84-87	-0.26
80-83	-0.60
76-79	-0.93
72-75	-1.27
68-71	-1.60
64-67	-1.93
60-63	-2.27
<60	Reject
Incentive/Disincentive for Gradation	
PT Based on Min. Four Samples	**Incentive/Disincentive (Dollars/Ton)**
>99	1.50
96-99	1.00
92-95	0.60
88-91	0.00
84-87	-0.26
80-83	-0.60
76-79	-0.93
72-75	-1.27
68-71	-1.60
64-67	-1.93
60-63	-2.27
56-59	-5.00
52-55	-10.00
<52	Reject

Delete Table 3 and replace with the following

Table 3

Quality Index Values for Estimating Percent Within Limits										
PU/PL	**n=3**	**n=4**	**n=5**	**n=6**	**n=7**	**n=8**	**n=10**	**n=12**	**n=15**	**n=20**
100	1.16	1.50	1.75	1.91	2.06	2.15	2.29	2.35	2.47	2.56
99	1.16	1.47	1.68	1.79	1.89	1.95	2.04	2.09	2.14	2.19
98	1.15	1.44	1.61	1.70	1.77	1.80	1.86	1.89	1.93	1.97
97	1.15	1.41	1.55	1.62	1.67	1.69	1.74	1.77	1.80	1.82
96	1.15	1.38	1.49	1.55	1.59	1.61	1.64	1.66	1.69	1.70
95	1.14	1.35	1.45	1.49	1.52	1.54	1.56	1.57	1.59	1.61
94	1.13	1.32	1.40	1.44	1.46	1.47	1.49	1.50	1.51	1.53
93	1.12	1.29	1.36	1.38	1.40	1.41	1.43	1.43	1.44	1.46
92	1.11	1.26	1.31	1.33	1.35	1.36	1.37	1.37	1.38	1.39
91	1.10	1.23	1.27	1.29	1.30	1.31	1.32	1.32	1.32	1.33
90	1.09	1.20	1.23	1.24	1.25	1.25	1.26	1.26	1.27	1.27
89	1.08	1.17	1.20	1.21	1.21	1.21	1.21	1.21	1.22	1.22
88	1.07	1.14	1.16	1.17	1.17	1.17	1.17	1.17	1.17	1.17
87	1.06	1.11	1.12.	1.12	1.12	1.13	1.13	1.13	1.13	1.13
86	1.05	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
85	1.03	1.05	1.05	1.05	1.05	1.04	1.04	1.04	1.04	1.04
84	1.02	1.02	1.02	1.01	1.01	1.01	1.00	1.00	1.00	1.00
83	1.00	0.99	0.98	0.97	0.97	0.96	0.96	0.96	0.96	0.96
82	0.98	0.96	0.95	0.94	0.94	0.93	0.93	0.92	0.92	0.92
81	0.96	0.93	0.92	0.91	0.90	0.90	0.89	0.89	0.89	0.88
80	0.94	0.90	0.88	0.87	0.86	0.86	0.85	0.85	0.85	0.85
79	0.92	0.87	0.85	0.84	0.83	0.83	0.82	0.82	0.82	0.81
78	0.89	0.84	0.82	0.81	0.80	0.79	0.79	0.78	0.78	0.78
77	0.87	0.81	0.79	.0.78	0.77	0.76	0.76	0.75	0.75	0.75
76	0.84	0.78	0.76	0.75	0.74	0.73	0.72	0.72	0.72	0.72
75	0.82	0.75	0.73	0.72	0.71	0.70	0.69	0.69	0.69	0.68
74	0.79	0.72	0.70	0.68	0.67	0.67	0.66	0.66	0.66	0.65
73	0.77	0.69	0.67	0.65	0.64	0.64	0.62	0.62	0.62	0.62
72	0.74	0.66	0.64	0.62	0.61	0.61	0.60	0.59	0.59	0.59
71	0.71	0.63	0.60	0.59	0.58	0.58	0.57	0.56	0.56	0.56
70	0.68	0.60	0.58	0.56	0.55	0.55	0.54	0.54	0.54	0.53
69	0.65	0.57	0.55	0.54	0.53	0.52	0.51	0.51	0.51	0.50
68	0.62	0.54	0.52	0.51	0.50	0.50	0.48	0.48	0.48	0.48
67	0.59	0.51	0.49	0.48	0.47	0.47	0.46	0.45	0.45	0.45
66	0.56	0.48	0.46	0.45	0.44	0.44	0.43	0.42	0.42	0.42
65	0.53	0.45	0.43	0.42	0.41	0.41	0.40	0.40	0.40	0.39
64	0.49	0.42	0.40	0.39	0.38	0.38	0.37	0.37	0.37	0.37
63	0.46	0.39	0.37	0.36	0.35	0.35	0.35	0.34	0.34	0.34
62	0.43	0.36	0.34	0.33	0.33	0.33	0.32	0.31	0.31	0.31
61	0.39	0.33	0.31	0.30	0.30	0.30	0.29	0.29	0.29	0.28
60	0.36	0.30	0.28	0.27	0.26	0.26	0.25	0.25	0.25	0.25
59	0.32	0.27	0.25	0.25	0.24	0.24	0.24	0.23	0.23	0.23

Table 3 Continued										
PU/PL	**n=3**	**n=4**	**n=5**	**n=6**	**n=7**	**n=8**	**n=10**	**n=12**	**n=15**	**n=20**
58	0.29	0.24	0.23	0.22	0.21	0.21	0.21	0.21	0.21	0.20
57	0.25	0.21	0.20	0.19	0.19	0.19	0.18	0.18	0.18	0.18
56	0.22	0.18	0.17	0.16	0.16	0.16	0.16	0.16	0.15	0.15
55	0.18	0.15	0.14	0.14	0.13	0.13	0.13	0.13	0.13	0.13
54	0.14	0.12	0.11	0.11	0.11	0.11	0.10	0.10	0.10	0.10
53	0.11	0.09	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
52	0.07	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.05
51	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Enter table in the appropriate “number of tests” column and round down to the nearest value.

Delete Article 2.4, and replace with the following:

2.4 RECLAIMED ASPHALT PAVEMENT (RAP) (Optional)

A. Do not adjust the asphalt binder grade if the lower end is already a PG XX-34.

B. Do not adjust the asphalt binder grade when RAP content is not more than 15 percent by total weight of the hot mix and RAP asphalt binder content is not more than 15 percent of the total asphalt binder content by weight.

C. Adjust asphalt binder grade according to AASHTO M 323 when RAP asphalt binder content is between 15 to 25 percent of the asphalt binder weight.
   1. Select one grade softer than the grade specified. Do not adjust the asphalt binder grade if the lower end is already a PG XX-34.
   2. Provide test reports indicating that the PG grade and quantity of the recovered asphalt binder is consistent throughout the stockpile.
   3. Limit RAP to 25 percent of the total weight of the hot mix and RAP binder to 25 percent of the total binder.

D. RAP aggregate is required to meet Table 5 with exception of Sand Equivalent. Refer to AASHTO T 176.

Add Article 2.6, paragraph A3 and A4:

3. Delete the first bullet of paragraph 960.04 in UDOT Materials Manual of Instruction 960.
4. Delete “SSD” from GsbSSD – fine and coarse aggregate specific gravities – AASHTO T 84 and T 85 of paragraph 960.05.02 in UDOT Materials Manual of Instruction 960.

Delete Table 8 and replace with the following:

Table 8

Volumetric Design Requirements	
HMA design mixing and compaction temperatures	Provided by the Engineer
Dust Proportion Range	0.6 – 1.40
Voids in Mineral Aggregate (VMA) at N_{Design} AASHTO R 35.9.2 using G_{sb} Dry. Equation based on percent of total mix.	12.0% - 13.0% for 1 inch 13.0% - 14.0% for ¾ inch 14.0% - 15.0% for ½ inch 15.0% - 16.0% for ⅜ inch
Hamburg Wheel Tracker UDOT Materials MOI 990	75 Design Gyrations and Greater Maximum 10 mm impression at 20,000 passes. Less than 75 Design Gyrations Maximum 10 mm impression at 10,000 passes.

November 6, 2014

SPECIAL PROVISION

PROJECT # F-0266(62)3
PIN # 11405

SECTION 02742S

PROJECT SPECIFIC SURFACING REQUIREMENTS

Add Section 02742:

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Required PG Asphalt or emulsion.

B. Number of gyrations to use for Superpave Mix Design.

1.2 RELATED SECTIONS Not Used

1.3 REFERENCES Not Used

1.4 DEFINITIONS Not Used

1.5 SUBMITTALS Not Used

PART 2 PRODUCTS

2.1 MIXES

A. Hot Mix Asphalt (HMA): (Refer to bid item for size)

1. PG 64-34 Asphalt.

2. $N_{initial} = 7$, $N_{design} = 75$, $N_{final} = 115$

PART 3 EXECUTION Not used

END OF SECTION

November 14, 2012

SPECIAL PROVISION

PROJECT # F-0266(62)3
PIN # 11405

SECTION 02746M

HYDRATED LIME

Add the following to Article 1.6:

B. Comply with UDOT Quality Management Plan 514 Hot Mix Asphalt

Delete Article 3.1, paragraph B and replace with the following:

B. Method A: Dynamic Feed Lime Slurry
   1 Lime Slurry – One part lime and at least three parts water by weight. The amount of added water to meet the 3:1 lime slurry may be adjusted to account for the moisture in the stockpile. Use lime slurry with a minimum of one part water by weight of lime.
   2. Add at least 1 percent lime by weight of the virgin aggregate.
   3. Deliver lime slurry to the twin shaft pugmill for mixing with aggregate. The virgin aggregate/lime mixture will contain at least 3 percent water by weight of the virgin aggregate after the pugmill
   4. Adjust quantity (percent) of lime as necessary, based on results of Hamburg Wheel Tracker test.
   5. Verify that Lime Slurry equipment is operating at all times. The Engineer may require Method B, marination of the aggregate/hydrated lime mixture in the stockpile if the HMA is supplied without hydrated lime slurry treatment.

Delete Article 3.1, paragraph C4 and replace with the following:

4. Provide sufficient free moisture to thoroughly wet the aggregate and activate the lime before introducing hydrated lime.
   a. The aggregate/lime mixture will contain at least 3 percent water by weight of the virgin aggregate.

Delete Article 3.2, paragraph A and replace with the following:

A. Control, monitor, and document the lime addition process according to the requirements of the UDOT Quality Management Plan 514 Hot-Mix Asphalt.

Supplemental Specification
2012 Standard Specification Book

SECTION 02765M

PAVEMENT MARKING PAINT

Delete Article 1.3, paragraphs M through R and replace with the following:

M. Environmental Protection Agency Testing Methods

N. Federal Specification

O. Federal Standards

P. Manual on Uniform Traffic Control Devices (MUTCD)

Q. UDOT Materials Manual of Instruction

R. UDOT Minimum Sampling and Testing Requirements

S. UDOT Quality Management Plans

Delete Article 2.2 and replace with the following:

2.2 GLASS SPHERES (BEADS) USED IN PAVEMENT MARKING PAINT

A. Heavy metal concentration: Manufacturer must provide a certificate of compliance stating that all beads contain no more than the amounts listed for the following materials as determined by testing performed according to EPA test methods 3052 and 6010C. Other suitable x-ray fluorescence spectrometry analysis methods may be used to screen samples of glass spheres for arsenic, antimony and lead content.

Table 5

Heavy Metal Materials	
Material	**Level (ppm, total)**
Arsenic	200
Antimony	200
Lead	200

B. Longitudinal Lines – Refer to AASHTO M 247, Specific Properties, with the following exceptions:

1. Gradation:

Table 6

Gradation	
Sieve Size	**Accumulated Percent Passing**
No. 18	65 – 80
No. 30	30 – 50
No. 50	0 – 5

2. Coating – Dual coating for optimum adhesion and embedment.
3. Roundness – 80 percent true spheres below the number 30 sieve. Refer to ASTM D 1155
4. Color/Clarity – Colorless/clear and free of carbon residue.
5. Refractive Index – Minimum 1.51 by oil immersion method.
6. Air Inclusions – Less than 5 percent by visual inspection.
7. Hardness – Beads above the number 30 sieve exhibit an average hardness of C70.5 when measured using the Rockwell C scale method and using a minimum sample of 100 beads.
8. Crushing Strength – Beads above the number 30 sieve exhibit an average crushing strength of 60,000 psi when measured by the L/D^2 method and with a minimum sample of 100 beads.
9. Chemical Resistance – Beads resistant to hydrochloric acid, water, calcium chloride, and sodium sulfide. TT-B Federal Specification 1325C sections 4.3.6 to 4.3.9.

C. Transverse Markings – Refer to AASHTO M 247, Specific Properties, with the following exceptions:

1. Gradation:

Table 7

Gradation	
Sieve Size	**Accumulated Percent Passing**
No. 20	90 – 95
No. 30	45 – 70
No. 50	5 – 25
No. 80	0 – 5

2. Coating – Dual coating for optimum adhesion and embedment.
3. Roundness – The glass beads will have at least 75 percent true spheres.
4. Refractive index – Minimum 1.51 by oil immersion method.
5. Air Inclusions – Less than 10 percent by visual inspection.
6. Have at least 80 percent true spheres.

D. Beads used in Temporary Pavement Markings. Meet the above or AASHTO M 247 Type II uniform gradation.

Delete Article 3.2, paragraph B2c and replace with the following:

c. 8 inch Solid Line – From 95 to 120 ft/gal. Use the following calculation to determine wet mil thickness if approximation is outside the range for the desired line type.

Supplemental Specification
2012 Standard Specification Book

SECTION 02768M

Pavement Marking Materials

(Warranty Specification)

Delete Article 1.5, paragraph B and replace with the following:

B. Installation Warranty

1. Manufacturer provides a warranty bond or letter of credit to the Department's Engineer for Maintenance to cover the total installed price of the material on this project and any other projects where the manufacturer's material is installed.
2. Submit material type, manufacturer, installation date, quantities, and project number to the Engineer for each project.
3. Warranty bond or letter of credit covers the specified service life of the materials and begins after all pavement markings are installed and accepted.

Supplemental Specification
2012 Standard Specification Book

SECTION 02771M

CURBS, GUTTERS, DRIVEWAYS, PEDESTRIAN ACCESS RAMPS, AND PLOWABLE END SECTIONS

Delete Article 2.5, paragraph D:

November 11, 2014

SPECIAL PROVISION

PROJECT # F-0266(62)3
PIN # 11405

SECTION 02813S

PRESSURIZED IRRIGATION SYSTEM

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Restoration of above ground, underground, and drip irrigation systems complete with heads, valves, controls, and accessories.

1.2 RELATED SECTIONS

A. Section 01315S: Public Information Services

1.3 REFERENCES

A. ASTM B 88: Copper Pipe

B. ASTM B 687: Brass, Copper, and Chromium-Plated Pipe Nipples

C. ASTM D 1784: Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated poly (Vinyl Chloride) (CPVC) Compounds

D. ASTM D 1785: Poly (Vinyl Chloride) PVC Plastic Pipe, Schedules 40, 80, and 120

E. ASTM D 2464: Threaded Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings; Schedule 80

F. ASTM D 2466: Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings; Schedule 40

G. ASTM D 2672: Joints for IPS PVC Pipe Using Solvent Cement

H. ASTM F 656: Primers for Use in Solvent Cement Joints of Poly (Vinyl Chloride) (PVC) Plastic Pipe and Fittings

I. ASSE 1013, 1015: Backflow Preventers, Pressure Reducers

1.4 DEFINITIONS

A. Mainline: The system of pipes that carry water from the Point of Connection (POC) to the valves.

B. Lateral Lines: The system of pipes that carry water from the valves to the sprinkler heads or emitters.

1.5 SUBMITTALS

A. Product Data: Manufacturer's technical data and installation/operation instructions.

B. Certification by manufacturer's representative that replacement parts provided are of equal quality or better than the original part being replaced.

1.6 PERFORMANCE REQUIREMENTS

A. Location of sprinkler heads:
   1. Adjust as necessary to avoid existing plants and other obstructions.
   2. Restore or replace all pipes, sprinkler heads, valves, connections and other appurtenances removed or damaged by construction activities.

B. Water Coverage:
   1. Provide coverage at minimum equal to the existing conditions.
   2. Do not increase or decrease number of heads or size of pipe unless approved by Engineer.

C. PVC Pipe: Match existing.

D. Drain the system at the end of each work day if work is to continue after November 1, or resume before April 15. Do not permit water to remain in pipe overnight.

E. Verify and mark the location of all utilities and underground obstructions.

PART 2 PRODUCTS

2.1 PIPE AND FITTINGS

A. Mainline: Solvent welded schedule 40 PVC through 1½ inch, then Class 200 PVC. ASTM D 1784 and ASTM D 1785.

B. Lateral line: Solvent welded schedule 40 PVC through 1½ inch, then Class 200 PVC. Meet ASTM D 1784 and ASTM D 1785.

C. Pipe Fittings: Solvent welded schedule 40 PVC. Meet ASTM D 2466.

D. Valve Fittings: Solvent welded schedule 40 PVC. Meet ASTM D 2464.

E. Risers: Threaded schedule 80 PVC. Meet ASTM D 2464.

2.2 JOINT PRIMER AND SOLVENT CEMENT

A. Refer to ASTM F 656 and ASTM D 2672.

2.3 ACCESS SLEEVE

A. 3 inch, Schedule 40 PVC with a yellow rubber cap.

2.4 TEFLON TAPE

A. Use Teflon tape on all threaded joints.

PART 3 EXECUTION

3.1 EXCAVATION

A. Stake pipe and sprinkler locations for approval.

B. Excavate trenches for sprinkler system pipe to connect to existing system.
   1. Do not damage roots where trenching is required in proximity to trees that are to remain.

C. Barricade trenches within the clear zone and along pedestrian routes that are left open overnight.

3.2 INSTALLATION

A. General: Proceed with installation in accordance with the following:

1. Restore and replace all pipes, sprinkler heads, valves, connections, and other apperturances that are damaged or removed during the construction process with new materials of the same quality as determined by the manufacturer's representative of the part being replaced.
2. Reconfigure existing system, where necessary, due to construction impacts. Relocate heads and piping as necessary to create a fully functional and operational system that provides coverage at least equal to the existing condition.
3. Thoroughly flush main lines before installing automatic control valves, and laterals before installing sprinklers. Flush supply lines thoroughly before installing backflow preventers or other regulating devices. Thoroughly flush all pipes newly installed pipes and fittings prior to installing sprinkler heads.
4. Adjust heads to be plumb and flush with finished grades, even with top of soil level or top of material level after completion of grading, seeding or sodding, and rolling of grass areas.
5. Restore or replace all landscaping in accordance with the plans that was disturbed by installation or repair of irrigation system.

B. Piping: Assemble all mainline and lateral lines to maintain the original system.

1. Install PVC pipe in dry weather above 40 degrees F as specified by manufacturer's recommendations. Allow joints to cure a minimum of 8 hours before testing.
3. Irrigate landscaping impacted by the modifications of the sprinkler system until the system is fully restored and approved by the Engineer.

C. Sleeving: Coordinate sleeving installation before placing pavement.

3.3 TEST

A. Notify the Engineer 24 hours in advance of pressure testing the main line.

B. Test connections for leaks prior to backfilling and repair all leaks. Lateral lines may be tested in sections to expedite backfilling work.

3.4 BACKFILL OPERATION

A. Bed all pipe a minimum of 6 inches, surrounding the pipe with native material excavated from the trench or in sand.

B. Prevent soil, rocks, or debris from entering pipes or sleeves.

C. Compact backfilled trenches thoroughly to prevent settling damage to grades or plant materials. Repair irrigation system and plants at no additional cost to Department.

3.5 IRRIGATION INSTALLATION INSPECTION

A. Notify the Engineer and homeowner to schedule the inspection after the irrigation system is completely installed and fully functional.

B. Make the required field adjustments and changes after the inspection.

END OF SECTION

Supplemental Specification
2012 Standard Specification Book

SECTION 02821M

CHAIN LINK FENCING AND GATES

Delete Article 1.3, paragraph H and replace with the following:

H. ASTM F 1043: Strength and Protective Coatings on Steel Industrial Chain Link Fence Framework

I. ASTM F 1083: Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures

Delete Article 2.2, paragraph A1 and replace with the following:

1. Schedule 40, hot-dip galvanized coated pipe. Refer to ASTM F 1043 and ASTM F 1083.

SPECIAL PROVISION

PROJECT # F-0266(62)3
PIN # 11405

SECTION 02831S

RETAINING WALL - ALTERNATE SYSTEMS

Add Section 02831:

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Select from the following wall systems for retaining walls indicated as Contractor-selected alternative systems. Refer to the project plans for situation and layout drawings.

1. MSE Wall- KeySystem I Retaining Wall (refer to Section 02835)
2. MSE Wall - KeySystem II Retaining Wall (refer to Section 02836)
3. MSE Wall- Genesis Geogrid Retaining Wall (refer to Section 02836)
4. MSE Wall – MESA Retaining Wall (refer to Section 02836)
5. MSE Wall – Versa-Lok/Miragrid Soil Wall (refer to Section 02836)
6. MSE Wall – Anchor Landmark Reinforced Soil Wall (refer to Section 02836)
7. MSE Wall – Alan Block AB Three and AB Clasics Segmental Retaining Walls (refer to Section 02836)

1.2 RELATED SECTIONS

A. Section 02832: Select Backfill for MSE Walls

B. Section 02835: MSE Walls Using Modular Block Units and Metal Reinforcing Elements

C. Section 02836: MSE Walls Using Modular Blocks and Geogrid Reinforcing Elements

D. Section 02056: Embankment Borrow and Backfill

E. Section 02075: Geotextiles

1.3 REFERENCES

A. AASHTO LRFD Bridge Design Specifications

B. FHWA Design of Mechanically Stabilized Earth Walls and Reinforced Soil Slopes – Volume I, Federal Highway Administration Report No. FHWA-NHI-10-024

C. Geotechnical Study, 4500 South (SR-266-Main Street MSE Wall Project, August 26, 2014.

1.4 WALL SYSTEM SELECTION

A. Notify the Engineer in writing before the preconstruction conference which option listed in Article 1.1 will be used.

B. Use only one wall system for the Contractor-selected alternative.

C. Do not change the wall type after the preconstruction conference without written approval from the Engineer.

1.5 DESIGN REQUIREMENTS

A. Incorporate current FHWA guidelines and AASHTO LRFD Bridge Design Specifications in design of the selected wall system in addition to, or as modified by, the following:

1. Use a design earthquake peak horizontal ground acceleration coefficient of 0.47 g, corresponding to a 7% probability of exceedance in 75 years.

2. Design retaining wall panel/modular block connections in all cases to not fail during the seismic event corresponding to 3% probability of exceedance in 75 years.

3. The Contractor-selected Wall Company is responsible for all stability calculations, except global stability and bearing capacity.

4. Minimum service life of 75 years.

5. The Wall Company is responsible to ensure that drainage features do not negatively impact the wall system, and that the drainage system can function properly through/beneath the wall as the Project Designer intends, without negatively impacting the wall system. This includes checking the drainage system details, and/or developing appropriate MSE reinforcement design details in the vicinity of the drainage features (pipes, catch basins, etc.) within the reinforcement mass, and for the outlet point at the wall face (see article 1.6.A.2).

6. Sections 02832, 02835, and 02836 as applicable for the selected wall system.

7. Provide corrosion protection for metallic reinforcement by providing sacrificial steel sufficient for a corrosion rate of at least 0.80 mils per exposed surface per year after 16 years of corrosion protection service allowed for the galvanized coating.

8. Use a vertical spacing of primary reinforcement not exceeding 30 inches for single-stage walls, or 24 inches for two-stage walls to provide a coherent MSE reinforced soil mass. This may require modification of panels.

9. In accordance with Section 11 of the AASHTO LRFD Bridge Design Specifications, provide horizontal benches at least 4 feet in width at the base of walls to be founded on earth slopes.

    a. Benches may be eliminated for walls located adjacent to concrete slope-protected slopes.

10. Use the soil design properties found in Table 4-1 of the project Geotechnical Report, *Geotechnical Study, 4500 South (SR-266) – Main Street MSE Wall Project, August 26, 2014*. The Table is also included in this specification.

11. The specific wall backfill characteristics are an integral part of the MSE wall design and shall be determined for the material by the selected Wall Company (with wall backfill meeting the requirements of Section 02832)

12. Design for 250 psf surcharge and slope as shown in Appendix C of the Project Geotechnical Report, *Geotechnical Study, 4500 South (SR-266) – Main Street MSE Wall Project, August 26, 2014*.

Table 4-1 Select Wall Design Parameters and Earth Pressure Coefficients

Design Parameter		Value
Unit Weight of MSE Wall Backfill (pcf) (reinforced zone)		135
Retained Soil (behind reinforced zone, drained conditions)		
Unit Weight (pcf)		120
Friction Angle (degrees)		30
Cohesion Intercept (psf)		0
Active Earth Pressure Coefficient Horizontal Ground 4.3H:1V (2H:1V Broken-back Equivalent) Slope		 0.33 0.36
At-Rest Earth Pressure Coefficient, horizontal ground; 2H:1V slope		- - -
Dynamic Active Earth Pressure Coefficient (includes static) Horizontal Ground, 2 inches of displacement 4.3H:1V (2H:1V Broken-back Equivalent) Slope, 2 inches of displacement 4.3H:1V (2H:1V Broken-back Equivalent) Slope, 4 inches of displacement		 0.49 0.89 0.73
Foundation Soil		
Unit Weight (pcf)		120
Shear Strength Conditions:	Undrained, Construction (1)	Drained, Long-term (2)
Friction Angle (degrees) (3)	0	30
Cohesion Intercept (psf) (3)	725	0
Passive Earth Pressure Coefficient, horizontal ground	0 (4)	0 (4)
Dynamic Active Earth Pressure Coefficient	See retained soil	See retained soil
Ultimate (nominal, unfactored) Gross Bearing Capacity (ksf) (6)	3.8	4.4+0.7×B* (5)

Notes: (1) Values can be reduced by 20% to obtain parameters for undrained post-seismic conditions.
(2) Values appropriate for AASHTO service and strength cases.
(3) Shear strength parameters for sliding analyses may need to be reduced to reflect different types of interface materials, particularly when continuous reinforcement is used.
(4) Passive resistance not recommended for use in design.
(5) B* is the effective base width of the wall and is equal to the length of the reinforcement minus two times the load eccentricity (with units of feet); B* should not be less two-thirds the length of the reinforcement. See report for recommended minimum length of reinforcement.
(6) AASHTO LRFD resistance factors of 0.65 and 1.0 should be applied to the unfactored bearing capacities for static and seismic loading conditions, respectively.

From Project Geotechnical Report, *Geotechnical Study, 4500 South (SR-266) – Main Street MSE Wall Project, August 26, 2014*.

1.6 SUBMITTALS

A. Submit working drawings and design calculations to the Engineer, prepared and signed by a licensed professional engineer, for the wall construction including all plans, profiles, cross sections, quantities, and details that address the following:

1. Cast-in-place concrete coping/cap to the facing panels/blocks to be aesthetically pleasing and to adequately support any fence and/or barrier. Do not use precast coping without prior written approval from the Engineer.

2. Provisions for facilities which penetrate the wall face or soil reinforcing elements (including, but not limited to, drainage catch basins, piping, foundation elements, guard-rail posts, and other buried facilities).

3. MSE wall design accommodates surface and subsurface drainage details.

4. Proposed architectural treatment detail for wall facing elements and proposed color of concrete. Provide architectural treatment for all walls consistent throughout the project and matching all other structural elements incorporated in the project.

5. Design calculations sufficient to determine the walls have been designed in accordance with the required criteria.

B. Allow up to three weeks for the Engineer's review. Within this time, the Engineer will provide either written acceptance of the submittals with any exceptions noted or notification the submittals are insufficient.

1. Upon receiving notification the submittals are insufficient, provide new submittals and allow another two-week period for the Engineer's review.

2. Do not start wall construction until receiving full written acceptance by the Engineer.

1.7 ACCEPTANCE

A. Non-Conformance of Select Backfill for MSE Walls

1. Select Backfill placed and found to be out of conformance with the chemical characteristic requirements of Section 02832, may be

allowed to remain in place at a reduced price in accordance with this paragraph as decided by the Engineer. Refer to Section 02832 for sampling and testing requirements.

2. The Engineer will use the Contractor's bid price and the applicable pay factor in Table 1 to calculate the price adjustment.

3. When deviations exceed those listed for a pay factor of 0.50 in Table 1, have the Wall Company evaluate the backfill to determine whether the wall system meets the required design life.

   a. If the Wall Company determines the wall system meets the required design life, the wall may be accepted with a pay factor less than 0.50 as decided by the Engineer.

B. Non-Conformance for Out-of-Tolerance Wall Facing Elements

1. Provided structural adequacy can be demonstrated, facing elements either placed or that become out-of-tolerance from those specified in the applicable wall system section (02835 through 02836) before final acceptance may be allowed to remain in place at a reduced price in accordance with this paragraph as decided by the Engineer.

2. The Engineer will use the Contractor's bid price and the applicable pay factor in Table 2 to calculate the price adjustment.

3. The Wall Company and the Engineer will evaluate all wall facing element cases when deviations exceed those listed for a pay factor of 0.50 in Table 2 to determine whether the wall system has sufficient structural integrity and is aesthetically acceptable.

   a. If the Wall Company determines the wall system has sufficient structural integrity, the wall may be accepted at a pay factor less than 0.50 as decided by the Engineer.

C. Price adjustment calculation. The applicable pay factors in Tables 1 and 2 will be applied to the entire wall. However, only the most critical of any one of the backfill criteria or the facing elements tolerances (i.e. the one having the lowest pay factor), will be applied.

PART 2 PRODUCTS

2.1 MATERIALS

A. Select Backfill

1. Refer to Section 02832

B. Retaining Wall Materials

1. Refer to Sections 02832 through 02836

C. Free Draining Granular Backfill

1. Refer to Section 02056

PART 3 EXECUTION

3.1 INSTALLATION

A. As specified in Sections 02056, 02075, and 02832 through 02836 for the selected wall system.

3.2 PRICE REDUCTION FOR NON-COMFORMING WORK

TABLE 1

PAY FACTORS **FOR NON-CONFORMING MSE WALL SELECT BACKFILL**						
Deviations of Backfill Chemical Test Results from the Limits Specified in Section 02832*						
	Pay Factor	1 Test	Avg. of 2 Tests	Avg. of 3 Tests	Avg. of 4 Tests	Avg. of 5 or More Tests
Resistivity (ohm-cm) AASHTO T 288	1.00	0 to 200	0 to 190	0 to 180	0 to 170	0 to 150
	0.95	201 to 400	191 to 380	181 to 360	171 to 340	151 to 300
	0.90	401 to 600	381 to 570	361 to 540	341 to 510	301 to 450
	0.80	601 to 800	571 to 760	541 to 720	511 to 680	451 to 600
	0.70	801 to 1000	761 to 950	721 to 900	681 to 850	601 to 750

	0.60 0.50a	1001 to 1200 over 1200	951 to 1140 over 1140	901 to 1080 over 1080	851 to 1020 over 1020	751 to 900 over 900
a - But no one test below 1600 ohm-cm will be accepted.						
pH AASHTO T 289	1.00 0.90 0.80 0.70 0.60 0.50b	0 to 0.20 0.21 to 0.40 0.41 to 0.60 0.61 to 0.80 0.81 to 1.00 ---	0 to 0.18 0.19 to 0.36 0.37 to 0.54 0.55 to 0.72 0.73 to 0.90 over 0.90	0 to 0.16 0.17 to 0.32 0.33 to 0.48 0.49 to 0.64 0.65 to 0.80 over 0.80	0 to 0.14 0.15 to 0.28 0.29 to 0.42 0.43 to 0.56 0.57 to 0.70 over 0.70	0 to 0.12 0.13 to 0.24 0.25 to 0.36 0.37 to 0.48 0.49 to 0.60 over 0.60
b - But no one test below 5.0 or above 10.0 will be accepted						
Chlorides (ppm) AASHTO T 291	1.00 0.95 0.90 0.80 0.70 0.60 0.50c	0 to 14 15 to 28 29 to 42 43 to 56 57 to 70 71 to 84 over 84	0 to 12 13 to 24 25 to 36 37 to 48 49 to 60 61 to 72 over 72	0 to 10 11 to 20 21 to 30 31 to 40 41 to 50 51 to 60 over 60	0 to 8 9 to 16 17 to 24 25 to 32 33 to 40 41 to 48 over 48	0 to 6 7 to 12 13 to 18 19 to 24 25 to 30 31 to 36 over 36
c - But no one test above 200 ppm will be accepted.						
Sulfates (ppm) AASHTO T 290	1.00 0.95 0.90 0.80 0.70 0.60 0.50d	0 to 50 51 to 90 91 to 130 131 to 170 171 to 210 211 to 250 over 250	0 to 45 46 to 80 81 to 115 116 to 150 151 to 185 186 to 220 over 220	0 to 40 41 to 70 71 to 100 101 to 130 131 to 160 161 to 190 over 190	0 to 35 36 to 60 61 to 85 86 to 110 111 to 135 136 to 160 over 160	0 to 30 31 to 50 51 to 70 71 to 90 91 to 110 111 to 130 over 130
d - But no one test above 500 ppm will be accepted.						

* Refer to Section 02832 for minimum sampling and testing frequency. The Engineer determines locations and any additional tests required to evaluate the overall backfill mass.

TABLE 2

PAY FACTORS FOR OUT-OF-TOLERANCE MSE WALL FACING ELEMENTS						
Mean of the Deviations of Wall Placement Tolerances from the Limits Specified in Section 02835 to 02836 (based on the percentage of wall face having the maximum out-of-tolerance measurements)						
	Pay Factor	**1 to 5%**	**6 to 10%**	**11 to 20%**	**21 to 30%**	**30% or more**
Horizontal Alignment (percent) Spec: 0.7%	1.00	0 to 0.40	0 to 0.35	0 to 0.30	0 to 0.25	0 to 0.20
	0.90	0.41 to 0.80	0.36 to 0.70	0.31 to 0.60	0.26 to 0.50	0.21 to 0.40
	0.80	0.81 to 1.20	0.71 to 1.05	0.61 to 0.90	0.51 to 0.75	0.41 to 0.60
	0.70	1.21 to 1.60	1.06 to 1.40	0.91 to 1.20	0.76 to 1.00	0.61 to 0.80
	0.60	1.61 to 2.00	1.41 to 1.75	1.21 to 1.50	1.01 to 1.25	0.81 to 1.00
	0.50	2.01 or more	1.76 or more	1.51 or more	1.26 or more	1.01 or more
Vertical Alignment* (percent) Spec: 0.7%	1.00	0 to 0.40	0 to 0.35	0 to 0.30	0 to 0.25	0 to 0.20
	0.90	0.41 to 0.80	0.36 to 0.70	0.31 to 0.60	0.26 to 0.50	0.21 to 0.40
	0.80	0.81 to 1.20	0.71 to 1.05	0.61 to 0.90	0.51 to 0.75	0.41 to 0.60
	0.70	1.21 to 1.60	1.06 to 1.40	0.91 to 1.20	0.76 to 1.00	0.61 to 0.80
	0.60	1.61 to 2.00	1.41 to 1.75	1.21 to 1.50	1.01 to 1.25	0.81 to 1.00
	0.50	2.01 or more	1.76 or more	1.51 or more	1.26 or more	1.01 or more
Plumbness * (percent) Spec: 0.5%	1.00	0 to 0.50	0 to 0.41	0 to 0.32	0 to 0.23	0 to 0.18
	0.95	0.51 to 0.64	0.42 to 0.54	0.33 to 0.43	0.24 to 0.33	0.19 to 0.26
	0.90	0.65 to 0.78	0.55 to 0.66	0.44 to 0.54	0.34 to 0.43	0.27 to 0.35
	0.85	0.79 to 0.92	0.67 to 0.79	0.55 to 0.66	0.44 to 0.52	0.36 to 0.43
	0.80	0.93 to 1.06	0.80 to 0.91	0.67 to 0.77	0.53 to 0.62	0.44 to 0.52
	0.70	1.07 to 1.20	0.92 to 1.04	0.78 to 0.88	0.63 to 0.72	0.53 to 0.60
	0.60	1.21 to 1.34	1.05 to 1.17	0.89 to 0.99	0.73 to 0.82	0.61 to 0.68
	0.50	1.35 or more	1.18 or more	1.00 or more	0.83 or more	0.69 or more

Levelness (percent) Spec: 0.5%	1.00	0 to 0.30	0 to 0.28	0 to 0.26	0 to 0.24	0 to 0.22
	0.90	0.31 to 0.60	0.29 to 0.56	0.27 to 0.52	0.25 to 0.48	0.23 to 0.44
	0.80	0.61 to 0.90	0.57 to 0.84	0.53 to 0.78	0.49 to 0.72	0.45 to 0.66
	0.70	0.91 to 1.20	0.85 to 1.12	0.79 to 1.04	0.73 to 0.96	0.67 to 0.88
	0.60	1.21 to 1.50	1.13 to 1.40	1.05 to 1.30	0.97 to 1.20	0.89 to 1.10
	0.50	1.51 or more	1.41 or more	1.31 or more	1.21 or more	1.11 or more
Joint Width (inches) Specs: Panel: 0.5 – 1.2 Block: 0.12– 0.5	1.00	0 to 0.10	0 to 0.09	0 to 0.08	0 to 0.07	0 to 0.06
	0.90	0.11 to 0.20	0.10 to 0.18	0.09 to 0.16	0.08 to 0.14	0.07 to 0.12
	0.80	0.21 to 0.30	0.19 to 0.27	0.17 to 0.24	0.15 to 0.21	0.13 to 0.18
	0.70	0.31 to 0.40	0.28 to 0.36	0.25 to 0.32	0.22 to 0.28	0.19 to 0.24
	0.60	0.41 to 0.50	0.37 to 0.45	0.33 to 0.40	0.29 to 0.35	0.25 to 0.30
	0.50	0.51 or more	0.46 or more	0.41 or more	0.36 or more	0.31 or more
Joint Offset (inches) Specs: Panel: 0.4 Block: 0.25	1.00	0 to 0.20	0 to 0.19	0 to 0.18	0 to 0.17	0 to 0.16
	0.90	0.21 to 0.40	0.20 to 0.38	0.19 to 0.36	0.18 to 0.34	0.17 to 0.32
	0.80	0.41 to 0.60	0.39 to 0.57	0.37 to 0.54	0.35 to 0.51	0.33 to 0.48
	0.70	0.61 to 0.80	0.58 to 0.76	0.55 to 0.72	0.52 to 0.68	0.49 to 0.64
	0.60	0.81 to 1.00	0.77 to 0.95	0.73 to 0.90	0.69 to 0.85	0.65 to 0.80
	0.50	1.01 or more	0.96 or more	0.91 or more	0.86 or more	0.81 or more

* For modular block walls these tolerances are measured from the specified wall batter as indicated in 02835 and 02836.

END OF SECTION

December 10, 2014

SPECIAL PROVISION

PROJECT # F-0266(62)3
PIN # 11405

SECTION 02832S

SELECT BACKFILL FOR MSE WALLS

Add Section 02832:

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Placement procedures and requirements for backfill used in constructing MSE walls.

1.2 RELATED SECTIONS

A. Section 02056: Embankment, Borrow, and Backfill

B. Section 02831: Retaining Wall-Alternate Systems

1.3 REFERENCES

A. AASHTO T 27: Sieve Analysis of Fine and Coarse Aggregates

B. AASHTO T 90: Determining the Plastic Limit and Plasticity Index of Soils

C. AASHTO T 99: Moisture-Density Relations of Soils Using a 2.5-kg (5.5-lb) Rammer and a 305-mm (12 in.) Drop

D. AASHTO T 104: Soundness of Aggregate by Use of Sodium Sulfate or Magnesium Sulfate

E. AASHTO T 236: Direct Shear Test of Soils Under Consolidated Drained Conditions

F. AASHTO T 267: Determination of Organic Content in Soils by Loss on Ignition

G. AASHTO T 288: Determining Minimum Laboratory Soil Resistivity

H. AASHTO T 289: Determining pH of Soil for Use in Corrosion Testing

I. AASHTO T 290: Determining Water-Soluble Sulfate Ion Content in Soil

J. AASHTO T 291: Determining Water-Soluble Chloride Ion Content in Soil

K. AASHTO T 310: In-Place Density and Moisture Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

L. FHWA Publication No. FHWA-NHI-00-044

1.4 SUBMITTALS

A. Provide the Engineer with a certificate of compliance, from an AASHTO accredited and UDOT qualified testing lab, certifying the material complies with this section.
   1. Provide the Engineer with copies of the results of all tests performed to determine the Select Backfill source meets the requirements of this section.

B. Provide the Engineer with copies of test results from a UDOT qualified lab for the tests described under article 1.5, Acceptance.

1.5 ACCEPTANCE

A. In addition to the initial testing to verify the Select Backfill source meets the requirements of this section, at a minimum, obtain on-site samples during construction and perform testing at the following frequencies.
   1. Gradation: Every 5,000 cubic yards of backfill used
   2. Electrochemical: Every 10,000 cubic yards of backfill used

B. Include all costs for sampling and testing in the bid price for the work.
   1. The Department will make no separate payment for the cost of sampling and testing required in accordance with this section, except as follows:
   2. The Engineer reserves the right to require additional testing, such as when suspecting a change in the Select Backfill.
      a. When additional testing performed at the direction of the Engineer indicates there is no change in the material and the material is in compliance with the requirements of this section, the Department will pay for the cost of additional sampling and testing as extra work.

C. Density
   1. The Department will perform at least one in-place moisture/density determination per lift of backfill for each 100 feet of wall length (minimum two tests per lift) in accordance with AASHTO T 310.
      a. Tests will be made at random locations and/or at specific locations determined by the Engineer.

2. Do not proceed with the placement of each layer of soil reinforcement and overlying lift of backfill until the Engineer indicates and records that all backfill placement and density requirements (including in the 3-foot light-compaction zone) have been met.

PART 2 PRODUCTS

2.1 SELECT BACKFILL

A. Use backfill free from frozen, organic, and otherwise deleterious materials. Conform to the following gradation limits as determined by AASHTO T 27:

TABLE 1

Select Backfill Gradation (percent passing)		
Sieve Size	**Metallic Reinforcement**	**Geogrid Reinforcement**
4 inch	100	–
¾ inch	–	100
No. 40	0 – 60	0 – 60
No. 200	0 –15	0 –15

B. Geogrid reinforcement may use the Select Backfill gradation specified in Table 1 for metallic reinforcement only under the following conditions:

1. Make arrangements with the wall company to perform site and material specific installation damage testing with a representative sample of the proposed backfill.
   a. Perform testing in accordance with the guidelines provided in sections 4.5 and 5.1 of FHWA Publication No. FHWA-NHI-00-044. The installation damage reduction factor shall be as determined in the test, but no less than 1.2.
   b. Assume all costs for performing the tests and certification of the test results by a registered engineer qualified in this subject/field.
   c. Assume any additional costs for the purchase of materials and/or construction of the wall based on the installation damage reduction factor obtained from the testing.

2. Provide additional material specific installation damage testing at the direction of the Engineer when a change in the backfill

characteristics from the original tested representative sample is suspected.

a. Assume all costs for performing this additional testing and certification of the test results by a registered engineer.

b. Assume any additional costs for the purchase of materials and/or construction of the wall based on the installation damage reduction factor obtained from additional testing.

C. Use backfill with a Plasticity Index (PI) of 6 or less, as determined by AASHTO T 90.

D. Use backfill with an internal friction angle of not less than 34 degrees as determined by AASHTO T 236, using a sample of the material compacted to 95 percent of maximum density at optimum moisture content, determined by AASHTO T 99, Method D.

1. Internal friction angle testing is not required for backfill material that has at least 80 percent of the material retained on the 3/4 inch sieve.

E. Use backfill that:

1. Is substantially free of shale or other soft particles of poor durability.
2. Has a sodium sulfate soundness loss of less than 15 percent after 5 cycles, determined in accordance with AASHTO T 104.
3. Has an organic content less than one-half of one percent as determined by AASHTO T 267 on the portion of the material finer than the No. 10 sieve.

F. Meet electrochemical properties specified in Table 2

2.2 FREE DRAINING GRANULAR BACKFILL

A. Place Free Draining Granular Backfill along the wall face in accordance with this Section. Refer to Section 02056 for Free Draining Granular Backfill gradation requirements.

B. Meet electrochemical properties specified in Table 2.

TABLE 2

Electrochemical Requirements			
Property	**Metallic Reinforcement**	**Geogrid Reinforcement**	**Test Method**
Resistivity	Minimum 3000 ohm-cm, at 100% saturation	N/A	AASHTO T 288
pH	6.0 – 10.0	5.5 – 10.0*	AASHTO T 289
Chlorides	Maximum 100 ppm	N/A	AASHTO T 291
Sulfates	Maximum 200 ppm	N/A	AASHTO T 290

*Maximum value for polyester geogrid is 9.0; and for values between 8.0 and 9.0, or when saturated conditions are anticipated, use an RF_D value of 1.3.

PART 3 EXECUTION

3.1 INSTALLATION

A. Excavation and Foundation Preparation:
   1. Excavate and grade foundation area to the lines and grades shown on the drawings, or as directed by the Engineer.
   2. Make the width of excavation equal to or exceeding the length of soil reinforcing elements.
   3. Compact the foundation using at least three passes of a lightweight, steel, smooth-drum vibratory roller, or as otherwise determined by the Engineer before the wall construction.
   4. Remove unsuitable foundation soils and replace with Select Backfill, or with other suitable material determined by the Engineer, placed and compacted as specified in this article.

B. MSE Wall:
   1. Follow erection of each course of panel/modular block with placement of Select Backfill.
      a. Complete backfill at the front of the wall before backfilling more than 4 feet above the bottom of the lowermost facing element.
   2. Do not damage or disturb wall materials or misalign facing panels/modular blocks during backfill placement.

3. Remove and replace or correct, as directed by the Engineer, wall materials damaged or disturbed during backfill placement at no cost to the Department.
4. Remove and replace or correct, as directed by the Engineer, Select Backfill not meeting the specified requirements at no cost to the Department.
5. Make the moisture content of the Select Backfill during placement and compaction uniform throughout each layer.
6. Determine the optimum moisture content in accordance with AASHTO T 99, Method D.
7. Place Select Backfill with the moisture not greater than the optimum moisture content, nor less than four percentage points below optimum.
8. Remove any Select Backfill with placement moisture content in excess of the optimum moisture content.
    a. Select Backfill may be reused, provided it is aerated or otherwise reworked until the moisture content is uniform and acceptable throughout the entire lift.
9. Do not exceed 12 inches (loose) in lift thickness.
    a. Decrease the lift thickness as necessary to obtain the specified density.
    b. Place backfill in uniformly thick layers.
10. Compact backfill to at least 95 percent of the maximum density, AASHTO T 99, Method D.
11. When placing backfill over the soil reinforcement, begin placement 3 to 5 feet from the wall face and proceed away from the wall to prevent the reinforcement from bunching towards the wall face.
12. Operate all placement and compaction equipment parallel to the wall face.
13. Place and compact each layer of backfill in a level manner before placing subsequent backfill layers.
14. Rubber-tired equipment may pass over the reinforcement only at slow speeds (less than 5 mph). Avoid sudden braking and sharp turning.
15. Do not use sheeps-foot or other grid-type rollers for compacting backfill within the limits of the soil reinforcement.
16. During the initial stage of wall construction, to avoid pushing the facing elements out of alignment, do not place or compact backfill against the facing elements until the first layer of soil reinforcement has been installed and one lift of Select Backfill has been placed and compacted over the reinforcement layer.
17. For all subsequent layers of backfill, before placement of the reinforcement, place and compact the backfill to an elevation 2 inches above the reinforcement connection from a point approximately 18 inches behind the back face of the wall facings (panels, modular blocks) to the end of the reinforcing, unless otherwise shown on the plans at specific locations.

18. Achieve compaction within 4 to 5 feet of the back face of the wall facing units and within 2 feet of any obstructions ("light equipment zone"), by at least three passes of a suitable lightweight or medium-weight (hand-held or hand-guided) mechanical roller, tamper, or vibratory compactor.
    a. When compacting a thin leveling lift along the reinforcement connections level, use compaction equipment with a static weight of less than 800 pounds within this zone.
    b. Use a maximum lift thickness within this zone as warranted by the type of compaction equipment actually used.
    c. Compact within this lighter equipment zone to within at least 3 inches of the facing elements.
    d. Exercise care in the compaction process to avoid misalignment of the facing elements.
19. Place Free Draining Granular Backfill within a zone behind the wall extending at least 30 inches from the front face of the wall facings (but at least 12 inches in width measured from the bottom of each backfill lift), and at least 24 inches in width behind the first-stage wire/grid facing of 2-stage wall systems and behind the wire/grid facing of internal phased-construction walls.
    a. Place and compact Free Draining Granular Backfill as specified above for the lighter equipment zone.
20. Use backfill placement and compaction methods to assure that no voids are present beneath the soil reinforcement elements before backfilling over the reinforcement.
21. Place soil reinforcing elements normal to face of wall in plan view.
    a. If necessary, skew elements (minimizing skew angle) to avoid obstructions, but no more than 15 degrees unless approved by the wall company.
22. At the end of each day's operation, slope the backfill away from the wall to direct runoff of rainwater away from the wall face.
    a. Do not allow surface runoff from adjacent areas or groundwater to enter the wall construction site, including at the front face of the wall.
23. Place the top level of soil reinforcement parallel to the top of the facing unit a distance below the top of the wall as shown on the plans.
    a. Place the top level of soil reinforcement at least 3 inches below the bottom of the barrier slab lip or the bottom of the concrete gutter behind the coping.
24. Gradually deflect the upper reinforcement elements downward to avoid conflicts with paving and subgrade preparation.
    a. Pay particular attention to special conditions such as where roadway super-elevation is anticipated.
    b. Maximum deflection of the reinforcement elements is 8 inches or as otherwise noted on the plans.

25. Slope the top of the backfill along the wall such that the top reinforcement layer is covered with at least 16 inches of Select Backfill.

END OF SECTION

December 10, 2014

SPECIAL PROVISION

PROJECT # F-0266(62)3
PIN # 11405

SECTION 02835S

MSE WALLS USING MODULAR BLOCK UNITS AND METAL REINFORCING ELEMENTS

Add Section 02835:

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Materials and construction requirements for mechanically stabilized earth (MSE) walls using a wall system (see Section 02831) approved by the Engineer using modular block units for the wall face and metal reinforcing elements.

B. Provide and install modular block wall units, metal reinforcement, joint filler, and all necessary attachments from the selected Wall Company.

1.2 RELATED SECTIONS

A. Section 02831: Retaining Wall- Alternate Systems

B. Section 02832: Select Backfill for MSE Walls

C. Section 03055: Portland Cement Concrete

D. Section 03211: Reinforcing Steel and Welded Wire

E. Section 03310: Structural Concrete

1.3 REFERENCES

A. ASTM C 140: Standard Test Methods for Sampling and Testing Concrete Masonry Units and Related Units

B. ASTM C 331: Standard Specification for Lightweight Aggregates for Concrete Masonry Units

C. ASTM C 1262: Standard Test Method for Evaluating the Freeze-Thaw Durability of Dry-Cast Segmental Retaining Wall Units and Related Concrete Units

D. ASTM C 1372: Standard Specification for Dry-Cast Segmental Retaining Wall Units

E. ASTM D 5262: Standard Test Method for Evaluating the Unconfined Tension Creep and Creep Rupture Behavior of Geosynthetics

F. ASTM D 6637: Standard Test Method for Determining Tensile Properties of Geogrids by the Single or Multi-rib Tensile Method

1.1 SUBMITTALS

A. Submit for acceptance at least 10 days before beginning manufacture of the concrete modular block units, a sample of the proposed block texture, size, and color. Match existing wall block texture, color, and size.

B. Provide the Engineer submittals in accordance with Section 02831 and the appropriate working drawings.

C. Do not start work on any wall until all required submittal items have been reviewed and accepted by the Engineer.
   1. Review and acceptance of the drawings does not relieve the Contractor of any responsibility under the contract for the successful completion of the work.

D. Provide certificates of compliance from a UDOT-qualified testing lab, certifying that the select backfill, the modular block facing units, and the geogrid complies with this section, and the results of all tests performed for the tests described in this section.

E. Provide the Wall Company's construction manual for the specific wall system.

1.2 ACCEPTANCE

A. Modular Block Units and Cap Blocks: Meet 28-day compressive strength of 4000 psi.
   1. Do not transport block units to the site until:
      a. A minimum 28-day compressive strength of 4000 psi has been achieved.
      b. Regardless of strength gain, do not transport block units to the site before seven days after fabrication.

B. All modular block facing units and cap blocks to be visually free of defects and will be rejected for not meeting any of the requirements specified in article 2.1. In addition, any of the following defects will be cause for rejection:
   1. Defects that indicate imperfect molding.
   2. Defects indicating honeycomb or other open-texture concrete .
   3. Cracked or severely chipped block units.
   4. Color variation on exposed face(s) of block unit due to excess form oil or other reasons.

PART 2 PRODUCTS

2.1 CONCRETE MODULAR BLOCK UNITS

A. Meet the following requirements for drycast concrete block units:

   1. Have a minimum 28-day compressive strength of 4,000 psi in accordance with ASTM C 140.
   2. Conform to ASTM C 1372, except as otherwise specified.
   3. Conform to the following freeze-thaw test requirements for the lot of block units produced for use in this project in accordance with ASTM C 1262.
      a. Minimum acceptable performance defined as weight loss at the conclusion of 150 freeze-thaw cycles not exceeding 1 percent of the block unit's initial weight for a minimum of 4 of the 5 block unit specimens tested.
      b. Per Engineer's approval, Project specific freeze-thaw durability tests may be substituted by the tests of units made with the same material, concrete mix design, manufacturing process, and curing method, conducted not more than 12 months prior to delivery. An independent laboratory to provide reports and certifications of the above tests as per ASTM C 1262 and C 1372 as appropriate.
   4. Have a maximum water absorption in accordance with ASTM C 140 no greater than 1 percent above the water absorption content of the lot of block units produced and successfully tested for the freeze-thaw test specified in item 3 above for all concrete block units.
   5. Conform to ASTM C 140 for testing of drycast concrete block units.

B. Concrete block shall be manufactured using a combination of cement, aggregates, admixtures, and other constituents meeting the requirements of Section 03055.

1. Verify the compatibility of all components and with the environment in which the block will be used, including sulfate soils and/or groundwater.
2. Lightweight aggregates are subject to the Engineer's approval and must meet the requirements of ASTM C 331.

C. Provide block units with permissible variations of plus 0.12 inch and minus 0.06 inch.

D. Provide block units having angled sides capable of producing concave and convex alignment curves with a minimum radius of 3.3 feet.

E. Provide block units having a polymeric efflorescence control admixture.

F. Finish and Appearance
1. All units shall be sound and free from cracks or other defects that would interfere with the proper placement of the unit or significantly impair the strength or permanence of the construction.
2. Minor cracks incidental to the usual method of manufacture or minor chipping resulting from shipment and delivery are not grounds for rejection.
3. The face or faces of units that are to be exposed shall be free of chips, cracks or other imperfections when viewed from a distance of 33 feet under diffused lighting.
4. Up to five percent of a shipment may contain slight cracks or small chips not longer than 1 inch.

G. Notify the Engineer in writing at least 72 hours before beginning the casting of concrete modular block units.

H. Sampling
1. Acceptance of the concrete units with respect to compressive strength will be determined on a lot-by-lot basis.
   a. Randomly sample the lot in accordance with ASTM C 140. Core compressive strength test specimens or conform to the saw-cut coupons provisions of Section 5.2.4 of ASTM C 140. Refer to Table 1 for sampling frequency.

TABLE 1

Lot Size	Samples
0-8,000	3 units
Greater than 8,000	2 additional unit per additional 8000

2. Provide additional samples if required by the Engineer.

I. Acceptance

1. Units will be rejected for not meeting any of the requirements specified above. In addition, any of the following defects will be cause for rejection:
   a. Defects that indicate imperfect molding.
   b. Defects indicating honeycomb or open-texture concrete.
   c. Cracked or severely chipped units.
   d. Color variation on exposed face(s) of unit due to excess form oil or other reasons.

2.2 LEVELING PAD CONCRETE

A. Use Class AA, A or B concrete mixes in accordance with Section 03055.

2.3 MODULAR BLOCK-UNIT FILL

A. Use free-draining crushed stone, 3/8 to 3/4-inch within the modular block units requiring fill material.

2.4 REINFORCING STRIPS

A. Hot rolled from steel bars, galvanize coated 3.4 mils thick, meeting minimum requirements of ASTM D1784, Grade 65; AASHTO M-111 and ASTM A-123.

B. All reinforcing strips shall be the specified size (See 02831S, article 1.1E-1) and free from defects.

2.5 REINFORCED WELDED WIRE MESH AND LOOP INBEDS

A. Meet minimum requirements of AASHTO M-32 and AASHTO M-55; and have galvanized coating 3.4 mils thick as per AASHTO M-111 (ASTM A-123).

2.6 FIBERGLASS AND STEEL PINS

A. Provide ½ inch diameter fiberglass connecting pins, where used, having a minimum flexural strength of 128 ksi and short beam shear of 6.5 ksi.

B. Provide steel connecting pins galvanized coated 3.4 mils thick, meeting Wall Company requirements.

2.7 OTHER FASTENERS

A. Fasteners to wingwalls and abutment wall, if required, shall be provided by the selected Wall Company.

2.8 DAMAGED GALVANIZATION

A. Spray with zinc paint, covering the entire area that has been damaged, as an alternative to replacement of any reinforcing steel, reinforcing strips, wire mesh or fasteners that have damaged galvanization.

2.9 GEOTEXTILE

A. Cover horizontal and vertical joints between block units by a geotextile of the type and grade recommended by the Wall Company.

2.10 WALL CAP ADHESIVE

A. Use a medium-viscosity synthetic elastomeric polymer adhesive, such as “Titebond Heavy Duty Construction Adhesive”, or Engineer approved equivalent.

2.11 SELECT BACKFILL

A. Refer to Section 02832- Select Backfill for MSE Walls.

PART 3 EXECUTION

3.1 GENERAL

A. Arrange for a qualified representative (minimum 5 years experience with MSE wall design and construction) from the selected Wall Company to be directly involved and provide technical assistance during all phases of construction of the wall(s).

1. The Wall Company representative is to be at the project site for at least the first five working days of wall construction and until all aspects of wall construction have been satisfactorily demonstrated to the MSE Wall Company representative and the Engineer. The MSE Wall Company representative is to subsequently visit the site at least once every 10,000 sq. ft. of wall face construction, or as otherwise determined by the Engineer.

2. The Wall Company representative is responsible for training the Contractor's wall construction crew(s) and Department inspectors in proper quality control for construction of the walls.
   a. If one or more construction crew members change, the Wall Company representative is responsible to train the new crew member(s).
3. During each site visit, the representative is to meet with the Engineer near the conclusion of the visit to report on the observed wall construction procedures, including providing a copy of the field report.

B. Provide the Wall Company's construction manual to the Engineer, and assure that the wall system-specific requirements in the manual are integrated into the wall construction.

C. Provide a final field observations report from the Wall Company that specifically addresses that the completed wall(s) meet all Department and Wall Company specifications/requirements and what deficiencies exist, if any.
   1. Where the Department's and the Wall Company's specifications/requirements differ, the stricter of the two shall be applied.

D. Haul, store and ship wall materials so as to minimize the potential of producing any type of defects.

E. Perform excavation and foundation preparation (including removal of unsuitable soils) as described in Section 02832.

F. Construct the wall system in accordance with the approved plans, this specification, and the Wall Company's recommendations and construction manual.

3.2 LEVELING PAD

A. Prepare the subgrade soils and/or fill so as to cast the leveling pad to the design elevations shown on the drawings to ensure complete contact of the retaining wall units with the base.

B. Place cast-in-place concrete leveling pad upon undisturbed in-situ soils or upon properly placed and compacted fill as per Section 02832. Place leveling pad to a minimum thickness of 6 inches.

C. Placement requirements shall be per Section 03055

D. Allow leveling pad to cure for at least 12 hours before placing modular block units.

3.3 MODULAR BLOCK UNIT INSTALLATION

A. Place wall backfill as described in Section 02832.

B. Place the first course of modular block units on the leveling pad. Check the wall units for level and alignment

C. Ensure block units are in full contact with the leveling pad.

D. Install connecting devices in block units as required by the Wall Company.

E. For block units requiring fill material, fill all voids in block units with modular block unit fill. Tamp fill. Ensure each wall course is completely filled, backfilled, and compacted before proceeding to the next wall course.

F. Where connecting pins are used, lay up each course ensuring connecting pins protrude into adjoining courses above at least 1 inch.

G. Pull each block unit forward, away from the embankment, against connecting pins in the previous course and backfill as the course is completed. Repeat procedure to the extent of the wall height.

H. As appropriate where the wall changes elevation, the units can be stepped with grade or turned into the embankment with a convex return end. Provide appropriate buried units on the compacted leveling pad in the area of the convex return end.

I. Horizontal alignment tolerance is 0.7 percent (for example 2.5 inches in 30 feet). Vertical tolerance is 0.7 percent (for example 0.85 inches in 10 feet). The overall vertical tolerance of the wall (plumbness from top to bottom) not to exceed 0.7 percent (for example 1.7 inches in 20 feet of wall height). Levelness tolerance not to exceed 0.5 percent (for example 1.2 inches in 20 feet).

J. Install block units so that joints are uniform. During construction the maximum allowable offset in any block joint is 0.25 inch. Joint width is 0.50 inch maximum and 0.12 inch minimum.

3.4 STEEL SOIL REINFORCEMENT INSTALLATION

A. Lay the steel reinforcement horizontally on the compacted backfill at the proper elevations as designed.

B. Connect steel reinforcement to the block units as required by Wall Company.

C. Pull the reinforcement taut to eliminate any slack; then secure the back edge of the reinforcement before and during backfilling and compaction.

D. Assuming reinforcement is obstructed by elements such as piles, drilled shafts, guardrail posts, catch basins, drop inlets, culverts, etc. in the wall soil reinforcement zone, modify the reinforcement design using one of the following alternatives:
   1. If reinforcement is modified, design the surrounding reinforcement layers to carry the additional load.
   2 Place a structural frame around the obstruction which is capable of transferring loads from the reinforcements on one side of the obstruction to reinforcements on the other side of the obstruction.
   3. If the soil reinforcement consists of discrete strip or bar mats rather than continuous sheets, splay the reinforcements around the obstruction.

E. Place soil reinforcement normal to the face of the wall in plan view.
   1. Where required to splay the reinforcement around obstructions, skew the reinforcement (minimizing the skew angle to no more than 15 degrees). Maintain a set-back for reinforcement of at least 2 inches from piles or other metallic obstructions. Do not exceed horizontal spacing between longitudinal reinforcement of 7 feet.

3.5 WALL CAP INSTALLATION

A. Provide a permanent connection between the wall cap and the top course of the wall units using wall cap adhesive as described in article 2.8. Construct according to the Wall Company drawings and specifications.

3.6 CERTIFICATES OF COMPLIANCE

A. Furnish to the Engineer copies of the certificate of compliance for materials and the results of any tests performed.

3.7 BLOCK UNITS ACCEPTANCE

A. Meet 28-day compressive strength of 4000 psi.
   1. Do not transport block units to the site until:
      a. A minimum 28-day compressive strength of 4000 psi has been achieved, or
      b. A minimum compressive strength of 3000 psi has been achieved at 14 days.

2. Do not transport block units to the site before seven days after fabrication.

B. Do not allow visible defects in the block units, except as authorized by the Engineer.

END OF SECTION

December 10, 2014

SPECIAL PROVISION

PROJECT # F-0266(62)3
PIN # 11405

SECTION 02836S

MSE WALLS USING MODULAR BLOCK UNITS AND GEOGRID REINFORCING ELEMENTS

Add Section 02836:

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Materials and construction requirements for mechanically stabilized earth (MSE) walls using a wall system (see Section 02831) approved by the Engineer using modular block units for the wall face and geogrid reinforcing elements.

B. Provide and install modular block units, geogrid reinforcement, joint filler, and all necessary attachments from the selected Wall Company.

1.2 RELATED SECTIONS

A. Section 02831: Retaining Wall-Alternate Systems

B. Section 02832: Select Material for MSE Walls

C. Section 03055: Portland Cement Concrete

D. Section 03211: Reinforcing Steel and Welded Wire

E. Section 03310: Structural Concrete

1.3 REFERENCES

A. ASTM C 140: Standard Test Methods for Sampling and Testing Concrete Masonry Units and Related Units

B. ASTM C 331: Standard Specification for Lightweight Aggregates for Concrete Masonry Units

C. ASTM C 1262: Standard Test Method for Evaluating the Freeze-Thaw Durability of Dry-Cast Segmental Retaining Wall Units and Related Concrete Units

D. ASTM C 1372: Standard Specification for Dry-Cast Segmental Retaining Wall Units

E. ASTM D 5262: Standard Test Method for Evaluating the Unconfined Tension Creep and Creep Rupture Behavior of Geosynthetics

F. ASTM D 6637: Standard Test Method for Determining Tensile Properties of Geogrids by the Single or Multi-rib Tensile Method

G. Geosynthetics Research Institute (GRI)-GG2: Test Method for Geogrid Junction Strength

1.4 SUBMITTALS

A. Submit for acceptance at least 10 days before beginning manufacture of the concrete modular block units, a sample of the proposed block texture, size, and color. Match existing wall block texture, color, and size.

B. Provide the Engineer submittals in accordance with Section 02831 and the appropriate working drawings.

C. Do not start work on any wall until all required submittal items have been reviewed and accepted by the Engineer.
   1. Review and acceptance of the drawings does not relieve the Contractor of any responsibility under the contract for the successful completion of the work.

D. Provide certificates of compliance from a UDOT-qualified testing lab, certifying that the select backfill, the modular block facing units, and the geogrid complies with this section, and the results of all tests performed for the tests described in this section.

E. Provide the Wall Company's construction manual for the specific wall system.

1.5 ACCEPTANCE

A. Modular Block Units and Cap Blocks: Meet 28-day compressive strength of 4000 psi.
   1. Do not transport block units to the site until:
      a. A minimum 28-day compressive strength of 4000 psi has been achieved

b. Regardless of strength gain, do not transport block units to the site before seven days after fabrication.

B. All modular block facing units and cap blocks to be visually free of defects and will be rejected for not meeting any of the requirements specified in article 2.1. In addition, any of the following defects will be cause for rejection:
1. Defects that indicate imperfect molding.
2. Defects indicating honeycomb or other open-texture concrete .
3. Cracked or severely chipped block units.
4. Color variation on exposed face(s) of block unit due to excess form oil or other reasons.

C. Geogrid: Free of defects and will be rejected if it does not meet the requirements stated in article 2.3.

PART 2 PRODUCTS

2.1 CONCRETE MODULAR BLOCK UNITS

A. Meet the following requirements for drycast concrete modular block units and cap blocks:
1. Have a minimum 28-day compressive strength of 4,000 psi in accordance with ASTM C 140.
2. Conform to ASTM C 1372, except as otherwise specified.
3. Conform to the following freeze-thaw test requirements for the lot of block units produced for use in this project in accordance with ASTM C 1262.
   a. Minimum acceptable performance defined as weight loss at the conclusion of 150 freeze-thaw cycles not exceeding 1 percent of the block unit's initial weight for a minimum of 4 of the 5 block unit specimens tested.
   b. Per Engineer's approval, Project specific freeze-thaw durability tests may be substituted by the tests of units made with the same material, concrete mix design, manufacturing process, and curing method, conducted not more than 12 months prior to delivery. An independent laboratory to provide reports and certifications of the above tests as per ASTM C 1262 and C 1372 as appropriate.
4. Have a maximum water absorption in accordance with ASTM C 140 no greater than 1 percent above the water absorption content of the lot of block units produced and successfully tested for the freeze-thaw test specified in item 3 above for all concrete block units.

5. Conform to ASTM C 140 for testing of drycast concrete block units.

B. Provide concrete block manufactured using a combination of cement, aggregates, admixtures, and other components meeting the requirements of Section 03055.
   1. Verify the compatibility of all components and the environment in which the block will be used, including sulfate soils and/or groundwater.
   2. Lightweight aggregates are subject to the Engineer's approval and must meet the requirements of ASTM C 331.

C. Provide block units with permissible variations of plus 0.12 inch and minus 0.06 inch.

D. Provide block units having angled sides capable of producing concave and convex alignment curves with a minimum radius of 4 feet.

E. Provide block units having a polymeric efflorescence control admixture.

F. Finish and Appearance
   1. All block units to be sound and free from cracks or other defects that would interfere with the proper placement of the unit or significantly impair the strength or permanence of the construction.
   2. Minor cracks incidental to the usual method of manufacture or minor chipping resulting from shipment and delivery are not grounds for rejection.
   3. The face or faces of units that are to be exposed shall be free of chips, cracks or other imperfections when viewed from a distance of 30 feet under diffused lighting.
   4. Up to five percent of a shipment may contain slight cracks or small chips not longer than 1 inch.
   5. The faces of the exposed corner facing block units to have the same approved architectural finish as the main face.

G. Notify the Engineer in writing at least 72 hours before beginning the casting of concrete modular block units.

H. Sampling
   1. Acceptance of the block units with respect to compressive strength will be determined on a lot-by-lot basis.
      a. Randomly sample the lot in accordance with ASTM C 140. Core compressive strength test specimens or conform to the saw-cut coupons provisions of Section 5.2.4 of ASTM C 140. Refer to Table 1 for sampling frequency.

TABLE 1

Lot Size	Samples
0-8,000	3 units
Greater than 8,000	2 additional units per additional 8000

2. Provide additional samples if required by the Engineer.

2.2 LEVELING PAD CONCRETE

A. Use Class AA, A ,or B concrete mix as per Section 03055.

2.3 GEOGRID

A. Use geogrid consisting of a regular grid network of integrally connected, discontinuous, select high-density polyethylene, polypropylene resin polymer or polyester tensile elements (specified for wall system selected) with aperture geometry sufficient to permit significant mechanical interlock with the surrounding soil and/or rock.
   1. Geogrid structure must be dimensionally stable and be able to retain its geometry under manufacture, transport, and installation.

B. Provide minimum junction strength, in accordance with GRI-GG2, of 90 percent of ultimate strength.

C. Provide creep rupture test for 75-year design life per ASTM D5262.

D. Provide ultimate strength, minimum per ASTM D6637 and utilize geogrid reinforcement reduction factors as appropriate for the Project.

E. Inspect all soil reinforcement and attachment devices to ensure they are true to size and free from defects that may impair their strength and durability.

F. Prevent mud, wet concrete, epoxy and similar contaminants from coming in contact with and affixing to the soil reinforcement and inserts, that would interfere with the geogrid connections.

G. Store soil reinforcement products as recommended by the Wall Company.

2.4 FIBERGLASS PINS

A. If required, provide ½-inch diameter fiberglass connecting pins having a minimum flexural strength of 128 ksi and short beam shear of 6.5 ksi.

2.5 OTHER FASTENERS

A. If required, provide fasteners to wingwalls and abutment wall from the selected Wall Company.

2.6 SELECT BACKFILL

A. Refer to Section 02832- Select Backfill for MSE Walls.

2.7 MODULAR BLOCK UNIT FILL

A. Use free-draining crushed stone, predominantly 3/8 to 3/4-inch, with no more than 5 percent passing the No 200 sieve, within the modular block units requiring fill material.

2.8 GEOTEXTILE

A. Cover horizontal and vertical joints between block units by a geotextile of the type and grade as recommended by the Wall Company.

2.9 WALL CAP ADHESIVE

A. Use a medium-viscosity synthetic elastomeric polymer adhesive, such as “Titebond Heavy Duty Construction Adhesive”, or Engineer-approved equivalent.

PART 3 EXECUTION

3.1 GENERAL

A. Arrange for a qualified representative (minimum 5 years experience with MSE wall design and construction) from the selected Wall Company to be directly involved and provide technical assistance during all phases of construction of the wall(s).

1. The Wall Company representative is to be at the project site for at least the first five working days of wall construction and until all aspects of wall construction have been satisfactorily demonstrated to the MSE Wall Company representative and the Engineer. The MSE Wall Company representative is to subsequently visit the site at least once every 10,000 sq ft of wall face construction, or as otherwise determined by the Engineer.
2. The Wall Company representative is responsible for training the Contractor's wall construction crew(s) and Department inspectors in proper quality control for construction of the walls.
   a. If one or more construction crew members change, the Wall Company representative is responsible to train the new crew member(s).
3. During each site visit, the representative is to meet with the Engineer near the conclusion of the visit to report on the observed wall construction procedures, including providing a copy of the field report.

B. Provide the Wall Company's construction manual to the Engineer, and assure that the wall system-specific requirements in the manual are integrated into the wall construction.

C. Provide a final field observations report from the Wall Company that specifically addresses that the completed wall(s) meet all Department and Wall Company specifications/requirements and what deficiencies exist, if any.
   1. Where the Department's and the Wall Company's specifications/requirements differ, the stricter of the two shall be applied.

D. Perform excavation and foundation preparation (including removal of unsuitable soils) as described in Section 02832.

E. Construct the wall system in accordance with the approved plans, this specification, and the Wall Company's recommendations and construction manual.

3.2 LEVELING PAD

A. Prepare the subgrade soils and/or fill so as to cast the leveling pad to the design elevations shown on the drawings, to ensure complete contact of the retaining wall units with the base.

B. Place cast-in-place concrete leveling pad as per Section 03055 upon undisturbed in-situ soils, or upon properly placed and compacted fill as per Section 02832. Place leveling pad to a minimum thickness of 6 inches.

C. Allow leveling pad to cure for at least 12 hours before placing modular block units.

3.3 MODULAR BLOCK UNIT INSTALLATION

A. Place the first course of modular block units on the leveling pad. Check the wall units for level and alignment. The first course is the most important to ensure accurate and acceptable results.

B. Ensure block units are in full contact with the leveling pad.

C. Install connecting devices in block units if required by the Wall Company.

D. Place wall backfill as described in Section 02832.

E. For block units requiring fill material, fill all voids in block units with modular block unit fill. Tamp fill. Ensure each wall course is completely filled, backfilled, and compacted before proceeding to the next wall course.

F. Where connecting pins are used, ensure connecting pins protrude into adjoining courses above at least 1 inch.

G. Pull each block unit forward, away from the embankment, against connecting devices in the previous course and backfill as the course is completed. Repeat procedure to the extent of the wall height.

H. As appropriate where the wall changes elevation, the units can be stepped with grade or turned into the embankment with a convex return end. Provide appropriate buried units on the compacted leveling pad in the area of the convex return end.

I. Horizontal alignment tolerance is 0.7 percent (for example 2.5 inches in 30 feet). Vertical tolerance is 0.7 percent (for example 0.85 inches in 10 feet). The overall vertical tolerance of the wall (plumbness from top to bottom) not to exceed 0.5 percent (for example 1.2 inches in 20 feet of wall height). Levelness tolerance not to exceed 0.5 percent (for example 1.2 inches in 20 feet).

J. All joints to be uniform. During construction the maximum allowable offset in any block joint is 0.25 inch. Joint width is 0.50 inch maximum and 0.12 inch minimum.

3.4 GEOGRID INSTALLATION

A. Verify the correct orientation (roll direction) of the geogrid.

B. Lay the geogrid soil reinforcement horizontally on the compacted backfill at the proper elevations as designed.

C. Connect geogrid to the concrete wall units as required by Wall Company.

D. Pull the geogrid taut to eliminate loose folds and removing slack in the geogrid at the wall unit connections, pretension the geogrid, and then stake or otherwise secure the back edge of the geogrid before and during backfill and compaction.

E. Follow the Wall Company's guidelines relative to overlap requirements of uniaxial and biaxial geogrid.
   1. Assuming reinforcement is obstructed by elements such as piles, drilled shafts, guardrail posts, catch basins, drop inlets, culverts, etc. in the wall soil reinforcement zone, modify the reinforcement design using one of the following alternatives:
   2. If reinforcement is modified, design the surrounding reinforcement layers to carry the additional load.
   3. Place a structural frame around the obstruction which is capable of transferring loads from the reinforcements on one side of the obstruction to reinforcements on the other side of the obstruction.

3.5 WALL CAP INSTALLATION

A. Provide a permanent connection between the wall cap and the top course of the block units using wall cap adhesive as described in article 2.9. Construct according to the Wall Company drawings and specifications.

3.5 FINAL CERTIFICATION

A. Furnish certification from the Wall Company that the completed wall(s) meet all Department and Wall Company specifications for the specific wall system. Where the Department’s and the Wall Company’s specifications or requirements differ, apply the stricter of the two.

END OF SECTION

Supplemental Specification
2012 Standard Specification Book

SECTION 02890M

RETROREFLECTIVE SHEETING

Delete Article 2.2, paragraph A1 and replace with the following:

1. Meet or exceed the minimum requirements of ASTM Type XI.

Delete Article 2.3, paragraph A1a and replace with the following:

a. Meet or exceed the minimum requirements of ASTM Type XI.

Delete Article 2.3, paragraph C1 and replace with the following:

1. Vertical panels, barricade Types I, II, and III, and directional indicator barricades.
   a. Meet or exceed the minimum requirements of ASTM Type XI.
   b. Use of standard orange acceptable.

Delete the text immediately following Table 3 and replace with the following:

4. Use fluorescent retroreflective sheeting for orange and yellow.

Supplemental Specification
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SECTION 02891M

TRAFFIC SIGNS

Delete Article 1.3 and replace with the following:

1.3 REFERENCES

A. ASTM A 123 / A 123M: Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products

B. ASTM A 513: Electric-Resistance-Welded Carbon and Alloy Steel Mechanical Tubing

C. ASTM A 653: Steel, Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvanized) by Hot-Dip Process

D. ASTM A 787: Electric-Resistance-Welded Metallic-Coated Carbon Steel Mechanical Tubing

E. ASTM B 209: Aluminum and Aluminum-Alloy Sheet and Plate

F. American Plywood Association (APA) Product Standard

Delete Article 1.4, paragraph A1 and replace with the following:

A. Traffic Sign Components
   1. Panel – Assembly of substrate and attached sheeting. Several panels may be necessary to complete one sign. Panel types are:
      a. Type
         1) A: Retroreflective sheeting on sheet aluminum.
         2) PW: Retroreflective sheeting on plywood-backed sheet aluminum.
      b. Legend
         1) Non-reflective legend and border.
         2) Retroreflective legend and border.

Delete Article 2.1, paragraph B and replace with the following:

B. Substrate Aluminum – 0.080 or 0.125 inch thick as follows. Refer to ASTM B 209 alloy 6061-T6, or 5052-H38.
   1. Use 0.125 for signs installed on frame and Gore signs.
   2. Use 0.080 for all other signs.

Delete Article 2.1, paragraph C and replace with the following:

C. Plywood Backing – According to APA product standard PS 1-83, Group One: ½ inch thick.
   1. 90/90, high density BB exterior (Douglas Fir) B Grade.
   2. Plugged-core (Douglas Fir) with ½ inch maximum gaps.

Delete Article 2.1, paragraph E and replace with the following:

E. Posts, "T" and "U" brackets, extensions, and hardware according to SN Series Standard Drawings.
   1. Post P1
      a. 2⅜ inch outside diameter 0.080 (14 Gauge)
      b. Refer to ASTM A 513 or ASTM A 787
      c. Galvanize according to ASTM A 653 or ASTM A 123
      d. Color – Powder coated as required
   2. Post P2
      a. 2⅜ inch outside diameter 0.095 (13 Gauge)
      b. Refer to ASTM A 513 or ASTM A 787
      c. Galvanize according to ASTM A 653 or ASTM A 123
      d. Color – Powder coated as required
   3. Post P3
      a. 2⅞ inch outside diameter 0.134 (BWG 10)
      b. Refer to ASTM A 513 or ASTM A 787
      c. Galvanize according to ASTM A 653 or ASTM A 123
      d. Color – Powder coated as required
   4. Post P4
      a. 2⅞ inch outside diameter 0.160 (NP 40)
      b. Refer to ASTM A 513 or ASTM A 787
      c. Galvanize according to ASTM A 653 or ASTM A 123
   5. Post P5
      a. 2⅞ inch outside diameter 0.276 (SCH 80)
      b. Refer to ASTM A 513 or ASTM A 787
      c. Galvanize according to ASTM A 653 or ASTM A 123
   6. "T" and "U" Extension and 90 degree Post Extension
      a. Manufacture according to SN Series Standard Drawings.
      b. Galvanize according to ASTM A 653 or ASTM A 123

7. Standard Pipe Posts
    a. Match post size with base requirements.
8. S Section and W Section steel posts
    a. Structural Steel: Refer to Section 05120.
    b. Match post size with base requirements

August 21, 2014

SPECIAL PROVISION

PROJECT # F-0266(62)3
PIN # 11405

SECTION 02892M

TRAFFIC SIGNAL

Add Article 3.16 UDOT SIGNAL TURN ON CHECKLIST:

1. The UDOT inspector will verify that all applicable items have been completed on the UDOT Signal Turn On Checklist. The Contractor shall complete all applicable items on the UDOT Signal Turn On Checklist.

August 21, 2014

SPECIAL PROVISION

PROJECT # F-0266(62)3
PIN # 11405

SECTION 02892M

TRAFFIC SIGNAL

Add Article 3.16 UDOT SIGNAL TURN ON CHECKLIST:

1. The UDOT inspector will verify that all applicable items have been completed on the UDOT Signal Turn On Checklist. The Contractor shall complete all applicable items on the UDOT Signal Turn On Checklist.

UDOT Signal Turn On Checklist Rev: 8-28-13

Disclaimer: This list is not all inclusive of items to be completed prior to Final Acceptance.

Location: _____ City: _____ Region: ____ Date:____/____/____

Inspector(s): _____

ITEMS	Req'd prior to turn on	Y	N	N/A	COMMENTS
Meter Base					
Maintain 48 inch minimum clearance working clearance from access points with 6" drained gravel (SD SL3)					
One 3" PVC conduit for power source circuit and two 2" PVC conduit for metered signal controller circuit with 3/4 inch x 10 ft copper coated steel ground rod (SD SL3)?	Yes				
Label all breakers and provide a meter socket with test block (safety socket) for circuit breakers (SD SL3)?					
Circuit breakers clearly labeled and meter base locked.					
Has utility company inspected meter base and serviced power?	Yes				
MUTCD Compliance					**COMMENTS**
Are there a minimum of 2 signal faces for the major movement (and 2 signal faces for the thru movement if it is not the major movement) (SD SL1A, 2009 MUTCD 4D.11)?	Yes				
Is at least one (1) signal face greater than 40 feet beyond the stop bar (2009 MUTCD 4D.14)?	Yes				
Are signal faces less than 180 feet beyond the stop bar unless a supplemental near side signal face is provided (2009 MUTCD 4D.14)?	Yes				
Are signal faces vertical clearance a minimum of 17.5 feet and a maximum of 19.5 feet from top of pavement to bottom of the signal head (SD SL1A, 2009 MUTCD 4D.15)?	Yes				
Are the signal faces located no less than 8 feet apart (SD SL1A, 2009 MUTCD 4D.13)?	Yes				
If there is a signal face mounted over a sidewalk, do signal faces have a vertical clearance of a minimum of 8 feet and a maximum of 19 feet over the sidewalk (2009 MUTCD 4D.15)?	Yes				
Do all signal faces mounted over the roadway have a horizontal distance to the face of the vertical curb greater than 2 feet (2009 MUTCD 4D.16)?	Yes				
Are anchor bolt nuts tight +1/3 turn (SD SL1A)?	Yes				
Traffic Vehicular Signals					**COMMENTS**
Are all signal faces clearly visible and correctly rotated?	Yes				
Are all signal faces arranged the same as specified in the design?	Yes				
Do all signal heads (with the exception of type V heads) have reflectorized backplates installed (SD SL6)?	Yes				
Do all signal heads have tunnel visors (SD SL6)?	Yes				
Are signal heads level?	Yes				
Pedestrian Heads & Push Buttons					**COMMENTS**
Are pedestrian heads mounted 9 feet 3 inches +/- 6 inches from sidewalk to bottom of housing (SD SL7, 2009 MUTCD 4E.05)?					
Are pedestrian push buttons mounted 42 inches +/- 2 inches above sidewalk (SD SL7, 2009 MUTCD 4E.08)?					
Are all pedestrian heads and push buttons wired in cabinet correctly and are they color coded?	Yes				
Are all pedestrian heads and push buttons working?	Yes				
Are all pedestrian push buttons located no farther than 10 feet from the edge of curb (SD SL7, 2009 MUTCD 4E.08)?					
Are all of the pedestrian modules LED countdown (2009 MUTCD 4E.07)?	Yes				

ITEMS	Y	N	N/A			
Traffic Signal Poles, Arms, & Luminaires						**COMMENTS**
Are all signal pole and luminaire locations consistent with the design?	Yes					
Are all hand hole covers and end caps in place?						
Are the lengths of the mast arms consistent with the design?	Yes					
Are all signs mounted on the mast arms according to design and standard (SD SL1A)?	Yes					
Are all signal and luminaire poles grouted at the base with weep holes (SD SL11)?						
Junction Boxes						**COMMENTS**
Are the locations and types of junction boxes consistent with the plans?	Yes					
Is the proper size lid installed correctly on the junction box?	Yes					
Are the lid labels correct?						
Are there expansion joints and cement collars installed around all junction boxes (SD AT7A)?						
Is the inside of the junction boxes clean and orderly?						
Are the bottoms of the junction boxes grouted (SD AT7A)?						
Are the conduits inside the junction boxes duct sealed or plugged (SD AT7A)?						
Is the conduit end termination length in the junction boxes approximately 2 inches for PVC & 6" for HDPE (SD AT7A)?	Yes					
Is the top elevation of the junction boxes correct according to the design?						
Do the conduits have correct bushings, bell ends and couplings?	Yes					
Has detectable pull tape been installed in all empty conduits (SD AT6)?						
Grounding						**COMMENTS**
Are the poles ground wires connected to the lugs?	Yes					
Are safety grounds installed in each conduit with conductors that have voltages greater than 50 volts AC?	Yes					
Do all junction boxes have ground rods and are all ground wires in the junction boxes connected to the ground rods with split bolts (SD AT7A)?	Yes					
Is the cabinet ground connected to the ground in the junction box (SD SL8)?	Yes					
Signal Cabinet						**COMMENTS**
Is the cabinet located and faced in the same direction as specified in the plans?	Yes					
Is the cabinet caulked?						
Is the cabinet secured to base with 3/4 inch anchor bolts (SD SL8)?	Yes					
Is the cabinet door leveled and aligned?	Yes					
Are all of the field wires neatly arranged, terminated correctly, and properly labeled?						
After wires are landed in the cabinet, test each color and direction to confirm accuracy.	Yes					
Do all conduits in the cabinet have steel wool (SD SL8)?						
Are the correct cabinet prints in the cabinet?						
Is there a log book in the cabinet?	Yes					
Controller & MMU						**COMMENTS**
Is the phasing correct according to the plans?	Yes					
Is the timing (red clearance, yellow, min green, etc.) correct?	Yes					
Has backup prevent been programmed where applicable?	Yes					
Are the pedestrian walk and clearance times correct?	Yes					
Is the MMU program card jumpered correctly, all logs cleared and time-clock set on MMU?	Yes					
Has the correct time and date been programmed into the controller?	Yes					

ITEMS		Y	N	N/A	
Vehicle Detection					**COMMENTS**
Are the location, type, and quantity of detectors consistent with the design?	Yes				
Do all splices appear to be correct and water tight?	Yes				
Are the detectors placed in accordance with department standards and manufacturer specifications?	Yes				
If loops, is inductance between 120 and 800 mH and resistance >500 Meg Ohms?	Yes				
Is all detector wiring neatly placed, correctly terminated, and properly labeled?	Yes				
Are all detectors functioning and set up correctly?	Yes				
If there is dilemma zone detection, is it installed and programmed correctly?	Yes				
Roadway					**COMMENTS**
Is the striping in the roadway consistent with the design?	Yes				
Are the stop bars and crosswalks painted and consistent with the design?	Yes				
Are the stop signs removed?	Yes				
Are conflicting pavement markings removed?	Yes				
Preemption					**COMMENTS**
Are preemption detectors placed according to design and aimed correctly?					
Are wires terminated in cabinet and labeled correctly?					
Are preemption cards installed in rack and turned on?					
Is preemption programmed in the controller?					
Test preemption from field to make sure it is working correctly.					
ITS					**COMMENTS**
Is fiber drop cable installed in cabinet and splice according to design? Or, is wireless communication programmed and working?	Yes				
If there is a CCTV camera, is it installed according to design and terminated correctly in cabinet (SD AT10A-10C)?	Yes				
Does the TOC have video/pan/tilt/zoom? (within 5 days of signal turn on)					
Is all ITS equipment in cabinet (switch, encoder, digi, etc.) installed and wired correctly?	Yes				
Is controller IP address correct and is controller communicating?	Yes				
Is communication equipment for detection configured and programmed?					
Is battery backup system working and communications configured and programmed where applicable.					
Lighting					**COMMENTS**
Are the number and type of luminaires consistent with the design?	Yes				
Is the wire size and type consistent with the design?	Yes				
Is the wire terminated properly in the junction boxes and service pedestal (SD SL3)?	Yes				
Check the fuse on lighting and ensure fuse holder is aligned properly.	Yes				
Do all luminaires have photo cells installed?					
Are all keeper plates in place on breakaway?					

Comments

February 28, 2013

SPECIAL PROVISION

PROJECT # F-0266(62)3
PIN # 11405

SECTION 02924S

INVASIVE WEED CONTROL

Add Section 02924:

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Controlling the introduction and spread of noxious weeds on construction projects.

1.2 RELATED SECTIONS Not Used

1.3 REFERENCES

A. Utah Noxious Weed Control Act

1.4 DEFINITIONS

A. Noxious weeds subject to control are listed on the Utah State Noxious Weed List and the county's weed list that applies based on the project location.

B. Refer to the Section, article 3.3 for a list of the Utah State Noxious Weeds (Table 1) and the county lists (Table 2) for additional noxious weeds.

1.5 SUBMITTALS Not Used

1.6 PAYMENT PROCEDURES

A. Include payment for cleaning earth-moving construction equipment under mobilization.

B. Pay for the control of invasive weeds using pre-emergent, selective, and non-selective herbicides by the unit area.

1.7 QUALITY ASSURANCE

A. Regulatory Requirements:
   1. Follow all regulatory, application, and safety precautions listed by the herbicide manufacturer. Refer to Utah Noxious Weed Control Act: Utah Code - Title 04 - Chapter 17.
   2. Apply herbicides using only state licensed pesticide applicators.

1.8 SEQUENCING

A. Clean all earth-moving equipment before bringing them on the project.

B. Treat existing noxious weeds 10 days before starting earthwork operations.

PART 2 PRODUCTS

2.1 HERBICIDE

A. Refer to this Section, article 3.3 for a list of noxious weeds subject to control and the recommended herbicide for each species.

B. Use commercially available herbicides specified to control the weed species identified.

PART 3 EXECUTION

3.1 PREPARATION

A. Use high-pressure water blasting or steam cleaning methods to clean all earth-moving construction equipment (scrapers, bulldozers, excavators, backhoes, trenchers) of dirt, mud, and seed residue before initially entering the project.

3.2 EXAMINATION

A. Verify and locate all noxious weeds on the project. Contact the county weed control supervisor or the Department's region landscape architect if assistance is needed for identification.

3.3 CONTROLLING INVASIVE WEEDS

A. Spray invasive weeds located within the project limits before starting earth disturbing activities and if they appear during construction. Use pre-emergent, selective, and non-selective herbicides as appropriate (See Noxious Weed Tables 1 and 2 below). Apply herbicide as directed on the manufacturer's label.

B. Noxious Weed Tables:

Table 1

Utah State Noxious Weeds		
Common Name	**Scientific Name**	**Herbicide**
Bermudagrass*	*Cynodon dactylon*	Glyphosate
Black henbane	*Hyoscyamus niger*	Tordon (picloram) & Escort
Canada thistle	*Cirsium arvense*	2,4-D, Dicamba, Picloram
Dalmation toadflax	*Linaria genistifolia*	Tordon (picloram)
Diffuse knapweed	*Centaurea diffusa*	2,4-D+Dicamba or Picloram or Clopyralid
Dyer's woad	*Isatis tinctoria*	2,4-D+Dicamba or Chlorsulfuron
Field bindweed	*Convolvulus arvensis*	Dicamba+2,4-d or Picloram
Hoary cress, (whitetop)	*Cardaria draba*	2,4-D+Dicamba or Chlorsulfuron
Houndstounge	*Cynoglossum officinale*	Tordon (picloram)
Johnsongrass	*Sorghum halepense*	Glyphosate
Leafy Spurge	*Euphorbia esula*	Dicamba or Picloram
Medusahead	*Taeniatherum caput-medusae*	Glyphosate
Musk thistle	*Carduus nutans*	2,4-D amine, Metsulfuron or Picloram
Ox-eye daisy	*Chrysanthemum leucanthemum*	Tordon (picloram) & clopyralid
Perennial pepperweed	*Lepidium latifolium*	Metsulfuron or Chlorsulfuron
Perennial sorghum	*Sorghum halepense*	Glyphosate
Poison hemlock	*Conium maculatum*	Tordon (picloram)
Purple loosestrife	*Lythrum salicaria*	Glyphosate (Rodeo aquatic label)

Quackgrass	*Elytrigia repens*	Glyphosate
Russian knapweed	*Centaurea repens*	Picloram, Clopyralid or Chlorsulfuron
Saltcedar	*Tamarix ramosissima*	Habitat or Arsenal
Scotch thistle	*Onopordum acanthium*	2,4-D amine, Metsulfuron or Picloram
Spotted knapweed	*Centaurea maculosa*	2,4-D+Dicamba, Picloram or Clopyralid
Squarrose knapweed	*Centaurea virgata*	Picloram
St. Johnswort	*Hypercium perforatum*	Tordon (picloram) & Escort
Sulfur cinquefoil	*Potentilla recta*	Tordon (picloram)
Yellow star-thistle	*Centaurea solstitialis*	Picloram or Clopyralid
Yellow toadflax	*Linaria vulgaris*	Tordon (picloram)
*Do not consider Bermudagrass a noxious weed in Washington County		

Table 2

County Noxious Weeds		
Common Name	**Scientific Name**	**Herbicide**
Beaver County		
Bull thistle	*Cirsium vulgare*	2,4-D amine or Dicamba
Box Elder		
Catchweed	*Asperugo procumbens*	2,4-D amine or Dicamba
Cache County		
Goatsrue	*Galega officinalis*	2,4-D+Dicamba
Puncturevine	*Tribulus terrestris*	2,4-D+Dicamba
Carbon County		
Russian olive	*Elaeagnus angustifolia*	2,4-D, Dicamba, or Glyphosate
Davis County		
Buffalobur	*Solanum rostratum*	2,4-D or Dicamba
Yellow nutsedge	*Cyperus esculentus*	Glyphosate
Duchesne County		
Russian olive	*Elaeagnus angustifolia*	2,4-D, Dicamba, or Glyphosate
Water hemlock	*Cicuta maculata*	2,4-D amine or Dicamba

Grand County		
Russian olive	*Elaeagnus angustifolia*	2,4-D, Dicamba, or Glyphosate
Iron County		
Western whorled milkweed	*Asclepias subverticillata*	2,4-D or Dicamba
Bull thistle	*Cirsium vulgare*	2,4-D amine or Dicamba
Puncturevine	*Tribulus terrestris*	2,4-D+Dicamba
Juab County		
Blue lettuce	*Lactuca pulchella*	2,4-D amine, Arsenal or Metsulfuron
Morgan County		
Common burdock	*Arctium minus*	2,4-D+Dicamba
Salt Lake County		
Garlic mustard	*Alliaria petiolata*	Glyphosate
Myrtle spurge	*Euphorbia myrsinities*	Glyphosate or Dicamba
San Juan County		
Camelthorn	*Alhagi pseudalhagi*	Arsenal
Russian olive	*Elaeagnus angustifolia*	2,4-D, Dicamba, or Glyphosate
Buffalobur	*Solanum rostratum*	2,4-D or Dicamba
Western whorled milkweed	*Asclepias subverticillata*	2,4-D or Dicamba
Sevier County		
Russian olive	*Elaeagnus angustifolia*	2,4-D, Dicamba, or Glyphosate
Summit County		
Common Burdock	*Arctium minus*	2,4-D+Dicamba
Vipers bugloss	*Anchusa officinalis*	2,4-D amine or Dicamba
Tooele County		
Jointed goatgrass	*Aegilops cylindrica*	Glyphosate
Uintah County		
Russian olive	*Elaeagnus angustifolia*	2,4-D, Dicamba, or Glyphosate
Utah County		
Common reed	Phragmites australis	
Washington County		
Western whorled milkweed	*Asclepias subverticillata*	2,4-D, or Dicamba
Silverleaf nightshade	*Solanum elaeagnifolium*	2,4-D or Dicamba

Wayne County		
Russian olive	*Elaeagnus angustifolia*	2,4-D, Dicamba, or Glyphosate
Bull thistle	*Cirsium vulgare*	2,4-D amine or Dicamba
Weber County		
Puncturevine	*Tribulus terrestris*	2,4-D+Dicamba
Use rates: Use rates for herbicides vary, follow the use rate on the LABEL for each herbicide		

END OF SECTION

August 25, 2014

SPECAL PROVISION

PROJECT # F-0266(62)3
PIN # 11405

SECTION 02934S

COBBLE ROCK

PART 1 GENERAL

1.1 SECTION INCLUDES

A. The work under these items will consist of the provision and placement of cobble rock, including labor, materials, equipment and incidentals, complete and ready for its intended use, in accordance with the plans and details and the requirements of these Special Provisions.

1.2 RELATED SECTIONS

A. Section 02075: Geotextiles (Weed Barrier)

1.3 SUBMITTALS

A. Submit Cobble Rock samples from the proposed source depicting the color, shape, and size range to Engineer for approval a minimum 14 days prior to installation. Contact Trae Stokes at Murray City 801-270-2401 for color approval. Match existing cobble rock color, size, and type.

PART 2 PRODUCTS

2.1 COBBLE ROCK

A. Clean, dirt free, 4 inch to 6 inch diameter washed cobble rock.

B. Gradation – 100% passing a 6 inch screen, no more than 5% passing a 4 inch screen.

C. Color – Match existing cobble rock color.

D. Stone to have angular characteristics created by crushing. Do NOT supply rounded weathered rock.

PART 3 EXECUTION

3.1 PLACEMENT

A. Before placing Cobble Rock, obtain approval from Engineer of final grading and geotextile placement where geotextile is shown on the plans.

B. Cobble Rock must be installed 3 inch below top of curb as shown on the plans.

END OF SECTION

Supplemental Specification
2012 Standard Specification Book

SECTION 03055M

PORTLAND CEMENT CONCRETE

Delete Article 2.1, Table 2, note ** and replace with the following:

** For *f* ’c over 4,000 psi, design and proportion mixes according to ACI Manual of Concrete Practice 301: Specifications for Concrete and project specific criteria. Use Table 2 Class AA(AE) Air Content Percentages according to coarse aggregate size for these mixes.

Supplemental Specification
2012 Standard Specification Book

SECTION 03211M

REINFORCING STEEL AND WELDED WIRE

Delete Article 1.3 and replace with the following:

1.3 REFERENCES

A. AASHTO M 31: Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement

B. AASHTO M 55: Steel Welded Wire Reinforcement, Plain, for Concrete

C. AASHTO M 111: Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products

D. AASHTO M 235: Epoxy Resin Adhesives

E. AASHTO T 106: Compressive Strength of Hydraulic Cement Mortar (Using 50-mm or 2-in Cube Specimens)

F. ASTM A 108: Steel Bar, Carbon and Alloy, Cold-Finished

G. ASTM A 493: Stainless Steel Wire and Wire Rods for Cold Heading and Cold Forging

H. ASTM A 706: Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement

I. ASTM A 767: Zinc-Coated (Galvanized) Steel Bars for Concrete Reinforcement

J. ASTM A 775: Epoxy-Coated Steel Reinforcing Bars

K. ASTM A 955: Deformed and Plain Stainless-Steel Bars for Concrete Reinforcement

L. ASTM A 970: Headed Steel Bars for Concrete Reinforcement

M. ASTM E 1512: Testing Bond Performance of Bonded Anchors

N. American Welding Society (AWS) Standards

O. Concrete Reinforcing Steel Institute (CRSI) Manual of Standard Practice

P. UDOT Quality Management Plans (QMP)

Add the following to Article 2.1:

C. Refer to ASTM A 955, Type XM-28, Grade 60 for deformed or plain stainless steel bars.

Delete Article 2.2, paragraph A and replace with the following:

A. Refer to ASTM A 775 or AASHTO M 111.

Delete Article 2.7, paragraph B and replace with the following:

B. Provide epoxy coated, painted, or plain basket assemblies with a U-shaped leg for the assembly frame and a minimum 0.3 inch diameter wire with sufficient structure to maintain the proper location and alignment of dowels during concrete pavement placement as approved by the Engineer.

Add the following to Article 2.7:

D. Provide bar supports and wire ties for use with stainless steel bars that meet the following:
   1. Meet the requirements of Table 2.
   2. Provide bar supports that are plastic coated, epoxy coated, plastic, or stainless steel conforming to the requirements of ASTM A 493, Type 316.
   3. Provide wire ties that are plastic coated, plastic, or stainless steel conforming to the requirements of ASTM A 493, Type 316, annealed.
   4. Provide tie-down wires that are plastic coated or stainless steel conforming to the requirements of ASTM A 493, Type 316, annealed.

Add the following to Article 2.8:

D. Use stainless steel splice coupler with stainless steel reinforcement.

Delete Article 3.1, paragraph B.1.a and replace with the following:

a. Meet requirements of ASTM A 775 Appendix A.2 for repair material.

Add the following to Article 3.1:

E. Ship, handle, and store stainless reinforcing steel so it does not come in contact with carbon steel.
   1. Cover stainless reinforcing steel with tarps during outdoor storage.
   2. Separate bundles of stainless reinforcing steel from other types of reinforcing steel with wooden spacers.
   3. Store stainless reinforcing steel on wooden supports off the ground or floor.

Add the following to Article 3.2:

O. Place stainless steel reinforcement so that it does not come in contact with carbon steel.
   1. Do not tie stainless steel to uncoated or coated carbon steel reinforcement, galvanized attachments, or galvanized conduits.
      a. Direct contact is not acceptable.
      b. Use nylon or polyethylene spacers to maintain a minimum 1 inch clearance between the two metals and bind them with nylon cable ties when stainless reinforcing steel or dowels must be near coated or uncoated carbon steel reinforcing or galvanized metals,.
      c. Either bar may be sleeved with a continuous ⅛ inch minimum thickness polyethylene or nylon tube extending at least 1 inch in each direction past the point of closest contact between the two dissimilar bars where insufficient space exists to maintain this minimum.
   2. Use only epoxy coated or non-metallic snap ties, straps, or other forming hardware in members that use stainless steel reinforcement to prevent corrosion from dissimilar metals.

Geotechnical Study
4500 South (SR-266) – Main Street MSE Wall Project

Prepared for

Utah Department of Transportation, Region 2

August 26, 2014

GCI project number: 14GCI421

GERHART COLE INC.
GEOTECHNICAL ENGINEERS

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August 26, 2014

Prepared for:

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Salt Lake City, Utah 84104

Geotechnical Study
4500 South (SR-266) - Main Street MSE Wall (PIN 11405_SR266) Project
14GCI421

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LICENSED PROFESSIONAL ENGINEER
No. 265954
TRAVIS M. GERBER
Aug 26, 2014
STATE OF UTAH

Travis M. Gerber, PhD, PE
Principal

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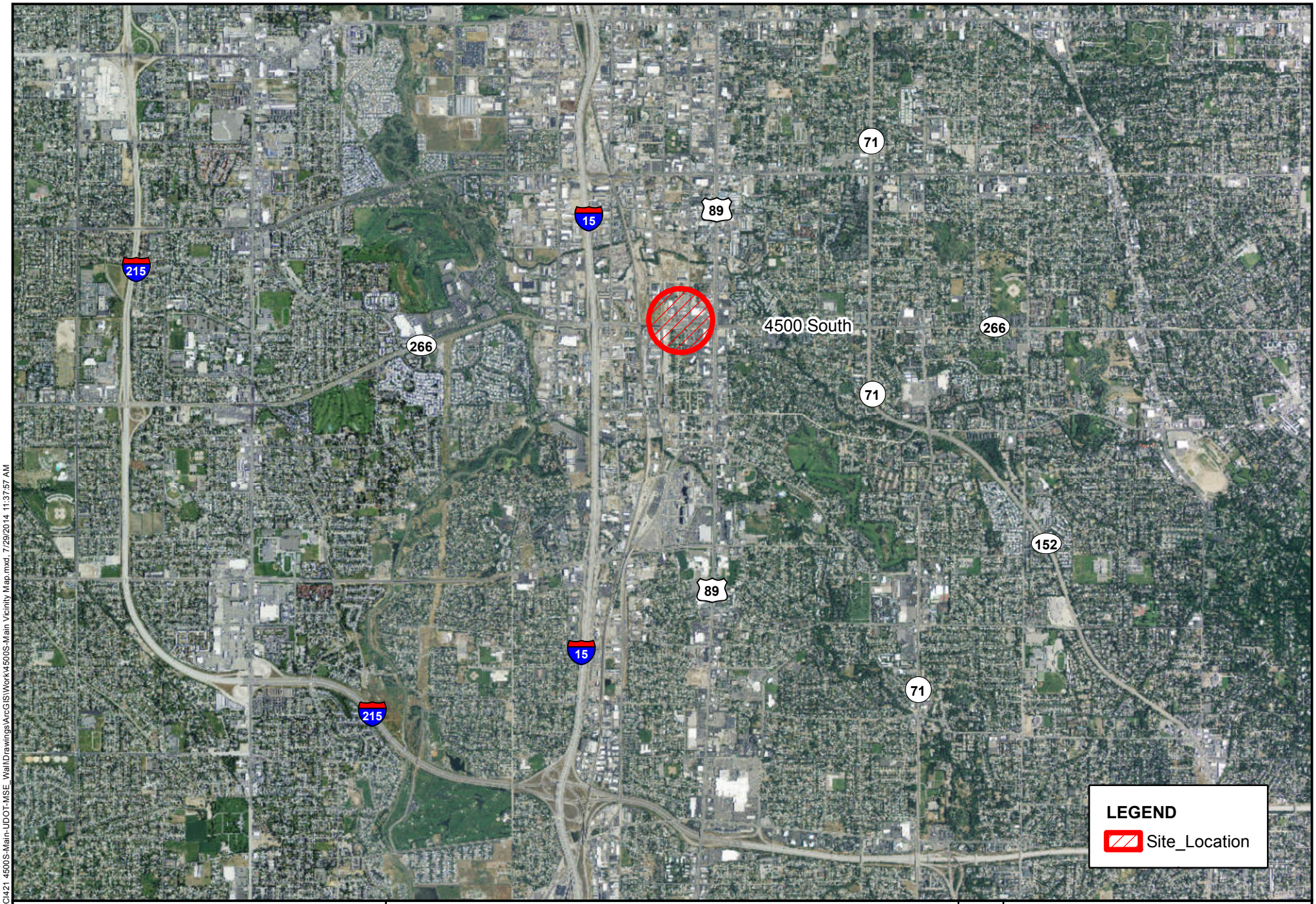
1.1 PROJECT DESCRIPTION

Utah Department of Transportation (UDOT) is proposing improvements along 4500 South, west of Main Street in Murray, Utah. Part of the improvements will consist of constructing a mechanically stabilized earth (MSE) retaining wall that would replace an existing slope, creating space at the toe of the present slope for a sidewalk. The MSE retaining wall alignment begins at the intersection of 4500 S and Main Street and continues west along the north side of 4500 S for approximately 362 feet west (see vicinity map shown as Figure 1-1 and site exploration map shown as Figure 1-2). For a portion of the alignment, it will replace an existing MSE retaining wall.

1.2 PURPOSE, AUTHORIZATION, AND WORK SCOPE

This report presents the results of geotechnical studies performed by Gerhart Cole, Inc. (GCI) in support of the design of the referenced project by UDOT. This work was performed based on our proposal to UDOT dated April 17, 2014, and subsequent contract dated June 5, 2014. The scope of services provided consists of:

- Study of subsurface conditions by means of three test holes.
- Laboratory testing of select soil samples.
- Development of geotechnical design recommendations for a new MSE wall.



GERHART COLE INC.
GEOTECHNICAL ENGINEERS

4500 South Main Street (14GCI421)

Vicinity Map

N

0 1,850 3,700 7,400 Feet

Figure 1-1

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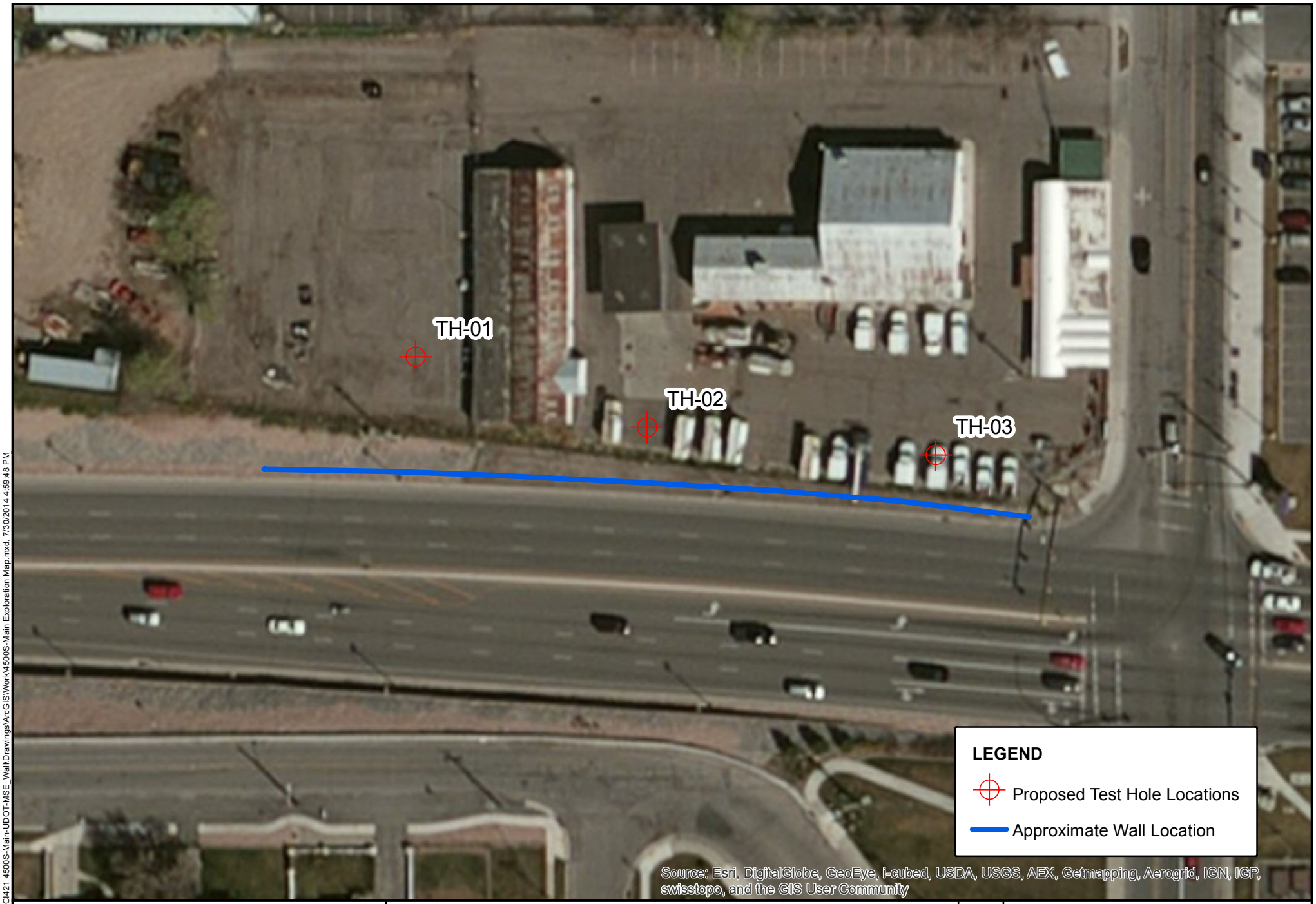

GERHART COLE INC.
GEOTECHNICAL ENGINEERS

4500 South Main Street (14GCI421)

Site Exploration Map

N

0 25 50 100 Feet

Figure 1-2

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2.1 GENERAL

A field study of the site was conducted on July 7, 2014. The study consisted of advancing and sampling three test holes. A site map showing the locations of the test holes (i.e., borings) is shown in Figure 1-2. Select soil samples were subsequently tested in the laboratory. The test locations were established in the field with the aid of a drawing provided by UDOT, but without the aid of a survey, and later documented using a hand-held, tablet-mounted GPS device, with elevations taken from lidar data from the Utah GIS portal website with an elevation datum of NAVD88.

2.2 FIELD STUDIES

2.2.1 Test Hole Drilling and Sampling

Hollow stem augering was used to complete the three test holes (TH-01 to TH-03) at the project site. The upper 5 feet of ground at each test hole location was excavated with a vacuum truck, operated by Horrocks Engineers of Pleasant Grove, Utah, to minimize the risk associated with encountering unmarked buried services during drilling. The test holes were advanced using a truck mounted Marl M-10 drill rig. This equipment and associated drilling services were provided by ConeTec of Salt Lake City, Utah under subcontract to GCI. The depths of the test holes were between 11.5 to 26.5 feet. All test holes were abandoned with cuttings and then patched with concrete. The location of the test holes in relation to the propose MSE wall is shown in Figure 1-2.

Subsurface conditions were logged by a GCI field engineer at the time of drilling. Sampling was typically performed at 5-foot intervals. Both Standard Penetration Test (SPT) samples and relatively undisturbed thin-walled or “Shelby tube” samples were obtained. While recent measurements were not available, the auto-hammer assembly of the particular type of drill rig used typically has an energy efficiency in the range of 80 to 85%. The number of hammer blows required to advance the sampler in 6-inch increments was recorded in the field, with the sum of the second and third 6-inch intervals constituting the SPT blowcount or “N-value.”

Test hole logs are presented in Appendix A. The lines designating boundaries between different materials on the test hole logs should be considered approximate. The actual transition between subsurface materials may be gradual or difficult to discern without continuous sampling. The relative density of granular soils and consistency of cohesive soils are described using typical qualitative descriptions correlated with unadjusted SPT blowcounts; although the relative density and consistency descriptions used on a final test hole log may deviate from typical correlations for a number of reasons, including reliance on other test results or the engineer’s judgment based on manual manipulation of the sample. It is widely accepted that SPT blowcount correlations are overly simplistic. For most applications in cohesionless, non-gravelly soils, the blowcount is usually adjusted for the effective vertical pressure at the sampling depth and for other sampling system parameters such as the efficiency of the sampling system and/or sampling techniques used. In gravelly soils, it is recognized that the blowcounts are higher than would be expected in non-gravelly soils of similar density or consistency. This occurs because the sampler tends to have increased resistance when trying to

advance through larger gravel clasts. The area of a gravel clast may be significantly greater than that of the sampler, causing increased resistance and higher blowcounts. Also shown on the logs are (N1)60 blow counts which were calculated by correcting for overburden pressure, hammer efficiency normalized to 60 percent, and rod length. A energy transfer ratio for of 80% was use in the calculations. Specific conditions encountered in the test holes are discussed in Section 3.2 of this report.

2.3 LABORATORY TESTING

Laboratory testing was performed on select soil specimens obtained during the field study in order to further classify them and evaluate their engineering properties. Laboratory testing generally consisted of index testing (particle-size distribution via mechanical sieve and wet washing of fines; Atterberg limits; natural moisture contents), two unconfined compression tests, and two consolidation tests. Soil resistivity was also performed to evaluate corrosion potential of the soil. Laboratory test results are summarized in Table 2-1, with additional data presented in Appendix B.

Table 2-1 Laboratory Test Result Summary

4500 South (SR-266) - Main Street MSE Wall Project (14GCI421)

GERHART COLE INC.
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Test Hole	Depth (ft)	Moisture content (%)	Dry unit weight (pcf)	Moist / Sat. unit weight (pcf)	Atterberg Limits					Grain-Size			Grain-Size Analysis (Percent Finer)										Resistivity (ohm-cm)	Other Tests (Interpretative Data in Appendix)
					LL (%)	PL (%)	PI (%)	Cohesive Index, CI	Liquidity Index, LI	GRAVEL (No.4 - 3")	SAND (No.200-No.4)	FINES (<No.200)	1.5-in (37.5 mm)	3/4-in (19 mm)	3/8-in (9.5 mm)	No.4 (4.75 mm)	No.10 (2 mm)	No.20 (0.85 mm)	No.40 (0.425 mm)	No.60 (0.25 mm)	No.100 (0.15 mm)	No.200 (0.075 mm)		
TH-01	5-6.5	23			27	19	8	0.42	0.5															
TH-01	15-17	38			35	24	11	0.46	1.3															1-D Consolidation
TH-01	25-26.5	23																						
TH-02	1	5								28	30	42	100	96	82	72	66	62	59	55	49	42	2900	
TH-02	10-12	25			28	21	7	0.33	0.5															1-D Consolidation, UU
TH-02	20-21.5	24																						
TH-03	1	5										75												
TH-03	5-6.5	20			27	21	6	0.29	-0.1															
TH-03	10-12	26			30	20	10	0.5	0.6															UU

3.1 REGIONAL GEOLOGIC SETTING

The Salt Lake Valley is a sediment-filled basin flanked by two uplifted range blocks, the Wasatch Range and the Oquirrh Mountains. The Wasatch Range is the eastern boundary of the Basin and Range, a physiographic province characterized by a series of alternating generally north-south trending, normal-faulted, narrow mountain ranges and semi-arid to arid alluvial/pluvial valleys formed as a result of tectonic extension. At the foot of the Wasatch Range is the Wasatch Fault Zone (WFZ), which consist of multiple fault segments and poses a significant seismic hazard to the area.

During the late Pleistocene Epoch, the Salt Lake Valley and adjoining valleys were occupied by a succession of inter-basin lakes. Lake Bonneville was the last and probably largest of these massive lakes, with the post-ice age Great Salt Lake being its remnant. The presence of Lake Bonneville is observable by its shorelines, identified as several different “stands” or “benches” that ring the valleys on the mountain fronts. During Lake Bonneville, finer grained lacustrine materials were deposited within the lake with typically coarser alluvial and fluvial soils intruding from the margins. Lake Bonneville sediments bury many of the older sedimentary deposits in the valley (Lund, 1990).

The majority of Quaternary deposits “within the Salt Lake Valley” (the Quaternary period being from approximately 1.8 million years ago until present) shown on surficial geology maps consist of sediments deposited or reworked by Lake Bonneville. Lake sediments include near-shore beach, delta, spit, and bar deposits. In deeper water toward the center of the valley, deposits consist of finer grained sand, silt and clay. Elsewhere, Holocene soils (post-Bonneville, about 10,000 years ago until present time) consisting of alluvium and flood plain deposits are located along the Jordan River and its tributaries, and extensive alluvial fans are located along mountain fronts (Lund, 1990).

The Jordan River is situated about one mile to the west of the site and is approximately 50 feet lower than the ground surface at the project site.

3.2 SITE-SPECIFIC CONDITIONS

Surficial soils in the area of the project site have been mapped by Van Horn (1979) as “terrace alluvium,” being more specifically characterized as “Post-Draper alluvium” consisting of sand and silt, locally coarse and pebbly, medium gray to brown, and; locally micaceous, which have been “deposited by streams, mainly the Jordan River.”

The test holes were completed in the parking lot just north of the project site; therefore, asphalt pavement was encountered and fill associated with these parking lots and site development. The ground surface conditions along the adjacent slope appear to be silty sand with gravels together with material appearing to be wood chips.

During drilling of the test holes, materials consisting of silty sand and silty gravel with a significant amount of cobbles was found from the ground surface to depths of about 4 to 5 feet; these materials appear to be fill. The fill is underlain by silty clay and clay to depths of 12 to 20 feet. Some thin layers of fine silty sands were interbedded in the silty clay and clay. Below the silty clay and clay, the soils transition to sands with some silt and the test holes were terminated in these sands.

3.2.1 Groundwater

Groundwater levels were measured in each test hole at the completion of drilling and found to be approximately 14 to 23 feet below the existing ground surface. Longer term groundwater levels may be different, and groundwater levels do fluctuate seasonally and may vary several feet in elevation.

3.3 SEISMICITY AND SEISMIC EFFECTS

The project site is located approximately 2.3 miles west of the nearest mapped segment of the West Valley Fault Zone (WVFZ), the Taylorsville Fault. This fault appears to be the largest contributor to the AASHTO-design level ground shaking hazard at the site (Black et al., 2004a, 2004b). The WVFZ is capable of producing a 6.5 moment magnitude earthquake. The nearest mapped segment of the Wasatch Fault Zone is approximately 2.5 miles east of the site and is considered capable of producing a characteristic 7.0 moment magnitude earthquake.

Seismic design parameters were determined following the general acceleration response spectrum procedure in the 2011 AASHTO Design Guide Specifications for LRFD Seismic Bridge Design. Table 3-1 identifies seismic design parameters consistent with provision of this design standard. The table provides parameters representing both a 7 percent probability of exceedance in 75 years (7PE75) and approximately a 3 percent probability of exceedance in 75 years (3PE75).

The Utah Geological Survey (UGS, 1994) has mapped the site as having a moderate potential of liquefaction. A liquefaction triggering analysis (Youd et al., 2001) also showed there to be a potential for liquefaction in the saturated sands in TH-01, TH-02, and TH-03. However, their apparent relative density based on field data is sufficient to preclude a significant amount of lateral spread or settlement. It is possible that less dense, liquefiable soils may be present at deeper depths, but their direct effect on the structure relative to the more global behavior of the surrounding ground would likely be minor. Effects of seismic ground shaking on other geotechnical considerations such as bearing capacity, lateral earth pressure, and slope stability are incorporated into the various assessments and design parameter recommendations presented in Section 4.2.

Table 3-1 Seismic Ground Shaking Parameters

Site Class	Exceedance Probability	Mapped Site Class B Acceleration (g)			Site Coefficient			Design Seismic Values		
		PGA	S_S	S_1	F_{pga}	F_a	F_v	A_s	S_{DS}	S_{D1}
D	7%per75yrs. (7PE75)	0.45	1.05	0.39	1.05	1.08	1.61	0.47	1.13	0.64
	3%per75yrs. (3PE75)	0.72	1.46	0.67	1.0	1.0	1.5	0.72	1.46	1.01

4.1 GENERAL

The following sections of this report present wall design parameter recommendations, assessments regarding external stability, and other considerations with respect to earthwork for the proposed MSE wall.

4.2 WALL DESIGN PARAMETERS AND ASSESSMENT OF EXTERNAL STABILITY

4.2.1 Wall Geometry

Based on preliminary design plans provided by UDOT and dated June 10, 2014, the exposed height of the MSE wall will be between 2 and 7 feet. There will also be a sloping back slope behind the wall, being 2H:1V or flatter. Based on our field observations we assumed the approximate distance of the 2H:1V slope will be 8 feet or less. The preliminary design plans as shown in Appendix D indicate that from approximately Stations 34+30 to 35+65, the zone of “soil disturbance” (excavation) is limited to 8 feet back from the face of wall. We understand that the proposed wall is proposed to be a modular block MSE wall. We understand that no surcharge loadings (other than transient traffic) are planned behind the wall.

To protect against the effects of frost and unintentional undermining of the toe of the wall, the wall should be embedded at least 30 inches (consistent with city, and county, and UDOT (2014b) requirements), as measured from the top of the leveling pad to the ground surface. For walls founded on slopes steeper than 4H:1V, a 4-ft wide bench or equivalent should be provided in front of the wall.

The length of the internal reinforcement (and associated width of the select MSE wall backfill behind the wall) should normally be at least 0.7 times the wall height ‘H’ (as measured from the top of the leveling pad, thus including the wall embedment depth). However, external stability issues (such as global sliding during seismic loading as discussed in Section 4.2.5) may require a greater reinforcement length. Internal stability considerations may also require greater reinforcement length.

4.2.2 Bearing Capacity

Unfactored bearing capacities of the foundation soils under 1) short-term undrained (construction) conditions, 2) static, long-term drained loading conditions, and 3) seismic conditions are presented in Table 4-1. The equation for the bearing capacities shown in Table 4-1 are based on a regression of the bearing capacity equation using parameters applicable for this project. These values reflect the wall bearing on a properly prepared silty clay and lean clay subgrade, a minimum embedment as described in Section 4.2.1, and any limitations presented by settlement constraints. It is assumed that the length of internal reinforcement will be at least 0.7 times the wall height as measured from the leveling pad.

In our assessments, resistance factors of 0.65 for static loading conditions and 1.0 for seismic loading conditions were applied to the unfactored bearing capacities. Preliminary assessments performed using the computer software program MSEW 3.0

developed by ADAMA Engineering indicate that bearing capacity requirements should be satisfied under these conditions, but this conclusion needs to be verified by the wall designer and/or reviewed by the Geotechnical Engineer once the wall design is finalized. In the assessments, a surcharge pressure as described in 4.2.8 was used for the static, long-term loading case.

4.2.3 Settlement

Because the wall will largely be placed within the footprint of the existing slope (which will be excavated), and because only a limited amount of new fill is expected to be placed at the top of the wall, the settlement of the wall under service state conditions is expected to be minimal (i.e., significantly less than 1 inch).

4.2.4 Lateral Earth Pressure

Retaining structures such as these MSE walls which may rotate and/or deflect sufficiently to mobilize the internal soil strength of the wall backfill should be designed for the "active" earth pressure condition. Lateral earth pressures (also sometimes referred to as equivalent fluid unit weights) are calculated as the product of the applicable earth pressure coefficient and soil unit weight as follows:

Above water table:	γ_{eq}	=	$\gamma_T \times K_{a,o,p}$
Below water table:	γ_{eq}	=	$(\gamma_T - \gamma_w) \times K_{a,o,p}$
where	γ_T	=	total unit weight of soil
	γ_w	=	unit weight of water
	$K_{a,o,p}$	=	applicable earth pressure coefficient ("a"=active, "o"=at-rest, and "p"=passive)

The recommended static and seismic lateral earth pressure values are provided in Table 4-1. The table provides static and seismic lateral earth pressure values for both flat ground and sloping ground. The lateral earth pressure values for sloping backfill were derived using the "broken-back" backfill surface approach in AASHTO's Bridge Design Specifications (2012). More specifically, for the sloping backfill case, it was assumed the top (crest) of a 2H:1V slope is a maximum of 4 feet above the top of the MSE wall; therefore, with a maximum 9.5-foot high wall (7 feet of exposed face plus 2.5 feet of embedment), the effective backslope angle is approximately 4.3H:1V.

Several seismic earth pressure coefficients have been provided, depending upon the backslope conditions behind the wall and the acceptable amount of seismic displacement. The effect of the different seismic earth pressure coefficients relative to external base sliding stability is discussed in Section 4.2.5.

For portions of any wall below the water table or where backfill materials can increase in saturation (moisture content increases due to poor drainage), the effect of the water should be added to the lateral load analysis as an extra unit weight.

For the MSE walls retaining non-granular backfill, lateral movements or rotations equal to approximately 0.2 to 0.5% of the wall height are typically required to develop the full active case; lateral movements equal to approximately 2 and 5% of the wall height are normally required to mobilize the full passive earth pressure for granular cohesionless

and clayey soils, respectively. A reduced earth pressure coefficient should be used for smaller wall movements (i.e., displacements), and might be conservatively estimated as a linear function ranging from 1.0 to Kp for displacements between zero and the strain level at which full passive earth pressure is mobilized. Passive resistances above frost and/or scour depth should normally be neglected. Care should be taken not to over compact the backfill or use large equipment adjacent to the wall to prevent excessive lateral wall loading.

4.2.5 External (Base) Sliding

Foundation soil parameters needed to assess external base sliding for the wall under 1) short-term undrained (construction) conditions, 2) static, long-term drained loading conditions, and 3) seismic conditions are presented in Table 4-1. These values reflect the wall bearing on a properly prepared silty clay and lean clay subgrade and a minimum embedment as described in Section 4.2.1.

Preliminary assessments performed using the computer software program MSEW 3.0 developed by ADAMA Engineering indicate that external sliding requirements should be satisfied under static loading conditions. (The analyses assumed geosynthetic (geo-grid type) wall reinforcement was used). This result must be verified by the wall designer and/or reviewed by the Geotechnical Engineer once the wall design is finalized. With respect to seismic loading conditions at the maximum wall section, performance appears to be adequate assuming about 4-inches of lateral displacement is allowed and reinforcement lengths of 0.84 'H' (where 'H' is wall height), or about 8 feet, are used. For a smaller 2-inches of lateral displacement criterion, reinforcement lengths should be increased to equal to the wall height ('H' = 9.5 feet). Please note that this means that in order to satisfy external seismic sliding requirements, reinforcement lengths will need to be bigger than the typical default value of 0.7H and could extend beyond the 8-foot wide "soil disturbance" area shown on the preliminary plans. As with the static case, these conclusions need to be verified by the wall designer and/or reviewed by the Geotechnical Engineer once the wall design is finalized.

4.2.6 External Overturning

Parameters needed to assess external base sliding for the wall under 1) short-term undrained (construction) conditions, 2) static, long-term drained loading conditions, and 3) seismic conditions are presented in Table 4-1. Preliminary assessments performed using the computer software program MSEW 3.0 developed by ADAMA Engineering indicate that external overturning requirements should be satisfied for the various applicable loading conditions. This conclusion must be verified by the wall designer and/or reviewed by the Geotechnical Engineer once the wall design is finalized.

4.2.7 Global Stability

Global stability analyses for the MSE wall were performed using the computer software program SLIDEv6.029 (RocScience, 2014). Stability was assessed for 1) short term, construction, 2) drained, long term, 3) pseudo-static (i.e., seismic), and 4) post-earthquake loading conditions. In all cases, a minimum wall embedment depth of

2.5 feet was used together with reinforcement lengths of at least 0.84 times the wall height as discussed in Section 4.2.5. In the static, long-term loading case, a surcharge pressure as described in 4.2.8 was used. For the post-earthquake case, potentially liquefiable sands were modeled using an undrained shear strength of 850 psf and friction angle of 0° consistent with data presented by Seed and Harder (1990). To preclude failure through the reinforced zone, the material was modeled as a composite material with a friction angle of 36 degrees and cohesion of 1000 psf. The resulting critical factors of safety for each loading condition are shown in Table 4-2, with the critical slip planes and soil shear strength parameters shown in Appendix C. In all cases, the factors of safety satisfy UDOT requirements.

4.2.8 Other Considerations

We recommend that the MSE wall be designed in accordance with AASHTO Load Resistance Factor Design (LRFD) Bridge Design Specifications for Highway Bridges (AASHTO, 2012) and UDOT standard specifications. The wall should be constructed by a qualified, and UDOT-approved, specialty wall contractor/manufacturer, and consist of an approved wall system (see specification 02831S). UDOT special provisions 02831S and 02832S typically provide the performance requirements for contractor-designed MSE walls. This includes allowances for corrosion protection of any metallic elements and a minimum design life of 75 years. More specific requirements for modular block walls are presented in 02835S and 02836S.

Design of the MSE wall for internal stability should be provided by the wall manufacturer and/or the approved specialty wall contractor. This design should be reviewed and approved by the Geotechnical Engineer.

The MSE walls should be designed for appropriate surcharge pressures, including traffic. As a minimum, traffic loads should consist of a uniformly distributed pressure of approximately 250 psf, and be placed on the level ground at the crest of the slope.

While such a condition should be avoided by proper site grading, the potential effect of any water infiltrating behind the wall should also be considered. This effect might be reduced by using a 1-ft thick zone of free draining granular soil meeting UDOT specification 02056 (or other suitable, approved drainage system) along the full height and length of the wall. The drainage material must daylight to a location where free drainage can occur. If such conditions cannot be realized, the differential effect of water pressure on opposite sides of the wall's face must be included in design of the wall. Additionally, the front toe and ends of the wall must also be protected from water-caused erosion.

As a non-critical wall, seismic design of this MSE wall should be based on seismic ground motions associated with a 7PE75 hazard level as shown in Table 3-1. Note that UDOT usually requires MSE retaining wall facing connections be designed to withstand seismic ground motions associated with a 3PE75 hazard level (also shown in Table 3-1).

4.3 EARTHWORK

All earthwork materials and procedures should conform to the requirements of UDOT Standard Specifications and Project Specific Specifications. Materials should be placed and compacted to the same specifications. The natural clayey materials found onsite are not considered suitable as backfill. The following sections discuss excavation, slopes, subgrade preparation, fill materials, site preparation, fill placement and compaction, and drainage considerations.

4.3.1 Excavation

As a minimum, all excavations should comply with Occupational Safety and Health Administration's (OSHA) construction standards, as well as applicable state and local regulations.

For cuts extending into native clay soils, we recommend that the excavator use a smooth cutting blade and minimize disturbance on the subgrade. Any disturbed material should be removed or recompacted as directed in subsequent sections of this document prior to placing fill and/or concrete.

4.3.2 Slopes

The choice of slope for cut and fill slopes depends on many factors including soil type, soil moisture content, the presence of seeping/flowing water, acceptable factors of safety for static and seismic conditions, design life, ease of construction, susceptibility to erosion, and final landscaping treatment. Any recommendations in this report regarding temporary slopes are for planning purposes only – the contractor should rely upon his own methods to determine and maintain safe and stable slopes during construction, subject to his particular construction procedures and those subsurface conditions more fully exposed during construction. Unless otherwise specified, slope recommendations provided in this report assume horizontal ground surfaces at the head and toe of the slope and do not include the effects of surcharge loadings (e.g., excavation spoil piles or heavy equipment). For permanent slopes along the tops of the MSE walls some type of surface stabilization (such as erosion control matting) may be required to control nuisance raveling and/or erosion until vegetation is established.

4.3.3 Subgrade Preparation

All fill, topsoil, and native soils containing organic matter, debris, deleterious or loose materials should be completely removed from below the proposed wall prior to structural fill or concrete placement. Afterward, the exposed subgrade should be proof-rolled to identify any remaining soft, loose, or disturbed soils. Where found, these materials should be excavated to expose competent, undisturbed, native subgrade materials. If the resulting excavation depth would be excessive, geotextile stabilization might be used; such instances should be evaluated on a case by case basis by the Geotechnical Engineer. In the case of coarse grained soils, exposed materials should be scarified to a depth of 6 inches, moisture-conditioned to near optimum, and compacted to at least 95% of the maximum dry density as determined by ASTM D-698/AASHTO T-99 (i.e., "standard Proctor").

4.3.4 Fill Materials

Any fill materials (also referred to as backfill materials) other than in the reinforced zone of the MSE wall should be free of topsoil, debris, organic matter, other deleterious materials, and frozen pieces. Structural fill placed below a foundation should, as a minimum, extend beyond the edge of the foundation a distance equal to the thickness of the fill. Fill materials should possess minimal corrosion/degradation potential relative to metal and concrete. Imported select MSE wall backfill, granular backfill borrow, or free draining granular fill meeting UDOT specification 02056 should be used. Materials in the reinforced zone of the MSE wall should conform to UDOT requirements for MSE walls (02832S) and wall manufacturer's recommendations.

4.3.5 Fill Placement and Compaction

Fill materials outside the reinforced zone of the MSE wall should be moisture-conditioned as needed and properly compacted. Where fill will be placed against an existing slope of 4H:1V or steeper, the existing slope should be benched or keyed to allow compaction against a horizontal surface and provide interlock of the fill with the existing material. Adjacent concrete work should be allowed to cure long enough to obtain sufficient strength to avoid detrimental effects from earthwork activity.

All pieces of compaction equipment have a depth of influence; hence, the maximum appropriate thickness of a lift of fill depends upon the type of equipment used. For heavy equipment, maximum loose lift thicknesses of 12 inches are common. For lighter, hand-operated equipment such as vibratory plate and "jumping jack" compactors (or for fills placed in confined areas), the maximum compacted lift thickness is commonly four inches. The degree of compaction is usually highest at the top of a lift and lowest at the bottom of a lift. As a practical matter, the thickness of the lift should be limited to the maximum depth that testing equipment can readily and reliably make measurements (which depth is typically 8 to 12 inches).

When performing compaction testing, the calculated degree of compaction is only meaningful if the maximum density of the field sample corresponds to the maximum density of the laboratory (i.e., control) sample. In other words, the field and laboratory soils must be the same soil. Consequently, materials in the field should be sampled frequently to assure that the field and lab gradations and maximum densities are comparable. For this project, material testing and compaction verification should conform to both UDOT Standard Specifications and UDOT Minimum Sampling and Testing Requirements.

Structural fill placed at the site should be compacted to at least 95% of the maximum dry density as determined by ASTM D-1557/AAHSTO T-180 (i.e., "modified Proctor") and at moisture content near optimum. The adequacy of compaction equipment and procedures should be demonstrated before significant amounts of earthwork are performed.

4.4 DRAINAGE

Positive drainage should be established to carry water (e.g., from surface runoff) quickly away from the top and base of any walls, both during and after construction. Where possible, the finished ground surface behind the wall should be graded away from the wall and associated backfill zones, or a gutter used behind the top of the wall and in no case should water be allowed to pond near the wall. Some type of vertical drainage element should be placed immediately adjacent to the wall. The drainage element should be either a free draining granular backfill extending a minimum of 12 inches from the back face of the wall, or a composite drainage material. Either drainage system should extend from the bottom of the wall to within one foot of the finished ground behind the wall and be provided with a drain pipe that discharges to an appropriate point with positive drainage after allowances for settlement. Wall drainage systems should follow manufacturer's recommendations.

4.5 CORROSION AND DEGRADATION OF MATERIALS

Corrosion of buried steel and degradation of buried concrete are multi-faceted electrochemical processes. Simple electrochemical tests are frequently performed in the laboratory to assess the potential for corrosion and degradation due to subsurface conditions. Field testing via electrical and thermal resistivity surveys can also be performed. For this project, one soil specimen was selected for determination of minimum resistivity under variable moisture conditions. The specific results of this testing are shown in Appendix B.

Various criteria have been established by different organizations as to whether or not a soil is chemically aggressive relative to steel. The U.S. Bureau of Reclamation (USBR, 1983) established the criteria shown in Table 4-3 for buried steel based on minimum resistivity of saturated soil. From the data shown in the table, it appears that the onsite fill soils along the alignment should generally be considered moderately corrosive.

Based on these results, we recommend that the services of a corrosion engineer be retained to assess and design protective coatings, cathodic protection, and/or sacrificial thicknesses for ferrous project elements that may be impacted if any onsite fill soils will be in contact with metallic MSE wall elements.

If metallic MSE wall reinforcement is used, soils used in the reinforced zone should conform to the UDOT's standard electro-chemical requirements for this particular material, including a minimum resistivity of 3000 ohm-cm at 100% saturation, pH levels between 6 and 9, maximum chlorides of 100 ppm, and maximum sulfates of 200 ppm.

Varying criteria has been established by different organizations as to whether or not a soil is chemically aggressive relative to concrete. Specific soil testing was not performed, but from visual observation of existing concrete suggests that it is performing relatively well in its current environment. Type II cement rather than Type I cement is typically used for positive, but not severe, concrete degradation conditions. However, Type II cement is commonly used as a matter of course in Utah, being the most readily available type. For the particular conditions at this site, Type I or II cement may be used.

Table 4-1 Select Wall Design Parameters and Earth Pressure Coefficients

Design Parameter		Value
Unit Weight of MSE Wall Backfill (pcf) (reinforced zone)		135
Retained Soil (behind reinforced zone, drained conditions)		
Unit Weight (pcf)		120
Friction Angle (degrees)		30
Cohesion Intercept (psf)		0
Active Earth Pressure Coefficient Horizontal Ground 4.3H:1V (2H:1V Broken-back Equivalent) Slope		 0.33 0.36
At-Rest Earth Pressure Coefficient, horizontal ground; 2H:1V slope		- - -
Dynamic Active Earth Pressure Coefficient (includes static) Horizontal Ground, 2 inches of displacement 4.3H:1V (2H:1V Broken-back Equivalent) Slope, 2 inches of displacement 4.3H:1V (2H:1V Broken-back Equivalent) Slope, 4 inches of displacement		 0.49 0.89 0.73
Foundation Soil		
Unit Weight (pcf)		120
Shear Strength Conditions:	Undrained, Construction (1)	Drained, Long-term (2)
Friction Angle (degrees) (3)	0	30
Cohesion Intercept (psf) (3)	725	0
Passive Earth Pressure Coefficient, horizontal ground	0 (4)	0 (4)
Dynamic Active Earth Pressure Coefficient	See retained soil	See retained soil
Ultimate (nominal, unfactored) Gross Bearing Capacity (ksf) (6)	3.8	4.4+0.7×B* (5)

Notes:
(1) Values can be reduced by 20% to obtain parameters for undrained post-seismic conditions.
(2) Values appropriate for AASHTO service and strength cases.
(3) Shear strength parameters for sliding analyses may need to be reduced to reflect different types of interface materials, particularly when continuous reinforcement is used.
(4) Passive resistance not recommended for use in design.
(5) B* is the effective base width of the wall and is equal to the length of the reinforcement minus two times the load eccentricity (with units of feet); B* should not be less two-thirds the length of the reinforcement. See report for recommended minimum length of reinforcement.
(6) AASHTO LRFD resistance factors of 0.65 and 1.0 should be applied to the unfactored bearing capacities for static and seismic loading conditions, respectively.

Table 4-2 Summary of Global Stability Analyses

Design Section	Calculated Factor of Safety (Minimum Required UDOT Values)				Other Notes/Comments
	Construction/Short-Term	Long-Term Static	Pseudo-static Seismic	Post-Earthquake	
7-foot exposed height of MSE Wall with backslope	2.27 (1.1)	1.73 (1.3)	1.18 (1.0)	2.22 (1.1)	Cross-section selected: near maximum wall height and TH-03

Note: Minimum required UDOT factors of safety (FS) reflect non-critical retaining wall category.

Table 4-3 Corrosion Potential Criteria for Steel and Test Results

Expected Corrosion Condition	Minimum Resistivity (ohm-cm)	Number of Specimens
Very corrosive	< 1,000	0 of 1
Moderately corrosive	1,000 to 5,000	1 of 1
Mildly corrosive	5,000 to 10,000	0 of 1
Slightly corrosive	> 10,000	0 of 1

5.1 ADDITIONAL SERVICES

Subsurface conditions are inherently variable. It is important that we observe subsurface materials and conditions exposed at the site during construction, thereby taking advantage of opportunities to recognize potentially differing site conditions and reduce the risk of unanticipated and/or adverse outcomes. Such activities include, but are not necessarily limited to:

- Observation and testing of site preparation and earthwork activities, including inspection of the subgrade beneath the MSE wall.
- Observation and testing of MSE wall construction.
- Consultation as may be required during construction.

We also recommend that we review project plans and specifications for compatibility with our assessments and recommendations. Additional information regarding such services can be obtained from our office.

5.2 LIMITATIONS

The assessments and recommendations presented in this document are based on limited field studies and laboratory testing, as well as our understanding of the project's design and manner of construction. If the project's design or manner of construction changes, or if conditions are found later that are different from those described, we should be notified immediately so that we can make revisions as necessary.

This document was prepared solely for the use of the addressee and may not contain sufficient information for other parties or uses.

We represent that our services are performed within the limitations prescribed by our Client, in a manner consistent with the level of care and skill ordinarily exercised by other professional consultants under similar circumstances. No other representation, expressed or implied, and no warranty or guarantee is included or intended. We do not assume responsibility for the accuracy of information provided by others.

American Association of State Highway and Transportation Officials [AASHTO]. (2012). AASHTO LRFD Bridge Design Specifications: customary U.S. units, (6th ed): Washington, D.C., AASHTO, 1 v.

Black, B.D., DuRoss, C.B., Hylland, M.D., McDonald, G.N., and Hecker, S., (2004a). Fault number 2351f, Wasatch fault zone, Salt Lake City section, in Quaternary fault and fold database of the United States: U.S. Geological Survey website, http://earthquakes.usgs.gov/hazards/qfaults, accessed 7/29/2014.

Black, B.D., DuRoss, C.B., Hylland, M.D., McDonald, G.N., and Hecker, S. (2004b), Fault number 2386a, West Valley fault zone, Taylorsville fault, in Quaternary fault and fold database of the United States: U.S. Geological Survey website, http://earthquakes.usgs.gov/hazards/qfaults, accessed 7/29/2014.

Lund, W.R. (1990). Engineering Geology of the Salt Lake City Metropolitan Area, Utah. Bulletin 126. Utah Geological and Mineral Survey.

Seed, R.B., and Harder, L.F., (1990). "SPT-based analysis of cyclic pore pressure generation and undrained residual strength," Proc. H. Bolton Seed Memorial Symp.

United States Geological Survey [USGS] Seismic Design Maps. (2014). http://geohazards. usgs.gov/designmaps/us/application.php (accessed July 29, 2014).

Utah Department of Transportation (UDOT). 2012. UDOT 2012 Standard Specifications for Road and Bridge Construction, January 1, 2012.

Utah Department of Transportation (UDOT). 2014a. UDOT 2014a Geotechnical Manual of Instruction, January, 2014.

Utah Department of Transportation (UDOT). 2014b, Personal Communication with Ari Menitove, August 22.

Utah Geological Survey (UGS), 1994. Liquefaction – Potential Map for a Part of Salt Lake County, Utah. (August, 2014), Public Information Series 25

Van Horn, R. (1982). Surficial geologic map of the Salt Lake City South quadrangle, Salt Lake Counties, Utah: U.S. Geological Survey, Miscellaneous Investigations Series Map I-1173.

Youd, T.L., Idriss, I.M., Andrus, R.D., Arango, I., Castro, G., Christian, J.T., Dobry, R., Finn, W.D.L., Harder, L.F., Jr., Hynes, M.E., Ishihara, K., Koester, J.P., Liao, S.S.C., Marcuson, W.F., III, Martin, G.R., Mitchell, J.K., Moriwaki, Y., Power, M.S., Robertson, P.K., Seed, R.B., and Stokoe, K.H., II. (2001). "Liquefaction Resistance of Soils: Summary Report from the 1996 NCEER and 1998 NCEER/NSF Workshops on Evaluation of Liquefaction Resistance of Soils." Journal of Geotechnical and Geoenvironmental Engineering. American Society of Civil Engineers [ASCE]. Vol. 127, No. 10, pp. 817-833..

Project: 4500 S Main - UDOT - MSE Wall **Project Location: Murray, Utah** **Project Number: 14GCI421**	**Log of Test Hole TH-01** Sheet 1 of 1

Date(s) Drilled	**7/7/14**	Logged By	**R. Buhler**	Checked By	**T. Gerber**
Drilling Method	**HSA**	Drill Bit Size/Type	**8-in HSA; 4.25-in ID**	Total Depth Drilled (feet)	**26.5 feet**
Drill Rig Type	**Marl M-10**	Drilling Contractor	**ConeTec**	Hammer Weight/ Drop(lbs/in.)	**Automatic trip hammer**
Apparent Groundwater Depth	**23**	Latitude / Longitude	**40.67478, -111.89257**	Ground Surface Elevation (feet)	**4286**
Comments	**Top 5 ft vacuumed by Horrocks**	Test Hole Backfill	**Cuttings**	Elevation Datum	**NAVD 88**

Elevation, feet	Depth, feet	SAMPLES Type	Recovery, inches	Sampling Resistance (Uncorrected) N	$(N1)_{60}$	Graphic Log	MATERIAL DESCRIPTION	AASHTO Classification	FIELD NOTES
	0						4 inches of ASPHALT.		
4285							GRAVEL, silty, dense to very dense, fine to coarse grained, subangular, gravel, with cobbles (approximately 60% cobbles up to 6 inches), light white, (GM), FILL		
	5	X	14	3-2-2 [4]	6		CLAY, lean, soft to medium stiff, trace sand, mottled, moist, brown to light gray, (CL)	A-4	
4280									
	10	X	18	2-4-4 [8]	10				
4275									
	15	▮	24				Interbedded layers of silty sand 2" to 10" thick @ 15 feet.	A-6	
4270									
	20	X	18	9-13-14 [27]	26		SAND, medium dense, fine to coarse grained, with silt, wet, gray, (SM)		
4265									
	25	X	18	5-8-7 [15]	14				
4260									
							Bottom of Test Hole at 26.5 feet.		
	30								

Project: 4500 S Main - UDOT - MSE Wall
Project Location: Murray, Utah
Project Number: 14GCI421

Log of Test Hole TH-02

Sheet 1 of 1

Date(s) Drilled	**7/7/14**	Logged By	**R. Buhler**	Checked By	**T. Gerber**
Drilling Method	**HSA**	Drill Bit Size/Type	**8-in HSA; 4.25-in ID**	Total Depth Drilled (feet)	**21.5 feet**
Drill Rig Type	**Marl M-10**	Drilling Contractor	**ConeTec**	Hammer Weight/ Drop(lbs/in.)	**Automatic trip hammer**
Apparent Groundwater Depth	**18**	Latitude / Longitude	**40.67469, -111.89218**	Ground Surface Elevation (feet)	**4286**
Comments	**Top 5 ft vacuumed by Horrocks**	Test Hole Backfill	**Cuttings**	Elevation Datum	**NAVD 88**

Elevation, feet	Depth, feet	SAMPLES Type	Recovery, inches	Sampling Resistance (Uncorrected) N	$(N1)_{60}$	Graphic Log	MATERIAL DESCRIPTION	AASHTO Classification	FIELD NOTES
	0						4.5 inches of Asphalt		
4285							SAND, loose to medium dense, silty, with fine to coarse gravel, brown (SM), FILL		
	5						SILTY CLAY, soft, some fine sand, moist, brown and orange mottling, (CL-ML)		
4280		X	18	2-2-2 [4]	6				
	10								
4275			24					A-4	
							SAND, medium dense, with silt, moist to wet, brown, (SM)		
	15								
4270		X	18	6-7-7 [14]	15				
	20								
4265		X	18	5-8-10 [18]	18		Grades to gray at 21 feet		
							Bottom of Test Hole at 21.5 feet.		
	25								
4260									
	30								

UDOT SOIL TEST HOLE 4500 S MAIN -UDOT - MSE WALL.GPJ GERHART.GDT 8/22/14

GERHART COLE INC.
GEOTECHNICAL ENGINEERS

Project: 4500 S Main - UDOT - MSE Wall
Project Location: Murray, Utah
Project Number: 14GCI421

Log of Test Hole TH-03

Sheet 1 of 1

Date(s) Drilled	**7/7/14**	Logged By	**R. Buhler**	Checked By	**T. Gerber**
Drilling Method	**HSA**	Drill Bit Size/Type	**8-in HSA; 4.25-in ID**	Total Depth Drilled (feet)	**16.5 feet**
Drill Rig Type	**Marl M-10**	Drilling Contractor	**ConeTec**	Hammer Weight/ Drop(lbs/in.)	**Automatic trip hammer**
Apparent Groundwater Depth	**14.5**	Latitude / Longitude	**40.67466, -111.89169**	Ground Surface Elevation (feet)	**4286**
Comments	**Top 5 ft vacuumed by Horrocks**	Test Hole Backfill	**Cuttings**	Elevation Datum	**NAVD 88**

Elevation, feet	Depth, feet	SAMPLES Type	Recovery, inches	Sampling Resistance (Uncorrected) N	$(N1)_{60}$	Graphic Log	MATERIAL DESCRIPTION	AASHTO Classification	FIELD NOTES
	0						4 inches of Asphalt		
4285							SAND, silty, trace fine gravel, moist, brown, (SM), FILL		
	5		18	3-5-2 [7]	10		SILTY CLAY to LEAN CLAY, medium stiff, some sand, trace gravel, moist, brown, (CL, CL-ML)	A-4	
4280									
	10		24					A-4	
4275									
							SAND, medium dense, fine to medium grained, some silt, wet, brown, (SM)		
	15		18	5-10-6 [16]	17				
4270							Bottom of Test Hole at 16.5 feet.		
	20								
4265									
	25								
4260									
	30								

UDOT SOIL TEST HOLE 4500 S MAIN -UDOT - MSE WALL.GPJ GERHART.GDT 8/22/14

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Unified Soil Classification System (USCS)

Material Types	Major Soil Divisions		Group Symbol and Legend	Typical Names
COARSE-GRAINED SOILS >50% retained on No. 200 sieve	GRAVELS >50% of coarse fraction retained on No. 4 Sieve	Clean GRAVELS (little or no fines)	GW	Well-Graded GRAVEL, GRAVEL-sand mixtures, few fines
			GP	Poorly-Graded GRAVEL, GRAVEL-sand mixtures, few fines
		GRAVELS with fines (appreciable amount of fines)	GM	Silty GRAVEL, GRAVEL-sand silt mixtures
			GC	Clayey GRAVEL, GRAVEL-sand clay mixtures
	SANDS >50% of coarse fraction passing the No. 4 sieve	Clean SANDS (little or no fines)	SW	Well-Graded SAND, SAND-gravel mixtures, few fines
			SP	Poorly-Graded SAND, SAND-gravel mixtures, few fines
		SANDS with fines (appreciable amount of fines)	SM	Silty SAND, SAND-silt mixtures
			SC	Clayey SAND, SAND-clay mixtures
FINE-GRAINED SOILS >50% Passing No. 200 Sieve	SILTS and CLAYS liquid limit < 50	Inorganic 1) CF > 30%: + Sandy/Gravelly 2) CF = 15-30% + with sand/gravel	CL	Lean CLAY, Gravelly/Sandy CLAY, low to med. plasticity
			ML	SILT, Gravelly/Sandy SILT, no to slight plasticity
		Organic	OL	Organic CLAY or SILT
	SILTS and CLAYS liquid limit > 50	Inorganic 1) CF > 30%: + Sandy/Gravelly 2) CF = 15-30% + with sand/gravel	CH	Fat CLAY, Gravelly/Sandy Fat CLAY, high plasticity
			MH	Elastic SILT, Gravelly/Sandy Elastic SILT, low to high plasticity
		Organic	OH	Organic CLAY or SILT
Highly orgainc soils		Primarily Organic Matter; Organic Odor	PT	PEAT
Boulders / Cobbles		> 50% (by volume) particles > 3"	COBBLES BOULDERS	Boulders (>12"); Cobbles (>3" and <12")

Other Material Symbols

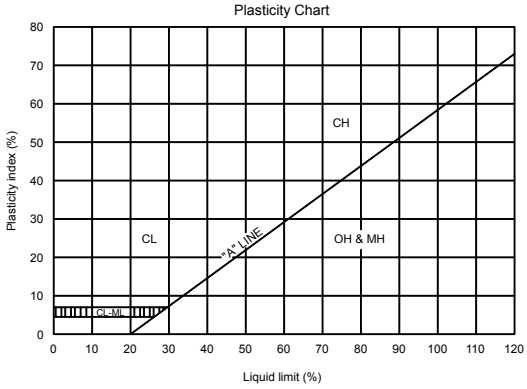
- Bedrock
- Asphalt
- Concrete
- Topsoil
- Fill

Sample Types

- Auger Cuttings
- Continuous sampler
- Grab Sample
- No Recovery
- Shelby Tube
- Standard Penetration Test (SPT)
- Cont. Sample
- California Sampler
- Rock Core
- Modified California Sampler
- Other (see remarks)
- Piston Sampler (Shelby Tube)
- Split Spoon
- Vane Shear

Apparent water level

Measured water level



Descriptors for Coarse Grained Soils

Apparent Density	Dr (%)	SPT	MC	CAL
very loose	0-15	<4	<6	<8
loose	15-35	4-10	6-15	8-20
med. dense	35-65	10-30	15-42	20-56
dense	65-85	30-50	42-72	56-96
very dense	85-100	>50	>72	>96

Descriptors for Fine Grained Soils

Consistency	Su (psf)	SPT	MC	CAL
very soft	< 250	<2	<2	<2
soft	250-500	2-4	2-4	2-5
med. stiff	500-1000	4-8	4-10	5-11
stiff	1000-2000	8-15	10-19	11-22
very stiff	2000-4000	15-30	19-37	22-45
hard	>4000	>30	>37	>45

SPT - Standard split spoon (SPT): 2" OD, 1.375" ID
MC - Modified California: 2.5" OD, 1.875" ID
CAL - California: 3" OD, 2.375" ID

Stratification

Description	Criteria
Seam	1/16" to 1/2"
Layer	1/2" to 12"
Occasional	<= 1 per ft. thickness
Frequent	> 1 per ft. thickness

Modifiers

Description	Est. (%)
Trace	<5
Some	5-12
With	>12

Descriptors for Moisture

Description	Criteria
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below water table

Descriptors for Particle Size

Description	Criteria
Boulder	>12" : larger than a basketball
Cobble	3-12" : larger than a grapefruit
Coarse Gravel	3/4-3" : larger than a grape
Fine Gravel	No.4-3/4" : larger than a pea
Coarse Sand	No.10-4 : larger than rock salt grain
Medium Sand	No.40-4 : larger than window screen opening
Fine Sand	No.200-40 : larger than a sugar grain

Descriptios for Particle Angularity

Description	Criteria
Angular	Sharp edges, rel. plane sides, unpolished surface
Subangular	Similar to angular, but with rounded edges
Subrounded	Nearly plane sides, well-rounded corners & edges
Rounded	Smoothly curved sides and no edges

Abbreviated Soil Classification Symbols (after ASTM D2488 X.5)

Prefix	Suffix
s = sandy	s = with sand
g = gravelly	g = with gravel
	c = with cobbles
	b = with boulders

Abbreviated system for supplementary presentations when complete description is referenced. Examples:

Group Symbol and Full Name	Abbreviated
Sandy Lean CLAY (CL)	s(CL)
Poorly Graded SAND with silt and gravel	(SP-SM)g
Poorly Graded GRAVEL with sand, cobbles, and boulders (GP)	(GP)scb
Gravelly SILT with sand and cobbles (ML)	g(ML)sc

General Notes:
1) Strata graphic lines on the logs represent approximate boundaries.
2) No warranty is provided as to the continuity of soil conditions between points explored and sample locations.
3) Logs represent soil conditions observed at the point of exploration on the date indicated.
4) Visual methods were used to classify the materials in general accordance with the Unified Soils Classification Systems; actual designations based on laboratory methods may vary.

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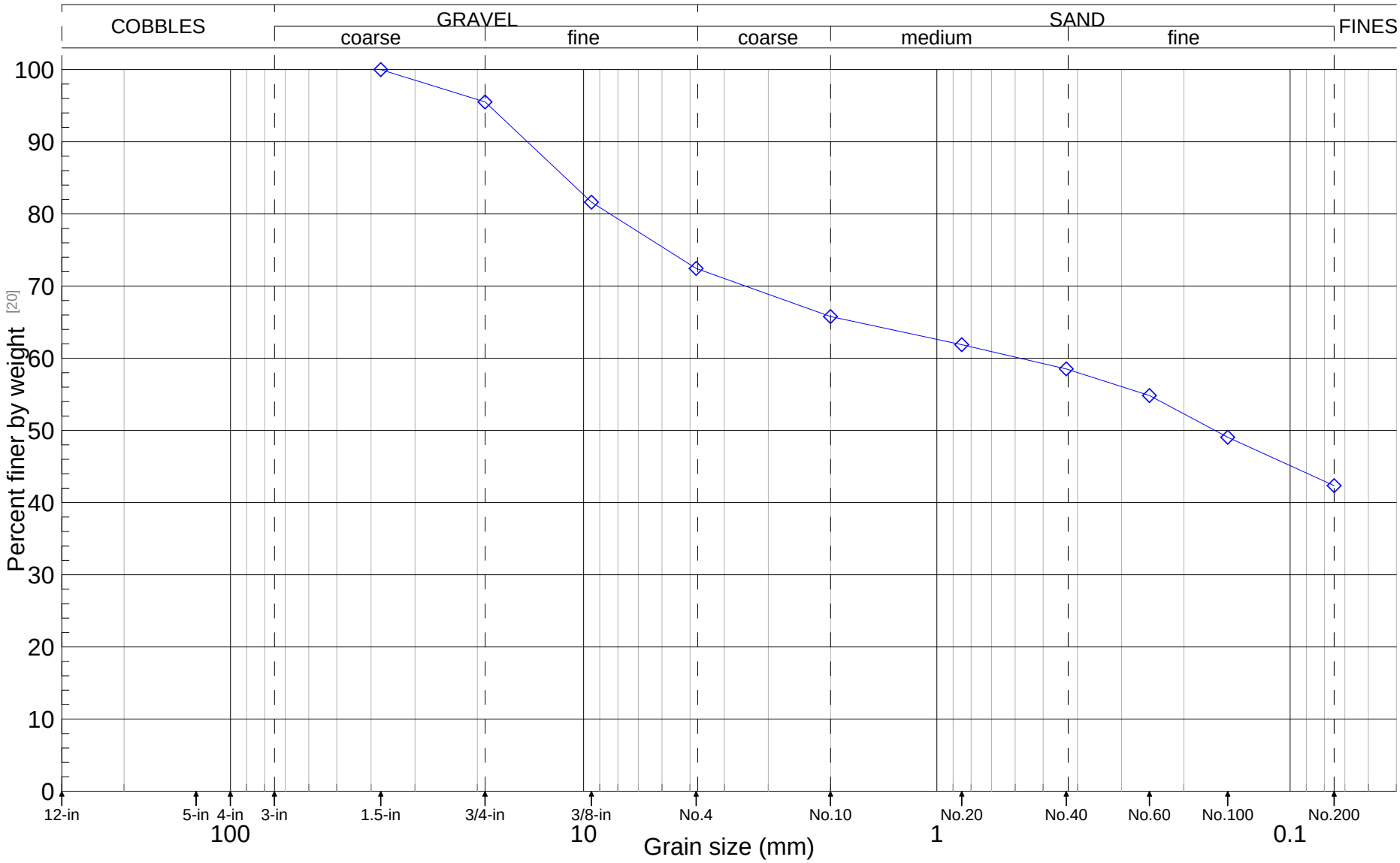
Legend to Soil Descriptions



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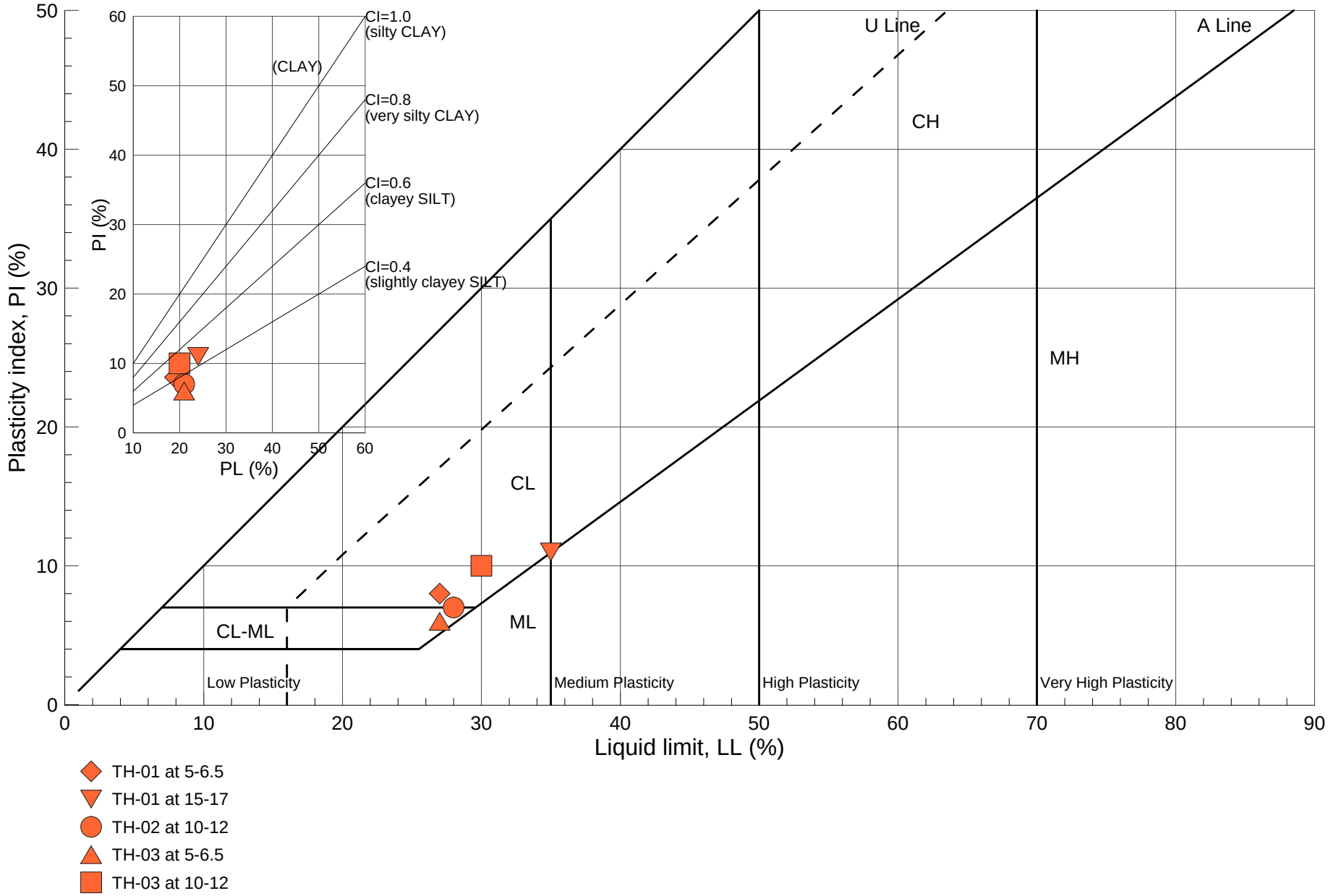
Grain-Size Analysis

4500 South Main UDOT MSE Wall (14GCI421)

Figure B-1



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Casagrande's Plasticity Chart (Atterberg Limits)

4500 South Main UDOT MSE Wall (14GCI421)

Figure B-2

One-Dimensional Consolidation Properties of Soils
After ASTM D2435 and USBR 5700

GERHART COLE INC. GEOTECHNICAL ENGINEERS

Project:	**4500 South (SR266)**	**TH/TP/Sample:**	**TH-01**
No:	**14GCI421**	**Depth:**	**15-17 (16)**
Location:	4500 South and Main	Sample description:	redish brown clay
Date:	16-Jul-14	USCS classification:	not requested
Tested by:	zg	Sample type:	Rel. undisturbed, Shelby Tube
Reduced by:	zg	Inundation stress (psf):	100, beginning
Checked by:	dab	Swell pressure (psf):	< 100
Comments:		Test method:	B
		Preparation procedure:	trimmed

Phase Relationships

	Initial	Final
Height, H (in)	1.0000	0.8693
Height, H (cm)	2.540	2.208
Dia., D (in)	2.500	2.500
Dia., D (cm)	6.350	6.350
Wt. rings + wet soil (g)	366.40	357.41
Wt. rings (g)	214.40	214.40
Wet soil + tare (g)	277.13	
Dry soil + tare (g)	241.29	
Tare (g)	127.22	
Moisture cont., w (%)	31.4	23.6
Gs, assumed	2.75	2.75
Mass total (g)	152.0	143.0
Mass of solids (g)	115.7	115.7
Volume (cm^3)	80.4	69.9
Vol. of water (cm^3)	36.3	27.3
Vol. of solids (cm^3)	42.1	42.1
Vol. of voids (cm^3)	38.4	27.9
Vol. of air (cm^3)	2.0	0.5
Area, A (cm^2)	31.7	31.7
Ht. solids, Hs (cm)	1.328	1.328
Void ratio, e	0.913	0.663
Porosity, n	0.477	0.399
Vol.moisture, T	0.452	0.391
Saturation, S (%)	95	98
Dry density (gm/cm^3)	1.438	1.654
Wet unit wt., gm (pcf)	118.0	127.7
Dry unit wt., gd (pcf)	89.8	103.3

Vertical Stress - Deformation Results

Vert. stress (psf)	Corr. Dial, dfc [a] (in)	Hc [b] (in)	Vert. strain, ev	Load duration (min)	t-90 (min)	Hdr (in)	Cv (ft^2/day)
Seating	0.0000	1.0000	0.0000	0			
100	0.0003	0.9997	0.0003	60			
200	0.0049	0.9951	0.0049	47			
400	0.0106	0.9894	0.0106	60			
800	0.0189	0.9811	0.0189	87			
1,600	0.0303	0.9697	0.0303	138	5.0	0.48769	0.40
3,200	0.0434	0.9566	0.0434	36	5.0	0.48158	0.39
6,400	0.0634	0.9366	0.0634	120	5.0	0.47331	0.38
12,800	0.0891	0.9109	0.0891	120	3.9	0.46189	0.45
25,600	0.1253	0.8747	0.1253	120	3.9	0.4464	0.42
51,200	0.1657	0.8343	0.1657	120	3.1	0.42724	0.48
25,600	0.1632	0.8368	0.1632	60			
6,400	0.1554	0.8446	0.1554	60			
1,600	0.1448	0.8552	0.1448	60			
400	0.1307	0.8693	0.1307	120			

Data Interpretation Summary

Casagrande (1936)		Strain Energy Method (after Becker et al. 1987)	
Preconsolidation stress, s'p (psf)	7,300	Preconsolidation stress, s'p (psf)	7,500
Compression ratio, CR	0.13		
Recompression ratio, RR	0.02		

Notes:
[a] Dfc = end of increment deformation corrected for machine, porous stone, and filter paper deformation
[b] Hc = height at end of consolidation of each vert. stress
[c] Hdr = height at 50 consolidation computed from D90 using sq-root time method
[d] Cv computed from Taylor (1948) aquare root of time method (note 1 in^2/min = 10 ft^2/day)

One-Dimensional Consolidation Properties of Soils

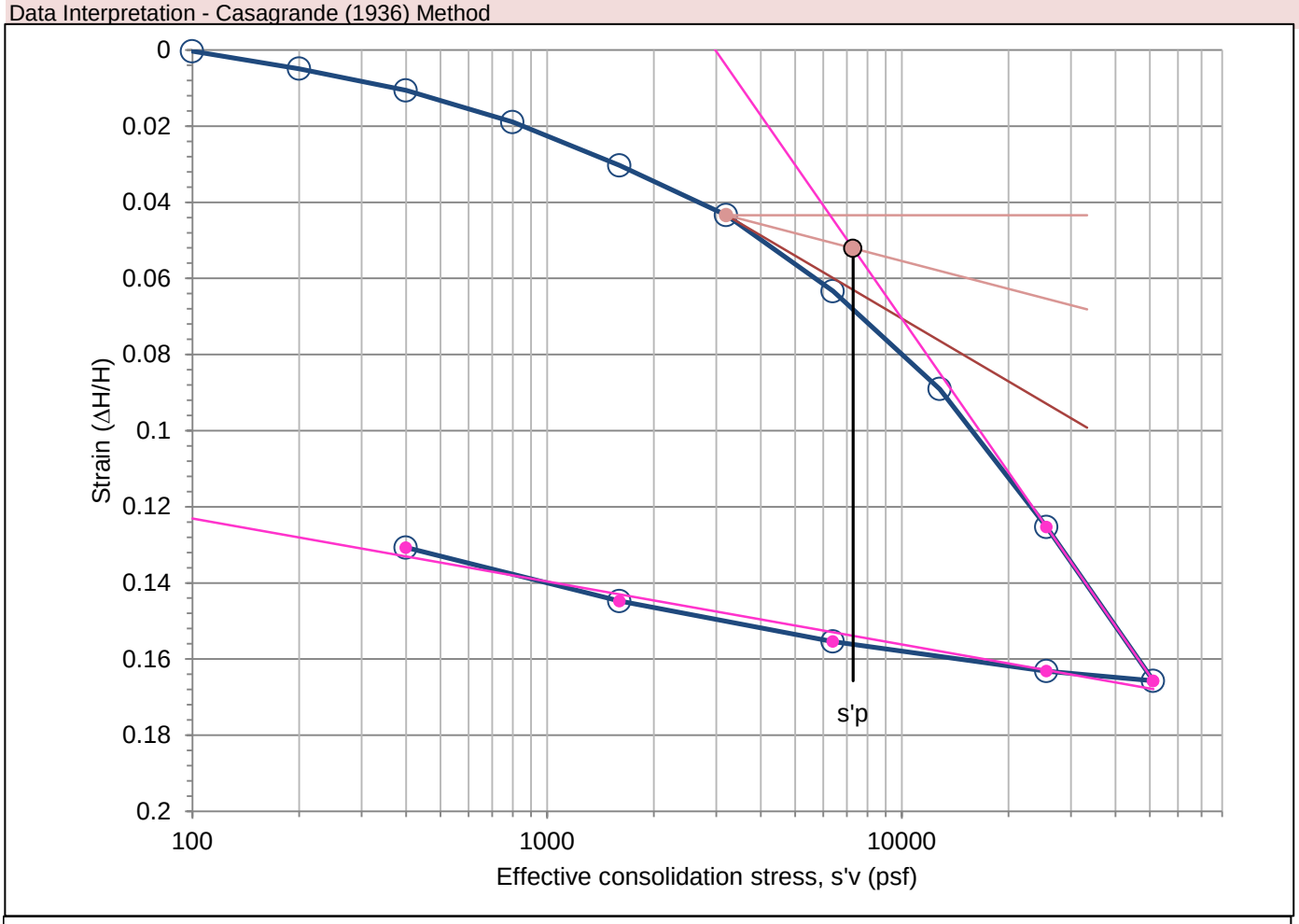
After ASTM D2435 and USBR 5700

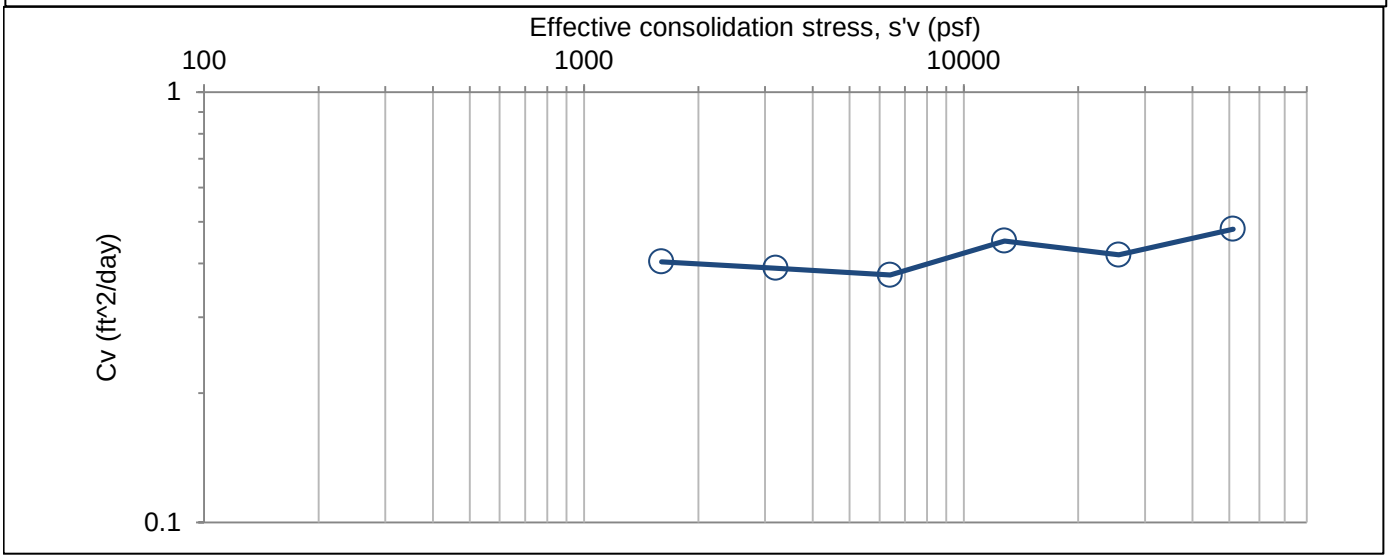
GERHART COLE INC.

Project: 4500 South (SR266) **TH/TP/Sample:** TH-01

No: 14GCI421 **Depth:** 15-17 (16)

Data Interpretation - Casagrande (1936) Method





Preconsolidation stress, s'p (psf)	7,300
Compression ratio, CR	0.13
Recompression ratio, RR	0.02

One-Dimensional Consolidation Properties of Soils

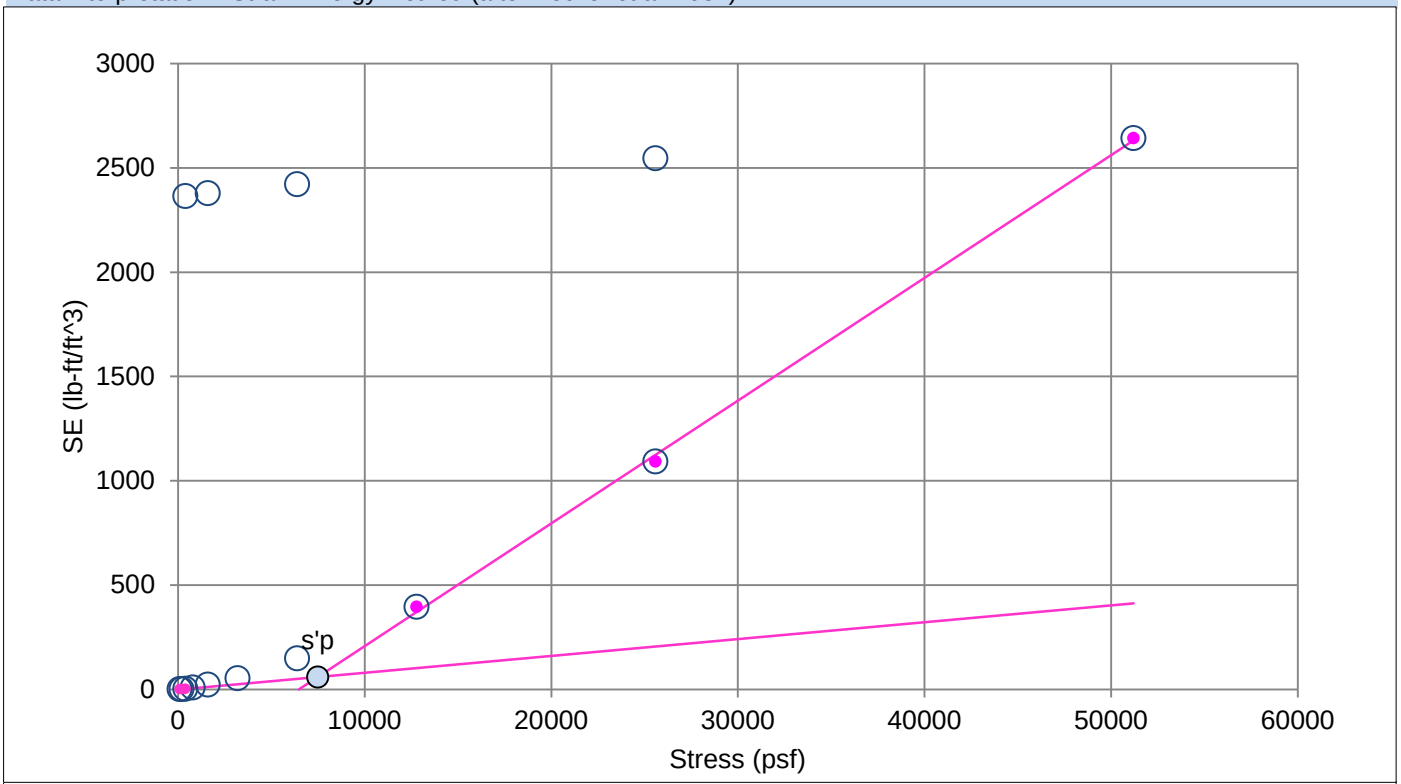
After ASTM D2435 and USBR 5700

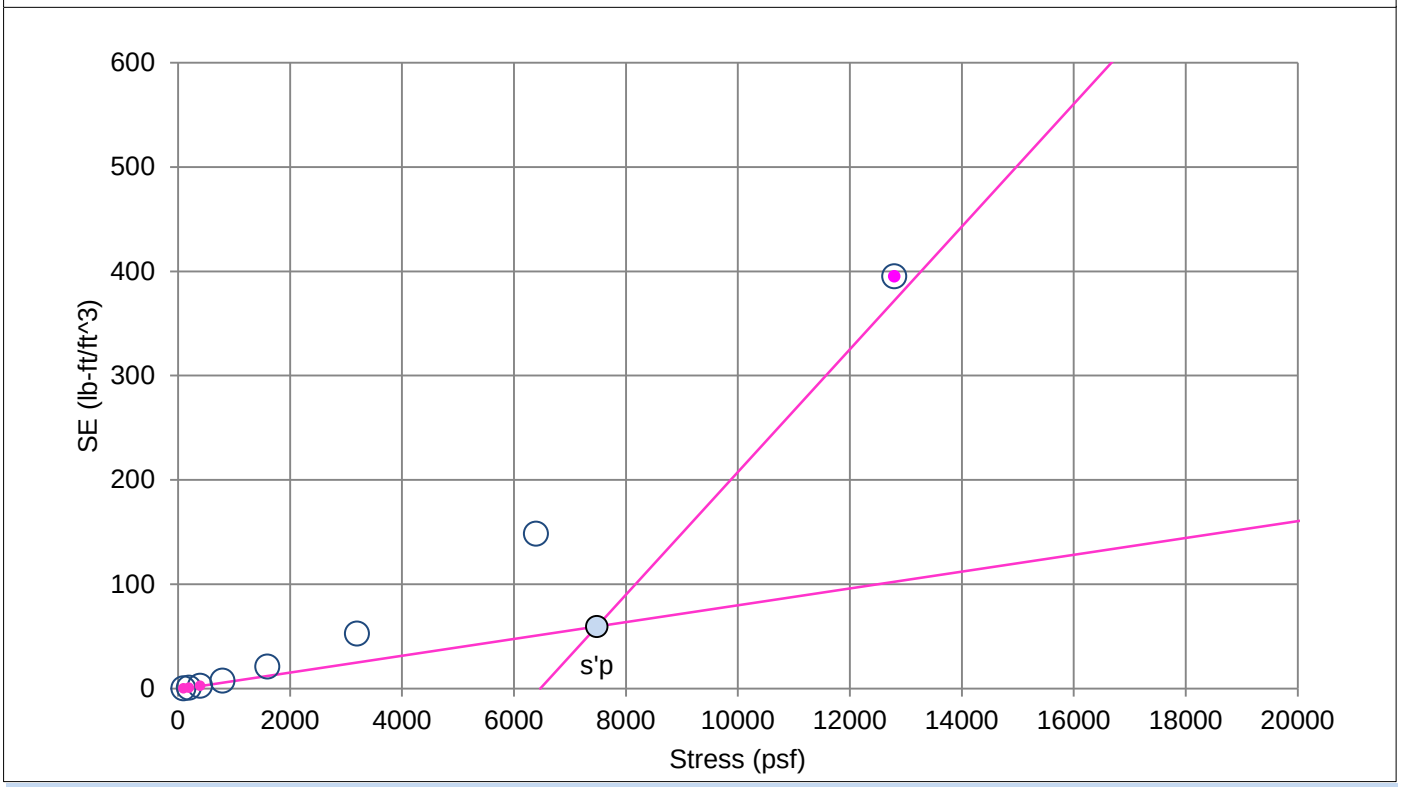
GERHART COLE INC. GEOTECHNICAL ENGINEERS

Project: 4500 South (SR266) **TH/TP/Sample:** TH-01

No: 14GCI421 **Depth:** 15-17 (16)

Data Interpretation - Strain Energy Method (after Becker et al. 1987)





Preconsolidation stress, s'p (psf) 7,500

One-Dimensional Consolidation Properties of Soils
After ASTM D2435 and USBR 5700

GERHART COLE INC.
GEOTECHNICAL ENGINEERS

Project:	**4500 South (SR266)**	**TH/TP/Sample:**	**TH-02**
No:	**14GCI421**	**Depth:**	**10-12 (11)**
Location:	4500 South and Main	Sample description:	greenish gray to olive silty clay
Date:	10-Jul-14	USCS classification:	not requested
Tested by:	zg	Sample type:	Rel. undisturbed, Shelby Tube
Reduced by:	zg	Inundation stress (psf):	200
Checked by:	dab	Swell pressure (psf):	<100
Comments:		Test method:	B
		Preparation procedure:	trimmed

Phase Relationships

	Initial	Final
Height, H (in)	1.0000	0.8926
Height, H (cm)	2.540	2.267
Dia., D (in)	2.500	2.500
Dia., D (cm)	6.350	6.350
Wt. rings + wet soil (g)	373.33	365.95
Wt. rings (g)	214.41	214.41
Wet soil + tare (g)	280.95	
Dry soil + tare (g)	248.77	
Tare (g)	118.92	
Moisture cont., w (%)	24.8	19.0
Gs, assumed	2.70	2.70
Mass total (g)	158.9	151.5
Mass of solids (g)	127.4	127.4
Volume (cm^3)	80.4	71.8
Vol. of water (cm^3)	31.6	24.2
Vol. of solids (cm^3)	47.2	47.2
Vol. of voids (cm^3)	33.3	24.6
Vol. of air (cm^3)	1.7	0.4
Area, A (cm^2)	31.7	31.7
Ht. solids, Hs (cm)	1.489	1.489
Void ratio, e	0.705	0.522
Porosity, n	0.414	0.343
Vol.moisture, T	0.392	0.337
Saturation, S (%)	95	98
Dry density (gm/cm^3)	1.583	1.774
Wet unit wt., gm (pcf)	123.3	131.8
Dry unit wt., gd (pcf)	98.8	110.7

Vertical Stress - Deformation Results

Vert. stress (psf)	Corr. Dial, dfc [a] (in)	Hc [b] (in)	Vert. strain, ev	Void ratio, e	Load duration (min)
Seating	0.0000	1.0000	0.0000	0.7053	0
100	-0.0001	1.0001	-0.0001	0.7055	60
200	0.0020	0.9980	0.0020	0.7019	58
400	0.0053	0.9947	0.0053	0.6962	33
800	0.0093	0.9907	0.0093	0.6894	92
1,600	0.0158	0.9842	0.0158	0.6783	120
3,200	0.0254	0.9746	0.0254	0.6620	112
6,400	0.0398	0.9602	0.0398	0.6375	66
12,800	0.0632	0.9368	0.0632	0.5975	120
25,600	0.0920	0.9080	0.0920	0.5484	120
51,200	0.1235	0.8765	0.1235	0.4947	120
25,600	0.1226	0.8774	0.1226	0.4963	60
6,400	0.1189	0.8811	0.1189	0.5025	60
1,600	0.1139	0.8861	0.1139	0.5111	60
400	0.1074	0.8926	0.1074	0.5221	120

Data Interpretation Summary

Casagrande (1936)

Preconsolidation stress, s'p (psf)	8,000
Compression ratio, CR	0.10
Recompression ratio, RR	0.01

Strain Energy Method (after Becker et al. 1987)

Preconsolidation stress, s'p (psf)	7,800

Notes:

[a] Dfc = end of increment deformation corrected for machine, porous stone, and filter paper deformation

[b] Hc = height at end of consolidation of each vert. stress

One-Dimensional Consolidation Properties of Soils

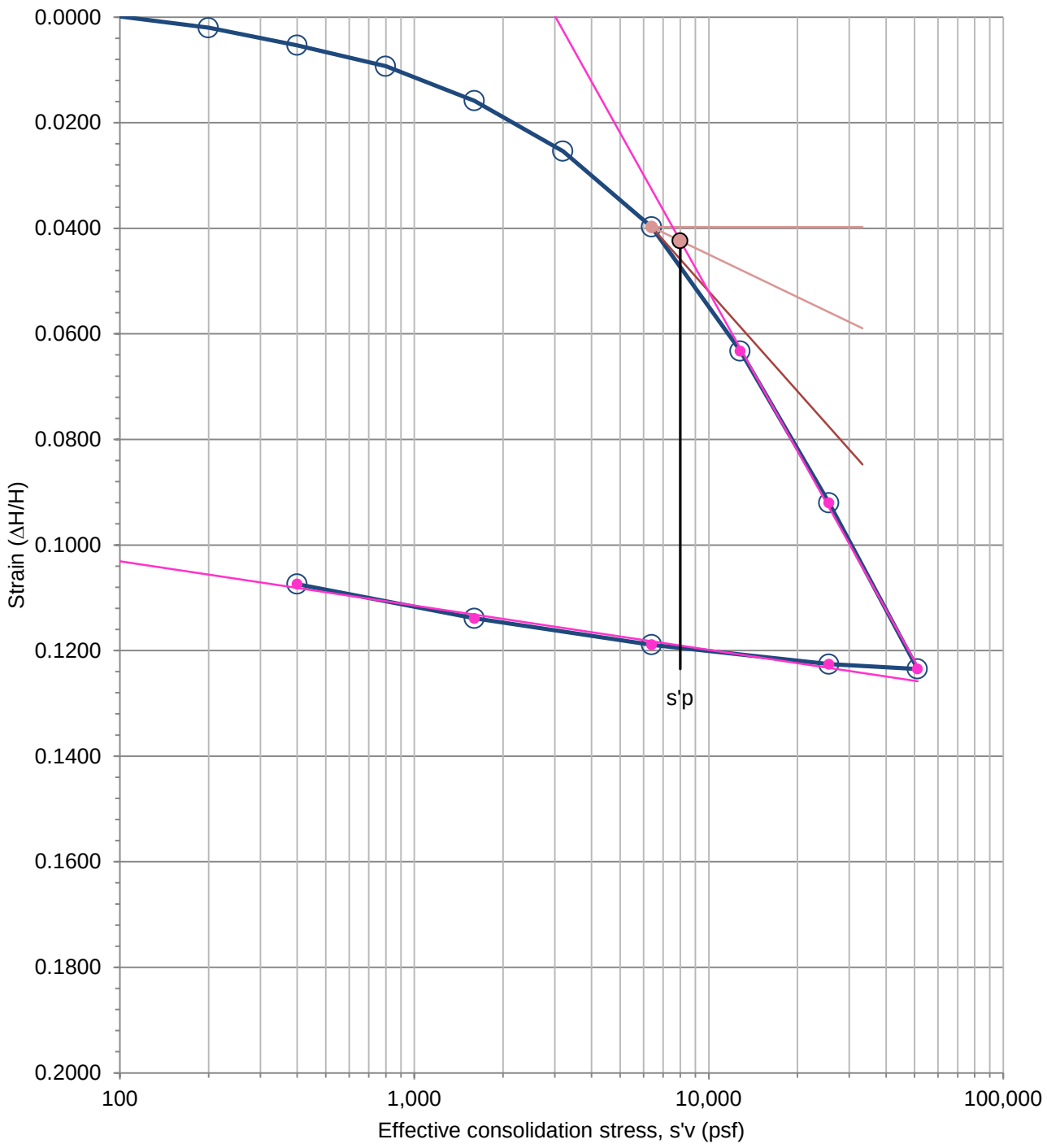
After ASTM D2435 and USBR 5700

GERHART COLE INC.
GEOTECHNICAL ENGINEERS

Project: 4500 South (SR266) **TH/TP/Sample:** TH-02

No: 14GCI421 **Depth:** 10-12 (11)

Data Interpretation - Casagrande (1936) Method



Preconsolidation stress, s'p (psf)	8,000
Compression ratio, CR	0.10
Recompression ratio, RR	0.01

One-Dimensional Consolidation Properties of Soils

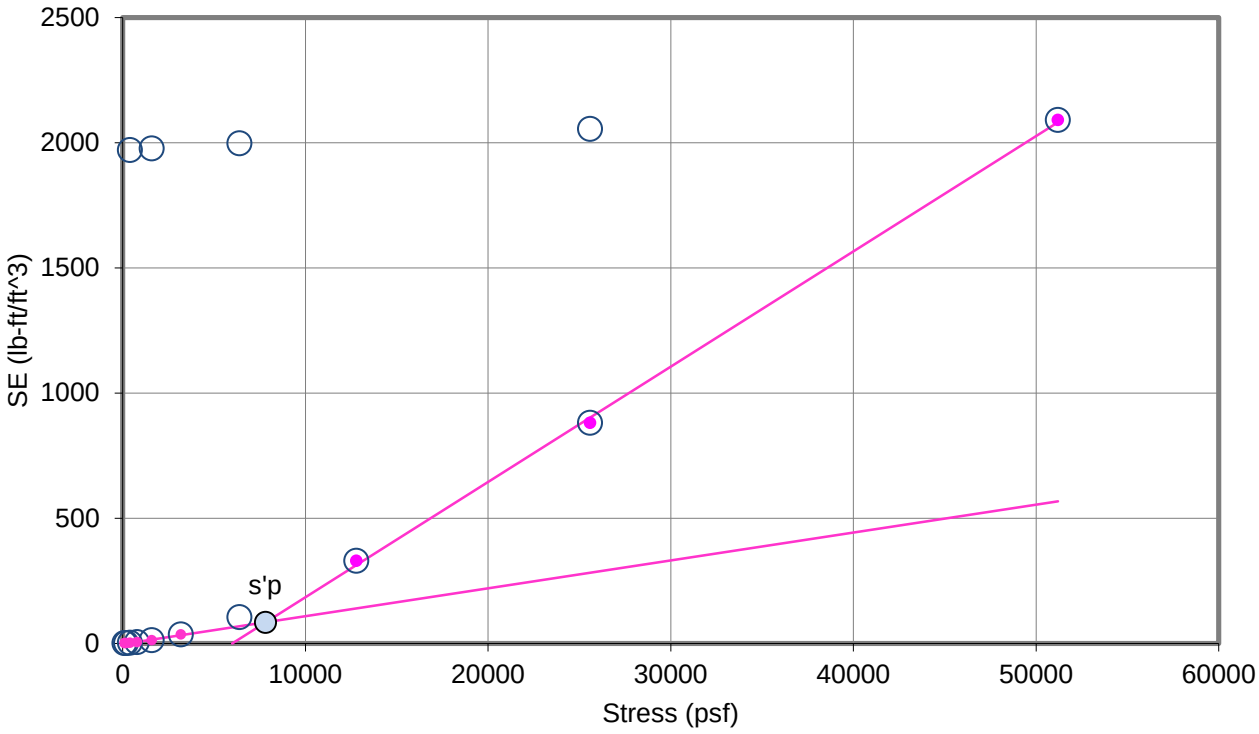
After ASTM D2435 and USBR 5700

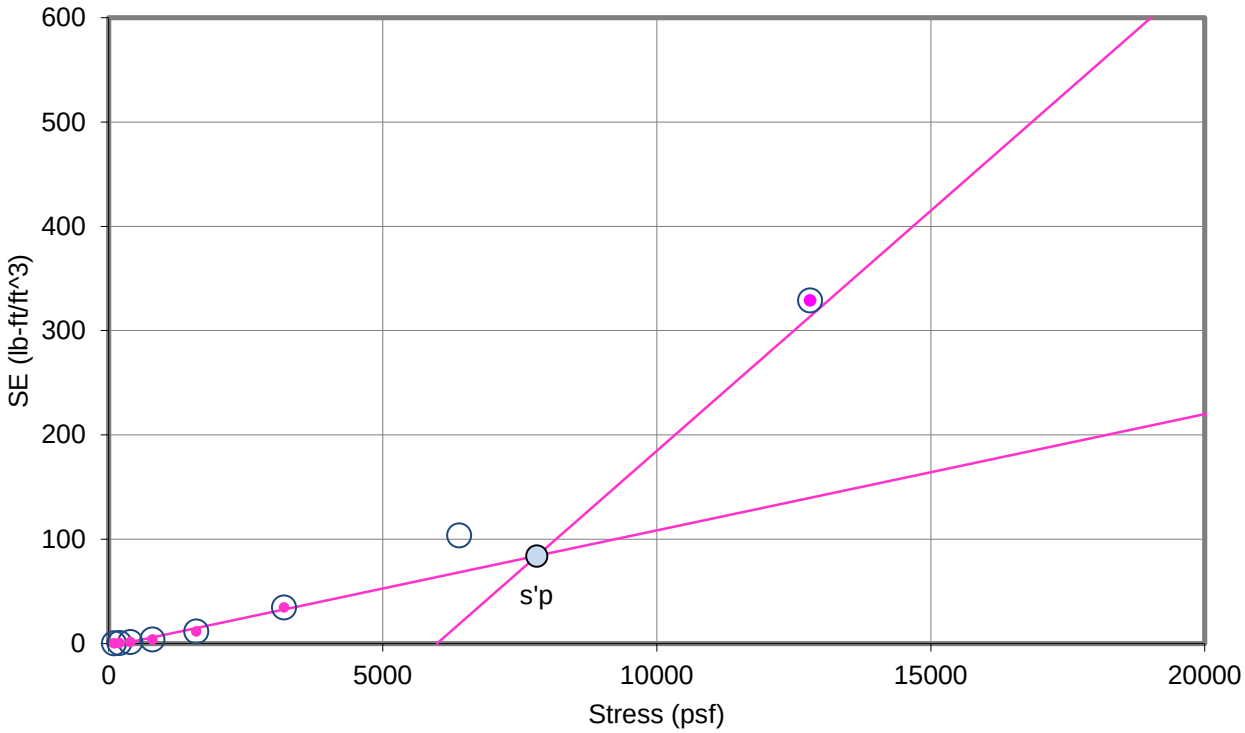
GERHART COLE INC.
GEOTECHNICAL ENGINEERS

Project: 4500 South (SR266) **TH/TP/Sample:** TH-02

No: 14GCI421 **Depth:** 10-12 (11)

Data Interpretation - Strain Energy Method (after Becker et al. 1987)





Preconsolidation stress, s'p (psf) 7,800

Triaxial Test - Unconsolidated Sheared Undrained (UU)

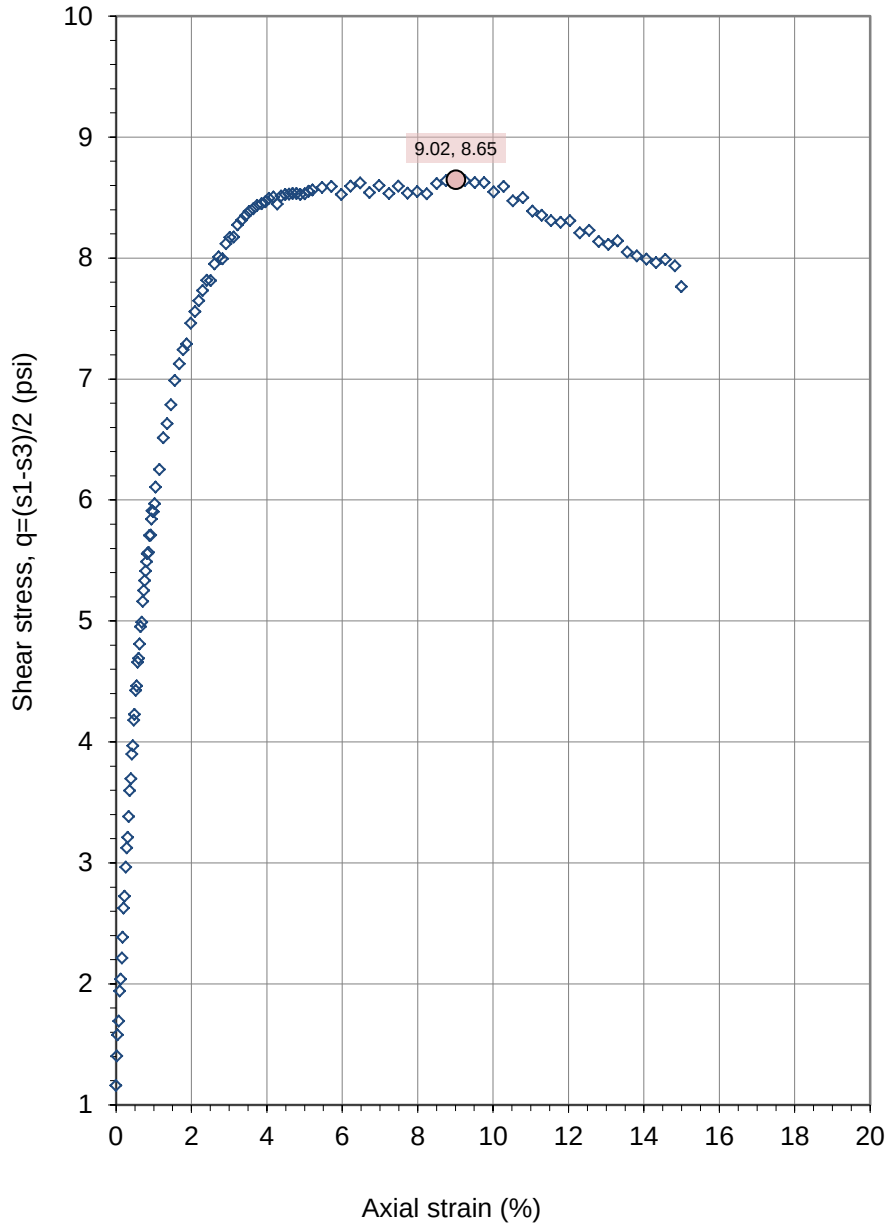
After ASTM D2850 and USBR 5745

GERHART COLE INC. GEOTECHNICAL ENGINEERS

Project:	**4500 South (SR266)**	**TH/TP/Sample:**	**TH-02**
No:	**14GCI421**	**Depth:**	**10-12 (11.5)**
Location:	4500 South	Sample descrition:	greenish gray to olive silty clay
Date:	09-Jul-14	USCS classification:	not requested
Tested by:	zg	Sample type:	Relatively undisturbed Shelby tube
Reduced by:	zg		
Checked by:	dab		

Test Number **S1 at 36 psi**

Unit weight data	Sample ht., H (in) 0°	5.756
	120°	5.738
	240°	5.748
	Avg. height, Havg (in)	5.747
	Avg. height, Havg (cm)	14.598
	Sample dia., D (in) top	2.840
	mid	2.845
	bot	2.855
	Avg. dia., Davg (in)	2.846
	Avg. dia., Davg (cm)	7.229
	Avg. area, Aavg (in^2)	6.363
	Avg. area, Aavg (cm^2)	41.049
	Wt. rings + wet soil (g)	1206.28
	Wt. rings (g)	0.00
	Volume, Vo (in^3)	36.6
	Vo (cm^3)	599.2
	Vo (ft^3)	0.0212
Moisture	Wet soil + tare (g)	251.19
	Dry soil + tare (g)	226.22
	Tare (g)	127.24
	Moisture content, w (%)	25.2
Phase Relationships	Gs, assumed	2.70
	Mass total (g)	1206.3
	Mass of solids (g)	963.3
	Volume (cm^3)	599.2
	Volume of water (cm^3)	243.0
	Volume of solids (cm^3)	356.8
	Volume of voids (cm^3)	242.5
	Volume of air (cm^3)	-0.5
	Void ratio, e	0.680
	Porosity, n	0.405
	Volumetric moisture, T	0.406
	Saturation, S (%) c	100.22
	Dry density (gm/cm^3)	1.607
	Wet unit wt., gm (pcf)	125.7
	Dry unit wt., gd (pcf)	100.4



Results	Confining stress, s3 (psi)	10.0
	Strain rate (%/hr)	60.00
	Strain rate (%/min)	1.00
	Membrane correction	Yes
	Strain at failure, ef (%)	9.02
	Time to failure, tf (min)	9.0
	Peak shear stress, (s1+s3)/2 (psi)	8.65
	Peak shear stress, (s1+s3)/2 (psf)	1245
	Peak deviator stress, s1-s3 (psi)	17.29

Comments:

Triaxial Test - Unconsolidated Sheared Undrained (UU)

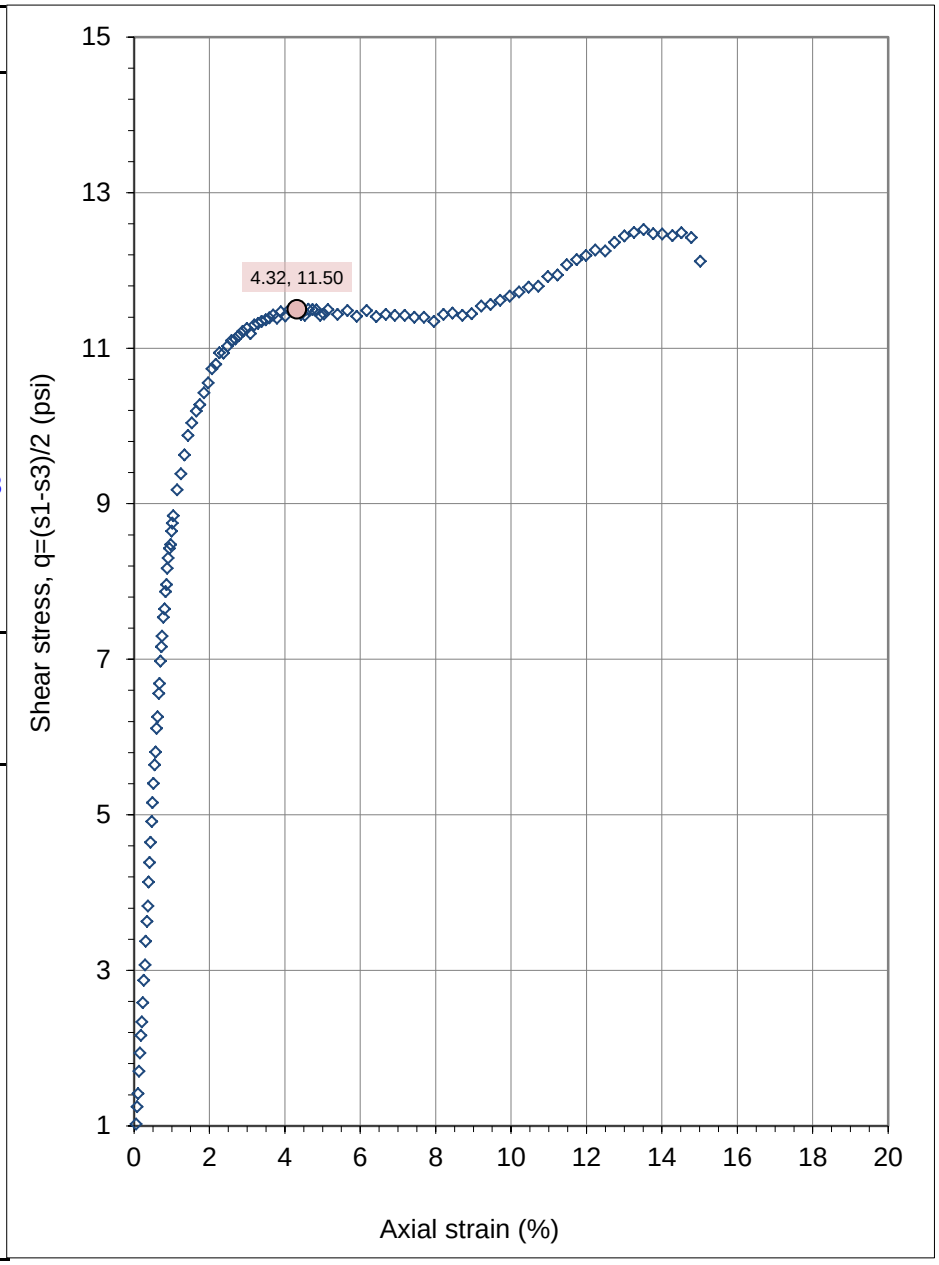
After ASTM D2850 and USBR 5745

GERHART COLE INC. GEOTECHNICAL ENGINEERS

Project:	**4500 South (SR266)**	**TH/TP/Sample:**	**TH-03**
No:	**14GCI421**	**Depth:**	**10-12 (12)**
Location:	4500 South	Sample descrition:	redish brown to olive silty clay
Date:	11-Jul-14	USCS classification:	not requested
Tested by:	zg	Sample type:	Relatively undisturbed Shelby tube
Reduced by:	zg		
Checked by:	dab		

Test Number **S1 at 36 psi**

Unit weight data	Sample ht., H (in)	0°	5.545
		120°	5.550
		240°	5.544
	Avg. height, Havg (in)		5.546
	Avg. height, Havg (cm)		14.088
	Sample dia., D (in)	top	2.842
		mid	2.836
		bot	2.846
	Avg. dia., Davg (in)		2.840
	Avg. dia., Davg (cm)		7.214
	Avg. area, Aavg (in^2)		6.335
	Avg. area, Aavg (cm^2)		40.869
	Wt. rings + wet soil (g)		1160.58
	Wt. rings (g)		0.00
	Volume, Vo (in^3)		35.1
	Vo (cm^3)		575.7
	Vo (ft^3)		0.0203
Moisture	Wet soil + tare (g)		308.92
	Dry soil + tare (g)		269.75
	Tare (g)		119.77
	Moisture content, w (%)		26.1
Phase Relationships	Gs, assumed		2.70
	Mass total (g)		1160.6
	Mass of solids (g)		920.2
	Volume (cm^3)		575.7
	Volume of water (cm^3)		240.3
	Volume of solids (cm^3)		340.8
	Volume of voids (cm^3)		234.9
	Volume of air (cm^3)		-5.4
	Void ratio, e		0.689
	Porosity, n		0.408
	Volumetric moisture, T		0.417
	Saturation, S (%) [c]		102.31
	Dry density (gm/cm^3)		1.598
	Wet unit wt., gm (pcf)		125.8
	Dry unit wt., gd (pcf)		99.8



Results	Confining stress, s3 (psi)	10.0
	Strain rate (%/hr)	60.00
	Strain rate (%/min)	1.00
	Membrane correction	Yes
	Strain at failure, ef (%)	4.32
	Time to failure, tf (min)	4.3
	Peak shear stress, (s1+s3)/2 (psi)	11.50
	Peak shear stress, (s1+s3)/2 (psf)	1656
	Peak deviator stress, s1-s3 (psi)	23.00

Comments:
Sample failure defined by first peak in stress

Minimum Laboratory Soil Resistivity

GERHART COLE INC.
GEOTECHNICAL ENGINEERS

AASHTO T 288

Project: 4500 South (SR266)
No: 14GCI421

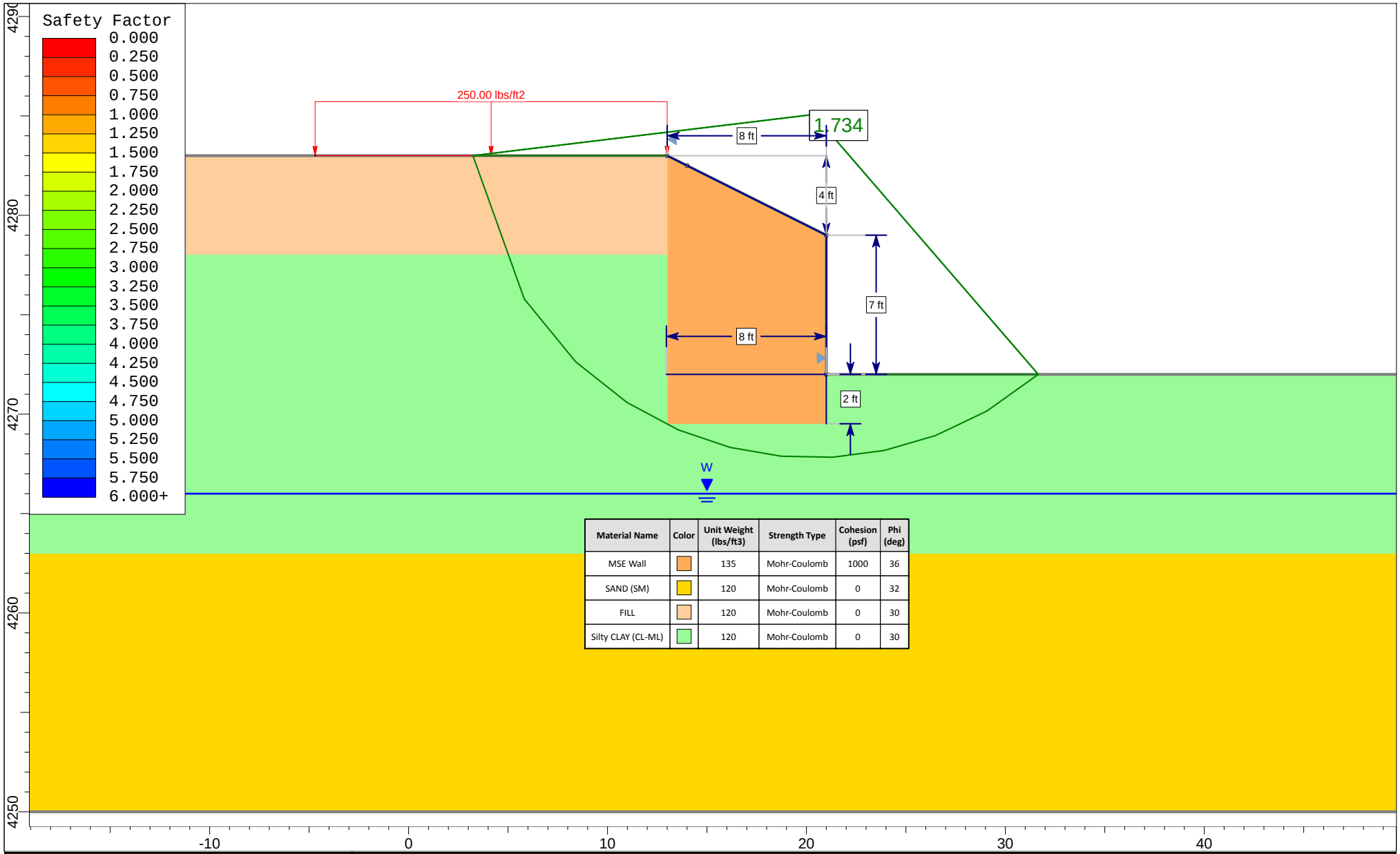
Location: 4500 South
Date: 7/9/2014

Tested By: **zg** Reduced by: **zg** Reviewed by: **dab**

Sample Info.	Test Hole/Pit:	TH-02			
	Depth:	1- grab			
	Date Sampled:	7/7/2014			
	Soil Type	dark brown silty sand			
Soil Data	Wet soil + tare (g)	895.45			
	Dry soil + tare (g)	863.01			
	Tare (g)	173.02			
	Moisture Content, w (%)	4.70			
	Dry Soil after #10 sieve (g)	498.96			
Moisture	Water for 10% initial MC (mL)	49.9			
	% / Step (%)	5			
	Water for % / Step (mL)	24.9			
Chemical	pH distilled water				
	pH,$CaCl_2$ solution				
	Soluble chloride (ppm)				
	Soluble sulfate (ppm)				

Resistivity data	Trial	Soil condition (%)	Resistivity (Ω-cm)	Soil condition (%)	Resistivity (Ω-cm)	Soil condition (%)	Resistivity (Ω-cm)	Soil condition (%)	Resistivity (Ω-cm)
	1	Initial	7300						
	2	+5	3000						
	3	+10	2900						
	4	+15	2900						
	5								
	6								
	7								
	8								
	9								
	10								
	11								
	Minimum resistivity (Ω-cm)	2900							

Comments:



Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)
MSE Wall		135	Mohr-Coulomb	1000	36
SAND (SM)		120	Mohr-Coulomb	0	32
FILL		120	Mohr-Coulomb	0	30
Silty CLAY (CL-ML)		120	Mohr-Coulomb	0	30

GERHART COLE INC.
GEOTECHNICAL ENGINEERS

Project
4500 South (SR-266) - Main Street MSE Wall Project

Long-Term Static - Drained Condition

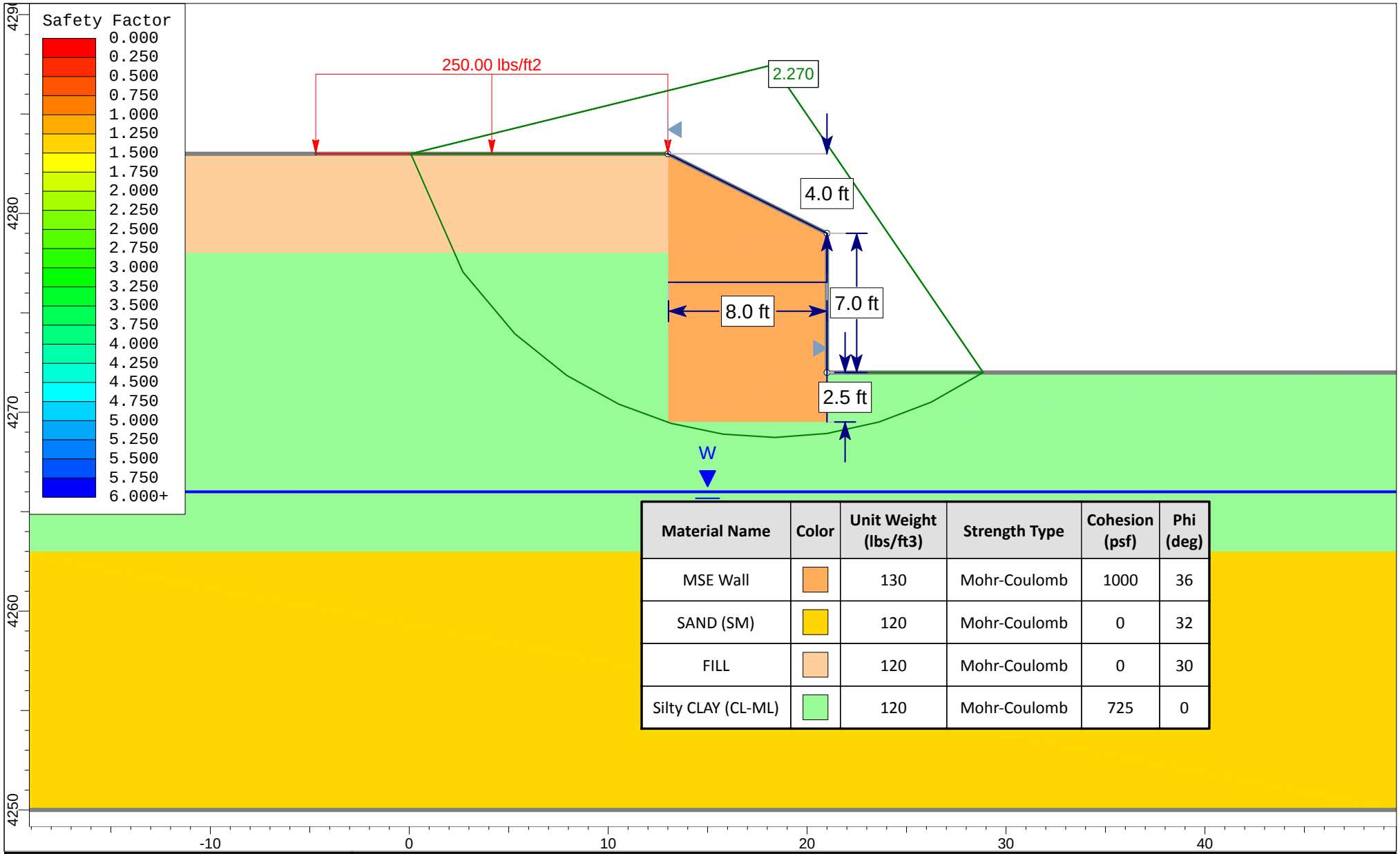
Drawn By

Scale 1:80

Company

Date 7/24/2014, 3:52:43 PM

File Name 4500 S - Main MSE Wall - TH-03 - Drained.slim



Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)
MSE Wall		130	Mohr-Coulomb	1000	36
SAND (SM)		120	Mohr-Coulomb	0	32
FILL		120	Mohr-Coulomb	0	30
Silty CLAY (CL-ML)		120	Mohr-Coulomb	725	0

GERHART COLE INC.
GEOTECHNICAL ENGINEERS

Project
4500 South (SR-266) - Main Street MSE Wall Project

Short Term Static - Construction - Undrained

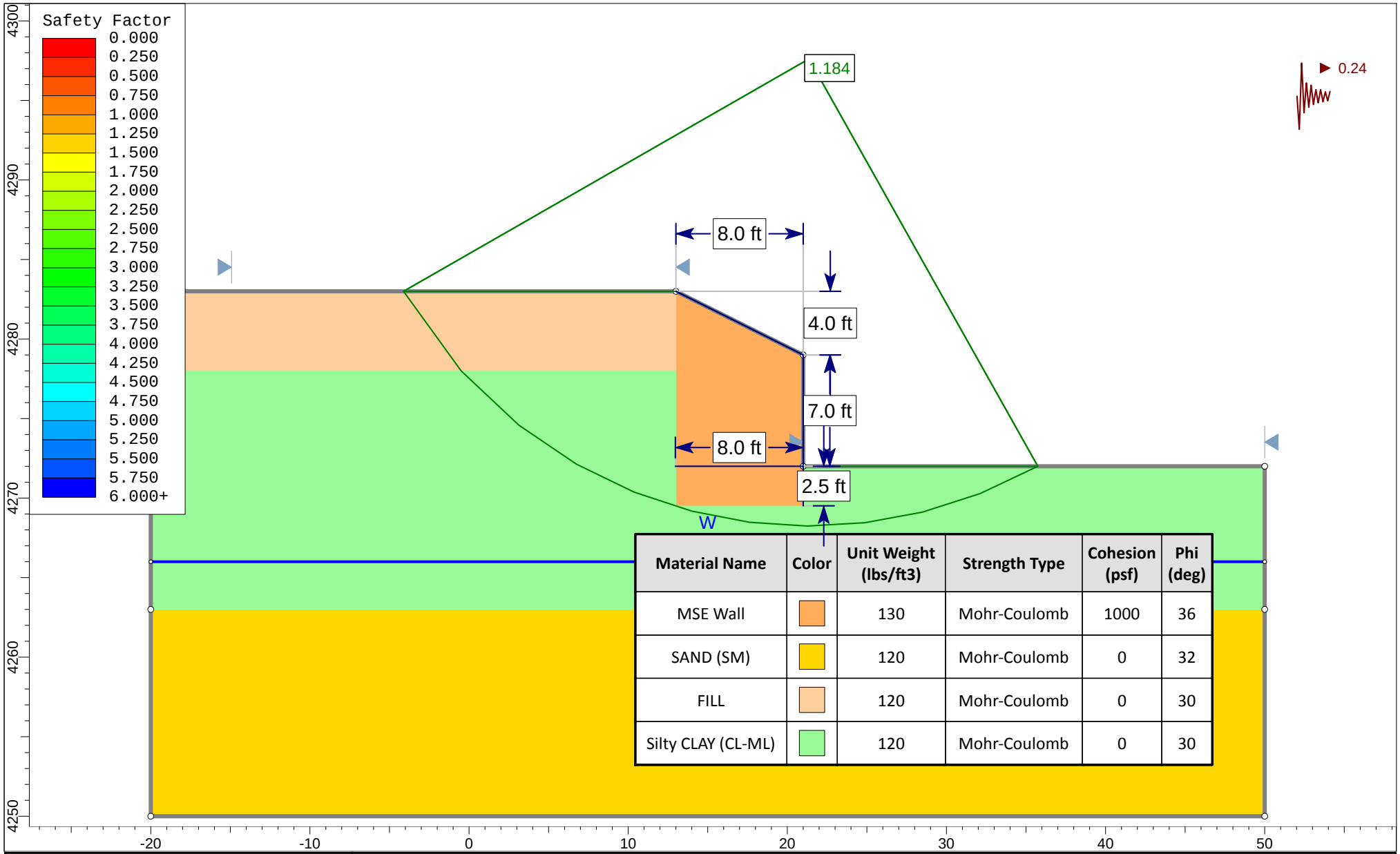
Drawn By

Scale 1:80

Company

Date 7/24/2014, 3:52:43 PM

File Name 4500 S - Main MSE Wall - TH-03 - Undrained.slim



Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)
MSE Wall		130	Mohr-Coulomb	1000	36
SAND (SM)		120	Mohr-Coulomb	0	32
FILL		120	Mohr-Coulomb	0	30
Silty CLAY (CL-ML)		120	Mohr-Coulomb	0	30

GERHART COLE INC.
GEOTECHNICAL ENGINEERS

Project	4500 South (SR-266) - Main Street MSE Wall Project		
Psuedo Static			
Drawn By	Scale 1:100	Company	
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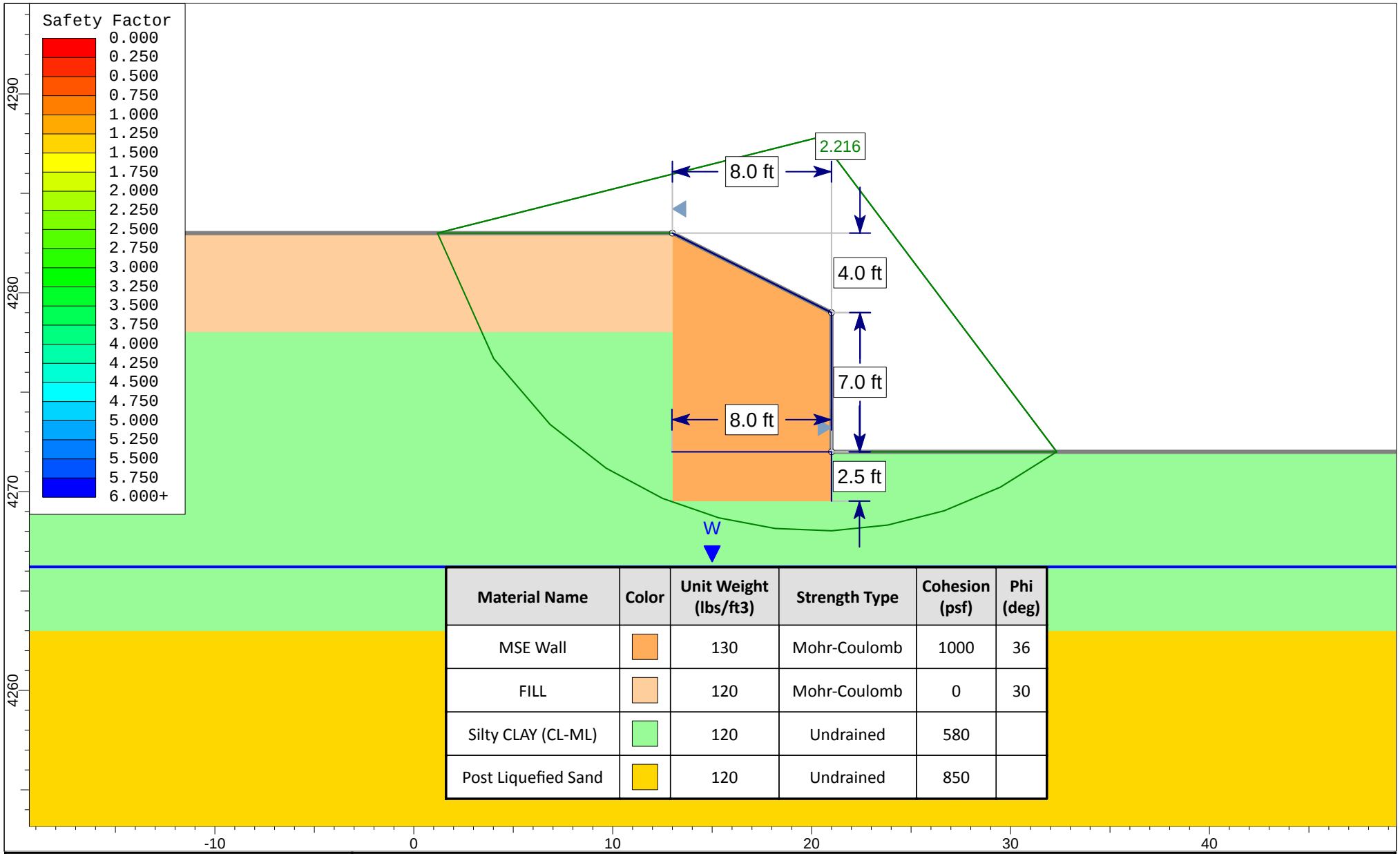

Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)
MSE Wall		130	Mohr-Coulomb	1000	36
FILL		120	Mohr-Coulomb	0	30
Silty CLAY (CL-ML)		120	Undrained	580	
Post Liquefied Sand		120	Undrained	850	

GERHART COLE INC.
GEOTECHNICAL ENGINEERS

Project 4500 South (SR-266) - Main Street MSE Wall Project		
Post Liquefaction		
Drawn By	*Scale* 1:80	*Company*
Date 7/24/2014, 3:52:43 PM		*File Name* 4500 S - Main MSE Wall - TH-03 - Post Liquefaction.slim