SPECIAL PROVISIONS
&
SUPPLEMENTAL SPECIFICATIONS

CSI-Inch/Pound

Project No:	**F-I70-2(52)63**
PIN Desc:	**I-70; Gooseberry to Spring Canyon**
Concept:	**Preservation - Roadway**
Location:	**I-70; MP 63.33 - 73.32**
County:	**SEVIER**
Bid Opening:	**November 29, 2016**

Date

THIS PROJECT REQUIRES USING THE ELECTRONIC CERTIFIED PAYROLL PROGRAM. SEE ATTACHMENT TO NOTICE TO CONTRACTORS.

THIS IS A WORKING P&T (PRICE +TIME) PROJECT.

Federal Projects With 8½ x 11 Plan Sheets

Project # F-I70-2(52)63
Pin # 12477

May 12, 2016

2012 - Standards

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Contract DBE Goal Percentage
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3.	00515M	Contract Award and Execution – Construction Special Provision, Innovative Contracting (P+T) Special Provision (02/26/15)
4.	00515M	Contract Award and Execution – Supplemental Specification (02/26/15)
5.	00555M	Prosecution and Progress – Construction Special Provision (12/16/15)
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13.	01455M	Material Quality Requirements – Materials Special Provision (04/13/16)
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33. 02924S Invasive Weed Control – Department Special Provision (02/28/13)
34. 03055M Portland Cement Concrete – Supplemental Specification (10/22/15)

I. 2012 Standard Specifications and Standard Drawings

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II. List of Supplemental Drawings

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Revised August 30, 2012

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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

Federal Projects With 8½ x 11 Plan Sheets

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

Federal Projects With 8½ x 11 Plan Sheets

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

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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
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SN 2A	School Speed Limit Assembly
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Issue Date: November 14, 2012

Revised October 25, 2012

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Federal Projects With 8½ x 11 Plan Sheets

Issue Date: March 14, 2013

Revised February 28, 2013

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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
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GW 12D	Pedestrian Controls Street Running Railroad Alignment Signalized Intersections
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Federal Projects With 8½ x 11 Plan Sheets

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Issue Date: November 21, 2013

Revised October 31, 2013

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Issue Date: November 14, 2012

Revised October 25, 2012

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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
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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

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)

Issue Date: March 12, 2015

Revised February 26, 2015

EN 3	Temporary Erosion Control (Slope Drain and Temporary Berm)
SL 1A	Traffic Signal Mast Arm Pole and Luminaire Extension 30 Ft Through 55 Ft
SL 1B	Traffic Signal Mast Arm Pole and Luminaire Extension 60 Ft Through 75 Ft
SL 2	Traffic Signal Mast Arm Mounting Details
SL 4	Traffic Signal Mast Arm Pole Foundation

Issue Date: May 14, 2015

Revised April 30, 2015

DD 3	Passing and Climbing Lanes
DD 19	Marked Pedestrian Crosswalk Enhancement Flowchart
PV 4	Concrete Pavement Details 2 of 2
PV 6A	Rumble Strips Shoulder Details
PV 6B	Rumble Strips Depth and Location Details
PV 7A	Typical Rumble Strip Shoulder Sequencing and Applications
PV 7B	Typical Rumble Strip Center Line Sequencing and Application
PV 8	Typical Rumble Strip Centerline Application
SL 17A	Pedestrian Signal Crosswalk
SL 17B	Pedestrian Hybrid Beacon Crosswalk
SL 17C	Flashing Beacon at a Crosswalk Intersection

SL 17D	Flashing Beacon at Midblock Crosswalk
SN 19A	Preferential Lane Signing and Pavement Marking Details
SN 19B	Preferential Lane Access Opening Details
SN 19C	Preferential Lane Median Signing Spacing Greater 1 Mile
SN 19D	Preferential Lane Median Signing Spacing Equal to or Less Than 1 Mile
ST 1	Typical Pavement Markings No Pass Zone and Lane Reduction
ST 6A	Passing Lane Details
ST 6B1	Freeway Climbing Lane Inside Widening Detail
ST 6B2	Freeway Climbing Lane Outside Widening Detail

Issue Date: September 21, 2015

Revised August 27, 2015

AT 12	CCTV Foundations for CCTV Pole
BA 4D3	W-Beam Guardrail Typical Line Post Embedment Special Conditions
SL 18	Advance Warning Signal (AWS) System

Issue Date: November 10, 2015

Revised October 22, 2015

AT 01	Legend Sheet
AT 06	Conduit Details
AT 07A	Polymer Concrete Junction Box Details
AT 07B	Precast Concrete Fiber Optic and Utility Vault Details
AT 10E	CCTV DIP Switch Settings
AT 12	CCTV Foundations for CCTV Pole
AT 18	Utility Marker Post Details
AT 19	Utility Marker Post Locations
AT 20	Electronic Toll Lanes Control Systems (ETC)
AT 21	Electronic Toll Lanes Control Systems (ETC Gantry)
AT 22	Attachment Details
AT 23	ETC Equipment Wiring Diagram
BA 05A	Cable Barrier Typical Hardware and Foundation Requirements
SL 06	Signal Head Details

Issue Date: March 10, 2016

Revised October 22, 2015

DG 04	Pipe Minimum Cover and Spacing
SL 12	Highway Luminaire Slip Base Details
SL 14	Highway Luminaire Pole Foundation Extension

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Issue Date: May 12, 2016

Revised April 28, 2016

SL 1A	Traffic Signal Mast Arm Pole and Luminaire Extension 30 Ft Through 55 Ft
SL 1B	Traffic Signal Mast Arm Pole and Luminaire Extension 60 Ft Through 75 Ft
SL 1C	Traffic Signal Mast Arm Pole and Luminaire Extension 80 Ft Through 85 Ft
SL 1D	Traffic Signal Dual Mast Arm
SL 2A	Traffic Signal Mounting
SL 2B	Traffic Signal Mounting
SL 2C	Mast Arm Sign Mounting
SL 2D	Traffic Signal Head Wiring
SL 6	Traffic Signal Heads
SL 13	Highway Luminaire Arm and Vertical Extension
SL 18	Advance Warning Signal (AWS) System

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, November 29, 2016, 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 I-70; Gooseberry to Spring Canyon, Preservation - Roadway of I-70; MP 63.33 - 73.32 in SEVIER County, the same being identified as Federal Aid Project No: F-I70-2(52)63.

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 ATTACHMENT.

Project Location: I-70; MP 63.33 - 73.32

The principal items of work are as follows (for all items of work see attachment):
Micro-Surfacing
Traffic Control
Pavement Marking Paint

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://eprpw.dot.utah.gov/bidopeninfo-upper.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.

Qualified Health Insurance is required on this project. Insurance must be submitted with executed contracts. See Standard Specification 00515 - 1.11(A).

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

Qualified Health Insurance
A prime contractor is subject to qualified health insurance requirements if the prime contract is in the amount of $2,000,000 or greater. A subcontractor is subject to qualified health insurance requirements if the subcontract is in the amount of $1,000,000 or greater.

The Contractor shall demonstrate compliance with qualified health insurance requirements at the time of the execution of each initial prime contract. The Contractor shall demonstrate to the Department that the Contractor has and will maintain an offer of qualified health insurance coverage for the contractor’s employees and the employees’ dependents during the duration of the contract.

If a subcontractor of the Contractor is subject to qualified health insurance requirements, the Contractor shall place a requirement in the subcontract that the subcontractor shall obtain and maintain an offer of qualified health insurance coverage for the subcontractor’s employees and the employees’ dependents during the duration of the subcontract; and certify to the Department that the subcontractor has and will maintain an offer of qualified health insurance coverage for the subcontractor’s employees and the employees’ dependents during the duration of the prime contract.

Bid Bond
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.

Revised Date:

NOTICE TO CONTRACTORS

Please allow three working days.

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

After the evaluations and final determination of proposals is complete, the State shall award the contract as soon as practicable to the lowest responsive and responsible bidder, subject to Section 63G-6a-709(2).

All bidders should note the State of Utah Procurement Code requires the awarded contractor, for the duration of any contract awarded through this bidding process, to make available company contact information to the Department of Workforce Services in accordance with Utah Code 35A-2-203.

Contractor shall provide information regarding job vacancies to the State of Utah Department of Workforce Services, which may be posted on the Department of Workforce Services website. Posted information shall include the name and contact information for job vacancies. This information shall be provided to the State of Utah Department of Workforce Services for the duration of this Contract. These requirements do not preclude a Contractor from advertising job openings in other forums throughout the State of Utah.

Dated this 05th day of November, 2016.
UTAH DEPARTMENT OF TRANSPORTATION
Carlos M. Braceras, P.E., Director

Revised September 8, 2015

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.

If Option 1 is chosen:

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

The Contractor is required to go over the errors that show on the Import Summary Report. The Contractor is required to fix the issues related to these errors. If the issues related to these errors cannot be resolved with the import feature, the Contractor will need to manually input the employee payrolls in which the errors pertain.

NOTE: The apprentice payroll information is not part of the import feature. Any apprentice payroll information needs to be manually entered.

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 September 8, 2015, 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: 11/29/2016
Project Number: F-I70-2(52)63
PIN Description: I-70; Gooseberry to Spring Canyon
Concept: Preservation - Roadway
Location: I-70; MP 63.33 - 73.32

Region: REGION 4
County: SEVIER

Funding: FEDERAL
Bid Items Version#: 1
DBE Goal: 4.00%

#	Item	Description	Quantity	Unit
10 - ROADWAY				
1	012850010	Mobilization	1	lump sum
2	01554000*	Traffic Control	1	lump sum
3	02056002P	Granular Borrow	220	cubic yard
4	02316002P	Roadway Excavation (Plan Quantity)	6	cubic yard
5	026101534	12 Inch - Deck Drain/Edge-Drain Pipe, Class C	15	foot
6	026130020	Culvert End Section 12 inch	2	each
7	02721001P	Untreated Base Course	10	ton
8	02735001*	Micro-Surfacing	583320	square yard
9	02741005*	HMA - 1/2 inch	280	ton
10	027610020	Longitudinal Rumble Strip	212033	foot
11	02765005*	Pavement Marking Paint	2240	gallon
12	027760030	Concrete Flatwork, 4 inch thick	200	square foot
13	028410066	W-Beam Guardrail Nested - various spans	100	foot
14	02841009P	W-Beam Guardrail Redwood Plank Repair	1000	foot
15	02844001*	Median Barrier Delineator	520	each
16	029610030	Rotomilling - 2 Inch	3035	square yard
180 - TIME AND/OR LANE RENTAL				
17	00221000*	Contract Time — Date Range: 40 - 80	0	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-I70-2(52)63

10/19/2016 01:36:21 PM

Item #	Bid Item Number	Bid Item Name	UOM
1	012850010	Mobilization	lump sum

Amount Paid	When Paid
The lesser of 25% of Mobilization or 2.5% of contract	With first estimate
The lesser of 50% of Mobilization or 5% of contract	With estimate following completion of 5% of contract
The lesser of 75% of Mobilization or 7.5% of contract	With estimate following completion of 10% of contract
The lesser of 100% of Mobilization or 10% of contract	With estimate following completion of 20% of contract
Amount bid in excess of 10% of contract price.	Project Acceptance-Final

Includes all costs associated with Railroad Flagging, inspection, and cleanup crew according to Section 00725.

2	01554000*	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 the cost to provide, install, and maintain variable message boards and Temporary Portable Rumble strips.

3	02056002P	Granular Borrow	cubic yard

In final position, Includes Dust Control and Watering

4	02316002P	Roadway Excavation (Plan Quantity)	cubic yard

Includes Sawcutting, removal of Redwood Plank, and removal of Guardrail post

5	026101534	12 Inch - Deck Drain/Edge-Drain Pipe, Class C	foot

A. Measured along centerline of pipe
B. Trench excavation, pipe bedding and backfill as shown in the Standard Drawings are incidental to construction and no separate payment will be made.
C. Connections to drainage structures or featuers are incidental to construction and no separate payment will be made.
D. No separate payment will be made for required inspection and testing.

6	026130020	Culvert End Section 12 inch	each
7	02721001P	Untreated Base Course	ton

Includes Dust Control and Watering

8	02735001*	Micro-Surfacing	square yard

Includes all labor, equipment, and material necessary to install micro-surfacing according to plans and specifications.Contractor needs to overlap micro-surfacing on each rumble strip to provide double coverage. A maximum of 2' overlap on the rumble strip will be paid separately. Measured as Top width + 4' X Length (for rumble strips)

9	02741005*	HMA - 1/2 inch	ton

Includes aggregates, asphalt binder, hydrated lime, tack coat, and other additives, etc.

10	027610020	Longitudinal Rumble Strip	foot

"Measured length includes grind areas and gaps between sequences.
Measured length does not include a break in the sequence (off/onramps, intersections, structures, etc.)
Includes labor and materials to apply asphalt flush/seal coat."

11	02765005*	Pavement Marking Paint	gallon

Includes survey cost to document location, type and offset of existing and new messages.

12	027760030	Concrete Flatwork, 4 inch thick	square foot

Includes excavation and untreated base course.

13	028410066	W-Beam Guardrail Nested - various spans	foot

Includes additional rail elements and CRT posts and blocks with banding when required and barrier reflectors.

14	02841009P	W-Beam Guardrail Redwood Plank Repair	foot

Includes removal and disposal of redwood plank, Includes new 2 X 6 redwood, and hardware to install according to Standard drawing BA 4D1.

15	02844001*	Median Barrier Delineator	each

Includes connection to Box Beam Barrier in median barrier reflectors. See BA Series, Standard Drawings.

16	029610030	Rotomilling - 2 Inch	square yard

Item #	Bid Item Number	Bid Item Name	UOM
		Calculated from length multiplied by the average finished width of rotomilled surface	

Federal Projects With 8½ x 11 Plan Sheets

VII. PDBS Project Summary Report and Detailed Stationing Summaries Report

Summary Report

Project: F-I70-2(52)63 **Version: 1**

I-70; MP 63.33 - 73.32

Detail	Alt Group	Alt #	Description
10 - ROADWAY	0	0	

Item Number	Description	Qty	Unit
012850010	Mobilization	1	Lump
01554000*	Traffic Control	1	Lump
02056002P	Granular Borrow	220	cu yd
02316002P	Roadway Excavation (Plan Quantity)	6	cu yd
026101534	12 Inch - Deck Drain/Edge-Drain Pipe, Class C	15	ft
026130020	Culvert End Section 12 inch	2	Each
02721001P	Untreated Base Course	10	Ton
02735001*	Micro-Surfacing	583320	sq yd
02741005*	HMA - 1/2 inch	280	Ton
027610020	Longitudinal Rumble Strip	212033	ft
02765005*	Pavement Marking Paint	2240	gal
027760030	Concrete Flatwork, 4 inch thick	200	sq ft
028410066	W-Beam Guardrail Nested - various spans	100	ft
02841009P	W-Beam Guardrail Redwood Plank Repair	1000	ft
02844001*	Median Barrier Delineator	520	Each
029610030	Rotomilling - 2 Inch	3035	sq yd

Detail	Alt Group	Alt #	Description
180 - TIME AND/OR LANE RENTAL	0	0	

Item Number	Description	Qty	Unit
00221000*	Contract Time Minimum Days: 40 Maximum Days: 80		Day

Detailed Report

F-I70-2(52)63 **Version: 1**

I-70; MP 63.33 - 73.32

10 - ROADWAY **Alt Group: 0** **Alt #: 0**

Item Number	Description	Use Qty	Unit
02056002P	**Granular Borrow**	220	cu yd

Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
I-70 EB	MP 64.22				15.0	Repair slope erosion
I-70 EB	MP 65.83				30.0	Repair slope erosion
I-70 EB	MP 66.49				15.0	Repair slope erosion
I-70 EB	MP 67.00				30.0	Repair slope erosion
I-70 EB	MP 67.46				20.0	Repair slope erosion
I-70 EB	MP 68.94				40.0	Repair slope erosion
I-70 EB	MP 70.38				25.0	Repair slope erosion
I-70 EB	MP 71.94				20.0	Repair slope erosion
I-70 EB	MP 72.03				25.0	Backfill for 12" Slope Drain
					220.0	

Note #	Note
1	Granular Borrow to repair slope erosion will need to have some type of compactive effort, plate compactor, compaction wheel on rubber tire equipment. All repair is behind W-Beam Guardrail.

02316002P	**Roadway Excavation (Plan Quantity)**	6	cu yd

Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
I-70 EB	MP 68.94				3.0	
I-70 EB	MP 69.62				1.0	
I-70 EB	MP 70.99				1.0	
I-70 EB	MP 72.03				1.0	
					6.0	

Note #	Note
1	See DT-06 for more information

026101534	**12 Inch - Deck Drain/Edge-Drain Pipe, Class C**	15	ft

Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
I-70 EB	MP 72.03				15.0	
					15.0	

Detailed Report

F-I70-2(52)63 **Version: 1**

I-70; MP 63.33 - 73.32

10 - ROADWAY **Alt Group: 0** **Alt #: 0**

Item Number	Description	Use Qty	Unit
026130020	**Culvert End Section 12 inch**	2	Each

Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
I-70 EB	MP 72.03				2.0	
					2.0	

Item Number	Description	Use Qty	Unit
02721001P	**Untreated Base Course**	10	Ton

Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
I-70 EB	MP 68.94				5.0	
I-70 EB	MP 69.62				2.0	
I-70 EB	MP 70.97				1.0	
I-70 EB	MP 72.03				2.0	
					10.0	

Note #	Note
1	See DT-06 for more information

Detailed Report

F-I70-2(52)63 **Version: 1**

I-70; MP 63.33 - 73.32

10 - ROADWAY **Alt Group: 0** **Alt #: 0**

Item Number	Description	Use Qty	Unit
02735001*	**Micro-Surfacing**	583,320	sq yd

Line/Sheet	From Station From Offset	To Station	To Offset	Qty	Comment
EXIT 63	MP 63.2			5,350.0	Exit 63 Offramp
EXIT 63	MP 63.2			6,625.0	Exit 63 Onramp
I-70 EB	MP 63.33	MP 73.36		260,570.0	Mainline Full Width
I-70 EB	MP 63.33	MP 73.36		24,245.0	Double Micro 2' wide over the rumble stripes
I-70 EB	MP 73.3	MP 73.36		475.0	Double Micro Outside Lane
I-70 WB	MP 63.33	MP 73.5		24,585.0	Double Micro 2' wide over the rumble stripes
I-70 WB	MP 63.33	MP 73.5		259,850.0	Mainline Full Width
I-70 WB	MP 72.8	MP 72.84		320.0	Double Micro Outside Lane
I-70 WB	MP 65.05	MP 65.14		1,300.0	Double Micro Outside Lane and Outside Shoulder
				583,320.0	

Note #	Note
1	Microsurface to the face of Redwood Plank
2	Microsurface completely beneath the Box Beam Median Barrier
3	Microsurface on ramps to begin/end at cattle guards

02741005*	**HMA - 1/2 inch**	280	Ton

Line/Sheet	From Station From Offset	To Station	To Offset	Qty	Comment
EXIT 63	63.2	63.65		275.0	Offramp Mill and Fill area. See DT-05 for more information.
I-70 EB	MP 68.92			2.0	See DT-06 for more information
I-70 EB	MP 69.60			1.0	See DT-06 for more information
I-70 EB	MP 70.97			0.5	See DT-06 for more information
I-70 EB	MP 72.01			1.0	See DT-06 for more information
				279.5	

Note #	Note
1	HMA calculated at 152 lbs/cu ft.

Detailed Report

F-I70-2(52)63 **Version: 1**

I-70; MP 63.33 - 73.32

10 - ROADWAY **Alt Group: 0** **Alt #: 0**

Item Number	Description	Use Qty	Unit
027610020	**Longitudinal Rumble Strip**	212,033	ft

Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
I-70 EB	MP 63.33	LT	MP 73.36	LT	52,958.0	Mainline inside shoulder
I-70 EB	MP 63.33	RT	MP 73.36	RT	52,135.0	Mainline outside shoulde
I-70 WB	MP 63.33	LT	MP 73.5	LT	53,700.0	Mainline inside shoulder
I-70 WB	MP 63.33	RT	MP 73.5	RT	53,240.0	Mainline outside shoulde
					212,033.0	

02765005*	**Pavement Marking Paint**	2,240	gal

Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
I-70 EB	MP 63.33		MP 73.36		615.0	White Paint includes 2 applications
I-70 EB	MP 63.33		MP 73.36		500.0	Yellow Paint includes 2 applications
I-70 WB	MP 63.33		MP 73.5		625.0	White Paint includes 2 applications
I-70 WB	MP 63.33		MP 73.5		500.0	Yellow Paint includes 2 applications
					2,240.0	

Note #	Note
1	Match existing pavement markings
2	Application Rates 4" Solid = 215 ft/gal 4" Broken = 860 ft/gal 8" Solid = 108 ft/gal 8" Drop = 430 ft/gal
3	Total Yellow Paint = 1000 gal Total White Paint = 1240 gal

027760030	**Concrete Flatwork, 4 inch thick**	200	sq ft

Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
I-70 EB	MP 68.94				50.0	
I-70 EB	MP 69.62				50.0	
I-70 EB	MP 70.99				50.0	
I-70 EB	MP 72.03				50.0	
					200.0	

Note #	Note
1	see DT-06 for more information

10 - ROADWAY **Alt Group: 0** **Alt #: 0**

Item Number	Description	Use Qty	Unit
028410066	**W-Beam Guardrail Nested - various spans**	100	ft

Line/Sheet	From Station From Offset	To Station	To Offset	Qty	Comment
I-70 EB	MP 68.94			25.0	
I-70 EB	MP 69.615			25.0	
I-70 EB	MP 70.99			25.0	
I-70 EB	MP 72.03			25.0	
				100.0	

02841009P	**W-Beam Guardrail Redwood Plank Repair**	1,000	ft

Line/Sheet	From Station From Offset	To Station	To Offset	Qty	Comment
I-70 EB	MP 63.	MP 66.3		250.0	Various Locations
I-70 EB	MP 66.3	MP 68.8		350.0	Various Locations
I-70 EB	MP 68.8	MP 71.3		250.0	Various Locations
I-70 EB	MP 71.3	MP 73.32		150.0	Various Locations
				1,000.0	

Note #	Note
1	Repair locations to be determined by the Engineer

02844001*	**Median Barrier Delineator**	520	Each

Line/Sheet	From Station From Offset	To Station	To Offset	Qty	Comment
I-70	MP 63.55	MP 73.35		520.0	Flexible Barrier Delineators on Box Beam Barrier
				520.0	

Note #	Note
1	See GW 9A, GW 10 and BA 4A for spacing and mounting hardware.

Detailed Report

F-I70-2(52)63 **Version: 1**

I-70; MP 63.33 - 73.32

10 - ROADWAY **Alt Group: 0** **Alt #: 0**

Item Number	Description	Use Qty	Unit
029610030	**Rotomilling - 2 Inch**	3,035	sq yd

Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
EXIT 63	63.2		63.3		275.0	Mill full width from cattle guard 90' the off ramp
EXIT 63	63.3		63.65		2,760.0	Mill outside shoulder and partial lane to remove the longitudinal joint
					3,035.0	

Note #	Note
1	See DT-05

VIII. Location Map

UTAH
DEPARTMENT OF TRANSPORTATION

FEDERAL AID PROJECT

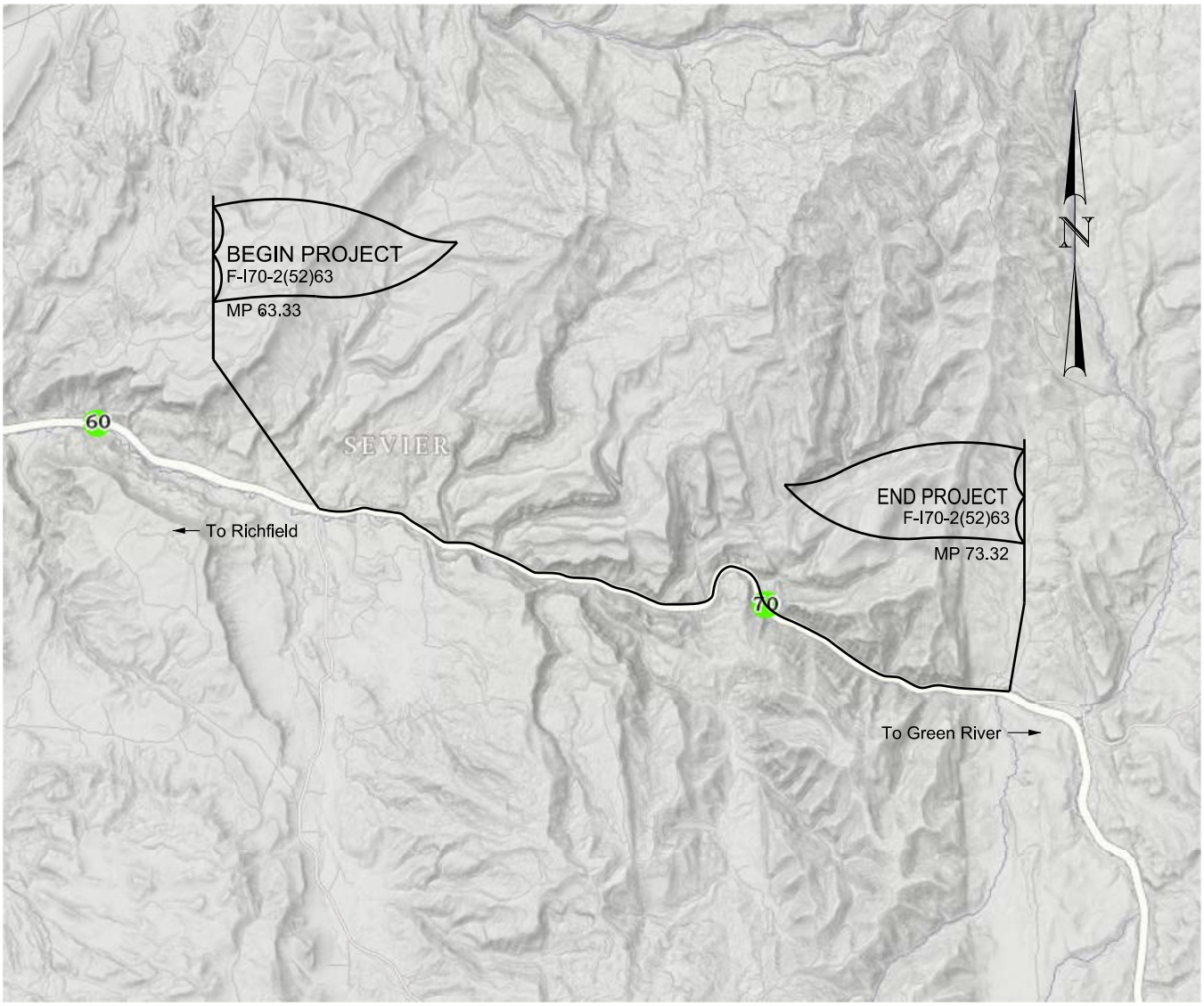
F-I70-2(52)63 PIN: 12477

I-70; GOOSEBERRY TO SPRING CANYON

PRESERVATION - ROADWAY

SEVIER COUNTY

LENGTH = 9.990 MILES



DGN File: pw://UTSTSRCONS61.utah.utad.state.ut.us:projectwise_v8i/Documents/UDOT Projects/Region 4 Projects/12477_I-70_GOOSEBERRY_TO_SPRING_CANYON/Roadway Design/LocationMap(8x11).dgn
12477
18-OCT-2016

IX. Typical Sections or Detail Sheets and Supplemental Drawings

Typical Sections

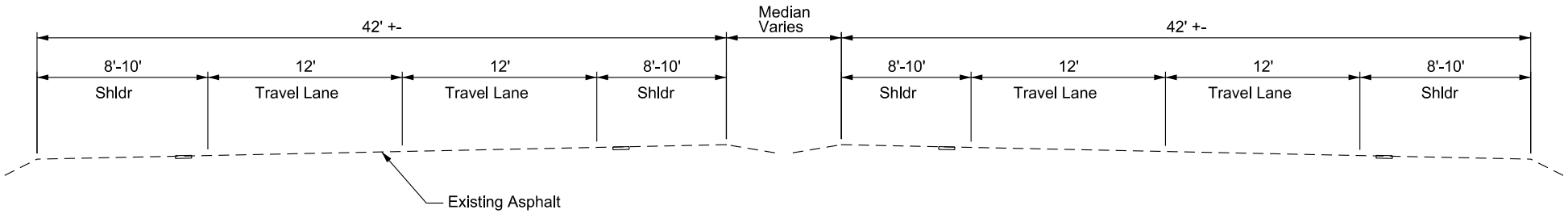
TS-01	Typical Section
TS-02	Typical Section

Detail Sheets

DT-01	TPRS Interstate Standard Work Zone Signing Array Before Taper
DT-02	TPRS Interstate Signing with Reduced Speed Sign
DT-03	TPRS Interstate Shoulder Closure Only
DT-04	TPRS Rumble Stripe Traffic Sign Closure Only
DT-05	Rotomill Detail
DT-06	Drainage and HMA Repair Detail

Standard Drawings

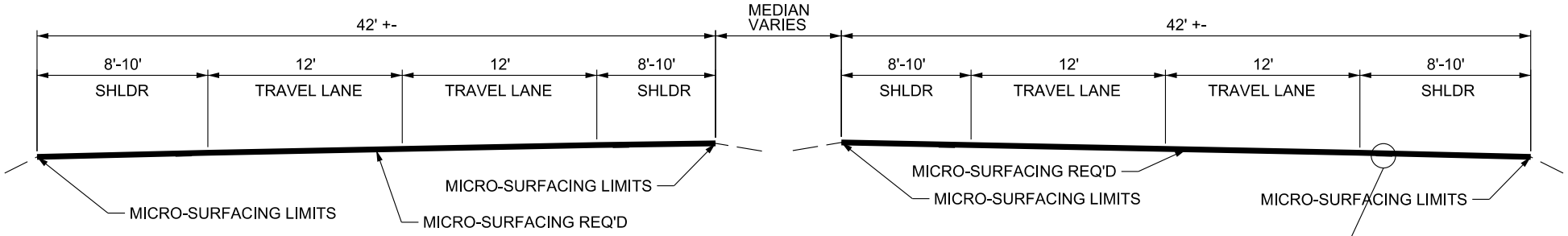
DG 4	Pipe Minimum Cover and Spacing	02/25/2016
DG 5	Drainage Pipe Installation	02/27/2014
PV 6A	Rumble Strips Shoulder Details	04/30/2015
PV 6B	Rumble Strips Depth and Location Details	04/30/2015
PV 7A	Typical Rumble Strip Shoulder Sequencing and Applications	04/30/2015
PV 7B	Typical Rumble Strip Center Line Sequencing and Application	04/30/2015
PV 8	Typical Rumble Strip Centerline Application	04/30/2015
TC 1	Traffic Control Drawing Series General Notes	08/30/2012
TC 2B	Work Zone Signing	08/30/2012
TC 2C	Work Zone Advanced Warning Arrow Boards	06/26/2014
TC 3A	Hazard Mitigation	02/28/2013
TC 4A	Standard Work Zone Signing General	08/30/2012
TC 4B1	Reduced Speed Work Zone Signing General	08/30/2012
TC 4B2	Reduced Speed Shoulder Work Zone Signing General	08/30/2012
TC 4C	Traffic Control Project Limit Signing	08/30/2012
TC 4D1	Work Zone Specialty Signs	10/31/2013
TC 4D2	Work Zone Specialty Signs	10/31/2013
TC 7	Median Crossover and 2-Lane, 2-Way Diversion	08/30/2012
TC 14A	Traffic Control Flagging Operation	11/06/2014
TC 14B	Reduced Speed Signing for Pilot Car Operation (Conventional Roads)	11/06/2014
TC 17	Traffic Control Work Zone Guardrail Intermediate End Protection	10/31/2013
TC 18	Blunt End Protection for W-Beam Guardrail and Concrete Barrier	08/30/2012
TC 19	Construction Access Points for Speeds of 55 MPH and Greater	08/30/2012



Existing Section 1

I-70

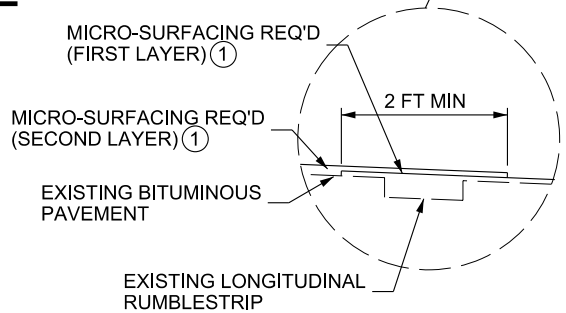
MP 63.20 TO MP 63.57
MP 73.32 TO MP 73.5



TYPICAL SECTION 1

I-70

MP 63.20 TO MP 63.57
MP 73.32 TO MP 73.50
DESIGN SPEED 65-75 MPH



FILL RUMBLESTRIP DETAIL TYP.

NOTES:

1. DOUBLE MICRO-SURFACE LONGITUDINAL RUMBLESTRIPS, INCLUDE A 2 FT OVERLAP
2. MATCH START/STOP LOCATIONS TO PREVIOUS PROJECTS. START/STOP LOCATIONS SHOWN ARE APPROXIMATE AND MUST BE VERIFIED BY ENGINEER.
3. MICRO-SURFACING REQ'D FROM EDGE OF PAVEMENT TO EDGE OF PAVEMENT.
4. MICRO-SURFACE TO THE FACE OF THE REDWOOK PLANK.

PIN: 12477
PROJECT NO. F-I70-2(52)63

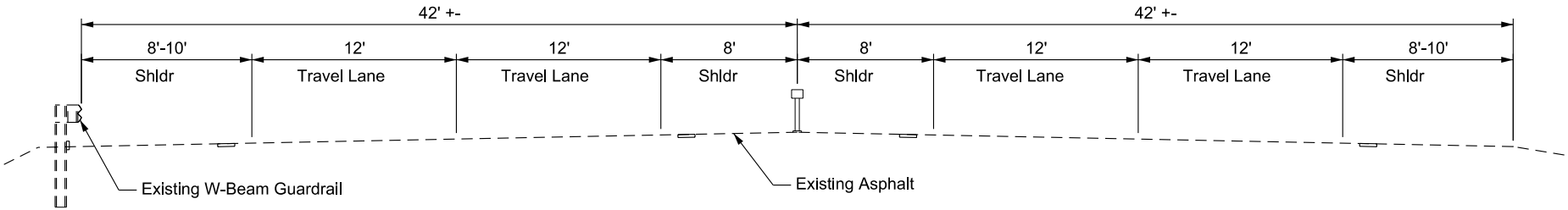
I-70; GOOSEBERRY TO SPRING CANYON
TYPICAL SECTION

SHEET NO.
TS-01

PIN: 12477
PROJECT NO. F-I70-2(52)63

I-70; GOOSEBERRY TO SPRING CANYON
TYPICAL SECTION

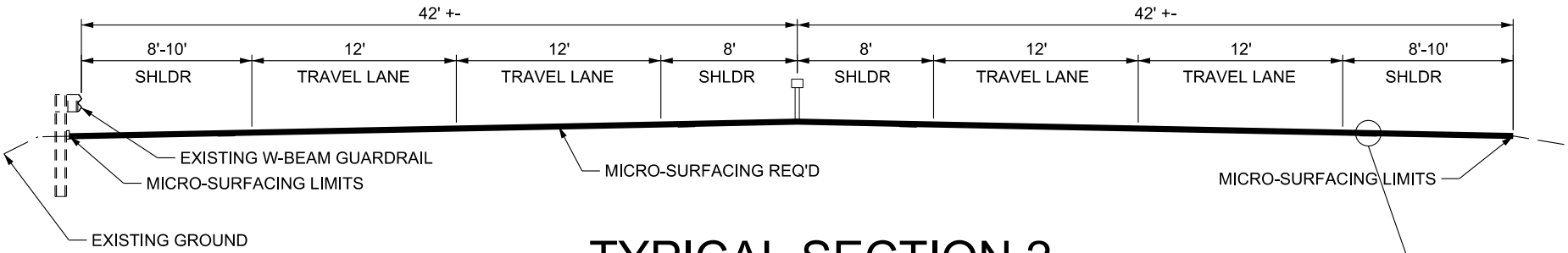
SHEET NO.
TS-02



Existing Section 2

I-70

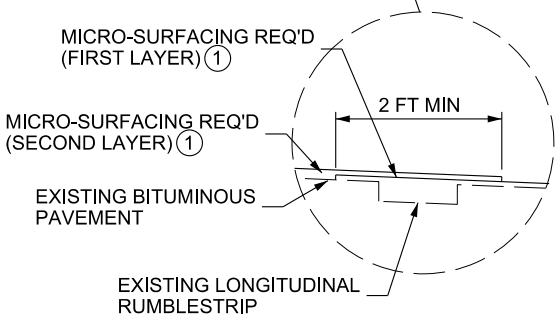
MP 63.57 TO MP 73.32



TYPICAL SECTION 2

I-70

MP 63.57 TO MP 73.32
DESIGN SPEED 65-75 MPH



FILL RUMBLESTRIP DETAIL TYP.

NOTES:

1. DOUBLE MICRO-SURFACE LONGITUDINAL RUMBLESTRIPS, INCLUDE A 2 FT OVERLAP
2. MATCH START/STOP LOCATIONS TO PREVIOUS PROJECTS. START/STOP LOCATIONS SHOWN ARE APPROXIMATE AND MUST BE VERIFIED BY ENGINEER.
3. MICRO-SURFACING REQ'D FROM EDGE OF PAVEMENT TO EDGE OF PAVEMENT.
4. MICRO-SURFACE TO THE FACE OF THE REDWOOK PLANK.
5. MICRO-SURFACE COMPLETELY BENEATH THE BOX BEAM MEDIAN BARRIER.

PIN: 12477
PROJECT NO. F-I70-2(52)63

I-70; GOOSEBERRY TO SPRING CANYON
DETAILS

SHEET NO.
DT-01

TABLE I
TAPER, BUFFER ZONE & SIGN SPACING CHART

ROAD TYPE	POSTED SPEED MPH (S)	MINIMUM TAPER LENGTH(L)	LENGTH OF BUFFER(BZ)	MINIMUM SIGN SPACING (SS)				
		12 FT LANE CLOSURE	DESIRABLE	A	B	C	D	E
		FT	FT	FT	FT	FT	FT	FT
FREEWAY/ EXPRESSWAY	65	780	645	1000	1640	2640	500	500
	70	840	730					
	75	900	820					
	80	960	910					

2- CHANNELIZING DEVICES

A) MERGING AND SHIFTING TAPERS: USE A MINIMUM OF 1 DEVICE PER FT OF LANE CLOSURE WIDTH, PLUS 1 ADDITIONAL DEVICE TO START.

B) SHOULDER, ONE-LANE TWO-WAY, AND DOWNSTREAM TAPERS: USE A MINIMUM OF 1 DEVICE PER 3 FT OF WIDTH (OR PORTION THEREOF), PLUS 1 ADDITIONAL DEVICE TO START.

C) ON TANGENT: S x 2 = SPACING UP TO 120 FT MAXIMUM.

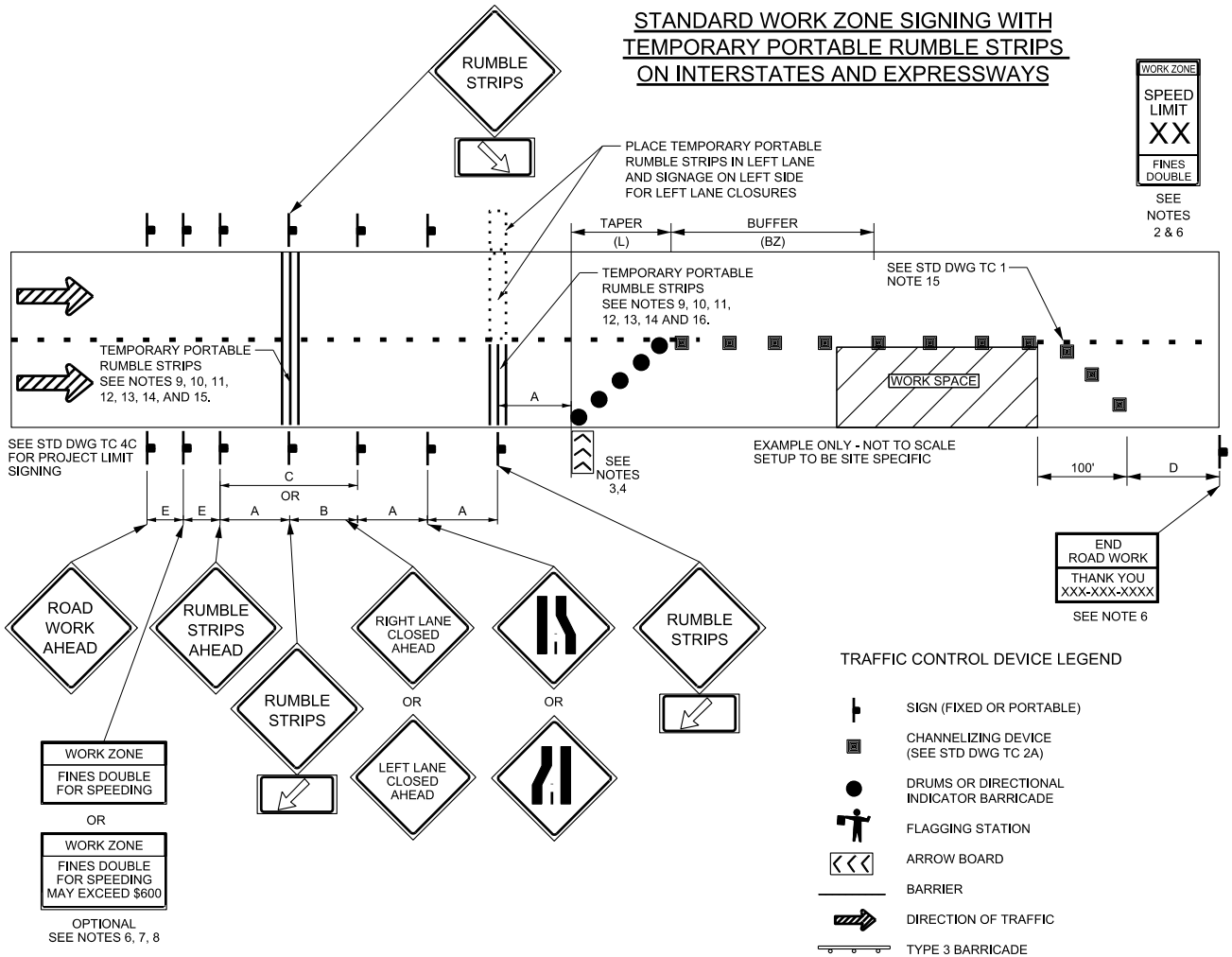
D) LENGTH OF BUFFER ZONE (BZ) IS THE DISTANCE FROM END OF LANE CLOSURE TAPER TO WORK SPACE, OR ANY OBSTRUCTION PRIOR TO WORK SPACE.

1- TAPER LENGTH FORMULAS

SPEED	FORMULA
FOR SPEEDS OF 40 MPH AND LESS	$L = \frac{WS^2}{60}$
FOR SPEEDS OF 45 MPH AND GREATER	L= WS

L = TAPER LENGTH IN FEET
W = WIDTH OF OFFSET IN FEET
S = SPEED IN MPH
⅓ L = FOR SHOULDER CLOSURE TAPER
½ L = FOR LANE SHIFT TAPER

STANDARD WORK ZONE SIGNING WITH TEMPORARY PORTABLE RUMBLE STRIPS ON INTERSTATES AND EXPRESSWAYS



TRAFFIC CONTROL DEVICE LEGEND

- SIGN (FIXED OR PORTABLE)
- CHANNELIZING DEVICE (SEE STD DWG TC 2A)
- DRUMS OR DIRECTIONAL INDICATOR BARRICADE
- FLAGGING STATION
- ARROW BOARD
- BARRIER
- DIRECTION OF TRAFFIC
- TYPE 3 BARRICADE
- DIRECTION OF WORK VEHICLE

NOTES:

1. USE THE PRE-CONSTRUCTION POSTED SPEED LIMIT PRIOR TO WORK ZONE TO COMPUTE THE SIGN SPACING, TAPER LENGTH, BUFFER ZONE, AND WORK CLEAR ZONE DISTANCE. USE THE POSTED SPEED LIMIT DURING WORK TO DETERMINE THE TANGENT SPACING FOR CHANNELIZING DEVICES.
2. SIGN MAY BE USED ANYTIME IN WORK ZONE IN PLACE OF EXISTING SPEED LIMIT SIGNS (NO CHANGE IN SPEED LIMIT).
3. PLACE ARROW BOARD ON SHOULDER WHEN AVAILABLE. WHEN NO ADEQUATE SHOULDER IS AVAILABLE, PLACE ARROW BOARD IN FIRST 1/3 OF TAPER IN THE CLOSED LANE.
4. USE SHOULDER TAPER WHEN ARROW BOARD IS PLACED ON SHOULDER.
5. USE THE IDENTICAL LEGEND SUPPLEMENTAL LEFT SIDE SIGNING FOR HIGH-SPEED DIVIDED HIGHWAYS.
6. SEE TC 4D SERIES STD DWGS FOR SIGN DESIGN AND LAYOUT.
7. FINES DOUBLE (RS2-6c) AND FINES DOUBLE WITH FINE NOTIFICATION (RS2-6d) SIGNS MAY BE USED INTERCHANGEABLY.
8. PLACE ADDITIONAL WORK ZONE SPEED LIMIT ASSEMBLIES (RS2-1a), FINES DOUBLE (RS2-6c), AND/OR FINES DOUBLE WITH FINE NOTIFICATION (RS2-6d) SIGNS AT ALL MAJOR INTERSECTIONS AND INTERCHANGES WITHIN THE PROJECT WHEN REDUCED SPEEDS AND/OR THE FINES DOUBLE OR THE FINES DOUBLE WITH FINE NOTIFICATION SIGNING OPTION IS USED.
9. TEMPORARY PORTABLE RUMBLE STRIP ARRAY CONSISTS OF THREE TRANSVERSELY PLACED RUMBLE STRIPS EVENLY SPACED AT 20 FT ON CENTER.
10. PLACE WS28-1 RUMBLE STRIPS AHEAD SIGN PRIOR TO PLACING TEMPORARY PORTABLE RUMBLE STRIPS.
11. REMOVE TEMPORARY PORTABLE RUMBLE STRIPS PRIOR TO REMOVING WS28-1 RUMBLE STRIPS AHEAD SIGN.
12. RESET THE TEMPORARY PORTABLE RUMBLE STRIPS AS NECESSARY TO MAINTAIN PROPER ALIGNMENT, SPACING, AND LOCATION. REFER TO SPECIAL PROVISION 01554M FOR MAINTENANCE OF TEMPORARY PORTABLE RUMBLE STRIPS.
13. DO NOT USE TEMPORARY PORTABLE RUMBLE STRIPS ON HORIZONTAL CURVES UNLESS APPROVED BY REGION TRAFFIC ENGINEER.
14. DO NOT PLACE TEMPORARY PORTABLE RUMBLE STRIPS DURING SNOW EVENTS.
15. PLACE ONE TEMPORARY PORTABLE RUMBLE STRIP ARRAY IN EACH TRAVEL LANE.
16. PLACE ONE TEMPORARY PORTABLE RUMBLE STRIP ARRAY AT DISTANCE "A" (SEE TABLE 1) IN ADVANCE OF EACH LANE CLOSURE TAPER IN EACH LANE THAT IS BEING CLOSED.
17. RELOCATE THE TEMPORARY PORTABLE RUMBLE STRIPS AND ASSOCIATED SIGNING WHEN VEHICLE QUEUES ARE EXPECTED OR OCCUR IN ADVANCE OF TEMPORARY PORTABLE RUMBLE STRIPS.

PIN: 12477
PROJECT NO. F-I70-2(52)63

I-70; GOOSEBERRY TO SPRING CANYON
DETAILS

SHEET NO.
DT-02

TABLE I
TAPER, BUFFER ZONE & SIGN SPACING CHART

ROAD TYPE	POSTED SPEED MPH (S)	MINIMUM TAPER LENGTH(L)	LENGTH OF BUFFER(BZ)	MINIMUM SIGN SPACING (SS)				
		12 FT LANE CLOSURE	DESIRABLE	A	B	C	D	E
		FT	FT	FT	FT	FT	FT	FT
FREEWAY/ EXPRESSWAY	65	780	645	1000	1640	2640	500	500
	70	840	730					
	75	900	820					
	80	960	910					

1- TAPER LENGTH FORMULAS

SPEED	FORMULA
FOR SPEEDS OF 40 MPH AND LESS	$L = \frac{WS^2}{60}$
FOR SPEEDS OF 45 MPH AND GREATER	L = WS

L = TAPER LENGTH IN FEET
W = WIDTH OF OFFSET IN FEET
S = SPEED IN MPH

⅓ L = FOR SHOULDER CLOSURE TAPER
½ L = FOR LANE SHIFT TAPER

2- CHANNELIZING DEVICES

A) MERGING AND SHIFTING TAPERS: USE A MINIMUM OF 1 DEVICE PER FT OF LANE CLOSURE WIDTH, PLUS 1 ADDITIONAL DEVICE TO START.

B) SHOULDER, ONE-LANE TWO-WAY, AND DOWNSTREAM TAPERS: USE A MINIMUM OF 1 DEVICE PER 3 FT OF WIDTH (OR PORTION THEREOF), PLUS 1 ADDITIONAL DEVICE TO START.

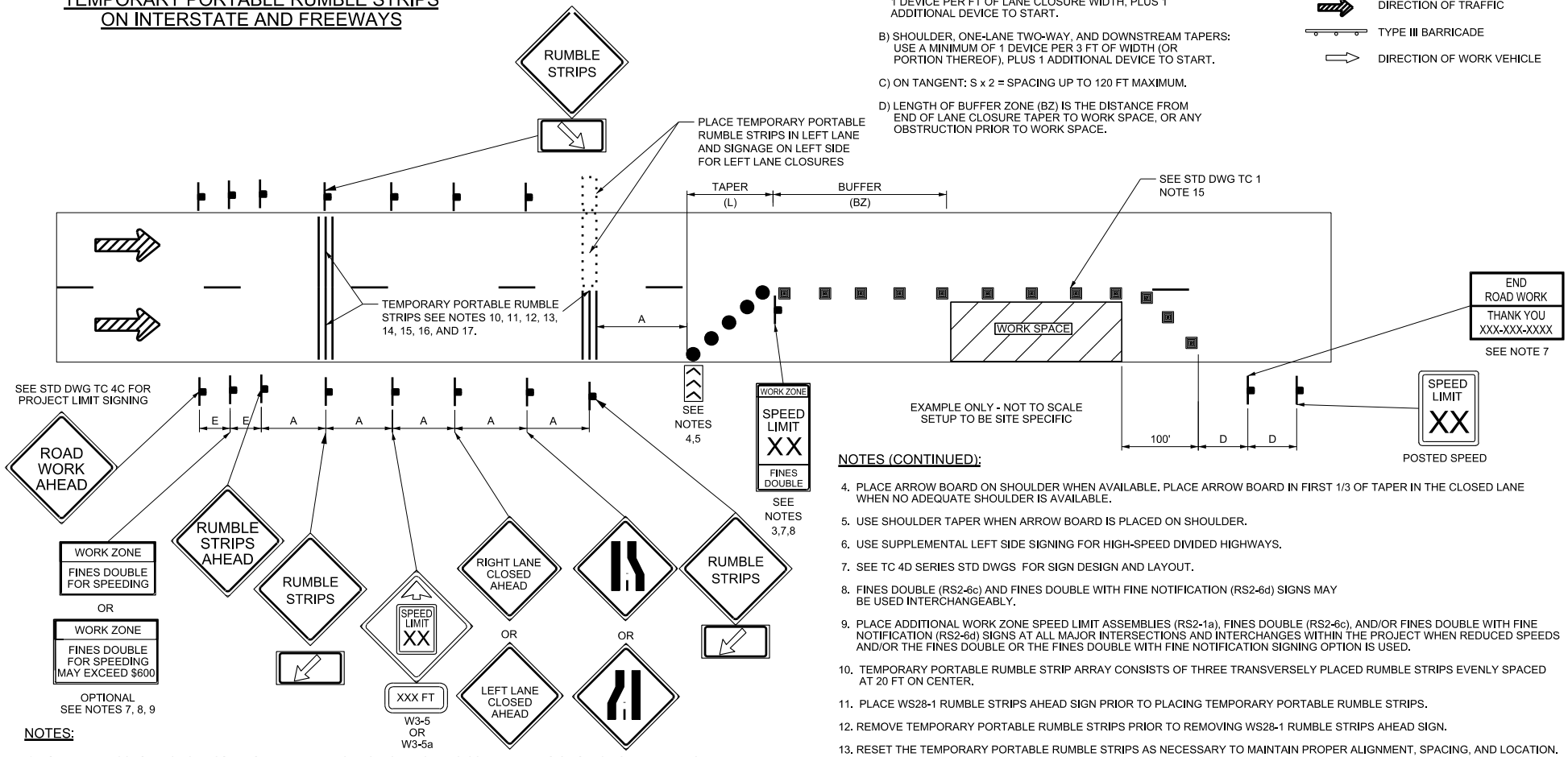
C) ON TANGENT: S x 2 = SPACING UP TO 120 FT MAXIMUM.

D) LENGTH OF BUFFER ZONE (BZ) IS THE DISTANCE FROM END OF LANE CLOSURE TAPER TO WORK SPACE, OR ANY OBSTRUCTION PRIOR TO WORK SPACE.

TRAFFIC CONTROL DEVICE LEGEND

- SIGN (FIXED OR PORTABLE)
- CHANNELIZING DEVICE (SEE STD DWG TC 2A)
- DRUMS OR DIRECTIONAL INDICATOR BARRICADE
- FLAGGING STATION
- ARROW BOARD
- BARRIER
- DIRECTION OF TRAFFIC
- TYPE III BARRICADE
- DIRECTION OF WORK VEHICLE

REDUCED SPEED WORK ZONE SIGNING WITH TEMPORARY PORTABLE RUMBLE STRIPS ON INTERSTATE AND FREEWAYS



NOTES:

1. USE THE PRE-CONSTRUCTION POSTED SPEED LIMIT PRIOR TO WORK ZONE TO COMPUTE THE SIGN SPACING, TAPER LENGTH, BUFFER ZONE, AND WORK CLEAR ZONE DISTANCE. USE THE POSTED SPEED LIMIT DURING WORK TO DETERMINE THE TANGENT SPACING FOR CHANNELIZING DEVICES.
2. REMOVE OR COVER ALL WORK ZONE REDUCED SPEED LIMIT ASSEMBLIES (RS2-1a) AND THE WORK ZONE REDUCED SPEED LIMIT AHEAD (W3-5 SERIES) SIGNS WHEN NO ONE IS WORKING, EXCEPT AS APPROVED BY THE REGION TRAFFIC ENGINEER. DO NOT COVER PRE-CONSTRUCTION POSTED SPEED LIMIT ASSEMBLIES (RS2-1a).
3. ADDITIONAL SIGNS MAY BE USED IN THE WORK ZONE FOR SUPPLEMENTAL NOTIFICATION OF THE WORK ZONE SPEED LIMITS.

NOTES (CONTINUED):

4. PLACE ARROW BOARD ON SHOULDER WHEN AVAILABLE. PLACE ARROW BOARD IN FIRST 1/3 OF TAPER IN THE CLOSED LANE WHEN NO ADEQUATE SHOULDER IS AVAILABLE.
5. USE SHOULDER TAPER WHEN ARROW BOARD IS PLACED ON SHOULDER.
6. USE SUPPLEMENTAL LEFT SIDE SIGNING FOR HIGH-SPEED DIVIDED HIGHWAYS.
7. SEE TC 4D SERIES STD DWGS FOR SIGN DESIGN AND LAYOUT.
8. FINES DOUBLE (RS2-6c) AND FINES DOUBLE WITH FINE NOTIFICATION (RS2-6d) SIGNS MAY BE USED INTERCHANGEABLY.
9. PLACE ADDITIONAL WORK ZONE SPEED LIMIT ASSEMBLIES (RS2-1a), FINES DOUBLE (RS2-6c), AND/OR FINES DOUBLE WITH FINE NOTIFICATION (RS2-6d) SIGNS AT ALL MAJOR INTERSECTIONS AND INTERCHANGES WITHIN THE PROJECT WHEN REDUCED SPEEDS AND/OR THE FINES DOUBLE OR THE FINES DOUBLE WITH FINE NOTIFICATION SIGNING OPTION IS USED.
10. TEMPORARY PORTABLE RUMBLE STRIP ARRAY CONSISTS OF THREE TRANSVERSELY PLACED RUMBLE STRIPS EVENLY SPACED AT 20 FT ON CENTER.
11. PLACE WS28-1 RUMBLE STRIPS AHEAD SIGN PRIOR TO PLACING TEMPORARY PORTABLE RUMBLE STRIPS.
12. REMOVE TEMPORARY PORTABLE RUMBLE STRIPS PRIOR TO REMOVING WS28-1 RUMBLE STRIPS AHEAD SIGN.
13. RESET THE TEMPORARY PORTABLE RUMBLE STRIPS AS NECESSARY TO MAINTAIN PROPER ALIGNMENT, SPACING, AND LOCATION.
14. DO NOT USE TEMPORARY PORTABLE RUMBLE STRIPS ON HORIZONTAL CURVES UNLESS APPROVED BY REGION TRAFFIC ENGINEER.
15. REMOVE TEMPORARY PORTABLE RUMBLE STRIPS WHEN THERE IS NO ACTIVE WORK.
16. DO NOT PLACE TEMPORARY PORTABLE RUMBLE STRIPS DURING SNOW EVENTS.
17. RELOCATE THE TEMPORARY PORTABLE RUMBLE STRIPS AND ASSOCIATED SIGNING WHEN VEHICLE QUEUES ARE EXPECTED OR OCCUR IN ADVANCE OF TEMPORARY PORTABLE RUMBLE STRIPS.

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PROJECT NO. F-I70-2(52)63

I-70; GOOSEBERRY TO SPRING CANYON
DETAILS

SHEET NO.
DT-03

TAPER, BUFFER ZONE & SIGN SPACING CHART

ROAD TYPE	POSTED SPEED MPH (S)	MINIMUM TAPER LENGTH(L)	LENGTH OF BUFFER(BZ)	MINIMUM SIGN SPACING (SS)					ONE LANE TWO-WAY FLAGGING
		12 FT LANE CLOSURE	DESIRABLE	A	B	C	D	E	TAPER LENGTH
		FT	FT	FT	FT	FT	FT	FT	FT
CONVENTIONAL	30 AND LOWER	180	200	100	100	100	100	50	50
	35	245	250	350	350	350	175	175	
	40	320	305						
	45	540	360	500	500	500	250	250	100
	50	600	425						
	55	660	495						
	60	720	570						
	65	780	645						
FREEWAY/ EXPRESSWAY	65	780	645	1000	1640	2640	500	500	
	70	840	730						
	75	900	820						
	80	960	910						

1- TAPER LENGTH FORMULAS

SPEED	FORMULA
FOR SPEEDS OF 40 MPH AND LESS	$L = \frac{WS^2}{60}$
FOR SPEEDS OF 45 MPH AND GREATER	L= WS

L = TAPER LENGTH IN FEET
W = WIDTH OF OFFSET IN FEET
S = SPEED IN MPH

⅓ L = FOR SHOULDER CLOSURE TAPER
½ L = FOR LANE SHIFT TAPER

2- CHANNELIZING DEVICES

A) MERGING AND SHIFTING TAPERS: USE A MINIMUM OF 1 DEVICE PER FT OF LANE CLOSURE WIDTH, PLUS 1 ADDITIONAL DEVICE TO START.

B) SHOULDER, ONE-LANE TWO-WAY, AND DOWNSTREAM TAPERS: USE A MINIMUM OF 1 DEVICE PER 3 FT OF WIDTH (OR PORTION THEREOF), PLUS 1 ADDITONAL DEVICE TO START.

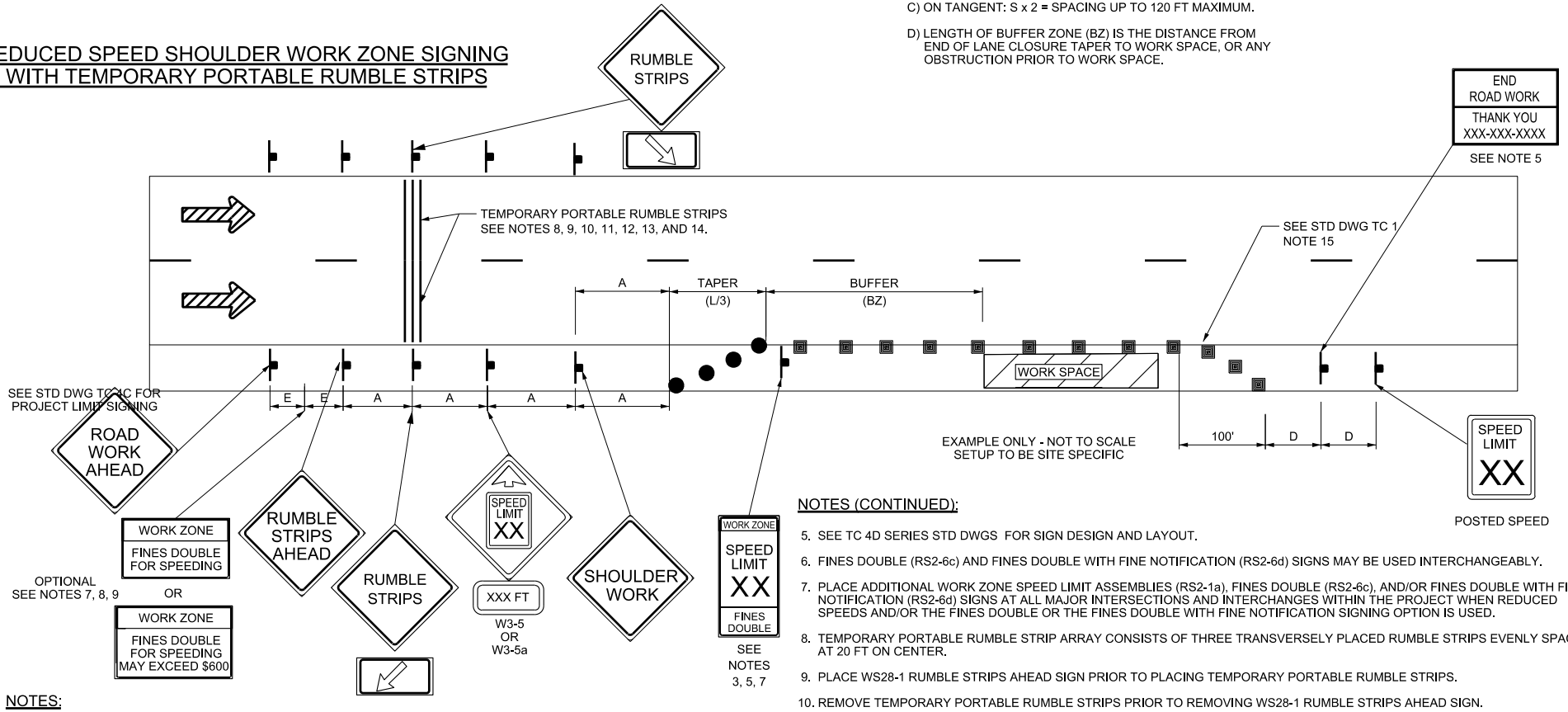
C) ON TANGENT: S x 2 = SPACING UP TO 120 FT MAXIMUM.

D) LENGTH OF BUFFER ZONE (BZ) IS THE DISTANCE FROM END OF LANE CLOSURE TAPER TO WORK SPACE, OR ANY OBSTRUCTION PRIOR TO WORK SPACE.

TRAFFIC CONTROL DEVICE LEGEND

- SIGN (FIXED OR PORTABLE)
- CHANNELIZING DEVICE (SEE STD DWG TC 2A)
- DRUMS OR DIRECTIONAL INDICATOR BARRICADE
- FLAGGING STATION
- ARROW BOARD
- BARRIER
- DIRECTION OF TRAFFIC
- TYPE III BARRICADE
- DIRECTION OF WORK VEHICLE

REDUCED SPEED SHOULDER WORK ZONE SIGNING WITH TEMPORARY PORTABLE RUMBLE STRIPS

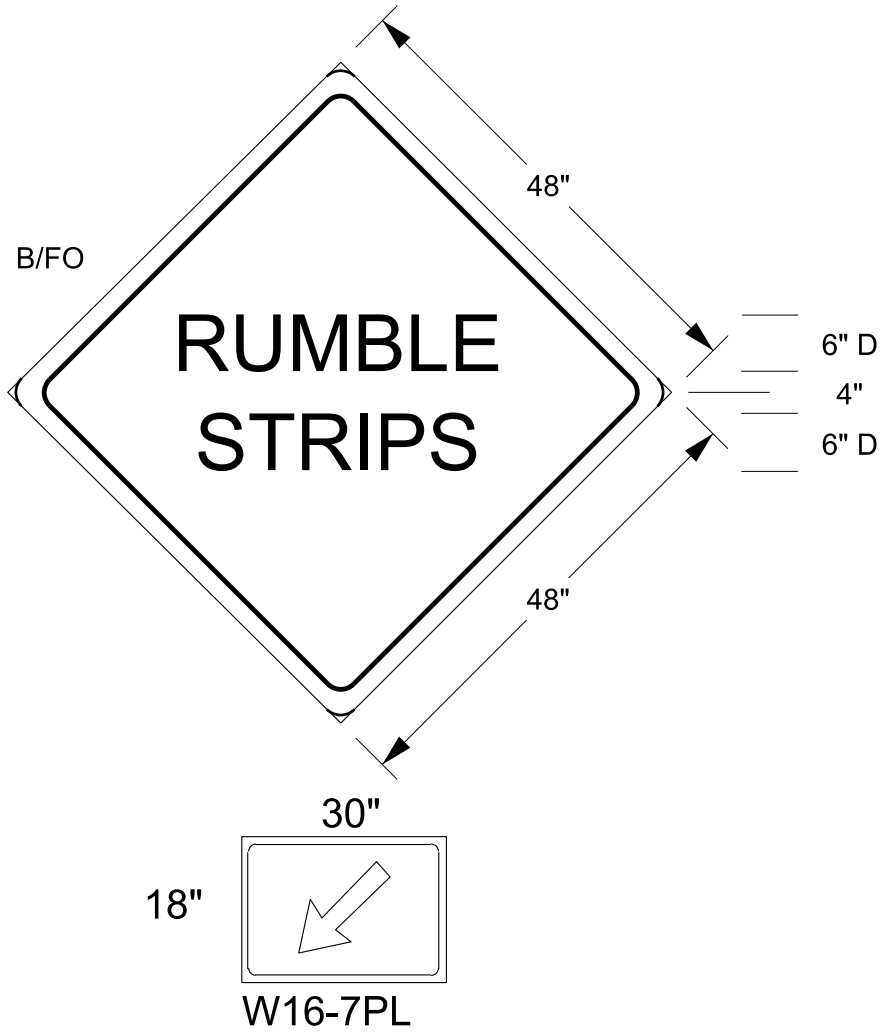


NOTES:

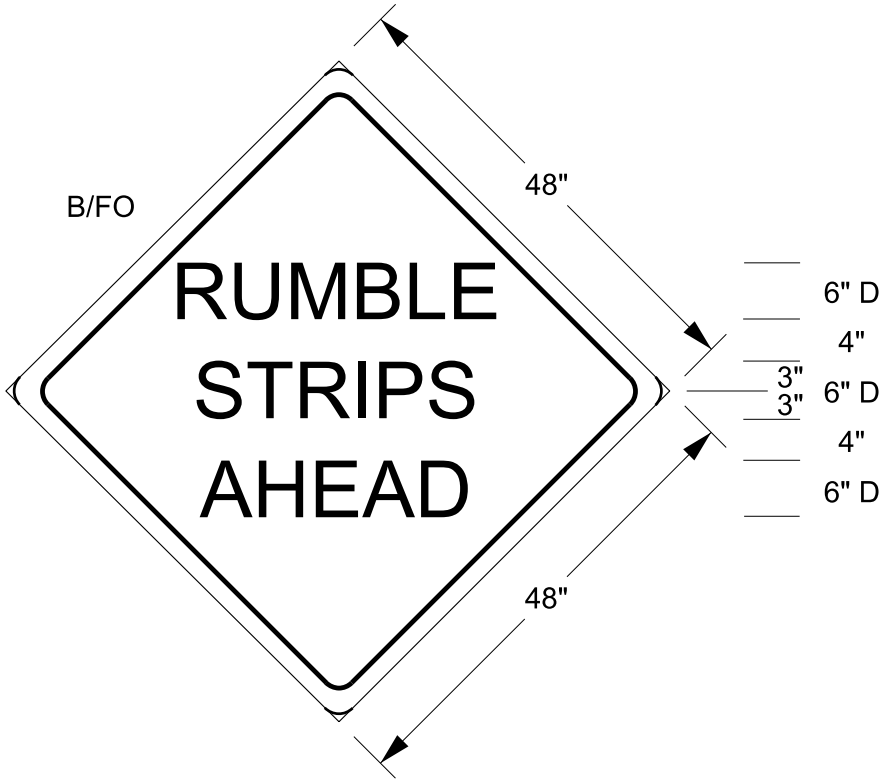
1. USE THE PRE-CONSTRUCTION POSTED SPEED LIMIT PRIOR TO WORK ZONE TO COMPUTE THE SIGN SPACING, TAPER LENGTH, BUFFER ZONE, AND WORK CLEAR ZONE DISTANCES. USE THE WORK ZONE REDUCED SPEED LIMIT TO DETERMINE THE TANGENT SPACING FOR CHANNELIZING DEVICES.
2. REMOVE OR COVER ALL WORK ZONE REDUCED SPEED LIMIT ASSEMBLIES (RS2-1a) AND THE WORK ZONE REDUCED SPEED LIMIT AHEAD (W3-5 SERIES) SIGNS WHEN NO ONE IS WORKING, EXCEPT AS APPROVED BY THE REGION TRAFFIC ENGINEER. DO NOT COVER PRE-CONSTRUCTION POSTED SPEED LIMIT ASSEMBLIES (RS2-1a).
3. ADDITIONAL SIGNS MAY BE USED IN THE WORK ZONE FOR SUPPLEMENTAL NOTIFICATION OF THE WORK ZONE SPEED LIMITS.
4. USE SUPPLEMENTAL LEFT SIDE SIGNING FOR HIGH-SPEED DIVIDED HIGHWAYS.

NOTES (CONTINUED):

5. SEE TC 4D SERIES STD DWGS FOR SIGN DESIGN AND LAYOUT.
6. FINES DOUBLE (RS2-6c) AND FINES DOUBLE WITH FINE NOTIFICATION (RS2-6d) SIGNS MAY BE USED INTERCHANGEABLY.
7. PLACE ADDITIONAL WORK ZONE SPEED LIMIT ASSEMBLIES (RS2-1a), FINES DOUBLE (RS2-6c), AND/OR FINES DOUBLE WITH FINE NOTIFICATION (RS2-6d) SIGNS AT ALL MAJOR INTERSECTIONS AND INTERCHANGES WITHIN THE PROJECT WHEN REDUCED SPEEDS AND/OR THE FINES DOUBLE OR THE FINES DOUBLE WITH FINE NOTIFICATION SIGNING OPTION IS USED.
8. TEMPORARY PORTABLE RUMBLE STRIP ARRAY CONSISTS OF THREE TRANSVERSELY PLACED RUMBLE STRIPS EVENLY SPACED AT 20 FT ON CENTER.
9. PLACE WS28-1 RUMBLE STRIPS AHEAD SIGN PRIOR TO PLACING TEMPORARY PORTABLE RUMBLE STRIPS.
10. REMOVE TEMPORARY PORTABLE RUMBLE STRIPS PRIOR TO REMOVING WS28-1 RUMBLE STRIPS AHEAD SIGN.
11. RESET THE TEMPORARY PORTABLE RUMBLE STRIPS AS NECESSARY TO MAINTAIN PROPER ALIGNMENT, SPACING, AND LOCATION.
12. DO NOT USE TEMPORARY PORTABLE RUMBLE STRIPS ON HORIZONTAL CURVES UNLESS APPROVED BY REGION TRAFFIC ENGINEER.
13. REFER TO SPECIAL PROVISION 01554M FOR MAINTENANCE OF TEMPORARY PORTABLE RUMBLE STRIPS.
14. DO NOT PLACE TEMPORARY PORTABLE RUMBLE STRIPS DURING SNOW EVENTS.
15. RELOCATE THE TEMPORARY PORTABLE RUMBLE STRIPS AND ASSOCIATED SIGNING WHEN VEHICLE QUEUES ARE EXPECTED OR OCCUR IN ADVANCE OF TEMPORARY PORTABLE RUMBLE STRIPS.



WS28-2 RUMBLE STRIPS SIGN



WS28-1 RUMBLE STRIPS AHEAD SIGN

NOTES:

1. PLACE TWO FLUORESCENT ORANGE STRIPS OF RETROREFLECTIVE SHEETING, 4 x 24 INCHES, WITHIN 12 INCHES FROM THE RIGHT AND LEFT EDGES ON THE BACK OF SIGNS USED WITH PORTABLE SUPPORTS.

I-70; GOOSEBERRY TO SPRING CANYON
DETAIL

SHEET NO.
DT-04

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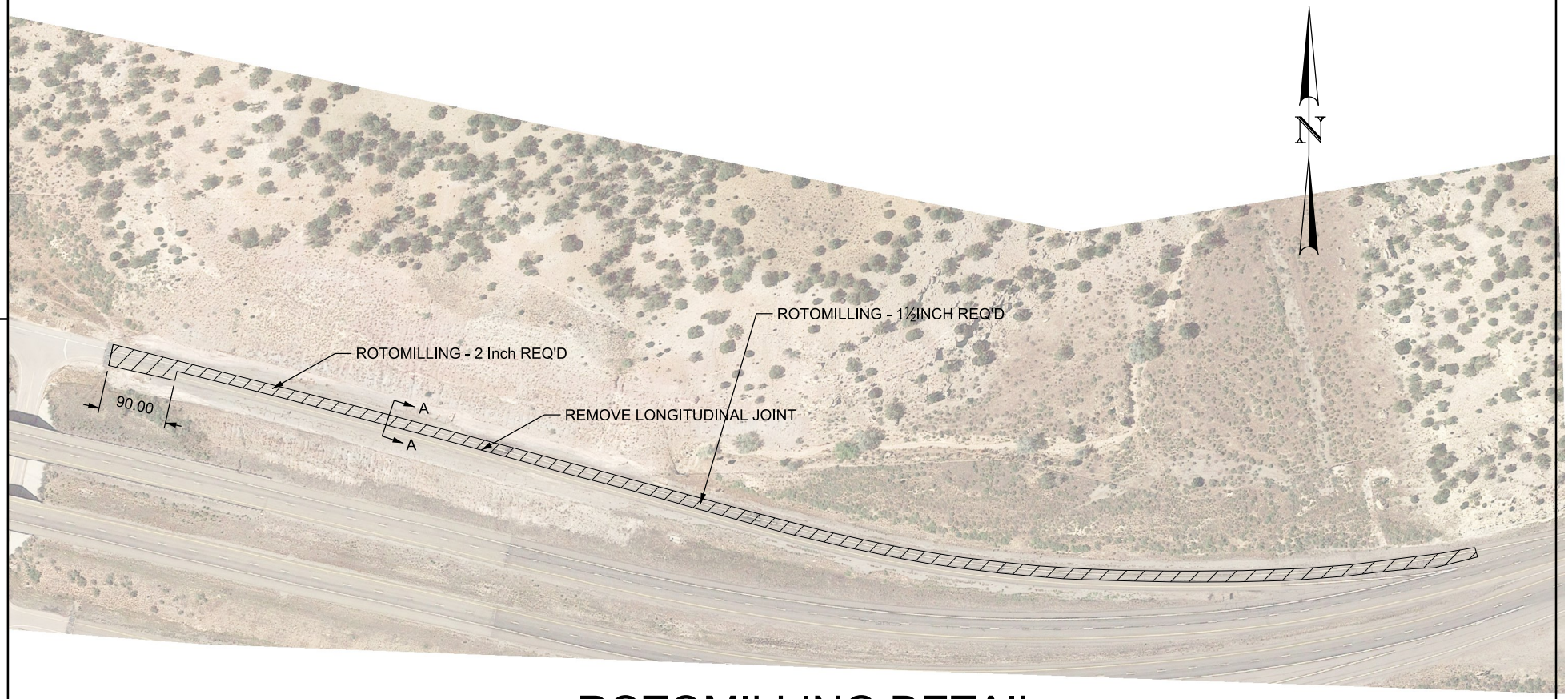
I-70; GOOSEBERRY TO SPRING CANYON
ROTOMILLING DETAIL

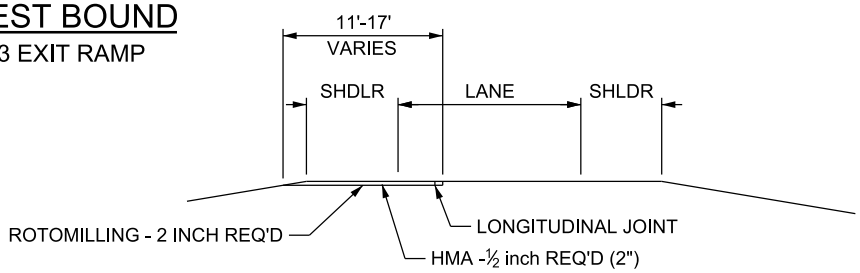
SHEET NO.
DT-05



ROTOMILLING DETAIL

I-70 WEST BOUND

EXIT 63 EXIT RAMP



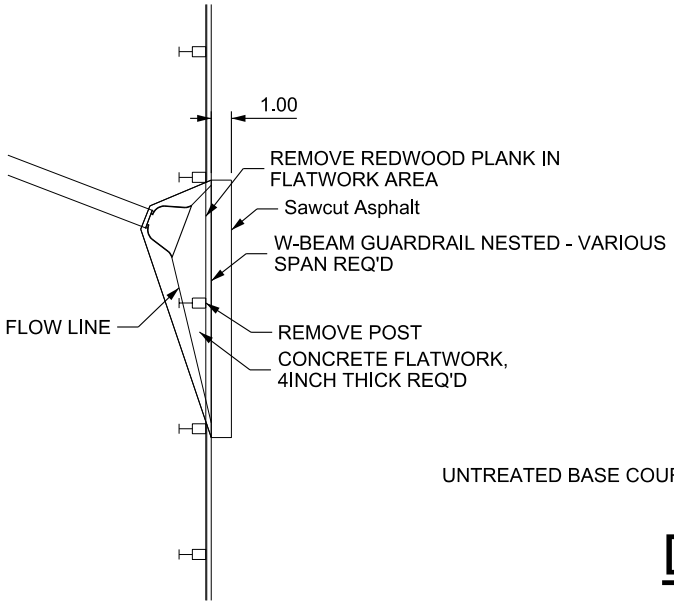
CROSS SECTION A-A

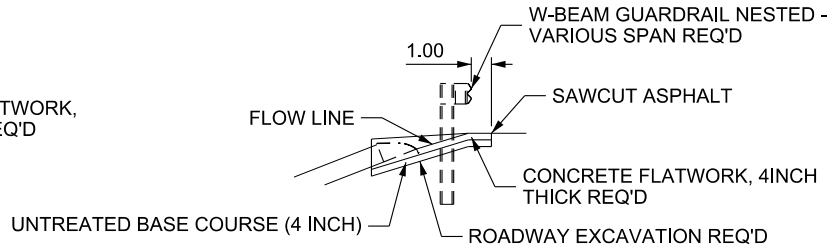
I-70

EXIT 63 WB OFF RAMP

NOTES:

1. MILL RIGHT SHOULDER AND LANE REMOVING THE LONGITUDINAL JOINT ALONG THE WEST BOUND OFF RAMP.
2. MILL A DEPTH OF 2 INCHES TO REMOVE THE GLASS-GRID.
3. MILL JUST BEYOND THE PAINTED GORE OF THE RAMP REMOVING THE AREA OF DEGRADED ASPHALT.





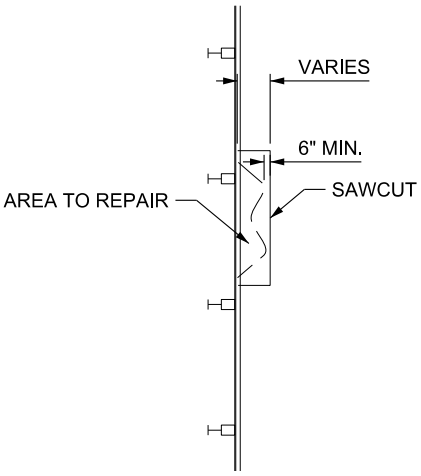
DRAINAGE DETAIL

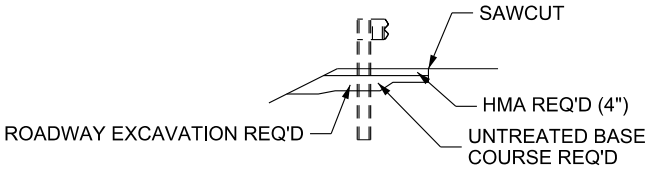
SECTION VIEW

DRAINAGE DETAIL

PLAN VIEW

MP 68.94
MP 69.62
MP 70.99
MP 72.03





HMA REPAIR DETAIL

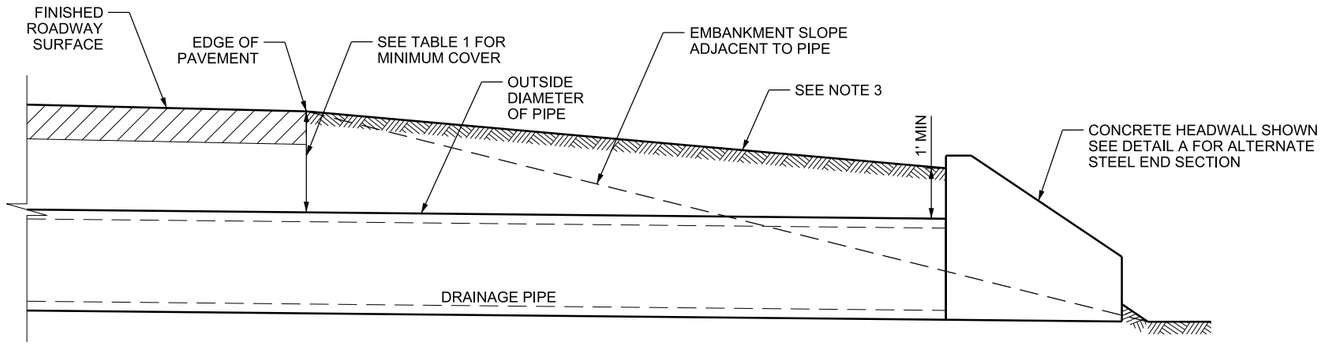
SECTION VIEW

HMA REPAIR DETAIL

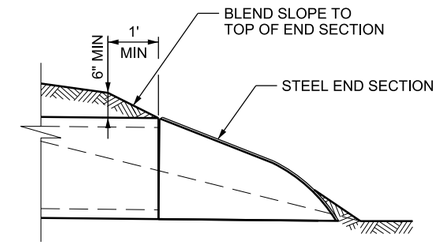
PLAN VIEW

MP 68.92
MP 69.60
MP 70.97
MP 72.01

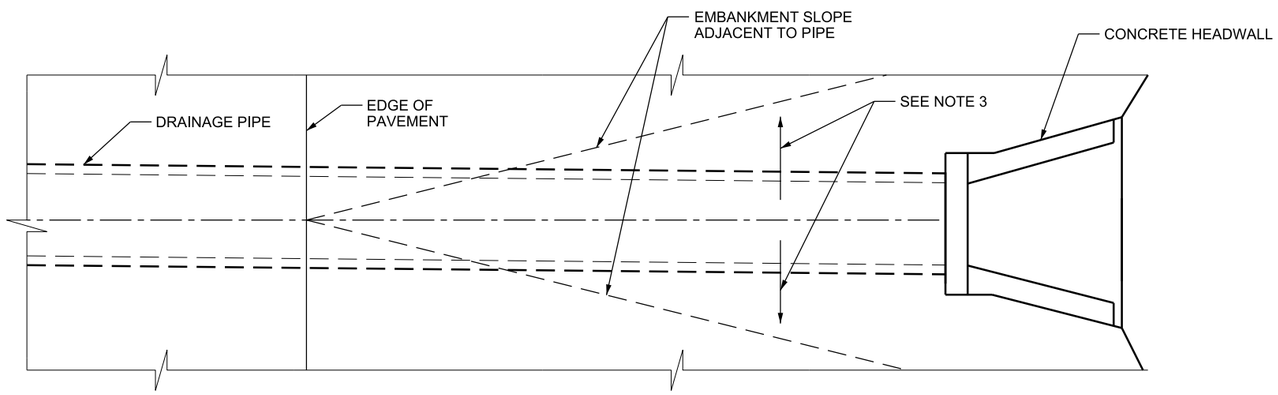
DGN File: pw://UTSTSRCONS61.utah.utad.state.ut.us:projectwise_v8i/Documents/UDOT Projects/Region 4 Projects/12477_I-70_GOOSEBERRY_TO_SPRING_CANYON/Roadway Design/12477_DT-06_Drainage_Detail.dgn
PIN: 12477
19-OCT-2016



ELEVATION



DETAIL A



PLAN

TABLE 1: MINIMUM COVER

SURFACE TYPE	PIPE TYPE		
	CIRCULAR AND ELLIPTICAL REINFORCED CONCRETE	CIRCULAR THERMOPLASTIC *	CIRCULAR AND ARCH CORRUGATED STEEL AND STRUCTURAL PLATE **
FLEXIBLE PAVEMENT OR UNPAVED	1' - 6"	2'	2'
RIGID PAVEMENT	1' - 6"	1' - 6"	1' - 6"

* MINIMUM COVER FOR THERMOPLASTIC PIPE LARGER THAN 48 INCH DIAMETER IS HALF THE PIPE DIAMETER (D/2).
** MINIMUM COVER FOR STEEL PIPE VALID UP TO 90 INCH DIAMETER OR 90 INCH SPAN WIDTH.

PIPE MINIMUM COVER

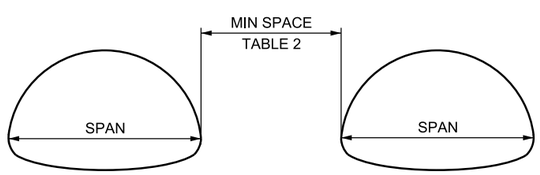


TABLE 2: MINIMUM SPACING

SPAN (INCH)	MINIMUM SPACE (INCH)
≤ 80	24
> 80 TO 120	1/3 SPAN

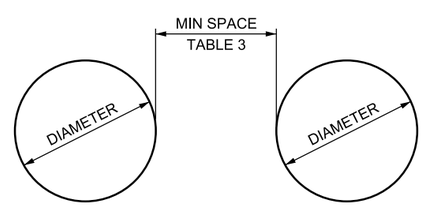


TABLE 3: MINIMUM SPACING

DIAMETER (INCH)	MINIMUM SPACE (INCH)
≤ 48	24
> 48 TO 72	½ DIAMETER
> 72 TO 120	36

PIPE MINIMUM SPACING FOR MULTIPLE INSTALLATIONS

NOTES:

1. MINIMUM COVER OVER THE TOP OF THE PIPE IS ADEQUATE ONLY FOR FINISHED CONSTRUCTION. PROVIDE ADEQUATE COVER TO PROTECT PIPE FROM DAMAGE DURING CONSTRUCTION.
2. ENGINEER REVIEWS AND APPROVES MINIMUM COVER FOR PIPE TYPES NOT LISTED IN TABLE 1.
3. GRADE SLOPE TO MEET MINIMUM COVER OVER THE END OF PIPE AND TO MATCH THE END TREATMENT. SLOPES TO MEET AASHTO CLEAR ZONE. GRADE SLOPES OVER THE PIPE NO STEEPER THAN 4:1 (H:V) WHEN OUTSIDE THE CLEARZONE.

SUPPLEMENTAL DRAWING

REVISIONS

NO.	DATE	APPR.	REMARKS
1	2/25/2016	JE	MODIFIED ENTIRE DRAWING. ADDED DETAIL FOR MINIMUM PIPE SPACING BETWEEN MULTIPLE INSTALLATIONS.

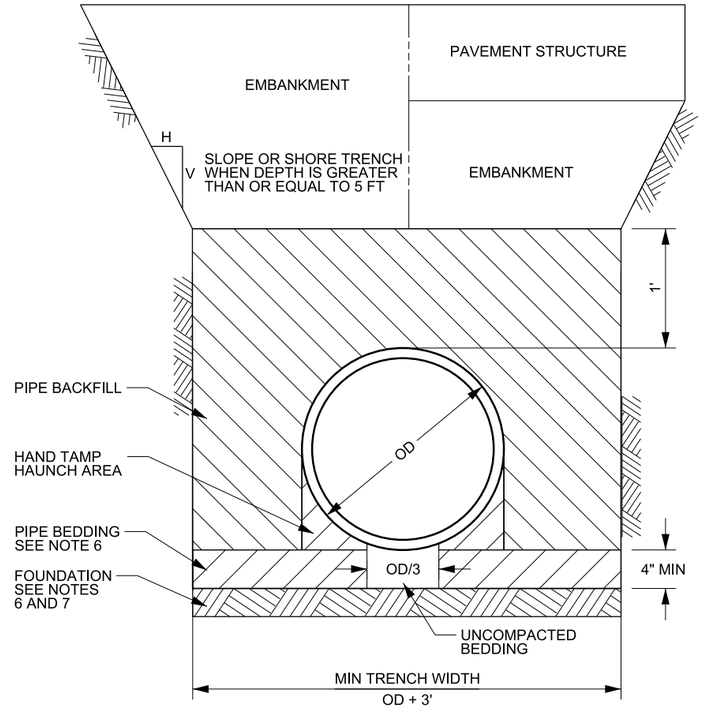
UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — FEB. 25, 2016 DATE
CHAIRMAN STANDARDS COMMITTEE APPROVED — FEB. 25, 2016 DATE
DEPUTY DIRECTOR

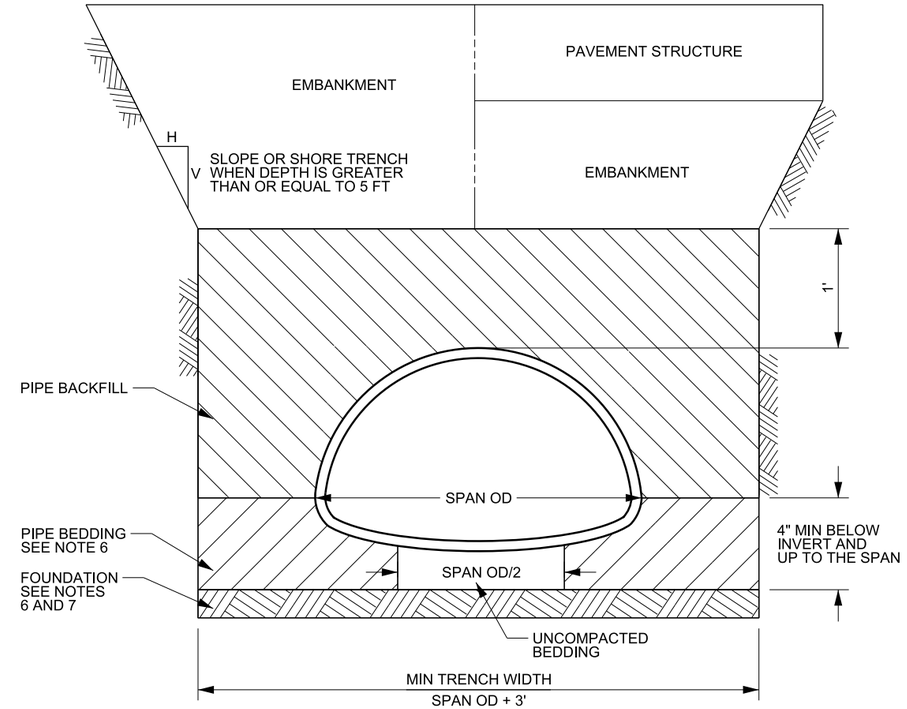
PIPE MINIMUM COVER AND SPACING
STANDARD DRAWING TITLE

STD. DWG. NO.
DG 4

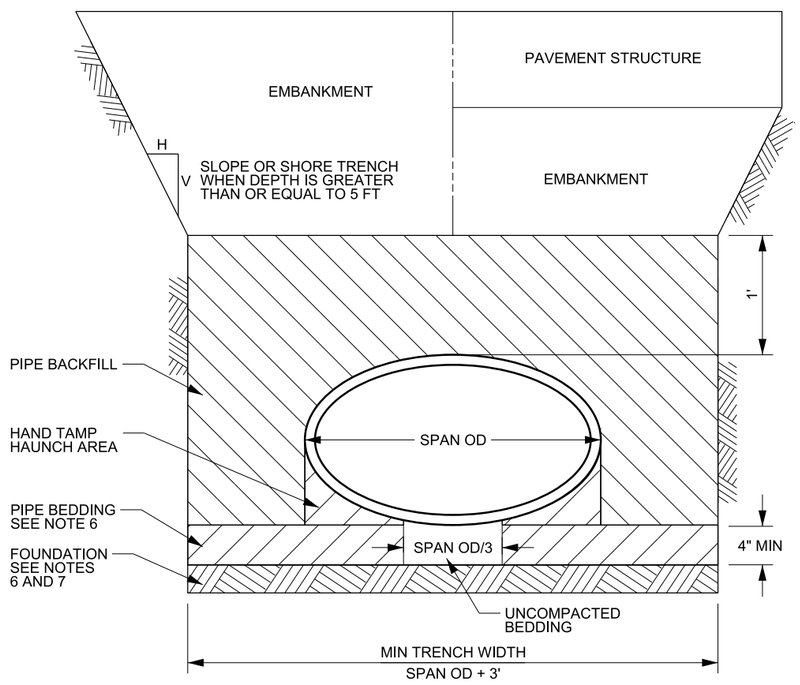
DGN File:L:\Standard.Drawings\Imperial\2012Approved_Supplemental_Issues\Suppl5Approved\DG04.dgn
07-MAR-2016



CIRCULAR PIPE



PIPE ARCH



ELLIPTICAL PIPE

NOTES:

1. REFER TO STD DWG DG SERIES FOR FILL HEIGHT REQUIREMENTS. MEASURE MAXIMUM FILL HEIGHT FROM TOP OF PIPE TO TOP OF PAVEMENT SURFACE AT HIGHEST FILL SECTION.
2. PLACE PLASTIC PIPE ONLY WITHIN A TRENCH. PLACE FILL MATERIAL AT OR ABOVE THE PIPE BACKFILL ELEVATION BEFORE EXCAVATION OF THE TRENCH WHEN PLACED IN AN EMBANKMENT.
3. FOLLOW STANDARD SPECIFICATION 00820 AND THE UDOT CONSTRUCTION SAFETY AND HEALTH MANUAL FOR MINIMUM TRENCH SAFETY REQUIREMENTS.
4. FOLLOW STANDARD SPECIFICATIONS 02056 AND 02317 FOR COMPACTION ACCEPTANCE OF FOUNDATION, BEDDING AND BACKFILL MATERIALS.
5. INCREASE THE WIDTH OF THE TRENCH 2 FT ON EACH SIDE OF THE PIPE WHEN THE SURROUNDING MATERIAL IS UNSUITABLE.
6. INCREASE THE PIPE BEDDING THICKNESS TO 6 INCHES FOR FOUNDATIONS THAT CONTAIN ROCK OR OTHER UNYIELDING MATERIAL. REMOVE BOULDERS OR ROCKS WITHIN BEDDING AREA.
7. OVER-EXCAVATE OR STABILIZE UNSUITABLE PIPE FOUNDATION MATERIAL ACCORDING TO STANDARD SPECIFICATIONS 02056 AND 02317.
8. RECESS THE BEDDING TO RECEIVE PIPE JOINTS WHERE APPLICABLE.
9. DO NOT DISTURB THE INSTALLED PIPE OR EMBEDMENT OR LEAVE VOIDS WHEN USING TRENCH BOXES AND SHIELDS.
10. SEAL THE OPENING AROUND THE PIPE AND THE DRAINAGE STRUCTURE. REFER TO STANDARD SPECIFICATION 02633.

SUPPLEMENTAL DRAWING

REVISIONS

NO.	DATE	APPR.	REMARKS
1	02/27/14	JLC	NEW DRAWING, REPLACED DG 5A, DG 5B, AND DG 5C.

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — FEB.27.2014 DATE
CHAIRMAN STANDARDS COMMITTEE APPROVED — FEB.27.2014 DATE
DEPUTY DIRECTOR

STANDARD DRAWING TITLE
DRAINAGE PIPE INSTALLATION

STD. DWG. NO.
DG 5

DGN File:L:\Standard Drawings\Imperial\2012Approved_Supplemental Issues\Supp8Approved\DG05.dgn
11-MAR-2014

RUMBLE STRIP TABLES

UNDIVIDED ROADWAY		
SHOULDER WIDTH	GROOVE WIDTH	RUMBLE STRIP LOCATION
> 4 FT	6 INCHES	A
2 FT TO 4 FT	6 INCHES	B
1 FT TO 2 FT	6 INCHES	C
< 1 FT	——	NO RUMBLE STRIP
CENTERLINE	6 INCHES	SEE STD DWGS PV 7B & PV 8

NON-FREEWAY DIVIDED ROADWAY		
SHOULDER WIDTH	GROOVE WIDTH	RUMBLE STRIP LOCATION
< 6 FT	8 INCHES	B
≥ 6 FT	12 INCHES	A

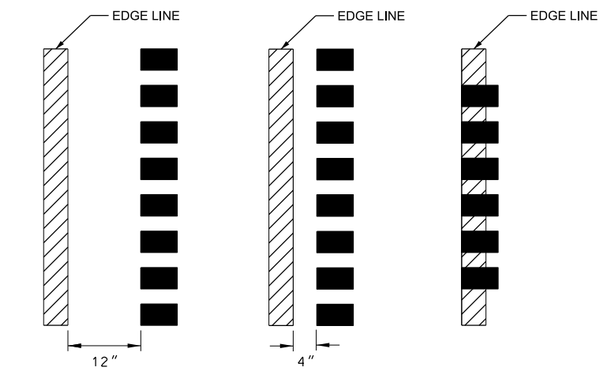
FREEWAY		
SHOULDER WIDTH	GROOVE WIDTH	RUMBLE STRIP LOCATION
ALL	12 INCHES	A

NON-BICYCLE ROUTE

SHOULDER WIDTH	GROOVE WIDTH	RUMBLE STRIP LOCATION
< 3 FT (SEE NOTE 10)	——	NO RUMBLE STRIP
3 FT TO < 4 FT	6 INCHES	C
4 FT TO < 6 FT	6 INCHES	B
> 6 FT	6 INCHES	A
FREEWAY - ALL	12 INCHES	A

BICYCLE ROUTE

(SEE NOTE 9)



SHOULDER RUMBLE STRIP LOCATIONS

NOTES:

1. DO NOT PLACE RUMBLE STRIPS ON STRUCTURES OR APPROACH SLABS.
2. DO NOT PLACE RUMBLE STRIPS WITHIN 6 INCHES OF PCCP TRANSVERSE JOINTS.
3. APPLY FLUSH OR SEAL COAT UNIFORMLY ON ALL RUMBLE STRIPS ON BITUMINOUS PAVEMENT SURFACES. SEE STANDARD SPECIFICATION 02761.
4. MILL RUMBLE STRIPS TO LEAVE A RECTANGULAR SHAPE WITH UNIFORM EDGES. DO NOT DAMAGE ADJACENT PAVEMENT DURING MILLING OPERATION.
5. RESTART RUMBLE STRIP SEQUENCE (SEE STD DWG PV 7A & 7B) WHEN RUMBLE STRIPS ARE HALTED OR INTERRUPTED, EXCEPT WHEN TRANSVERSE JOINTS ARE ENCOUNTERED ON PCCP, MANUALLY INTERRUPT SEQUENCE SO RUMBLE STRIPS DO NOT GO THROUGH TRANSVERSE JOINT WHILE MAINTAINING SEQUENCE LENGTH.
6. INSTALL RUMBLE STRIPS ONLY WHERE A MINIMUM UNINTERRUPTED LENGTH OF 100 FT CAN BE INSTALLED. DISCONTINUE RUMBLE STRIPS WHEN SHOULDER WIDTH VARIES AND WHEN WIDTH IS LESS THAN SHOWN IN RUMBLE STRIP TABLES. RESUME WHEN WIDTH IS SUFFICIENT AS SHOWN IN RUMBLE STRIP TABLES, FOR MORE THAN A 100 FT IN LENGTH.
7. SEE STD DWG PV 6B FOR RUMBLE STRIP MILL DETAIL.
8. SHOULDER WIDTH IS DEFINED AS THE EFFECTIVE SHOULDER WIDTH.
9. USE BICYCLE ROUTE TABLE FOR NATIONAL, STATE AND LOCAL BICYCLE ROUTES.
10. USE SHOULDER RUMBLE STRIP LOCATION TYPE C WITH A GROOVE WIDTH OF 6 INCHES WHEN SHOULDER WIDTH IS LESS THAN 3 FT AT THE DIRECTION OF THE REGION TRAFFIC ENGINEER.

SUPPLEMENTAL DRAWING

REVISIONS

NO.	DATE	APPR.	REMARKS
1	04/30/2015	JLL	MODIFIED ENTIRE DRAWING. NOTES AND DETAILS FROM ORIGINAL PV 6B MOVED TO PV 6A AND MODIFIED. TITLE CHANGED. ADDED NEW BICYCLE RUMBLE STRIP TABLE.

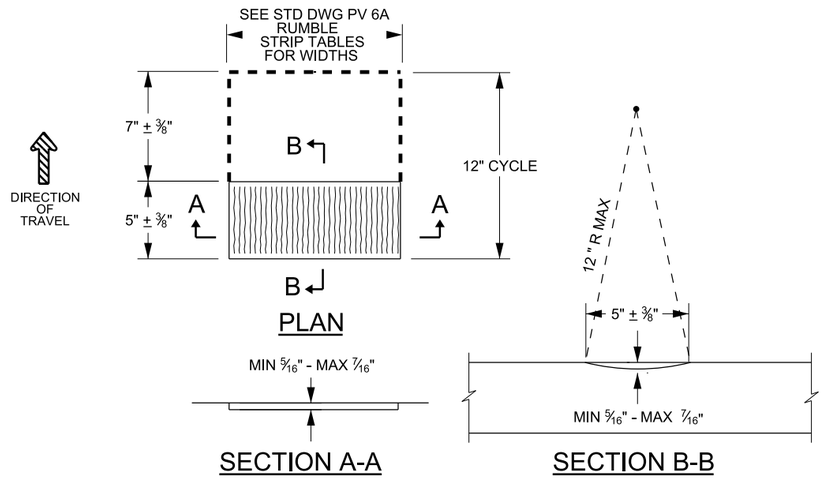
UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — APR.30.2015 DATE
CHAIRMAN STANDARDS COMMITTEE APPROVED — APR.30.2015 DATE
DEPUTY DIRECTOR

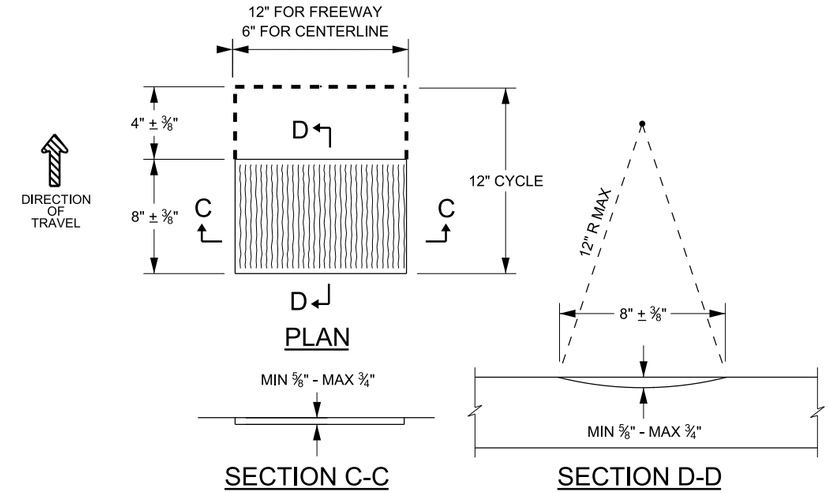
STANDARD DRAWING TITLE
RUMBLE STRIPS LOCATION DETAILS

STD. DWG. NO.
PV 6A

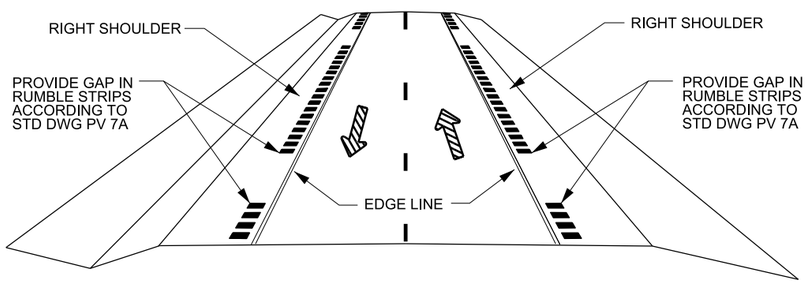
DGN File:L:\Standard_Drawings\Imperial\2012approved_Supplemental_Issues\Supp12approved\PV6A.dgn
07-MAY-2015



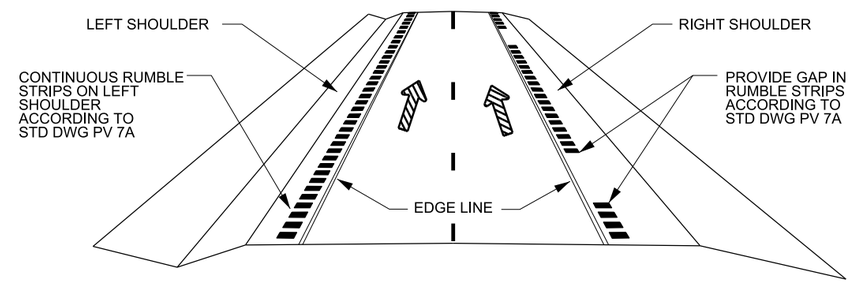
NON-FREEWAY SHOULDER RUMBLE STRIP MILL DETAILS



FREEWAY AND CENTERLINE RUMBLE STRIP MILL DETAILS



UNDIVIDED HIGHWAY



DIVIDED HIGHWAY & FREEWAY

NOTES:

1. DO NOT PLACE RUMBLE STRIPS ON STRUCTURES OR APPROACH SLABS.
2. DO NOT PLACE RUMBLE STRIPS WITHIN 6 INCHES OF PCCP TRANSVERSE JOINTS.
3. APPLY FLUSH OR SEAL COAT UNIFORMLY ON ALL RUMBLE STRIPS ON BITUMINOUS PAVEMENT SURFACES. SEE STANDARD SPECIFICATION 02761.
4. MILL RUMBLE STRIPS TO LEAVE A RECTANGULAR SHAPE WITH UNIFORM EDGES. DO NOT DAMAGE ADJACENT PAVEMENT DURING MILLING OPERATION.
5. RESTART RUMBLE STRIP SEQUENCE (SEE STD DWG PV 7A & 7B) WHEN RUMBLE STRIPS ARE HALTED OR INTERRUPTED, EXCEPT WHEN TRANSVERSE JOINTS ARE ENCOUNTERED ON PCCP, MANUALLY INTERRUPT SEQUENCE SO RUMBLE STRIPS DO NOT GO THROUGH TRANSVERSE JOINT WHILE MAINTAINING SEQUENCE LENGTH.
6. INSTALL RUMBLE STRIPS ONLY WHERE A MINIMUM UNINTERRUPTED LENGTH OF 100 FT CAN BE INSTALLED. DISCONTINUE RUMBLE STRIPS WHEN SHOULDER WIDTH VARIES AND WHEN WIDTH IS LESS THAN SHOWN IN RUMBLE STRIP TABLES. RESUME WHEN WIDTH IS SUFFICIENT AS SHOWN IN RUMBLE STRIP TABLES, FOR MORE THAN A 100 FT IN LENGTH.
7. SEE STD DWG PV 6A FOR RUMBLE STRIP TABLES WITH GROOVE WIDTH AND LOCATION.

SUPPLEMENTAL DRAWING

REVISIONS

NO.	DATE	APPR.	REMARKS
1	04/30/2015	JLL	UPDATED AND COMBINED INFO FROM OLD STD DWG PV 6A & PV 6B.

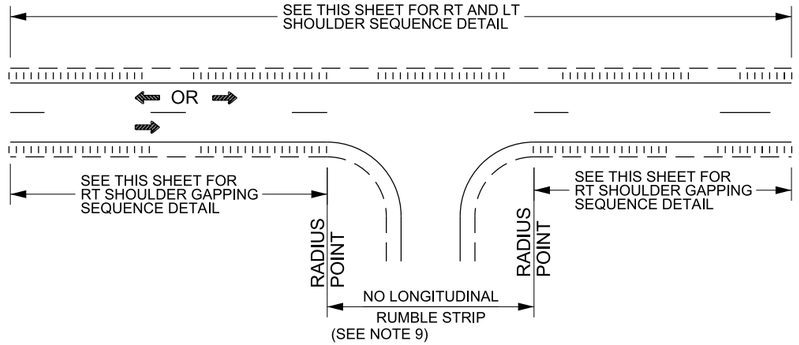
UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — APR.30.2015 DATE
CHAIRMAN STANDARDS COMMITTEE APPROVED — APR.30.2015 DATE
DEPUTY DIRECTOR

STANDARD DRAWING TITLE
RUMBLE STRIPS
DEPTH AND
LOCATION DETAILS

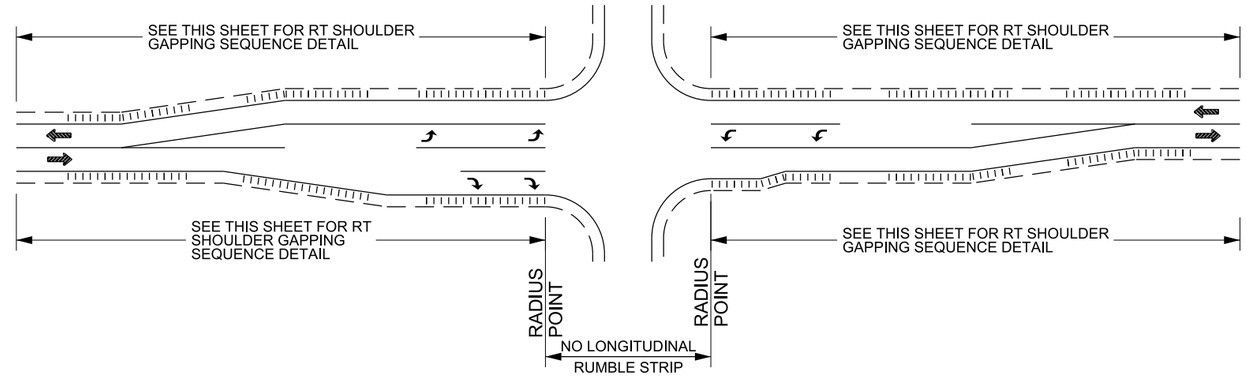
STD. DWG. NO.
PV 6B

07-MAY-2015 DGN File:L:\Standard Drawings\Imperial\2012\Approved\Supplemental Issues\Supp12Approved\PV6B.dgn

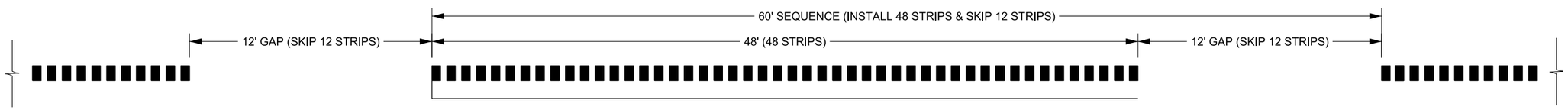


TYPICAL SHOULDER INSTALLATION AT DRIVEWAY OR ACCESS DETAIL

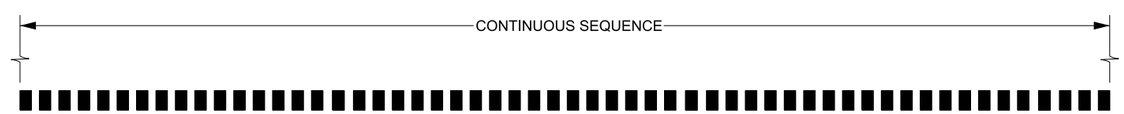
USE CONTINUOUS RUMBLE STRIP ON LEFT SHOULDER IN ONE WAY TRAFFIC SITUATIONS



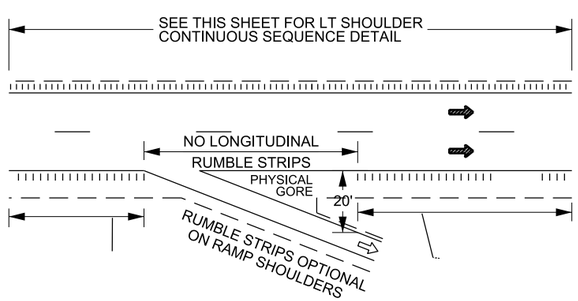
TYPICAL SHOULDER INSTALLATION AT INTERSECTION DETAIL



TYPICAL RIGHT SHOULDER GAPPING SEQUENCE DETAIL



TYPICAL LEFT SHOULDER CONTINUOUS SEQUENCE DETAIL



TYPICAL SHOULDER INSTALLATION ON EXIT RAMP DETAIL ENTRANCE RAMP SIMILAR

NOTES:

1. DO NOT PLACE RUMBLE STRIPS ON STRUCTURES OR APPROACH SLABS.
2. DO NOT PLACE RUMBLE STRIPS WITHIN 6 INCHES OF PCCP TRANSVERSE JOINTS.
3. APPLY FLUSH OR SEAL COAT UNIFORMLY ON ALL RUMBLE STRIPS ON BITUMINOUS PAVEMENT SURFACES. SEE STANDARD SPECIFICATION 02761.
4. MILL RUMBLE STRIPS TO LEAVE A RECTANGULAR SHAPE WITH UNIFORM EDGES. DO NOT DAMAGE ADJACENT PAVEMENT DURING MILLING OPERATION.
5. RESTART RUMBLE STRIP SEQUENCE (SEE STD DWG PV 7A & 7B) WHEN RUMBLE STRIPS ARE HALTED OR INTERRUPTED, EXCEPT WHEN TRANSVERSE JOINTS ARE ENCOUNTERED ON PCCP, MANUALLY INTERRUPT SEQUENCE SO RUMBLE STRIPS DO NOT GO THROUGH TRANSVERSE JOINT WHILE MAINTAINING SEQUENCE LENGTH.
6. INSTALL RUMBLE STRIPS ONLY WHERE A MINIMUM UNINTERRUPTED LENGTH OF 100 FT CAN BE INSTALLED. DISCONTINUE RUMBLE STRIPS WHEN SHOULDER WIDTH VARIES AND WHEN WIDTH IS LESS THAN SHOWN IN RUMBLE STRIP TABLES. RESUME WHEN WIDTH IS SUFFICIENT AS SHOWN IN RUMBLE STRIP TABLES, FOR MORE THAN A 100 FT IN LENGTH.
7. SEE STD DWG PV 6A FOR RUMBLE STRIP TABLES WITH GROOVE WIDTH AND LOCATION.
8. SEE STD DWG PV 6B FOR RUMBLE STRIP MILL DETAILS.
9. DO NOT PLACE SHOULDER RUMBLE STRIPS THROUGH INTERSECTIONS. DO NOT PLACE SHOULDER RUMBLE STRIPS THROUGH DRIVEWAYS AND ACCESSES WITH NON-CONTINUOUS EDGE LINES. INSTALL SHOULDER RUMBLE STRIP THROUGH DRIVEWAYS AND ACCESSES WITH CONTINUOUS EDGE LINES. SEE DETAILS ON THIS SHEET.
10. SEE STD DWG PV 7B FOR CENTER LINE RUMBLE STRIP APPLICATIONS.

SUPPLEMENTAL DRAWING

REVISIONS

NO.	DATE	APPR.	REMARKS
1	04/30/2015	JLL	UPDATED AND COMBINED INFO FROM OLD STD DWG PV 6A & PV 7. RENUMBERED FOR PV 7 TO PV 7A.

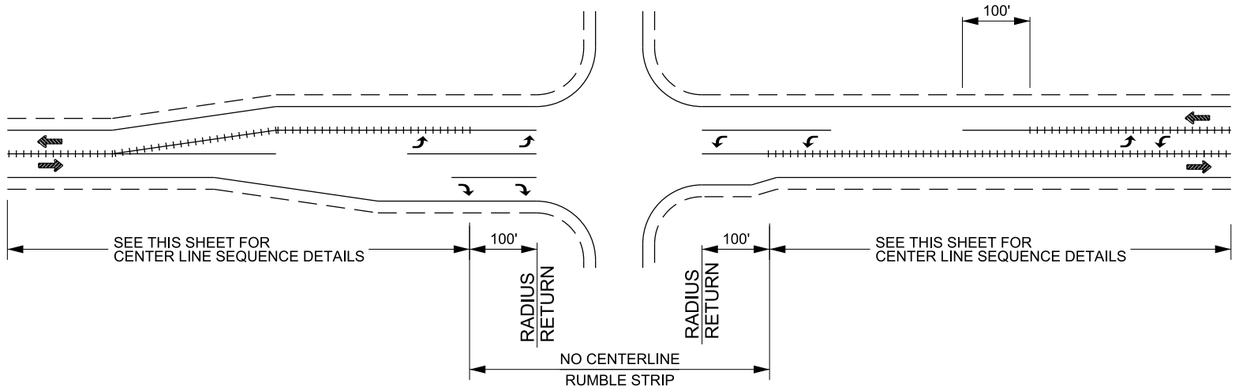
UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — APR.30.2015 DATE
CHAIRMAN STANDARDS COMMITTEE APPROVED — APR.30.2015 DATE
DEPUTY DIRECTOR

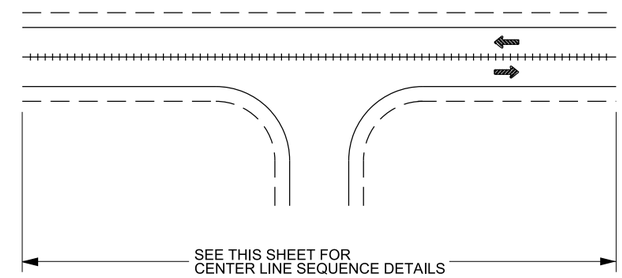
STANDARD DRAWING TITLE
TYPICAL RUMBLE STRIP SHOULDER SEQUENCING AND APPLICATIONS

STD. DWG. NO.
PV 7A

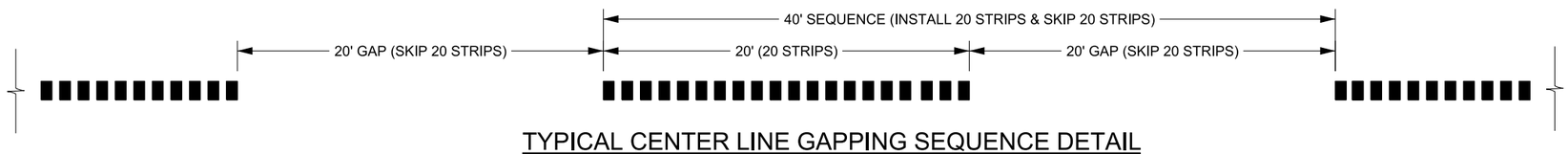
DGN File:L:\Standard Drawings\Imperial\2012Approved_Supplemental_Issues\Supp12Approved\PV7a.dgn
07-MAY-2015



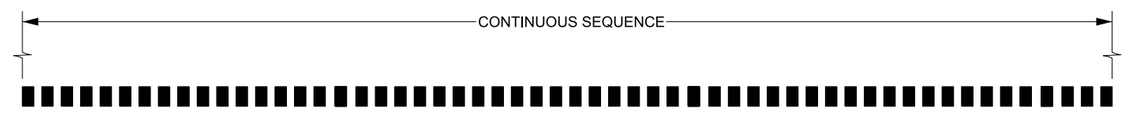
TYPICAL INSTALLATION FOR AN INTERSECTION OR TURN LANE



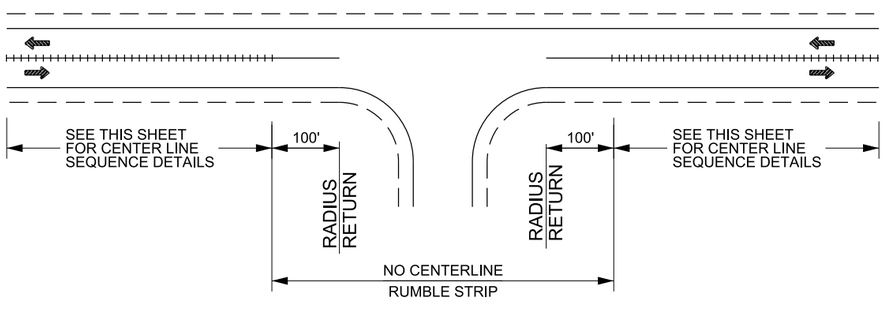
TYPICAL CENTER LINE INSTALLATION AT DRIVEWAYS AND ACCESSES WITH CONTINUOUS CENTER LINE



TYPICAL CENTER LINE GAPPING SEQUENCE DETAIL



TYPICAL CENTER LINE CONTINUOUS SEQUENCE DETAIL



TYPICAL CENTER LINE INSTALLATION AT DRIVEWAY AND ACCESSES WITH NON CONTINUOUS CENTER LINE

NOTES:

1. DO NOT PLACE RUMBLE STRIPS ON STRUCTURES OR APPROACH SLABS.
2. DO NOT PLACE RUMBLE STRIPS WITHIN 6 INCHES OF PCCP TRANSVERSE JOINTS.
3. APPLY FLUSH OR SEAL COAT UNIFORMLY ON ALL RUMBLE STRIPS ON BITUMINOUS PAVEMENT SURFACES. SEE STANDARD SPECIFICATION 02761.
4. MILL RUMBLE STRIPS TO LEAVE A RECTANGULAR SHAPE WITH UNIFORM EDGES. DO NOT DAMAGE ADJACENT PAVEMENT DURING MILLING OPERATION.
5. RESTART RUMBLE STRIP SEQUENCE (SEE STD DWG PV 7A & 7B) WHEN RUMBLE STRIPS ARE HALTED OR INTERRUPTED, EXCEPT WHEN TRANSVERSE JOINTS ARE ENCOUNTERED ON PCCP, MANUALLY INTERRUPT SEQUENCE SO RUMBLE STRIPS DO NOT GO THROUGH TRANSVERSE JOINT WHILE MAINTAINING SEQUENCE LENGTH.
6. SEE STD DWG PV 6A FOR RUMBLE STRIP TABLES WITH GROOVE WIDTH AND LOCATION.
7. SEE STD DWG PV 6B FOR RUMBLE STRIP MILL DETAIL.
8. SEE STD DWG PV 7A & 7B FOR RUMBLE STRIP SEQUENCING.
9. DO NOT PLACE CENTERLINE RUMBLE STRIPS THROUGH INTERSECTIONS. DO NOT PLACE CENTER LINE RUMBLE STRIPS THROUGH DRIVEWAYS AND ACCESSES WITH NON-CONTINUOUS CENTER LINE. PLACE CENTER LINE RUMBLE STRIP THROUGH DRIVEWAYS AND ACCESSES WITH CONTINUOUS CENTER LINE. SEE DETAILS ON THIS SHEET.
10. SEE STD DWG PV 7A FOR SHOULDER RUMBLE STRIP APPLICATIONS.

SUPPLEMENTAL DRAWING

REVISIONS

NO.	DATE	APPR.	REMARKS
1	04/30/2015	JLL	NEW DRAWING.

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — APR.30.2015 DATE

CHAIRMAN STANDARDS COMMITTEE APPROVED — APR.30.2015 DATE

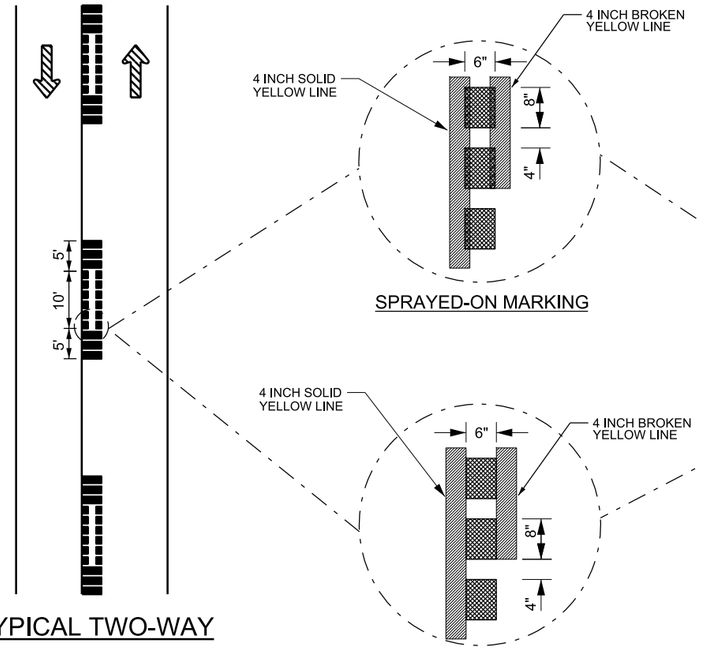
DEPUTY DIRECTOR

STANDARD DRAWING TITLE: TYPICAL RUMBLE STRIP CENTER LINE SEQUENCING AND APPLICATION

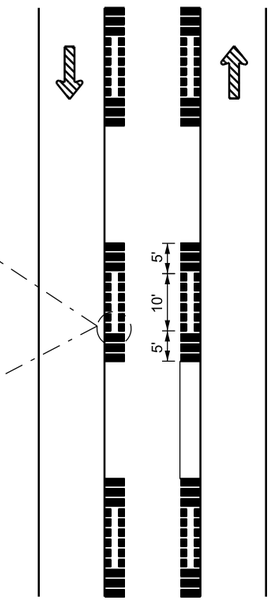
STD. DWG. NO. PV 7B

DGN File:L:\Standard_Drawings\Imperial\2012approved_Supplemental_Issues\Supp12approved\PV7B.dgn

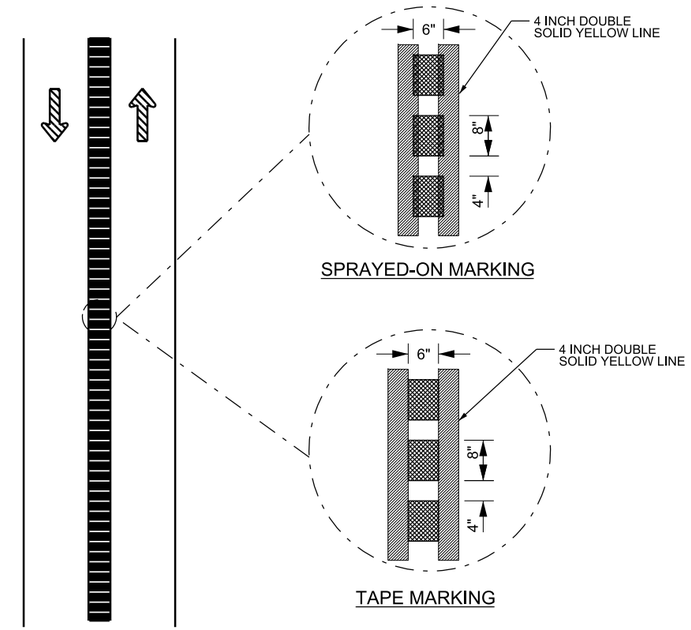
07-MAY-2015



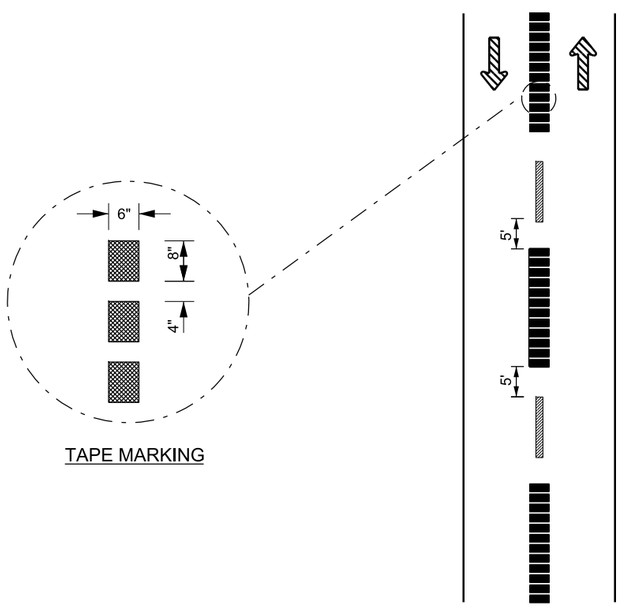
TYPICAL TWO-WAY WITH ONE-DIRECTION NO-PASSING ZONE



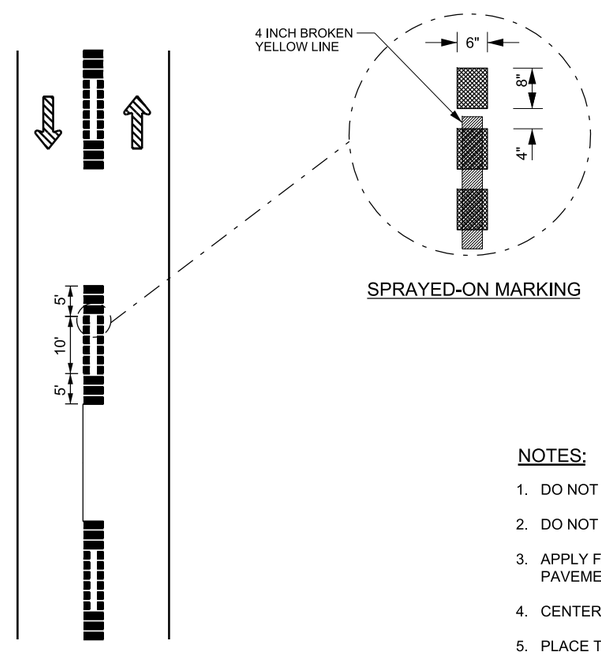
TYPICAL TWO-WAY WITH LEFT TURN LANE



TYPICAL TWO-WAY WITH NO PASSING ZONES



TYPICAL TWO-DIRECTION PASSING ZONE (TAPE MARKING)



TYPICAL TWO-DIRECTION PASSING ZONE (SPRAYED-ON MARKINGS)

NOTES:

1. DO NOT PLACE RUMBLE STRIPS ON STRUCTURES OR APPROACH SLABS.
2. DO NOT PLACE RUMBLE STRIPS WITHIN 6 INCHES OF PCCP TRANSVERSE JOINTS.
3. APPLY FLUSH OR SEAL COAT UNIFORMLY ON ALL RUMBLE STRIPS ON BITUMINOUS PAVEMENT SURFACES. SEE STANDARD SPECIFICATION 02761.
4. CENTER SPRAYED-ON MARKINGS ON RUMBLE STRIPS.
5. PLACE TAPE MARKINGS MIDWAY BETWEEN BROKEN LINES.
6. SEE STD DWG PV 7B FOR CENTERLINE RUMBLE STRIP DETAIL.

SUPPLEMENTAL DRAWING

REVISIONS

NO.	DATE	APPR.	REMARKS
1	04/30/2015	JLL	UPDATED AND COMBINED INFO FROM OLD STD DWG PV 8A & PV 8B. PV 8A RENUMBERED T PV 8 AND PV 8B DELTED. TITLED CHANGED.

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — APR.30.2015 DATE
CHAIRMAN STANDARDS COMMITTEE APPROVED — APR.30.2015 DATE
DEPUTY DIRECTOR

STANDARD DRAWING TITLE
TYPICAL RUMBLE STRIP CENTERLINE APPLICATION

STD. DWG. NO.
PV 8

07-MAY-2015 DGN File:L:\Standard Drawings\Imperial\2012Approved\Supplemental Issues\Supp12Approved\PV8.dgn

GENERAL NOTES (APPLIES TO ALL TC SERIES STANDARD DRAWINGS):

1. USE CURRENT EDITION OF UDOT STANDARDS FOR TRAFFIC CONTROL. USE THE CURRENT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) FOR TRAFFIC CONTROL ELEMENTS NOT SHOWN IN THE TC STD DWG SERIES.

2. USE CURRENT EDITION OF STANDARD HIGHWAY SIGNS & MARKING BOOK FOR SIZE AND DESIGN OF STANDARD SIGNS.

3. SEE STD DWG TC 2A AND TC 2B FOR WORK ZONE SIGNING AND DEVICE REQUIREMENTS.

4. USE MINIMUM SIGN SIZE OF 48 x 48 INCHES FOR DIAMOND WORK ZONE WARNING SIGNS.

5. COVER OR REMOVE NON-APPLICABLE SIGNING, BOTH EXISTING AND WORK ZONE SIGNS.

6. REMOVE NON-APPLICABLE PAVEMENT MARKINGS FOR OPERATIONS LONGER THAN 3 DAYS.

7. REMOVE OR RELOCATE NON-APPLICABLE PORTABLE SIGN SUPPORTS AND SIGNS BEYOND TWICE THE WORK CLEAR ZONE (WCZ) DISTANCE, SEE SHEET TC 3A, TABLE 1.

8. REFER TO STANDARD SPECIFICATION 01554 FOR FLAGGING REQUIREMENTS AT OPERATING TRAFFIC SIGNALS.

9. PRE-CONSTRUCTION POSTED SPEED LIMIT: THE PERMANENT POSTED SPEED LIMIT PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES.

10. USE LANE WIDTH RESTRICTIONS OF LESS THAN 12 FT ONLY WHEN APPROVED BY THE REGION TRAFFIC ENGINEER WITH THE FOLLOWING MINIMUMS:
    A. PRE-CONSTRUCTION POSTED SPEED LIMIT LESS THAN 55 MPH, MINIMUM LANE WIDTH 10 FT.
    B. PRE-CONSTRUCTION POSTED SPEED LIMIT OF 55 MPH OR GREATER, MINIMUM LANE WIDTH 11 FT.

11. CLEAN AND RESTORE PAVEMENT MARKINGS, BOTH ON AND OFF THE PROJECT, THAT ARE OBSCURED BY WORK OPERATIONS AT THE END OF EACH DAY'S OPERATION.

12. OBTAIN APPROVAL FOR REGULATORY AND ADVISORY SPEED REDUCTIONS THROUGH THE REGION TRAFFIC ENGINEER. USE SPEED REDUCTIONS ONLY DURING IMPACTED TIMES AND AREAS. RESTORE EXISTING REGULATORY SPEED LIMIT PRIOR TO WORK AT LOCATIONS WHERE TRAFFIC IS NOT BEING IMPACTED BY WORK ACTIVITIES. SEE POLICY 06C-61.

13. USE THE PRE-CONSTRUCTION POSTED SPEED LIMIT PRIOR TO WORK ZONE TO COMPUTE THE SIGN SPACING, TAPER LENGTH, BUFFER ZONE, AND WORK CLEAR ZONE DISTANCES. USE THE WORK ZONE POSTED SPEED LIMIT TO DETERMINE THE TANGENT SPACING FOR CHANNELIZING DEVICES.

14. DO NOT USE TUBULAR MARKERS AS LANE CLOSURE TAPER DEVICES. USE DRUMS OR DIRECTION INDICATOR BARRICADES AS LANE CLOSURE TAPER DEVICES FOR SPEEDS 50 MPH AND GREATER.

15. USE A DOWNSTREAM TAPER FOR OPERATIONS LONGER THAN 3 DAYS.

16. ARROW BOARD PLACEMENT:
    A. PLACE ARROW BOARD ON THE SHOULDER OF THE ROADWAY OR, IF PRACTICAL, FURTHER FROM THE TRAVELED LANE. PLACE ARROW BOARD IN FIRST 1/3 OF TAPER IN THE CLOSED LANE WHEN NO ADEQUATE SHOULDER IS AVAILABLE. DELINEATE WITH RETROREFLECTIVE TEMPORARY TRAFFIC CONTROL (TTC) DEVICES.
    B. REMOVE ARROW BOARD WHEN NOT BEING USED OR SHIELDED BEHIND A TRAFFIC BARRIER AND TURNED AWAY FROM TRAFFIC. DELINEATE WITH RETRORELECTIVE TTC DEVICES IF THE PREVIOUS TWO OPTIONS ARE NOT FEASIBLE.

17. USE AN APPROVED WORK ZONE CRASH CUSHION OR END TREATMENT SYSTEM WITH TEMPORARY PRECAST CONCRETE BARRIER WHEN APPROACH ENDS ARE WITHIN THE AASHTO CLEAR ZONE. USE APPROVED TRUCK MOUNTED ATTENUATOR SYSTEM FOR ONLY 72 HOURS OR LESS.

18. USE PROPER LENGTH OF NEED FOR TEMPORARY BARRIER AS PER THE REQUIREMENTS OF THE CURRENT EDITION OF THE ROADSIDE DESIGN GUIDE. USE POSTED SPEED LIMIT PRIOR TO THE WORK ZONE FOR THE DESIGN OF THE REQUIRED LENGTH OF NEED. SEE STD DWG TC 3A FOR THE WORK ZONE FLARE RATE REQUIREMENT FOR TEMPORARY BARRIER. APPROVAL FROM THE REGION TRAFFIC ENGINEER IS REQUIRED FOR MODIFICATION TO THE REQUIRED FLARE RATE.

19. USE STEEL PLATE AHEAD SIGN (W8-24) IN ADVANCE OF PLATE WHEN STEEL PLATES ARE PLACED ON THE ROADWAY. PLACE BUMP SIGN (W8-1) WITH A DIAGONAL DOWNWARD POINTING ARROW (W16-7P) PLAQUE ADJACENT TO THE STEEL PLATE.

20. USE IDENTICAL LEGEND SUPPLEMENTAL LEFT SIDE SIGNING FOR HIGH-SPEED DIVIDED HIGHWAYS.

21. MAINTAIN PEDESTRIAN TRAFFIC AT EXISTING CROSSWALKS AND ON EXISTING SIDEWALKS. REROUTE ACCORDING TO STD DWG TC 6 WHEN PEDESTRIAN TRAFFIC CANNOT BE MAINTAINED.

22. DO NOT USE AUTOMATED FLAGGER ASSISTANCE DEVICES (AFADs).

23. DO NOT USE PROMOTIONAL OR OTHER INFORMATIONAL IDENTIFICATIONS OF PUBLIC OFFICIALS, CONTRACTORS, ORGANIZATIONAL AFFILIATIONS, RELATED LOGOS AND SYMBOLS ON TRAFFIC CONTROL DEVICES .

24. MEET STANDARD SPECIFICATION 01554 FOR CRASH WORTHINESS OF DEVICES.

25. REMOVE OR COVER ALL WORK ZONE REDUCED SPEED LIMIT ASSEMBLIES (RS2-1a) AND THE WORK ZONE REDUCED SPEED LIMIT AHEAD (W3-5 SERIES) SIGNS WHEN NO ONE IS WORKING, EXCEPT AS APPROVED BY THE REGION TRAFFIC ENGINEER. DO NOT COVER PRE-CONSTRUCTION POSTED SPEED LIMIT ASSEMBLIES (RS2-1a).

SUPPLEMENTAL DRAWING

REVISIONS

NO.	DATE	APPR.	REMARKS
1	08/30/12	SDD	REVISED NOTE 14, 17, & 25.

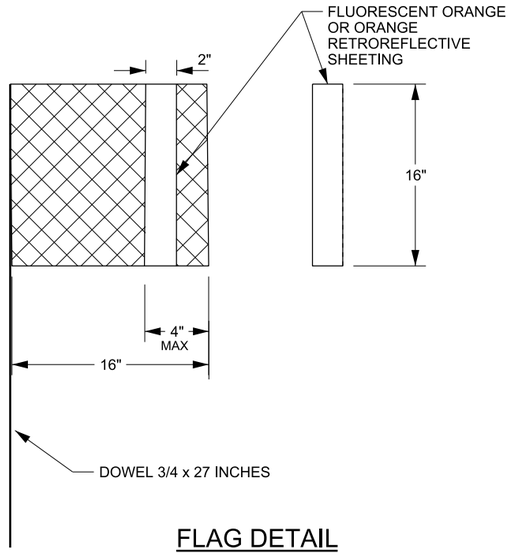
UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — AUG.30,2012 DATE
CHAIRMAN STANDARDS COMMITTEE APPROVED — AUG.30,2012 DATE
DEPUTY DIRECTOR

STANDARD DRAWING TITLE
TRAFFIC CONTROL
DRAWING SERIES
GENERAL NOTES

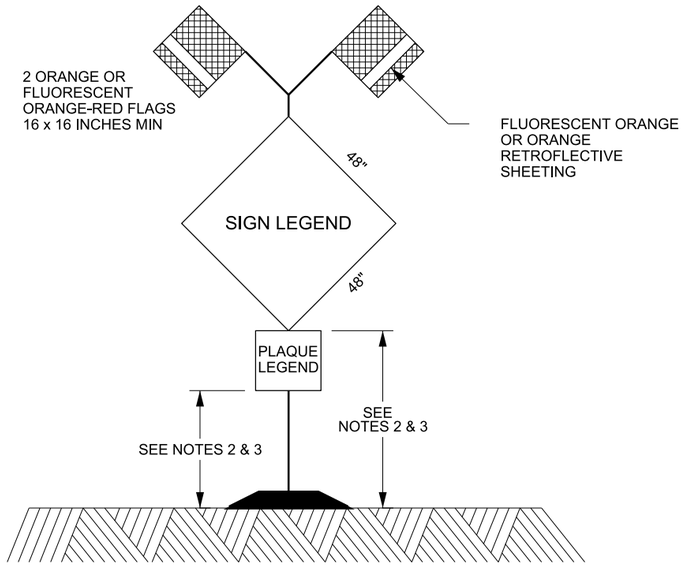
STD. DWG. NO.
TC 1

12-SEP-2012 DGN File:L:\Standard Drawings\Imperial\2012Approved_Supplemental Issues\SuppApproved\TC01.dgn



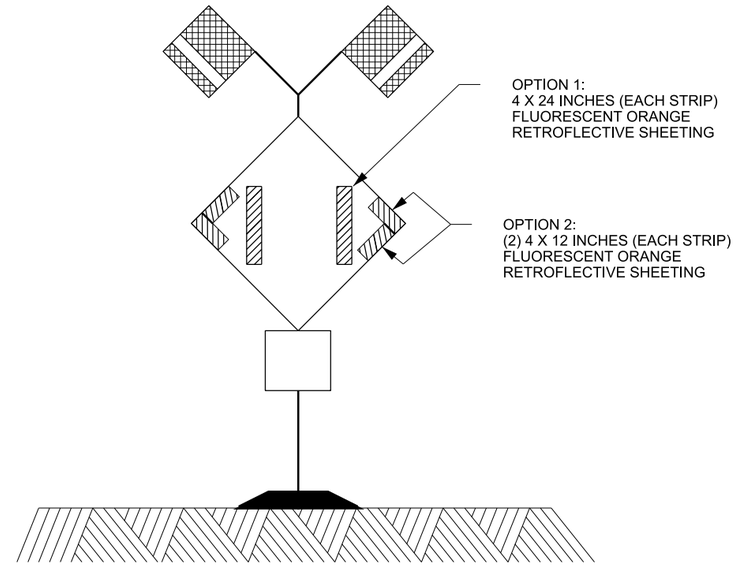
FLAG DETAIL

SEE NOTE 8



TYPICAL PORTABLE SIGN SUPPORTS INSTALLATION WITH FLAGS TRAFFIC SIDE DETAIL

SEE NOTES 4 & 6



TYPICAL PORTABLE SIGN SUPPORTS INSTALLATION WITH FLAGS BACK SIDE DETAIL

SEE NOTE 5

SEE NOTES 1 & 6

NOTES:

1. CLOSE ROADWAYS WITH TYPE 3 BARRICADES. EXTEND THE BARRICADES ACROSS INTENDED ROAD CLOSURE A MINIMUM OF 3/4 OF THE ROADWAY STARTING FROM THE CENTER OF THE ROADWAY AND EXTENDING IN BOTH DIRECTIONS TOWARD THE SHOULDERS. PLACE A "ROAD CLOSED" SIGN (R11-2) OVER THE CENTER LINE AND THE APPROPRIATE "DETOUR" ARROW SIGNS (M4-10 L OR R) ON EACH SIDE OF THE "ROAD CLOSED" SIGN. DETOUR ARROWS ARE NOT REQUIRED IF DETOUR IS NOT AT ROAD CLOSURE.

2. USE A 12 INCH MINIMUM MOUNTING HEIGHT TO THE BOTTOM OF THE LOWEST SIGN FOR SIGNS ON PORTABLE SUPPORTS.

3. USE A 36 INCH MINIMUM MOUNTING HEIGHT TO THE BOTTOM OF THE LOWEST SIGN FOR SIGNS ON PORTABLE SUPPORTS PLACED AMONG CHANNELIZING DEVICES.

4. USE A MINIMUM 7 FT MOUNTING HEIGHT FOR ALL GROUND MOUNTED SIGNS. REFER TO SN SERIES STANDARD DRAWINGS.

5. PLACE TWO FLUORESCENT ORANGE STRIPS OF RETROREFLECTIVE SHEETING, 4 x 24 INCHES, WITHIN 12 INCHES FROM THE RIGHT AND LEFT EDGES ON THE BACK OF SIGNS USED WITH PORTABLE SUPPORTS.

6. USE SANDBAGS WITH SAND OR OTHER COMPARABLE SOFT MATERIAL AS BALLAST. DO NOT PLACE BALLAST HIGHER THAN 12 INCHES ABOVE THE ROADWAY AND DO NOT COVER ANY RETROREFLECTIVE AREA OF RAILS OR SIGNS.

7. USE SIGNS ON PORTABLE SUPPORTS FOR 7 DAYS OR LESS. USE PERMANENTLY MOUNTED SIGNS FOR LONGER THAN 7 DAYS UNLESS USE OF PORTABLE SIGN SUPPORTS RECEIVES APPROVAL FROM THE REGION TRAFFIC ENGINEER.

8. USE 2 x 16 INCHES FLUORESCENT ORANGE OR ORANGE RETROREFLECTIVE SHEETING SECURELY FASTENED WITHIN 4 INCHES FROM THE OUTSIDE EDGE OF FLAG. ENSURE THE SHEETING IS VISIBLE FROM EACH SIDE.

SUPPLEMENTAL DRAWING

REVISIONS

NO.	DATE	APPR.	REMARKS
1	08/30/12	SDD	MODIFIED BACKSIDE DETAIL.

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — AUG.30.2012 DATE
CHAIRMAN STANDARDS COMMITTEE APPROVED — AUG.30.2012 DATE
DEPUTY DIRECTOR

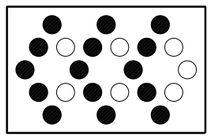
STANDARD DRAWING TITLE
WORK ZONE SIGNING

STD. DWG. NO.
TC 2B

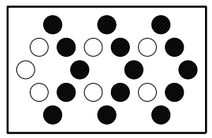
DGN File:L:\Standard Drawings\Imperial\2012Approved_Supplemental Issues\SuppApproved\TC02B.dgn
12-SEP-2012

CHEVRON ARROW

SEE NOTE 2

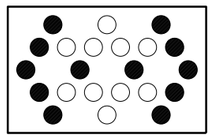


MERGE LEFT



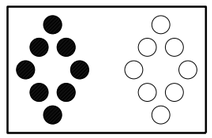
MERGE RIGHT

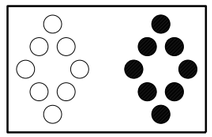
FLASHING DOUBLE ARROW



MERGE RIGHT OR LEFT

FLASHING CAUTION

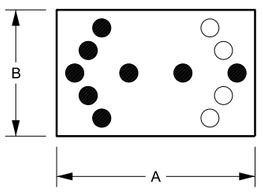




ALTERNATING DIAMOND

FLASHING ARROW

(OPTIONAL)
SEE NOTE 3



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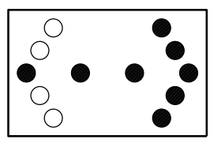


MERGE RIGHT

	TYPE B	TYPE C
A	60 INCHES	96 INCHES
B	30 INCHES	48 INCHES

ARROW BOARD DIMENSIONS

NOTES:

1. PLACE THE ARROW BOARD MOUNTING HEIGHT OF A MINIMUM OF 7 FT, MEASURED VERTICALLY FROM THE BOTTOM OF THE BOARD TO THE ROADWAY BELOW IT OR TO THE ELEVATION OF THE NEAR EDGE OF THE ROADWAY.
2. SEQUENTIAL ARROW MAY BE USED.
3. FLASHING ARROW MAY ONLY BE USED ON A 12 ELEMENT DISPLAY.
4. USE SHOULDER TAPER TO DELINEATE ARROW BOARD WHEN ON SHOULDER.
5. TYPE B - 4 INCH DIA SEALED - BEAM ELEMENT
   TYPE C - 5 INCH DIA SEALED - BEAM ELEMENT
6. DO NOT USE ARROW BOARDS TO INDICATE A LANE SHIFT.

SUPPLEMENTAL DRAWING

REVISIONS

NO.	DATE	APPR.	REMARKS
1	06/26/2014	SDD	CORRECTED ARROW BOARD DIMENSIONS IN TABLE.

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — JUN.26.2014 DATE

CHAIRMAN STANDARDS COMMITTEE APPROVED — JUN.26.2014 DATE

DEPUTY DIRECTOR

STANDARD DRAWING TITLE
WORK ZONE
ADVANCED WARNING
ARROW BOARDS

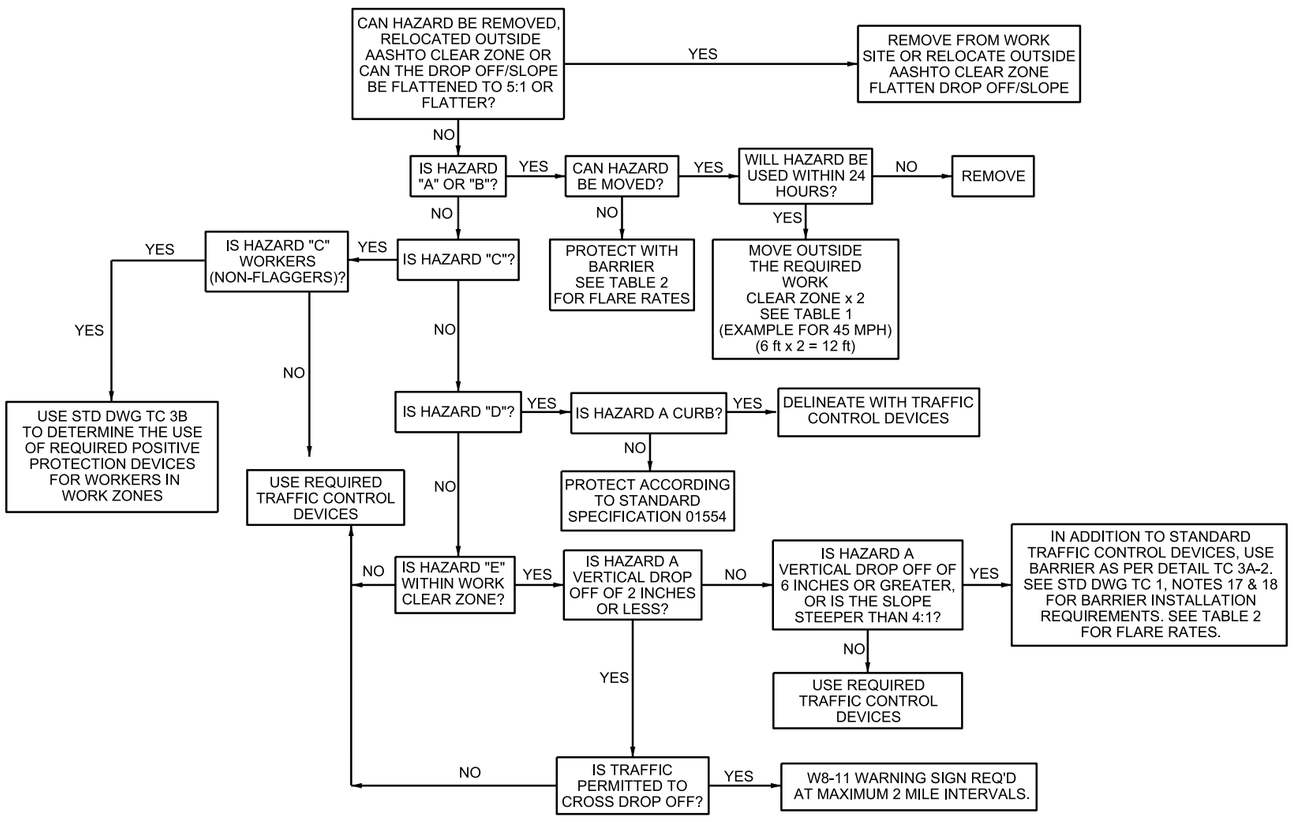
STD. DWG. NO.
TC 2C

DGN File: L:\Standard Drawings\Imperial\2012Approved\Supplemental Issues\Sup9Approved\TC02C.dgn
09-JUL-2014

HAZARD MITIGATION

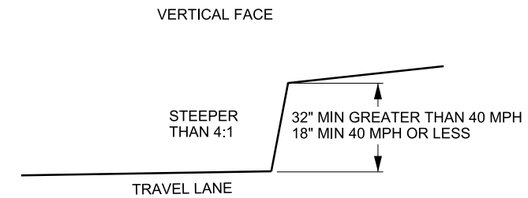
1. USE DETAIL TC 3A-1 AND TABLE 1 (WORK CLEAR ZONE) WHEN MITIGATING THE FOLLOWING HAZARDS:
   A. NON-WORKING EQUIPMENT OR VEHICLES
   B. STOCKPILED MATERIAL
   C. WORKING VEHICLES AND WORKERS (NON-FLAGGERS)
   D. OTHER OBJECTS AND FEATURES (I.E.: INCOMPLETE CURBS, BRIDGE PARAPETS, BARRIER BLUNT ENDS, POLES)
   E. SLOPES STEEPER THAN 4:1 OR A VERTICAL DROP OFF* OF LESS THAN 48 INCHES
   (SEE DETAIL TC 3A-2 FOR EXAMPLES)

2. MITIGATE ALL OTHER HAZARDS, SLOPES STEEPER THAN 4:1, OR VERTICAL DROP OFFS* 48 INCHES OR GREATER WITHIN AASHTO CLEAR ZONE AS APPROVED BY THE REGION TRAFFIC ENGINEER.



DETAIL TC 3A-1

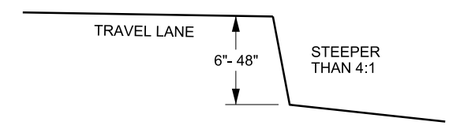
* DROP OFF IS A VERTICAL DIFFERENCE THAT MAY BE FROM THE WORK TO THE ROADWAY OR THE ROADWAY TO THE WORK.



BARRIER REQUIRED FOR SLOPES STEEPER THAN 4:1 AND GREATER THAN INDICATED HEIGHT UNLESS BACKSLOPE IS A SMOOTH UNIFORM SURFACE OF SUITABLE MATERIAL.

SLOPE MUST REMAIN STABLE AND NOT SPALL AT HEIGHT AND SPECIFIED SPEED.

SLOPE STEEPER THAN 4:1
AND VERTICAL EXCAVATION



WITHIN WORK CLEAR ZONE USE BARRIER

OUTSIDE WORK CLEAR ZONE USE DEVICES

GREATER THAN 48 INCH OBTAIN APPROVAL FROM REGION TRAFFIC ENGINEER

TYPE "E" VERTICAL DROP OFF HAZARDS

DETAIL TC 3A-2

TABLE 1
WORK CLEAR ZONE

POSTED MPH	FT
40 & LESS	3
45	6
50	6.5
55	7.5
60	8
65	8.5
70	9
75	10.5
80	12

TABLE 2
WORK ZONE FLARE RATES TEMPORARY BARRIER

POSTED MPH	FLARE
70 OR GREATER	20:1
65	18:1
60	17:1
55	16:1
50	14:1
45	10:1
40 OR LESS	6:1

SUPPLEMENTAL DRAWING

REVISIONS

NO.	DATE	APPR.	REMARKS
1	08/30/12	SDD	REVISED TC 1 NOTE CALL OUTS, DELETED 01558 MARKING
			VERTICAL DROP OFF REQUIREMENT.
2	02/28/13	SDD	ADDED INCOMPLETE CURB TO TYPE "D" HAZARD
			IN DETAIL TC 3A-1, REVISED DETAIL TC 3A-2 VERTICAL FACE
			DESCRIPTION.

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — FEB.28.2013 DATE
CHAIRMAN STANDARDS COMMITTEE APPROVED — FEB.28.2013 DATE
DEPUTY DIRECTOR

STANDARD DRAWING TITLE: HAZARD MITIGATION

STD. DWG. NO. TC 3A

DGN File:L:\Standard_Drawings\Imperial\2012Approved_Supplemental_Issues\Supp3Approved\TC03A.dgn
07-MAR-2013

TAPER, BUFFER ZONE & SIGN SPACING CHART

ROAD TYPE	POSTED SPEED MPH (S)	MINIMUM TAPER LENGTH(L)	LENGTH OF BUFFER(BZ)	MINIMUM SIGN SPACING (SS)				ONE LANE TWO-WAY FLAGGING
		12 FT LANE CLOSURE	DESIREABLE	A	B	C	D	TAPER LENGTH
		FT	FT	FT	FT	FT	FT	FT
CONVENTIONAL	30 AND LOWER	180	200	100	100	100	100	50
	35	245	250	350	350	350	175	
	40	320	305					
	45	540	360	500	500	500	250	100
	50	600	425					
	55	660	495					
	60	720	570					
	65	780	645					
FREEWAY/ EXPRESSWAY	65	780	645	1000	1640	2640	500	
	70	840	730					
	75	900	820					
	80	960	910					

1- TAPER LENGTH FORMULAS

SPEED	FORMULA
FOR SPEEDS OF 40 MPH AND LESS	$L=\frac{WS^2}{60}$
FOR SPEEDS OF 45 MPH AND GREATER	L= WS

L = TAPER LENGTH IN FEET
W = WIDTH OF OFFSET IN FEET
S = SPEED IN MPH

⅓ L = FOR SHOULDER CLOSURE TAPER
½ L = FOR LANE SHIFT TAPER

2- CHANNELIZING DEVICES

A) MERGING AND SHIFTING TAPERS: USE A MINIMUM OF 1 DEVICE PER FT OF LANE CLOSURE WIDTH, PLUS 1 ADDITIONAL DEVICE TO START.

B) SHOULDER, ONE-LANE TWO-WAY, AND DOWNSTREAM TAPERS: USE A MINIMUM OF 1 DEVICE PER 3 FT OF WIDTH (OR PORTION THEREOF), PLUS 1 ADDITONAL DEVICE TO START.

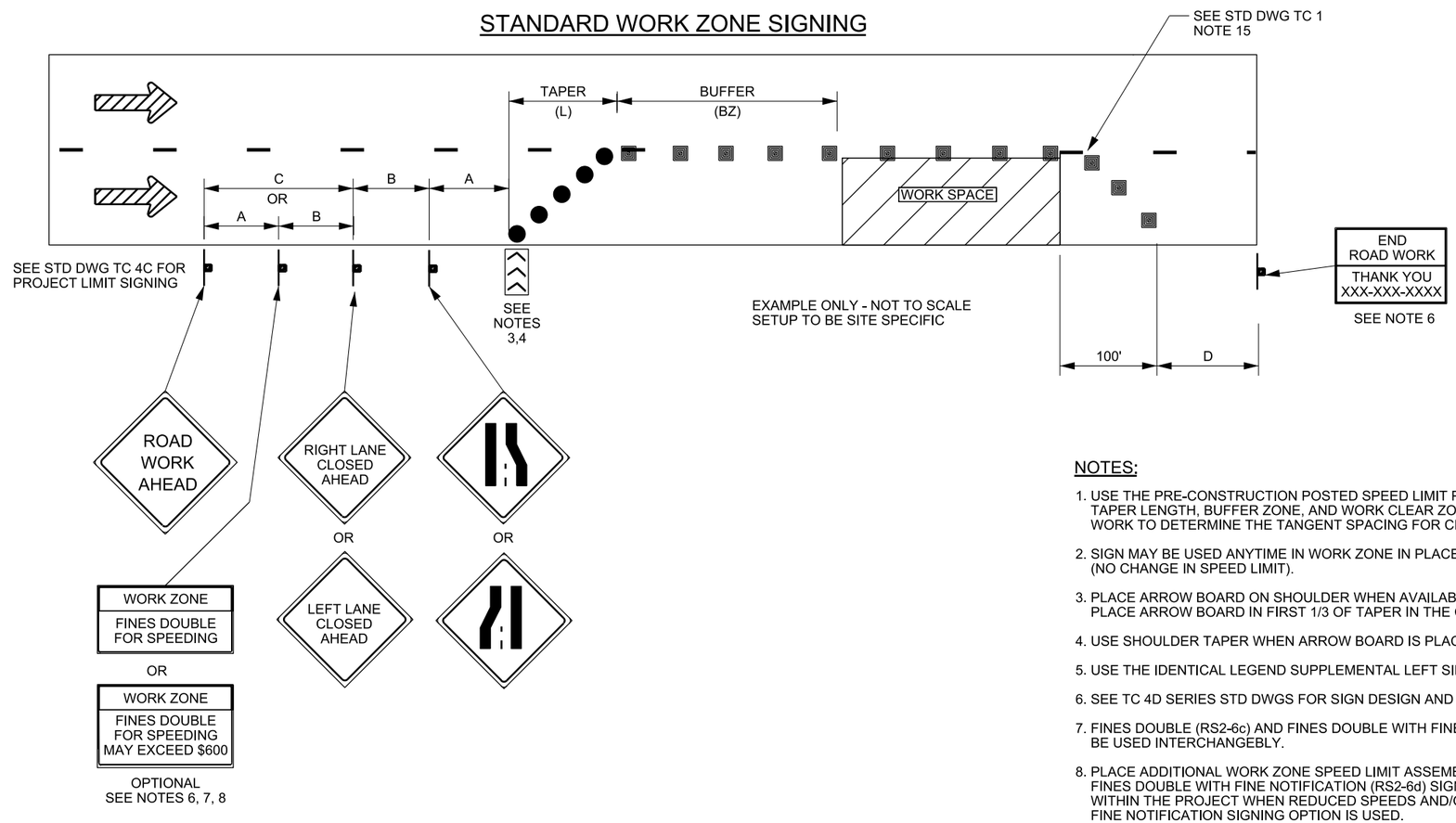
C) ON TANGENT: S x 2 = SPACING UP TO 120 FT MAXIMUM.

D) LENGTH OF BUFFER ZONE (BZ) IS THE DISTANCE FROM END OF LANE CLOSURE TAPER TO WORK SPACE, OR ANY OBSTRUCTION PRIOR TO WORK SPACE.

TRAFFIC CONTROL DEVICE LEGEND

- SIGN (FIXED OR PORTABLE)
- CHANNELIZING DEVICE (SEE STD DWG TC 2A)
- DRUMS OR DIRECTIONAL INDICATOR BARRICADE
- FLAGGING STATION
- ARROW BOARD
- BARRIER
- DIRECTION OF TRAFFIC
- TYPE 3 BARRICADE
- DIRECTION OF WORK VEHICLE

STANDARD WORK ZONE SIGNING



NOTES:

1. USE THE PRE-CONSTRUCTION POSTED SPEED LIMIT PRIOR TO WORK ZONE TO COMPUTE THE SIGN SPACING, TAPER LENGTH, BUFFER ZONE, AND WORK CLEAR ZONE DISTANCE. USE THE POSTED SPEED LIMIT DURING WORK TO DETERMINE THE TANGENT SPACING FOR CHANNELIZING DEVICES.
2. SIGN MAY BE USED ANYTIME IN WORK ZONE IN PLACE OF EXISTING SPEED LIMIT SIGNS (NO CHANGE IN SPEED LIMIT).
3. PLACE ARROW BOARD ON SHOULDER WHEN AVAILABLE. WHEN NO ADEQUATE SHOULDER IS AVAILABLE, PLACE ARROW BOARD IN FIRST 1/3 OF TAPER IN THE CLOSED LANE.
4. USE SHOULDER TAPER WHEN ARROW BOARD IS PLACED ON SHOULDER.
5. USE THE IDENTICAL LEGEND SUPPLEMENTAL LEFT SIDE SIGNING FOR HIGH-SPEED DIVIDED HIGHWAYS.
6. SEE TC 4D SERIES STD DWGS FOR SIGN DESIGN AND LAYOUT.
7. FINES DOUBLE (RS2-6c) AND FINES DOUBLE WITH FINE NOTIFICATION (RS2-6d) SIGNS MAY BE USED INTERCHANGEBLY.
8. PLACE ADDITIONAL WORK ZONE SPEED LIMIT ASSEMBLIES (RS2-1a), FINES DOUBLE (RS2-6c), AND/OR FINES DOUBLE WITH FINE NOTIFICATION (RS2-6d) SIGNS AT ALL MAJOR INTERSECTIONS AND INTERCHANGES WITHIN THE PROJECT WHEN REDUCED SPEEDS AND/OR THE FINES DOUBLE OR THE FINES DOUBLE WITH FINE NOTIFICATION SIGNING OPTION IS USED.

SUPPLEMENTAL DRAWING

REVISIONS

NO.	DATE	APPR.	REMARKS
1	08/30/12	SDD	REVISED TO 1 CALL OUT. CORRECTED LOCATION OF END ROAD WORK SIGN.

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — AUG.30, 2012 DATE
CHAIRMAN STANDARDS COMMITTEE APPROVED — AUG.30, 2012 DATE
DEPUTY DIRECTOR

STANDARD WORK ZONE SIGNING GENERAL
STANDARD DRAWING TITLE

STD. DWG. NO.
TC 4A

DGN File:L:\Standard Drawings\Imperial\2012Approved_Supplemental Issues\SupplApproved\TC04A.dgn
12-SEP-2012

TAPER, BUFFER ZONE & SIGN SPACING CHART

ROAD TYPE	POSTED SPEED MPH (S)	MINIMUM TAPER LENGTH(L)	LENGTH OF BUFFER(BZ)	MINIMUM SIGN SPACING (SS)				ONE LANE TWO-WAY FLAGGING
		12 FT LANE CLOSURE	DESIREABLE	A	B	C	D	TAPER LENGTH
		FT	FT	FT	FT	FT	FT	FT
CONVENTIONAL	30 AND LOWER	180	200	100	100	100	100	50
	35	245	250	350	350	350	175	
	40	320	305					
	45	540	360	500	500	500	250	100
	50	600	425					
	55	660	495					
	60	720	570					
	65	780	645					
FREEWAY/ EXPRESSWAY	65	780	645	1000	1640	2640	500	
	70	840	730					
	75	900	820					
	80	960	910					

1- TAPER LENGTH FORMULAS

SPEED	FORMULA
FOR SPEEDS OF 40 MPH AND LESS	$L = \frac{WS^2}{60}$
FOR SPEEDS OF 45 MPH AND GREATER	L= WS

L = TAPER LENGTH IN FEET
W = WIDTH OF OFFSET IN FEET
S = SPEED IN MPH

⅓ L = FOR SHOULDER CLOSURE TAPER
½ L = FOR LANE SHIFT TAPER

2- CHANNELIZING DEVICES

A) MERGING AND SHIFTING TAPERS: USE A MINIMUM OF 1 DEVICE PER FT OF LANE CLOSURE WIDTH, PLUS 1 ADDITIONAL DEVICE TO START.

B) SHOULDER, ONE-LANE TWO-WAY, AND DOWNSTREAM TAPERS: USE A MINIMUM OF 1 DEVICE PER 3 FT OF WIDTH (OR PORTION THEREOF), PLUS 1 ADDITONAL DEVICE TO START.

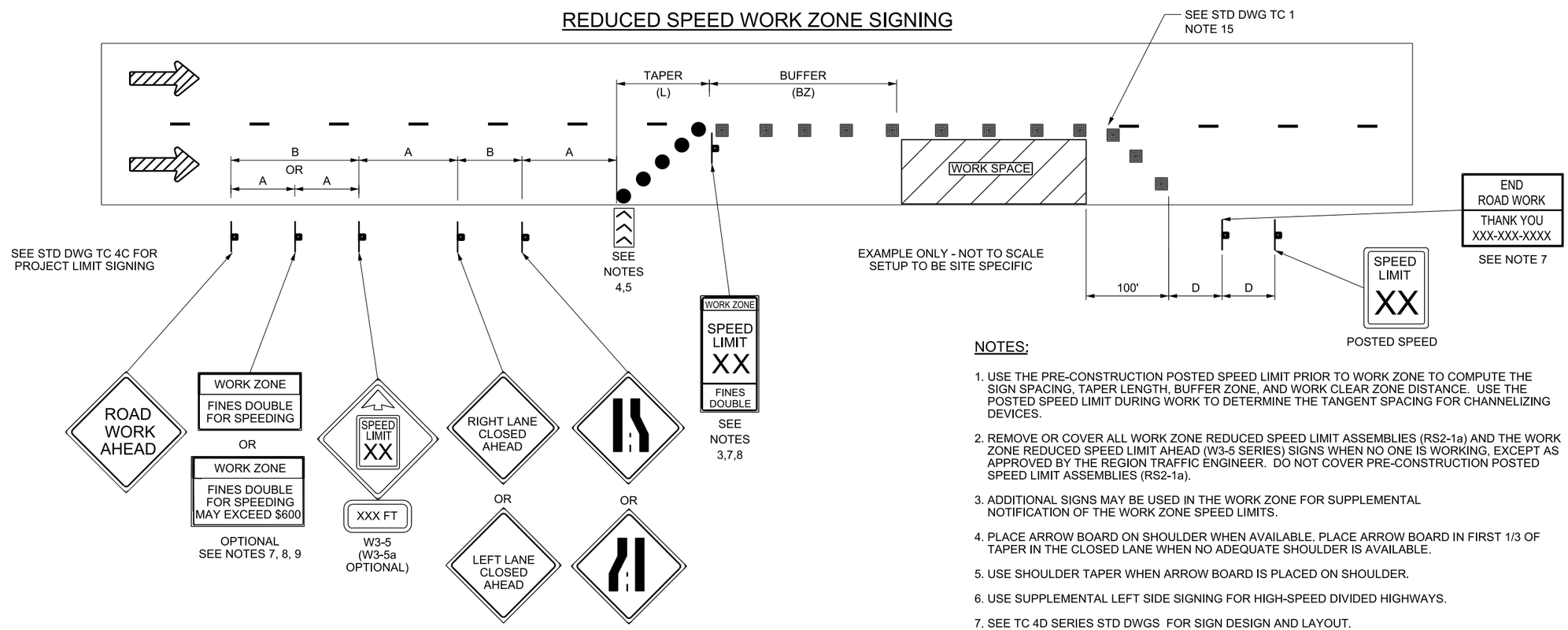
C) ON TANGENT: S x 2 = SPACING UP TO 120 FT MAXIMUM.

D) LENGTH OF BUFFER ZONE (BZ) IS THE DISTANCE FROM END OF LANE CLOSURE TAPER TO WORK SPACE, OR ANY OBSTRUCTION PRIOR TO WORK SPACE.

TRAFFIC CONTROL DEVICE LEGEND

- SIGN (FIXED OR PORTABLE)
- CHANNELIZING DEVICE (SEE STD DWG TC 2A)
- DRUMS OR DIRECTIONAL INDICATOR BARRICADE
- FLAGGING STATION
- ARROW BOARD
- BARRIER
- DIRECTION OF TRAFFIC
- TYPE III BARRICADE
- DIRECTION OF WORK VEHICLE

REDUCED SPEED WORK ZONE SIGNING



NOTES:

1. USE THE PRE-CONSTRUCTION POSTED SPEED LIMIT PRIOR TO WORK ZONE TO COMPUTE THE SIGN SPACING, TAPER LENGTH, BUFFER ZONE, AND WORK CLEAR ZONE DISTANCE. USE THE POSTED SPEED LIMIT DURING WORK TO DETERMINE THE TANGENT SPACING FOR CHANNELIZING DEVICES.
2. REMOVE OR COVER ALL WORK ZONE REDUCED SPEED LIMIT ASSEMBLIES (RS2-1a) AND THE WORK ZONE REDUCED SPEED LIMIT AHEAD (W3-5 SERIES) SIGNS WHEN NO ONE IS WORKING, EXCEPT AS APPROVED BY THE REGION TRAFFIC ENGINEER. DO NOT COVER PRE-CONSTRUCTION POSTED SPEED LIMIT ASSEMBLIES (RS2-1a).
3. ADDITIONAL SIGNS MAY BE USED IN THE WORK ZONE FOR SUPPLEMENTAL NOTIFICATION OF THE WORK ZONE SPEED LIMITS.
4. PLACE ARROW BOARD ON SHOULDER WHEN AVAILABLE. PLACE ARROW BOARD IN FIRST 1/3 OF TAPER IN THE CLOSED LANE WHEN NO ADEQUATE SHOULDER IS AVAILABLE.
5. USE SHOULDER TAPER WHEN ARROW BOARD IS PLACED ON SHOULDER.
6. USE SUPPLEMENTAL LEFT SIDE SIGNING FOR HIGH-SPEED DIVIDED HIGHWAYS.
7. SEE TC 4D SERIES STD DWGS FOR SIGN DESIGN AND LAYOUT.
8. FINES DOUBLE (RS2-6c) AND FINES DOUBLE WITH FINE NOTIFICATION (RS2-6d) SIGNS MAY BE USED INTERCHANGEABLY.
9. PLACE ADDITIONAL WORK ZONE SPEED LIMIT ASSEMBLIES (RS2-1a), FINES DOUBLE (RS2-6c), AND/OR FINES DOUBLE WITH FINE NOTIFICATION (RS2-6d) SIGNS AT ALL MAJOR INTERSECTIONS AND INTERCHANGES WITHIN THE PROJECT WHEN REDUCED SPEEDS AND/OR THE FINES DOUBLE OR THE FINES DOUBLE WITH FINE NOTIFICATION SIGNING OPTION IS USED.

SUPPLEMENTAL DRAWING

REVISIONS

NO.	DATE	APPR.	REMARKS
1	08/30/12	SDD	REVISED NOTE 2. REVISED TC 1 CALL OUT.

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — AUG.30, 2012 DATE
CHAIRMAN STANDARDS COMMITTEE APPROVED — AUG.30, 2012 DATE
DEPUTY DIRECTOR

STANDARD DRAWING TITLE
REDUCED SPEED WORK ZONE SIGNING GENERAL

STD. DWG. NO.
TC 4B1

DGN File: L:\Standard Drawings\Imperial\2012Approved_Supplemental Issues\Supp14approved\TC04B1.dgn
12-SEP-2012

TAPER, BUFFER ZONE & SIGN SPACING CHART

ROAD TYPE	POSTED SPEED MPH (S)	MINIMUM TAPER LENGTH(L)	LENGTH OF BUFFER(BZ)	MINIMUM SIGN SPACING (SS)				ONE LANE TWO-WAY FLAGGING
		12 FT LANE CLOSURE	DESIREABLE	A	B	C	D	TAPER LENGTH
		FT	FT	FT	FT	FT	FT	FT
CONVENTIONAL	30 AND LOWER	180	200	100	100	100	100	50
	35	245	250	350	350	350	175	
	40	320	305					
	45	540	360	500	500	500	250	100
	50	600	425					
	55	660	495					
	60	720	570					
	65	780	645					
FREEWAY/ EXPRESSWAY	65	780	645	1000	1640	2640	500	
	70	840	730					
	75	900	820					
	80	960	910					

1- TAPER LENGTH FORMULAS

SPEED	FORMULA
FOR SPEEDS OF 40 MPH AND LESS	$L = \frac{WS^2}{60}$
FOR SPEEDS OF 45 MPH AND GREATER	L= WS

L = TAPER LENGTH IN FEET
W = WIDTH OF OFFSET IN FEET
S = SPEED IN MPH

⅓ L = FOR SHOULDER CLOSURE TAPER
½ L = FOR LANE SHIFT TAPER

2- CHANNELIZING DEVICES

A) MERGING AND SHIFTING TAPERS: USE A MINIMUM OF 1 DEVICE PER FT OF LANE CLOSURE WIDTH, PLUS 1 ADDITIONAL DEVICE TO START.

B) SHOULDER, ONE-LANE TWO-WAY, AND DOWNSTREAM TAPERS: USE A MINIMUM OF 1 DEVICE PER 3 FT OF WIDTH (OR PORTION THEREOF), PLUS 1 ADDITONAL DEVICE TO START.

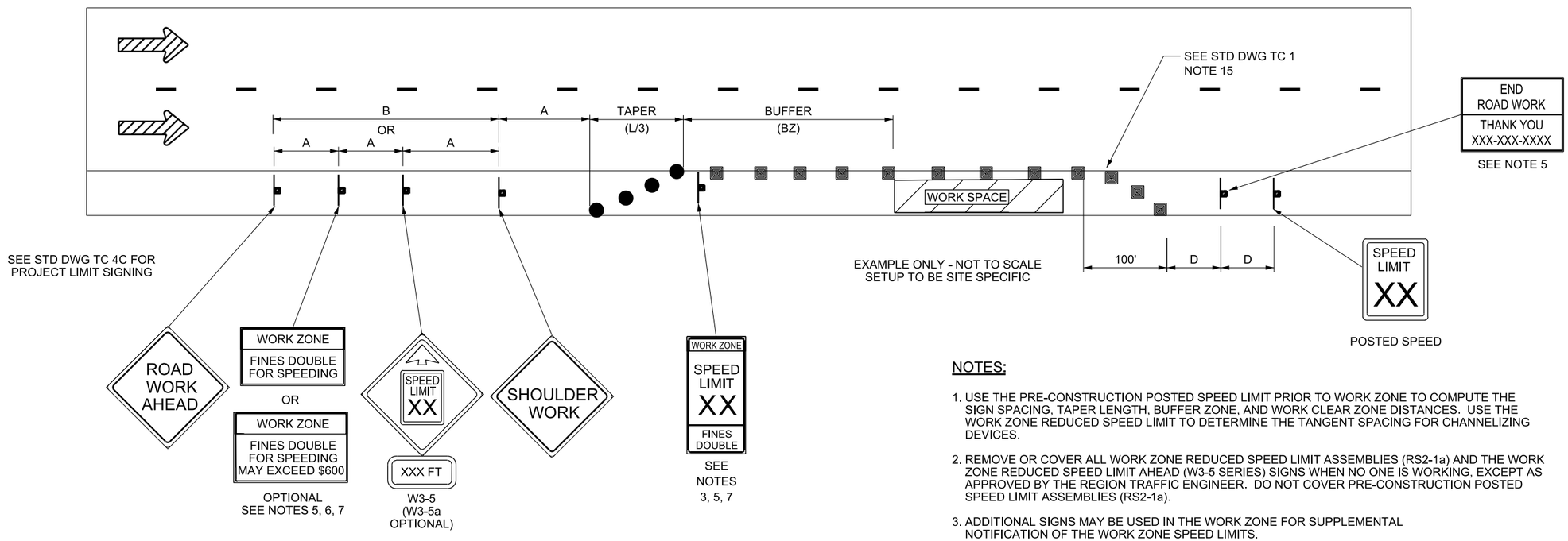
C) ON TANGENT: S x 2 = SPACING UP TO 120 FT MAXIMUM.

D) LENGTH OF BUFFER ZONE (BZ) IS THE DISTANCE FROM END OF LANE CLOSURE TAPER TO WORK SPACE, OR ANY OBSTRUCTION PRIOR TO WORK SPACE.

TRAFFIC CONTROL DEVICE LEGEND

- SIGN (FIXED OR PORTABLE)
- CHANNELIZING DEVICE (SEE STD DWG TC 2A)
- DRUMS OR DIRECTIONAL INDICATOR BARRICADE
- FLAGGING STATION
- ARROW BOARD
- BARRIER
- DIRECTION OF TRAFFIC
- TYPE III BARRICADE
- DIRECTION OF WORK VEHICLE

REDUCED SPEED SHOULDER WORK ZONE SIGNING



NOTES:

1. USE THE PRE-CONSTRUCTION POSTED SPEED LIMIT PRIOR TO WORK ZONE TO COMPUTE THE SIGN SPACING, TAPER LENGTH, BUFFER ZONE, AND WORK CLEAR ZONE DISTANCES. USE THE WORK ZONE REDUCED SPEED LIMIT TO DETERMINE THE TANGENT SPACING FOR CHANNELIZING DEVICES.
2. REMOVE OR COVER ALL WORK ZONE REDUCED SPEED LIMIT ASSEMBLIES (RS2-1a) AND THE WORK ZONE REDUCED SPEED LIMIT AHEAD (W3-5 SERIES) SIGNS WHEN NO ONE IS WORKING, EXCEPT AS APPROVED BY THE REGION TRAFFIC ENGINEER. DO NOT COVER PRE-CONSTRUCTION POSTED SPEED LIMIT ASSEMBLIES (RS2-1a).
3. ADDITIONAL SIGNS MAY BE USED IN THE WORK ZONE FOR SUPPLEMENTAL NOTIFICATION OF THE WORK ZONE SPEED LIMITS.
4. USE SUPPLEMENTAL LEFT SIDE SIGNING FOR HIGH-SPEED DIVIDED HIGHWAYS.
5. SEE TC 4D SERIES STD DWGS FOR SIGN DESIGN AND LAYOUT.
6. FINES DOUBLE (RS2-6c) AND FINES DOUBLE WITH FINE NOTIFICATION (RS2-6d) SIGNS MAY BE USED INTERCHANGEBLY.
7. PLACE ADDITIONAL WORK ZONE SPEED LIMIT ASSEMBLIES (RS2-1a), FINES DOUBLE (RS2-6c), AND/OR FINES DOUBLE WITH FINE NOTIFICATION (RS2-6d) SIGNS AT ALL MAJOR INTERSECTIONS AND INTERCHANGES WITHIN THE PROJECT WHEN REDUCED SPEEDS AND/OR THE FINES DOUBLE OR THE FINES DOUBLE WITH FINE NOTIFICATION SIGNING OPTION IS USED.

SUPPLEMENTAL DRAWING

REVISIONS

NO.	DATE	APPR.	REMARKS
1	08/30/12	SDD	REVISED NOTE 2. REVISED TC 1 CALL OUT.

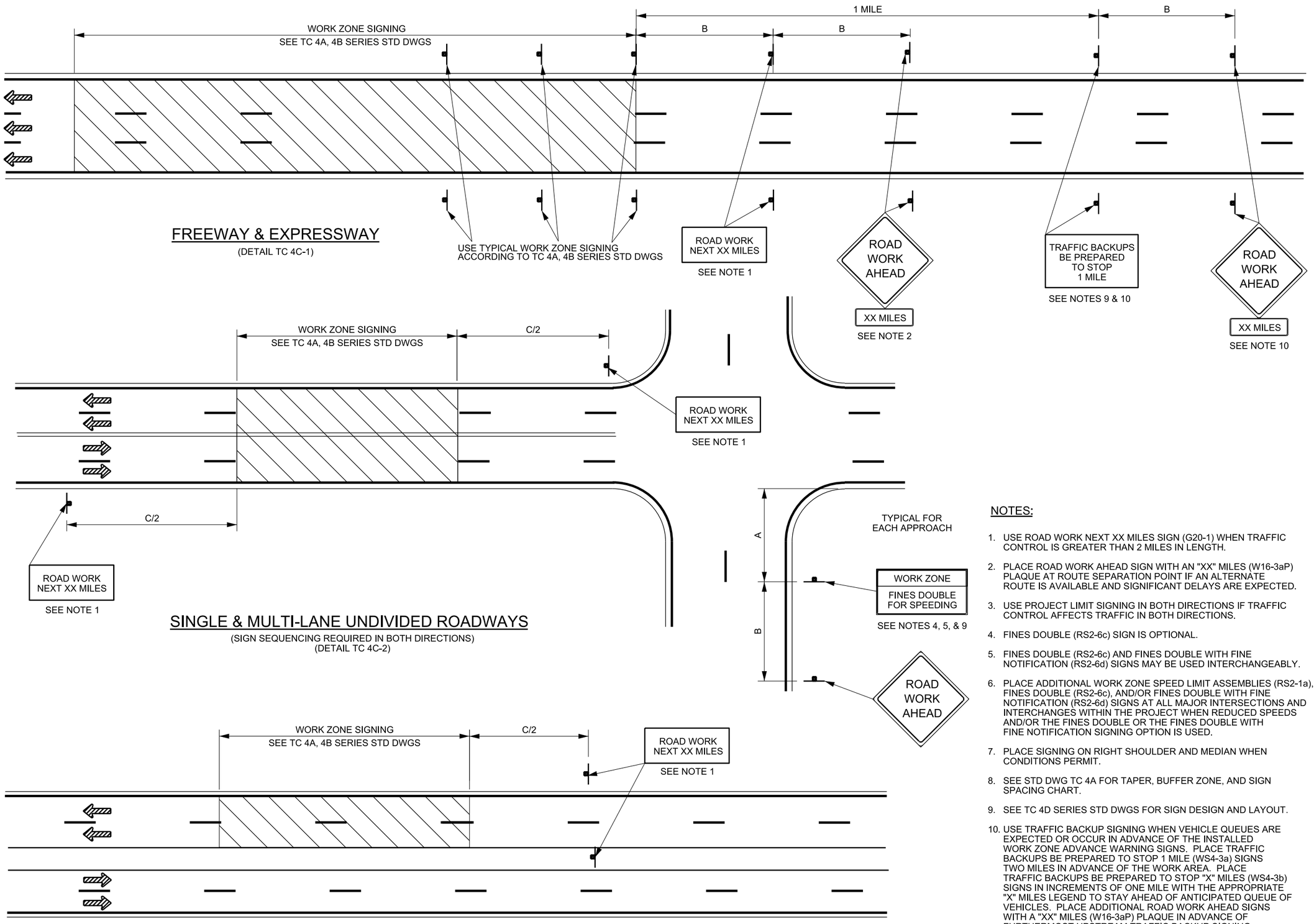
UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — AUG.30.2012 DATE
CHAIRMAN STANDARDS COMMITTEE APPROVED — AUG.30.2012 DATE
DEPUTY DIRECTOR

STANDARD DRAWING TITLE
REDUCED SPEED SHOULDER WORK ZONE SIGNING GENERAL

STD. DWG. NO.
TC 4B2

DGN File:L:\Standard Drawings\Imperial\2012Approved_Supplemental_Issues\SupplApproved\TC0482.dgn
12-SEP-2012



FREEWAY & EXPRESSWAY
(DETAIL TC 4C-1)

SINGLE & MULTI-LANE UNDIVIDED ROADWAYS
(SIGN SEQUENCING REQUIRED IN BOTH DIRECTIONS)
(DETAIL TC 4C-2)

DIVIDED ROADWAYS
(DETAIL TC 4C-3)

NOTES:

1. USE ROAD WORK NEXT XX MILES SIGN (G20-1) WHEN TRAFFIC CONTROL IS GREATER THAN 2 MILES IN LENGTH.
2. PLACE ROAD WORK AHEAD SIGN WITH AN "XX" MILES (W16-3aP) PLAQUE AT ROUTE SEPARATION POINT IF AN ALTERNATE ROUTE IS AVAILABLE AND SIGNIFICANT DELAYS ARE EXPECTED.
3. USE PROJECT LIMIT SIGNING IN BOTH DIRECTIONS IF TRAFFIC CONTROL AFFECTS TRAFFIC IN BOTH DIRECTIONS.
4. FINES DOUBLE (RS2-6c) SIGN IS OPTIONAL.
5. FINES DOUBLE (RS2-6c) AND FINES DOUBLE WITH FINE NOTIFICATION (RS2-6d) SIGNS MAY BE USED INTERCHANGEABLY.
6. PLACE ADDITIONAL WORK ZONE SPEED LIMIT ASSEMBLIES (RS2-1a), FINES DOUBLE (RS2-6c), AND/OR FINES DOUBLE WITH FINE NOTIFICATION (RS2-6d) SIGNS AT ALL MAJOR INTERSECTIONS AND INTERCHANGES WITHIN THE PROJECT WHEN REDUCED SPEEDS AND/OR THE FINES DOUBLE OR THE FINES DOUBLE WITH FINE NOTIFICATION SIGNING OPTION IS USED.
7. PLACE SIGNING ON RIGHT SHOULDER AND MEDIAN WHEN CONDITIONS PERMIT.
8. SEE STD DWG TC 4A FOR TAPER, BUFFER ZONE, AND SIGN SPACING CHART.
9. SEE TC 4D SERIES STD DWGS FOR SIGN DESIGN AND LAYOUT.
10. USE TRAFFIC BACKUP SIGNING WHEN VEHICLE QUEUES ARE EXPECTED OR OCCUR IN ADVANCE OF THE INSTALLED WORK ZONE ADVANCE WARNING SIGNS. PLACE TRAFFIC BACKUPS BE PREPARED TO STOP 1 MILE (WS4-3a) SIGNS TWO MILES IN ADVANCE OF THE WORK AREA. PLACE TRAFFIC BACKUPS BE PREPARED TO STOP "X" MILES (WS4-3b) SIGNS IN INCREMENTS OF ONE MILE WITH THE APPROPRIATE "X" MILES LEGEND TO STAY AHEAD OF ANTICIPATED QUEUE OF VEHICLES. PLACE ADDITIONAL ROAD WORK AHEAD SIGNS WITH A "XX" MILES (W16-3aP) PLAQUE IN ADVANCE OF FURTHERMOST UPSTREAM TRAFFIC BACKUP SIGNING.

SUPPLEMENTAL DRAWING

REVISIONS

NO.	DATE	APPR.	REMARKS
1	08/30/12	SDD	REVISED NOTE 10. REMOVED END ROAD WORK SIGNS. REVISED WORK ZONE SIGNING AREA.

UTAH DEPARTMENT OF TRANSPORTATION
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SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — AUG.30.2012 DATE
CHAIRMAN STANDARDS COMMITTEE APPROVED — AUG.30.2012 DATE
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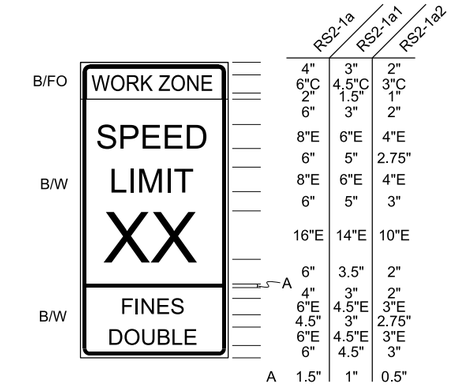
STANDARD DRAWING TITLE
TRAFFIC CONTROL PROJECT LIMIT SIGNING

STD. DWG. NO.
TC 4C

DGN File: L:\Standard Drawings\Imperial\2012Approved_Supplemental Issues\SuppApproved\TC04C.dgn
12-SEP-2012



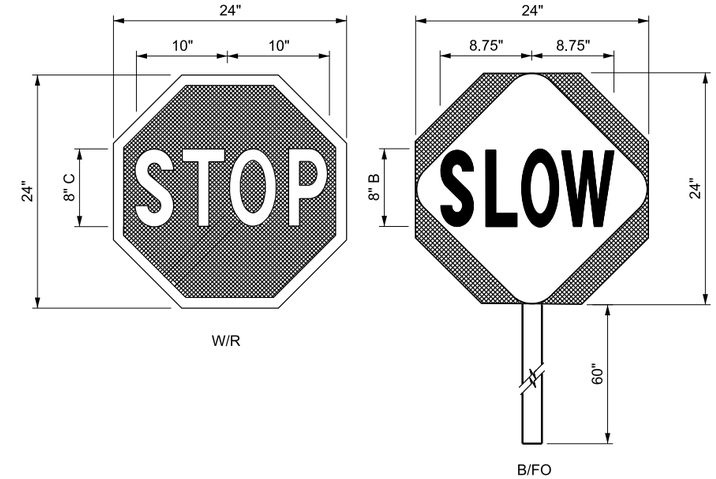
RS2-1a - 48 X 96 INCHES FREEWAY AND EXPRESSWAY
RS2-1a1 - 36 X 72 INCHES CONVENTIONAL MULTI LANE
RS2-1a2 - 24 X 48 INCHES CONVENTIONAL SINGLE LANE

RS2-1a SERIES WORK ZONE SPEED LIMIT SIGNS

96 X 48 INCHES

RS16-4b WORK ZONE FENDER BENDER SIGN

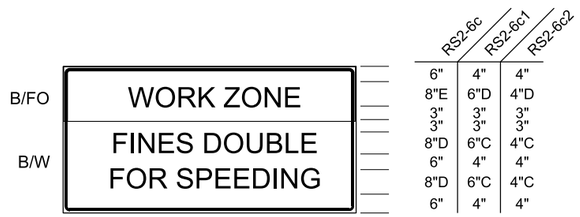
OPTIONAL, SEE NOTE 1



RS1-1 STOP SIGN

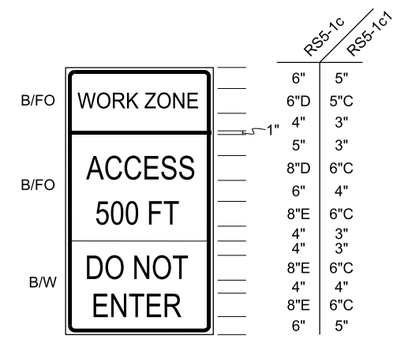
WS20-8a SLOW SIGN

FLAGGER STOP - SLOW PADDLE



RS2-6c 96 X 48 INCHES FREEWAY AND EXPRESSWAY
RS2-6c1 60 X 36 INCHES CONVENTIONAL 45 MPH AND GREATER
RS2-6c2 42 X 30 INCHES CONVENTIONAL 45 MPH AND LESS

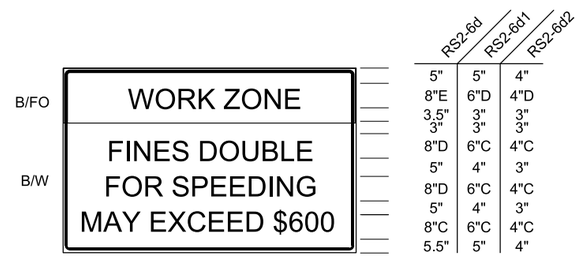
RS2-6c SERIES WORK ZONE FINES DOUBLE SIGNS



RS5-1c - 60 X 78 INCHES FREEWAY AND EXPRESSWAY
RS5-1c1 - 36 X 60 INCHES CONVENTIONAL

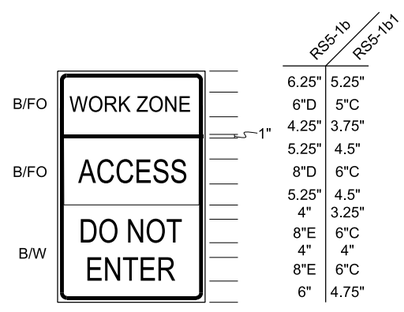
RS5-1c SERIES WORK ZONE ACCESS ADVANCE SIGNS

SEE NOTE 2



RS2-6d - 108 X 60 INCHES FREEWAY AND EXPRESSWAY
RS2-6d1 - 78 X 48 INCHES CONVENTIONAL 45 MPH AND GREATER
RS2-6d2 - 54 X 36 INCHES CONVENTIONAL 45 MPH AND LESS

RS2-6d SERIES WORK ZONE FINES DOUBLE SIGN WITH FINE NOTIFICATIONS



RS5-1b - 60 X 66 INCHES FREEWAY AND EXPRESSWAY
RS5-1b1 - 36 X 54 INCHES CONVENTIONAL

RS5-1b SERIES WORK ZONE ACCESS SIGNS

NOTES:

1. USE THE WORK ZONE FENDER BENDER SIGN TO REQUIRE MOTORISTS TO MOVE THEIR VEHICLE OUT OF THE TRAFFIC LANES AND TO THE NEXT EXIT IF THEY HAVE BEEN INVOLVED IN A CRASH.
2. RECOMMENDED DISTANCE TO ACCESS 500 FT FREEWAY AND EXPRESSWAY AND 250 FT CONVENTIONAL ROADS.
3. PLACE TWO FLUORESCENT ORANGE STRIPS OF RETROREFLECTIVE SHEETING, 4 x 24 INCHES, WITHIN 12 INCHES FROM THE RIGHT AND LEFT EDGES ON THE BACK OF SIGNS USED WITH PORTABLE SUPPORTS.

SUPPLEMENTAL DRAWING

REVISIONS

NO.	DATE	APPR.	REMARKS
1	10/31/13	JLL	MODIFIED SIGN NAMES. ADDED ADDITIONAL SIZE FOR RS2-1a SIGN. MOVED RS5-1 SIGNS AND NOTE 2 FROM TC04D2. MODIFIED SLOW PADDLE DESIGN. MODIFIED NOTE 1.

UTAH DEPARTMENT OF TRANSPORTATION
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SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — OCT.31.2013 DATE
CHAIRMAN STANDARDS COMMITTEE APPROVED — OCT.31.2013 DATE
DEPUTY DIRECTOR DATE

STANDARD DRAWING TITLE: WORK ZONE SPECIALTY SIGNS

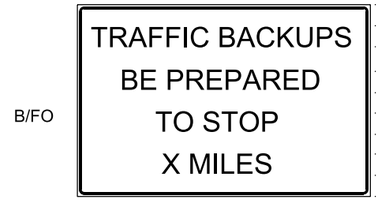
STD. DWG. NO.
TC 4D1

DGN File:L:\Standard Drawings\Imperial\2012Approved_Supplemental_Issues\Supp7Approved\TC04D1.dgn
20-NOV-2013

	WS3-4a	WS3-4a1	WS3-4a2
	6.5"	6"	4.75"
	8"D	6"C	4"C
	5"	4"	3.5"
	8"D	6"C	4"C
	5"	4"	3.5"
	8"D	6"C	4"C
	5"	4"	3.5"
	8"D	6"C	4"C
	6.5"	6"	4.75"

WS3-4a - 114 X 60 INCHES FREEWAY AND EXPRESSWAY
WS3-4a1 - 72 X 48 INCHES CONVENTIONAL 45 MPH AND GREATER
WS3-4a2 - 54 X 36 INCHES CONVENTIONAL 45 MPH AND LESS

WS3-4a SERIES

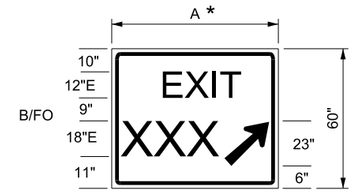


	WS3-4b	WS3-4b1	WS3-4a2
	6.5"	6"	4.75"
	8"D	6'C	4"C
	5"	4"	3.5"
	8"D	6"C	4"C
	5"	4"	3.5"
	8"D	6"C	4"C
	5"	4"	3.5"
	8"D	6"C	4"C
	6.5"	6"	4.75"

WS3-4b - 114 X 60 INCHES FREEWAY AND EXPRESSWAY
WS3-4b1 - 72 X 48 INCHES CONVENTIONAL 45 MPH AND GREATER
WS3-4b2 - 54 X 36 INCHES CONVENTIONAL 45 MPH AND LESS

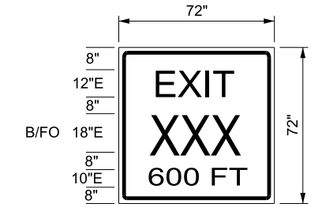
WS3-4b SERIES

WS3-4 SERIES TRAFFIC BACKUP SIGNS



E5-1aW SERIES

* SEE TABLE 1 FOR WIDTH



ES5-1dW SERIES

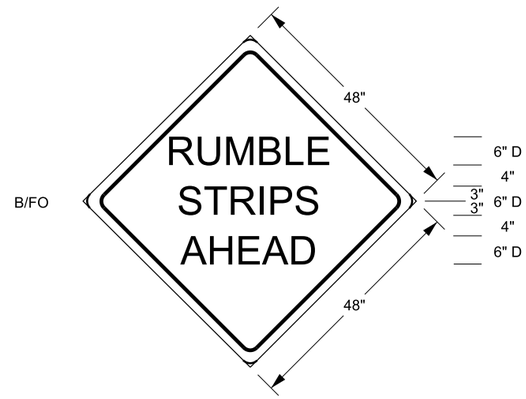
ES5-1W SERIES WORK ZONE EXIT SIGNS

XXX EXIT NUMBER

	GS20-2a2	GS20-2a	GS20-2a1
	6"	5"	4"
	8"D	6"C	4"C
	4.5"	3.5"	2.5"
	8"D	6"C	4"C
	3"	3"	3"
	3"	3"	3"
	8"D	6"C	4"C
	4.5"	3.5"	2.5"
	8"D	6"C	4"C
	6"	5"	4"

GS20-2a2 - 84 X 60 INCHES OVERSIZED
GS20-2a - 60 X 48 INCHES FREEWAY AND EXPRESSWAY
GS20-2a1 - 42 X 36 INCHES CONVENTIONAL
XXX CONTRACTOR'S PHONE NUMBER
NO INTERNET OR EMAIL ADDRESSES

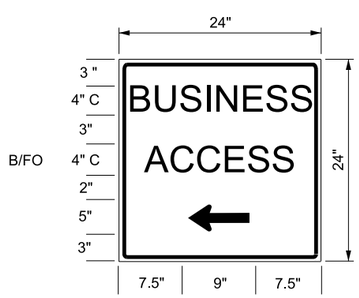
GS20-2a SERIES END ROAD WORK INFORMATION SIGNS

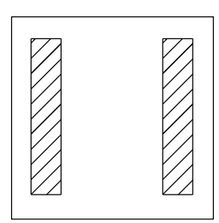


WS28-1 RUMBLE STRIPS AHEAD SIGN

SIGN WIDTH		
	NUMBER OF DIGITS	A
ES5-1aW1	X	78 INCHES
ES5-1aW2	XX	78 INCHES
ES5-1aW3	XXX	96 INCHES

ES5-1aW SERIES WORK ZONE EXIT GORE SIGNS TABLE 1





FRONT

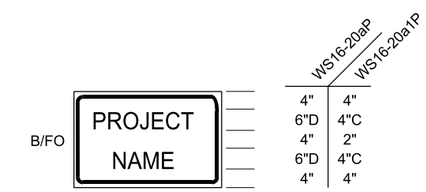
USE BLACK LEGEND ON FLUORESCENT ORANGE RETROREFLECTIVE SHEETING.

BACK

PLACE TWO 4 X 18 INCHES FLUORESCENT ORANGE RETROREFLECTIVE STRIPS VERTICALLY ON THE SIGN BACK.

GS20-5 SERIES BUSINESS ACCESS SIGNS

LEFT ARROW SHOWN



	WS16-20aP	WS16-20a1P
	4"	4"
	6"D	4"C
	4"	2"
	6"D	4"C
	4"	4"

WS16-20aP - 60 X 24 INCHES FREEWAY AND EXPRESSWAY
WS16-20a1P - 36 X 18 INCHES CONVENTIONAL

WS16-20aP SERIES WORK ZONE ACCESS PROJECT IDENTIFIER PLAQUES

SEE NOTE 1

NOTE:

1. USE PROJECT IDENTIFIER ONLY. DO NOT INCLUDE PROMOTIONAL OR OTHER INFORMATIONAL IDENTIFICATIONS OF PUBIC OFFICIALS, CONTRACTORS, ORGANIZATIONAL AFFILIATIONS, RELATED LOGOS AND SYMBOLS.
2. PLACE TWO FLUORESCENT ORANGE STRIPS OF RETROREFLECTIVE SHEETING, 4 x 24 INCHES, WITHIN 12 INCHES FROM THE RIGHT AND LEFT EDGES ON THE BACK OF SIGNS USED WITH PORTABLE SUPPORTS.

SUPPLEMENTAL DRAWING

REVISIONS

NO.	DATE	APPR.	REMARKS
1	08/30/12	SDD	NEW R55-1c WORK ZONE ACCESS ENTRANCE SIGN DETAIL.
			WS16-19P DETAIL DIMENSION CORRECTION.
2	10/31/13	JLL	MODIFIED SIGN NAMES. ADDED SIGN NAMES
			TO TABLE 1. REDUCED SIZE REQUIREMENT OF
			THE GS20-2A SIGN. CORRECTED DIMENSIONS
			ON WS4-3a, W4-3b, AND RS5-1c SIGNS. MOVED
			RS5-1 SIGNS AND NOTE 2 TO TC04D2. ADDED
			NEW WS28-1 SIGN.

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

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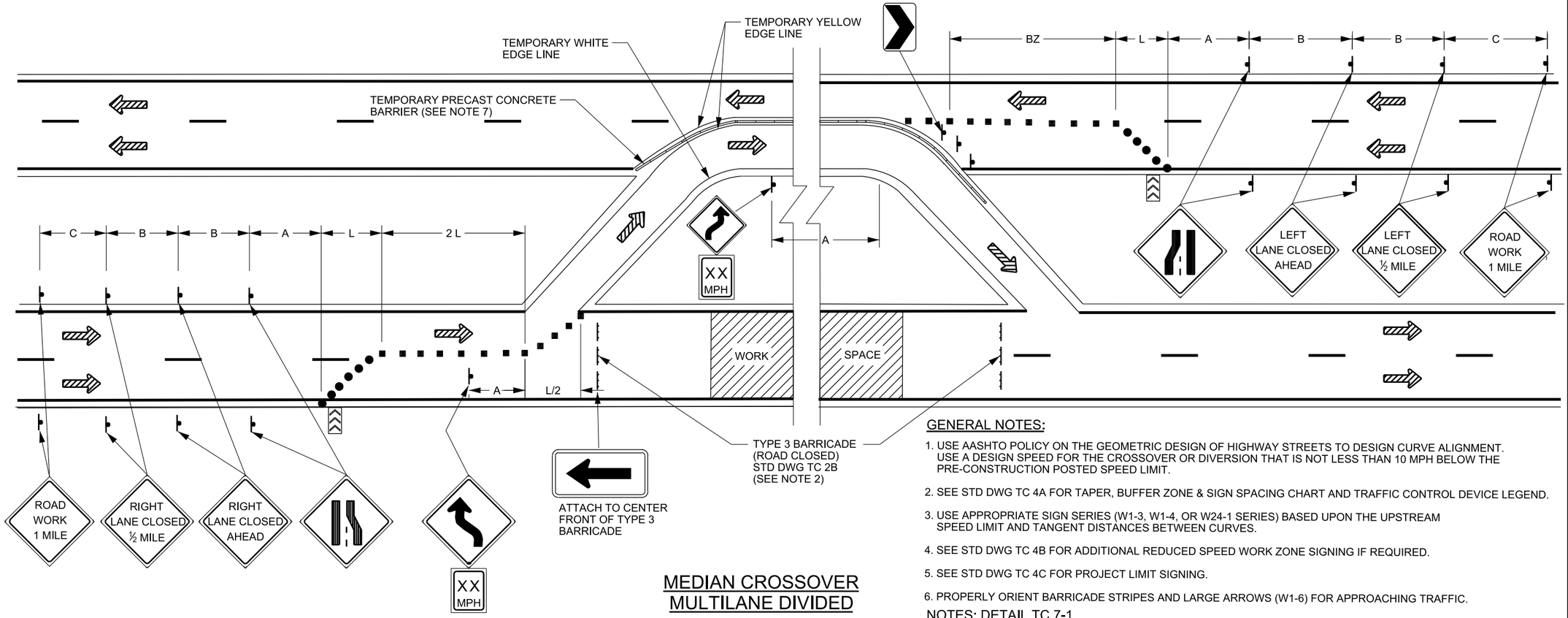
CHAIRMAN STANDARDS COMMITTEE APPROVED — OCT.31.2013 DATE
DEPUTY DIRECTOR

WORK ZONE SPECIALTY SIGNS
STANDARD DRAWING TITLE

STD. DWG. NO.
TC 4D2

DGN File:L:\Standard Drawings\Imperial\2012Approved_Supplemental_Issues\Supp7Approved\TC04D2.dgn
20-NOV-2013



MEDIAN CROSSOVER MULTILANE DIVIDED

(DETAIL TC 7-1)

GENERAL NOTES:

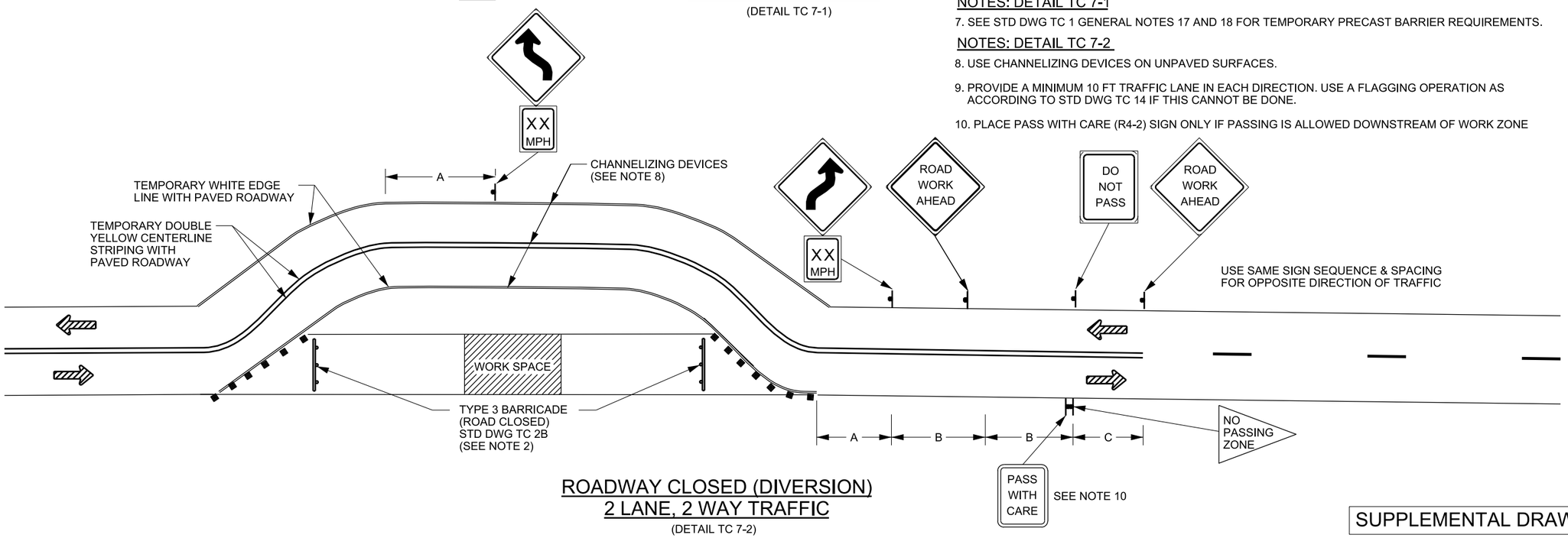
1. USE AASHTO POLICY ON THE GEOMETRIC DESIGN OF HIGHWAY STREETS TO DESIGN CURVE ALIGNMENT. USE A DESIGN SPEED FOR THE CROSSOVER OR DIVERSION THAT IS NOT LESS THAN 10 MPH BELOW THE PRE-CONSTRUCTION POSTED SPEED LIMIT.
2. SEE STD DWG TC 4A FOR TAPER, BUFFER ZONE & SIGN SPACING CHART AND TRAFFIC CONTROL DEVICE LEGEND.
3. USE APPROPRIATE SIGN SERIES (W1-3, W1-4, OR W24-1 SERIES) BASED UPON THE UPSTREAM SPEED LIMIT AND TANGENT DISTANCES BETWEEN CURVES.
4. SEE STD DWG TC 4B FOR ADDITIONAL REDUCED SPEED WORK ZONE SIGNING IF REQUIRED.
5. SEE STD DWG TC 4C FOR PROJECT LIMIT SIGNING.
6. PROPERLY ORIENT BARRICADE STRIPES AND LARGE ARROWS (W1-6) FOR APPROACHING TRAFFIC.

NOTES: DETAIL TC 7-1

7. SEE STD DWG TC 1 GENERAL NOTES 17 AND 18 FOR TEMPORARY PRECAST BARRIER REQUIREMENTS.

NOTES: DETAIL TC 7-2

8. USE CHANNELIZING DEVICES ON UNPAVED SURFACES.
9. PROVIDE A MINIMUM 10 FT TRAFFIC LANE IN EACH DIRECTION. USE A FLAGGING OPERATION AS ACCORDING TO STD DWG TC 14 IF THIS CANNOT BE DONE.
10. PLACE PASS WITH CARE (R4-2) SIGN ONLY IF PASSING IS ALLOWED DOWNSTREAM OF WORK ZONE



ROADWAY CLOSED (DIVERSION) 2 LANE, 2 WAY TRAFFIC

(DETAIL TC 7-2)

SUPPLEMENTAL DRAWING

NO.	DATE	APPR.	REMARKS
1	08/30/12	SDD	REVISED NOTE 7.

REVISIONS

UTAH DEPARTMENT OF TRANSPORTATION

STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — AUG.30,2012 DATE
CHAIRMAN STANDARDS COMMITTEE APPROVED — AUG.30,2012 DATE
DEPUTY DIRECTOR

STANDARD DRAWING TITLE

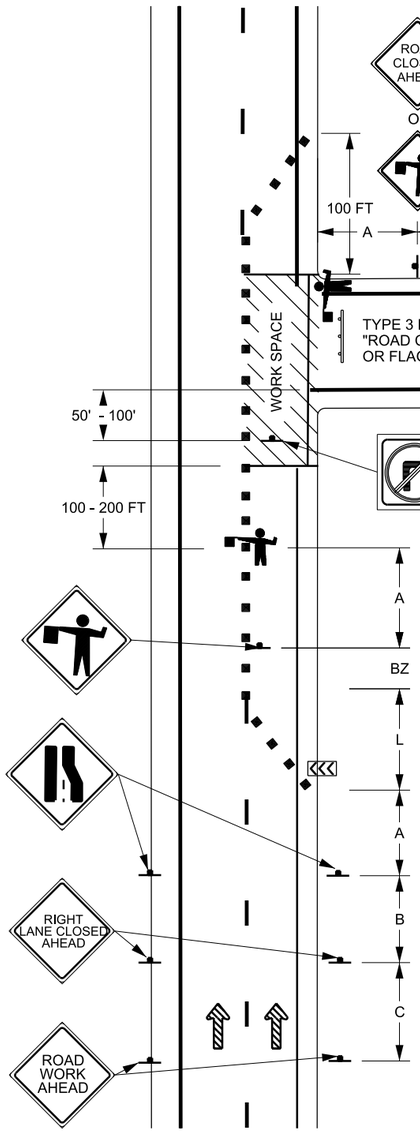
MEDIAN CROSSOVER AND 2-LANE, 2-WAY DIVERSION

STD. DWG. NO.

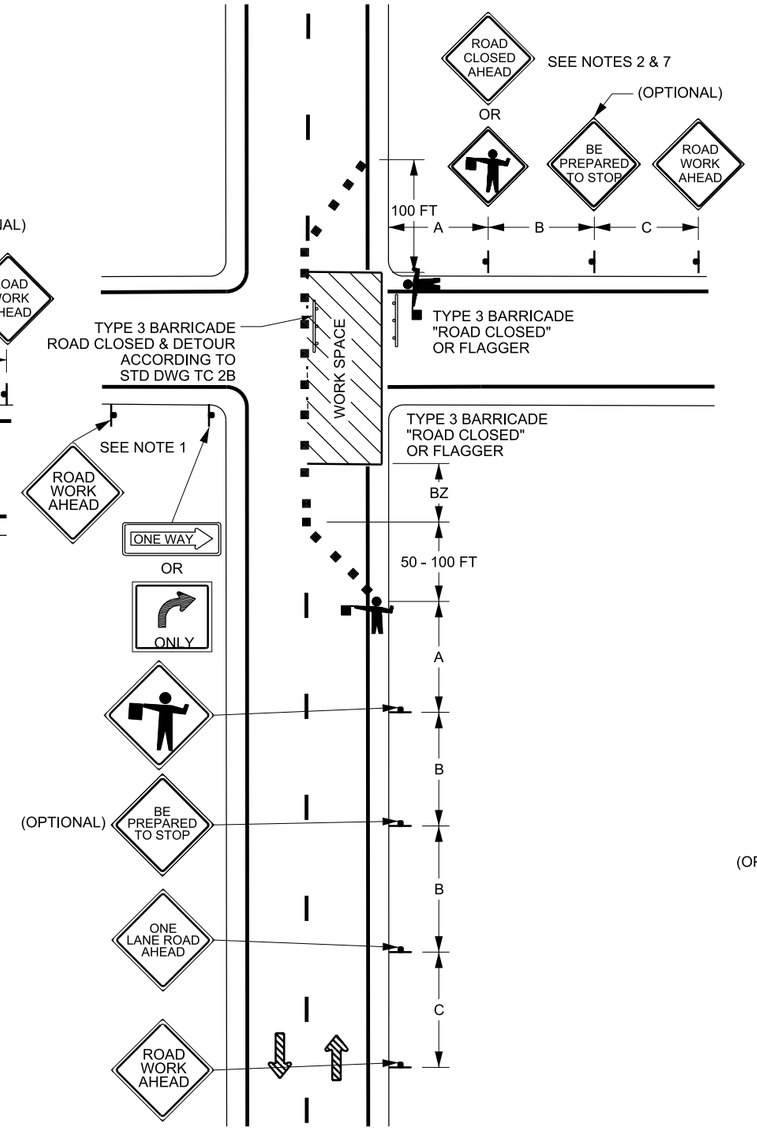
TC 7

DGN File:L:\Standard Drawings\Imperial\2012Approved_Supplemental Issues\SupplApproved\TC07.dgn

12-SEP-2012

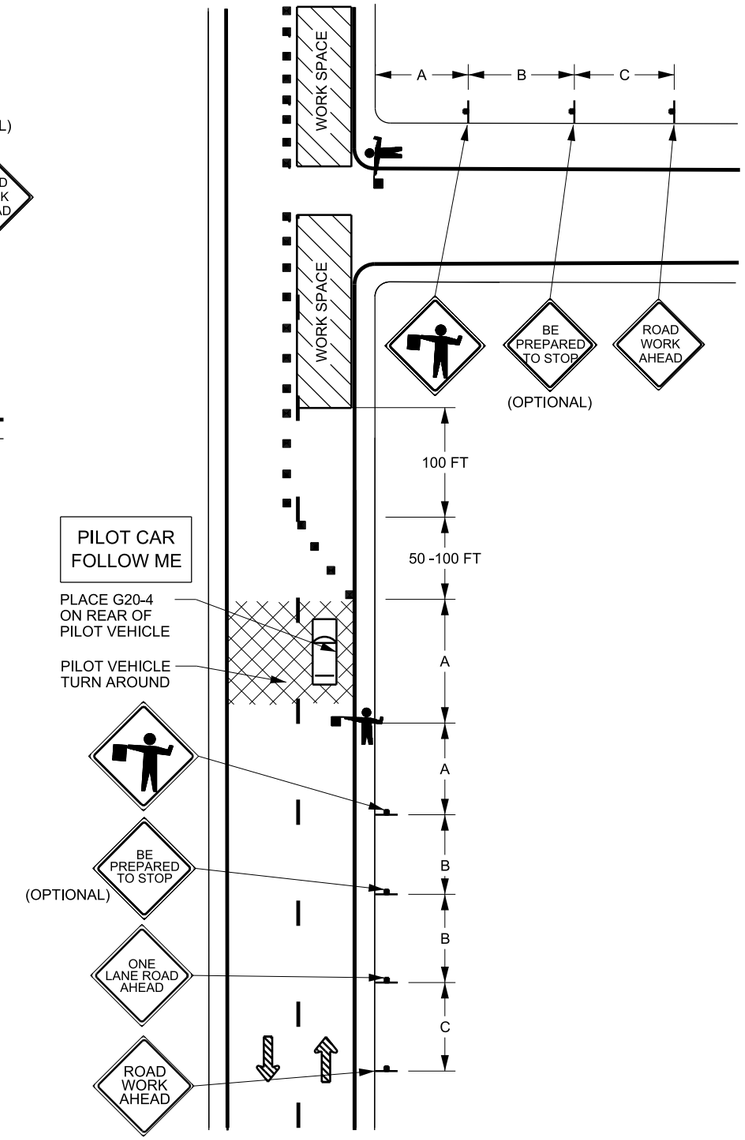


FLAGGING OPERATION - ONE WAY WITH POTENTIAL ENCROACHMENT BY WORK VEHICLE DETAIL TC 14-1



FLAGGING OPERATION - TWO WAY WITH ONE LANE CLOSED DETAIL TC 14-2

SEE NOTE 6



FLAGGING OPERATIONS WITH USE OF PILOT VEHICLE DETAIL TC 14-3

SEE NOTE 6

NOTES:

1. USE A FLAGGER AT ALL INTERSECTING ROADWAYS. REFER TO STANDARD SPECIFICATION 01554 FOR REQUIREMENT AT OPERATING TRAFFIC SIGNALS.
2. PROVIDE FLAGGING IF TURNING TRAFFIC CONFLICTS WITH ONE-WAY TRAFFIC.
3. PROVIDE A DETOUR WHEN ROAD CLOSURE EXCEEDS 24 HOURS.
4. SEE STD DWG TC 4A FOR TAPER, BUFFER ZONE AND SIGN SPACING CHART AND TRAFFIC CONTROL DEVICE LEGEND.
5. SEE STD DWG TC 4C FOR PROJECT LIMIT SIGNING.
6. USE SAME SIGN SEQUENCE, SPACING, AND FLAGGER FOR OPPOSITE DIRECTION OF TRAFFIC.
7. USE ADVANCED ROAD CLOSURE SIGNING IF ROAD CLOSED AHEAD SIGN IS USED.

SUPPLEMENTAL DRAWING

REVISIONS

NO.	DATE	APPR.	REMARKS
1	11/06/2014	JLL	REVISED DRAWING NUMBER FROM TC 14 TO TC 14A. PLACED CHANELLIZERS TO DEFINE WORK SPACE IN DETAIL TC 14-3. ROTATED SIGNS ON CROSS-STREETS TO VERTICAL.

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — NOV.06.2014 DATE
CHAIRMAN STANDARDS COMMITTEE APPROVED — NOV.06.2014 DATE
DEPUTY DIRECTOR

STANDARD DRAWING TITLE
TRAFFIC CONTROL FLAGGING OPERATION

STD. DWG. NO.
TC 14A

DGN File:L:\Standard Drawings\Imperial\2012Approved_Supplemental_Issues\Suppl0Approved\TC14A.dgn
18-NOV-2014

TAPER, BUFFER ZONE & SIGN SPACING CHART

ROAD TYPE	POSTED SPEED MPH (S)	LENGTH OF BUFFER(BZ)	MINIMUM SIGN SPACING (SS)				ONE LANE TWO-WAY FLAGGING
			A	B	C	D	TAPER LENGTH
			FT	FT	FT	FT	FT
CONVENTIONAL	50	425	500			250	100
	55	495					
	60	570					
	65	645					

CHANNELIZING DEVICES

A) SHOULDER, ONE-LANE TWO-WAY, AND DOWNSTREAM TAPERS: USE A MINIMUM OF 1 DEVICE PER 3 FT OF WIDTH (OR PORTION THEREOF), PLUS 1 ADDITONAL DEVICE TO START.

B) ON TANGENT: S x 2 = SPACING UP TO 120 FT MAXIMUM.

C) LENGTH OF BUFFER ZONE (BZ) IS THE DISTANCE FROM END OF LANE CLOSURE TAPER TO WORK SPACE, OR ANY OBSTRUCTION PRIOR TO WORK SPACE.

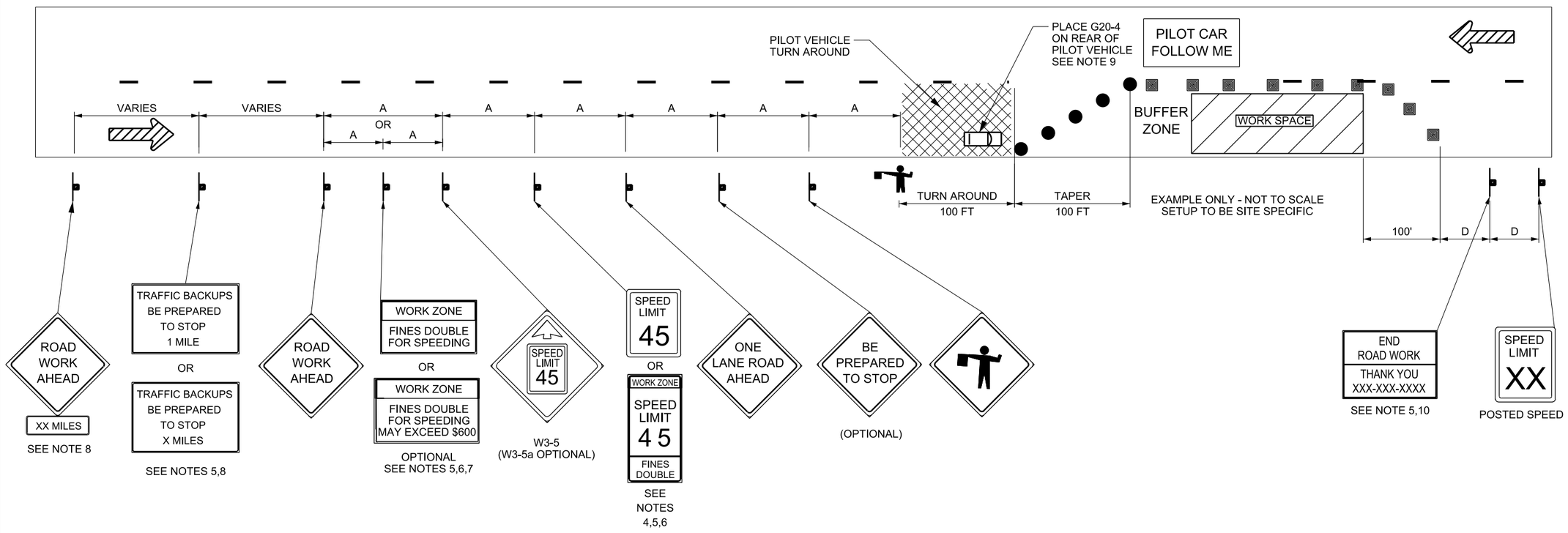
TRAFFIC CONTROL DEVICE LEGEND

- SIGN (FIXED OR PORTABLE)
- CHANNELIZING DEVICE (SEE STD DWG TC 2A)
- DRUMS OR DIRECTIONAL INDICATOR BARRICADE
- FLAGGING STATION
- DIRECTION OF TRAFFIC
- PILOT CAR

SEE STD DWG TC 4C FOR PROJECT LIMIT SIGNING

REDUCED SPEED SIGNING FOR PILOT CAR OPERATION IN A WORK ZONE (CONVENTIONAL ROADS ONLY)

SIGNING SIMILAR FOR OPPOSITE DIRECTION OF TRAVEL



NOTES:

1. MAY BE USED WITH A PILOT CAR OPERATION ON A CONVENTIONAL ROAD WITH THE APPROVAL OF THE REGION TRAFFIC ENGINEER.
2. USE THE PRE-CONSTRUCTION POSTED SPEED LIMIT BEFORE THE WORK ZONE TO COMPUTE THE SIGN SPACING, TAPER LENGTH, BUFFER ZONE, AND WORK CLEAR ZONE DISTANCE. USE THE POSTED SPEED LIMIT DURING WORK TO DETERMINE THE TANGENT SPACING FOR CHANNELIZING DEVICES.
3. REMOVE OR COVER THE WORK ZONE REDUCED SPEED LIMIT SIGN (RS2-1a) AND THE WORK ZONE REDUCED SPEED LIMIT AHEAD (W3-5 SERIES) SIGNS WHEN PILOT CARS ARE NOT IN USE.
4. ADDITIONAL SIGNS MAY BE USED IN THE WORK ZONE FOR SUPPLEMENTAL NOTIFICATION OF THE WORK ZONE SPEED LIMITS.
5. SEE TC 4D SERIES STD DWGS FOR SIGN DESIGN AND LAYOUT.
6. FINES DOUBLE (RS2-6c) AND FINES DOUBLE WITH FINE NOTIFICATION (RS2-6d) SIGNS MAY BE USED INTERCHANGEABLY.
7. PLACE ADDITIONAL WORK ZONE SPEED LIMIT ASSEMBLIES (RS2-1a), FINES DOUBLE (RS2-6c), AND FINES DOUBLE WITH FINE NOTIFICATION (RS2-6d) SIGNS AS NEEDED AT ALL MAJOR INTERSECTIONS AND INTERCHANGES WITHIN THE PROJECT WHEN REDUCED SPEEDS AND THE FINES DOUBLE OR THE FINES DOUBLE WITH FINE NOTIFICATION SIGNING OPTION ARE USED.
8. USE TRAFFIC BACKUP SIGNING WHEN VEHICLE QUEUES ARE EXPECTED OR OCCUR IN ADVANCE OF THE INSTALLED WORK ZONE ADVANCE WARNING SIGNS. PLACE TRAFFIC BACKUPS BE PREPARED TO STOP 1 MILE (WS4-3a) SIGNS TWO MILES IN ADVANCE OF THE WORK AREA. PLACE TRAFFIC BACKUPS BE PREPARED TO STOP "X" MILES (WS4-3b) SIGNS IN INCREMENTS OF ONE MILE WITH THE APPROPRIATE "X" MILES LEGEND TO STAY AHEAD OF ANTICIPATED QUEUE OF VEHICLES. PLACE ADDITIONAL ROAD WORK AHEAD SIGNS WITH A "XX" MILES (W16-3aP) PLAQUE IN ADVANCE OF FURTHERMOST UPSTREAM TRAFFIC BACKUP SIGNING.
9. PILOT VEHICLE SPEED NOT TO EXCEED 40 MPH.
10. DO NOT USE END ROAD WORK SIGN WHEN PILOT CAR OPERATION TERMINATES WITHIN THE PROJECT LIMITS.
11. COVER PRE-CONSTRUCTION POSTED SPEED LIMIT SIGNS THAT ARE BETWEEN THE WORK ZONE REDUCED SPEED AHEAD SIGN (W3-5 SERIES) AND THE FLAGGING STATION.
12. USE ONLY ON HIGHWAYS WITH POSTED SPEEDS OF 50 MPH OR GREATER.

SUPPLEMENTAL DRAWING

REVISIONS

NO.	DATE	APPR.	REMARKS
1	11/06/2014	JLL	NEW DRAWING.

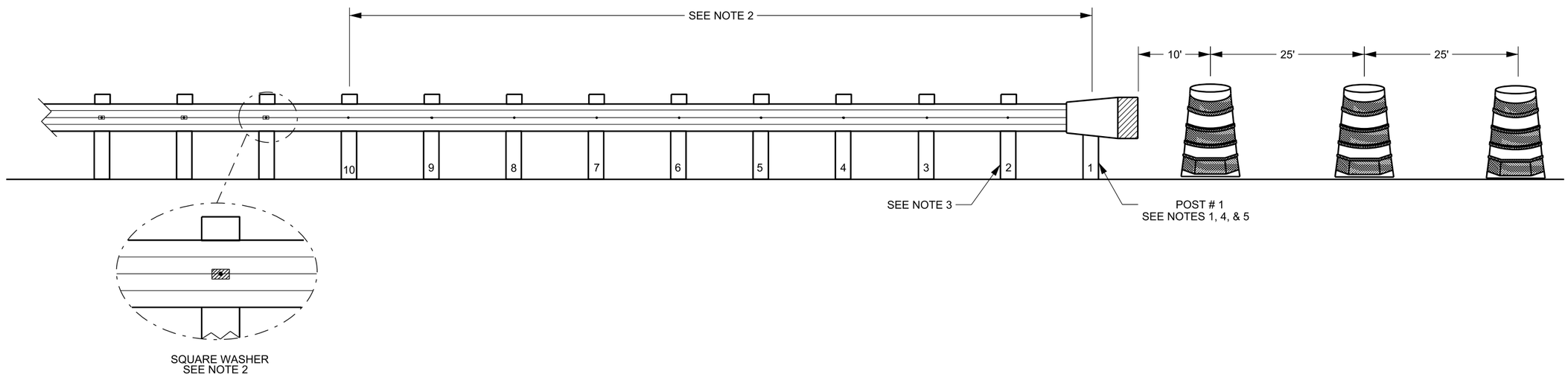
UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — NOV.06,2014 DATE
CHAIRMAN STANDARDS COMMITTEE APPROVED — NOV.06,2014 DATE
DEPUTY DIRECTOR

STANDARD DRAWING TITLE: REDUCED SPEED SIGNING FOR PILOT CAR OPERATION (CONVENTIONAL ROADS)

STD. DWG. NO. TC 14B

DGN File:L:\Standard Drawings\Imperial\2012Approved_Supplemental_Issues\Supp10Approved\TC14B.dgn
18-NOV-2014



WORK ZONE W-BEAM GUARDRAIL END PROTECTION USING END TREATMENT TYPE G IMPACT HEAD

INTERMEDIATE 3 DAY MAXIMUM ALLOWED USE

NOTES:

1. INSTALL IMPACT HEAD TO PROTECT EXPOSED GUARDRAIL END FOR A PERIOD NOT TO EXCEED 3 DAYS.
2. REMOVE WASHER WHEN PRESENT FROM THE FACE OF RAIL FOR A MINIMUM OF 10 POSTS BEFORE INSTALLING IMPACT HEAD.
3. REMOVE BLOCK AT POST 2. DO NOT ATTACH W-BEAM RAIL TO POST 2.
4. REMOVE BLOCK AND POST TO RAIL CONNECTION AT POST 1 BEFORE INSTALLING IMPACT HEAD.
5. SECURE IMPACT HEAD TO POST 1 ACCORDING TO MANUFACTURER'S REQUIREMENTS.
6. PLACE A MINIMUM OF 3 PLASTIC DRUMS OR VERTICAL PANELS SPACED AS SHOWN ABOVE IN ADVANCE OF IMPACT HEAD.
7. USE FOR MAINTENANCE REPAIR AND CONSTRUCTION PROJECTS.
8. SEE THE LATEST GUIDELINES FOR CRASH CUSHIONS AND END TREATMENTS.

SUPPLEMENTAL DRAWING

REVISIONS

NO.	DATE	APPR.	REMARKS
1	10/31/2013	SDD	ADDED NEW NOTE 3. RENUMBERED NOTES AND MODIFIED NOTE CALL OUTS. MODIFIED NOTE 6.

UTAH DEPARTMENT OF TRANSPORTATION

STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION

SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — OCT 31,2013 DATE

CHAIRMAN STANDARDS COMMITTEE APPROVED — OCT 31,2013 DATE

DEPUTY DIRECTOR

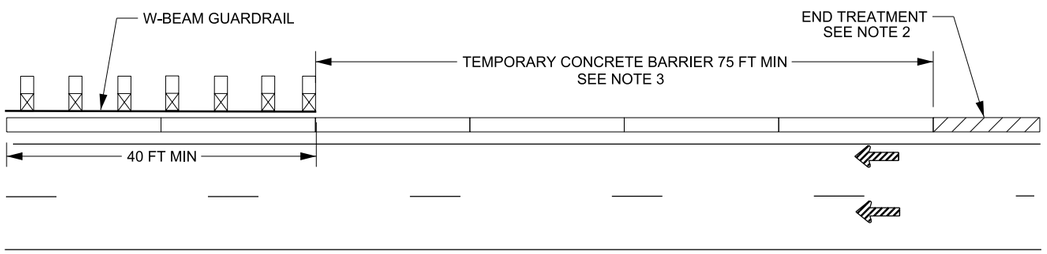
TRAFFIC CONTROL
WORK ZONE GUARDRAIL
INTERMEDIATE
END PROTECTION

STANDARD DRAWING TITLE

STD. DWG. NO.

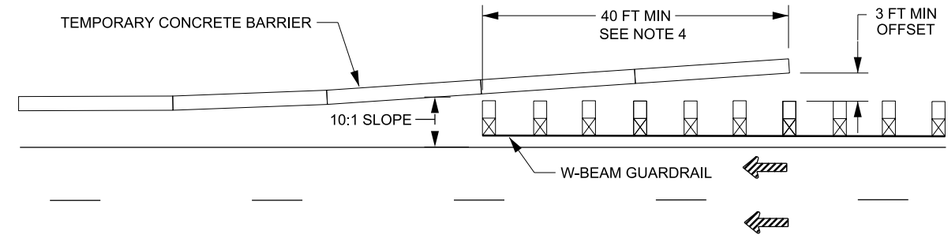
TC 17

DGN File:L:\Standard Drawings\Imperial\2012Approved_Supplemental Issues\Supp7Approved\TC17.dgn
20-NOV-2013

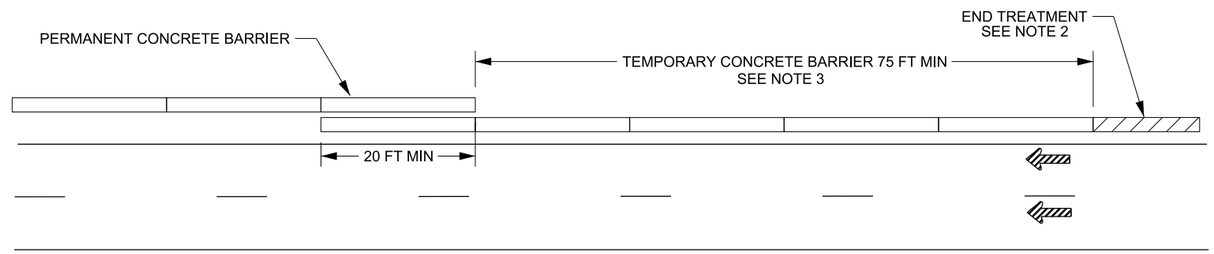


DETAIL A: TEMPORARY CONCRETE BARRIER PROTECTION FOR W-BEAM GUARDRAIL

REFER TO TC 17 FOR W-BEAM END PROTECTION OF 3 DAYS OR LESS



DETAIL B: W-BEAM GUARDRAIL WITH TEMPORARY CONCRETE BARRIER



DETAIL C: TEMPORARY CONCRETE BARRIER PROTECTION FOR PERMANENT CONCRETE BARRIER

NOTES:

1. USE THE DRAWING FOR LAYOUT OF TEMPORARY BARRIER. SEE APPLICABLE TC DRAWINGS FOR ADDITIONAL TRAFFIC CONTROL DEVICE LAYOUT REQUIREMENTS.
2. SEE THE DEPARTMENT'S GUIDELINES FOR CRASH CUSHIONS & END TREATMENTS FOR APPROVED CONSTRUCTION ZONE SYSTEMS. PLACE THE END TREATMENT AND THE LAST BARRIER PARALLEL TO TRAFFIC.
3. USE MINIMUM FIVE, 20 FT CONCRETE BARRIER SECTIONS. MEET CURRENT ROADSIDE DESIGN GUIDE'S LENGTH OF NEED REQUIREMENT IF BLUNT END HAZARD OFFSET IS GREATER THAN 2 FT FROM THE BACK SIDE OF THE TEMPORARY BARRIER.
4. DO NOT PLACE CONCRETE BARRIER ON SLOPES GREATER THAN 6:1 BEHIND THE W-BEAM GUARDRAIL. THIS DETAIL APPLIES TO WORK ZONES ONLY.
5. CONCRETE BARRIER STABILIZATION PINS NOT REQUIRED IN WORK ZONE APPLICATIONS UNLESS SPECIFIED IN CONTRACT DOCUMENTS.
6. HALF BARRIER SECTIONS ALLOWED WHEN PLACED ACCORDING TO STD DWG BA 2E.

SUPPLEMENTAL DRAWING

REVISIONS

NO.	DATE	APPR.	REMARKS
1	8/30/2012	SDD	NEW DRAWING

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

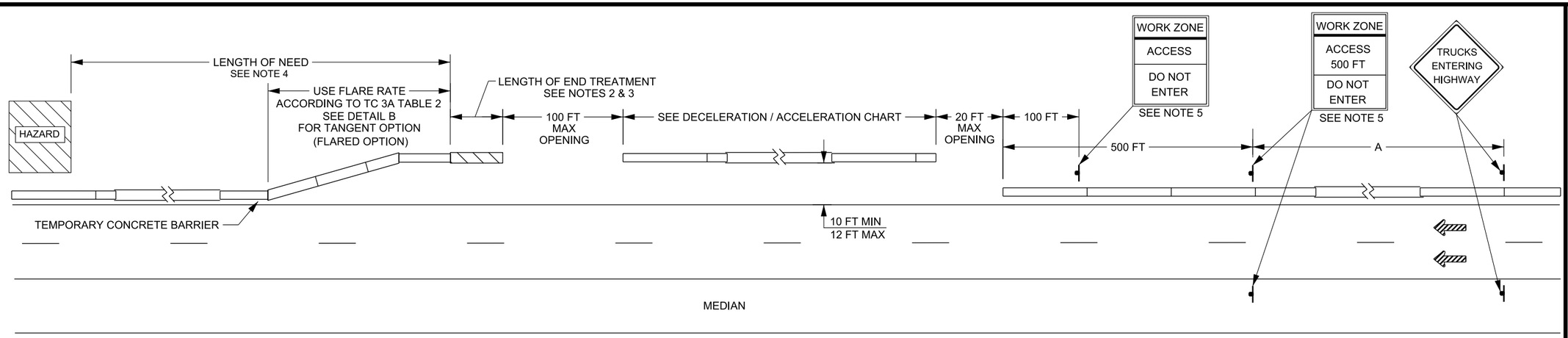
RECOMMENDED FOR APPROVAL — AUG.30.2012 DATE
CHAIRMAN STANDARDS COMMITTEE APPROVED — AUG.30.2012 DATE
DEPUTY DIRECTOR

BLUNT END PROTECTION FOR W-BEAM GUARDRAIL AND CONCRETE BARRIER

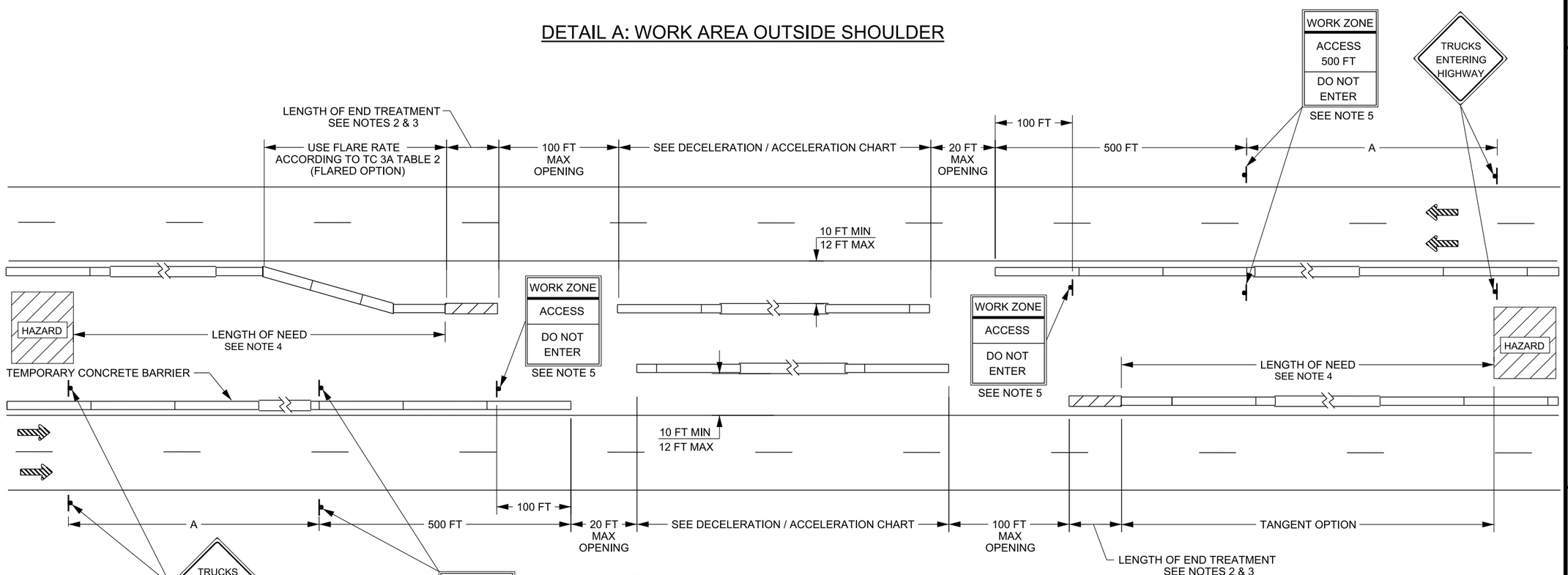
STANDARD DRAWING TITLE

STD. DWG. NO.
TC 18

DGN File:L:\Standard_Drawings\Imperial\2012Approved_Supplemental_Issues\SupplApproved\TC18.dgn
12-SEP-2012



DETAIL A: WORK AREA OUTSIDE SHOULDER



DETAIL B: WORK AREA INSIDE SHOULDER

DECELERATION / ACCELERATION CHART	
PRE-CONSTRUCTION POSTED SPEED LIMIT (MPH):	MINIMUM REQUIRED LENGTH:
55	500 FT
60	580 FT
65	660 FT
70	740 FT
75	820 FT
80	920 FT

NOTES:

1. SELECT THE CONSTRUCTION ACCESS POINT LOCATIONS WITH THE APPROVAL OF THE ENGINEER. SELECT LOCATIONS WITH GOOD SIGHT DISTANCE AND EASE OF ACCESS FOR ENTERING VEHICLES. AVOID LOCATIONS JUST BEYOND THE CREST OF VERTICAL CURVES, ON STRUCTURES, OR ASCENDING GRADES.
2. USE THE DEPARTMENT'S GUIDELINES FOR CRASH CUSHIONS & END TREATMENTS, CURRENT EDITION, FOR APPROVED CONSTRUCTION ZONE SYSTEMS.
3. PLACE THE CRASH CUSHION / END TREATMENT AND THE LAST BARRIER SECTION PARALLEL TO TRAFFIC.
4. USE PROPER LENGTH OF NEED FOR BOTH FLARED AND TANGENT TEMPORARY BARRIER OPTIONS ACCORDING TO THE REQUIREMENTS OF THE CURRENT EDITION OF THE ROADSIDE DESIGN GUIDE. USE THE PRE-CONSTRUCTION POSTED SPEED LIMIT PRIOR TO THE WORK ZONE FOR THE DESIGN OF THE REQUIRED LENGTH OF NEED.
5. SEE TC 4D SERIES STD DWGS FOR SIGN DESIGN AND LAYOUT.
6. USE THE IDENTICAL LEGEND SUPPLEMENTAL SIGNING FOR "TRUCKS ENTERING HIGHWAY" AND "WORK ZONE ACCESS 500 FT" SIGNS.
7. MAINTAIN MINIMUM 2 FT SHOULDER WIDTHS.

SUPPLEMENTAL DRAWING

REVISIONS

NO.	DATE	APPR.	REMARKS
1	8/30/2012	SDD	NEW DRAWING.

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — AUG.30.2012 DATE
CHAIRMAN STANDARDS COMMITTEE APPROVED — AUG.30.2012 DATE
DEPUTY DIRECTOR

STANDARD DRAWING TITLE
CONSTRUCTION ACCESS POINTS FOR SPEEDS OF 55 MPH AND GREATER

STD. DWG. NO.
TC 19

DGN File:L:\Standard Drawings\Imperial\2012Approved_Supplemental Issues\Supp1Approved\TC19.dgn
12-SEP-2012

X. Standard Drawings Index

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UTAH DEPARTMENT OF TRANSPORTATION

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AT 5B	Ramp Meter Queue Detection Layout	02/28/13
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Federal Projects With 8½ x 11 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
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Federal Projects With 8½ x 11 Plan Sheets

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BA 3M3	Cast-In-Place Concrete Constant Slope Barrier – 54 Inch 3 of 3	01/01/12
BA 3N1	Cast-In-Place Concrete Constant Slope Barrier – 54 Inch, Median Small Sign Section 1 of 2	01/01/12
BA 3N2	Cast-In-Place Concrete Constant Slope Barrier – 54 Inch, Median Small Sign Section 2 of 2	01/01/12
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BA 3O2	Cast-In-Place Concrete Constant Slope Barrier – 54 Inch, TL-5 2 of 3	01/01/12
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BA 4H1	W-Beam Guardrail Nested Rail 12 Ft 6 Inch Span	01/01/12
BA 4H2	W-Beam Guardrail Nested Rail 18 Ft 9 Inch Span	01/01/12

BA 4H3	W-Beam Guardrail Nested Rail 25 Ft Span	01/01/12
BA 4H4	W-Beam Guardrail with Precast Barrier For Span ≥ 25 Ft	08/30/12
BA 4H5	W-Beam Guardrail Reduced Deflection Criteria	01/01/12
BA 4I	W-Beam Guardrail Right Shoulder Transition On Slopes Steeper Than 10:1 or Flatter or Equal to 6:1	01/01/12
BA 4J1	W-Beam Guardrail Typical Divided Roadways	01/01/12
BA 4J2	W-Beam Guardrail Typical Multilane Arterial	01/01/12
BA 4J3	W-Beam Guardrail Typical 2 Lane 2 Way	01/01/12
BA 5A	Cable Barrier Typical Hardware and Foundation Requirements	10/22/15
BA 5B1	Cable Barrier Placement	06/26/14
BA 5B2	Cable Barrier Placement	06/26/14
BA 5C1	Cable Barrier W-Beam Anchor Assembly	01/01/12
BA 5C2	Cable Barrier Parapet Departure Bracket	01/01/12
BA 5D1	Median Cable Barrier W-Beam Double Sided and Freeway Crossover Anchor System (Type C; C.A.T., Brakemaster)	10/31/13
BA 5D2	Median Cable Barrier W-Beam Double Sided and Freeway Crossover Anchor System (Type C; FLEAT-MT)	10/31/13
BA 5E1	Cable Barrier W-Beam Narrow Median Parapet or Concrete Barrier Anchor	01/01/12
BA 5E2	Cable Barrier W-Beam Approach Transition	01/01/12
BA 5E3	Cable Barrier W-Beam Precast Concrete Barrier Trailing Anchor	01/01/12
BA 5F1	Cable Barrier W-Beam Single Sided Approach Anchor System	01/01/12
BA 5F2	Cable Barrier W-Beam Single Sided Departure Anchor System	01/01/12
BA 5G	Cable Barrier W-Beam Freeway/Expressway Right Shoulder Anchor System	01/01/12
BA 5H	Cable Barrier W-Beam Right Shoulder Application	01/01/12
BA 5I1	Cable Barrier with Existing W-Beam Approach	01/01/12
BA 5I2	Cable Barrier with Existing W-Beam Trailing End	01/01/12
BA 5J1	Cable Barrier Median Hazard Protection	08/29/13
BA 5J2	Cable Barrier Span Greater Than or Equal 15 Ft to Less Than or Equal 30 Ft	08/29/13
BA 5K	Cable Barrier with Existing Crash Cushion Median Application	01/01/12

Catch Basins and Cleanouts (CB)

CB 1	Curb and Gutter Inlet	01/01/12
CB 2	Open Curb Inlet	01/01/12
CB 3	Shallow Catch Basin	01/01/12
CB 4	Open Curb Shallow Catch Basin	01/01/12
CB 5A	Standard Catch Basin and Cleanout Box	01/01/12
CB 5B	Standard Catch Basin and Cleanout Box Section	01/01/12
CB 6A	Drop Inlet Type “A”	01/01/12
CB 6B	Berm Apron with Drop Inlet Type “A”	01/01/12

CB 7A	Drop Inlet Type “B”	01/01/12
CB 7B	Normal Apron with Drop Inlet Type “B”	01/01/12
CB 8A	Double Catch Basin	01/01/12
CB 8B	Double Catch Basin	01/01/12
CB 9A	Standard Catch Basin and Cleanout Box Situation and Layout	01/01/12
CB 9B	Standard Catch Basin and Cleanout Box Section Details	01/01/12
CB 9C	Standard Catch Basin and Cleanout Box Schedule of Installation 18 Inch to 42 Inch RCP 12 Inch to 48 Inch CMP	01/01/12
CB 9D	Standard Catch Basin and Cleanout Box Schedule of Installation 48 Inch to 66 Inch RCP 60 Inch to 78 Inch CMP	01/01/12
CB 10A	Standard Catch Basin and Cleanout Box Situation and Layout	01/01/12
CB 10B	Standard Catch Basin and Cleanout Box Section Details	01/01/12
CB 10C	Standard Catch Basin and Cleanout Box Schedule of Installation 42 Inch to 60 Inch RCP 48 Inch to 72 Inch CMP	01/01/12
CB 11	Precast Concrete Standard Manhole	02/28/13
CB 12	Precast Concrete Drainage Box	01/01/12

Crash Cushions (CC)

CC 1	Crash Cushion and End Treatment Markings	01/01/12
CC 2	Crash Cushion Drainage Details Guideline A	01/01/12
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	Passing and Climbing Lanes	04/30/15
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

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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
DD 19	Marked Pedestrian Crosswalk Enhancement Flowchart	04/30/15

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 and Spacing	02/25/16
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

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)	02/26/15
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	04/30/15
PV 5	Urban Concrete Pavement Details	01/01/12
PV 6A	Rumble Strips Shoulder Details	04/30/15
PV 6B	Rumble Strips Depth and Location Details	04/30/15
PV 7A	Typical Rumble Strip Shoulder Sequencing and Applications	04/30/15
PV 7B	Typical Rumble Strip Center Line Sequencing and Application	04/30/15
PV 8	Typical Rumble Strip Centerline Application	04/30/15
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 30 Ft Through 55 Ft	**04/28/16**
SL 1B	Traffic Signal Mast Arm Pole and Luminaire Extension 60 Ft Through 75 Ft	**04/28/16**
SL 1C	Traffic Signal Mast Arm Pole and Luminaire Extension 80 Ft Through 85 Ft	**04/28/16**
SL 1D	Traffic Signal Dual Mast Arm	**04/28/16**
SL 2A	Traffic Signal Mounting	**04/28/16**
SL 2B	Traffic Signal Mounting	**04/28/16**
SL 2C	Mast Arm Sign Mounting	**04/28/16**
SL 2D	Traffic Signal Head Wiring	**04/28/16**
SL 3	Underground Service Pedestal Details	01/01/12

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SL 4	Traffic Signal Mast Arm Pole Foundation	02/26/15
SL 5	Traffic Signal Pole	01/01/12
SL 6	Traffic Signal Heads	**04/28/16**
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	Highway Luminaire Slip Base Details	02/25/16
SL 13	Highway Luminaire Arm and Vertical Extension	**04/28/16**
SL 14	Highway Luminaire Pole Foundation Extension	02/25/16
SL 15	Single Transformer Substation Details	01/01/12
SL 16	Solar Traffic Counting Station	06/26/14
SL 17A	Pedestrian Signal Crosswalk	04/30/15
SL 17B	Pedestrian Hybrid Beacon Crosswalk	04/30/15
SL 17C	Flashing Beacon at a Crosswalk Intersection	04/30/15
SL 17D	Flashing Beacon at Midblock Crosswalk	04/30/15
SL 18	Advance Warning Signal (AWS) System	**04/28/16**

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
SN 19A	Preferential Lane Signing and Pavement Marking Details	04/30/15
SN 19B	Preferential Lane Access Opening Details	04/30/15
SN 19C	Preferential Lane Median Signing Spacing Greater 1 Mile	04/30/15
SN 19D	Preferential Lane Median Signing Spacing Equal to or Less Than 1 Mile	04/30/15

Striping (ST)

ST 1	Typical Pavement Markings No Pass Zone and Lane Reduction	04/30/15
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 6A	Passing Lane Details	04/30/15
ST 6B1	Freeway Climbing Lane Inside Widening Detail	04/30/15
ST 6B2	Freeway Climbing Lane Outside Widening Detail	04/30/15
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
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

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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

XI. 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.

XII. 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 DBEs as defined herein will 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 the DBE program is narrowly tailored in accordance with applicable law;

4. Ensure only firms who 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 who 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 Office will be the DBE liaison officer, who will have direct, independent access to the Executive Director concerning DBE program matters. The Civil Rights Office will 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, sub recipient, or supplier at any lower tier will not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor will 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, subcontractor, service provider, sub recipient, or supplier will not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor will 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, which may include, but is not limited to:
> 1. Withholding monthly progress payments;
> 2. Assessing sanctions;
> 3. Liquidated damages/Disincentives; and/or
> 4. Disqualifying the contractor from future bidding as non-responsible.

Federal Projects With 8 ½ x 11 Plan Sheets

A. CONTRACT GOAL

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

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**, submit DBE Commitment. 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.)

CONTRACT DBE GOAL:_____4.0_____ Percent

NOTE: 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 will be calculated using dollar values and quantities as shown in proposals received for this project. Bidders will compute the percentage of their DBE commitment by dividing the dollar amount of work being committed to certified DBE firms by the total dollar amount of the proposal. This will be the percentage of their DBE commitment reported in the Electronic Bidding System (EBS) software.

b. RACE CONSCIOUS GOAL

At the time of bid, DBE participation is considered race conscious on projects that are assigned a Goal for Bid Evaluation. 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

At the time of bid, DBE participation is considered race neutral on projects that are NOT assigned a Goal (0%) for Bid Evaluation. In this instance, the DBE participation 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.

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.

The committed dollar amount meeting the project goal for bid evaluation will be considered race conscious participation. Any dollar amounts in excess of the project goal for bid evaluation will be considered race neutral participation.

It is the intent of this Policy 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 will be considered 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 Office.**

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 the change be approved by Change Order from the Civil Rights Office. The Contractor will not be entitled to any payment for work or material unless it is performed or supplied by the listed DBE, unless the required approval is obtained.**

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 Office—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 will 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 for the individual item. The explanation for the under-run will include the reasons for the under-run and will 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 will be based on actual payments to DBEs. Over-runs and under-runs on individual contract items may require adjustments to 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, where51 percent of the stock 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 the combined average annual gross receipts of **$23,980,000** from 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, tied to North American Industry Classification System (NAICS) Codes 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 without the effects of discrimination.

   c. The race neutral portion of the overall goal reflects the level of DBE participation achieved in response to assigned DBE goals. The race conscious portion of the overall goal reflects the level of DBE participation 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 DBE Joint Venture must follow the directions found in the Joint Venture Bidding Process. This process is located at the following link: http://eprpw.dot.utah.gov/applets-production/ProjectExplorer/ProjectExplorer.asp then click on EBS Information.

   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. For DBE participation counted towards goal see 49 CFR Part 26.55.

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 indicates the efforts made to achieve a DBE goal or other requirements by their scope, intensity, and appropriateness to the objective, which 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, including retention, 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 is the committed dollar amount at the time of bid focused specifically on assisting only DBEs. UDOT must establish contract goals to meet the race conscious portion of its overall DBE goal. To ensure that the DBE program continues to be narrowly tailored to overcome the effects of discrimination, UDOT may adjust the use of contract goals as follows:

    a. If during the course of any year it is determined the overall goal will be exceeded, UDOT will reduce or eliminate the use of contract goals to the extent necessary to ensure 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 is the dollar amount that exceeds the committed amount at the time of bid and is, or can be, used to assist all small businesses. UDOT must meet the maximum feasible portion of its overall DBE goal by using race -neutral means of facilitating DBE participation. Race neutral DBE participation includes:

    a. Awarding a subcontract on a prime contract that does not carry a DBE goal,

    b. Awarding a subcontract on a prime contract in which the DBE was not considered 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 under 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-leaser of equipment being used on the present project.

    d. Is not an employeeof 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 and be operated by another contractor.

14. Reasonable Bid

Any bid that meets the Department bidding requirements and is not greater than 10% above the Engineer's Estimate or exceeds available funds.

15. Responsible Bidder

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

In addition to UDOT prequalification, when applicable, a responsible bidder is defined as one who has signed (manually or electronically) and submitted a bid with the DBE Bid Conditions Assurance of good faith effort included. Part I of this Policy certifies the intention to meet the DBE goal of a proposed contract or to continue a good faith effort. These goals may be met by subcontracting or leasing contracts with a DBE or purchasing material from a DBE, provided that 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 UDOT prequalification and other bidding requirements, a responsive bidder in relationship to this Policy 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 they will continue during the performance of the contract to locate, solicit, and involve DBE firms for contract performance. Documentation of the bidder's good faith efforts must be included with the bid package for the DEPARTMENT's review and assessment. The DEPARTMENT will render any bid non-responsive that fails to do so.

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. Subcontractor

    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 specifically 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 will 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 will not be responsible for the various operating and management activities of a DBE firm.

21. 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.

22. 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 will 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 will be considered toward contract goals as established in Subsection A.

2. It will 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 will 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 download 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 will be subcontracted to DBE Contractors. Bidders will exercise their own judgments in selecting any subcontractor to perform any portion of the work.

   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 section D BIDDING REQUIREMENTS. A DBE prime contractor's performance does not count toward fulfilling the DBE goal. A prime bidder who is a DBE contractor will meet the DBE goal by using other DBE subcontractors or by using good faith efforts.

1. DBE Bid Assurance

a. Race Conscious Goal

Race conscious measure or program is one that is focused specifically on assisting only DBEs. This goal is the amount the prime must commit to DBEs at the time of bid or a good faith effort must be documented.

2. DBE Race Conscious Commitment

For a bid to be considered responsive, Bidders will 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 will be considered committed in their entirety unless Bidders designate otherwise in their DBE Commitment.

(1.) If mobilization is a bid item 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 is required at the time of bid.

The DBE Commitment is to be included in the prepared bid, and said information will be kept confidential and will be reviewed to determine the apparent low bidder has either met the DBE Contract Goal or has documented acceptable Good Faith Efforts.

3. DBE Race Neutral Participation

Race Neutral DBE participation includes anytime a DBE;

a. wins a Prime Contract through customary bidding procedures,

b. is awarded a subcontract on a prime contract that does not carry a DBE goal (0% goal),

c. wins a subcontract from a prime contractor that did not consider its DBE status in making the award (e.g., a prime contractor that uses a strict low bid system to award subcontracts).

4. DBE Written Confirmation

Low Bidder will submit to the Civil Rights Office within three (3) work days after the bid opening written confirmation from each DBE participating in the contract as provided in the Prime Contractor's DBE Commitment. The written confirmation will include the following information:

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

(1) If mobilization is a bid item that is partially committed, 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 committed to a DBE.

(5) Total dollar amounts (mathematical extensions) for each bid item 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 they made good faith efforts . 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 will 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 type 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 will be based upon the information and documentation of the actions supplied by the Bidder with their bid proposal. The DEPARTMENT reserves the right to investigate and verify such information or to request the low dollar Bidder clarify information submitted within 7 days of the time of bid. The 7 days will be reduced to 5 days beginning January 1, 2017.

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) Method of contact (i.e. emails, letters, postings, etc.)
(3) Result of contact
(4) Name and contact info of anticipated DBE subcontractor(s)
(5) Anticipated work items to be performed by DBEs
(6) Anticipated dollar amount of subcontract(s)

The DBE information submitted includes the NAICS code applicable to the kind of work the DBE will perform on the contract, and, when a non-DBE subcontractor is selected over a DBE, copies of the quotes from each DBE and non-DBE subcontractor. The bidder will make copies of DBE subcontracts available upon request.

The following items are types of efforts that should be made for acceptable Good Faith Efforts:

(1) Conducting market research and solicit through all reasonable means DBEs with capability to do the proposed work
(2) May include attending pre-bid meetings and matchmaking events
(3) Posting notices; sending emails
(4) Solicit as early as possible
(5) Unbundling
(6) Establishing flexible timeframes

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 Bidding Requirements.

7. Administrative Reconsideration

Good faith efforts as used herein will 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 written documentation or argument concerning whether the goal was met or adequate good faith efforts were made.

c. The Bidder will have the opportunity to meet in person with the reconsideration official to discuss whether the goal was met or adequate good faith efforts were made.

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 or 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 contractors 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. 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.

3. When a DBE bids as a prime contractor and utilizes themselves as a DBE participant, their commitment will be counted as race conscious. The prime contractor is still encouraged to use 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 will 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 established at the time of award by the Contractor's DBE Commitment, without adequate justification, including concurrence of the ENGINEER and Civil Rights Office, will result in the imposition of sanctions as provided in Part I of this Special Provision.

1. Contractors may count toward their contract goals a portion of the total dollar value of a joint venture contract 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.

2. The ENGINEER will recognize and grant DBE credit for work performed by DBE contractors ONLY in the types of work for which DBE certification has been granted by the UUCP prior to bid opening. It is necessary 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 download 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

3. Contractors may count 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.

4. 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.

5. 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 will 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.

6. The DEPARTMENT will 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 as long as the DBE provides the employees for the leased trucks.

   f. A lease must indicate 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.

7. 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 will 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.

8. 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 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., will be submitted to the Resident Engineer or Consultant Engineer at the Preconstruction Conference. The agreement will 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.

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

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

10. When a DBE subcontractor is terminated, or fails to complete its work on the contract for any reason, the Contractor must make good faith efforts to find another DBE subcontractor to substitute for the original DBE. Direct these good faith efforts at finding another DBE to perform at least the same amount of work under the contract as the DBE that was terminated, to the extent needed to meet the contract goal established for the project. Document the good faith efforts. If the Department requests documentation under this provision, submit the documentation within 7 days, which may be extended for an additional 7 days if necessary at the request of the contractor, and the Department will provide a written determination to the contractor stating whether or not good faith efforts have been demonstrated.

Failure by the contractor to carry out the requirements of this part is a material breach of the contract and may result in the termination of the contract or such other remedies set forth in that section you deem appropriate if the prime contractor fails to comply with the requirements of this section.

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 will ascertain 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 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 a DBE subcontractor is unable to perform successfully, the Contractor will 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 will 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 will receive prior approval by the Civil Rights Office.

The Contractor will not substitute DBE subcontractor(s), work item(s), nor decrease dollar amount(s) as indicated in the Contractor's DBE Commitment Substitutions for the **good cause reasons** defined in 49 CFR 26.53 without performing the following steps:

1. Give notice in writing to the DBE subcontractor, with a copy to Civil Rights, of their intent to substitute and the reason of its request.

2. Obtaining a written response from the DBE stating why they would object or oppose to the substitution or decrease. The Contractor must give the DBE five (5) days to respond to the notice of substitution.

3. Obtain Civil Rights Office written consent prior to any substitution, termination or decrease of DBE commitment.

The Contractor will 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 Office.

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. <u>SANCTIONS</u>

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 will be reduced as a disincentive 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 Office.

b. Race neutral participation.

2. The ENGINEER will 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) will be completed in the current bidding 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 the current bidding software. 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

DBE PARTICIPATION

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**, submit DBE Commitment.

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 (when applicable as defined by Section IX, Bid Conditions, D.5) 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 (when project goal is greater than 0.0).

_____ We have not met the advertised DBE Project goal. A Good Faith Effort is required. We have provided the required documentation per 49 CFR, Part 26.53.

Documentation of Good Faith Efforts is not required on a 0.0 percent goal project.

XIII. 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).

XIV. 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
20. Ensure a workplace free of harassment, intimidation, and coercion

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.

d. Include in the EEO Policy a commitment to provide a workplace free of harassment, intimidation, and coercion; ensure the policy is posted on the project bulletin board; ensure foreman and superintendents are trained in prevention of harassment, intimidation, and coercion; and take other affirmative actions as necessary to satisfy the requirements of 41 CFR 60 4.3.7a. At the time annual registration is due, the contractor will acknowledge that they have a workplace free of harassment, intimidation, and coercion.

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 _____0___ (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 will 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 will 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.

b. OBJECTIVE: Training and upgrading of minorities and women toward journey status is the primary objective of this program. The Contractor will 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 will not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

c. PROJECT TRAINING GOAL: The formula for determining the training goal specified in the Training Special Provision will 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 will submit Form C-130 (Formerly 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 will review annually the training and promotion potential of minority and women employees and will 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 will 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 Apprenticeship Training 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 C-130 (Formerly 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 C-130 (Formerly 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.

DISINCENTIVES: 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 disincentives to be deducted from the final progress payment:

Federal Projects With 8 ½ x 11 Plan Sheets

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**	**DISINCENTIVES**
	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 Disincentives**	66,248.00

*The journey worker scale is based on the classification identified in the approved programs submitted previously on the form C-130 (Formerly OJT100).

Federal Projects With 8 ½ x 11 Plan Sheets

(This form C-130 (Formerly 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).

TRAINING COMMITMENT FORM

(This form replaces the required Training Letter of Commitment and is to be completed and submitted to the UDOT Resident Engineer before or at the preconstruction meeting for the project.)

Date: _____

Project # _____ **Location** _____

Company _____

Address _____

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

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

Signature _____ **Title** _____ Date _____

XV. 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 8 ½ x 11 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

XVI. 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.

CARGO PREFERENCE ACT (CPA)

DESCRIPTION

The Federal Highway Administration (FHWA) in partnership with the Federal Maritime Administration (MARAD) has mandated the implementation of 46 CFR 381 making the cargo preference requirements applicable to the Federal Aid Highway Program.

The requirements of this Special Provision apply to items transported by ocean vessel.

CONTRACT REQUIREMENTS

A. General

Utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels. Gross tonnage is computed separately for dry bulk carriers, dry cargo liners, and tankers.

Furnish a legible, English language copy of a rated ‘on-board’ commercial ocean bill-of-lading for each shipment of cargo described in the previous paragraph. Furnish the bill-of-lading within 20 days following the date of loading for shipments originating in the United States and within 30 working days following the date of loading from shipments originating outside the United States.

Furnish bills-of-lading to the Engineer and to the following:

Division of National Cargo
Office of Market Development
Maritime Administration
Washington, DC 20590

B. Subcontracts

Include the language in Section “A, General” of this Special Provision in all subcontracts issued pursuant to this contract.

XVII. Wage Rates Applicable

GENERAL DECISION FILE FOR PROJECTS REPORT

Date: **11/1/2016**

Project #: F-I70-2(52)63

General Decision #: UT20160086 **Modification:** 0 **Publication Date:** 01/08/2016

Counties: SEVIER, UT

Note: Under Executive Order (EO) 13658, an hourly minimum wageof $10.15 for calendar year 2016 applies to all contractssubject to the Davis-Bacon Act for which the solicitation wasissued on or after January 1, 2015. If this contract is coveredby the EO, the contractor must pay all workers in anyclassification listed on this wage determination at least$10.15 (or the applicable wage rate listed on this wagedetermination, if it is higher) for all hours spent performingon the contract in calendar year 2016. The EO minimum wage ratewill be adjusted annually. Additional information on contractorrequirements and worker protections under the EO is availableat www.dol.gov/whd/govcontracts.

Contractor Code		Hourly Rate	Fringes
Designation: CARP0184-002	**Survey Date:** 7/1/2013 00:00:0(		
170142	CARPENTER (Including Form work)	$24.01	10.62
Designation: ENGI0003-059	**Survey Date:** 7/1/2013 00:00:0(		
110330	(4) Aspalt Laydown Machine, Oil Distributor	$24.37	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
110222	Operator: Power Equipment: (3) Backhoe Loader Combination	$25.37	15.65
Designation: IRON0027-003	**Survey Date:** 7/1/2015 00:00:0(		
120262	IRONWORKER: STRUCTURAL (Excluding Fence Erection and Guard Rail Installation)	$26.18	19.10
Designation: IRON0847-001	**Survey Date:** 8/1/2013 00:00:0(		
120261	IRONWORKER, REINFORCING	$26.61	11.60
Designation: LABO0295-033	**Survey Date:** 7/1/2014 00:00:0(		
130013	LABORER: (4) Asphalt Shoveler	$21.11	8.65
Designation: SUUT2008-070	**Survey Date:** 9/10/2008 00:00:(		
140015	CEMENT MASON/CONCRETE FINSHER	$17.36	2.04
140074	INSTALLER - GUARDRAIL	$13.11	0.00
140084	LABORER: Aspalt Raker	$12.18	2.60

GENERAL DECISION FILE FOR PROJECTS REPORT

Date: **11/1/2016**

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Contractor Code		Hourly Rate	Fringes
Designation: SUUT2008-070	**Survey Date:** 9/10/2008 00:00:0		
140017	LABORER: Common or General	$13.37	2.65
140018	LABORER: Fence Erector	$15.27	2.79
140019	LABORER: Flagger	$8.77	2.53
140020	LABORER: Landscape	$14.45	2.79
140021	LABORER: Mason Tender-Cement/Concrete	$9.00	.36
140022	LABORER: Pipelayer	$15.52	2.79
140143	Laborer: Power Tool Operator: (Chain/Concrete Saw, Hand Held Drill and Jackhammer/Tamper Only)	$14.47	3.01
140086	OPERATOR: Aspalt Paver	$20.59	6.67
140026	OPERATOR: Asphalt Roller	$15.82	4.00
140141	OPERATOR: Backhoe/Excavator	$19.71	5.99
140327	OPERATOR: Broom/Sweeper	$15.88	5.65
140030	OPERATOR: Bulldozer	$21.78	7.04
140113	OPERATOR: Crusher	$24.64	4.76

GENERAL DECISION FILE FOR PROJECTS REPORT

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Contractor Code		Hourly Rate	Fringes
Designation: SUUT2008-070	**Survey Date:** 9/10/2008 00:00:0		
140114	OPERATOR: Grade Setter	$20.21	7.08
140280	OPERATOR: Grader/ Blade	$19.42	5.95
140279	OPERATOR: Loader (Front End)	$20.63	6.92
140088	OPERATOR: Mechanic	$19.10	5.71
140115	OPERATOR: Oiler	$20.74	5.89
140034	OPERATOR: Roller (Dirt and Grade Compaction)	$16.39	6.12
140035	OPERATOR: Rotomill	$24.25	6.00
140036	OPERATOR: Scraper	$21.51	5.57
140037	OPERATOR: Screed	$15.88	4.04
140126	OPERATOR: Trackhoe	$16.00	1.59
140116	PAINTER, Including Parking Lot and Highway Line Striping	$14.05	1.62
140287	SIGN Installer (Permanent and Temporary Road Signs)	$15.40	2.79
140281	Traffic Control: Sets Cones and Barrels	$17.14	2.79

GENERAL DECISION FILE FOR PROJECTS REPORT

Date: **11/1/2016**

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Note: Under Executive Order (EO) 13658, an hourly minimum wageof $10.15 for calendar year 2016 applies to all contractssubject to the Davis-Bacon Act for which the solicitation wasissued on or after January 1, 2015. If this contract is coveredby the EO, the contractor must pay all workers in anyclassification listed on this wage determination at least$10.15 (or the applicable wage rate listed on this wagedetermination, if it is higher) for all hours spent performingon the contract in calendar year 2016. The EO minimum wage ratewill be adjusted annually. Additional information on contractorrequirements and worker protections under the EO is availableat www.dol.gov/whd/govcontracts.

Contractor Code		Hourly Rate	Fringes
Designation: SUUT2008-070	**Survey Date:** 9/10/2008 00:00:0		
140090	TRUCK DRIVER	$15.25	1.59

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

XVIII. Special Provisions and Supplemental Specifications

Supplemental Specification
2012 Standard Specification Book

SECTION 00120M

BIDDING REQUIREMENTS AND CONDITIONS

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

A. Meet Department requirements for prequalification before submitting a proposal on all projects where the Department Engineer's advertised estimate is greater than or equal to $3 million.
   1. Prequalification information is due at least 10 calendar days before submitting a proposal on projects requiring prequalification.

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 Department 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 submitting a bid. Exception: A Contractor may submit a bid on a Federal-aid highway project if they can become licensed in Utah before beginning construction (notice to proceed).
   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

June 30, 2015

SPECIAL PROVISION

PROJECT # F-I70-2(52)63
PIN # 12477

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 working days.
   2. Determine the number of consecutive working days required between each start milestone and finish milestone in Table 1.
      a. Consider all requirements of the contract when determining the number of working days,
      b. Include the days of the start milestone and finish milestone in the number of working 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 working days. Consider seasonal project specific weather conditions during bid preparation.

Table 1

Determination of Working 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 working Day	User Cost or Liquidated Damages	Working Days	Working Days
1 **(see note 1)**	To be determined by the Contractor	Substantial Completion	$1,570*	Liquidated Damages	40	80

NOTE 1: See special provision 00555M for start time.

NOTE 2: Contract time will be charged during waiting periods and cure times unless otherwise noted.

*This amount is determined by Table 1 in Section 00555, Article 1.16, and will be determined based on contract amount.

1.7 INCENTIVES/DISINCENTIVES RELATED TO "TIME"

A. Contract time related charges are determined by multiplying the number of working 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 working 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 working 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 working days bid and the actual number of working 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 $__7850__.

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 working 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 working days bid and the actual number of working 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 working days and the actual number of days to achieve the milestone if milestone completion is not achieved prior to the maximum working 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 working days bid and the actual number of working days used to achieve the milestone.
   c. Disincentive applies until milestone completion or the maximum working 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 working days from

Column G and the actual number of working days used to achieve the milestone.

G. Timeline of Incentive, Disincentive, and Liquidated Damages

1. Refer to Figure 1

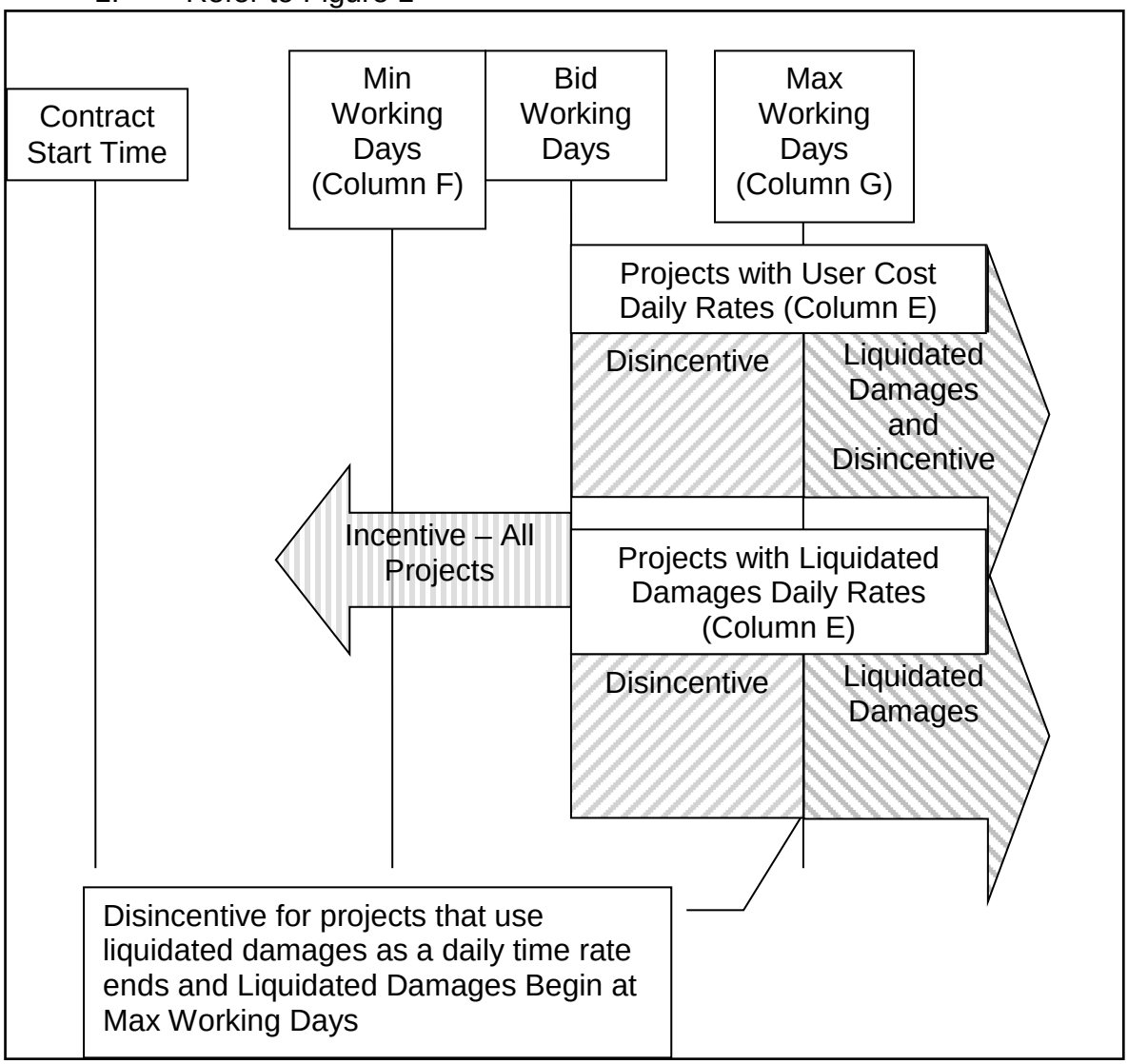

Figure 1 – Timeline of Incentive, Disincentive, and Liquidated Damages

PART 2 PRODUCTS Not Used

PART 3 EXECUTION Not Used

END OF SECTION

February 26, 2015

SPECIAL PROVISION

PROJECT # F-I70-2(52)63
PIN # 12477

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.

Supplemental Specification
2012 Standard Specification Book

SECTION 00515M

CONTRACT AWARD AND EXECUTION

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.

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

B. Qualified Health Benefit Plan
   The Department will issue a Notice to Proceed after the Contractor demonstrates that an offer of qualified health insurance coverage has been or will be maintained for the employees and their dependents for the duration of any contract entered between the Department and the Contractor.
   1. Provide certification of equivalency to a "qualified health insurance" plan as required by Utah Code 72-6-107.5.
   2. Demonstrate compliance of this requirement before the Notice of Proceed or approval to sublet work. Refer to http://www.udot.utah.gov/go/standardsreferences for guidance on this process for Qualified Health Insurance Coverage.
   3. Failure to demonstrate compliance of this requirement may result in cancellation of the contract.
   4. Provide two statements to "demonstrate" compliance. Statements need to be signed originals and on company letterhead. Separate letters for each subsidiary, contracting with Department, are required.
      a. Provide an original signed statement from the Contractor stating that they will maintain an offer of Qualified Health Insurance coverage as required by Utah Code 72-6-107.5 for the duration of any contract between Contractor and UDOT.

b. Provide a written statement of actuarial equivalency from:
   1) The Utah Insurance Department;
   2) An actuary selected by the contractor or the contractor's insurer; or
   3) An underwriter who is responsible for developing the employer group's premium rates.

December 16, 2015

SPECIAL PROVISION

PROJECT # F-I70-2(52)63
PIN # 12477

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

Delete Articles 1.9 and 1.10 and replace with the following:

1.9 BASELINE CONSTRUCTION SCHEDULE

A. Provide the Engineer with a baseline construction schedule meeting the requirements of this section. The schedule format is at the Contractor's discretion. Possible options include:
   1. A schedule created using spreadsheet software
   2. A schedule using Oracle's Primavera P6 or any scheduling software

B. Schedule
   1. Provide the Engineer the baseline construction schedule with schedule narrative within 14 calendar days of the Notice to Proceed.
      a. Provide one hard copy and one electronic copy, if applicable, in a format acceptable to the Engineer.
   2. The Engineer reviews the schedule within 7 calendar days then meets with the Contractor to discuss any concerns.
   3. Complete the final baseline schedule and obtain Engineer's acceptance within 15 calendar days from Notice to Proceed.
      a. Address the Engineer's comments and revise the schedule as necessary to obtain acceptance.
      b. No progress payments are made before the Engineer Accepts the baseline construction schedule.
   4. The Contractor is solely responsible for planning and executing the work. Engineer's acceptance of the baseline schedule does not:

a. Imply approval of any particular construction methods or relieve the Contractor's responsibility to provide sufficient materials, equipment, and labor to guarantee the completion of the project according to the contract.
b. Attest to the validity of assumptions, activities, relationships, sequences, resource allocations, or any other aspect of the baseline construction schedule.

5. Failure to include any element of work required by the contract in the accepted baseline construction schedule does not relieve the Contractor's responsibility to perform such work.
6. The baseline construction schedule does not modify the contract requirements.

C. Schedule Requirements
Address the following:
1. Define a complete and logical plan, consistent with how the project was bid, that can realistically accomplish the work defined in the contract.
2. Include sufficient activities for adequate planning.
3. Define the continuous critical path. Begin at Notice to Proceed and end at Physical Completion.
4. Clearly and uniquely define each activity.
5. Define the duration of each activity.
6. Clearly identify the relationships or order of activities.

D. Schedule Narrative Requirements
1. Provide a schedule narrative that describes:
a. The construction philosophy supporting the approach to the work outlined in the schedule.
b. Potential problems that may impact the scheduled completion date along with proposed solutions.
c. Coordination requirements with other entities.
d. Production rates and crew requirements, as bid by the contractor, for all major activities.
e. The work calendar used (like calendar days or work days) and holidays taken.
2. Certify that the baseline schedule represents how the work was bid or explain how it is different.

E. All costs to maintain the project schedule are solely the Contractor's obligation and at no additional cost to the Department.

1.10 CONSTRUCTION SCHEDULE UPDATES

A. Update the construction schedule regularly at intervals agreed to by the Engineer.
1. Show actual start and finish dates

2. Show impact of issues encountered

B. Provide the Engineer with one hard copy and one electronic (if appropriate).

C. Meet with the Engineer within seven calendar days of the update submittal to discuss all schedule related issues; specifically issues that may result in a request for added time or additional costs.

Add the following to paragraph A, Article 1.11, "LIMITATION OF OPERATIONS":

1. Maintain at least one lane of unrestricted traffic in each direction of I-70 and ramps at all times.

2. Limit total length of lane closures to a maximum length of 6 miles in each direction of I-70.

3. No mainline traffic is permitted on the rotomilled surface.

4. Any work requiring HMA must be completed before the Micro-surfacing

Delete Paragraph B.1, Article 1.11, "LIMITATION OF OPERATIONS" and replace with the following:

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 as listed below:

    a. Friday, April 14th, 2017 11:59 am to Sunday, April 16th, 2017 11:59 pm
    (Easter)

    b. Friday, May 26th, 2017 11:59 am to Monday, May 29th, 2017 11:59 pm
    (Memorial Day)

    c. Friday, June 30th, 2017 11:59 am to Tuesday, July 4th, 2017 11:59 pm
    (Independence Day)

    d. Friday, July 21st, 2017 11:59 am to Monday, July 24th, 2017 11:59 pm
    (Pioneer Day)

e. Friday, September 1st, 2017 11:59 am to Monday, September 4th, 2017 11:59 pm (Labor Day)

f. Wednesday, November 22nd, 2017 11:59 am to Sunday, November 26th, 2017 11:59 pm (Thanksgiving)

g. Friday, December 22nd, 2017 11:59 am to Monday, December 25th, 2017 11:59 pm (Christmas)

Add the following to Article 1.11, "LIMITATION OF OPERATIONS":

D. All construction activity and equipment must be confined within the existing roadway prism or existing road construction disturbance located between toe of cut ditch to toe of fill within the existing Right-of-Way.

E. Staging areas or construction borrow areas occurring outside the roadway prism, including all public or private land, require appropriate coordination and permitting.

F. Clean up and remove waste daily, including excess asphalt and rotomill tailings.

G. Allow a minimum 30 days, or as directed by the Engineer, before applying second application of pavement marking paint

H. Contract time will be charged during paint application waiting period and all other waiting periods and cure times unless otherwise noted.

I. Contract time will not be charged during the seven (7) calendar days required for the installation of variable message boards prior to beginning any construction activities.

J. Implement Best Management Practices (BMP's) for sediment control along wetlands, drainages and irrigation ditch/canal locations. Avoid unnecessary earth disturbance.

K. Document the type, location, and offset of the existing pavement marking paint with survey prior to removing them with any construction activities. Establish new pavement marking paint with survey to ensure that the new pavement marking paint matches the type and location of existing paint. Place any changes to the pavement marking paint or messages according to the detailed stationing report and/or detail sheets.

L. Cultural and Fossil – Discovery of cultural and paleontological items (non-renewable resources) may be possible during construction activities. Refer to all standard procedures listed in Standard Specification 01355,

more specifically Articles 3.7 and 3.8 to address such discoveries and contractor activities requiring environmental clearances.

M. No shouldering material will be placed within Salina Creek.

N. Provide the UDOT Region Four Safety Loss/Incident Manager, with two (2) weeks notice of beginning and ending of construction and the beginning of any lane restrictions. Provide one (1) weeks notice of ending any lane restrictions.

Brian Quarnberg
Email: bquarnberg@utah.gov
Cell: (435) 979-8468

O. Provide the Region Four Communications Manager, with two (2) weeks notice of beginning and ending construction.

Kevin Kitchen
Email: kevin@utah.gov
Cell: (435) 979-4551
FAX: (435) 896-6458

P. Rotomill tailings become property of the contractor and are to be removed and disposed of by the contractor as per UDOT specifications. No Rotomill tailings are allowed to be placed on the job site.

Delete Article 1.14, paragraph A and replace with the following:

A. Contract time begins on first day of work or July 10, 2017 whichever comes first.

1. All work to be completed in 2017 Calendar year.

April 19, 2016

SPECIAL PROVISION

PROJECT # F-I-70-2(52)63
PIN # 12477

SECTION 00570M

DEFINITIONS

Delete Article 1.7 paragraph A103 subparagraph d.

Supplemental Specification
2012 Standard Specification Book

SECTION 00570M

DEFINITIONS

Delete Article 1.2 and replace with the following:

1.2 Related Sections

A. Section 00725: Scope of Work

B. Section 01280: Measurement

C. Section 01282: Payment

Add Article 1.3, paragraph B:

B. UDOT Specification Writers' Guide

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. Contract designated holidays or days restricted in the contract.
    b. Days when the Contractor is specifically required by the contract or letter from the Engineer to suspend operations through no fault of the Contractor.
    c. 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 for at least 50 percent of the normal working day.
        2) The day may be considered a working day even though conditions may improve and the major portion of the day could be considered suitable for operations if weather stops the Contractor's crew from beginning work at the normal starting hour and the crew is released as a result.
    d. Saturdays and Sundays for submittals and notifications.

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.

March 12, 2015

SPECIAL PROVISION

PROJECT # F-I70-2(52)63
PIN # 12477

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

Delete Article 1.5 and replace with the following:

1.5 SUBMITTALS

A. Refer to this Section, article 1.7, paragraph C.

Delete Article 1.7 and replace with the following:

1.7 PARTNERING

A Implement partnering according to the Partnering Field Guide. Refer to http://www.udot.utah.gov/go/standardsreferences.

B. Share all partnering costs equally with the Department.

C. Submit certificates for all required individuals, as listed in the Partnering Field Guide before execution of the first month's construction estimate. Failure to comply will result in 25 percent of the first estimates Mobilization payment up to $25,000 being withheld until all individuals have completed the required training.

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.

Supplemental Specification
2012 Standard Specification Book

SECTION 00727M

CONTROL OF WORK

Delete Article 1.26 and 1.27 and replace with the following:

1.26 CLAIMS HIGHER LEVEL REVIEW

A. Make a good-faith effort to settle the claim by utilizing the Partnering Escalation Ladder identified in the Partnering Field Guide prior to submitting a claim and requesting a meeting with the Claims Review Board.

B. Submit a written request for a higher-level review to the Engineer within 10 calendar days after receiving the Engineer's decision or offer if not accepting the Engineer's denial of a claim, or a settlement offer. Attach to the written request for a higher-level review all required information. Refer to this Section, Article 1.23, paragraph D.

C. Failure to submit a request within this 10-day time frame is considered acceptance of the Engineer's claim denial or offer.

1.27 CLAIMS REVIEW BOARD

A. A Claim will be referred to the Claims Review Board (CRB) when requested by the Contractor as provided in this Section.

B. The purpose of the CRB is to provide an independent and impartial review of submitted claims, written findings, and recommendations to the Department's Deputy Director.

C. Scheduling a hearing or utilizing the CRB does not relieve the Contractor or Department of complying with all Contract terms and conditions, and does not waive any notice or timeliness requirements. Proceed diligently with all work during the CRB process.

D. The Director of Construction or designee schedules a hearing before the CRB when deemed to be in the best interest of both the Contractor and the Department based on the Contractor's request for a higher-level review.
   1. The claim may be presented informally with or without legal counsel.

2. Notify the Department at least 10 calendar days before the meeting when using legal counsel.
3. Legal counsel will be allowed to attend the presentation, and will be allowed to make brief opening and closing remarks and advise their clients. No other participation by legal counsel at the presentation will be permitted.

E. Parties will bear their own costs.
1. All costs associated with preparation and participation in the CRB meeting will be the responsibility of each party.
2. The Contractor will not receive compensation for travel, time, research activities, time away from the project, presentation preparation, presentation time or any other activities associated with the preparation for or participation in the CRB process.

F. Pre-presentation Requirements

1. The Department and the Contractor will prepare concise written statements describing the claim and each party's position with reasoning and submit to the Project Controls Engineer who will distribute them to the other party a minimum of 7 calendar days before the scheduled presentation.
2. The parties will submit their visual presentation to the Project Controls Engineer who will distribute it to the other party a minimum of 7 calendar days before the scheduled presentation, if either party chooses to prepare a visual presentation.

G. Presentation
1. The party that is in attendance will prevail in their position on the claim if either the Department or the Contractor fails to appear before the CRB on the date and time scheduled for the presentation without justifiable cause.
2. The Contractor will submit their position first, followed by the Department.
3. The duration of each party's presentation will be determined when the Claim meeting is scheduled and will be agreed to by both parties.
   a. The duration may vary depending on the complexity and size of the claim.
4. Only information or claims related to the Contractor's original claim may be discussed in the hearing.
   a. No new information may be submitted.
   b. The CRB will inform the party that no additional information or claims are permitted if the Contractor or Department attempts to submit new information.

5. Recording the meeting by tape, court reporter, or video is prohibited.
6. This presentation is informal, allowing for the Contractor and Department to present their positions, and for all parties to exchange questions and answers.
7. The meeting will be conducted as follows:
    a. The chairman informs the meeting attendees of the procedures and format of the meeting.
    b. Both parties may deliver brief opening and closing remarks.
    c. The Contractor presents their claim in detail as supported by previously submitted information and documentation.
        1) The presentation can be verbal or visual.
    d. The Department presents its detailed position as supported by previously submitted information and documentation.
        1) The presentation can be verbal or visual.
8. The CRB may allow rebuttals by both parties during the meeting after both the Contactor and Department make their presentations.
    a. Rebuttals will not be heard after the meeting has ended.

H. Offer of Settlement or Rejection of Claim
1. The Department Deputy Director makes an offer of settlement within 45 calendar days of the claim hearing if the offer is less than the amount required to be reviewed by the Transportation Commission.
2. The decision of the Department Deputy Director is administratively final.
    a. The CRB hearing ends all administrative appeal processes available to the Contractor.
    b. The Contractor may elect to file a complaint in State court if the claim is rejected, or if the sum tendered by way of settlement is not acceptable to the contractor.

I. Acceptance or Rejection
1. Provide written notice to the Deputy Director of acceptance or rejection of the offer or rejection of the claim within 7 days of the date of the Deputy Director's offer.
    a. The Department will promptly process any required payments or contract changes if both the Department and Contractor agree to resolve the Claim.

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.

Supplemental Specification
2012 Standard Specification Book

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. Secure legal right to access the property before any work is performed on public or private property. 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 their right to request re-examination of denied or partially denied claims of $5,000 or less 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
      4) Department project number and location
   b. The claim can be overturned by the Department if claimant is not notified of right to request re-examination.

Add Article 1.17, paragraph F5:

5. The Claims Re-examination Board cannot review any claim filed in the small claims court, district court, or appealed to the district court.
   a. The person in charge of responding to Claims Re-examination Board requests will put the following paragraph on all written correspondence:

      "Parties seeking to file a claim before the Claims Re-examination Board must certify that the claim has not been filed in or heard by a small claims or district court."

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 may be required, as determined by the Engineer, 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.

Add Article 1.16, paragraph A3:

3. The Contractor can choose to opt out of the Asphalt Cost Adjustment (ACA).
   a. Check the appropriate box on the bid proposal indicating the intent to opt out of the ACA.
   b. The ACA cannot be reactivated on a project for which the Contractor has opted out.

Delete Article 1.16, paragraph C.1.a.2) and replace with the following:

2) The high reported wholesale asphalt price (per ton) from the Argus Asphalt Report for Rocky Mountain and West coast asphalt prices for:
   Denver
   Las Vegas
   Montana
   Phoenix
   Salt Lake City
   Wyoming

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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 13, 2016

SPECIAL PROVISION

PROJECT # F-I70-2(52)63
PIN # 12477

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 that could be removed without damaging the completed work
3. Items such as nuts, bolts, washers, screws, concrete chairs, spacers, mailboxes, and other steel or iron parts that may be considered miniscule or non-structural to the whole of the project.
4. Fencing stays, clips, staples, or other miscellaneous fencing components.
5. Manufactured assemblies that are less than 51 percent by weight 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.

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SECTION 01455M

MATERIAL QUALITY REQUIREMENTS

Add Article 1.4, paragraph B:

B. Approved Products List (APL) - A list of products and materials that the Department accepts as meeting the requirements in the Department's Standard Specifications and Drawings. Refer to the Department Materials Web site to access the APL at http://www.udot.utah.gov/go/standardsreferences.

1. The APL does not include all acceptable products. It includes products submitted by manufacturers and reviewed by the Approved Products Panel.
2. Inclusion in the APL is not a product endorsement by the Department.

Add Article 1.5, paragraph E:

E. Completed APL Compliance Form and Manufacturer Instructions printed from the Department's Approved Products List Web site. Refer to the Department Materials Web site to access the APL at http://www.udot.utah.gov/go/standardsreferences. Refer to this Section, Article 1.18.

Delete Article 1.11, paragraph A4 and replace with the following:

4. Lot identification or manufacturer's identification of the certified materials or assemblies delivered to the project

Add Article 1.11, paragraph D:

D. Provide the APL Compliance Form and Manufacturer Instructions instead of a Certificate of Compliance if the product is listed in the Department's APL. Refer to this Section, article 1.18.

1. Do not use the APL Compliance Form for acceptance when a project special provision modifies the product requirements in the Standard Specifications.

Add Article 1.18:

1.18 APL COMPLIANCE FORM

A. Provide the completed APL Compliance Form and Manufacturer Instructions printed from the Department's Approved Products List website instead of a Certificate of Compliance if the product is listed in the Department's APL. Refer to the Department Materials Web site to access the APL at http://www.udot.utah.gov/go/standardsreferences.

1. The Engineer will evaluate the suitability of the product for its intended use according to the restrictions in the APL.
2. Do not use the APL Compliance Form for acceptance when a project special provision modifies the product requirements in the Standard Specifications.

B. Buy America requirements still apply when acceptance is based upon the APL Compliance Form. Refer to this Section, article 1.16.

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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.

January 22, 2015

SPECIAL PROVISION

PROJECT # F-I70-2(52)63
PIN # 12477

SECTION 01554M

TRAFFIC CONTROL

Add the following paragraph to article 1.4

C. TPRS – Temporary Portable Rumble Strips

Add the following paragraph to article 1.8

J. Provide Temporary Portable Rumble Strips during working hours as advance warning for vehicles entering a work zone with impacts to the width, alignment, or number of travel lanes.

1. Only one work zone set up of Temporary Portable Rumble Strips, as shown in the project details, is required per direction of travel, as long as work zones are not spaced greater than 5 miles apart. Place series prior to the first work zone with impacts to travel lanes when multiple work zones exist in the same direction of travel.
2. Work zones in the same direction of travel spaced greater than 5 miles apart will require a separate Temporary Portable Rumble Strip set up.

Add the following to article 1.9 paragraph C

13. Adjust the Temporary Portable Rumble Strips as necessary to maintain proper alignment, spacing, and location.
    a. Set TPRS perpendicular to the travel lane. Adjust TPRS when any one rumble strip is no longer perpendicular to the travel lane (skewed) by a distance of 3 feet or more (i.e. the maximum skew allowed at the end of any one rumble strip is 3 feet, measured perpendicular to the travel lane). Adjust the TPRS if the parallel distance between the individual rumble strips decreases by 5 feet or more. (Temporary paint marks may be placed to give reference of original locations.)

b. Make adjustments to TPRS as often as necessary during working hours, but at least during each traffic control inspection. Adjustments to TPRS must be made within 30 minutes of discovery or notification of misalignment.
c. Remove TPRS during non-working hours.

Add the following to article 1.10 paragraph A

1. Set Temporary Portable Rumble Strips before beginning of shift.

Delete paragraph C of Article 1.12 and replace with the following:

C. Include in the bid item Traffic Control all materials, equipment, labor, flagging, pilot car, variable message boards, temporary portable rumble strips, temporary pavement markings and removal or both, and workmanship required for the design, implementation, and maintenance of the Traffic Control Plan.

Add the following paragraph to article 2.3, "TRAFFIC CONTROL SIGNING AND DEVICES":

F. Provide, install, and maintain two (2) variable message boards seven (7) days prior to beginning any construction on the project and throughout the major items of work that will impact traffic. Inform the public of the date construction will start and the lane restrictions that will be in place during the project. Prior to placing VMS boards, coordinate messages with Engineer. Coordinate duration and locations of the boards with the Engineer. Any relocation necessary for construction activities will be done at no cost to the Department.

1. Approximate locations for variable message boards:
   a. MP 61.90
   b. MP 75.00

Add the following article to Part 2

2.5 TEMPORARY PORTABLE RUMBLE STRIPS

A. RoadQuake 2 Series
Temporary Portable Rumble Strip manufactured by:
Plastic Safety Systems
2444 Baldwin Road, Cleveland, Ohio 44104
800-662-6338

B. Temporary Portable Rumble Strips are an array of 3 strips that span a travel lane. Space and locate each array according to Temporary Portable Rumble Strips Details.

Delete Article 3.3 paragraph C and replace with the following:

C. Remove all traffic control from site of work when not required within 96 hours.

1. Remove traffic control devices from roadway a distance twice that of the Work Clear Zone if they will be used within 96 hours of the daily work stoppage and are not required for immediate traffic control. Refer to the TC Series Standard Drawings.
   a. Obtain written permission from property owner prior to storing traffic control devices on private property.
2. Cover post mounted signs completely with an opaque and durable cover when not applicable.

Add the following article to Part 3

3.8 TEMPORARY PORTABLE RUMBLE STRIPS

A. Clean road surface with broom or blower to remove all gravel, sand, dust, or other debris.

B. Assemble modular pieces into strips that match the width of the travel lane as closely as possible.

1. Follow manufacturer's recommendations so that pieces are properly interlocked.

C. Place rumble strips perpendicular to traffic and centered in lane.

1. Refer to project details for array placement, spacing, and signing requirements.
2. Follow manufacturer's recommendations for installation and product orientation.
3. Do not glue, nail, or otherwise affix rumble strips to the road surface.

D. Place rumble strips at the same time as other traffic control devices, prior to work taking place.

1. Maintain the rumble strips in proper condition, alignment, spacing, and location according to Article 1.9.C.13.

E. Do not use Temporary Portable Rumble Strips during snow events, or at temperatures outside of the manufacturer's recommendations.

Add Article 3.9:

3.9 NOTIFICATION OF LANE CLOSURES AND SUBSEQUENT OPENINGS

A. Provide advance notification of every lane closure to the Resident Engineer (RE) or designee and the Region Communication Manager (RCM) or designee.
   1. Notify the RE and RCM or designee as soon as it is known that a lane closure is necessary to execute the work and at a minimum, 72 hours before the closure.
   2. Notify the RE and RCM or designee immediately when the schedule, location, or need for an upcoming lane closure changes.
   3. Include in the notification the route, the beginning and ending milepost/mile marker, number of lanes to be closed, direction of the closure, the date and time of the beginning of closure, and the date and time of the ending of the closure.

B. Provide real-time notification of every lane closure, and subsequent lane opening, to the UDOT Traffic Operations Center (TOC) at 801-887-3700.
   1. **Lane Closure**: Notify the TOC within 10 minutes before placing the first traffic control device in the travel lane.
   2. **Lane Opening:** Notify the TOC within 10 minutes after removing the last traffic control device in the lane.
   3. Include in the notification the route, the beginning and ending milepost/mile marker, number of lanes closed or opened, direction of the closure, and the date and time.

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SECTION 01721

SURVEY

Delete Section 01721 and replace with the following:

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Construction surveying, staking, measurement, and calculations essential to complete the project and properly control the entire work.

B. Directed surveying as requested by the Engineer.

C. Processes and procedures for implementing Machine Control Guidance (MCG) technology. MCG uses Global Positioning System (GPS) and Robotic Total Station (RTS) in conjunction with three-dimensional computer models to determine the precise location and elevation of the materials being moved.

1.2 RELATED SECTIONS

A. Section 02765: Pavement Marking Paint

1.3 REFERENCES

A. Plan Sheet Development Standards

B. UDOT CADD Standards

C. UDOT Survey & Geomatics Standards Manual

D. Utah Administrative Code

E. Utah Code

1.4 DEFINITIONS **Not Used**

1.5 SUBMITTALS

A. The Department requires that all submittals be signed and sealed by a Professional Land Surveyor licensed in the State of Utah.

B. Re-submittals may be required depending on completeness and correctness of the work.

C. Submit a statement before award date indicating all Department provided horizontal and vertical survey control has been field checked and the control has been determined to be accurate within the tolerances specified in the UDOT Survey and Geomatics Standards Manual. Refer to http://www.udot.utah.gov/go/standardsreferences.
   1. Attach field survey information used to verify control.
   2. Notify the Engineer verbally and in writing if discrepancies are found.
   3. Include any additional survey points required to implement the MCG/RTS technology.

D. Provide a written description of the equipment before beginning work including calibration certifications, manpower, methods, and data storage format proposed for use to complete all survey activities.

E. Record keeping – Keep all field notes, diaries, and books according to standard surveying practice.
   1. Loose leaf books are not acceptable.
   2. Make available at any time all survey records including field notebooks and forms used for the work to the Engineer upon verbal or written request.
   3. Electronic records and reports are acceptable

F. Surveying and design data requirements:
   1. Return all survey and design data to the Engineer after project completion with compliance to the UDOT Survey and Geomatics Standards, Plan Sheet Development Standards, and UDOT CADD Standards. Refer to http://www.udot.utah.gov/go/standardsreferences.
   2. Complete the following if design plans were included with the advertising package for the project:
      a. Provide a red-lined hard copy plan set showing "As-built" features denoting changes from the original design.
      b. Provide an electronic copy of the red-lined 11 x 17 "As-built" plan, containing the “As-Built” stamp dated and signed by the Engineer, in a colored PDF format as follows:
         1) Resolution of not less than 400 dpi.

2) Individual file sizes not greater than 100 megabytes.
3) Group similar sheet types together into individual PDF files such as Summary Sheets grouped together in a single PDF file or Summary Sheets and Plan and Profile Sheets grouped together in a single PDF file.

3. Complete the following if the Department provides 3D elements, 3D models, or both at advertising:
   a. Provide all files, named and placed in accordance to the UDOT CADD Standards Manual, Plan Sheet Development Standards, and submitted into the UDOT Projectwise System.
   b. Update 3D model with "As-built" features denoting changes from the original design.
   c. Provide final model incorporating all design changes.
   d. Intermediate models at request of the Engineer.
   e. Support paperless inspection.
   f. Provide documentation of quality control measurements when requested by the Engineer.
   g. Submit completed "As-Built" electronic files into the UDOT Projectwise System in accordance with the UDOT Survey and Geomatics Standards, Plan Sheet Development Standards, and UDOT CADD Standards.
4. Submit an "As-Built" model with approval of the Engineer to document design changes if construction of a project was based on a model prepared by the Contractor or a project that was not designed using paperless methodology.

G. Survey Monuments
   1. Refer to this Section, article 3.12, paragraph C3 for submittal of drawings and notes.

H. Provide the following for MCG technology implementation:
   1. Written notification to the Engineer that MCG will be used on the project.
   2. Electronic or hand written stakeout/cut-fill reports or both for cross section stakes, according to this Section, Article 3.5.
      a. Reports are not required when measurement of work is by “Plan Quantity” or Weight.

I. Alternate methods of calculating quantities.
   1. Engineer may approve alternate methods of calculating quantities. Submit proposed alternate method of quantity calculation before beginning item of work.

1.6 MEASUREMENT PROCEDURES

A. Directed Survey – Use a survey crew measured by the hour authorized if extra survey work is needed. Department makes no additional payment for travel time to and from the project.

1.7 PAYMENT PROCEDURES

A. Include the costs in all items of work that require survey if contract does not include separate pay item for survey. Failure to comply with any portion of this specification may result in withholding up to 25 percent of contract payments until the deficiencies are corrected.

B. Directed survey work is paid for in the accepted quantities if needed and approved at a standard negotiated rate.

C. Include the costs of all machine control equipment in equipment cost. Include all survey equipment and labor in the bid item for survey.

1.8 QUALITY ASSURANCE

A. Assume responsibility for survey and control of the work and for correcting errors whether the errors are discovered during the actual survey work or in subsequent phases of the project and bears any cost overruns resulting from errors.

B. Perform all work according to the plans and specifications and standard Engineering and Surveying practices under the responsible charge of a Professional Engineer or Professional Land Surveyor licensed in the State of Utah.

C. The Engineer may spot check the work for accuracy and may reject unacceptable portions of work. Resurvey rejected work and correct work that is not within the specified tolerances at no additional cost to the Department.

D. Any 3D model used in conjunction with MCG must be verified by a Professional Engineer or Professional Land Surveyor licensed in the State of Utah.

E. Correct any construction errors that result from errors in a 3-D model once the design 3D model has been accepted.

PART 2 PRODUCTS

2.1 EQUIPMENT

A. Furnish tools, supplies, and stakes suitable for use in highway survey work.

B. Furnish stakes and hubs of sufficient length to provide a solid set in the ground with sufficient surface area above ground for necessary legible markings.

C. Furnish survey instruments and supporting equipment capable of achieving the specified tolerances.
   1. Calibrate survey equipment yearly and check for accuracy before beginning survey work and as required throughout the duration of the project. Make the calibration certificate available upon request by the Engineer.

2.2 EQUIPMENT FOR DEPARTMENT USE

A. Provide and maintain the following equipment when MCG is to be used on the project:
   1. GPS Capable Rover compatible with the other GPS equipment being used on the project.
   2. Other hardware and software associated with the equipment so that Department personnel can operate the equipment for quality assurance purposes.
   3. Provide adequate training so that Department personnel can operate the survey equipment.
   4 Make GPS rover available immediately upon request from the Engineer.
   5. Develop a process with the Department to check-in and check-out equipment from the Contractor.

PART 3 EXECUTION

3.1 PREPARATION

A. Discuss and coordinate the following with the Engineer before survey work begins:
   1. Required submittals
   2. Survey and staking methods
   3. Stake markings
   4. Grade control
   5. Referencing

6. Structure control
7. Any other procedures and control necessary for the work
8. Documentation procedures

B. Establish construction survey points, elevations, and grades as necessary to control layout and complete the work. Verify all control surveying and staking meet specified tolerances before beginning work.

C. Calculate all grades, elevations, offsets, and alignment data necessary for staking or setting items of work. Obtain approval from the Engineer for alternate methods of establishing grade control with wire lines, computer, or laser controlled grading or other suitable methods.

D. Provide appropriate traffic control for all survey activities.

E. The Department furnishes:
1. Horizontal and vertical control points
2. Cross sections developed during design, if any
3. Electronic project data
4. Digital Terrain Model used for design
5. 3-D data consisting of:
   a. LandXML files for the Design Digital Terrain Models, including features for projects implementing MCG
   b. LandXML files for the Design Alignments
   c. A Bentley iModel may be substituted for LandXML data.

F. Contract Provision Disclaimer
1. Provide a written request to the Engineer to obtain electronic data points.
2. Electronic data points are available in UDOT standard CADD formats only.
3. Data points are prepared by the Department for its own purposes and not for the benefit of private individuals or businesses.
4. Waive any claims that may result from the use of or reliance on the data points.
5. Indemnify the Department and hold it harmless for any damages, costs, attorney fees, or other liabilities that might be incurred as a result of the Department's use and reliance on the Contractor's modified data.

3.2 DIRECTED SURVEY

A. Conduct directed surveying if requested by the Engineer.
1. Includes work needed for changes and extra work. Provide all labor, materials, and equipment including total stations, global positioning system (GPS), LiDAR scanning or other equipment.

2. Obtain written authorization from the Engineer documenting the affected work and requirements before performing work under these items.

3.3 COMPUTATIONS AND PLOTS

A. Use cross-sections to calculate volume measurements.
   1. Superimpose final cross sections with original cross sections and calculate final quantities using the average end area method.
   2. Develop cross-sections from field measurements.
      a. Take cross section measurements both before and after excavation and before backfill.
      b. Take cross sections at a maximum centerline spacing of 15ft when the centerline curve radius is less than or equal to 500 ft.
      c. Take cross sections at a maximum spacing of 30 ft when the centerline curve radius is greater than 500 ft.
      d. Take additional cross sections at breaks in terrain and at changes in typical sections.
      e. Measure and record points at breaks in terrain for each cross section but at least every 15 ft unless otherwise approved by the Engineer.
      f. Measure and record points to at least the anticipated slopes and reference locations.
      g. Reduce all cross section distances to horizontal distances from centerline.
      h. Take cross sections at right angles to tangents and normal to curves.
      i. Include in cross sections all grades, locations, and existing ground line profiles.
   3. May develop cross sections from digital terrain models provided if:
      a. Ground survey locations do not exceed 50 ft in any direction.
      b. Major horizontal and vertical breaks in terrain are also included.
      c. Horizontal and vertical control for the project is used.
      d. DTM is verified accurate to required tolerances as indicated in the UDOT Survey & Geomatics Standards manual by spot checking throughout the length of the project. Refer to http://www.udot.utah.gov/go/standardsreferences to view this manual.

B. The Engineer may approve alternate methods of calculating quantities.

3.4 STAKE MAINTENANCE AND MARKINGS

A. Provide and maintain reference/location stakes that identify stationing at least every 200 ft until all work has been completed and accepted by the Engineer for each alignment.
   1. Provide reference/location stakes at whole station intervals such as 1032+00.

B. Maintain ALL staking necessary for the work until the construction has been completed and accepted by the Engineer.
   1. Legibly mark all survey stakes with station and offset referenced to their respective control line.
   2. Mark slope, reference, and guard stakes with station.
   3. Renew illegible or damaged stakes at no additional cost to the Department.

3.5 CONTROL POINTS AND SURVEY TOLERANCES

A. Survey using the guidelines set in the UDOT Survey & Geomatics Standards manual.
   1. Refer to http://www.udot.utah.gov/go/standardsreferences to view this manual.

B. Amend the survey control diagram as requested for the project.
   1. Have the amended diagram sealed, signed, and dated by a licensed surveyor in accordance with UC 58-22-601, 602, 603, and Utah Administrative Code R156-22-601.
   2. Refer to http://www.udot.utah.gov/go/standardsreferences for Utah Code and Utah Administrative Code.

C. Relocate initial horizontal and vertical control points in conflict with construction to areas that will not be disturbed by construction operations.
   1. Furnish the coordinates and elevations for the relocated points before the initial points are disturbed.
   2. Furnish to the Region Surveyor or Engineer the coordinates and elevations for the relocated points before the initial points are disturbed.

D. Protect benchmarks from construction activities.
   1. Position all benchmarks to allow a level rod to stand vertically and squarely on the mark.

E. Reference benchmarks to centerline and horizontal measurements. The surveyor should, to the extent necessary to achieve the standards contained herein:

1. Compensate or correct for systematic errors, including those associated with instrument calibration
2. Select the appropriate equipment and methods, and use trained personnel.
3. Use appropriate error propagation and other measurement design theory to select the proper instruments, field procedures, geometric layouts and computational procedures to control random errors.

F. The surveyor will apply appropriate procedures in order to assure that the allowable positional tolerance of such points is not exceeded if radial survey methods, GPS or other acceptable technologies or procedures are used to locate or establish points on the survey.

G. The positional tolerance may be tested by:

1. Comparing the relative location of points in a survey as measured by an independent survey of equal or higher accuracy or,
2. The results of a minimally constrained, correctly weighted least squares adjustment of the points on the survey.

H. The surveyor will employ, in his judgment, proper field procedures, instrumentation and adequate survey personnel in order to achieve a precision of 0.02 feet (or 6 mm) + 20 ppm.

1. See Table 1 for construction staking tolerances.

Table 1

CONSTRUCTION STAKING TOLERANCES		
Description	**Horizontal**	**Vertical**
	Decimals of a foot	
Box Culverts	± 0.02	± 0.02
Bridge Superstructures	± 0.02	± 0.02
Bridge Substructures	± 0.02	± 0.02
Clearing and Grubbing Stakes	± 1.00	-----
Construction Centerline Control	± 0.05	-----
Construction Centerline Station	± 0.10	-----
Curbs, Walks, and Bike Paths	± 0.03	± 0.02
Grade Stakes – Roadway Subgrade	± 0.20	± 0.05
Grade Stakes – Top of Rock	± 0.20	± 0.03
Grade Stakes – Roadway Finish	± 0.10	± 0.02
Luminaire and Signal Poles (incl.	± 0.20	± 0.20
Manholes, Inlets, and Culverts	± 0.10	± 0.03
PCC Pavement	± 0.10	± 0.02
Slope Stakes and References	± 0.30	± 0.10
Traffic Markings	± 0.20	-----
Walls – Retaining, MSE, Sound, etc.	± 0.05	± 0.05
Wetland Mitigation Control Stakes	± 0.20	± 0.20

Notes:

1. Stakes for miscellaneous items not listed above will have a horizontal and vertical tolerance of 0.20 ft, unless otherwise directed.
2. Features that are to be constructed flush to another surface should take on the same tolerance as that surface.
3. Staking tolerances for special circumstances will be discussed at the pre-survey meeting.
4. Meet the appropriate construction tolerances for the material as specified in the special provisions or standard specifications, regardless of the construction staking tolerances, specific to the work item.
5. Use bridge control once established, independent of other project controls for the duration of the bridge construction. Refer to Survey & Geomatics Standards manual for bridge control methodology. Refer to http://www.udot.utah.gov/go/standardsreferences.
6. Tolerances stated for each type of construction stake in this table indicates the acceptable deviation of the position of each reference point from its computed position relative to the given alignment and grade. Staked positions are generally checked using electronic stakeout reports and, if within tolerances, the stated position is accepted. Reference points may also have an accuracy relative to each other for precise measurements such as structures.

2. Survey Staking Methods:
    a. Furnish reference stakes for all slope stakes and stakes used for setting items for work.
    b. Furnish the following for projects using Conventional Survey Methods:
        1) Maintain the reference stakes for the duration of the project until the Engineer approves removal.
        2) Establish and set slope stakes and references on both sides of centerline at cross section locations.
            a) Place slope stakes at a maximum centerline spacing of 25 ft when the centerline curve radius is less than or equal to 500 ft.
            b) Place slope stakes at a maximum spacing of 50 ft when the centerline curve radius is greater than 500 ft.
            c) Place reference stakes at a maximum centerline spacing of 100 ft on tangents.
        3) Establish slope stakes in the field as the actual point of intersections of the design slope with the natural ground line.
        4) Set slope stake references outside the clearing limits.
        5) Include all reference point and slope stake information on the reference stakes.
3. Furnish the following for projects using Machine Control Guidance Methods:
    a. Maintain the reference stakes for the duration of the project until the Engineer approves removal.
    b. Establish and set location stakes and references on one side of centerline at cross section locations.
        1) Place cross section stakes at a maximum spacing of 300 ft. (Cross-section stakes reference physical points in the proposed cross-section, such as edge of pavement or top back of curb)
    c. Place slope stakes at a maximum spacing of 300 ft.
    d. Establish slope stakes in the field at the actual point of intersections of the design slope with the natural ground line.
    e. Set slope stake references outside the clearing limits.
    f. Include all reference point information on the reference stakes.
    g. Provide adequate bench marks throughout the project for construction equipment equipped with MCG to check setup and tolerances.
        1) Perform equipment checks at least once per day.
        2) Record equipment checks in a log for verification by the Engineer.

4. Staking limits – Reference/Location stakes can serve the purpose of the following staking requirements as long as all required information for both purposes can be written on the stake.
    a. Stake clearing limits on both sides of centerline at each established station.
        1) Locate the clearing limit on the ground as shown by the cut and fill limits on the plans.
    b. Stake right of way limits, or temporary construction easement (TCE) if one exists, every 500 ft maximum on tangents, every 250 ft maximum on curves where ROW is not delineated by existing fence lines or other obvious boundaries.
        1) Stake Right of Way limits at all right of way break/angle points along the right of way lines.
        2) Reduce the distance if staking distance is affected by line of sight.
    c. Stake environmental control limits on both sides of centerline at each established station.
        1) Locate the environmental control limits on the ground as shown by the slope rounding contours and environmental and silt fence locations as shown on the Plans.
        2) Stake environmental control limits every 25 ft in environmentally sensitive areas.
        3) Provide staking as needed to guarantee the silt fence is located inside of right of way in standard silt fence installations where stations/locations are not called out on the environmental control plan sheets,.

I. Furnish reference stakes for all slope stakes and stakes used for setting items for work.
    1. Accomplish the following for projects using ground based total stations, robotics, and levels. (Conventional Survey):
        a. Maintain the reference stakes for the duration of the project until the Engineer approves removal.
        b. Establish and set slope stakes and references on both sides of centerline at cross section locations.
        c. Place reference stakes at a maximum centerline spacing of 100 ft on tangents.
            1) Place slope stakes at a maximum centerline spacing of 25 ft when the centerline curve radius is less than or equal to 500 ft.
            2) Place slope stakes at a maximum spacing of 50 ft when the centerline curve radius is greater than 500 ft.

c. Establish slope stakes in the field as the actual point of intersections of the design slope with the natural ground line.
d. Set slope stake references outside the clearing limits.
e. Include all reference point and slope stake information on the reference stakes.

2. Accomplish the following for projects using Machine Control Guidance Methods:
   a. Maintain the reference stakes for the duration of the project Survey until the Engineer approves removal.
   b. Establish and set location stakes and references on one side of centerline at cross section locations.
      1) Place cross section stakes at a maximum spacing of 300 ft.
         a) Cross-section stakes reference physical points in the proposed cross-section, such as edge of pavement or top back of curb.
   c. Place slope stakes at a maximum spacing of 300 ft.
   d. Establish slope stakes in the field as the actual point of intersections of the design slope with the natural ground line.
   e. Set slope stake references outside the clearing limits.
   f. Include all reference point information on the reference stakes.
   g. Provide adequate bench marks throughout the project for construction equipment equipped with MCG to check setup and tolerances.
      1) Perform equipment checks at least once per day.
      2) Record equipment checks in a log for verification by the Engineer.

J. Setting grade finishing stakes (Conventional Survey or RTK):
   1. Grade elevations and horizontal alignment:
      a. On centerline.
      b. On each shoulder at roadway cross section locations and between centerline and shoulder with a maximum spacing of 25 ft.
      c. At the top of sub grade and the top of each aggregate course.
   2. Locations:
      a. Set stakes on centerline, on each normal shoulder, and on the shoulder of the turnout where turnouts are constructed.
      b. Set hubs at the center and along the edges of parking areas.
      c. Set stakes in all ditches to be paved.
   3. Maximum spacing between stakes along the alignment is 50 ft.
   4. Use brushes or guard stakes at each grade finishing stake.
   5. Reset grade finishing stakes as many times as necessary to construct the sub grade and each aggregate course.

K. Grade Verification (Machine Control Guidance)

1. The following procedure will only be applicable for verification of roadway layers for grade elevations and horizontal alignment.
   a. The Department will use the Contractor provided survey equipment listed above.
   b. The Department will verify elevations at the following locations:
      1) On centerline.
      2) On each shoulder at roadway cross section locations and between centerline and shoulder with a maximum spacing of 25 ft.
      3) At the top of sub grade and the top of each aggregate course.
2. Locations:
   a. On centerline, on each normal shoulder, and on the shoulder of the turnout where turnouts are constructed.
   b. At the center and along the edges of parking areas.
   c. At the top of subgrade and the top of each aggregate course.
   d. In all ditches to be paved.
3. The Department will verify and document elevations at a 300 ft maximum spacing between locations along the alignment.
   a. The Department reserves the right to increase the spacing between grade verification locations up to, but not to exceed, 1000 ft if a level of confidence can be attained by the Engineer.

3.6 CONCRETE PAVING

A. Develop a method of horizontal and vertical control for the placement of concrete pavement.

1. Use laser, wire, or string line, for example, to maintain horizontal and vertical control.
2. Maximum spacing, 50 ft Set control on both sides of roadway.

B. 3D Paving, Machine Control Guidance, Wireless Paver

1. Survey control should be staggered on either side of the highway to provide a good strength of figure.
   a. Typically the distance between control points set for MCG should be no farther than 650 ft. The actual distance may vary by the type of equipment used by the Contractor.
   b. The instrument setup must obtain vertical accuracies within ± 0.02 ft of the existing control.

C. Stake concrete joint and station stamp locations if requested by the Engineer.

3.7 DRAINAGE STRUCTURES

A. Stake drainage structures to fit field conditions and in coordination with the Engineer. The location of the structures may differ from the plans.
   1. Survey and record the ground profile along the centerline of the structure.
   2. Determine the slope catch points at inlets and outlets.
   3. Set reference points and record information necessary to determine structure length and end treatments.
   4. Stake ditches or grade to make the structure functional.
   5. Plot the profile along centerline of the structure to show the natural ground, the flow line, the roadway section, and the structure.
   6. Mark guard stakes with the following, when applicable:
      a. Diameter, length, and type of culvert such as 18 inch x 35 ft corrugated metal pipe (cmp)
      b. The vertical and horizontal distance from the hub to the invert at the end of the culvert or any intermediate point as needed or directed
      c. Flow line grade of the pipe
      d. Station
   7. Provide a reference at a maximum spacing of 50 ft for storm sewers and waterlines. Reference inverts of pipe at all manholes.

3.8 BRIDGES

A. Based upon the Projects Primary Control points, set at least 4 horizontal and vertical control reference points to be used for surveying all bridge substructure and superstructure components including but not limited to pile locations and cutoffs, line and grade for abutments, bents, beam seats, anchor bolts, and screed grades.

B. Set intermediate slope stakes at bridge abutments to establish transitions.
   1. Place finish grade stakes on the centerline of abutment bearing and at the top of slope of all bridge berms.
   2. Place finish grade stakes on each side at top, mid-point, or slope and toe of fill.

3.9 BOX CULVERTS

A. Set horizontal and vertical control and reference points.
   1. Establish and reference the centerline, back of parapet or barrier, skew, and flow line elevations at inlet, outlet, and breaks.

3.10 CURB AND GUTTER

A. Set curb and gutter staking at 25 ft intervals on tangent and 10 ft intervals on curve radii.

B. Set line and grade for curb and gutter within 0.02 ft of the proposed or established grade line.

3.11 GUARDRAIL

A. Stake guardrail vertical and horizontal control at a maximum spacing of 25 ft on tangent sections and 10 ft on curved sections unless otherwise approved.

B. Obtain the Engineer's approval and field verification of staking before installation.

3.12 EXISTING SURVEY MONUMENTS

A. Locate and reference all private and public land survey monuments that may be destroyed by project construction activities before disturbing those existing monuments and under the direction of a Professional Land Surveyor licensed in the State of Utah.

B. Complete referencing and reestablishing those existing monuments at no cost to the Department and before project completion.

C. Reference and reestablish the monuments created by the county surveyor.
   1. Notify the county surveyor at least 30 days before the destruction of any monument.
   2. Coordinate the reestablishment of section corner and quarter corner monuments with the county surveyor.
   3. Prepare a corner record to be filed in the office of the County Surveyor's Office per Utah State Code 17-23-17.5 unless prepared by the County Surveyor's Office.
   4. Submit a certified supplement to the Survey Control Sheet with notes to the Engineer showing references to section corners and quarter corners.

D. The Department pays for the additional work under the Directed Survey item if a monument is found during construction but is not shown on the contract plans and must be reset.

3.13 RETAINING WALLS

A. Set horizontal and vertical control and reference points based upon the Projects Primary and Secondary control.
   1. Establish and reference the centerline offsets for the walls, radius points, and the beginning and ending wall locations as shown on the plans.

B. Stake retaining wall vertical and horizontal control at a maximum spacing of 25 ft on tangent sections and 10 ft on curved sections unless otherwise approved.

3.14 PAVEMENT MARKING

A. Layout all temporary and permanent pavement markings according to Section 02765.
   1. Place references for traffic striping at least 150 ft apart on tangents and at least 50 ft on curves.

3.15 CLEANUP

A. Remove and dispose of all flagging, lath, stakes, and other staking material after the project is complete.

3.16 UTILITIES

A. Stake control lines as needed in cooperation with the utility companies so their facilities can be relocated to their proper final position.

B. Stake crossings or potential points of conflict between facilities to give proper horizontal and vertical control for the relocation.

C. Schedule this survey work with the utility companies to minimize delays and disruption of survey stakes.

D. Replace all disturbed stakes as necessary to facilitate the relocations.

E. The Contractor is responsible for costs incurred to relocate any utility more than once due to inaccurate or incomplete staking.

F. Collect survey grade coordinate data for all exposed, relocated, and new utilities during construction.
   1. Collect data in one foot intervals unless otherwise directed in the UDOT Survey & Geomatics Standards manual. Refer to http://www.udot.utah.gov/go/standardsreferences.

3.17 EXISTING MILEPOST SIGNS

A. Locate all existing milepost sign stations within the project limits.
   1. Contact the Engineer to determine any locations where a milepost sign was placed at a point other than the actual mile point due to prior physical limitations such as driveways, intersections, or bridge parapets, in coordination with Highway Referencing Specialist of the Asset Management Division.

B. Reestablish location of milepost signs before project completion if construction activities required removal of any existing milepost signs.
   1. Reset sign location at original station of existing sign.
      a. Exceptions
         1) Any prior physical limitations listed in this Section, Article 3.17, paragraph A were removed during construction and no longer prevent installation of a sign at the actual mile point.
         2) Roadside conditions or newly constructed physical limitations would prevent reestablishment of any milepost sign within 3 ft of its original station.
      b. Contact the Engineer to determine how to proceed in either of these special cases in this Section, Article 3.17, paragraph B1a, in consultation with the Highway Referencing Specialist.
   2. Establish an appropriate offset for each milepost sign to meet installation and clear zone requirements.

C. Contact the Highway Referencing Specialist through the Engineer to determine the preferred action for reestablishing the milepost signs where the alignment of the roadway was modified during construction to the extent that the new measured mile point locations of any milepost signs were shifted more than 10 ft from their original location.

END OF SECTION

August 1, 2013

SPECIAL PROVISION

PROJECT # F-I70-2(52)63
PIN # 12477

SECTION 02056M

EMBANKMENT, BORROW, AND BACKFILL

Delete Article 2.1, paragraph A and replace with the following:

A. Provide materials free of contamination from chemical or petroleum products for embankment and backfill placements. Materials may include recycled portland cement concrete, and asphalt pavement material.
   1. Do not include asphalt pavement materials in embankment or backfill below the water table.

Supplemental Specification
2012 Standard Specification Book

SECTION 02056M

EMBANKMENT, BORROW, AND BACKFILL

Delete Article 1.3, paragraph G and replace with the following:

G. UDOT Materials Manual of Instruction

H. UDOT Minimum Sampling and Testing Requirements

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 1.5, paragraph A, and replace with the following:

A. Provide the following before delivering material to the project:
   1. Supplier and source of materials.
   2. Gradation analysis. Refer to AASHTO T 27 and T 11.
   3. Soil classification when applicable. Refer to AASHTO M 145.
   4. Maximum Dry Density and Optimum Moisture Determination
      a. Use AASHTO T 180 Method D for A-1 soils and AASHTO T 99 Method D for all other soils.

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

C. Density Requirements – Acceptance is on a lot-by-lot basis.
   1. Meet minimum density test average of 96 percent of maximum laboratory density with no single determination lower than 92 percent.
      a. Use AASHTO T 180 Method D for A-1 soils and AASHTO T 99 Method D for all other soils.
      b. Maintain appropriate moisture for compaction during processing.
   2. Meet 100 percent of established field density for free-draining granular backfill or for material with more than 30 percent retained on the ¾ inch sieve.
      a. Develop a field density compaction curve according to UDOT Materials Manual of Instruction Section 989 and approved by the Engineer.

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. Over excavate 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 or 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.

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 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

December 16, 2014

SPECIAL PROVISION

PROJECT # F-I70-2(52)63
PIN # 12477

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, 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 # F-I70-2(52)63
Pin # 12477

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.

June 30, 2015

SPECIAL PROVISION

PROJECT # F-I70-2(52)63
PIN # 12477

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. $N_{initial}$ ___8_____ N_{design} _____100____ N_{final} __160_____

B. Flush Oil (Rumble Strip Application)
1. Type Flush Coat Emulsion CSS-1
2. Application Rate 0.15 gal/yd2

PART 3 EXECUTION Not used

END OF SECTION

November 14, 2012

SPECIAL PROVISION

PROJECT # F-I70-2(52)63
PIN # 12477

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 02761

LONGITUDINAL RUMBLE STRIP

Delete Section 02761 and replace with the following:

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Materials and procedures for constructing longitudinal rumble strip on the final roadway surface.

1.2 RELATED SECTIONS

A. Section 01558: Temporary Pavement Markings

B. Section 02742S: Project Specific Surfacing Requirements

1.3 REFERENCES **Not Used**

1.4 DEFINITIONS

A. HMA – Hot Mix Asphalt Pavement

B. PCCP – Portland Cement Concrete Pavement

C. SMA -- Stone Matrix Asphalt Pavement

1.5 SUBMITTALS **Not Used**

1.6 ACCEPTANCE

A. The grinds will be visually inspected at the start of installation and inspected at a minimum of once a day for each day of production, to verify a uniform application rate of asphalt flush coat or seal coat and compliance with the PV Series Standard Drawings for dimensions and spacing.

PART 2 PRODUCTS

2.1 EQUIPMENT

A. Install longitudinal rumble strip with equipment using a rotary type cutting head capable of obtaining the required groove width, depth and length in a single pass while moving in the same direction as the traffic flow.
   1. Use equipment with cutting heads having an independent suspension from the power unit to allow the head to self align with the slope of the shoulder.
   2. Use cutting heads that provide a smooth surface, approximately $^{1}/_{16}$ inch between peaks or valleys.

B. Seal longitudinal rumble strip with equipment capable of obtaining the required uniform application rate in a single pass while moving in the same direction as the flow of traffic.

PART 3 EXECUTION

3.1 INSTALLATION

A. Install longitudinal rumble strip to the dimensions and spacing as shown in PV Series Standard Drawings.
   1. Establish lane widths from plan set or existing roadway if not specified with plans, before installation of longitudinal rumble strip.
   2. Install longitudinal rumble strip after the final wearing course except when project includes a Chip Seal Coat as the final wearing course.
      a. Apply Chip Seal Coat after rumble strip has been installed.

B. Alignment Control
   1. Establish a control line using a dribble/drip line, temporary pavement marking material, or permanent application of pavement marking material according to Section 01558 in its permanent configuration and location before the installation of longitudinal rumble strip.
      a. Reestablish the pavement marking material at no additional cost to the Department if permanent application of pavement marking material is compromised, damaged or removed in any way during installation of longitudinal rumble strip or flush coat or seal coat.
      b. Establish control points at a minimum of 100 ft intervals on tangents and at 50 ft intervals on curves.

2. Maintain the longitudinal rumble strip within 2 inches of the nearest edge of control line.
    a. Maintain the grind dimensions within 10 percent of the width, depth and length dimensions defined in the PV series Standard Drawings.

C. Construct a 500 ft long test section each production day to demonstrate that the equipment, personnel, and methods of operation are capable of producing acceptable results.
1. Do not proceed with work until it is demonstrated that the required dimensions, alignment, and smoothness can be achieved without tearing or otherwise damaging the pavement.
2. Do not proceed with work until it is demonstrated that the uniform application of asphalt flush coat or seal coat is being achieved at the specified application rate over the required area.
3. Repair or replace pavement in areas where longitudinal rumble strips are unacceptable as determined by the Engineer.
    a. Complete all repairs at no additional cost to the Department.
4. Replace or deduct price paid for longitudinal rumble strips not installed according to Standards as follows;
    a. Deduct 25 percent for longitudinal rumble strips installed within 2 inches of allowable tolerance.
    b. Deduct 50 percent for longitudinal rumble strips installed greater than 2 inches but less than 4 inches out of allowable tolerance.
    c. Remove and replace longitudinal rumble strips greater than 4 inches out of allowable tolerance by milling 2 inches deep and three times the rumble strip width.
    d. Fill milled section with like material and reinstall longitudinal rumble strips according to Standards.

D. Clean the surface of all dirt, sand, dust, and other objectionable material to the satisfaction of the Engineer before applying asphalt flush coat.

E. Apply asphalt flush coat or seal coat on HMA and SMA surfaces after longitudinal rumble strips have been installed in the roadway.
1. Apply asphalt flush coat on HMA SMA surfaces at a uniform application rate according to Section 02742S.
2. Refer to Section 02742S for asphalt flush coat or seal coat material.
3. Adjust speed and application method to achieve uniform application rate and to prevent shadow areas of thinner application depths according to this Section, paragraph 2.1.B.
4. Reapply asphalt flush coat or seal coat to any rumble strips that do not have a uniform application at no additional cost to the Department.

F. Do not apply flush coat on PCCP surfaces.

G. Remove resulting debris before opening the adjacent lane to traffic.
   1. Dispose of material according to Federal, State, and Local regulations and in a manner acceptable to the Engineer.

END OF SECTION

October 5, 2015

SPECIAL PROVISION

PROJECT # F-I70-2(52)63
PIN # 12477

SECTION 02765M

PAVEMENT MARKING PAINT

Delete Article 1.3, paragraphs M through S and replace with the following:

M. ASTM E 1710: Test Method for Measurement of Retroreflective Pavement Marking Materials Using a Portable Retroreflectometer

N. Environmental Protection Agency Testing Methods

O. Federal Specification

P. Federal Standards

Q. Manual on Uniform Traffic Control Devices (MUTCD)

R. UDOT Materials Manual of Instruction

S. UDOT Minimum Sampling and Testing Requirements

T. UDOT Quality Management Plans

Delete Article 1.6 paragraphs D and E and replace with the following:

D. The Engineer will:
   1. Visually inspect longitudinal lines and transverse markings to verify compliance with the required dimensions.
   2. Inspect at the end of each production day or more frequently as required.
   3. Verify quantities applied by one of the following methods for paint and one of the methods for beads.
      a. Methods for paint:
         1) Measure paint tanks before and after application
         2) Witness the meter readings before and after application. A print out of meter readings instead of witnessing may be accepted at the Engineer's discretion.

b. Method for beads:
   1) Measure bead tanks before and after application.
   2) Accept beads according to retroreflectivity Performance criteria. Refer to this Section, Article 3.2, paragraph E2 below.

4. Sample in the field according to the UDOT Quality Management Plan 513, Pavement Marking Paint, and the UDOT Minimum Sampling and Testing Requirements.

E. Repaint any line or legend failing to meet bead application rates or retroreflectivity requirements and dimensional requirements.
   1. Do not remove earlier application.

Delete Article 3.2, paragraphs E and replace with the following:

E. Glass Sphere (Beads) –
   1. Apply at least 8 lb/gal of paint, the full length and width of line and pavement markings.
      a. Calibrate bead guns and measure bead distribution according to UDOT Materials Manual of Instruction 932, Procedure for Sampling and Accepting Pavement Marking Paint and Beads.
      b. Do not apply glass beads to contrast lines (black paint).
   2. Performance option for bead measurement and acceptance.
      a. Measure retroreflectivity within 7 days of pavement marking application.
      b. Use a portable retroreflectometer that meets requirements of ASTM E 1710
      c. Identify three 400-foot sections per 10 miles of pavement marking. For pavement markings less than 2 miles sample only one 400-foot section.
      d. Take a minimum of 16 approximately evenly spaced readings for edge lines, lane lines and centerlines throughout each section in each direction of travel.
      e. The Engineer may select the sections to be tested.
      f. Average all readings of each line to determine the retroreflectivity measurement for each line.
      g. UDOT may verify with quality assurance testing within 21 days of pavement marking application

h. Determine the acceptability and pay factors for retroreflectivity using Table 5

.

Table 5

Pay Adjustments for Retroreflectivity Requirements		
Material Type	Retroreflectivity (R)	Pay Factor
Waterborne Traffic Paint (White)	>249	1.0
	225 - 249	.75
	200 - 224	.50
	< 200	0*
Waterborne Traffic Paint (Yellow)	>174	1.0
	150-174	.75
	125-149	.50
	< 125	0*

* Repaint pavement markings at no cost to the Department. Do not remove earlier application.

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 2.1, paragraph A, Table 4 and replace with the following:

Table 4

Paint Requirements				
Property	White	Yellow	Black	Test
Pigment – Percent by weight, minimum	62.0	62.0	62.0	ASTM D 3723
Total Solids – Percent by weight, minimum	77.0	77.0	77.0	ASTM D 1644
Nonvolatile vehicle – Percent by weight vehicle, minimum*	43.0	43.0	43.0	ASTM D 3723 ASTM D 1644
Viscosity, KU @ 77 degrees F	80 – 95	80 – 95	80 – 95	ASTM D 562
Density, lb/gal, minimum	14.0	14.0	14.0	ASTM D 1475
Volatile Organic Content (VOC) – g/L, maximum	100	100	100	ASTM D 3960
Titanium Dioxide Content, lb/gal	1.0 min	0.2 max	N/A	ASTM D 5381
Color Definition	37875	33538	N/A	Federal Standard 595B
Directional Reflectance Minimum	90.0	50.0	N/A	ASTM E 1347
Dry Opacity – Minimum (5 mils wet)	0.95	0.95	N/A	ASTM D 2805

* Binder – 100 percent acrylic cross-linking polymer, by weight, as determined by infrared analysis and other chemical analysis available to the Department. Refer to ASTM D 2205.

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 02776

CONCRETE FLATWORK

Delete Section 02776 and replace with the following:

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Concrete flatwork items such as sidewalk, plowable end section, median filler, curb, gutter, concrete lined ditch, and driveway.

1.2 RELATED SECTIONS

A. Section 02056: Embankment, Borrow, and Backfill

B. Section 02316: Roadway Excavation

C. Section 02721: Untreated Base Course

D. Section 03055: Portland Cement Concrete

E. Section 03152: Concrete Joint Control

F. Section 03211: Reinforcing Steel and Welded Wire

G. Section 03390: Concrete Curing

1.3 REFERENCES

A. ASTM C 979: Pigments for Integrally Colored Concrete

1.4 DEFINITIONS **Not Used**

1.5 SUBMITTALS

A. 1 ft^2 sample of colored concrete representative of the color provided by the Engineer for approval.

B. Manufacturer's product data, specifications, and mixing instructions for concrete colorant.

1.6 ACCEPTANCE

A. Concrete Flatwork may be accepted at a reduced price when the concrete strength is below that specified.
   1. Price adjustment pay factor following Section 03055.

PART 2 PRODUCTS

2.1 CONCRETE

A. Class AA(AE). Refer to Section 03055.

B. Colorant – High purity, chemically inert, unfading, and alkali-fast synthetic pigment coloring material according to ASTM C 979.

2.2 PREMOLDED JOINT FILLER

A. Refer to Section 03152.

2.3 UNTREATED BASE COURSE

A. Refer to Section 02721.

2.4 REINFORCING STEEL

A. Coated reinforcing steel. Refer to Section 03211.

PART 3 EXECUTION

3.1 GENERAL

A. Construct as shown in GW Series Standard Drawings and the plans.

3.2 PREPARATION

A. Construct subgrade to plan elevations. Refer to Section 02056 and Section 02316.

B. Place and compact untreated base course.

C. Forms
   1. Use wood, metal, reinforced fiberglass, or plastic forms free of warps or bends and of sufficient strength to prevent deflection during the placement of concrete.
      a. Transition smoothly from curves to straight sections. Keep forms in curves free of flat sections and sharp bends.
      b. Anchor securely in place.
      c. Clean the inside surface of all dirt, concrete, and foreign material before concrete placement.
   2. May use slip form machines.

D. Concrete flatwork coloring when required.
   1. Match concrete color to the approved samples.
   2. Thoroughly mix color pigment in the concrete before placing.

3.3 PLACE AND FINISH CONCRETE

A. Dampen the subgrade just before concrete placement.

B. Hand methods of strike-off and consolidation are permitted.

C. Finish the surface smooth with a concrete finishing float.
   1. Do not add water to the surface of the concrete.
   2. Remove form marks and irregularities.

D. Round edges to a ½ inch radius.

E. Brush exposed surfaces to a transverse broom finish except as follows:
   1. Provide a parallel broom finish for gutters.

3.4 EXPANSION AND CONTRACTION JOINTS

A. Place joints perpendicular to the subgrade and as shown.

B. Contraction Joints
   1. Use ⅛ inch to $^{3}/_{16}$ inch thick steel plates.
   2. Space the joints 10 ft apart.
   3. Remove the templates as soon as the concrete initially sets.
   4. Cut joint 1½ inch deep when using slip form method to place the concrete.

C. Expansion Joints
   1. Use ½ inch thick premolded expansion joint filler.

2. Place an expansion joint every 30 ft with the following exception not to place:
   a. Slip form method to place concrete.
   b. Gutters.
3. Place joint filler between the sidewalk or median filler and the curb or adjacent pavement, sidewalk, driveway pavement, or structure.

3.5 CONCRETE CURING

A. Refer to Section 03390.

END OF SECTION

Supplemental Specification
2012 Standard Specification Book

SECTION 02841M

W-BEAM GUARDRAIL

Delete Article 3.1, paragraph C and replace with the following:

C. Have a certified guardrail installer present at each location within the project and be an active participant during the installation and maintenance repair of guardrail or elements of a W-Beam guardrail system.

Delete Article 3.3, paragraph B and replace with the following:

B. Drive post if satisfactory results are obtained without damaging the post.
   1. Do not drive posts through asphalt. Refer to BA 4D Series Standard Drawings.

Add Article 3.6:

3.6 Raising Existing W-Beam Guardrail

A. Raise W-beam guardrail to maintain the minimum rail height according to BA Series Standard Drawings.
   1. Only W-beam guardrail with three-hole post system is eligible to be raised. Raise the three-hole post systems rail element only if the rail element is not currently set in the highest hole.
   2. W-beam guardrail with single-hole post system cannot be raised. Do not lift posts in order to raise rail.

B. Remove existing rail element and blocks.

C. Complete shoulder grading as required by BA Series Standard Drawings.

D. Reinstall rail elements and blocks on existing three-hole post system using the next hole up on the three-hole system to meet the height requirements according to BA Series Standard Drawings.
   1. Do not drill new holes in posts.

September 19, 2016

SPECIAL PROVISION

PROJECT # F-I70-2(52)63
PIN # 12477

SECTION 02844M

CONCRETE BARRIER

Delete Paragraph B, Article 2.7 "BARRIER DELINEATION" and replace with the following:

B. Hardware – Refer to GW Series Standard Drawings.

Delete Standard Drawing GW 9A references to Barrier Reflectors: 0.075 INCH MIN (RUST RESISTANT STEEL OR PLASTIC)

Add the following to Standard Drawing GW 9A references to Barrier Reflectors:
RUST RESISTANT METAL OR URETHANE HINGED PLASTIC

Supplemental Specification
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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.

February 28, 2013

SPECIAL PROVISION

PROJECT # F-I70-2(52)63
PIN # 12477

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.

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

Supplemental Specification
2012 Standard Specification Book

SECTION 03055M

PORTLAND CEMENT CONCRETE

Delete Article 1.2 and replace with the following:

1.2 RELATED SECTIONS

A. Section 03390: Concrete Curing

Delete Article 1.4 and replace with the following:

1.4 DEFINITIONS

A. Cold Weather Protection Period: The required time during which the concrete is maintained at or above a specific temperature to prevent freezing of the concrete and to ensure the necessary strength development for structural safety.

Delete Article 1.5, paragraphs F, F, G, and H, and replace with the following:

F. Written plan for admixtures. Refer to this Section, Article 2.5, paragraph C.

G. Verification that fly ash or other pozzolan used is from a pre-qualified supplier. Refer to this Section, Article 2.6, paragraph D.

H. Verification that the batch plant meets the requirements of the UDOT Quality Management Plan for Ready-Mix Concrete.

I. Cold Weather Concreting Plan and Hot Weather Concreting Plan for approval.
   1. Include the following:
      a. Detailed procedures for the placement, protection, curing, and temperature monitoring of concrete during cold and hot weather.
      b. Procedures to be implemented upon abrupt changes in weather conditions or equipment failures.

c. Refer to this Section, Article 3.4, paragraph D for cold weather concreting requirements and Article 3.4, paragraph E for hot weather concreting requirements.

2. Allow the Engineer 10 calendar days to review and approve the plans.
   a. The Engineer may grant an increase in contract time when this review and approval time is exceeded.
   b. This review period applies each time the plans are submitted.
3. Do not begin cold weather concreting before the Cold Weather Concreting Plan is approved.
4. Do not begin hot weather concreting before the Hot Weather Concreting Plan is approved.
5. Not required for precast concrete members provided by prequalified suppliers. Refer to this Section, Article 3.4D1.

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.

Delete Article 3.4, paragraphs D and E, and replace with the following:

D. Cold Weather – Comply with the following when placing, finishing, curing, and protecting concrete exposed to cold weather during the protection period. Cold weather applies when the temperature is forecast to fall below 35 degrees F during the protection period.
   1. Provide necessary cold weather protection for placing, finishing, curing and protecting in-place concrete such as covers, insulation, and heat.
      a. Follow the approved Cold Weather Concreting Plan when placing cast-in-place concrete.
      b. Follow the prequalified supplier’s approved Quality Control Plan when fabricating precast concrete members.
   2. Concrete materials
      a. Do not use chemical anti-freeze additives in the concrete. This does not apply to normal accelerators. Refer to AASHTO M 194.
      b. Remove and replace concrete damaged by frost action at no additional cost to the Department.
      c. Do not use material containing frost or lumps.

3. Determine the concrete compressive strength by one of the following methods:
    a. Field cured cylinders cured and protected the same as the concrete being protected.
    b. Maturity method. Refer to AASHTO T 325.
4. Maintain the temperature of the concrete at or above 50 degrees F during and after placement until the end of the protection period.
    a. Measure the specified concrete temperature at the concrete surface. Use surface thermometers insulated from the surrounding air.
5. Placing concrete
    a. Do not place concrete during adverse weather including rain, snow, and high winds without adequate protection approved by the Engineer.
    b. Do not proceed with the placement of concrete if the temperature of all contact surfaces, including reinforcement, is less than 36 degrees F or greater than 95 degrees F.
    c. Cease placement operations when the ambient temperature is 40 degrees F and decreasing unless adequate precautions are taken according to the approved Cold Weather Concreting Plan.
6. Protection of in-place concrete
    a. Maintain the concrete above 50 degrees F during placement and until the end of the protection period.
        1) The protection period is the time required for the concrete to reach a compressive strength of at least 3,500 psi.
        2) Extend the duration of the protection period at least 24 hr beyond the termination of the cure before exposing the concrete to freezing temperatures when curing by the water method. Refer to Section 03390.
    b. Comply with the following when heating is required.
        1) Adequately vent combustion-type heaters that produce carbon monoxide.
        2) Position heaters and ducts so the hot dry air does not cause areas of the concrete surface to overheat or dry.
        3) Keep concrete surfaces moist to avoid excessive loss of moisture from the concrete when applying external heat.
7. Termination of protection
    a. Limit the drop in temperature of concrete surfaces to 40 degrees F during any 24 hour period when removing cold weather protection until the surface temperature of the concrete reaches that of the ambient air temperature.

E. Hot Weather – Comply with the approved Hot Weather Concreting Plan and with the following when placing, finishing, curing, and protecting concrete exposed to hot weather during the protection period. Hot weather applies when the temperature is forecast to rise above 95 degrees F during the protection period:

1. Cool all surfaces that will come in contact with the concrete to below 95 degrees F.