CITY OF FRUITA

LOWER LITTLE SALT WASH RIVERFRONT TRAIL CONNECTION

UNCC Utility Notification Center of Colorado 800.922.1987 www.uncc.org — 811 Know what's below. Call before you dig.
CALL 2 BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

BID SET
(NOT FOR CONSTRUCTION)

CONSTRUCTION PLANS
CDOT PROJECT STE M505-006 (18643)
FRUITA, MESA COUNTY, COLORADO

PROJECT LOCATION MAP
(N.T.S.)

INDEX OF SHEETS

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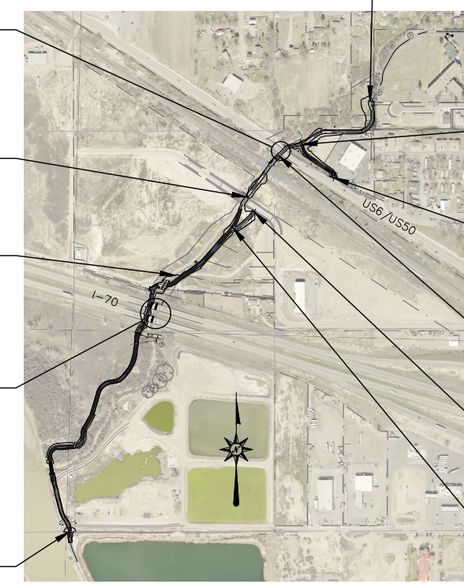
C2a	Survey Tabulation Sheet
C3	General Notes
C4	Summary of Approximate Quantities
C5-C6	Tabulations
C7	Typical Sections
C8	Survey Control
C9	Match Sheet
C10-C16	Trail Plan & Profile
C17	Storm Drain Profiles
C18-C19	Details
C20	Grading Details
C21	Joint Plan
C22	Signing & Striping Plan
SW1-SW4	Erosion Control Plan
X1-X13	Section Views
S100	General Notes And Information
S200	Pedestrian Bridge General Layout
S201	Pedestrian Bridge Details
S300	CBC General Layout
S301	CBC Details



End North Section
Sta: 142+37.80

CDOT Structure
(US 6/US 50)
H-2-GI

Begin UPPR Section
End South Section
Sta: 130+62.47

Project Limits

CDOT Structures (I-70)
H-2-FN (Eastbound)
H-2-FM (Westbound)

Begin South Section
Sta: 102+07.78

Begin US 6/US 50
Connection
Sta: 10+02.48

End US 6/US 50
Connection
Sta: 13+23.68

Begin North Section
End UPRR Section
Sta: 134+02.50

End Greenway
Connection
Sta: 52+08.27

Begin Greenway
Connection
Sta: 50+20.00

PROJECT OVERVIEW
(1" = 1000')

LEGEND

Existing Flowline	Proposed Fence
Existing Overhead Electric	Fence Removal
Existing Underground Water	Proposed Railing
Existing Underground Irrigation	Proposed Flowline
Existing Underground Gas	Project Limits
Existing Sanitary Sewer	Proposed Storm Drain
Existing Storm Drain	Existing Storm Drain Manhole
Existing Underground Phone	Existing Tree / Shrub
Existing Underground Electric	Existing Utility Pole
Existing Underground Fiber Optic	Existing Signs
Existing Fence	Existing Mailbox
Existing Edge Of Asphalt	Existing Utility Pedestals
Existing Edge Of Concrete	Existing Water Meter
Section Line	Existing Light
Right Of Way	Existing Post
Property Line	Existing Hydrant & Valve
Permanent Easement	Proposed Rip Rap
Existing Contour	Proposed Concrete
Proposed Minor Contour	Proposed Class 6 Shoulder
Proposed Major Contour	

DESIGN INFORMATION

Project Length:

North Section	835.30
UPRR Section	340.03
South Section	2,854.69
Greenway Connection	188.27
US 6/US 50 Connection	321.20
Total Length	4,539.49 ft

Maximum Design Speed for all curves horizontal and vertical is 18 mph, unless otherwise noted.

Minimum Clear Zone is 5 ft.

PROJECT CONTACTS

City of Fruita - Contact	
Ken Haley	970-858-9558
Mesa County - Contact	
Greg Linza	970-244-3232
River City Consultants - Contact	
Jeff Mace	970-241-4722
CDOT Resident Engineer - Contact	
_____	_____
Water - Ute Water	
Darrel Moore	970-242-7491
Electric - Xcel	
Jon Price	970-244-2693
Gas - Xcel	
Sue Merriman	970-244-2626
Phone - CenturyLink	
Chris Johnson	970-244-4311
Cable - Charter	
Jeff Valdez	970-263-2314

REVISIONS

NO.	DATE	DESCRIPTION	BY

RIVER CITY CONSULTANTS
744 Horizon Court, Suite 110
Grand Junction, Co. 81506
Phone: 970.241.4722
Fax: 970.241.8841

DATE ISSUED: 21.Aug.2015 | DRAWN BY: nmr
PROJECT #: 1248-005 | CHECKED BY: jwm

CITY OF FRUITA

Lower Little Salt Wash Riverfront Trail Connection

Cover Sheet

C1

PLAN NUMBER	NEW OR REVISED	M STANDARD TITLE	PAGE NUMBER
M-100-1		STANDARD SYMBOLS (3 SHEETS)	1-3
M-100-2		ACRONYMS AND ABBREVIATIONS (4 SHEETS)	4-7
M-203-1	☐	APPROACH ROADS (REVISED ON JULY 08, 2013)	~~8~~
M-203-2		DITCH TYPES	9
M-203-11		SUPERELEVATION CROWNED AND DIVIDED HIGHWAYS (3 SHEETS)	10-12
M-203-12		SUPERELEVATION STREETS (2 SHEETS)	13-14
M-206-1		EXCAVATION AND BACKFILL FOR STRUCTURES (2 SHEETS)	15-16
M-206-2		EXCAVATION AND BACKFILL FOR BRIDGES (2 SHEETS)	17-18
M-208-1	☐	TEMPORARY EROSION CONTROL (10 SHEETS) (REVISED ON JULY 16, 2015)	~~19-30~~
M-210-1		MAILBOX SUPPORTS (2 SHEETS)	31-32
M-214-1		PLANTING DETAILS	33
M-216-1	☐	SOIL RETENTION COVERING (2 SHEETS) (NEW ON JULY 16, 2015)	
M-412-1	☐	CONCRETE PAVEMENT JOINTS (5 SHEETS) (REVISED ON JULY 24, 2012)	~~34-38~~
M-510-1		STRUCTURAL PLATE PIPE H-20 LOADING	39
M-601-1	☐	SINGLE CONCRETE BOX CULVERT (2 SHEETS) (REVISED ON AUGUST 27, 2013)	~~40-41~~
M-601-2	☐	DOUBLE CONCRETE BOX CULVERT (2 SHEETS) (REVISED ON AUGUST 27, 2013)	~~42-43~~
M-601-3	☐	TRIPLE CONCRETE BOX CULVERT (2 SHEETS) (REVISED ON AUGUST 27, 2013)	~~44-45~~
M-601-10		HEADWALL FOR PIPES	46
M-601-11		TYPE "S" SADDLE HEADWALLS FOR PIPE	47
M-601-12		HEADWALLS AND PIPE OUTLET PAVING	48
M-601-20		WINGWALLS FOR PIPE OR BOX CULVERTS	49
M-603-1	☐	METAL PIPE (4 SHEETS) (REVISED ON OCTOBER 02, 2014)	~~50-53~~
M-603-2	■	REINFORCED CONCRETE PIPE (REVISED ON OCTOBER 02, 2014)	~~54~~
M-603-3		PRECAST CONCRETE BOX CULVERT	55
M-603-4	☐	CORRUGATED POLYETHYLENE PIPE (AASHTO M294) (REVISED ON OCT. 02, 2014)	~~56~~
M-603-5	☐	POLYVINYL CHLORIDE (PVC) PIPE (AASHTO M304) (REVISED ON OCT. 02, 2014)	~~57~~
M-603-6	☐	STEEL REINFORCED POLYETHYLENE RIBBED PIPE (AASHTO MP 20) (NEW ON APRIL 30, 2015)	
M-603-10		CONCRETE AND METAL END SECTIONS (2 SHEETS)	58-59
M-604-10		INLET, TYPE C	60
M-604-11		INLET, TYPE D	61
M-604-12		CURB INLET TYPE R (2 SHEETS)	62-63
M-604-13		CONCRETE INLET TYPE 13	64
M-604-20		MANHOLES (3 SHEETS)	65-67
M-604-25		VANE GRATE INLET (5 SHEETS)	68-72
M-605-1		SUBSURFACE DRAINS	73
M-606-1	☐	GUARDRAIL TYPE 3 W-BEAM (19 SHEETS) (REVISED ON OCT. 27, 2014)	~~74-92~~
M-606-13	☐	GUARDRAIL TYPE 7 F-SHAPE BARRIER (4 SHEETS) (REVISED ON AUGUST 30, 2013)	~~93-96~~
M-606-14		PRECAST TYPE 7 CONCRETE BARRIER (3 SHEETS)	97-99

PLAN NUMBER	NEW OR REVISED	M STANDARD TITLE	PAGE NUMBER
M-607-1		WIRE FENCES AND GATES (3 SHEETS)	100-102
M-607-2		CHAIN LINK FENCE (3 SHEETS)	103-105
M-607-3		BARRIER FENCE	106
M-607-4	☐	DEER FENCE, GATES, AND GAME RAMPS (5 SHEETS) (REVISED ON APRIL 30, 2015)	~~107-109~~
M-607-10		PICKET SNOW FENCE	110
M-607-15		ROAD CLOSURE GATE (9 SHEETS)	111-119
M-608-1	☐	CURB RAMPS (7 SHEETS) (REVISED ON JUNE 16, 2014)	~~120-125~~
M-609-1	☐	CURBS, GUTTERS, AND SIDEWALKS (4 SHEETS) (REVISED ON JULY 24, 2012)	~~126-129~~
M-611-1		CATTLE GUARD (2 SHEETS)	130-131
M-611-2	☐	DEER GUARD (2 SHEETS) (NEW ON APRIL 30, 2015)	
M-613-1		ROADWAY LIGHTING (4 SHEETS)	132-135
M-614-1		RUMBLE STRIPS (3 SHEETS)	136-138
M-614-2		SAND BARREL ARRAYS (2 SHEETS)	139-140
M-615-1		EMBANKMENT PROTECTOR TYPE 3	141
M-615-2		EMBANKMENT PROTECTOR TYPE 5	142
M-616-1		INVERTED SIPHON	143
M-620-1		FIELD LABORATORY CLASS 1	144
M-620-2		FIELD LABORATORY CLASS 2 (2 SHEETS)	145-146
M-620-11		FIELD OFFICE CLASS 1	147
M-620-12		FIELD OFFICE CLASS 2	148
M-629-1		SURVEY MONUMENTS (2 SHEETS)	149-150

COLORADO
DEPARTMENT OF TRANSPORTATION

M&S STANDARDS PLANS LIST

July 04, 2012

Revised on August 13, 2015

ALL OF THE M&S STANDARD PLANS, AS SUPPLEMENTED AND REVISED, APPLY TO THIS PROJECT WHEN USED BY DESIGNATED PAY ITEM OR SUBSIDIARY ITEM.

NEW OR REVISED STANDARD PLAN SHEETS APPLICABLE TO THIS PROJECT, INDICATED BY A MARKED BOX ■, WILL BE ATTACHED TO THE PLANS.

PLAN NUMBER	NEW OR REVISED	S STANDARD TITLE	PAGE NUMBER
S-612-1		DELINEATOR INSTALLATIONS (7 SHEETS)	151-157
S-614-1	☐	GROUND SIGN PLACEMENT (2 SHEETS) (REVISED ON DECEMBER 12, 2014)	~~158-159~~
S-614-2		CLASS I SIGNS	160
S-614-3		CLASS II SIGNS	161
S-614-4	☐	CLASS III SIGNS (3 SHEETS) (REVISED ON DECEMBER 17, 2014)	~~162-164~~
S-614-5		BREAK-AWAY SIGN SUPPORT DETAILS FOR GROUND SIGNS (2 SHEETS)	165-166
S-614-6	☐	CONCRETE FOOTINGS AND SIGN ISLANDS FOR CLASS III SIGNS (2 SHEETS) (REVISED ON SEPTEMBER 16, 2013)	~~167-168~~
S-614-8	☐	TUBULAR STEEL SIGN SUPPORT DETAILS (6 SHEETS) (REVISED ON OCTOBER 23, 2014)	~~169-173~~
S-614-9		PEDESTRIAN PUSH BUTTON POST ASSEMBLY	174
S-614-10		MARKER ASSEMBLY INSTALLATIONS	175
S-614-11		MILEPOST SIGN DETAIL FOR HIGH SNOW AREAS	176
S-614-12		STRUCTURE NUMBER INSTALLATION	177
S-614-14		FLASHING BEACON AND SIGN INSTALLATIONS (3 SHEETS)	178-180
S-614-20		TYPICAL POLE MOUNT SIGN INSTALLATIONS	181
S-614-21		CONCRETE BARRIER SIGN POST INSTALLATIONS	182
S-614-22		TYPICAL MULTI-SIGN INSTALLATIONS	183
S-614-40	☐	TYPICAL TRAFFIC SIGNAL INSTALLATION DETAILS (5 SHEETS) (REVISED ON APRIL 2, 2015)	~~184-188~~
S-614-40A	☐	ALTERNATIVE TRAFFIC SIGNAL INSTALLATION DETAILS (4 SHEETS) (REVISED ON APRIL 2, 2015)	~~189-192~~
S-614-41	☐	TEMPORARY SPAN WIRE SIGNALS (REVISED ON APRIL 2, 2015)	~~193~~
S-614-42		CABINET FOUNDATION DETAIL (4 SHEETS)	194-197
S-614-43		TRAFFIC LOOP AND MISCELLANEOUS SIGNAL DETAILS (10 SHEETS)	198-207
S-614-44	☐	PEDESTAL POLE SIGNALS (2 SHEETS) (REVISED ON NOVEMBER 03, 2014)	
S-614-50	☐	STATIC SIGN MONOTUBE STRUCTURES (12 SHEETS) (REVISED ON NOVEMBER 28, 2012)	~~208-219~~
S-614-60	☐	DYNAMIC SIGN MONOTUBE STRUCTURES (14 SHEETS) (REVISED ON NOVEMBER 28, 2012)	~~220-233~~
S-627-1	■	PAVEMENT MARKINGS (5 SHEETS) (REVISED ON JUNE 10, 2014)	~~234-238~~
S-630-1	■	TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION (20 SHEETS) (REVISED ON DECEMBER 08, 2014)	~~239-258~~
S-630-2		BARRICADES, DRUMS, CONCRETE BARRIERS (TEMP) AND VERTICAL PANELS	259
S-630-3		FLASHING BEACON (PORTABLE) DETAILS	260
S-630-4		STEEL SIGN SUPPORT (TEMPORARY) INSTALLATION DETAILS (2 SHEETS)	261-262
S-630-5	☐	PORTABLE RUMBLE STRIPS (TEMPORARY) (2 SHEETS) (REVISED ON AUGUST 13, 2015)	~~263-264~~
S-630-6		EMERGENCY PULL-OFF AREA (TEMPORARY)	265
S-630-7		ROLLING ROADBLOCKS FOR TRAFFIC CONTROL (3 SHEETS)	266-268

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ORIGINAL SHEET SIZE: 11 x 17

REVISIONS

NO.	DATE	DESCRIPTION	BY

PRELIMINARY

RIVER CITY CONSULTANTS
744 Horizon Court, Suite 110
Grand Junction, Co. 81506
Phone: 970.241.4722
Fax: 970.241.8841

RESIDENT ENGINEER:
CDOT PROJECT #: STE M505-006 (18643)
RCC PROJECT #: 1248-005 DATE ISSUED: 21.Aug.2015
DRAWN BY: nmr CHECKED BY: jwm

CITY OF FRUITA

Lower Little Salt Wash Riverfront Trail Connection

Standards Plans List

C2

S:\PROJECTS\1248 Fruita\005 LLSW Remnita\Design\dwg\1248-005.dwg, 8/21/2015 11:33:02 AM

TO ESTABLISH GEOMETRIC CONTROL FOR THE CONSTRUCTION OF THIS PROJECT, THE DEPARTMENT HAS PROVIDED THE FOLLOWING INFORMATION:

Format *

- ☐ Horizontal Control _____
- ☐ Vertical Control _____
- ☐ Roadway Alignment _____
- ☐ Original Terrain Data _____
- ☐ Other: _____

* Specify the information format, ie., plan sheet, computer disk, computer printout, or other. The information marked is either contained on the plans or is available from the Engineer.

TYPE OF PROJECT

- ☐ Landscaping
- ☐ Signalization
- ☐ Safety Improvement
- ☐ Asphalt Overlay
- ☐ Concrete Overlay
- ☐ Minor Widening
- ☐ Major Reconstruction
- ☐ New Roadway Construction
- ☐ Bridge Replacement
- ☐ Bridge Widening
- ☐ New Bridge
- ☐ Other: _____

SURVEY WORK TO BE PERFORMED BY OTHERS: _____

WORK PERFORMED BY THE CONTRACTOR'S SURVEYOR UNDER SECTION 625:

- ___ ☐ Establish and Maintain Project Centerline or Engineer Approved Offset Line(s)
- ___ ☐ Verification and Maintenance of Horizontal and Vertical Control
- ___ ☐ Verify or Determine existing grades and alignments
- ___ ☐ Verify or Determine existing topography
- ___ ☐ GPS/RTS (Global Positioning System/Robotic Total Station) Construction Machine Control
- ___ ☐ Clearing and Grubbing Limits (Section 201)
- ___ ☐ Removal Limits (Section 202)
- ___ ☐ Reset Items (Section 210)
- ___ ☐ Excavation and Embankment (Section 203)
  - ___ ☐ Excavation
    - ___ ☐ Unclassified
    - ___ ☐ Stripping
    - ___ ☐ Muck
    - ___ ☐ Rock
    - ___ ☐ Borrow
    - ___ ☐ Other: _____
    - ___ ☐ Potholing
  - ___ ☐ Embankment
  - ___ ☐ Site Grading
  - ___ ☐ Erosion Control (Perm)
  - ___ ☐ Other: _____
  - ___ ☐ As Staked Earthwork Quantities (See General Notes)

	Slope Staking (Y/N)	Grid (Y/N)	Grade (Y/N)	Special Interval
Excavation	–	–	–	–
	–	–	–	–
	–	–	–	–
	–	–	–	–
	–	–	–	–
	–	–	–	–
Embankment	–	–	–	–
	–	–	–	–
	–	–	–	–
	–	–	–	–

- ___ ☐ Landscaping
  - ___ ☐ Top Soil (Section 207)
  - ___ ☐ Seeding (Section 212)
  - ___ ☐ Mulching (Section 213)
  - ___ ☐ Planting (Section 214)
  - ___ ☐ Herbicide (Section 217)
  - ___ ☐ Other: _____
- ___ ☐ Erosion Control (Section 208)
  - ___ ☐ Seeding (Temp)
  - ___ ☐ Silt Fence
  - ___ ☐ Erosion Bales
  - ___ ☐ Erosion Logs
  - ___ ☐ Riprap (Temp)
  - ___ ☐ Other: _____
- ___ ☐ Roadway Bases
  - ___ ☐ Untreated Subgrade
  - ___ ☐ Treated Subgrade
  - ___ ☐ Aggregate Base Course (Section 304)
  - ___ ☐ Reconditioning
  - ___ ☐ PMBB – Plant Mix Bituminous Base
  - ___ ☐ Other: _____

	Grid (Y/N)	Grade (Y/N)	Special Interval	Special Offset
Roadway Bases	–	–	–	–
	–	–	–	–
	–	–	–	–
	–	–	–	–
	–	–	–	–
	–	–	–	–

- ___ ☐ Pavements
  - ___ ☐ HMA – Hot Mix Asphalt (Section 403)
  - ___ ☐ Concrete (Section 412)
  - ___ ☐ Heating & Scarifying Treatment
  - ___ ☐ Prime Coat, Tack Coat & Rejuvenating Agent (Section 407)
  - ___ ☐ Seal Coat or Chip Seal (Section 409)
  - ___ ☐ Other: _____
- ___ ☐ Roadway Elements
  - ___ ☐ Curb and Gutter (Section 609)
  - ___ ☐ Drop inlets – alignment and grades (Section 604)
  - ___ ☐ Retaining Walls
  - ___ ☐ Guard Rail (Section 606)
  - ___ ☐ Sidewalk (Section 608)
  - ___ ☐ Overlay Stationing
  - ___ ☐ Other: _____
- ___ ☐ Riprap (Perm) (Section 506)
- ___ ☐ Slope and Ditch Paving (Section 507)
- ___ ☐ Minor Structures
  - ___ ☐ Structure Excavation limits (Section 206)
  - ___ ☐ Culverts (Section 603)
  - ___ ☐ Culverts w/ Headwalls and Wingwalls (Section 601)
  - ___ ☐ Concrete Box Culverts w/ Headwalls and Wingwalls
  - ___ ☐ Pipes (Section 603)
    - ___ ☐ Sanitary Sewer
    - ___ ☐ Storm Sewer
    - ___ ☐ Water
    - ___ ☐ Irrigation
    - ___ ☐ Miscellaneous
  - ___ ☐ Manholes (Section 604)
  - ___ ☐ Inlets (Section 604)
  - ___ ☐ Permanent Water Quality BMP (Section 208)
  - ___ ☐ Other: _____
- ___ ☐ Major Structures – Overhead Signs (Section 614), Concrete Box Culverts, Bridges – and all other structures assigned a structure number
  - ___ ☐ Structure Excavation limits (Section 206)
  - ___ ☐ Concrete Box Culverts (Section 603) w/ Headwalls and Wingwalls (Section 601)
  - ___ ☐ Piling locations and cut off elevations (Section 502)
  - ___ ☐ Caisson locations and elevations (Section 503)
  - ___ ☐ Footing locations, alignment, and elevations
  - ___ ☐ Abutment/Pier locations, alignment, and elevations
  - ___ ☐ Wingwall skew angles/offsets
  - ___ ☐ Structural concrete form locations
  - ___ ☐ Substructure As-constructed survey required for Bridges (Subsection 601 .12) and Overhead signs (S-614-50)
  - ___ ☐ Bridge expansion joint(s) alignment and grade (longitudinal and transverse)
  - ___ ☐ Deck grades at Girder 10th or "n" th point locations and elevations
  - ___ ☐ Slope and Ditch Paving (Section 507)
  - ___ ☐ Other: _____
- ___ ☐ Fencing (Section 607)
  - ___ ☐ Temporary
  - ___ ☐ Permanent
  - ___ ☐ Sound Barrier
  - ___ ☐ Other: _____
- ___ ☐ Delineators (Section 612)
  - ___ ☐ Temporary
  - ___ ☐ Permanent
- ___ ☐ Lighting (Section 613) and Traffic Control Devices (Permanent) (Section 614)
  - ___ ☐ Signal pole locations and elevations
  - ___ ☐ Light pole locations and elevations
  - ___ ☐ Sign locations
  - ___ ☐ Field verify sign post locations, elevations, and lengths before fabrication.
  - ___ ☐ Other: _____

	Grid (Y/N)	Special Interval	Special Offset
Pavements	–	–	–
	–	–	–
	–	–	–
	–	–	–
	–	–	–
	–	–	–

	Tangent Interval	Curve Interval	Special Offset
Curb & Gutter	–	–	–

	Left Interval	Center Interval	Right Interval
Stationing	–	–	–

- ___ ☐ Pavement Marking (Section 627)
  - ___ ☐ Striping (Temp)
  - ___ ☐ Striping (Perm)
  - ___ ☐ Symbols
  - ___ ☐ Other: _____
- ___ ☐ Temporary Lighting and Construction Traffic Control Devices (Section 630)
  - ___ ☐ Signal pole locations and elevations (Temp)
  - ___ ☐ Light pole locations and elevations (Temp)
  - ___ ☐ Sign Locations (Temp)
  - ___ ☐ Other: _____
- ___ ☐ All Easements (Temp Staking by P.L.S. Only)
- ___ ☐ Right of Way (Temp Staking by P.L.S. Only)

WORK PERFORMED BY THE CONTRACTOR'S SURVEYOR UNDER SECTION 629:

- ___ ☐ Monumentation (Section 629)
  - ___ ☐ Control
  - ___ ☐ Right of Way
  - ___ ☐ Land corners, Aliquot corners
  - ___ ☐ Easements
  - ___ ☐ Reference the specified existing monuments: ** _____
  - ___ ☐ Replace the specified existing monuments: ** _____
  - ___ ☐ Locate monuments. It is estimated___ hours are required.

NOTE: All 629 items shall include adequate research, calculations, and evaluations of evidence for monuments to be set.

** A Tabulation of Survey Monuments may be provided on the plans.

GENERAL NOTES:

1. Unless indicated otherwise on this Survey Tabulation Sheet, all survey work and staking intervals shall be done in accordance with the latest edition of the CDOT Survey Manual.
2. Adequate information for establishing lines, grades, and locations for all work items have been specified on the plans. Any additional information required to stake the item or element shall be generated by the Contractor's surveyor.
3. The Contractor's surveyor shall provide an estimate of the man-hours necessary to complete the work items indicated on this sheet. A copy of this sheet, with the estimated man-hours written on the blank line to the left of the specified items, shall be submitted with the Survey Schedule to the Engineer _____ days prior to the Presurvey Conference – Construction Survey.
4. Stakes and Monuments which are damaged or destroyed by the progress of construction shall be replaced by the Contractor at no additional cost to the Department.
5. The Contractor shall furnish an As Staked (or GPS/RTS Construction Machine Control) Earthwork Quantity report to the Engineer prior to completion of twenty percent (20%) of the planned earthwork in any phase as per the CDOT Survey Manual. A printed copy of the As Staked (or GPS/RTS Construction Machine Control) Earthwork data report and a computer disk with that information on it, in the specified format shall be submitted to the Engineer. The Contractor shall field verify original ground cross sections at a maximum 500 feet intervals.
6. Prior to beginning work on any subsequent operation, such as placing base course or paving, the Contractor shall certify in writing to the Engineer that the final grade is within specified tolerance.
7. The Contractor's surveyor shall perform all field surveying and calculations necessary to tie plan grades into field grades.
8. The Contractor shall coordinate construction staking on the project with any utility work.
9. Fieldbooks shall contain daily records of points set and or measurements observed. The information recorded shall contain: date, crew members' names, point no., description, staking information, and sketches. If the survey information is collected electronically, information recorded shall be provided to the Project Engineer in a hard copy format that is intuitive, clear and related to the supplemental information recorded in the field books. All linear surveys, such as slope stakes and blue tops, shall have the station and offset information related to the measured information. Non-linear surveys such as structures staking shall have sketches relating electronic information, such as point numbers, to the sketch.
10. The Contractor's surveyor shall submit the following fieldbooks to the Engineer:
    - ☐ Horizontal Control (Primary & Secondary)
    - ☐ Vertical Control (i.e. Benchmarks)
    - ☐ Property Pin Ties
    - ☐ Horizontal Alignment
    - ☐ Grading
    - ☐ Slope Staking
    - ☐ Minor Structures
    - ☐ Major Structures
    - ☐ One fieldbook for each work category shown on this sheet
    - ☐ Other Fieldbook(s): _____

LIST OF ABBREVIATIONS

ABC	Aggregate Base Course
AC	Acre
AL	Alignment
AP	Angle Point
BLD	Building
BLM	Bureau of Land Management
BM	Benchmark
BOC	Back of Curb
BOW	Back of Walk
BVCE	Beginning Vertical Curve Elevation
BVCS	Beginning Vertical Curve Station
BW	Bottom of Wall
CBC	Concrete Box Culvert
CDOT	Colorado Department of Transportation
C,G&SW	Curb, Gutter & Sidewalk
CL	Center Line
CMP	Corrugated Metal Pipe
CY	Cubic Yard
E	Easting Coordinate
EA	Each
EL	Elevation
ELEC	Electric
ELEV	Elevation
EOA	Edge of Asphalt
EOP	Edge of Pavement
EOS	Edge of Shoulder
ER	End of Radius
ESMT	Easement
EVCE	End of Vertical Curve Elevation
EVCS	End of Vertical Curve Station
EX	Existing
FES	Flared End Section
FG	Finished Grade
FH	Fire Hydrant
FL	Flow Line
GB	Grade Break
GV	Gate Valve
HDPE	High Density Polyethylene
HOA	Home Owners Association
HP	High Point
INC.	Incorporated
INV	Invert
IRR	Irrigation
K	Design Coefficient
L	Length
LF	Linear Feet
LLSW	Lower Little Salt Wash
LP	Low Point
LS	Lump Sum
LT	Left
LVC	Length of Vertical Curve
MAX	Maximum
MCSM	Mesa County Survey Marker
MDS	Maximum Design Speed
MH	Manhole
MIN	Minimum
MUTCD	Manual on Uniform Traffic Control Devices
N	Northing Coordinate
NO	Number
NTS	Not to Scale
PC	Point of Curvature
PCC	Point of Compound Curvature
PCC	Portland Cement Concrete
PI	Point of Intersection
PL	Property Line
PLS	Professional Licensed Surveyor
PR	Proposed
PROP	Proposed
PRC	Point of Reverse Curvature
PRELIM	Preliminary
PT	Point of Tangency
PVC	Polyvinyl Chloride
PVI	Point of Vertical Intersection
R	Radius
RCP	Reinforced Concrete Pipe
REQ'D	Required
RIM	Rim Elevation
ROW	Right of Way
RR	Railroad
RT	Right
S	Section
SDMH	Storm Drain Man Hole
SF	Square Feet
SS	Sanitary Sewer
SSMH	Sanitary Sewer Man Hole
STA	Station
STL	Steel
STR	Structure
SY	Square Yard
TAN	Length of Tangent
TBC	Top Back Curb
TCE	Temporary Construction Easement
TFC	Top Face Curb
TOC	Top of Curb
TOP	Top of Pipe
TP	Top of Pavement
TW	Top of Wall
TYP	Typical
UGELEC	Underground Electric
UPRR	Union Pacific Railroad
VC	Vertical Curve
VPC	Vertical Point of Curvature
VPI	Vertical Point of Intersection
VPT	Vertical Point of Tangency
W	Water
WTR	Water
Δ	Central Angle (Delta)

GENERAL CONSTRUCTION NOTES

1. The locations of underground utilities as shown hereon are based on visible evidence from above ground structures, markings by the respective utility companies and/or their locator services, and drawings provided by the utility companies. No excavations were made during this survey to determine exact locations and depths of underground utilities and structures. Actual location may vary slightly from those as shown hereon and additional underground utilities may exist. Existence and locations of all underground utilities and structures should be verified prior to any construction on this property. The City of Fruita has potholed utilities for potential conflicts.

2. Existing surface information is based on aerial survey information, River City Consultants survey information, and Greenway Drive bridge as-builts provided by City of Fruita.

3. Contractor shall give 48 hour notice to CDOT, all authorized inspectors, superintendents, or person in charge of public and private utilities affected by his operations prior to commencement of work. Contractor shall assure himself that all construction permits have been obtained prior to commencement of work. All permits obtainable by the Contractor are required to be obtained at the Contractor's expense.

4. Contractor shall confine his construction operations to the rights-of-way, easements, and lots, as shown on Plans and/or Plat. Any damage to private facilities outside these limits shall be repaired by the Contractor at no expense to the Owner.

5. All utility installations are to be performed in accordance with the technical specifications of the City of Fruita and Colorado Department of Transportation, Standard Specifications for Road and Bridge Construction, 2011.

6. All sign fabrication and installation shall conform to the Manual on Uniform Traffic Control Devices (MUTCD) and the CDOT Standard Plans (M&S) Standards, July 2012 Edition.

7. All materials, equipment, installation and construction within the Mesa County right of way shall be in accordance with the latest edition of the following standard references as applicable:

A. CDOT Materials Manual
B. CDOT Construction Manual
C. CDOT Standard Specifications for Road and Bridge Construction, 2011 Edition
D. CDOT Standard Special Provisions, as applicable to project
E. CDOT Standard Plans (M&S Standards), July 2012 Edition
F. FHWA Manual on Uniform Traffic Control Devices (MUTCD) and the Colorado Supplement Thereto
G. CDOT Utility Manual

Please note that some of the reference materials listed above may be purchased from:
Colorado Department of Transportation
Bid Plans Room
4201 E Arkansas Ave.
Denver, CO 80222-3400
(303) 757-9313

8. Contractor to be responsible for quality control. City of Fruita to be responsible for quality assurance. The Contractor will be responsible for obtaining and maintaining a stormwater permit.

9. No grading shall be performed within 1 foot of the bottom of the existing footers for structures H-2-FM and H-2-FN. Any damage to the existing CDOT structures shall be repaired and paid for by the Contractor. The Contractor shall submit a method statement to CDOT for review and approval, prior to making repairs. Repairs that affect load paths or require the sizing of members shall be signed and sealed by a Professional Engineer registered in the State of Colorado with relevant experience. The cost of this work shall be borne by the Contractor.

STORM DRAIN CONSTRUCTION NOTES

1. All storm drain line construction shall be in accordance with the Colorado Department of Transportation (CDOT).

2. All Reinforced Concrete storm drain pipe shall conform to ASTM Standard Specifications, C-76, Class III unless otherwise noted.

3. All polyvinyl chloride (PVC) pipe and fittings shall conform to ASTM Standard Specifications, D3034 and F679, SDR-35 unless otherwise noted.

4. All High Density Polyethylene (HDPE) pipe and fittings to conform to the following:
12 inch to 36 inch shall meet ASSHTO M294, and
42 inch to 48 inch shall meet ASSHTO MP6.

5. All 30 inch and larger HDPE pipe shall be covered to top of pipe with CL-6.

6. All storm drain rims to be standard M.H. ring and cover (Castings Inc. 24BCIFISH) as per the City of Fruita Standard Details.

PAVING CONSTRUCTION NOTES

1. All trail widths, and radii are to edge of pavement unless noted otherwise. Any "spot" design elevations are to edge of pavement unless otherwise noted.

2. The top of existing ground or the top of areas cut to final grade are to be scarified, brought to the optimal water content, and re-compacted to 95% of AASHTO T99 in accordance with the Geotechnical recommendations before placing fill or before base is placed.

3. Contractor is to protect existing utilities and appurtenances. manholes, drainage inlets, utility lines, etc., damaged, covered or filled with dirt or debris by the Contractor shall be cleaned and repaired or replaced at no expense to the Owner.

4. Aggregate base course must be compacted as per Geotechnical report entitled:

Huddleston Berry
Geotechnical Investigation
Lower Little Salt Wash Trail
Fruita, Colorado
Project#00456-0006
Dated June 17, 2011

5. Where proposed pavement is to match existing pavement, existing pavement is to be square cut, full base thickness is to be brought to match line and existing surface is to be tack-coated before new pavement is placed.

6. Pedestrian ramps are to be constructed in accordance with current CDOT Standard Details where indicated on the plans.

7. Curb, gutter and drainage pans are to have expansion joints at each change in horizontal alignment of curb and gutter, but in no case at a greater distance apart than 100 feet. Locate dummy grooved joints between expansion joints at intervals not exceeding 10 feet.

8. Include backing of curb and gutter and/or sidewalk with native fill material per the typical trail section in the unit price bid for unclassified excavation.

9. CDOT approval of all submittals for concrete and asphalt mixes will be required.

TESTING NOTES

1. Contractor shall familiarize himself with the geotechnical testing requirements of CDOT. It shall be the responsibility of the Contractor to contact the Testing Firm 24 hours in advance of the need for testing, and to verify that the appropriate number of tests have been taken. The results of the required types of tests and number of passing tests shall be furnished to the Engineer for verification before final acceptance by the Owner will be granted. All failing tests shall be brought to the immediate attention of the Engineer and re-tests shall be performed until passing results are obtained. All utility lines, including service lines, falling within the Public right-of-way or the Public easements shall be tested.

2. Only materials on which a proctor and accurate nuclear density test can be performed are approved for utility trench backfill, unless otherwise approved by the Engineer.

3. Backfilling of trenches without testing during the backfill operation is strongly discouraged and will result in removal and replacement of backfill back to the last documented passing test.

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REVISIONS

NO.	DATE	DESCRIPTION	BY

PRELIMINARY

RIVER CITY CONSULTANTS
744 Horizon Court, Suite 110
Grand Junction, Co. 81506
Phone: 970.241.4722
Fax: 970.241.8841

RESIDENT ENGINEER:
CDOT PROJECT #: STE M505-006 (18643)
RCC PROJECT #: 1248-005 | DATE ISSUED: 21.Aug.2015
DRAWN BY: nmr | CHECKED BY: jwm

CITY OF FRUITA

Lower Little Salt Wash Riverfront Trail Connection

General Notes

C3

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SUMMARY OF APPROXIMATE QUANTITIES

INDEX			CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	Pathway		South Section		UPRR Section		North Section		US 6/US 50 Connection		Greenway Connection				PROJECT TOTALS	
BOOK	PAGE	SHEET				PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.
			201	CLEARING AND GRUBBING	LS	1														1	
			202	REMOVAL OF EXISTING FENCE	LF			456				240								696	
			202	REMOVAL OF GATE	EA			1												1	
			202	REMOVAL OF TREE	EA							1								1	
			203	UNCLASSIFIED EXCAVATION	CY	1,467														1,467	
			203	UNCLASSIFIED EXCAVATION (COMPLETE IN PLACE)	CY	4,195														4,195	
			206	STRUCTURE EXCAVATION	CY			687												687	
			206	STRUCTURE BACKFILL (CLASS 1)	CY			362												362	
			206	SUBGRADE STABILIZATION	CY			303												303	
			207	TOPSOIL	CY	3000														3,000	
			207	STOCKPILE TOPSOIL	CY	3000														3,000	
			208	SWEEPING	HR	60														60	
			208	SILT BERM	LF	3600														3,600	
			208	EROSION LOG (12 INCH)	LF	150														150	
			208	CONCRETE WASHOUT STRUCTURE	EA	5														5	
			208	EROSION CONTROL SUPERVISOR	DY	75														75	
			208	VEHICLE TRACKING PAD	EA	6														6	
			210	MODIFY BRIDGE DRAINS	LS	1														1	
			210	RELAY RIPRAP	CY			52												52	
			210	ADJUST MANHOLE	EA							2								2	
			212	SEEDING (NATIVE)	AC	2														2	
			212	SOIL CONDITIONING	AC	2														2	
			213	MULCHING (WEED FREE)	AC	2														2	
			213	MULCH TACKIFIER	LB	100														100	
			304	AGGREGATE BASE COURSE (CLASS 6)	CY			1,300		139		377		110		91				2,017	
			502	HP PILING (HP 12X74)	LF			185												185	
			504	RETAINING WALL	FF					459										459	
			506	RIPRAP (12 INCH)	CY			35												35	
			506	RIPRAP (16 INCH)	CY			381		21		64								466	
			514	HAND RAILING	LF			90		95		73								258	
			601	CONCRETE CLASS D	CY			140												140	
			602	REINFORCING STEEL	LB			15,989												15,989	
			603	18 INCH REINFORCED CONCRETE PIPE	LF			43				65								108	
			604	INLET TYPE C (3 FOOT 6 INCH) (CLOSE MESH)	EA							2								2	
			607	FENCE (TEMPORARY)	LF							150								150	
			607	BARRIER FENCE WITH STUDDED TEE LINE POSTS (42 INCH)	LF			357												357	
			607	TRAIL CLOSURE GATE	EA			2				1								3	
			607	16 FOOT GATE	EA			1												1	
			607	CORNER BRACE AND POST	EA			1												1	
			608	CONCRETE SIDEWALK (6 INCH)	SY			3,186		377		956		370		211				5,100	
			608	CONCRETE SIDEWALK (6 INCH) (COLORED)	SY			82		115		57								254	
			608	CONCRETE SIDEWALK (12 INCH) (COLORED)	SY			31				17								48	
			608	SIDEWALK DRAIN	LF					14										14	
			614	SIGN PANEL (CLASS 1)	SF			6		2		18		9		6				41	
			614	STEEL SIGN POST (U-2)	EA			2		1		8		4		2				17	
			620	SANITARY FACILITY	EA	2														2	
			622	BOLLARD	EA									1		1				2	
			625	CONSTRUCTION SURVEYING	LS	1														1	
			626	MOBILIZATION	LS	1														1	
			627	PAVEMENT MARKING	GAL			5		1		5								11	
			628	PRE-FABRICATED STRUCTURAL STEEL BRIDGE	EA			1												1	
			630	CONSTRUCTION ZONE TRAFFIC CONTROL	LS	1														1	
			630	RAILROAD ZONE TRAFFIC CONTROL	LS					1										1	
			700	FORCE ACCOUNT	FA	1														1	

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744 Horizon Court, Suite 110
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Fax: 970.241.8841

RESIDENT ENGINEER:
CDOT PROJECT #: STE M505-006 (18643)
RCC PROJECT #: 1248-005 DATE ISSUED: 21.Aug.2015
DRAWN BY: nmr CHECKED BY: jwm

CITY OF FRUITA

Lower Little Salt Wash Riverfront Trail Connection

Summary Of Approximate Quantities

C4

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TABULATIONS

Contract Item No.	Contract Item	Unit	South Section		UPRR Section		North Section		US 6/US 50 Connection		Greenway Connection		Project Totals	
			Plan	As Const.	Plan	As Const.	Plan	As Const.	Plan	As Const.	Plan	As Const.	Plan	As Const.
202	REMOVAL OF EXISTING FENCE	LF											696	
	Sta: 102+35.22–114+62.95		412											
	Sta: 118+61.62–118+66.20		44											
	Sta: 138+21.45–140+39.74						240							
202	REMOVAL OF GATE	EA											1	
	Sta: 102+93.80		1											
202	REMOVAL OF TREE	EA											1	
	Sta: 140+81.36						1							
206	STRUCTURE EXCAVATION	CY											687	
	Sta: 106+12.00–106+81.33		107											
	Sta: 122+21.20–122+45.48		580											
206	STRUCTURE BACKFILL (CLASS 1)	CY											362	
	Sta: 106+12.00–106+81.33		49											
	Sta: 122+21.20–122+45.48		313											
206	SUBGRADE STABILIZATION	CY											303	
	Sta: 122+21.20–122+45.48		303											
210	RELAY RIPRAP	CY											52	
	Sta: 129+72.11–130+62.11		52											
210	ADJUST MANHOLE	EA											2	
	Sta: 138+52.60						1							
	Sta: 142+16.46						1							
304	AGGREGATE BASE COURSE (CLASS 6)	CY											2,017	
	Sta: 102+07.78–130+62.47		1,300											
	Sta: 130+62.47–134+02.50				139									
	Sta: 134+02.50–142+37.80						377							
	Sta: 10+07.48–13+23.68								110					
	Sta: 50+25.00–52+08.27										91			
502	HP PILING (HP 12X74)	LF											185	
	Sta: 106+12.00–106+81.33		185											
504	RETAINING WALL (DESIGN BUILD)	FF											459	
	Sta: 132+53.53–132+64.92				41									
	Sta: 133+22.96–134+04.91				418									
506	RIPRAP (12 INCH)	CY											35	
	Sta: 106+12.00–106+81.33		35											
506	RIPRAP (16 INCH)	CY											466	
	Sta: 119+10–121+90		372											
	Sta: 124+98–125+07		9											
	Sta: 133+23–134+04				21									
	Sta: 134+75–135+45						55							
	Sta: 135+92–136+03						9							
514	HAND RAILING	LF											185	
	Sta: 129+72.11–130+62.11		90											
	Sta: 132+53.53–132+64.92				11									
	Sta: 133+22.96–134+04.91				84									
	Sta: 134+75.31–135+44.91						73							
601	CONCRETE CLASS D	CY											140	
	Sta: 106+12.00–106+81.33		21											
	Sta: 122+21.20–122+45.48		119											

TABULATIONS (continued)

Contract Item No.	Contract Item	Unit	South Section		UPRR Section		North Section		US 6/US 50 Connection		Greenway Connection		Project Totals	
			Plan	As Const.	Plan	As Const.	Plan	As Const.	Plan	As Const.	Plan	As Const.	Plan	As Const.
602	REINFORCING STEEL	LB											15,989	
	Sta: 106+12.00–106+81.33		1,959											
	Sta: 122+21.20–122+45.48		14,030											
603	18 INCH REINFORCED CONCRETE PIPE	LF											108	
	Sta: 125+02.11		43											
	Sta: 135+31.13						27							
	Sta: 135+97.34						38							
604	INLET TYPE C (3 FOOT 6 INCH) (CLOSE MESH)	EA											2	
	Sta: 135+12.08						1							
	Sta: 135+75.23						1							
607	FENCE (TEMPORARY)	LF											150	
	Sta: 137+83.26–139+33.26						150							
607	BARRIER FENCE WITH STUDDED TEE LINE POSTS (42 INCH)	LF											357	
	Sta: 102+35.22–105+92.28		357											
607	TRAIL CLOSURE GATE	EA											3	
	Sta: 52+00.00										1			
	Sta: 102+75.00		1											
	Sta: 135+65.00						1							
607	16 FOOT GATE	EA											1	
	Sta: 102+46.30		1											
607	CORNER BRACE AND POST	EA											1	
	Sta: 105+92.28		1											
608	CONCRETE SIDEWALK (6 INCH)	SY											5,100	
	Sta: 102+07.78–130+62.47		3,186											
	Sta: 130+62.47–134+02.50				377									
	Sta: 134+02.50–142+37.80						956							
	Sta: 10+07.48–13+23.68								370					
	Sta: 50+25.00–52+08.27										211			
608	CONCRETE SIDEWALK (6 INCH) (COLORED)	SY											254	
	Sta: 119+10.00–120+90.00		61											
	Sta: 122+21.20–122+45.48		21											
	Sta: 132+64.92–134+02.50				115									
	Sta: 134+02.50–134+75.31						57							
608	CONCRETE SIDEWALK (12 INCH) (COLORED)	SY											48	
	Sta: 129+72.11–130+62.11		31											
	Sta: 134+75.31–135+44.91						17							
608	SIDEWALK DRAIN	LF											14	
	Sta: 130+71.48				14									
622	BOLLARD	EA											2	
	Sta: 13+18.25								1					
	Sta: 52+07.28										1			
628	PRE–FABRICATED STRUCTURAL STEEL BRIDGE	EA											1	
	Sta: 106+12.00–106+81.33		1											

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744 Horizon Court, Suite 110
Grand Junction, Co. 81506
Phone: 970.241.4722
Fax: 970.241.8841

RESIDENT ENGINEER:
CDOT PROJECT #: STE M505–006 (18643)
RCC PROJECT #: 1248–005 DATE ISSUED: 21.Aug.2015
DRAWN BY: nmr CHECKED BY: jwm

CITY OF FRUITA

Lower Little Salt Wash Riverfront Trail Connection

Tabulations

C5

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SUMMARY OF EARTHWORK QUANTITIES

Item	Project Totals	
	Plan	As Const.
Excavation	CY	CY
South Section	2,680.63	
UPRR Section	833.70	
North Section	1,379.94	
US 6/US 50 Connection	757.94	
Greenway Connection	10.42	
Total	5,662.63	

Item	Project Totals	
	Plan	As Const.
Embankment	CY	CY
South Section	1,424.48	
UPRR Section	23.55	
North Section	1,104.15	
US 6/US 50 Connection	21.86	
Greenway Connection	1,621.31	
Total	4,195.35	

Item	Project Totals	
	Plan	As Const.
Earthwork Balance	CY	CY
South Section	1,256.15	
UPRR Section	810.15	
North Section	275.79	
US 6/US 50 Connection	736.08	
Greenway Connection	−1,610.89	
Total	1,467.28	

PAVEMENT MARKING TABULATIONS

Location	Pavement Marking Lines
	Center
	Yellow−Solid−4 Inch
South Section (LF)	
Sta: 118+41.96−121+34.65	292.69
Sta: 129+47.11−130+62.11	115.00
Total	407.69
UPRR Section (LF)	
Sta: 130+62.11−131+05.66	43.55
Sta: 133+70.49−134+02.50	32.01
Total	75.56
North Section (LF)	
Sta: 134+02.50−137+61.65	359.15
Sta: 139+73.20−141+30.35	157.15
Total	516.30

Location	Pavement Marking Lines
	Center
	Yellow−Solid−4 Inch
Project Totals (LF)	
South Section	407.69
UPRR Section	75.56
North Section	516.30
Total	999.55
Epoxy Paint (GAL)	
South Section	5
UPRR Section	1
North Section	5
Total	11

SIGN TABULATIONS

Sign Code	Location	Offset	Direction	Sign Panel Size (In)	Background Color	Removal of Ground Sign	Reset Ground Sign	Replace Existing Ground Sign And Panel	New Ground Sign And Panel	New Sign Panel Only	Post Type	Sign Panel (Sq Ft)	Remarks
											Steel Post (U−2)	Class I	
W8−3	103+57.78	−11.00	SB	18 x 18	YELLOW				1		1	2.25	
W16−2aP	103+57.78	−11.00	SB	18 x 9	YELLOW					1		1.13	150 Ft
W5−4A	128+54.61	11.00	NB	18 x 18	YELLOW				1		1	2.25	
Subtotal South Section									2	1	2	5.63	
W5−4a	132+04.61	−11.00	SB	18 x 18	YELLOW				1		1	2.25	
Subtotal UPRR Section									1		1	2.25	
W2−2R	135+14.91	9.00	NB	18 x 18	YELLOW				1		1	2.25	
W2−2L	137+00.51	−11.00	SB	18 x 18	YELLOW				1		1	2.25	
W2−2R	141+01.72	11.00	NB	18 x 18	YELLOW				1		1	2.25	
W3−1	141+82.08	129.18	WB	18 x 18	YELLOW				1		1	2.25	
R1−1	142+25.58	26.38	WB	18 x 18	RED				1		1	2.25	At Intersection of Gewont Lane Trail
OM4−2	142+38.91	−4.00 0.00 4.00	NB	18 x 18	BLACK				3		3	6.75	Red Reflectors
Subtotal North Section									8		8	18.00	
R1−1	10+15.00	−9.00	WB	18 x 18	RED				1		1	2.25	
W3−1	11+32.50	−9.00	WB	18 x 18	YELLOW				1		1	2.25	
W3−1	11+91.75	9.00	EB	18 x 18	YELLOW				1		1	2.25	
R1−1	13+09.25	11.00	EB	18 x 18	RED				1		1	2.25	
Subtotal US 6/US 50 Connection									4		4	9.00	
R1−1	50+35.00	−11.00	SB	18 x 18	RED				1		1	2.25	
W8−3	50+58.27	11.00	NB	18 x 18	YELLOW				1		1	2.25	
W16−2aP	50+58.27	11.00	NB	18 x 9	YELLOW					1		1.13	150 Ft
Subtotal Greenway Connection									2	1	2	5.63	
Project Totals									17	2	17	40.50	

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ORIGINAL SHEET SIZE: 11 x 17

REVISIONS

NO.	DATE	DESCRIPTION	BY

PRELIMINARY

RIVER CITY CONSULTANTS
744 Horizon Court, Suite 110
Grand Junction, Co. 81506
Phone: 970.241.4722
Fax: 970.241.8841

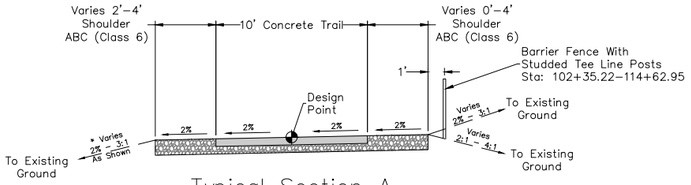
RESIDENT ENGINEER:
CDOT PROJECT #: STE M505−006 (18643)
RCC PROJECT #: 1248−005 | DATE ISSUED: 21.Aug.2015
DRAWN BY: nmr | CHECKED BY: jwm

CITY OF FRUITA

Lower Little Salt Wash Riverfront Trail Connection

Tabulations
Earthwork, Pavement Marking, Signage

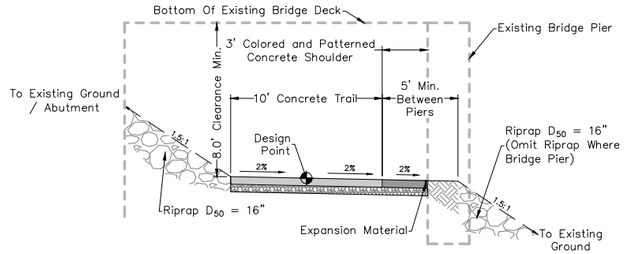
C6



Typical Section A

10' Concrete Trail with Shoulders
(NTS)

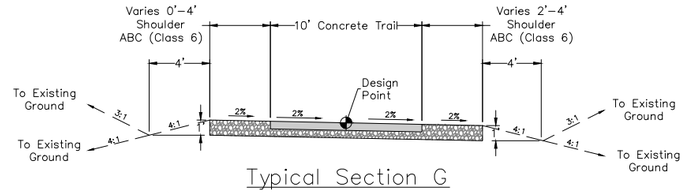
Station:
102+07.78 – 106+12.00
122+45.48 – 129+72.11
135+44.91 – 135+92.11
138+64.91 – 142+37.80



Typical Section D

10' Concrete Trail with Right Shoulder Only
(NTS)

Station:
119+10.00 – 120+90.00

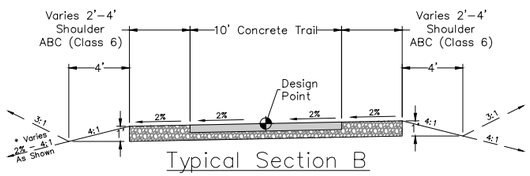


Typical Section G

10' Concrete Trail with Shoulders and Ditch, Opposite Trail Slope
(NTS)
(Ditch Side Varies)

Alignment:
LLSW Trail CL
Station:
106+81.33 – 109+10.00
120+90.00 – 122+21.20

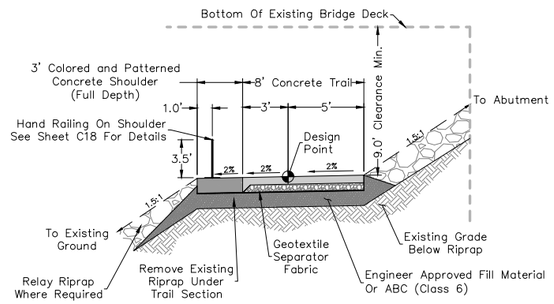
Alignment:
US 6/US 50 Connection
Station:
10+12.03 – 12+88.44



Typical Section B

10' Concrete Trail with Shoulders and Ditch
(NTS)
(Ditch Side Varies)

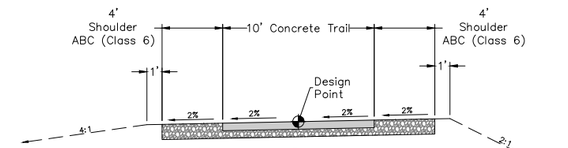
Station:
130+62.11 – 132+53.53
135+92.11 – 138+64.91



Typical Section E

8' Concrete Trail with Left Shoulder Only
(NTS)

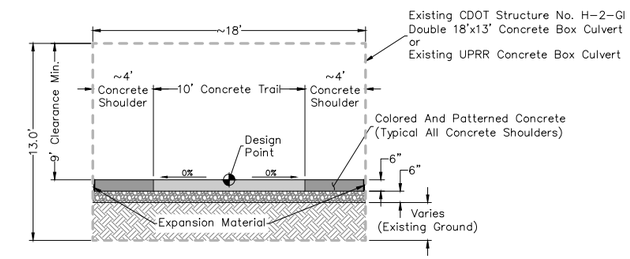
Station:
129+72.11 – 130+62.11



Typical Section H

10' Concrete Trail with Shoulders
(NTS)

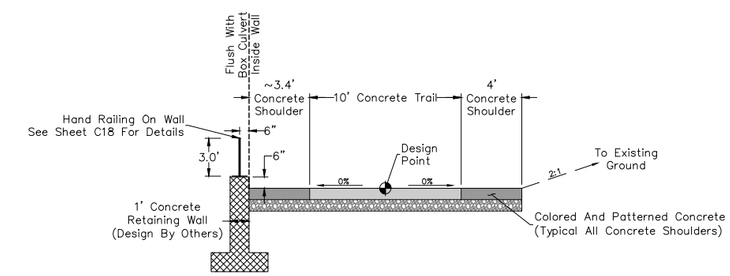
Alignment:
Greenway Connection
Station:
50+37.42 – 52+08.27



Typical Section C

10' Concrete Trail with Concrete Shoulders (Through Existing Box Culverts)
(NTS)

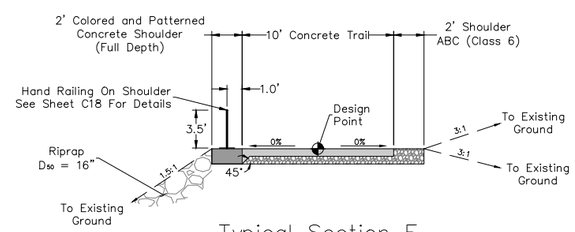
Station:
132+64.92 – 133+22.96
134+04.91 – 134+75.31



Typical Section J

10' Concrete Trail with Concrete Shoulders and Retaining Wall
(NTS)

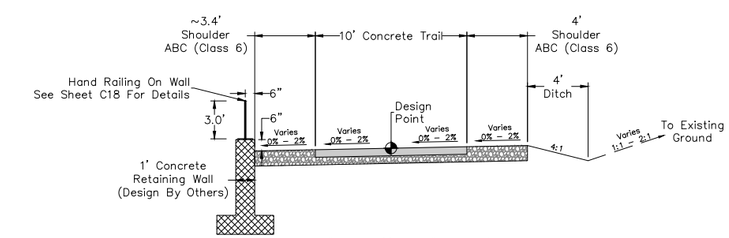
Station:
133+22.96 – 134+04.91



Typical Section F

10' Concrete Trail with 2' Shoulders
(NTS)

Station:
134+75.31 – 135+44.91



Typical Section K

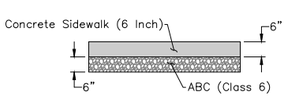
10' Concrete Trail with Gravel Shoulders and Retaining Wall
(NTS)

Station:
132+53.53 – 132+64.92

Note:
1. Design Point Is Centerline Of Trail Unless Dimensioned Otherwise.
2. Design Alignment Is LLSW Trail CL Unless Noted Otherwise.

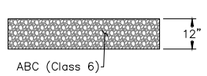
* Daylight Toward Wash At A Minimum Of 2% At All Times To Obtain Positive Drainage Away From Trail

Colored and Patterned Concrete Spec (or Approved Equal)
Color: Davis Colors Omaha Tan 5084
Pattern: LITHOTEX Pavecrafters 401–Canyon Stone



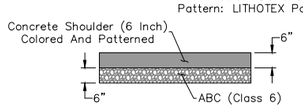
Typical Trail Pavement Section

(NTS)



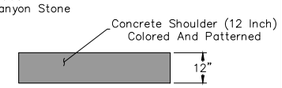
Typical Gravel Shoulder Section

(NTS)



Typical Concrete Shoulder Section

(NTS)



Full Depth Concrete Shoulder Section

(NTS)

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ORIGINAL SHEET SIZE: 11 x 17

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RCC PROJECT #: 1248–005 | DATE ISSUED: 21.Aug.2015
DRAWN BY: nmr | CHECKED BY: jwm

CITY OF FRUITA

Lower Little Salt Wash Riverfront Trail Connection

Typical Sections

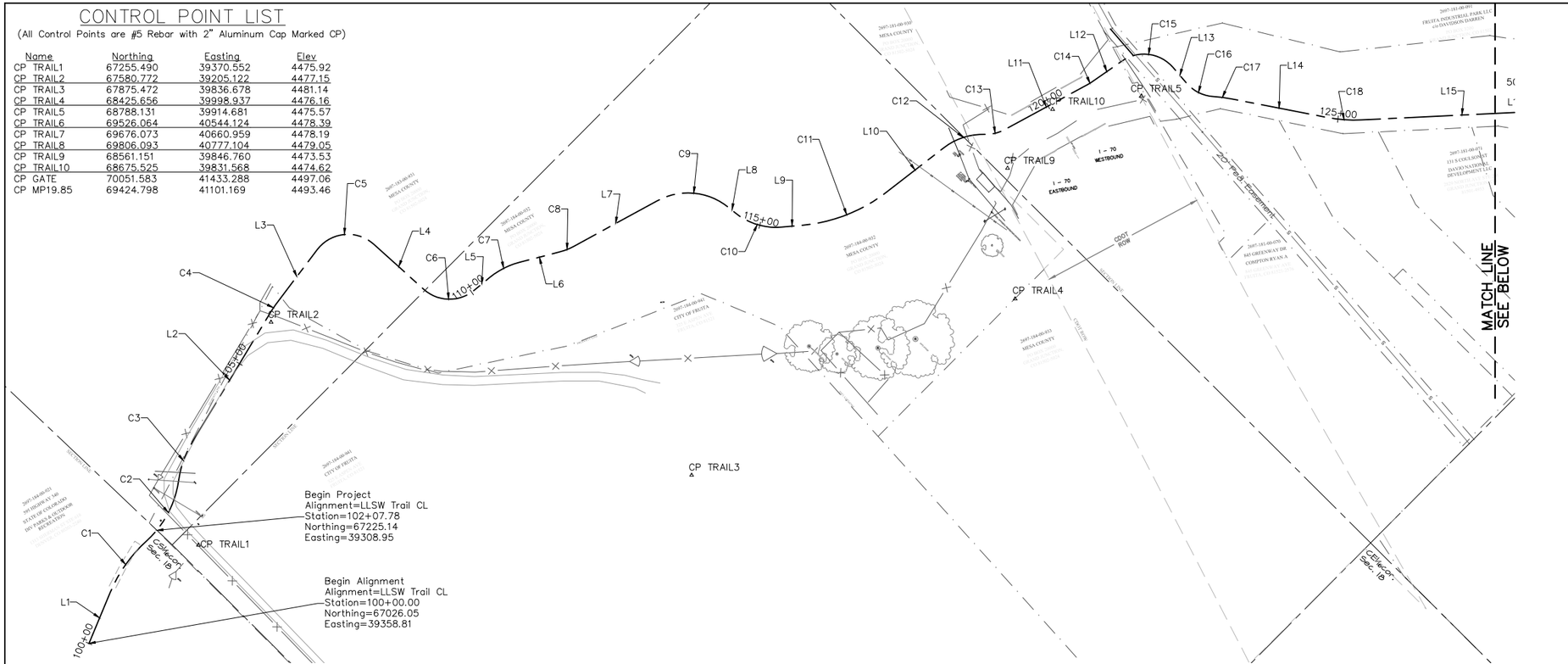
C7

S:\PROJECTS\1248 Fruita\005 LLSW Reroute\Design\dwg\1248-005.dwg, 8/21/2015 12:38:16 PM

CONTROL POINT LIST

(All Control Points are #5 Rebar with 2" Aluminum Cap Marked CP)

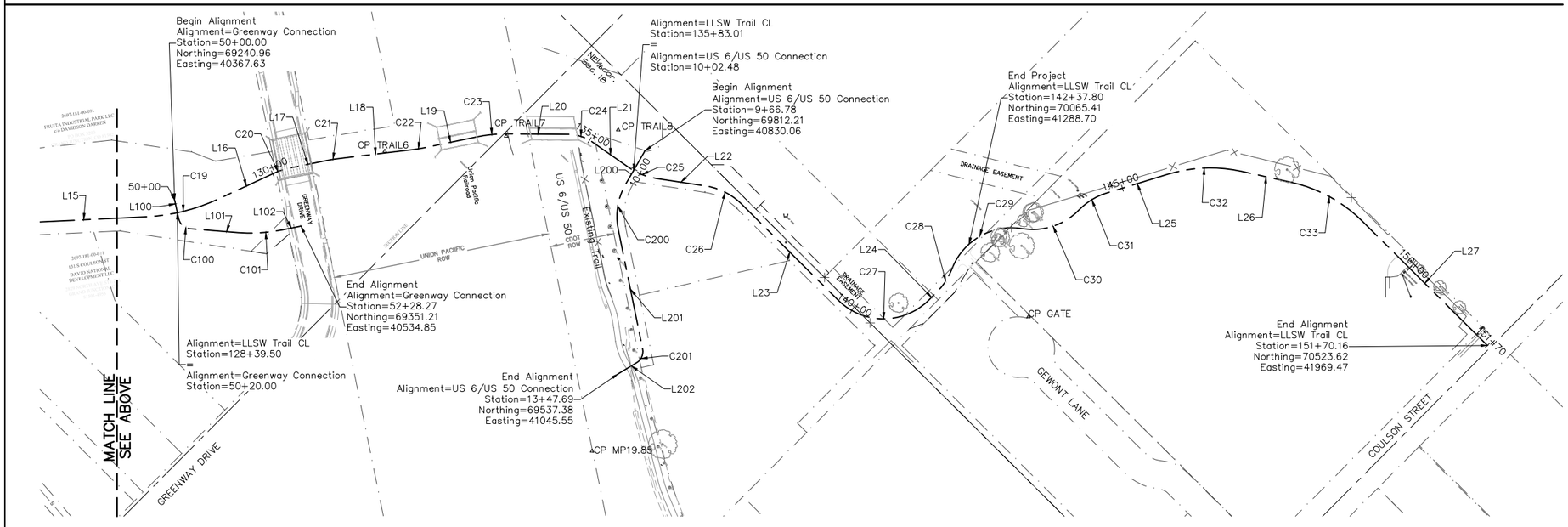
Name	Northing	Easting	Elev
CP TRAIL1	67255.490	39370.552	4475.92
CP TRAIL2	67580.772	39205.122	4477.15
CP TRAIL3	67875.472	39836.678	4481.14
CP TRAIL4	68425.656	39998.937	4476.16
CP TRAIL5	68788.131	39914.681	4475.57
CP TRAIL6	69526.064	40544.124	4478.39
CP TRAIL7	69676.073	40660.959	4478.19
CP TRAIL8	69806.093	40777.104	4479.05
CP TRAIL9	68561.151	39846.760	4473.53
CP TRAIL10	68675.525	39831.568	4474.62
CP GATE	70051.583	41433.288	4497.06
CP MP19.85	69424.798	41101.169	4493.46



Line Table: Alignments		
Line #	Length	Direction
L1	86.32	N22°18'51"W
L2	237.11	N13°53'42"W
L3	105.33	N7°52'42"W
L4	104.75	N87°02'09"E
L5	31.33	N5°26'13"E
L6	64.50	N30°30'45"E
L7	147.24	N16°21'23"E
L8	14.39	N83°58'03"E
L9	32.51	N39°52'16"E
L10	113.28	N7°16'21"E
L11	147.96	N16°31'10"E
L12	57.19	N10°05'59"E
L13	32.04	S85°40'25"E
L14	151.55	N55°59'19"E
L15	254.31	N42°14'01"E
L16	96.02	N20°05'46"E
L17	61.08	N33°28'09"E
L18	115.07	N38°08'30"E
L19	82.87	N33°16'58"E
L20	95.19	N45°27'23"E
L21	69.77	N79°52'48"E
L22	78.23	N53°40'01"E
L23	211.54	N89°51'20"E
L24	18.18	N0°11'10"W
L25	99.47	N28°00'02"E
L26	79.50	N57°22'20"E
L27	274.17	N89°49'27"E

Alignment: LLSW Trail CL

Curve Table: Alignments					
Curve #	Length	Radius	Δ	Chord Bearing	Chord
C1	98.847	225.00	025°10'16"	N09° 43' 43"W	98.05
C2	108.685	156.00	039°55'05"	N17° 06' 07"W	106.50
C3	63.074	156.00	023°09'58"	N25° 28' 41"W	62.65
C4	15.752	150.00	006°01'00"	N10° 53' 12"W	15.74
C5	99.394	60.00	094°54'51"	N39° 34' 44"E	88.41
C6	85.450	60.00	081°35'56"	N46° 14' 11"E	78.41
C7	52.518	120.00	025°04'32"	N17° 58' 29"E	52.10
C8	24.707	100.00	014°09'22"	N23° 26' 04"E	24.64
C9	118.004	100.00	067°36'40"	N50° 09' 43"E	111.28
C10	76.963	100.00	044°05'47"	N61° 55' 09"E	75.08
C11	142.237	250.00	032°35'54"	N23° 34' 19"E	140.33
C12	68.788	100.00	039°24'45"	N26° 58' 44"E	67.44
C13	31.589	60.00	030°09'57"	N31° 36' 08"E	31.23
C14	6.723	60.00	006°25'11"	N13° 18' 35"E	6.72
C15	88.202	60.00	084°13'36"	N52° 12' 47"E	80.47
C16	47.734	60.00	045°34'59"	N71° 32' 05"E	46.49
C17	28.452	225.00	007°14'43"	N52° 21' 58"E	28.43
C18	54.016	225.00	013°45'18"	N49° 06' 40"E	53.89
C19	115.911	300.00	022°08'15"	N31° 09' 54"E	115.19
C20	23.340	100.00	013°22'23"	N26° 46' 58"E	23.29
C21	18.349	225.00	004°40'21"	N35° 48' 20"E	18.34
C22	19.081	225.00	004°51'33"	N35° 42' 44"E	19.08
C23	47.806	225.00	012°10'25"	N39° 22' 10"E	47.72
C24	39.052	65.00	034°25'25"	N62° 40' 06"E	38.47
C25	45.750	100.00	026°12'47"	N66° 46' 25"E	45.35
C26	63.161	100.00	036°11'19"	N71° 45' 40"E	62.12
C27	157.152	100.00	090°02'30"	N44° 50' 05"E	141.47
C28	41.672	100.00	023°52'34"	N12° 07' 27"W	41.37
C29	136.870	100.00	078°25'15"	N15° 08' 53"E	126.43
C30	96.588	100.00	055°20'27"	N26° 41' 17"E	92.88
C31	50.585	100.00	028°58'58"	N13° 30' 33"E	50.05
C32	115.342	225.00	029°22'18"	N42° 41' 11"E	114.08
C33	127.439	225.00	032°27'07"	N73° 35' 53"E	125.74



Line Table: Alignments		
Line #	Length	Direction
L100	29.35	S57°02'12"E
L101	74.95	N49°31'36"E
L102	29.67	N33°28'09"E

Alignment: Greenway Connection

Curve Table: Alignments					
Curve #	Length	Radius	Δ	Chord Bearing	Chord
C100	25.634	20.00	073°26'11"	N86° 14' 42"E	23.92
C101	68.663	245.00	016°03'27"	N41° 29' 53"E	68.44

Line Table: Alignments		
Line #	Length	Direction
L200	60.51	S14°59'20"E
L201	189.52	S56°31'50"E
L202	33.81	S13°50'45"W

Alignment: US 6/US 50 Connection

Curve Table: Alignments					
Curve #	Length	Radius	Δ	Chord Bearing	Chord
C200	72.504	100.00	041°32'30"	S35° 45' 35"E	70.93
C201	24.566	20.00	070°22'35"	S21° 20' 32"E	23.05

MCLCS ZONE "GVA"

TRANSVERSE MERCATOR PROJECTION
POINT OF ORIGIN (SN01)AND CENTRAL MERIDIAN:
LATITUDE: 39°06'22.72746"N
LONGITUDE: 108°32'01.43552"W
NORTHING: 50,000FT
EASTING: 100,000FT
SCALE FACTOR: 1.000218181798
PROJECT/SCALE FACTOR HEIGHT: 4644FT(NAVD88)

THE BEARINGS HEREON ARE GRID BEARINGS OF THE MESA COUNTY SIMSLCS.

THE COORDINATES HEREON ARE COORDINATES OF THE MESA COUNTY SIMSLCS.

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SCALE
100 0 50 100 200
(IN FEET)
HORIZ: 1" = 200' VERT: N/A
ORIGINAL SHEET SIZE: 11 x 17

REVISIONS

NO.	DATE	DESCRIPTION	BY

PRELIMINARY

RIVER CITY CONSULTANTS
744 Horizon Court, Suite 110
Grand Junction, Co. 81506
Phone: 970.241.4722
Fax: 970.241.8841

RESIDENT ENGINEER:
CDOT PROJECT #: STE M505-006 (18643)
RCC PROJECT #: 1248-005 DATE ISSUED: 21.Aug.2015
DRAWN BY: nmr CHECKED BY: jwm

CITY OF FRUITA

Lower Little Salt Wash Riverfront Trail Connection

Survey Control

C8

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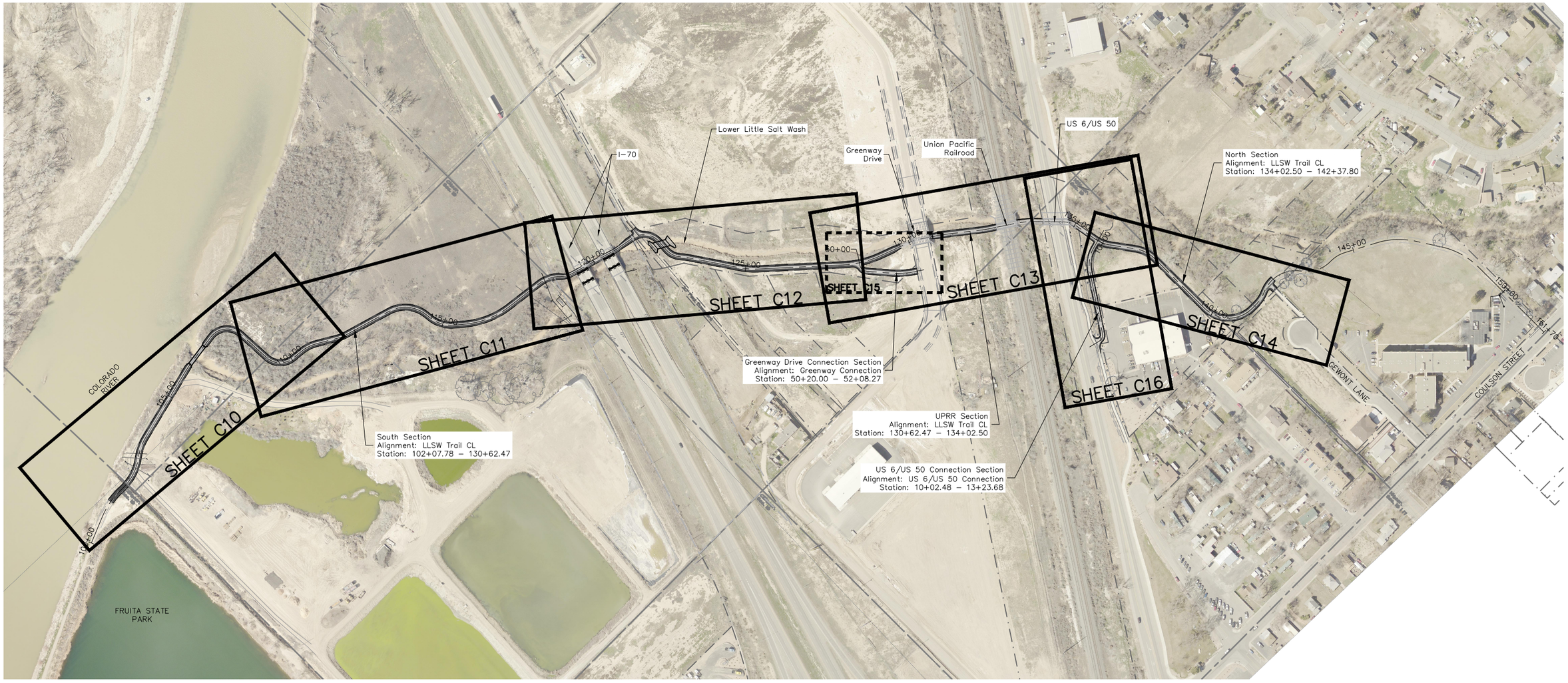

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SCALE

150 0 75 150 300

(IN FEET)

HORIZ: 1" = 300' VERT: N/A
ORIGINAL SHEET SIZE: 11 x 17

REVISIONS

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PRELIMINARY

RIVER CITY CONSULTANTS
744 Horizon Court, Suite 110
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DRAWN BY: nmr CHECKED BY: jwm

CITY OF FRUITA

Lower Little Salt Wash Riverfront Trail Connection

Match Sheet

C9

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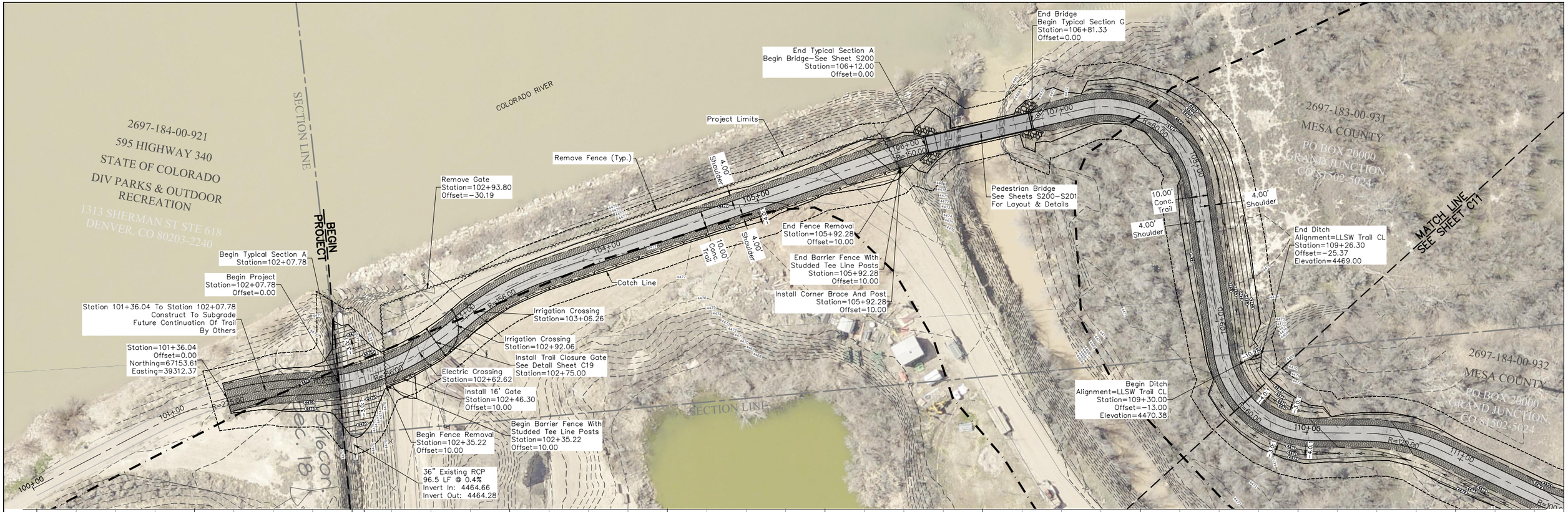

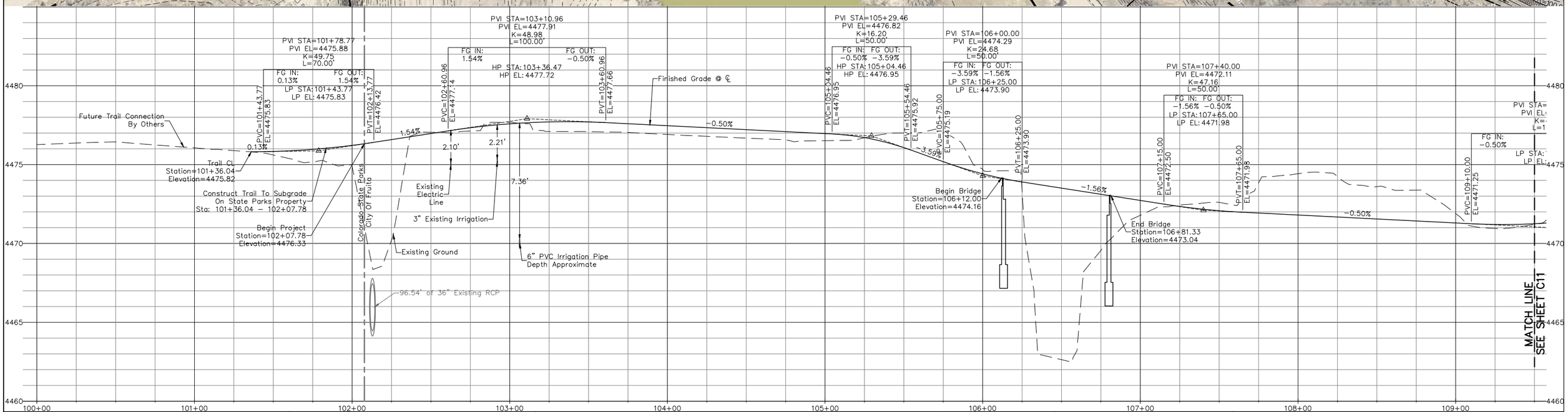

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SCALE

30 0 15 30 60

(IN FEET)
CONTOUR INTERVAL = 1 FOOT
HORIZ: 1" = 60' VERT: 1" = 6'
ORIGINAL SHEET SIZE: 11 x 17

REVISIONS

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DRAWN BY: nmr CHECKED BY: jwm

CITY OF FRUITA

Lower Little Salt Wash Riverfront Trail Connection

Trail Plan & Profile
Station 102+07.78 - 109+50

C10

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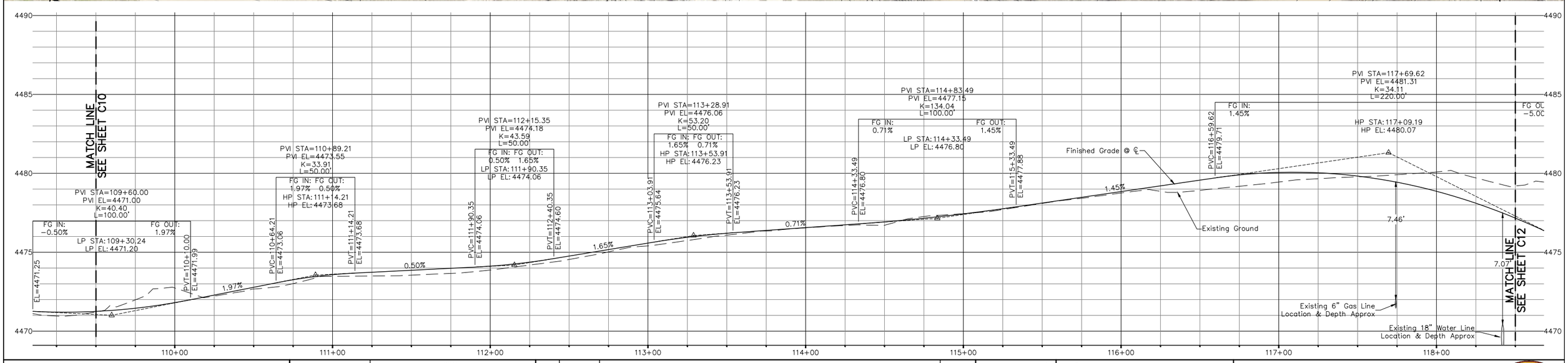

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SCALE

30 0 15 30 60

(IN FEET)
CONTOUR INTERVAL = 1 FOOT
HORIZ: 1" = 60' VERT: 1" = 6'
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DRAWN BY: nmr CHECKED BY: jwm

CITY OF FRUITA

Lower Little Salt Wash Riverfront Trail Connection

Trail Plan & Profile
Station 109+50 – 118+50

C11

S:\PROJECTS\1248 Fruita\005 LLSW Reroute\Design\dwg\1248-005.dwg, 8/21/2015 12:43:24 PM

Note:
See Sheet C18 For I-70 Bridge Curb Drain Detail For Relocation of Bridge Curb Cuts.

Connection to Future Trail See Grading Detail Sheet C20

Sewer Crossing Station=121+58.06

Begin Transition to CBC Cross Slope Station=122+00.00

Begin Typical Section G Station=120+90.00

Begin 25' Taper From 0' to 4' Shoulder Left Side Only Station=120+90.00 Offset=-5.00

Gas Line Crossing Station=121+40.44

End Typical Section G Station=122+21.20

20' Cast In Place Concrete Box Culvert Station=122+33.35 See Sheet S300

Begin Fence Removal Station=118+61.62 Offset=-18.90

Riprap D50 = 16"

Project Limits

Begin 25' Taper From 4' to No Shoulder Left Side Only Station=118+85.00 Offset=-9.00

Catch Line

Begin Typical Section D Station=119+10.00

Install 42.5 LF of 18" RCP Station=125+02.11 See Sheet C17 For Profile Culvert 1

Riprap D50 = 16"

MATCH LINE SEE SHEET C11

4.00' Shoulder

10.00' Conc. Trail

See Note 1 This Sheet

Riprap D50 = 16" Along West Bank Sta=120+90-121+90

Begin 25' Taper From 3' to 4' Shoulder Right Side Only Station=120+90.00 Offset=8.00

Existing Bridge Piers & Footers

CDOT Str. No. H-2-FM

Begin Typical Section A Begin Transition to 2% Cross Slope Station=122+45.48

See Note 1 This Sheet CDOT Str. No. H-2-FN

Existing Bridge Abutment (Typ.)

Begin 25' Taper From 4' to 3' Shoulder Right Side Only Station=118+85.00 Offset=9.00

End Fence Removal Station=118+66.20 Offset=24.39

I - 70 WESTBOUND

I - 70 EASTBOUND

Floodway

Begin Ditch Alignment=LLSW Trail CL Station=124+42.46 Offset=11.64 Elevation=4475.99

Trail CL

End Ditch Alignment=LLSW Trail CL Station=125+01.22 Offset=18.22 Elevation=4475.00

500-YR Flood Limits

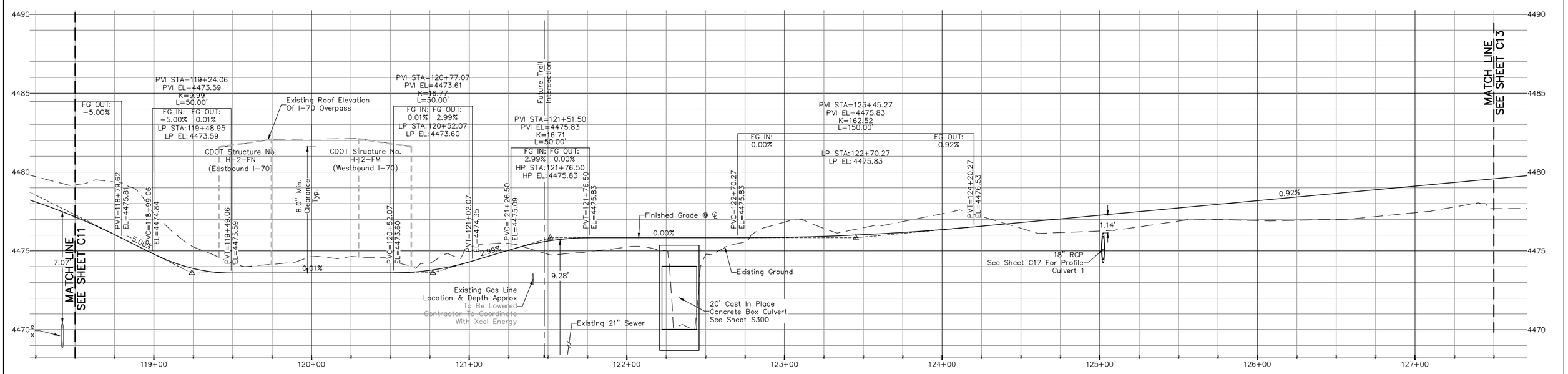
100-YR Flood Limits

2697-181-00-091
FRUITA INDUSTRIAL PARK LLC
c/o DAVIDSON DARREN
PO BOX 3200
GRAND JUNCTION, CO 81502

LOWER LITTLE SALT WASH

2697-181-00-071
131 S COULSON ST
DAVJO NATIONAL DEVELOPMENT LLC
2829 NORTH AVE STE 201
GRAND JUNCTION, CO

MATCH LINE SEE SHEET C13



UNCC UNDERGROUND UTILITY NOTIFICATION CENTER 800.922.1987 www.uncc.org
811 Know what's below. Call before you dig.
CALL 2 BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

SCALE
30 0 15 30 60
(IN FEET)
CONTOUR INTERVAL = 1 FOOT
HORIZ: 1" = 60' VERT: 1" = 6'
ORIGINAL SHEET SIZE: 11 x 17

REVISIONS

NO.	DATE	DESCRIPTION	BY

PRELIMINARY

RIVER CITY CONSULTANTS
744 Horizon Court, Suite 110
Grand Junction, Co. 81506
Phone: 970.241.4722
Fax: 970.241.8841

RESIDENT ENGINEER:
CDOT PROJECT #: STE M505-006 (18643)
RCC PROJECT #: 1248-005 DATE ISSUED: 21.Aug.2015
DRAWN BY: nmr CHECKED BY: jwm

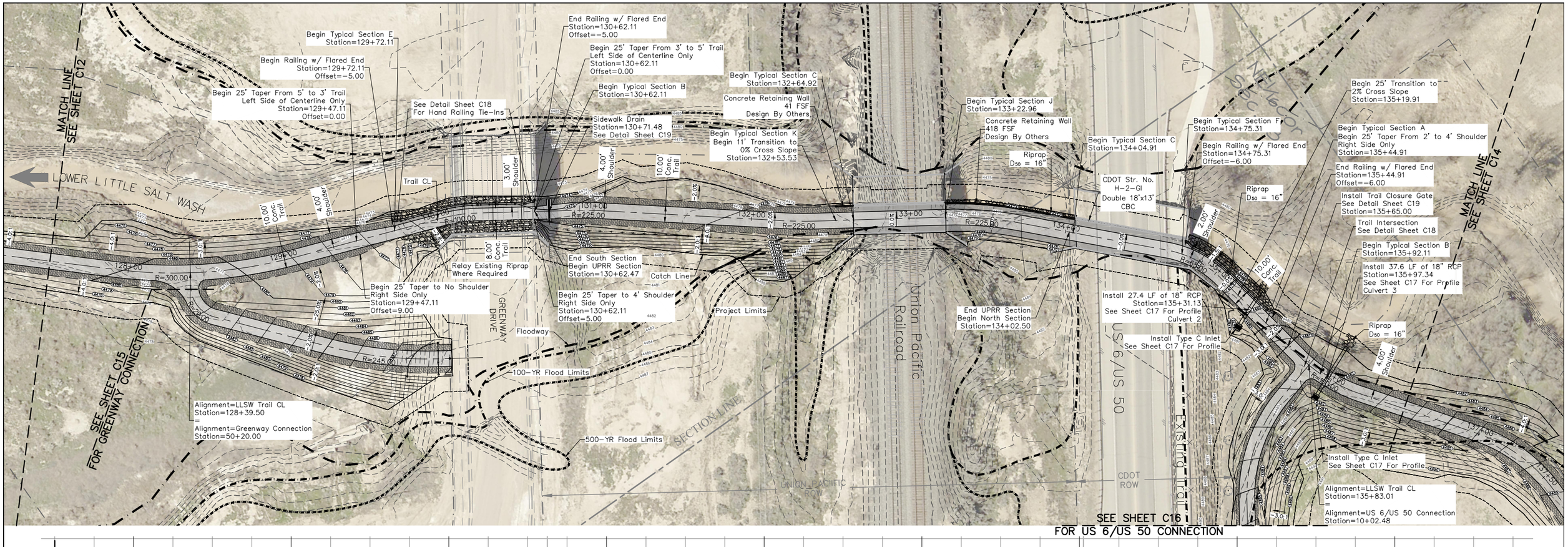
CITY OF FRUITA

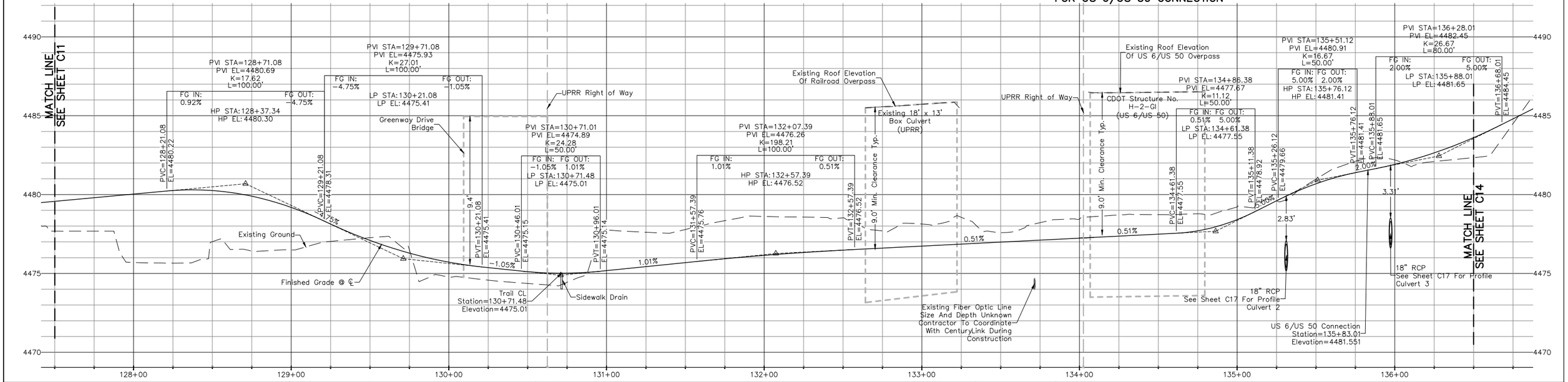
Lower Little Salt Wash Riverfront Trail Connection

Trail Plan & Profile
Station 118+50 - 127+50

C12

S:\PROJECTS\1248 Fruita\005 LLSW Reroute\Design\dwg\1248-005.dwg, 8/21/2015 12:45:29 PM





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SCALE
30 0 15 30 60
(IN FEET)
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ORIGINAL SHEET SIZE: 11 x 17

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DRAWN BY: nmr CHECKED BY: jwm

CITY OF FRUITA

Lower Little Salt Wash Riverfront Trail Connection

Trail Plan & Profile
Station 127+50 – 136+50

C13

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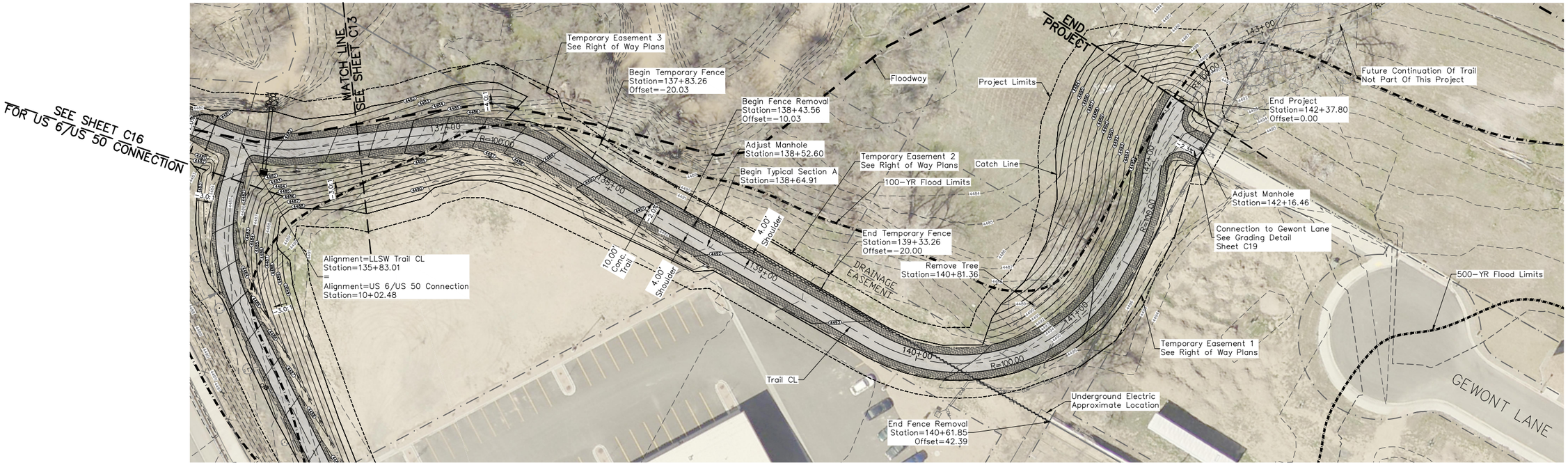

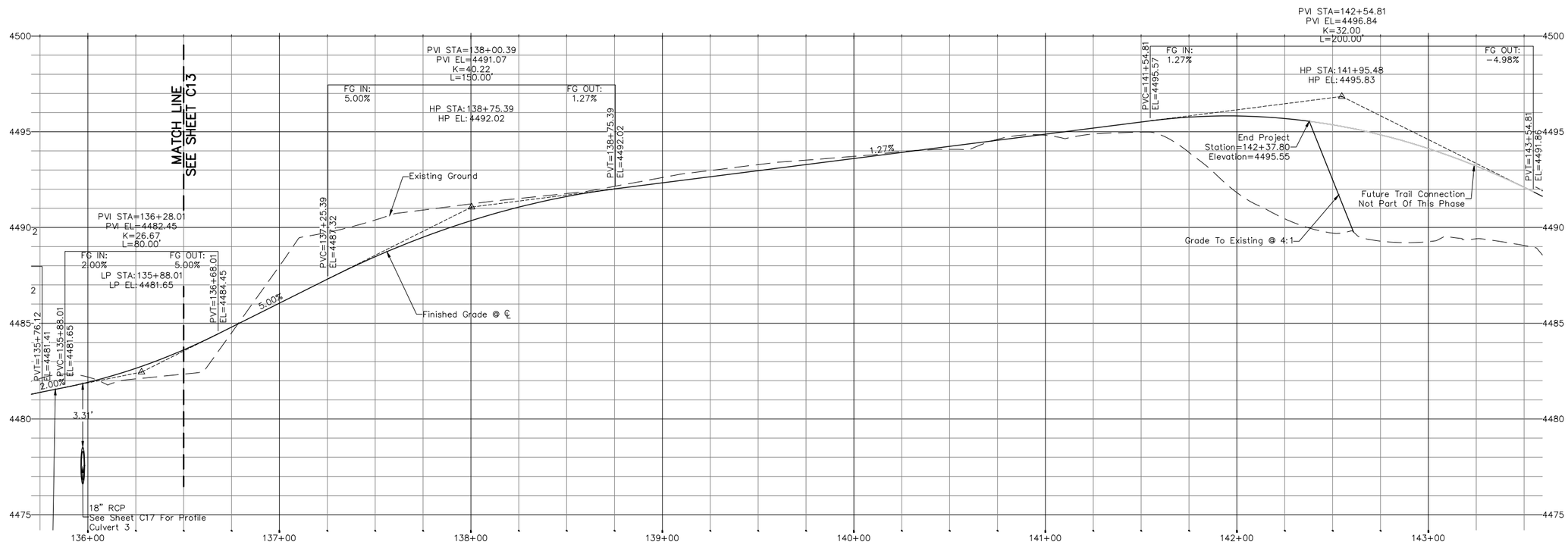

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800.922.1987
www.uncc.org
811 Know what's below. Call before you dig.

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SCALE
30 0 15 30 60
(IN FEET)
CONTOUR INTERVAL = 1 FOOT
HORIZ: 1" = 60' VERT: 1" = 6'
ORIGINAL SHEET SIZE: 11 x 17

REVISIONS

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Fax: 970.241.8841

RESIDENT ENGINEER:
CDOT PROJECT #: STE M505-006 (18643)
RCC PROJECT #: 1248-005 DATE ISSUED: 21.Aug.2015
DRAWN BY: nmr CHECKED BY: jwm

CITY OF FRUITA

Lower Little Salt Wash Riverfront Trail Connection

Trail Plan & Profile
Station 136+50 – 142+15.70

C14

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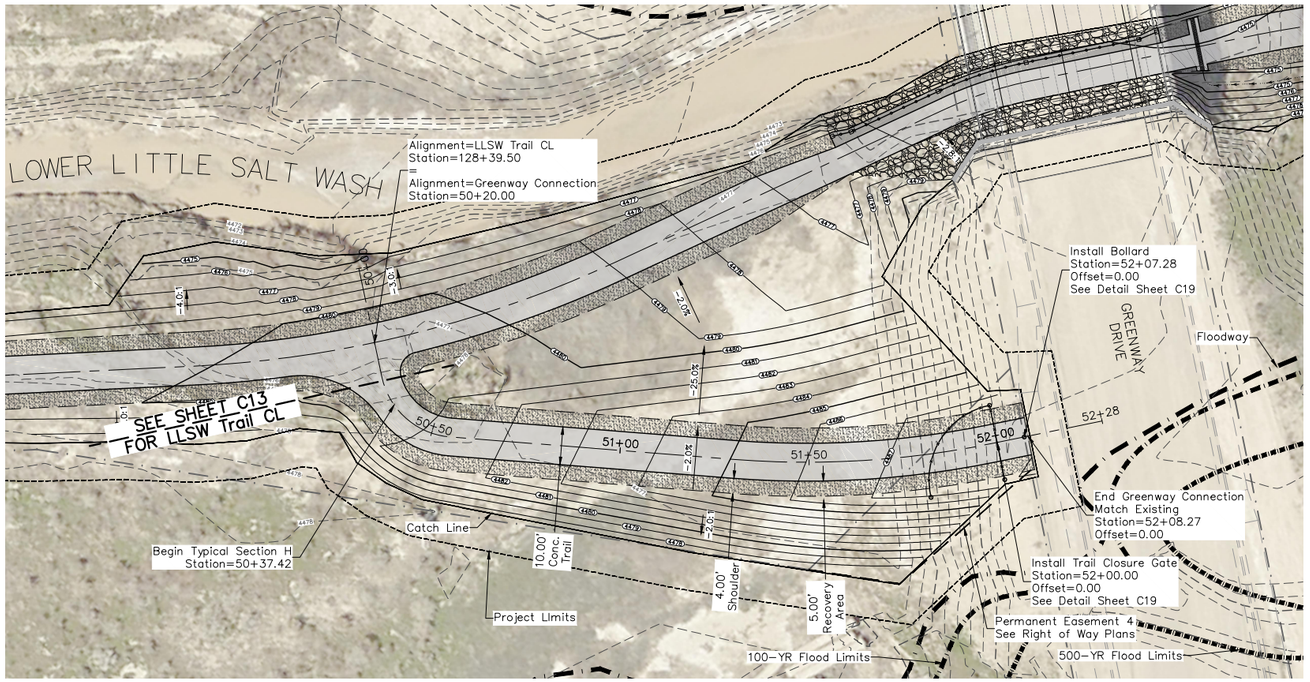
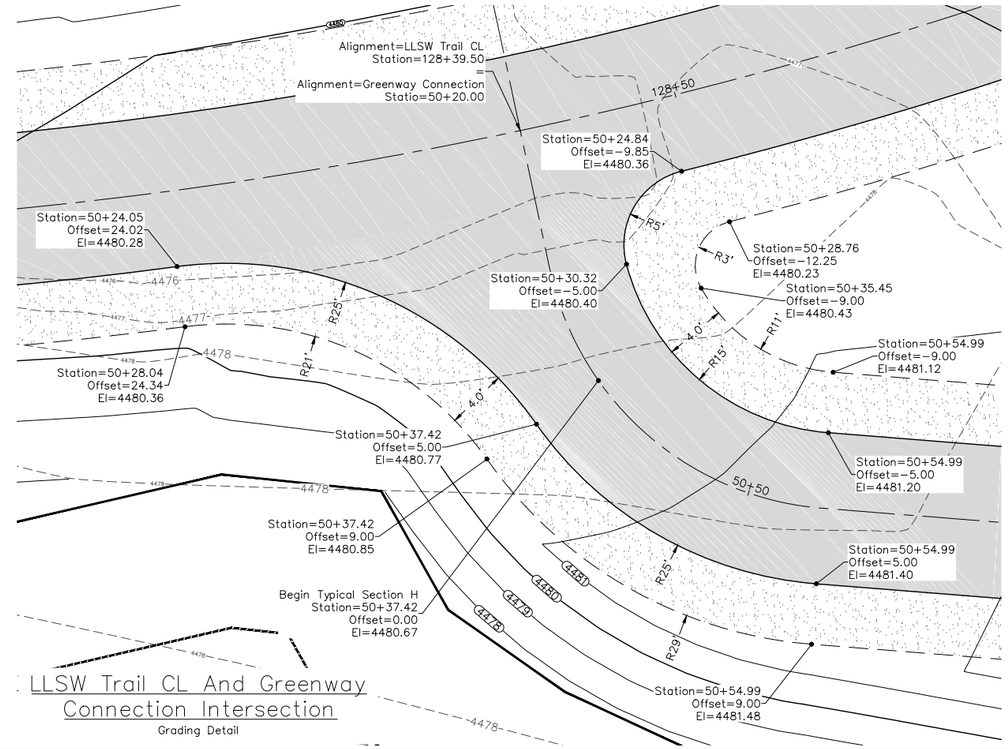
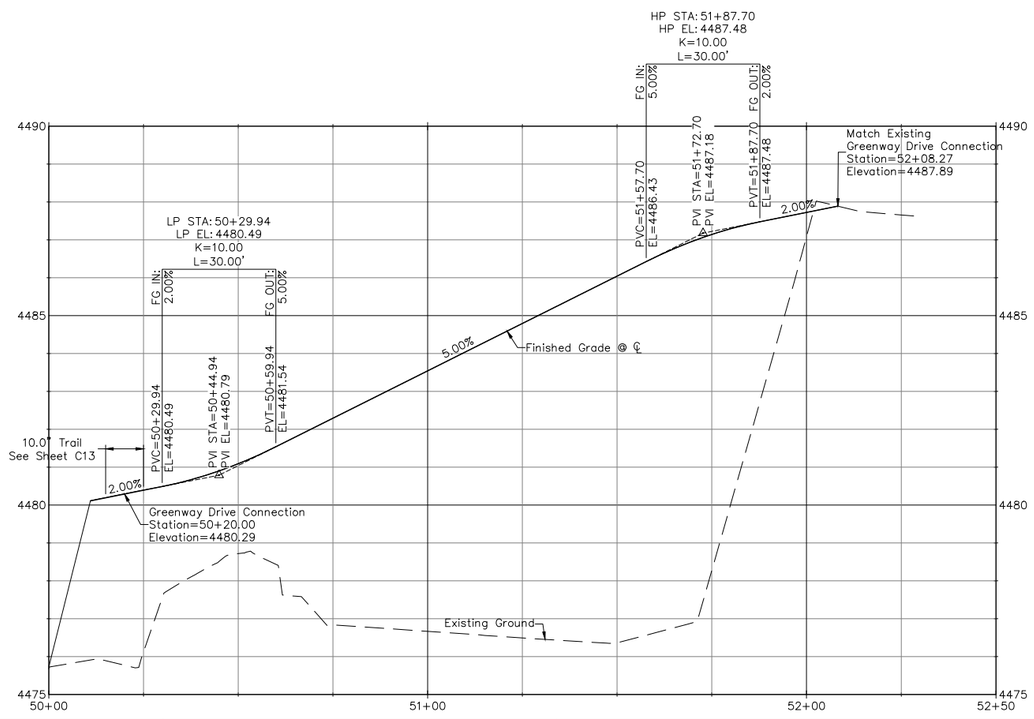
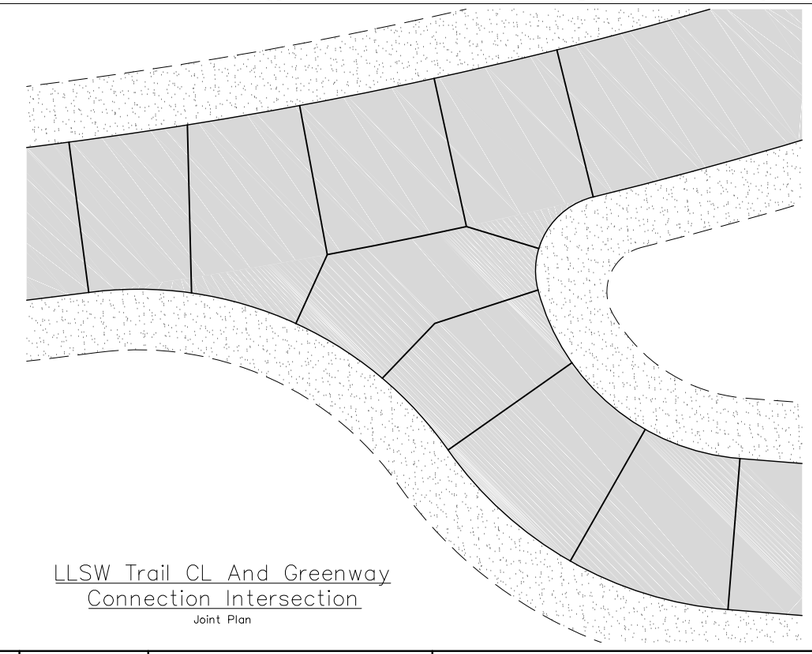




LLSW Trail CL And Greenway Connection Intersection

Grading Detail





LLSW Trail CL And Greenway Connection Intersection

Joint Plan

UNCC UNDERGROUND NOTIFICATION CENTER 800.922.1987 www.uncc.org Know what's below. Call before you dig.

CALL 2 BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

SCALE

20 0 10 20 40

(IN FEET)
CONTOUR INTERVAL = 1 FOOT
HORIZ: 1" = 40' VERT: 1" = 4'
ORIGINAL SHEET SIZE: 11 x 17

REVISIONS

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744 Horizon Court, Suite 110
Grand Junction, Co. 81506
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RCC PROJECT #: 1248-005 DATE ISSUED: 21.Aug.2015
DRAWN BY: nmr CHECKED BY: jwm

CITY OF FRUITA

Lower Little Salt Wash Riverfront Trail Connection

Trail Plan & Profile
Station 50+20.00 – 52+08.27

C15

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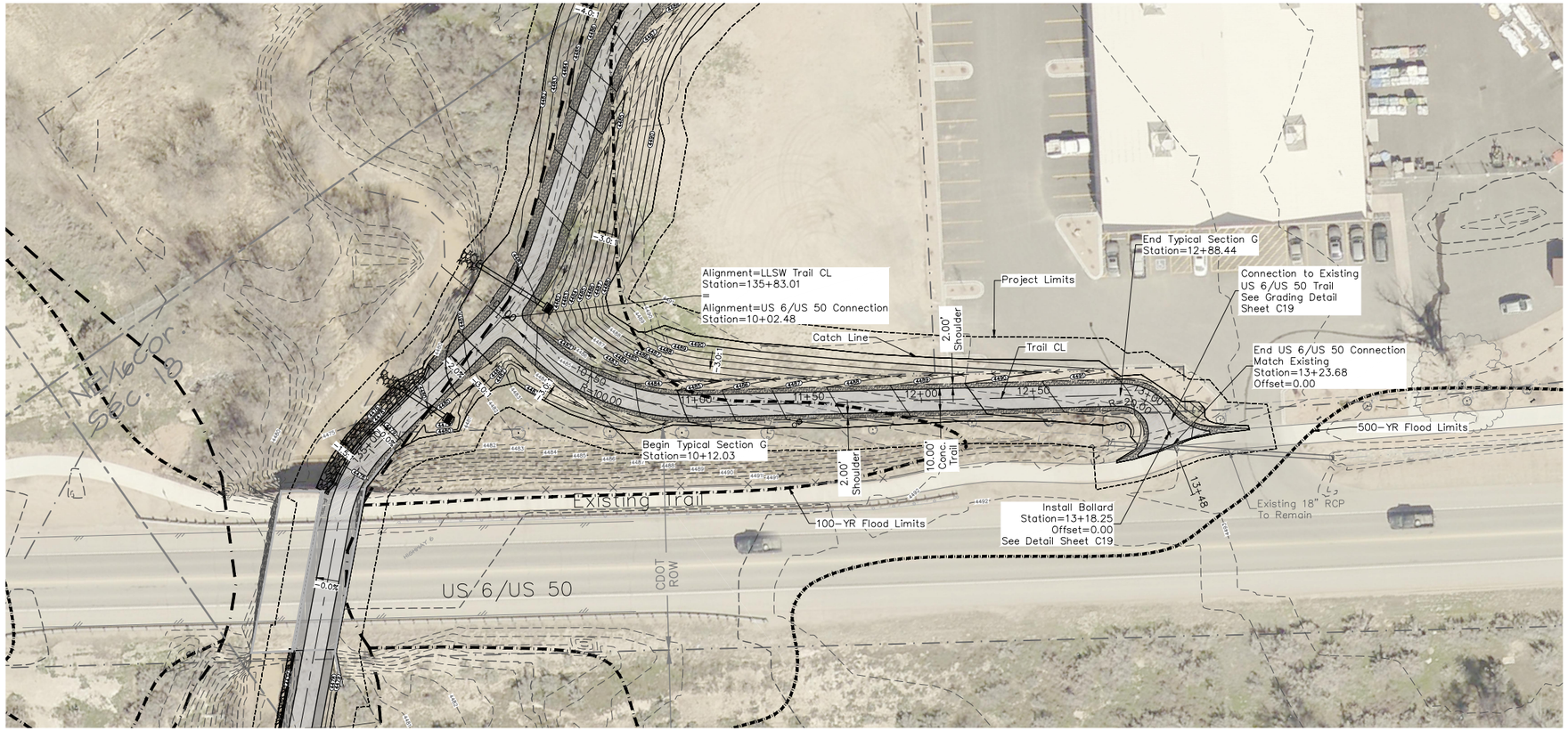

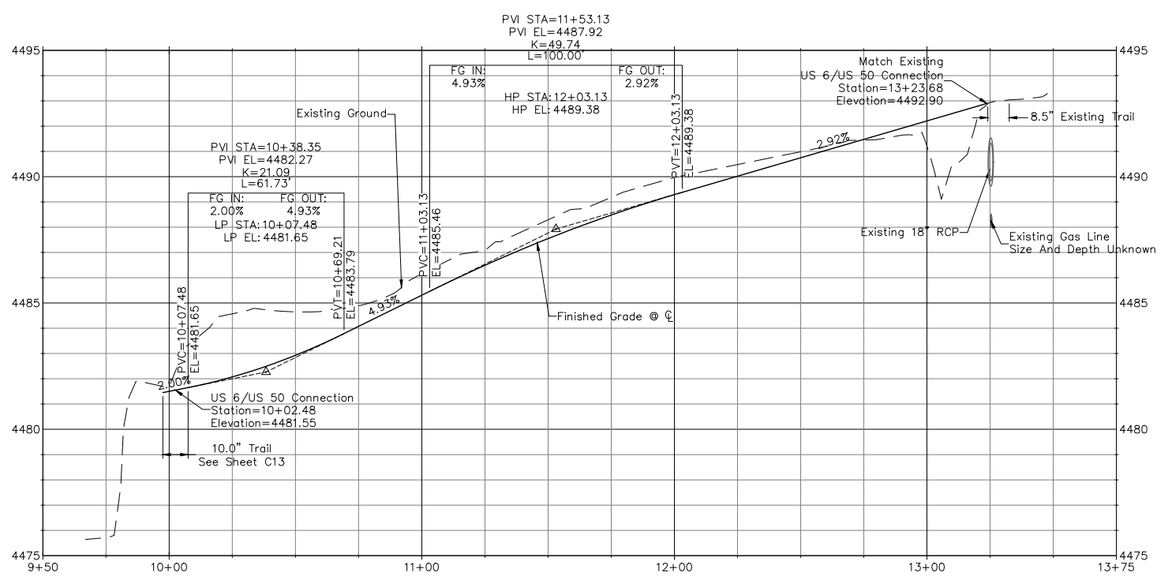

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SCALE
30 0 15 30 60
(IN FEET)
CONTOUR INTERVAL = 1 FOOT
HORIZ: 1" = 60' VERT: 1" = 6'
ORIGINAL SHEET SIZE: 11 x 17

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RCC PROJECT #: 1248-005 DATE ISSUED: 21.Aug.2015
DRAWN BY: nmr CHECKED BY: jwm

CITY OF FRUITA

Lower Little Salt Wash Riverfront Trail Connection

Trail Plan & Profile
Station 10+02.48 – 13+23.68

C16

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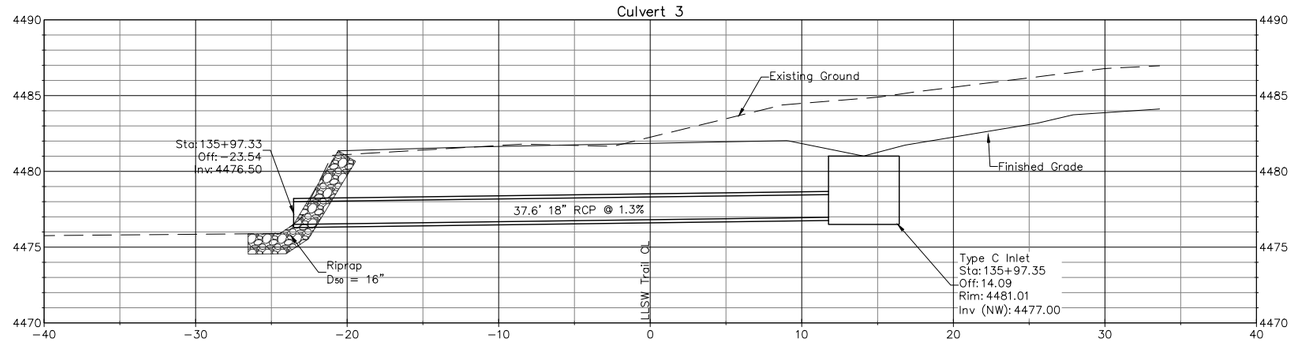

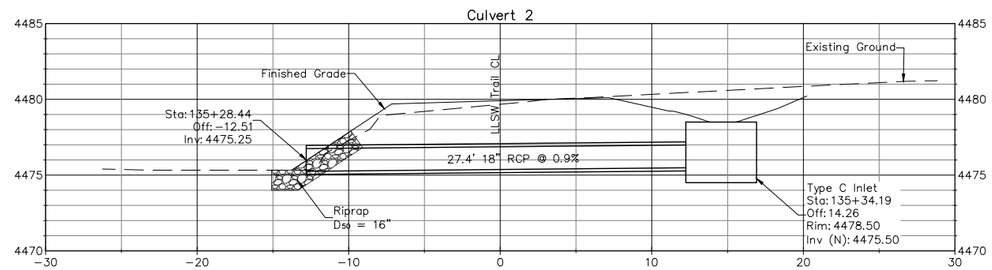

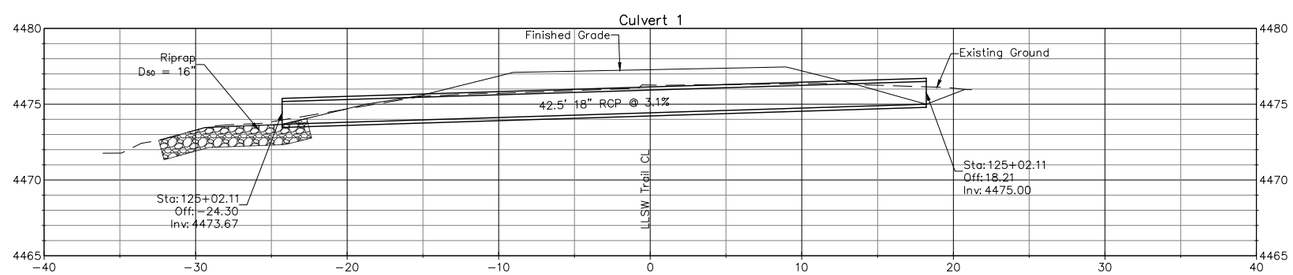

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SCALE

5 0 5 10

(IN FEET)
CONTOUR INTERVAL = 1 FOOT

HORIZ: 1" = 10' VERT: 1" = 10'
ORIGINAL SHEET SIZE: 11 x 17

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Fax: 970.241.8841

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RCC PROJECT #: 1248-005 DATE ISSUED: 21.Aug.2015
DRAWN BY: nmr CHECKED BY: jwm

CITY OF FRUITA

Lower Little Salt Wash Riverfront Trail Connection

Storm Drain Profiles

C17

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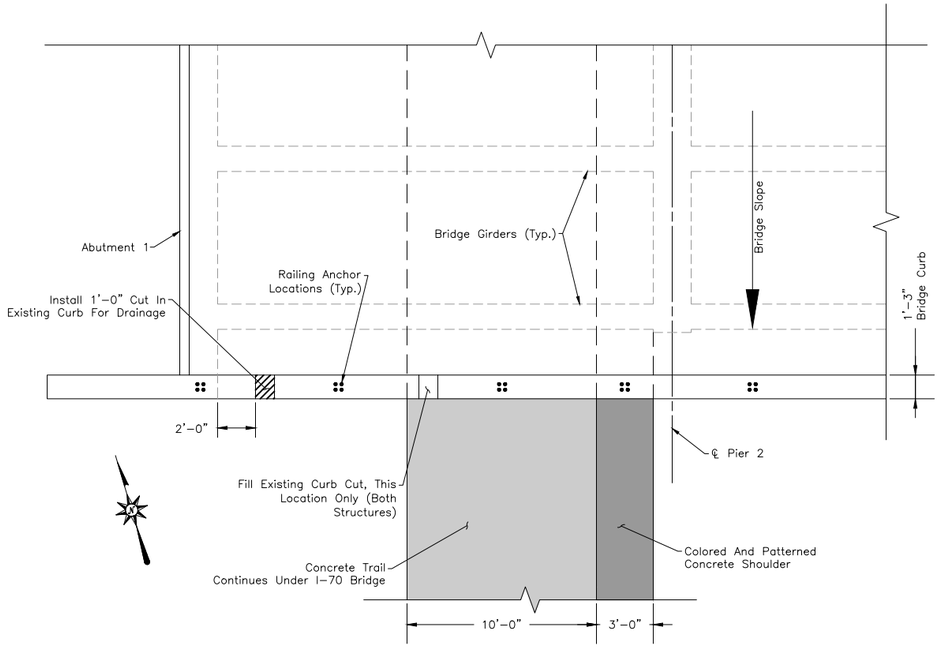
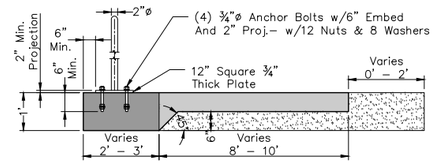


I-70 Bridge Curb Drain Detail

I-70 Eastbound Partial Plan

*MIRROR DETAIL FOR I-70 WESTBOUND
(Curb Cut on North Side for Westbound)

STRUCTURE H-2-FN (EASTBOUND) SHOWN
STRUCTURE H-2-FM (WESTBOUND) SIMILAR

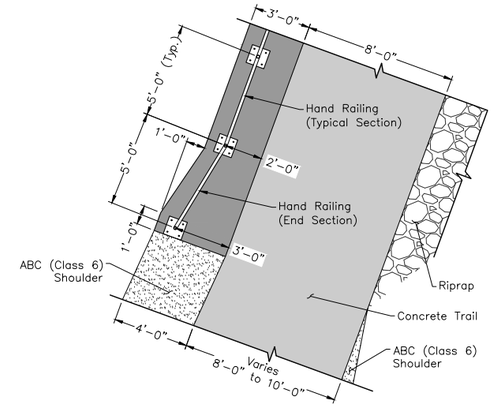


Hand Railing On Shoulder - Section View
(NTS)

Colored and Patterned Concrete Spec (or Approved Equal)
Color: Davis Colors Omaha Tan 5084
Pattern: LITHOTEX Pavecrafters
401-Canyon Stone

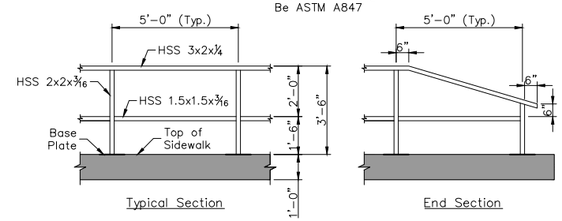
Hand Railing On Shoulder Detail

Sta: 129+72.11 - 130+62.11
Sta: 134+75.31 - 135+44.91
(NTS)

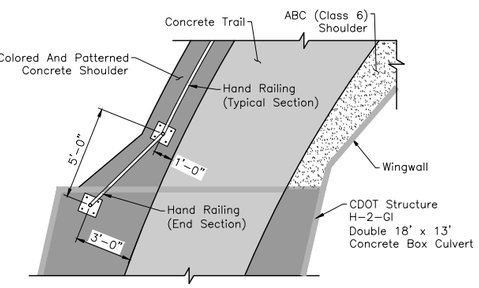


Hand Railing On Shoulder - Plan View
(129+72.11 Tie-In)
(Mirror for 130+62.11 Tie-In)
(NTS)

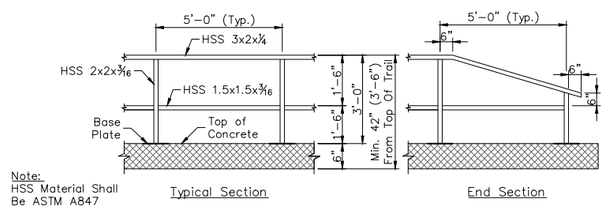
Note:
HSS Material Shall Be ASTM A847



Hand Railing On Shoulder - Elevation View
(NTS)

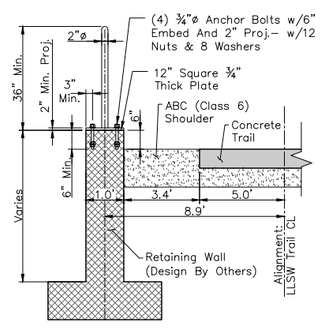


Hand Railing On Shoulder - Plan View
(134+75.31 Tie-In)
(NTS)

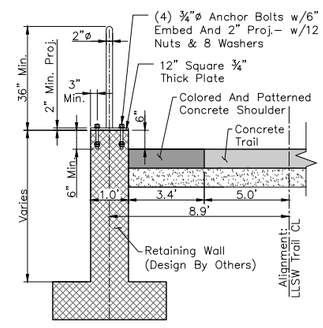


Note:
HSS Material Shall Be ASTM A847

Hand Railing On Wall - Elevation View
(NTS)



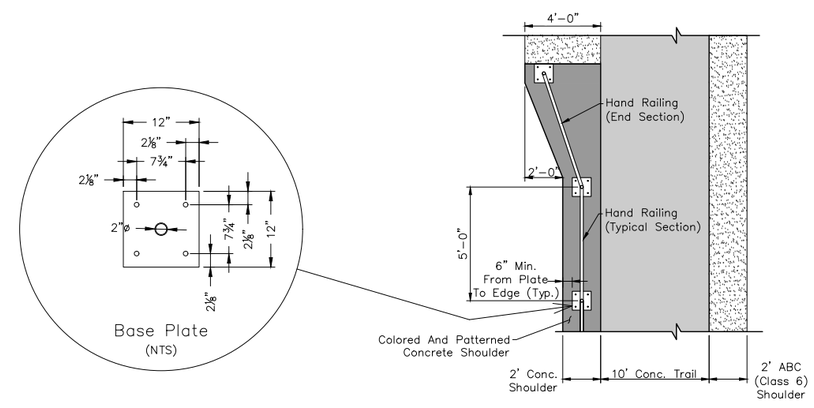
Wall Along Gravel Shoulder
Sta: 132+53.53 - 132+64.92



Wall Along Concrete Shoulder
Sta: 133+22.96 - 133+04.91

Hand Railing On Wall Detail

Sta: 132+53.53 - 132+64.92
Sta: 133+22.96 - 134+04.91
(NTS)



Hand Railing On Shoulder - Plan View
(135+44.91 Tie-In)
(NTS)

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REVISIONS

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DRAWN BY: nmr CHECKED BY: jwm

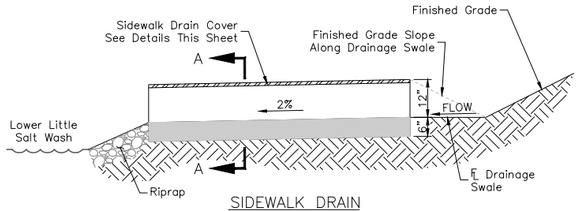
CITY OF FRUITA

Lower Little Salt Wash Riverfront Trail Connection

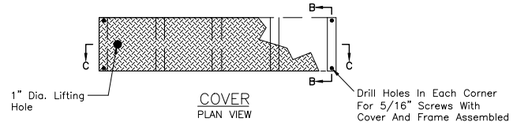
Details
I-70 Curb Cut, Hand Railing

C18

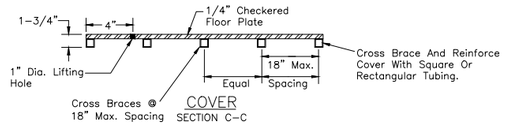
S:\PROJECTS\1248 Fruita\005 LLSW Reroute\Design\dwg\1248-005.dwg, 8/21/2015 12:54:36 PM



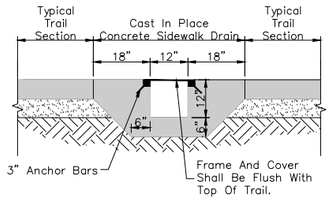
SIDEWALK DRAIN
ELEVATION VIEW



COVER
PLAN VIEW



COVER
SECTION C-C



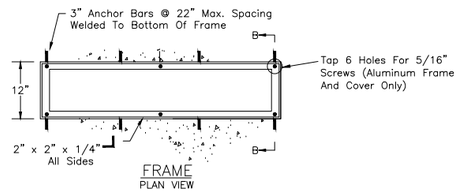
SIDEWALK DRAIN
SECTION A-A

Sidewalk Drain Fabrication Note:

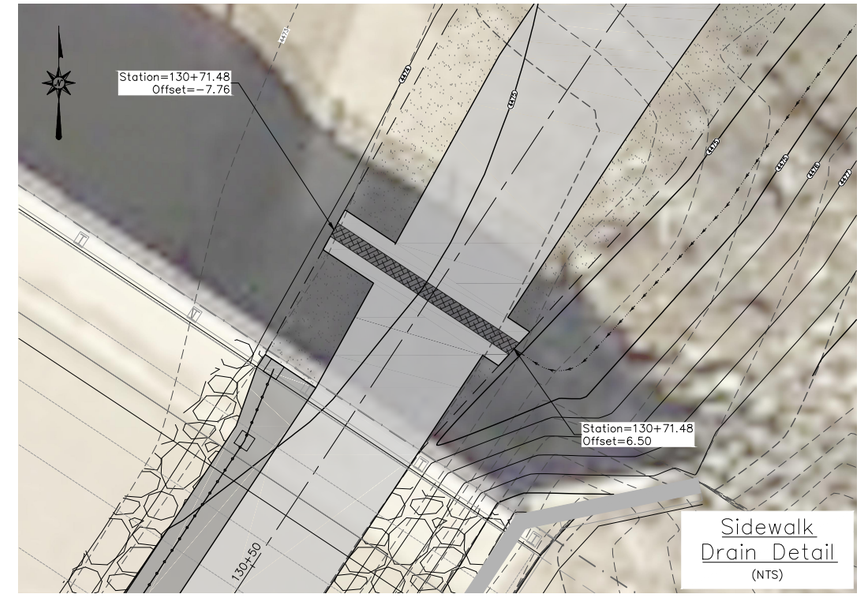
Frame, Cover, Shims, And Cross Bracing Shall Be Fabricated Of Same Material (Steel Or Aluminum).

Steel Covers Shall Be Galvanized Following Fabrication.

Steel Frames Shall Be Galvanized Or Shop Primed And Painted With Aluminum Paint Meeting CDOT Spec 708.04.

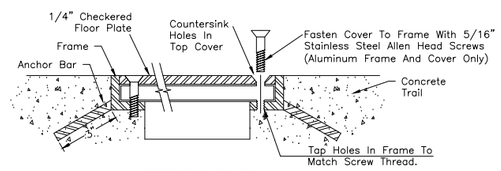


FRAME
PLAN VIEW

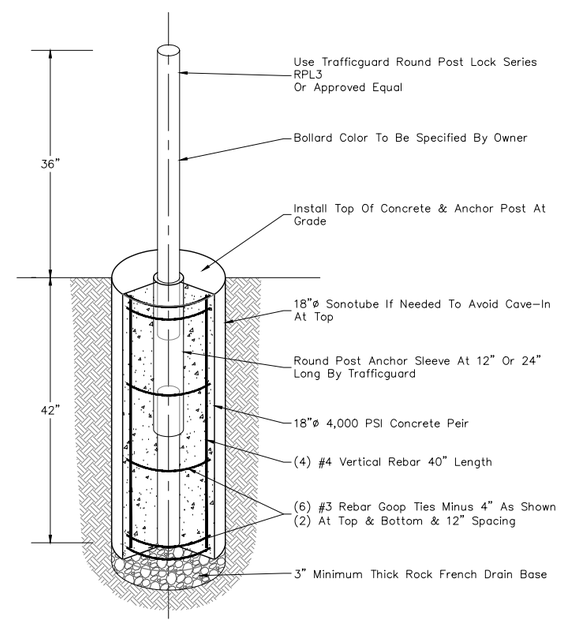


Sidewalk
Drain Detail
(NTS)

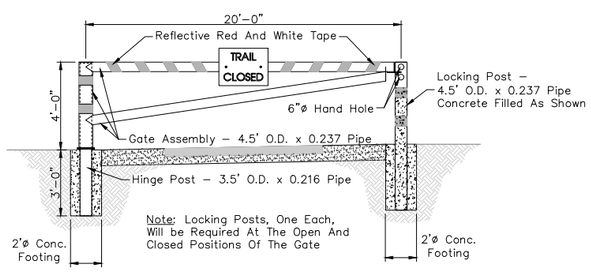
Sidewalk Drain Detail
Sta: 130+71.48
(NTS)



SECTION B-B
N.T.S.

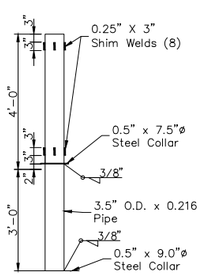


Bollard Detail
Sta: 13+18.25, 52+07.28
(NTS)

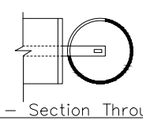


Trail Closure Gate -Elevation View
(NTS)

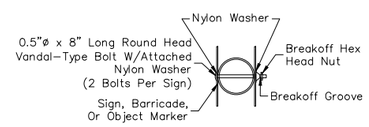
Trail Closure Gate Detail
Sta: 52+00, 102+75.00, 135+65.00
(NTS)



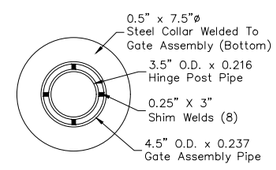
Trail Closure Gate - Hinge Post Detail
(NTS)



Trail Closure Gate - Section Through Locking Post
(NTS)



Trail Closure Gate - Gate Sign Detail
(NTS)



Trail Closure Gate - Section At Hinge Post
(NTS)

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NO.	DATE	DESCRIPTION	BY

PRELIMINARY

RIVER CITY CONSULTANTS
744 Horizon Court, Suite 110
Grand Junction, Co. 81506
Phone: 970.241.4722
Fax: 970.241.8841

RESIDENT ENGINEER:
CDOT PROJECT #: STE M505-006 (18643)
RCC PROJECT #: 1248-005 DATE ISSUED: 21.Aug.2015
DRAWN BY: nmr CHECKED BY: jwm

CITY OF FRUITA

Lower Little Salt Wash Riverfront Trail Connection

Details
Sidewalk Drain, Trail Closure Gate, & Bollard

C19

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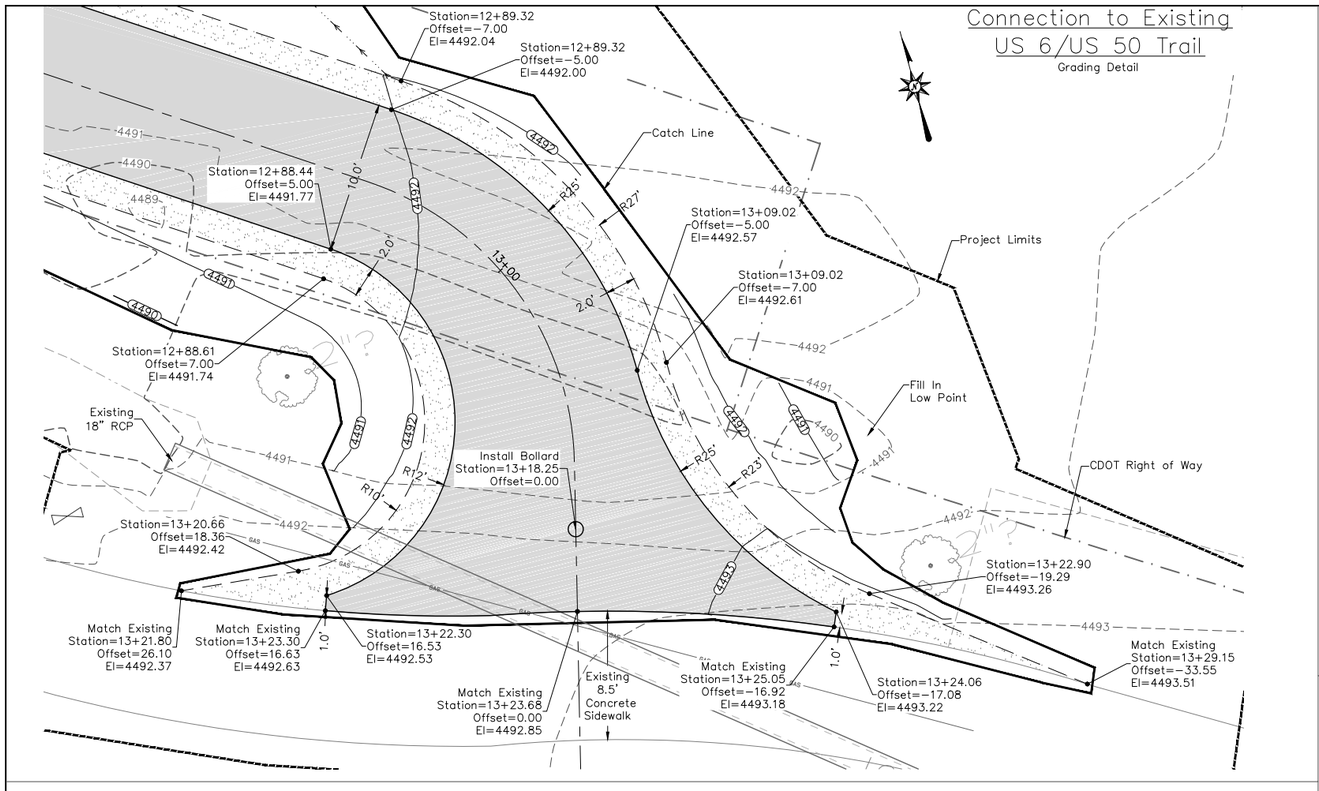

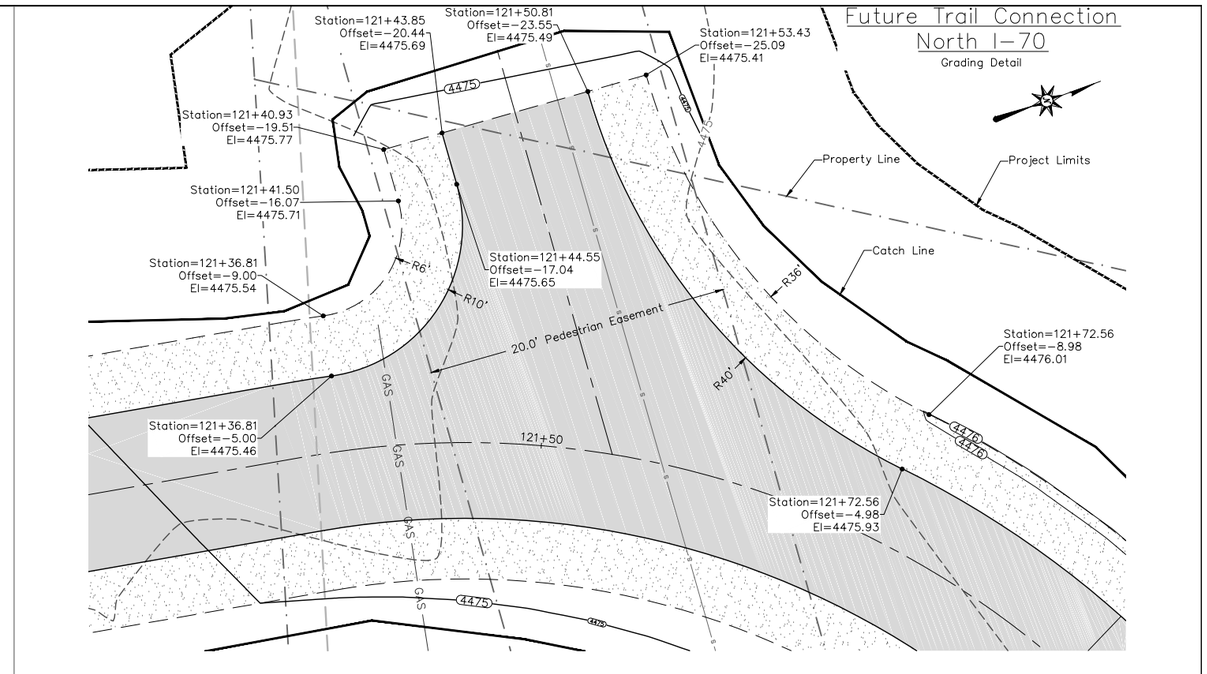

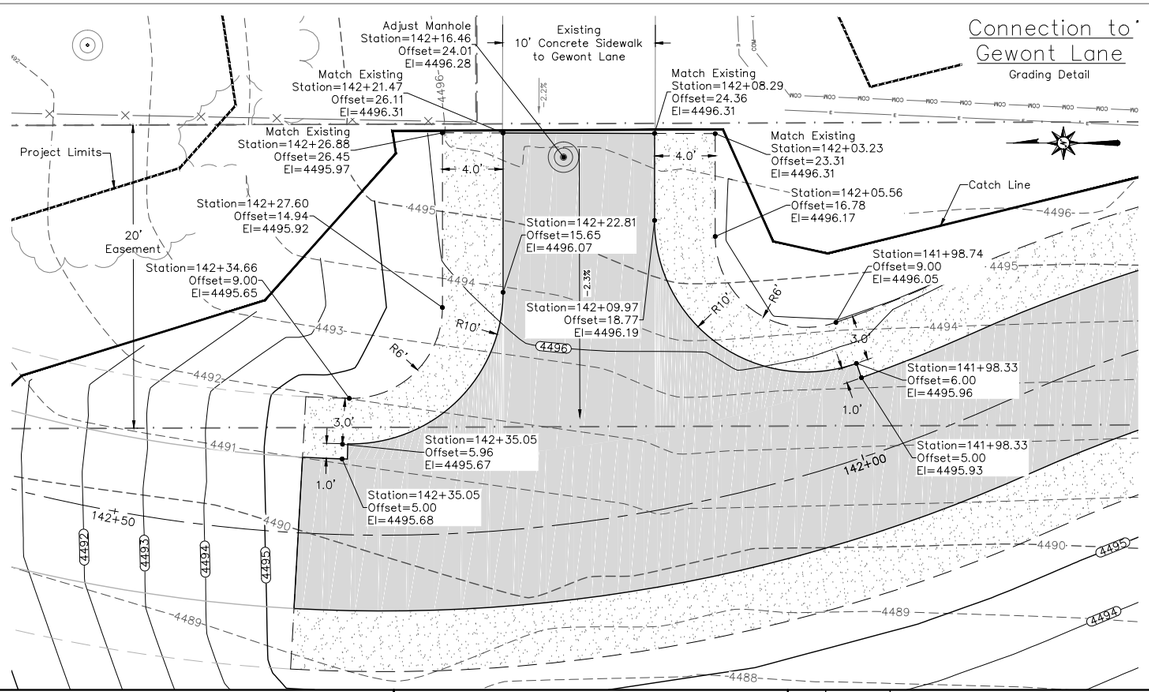

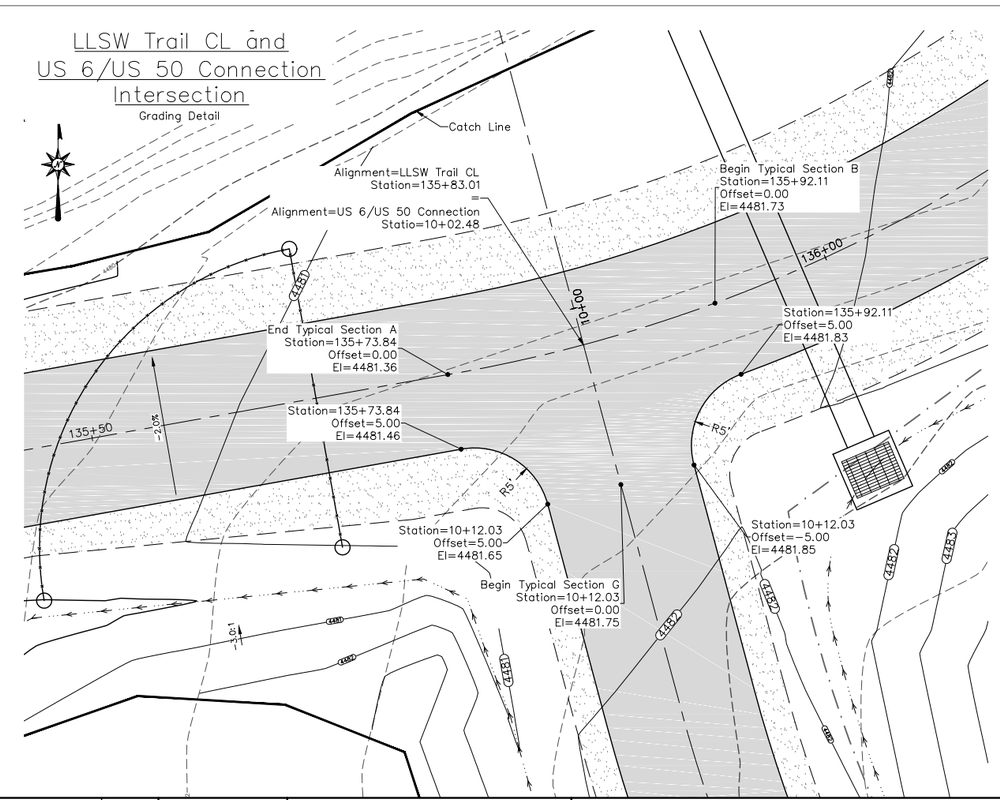

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CITY OF FRUITA

Lower Little Salt Wash Riverfront Trail Connection

Grading Details

C20

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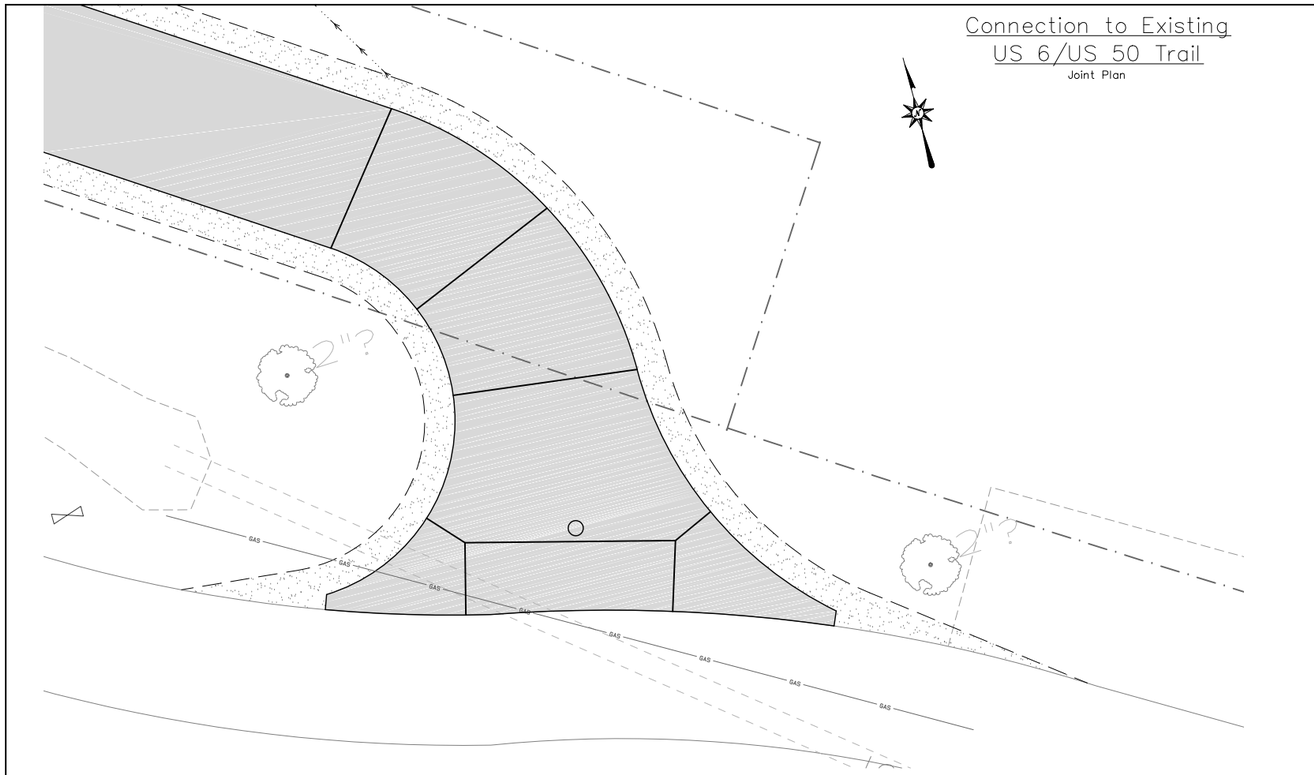

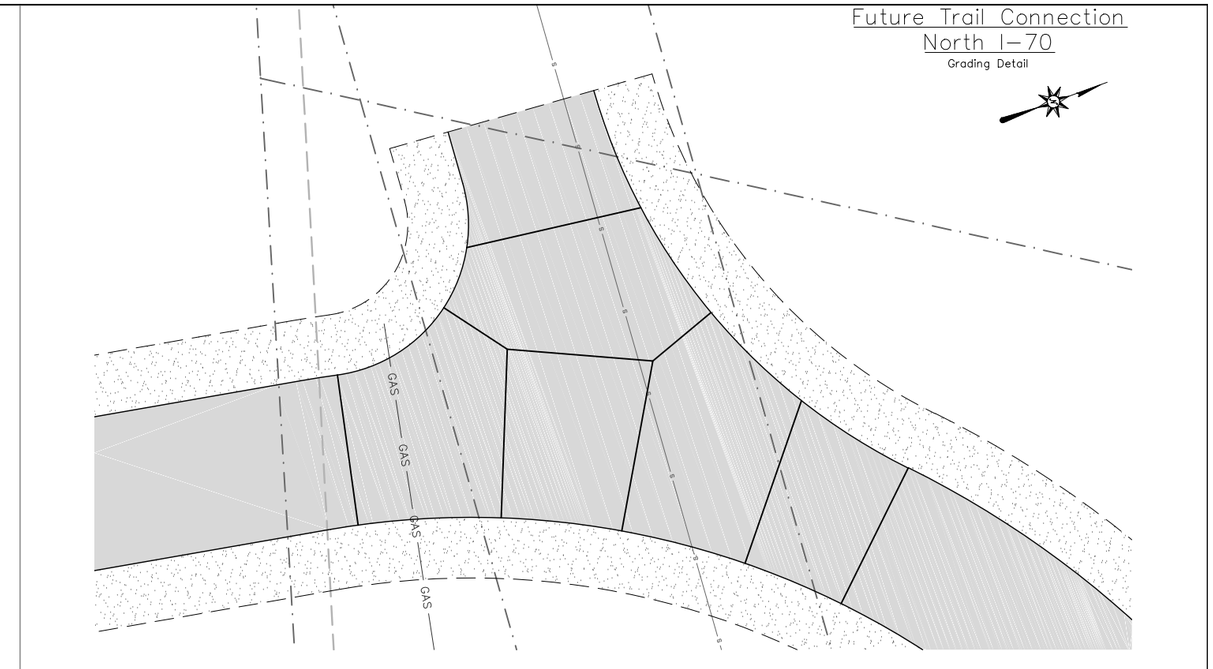

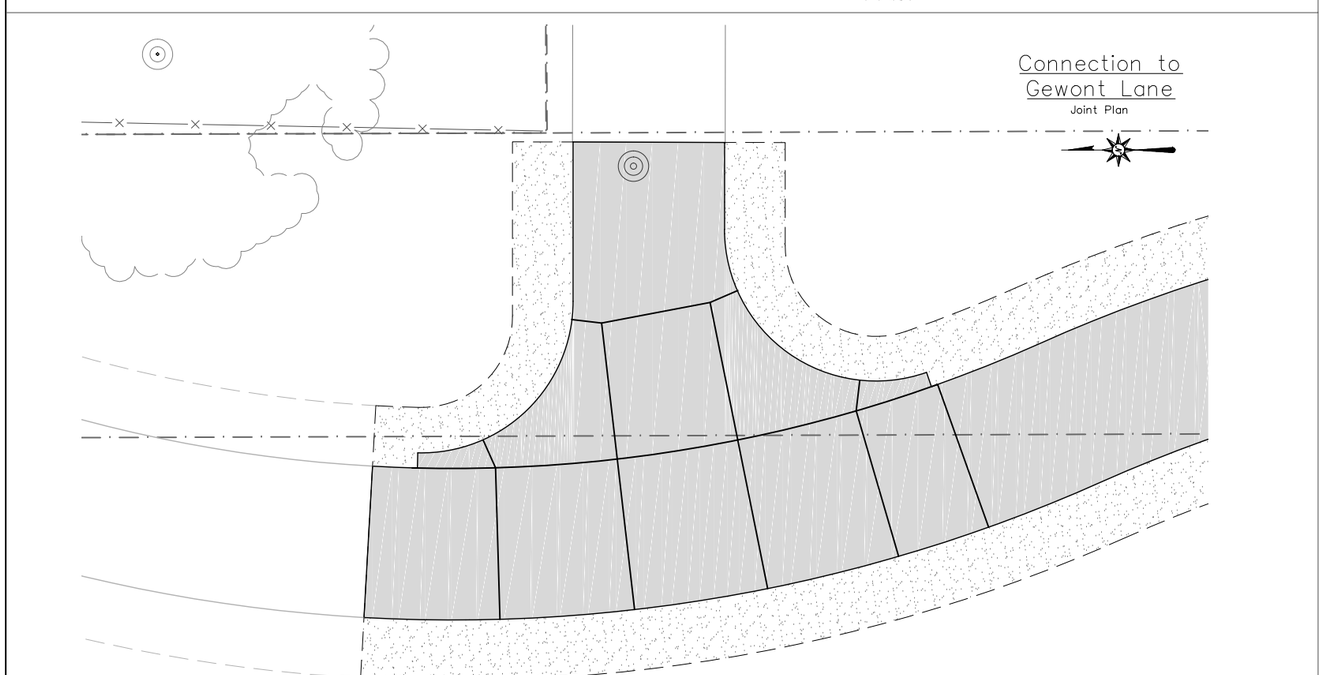

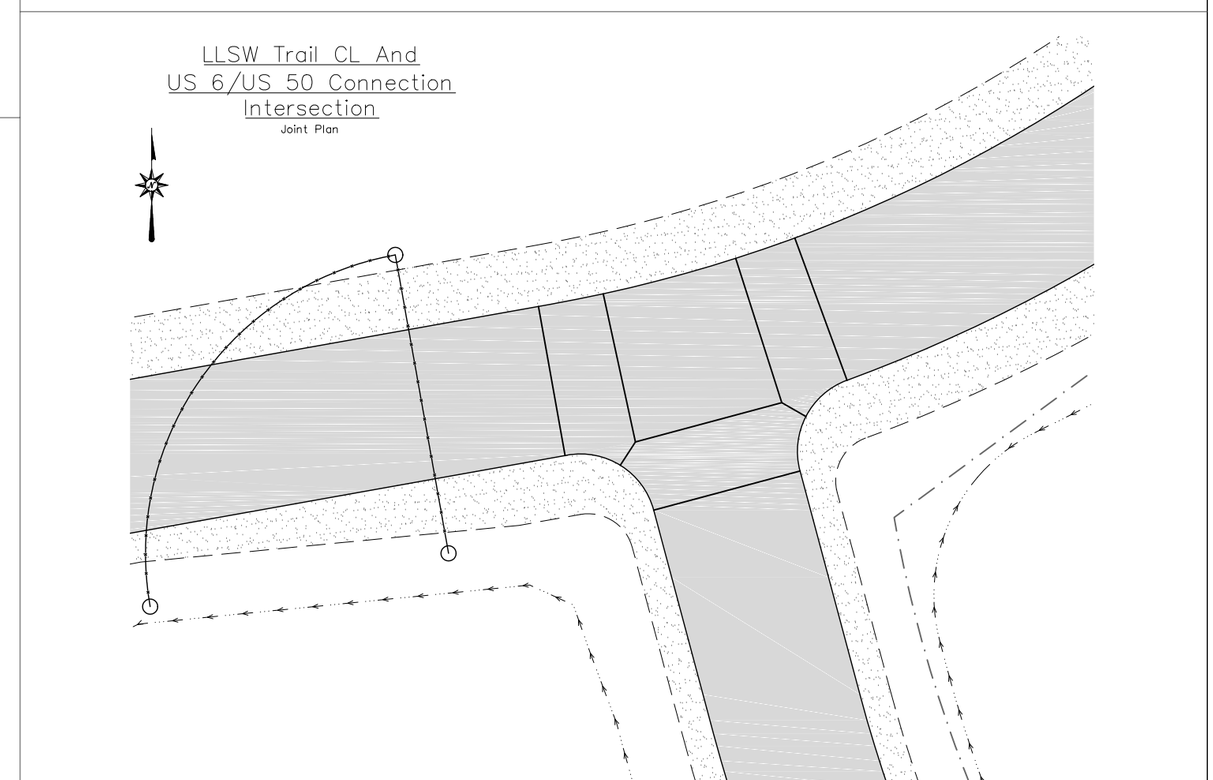

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CITY OF FRUITA

Lower Little Salt Wash Riverfront Trail Connection

Joint Plan

C21

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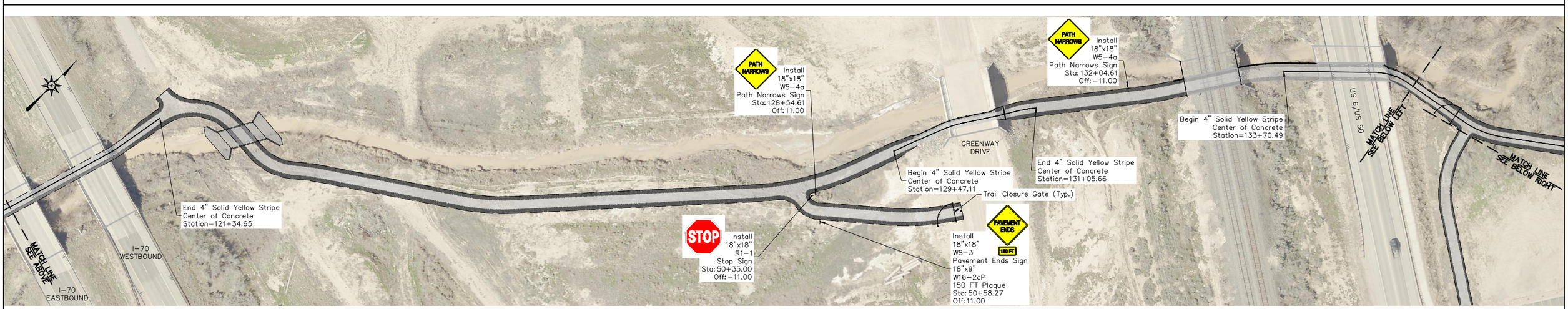

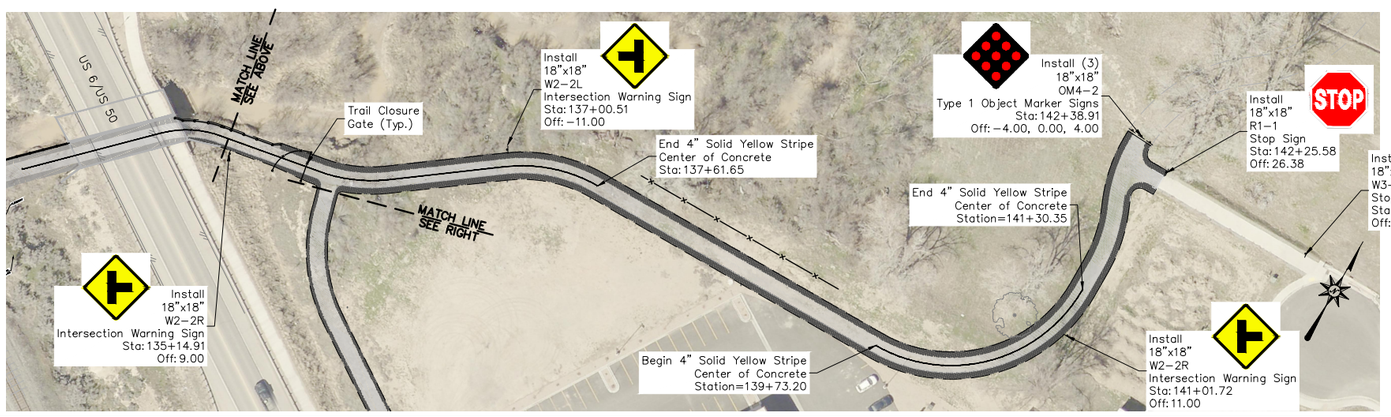

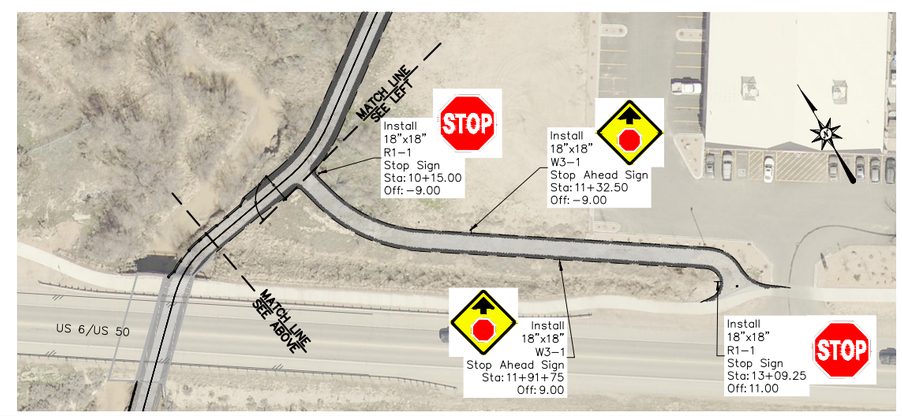

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CITY OF FRUITA

Lower Little Salt Wash Riverfront Trail Connection

Signing & Striping Plan

C22

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1. SITE DESCRIPTION

For Information Only to fulfill the CDPS–SCP (Colorado Discharge Permit System – Stormwater Construction Permit) Update to reflect current project site conditions.

A. PROJECT SITE DESCRIPTION: This pedestrian trail project is being constructed along the Lower Little Salt Wash in Fruita, Colorado. This project consists of construction of a 10' wide concrete trail with 0'–4' gravel shoulders, as well as a storm sewer system including pipe and inlets. Post fencing and signage will also be installed as part of the trail construction.

B. PROPOSED SEQUENCING FOR MAJOR ACTIVITIES:

1.) Establish SWMP perimeter control.
2.) Clearing and grubbing within trail and storm sewer footprint.
3.) Remove existing structures.
4.) Excavate for and install new storm sewer piping and inlets.
5.) Cut, fill and compaction for trail subgrade.
6.) Import Class 6 A.B.C. for trail base course.
7.) Construct concrete trail.
8.) Install post fencing and signage.
9.) Construct shoulders with Class 6 A.B.C.
10.) Revegetation of disturbed areas.

C. AREAS OF DISTURBACE:

1. Total area of construction site: 5.7 acres
2. Total area of disturbance: 3.5 acres
3. Acreage of seeding: 1.6 acres

D. EXISTING SOIL DATA: Soils range from native sand, clay, and silt soils above dense gravel soils.

E. EXISTING VEGETATION, INCLUDING PERCENT COVER: The cover conditions at the project site currently consist of developed and undeveloped land. Developed areas are dirt/gravel and undeveloped areas are vegetated with tamarisk, willow, cottonwoods, sage brush, grasses, and/or other vegetation. Estimate of ground cover percentage is 80%.

F. POTENTIAL POLLUTANTS SOURCES: The ECS shall prepare a list of all potential pollutants and their locations in accordance with subsection 107.25.

G. RECEIVING WATER:

1. Outfall Locations: As shown on the plans, the outfall locations for the new storm sewer system is at Sta: 125+02.11, Sta: 135+28.44, and Sta: 135+97.33.
2. Names of receiving water(s) on site and the ultimate receiving water: All outfall locations drain into the Lower Little Salt Wash, which ultimately discharges into the Colorado River.
3. Distance ultimate receiving water is from project; Approximately 0 feet.

H. ALLOWABLE NON–STORMWATER DISCHARGES: None identified

1. Groundwater and stormwater dewatering: Discharges to the ground of water from construction dewatering activities may be authorized provided that:
   a. The source is groundwater and/or groundwater combined with stormwater that does not contain pollutants.
   b. The source and BMPs are identified in the SWMP.
   c. Discharges do not leave the site as surface runoff or to surface waters.

2. If discharges do no meet the above criteria, a separate permit from the Department of Health will be required. Contaminated groundwater requireing coverage under a separate permit may include groundwater contaminated with pollutants from a landfill, mining activities, industrial pollutant plumes, underground storage tank, etc.

I. ENVIRONMENTAL IMPACTS:

1. Wetland Impacts: YES NO
2. Stream Impacts: YES NO
3. Threatened and Endangered Species: In Colorado River: Bonytail, Colorado Pikeminnow, Humpback Chub, Razorback Sucker

2. SITE MAP COMPONENTS:

Pre–construction

A. PROJECT CONSTRUCTION POTENTIAL SITE BOUNDARIES

B. ALL AREAS OF GROUND SURFACE DISTURBANCE

C. AREAS OF CUT AND FILL

D. LOCATION OF ALL STRUCTURAL BMPs IDENTIFIED IN THE SWMP

E. LOCATION OF NON–STRUCTURAL BMPs AS APPLICABLE IN THE SWMP

F. SPRINGS, STREAMS, WETLANDS AND OTHER SURFACE WATERS

G. PROTECTION OF TREES, SHRUBS, CULTURAL RESOURCES AND MATURE VEGETATION

H. AREAS USED FOR STORING AND STOCKPILING OF MATERIALS, STAGING AREAS (field trailer, fueling, etc.) and BATCH PLANTS

3. SWMP ADMINISTRATOR FOR CONSTRUCTION: City of Fruita, Colorado

4. STORMWATER MANAGEMENT CONTROLS FIRST CONSTRUCTION ACTIVITIES

THE CONTRACTOR SHALL PERFORM THE FOLLOWING:

A. DESIGNATE A SWMP ADMINISTRATOR (Local Agency) / EROSION CONTROL SUPERVISOR (Contractor) (To be filled out at time of construction; designate the individual(s) responsible for implementing, maintaining and revising the SWMP, including the title and contact information. the activities and responsibilities of the administrator shall address all aspects of the projects SWMP.)

Name/Title: Contact Information:

B. POTENTIAL POLLUTANT SOURCES
Evaluate, identify, and describe all potential sources of pollutants at the site in accordance with subsection 107.25 and place in the SWMP notebook. All BMPs related to potential pollutants shall be shown on the SWMP site map by the contractor's ECS.

4. STORMWATER MANAGEMENT CONTROLS FIRST CONSTRUCTION ACTIVITIES (CONT.)

C. BEST MANAGEMENT PRACTICES (BMPs) FOR STORMWATER POLLUTION PREVENTION

PHASED BMP IMPLEMENTATION, APPLICATION, AND NARRATIVE:
During Design: "BMP as Designed" boxes are marked when used in the SWMP.
During construction: the ECS shall update the narratives, include new narratives and update the "In use on site" boxes to match which BMPs are currently in use on site. Clearly describe the relationship between the phases of construction and the implementation of BMP controls.

STRUCTURAL and NONSTRUCTURAL BMPs that may be potentially used on the project for erosion and sediment control; practices may include, but are not limited to:

Structural BMPs						
BMP/Application	Narrative	BMP as Designed	In Use On Site	First Construction Activities	During Construction	Interim/Final Stabilization
Earth Berm/Stockpile	Placed around toe to contain sediment around stockpile					
Earth Berm/Toe of Fill	Placed prior to earthwork within specified distance of toe to capture sediment and protect undisturbed areas	X			X	
*Rock Check Dams/Ditch	Velocity checks in ditches placed immediately after ditch grading					
Silt Fence/Sediment Control	Placed on contour to contain construction runoff					
Silt Fence/Protection of Vegetation	Placed to protect undisturbed area and delineate boundary of protected area					
Erosion Logs, Silt Berms or Silt Dikes/Ditch Checks	Erosion Control Checks in ditches placed immediately after ditch grading to reduce flow velocity of runoff in ditch					
Erosion Logs/Existing Inlet	Placed prior to disturbance at existing inlets where disturbance maybe occurring to cause sediment laden water to enter pipe					
Erosion Logs/Inlet or Outlet	Placed on culvert to filter or prevent sediment from entering pipe. If disturbance occurs above pipe then erosion logs are placed above pipe	X		X	X	
Gravel Bags/Sediment Control	Placed in side street gutters to capture any sediment leaving the construction site and prevent it from flowing to off-site inlets/drainages					
Storm Drain Inlet Protection/Sediment Control	Place erosion logs to protect new storm drain inlets; to filter or prevent sediment from entering drainage system	X		X	X	
Temporary Sediment Trap/Basin	Contain and filter sediment laden water from sub basins within construction disturbance					
Permanent Sediment Trap/Basin	Utilized during construction to act as temporary sediment containment. Outlet structure shall be modified for construction runoff					
Embankment Protection or Temporary Slope Drain	Placed as a conduit or chute to drain runoff down slope and prevent erosion of slope					
Outlet Protection	Material placed as energy dissipation device to prevent erosion at outlet structure	X			X	X
Concrete Washouts/ Construction Control	Construction waste management of concrete washout material	X			X	
Vehicle Tracking Pad/Construction Control	Placed to prevent tracking of sediment from disturbance to offsite surface	X			X	
Sweeping/Construction or Source Control	Sweeping on the access roads will be utilized to remove sediment tracked on pavement surface and to prevent tracked sediment from entering drainage system	X			X	
Dewatering/Construction Control	Sediment control to remove or filter sediment from construction dewatering					

Non Structural BMPs						
BMP/Application	Narrative	BMP as Designed	In Use On Site	First Construction Activities	During Construction	Interim/Final Stabilization
Surface Roughening/Grading Techniques	Interim and temp stabilization of disturbance and to minimize wind and erosion					
Seeding Permanent/Final Stabilization	Reduce runoff and control erosion on disturbed areas	X				X
Seeding Temporary	Over wintering of disturbance or used to control erosion for areas scheduled for future construction					
Mulch/Mulch Tackifier/Final Stabilization	Placed as a surface cover for erosion control and/or seeding establishment	X				X
Soil Retention Blanket/Temp or Final Stabilization	Placed as surface cover for erosion control and seeding establishment					
Turf Reinforcement Mat/Final Stabilization	Placed in channels or on slopes for erosion control, channel liner and seeding establishment					
Soil Binder/Temp Stabilization	Placed as surface treatment to provide temp erosion control					
Spray on Mulch Blanket/Temp or Final Stabilization	Placed cover on slopes to control erosion and seeding establishment					
Vegetative Buffer Strips	Filter sediment laden runoff from disturbance area					
Protection of Trees/Protected Resources – Fence Plastic	Placed prior to construction to protect existing vegetation to remain					
Preservation of Mature Vegetation/Work Access and Grading Plans	Used to protect existing stable cover and minimize impact to vegetation					

*Check Dams may be rock, erosion logs, silt dike, silt berm, etc. as indicated in the narratives and SWMP Site Map.
Erosion control devices are used to limit the amount of soil loss on site.
Sediment control devices are designed to capture sediment on the project site.
Construction control are BMPs related to construction access and staging.
BMP locations are indicated on the SWMP Site Map.
BMP details and narratives not covered by the SWMP or Standard Plan M-208-1 shall be added to the SWMP notebook by the ECS.

D. OFFSITE DRAINAGE (RUN ON WATER)

1. Describe and record BMPs on the SWMP site map that have been implemented to address off site run-on water in accordance with subsection 208.03.

E. VEHICLE TRACKING PAD

1. Due to the linear nature of the trail paralleling the wash, multiple construction access points will exist and tracking pads will be constructed at all access points. The contractor shall be responsible for deciding the location of the tracking pads/access points and will be expected to sweep the roads and streets surrounding the access points when tracked soils are present on the roadway surface.

F. PERIMETER CONTROL

1. Perimeter control shall be established as the first item on the SWMP to prevent the potential for pollutants leaving the construction site boundaries, entering the stormwater drainage system, or discharging to state waters.
2. Perimeter control may consist of vegetation buffers, berms, silt fence, existing landforms, or other BMPs as approved.
3. Perimeter control shall be in accordance with subsection 208.04.

5. DURING CONSTRUCTION

RESPONSIBILITIES OF THE SWMP ADMINISTRATOR/EROSION CONTROL SUPERVISOR DURING CONSTRUCTION

The SWMP should be considered a "living document" that is continuously reviewed and modified. During construction, the following items shall be added, updated, or amended as needed by the SWMP Administrator and Erosion Control Supervisor (ECS) in accordance with Section 208.

During construction, indicated how items that have not been addressed during design are being handled in construction. If items are coved in the template or other sections of the SWMP notebook, indicate below what section the discussion takes place.

A. STOCKPILE MANAGEMENT – shall be done in accordance with subsection 107.25 and 208.07.

B. CONCRETE WASHOUT – Concrete wash out water or waste from field laboratories and paving equipment shall be contained in accordance with subsection 208.05.

C. SAW CUTTING – shall be done in accordance with subsection 107.25, 208.04, 208.05.

D. STREET CLEANING – shall be done in accordance with subsection 208.04.

6. INSPECTIONS

A. Inspections shall be in accordance with subsection 208.03 (c).

7. BMP MAINTENANCE

A. Maintenance shall be in accordance with subsection 208.04 (f).

8. RECORD KEEPING

A. Records shall be kept in accordance with subsection 208.03 (c).

9. INTERIM AND FINAL STABILIZATION

A. SEEDING PLAN:

Soil preparation, soil conditioning or topsoil, seeding (native), mulching (weed free), and much tackifier will be required for an estimated 1.6 acres of disturbed area within the right-of-way limits which are not surfaced. The following types and rates shall be used:

SEED MIX TABLE

COMMON NAME	BOTANICAL NAME	LBS. PLS PER ACRE
Blue grama	Bouteloua gracilis v. Hachita	2.0
Western wheatgrass	Pascopyrum smithii v. Arriba	6.0
Sideoats grama	Bouteloua curtipendula v. Vaughn	3.0
Little bluestem	Schizachyrium scoparium 'Pastura'	3.0
Green needlegrass	Stipa viridula v. Lordom	3.0
Switchgrass	Panicum virgatum 'Dacotah'	4.0
Junegrass	Koeleria macrantha	0.2
Galleta Grass 'Viva'	Hilaria jamesii	5.0
Sand dropseed	Sporobolus cryptandrus	0.1
Inland Saltgrass	Distchlis spicata stricta	1.0
Coneflower	Rativita columnaris	0.5
Gaillardia	Gaillardia aristata	1.0
Oats	Avena sativa	1.0
	Total	31.8

B. SEEDING APPLICATION: Drill seed 0.25 inch to 0.5 inch into the soil. In small areas not accessible to drill, hand broadcast at double the rate and rake 0.25 inch to 0.5 inch into the soil.

C. MULCHING APPLICATION: Apply a minimum of 1 ½ tons of certified weed free native hay per acre and in accordance with Section 213, and mechanically crimp it into the soil in combination with an organic mulch tackifier.

D. SPECIAL REQUIREMENTS: Due to high failure rates, hydromulching and/or hydroseeding will not be allowed.

E. SOIL CONDITIONING AND FERTILIZER REQUIREMENTS:

Soil Conditioner Paid For As Item 212-Soil Conditioning (Acre)		
Biological Nutrient Organic Based Fertilizer (lbs/ac)	Humate (lbs/ac)	Compost (cy/ac) (1/2 Inch Depth)
600	200	65

*Biological nutrient shall not exceed 8-8-8 (N-P-K). Humate based material shall be in accordance to Section 212 and compost shall be in accordance to Special Provision 212. Refer to Project Special – Topsoil for additional topsoil amendments. Placing compost when required to amend embankment and as soil conditioner may be combined as a single application.

F. BLANKET APPLICATION: (None)

G. RESEEDING OPERATIONS/CORRECTIVE STABILIZATION

Prior to final acceptance.

1. Seeded areas shall be reviews during the 14 day inspections by the Erosion Control Supervisor for bare soils caused by surface or wind erosion. Bare areas caused by surface or gully erosion, blown away mulch, etc. shall be re-graded, seeded, mulched, and have tackifier (or blanket) applied as necessary, at no additional cost to the project.
2. Areas where seed has not germinated after one season shall be evaluated by the Engineer and CDOT Landscape Architect. Areas that have not germinated shall have seed, mulch, and mulch tackifier (or blanket) reapplied. Work shall be paid for by the appropriate bid item.
3. The Contractor shall maintain seeding/mulch/tackifier, mow to control weeds or apply herbicide to control weeds in the seeded areas until Final Acceptance.

10. PRIOR TO FINAL ACCPETANCE

A. Final Acceptance shall be in accordance with subsection 208.10.

11. TABULATION OF STORMWATER QUANTITIES

Tabulation of Stormwater Quantities

Pay Item	Description	Pay Unit	*Quantity
207	Topsoil	CY	3000
207	Stockpile Topsoil	CY	3000
208	Sweeping	HR	60
208	Silt Berm	LF	3600
208	Erosion Log (12 Inch)	LF	150
208	Concrete Washout Structure	EA	5
208	Erosion Control Supervisor	DY	75
208	Vehicle Tracking Pad	EA	6
212	Seeding (Native)	AC	2
212	Soil Conditioning	AC	2
213	Mulching (Weed Free)	AC	2
213	Mulch Tackifier	LB	100

*It is anticipated that addition BMPs and BMP quantities not shown on the SWMP Site Maps shall be required on the project for unforseen conditions and replacement of items that are beyond their useful service life, see subsection 208.03 and 208.04 (e). Quantities for all BMPs shown above are estimated, and have been increased for unforseen Project conditions

A. All BMP maintenance and sediment removal shall be included in the cost of the BMP Device

B. Maintenance of seeded areas shall not be paid for separately, but included in the price of the work.

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CITY OF FRUITA

Lower Little Salt Wash Riverfront Trail Connection

Erosion Control Plan

SW 4

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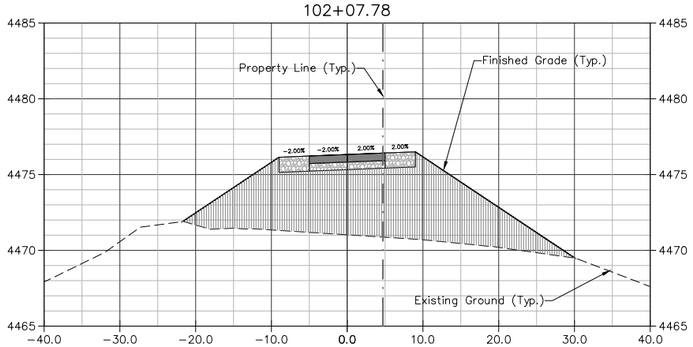

Total Volume at Station 102+07.78						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
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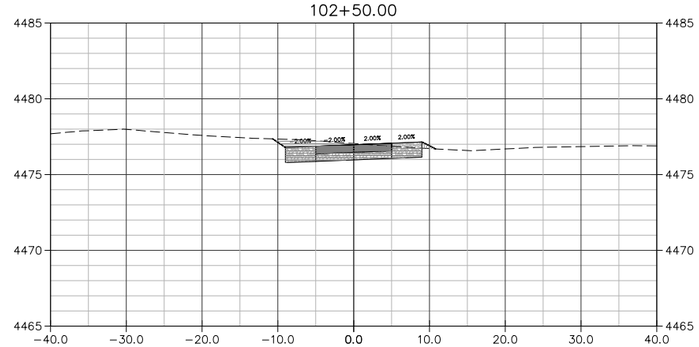
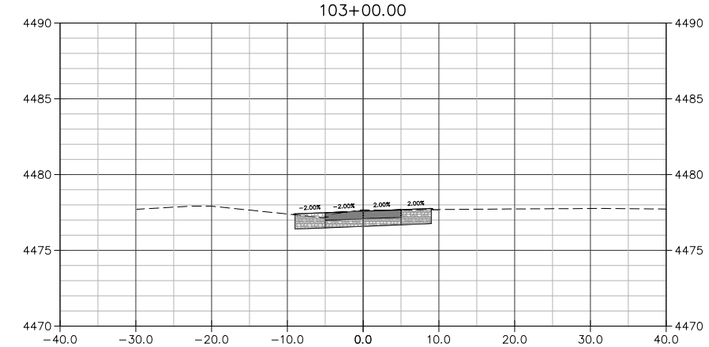
102+50.00



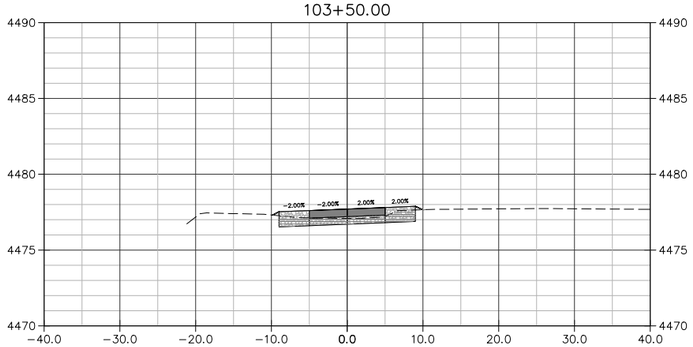
Total Volume at Station 102+50.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
19.86	0.37	15.38	134.99	15.38	134.99	-119.62

103+00.00



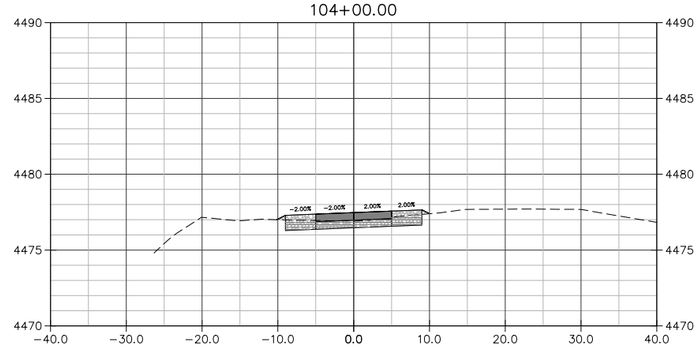
Total Volume at Station 103+00.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
16.86	0.02	33.88	0.37	49.26	135.37	-86.11

103+50.00



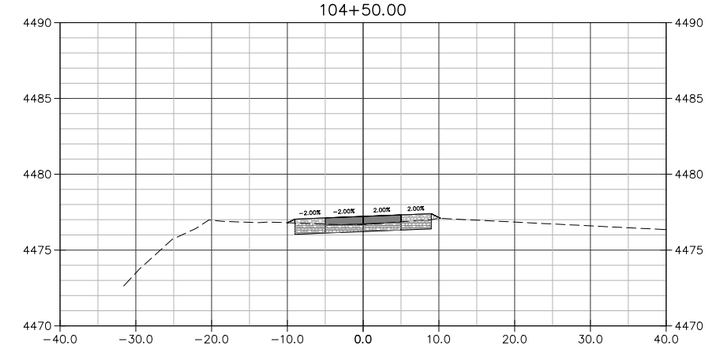
Total Volume at Station 103+50.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
9.27	0.22	24.16	0.22	73.42	135.59	-62.18

104+00.00



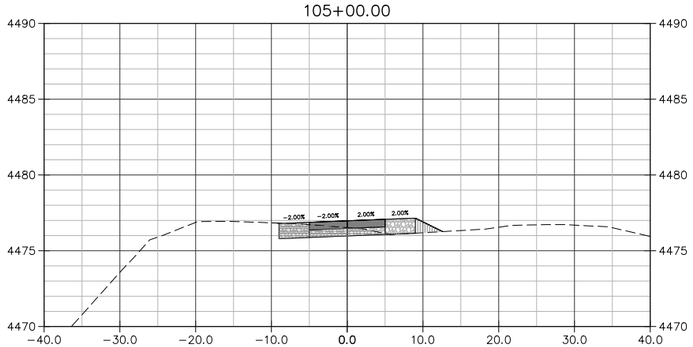
Total Volume at Station 104+00.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
10.10	0.33	17.94	0.51	91.35	136.10	-44.75

104+50.00



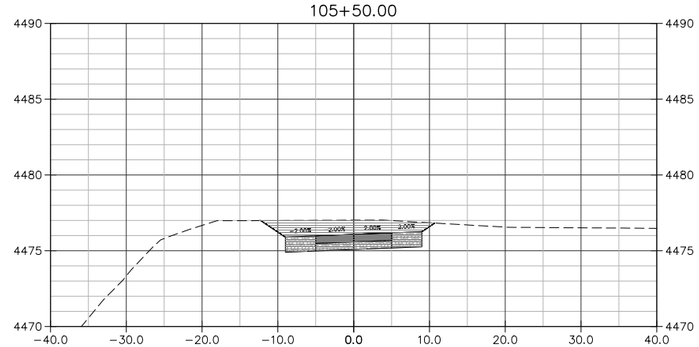
Total Volume at Station 104+50.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
10.05	0.35	18.66	0.63	110.01	136.73	-26.72

105+00.00



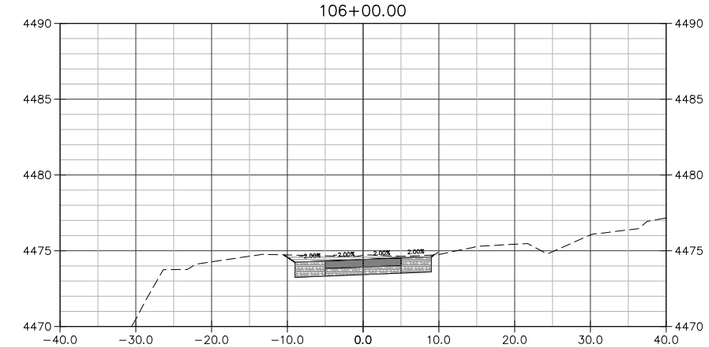
Total Volume at Station 105+00.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
9.06	1.79	17.69	1.99	127.70	138.72	-11.02

105+50.00



Total Volume at Station 105+50.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
36.68	0.00	42.35	1.66	170.05	140.38	29.67

106+00.00



Total Volume at Station 106+00.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
22.84	0.06	55.14	0.06	225.18	140.44	84.75

Cut Material
Fill Material
Concrete
ABC (Class 6)

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SCALE
10 0 5 10 20
(IN FEET)
HORIZ: 1" = 20' VERT: 1" = 10'
ORIGINAL SHEET SIZE: 11 x 17

REVISIONS

NO.	DATE	DESCRIPTION	BY

PRELIMINARY

RIVER CITY CONSULTANTS
744 Horizon Court, Suite 110
Grand Junction, Co. 81506
Phone: 970.241.4722
Fax: 970.241.8841

RESIDENT ENGINEER:
CDOT PROJECT #: STE M505-006 (18643)
RCC PROJECT #: 1248-005 DATE ISSUED: 21.Aug.2015
DRAWN BY: nmr CHECKED BY: jwm

CITY OF FRUITA

Lower Little Salt Wash Riverfront Trail Connection

Section Views – LLSW Trail CL
Station 102+07.78 – 106+00

X1

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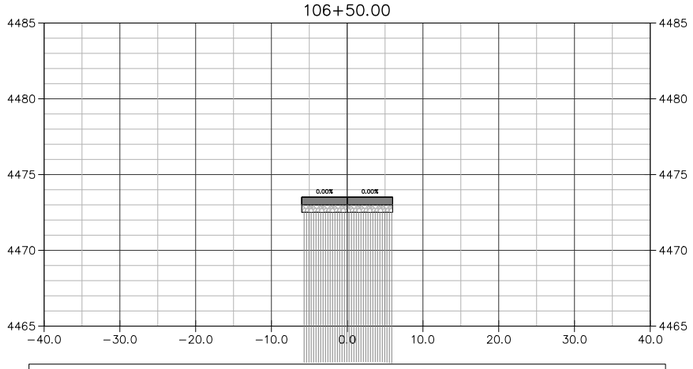
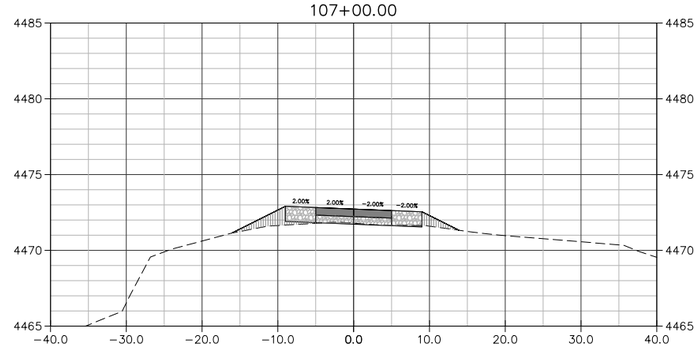
106+50.00



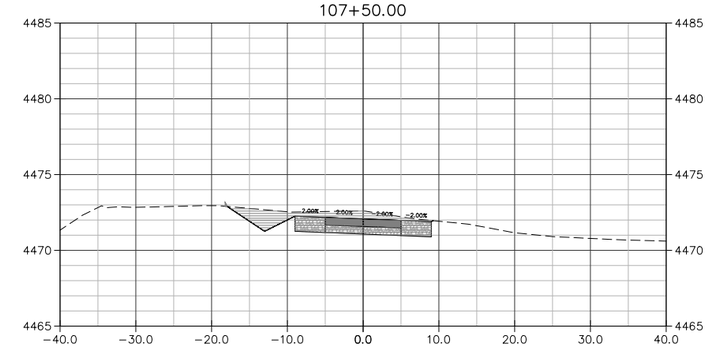
Total Volume at Station 106+50.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
0.00	118.62	21.16	109.89	246.34	250.32	−3.98

107+00.00



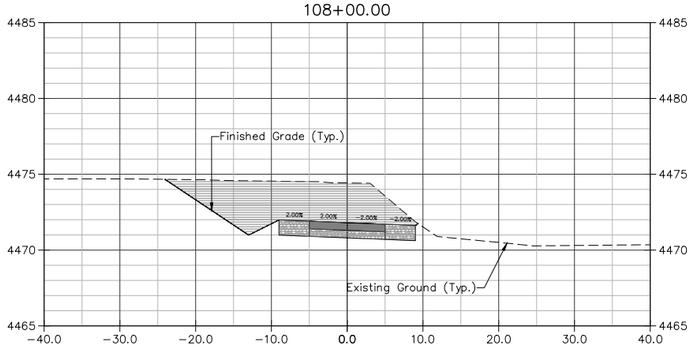
Total Volume at Station 107+00.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
0.68	6.70	0.63	116.04	246.98	366.36	−119.38

107+50.00



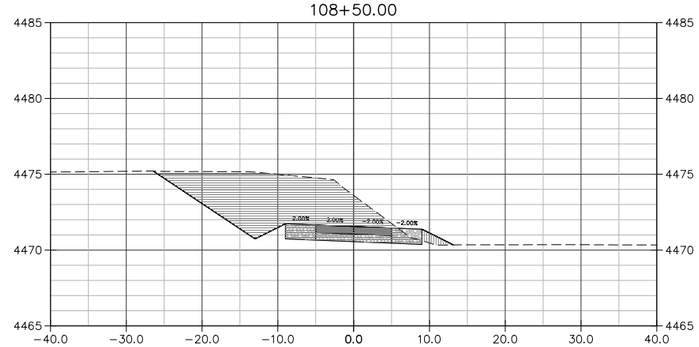
Total Volume at Station 107+50.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
31.00	0.04	30.36	6.53	277.33	372.89	−95.56

108+00.00



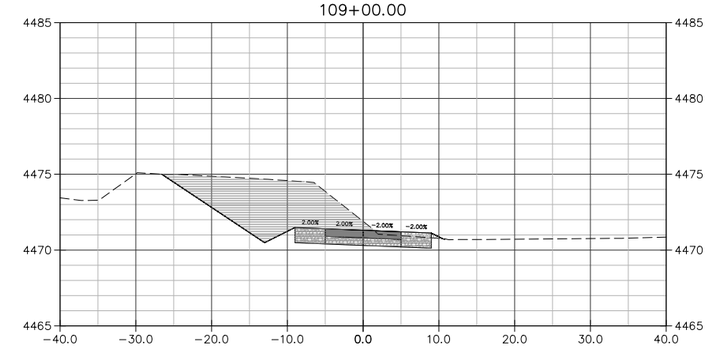
Total Volume at Station 108+00.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
90.21	0.00	121.66	0.04	399.00	372.93	26.06

108+50.00



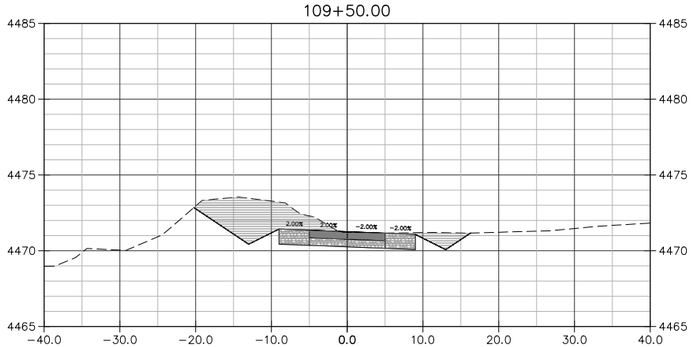
Total Volume at Station 108+50.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
93.97	1.91	176.47	1.68	575.47	374.61	200.86

109+00.00



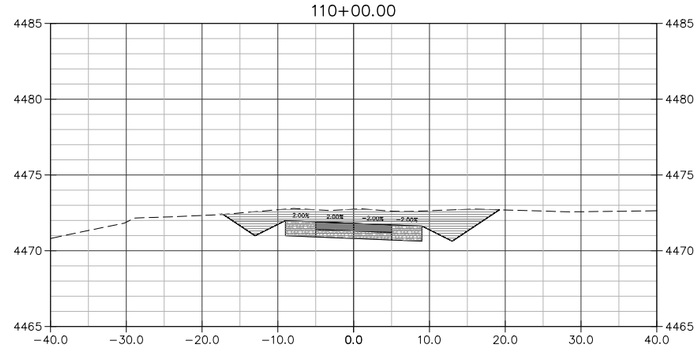
Total Volume at Station 109+00.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
79.18	0.23	160.32	1.98	735.79	376.59	359.21

109+50.00



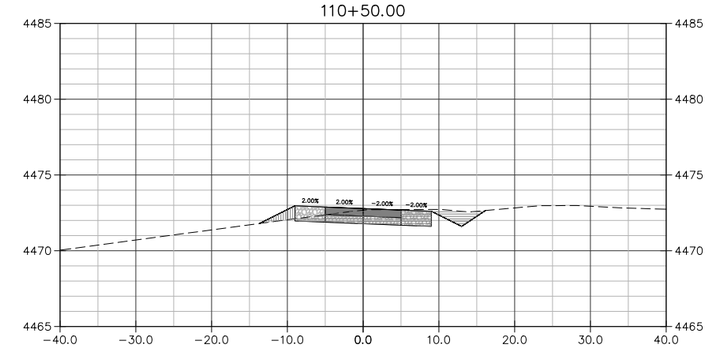
Total Volume at Station 109+50.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
52.13	0.00	111.37	0.23	847.16	376.82	470.34

110+00.00



Total Volume at Station 110+00.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
54.60	0.00	95.37	0.00	942.54	376.82	565.72

110+50.00



Total Volume at Station 110+50.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
17.71	1.99	66.85	1.86	1009.39	378.68	630.71

Cut Material
Fill Material
Concrete
ABC (Class 6)

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RESIDENT ENGINEER:
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RCC PROJECT #: 1248-005 DATE ISSUED: 21.Aug.2015
DRAWN BY: nmr CHECKED BY: jwm

CITY OF FRUITA

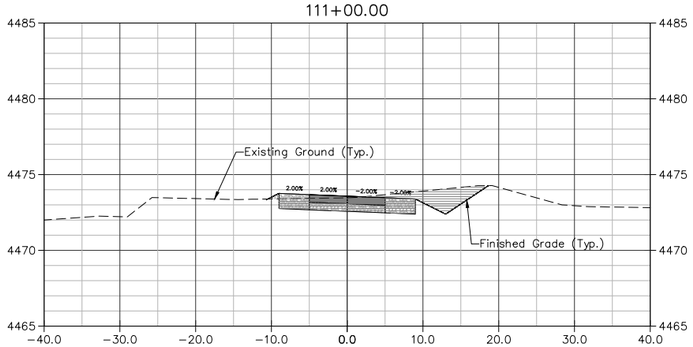
Lower Little Salt Wash Riverfront Trail Connection

Section Views – LLSW Trail CL
Sta: 106+50 – 110+50

X2

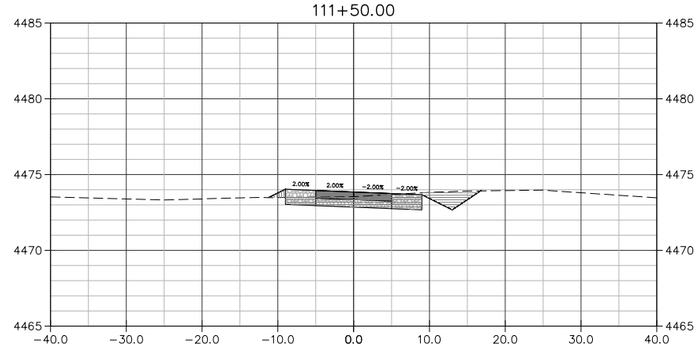
S:\PROJECTS\1248 Fruita\005 LLSW Reroute\Design\dwg\1248-005.dwg, 8/21/2015 1:20:44 PM

111+00.00



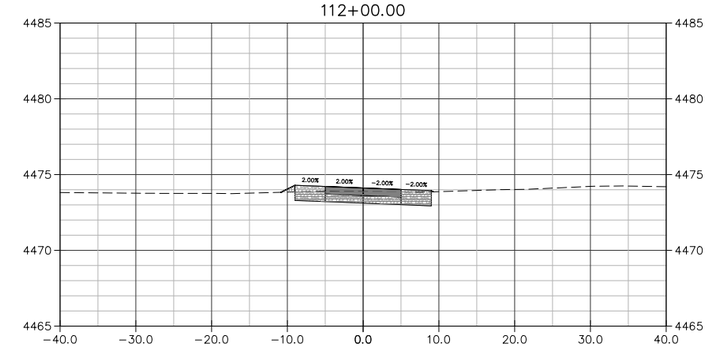
Total Volume at Station 111+00.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
26.50	0.26	39.65	2.22	1049.04	380.91	668.13

111+50.00



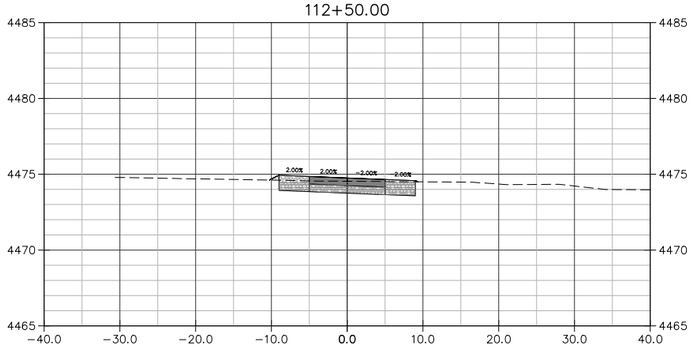
Total Volume at Station 111+50.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
18.25	0.61	41.43	0.81	1090.47	381.71	708.75

112+00.00



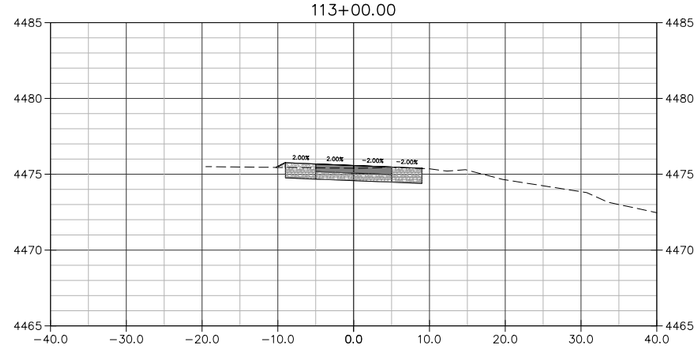
Total Volume at Station 112+00.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
13.55	0.43	29.86	0.91	1120.32	382.63	737.69

112+50.00



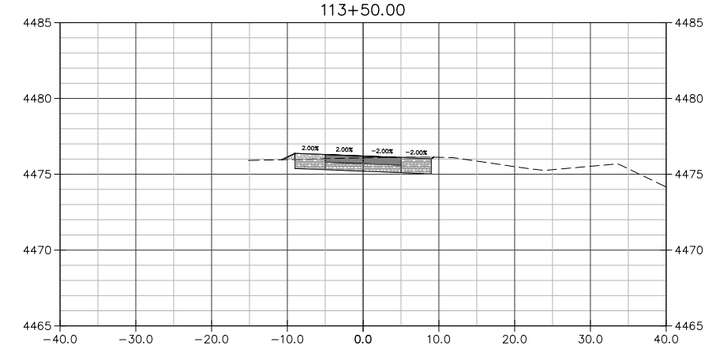
Total Volume at Station 112+50.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
14.18	0.22	25.68	0.59	1146.00	383.22	762.77

113+00.00



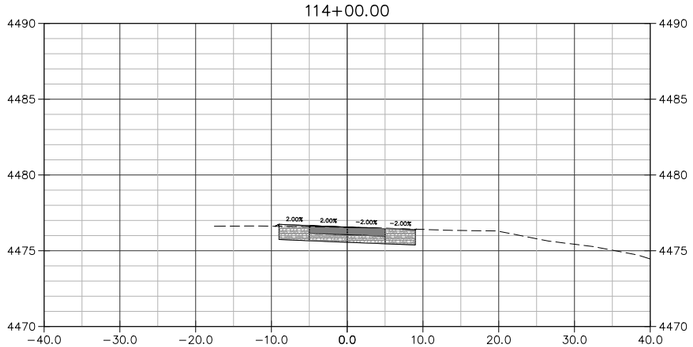
Total Volume at Station 113+00.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
15.17	0.19	27.18	0.38	1173.17	383.60	789.58

113+50.00



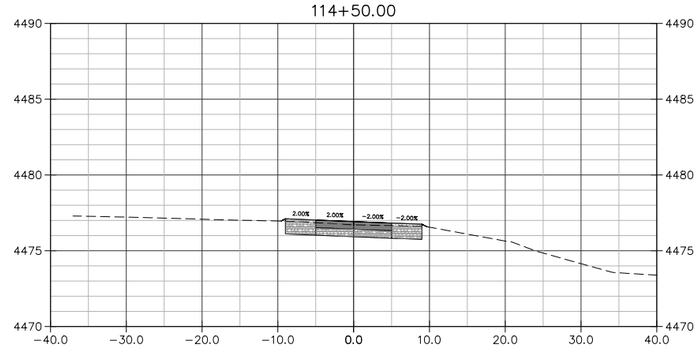
Total Volume at Station 113+50.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
15.80	0.34	28.57	0.52	1201.74	384.12	817.63

114+00.00



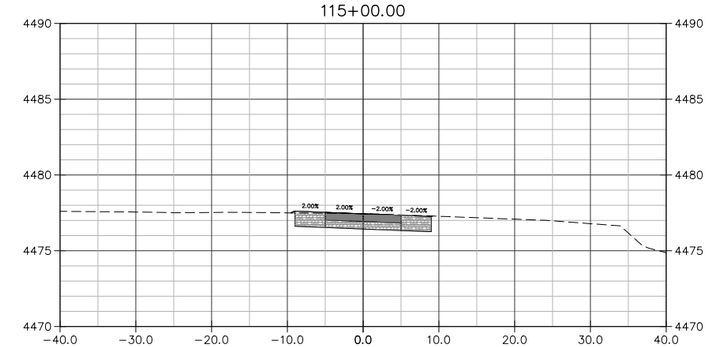
Total Volume at Station 114+00.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
17.56	0.03	30.71	0.38	1232.45	384.50	847.95

114+50.00



Total Volume at Station 114+50.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
14.82	0.08	29.94	0.11	1262.39	384.61	877.78

115+00.00



Total Volume at Station 115+00.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
17.83	0.03	30.26	0.10	1292.65	384.71	907.94

Cut Material
Fill Material
Concrete
ABC (Class 6)

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SCALE
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(IN FEET)
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RESIDENT ENGINEER:
CDOT PROJECT #: STE M505-006 (18643)
RCC PROJECT #: 1248-005 DATE ISSUED: 21.Aug.2015
DRAWN BY: nmr CHECKED BY: jwm

CITY OF FRUITA

Lower Little Salt Wash Riverfront Trail Connection

Section Views – LLSW Trail CL
Sta: 111+00 – 115+00

X3

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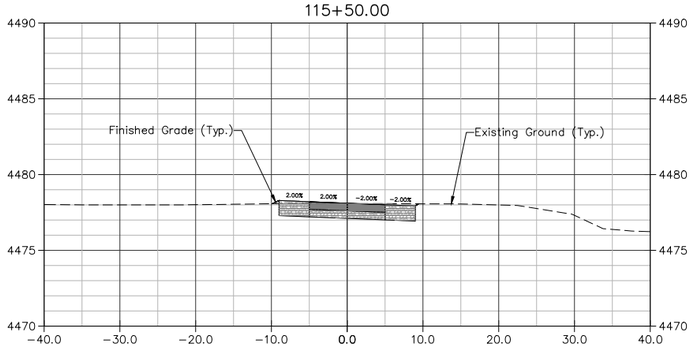
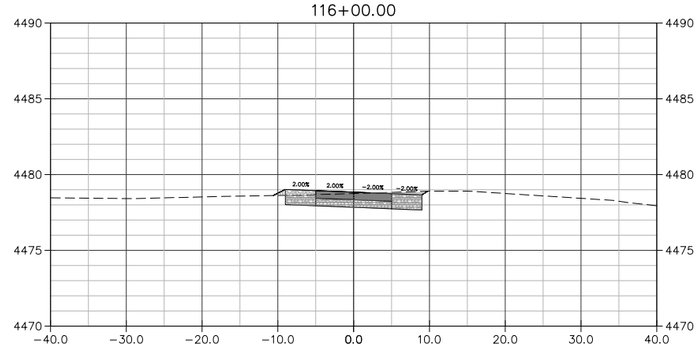
115+50.00



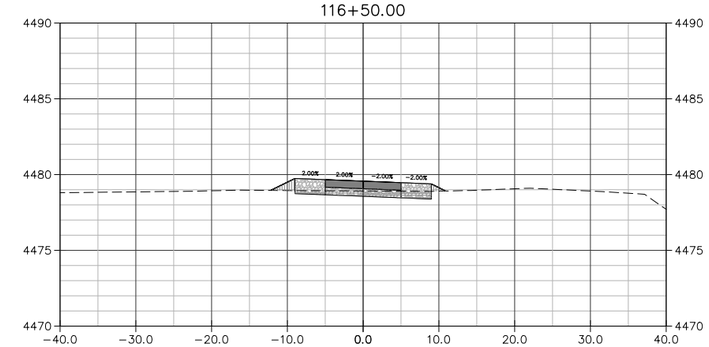
Total Volume at Station 115+50.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
17.57	0.09	32.87	0.10	1325.52	384.82	940.71

116+00.00



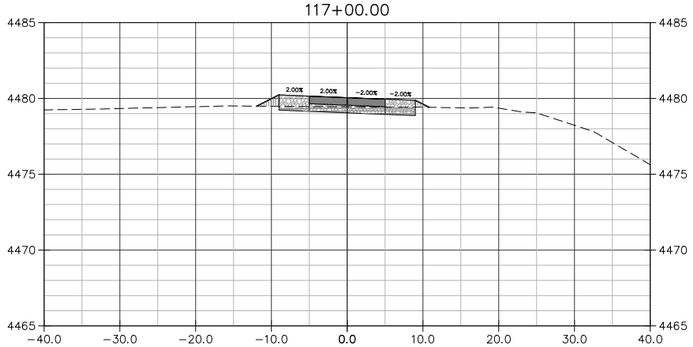
Total Volume at Station 116+00.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
16.52	0.31	31.63	0.37	1357.15	385.18	971.97

116+50.00



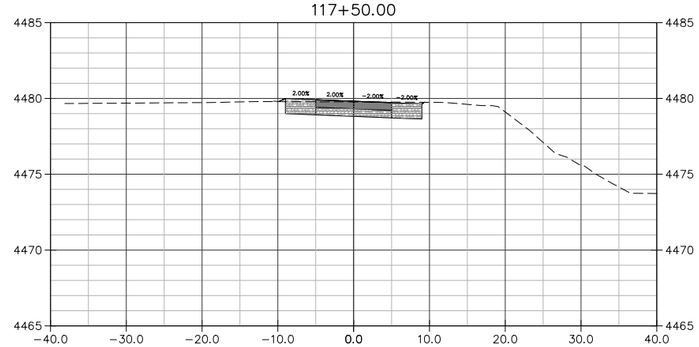
Total Volume at Station 116+50.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
6.35	1.72	21.27	1.84	1378.43	387.02	991.40

117+00.00



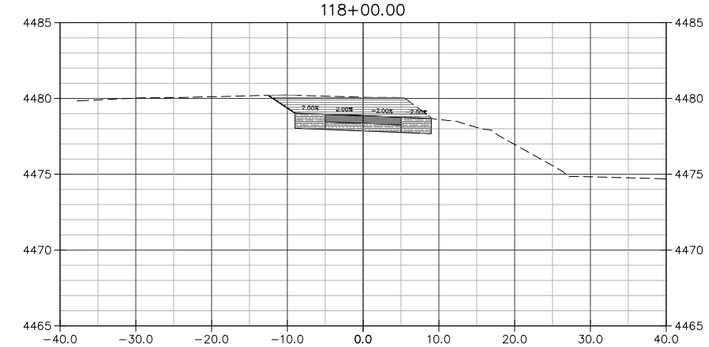
Total Volume at Station 117+00.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
7.08	1.52	12.50	2.95	1390.93	389.97	1000.96

117+50.00



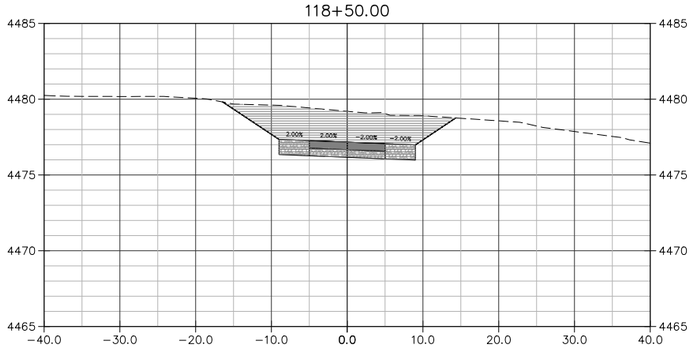
Total Volume at Station 117+50.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
17.12	0.10	22.42	1.50	1413.34	391.47	1021.88

118+00.00



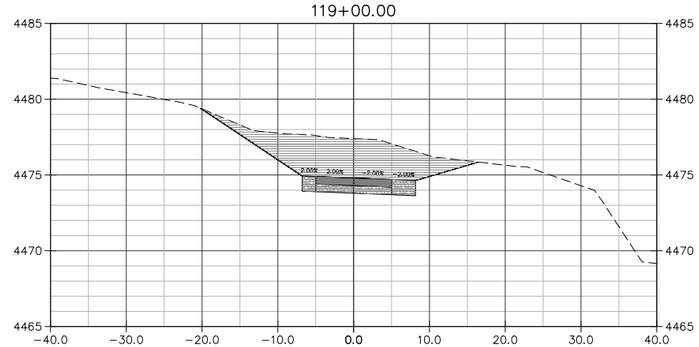
Total Volume at Station 118+00.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
40.17	0.00	53.05	0.10	1466.39	391.56	1074.82

118+50.00



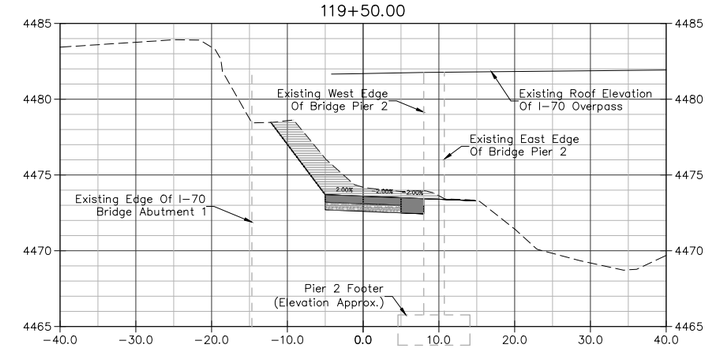
Total Volume at Station 118+50.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
68.21	0.00	100.76	0.00	1567.15	391.57	1175.58

119+00.00



Total Volume at Station 119+00.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
74.22	0.00	132.34	0.00	1699.48	391.57	1307.91

119+50.00



Total Volume at Station 119+50.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
37.15	0.00	102.22	0.00	1801.70	391.57	1410.13

Cut Material
Fill Material
Concrete
ABC (Class 6)

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DRAWN BY: nmr CHECKED BY: jwm

CITY OF FRUITA

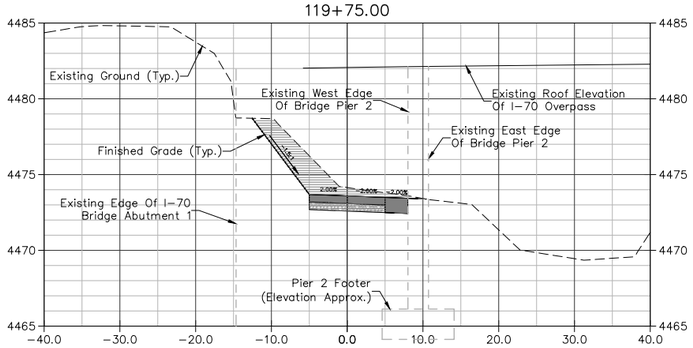
Lower Little Salt Wash Riverfront Trail Connection

Section Views – LLSW Trail CL
Sta: 115+50 – 119+50

X4

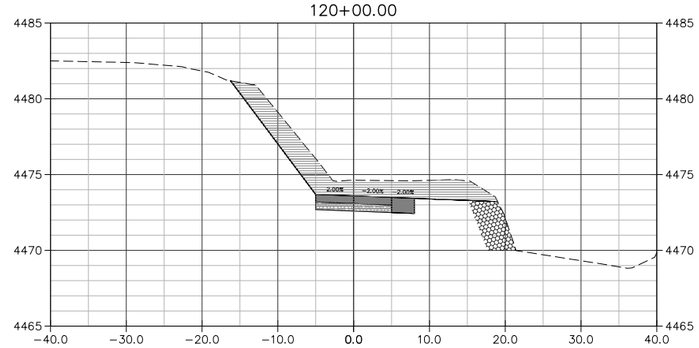
S:\PROJECTS\1248 Fruita\005 LLSW Reroute\Design\dwg\1248-005.dwg, 8/21/2015 1:21:43 PM

119+75.00



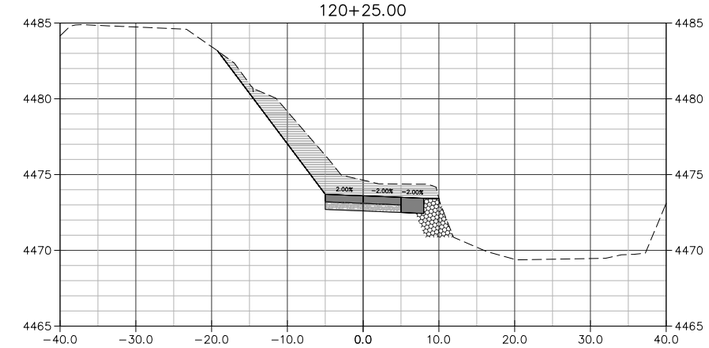
Total Volume at Station 119+75.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
35.73	0.00	33.74	0.00	1835.44	391.57	1443.87

120+00.00



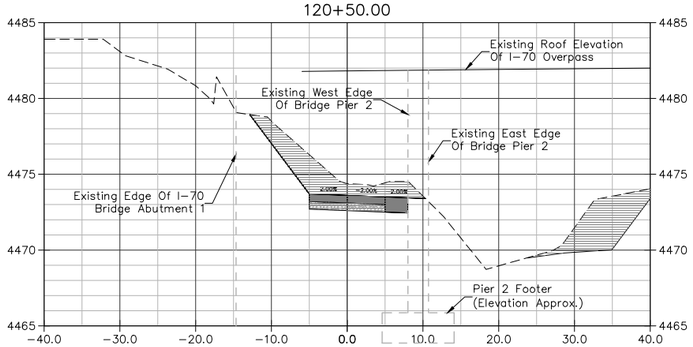
Total Volume at Station 120+00.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
60.35	0.00	44.48	0.00	1879.92	391.57	1488.35

120+25.00



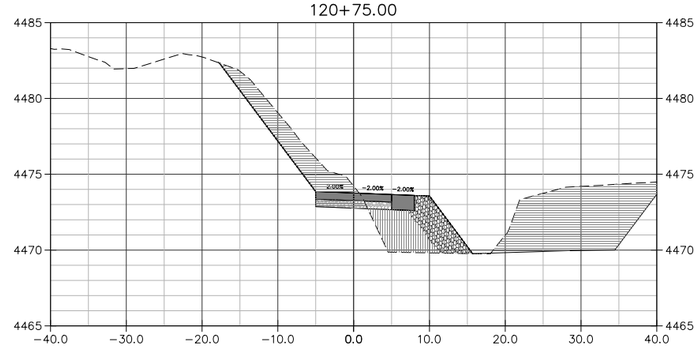
Total Volume at Station 120+25.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
50.51	0.00	51.32	0.00	1931.25	391.57	1539.68

120+50.00



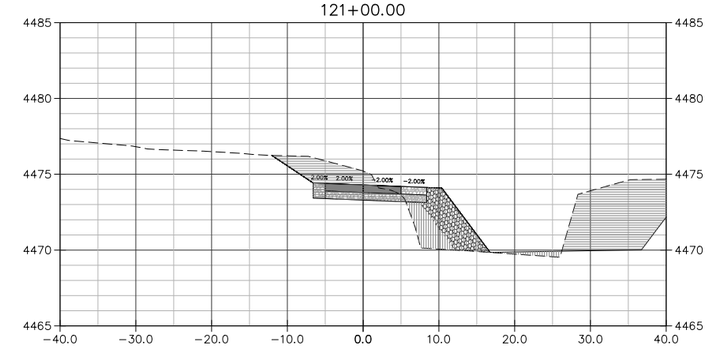
Total Volume at Station 120+50.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
69.41	0.00	55.52	0.00	1986.77	391.57	1595.20

120+75.00



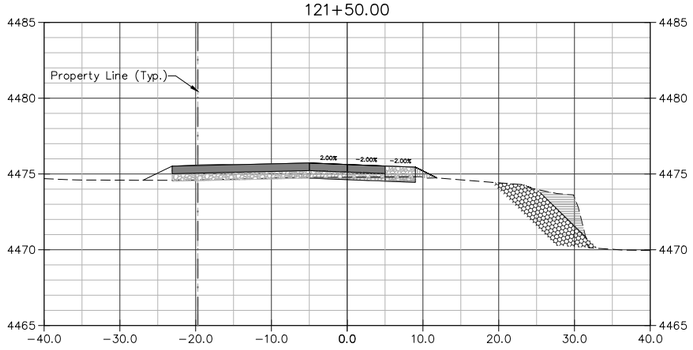
Total Volume at Station 120+75.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
103.63	31.67	83.69	15.02	2070.46	406.59	1663.87

121+00.00



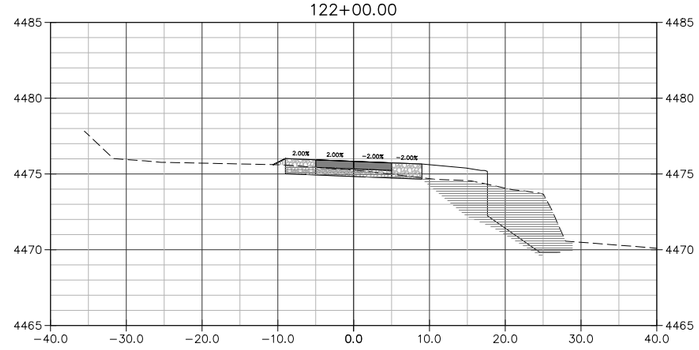
Total Volume at Station 121+00.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
76.82	27.84	86.19	28.00	2156.65	434.59	1722.06

121+50.00



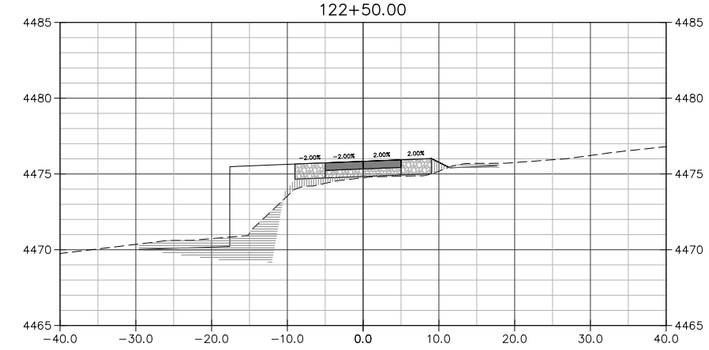
Total Volume at Station 121+50.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
9.30	1.73	71.03	25.86	2227.68	460.45	1767.23

122+00.00



Total Volume at Station 122+00.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
53.57	0.34	40.72	1.91	2268.40	462.36	1806.05

122+50.00



Total Volume at Station 122+50.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
28.39	5.59	72.41	5.58	2340.81	467.93	1872.87

Cut Material
Fill Material
Concrete
ABC (Class 6)

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SCALE
10 0 5 10 20
(IN FEET)
HORIZ: 1" = 20' VERT: 1" = 10'
ORIGINAL SHEET SIZE: 11 x 17

REVISIONS

NO.	DATE	DESCRIPTION	BY

PRELIMINARY

RIVER CITY CONSULTANTS
744 Horizon Court, Suite 110
Grand Junction, Co. 81506
Phone: 970.241.4722
Fax: 970.241.8841

RESIDENT ENGINEER:
CDOT PROJECT #: STE M505-006 (18643)
RCC PROJECT #: 1248-005 DATE ISSUED: 21.Aug.2015
DRAWN BY: nmr CHECKED BY: jwm

CITY OF FRUITA

Lower Little Salt Wash Riverfront Trail Connection

Section Views – LLSW Trail CL
Sta: 119+75 – 122+50

X5

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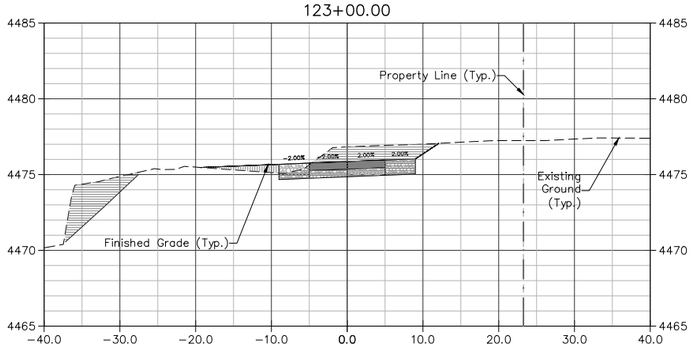
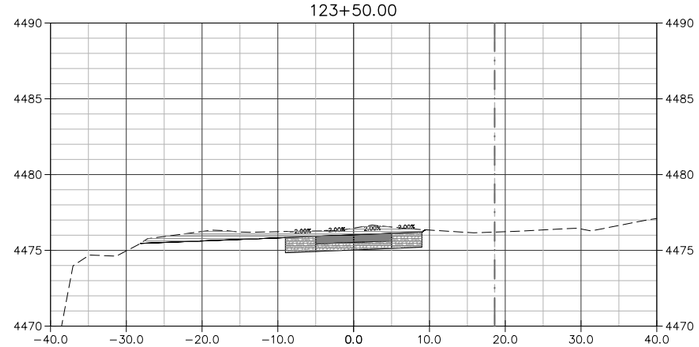
123+00.00



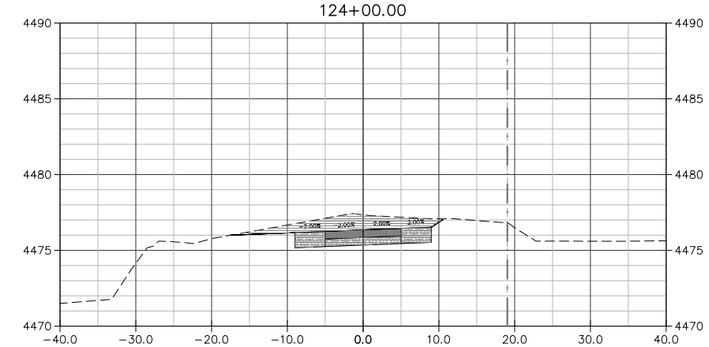
Total Volume at Station 123+00.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
45.80	3.01	55.75	7.31	2396.56	475.24	1921.31

123+50.00



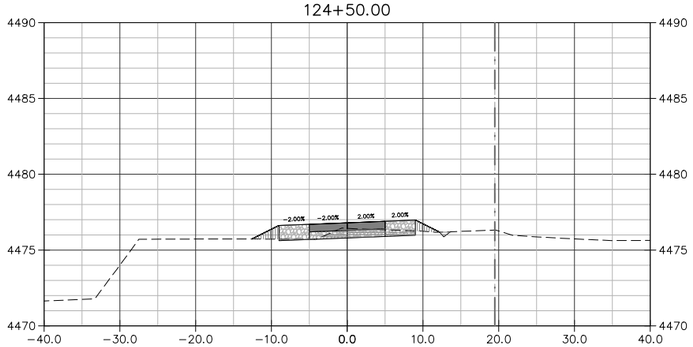
Total Volume at Station 123+50.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
34.01	0.00	74.90	2.85	2471.46	478.09	1993.37

124+00.00



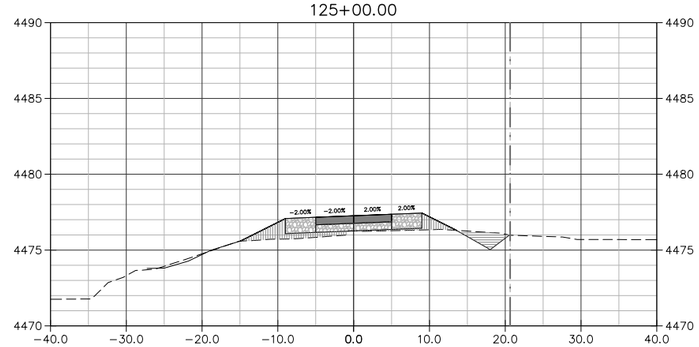
Total Volume at Station 124+00.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
35.80	0.00	64.64	0.00	2536.10	478.09	2058.01

124+50.00



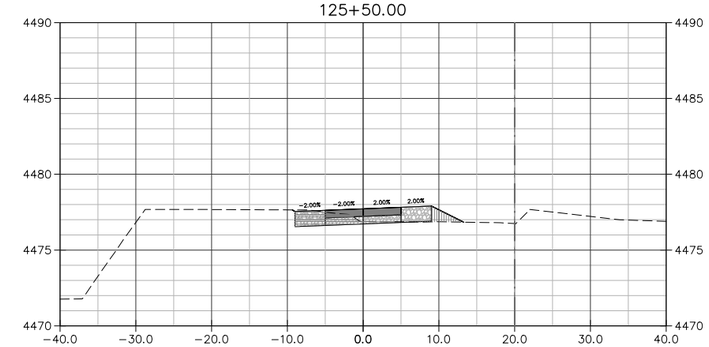
Total Volume at Station 124+50.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
6.12	2.77	38.81	2.56	2574.91	480.65	2094.26

125+00.00



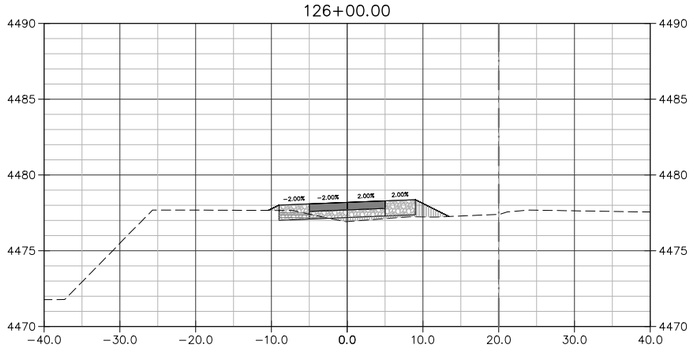
Total Volume at Station 125+00.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
3.99	9.68	9.48	11.48	2584.39	492.13	2092.26

125+50.00



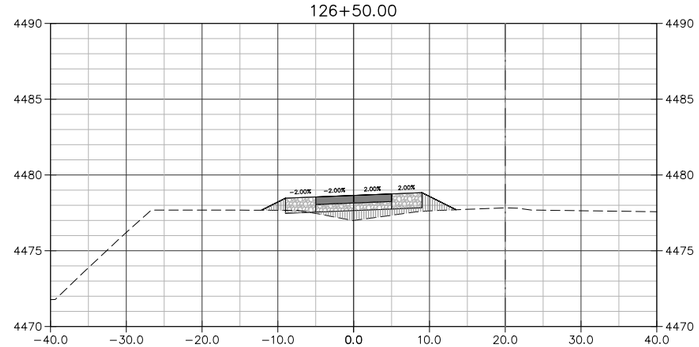
Total Volume at Station 125+50.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
7.77	2.25	10.99	11.03	2595.38	503.16	2092.22

126+00.00



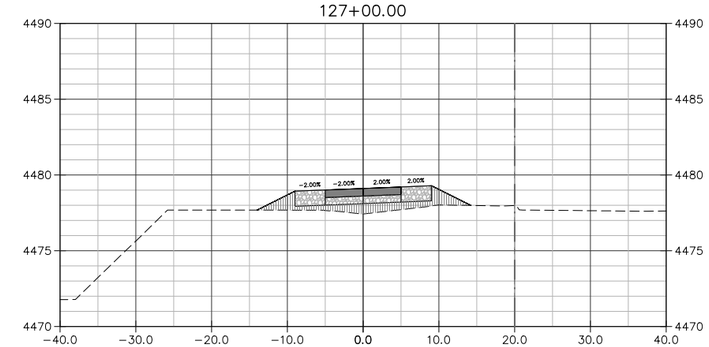
Total Volume at Station 126+00.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
2.60	4.77	9.60	6.50	2604.98	509.66	2095.33

126+50.00



Total Volume at Station 126+50.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
0.42	9.84	2.80	13.53	2607.78	523.19	2084.59

127+00.00



Total Volume at Station 127+00.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
0.00	14.85	0.39	22.86	2608.17	546.05	2062.12

Cut Material
Fill Material
Concrete
ABC (Class 6)

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SCALE
10 0 5 10 20
(IN FEET)
HORIZ: 1" = 20' VERT: 1" = 10'
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RCC PROJECT #: 1248-005 DATE ISSUED: 21.Aug.2015
DRAWN BY: nmr CHECKED BY: jwm

CITY OF FRUITA

Lower Little Salt Wash Riverfront Trail Connection

Section Views – LLSW Trail CL
Sta: 123+00 – 127+00

X6

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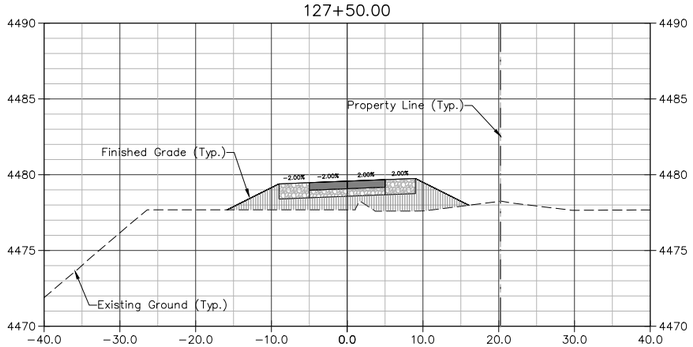
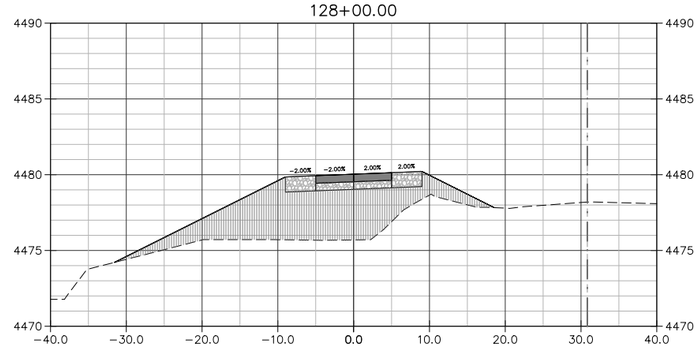
127+50.00



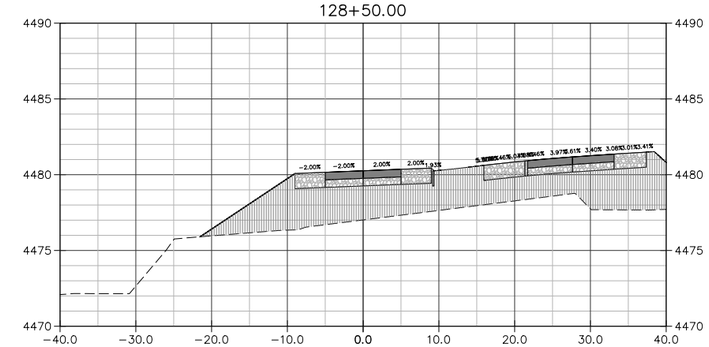
Total Volume at Station 127+50.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
0.00	29.35	0.00	40.93	2608.17	586.98	2021.20

128+00.00



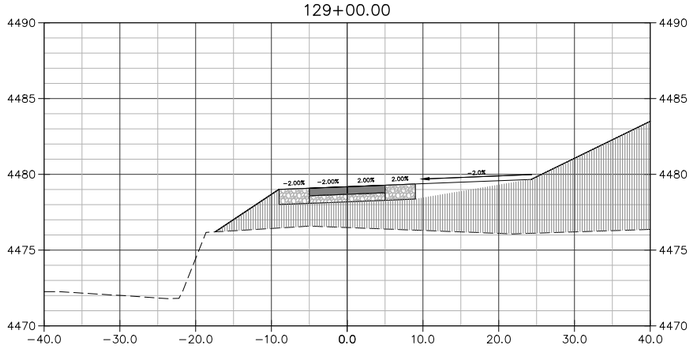
Total Volume at Station 128+00.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
0.00	96.87	0.00	116.57	2608.17	703.55	1904.62

128+50.00



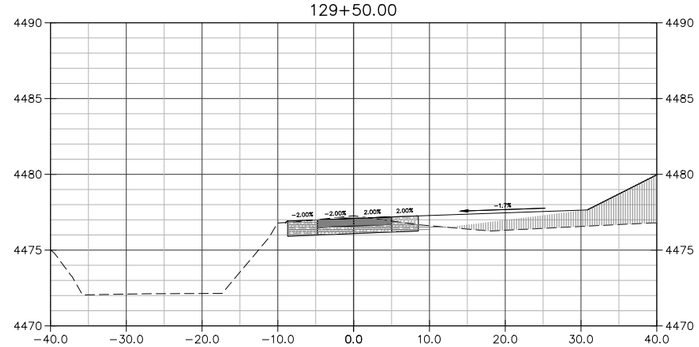
Total Volume at Station 128+50.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
0.00	132.98	0.00	215.56	2608.17	919.11	1689.06

129+00.00



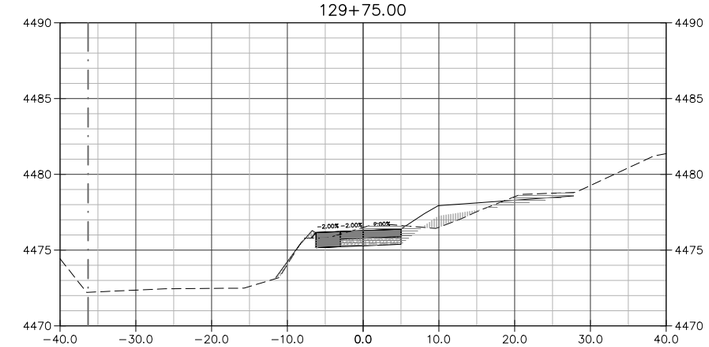
Total Volume at Station 129+00.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
0.00	169.07	0.00	294.70	2608.17	1213.81	1394.36

129+50.00



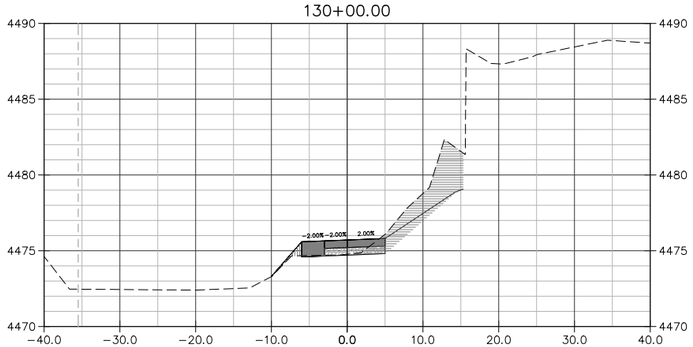
Total Volume at Station 129+50.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
16.60	31.60	15.37	187.67	2623.54	1401.49	1222.05

129+75.00



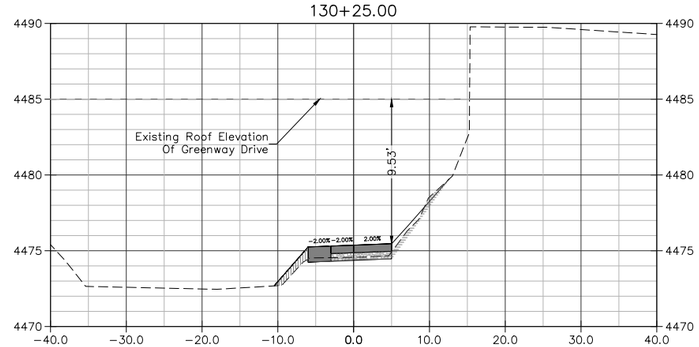
Total Volume at Station 129+75.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
18.26	4.08	16.14	16.52	2639.68	1418.00	1221.67

130+00.00



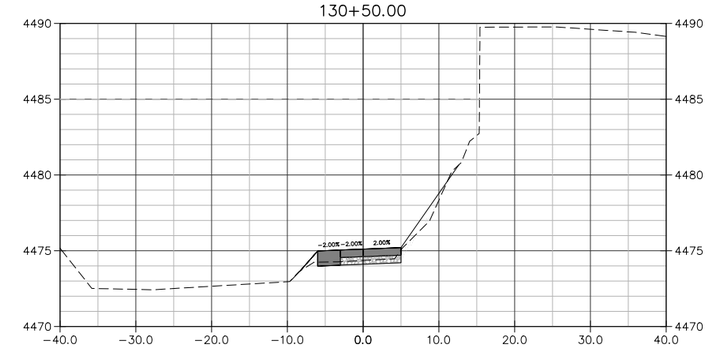
Total Volume at Station 130+00.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
26.22	0.96	20.59	2.33	2660.27	1420.34	1239.93

130+25.00



Total Volume at Station 130+25.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
5.25	2.31	13.38	1.62	2673.65	1421.95	1251.70

130+50.00



Total Volume at Station 130+50.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
4.55	1.36	4.53	1.70	2678.19	1423.65	1254.53

Cut Material
Fill Material
Concrete
ABC (Class 6)

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Fax: 970.241.8841

RESIDENT ENGINEER:
CDOT PROJECT #: STE M505-006 (18643)
RCC PROJECT #: 1248-005 DATE ISSUED: 21.Aug.2015
DRAWN BY: nmr CHECKED BY: jwm

CITY OF FRUITA

Lower Little Salt Wash Riverfront Trail Connection

Section Views – LLSW Trail CL
Sta: 127+50 – 130+40.36

X7

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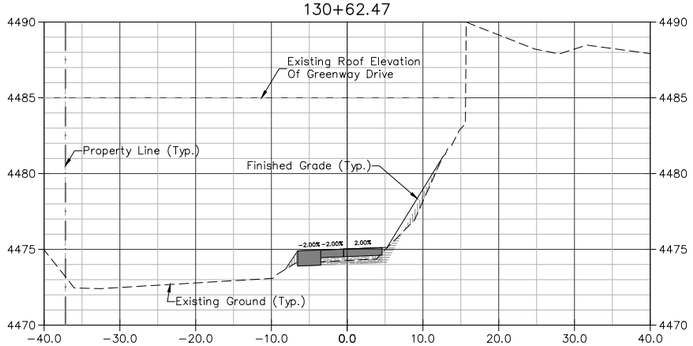
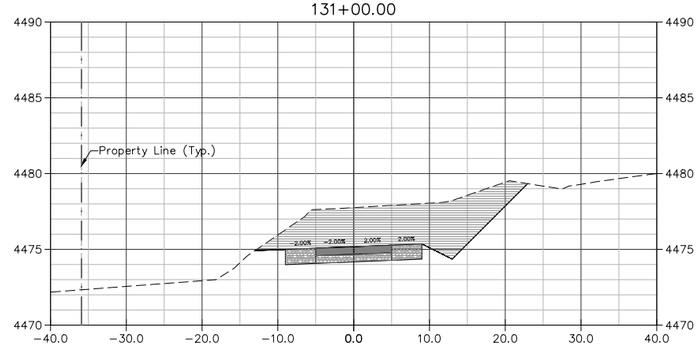
130+62.47



Total Volume at Station 130+62.47						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
4.26	2.22	2.03	0.83	2680.22	1424.48	1255.74

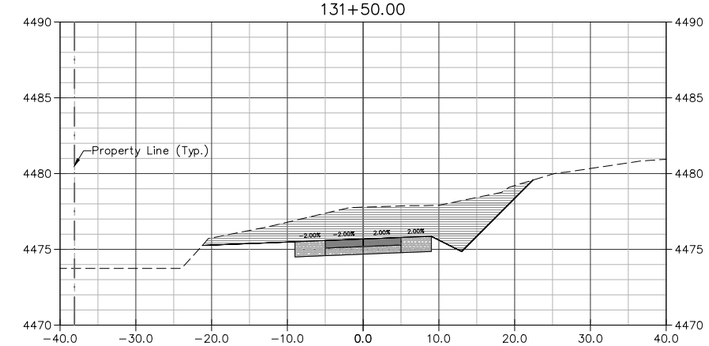
END SOUTH SECTION
BEGIN UPRR SECTION

131+00.00



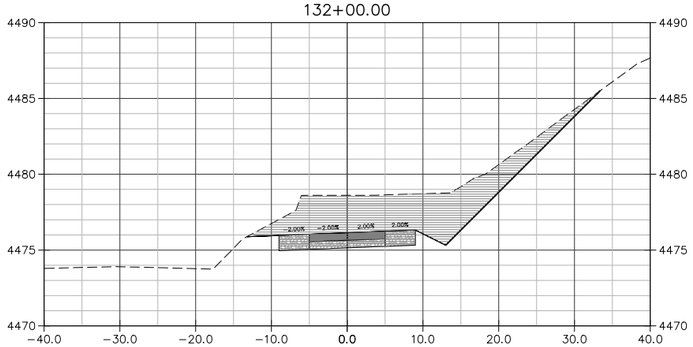
Total Volume at Station 131+00.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
99.37	0.00	71.50	1.53	2751.72	1426.02	1325.71

131+50.00



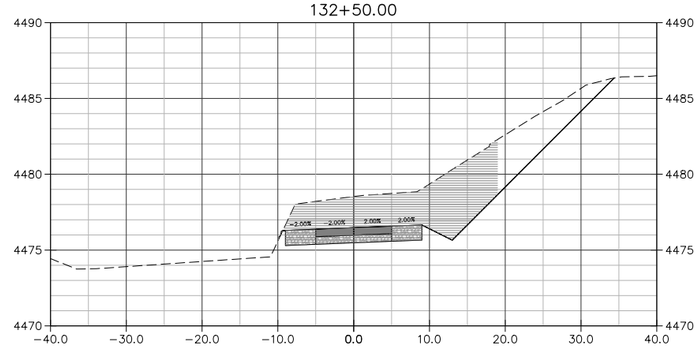
Total Volume at Station 131+50.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
89.34	0.00	174.39	0.00	2926.11	1426.02	1500.10

132+00.00



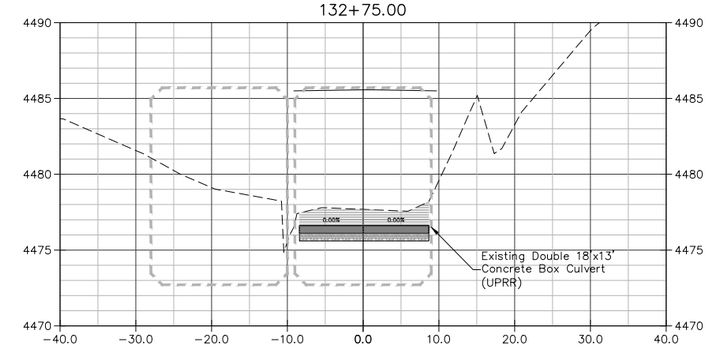
Total Volume at Station 132+00.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
103.17	0.00	178.25	0.00	3104.36	1426.02	1678.35

132+50.00



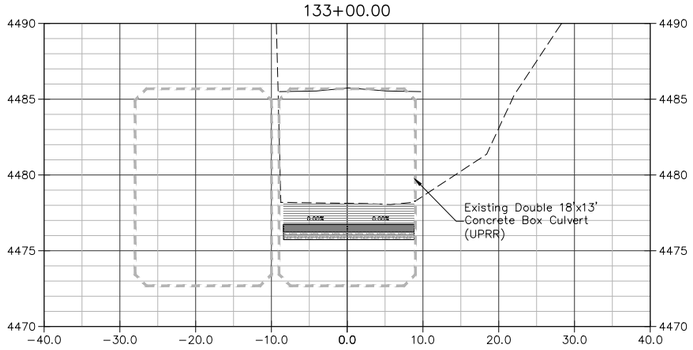
Total Volume at Station 132+50.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
91.92	0.05	182.65	0.04	3287.02	1426.06	1860.96

132+75.00



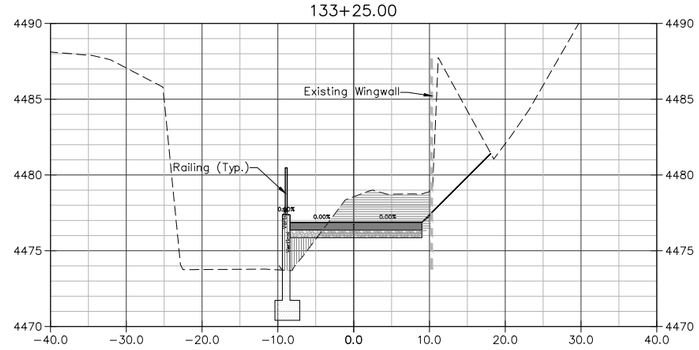
Total Volume at Station 132+75.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
35.80	0.00	59.13	0.02	3346.15	1426.08	1920.06

133+00.00



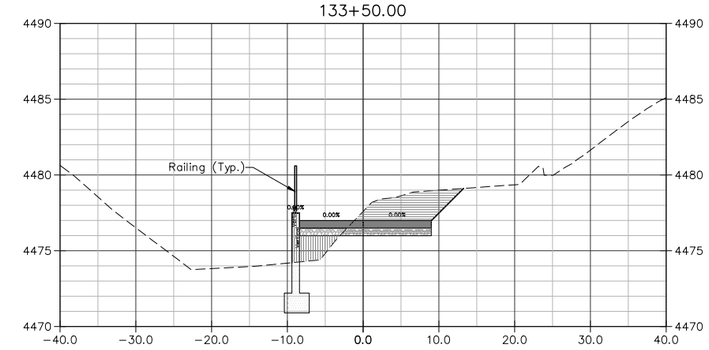
Total Volume at Station 133+00.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
41.33	0.00	35.71	0.00	3381.85	1426.08	1955.77

133+25.00



Total Volume at Station 133+25.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
36.79	7.81	36.16	3.62	3418.01	1429.70	1988.32

133+50.00



Total Volume at Station 133+50.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
29.69	9.81	30.19	8.43	3448.20	1438.13	2010.07

Cut Material
Fill Material
Concrete
ABC (Class 6)

UNCC UNDERGROUND UTILITY NOTIFICATION CENTER OF COLORADO
800.922.1987
www.uncc.org
811 Know what's below. Call before you dig.
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SCALE
10 0 5 10 20
(IN FEET)
HORIZ: 1" = 20' VERT: 1" = 10'
ORIGINAL SHEET SIZE: 11 x 17

REVISIONS

NO.	DATE	DESCRIPTION	BY

PRELIMINARY

RIVER CITY CONSULTANTS
744 Horizon Court, Suite 110
Grand Junction, Co. 81506
Phone: 970.241.4722
Fax: 970.241.8841

RESIDENT ENGINEER:
CDOT PROJECT #: STE M505-006 (18643)
RCC PROJECT #: 1248-005 DATE ISSUED: 21.Aug.2015
DRAWN BY: nmr CHECKED BY: jwm

CITY OF FRUITA

Lower Little Salt Wash Riverfront Trail Connection

Section Views – LLSW Trail CL
Sta: 130+50 – 133+50

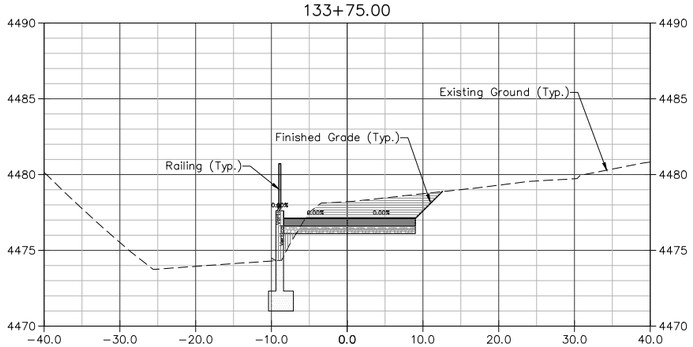
X8

S:\PROJECTS\1248 Fruita\005 LLSW Reroute\Design\dwg\1248-005.dwg, 8/21/2015 1:24:32 PM

BEGIN NORTH SECTION

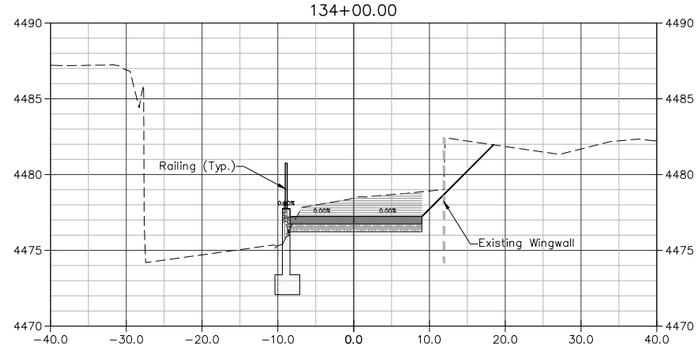
END UPRR SECTION

133+75.00



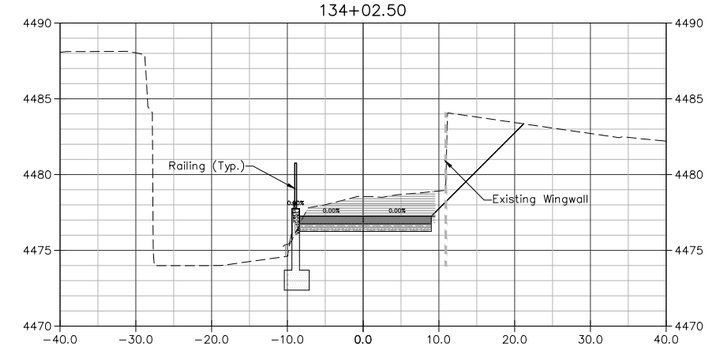
Total Volume at Station 133+75.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
34.74	4.49	29.41	6.80	3477.61	1444.93	2032.68

134+00.00



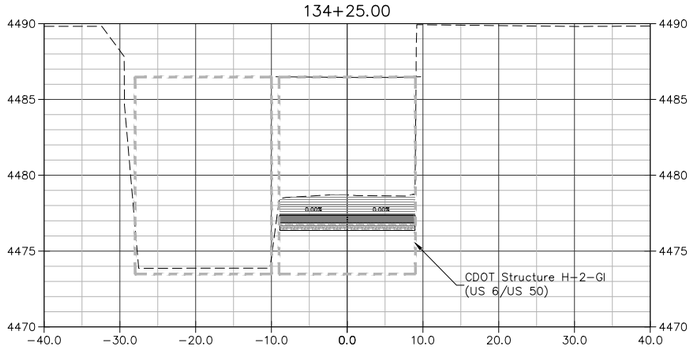
Total Volume at Station 134+00.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
36.27	1.87	32.88	2.94	3510.49	1447.87	2062.62

134+02.50



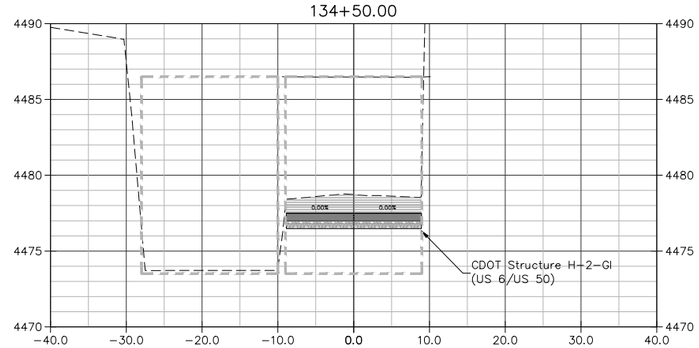
Total Volume at Station 134+02.50						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
37.96	1.59	3.44	0.16	3513.93	1448.03	2065.89

134+25.00



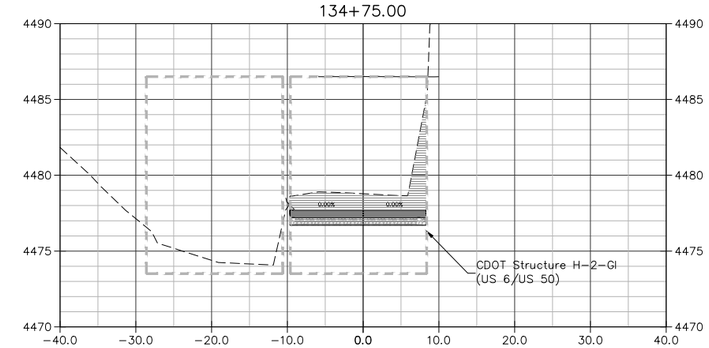
Total Volume at Station 134+25.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
40.74	0.00	32.79	0.66	3546.72	1448.69	2098.02

134+50.00



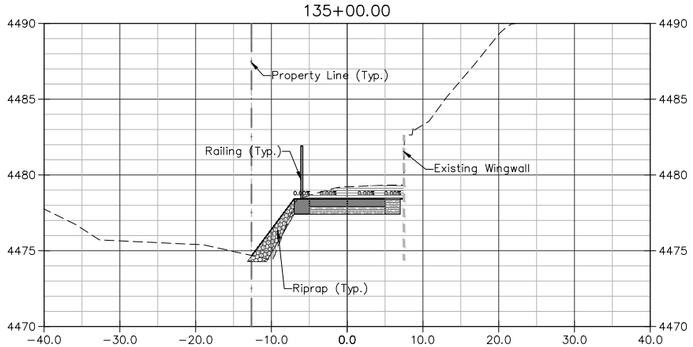
Total Volume at Station 134+50.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
38.02	0.00	36.47	0.00	3583.18	1448.69	2134.49

134+75.00



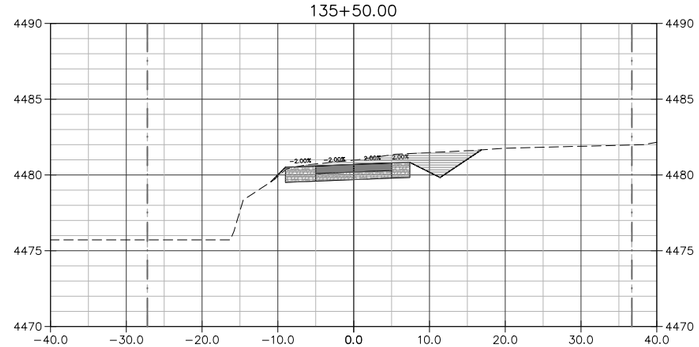
Total Volume at Station 134+75.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
43.13	0.12	37.49	0.06	3620.67	1448.75	2171.92

135+00.00



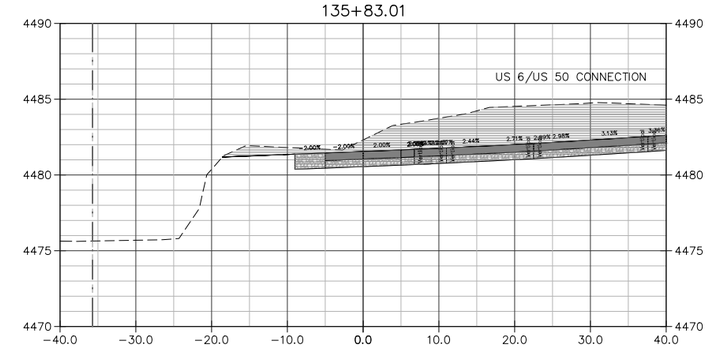
Total Volume at Station 135+00.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
23.46	6.61	30.49	3.58	3651.16	1452.33	2198.83

135+50.00



Total Volume at Station 135+50.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
30.08	0.19	49.40	6.39	3700.56	1458.71	2241.85

135+83.01



Total Volume at Station 135+83.01						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
142.75	0.00	109.77	0.11	3810.34	1458.83	2351.51

Cut Material
Fill Material
Concrete
ABC (Class 6)

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SCALE

10 0 5 10 20

(IN FEET)

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REVISIONS

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PRELIMINARY

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Fax: 970.241.8841

RESIDENT ENGINEER:
CDOT PROJECT #: STE M505-006 (18643)
RCC PROJECT #: 1248-005 DATE ISSUED: 21.Aug.2015
DRAWN BY: nmr CHECKED BY: jwm

CITY OF FRUITA

Lower Little Salt Wash Riverfront Trail Connection

Section Views – LLSW Trail CL
Sta: 133+75 – 135+60.90

X9

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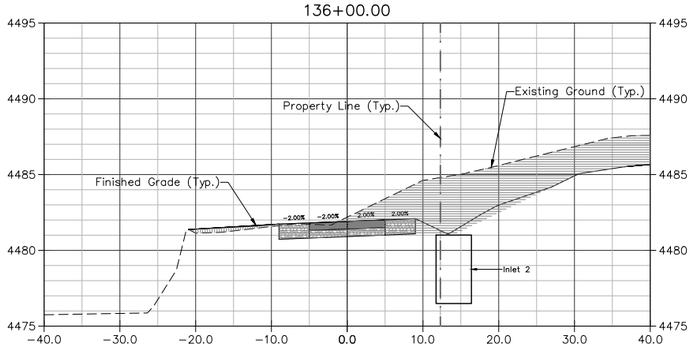
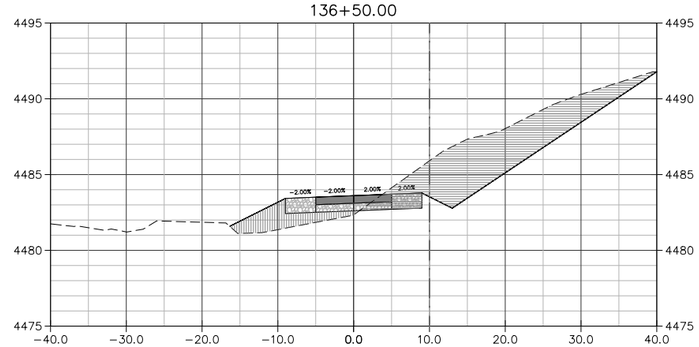
136+00.00



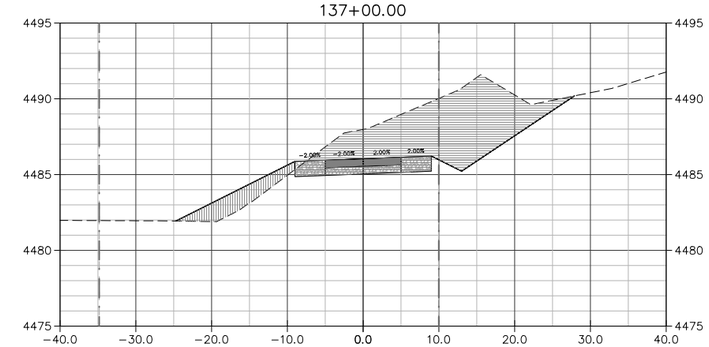
Total Volume at Station 136+00.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
112.92	2.42	94.49	0.64	3904.82	1459.47	2445.35

136+50.00



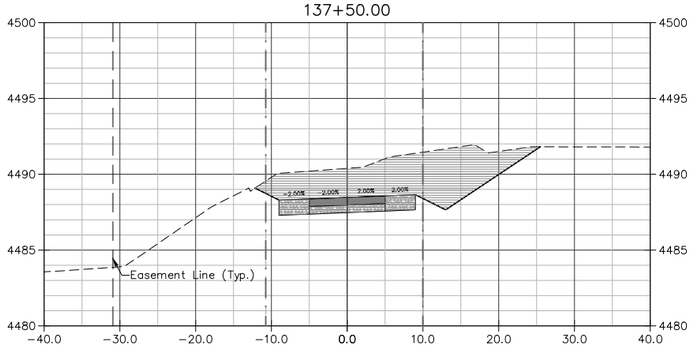
Total Volume at Station 136+50.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
82.09	14.98	193.60	15.44	4098.42	1474.91	2623.51

137+00.00



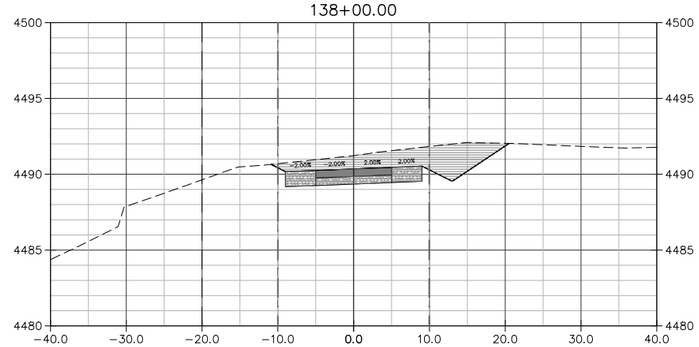
Total Volume at Station 137+00.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
109.62	15.05	177.51	27.80	4275.93	1502.72	2773.21

137+50.00



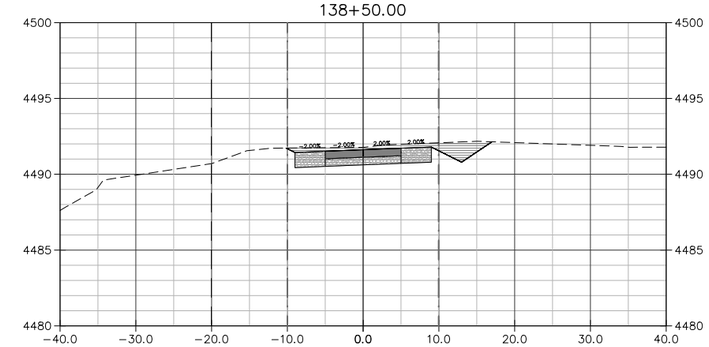
Total Volume at Station 137+50.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
96.54	0.00	176.32	16.22	4452.25	1518.94	2933.31

138+00.00



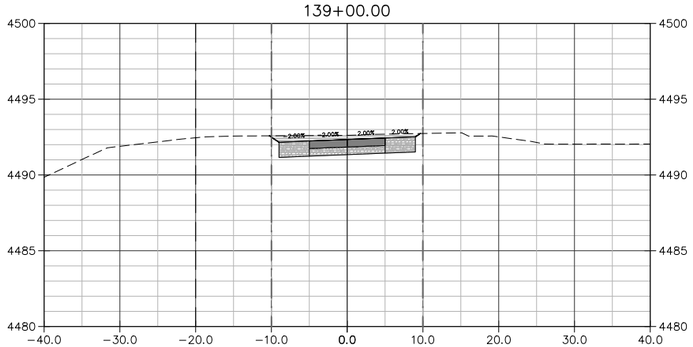
Total Volume at Station 138+00.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
51.69	0.00	135.49	0.00	4587.74	1518.94	3068.80

138+50.00



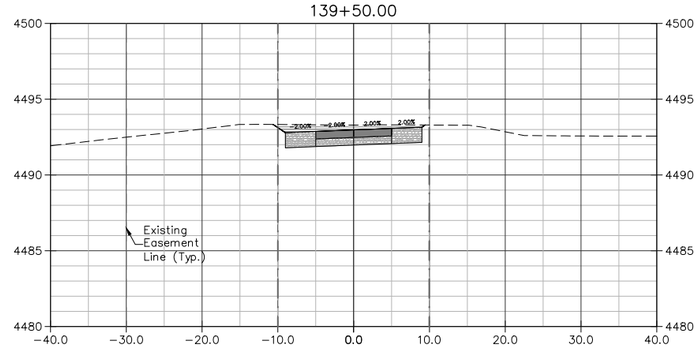
Total Volume at Station 138+50.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
28.37	0.00	74.13	0.00	4661.87	1518.94	3142.93

139+00.00



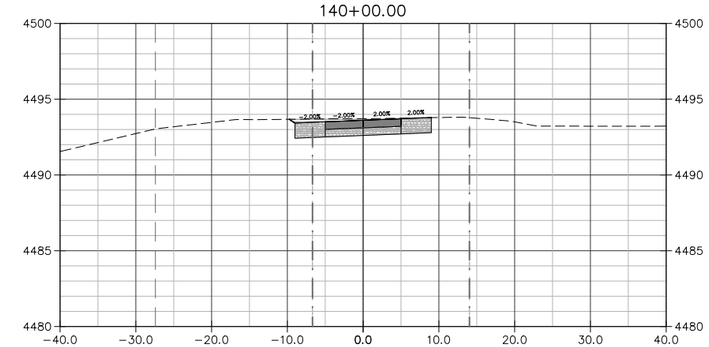
Total Volume at Station 139+00.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
23.80	0.00	48.31	0.00	4710.18	1518.94	3191.24

139+50.00



Total Volume at Station 139+50.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
24.45	0.00	44.68	0.00	4754.85	1518.94	3235.91

140+00.00



Total Volume at Station 140+00.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
20.19	0.00	41.23	0.00	4796.08	1518.94	3277.14

Cut Material
Fill Material
Concrete
ABC (Class 6)

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SCALE
10 0 5 10 20
(IN FEET)
HORIZ: 1" = 20' VERT: 1" = 10'
ORIGINAL SHEET SIZE: 11 x 17

REVISIONS

NO.	DATE	DESCRIPTION	BY

PRELIMINARY

RIVER CITY CONSULTANTS
744 Horizon Court, Suite 110
Grand Junction, Co. 81506
Phone: 970.241.4722
Fax: 970.241.8841

RESIDENT ENGINEER:
CDOT PROJECT #: STE M505-006 (18643)
RCC PROJECT #: 1248-005 DATE ISSUED: 21.Aug.2015
DRAWN BY: nmr CHECKED BY: jwm

CITY OF FRUITA

Lower Little Salt Wash Riverfront Trail Connection

Section Views – LLSW Trail CL
Sta: 136+00 – 140+00

X10

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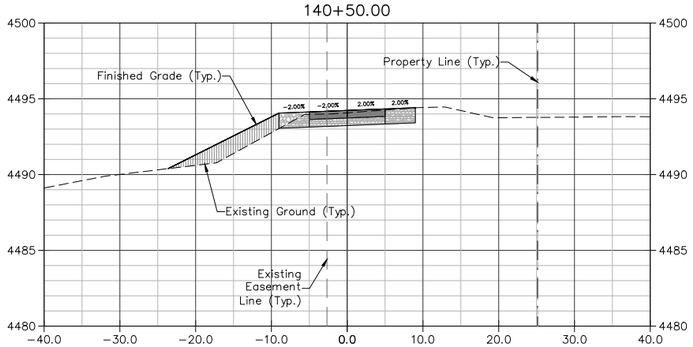
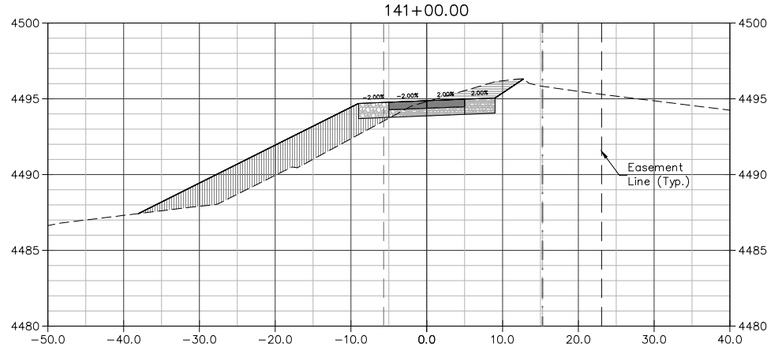
140+50.00



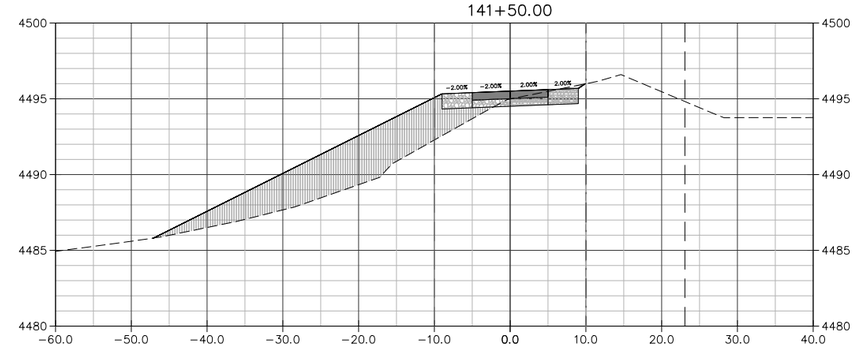
Total Volume at Station 140+50.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
14.29	13.10	32.00	10.30	4828.08	1529.24	3298.84

141+00.00



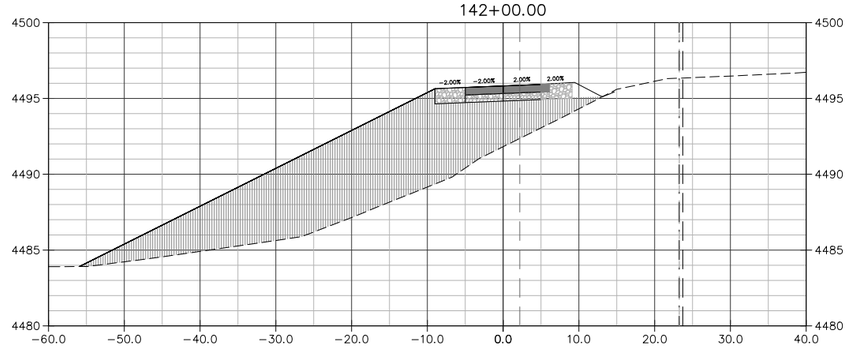
Total Volume at Station 141+00.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
18.29	50.90	31.11	47.85	4859.19	1577.09	3282.10

141+50.00



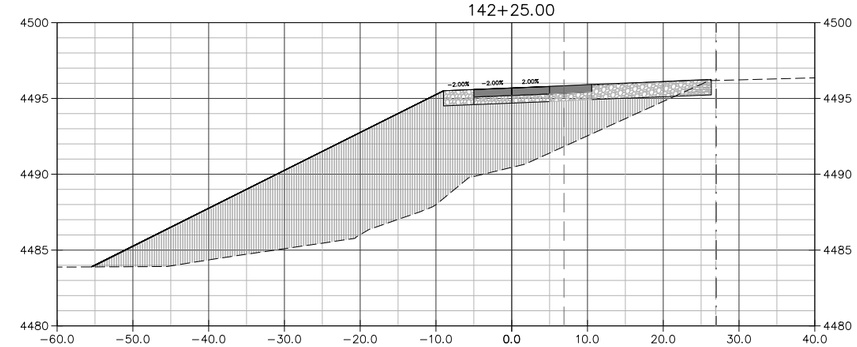
Total Volume at Station 141+50.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
8.29	89.55	25.35	112.10	4884.54	1689.19	3195.35

142+00.00



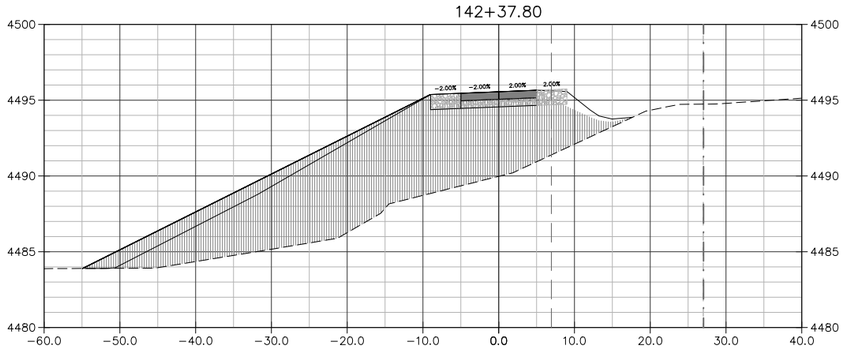
Total Volume at Station 142+00.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
0.08	240.79	7.98	267.26	4892.52	1956.45	2936.07

142+25.00



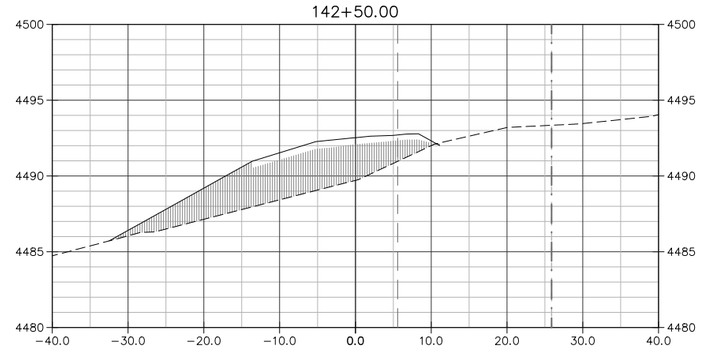
Total Volume at Station 142+25.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
2.42	294.82	0.88	294.03	4893.40	2250.48	2642.92

142+37.80



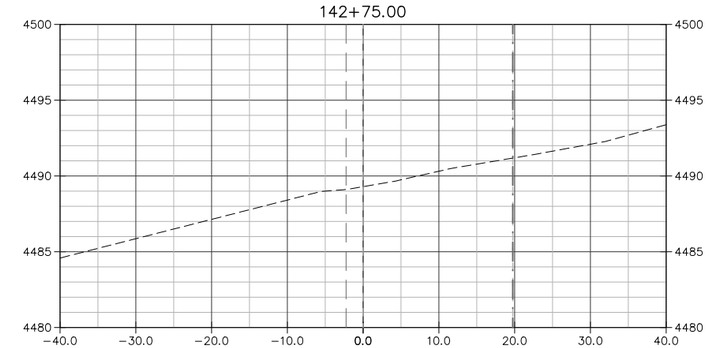
Total Volume at Station 142+37.80						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
0.00	295.65	0.43	163.99	4893.83	2414.47	2479.36

142+50.00



Total Volume at Station 142+50.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
0.06	78.87	0.01	97.64	4893.84	2512.11	2381.73

142+75.00



Total Volume at Station 142+75.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
0.00	0.00	0.02	40.08	4893.86	2552.19	2341.68

Cut Material
Fill Material
Concrete
ABC (Class 6)

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SCALE
10 0 5 10 20
(IN FEET)
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ORIGINAL SHEET SIZE: 11 x 17

REVISIONS

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RCC PROJECT #: 1248-005 DATE ISSUED: 21.Aug.2015
DRAWN BY: nmr CHECKED BY: jwm

CITY OF FRUITA

Lower Little Salt Wash Riverfront Trail Connection

Section Views – LLSW Trail CL
Sta: 140+50 – 142+50

X11

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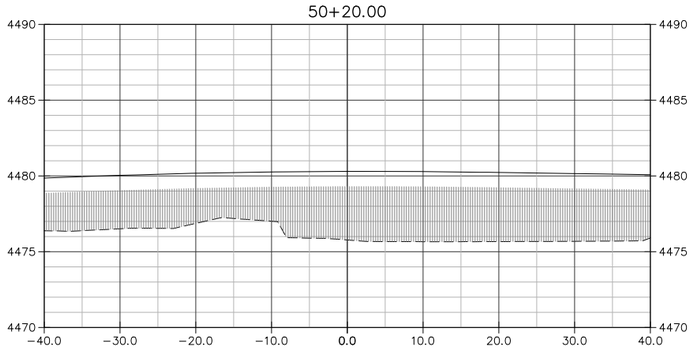
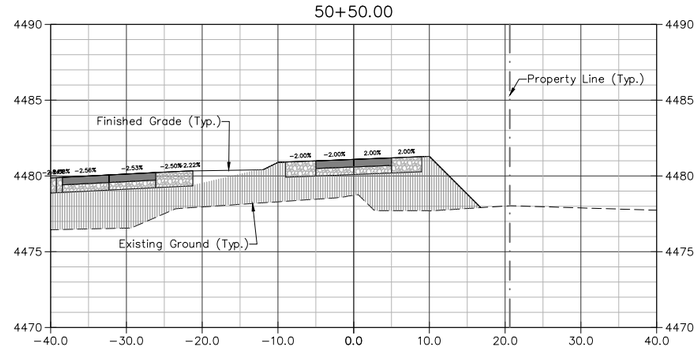
50+20.00



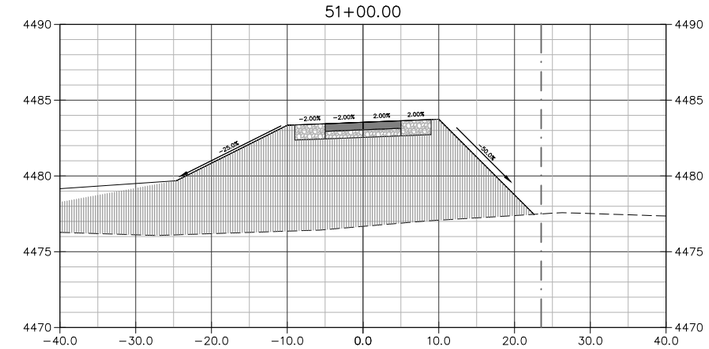
Total Volume at Station 50+20.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
0.00	245.63	0.00	0.00	0.00	0.00	0.00

50+50.00



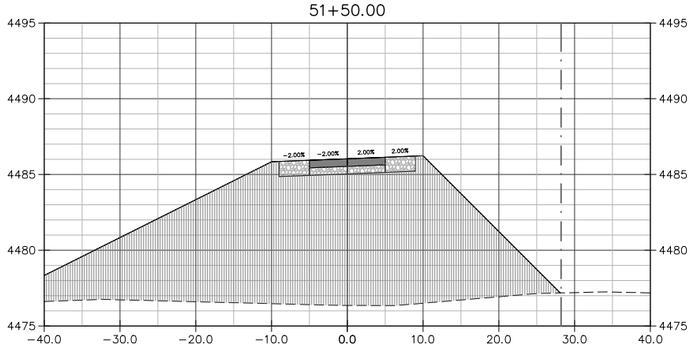
Total Volume at Station 50+50.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
0.00	116.11	0.00	200.97	0.00	200.97	−200.97

51+00.00



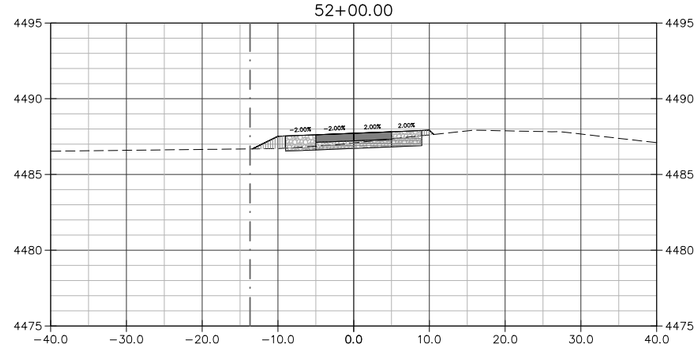
Total Volume at Station 51+00.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
0.00	281.67	0.00	368.31	0.00	569.28	−569.28

51+50.00



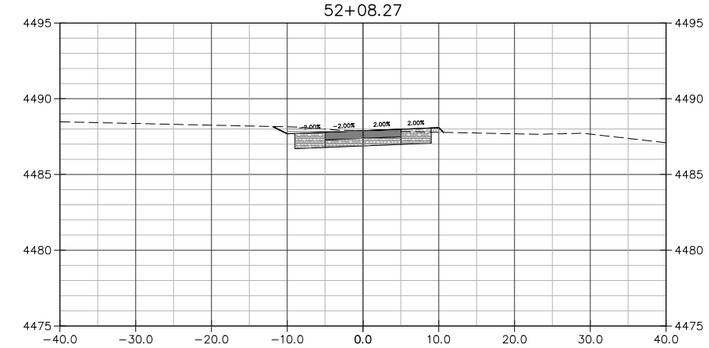
Total Volume at Station 51+50.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
0.00	425.74	0.00	655.01	0.00	1224.29	−1224.29

52+00.00



Total Volume at Station 52+00.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
6.97	2.56	6.46	396.57	6.46	1620.86	−1614.41

52+08.27



Total Volume at Station 52+08.27						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
18.94	0.38	3.97	0.45	10.42	1621.31	−1610.89

Cut Material
Fill Material
Concrete
ABC (Class 6)

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SCALE
10 0 5 10 20
(IN FEET)
HORIZ: 1" = 20' VERT: 1" = 10'
ORIGINAL SHEET SIZE: 11 x 17

REVISIONS

NO.	DATE	DESCRIPTION	BY

PRELIMINARY

RIVER CITY CONSULTANTS
744 Horizon Court, Suite 110
Grand Junction, Co. 81506
Phone: 970.241.4722
Fax: 970.241.8841

RESIDENT ENGINEER:
CDOT PROJECT #: STE M505-006 (18643)
RCC PROJECT #: 1248-005 DATE ISSUED: 21.Aug.2015
DRAWN BY: nmr CHECKED BY: jwm

CITY OF FRUITA

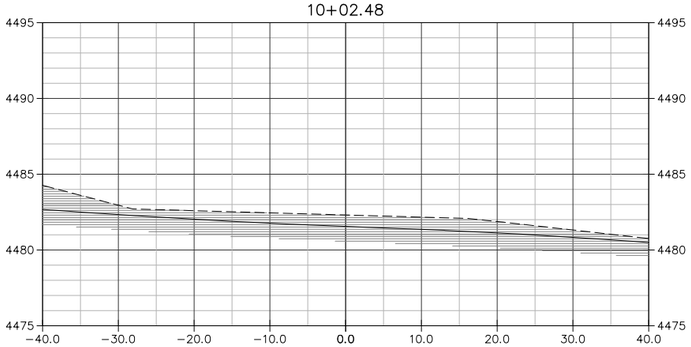
Lower Little Salt Wash Riverfront Trail Connection

Section Views – Greenway Connection
Sta: 50+20.00 – 52+08.27

X12

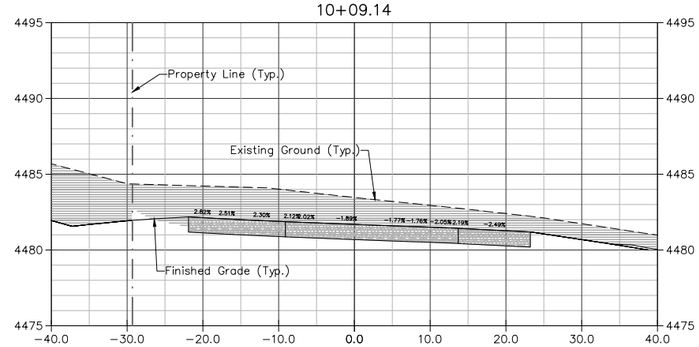
S:\PROJECTS\1248 Fruita\005 LLSW Reroute\Design\dwg\1248-005.dwg, 8/21/2015 1:27:04 PM

10+02.48



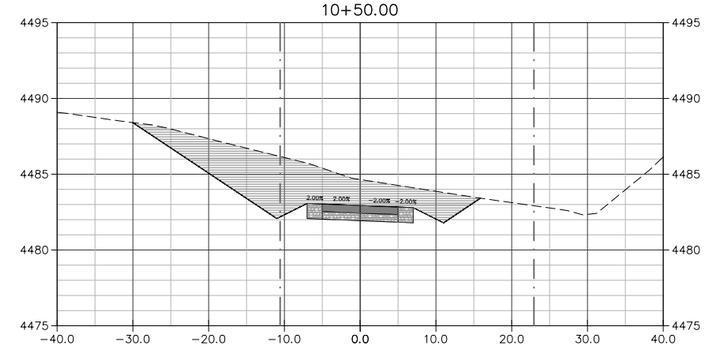
Total Volume at Station 10+02.48						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
135.52	0.00	0.00	0.00	0.00	0.00	0.00

10+09.14



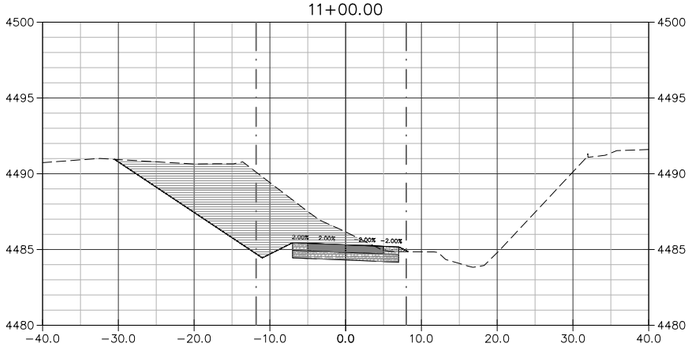
Total Volume at Station 10+09.14						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
191.08	0.00	40.25	0.00	40.25	0.00	40.25

10+50.00



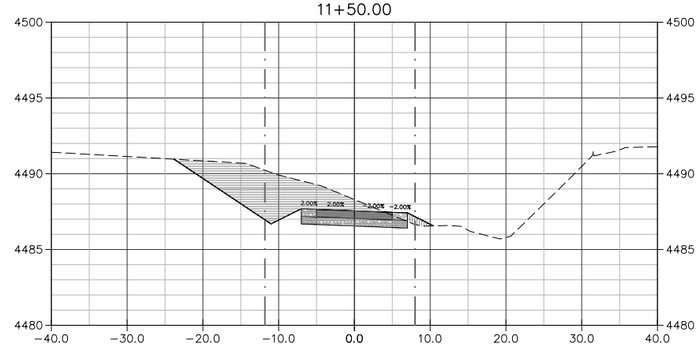
Total Volume at Station 10+50.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
105.65	0.00	216.20	0.00	256.46	0.00	256.46

11+00.00



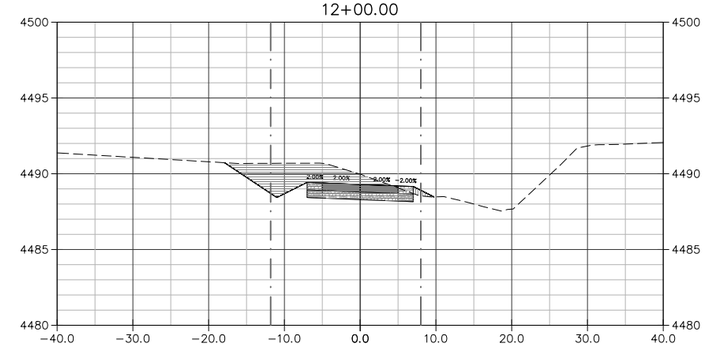
Total Volume at Station 11+00.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
101.32	0.20	173.54	0.19	429.99	0.19	429.80

11+50.00



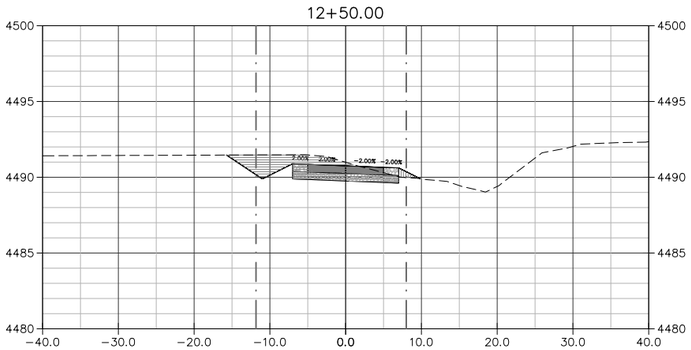
Total Volume at Station 11+50.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
58.63	1.24	148.10	1.33	578.09	1.53	576.57

12+00.00



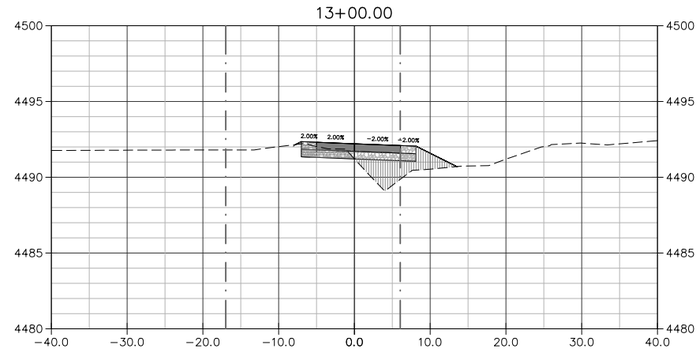
Total Volume at Station 12+00.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
37.01	0.75	88.55	1.85	666.64	3.38	663.27

12+50.00



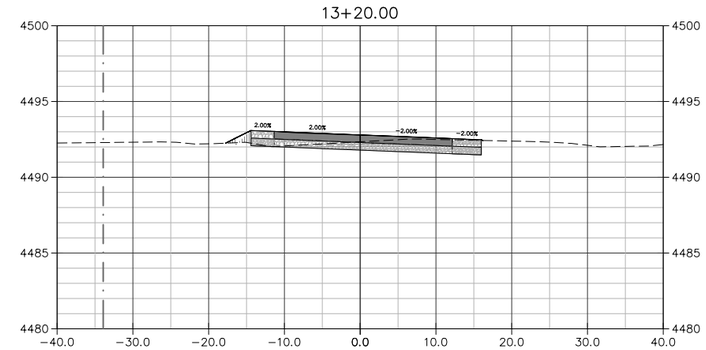
Total Volume at Station 12+50.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
24.48	0.84	56.93	1.47	723.58	4.85	718.73

13+00.00



Total Volume at Station 13+00.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
4.41	13.49	28.00	12.40	751.57	17.25	734.33

13+20.00



Total Volume at Station 13+20.00						
Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
16.20	0.87	6.73	4.44	758.30	21.69	736.61

Cut Material
Fill Material
Concrete
ABC (Class 6)

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NO.	DATE	DESCRIPTION	BY

PRELIMINARY

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744 Horizon Court, Suite 110
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RESIDENT ENGINEER:
CDOT PROJECT #: STE M505-006 (18643)
RCC PROJECT #: 1248-005 DATE ISSUED: 21.Aug.2015
DRAWN BY: nmr CHECKED BY: jwm

CITY OF FRUITA

Lower Little Salt Wash Riverfront Trail Connection

Section Views – US 6/US 50 Connection
Sta: 10+04.14 – 13+25.00

X13

S:\PROJECTS\1248 Fruita\005 LLSW Remnta\Design\dwg\1248-005.dwg, 8/21/2015 1:27:36 PM

STRUCTURAL NOTES

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" COLORADO DEPARTMENT OF TRANSPORTATION 2011 EDITION.
2. REFER TO REVISION OF SECTION 628 – PREFABRICATED STRUCTURAL STEEL BRIDGE FOR SPECIFICATIONS AND ADDITIONAL REQUIREMENTS FOR THE PREFABRICATED BRIDGE.
3. LIMITS OF STRUCTURE EXCAVATION AND BACKFILL FOR THE BOX CULVERT AND BRIDGE ABUTMENTS SHALL BE AS SHOWN ON THESE PLANS.
4. ALL WORK SHALL CONFORM TO THE RECOMMENDATIONS, AS APPLICABLE, DISCUSSED IN THE GEOTECHNICAL REPORT ENTITLED "GEOTECHNICAL INVESTIGATION LOWER LITTLE SALT WASH TRAIL CROSSINGS FRUITA, CO. PROJECT #00456–0018" DATED APRIL 22, 2015 BY HUDDLESTON–BERRY ENGINEERING & TESTING, LLC.
5. THE CONTRACTOR IS TO BE MADE AWARE THAT EXCAVATING FOR THE BOX CULVERT AND BOX CULVERT WINGWALLS MAY EXPOSE SOFT AND OR SATURATED SOILS. OVER–EXCAVATION AND REPLACEMENT OF THESE SOILS SHALL BE IN ACCORDANCE WITH THE LIMITS FOR SUBGRADE STABILIZATION SHOWN ON THESE PLANS AND RECOMMENDATIONS IN THE REFERENCED GEOTECHNICAL REPORT.
6. BACKFILL FOR BOX CULVERTS AND WINGWALLS SHALL BE STRUCTURE BACKFILL (CLASS 1), OR OTHER GRANULAR MATERIAL MEETING THE APPROVAL OF THE GEOTECHNICAL ENGINEER.
7. A REPRESENTATIVE OF THE GEOTECHNICAL ENGINEER SHALL BE PRESENT TO OBSERVE THE FOUNDATION EXCAVATION PRIOR TO PLACEMENT OF THE SUBGRADE STABILIZATION.
8. MINIMUM CLEARANCE FROM SURFACE OF CONCRETE TO THE FACE OF REINFORCEMENT SHALL BE 2 INCHES UNLESS OTHERWISE NOTED.
9. ALL NON–EPOXY COATED REINFORCING STEEL SHALL BE GRADE 60. ALL EPOXY COATED REINFORCING NOTED THUS: "(E)".
10. THE FOLLOWING TABLE GIVES THE MINIMUM CLASS C LAP SPLICE LENGTH FOR REINFORCING BARS.

	BAR SIZE							
BAR TYPE	#4	#5	#6	#7	#8	#9	#10	#11
EPOXY COATED	1'–7"	2'–0"	2'–4"	2'–10"	3'–8"	4'–8"	5'–11"	7'–3"
NON–EPOXY COATED	1'–5"	1'–9"	2'–1"	2'–6"	3'–3"	4'–1"	5'–2"	6'–4"

11. ALL CONCRETE SHALL BE CLASS D, F'_c = 4,500 P.S.I.
12. ALL PORTLAND CEMENT SHALL BE TYPE V.
13. THE BOX CULVERT SHALL NOT BE BACKFILLED UNTIL THE TOP SLAB CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF 3,600 P.S.I.
14. ALL EXPOSED CORNERS SHALL BE CHAMFERED 3/4".
15. EXPANSION JOINT MATERIAL SHALL MEET THE REQUIREMENTS OF AASHTO SPECIFICATION M–213.
16. BRIDGE AND APPROACH RAILINGS SHALL BE FABRICATED FROM UNPAINTED WEATHERING STEEL.
17. CONSTRUCTION MEANS, METHODS, TECHNIQUES, AND PROCEDURES AS RELATED TO THE STABILITY OF THE STRUCTURE DURING CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR UNLESS NOTED OTHERWISE.
18. THE INFORMATION SHOWN ON THESE PLANS CONCERNING THE TYPE AND LOCATION OF UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL–INCLUSIVE.
19. THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATION AS TO THE TYPE AND LOCATION OF ALL UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO.
20. THE CONTRACTOR SHALL CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO AT 1–800–922–1987 AT LEAST TWO DAYS (NOT INCLUDING THE DAY CONTACTED) PRIOR TO ANY EXCAVATION OR OTHER EARTHWORK.
21. PAYMENT FOR THE UNDERDRAIN SHALL BE INCLUDED IN THE COST OF CONCRETE.

DESIGN DATA

AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 7TH EDITION.

AASHTO GUIDE SPECIFICATIONS FOR THE DESIGN OF PEDESTRIAN BRIDGES, DECEMBER 2009.

DESIGN METHOD

LOAD AND RESISTANCE FACTOR DESIGN (LRFD)

DEAD LOAD

UTILITIES: 50 PLF

LIVE LOAD

PEDESTRIAN: 90 PSF

VEHICLE: AASHTO H–5 (10,000 LB) TRUCK

SOIL PARAMETERS

VERTICAL EARTH PRESSURE: 120 PSF

EQUIVALENT FLUID PRESSURES: 47 PCF (ACTIVE)
68 PCF (AT–REST)
307 PCF (PASSIVE)

ALLOWABLE BEARING PRESSURE: 1,500 PSF

REINFORCED CONCRETE

CLASS D CONCRETE – F'_C = 4,500 PSI

REINFORCING STEEL – F_Y = 60,000 PSI

ABUTMENT BEARING REACTIONS

DEAD LOAD: 15 KIPS/BEARING (4 PER BRIDGE)

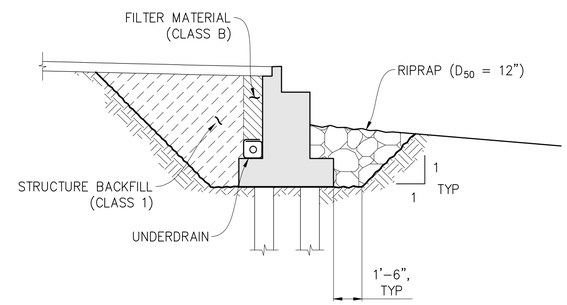
LIVE LOAD: 16 KIPS/BEARING (4 PER BRIDGE)

STRUCTURAL DRAWING INDEX

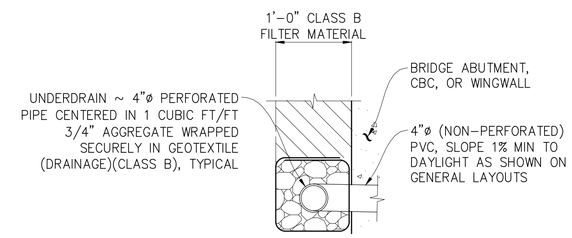
S100	GENERAL NOTES AND INFORMATION
S200	PEDESTRIAN BRIDGE GENERAL LAYOUT
S201	PEDESTRIAN BRIDGE DETAILS
S300	CBC GENERAL LAYOUT
S301	CBC DETAILS

PEDESTRIAN BRIDGE PILING NOTES

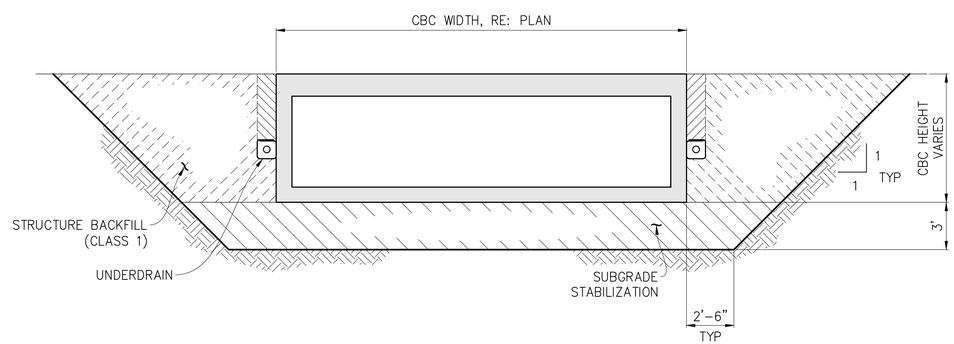
1. ALL PILES ARE HP12X74, F_y = 50 KSI.
2. ALL PILES ARE END BEARING.
3. MAXIMUM ALLOWABLE DRIVING STRESS = (0.80) F_y.
4. SERVICE CAPACITY IS 136 TON.
5. ALL PILES REQUIRE APPROVED PILE TIP REINFORCEMENT.
6. A REPRESENTATIVE OF THE GEOTECHNICAL ENGINEER SHALL OBSERVE PILE DRIVING OPERATIONS ON A FULL–TIME BASIS.
7. PILE DIMENSIONS GIVEN ARE TO CENTERLINES UNLESS NOTED OTHERWISE.
8. ONE PILE FOR EACH ABUTMENT SHALL BE MONITORED WITH A PDA. THE COST OF PROVIDING THIS PDA MONITORING SHALL BE INCLUDED IN THE COST OF PILING.
9. THE MINIMUM LENGTH OF PILING SHALL BE 10'–0" WITH AN ESTIMATED MAXIMUM LENGTH OF 30'–0".



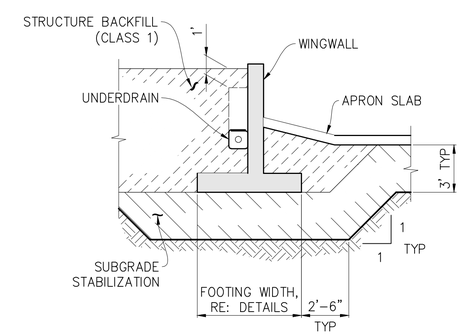
BRIDGE STRUCTURE EXCAVATION AND BACKFILL DETAIL



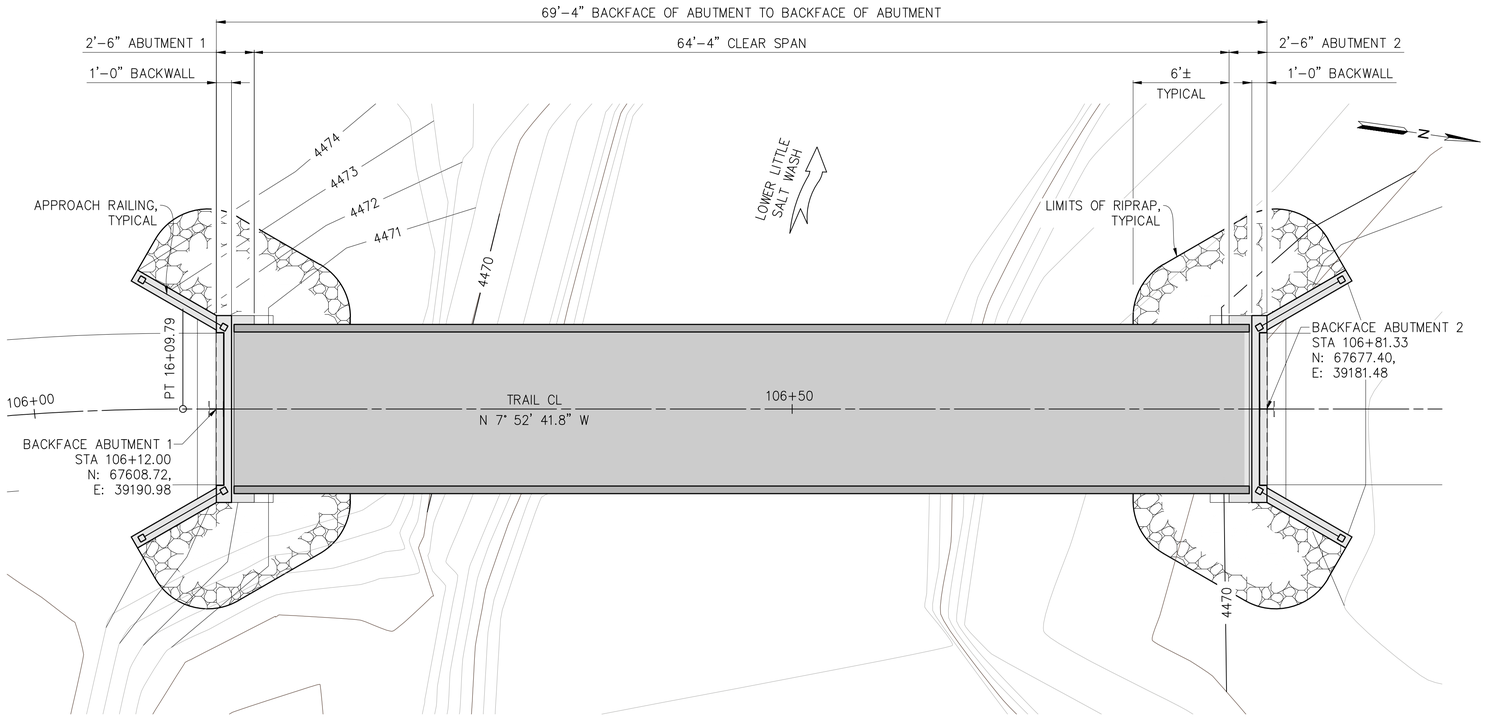
UNDERDRAIN DETAIL



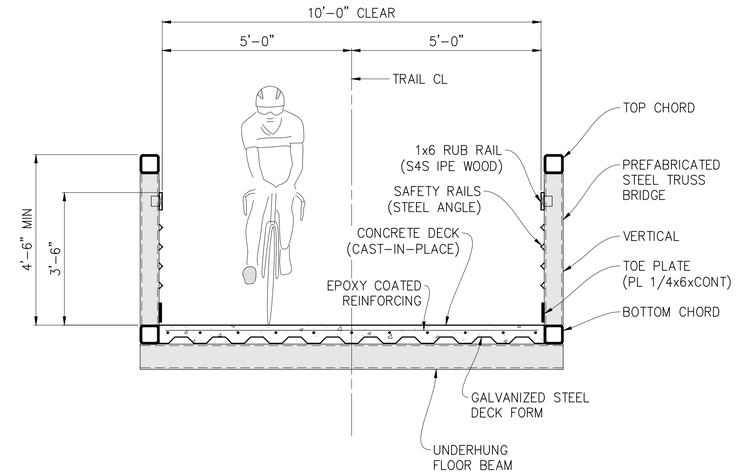
CBC STRUCTURE EXCAVATION AND BACKFILL DETAIL



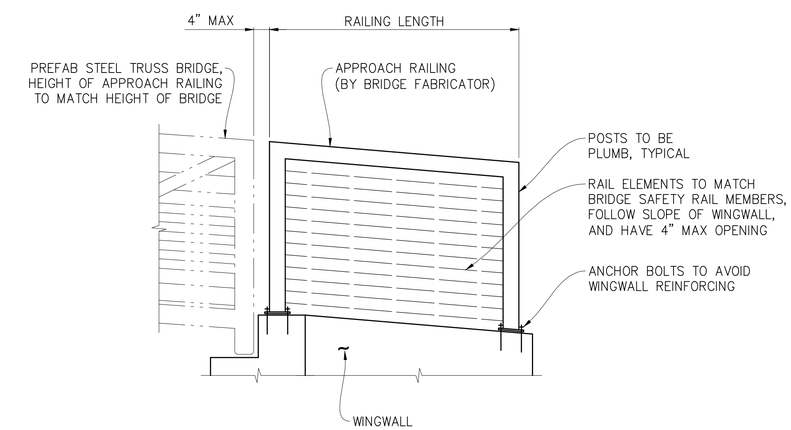
CBC WINGWALL EXCAVATION AND BACKFILL DETAIL



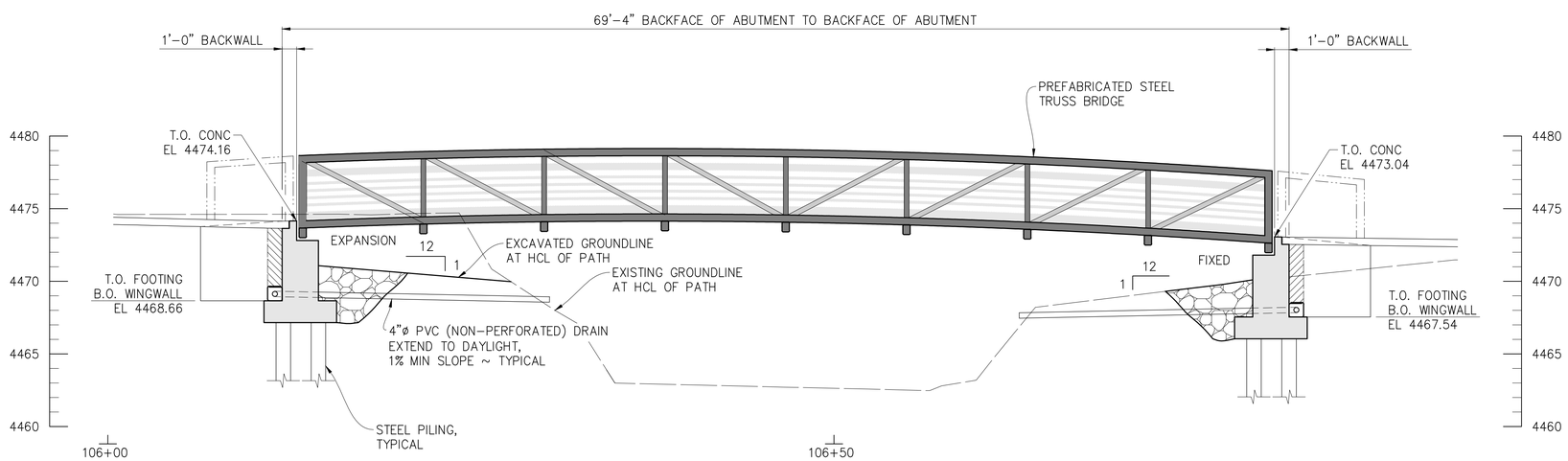
PEDESTRIAN BRIDGE PLAN



TYPICAL BRIDGE SECTION

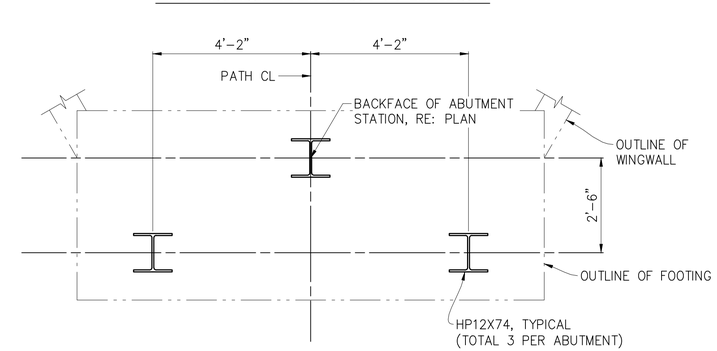


APPROACH RAILING ELEVATION



PEDESTRIAN BRIDGE SECTION

TAKEN AT CL OF BRIDGE, LOOKING DOWNSTREAM



PILING LAYOUT PLAN

UNCC 811 Know what's below. Call before you dig.
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ORIGINAL SHEET SIZE:

REVISIONS

NO.	DATE	DESCRIPTION	BY

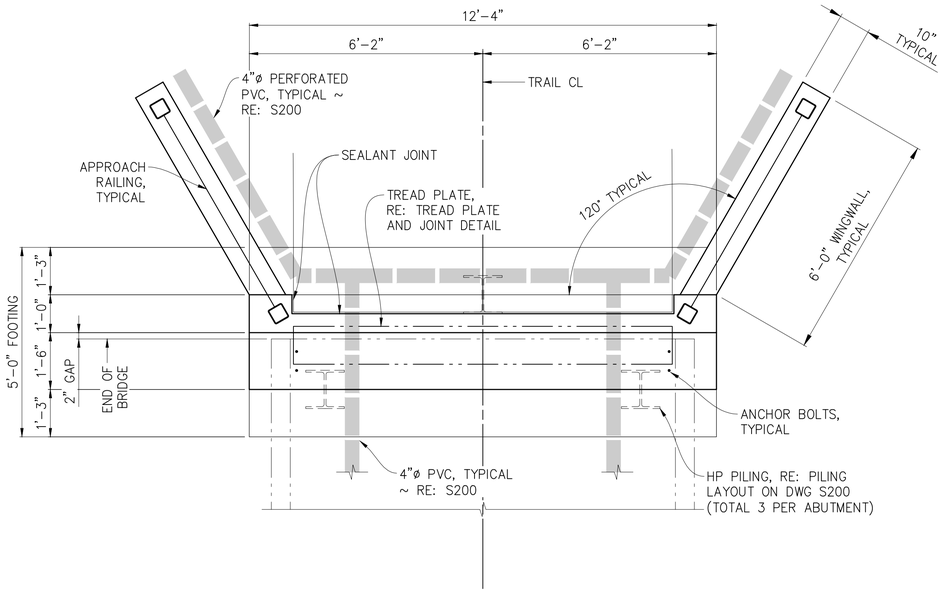
MARTIN/MARTIN CONSULTING ENGINEERS
12499 WEST COLFAX AVENUE, LAKEWOOD, COLORADO 80215
MAIN 303.431.6100 MARTINMARTIN.COM

RESIDENT ENGINEER:
CDOT PROJECT #: STE M505-006 (18643)
RCC PROJECT #: 0171-037 DATE ISSUED: 05.08.15
DRAWN BY: MNG CHECKED BY: TNS

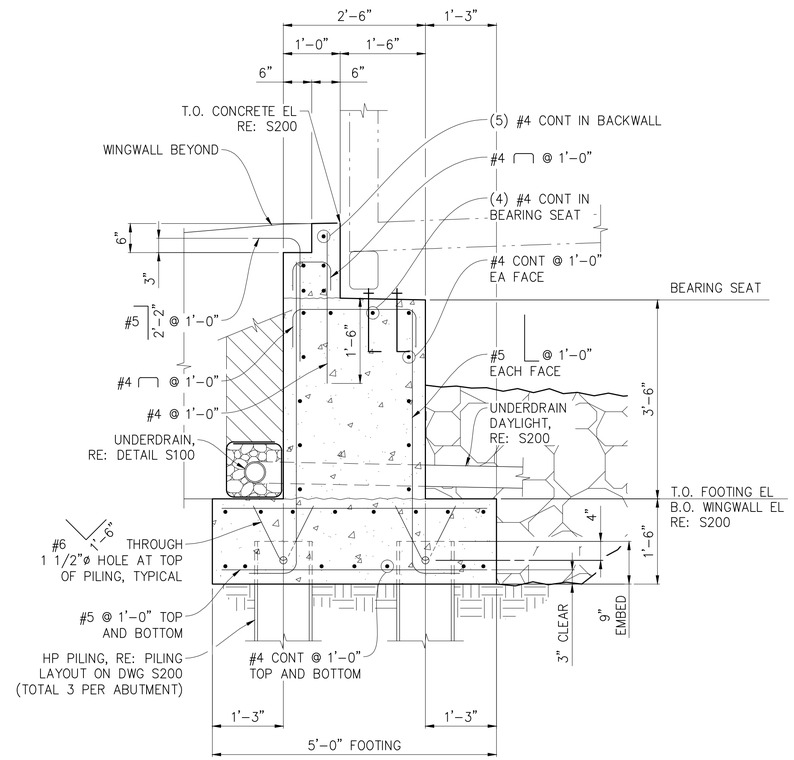
CITY OF FRUITA

Lower Little Salt Wash Riverfront Trail Connection

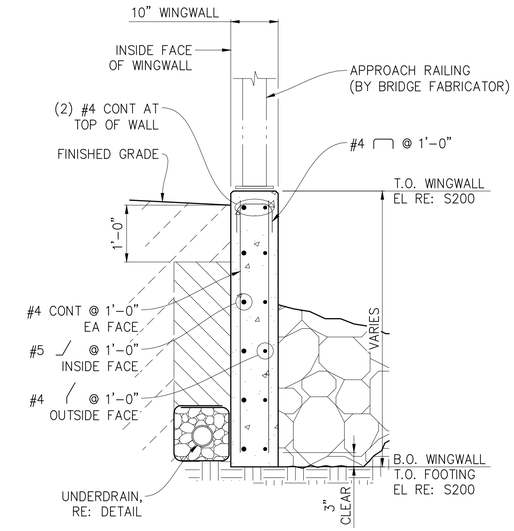
Pedestrian Bridge General Layout S200



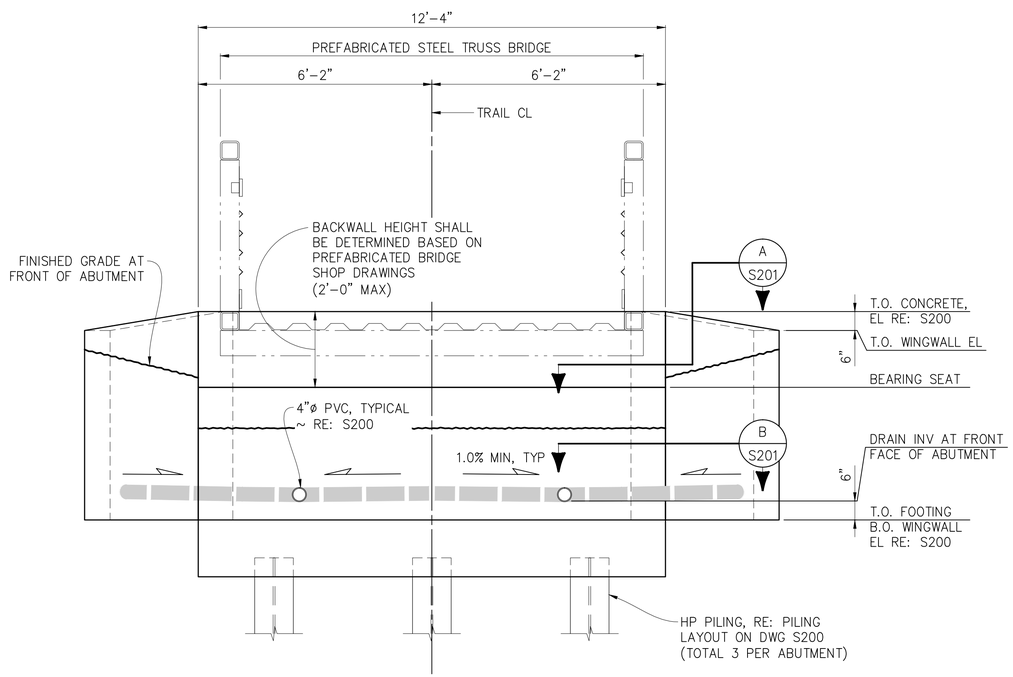
ABUTMENT PLAN



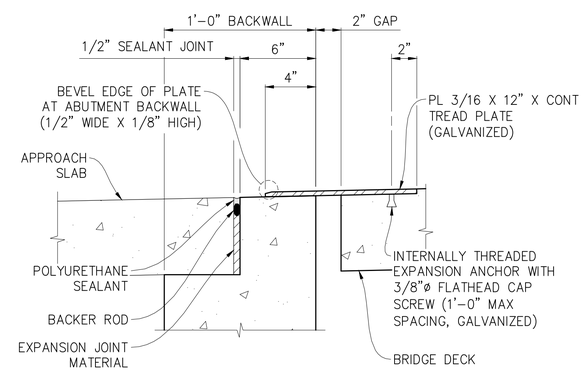
TYPICAL ABUTMENT SECTION



TYPICAL WINGWALL SECTION

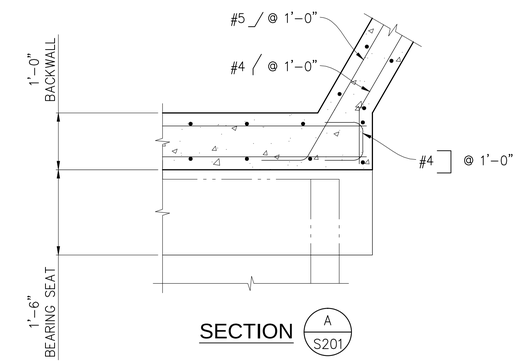


ABUTMENT ELEVATION

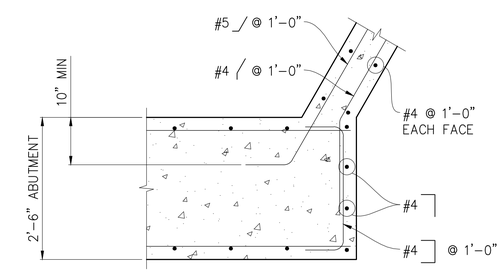


TREAD PLATE AND JOINT DETAIL

TYPICAL AT BOTH ABUTMENTS



SECTION A S201



SECTION B S201

UNCC UTILITY NOTIFICATION CENTER OF COLORADO 800.922.1987 www.uncc.org
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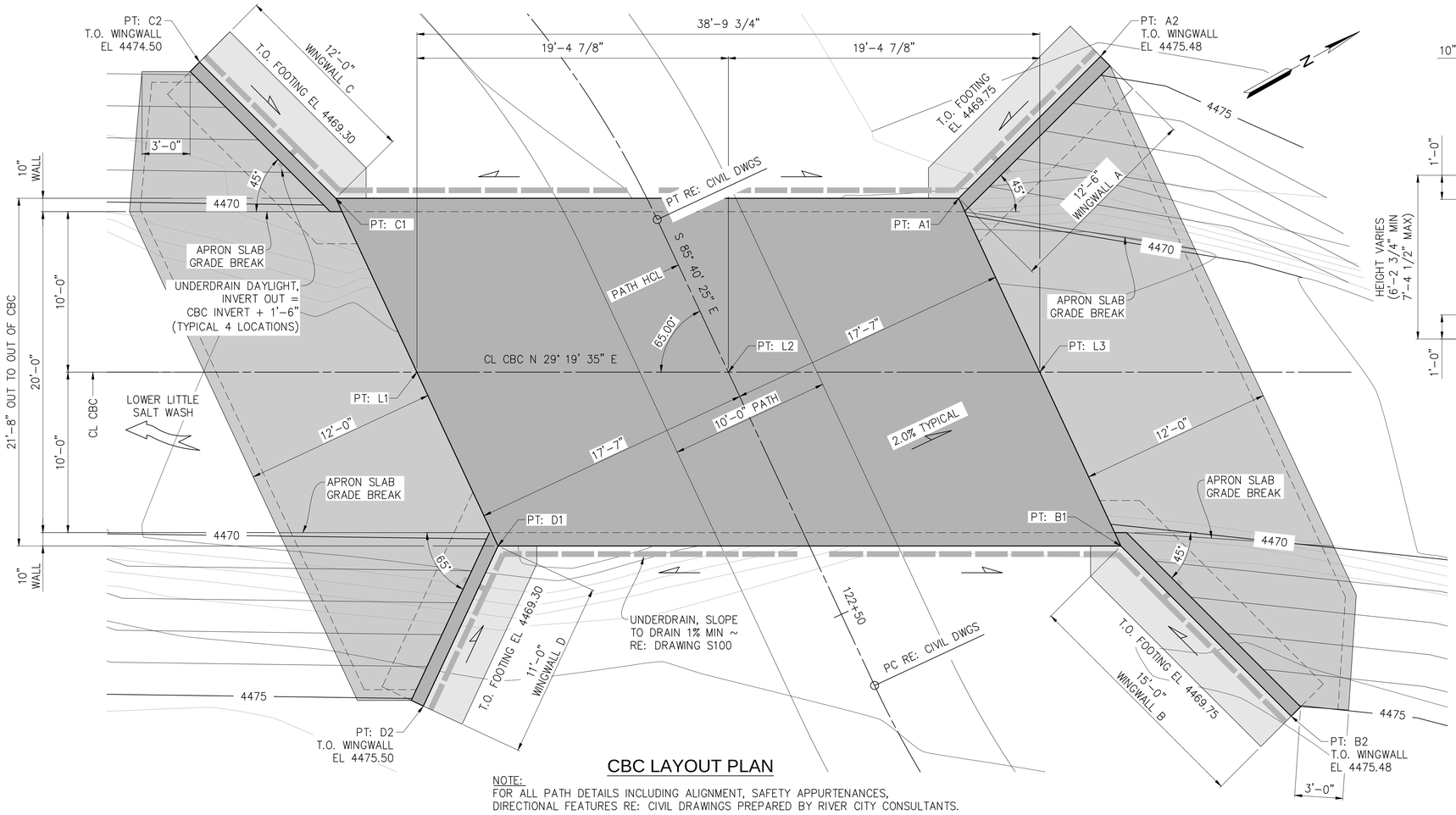
DRAWN BY: MNG CHECKED BY: TNS

CITY OF FRUITA

Lower Little Salt Wash Riverfront Trail Connection

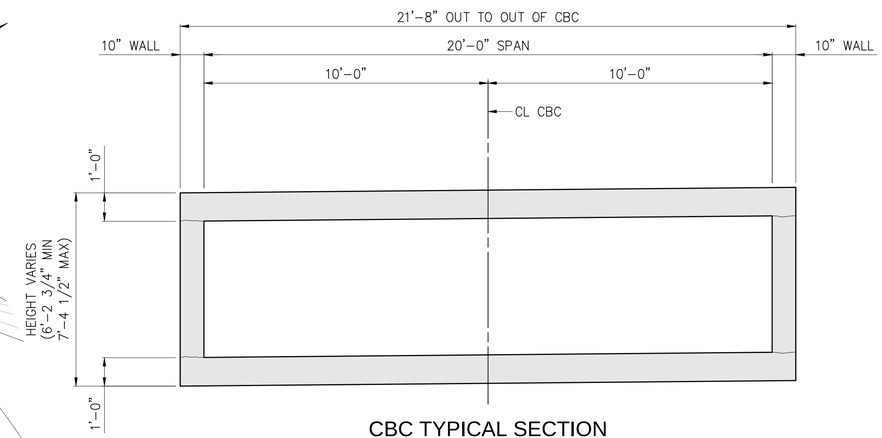
Pedestrian Bridge Details

S201



CBC LAYOUT PLAN

NOTE:
FOR ALL PATH DETAILS INCLUDING ALIGNMENT, SAFETY APPURTENANCES, DIRECTIONAL FEATURES RE: CIVIL DRAWINGS PREPARED BY RIVER CITY CONSULTANTS.

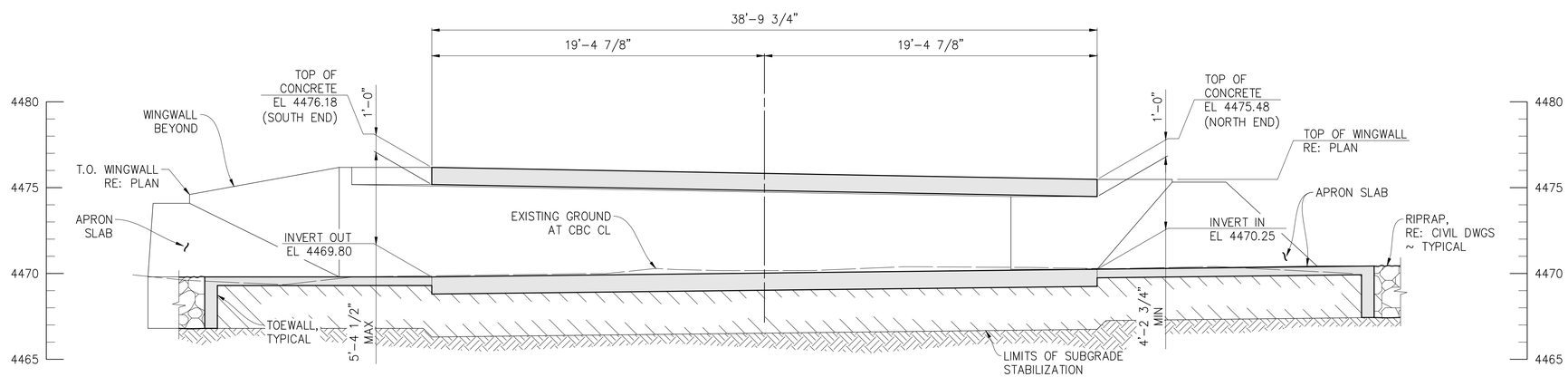


CBC TYPICAL SECTION

TAKEN NORMAL TO CL CBC, LOOKING NORTH

BOX CULVERT GEOMETRY INFORMATION

POINT	DESCRIPTION	NORTHING:	EASTING:	STATION:	OFFSET
L1	CL CBC	68835.94	39919.93	122+25.15	17.58 RT
L2	CL CBC	68852.86	39929.43	122+33.35	0.00
L3	CL CBC	68869.77	39938.94	122+41.55	17.58 LT
A1	CBC CORNER	68870.68	39927.02	122+29.59	17.58 LT
A2	END OF WINGWALL	68882.71	39923.64	122+25.32	29.33 LT
B1	CBC CORNER	68868.87	39950.85	122+53.50	17.58 LT
B2	END OF WINGWALL	68872.92	39965.30	122+74.60	20.61 LT
C1	CBC CORNER	68836.85	39908.01	122+09.42	16.50 RT
C2	END OF WINGWALL	68833.60	39896.46	121+92.85	16.34 RT
D1	CBC CORNER	68835.04	39931.85	122+37.10	17.58 RT
D2	END OF WINGWALL	68826.10	39938.27	122+44.17	26.01 RT



CBC LONGITUDINAL SECTION

TAKEN ALONG CL CBC, LOOKING WEST

UNCC UNIVERSITY OF NORTH CAROLINA AT CHARLOTTE 800.922.1987 www.uncc.org

811 Know what's below. Call before you dig.

CALL 2 BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

ORIGINAL SHEET SIZE:

REVISIONS

NO.	DATE	DESCRIPTION	BY

MARTIN/MARTIN CONSULTING ENGINEERS
12499 WEST COLFAX AVENUE, LAKEWOOD, COLORADO 80215
MAIN 303.431.6100 MARTINMARTIN.COM

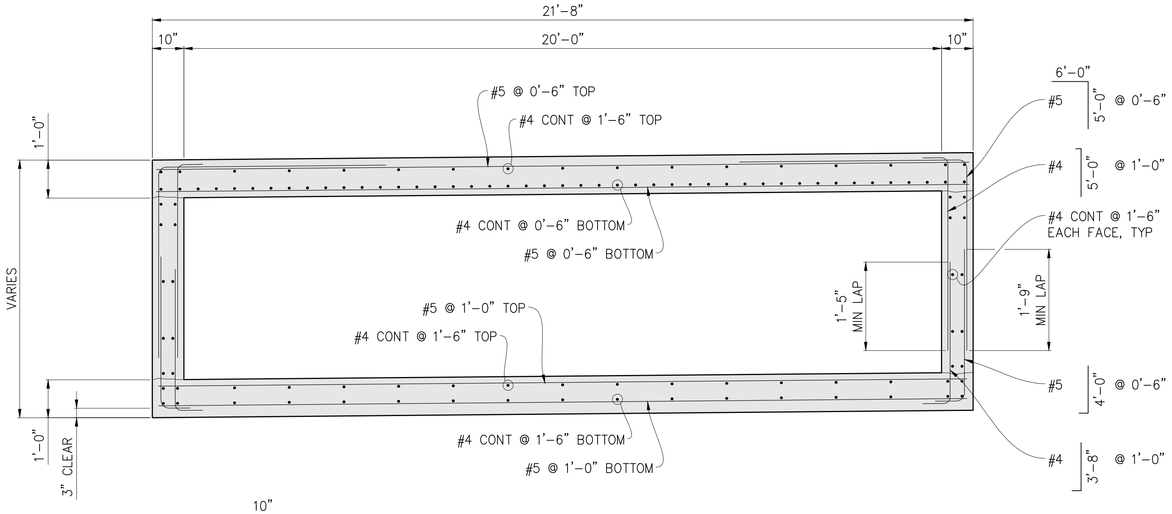
RESIDENT ENGINEER:
CDOT PROJECT #: STE M505-006 (18643)
RCC PROJECT #: 0171-037 DATE ISSUED: 05.08.15
DRAWN BY: MNG CHECKED BY: TNS

CITY OF FRUITA

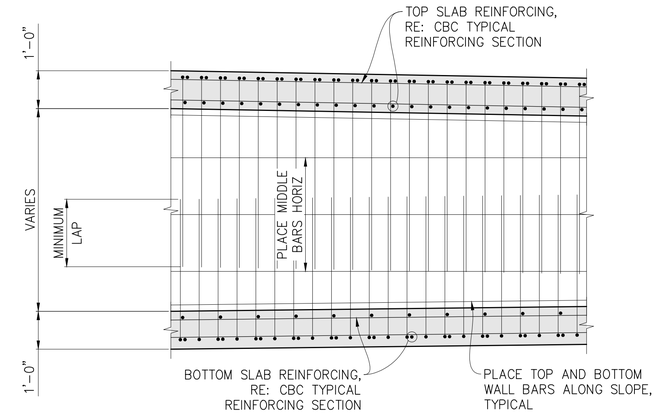
Lower Little Salt Wash Riverfront Trail Connection

CBC General Layout

S300



CBC TYPICAL REINFORCING SECTION



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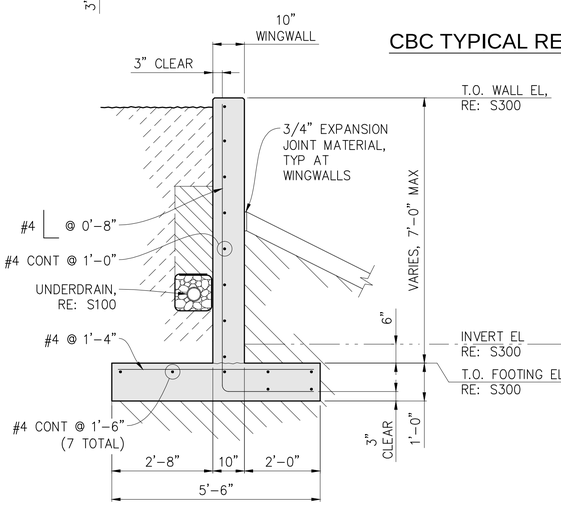
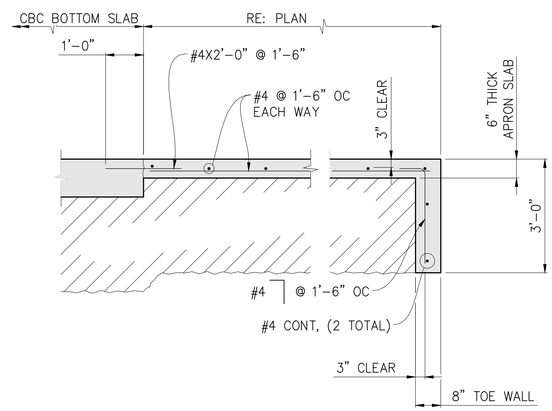
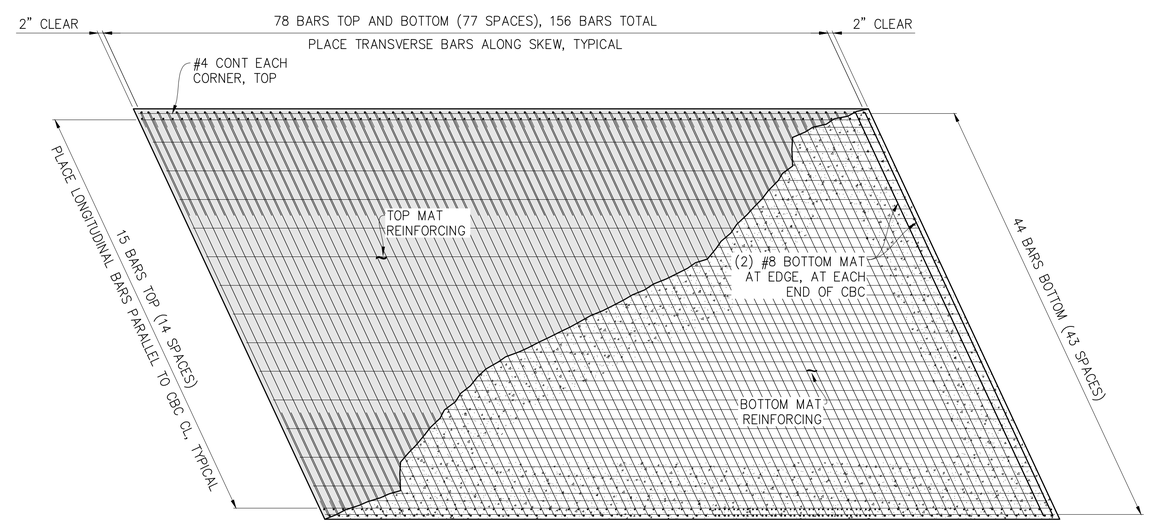


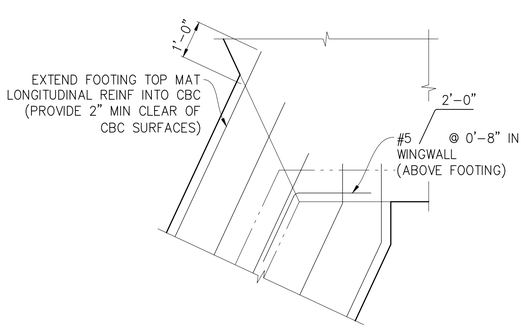
TYPICAL WINGWALL SECTION



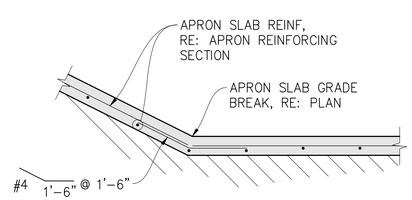
APRON REINFORCING SECTION



CBC TOP SLAB REINFORCING PLAN



WINGWALL FOOTING CONNECTION



APRON SECTION AT GRADE TRANSITION

UNCC UTILITY NOTIFICATION CENTER OF COLORADO 800.922.1987 www.uncc.org
811 Know what's below. Call before you dig.
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MARTIN/MARTIN CONSULTING ENGINEERS
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RESIDENT ENGINEER:
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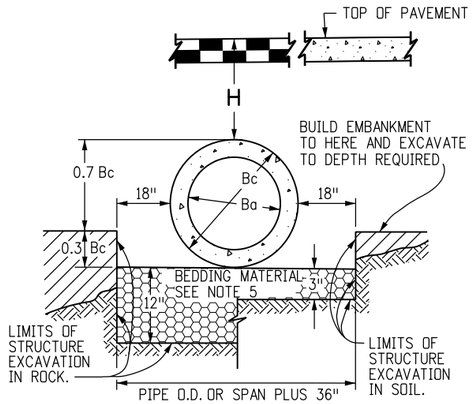
RCC PROJECT #: 0171-037 DATE ISSUED: 05.08.15
DRAWN BY: MNG CHECKED BY: TNS

CITY OF FRUITA

Lower Little Salt Wash Riverfront Trail Connection

CBC Details

S301



NOTE: Bc IS THE OUTSIDE DIMENSION FOR DIAMETER, SPAN OR RISE.

PIPE INSTALLATION

(WITH 0.7 PROJECTION RATIO)

CIRCULAR (CIR)			VERTICAL ELLIPTICAL (VE)				HORIZONTAL ELLIPTICAL (HE)			
△ PIPE SIZE= *Ba* (INSIDE DIA)	WALL THICKNESS	0.3 *Bc* (OUTSIDE DIA)	SPAN	RISE	WALL THICKNESS	0.3 OUTSIDE RISE	SPAN	RISE	WALL THICKNESS	0.3 OUTSIDE RISE
IN.		FT.	IN.			FT.	IN.			FT.
12	2	0.40								
15	2-1/4	0.49								
18	2-1/2	0.58					23	14	2-3/4	0.49
21	2-3/4	0.66								
24	3	0.75					30	19	3-1/4	0.66
27	3-1/4	0.84					34	22	3-1/2	0.73
30	3-1/2	0.92					38	24	3-3/4	0.79
33	3-3/4	1.01								
36	4	1.10	29	45	4-1/2	1.35	45	29	4-1/2	0.95
42	4-1/2	1.28	34	53	5	1.58	53	34	5	1.10
48	5	1.45	38	60	5-1/2	1.78	60	38	5-1/2	1.23
54	5-1/2	1.62	43	68	6	2.00	68	43	6	1.38
60	6	1.80	48	76	6-1/2	2.23	76	48	6-1/2	1.53
66	6-1/2	1.97	53	83	7	2.43	83	53	7	1.68
72	7	2.15	58	91	7-1/2	2.65	91	58	7-1/2	1.83
78	7-1/2	2.32	63	98	8	2.85	98	63	8	1.98
84	8	2.50	68	106	8-1/2	3.08	106	68	8-1/2	2.13
90	8-1/2	2.68	72	113	9	3.28	113	72	9	2.25
96	9	2.85	77	121	9-1/2	3.50	121	77	9-1/2	2.40
102	9-1/2	3.02	82	128	9-3/4	3.69	128	82	9-3/4	2.54
108	10	3.20	87	136	10	3.90	136	87	10	2.68

△ ALSO EQUIVALENT ROUND DIMENSION FOR ELLIPTICAL PIPE.

DIMENSIONS FOR REINFORCED CONCRETE PIPE

(FOR INFORMATION ONLY)

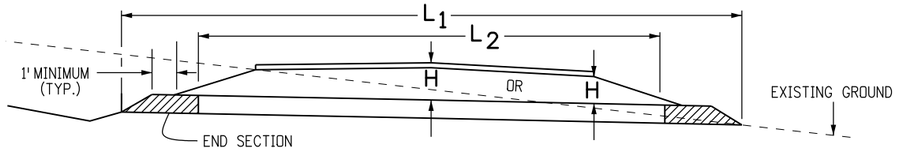
GENERAL NOTES

REINFORCED CONCRETE PIPE

1. FILL HEIGHTS GREATER THAN MAXIMUM ALLOWED IN THE HEIGHTS OF FILL TABLE ON THIS SHEET REQUIRE SPECIAL DESIGN OF STRUCTURE.
2. PIPE DESIGN IS BASED ON SAFETY FACTOR OF 1.33 ON ULTIMATE STRENGTH.
3. THE HEIGHTS OF FILL OVER TOP OF PIPE ARE BASED ON UNIT WEIGHT OF SOIL AT 135 LBS. PER CUBIC FT.
4. PIPE CLASS IS DETERMINED FROM 0.01 IN. CRACK D-LOAD.
5. BEDDING IS CLASS B (MODIFIED) (FROM CONCRETE PIPE DESIGN MANUAL-AMERICAN CONCRETE PIPE ASSOCIATION) WITH SETTLEMENT RATIO R = 0.0 sd (YIELDING BED). BEDDING MATERIAL FOR RIGID PIPE IN SOIL SHALL BE 3 IN. LOOSE THICKNESS STRUCTURE BACKFILL CLASS 2. BEDDING MATERIAL FOR RIGID PIPE IN ROCK SHALL BE 12 IN. LOOSE THICKNESS STRUCTURE BACKFILL CLASS 1.
6. CHANGES IN DESIGN FACTORS REQUIRE COMPENSATING CHANGES IN PIPE DESIGN.
7. MINIMUM WALL THICKNESS DIMENSIONS ARE BASED ON AASHTO M 170 (WALL B) FOR CIRCULAR PIPE, AND AASHTO M 207 FOR ELLIPTICAL PIPE.
8. SPACING FOR MULTIPLE PIPE INSTALLATIONS SHALL CONFORM TO THE DETAILS SHOWN ON STANDARD PLAN M-206-1.
9. WHEN A PIPE IS TO BE EXTENDED, THE SAME PIPE MATERIAL AND SIZE AS IN THE ORIGINAL PIPE INSTALLATION SHALL BE USED.

NONREINFORCED CONCRETE PIPE

1. AT THE OPTION OF THE CONTRACTOR, NONREINFORCED CONCRETE PIPE CONFORMING TO AASHTO M 86 MAY BE USED IN LIEU OF REINFORCED CONCRETE PIPE FOR ALL SIZES 36 INCHES IN DIAMETER AND SMALLER. THE NONREINFORCED CONCRETE PIPE SHALL MEET THE SAME D-LOAD TO PRODUCE THE ULTIMATE LOAD UNDER THE THREE-EDGE BEARING METHOD AS SPECIFIED FOR REINFORCED CONCRETE PIPE IN CONFORMANCE WITH AASHTO M 170. THE CONTRACTOR SHALL PROVIDE WRITTEN CERTIFICATION OF CONFORMACE. THE WALL THICKNESS OF THE NONREINFORCED PIPE MAY BE INCREASED AS REQUIRED TO MEET D-LOAD REQUIREMENT.
2. ALL REQUIREMENTS FOR REINFORCED CONCRETE PIPE, EXCEPT THOSE REFERRING TO REINFORCEMENT, SHALL APPLY TO NONREINFORCED CONCRETE PIPE.



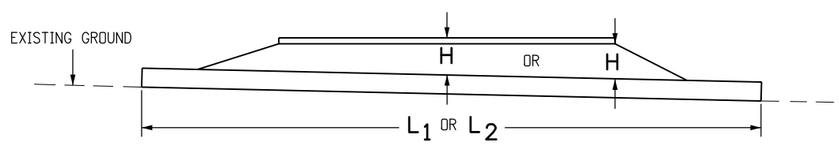
CONCRETE PIPE WITH END SECTIONS

NOTE: USE THE H THAT IS GREATER FOR MAXIMUM ALLOWABLE FILL HEIGHT.

H = HEIGHT OF FILL OVER TOP OF PIPE, INCLUDING PAVEMENT THICKNESS.

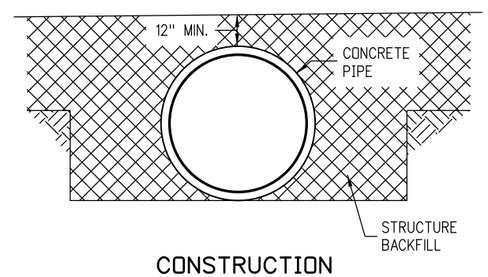
L_1 = LENGTH OF PIPE TO BE MEASURED WHEN PLACED IN ACCORDANCE WITH SECTION 624.

L_2 = LENGTH OF PIPE TO BE MEASURED WHEN PLACED IN ACCORDANCE WITH SECTION 603.



CONCRETE PIPE WITHOUT END SECTIONS

NOTE: USE THE H THAT IS GREATER FOR MAXIMUM ALLOWABLE FILL HEIGHT.



CONSTRUCTION MINIMUM COVER FOR RIGID PIPE

TYPE OF PIPE	HEIGHT OF FILL OVER TOP OF PIPE, H (FEET)				
	CLASS OF PIPE (0.01 IN. CRACK D-LOAD)				
	CLASS CIR II CLASS VE II CLASS HE II 1000 D	CLASS CIR III CLASS VE III CLASS HE III 1350 D	CLASS CIR IV CLASS VE IV CLASS HE IV 2000 D	CLASS CIR V CLASS VE V ——— 3000 D	——— CLASS VE VI ——— 4000 D
CIRCULAR (CIR)	1 TO 18	1 TO 25	± 25 TO 37	± 37 TO 45	
VERTICAL ELLIPTICAL (VE)	1 TO 18	1 TO 25	± 25 TO 37	± 37 TO 45	± 45 TO 62
HORIZONTAL ELLIPTICAL (HE)	1 TO 18	1 TO 25	± 25 TO 37		

ALLOWABLE RANGE OF HEIGHTS FOR FILL OVER REINFORCED CONCRETE PIPE

(ALL SIZES)

Computer File Information	
Creation Date: 07/04/12	Initials: DLM
Last Modification Date: 10/02/14	Initials: LTA
Full Path: www.coloradodot.info/business/designsupport	
Drawing File Name: 603020101.dgn	
CAD Ver.: MicroStation V8 Scale: Not to Scale	Units: English

	Sheet Revisions	
	Date:	Comments
(R-X)	3/25/14	Made Min. Cover for Rigid Pipe detail like others. Deleted Gen Note 1 & renumbered.
(R-X)	4/11/14	Changed "Min." to 1 in Heights table.
(R-X)		
(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

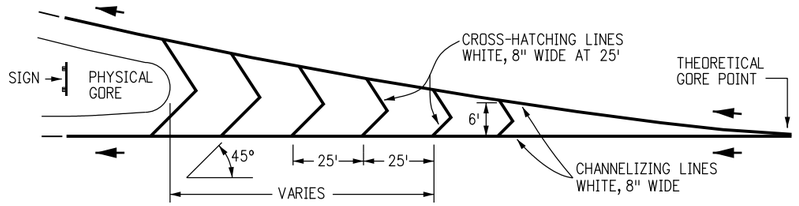
REINFORCED CONCRETE PIPE

Issued By: Project Development Branch on July 4, 2012

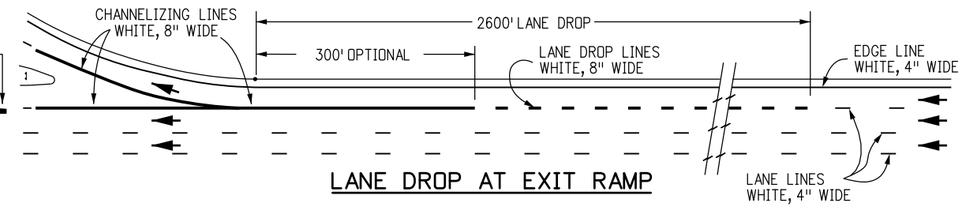
STANDARD PLAN NO.

M-603-2

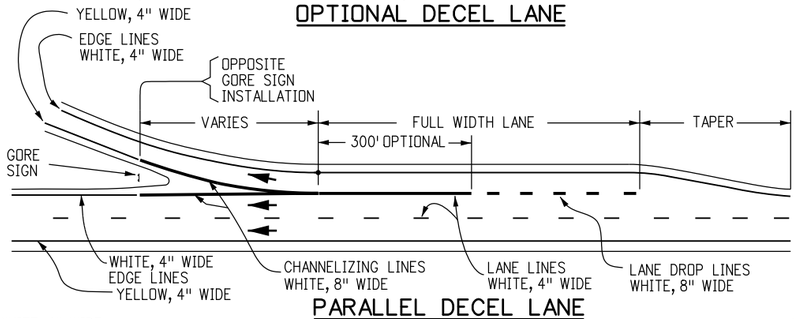
Sheet No. 1 of 1



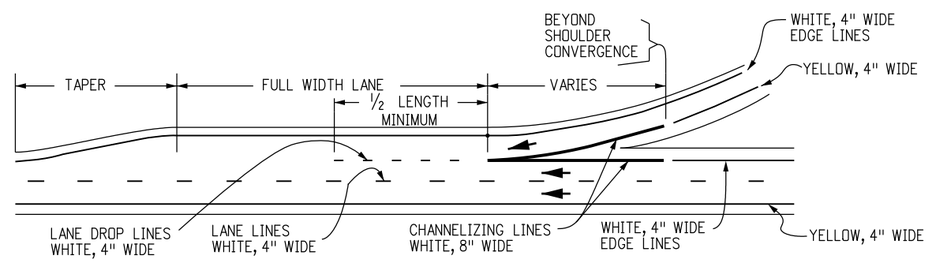
OPTIONAL DECEL LANE



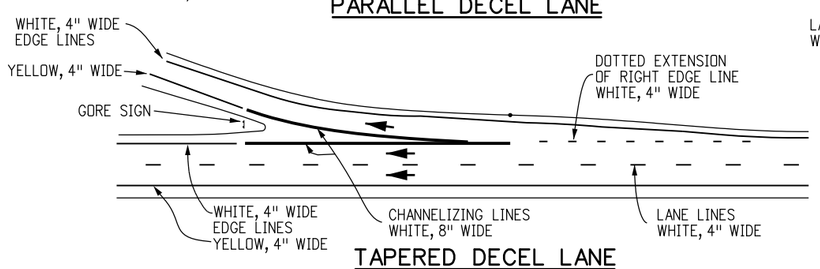
LANE DROP AT EXIT RAMP



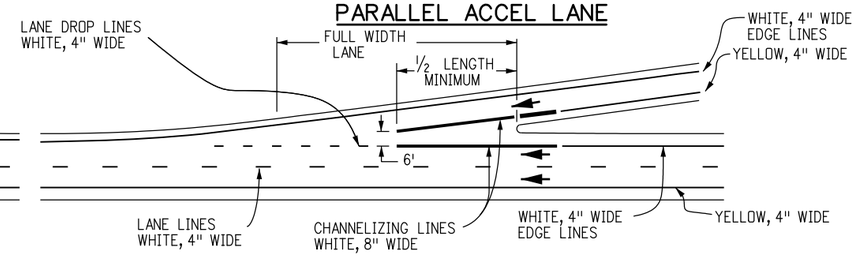
PARALLEL DECEL LANE



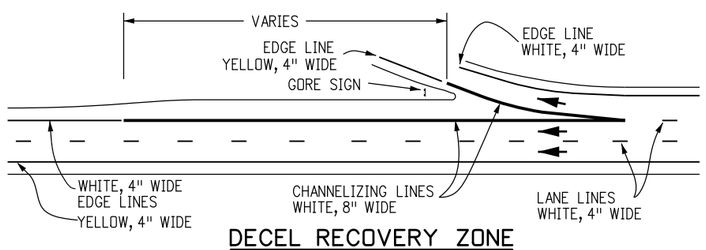
PARALLEL ACCEL LANE



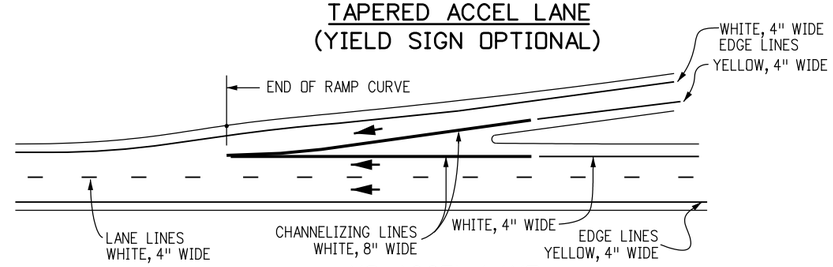
TAPERED DECEL LANE



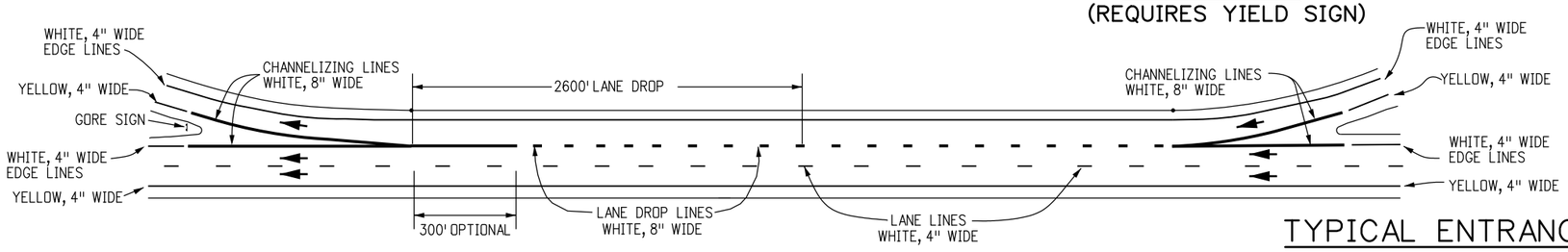
TAPERED ACCEL LANE
(YIELD SIGN OPTIONAL)



DECEL RECOVERY ZONE



NO ACCEL LANE
(REQUIRES YIELD SIGN)



COMBINATION ACCEL-DECEL LANE

TYPICAL ENTRANCE AND EXIT RAMP MARKINGS

GENERAL NOTES

1. CENTER LINES

   BROKEN YELLOW, 4 IN. WIDE - 10 FT. SEGMENTS WITH 30 FT. GAPS.

   SOLID YELLOW, 4 IN. WIDE.
   THESE LINES SEPARATE ADJACENT-OPPOSITE DIRECTION TRAFFIC LANES. DOUBLE LINES SHALL BE SPACED 4 IN. APART.

2. LANE LINES

   BROKEN WHITE, 4 IN. WIDE - 10 FT. SEGMENTS WITH 30' GAPS.

   SOLID WHITE, 4 IN. WIDE.
   THESE LINES SEPARATE ADJACENT-SAME DIRECTION TRAFFIC LANES. A SOLID LINE MAY BE USED TO DISCOURAGE LANE CHANGING, WHILE TWO PARALLEL SOLID WHITE LINES ARE REQUIRED TO PROHIBIT LANE CHANGING.

3. EDGE LINES

   SOLID WHITE OR YELLOW EDGE LINES SHALL BE 4 IN. WIDE. YELLOW EDGE LINES SHALL BE USED ONLY FOR LEFT EDGE, IN THE DIRECTION OF TRAVEL OF DIVIDED STREETS AND HIGHWAYS (SEPARATED BY OTHER THAN A PAINTED MEDIAN) AND ONE-WAY ROADWAYS (INCLUDING RAMPS).

   EDGE LINES ARE NOT CONTINUED THROUGH INTERSECTIONS AND ARE NOT BROKEN FOR DRIVEWAYS. CARE MUST BE TAKEN TO AVOID EDGE LINE APPEARING AS LANE LINE ALONG ROADWAYS WITH WIDE SHOULDERS AND/OR CLOSELY SPACED DRIVEWAYS.

4. DOTTED LINES

   BROKEN WHITE, WIDTH MATCHING THE LINE BEING EXTENDED-2 FT. SEGMENTS WITH 4 FT. GAPS. THESE LINES ARE USED TO DELINEATE THE EXTENSION OF A LINE THROUGH AN INTERSECTION OR INTERCHANGE AREA.

5. CHANNELIZING LINES

   SOLID WHITE, 8 IN. WIDE. THESE LINES ARE USED WITH ACCELERATION-DECELERATION LANES, PAVEMENT WIDTH TRANSITIONS, AND LEFT-RIGHT TURN SLOTS OR ISLANDS.

6. CROSS-HATCHING LINES

   SOLID WHITE OR YELLOW, 8 IN. WIDE-45 DEGREE DIAGONAL, SPACED AT 25 FT. INTERVALS. THESE LINES ARE OPTIONAL AND MAY BE PLACED AT LOCATIONS INDICATED ON THE PLANS OR DETERMINED BY THE ENGINEER. YELLOW SHALL BE USED FOR PAINTED MEDIANS OR PAVEMENT WIDTH TRANSITIONS ONLY.

   OPTIONAL DIAGONAL SHOULDER MARKINGS SHALL BE SOLID WHITE, 8 IN. WIDE, SPACED AT INTERVALS OF 20 FT. MINIMUM TO 100 FT. MAXIMUM.

7. PARKING LINES

   SOLID WHITE, 3 IN. WIDE-DIAGONAL OR PARALLEL AS SHOWN ON THE PLANS OR DIRECTED BY THE ENGINEER.

8. STOP LINES

   SOLID WHITE, 24 IN. WIDE-EXTEND PARALLEL TO INTERSECTED ROADWAY ACROSS ALL APPROACH LANES OR AS INDICATED AT LOCATIONS ON THE PLANS. LOCATE AT THE DESIRED STOPPING POINT, NOT MORE THAN 30 FT, NOR LESS THAN 4 FT. FROM THE NEAREST EDGE OF THE INTERSECTED TRAFFIC LANE.

9. LANE DROP MARKINGS

   BROKEN WHITE, 8 IN. WIDE - 3 FT. SEGMENTS WITH 9 FT. GAPS. THESE LINES SHOULD BEGIN 2600 FT. IN ADVANCE OF THE THEORETICAL GORE POINT TO DISTINGUISH THE LANE DROP FROM A CONTINUOUS LANE. THE CHANNELIZING LINE MAY BE EXTENDED APPROXIMATELY 300 FT. UPSTREAM.

(CONTINUED ON SHEET NO. 2)

Computer File Information	
Creation Date: 07/04/12	Initials: SCL
Last Modification Date: 06/10/14	Initials: KEN
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	
Drawing File Name: S-627-01_1of5.dgn	
CAD Ver.: MicroStation V8 Scale: Not to Scale	Units: English

	Sheet Revisions	
	Date:	Comments
R-1	10/18/12	SHEET 2 - ADDED "D" NOTE
R-2	06/27/13	SHEET 5 - UPDATED BICYCLIST SYMBOL
R-3	09/16/13	SHEET 3 - UPDATED TYPICAL ISLAND MARKINGS DETAIL
R-4	06/16/14	SHEET 1 - CORRECTED STRIPING ERROR IN PARALLEL ACCEL LANE DETAIL

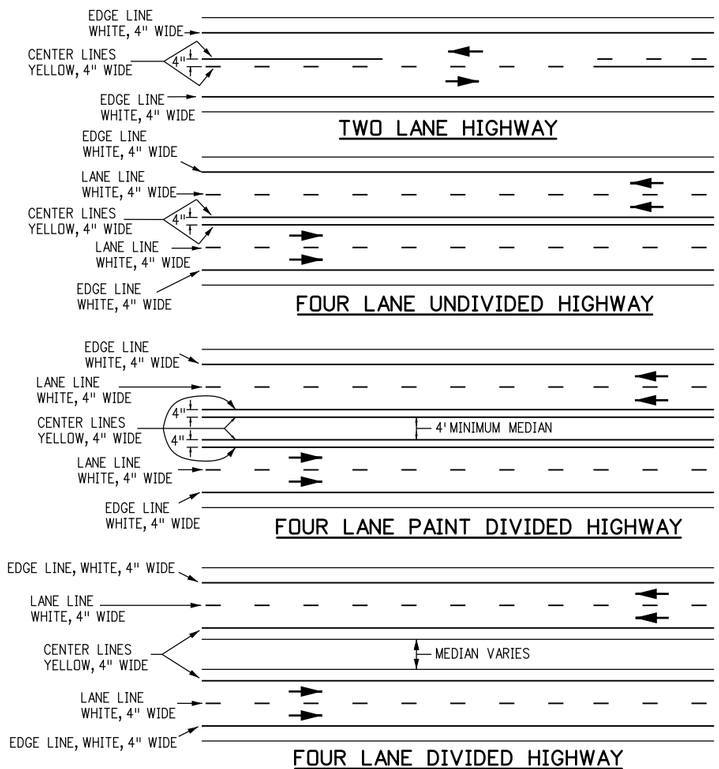
Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9543
Fax: (303) 757-9219
Safety & Traffic Engineering Branch KCM/KEN

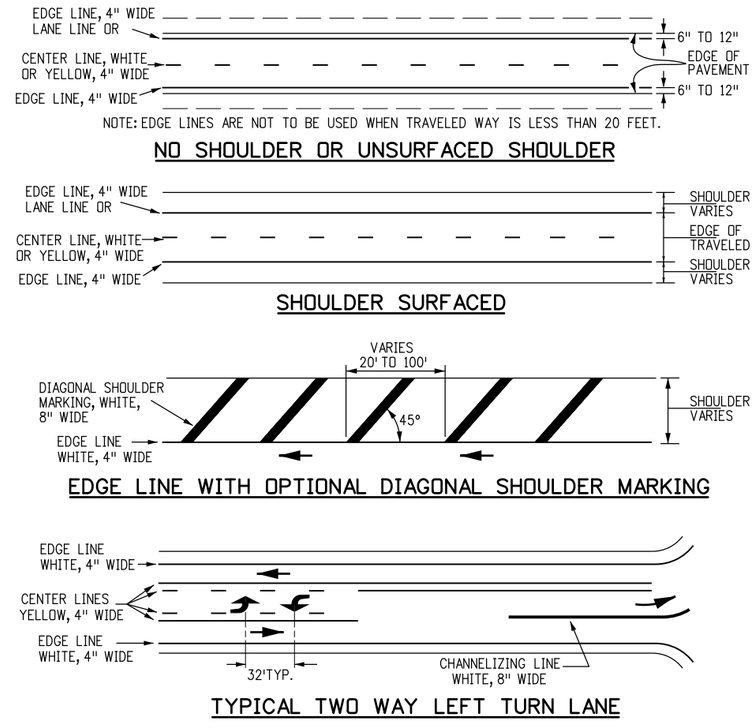
PAVEMENT MARKINGS

Issued By: Safety & Traffic Engineering Branch July 4, 2012

STANDARD PLAN NO.

S-627-1





GENERAL NOTES

(CONTINUED FROM SHEET NO. 1)

10. CROSSWALK LINES

SOLID WHITE, 12 IN. WIDE FOR TRANSVERSE LINE TYPE - EXTEND ACROSS ENTIRE WIDTH OF PAVEMENT. IF NO ADVANCE STOP LINE IS PROVIDED, INCREASE THE WIDTH OF THE CROSSWALK LINES TO 24 IN. THE DISTANCE BETWEEN THE LINES IS USUALLY DETERMINED BY THE WIDTH OF THE SIDEWALKS SO CONNECTED, HOWEVER, IN NO CASE SHALL THIS BE LESS THAN 6 FT.

COMPLICATED AND/OR CHANNELIZED INTERSECTIONS AND MID-BLOCK CROSSWALKS SHALL BE SOLID WHITE, 12 IN. TO 24 IN. WIDE AND 8 FT. TO 10 FT. LONG FOR LONGITUDINAL LINE TYPE AS DETAILED IN THE PLANS OR AS DIRECTED BY THE ENGINEER.

11. WORD, ARROW AND SYMBOL MARKINGS

ALL LETTERS, ARROWS AND SYMBOLS SHALL BE IN CONFORMANCE WITH "THE STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" ADOPTED BY THE FEDERAL HIGHWAY ADMINISTRATION.

12. TRANSITION TAPER LENGTH

L = MINIMUM LENGTH OF TAPER.

S = DESIGN SPEED FOR NEW CONSTRUCTION OR NUMERICAL VALUE OF THE POSTED SPEED LIMIT OF THE 85TH PERCENTILE SPEED OF EXISTING TRAFFIC.

W = WIDTH TRANSITIONED

FORMULA: FOR SPEED 45 MPH OR MORE, $L = S \times W$

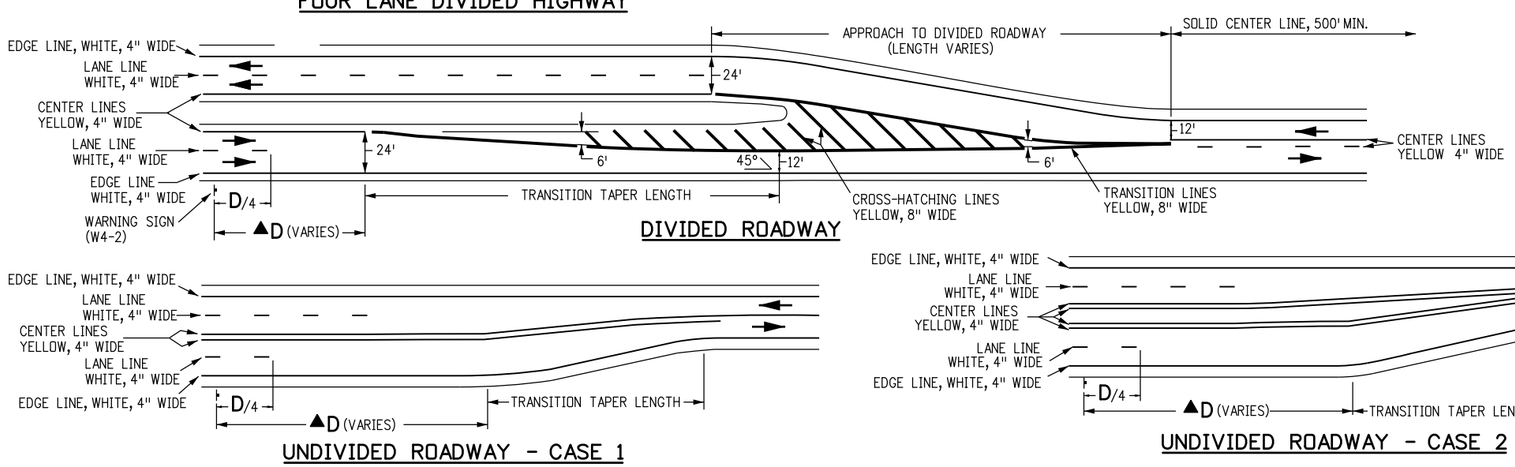
FOR SPEED 40 MPH OR LESS, $L = \frac{WS^2}{60}$

13. TRANSITION LINES

SOLID YELLOW, 8 IN. WIDE. THESE LINES ARE USED WHERE ADDITIONAL EMPHASIS OR VISIBILITY IS DESIRABLE AT PAVEMENT WIDTH TRANSITIONS. PLACE AT LOCATIONS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

14. SPEED MEASURING MARKING

SOLID WHITE, 24 IN. - EXTEND 4 FT. FROM OUTSIDE OF EDGE LINES ON SHOULDERS.



▲ NOTE:

D = THE DISTANCE FROM THE PAVEMENT WIDTH TRANSITION SIGN (W4-2) TO THE BEGINNING OF THE TRANSITION TAPER. FOR MORE INFORMATION ON THE "D" VALUE REGARDING SIGN AND PAVEMENT MARKING PLACEMENT, SEE THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", TABLE 2C-4, CONDITION A: SPEED REDUCTION AND LANE CHANGING IN HEAVY TRAFFIC AND FOOTNOTE 2 REGARDING TYPICAL CONDITIONS.

TYPICAL PAVEMENT WIDTH TRANSITION MARKINGS

Computer File Information	
Creation Date: 07/04/12	Initials: KEN
Last Modification Date: 10/18/12	Initials: SCL
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	
Drawing File Name: S-627-01_2of5.dgn	
CAD Ver.: MicroStation V8 Scale: Not to Scale	Units: English

	Sheet Revisions	
	Date:	Comments
R-1	10/18/12	ADDED MORE NOTES ON "D" VALUE
R-X		
R-X		
R-X		

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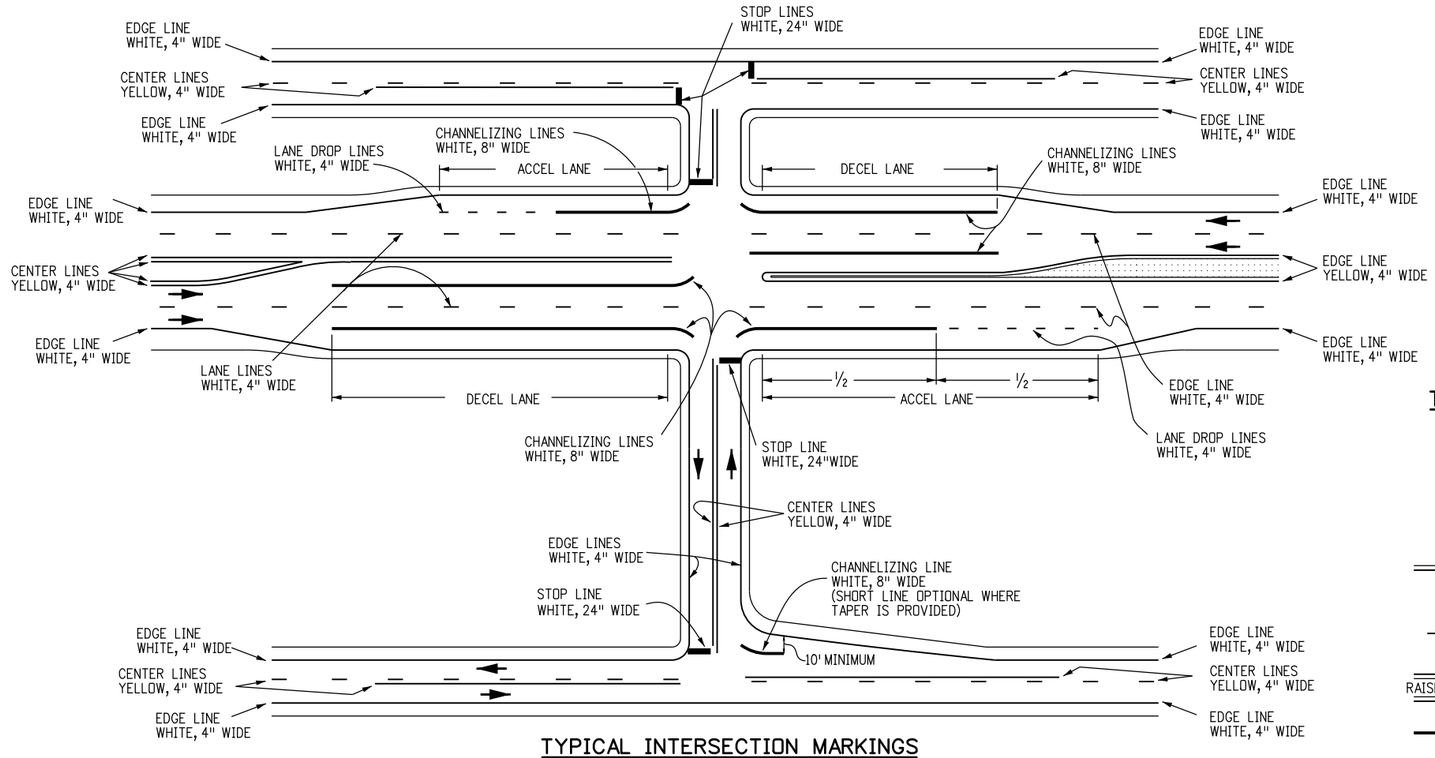
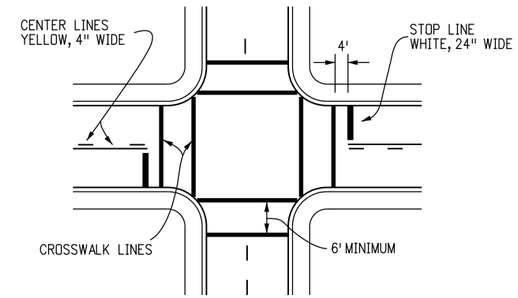
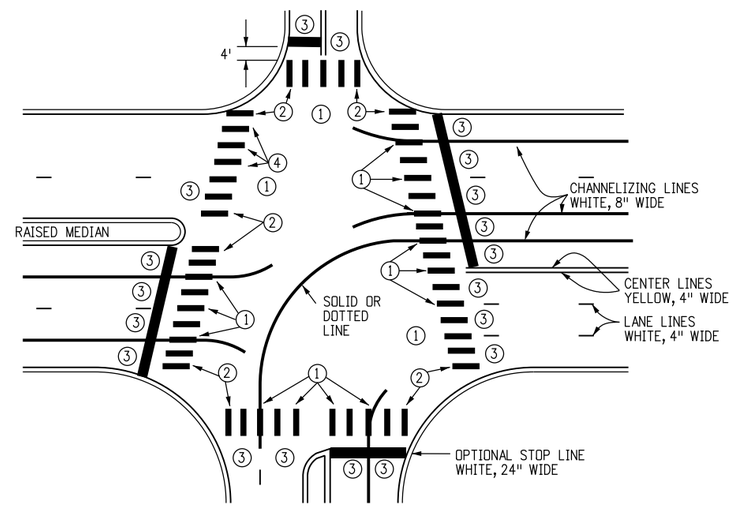


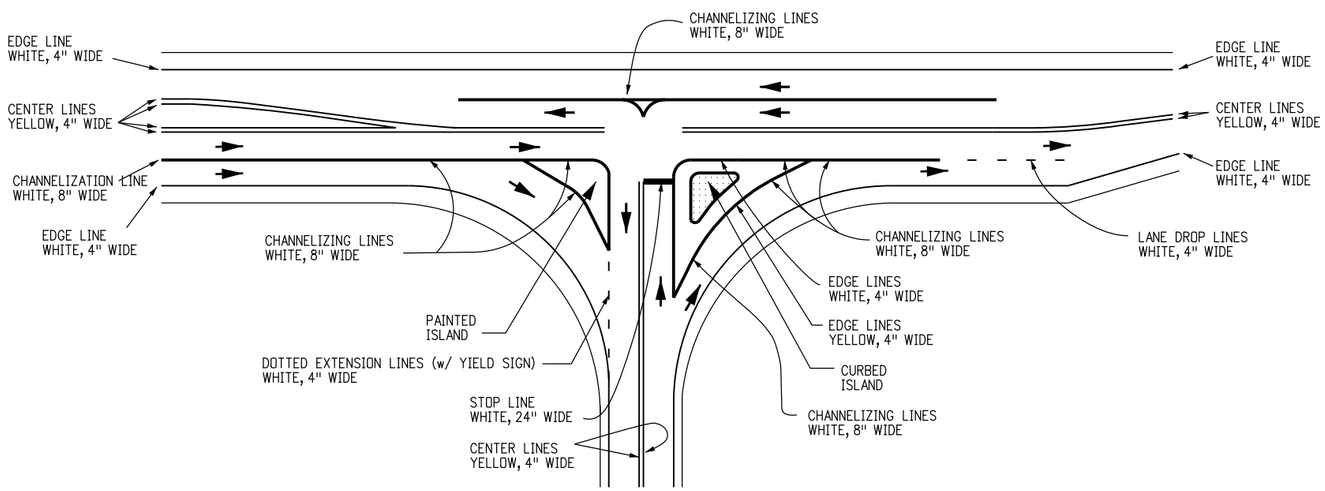
TYPICAL INTERSECTION MARKINGS



TYPICAL TRANSVERSE LINE CROSSWALK MARKINGS

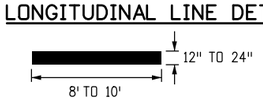


TYPICAL CONTINENTAL CROSSWALK MARKINGS



TYPICAL ISLAND MARKINGS

LONGITUDINAL LINE DETAIL



CROSSWALK NOTES

CENTER CROSSWALKS ON CURB RAMPS.
IF SUCH RAMPS ARE NOT PROVIDED CENTER
ON SIGNAL POLES WHEREVER PRACTICAL.

1. CENTER ON LANE, CENTER OR CHANNELIZING LINE.
2. CENTER OR EXTENDED FLOW LINE.
3. CENTER BETWEEN ADJACENT LINES.
4. LINES AND SPACES TO APPROXIMATE ADJACENT PATTERN.

INTERSECTIONS, ISLANDS AND CROSSWALKS

Computer File Information		
Creation Date: 07/04/12	Initials: JSW	
Last Modification Date: 09/16/13	Initials: KEN	R-3
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans		R-X
Drawing File Name: S-627-01_3of5.dgn		R-X
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English		R-X

Sheet Revisions	
Date:	Comments
09/16/13	ADDED ACCEL LANE IN TYP. ISLAND MARKING DETAIL

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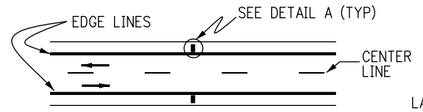
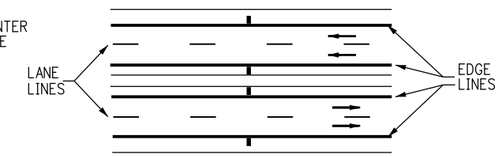
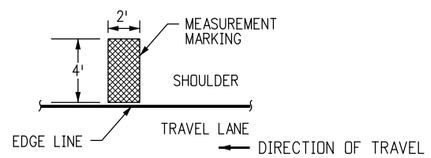


TWO - WAY ROADWAY

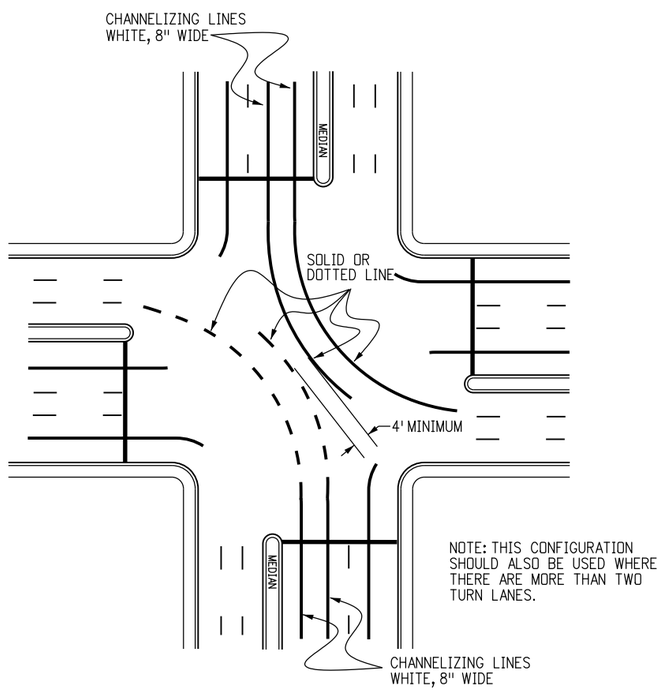


MULTI - LANE DIVIDED HIGHWAY

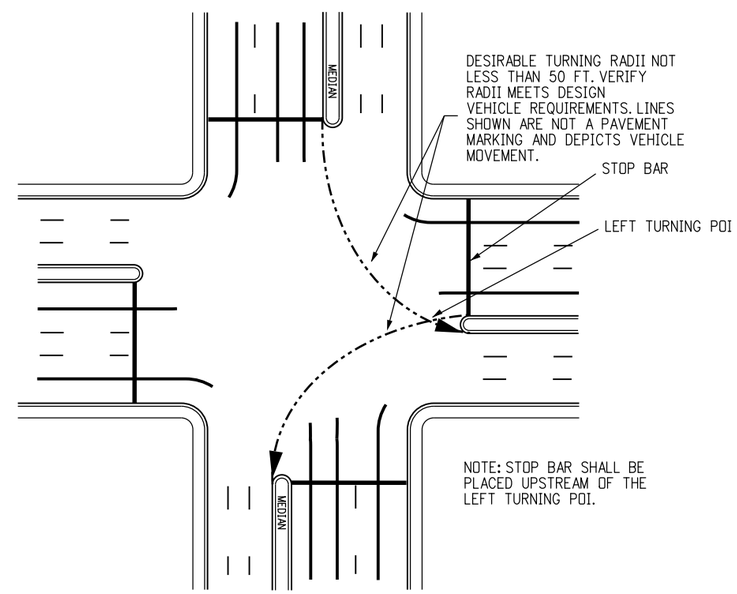


DETAIL A

TYPICAL SPEED MEASUREMENT MARKING



TYPICAL DOUBLE LEFT TURN MARKINGS



TYPICAL STOP BAR PLACEMENT

Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: SCL		Date:	Comments
Last Modification Date: Initials:	R-X		
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	R-X		
Drawing File Name: S-627-01_4of5.dgn	R-X		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	R-X		

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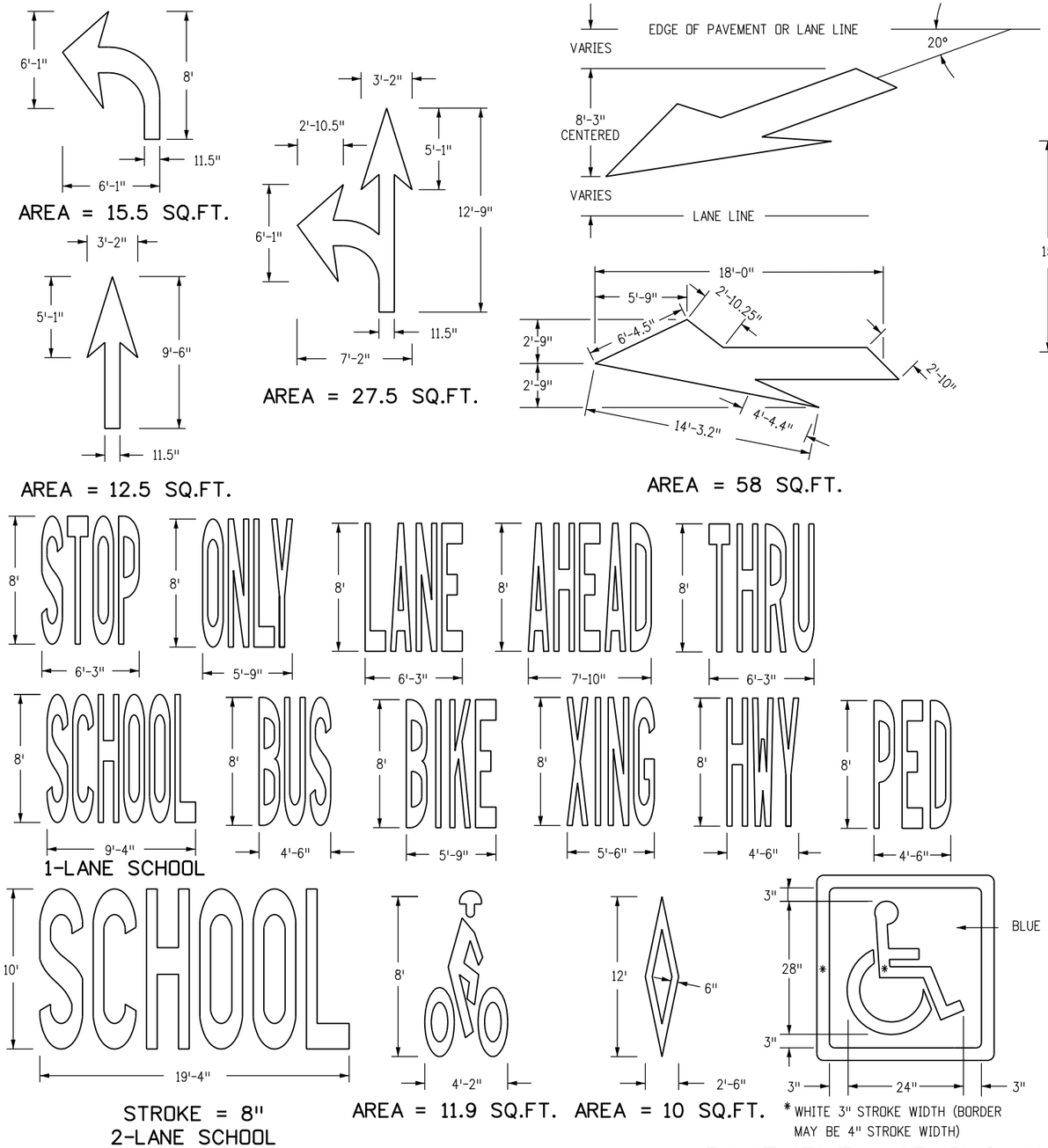
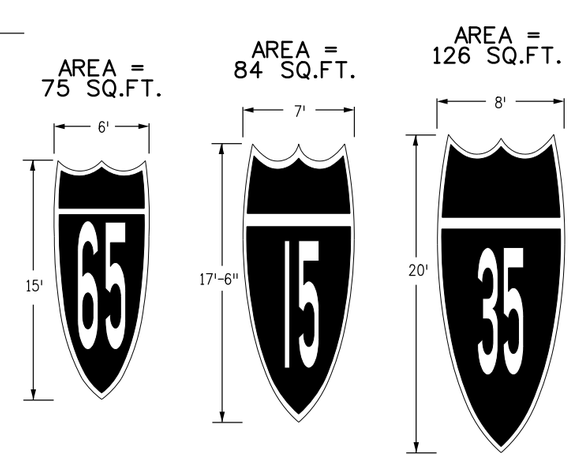


PAVEMENT MARKING WORDS AND SYMBOLS

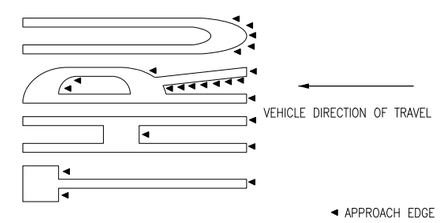


ELONGATED ROUTE SHIELDS

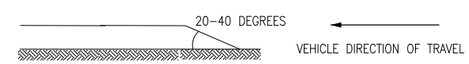
ELONGATED ROUTE SHIELD NOTES

ELONGATED ROUTE SHIELDS SHALL BE AT LEAST 8'x20' WHEN USED ON HIGH SPEED ROADWAYS (45 MPH OR MORE).

PER FIGURE 3B-25 OF THE 2009 MUTCD ELONGATED ROUTE SHIELD COLORS SHALL CONFORM WITH THE STANDARD HIGHWAY SIGNS AND MARKINGS BOOK.



TYPICAL APPROACH EDGE TAPERING VIEW



TYPICAL APPROACH EDGE TAPERING PROFILE VIEW

DESIGNATED PAYMENT AREAS

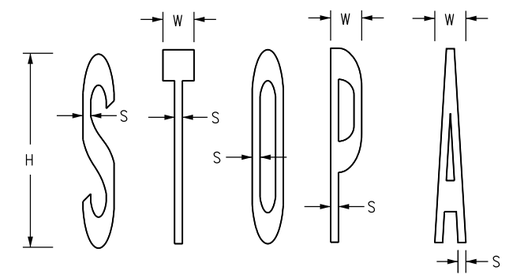
FOR THE FOLLOWING H, W, AND S DIMENSIONS PAY:

H = 4' WORDS

BIKE - 5.5 SQ.FT.	LANE - 6.0 SQ.FT.
ONLY - 6.0 SQ.FT.	XING - 5.0 SQ.FT.

H = 8' WORDS

STOP - 23.0 SQ.FT.	XING - 20.0 SQ.FT.
ONLY - 22.5 SQ.FT.	LANE - 22.5 SQ.FT.
AHEAD - 29.0 SQ.FT.	BIKE - 21.0 SQ.FT.
BUS - 18.5 SQ.FT.	HWY - 16.5 SQ.FT.
THRU - 22.0 SQ.FT.	SCHOOL(1L) - 33.0 SQ.FT.
PED - 17.5 SQ.FT.	SCHOOL(2L) - 85.0 SQ.FT.



H = HEIGHT	H = 8'	H = 4'
W = WIDTH	W = 1'-3.4" TO 1'-4"	W = 7.7" TO 8"
S = STROKE	S = 3.8" TO 4"	S = 1.9" TO 2"

TYPICAL LETTER MEASUREMENTS

WORD AND SYMBOL NOTES

IF HEIGHT IS INCREASED OR DECREASED THEN ALL MEASUREMENTS CHANGE PROPORTIONATELY. EXAMPLE: "H" MEASUREMENT FOR STOP IS REDUCED TO 4' FROM 8' THEN SQUARE FEET = 5.75 (1/4 OF 23.0 SQ. FT.).

PAVEMENT WORD AND SYMBOL MARKINGS, TRANSVERSE AND LONGITUDINAL (CONTINENTAL) CROSSWALK LINES, AND STOP LINES WILL BE PAID FOR IN SQUARE FEET USING THEIR SPECIFIC BID ITEMS.

TAPERING NOTES

ALL PAVEMENT MARKING APPROACH EDGES FROM THE VEHICLE DIRECTION OF TRAVEL SHALL BE TAPERED USING A PUTTY KNIFE OR SIMILAR TOOL.

Computer File Information		
Creation Date: 07/04/12	Initials: SCL	
Last Modification Date: 06/27/13	Initials: KEN	R-2
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans		R-X
Drawing File Name: S-627-01_5of5.dgn		R-X
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English		R-X

Sheet Revisions		
	Date:	Comments
R-2	06/27/13	UPDATED BICYCLIST SYMBOL
R-X		
R-X		
R-X		

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GENERAL NOTES

1. ALL CONSTRUCTION ZONE TRAFFIC CONTROL DEVICES, INCLUDING BUT NOT LIMITED TO BARRICADES, SIGNS, ARROW PANELS, FLASHING BEACON (PORTABLE), AND CHANNELIZING DEVICES, SHALL BE FURNISHED, INSTALLED, MAINTAINED (INCLUDING WASHING), REPLACED IF DAMAGED, REMOVED WHEN TEMPORARILY NOT IN USE AND RETURNED WHEN REQUIRED, RESET AS NECESSARY DURING THE PROGRESS OF CONSTRUCTION, AND REMOVED ENTIRELY WHEN THE PROJECT IS COMPLETED. ALL DEVICES SHALL MEET THE REQUIREMENTS OF THE LATEST EDITION OF THE ATSSA "QUALITY GUIDELINES FOR TEMPORARY TRAFFIC CONTROL DEVICES & FEATURES".

2. WORK ON THE PROJECT SHALL NOT BE STARTED UNTIL ALL REQUIRED TRAFFIC CONTROL DEVICES ARE IN PLACE, AND APPROVED BY THE ENGINEER.

3. WHEN SPEED LIMIT REDUCTION IS REQUIRED, SUCH REDUCTION SHALL BE IN ACCORDANCE WITH CDOT FORM 568, "AUTHORIZATION AND DECLARATION OF TEMPORARY SPEED LIMITS."

   WHEN A CHANGE IN AN EXISTING SPEED LIMIT IS REQUIRED, THE R2-1 SIGNS, SHOWN ON THE SCHEDULE OF CONSTRUCTION TRAFFIC CONTROL DEVICES, SHOULD BE INSTALLED AT THE LOCATIONS SHOWN ON THE TYPICAL CASES BY R2-1 (OPTIONAL) SIGNS.

   AN ADVISORY SPEED PLATE (W13-1P) MAY BE USED WITH A WARNING SIGN WHEN THE MAXIMUM RECOMMENDED SPEED FOR CONDITION NAMED IS LOWER THAN THE POSTED SPEED LIMIT.

   THE REGULATORY OR ADVISORY SPEED REDUCTION DISPLAYED SHALL NOT EXCEED 15 MPH PER SIGN INSTALLATION.

4. ANY TRAFFIC CONTROL DEVICE THAT IS DAMAGED, WEATHERED, WORN, OR OTHERWISE DEEMED UNACCEPTABLE BY THE ENGINEER, SHALL BE REPLACED.

5. CONTRACTOR AND PERSONAL VEHICLE PARKING IS PROHIBITED WITHIN THE RIGHT-OF-WAY UNLESS DESIGNATED ON THE PLANS, OR APPROVED BY THE ENGINEER.

6. CONSTRUCTION TRAFFIC SIGNS SHALL BE MEASURED BY THE FOLLOWING SIZES AND DESCRIPTIONS:

PANEL SIZE A	0.01 TO 9.00 SQ. FT. (INCLUDING TYPE 1 AND TYPE 2 BARRICADES).
PANEL SIZE B	9.01 TO 16.00 SQ. FT.
PANEL SIZE C	GREATER THAN 16 SQ. FT.

   CONSTRUCTION TRAFFIC SIGN (SPECIAL), SQ. FT., MAY BE USED FOR SOME PROJECT SPECIFIC INFORMATION SIGNS.

   FOR DETAILED DIMENSIONS OF SIGNS WITH SIGN CODE NUMBERS, SEE "STANDARD HIGHWAY SIGNS" AND THE "COLORADO SUPPLEMENT" THERETO. SIGN LAYOUTS FOR OTHER SIGNS WILL BE FURNISHED IN THE PLANS, TRANSMITTED TO THE ENGINEER AFTER AWARD, OR MAY BE AVAILABLE UPON REQUEST.

   W20-5 WARNING SIGNS SHALL BE FURNISHED WITH EXCHANGEABLE PLAQUES READING "RIGHT", "LEFT", "CENTER", "RIGHT 2", ETC. AT NO ADDITIONAL COST.

7. ALL WARNING AND REGULATORY SIGNS SHALL BE POSTED ON BOTH SIDES OF THE ROADWAY ON DIVIDED HIGHWAYS, MULTI-LANE RAMPS, ONE-WAY STREETS, AND AS DIRECTED BY THE ENGINEER, EXCEPT WHERE ONLY ONE SHOULDER IS CLOSED (EX: CASE 11 ON SHEET 7).

8. ADDITIONAL TRAFFIC CONTROL DEVICES ADDRESSING FLAGGING, SPEED REDUCTION, ETC. WILL BE NECESSARY FOR SET-UP AND TAKE-DOWN OF MOST CASE APPLICATIONS; DAILY WORK SITE ACCESS; AND PAVEMENT MARKING REMOVAL AND INSTALLATION OPERATIONS.

9. BASED ON SIGHT DISTANCE AND OTHER CONSIDERATIONS, THE FINAL LOCATIONS OF SIGNS ARE SUBJECT TO APPROVAL OF THE ENGINEER.

10. IF CONSTRUCTION RELATED TRAFFIC CONGESTION BACKS UP BEYOND THE INSTALLED ADVANCE SIGN SEQUENCE, ADDITIONAL ADVANCE SIGNING SHALL BE PLACED BEYOND THE CONGESTION.

11. ALL SIGN MATERIAL SHALL BE SOUND AND DURABLE TO THE DEGREE NECESSARY FOR MAINTAINING EFFECTIVE AND NEAT APPEARING TRAFFIC CONTROLS, AND:

    a. SIGN PANELS MAY BE FABRICATED FROM PLYWOOD, STEEL, ALUMINUM, OR OTHER SUITABLE MATERIAL.
    b. REFLECTIVE SHEETING SHALL CONFORM TO ASTM D4956. THE TYPE SHALL BE AS DESCRIBED IN THE STANDARD SPECIFICATIONS AND/OR AS SHOWN ON THE PLANS.
    c. SYMBOLS AND LEGEND SHALL BE OF GOOD WORKMANSHIP (UNEVEN OR HAND LETTERING WILL NOT BE ACCEPTED).
    d. PORTABLE OR TEMPORARY MOUNTING SHALL NOT BE CONSTRUCTED OR WEIGHTED BY ANY METHOD OR MATERIAL THAT MAKES THEM HAZARDOUS TO TRAFFIC.
    e. CERTAIN POST SIZES AND SHAPES REQUIRE A "BREAK-AWAY" DEVICE. SEE THE APPLICABLE STANDARD PLAN. OTHER POST DESIGNS OR SYSTEMS REQUIRE THE SUBMITTAL OF AN FHWA LETTER OF ACCEPTANCE TO THE ENGINEER, AND MUST BE APPROVED BY THE ENGINEER PRIOR TO THEIR USE.

12. ALL CONSTRUCTION SIGN PLACEMENT SHALL BE IN ACCORDANCE WITH STANDARD PLAN "TYPICAL GROUND SIGN PLACEMENT" UNLESS OTHERWISE APPROVED.

    SIGNS APPROVED TO BE MOUNTED ON PORTABLE SUPPORTS, OR APPROPRIATE SIGNS MOUNTED ON BARRICADES, MAY BE AT LOWER HEIGHTS, BUT THE BOTTOM OF THE SIGNS SHALL NOT BE LESS THAN ONE FOOT ABOVE THE PAVEMENT ELEVATION.

13. SIGNS MOUNTED ON THE MEDIAN OF DIVIDED HIGHWAYS WHERE MEDIAN BARRIER IS IN PLACE MAY BE MOUNTED ON THE BARRIER WITH A SADDLE TYPE BRACKET. IF THE BRACKET ALLOWS THE SIGN PANEL TO BE TURNED PARALLEL TO THE ROADWAY, THE SIGN MAY REMAIN IN PLACE WHEN NOT APPLICABLE, BUT LAYING THE SIGN PANEL DOWN IN A HORIZONTAL POSITION IS NOT PERMITTED.

14. TRAFFIC CONES SHALL BE AT LEAST 28 INCHES IN HEIGHT. HOWEVER, THE MINIMUM SIZE SHALL BE 36 INCHES WHEN THEY ARE USED ON FREEWAYS AND EXPRESSWAYS, OR DURING NIGHT TIME WORKING HOURS. THEY SHOULD ALSO BE 36 INCHES WHEN USED ON OTHER HIGH SPEED ROADWAYS (45 MPH OR MORE) WITH AN ADT OF 6,000 OR MORE.

15. TYPE 1 BARRICADES SHALL NOT BE USED ON FREEWAYS, EXPRESSWAYS, OR OTHER HIGH SPEED ROADWAYS (55 MPH OR MORE).

16. WHEN TWO-WAY TRAFFIC IS PLACED ON ONE ROADWAY OF A NORMALLY DIVIDED HIGHWAY, OPPOSING TRAFFIC SHALL BE SEPARATED EITHER WITH CONCRETE BARRIER (TEMPORARY), OR WITH CHANNELIZING DEVICES APPROVED FOR THIS APPLICATION, THROUGHOUT THE LENGTH OF TWO-WAY OPERATION. THE TRANSITION ZONES SHALL HAVE CONCRETE BARRIER (TEMPORARY). THE BARRIER SHALL BE TIED TO AN EXISTING STRUCTURE OR GUARD RAIL, FLARED OR EXTENDED, TO MEET CLEAR ZONE REQUIREMENTS, OR FITTED WITH AN IMPACT ATTENUATION DEVICE.

17. CHANNELIZING DEVICE SPACING, IN FEET, SHALL BE AS FOLLOWS:
    a. FOR TAPERS AND TRANSITIONS, SPACING EQUALS THE NUMERICAL VALUE OF THE SPEED LIMIT. (e.g. 45 MPH = 45 FEET)
    b. FOR TANGENTS ALONG THE BUFFER SPACE OR WORK AREA, SPACING MAY NOT BE GREATER THAN TWO TIMES THE SPEED LIMIT. (e.g. 50 MPH = 50 FEET TO 100 FEET MAXIMUM)

18. FOR DETAILS ON BARRICADES, CONCRETE BARRIER (TEMPORARY), VERTICAL PANELS, AND FLASHING BEACON (PORTABLE), SEE THE APPLICABLE STANDARD PLANS.

19. FLOOD LIGHTS SHALL BE USED TO ILLUMINATE FLAGGER STATIONS DURING THE HOURS OF DARKNESS UNLESS OTHERWISE APPROVED. A TYPICAL LIGHT SHOULD PROVIDE THE FOLLOWING: A FULLY DIRECTIONAL SWIVEL MOUNT QUARTZ LIGHT SOURCE (500 WATT MINIMUM), SELF-SUPPORTING STAND WITH VARIABLE LIGHT HEIGHT FROM A MINIMUM OF EIGHT FEET ABOVE THE ROADWAY, AND A POWER SOURCE. IT SHALL ILLUMINATE THE STATION AREA AND A FLAGGER ESCAPE PATH, BUT SHALL NOT PRESENT ANY GLARE TO TRAFFIC.

20. FOR TEMPORARY PAVEMENT MARKINGS AND CONTROL POINTS FOR INSTALLING THOSE PAVEMENT MARKINGS FOR UNDIVIDED ROADWAYS THAT ARE BEING CONSTRUCTED UNDER TRAFFIC, FULL COMPLIANCE CENTER LINE, LANE LINE, AND EDGE LINE TEMPORARY MARKINGS SHALL BE IN PLACE AT THE END OF EACH WORK DAY IN ACCORDANCE WITH SECTION 627.03(d)2.

    FOR ADDITIONAL PAVEMENT MARKING DETAILS, SEE STANDARD PLAN "TYPICAL PAVEMENT MARKINGS".

21. BUFFER SPACE IS OPTIONAL. NEED MUST BE DETERMINED ON A PROJECT OR SITE SPECIFIC BASIS AS DIRECTED BY THE ENGINEER. WHEN A BUFFER SPACE IS USED, DIMENSIONS AND/OR DEVICES USED ARE TO BE INCORPORATED IN THE TRAFFIC CONTROL PLAN (TCP) OR THE CONTRACTOR'S METHOD OF HANDLING TRAFFIC (MHT).

22. ADDITIONAL VMS SIGNAGE SHOULD BE CONSIDERED AT LEAST A MILE IN ADVANCE OF THE SIGNING SHOWN IN THE DETAIL FOR ANY LANE CLOSURES ON INTERSTATE AND OTHER HIGH SPEED FACILITIES ESPECIALLY WHEN THE LEVEL OF SERVICE IS SIGNIFICANTLY REDUCED AS A RESULT OF CONSTRUCTION. THE LEGENDS SHOULD BE CHANGED TO ADVISE MOTORISTS OF UPCOMING TRAFFIC CONDITIONS AND TO ALERT THEM OF UPCOMING LANE USAGE.

    ADDITIONAL ADVANCE WARNING SIGNAGE IS ENCOURAGED IN ALL CASES WHERE TRAFFIC VOLUMES AND SPEEDS ARE HIGH AND/OR WHERE THERE ARE INFREQUENT EXITS. ADDITIONAL SIGNAGE IS ALSO ENCOURAGED IN LOCATIONS WHERE DRIVERS' LINE OF SIGHT TO ADVANCE WARNING SIGNS IS OBSTRUCTED.

23. WHEN ARROW BOARDS ARE USED TO CLOSE MULTIPLE LANES, A SEPARATE ARROW BOARD SHALL BE USED FOR EACH CLOSED LANE.

    IF ARROW BOARDS ARE USED FOR SHOULDER WORK, BLOCKING THE SHOULDER, FOR ROADSIDE WORK NEAR THE SHOULDER, OR FOR TEMPORARILY CLOSING ONE LANE ON A TWO-LANE, TWO-WAY ROADWAY, USE THE ARROW BOARDS ONLY IN THE CAUTION MODE.

24. RAISED PAVEMENT MARKERS MAY BE USED TO SUPPLEMENT TEMPORARY STRIPING DURING NON-SNOW PERIODS. THEIR USE IS ENCOURAGED ON HIGHER SPEED FACILITIES WHEN TRAFFIC IS BEING DIVERTED FROM ITS USUAL COURSE.

25. THE TYPICAL CASES DEPICTED IN THIS STANDARD REFLECT THE MINIMUM REQUIREMENTS, UNLESS AS OTHERWISE DIRECTED BY THE PROJECT PLANS AND SPECIFICATIONS, AND/OR THE PROJECT ENGINEER.

26. A SIGNIFICANT PROJECT IS DEFINED AS ONE THAT, ALONE OR IN COMBINATION WITH OTHER CONCURRENT PROJECTS NEARBY, IS ANTICIPATED TO CAUSE SUSTAINED WORK ZONE IMPACTS AT A LOCATION FOR THREE OR MORE CONSECUTIVE DAYS WITH EITHER INTERMITTENT OR CONTINUOUS LANE CLOSURES.

Sheet Revisions

	Date:	Comments
R-1	02/06/13	SHEET 13 - UPDATE TO 2009 MUTCD STD
R-2	02/26/13	SHEET 1 - UPDATE TO NOTE 1
R-3	02/27/13	SHEET 4 - UPDATE TAPER TO MUTCD STD
R-4	07/26/13	SHTS 9, 10, 15 & 20 - CORRECTED SIGN CODE DESIGNATION
R-5	**03/27/14**	SHTS 17 & 18 - UPDATED SIGNS AND TMA'S
R-6	**07/22/14**	SHEET 1 - UPDATE TO NOTE 20
R-7	**12/8/14**	SHEETS 17 TO 24 - ADDED AND RENUMBERED SHEET 22 - SIGN CODE UPDATE, W5-4D & W21-5a

Computer File Information

Creation Date: 07/04/12	Initials: KEN
Last Modification Date: 12/8/14	Initials: KEN
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	
Drawing File Name: S-630-01_1of24.dgn	
CAD Ver.: MicroStation V8 Scale: Not to Scale	Units: English

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TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

Issued By: Safety & Traffic Engineering Branch July 4, 2012

STANDARD PLAN NO.

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INDEX TO TYPICAL WORK ZONE CASES

TYPICAL CASE DESCRIPTION	CASE NO.	SHEET NO.
CLOSURE OF ONE ROADWAY, 4-LANE HIGHWAY	1	3
CLOSURE OF HALF OF 4-LANE UNDIVIDED HIGHWAY	2	4
ROAD CLOSURE, USE OF ADJACENT SHOULDERS	3	
ROAD CLOSURE, BYPASS DETOUR PROVIDED	4	5
LANE #1 CLOSURE, MULTI-LANE FREEWAY	5	
LANE #2 CLOSURE, MULTI-LANE FREEWAY	6	6
LANE #3 CLOSURE, MULTI-LANE FREEWAY	7	
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MOBILE PAVEMENT MARKING ZONE, CENTERLINE STRIPING ON 2-LANE UNDIVIDED HIGHWAY	31	
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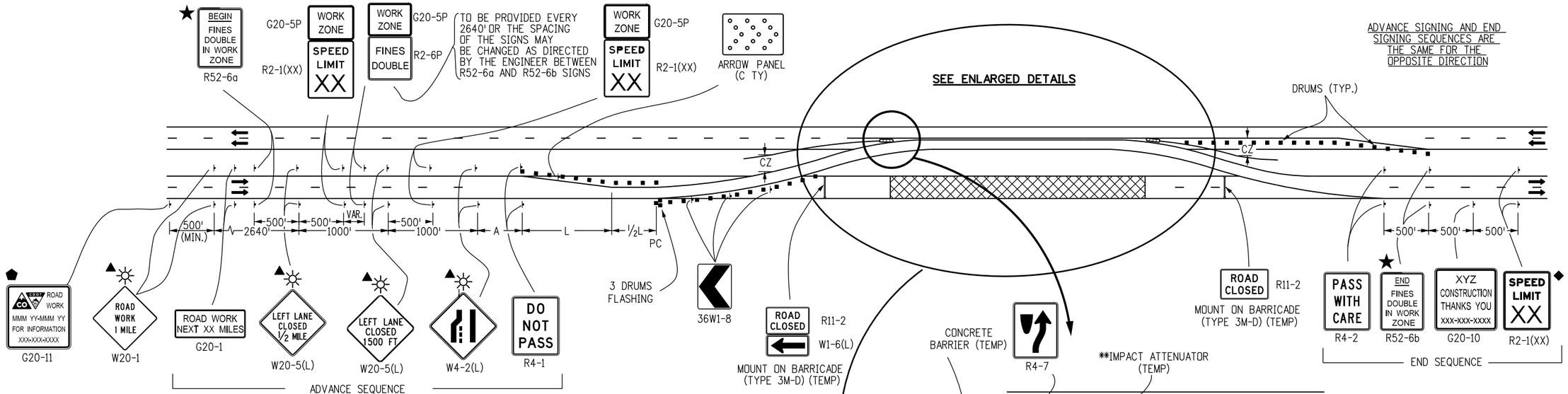
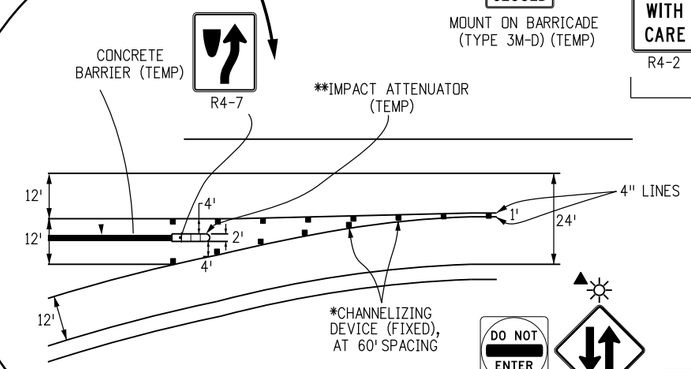
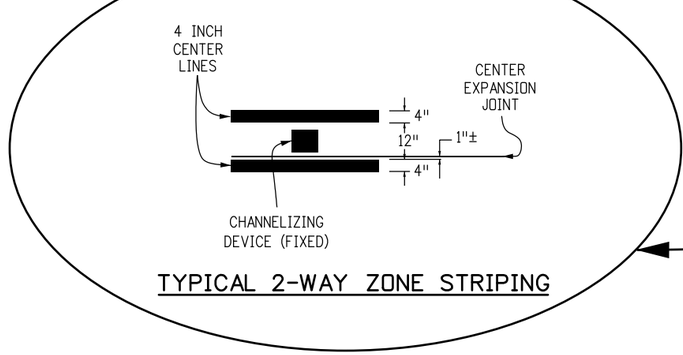
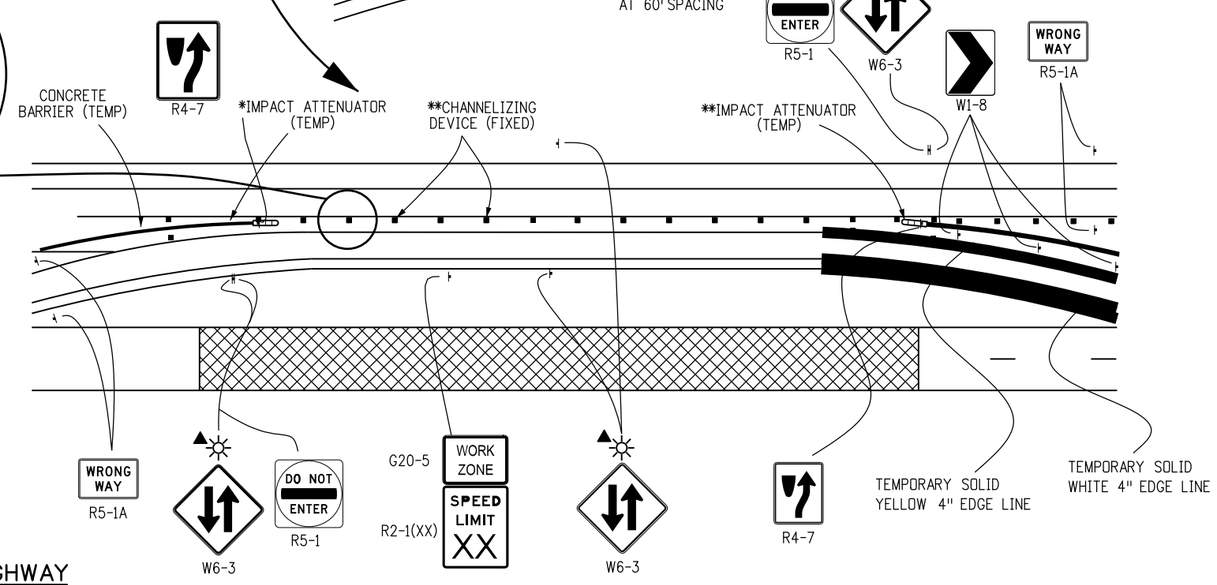


TYPICAL 2-WAY ZONE STRIPING





TYPICAL 2-WAY ZONE STRIPING



LEGEND

- ▪ CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE SCHEDULE OF TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. DRUMS OR VERTICAL PANELS SHALL BE USED TO DELINEATE THE LANE CLOSURE TAPER.
- TYPE III BARRICADE
- CONCRETE BARRIER (TEMPORARY)
- FLAGGER
- DIRECTION OF TRAVEL
- WORK AREA
- L TRANSITION TAPER LENGTH:
  - L = MINIMUM LENGTH OF TAPER
  - SPEED 45 MPH OR MORE: $L = S \times W$
  - SPEED 40 MPH OR LESS: $L = \frac{WS^2}{60}$
  - S = NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED
  - W = WIDTH OF OFFSET
- ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL
- A = 100' (URBAN LOW SPEED)
  - 350' (URBAN HIGH SPEED)
  - 500' (RURAL)
  - 1,000' (EXPRESSWAY / FREEWAY)
- CZ CLEAR ZONE (SEE GENERAL NOTE 16 ON SHEET 1).
- ▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY DETOUR DESIGN AND/OR SCOPE OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.
- VAR. BUFFER SPACE (SEE GENERAL NOTE 21 ON SHEET 1).
- IMPACT ATTENUATOR AS DETAILED ON THE PLANS
- FLASHING BEACON

◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.

* THESE ITEMS ARE NOT REQUIRED WHEN CONTINUOUS CONCRETE BARRIER IS USED FOR CHANNELIZATION.

** SEE GENERAL NOTE 16 ON SHEET 1.

⬟ G20-11 SIGN IS REQUIRED IF SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.

★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.

CASE NO. 1
TYPICAL APPLICATION
CLOSURE OF ONE ROADWAY 4-LANE DIVIDED HIGHWAY

Computer File Information	
Creation Date: 07/04/12	Initials: RRR
Last Modification Date:	Initials:
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	
Drawing File Name: S-630-01_3of24.dgn	
CAD Ver.: MicroStation V8 Scale: Not to Scale	Units: English

	Sheet Revisions	
	Date:	Comments
R-X		
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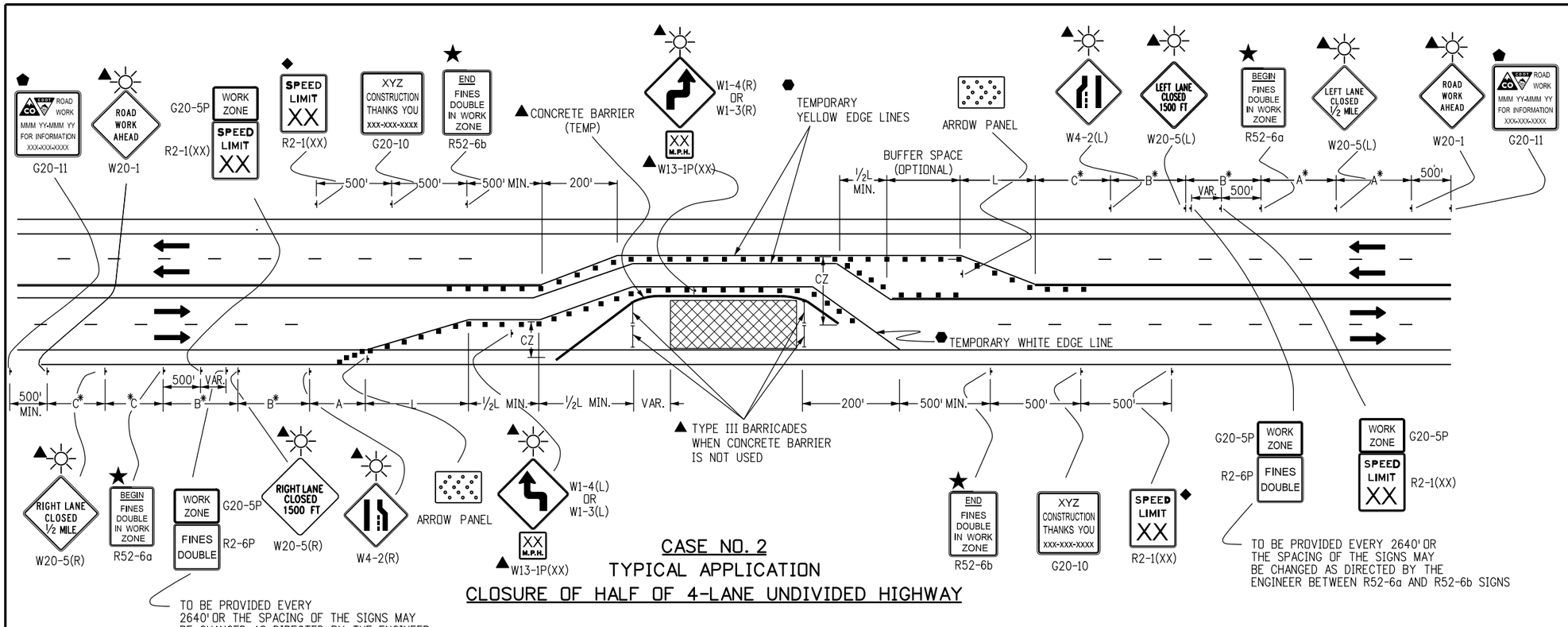
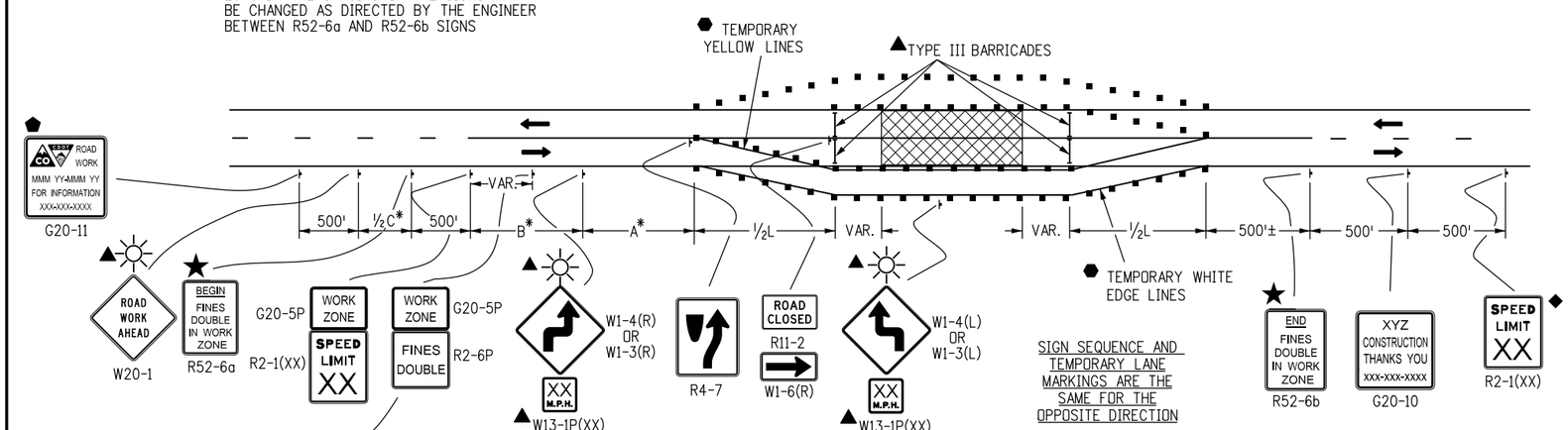


CASE NO. 2
TYPICAL APPLICATION
CLOSURE OF HALF OF 4-LANE UNDIVIDED HIGHWAY



SIGN SEQUENCE AND TEMPORARY LANE MARKINGS ARE THE SAME FOR THE OPPOSITE DIRECTION

CASE NO. 3
TYPICAL APPLICATION
ROAD CLOSURE, USE OF ADJACENT SHOULDERS

LEGEND

- ■ CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE SCHEDULE OF TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. DRUMS OR VERTICAL PANELS SHALL BE USED TO DELINEATE THE LANE CLOSURE TAPER.
- TYPE III BARRICADE
- FLAGGER
- DIRECTION OF TRAVEL
- WORK AREA

L TRANSITION TAPER LENGTH:

L = MINIMUM LENGTH OF TAPER

SPEED 45 MPH OR MORE: $L = S \times W$

SPEED 40 MPH OR LESS: $L = \frac{WS^2}{60}$

S = NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED

W = WIDTH OF OFFSET

SHOULDER TAPER = 1/3 L

- ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL.

A = 100' (URBAN LOW SPEED)
350' (URBAN HIGH SPEED)
500' (RURAL)
1,000' (EXPRESSWAY / FREEWAY)

CZ CLEAR ZONE (SEE GENERAL NOTE 16 ON SHEET 1)

▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY DETOUR DESIGN AND/OR SCOPE OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.

◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.

VAR. BUFFER SPACE (SEE GENERAL NOTE 21 ON SHEET 1).

⬢ REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.

⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.

FLASHING BEACON

★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.

* KEY TO ADVANCE SIGNING DISTANCES

ROAD TYPE	DISTANCE BETWEEN SIGNS		
	A	B	C
URBAN (<=40 MPH)	100	100	100
URBAN (>=45 MPH)	350	350	350
RURAL	500	500	500
EXPRESSWAY/FREEWAY	1000	1500	2640

Computer File Information	
Creation Date: 07/04/12	Initials: RRR
Last Modification Date: 02/27/13	Initials: KEN
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	
Drawing File Name: S-630-01_4of24.dgn	
CAD Ver.: MicroStation V8 Scale: Not to Scale	Units: English

	Sheet Revisions	
	Date:	Comments
R-3	02/27/13	UPDATE TAPER TO MUTCD STD
R-X		
R-X		
R-X		

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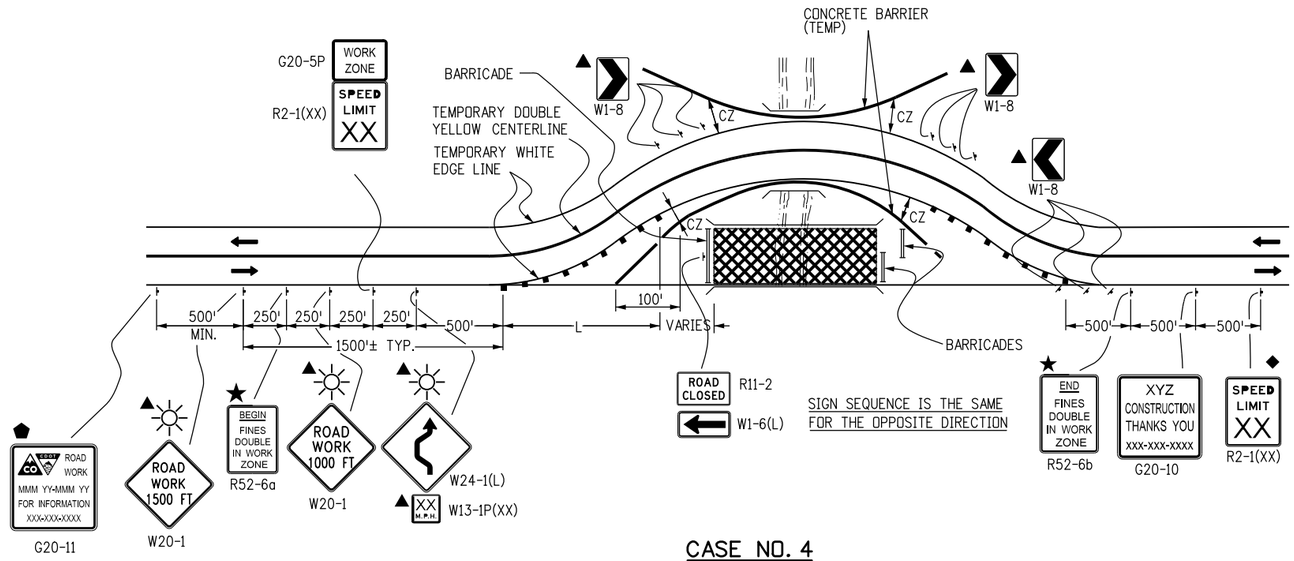
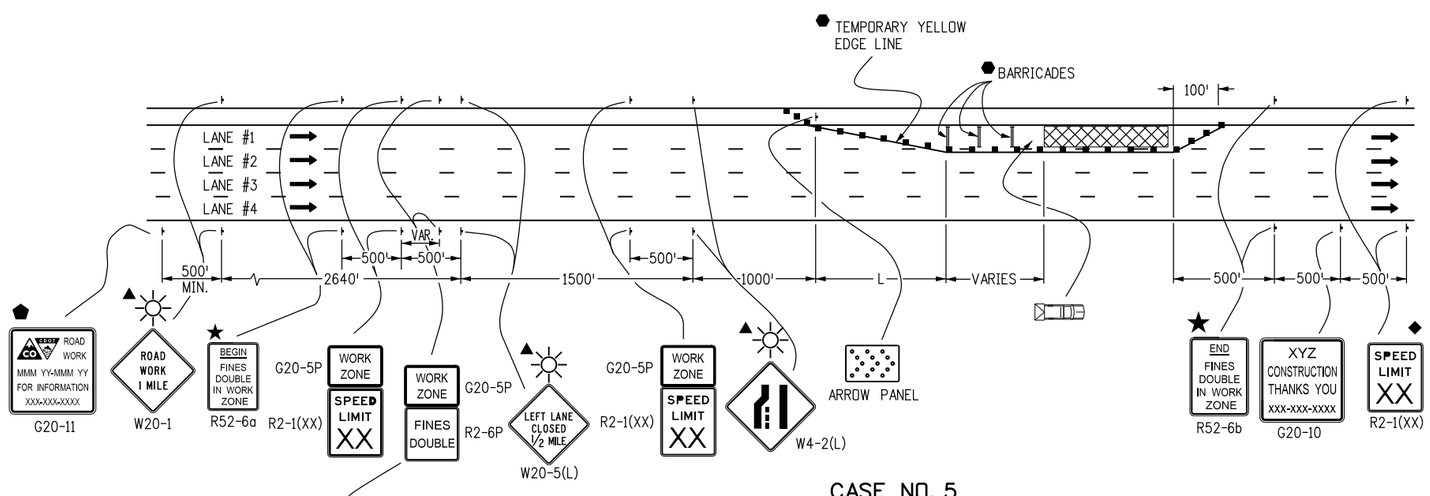


CASE NO. 4
TYPICAL APPLICATION
ROAD CLOSURE, BYPASS DETOUR PROVIDED



CASE NO. 5
TYPICAL APPLICATION
LANE #1 CLOSURE, MULTI-LANE FREEWAY

LEGEND

- CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE SCHEDULE OF TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. DRUMS OR VERTICAL PANELS SHALL BE USED TO DELINEATE THE LANE CLOSURE TAPER.
- TYPE III BARRICADE
- CONCRETE BARRIER (TEMPORARY)
- FLAGGER
- DIRECTION OF TRAVEL
- WORK AREA
- L — TRANSITION TAPER LENGTH:
  - L = MINIMUM LENGTH OF TAPER
  - SPEED 45 MPH OR MORE: $L = S \times W$
  - SPEED 40 MPH OR LESS: $L = \frac{WS^2}{60}$
  - S = NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED
  - W = WIDTH OF OFFSET
  - SHOULDER TAPER = 1/3 L
- ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL
- CZ — CLEAR ZONE (SEE GENERAL NOTE 16 ON SHEET 1).
- ▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY DETOUR DESIGN AND/OR SCOPE OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.
- ◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.
- VARIES — BUFFER SPACE (SEE GENERAL NOTE 21 ON SHEET 1).
- ⬢ REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.
- ⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.
- TRUCK MOUNTED ATTENUATOR (TMA)
- FLASHING BEACON
- ★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.

Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: RRR		Date:	Comments
Last Modification Date: Initials:	R-X		
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	R-X		
Drawing File Name: S-630-01_5of24.dgn	R-X		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	R-X		

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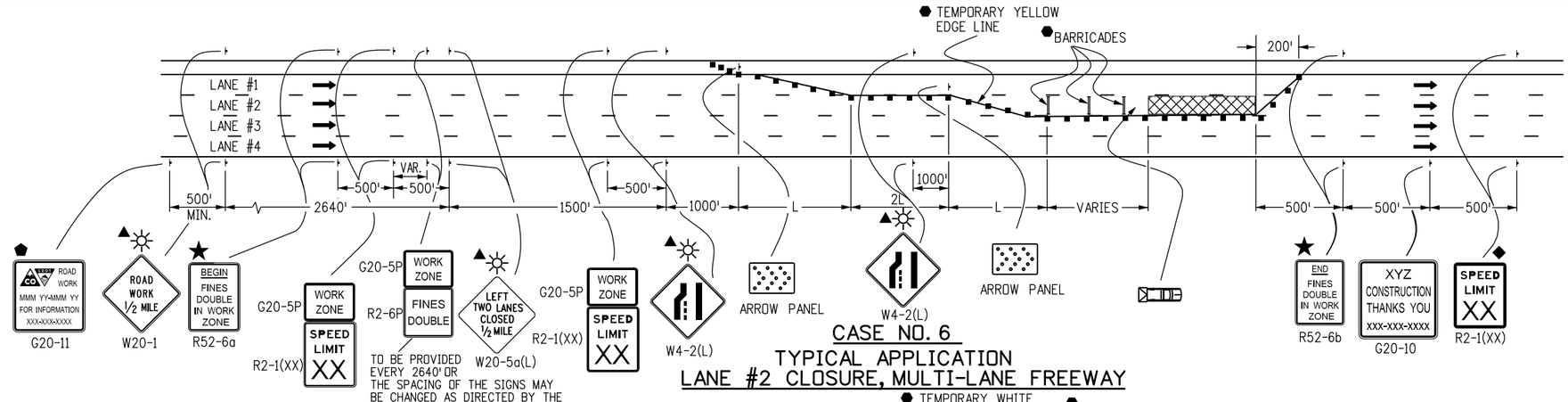
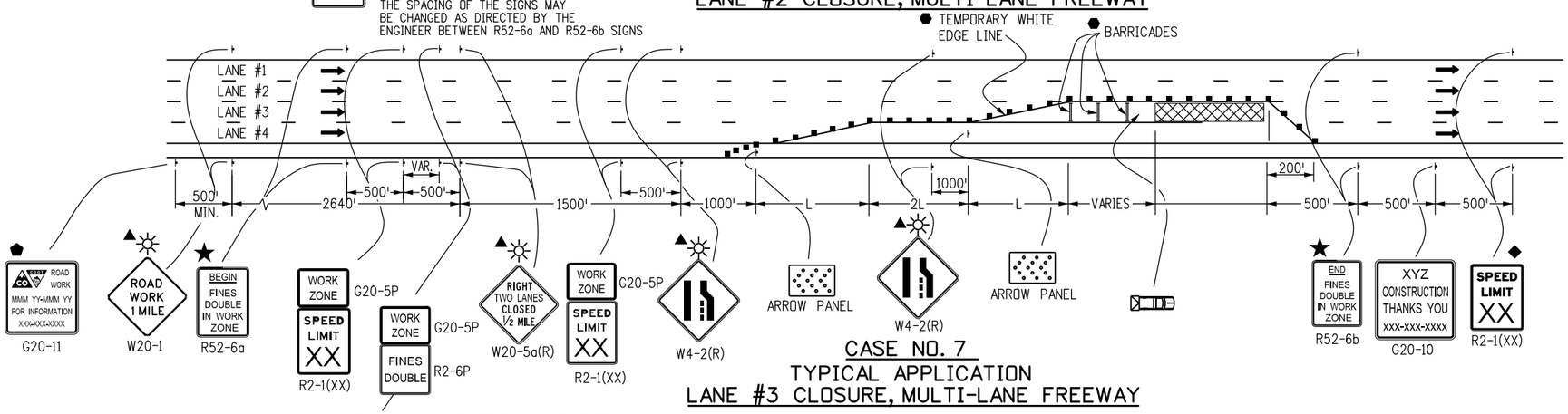
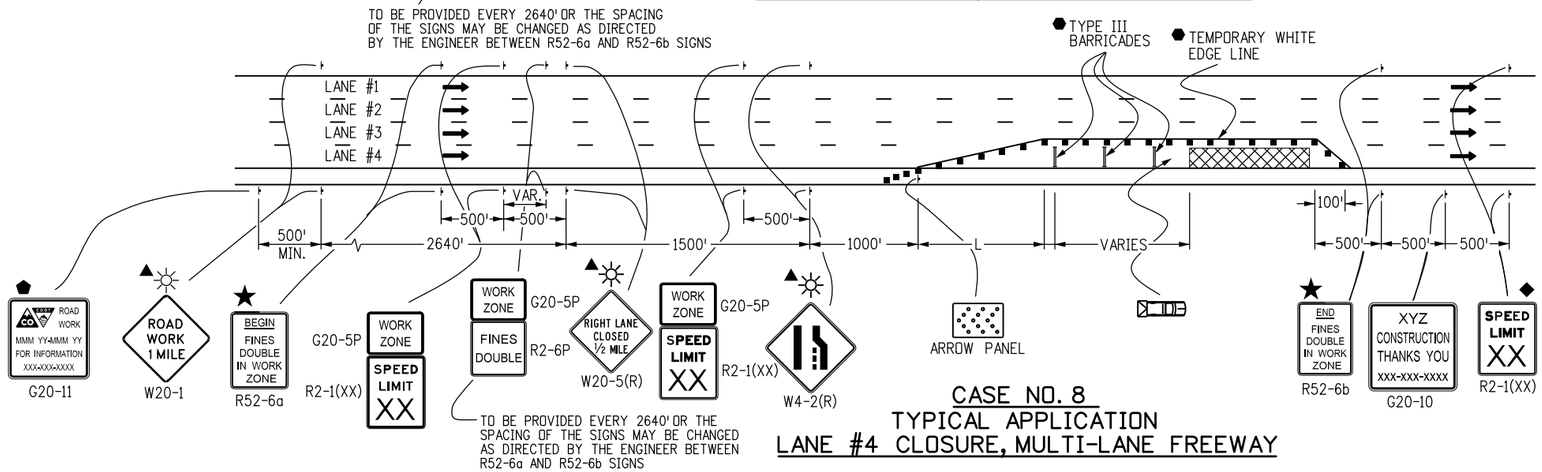


CASE NO. 6
TYPICAL APPLICATION
LANE #2 CLOSURE, MULTI-LANE FREEWAY



CASE NO. 7
TYPICAL APPLICATION
LANE #3 CLOSURE, MULTI-LANE FREEWAY



CASE NO. 8
TYPICAL APPLICATION
LANE #4 CLOSURE, MULTI-LANE FREEWAY

LEGEND

- CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE SCHEDULE OF TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. DRUMS OR VERTICAL PANELS SHALL BE USED TO DELINEATE THE LANE CLOSURE TAPER.
- TYPE III BARRICADE
- CONCRETE BARRIER (TEMPORARY)
- FLAGGER
- DIRECTION OF TRAVEL
- WORK AREA
- L — TRANSITION TAPER LENGTH:
  - L = MINIMUM LENGTH OF TAPER
  - SPEED 45 MPH OR MORE: $L = S \times W$
  - SPEED 40 MPH OR LESS: $L = \frac{WS^2}{60}$
  - S = NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED
  - W = WIDTH OF OFFSET
  - SHOULDER TAPER = 1/3 L
- ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL
- CZ — CLEAR ZONE (SEE GENERAL NOTE 16 ON SHEET 1).
- ▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY DETOUR DESIGN AND/OR SCOPE OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.
- ◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.
- VARIES — BUFFER SPACE (SEE GENERAL NOTE 21 ON SHEET 1).
- ⬢ REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.
- ⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.
- TRUCK MOUNTED ATTENUATOR (TMA)
- FLASHING BEACON
- ★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.

Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: RRR		Date:	Comments
Last Modification Date: Initials:	R-X		
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	R-X		
Drawing File Name: S-630-01_6of24.dgn	R-X		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	R-X		

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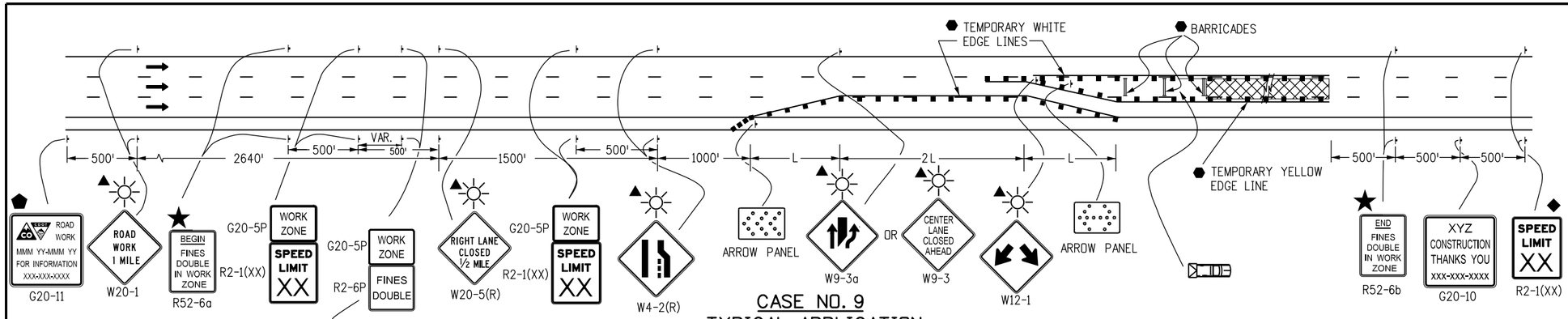
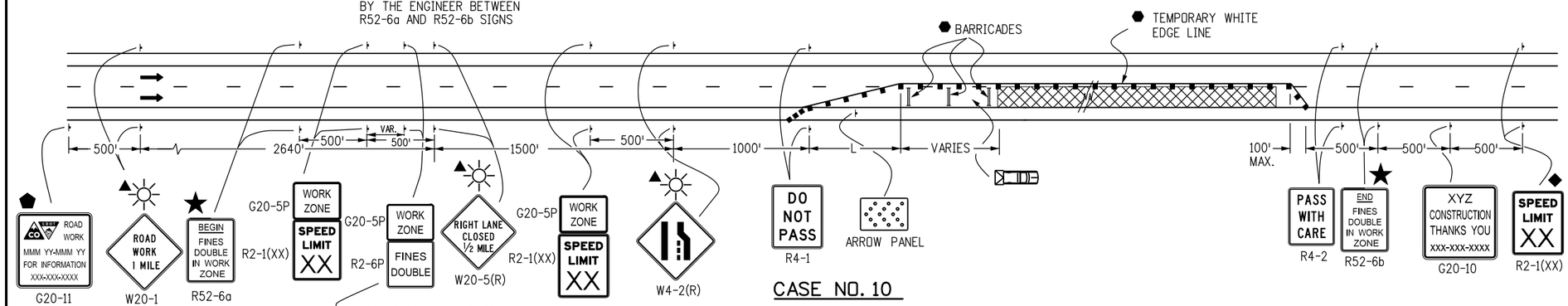
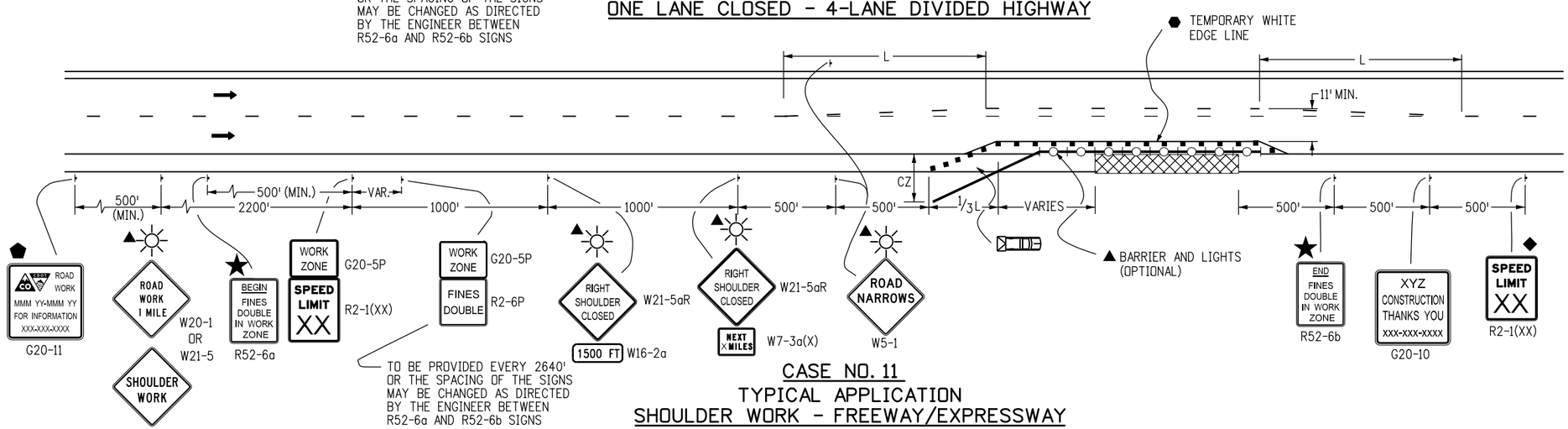


CASE NO. 9
TYPICAL APPLICATION
CENTER LANE CLOSURE - MULTI-LANE FREEWAY



CASE NO. 10
TYPICAL APPLICATION
ONE LANE CLOSED - 4-LANE DIVIDED HIGHWAY



CASE NO. 11
TYPICAL APPLICATION
SHOULDER WORK - FREEWAY/EXPRESSWAY

LEGEND

- ■ CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE SCHEDULE OF TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. DRUMS OR VERTICAL PANELS SHALL BE USED TO DELINEATE THE LANE CLOSURE TAPER.
- TYPE III BARRICADE
- CONCRETE BARRIER (TEMPORARY)
- FLAGGER
- DIRECTION OF TRAVEL
- WORK AREA

L TRANSITION TAPER LENGTH:

L = MINIMUM LENGTH OF TAPER

SPEED 45 MPH OR MORE: $L = S \times W$

SPEED 40 MPH OR LESS: $L = \frac{WS^2}{60}$

S = NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED

W = WIDTH OF OFFSET

SHOULDER TAPER = 1/3 L

- ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL
- CZ — CLEAR ZONE (SEE GENERAL NOTE 16 ON SHEET 1).
- ▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY DETOUR DESIGN AND/OR SCOPE OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.
- ◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.
- FLASHING BEACON
- VARIES — BUFFER SPACE (SEE GENERAL NOTE 21 ON SHEET 1).
- ⬢ REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.
- ⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.
- TRUCK MOUNTED ATTENUATOR (TMA)
- CONCRETE BARRIER (TEMPORARY) WITH LIGHTS
- ★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.

Computer File Information	
Creation Date: 07/04/12	Initials: RRR
Last Modification Date:	Initials:
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	
Drawing File Name: S-630-01_7of24.dgn	
CAD Ver.: MicroStation V8 Scale: Not to Scale	Units: English

Sheet Revisions	
Date:	Comments
R-X	
R-X	
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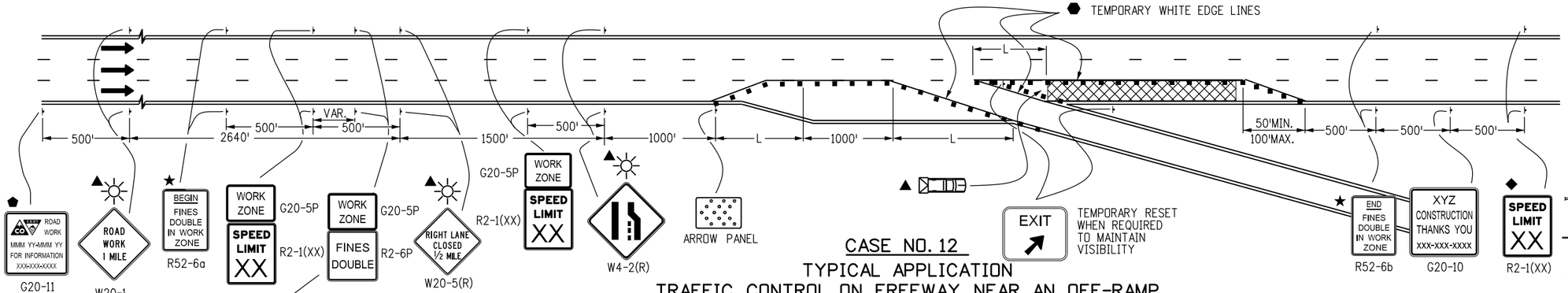
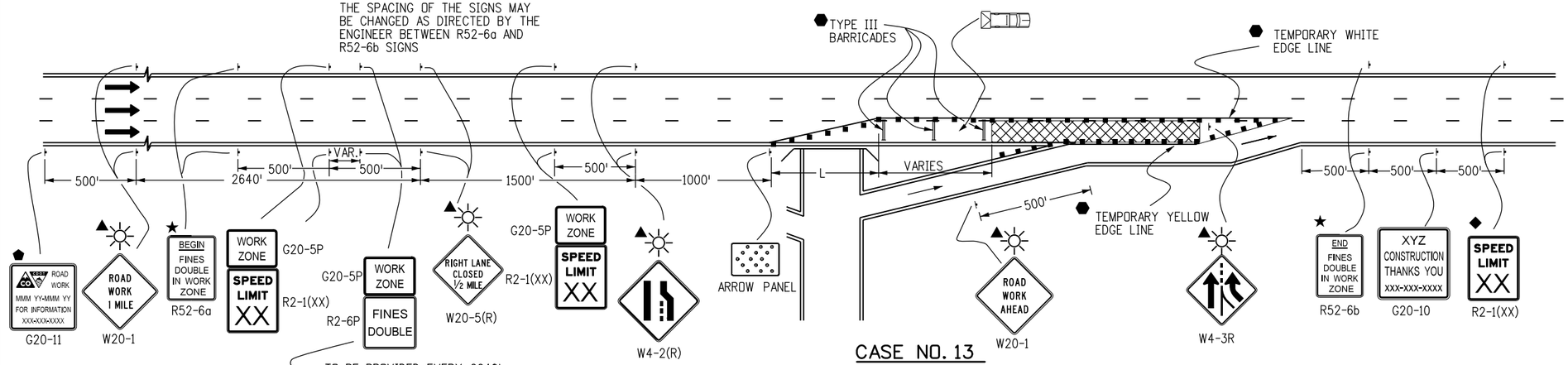
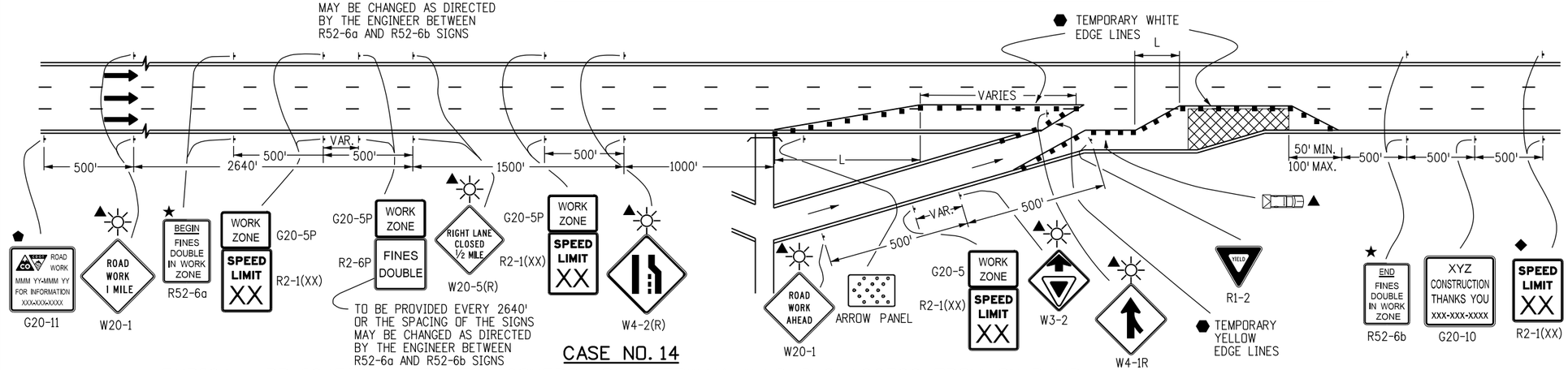


CASE NO. 12
TYPICAL APPLICATION
TRAFFIC CONTROL ON FREEWAY NEAR AN OFF-RAMP



CASE NO. 13
TYPICAL APPLICATION - TRAFFIC CONTROL ON FREEWAY BEFORE AN ON-RAMP



CASE NO. 14
TYPICAL APPLICATION - TRAFFIC CONTROL ON FREEWAY ALLOWING ACCESS FROM ON-RAMP

LEGEND

- ■ CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE SCHEDULE OF TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. DRUMS OR VERTICAL PANELS SHALL BE USED TO DELINEATE THE LANE CLOSURE TAPER.
- TYPE III BARRICADE
- CONCRETE BARRIER (TEMPORARY)
- FLAGGER
- DIRECTION OF TRAVEL
- WORK AREA

L TRANSITION TAPER LENGTH:

L = MINIMUM LENGTH OF TAPER

SPEED 45 MPH OR MORE: $L = S \times W$

SPEED 40 MPH OR LESS: $L = \frac{WS^2}{60}$

S = NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED

W = WIDTH OF OFFSET

SHOULDER TAPER = 1/3 L

- ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL
- CZ CLEAR ZONE (SEE GENERAL NOTE 16 ON SHEET 1).
- ▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY DETOUR DESIGN AND/OR SCOPE OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.
- ◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.
- VARIES BUFFER SPACE (SEE GENERAL NOTE 21).
- ⬢ REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.
- ⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.
- TRUCK MOUNTED ATTENUATOR (TMA)
- FLASHING BEACON
- ★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.

Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: KEN		Date:	Comments
Last Modification Date: Initials:	R-X		
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	R-X		
Drawing File Name: S-630-01_8of24.dgn	R-X		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	R-X		

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TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

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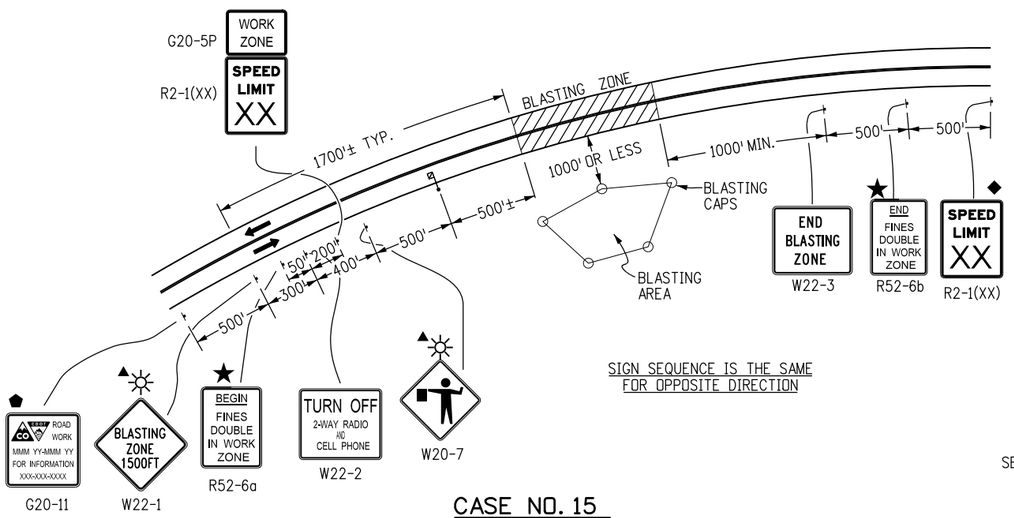
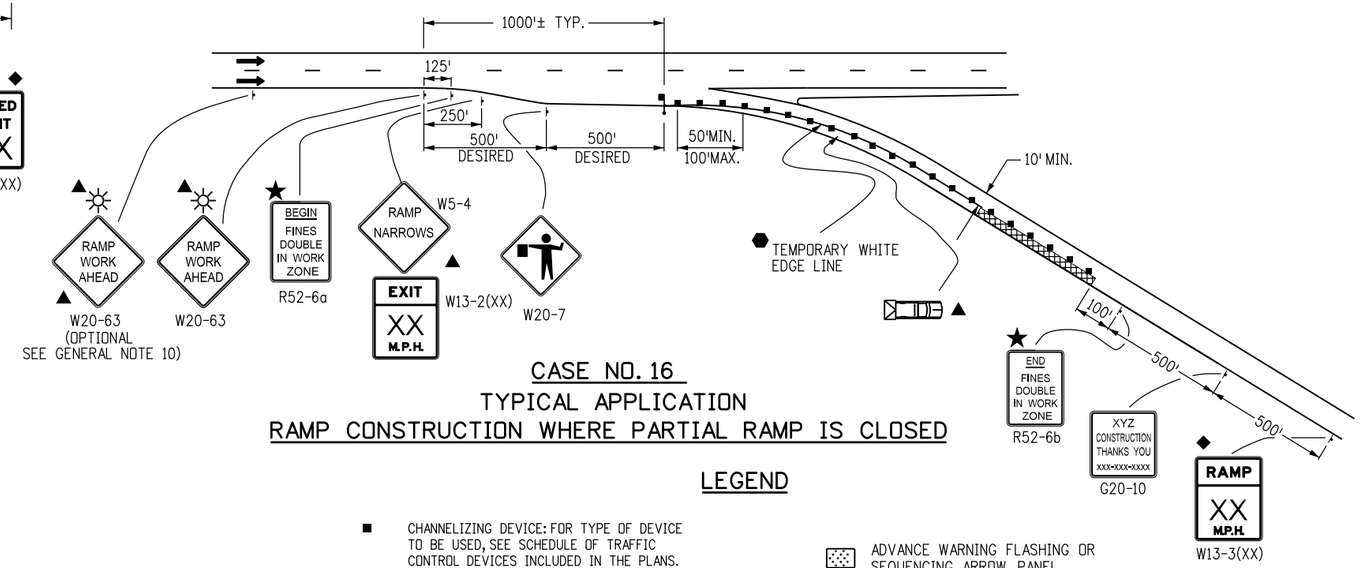
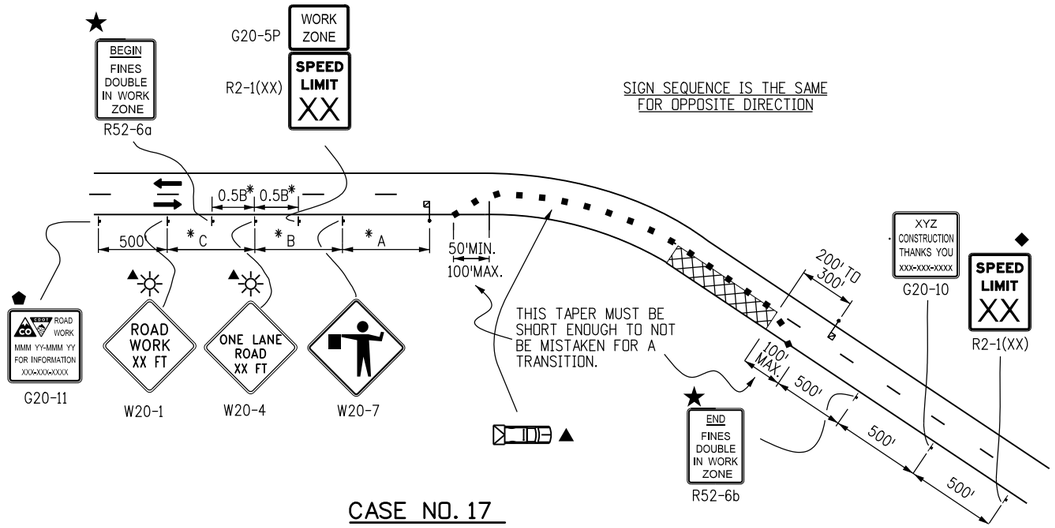


SIGN SEQUENCE IS THE SAME FOR OPPOSITE DIRECTION

CASE NO. 15
TYPICAL APPLICATION
BLASTING ZONE



CASE NO. 16
TYPICAL APPLICATION
RAMP CONSTRUCTION WHERE PARTIAL RAMP IS CLOSED



SIGN SEQUENCE IS THE SAME FOR OPPOSITE DIRECTION

CASE NO. 17
TYPICAL APPLICATION
LANE CLOSURE, 2-LANE HIGHWAY, AT CURVE

LEGEND

- ■ CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE SCHEDULE OF TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. DRUMS OR VERTICAL PANELS SHALL BE USED TO DELINEATE THE LANE CLOSURE TAPER.
- TYPE III BARRICADE
- CONCRETE BARRIER (TEMPORARY)
- FLAGGER
- DIRECTION OF TRAVEL
- WORK AREA
- L TRANSITION TAPER LENGTH:
  - L = MINIMUM LENGTH OF TAPER
  - SPEED 45 MPH OR MORE: $L = S \times W$
  - SPEED 40 MPH OR LESS: $L = \frac{WS^2}{60}$
  - S = NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED
  - W = WIDTH OF OFFSET
  - SHOULDER TAPER = 1/3 L
- TRUCK MOUNTED ATTENUATOR (TMA)
- ★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12
- ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL
- CZ CLEAR ZONE (SEE GENERAL NOTE 16 ON SHEET 1).
- ▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY DETOUR DESIGN AND/OR SCOPE OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.
- ◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.
- FLASHING BEACON
- ⬢ REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.
- ⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.

*KEY TO ADVANCE SIGNING DISTANCES

ROAD TYPE	DISTANCE BETWEEN SIGNS		
	A	B	C
URBAN (<=40 MPH)	100	100	100
URBAN (>=45 MPH)	350	350	350
RURAL	500	500	500
EXPRESSWAY/FREEWAY	1000	1500	2640

Computer File Information		
Creation Date: 07/04/12	Initials: RRR	
Last Modification Date: 07/26/13	Initials: KEN	R-4
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans		R-X
Drawing File Name: S-630-01_9of24.dgn		R-X
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English		R-X

Sheet Revisions	
Date:	Comments
07/26/13	CORRECTED SIGN CODE DESIGNATION FOR FLAGGER (SYMBOL) SIGN TO W20-7

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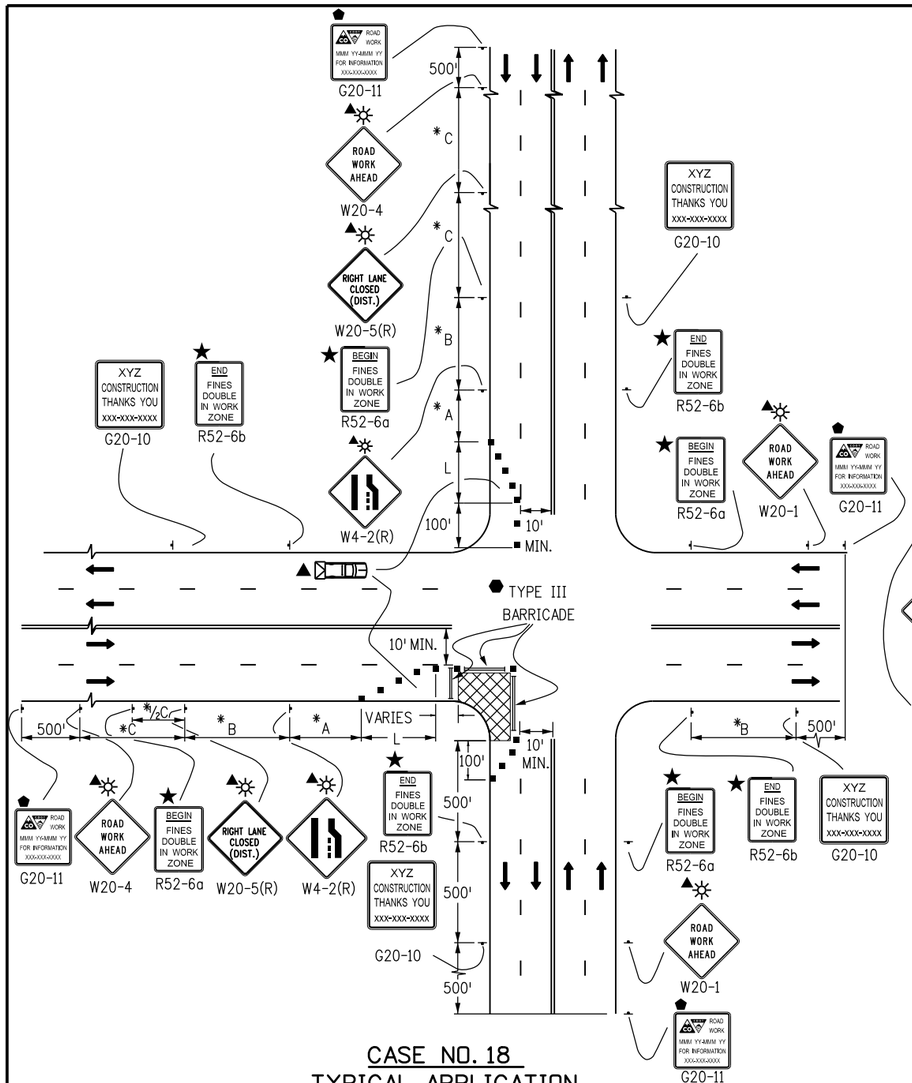
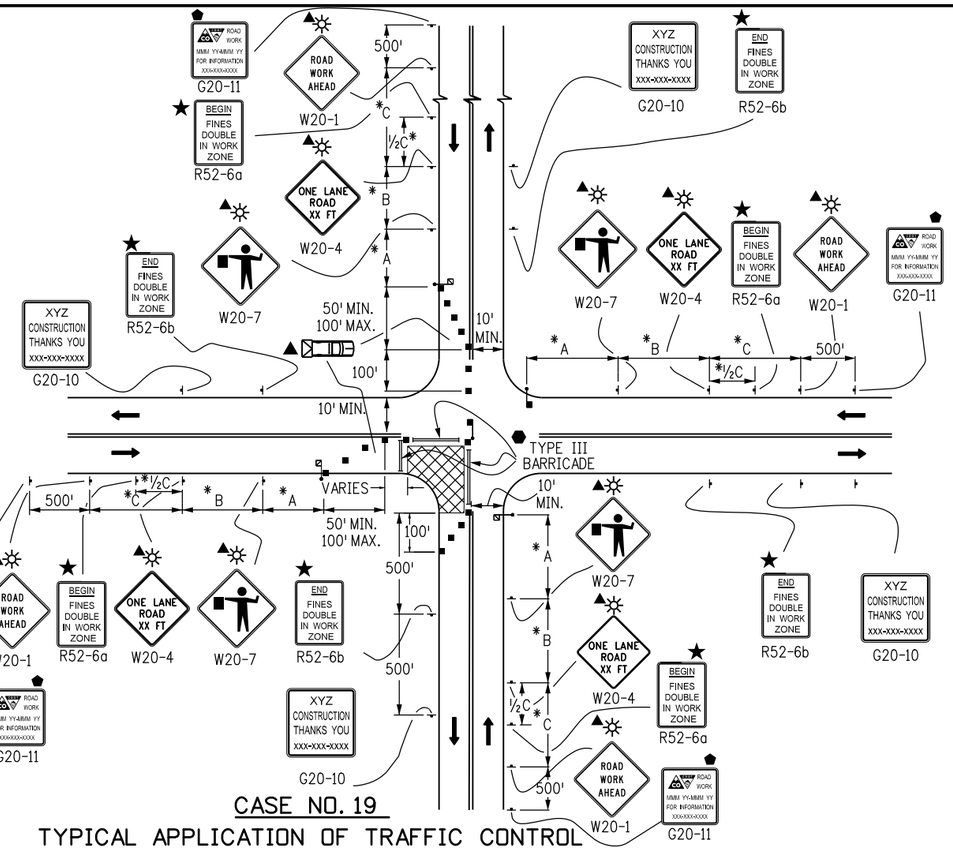


CASE NO. 18
TYPICAL APPLICATION
TRAFFIC CONTROL AROUND A WORK AREA NEAR AN INTERSECTION, ONE LANE CLOSED



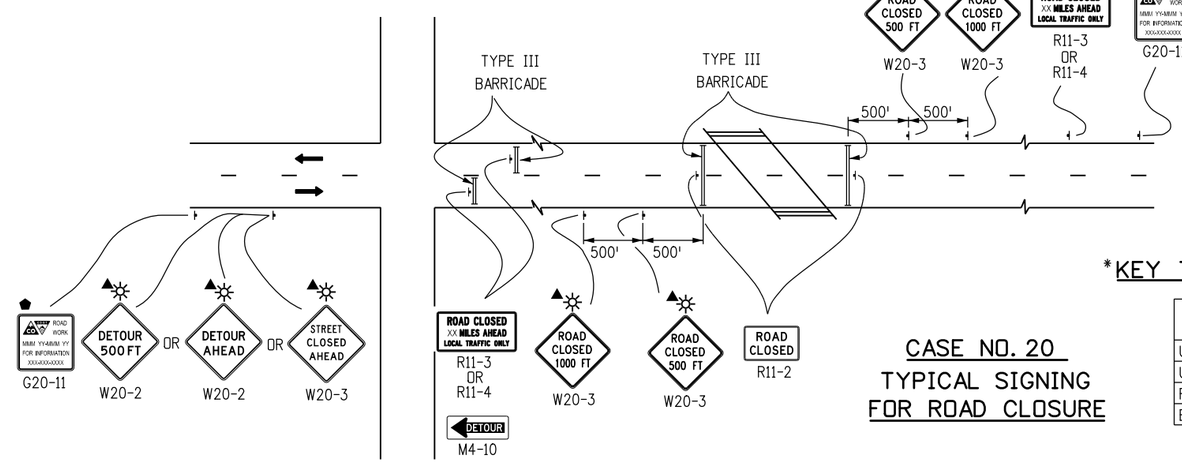
CASE NO. 19
TYPICAL APPLICATION OF TRAFFIC CONTROL AROUND A WORK AREA NEAR AN INTERSECTION

LEGEND

- ■ CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE SCHEDULE OF TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. DRUMS OR VERTICAL PANELS SHALL BE USED TO DELINEATE THE LANE CLOSURE TAPER.
- TYPE III BARRICADE
- CONCRETE BARRIER (TEMPORARY)
- FLAGGER
- DIRECTION OF TRAVEL
- WORK AREA
- L TRANSITION TAPER LENGTH:
  - L = MINIMUM LENGTH OF TAPER
  - SPEED 45 MPH OR MORE: L = S x W
  - SPEED 40 MPH OR LESS: $L = \frac{WS^2}{60}$
  - S = NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED
  - W = WIDTH OF OFFSET
  - SHOULDER TAPER = 1/3 L
- TRUCK MOUNTED ATTENUATOR (TMA)
- CZ CLEAR ZONE (SEE GENERAL NOTE 16).
- FLASHING BEACON
- ▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY DETOUR DESIGN AND/OR SCOPE OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.
- VARIES BUFFER SPACE (SEE GENERAL NOTE 21 ON SHEET 1).
- ⬢ REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.
- ★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.
- ⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.

NOTES:

1. SIGN PLACEMENT SHOWN ON CASES 18 AND 19 TYPIFIES RURAL APPLICATIONS. URBAN APPLICATIONS REQUIRE THE SIGNS TO BE PLACED WITHIN ONE, OR PERHAPS TWO, BLOCKS.
2. TRUCK-MOUNTED ATTENUATORS (TMA) OPTIONAL FOR ALL CASES AS DETERMINED BY THE ENGINEER.



CASE NO. 20
TYPICAL SIGNING FOR ROAD CLOSURE

*KEY TO ADVANCE SIGNING DISTANCES

ROAD TYPE	DISTANCE BETWEEN SIGNS		
	A	B	C
URBAN (<=40 MPH)	100	100	100
URBAN (>=45 MPH)	350	350	350
RURAL	500	500	500
EXPRESSWAY/FREEWAY	1000	1500	2640

Computer File Information	
Creation Date: 07/04/12	Initials: RRR
Last Modification Date: 07/26/13	Initials: KEN
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	
Drawing File Name: S-630-01_10of24.dgn	
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	

	Sheet Revisions	
	Date:	Comments
R-4	07/26/13	CORRECTED SIGN CODE DESIGNATION FOR FLAGGER (SYMBOL) SIGN TO W20-7
R-X		
R-X		
R-X		

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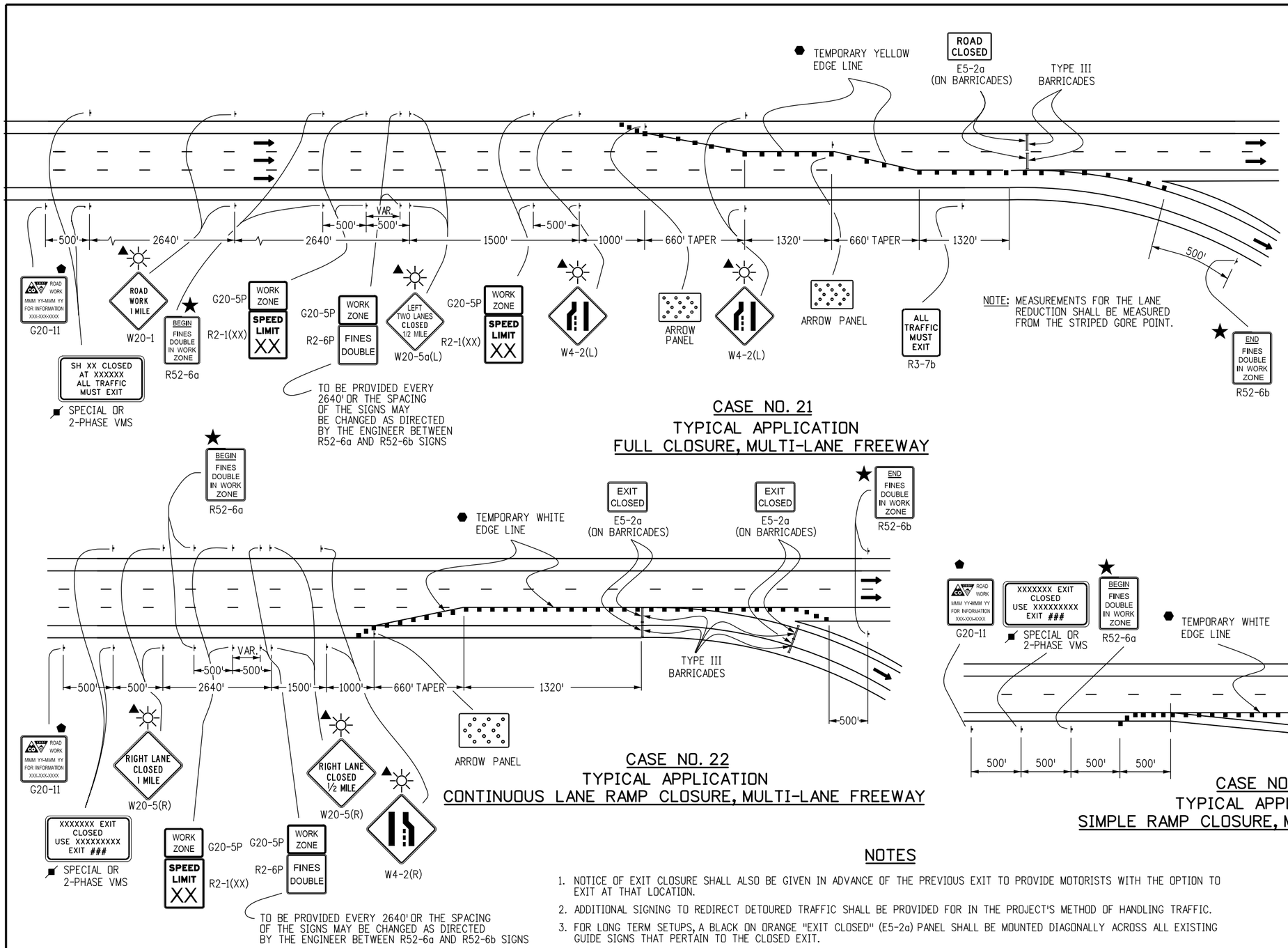


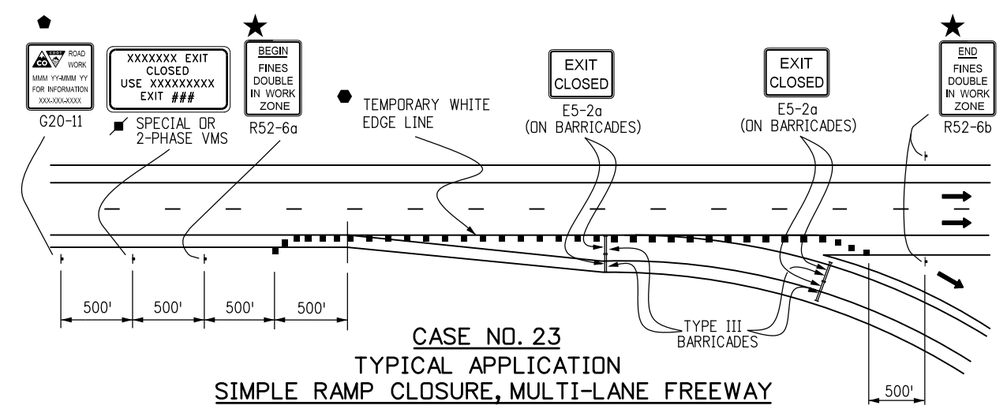
NOTE: MEASUREMENTS FOR THE LANE REDUCTION SHALL BE MEASURED FROM THE STRIPED GORE POINT.

CASE NO. 21
TYPICAL APPLICATION
FULL CLOSURE, MULTI-LANE FREEWAY

CASE NO. 22
TYPICAL APPLICATION
CONTINUOUS LANE RAMP CLOSURE, MULTI-LANE FREEWAY

LEGEND

- ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL
- ▲ THESE DEVICES ARE OPTIONAL. THEIR NEED WILL BE DETERMINED BY THE DESIGNER BASED ON DETOUR DESIGN AND/OR SCOPE OF THE CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE PLANS.
- ⬢ REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.
- ⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.
- ■ CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE SCHEDULE OF TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. DRUMS OR VERTICAL PANELS SHALL BE USED TO DELINEATE THE LANE CLOSURE TAPER.
- TYPE III BARRICADE
- DIRECTION OF TRAVEL
- L TRANSITION TAPER LENGTH:
  - L = MINIMUM LENGTH OF TAPER
  - SPEED 45 MPH OR MORE: $L = S \times W$
  - SPEED 40 MPH OR LESS: $L = \frac{WS^2}{60}$
  - S = NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED
  - W = WIDTH OF OFFSET
  - SHOULDER TAPER = 1/3 L
- CLOSURE AND EXIT MESSAGES ON SIGN LEGEND(S) SHOULD BE MODIFIED TO FIT THE SITUATION.
- FLASHING BEACON
- ★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.



CASE NO. 23
TYPICAL APPLICATION
SIMPLE RAMP CLOSURE, MULTI-LANE FREEWAY

NOTES

1. NOTICE OF EXIT CLOSURE SHALL ALSO BE GIVEN IN ADVANCE OF THE PREVIOUS EXIT TO PROVIDE MOTORISTS WITH THE OPTION TO EXIT AT THAT LOCATION.
2. ADDITIONAL SIGNING TO REDIRECT DETOURED TRAFFIC SHALL BE PROVIDED FOR IN THE PROJECT'S METHOD OF HANDLING TRAFFIC.
3. FOR LONG TERM SETUPS, A BLACK ON ORANGE "EXIT CLOSED" (E5-2a) PANEL SHALL BE MOUNTED DIAGONALLY ACROSS ALL EXISTING GUIDE SIGNS THAT PERTAIN TO THE CLOSED EXIT.

Computer File Information		Sheet Revisions	
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Last Modification Date:	Initials:	R-X	
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans		R-X	
Drawing File Name: S-630-01_11of24.dgn		R-X	
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English		R-X	

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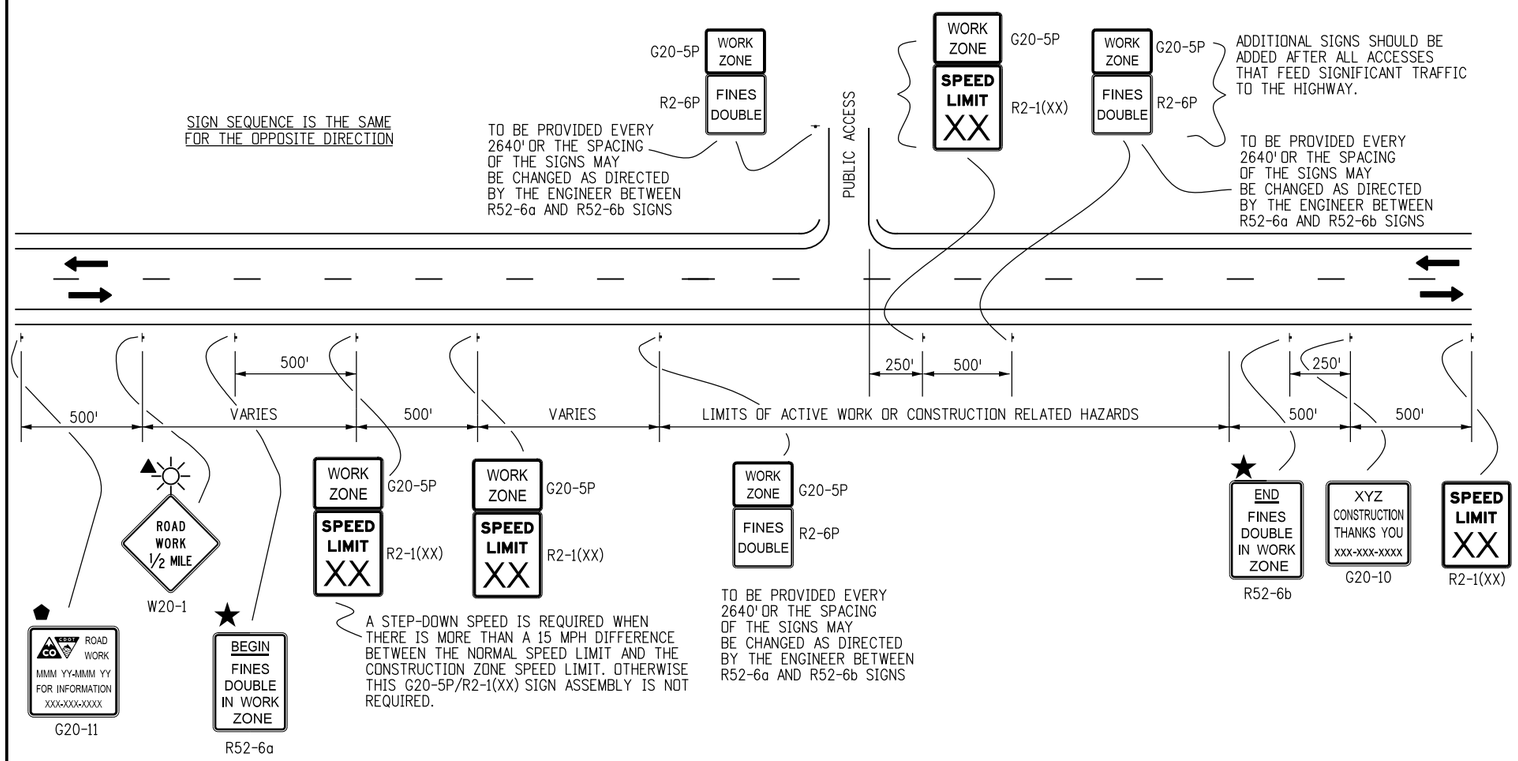

CASE NO. 24
TYPICAL APPLICATION
"FINES DOUBLE IN WORK ZONE" SIGNING
(WITH SPEED REDUCTION)

LEGEND

- DIRECTION OF TRAVEL
- THESE DEVICES ARE OPTIONAL. THEIR NEED WILL BE DETERMINED BY THE DESIGNER BASED ON DETOUR DESIGN AND/OR SCOPE OF THE CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE PLANS.
- G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.
- FLASHING BEACON
- FINES DOUBLE SIGNING NOTES, SEE BELOW

FINES DOUBLE SIGNING NOTES:

1. SIGNS SHALL NOT BE PLACED SOONER THAN FOUR HOURS BEFORE WORK IS TO BEGIN AND SHALL BE REMOVED AS SOON AS WORK ACTIVITIES ARE CONCLUDED, UNLESS POTENTIAL HAZARDS INTRODUCED AS A RESULT OF THE WORK ARE STILL PRESENT AT THE END OF THE WORK DAY. IF SIGNS ARE LEFT IN PLACE AFTER WORK ACTIVITIES, THE TRAFFIC CONTROL SUPERVISOR SHALL MAKE AN ENTRY IN THEIR DAILY DIARY THAT JUSTIFIES THEIR USE.

   "HAZARDS" INCLUDE BUT ARE NOT LIMITED TO:
   - EDGE DROP OFFS
   - EQUIPMENT, WORKERS OR NON-SHIELDED OBJECTS IN THE CLEAR ZONE
   - ROUGH PAVEMENT
   - MAJOR CHANGE IN ALIGNMENT
   - REDUCED SHOULDER WIDTH
   - TEMPORARY GUARD RAIL OR BARRIER
   - LANE CLOSURE

2. SIGNS SHALL ONLY BE PLACED WHERE WORKERS ARE PRESENT IN THE ROADWAY OR CLEAR ZONE OR ARE AT RISK, OR WHERE THERE ARE HAZARDS IN THE TRAVELWAY, SHOULDERS OR CLEAR ZONE.

3. SIGNS SHOULD BE PLACED SO THAT MOTORISTS IMMEDIATELY ASSOCIATE THE SIGNS WITH PRESENT WORK ACTIVITIES. IF THE ZONE OF WORK ACTIVITY MOVES, THE SIGNS SHOULD BE MOVED ACCORDINGLY.

4. SIGNING SHOWN IS REQUIRED TO ENFORCE DOUBLE FINES IN A WORK ZONE. ADDITIONAL SIGNING SHALL BE IN ACCORDANCE WITH THAT NORMALLY REQUIRED FOR THE PARTICULAR WORK ZONE. PLACEMENT OF "FINES DOUBLE" SIGNING MAY BE ADJUSTED AS NEEDED TO PROVIDE A MINIMUM 250' SPACING BETWEEN OTHER SIGNING REQUIRED FOR THE SPECIFIC WORK ZONE SETUP.

Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: RRR		Date:	Comments
Last Modification Date: Initials:	R-X		
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	R-X		
Drawing File Name: S-630-01_12of24.dgn	R-X		
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Issued By: Safety & Traffic Engineering Branch July 4, 2012

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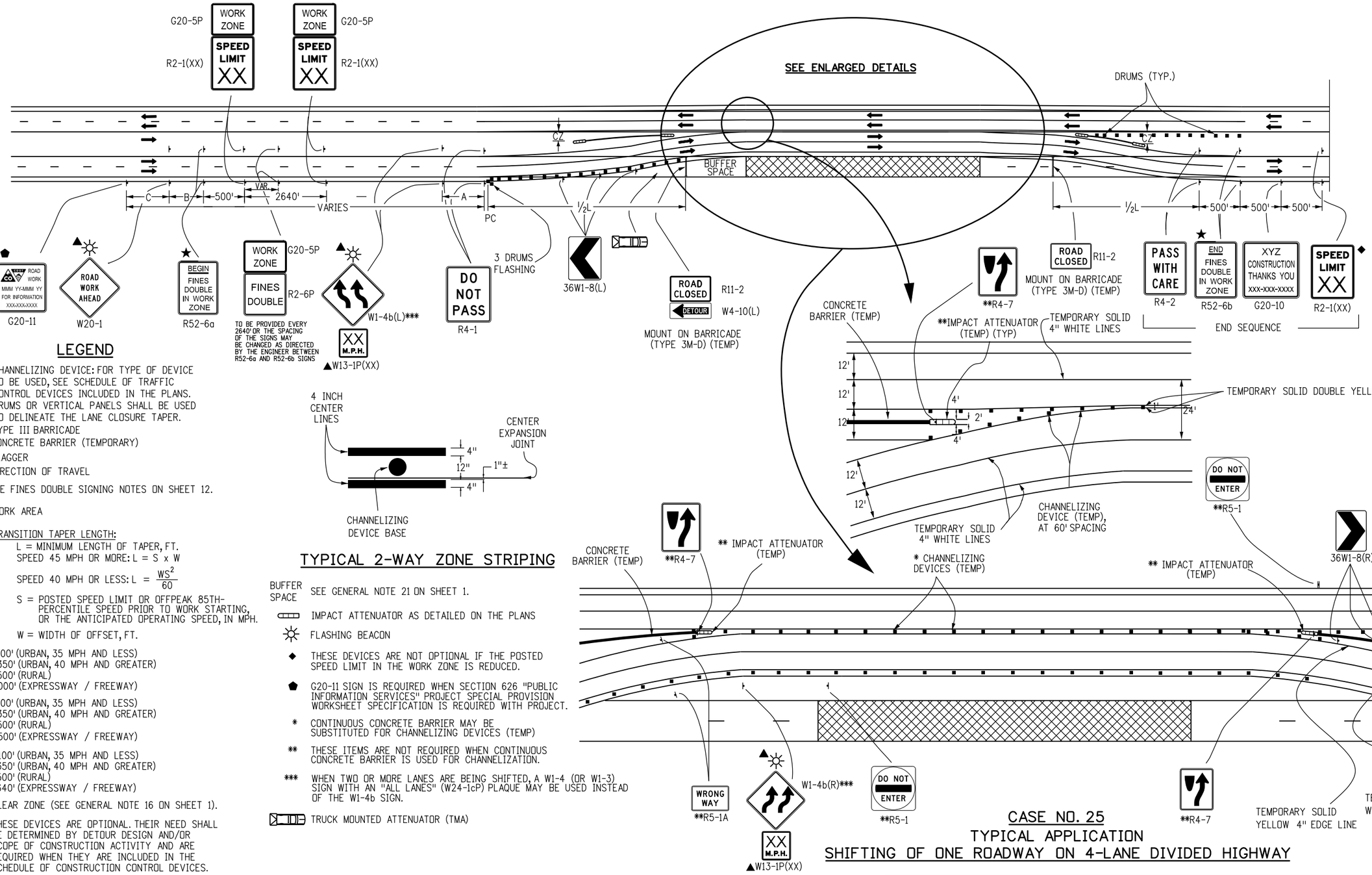

LEGEND

- ▪ CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE SCHEDULE OF TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. DRUMS OR VERTICAL PANELS SHALL BE USED TO DELINEATE THE LANE CLOSURE TAPER.
- TYPE III BARRICADE
- CONCRETE BARRIER (TEMPORARY)
- FLAGGER
- DIRECTION OF TRAVEL
- ★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.
- WORK AREA
- L TRANSITION TAPER LENGTH:
  - L = MINIMUM LENGTH OF TAPER, FT.
  - SPEED 45 MPH OR MORE: $L = S \times W$
  - SPEED 40 MPH OR LESS: $L = \frac{WS^2}{60}$
  - S = POSTED SPEED LIMIT OR OFFPEAK 85TH-PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED, IN MPH.
  - W = WIDTH OF OFFSET, FT.
- A = 100' (URBAN, 35 MPH AND LESS)
  350' (URBAN, 40 MPH AND GREATER)
  500' (RURAL)
  1,000' (EXPRESSWAY / FREEWAY)
- B = 100' (URBAN, 35 MPH AND LESS)
  350' (URBAN, 40 MPH AND GREATER)
  500' (RURAL)
  1,500' (EXPRESSWAY / FREEWAY)
- C = 100' (URBAN, 35 MPH AND LESS)
  350' (URBAN, 40 MPH AND GREATER)
  500' (RURAL)
  2,640' (EXPRESSWAY / FREEWAY)
- CZ CLEAR ZONE (SEE GENERAL NOTE 16 ON SHEET 1).
- ▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY DETOUR DESIGN AND/OR SCOPE OF CONSTRUCTION ACTIVITY AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.

TYPICAL 2-WAY ZONE STRIPING

- BUFFER SPACE — SEE GENERAL NOTE 21 ON SHEET 1.
- IMPACT ATTENUATOR AS DETAILED ON THE PLANS
- FLASHING BEACON
- ◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.
- ⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.
- * CONTINUOUS CONCRETE BARRIER MAY BE SUBSTITUTED FOR CHANNELIZING DEVICES (TEMP)
- ** THESE ITEMS ARE NOT REQUIRED WHEN CONTINUOUS CONCRETE BARRIER IS USED FOR CHANNELIZATION.
- *** WHEN TWO OR MORE LANES ARE BEING SHIFTED, A W1-4 (OR W1-3) SIGN WITH AN "ALL LANES" (W24-1cP) PLAQUE MAY BE USED INSTEAD OF THE W1-4b SIGN.
- TRUCK MOUNTED ATTENUATOR (TMA)

CASE NO. 25
TYPICAL APPLICATION
SHIFTING OF ONE ROADWAY ON 4-LANE DIVIDED HIGHWAY

Computer File Information			Sheet Revisions	
Creation Date: 07/04/12 Initials: RRR			Date:	Comments
Last Modification Date: 02/06/13 Initials: KEN	R-1	R-1	02/06/13	UPDATE TO 2009 MUTCD STANDARD
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Drawing File Name: S-630-01_13of24.dgn	R-X	R-X		
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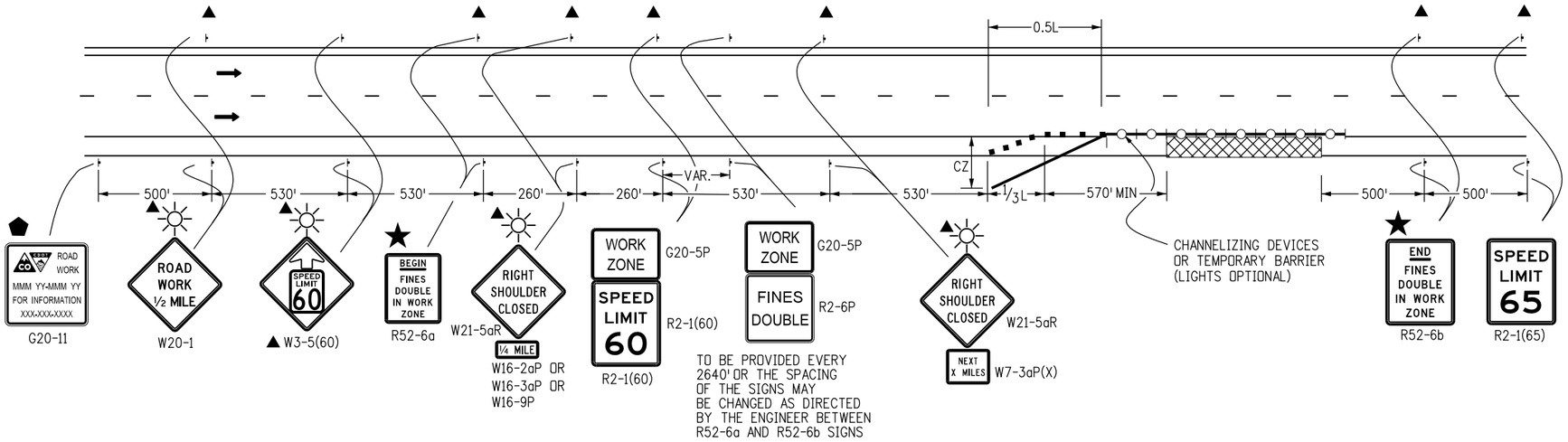
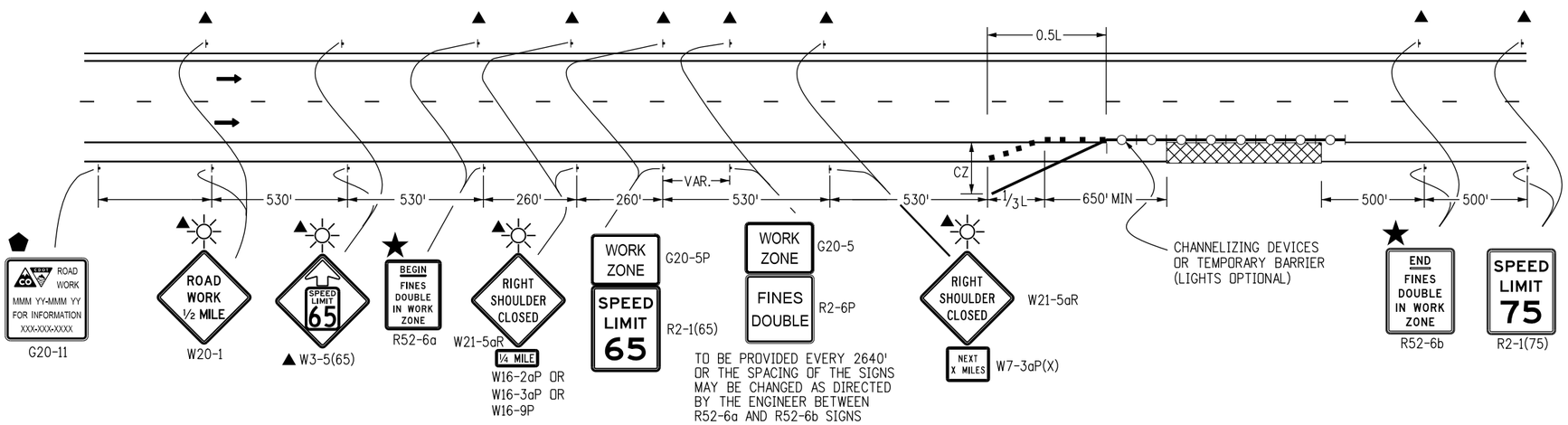


CASE NO. 26
TYPICAL APPLICATION
SHOULDER WORK - FREEWAY/EXPRESSWAY w/ 65 MPH SPEED LIMIT

WHEN HAZARDS (WORKERS, EQUIPMENT, OR TEMPORARY BARRIER) ARE WITHIN 8 FT OF TRAVEL WAY



CASE NO. 27
TYPICAL APPLICATION
SHOULDER WORK - FREEWAY/EXPRESSWAY w/ 75 MPH SPEED LIMIT

WHEN HAZARDS (WORKERS, EQUIPMENT, OR TEMPORARY BARRIER) ARE WITHIN 10 FT OF TRAVEL WAY

LEGEND

- ■ CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE SCHEDULE OF TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. DRUMS OR VERTICAL PANELS SHALL BE USED TO DELINEATE THE LANE CLOSURE TAPER.
- TYPE III BARRICADE
- CONCRETE BARRIER (TEMPORARY)
- FLAGGER
- DIRECTION OF TRAVEL
- WORK AREA
- L TRANSITION TAPER LENGTH:
  - L = MINIMUM LENGTH OF TAPER
  - SPEED 45 MPH OR MORE: L = S x W
  - S = NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED
  - W = WIDTH OF OFFSET
  - SHOULDER TAPER = 1/3 L
- ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL
- CZ CLEAR ZONE (SEE GENERAL NOTE 16 ON SHEET 1).
- ▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY TRAFFIC VOLUMES AND/OR SCOPE OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.
- ⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.
- ⬢ REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.
- TRUCK MOUNTED ATTENUATOR
- FLASHING BEACON
- ★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.

Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: RRR		Date:	Comments
Last Modification Date: Initials:	R-X		
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	R-X		
Drawing File Name: S-630-01_14of24.dgn	R-X		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	R-X		

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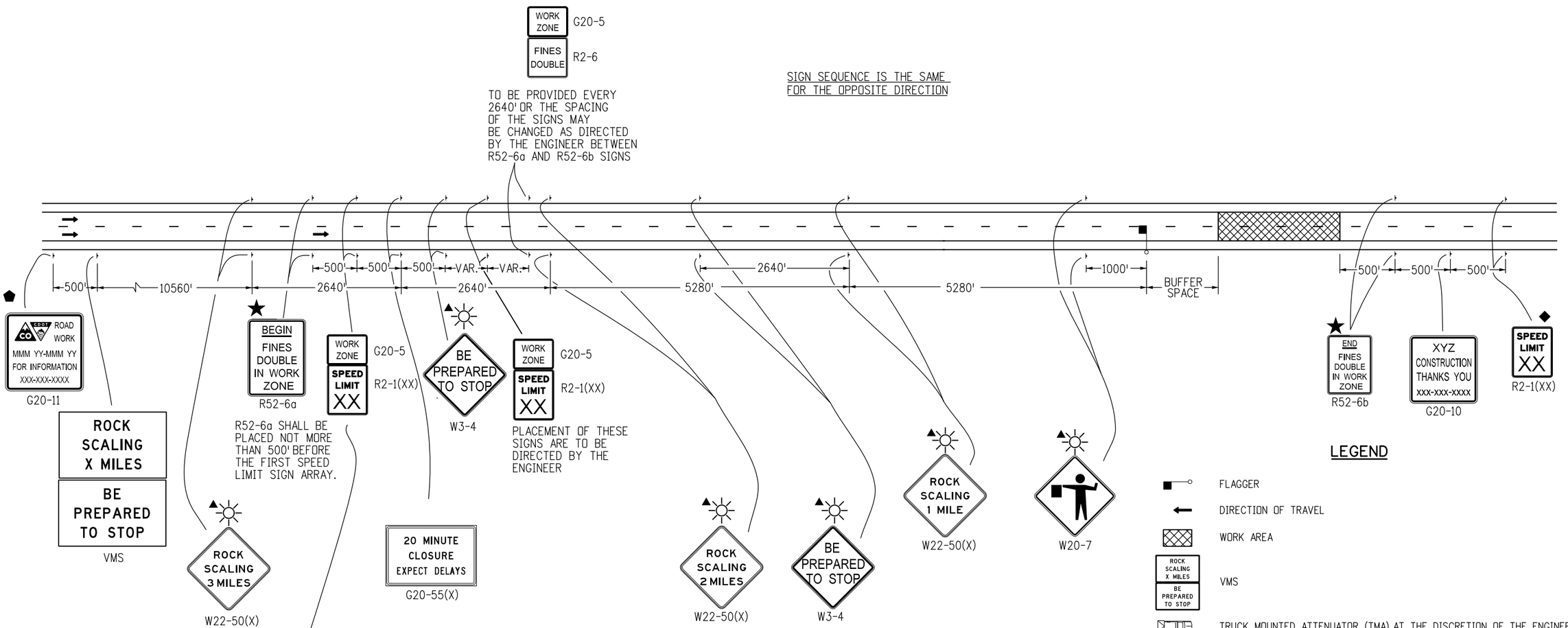

LEGEND

- FLAGGER
- DIRECTION OF TRAVEL
- WORK AREA
- VMS (ROCK SCALING X MILES / BE PREPARED TO STOP)
- TRUCK MOUNTED ATTENUATOR (TMA) AT THE DISCRETION OF THE ENGINEER
- ▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY DETOUR DESIGN AND/OR SCOPE OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.
- ◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.
- ⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.
- BUFFER SPACE — SEE GENERAL NOTE 21 ON SHEET 1.
- FLASHING BEACON
- ★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.

CASE NO. 28
TYPICAL APPLICATION
ROCK SCALING - ROAD CLOSURE, 4-LANE DIVIDED HIGHWAY

Computer File Information	
Creation Date: 07/04/12	Initials: RRR
Last Modification Date: 07/26/13	Initials: KEN
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	
Drawing File Name: S-630-01_15of24.dgn	
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	

	Sheet Revisions	
	Date:	Comments
R-4	07/26/13	CORRECTED SIGN CODE DESIGNATION FOR FLAGGER (SYMBOL) SIGN TO W20-7
R-X		
R-X		
R-X		

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TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

Issued By: Safety & Traffic Engineering Branch July 4, 2012

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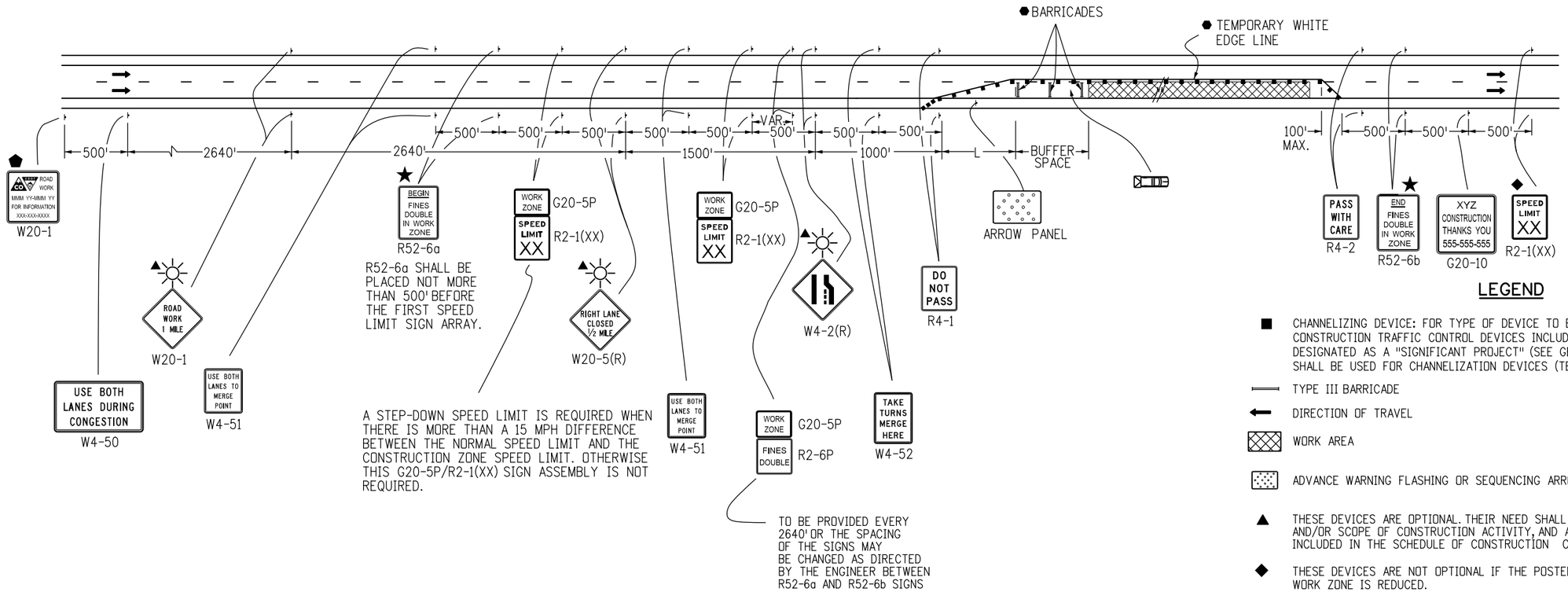
S-630-1
Sheet No. 15 of 24



LEGEND

■ CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE THE SCHEDULE OF CONSTRUCTION TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. IF PROJECT IS DESIGNATED AS A "SIGNIFICANT PROJECT" (SEE GENERAL NOTE 25), CONCRETE BARRIER SHALL BE USED FOR CHANNELIZATION DEVICES (TEMP) AS DETERMINED BY THE ENGINEER.

TYPE III BARRICADE

DIRECTION OF TRAVEL

WORK AREA

ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL.

▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY DETOUR DESIGN AND/OR SCOPE OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.

◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.

⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.

FLASHING BEACON

⬢ REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.

★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.

TRUCK MOUNTED ATTENUATOR (TMA)

L TRANSITION TAPER LENGTH:

L = MINIMUM LENGTH OF TAPER

SPEED 45 MPH OR MORE: $L = S \times W$

SPEED 40 MPH OR LESS: $L = \frac{WS^2}{60}$

S = NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED

W = WIDTH OF OFFSET

SHOULDER TAPER = 1/3 L

BUFFER SPACE SEE GENERAL NOTE 21 ON SHEET 1.

CASE NO. 29
TYPICAL APPLICATION
LATE MERGING - ONE LANE CLOSED, 4-LANE DIVIDED HIGHWAY

Computer File Information	
Creation Date: 07/04/12	Initials: RRR
Last Modification Date:	Initials:
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	
Drawing File Name: S-630-01_16of24.dgn	
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	

Sheet Revisions	
Date:	Comments

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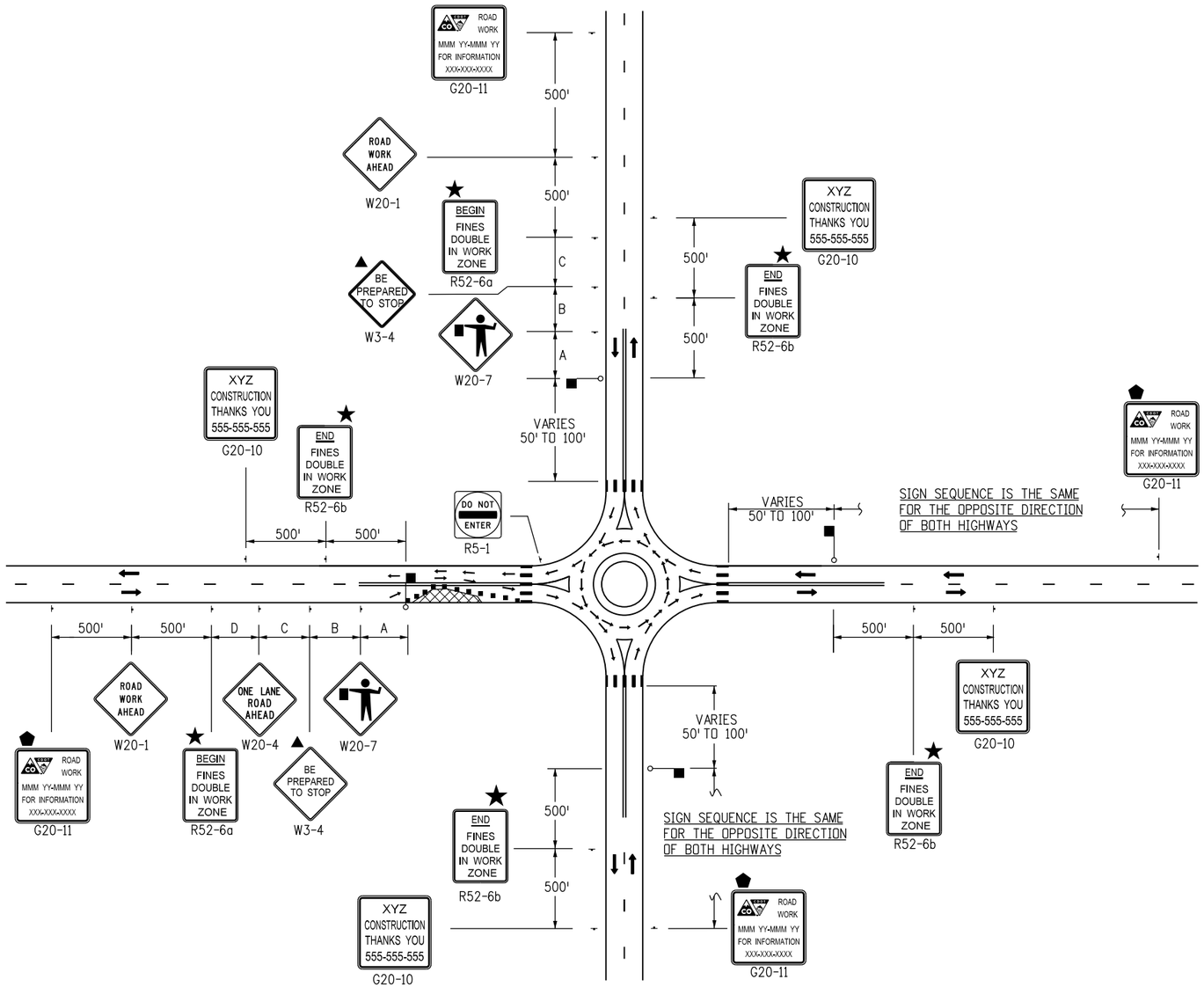

CASE NO. 30
TYPICAL APPLICATION
ROUNDABOUT - PARTIAL CLOSURE NEAR ONE-LANE ROUNDABOUT

LEGEND

- ■ CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE THE SCHEDULE OF CONSTRUCTION TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. IF PROJECT IS DESIGNATED AS A "SIGNIFICANT PROJECT" (SEE GENERAL NOTE 25), CONCRETE BARRIER SHALL BE USED FOR CHANNELIZATION DEVICES (TEMP) AS DETERMINED BY THE ENGINEER.
- TYPE III BARRICADE
- DIRECTION OF TRAVEL
- WORK AREA
- ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL.
- ▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY DETOUR DESIGN AND/OR SCOPE OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.
- ◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.
- ⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.
- FLASHING BEACON
- ⬢ REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.
- ★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.
- TRUCK MOUNTED ATTENUATOR (TMA)
- L TRANSITION TAPER LENGTH:

L = MINIMUM LENGTH OF TAPER

SPEED 45 MPH OR MORE: $L = S \times W$

SPEED 40 MPH OR LESS: $L = \frac{WS^2}{60}$

S = NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED

W = WIDTH OF OFFSET

SHOULDER TAPER = 1/3 L

- BUFFER SPACE — SEE GENERAL NOTE 21 ON SHEET 1.
- FLAGGER

ROAD TYPE	DISTANCE BETWEEN SIGNS		
	A	B	C
URBAN (<=40 MPH)	100	100	100
URBAN (>=45 MPH)	350	350	350
RURAL	500	500	500
EXPRESSWAY/FREEWAY	1000	1500	2640

Computer File Information	
Creation Date: 07/04/12	Initials: KEN
Last Modification Date: 12/08/14	Initials: KEN
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	
Drawing File Name: S-630-01_17of24.dgn	
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	

	Sheet Revisions	
	Date:	Comments
R-7	12/08/14	NEW SHEET 17. OLD SHEET 17 NOW SHEET 21
R-X		
R-X		
R-X		

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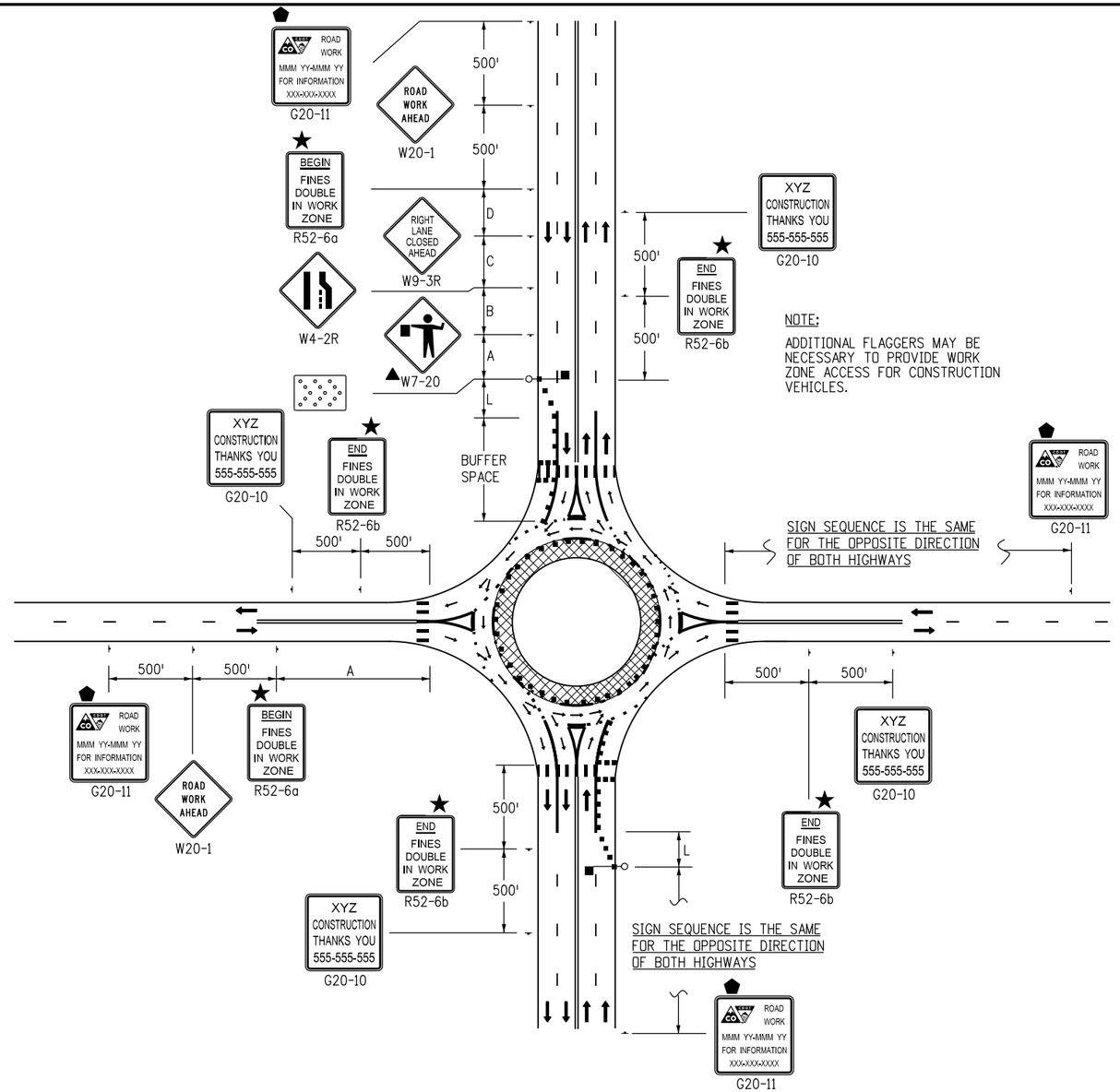

CASE NO. 31
TYPICAL APPLICATION *
ROUNDABOUT - INSIDE LANE CLOSURE FOR TWO-LANE ROUNDABOUT

LEGEND

* A TRUCK DETOUR ROUTE MAY BE NECESSARY TO DIVERT TRUCKS AWAY FROM THE ROUNDABOUT CIRCLE. ALSO NECESSARY IS A STREET NAME AND/OR ROUTE NUMBER SIGN, INFORMING MOTORISTS WHERE THEY NEED TO EXIT THE ROUNDABOUT CIRCLE TO ENTER THE DESIRED STREET AND/OR ROUTE NUMBER.

■ CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE THE SCHEDULE OF CONSTRUCTION TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. IF PROJECT IS DESIGNATED AS A "SIGNIFICANT PROJECT" (SEE GENERAL NOTE 25), CONCRETE BARRIER SHALL BE USED FOR CHANNELIZATION DEVICES (TEMP) AS DETERMINED BY THE ENGINEER.

TYPE III BARRICADE

DIRECTION OF TRAVEL

WORK AREA

ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL.

▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY DETOUR DESIGN AND/OR SCOPE OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.

◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.

⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.

FLASHING BEACON

⬢ REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.

★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.

TRUCK MOUNTED ATTENUATOR (TMA)

L TRANSITION TAPER LENGTH:

L = MINIMUM LENGTH OF TAPER

SPEED 45 MPH OR MORE: $L = S^2 W / 60$

SPEED 40 MPH OR LESS: $L = S W / 2$

S = NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED

W = WIDTH OF OFFSET

SHOULDER TAPER = 1/3 L

BUFFER SPACE SEE GENERAL NOTE 21 ON SHEET 1.

FLAGGER

ROAD TYPE	DISTANCE BETWEEN SIGNS		
	A	B	C
URBAN (<=40 MPH)	100	100	100
URBAN (>=45 MPH)	350	350	350
RURAL	500	500	500
EXPRESSWAY/FREEWAY	1000	1500	2640

Computer File Information	
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Drawing File Name: S-630-01_18of24.dgn	
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	

	Sheet Revisions	
	Date:	Comments
R-7	12/08/14	NEW SHEET 18. OLD SHEET 18 NOW SHEET 22
R-X		
R-X		
R-X		

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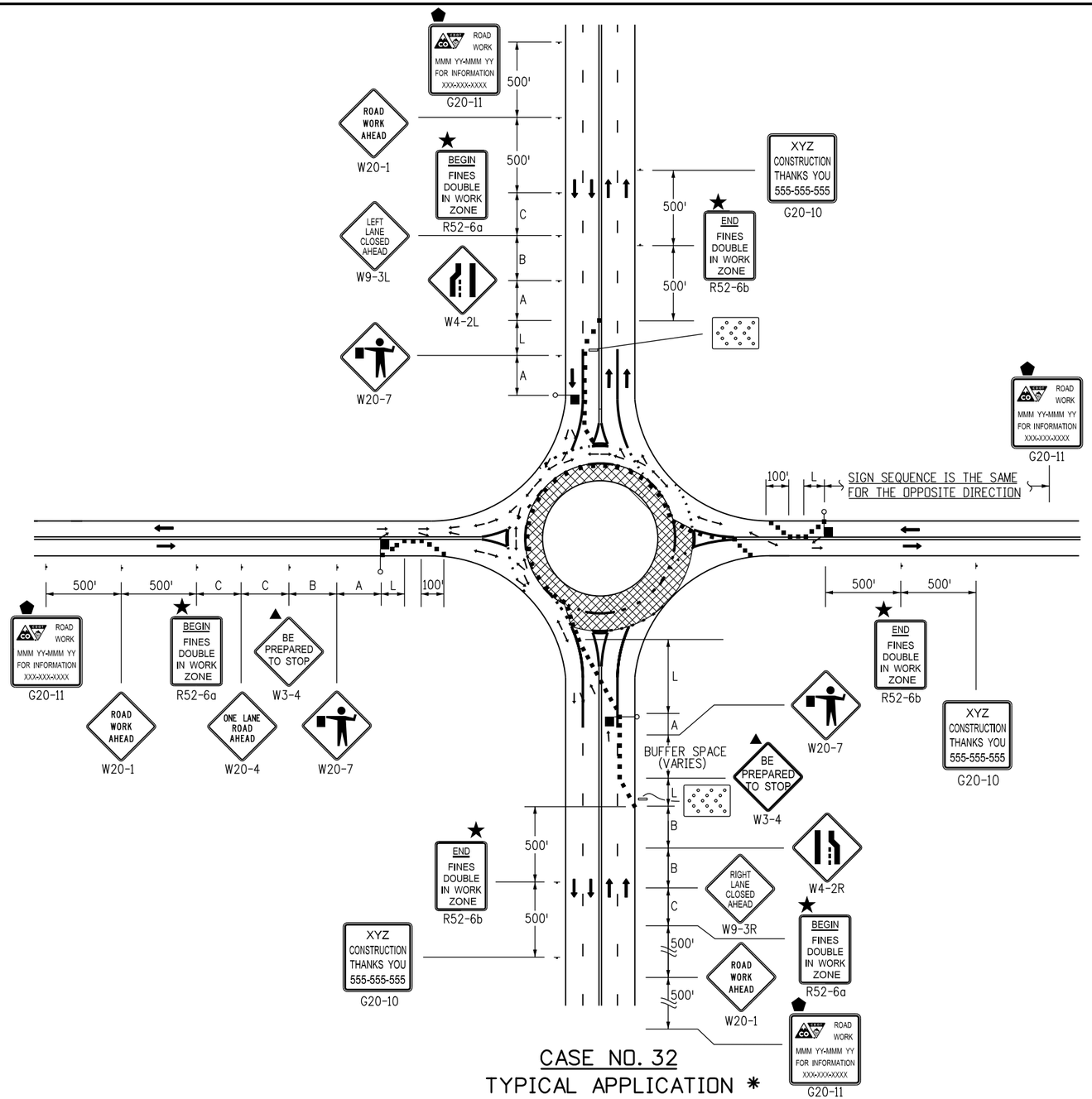

CASE NO. 32

TYPICAL APPLICATION *

ROUNDABOUT - OUTSIDE LANE CLOSURE FOR TWO-LANE ROUNDABOUT

LEGEND

* A TRUCK DETOUR ROUTE MAY BE NECESSARY TO DIVERT TRUCKS AWAY FROM THE ROUNDABOUT CIRCLE. ALSO NECESSARY IS A STREET NAME AND/OR ROUTE NUMBER SIGN, INFORMING MOTORISTS WHERE THEY NEED TO EXIT THE ROUNDABOUT CIRCLE TO ENTER THE DESIRED STREET AND/OR ROUTE NUMBER.

■ CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE THE SCHEDULE OF CONSTRUCTION TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. IF PROJECT IS DESIGNATED AS A "SIGNIFICANT PROJECT" (SEE GENERAL NOTE 25), CONCRETE BARRIER SHALL BE USED FOR CHANNELIZATION DEVICES (TEMP) AS DETERMINED BY THE ENGINEER.

TYPE III BARRICADE

DIRECTION OF TRAVEL

WORK AREA

ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL.

▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY DETOUR DESIGN AND/OR SCOPE OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.

◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.

⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.

FLASHING BEACON

⬢ REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.

★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.

TRUCK MOUNTED ATTENUATOR (TMA)

L TRANSITION TAPER LENGTH: =

L = MINIMUM LENGTH OF TAPER $= \frac{WS^2}{60}$

SPEED 45 MPH OR MORE: L $= S \times W$

SPEED 40 MPH OR LESS: L

S = NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED

W = WIDTH OF OFFSET

SHOULDER TAPER = 1/3 L

BUFFER SPACE — SEE GENERAL NOTE 21 ON SHEET 1.

FLAGGER

ROAD TYPE	DISTANCE BETWEEN SIGNS		
	A	B	C
URBAN (<=40 MPH)	100	100	100
URBAN (>=45 MPH)	350	350	350
RURAL	500	500	500
EXPRESSWAY/FREEWAY	1000	1500	2640

Computer File Information	
Creation Date: 07/04/12	Initials: KEN
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Drawing File Name: S-630-01_19of24.dgn	
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	

	Sheet Revisions	
	Date:	Comments
R-7	12/08/14	NEW SHEET 19. OLD SHEET 19 NOW SHEET 23
R-X		
R-X		
R-X		

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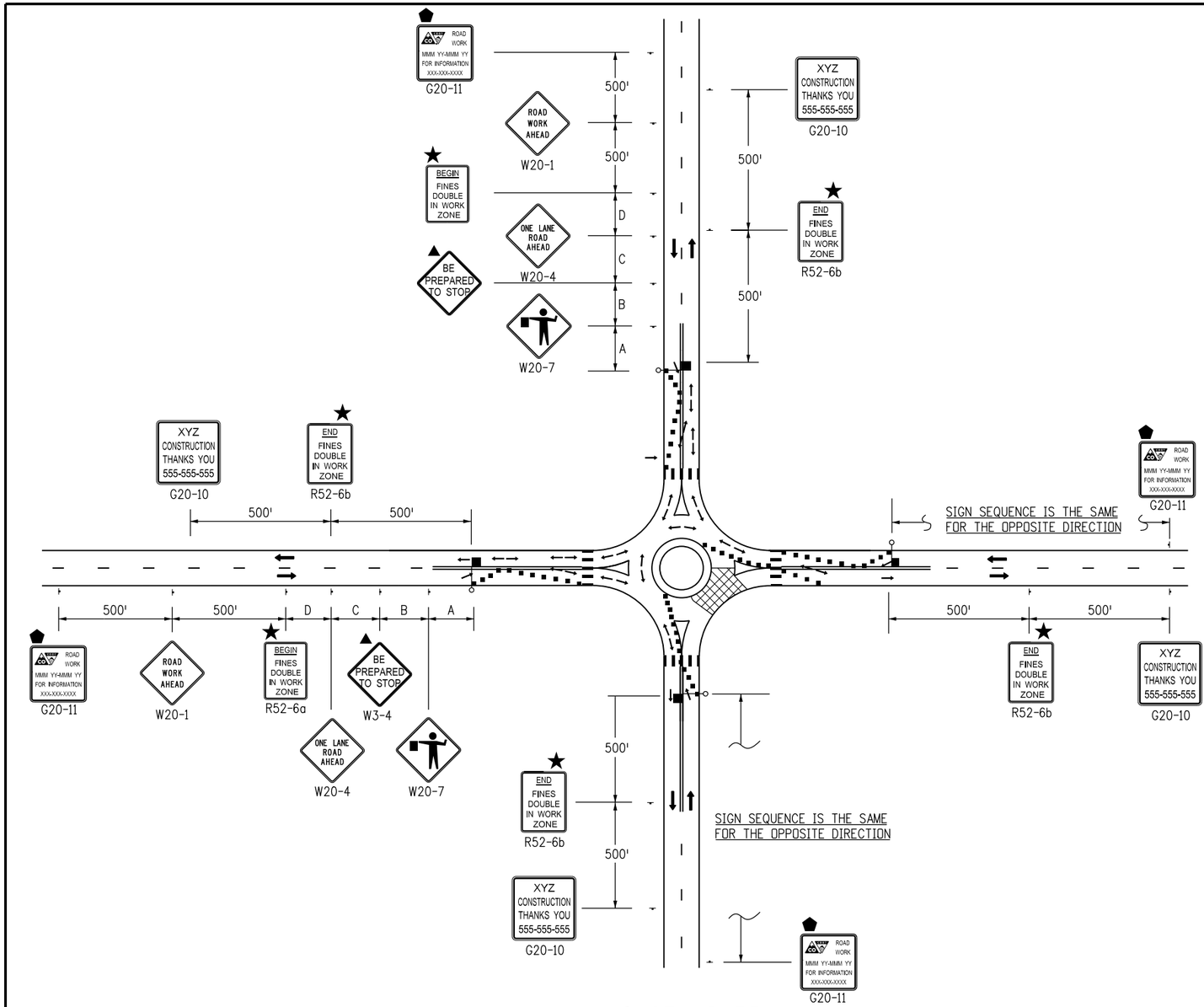

CASE NO. 33
TYPICAL APPLICATION *
ROUNDABOUT - PARTIAL CLOSURE FOR ONE-LANE ROUNDABOUT

LEGEND

* A TRUCK DETOUR ROUTE MAY BE NECESSARY TO DIVERT TRUCKS AWAY FROM THE ROUNDABOUT CIRCLE. ALSO NECESSARY IS A STREET NAME AND/OR ROUTE NUMBER SIGN, INFORMING MOTORISTS WHERE THEY NEED TO EXIT THE ROUNDABOUT CIRCLE TO ENTER THE DESIRED STREET AND/OR ROUTE NUMBER.

■ CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE THE SCHEDULE OF CONSTRUCTION TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. IF PROJECT IS DESIGNATED AS A "SIGNIFICANT PROJECT" (SEE GENERAL NOTE 25), CONCRETE BARRIER SHALL BE USED FOR CHANNELIZATION DEVICES (TEMP) AS DETERMINED BY THE ENGINEER.

TYPE III BARRICADE

DIRECTION OF TRAVEL

WORK AREA

ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL.

▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY DETOUR DESIGN AND/OR SCOPE OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.

◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.

⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.

FLASHING BEACON

⬢ REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.

★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.

TRUCK MOUNTED ATTENUATOR (TMA)

L TRANSITION TAPER LENGTH:

L = MINIMUM LENGTH OF TAPER

SPEED 45 MPH OR MORE: $L = \frac{WS^2}{60}$

SPEED 40 MPH OR LESS: L

S = NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED

W = WIDTH OF OFFSET

SHOULDER TAPER = 1/3 L

BUFFER SPACE SEE GENERAL NOTE 21 ON SHEET 1.

FLAGGER

ROAD TYPE	DISTANCE BETWEEN SIGNS		
	A	B	C
URBAN (<=40 MPH)	100	100	100
URBAN (>=45 MPH)	350	350	350
RURAL	500	500	500
EXPRESSWAY/FREEWAY	1000	1500	2640

Computer File Information	
Creation Date: 07/04/12	Initials: KEN
Last Modification Date: 12/08/14	Initials: KEN
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	
Drawing File Name: S-630-01_20of24.dgn	
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	

	Sheet Revisions	
	Date:	Comments
R-7	12/08/14	NEW SHEET 20. OLD SHEET 20 NOW SHEET 24
R-X		
R-X		
R-X		

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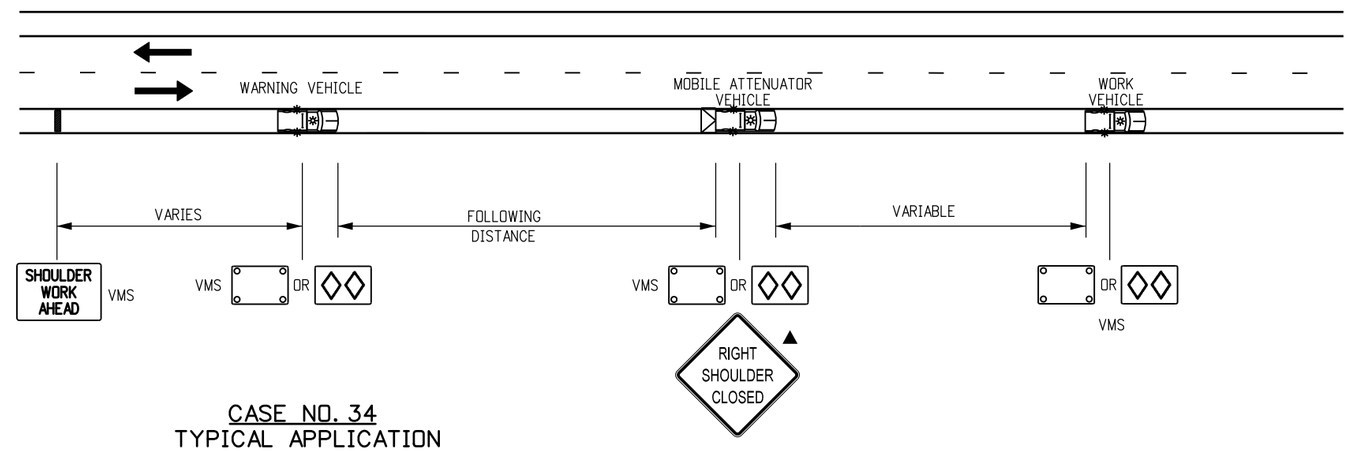
LEGEND

- VEHICLE WITH TRUCK-MOUNTED ATTENUATORS (TMA), TWO 360-DEGREE YELLOW FLASHING BEACONS, AND YELLOW FLASHING VEHICLE LIGHTS OR STROBES.
- VMS — VARIABLE MESSAGE SIGN (VMS).
- ▲ WHEN VMS IS USED, THE "SHOULDER CLOSED" SIGN BECOMES OPTIONAL.
- ■ THE "PICK-UP VEHICLES" OR "WARNING VEHICLE" MAY ENCROACH INTO THE TRAFFIC LANE WHEN THE SHOULDER IS TOO NARROW TO DRIVE ON.
- ● IF TRACKING OF THE WET PAINT IS ANTICIPATED, THE USE OF CONES OR STATIONARY "WET PAINT" SIGNS SHALL BE POSTED.
- ⬢ THE VARIABLE SEPARATION DISTANCE BETWEEN THE "CONE PLACEMENT VEHICLE" AND "CONE PICKUP VEHICLE" SHALL BE DETERMINED BY THE TRACK DRYING TIME OF THE PAVEMENT MARKING MATERIAL.
- ⬬ OPTIONAL

FOLLOWING DISTANCE CHART FOR WARNING AND MOBILE ATTENUATOR (OR CONE PICKUP) VEHICLE

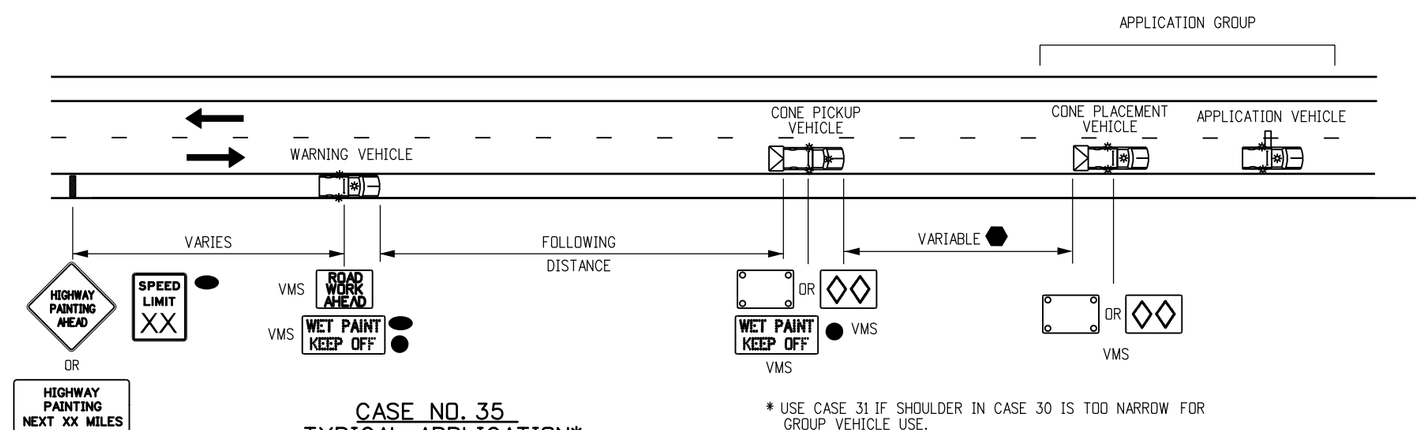
POSTED WZ SPEED LIMIT (MPH)	FOLLOWING DISTANCE (FEET)
0 - 30	250 - 550
35 - 40	325 - 700
45 - 50	600 - 900
55	750 - 1200
60 - 65	1000 - 1400
70 - 75	1200 - 1600



CASE NO. 34
TYPICAL APPLICATION
MOBILE WORK ZONE
MOBILE SHOULDER CLOSURE ON 2-LANE UNDIVIDED HIGHWAY

NOTE

THE VARIABLE SEPARATION DISTANCE BETWEEN THE "CONE PLACEMENT VEHICLE" AND "CONE PICKUP VEHICLE" SHALL BE DETERMINED BY THE TRACK DRYING TIME OF THE PAVEMENT MARKING MATERIAL.



* USE CASE 31 IF SHOULDER IN CASE 30 IS TOO NARROW FOR GROUP VEHICLE USE.

CASE NO. 35
TYPICAL APPLICATION*
MOBILE PAVEMENT MARKING ZONE
CENTERLINE STRIPING ON 2-LANE UNDIVIDED HIGHWAY

Computer File Information		
Creation Date: 07/04/12	Initials: KEN	
Last Modification Date: 12/8/14	Initials: KEN	R-5
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans		R-7
Drawing File Name: S-630-1_21of24.dgn		R-X
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English		R-X

Sheet Revisions	
Date:	Comments
3/27/14	REDUCED NUMBER OF TMA VEHICLES, REVISE VMS AND ADD STATIONARY SIGNS
12/8/14	FORMERLY SHEET 17.

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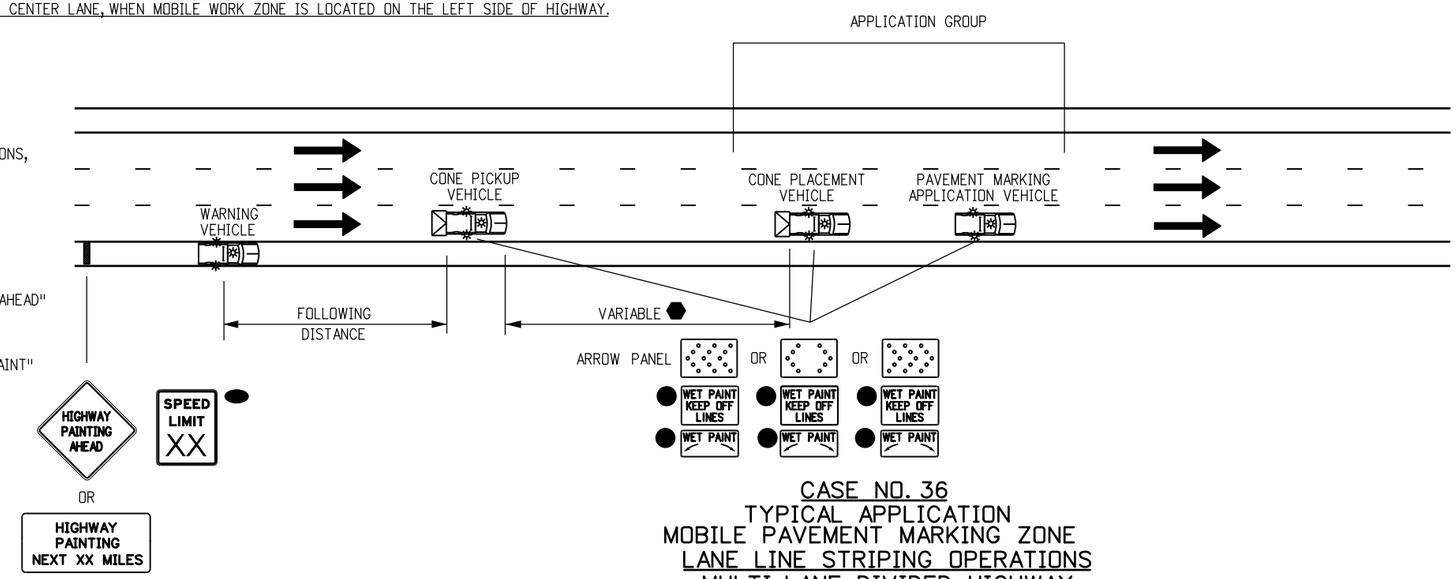
FOR CASE #32, VEHICLE/SIGN SEQUENCE IS THE SAME FOR THE LEFT SIDE OF HIGHWAY, WHILE TAPER IS MIRRORED ABOUT THE CENTER LANE, WHEN MOBILE WORK ZONE IS LOCATED ON THE LEFT SIDE OF HIGHWAY.

LEGEND

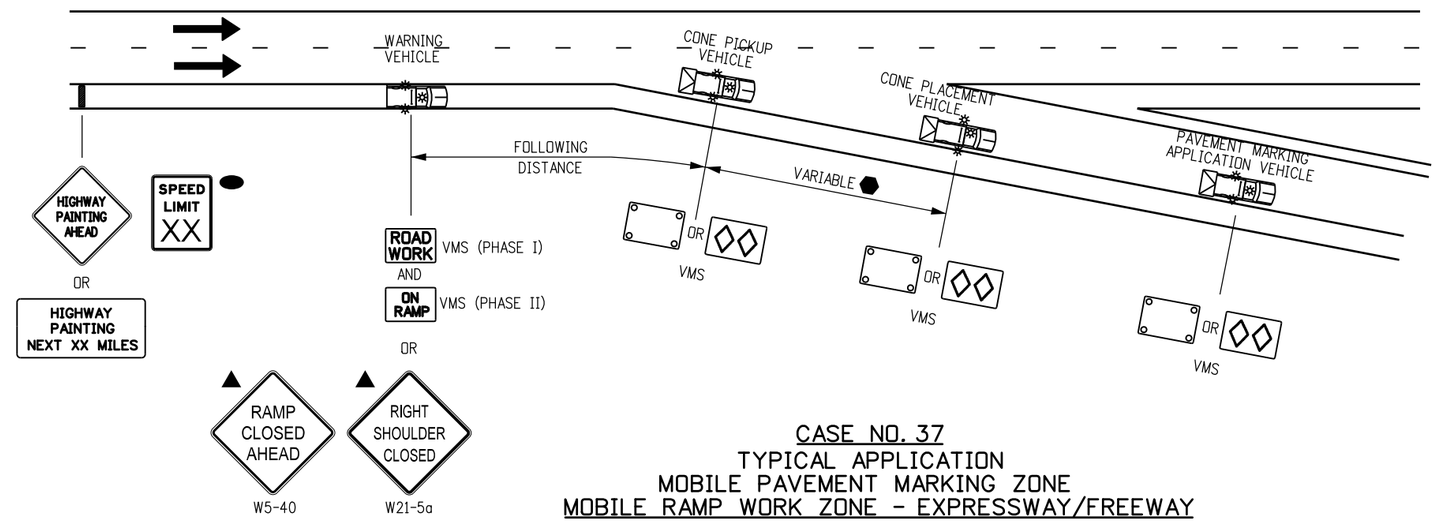
- VEHICLE WITH TRUCK-MOUNTED ATTENUATORS (TMA), TWO 360-DEGREE YELLOW FLASHING BEACONS, AND YELLOW FLASHING VEHICLE LIGHTS OR STROBES.
- ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL.
- AHEAD / LANE CLOSED — PORTABLE VARIABLE MESSAGE SIGN (VMS).
- ▲ WHEN THE VMS IS USED, THE "SHOULDER CLOSED" (W21-5aX) OR W21-5bX), AND "RAMP CLOSED AHEAD" SIGNS BECOME OPTIONAL.
- ● IF TRACKING OF THE WET PAINT IS ANTICIPATED, THE USE OF CONES OR STATIONARY "WET PAINT" SIGNS SHALL BE POSTED.
- ⬢ THE VARIABLE SEPARATION DISTANCE BETWEEN THE "CONE PLACEMENT VEHICLE" AND "CONE PICKUP VEHICLE" SHALL BE DETERMINED BY THE TRACK DRYING TIME OF THE PAVEMENT MARKING MATERIAL.
- ⬬ OPTIONAL



CASE NO. 36
TYPICAL APPLICATION
MOBILE PAVEMENT MARKING ZONE
LANE LINE STRIPING OPERATIONS
MULTI-LANE DIVIDED HIGHWAY

FOLLOWING DISTANCE CHART FOR WARNING VEHICLE AND CONE PICKUP VEHICLES

POSTED WZ SPEED LIMIT (MPH)	FOLLOWING DISTANCE (FEET)
0 - 30	250 - 550
35 - 40	325 - 700
45 - 50	600 - 900
55	750 - 1200
60 - 65	1000 - 1400
70 - 75	1200 - 1600



CASE NO. 37
TYPICAL APPLICATION
MOBILE PAVEMENT MARKING ZONE
MOBILE RAMP WORK ZONE - EXPRESSWAY/FREEWAY

NOTES

1. THE SIGNING VEHICLES MAY ENCROACH INTO THE TRAFFIC LANE WHEN THE SHOULDER IS TOO NARROW TO DRIVE ON.
2. IF THE RAMP CANNOT BE REOPENED WITHIN 15 MINUTES, USE CASE NO. 22 OF THE S-630-1 STANDARD PLAN.

Computer File Information		
Creation Date: 07/04/12		Initials: KEN
Last Modification Date: 12/8/14		Initials: KEN
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans		
Drawing File Name: S-630-1_22of24.dgn		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English		

	Sheet Revisions	
	Date:	Comments
R-5	3/27/14	REDUCE NUMBER OF TMA VEHICLES, REVISE VMS, AND ADD STATIONARY SIGNS
R-7	12/8/14	FORMERLY SHEET 18. SIGN CODE UPDATE. W5-40 & W21-5a.
R-X		
R-X		

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LEGEND

VEHICLE WITH TRUCK-MOUNTED ATTENUATORS (TMA), TWO 360-DEGREE YELLOW FLASHING BEACONS, AND YELLOW FLASHING VEHICLE LIGHTS OR STROBES.

ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL.

LANE CLOSED — PORTABLE VARIABLE MESSAGE SIGN (VMS).

▲ WHEN THE VMS IS USED, THE "RIGHT LANE CLSED AHEAD" (W9-3X) SIGN BECOMES OPTIONAL.

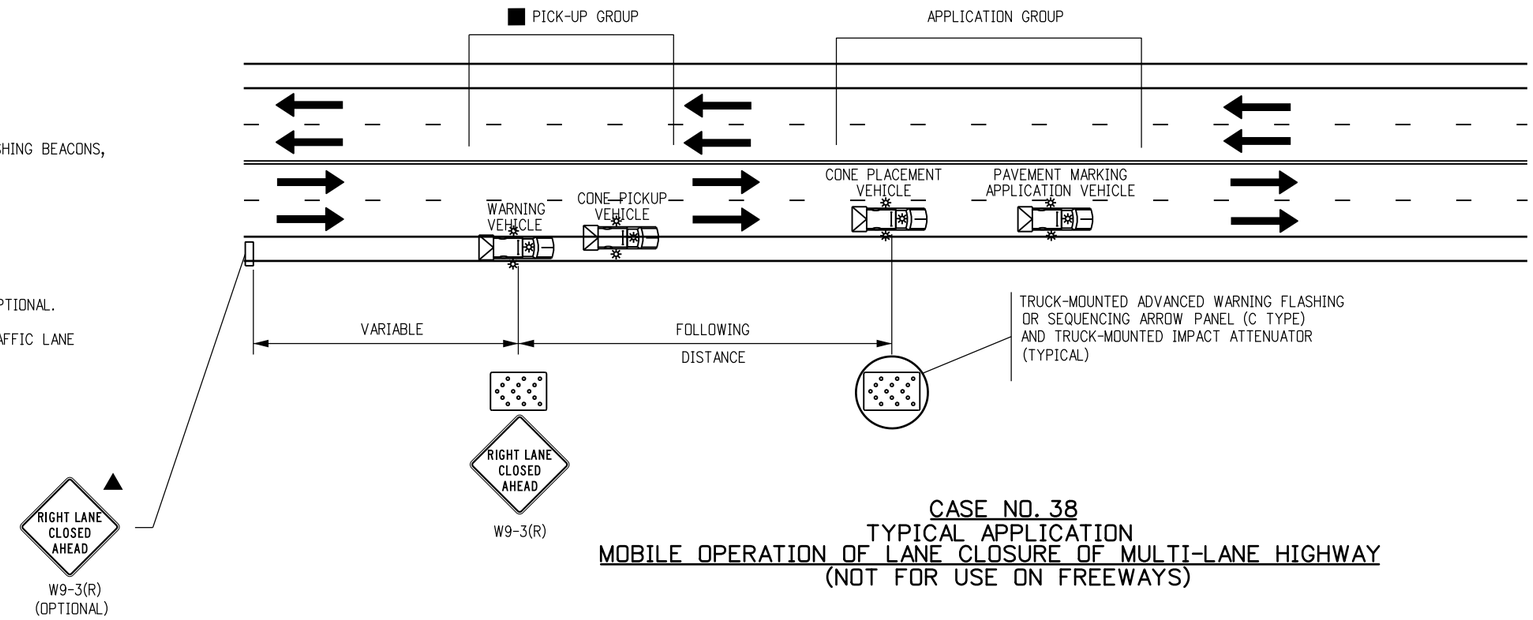
■ THE "CONE PICK-UP VEHICLE" OR "WARNING VEHICLE" MAY ENCROACH INTO THE TRAFFIC LANE WHEN THE SHOULDER IS TOO NARROW TO DRIVE ON.

NOTES

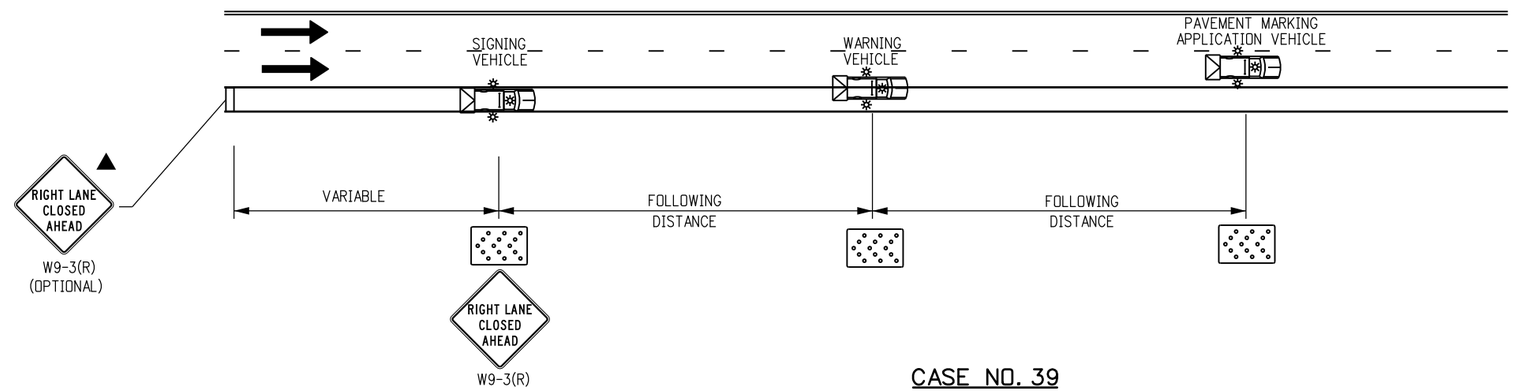
1. IN ROADWAY WHERE THE AADT IS 2,000 OR LESS, A SINGLE WORK VEHICLE WITH APPROPRIATE WARNING DEVICES ON THE VEHICLE MAY BE USED.
2. RADIO COMMUNICATIONS BETWEEN THE WORKCREW AND THE MOVING BLOCKADE ARE REQUIRED TO ADJUST THE BLOCKADE TO INCREASE OR DECREASE THE CLOSURE TIME. RELEASE TRAFFIC ONLY AFTER CONFIRMATION THAT ALL WORKERS AND THEIR VEHICLES ARE CLEAR OF THE ROADWAY.
3. IF APPLICABLE, ALL RAMPS AND ACCESS BETWEEN THE MOVING BLOCKADE AND WORK OPERATION AREA SHALL BE TEMPORARILY CLOSED USING TRAFFIC CONTROL EQUIPMENT AND PERSONNEL. EACH RAMP MUST REMAIN CLOSED UNTIL THE CREW DOING THE WORK GIVES THE "ALL CLEAR" SIGNAL OR UNTIL THE FRONT OF THE MOVING BLOCKADE PASSES THE CLOSED RAMP(S).

FOLLOWING DISTANCE CHART FOR WARNING VEHICLE AND SIGNING VEHICLES

POSTED WZ SPEED LIMIT (MPH)	FOLLOWING DISTANCE (FEET)
0 - 30	250 - 550
35 - 40	325 - 700
45 - 50	600 - 900
55	750 - 1200
60 - 65	1000 - 1400
70 - 75	1200 - 1600



CASE NO. 38
TYPICAL APPLICATION
MOBILE OPERATION OF LANE CLOSURE OF MULTI-LANE HIGHWAY
(NOT FOR USE ON FREEWAYS)



CASE NO. 39
TYPICAL APPLICATION
MOBILE OPERATION OF LANE CLOSURE OF MULTI-LANE HIGHWAY

Computer File Information		
Creation Date: 07/04/12	Initials: KEN	
Last Modification Date: 12/8/14	Initials: KEN	R-7
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans		R-X
Drawing File Name: S-630-1_23of24.dgn		R-X
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English		R-X

Sheet Revisions	
Date:	Comments
12/8/14	FORMERLY SHEET 19.

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TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

Issued By: Safety & Traffic Engineering Branch July 4, 2012

STANDARD PLAN NO.
S-630-1
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TYPICAL CONSTRUCTION ZONE SIGNS

THESE SIGNING NOTES ARE INTENDED AS A QUICK REFERENCE
FOR TYPICAL SIGN USE AND PLACEMENT IN CONSTRUCTION ZONES.

G20-1 "ROAD/WORK/NEXT XX MILES" - THIS SIGN SHALL BE ERECTED AT THE LIMITS OF ANY ROAD CONSTRUCTION OR MAINTENANCE PROJECT OF MORE THAN TWO (2) MILES IN LENGTH WHERE TRAFFIC IS MAINTAINED THROUGH THE PROJECT.

G20-4 "PILOT CAR/FOLLOW ME" - THIS SIGN SHALL BE MOUNTED IN A CONSPICUOUS POSITION ON THE REAR OF A VEHICLE USED FOR GUIDING ONE-WAY TRAFFIC THROUGH OR AROUND THE PROJECT.

G20-5P "WORK ZONE" - THIS PLAQUE SHALL BE MOUNTED JUST ABOVE THE WORK ZONE SPEED LIMIT SIGNS PRIOR TO THE WORK ZONE AREA.

G20-10 THANK YOU SIGN - THIS SIGN SHOULD BE ERECTED APPROXIMATELY 500 FEET BEYOND THE END OF THE PROJECT.

G20-11 CONSTRUCTION PROJECT INFORMATION SIGN - THIS SIGN SHOULD BE ERECTED AS DESCRIBED IN THE SECTION 626 STANDARD SPECIFICATION.

G20-55(X) "X MINUTE CLOSURE. EXPECT DELAYS" - THIS SIGN IS INTENDED FOR USE 500 FEET PAST THE "WORK ZONE"/SPEED LIMIT SIGN.

M4-9( ) "DETOUR/<<<<" - THIS SIGN IS USED FOR UNNUMBERED ROUTES; FOR USE IN EMERGENCY SITUATIONS; FOR PERIODS OF SHORT DURATION; OR WHERE, OVER RELATIVELY SHORT DISTANCES. IT IS NOT NECESSARY TO SHOW ROUTE MARKERS TO GUIDE TRAFFIC ALONG THE DETOUR AND BACK TO ITS AUTHORIZED ROUTE.

M4-10( ) "DETOUR ARROW" - THIS SIGN SHOULD BE MOUNTED JUST BELOW THE ROAD CLOSED SIGN AT THE POINT WHERE THE DETOUR ROADWAY OR ROUTE HAS BEEN ESTABLISHED DUE TO THE CLOSURE OF THE STREET OR HIGHWAY TO THROUGH TRAFFIC.

R2-1( ) "SPEED/LIMIT/XX" - THESE SIGNS ARE INTENDED TO REDUCE TRAFFIC SPEED IN ADVANCE OF THE DAILY WORK AREA WITHIN THE OVERALL PROJECT LIMITS.

R2-1(XX) "SPEED/LIMIT/XX" - THIS SIGN IS INTENDED FOR USE 500 FEET PAST THE "THANK YOU" SIGN TO BRING TRAFFIC BACK TO ORIGINAL POSTED SPEED.

R2-6P "FINES DOUBLE" - THIS SIGN IS INTENDED FOR USE WITHIN WORK ZONES TO PROVIDE NOTICE OF INCREASED FINES FOR TRAFFIC VIOLATIONS WITHIN WORK ZONES.

R4-1 "DO NOT PASS" - THIS SIGN SHOULD BE PLACED AT TRANSITION TAPER POINT.

R4-2 "PASS WITH CARE" - THIS SIGN SHOULD BE PLACED AT TRANSITION TAPER POINT.

R11-2 "ROAD/CLOSED" - THIS SIGN IS TO BE MOUNTED ON THE BARRICADE THAT IS PLACED BEFORE THE WORK ZONE ENTRANCE TO PROHIBIT TRAFFIC FROM ENTERING THE WORK ZONE.

R11-3 "ROAD CLOSED/X MILES AHEAD/L.T.O. - THIS SIGN SHOULD BE PLACED WHERE THROUGH TRAFFIC MUST DETOUR TO AVOID THE CLOSURE OF THE ROAD SOME DISTANCE BEYOND, BUT WHERE THE ROAD IS OPEN TO LOCAL TRAFFIC UP TO THE POINT OF CLOSURE.

R11-4 "ROAD CLOSED/TO/THRU TRAFFIC" FOR URBAN USE - THIS SIGN SHOULD BE PLACED WHERE THROUGH TRAFFIC MUST DETOUR TO AVOID THE CLOSURE OF THE ROAD SOME DISTANCE BEYOND, BUT WHERE THE ROAD IS OPEN TO LOCAL TRAFFIC UP TO THE POINT OF CLOSURE.

R52-6a "BEGIN FINES DOUBLE IN WORK ZONE" SIGN IS PLACED AT THE BEGINNING OF THE ADVANCED WARNING AREA OF THE TRAFFIC CONTROL ZONE.

R52-6b "END FINES DOUBLE IN WORK ZONE" SIGN IS PLACED AFTER WORK ZONE AREA, PAST DOWNSTREAM TAPER SECTION.

W1-1( ) "TURN ARROW" - THIS SIGN IS INTENDED FOR USE WHERE ENGINEERING INVESTIGATIONS OF ROADWAY CONDITIONS SHOW THE RECOMMENDED SPEED ON THE TURN TO BE 30 MPH OR LESS.✱

W1-2( ) "CURVE ARROW" - THIS SIGN IS INTENDED FOR USE WHERE ENGINEERING INVESTIGATIONS OF ROADWAY CONDITIONS SHOW THE RECOMMENDED SPEED ON THE CURVE TO BE IN THE RANGE BETWEEN 30 AND 60 MILES PER HOUR.✱

W1-3( ) "REVERSE TURN ARROW" - THIS SIGN IS INTENDED FOR USE WHERE TWO TURNS OR THE CURVE AND A TURN IN OPPOSITE DIRECTIONS ARE SEPARATED BY A TANGENT OF LESS THAN 600 FEET.✱

W1-4( ) "REVERSE CURVE ARROW" - THIS SIGN IS INTENDED FOR USE WHERE TWO CURVES IN OPPOSITE DIRECTIONS ARE SEPARATED BY A TANGENT OF LESS THAN 600 FEET.✱

W1-6( ) "ARROW" - THIS SIGN SHOULD BE MOUNTED JUST BELOW THE ROAD CLOSED SIGN AT THE POINT WHERE THE DIVERSION HAS BEEN ESTABLISHED DUE TO THE LANE CLOSURE.

W3-2 "YIELD AHEAD" - THIS SIGN IS INTENDED FOR USE AT THE APPROACH TO THE YIELD SIGN THAT IS NOT VISIBLE FOR A SUFFICIENT DISTANCE TO PERMIT THE DRIVER TO BRING HIS VEHICLE TO A STOP AT THE YIELD SIGN.✱

W3-4 "BE PREPARED TO STOP" - THIS SIGN TO BE PLACED 1.5 MILES IN ADVANCED OF A FLAGGER.

W4-2(X) "LEFT (RIGHT) LANE TRANSITION SYMBOL" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF THE REDUCTION IN THE NUMBER OF TRAFFIC LANES IN THE DIRECTION OF TRAVEL ON THE MULTILANE HIGHWAY.✱

W4-50 "USE BOTH LANES DURING CONGESTION" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF THE "ROAD WORK X MILE" ADVANCED WARNING SIGN.

W4-51 "USE BOTH LANES TO MERGE POINT" - THIS SIGN IS INTENDED TO DIRECT MOTORISTS TO USE BOTH TRAVEL LANES UNTIL THE LANES ARE REDUCED TO ONE LANE.

W4-52 "TAKE TURNS MERGE HERE" - THIS SIGN IS INTENDED TO WARN MOTORISTS IN ADVANCED TO MOVE FROM THE CLOSED TRAVEL LANE TO THE OPEN TRAVEL LANE, USUALLY 500 FEET IN ADVANCED OF THE START OF THE TRANSITION TAPER .

W5-1 "ROAD NARROWS" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF THE TRANSITION ON THE ROAD WHERE THE PAVEMENT WIDTH IS REDUCED ABRUPTLY TO A WIDTH SUCH THAT TWO CARS CANNOT PASS WITHOUT REDUCING SPEED.✱

W5-2a "NARROW BRIDGE SYMBOL" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF A BRIDGE OR CULVERT HAVING A CLEAR TWO-WAY ROADWAY WIDTH OF 16 TO 18 FEET OR ANY BRIDGE OR CULVERT HAVING A ROADWAY CLEARANCE LESS THAN THE WIDTH OF THE APPROACH PAVEMENT.✱

W5-3 "ONE LANE/BRIDGE" - THIS SIGN SHOULD BE PLACED ON TWO-WAY ROADWAYS IN ADVANCE OF THE BRIDGES OR CULVERTS WHERE THE ROADWAY WIDTH IS LESS THAN 16 FEET (18 FEET FOR COMMERCIAL VEHICLES) OR WHEN THE ALIGNMENT IS POOR ON THE APPROACH TO THE STRUCTURE HAVING A CLEAR ROADWAY WIDTH OF 18 FEET OR LESS✱

W6-1 "DIVIDED HIGHWAY SYMBOL" - THIS SIGN SHOULD BE PLACED ON THE APPROACHES TO THE SECTION OF HIGHWAY WHERE OPPOSING FLOWS OF TRAFFIC ARE SEPARATED BY A PHYSICAL MEDIAN.

W6-2 "DIVIDED HIGHWAY ENDS SYMBOL" - THIS SIGN SHOULD BE PLACED AT THE END OF THE SECTION OF PHYSICALLY DIVIDED HIGHWAY AS A WARNING OF TWO-WAY TRAFFIC AHEAD.

W6-3 "TWO-WAY TRAFFIC SYMBOL" - THIS SIGN IS INTENDED FOR USE TO GIVE WARNING OF TRANSITION FROM A SEPARATED ONE-WAY ROADWAY TO A TWO-WAY ROADWAY.✱

W7-1 "HILL SYMBOL" - THIS SIGN SHOULD BE PLACED AT A POINT IN ADVANCE OF THE DOWNGRADE WHERE THE LENGTH, PERCENT OF GRADE, HORIZONTAL CURVATURE, OR OTHER PHYSICAL FEATURES REQUIRE SPECIAL CONSIDERATION ON THE PART OF DRIVERS.✱

W8-1,W8-2 "BUMP"/"DIP" - THESE SIGNS ARE INTENDED FOR USE TO GIVE WARNING OF A SHARP RISE OR DEPRESSION IN THE PROFILE OF THE ROAD THAT IS SUFFICIENTLY ABRUPT TO AFFECT VEHICLE OPERATION OR CAUSE CONSIDERABLE DISCOMFORT TO PASSENGERS.✱

W8-3a "PAVEMENT ENDS SYMBOL" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF A POINT WHERE THE PAVEMENT SURFACE CHANGES FROM A HARD-SURFACED PAVEMENT TO THE LOW-TYPE SURFACE OR EARTH ROAD.✱

W8-4 "SOFT SHOULDER" - THIS SIGN IS INTENDED FOR USE TO WARN OF A SOFT SHOULDER CONDITION THAT COULD PRESENT A PROBLEM TO VEHICLES THAT MAY GET OFF THE PAVEMENT.✱

W8-5 "SLIPPERY WHEN WET SYMBOL" - THIS SIGN SHOULD BE PLACED IN ADVANCE OF THE CONDITION WHERE THE HIGHWAY SURFACE IS SLIPPERY BEYOND WHAT IS ORDINARY WHEN WET.✱

W8-9a "SHOULDER DROP-OFF" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF A SHOULDER DROP-OFF THAT EXCEEDS THREE INCHES IN HEIGHT.✱

W8-11 "UNEVEN LANES" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF AN UNEVEN ADJACENT LANE SITUATION THAT EXCEEDS ONE INCH IN HEIGHT.✱

W9-1( ) "LEFT (RIGHT) LANE ENDS" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF THE PAVEMENT WIDTH TRANSITION SIGN (W4-2).

W9-2( ) "LANE ENDS/MERGE LEFT (RIGHT)" - THIS SIGN IS INTENDED FOR USE AS A SUPPLEMENT TO THE PAVEMENT WIDTH TRANSITION SIGN (W4-2).

W9-3 OR W9-3a( ) "CENTER LANE CLOSED AHEAD" - THIS SIGN SHOULD BE USED IN ADVANCE OF THE POINT WHERE WORK OCCUPIES THE CENTER LANE AND TRAFFIC IS DIRECTED TO THE RIGHT OR LEFT OF THE WORK ZONE.✱

W12-1 "DOUBLE ARROW SYMBOL" - THIS SIGN SHOULD BE PLACED AT THE POINT OF THE OBSTRUCTION IN THE ROADWAY, WHERE TRAFFIC IS PERMITTED TO PASS ON EITHER SIDE OF THE OBSTRUCTION.

W12-2 "LOW CLEARANCE SYMBOL" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF AN OBSTRUCTION TO WARN VEHICLE OPERATORS OF CLEARANCES LESS THAN THE MAXIMUM VEHICLE HEIGHT PERMITTED PLUS 12 INCHES.✱

W13-1P( ) "ADVISORY SPEED PLAQUE" - THIS PLAQUE IS INTENDED TO SUPPLEMENT WARNING SIGNS ONLY AND SHALL NOT BE MOUNTED ALONE. IT IS USED TO INDICATE THE MAXIMUM RECOMMENDED SPEED FOR THE INDICATED CONDITION.

W13-3 "ADVISORY RAMP SPEED" - THIS SIGN IS TO BE POSTED TO INFORM MOTORISTS WHAT THE SUGGESTED SPEED LIMIT IS ON A RAMP.

W20-1 "ROAD/WORK/AHEAD" - THIS SIGN IS TO BE LOCATED IN ADVANCE OF THE INITIAL ACTIVITY OR DETOUR A DRIVER MAY ENCOUNTER, AND IS INTENDED TO BE USED AS A WARNING OF OBSTRUCTIONS OR RESTRICTIONS.

W20-2 "DETOUR/(DIST.)" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF THE POINT AT WHICH TRAFFIC IS DIVERTED OVER A TEMPORARY ROADWAY OR ROUTE.

W20-3 "ROAD/CLOSED/(DIST.)" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF A POINT AT WHICH A ROADWAY IS CLOSED TO ALL TRAFFIC OR TO ALL BUT LOCAL TRAFFIC.

W20-4 "ONE LANE/ROAD/(DIST.)" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF A POINT WHERE TRAFFIC IN BOTH DIRECTIONS MUST USE A SINGLE LANE.

W20-5( ) "XXX LANE/CLOSED/(DIST.)" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF A POINT WHERE ONE LANE OF A MULTIPLE-LANE ROADWAY IS CLOSED. IT SHOULD BE PROVIDED WITH INTERCHANGEABLE PLAQUES READING "RIGHT", "LEFT", AND "CENTER" AT NO ADDITIONAL COST TO THE PROJECT.

W20-7 "FLAGGER SYMBOL" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF ANY POINT AT WHICH A FLAGGER HAS BEEN STATIONED TO CONTROL TRAFFIC THROUGH OR AROUND THE PROJECT.✱

W20-52 "GROOVED/PAVEMENT/AHEAD" - THIS SIGN IS INTENDED TO BE USED IN ADVANCE OF A ROADWAY THAT HAS BEEN GROOVED AND/OR ROTO MILLED.

W21-1a "WORKER SYMBOL" - THIS SIGN IS INTENDED FOR USE IN CONJUNCTION WITH MINOR MAINTENANCE AND PUBLIC UTILITY OPERATIONS FOR THE PROTECTION OF MEN WORKING IN OR NEAR THE ROADWAY.

W21-2 "FRESH/OIL" - THIS SIGN IS INTENDED FOR USE WHERE RE-SURFACING OPERATIONS HAVE RENDERED THE SURFACE OF THE PAVEMENT TEMPORARILY WET, AND OBJECTIONABLE SPLASHING ON VEHICLES MAY OCCUR.✱

W21-3 "ROAD/MACHINERY/AHEAD" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF THE AREAS WHERE HEAVY EQUIPMENT IS OPERATING IN OR ADJACENT TO THE ROADWAY.✱

W21-4 "ROAD/WORK/(DIST.)" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF MAINTENANCE FOR MINOR RECONSTRUCTION OPERATIONS IN THE ROADWAY.

W21-5 "SHOULDER/WORK" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF THE PROJECT INVOLVING THE SHOULDER, WHERE THE TRAVELED WAY REMAINS UNOBSTRUCTED.

W21-6 "SURVEY/CREW" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF A POINT WHERE A SURVEYING CREW IS WORKING IN OR ADJACENT TO THE ROADWAY.✱

W22-1 "BLASTING/ZONE/(DIST.)" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF ANY POINT OR WORK SITE WHERE THERE ARE EXPLOSIVES BEING USED. THE W22-2 AND W22-3 SIGNS MUST BE USED IN SEQUENCE WITH THIS SIGN.

W22-2 "TURN OFF/2-WAY RADIOS/AND/CELLULAR/PHONES" - THIS SIGN IS TO BE USED IN SEQUENCE WITH THE W22-1 AND W22-3 SIGNS AND PLACED AT LEAST 1000 FEET FROM THE BEGINNING OF THE BLASTING ZONE.

W22-3 "END/BLASTING/ZONE" - THIS SIGN IS TO BE USED TO DENOTE THE END OF THE RADIO INFLUENCE AREA AND SHALL BE PLACED A MINIMUM OF 1000 FEET FROM THE BLASTING ZONE, EITHER WITH OR PRECEDING THE END CONSTRUCTION SIGN.

W22-50(X) "ROCK SCALING X MILE(S)" - THIS SIGN IS INTENDED TO BE USED IN ADVANCE OF A FLAGGER IN ADVANCED OF THE WORK ZONE AREA.

ADVANCE PLACEMENT OF WARNING SIGNS

POSTED OR 85TH PERCENTILE SPEED	ADVANCE PLACEMENT DISTANCE (FEET)								
	+ CONDITION A	++ CONDITION B: DECLARATION TO THE LISTED ADVISORY SPEED (MPH) FOR THE CONDITION							
		MPH							
		0	10	20	30	40	50	60	70
20	225	●	●	--	--	--	--	--	--
25	325	●	●	●	--	--	--	--	--
30	450	●	●	●	--	--	--	--	--
35	550	●	●	●	●	--	--	--	--
40	650	125	●	●	●	--	--	--	--
45	750	175	125	●	●	●	--	--	--
50	850	250	200	150	100	●	--	--	--
55	950	325	275	225	175	100	●	--	--
60	1100	400	350	300	250	175	●	--	--
65	1200	475	425	400	350	275	175	●	--
70	1250	550	525	500	425	350	250	150	--
75	1350	650	625	600	525	450	350	250	100

+ CONDITION A: SPEED REDUCTION AND LANE CHANGING IN HEAVY TRAFFIC. TYPICAL SIGNS ARE "MERGE" AND "RIGHT LANE ENDS".

++ CONDITION B: TYPICAL CONDITIONS ARE THE WARNING OF A POTENTIAL STOP SITUATION AND LOCATIONS WHERE THE ROAD USER MUST DECREASE SPEED TO MANEUVER THROUGH THE WARNED CONDITION. TYPICAL SIGNS ARE "STOP AHEAD", "SIGNAL AHEAD", "YIELD AHEAD", "CURVE", "REVERSE CURVE", "TURN".

● NO SUGGESTED DISTANCES ARE PROVIDED AT THESE SPEEDS, AS THE PLACEMENT IS DEPENDENT ON SITE CONDITIONS AND OTHER SIGNING.

A SUPPLEMENTAL PLAQUE MAY BE USED WITH WARNING SIGNS SPECIFYING THE DISTANCE TO THE CONDITION IF THERE IS AN IN-BETWEEN INTERSECTION THAT MIGHT CONFUSE THE MOTORIST.

✱ PLACEMENT SHOULD BE IN ACCORDANCE WITH WARNING SIGN PLACEMENT TABLE.

Computer File Information	
Creation Date: 07/04/12	Initials: KEN
Last Modification Date: 12/8/14	Initials: KEN
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	
Drawing File Name: S-630-01_24of24.dgn	
CAD Ver.: MicroStation V8 Scale: Not to Scale	Units: English

	Sheet Revisions	
	Date:	Comments
R-4	07/26/13	CHANGE W20-7a SIGN CODE TO W20-7
R-7	12/8/14	FORMERLY SHEET 20.
R-X		
R-X		

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Issued By: Safety & Traffic Engineering Branch July 4, 2012

STANDARD PLAN NO.
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