## SUMMARY OF LENGTH & DESIGN DATA

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### DESIGN DATA
- **OXFORD**
- **MAXIMUM DESIGN SPEED** 35 MPH

---

**Project Location Map**

N.T.S.

---

**Related Projects:** N/A

**CDOT Project No.** STU M395–018

**CDOT Project Code** 22846

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**City of Englewood Community Development Department**

**Oxford Avenue Bike Facility Design**

**Winndermere - Clarkson**

---

**CDOT Project No.** STU M395–018

**CDOT Project Code** 22846

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**Signature**

**Date:**

**Maria D'Andrea, PE**

**Director of Public Works**

**City of Englewood**

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**AsConstructed OXFORD AVENUE BIKE FACILITY DESIGN WINNDERMERE - CLARKSON Project Number STU M395–018**

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**Sheet Revisions**

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**File Name:** 2018_0830 Oxford 04 - Less XrefBox.png

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**Project Manager:**

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**City of Englewood Community Development Department**

**1000 Englewood Parkway**

**Englewood, CO 80110**

**Phone:** (303) 762–2342
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**COLORADO DEPARTMENT OF TRANSPORTATION**

**M&S STANDARDS PLANS LIST**

**July 31, 2019**

**Revised on July 31, 2019**

All of the M&S standards plans, as supplemented and revised, apply to this project when used by designated pay item or subsidiary item.
PROJECT DESCRIPTION

STRIPE BIKE LANES ON OXFORD AVENUE FROM WINDSORER STREET TO BROADWAY, AND INSTALL SHARED LANE MARKINGS (SHARRORS) ON OXFORD FROM BROADWAY TO CROWSON STREET. INSTALL BIKE RACK NEAR OXFORD — CITY OF SHERIDAN LRT STATION. PROJECT INCLUDES STRIPING, SIGNAGE, INTERSECTION CONFLICT MARKINGS AND CLEANING OF INLETS AS DIRECTED BY ENGINEER.

GENERAL NOTES

ALL EXISTING ACCESSIONS TO REMAIN OPEN.

FIELD CONDITIONS MAY BE DIFFERENT THAN SHOWN ON PLANS. ENGINEER MAY MAKE MODIFICATIONS TO PLANS DUE TO VARYING FIELD CONDITIONS AT ANY TIME. CONTRACTOR SHOULD NOTIFY ENGINEER IMMEDIATELY ABOUT DIFFERENT FIELD CONDITIONS.

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

ALL PARKS, TRAILS, AND RECREATION AREAS SHALL REMAIN OPEN AT ALL TIMES. NO PARKING, STANDING, OR WORK SHALL OCCUR IN ANY OF THESE AREAS.

IF SOIL AND/OR GROUNDWATER CONTAMINATION IS ENCOUNTERED DURING CONSTRUCTION ACTIVITIES, WORK WILL STOP IMMEDIATELY AND PROCEDURES OUTLINED IN THE COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) SPECIFICATION 250 ENVIRONMENTAL, HEALTH AND SAFETY MANAGEMENT SHALL BE FOLLOWED.

THE USE OF THE CITY OF ENGLEWOOD'S RIGHTS-OF-WAY FOR THE PURPOSE OF STAGING IS STRICTLY FORBIDDEN. STAGING IS DEFINED AS THE STORAGE OF (BUT NOT LIMITED TO) MATERIAL, EQUIPMENT, OR VEHICLES OUTSIDE OF THE NORMAL WORKING HOURS ALLOWED FOR IN THE PERMIT.

NO RIGHT-OF-WAY ACQUISITION WILL BE REQUIRED FOR THIS PROJECT. ALL WORK IS TO BE COMPLETED WITHIN THE EXISTING RIGHT-OF-WAY.

THE CONTRACTOR SHALL LOCATE AND MARK ALL EXISTING SURVEY MONUMENTATION WITHIN THE PROJECT LIMITS PRIOR TO THE START OF WORK.

THE CONTRACTOR SHALL PROTECT ALL EXISTING MONUMENTATION DURING CONSTRUCTION OPERATIONS. ANY MONUMENTS DESTROYED BY THE CONTRACTOR SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

MATERIALS

CONTRACTOR TO REMOVE ANY EXISTING STRIPING WHICH CONFLICTS WITH NEW PAVEMENT MARKINGS.

ALL SIGN LOCATIONS MAY BE ADJUSTED WITHIN REASONABLE TOLERANCES TO ACCOMMODATE FIELD CONDITIONS WITH THE ENGINEER'S APPROVAL.

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

A 1 FOOT MINIMUM OF 2 FOOT MAXIMUM POST LENGTH SHALL BE MAINTAINED FROM THE BOTTOM OF THE SIGN TO THE GROUND OR TO THE TOP OF THE FOOTER EXCEPT WHERE NOTED ON PLANS.

POST SHALL BE INSTALLED PLUMB, VERTICAL, DEVIATION SHALL NOT EXCEED MORE THAN 1 INCH OVER 10 FEET.

3M HIGH INTENSITY GRAY SHEETING SHALL BE USED FOR ALL SIGN PANELS.

ALL SIGN MATERIALS SHALL CONFORM TO CDOT STANDARDS AND SPECIFICATIONS.

ENGINEER SHALL APPROVE ALL STRIPING AND SIGNAGE LAYOUT PRIOR TO CONSTRUCTION.

CDOT SPECIFICATIONS SHALL APPLY TO THIS PROJECT UNLESS THEY HAVE BEEN MODIFIED AND INCLUDED IN THE PROJECT SPECIFIC PROVISIONS.

ALL MATERIALS GENERATED WITHIN THE PROJECT LIMITS SHALL BE REMOVED FROM THE PROJECT SITE AT NO COST TO THE PROJECT UNLESS SPECIFIED BY THE PLANS OR SPECIFICATIONS.

THE CONTRACTOR SHALL REPAIR OR REPLACE AT THE CONTRACTOR'S EXPENSE ANY EXISTING FEATURES NOT DESIGNATED FOR REMOVAL, DAMAGED BY THE CONTRACTOR.

ALL SIGN MATERIALS THAT ARE REMOVED DURING CONSTRUCTION ARE THE PROPERTY OF THE CITY OF ENGLEWOOD AND SHALL BE RETURNED TO THE CITY.

THE CONTRACTORS SHALL BE RESPONSIBLE TO MAINTAIN DRAINAGE DURING THE WORK. ANY REMARK OF MATERIALS DUE TO THE LACK OF MAINTENANCE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

TRAFFIC WILL USE THE PRESENT ROADWAY DURING CONSTRUCTION.

PRIOR TO PLACING STRIPING MATERIAL, SCALEPLING OF DIRT AND GRAVEL, FROM THE ROADWAY WILL NOT BE PAID FOR SEPARATELY.

THE CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES TO THOSE AREAS WITHIN THE LIMITS OF DISTURBANCE AND/OR TIES OF SLOPE SHOWN ON PLANS. ANY DISTURBANCE BEYOND THESE LIMITS SHALL BE RESTORED TO ORIGINAL CONDITION BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.

CONSTRUCTION ACTIVITIES IN ADDITION TO NORMAL CONSTRUCTION PROCEDURE SHALL INCLUDE THE PARKING OF VEHICLES OR EQUIPMENT, DISPOSAL OF LITTER, AND ANY OTHER ACTION WHICH WOULD ALTER EXISTING CONDITIONS.

CONSTRUCTION TRAFFIC CONTROL

IT IS ESTIMATED THAT 5 DAYS OF TRAFFIC CONTROL WILL BE REQUIRED ON THIS PROJECT.

ALL SIGNS, BARRIERS, FLAG MEN, LIGHTS OR OTHER DEVICES NECESSARY FOR SAFE TRAFFIC CONTROL SHALL BE PROVIDED IN ACCORDANCE WITH THE CURRENT EDITION OF THE MDOT ON HIGHWAY TRAFFIC CONTROL STANDARDS (OHTCS) AND AS MODIFIED BY THE COLORADO SUPPLEMENT TO THE MDOT. A TRAFFIC CONTROL PLAN, BASED ON INFORMATION PROVIDED IN THE PLANS, SHALL BE SUBMITTED AND APPROVED BY THE CITY OF ENGLEWOOD PUBLIC WORKS DEPARTMENT PRIOR TO THE ISSUANCE OF ANY CONSTRUCTION PERMITS FOR WORK WITHIN THE CITY RIGHT-OF-WAY.

SEE CDOT STANDARD PROVISIONS SECTION 630 — CONSTRUCTION ZONE TRAFFIC CONTROL AND PROJECT SPECIFIC PROVISIONS FOR CONSTRUCTION ZONE TRAFFIC CONTROL REQUIREMENTS.

ADDITIONAL FLAGGING OR SIGNING MAY BE REQUIRED AS CONDITIONS DICTATE.

FLAGGER SYMBOL SIGNS SHALL BE INSTALLED AND FLAGGERS SHALL BE UTILIZED AS DEEMED NECESSARY.

ALL CONSTRUCTION ZONE TRAFFIC CONTROL SIGNS, BARRIERS, SIGN ARMS, FLASHING BEACONS (PEDESTRIAN), AND CHAINLINKING DEVICES, SHALL BE FURNISHED, INSTALLED, MAINTAINED (INCLUDING CLEANING), REPLACED IF DAMAGED, REMOVED WHEN TEMPORARY, NOT IN USE OR RETURNED WHEN REQUIRED, AS NECESSARY DURING THE PROGRESS OF CONSTRUCTION, AND REMOVED ENTIRELY WHEN THE PROJECT IS COMPLETE. ALL SIGNS SHALL MEET THE REQUIREMENTS OF THE LATEST EDITION OF THE CDOT QUALITY GUIDELINES FOR TEMPORARY TRAFFIC CONTROL DEVICES AND FEATURES.

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

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

PANEL SIZE A 0.01 0.05 54 SQ. FT. (INCLUDING TYPE 1 AND TYPE 2 Barricades)

PANEL SIZE B 0.01 0.05 96 SQ. FT.

PANEL SIZE C 0.01 0.05 150 SQ. FT.

NO WORK IN THE ROADWAY SHALL BE PERFORMED ON WEEKDAYS PRIOR TO 8:00AM OR AFTER 5:00PM TO AVOID PEAK TRAFFIC HOURS.

IF REQUIRED, ANY UNFORCED TRAFFIC CONTROL SHALL BE PROVIDED BY THE CITY OF ENGLEWOOD, COORDINATE WITH PROJECT ENGINEER AS NEEDED.

UTILITIES

THE CONTRACTOR'S ATTENTION IS DIRECTED TO SUBSECTION 105.11 OF THE CDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2017 CONCERNING UTILITIES.

THE CONTRACTOR SHALL COMPLY WITH ARTICLE 1.5 OF TITLE 9, C.R.S. (EXCAVATION REQUIREMENTS) WHEN EXCAVATING OR GRADING IS PLANNED IN THE AREA OF UNDERGROUND UTILITIES EXCEPT FOR THE CONTRACTOR SHALL NOTIFY ALL APPROPRIATE ENTITIES, INCLUDING THE LOCAL DISTRIBUTION COMPANY, AT LEAST 48 HOURS PRIOR TO BEGINNING EXCAVATION OR GRADING.

IT IS ESTIMATED THAT 8 HOURS OF POTHoling WILL BE REQUIRED ON THIS PROJECT, AS DIRECTED BY THE ENGINEER.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING AND COORDINATING WITH THE APPROPRIATE UTILITY REPRESENTATIVES TO BE ON-SITE DURING POTholing AND SHALL LAWFULLY BE RESPONSIBLE FOR DETERMINING THE TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. THE CONTRACTOR SHALL REFER TO THE UTILITY SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

UTILITIES ARE DEPICTED ON THESE PLANS IN ACCORDANCE WITH THEIR ACHIEVED "QUALITY LEVELS" (QLs) AS DEFINED IN THE AMERICAN SOCIETY OF CIVIL ENGINEERS' DOCUMENT ASCE 38 "STANDARD GUIDELINE FOR THE COLLECTION AND DEPOSITION OF EXISTING SUBSURFACE UTILITY DATA."

RELAY UNLESS THESE DATA ARE NECESSARY TO LOCATE THE EXCAVATOR OR UTILITY OWNER FROM FOLLOWING ALL APPROPRIATE UTILITY DAMAGE PREVENTION STATUTES, POLICIES, AND/OR PROCEDURES DURING EXCAVATION.

IT IS IMPORTANT THAT THE CONTRACTOR INVESTIGATES AND UNDERSTANDS THE SCOPE OF WORK BETWEEN THE PROJECT OWNER AND THEIR ENGINEER REGARDING THE SCOPE AND LIMITS OF THE UTILITY INVESTIGATIONS LEADING TO THESE UTILITY DELETIONS.

COORDINATION WITH RTD

THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH THE REGIONAL TRANSPORTATION DISTRICT (RTD) FOR CLOSURE AND RELocation OF BUS STOPS IN THE PROJECT LIMITS, IF NECESSARY. CONTACT MICHELLE SATT, RTD BUS STOP PROGRAM SUPERVISOR AT 303-292-6563 A MINIMUM OF TWO WEEKS PRIOR TO BEGINNING WORK.

MISCELLANEOUS

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**NOTES**

LF OF MODIFIED EPOXY PAVEMENT MARKING MEASURED PER LF OF ACTUAL PAINT AS APPLIED TO ROADWAY. NOT MEASURED PER EXTENT OF TOTAL STRIKING LENGTH.

100% SEIT, USED FOR MODIFIED EPOXY PAVEMENT MARKING.

FOR DETAILS OF PAVEMENT MARKING LINES AND LINE PLACEMENT, SEE STANDARD S-627-1.
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**SHEET TOTALS**: 656
**PROJECT TOTALS**: 656

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**CITY OF ENGLEWOOD COMMUNITY DEVELOPMENT DEPARTMENT**

1000 ENGLEWOOD PARKWAY
ENGLEWOOD, CO 80110
PHONE: (303) 782-2342

**OXFORD AVENUE BIKE FACILITY DESIGN TABULATION OF SIGNS**

**PROJECT NUMBER**: STU M395-018

**Sheet Number**: 6
TYPICAL LANE CONFIGURATION
LIPAN ST – ACOMA ST**

FLOWLINE

FLOWLINE

7'

10'

11'

11'

6'

7'

PLAN VIEW

PARKING LANE

WESTBOUND BICYCLE LANE

WESTBOUND DRIVE LANE

CENTER TURN LANE

EASTBOUND DRIVE LANE

EASTBOUND BICYCLE LANE

PARKING LANE

**SEE PLANS FOR DETAILED STRIPING CONFIGURATION OUTSIDE THESE LIMITS
"U" TYPE BICYCLE RACK LOCATION.

RACK SHALL BE PLACED PARALLEL TO WINDERMERE STREET, CENTERED ON LANDSCAPING BOX.
RACK SHALL BE PLACED 2 FEET FROM LANDSCAPING BOX AND 7 FEET FREE OF CURB.
SEE SPECIAL DETAILS DRAWING SHEET 24 FOR INSTALLATION DETAILS AND NOTES.

BUS SHELTER

LANDSCAPING BOX

OXFORD--CITY OF SHERIDAN LRT STATION

WINDERMERE ST

"U" TYPE BICYCLE RACK APPROXIMATE INSTALLATION LOCATION. NTS. FOR INFORMATION ONLY.
SPECIAL MARKING DETAILS

22 SHARED LANE BICYCLE MARKING
AREA (EACH) = 10.9 SF

23 CONFLICT MARKINGS
GREEN
WHITE

24 BICYCLE DETECTOR MARKING
AREA (EACH) = 1.0 SF

NOTE: ALL PAVEMENT MARKING AND SIGN INSTALLATIONS SHALL CONFORM WITH THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR PLACEMENT, MOUNTING HEIGHT, DESIGN, AND LAYOUT.

BUFFER BIKE LANE TYPICAL LAYOUT (NAVAJO - LIPAN)

8” SOLID WHITE STRIPE
4” SOLID WHITE STRIPE

FACE OF CURB
DIRECTION OF TRAVEL

SIGN DETAILS, SPECIALIZED SIGNS

R10-15R SP
30” x 30”
R7-10 SP
12” x 18”
R9-7 SP
12” x 18”
SIGN AND POST INSTALLATION, CITY OF ENGLEWOOD (TYPICAL)

NOT LESS THAN 1 FT

10 INCH SQUARE LEGEND AND REFLECTORIZATION SHALL BE IN CONFORMITY WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

GROUND LEVEL

"18"-"24" TOP POST SLEEVE OVERLAP

SLANTS WITH SET SCREWS AND STEEL CLAMP STRAPS

RUBBER OR METAL POLE

DETAIL - TYPICAL ROADSIDE SIGN WITH CURB

DETAIL - SIGN BASE

DETAIL - TYPICAL POLE SIDE MOUNTING

NOT TO SCALE
SWAMP TEMPLATE TEXT FOR PROJECTS WITH LESS THAN 1 ACRE OF DISTURBANCE

1. SITE DESCRIPTION
   A. PROJECT SITE LOCATION: Oxford Avenue from Windermere St to Clarkson St in Englewood CO. There will not be a construction office for the project.
   B. PROJECT SITE DESCRIPTION: The project includes performing signing and striping activities to install bicycle lanes within the project limits. There are no grading activities, installation of utilities, paving, excavation, landscaping, etc. All work will be performed in public right of way.
   C. ACREAGE OF DISTURBANCE:
      1. Total area of construction site (LOC): 10.0 acres
      2. Total area of disturbance (SAD): 0.0 acres
      3. Acreage of seeding: 0.0 acres
   D. RECEIVING WATER:
      1. Outfall locations: Stormwater runoff from the project site is collected by Inlets and conveyed via the City of Englewood storm drain system to Little Dry Creek and into the South Platte River.
      2. Names of receiving water(s) on site: N/A
      3. Ultimate receiving water: South Platte River
      4. Horizontal distance nearest water of the site is from project: 1 mile
   E. EXISTING SOIL DATA: No potential for soil erosion occurs in the project area from project activities.
   F. EXISTING VEGETATION, INCLUDING PERCENT COVER:
      Vegetative transects are not required, by permit, on projects with an acre of disturbance. If transects are not completed on a project, at a minimum describe the condition of the existing vegetation. Existing vegetation in the project area behind the curb face of Oxford Avenue consists of residential lawns.

2. STORMWATER MANAGEMENT CONTROLS FIRST CONSTRUCTION ACTIVITIES
   THE CONTRACTOR SHALL PERFORM THE FOLLOWING:
   A. POTENTIAL POLLUTANT SOURCES:
      1. Evaluate, identify and describe all potential sources of pollutants at the site in accordance with subsection 107.25 and place any BMP/Control Measures required to contain potential pollutants.
   B. OFFSET DRAINAGE (RUN-ON WATER):
      1. Place BMP/Control Measures to address run-on water in accordance with subsection 208.03.
   C. CONSTRUCTION DEWATERING:
      1. Obtain a dewatering permit from CDPR if conditions of their low risk guidance for Discharges of Uncontaminated Groundwater to Land are not met; see subsection 107.25(b)(6).
   D. VEHICLE TRACKING PAD:
      1. BMP/Control Measures shall be implemented in accordance with subsection 208.04.
   E. FERMIETER CONTROL:
      1. Perimeter control shall be established as the first item on the SWAMP to prevent the potential for pollutants leaving the construction site boundaries, entering the stormwater drainage system, or discharging to stormwater.
      2. Perimeter control may consist of vegetation buffers, berms, silt fences, erosion logs, existing landforms, or other BMP/Control Measures as approved.
      3. Perimeter control shall be in accordance with subsection 208.04.

3. SWAMP ADMINISTRATOR:
   A. SWAMP ADMINISTRATOR FOR DESIGN:
      Normal/Title: Paul Weder
      City of Englewood

   B. SWAMP ADMINISTRATOR FOR CONSTRUCTION: (See Subsection 208 Under an Acre Specifications) The Contractor shall designate a SWAMP Administrator for Construction upon ownership of the SWAMP. The SWAMP Administrator shall become the owner/operator and assume responsibility for all design changes, construction, implementation and maintenance in accordance with 208.03. The SWAMP Administrator shall be responsible for implementing, maintaining and reviewing SWAMP, including the title and contact information. The activities and responsibilities of the SWAMP Administrator shall address all aspects of the project. SWAMP (update the information below for each new SWAMP Administrator) (Copy of TEC Certification must also be included in the SWAMP Notebook.) The SWAMP Administrator for construction is not a separate pay item but is included in the cost of the work.

<table>
<thead>
<tr>
<th>Name/Title</th>
<th>Contact Information</th>
<th>Certification #</th>
<th>Start Date</th>
<th>Engineer Approval</th>
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4. DURING CONSTRUCTION
   The SWAMP should be considered a “living document” that is continually reviewed and modified. During construction, the following items shall be added, updated, or amended as needed by the Contractor in accordance with Section 208.

   B. MATERIALS HANDLING AND SPILL PREVENTION: prior to construction commencing the Contractor shall submit a Spill Prevention, Control and Countermeasure Plan, see subsection 208.06. Materials handling shall be in accordance with subsection 208.04.

   C. CONCRETE WASHOUT: Concrete washout water or waste from field laboratories and paving equipment shall be contained in accordance with subsection 208.02.

   E. STREET SWEEPING: Shall be done in accordance with subsection 207.25, 208.04, 208.05

5. BMP/CONTROL MEASURE MAINTENANCE
   A. Maintenance shall be in accordance with subsection 208.04 (i).

6. INTERIM AND FINAL STABILIZATION
   A. SEEDING PLAN: Soil preparation, soil conditioning or topsoil, seeding (native), mulching (weed-free), and mulch fertilizer are not expected on this project. If it is determined that seeding/vegetation/soil is needed, the contractor shall contact the Landscape Architect at Landscape Architect at 303-737-5932 to determine the types, rates, and application of seed that is needed. Any necessary soil or seeding items shall not be paid for separately but may be considered incidental to the work.

7. PRIOR TO FINAL ACCEPTANCE
   A. Partial Acceptance shall be in accordance with subsection 107.25 (d) and 208.10. At the Partial Acceptance of the project, it shall be determined by the SWAMP Administrator and the Engineer which temporary BMP/Control Measures shall remain until 70% reestablishment or which shall be removed.
   B. At the end of the project, all dirt checks shall either consist of temporary erosion logs (or equivalent) or permanent rip-rap.
   C. All storm drains shall be cleaned prior to the Final Acceptance of the project. Work shall be inspected as Clean Culvert.

City of Englewood
Community Development Department
1000 Englewood Parkway
Englewood, CO 80110
Phone: (303) 762-2242

File Name: 2018-0223 Oxford 04 - Less XRef's.dwg
Sheet Revisions

As Constructed
Oxford Avenue Bike Facility Design
Project Number: STU M395-018

Revised: 22846

Sheet Number: 22
### B. NARRATIVES:

**A. ADDITIONAL BMPS/CONTROL MEASURES AND NARRATIVES:**

BMP/Control Measure details and narratives not covered by the SWMP or Standard Plan M-208, M-214 shall be added to the SWMP notebook by the SWMP Administrator.

**BMP Mobile:**

1. M-Standards have been included along with standard BMP narratives. If a Non-Standard BMP will be used or the standard narrative does not apply, the SWMP Administrator shall write a Non-Standard BMP narrative, place an "X" in the column and complete a Non-Standard BMP Specification and Narrative for the SWMP notebook.
2. The SWMP Administrator shall place an "X" in the column In Use on Site when the BMP/Control Measure has been installed.
3. Place an "X" in the column BMP/Control Measure to be located by SWMP Administrator if the SWMP Administrator shall locate the BMP/Control Measure during construction. These BMP/Control Measures are not currently located on SWPM Plans but are anticipated to be used during construction (e.g., Vehicle Tracking Pad, Batch Plants, etc.). The SWMP Administrator shall locate these prior to or during construction and reflect on SWMP Map.
4. Place an "X" in the column Instillation BMP/Control Measure Pre-Construction if the BMP/Control Measure is to be installed prior to construction activity.

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

<table>
<thead>
<tr>
<th>APPLICATION, BMP/CONTROL MEASURE</th>
<th>NARRATIVE</th>
<th>M-STANDARD/NON-STANDARD</th>
<th>BMP CONTROL MEASURE TO BE LOCATED BY SWMP ADMINISTRATOR</th>
<th>INSTALLATION BMP/CONTROL MEASURE PHASING</th>
<th>IN USE ON SITE</th>
<th>BRIEF TECHNICAL ACTIVITIES</th>
<th>M-208</th>
</tr>
</thead>
<tbody>
<tr>
<td>TYPE R AND TYPE 16 INLET PROTECTION</td>
<td>Placed prior to construction disturbances at detailed in M-208.1. To protect existing pipes or immediately upon completion of new inlets to prevent sediment from entering the inlet throughout construction.</td>
<td>M-208</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storm drain inlet protection (Type 1, 2 and 3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SWEEPING</td>
<td>Source control. Used to remove sediment tracked onto paved surfaces and to prevent sediment from entering drainage system. Sweep daily and at the end of the construction shift as needed. Kick brooms shall not be permitted.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
9. TABULATION OF STORMWATER QUANTITIES

A. BMP/Control Measure: Sediment removal and disposal shall be paid for as: 208 Removal and Disposal of Sediment (Equipment) and 209 Removal and Disposal of Sediment (Labor). All other BMP/Control Measure maintenance shall be included in the cost of the BMP/Control Measure.

B. It is estimated that 10 hours of labor may be required for miscellaneous erosion control work as directed by the Engineer. Work shall be paid for as: 203-02330 Laborer.

C. Establishment of seeded areas shall be paid for as: N/A. This shall include mowing, weed control, reseeding/mulch/tackifier.

10. BIOLOGIC IMPACTS

A. ENVIRONMENTAL IMPACTS:
   1. Wetland Impacts: N/A
   2. Stream Impacts: N/A
   3. Threatened and Endangered Species: No species are anticipated to be impacted by the project.

11. Notes

A. ECM (or SWMP Administrator) for Construction or Erosion Control Inspector is included in the cost of the work.

B. The Contractor shall not park, stage, stack, or work on permeable surfaces without prior approval from the Engineer.

C. The Contractor shall not park, stage, stack, or work within 50 horizontal feet of any State Waters.
SECTION A-A

NOTES:
1. A FENCE PLANTED CONTINUOUSLY ALONG THIS AREA SHALL BE INSTALLED ALONG THE CONCRETE WASHOUT AREA EXCEPT AT THE OPENING.
2. THE CONCRETE WASHOUT AREA SHALL HAVE LETTERS AT LEAST 2 INCHES HIGH AND CENTERED TO SUBSECTION 630.22.
3. ALL MATERIALS AND EQUIPMENT TO COMPLETE THE CONCRETE WASHOUT STRUCTURE SHALL BE INCLUDED IN THE COST OF WORK AND NOT PAID FOR SEPARATELY.
4. THE BOTTOM OF EXCAVATION SHALL BE A MINIMUM OF 5 FEET ABOVE GROUND WATER. IF NOT, THE BOTTOM OF EXCAVATION SHALL BE IN ACCORDANCE WITH 246.1.18.
5. THE PAY ITEM NUMBER FOR CONCRETE WASHOUT STRUCTURE (BEAM IS 208-0004).

CONCRETE WASHOUT STRUCTURE

SECTION B-B

NOTES:
1. AGGREGATE SHALL CONFORM TO SUBSECTION 208.22 (B).
2. THE CONTRACTOR SHALL PROTECT CURB AND GUTTER THAT CROSSES THE ESTATE FROM DAMAGE, WHILE NOT BLOCKING FLOW OF WATER. THE STRUCTURAL PROTECTION OF THE CURB AND GUTTER SHALL BE INCLUDED IN THE COST OF WORK AND NOT PAID FOR SEPARATELY.
3. GEOTECHNICAL EROSION CONTROL (CLASS 2)
4. ALL MATERIALS AND EQUIPMENT TO COMPLETE THE VEHICLE TRACKING PAD SHALL BE INCLUDED IN THE COST OF WORK AND NOT PAID FOR SEPARATELY.
5. THE PAY ITEM NUMBER FOR VEHICLE TRACKING PAD (BEAM IS 208-00070).
Erosion Log Ends shall be tightly butted for joining logs in other situations, see the joining erosion log applications.

Use two wood stakes at all erosion log ends or joints (Typ.).

Use a stake every 4\(\text{ft}\) or control alternate orientation throughout the length of the erosion log.

TRENCH LOG EROSION CONTROL PROTECTION

PLAN VIEW

NOTE: Top of stake shall not extend past top of erosion log more than 2\(\text{in.}\).

SECTION C-C

PLAN VIEW

SECTION A-A

TYPICAL STAKE INSTALLATION

FLOW

OVERLAP JOINT DETAIL

FLOW

W-HOOK JOINING DETAIL

JOINTING EROSION LOG APPLICATIONS

FLOW

FLOW

EROSION LOG APPLICATIONS

FLOW

FLOW

Temporary Erosion Control

Erosion Log Culvert Inlet Protection

Erosion Log Culvert Outlet Protection

Computer File Information

Sheet Revisions

Soldado Department of Transportation

1000 West Arapahoe Place

Division of Project Support

JKB/LTA

Issued by: Project Development Branch  July 4, 2022

Standard Plan No.

M-208-1
NOTES
1. Silt fence shall have a maximum drainage area of one-quarter acre per 100 feet of silt fence length. Maximum slope length behind fence is 100 feet.
2. Silt fence used at the toe of slope shall be placed 5 to 10 feet beyond toe of slope to provide storage capacity.
3. Silt fence shall be placed parallel to the contour with ends flush up slope.
4. The maximum length of erosion losses on silt fences without a flared end turning profile is 100 feet.

SECTION A-A

Erosion Log Toe of Slope Protection

Table: Erosion Loss Pay Items

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
<th>TYPE 1</th>
<th>TYPE 2</th>
<th>TYPE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>208-0002</td>
<td></td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>208-0003</td>
<td></td>
<td>3</td>
<td>1</td>
<td>1</td>
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<tr>
<td>208-0004</td>
<td></td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>208-0005</td>
<td></td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

TOE OF SLOPE PROTECTION APPLICATIONS

Section 8-B

Silt Fence Toe of Slope Protection

Note: The pay item number for silt fence toe is 208-0002.
AGGREGATE BAG APPLICATIONS

NOTE THE PAY ITEM NUMBER FOR AGGREGATE BAG (LT) IS 208-60035

PLAN VIEW

NOTE: AGGREGATE BAGS ONLY WHEN THERE IS A MINIMUM CLEARANCE OF 3 FEET FROM THE EDGE OF THE TRAVELED WAY (INCLUDING CONDITIONS DURING RETURN) TO THE FACE OF CURB.

<table>
<thead>
<tr>
<th>LENGTH (L)</th>
<th>NUMBER OF AGGREGATE BAGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 5</td>
<td>1</td>
</tr>
<tr>
<td>6 - 20</td>
<td>2</td>
</tr>
<tr>
<td>L &gt; 20</td>
<td>3</td>
</tr>
</tbody>
</table>

AGGREGATE BAGS AT STORM DRAIN INLET (TYPE I)

AGGREGATE BAGS AT DROP INLET

SECTION A-A

NOTE: LOCATE AGGREGATE BAGS AT THE OUTSIDE EDGE OF THE CONCRETE FRM.
STORM DRAIN INLET PROTECTION (TYPE I)

NOTES:
1. Inlet protection device shall extend 12 inches past each end of the inlet.
2. The pay items used for storm drain inlet protection (Type I) are 205-00056 ft, 205-00057 ft, 205-00058 ft, 205-00059 ft, and 205-00060 ft. (6 inches (150 mm), and 205-00061 ft.)
3. For storm drain inlet protection (Type I and II), if there is a minimum clearance of 3 feet from the edge of the traveled way to the face of curb, use the aggregate bags at storm drain inlet (Type I and II, detail on sheet 4).
**Plan View**

**Elevation**

**Section A-A**

- Erosion loss shall be at least 2 inches into the soil.
- Erosion loss shall be formed within 30 degrees.

**Notes:**
- Erosion loss shall be at least 2 inches into the soil.
- Erosion loss shall be formed within 30 degrees.
- Erosion damage temporary ditches shall not be used. Trenches shall be stacked in a parallel or perpendicular shape.

**Erosion Log Installation**

**Drainage Ditch Applications**

**Temporary Erosion Control**

**Silt Berm Installation**
SILT FENCE

NOTES:
1. Geotextile shall be attached to wood posts with three or more staples per post. Staples shall be heavy duty wire and at least 1 inch long.
2. Wood post shall be 3 in x 3 in nominal.
3. The pipe item number for SILT FENCE is 208-00020.
4. The SILT FENCE shall be placed on the contour at the same elevation as the trench. The earth shall be placed or slopes (should elevation gaps of 10 ft).

END SECTION DETAIL (PLAN VIEW)

NOTE:
1. The end of the SILT FENCE fabric shall be attached to wood posts with three or more staples per post. Staples shall be heavy duty wire staples at least 1 inch long.

JOINING SECTION DETAIL (PLAN VIEW)

NOTE:
1. The ends of the SILT FENCE fabric shall be joined together by wrapping a piece of geotextile fabric around a wood post. Post one full turn, then secured along the post with 6 heavy duty wire staples at least 1 inch long.
2. Posts shall be tightly attached with no gaps to prevent potential flow-through of sediment at joint.

SILT FENCE APPLICATIONS

SILT FENCE (REINFORCED)

ELEVATION VIEW

SIDE VIEW

TEMPORARY EROSION CONTROL

STANDARD PLAN NO. M-208-1

Sheet No. 8 of 11
SECTION A-A

NOTES:
1. RIPRAP SIZE D = 10 IN OR AS SHOWN ON THE PLANS.
2. THE GEOSTEEL EROSION CONTROL SHALL BE CLASS 2
   AND CONTAIN TO THE REQUIREMENTS OF SUBSECTION 712.05.
3. THE END OF RIPRAP CHECK DAM SHALL BE A MINIMUM
   OF 6 IN HIGHER THAN CENTER OF CHECK DAM.
4. FOR USE AS TEMPORARY CHECK DAM ONLY AND
   NOT FOR PERMANENT INSTALLATION.
5. THE TAB ITEM NUMBER FOR ROCK CHECK DAM (REA) IS 208-0044.

NOTE: ALL MATERIALS AND LABOR TO COMPLETE THE ROCK CHECK DAM
SHALL BE INCLUDED IN THE COST OF WORK.

ROCK CHECK DAM
GENERAL NOTES

1. Class I sign panels are all those that do not require backing steel. Class I panels shall generally be 0.030 nominal thickness. Single sheet panels made from cold-rolled sheet steel may be used for sign panels where both the horizontal and vertical dimensions are less than 30 in.

2. Class I sign panels shall be fastened to the U-2 post with 2-1/2" flat steel bolts and to timber posts with 2-1/2" in machine bolts, see standard plans S-614-2, and S-614-3 for exceptions.

3. A washer shall be placed between the bolt head and the face of the sign panel. A 1/2" hex. head washer shall be placed under the nut on the back of the timber post.

4. Bolts, nuts, and washers shall be galvanized or chrome plated.

5. All signs shall be fabricated using reflective sheeting conforming to ASTM F1446. The type shall be as described in the standard specifications and/or as shown on the plans.

6. For sign placement see standard plans S-614-1.

7. U-2 posts may only be used for decorative, pole markers and structure name plates. No simple steel posts shall be a uniform flanged channel section made from hot-rolled structural steel, reinforced flat steel, or a fluted steel made by punching holes at intervals of at least 0.025 in. For a minimum thickness of at least 50,000 psi, and a maximum allowable stress of at least 50,000 psi, 2.5" simple posts shall weigh 2 lbs/ft, except that in a well-drained area, 0.7 lbs/ft of the post will be allowed. All simple posts shall have 1/8" flanges on faces on 3/8" centers for the top 4 ft of the post. In combination with the first mile, 0.7 lbs/ft from the top of the post. Color of posts shall be determined by the street.

8. Vertical spacing between panels on the same post shall be 1 in. to 1/2 in.

9. Timber sign posts may only be used for temporary signs during construction. Tubular steel shall be used for permanent installations.

TYPICAL CLASS I GROUND SIGNS

CLASS I SIGNS

STANDARD PLAN NO.
S-614-2

Sheet No. 1 of 1
Typical Transverse Line Crosswalk Markings

Typical Intersection Markings

Typical Island Markings

Intersections, Islands and Crosswalks
TYPICAL SPEED MEASUREMENT MARKING

TYPICAL DOUBLE LEFT TURN MARKINGS

TYPICAL STOP LINE PLACEMENT
**GENERAL NOTES**

1. THE SPACING IN THE TABLE APPLIES TO LEFT & RIGHT TURN LANES.

2. WHEN ONE (1) ARROW IS USED, IT SHALL BE PLACED AT THE BEGINNING OF THE FULL WIDTH TURN LANE. OTHERWISE USE THE TABLE BELOW FOR ARROW PLACEMENT.

<table>
<thead>
<tr>
<th>LENGTH (L)</th>
<th>NO. OF ARROWS PER LANE</th>
<th>SPACING (S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>L &lt; 200'</td>
<td>1</td>
<td>NA</td>
</tr>
<tr>
<td>200' - 350'</td>
<td>2</td>
<td>EVENLY SPACED</td>
</tr>
<tr>
<td>350' - 650'</td>
<td>3</td>
<td>BETWEEN</td>
</tr>
<tr>
<td>650' - 950'</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>950' ≤</td>
<td>5</td>
<td>150' - 300'</td>
</tr>
</tbody>
</table>

LEGEND

- **Direction of Travel**

**ARROW PLACEMENTS AT INTERSECTIONS**

---

**Computer File Information**

**Sheet Revisions**

**Pavement Markings**

**Standard Plan No.**

S-627-1

**Issued By:** Safety & Traffic Engineering Branch July 4, 2022

Sheet No. 5 of 8
GENERAL NOTES

1. ALL CONSTRUCTION ZONE TRAFFIC CONTROL DEVICES, INCLUDING BUT NOT LIMITED TO BARRIERS, WORK AREAS, WARNING SIGNS, ROADBLOCKS, AND Variable Message Signs, SHALL BE PLACED AT OR NEAR THE LOCATION OF THE WORK ZONE.

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

3. WHEN SPEED LIMIT Reductions or Reversal Reductions are Approved, the SPEED LIMIT shall be Reduced in accordance with the following:

   a. MANIFEST MATERIALS AND MATERIALS SHOWN ON THE SHEET.

   b. REFLECTIVE MATERIALS CONFORMING TO ANSI STANDARDS.

   c. Symbols and Legends shall be of sufficient size to be read at a distance of 100 feet.

   d. ROAD SIGNS shall be constructed of steel or equivalent material.

   e. ROAD SIGNS shall be supported by concrete or metal poles.

   f. ROAD SIGNS shall be placed at the required distances from the work zone.

4. TRAFFIC CONTROL DEVICES THAT ARE DAMAGED, WEATHERED, WORKED, OR OTHERWISE RENDERED UN Usable as prescribed to the Engineer shall be replaced.

5. CONTRACTOR OWNED TRAFFIC CONTROL DEVICES are permitted to be used in the project.

6. TRAFFIC CONTROL SIGNS shall be as follows:

   a. PANEL A: 440 x 440 mm (17.5 x 17.5 in)

   b. PANEL B: 440 x 440 mm (17.5 x 17.5 in)

   c. PANEL C: 440 x 440 mm (17.5 x 17.5 in)

   d. TRAFFIC CONTROL SIGNS shall be placed at the required distances from the work zone.

7. ALL WARNING and REGULATORY SIGNS shall be posted in BOTH ROWS of the ROADWAY in BOTH DIRECTIONS, regardless of the number of lanes, at a distance of 100 feet.

8. TRAFFIC DETOUR DEVICES shall be used in accordance with the following:

   a. TRAFFIC DETOUR DEVICES shall be placed at the required distances from the work zone.

   b. TRAFFIC DETOUR DEVICES shall be maintained and replaced as necessary.

9. TRAFFIC CONTROL DEVICES shall be placed at the required distances from the work zone.

10. TRAFFIC CONTROL DEVICES shall be placed in accordance with the following:

   a. TRAFFIC CONTROL DEVICES shall be placed at the required distances from the work zone.

   b. TRAFFIC CONTROL DEVICES shall be maintained and replaced as necessary.

11. TRAFFIC CONTROL DEVICES shall be placed at the required distances from the work zone.

The purpose of this document is to provide guidance for the safe and efficient management of construction traffic control. It is intended to be used as a reference for all construction projects and to ensure compliance with traffic control standards.
## INDEX TO TYPICAL WORK ZONE CASES

<table>
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<tr>
<th>TYPICAL CASE DESCRIPTION</th>
<th>CASE NO.</th>
<th>SHEET NO.</th>
</tr>
</thead>
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<td>3</td>
</tr>
<tr>
<td>Closure of Half of 2-Lane Undivided Highway</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Road Closure, Use of Adjacent Shoulders</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Road Closure, Bypass Detour Preferred</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Lane #1 Closure, Multi-Lane Freeway</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Lane #2 Closure, Multi-Lane Freeway</td>
<td>6</td>
<td>6</td>
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<td>Lane #3 Closure, Multi-Lane Freeway</td>
<td>7</td>
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<td>Lane #4 Closure, Multi-Lane Freeway</td>
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<td>Center Lane Closure, Multi-Lane Freeway</td>
<td>9</td>
<td>7</td>
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<td>One Lane Close - 2 Lane Either Highway</td>
<td>10</td>
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<td>Shoulder Work - Freeway/Expressway</td>
<td>11</td>
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<tr>
<td>Traffic Control in Freeway Near an On-Ramp</td>
<td>12</td>
<td>8</td>
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<tr>
<td>Traffic Control in Freeway Before an On-Ramp</td>
<td>13</td>
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<td>Traffic Control in Freeway Allowing Access From On-Ramp</td>
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<td>Blasting Zone</td>
<td>15</td>
<td>9</td>
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<td>Ramp Construction Where Partial Ramp is Closed</td>
<td>16</td>
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<tr>
<td>Lane Closure, 2-Lane Highway at Curve</td>
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<tr>
<td>Traffic Control Around a Work Area Near an Intersection, One Lane Closed</td>
<td>18</td>
<td>20</td>
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<td>Traffic Control Around a Work Area Near an Intersection</td>
<td>19</td>
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<tr>
<td>Typical Setting for Ramp Closure</td>
<td>20</td>
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<tr>
<td>Full Closure, Multi-Lane Freeway</td>
<td>21</td>
<td>21</td>
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<td>Continuous Lane Ramp Closure, Multi-Lane Freeway</td>
<td>22</td>
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<tr>
<td>Simple Ramp Closure, Multi-Lane Freeway</td>
<td>23</td>
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<tr>
<td>&quot;Open-End&quot; in Work Zone, Smith Speed Reductions</td>
<td>24</td>
<td>22</td>
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<tr>
<td>Shifting of Ranking on 2-Lane Divided Highway</td>
<td>25</td>
<td>23</td>
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<tr>
<td>Shoulder Work - Freeway/Expressway w 35 MPH Speed Limit</td>
<td>26</td>
<td>24</td>
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<tr>
<td>Shoulder Work - Freeway/Expressway w 75 MPH Speed Limit</td>
<td>27</td>
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<tr>
<td>Rock Scaling - Road Closure, 2-Lane Divided Highway</td>
<td>28</td>
<td>25</td>
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## TYPICAL CASE DESCRIPTION | CASE NO. | SHEET NO. |
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Lane Healing - One Lane Closer, 4-Lane Divided Highway</td>
<td>29</td>
<td>18</td>
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<tr>
<td>Roundabout - Partial Closure Near One-Lane Roundabout</td>
<td>30</td>
<td>17</td>
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<td>Roundabout - Inside Lane Closure for Two-Lane Roundabout</td>
<td>31</td>
<td>16</td>
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<td>32</td>
<td>19</td>
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<tr>
<td>Roundabout - Partial Closure for One-Lane Roundabout</td>
<td>33</td>
<td>20</td>
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<td>Mobile Pavement Marking Zone, Multi-Selector Closure on 2-Lane Undivided or Multi-Lane Either Highway</td>
<td>34</td>
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<td>Mobile Pavement Marking Zone, Centerline Striping on 2-Lane Undivided or Multi-Lane Either Highway</td>
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<td>Mobile Pavement Marking Zone, Lane Line Striping - Center Line Operations on Multi-Lane Either Highway</td>
<td>36</td>
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<td>Mobile Pavement Marking Zone, Mobile Ramp Closure - Expressway/Freeway</td>
<td>37</td>
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<tr>
<td>Mobile Operation of Lane Closure of Multi-Lane Highway (Not for Use on Freeways)</td>
<td>38</td>
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<td>Mobile Operation of Lane Closure of Multi-Lane Highway</td>
<td>39</td>
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</tbody>
</table>
**CASE NO. 24**

**TYPICAL APPLICATION**

"FINES DOUBLE IN WORK ZONE" SIGNING (WITH SPEED REDUCTION)

**LEGEND**

- **Definition of Travel**
- **These devices are optional; their use will be determined by the recipient based on return demands and costs of the construction activity and area required when they are included in the plans.**
- **OO-5F Sign is required when section 420.2 "double" fine applies.**
- **Recommended specifications as required with project.**
- **Flashing Beacon**
- **Fine 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 completed. Periodic potential maintenance or a result of the work is 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 removal.

2. MACHINERY PASSENGERS BUT NOT LIMITED TO: EQUIPMENT, MATERIALS OR NON-SHELTERED OBJECTS IN THE CLEAR ZONE OR AREA REQUIRED TO BE SHIELDED, BEHIND, OR AROUND THE WORK ZONE

3. 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 traveled way, shoulders or clear zone.

4. Signs shall be placed so that workers immediately observe the signs with work activities of the zone of work activity moved the signs should be moved accordingly.

5. Signing shown is required to enforce double fines in a work zone. Additional signing shall be in accordance with requirements for enforcement of "fine double" signing. They are to be reviewed at the start of the construction contract and remain in place until work activity is completed.

**Computer File Information**

- **Creation Date:** 07/24/2012
- **Editor:** KCM

**Sheet Revisions**

- **Date:** 07/24/2012
- **Comments:**

**Traffic Controls**

- **FOR HIGHWAY CONSTRUCTION**

**Standard Plan No.**

- **S-630-1**

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

**Sheet No. 12 of 24**
LEGEND
- CHANNELING DEVICE FOR TYPE OF DEVICE TO BE USED: SEE FIGURE
- SPEED LIMIT
- WORK ZONE
- FINES DOUBLE
- CHANNELING DEVICE OF TEMPORARY BARRIER LIMITS OPTIONAL
- CONCRETE BARRIER (TEMPORARY)
- PLACER
- DIRECTION OF TRAVEL
- WORK AREA
- TRANSVERSE TAPER LENGTH
  L = MINIMUM LENGTH OF TAPER
  SPEED LIMIT + 10 MPH OR MORE, L = 0.5 S + W
  S = NUMERICAL VALUE OF SPEED LIMIT
  W = PERCENTAGE OF SPEED LIMIT
  A = WIDTH OF CONSTRUCTION
  TEMPORARY BARRIER = 1/3 L

CASE NO. 26
TYPICAL APPLICATION
SHOULDER WORK - FREEWAY/EXPRESSWAY w/ 65 MPH SPEED LIMIT
WHEN WORK ZONES, EQUIPMENT, OR TEMPORARY BARRIERS ARE WITHIN 8 FT OF TRAVELWAY

CASE NO. 27
TYPICAL APPLICATION
SHOULDER WORK - FREEWAY/EXPRESSWAY w/ 75 MPH SPEED LIMIT
WHEN WORK ZONES, EQUIPMENT, OR TEMPORARY BARRIERS ARE WITHIN 20 FT OF TRAVELWAY
To be provided every 500 feet the spacing of the signs may be varied as directed by the Engineer between R5-6a and R5-48 signs.

**CASE NO. 28**

**TYPICAL APPLICATION**

**ROCK SCALING - ROAD CLOSURE, 4-LANE DIVIDED HIGHWAY**
CASE NO. 29
TYPICAL APPLICATION
LATE MERGING - ONE LANE CLOSED, 4-LANE DIVIDED HIGHWAY
CASE NO. 31
TYPICAL LANE CLOSURE FOR TWO-LANE ROUNDABOUT

LEGEND

A TRUCK DETOUR ROUTE MAY BE NECESSARY TO DETOUR TRUCKS AWAY FROM THE
ROUNDABOUT CIRCLE. USE A STREET NAME AND/OR ROUTE NUMBER
300', DESCRIBING INTERSECTIONS WHERE THEY NEED TO EXIT THE ROUNDABOUT CIRCLE
TO ENTER THE REJECT STREET AND/OR ROUTE NUMBER.

CHANNELIZING DEVICES FOR TYPE OF DEVICES TO BE USED, SEE THE SCHEDULE
OF CONSTRUCTION TRAFFIC CONTROL DEVICES INCLUDED IN THE PLAN. IF PROJECT IS
DESIGNATED AS A "SIGNIFICANT PROJECT" SEE GENERAL NOTE 2A. CONCRETEobar
SHALL BE USED FOR CHANNELIZING DEVICES TREES) AS DETERMINED BY THE
ENGINEER.

TYPE IN OPTION

FUNCTION OF TRAFFIC

WORK AREA

ADVANCE WARNING, FLASHING OR RETARGETING WORM PANEL

THOSE DEVICES ARE OPTIONAL, THEIR USE SHALL BE DETERMINED BY DETAIL DESIGN
AND/OR REQUIREMENT OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE
INCLUDED IN THE SCHEDULE OF CONSTRUCTION TRAFFIC CONTROL DEVICES.

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

G501-60 CORD IS REQUIRED WHEN CURVE OR HORIZONTAL INFORMATION
DEVICES/EQUIPMENT SPECIAL PROVISION WORKSHEET
SPECIFICATION IS REQUIRED WITH PROJECT.

FLASHING DEVICES

REQUIRED WHEN WORK OCCURS THE LOCATION FOR MORE THAN 3 DAYS.

SEE PAPER TABLEコーディング FIGS. ON SHEET 12.

WHOLE ASSEMBLY

L TRANSITION LENGTH

L = MINIMUM LENGTH OF TRANSITION

SPEED 45 MPH OR MORE L = 3.00 W

S = MINIMUM VALUE OF SPEED LIMIT

W = WIDTH OF OFFSET

SHOULDERS WIDTH = 2 1/2 L

BUFFERS

SEE GENERAL NOTE 21 ON SHEET 1 EARLY WARNING

FLAGGER

<table>
<thead>
<tr>
<th>ROAD TYPE</th>
<th>DISTANCE BETWEEN 2500</th>
</tr>
</thead>
<tbody>
<tr>
<td>CITY</td>
<td>A</td>
</tr>
<tr>
<td>45 MPH</td>
<td>200</td>
</tr>
<tr>
<td>30 MPH</td>
<td>200</td>
</tr>
<tr>
<td>RURAL</td>
<td>300</td>
</tr>
<tr>
<td>45 MPH/30 MPH</td>
<td>200</td>
</tr>
</tbody>
</table>
LEGEND

- A TRUCK DETOUR ROUTE MAY BE NEEDED TO DETOUR TRUCKS AWAY FROM THE ROUNDABOUT CIRCLE AND PREVENT THEM FROM ENTERING THE CIRCLE. TRUCKS ENTER THE ROUNDABOUT CIRCLE TO EXIT THE DESIGN STREET AND/OR ROUTE NUMBER.

- CHANNELIZING DEVICES FOR TYPE OF DEVICE TO BE USED, SEE THE SCHEDULE OF CONSTRUCTION TRAFFIC CONTROL DEVICES. INCLUDED IN THE PLANS. IF IT IS DESIGNATED AS A "SIGNIFICANT PROJECT" OR IF A GENERAL WORK ZONE COMMENCEMENT WOULD BE USED THEN CHANNELIZATION DEVICES (SD) MUST BE DESIGNED AND SET As DETERMINED BY THE ENGINEER.

- TYPE OF DEVICES
- DIRECTION OF TRAVEL
- WORK AREA
- ADVANCE WARNING PLAQUE
- CHANNELIZATION DEVICES
- SIGNAGE
- MDW

- THESE DEVICES ARE OPTIONAL. THEIR USE SHALL BE DETERMINED BY DESIGNER DEVICES AND ARE NEEDED IN THE SCHEDULE OF CONSTRUCTION TRAFFIC CONTROL DEVICES.

- THESE DEVICES ARE NOT RECOMMENDED FOR INSTALLATION DURING WORK ZONE SET-UP.

- SPEED LIMIT IS REQUIRED AND CHANNELIZATION DEVICES ARE REQUIRED WITH PROJECT.

- FLASHER DEVICES
- REQUIRED AND DEVICES ARE LOCATED IN THE WORK ZONE AS REQUIRED.

- SEE DESIGN NOTES AND SPECIFICATIONS ON SHEET 1.

- MOBILE ATTENUATOR
- TRANSITION THRU LENGTH =
  - L = MINIMUM LENGTH OF TRANSITION
  - S = SPEED LIMIT OF INTERSECTING ROAD
  - W = WIDTH OF INTERSECTION

- BUFFER SPACE
- SEE GENERAL NOTES ON SHEET 1.

- FLAKER

CASE NO. 32
TYPICAL APPLICATION
ROUNDABOUT - OUTSIDE LANE CLOSURE FOR TWO-LANE ROUNDABOUT

S-630-1
Sheet No. 19 of 24

Colorado Department of Transportation
2629 W. Howard Place
Denver, Colorado 80214
Phone: 303-757-6543 Fax: 303-757-6216

TRAFFIC CONTROLS
FOR HIGHWAY CONSTRUCTION

STANDARD PLAN NO.

Safety & Traffic Engineering KCM

Issued By: Safety & Traffic Engineering Branch July 4, 2002
**LEGEND**

- Mobile Attenuator Vehicle: Two 360-degree yellow flashing beacons, one yellow flashing vehicle lamps of strobe type.
- Variable Message Sign (VMS): Any VMS is used the "SHOULDER CLOSED" sign becomes optional.
- The "SHOULDER CLOSED" sign indicates when the shoulder is too narrow to drive on.
- If there are any water points, use a "Wet Paint" sign shall be posted.
- The variable separation distance between the "cone placement vehicle" and "cone pickup vehicle" shall be determined by the work zone type of the pavement marking material.
- Optional

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

<table>
<thead>
<tr>
<th>POSTED AT SPEED LIMIT (MPH)</th>
<th>FOLLOWING DISTANCE (FEET)</th>
</tr>
</thead>
<tbody>
<tr>
<td>35 - 40</td>
<td>325 - 375</td>
</tr>
<tr>
<td>40 - 45</td>
<td>375 - 425</td>
</tr>
<tr>
<td>45 - 50</td>
<td>425 - 475</td>
</tr>
<tr>
<td>55 - 60</td>
<td>500 - 525</td>
</tr>
<tr>
<td>60 - 70</td>
<td>525 - 550</td>
</tr>
</tbody>
</table>

**CASE NO. 34**

**TYPICAL APPLICATION**

**MOBILE WORK ZONE**

**MOBILE SHOULDER CLOSURE ON 2-LANE UNDIVIDED HIGHWAY**

**CASE NO. 35**

**TYPICAL APPLICATION**

**MOBILE PAVEMENT MARKING ZONE CENTERLINE STRIPING ON 2-LANE UNDIVIDED HIGHWAY**

**APPLICATION GROUP**
**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**

<table>
<thead>
<tr>
<th>Speed Limit (MPH)</th>
<th>Following Distance (FT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 30</td>
<td>200 - 300</td>
</tr>
<tr>
<td>30 - 40</td>
<td>300 - 400</td>
</tr>
<tr>
<td>40 - 50</td>
<td>400 - 500</td>
</tr>
<tr>
<td>50 - 60</td>
<td>500 - 600</td>
</tr>
<tr>
<td>60 - 70</td>
<td>600 - 700</td>
</tr>
<tr>
<td>70 - 80</td>
<td>700 - 800</td>
</tr>
</tbody>
</table>

**NOTES**

1. The serving vehicles may encroach into the traffic lane when the speeder is too narrow to drive on.
2. If the ramp cannot be reached within 15 minutes, use Case No. 22 of the S-630-C Standard Plan.
**LEGEND**

- MOBILE ATTACHABLE TRUCK AND 360-DEGREE YELLOW FLASHER DEVICES
- MOBILE ATTACHABLE TRUCK AND 360-DEGREE YELLOW FLASHER DEVICES
- MOBILE ATTACHABLE TRUCK AND 360-DEGREE YELLOW FLASHER DEVICES
- MOBILE ATTACHABLE TRUCK AND 360-DEGREE YELLOW FLASHER DEVICES
- MOBILE ATTACHABLE TRUCK AND 360-DEGREE YELLOW FLASHER DEVICES
- MOBILE ATTACHABLE TRUCK AND 360-DEGREE YELLOW FLASHER DEVICES

**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 operator and the moving vehicle are required to adjust the distance to increase or decrease the distance that the vehicle is advanced.**

3. **If applicable, all ramps and access between the moving vehicle and work operation area shall be temporarily closed using traffic control devices and procedures. Each ramp shall remain closed until the point of the moving vehicle passes the closed ramp.**

**CASE NO. 38**

**TYPICAL APPLICATION**

MOBILE STRIPING OPERATION OF LANE CLOSURE OF MULTI-LANE HIGHWAY

**CASE NO. 39**

**TYPICAL APPLICATION**

MOBILE OPERATION OF LANE CLOSURE OF MULTI-LANE HIGHWAY
**TYPICAL CONSTRUCTION ZONE SIGNS**

These signs are intended as a quick reference for typical sign use and placement in construction zones.

**WARNING**
- This sign is intended for use in advance of a closed highway. The sign is designed to alert drivers of potential hazards and to reduce their speed before entering the construction zone.

**CAUTION**
- This sign is intended for use in advance of a closed highway. The sign is designed to alert drivers of potential hazards and to reduce their speed before entering the construction zone.

**ADVICE**
- This sign is intended for use in advance of a closed highway. The sign is designed to advise drivers of the reason for the closure and to request they take necessary precautions.

**ADVICE**
- This sign is intended for use in advance of a closed highway. The sign is designed to advise drivers of the reason for the closure and to request they take necessary precautions.

**ADVANCE PLACEMENT OF WARNING SIGNS**

The following table indicates the recommended placement of warning signs in construction zones.

<table>
<thead>
<tr>
<th>Placement</th>
<th>Placement</th>
</tr>
</thead>
<tbody>
<tr>
<td>In advance of</td>
<td>In advance of</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**STANDARD PLAN NO. S-630-1**

**TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION**

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**S-630-1**

**Sheet No. 24 of 24**