

Public Works Manual

Missoula County Public Works Department

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Revised January 2018

RESOLUTION 2018-005

ESTABLISHMENT OF A PUBLIC WORKS MANUAL

[Supersedes Resolution 2010-033]

WHEREAS, the Board of County Commissioners is given authority to control and manage county roads within the county by Sections 7-14-2101 and 7-14-2103 Montana Code Annotated; and

WHEREAS, the County Public Works director is responsible for the supervision and direction of county roads (Section 7-4-2812 MCA) subject to the direction of the Board of County Commissioners (Section 7-4-2811 MCA); and

WHEREAS, the Public Works department originally prepared and has since revised the Public Works Manual; and

WHEREAS, the Public Works Manual was made available for public inspection at the Office of the Clerk and Recorder, at the Public Works department, at the Commissioners' Office and online at the Missoula County website; and

WHEREAS, the Board of County Commissioners, following publication of legal notice on November 12, 19 and 26, 2017, held a public hearing on January 11, 2018 to present the proposed Public Works Manual and to consider public comment.


NOW, THEREFORE, BE IT RESOLVED that the Public Works Manual as written by the Public Works department and reviewed by the public as attached hereto is hereby adopted for use in Missoula County.

Dated this 11 day of January, 2018.


ATTEST:


Clerk and Recorder

Board of County Commissioners
Missoula County


David Strohmaier
Chair




Jean Curtiss
Missoula County Commissioner



Nicole Rowley
Missoula County Commissioner

Table of Contents

SECTION 1 – GENERAL PROVISIONS	1
1.1 Definitions	1
1.2 Applicability	4
1.3 Standard Specifications	4
1.4 Applicable Laws and Indemnification of Missoula County	5
1.5 Permitting and Fees	5
 SECTION 2 – EXCAVATIONS WITHIN PUBLIC RIGHTS-OF-WAY	 7
2.1 Excavation Permits	7
2.2 Application Fee	7
2.3 Permit Conditions	7
2.4 Water and Sewer Main Extensions	8
2.5 Survey Monumentation	8
2.6 Cutting of Surface Material	9
2.7 Excavation of Surface and Base Material	9
2.8 Backfilling	9
2.9 Surface Replacement	10
2.10 Concrete Replacement	11
2.11 Cleanup	11
2.12 Warranty	11
2.13 Bonding and Insurance	11
2.14 Assessment for Opening Pavement	12
2.15 Public Utility Companies	13
2.16 Rural Special Improvement Districts	13
2.17 Penalties	13
 SECTION 3 – UTILITY PLACEMENT AND CONSTRUCTION	 15
3.1 Discovery of Unknown Hazardous Materials	15
3.2 New Services in Subdivisions	15
3.3 Overhead Installations	15
3.4 Trenchless Crossings	15
3.5 Fiber Optic Cable	16
3.6 Natural Gas, Electrical and Communication Installations	16
3.7 Water and Sanitary Sewer Installations	16
3.8 Petroleum and High-Pressure Pipelines	16
3.9 Blasting	17
3.10 Attachment to County Bridges	17
 SECTION 4 – APPROACHES WITHIN PUBLIC RIGHTS-OF-WAY	 21
4.1 Approach Permits	21
4.2 Permit Fees	21
4.3 Construction Costs	21

Table of Contents (continued)

4.4	Number and Arrangement of Approaches	21
4.5	Construction and Reconstruction	21
4.6	Maintenance	22
4.7	Indemnification	22
4.8	Penalty	22
4.9	Design and Geometric Requirements	22
SECTION 5 – ENCROACHMENTS		25
5.1	Encroachment Permits	25
5.2	Mailboxes	25
SECTION 6 – ROAD CONSTRUCTION STANDARDS		27
6.1	Road Design Guidelines and Criteria	27
6.2	Sub-Grade Materials	29
6.3	Gravel Materials	29
6.4	Asphalt Surfacing	32
6.4	Warranty and Bonding Requirements	32
SECTION 7 – TRAFFIC CONTROL		35
7.1	Temporary Traffic Control	35
7.2	Permanent Traffic Control	35
7.3	Pavement Marking	36
SECTION 8 – CONSTRUCTION TESTING AND CERTIFICATION		37
SECTION 9 – STORM DRAINAGE IN ZONED AREAS		39
9.1	Zoning Compliance Permit Requirements	39
9.2	Zoning Compliance Permit Exemptions	39
9.3	Zoning Compliance Plan Submittals	40
SECTION 10 – SIDEWALKS AND NON-MOTORIZED FACILITIES		43
10.1	Curbside Sidewalk	43
10.2	Boulevard Sidewalk	43
10.3	Non-Motorized Facilities	44
SECTION 11 – CONSTRUCTION ACTIVITY		45
SECTION 12 – SUBDIVISION SUBMITTAL REQUIREMENTS		47
12.1	Subdivision Construction Plan Submittal Requirements	47
12.2	Storm Water Requirements	48
12.3	Final Plat Submittal Requirements	49

Table of Contents (continued)

SECTION 13 – TRAFFIC IMPACT ANALYSIS	51
13.1 When a Traffic Impact Analysis is required	51
13.2 Site Access Memorandum	52
13.3 TIA Level 1	52
13.4 TIA Level 2	52
13.5 TIA Level 3	52
SECTION 14 – DUST ABATEMENT	53
SECTION 15 – ADDRESSING	55
15.1 Office of Emergency Management Requirements	55
15.2 Structure Addressing	55
15.3 Public Right-of-Way Addressing	56
15.4 Private Access Easement Addressing	56
15.5 Address Permit Application Requirements	56
SECTION 16 – ROAD NAMING	57
16.1 Private Access Easement Naming	57
16.2 Public Right-of-Way Naming	57
16.3 Right-of-Way and Private Access Easement Naming Criteria	58
16.4 Road Signage	58
SECTION 17 – WEIGHT RESTRICTIONS ON COUNTY ROADS AND BRIDGES	61
17.1 Road Restrictions	61
17.2 Bridge Restrictions	62
SECTION 18 – SEEDING AND WEED MANAGEMENT	63
18.1 Revegetation Plan for Disturbed Sites	63

Appendices

- Appendix A: Standard Drawings
- Appendix B: Temporary Traffic Control Applications
- Appendix C: Public Works Permits and Forms
- Appendix D: Construction, Subdivision and Traffic Impact Analysis Checklists

SECTION 1. GENERAL PROVISIONS

1.1 Definitions

As used within these standards, except where otherwise specifically defined or unless the context or subject matter clearly otherwise requires, the following terms, phrases words and their derivations shall have the following meanings:

AASHTO: American Association of State Highway and Transportation Officials

Applicant: Any individual seeking a permit addressed in these standards.

Approach: Any access to Missoula County road right-of-way for driveways, ramps from residential developments, access to commercial developments or any other access.

Boulevard: An area of public right-of-way or private easement between the edge of the street or road, whether curbed or not, and the walk way.

C-TED: Condominium and Townhome Exemption Development

Contractor: An individual or business that provides services for a fee.

County: Unless otherwise noted, the term County refers to the Missoula County Public Works Department.

Director: The Director of the Missoula County Public Works Department, or his or her designated representative.

Encroachment: Any object, including but not limited to, trees, landscape rocks, signs, mailboxes, fences or private utilities that are located within a public right-of-way.

Engineer: A person licensed in conformance with Title 37, Chapter 67 MCA.

Established Road: An existing access or haul route for motorized vehicles that is passable under one or more of the following circumstances. Existing in this instance has been determined by the County as prior to 2004, with verification by aerial photography.

- (a) As is;
- (b) With clearing of windfall or small woody vegetation;
- (c) With surface blading;
- (d) With replacement of stream crossing structures and drainage structures that were removed to restrict access; or
- (e) With removal of constructed access barriers.

Excavation: Removing, cutting in to, boring under or in any way disturbing the existing material within a public right-of-way.

Governing Body: The Board of County Commissioners of the County of Missoula, Montana, pursuant to Section 76-3-103(7) MCA.

Impervious Surface: Any surface which either prevents or significantly slows the entry of water into the soil profile, (the area from ground surface to parent material), as under natural conditions prior to development, and/or a surface area which causes water to run off the surface in greater quantities or at an increased rate of flow from the flow present under natural conditions prior to development. Surfaces which impede the natural infiltration of surface and storm water runoff are impervious. Drainage swales are not considered impervious under this definition.

Improvement Agreement: A contractual agreement that may be required by the governing body to ensure the construction of such improvements as required by local subdivision regulations. The improvement agreement may require collateral to secure the construction of such improvements, such as the deposit of certified funds, irrevocable letters of credit, performance or property bonds, private or public escrow agreements, or similar financial guarantees.

Intersection: Any location where two or more roads or streets meet at grade.

MCA: Montana Code Annotated

MPWSS: Montana Public Works Standard Specifications

MS4: Municipal Separate Storm Sewer System

Non-Motorized Facilities: Any improvements constructed with asphalt, gravel or native material surfacing such as trails, walk paths or bike paths that may be located within a public or private right-of-way or within a dedicated non-motorized easement.

Private Improvements: Private improvements are the same types of improvements as defined under PUBLIC IMPROVEMENTS, except that ownership and/or maintenance and repair shall be the responsibility of a private entity.

Public Improvements: Any structure or facility constructed to serve the residents of a subdivision or the general public, such as parks, streets or roads, sidewalks, curbs and gutters, street lighting, utilities, and systems for water supply, sewage disposal, and drainage.

Right-of-way: Any strip or area of land including surface, overhead or underground, granted by deed or easement for construction and maintenance according to designated use, including but not limited to drainage ditches or storm water retention; electric power, telephone and fiber optic lines; water, sewer and other pipelines; and highways or other roadways.

Road: A travel-way providing access to two or more units and of adequate width to permit the unrestricted movement of traffic.

Road and street types: As used in these regulations, road or street types are as follows:

- (a) Alley – A street or road used primarily for vehicular access to the rear of property which abuts a road.
- (b) Arterial – A street or road having the primary function of moving traffic and the secondary function of providing access to adjacent land. Arterials generally carry relatively large volumes of traffic. Characteristics of an arterial are two to four lanes of traffic with limited access to abutting property.
- (c) Circle – A local street or road which closes in on itself.
- (d) Collector – A street or road having the equally important functions of moving traffic and providing access to adjacent land. General characteristics of collector streets are two traffic lanes and two parking lanes serving more than 200 lots. Residential collectors serve only residential neighborhoods; non-residential collectors serve other land uses.
- (e) Cul-De-Sac – A street or road which terminates in a vehicular turn-around area.
- (f) Dead-End Street or Road – A street or road having only one outlet for vehicular traffic.
- (g) Driveway – A private vehicular access to a single dwelling unit.
- (h) Frontage Access (Service Road) – A local or collector street or road, usually parallel and adjacent to an arterial or major collector street or road, which provides access to abutting properties and control of traffic access to arterials or collectors.
- (i) Local Streets – A street or road having the primary function of serving abutting properties and the secondary function of moving traffic. Local streets generally consist of two traffic lanes, may include one or two parking lanes and provide access to abutting properties. Local streets shall be designed to discourage future use as collector streets. Residential local streets serve individual residential areas; non-residential local streets serve non-residential land uses.
- (j) Loop – A local street or road which begins and ends on the same street.
- (k) Minor Collector – A street or road having the equally important functions of moving traffic and providing access to adjacent land. General characteristics of collector streets are two traffic lanes and one or two parking lanes serving between 40 and 199 lots.
- (l) On-Site Road – A road right-of-way entirely contained within the boundaries of a subdivision.
- (m) Off-Site Road – A road right-of-way not entirely contained within the boundaries of a subdivision.
- (n) Short Courts – A short road serving 3-6 lots.

Runoff: That part of precipitation that flows over the land without infiltrating into the soil or being absorbed by plant material.

Shared access: An approach where two lots share a common boundary and physically abut the same public right-of-way or private easement and access to each lot is from the same approach.

Sidewalk: Any improvement intended exclusively for pedestrian use that may be located within a public or private right-of-way, within or adjacent to a parking facility, and may be constructed in combination with concrete curb and gutter improvements.

Surveyor: A person licensed in conformance with Title 37, Chapter 67 MCA.

Swale: A drainage channel or depression that collects or directs surface water flow.

Topography: General term to include characteristics of the ground surface such as plains, hills, mountains, degree of relief, steepness of slope, and other physiographic features.

USCS: Unified Soil Classification System

1.2 Applicability

The standards contained within this manual shall be applicable to:

1. The construction of all new roads and appurtenant structures proposed and built within rights-of-way to be dedicated to Missoula County, and all roads to be entered into the County's maintenance system.
2. The construction and maintenance of all utility facilities located within rights-of-way dedicated to Missoula County or within 30 feet of centerline of roads maintained by Missoula County, but not within dedicated rights-of-way.
3. The construction of all new approaches entering upon rights-of-way dedicated to Missoula County, existing approaches entering upon rights-of-way dedicated to Missoula County or where property improvements or land planning actions require Missoula County Public Works Department approval.
4. The erection or placement of all new traffic control signs, mailboxes, and appurtenant structures within rights-of-way dedicated to Missoula County or within 30 feet of centerline of roads maintained by Missoula County.
5. The construction of all new roads and appurtenant structures, whether public or private, that are built as the result of a platted subdivision.
6. Nothing in this manual shall be construed to require that Missoula County undertake to reconstruct, widen or improve an existing County road within the Missoula County road system to the standards and specification contained in this manual.
7. Nothing in this manual shall be construed to require that those portions of new or existing private roads or approaches outside of the rights-of-way dedicated to Missoula County, be constructed, reconstructed, widened or improved to the standards and specifications contained in this manual.
8. Nothing in this manual shall be construed to obligate Missoula County to accept any road for maintenance, regardless of the standards and specifications used for the construction of such road.

1.3 Standard Specifications

Except where these standards provide otherwise, design detail, workmanship and materials shall be in accordance with the current edition of the following specifications, regulations and guidelines:

1. Missoula County Subdivision Regulations;
2. Rules and regulations of the Montana Department of Environmental Quality regarding public water and wastewater systems;

3. Montana Public Works Standard Specifications as amended by the County;
4. Rules, regulations and resolutions as adopted by the Missoula County Board of Commissioners;
5. Manual on Uniform Traffic Control Devices (MUTCD) as published by the Federal Highway Administration (FHWA);
6. A Policy on Geometric Design of Highways and Streets as published by AASHTO;
7. Roadside Design Guide as published by AASHTO;
8. Standard Specifications for Highway Bridges as published by AASHTO; and
9. Guide for the Development of Bicycle Facilities as published by AASHTO.

1.4 Applicable Laws and Indemnification of Missoula County

Any Contractor working within a public right-of-way shall give all notices and comply with all Federal, State and Local laws, ordinances and regulations affecting the conduct of the work, and shall indemnify and hold harmless the County against any claim or liability arising from, or based on, the violation of any such law, ordinance, regulation, etc., whether by himself or his employees.

1.5 Permitting and Fees

1. Fees are established by Resolution of the Commissioners and are collected for the following permits or services (Current fee schedules are available from the Missoula County Public Works Department):
 - (a) Excavation within public right-of-way
 - (b) Approach within public right-of-way
 - (c) Grading and Drainage Review
 - (d) Subdivision Review
 - (e) Zoning Compliance
2. The following permits are issued by the County with no associated fees:
 - (a) Dust Abatement for public right-of-way
 - (b) Encroachment within public right-of-way
 - (c) Special Events within public right-of-way
3. Any proposed project that occurs in or near an intermittent or perennial natural water body is subject to review and approval by various local, state and federal agencies. To ease the permitting process, many agencies use the "Joint Application for Proposed Work in Montana's Streams, Wetlands, Floodplains and Other Water Bodies," which is available from:

Montana Fish, Wildlife & Parks
Region 2 Headquarters
3201 Spurgin Road
Missoula, MT 59804
Phone: 406-542-5500

The Public Works Department does not review this application nor does it issue any permit for working in or near water bodies. Any individual performing work in the vicinity of a natural water body should contact the agencies listed on the joint application to determine which permits are applicable to their project.

4. Any construction activity which results in the disturbance of equal to or greater than one (1) acre of total land area will need to obtain permit coverage from the Montana Department of Environmental Quality (Montana DEQ) with the “General Permit for Storm Water Discharge Associated with Construction Activity.”
5. Additional regulations apply and additional permitting is required if the disturbed area falls within the designated Municipal Separate Storm Sewer Systems (MS4) boundary. Applicants shall supply a copy of the Montana DEQ Notice of Intent (NOI) and Storm Water Pollution Prevention Plan (SWPPP) to the County.

The Public Works Department does not review this application nor does it issue any permits for storm water discharge. When the storm water discharge plans have been acknowledged by the appropriate regulatory agency, the Public Works Department may use this information as a reference during routine County inspections of the project as a whole and may act as an agent for the respective regulatory agencies.

SECTION 2. EXCAVATIONS WITHIN PUBLIC RIGHTS-OF-WAY

Excavations made in any public right-of-way are subject to the following standards. Permit applications are required to be submitted electronically and may be found at:

<https://apps.missoulacounty.us/PublicPermitting/>

2.1 Excavation Permits

Permits shall be obtained from the County, and any such permit issued shall constitute an obligation that the permittee will perform said work in strict accordance with acceptable construction practices, applicable County standards and special provisions or conditions placed on the permit. Excavation permits will not be granted to persons who are under notice to repair defects under the permit conditions or warranty provisions of a previously issued permit.

2.2 Application Fee

Any person or persons making application for permission to excavate within the public right-of-way shall pay the current fee, as set by Resolution of the Commissioners, for each excavation permit. Revenue from these fees shall be credited to the road fund to help defray the cost of inspections and administration. The application fees may be waived by the County for one-time excavations across gravel roads for the purpose of repairing or extending irrigation systems.

2.3 Permit Conditions

Excavation permits issued by the County are subject to the following conditions:

1. Excavation permits shall be assigned an expiration date determined by the type and extent of work being done.
2. Once the permit has been issued, the County shall be notified a minimum of twenty-four (24) hours prior to the commencement of any work. Failure to notify county shall void permit.
3. An adequate Traffic Control Plan shall be submitted prior to starting work and is subject to review and approval by the County (see Section 7). The approved traffic control plan shall be strictly adhered to during construction. All necessary signs and devices for construction work zones shall conform to the standards set forth in the Manual on Uniform Traffic Control Devices published by the U.S. Department of Transportation, Federal Highway Administration.
4. The permittee must have a valid excavation permit on-site at all times during the excavation.
5. All necessary excavation, backfill, surface repair and cleanup shall be completed in a timely fashion and within fourteen (14) days of beginning work unless a time extension has been authorized in writing.
6. Public Utility Contractors will be allowed up to twenty (20) open excavation permits. General Utility Contractors will be allowed up to five (5) open excavation permits. All

permits must be closed out and no permits shall be allowed if the permittee has exceeded their allowance. Exceptions to close-out conditions being met may be granted for any of the following situations:

- (a) the only remaining item is revegetation of the disturbed area; or
 - (b) seasonal availability of asphalt for surface restoration; or
 - (c) adequate progress is being made toward substantial completion on all open permits.
7. No excavation shall extend over one half of the width of the public right-of-way at any one time nor shall construction activities block the existing traveled way unless specific written approval has been granted.
 8. It shall be the sole responsibility of the permittee to notify all utilities of the excavation and be responsible for the location of all utility lines and their repair if damaged.

2.4 Water and Sewer Main Extensions

Sewer and/or water main extensions require express approval by the Board of County Commissioners. The following conditions apply for proposed water and sewer main extensions:

1. For sewer and/or water main extensions the Commissioners will schedule the requested permit for hearing at a regular public meeting at least three (3) weeks after the request has been received. At the hearing the applicant shall present proof that notice of the hearing was published as required by Section 7-1-2121 MCA. This hearing maybe combined with the subdivision review hearing for County reviewed subdivisions and with an RSID hearing for County RSID's.
2. Notice of hearing, whether mailed or published, shall include the date and time of the hearing, a brief description of the project including, but not limited to, location of the right-of-way or rights-of-way for which the permit is sought, the area to be served by the proposed extension and a statement that any person may appear and speak on the issue.
3. In determining whether or not to grant a permit for the extension of a sewer and/or water line, the Commissioners will consider the impact on property owners fronting on the proposed extension; the impact on and concerns of persons in the area to be served by the proposed extension; the general impact on public health, welfare and safety of the proposed extension; the impact on the environment of the proposed extension; adopted plans and agreements; and other matters unique to the proposed extension. The Commissioners may grant or deny authorization for the use of County rights-of-way or may condition the use of the right-of-way on the agreement of the applicant to conditions which address the issues raised at the hearing.
4. Approval for the use of County rights-of-way for the installation of sewer and/or water main shall be applied for prior to applying for an excavation permit.
5. All other requirements of this policy shall apply to permits approved by the Commissioners after public hearing.

2.5 Survey Monumentation

Reasonable effort shall be made to protect and avoid damage to existing survey monuments within the excavation area. Any survey monument in danger of disturbance shall be referenced

by a professional land surveyor to facilitate the replacement of that monument should disturbance occur. Any survey monument which is disturbed shall be reset or replaced by a professional land surveyor, and it is the responsibility of the disturbing party to provide for those services.

2.6 Cutting of Surface Material

When the excavation requires cutting a concrete or asphalt surface, the following conditions shall apply:

1. All concrete areas to be excavated, including curb and gutter, sidewalks, driveways and slabs shall be cut with a power driven saw to a minimum depth of twenty percent (20%) of its total thickness then broken square and removed. Cut limits will be a minimum of one (1) foot beyond the proposed excavation limits.
2. Asphaltic concrete surface shall be cut utilizing a power saw or a milling head. Square cutting shall produce a smooth vertical face at a minimum distance of one (1) foot beyond the area disturbed by excavation.
3. Cuts shall be rectangular and made parallel and perpendicular to the travel way of the road. The County reserves the right to extend the cut area to eliminate pavement "slivers" along the edge of the road or near appurtenances.

2.7 Excavation of Surface and Base Material

All excavations shall follow current Occupational Safety and Health Administration (OSHA) guidelines and be accomplished so as to disturb a minimum of surface area, but provide adequate safety for workers and allow for acceptable compaction of backfill material. Undercutting of the surface, base, sub-base and sub-grade materials will not be allowed.

2.8 Backfilling

When backfilling an excavation within a public right-of-way, the following conditions apply (see Standard Drawing MCSD-401 in Appendix A):

1. All backfill material shall be free from organic matter, refuse, frozen material, saturated material, pieces of concrete and asphalt, boulders or other materials not suitable for use as fill material.
2. Materials used for backfill shall be carefully placed in lifts suitable to the equipment used for compaction, or as directed by the County. Typically, these compaction techniques will be required as follows:
 - (a) Maximum 8 inch layers for power-driven hand held tampers.
 - (b) Maximum 18 inch layers for machine mounted compaction devices.

Each lift shall be brought to optimum moisture content ($\pm 3\%$) and mechanically compacted to a minimum of ninety-five percent (95%) of ASTM D-698 standard proctor density.

3. Material containing a moisture content higher than that which will allow for acceptable compaction shall be removed, hauled away and replaced with suitable backfill material. If the native material can efficiently be mechanically processed on-site to meet the requirements of 2.8.2, it may be used as backfill material. If the proposed drying process cannot be completed within the time limit prescribed by the County (to be determined by site conditions, including consideration for public convenience and safety), the material shall be removed and replaced. Water flooding and/or compaction will not be allowed, unless specific written permission has been obtained prior to its use.
4. Backfill around the facility being placed or repaired shall be adequate to provide the necessary support and protection to ensure the public right-of-way is not reopened because of the lack of proper bedding material.
5. Suitable material removed from the excavation may be used for backfill from the top of the bedding material to sub-grade level.
6. From the top of the bedding material to sub-grade level, material containing stones up to eight (8) inches in the greatest dimension may be used.
7. Where standard compaction techniques cannot be used, mechanically fractured washed rock between 3/8 inch and 2 inches or flowable fill conforming to MPWSS specifications may be used, subject to prior approval and the material used is at the discretion of the County. A standard road section shall be constructed on top of the washed rock or flowable fill.
8. If a County inspector is unsatisfied with the materials, compaction techniques or efforts, work shall be stopped and an independent testing firm will verify compaction at the contractor's expense.

2.9 Surface Replacement

After an excavation has been backfilled, the following conditions shall apply for surface replacement:

1. Where excavation and construction work take place on unimproved surfaces outside of the roadway template, the area shall be returned to its original condition immediately after the work is complete. This will include topsoil replacement, reseeding to natural grass and returning drain ditches to grade.
2. Where excavation and construction work take place on asphalt surfaced roads, it is desirable to replace the pavement section to its original or better condition after excavation work. To accomplish this goal, the following conditions shall be met:
 - (a) There shall be a minimum of eight (8) inches of three (3) inch minus crushed sub-base and four (4) inches of three-quarter (3/4) inch minus crushed base gravel placed on the prepared sub-grade material. All sub-grade, sub-base and base materials shall be brought to optimum moisture content ($\pm 3\%$) and compacted to a minimum of ninety-five percent (95%) of the standard proctor density as determined by ASTM D-698, or otherwise directed by the County.
 1. Depending on conditions and road classification, the County may require geogrid, geotextile fabric, increased aggregate sections or an increased asphalt section, in either single elements or any combination thereof.

- (b) The square cut edges of all exposed asphalt shall have a tack coat applied prior to placement of a minimum of three (3) inches of hot mix asphaltic concrete compacted to 93% of the Rice density, or otherwise directed by the County.
 - (c) Asphaltic concrete shall be placed in such a manner leaving no noticeable bump or depression after the replacement is complete.
 - (d) Asphaltic cold mix or a concrete slurry mix may be used as a temporary surface patch. This temporary repair shall be removed and replaced with compacted hot mix asphaltic concrete as soon as weather conditions and hot-mix asphalt availability allow.
 - (e) If the finished surface replacement does not meet reasonable expectations of the approved plans or excavation permit, the County retains the right to require seal coating to restore original surface conditions.
3. Where excavation and construction work take place on gravel surfaced roads, the gravel surface replacement shall comply with Section 2.9.2(a).

2.10 Concrete Replacement

All concrete areas excavated, including curb and gutter, sidewalks, driveways, and slabs shall be replaced to the same dimension, shape and grade as original condition or to current standards, as directed by the County. Concrete shall be locally available ready-mix concrete with a 28 day compressive strength of 4,000 psi unless otherwise approved by the County.

2.11 Cleanup

All materials, debris, and items relating to the excavation or construction work shall be removed from the site and if required, pavement surfaces shall be swept. In all respects the site and surrounding area shall be in an equal or better condition than prior to the work being accomplished.

2.12 Warranty

All work and materials used under this permit shall be warranted for a period of two (2) years following acceptance. Should there be any settlement from any portion of the work or defect in materials or workmanship it shall be promptly corrected at no cost to the County. The County assumes no responsibility for permittee's work or damage to adjacent private property. The County requires the repair or construction to be equal or better than existing conditions and must meet minimum County standards.

2.13 Bonding and Insurance

The County requires that all applicants for excavation permits be covered by a Surety Bond and Liability Insurance when working within the public right-of-way. Public utility companies may file evidence of public liability coverage or evidence of a net worth in excess of the limits established in this section with the Public Works Department.

Prior to starting work within the public right-of-way, the permittee shall file or have in effect a Surety Bond in the following amounts:

1. Not less than fifty thousand dollars (\$50,000) for Public Utility Companies.
2. Not less than twenty thousand dollars (\$20,000) for General Contractors.
3. 125% of the contract amount for engineered projects.

The bond shall be conditioned upon the proper installation or repair of the facility, proper backfill of the excavation and proper restoration of the surface in accordance with these standards. Said bond shall remain in full force for the duration of the warranty period. The bond amount may be reduced by the County for one-time excavations.

Full Comprehensive General Liability Insurance coverage shall be in effect for the duration of the work. This coverage shall provide for both bodily injury and property damage as follows:

1. Bodily injury portion shall include coverage for injury, sickness or disease and death arising directly or indirectly out of or in connection with the performance of work under this permit and shall provide for a limit of not less than one hundred thousand dollars (\$100,000.00) for all damages arising in bodily injury, sickness or disease or death of one person and a total limit of three hundred thousand dollars (\$300,000.00) dollars for damages arising out of bodily injury, sickness or disease and death of two or more persons in any one occurrence.
2. Property Damage portion will provide for a limit of not less than that listed below for all damages arising out of damage to or destruction of property of others arising directly or indirectly out of or in connection with the performance of work under this permit in any one occurrence including explosion, collapse and underground exposure.
 - (a) Automobile - \$100,000.00
 - (b) Other than automobile - \$100,000.00 each occurrence, \$300,000.00 aggregate
3. Indemnity portion shall hold harmless, indemnify and defend Missoula County, the Public Works Director, and each of their employees and agents from any and all liability claims, losses or damage arising or alleged to arise from the performance of the work under this permit. The bonding and insurance requirements may be waived by the County for one-time excavations across gravel roads for the propose of repairing or extending irrigation systems provided that the excavator has in effect a valid homeowners, ranch or farm general liability insurance policy.

2.14 Assessment for Opening Pavement

A charge of seven dollars (\$7.00) per square foot separate from the excavation permit must be paid by the permittee for each square foot of pavement less than two (2) years old to be removed. Revenue from this assessment shall be credited to the road fund. This charge may be waived at the discretion of the County, whenever the pavement to be opened is the result of the need to repair broken or leaking water and sewer lines or other special circumstances.

2.15 Public Utility Companies

1. Any public utility owning or operating a system of distribution lines for electric power, natural or artificial gas, telephone, fiber optics, cable television, sewer or water service shall apply for and be granted a permit for each excavation or project. The current fee, as set by Resolution of the Commissioners, shall be charged per excavation or project. The County will bill monthly for such excavation permits.
2. Utility companies shall be governed by the full provisions of these standards. It is recognized that continual maintenance of utility facilities is necessary and that reasonable operation in making excavations to restore or maintain service will be allowed under emergency conditions. The County shall be notified as soon as practical in these cases.
3. Utility facilities shall be located to minimize conflicts and avoid the need for future adjustments. Where right-of-way width and terrain features permit, all utilities shall be located outside of the roadway cross section and at or near public right-of-way limits. Hardship cases may necessitate placement of the facility within the roadway cross section, but ample justification must be provided. New facilities or a major revision of existing facilities will require review in regard to location by the County to avoid potential conflict prior to the permit being granted for placement.
4. The County reserves the right to require the utility to change the location or to remove any structures, lines or pipes at any time in order for the County to perform any needed work on or in the right-of-way. Any change, relocation or removal shall be made at the sole expense of the utility. An excavation permit shall be required for the completion of any such work as directed by the County, but the associated fee will be waived.

2.16 Rural Special Improvement Districts (RSID's)

Work performed under a Rural Special Improvement District (RSID) contract awarded by the County is subject to a use of right-of-way hearing pursuant to Section 2.4 of these standards for sewer and water main extensions. RSID work shall conform to the approved contract plans and specifications. This provision does not include utility construction repair or relocation associated with the RSID construction and performed by persons other than the RSID Contractor.

2.17 Penalties

Noncompliance with these standards shall be subject to the following penalties and are not forgiven annually. Penalties can be challenged and will be reviewed at the county's discretion.

1. First offense of an unauthorized excavation shall not be penalized.
2. Second offense of an unauthorized excavation will result in a penalty of two times (2x) the amount of the excavation permit.
3. All further offenses shall result in a \$500 penalty per occurrence.

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SECTION 3. UTILITY PLACEMENT AND CONSTRUCTION

3.1 Discovery of Unknown Hazardous Materials

If the utility provider or their contractor discovers hazardous material (e.g., asbestos, PCB's, petroleum, PCP's, hazardous waste or radioactive material) the existence or location of which was previously unknown to the County and the utility, the utility must immediately stop work in that area and notify the County. The County will then determine the appropriate means of mitigating the hazardous material.

3.2 New Services in Subdivisions

Where a new service for underground power, natural gas or telecommunication is requested for a subdivision and the proposed location will be within a public right-of-way, the utility provider is subject to the requirements in Section 2 of these standards.

3.3 Overhead Installations

Overhead utility installations are subject to the following conditions:

1. Overhead facilities should be installed at the outer edge of the right-of-way, behind the sidewalk, or a minimum of two (2) feet behind the back of the curb.
2. The minimum height for overhead facilities crossing a public right-of-way is twenty-one (21) feet as measured from the highest point of the roadway.
3. All above ground fixed objects, including down guys, should be installed outside of the clear recovery area, unless the following occurs:
 - (a) They are installed behind guardrail or other protective devices, and the minimum installation distance behind guardrail is two (2) feet. A greater separation may be required for deflection; or
 - (b) they are installed in a location where a vehicle cannot reach the facility, such as on a cut slope.
4. The County may grant exceptions to the clear recovery area for project-specific situations, such as for small segments of above ground installations which would cause misalignment of a pole line.

3.4 Trenchless Crossings

The County has authority to require a bored, pushed or other trenchless technology crossing within a public right-of-way and such crossings shall meet the following conditions:

1. All crossings shall be thirty (30) inches below the ditch flow line.
2. Boring pits shall be ten (10) feet from the shoulder where possible.
3. Crossings shall be at right angles to the roadway.
4. Heavier gauge/strength pipe shall be considered for uncased petroleum products pipelines and high-pressure natural gas lines at roadway crossings.

5. Consideration shall be given to providing encasement for carriers of transmittants that are flammable, corrosive, expansive, energized or unstable substances.

3.5 Fiber Optic Cable

Fiber optic cable shall be buried according to the following conditions:

1. Fiber Optic Cable shall be placed within five (5) feet of the right-of-way where possible, unless authorized by the County.
2. Fiber Optic Cable shall be placed forty-two (42) inches deep, unless the County waives the provision.
3. Fiber Optic Cable shall have a warning tape eighteen (18) inches above the cable.
4. Above ground markings shall be in at least five hundred (500) foot intervals and at all road crossings.

3.6 Natural Gas, Electrical and Communication Installations

Natural gas, electrical and communication installations shall be placed a minimum of thirty (30) inches below the drainage ditch flow line, or as required by the County.

3.7 Water and Sanitary Sewer Installations

Water and sanitary sewer installations shall meet the following conditions:

1. Water and sanitary sewer installations shall meet current standards of the local service provider, MPWSS and the Montana Department of Environmental Quality.
2. Water pipes shall be installed to a minimum depth of six (6) feet to avoid freezing problems under the roadway.
3. Hydrants shall be installed a minimum of two (2) feet behind the back of the curb, two (2) feet behind the back of a curbside sidewalk or three (3) feet from the edge of the shoulder (see Standard Drawing MCSD-304 in Appendix A).
4. Water valve boxes and sanitary sewer manhole covers shall be located outside of the wheel path when possible. Finish height of valve boxes and manhole covers shall be one-quarter ($\frac{1}{4}$) inch to one-half ($\frac{1}{2}$) below finish grade (see Standard Drawings MCSD-209 and MCSD-300 in Appendix A).

3.8 Petroleum and High-Pressure Pipelines

Installation of petroleum and high-pressure pipelines shall meet the following conditions:

1. Pipelines shall be placed forty-two (42) inches deep, unless approved otherwise by the County.
2. Above ground markings shall be placed in at least five hundred (500) foot intervals and at all road crossings.
3. Vent pipes must be located at the right-of-way line.

3.9 Blasting

Blasting is prohibited unless approved by the County.

3.10 Attachment to County Bridges

Attachments to County-owned bridges may be allowed with an encroachment permit and must have the prior approval of the County. When such attachments are allowed, the following conditions shall be met:

1. Proposed utility attachments shall be submitted to the County for review with sufficient detailed drawings to indicate the method of attachment, inside diameter, outside diameter, pipe weight per foot, working pressure (if applicable), type of coating, substance carried, pipe material and any other information required by the County.
2. Attachments to existing structures in place prior to the effective date of these standards are considered to be in compliance with the standards, provided that the owner shall inspect the attachment annually and shall repair any deficiencies.
3. Missoula County is not responsible for the inspection, maintenance or replacement of utility facilities attached to County structures. If a deficiency in the utility facility is observed by County personnel during routine bridge maintenance or inspection, the County will notify the owner as a courtesy.
4. If a utility facility is required to be removed or relocated, either temporarily or permanently, for required structure maintenance or replacement, it is the utility company's responsibility to complete such work at the request of the County.
5. Where it is feasible and reasonable to locate utility facilities elsewhere, attachment to bridges will not be allowed. Where other locations create undue hardship for the installation of the facility, consideration will be given to attaching the utility facility to a County-owned structure. When attachment to a County structure is allowed, the following conditions will apply:
 - (a) All utility facilities attached to County structures shall be attached as provided in these standards unless written approval to do otherwise is granted by the County.
 - (b) The owner shall inspect attachments to County structures at least once per year. The owner shall repair any deficiencies immediately.
 - (c) The attachment method shall conform to engineering standards for preserving the structure, its safe operation, maintenance and appearance.
 - (d) Attachment of a utility facility will not be permitted unless the structure can support the additional load, accommodate the utility facility without compromising road user safety and convenience, and the attachment does not impair bridge inspection or maintenance. When structural analysis for an additional load created by the utility facility is required, it is the applicant's responsibility to provide analysis.
 - (e) Manholes will not be allowed in the driving lanes of a bridge deck. Where conditions exist, manhole access through the deck in the shoulder area may be allowed at the discretion of the County.

- (f) The utility attachment will be installed on the bridge in a manner that will not reduce the vertical clearances above the river, stream, pavement or top of a rail, unless approved in writing by county.
- (g) Utility facilities shall be firmly attached to the structure and where necessary padded to eliminate noise and abrasion due to vibrations caused by wind or traffic.
- (h) The installation of a utility through the abutment or wing wall of an existing structure shall not be permitted.
- (i) In locations where a utility attached to a structure is carried beyond the back of the abutment, the utility shall curve or angle out to its proper alignment outside the roadbed area within the shortest possible distance from the abutment.
- (j) So long as utility facilities comply with the other conditions set forth in these standards, such a facility may be attached to structures by hangers or roller assemblies suspended from inserts in the underside of the deck or from hanger rods clamped to a flange of a superstructure member.
- (k) Bolting through the deck or concrete beams shall not be permitted.
- (l) Welding of attachments to steel members or bolting through such members shall not be permitted.
- (m) The use of driven anchors using the explosive type drilling force shall not be permitted.
- (n) Drilling in pre-stressed concrete beams shall not be permitted.
- (o) Attachments of utility facilities to bridge handrail or guardrail or their anchorage systems shall not be permitted.
- (p) Attachment of pipelines carrying deleterious or corrosive substances shall not be permitted.
- (q) The design of a utility attachment to a structure shall include provisions acceptable to the County for lineal expansion and contraction due to temperature changes. Line bends or expansion couplings may be used for this purpose.
- (r) Each proposed bridge attachment will be considered on a case-by-case basis by the County.
- (s) Trenching in the vicinity of piers, bents or abutments shall be a sufficient distance from footings to prevent undercutting or material from sloughing from under the footing.
- (t) An application which involves the reduction of existing waterway area shall not be permitted.
- (u) Utilities attached to bridges shall not be maintained from the bridge deck without the prior approval of the County.
- (v) Utility facilities shall not be attached to bridges on or eligible for listing on the National Register of Historic Places without written consent of the State Historic Preservation Officer.
- (w) By accepting the encroachment permit, the owner of the utility facility shall be fully liable to the County, or others, for any damage to the structure, or the surrounding environment, caused by the placement and use of the facility on a County owned structure. If the structure is damaged by the utility facility through negligence or otherwise, then the utility must pay all costs to repair the structure and associated costs.

6. Where the County plans to construct a new structure, the design of the structure will, upon request of a utility company, be reviewed by the County for accommodation of existing or proposed utility installations consistent with the requirements set forth herein. The applicant shall submit complete plans and specifications of the proposed installation, including the weight per linear foot and detail drawings to the County prior to the County's completion of plans and specifications for the proposed structure. The utility company may be required to reimburse the County for additional design and construction costs associated with accommodating the utility facility on the new structure. Installation of a utility facility on a new structure shall be coordinated with the bridge construction so as not to interfere with the operations of the contractor.
7. Utility facilities may be installed through freestanding bridge abutments, but shall not be permitted through abutments or bents that are expected to move as the thermal expansion and contraction affects the bridge. The hole created in the bridge abutment must be of the minimum size necessary to accommodate the utility and it shall be sleeved to permit relative movement between the abutment and utility.
8. At the option of the utility company, pipelines must be attached to a County structure by one of the following methods:
 - (a) Method 1: The carrier line shall be encased throughout the length of the structure and the casing shall be carried beyond, but not through, the bridge abutments and shall be effectively opened or vented at each end. The casing shall be designed to withstand the same internal pressure as the carrier pipe.
 - (b) Method 2: The carrier line may be attached to the structure not encased using the following design factors:

Class Location 1	0.50
Class Location 2	0.40
Class Location 3	0.33
Class Location 4	0.27
 - (c) For either method employed, the following conditions shall apply:
 1. The design factor specified shall be obtained in accordance with the equations set forth in 49 CFR 192 by any combination of wall thickness and/or pipe yield strength that will provide the required design factors. If the design factor is obtained by increasing steel strength, the utility shall provide certification to the County at the time of installation that the pipe meets the strength requirements in the design calculations.
 2. The carrier pipe shall be pressure tested before start-up in accordance with the latest edition of applicable industry codes, as well as the applicable statutes and regulations.
 3. The attachment shall be designed to prevent any discharge from damaging the structure or reaching the waterway in the event of a rupture. That capability shall be demonstrated to the satisfaction of the County prior to approval of the attachment.
 4. Pipelines using bridge members to resist forces generated by fluids in motion shall not be permitted.
 5. Pipelines attached to County structures shall be electrically isolated from the structure.

6. Pipelines shall be attached to provide sufficient clearance for convenience and safety during maintenance and repair of the structure or other utility attachments on the structure. The pipeline shall be located to minimize the possibility of damage from traffic.
7. Pipelines shall include the capability to allow for expansion and contraction of the structure and the pipeline.
9. Where electric power and communication conductors are attached to a County structure, the following conditions shall apply:
 - (a) They shall be insulated from the structure and carried in protective conduit or pipe throughout the structure.
 - (b) Exposed metallic conduit shall be grounded on each end.
 - (c) Where metallic conduit is installed within seven (7) feet of any metal parts of the structure which are readily accessible, including but not limited to, railings, platforms or stairs, the metallic conduit shall be bonded to the metal parts of the structure. When bonding such elements, all sections of the structure shall be bonded to the metallic conduits.
 - (d) Electrical power and communication lines shall be attached to provide sufficient clearance for convenience and safety during maintenance and repair of the structure or other utility attachments on the structure.
 - (e) The conduit shall be located to minimize the possibility of damage from traffic and shall allow for the expansion and contraction of the structure.
 - (f) Attachments shall comply with the National Electrical Safety Code and applicable regulations.
10. Aerial power or communications lines shall not cross over bridges where it is possible to avoid such installations. Where conditions exist that create undue hardship for the installation of the facility anywhere but on the structure, the facility shall be installed in compliance with Sections 3.2 and 3.9 of these standards.
11. The following requirements for materials attached to a County structure shall apply:
 - (a) All attachments to structures shall be constructed from durable materials designed for long service life and be free from required routine servicing or maintenance.
 - (b) All materials shall conform to current applicable industry specifications and codes.
 - (c) All steel materials used in attaching a utility conduit to a structure shall be stainless or galvanized.
 - (d) Materials used for attaching a utility facility to the structure shall be compatible with the structural material to eliminate the possibility of corrosion.

SECTION 4. APPROACHES WITHIN PUBLIC RIGHTS-OF-WAY

Approaches within any public right-of-way are subject to the following standards. Permit applications are required to be submitted electronically and may be found at:

<https://apps.missoulacounty.us/PublicPermitting/>

4.1 Approach Permits

All new approaches to public rights-of-way constructed by individuals, groups or other government agencies shall require an approach permit issued by the County. Construction work in the County right-of-way will not be allowed until an approved permit has been issued.

4.2 Permit Fees

Any person or persons making application for permission to construct an approach to a public right-of-way shall pay the current fee, as set by Resolution of the Commissioners, for each approach permit. Current fees are available from the County Public Works Department and revenue from these fees shall be credited to the road fund to help defray the cost of inspections and administration. Permit fees may be waived by the Director under special circumstances.

4.3 Construction Costs

The permittee shall do all work and pay all costs associated with the construction of the approach and their appurtenances on the public right-of-way.

4.4 Number and Arrangement of Approaches

In the interest of public safety in access management, the County has the sole discretion to determine the location, number and configuration of all approaches to public rights-of-way. Only one approach for a single family residential property will be allowed on lots with one hundred and fifty (150) feet or less frontage. The number of approaches should be the minimum number necessary to provide reasonable access to the property. The County will examine field accesses to large agricultural tracts and to commercial or industrial locations on a case-by-case basis.

4.5 Construction and Reconstruction

The construction or reconstruction of an approach is subject to the following conditions. Existing in this instance has been determined by the County as prior to 2004, with verification by aerial photography.

1. No driveway approach or other improvement constructed within the right-of-way shall be relocated or its dimensions altered without a duly executed permit.

2. In the case of an existing approach that has been constructed to the requirements of an issued approach permit, any alteration or modification of the existing approach will require an additional approach permit at no cost, subject to approval by the County.
3. In the case of an existing approach that has not been constructed to the requirements of an issued approach permit, or was constructed without obtaining an approach permit, any alteration or modification of the existing approach will require a new approach permit with the normally associated approval and fees.

4.6 Maintenance

Any maintenance and/or repairs deemed necessary by the County shall be the responsibility of the permittee. The County reserves the right to make any changes within the right-of-way that may be necessary to provide proper protection and safety for the public or maintenance of the County right-of-way.

4.7 Indemnification

The permittee shall hold harmless and indemnify the County and its duly appointed agents and employees against any action for personal injury or property damage sustained by the reason of exercise of his or her permit.

4.8 Penalty

If upon installation of the approach the County determines that:

1. an approach is not in substantial compliance with these standards; or
2. the construction activity has damaged or altered public infrastructure; or
3. the approach creates a conflict in any way,

the owner(s) of the approach will be notified and allowed to correct the deficiency. If the deficiency is not addressed within ten (10) working days, either by corrective action or by notifying the County with a proposal for corrective action, the County will determine the approach to be an encroachment and will take appropriate action to remedy the situation in accordance with Sections 7-14-2134 through 7-14-2138 MCA.

4.9 Design and Geometric Requirements

Design and geometric requirements shall be according to the following specifications as shown on Standard Drawing MCSD-202 in Appendix A.

1. All materials shall be subject to inspection and approval by the County.
2. Sight distance shall be provided as required by AASHTO and shown in Standard Drawing MCSD-408 in Appendix A.

3. The approach grade shall conform to the slope of the roadway shoulder where practical and shall not exceed plus or minus three percent (3%) for a distance of twenty (20) feet back from the County road surface.
4. The approach shall intersect the County road at a substantially right angle ($90^{\circ} \pm 10^{\circ}$).
5. The minimum residential approach width is sixteen (16) feet and the maximum is thirty (30) feet as measured at the intersection with the travel way, inclusive of any radius between the approach and the County road.
6. Residential driveways approaching gravel County roads are not required to provide concrete or asphalt surfacing within the right-of-way, but are required to provide a minimum of six (6) inches of approved crushed material over an approved sub-base material. If concrete or asphalt surfacing is provided, the following conditions shall be met:
 - (a) A minimum of six (6) inches of concrete over an approved sub-base material; or
 - (b) A minimum of two (2) inches of asphalt and a minimum of four (4) inches of crushed base material over an approved sub-base material
7. Commercial or industrial approaches to a paved County road will be reviewed on a case-by-case basis, but at a minimum shall be constructed within the right-of-way as follows:
 - (a) A minimum of eight (8) inches of concrete over an approved sub-base material, or constructed to commercial roadway standards as specified in Section 6.
 - (b) The minimum width is sixteen (16) feet and the maximum width is thirty (30) feet as measured at the throat. The approach width at the intersection of the travel way will vary based on the radius between the approach and the County road. Exceptions for reasonable access beyond the maximum width may be considered by the Public Works Department.
 - (c) The radius between the approach and the County road shall be of sufficient length to accommodate the largest AASHTO design vehicle anticipated to regularly access the facility.
8. Commercial or industrial approaches to a graveled County road will be reviewed on a case-by-case basis, but at a minimum shall be constructed within the right-of-way as follows:
 - (a) A minimum of eight (8) inches of crushed gravel over a minimum of twelve (12) inches of crushed sub-base material or constructed to gravel commercial roadway standards as specified in Section 6.
 - (b) The minimum width is sixteen (16) feet and maximum width is thirty (30) feet as measured at the throat. Exceptions for reasonable access beyond the maximum width may be considered by the Public Works Department.
 - (c) The radius between the approach and the County road shall be of sufficient length to accommodate the largest AASHTO design vehicle anticipated to regularly access the facility.
9. The minimum spacing between an approach and a street intersection shall be seventy-five (75) feet unless individual lot dimensions or excessive topographical features prohibit adequate spacing. Measurements for this minimum spacing shall be taken from the face of curb or edge of asphalt of the intersecting street to the near edge of the approach. Where approach locations are limited by such restraints, or where the County deems an

increased spacing is necessary, residential or commercial approaches shall be located as directed by the County.

10. The minimum spacing between commercial approaches shall be reviewed on a case-by-case basis.
11. For either adjacent new approaches or where a new approach may be adjacent to an existing approach, a shared access may be required by the County.
12. Existing drainage along the County road shall not be altered or impeded without specific approval on the approach permit. When drainage structures are required, the specific size of opening, length of pipe or other design features shall be as noted on the approach permit. All culverts shall have a minimum twelve (12) inch diameter and shall be either double-wall smooth interior high-density polyethylene (HDPE) or corrugated metal pipe (CMP). The minimum amount of cover material over the culvert shall be that recommended by the culvert manufacturer. Drainage from a private road or structure is not allowed to discharge onto the County road.

SECTION 5. ENCROACHMENTS

5.1 Encroachment Permits

Encroachments in a public right-of-way may be allowed at the discretion of the County with the issuance of an encroachment permit (a copy of the Encroachment Permit Application is provided in Appendix C). Suspected or proposed encroachments in a public right-of-way will be investigated or reviewed by the Public Works Department. Surveyor's Office staff will determine if, and to what extent, the right-of-way is and if it will be encroached upon.

If necessary, consultation with the owner of the encroachment and other County staff may be had. If the encroachment is determined to be allowable, the owner will be notified and asked to complete an encroachment permit, if they haven't already done so. Surveyor's Office staff will execute the permit and record it with the Clerk and Recorder once all necessary recording fees have been paid by the owner of the encroachment.

No encroachment will be allowed that will hinder the County's ability to maintain the public right-of-way or that is deemed to be a threat to public safety or a public nuisance. Any non-permitted encroachment will be removed in accordance with Montana Code Annotated Sections 7-14-2134 through 7-14-2138.

5.2 Mailboxes

The sole exception to an encroachment permit is the installation of a single residential mailbox that is installed in substantial compliance with these standards. Individual residential mailboxes are allowed without a permit as an understood necessity if installed according to County Standard Drawing MCSD-402 as derived from the design standards of the United States Postal Service (USPS) Domestic Mail Manual Section 508. Mailboxes installed within a County right-of-way are subject to the following conditions:

1. The County is not responsible for the installation, maintenance or replacement of mailboxes within a public right-of-way.
2. If a mailbox is not in substantial compliance with these standards or is determined by the County to be a hazard, obstruction or inconvenience to either motorists or pedestrians, the owner of the mailbox will be notified and the deficiency shall be corrected within fourteen (14) working days. If the deficiency is not corrected within the prescribed time frame, the mailbox will be declared an encroachment and will be removed in accordance with Section 5.1 of these standards.
3. If a construction project is undertaken by the County, the County will remove and replace all affected mailboxes. The mailboxes will be reinstalled at locations deemed appropriate by the County considering the nature of the improvements.
4. Mailboxes damaged by County maintenance equipment may be repaired or replaced by the County if there is sufficient evidence that any piece of the equipment came into physical contact with the box or post. Mailboxes damaged by the force of snow being pushed off of the road will not be repaired or replaced.

- (a) Mailboxes replaced by the County will be a standard sized box and post in accordance with USPS standards. No custom-made installations or repairs will be completed by the County.
- 5. Neighborhood or community mailbox installations within a public right-of-way require an encroachment permit as they require special circumstances for supports and access (see Standard Drawing MCSD-403 in Appendix A).

SECTION 6. ROAD CONSTRUCTION STANDARDS

Construction of new roads or reconstruction of existing roads proposed for dedication to the County shall conform to the standards set forth in this section. Roads must be designed to provide safe and adequate passage for vehicular, pedestrian and non-motorized traffic and to ensure proper drainage, including surface crown, culverts, curbs and gutters, drainage swales and storm drains. Where not specifically referenced in this section, all applicable standard drawings for County design requirements are available in Appendix A. In case of conflict between these regulations, MPWSS, AASHTO or Missoula County Subdivision Regulations, the order of precedence is as follows:

1. Subdivision Regulations
2. These Standards
3. AASHTO
4. MPWSS

Private and public non-maintained roads are also subject to the following criteria.

6.1 Road Design Guidelines and Criteria

1. General road design considerations shall be as shown in Table 6.1.

Table 6.1 Road Design Considerations

Design Parameter	Road Classification			
	Local	Minor Collector	Collector or Commercial	Arterial
Design Speed (mph)	25 - 35	25 - 35	25-45	35 - 55
Maximum Vertical Grade (%)	10	8	6	6
Minimum Horizontal Curve Radius (ft)	50	200	525	900
Return Radius Between Intersecting Streets* (ft)	25	35	50	50
Horizontal Clearance (ft)	20	20	20	20
Vertical Clearance (ft)	14	14	14	14

*Based on road with higher classification

2. All new streets or roads that intersect existing or proposed streets or roads shall intersect at a substantially right angle ($\pm 10^\circ$).
3. One way streets require special consideration and will be reviewed on a case by case basis.
4. Where proposed streets cannot intersect directly across from another street, either existing or proposed, the minimum offset distance between the two centerlines shall be one hundred and twenty-five (125) feet.
5. Where public through streets are not feasible, cul-de-sacs are allowed provided that the cul-de-sac meets the following standards (see Standard Drawing MCSD-200 in Appendix A). If a through street is planned or can reasonably be planned for connection at a future

date, a temporary cul-de-sac meeting the same geometric standards will be required. If sufficient conditions warrant, the requirement for paving a temporary cul-de-sac may be waived by the County

- (a) The minimum right-of-way radius is sixty (60) feet;
 - (b) The minimum surfacing width radius is forty-five (45) feet;
 - (c) The minimum right-of-way radius and surfacing radius connecting the cul-de-sac bulb to the tangent road surface is thirty (30) feet; and
 - (d) The maximum cul-de-sac length is one thousand (1,000) feet.
6. Where private through streets are not feasible, the proposed turn around shall be reviewed and approved by the appropriate local rural fire district.
 7. Guardrail or other longitudinal barrier systems shall be required and installed as per regulations in the most recent edition of the “Roadside Design Guide” as published by AASHTO and shall meet requirements of the National Cooperative Highway Research Program (NCHRP) Report 350.
 8. Sight distance shall be provided as required by AASHTO and as shown in Standard Drawing MCSD-408 in Appendix A.
 9. Typical drawings for all roads are shown in Standard Drawings MCSD-200 through MCSD-210 in Appendix A.
 10. Testing, inspection and certification of materials used to construct paved roads shall be conducted in accordance with Section 8 of these standards.
 11. The minimum surface widths for roads or streets are shown in Table 6.2.

Table 6.2 Road Standards

		Urban Standards							Rural Standards	
		ROW (feet)	Pavement Width ^a (feet)						ROW (feet)	Gravel or Pavement Width ^b (feet)
			Small Lot			Large Lot				
Road Classification	Number of Lots / Units		No Parking	Parking 1-side	Parking 2-sides	No Parking	Parking 1-side	Parking 2-sides		No Parking
Local / Private	2 – 5	60	20	22	30	20	22	30	40	18
Local / Public	2 – 5	60 – 80	24	32	40	24	32	40	60	24
Local	6 – 39	60 – 80	n/a	32	40	24	32	40	60	24
Minor Collector	40 – 199	60 – 80	n/a	34	42	26	34	42	60 – 80	26
Collector	200+	60 – 80	n/a	36	44	28	36	44	60 – 80	28
Commercial / Industrial	n/a	60 – 80	26	34	42	26	34	42	n/a	n/a

^a Pavement widths do not include bike lanes, curb and gutter, or gravel shoulders

^b Gravel surface widths do not include two (2) foot gravel shoulders

- (a) Roads or streets that do not provide for two opposing twelve (12) foot wide travel lanes will not be maintained by the County.
- (b) Where curb and gutter is not required, two (2) foot gravel shoulders are required. Shoulders shall not be included in the determination of the travel way width.
 1. A shoulder is the portion of the roadway contiguous with the traveled way that accommodates stopped vehicles, emergency use, and lateral support of sub-base, base and surface courses. The shoulder on minor rural roads with low traffic

volume serves essentially as structural lateral support for the surfacing and as an additional width for the traveled way. The slope of the shoulder from road edge to ditch fore-slope must be equal or slightly greater than the road surface cross slope.

- (c) Where bicycle or pedestrian lanes are allowed as an extension of the vehicle travel surface, additional surface width meeting current AASHTO standards shall be provided per bicycle or pedestrian lane and shall be identified appropriately with signage or pavement marking or both.

6.2 Sub-Grade Materials

Sub-grade materials will determine if geotextile materials are required below the sub-base material and what the sub-base material section should be. The classifications of sub-grade materials in Table 6.3 shall be used to describe existing site conditions:

Table 6.3 Sub-grade Classifications

Classification	Description	USCS	AASHTO
Good	Well-graded gravel, Poorly graded gravel, Silty gravel	GW, GP, GM	A-1-a, A-1-b, A-3, A-2-4
Average	Clayey gravel, Well-graded sand, Poorly graded sand, Silty sand	GC, SW, SP, SM	A-2-5, A-2-6, A-2-7, A-4
Poor	Clayey sand, Lean clay, Silt, Organic clay/silt, Fat clay, Elastic silt, Organic clay/silt, Peat	SC, CL, ML, OL, CH, MH, OH, PT	A-5, A-6, A-7-5, A-7-6

1. Where sub-grade materials are classified as “Poor,” an approved geogrid and geotextile fabric combination shall be required unless sub-excavation to a suitable soil horizon is approved by the County.
2. Where sub-grade materials are classified as “Average,” geotextile fabric may be required at the discretion of the County.
3. An engineering report prepared by a licensed geotechnical engineer will be considered when determining subgrade structural stability and the need for geotextile materials.

6.3 Gravel Materials

Gravel material used in constructing all roads within Missoula County shall meet gradations and specifications within these standards.

1. All materials shall be mechanically processed and must meet the following standards:
 - (a) Crushed gravel shall consist of hard, durable particles or fragments of stone, free of excess of flat, elongated, soft or disintegrated pieces, dirt or other deleterious matter.
2. Montana Department of Transportation specifications for “Crushed Base Course” Type ‘A’ Grade 2 (4” minus) and Grade 6 (1 ½” minus) material may be approved for use on a case-by-case basis.
3. Material meeting the County’s ¾” minus specification may be substituted for 2” minus material on a case-by-case basis.

4. Any naturally occurring gravel source that meets the specifications shall be tested prior to use, shall have a quality control plan for material removal approved by the County and will be approved for use in subbase or backfill on a case-by-case basis.
 - (a) Clay percentage must meet the appropriate range.
 - (b) Fractured faces on the #4 sieve must be greater than 50%.
5. The gradation specifications for gravels to be used for public maintained roads are shown in Table 6.4. Surface material for public maintained gravel roads may meet either the Missoula County ¾ inch specification or the Forest Service 1 inch specification.

Table 6.4 Gravel Gradations for Public Maintained Roadways

Sieve Size	Nominal Maximum Size			
	3 inch	2 inch	¾ inch	Forest Service 1 inch ^a
	Percent Passing ^{b,c}			
3"	90 - 100	--	--	
2.5"	85 - 95	--	--	
2"	--	100	--	
1.5"	75 - 95	90 - 100	--	
1"	--	80 - 92	--	100
¾"	65 - 85	75 - 85	90 - 100	97 - 100
⅜"	--	50 - 65	70 - 90	67 - 83
#4	25 - 60	30 - 45	40 - 70	48 - 68
#10	--	--	25 - 55	25 - 42
#40	--	5 - 20	--	17 - 30
#200	3 - 10	3 - 8	2 - 10	8 - 12 ^d
				10 - 18 ^e

^a Allowed for gravel surfaced roads only

^b Percentages by weight passing square mesh sieves

Fractured Faces > 35%

30% to 60% of material passing #200 sieve must be clay (i.e. smaller than 0.002 mm) as determined by ASTM D-422

^c Forest Service fractured faces > 75%

^d If PI is 4 - 12

^e If PI < 4

6. The gradation specifications for gravels to be used for private and public non-maintained roads are shown in Table 6.5 and Table 6.6.
 - (a) Surface material for private and public non-maintained gravel roads may meet any ¾ inch or 1 inch standard listed in Table 6.4 or Table 6.6.
 - (b) Base course material for paved private and public non-maintained roads shall meet the ¾ inch standard in Table 6.4 or Table 6.6.

**Table 6.5 Private or Public Non-maintained Road
Sub-base Gradation Specification**

Sieve Size	Nominal Maximum Size			
	Percent Passing*			
	3"	2"	1 1/2"	1"
3"	100	--	--	--
2 1/2"	--	--	--	--
2"	--	100	--	--
1 1/2"	--	--	100	--
1"	--	--	--	100
3/4"	--	--	--	--
3/8"	--	--	--	--
#4	25 - 60	25 - 60	25 - 60	25 - 70
#40	--	--	--	--
#200	2 - 12	2 - 12	2 - 12	2 - 12

* Percentages by weight passing square mesh sieves

**Table 6.6 Private or Public Non-
maintained Road Base Gradation
Specifications**

Sieve Size	Nominal Maximum Size		
	Percent Passing*		
	1 1/2"	1"	3/4"
1 1/2"	100	--	--
1"	--	100	--
3/4"	--	--	100
3/8"	--	--	--
#4	25 - 60	40 - 70	40 - 70
#10	--	25 - 55	25 - 55
#200	0 - 8	2 - 10	2 - 10

* Percentages by weight passing square mesh sieves

7. The County will allow the use of recycled asphalt or concrete materials in crushed sub-base materials, subject to the following conditions:
 - (a) If segregated stockpile management is employed, the County will accept recycled material in crushed sub-base courses at a rate of fifty percent (50%), with a maximum of twenty-five percent (25%) recycled asphalt.
 - (b) If clean integrated stockpile management is employed (i.e. no stumps, topsoil, tires, grass or other deleterious materials), the County will accept recycled material at a rate of thirty percent (30%) mixed with seventy percent (70%) virgin aggregate.
 - (c) When recycled materials are used, the gradation specifications shown in Table 6.4 shall be met.
 - (d) The County shall be notified when recycled material will be processed and shall be allowed to annually inspect and approve recycled material, the crushing process and the stockpiled material.

6.4 Asphalt Surfacing

Asphalt surfacing, including overlays over existing pavements, shall be constructed under the observation of the County and shall consist of hot mix asphaltic concrete consisting of mineral aggregate and asphalt material mixed at a hot plant. The materials used and the placement methods employed shall meet the requirements of the appropriate sections of the latest edition of MPWSS.

1. Prior to placing any asphalt material, the County shall have the opportunity to observe and approve the top course. The placement of the asphalt material must be observed and approved by the County. The notification for the paving work must be received at least twenty-four (24) hours prior to the start date and must be requested for observation during the County's normal working hours.
2. Recycled asphalt material is allowed as aggregate in new hot mix asphalt, provided that its use is pre-approved by the County, the recycled material is no more than twenty percent (20%) of the total aggregate by weight and the entire aggregate blend meets the batch mix specifications approved by the County. The recycled asphalt crushing, handling and stockpiling process shall be reviewed and approved annually by the County
3. Hot mix asphalt shall be placed when the air temperature is at least forty degrees (40°) and rising.
4. Hot mix asphalt shall not be placed during the following conditions:
 - (a) When the roadbed is frozen;
 - (b) During heavy rainfall, subject to the inspector's judgment;
 - (c) Upon standing water; or
 - (d) Where the roadbed is pumping.
4. If deficiencies in the asphalt surfacing are observed by the County prior to certification and acceptance, the contractor shall submit a mitigation proposal to the County for approval.
5. When used, asphalt seal coatings shall consist of a single application of asphalt material and seal coat aggregate meeting the requirements of the appropriate sections of the latest edition of MPWSS.

6.5 Warranty and Bonding Requirements

Upon final acceptance by the County, a minimum warranty period of one (1) year shall be in effect for all constructed improvements. In addition to the warranty requirements, the following bonding requirements for shall also be in place:

1. Upon completion of construction and prior to acceptance by Missoula County, a performance bond in the amount of 100% of construction costs shall be in place for one year for all paved roads, sidewalks and non-motorized facilities.
2. Performance bonding requirements on paved road improvements will be necessary if any section of the pavement is tested out of density specification:
 - (a) 91.5% to 92.4% Rice density, the performance bond shall be extended for two (2) years;

- (b) 90.5 % to 91.4% Rice density, the performance bond shall be extended for five (5) years;
 - (c) Rice density of less than 90.4% shall be rejected and shall be replaced.
3. Any deficiencies found in the asphalt from lab or field testing requirements shall require an additional two (2) year warranty period beyond the standard one (1) year. The County may consider an overlay, without deficiencies shown in a field Marshall Test for the overlay material, to be satisfactory mitigation and allow the standard one (1) year warranty period.

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SECTION 7. TRAFFIC CONTROL

The use of all traffic control devices is based on standards from the most recent edition of the following publications:

Manual on Uniform Traffic Control Devices (MUTCD);
AASHTO Roadside Design Guide;
AASHTO A Policy on Geometric Designs of Highways and Streets;
AASHTO Standard Specifications for Structural Supports for Highway Signs,
Luminaires, and Traffic Signals; and
American Traffic Safety Services Association (ATSSA) guidelines.

Before installing any sign posts, the Underground Utility Locating Center (One Call Concepts) shall be contacted at 1-800-424-5555 at least two (2) working days before the work is to be performed.

7.1 Temporary Traffic Control

Any work proposed within a County right-of-way that requires a Traffic Control Plan (TCP) will not be approved until the Traffic Control Plan has been approved by the County. Any TCP that is submitted is subject to the following conditions:

1. The plan may be represented and referenced appropriately as a Typical Application defined in the most recent edition of the MUTCD or as a Typical Application developed by Missoula County as shown in Appendix B of these standards.
2. The Contractor is responsible for the set-up, maintenance and removal of the signage or devices.
3. The Contractor shall use signs and devices that are clear in meaning, are located appropriately and are clean and legible.
4. When the work is complete, the Contractor shall remove all traffic control signs and devices within forty-eight (48) hours. If the signs and devices are not removed within forty-eight (48) hours, the County will remove them and the permittee will be responsible for reimbursing the County for costs incurred.
5. No work may begin until all traffic control devices are in place. If work is being conducted without appropriate signage in place, the County will suspend the work and/or any appropriate permits until the proper traffic control devices are in place.

7.2 Permanent Traffic Control

When a proposed project involves removing, relocating, or replacing existing traffic control devices, or when installing new traffic control devices, a signage plan is required as part of the construction plan submittal. All permanently installed signs shall be installed according to the following regulations (see Standard Drawings MCSD-405 through MCSD-406 in Appendix A):

1. All proposed signage must be approved by the County prior to any installations. If the signage is not installed in compliance with the plans, the Developer or Contractor shall be required to reinstall, relocate or replace any deficient signage.
2. Street signs shall comply with the most recent edition of the MUTCD.
3. Street signs shall be visible from both directions, either with a double-sided sign mounted on top of the post or two single-sided signs mounted on each side of the post.
4. Streets that provide through access or connections to other streets shall be provided with street signs indicating the name of each of the intersecting streets in at least one quadrant of the intersection.
5. All signs in rural areas shall be located horizontally between six (6) and twelve (12) feet from the edges of the traveled way (edge of asphalt or edge of gravel surfacing). In the case of conflicts with underground utilities or other obstacles, the sign shall be placed further from the edge of the traveled way rather than nearer.
6. All signs installed adjacent to curb-and-gutter shall be located horizontally a minimum of two (2) feet from the back of the curb. Where curbside sidewalks block this location, the horizontal offset may be measured from the back edge of the sidewalk. In the case of conflicts with underground utilities or other obstacles, the sign shall be placed further from the edge of the traveled way rather than nearer.
7. Street signs shall be located vertically a minimum of nine (9) feet from the edge of the traveled way to the bottom edge of the sign.
8. In a rural area where no parking or pedestrian facilities exist or are planned, all regulatory and warning signs shall be located vertically a minimum of five (5) feet from the edge of the traveled way to the bottom edge of the sign.
9. In an urban area or in a rural area where parking or pedestrian facilities exist or are planned, all regulatory and warning signs shall be located vertically a minimum of seven (7) feet from the edge of the traveled way to the bottom edge of the sign.
10. Approved sign posts are: 4" – 5" round wood; 4" x 4" square wood; 2 3/8" round schedule 40 steel; 3 lb/ft steel U-channel; square steel post systems.
11. Any permanent base (such as concrete) shall not extend above the ground surface more than two (2) inches. Where permanent bases are used, an approved break-away system shall be installed.

7.3 Pavement Marking

Applications of all pavement markings are based on standards from the most recent edition of the Manual on Uniform Traffic Control Devices (MUTCD) and the most recent edition of MDT Standard Specifications for Road and Bridge Construction. Prior to the application of any pavement marking, construction plans must be submitted to the County for approval.

SECTION 8. CONSTRUCTION TESTING AND CERTIFICATION

In order to better document the inspection and certification of public and private infrastructure improvements, the County shall require the following information for all projects approved for construction. Electronic copies of all documentation shall be required prior to final acceptance of sanitary sewer, storm water management systems, water lines, utilities, Portland cement concrete, non-motorized facilities and road improvements within the County right-of-way.

1. The Engineer shall submit one electronic certification package in PDF format to the County certifying that the improvements (i.e.: sanitary sewer, water lines, storm water management systems, utilities and streets) were installed in accordance with the approved plans and specifications. This packet, shall at a minimum include the following items:
 - (a) Certification cover letter
 - (b) All required testing results and dates of acceptance tests for sanitary sewer, waterlines, utilities, roads, pedestrian facilities, and storm water management systems
 - (c) As-built drawings
2. The Engineer shall furnish documentation of lab tests in accordance with methods prescribed by AASHTO or ASTM for theoretical maximum density, optimum moisture content and sieve analysis for the materials to be used in the designed improvements (i.e.: sanitary sewer, water lines, storm water management systems, utilities and streets). Tests up to one (1) year old will be considered acceptable for these material properties.
3. The Engineer shall furnish documentation of in-place field density tests. All trench backfill material for sanitary sewer, waterlines, utilities and storm water management systems in improved areas and all embankments shall be compacted for the fill depth and shall be compacted to 95% of the maximum dry density as determined by AASHTO-T-99 or ASTM D698. In-place density tests for roadways shall, as a minimum, be required at intervals of two hundred (200) feet. Tests for roads and pedestrian facilities shall be provided for sub-grade, sub-base and cushion materials. At a minimum, the top six (6) inches of native sub-grade which will be under a structural section shall be field density tested until the material no longer responds to compactive efforts.
4. The Engineer shall furnish a dated job mix formula, no older than one year, for hot mix bituminous asphaltic concrete which conforms to the procedures of the Asphalt Institute's MS-2 manual. The Engineer shall furnish certified results of a Marshall Test showing the bulk specific gravity determination, stability and flow data and density and void analysis. The Engineer shall furnish a minimum of one "field Marshall Test" in accordance with ASTM D-979 5.2.2 or 5.2.3. One additional field Marshall Test shall be taken for every one thousand (1,000) feet of constructed roadway to check for variations from the job mix formula. Test results are also required indicating that the Tensile Strength Ratio (TSR) as determined by AASHTO T-283 is at least 70%, with the test being performed at $7.0 \pm 1\%$ air voids and including the freeze cycle. This information shall be required, for all Missoula County approved roadways or pedestrian facilities. If the paving operation cannot be completed in one (1) day, the above field Marshall Test intervals shall be required for each additional day.
5. The Engineer shall furnish asphalt core samples for bituminous pavement. One core sample shall be required for every four hundred (400) feet of road or pedestrian facility

with a minimum of two samples per project or as directed by the County. The Engineer shall provide a certified laboratory report from the samples taken as to thickness and actual density. This information shall be required for all paving projects.

- (a) See Section 6.6 for Mat density requirements. Verification of maximum density as determined by ASTM D2041 from plant produced material during production may be required.
 - (b) The field density and thickness of the pavement is determined by measuring the cores tested. The actual thickness must be no less than one-quarter (1/4) inch under the specified thickness from the approved plans. Asphalt that does not meet thickness requirements shall be overlaid the entire width of the roadway in even station increments. Transitions for any required overlays shall be milled in to the existing asphalt.
6. The Engineer shall furnish Portland cement concrete tests for concrete placed into infrastructure improvements. One set of tests taken by an approved ACT certified concrete technician shall be required for the first fifty (50) cubic yards of concrete placed. One additional set of tests is required for any concrete placed after the fifty (50) cubic yard threshold. If the concrete operations cannot be completed in one (1) day, the above field testing intervals shall be required for each additional day. The concrete shall be sampled in the field and specimens made and compliance determined in accordance with the following:
- | | |
|-------------------------|--|
| Sampling Fresh Concrete | ASTM C-172 |
| Slump | ASTM C-143 or AASHTO T119 |
| Air Content | ASTM C-231 or C-173 or C-138 or AASHTO T152, T196 & T199 |
| Compressive Strength | ASTM C-39 or AASHTO T22 |
| Making and Curing Test | ASTM C-31 or AASHTO T23 |

SECTION 9. STORM DRAINAGE IN ZONED AREAS

In order to preserve and protect existing storm drainage systems, natural drainages, private and public property, and in order to ensure that proposed developments provide adequate storm water management facilities, either through subdivisions or through individual residential or commercial/industrial developments, storm drainage plans shall be submitted to the County before these developments will be approved. More specific requirements for storm drainage associated with subdivisions are listed in Section 12 of this Manual.

9.1 Zoning Compliance Permit Requirements

All construction and development within the jurisdiction of Missoula County on zoned land must receive a Zoning Compliance Permit from the Community and Planning Services office before starting construction. Public Works is charged with reviewing grading and drainage plans for Zoning Compliance Permits. The thresholds for grading and drainage plan review are as follows:

1. Residential projects on slopes between 5% and 10% may obtain a permit with an approved site plan submitted by the property owner or their contractor.
2. Residential projects on slopes greater than 10% require professionally engineered plans.
3. All commercial or industrial projects require professionally engineered plans regardless of grade.
4. All Condominium and Townhome Exemption Development (C-TED) projects require professionally engineered plans regardless of grade.
5. All multi-family development projects creating three or more units require professionally engineered plans regardless of grade.

9.2 Zoning Compliance Permit Exemptions

Exemptions from grading and drainage review include:

1. One- and two-family units, with a total of three (3) units per parcel on slopes less than five percent (5%)
2. Interior remodels
3. Deck construction or accessories
4. Structures, both residential and commercial, less than two hundred (200) square feet
5. Additions of less than two hundred (200) square feet to any existing structure
6. The addition of a structure over an existing impervious surface
7. Billboards and signs
8. Pole barns
9. Any other project not on a permanent foundation intended for seasonal use
10. Any construction controlled by the Missoula Airport Authority

9.3 Zoning Compliance Plan Submittals

If construction requires a grading plan due to Zoning Compliance regulations, adequate plans shall be submitted in a digital format to the department for review and approval. The plans, at a minimum, shall show the following (if applicable):

1. 5% to 10% residential requirements
 - (a) building footprint;
 - (b) approach/driveway location;
 - (c) proposed drainage facilities or materials;
 - (d) existing site elevations;
 - (e) finished floor elevations with corner spot elevations;
 - (f) arrows drawn depicting direction of storm water flow;
 - (g) gutter spill locations; and
 - (h) retaining wall locations with elevations at top and bottom of wall.
2. Greater than 10% grade conditions for residential projects; all commercial or industrial development; all multi-family and C-TED requirements
 - (a) all requirements listed in 9.3.1; and
 - (b) topographic map showing existing and proposed contours at 2 foot minimum intervals; and
 - (c) sidewalk, curb and gutter locations and details.
3. The County will only review required landscaping plans where they may impact a public right-of-way.
4. All commercial/industrial and C-TED developments shall be required to complete a drainage report for the installation of storm water management systems. The system shall be designed to detain/retain the one hundred (100) year, twenty-four (24) hour rainstorm as obtained from the NOAA Atlas 2 using the SCS Type 2 Rainfall Distribution. Post-development discharge shall be limited to pre-development runoff rates, and complete retention may be required if downstream conditions warrant.
5. Where drainage swales are used to convey or store storm water, they shall be protected against erosion and weed invasion as approved by the County.
6. Natural drainage ways shall be preserved except for necessary crossings in which the capacity of existing drainage ways shall be preserved.
7. Graded slopes shall be planted with a vegetative ground cover, and, if applicable, consistent with the Wildland Residential Interface (WRI) requirements. Landowners shall replant areas of disturbance no later than the first growing season to prevent erosion and weed invasion in consultation with the Missoula County Extension Office in accordance with Section 11 of these standards. Where site grading is necessary, top soil shall be salvaged or imported to redistribute on areas to be re-vegetated.
8. Dry wells (sumps) may be allowed, but must be pre-approved by the County for inclusion in the drainage plan design.
9. Underground storage reservoirs or structures may be allowed, but must be pre-approved by the County for inclusion in the drainage plan design.
10. The Engineer shall submit a letter certifying that the storm water management system has been constructed to the approved design.

11. For projects disturbing one (1) acre or more, the Owner is required to submit to the County a Notice of Intent (NOI), a Storm Water Pollution Prevention Plan (SWPPP) and a notice of receipt from the Montana DEQ. These documents will be kept on file as part of the Missoula County Storm Water Management Plan (SWMP).
12. In addition to these standards, all drainage systems shall meet the minimum standards of the Montana Department of Environmental Quality, as required by Title 76, Chapter 4, Part 1 MCA and all applicable state and local regulations.
13. Projects found to be within the MS4 Boundary may require additional review by the Missoula County MS4 committee. The current MS4 boundary can be found on the Missoula Valley Water Quality District website or the Property Information System found on the Geographic Information Systems website.

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SECTION 10. SIDEWALKS AND NON-MOTORIZED FACILITIES

Sidewalks and non-motorized facilities constructed within a public right-of-way shall conform to these standards for construction and to the Americans with Disabilities Act (ADA) guidelines for accessibility. All new sidewalks and non-motorized facilities shall be constructed according to the following conditions (see Standard Drawings MCSD-106 through MCSD-111 and MCSD-155 through MCSD-157 in Appendix A).

10.1 Curbside Sidewalk

1. All curbside sidewalks shall be constructed of concrete meeting the standards set forth in MPWSS Section 03310.
2. Where a sidewalk in a residential area is adjacent to a curb and gutter installation, the minimum width shall be five (5) feet.
3. Where a sidewalk is adjacent to a curb and gutter installation on a collector or arterial street, or is located adjacent to a curb and gutter installation within a commercial or industrial area, the minimum width shall be eight (8) feet.
4. The minimum thickness of three-quarter (3/4) inch cushion material under a curbside sidewalk shall be four (4) inches compacted to a minimum of ninety-five percent (95%) ASTM D698 standard proctor density.
5. The minimum thickness of concrete shall be four (4) inches.
6. Geotextile fabric may be required below the gravel cushion material as directed by the County.

10.2 Boulevard Sidewalk

1. All boulevard sidewalks shall be constructed of concrete meeting the standards set forth in MPWSS Section 03310.
2. Where a sidewalk in a residential area is separated from a curb and gutter installation by a boulevard, the minimum sidewalk width shall be five (5) feet and the minimum boulevard width shall be seven (7) feet.
3. Where a sidewalk is separated from a curb and gutter installation by a boulevard on a collector or arterial street, or is separated from a curb and gutter installation by a boulevard within a commercial or industrial area, the minimum sidewalk width shall be five (5) feet and the minimum boulevard width shall be ten (10) feet.
4. The minimum thickness of three-quarter (3/4) inch cushion material under a boulevard sidewalk shall be four (4) inches compacted to a minimum of ninety-five percent (95%) ASTM D698 standard proctor density.
5. The minimum thickness of concrete shall be four (4) inches.
6. Geotextile fabric may be required below the gravel cushion material as directed by the County.

10.3 Non-Motorized Facilities

1. Non-motorized facilities are subject to the standards set in the Missoula County Subdivision Regulations Table 3.4.9.4.
2. Bicycle lanes shall be provided on streets that are functionally classified as a collector or arterial. The design of bicycle lanes shall conform to current AASHTO design standards.
3. Where non-motorized facilities meet roadways, adequate sight distance shall be maintained.
4. Bridges for non-motorized facilities shall be approved by the County.
5. The standard section for a non-motorized facility with asphaltic concrete surfacing shall consist of the following:
 - (a) A minimum thickness of two (2) inches of asphaltic concrete compacted to a minimum of ninety-three percent (93%) Theoretical Rice density.
 - (b) A minimum thickness of four (4) inches of three-quarter (3/4) inch cushion material compacted to a minimum of ninety-five percent (95%) ASTM D698 standard proctor density.
 - (c) Geotextile fabric may be required below the gravel cushion material as directed by the County.
6. The standard section for a non-motorized facility with gravel surfacing shall consist of the following:
 - (a) A minimum thickness of four (4) inches of three-quarter (3/4) inch cushion material compacted to a minimum of ninety-five percent (95%) ASTM D698 standard proctor density over an approved sub-base material.
 - (b) Geotextile fabric is required below the gravel surfacing.
 - (c) Gravel surfacing should be treated with a seed inhibitor if approved by the County Weed District.

SECTION 11. CONSTRUCTION ACTIVITY

During any construction activity that is subject to approval and inspection by the County, the following conditions shall be met:

1. The county shall be notified of commencement of construction so that periodic inspections may take place.
2. All construction activity is subject to the permit and fee requirements as set forth in Section 1.5 of these standards.
3. Whenever permit authorization is required from the Montana DEQ, a copy of the letter acknowledging the permit shall be submitted to Missoula County Public Works prior to issuance of construction approval.
4. While disturbed areas of one (1) acre or greater require permit authorization from the Montana DEQ, regardless of the disturbed area, erosion control Best Management Practices (BMP's) for all construction activity shall be submitted to the County as part of the construction plan submittal (see Standard Drawings MCSD-602 through MCSD-606 in Appendix A).
 - (a) During construction, the BMP's shall be used and maintained at all times by the Contractor. Once active construction activity has been completed, any temporary BMP's shall be removed and the area reclaimed in accordance with Section 14 of these standards.
 - (b) Where long-term BMP's are employed after construction activity is substantially complete, their installation shall be completed within fourteen (14) days of direction by the County. Long term BMP's shall be maintained by the Contractor for a period of one (1) year or until vegetation has been established over seventy percent (70%) of the disturbed area, whichever is longer.
5. It is the Contractor's responsibility to remove all material tracked from a construction site onto the abutting road, whether public or private. If a Contractor does not remove material tracked onto a public road as needed, on a scheduled interval or at the direction of the County, the County will remove the tracked material and the Contractor or Owner will be liable for the costs incurred. If the Contractor or Owner fails to reimburse the County for the costs incurred, said costs will be recovered by methods allowed by law.
6. Vehicles, equipment or materials shall not block or impede the travel way or any non-motorized facilities. If any such item is located within a public right-of-way and is deemed by the County to be a nuisance or a threat to public safety, the item(s) will be considered an encroachment and removed from the right-of-way as prescribed in Section 5 of these standards.

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SECTION 12. SUBDIVISION SUBMITTAL REQUIREMENTS

All subdivision applications must originate at the Community and Planning Services (CAPS) office. All requirements for the preliminary plat submittal requirements may be obtained from CAPS. However, at any stage of planning for a subdivision where public or private improvements are proposed, the applicant and/or their representative are encouraged to contact the County Public Works Department with any questions about requirements set forth in these standards.

12.1 Subdivision Construction Plan Submittal Requirements

After the Board of County Commissioners has approved the preliminary plat and determined the conditions of subdivision approval, all appropriate construction plans shall be submitted to the County for review. A checklist for all information to be included in the submittal to the County is provided in Appendix D. The items that shall be submitted to the County are as follows:

1. A copy of the Commissioner's conditions of approval for the subdivision.
2. One (1) digital full set of scaleable prints and specifications.
3. If potable water and/or sanitary sewer will be provided by a utility or special district, a design approval letter is required.
4. A copy of the Storm Water Report, including calculations. The system shall be designed to detain/retain the one hundred (100) year, twenty-four (24) hour rainstorm as obtained from the NOAA Atlas 2 using the SCS Type 2 Rainfall Distribution. Post-development discharge shall be limited to pre-development runoff rates, and complete retention may be required if downstream conditions warrant.
5. A copy of the Storm Water Pollution Prevention Plan or Construction Site Pollution Prevention Plan (see Section 11).
6. Copy of Utility Plan including off-site connections.
7. All approved construction plans are valid for two years. If construction activity is not completed within two years of the final approval, then the plans shall be resubmitted for review and approval.

Public Works staff will review the construction plans and provide written comments. Subsequent submittals and comments will be repeated as necessary until the plans receive final approval from the County.

If the applicant chooses to begin construction without approved construction plans, any work that is completed prior to construction plan approval may not comply with the approved plans. The final plat may not be recorded until all proposed improvements have been completed in accordance with the approved construction plans and to the County's satisfaction.

12.2 Storm Water Requirements

All residential and commercial subdivisions or individual lot commercial/industrial developments within the jurisdiction of Missoula County require a Grading and Drainage plan which is subject to the following requirements:

1. All projects shall submit a topographic map showing existing and proposed contours at minimum two (2) foot interval completed by a licensed professional engineer.
2. All submitted grading and drainage plans shall include arrows to show the direction of surface water flow.
3. Storm water management systems shall be designed to detain/retain the one hundred (100) year, twenty-four (24) hour rainstorm as obtained from NOAA Atlas 2 using the SCS Type 2 Rainfall Distribution. Post-development discharge shall be limited to pre-development runoff rates, and complete retention may be required if downstream conditions warrant.
4. Swales, storm sewers or some accepted method of storm water management shall be required, taking into account the character of the area, the density of development and adjoining properties. The developer may be required to extend the storm drain if the subdivision is located within five hundred (500) feet of an existing storm drain facility. Swales or detention/retention ponds shall not be located above septic systems or wells.
5. In addition to these standards, all drainage systems shall meet the minimum standards of the Montana Department of Environmental Quality, as required by Title 76, Chapter 4, Part 1 MCA and all applicable state and local regulations.
6. Facilities for the collection of stormwater runoff shall be installed prior to or concurrent with any other improvements and be designed to divert surface water away from cut faces or sloping surfaces of a fill. All storm water facilities shall be protected from erosion or silt deposition during construction of both public and private improvements.
7. If off-site storm water facilities are allowed, the granting property owner shall provide documentation of the easement to prevent encroachment upon or disruption of drainage ways or drainage facilities. Easements for surface storm drainage shall remain clear and open and shall not be obstructed with fences, structures or any other obstruction.
8. Where drainage swales are used to convey or store surface water, they shall be protected against erosion and weed invasion as approved by the County.
9. Natural drainage ways shall be preserved except for necessary crossings in which the capacity of existing drainage ways shall be preserved. Lots shall be arranged to preserve and maintain these drainage channels.
10. Graded slopes shall be planted with a vegetative ground cover, and, if applicable, consistent with the Wildland Urban Interface (WUI) requirements. Landowners shall replant areas of disturbance no later than the first growing season to prevent erosion and weed invasion in consultation with the Missoula County Extension Office in accordance with Section 11 of these standards. Where site grading is necessary, top soil shall be salvaged or imported to redistribute on areas to be re-vegetated.
11. Dry wells (sumps) may be allowed, but must be pre-approved by the County for inclusion in the drainage plan design.

12. Underground storage reservoirs or structures may be allowed, but must be pre-approved by the County for inclusion in the drainage plan design.
13. Culverts used in storm water conveyance systems shall be no less than twelve (12) inches in diameter and shall be double-wall smooth interior high-density polyethylene (HDPE), corrugated metal pipe (CMP) or reinforced concrete pipe (RCP).
14. Where curb and gutter is used in a storm drainage system, a Type F curb shall be used (see Standard Drawing MCSD-100 in Appendix A).
15. Where a cove gutter is required as part of a drainage system, a Type K gutter with a minimum width of twenty-four (24) inches shall be used (see Standard Drawing MCSD-104 in Appendix A).
16. Where roadside ditches are used for storm water conveyance and/or detention/retention, the minimum fore slope shall be 3:1 and the minimum back slope shall be 2:1 (see Standard Drawing MCSD-203 in Appendix A).
17. The Engineer shall submit as-built certification of storm water management systems in accordance with Section 8 of these standards.

12.3 Final Plat Submittal Requirements

The applicant shall be responsible for submitting the plat to the County Surveyor's Office to fulfill all applicable standards and regulations related to surveying. In order to receive approval from the Public Works Department to file the final plat of a subdivision, the following requirements shall be met. These submittal requirements are for conformance to the approved construction plans for any proposed improvements only:

1. Subdivision improvements have been completed in accordance with the conditions of approval, the approved construction plans and have been inspected and approved by Public Works.

If improvements will not be completed before filing the final plat, the following conditions shall be met:

1. Engineered plans for subdivision improvements (to include storm drainage report) have been reviewed and approved by Public Works; and,
2. The probable opinion of cost with twenty-five percent (25%) contingency has been reviewed and approved by Public Works (Public Works may require cost estimates from contractors as well to verify cost estimates); and,
3. A subdivision improvements security in the form of a letter of credit or cash bond with Missoula County listed as the beneficiary has been provided; and,
4. An executed copy of the Subdivision Improvements Agreement and Guarantee has been provided.

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SECTION 13. TRAFFIC IMPACT ANALYSIS

Traffic Impact Analyses, as described in this manual, are intended to determine the need for any improvements to the adjacent and nearby transportation system in order to maintain an acceptable level of service (LOS) and an acceptable level of safety, and to determine the appropriate access provisions for a proposed development. The following guidelines and requirements are intended to define when a Traffic Impact Analysis (TIA) is required and what information shall be presented.

13.1 When a Traffic Impact Analysis is Required

The need for a TIA and the required scope (see Sections 13.2 through 13.5) of the TIA is generally driven by the peak hour site generated trips based on the development size of a proposed land use (number of dwelling units for residential or gross floor area for other uses). Table 13.1 shows the TIA scope requirements for residential developments based on the development size and the adjacent street volume (ADT).

Table 13.1 TIA Scope Requirements for Residential Developments

Average Daily Traffic on Adjacent Street	Number of Residential Dwelling Units			
	Less than 39	40 - 199	200 – 500	501 or more
ADT < 500	Site Access Memo	TIA Level 1	TIA Level 2	TIA Level 3
500 < ADT < 2000	Site Access Memo	TIA Level 1	TIA Level 2	TIA Level 3
2000 < ADT < 4000	TIA Level 1	TIA Level 2	TIA Level 2	TIA Level 3
4000 < ADT	TIA Level 1	TIA Level 2	TIA Level 3	TIA Level 3

Table 13.2 shows the required scope of the TIA as related to commercial land use and estimated peak hour site generated trips.

Table 13.2 TIA Scope Requirements for Commercial Developments

Land Use*	≤ 100 Peak Hour Trips	≤ 500 Peak Hour Trips
	Level 2 TIA	Level 3 TIA
Shopping Center	6,000 sq ft	71,000 sq ft
Fast Food Restaurant	3,000 sq ft	NA
Gas Station with C-Store	7 fueling positions	NA
Bank	2,000 sq ft	11,000 sq ft
General Office Space	67,000 sq ft	376,000 sq ft
Medical/Dental Office	29,000 sq ft	164,000 sq ft
Research/Development Facility	71,000 sq ft	497,000 sq ft
Light Industrial/Warehouse	185,000 sq ft	464,000 sq ft
Manufacturing Plant	144,000 sq ft	657,000 sq ft

* Based on Gross Floor Area

13.2 Site Access Memorandum

For residential developments as identified in Table 13.1, a Site Access Memorandum (SAM) shall be required. The SAM shall be completed by a licensed professional engineer and is a basic one or two page document that primarily identifies and addresses traffic concerns relating to the access points of the proposed subdivision. A detailed list of items to be addressed in the SAM is provided in Appendix D.

13.3 TIA Level 1

For residential or commercial developments as identified in Table 13.1, a Level 1 TIA shall extend the study area beyond the development access points, typically to the closest existing or proposed off-site intersection or as directed by the County. A Level 1 TIA shall be completed by a licensed professional engineer and shall be presented in a more formal report. A detailed list of items to be addressed in the Level 1 TIA is provided in Appendix D.

13.4 TIA Level 2

For residential or commercial developments as identified in Tables 13.1 and 13.2, a Level 2 TIA shall extend the study area even further beyond the closest off-site intersection, typically to the closest off-site signalized intersection or as directed by the County. A Level 2 TIA shall be completed by a licensed professional engineer specializing in traffic or transportation planning or analysis. A detailed list of items to be addressed in the Level 2 TIA is provided in Appendix D.

13.5 TIA Level 3

For residential or commercial developments as identified in Tables 13.1 and 13.2, a Level 3 TIA shall address traffic analyses on a larger scale as directed by the County. A Level 3 TIA shall be completed by a licensed professional engineer specializing in traffic or transportation planning or analysis. A detailed list of items to be addressed in the Level 3 TIA is provided in Appendix D.

SECTION 14. DUST ABATEMENT

Any individual who wishes to apply a dust palliative on a County maintained road shall be required to obtain a permit from the County. Property owners abutting public rights-of-way may “piggy back” on the County’s annual bid, provided their Permit Application and Commitment Letter (see Appendix C) are received by the required dates. Permits received after the required date will be processed as an Individual Contractor Application (see Appendix C) and will not be included in the County’s annual bid. Permits are issued by the Public Works Department and are subject to the following conditions.

1. The method of application shall comply with guidelines established jointly by the County Health Department and the Public Works Department. Dust abatement palliatives must be approved by the Health Department prior to issuance of any permit. It is intended that the approval will be for the general application technique, equipment and material being used. The applicator must provide a Material Safety Data Sheet (MSDS) for all palliatives proposed for use to the Health Department. Additionally, the County may require that the applicator provide a chemical analysis of dust palliatives to insure that hazardous and deleterious substances are not applied on County roads.
2. Missoula County shall limit the application of dust control products on County maintained roads to the application of Calcium Chloride or Magnesium Chloride. The application of a biodegradable dust palliative will be considered on request. Used oil may not be used as a dust suppressant on any publicly owned road, street or alley, or within 200 yards of such roadways.
3. All Applicators must obtain a permit from the Department of Public Works. Permits may be issued between May 1 and September 15 of each year. After September 15, all roads will be subject to grading in preparation for winter maintenance. The permit must be applied for at least five (5) working days prior to the intent to apply a treatment to any section of county road. The permit is valid for one application of dust palliative and is valid for five (5) calendar days from the date of issue. No applicator shall apply a palliative to any portion of a county road without a permit.
4. It is the applicator’s responsibility to apply the dust palliative in a manner which minimizes the impact on adjacent property, natural resources and the traveling public. The applicator shall comply with all applicable federal, state and local legislation and regulations which apply. These include, but are not limited to, water quality, waste disposal and hazardous materials disposal requirements.
5. The permittee shall be responsible for any damage to public or private property caused by the application of the dust palliative. To ensure that this financial responsibility is met, the permittee shall provide a surety bond, liability insurance policy or deposit of cash escrow in the amount of \$1,000,000.00 at the Department of Public Works. Financial responsibility in the form of a liability insurance policy may be provided in lieu of a surety bond. The permittee shall furnish the Public Works Director with a certificate of insurance which is valid from the time of permit application through a three (3) month period from the time of palliative application. At the discretion of the Public Works Director, a surety bond may be required depending on the scope of permit work.

6. If the above conditions are not met, the Public Works Director may refuse to issue a permit or suspend a permit already issued. Any person aggrieved by a decision of the Public Works Director whether denying or suspending a permit may appeal such denial or suspension to the Board of County Commissioners who shall promptly hear and decide the matter.
7. Individuals who place a dust treatment on private roads or on non-maintained public rights-of-way are not required to obtain a permit from the County. However, they must comply with the rules and regulations set forth by the state and County Health Department.
8. The County reserves the right to maintain roads at any time road conditions deteriorate in the best interest of the traveling public even if such action will diminish or destroy the effect of a dust treatment.
9. The following guidelines have been developed by the County Department of Public Works and the County Health Department to assist individuals with the application of dust palliatives:
 - (a) Used oil MAY NOT be used as a dust suppressant on any publicly owned road, street or alley, or within two hundred (200) yards of such roadways.
 - (b) All individuals who intend to perform dust abatement on a Missoula County road must obtain a permit from the Missoula County Department of Public Works.
 - (c) In order to promote soil absorption and minimize puddling, the Applicator must apply the palliative specified on the permit within five (5) calendar days of permit receipt.
 - (d) The Applicator shall use equipment and practices which distribute the dust palliative evenly over the road surface.
 - (e) Dust palliatives shall not be applied when measurable precipitation is forecast at greater than thirty percent (30%) chance within the following twenty-four (24) hours by the National Weather Service.
 - (f) Applicators of dust palliatives shall not apply dust control materials in a location where they are likely to contaminate water sources. This includes streams, river, ponds, irrigation ditches and creeks. The possibility of contamination from both over-spray and run-off should be closely monitored.
 - (g) No oils shall be applied as dust palliatives above the intake dam in the Rattlesnake drainage. All material applied above the Rattlesnake intake dam must be approved by the Missoula City-County Health Department.
 - (h) The County reserves the right to restrict or ban the application of any material that the County determines may be deleterious to property, water, animal and plant life or that is a public nuisance.

SECTION 15. ADDRESSING

In accordance with MCA 14-7-2101(3)(a)&(b), Missoula County administers and maintains an addressing database in the interest and promotion of public safety. These standards are used to provide an organized and standard method for locating residential dwelling units and commercial structures to aid in e9-1-1 verification, emergency response and other non-emergency services.

These standards apply to all future and currently addressed structures and properties regardless of past history of permitting or addressing. Additional permits may be required in order to proceed with other activities on the subject property. It is the owner's responsibility to comply with all State and County rules and regulations including, but not limited to, Community and Planning Services (CAPS) and the Missoula City-County Health Department.

15.1 Office of Emergency Management (OEM) Requirements

An access easement may need to be named or re-named, and properties may need to be addressed or re-addressed if any of the following criteria are met:

1. If there are two (2) or more structures/dwellings and the access is greater than one hundred fifty feet (150) feet and the structures/dwellings cannot be readily seen from the main road.
2. A single addressed structure/dwelling currently exists and another address is needed due to a newly approved structure/dwelling.
3. Any situation as determined by the Office of Emergency that may cause a delay in emergency response time.

If any of the criteria above are met, see the sections below for instructions on Public and Private road naming on how to proceed.

15.2 Structure Addressing

All permits for addresses must begin at the Missoula County Public Works Department. Public Works staff will make the owner/applicant aware of any road naming or addressing issues as described in the OEM Requirements. Those actions will be necessary by the owner/applicant and will be required in order to complete the address application permitting process.

All dwelling units and commercial structures in Missoula County should be properly addressed. Structures subject to addressing are:

1. Dwelling unit
 - (a) A dwelling is defined as any structure, or portion thereof, that has facilities for sleeping, cooking and sanitation.
 - (b) Depending on the configuration, multiple unit numbers may be issued with a single main address number (duplexes/multiplexes)
2. Commercial Unit
 - (a) Depending on the configuration, multiple unit numbers may be issued with a single main address number

15.3 Public Right-of-Way Addressing (County-maintained and non-maintained)

All permits for addresses must begin at the Missoula County Public Works Department. Public Works staff will assist the applicant to determine if a proposed address is using a public right of way (either County-maintained or not) or a private access easement. Public Works staff will also make the owner/applicant aware of any road naming or addressing issues as described in the OEM Requirements. Those actions will be necessary by the owner/applicant and will be required in order to complete the address application permitting process.

The process of assigning an address in a public right-of-way is:

1. Approach review is necessary from Missoula County Public Works Engineering.
2. A fee will be assessed for the approach review.
3. After the engineering review is complete, the County assigns an address if the Office of Emergency Management criteria are satisfied (see **OEM requirements**).

15.4 Private Access Easement Addressing

All permits for addresses must begin at the Missoula County Public Works Department. Public Works staff will assist the applicant to determine if a proposed address is using a public right of way (either County-maintained or not) or a private access easement. Public Works staff will also make the owner/applicant aware of any road naming or addressing issues as described in the OEM Requirements. Those actions will be necessary by the owner/applicant and will be required in order to complete the address application permitting process.

The process of assigning an address in a private access easement is:

1. Approach review is not necessary from Missoula County Public Works Engineering.
2. No fee is assessed.
3. The County assigns an address if the Office of Emergency Management criteria are satisfied (see **OEM requirements**).

15.5 Address Permit Application Requirements

All address permits require:

1. An appropriate site plan drawing showing the location of the access point from the access easement that the site will be addressed from. This application can be found on, and applied for, from the Missoula County website.
2. If the person requesting a new address permit is not the current owner (in situations of transferring ownership for example), the applicant must provide evidence of pending ownership like a buy/sell agreement with the current owner.
3. If an address is needed for other items (irrigation well, electrical service, billboard, etc.) a utility address will be issued with a 'U' suffix identifier or other logical identifier at the discretion of the County. These types of addresses cannot be used as a dwelling address.

Section 16. Road Naming

A road name database is maintained for all roads within Missoula County. It is possible to reserve a name for later use and the reserved name will remain in the database for a period of one (1) year. If the road has not been constructed or the subdivision platted within that time frame, it may be removed from the database and become available for use by others. If the road name is within an approved preliminary subdivision, the one (1) year time period does not apply.

16.1 Private Access Easement Naming

New private access easements or existing private access easements that require naming are subject to the following:

1. All current owners using the access should come to an agreement on the new name of the easement and complete the Missoula County Road Naming Register form located on the Missoula County website.
2. If a property owner currently has an addressed structure/dwelling from the easement in question, *that owner is required to sign the form* confirming their approval of the new easement name.
3. Once the new road name has been approved by the County, all structures/dwellings will be given a new address using the new road name and new address range of the newly named easement. Applicants should understand that previous address numbers may change to fit the logical address range of the newly named easement. Address permits will be completed by Missoula County and be sent to the owners.
4. It is the responsibility of the applicant to obtain all required signatures and provide Missoula County a completed Missoula County Road Naming Form that includes names, addresses and signatures of all affected owners. The applicant will also sign the form in the appropriate locations.
5. If the owners cannot agree on a new road name, Missoula County will notify the owners in question and provide a comment period before assigning a road name of Missoula County's choice and re-addressing the structures/dwellings accordingly.

16.2 Public Right-of-Way Naming

Public rights-of-way to be named or re-named require a more public and thorough process.

1. When naming a new public right-of-way, the applicant must contact the Missoula County Clerk and Recorder to begin this process as they are responsible for verifying signatures and will facilitate public hearings required in these cases. Owners currently residing on, or who have begun the process of development either in the form of a well, septic, or a building permit on the public right-of-way in question will have one (1) vote on naming the right-of-way. If the same owner owns multiple affected properties, only one (1) vote is allowed. Applicants should understand that naming or re-naming a right-of-way may mean receiving an entirely new address number that is in logical sequence with the new

address range as assigned by the County. Address permits will be completed by Missoula County and be sent to the owners.

2. If the right-of-way is in a platted subdivision and has not been formally named or if it is an existing public right-of-way established by prescription, deed, petition or dedication:
 - (a) All current owners using the access should come to an agreement on the new name of the right-of-way and complete the Missoula County Road Naming Register form located on the Missoula County website.
 - (b) If a property owner currently has an addressed structure/dwelling from the right-of-way in question, *that owner is required to sign the form* confirming their approval of the new right-of-way name.
 - (c) If the owners cannot agree on a new name, Missoula County will assign one.
 - (d) A public hearing will be scheduled detailing the cause of the re-naming.
 - (e) Once the new road name has been approved by the County, all structures/dwellings will be given a new address and new address range of the newly named right-of-way.
 - (f) Upon approval from the above public hearing, a resolution will be created to change the road name

16.3 Right-of-Way and Private Access Easement Naming Criteria

For all public right-of-way or private access easement names proposed in Missoula County, the following standards shall apply. Missoula County has the final approval of the name based on the following criteria:

1. A road name suffix is required
 - a. Road name suffixes shall be from approved postal standard list only
2. A road name shall not be greater than twelve (12) characters including spaces, but excluding the suffix
3. No punctuation of any kind
4. No public figure proper names
5. No copyrighted material
6. A main street name cannot be similar to an existing name regardless of street name suffix (Elk Drive, Elk Way, Elk Street, Elk Avenue, etc.)
7. Cannot be a homonym to an existing name (Castle, Kassel)
8. No abbreviations of any kind
9. No offensive material
10. No duplicates

16.4 Road Signage

With the exception of newly approved subdivisions, Missoula County Public Works will be responsible for placing road name signs at the appropriate location(s) for all roads within Missoula County and outside Missoula City limits. Road signs are installed, maintained and replaced (if necessary) by the Missoula County Public Works Department subject to the following standards.

1. All road signs – public or private – are white lettering on green background meeting current MUTCD standards. No custom sizes, fonts or materials are provided by the County and custom signs shall not be substituted by the residents.
2. Sign placement can depend on a variety of factors (weather, ownership, right-of-way location, etc.) and may cause delays in the installation time.
3. Maintenance of all guide signs will be at the discretion of the Public Works Department. Signs that become a nuisance will not be replaced or maintained by the Public Works Department.

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SECTION 17. WEIGHT RESTRICTIONS ON COUNTY ROADS AND BRIDGES

In the interest of preserving the integrity of a County road or bridge and pursuant to Sections 7-14-21 and 7-14-22 MCA, the Commissioners authorize the County to post appropriate temporary or permanent weight restrictions on any road or bridge under the County's jurisdiction. Enforcement of these restrictions is conducted by the Missoula County Sheriff's Department and the Montana Department of Transportation – Motor Carrier Services Division with penalties as prescribed in Sections 61-10-141 through 61-10-147 MCA.

It is important for the trucking industry and suppliers of goods and products to comply with load restrictions. The trucking industry should also give positive instruction to their drivers relative to the load limits. Solicitation is made to all suppliers of goods and products to do the same. If compliance with less restrictive limits is not found, more restrictive limits may be imposed.

County personnel will observe truck movement on restricted routes or bridges and report any violations of either speed or load limitations to proper authorities. Excessive violations may lead to the implementation of more restrictive limits.

17.1 Road Restrictions

Seasonal load restrictions are often necessary to prevent extensive surface damage to paved or gravel roads. When snow, ice and frozen ground thaw in late winter and early spring, some road beds and base gravel become saturated and their ability to carry truck loads is reduced. The potential for severe distress during the freeze-thaw cycles is high, and older roadways are even more susceptible to frost action than roads constructed to today's standards. To protect Missoula County's investment and to keep roads serviceable for the public, load restrictions must be placed on vulnerable roads.

The County will place load restrictions for single axle and tandem axle weights based upon pounds per inch width of tire limits on roads vulnerable to distress. The County will make a conscientious effort to place load restrictions only when necessary and lift the limits as soon as possible. Hay grinders and their towing units are exempt from the restrictions of this policy.

In the order of severity, the following types of restrictions to be imposed on County roads are:

1. Where the road surfaces for the entire route are adequate to carry legal loads, the County may place a reduced speed limit on those sections that show distress. If this limitation does not prevent further distress or damage, then more restrictive limitations may be imposed.
2. Where the road surface is susceptible to damage from heavy loads, load limits will be imposed for the entire section of road. The limitation will be eight (8) tons single axle and sixteen (16) ton tandem axle (400 pounds per inch width of tire) and a reduced speed limit may be placed through distressed areas. If the road continues to show signs of uncontrollable distress under this limitation, the County will impose lower or more restrictive limits.

3. Where the County determines the road surface is particularly susceptible to extensive damage from heavy loads, or where surface damage cannot be controlled by less restrictive limits, then the limitation will be seven (7) tons single axle and fourteen (14) tons tandem axle (350 pounds per inch width of tire) and a reduced speed limit may be placed through distressed areas.
4. The County recognizes the need for essential services, such as the supply of propane or heating oil and the pick-up of solid waste. Overweight permits with identified restrictions may be issued to these service providers by Missoula County that will allow service to continue.

17.2 Bridge Restrictions

Permanent load restrictions may be necessary for County bridges that are not capable of carrying legal highway loads, whether as a result of older design criteria or structural member deterioration. Bridges with a span greater than twenty (20) feet are inspected by the Montana Department of Transportation (MDT) in accordance with Federal Highway Administration (FHWA) National Bridge Inventory (NBI) regulations. If structural deficiencies are discovered during those inspections, or if requested at any other time by the County, MDT may analyze the structure to determine if a weight restriction is necessary. For all other structures in the county, bi-annual inspections are conducted by County personnel and capacity analysis may be conducted by the County or by private consultants.

If it is determined that a posted weight restriction is necessary, the County will post the restriction at the Inventory Rating. The Inventory Rating is the limit at which repeated loads may safely cross the structure without causing damage. The Operating Rating is the limit where larger loads may cross the structure at very infrequent intervals without causing damage and is the governing factor for the issuance of overweight permits as related to County bridges.

SECTION 18. SEEDING AND WEED MANAGEMENT

To comply with the Montana County Weed Control Act, Section 7-22-2152 MCA, the Missoula County Weed District and the Missoula County Public Works Department require any person desiring to construct a subdivision or to perform an excavation, cut into, or in any way disturb the existing vegetation on any public right-of-way, easement, road, street or park subject to the County's control shall develop a revegetation plan that will reestablish beneficial vegetation in the disturbed area. Successful revegetation of a disturbed site depends on matching site characteristics with species that are well adapted to those site characteristics. The revegetation plan is subject to the approval of Missoula County Weed District and the approved plan constitutes a binding agreement between the County and the responsible person or agency. The Weed District will not sign off on a plan without the signature of the responsible party. The Weed District will accept or require modification of a revegetation plan within ten (10) working days of receipt of the plan.

18.1 Revegetation Plan for Disturbed Sites

An application for the Revegetation Plan for Disturbed Sites is available from the Missoula County Weed District and is provided in Appendix C. Before an application can be reviewed, all sections must be completed, and the following discussion will assist the applicant with Section A of the permit.

1. If present, the topsoil on a site needs to be salvaged separately from subsoil prior to beginning construction and should be wind rowed rather than piled. If the project is to last more than a growing season, the topsoil should be seeded with an annual cover to suppress weed growth. After construction, compacted areas should be ripped and topsoil redistributed over areas to be revegetated. An ideal seed bed is topsoil six inches deep and lightly compacted until an average person leaves a foot print one-quarter ($\frac{1}{4}$) inch to one-half ($\frac{1}{2}$) inch deep in the soil.
2. Seed species and seeding rates can be determined by identifying the existing vegetation and referring to the Missoula County Integrated Plant Management Fact Sheet No. 10 or the Revegetation Guidelines for Western Montana: Considering Invasive Weeds, both available from the Missoula County Weed District. Seed rates should be expressed as pounds of pure live seed per acre. Certified noxious weed seed free seed should always be used to ensure quality seed is being purchased.
3. Drill seeding is the preferred and most successful method of seed placement. Broadcast seeding is quick and simple but requires doubling the seed rate to compensate for less than optimal seed placement and the soil surface should be roughed up prior to and just after broadcast seeding. Hydro-seeding and hydro-mulching are accepted methods of seed placement, but the advantages and disadvantages should be discussed with the hydro-seeding contractor.
4. The time of seeding is as critical as any component of the revegetation process. The recommendation for dry land seeding in western Montana is a dormant Fall seeding, after October 15 and before freeze up. This timing allows new seedlings to use all available Spring moisture and become well established before the Summer drought.

5. Fertilization is normally not necessary under dry land conditions. Some non-native species respond to fertilization while native species generally are adapted to soils with low fertility. If fertilizer is used a soil test is needed to determine the fertilizer rate.
6. Weed control is critical to the success of any revegetation project. If weeds are present on a site to be disturbed a weed control program prior to disturbance will greatly enhance the probability of success of a revegetation project. Annual weed pressure will interfere with the initial establishment of beneficial vegetation and must be addressed in any revegetation plan. Many beneficial species take more than one year to become established necessitating a weed management plan that controls weeds for at least two years.

APPENDIX A

STANDARD DRAWINGS

Curbs, Sidewalks and Driveways

MCSD-100	BARRIER CURB AND GUTTER
MCSD-101	ROLLED CURB AND GUTTER
MCSD-102	LAYDOWN CURB FOR BARRIER CURB
MCSD-103	RESERVED
MCSD-104	COVE GUTTER
MCSD-105	DOUBLE GUTTER DETAIL FOR STREET INTERSECTION
MCSD-106	CONCRETE SIDEWALK SECTION
MCSD-107	TYPE "F" RAMP
MCSD-108	SPECIAL ADA ADAPTATIONS TO EXISTING CURBS
MCSD-109	TYPE "A" RAMP FOR BOULEVARD SIDEWALKS WITH BULBOUTS
MCSD-110	DETECTABLE WARNINGS
MCSD-111	RESERVED
MCSD-155	CLASS I TRAIL STANDARD
MCSD-156	CLASS II NEIGHBORHOOD CONNECTOR
MCSD-157	CLASS III LOW IMPACT TRAIL

Streets

MCSD-200	CUL-DE-SAC AND TURNAROUND STANDARD
MCSD-201	RESERVED
MCSD-202	APPROACH STANDARDS
MCSD-203	LOCAL ASPHALT STREET
MCSD-204	LOCAL ASPHALT STREET WITH CURB AND GUTTER
MCSD-205	COMMERCIAL STREET
MCSD-206	COMMERCIAL STREET WITH CURB AND GUTTER
MCSD-207	MINOR COLLECTOR AND COLLECTOR STREETS
MCSC-208	MINOR COLLECTOR AND COLLECTOR STREETS WITH CURB AND GUTTER

APPENDIX A

STANDARD DRAWINGS (continued)

MCSD-209	STANDARD GRAVEL SECTION
MCSD-210	EMERGENCY SECONDARY ACCESS ROAD SECTION

Water and Sanitary Sewer

MCSD-300	MANHOLE AND DUST PAN SPECIFICATIONS
MCSD-301	MANHOLE AND WATER VALVE ADJUSTMENT DETAIL
MCSD-302	CONCRETE MANHOLE PAD
MCSD-303	WATER MAIN THRUST BLOCKING
MCSD-304	HYDRANT LOCATIONS

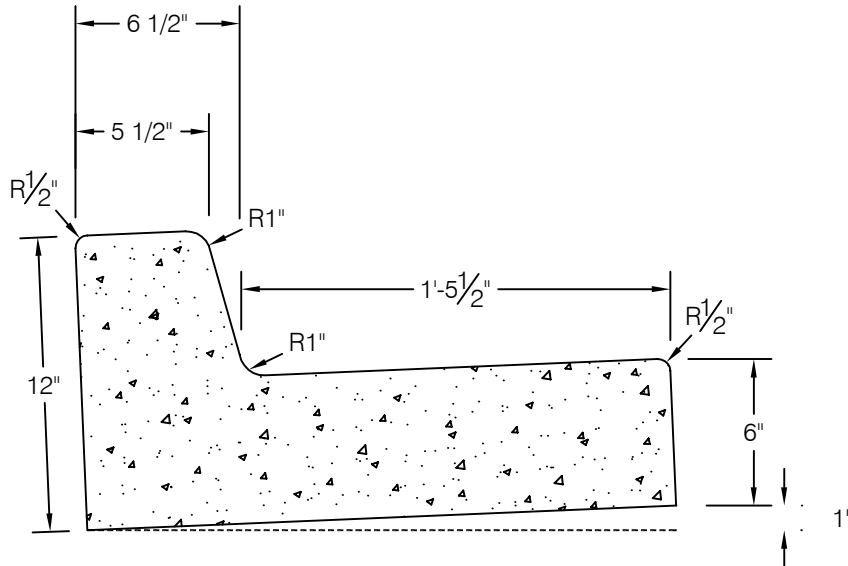
Miscellaneous

MCSD-401	TRENCH DETAIL
MCSD-402	SINGLE MAILBOX LOCATION AND MOUNTING HEIGHT
MCSD-403	NEIGHBORHOOD OR GROUP MAILBOX INSTALLATION
MCSD-405	SIGN INSTALLATION DETAIL
MCSD-405_2	SIGN INSTALLATION SPECIFICATION NOTES
MCSD-406	SIGN LOCATION AT INTERSECTIONS
MCSD-408	VISIBILITY OBSTRUCTION TRIANGLE
MCSD-408_2	INTERSECTION SIGHT DISTANCE TABLES
MCSD-410	TEMPORARY GRAVEL CONSTRUCTION ENTRANCE

Storm Drainage

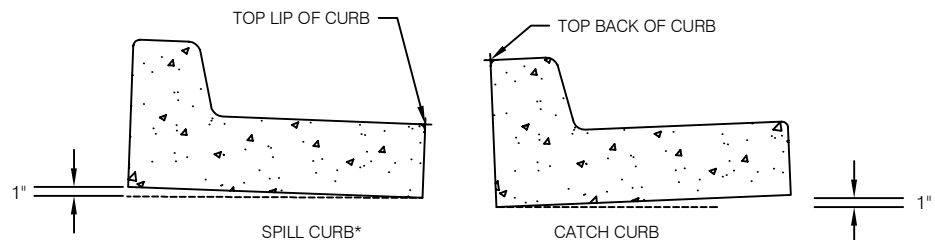
MCSD-600	STANDARD 8' PRECAST SUMP
MCSD-601	DRAINAGE SUMP
MCSD-602	SILT FENCE INSTALLATION
MCSD-603	PRE-PAVING GRAVEL CURB INTAKE FILTER
MCSD-604	POST-PAVING GRAVEL CURB INTAKE FILTER
MCSD-605	STRAW BALE CHECK DAMS
MCSD-606	STRAW WATTLE CHECK DAMS

TYPICAL BARRIER TYPE F CURB/GUTTER SECTION



1. CONTRACTION JOINTS SHALL BE PLACED EVERY 10' AND SHALL BE 3/4" DEEP.
2. EXPANSION JOINTS OF 1/2" MASTIC MATERIAL SHALL BE PLACED AT THE FOLLOWING LOCATIONS:
 - 2.1. P.C.s AND P.T.s OF CURVES.
 - 2.2. GRADE BREAKS.
 - 2.3. 4' ON EITHER SIDE OF A DRAINAGE STRUCTURE.
 - 2.4. AT OTHER LOCATIONS AS SPECIFIED BY COUNTY ENGINEER.
 - 2.5. EXPANSION JOINTS MAY BE ELIMINATED FOR EXTRUDED CURB AT COUNTY ENGINEER'S DISCRETION.
3. NO CURB SHALL BE PLACED WITHOUT A FINAL INSPECTION BY COUNTY ENGINEER TO INCLUDE FORMS, CURB MACHINE, AND STRING LINE.
4. CONSTRUCTION MATERIALS AND PROCEDURES SHALL CONFORM TO EXISTING COUNTY AND STATE STANDARD SPECIFICATIONS FOR M-4000 CONCRETE AND MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS SECTIONS 2528 AND 3310.

* DESIGN NOTE:
WHEN DESIGNING "SPILL
CURB" ROTATE CURB AT
TOP LIP OF CURB HINGE
POINT, NOT TOP BACK OF
CURB.



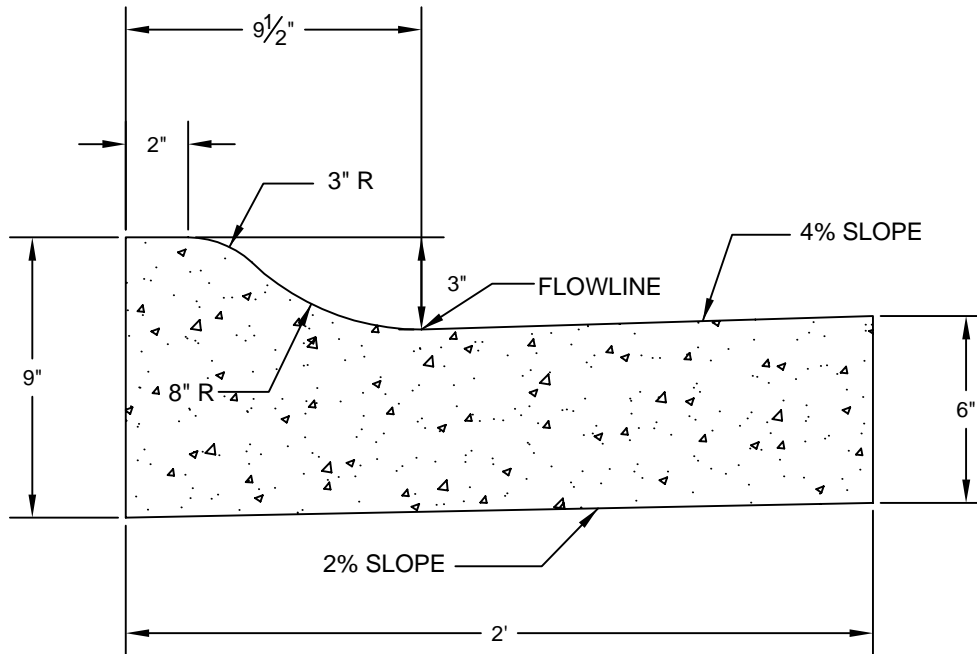
APPROVED BY: TRE DATE 01/12/2010
REVISION NO. DRAWN BY: MG




DEPARTMENT OF PUBLIC WORKS
MCSD-#100
TYPICAL BARRIER TYPE F CURB AND GUTTER

PAGE
1 OF 1

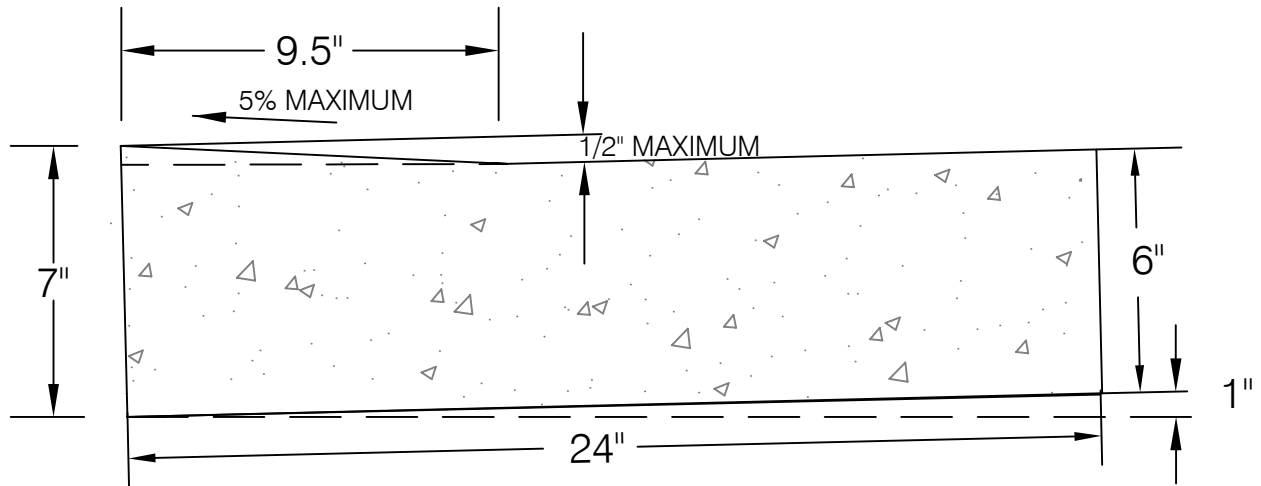
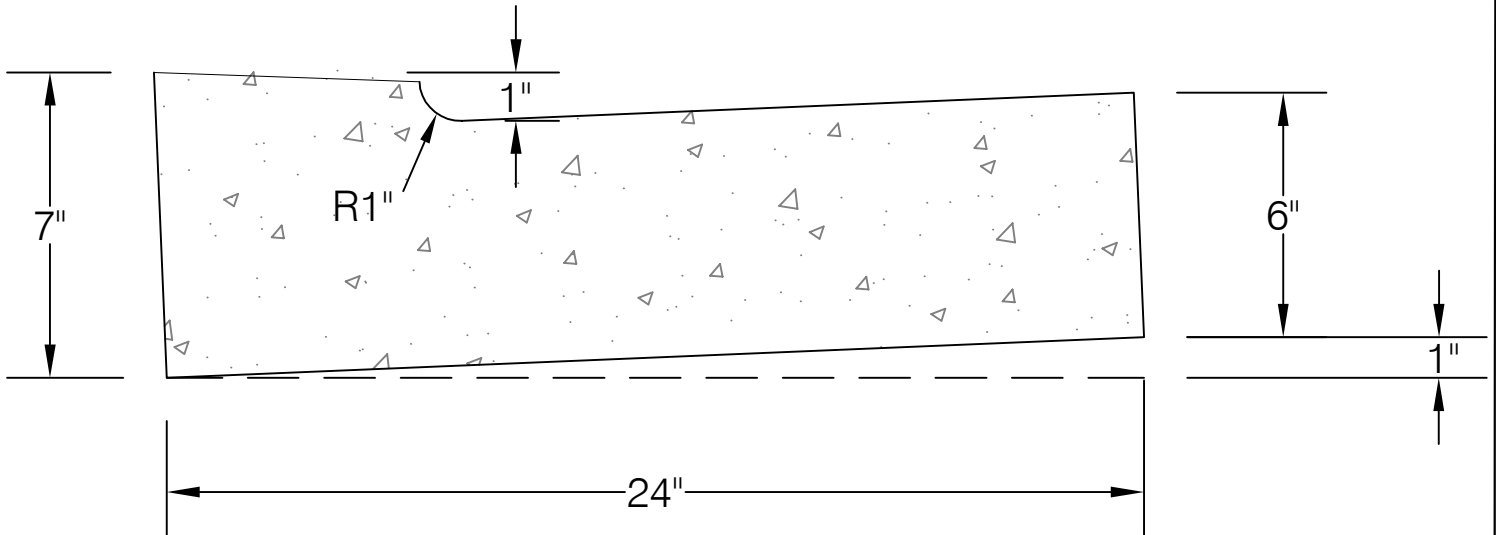
CONCRETE ROLLED CURB & GUTTER



1. CONTRACTION JOINTS SHALL BE PLACED EVERY 10' AND SHALL BE 3/4" DEEP.
2. EXPANSION JOINTS OF 1/2" MASTIC MATERIAL SHALL BE PLACED AT THE FOLLOWING LOCATIONS:
 - 2.1. P.C.s AND P.T.s OF CURVES
 - 2.2. GRADE BREAKS.
 - 2.3. 4' ON EITHER SIDE OF A DRAINAGE STRUCTURE.
 - 2.4. AT OTHER LOCATIONS AS SPECIFIED BY COUNTY ENGINEER.
 - 2.5. EXPANSION JOINTS MAY BE ELIMINATED FOR EXTRUDED CURB AT COUNTY ENGINEERS' DISCRETION
3. CONSTRUCTION MATERIALS AND PROCEDURES SHALL CONFORM TO EXISTING COUNTY AND STATE STANDARD SPECIFICATIONS FOR M-4000 CONCRETE AND MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS SECTIONS 2528 AND 3310
4. ROLLED CURB AND GUTTER MAY ONLY BE USED IN RESIDENTIAL SUBDIVISIONS AND ONLY WITH WRITTEN APPROVAL OF THE PUBLIC WORKS DIRECTOR.
5. PAVE 1/8" TO 1/4" ABOVE GUTTER LIP.

APPROVED BY: TRE	DATE 01/12/2010		DEPARTMENT OF PUBLIC WORKS	PAGE
REVISION NO.	DRAWN BY: GAL		MCSD-#101	1 OF 1
			CONCRETE ROLLED CURB & GUTTER	

TYPICAL DRIVEWAY LAYDOWN FOR BARRIER TYPE CURB



STANDARD HANDICAP RAMP LAYDOWN

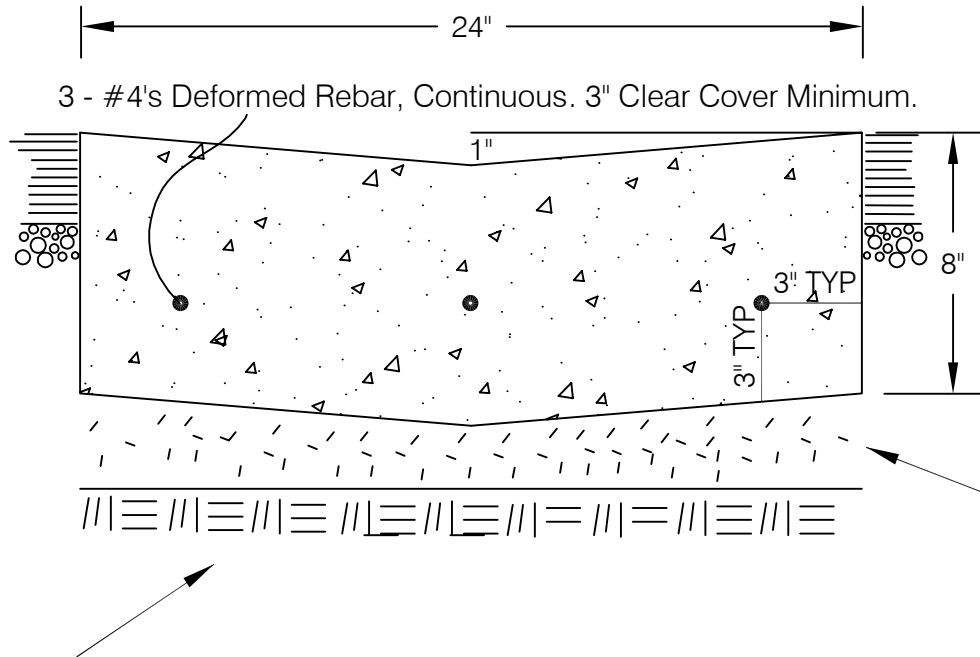
APPROVED BY: TRE DATE 01/12/2010
REVISION NO. DRAWN BY: MG



DEPARTMENT OF PUBLIC WORKS
MCSD-#102
TYPICAL LAYDOWN FOR BARRIER CURB

PAGE
1 OF 1

2' COVE GUTTER



NOTE:

- SUBGRADE COMPACTION SHALL BE AT 95% DENSITY PER ASTM D-698 OR AASHTO T-99.
- EXPANSION JOINTS OF 1/2" MASTIC MATERIAL SHALL BE PLACED AT THE FOLLOWING LOCATIONS: P.C.'S AND P.T.'S OF CURVES, GRADEBREAKS, CURB TURNS AT CORNERS AND FOUR FEET EACH SIDE OF DRAINAGE STRUCTURES.
- CONTRACTION JOINTS SHALL BE PLACED AT EVERY TEN FEET OF CURB LENGTH AND SHALL HAVE A TROWEL DEPTH OF NOT LESS THAN 3/4 OF AN INCH.
- NO CURB AND GUTTER SHALL BE PLACED WITHOUT A FINAL INSPECTION BY A COUNTY ENGINEER, TO INCLUDE FORMS, CURB MACHINE, AND STRING LINE.
- CONSTRUCTION MATERIALS AND PROCEDURES SHALL CONFORM TO MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS.

APPROVED BY: TRE DATE 01/12/2010
REVISION NO. DRAWN BY: MG

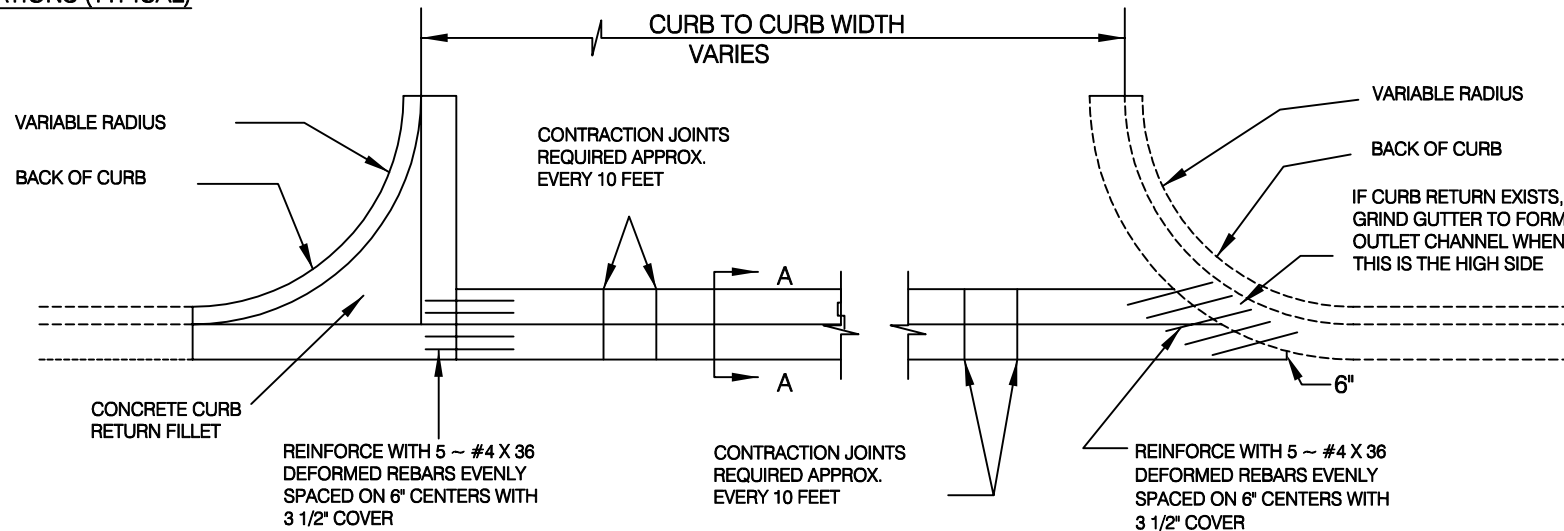


DEPARTMENT OF PUBLIC WORKS
MCSD-#104
TYPICAL COVE GUTTER

PAGE
1 OF 1

**CURB RETURN FILLET REQUIRED
FOR NEW CURB AND GUTTER
INSTALLATIONS (TYPICAL)**

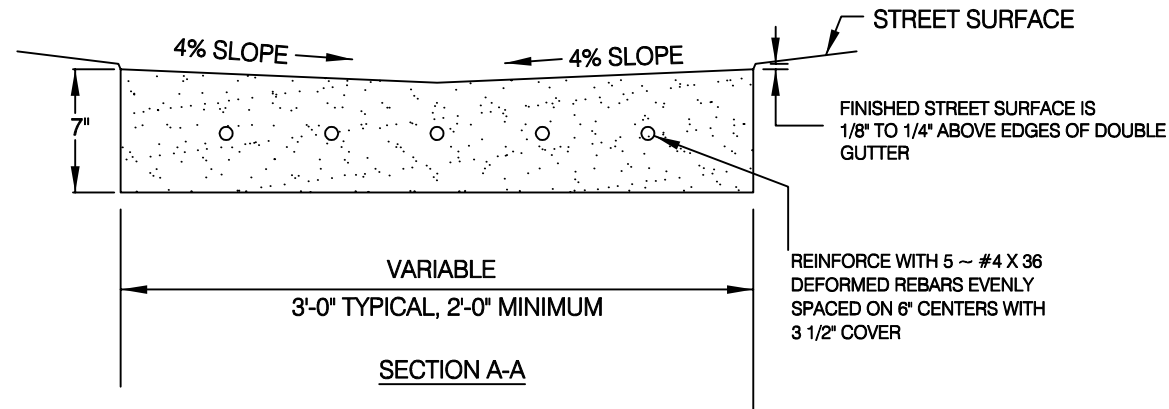
**EXISTING CURB AND GUTTER
INSTALLATION WITHOUT CURB
RETURN FILLET**



PLAN

NOTES:

1. THE WIDTH WITH PROPORTIONAL INVERT MAY VARY TO SATISFY THE DESIGN REQUIREMENTS OF INDIVIDUAL APPLICATIONS.
2. INSTALL REINFORCEMENT AT ALL CONSTRUCTION JOINTS.
3. CONTRACTION JOINTS ARE 1/8" MIN. AND 3/8" MAX. IN WIDTH. FORM JOINTS BY SAWING OR SCORING TO A MIN. DEPTH OF 1". FORM SCORED JOINTS BY A TOOL WHICH WILL LEAVE ROUNDED CORNERS AND DESTROY AGGREGATE INTERLOCK TO A MIN. DEPTH OF 1".



SECTION A-A

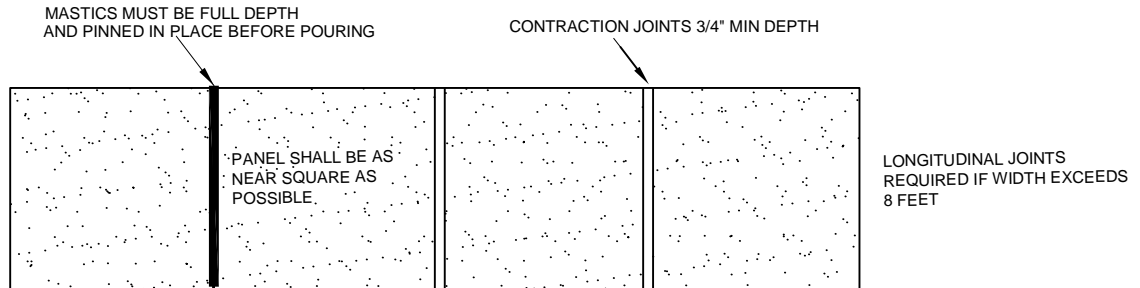
APPROVED BY: **TRE** DATE: **01/12/2010**
REVISION NO. DRAWN BY: **MG**



DEPARTMENT OF PUBLIC WORKS
MCSD-#105
DOUBLE GUTTER DETAIL FOR STREET INTERSECTION

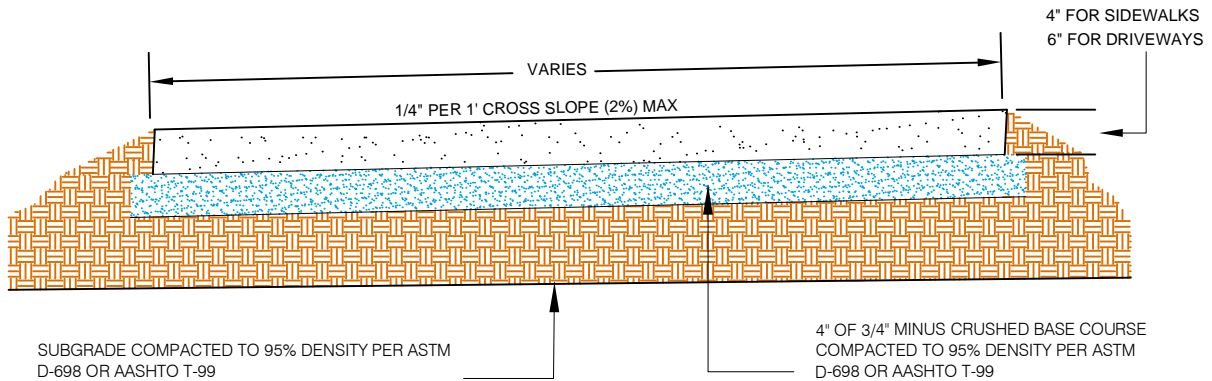
PAGE
1 OF 1

TYPICAL 4" SIDEWALK AND TYPICAL 6" DRIVEWAY SECTION




EXPANSION JOINTS NOT REQUIRED BETWEEN CURB AND SIDEWALK

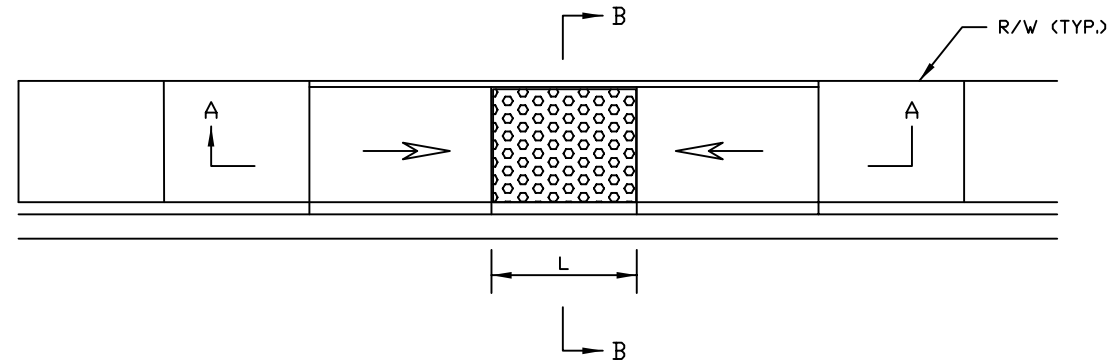
MINIMUM SIDEWALK WIDTH 5' FOR RESIDENTIAL, 7' FOR ARTERIAL AND COLLECTORS



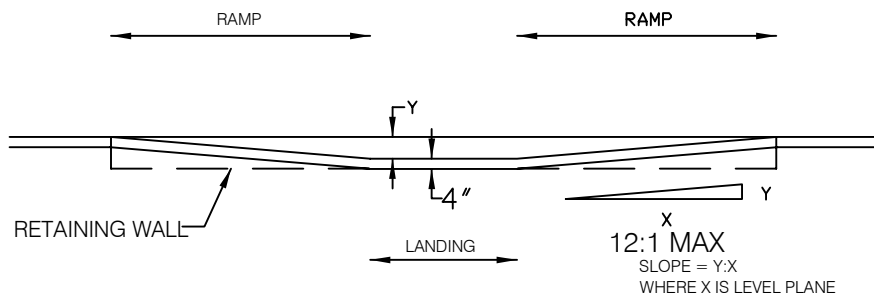
1. CONTRACTION JOINTS SHALL BE SPACED SO AS TO FORM AS NEAR SQUARE PANEL AS POSSIBLE, NO SINGLE PANEL SHALL EXCEED 8' ON ANY SIDE. CONTRACTION JOINTS SHALL BE A MINIMUM OF 3/4" DEEP.
2. EXPANSION JOINTS OF 1/2" THICK MASTIC MATERIAL SHALL BE PLACED AT THE FOLLOWING LOCATIONS:
 - 2:1 EVERY 50 FEET OF UNINTERRUPTED SIDEWALK.
 - 2:2 P.C.'S AND P.T.'S OF CURVES.
 - 2:3 GRADE BREAKS.
 - 2:4 AT DRIVEWAYS: 6" WIDE MASTIC MUST BE INSTALLED AT THE TOP OF THE TRANSITION AND MUST BE PINNED IN PLACE BEFORE POURING.
 - 2:5 AT OTHER LOCATIONS AS SPECIFIED BY ENGINEER.
 - 2:6 ALL EXPANSION JOINTS MUST BE BELOW TOP SURFACE OF SIDEWALK.
3. EXPANSION JOINTS MUST BE FULL DEPTH AND PINNED IN PLACE BEFORE THE FORMS WILL BE APPROVED.
4. NO SIDEWALK SHALL BE PLACED WITHOUT A FINAL FORM INSPECTION BY THE ENGINEER.
5. CONSTRUCTION MATERIALS AND PROCEDURES SHALL CONFORM TO EXISTING COUNTY AND STATE STANDARD SPECIFICATIONS.

APPROVED BY: TRE	DATE	01/12/2010		DEPARTMENT OF PUBLIC WORKS MCSD-#106 TYPICAL SIDEWALK SECTION	PAGE 1 OF 1
REVISION NO.	DRAWN BY: MG				

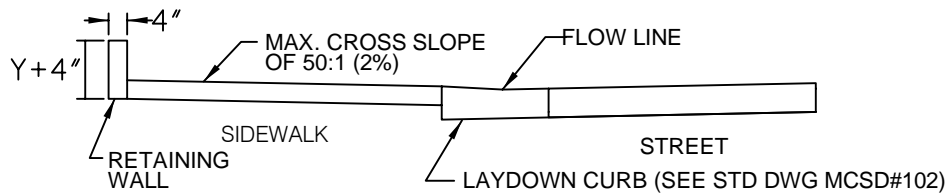
PARALLEL PUBLIC SIDEWALK CURB RAMP



PARALLEL PUBLIC SIDEWALK CURB RAMP

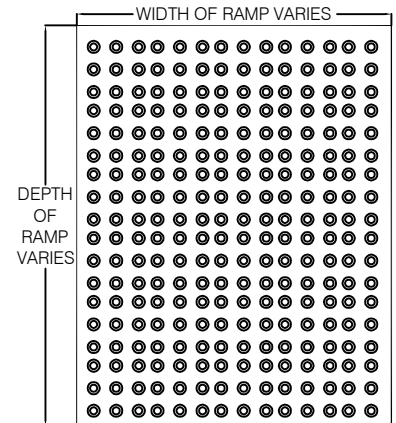


SECTION A-A



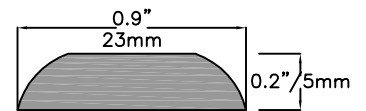
SECTION B-B

DETECTABLE WARNING USE WHEN SPECIFIED



DETECTABLE WARNING

1. THE DETECTABLE WARNING SHALL EXTEND THE FULL WIDTH AND DEPTH OF THE CURB RAMP (PER ADAAG 4.7.7) AND SHALL BE A CONTRASTING COLOR AND MEET THE CONFIGURATION AND DIMENSION SHOWN (PER ADAAG 4.29.2).
2. DETECTABLE WARNINGS SHALL CONSIST OF CAST IN PLACE HDPE.
3. REFER TO MCSD #110 & #110B



TRUNCATED DOME

1. THE SURFACE OF THE PUBLIC SIDEWALK RAMP TO CONTRAST VISUALLY WITH THE ADJOINING PUBLIC SIDEWALK SURFACES. THIS CAN BE OBTAINED BY USE OF CAST IN PLACE TRUNCATED DOMES.
2. WHERE EXISTING SITE DEVELOPMENT CONDITIONS PROHIBIT THE STRICT AND FULL COMPLIANCE OF ALL ADA CRITERIA, PROVIDE ACCESSIBILITY TO THE MAXIMUM EXTENT FEASIBLE AS APPROVED BY MISSOULA COUNTY ENGINEER.

APPROVED BY: TRE DATE 01/12/2010
REVISION NO. DRAWN BY: MG

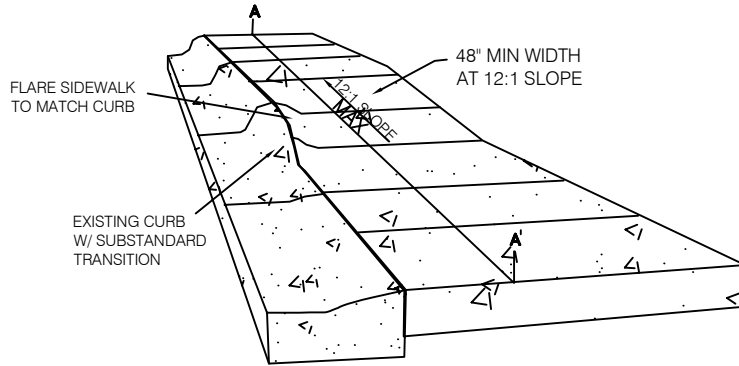


DEPARTMENT OF PUBLIC WORKS
MCSD-#107
TYPE "F" RAMP

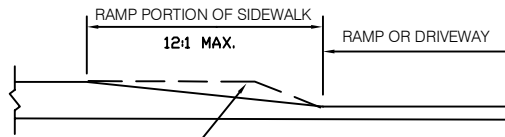
PAGE
1 OF 1

SPECIAL ADAPTATION TO EXISTING CURB OPENINGS

TO BE USED ONLY WHEN EXISTING CURB TRANSITIONS FOR DRIVEWAYS AND ACCESS RAMPS DO NOT MEET ADA STANDARDS FOR LENGTH

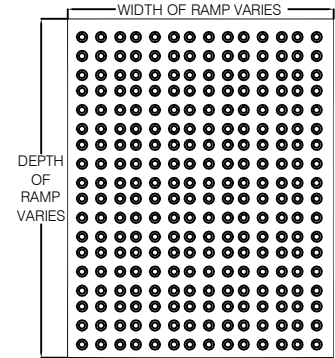


TYPICAL DRIVEWAY WITH SUBSTANDARD CURB TRANSITIONS



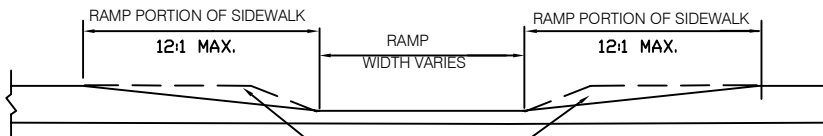
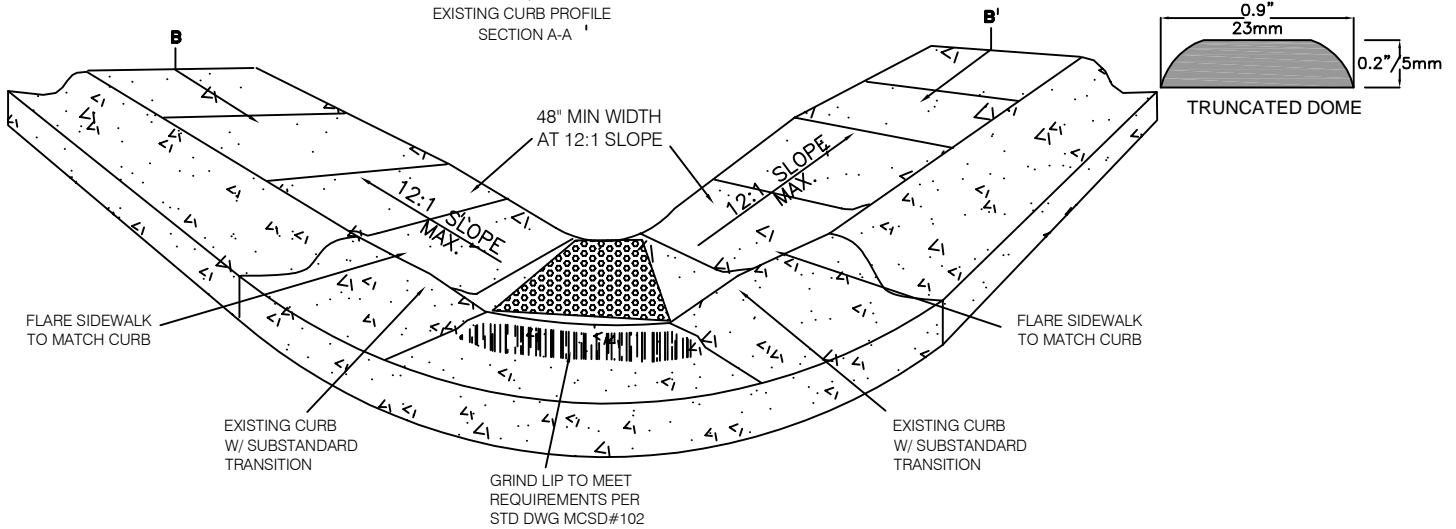
EXISTING CURB PROFILE SECTION A-A

DETECTABLE WARNING
USE WHEN SPECIFIED



DETECTABLE WARNING

1. THE DETECTABLE WARNING SHALL EXTEND THE FULL WIDTH AND DEPTH OF THE CURB RAMP (PER ADAAG 4.7.7) AND SHALL BE A CONTRASTING COLOR AND MEET THE CONFIGURATION AND DIMENSION SHOWN (PER ADAAG 4.29.2).
2. DETECTABLE WARNINGS SHALL CONSIST OF CAST IN PLACE HDPE.
3. REFER TO MCSD #110 & #110B.



EXISTING CURB PROFILE SECTION B-B

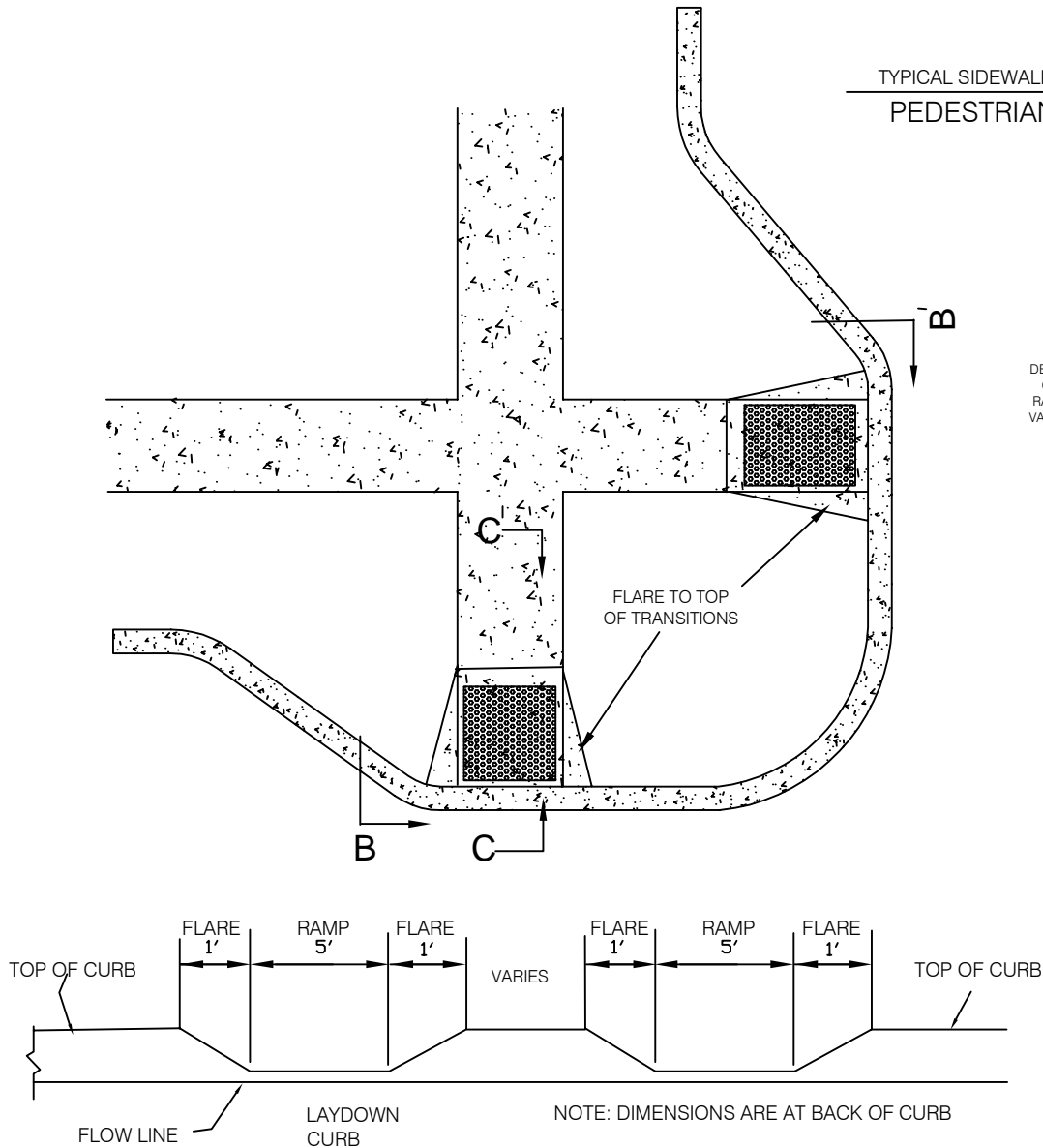
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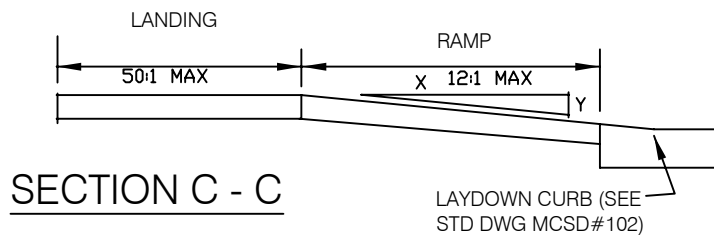
DEPARTMENT OF PUBLIC WORKS
MCSD-#108
SPECIAL ADA ADAPTATIONS TO EXISTING CURBS

PAGE
1 OF 1

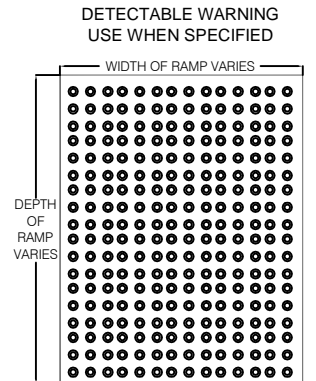
TYPICAL SIDEWALK CURB RAMPS FOR PEDESTRIAN BULB OUTS



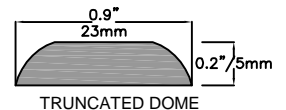
SECTION B-B



SECTION C - C



1. THE DETECTABLE WARNING SHALL EXTEND THE FULL WIDTH AND DEPTH OF THE CURB RAMP (*PER ADAAG 4.7.7*) AND SHALL BE A CONTRASTING COLOR AND MEET THE CONFIGURATION AND DIMENSION SHOWN (*PER ADAAG 4.29.2*).
2. DETECTABLE WARNINGS SHALL CONSIST OF CAST IN PLACE HDPE.
3. REFER TO MCSD #110 & 110B.



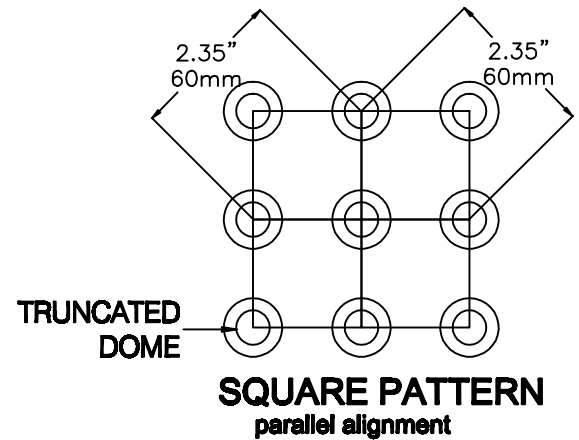
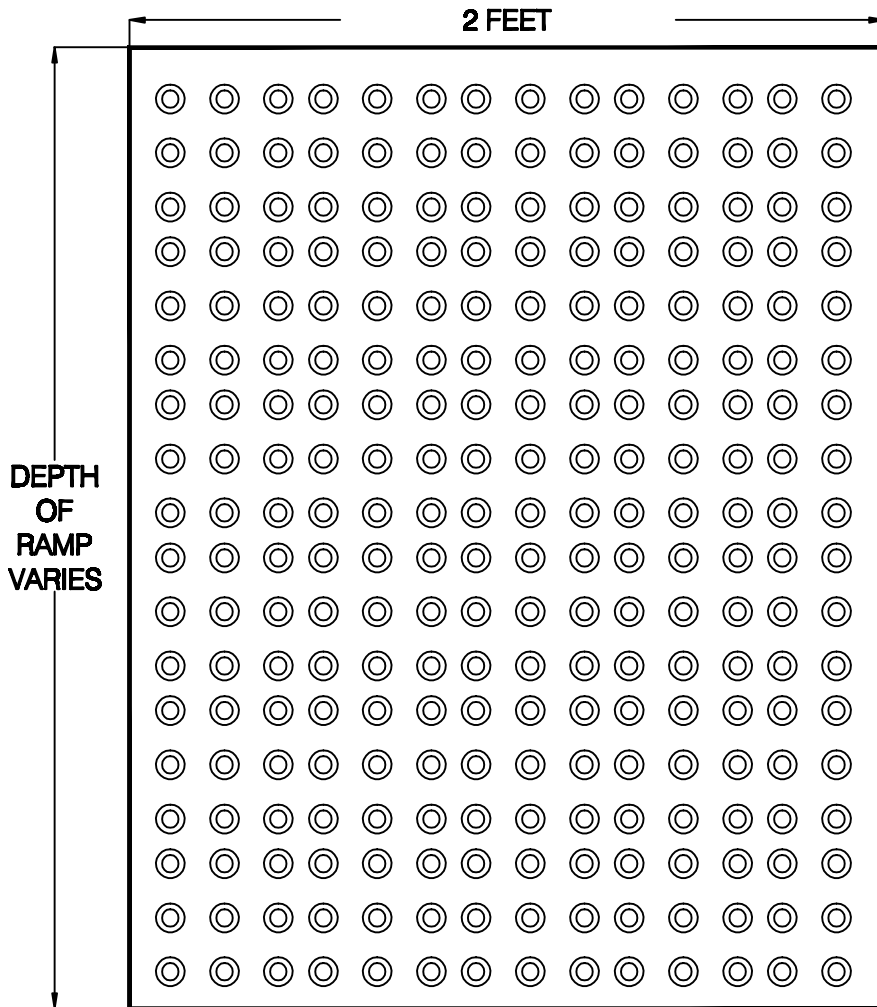
1. THE SURFACE OF THE PUBLIC SIDEWALK RAMP TO CONTRAST VISUALLY WITH THE ADJOINING PUBLIC SIDEWALK SURFACES. THIS CAN BE OBTAINED BY USE OF CAST IN PLACE TRUNCATED DOMES.
2. WHERE EXISTING SITE DEVELOPMENT CONDITIONS PROHIBIT THE STRICT AND FULL COMPLIANCE OF ALL ADA CRITERIA, PROVIDE ACCESSIBILITY TO THE MAXIMUM EXTENT FEASIBLE AS APPROVED BY MISSOULA COUNTY ENGINEER.

APPROVED BY: TRE DATE 01/12/2010
REVISION NO. DRAWN BY: MG



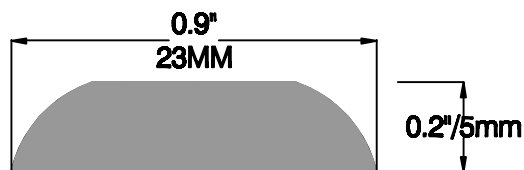
DEPARTMENT OF PUBLIC WORKS
MCSD-#109
TYPE "A" RAMP

PAGE
1 OF 1



DETECTABLE WARNING

1. THE DETECTABLE WARNING SHALL EXTEND THE FULL WIDTH AND DEPTH OF THE CURB RAMP (PER ADAAG 4.7.7) AND SHALL BE A CONTRASTING COLOR AND MEET THE CONFIGURATION AND DIMENSION SHOWN (PER ADAAG 4.29.2).
2. DETECTABLE WARNINGS SHALL CONSIST OF CAST IN PLACE HDPE.



TRUNCATED DOME

APPROVED BY: TRE DATE 01/12/2010

REVISION NO. DRAWN BY:

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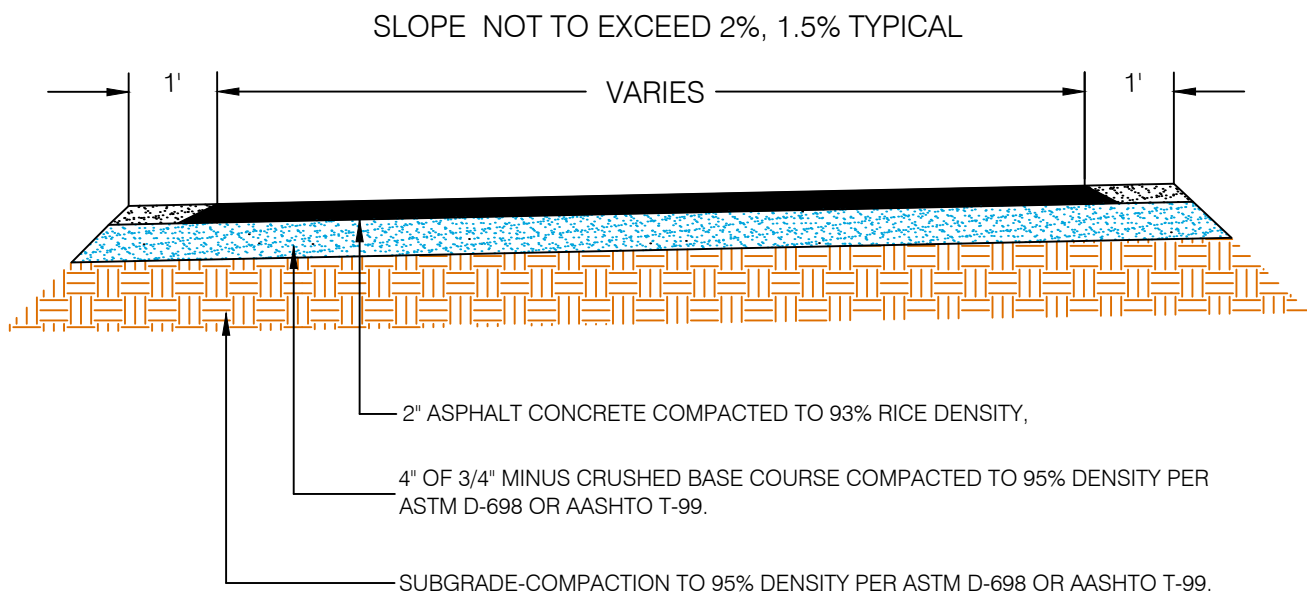
DEPARTMENT OF PUBLIC WORKS
MCSD-#110
DETECTABLE WARNINGS

PAGE

1 OF 1

NON-MOTORIZED TRAIL

CLASS I CORE TRAIL NETWORK



1-FOOT GRAVEL SHOULDERS REQUIRED.

ASPHALT MAY NOT BE REQUIRED PER SUBDIVISION REQUIREMENTS.

SEE SUBDIVISION REGULATIONS TABLE 3.4.9.4 FOR MATERIALS AND WIDTHS REQUIRED AS PART OF SUBDIVISION IMPROVEMENTS OR TABLE 3.10.9 FOR MATERIALS AND WIDTHS REQUIRED AS PART OF PARK IMPROVEMENTS.

GEOTEXTILES MAY BE REQUIRED IN POOR SUBGRADE APPLICATIONS.

APPROVED BY: ED REVISION DATE: 01/18/2018
REVISION NO. 2 DRAWN BY: MCPW

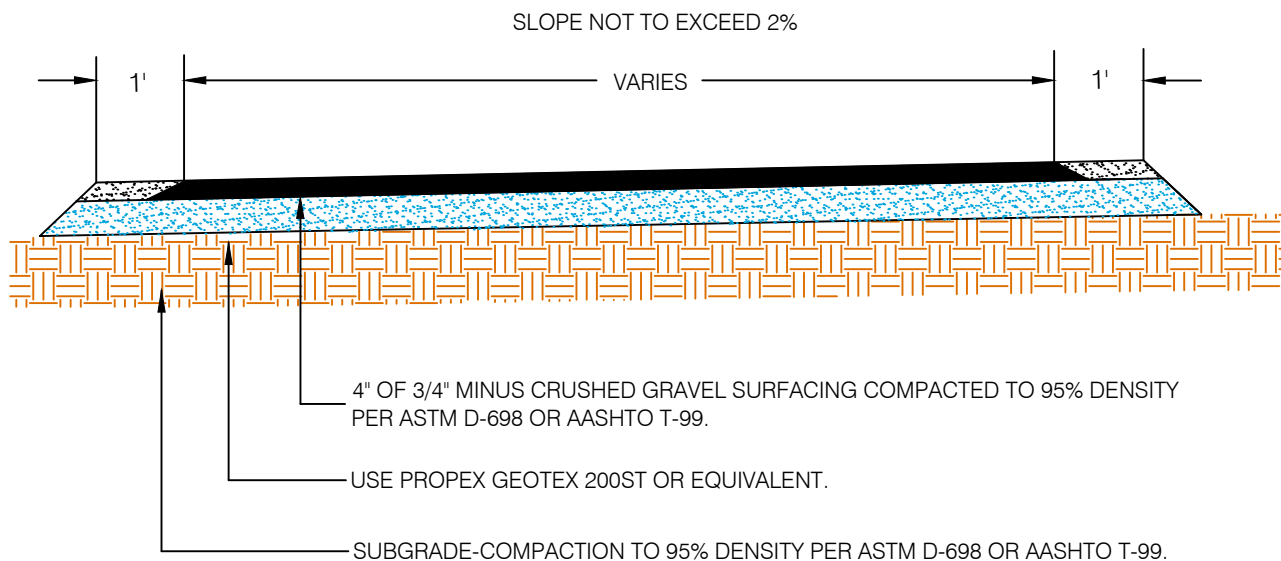


DEPARTMENT OF PUBLIC WORKS
MCSD-#157
CLASS III NEIGHBORHOOD CONNECTOR

PAGE
1 OF 1

NON-MOTORIZED TRAIL

CLASS II CORE NEIGHBORHOOD CONNECTOR



SEE SUBDIVISION REGULATIONS TABLE 3.4.9.4 FOR MATERIALS AND WIDTHS REQUIRED AS PART OF SUBDIVISION IMPROVEMENTS OR TABLE 3.10.9 FOR MATERIALS AND WIDTHS REQUIRED AS PART OF PARK IMPROVEMENTS.

2" OF ASPHALT MAY BE REQUIRED AS PER MISSOULA COUNTY SUBDIVISION REGULATIONS.

APPROVED BY: ED REVISION DATE: 01/18/2018
REVISION NO. 2 DRAWN BY: MCPW

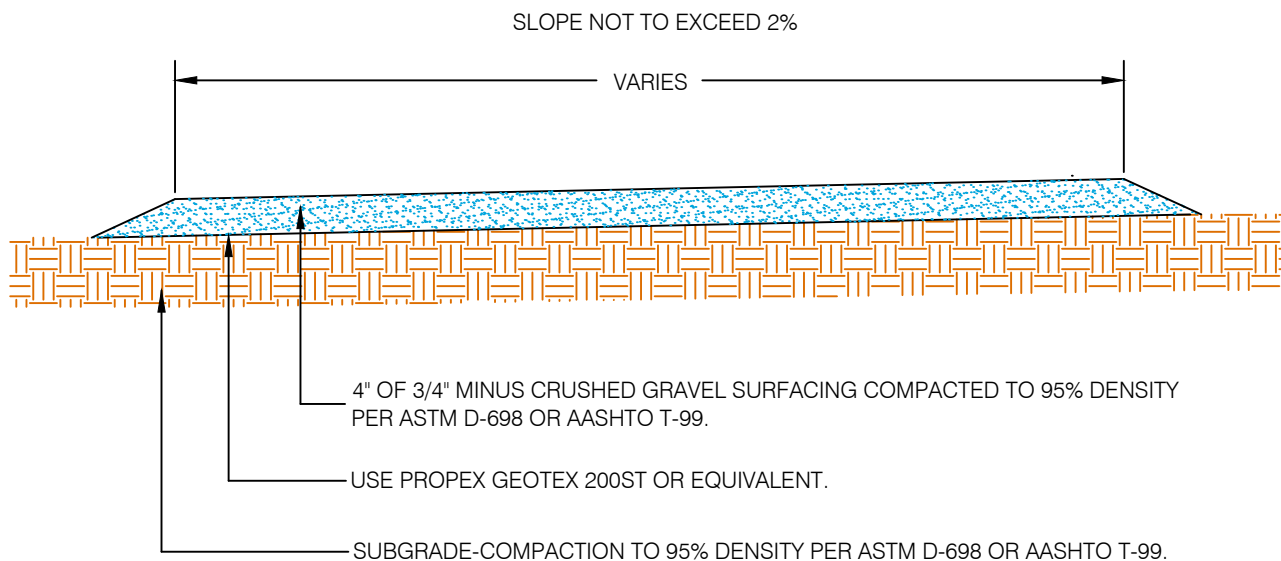


DEPARTMENT OF PUBLIC WORKS
MCSD-#156
CLASS II NEIGHBORHOOD CONNECTOR

PAGE
1 OF 1

NON-MOTORIZED TRAIL

CLASS III CORE NEIGHBORHOOD CONNECTOR



SEE SUBDIVISION REGULATIONS TABLE 3.4.9.4 FOR MATERIALS AND WIDTHS REQUIRED AS PART OF SUBDIVISION IMPROVEMENTS OR TABLE 3.10.9 FOR MATERIALS AND WIDTHS REQUIRED AS PART OF PARK IMPROVEMENTS.

2" OF ASPHALT MAY BE REQUIRED AS PER MISSOULA COUNTY SUBDIVISION REGULATIONS.

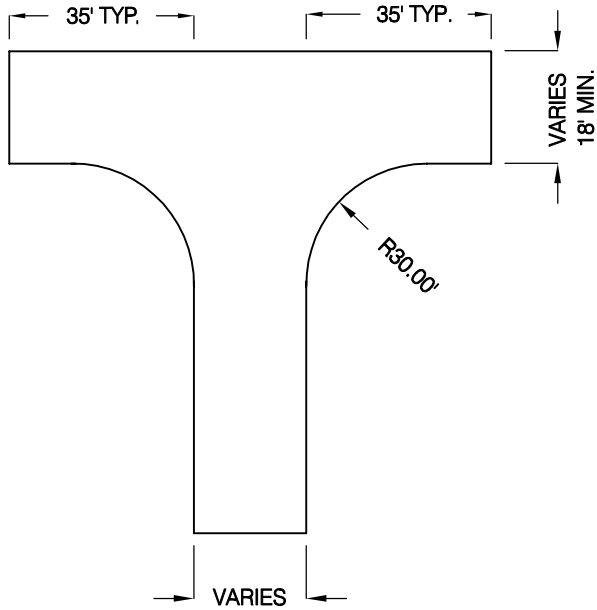
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REVISION NO. 2 DRAWN BY: MCPW



DEPARTMENT OF PUBLIC WORKS
MCSD-#157
CLASS III NEIGHBORHOOD CONNECTOR

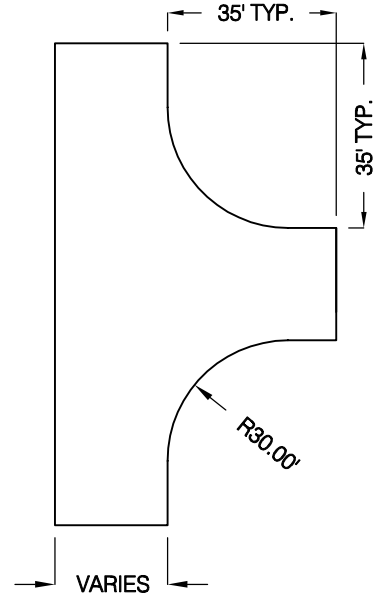
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1 OF 1

T - TYPE



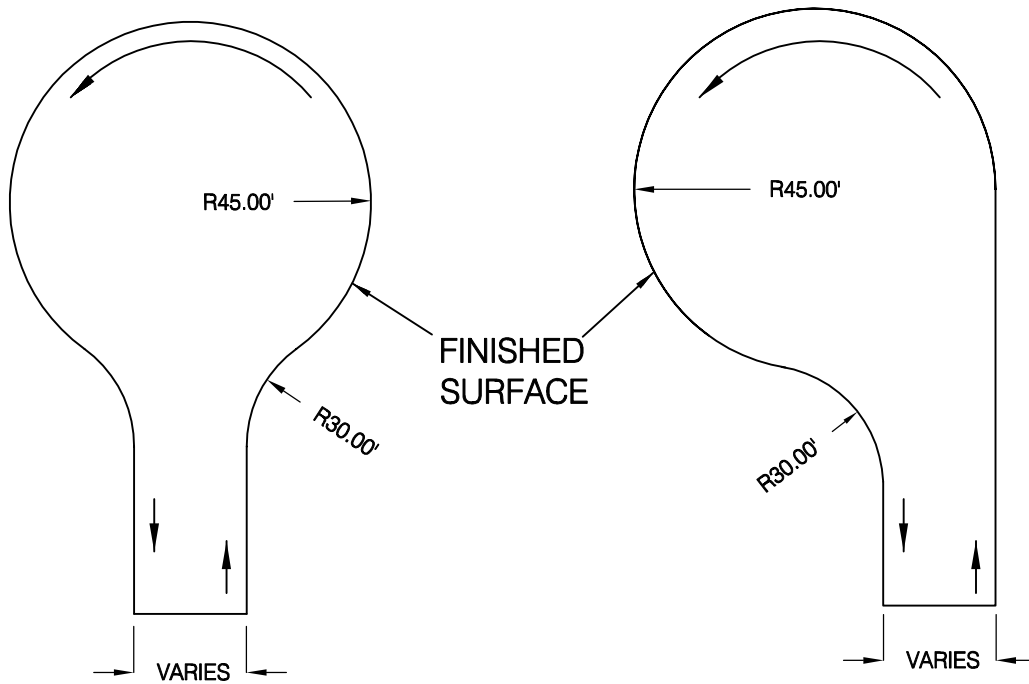
NON - MAINTAINED ROADS

BRANCH



NON - MAINTAINED ROADS

CIRCULAR



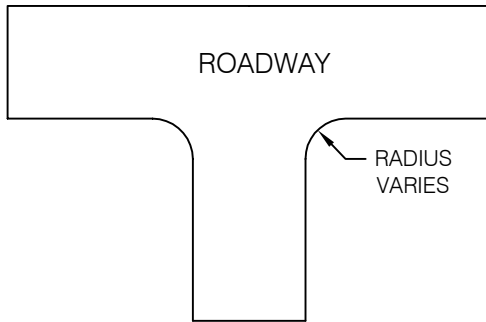
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REVISION NO. DRAWN BY: MG



DEPARTMENT OF PUBLIC WORKS
MCSD-#200
CUL-DE-SAC & TURNAROUND STANDARD

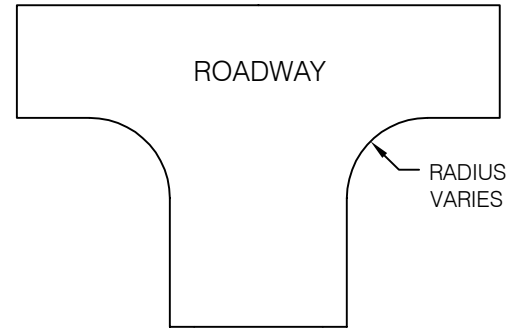
PAGE
1 OF 1

RESIDENTIAL



30' MAXIMUM WIDTH

COMMERCIAL

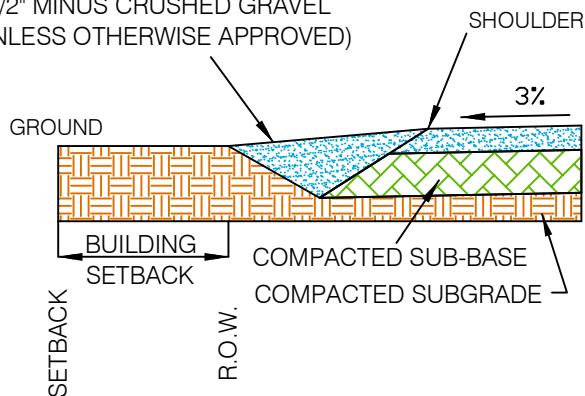


16'- 30' WIDTH VARIES

DIKED APPROACH

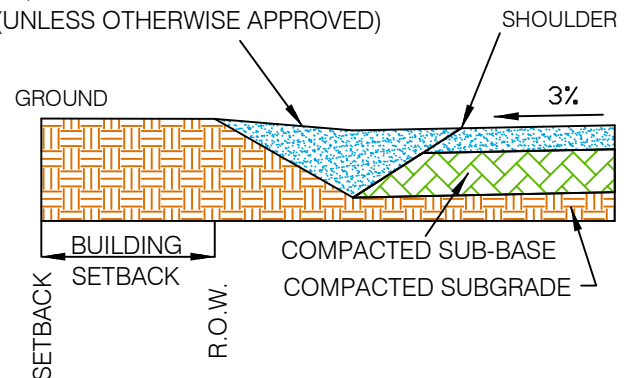
SETBACK ELEVATION
LOWER THAN
SHOULDER ELEVATION

1 1/2" MINUS CRUSHED GRAVEL
(UNLESS OTHERWISE APPROVED)



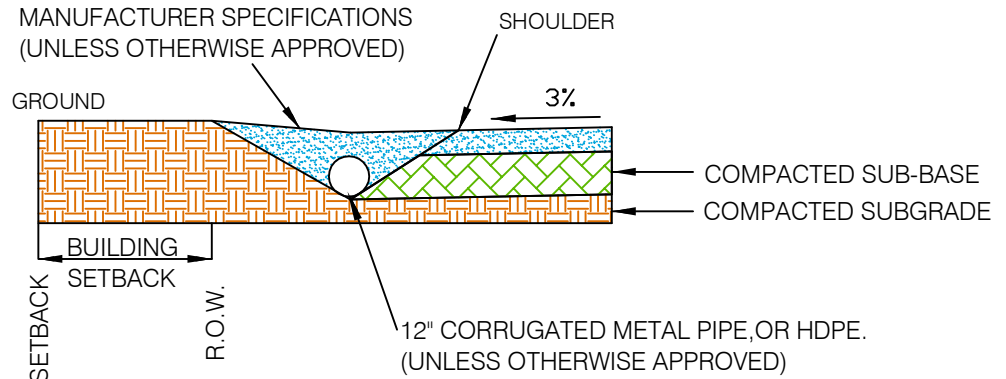
SETBACK ELEVATION
HIGHER THAN
SHOULDER ELEVATION

1 1/2" MINUS CRUSHED GRAVEL
(UNLESS OTHERWISE APPROVED)



PIPED APPROACH

1 1/2" MINUS CRUSHED GRAVEL,
MINIMUM DEPTH AS PER
MANUFACTURER SPECIFICATIONS
(UNLESS OTHERWISE APPROVED)



APPROVED BY: TRE DATE 01/12/2010

REVISION NO. DRAWN BY: MG



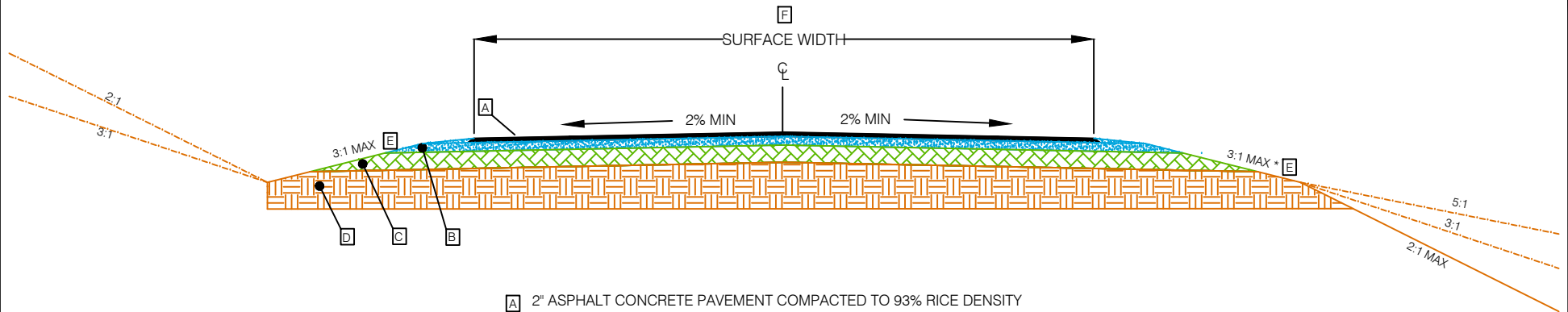
DEPARTMENT OF PUBLIC WORKS

MCSD-#202
APPROACH STANDARDS

PAGE

1 OF 1

LOCAL ASPHALT STREET



- [A] 2" ASPHALT CONCRETE PAVEMENT COMPACTED TO 93% RICE DENSITY
- [B] 4" OF 3/4" MINUS CRUSHED BASE COURSE COMPACTED TO 95% DENSITY PER ASTM D-698 OR AASHTO T-99
- [C] 8" OF 3" MINUS CRUSHED SUB-BASE COMPACTED TO 95% DENSITY PER ASTM D-698 OR AASHTO T-99
- [D] SUBGRADE - COMPACTION TO 95% DENSITY PER ASTM D-698 OR AASHTO T-99
- [E] OUTSLOPE VARIES ON DEPTH OF MATERIAL
- [F] REFER TO TABLE 6.2 ROAD STANDARDS FOR SURFACE WIDTH REQUIREMENTS. SURFACE WIDTH DOES NOT INCLUDE GRAVEL SHOULDERS.

NOTES:

- 1 USE PROPEX GEOTEX 200ST OR EQUIVALENT FOR GROUND STABILIZATION IF NECESSARY
- 2 FOR GRAVEL SPECIFICATIONS REFER TO SECTION 6 OF THE MCPW MANUAL

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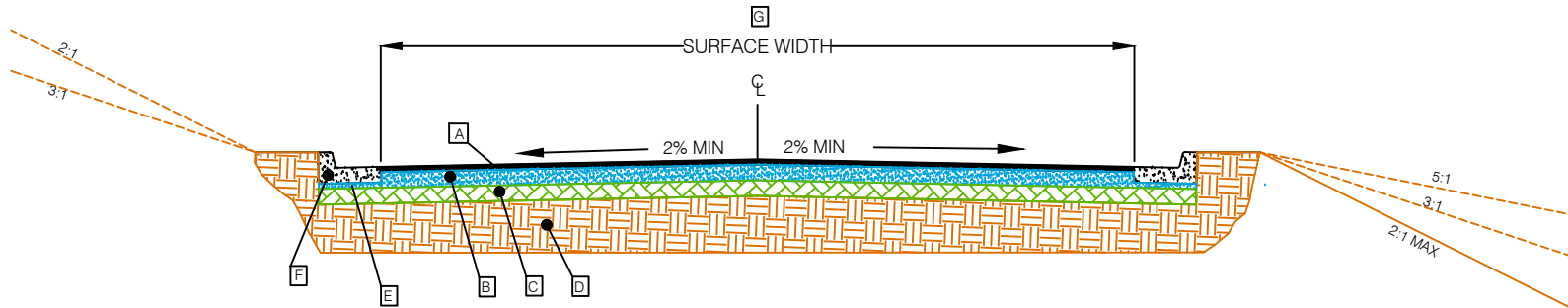
MCSD-#203

LOCAL ASPHALT STREET

PAGE

1 OF 1

LOCAL ASPHALT STREET WITH CURB AND GUTTER



- [A] 2" ASPHALT CONCRETE PAVEMENT COMPACTED TO 93% RICE DENSITY
- [B] 4" OF 3/4" MINUS CRUSHED BASE COURSE COMPACTED TO 95% DENSITY PER ASTM D-698 OR AASHTO T-99
- [C] 8" OF 3" MINUS CRUSHED SUB-BASE COMPACTED TO 95% DENSITY PER ASTM D-698 OR AASHTO T-99
- [D] SUBGRADE - COMPACTION TO 95% DENSITY PER ASTM D-698 OR AASHTO T-99
- [E] 2" OF 3/4" MINUS CRUSHED BASE COURSE UNDER BARRIER CURB
- [F] INTEGRAL BARRIER CURB AND GUTTER
- [G] REFER TO TABLE 6.2 ROAD STANDARDS FOR SURFACE WIDTH REQUIREMENTS. SURFACE WIDTH DOES NOT INCLUDE GRAVEL SHOULDERS.

NOTES:

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- 2 FOR GRAVEL SPECIFICATIONS REFER TO SECTION 6 OF THE MCPW MANUAL

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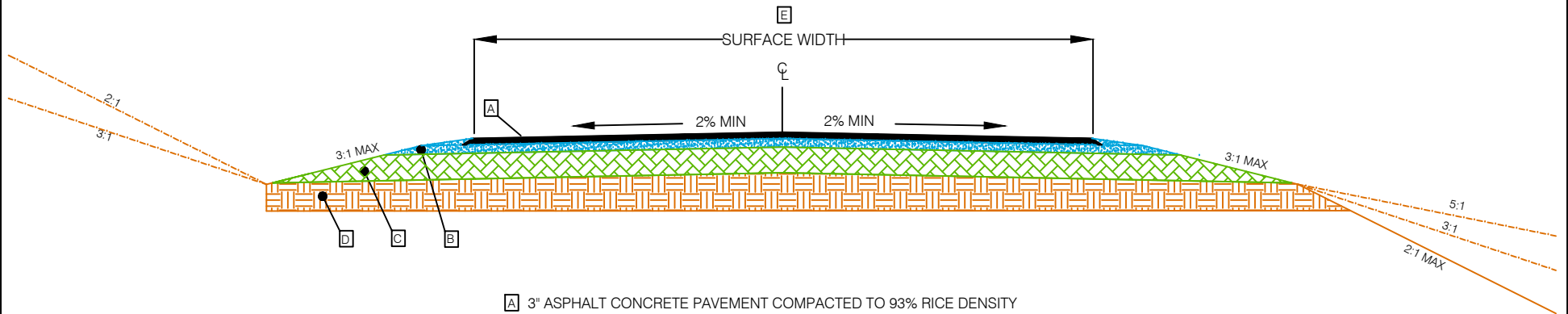


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MCSD-#204
LOCAL ASPHALT STREET WITH CURB AND GUTTER

PAGE

1 OF 1

COMMERCIAL STREET



- [A] 3" ASPHALT CONCRETE PAVEMENT COMPACTED TO 93% RICE DENSITY
- [B] 4" OF 3/4" MINUS CRUSHED BASE COURSE COMPACTED TO 95% DENSITY PER ASTM D-698 OR AASHTO T-99
- [C] 12" OF 3" MINUS CRUSHED SUB-BASE COMPACTED TO 95% DENSITY PER ASTM D-698 OR AASHTO T-99
- [D] SUBGRADE - COMPACTION TO 95% DENSITY PER ASTM D-698 OR AASHTO T-99
- [E] REFER TO TABLE 6.2 ROAD STANDARDS FOR SURFACE WIDTH REQUIREMENTS. SURFACE WIDTH DOES NOT INCLUDE GRAVEL SHOULDERS.

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- 2 FOR GRAVEL SPECIFICATIONS REFER TO SECTION 6 OF THE MCPW MANUAL

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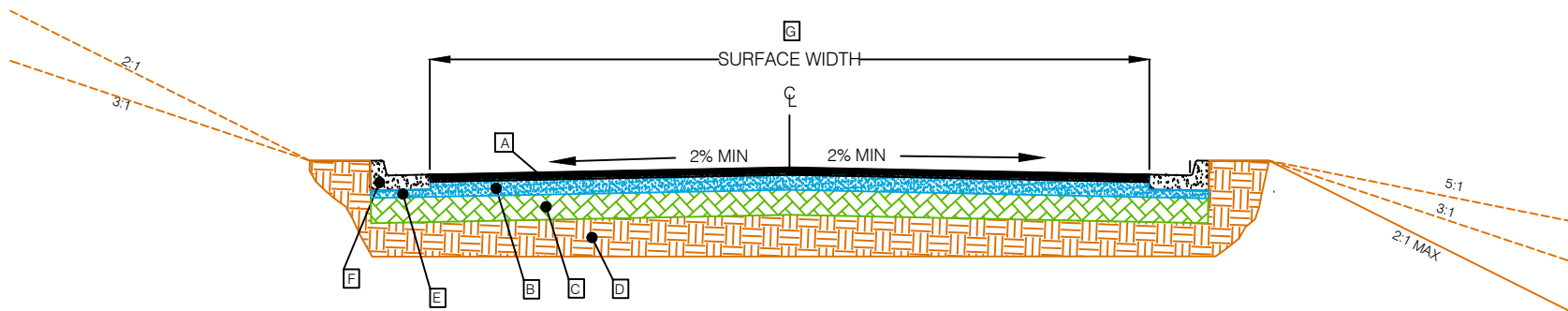
DEPARTMENT OF PUBLIC WORKS

MCSD-#205
COMMERCIAL STREET

PAGE

1 OF 1

COMMERCIAL STREET WITH CURB AND GUTTER



- [A] 3" ASPHALT CONCRETE PAVEMENT COMPACTED TO 93% RICE DENSITY
- [B] 4" OF 3/4" MINUS CRUSHED BASE COURSE COMPACTED TO 95% DENSITY PER ASTM D-698 OR AASHTO T-99
- [C] 12" OF 3" MINUS CRUSHED SUB-BASE COMPACTED TO 95% DENSITY PER ASTM D-698 OR AASHTO T-99
- [D] SUBGRADE - COMPACTION TO 95% DENSITY PER ASTM D-698 OR AASHTO T-99
- [E] 3" OF 3/4" MINUS CRUSHED BASE COURSE UNDER BARRIER CURB
- [F] INTEGRAL BARRIER CURB AND GUTTER
- [G] REFER TO TABLE 6.2 ROAD STANDARDS FOR SURFACE WIDTH REQUIREMENTS. SURFACE WIDTH DOES NOT INCLUDE GRAVEL SHOULDERS.

NOTES:

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- 2 FOR GRAVEL SPECIFICATIONS REFER TO SECTION 6 OF THE MCPW MANUAL

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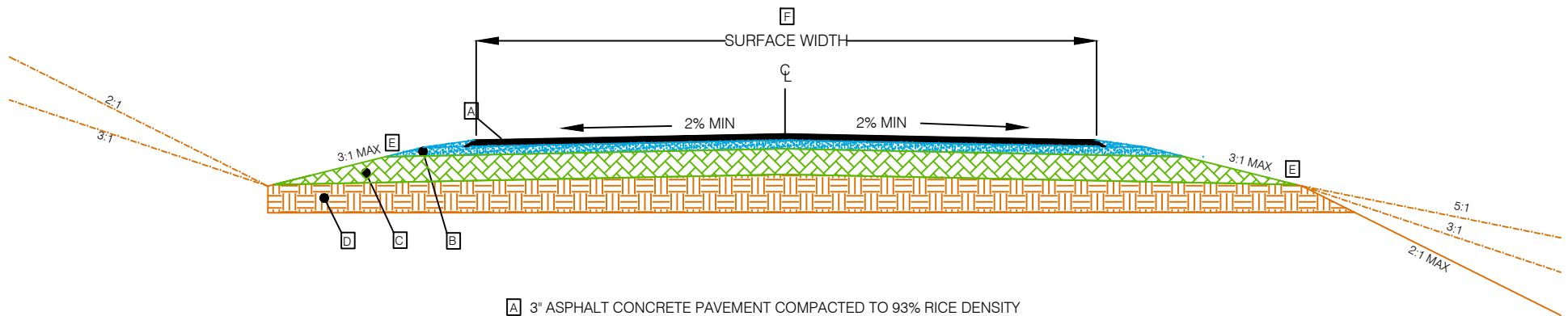
MCSD-#206

COMMERCIAL STREET WITH CURB AND GUTTER

PAGE

1 OF 1

MINOR COLLECTOR AND COLLECTOR STREETS



- [A] 3" ASPHALT CONCRETE PAVEMENT COMPACTED TO 93% RICE DENSITY
- [B] 4" OF 3/4" MINUS CRUSHED BASE COURSE COMPACTED TO 95% DENSITY PER ASTM D-698 OR AASHTO T-99
- [C] 12" OF 3" MINUS CRUSHED SUB-BASE COMPACTED TO 95% DENSITY PER ASTM D-698 OR AASHTO T-99
- [D] SUBGRADE - COMPACTION TO 95% DENSITY PER ASTM D-698 OR AASHTO T-99
- [E] OUTSLOPE VARIES ON DEPTH OF MATERIAL
- [F] REFER TO TABLE 6.2 ROAD STANDARDS FOR SURFACE WIDTH REQUIREMENTS. SURFACE WIDTH DOES NOT INCLUDE GRAVEL SHOULDERS.

NOTES:

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- 2 FOR GRAVEL SPECIFICATIONS REFER TO SECTION 6 OF THE MCPW MANUAL

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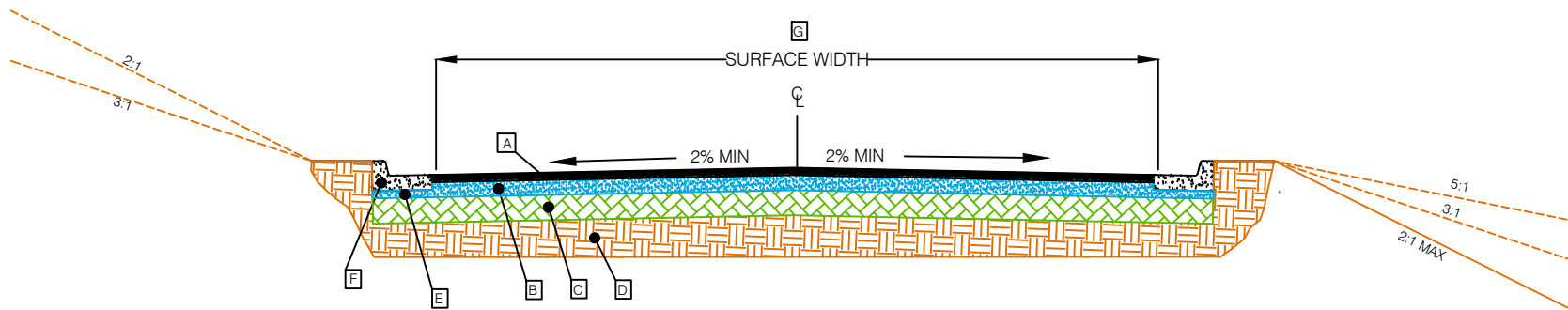


DEPARTMENT OF PUBLIC WORKS
MCSD-#207
MINOR COLLECTOR AND COLLECTOR STREETS

PAGE

1 OF 1

MINOR COLLECTOR AND COLLECTOR STREET WITH CURB AND GUTTER



NOTES:

1 USE PROPEX GEOTEX 200ST OR EQUIVALENT
FOR GROUND STABILIZATION IF NECESSARY

2 FOR GRAVEL SPECIFICATIONS REFER TO
SECTION 6 OF THE MCPW MANUAL

A 3" ASPHALT CONCRETE PAVEMENT COMPACTED TO 93% RICE DENSITY

B 4" OF 3/4" MINUS CRUSHED BASE COURSE COMPACTED TO 95% DENSITY PER ASTM D-698 OR AASHTO T-99

C 12" OF 3" MINUS CRUSHED SUB-BASE COMPACTED TO 95% DENSITY PER ASTM D-698 OR AASHTO T-99

D SUBGRADE - COMPACTION TO 95% DENSITY PER ASTM D-698 OR AASHTO T-99

E 3" OF 3/4" MINUS CRUSHED BASE COURSE UNDER BARRIER CURB

F INTEGRAL BARRIER CURB AND GUTTER

G REFER TO TABLE 6.2 ROAD STANDARDS FOR SURFACE WIDTH REQUIREMENTS.
SURFACE WIDTH DOES NOT INCLUDE GRAVEL SHOULDERS.

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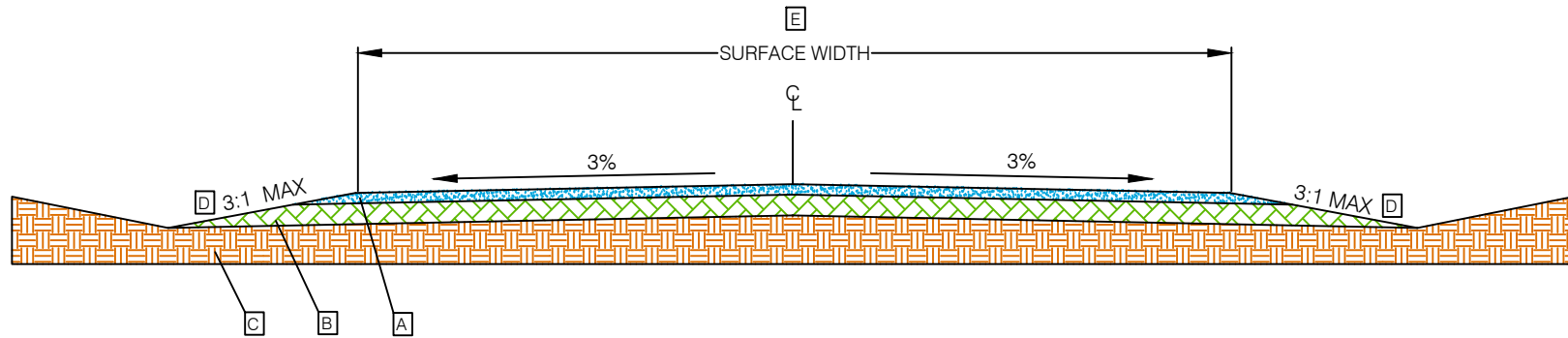
MCSD-#208

MINOR COLLECTOR AND COLLECTOR STREET WITH CURB AND GUTTER

PAGE

1 OF 1

STANDARD GRAVEL SECTION



NOTES:

- 1 USE PROPEX GEOTEX 200ST OR EQUIVALENT FOR GROUND STABILIZATION IF NECESSARY
- 2 FOR GRAVEL SPECIFICATIONS REFER TO SECTION 6 OF THE MCPW MANUAL
- 3 REQUIRED DITCH FLOWLINE IS A MINIMUM 15" BELOW EDGE OF TRAVELED WAY.

- A 4" OF 3/4" MINUS CRUSHED GRAVEL SURFACING COMPACTED TO 95% DENSITY PER ASTM D-698 OR AASHTO T-99
- B 8" OF 3" MINUS CRUSHED SUB-BASE COMPACTED TO 95% DENSITY PER ASTM D-698 OR AASHTO T-99
- C SUBGRADE - COMPACTION TO 95% DENSITY PER ASTM D-698 OR AASHTO T-99
- D OUTSLOPE VARIES ON DEPTH OF MATERIAL
- E REFER TO TABLE 6.2 ROAD STANDARDS FOR SURFACE WIDTH REQUIREMENTS. SURFACE WIDTH DOES NOT INCLUDE GRAVEL SHOULDERS.

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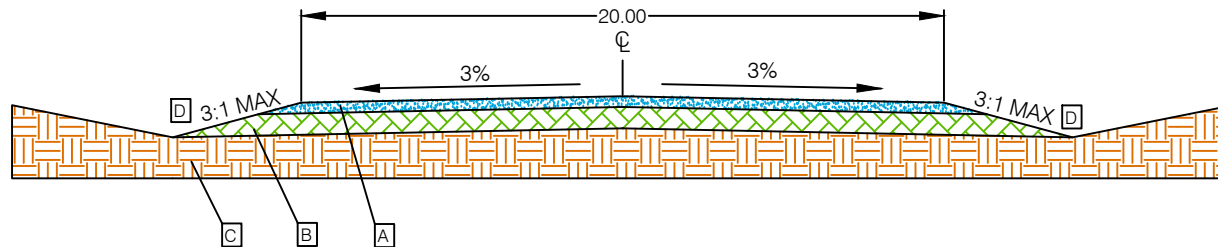
MCSD-#209

STANDARD GRAVEL SECTION

PAGE

1 OF 1

EMERGENCY SECONDARY ACCESS ROAD SECTION



NOTES:

1 USE PROPEX GEOTEX 200ST OR EQUIVALENT FOR GROUND STABILIZATION IF NECESSARY

2 FOR GRAVEL SPECIFICATIONS REFER TO SECTION 6 OF THE MCPW MANUAL

3 REQUIRED DITCH FLOWLINE IS A MINIMUM 15" BELOW EDGE OF TRAVELED WAY.

A 4" OF 3/4" MINUS CRUSHED GRAVEL SURFACING COMPACTED TO 95% DENSITY PER ASTM D-698 OR AASHTO T-99

B 8" OF 3" MINUS CRUSHED SUB-BASE COMPACTED TO 95% DENSITY PER ASTM D-698 OR AASHTO T-99

C SUBGRADE - COMPACTION TO 95% DENSITY PER ASTM D-698 OR AASHTO T-99

D OUTSLOPE VARIES ON DEPTH OF MATERIAL

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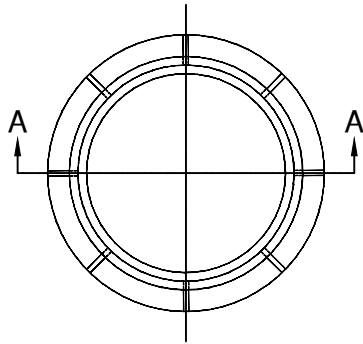
DEPARTMENT OF PUBLIC WORKS
MCSD-#210
EMERGENCY SECONDARY ACCESS ROAD SECTION

PAGE

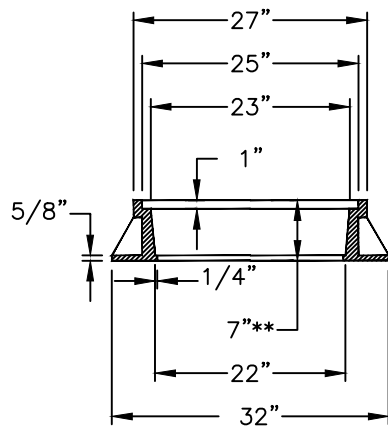
1 OF 1

EJIW NO. 3777
OR APPROVED EQUIVALENT

MANHOLE RING



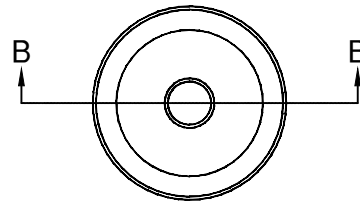
TOP VIEW



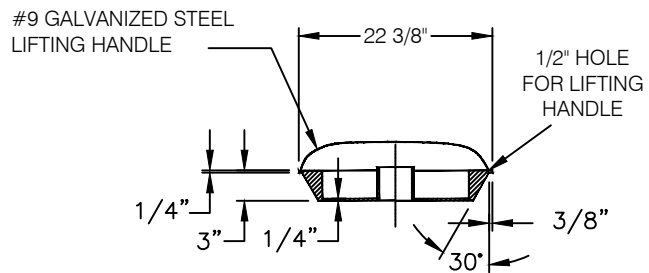
SECTION A-A

MANHOLE RING - MINIMUM 180lb.

DUSTPAN



TOP VIEW



SECTION B-B

DUSTPAN - GRAY IRON

NOTES:

USE ONLY APPROVED COVERS

4" MANHOLE RING MAY BE USED ONLY
WITH PRIOR COUNTY ENGINEER APPROVAL

MANHOLE COVERS SHOULD BE LOCATED
OUTSIDE OF THE WHEEL PATH WHEN POSSIBLE

FINISH HEIGHT OF MANHOLE COVERS SHALL BE
1/4" TO 1/2" BELOW FINISH GRADE

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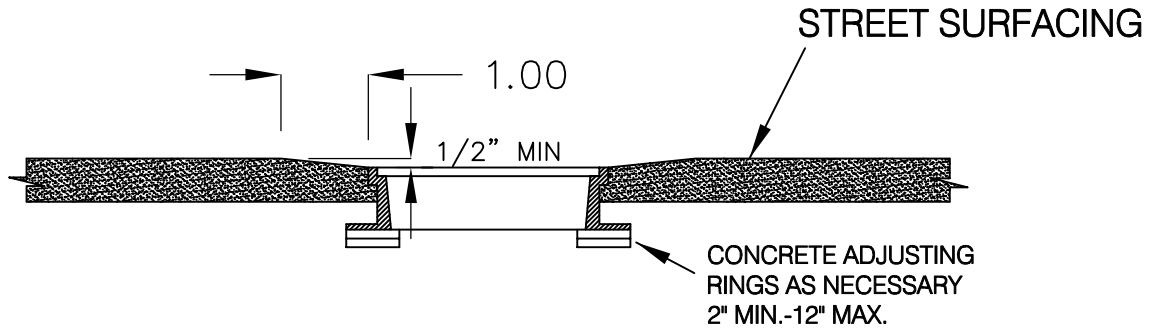
MCSD-#300

TYPICAL MANHOLE RING AND DUSTPAN SPECIFICATIONS

PAGE

1 OF 1

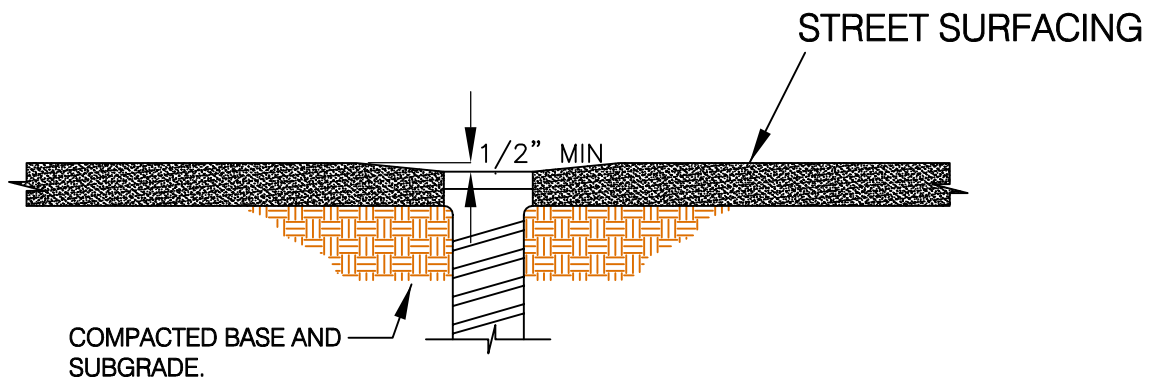
TYPICAL MANHOLE ADJUSTMENT



NOTES:

1. ADJUST MANHOLES UPWARD WITH ADJUSTING RINGS UNDER FRAME.
2. ADJUST MANHOLES DOWNWARD BY REMOVING CONE AND BARREL SECTIONS AS NECESSARY AND REPLACING WITH SECTIONS OF LENGTH REQUIRED TO MATCH GRADE.
3. SLOPE MANHOLE FRAME AS REQUIRED TO MATCH SLOPE OF STREET.
4. FINAL MANHOLE ADJUSTMENT SHALL BE MADE BEFORE PAVING.


TYPICAL WATERVALVE ADJUSTMENT



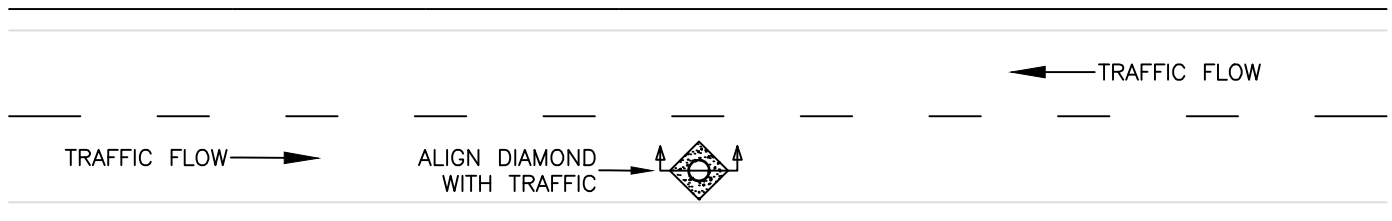
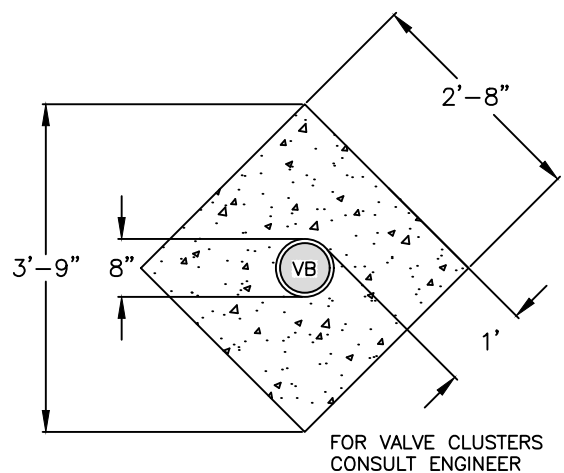
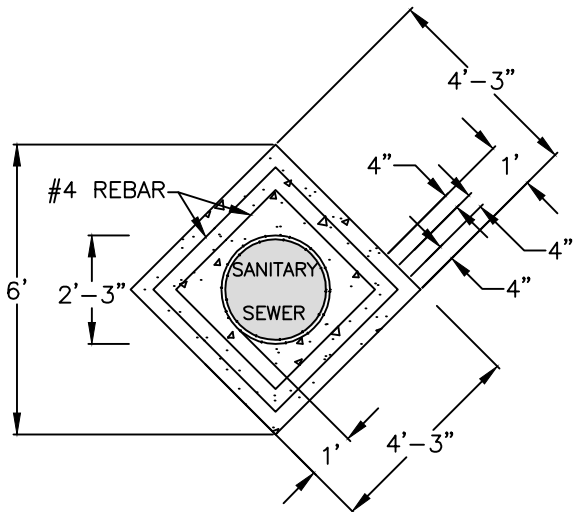
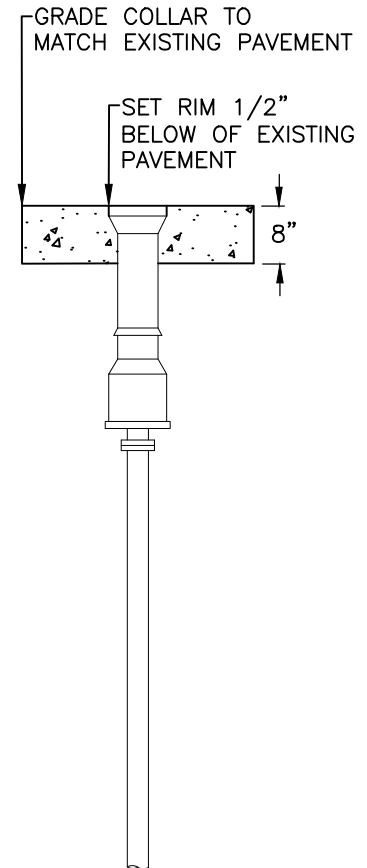
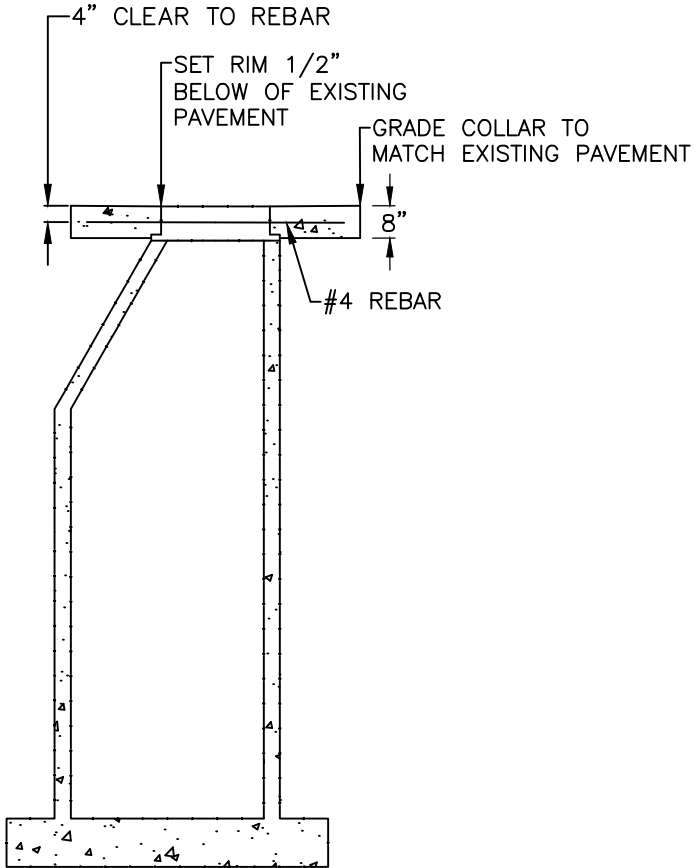
NOTES:

1. ADJUST WATER VALVES UPWARD OR DOWNWARD AS REQUIRED.
2. FINAL ADJUSTMENT SHALL BE MADE BEFORE PAVING.
3. NO PAYMENT SHALL BE MADE FOR ADJUSTMENT OF NEW VALVES TO FINAL GRADE.

* NOT TO SCALE

APPROVED BY: TRE	DATE	01/12/2010		DEPARTMENT OF PUBLIC WORKS	PAGE
REVISION NO.	DRAWN BY:	MG		MCSD-#301	1 OF 1
				MANHOLE & WATER VALVE ADJUSTMENT DETAIL	

SECTION AND BLOW-UP VIEWS NOT TO SCALE



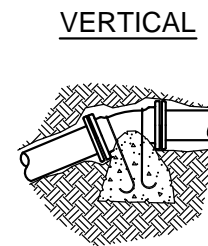
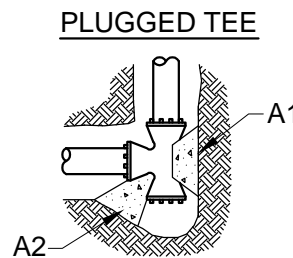
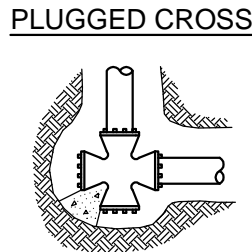
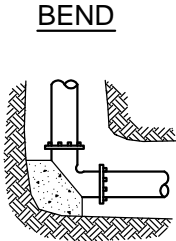
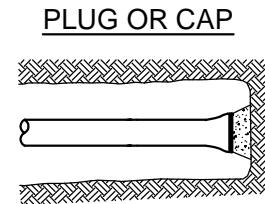
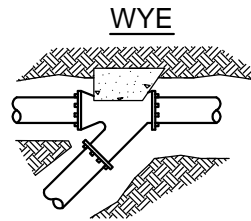
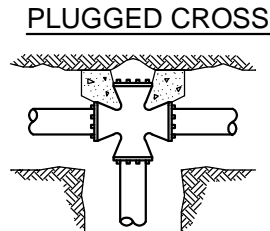
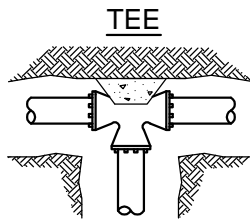
PLAN VIEW NOT TO SCALE

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DEPARTMENT OF PUBLIC WORKS
 MCSD-#302
 CONCRETE UTILITY RISER PAD

PAGE
 1 OF 1



CONCRETE THRUST BLOCK SCHEDULE (BEARING AREA OF THRUST BLOCKS IN SQUARE FEET)

FITTING SIZE (INCHES)	TEE, WYE, PLUG OR CAP	90° BEND OR PLUGGED CROSS	TEE PLUGGED ON RUN BEND		45° BEND	22 1/2° BEND	11 1/4° BEND	VERTICAL VOLUME OF THRUST BLOCK IN CUBIC YARDS			
			A1	A2				FITTING SIZE	45° BEND	22 1/2° BEND	11 1/4° BEND
04	1.3	1.9	2.5	1.9	1.3	1.3	1.3				
06	2.8	4.0	5.7	4.0	2.1	1.3	1.3	4"	1.1	0.4	0.2
08	5.1	7.1	10.1	7.1	3.9	2.0	1.3	6"	2.7	1.0	0.4
10	7.9	11.2	15.7	11.2	6.1	3.2	1.6	8"	4.0	1.5	0.6
12	11.3	16.0	22.7	16.0	8.8	4.5	2.3	12"	8.5	3.2	1.3
14	15.3	21.7	30.7	21.7	11.9	6.1	3.1	16"	14.8	5.6	2.3
16	20.0	28.4	40.0	28.4	15.5	8.0	4.0	VERTICAL BEND			
18	25.3	36.0	50.7	36.0	19.5	10.1	5.1	FITTING SIZE	ROD SIZE	EMBEDMENT BEND	
20	31.3	44.4	62.7	44.4	24.1	12.5	6.3	4" - 12"	#6	30	
24	45.3	64.0	90.7	64.0	34.9	18.1	9.1	14" - 16"	#8	36	

Above bearing areas based on test pressure of 150 psi and an allowable soil bearing strength of 1,500 pounds per square foot. To compute bearing areas for different test pressures and soil bearing stresses, use the following equation:

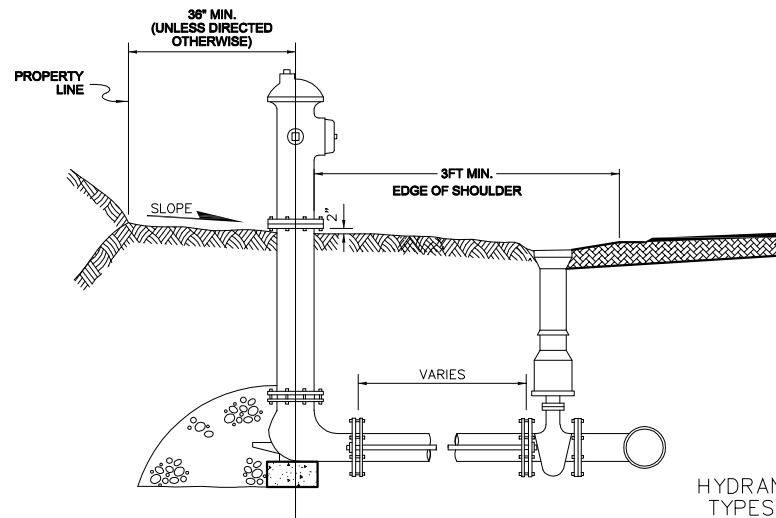
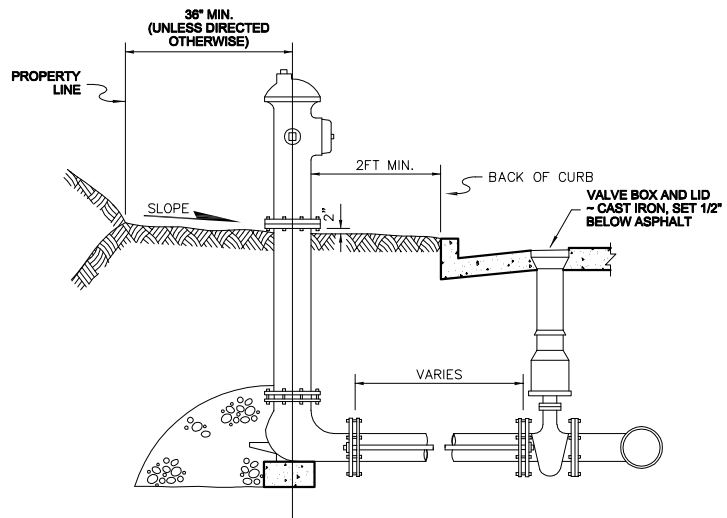
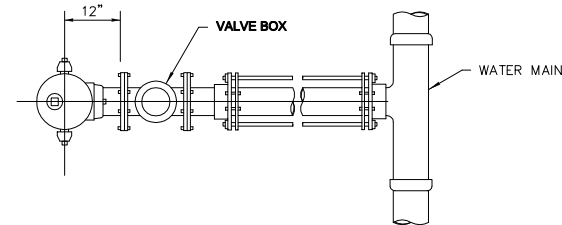
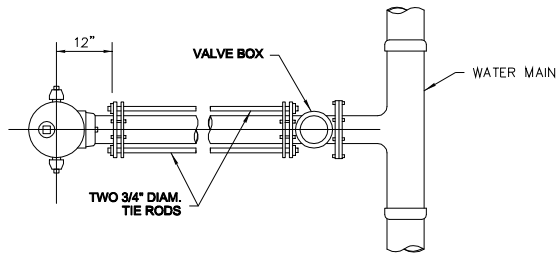
$$\text{BEARING AREA} = (\text{TEST PRESSURE} / 150) \times (1,500 / \text{SOIL BEARING STRESS}) \times (\text{TABLE VALUE})$$

NOTES:

- Concrete thrust blocking to be poured against undisturbed earth.
- Keep concrete clear of joint and accessories. Install 12 mil total thickness polyethylene sheet around fitting. Secure sheet ends to prevent infiltration of dirt between sheet and pipe fitting prior to pouring thrust blocking. Protect mechanical joint followers and bolts from concrete with temporary forms and 12 mil polyethylene sheeting.
- The required thrust bearing areas for special connections are shown.
- If not shown on plans, required bearing areas at fitting shall be as indicated above, adjust if necessary, to conform to the test pressure(s) and allowable soil bearing stress(es) stated in the *Special Specifications*.
- Bearing areas and special blocking details shown on plans take precedence over bearing areas and blocking details shown on this *Standard Dwg*. Bearing area of thrust blocks is in square feet.
- Vertical changes in direction require specific designs for thrust blocks.

APPROVED BY: TRE	DATE 01/12/2010		DEPARTMENT OF PUBLIC WORKS	PAGE
REVISION NO.	DRAWN BY:		MCSD-#303	1 OF 1
			TYPICAL WATER MAIN THRUST BLOCKING	

1. STEEL TIE RODS TO BE HEAVILY COATED WITH ASPHALT AFTER INSTALLATION.
2. RESTRAINED JOINTS MAY BE SUBSTITUTED FOR TIE RODS.
3. SURFACE OF GROUND WITHIN 36" OF HYDRANT SHALL BE SMOOTH.



HYDRANT SETTING
TYPES A AND B

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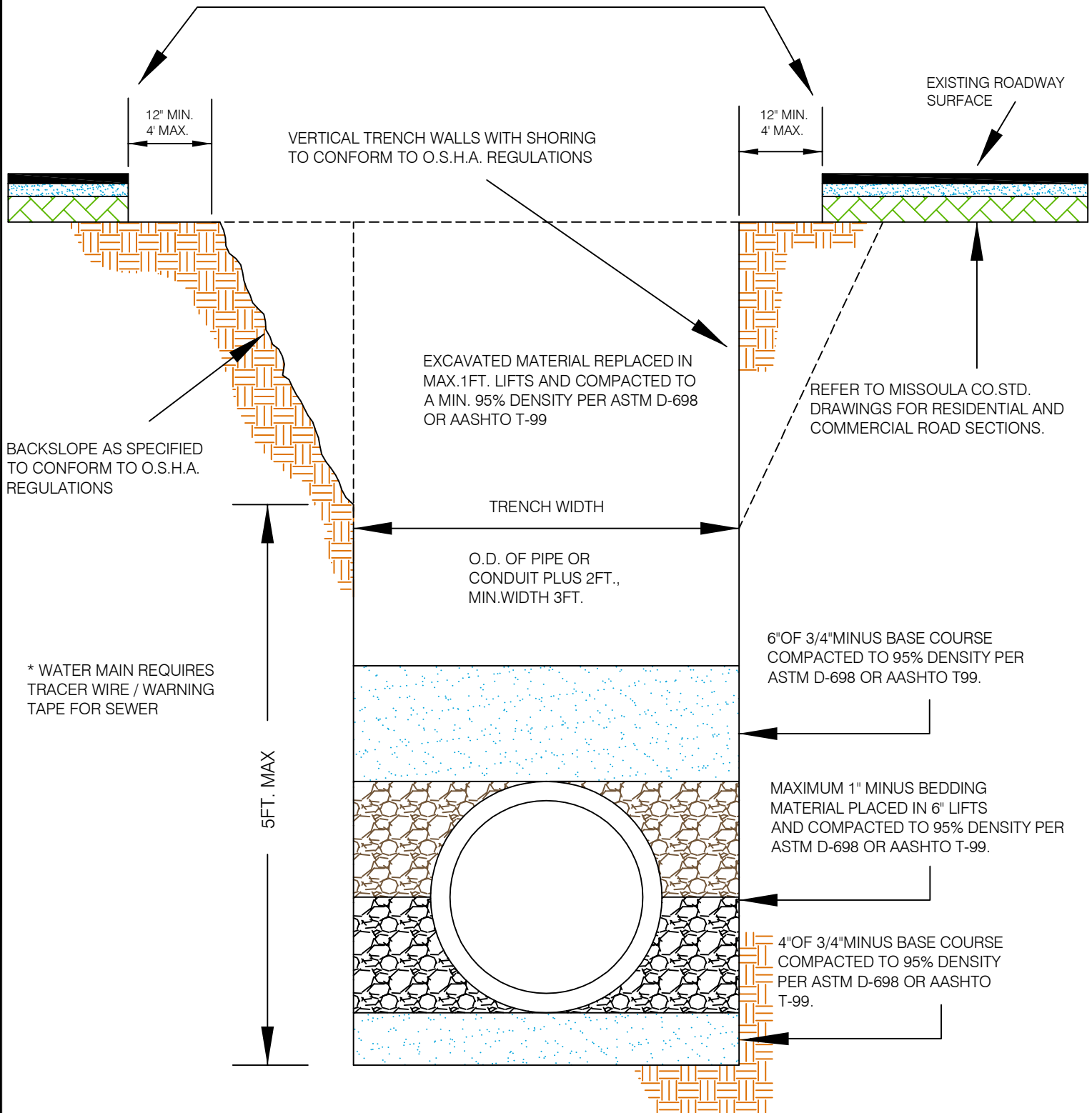


DEPARTMENT OF PUBLIC WORKS
MCSD-#304
TYPICAL HYDRANT LOCATIONS

PAGE

1 OF 1

THE MISSOULA CO. DEPT. OF PUBLIC WORKS RESERVES THE RIGHT TO EXTEND THE CUT AREA TO ELIMINATE PAVEMENT "SLIVERS" ALONG THE EDGE OF THE ROAD OR NEAR APPURTENANCES.

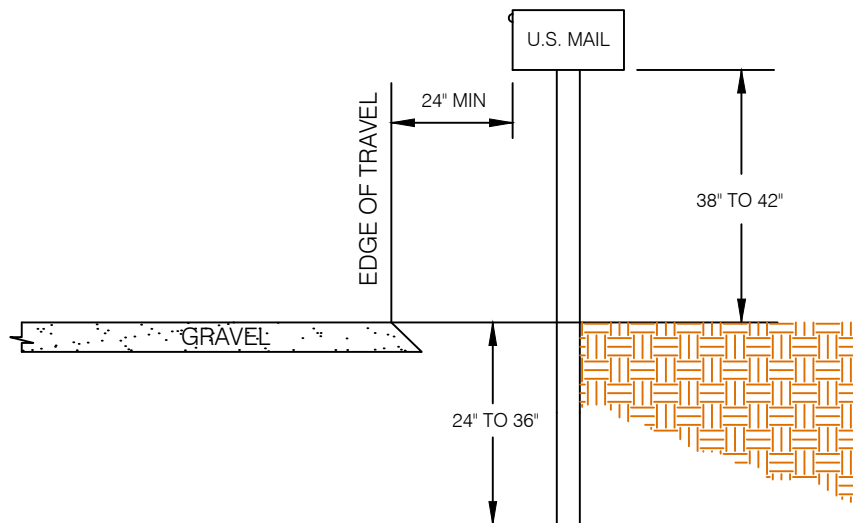
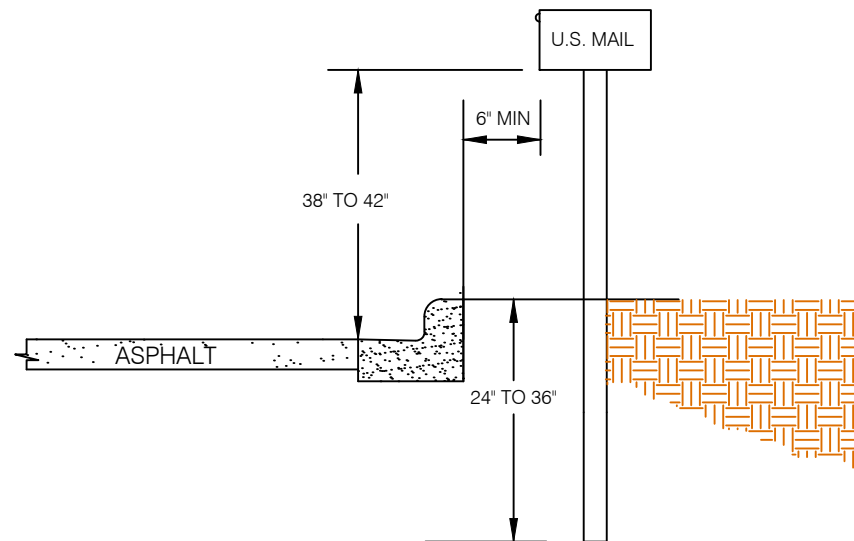
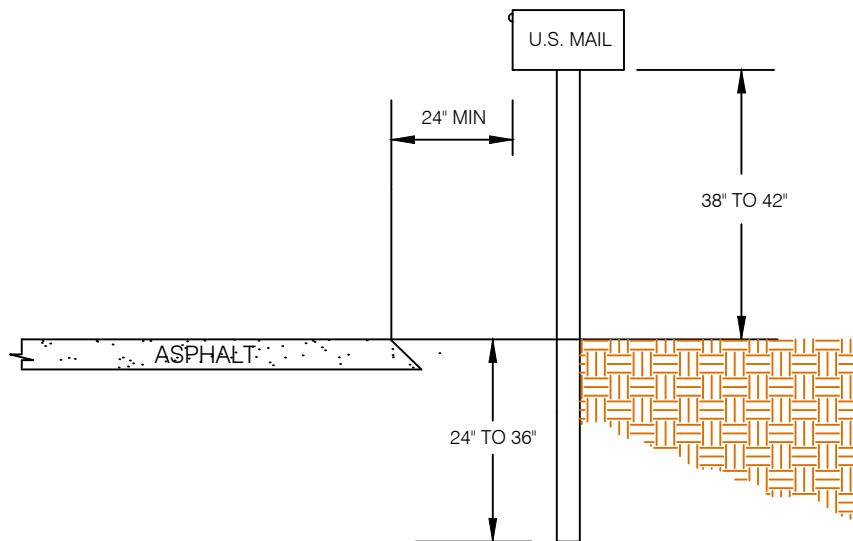


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DEPARTMENT OF PUBLIC WORKS
 MCSD-#401
 TYPICAL TRENCH DETAILS

PAGE
 1 OF 1



NOTES:

1. MAILBOX SUPPORTS SHALL NOT BE LARGER THAN 4" X 4" WOOD OR 2" I.D. SCHEDULE 40 STEEL PIPE.
2. CONCRETE OR STEEL BASES SHALL NOT PROJECT MORE THAN 2" ABOVE THE GROUND SURFACE.
3. NO MORE THAN (2) BOXES SHALL BE MOUNTED ON ONE POST.
4. MAILBOXES SHOULD BE APPROVED BY THE USPS.
5. NO ENCROACHMENT PERMIT IS REQUIRED.
6. MAILBOXES WILL NOT BE ALLOWED ON SIDEWALKS.

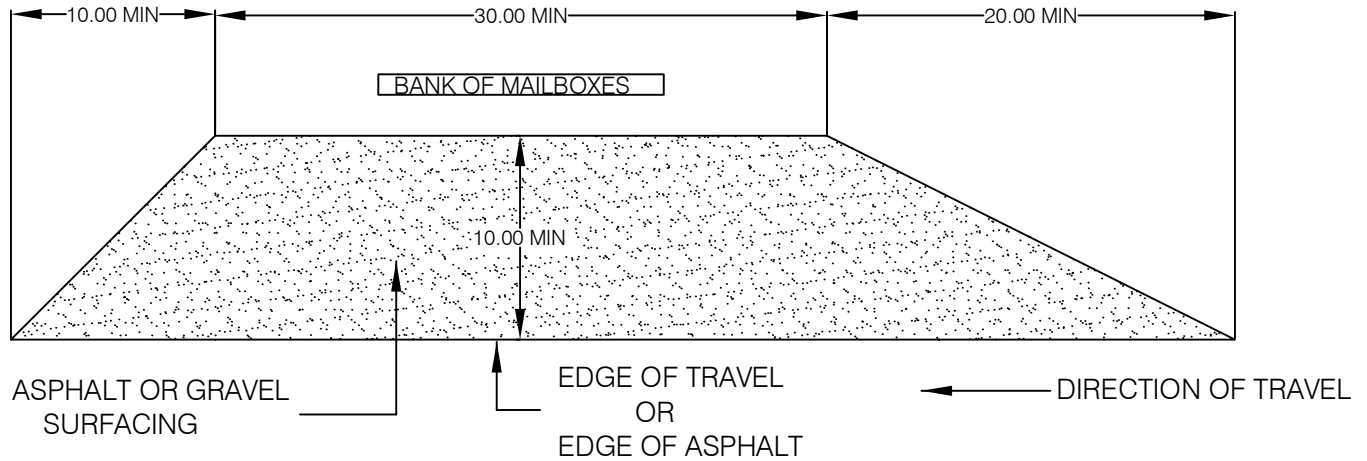
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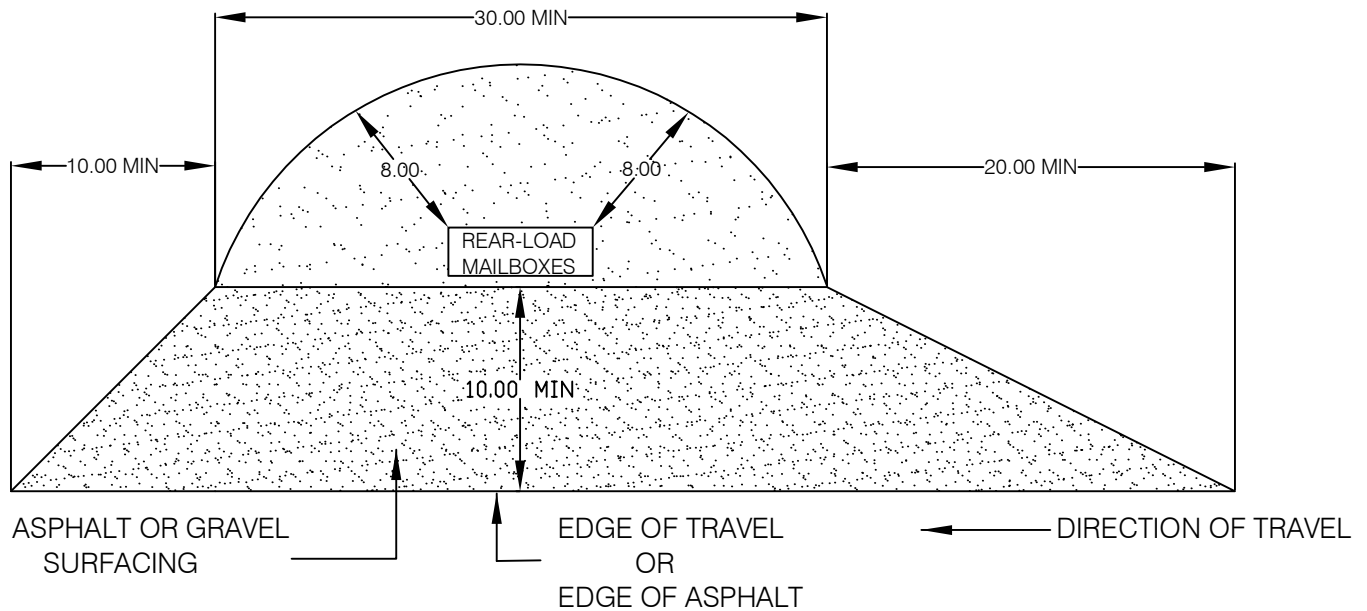
DEPARTMENT OF PUBLIC WORKS
 MCSD-#402
 SINGLE RESIDENTIAL MAILBOX INSTALLATION

PAGE
 1 OF 1

CLUSTER OF STANDARD MAILBOXES



REAR-LOAD MAILBOX FACILITY



NOTES:

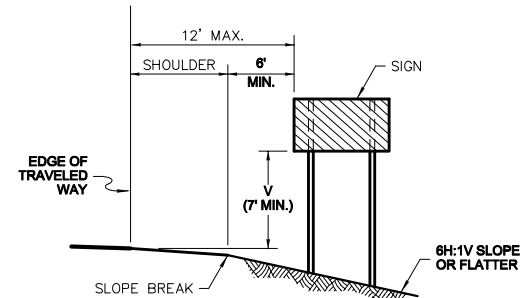
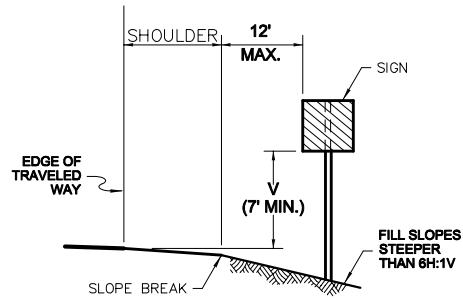
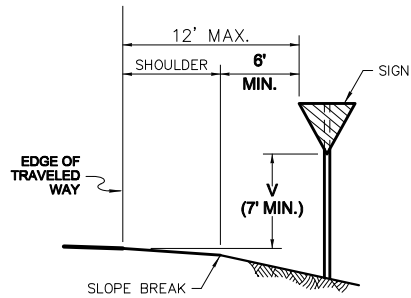
1. ENCROACHMENT PERMITS ARE REQUIRED IF GROUPED MAILBOXES ARE INSTALLED WITHIN A PUBLIC RIGHT-OF-WAY. SUPPORTS FOR THE INSTALLATION WILL BE EXAMINED WITH THE ENCROACHMENT PERMIT.
2. IF GROUPED MAILBOXES ARE INSTALLED ADJACENT TO A PUBLIC RIGHT-OF-WAY AN ENCROACHMENT PERMIT IS REQUIRED.
3. GROUPED MAILBOXES WITHIN OR ADJACENT TO A PRIVATE EASEMENT REQUIRE NO PERMIT FROM THE COUNTY.

APPROVED BY: TRE DATE 01/12/2010
REVISION NO. DRAWN BY: MG



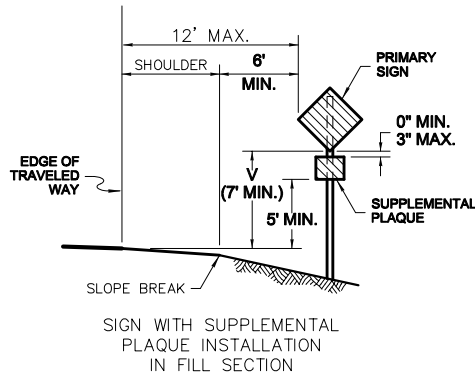
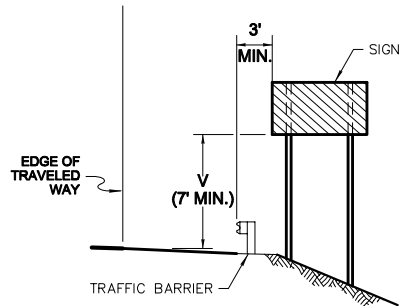
DEPARTMENT OF PUBLIC WORKS
MCSD-#403
NEIGHBORHOOD OR GROUP MAILBOX INSTALLATIONS

PAGE
1 OF 1

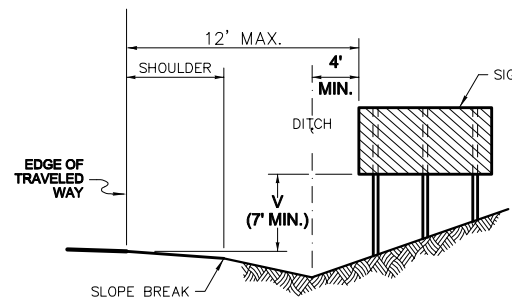
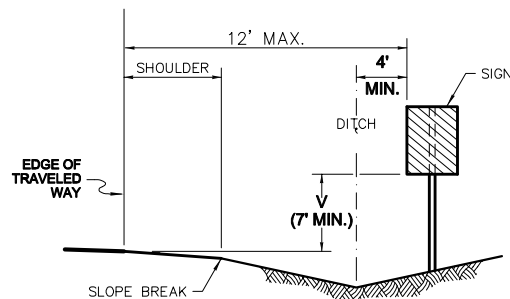
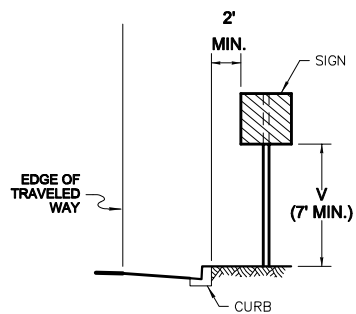
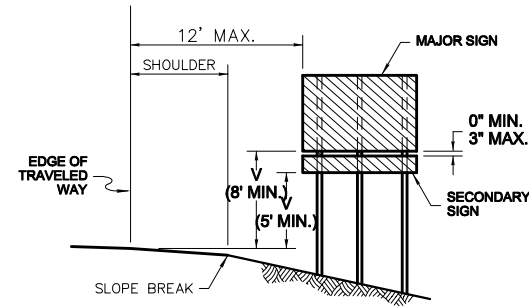


Refer to the Sign Specification Sheet
DWG-405_2 for the "V" distances.

The minimum vertical distance from the bottom of the sign to the ground shall not be less than 7' for signs located within the Design Clear Zone.



SIGN WITH SUPPLEMENTAL
PLAQUE INSTALLATION
IN FILL SECTION



APPROVED BY: TRE DATE 01/12/2010

REVISION NO. DRAWN BY:



DEPARTMENT OF PUBLIC WORKS
MCSD-#405
TYPICAL SIGN INSTALLATION

PAGE

1 OF 2

Notes for sign installation standard drawing.

- a. All proposed signage must be approved by the County prior to any installations. If the signage is not installed in compliance with the plans, the Developer or Contractor shall be required to reinstall, relocate or replace any deficient signage.
- b. The letter style for street signs shall be in all capital block letters with a minimum letter height of four (4) inches. For roads with a posted speed limit of 35 MPH or greater, a minimum letter height of six (6) inches is required. The designation of the road (drive, lane, court, etc.) may be abbreviated appropriately with a minimum letter height of two and one half (2 ½) inches. The acceptable abbreviations are:

Avenue	AVE	Loop	LP
Boulevard	BLVD	Place	PL
Court	CT	Road	RD
Drive	DR	Street	ST
Highway	HWY	Trail	TRL
Lane	LN	Way	WY

Other abbreviations may be considered as necessary but are subject to review and approval by the County.

- c. All signs shall be high-intensity prismatic (HIP). All road signs shall be designed with a green background and white retro-reflective letters. A white retro-reflective one half (½) inch border placed at the edge of the sign is required.
- d. Street signs shall be visible from both directions, either with a double-sided sign mounted on top of the post or two single-sided signs mounted on each side of the post.
- e. Streets with a dead end or no outlet shall provide a street sign mounted on the post perpendicular to the direction of travel of the road from which the dead end or no outlet street departs.
- f. Streets that provide through access or connections to other streets shall provide street signs indicating the name of each of the intersecting streets in at least one quadrant of the intersection.
- g. All signs in rural areas shall be located horizontally between six (6) and twelve (12) feet from the edges of the traveled way (edge of asphalt or edge of gravel surfacing). In the case of conflicts with underground utilities or other obstacles, the sign shall be placed further from the edge of the traveled way rather than nearer.
- h. All signs installed adjacent to curb-and-gutter shall be located horizontally a minimum of two (2) feet from the back of the curb. Where curbside sidewalks block this location, the horizontal offset may be measured from the back edge of the sidewalk. In the case of conflicts with underground utilities or other obstacles, the sign shall be placed further from the edge of the traveled way rather than nearer.
- i. Street signs shall be located vertically a minimum of nine (9) feet from the edge of the traveled way to the bottom edge of the sign.
- j. In a rural area where no parking or pedestrian facilities exist or are planned, all regulatory and warning signs shall be located vertically a minimum of five (5) feet from the edge of the traveled way to the bottom edge of the sign.
- k. In an urban area or in a rural area where parking or pedestrian facilities exist or are planned, all regulatory and warning signs shall be located vertically a minimum of seven (7) feet from the edge of the traveled way to the bottom edge of the sign.
- l. Approved sign posts are: 4" - 5" round wood; 4" x 4" square wood; 2 3/8" round schedule 40 steel; 3 lb/ft steel U-channel; Telespar (or equivalent) square steel post systems.
- m. Any permanent base (such as concrete) shall not extend above the ground surface more than two (2) inches. Where permanent bases are used, an approved break-away system shall be installed

APPROVED BY: ED

DATE: 2017

REVISION NO. 2

DRAWN BY: MCPW



DEPARTMENT OF PUBLIC WORKS

MCSD-#405_2

SIGN INSTALLATION SPECIFICATION NOTES

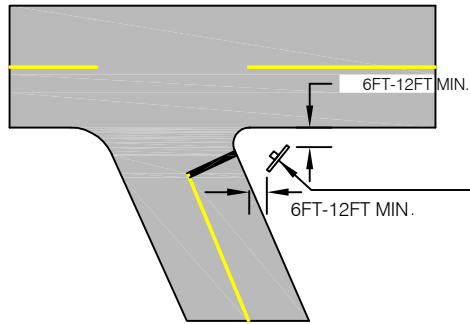
PAGE

2 OF 2

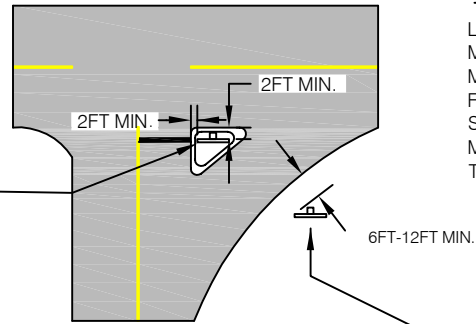
TYPICAL SIGN LOCATIONS AT INTERSECTIONS

NOTE:

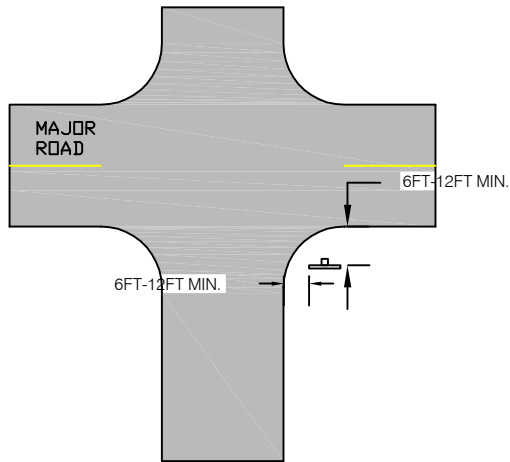
LATERAL OFFSET IS A MINIMUM OF 6FT. MEASURED FROM THE EDGE OF THE SHOULDER, OR 12FT. MEASURED FROM THE TRAVELED WAY



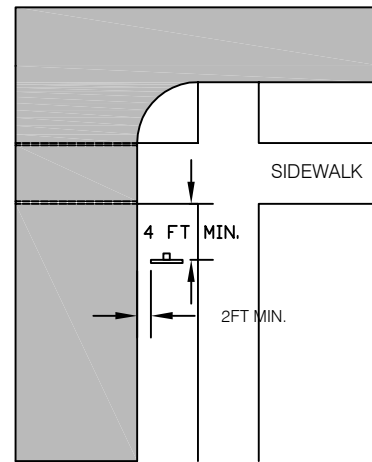
ACUTE ANGLE INTERSECTION



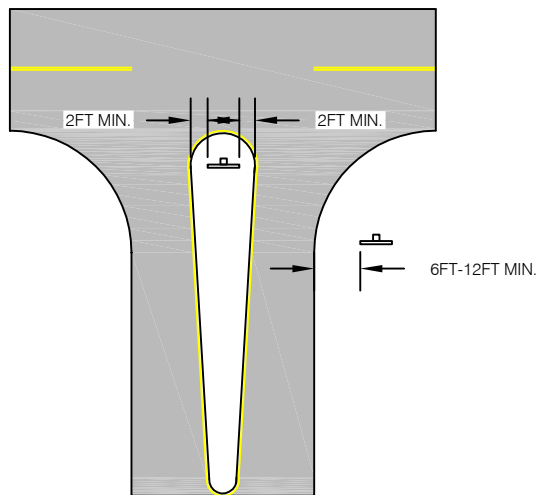
CHANNELIZED INTERSECTION



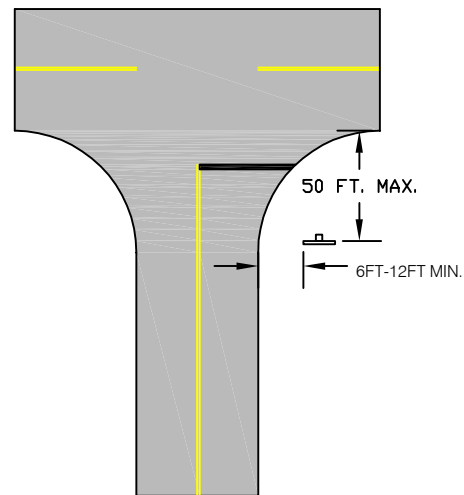
MINOR CROSSROAD



URBAN INTERSECTION



DIVISIONAL ISLAND



WIDE THROAT INTERSECTION

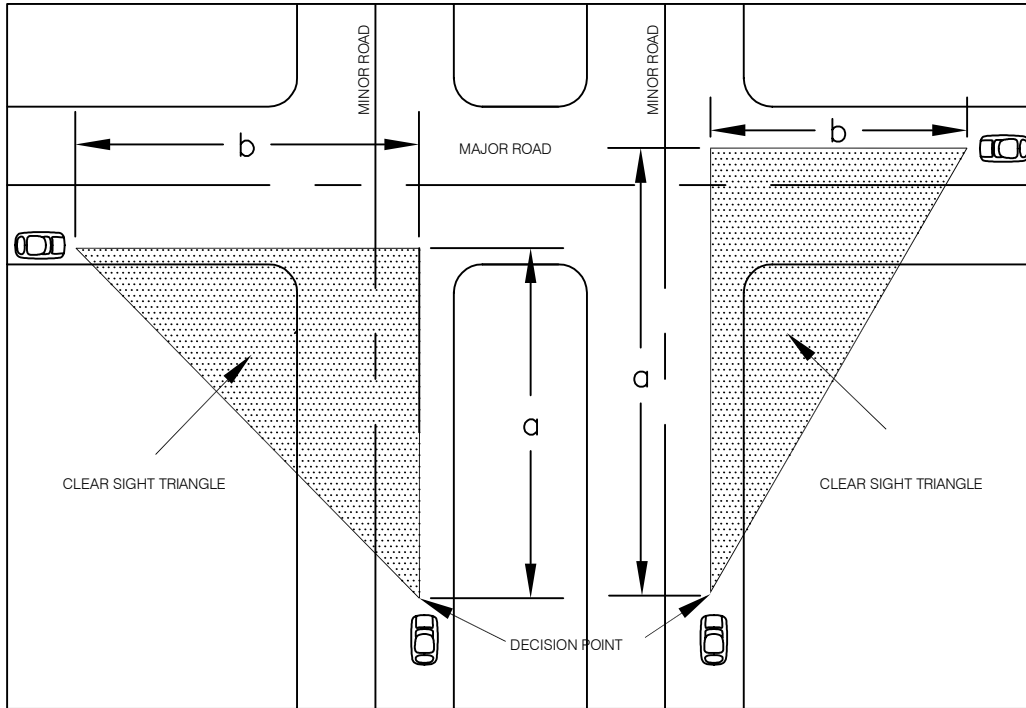
APPROVED BY: TRE DATE 01/12/2010
REVISION NO. DRAWN BY: MG



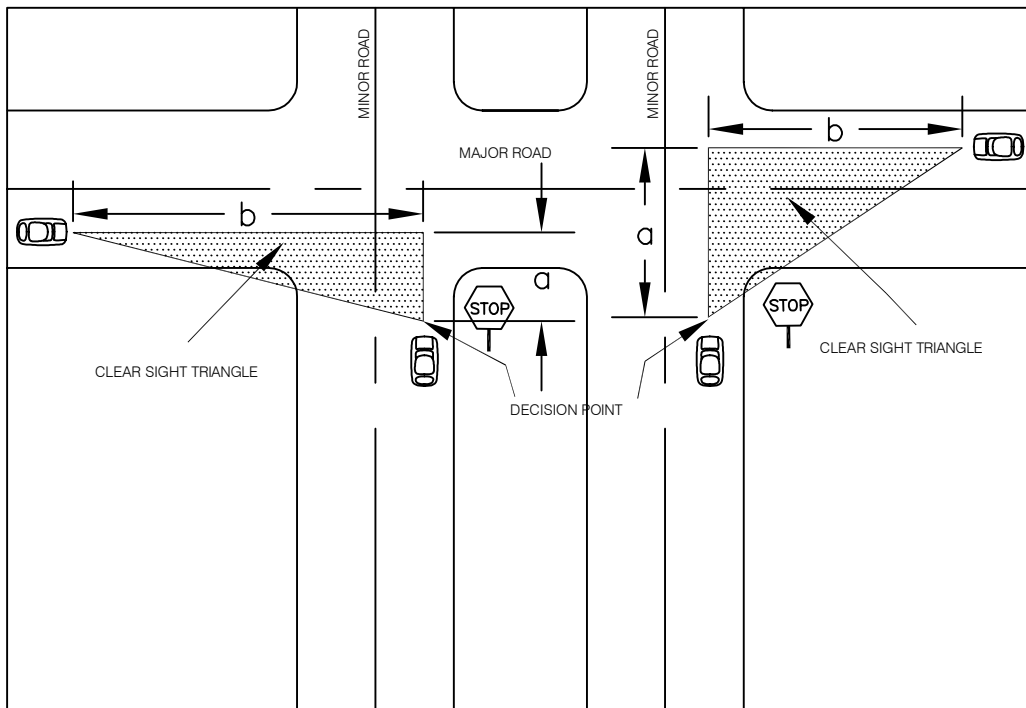
DEPARTMENT OF PUBLIC WORKS
MCSD-#406
TYPICAL SIGN LOCATIONS AT INTERSECTIONS

PAGE
1 OF 1

Uncontrolled Or Yield Controlled Intersection



Stop Controlled Through Street



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 REVISION NO. DRAWN BY: MG



DEPARTMENT OF PUBLIC WORKS
 MCSD-#408
 VISIBILITY OBSTRUCTION TRIANGLE

PAGE
 1 OF 2

Yield Control on Minor Road						
Major Road Design Speed (mph)	Minor Road Design Speed (mph)					
	15	20 - 50	55	60	65	70
	Length of each leg for crossing maneuver (ft)					
15	150	145	150	155	160	165
20	200	195	200	205	215	220
25	250	240	250	255	265	275
30	300	290	300	305	320	330
35	345	335	345	360	375	385
40	395	385	395	410	425	440
45	445	430	445	460	480	490
50	495	480	495	510	530	545
55	545	530	545	560	585	600
60	595	575	595	610	640	655
65	645	625	645	660	690	710
70	690	370	690	715	745	765

No Traffic Control	
Major Road Design Speed (mph)	Length of each leg (ft)
15	70
20	90
25	115
30	140
35	165
40	195
45	220
50	245
55	285
60	325
65	365
70	405
75	445

Yield Control on Minor Road	
Major Road Design Speed (mph)	Length of each leg for left or right turn (ft)
15	180
20	240
25	295
30	355
35	415
40	475
45	530
50	590
55	650
60	710
65	765
70	825
75	885

Stop Control on Minor Road		
Major Road Design Speed (mph)	Length of Leg b (ft)	
	Left turn from stop	Right turn or crossing from stop
15	170	145
20	225	195
25	280	240
30	335	290
35	390	335
40	445	385
45	500	430
50	555	480
55	610	530
60	665	575
65	720	625
70	775	670
75	830	720

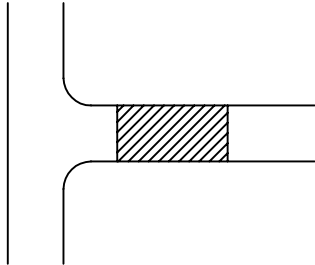
Note: Decision point of the departure sight triangle should be 14.5 ft from the edge of the major-road traveled way. The length of Leg a is measured from that point to the center of the respective lanes on the major road.

APPROVED BY: TRE	DATE 01/12/2010		DEPARTMENT OF PUBLIC WORKS	PAGE
REVISION NO.	DRAWN BY:		MCSD-#408_2	2 OF 2
			INTERSECTION SIGHT DISTANCES	

TEMPORARY GRAVEL CONSTRUCTION ENTRANCE

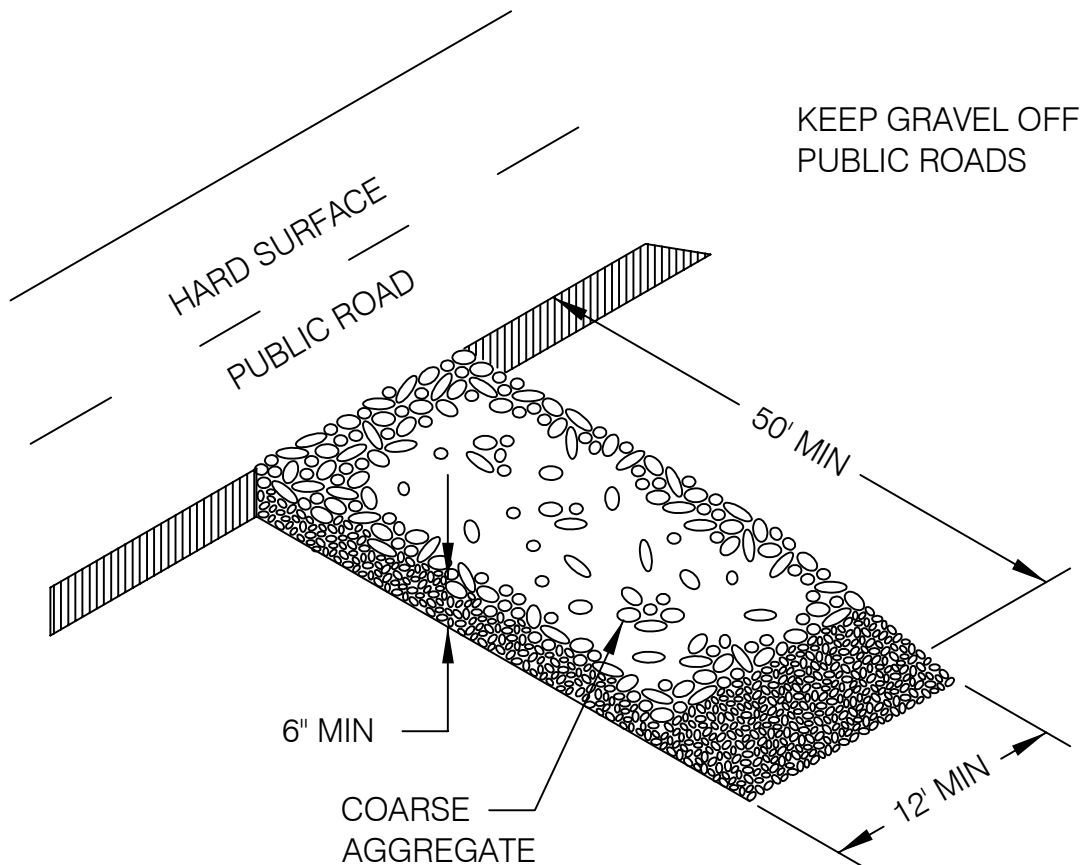
DEFINITION

A STONE STABILIZED PAD LOCATED AT POINTS OF VEHICULAR INGRESS AND EGRESS ON A CONSTRUCTION SITE



PURPOSE

TO REDUCE THE AMOUNT OF MUD TRANSPORTED ONTO PUBLIC ROADS BY MOTOR VEHICLES OR RUNOFF



APPROVED BY: TRE DATE 01/12/2010
REVISION NO. DRAWN BY:

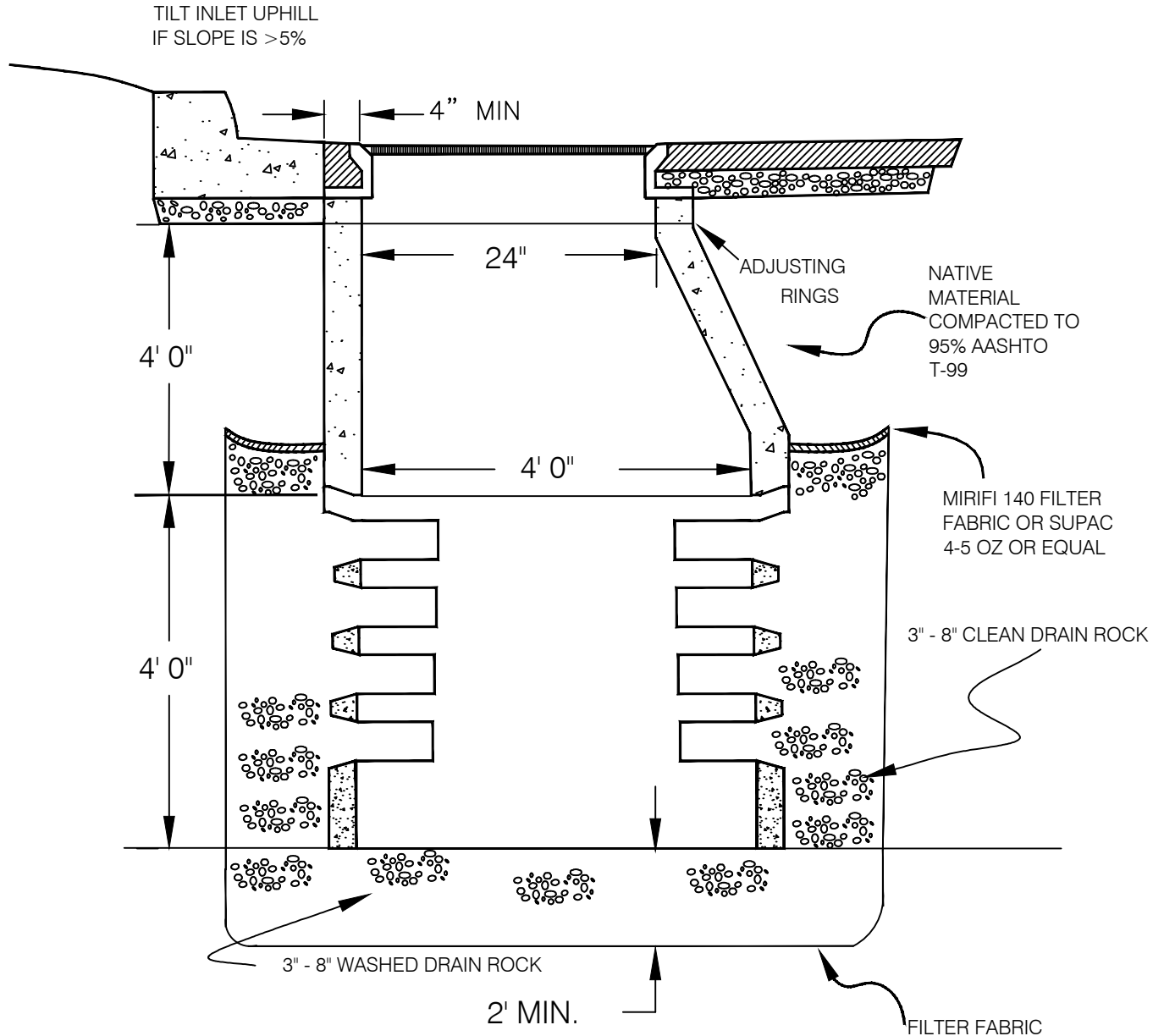


DEPARTMENT OF PUBLIC WORKS
MCSD-#410
TEMPORARY GRAVEL CONSTRUCTION ENTRANCE

PAGE
1 OF 1

STANDARD 8' PRECAST SUMP

CONSULT ENGINEER FOR ELEVATION, GRATE SIZE AND SPECIFICATION



NOTE: DUE TO PROVISIONS IN THE INTERMODAL SURFACE TRANSPORTATION ACT, VENDORS MUST AUTHENTICATE U.S. ORIGIN OF CASTINGS IN PROJECTS INVOLVING FEDERAL FUNDS. CONCRETE MUST MEET ASTM C478 SPECIFICATIONS.

APPROVED BY: ED DATE 2/1/2016
REVISION NO. 1 DRAWN BY: MG

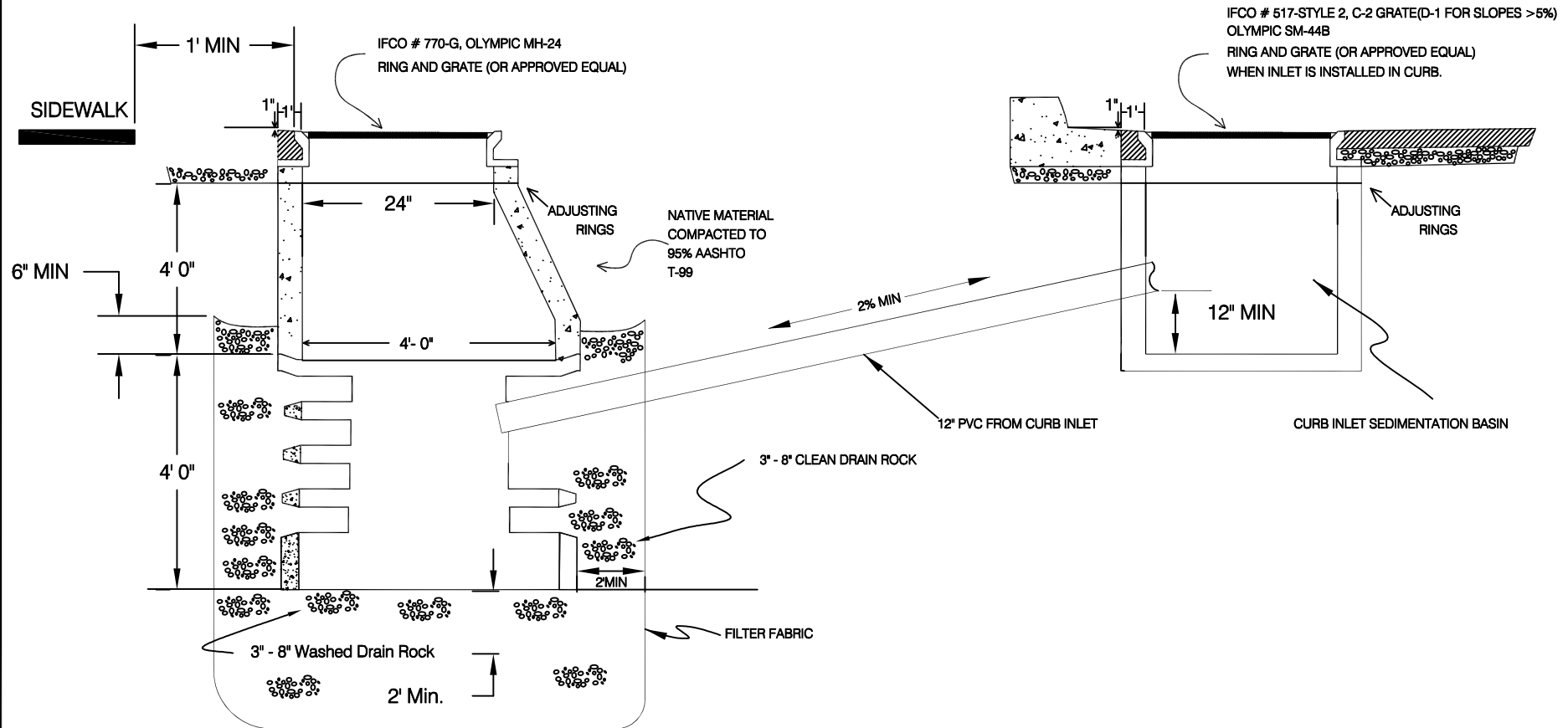


DEPARTMENT OF PUBLIC WORKS
MCSD-#600
STANDARD 8' PRECAST SUMP

PAGE
1 OF 1

STANDARD 8' PRECAST SUMP

DRAINAGE SUMP



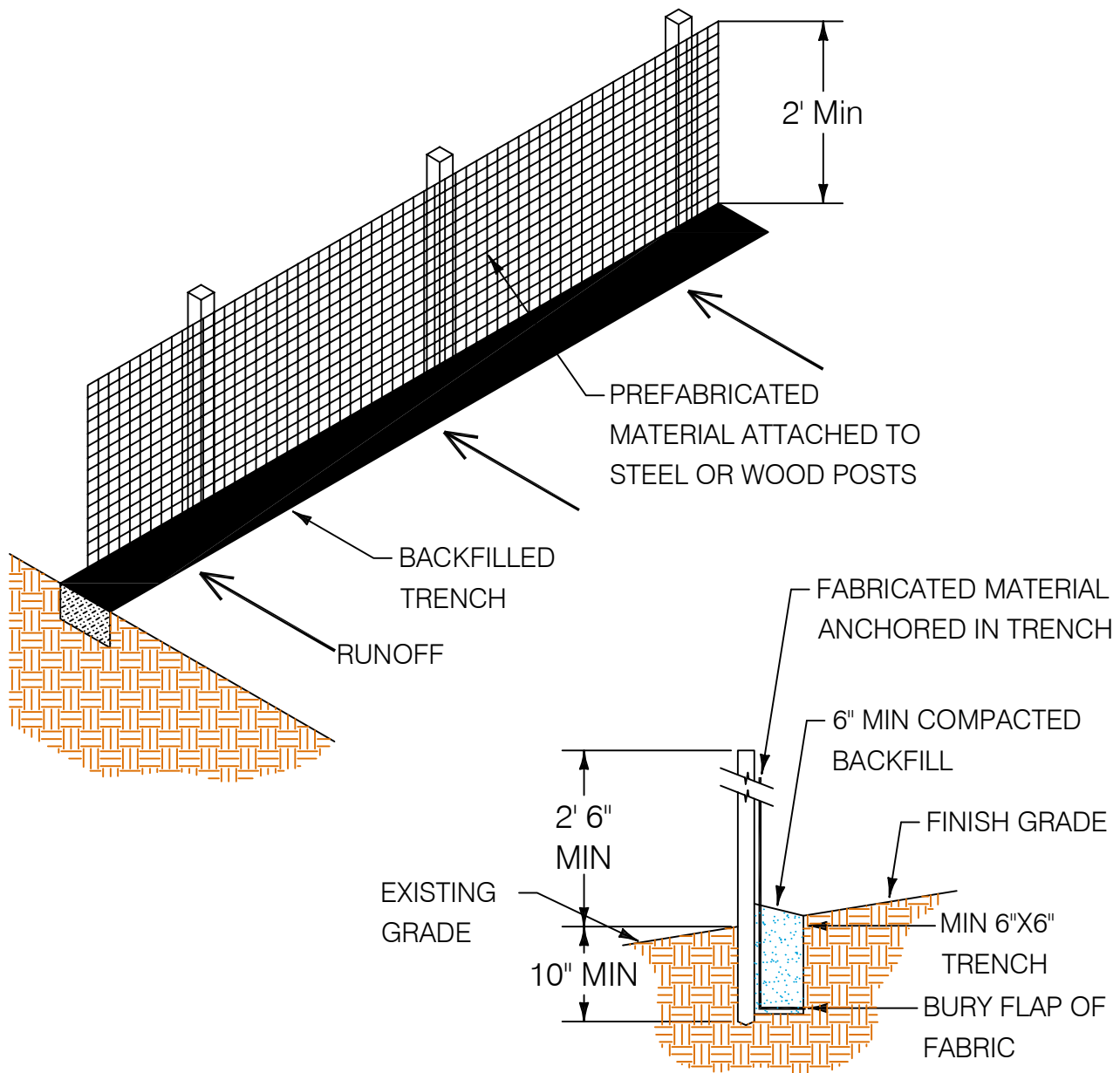
NOTE: DUE TO PROVISIONS IN THE INTERMODAL
SURFACE TRANSPORTATION ACT, VENDORS
MUST AUTHENTICATE U.S. ORIGIN OF CASTINGS
IN PROJECTS INVOLVING FEDERAL FUNDS.

APPROVED BY: TRE DATE 01/12/2010
REVISION NO. DRAWN BY: MG



DEPARTMENT OF PUBLIC WORKS
MCSD-#601
TYPICAL DRAINAGE SUMP

PAGE
1 OF 1



DETAIL

NOTES:

1. SILT FENCE SHALL BE INSTALLED BEFORE ANY EARTH REMOVAL OR EXCAVATION TAKES PLACE.
2. SET POSTS MAXIMUM 8 FEET ON CENTER AND EXCAVATE 6"X6" TRENCH UPSLOPE ALONG THE LINE OF POSTS.
3. ATTACH FILTER FABRIC TO POSTS AND EXTEND IT INTO TRENCH.
4. BACKFILL AND COMPACT EXCAVATED SOIL.

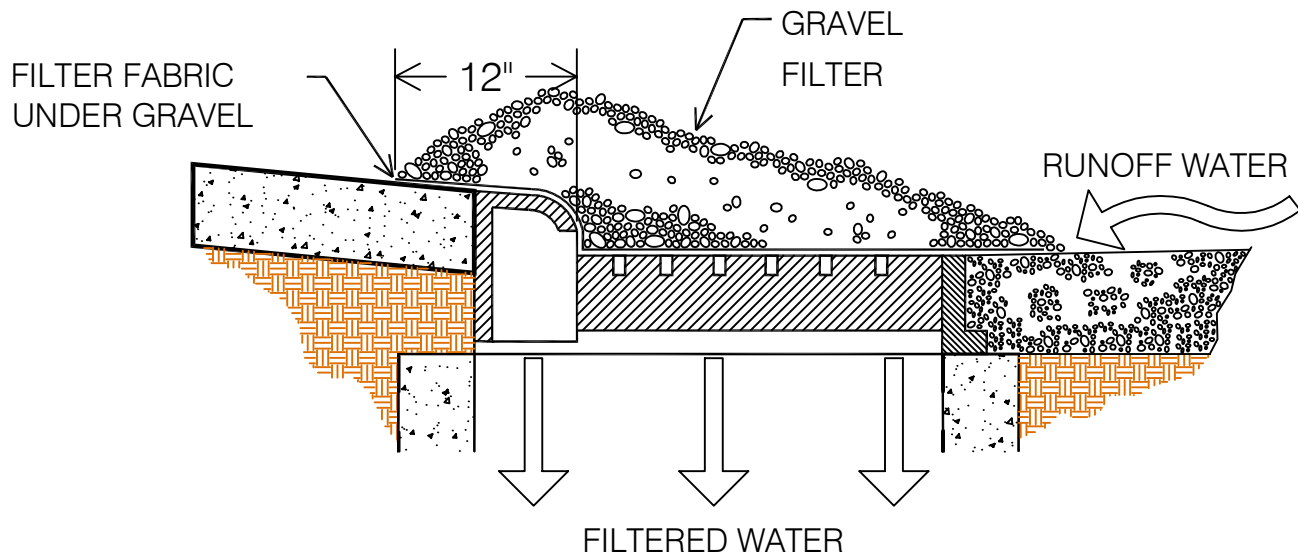
APPROVED BY: TRE DATE 01/12/2010
 REVISION NO. DRAWN BY:



DEPARTMENT OF PUBLIC WORKS
 MCSD-#602
 TYPICAL SILT FENCE INSTALLATION

PAGE
 1 OF 1

PRE-PAVING GRAVEL CURB INTAKE FILTER



NOTES: THIS APPLICATION FOR GRAVEL ROADS. SEE MCSD-604 FOR INLETS ON PAVED ROADS.

SAND BAGS FILLED WITH WASHED COARSE AGGREGATE MAY ALSO BE USED.

APPROVED BY: TRE DATE 01/12/2010

REVISION NO. DRAWN BY:



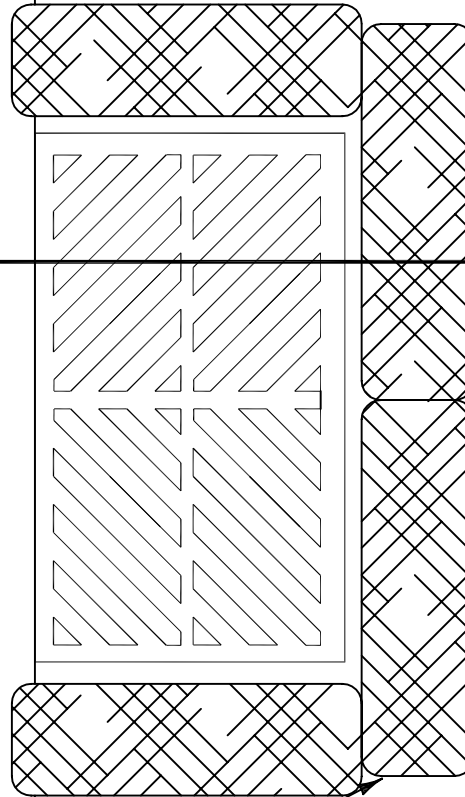
DEPARTMENT OF PUBLIC WORKS
MCSD-#603
PRE-PAVING GRAVEL CURB INTAKE FILTER

PAGE
1 OF 1

SIDEWALK

A
↑

CURB →

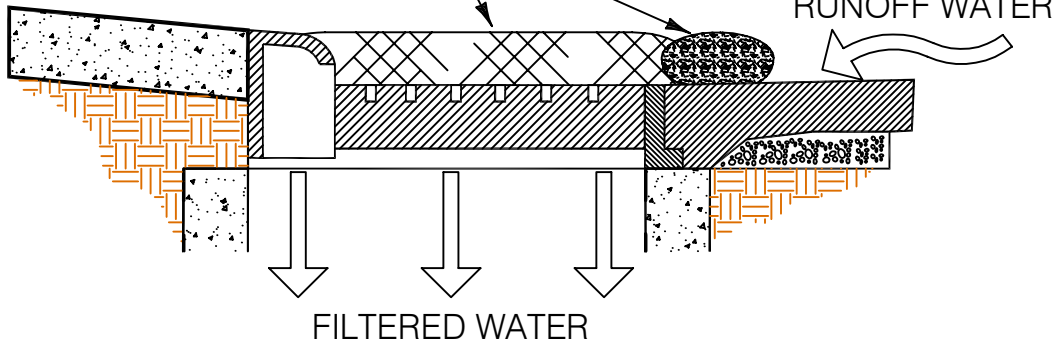


PAVED COUNTY STREET

NO GAPS -
TIGHTLY
ABUTTED

PLAN

SAND BAGS FILLED WITH
WASHED COARSE AGGREGATE



RUNOFF WATER

FILTERED WATER

SECTION A-A

NOTE: THIS APPLICATION FOR PAVED STREETS. SEE MCSD-603
FOR INLETS ON GRAVEL ROADS.

APPROVED BY: TRE DATE 01/12/2010

REVISION NO. DRAWN BY:

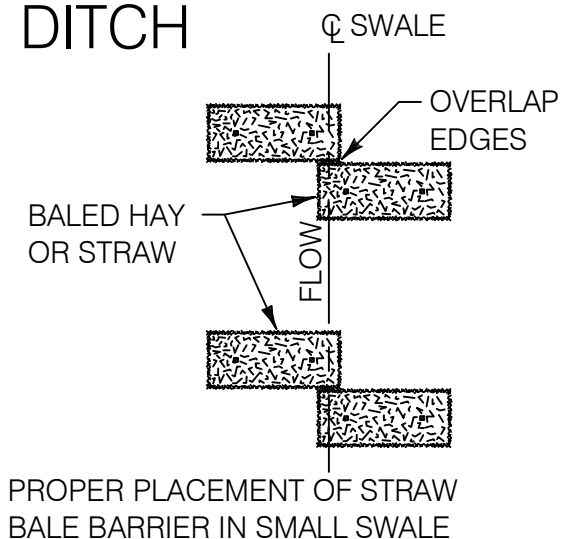


DEPARTMENT OF PUBLIC WORKS
MCSD-#604
POST-PAVING GRAVEL CURB INTAKE FILTER

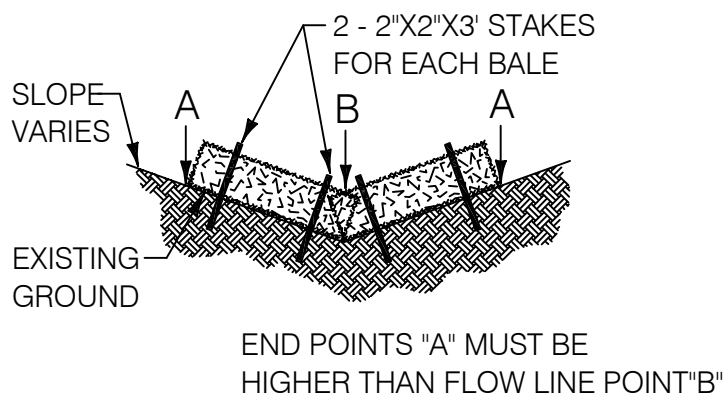
PAGE

1 OF 1

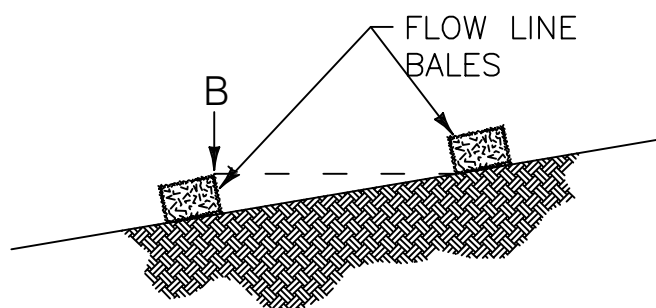
NARROW DITCH



PLAN

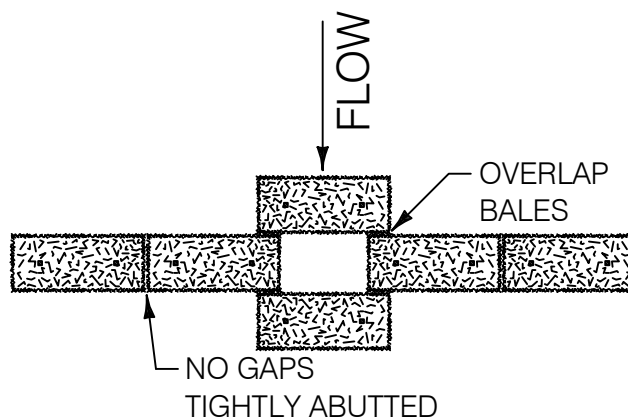


ELEVATION

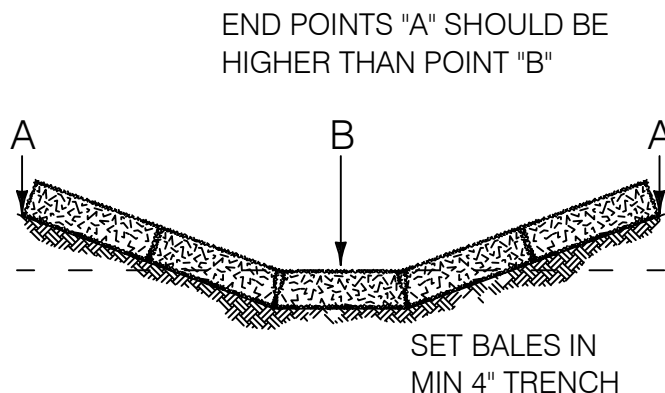


PROFILE

WIDE DITCH



PLAN



ELEVATION

PLACE DOWNSTREAM BALES SUCH THAT POINT "B" IS APPROXIMATELY LEVEL WITH THE LOWEST ELEVATION OF THE UPSTREAM BALE

APPROVED BY: TRE DATE 01/12/2010

REVISION NO. DRAWN BY:



DEPARTMENT OF PUBLIC WORKS

MCSD-#605

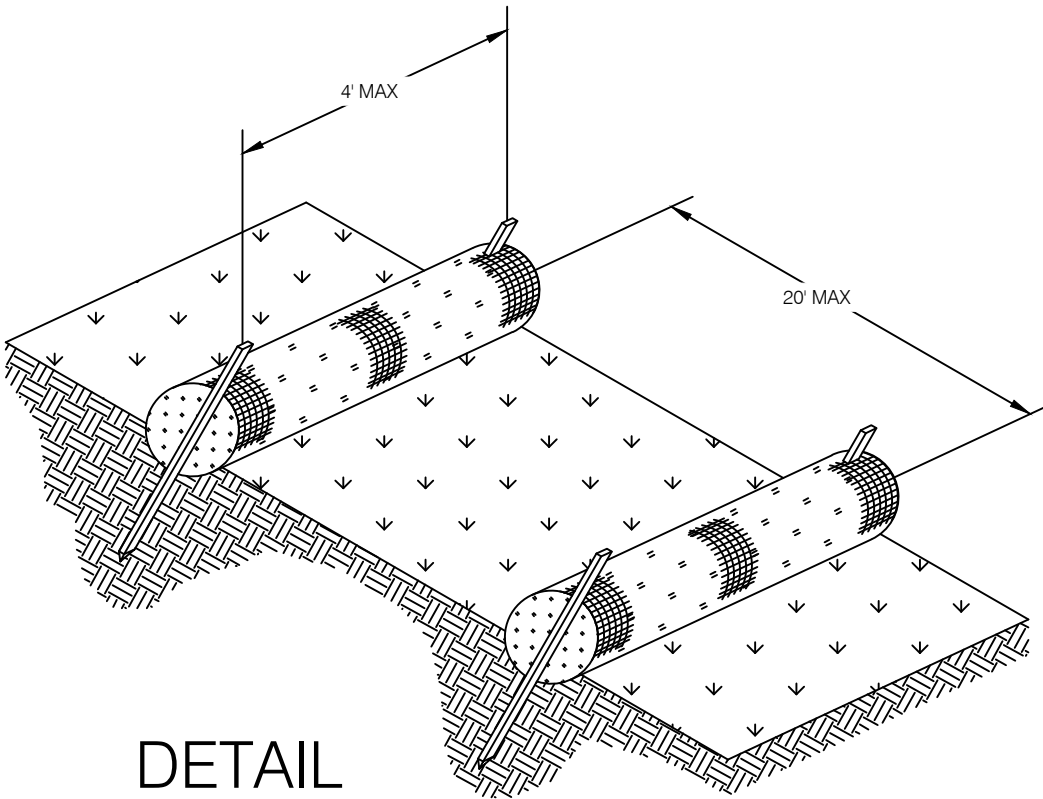
TYPICAL STRAW BALE CHECK DAMS

PAGE

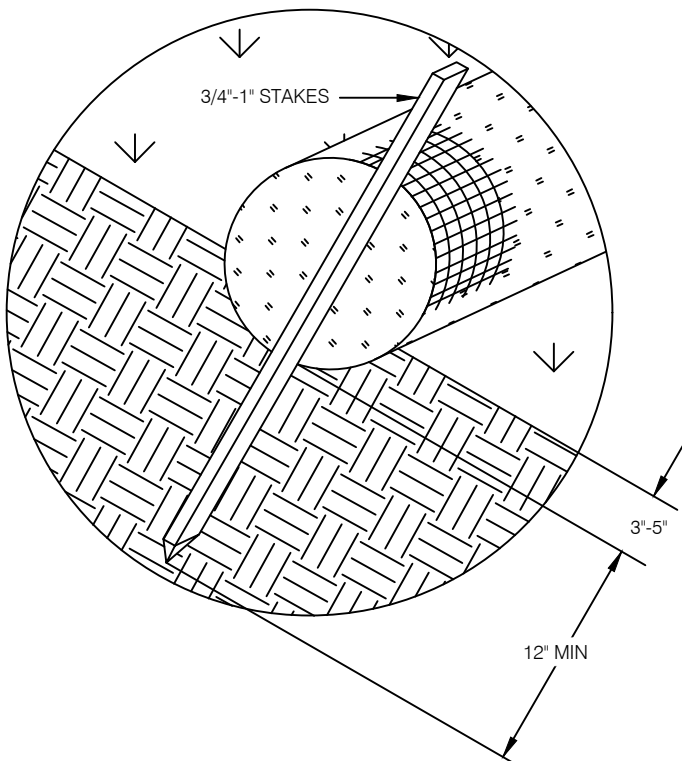
1 OF 1

STRAW WATTLE CHECK DAMS

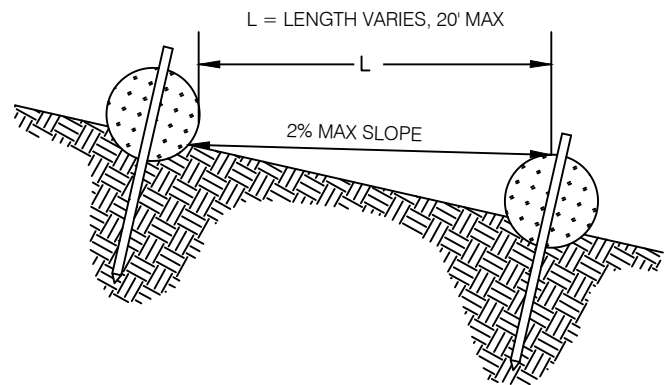
NOT TO SCALE



DETAIL



PROFILE



NOTES

1. WATTLES SHALL BE EMBEDDED 3" TO 5" INTO SOIL
2. STAKES SHALL BE EMBEDDED TO A MINIMUM DEPTH OF 12"
3. WATTLES SHALL BE TIGHTLY ABUTTED WITH NO GAPS

APPROVED BY: ED DATE 2/8/2016
REVISION NO. DRAWN BY: NG






DEPARTMENT OF PUBLIC WORKS
MCSD-#606
TYPICAL STRAW WATTLE CHECK DAMS





PAGE
1 OF 1




APPENDIX B

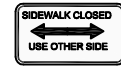
TEMPORARY TRAFFIC CONTROL APPLICATIONS

MCSD-TC 101	RESIDENTIAL - ALLEY
MCSD-TC 102	COMMERCIAL - ALLEY
MCSD-TC 103	RESIDENTIAL - SHOULDER/CURB/SIDEWALK WORK
MCSD-TC 104	RESIDENTIAL - CLOSE ONE DRIVING LANE
MCSD-TC 105	RESIDENTIAL - CLOSE ENTIRE STREET
MCSD-TC 106	RESIDENTIAL - SHOULDER/CURB/SIDEWALK WORK ON CORNER
MCSD-TC 107	RESIDENTIAL - CLOSE ONE TRAFFIC LANE ON CORNER
MCSD-TC 108	RESIDENTIAL - CENTER OF INTERSECTION
MCSD-TC 109	RESIDENTIAL - CLOSE INTERSECTION
MCSD-TC 201	COLLECTOR - SHOULDER/CURB/SIDEWALK WORK
MCSD-TC 202	COLLECTOR - CLOSE ONE DRIVING LANE, MAINTAIN 2-WAY TRAFFIC
MCSD-TC 203	COLLECTOR - CLOSE ONE DRIVING LANE, USE FLAGMEN
MCSD-TC 204	COLLECTOR - CLOSE ONE DRIVING LANE AT INTERSECTION, MAINTAIN 2-WAY TRAFFIC
MCSD-TC 205	COLLECTOR - CLOSE ONE DRIVING LANE WITH DETOUR
MCSD-TC 206	COLLECTOR - CLOSE STREET
MCSD-TC 207	COLLECTOR - CLOSE STREET
MCSD-TC 208	COLLECTOR - WORK IN CENTER OF INTERSECTION
MCSD-TC 209	COLLECTOR - CLOSE CENTER LANE, MAINTAIN 2-WAY TRAFFIC
MCSD-TC 210	COLLECTOR - CLOSE ONE DRIVING LANE

-  TYPE III BARRICADE
-  TYPE II BARRICADE
-  TYPE I BARRICADE

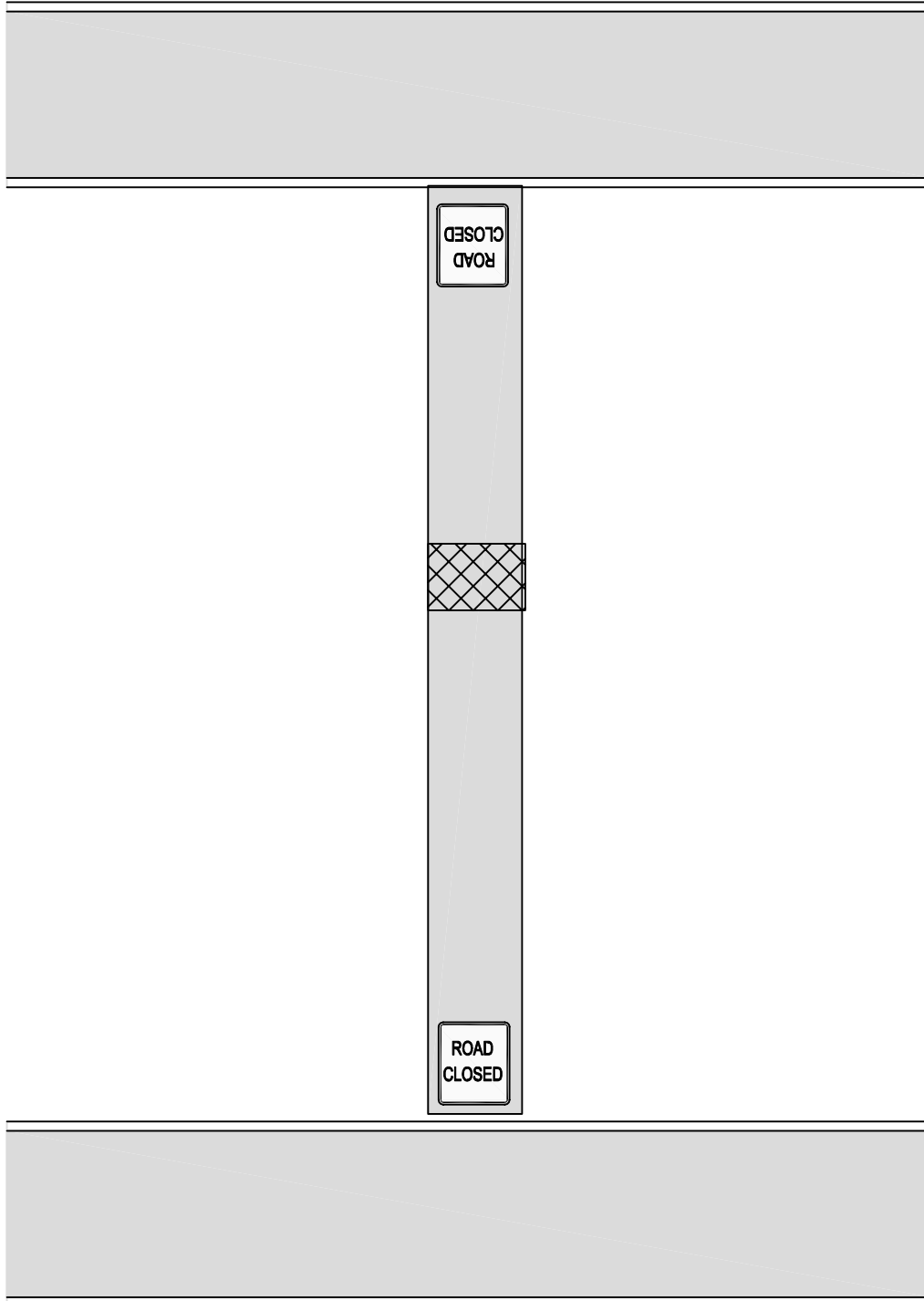
-  WARNING SIGNS
-  DETOUR SIGNS
-  DETOUR ROUTING
-  REGULATORY SIGNS

-  DELINEATORS
-  SIGN LOCATION SYMBOL
-  WORK ZONE



SIDEWALK CLOSED
MUST BE USED
WHENEVER A
COUNTY SIDEWALK
IS TO BE CLOSED

TRAFFIC CONTROL MUST CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)










APPROVED BY: TRE DATE 01/12/2010
REVISION NO. DRAWN BY:






DEPARTMENT OF PUBLIC WORKS
MCSD-# TC 101
RESIDENTIAL ALLEY

PAGE
1 OF 1

-  TYPE III BARRICADE
-  TYPE II BARRICADE
-  TYPE I BARRICADE

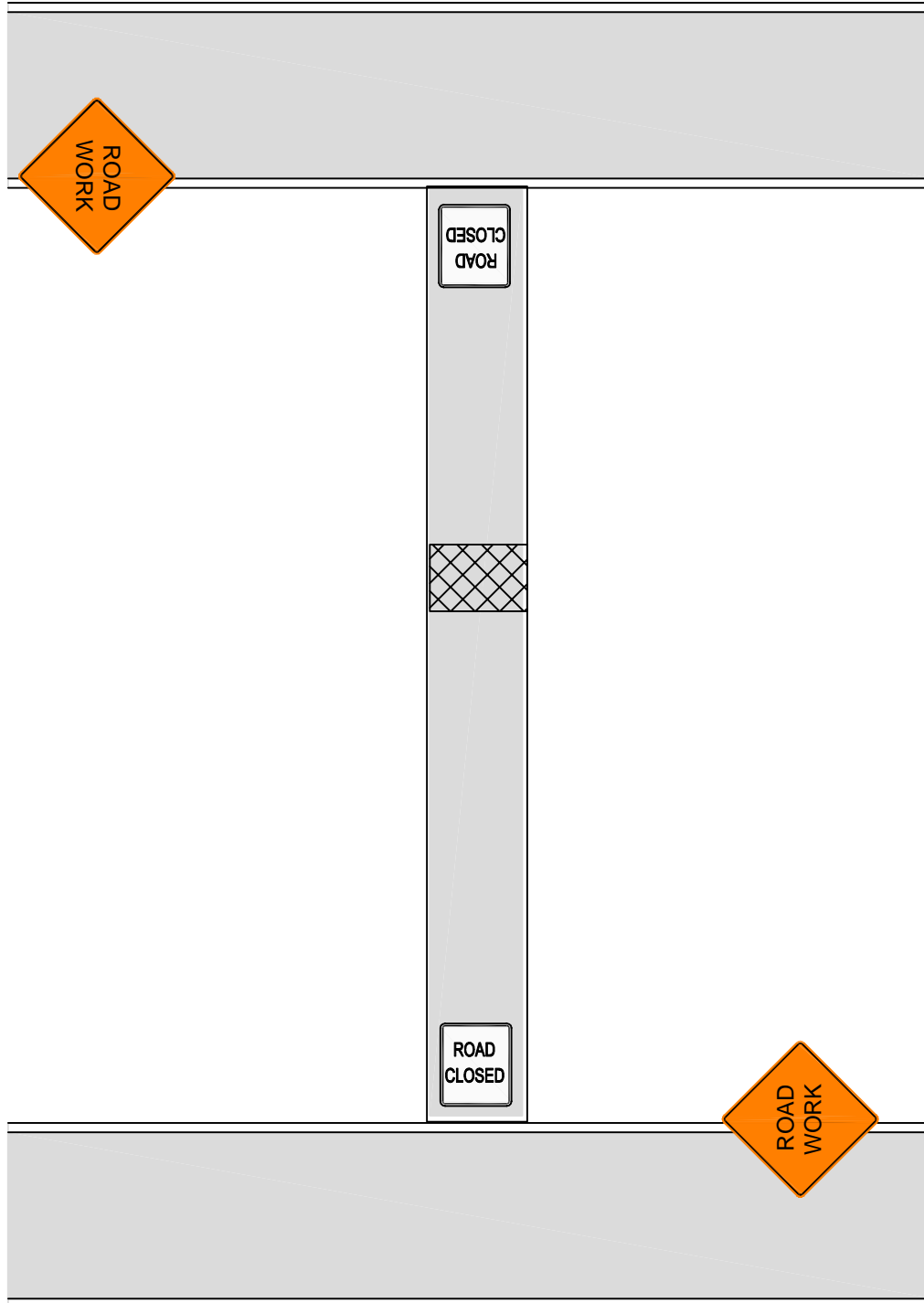
-  WARNING SIGNS
-  DETOUR SIGNS
-  DETOUR ROUTING
-  REGULATORY SIGNS

-  DELINEATORS
-  SIGN LOCATION SYMBOL
-  WORK ZONE



SIDEWALK CLOSED
MUST BE USED
WHENEVER A
COUNTY SIDEWALK
IS TO BE CLOSED

TRAFFIC CONTROL MUST CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)










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REVISION NO. DRAWN BY: MRG






DEPARTMENT OF PUBLIC WORKS
MCSD-#TC 102
COMMERCIAL ALLEY (HIGH TRAFFIC)

PAGE
1 OF 1

-  TYPE III BARRICADE
-  TYPE II BARRICADE
-  TYPE I BARRICADE

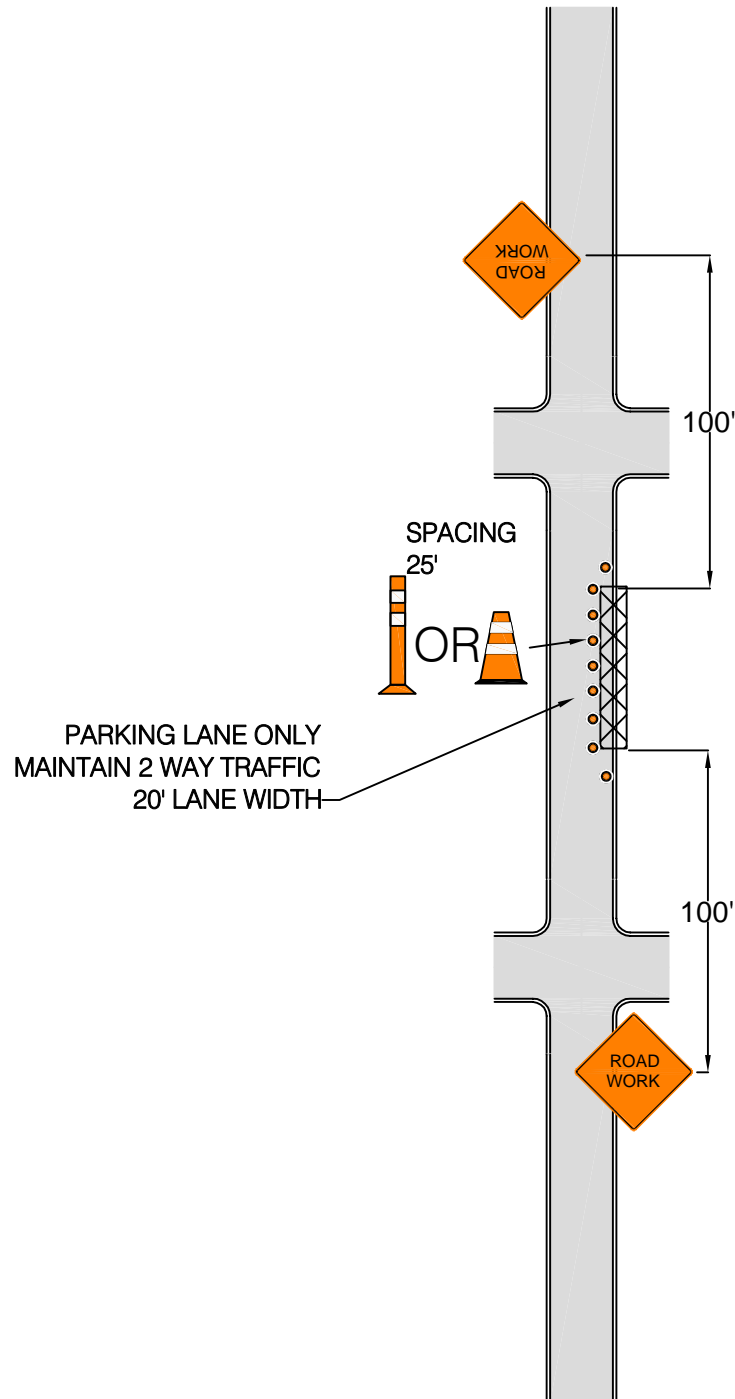
-  WARNING SIGNS
-  DETOUR SIGNS
-  DETOUR ROUTING
-  REGULATORY SIGNS

-  DELINEATORS
-  SIGN LOCATION SYMBOL
-  WORK ZONE



SIDEWALK CLOSED
MUST BE USED
WHENEVER A
COUNTY SIDEWALK
IS TO BE CLOSED

TRAFFIC CONTROL MUST CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)










APPROVED BY: TRE DATE 01/12/2010
REVISION NO. DRAWN BY: MRG






DEPARTMENT OF PUBLIC WORKS
MCSD-# TC 103
RESIDENTIAL SHOULDER WORK, CURB/SW

PAGE
1 OF 1

-  TYPE III BARRICADE
-  TYPE II BARRICADE
-  TYPE I BARRICADE

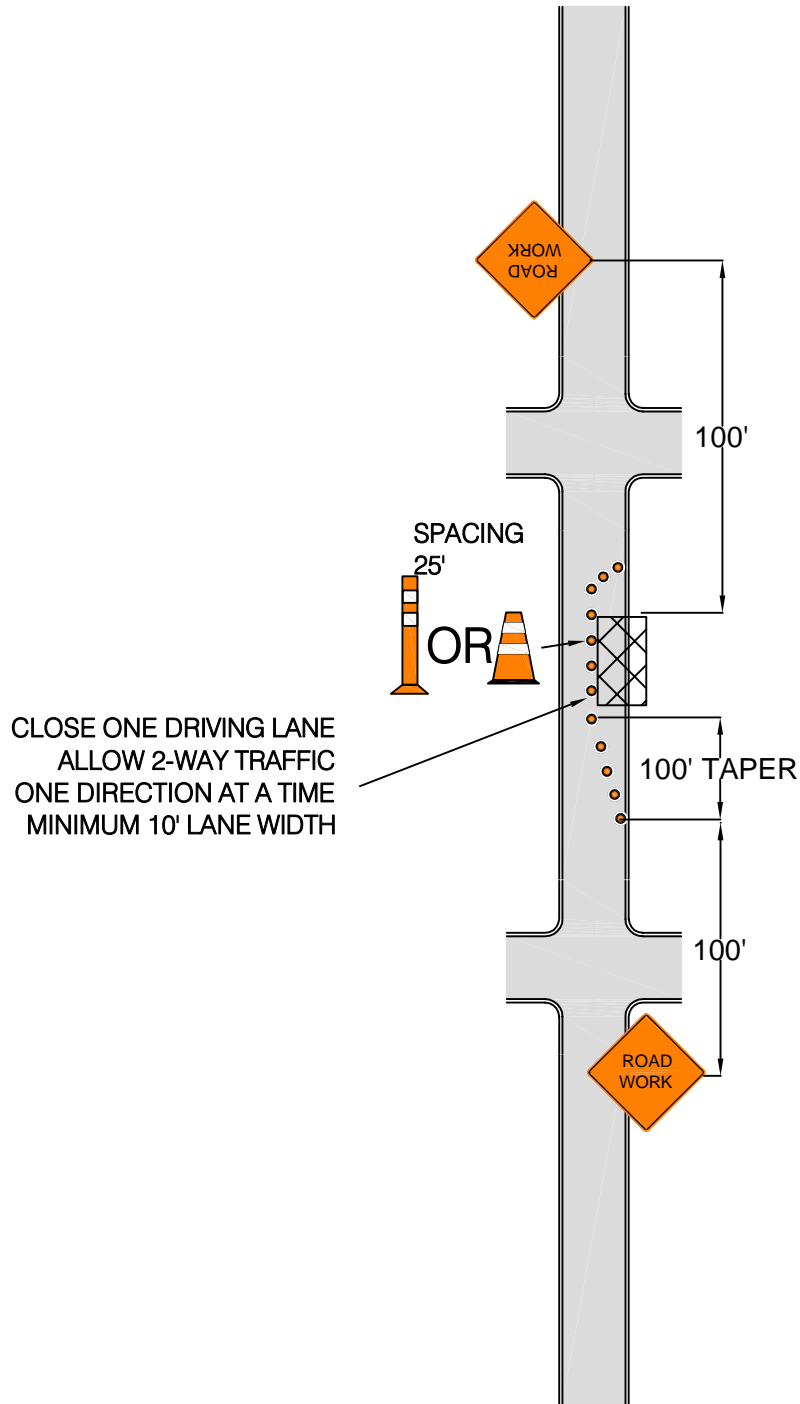
-  WARNING SIGNS
-  DETOUR SIGNS
-  DETOUR ROUTING
-  REGULATORY SIGNS

-  DELINEATORS
-  SIGN LOCATION SYMBOL
-  WORK ZONE



SIDEWALK CLOSED
MUST BE USED
WHENEVER A
COUNTY SIDEWALK
IS TO BE CLOSED

TRAFFIC CONTROL MUST CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)










APPROVED BY: TRE DATE 01/12/2010
REVISION NO. DRAWN BY: MRG






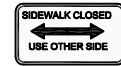
DEPARTMENT OF PUBLIC WORKS
MCSD-#TC 104
RESIDENTIAL, CLOSE ONE DRIVING LANE

PAGE
1 OF 1

-  TYPE III BARRICADE
-  TYPE II BARRICADE
-  TYPE I BARRICADE

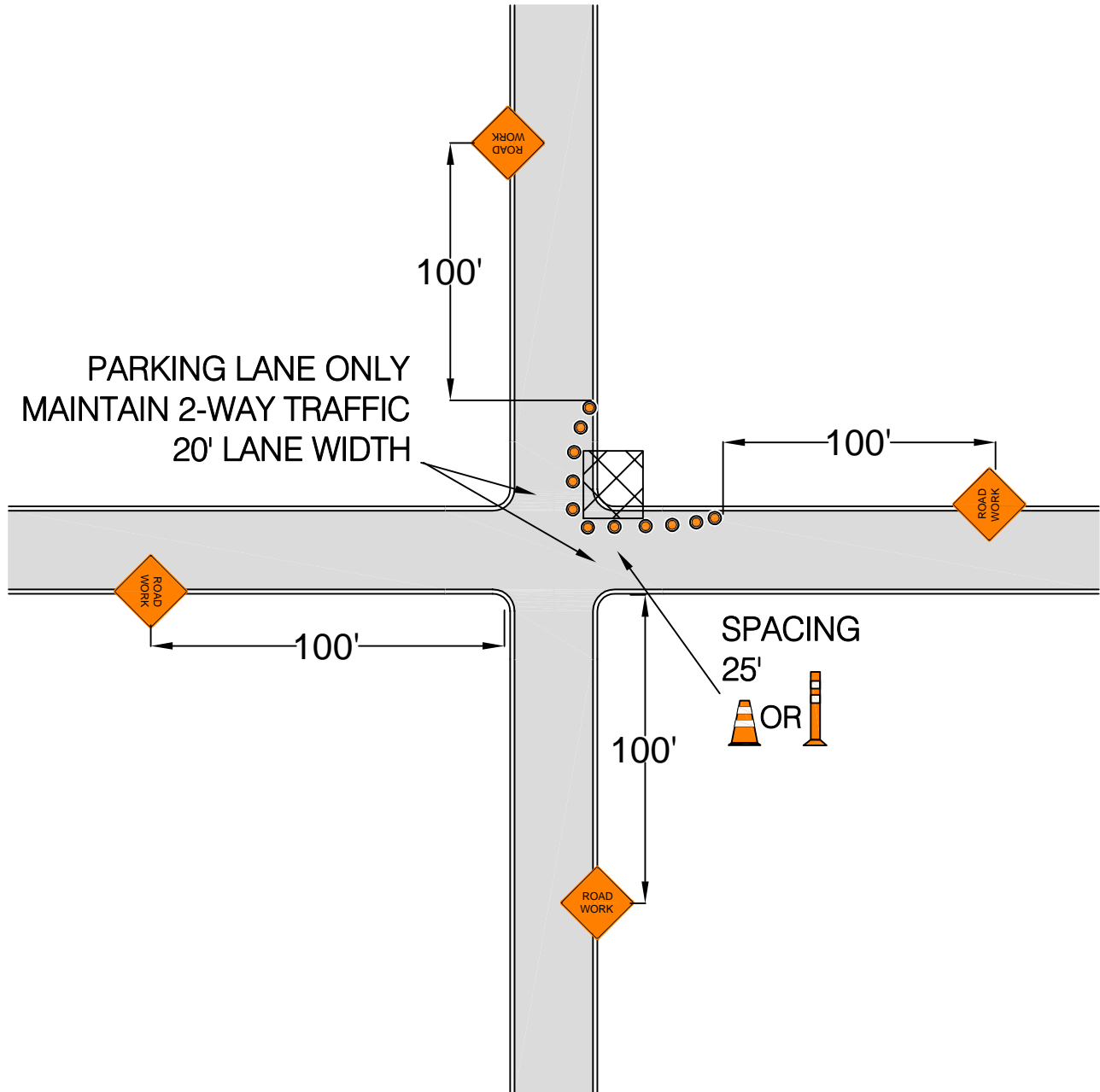
-  WARNING SIGNS
-  DETOUR SIGNS
-  DETOUR ROUTING
-  REGULATORY SIGNS

-  DELINEATORS
-  SIGN LOCATION SYMBOL
-  WORK ZONE



SIDEWALK CLOSED
MUST BE USED
WHENEVER A
COUNTY SIDEWALK
IS TO BE CLOSED

TRAFFIC CONTROL MUST CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)

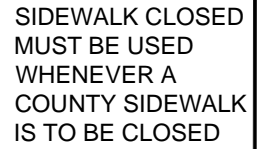





APPROVED BY: TRE DATE 01/12/2010
REVISION NO. DRAWN BY: MRG










DEPARTMENT OF PUBLIC WORKS
MCSD-#TC 106
RESIDENTIAL
SHOULDER, CURB, OR SW WORK ON CORNER

PAGE
1 OF 1



-  TYPE III BARRICADE
-  TYPE II BARRICADE
-  TYPE I BARRICADE

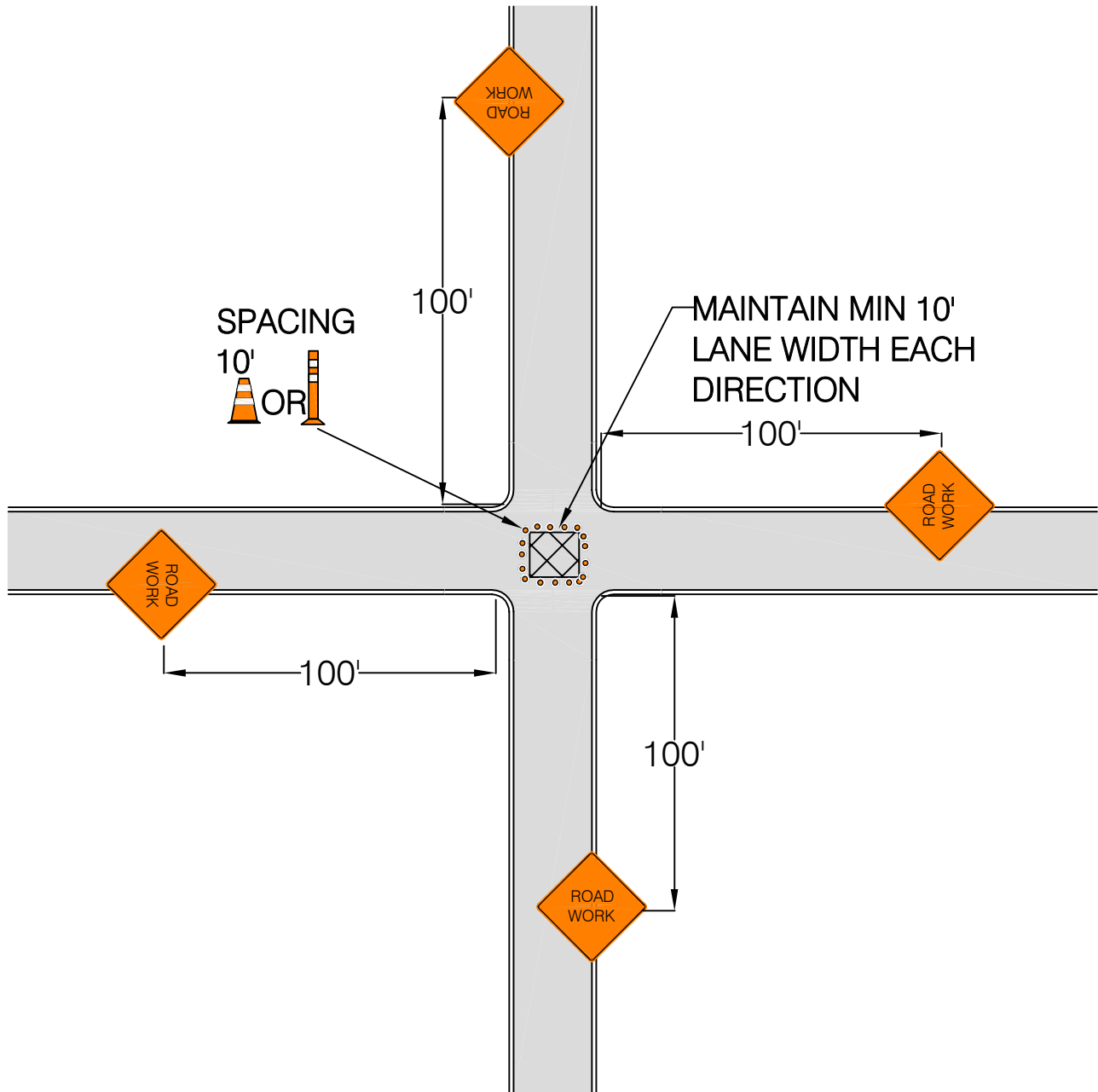
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-  DETOUR SIGNS
-  DETOUR ROUTING
-  REGULATORY SIGNS

-  DELINEATORS
-  SIGN LOCATION SYMBOL
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REVISION NO. DRAWN BY: MRG






DEPARTMENT OF PUBLIC WORKS
MCSD-#TC 108
RESIDENTIAL, CENTER OF INTERSECTION

PAGE
1 OF 1

-  TYPE III BARRICADE
-  TYPE II BARRICADE
-  TYPE I BARRICADE

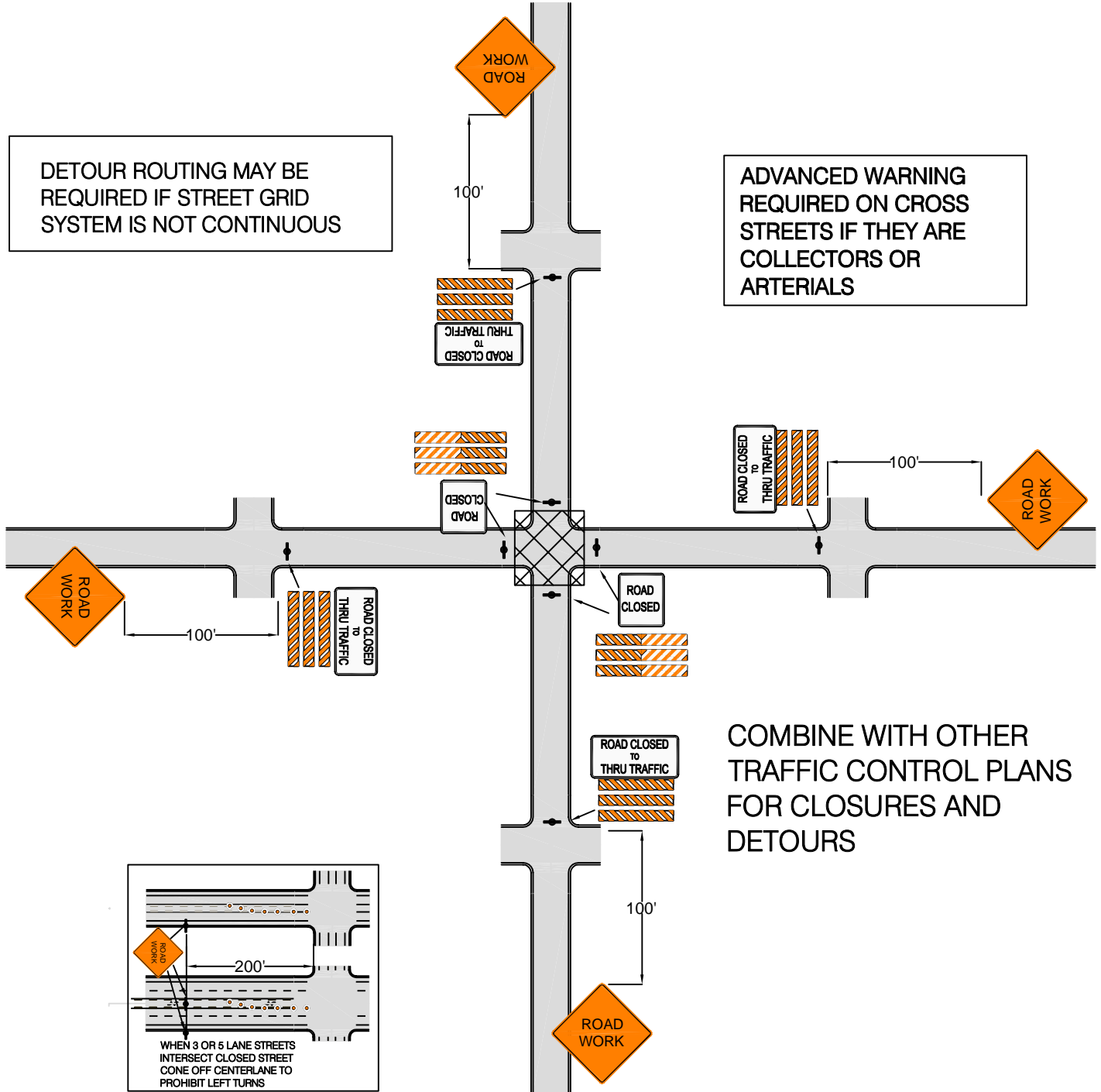
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-  DETOUR SIGNS
-  DETOUR ROUTING
-  REGULATORY SIGNS

-  DELINEATORS
-  SIGN LOCATION SYMBOL
-  WORK ZONE



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



DEPARTMENT OF PUBLIC WORKS
MCSD-#TC 109
RESIDENTIAL, CLOSE INTERSECTION

PAGE
1 OF 1

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-  TYPE II BARRICADE
-  TYPE I BARRICADE

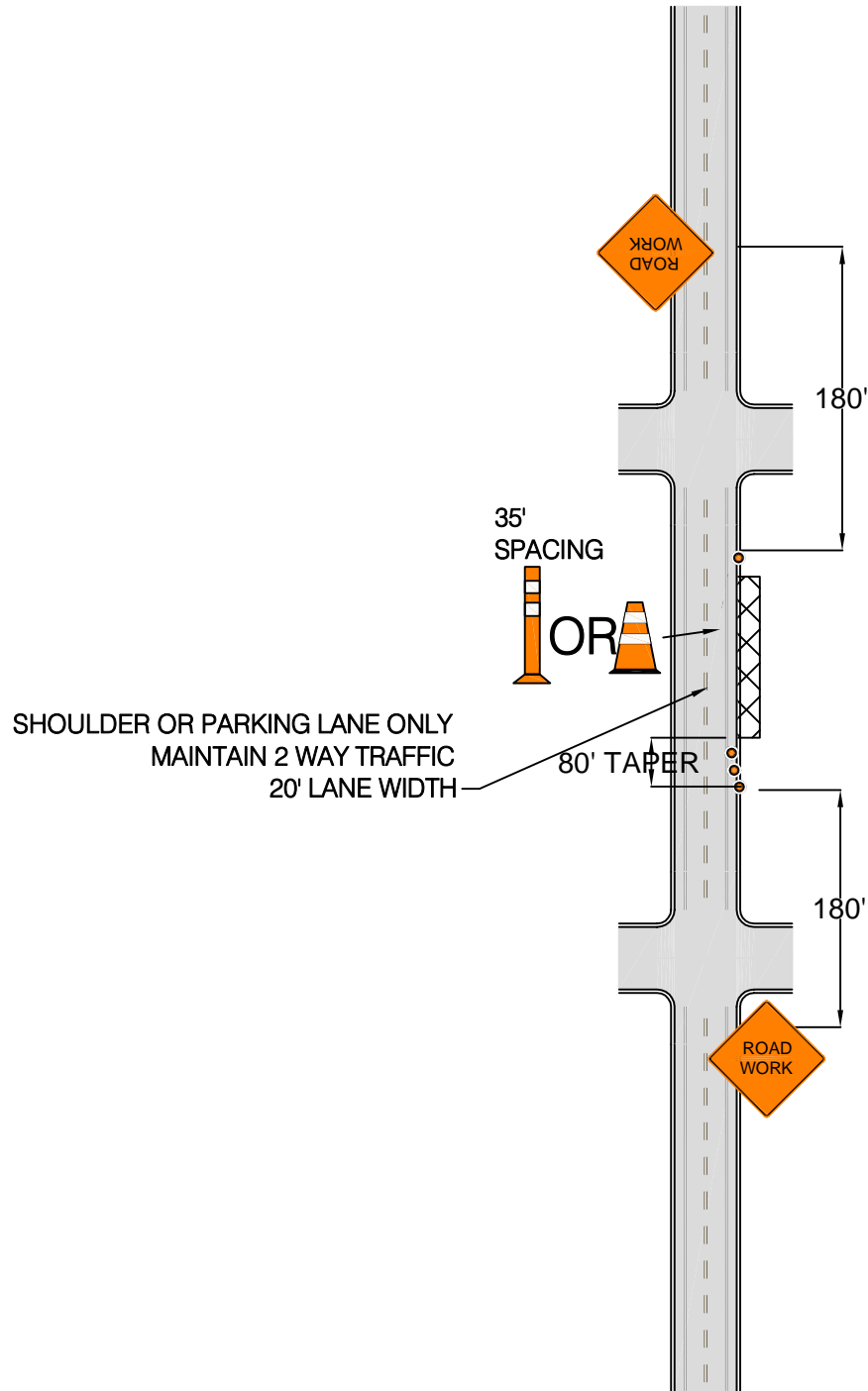
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-  DETOUR SIGNS
-  DETOUR ROUTING
-  REGULATORY SIGNS

-  DELINEATORS
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APPROVED BY: TRE DATE 01/12/2010
REVISION NO. DRAWN BY: MRG






DEPARTMENT OF PUBLIC WORKS
MCSD-#TC 201
2 LANE COLLECTOR, SHOULDER WORK / CURB, SW

PAGE
1 OF 1

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-  TYPE II BARRICADE
-  TYPE I BARRICADE

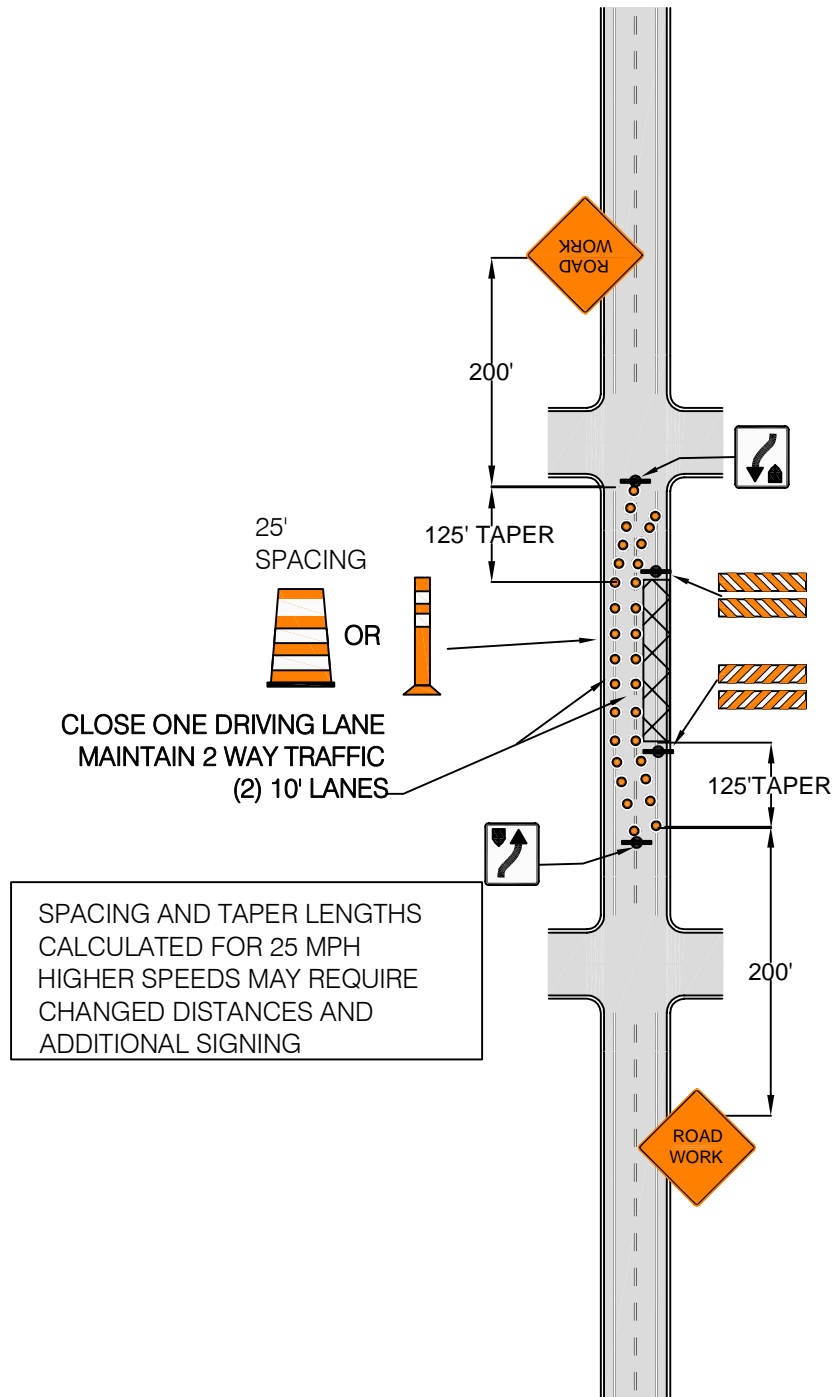
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-  DETOUR SIGNS
-  DETOUR ROUTING
-  REGULATORY SIGNS

-  DELINEATORS
-  SIGN LOCATION SYMBOL
-  WORK ZONE



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APPROVED BY: TRE DATE 01/12/2010
REVISION NO. DRAWN BY: MRG






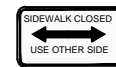
DEPARTMENT OF PUBLIC WORKS
MCSD-#TC 202
2 LANE COLLECTOR
CLOSE ONE DRIVING LANE MAINTAIN 2-WAY TRAFFIC

PAGE
1 OF 1

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-  TYPE II BARRICADE
-  TYPE I BARRICADE

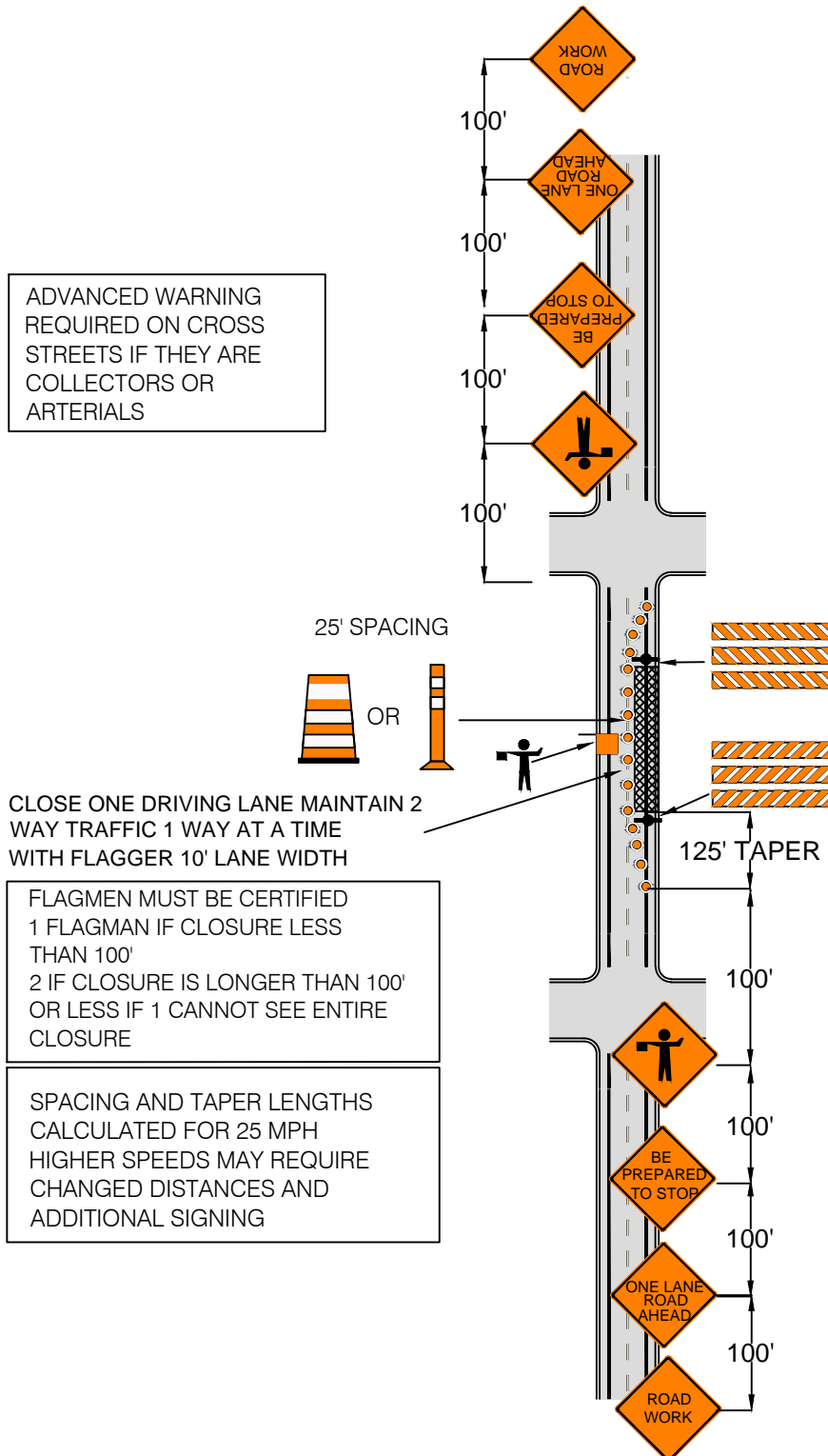
-  WARNING SIGNS
-  DETOUR SIGNS
-  DETOUR ROUTING
-  REGULATORY SIGNS

-  DELINEATORS
-  SIGN LOCATION SYMBOL
-  WORK ZONE



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TRAFFIC CONTROL MUST CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)










APPROVED BY: ED DATE: 1/2/2016
REVISION NO. 1 DRAWN BY: MRG






DEPARTMENT OF PUBLIC WORKS
MCSD-#TC 203
2 LANE COLLECTOR
CLOSE ONE DRIVING LANE USE FLAGMEN

PAGE
1 OF 1

-  TYPE III BARRICADE
-  TYPE II BARRICADE
-  TYPE I BARRICADE

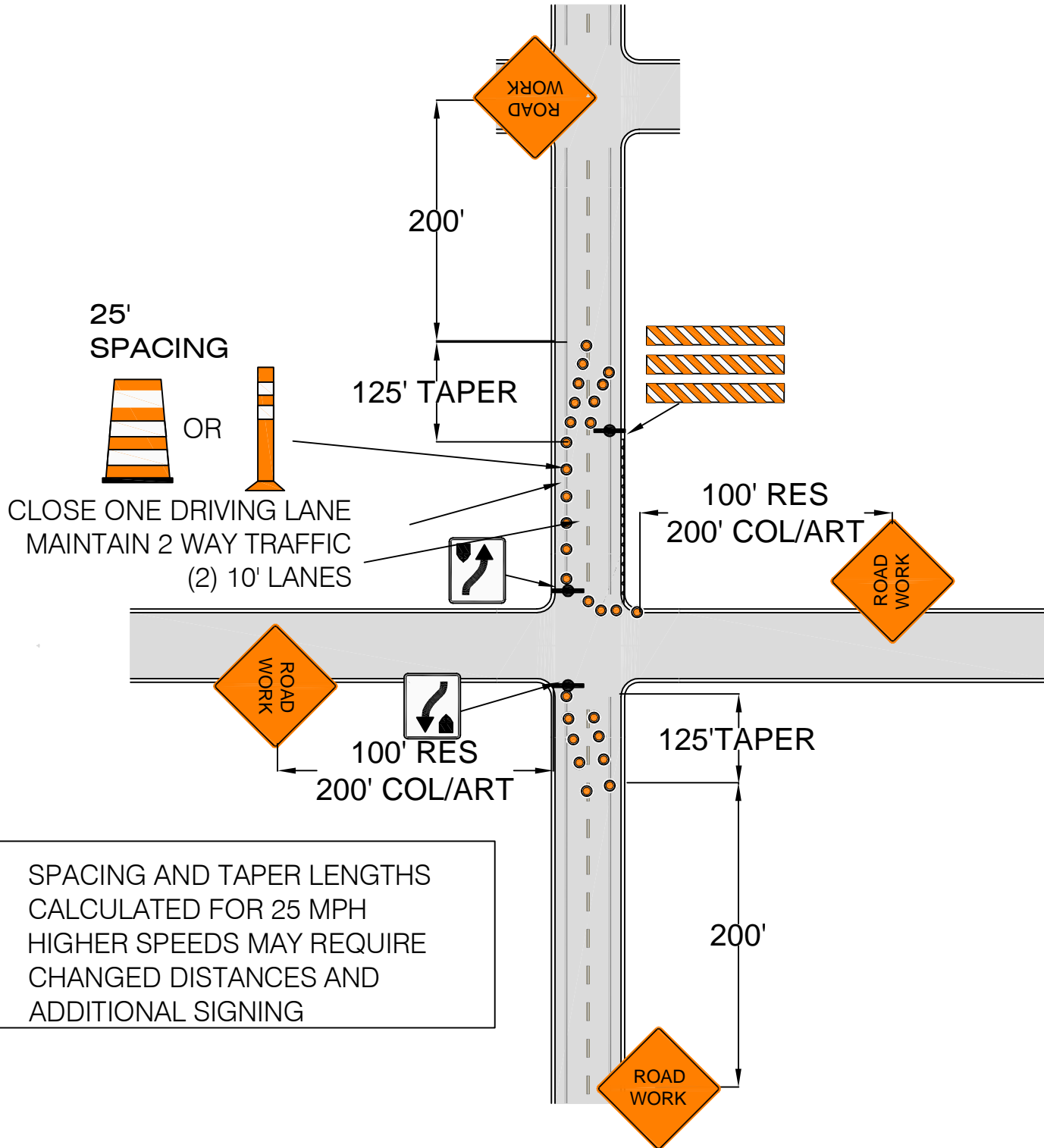
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-  DETOUR SIGNS
-  DETOUR ROUTING
-  REGULATORY SIGNS

-  DELINEATORS
-  SIGN LOCATION SYMBOL
-  WORK ZONE



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TRAFFIC CONTROL MUST CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)



APPROVED BY: TRE DATE 01/12/2010
REVISION NO. DRAWN BY: MRG






DEPARTMENT OF PUBLIC WORKS





MCSD-#TC 204
2 LANE COLLECTOR




CLOSE ONE DRIVING LANE AT INTERSECTION MAINTAIN 2 WAY TRAFFIC

PAGE

1 OF 1

-  TYPE III BARRICADE
-  TYPE II BARRICADE
-  TYPE I BARRICADE

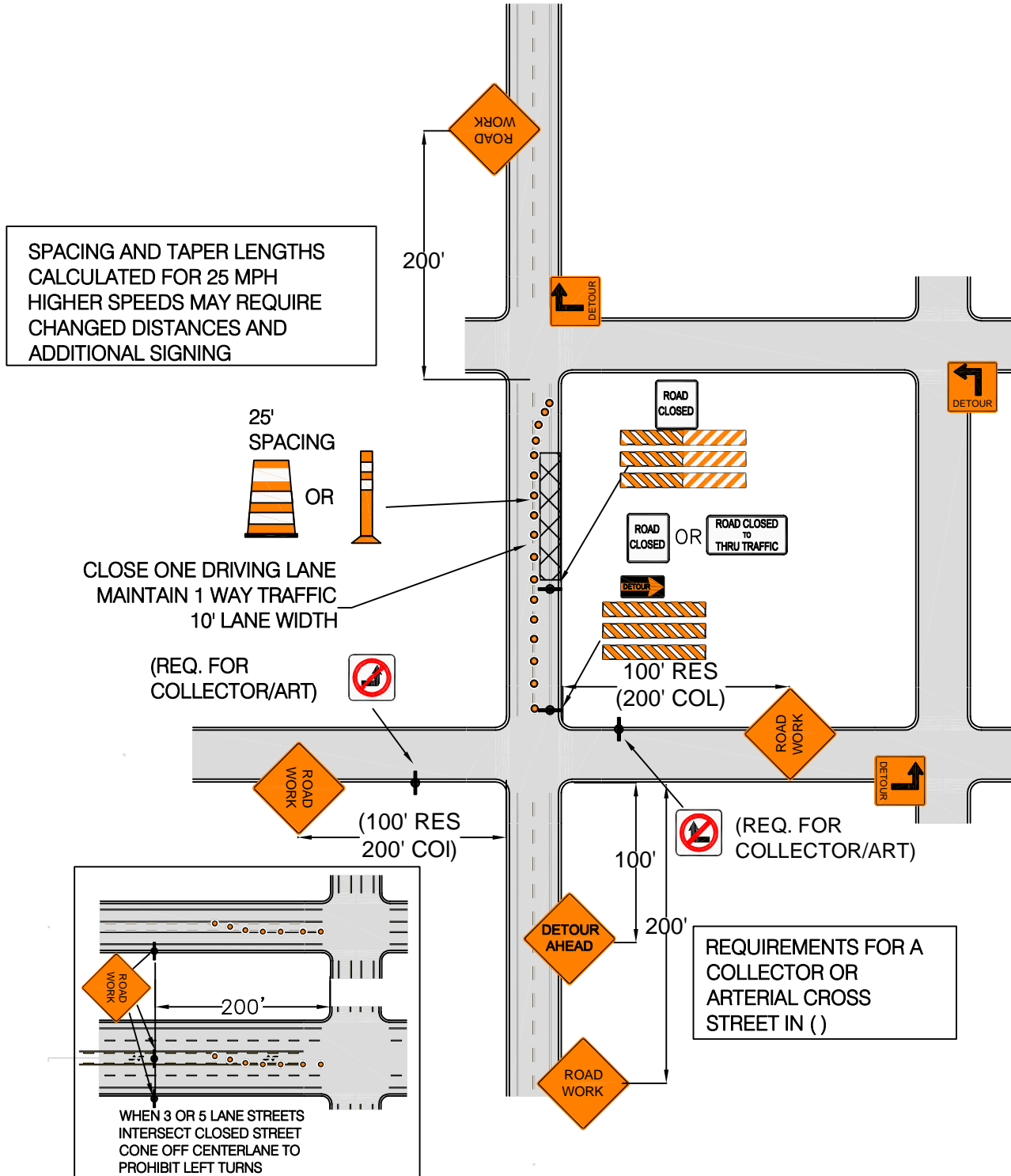
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-  DETOUR SIGNS
-  DETOUR ROUTING
-  REGULATORY SIGNS

-  DELINEATORS
-  SIGN LOCATION SYMBOL
-  WORK ZONE



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APPROVED BY: TRE DATE 01/12/2010
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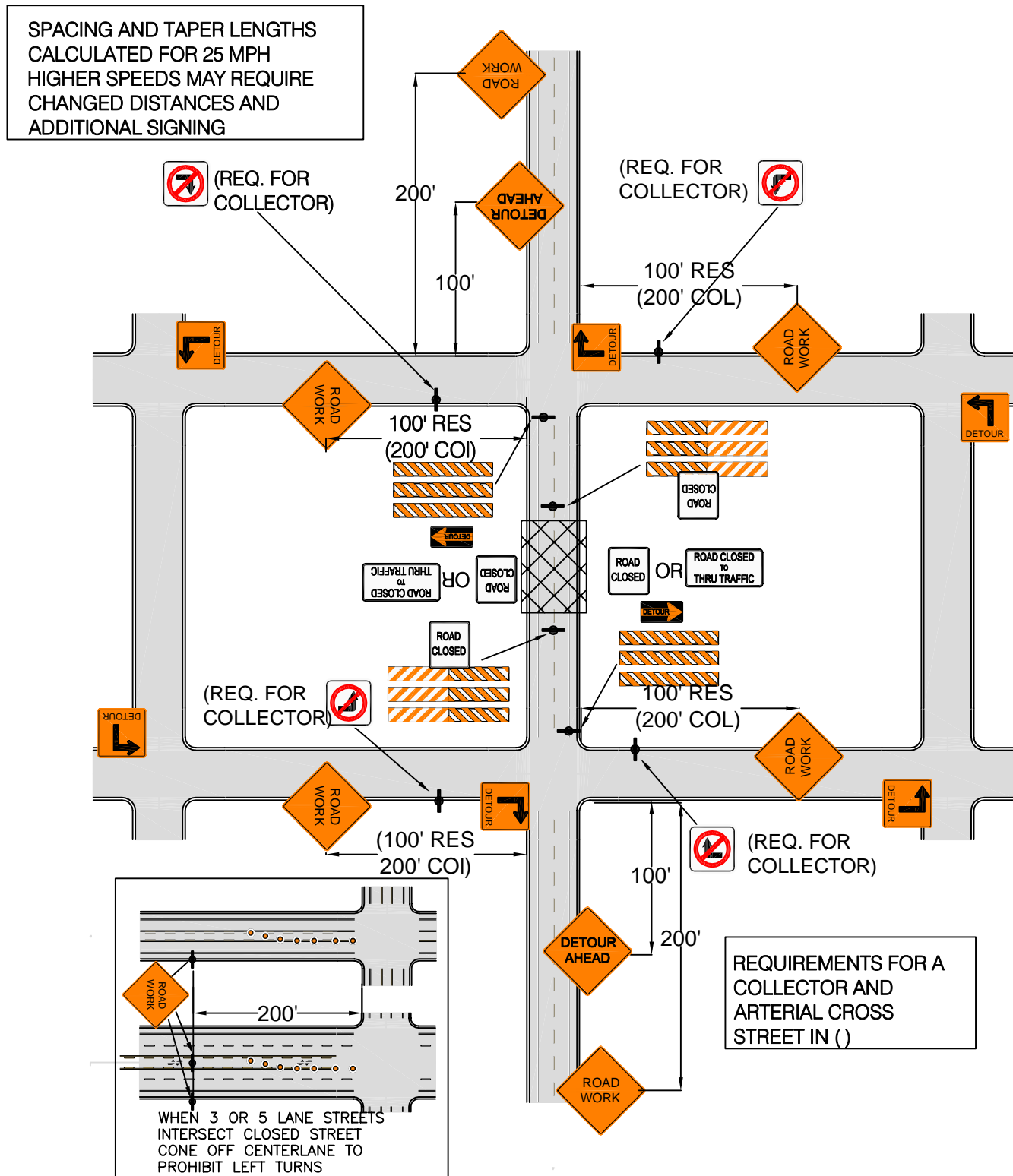


DEPARTMENT OF PUBLIC WORKS
MCSD-#TC 205
2 LANE COLLECTOR, CLOSE ONE DRIVING LANE

PAGE
1 OF 1

- SIDEWALK CLOSED
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TRAFFIC CONTROL MUST CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)



APPROVED BY: TRE	DATE	01/12/2010
REVISION NO.	DRAWN BY:	MRG

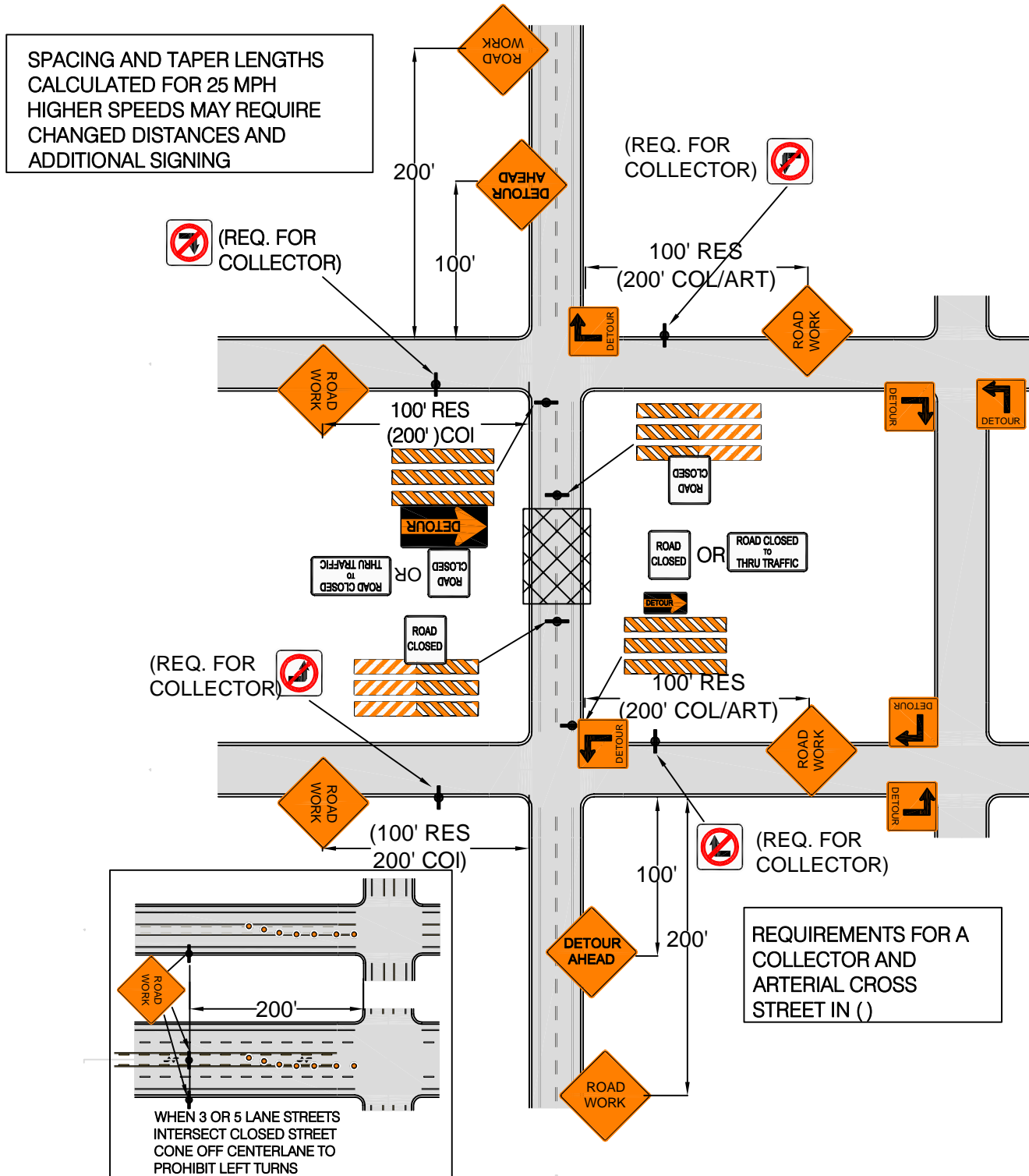


DEPARTMENT OF PUBLIC WORKS
MCSD-#TC 206
2 LANE COLLECTOR, CLOSE STREET

PAGE
1 OF 1

- SIDEWALK CLOSED
MUST BE USED
WHENEVER A
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IS TO BE CLOSED**

TRAFFIC CONTROL MUST CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)



APPROVED BY: TRE **DATE** 01/12/2010

REVISION NO. _____ DRAWN BY: MRG










DEPARTMENT OF PUBLIC WORKS




MCSD-#TC 207
2 LANE COLLECTOR, CLOSE STREET

PAGE

1 OF 1

-  TYPE III BARRICADE
-  TYPE II BARRICADE
-  TYPE I BARRICADE

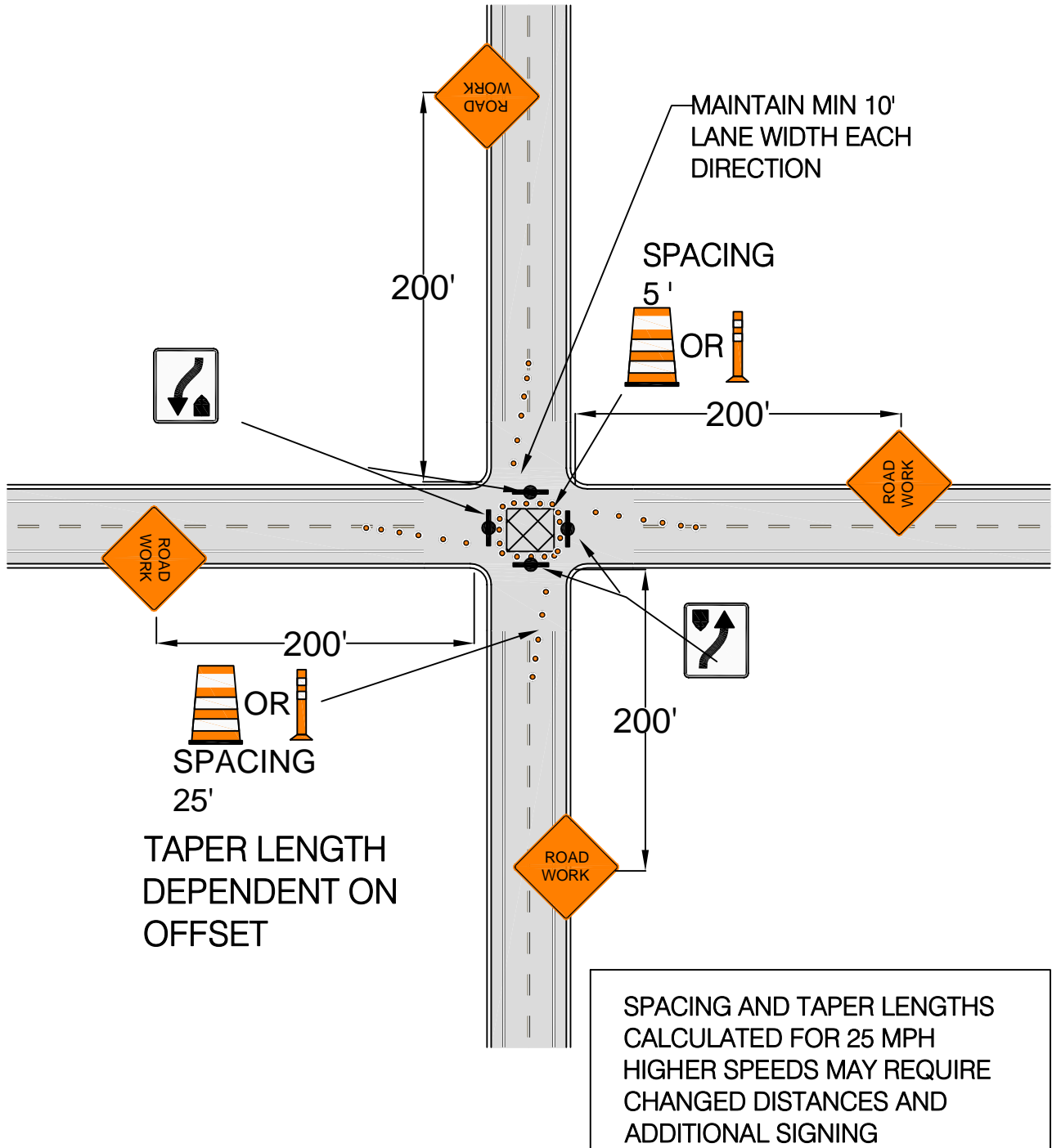
-  WARNING SIGNS
-  DETOUR SIGNS
-  DETOUR ROUTING
-  REGULATORY SIGNS

-  DELINEATORS
-  SIGN LOCATION SYMBOL
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APPROVED BY: TRE DATE 01/12/2010
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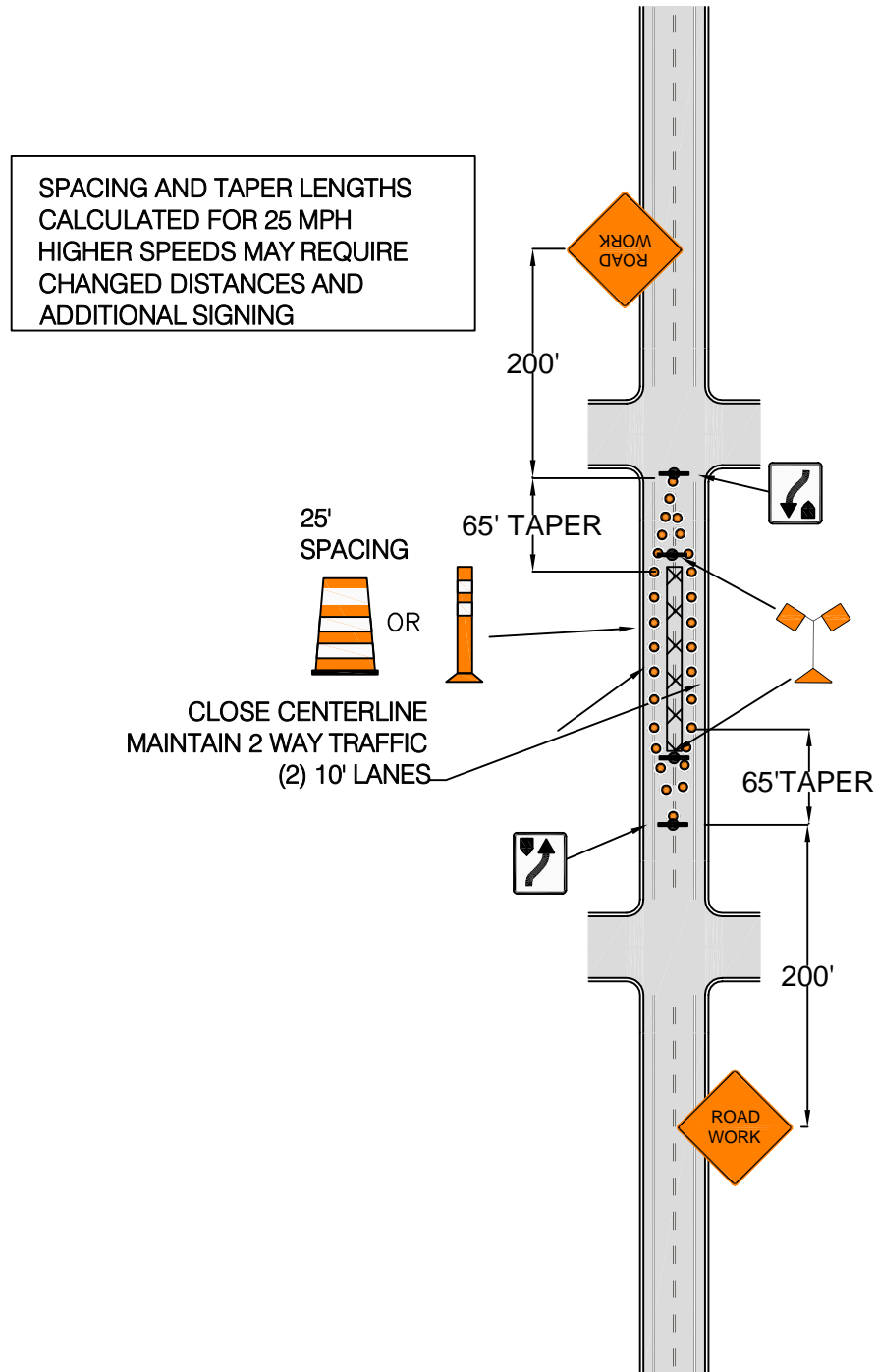


DEPARTMENT OF PUBLIC WORKS
MCSD-#TC 208
2 LANE COLLECTOR, CENTER OF INTERSECTION

PAGE
1 OF 1

- SIDEWALK CLOSED
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TRAFFIC CONTROL MUST CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)










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REVISION NO.	DRAWN BY:	MRG






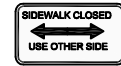
DEPARTMENT OF PUBLIC WORKS
MCSD-#TC 209
2 LANE COLLECTOR
CLOSE CENTERLINE MAINTAIN 2-WAY TRAFFIC

PAGE
1 OF 1

-  TYPE III BARRICADE
-  TYPE II BARRICADE
-  TYPE I BARRICADES

-  WARNING SIGNS
-  DETOUR SIGNS
-  DETOUR ROUTING
-  REGULATORY SIGNS

-  DELINEATORS
-  SIGN LOCATION SYMBOL
-  WORK ZONE



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TRAFFIC CONTROL MUST CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)

ADVANCED WARNING
REQUIRED ON CROSS
STREETS IF THEY ARE
COLLECTORS OR
ARTERIALS

CLOSE ONE DRIVING LANE MAINTAIN 2
WAY TRAFFIC ONE WAY AT A TIME
WITH FLAGGER 10' LANE WIDTH

SPACING AND TAPER LENGTHS
CALCULATED FOR 25 MPH
HIGHER SPEEDS MAY REQUIRE
CHANGED DISTANCES AND
ADDITIONAL SIGNING

25'
SPACING

OR

ONE WAY

125' TAPER

100'

100'

LANE
ENDS
MERGE
LEFT

ROAD
WORK

ROAD
CLOSED

APPROVED BY: TRE DATE 01/12/2010

REVISION NO. DRAWN BY: MRG



DEPARTMENT OF PUBLIC WORKS
MCSD-# TC 210
2 LANE ONE WAY CLOSE ONE DRIVING LANE

PAGE

1 OF 1

APPENDIX C

PUBLIC WORKS PERMITS AND FORMS

- C-1 DUST ABATEMENT PERMIT APPLICATION – JOINT WITH COUNTY PROGRAM
- C-2 DUST ABATEMENT PERMIT APPLICATION – INDIVIDUAL
- C-3 DUST ABATEMENT PARTICIPATION COMMITMENT LETTER
- C-4 REVEGETATION PLAN FOR DISTURBED SITES
- C-5 ROAD NAMING REGISTER
- C-6 SPECIAL EVENT APPLICATION
- C-7 SPECIAL EVENT CHECKLIST
- C-8 SAMPLE RSID FORM FOR ROAD MAINTENANCE

MISSOULA COUNTY DEPARTMENT OF PUBLIC WORKS

6089 Training Drive
Missoula, MT 59808
Tel: 406-258-4753
Fax: 406-258-4864

For Road Dept Use Only:

Date Application Received: _____
Date Permit Issued: _____
Permit Number: _____

Rev 3/2017

MISSOULA COUNTY DUST ABATEMENT PERMIT APPLICATION

Applicant's Name: _____	# of residents using this permit: _____
Address: _____	Alternate phone: _____
City: _____ St: _____ Zip: _____	e-mail: _____
Phone: _____	e-mail: _____

DUST ABATEMENT AREA IDENTIFICATION

Address: _____	Road: _____	Length (ft): _____
Specific limits of dust palliative application (area must be marked): _____		

CONDITIONS OF PERMIT:

This program only applies to County maintained roads. Permit Applications and payment to "piggy-back" on the County's bid price for dust palliative will be due May ____. You may call 258-3710 for your fee based on number of feet you are applying to have abated. If the deadline is missed the applicant may still have a Contractor apply dust palliative, but the Contractor must apply for the permit using the "Independent Contractor Dust Permit Application available on our website. Those permits may be issued between May 1 and September 15.

The Missoula County Road Department will prepare roads for resident dust abatement as part of preparation for the County program. This will generally occur between the 1st and 3rd weeks of June. The permittee must be specific when describing areas to be prepared and the areas must be marked with flags supplied by the County no later than May _____. (If flags aren't placed in time, your payment will be refunded to you.) In order to accurately track the amount of dust palliative applied, the County's Contractor is required to have a measuring device in the application truck. Because of this, the permittee agrees to pay for the actual amount treated with dust palliative as measured by the Contractor, not the amount estimated on the permit. In the event of a dispute, the County will verify the length treated.

The Missoula County Road Department has an obligation to maintain roads any time road conditions deteriorate for the safety of the traveling public, regardless of when dust palliatives have been applied. Therefore, gravel roads may be graded even if a dust palliative has been applied. After September 15, all roads will be subject to preparation for winter maintenance.

All information provided above is correct to the best of my knowledge. I have read and understand all conditions of this permit, written or implied.

Signature: _____ Date: _____

MISSOULA COUNTY DEPARTMENT OF PUBLIC WORKS

6089 Training Drive
Missoula, MT 59808
Tel: 406-258-4753
Fax: 406-258-4864

For Road Dept Use Only:

Date Application Received: _____

Date Permit Issued: _____

Permit Number: _____

Rev 4/2015

INDEPENDENT CONTRACTOR DUST ABATEMENT PERMIT APPLICATION**Contractor must apply for permit.**

Business Name: _____	Phone: _____
Address: _____	Fax: _____
City: _____ St: _____ Zip: _____	e-mail: _____
Applicant Name: _____	Title: _____

DUST ABATEMENT AREA IDENTIFICATION

Address: _____	Road: _____	Length (ft): _____
Width (ft): _____ Start & Stop Road Description: _____		

Property Owner: _____	Phone: _____	
Specific limits of dust palliative application (area must be marked): _____		

Type of palliative (MSDS must be on file with the Health Department): _____		

CONDITIONS OF PERMIT:

Permits may be issued between May 1 and September 15. Prior to permitting, the applicant must have a current Material Safety Data Sheet for the palliative being utilized on file with the County Health Department and said palliative must be approved for use by that Department. Permits are valid for one application of dust palliative. Contractors must provide a copy of this permit to the landowner.

The Missoula County Road Department will prepare County maintained roads for an Independent Contractor as part of routine maintenance activities. The permittee must be specific when describing the area to be prepared and the area must be clearly marked. The permittee will be notified and issued a permit when maintenance activities are begun in the area specific to the permitted road. **Once notified that preparation is complete, the permittee must apply the specified dust palliative within twenty-four (24) hours.** Failure to do so will render the permit null and void. Re-issuance of a duplicate permit for the site may be significantly delayed due to work load and scheduling. Non-maintained County roads may be permitted for application of dust palliative, but the permittee is responsible for all preparation.

The Missoula County Road Department has an obligation to maintain roads any time conditions deteriorate for the safety of the traveling public, regardless of when dust palliatives have been applied. After September 15, all roads will be subject to preparation for winter maintenance.

All information provided above is correct to the best of my knowledge. I have read and understand all conditions of this permit, written or implied.

Signature: _____ Date: _____



PUBLIC WORKS DEPARTMENT

6089 Training Drive
Missoula, MT 59808

(406) 258-3701

20 Dust Abatement Commitment Letter*

I/We, the undersigned, agree to pay the Missoula County Department of Public Works the County Bid Price for Dust Abatement product no later than May __, 20__ for _____ feet of dust abatement. The awarded bid price will be known by April XX and you will be notified via email. If the bid price is significantly higher than the County's estimate, I/we may withdraw from the program without penalty by providing notice in writing with the return of the unpaid invoice.

Name

Name

Signature

Signature

Address

Address

Date

Date

Name

Name

Signature

Signature

Address

Address

Date

Date

*Due March __, 20__

REVEGETATION PLAN FOR DISTURBED SITES

Subdivision/Project Name:

Location/Legal Description:

Number of Acres, Lots or Lineal Feet of Disturbance:

Type(s) of Disturbance (Road Construction, Sewer Installation, Approach Construction, etc.):

A. Disturbed Area Revegetation Plan:

1. Site Preparation (topsoil management and seed bed preparation):

2. Seed Species and Seeding Rates (lb/PLS/acre):

3. Seeding Method (drill, hydroseed, broadcast, other):

4. Time of Seeding:

5. Fertilization (lb/acre):

6. Weed Control Method(s) and Timing:

B. Landowner or Responsible Party:

Name

Address

City State Zip Phone Number

Signature of Landowner/Responsible Party Date

This signed plan constitutes a binding agreement between Missoula County and the responsible person or agency.

Comments and approval or disapproval from the Missoula County Weed Control Board:

Approved: Date:

For Missoula County Weed Board

MAIL THIS FORM TO:

WEED PREVENTION COORDINATOR
MISSOULA COUNTY WEED DISTRICT
2825 Santa Fe Court
Missoula, MT 59808
Phone: 406-258-4218 Fax 406-258-3916

This form can be filled out digitally or printed off at:

<http://www.missoulaeduplace.org/images/weeds/plansandpermits/reveg.for.disturbed.sites.fillable.pdf>

MISSOULA COUNTY ROAD NAMING REGISTER

☐ Private Road ☐ Public Road ☐ New Construction ☐ Existing
 Preference _____ Road Name _____ Suffix (Rd, Ln, Ave, etc.) _____

First												
Second												
Third												
Fourth												
Fifth												

Road names cannot be more than 12 characters long including spaces and must include a valid USPS road name suffix. No punctuation is allowed. Applicants should understand that naming or re-naming a road may mean receiving an entirely new address (number & road name) that is in logical sequence with the new road range as assigned by the County. Please see road-naming section in Missoula County Public Works Manual for full requirements. Applicants understand that this form does not guarantee legal access to the subject property. Securing legal access is the owner's responsibility.

Missoula County makes the final determination for all road names.

Road Location: Township: ____ N Range: ____ W Section(s): _____
 Subdivision: _____ OR C.O.S.: _____

Current Road Name (if applicable): _____

Submitted By: Name _____ : _____
 Address: _____
 City: _____ State: _____ Zip Code: _____
 Phone: _____ Date: _____

By signing below, I as the applicant attest that I have contacted and received all of the necessary signatures of affected property owners below regarding this road naming form.

Signature: _____

Signatures of Adjacent Property Owners Approving (attach additional pages if necessary): Please see road-naming section in Missoula County Public Work's manual for full requirements.

Printed Name:	Signature:	Street Address:
1. _____	_____	_____
2. _____	_____	_____
3. _____	_____	_____
4. _____	_____	_____
5. _____	_____	_____

Missoula County
Department of Public Works
6089 Training Dr Missoula MT 59808
Phone: 406.258.4816 Fax: 406.258.4864

OFFICE USE ONLY	
Insurance	_____
Map/Plan	_____
Application Checklist	_____

**COVER SHEET FOR APPLICATION TO CONDUCT
A SPECIAL EVENT ON PUBLIC RIGHT-OF-WAY**

**This cover sheet must be accompanied by all relevant documentation as noted in the Procedures for Special Events
documentation a minimum of 30 days prior to event date.**

PLEASE PRINT, except for signature.

Organization/Applicant Name _____ Application Date _____

Designated Representative _____

Mailing Address _____ City _____ Zip Code _____

Phone (work) _____ (cell) _____ e-mail _____

Event Name _____ Event Date(s) _____

Event Times (inc. setup/teardown) _____

Estimated number of participants _____ Estimated Number of Spectators _____

If this application is approved, the undersigned hereby agrees to (1) pay the total cost for conducting any traffic control, including costs associated with the Missoula County Sheriff's office related to the special event described in the application to Missoula County, and (2) provide a certificate of general liability and auto liability insurance in an amount specified by Missoula County, its officials, officers, employees and agents as additional insured.

The undersigned accepts the responsibility for any cost in excess of the estimated cost agreed upon prior to the event. This additional cost, payable to Missoula County, is due upon request following the event. If the estimated cost exceeds the actual cost, the balance will be refunded. In the event the applicant fails to pay any such excess upon request, and Missoula County files suit to recover said amount, Missoula County shall be awarded the amount owed plus its reasonable attorney's fees and costs.

The applicant agrees to defend, indemnify and hold harmless Missoula County, its commissioners, officials, officers, directors, agents and employees from and against any and all claims, demands, suits, actions or proceedings of any kind whatsoever in any way resulting from this agreement. The County has absolutely no financial obligation to any person or entity as a result of entering into this agreement.

PLEASE READ EACH STATEMENT CAREFULLY BEFORE SIGNING

I, the undersigned, certify that all information provided in this application is true and complete. I understand that any false information or omission may disqualify me from further consideration and may justify dismissal of this event if discovered at a later date.

I understand that if this application is approved, it is conditioned upon compliance with the policies and procedures of Missoula County governing special events.

I certify that the statement contained herein or attached hereto are true, accurate and complete to the best of my knowledge and belief.

By (signature)

Name of Organization

Title

Date

Special Events Checklist for Complete Application Documentation

(Please check off each item as you include it in the application and submit with the application)

- _____ Cover sheet completed, signed and dated
- _____ Written documentation describing the intended use for activities in the right-of-way
- _____ Overall event course map showing which roads or public rights-of-way that the event is wanting to occupy
- _____ Course map showing details of a Traffic Control Plan.

All plans shall meet or exceed Manual on Uniform Traffic Control Devices (MUTCD) specifications. The County reserves the right to require the applicant to use a professional traffic control service for traffic control needs, or to alter plans as needed.
- _____ Jurisdictional approval in writing for use of any municipal street, state highway or other property that may be part of the proposed event route
- _____ Copy of advertisement prior to the event of proposed road closures and detours (if requested by the County)
- _____ Certificate of Insurance (does not need to accompany the application but must be submitted prior to the issuance of the permit)
- _____ Insurance requirement is \$1,000,000 minimum coverage, to include general liability and auto liability coverage
- _____ List certificate holder as: Missoula County, 200 West Broadway, Missoula, MT 59802
- _____ Include the date(s) and times from setup and takedown of event and event name on the certificate

PETITION FOR CREATION OF RURAL SPECIAL IMPROVEMENT DISTRICT

The undersigned constitute 60% or more of the freeholders of the lots and land included within the boundaries so described, do hereby petition the County Commissioners of Missoula County, Montana, to create a Rural Special Improvement District (RSID) for the purpose of:

Roadway Maintenance on insert road name.

The general character of the above listed purpose includes, but is not limited to the following:

For asphalt roads:

Basic maintenance tasks such as plowing, sanding, mowing, sweeping and patching.

Major maintenance tasks such as re-construction, chip sealing and overlays.

For gravel roads:

Basic maintenance tasks such as plowing, mowing, grading and spot gravelling.

Major maintenance tasks such as dust abatement and re-construction.

That the description of the boundaries of the contemplated district that will be benefited by said maintenance, and which will be assessed to pay the cost and expense thereof, were determined by the residents and described and shown as:

Insert legal descriptions of included properties

The approximate annual cost of the maintenance so set forth, is the sum of insert estimated cost including Missoula County Administration of 5% or a maximum of _____. The amount may vary annually depending on the type and level of maintenance required. The assessments will be based on the equal assessment method. If another assessment method is applied as provided in MCA 7-12-2151 and found to be more equitable, the Resolution of Intention to Create will redefine the assessments and recalculate the resident's estimated share.

That the cost of said maintenance will be assessed against the lots and land included in said district for the proposed work over a perpetual period of years as determined and set by the Board of County Commissioners at the date and time of the public hearing, prorated according to the allocation of said lots and lands as fixed by the last assessment roll.

Legal Council for the district, upon approval of the Board of County Commissioners is the Office of the County Attorney.

WHEREFORE, the undersigned hereby petition that the Board of County Commissioners of Missoula County, Montana, order and create a Special Improvement District for the above mentioned maintenance in accordance with the laws and statutes of the State of Montana.

Dated this ____ day of _____, _____.

PETITIONER/FREEHOLDER SIGNATURE(S):

NAME: _____

ADDRESS: _____

*PROPERTY LEGAL: _____

PETITIONER/FREEHOLDER SIGNATURE(S):

NAME: _____

ADDRESS: _____

*PROPERTY LEGAL: _____

PETITIONER/FREEHOLDER SIGNATURE(S):

NAME: _____

ADDRESS: _____

*PROPERTY LEGAL: _____

PETITIONER/FREEHOLDER SIGNATURE(S):

NAME: _____

ADDRESS: _____

*PROPERTY LEGAL: _____

PETITIONER/FREEHOLDER SIGNATURE(S):

NAME: _____

ADDRESS: _____

*PROPERTY LEGAL: _____

PETITIONER/FREEHOLDER SIGNATURE(S):

NAME: _____

ADDRESS: _____

*PROPERTY LEGAL: _____

PETITIONER/FREEHOLDER SIGNATURE(S):

NAME: _____

ADDRESS: _____

*PROPERTY LEGAL: _____

PETITIONER/FREEHOLDER SIGNATURE(S):

NAME: _____

ADDRESS: _____

*PROPERTY LEGAL: _____

PETITIONER/FREEHOLDER SIGNATURE(S):

NAME: _____

ADDRESS: _____

*PROPERTY LEGAL: _____

*PROPERTY LEGAL REQUIRES A SUID/TAX ID# or
LOT # ; BLOCK #, TRACT OR PARCEL #

APPENDIX D

SUBDIVISION, CONSTRUCTION AND TRAFFIC IMPACT ANALYSIS CHECKLISTS

- D-1 PRELIMINARY PLAT SUBMITTAL CHECKLIST
- D-2 CONSTRUCTION PLAN SUBMITTAL CHECKLIST
- D-3 SITE ACCESS MEMORANDUM REQUIREMENTS
- D-4 TRAFFIC IMPACT ANALYSIS LEVEL 1 REQUIREMENTS
- D-5 TRAFFIC IMPACT ANALYSIS LEVEL 2 AND LEVEL 3 REQUIREMENTS

Missoula County Public Works

Subdivision Preliminary Plat Checklist

In addition to the submittal requirements of the Missoula County Subdivision Regulations, the following information must be addressed in the preliminary plat drawings. (This list is not inclusive other information may be required)

Date: _____

Subdivision Name: _____

Plat Type:

_____ Minor (less than 6 lots)

_____ Major (6 or more lots)

_____ PUD

Is the subdivision in an existing SID or Mitigation Fee Area? _____ Yes _____ No

Minimum Lot Size _____

Road Status: _____ Public _____ Private

Intended Road Maintenance _____ Public _____ Private _____ RSID

_____ Existing Easements Shown

_____ Proposed Easements Shown (include drainage easements)

_____ Phasing Plan

Site Information

_____ Slopes Delineated

_____ Floodplain

_____ Wetlands

_____ Grading and Drainage

_____ Soil Classifications

_____ Ground Water

_____ Landscaping

Streets

- _____ No Access Strips
- _____ Sidewalk Location
- _____ Bicycle/Pedestrian Trails
- _____ Bridges
- _____ Culverts (Locations and sizes)
- _____ Temporary turn-around(s)
- _____ Surface type- If gravel, must have Maintenance RSID for dust abatement
- _____ Proposed Well locations with 100' radius
- _____ Proposed drain field locations

Utilities

- _____ Show how Utilities will be provided to site

Missoula County Public Works Construction Plan Checklist

In addition to the submittal requirements of the Missoula County Subdivision Regulations, the following information must be addressed in the construction plans submitted. (This list is not inclusive other information may be required)

Date: _____

Subdivision Name: _____

Site Information

_____ Construction estimate for all improvements

_____ Cuts and Fills
Soil Classifications (geotechnical analysis if applicable)

_____ Landscaping (as pertaining to the road easement)

Streets

_____ Approved Road Names

_____ Typical Cross Sections

_____ Grades

_____ Driveway Locations (if applicable)

_____ Cluster Mailbox Locations (if applicable)

_____ Signage Plan

_____ Bridges

_____ Culverts

_____ Temporary turn-arounds

Curbing and Sidewalks (if applicable)

_____ Location (shown in all applicable locations)

_____ County Standard Detail

_____ ADA ramp locations, grades, standard drawings, truncated domes

Bike/Multi-use Facilities/Trails

_____ Location

_____ Structural Section

_____ Easements (width, location)

_____ Street Crossings (details, ADA ramps, crosswalks, truncated domes)

_____ Bridges

Utilities

_____ Gas (w/ appurtenances)

_____ Electric (w/ appurtenances)

_____ Communication – Phone, TV (w/ appurtenances)

Drainage Report

_____ Predevelopment Drainage – include off-site drainage onto property

_____ Storm water calculations – (retain/detain 100 yr, 24hr storm)

_____ Storm Drain inlets, manholes and pipe locations with grades and pipe sizes

_____ Retention/Detention Areas

Erosion Control

_____ Storm Water Pollution Prevention Plan (if applicable)

_____ Acknowledgment Letter from DEQ (if applicable)

_____ Seeding plan (broadcast or hydro seeding)

Site Access Memorandum Requirements Missoula County, Montana

- Description of proposed land use and density
- Phasing plan (if applicable)
- Description of adjacent land uses and densities within the study area
- Description of anticipated future development within the study area
- Comprehensive Plan recommendations for subject property or area including current or proposed zoning (if applicable)
- Description or map of existing and proposed road system
- Description of existing transit services, pedestrian and bicycle facilities
- Description of programmed improvements to roadways, intersections or other transportation facilities within the study area (contact the County, MDT or the City of Missoula for planned improvements)
- Discussion of average daily traffic and peak hour traffic volume, traffic flow, operation and characteristics within the study area (contact the County for availability of volume data)
- Anticipated daily traffic and peak hour traffic generated by the proposed development and their impact
- Sight distance at proposed access points
- Description and/or diagram of the location, nature and extent of proposed improvements (if applicable)

Traffic Impact Analysis Level 1 Requirements Missoula County, Montana

1. Introduction

- (a) Study Area
 - 1. Geographic scope and limits of study area
 - 2. Description and map of adjacent land uses and densities within the study area
 - 3. Description of anticipated future development within the study area
 - 4. Comprehensive Plan recommendations for subject property or area including current or proposed zoning (if applicable)
- (b) Site Accessibility
 - 1. Description and map of existing road system
 - 2. Description of existing transit services, pedestrian and bicycle facilities
 - 3. Description of programmed improvements to roadways, intersections or other transportation facilities within the study area (contact the County, MDT or the City of Missoula for planned improvements)

2. Proposed Development

- (a) Map of site location including existing and proposed roadways
- (b) Description of proposed land use and density
- (c) Site plan
- (d) Phasing plan

3. Analysis of Existing Traffic Conditions

- (a) General discussion of traffic flow, operation and characteristics
- (b) Average daily traffic and peak hour traffic volumes within the study area (contact the County for availability of data)
- (c) Sight distance at proposed access points

4. Projected Traffic

- (a) Site generated traffic (cumulative totals for phased developments)
 - 1. Anticipated daily traffic and peak hour traffic generated by the proposed development and their impact
 - 2. Anticipated trip distribution
- (b) If the proposed development could potentially generate significant walking, bicycle or transit trips either on- or off-site, discussion of pedestrian and bicycle facilities and bus routes if such facilities or routes exist or are proposed

5. Recommended Improvements

- (a) Description and diagram of the location, nature and extent of proposed improvements
- (b) Alternatives to proposed improvements (if applicable)

6. Conclusions

Traffic Impact Analysis Level 2 and Level 3 Requirements Missoula County, Montana

1. Introduction and Summary

- (a) Purpose of report and study objectives
- (b) Executive Summary
 - 1. Site location and study area
 - 2. Description of proposed development
 - 3. Principal findings
 - 4. Conclusions
 - 5. Recommendations

2. Background Information

- (a) Study Area
 - 1. Geographic scope and limits of study area
 - 2. Description and map of adjacent land uses and densities within the study area
 - 3. Description of anticipated future development within the study area
 - 4. Comprehensive Plan recommendations for subject property or area including current or proposed zoning (if applicable)
- (b) Site Accessibility
 - 1. Description and map of existing road system
 - 2. Description of existing transit services, pedestrian and bicycle facilities
 - 3. Description of programmed improvements to roadways, intersections or other transportation facilities within the study area

3. Proposed Development

- (a) Map of site location including existing and proposed roadways
- (b) Description of proposed land use and density
- (c) Site plan
- (d) Phasing plan

4. Analysis of Existing Traffic Conditions

- (a) Average daily traffic and peak hour traffic volumes within the study area
- (b) On roads immediately adjacent to the proposed development
 - 1. Speed study
 - 2. Accident history and analysis
 - 3. Sight distance at proposed access points
- (c) Analyses for intersections and roadways identified by the County
 - 1. Delay and Level of Service are tabulated and Level of Service is presented on diagrams for each lane group

5. Analysis of Future Conditions Without Development

- (a) Description of and the justification for the method and assumptions used to forecast future traffic volumes
- (b) Forecast daily and peak hour volumes in the study area, tabulated and presented on diagrams
- (c) Analyses for intersections and roadways identified by the County

1. Delay and Level of Service are tabulated and Level of Service is presented on diagrams for each lane group

6. Projected Traffic

- (a) Site Traffic for each horizon year
 1. Trip generation
 2. Trip distribution
 3. Modal split
 4. Trip assignment
- (b) Through Traffic for each horizon year
 1. Method of projection
 2. Non-site traffic for anticipated development in the study area
 - (a) Method of projection
 - (b) Trip generation
 - (c) Trip distribution
 - (d) Modal split
 - (e) Trip assignment
 3. Through traffic
 4. Estimated volumes
- (c) Total traffic for each horizon year
- (d) If the proposed development could potentially generate significant walking, bicycle or transit trips either on- or off-site, analyses of pedestrian and bicycle facilities and bus routes if such facilities or routes exist or are proposed

7. Analysis of Future Conditions With Development

- (a) Site access analysis
- (b) Forecast daily and peak hour volumes in the study area, tabulated and presented on diagrams
- (c) Analyses for intersections and roadways identified by the County
 1. Delay and Level of Service are tabulated and Level of Service is presented on diagrams for each lane group
 2. For intersections expected or proposed to be signalized, MUTCD signal warrant analysis
- (d) Transportation safety

8. Recommended Improvements

- (a) Description and diagram of the location, nature and extent of proposed improvements
- (b) Alternatives to proposed improvements (if applicable)
- (c) If Travel Demand Management (TDM) measures are proposed, description of methodology used to calculate the effects of TDM measures with supporting data

9. Conclusions