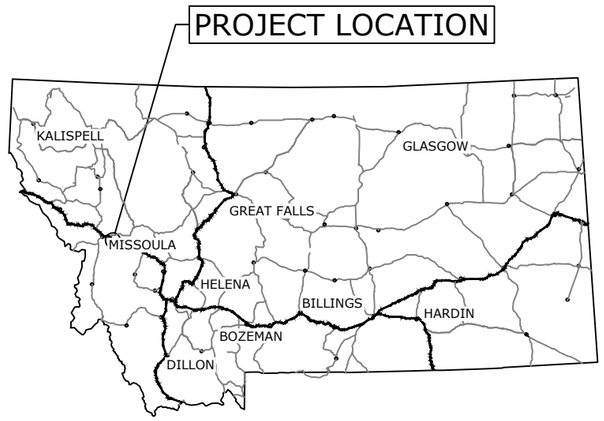



# MISSOULA COUNTY
AND
# CITY OF MISSOULA

PLANS FOR PROPOSED FEDERAL AID

# MULLAN BUILD PROJECT

MISSOULA, MONTANA


## *TYPE OF CONSTRUCTION:*

GRADE, GRAVEL, PAVEMENT, DRAINAGE, CURB & GUTTER, PATH, SIDEWALK, WATER UTILITY, SEWER, LANDSCAPING, LIGHTING, INTERSECTION IMPROVEMENTS, NEW CONSTRUCTION & RECONSTRUCTION

## *DESIGN DESIGNATION:*

CITY OF MISSOULA & MONTANA DEPARTMENT OF TRANSPORTATION (MDT) DESIGN STANDARDS

## *SPECIFICATION:*

MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (2010) WITH CITY OF MISSOULA PUBLIC WORKS AND MONTANA DEPARTMENT OF TRANSPORTATION SUPPLEMENTS

DJ&A ENGINEERS PLANNERS SURVEYORS

PLANS PREPARED FOR

***MISSOULA COUNTY***
***AND THE***
***CITY OF MISSOULA***

| |
|---|
| MARY JANE BLVD. NORTH<br>PROPOSED LENGTH =2050'<br>EXISTING LENGTH = 1330'<br>2050 PROJECTED ADT = 5,910 |
| MARY JANE BLVD. SOUTH<br>PROPOSED LENGTH =1960'<br>EXISTING LENGTH =1785'<br>2050 PROJECTED ADT = 6,839 |
| GEORGE ELMER DR. SOUTH<br>PROPOSED LENGTH = 3300'<br>2020 ADT = 2,563<br>2050 PROJECTED ADT = 6,358 |
| ENGLAND BOULEVARD<br>PROPOSED LENGTH = 3050'<br>2050 PROJECTED ADT = 9,914 |
| WEST BROADWAY ST.<br>2020 ADT = 15,945<br>2050 PROJECTED ADT = 33,290 |
| MULLAN ROAD<br>2020 ADT = 13,589<br>2050 PROJECTED ADT = 24,045 |

100% - BID PLANS

PROJECT MANAGER
D. PFEIFER

# INDEX TO SHEETS



# INDEX TO SHEETS CONTINUED



| REVISION | DATE | DESCRIPTION |
|---|---|---|
| - | - | - |

DESIGNER JN PROJ. NO. 7065
DRAWN JN DATE 04/16/2021
CHECKED DP SURVEYED DJ&A, P.C.

DJ&A ENGINEERS PLANNERS SURVEYORS

MULLAN BUILD
100% - BID PLANS

INDEX AND PROJECT ELEMENT MAP

SHEET OF A.1 A.16

# ABBREVIATIONS

| | |
|---|---|
| ALUMINUM CAP | AC |
| AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS | AASHTO |
| AMERICAN NATIONAL STANDARDS INSTITUTE | ANSI |
| AND | & |
| AVENUE | AVE. |
| BALLED AND BURLAPPED | B&B |
| BEGIN VERTICAL CURVE ELEVATION | BVCE |
| BEGIN VERTICAL CURVE STATION | BVCS |
| BEGINNING POINT | BP |
| BRASS CAP | BC |
| CENTERLINE | CL, C/L |
| CONTROL POINT | CP |
| CUBIC YARD | CY |
| DIAMETER | DIA., D, Ø |
| DRY DENSITY | DD |
| EAST | E |
| ELEVATION | ELEV., EL. |
| END POINT | EP |
| END VERTICAL CURVE ELEVATION | EVCE |
| END VERTICAL CURVE STATION | EVCS |
| FINISH GROUND | FG |
| FOOT (MEASUREMENT) | FT. OR ' |
| FOUND | FND |
| INCH | IN. OR " |
| LENGTH OF VERTICAL CURVE | LVC |
| LIQUID LIMIT | LL |
| MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES | MUTCD |
| MAXIMUM | MAX. |
| MILIMETER | MM |
| MINIMUM | MIN. |
| MOISTURE CONTENT | MC |
| NORTH | N |
| NORTH AMERICAN DATUM | NAD |
| NORTH AMERICAN VERTICAL DATUM | NAVD |
| NUMBER | NO. |
| ON CENTER | OC |
| OUNCE | OZ |
| PERCENT | PCT. OR % |
| PLASTIC LIMIT | PL |
| POINT OF CURVE | PC |
| POINT OF INTERSECTION | PI |
| POINT OF TANGENT | PT |
| POINT OF VERTICAL INTERSECTION | PVI |
| QUANTITIES | QUANT., QTY |
| RADIUS | R |
| REBAR | RB |
| SQUARE FOOT | FT², FT2 OR SF |
| STANDARD | STD |
| STATION | STA |
| TOP BACK OF CURB | TBC |
| TYPICAL | TYP |

# LEGEND

| | EXISTING | PROPOSED |
|---|---|---|
| EDGE OF ASPHALT | | |
| EDGE OF GRAVEL | | |
| ROAD CENTERLINE | | |
| DITCH/SWALE | | |
| SIGNS | | |
| MINOR CONTOUR | | |
| MAJOR CONTOUR | | |
| FENCE | X | |
| NATURAL GAS LINE | NG | |
| OVERHEAD POWER LINE | OHP | |
| UNDERGROUND POWER LINE | UGP | |
| FIBER OPTIC LINE | FO | |
| UNDERGROUND TELEPHONE LINE | UGT | |
| UNDERGROUND TELEVISION LINE | UTV | |
| POWER POLE | | |
| POWER POLE ANCHOR | | |
| UTILITY BOX | | |
| VEGETATION | | |
| RECORD ROADWAY RIGHT-OF-WAY LINE | R/W | R/W |
| RECORD RIGHT-OF-WAY LINE | | |
| CURB AND GUTTER | | |
| DRAINAGE SUMP | | CB |
| CONSTRUCTION LIMITS | | |
| CONTROL POINT | | |
| ASPHALT CONCRETE PAVEMENT | | |
| CONCRETE | | |
| BOLLARD | | |
| WELL / GROUND WATER MONITORING | W GWW | |
| BORE HOLE | BH | |
| TOPSOIL AND SEEDING | | |
| FIRE HYDRANT | | |
| WATER BLOW-OFF VALVE | | |
| WATER VALVE | | |
| WATER LINE | W | W |
| SEWER MANHOLE | S | S |
| SEWER LINE | SS | SS |
| STORM DRAIN MANHOLE | D | D |

| | EXISTING | PROPOSED |
|---|---|---|
| APPROACH PIPE/CULVERT | | |
| TEMPORARY CONSTRUCTION EASEMENT | | |

| REVISION | DATE | DESCRIPTION |
|---|---|---|
| - | - | - |

DESIGNER JN | PROJ. NO. 7065
DRAWN JN | DATE 04/16/2021
CHECKED DP | SURVEYED DJ&A, P.C.

DJ&A ENGINEERS PLANNERS SURVEYORS

MULLAN BUILD
100% - BID PLANS

LEGEND AND ABBREVIATIONS

SHEET OF A.2 A.16

# GENERAL NOTES

1. SPECIFICATIONS: CONSTRUCT THE PROJECT IN COMPLIANCE WITH THE PROJECT SPECIFICATIONS AND TO MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS (MCPWSS) AND BEST MANAGEMENT PRACTICES. THE PROJECT SPECIFICATIONS ARE DERIVED FROM THE MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS) AND HAVE BEEN REVISED AND SUPPLEMENTED FOR THIS PROJECT.

2. **EROSION CONTROL PLAN**: THE CONTRACTOR IS RESPONSIBLE FOR SUBMITTING AN EROSION CONTROL PLAN TO THE CITY ENGINEER FOR APPROVAL PRIOR TO BEGINNING ANY WORK. WORK WILL NOT BE CONDUCTED UNTIL THE EROSION CONTROL PLAN HAS BEEN APPROVED BY THE CITY ENGINEER. THE CONTRACTOR WILL PROVIDE METHODS TO PREVENT RUNOFF FROM THE CONSTRUCTION SITE FROM ENTERING DIRECTLY INTO THE ADJACENT WATERWAYS.

3. **GENERAL STORM WATER PERMITS:** THE CONTRACTOR IS RESPONSIBLE FOR FOLLOWING AND COMPLETING ALL REQUIREMENTS OF THE MPDES STORM WATER PERMIT ADMINISTERED UNDER THE MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY. AN AUTHORIZATION UNDER THE GENERAL PERMIT FOR STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY IS REQUIRED FOR CONSTRUCTION ACTIVITIES THAT INCLUDE CLEARING, EXCAVATING, GRADING, GRUBBING, OR PLACEMENT/REMOVAL OF EARTH MATERIAL WITH A TOTAL AREA OF ONE OR MORE ACRES. ADDITIONAL INFORMATION IS PROVIDED IN THE SPECIFICATIONS.

4. **CITY OF MISSOULA STORM WATER PERMIT**: THE CONTRACTOR SHALL OBTAIN A REQUIRED CITY OF MISSOULA STORM WATER PERMIT. THE CONTRACTOR MUST SUBMIT ALL REQUIRED FORMS TO THE ENGINEER SO THAT THE ENGINEER CAN TURN IN SAID FORMS TO CITY OF MISSOULA ENGINEERING AS PART OF THE STAGE 6 PROCESS IN ORDER FOR CITY OF MISSOULA ENGINEERING TO ACCEPT INFRASTRUCTURE. THE CONTRACTOR IS ALSO REQUIRED TO SUBMIT TO THE CITY OF MISSOULA A COPY OF THE NOTICE OF INTENT (NOI) PROVIDED TO MT DEQ, A COPY OF THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) PROVIDED TO MT DEQ AND A COPY OF MT DEQ'S CONFIRMATION LETTER.

5. UTILITIES: UTILITY LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE. NOT ALL EXISTING UTILITIES ARE SHOWN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY LOCATIONS OF ALL UTILITIES THAT MAY BE IMPACTED BY THIS PROJECT. THE CONTRACTOR SHALL COORDINATE ALL UTILITY RELOCATIONS WITH THE UTILITY PROVIDERS AT NO COST TO THE OWNER.

6. COODINATION WITH LANDOWNERS: IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH LANDOWNERS ADJACENT TO THE PROJECT TO SCHEDULE NECESSARY WORK ON DRIVEWAYS, APPROACHES, AND OTHER WORK THAT MAY AFFECT ACCESS TO THEIR PROPERTIES.

7. MAILBOXES: ALL MAILBOXES ARE TO REMAIN OPERATIONAL DURING CONSTRUCTION, EITHER BY INSTALLING CLUSTER MAILBOXES BEFORE REMOVING EXISTING MAILBOXES OR BY PROVIDING TEMPORARY MAILBOX USE.

8. RESETTING EXISTING SIGNS: RESET STREET SIGNS IN ACCORDANCE WITH PROJECT SPECIFICATION SECTION 02114 AND CITY OF MISSOULA STANDARD DETAILS. THE CONTRACTOR SHALL CONTACT CHAD PANCAKE, CITY OF MISSOULA TRAFFIC SERVICES, AT (406) 552-6372 PRIOR TO REMOVAL AND INSTALLATION OF ALL SIGNS. COORDINATE SIGN REINSTALLATION PROCEDURES AND SIGN LOCATIONS WITH CHAD PANCAKE.

9. BASIS OF QUANTITIES: SEE THE COST NARRATIVE FOR ASSUMPTIONS AND METHODS USED IN THE COST ESTIMATION.

# DESIGN STANDARDS

1. ROADWAYS: STREETS WERE DESIGNED TO MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS (MCPWSS) INCLUDING DRAWINGS AND CONFORM TO GUIDANCE SET FORTH IN AASHTO GREEN BOOK: A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS, 2018 7TH EDITION THE DESIGN BASIS REPORT FURTHER SUMMARIZES AND DOCUMENTS THE PRELIMINARY INTERSECTION DESIGN.

2. INTERSECTIONS: ROUNDABOUTS WERE DESIGNED TO MDT STANDARDS AND CONFORM TO GUIDANCE SET FORTH IN NCHRP REPORT 672, ROUNDABOUTS: AN INFORMATION AL GUIDE, SECOND EDITION. THE DESIGN BASIS REPORT FURTHER SUMMARIZES AND DOCUMENTS THE PRELIMINARY ROADWAY DESIGN.

3. TRAILS: TRAILS WERE DESIGNED TO CITY OF MISSOULA STANDARDS & DETAILS AND CONFORM TO GUIDANCE SET FORTH IN THE AASHTO GUIDE FOR THE DEVELOPMENT OF BICYCLE FACILITIES. THE DESIGN BASIS REPORT FURTHER SUMMARIZES AND DOCUMENTS THE PRELIMINARY TRAIL DESIGN.

# SUMMARY OF QUANTITIES

1. QUANTITY SUMMARY FRAMES: ALL QUANTITY SUMMARY ESTIMATES HAVE ARE PROVIDED IN A SEPARATE DOCUMENT.

2. SCOPE DEFERMENT: DUE TO FUNDING CONSTRAINTS ONLY PORTIONS OF THE PROJECT WILL BE INCLUDED IN THIS CONTRACT. REFERENCE THE SCOPE DEFERMENT EXHIBIT ON SHEET XX AND THE SPECIAL PROVISIONS.

| REVISION | DATE | DESCRIPTION |
|---|---|---|
| - | - | - |

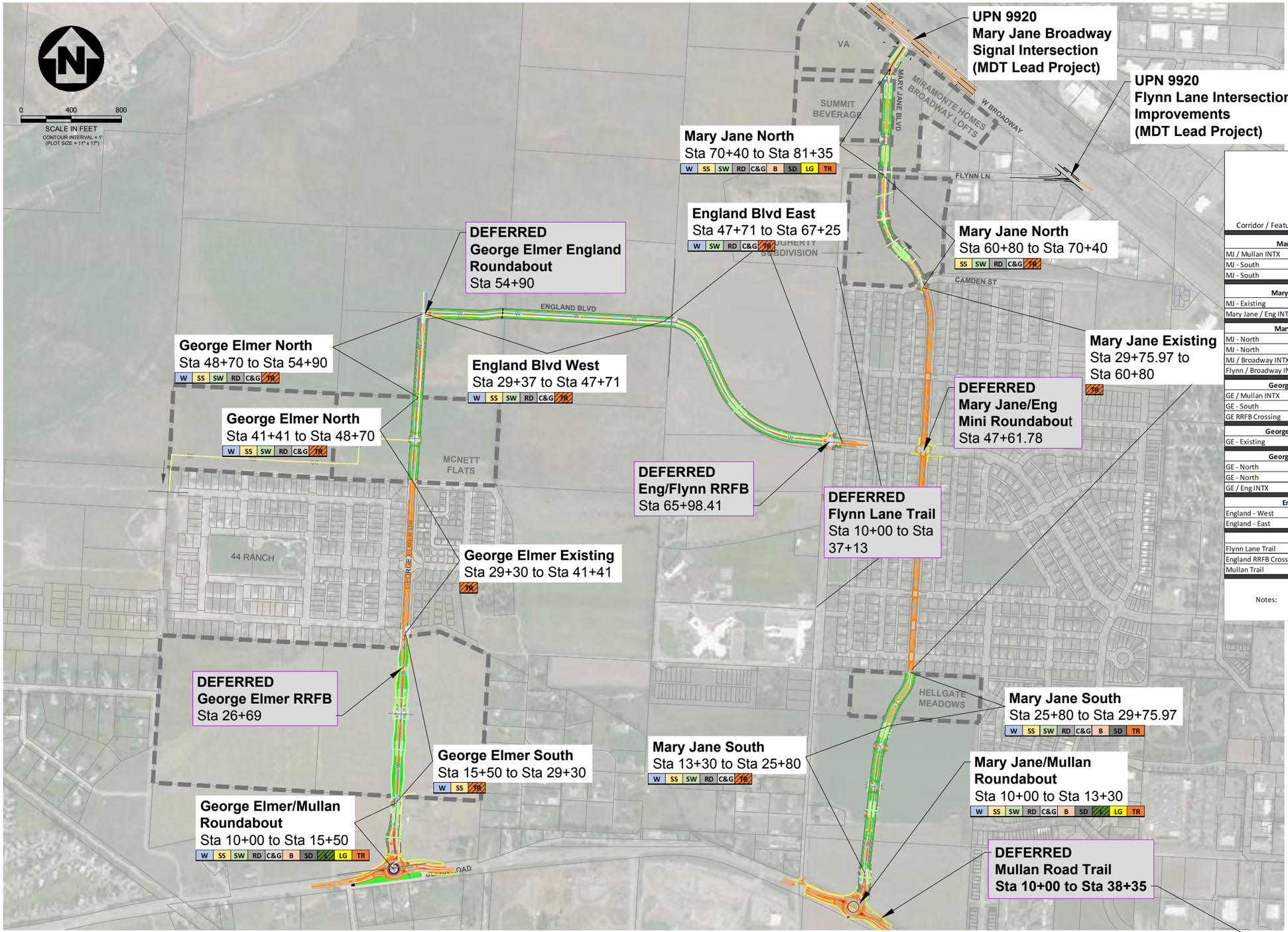
DESIGNER JN PROJ. NO. 7065
DRAWN JN DATE 04/16/2021
CHECKED DP SURVEYED DJ&A, P.C.

DJ&A ENGINEERS PLANNERS SURVEYORS

MULLAN BUILD
100% - BID PLANS

GENERAL NOTES

SHEET OF A.3 A.16




MULLAN BUILD

CONTRACT SCOPE SUMMARY TABLE

| Corridor / Feature | Station | W Water Utility | SS Sewer Utility | SW Stormwater Utility | RD Roadway | C&G Curb and Gutter | B Bike Facilities | SD Sidewalk | L Landscaping | LG Lighting | TR Stripe & Signing | D Fully Defered |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Mary Jane South** | | | | | | | | | | | | |
| MJ / Mullan INTX | 10+00 to 13+30 | | | | | | | | | | | |
| MJ - South | 13+30 To 25+80 | | | | | | | | | | | |
| MJ - South | 25+80 To 29+75.97 | | | | | | | | | | | |
| **Mary Jane - Existing** | | | | | | | | | | | | |
| MJ - Existing | 29+75.97 to 60+80 | | | | | | | | | | | |
| Mary Jane / Eng INTX | 47+61.78 | | | | | | | | | | | |
| **Mary Jane - North** | | | | | | | | | | | | |
| MJ - North | 60+80 to 70+40 | | | | | | | | | | | |
| MJ - North | 70+40 to 81+35 | | | | | | | | | | | |
| MJ / Broadway INTX | N/A | | | | | | | | | | | MDT |
| Flynn / Broadway INTX | N/A | | | | | | | | | | | MDT |
| **George Elmer - South** | | | | | | | | | | | | |
| GE / Mullan INTX | 10+00 to 15+50 | | | | | | | | | | | |
| GE - South | 15+50 to 29+30 | | | | | | | | | | | |
| GE RRFB Crossing | 26+69 | | | | | | | | | | | |
| **George Elmer - Existing** | | | | | | | | | | | | |
| GE - Existing | 29+30 to 41+41 | | | | | | | | | | | |
| **George Elmer - North** | | | | | | | | | | | | |
| GE - North | 41+41 to 48+70 | | | | | | | | | | | |
| GE - North | 48+70 to 54+90 | | | | | | | | | | | |
| GE / Eng INTX | 54+90 | | | | | | | | | | | |
| **England Blvd** | | | | | | | | | | | | |
| England - West | 29+37 to 47+71 | | | | | | | | | | | |
| England - East | 47+71 + 67+25 | | | | | | | | | | | |
| **Trails** | | | | | | | | | | | | |
| Flynn Lane Trail | 10+00 to 37+13 | | | | | | | | | | | |
| England RRFB Crossing | Eng 65+98.41 | | | | | | | | | | | |
| Mullan Trail | 10+00 to 38+35 | | | | | | | | | | | |

| Notes: | |
|---|---|
| | Scope to be completed by MDT lead project (MDT) |
| | Partial facilities scope installed |
| | Scope to be completed with BUILD Project |
| | Scope to be defered and constructed with other funding |

LEGEND

- WATER UTILITY
- SEWER UTILITY
- STORMWATER
- ROADWAY
- CURB AND GUTTER
- BIKE FACILITIES
- SIDEWALK
- LANDSCAPING
- LIGHTING
- STRIPE & SIGNING
- FULLY DEFERRED

| REVISION | DATE | DESCRIPTION |
|---|---|---|
| 1 | 12/30/2020 | PARTIAL SCOPE APPLIED |
| 2 | 1/7/2021 | PARTIAL SCOPE UPDATED, MULLAN LANE TRAIL DEFERRED |
| 3 | 3/17/2021 | SCOPE CHANGES UPDATED |

DESIGNER DW PROJ. NO. 7065
DRAWN DW DATE 04/16/2021
CHECKED DP SURVEYED DJ&A, P.C.

100% PUD PLANS

DJ&A ENGINEERS PLANNERS SURVEYORS

Mullan BUILD Project Scope

EXHIBIT A

SHEET OF A.4 A.16


## SURVEY CONTROL INFORMATION

NORTHING AND EASTING IN INTERNATIONAL FEET UNITS -
ELEVATION IN US SURVEY FEET UNBITS.

NAD 83(2011) EPOCH 2010
MT STATE PLANE ZONE 2500
GEOID 18
CSF = 0.999924322

CONTROL POINT TABLE

| POINT # | NORTHING | EASTING | ELEVATION | DESCRIPTION |
|---|---|---|---|---|
| CP-1 | 1010665.22 | 818318.10 | 3200.73 | MSOL |
| CP-2 | 1001256.20 | 831946.60 | 3174.64 | T446 |
| CP-3 | 1001475.06 | 831712.78 | 3181.17 | R002 |
| CP-4 | 994886.37 | 827558.50 | 3155.24 | BM4-ELM |

| REVISION | DATE | DESCRIPTION |
|---|---|---|
| - | - | |

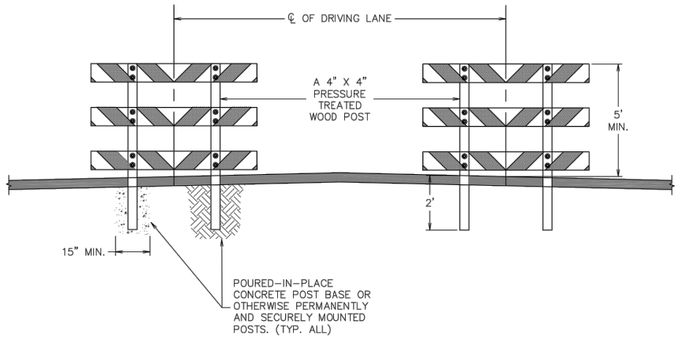
DESIGNER JN PROJ. NO. 7065
DRAWN JN DATE 04/16/2021
CHECKED DP SURVEYED DJ&A, P.C.

DJ&A ENGINEERS PLANNERS SURVEYORS

MULLAN BUILD
100% - BID PLANS

SURVEY CONTROL

SHEET OF A.5 A.16



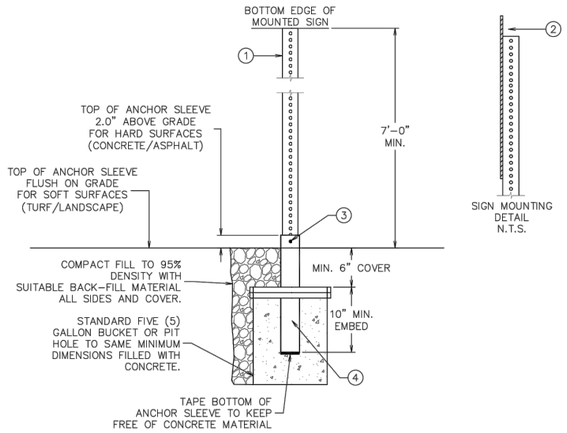

## GENERAL NOTES:

1. BARRICADE POSTS SHALL BE PRESSURE TREATED 4" X 4" WOOD POSTS.
1.1. OTHER MATERIAL MAY BE CONSIDERED, PRIOR REVIEW AND APPROVAL BY THE CITY ENGINEER IS REQUIRED.
2. BARRICADE POSTS SHALL BE EMBEDDED TWENTY-FOUR (24") INCHES MINIMUM IN POURED-IN-PLACE CONCRETE OR OTHERWISE PERMANENTLY AND SECURELY MOUNTED POSTS.
3. BARRICADE RAILS SHALL BE 8" TO 12" WIDE PRESSURE TREATED WOOD OR COMPOSITE TRAFFIC CONTROL MATERIAL. FOUR (4') FOOT MINIMUM LENGTH.
3.1. OTHER MATERIAL MAY BE CONSIDERED, PRIOR REVIEW AND APPROVAL BY THE CITY ENGINEER IS REQUIRED.
4. BARRICADE RAILS SHALL BE SECURED WITH FOUR (4) EACH, PER RAIL – THREE-EIGHTS (3/8") INCH DIAMETER BY THREE AND ONE-HALF (3-1/2") INCH LENGTH HOT-DIP GALVANIZED HEX LAG SCREWS AND FOUR (4) EACH, PER RAIL – ONE (1") INCH, OUTSIDE DIAMETER, HOT-DIP GALVANIZED WASHERS, AS SHOWN ABOVE.
5. BARRICADE RAILS SHALL BE SECURED ON POSTS FACING SIDEWALK SECTION / PEDESTRIAN TRAVEL WAY.
6. RETROREFLECTIVE TAPE SHALL BE APPLIED IN SIX (6") INCH BANDS SPACED SIX (6") INCHES APART ALTERNATING RETROREFLECTIVE WHITE AND RETROREFLECTIVE RED [RED = BLACK INK ILLUSTRATED ABOVE], PLACED AT A FORTY-FIVE (45°) DEGREE ANGLE TO THE RAIL, AS SHOWN ABOVE.
7. BARRICADES MUST FULLY COMPLY WITH CURRENT MUTCD STANDARDS.

Engineering Division

**Typical End-of-Roadway Barricade Detail**

Approved By City Engineer Kevin J. Slovarp | Adopted: 10/30/2014 Revised: 3/22/2017 | STD - 714




## KEYED NOTES:

(1) 2" 12 GAUGE TELESPAR ® PERFORATED STEEL SQUARE TUBING SIGN POST, OR CITY ENGINEER APPROVED EQUIVALENT, SHALL BE USED FOR ALL SIGN INSTALLATIONS UPON/WITHIN THE PUBLIC RIGHT-OF-WAY (UNLESS SIGN AREA (SQ- FT) EXCEEDS YIELD ACCORDING TO AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS). TELESPAR ®OR EQUAL MATERIAL SPECIFICATIONS: STEEL CONFORMING TO ASTM A-1011 GRADE 50 AND GALVANIZING CONFORMING TO ASTM A-653.

(2) SET SIGN FLUSH WITH OR ABOVE TOP OF POST. TOP OF SIGN SHALL NOT BE PLACED BELOW TOP OF POST. SIGN SHOULD BE FULLY SUPPORTED BY POST.

(3) FASTEN SIGN POST TO THROUGH-DRILLED ANCHOR SLEEVE WITH 5/16" X 3" GRADE 2 BOLT WITH FLAT WASHERS AND NYLON-INSERT LOCK NUT. PLACE BOLT 1" BELOW THE TOP OF ANCHOR SLEEVE.

(4) GALVANIZED 2-1/2" X 2-1/2" X 18" LONG (MIN.), 7 GAUGE NON-PERFORATED STEEL SQUARE TUBING ANCHOR SLEEVE.

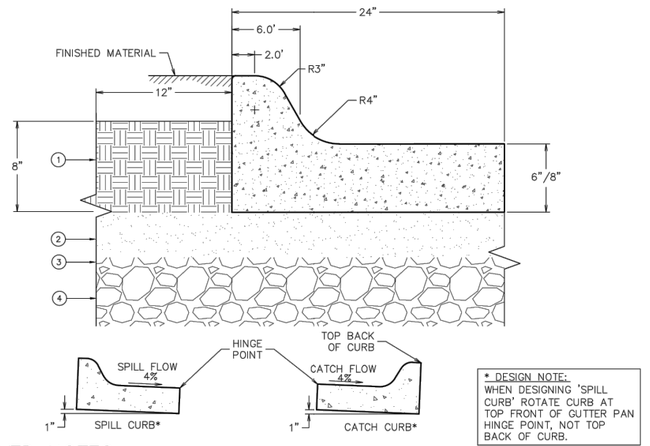
## GENERAL NOTES:

1. ALL SIGNS SHALL COMPLY WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), MOST CURRENT VERSION, REVISION AND / OR SUPPLEMENT, FOR SIGN MATERIAL(S), SIZE, THICKNESS, SHAPE, COLOR(S), MESSAGE, SYMBOLOGY AND RETRORELECTIVITY.
2. ALL SIGNS LOCATED UPON/WITHIN THE PUBLIC RIGHT-OF-WAY SHALL BE SLEEVE-MOUNTED FOR BREAKAWAY AND REPLACEABILITY.
3. FINAL SIGN LOCATION AND / OR PLACEMENT SHALL BE IN ACCORDANCE WITH THE MUTCD AND AS DETERMINED AND APPROVED BY THE CITY ENGINEER OR SIGN SHOP SUPERVISOR.
4. 2-1/2" 12 GAUGE SHALL BE USED FOR LARGER SIGN AREA INSTALLATIONS. THE CITY ENGINEER MAY REQUIRE ALTERNATE SIZES, GAUGES, ETC, BASED ON SIGN SURFACE AREA.

Engineering Division

**Typical Boulevard Sign Base Public Right-of-Way**

Approved By City Engineer Kevin J. Slovarp | Adopted: 01/27/1999 Revised: 01/10/2017 | STD - 720




* DESIGN NOTE:
WHEN DESIGNING 'SPILL CURB' ROTATE CURB AT TOP FRONT OF GUTTER PAN HINGE POINT, NOT TOP BACK OF CURB.

## KEYED NOTES:

(1) FILL MATERIAL: MINIMUM OF EIGHT (8") INCHES OF FILL MATERIAL COMPACTED TO 95% PROCTOR DENSITY BEHIND CURB. SEE STD-141 FOR SIDEWALK SECTION IF APPLICABLE.
(2) BASE: MINIMUM OF FOUR (4") INCHES OF BASE SHALL BE COMPACTED TO 95% PROCTOR DENSITY. EXTEND 1' FOOT BEHIND CURB.
(3) BASE: CITY ENGINEER MAY REQUIRE ADDITIONAL BASE, DEPENDING ON ADEQUACY OF SUB GRADE MATERIAL BASED ON A CBR.
(4) SUB GRADE: MINIMUM OF SIX (6") INCHES OF SUB GRADE SHALL BE COMPACTED TO 95% PROCTOR DENSITY. EXTEND 1' FOOT BEHIND CURB.

## GENERAL NOTES:

1. CONTRACTION JOINTS SHALL BE PLACED EVERY TEN (10') FEET AND SHALL BE ONE-FOURTH (1/4) THE CONCRETE THICKNESS OR A MINIMUM OF ONE (1") INCH DEEP.
2. EXPANSION JOINTS OF ONE-HALF (1/2") INCH MASTIC MATERIAL SHALL BE PLACED AT THE FOLLOWING LOCATIONS:
   2.1 P.C.S AND P.T.S OF CURVES WHERE RADII ARE THIRTY (30') FEET OR LESS.
   2.2 GRADE BREAKS.
   2.3 NO CLOSER THAN FOUR (4') FEET ON EITHER SIDE OF A DRAINAGE STRUCTURE.
   2.4 AT OTHER LOCATIONS AS SPECIFIED BY CITY ENGINEER.
3. MINIMUM GUTTER FLOW LINE SHALL BE FOUR-TENTHS (0.4%) PERCENT SLOPE.
4. NO CURB OR SIDEWALK SHALL BE POURED WITHOUT AN INSPECTION AND APPROVAL OF FORM PLACEMENT BY CITY ENGINEERING DIVISION.
5. "L" TYPE CURB IS SUITABLE FOR USE AS LANDSCAPE RETAINING CURB AND MAY BE POURED WITH SIDEWALK UPON APPROVAL.
6. CONSTRUCTION MATERIALS AND PROCEDURES SHALL CONFORM TO EXISTING CITY SPECIFICATIONS FOR M-4000 CEMENT CONCRETE AND MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS SECTIONS 02528 AND 03310.
7. THE CITY OF MISSOULA REQUIRES 564 LBS OF PORTLAND CEMENT PER CY OF CONCRETE.
8. NOT FOR USE IN NEW ROAD CONSTRUCTION.

Engineering Division

**Typical "L" Type Curb/Gutter Section**

Approved By City Engineer Kevin J. Slovarp | Adopted: 01/30/1980 Revised: 03/15/2017 | STD - 740

| REVISION | DATE | DESCRIPTION |
|---|---|---|
| - | - | - |

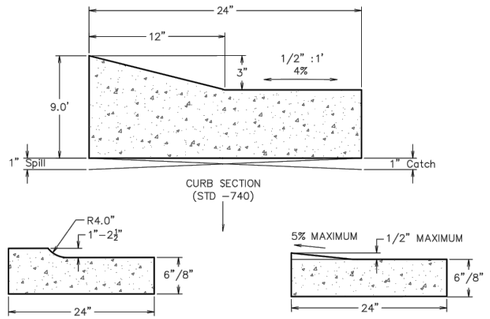
DESIGNER BB PROJ. NO. 7065
DRAWN BB DATE 01/15/2021
CHECKED DP SURVEYED DJ&A, P.C.

ENGINEERS PLANNERS SURVEYORS

MULLAN BUILD
100% - BID PLANS

TYPICAL CITY DETAILS 714, 720, 740

SHEET OF A.6 A.16



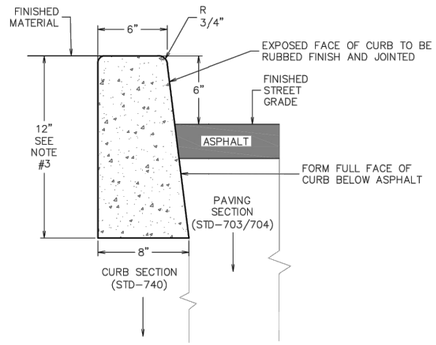

TYPICAL DRIVEWAY LAYDOWN 'A'

TYPICAL CURB RAMP LAYDOWN 'B'

## GENERAL NOTES:

1. SEE CITY OF MISSOULA STD–121 FOR BASE, SUB BASE, AND FILL SPECIFICATIONS.
2. TYPICAL MODIFIED "L" TYPE CURB AND GUTTER SECTION SHALL BE MINIMUM OF SIX (6") INCHES DEPTH (THROUGHOUT GUTTER SECTION) PORTLAND CEMENT CONCRETE POURED MINIMUM TWO (2') FEET WIDE WITH A THREE (3") INCH DEPRESSION (COVE) THROUGH THE CENTER AS SHOWN ABOVE.
3. CONTRACTION JOINTS SHALL BE PLACED EVERY TEN (10') FEET AND SHALL BE ONE–FOURTH (1/4) THE CONCRETE THICKNESS OR A MINIMUM OF ONE (1") INCH DEEP.
4. EXPANSION JOINTS OF ONE–HALF (1/2") INCH MASTIC MATERIAL SHALL BE PLACED AT THE FOLLOWING LOCATIONS:
   4.1. P.C.S AND P.T.S OF CURVES.
   4.2. GRADE BREAKS.
   4.3. NO CLOSER THAN FOUR (4') FEET ON EITHER SIDE OF A DRAINAGE STRUCTURE, BUT NOT REQUIRED OR RECOMMENCED.
   4.4. AT OTHER LOCATIONS AS SPECIFIED BY CITY ENGINEER.
   4.5. EXPANSION JOINTS MAY BE ELIMINATED FOR EXTRUDED CURB EXCEPT P.C.S AND P.T.S WITH APPROVAL OF CITY ENGINEER.
5. NO CURB OR SIDEWALK SHALL BE POURED WITHOUT AN INSPECTION AND APPROVAL OF FORM PLACEMENT BY CITY ENGINEERING DIVISION.
6. MINIMUM GUTTER FLOW LINE SHALL BE FOUR–TENTHS (0.4%) PERCENT SLOPE.
7. CONSTRUCTION MATERIALS AND PROCEDURES SHALL CONFORM TO EXISTING CITY STANDARD SPECIFICATIONS FOR M–4000 CEMENT CONCRETE AND MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS SECTIONS 02528 AND 03310.
8. RESIDENTIAL DRIVEWAY LAYDOWN MAY BE SAW CUT.
9. COMMERCIAL DRIVEWAY LAYDOWN CAN NOT BE SAW CUT AND SHALL BE REMOVED AND RE–POURED.
11. CURB RAMP LAYDOWN CAN NOT BE SAW CUT AND SHALL BE REMOVED AND RE–POURED.
12. CURB RAMP LAYDOWN CAN NOT EXCEED FIVE (5%) PERCENT GRADE OR ONE–HALF (1/2") INCH RISE FROM CURB FLOW LINE.
13. THE CITY OF MISSOULA REQUIRES 564 LBS OF PORTLAND CEMENT PER CY OF CONCRETE.

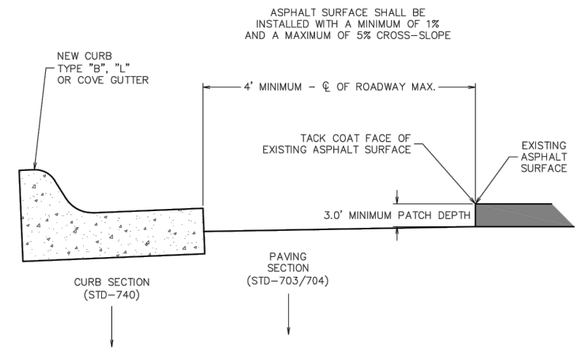
| Engineering Division | Modified "L" Type Curb/Gutter Section | Approved By City Engineer Kevin J. Slovarp | Adopted: 04/18/1974 Revised: 03/20/2017 | STD - 741 |
|---|---|---|---|---|




## GENERAL NOTES:

1. SEE CITY OF MISSOULA STD–121 FOR BASE, SUB BASE, AND FILL SPECIFICATIONS.
2. CITY ENGINEER MAY REQUIRE ADDITIONAL BASE, DEPENDING ON SUB GRADE MATERIAL.
3. CITY ENGINEER MAY PERMIT OTHER CURB DEPTH – PRIOR APPROVAL IS REQUIRED.
4. CONTRACTION JOINTS SHALL BE PLACED EVERY TEN (10') FEET AND SHALL BE ONE–FOURTH (1/4) THE CONCRETE THICKNESS OR A MINIMUM OF ONE (1") INCH DEEP.
5. CONTRACTION JOINTS SHALL BE TOOLED ON TOP AND FACE OF CURB.
6. EXPANSION JOINTS OF ONE–HALF (1/2") INCH MASTIC MATERIAL SHALL BE PLACED AT THE FOLLOWING LOCATIONS:
   6.1. P.C.S AND P.T.S OF CURVES.
   6.2. GRADE BREAKS.
   6.3. NO CLOSER THAN FOUR (4') FEET ON EITHER SIDE OF A DRAINAGE STRUCTURE,
   6.4. AT OTHER LOCATIONS AS SPECIFIED BY CITY ENGINEER.
   6.5. EXPANSION JOINTS MAY BE ELIMINATED FOR EXTRUDED CURB AT CITY ENGINEER'S DISCRETION.
7. NO CURB OR SIDEWALK SHALL BE POURED WITHOUT AN INSPECTION AND APPROVAL OF FORM PLACEMENT BY CITY ENGINEERING DIVISION.
8. "B" TYPE CURB IS SUITABLE FOR USE AS LANDSCAPE RETAINING CURB AND MAY BE POURED WITH SIDEWALK UPON APPROVAL.
9. CONSTRUCTION MATERIALS AND PROCEDURES SHALL CONFORM TO EXISTING CITY STANDARD SPECIFICATIONS FOR M–4000 CEMENT CONCRETE AND MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS SECTIONS 02528 AND 03310.
10. THE CITY OF MISSOULA REQUIRES 564 LBS OF PORTLAND CEMENT PER CY OF CONCRETE.

| Engineering Division | Typical "B" Type Curb Section | Approved By City Engineer Kevin J. Slovarp | Adopted: 04/09/1973 Revised: 03/20/2017 | STD - 743 |
|---|---|---|---|---|




## GENERAL NOTES:

1. ASPHALT SURFACE SHALL BE SQUARE CUT BY A METHOD APPROVED BY THE CITY ENGINEER.
2. ASPHALT SHALL BE CUT, REMOVED AND REPLACED A MINIMUM FOUR (4') FEET FROM THE FACE OF THE CURB / GUTTER PAN.
3. ASPHALT CUT, REMOVAL AND REPLACEMENT MAY REQUIRE HALF STREET (UP TO CENTERLINE) IMPROVEMENTS, AS REQUIRED BY THE CITY ENGINEER.
4. FOR CURB REPLACEMENT ONLY, EXISTING ASPHALT EDGE MAY BE USED AS A FRONT FORM IF EXISTING ASPHALT IS SOUND AND SQUARE FACED, AND ONLY UPON PRIOR APPROVAL OF THE CITY ENGINEER.
5. ANY OVER EXCAVATION SHALL BE BACK–FILLED WITH THE PROPER ROAD SECTION (STD–703/704)
6. A MINIMUM OF 6" OF BASE SHALL BE PLACED UNDER THE ASPHALT REPAIR AND COMPACTED TO 95% PROCTOR DENSITY.
7. FOR TEMPORARY PATCH, CONTRACTOR SHALL BE RESPONSIBLE FOR FILLING IN FRONT OF THE CURB WITH EITHER 3/4" MINUS OR COLD MIX AND MAINTAINING THE OPENING IN A SAFE CONDITION UNTIL THE ASPHALT REPAIR CAN BE COMPLETED.
8. EXISTING ASPHALT FACE SHALL BE TACK COATED PRIOR TO PLACING ASPHALT PATCH.
9. ASPHALT DEPTH VARIES FROM 3" TO 6" – REFER TO ASPHALT PAVING SECTION STANDARD DRAWINGS STD–703/704.

| Engineering Division | Asphalt Cutting, Removal and Replacement Adjacent to Curb and Gutter | Approved By City Engineer Kevin J. Slovarp | Adopted: 02/06/1986 Revised: 03/20/2017 | STD - 744 |
|---|---|---|---|---|

| REVISION | DATE | DESCRIPTION |
|---|---|---|
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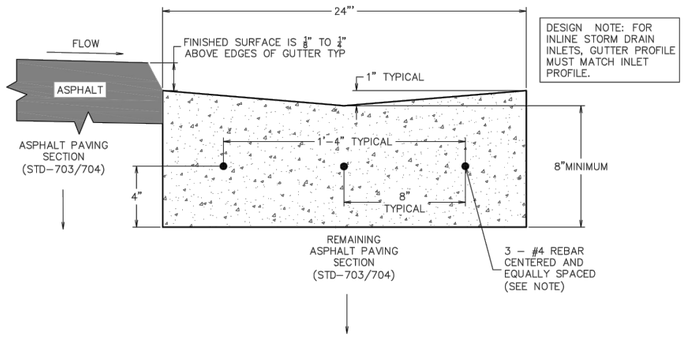
DESIGNER BB PROJ. NO. 7065
DRAWN BB DATE 01/15/2021
CHECKED DP SURVEYED DJ&A, P.C.

DJ&A ENGINEERS PLANNERS SURVEYORS

MULLAN BUILD
100% - BID PLANS

TYPICAL CITY DETAILS 741, 743, 744

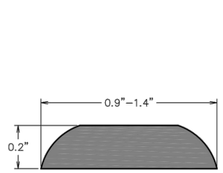
SHEET OF A.7 A.16



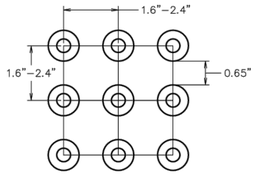

## GENERAL NOTES:

1. TYPICAL 2' COVE GUTTER SECTION SHALL BE MINIMUM OF EIGHT (8") INCHES DEPTH (THROUGHOUT COVE GUTTER SECTION) PORTLAND CEMENT CONCRETE POURED TWO (2') FEET WIDE WITH A ONE (1") INCH DEPRESSION (VALLEY) THROUGH THE CENTER AS SHOWN ABOVE.
2. CONTRACTION JOINTS SHALL BE PLACED EVERY TEN (10') FEET AND SHALL BE ONE-FOURTH (1/4) THE CONCRETE THICKNESS OR A MINIMUM OF ONE (1") INCH DEEP.
3. EXPANSION JOINTS OF ONE-HALF (1/2") INCH MASTIC MATERIAL SHALL BE PLACED AT THE FOLLOWING LOCATIONS:
   3.1. P.C.S AND P.T.S OF CURVES.
   3.2. GRADE BREAKS.
   3.3. NO CLOSER THAN FOUR (4') FEET ON EITHER SIDE OF A DRAINAGE STRUCTURE, BUT NOT REQUIRED OR RECOMMENDED.
   3.4. AT OTHER LOCATIONS AS SPECIFIED BY CITY ENGINEER.
   3.5. EXPANSION JOINTS MAY BE ELIMINATED FOR EXTRUDED CURB WITH APPROVAL OF CITY ENGINEER.
4. REINFORCING BAR (REBAR) SHALL BE #4 (1/2") EPOXY COATED, THREE (3) EACH, EQUALLY SPACED (EIGHT (8") INCHES TYPICAL) WITH A MINIMUM THREE (3") INCHES) OF CONCRETE COVER. REINFORCING BAR (REBAR) SHALL BE PLACED AND SUPPORTED WITH APPROVED REBAR SUPPORTS.
7. MINIMUM GUTTER FLOW LINE SHALL BE FIVE-TENTHS (0.5%) PERCENT SLOPE.
8. NO CURB OR SIDEWALK SHALL BE POURED WITHOUT AN INSPECTION AND APPROVAL OF FORM PLACEMENT BY CITY ENGINEERING DIVISION.
9. CONSTRUCTION MATERIALS AND PROCEDURES SHALL CONFORM TO EXISTING CITY STANDARD SPECIFICATIONS FOR M-4000 CEMENT CONCRETE AND MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS SECTIONS 02528 AND 03310.
10. CITY OF MISSOULA REQUIRES 564 LBS OF PORTLAND CEMENT PER CY OF CONCRETE.

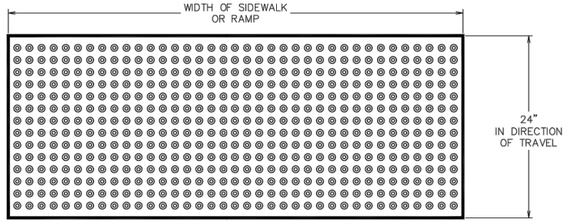
Engineering Division | Typical 2' Valley Gutter Section | Approved By City Engineer Kevin J. Slovarp | Adopted: 08/01/1986 Revised: 09/03/2020 | STD - 745




TRUNCATED DOME SIZE




TRUNCATED DOME PATTERN & SPACING



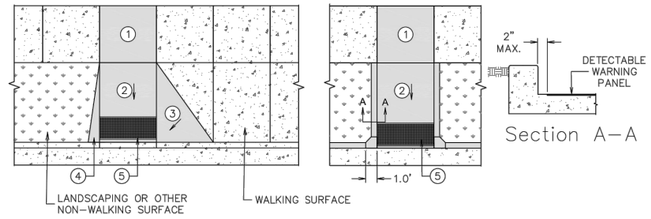

DETECTABLE WARNING PANEL

## NOTES:

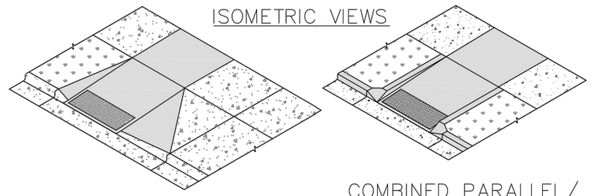
1. DETECTABLE WARNING PANEL SHALL FULLY COMPLY WITH THE MOST STRINGENT CURRENT CITY OF MISSOULA AND PROWAG REQUIREMENTS AND SPECIFICATIONS
2. DETECTABLE WARNING PANEL SHALL EXTEND THE FULL WIDTH OF THE CROSSING OR RAMP
3. CURRENT ACCEPTABLE DETECTABLE WARNING PANEL MATERIALS;
   3.1 CAST IRON
4. DETECTABLE WARNING PANEL SHALL BE PLACED ON RUNNING SLOPE TO MATCH SIDEWALK / RAMP;
   4.1 NOT TO EXCEED EIGHT (8%) PERCENT MAXIMUM RUNNING SLOPE
   4.2 NOT TO EXCEED TWO (2%) PERCENT MAXIMUM CROSS-SLOPE
5. DETECTABLE WARNING PANEL SHALL BE PLACED PERPENDICULAR WITH DIRECTION OF PEDESTRIAN TRAVEL EXCEPT WHERE NOTED ON STD DWGS
6. DETECTABLE WARNING PANEL SHALL BE PLACED WITHIN TWO (2") INCHES FROM BACK EDGE OF CURB ON A MINIMUM OF ONE (1) EDGE
7. DETECTABLE WARNING PANEL COLOR SHALL CONTRAST VISUALLY WITH THE ADJOINING SIDEWALK / RAMP SURFACE
8. DETECTABLE WARNING PANEL SHALL BE CAST-IN-PLACE AND FLUSH WITH SIDEWALK / RAMP SURFACE

Engineering Division | Detectable Warning Panel | Approved By City Engineer Kevin J. Slovarp | Adopted: 03/12/2004 Revised: 03/14/2017 | STD - 750

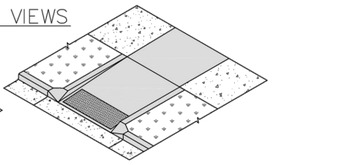
## PERPENDICULAR CURB RAMP ALTERNATE CONFIGURATION



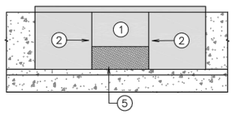

## ISOMETRIC VIEWS

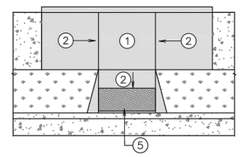


PARALLEL CURB RAMP



COMBINED PARALLEL/ PERPENDICULAR CURB RAMP




## KEYED NOTES:

1. LANDING. 5' X 5' PREFERRED DIMENSION, 4' X 4' MINIMUM. MAXIMUM SLOPE IS 2% IN ANY DIRECTION.
2. RAMP. 8.3% MAXIMUM RUNNING SLOPE. 2% MAXIMUM CROSS-SLOPE.
3. FLARED SIDE. 10% MAXIMUM SLOPE.
4. 1' FLARED TRANSITION FROM CURB LAY-DOWN TO TOP OF CURB.
5. DETECTABLE WARNING PANELS PER STD-750.
6. CONCRETE SIDEWALK SECTIONS, BASE, AND SUB GRADE PER STD-752.

Engineering Division | Curb Ramp Details (Sheet 1 of 4) | Approved By City Engineer Kevin J. Slovarp | Adopted: 01/30/1980 Revised: 03/15/2017 | STD - 751-1

| REVISION | DATE | DESCRIPTION |
|---|---|---|
| - | - | - |

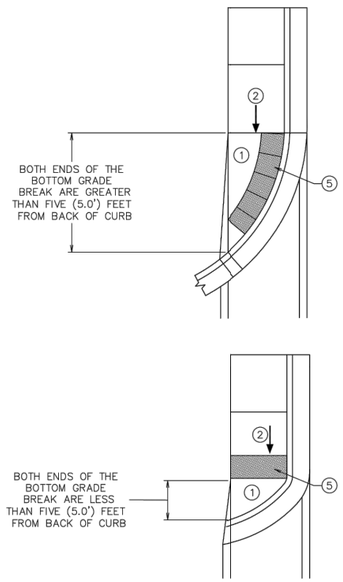
DESIGNER BB | PROJ. NO. 7065
DRAWN BB | DATE 01/15/2021
CHECKED DP | SURVEYED DJ&A, P.C.

DJ&A ENGINEERS PLANNERS SURVEYORS

MULLAN BUILD
100% - BID PLANS

TYPICAL CITY DETAILS 745, 750, 751-1

SHEET OF A.8 A.16




KEYED NOTES:

1. LANDING. 5' X 5' PREFERRED DIMENSION, 4' X 4' MINIMUM. MAXIMUM SLOPE IS 2% IN ANY DIRECTION.
2. RAMP. 8.3% MAXIMUM RUNNING SLOPE. 2% MAXIMUM CROSS-SLOPE.
3. FLARED SIDE. 10% MAXIMUM SLOPE.
4. 1' FLARED TRANSITION FROM CURB LAY-DOWN TO TOP OF CURB.
5. DETECTABLE WARNING PANELS PER STD-750.
6. CONCRETE SIDEWALK SECTIONS, BASE, AND SUB GRADE PER STD-752.

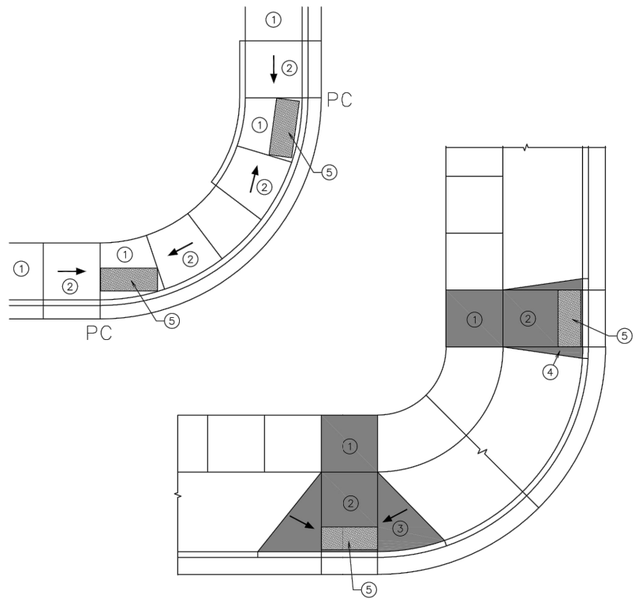
MISSOULA Engineering Division

Curb Ramp Details (Sheet 2 of 4)

Approved By City Engineer Kevin J. Slovarp

Adopted: 01/30/1980 Revised: 03/15/2017

STD - 751-2




KEYED NOTES:

1. LANDING. 5' X 5' PREFERRED DIMENSION, 4' X 4' MINIMUM. MAXIMUM SLOPE IS 2% IN ANY DIRECTION.
2. RAMP. 8.3% MAXIMUM RUNNING SLOPE. 2% MAXIMUM CROSS-SLOPE.
3. FLARED SIDE. 10% MAXIMUM SLOPE.
4. 1' FLARED TRANSITION FROM CURB LAY-DOWN TO TOP OF CURB.
5. DETECTABLE WARNING PANELS PER STD-750.
6. CONCRETE SIDEWALK SECTIONS, BASE, AND SUB GRADE PER STD-752.

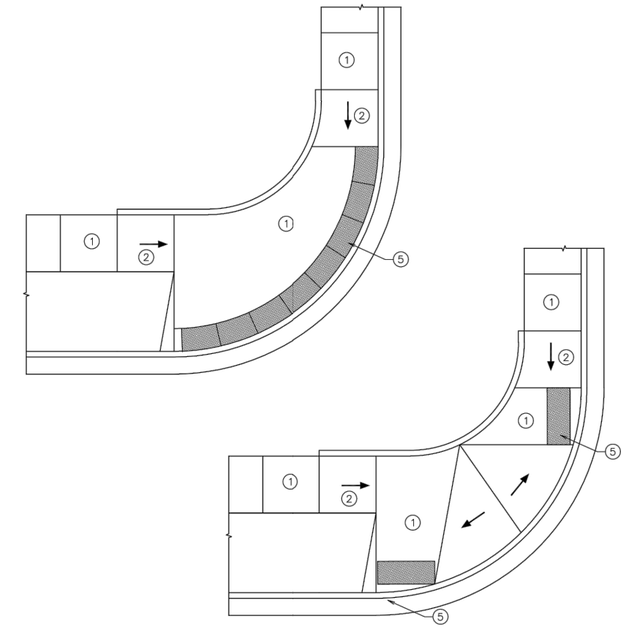
MISSOULA Engineering Division

Curb Ramp Details (Sheet 3 of 4)

Approved By City Engineer Kevin J. Slovarp

Adopted: 01/30/1980 Revised: 03/15/2017

STD - 751-3



KEYED NOTES:

1. LANDING. 5' X 5' PREFERRED DIMENSION, 4' X 4' MINIMUM. MAXIMUM SLOPE IS 2% IN ANY DIRECTION.
2. RAMP. 8.3% MAXIMUM RUNNING SLOPE. 2% MAXIMUM CROSS-SLOPE.
3. FLARED SIDE. 10% MAXIMUM SLOPE.
4. 1' FLARED TRANSITION FROM CURB LAY-DOWN TO TOP OF CURB.
5. DETECTABLE WARNING PANELS PER STD-750.
6. CONCRETE SIDEWALK SECTIONS, BASE, AND SUB GRADE PER STD-752.

MISSOULA Engineering Division

Curb Ramp Details (Sheet 4 of 4)

Approved By City Engineer Kevin J. Slovarp

Adopted: 01/30/1980 Revised: 03/15/2017

STD - 751-4

| REVISION | DATE | DESCRIPTION |
|---|---|---|
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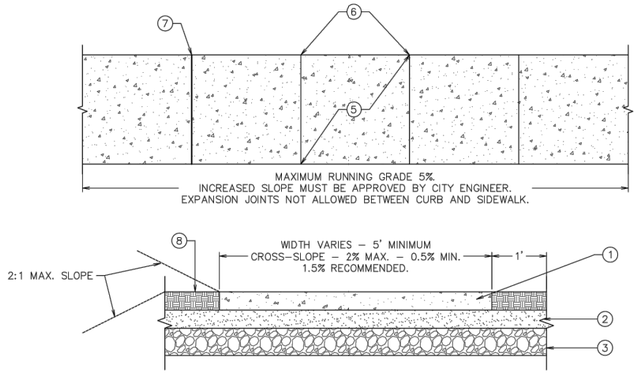
DESIGNER BB PROJ. NO. 7065
DRAWN BB DATE 01/15/2021
CHECKED DP SURVEYED DJ&A, P.C.

DJ&A ENGINEERS PLANNERS SURVEYORS

MULLAN BUILD
100% - BID PLANS

TYPICAL CITY DETAILS 751-2, 751-3, 751-4

SHEET OF A.9 A.16




## KEYED NOTES:

1. MINIMUM OF FOUR (4") INCHES OF CONCRETE SIDEWALK (TYPICAL), MINIMUM SIX (6") INCHES CONCRETE SIDEWALK THROUGH RESIDENTIAL DRIVEWAY OR MINIMUM EIGHT (8") INCHES CONCRETE SIDEWALK THROUGH COMMERCIAL DRIVEWAY OR ON ADA RAMPS PER STD DWGS.
2. MINIMUM OF FOUR (4") INCHES OF BASE SHALL BE COMPACTED TO 95% PROCTOR DENSITY.
3. MINIMUM OF SIX (6") INCHES OF SUB GRADE SHALL BE COMPACTED TO 95% PROCTOR DENSITY.
4. CITY ENGINEER MAY REQUIRE ADDITIONAL BASE, DEPENDING ON SUB GRADE MATERIAL.
5. CONTRACTION JOINTS SHALL FORM AS NEAR A SQUARE PANEL AS POSSIBLE, NO SINGLE PANEL SHALL EXCEED TEN (10') FEET ON ANY SIDE. LONGITUDINAL JOINTS REQUIRED IF SIDEWALK WIDTH EXCEEDS TEN (10') FEET.
6. CONTRACTION JOINTS SHALL BE ONE–FOURTH (1/4) THE CONCRETE THICKNESS OR A MINIMUM OF ONE (1") INCH DEEP.
7. EXPANSION JOINTS OF ONE–HALF (1/2") INCH THICK MASTIC MATERIAL SHALL BE PLACED AT THE FOLLOWING LOCATIONS:
   - 7.1. EVERY FIFTY (50') FEET OF UNINTERRUPTED SIDEWALK.
   - 7.2. P.C.S AND P.T.S OF CURVES.
   - 7.3. GRADE BREAKS.
   - 7.4. RESIDENTIAL DRIVEWAYS SIX (6") INCH DEEP MASTIC SHALL BE INSTALLED AT THE TOP OF THE TRANSITION ON BOTH SIDES AND SHALL BE PINNED IN PLACE BEFORE POURING.
   - 7.5. COMMERCIAL DRIVEWAYS EIGHT (8") INCH DEEP MASTIC SHALL BE INSTALLED AT THE TOP OF THE TRANSITION ON BOTH SIDES AND SHALL BE PINNED IN PLACE BEFORE POURING.
   - 7.6. AT OTHER LOCATIONS AS SPECIFIED BY CITY ENGINEERING DIVISION.
   - 7.7. ALL EXPANSION JOINTS SHALL BE PLACED FLUSH OR JUST BELOW TOP FINISHED SURFACE OF SIDEWALK.
   - 7.8. ALL EXPANSION JOINTS SHALL BE FULL DEPTH, FULL WIDTH AND SECURED IN PLACE BEFORE THE FORMS WILL BE APPROVED.
8. FINISHED SURFACE – 12" MINIMUM SHOULDER UNLESS OTHERWISE APPROVED BY CITY ENGINEER.
9. FINISHED SIDEWALK SURFACE SHALL HAVE MEDIUM–TO–HEAVY BROOM TEXTURE.
10. NO SIDEWALK SHALL BE POURED WITHOUT AN INSPECTION AND APPROVAL OF FORM PLACEMENT BY CITY ENGINEERING DIVISION.
11. CONSTRUCTION MATERIALS AND PROCEDURES SHALL CONFORM TO EXISTING CITY STANDARD SPECIFICATIONS FOR M–4000 CEMENT CONCRETE AND MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS SECTIONS 02528 AND 03310.
12. CITY OF MISSOULA REQUIRES 564 LBS OF PORTLAND CEMENT PER CY OF CONCRETE.

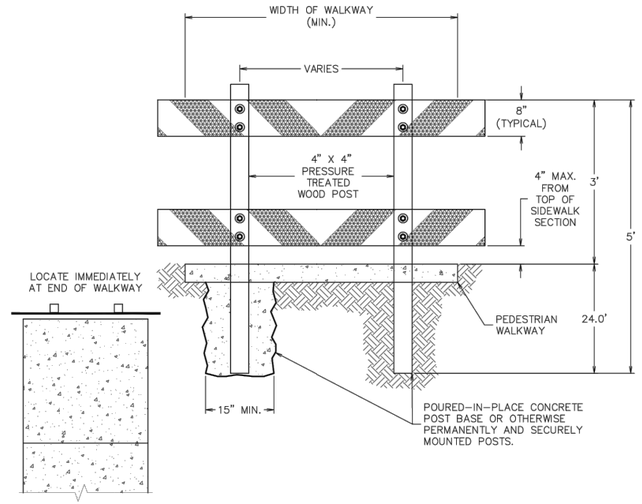
MISSOULA Engineering Division

**Typical Sidewalk Section**

Approved By City Engineer Kevin J. Slovarp

Adopted: 02/29/1996
Revised: 03/22/2017

**STD - 752**




## GENERAL NOTES:

1. BARRICADE POSTS SHALL BE PRESSURE TREATED 4" X 4" WOOD POSTS.
   - 1.1. OTHER MATERIAL MAY BE CONSIDERED, PRIOR REVIEW AND APPROVAL BY THE CITY ENGINEER IS REQUIRED.
2. BARRICADE POSTS SHALL BE EMBEDDED TWENTY–FOUR (24") INCHES MINIMUM IN POURED–IN–PLACE CONCRETE OR OTHERWISE PERMANENTLY AND SECURELY MOUNTED POSTS.
3. BARRICADE RAILS SHALL BE 1" X 8" PRESSURE TREATED WOOD OR COMPOSITE TRAFFIC CONTROL MATERIAL.
   - 3.1. OTHER MATERIAL MAY BE CONSIDERED, PRIOR REVIEW AND APPROVAL BY THE CITY ENGINEER IS REQUIRED.
4. BARRICADE RAILS SHALL BE SECURED WITH FOUR (4) EACH, PER RAIL – THREE–EIGHTS (3/8") INCH DIAMETER BY THREE AND ONE–HALF (3–1/2") INCH LENGTH HOT–DIP GALVANIZED HEX LAG SCREWS AND FOUR (4) EACH, PER RAIL – ONE (1") INCH, OUTSIDE DIAMETER, HOT–DIP GALVANIZED WASHERS, AS SHOWN ABOVE.
5. BARRICADE RAILS SHALL BE SECURED ON POSTS FACING SIDEWALK SECTION / PEDESTRIAN TRAVEL WAY.
6. BARRICADE SHALL BE LOCATED IMMEDIATELY AT END OF THE CONCRETE SIDEWALK.
7. RETROREFLECTIVE TAPE SHALL BE APPLIED IN SIX (6") INCH BANDS SPACED SIX (6") INCHES APART ALTERNATING RETROREFLECTIVE WHITE AND RETROREFLECTIVE RED [RED = BLACK INK ILLUSTRATED ABOVE], PLACED AT A FORTY–FIVE (45°) DEGREE ANGLE TO THE RAIL, AS SHOWN ABOVE.

MISSOULA Engineering Division

**Typical End-of-Walkway Barricade Detail**

Approved By City Engineer Kevin J. Slovarp

Adopted: 10/30/2014
Revised: 3/22/2017

**STD - 762**

| REVISION | DATE | DESCRIPTION |
|---|---|---|
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DESIGNER BB PROJ. NO. 7065
DRAWN BB DATE 01/15/2021
CHECKED DP SURVEYED DJ&A, P.C.

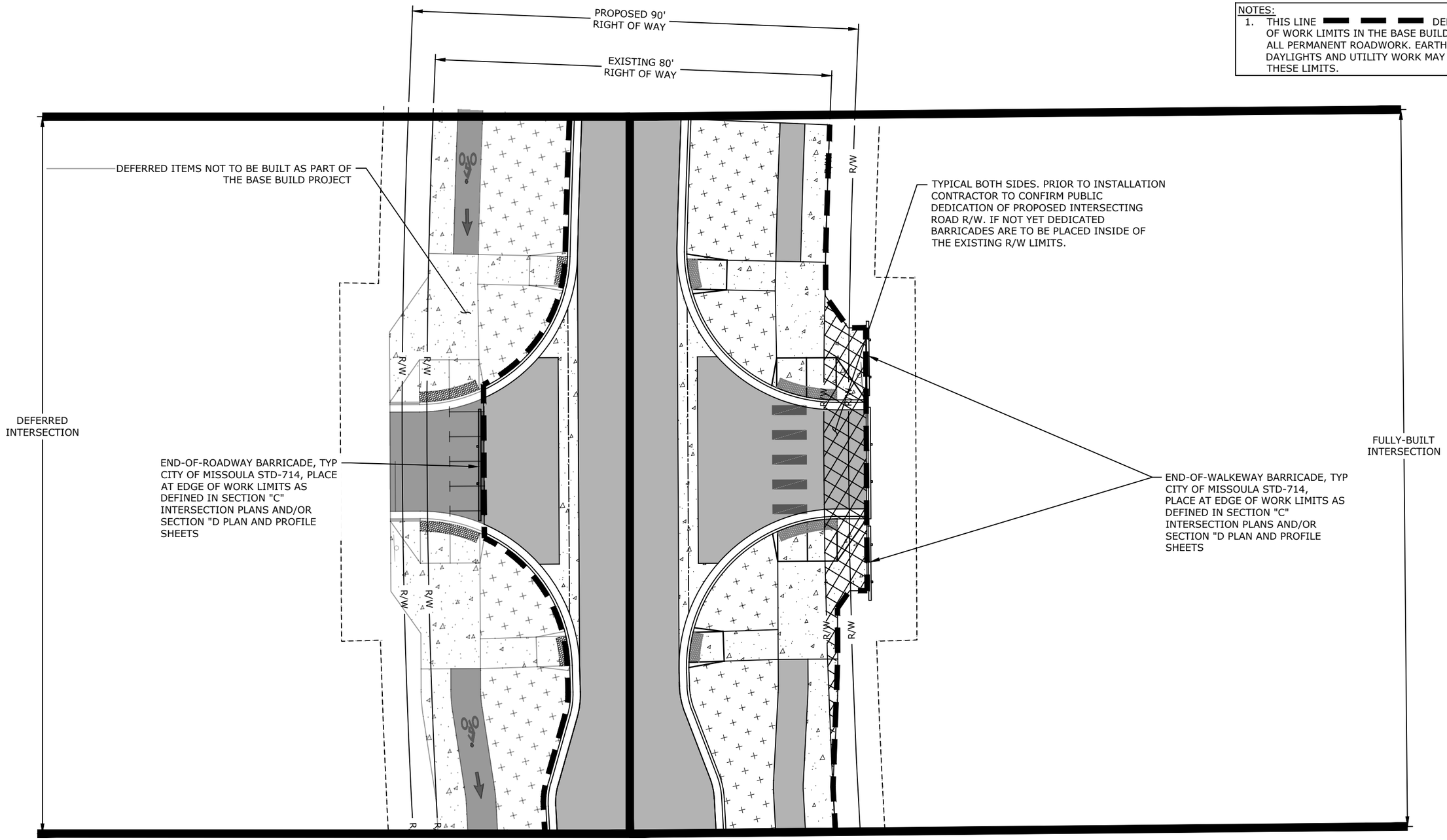
DJ&A ENGINEERS PLANNERS SURVEYORS

MULLAN BUILD
100% - BID PLANS

TYPICAL CITY DETAILS 752, 762

SHEET OF A.10 A.16

NOTES:
1. THIS LINE ▬ ▬ ▬ DEFINES THE SCOPE OF WORK LIMITS IN THE BASE BUILD CONTRACT FOR ALL PERMANENT ROADWORK. EARTHWORK DAYLIGHTS AND UTILITY WORK MAY EXTEND BEYOND THESE LIMITS.

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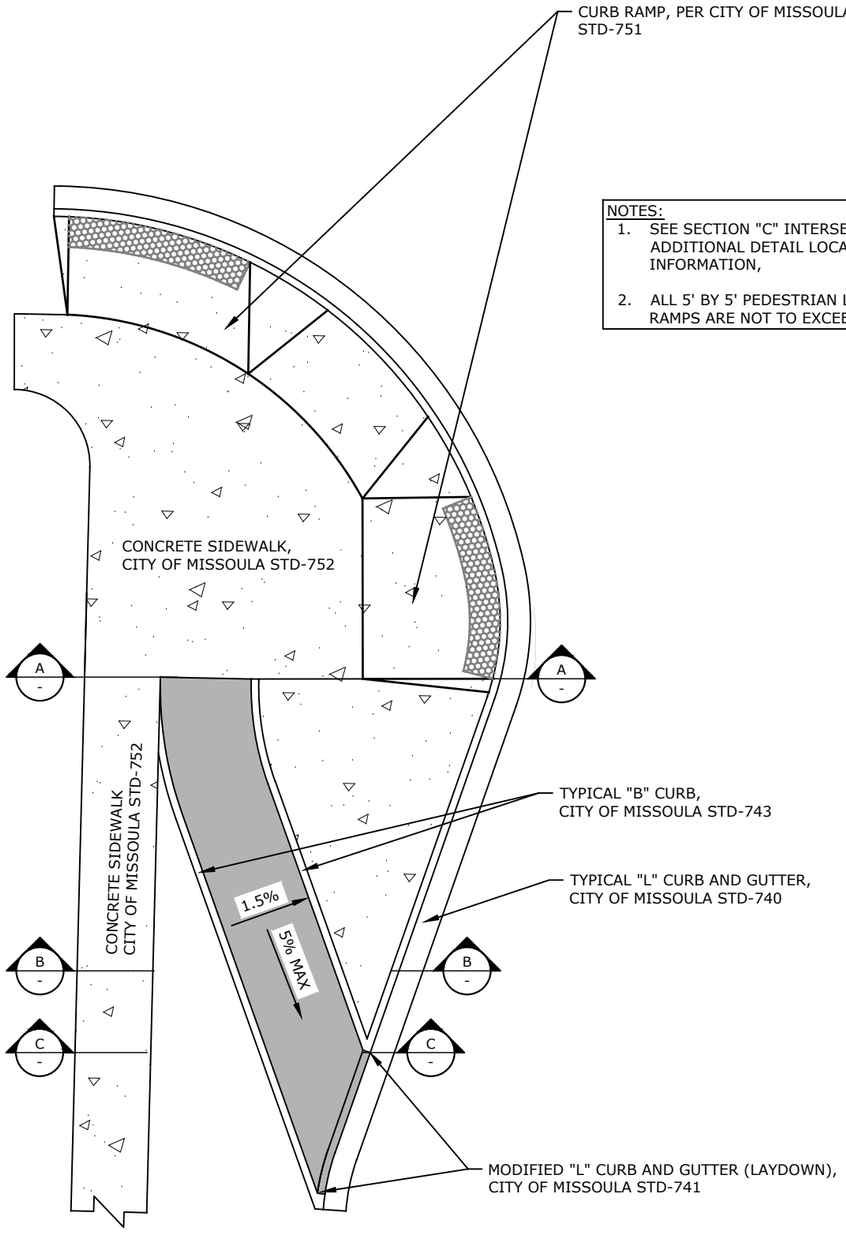
DESIGNER BB PROJ. NO. 7065
DRAWN BB DATE 01/15/2021
CHECKED DP SURVEYED DJ&A, P.C.

DJ&A ENGINEERS PLANNERS SURVEYORS

MULLAN BUILD
100% - BID PLANS

INTERIM INTERSECTION DETAIL

SHEET OF A.11 A.16

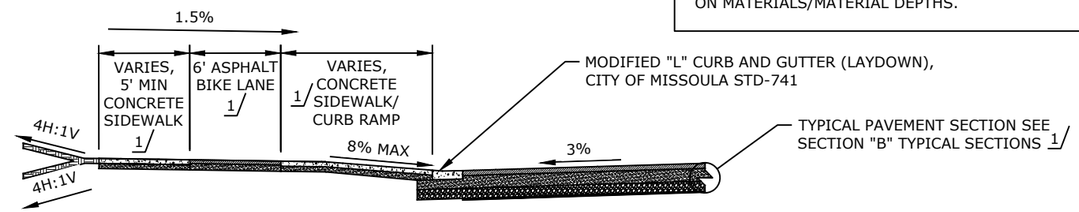



NOTES:

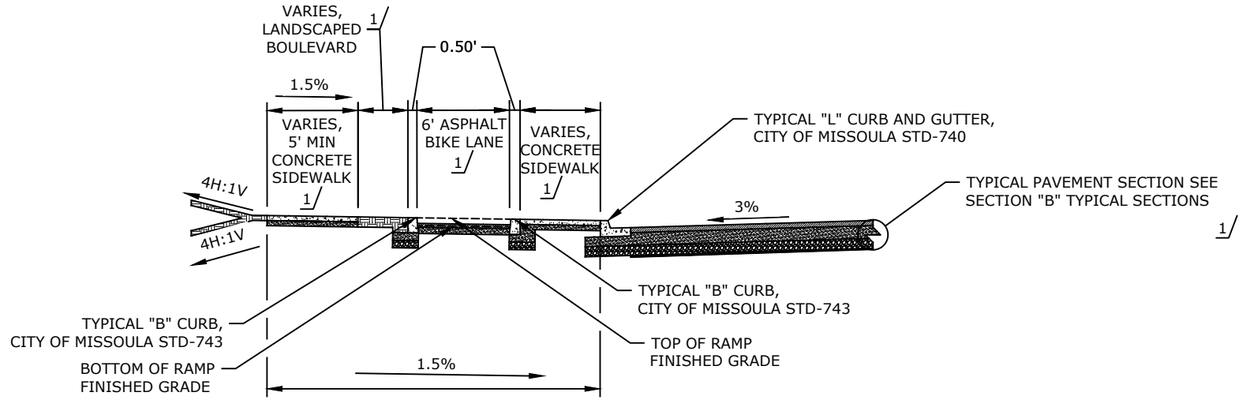
1. SEE SECTION "C" INTERSECTION DETAILS FOR ADDITIONAL DETAIL LOCATION AND GRADING INFORMATION,
2. ALL 5' BY 5' PEDESTRIAN LANDINGS AT TOPS OF RAMPS ARE NOT TO EXCEED 1.5% IN ANY DIRECTION.

FOOTNOTES:

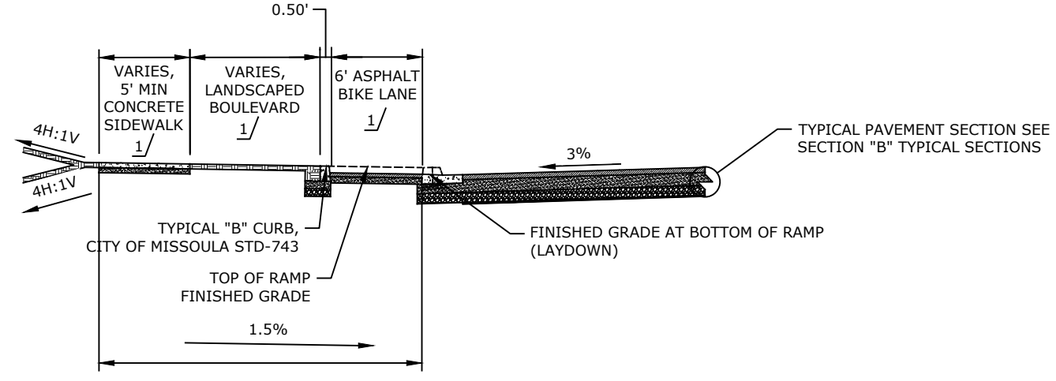
1/ SEE SECTION "B" TYPICAL SECTIONS FOR MORE INFORMATION ON MATERIALS/MATERIAL DEPTHS.




A - SECTION
NOT TO SCALE




B - SECTION
NOT TO SCALE




C - SECTION
NOT TO SCALE

| REVISION | DATE | DESCRIPTION |
|---|---|---|
| - | - | - |

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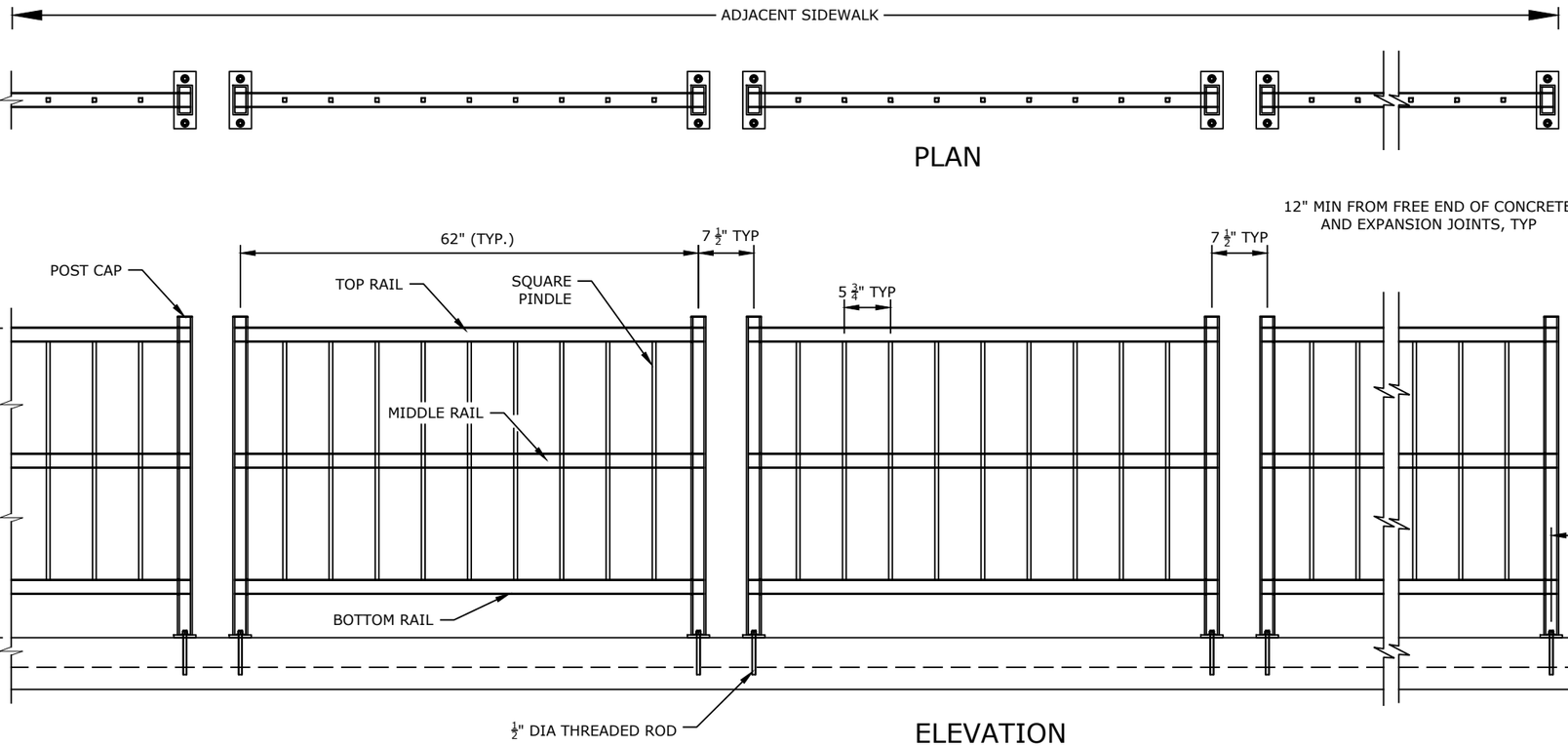
DJ&A ENGINEERS PLANNERS SURVEYORS

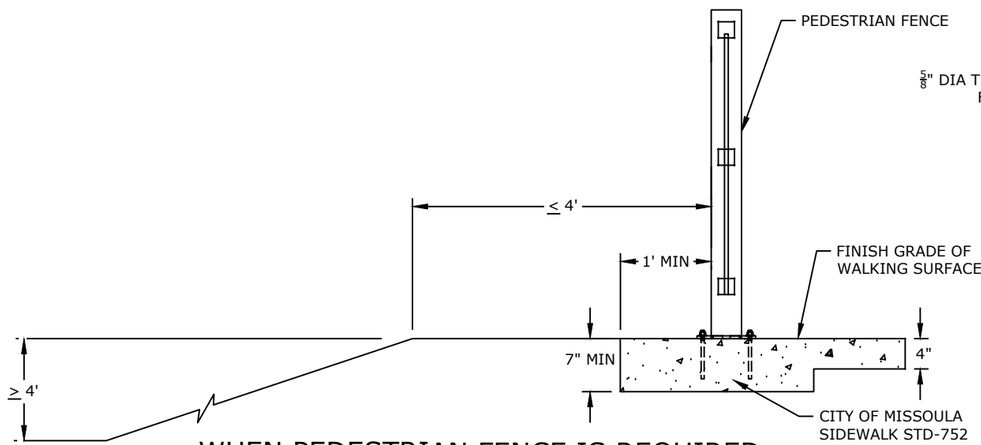
MULLAN BUILD
100% - BID PLANS

BIKE RAMP DETAIL

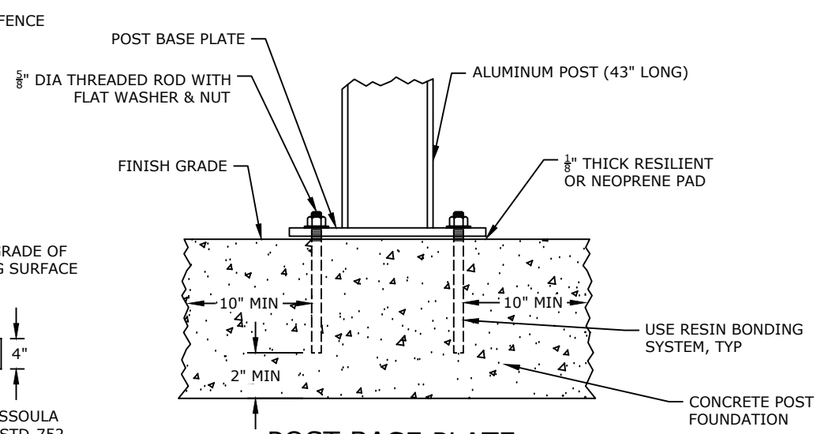
SHEET OF A.12 A.16




# ALUMINUM PEDESTRIAN FENCE




## WHEN PEDESTRIAN FENCE IS REQUIRED FOR WALKING SURFACES




## POST BASE PLATE BOLT DOWN ANCHOR

NOTES:

1. SEE DETAILS A.7-A.8 FOR ADDITIONAL ALUMINUM PEDESTRIAN FENCE DETAILS.
2. ALL CONCRETE SHALL BE COMMERCIAL GRADE CONCRETE.
3. SEE SECTION "D" SHEETS FOR ALUMINUM PEDESTRIAN FENCE LOCATIONS AND DIMENSIONS.
4. CONTENTS IN THIS DETAIL ARE BASED ON OREGON DEPARTMENT OF TRANSPORTATION STANDARD DRAWING RD 780.
5. ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE CURRENT MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS.

| REVISION | DATE | DESCRIPTION |
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DESIGNER BB PROJ. NO. 7065
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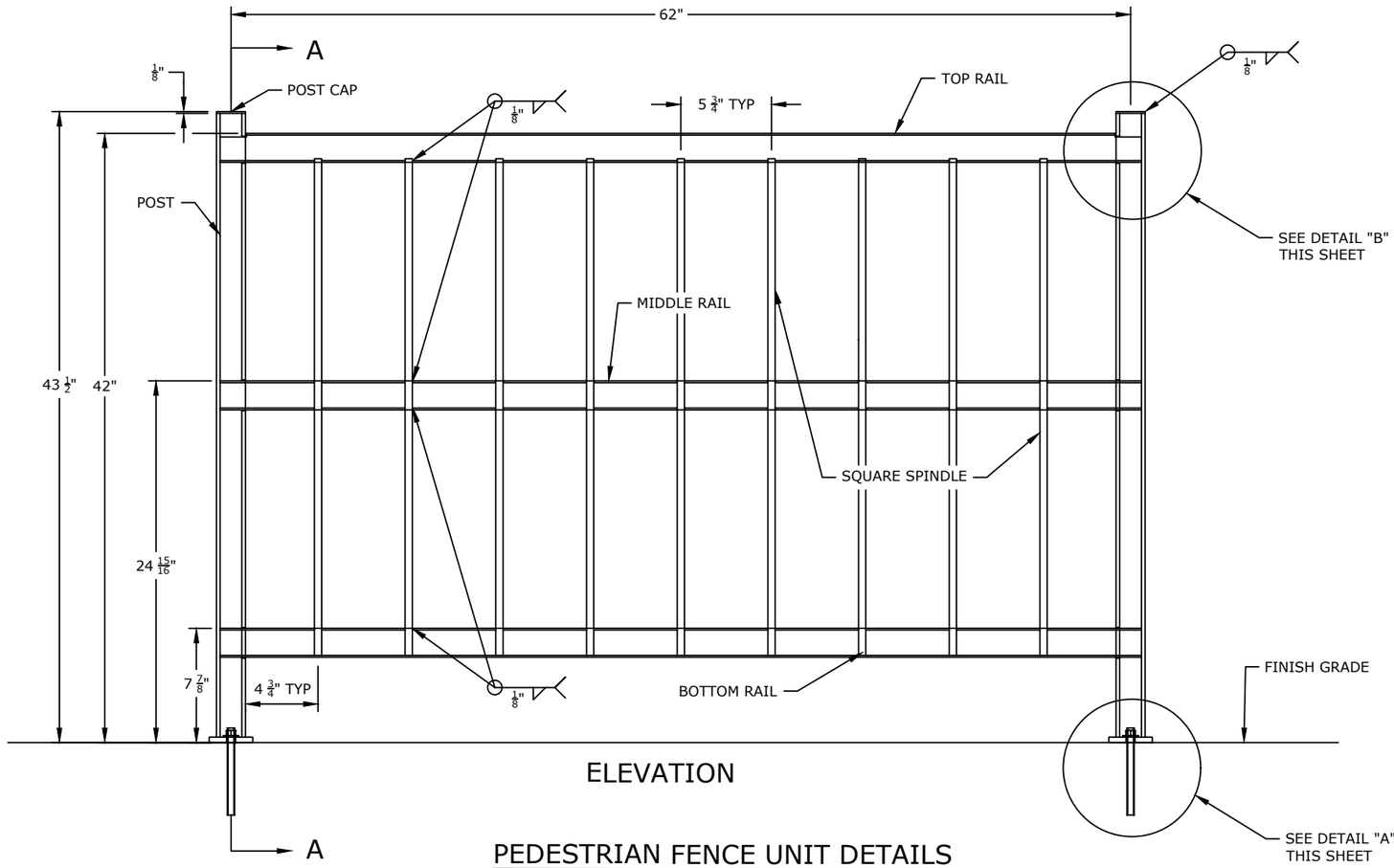
DJ&A ENGINEERS PLANNERS SURVEYORS

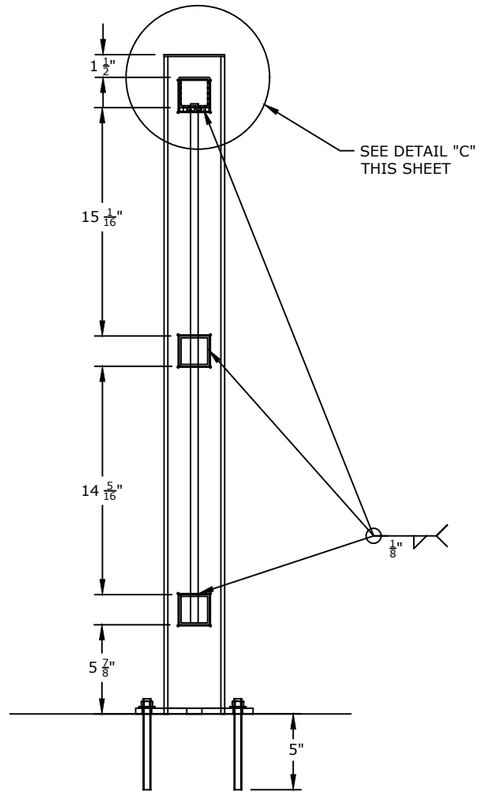
MULLAN BUILD
100% - BID PLANS

ALUMINUM PEDESTRIAN FENCE

SHEET OF A.13 A.16

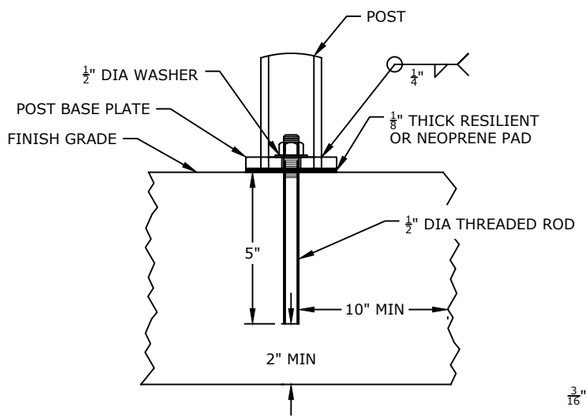



ELEVATION

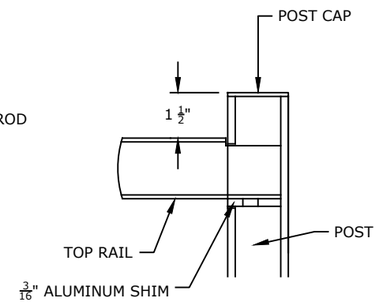



SECTION A-A

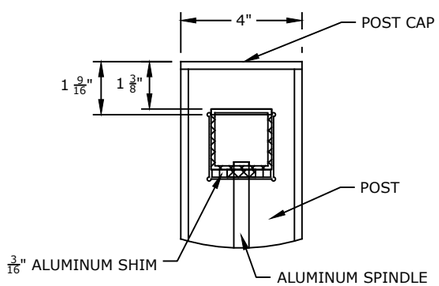
## PEDESTRIAN FENCE UNIT DETAILS




DETAIL "A"




DETAIL "B"




DETAIL "C"

NOTES:

1. SEE DETAILS A.6 & A.8 FOR ADDITIONAL ALUMINUM PEDESTRIAN FENCE DETAILS.
2. ALL CONCRETE SHALL BE COMMERCIAL GRADE CONCRETE.
3. SEE SECTION "D" SHEETS FOR ALUMINUM PEDESTRIAN FENCE LOCATIONS AND DIMENSIONS.
4. CONTENTS IN THIS DETAIL ARE BASED ON OREGON DEPARTMENT OF TRANSPORTATION STANDARD DRAWING RD 781.
5. ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE CURRENT MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS.

| REVISION | DATE | DESCRIPTION |
|---|---|---|
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DESIGNER BB PROJ. NO. 7065
DRAWN BB DATE 01/15/2021
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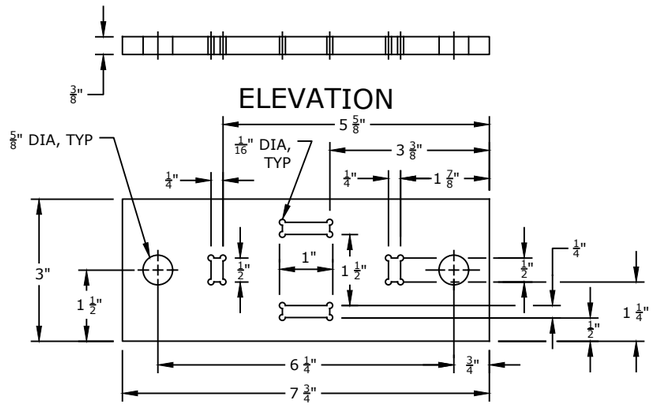
DJ&A ENGINEERS PLANNERS SURVEYORS

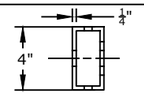
MULLAN BUILD
100% - BID PLANS

ALUMINUM PEDESTRIAN FENCE UNIT DETAILS

SHEET OF A.14 A.16



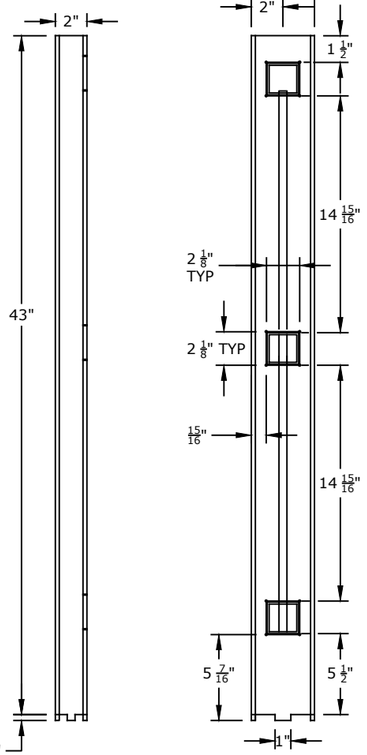

## POST BASE PLATE



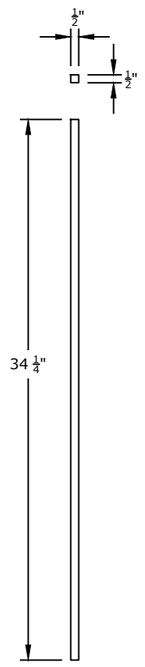

TOP

## POST

2" X 4" X 1/4" - 43" LONG

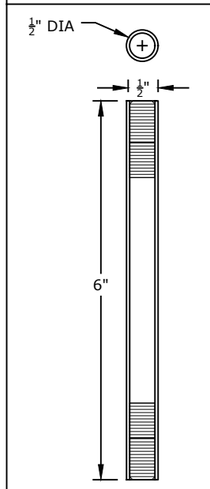



ELEVATION SIDE



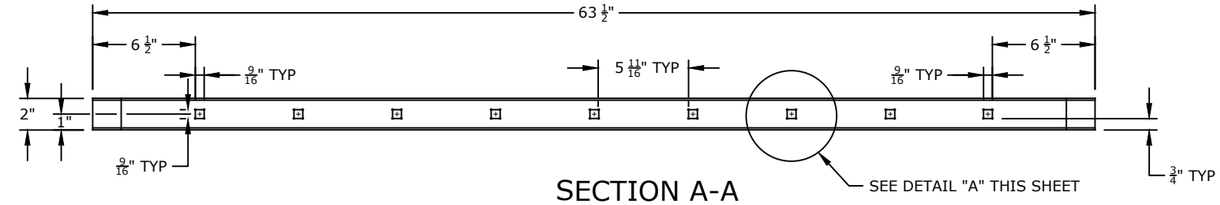

## SPINDLE

1/2" X 1/2" SQUARE -32 1/8" LONG

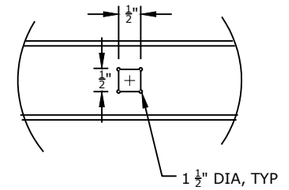



## THREADED ROD

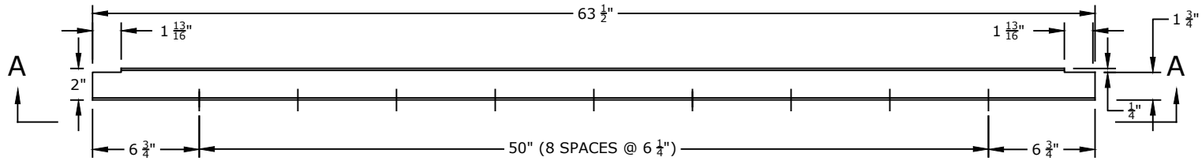
1/2" DIA - 6" LONG



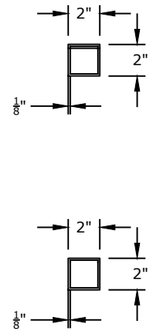

SECTION A-A

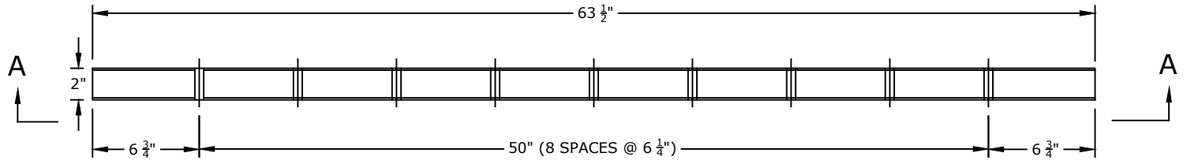



DETAIL "A"

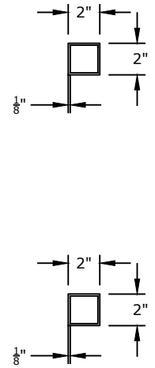


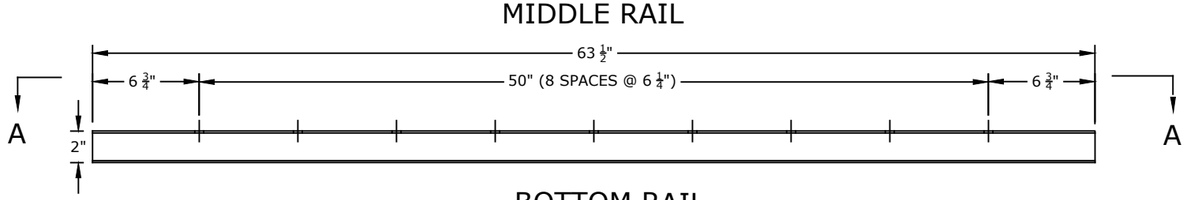

TOP RAIL



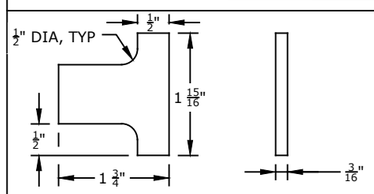

MIDDLE RAIL



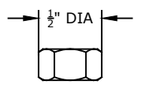




BOTTOM RAIL

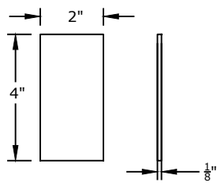
## ALUMINUM RAIL ELEVATION



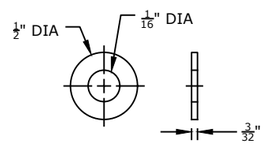

## ALUMINUM SHIM




## STEEL NUT




## POST CAP




## FLAT WASHER

NOTES:

1. SEE DETAILS A.6-A.7 FOR ADDITIONAL ALUMINUM PEDESTRIAN FENCE DETAILS.
2. ALL CONCRETE SHALL BE COMMERCIAL GRADE CONCRETE.
3. SEE SECTION "D" SHEETS FOR ALUMINUM PEDESTRIAN FENCE LOCATIONS AND DIMENSIONS.
4. CONTENTS IN THIS DETAIL ARE BASED ON OREGON DEPARTMENT OF TRANSPORTATION STANDARD DRAWING RD 782.
5. ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE CURRENT MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS.

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DESIGNER BB | PROJ. NO. 7065
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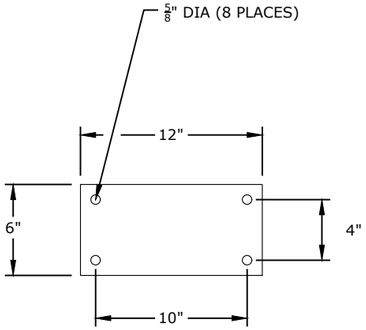
DJ&A ENGINEERS PLANNERS SURVEYORS

MULLAN BUILD
100% - BID PLANS

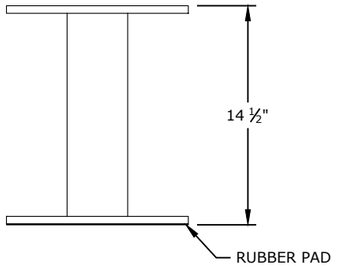
ALUMINUM PEDESTRIAN FENCE COMPONENT DETAILS

SHEET OF A.15 A.16

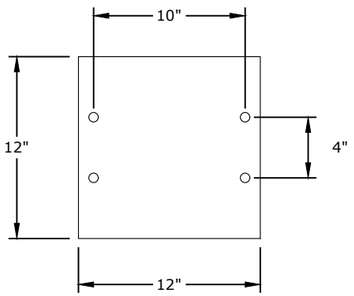
# MAILBOX CLUSTER UNIT



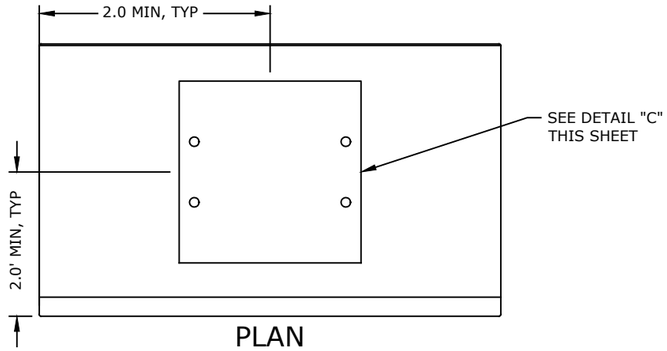

## DETAIL "A"



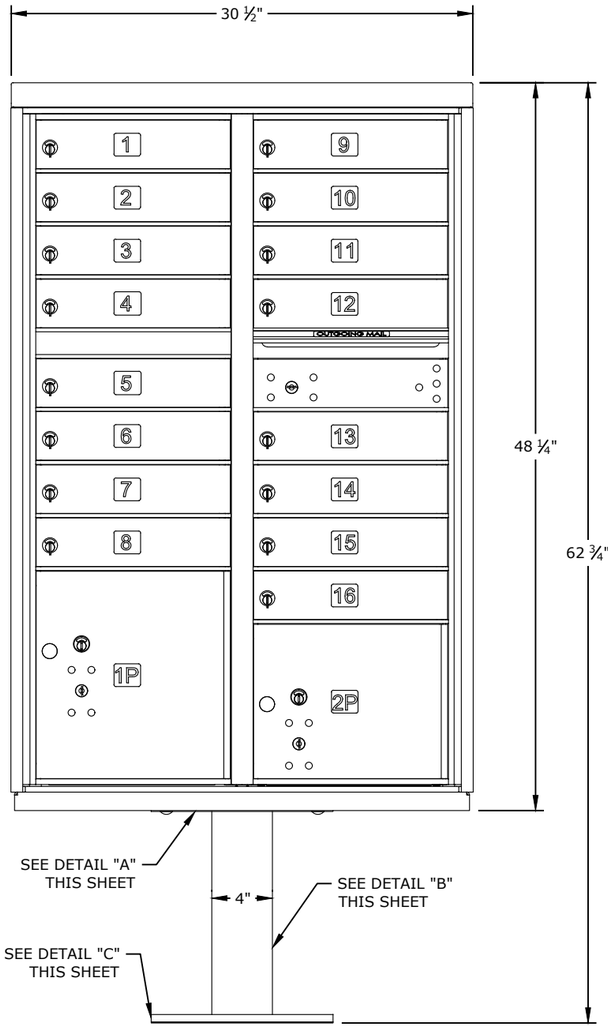

## DETAIL "B"



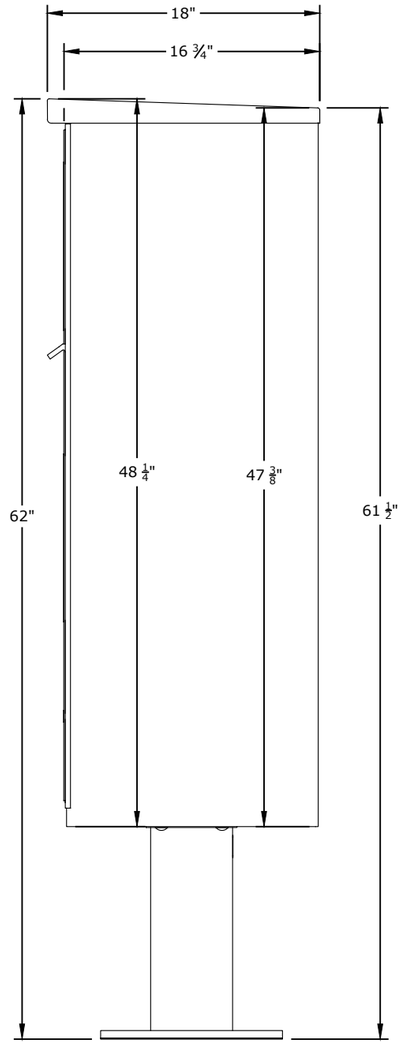

## DETAIL "C"




## PLAN

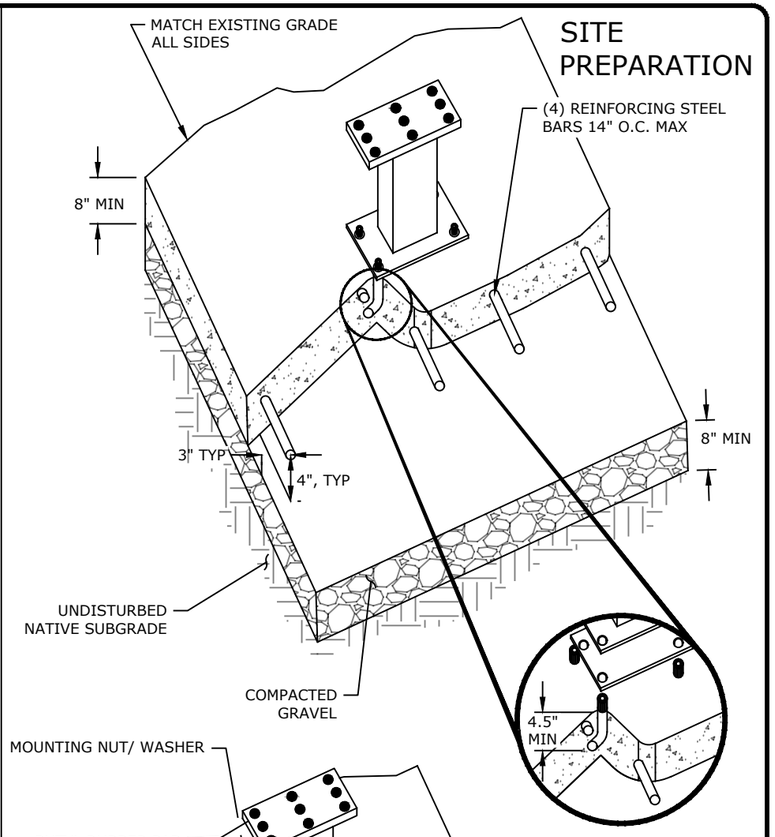



## ELEVATION

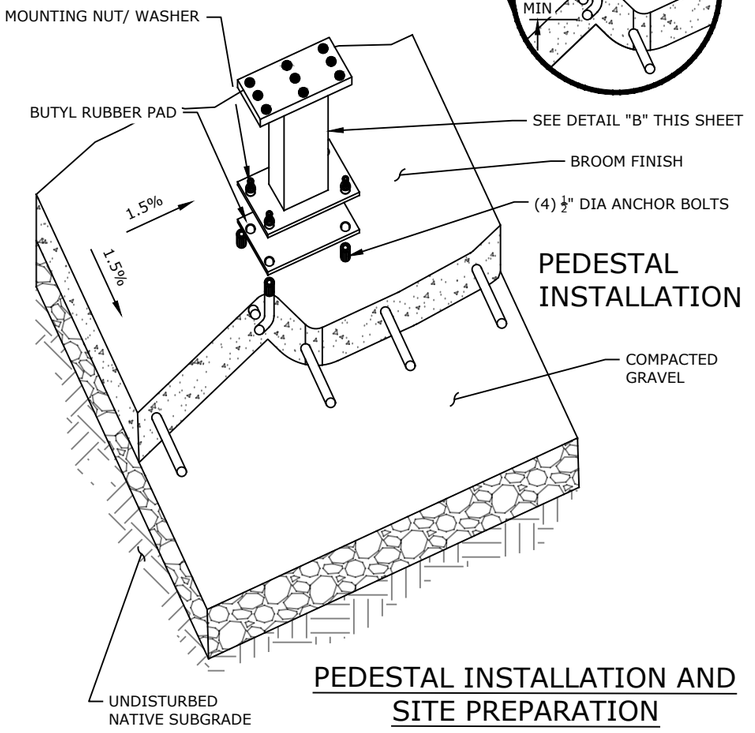



## SIDE

# SITE PREPARATION




# PEDESTAL INSTALLATION




## PEDESTAL INSTALLATION AND SITE PREPARATION

| REVISION | DATE | DESCRIPTION |
|---|---|---|
| - | - | - |

DESIGNER BB | PROJ. NO. 7065
DRAWN BB | DATE 01/15/2021
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DJ&A ENGINEERS PLANNERS SURVEYORS

MULLAN BUILD
100% - BID PLANS

MAILBOX CLUSTER DETAILS

SHEET OF A.16 A.16