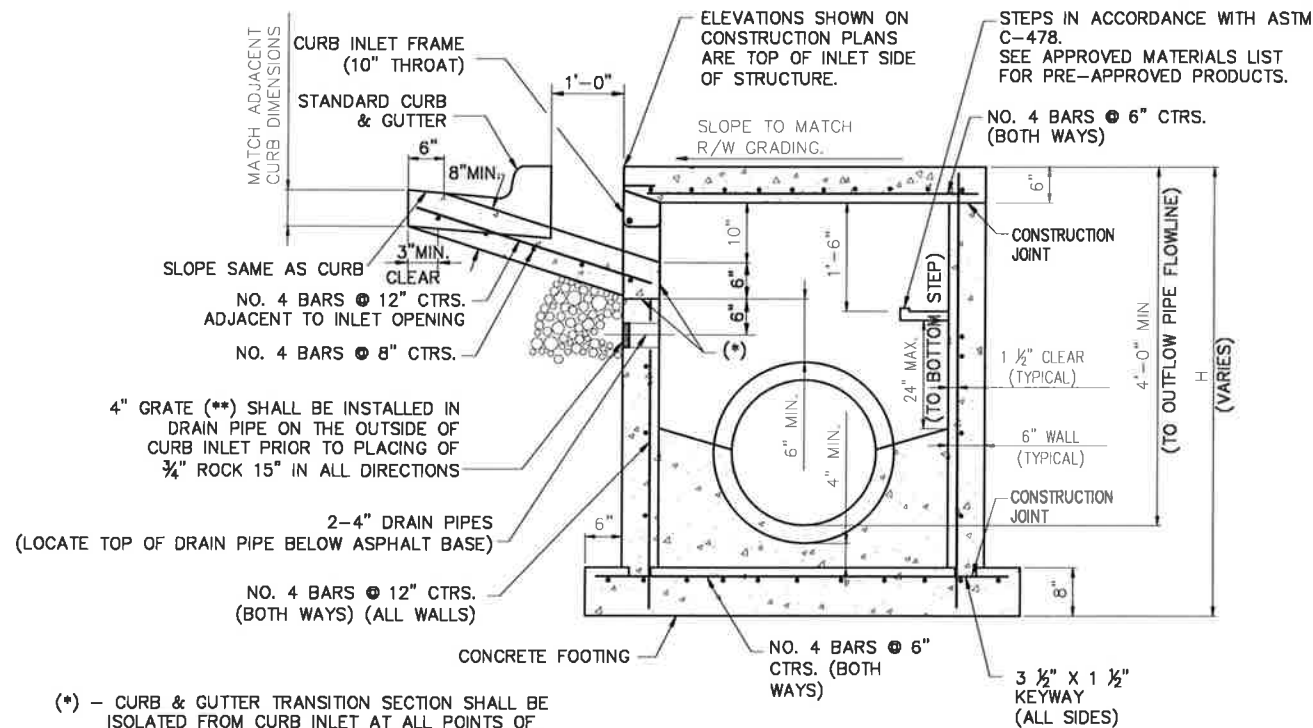


- (*) - CURB & GUTTER TRANSITION SECTION SHALL BE ISOLATED FROM CURB INLET AT ALL POINTS OF CONTACT. ISOLATION MATERIAL SHALL BE 30 LB. ROOFING FELT OR APPROVED EQUAL.
- (**) - NO. 4 VERTICAL BARS SHALL BE PLACED IN WALL 1 1/2" CLEAR FROM FINISHED TOP OF SLAB.

PLAN



- (*) - CURB & GUTTER TRANSITION SECTION SHALL BE ISOLATED FROM CURB INLET AT ALL POINTS OF CONTACT. ISOLATION MATERIAL SHALL BE 30 LB. ROOFING FELT OR APPROVED EQUAL.
- (**) - THE MATERIAL OF THE GRATE SHALL MATCH THE MATERIAL OF THE PIPE AND SHALL BE AS FOLLOWS:

- A) PVC: PIPE - 4" SCHEDULE 40 PVC MEETING ASTM D-1785
GRATE - 4" PVC SNAP-IN DRAIN - MEETS ASTM D-2665, WITH STAINLESS STEEL (TYPE 304) COVER, MOUNTED WITH TWO 18-8 STAINLESS STEEL SCREWS; MAXIMUM OPENING SIZE 1/4".
- B) HDPE: PIPE - 4" HDPE MEETING AASHTO M252, TYPE S;
GRATE - 4" HDPE - MEETS ASTM D-3350; MAXIMUM OPENING SIZE 1/4".

CURB INLET (10" THROAT)

CURB INLET NOTES

GENERAL

- ALL STORM SEWER STRUCTURES SHALL BE PRE-CAST OR POURED IN PLACE. IF PRE-CAST STRUCTURES ARE USED, THE TOPS SHALL BE POURED IN PLACE AND THE WALL STEEL SHALL BE LEFT EXPOSED TO A HEIGHT 2" BELOW THE FINISH TOP ELEVATION, OR AS DIRECTED BY THE CITY ENGINEER.
- PRE-CAST SHOP DRAWINGS ARE TO BE APPROVED BY THE CITY ENGINEER FOR PUBLICLY FINANCED OR ADMINISTERED PROJECTS. PRE-CAST SHOP DRAWINGS FOR PRIVATELY FINANCED PROJECTS ARE TO BE SUBMITTED TO THE ENGINEERING SERVICES DIVISION OF THE PLANNING AND DEVELOPMENT SERVICES DEPARTMENT.
- DO NOT SCALE THESE DRAWINGS FOR DIMENSIONS OR CLEARANCES. ANY QUESTIONS REGARDING DIMENSIONS SHALL BE BROUGHT TO THE ATTENTION OF THE CITY ENGINEER PRIOR TO CONSTRUCTION.
- ON-GRADE INLETS SHALL CONFORM TO THE STREET GRADE AND SUMP INLETS SHALL BE LEVEL.
- THE FIRST DIMENSION LISTED IN THE CONSTRUCTION NOTES IS THE "L" DIMENSION, THE SECOND DIMENSION IS THE "W" DIMENSION, THE CONCRETE THICKNESS AND REINFORCEMENT SHOWN IS FOR BOXES WITH ("L" + "H") AND ("W" + "H") LESS THAN OR EQUAL TO 20, FOR BOXES WITH EITHER OF THESE CALCULATIONS GREATER THAN 20, A SPECIAL DESIGN IS REQUIRED.

CONCRETE

- CONCRETE USED IN THIS WORK SHALL BE KCMMB4K, AS APPROVED BY THE KANSAS CITY METROPOLITAN MATERIALS BOARD.
- INLET FLOORS SHALL BE SHAPED WITH NON-REINFORCED CONCRETE INVERTS TO PROVIDE SMOOTH FLOW.
- BEVEL ALL EXPOSED EDGES WITH 3/4" TRIANGULAR MOLDING.
- "NO DUMPING DRAINS TO STREAM" CONCRETE STAMP SHALL BE 12" HIGH BY 18" WIDE AND STAMPED IN TOP OF INLET AS SHOWN ON DETAIL.

REINFORCING STEEL

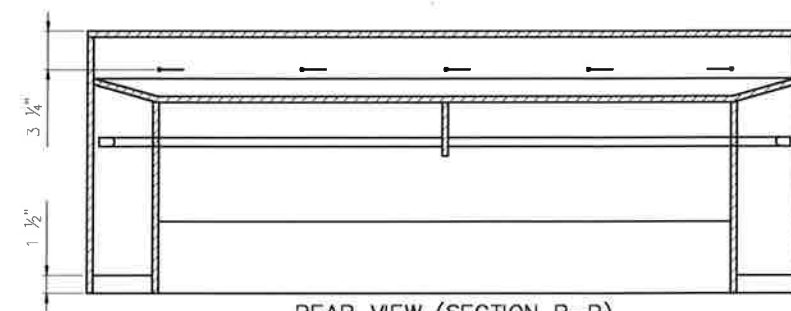
- REINFORCING STEEL SHALL BE NEW BILLET, MINIMUM GRADE 40 AS PER ASTM A615M, AND SHALL BE BENT COLD.
- ALL DIMENSIONS RELATIVE TO REINFORCING STEEL ARE TO CENTERLINE OF BARS. 2" CLEARANCE SHALL BE PROVIDED THROUGHOUT UNLESS NOTED OTHERWISE. TOLERANCE OF +/- 1/8" SHALL BE PERMITTED.
- ALL LAP SPLICES NOT SHOWN SHALL BE A MINIMUM OF 40 BAR DIAMETERS IN LENGTH.
- ALL REINFORCING STEEL SHALL BE SUPPORTED ON FABRICATED STEEL BAR SUPPORTS @ 3'-0" MAXIMUM SPACING.
- ALL DOWELS SHALL BE ACCURATELY PLACED AND SECURELY TIED IN PLACE PRIOR TO PLACEMENT OF BOTTOM SLAB CONCRETE. STICKING OF DOWELS INTO FRESH OR PARTIALLY HARDENED CONCRETE WILL NOT BE ACCEPTABLE.

CONSTRUCTION

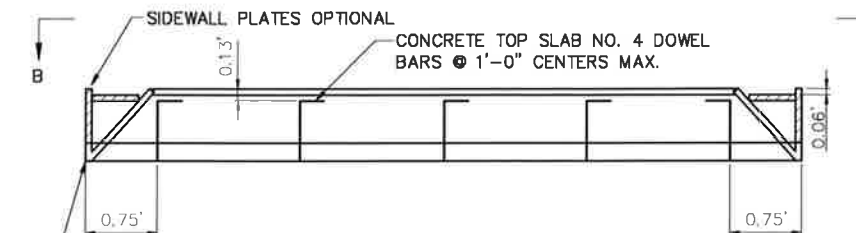
- THE BOTTOM SLAB SHALL BE AT LEAST 24 HOURS OLD BEFORE PLACING SIDEWALL CONCRETE. ALL SIDEWALL FORMS SHALL REMAIN IN PLACE A MINIMUM OF 24 HOURS AFTER SIDEWALLS ARE POURED BEFORE REMOVAL, AND AFTER REMOVAL SHALL BE IMMEDIATELY TREATED WITH MEMBRANE CURING COMPOUND.
- ALL CURB INLET TOPS ARE TO BE CONSTRUCTED AFTER FINAL CURB STRING LINE HAS BEEN APPROVED BY THE ENGINEER AND PRIOR TO CURB CONSTRUCTION, OR AS DIRECTED BY THE CITY ENGINEER.
- PIPE CONNECTIONS TO PRE-CAST STRUCTURES SHALL HAVE A MINIMUM OF 6" OF CONCRETE AROUND THE ENTIRE PIPE WITHIN 2' OF THE STRUCTURE.
- MATERIAL SELECTION AND COMPACTION REQUIREMENTS FOR BACKFILL AROUND STRUCTURES SHALL BE AS SPECIFIED IN THE MANUAL OF INFRASTRUCTURE STANDARDS, AS PROMULGATED BY THE CITY ENGINEER.
- ALL CURB INLETS TO BE STAMPED "NO DUMPING, DRAINS TO STREAM" ON CONCRETE LID.

CURB INLET FRAME NOTES

- ALL WELDS SHALL BE PERFORMED IN ACCORDANCE WITH APPROPRIATE AWS SPECIFICATIONS AND PROCEDURES.
- ALL WELDS ON EXPOSED SURFACES SHALL BE DRESSED SO AS TO PROVIDE A PLEASING FINISHED APPEARANCE.
- ALL FLAT STEEL SHALL BE 7 GAGE OR 3/16" THICK.
- THE ENTIRE FRAME SHALL BE HOT DIP ZINC COATED IN ACCORDANCE WITH ASTM A-123.

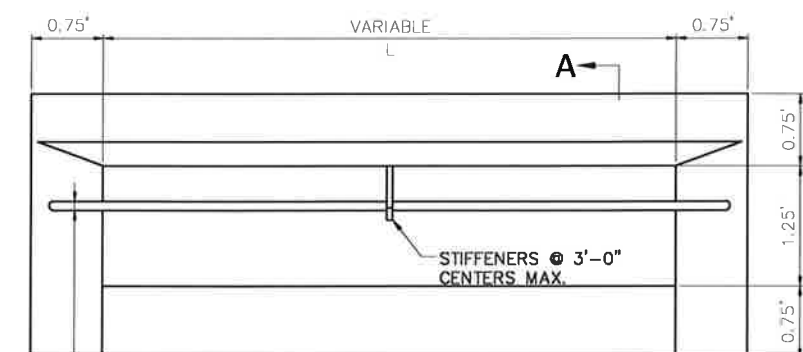


REAR VIEW (SECTION B-B)

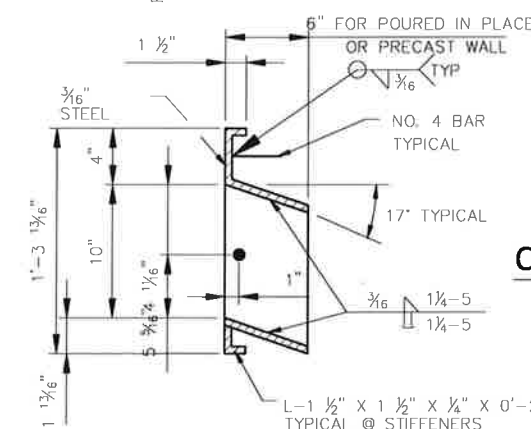


FABRICATED BEND (TYP. BOTH SIDES)

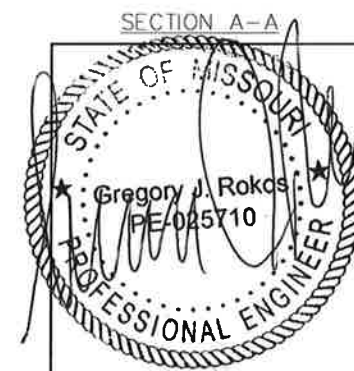
TOP VIEW



FRONT VIEW



CURB INLET FRAME (10" THROAT)



City of
BELTON
Missouri

CURB INLETS

SCALE: NO SCALE
DETAIL NO: STM-001
DATE: 06-02-2021

REV:

2021 Details

PLAN

PLAN
(W/ 2 ADJACENT OPENINGS)

AREA INLET NOTES

GENERAL

1. ALL STORM SEWER STRUCTURES SHALL BE PRE-CAST OR POURED IN PLACE. IF PRE-CAST STRUCTURES ARE USED, THE TOPS SHALL BE POURED IN PLACE AND THE WALL STEEL SHALL BE LEFT EXPOSED TO A HEIGHT 2" BELOW THE FINISH TOP ELEVATION, OR AS DIRECTED BY THE CITY ENGINEER.
2. PRE-CAST SHOP DRAWINGS ARE TO BE APPROVED BY THE CITY ENGINEER FOR PUBLICLY FINANCED OR ADMINISTERED PROJECTS. PRE-CAST SHOP DRAWINGS FOR PRIVATELY FINANCED PROJECTS ARE TO BE SUBMITTED TO THE PUBLIC WORKS DEPARTMENT.
3. DO NOT SCALE THESE DRAWINGS FOR DIMENSIONS OR CLEARANCES. ANY QUESTIONS REGARDING DIMENSIONS SHALL BE BROUGHT TO THE ATTENTION OF THE CITY ENGINEER PRIOR TO CONSTRUCTION.
4. BERM LOCATION AND ELEVATION MAY VARY. SEE GRADING PLAN FOR EXACT LOCATION.
5. THE FIRST DIMENSION LISTED IN THE CONSTRUCTION NOTES IS THE "L" DIMENSION. THE SECOND DIMENSION IS THE "W" DIMENSION. THE CONCRETE THICKNESS AND REINFORCEMENT SHOWN IS FOR BOXES WITH ("L"+"H") AND ("W"+"H") LESS THAN OR EQUAL TO 20. FOR BOXES WITH EITHER OF THESE CALCULATIONS GREATER THAN 20, A SPECIAL DESIGN IS REQUIRED.

CONCRETE

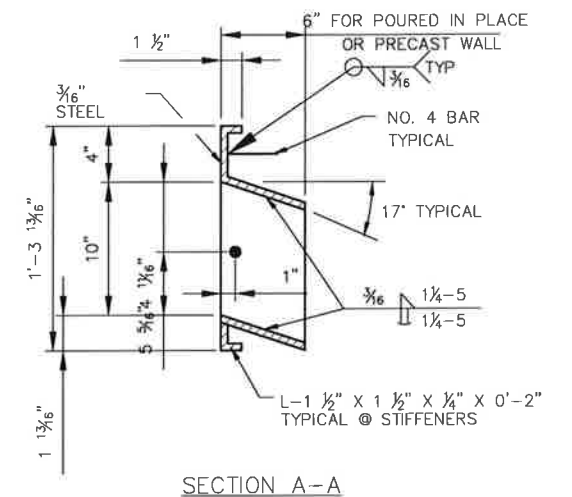
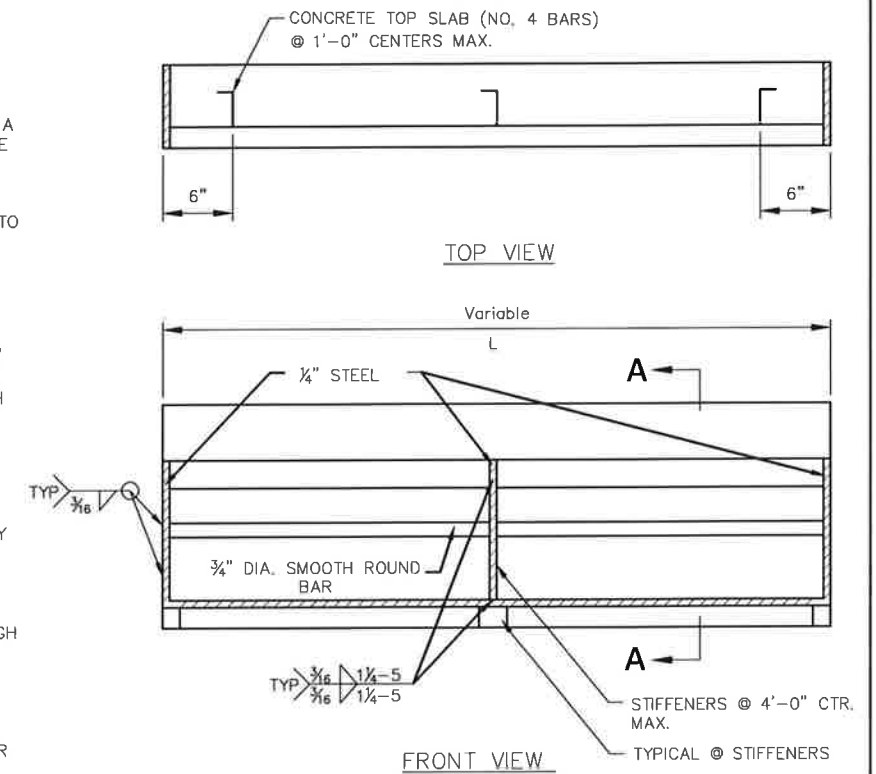
6. CONCRETE USED IN THIS WORK SHALL BE KCMMB4K, AS APPROVED BY THE KANSAS CITY METROPOLITAN MATERIALS BOARD.
7. INLET FLOORS SHALL BE SHAPED WITH NON-REINFORCED CONCRETE INVERTS TO PROVIDE SMOOTH FLOW.
8. BEVEL ALL EXPOSED EDGES WITH $\frac{3}{4}$ " TRIANGULAR MOLDING.
9. "NO DUMPING DRAINS TO STREAM" CONCRETE STAMP SHALL BE 12" HIGH BY 18" WIDE AND STAMPED IN TOP OF INLET AS SHOWN ON DETAIL.

REINFORCING STEEL

10. REINFORCING STEEL SHALL BE NEW BILLET, MINIMUM GRADE 40 AS PER ASTM A615, AND SHALL BE BENT COLD.
11. ALL DIMENSIONS RELATIVE TO REINFORCING STEEL ARE TO CENTERLINE OF BARS. 2" CLEARANCE SHALL BE PROVIDED THROUGHOUT UNLESS NOTED OTHERWISE. TOLERANCE OF $\pm \frac{1}{8}$ " SHALL BE PERMITTED.
12. ALL LAP SPLICES NOT SHOWN SHALL BE A MINIMUM OF 40 BAR DIAMETERS IN LENGTH.
13. ALL REINFORCING STEEL SHALL BE SUPPORTED ON FABRICATED STEEL BAR SUPPORTS @ 3'-0" MAXIMUM SPACING.
14. ALL DOWELS SHALL BE ACCURATELY PLACED AND SECURELY TIED IN PLACE PRIOR TO PLACEMENT OF BOTTOM SLAB CONCRETE. STICKING OF DOWELS INTO FRESH OR PARTIALLY HARDENED CONCRETE WILL NOT BE ACCEPTABLE.

CONSTRUCTION

15. THE BOTTOM SLAB SHALL BE AT LEAST 24 HOURS OLD BEFORE PLACING SIDEWALL CONCRETE. ALL SIDEWALL FORMS SHALL REMAIN IN PLACE A MINIMUM OF 24 HOURS AFTER SIDEWALLS ARE POURED BEFORE REMOVAL, AND AFTER REMOVAL SHALL BE IMMEDIATELY TREATED WITH MEMBRANE CURING COMPOUND.
16. PIPE CONNECTIONS TO PRE-CAST STRUCTURES SHALL HAVE A MINIMUM OF 6" OF CONCRETE AROUND THE ENTIRE PIPE WITHIN 2' OF THE STRUCTURE.
17. MATERIAL SELECTION AND COMPACTION REQUIREMENTS FOR BACKFILL AROUND STRUCTURES SHALL BE AS SPECIFIED IN THE MANUAL OF INFRASTRUCTURE STANDARDS, AS PROMULGATED BY THE CITY ENGINEER.
18. ALL CURB INLETS TO BE STAMPED "NO DUMPING, DRAINS TO STREAM" ON CONCRETE LID.

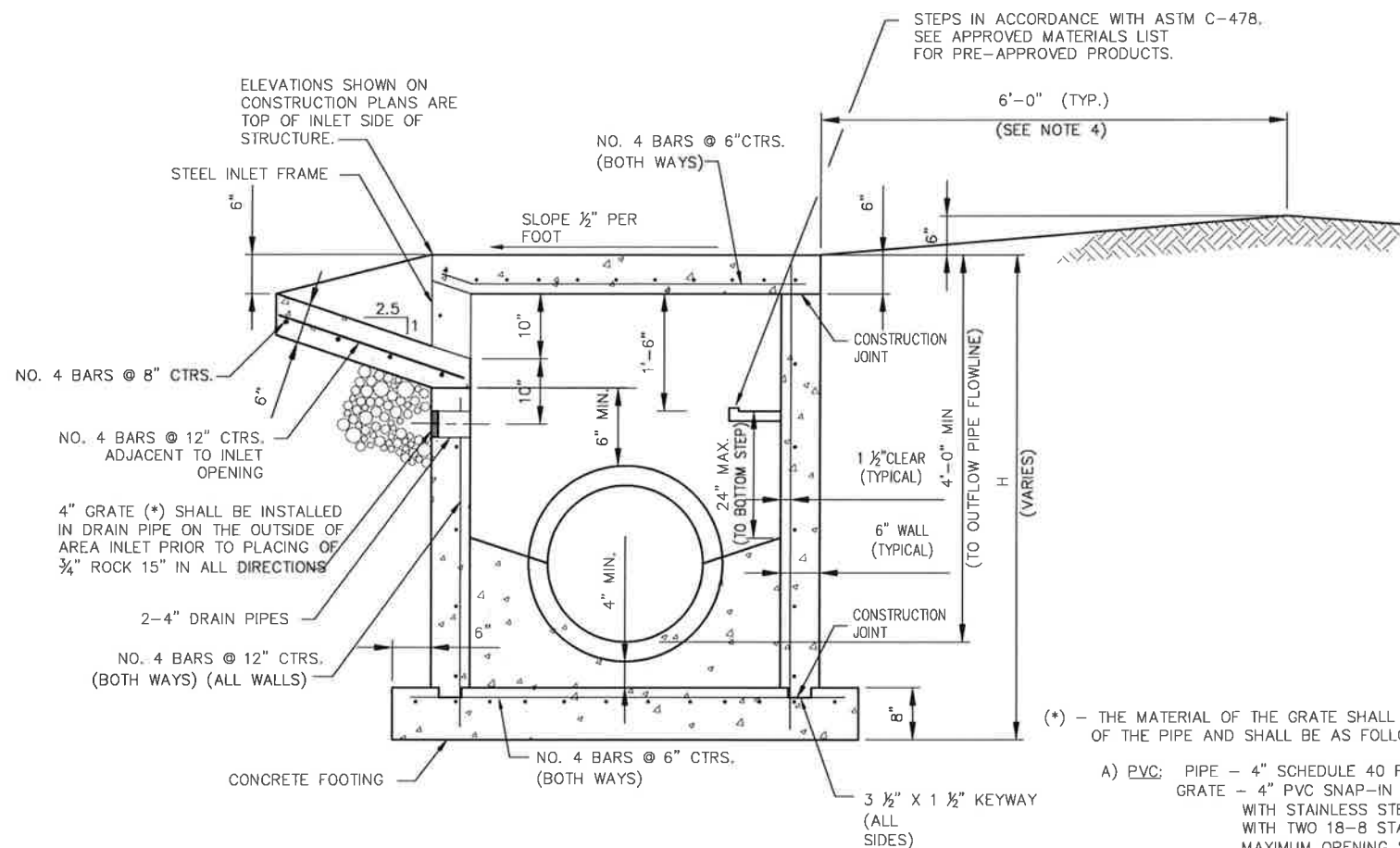


AREA INLET FRAME NOTES

1. ALL WELDS SHALL BE PERFORMED IN ACCORDANCE WITH APPROPRIATE AWS SPECIFICATIONS AND PROCEDURES.
2. ALL WELDS ON EXPOSED SURFACES SHALL BE DRESSED SO AS TO PROVIDE A PLEASING FINISHED APPEARANCE.
3. ALL FLAT STEEL SHALL BE 7 GAGE OR $\frac{3}{16}$ " THICK.
4. THE ENTIRE FRAME SHALL BE HOT DIP ZINC COATED IN ACCORDANCE WITH ASTM A-123.

AREA INLET FRAME

2021 Details

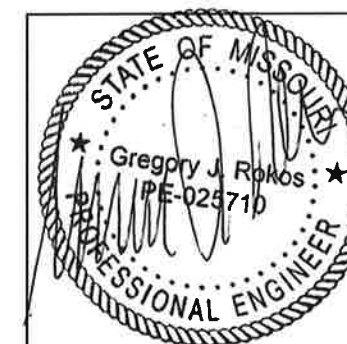


(*) - THE MATERIAL OF THE GRATE SHALL MATCH THE MATERIAL OF THE PIPE AND SHALL BE AS FOLLOWS:

- A) PVC: PIPE - 4" SCHEDULE 40 PVC MEETING ASTM D-1785;
GRATE - 4" PVC SNAP-IN DRAIN - MEETS ASTM D-2665,
WITH STAINLESS STEEL (TYPE 304) COVER, MOUNTED
WITH TWO 18-8 STAINLESS STEEL SCREWS;
MAXIMUM OPENING SIZE 1/4".
- B) HDPE: PIPE - 4"HDPE MEETING AASHTO M252, TYPE S;
GRATE - 4"HDPE - MEETS ASTM D-3350;
MAXIMUM OPENING SIZE 1/4".

SECTION A-A

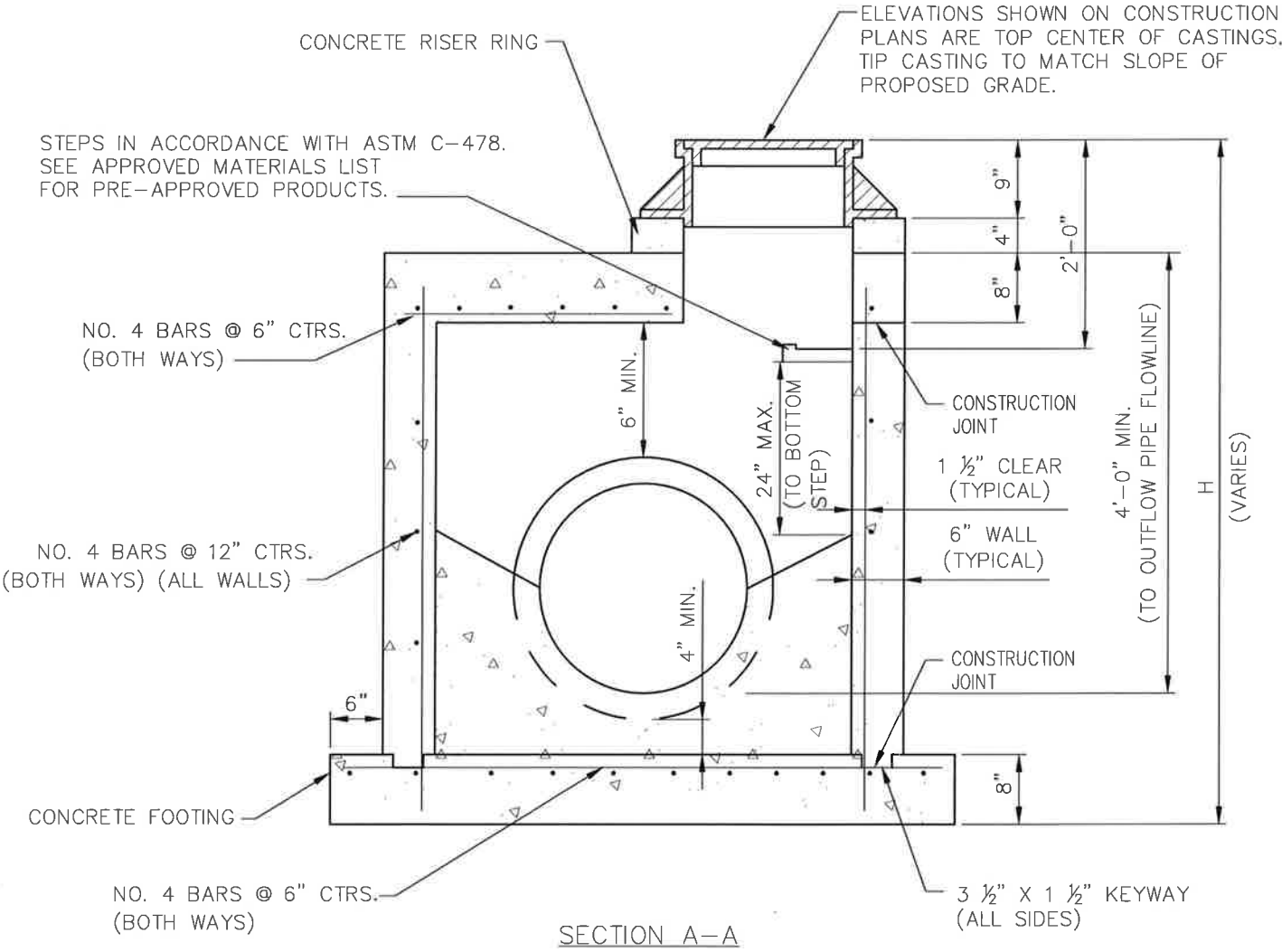
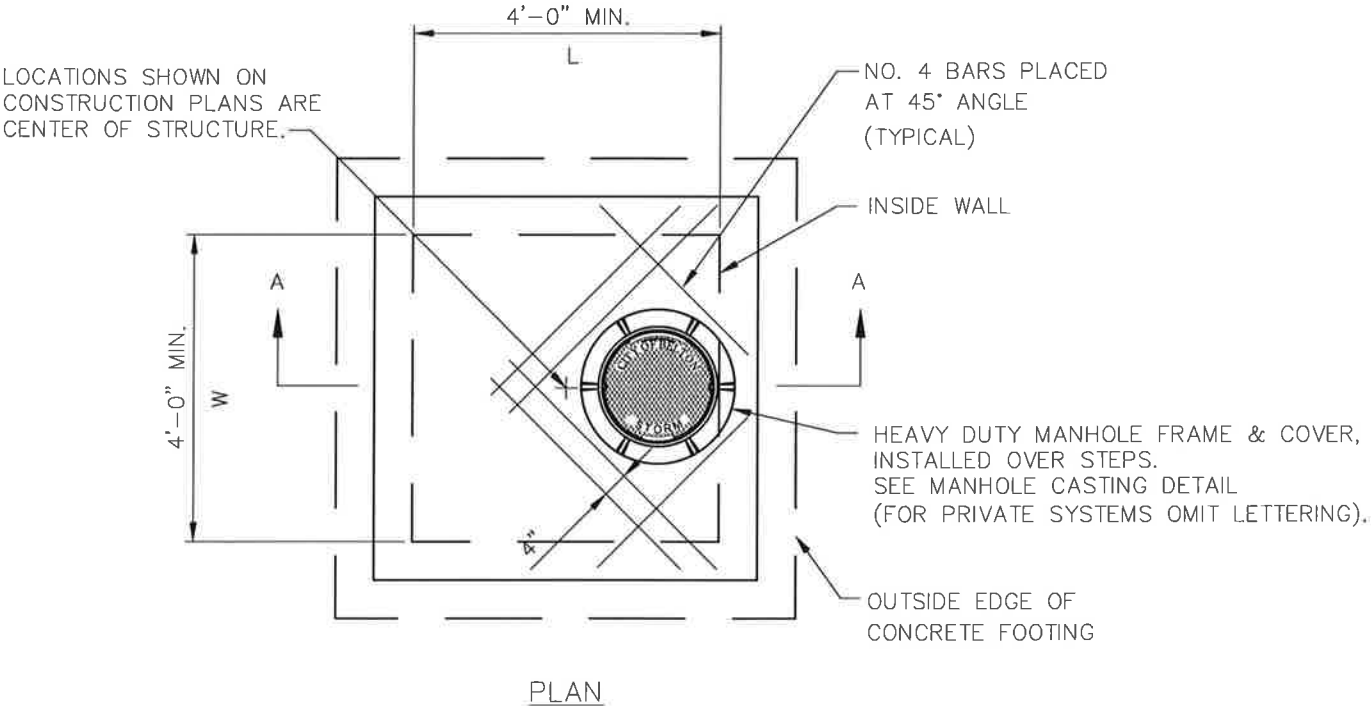
AREA INLET



City of
BELTON
Missouri

AREA INLETS

SCALE:	NO SCALE	REV.	
DETAIL NO:	STM-002		
DATE:	06-02-2021		



JUNCTION BOX NOTES

GENERAL

1. ALL STORM SEWER STRUCTURES SHALL BE PRE-CAST OR POURED IN PLACE. IF PRE-CAST STRUCTURES ARE USED, THE TOPS SHALL BE POURED IN PLACE AND THE WALL STEEL SHALL BE LEFT EXPOSED TO A HEIGHT 2" BELOW THE FINISH TOP ELEVATION, OR AS DIRECTED BY THE CITY ENGINEER.
2. PRE-CAST SHOP DRAWINGS ARE TO BE APPROVED BY THE CITY ENGINEER FOR PUBLICLY FINANCED OR ADMINISTERED PROJECTS. PRE-CAST SHOP DRAWINGS FOR PRIVATELY FINANCED PROJECTS ARE TO BE SUBMITTED TO THE ENGINEERING SERVICES DIVISION OF THE PLANNING AND DEVELOPMENT SERVICES DEPARTMENT.
3. DO NOT SCALE THESE DRAWINGS FOR DIMENSIONS OR CLEARANCES. ANY QUESTIONS REGARDING DIMENSIONS SHALL BE BROUGHT TO THE ATTENTION OF THE CITY ENGINEER PRIOR TO CONSTRUCTION.
4. THE FIRST DIMENSION LISTED IN THE CONSTRUCTION NOTES IS THE "L" DIMENSION. THE SECOND DIMENSION IS THE "W" DIMENSION. THE CONCRETE THICKNESS AND REINFORCEMENT SHOWN IS FOR BOXES WITH ("L"+"H") AND ("W"+"H") LESS THAN OR EQUAL TO 20. FOR BOXES WITH EITHER OF THESE CALCULATIONS GREATER THAN 20, A SPECIAL DESIGN IS REQUIRED.

CONCRETE

5. CONCRETE USED IN THIS WORK SHALL BE KCMMB4K, AS APPROVED BY THE KANSAS CITY METROPOLITAN MATERIALS BOARD.
6. INLET FLOORS SHALL BE SHAPED WITH NON-REINFORCED CONCRETE INVERTS TO PROVIDE SMOOTH FLOW.
7. BEVEL ALL EXPOSED EDGES WITH 3/4" TRIANGULAR MOLDING.

REINFORCING STEEL

8. REINFORCING STEEL SHALL BE NEW BILLET, MINIMUM GRADE 40 AS PER ASTM A615, AND SHALL BE BENT COLD.
9. ALL DIMENSIONS RELATIVE TO REINFORCING STEEL ARE TO CENTERLINE OF BARS. 2" CLEARANCE SHALL BE PROVIDED THROUGHOUT UNLESS NOTED OTHERWISE. TOLERANCE OF +/- 1/8" SHALL BE PERMITTED.
10. ALL LAP SPLICES NOT SHOWN SHALL BE A MINIMUM OF 40 BAR DIAMETERS IN LENGTH.
11. ALL REINFORCING STEEL SHALL BE SUPPORTED ON FABRICATED STEEL BAR SUPPORTS @ 3'-0" MAXIMUM SPACING.
12. ALL DOWELS SHALL BE ACCURATELY PLACED AND SECURELY TIED IN PLACE PRIOR TO PLACEMENT OF BOTTOM SLAB CONCRETE. STICKING OF DOWELS INTO FRESH OR PARTIALLY HARDENED CONCRETE WILL NOT BE ACCEPTABLE.

CONSTRUCTION

13. THE BOTTOM SLAB SHALL BE AT LEAST 24 HOURS OLD BEFORE PLACING SIDEWALL CONCRETE. ALL SIDEWALL FORMS SHALL REMAIN IN PLACE A MINIMUM OF 24 HOURS AFTER SIDEWALLS ARE POURED BEFORE REMOVAL, AND AFTER REMOVAL SHALL BE IMMEDIATELY TREATED WITH MEMBRANE CURING COMPOUND.
14. PIPE CONNECTIONS TO PRE-CAST STRUCTURES SHALL HAVE A MINIMUM OF 6" OF CONCRETE AROUND THE ENTIRE PIPE WITHIN 2' OF THE STRUCTURE.
15. MATERIAL SELECTION AND COMPACTION REQUIREMENTS FOR BACKFILL AROUND STRUCTURES SHALL BE AS SPECIFIED IN THE MANUAL OF INFRASTRUCTURE STANDARDS, AS PROMULGATED BY THE CITY ENGINEER.

2021 Details



City of
BELTON
Missouri

JUNCTION BOXES

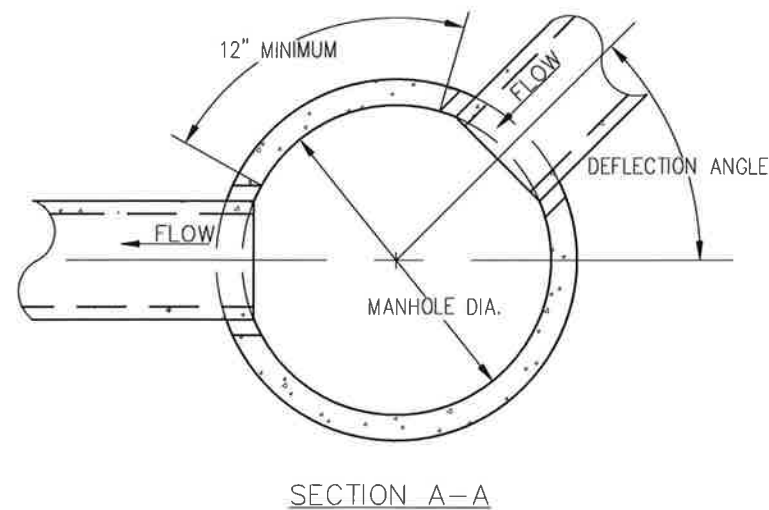
SCALE: NO SCALE
DETAIL NO: STM-003
DATE: 06-02-2021

REV.	

JUNCTION BOX



(TO BE USED ONLY WHEN SPECIFIED IN PLANS)



1. THE INSIDE DIAMETER OF THE MANHOLE SHALL BE 4'-0" FOR PIPE DIAMETERS FROM 12" THRU 24". ALL MANHOLE BASES (PRE-CAST OR POURED-IN-PLACE) SHALL HAVE NO. 4 REINFORCING BARS PLACED AT 6" CENTERS BOTH WAYS.
2. ALL MANHOLE RINGS AND COVERS SHOWN IN PLANS SHALL BE HEAVY DUTY.
3. STANDARD CAST IRON MANHOLE STEPS OR STEEL CORE, PLASTIC COATED STEPS MAY BE USED. SEE APPROVED MATERIALS LIST FOR PRE-APPROVED STEPS.
4. REINFORCEMENT IN ALL SECTIONS SHALL EQUAL OR EXCEED A.S.T.M. C-478 SPECIFICATIONS.
5. MASTIC MATERIAL TO BE USED AT ALL SECTIONS JOINTS.
O-RINGS MAY BE USED FOR JOINTS BELOW THE CONE SECTION, BUT THE CONE SECTION ITSELF SHALL NOT HAVE O-RING JOINTS.
6. APPROVED GASKET OR CONCRETE MORTAR TO BE USED AROUND PIPE IN KNOCK-OUTS.
7. PIPE CONNECTIONS TO PRE-CAST STRUCTURES SHALL HAVE A MINIMUM OF 6" OF CONCRETE AROUND THE ENTIRE PIPE WITHIN 2' OF THE STRUCTURE.

2021 Details



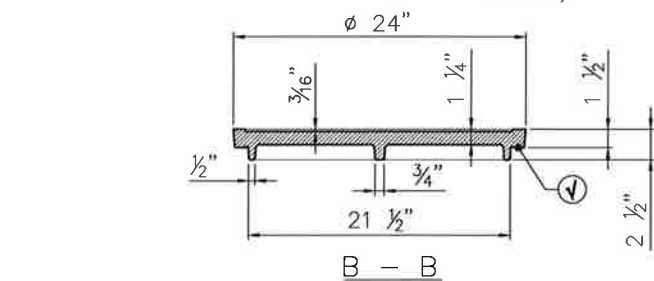
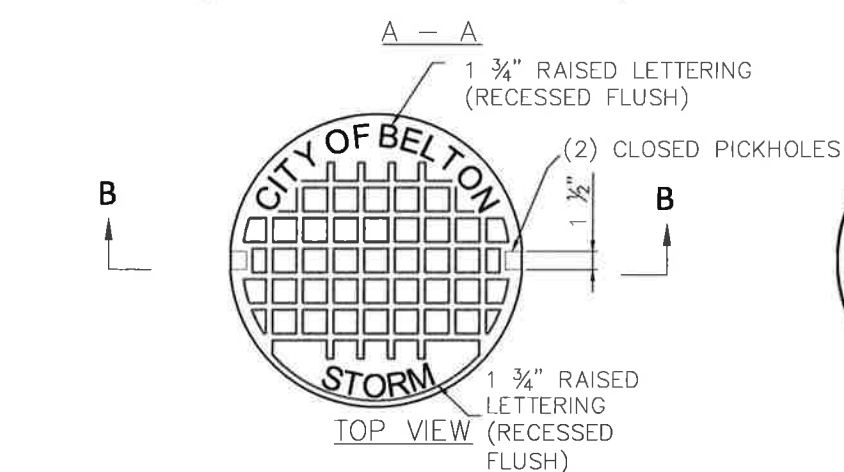
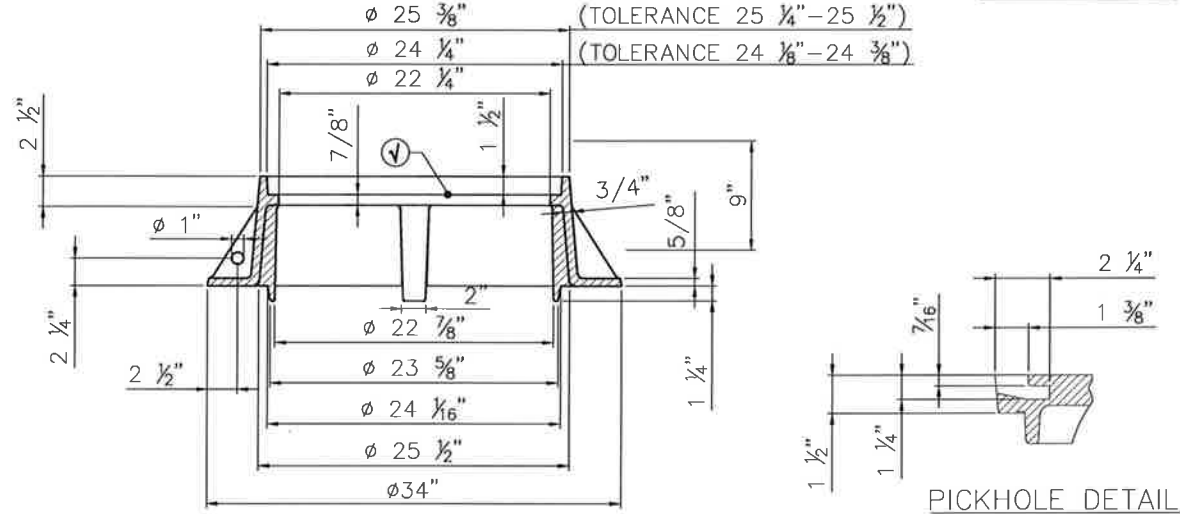
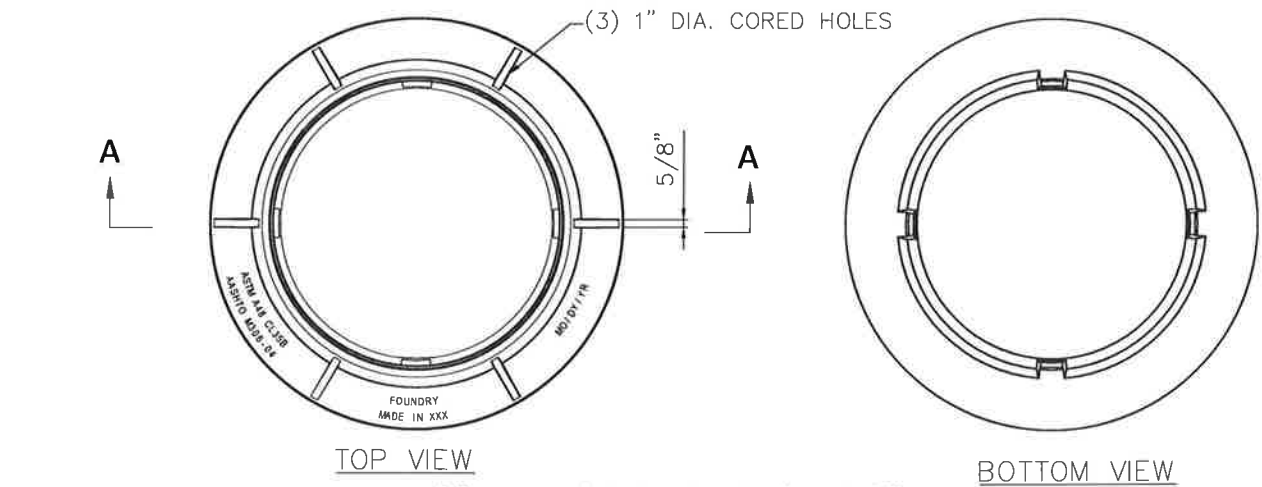
City of
BELTON
Missouri

PRECAST MANHOLES

SCALE:	NO SCALE	REV.		
DETAIL NO:	STM-004			
DATE:	06-02-2021			

MANHOLE CASTING NOTES:

1. CASTING SHALL BE CHOSEN FROM THE LIST OF ACCEPTABLE MANUFACTURES PROVIDED IN SECTION 2600 OF THE CITY'S DESIGN AND CONSTRUCTION MANUAL.
2. CASTING SHALL COMPLY WITH ASTM A-48 AND AASHTO M306-04.
3. AS-CAST DIMENSIONS MAY VARY $\pm 1/16$ INCH PER FOOT.
4. EACH CASTING SHALL BE MARKED IN ACCORDANCE WITH AASHTO M 306-04, SEC.9.
5. RAISED SURFACES SHALL BE CAST AS NON-SKID FINISH.
6. THE SURFACES LABELED ON THESE DETAILS AS (✓) SHALL BE MACHINED.
7. FOR PRIVATE SYSTEMS OMIT LETTERING.
8. PAINT IS OPTIONAL UNLESS SPECIFIED.
9. YEAR AND/OR DATE SHOULD BE DATE OF MANUFACTURE.

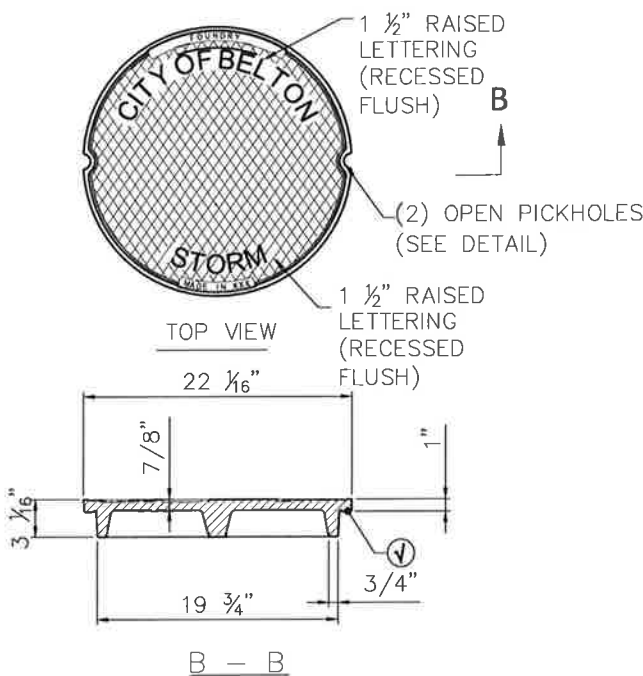
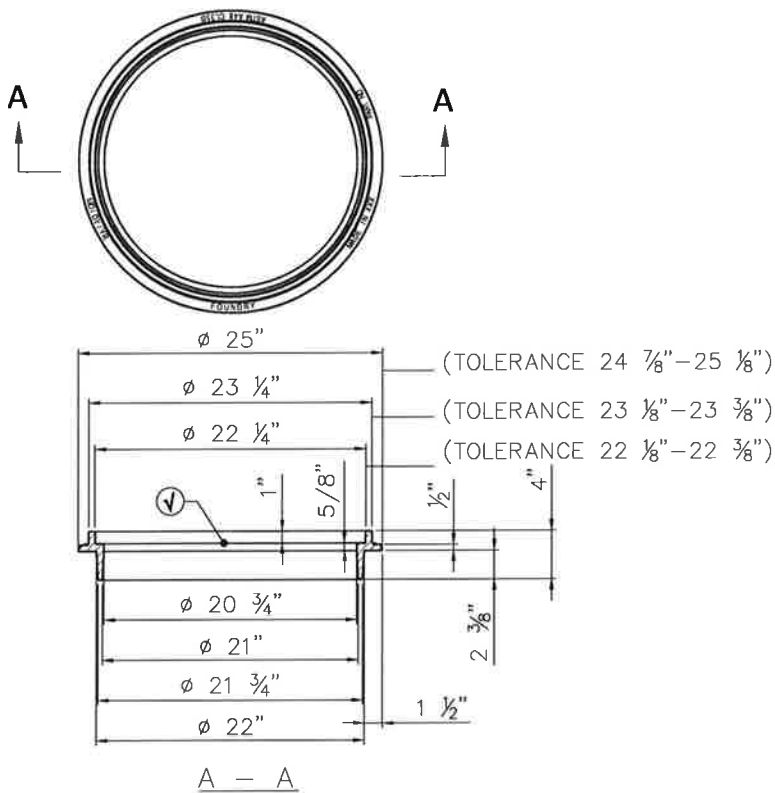


HEAVY DUTY FRAME & COVER

SEE APPROVED MATERIALS LIST
FOR PRE-APPROVED FRAMES AND COVERS

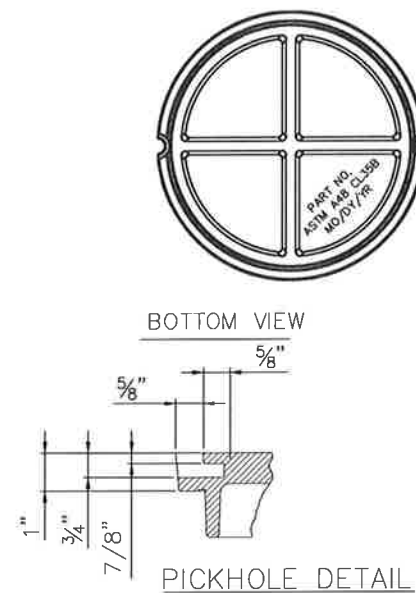
WEIGHT	
COVER	161 LBS. (± 8 LBS.)
FRAME	234 LBS. (± 11.75 LBS.)

MANHOLE FRAME & COVER
(PUBLIC SYSTEMS ONLY)

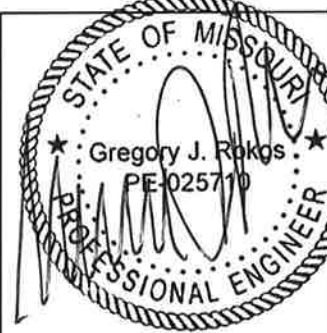


MEDIUM DUTY FRAME & COVER

SEE APPROVED MATERIALS LIST
FOR PRE-APPROVED FRAMES AND COVERS



WEIGHT	
COVER	134 LBS. (± 6.75 LBS.)
FRAME	52 LBS. (± 2.5 LBS.)

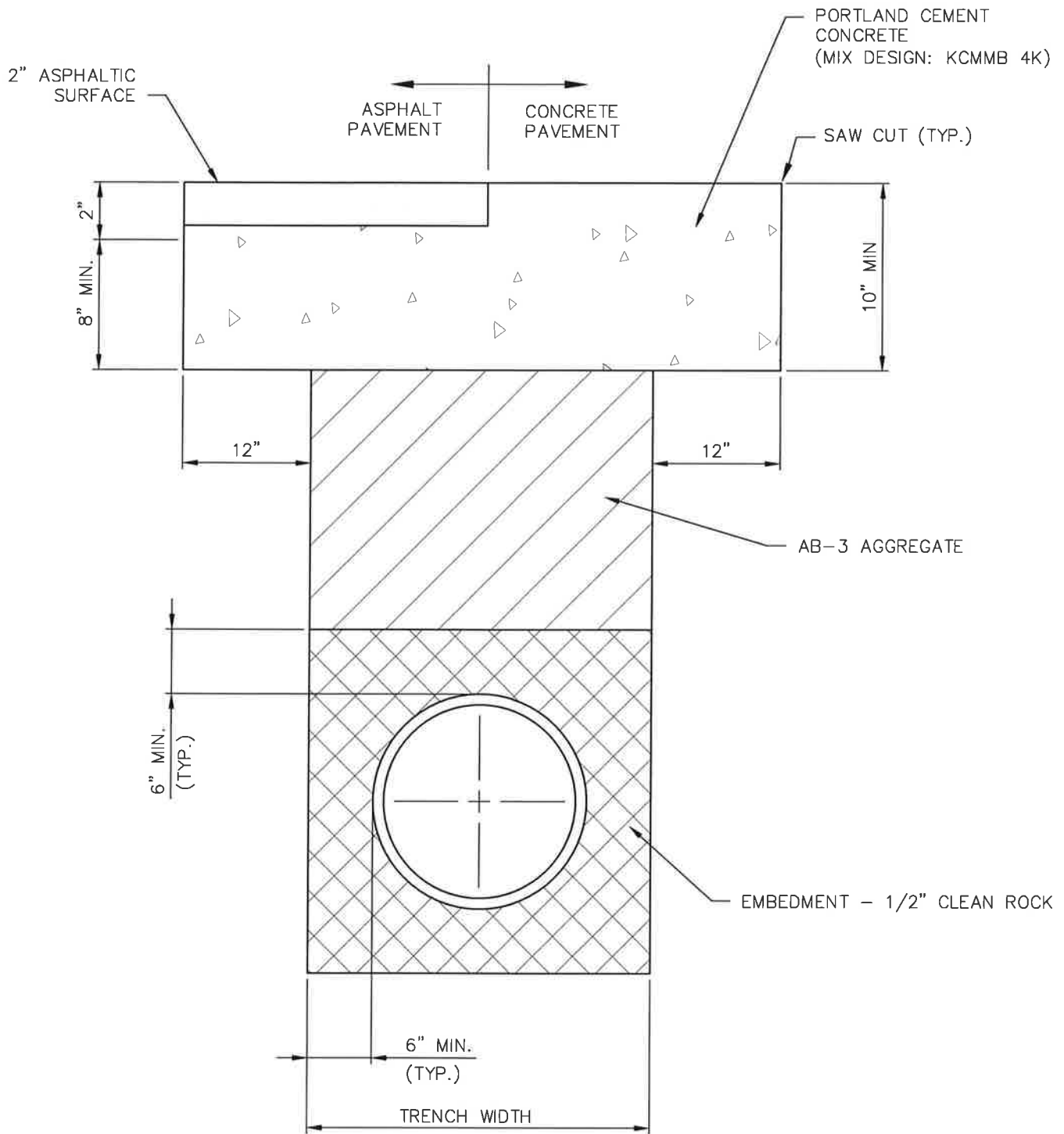


City of
BELTON
Missouri

MANHOLE CASTING

SCALE:	NO SCALE
DETAIL NO:	STM-005
DATE:	06-02-2021

REV.	



PIPE EMBEDMENT - BACKFILL UNDER PAVED AREAS

NOTES:

1. IF THE TRENCH WIDTH IS LESS THAN OR EQUAL TO 24-INCHES, IT SHALL BE BACKFILLED WITH FLOWABLE FILL. FLOWABLE FILL MIX DESIGN TO BE APPROVED BY THE CITY PRIOR TO PLACEMENT.

2021 Details



City of
BELTON
Missouri

PUBLIC WORKS

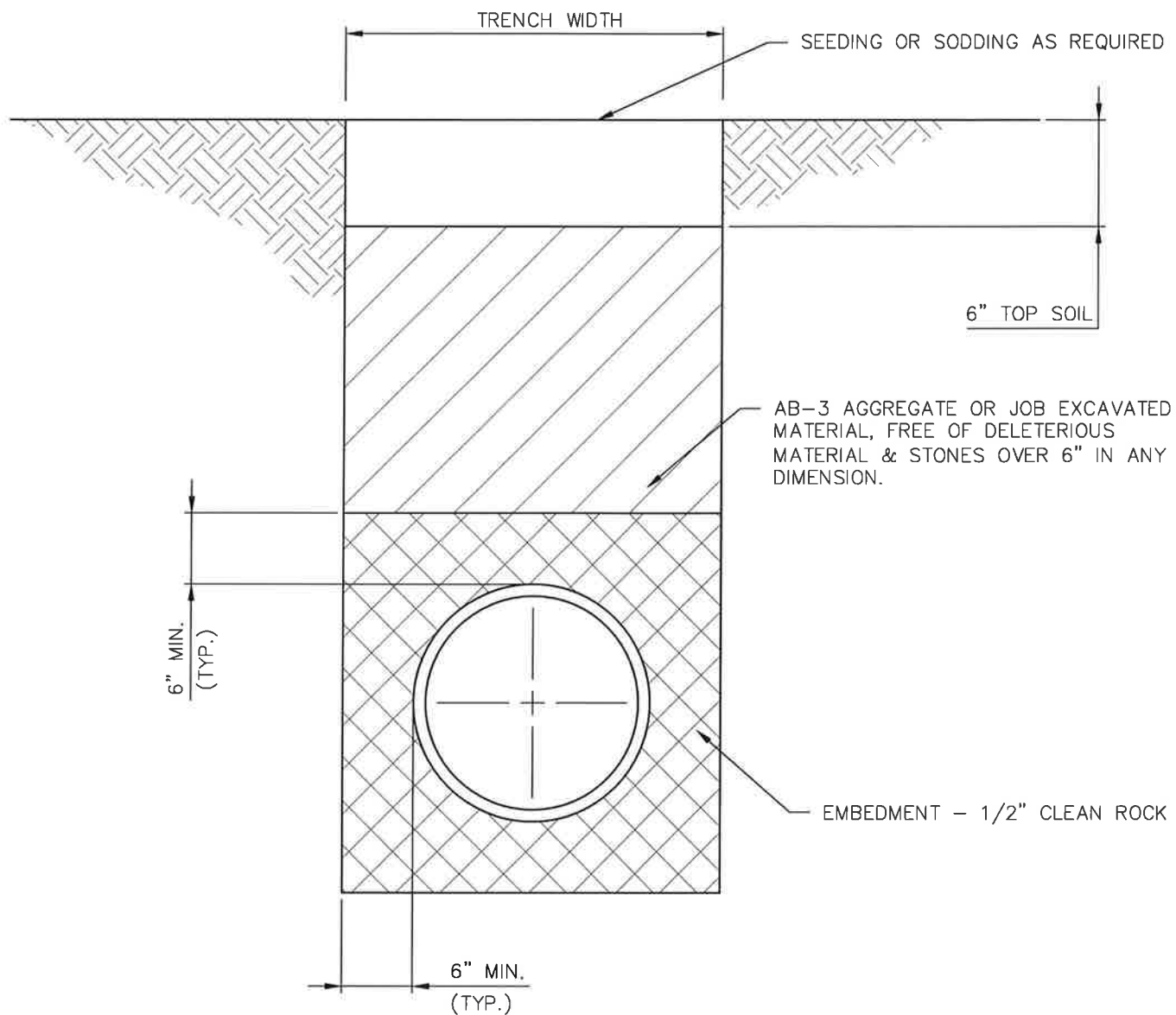
TRENCH BACKFILL & EMBEDMENT UNDER PAVEMENT

SCALE: NO SCALE

DETAIL NO: STM-006

DATE: 06-07-21

REV.



PIPE EMBEDMENT - BACKFILL UNDER NON-PAVED AREAS

2021 Details



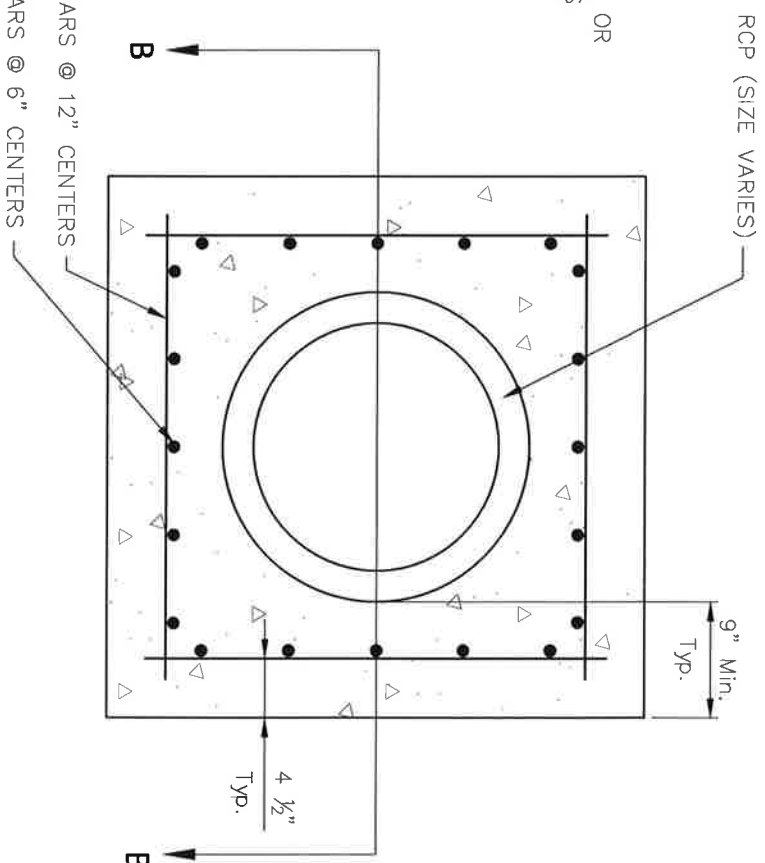
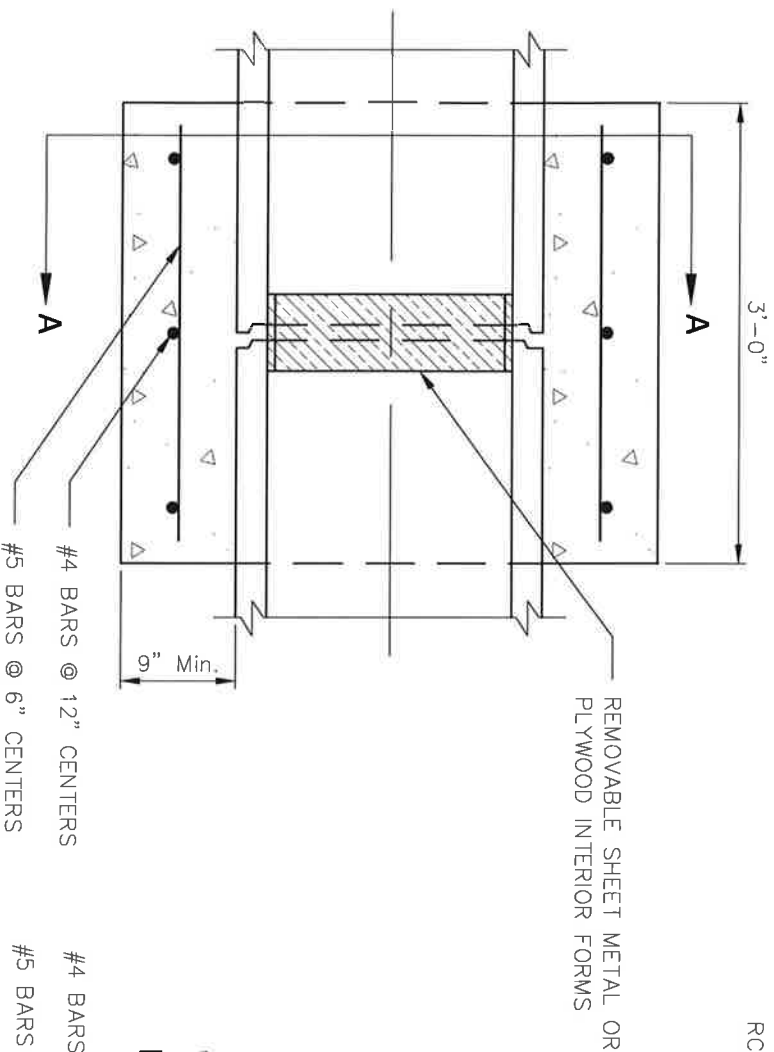
City of
BELTON
Missouri

PUBLIC WORKS

TRENCH BACKFILL & EMBEDMENT UNDER NON-PAVED AREAS

SCALE: NO SCALE
DETAIL NO: STM-007
DATE: 06-07-21

REV.



SECTION B-B

CONCRETE COLLAR DETAIL

SECTION A-A

CONCRETE COLLAR NOTES

1. USE KCMMB4K CONCRETE THROUGHOUT.
2. REINFORCING STEEL SHALL BE NEW BILET, MINIMUM GRADE 40 AS PER ASTM A615, AND SHALL BE BENT COLD.
3. ALL DIMENSIONS RELATIVE TO REINFORCING STEEL ARE TO CENTERLINE OF BARS. 2" CLEARANCE SHALL BE PROVIDED THROUGHOUT UNLESS NOTED OTHERWISE. TOLERANCE OF $\pm 1/8"$ SHALL BE PERMITTED.
4. ALL LAP SPICES NOT SHOWN SHALL BE A MINIMUM OF 40 BAR DIAMETERS IN LENGTH.
5. ALL DOWELS SHALL BE ACCURATELY PLACED AND SECURELY TIED IN PLACE PRIOR TO PLACEMENT OF BOTTOM SLAB CONCRETE. STICKING OF DOWELS INTO FRESH OR PARTIALLY HARDENED CONCRETE WILL NOT BE ACCEPTABLE.
6. ALL REINFORCING STEEL SHALL BE SUPPORTED ON FABRICATED STEEL BAR SUPPORTS @ 3'-0" MAXIMUM SPACING.
7. DO NOT SCALE THESE DRAWINGS FOR DIMENSIONS OR CLEARANCES. ANY QUESTIONS REGARDING DIMENSIONS SHALL BE BROUGHT TO THE ATTENTION OF THE CITY ENGINEER PRIOR TO CONSTRUCTION.



PUBLIC WORKS

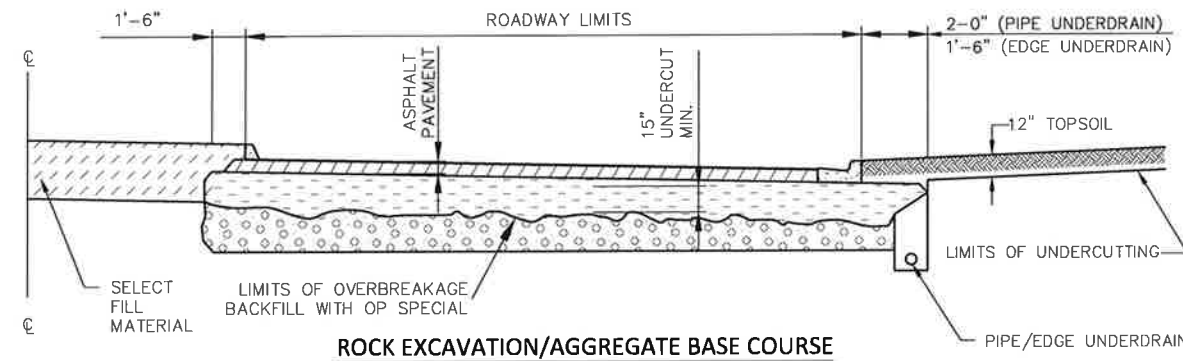
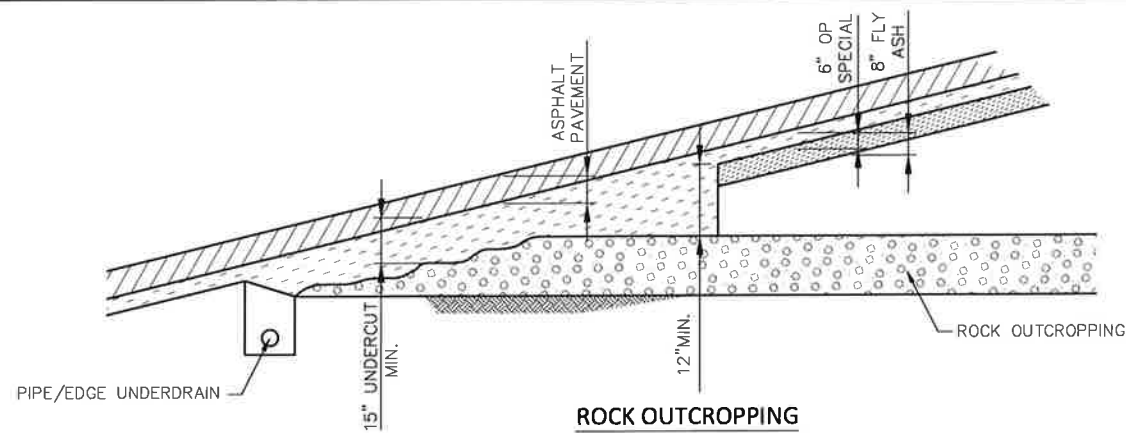
City of
BELTON
Missouri

2021 Details

CONCRETE COLLAR

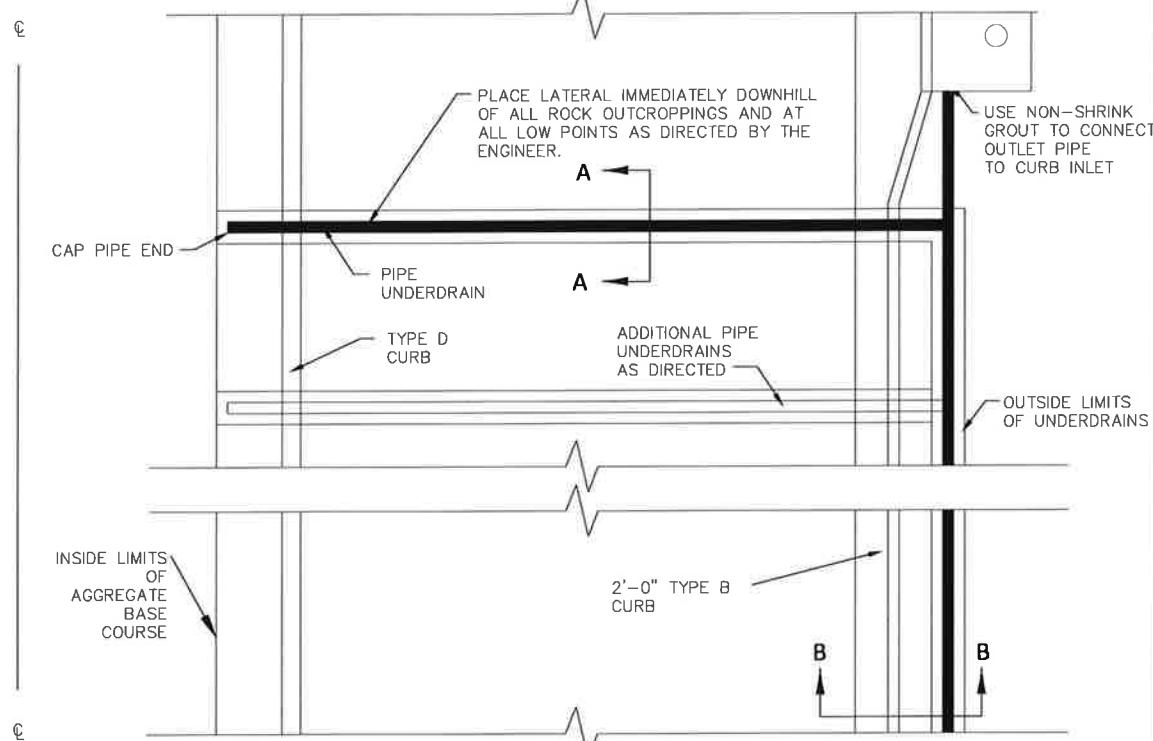
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DATE: 05-18-21

REV



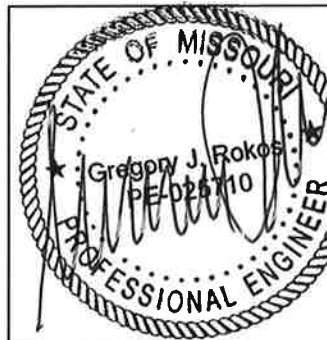
UNDERDRAIN NOTES:

1. ALL ROADWAY EXCAVATION IN ROCK WILL BE UNDERCUT NO LESS THAN 15" BELOW BOTTOM OF PAVEMENT FOR THE FULL WIDTH OF THE ROADWAY AS SHOWN. UNDERCUT AND OVERBREAKAGE IN LIMESTONE AND DURABLE SHALE SHALL BE BACKFILLED WITH AGGREGATE BASE COURSE SPECIFICATIONS. LAYERS OF EARTH OR SHALE SHALL NOT BE PERMITTED FOR BACKFILL UP TO THE BOTTOM OF THE AGGREGATE BASE COURSE.
2. A MINIMUM OF 12" OF SELECT SOIL (TOPSOIL) SHALL BE PLACED ON EXPOSED ROCK CUT OR FILL SLOPES OUTSIDE THE LIMITS OF THE ROADWAY. ALL ROCK AND SHALE SLOPES SHALL BE BENCHED AT A MAXIMUM OF 2' VERTICAL INTERVALS PRIOR TO PLACEMENT OF SELECT SOIL.
3. PROPOSED UNDERDRAIN PIPE LAYOUT, FLOWLINE ELEVATIONS, INLET CONNECTION POINTS, AND DETAILS SHALL BE APPROVED PRIOR TO CONSTRUCTION BY THE CITY ENGINEER.
4. WHERE PIPE UNDERDRAINS ARE USED, ALL UNDERDRAIN OUTLET PIPES SHALL HAVE WATERTIGHT JOINTS. ALL OUTLET PIPES SHALL BE TIED INTO THE NEAREST STORM SEWER INLET AS APPROVED. WHERE EDGE UNDERDRAINS ARE USED, ALL UNDERDRAIN OUTLET PIPES SHALL HAVE MANUFACTURER JOINTS APPROVED BY THE CITY ENGINEER. ALL CONNECTIONS BETWEEN UNDERDRAIN PIPES AND EDGE CONNECTORS OR CURB INLETS SHALL BE MADE WITH 2' LENGTH OF OUTLET PIPE.
5. ALL UNDERDRAIN PIPES SHALL BE INSTALLED AT A MINIMUM SLOPE OF 1%. PIPE SHALL BE INSTALLED WITH THE PERFORATIONS PLACED DOWN.
6. CONSTRUCT UNDERDRAIN AND FOLD GEOTEXTILE OVER UNDERDRAIN AGGREGATE TO PROTECT THE UNDERDRAIN UNTIL THE AGGREGATE BASE COURSE IS CONSTRUCTED. FOLD THE GEOTEXTILE BACK AND CONSTRUCT THE AGGREGATE BASE COURSE. GEOTEXTILE SEAMS SHALL BE OVERLAPPED AT A MINIMUM OF 12".
7. THE CONTRACTOR SHALL NOT MIX UNDERDRAIN TYPES OF MATERIALS WITHIN ANY UNDERDRAIN SYSTEM.
8. ALL EDGE UNDERDRAIN SHALL BE HELD IN THE CENTER OF THE TRENCH BY MECHANICAL METHODS WHILE PLACING GRANULAR BACKFILL. SEE DETAIL THIS SHEET. ALTERNATE METHODS MAY BE USED WITH PRIOR APPROVAL BY THE CITY ENGINEER.
9. WHERE EDGE UNDERDRAIN CROSSES NON-INVASIVE DETECTOR LOOP CONDUIT, THE CONTRACTOR SHALL LOWER THE EDGE DRAIN UP TO 7" TO AVOID CONFLICT WHILE MAINTAINING POSITIVE DRAINAGE AS OTHERWISE INDICATED IN THESE CONSTRUCTION NOTES.



UNDERDRAIN LAYOUT

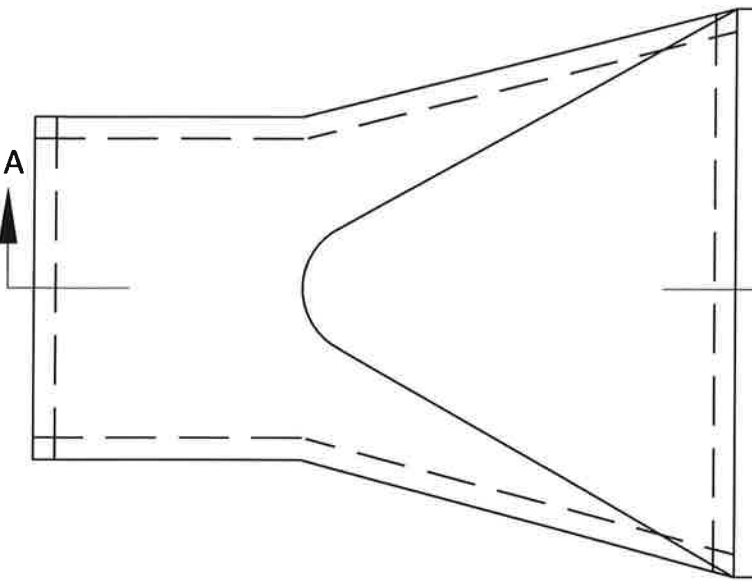
2021 Details



City of
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UNDERDRAIN WITH AGGREGATE BASE DETAIL

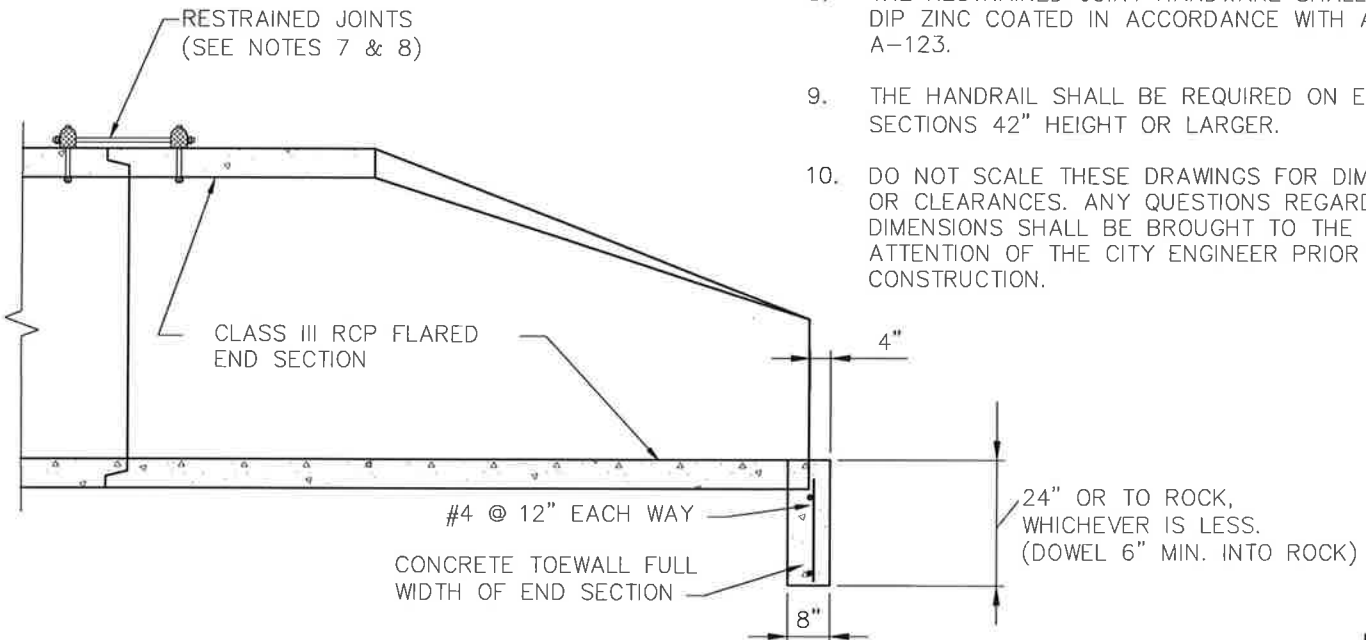
SCALE:	NO SCALE	REV.		
DETAIL NO:	STM-009			
DATE:	06-02-2021			



PLAN VIEW

END SECTION NOTES

1. USE KCMMB4K CONCRETE THROUGHOUT.
2. REINFORCING STEEL SHALL BE NEW BILLET, MINIMUM GRADE 40 AS PER ASTM A615, AND SHALL BE BENT COLD.
3. ALL DIMENSIONS RELATIVE TO REINFORCING STEEL ARE TO CENTERLINE OF BARS. 2" CLEARANCE SHALL BE PROVIDED THROUGHOUT UNLESS NOTED OTHERWISE. TOLERANCE OF $\pm 1/8"$ SHALL BE PERMITTED.
4. ALL LAP SPLICES NOT SHOWN SHALL BE A MINIMUM OF 40 BAR DIAMETERS IN LENGTH.
5. ALL DOWELS SHALL BE ACCURATELY PLACED AND SECURELY TIED IN PLACE PRIOR TO PLACEMENT OF BOTTOM SLAB CONCRETE. STICKING OF DOWELS INTO FRESH OR PARTIALLY HARDENED CONCRETE WILL NOT BE ACCEPTABLE.
6. ALL REINFORCING STEEL SHALL BE SUPPORTED ON FABRICATED STEEL BAR SUPPORTS @ 3'-0" MAXIMUM SPACING.
7. THE LAST THREE JOINTS OF RCP, INCLUDING THE END SECTION, SHALL BE MECHANICALLY RESTRAINED WHERE DISCHARGING INTO UNIMPROVED SYSTEMS.
8. THE RESTRAINED JOINT HARDWARE SHALL BE HOT DIP ZINC COATED IN ACCORDANCE WITH ASTM A-123.
9. THE HANDRAIL SHALL BE REQUIRED ON END SECTIONS 42" HEIGHT OR LARGER.
10. DO NOT SCALE THESE DRAWINGS FOR DIMENSIONS OR CLEARANCES. ANY QUESTIONS REGARDING DIMENSIONS SHALL BE BROUGHT TO THE ATTENTION OF THE CITY ENGINEER PRIOR TO CONSTRUCTION.



SECTION A-A

END SECTION TOEWALL

2021 Details



City of
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Missouri

PUBLIC WORKS

END SECTION TOEWALL DETAIL

SCALE: NO SCALE
DETAIL NO: STM-010
DATE: 06-07-21

REV

GRADING

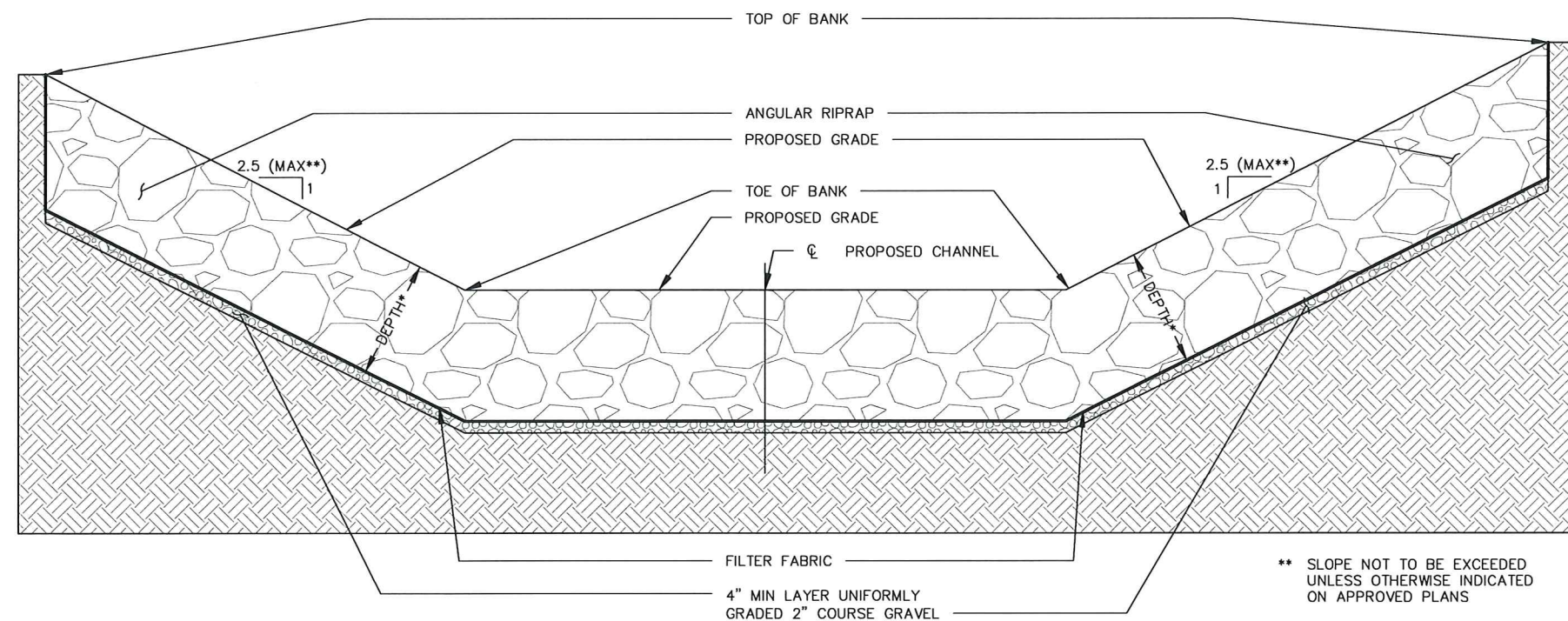
- FILTER FABRIC

- RIPRAP

-

FILTER FABRIC LAYOUT

D50: MEDIAN SIZE OF STONE; HALF OF STONE IN GRADATION IS LARGER AND HALF IS SMALLER



MATERIAL REQUIREMENTS

RIPRAP STONE

- FILTER FABRIC

- STEEL PINS

- ## GRADATION REQUIREMENTS

APWA HEAVY STONE		
DIAMETER (INCHES)	WEIGHT (POUNDS)	MINIMUM PERCENT HEAVIER
27"	1000	NONE
21"	500	50%
12"	75	90%

2" UNIFORMLY GRADED COURSE GRAVEL	
DIAMETER (INCHES)	PERCENT SMALLER
2"	100%
0.5"	50%
0.02"	15%

2021 Details

