

POSTS SHALL OVERLAP AT JOINTS SO THAT NO GAPS EXIST IN SILT FENCE.

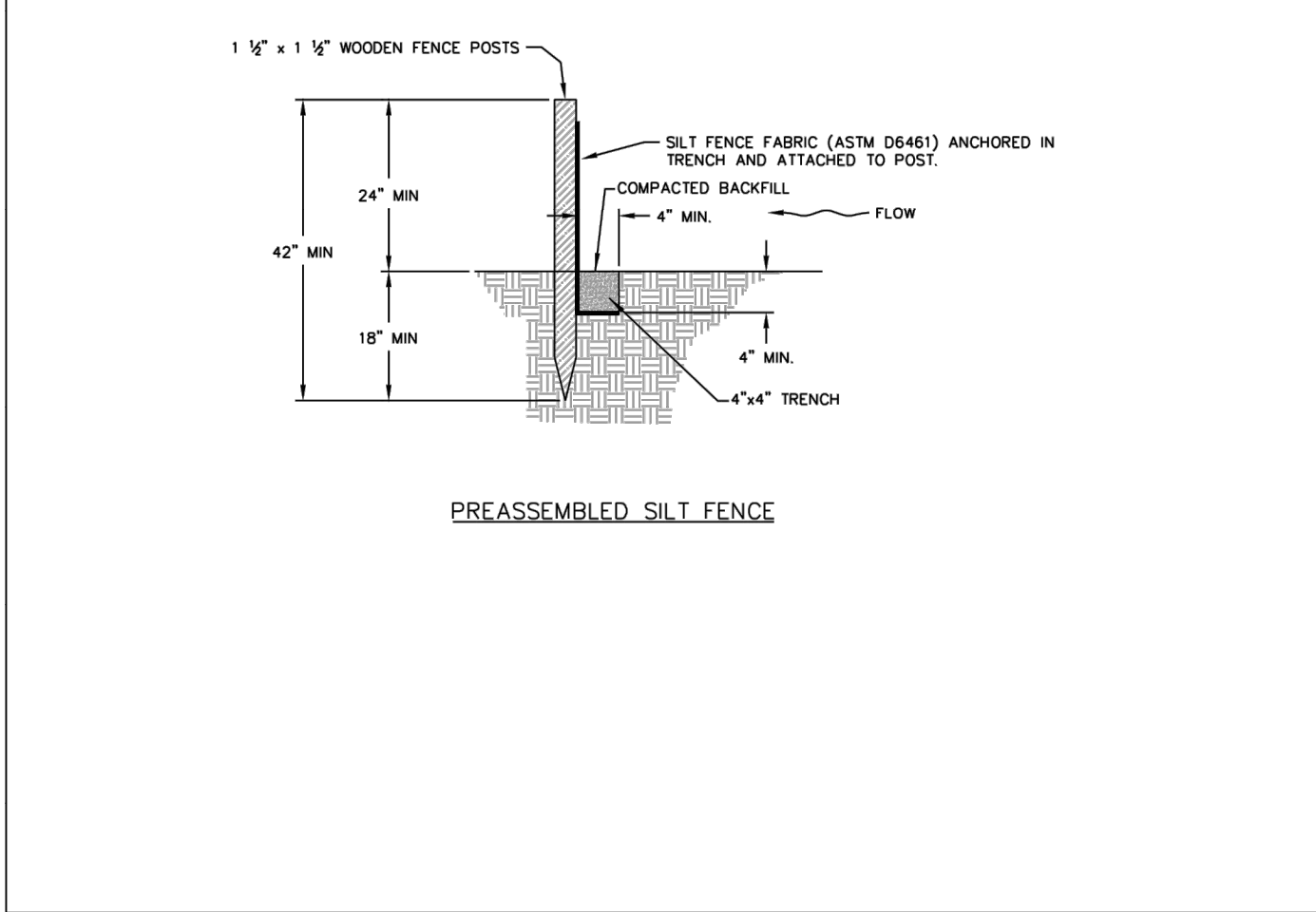
JOIN FIRST

ROTATE SECOND

POST SHALL BE JOINED AS SHOWN, THEN ROTATED 180° IN DIRECTION SHOWN AND DRIVEN INTO THE GROUND.

NOTE: THICKNESS OF GEOTEXTILE HAS BEEN EXAGGERATED.

SILT FENCE JOINTS



1 1/2" x 1 1/2" WOODEN FENCE POSTS

24" MIN

18" MIN

4" MIN

4"x4" TRENCH

COMPACTED BACKFILL

SILT FENCE FABRIC (ASTM D6461) ANCHORED IN TRENCH AND ATTACHED TO POST.

FLOW

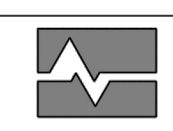
PREASSEMBLED SILT FENCE

INSTALLATION NOTES:

1. DRIVE POSTS VERTICALLY INTO THE GROUND TO A MINIMUM DEPTH OF 18"
2. EXCAVATE A TRENCH APPROXIMATELY 4" WIDE AND 4" DEEP ALONG THE LINE OF POSTS AND UPSLOPE FROM THE BARRIERS.
3. ANCHOR TRENCH SHALL BE EXCAVATED BY HAND, WITH TRENCHER, OR WITH SILT FENCE INSTALLATION MACHINE. NO ROAD GRADERS, BACKHOES, ETC. SHALL BE USED.
4. NOT LESS THAN THE BOTTOM 1" OF THE SILT FENCE FABRIC SHALL BE BURIED IN THE TRENCH.
5. THE TRENCH SHALL BE COMPACTED BY HAND, WITH "JUMPING JACK" OR BY WHEEL ROLLING. COMPACTION SHALL BE SUCH THAT THE SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.
6. SILT FENCE INDICATED IN THE PLANS SHALL BE INSTALLED PRIOR TO ANY LAND-DISTURBING ACTIVITIES.
7. USE WOOD POSTS OR OTHER MATERIAL AS ACCEPTED BY THE CITY.

MAINTENANCE NOTES:

1. THE CONTRACTOR SHALL INSPECT SILT FENCE EVERY TWO WEEKS AND AFTER SIGNIFICANT STORM EVENTS AND MAKE REPAIRS OR CLEAN OUT UPSTREAM SEDIMENT AS NECESSARY. SEDIMENT ACCUMULATED UPSTREAM OF SILT FENCE SHALL BE REMOVED WHEN THE SILT FENCE SHALL BE REMOVED WHEN THE UPSTREAM DISTURBED AREA IS STABILIZED.
2. FOR PLANTED RIPRAP, FINAL RIPRAP SHALL BE REMOVED WHEN THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS ACCEPTED BY THE CITY. IF ANY DISTURBED AREA EXISTS AFTER REMOVAL, IT SHALL BE SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER ACCEPTED BY THE CITY.



CITY OF LOVELAND  
PUBLIC WORKS DEPT.  
STORMWATER

SILT FENCE

STORMWATER  
CONSTRUCTION  
DRAWINGS

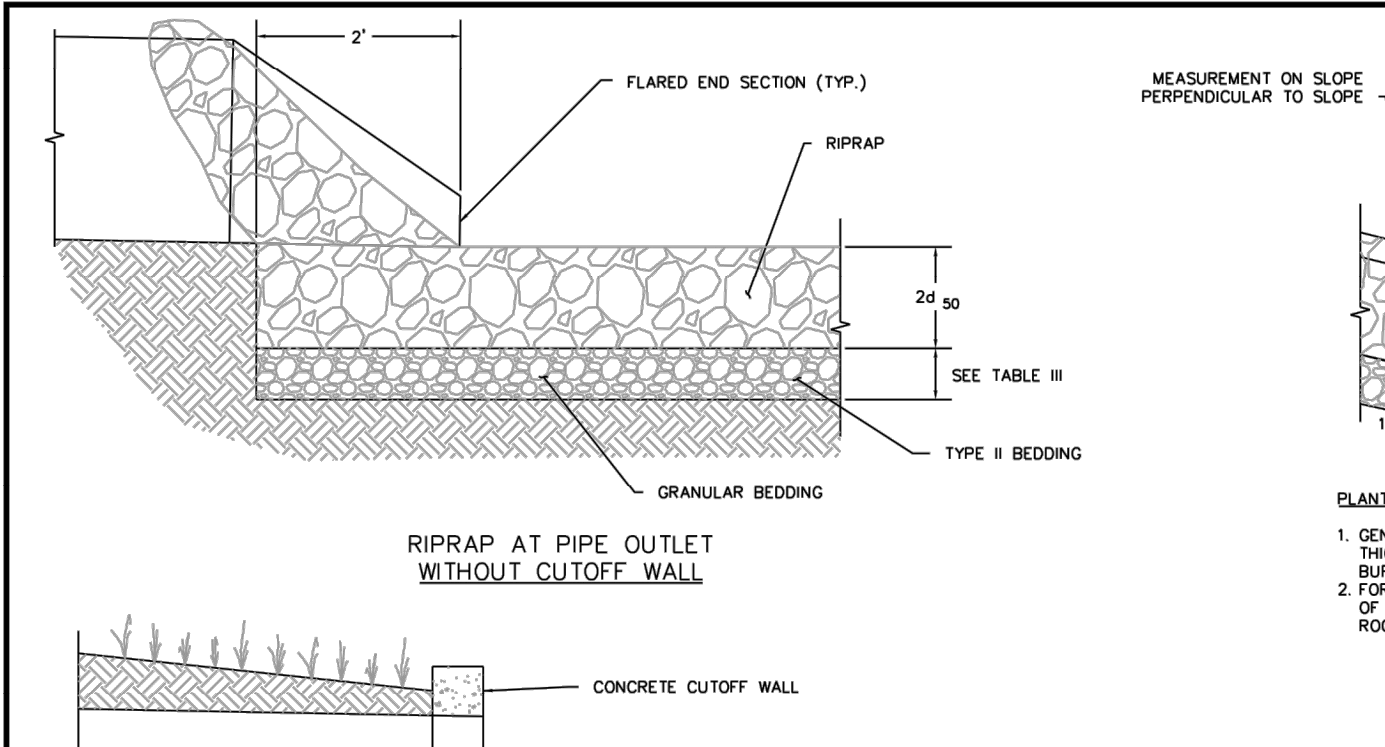
APPROVED: KWG

DATE: 8/17/07

DRAWN BY: TDK

DRAWING

SW-10



FLARED END SECTION (TYP.)

2'

24' MIN

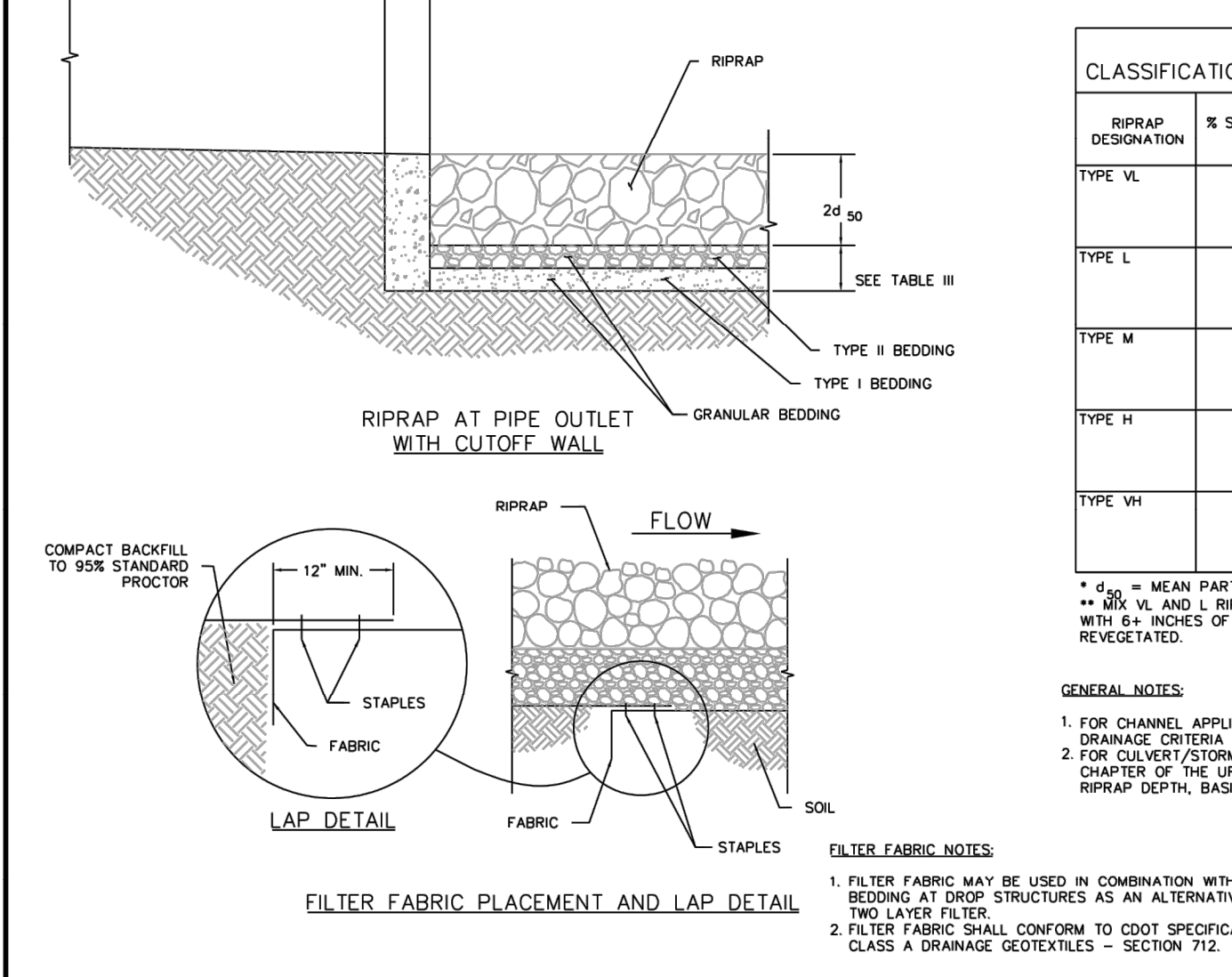
18' THICK LAYER OF TYPE L RIPRAP

GRANULAR BEDDING

TYPE II BEDDING

SEE TABLE III

RIPRAP AT PIPE OUTLET WITHOUT CUTOFF WALL



CONCRETE CUTOFF WALL

24' MIN

18' THICK LAYER OF TYPE L RIPRAP

GRANULAR BEDDING

TYPE I BEDDING

SEE TABLE III

RIPRAP AT PIPE OUTLET WITH CUTOFF WALL

MEASUREMENT ON SLOPE PERPENDICULAR TO SLOPE

DESIGN RIPRAP GRADE

0" MIN 6" MAX 2" TYP

18" THICK LAYER OF TYPE L RIPRAP

PLACEMENT OF TOP LIFT WILL REQUIRE ADJUSTMENT OF FIRST LIFT

SOIL IS NOT TO BE PERCHED. STABILIZATION SOIL FILLS ALL VOID FROM FINISHED SURFACE TO NATIVE SOIL.

PLANTED RIPRAP NOTES:

1. GENERAL PLACEMENT TECHNIQUES SHOULD RESULT IN LARGER ROCK AT THE SURFACE WITH ROCK SECURELY INTERLOCKED AT THE DESIGN THICKNESS AND GRADE. COMPACTION AND LEVELING SHOULD RESULT IN MINIMAL VOIDS AND PROJECTIONS ABOVE GRADE. TYPICAL FOR BOTH BURIED AND EXPOSED RIPRAP.
2. FOR PLANTED RIPRAP, FINAL RIPRAP TO BE COMPACTED BY FULL LOADING OF BACKHOE BUCKET, AS APPROVED. ANY SOFT, YIELDING OR PACKETS OF SMALL ROCK WILL BE REWORKED. PLACE STABILIZATION SOIL SO NO MORE THAN 3 INCHES THICK OVER ROCK AND 25 TO 50 PERCENT OF ROCK EXPOSED AS DIRECTED. COORDINATE ROCK PLACEMENT TO PROVIDE TREE OR SHRUB PLANTING PITS AS INDICATED ON PLANNING PLANS.

TABLE I  
CLASSIFICATION AND GRADATION OF ORDINARY RIPRAP

RIPRAP DESIGNATION	% SMALLER THAN GIVEN SIZE BY WEIGHT	INTERMEDIATE ROCK DIMENSIONS (INCHES)	d <sub>50</sub> (INCHES)*
TYPE VI	70-100	12	
	50-70	9	
	35-50	6	
	2-10	2	
TYPE L	70-100	15	
	50-70	12	
	35-50	9	
	2-10	3	
TYPE M	70-100	21	
	50-70	18	
	35-50	12	
	2-10	4	
TYPE H	70-100	30	
	50-70	24	
	35-50	18	
	2-10	6	
TYPE VH	70-100	42	
	50-70	33	
	35-50	24	
	2-10	9	

\* d<sub>50</sub> = MEAN PARTIAL SIZE (INTERMEDIATE DIMENSION) BY WEIGHT  
\*\* 85% VL AND L RIPRAP WITH 30% (BY VOLUME) TOPSOIL AND BURY IT WITH 6+ INCHES OF TOP SOIL, ALL VIBRATION COMPACTED, AND REVEGETATED.

GENERAL NOTES:

1. FOR CHANNEL APPLICATIONS REFER TO THE MAJOR DRAINAGE CHAPTER OF THE URBAN STORM DRAINAGE CRITERIA MANUAL, VOLUME 1, FOR RIPRAP SIZING.
2. FOR CULVERT/STORM SEWER OUTLET APPLICATIONS REFER TO THE HYDRAULIC STRUCTURES CHAPTER OF THE URBAN STORM DRAINAGE CRITERIA MANUAL, VOLUME 2, FOR RIPRAP SIZE, RIPRAP DEPTH, BASH LENGTH, AND BASH WIDTH.

TABLE II  
GRADATION FOR GRANULAR BEDDING

U.S. STANDARD SIEVE SIZE	PERCENT WEIGHT BY PASSING SQUARE-MESH SIEVES	
	TYPE I CDOT SECT. 703.01	TYPE I CDOT SECT. 703.09 CLASS A
3 INCHES	----	90-100
1 1/2 INCHES	----	----
3/4 INCHES	----	20-90
3/8 INCHES	100	----
#4	95-100	0-20
#16	45-80	----
#50	10-30	----
#100	2-10	----
#200	0-2	0-3

TABLE III  
THICKNESS REQUIREMENTS FOR GRANULAR BEDDING

U.S. STANDARD SIEVE SIZE	PERCENT WEIGHT BY PASSING SQUARE-MESH SIEVES	
	FINE-GRAINED SOILS**	COURSE-GRAINED SOILS**
W(d <sub>50</sub> = 6 IN.), L(d <sub>50</sub> = 9 IN.)	4	6
M(d <sub>50</sub> = 12 IN.)	4	6
H(d <sub>50</sub> = 18 IN.)	4	6
VH(d <sub>50</sub> = 24 IN.)	4	6

\*\* FIFTY PERCENT OR MORE BY WEIGHT RETAINED ON THE #40 SIEVE.

TABLE I  
CLASSIFICATION AND GRADATION OF ORDINARY RIPRAP

RIPRAP DESIGNATION	% SMALLER THAN GIVEN SIZE BY WEIGHT	INTERMEDIATE ROCK DIMENSIONS (INCHES)	d <sub>50</sub> (INCHES)*
TYPE VI	70-100	12	
	50-70	9	
	35-50	6	
	2-10	2	
TYPE L	70-100	15	
	50-70	12	
	35-50	9	
	2-10	3	
TYPE M	70-100	21	
	50-70	18	
	35-50	12	
	2-10	4	
TYPE H	70-100	30	
	50-70	24	
	35-50	18	
	2-10	6	
TYPE VH	70-100	42	
	50-70	33	
	35-50	24	
	2-10	9	

\* d<sub>50</sub> = MEAN PARTIAL SIZE (INTERMEDIATE DIMENSION) BY WEIGHT  
\*\* 85% VL AND L RIPRAP WITH 30% (BY VOLUME) TOPSOIL AND BURY IT WITH 6+ INCHES OF TOP SOIL, ALL VIBRATION COMPACTED, AND REVEGETATED.

GENERAL NOTES:

1. FOR CHANNEL APPLICATIONS REFER TO THE MAJOR DRAINAGE CHAPTER OF THE URBAN STORM DRAINAGE CRITERIA MANUAL, VOLUME 1, FOR RIPRAP SIZING.
2. FOR CULVERT/STORM SEWER OUTLET APPLICATIONS REFER TO THE HYDRAULIC STRUCTURES CHAPTER OF THE URBAN STORM DRAINAGE CRITERIA MANUAL, VOLUME 2, FOR RIPRAP SIZE, RIPRAP DEPTH, BASH LENGTH, AND BASH WIDTH.

TABLE II  
GRADATION FOR GRANULAR BEDDING

U.S. STANDARD SIEVE SIZE	PERCENT WEIGHT BY PASSING SQUARE-MESH SIEVES	
	TYPE I CDOT SECT. 703.01	TYPE I CDOT SECT. 703.09 CLASS A
3 INCHES	----	90-100
1 1/2 INCHES	----	----
3/4 INCHES	----	20-90
3/8 INCHES	100	----
#4	95-100	0-20
#16	45-80	----
#50	10-30	----
#100	2-10	----
#200	0-2	0-3

TABLE III  
THICKNESS REQUIREMENTS FOR GRANULAR BEDDING

U.S. STANDARD SIEVE SIZE	PERCENT WEIGHT BY PASSING SQUARE-MESH SIEVES	
	FINE-GRAINED SOILS**	COURSE-GRAINED SOILS**
W(d <sub>50</sub> = 6 IN.), L(d <sub>50</sub> = 9 IN.)	4	6
M(d <sub>50</sub> = 12 IN.)	4	6
H(d <sub>50</sub> = 18 IN.)	4	6
VH(d <sub>50</sub> = 24 IN.)	4	6

\*\* FIFTY PERCENT OR MORE BY WEIGHT RETAINED ON THE #40 SIEVE.

TABLE I  
CLASSIFICATION AND GRADATION OF ORDINARY RIPRAP

RIPRAP DESIGNATION	% SMALLER THAN GIVEN SIZE BY WEIGHT	INTERMEDIATE ROCK DIMENSIONS (INCHES)	d <sub>50</sub> (INCHES)*
TYPE VI	70-100	12	
	50-70	9	
	35-50	6	
	2-10	2	
TYPE L	70-100	15	
	50-70	12	
	35-50	9	
	2-10	3	
TYPE M	70-100	21	
	50-70	18	
	35-50	12	
	2-10	4	
TYPE H	70-100	30	
	50-70	24	
	35-50	18	
	2-10	6	
TYPE VH	70-100	42	
	50-70	33	
	35-50	24	
	2-10	9	

\* d<sub>50</sub> = MEAN PARTIAL SIZE (INTERMEDIATE DIMENSION) BY WEIGHT  
\*\* 85% VL AND L RIPRAP WITH 30% (BY VOLUME) TOPSOIL AND BURY IT WITH 6+ INCHES OF TOP SOIL, ALL VIBRATION COMPACTED, AND REVEGETATED.

GENERAL NOTES:

1. FOR CHANNEL APPLICATIONS REFER TO THE MAJOR DRAINAGE CHAPTER OF THE URBAN STORM DRAINAGE CRITERIA MANUAL, VOLUME 1, FOR RIPRAP SIZING.
2. FOR CULVERT/STORM SEWER OUTLET APPLICATIONS REFER TO THE HYDRAULIC STRUCTURES CHAPTER OF THE URBAN STORM DRAINAGE CRITERIA MANUAL, VOLUME 2, FOR RIPRAP SIZE, RIPRAP DEPTH, BASH LENGTH, AND BASH WIDTH.

TABLE II  
GRADATION FOR GRANULAR BEDDING

U.S. STANDARD SIEVE SIZE	PERCENT WEIGHT BY PASSING SQUARE-MESH SIEVES	
	TYPE I CDOT SECT. 703.01	TYPE I CDOT SECT. 703.09 CLASS A
3 INCHES	----	90-100
1 1/2 INCHES	----	----
3/4 INCHES	----	20-90
3/8 INCHES	100	----
#4	95-100	0-20
#16	45-80	----
#50	10-30	----
#100	2-10	----
#200	0-2	0-3

TABLE III  
THICKNESS REQUIREMENTS FOR GRANULAR BEDDING

U.S. STANDARD SIEVE SIZE	PERCENT WEIGHT BY PASSING SQUARE-MESH SIEVES	
	FINE-GRAINED SOILS**	COURSE-GRAINED SOILS**
W(d <sub>50</sub> = 6 IN.), L(d <sub>50</sub> = 9 IN.)	4	6
M(d <sub>50</sub> = 12 IN.)	4	6
H(d <sub>50</sub> = 18 IN.)	4	6
VH(d <sub>50</sub> = 24 IN.)	4	6

\*\* FIFTY PERCENT OR MORE BY WEIGHT RETAINED ON THE #40 SIEVE.

TABLE I  
CLASSIFICATION AND GRADATION OF ORDINARY RIPRAP

RIPRAP DESIGNATION	% SMALLER THAN GIVEN SIZE BY WEIGHT	INTERMEDIATE ROCK DIMENSIONS (INCHES)	d <sub>50</sub> (INCHES)*
TYPE VI	70-100	12	
	50-70	9	
	35-50	6	
	2-10	2	
TYPE L	70-100	15	
	50-70	12	
	35-50	9	
	2-10	3	
TYPE M	70-100	21	
	50-70	18	
	35-50	12	
	2-10	4	
TYPE H	70-100	30	
	50-70	24	
	35-50	18	
	2-10	6	
TYPE VH	70-100	42	
	50-70	33	
	35-50	24	
	2-10	9	

\* d<sub>50</sub> = MEAN PARTIAL SIZE (INTERMEDIATE DIMENSION) BY WEIGHT  
\*\* 85% VL AND L RIPRAP WITH 30% (BY VOLUME) TOPSOIL AND BURY IT WITH 6+ INCHES OF TOP SOIL, ALL VIBRATION COMPACTED, AND REVEGETATED.

GENERAL NOTES:

1. FOR CHANNEL APPLICATIONS REFER TO THE MAJOR DRAINAGE CHAPTER OF THE URBAN STORM DRAINAGE CRITERIA MANUAL, VOLUME 1, FOR RIPRAP SIZING.
2. FOR CULVERT/STORM SEWER OUTLET APPLICATIONS REFER TO THE HYDRAULIC STRUCTURES CHAPTER OF THE URBAN STORM DRAINAGE CRITERIA MANUAL, VOLUME 2, FOR RIPRAP SIZE, RIPRAP DEPTH, BASH LENGTH, AND BASH WIDTH.

TABLE II  
GRADATION FOR GRANULAR BEDDING

U.S. STANDARD SIEVE SIZE	PERCENT WEIGHT BY PASSING SQUARE-MESH SIEVES	
	TYPE I CDOT SECT. 703.01	TYPE I CDOT SECT. 703.09 CLASS A
3 INCHES	----	90-100
1 1/2 INCHES	----	----
3/4 INCHES	----	20-90
3/8 INCHES	100	----
#4	95-100	0-20
#16	45-80	----
#50	10-30	----
#100	2-10	----
#200	0-2	0-3

TABLE III  
THICKNESS REQUIREMENTS FOR GRANULAR BEDDING

U.S. STANDARD SIEVE SIZE	PERCENT WEIGHT BY PASSING SQUARE-MESH SIEVES	
	FINE-GRAINED SOILS**	COURSE-GRAINED SOILS**
W(d <sub>50</sub> = 6 IN.), L(d <sub>50</sub> = 9 IN.)	4	6
M(d <sub>50</sub> = 12 IN.)	4	6
H(d <sub>50</sub> = 18 IN.)	4	6
VH(d <sub>50</sub> = 24 IN.)	4	6

\*\* FIFTY PERCENT OR MORE BY WEIGHT RETAINED ON THE #40 SIEVE.

TABLE I  
CLASSIFICATION AND GRADATION OF ORDINARY RIPRAP

RIPRAP DESIGNATION	% SMALLER THAN GIVEN SIZE BY WEIGHT	INTERMEDIATE ROCK DIMENSIONS (INCHES)	d <sub>50</sub> (INCHES)*
TYPE VI	70-100	12	
	50-70	9	
	35-50	6	
	2-10	2	
TYPE L	70-100	15	
	50-70	12	
	35-50	9	
	2-10	3	
TYPE M	70-100	21	
	50-70	18	
	35-50	12	
	2-10	4	
TYPE H	70-100	30	
	50-70	24	
	35-50	18	
	2-10	6	
TYPE VH	70-100	42	
	50-70	33	
	35-50	24	
	2-10	9	

\* d<sub>50</sub> = MEAN PARTIAL SIZE (INTERMEDIATE DIMENSION) BY WEIGHT  
\*\* 85% VL AND L RIPRAP WITH 30% (BY VOLUME) TOPSOIL AND BURY IT WITH 6+ INCHES OF TOP SOIL, ALL VIBRATION COMPACTED, AND REVEGETATED.

GENERAL NOTES:

1. FOR CHANNEL APPLICATIONS REFER TO THE MAJOR DRAINAGE CHAPTER OF THE URBAN STORM DRAINAGE CRITERIA MANUAL, VOLUME 1, FOR RIPRAP SIZING.
2. FOR CULVERT/STORM SEWER OUTLET APPLICATIONS REFER TO THE HYDRAULIC STRUCTURES CHAPTER OF THE URBAN STORM DRAINAGE CRITERIA MANUAL, VOLUME 2, FOR RIPRAP SIZE, RIPRAP DEPTH, BASH LENGTH, AND BASH WIDTH.

TABLE II  
GRADATION FOR GRANULAR BEDDING

U.S. STANDARD SIEVE SIZE	PERCENT WEIGHT BY PASSING SQUARE-MESH SIEVES	
	TYPE I CDOT SECT. 703.01	TYPE I CDOT SECT. 703.09 CLASS A
3 INCHES	----	90-100
1 1/2 INCHES	----	----
3/4 INCHES	----	20-90
3/8 INCHES	100	----
#4	95-100	0-20
#16	45-80	----
#50	10-30	----
#100	2-10	----
#200	0-2	0-3

TABLE III  
THICKNESS REQUIREMENTS FOR GRANULAR BEDDING

U.S. STANDARD SIEVE SIZE	PERCENT WEIGHT BY PASSING SQUARE-MESH SIEVES	
	FINE-GRAINED SOILS**	COURSE-GRAINED SOILS**
W(d <sub>50</sub> = 6 IN.), L(d <sub>50</sub> = 9 IN.)	4	6
M(d <sub>50</sub> = 12 IN.)	4	6
H(d <sub>50</sub> = 18 IN.)	4	6
VH(d <sub>50</sub> = 24 IN.)	4	6

\*\* FIFTY PERCENT OR MORE BY WEIGHT RETAINED ON THE #40 SIEVE.

TABLE I  
CLASSIFICATION AND GRADATION OF ORDINARY RIPRAP

RIPRAP DESIGNATION	% SMALLER THAN GIVEN SIZE BY WEIGHT	INTERMEDIATE ROCK DIMENSIONS (INCHES)	d <sub>50</sub> (INCHES)*
TYPE VI	70-100	12	
	50-70	9	
	35-50	6	
	2-10	2	
TYPE L	70-100	15	
	50-70	12	
	35-50	9	
	2-10	3	
TYPE M	70-100	21	
	50-70	18	
	35-50	12	
	2-10	4	
TYPE H	70-100	30	
	50-70	24	
	35-50	18	
	2-10	6	
TYPE VH	70-100	42	
	50-70	33	
	35-50	24	
	2-10	9	

\* d<sub>50</sub> = MEAN PARTIAL SIZE (INTERMEDIATE DIMENSION) BY WEIGHT  
\*\* 85% VL AND L RIPRAP WITH 30% (BY VOLUME) TOPSOIL AND BURY IT WITH 6+ INCHES OF TOP SOIL, ALL VIBRATION COMPACTED, AND REVEGETATED.

GENERAL NOTES:

1. FOR CHANNEL APPLICATIONS REFER TO THE MAJOR DRAINAGE CHAPTER OF THE URBAN STORM DRAINAGE CRITERIA MANUAL, VOLUME 1, FOR RIPRAP SIZING.
2. FOR CULVERT/STORM SEWER OUTLET APPLICATIONS REFER TO THE HYDRAULIC STRUCTURES CHAPTER OF THE URBAN STORM DRAINAGE CRITERIA MANUAL, VOLUME 2, FOR RIPRAP SIZE, RIPRAP DEPTH, BASH LENGTH, AND BASH WIDTH.

TABLE II  
GRADATION FOR GRANULAR BEDDING

U.S. STANDARD SIEVE SIZE	PERCENT WEIGHT BY PASSING SQUARE-MESH SIEVES	
	TYPE I CDOT SECT. 703.01	TYPE I CDOT SECT. 703.09 CLASS A
3 INCHES	----	90-100
1 1/2 INCHES	----	----
3/4 INCHES	----	20-90
3/8 INCHES	100	----
#4	95-100	0-20
#16	45-80	----
#50	10-30	----
#100	2-10	----
#200	0-2	0-3

TABLE III  
THICKNESS REQUIREMENTS FOR GRANULAR BEDDING

U.S. STANDARD SIEVE SIZE	PERCENT WEIGHT BY PASSING SQUARE-MESH SIEVES	
	FINE-GRAINED SOILS**	COURSE-GRAINED SOILS**
W(d <sub>50</sub> = 6 IN.), L(d <sub>50</sub> = 9 IN.)	4	6
M(d <sub>50</sub> = 12 IN.)	4	6
H(d <sub>50</sub> = 18 IN.)	4	6
VH(d <sub>50</sub> = 24 IN.)	4	6

\*\* FIFTY PERCENT OR MORE BY WEIGHT RETAINED ON THE #40 SIEVE.

TABLE I  
CLASSIFICATION AND GRADATION OF ORDINARY RIPRAP

RIPRAP DESIGNATION	% SMALLER THAN GIVEN SIZE BY WEIGHT	INTERMEDIATE ROCK DIMENSIONS (INCHES)	d <sub>50</sub> (INCHES)*
TYPE VI	70-100	12	
	50-70	9	
	35-50	6	
	2-10	2	
TYPE L	70-100	15	
	50-70	12	
	35-50	9	
	2-10	3	
TYPE M	70-100	21	
	50-70	18	
	35-50	12	
	2-10	4	
TYPE H	70-100	30	
	50-70	24	
	35-50	18	
	2-10	6	
TYPE VH	70-100	42	
	50-70	33	
	35-50	24	
	2-10	9	

\* d<sub>50</sub> = MEAN PARTIAL SIZE (INTERMEDIATE DIMENSION) BY WEIGHT  
\*\* 85% VL AND L RIPRAP WITH 30% (BY VOLUME) TOPSOIL AND BURY IT WITH 6+ INCHES OF TOP SOIL, ALL VIBRATION COMPACTED, AND REVEGETATED.

GENERAL NOTES:

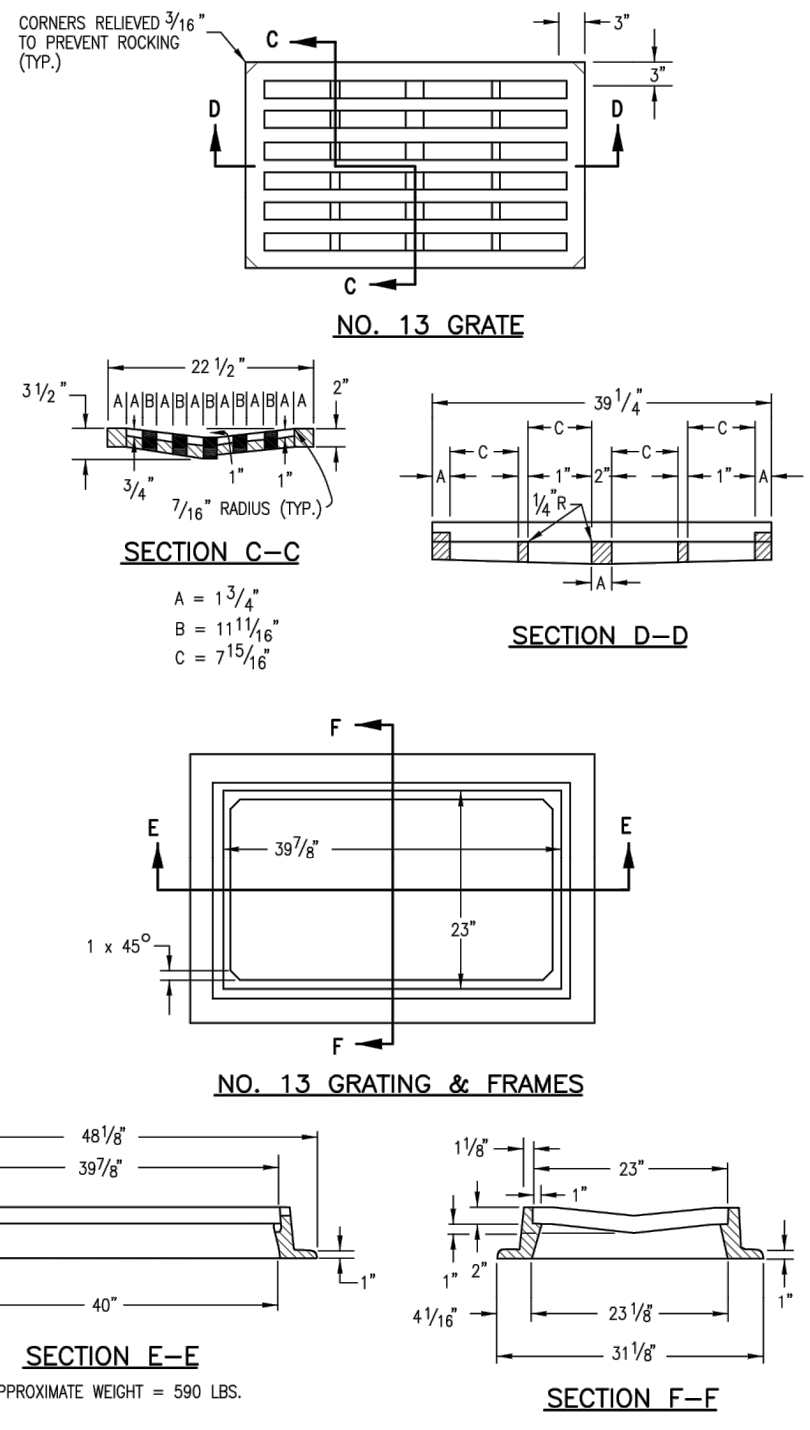
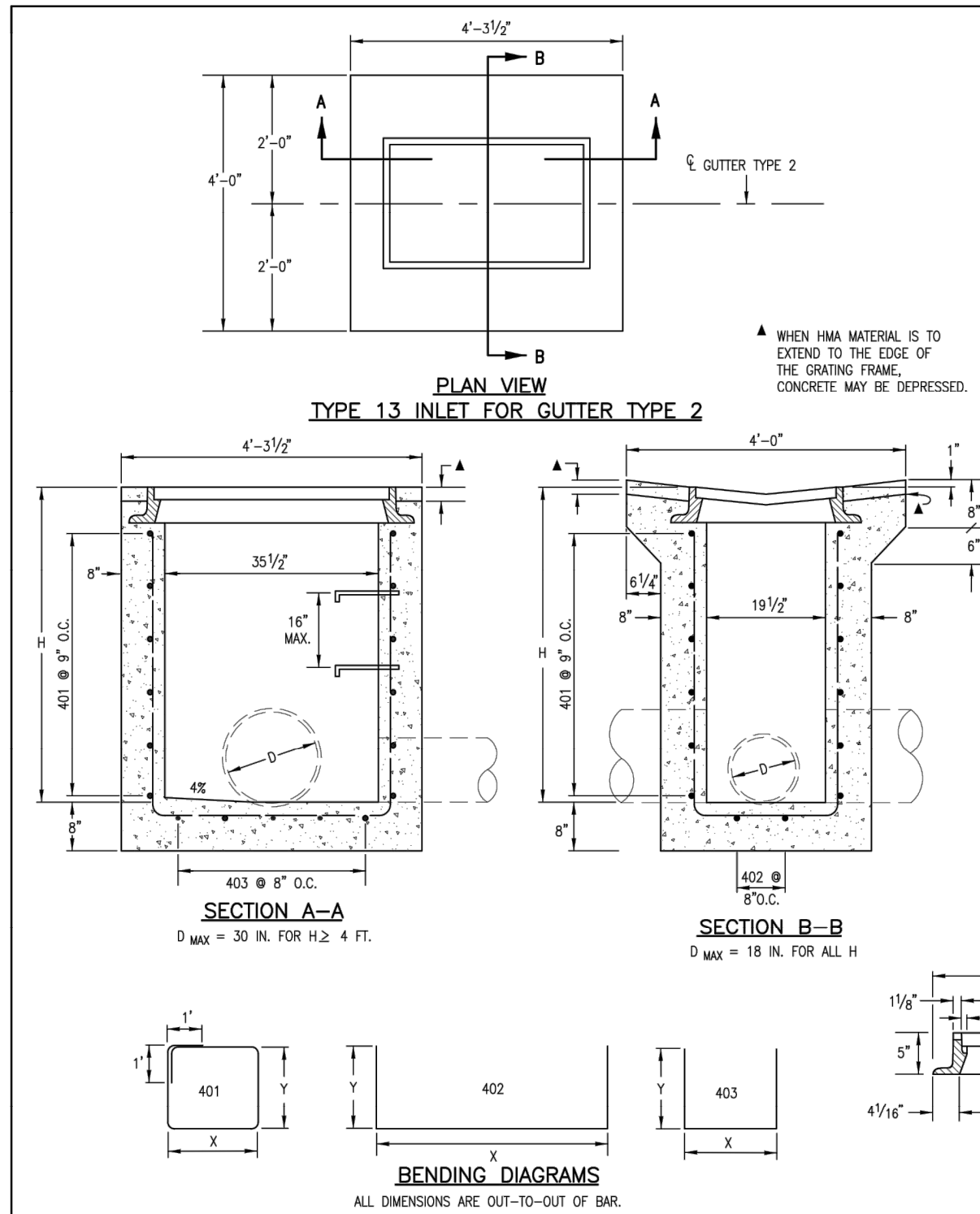
1. FOR CHANNEL APPLICATIONS REFER TO THE MAJOR DRAINAGE CHAPTER OF THE URBAN STORM DRAINAGE CRITERIA MANUAL, VOLUME 1, FOR RIPRAP SIZING.
2. FOR CULVERT/STORM SEWER OUTLET APPLICATIONS REFER TO THE HYDRAULIC STRUCTURES CHAPTER OF THE URBAN STORM DRAINAGE CRITERIA MANUAL, VOLUME 2, FOR RIPRAP SIZE, RIPRAP DEPTH, BASH LENGTH, AND BASH WIDTH.

TABLE II  
GRADATION FOR GRANULAR BEDDING

U.S. STANDARD SIEVE SIZE	PERCENT WEIGHT BY PASSING SQUARE-MESH SIEVES	
	TYPE I CDOT SECT. 703.01	TYPE I CDOT SECT. 703.09 CLASS A
3 INCHES	----	90-100
1 1/2 INCHES	----	----
3/4 INCHES	----	20-90
3/8 INCHES	100	----
#4	95-100	0-20
#16	45-80	----
#50	10-30	----
#100	2-10	----
#200	0-2	0-3

TABLE III  
THICKNESS REQUIREMENTS FOR GRANULAR BEDDING

U.S. STANDARD SIEVE SIZE
--------------------------



H	CONCRETE CU. YDS.	REINFORCING STEEL # LB.	NO. OF BARS REQD.	MAXIMUM PIPE I.D. IN.	SEC. A-A IN.	SEC. B-B IN.
3'-0"	1.3	72	4	18	18	18
3'-2"	1.5	76	4	24	18	18
4'-0"	1.8	90	5	30	18	18
4'-2"	1.8	104	6	30	18	18
4'-4"	1.9	109	6	30	18	18
4'-6"	2.1	122	7	30	18	18
6'-0"	2.2	136	8	30	18	18
6'-2"	2.4	141	8	30	18	18
6'-4"	2.5	154	9	30	18	18
7'-0"	2.7	168	10	30	18	18
8'-0"	2.8	173	10	30	18	18
8'-2"	3.0	187	11	30	18	18
9'-0"	3.1	205	12	30	18	18
9'-2"	3.3	205	12	30	18	18
10'-0"	3.4	219	13	30	18	18

#### ROUTED RIPRAP RUNDOWN CROSS-SECTIONS

Section	Max Depth (ft)	100-yr Flow Depth (ft)	100-yr Flow (cfs)	Z1	Z2	W (ft)	Slope (%)	Length (ft)	Width (ft)	Type	Grouted Depth (in)	Channel Surface
A-A	1.00	0.08	0.55	1.0	1.0	2.00	3.05	3.0	3.0	VL	12	grouted riprap
B-B	1.00	0.15	1.43	1.0	1.0	2.00	19.57	2.0	3.0	VL	12	grouted riprap
C-C	1.00	0.22	4.24	1.0	1.0	2.00	18.86	3.0	3.0	VL	12	grouted riprap
D-D	1.00	0.45	2.21	1.0	1.0	2.00	20.00	3.0	3.0	VL	12	grouted riprap
E-E	1.00	0.38	15.18	1.0	1.0	2.00	20.00	10.0	8.0	VL	12	grouted riprap
F-F	1.00	0.20	1.95	1.0	1.0	2.00	2.00	3.0	3.0	VL	12	grouted riprap
G-G	1.00	0.15	1.26	1.0	1.0	2.00	8.90	3.0	4.0	VL	12	grouted riprap
H-H	1.00	0.08	1.50	1.0	1.0	2.00	22.28	3.0	3.0	VL	12	grouted riprap
I-I	1.00	0.15	2.54	1.0	1.0	2.00	8.00	3.0	4.0	VL	12	grouted riprap

Note: Riprap sizes are minimum and should be extended to the toe of detention pond and swales. For size of extended riprap pad reference refer to drainage pla

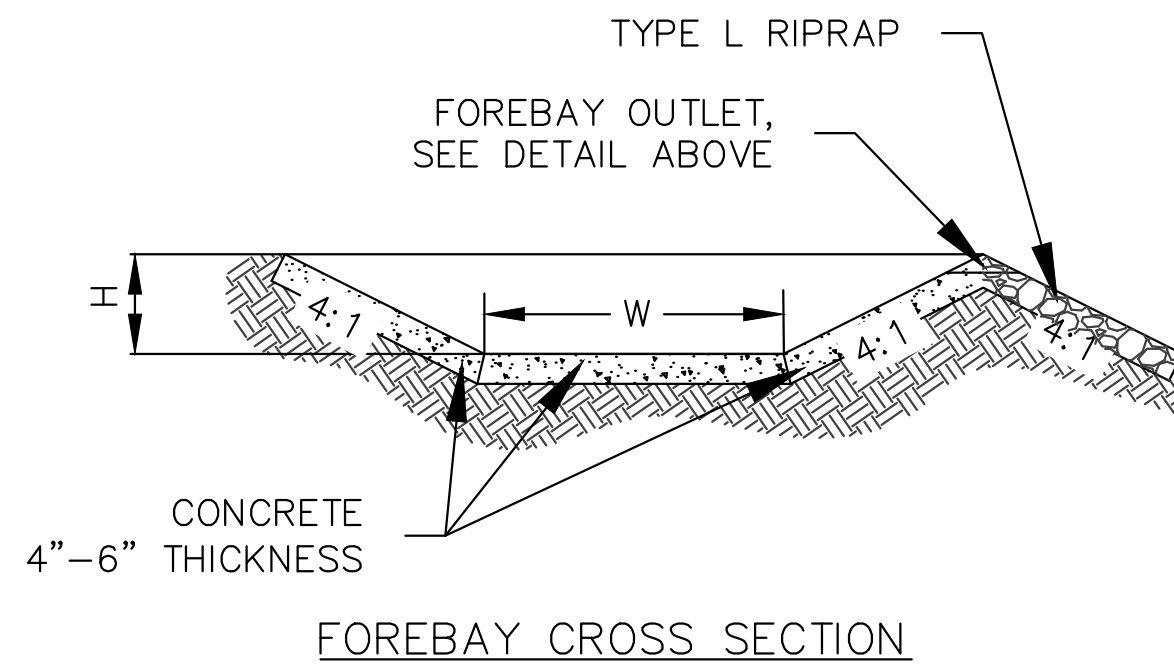
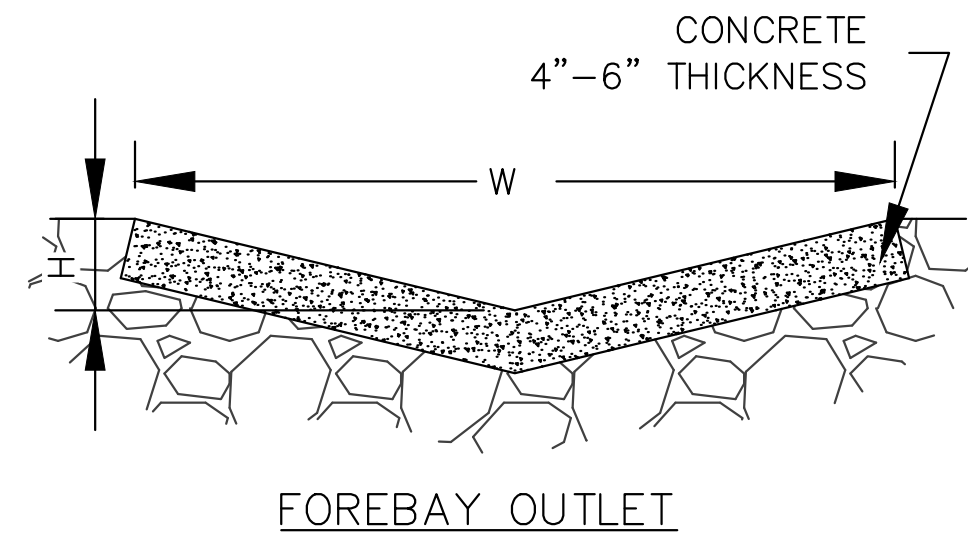
PIPE ST-01  
FOREBAY #1  
W=1.54'  
H=1.0'

PIPE ST-07  
FOREBAY #2  
W=2.72'  
H=1.0'

REFER TO GRADING PLAN FOR FOREBAY GRADING DESIGN

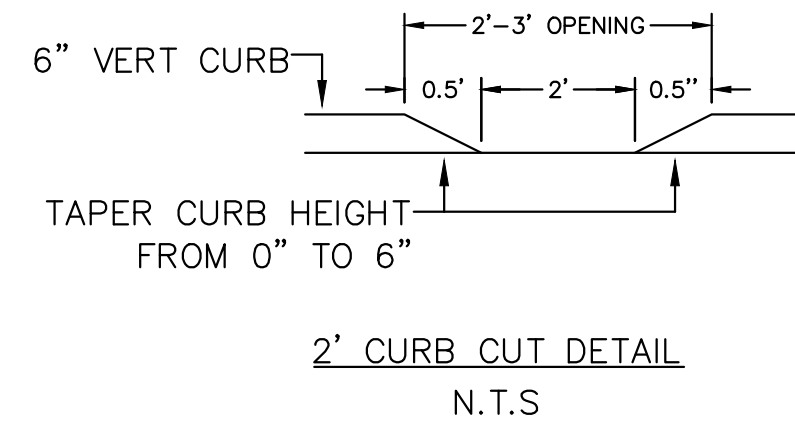
PIPE ST-01  
FOREBAY #1  
H=1.5'  
W=13.31'

PIPE ST-07  
FOREBAY # 2  
H=1.5'  
W=26.94'

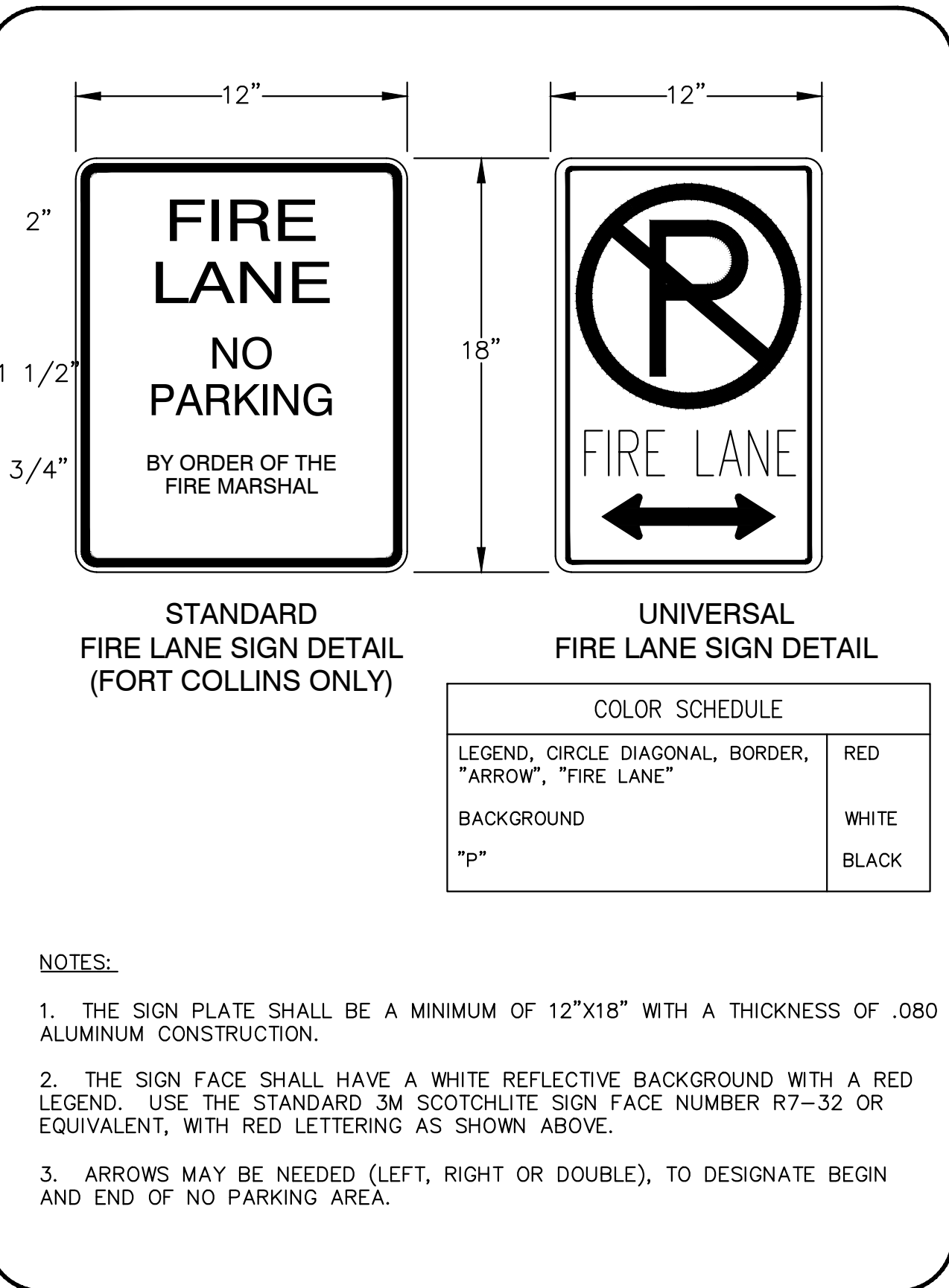


#### CURB-CUT CROSS-SECTIONS

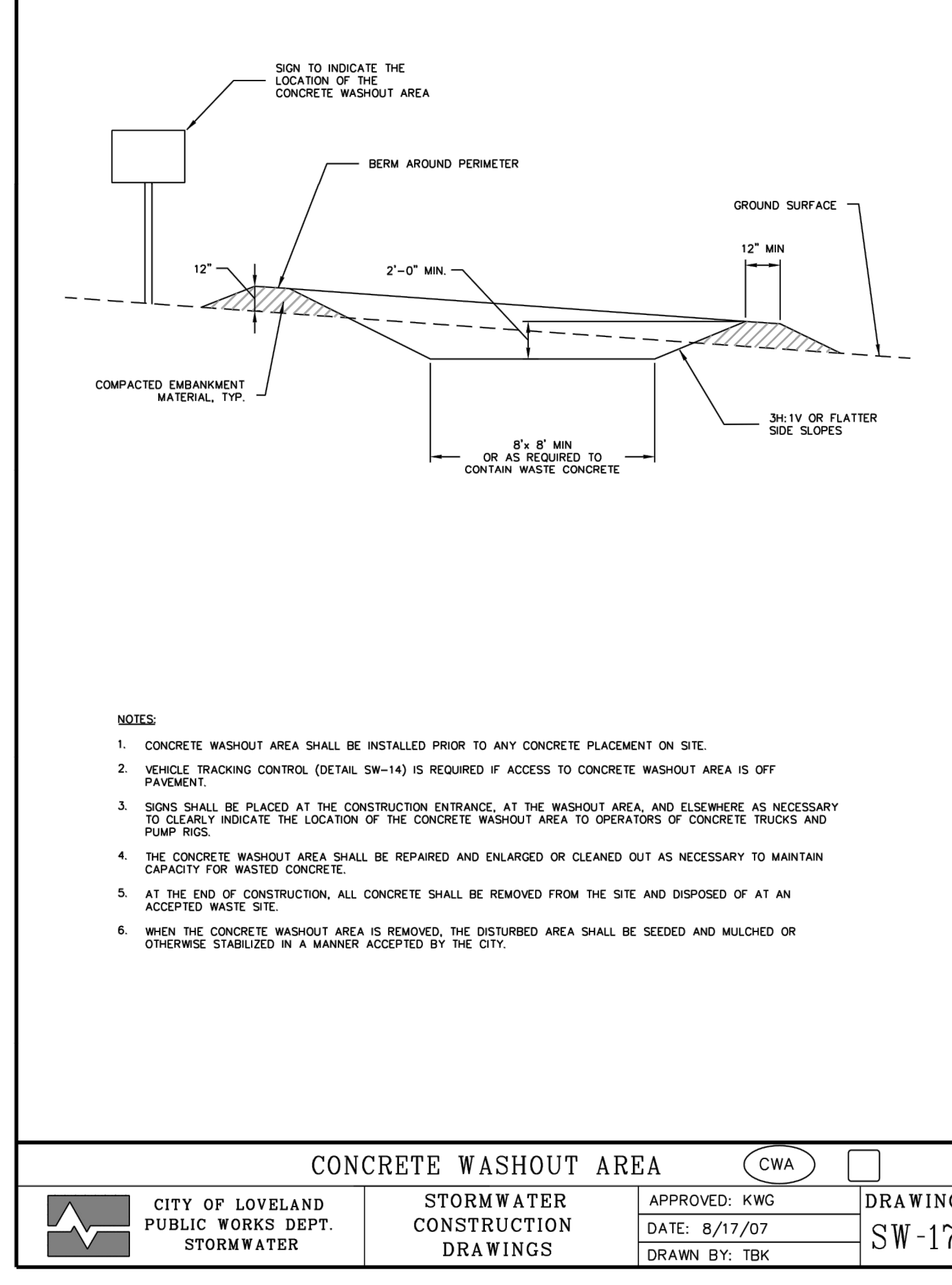
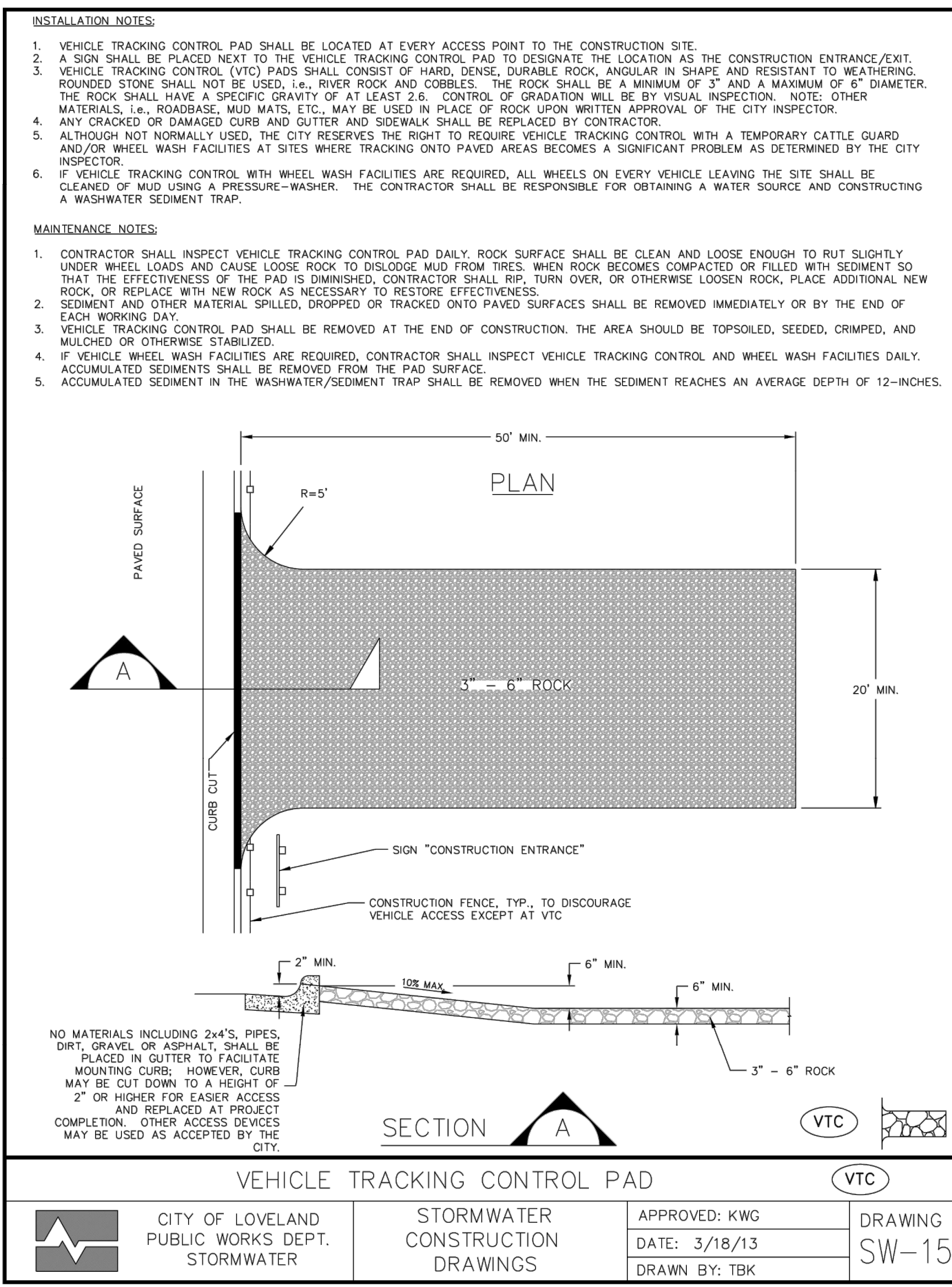
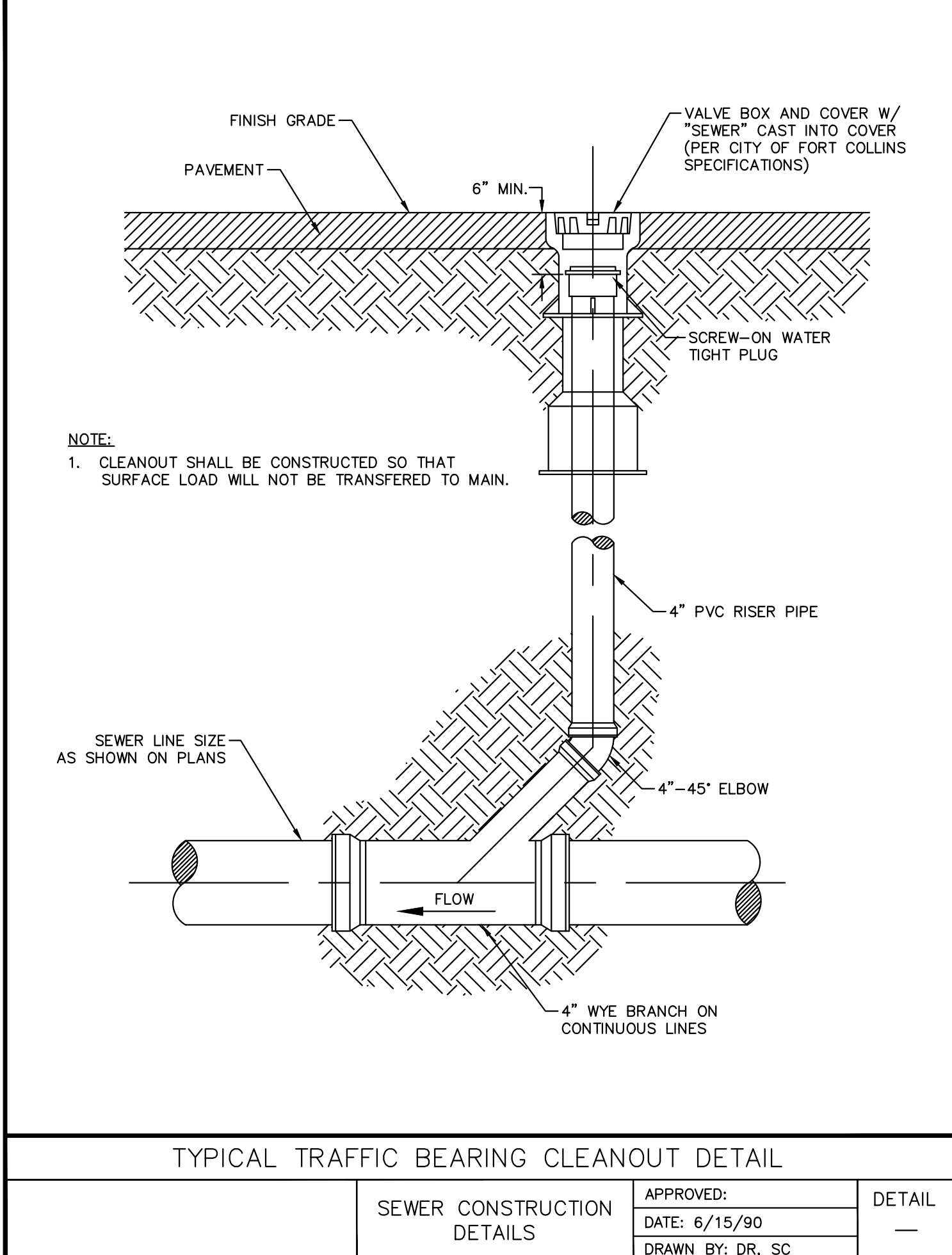
Section	Max Depth (ft)	100-yr Flow Depth (ft)	100-yr Flow (cfs)	Z1	Z2	W (ft)	Slope (%)	Channel Surface
A-A	1.00	0.09	0.55	1.0	1.0	2.00	2.00	concrete
B-B	1.00	0.16	1.43	1.0	1.0	2.00	2.00	concrete
C-C	1.00	0.30	4.24	1.0	1.0	2.00	2.00	concrete
D-D	1.00	0.21	2.21	1.0	1.0	2.00	2.00	concrete
E-E	1.00	0.41	15.18	1.0	1.0	3.00	4.00	concrete
F-F	1.00	0.19	1.95	1.0	1.0	2.00	2.00	concrete
G-G	1.00	0.15	1.26	1.0	1.0	2.00	2.00	concrete
H-H	1.00	0.16	1.50	1.0	1.0	2.00	2.00	concrete
I-I	1.00	0.18	2.54	1.0	1.0	2.00	4.00	concrete



Computer File Information Creation Date: 07/04/06 Last Modification Date: 07/04/06 Full Path: www.dot.state.co.us/Design/Support/ Drawing File Name: 60401.00101.dwg CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	Sheet Revisions Date: _____ Comments: _____	Colorado Department of Transportation 4201 East Arkansas Avenue Denver, Colorado 80222 Phone: (303) 757-9083 Fax: (303) 757-9820 Project Development Branch SRJ/LTA	CONCRETE INLET TYPE 13 Issued By: Project Development Branch on July 04, 2006	STANDARD PLAN NO. M-604-13 Sheet No. 1 of 1
--	---	---	---	---



LARIMER COUNTY URBAN AREA STREET STANDARDS	CONSTRUCTION DRAWINGS	REVISION NO: 2 DATE: 04/01/07	DRAWING 1418
--	--------------------------	----------------------------------	-----------------



REVISIONS

DESCRIPTION

DATE

BY

DRAWN

MPG

CHECKED

JFS

DESIGNED

JAZ

FILENAME

0001\_DETAILS

COLORADO LICENSE

PENDING APPROVAL

NOT FOR CONSTRUCTION

PROFESSIONAL ENGINEER

EAST LOVELAND INDUSTRIAL 26TH SUBDIVISION

CONSTRUCTION DETAILS

TST, INC.

CONSULTING ENGINEERS

748 Whalers Way

Suite 200 Fort Collins

Colorado 80525

Phone: 970.226.0557

JOB NO.

1244.0001.00

SCALE

NTS

DATE

JUNE 11, 2021

SHEET

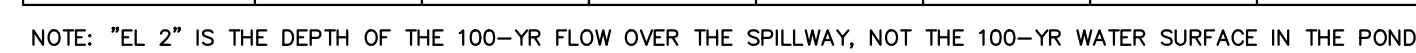
34 of 38



## STANDARD CONSTRUCTION DETAILS

SHEET  
1 OF 2

NOTE: THIS TABLE REFERS TO THE ABOVE "DETENTION POND OUTLET" CONSTRUCTION DETAIL



## SPILLWAY DETAIL



NOTES:

1. ALL METAL PARTS SHALL BE STAINLESS STEEL, ALUMINUM, OR STEEL. STEEL SHALL BE HOT DIP GALVANIZED AND MAY BE PAINTED AFTER GALVANIZING.
2. MINIMUM CONCRETE MIX SHALL BE 5 1/2 SACK, 3000 PSI. CONCRETE TO BE REINFORCED WITH #4 BARS 12" O.C. EACH DIRECTION. 1" CHAMFER ON ALL EXPOSED CORNERS OF WALLS.

**TOWN  
OF  
WINDSOR  
COLORADO**

## DETENTION POND OUTLET -TYPE D

## STANDARD CONSTRUCTION DETAILS

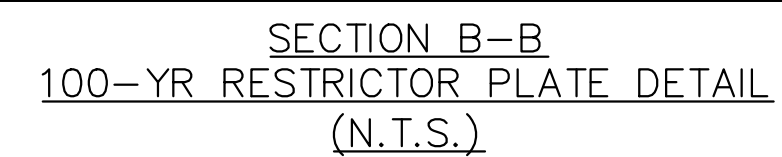
APPROVED:  
DATE: 12-7-05  
DRAWN BY: WRA

SCALE:  
N.T.S.

SHEET  
2 OF 2



POND	A	B	C	D	E	NUMBER OF ROWS	NUMBER OF COLUMNS
PROPOSED	2.00"	6.04"	3.60'	2.50'	1.50'	5	1



OWN	MPG
CKED	JFS
IGNED	JAZ
NAME	0001_DETAILS



**EAST LOVELAND INDUSTRIAL 26TH SUBDIVISION**

## CONSTRUCTION DETAILS



**TST, INC.**  
CONSULTING ENGINEERS  
748 Whalers Way  
Suite 200 Fort Collins  
Colorado 80525  
Phone: 970.226.0557

NO.	1244.0001.00
-----	--------------

NTS
-----

TE JUNE 11, 2021

HEET