



Development CITY OF AUSTIN
SERVICES DEPARTMENT

Building a Better and Safer Austin Together

Environmental Inspections

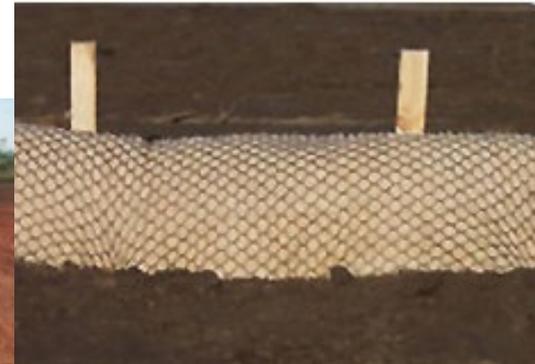
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David Chapman

Environmental Division Manager

Objective

- **Erosion and Sediment Control (ESC)**
- **Types of ESC's**
- **Inspection & Enforcement**
- **Resources & Reference**



Erosion & Sediment Controls

What are Erosion and Sediment Controls?

- Temporary Erosion and Sediment Control (ESC) is the practice of preventing or reducing the movement of sediment from a site during construction through the implementation of man-made structures, land management techniques, or natural processes.
- ESC's are installed at the perimeter of the construction site.

Rainfall Design



MuniCode 2.3.0 Drainage Criteria Manual

Figure 2-2: City of Austin Study Area Map

Table 2-1A, Depth-Duration-Frequency Values (Zone 1)

Duration	Depth of Precipitation (inches) by Recurrence Interval							
	2-yr.	5-yr.	10-yr.	25-yr.	50-yr.	100-yr.	200-yr.	500-yr.
5-min.	0.53	0.67	0.80	0.98	1.12	1.28	1.45	1.68
15-min.	1.06	1.35	1.60	1.96	2.24	2.54	2.87	3.34
30-min.	1.49	1.90	2.25	2.75	3.13	3.54	4.01	4.69
1-hr.	1.96	2.51	2.99	3.66	4.19	4.77	5.45	6.45
2-hr.	2.42	3.15	3.82	4.81	5.63	6.57	7.65	9.27
3-hr.	2.70	3.54	4.34	5.55	6.60	7.81	9.21	11.31
6-hr.	3.17	4.20	5.21	6.78	8.17	9.79	11.65	14.48
12-hr.	3.64	4.84	6.02	7.85	9.47	11.37	13.58	16.94
24-hr.	4.14	5.51	6.84	8.90	10.69	12.80	15.27	19.05

Table 2-1B, Depth-Duration-Frequency Values (Zone 2)

Duration	Depth of Precipitation (inches) by Recurrence Interval							
	2-yr.	5-yr.	10-yr.	25-yr.	50-yr.	100-yr.	200-yr.	500-yr.
5-min.	0.52	0.66	0.79	0.96	1.11	1.26	1.43	1.66
15-min.	1.05	1.32	1.57	1.92	2.21	2.51	2.84	3.29
30-min.	1.48	1.87	2.20	2.69	3.08	3.50	3.96	4.62
1-hr.	1.94	2.46	2.91	3.58	4.11	4.70	5.36	6.32
2-hr.	2.39	3.08	3.72	4.68	5.49	6.40	7.43	8.97
3-hr.	2.65	3.46	4.23	5.40	6.41	7.56	8.89	10.86
6-hr.	3.11	4.10	5.08	6.57	7.89	9.41	11.16	13.80
12-hr.	3.57	4.73	5.86	7.60	9.12	10.90	12.96	16.10
24-hr.	4.06	5.38	6.65	8.59	10.28	12.23	14.54	18.05



Types of ESC's

Common types of ESC's used within the City of Austin include (refer to MuniCode for design standards and allowances):

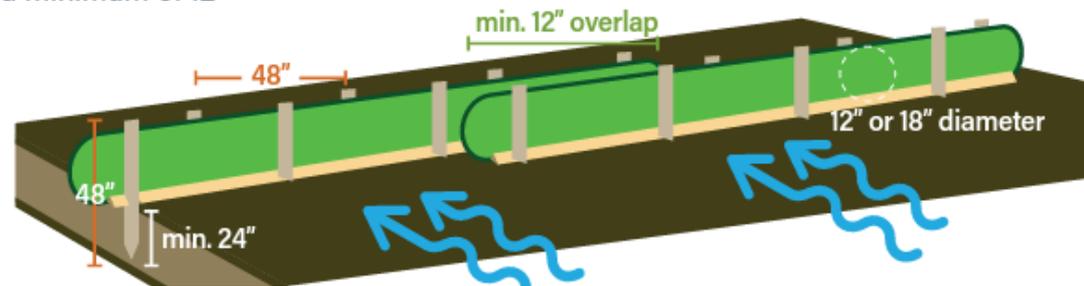
1. Mulch Socks
2. Silt Fence
3. Triangular Sediment Filter Dike



Mulch Socks

Mulch Socks: A mulch sock consists of material encased in a 12" or 18" diameter tube of mesh and provides an environmentally-sensitive alternative to silt fencing.

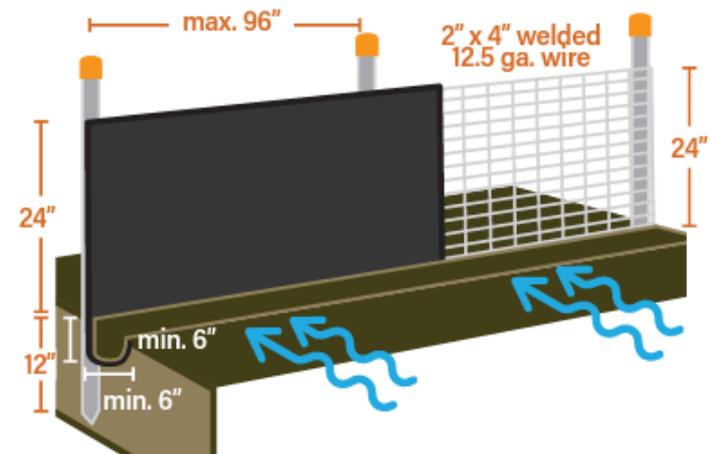
- Mulch material may consist of shredded bark, stump grindings and/ or composted bark and should be produced from a 3" minus screening process. Do NOT use HAY/STRAW!
- Ends of adjacent socks should overlap a minimum of 12"
- Install using steel or wood posts (48" minimum) placed on 4 ft. (48") centers driven at least 24" into the ground on alternating sides of the sock
- Mulch socks should not be used on slopes greater than 2:1 or in concentrated flow area



Silt Fence

Silt Fence: A non-woven fabric filter material supported by welded wire fabric (WWF, 2"x 4", 12.5 gauge wire) anchored by 4 ft. (48") steel or wood posts.

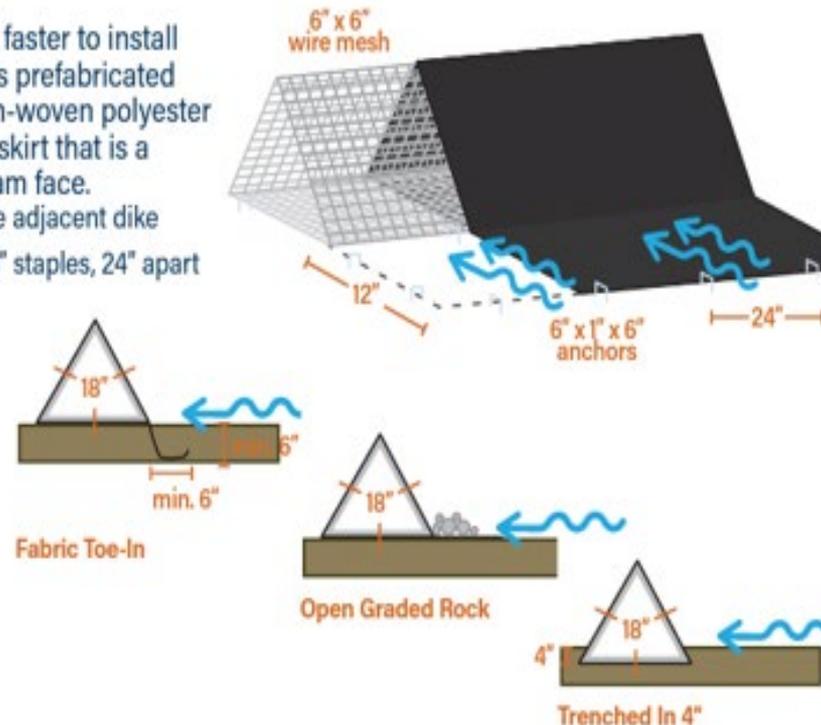
- Silt fence must be at least 24" high with fabric facing towards the anticipated flow
- Posts must be embedded at least 12" in the ground and no more than 8 ft. (96") apart
- Bottom 12" flap of filter fabric should be trenched 6" in the ground
- When installed on impervious cover, the bottom flap should be extended upstream
- Vertical joints should overlap at least 12"
- The end of the silt fence should turn back in a 'hook'
- Long sections of silt fence should incorporate J-hooks as needed to capture sediment uphill, especially on slopes



Triangular Sediment Dike

Triangular Sediment Filter Dike: Typically easier and faster to install than other ESCs, a Triangular Filter Dike (or Tri-Dike) is prefabricated from 6x6-D2.9xD2.9 welded wire mesh and 4.5 oz. non-woven polyester filter fabric fastened to welded wire mesh. It has a 12" skirt that is a continuous extension of the filter fabric on the upstream face.

- Dikes are placed in a row with ends tightly abutting the adjacent dike
- Each filter dike and skirt are anchored in place using 6" staples, 24" apart maximum
- The skirt may be trenched in:
 - with 6" minimum (see Fabric Toe-In illustration)
 - weighted down with a continuous layer of 3-5" open graded rock or with sand/gravel bags placed 18" on center (see Open Graded Rock illustration)
 - the entire structure can also be trenched in 4" (see Trenched in 4" illustration)



Innovative Designs



Tree Protection

CONTROLS: TREE PROTECTION

Protecting a tree's Critical Root Zone (CRZ) is crucial for tree survival during construction or demolition. All trees measuring 19" or greater in diameter (60" in circumference) are classified as protected and require a permit before construction or demolition. These CRZ protections also apply to any trees extending onto a property from neighboring properties.

Tree Measuring Tips

Measure the trunk at 4.5 ft. above the ground to find the tree's diameter.

- **Misshapen or Swollen Trunk:** if the bend or swell is on the trunk at 4.5 ft. from the ground, measure just below the distortion
- **Multi-Trunk:** add the total diameter of the largest trunk to half the diameter of each additional trunk

CRZ Calculating Guidelines

Each inch of the tree's diameter = 1-foot radius of the full CRZ.

- Example: 20" diameter = 20 ft. radius, place fencing 20 ft. from all points of the tree

Full CRZ Protection

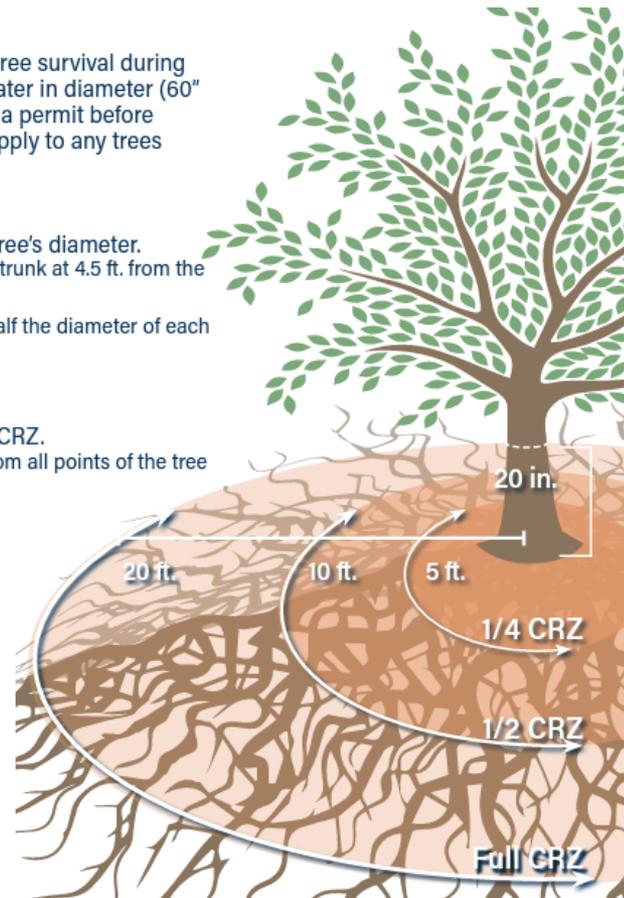
- Apply 8" of hardwood mulch within the entire Full CRZ
- Place 5 ft. tall chain-link fencing around the entire Full CRZ

1/2 CRZ Protection

- Apply 8" of hardwood mulch within the entire Full CRZ
- Fence as much of the Full CRZ as possible
- If fencing cannot be put around the Full CRZ, fencing can be pulled back but cannot cross into the 1/2 CRZ

1/4 CRZ Protection

- Apply 8" of hardwood mulch within the entire Full CRZ
- NO IMPACTS are allowed in the 1/4 CRZ
- Vertically strap 2"x4"x6' or greater size lumber around the tree itself in areas where fencing is not an option
- Confirm with your inspector before installing protective planks in lieu of fencing



Inspection & Enforcement

- Routine Inspections
 - Residential = 1201
 - Commercial = 1285
- Called Inspections
 - Average 550 Residential Tree Inspections Monthly
 - Average 5 more inspections per month from last year
 - Average 801 Residential EV Inspections Monthly
 - Average 492 more inspections per month from last year
- Enforcement of Non-Compliance
 - 311 Complaints
 - 496 Total Complaints (117 Complaints lower then last year)
 - Emails
 - Phone calls
- Weather Event Inspections
 - Hot Spots



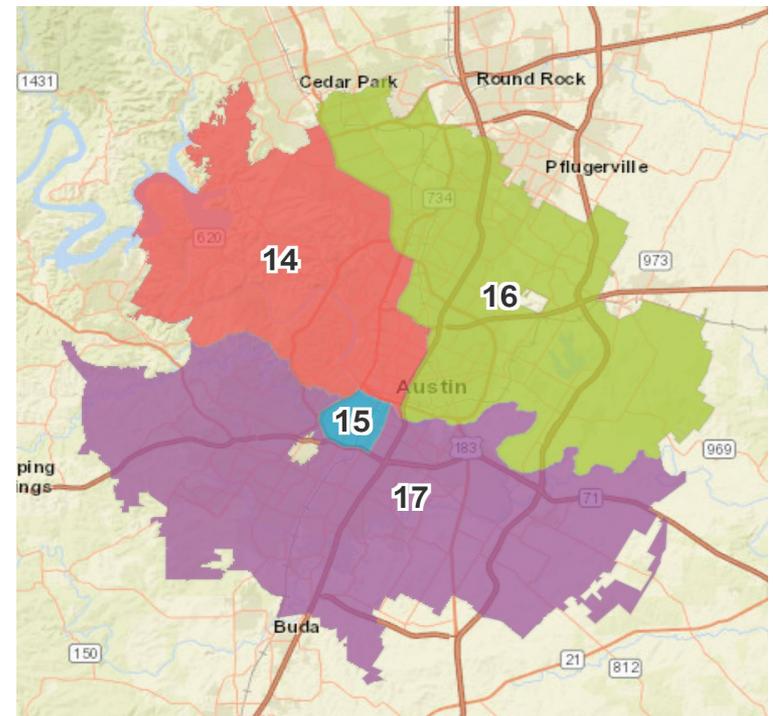
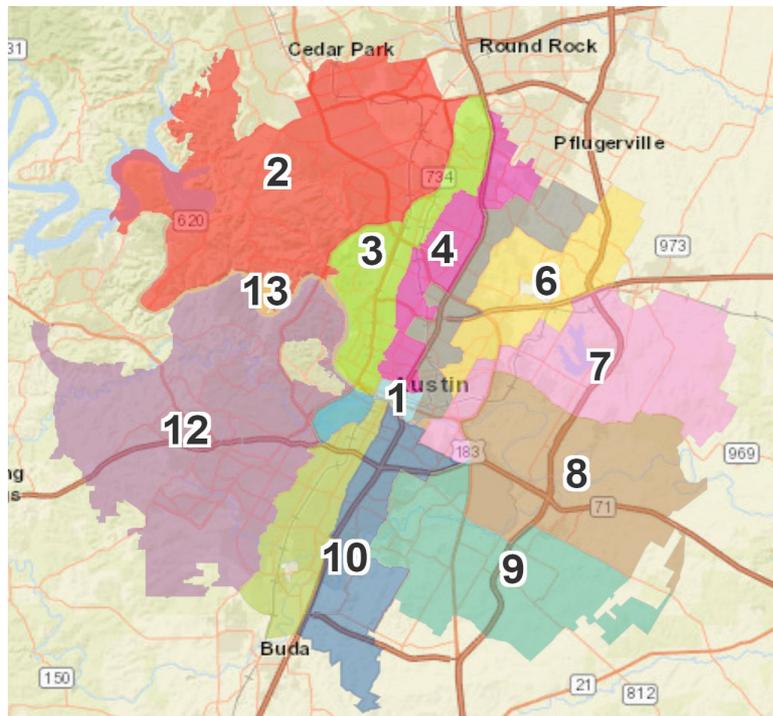
Enforcement of Non-Compliance

1. MuniCode Section 25-1-441, city inspector is responsible for environmental regulations and can take enforcement action for non-compliance with erosion and sedimentation requirement on a project site.
2. Enforcement Process:
 1. Verbal – projects with required development permit/site plan where routine inspections reveal inadequacies in the controls, a verbal warning to the responsible personnel at the site is issued. – 1238 FY21 , 874 FY20
 2. Written – 24 hours from the verbal warning, the deficiencies are not corrected, the inspector may deliver a written notice of non-compliance. – 134 FY21, 182 FY 20
 3. Stop Work Order –24 hours, the deficiencies are not corrected, the inspector can issue a Stop Work Order to stop work on the project until the deficiencies are corrected. – 15 FY21, 33FY20
3. If the contractor complies with the verbal stop-work order and immediately institutes corrective measures in the area of the job violation, the inspector will not issue a Stop Work Order. If the work in violation is not stopped and corrective measures are not taken, the inspector may issue a Citation or Stop Work Order. – 4 FY21, 1 FY20



Inspection Territories

[Environmental Inspections | AustinTexas.gov](http://AustinTexas.gov)



Resources & Reference

- [Tree Ordinance Review Process](#)
 - [Tree Protection and Erosion/Sedimentation Controls Flowchart](#)
 - [Water Quality & Drainage Review](#)
 - [TITLE 6. - ENVIRONMENTAL CONTROL AND CONSERVATION.](#)
 - [1.4.0 - EROSION AND SEDIMENTATION CONTROL CRITERIA](#)
 - [APPENDIX P-1 - EROSION CONTROL NOTES](#)
 - [APPENDIX P-8 - INSPECTION REPORT](#)
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- [Environmental Commission](#)
 - [Environmental Inspections](#)
 - [Watershed Protection](#)
 - [Community Tree Preservation](#)
 - [Map View - Stream Flow and Weather \(lcra.org\)](#)





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