

CHAPTER 5

GREENWAYS, DRAINAGE CORRIDORS & FACILITIES

A. CHAPTER OVERVIEW

Greenways, landscape drainage corridors and drainage facilities create a continuous pedestrian landscape corridor system throughout the Plan Area, providing an alternative to traditional pedestrian access routes such as street sidewalks. This creates a unique and distinctive element within the community. These areas include greenways, as well as drainage areas such as the Major Drainage Channel (Shed C Channel), Drainage Basins and Joint Use Park/Drainage Facilities. Greenways, as well as landscape drainage corridors and facilities, are designed to be an integral part of the community, not independent elements within it. These areas provide permanent open space, trail systems and extensive landscape corridors and pedestrian connections. Together, these elements create communities that are compact in scale and easily walkable, linked by an extensive network of multi-use trails. Specifically within the drainage areas, a design emphasis has been placed on the idea of a safe and usable pedestrian environment, which accentuates nature and the surrounding environment.

CHAPTER 5

GREENWAYS, DRAINAGE CORRIDORS & FACILITIES

CHAPTER OVERVIEW

As all landscape areas within greenways and drainage areas shall be considered public improvements, the trail system design, landscape amenities, site furnishings and materials within all greenways and drainage corridor and facilities shall comply with all City requirements and be approved by both the Consumnes Community Services District (CCSD) and the City. Additionally, all plantings within any greenway or drainage corridor and facilities must be approved by the CCSD and the City. Traditional recreation parks are not included in this Manual, as these areas have very specific requirements as set forth by the CCSD. The user shall refer to the CCSD for all recreation park design requirements.



B. GENERAL STANDARDS & REFERENCE ITEMS

1. General Landscaping Standards

The following is a list of general landscaping requirements for all Greenways, Drainage Corridors and Drainage Facilities:

1. All Greenways shall be 40' wide minimum, unless a variance to this requirement is allowed by the City.
2. Either low pilasters with split rail fence, and/or park bollard shall be located at the pathway entrance to all greenways, drainage corridors and drainage facilities connecting from a perpendicular street as determined by the City.
3. Colored asphalt enhanced paving crosswalks shall be located at specific street crossings with pathway connections, as determined by the City.
4. As determined by the City and CCSD, pathways shall be constructed out of:
 - Asphalt paving with a 2' wide decomposed granite shoulder on both sides (2) of the pathway. The shoulder shall be edged with a redwood headerboard.
 - Concrete paving with a 2' wide decomposed granite shoulder on one side (1) of the pathway. Depending on the site's grading, the shoulder shall be edged with either City of Elk Grove Type 3 Curb or concrete mowstrip.
 - Concrete paving (for minor short connections only)

All Greenway, Drainage Corridors and Drainage Facilities pathway, shoulder, and shoulder edging shall be reviewed and approved by the City and CCSD.
5. Site furniture and amenities shall include, but not limited to, benches, trash receptacles, drinking fountains, bike racks, dog waste stations, post & cable fences, split rail fences, and informational kiosks.
6. Pedestrian scale lighted bollards with lamp deflectors shall be located throughout Greenways, Drainage Corridors and Facilities. Lighted bollards shall be placed along the pathway, and situated to prevent light from shining directly into adjacent land uses. Spacing and foot-candle requirements shall be determined by the Electrical Engineer and approved by the City.
7. Where open view fencing or open view fencing with low wall separates the greenway from any other land use, community pilasters shall be located at the beginning and terminus of open view fences, and any change of fence direction. Community pilasters at open view fences shall occur +/- every 100', or closest proximity thereof. Community pilasters at open view fences shall also occur where a open view fence intersects with each single family residential lot.
8. Where open view fencing or open view fencing with low wall separates the landscape corridor abutting the Greenways, Drainage Corridor and Drainage Facilities from any other land use, community pilasters shall be located at the beginning and terminus of open view fences, and any change of fence direction. Pilasters at open view fences shall occur +/- every 100', or closest proximity thereof. Pilasters at open view fences shall also occur where a open view fence intersects each land use and separate lot within the land use.
9. Post and cable fence shall be located at each property line adjacent to Drainage Corridors and Drainage Facilities.
10. Greenways shall be separated by a community wall with community pilasters or open view fence with community pilaster as determined by the City.

CHAPTER 5

GREENWAYS, DRAINAGE CORRIDORS & FACILITIES GENERAL STANDARDS & REFERENCE ITEMS

11. Informational Kiosks are located throughout the Plan Area within greenways, landscape drainage corridors and drainage facilities. Informational Kiosk type and content shall be determined and approved by the City and CCSD. (Refer to Chapter 4)
12. Landscaping grading and slopes shall not exceed 5:1 for turf areas and 4:1 for planting areas (except at Detention Basin and Major Drainage Channel Side Slopes). If Landscaping grading or slopes exceed these ratios, a split face keystone retaining wall shall be required. All retaining walls shall be reviewed and approved by the City and CCSD. Steeper grades are permitted within the Detention Basin and Major Drainage Channel Side Slopes, however maximum slopes must be reviewed and approved by the City and CCSD.
13. The planting design shall be subject to the most current City of Elk Grove Model Water Efficient Landscape Ordinance (MWELO). Turf in Greenways, Drainage Corridors and Drainage Facilities is permitted as long as the requirements of the MWELO are met.
14. Plantings in Greenways shall include shade trees in informal plantings, as well as turf, groundcover and evergreen shrub massing along property lines. Additionally, vines shall be located at 10'-0" on center spacing along any community walls.
15. Planting outside of drainage areas shall include shade trees in informal plantings, as well as turf, groundcover and evergreen shrub massings throughout the landscape area and along property lines. The plant palette outside the drainage areas shall be consistent with the landscape concept of the community and as required in the General Landscape Plant Palette. The drainage areas shall be planted with acceptable trees, groundcover and grasses as required in the Drainage Areas Plant Palette.
16. Grasses and groundcovers within the Major Drainage Channel, Drainage Basin and Detention Facilities shall be a seed mix, installed by hydroseed. Seed quantity, including pounds of seed per acre, and the exact hydroseed method of installation, shall be determined by the City other required government agencies.
17. All grasses, including native grasses, outside of the drainage areas shall be either 1 gallon containers, plugs, hydroseed or sod to be determined by the City.
18. When a particular size plant is specified across large sections of greenway/drainage corridor and facilities (i.e. medium shrub), the landscape architect shall use alternating groupings of plants from that specific section of the General Landscape Plant Palette (refer to Chapter 6) to achieve a planting design that has different genus and species along the entire streetscape. This shall be done to prevent a monolithic plant palette extending along the entire greenway/drainage corridor and facilities.
19. Secondary or accent trees located within the streetscape landscape area (not medians) or greenways shall occur in informal groupings of three or five trees of the same species, planted between the sidewalk and adjacent land use property line. Mixed massings of flowering trees and evergreen species are encouraged.
20. Secondary or accent trees shall be a combination of deciduous and evergreen trees for purposes of screening and creating seasonal change. A minimum of 30% of the street trees and secondary or accent trees shall be evergreen species.
21. All trees shall be 15 gallon minimum, one-third of all trees shall be 24" box or larger.
22. All shrubs shall be 5 gallon minimum. Plants that are not commercially available in a 5 gallon size, may be substituted for a 1 gallon size.

23. All groundcover shall be a minimum of 1 gallon. Groundcovers that are not commercially available in a 1 gallon size, may be substituted for flats of up to 64 plants. Root cuttings from plants shall not be located greater than 12 inches on center spacing. Containerized 1 gallon groundcover plants shall not be located greater than 3' on center spacing.
24. A 3" layer of walk-on type bark mulch shall be located in all planter areas around trees, shrubs and groundcover within all greenways, drainage corridors and drainage facilities. Bark mulch shall not be used on any drainage side slopes and drainage low-flow areas.
25. All trees planted within 10 feet of a street, sidewalk, paved trail, walkway or plaza element shall be separated by a root barrier to prevent damage to public improvements. This root barrier must be installed at time of planting of the tree. (Refer to Chapter 4)
26. A minimum distance of 15' is required between the center of a tree and all light standards.
27. All shrubs and trees shall comply with the City's site visibility requirements and the view triangle requirements.
28. Plantings of shrub massings shall be in large groupings, layered to provide visual interest. Variety in height is encouraged. Multiple rows of layered plantings are encouraged where space is adequate.
29. Parks located within the Plan Area are not included in this manual, as these areas have very specific requirements as set forth by the CCSD. The user shall refer to the CCSD for all recreation park design requirements. For more information regarding all park requirements within the Plan Area, please contact the Cosumnes Community Services District, Parks and Recreation Department at (916) 405-5309.

2. Reference Items

Planting and Landscape

Refer to the following chapters of this Manual, as required.

1. Primary Street Tree (refer to Chapter 6)
2. Primary Greenway Trees (refer to Chapter 6)
3. Primary Drainage Area Trees (Refer to Chapter 6)
4. Secondary Greenway Trees (refer to Chapter 6)
5. Accent Tree (refer to Chapter 6)
6. Accent Drainage Areas Trees (refer to Chapter 6)
7. Large Shrub (refer to Chapter 6)
8. Medium Shrub (refer to Chapter 6)
9. Small Shrub (refer to Chapter 6)
10. Small Shrubs & Groundcover (refer to Chapter 6)
11. Sodded Turf (refer to Chapter 6)
12. Vine (refer to Chapter 6)
13. Native Grass Seed Mix (refer to Chapter 6)
14. Drainage Area Side Slopes Seed Mix (refer to Chapter 6)
15. Drainage Area Low Flow Bottom Seed Mix (refer to Chapter 6)
16. Landscaping (private landscaping designed by to the City's satisfaction and maintained by the landowner)

Hardscape and Amenities

Refer to the following chapters of this Manual, as required:

1. Street (refer to Chapter 2)
2. Pathway (use of Concrete or Asphalt to be determined by the City and CCSD). If concrete, score joints on-center spacing equal to width of sidewalk. Expansion joints spacing shall be as required per the Geotechnical Report. If no Geotechnical Report exists, expansion joints shall be every fourth score joint minimum. (Refer to geotechnical report for the Southeast Policy Area for paving thickness, reinforcement, etc.)
3. Scored Concrete Paving with 12" Accent Banding. If concrete, score joints on-center spacing equal to width of sidewalk. Expansion joints spacing shall be as required per the Geotechnical Report. If no Geotechnical Report exists, expansion joints shall be every fourth score joint minimum. (Refer to geotechnical report for the Southeast Policy Area for paving thickness, reinforcement, etc.)
4. Maintenance Road (use of Concrete or Asphalt to be determined by the City and CCSD). If concrete, score joints on-center spacing equal to width of sidewalk. Expansion joints spacing shall be as required per the Geotechnical Report. If no Geotechnical Report exists, expansion joints shall be every fourth score joint minimum. (Refer to geotechnical report for the Southeast Policy Area for paving thickness, reinforcement, etc.)
5. Shoulder. Material shall be 2' decomposed granite shoulder. Edging shall be as determined by the City and CCSD (refer to this chapter)
6. City of Elk Grove Type 3 Concrete Curb (refer to City of Elk Grove Standard Details)
7. Concrete Mowstrip (refer to City of Elk Grove Standard Details)
8. Redwood Headerboard (refer to City of Elk Grove Standard Details)
9. Colored Stamped Asphalt Enhanced Paving Crosswalks (refer to Chapter 2)
10. Community Wall with Community Pilaster (refer to Chapter 3)
11. Community Pilaster (refer to Chapter 3)
12. Low Pilaster (refer to Chapter 3)
13. Open View Fence (refer to Chapter 3)
14. Open View Fence with Low Wall (refer to Chapter 3)
15. Community Wood Fence (refer to Chapter 3)
16. Concrete Split Rail Fence (refer to Chapter 3)
17. Tubular Steel Fence with Accents (refer to Chapter 3)
18. Park Bollard. Stationary Bollard or Knock-down Bollard (refer to Chapter 3). Type shall be determined by City.
19. Post and Cable Fence (refer to Chapter 3)
20. Picnic Table - 6' Length (refer to Chapter 4)
21. Picnic Table - 8' Length (refer to Chapter 4)
22. Bench (refer to Chapter 4)
23. Trash Receptacle (refer to Chapter 4)
24. Drinking Fountain (refer to Chapter 4)
25. Lighted Bollard (refer to Chapter 4)
26. Bike Rack (refer to Chapter 4)
27. Informational Kiosk (refer to Chapter 4)
28. Tree Root Barrier (refer to Chapter 4)
29. Dog Litter Bag Dispenser (refer to Chapter 4)
30. Vehicular Bridge (refer to Chapter 4)
31. Land Uses (refer to the SPA, Chapter 2 Land Plan)
32. Greenways, Drainage Corridors and Drainage Facilities (refer to the SPA, Chapter 4)

C. GREENWAYS, DRAINAGE CORRIDORS & FACILITIES PLAN/SHARED-USE PATH PLAN

The Greenways, Drainage Corridors & Facilities Plan/Shared-Use Path Plan illustrates the approximate location in which greenways, drainage corridors, and drainage facilities exist within the Plan Area. This plan also shows the approximate locations of shared-use paths (a path that accommodates bicycle and pedestrian traffic) and how these paths connect and provide access within the Plan Area. Final location to be determined by City.



CHAPTER 5

GREENWAYS, DRAINAGE CORRIDORS & FACILITIES GREENWAYS, DRAINAGE CORRIDORS & FACILITIES

D. GREENWAYS, DRAINAGE CORRIDORS & FACILITIES

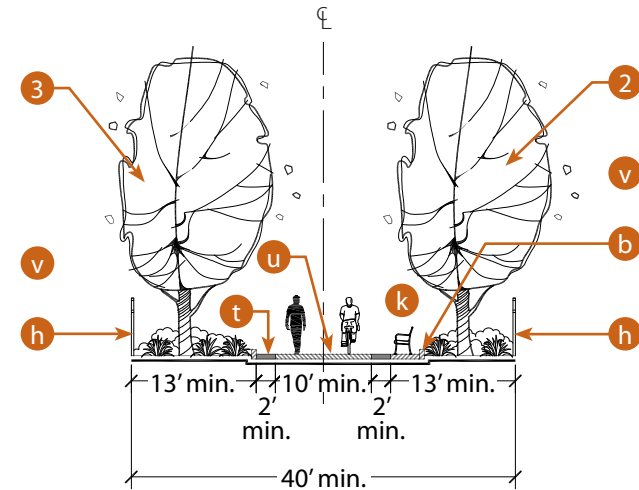
1. Greenways

Greenways create a pedestrian scale environment that interconnects the communities within the Plan Area. As linear extensions of the neighborhoods, land uses and parks, these greenway corridors provide passive and active recreational uses. Landscape amenities and site furnishings shall be located throughout greenways, emphasizing the pedestrian scale environment through these corridors. Additionally, greenways provide an excellent opportunity for extensive tree plantings. Tree plantings shall be located in informal groves to reinforce a park-like quality. Finally, the plant palette within greenways shall be consistent with the landscape concept of the community. Refer to Greenways Sections and Plan in this chapter for more information.

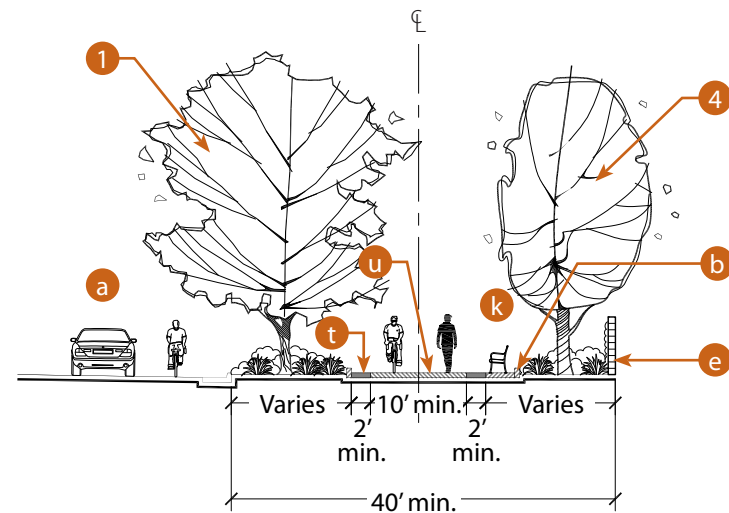
Design Elements

Refer to General Standards & Reference Items section this chapter for more information

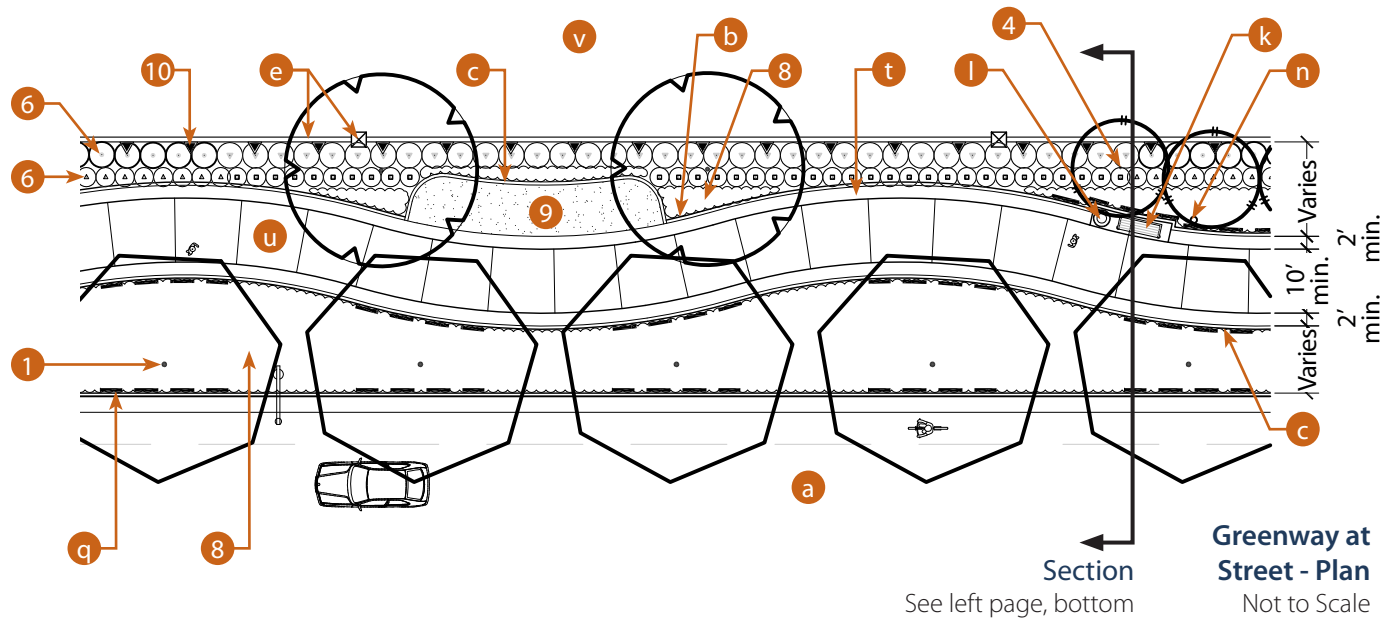
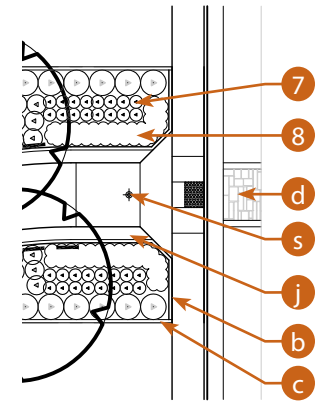
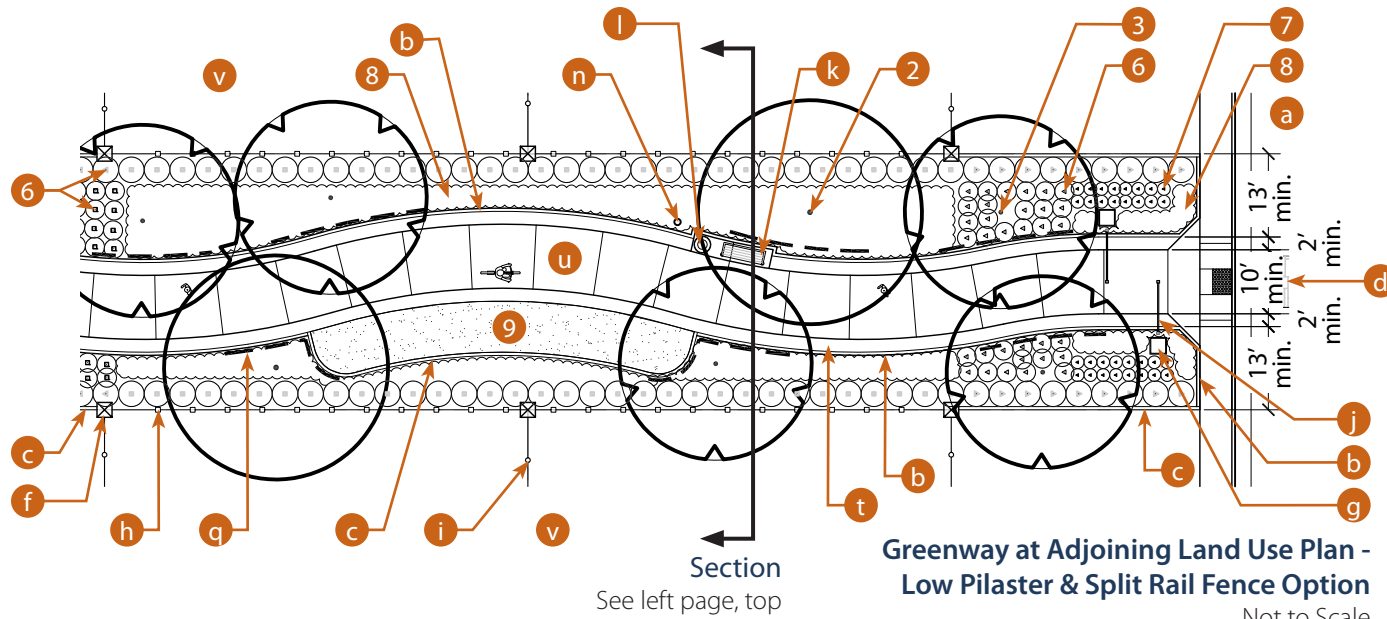
- | | | |
|-------------------------------|---|---|
| 1. Primary Street Tree | a. Street | l. Trash Receptacle |
| 2. Primary Greenway Tree | b. City of Elk Grove Type 3 Concrete Curb | m. Drinking Fountain (not shown) |
| 3. Secondary Greenway Tree | c. Concrete Mowstrip | n. Lighted Bollard |
| 4. Accent Tree | d. Colored Asphalt Enhanced Paving | o. Bike Rack (not shown) |
| 5. Large Shrub (not shown) | e. Community Wall with Community Pilasters | p. Informational Kiosk (not shown) |
| 6. Medium Shrub | f. Community Pilaster | q. Tree Root Barrier |
| 7. Small Shrub | g. Low Pilaster | r. Dog Litter Bag Dispenser (not shown) |
| 8. Small Shrubs & Groundcover | h. Open View Fence or Open View Fence with Low Wall | s. Park Bollard |
| 9. Sodded Turf | i. Community Wood Fence | t. Shoulder |
| 10. Vine | j. Concrete Split Rail Fence | u. Pathway |
| | k. Bench | v. Land Use (varies (refer to the SPA, Chapter 2) |



Greenway at Adjoining Land Use
Section - Not to Scale



Greenway at Street
Section - Not to Scale



CHAPTER 5

GREENWAYS, DRAINAGE CORRIDORS & FACILITIES GREENWAYS, DRAINAGE CORRIDORS & FACILITIES

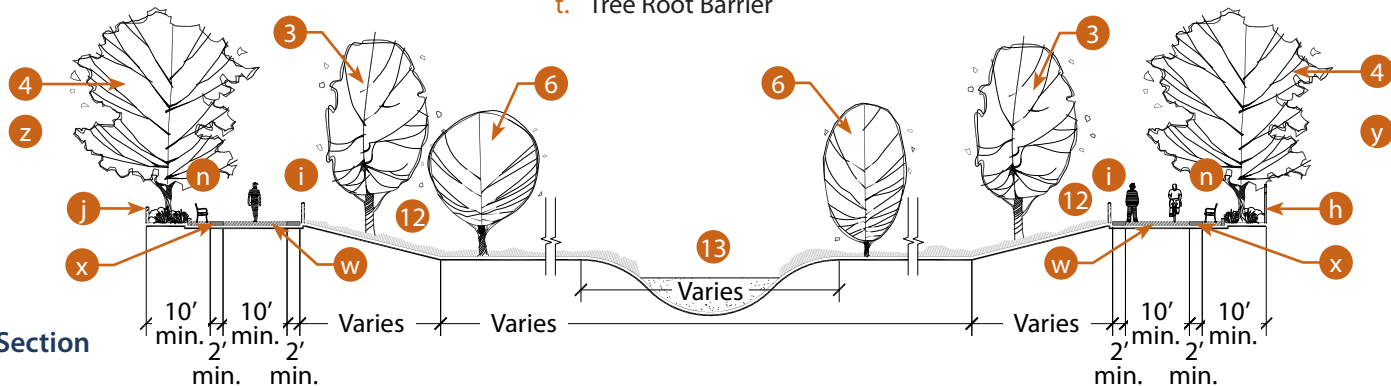
2. Major Drainage Channel

The Major Drainage Channel (Shed C Channel) is the primary conveyance facility for stormwater drainage throughout the Plan Area. It also includes a landscaped corridor on at least one side of the channel, with a trail that can double as a maintenance access road. The Major Drainage Channel serves a functional purpose, but is also part of the overall circulation plan and therefore shall be landscaped to help screen and accentuate elements of the drainage channel, creating more of a greenway setting. Additionally, these areas may provide active recreation uses, as well as passive pedestrian and bicycle uses. Landscape amenities and site furnishings shall be located throughout the passive pedestrian uses, creating a pedestrian scale environment through drainage areas. Tree plantings shall be located outside of the drainage areas in informal groves to reinforce a park-like quality. Additionally, the plant palette outside the drainage channel shall be consistent with the landscape concept of the community and the greenways. The drainage channel (including side slopes) shall be planted with acceptable plant material including trees, groundcover and grasses as required in the Drainage Facilities Plant Palette (refer to Chapter 6). Refer to Major Drainage Channel Section and Plan in this chapter for more information.

Design Elements

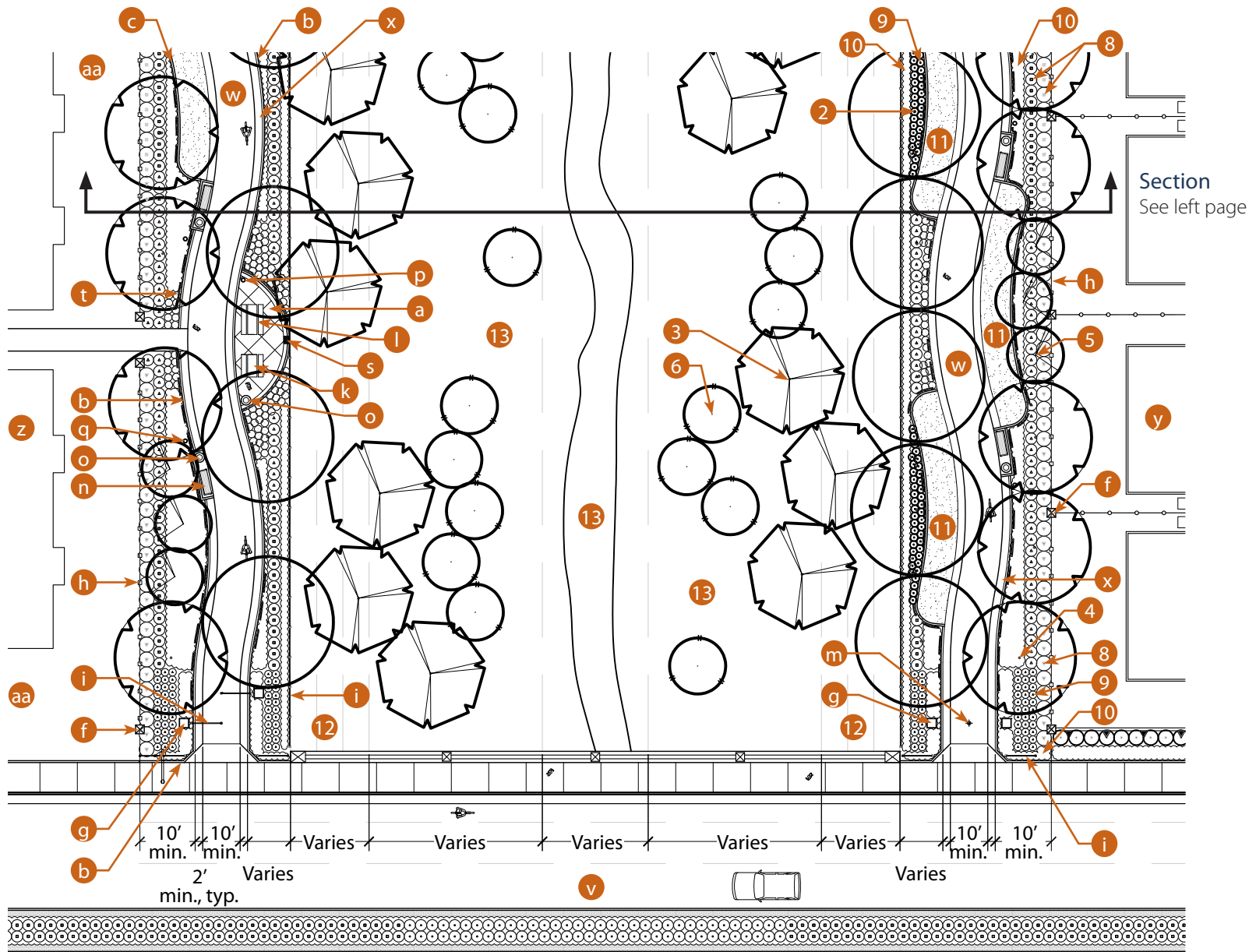
Refer to General Standards & Reference Items section this chapter for more information

- | | | | |
|--|---|-------------------------------------|---|
| 1. Primary Street Tree (not shown) | a. Scored Concrete Paving with 12" Accent Banding | i. Concrete Split Rail Fence | u. Dog Litter Bag Dispenser (not shown) |
| 2. Primary Greenway Tree | b. City of Elk Grove Type 3 Concrete Curb | j. Post and Cable Fence (not shown) | v. Vehicular Bridge |
| 3. Primary Drainage Area Tree | c. Concrete Mowstrip | k. Picnic Table - 6' Length | w. Pathway |
| 4. Secondary Greenway Tree | d. Colored Asphalt Enhanced Paving Crosswalks (not shown) | l. Picnic Table - 8' Length | x. Shoulder |
| 5. Accent Tree | e. Maintenance Road (not shown) | m. Park Bollard | y. Residential Land Use (refer to the SPA, Chapter 2) |
| 6. Accent Drainage Area Trees | f. Community Pilasters | n. Bench | z. Office Land Use (refer to the SPA, Chapter 2) |
| 7. Large Shrub (not shown) | g. Low Pilaster | o. Trash Receptacle | aa. Landscaping |
| 8. Medium Shrub | h. Open View Fence or Open View Fence with Low Wall | p. Drinking Fountain | |
| 9. Small Shrub | | q. Lighted Bollard | |
| 10. Small Shrub & Groundcover | | r. Bike Rack (not shown) | |
| 11. Sodded Turf | | s. Informational Kiosk | |
| 12. Drainage Area Side Slope Seed Mix | | t. Tree Root Barrier | |
| 13. Drainage Area Low Flow Bottom Seed Mix | | | |



Major Drainage Channel - Section

Not to Scale



Note: This is a graphic representation of various land uses that exist along the Major Drainage Channel which may not actually occur. This graphic is for reference only.

Major Drainage Channel - Plan
Not to Scale

CHAPTER 5

GREENWAYS, DRAINAGE CORRIDORS & FACILITIES GREENWAYS, DRAINAGE CORRIDORS & FACILITIES

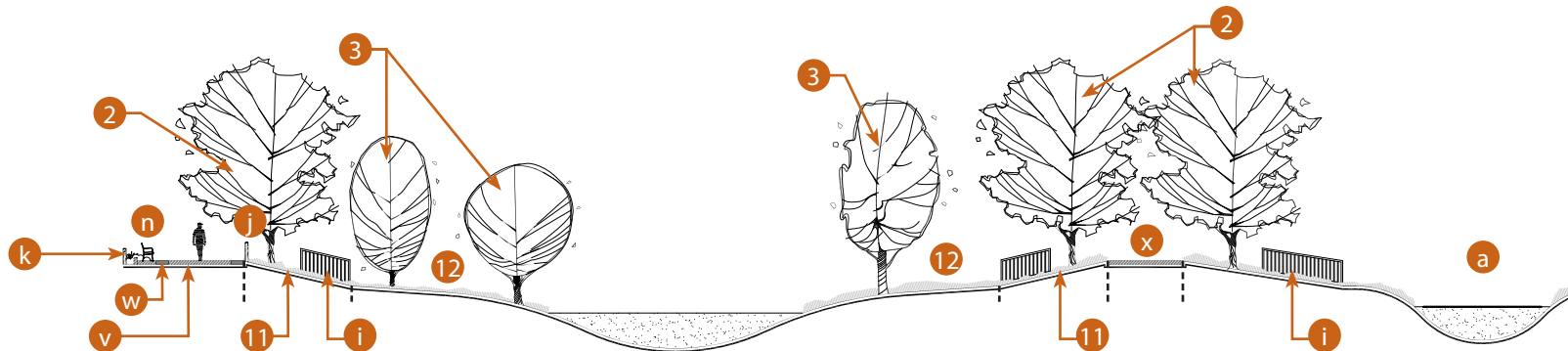
3. Detention Basin

Detention Basins are a stormwater storage facility that stores stormwater and gradually releases it into the major drainage channel. These drainage areas serve a functional purpose, but are also part of the overall circulation plan and therefore shall be landscaped to help screen and accentuate elements of the drainage areas, creating more of a greenway setting. Additionally, these areas may provide active recreation uses, as well as passive pedestrian and bicycle uses. Landscape amenities and site furnishings shall be located throughout the passive pedestrian uses, creating a pedestrian scale environment through drainage areas. Tree plantings shall be located outside of the drainage areas in informal groves to reinforce a park-like quality. Additionally, the plant palette outside the drainage areas shall be consistent with the landscape concept of the community. The drainage areas shall be planted with acceptable plant material including trees, groundcover and grasses as required in the Drainage Facilities Plant Palette (refer to Chapter 6). Refer to the Drainage Basin Section and Plan in this chapter for more information.

Design Elements

Refer to General Standards & Reference Items section this chapter for more information

1. Primary Greenway Tree
2. Primary Drainage Area Tree
3. Secondary Greenway Tree
4. Accent Tree
5. Accent Drainage Area Trees
6. Large Shrub (not shown)
7. Medium Shrub
8. Small Shrub (not shown)
9. Small Shrubs & Groundcover
10. Sodded Turf
11. Drainage Area Side Slope Seed Mix
12. Drainage Area Low Flow Bottom Seed Mix



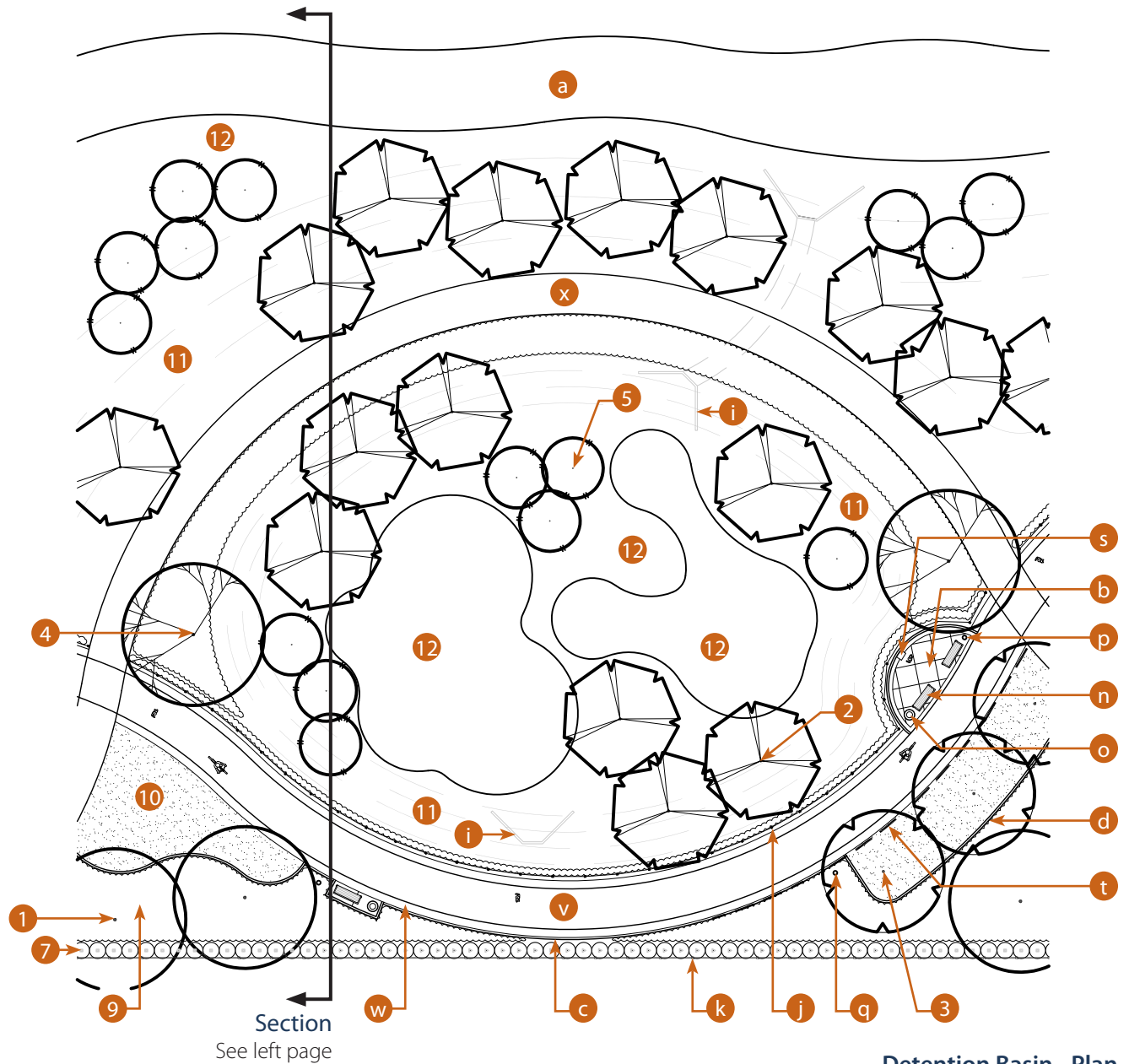
Detention Basin - Section

Not to Scale

Design Elements

Refer to General Standards & Reference Items section this chapter for more information

- a. Major Drainage Channel
- b. Scored Concrete Paving with 12" Accent Banding
- c. City of Elk Grove Type 3 Concrete Curb
- d. Concrete Mowstrip
- e. Colored Asphalt Enhanced Paving Crosswalks (not shown)
- f. Community Pilasters (not shown)
- g. Low Pilaster (not shown)
- h. Open View Fence or Open View Fence with Low Wall (not shown)
- i. Tubular Steel Fence with Accents
- j. Concrete Split Rail Fence
- k. Post and Cable Fence
- l. Picnic Table - 6' Length (not shown)
- m. Picnic Table - 8' Length (not shown)
- n. Bench
- o. Trash Receptacle
- p. Drinking Fountain
- q. Lighted Bollard
- r. Bike Rack (not shown)
- s. Informational Kiosk
- t. Tree Root Barrier
- u. Dog Litter Bag Dispenser (not shown)
- v. Pathway
- w. Shoulder
- x. Maintenance Road



Detention Basin - Plan
Not to Scale

CHAPTER 5

GREENWAYS, DRAINAGE CORRIDORS & FACILITIES GREENWAYS, DRAINAGE CORRIDORS & FACILITIES

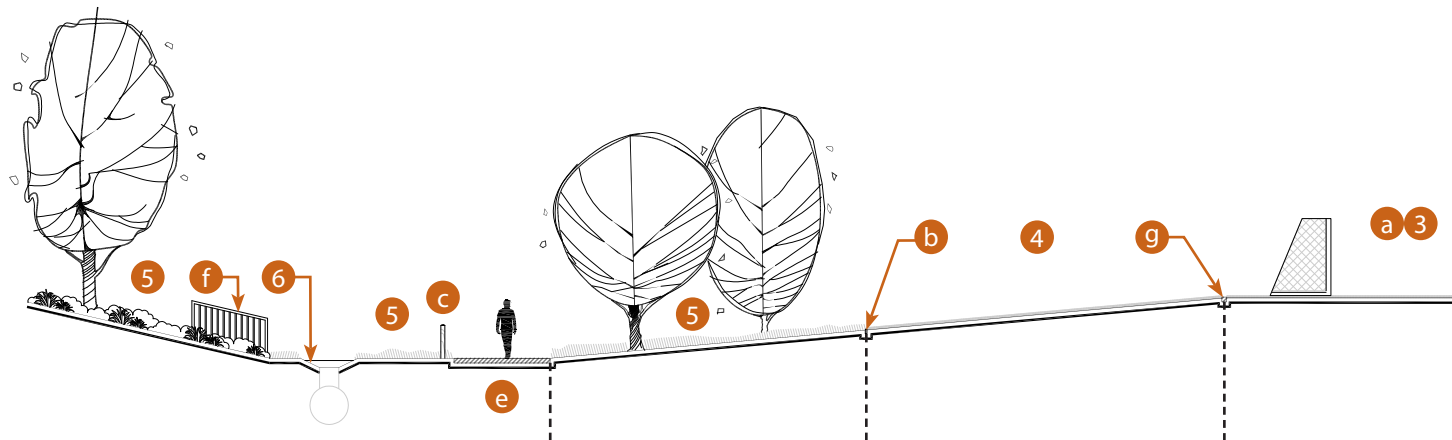
4. Joint-Use Park/Detention Facility

The Joint-Use Park/Drainage Facility is a stormwater storage facility that stores stormwater and gradually releases it into the major drainage channel. These drainage areas serve a functional purpose, but are also part of the overall circulation plan and therefore shall be landscaped to help screen and accentuate elements of the drainage areas, creating more of a greenway setting. Additionally, these areas may provide active recreation uses, as well as passive pedestrian and bicycle uses. Landscape amenities and site furnishings shall be located throughout the passive pedestrian uses, creating a pedestrian scale environment through drainage areas. Tree plantings shall be located outside of the drainage areas in informal groves to reinforce a park-like quality. Additionally, the plant palette outside the drainage areas shall be consistent with the landscape concept of the community. The drainage areas shall be planted with acceptable plant material including trees, groundcover and grasses as required in the Drainage Facilities Plant Palette (refer to Chapter 6). Refer to the Drainage Basin as well as the Joint-Use Park/Drainage Facilities Section and Plan in this chapter for more information.

Design Elements

Refer to General Standards & Reference Items section this chapter for more information

1. Primary Drainage Area Tree
2. Accent Drainage Area Trees
3. Sodded Turf
4. Native Grass Seed Mix
5. Drainage Area Side Slope Seed Mix
6. Drainage Area Low Flow Bottom Seed Mix



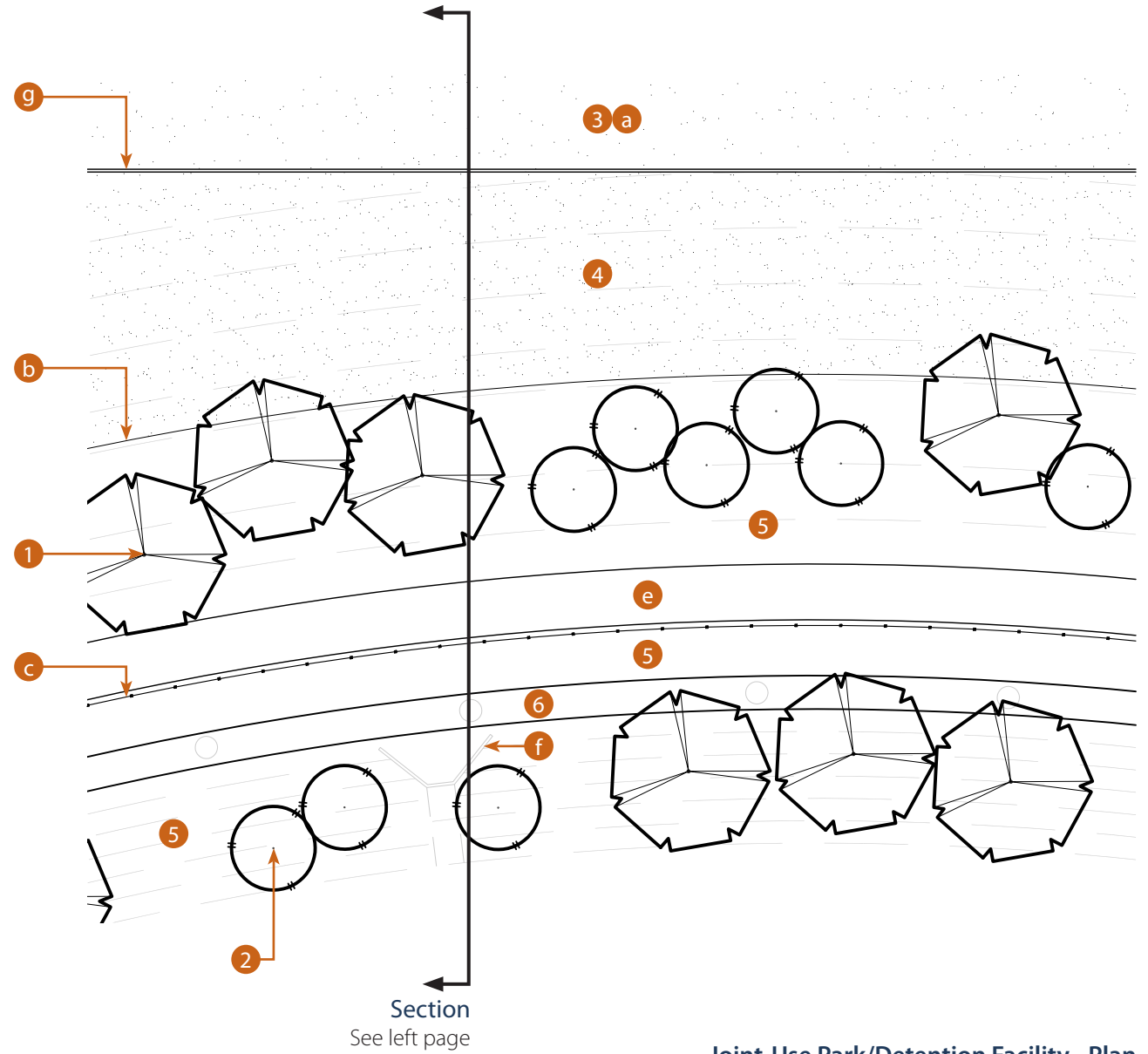
Joint-Use Park/Detention Facility - Section

Not to Scale

Design Elements

Refer to General Standards & Reference Items section this chapter for more information

- a. Park
- b. Redwood Headerboard
- c. Post and Cable Fence
- d. Dog Litter Bag Dispenser (not shown)
- e. Pathway
- f. Tubular Steel Fence with Accents
- g. Concrete Mowstrip



Joint-Use Park/Detention Facility - Plan
Not to Scale