Goleta Valley Beautiful Greenhouse and Growing Grounds Procedures:

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Description: Goleta Valley Beautiful

Goleta Valley Beautiful's purpose of growing mostly native trees is to support and enhance a healthy and expanding urban forest. The healthy growth of GVB's trees will ensure proper beautification of neighborhoods, businesses, and public spaces where grown trees are moved to. Through volunteer programs, Goleta Valley Beautiful inspires the beautification of the Goleta Valley by involving and educating the public.

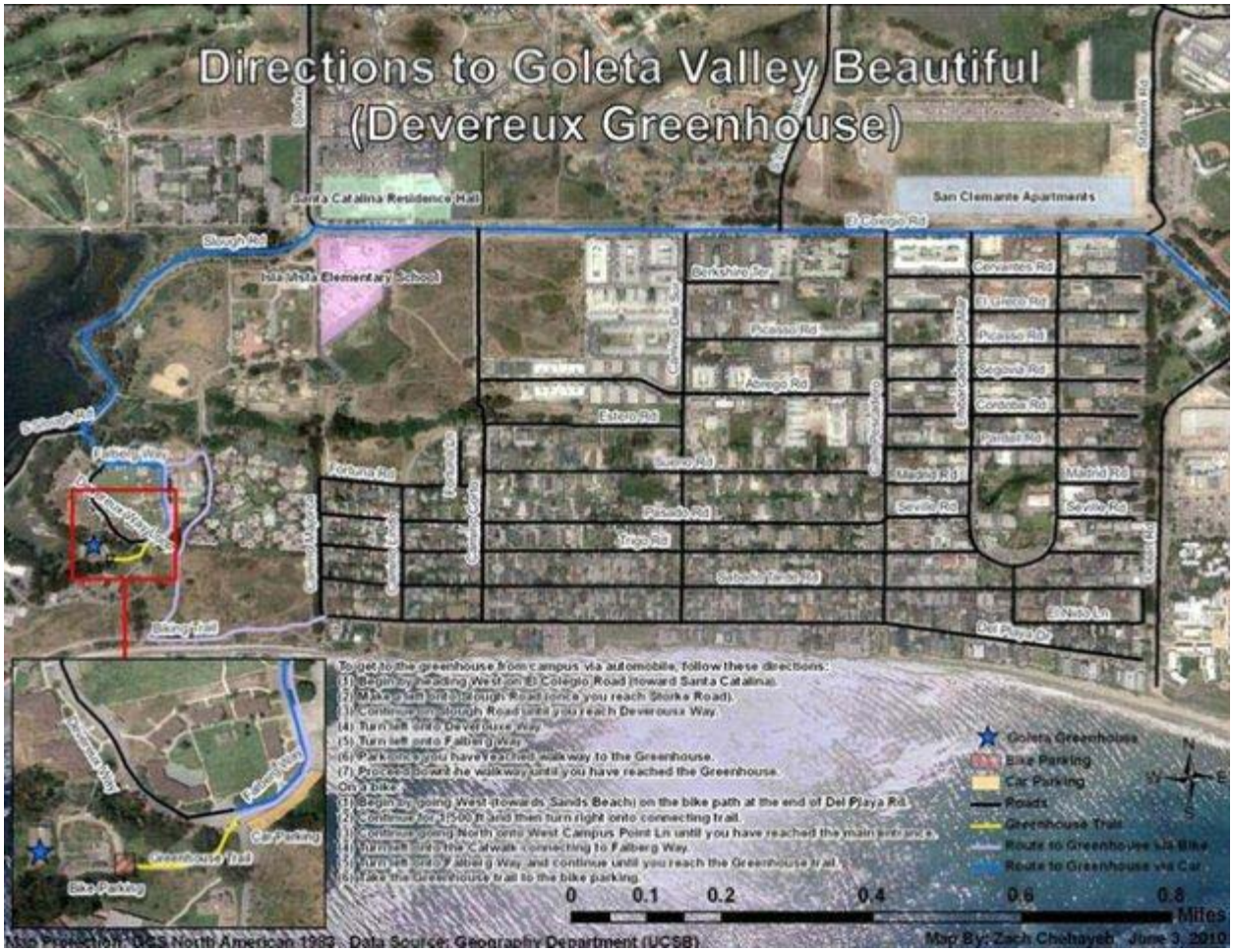
Highest Priority Programs:

- Community assistance such as the promotion of neighborhood programs/tree plantings, and the establishment and maintenance of entryways
- Public recognition through news articles, monthly awards, and the annual banquet
- Local government monitoring such as providing provide feedback to government agencies
- Community leadership:
  - Urban forest management planning
  - Establishing formal links with other nonprofits and beautiful organizations.

Orientation to the Growing Grounds and Greenhouse

How to get there by bike:
-Back gate

-How to get there by car:
1. Begin by heading West on El Colegio Road toward Santa Catalina
2. Make a left onto Slough Road once you reach Storke Road
3. Continue on Slough Road until you reach Devereux Way
3. Turn left onto Devereux Way
4. Turn left onto Falberg Way
5. UCSB parking permits required, although they have not been enforced to date. During day periods, you can park down the dirt road next to the storage area.


Directions to Goleta Valley Beautiful
(Devereux Greenhouse)
Santa Catalina Residence Hall
San Clemente Apartments
El Colegio Rd
Slough Rd
Isla Vista Elementary School
Berkshire Rd
Picasso Rd
Abrego Rd
Estero Rd
Cervantes Rd
Picasso Rd
Segovia Rd
Cordoba Rd
Pardall Rd
Madrid Rd
Seville Rd
Trigo Rd
Del Playa Dr
Faberg Way
Bike Parking
Car Parking
Greenhouse Trail
To get to the greenhouse from campus via automobile, follow these directions:
(1) Begin by heading West on El Colegio Road (toward Santa Catalina).
(2) Make a left onto Storke Road (once you reach Storke Road).
(3) Continue on Storke Road until you reach Devereux Way.
(4) Turn left onto Devereux Way.
(5) Turn left onto Faberg Way.
(6) Park once you have reached walkway to the Greenhouse.
(7) Proceed toward the walkway until you have reached the Greenhouse.
On a bike:
(1) Begin by going West (towards Sands Beach) on the bike path at the end of Del Playa Rd.
(2) Continue for 1,500 ft and then turn right onto connecting trail.
(3) Continue going North onto West Campus Point Ln until you have reached the main entrance.
(4) Turn left onto the catwalk connecting to Faberg Way.
(5) Turn left onto Faberg Way and continue until you reach the Greenhouse trail.
(6) Take the Greenhouse trail to the bike parking.
Goleta Greenhouse
Bike Parking
Car Parking
Roads
Greenhouse Trail
Route to Greenhouse via Bike
Route to Greenhouse via Car
N
W
E
S
0 0.1 0.2 0.4 0.6 0.8
Miles
Map Projection: UCS North American 1983 Data Source: Geography Department (UCSB)
Map By: Zach Chehayeb June 3, 2010

Task: Checking in

Purpose: Takes an account of the time and activity of each intern within the Greenhouse and/or Growing-grounds

Materials: Clipboard (in the GVB storage shed on the Growing Grounds)

Phone (to call Ken with any questions)

Steps:

1. Check the priorities sheet
    a. If there are any questions, call Ken
        i. Ken office: (805) 685-7910
        ii. Ken cell: (805) 252-1952
2. Observe anything that requires immediate attention
    a. If possible, fix the problem
        i. Make a note of necessary adjustments on the priorities sheet
    b. If there is any uncertainty concerning completion of the task, call Ken.
3. On the **Growing Grounds** (outside area):
    a. Remove full trash or recycle bags
        i. Tie shut and leave by the GVB sign at the entry gate to the Growing Grounds
        ii. Replace bag with a new bag from the tool shed
    b. Assess the inventory of supplies
        i. Identify supply needs of designated priorities before using up supplies
            1. Note on priorities sheet and call Ken if supplies need replacement
    c. Check for irrigation system major leaks
        i. If the irrigation system is not already on, turn it on to check
    d. If requested, provide assistance to Devereux clients if present
    e. Empty green-waste containers into the compost pile
        i. The compost pile is located between the Growing Grounds and the Greenhouse outside of the back of the Greenhouse
4. In the **Greenhouse** (GVB plants located on the right side):
    a. Monitor for squirrel infiltration of wiring covers
        i. Wiring covers protect all new, sensitive plantings Infiltration threatens the survival of the plant
        ii. If infiltrated, either fix or replace wiring cover
            1. Make a note of the location and extent of any damage
    b. Monitor for any young trees in decline
        i. If desiccation is the problem, water the plant
        ii. If the tree is leaning, stake it *(see instructions for staking on page 28)*
        iii. Make a note of the location of the plant and extent of damage on the priorities sheet

c. Monitor moisture level of trees on tables 2-7
    i. If necessary, turn on irrigation system 1 for 10 minutes
        1. Irrigation system 1 faucet is located above the cistern on the left side of the Greenhouse

****When completing a task, *always* initial and date next to the task**

Task: Checking out

Purpose: To ensure that the Greenhouse and Growing Grounds are properly closed. To assess the tasks completed and hours spent in the Greenhouse and/or Growing Grounds

Materials: Individual clipboards (located within the plastic milk crate inside toolshed)

Steps:

1. **In the Greenhouse:**
   a. Update the Greenhouse inventory with any changes
   b. Close all the doors and the front gate
   c. Neatly return all tools and hoses to proper locations, make sure Devereux hose is coiled and green external head is attached.
2. **On the Growing Grounds (outside area):**
   a. Sweep up any mixed soil or soil dropped during planting
   b. Hang up gloves to dry inside the Greenhouse
   c. Update the Growing Grounds Inventory with any changes
   d. Return all supplies around Growing Grounds to storage shed
3. **Sign out:**
   Fill out:
   Personal Time Sheet: Fill out under the day you came in the following: the date, time spent at the greenhouse, total # of hours, cumulative # of hours to date.
   Priority Sheet: Identify the task number, the priority number, and any notes. Notes may include what you completed that day in detail, any problems or needed supplies that require Ken's attention, and/or provided direction for other interns.

Emergency Procedures

In an emergency, immediately contact Ken at:

i. office: (805) 685-7910
ii. cell: (805) 252-1952

Location of first aid kit:

Inside the Greenhouse to the right of the entrance on the desk**.**

Location of water valves to turn off water on Growing Grounds:

Outside valve is located in a below ground level vault behind the wheel of the porta potty. Turn valve 90 degrees to turn off or on. (arrow on red valve indicates which direction is off and which is on)

Inside valve is located inside the Greenhouse to the left of the entrance. Turn the green valve to the right to turn off. Turn to the left to turn on.

Location of water valve to turn off water inside Greenhouse:

The Greenhouse water valve is blue and is located directly to the left upon entering the Greenhouse. Turn to the right to shut off. Turn to the left to turn on.

Irrigation

A. Growing Grounds

1. How the Growing Grounds Irrigation System Works

Irrigation plays a vital role in ensuring that all trees stay alive and healthy, and become ready for transplantation to another location. Inside the Greenhouse on your left, you will see two valves. The green valve is connected to a black line that feeds underneath and through the Greenhouse to the outside growing grounds system. This valve must be left on unless there is an irrigation leak or emergency. The other lever that controls water flow is located outside of the greenhouse next to the porta potty. The red lever should be left parallel to the greenhouse. This ensures it is always on. If there is an emergency (e.g., too much water flowing due to a broken system) this is the valve that should be turned off immediately before consulting Ken. This black line connects to each individual row, complete with a timer. Each black line runs down the row and automatically set to water each row in 15 minute intervals.

2. How and when to turn off/on the Growing Grounds Water System

Sometimes in the winter when rainfall is heavy, there is no need for weekly irrigation. Therefore, the Growing Grounds irrigation system should be shut off until ready to be restarted. To do this, locate the aforementioned red lever just outside the Greenhouse on the right hand side near row 21 and the porta potty. If the red lever is turned parallel to the Greenhouse, it is on. By turning it perpendicular to the Greenhouse (90 degree angle), it will shut off all the irrigation. If only one row does not need irrigation due to extra shading and/or moss/fungal growth, simply hit the “rain off” button located on that row’s timer. Its icon is a few raindrops. Hold down this button for a few seconds until the timer notifies you that it has been selected. It will appear on the display panel. This will turn off all irrigation for just that row indefinitely. CAREFUL: Be sure that you write down which row you turned “rain off” for and monitor it weekly. Often this button gets pressed and forgotten about, leaving plants dehydrated.

Leave the green valve (inside the Greenhouse) on **always** to ensure 15 minute interval watering of all the plants. The green valve is older and does not fully shut down water flow. Therefore, when turning off the water system for the growing grounds, be sure to shut off both the red valve and the green valve together in case of emergency or flooding.

3. Programming timers

a. Basics: Turning Growing Grounds Water on and off:

Timers are set to run at specific times on specific days. However, when checking irrigation, it is often useful to have the ability to manually turn on the water yourself, so as to avoid waiting for that row’s designated watering

time. To do this, locate the manual button on the bottom right of the timer, complete with an icon of a small hand pointing. This allows you to start the water for that row yourself.

4. How the Timers Work:

Timers are connected to a black line that runs down the middle of each row. These timers are programmed to run (usually) 3 times a week, on Mondays, Wednesdays, and Fridays, for approximately 3 minutes and in 15 minute intervals from one another. The entire watering process takes about 3-4 hours. Timers are connected to a battery that must be changed when needed. Batteries are located inside the green storage shed inside the Greenhouse.

Several buttons should be identified on the timer:

1. **Mode:** This button allows you to switch between, alter, and verify settings for the four options on the left hand side of the display panel. By pressing mode you may switch between settings for the current time, the duration of each timed watering, what days of the week it is programmed to go off, and what time that particular row is set to go off every day (respectively). To switch between these different modes, simply press the button and it will go down to the next setting.

2. **Rain off:** This button, located on the lower left hand side of the timer, allows you to shut off irrigation for an entire row indefinitely. If the row does not require watering for quite some time, press this button and hold down for approximately 5 seconds until you see the symbol located to the left of the button appear on the timer. This will shut off all irrigation for that particular row. CAREFUL: Be sure to monitor this row weekly, and

catalog the rows that have required this button, as it becomes easy to forget this and rows may become dehydrated.

3. **Manual:**

The button shown here allows you to manually turn on the irrigation for that row. This button will not allow water to flow indefinitely, however, and will not exceed the watering time it is programmed to run for automatically. (e.g., if Row 1 runs for 3 minutes, it will manually stop after 3 minutes and you will have to go back and select the button again if you are not finished checking irrigation). Emitters are connected to a black line that runs down the entire row.

a. Advanced: synchronizing timers:

Setting the Time of day for all timers:

It is important that all timers are set to the same time. That way, it ensures that all timers are set to go off in exact 15 minute intervals. In order to synchronize timers, it is necessary to have a time piece (e.g. watch, phone, etc.) to check and verify the time when programming it for each individual row. Since there are 21 rows, the time must be set according to a watch or phone and not according to the timer before it, as there will be

approximately a 5 minute delay in the time programming by the time you reach the end of all the rows. To program the time (this should be done approximately once a month), locate the mode button starting at Row 1's timer. Hitting it once will show the current time. In order to change this, hit the "set" button and the hour column should start blinking. Adjust this according to the time on your watch/phone/etc. Hit "set" again, and the button will now flash under the minute's column. Adjust this value according to your time device. Hit set again to finalize. Do this for all rows according to your time device's current time.

Setting the start times for all timers: Once all the times have been set and are all synchronized, you must go back and ensure that they are all set to go off in 15 minute intervals. To do this, Start at Row 1. Hit "mode" until you get to the "Start button" The Start Button (when pressed repeatedly) has up to 4 roman numerals indicating a possibility of 4 different start times. For now, we are only concerned with "Start I". Make sure that Row 1 is set to go off at 8:00 am. Move to Row 2 and ensure that it is set to go off at 8:15 am, Row 3 at 8:30 am, and so on through Row 21. If one of these rows is not programmed correctly, change the start time following the same procedure as indicated above to change the time to the proper start time.

5. Testing and Repairing Irrigation System by Rows to Verify Working Emitters:

In order to test that each line is running properly with no leaks, the following materials are required:

Materials:

•**¾" Irrigation Line:** This line is black and runs down each row. It is connected by the black line that is hooked up from the inside of the Greenhouse.

•**Emitters:** emitters are the entire assembled irrigation system complete with tubing, spitters, and barbs and attached to the ¾" irrigation line that runs down all the rows. To learn how to properly assemble emitters, see page 15

•**1/8" tubing:** This tubing may be found wound up inside of or next to the toolshed located on the Growing Grounds.

•**Spitters:** These are located within a red container labeled “spitters”. They are approximately 3” long.

•**Barbs:** Barbs are located in the red toolbox in the storage shed inside of a container that has orange ends and is labeled “barbs”

•PVC

•Timers

Other materials that may assist in the reparation of broken irrigation lines include:

•Pliers 

•Scissors

•Yellow hole poker 

These may all be found in the red toolbox located inside the storage shed.

a. How to assemble emitters:

In order to fix broken irrigation lines, properly assembled emitters complete with a barb, tube, and spitter must be ready at all times.

To assemble these emitters, follow these steps.

1. Start with the roll of tubing located inside the storage shed. Unwind the tubing and cut it so that its length is the distance from the end of your arm to your chest.

2. Once this has been done, select a barb and a spitter, each located inside the red toolbox in the Greenhouse storage shed in their respective containers. In a twisting motion, attach the barb to one end of the tubing.

Barb Spitter Tubing



3. With the other end, attach the spitter. Note: The spitter has two ends; one is smooth and is inserted into the tubing only when you are attempting to block water flow. When assembling these emitters, insert the **other** side of the spitter that contains a groove and is not fully smooth. This allows water to escape. This is necessary when replacing irrigation for a particular plant.

Side with groove

Smooth side

Note: Barbs run about $0.25 each, so be careful with them. Additionally, when checking irrigation, be sure to carry the red toolbox with supplies and your newly assembled emitters along each row. This will save you time and energy.

b. Checking Irrigation of Plants:

Irrigation should be checked and repaired row by row. To start, make sure to carry the red toolbox complete with 20 assembled emitters at all times.

In order to properly check that each plant in a row is receiving irrigation, step 1 is to ensure that all timers are running according to schedule and in 15 minute intervals. Starting with Row 1, flip open the display panel.

The button shown here allows you to manually turn on the irrigation for that row. After you have checked that the system is running on schedule and on time, manually select this button.

As you walk down a row, you want to check that each plant has an emitter, and that water is coming out of it after the manual button has been selected. If a plant is not receiving water, there are several factors why. Possible causes:

Case 1:
An emitter has fallen out of the specified plant and is on the ground. To observe this, check the original black line that runs down the row and look for any emitters spitting water that are coming off of it. If this is the case, simply put the emitter back into the plant and continue on.

Case 2:
The plant has no emitter. If this is the case, look for a neighboring plant that has an extra black emitter in its container that is shut off. Change the spitter so that the side with the groove is coming out of the tubing (therefore spitting water) and place into the plant that needs one. If no neighboring plants have extra emitters, obtain the yellow hole poker and poke a hole into the irrigation line close to the plant. With one of your newly constructed emitters, insert the barb side into the newly poked hole. Extend the tubing to the plant, inserting the spitter into the soil. When creating holes in the line, be sure to do it delicately and only once. Additional holes will cause leaks.

Case 3:
Your plant has an emitter, but the emitter has been switched to the off position. If this plant requires water, simply take out the spitter and attach the side with the groove to the irrigation tubing. This spitter may have been put in the off position for a reason, however. Make sure that no moss or fungi (mushrooms) are growing nearby the plant. If they are, this plant is receiving too much water and its spitter should remain in the off position until ready to be re-hydrated.

c. Fixing Breaks and Leaks in the Line:

As you are checking the line, you may notice barbs that have broken off from the tubing and spitter and are spewing water everywhere. This is often due to birds biting the line. These must be replaced right away. As you go down the row checking irrigation and notice these line defects, pull out a tree to identify the location of the line/tree that needs attention or repair. This way, you can continue checking the rest of the trees while the emitters are still running without having to reselect the manual button to ensure proper water flow to all of the trees. Once you have selected all trees or breaks in the line that need attention, do the following.

For trees: see the aforementioned cases.

For breaks in the line:

1. If the barb is still stuck in the line without its spitter and emitter attached, get the pliers from your tool box.
2. IMPORTANT: when pulling out the remaining barb, be sure to yank straight out rather than in a twisting fashion. Twisting it may cause it to break off even further and for the rest of the barb to get stuck in the line. It helps to place the pliers vertically.
3. Once you yank the barb out, replace with one of your newly assembled emitters and place into the nearby plant that requires one. If no plants require an emitter, put the spitter into the off position and keep inside a nearby plant, towards the wall of the pot. (This way the next person may identify which spitter is active and which are inactive)

Special case: Sometimes the barb has broken off almost completely and the only part that remains is the small end that is stuck in the line. This part cannot be removed. To fix this, take the yellow hole poker and push remaining barb into the line. (Try to avoid this at all costs, as it may clog the line eventually). From there use the preexisting hole to attach a new emitter.

B. Greenhouse Irrigation

1. How the Greenhouse irrigation Systems Work (GVB and Devereux):

Goleta Valley Beautiful shares the Devereux Greenhouse with Devereux. Upon entering the Greenhouse, be sure to notice that Goleta Valley Beautiful's plants are on the right hand side atop the orange tables labeled rows 1A 1B and 1C through 7A 7B and 7C.

The rest of the plants in the Greenhouse belong to Devereux and are not to be touched. Goleta Valley Beautiful's rows must be watered approximately once a week and using best judgment. Both Devereux's and Goleta Valley Beautiful's greenhouse irrigation system runs off of the blue valve located to the left of the Greenhouse door upon entering. This valve is connected to a blue line system that feeds up over the green storage shed and around to the orange tables. Each row has a timer (a black box) that rests on the greenhouse wall to the right of the table that may be activated. Watering of individual rows may be activated using the gray display box to the right of the Greenhouse upon entering.

2. How to turn on and off Greenhouse Water:

To turn on Greenhouse water, twist the blue valve to the left. This valve should always be turned off after watering inside plants as it has a tendency to leak.

a. Watering Rows 2-7:

Before watering any rows, walk down and feel the soil to determine whether or not the rows require watering. If the soil is still fairly moist, no need to water. If the plants seem dry however, it's best to water. Make sure the blue line system is turned on. Once the blue valve has

been turned on, locate the gray display box to the left of the green storage shed inside the greenhouse. Open to view the display panel.

Flip the dial over to manual zone. On the left hand side there are two buttons that say “next” and “back”. Press the “next” button to define which row you are intending to water. (This system only works for rows 2-7, so select one of those). The buttons on the top right arrow keys that say “adjust value”. Hit the up arrow to determine how many minutes you would like to water for. Typically 5-10 minutes is standard. If the plants seem on the drier side, opt for 10. If wetter, do only for 5. Once you have programmed these settings, switch the dial to “run”. This will automatically start the watering and will automatically shut it off. Repeat for rows 3-7. Do this once a week or as needed.

a. Watering Row 1:

Row one does not operate on the automated system and must be turned on manually. To do this, go to Row 1B that is up against the greenhouse wall. Above it, locate the black box that is connected to the blue line that runs the full length down the rows. Atop the black apparatus is a small black lever. Turn this to the right and water should flow. Water for 5-10 minutes as specified. Make sure you remember that this is on, as it does not turn off automatically like Rows 2-7. To turn off, you must turn the black lever back the other way.

3. How the irrigation controller works: To Be Completed

4. How the heating system works: To Be Completed

Task: Plant IDing

Purpose: To identify plants and make the inventory process more reliable.

Materials: Waterproof labels

Pen (ballpoint works best)

A hard surface to write on

Steps:

1. Check tables in the Greenhouse for untagged plants
   a. Request printed tags for unidentified plants
2. Check the greenhouse and growing ground inventory
   a. This identifies the plant's species
3. When the plant has been identified, place a label on the container horizontally approximately 4 inches below the top. Make sure the surface is clean and dry. When applying the label, make sure it adheres firmly by pressing hard against the surface of the label against the container.

Check out the Plant ID book or use Selectree on the web (www.calpoly.ufei.edu

Task: Planting

Purpose: Proper planting ensures healthier plant growth.

Materials: Mixed Soil

Container (15 gallon for saplings, 1 gallon for seedlings)

Sapling or seedling

Water

Steps:

1. **Seeds**
   a. Fill the 1 gallon container with mixed soil ¾ of the way full
   b. Create an indent in the center to surround the seed with soil
   c. Place the seed in the indent
      i. If the seed has sprouted, orient the seedling accordingly
         1. Orient roots to the soil and sprouting to the light source
   d. Surround the seed with soil
      i. If the seed has sprouted, expose the sprout to the surface
   e. Soak the soil in water
   f. Label the plant

2. **Saplings**
   a. Fill the 15 gallon container with mixed soil ¾ of the way full
   b. Create a indent in the center to allow space for the sapling's roots to spread
   c. Carefully remove the sapling from its container
      i. Loosely place two fingers around the stem of the plant over the soil
         1. This prevents soil and/or plant loss in the next step
      ii. Turn the container upside-down to remove soil and plant
      iii. Carefully break apart the soil to retrieve the plant
   d. Locate the top of the plant's roots
      i. This is where the plant will be buried in the soil
      ii. To identify this area:
         1. Look for root hairs
         2. This is not green as no chlorophyll is used in the underground part of the plant
   e. Place the plant in the indentation of the soil
   f. Carefully fill up to hole with soil, creating a mound around the base of the stem
   g. Water the soil
   h. Place mulch around the base of the plant to help with water absorption and protect the plant

i. Label the plant

Task: Pruning (training is required)

Purpose: To create strong, aesthetically pleasing trees for the urban environments where Goleta Valley Beautiful's trees are planted Pruning allows for the establishment of a central leader (the strongest and most vertical stem) to ensure a tall, straight trunk and strong, well-spaced branches Pruning trees at a young age makes future maintenance easier and less expensive

Materials: Pruning shears (located in the tool shed)

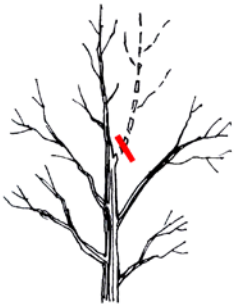
Gloves

Protective Eyewear

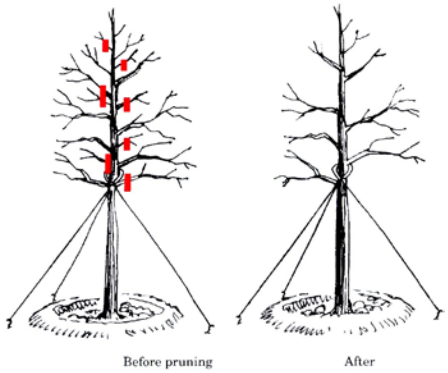
Location: Growing Grounds

Steps:

1. Remove broken, dead, dying, diseased, or damaged branches
2. Select and establish a central leader
   a. The central leader is the strongest and most vertical stem
      i. If double leaders are present, remove the more crooked or defective stem of the two

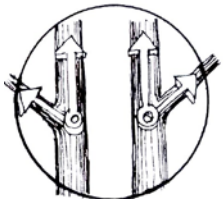


3. Select and establish scaffold branches
   a. Scaffold branches are well-attached branches above the lowest permanent branch
      i. These are no more than one-half the diameter of the central leader
      ii. Vertically space lateral branches ~8-12 inches apart



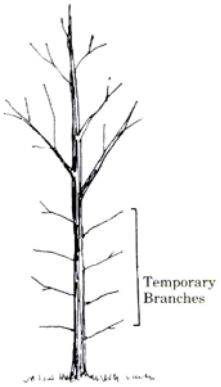
      iii. Radially space branches around the central leader for balanced branch distribution

iv. Temporary branches: small branches close to scaffolds
    1. Removed larger branches
v. Remove branches located at narrow angles to the stem
    1. The ideal branching angle is 60°

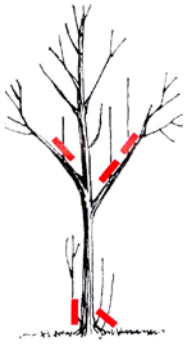


    2. Cut the weaker and/or more bent branch

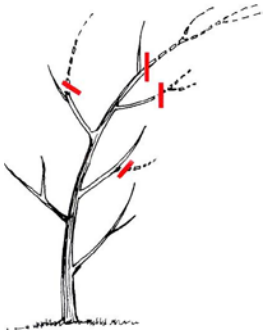
4. Establish the lowest permanent branch
    a. Select temporary branches below this point



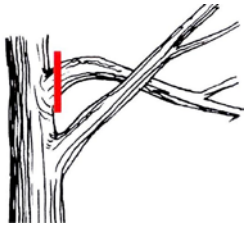
5. Other target areas for pruning:
    a. Water sprouts and suckers
        i. occur at the base of the tree or inside the crown
        ii. rapidly growing, weakly attached, upright



b. Branches compromising the center of gravity

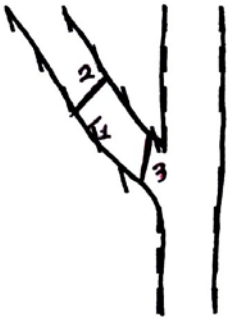


c. Rubbing branches:
    i. Remove one of these branches to prevent wounds, decay and/or notches

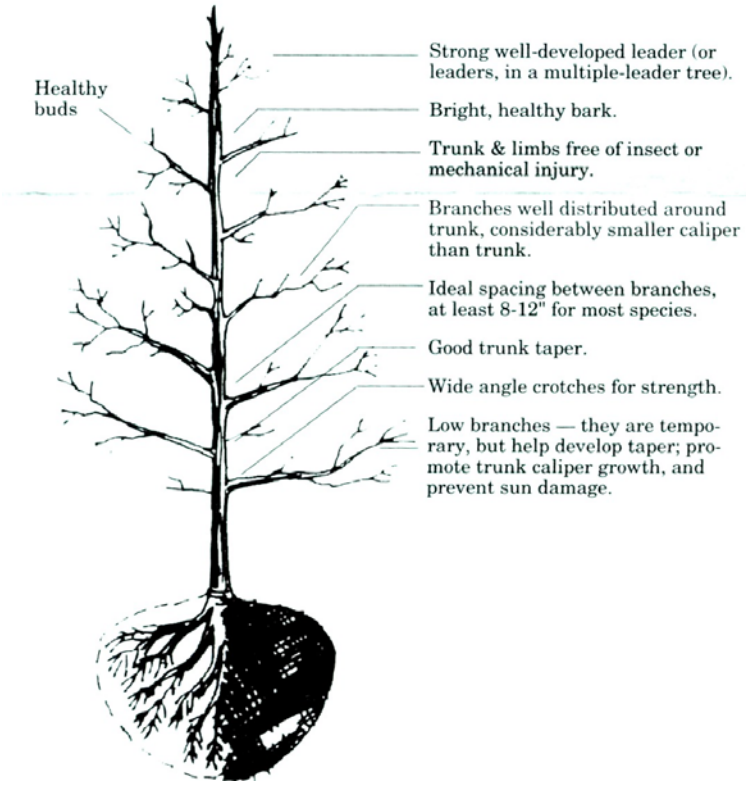


- Cuts should be sharp and clean with slight angle about ¼ inch above the bud

    - Use the three-cut method to avoid stripping the tree's bark



- With a young tree, prune modestly: leave as much leaf surface available as possible


Healthy buds
Strong well-developed leader (or leaders, in a multiple-leader tree).
Bright, healthy bark.
Trunk & limbs free of insect or mechanical injury.
Branches well distributed around trunk, considerably smaller caliper than trunk.
Ideal spacing between branches, at least 8-12" for most species.
Good trunk taper.
Wide angle crotches for strength.
Low branches — they are temporary, but help develop taper; promote trunk caliper growth, and prevent sun damage.

Task: Repotting

Purpose: Relocating the plant to a larger area gives the plants more room to grow and spread its roots.

Materials: Mixed Soil

Container (1gallon→15 gallon or 15 gallon→25 gallon)

Sapling or seedling

Water

Steps:

1. Fill the container with mixed soil ¾ of the way full
   a. Create a indent in the center to allow space for the sapling's roots to spread
   b. Carefully remove the sapling from its container
      i. Loosely place two fingers around the stem of the plant over the soil
         1. This prevents soil and/or plant loss in the next step
      ii. Turn the container upside-down to remove soil and plant
      iii. Carefully break apart the soil to retrieve the plant
   c. Locate the top of the plant's roots
      i. This is where the plant will be buried in the soil
      ii. To identify this area:
         1. Look for root hairs
         2. This is not green as no chlorophyll is used in the underground part of the plant
   d. Place the plant in the indentation of the soil
   e. Spread the roots out and don't let them dry out
   f. Carefully fill up to hole with soil, creating a mound around the base of the stem
   g. Water the soil
   h. Place mulch around the base of the plant to help with water absorption and protect the plant
   i. Place the plant in a shaded area to avoid desiccation
   j. Re-label the plant

A. Repotting 1 gal to 15 gal-root pruning

B. Repotting 15 gal to 25 gal-root pruning

Task: Seed Collection: To Be Completed

Task: Washing Pots: To Be Completed

Task: Filling Pots with Soil: To Be Completed

Task: Moving Trees to Loading Zone:

The loading zone is located in front of the Goleta Valley Beautiful gate upon entering the growing grounds. It is next to all other equipment (including round stakes, nursery stakes, pots for washing, etc.) When a tree planting event is to take place, trees must be loaded here so as to provide fast easy access for loading trees onto the Goleta Valley Beautiful truck. To load specified trees, locate one of the two dollies that are located next to the Growing Grounds gray storage shed. The gray dolly with bigger wheels is ideal, as it allows for easier movement along uneven ground. Lift specified trees onto the dolly and either push or pull (whatever proves easier) to the loading zone. Unload onto the pallets. Make sure not to load anything past the pallets, as it blocks the roadway where the GVB truck backs in.

Task: Worm Casting: To Be Completed

Task: Compost Turning (Leaves and Branches only): To Be Completed

Task: Inventory of Trees: To Be Completed

Task: Inventory of Supplies: To Be Completed

Task: Sweeping and Blowing Rows

Rows sometimes must be swept and blown with the electric blower. To do this, locate the broom, electric blower, and yellow extension cord located inside the gray Growing Grounds storage shed. Attach the yellow extension cord to the other yellow extension cord that is threaded through the chain link fence towards the end of the Greenhouse near the compost bins. After these two are attached, attach the electric blower to the end of the elongated cord. Locate the power button and turn on. You may adjust the strength of the blowing as needed. Starting with row 10 or 9, work your way down the row. The objective is to blow leaves on the ground and the soil surrounding and underneath containers to the end of the row, or towards rows that still require blowing. Blow towards the end of the row you are on, as well as in the direction of previous rows (8, 7, 6 etc). Once you finish a row, start at the next row down on the same side as before, and continue the same procedure. When there is too much soil and leaf buildup in a row, grab the broom and remove this into a green waste bin or into the green waste pile. Continue blowing as needed.

Task: Filling Pots with Mulch: To Be Completed

Task: Staking and Tying Trees

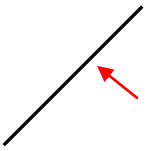
Purpose: To create strong central growth for the first 8 feet of development. Tall, straight upward growing trees are most suitable for the urban environments Goleta Valley Beautiful grows and plants for.

Materials: Tape (located in the tool shed)

Stakes (either bamboo or wooden; located at the entrance to the Growing Grounds furthest from the Greenhouse)

Steps:

1. Identify the individuals which require attention:
    a. Any tree leaning at or greater than 45° angle
2. Select the correct type of stake to install:
    a. Two types of stakes:
        i. Bamboo
        ii. Larger wooden 1 5 x 1 inch
            1. Used for larger trees (Sycamore and Big Leaf Maples)
3. Install the stake into potted soil **straight up-and-down** adjacent to the side of the trunk you intend on tying it to
    a. Be sure to insert the stake straight up-and-down all the way to the bottom- it is very difficult to adjust the stake's position once it is installed
    b. If the tree is leaning,



    c. Do not tie the stake to a side with branches
    d. Center the stake and plant base
4. Secure the tree trunk to the stake with 6" sections of tape:
    a. 2-3 times, depending on the length of the trunk

Task: Weeding and Disposal

Purpose: To protect plants from harmful invasion by unwanted weeds and clean up the area surrounding the plants to avoid the transfer or spread of weeds.

Materials: Gloves

Steps:

1. When detected, remove unwanted growth (weeds) from the soil holding the plant
   a. Remove the weed's entire body, especially its roots. Note: Be sure to shake soil back into container that is attached to roots. Soil is vital to the plant and should never be removed.
   b. Do not disturb the plant in this process
2. Remove vines on the fences surrounding the Greenhouse
3. Weed the perimeter of the growing ground (weed wacker may be necessary)
4. Remove green growth from the Greenhouse floor
5. Target areas for weed/ green growth removal:
   a. Green growth on the Greenhouse floor
   b. The perimeter of the Growing Grounds
   c. Hardscape and weed block covered areas

Other areas of uncertainty: Seed and cutting collection/storage Spraying ←

Appendix A- Directions to the Greenhouse

Location:

The Greenhouse and Growing grounds are located adjacent to the Devereux Slough and north of Coal Oil Point Reserve in Goleta, CA.

Directions:

Walking/biking from Isla Vista *(See Figure 1)*:

- Head east to the end of Del Playa Drive
- Continue east on the dirt path parallel to Sands Beach
- Head right towards Slough Road
- Turn right onto Devereux Way
- Turn left on Falberg
- Take the circular road halfway around
- Turn right onto an unnamed dirt road which leads downhill to the Growing grounds.

Driving from Storke Road *(See Figure 2)*:

- At the corner of El Colegio Road and Storke Road, continue SW along unnamed Slough Rd
- Continue for a 1/2 mile to Devereux Way
- Make a left on Devereux Way and go up hill (for about 50')
- Turn left on Falberg
- Take the circular road 1/2 way around to unnamed dirt road that leads down to Greenhouse

Driving from UCSB via El Colegio *(See Figure 2)*:

- Head east on El Colegio Road

- Turn left onto the unmarked Slough Road
- At the corner of El Colegio Road and Storke Road, continue SW along unnamed Slough Rd
- Continue for a 1/2 mile to Devereux Way
- Make a left on Devereux Way and go up hill (for about 50')
- Turn left on Falberg
- Take the circular road 1/2 way around to unnamed dirt road that leads down to Greenhouse

Call 252-1952 if you need further directions

Parking is down below without blocking main entrance.

During rainy periods, parking up top should be limited to Devereux leased area.

Appendix B – Sign in sheet example Appendix C Weekly priorities sheet Appendix D Greenhouse Inventory

Appendix E Growing Grounds Inventory