



Swimming Pools



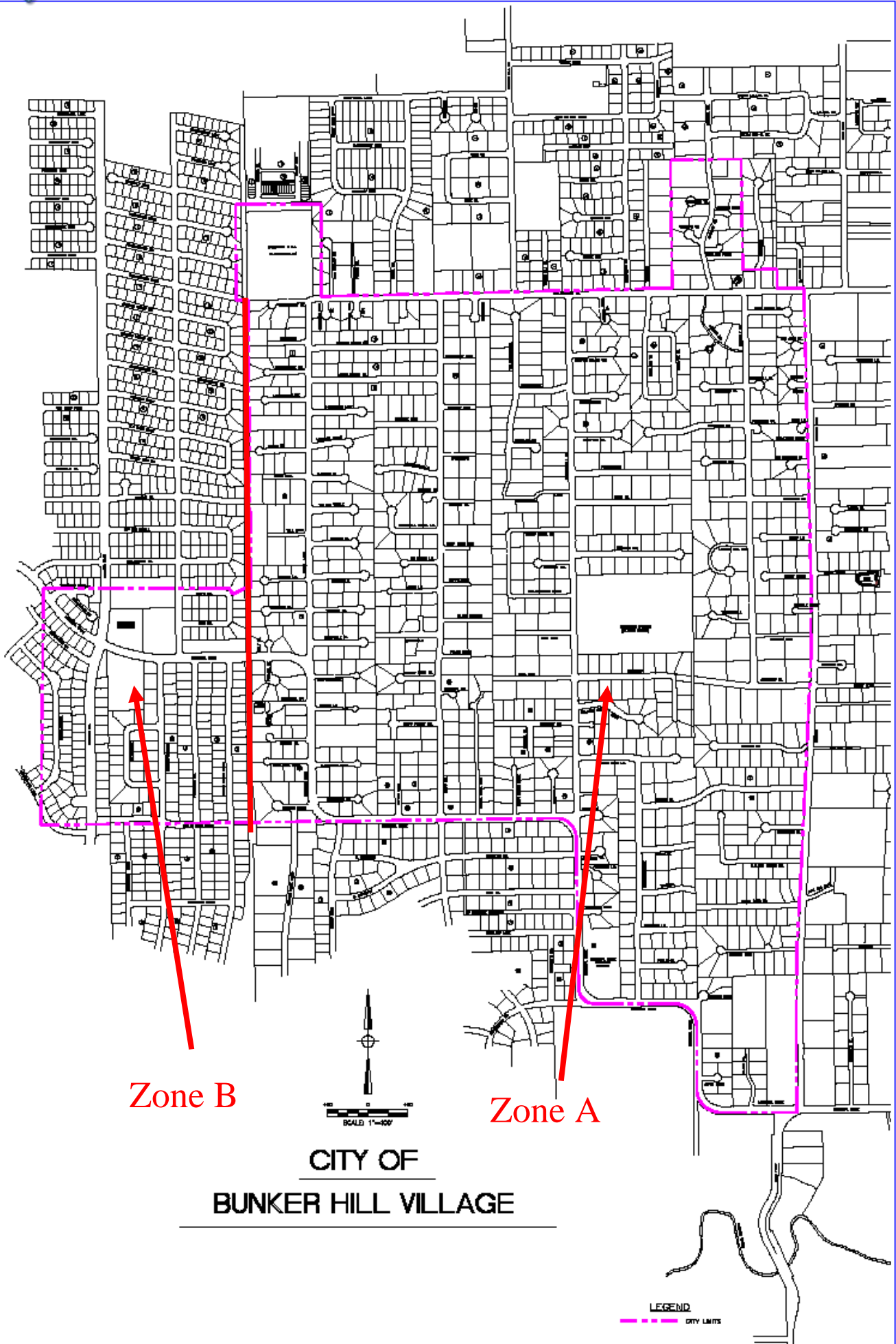
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Swimming Pools

Important Design Considerations

- Setbacks are measured from the EDGE of the pool water.– see the enclosed zone map and setback drawings. Accessory structure setbacks are used for swimming pools
- Underground drainage is required in the area of the proposed accessory structure. Pool overflow only may go into the drainage system. Please see the city design specifications for the drainage system.
- A sanitary sewer service with approved trap must be provided for all other pool discharge. This includes pool draining. (Even if the filtration system does not require backwashing).
- Maximum non-permeable lot coverage is 45.0%. The water surface area of the pool does not count toward the 45% lot coverage. Pool coping and decking do count. Approved permeable paver systems may be used to offset a lot coverage issue.
- The City of Bunker Hill Village enforces the IRC codes concerning pool barrier safety. The pool contractor will be responsible for insuring that this code is met. See the enclosed barrier requirements.
- The City of Bunker Hill Village enforces the NEC 2005 electrical clearance rules. See the enclosed pool application.
 - The NEC 2005 requires 3 minimum distances from overhead power lines.
 - If the closest overhead power line where to fall on the ground, the minimum horizontal distance from the power line to the edge of the water is 10.0 feet.
 - The direct measurement from the edge of water to the NEAREST overhead power line cannot be less than 22.5 feet.
 - The last minimum distance is from any platform or elevated structure which requires a minimum distance of 14.5 feet to the NEAREST overhead line.
- City of Bunker Hill Village Building Code: International Residential Code 2003 and National Electric Code 2005.
- **Please submit one complete set of 11” X 17” drawings for review.** You should receive a response for your project in 10 business days or less. Projects which do not include all of the required items on the enclosed Required Documentation List will be charged a \$100 resubmission fee.
- Please have your pool contractor keep track of the amount of water used in filling the pool. Provide a letter from the pool company with this number and you may qualify for a credit for your water bill.



Zone B

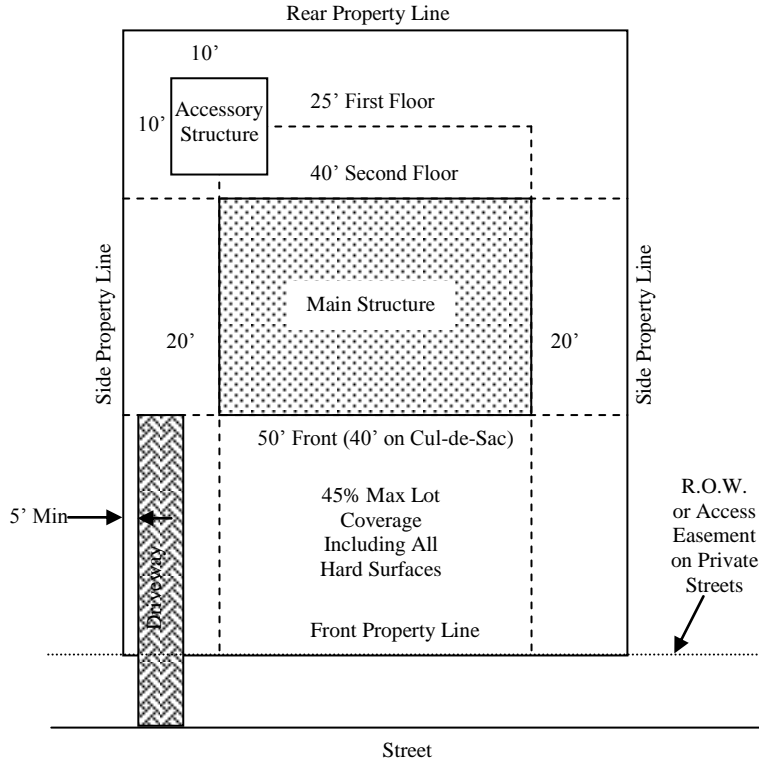
Zone A

CITY OF
BUNKER HILL VILLAGE

LEGEND
- - - - - CITY LIMITS

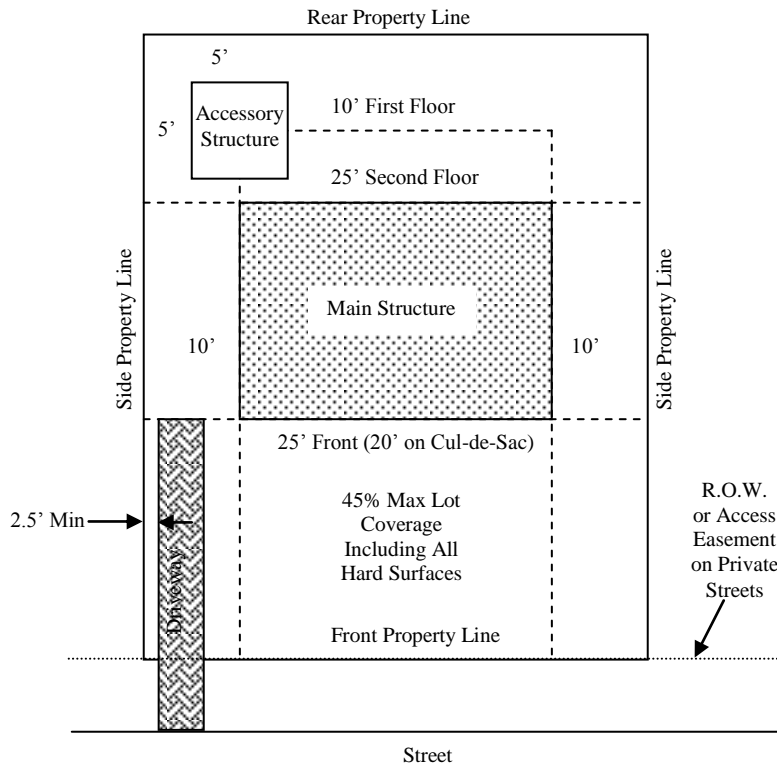


Standard Lot
Zone A



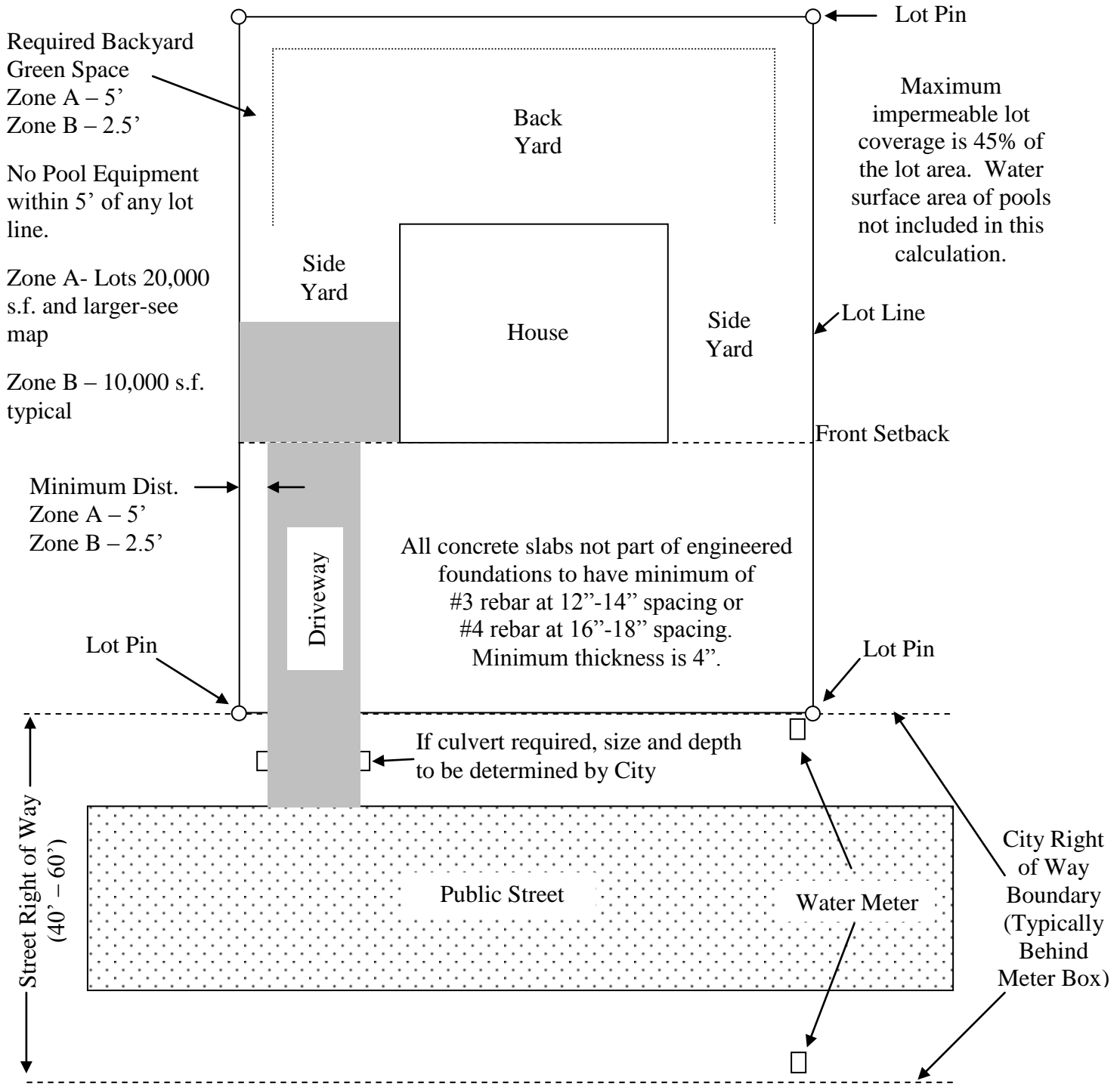
A Cud-de-Sac lot is defined as a lot which the ENTIRE front lot line is on the arc of the cul-de-sac.

Setback Requirements
Standard Lot
Zone B





Driveway, Sidewalk, Pool Decking and Patio Requirements



Required Backyard Green Space
 Zone A – 5’
 Zone B – 2.5’

No Pool Equipment within 5’ of any lot line.

Zone A- Lots 20,000 s.f. and larger-see map

Zone B – 10,000 s.f. typical

Minimum Dist.
 Zone A – 5’
 Zone B – 2.5’

Maximum impermeable lot coverage is 45% of the lot area. Water surface area of pools not included in this calculation.

All concrete slabs not part of engineered foundations to have minimum of #3 rebar at 12''-14'' spacing or #4 rebar at 16''-18'' spacing. Minimum thickness is 4''.

Permeable pavers must be manufactured and designated as a permeable material. Installation must comply with manufacturer’s recommendations for permeable installations. Final inspection of a permeable system will include a test to confirm that all water is transferred to the soil below the paver system.



Drainage System Design Standards

1. New construction requires an underground drainage system to drain the entire lot area. **NO SHEET FLOW TO THE CITY DRAINAGE FACILITIES.**
2. Lots should be generally graded so that flow is from back to front. Exceptions should be requested in writing with details as to why this plan cannot be followed. Lots should also be graded so that water does not flow between properties. (Even if it is currently configured with cross lot drainage)
3. Minimum pipe size is 6". Four inch lateral lines are allowed IF they are directly connected to only one four inch gutter down spout.
4. Gutter connections are allowed but not required.
5. System should be designed to accommodate a 5 year frequency storm.
6. Systems should be designed to connect to a city underground storm water system if one is available to the site.

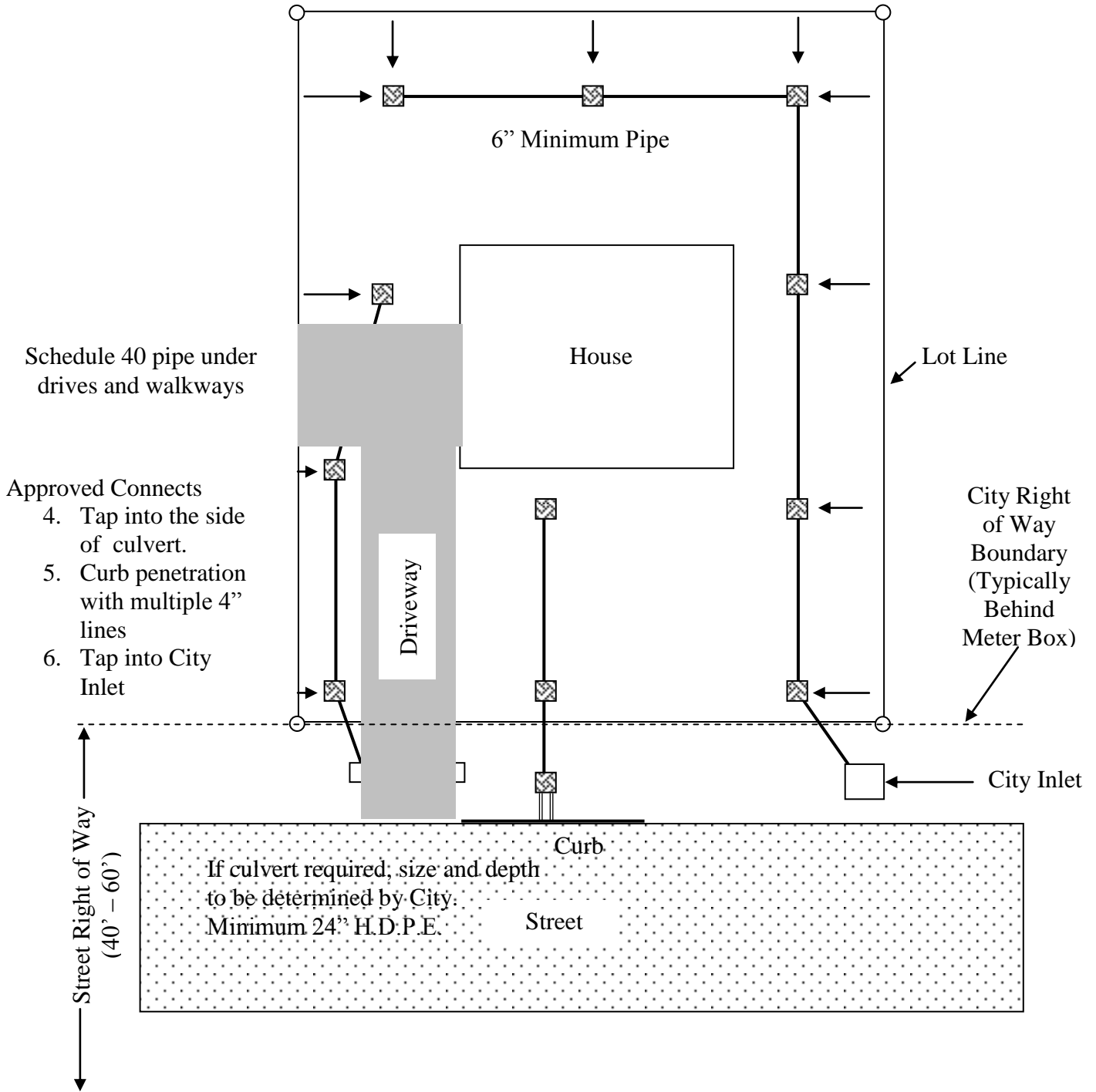
In the absence of a city storm water system, the following should be considered as alternative connection methods:

 - a) On streets with curbs, multiple 4" outlet pipes of a sufficient number to accommodate the upstream pipe capacity will be allowed to protrude through the curb. An inlet or serviceable junction box should be used as the transition point between the multiple 4" lines and the upstream pipe to allow removal of debris at the transition point. The transition point should be between 1' and 5' behind the curb.
 - b) On streets served by a ditch, all connection points should be into the side of a H.D.P.E. culvert of not less than 24" in diameter. Actual culvert size to be determined by the city.
 - c) All culverts to be H.D.P.E. installed in accordance with manufacturer's recommendations. Flowline to be determined by the City of Bunker Hill Village. Minimum size is 24" but larger sizes may be required by the City. Please provide the size of culvert pipes on properties adjacent to the project site.
7. No French drain systems.
8. Bubbler boxes will be considered on a case by case basis. Bubbler boxes should be designed with a minimum of 12" encasement of medium size aggregate. Bubbler boxes will not be approved for clay or soils which do not allow the migration of the storm water.
9. Sump systems should be designed to the design standards listed above. Pump sizing calculations should be included.
10. System should be constructed so that there is no standing water in pipes or inlets.
11. P.V.C. pipe must be a minimum of SDR 35. Schedule 40 required for sections under driveways.

SECTION AG105



Typical Drainage Plan



Minimum pipe size is 6", however all lines must be designed to 5 year rain event standards. Pumps for sump systems must have a total capacity of a 5 year rain event for the drainage area served. All submissions must be signed by a licensed irrigator, engineer, or architect.



BARRIER REQUIREMENTS

AG105.1 Application. The provisions of this chapter shall control the design of barriers for residential swimming pools, spas and hot tubs. These design controls are intended to provide protection against potential drownings and near drownings by restricting access to swimming pools, spas and hot tubs.

AG105.2 Outdoor swimming pool. An outdoor swimming pool, including an in-ground, above-ground or on-ground pool, hot tub or spa shall be surrounded by a barrier which shall comply with the following:

1. The top of the barrier shall be at least 48 inches (1219 mm) above grade measured on the side of the barrier which faces away from the swimming pool. The maximum vertical clearance between grade and the bottom of the barrier shall be 2 inches (51 mm) measured on the side of the barrier which faces away from the swimming pool. Where the top of the pool structure is above grade, such as an above-ground pool, the barrier may be at ground level, such as the pool structure, or mounted on top of the pool structure. Where the barrier is mounted on top of the pool structure, the maximum vertical clearance between the top of the pool structure and the bottom of the barrier shall be 4 inches (102 mm).
2. Openings in the barrier shall not allow passage of a 4-inch-diameter (102 mm) sphere.
3. Solid barriers which do not have openings, such as a masonry or stone wall, shall not contain indentations or protrusions except for normal construction tolerances and tooled masonry joints.
4. Where the barrier is composed of horizontal and vertical members and the distance between the tops of the horizontal members is less than 45 inches (1143 mm), the horizontal members shall be located on the swimming pool side of the fence. Spacing between vertical members shall not exceed 1 3/4 inches (44 mm) in width. Where there are decorative cutouts within vertical members, spacing within the cutouts shall not exceed 1 3/4 inches (44 mm) in width.
5. Where the barrier is composed of horizontal and vertical members and the distance between the tops of the horizontal members is 45 inches (1143 mm) or more, spacing between vertical members shall not exceed 4 inches (102 mm). Where there are decorative cutouts within vertical members, spacing within the cutouts shall not exceed 1 3/4 inches (44 mm) in width.
6. Maximum mesh size for chain link fences shall be a 2 1/4-inch (57 mm) square unless the fence has slats fastened at the top or the bottom which reduce the openings to not more than 1 3/4 inches (44 mm).
7. Where the barrier is composed of diagonal members, such as a lattice fence, the maximum opening formed by the diagonal members shall not be more than 1 3/4 inches (44 mm).
8. Access gates shall comply with the requirements of Section AG105.2, Items 1 through 7, and shall be equipped to accommodate a locking device. Pedestrian access gates shall open outward away from the pool and shall be self-closing

and have a self-latching device. Gates other than pedestrian access gates shall have a self-latching device. Where the release mechanism of the self-latching device is located less than 54 inches (1372 mm) from the bottom of the gate, the release mechanism and openings shall comply with the following:

- 8.1. The release mechanism shall be located on the pool side of the gate at least 3 inches (76 mm) below the top of the gate; and
- 8.2. The gate and barrier shall have no opening larger than 1/2 inch (13 mm) within 18 inches (457 mm) of the release mechanism.
9. Where a wall of a dwelling serves as part of the barrier, one of the following conditions shall be met:
 - 9.1. The pool shall be equipped with a powered safety cover in compliance with ASTM F 1346; or
 - 9.2. Doors with direct access to the pool through that wall shall be equipped with an alarm which produces an audible warning when the door and/or its screen, if present, are opened. The alarm shall be listed in accordance with UL 2017. The audible alarm shall activate within 7 seconds and sound continuously for a minimum of 30 seconds after the door and/or its screen, if present, are opened and be capable of being heard throughout the house during normal household activities. The alarm shall automatically reset under all conditions.

The alarm system shall be equipped with a manual means, such as touch pad or switch, to temporarily deactivate the alarm for a single opening. Deactivation shall last for not more than 15 seconds. The deactivation switch(es) shall be located at least 54 inches (1372 mm) above the threshold of the door; or
 - 9.3. Other means of protection, such as self-closing doors with self-latching devices, which are approved by the governing body, shall be acceptable so long as the degree of protection afforded is not less than the protection afforded by Item 9.1 or 9.2 described above.

10. Where an above-ground pool structure is used as a barrier or where the barrier is mounted on top of the pool structure, and the means of access is a ladder or steps:

- 10.1. The ladder or steps shall be capable of being secured, locked or removed to prevent access; or
- 10.2. The ladder or steps shall be surrounded by a barrier which meets the requirements of Section AG105.2, Items 1 through 9. When the ladder or steps are secured, locked or removed, any opening created shall not allow the passage of a 4-inch-diameter (102 mm) sphere.

AG105.3 Indoor swimming pool. Walls surrounding an indoor swimming pool shall comply with Section AG105.2, Item 9.

AG105.4 Prohibited locations. Barriers shall be located to prohibit permanent structures, equipment or similar objects from being used to climb them.

AG105.5 Barrier exceptions. Spas or hot tubs with a safety cover which complies with ASTM F 1346, as listed in Section AG107, shall be exempt from the provisions of this appendix.



Swimming Pool Required Documentation

Building Submittal Package

- Permit Application
- Tree Removal Application
- Required Drawings and Documentation (2 complete sets)
 - Property Survey by a Registered Land Surveyor. (Standard file size please)
 - Site Plan showing all setback lines, proposed structures
 - Tree Survey showing disposition and protection.
 - Final Drainage Plan stamped by a Texas Licensed Irrigator, Landscape Architect or Civil Engineer.
 - Electrical Plans with load calculations and sizing OR sealed by a Texas Registered Electrical Engineer. Also see the Center Point Energy requirements page.
 - Plumbing Plans



Application for Construction Permit for Swimming Pool Installation

Date: _____ Pool Contract Amount: (Attach Contract) \$ _____

Job Address: _____

Contractor: _____ Telephone: _____

Property Owner: _____

Minimum Distance from the Edge of Water to: Rear Property Line: _____ Side Property Line: _____

Minimum Distance from the Decking to: Rear Property Line: _____ Side Property Line: _____

Maximum of 45% Lot Coverage

A. Current S.F. of House Slab _____

B. Current S.F. of Driveway _____

C. Other S.F. of Lot Coverage _____

D. Total (A+B+C) Lot Coverage _____

E. Proposed Pool Coverage* _____

F. Proposed Total Coverage (D+E) _____

G. Lot Area S.F. _____

H. Lot Coverage % (F/Gx100) _____ %

Does the existing fence meet the fencing and barrier protection requirements as detailed in the 2003IRC?

Yes No

Are there any overhead power lines on or near this lot?

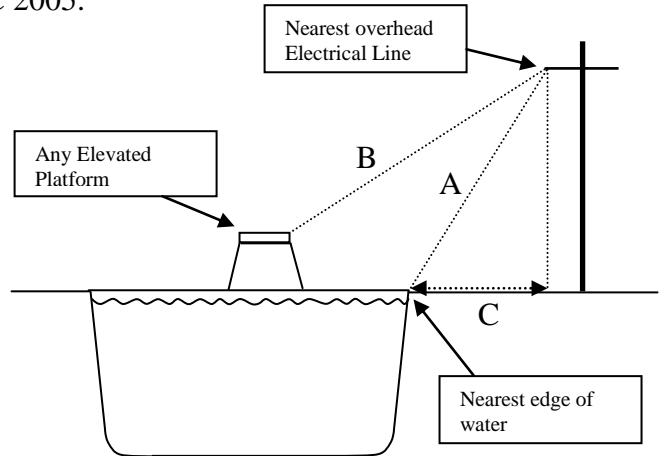
Yes No Voltage: (750V Typical) _____

Distance A (Min 22.5') _____

Distance B (Min 14.5') _____

Distance C (Min 10') _____

Minimum distances determined by section 680.8 of the NEC 2005.



Contact Centerpoint Energy at 713-207-2222 for assistance in determining voltage and distances. Additional ordinances concerning the City of Bunker Hill Village Pool Construction requirements may be found at www.bunkerhill.net or you may call 713-467-9762. Current adopted codes are the NEC2005, IRC2003, IMC2003, and the IPC2003. *Pool coverage numbers do NOT include the water surface area. A survey by a registered professional surveyor is required to be attached to this application displaying all setback lines, existing structures, driveways, sidewalks and the proposed location of the pool. Pool discharge must be dechlorinated or into sanitary sewer system.

Property Owner Signature

Date

Contractor Signature

Date



TREE REMOVAL PERMIT APPLICATION CONSTRUCTION RELATED

Address: _____

Owner of Subject Site: _____ Phone Number: _____

Contractor: _____ Phone Number: _____

A tree is defined as a long-lived, branching, woody plant, usually with one (1) main stem or trunk, and having a diameter of at least five (5) inches measured 4.5' above the surrounding ground. Plants which do not meet this definition are not required to be reported.

- A. _____ Total number of existing trees on the lot prior to any construction.
- B. _____ Total number of trees to be removed.*
- C. _____ Number of trees to be left on the lot after tree removal (A-B)
- D. _____ Area of the lot in square feet
- E. _____ Required minimum number of trees for this lot. (1 Tree per 1,000 square feet of lot rounded up)
- F. _____ Number of required replacement trees (Required replacement trees will be inspected at the time of the building final. Minimum diameter of replacement trees is 3". See ordinance for approved replacement trees and required placement. www.bunkerhill.net)
- G. _____ Number of trees to be removed with a diameter of 20" or greater.

*If trees are to be removed, a survey for the property with each tree properly located and labeled must be attached to this application. In addition to identifying each tree as to general kind and trunk diameter, the following legend must be used to label each tree:

- Trees to remain
- Tree to be Removed
- Proposed Replacement Tree

Example: 14" Oak

Comments:

Signature of Owner

Date:

Approval by Building Official

Date:



Required for Approval



Contractor Registration

Company Name: _____

Contact Person: _____

Mailing Address: _____

City _____ State: _____ Zip: _____

Office Telephone: _____ Fax: _____

Email: _____

Field Contact Person: _____ Telephone: _____

Texas License Type: _____ Expiration Date: _____

Name on License: _____

License Number: _____

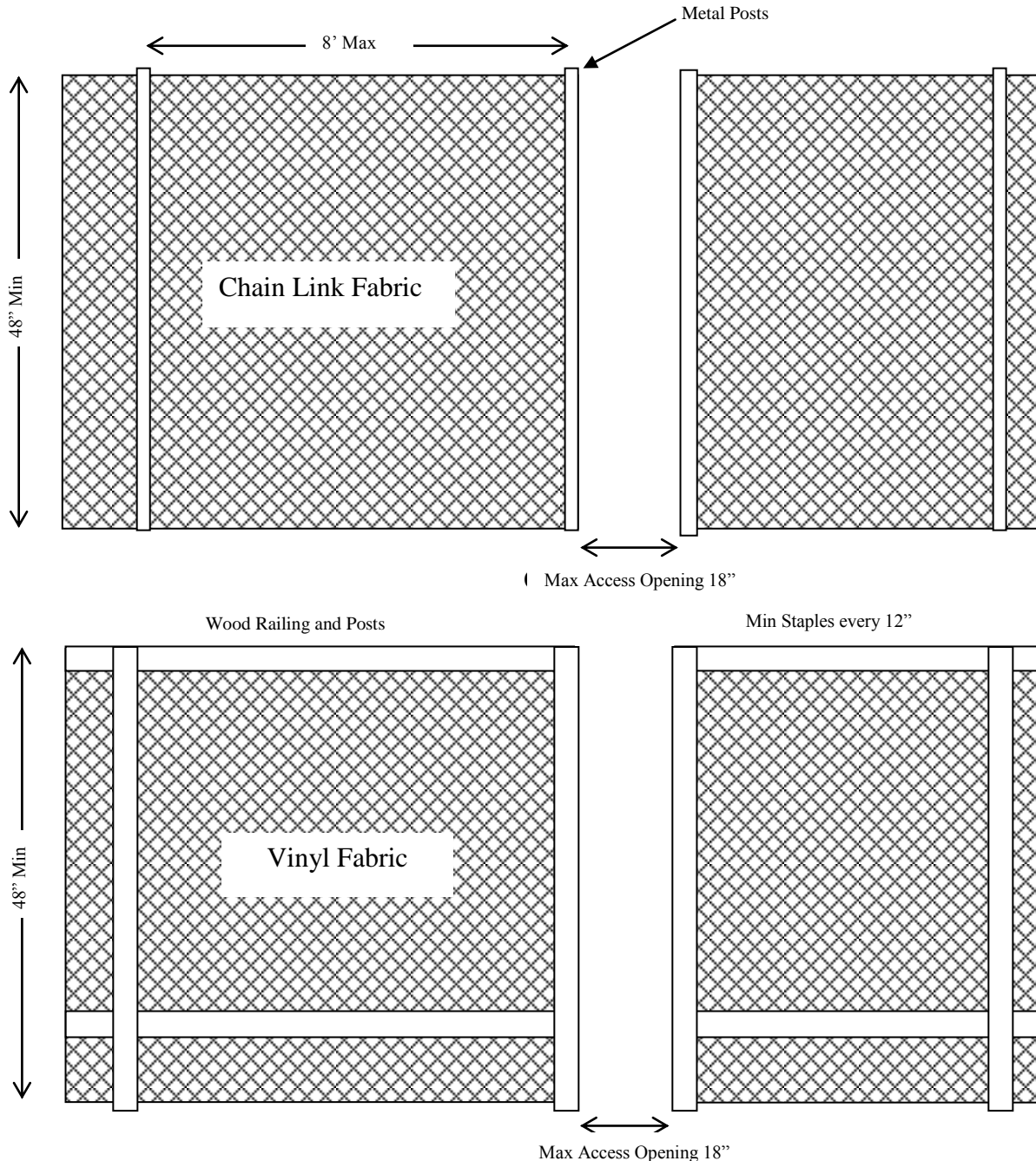
Insurance Underwriter: _____ Expiration Date: _____

Please request your insurance carrier to fax the required insurance certificate to (713) 827-8752. The City of Bunker Hill must be the certificate holder shown on the certificate. A copy of your applicable state license is also required. A permit will not be issued until this information is on file.



Types of Allowable Tree Protection Fencing

Tree protection shall consist of fencing, at least forty-eight (48) inches in height, which shall be placed at the drip line of the canopy of each tree to be preserved. Fencing shall be of either metal hurricane variety with steel posts no greater than eight (8) feet apart, or a wooden rail fence with vinyl construction fencing attached, with staples every twelve (12) inches. An opening shall be left in each fence enclosure of not more than eighteen (18) inches to allow access for maintenance of grass and vegetation. No such tree protection area shall be used to store materials or equipment.





ALLOWED REPLACEMENT TREES

If replacement trees are required as a provision of your building permit, new trees must be selected from the list below. Trees must be at least 3” in diameter 4.5’ from the ground.

Pecan	Drummond Red Maple	River Birch
Black Walnut	Winged Elm	Fringe Tree
Cedar Elm	Nuttall Oak	Chinese Elm
American Elm	Sweetgum	Southern Magnolia
Chinese Pistasche	Tulip Tree	Eastern Red Cedar
Green Ash	Yellow Poplar	Bald Cypress
Overcup Oak	Live Oak	Loblolly Pine
Shumard Oak	Bur Oak	Post Oak
White Oak	Swamp Chestnut Oak	Sycamore



General Contractor Responsibilities

The general contractor **SHALL PROVIDE A SINGLE PROTECTED AREA FOR ALL PERMITS AND INSPECTION RECORDS** issued for that site.

SANITARY WASTE: All sanitary waste shall be collected in an enclosed portable waste collection unit (portable toilets) approved by the City of Bunker Hill Village. All portable toilets shall be screened from view from any adjacent private property or any public or private roadway with privacy fencing or other decorative screening materials, of a height of not less than the height of the portable toilet. Each portable toilet shall be served at least one (1) time per week.

All trees to be left on the site **MUST HAVE TREE PROTECTION IN PLACE BEFORE ANY CONSTRUCTION INCLUDING DEMOLITION TAKES PLACE.**

ALL STREETS AND PUBLIC DRAINAGE AREAS MUST BE PROTECTED FROM SITE RUNOFF WITH A SILT FENCE. Any tracking of mud or debris **MUST BE CLEANED DAILY.**

ON-SITE PARKING FOR WORKERS: All vehicles belonging to construction workers shall be parked on the job site unless special approval by the building official is received. The builder shall provide an all-weather temporary drive to minimize tracking dirt, mud, etc., onto the adjacent street or streets.

HOURS OF WORK NOTICES MUST BE POSTED. The City of Bunker Hill will provide these notices in English and Spanish. The general contractor is to place them in a protective sleeve or have them laminated and post both at the site.

ALL TRASH, DEBRIS, AND LITTER MUST BE PICKED UP DAILY.

Violation of any of the above **CAN RESULT IN STOP WORK ORDERS OR A FINE OF \$2,000 OR BOTH.**

A “Site Inspection” is required prior to any construction activities to confirm that all of the above are in place. No construction inspections will be scheduled until an approved site inspection have been performed. Items to be inspected as part of a site inspection:

- Permit posting station in place with permits on site
- Tree protection as required
- Storm water protection in place (silt fencing)
- Designated construction parking location
- Work hours posted
- Fencing around sanitary facilities
- Dumpster in place



WORKING HOURS

**MONDAY – FRIDAY
7:00 A.M. TO 6:00 P.M.**

**SATURDAY
8:00 A.M. TO 5:00 P.M.**

**SUNDAY
HOLIDAY (NO WORK ALLOWED)**



LAS HORAS DE TRABAJO

LUNES – VIERNES

7:00 A.M. HASTA LAS 6:00 P.M.

SABADO

8:00 A.M. HASTA LAS 5:00 P.M.

DOMINGO

**DIA DE DESCANSO (NO SE PERMITE
TRABAJAR)**



Required Swimming Pool Inspections

Fax Inspection Requests 1 day in advance to the City of Bunker Hill using the form provided in this package. All inspections must be performed by City of Bunker Hill inspectors. Third party inspections do not take the place of city inspections.

Building

- Site – Must be performed prior to any construction. See inspection page for details.
- Stake Out – Please stake out the EDGE OF THE WATER.
- Steel – Pool steel, please show ground circuit.
- Pool Decking (Drainage inspection must have been completed by this time)
- Final – all other permits must be complete.

Additional inspections may be required and will be detailed on your permit. This list does not include inspections required for Mechanical, Electrical, Plumbing or Flatwork permits.

INSPECTION REQUEST FORM

City of Bunker Hill Village
FAX 713-827-8752



CONTRACTOR: _____

JOB SITE ADDRESS _____ CONTRACTOR FAX: _____

CONTACT PERSON: _____ PHONE NUMBER: _____

PERMIT# _____ DATE FOR INSPECTION: _____ Time Desired: _____

Please fax this form by 4:00 pm to insure next day inspections.

Building

- _____ Site
- _____ Pier
- _____ Foundation*
- _____ Wind Bracing
- _____ Brick Tie
- _____ Frame Cover
- _____ Polly Seal
- _____ Insulation
- _____ Wall Board
- _____ Final

*Form Survey must be presented and approved before a Foundation Inspection will be scheduled.

- _____ Pressurization
- _____ Shower Pan
- _____ Water Lines/Water Heaters
- _____ Gas Turn On
- _____ Area Drains
- _____ Final

Driveway/Sidewalk

- _____ Approach
- _____ Pre-Pour
- _____ Culvert
- _____ Final

Mechanical

- _____ Cover
- _____ Register/Box Seal
- _____ Change Out
- _____ Final

Fence

- _____ Final

Pool

- _____ Stake Out
- _____ Steel
- _____ Decking
- _____ Final

Electrical (Electrician must be present @ inspection)

- _____ Cover
- _____ Temporary Pole Set
- _____ TCI
- _____ Underground
- _____ Swimming Pool
- _____ Final

Irrigation

- _____ Final

Demolition

- _____ Pre-Demo

Plumbing

- _____ Sewer Disconnect
- _____ Underground
- _____ Cover

- Roof** _____ Final

Comments: _____

Site Inspection is to confirm the presence of 1) On Site Parking 2) Dumpster 3) Screened Sanitary Facilities 4) Filter Fabric and Runoff Protection 5) Temporary Drainage 6) Tree Protection 7) Permit Posting Station 8) Address Clearly visible from the street.