



CITY OF
MARATHON, FLORIDA
Public Works Department

Supplementary Permit Specifications
For Underground Construction
Within The City Limits of Marathon, Florida

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I. GENERAL INFORMATION:

The following Supplementary Permit Specifications for Underground Construction apply to all activities in road rights-of-way under the jurisdiction of the City of Marathon, which involves excavation. Such excavations may be associated with, but not limited to, installation, repair or removal of water mains, sewers, storm drains, gas mains, utility lines, service leads, or other such structures that parallel or cross public right-of-way.

These supplementary specifications are part of the approved permit and provide additional information and direction to permit applicants and licensees. These Underground Specifications incorporate by reference the American Association of State, Highway and Transportation Officials (AASHTO) Guidelines, Florida Department of Transportation (FDOT) Construction Specifications and FDOT Specifications for Road and Bridge Construction.

A permit application and the permit issued subsequent to the approval are based upon the set of plans filed at the time of permit application approval. Any item not specifically approved on the plans will be governed by these specifications and, the conditions included on the permit.

In the event that the applicant or licensee requests variances, changes, modifications or other adjustments to the specification or plan, the Building Department reserves the right to make additional requirements consistent with public safety, convenience and the preservation of the roadbed road right-of-way and roadside features.

The building department reserves the right to inspect and approve all aspects of the work within the right-of-way including but not limited to materials, construction methods, safety and signing. Costs for providing such inspection is the responsibility of the licensee. The licensee agrees to reimburse the building department for any costs associated with inspection or testing, the licensee also agrees to reimburse the building department for costs incurred by the building department in providing signing, barricading, maintenance or other items of work that may be necessary in emergencies as dictated by the building department.

Office hours for building department and permit inspectors are available from the Building Department.

II. DEFINITIONS:

Applicant	The party (city, county, corporation, property owner, etc.) making application for a permit to construct, operate, use, and/or maintain a facility within county right-of-way or to temporarily close a county road for the purpose outlined within the application.
Approved Excavated Material	Material excavated from within the right-of-way excluding peat, marl, muck, blue clay, topsoil and other organic or hydric soils that has been classified, optimum moisture and maximum density determined, that has been approved by the building department and meeting the requirements of FDOT standards for road and bridge construction.
Approved Plans	The plans submitted by the applicant and approved by the building department as part of permit approval. Approved plans include notes and comments made by the building department. The approved plans do not include contracts, proposals and other documents unless specifically noted or approved by the building department.

Emergency Access	Access maintained for the purpose of emergency vehicles including all police, fire and paramedic equipment.
Lane Closure	Blocking one lane of a roadway in such a manner that the lane is unavailable for normal traffic usage.
Licensee (Permitee)	The party securing a permit and responsible for performing the work outlined in the application for permit (contractor).
Local Traffic	Traffic, which uses a particular street or route to access residences, businesses or other abutting properties and has no alternative route to said residence, business or other abutting property.
Major Roads	Primary or local roads that carry substantial traffic volume (greater than 500 vehicles per day) and provide continuous route for through traffic.
FDOT	FLORIDA DEPARTMENT OF TRANSPORTATION
One-Lane Traffic	Alternating one-way traffic operation using flag persons or other traffic control measures.
Right-Of-Way	A general term denoting land, property or interest therein acquired for or devoted to a road under the jurisdiction of the City of Marathon. The right-of-way may be held as a deed, easement or any other conveyance of property or rights, including land that has a reasonable probability of becoming public right-of-way.
Roadbed	That portion of the roadway between the finished edge of the road shoulders or two feet behind the curb. On unpaved roads or roads without shoulders or curbs, the limit of the roadbed is two feet outside the traveled portion of the roadway.
Road Closure	Physically or operationally blocking all improved lanes of a roadway preventing the flow of through traffic, local traffic with emergency access maintained.
Through Traffic	Traffic whose destination or origin is not to or from residences, businesses or other properties which abut a particular street or route.
Zone Of Influence	That area outside of the roadbed, but within the area defined by a one-to-one slope extended from the edge of the roadbed.

Other definitions not specifically listed herein may be found in the Florida Department of Transportation Standard Specification for Roads and Bridges and other manuals incorporated by reference in this document.

III. ROAD CROSSINGS:

All underground utility crossings of paved roads and gravel primary roads will be done by an approved method of boring and jacking or tunneling unless so indicated on approved plans or approved in advance by the building department.

If tunneling under the roadbed is proposed, the tunnel shall be adequately sheeted or shored to prevent the sides and top from collapsing and the pavement from settling or cracking, voids between shoring/sheeting and the side of the excavation shall be eliminated.

If a pipe is to be installed under the roadbed by boring and jacking, the leading edge of the pipe shall precede the auger by $\frac{1}{2}$ times the diameter of the pipe. A casing pipe is required for under all trafficked surfaces. A casing pipe may also be required at other times when deemed necessary by the building department, the casing must be pressure grouted after installation to fill all voids, all pipes greater than four inches in diameter shall be bored using an auger.

All shafts or pits shall be located at least ten feet off the edge of pavement on major roads and five feet off the edge of pavement on subdivision roads. If the shaft or pit must be closer to the road than the above dimensions due to the location of the utility to be tapped, sheeting or shoring must be used on all sides of the excavation which are closer to the road than the above requirement, backfill and compaction methods shall meet trench backfill requirements.

All voids shall be filled by pressure grouting or other approved methods.

If any settlement or other change in grade of the roadway, curbs or ditches occurs, the road and/or drainage facilities shall be repaired or reconstructed to proper grade as directed by the building department.

If a crossing cannot be bored due to extenuating circumstances, an open-cut crossing may be approved by the building department. Provisions for handling traffic will be as directed by the building department and comply with FDOT standards for traffic through construction sites. All expenses including but not limited to signing, pavement markings and traffic control shall be borne by the licensee.

Open-cut crossings shall be made between the hours of 9:00 a.m. to 3: p.m. only unless otherwise authorized by the building department. Lane closures may not commence before 9:00 a.m. and must be completed and normal traffic flow restored before 3:00 p.m. unless otherwise approved and/or directed by the building department. Lane closures or other operations will not be authorized on major holidays and the Fridays proceeding major holidays including Memorial Day, Fourth of July and Labor Day. Open-cut crossings shall not be started until all equipment and material necessary for restoration is on-site or immediately available. Open-cuts will not be allowed to begin if inclement weather is threatening which may impede the contractor's ability to restore the traveled way in a timely manner.

No road shall be closed without prior approval of the building department. Approval of road closures will require that detours be installed in accordance with section 11, "Maintaining Traffic". requests for road closures must be made in writing and include the location, length of time the road will be closed, approximate starting and completion dates, reasons for the request and a signing diagram showing all intent and detour signing.

If a road closure is not approved, through-traffic must be maintained at all times. Sheeting of the excavation may be required to protect the road if conditions warrant sheeting. The road surface may not be used for the storage of materials or any other construction purpose without prior approval of the building department. Depending on traffic volumes and other conditions, the building department may require the licensee to provide by-pass lanes (either paved or unpaved). One-lane traffic control shall be in accordance with section 11, "Maintaining Traffic".

All areas within the right-of-way beyond the shoulders, curbs or edge of gravel of the road which are disturbed as the result of the licensee's operations, must be restored as soon as possible but not more than 7 working days from the event or before the first rainfall event whichever is first. Restoration shall not be delayed until project completion. Failure to comply with this specification shall be just cause for the building department to stop the remaining construction work until the required restoration is

completed, the ground cover specified on approved plans shall be maintained until final settlement of excavated or disturbed areas has occurred and growth is established.

Sod will be required at all locations shown on the approved plans. Sod may be required by the building department in areas where topsoil, seeding and mulching cannot (or has not) provided the effective ground cover required because of steep slopes or grades, velocity or volume of water or other conditions. Selected sodding materials will match the majority population of native grasses in the immediate area. All sod shall be placed on two inches of topsoil following preparation of the surface. The licensee is responsible for the establishment and successful growth of vegetation. The permit, bond and deposit will not be released until the building department is satisfied that vegetation has been re-established.

Areas that are not to be sodded shall be top soiled, seeded and mulched or hydro seeded, the seed shall be FDOT roadside seed mixture, unless shown on the approved plans, applied at a rate of 100 pounds per acre, fertilizer shall be applied at a rate of 240 pounds per acre. Topsoil shall be place two inches deep. Mulch shall be spread over the ground and held in place by approved tacking methods.

Existing encroachments on right-of-way that are removed by the licensee may be re-established on the right-of-way as approved by the building department.

IV. PAVEMENT REMOVAL:

All crossing of major roads by the open-cut method shall include removal of the pavement to a minimum width of at least five feet and at least one foot beyond the limits of the damaged pavement.

If the pavement removed is concrete or asphalt over concrete, the remaining slabs shall have a minimum width of at least five feet from the patch to an existing joint. The cutting of the pavement shall be made by sawing to a minimum depth of five inches. Cuts in concrete residential and commercial drives shall be as above except that the patch width shall be a minimum of three feet and the remaining slab width from the patch is the existing joint shall be a minimum of three feet.

If the pavement is asphalt, the pavement shall be cut by sawing prior to excavation unless otherwise indicated on approved plans. Cuts in driveways or street approaches may require an overlay of the entire approach as determined by the building department.

All saw-cuts shall be made in a straight line and shall be parallel to existing transverse and longitudinal joints unless otherwise approved.

All equipment and materials necessary for restoration, including but not limited to compaction equipment and sand, shall be on site prior to beginning excavation, material, which cannot be stored, such as hot mix asphalt, shall be immediately available.

V. BACKFILLING & COMPACTION OF BACKFILL:

All backfill operations shall be conducted in accordance with the following:

General requirements:

Compaction shall be accomplished by suitable mechanical compaction equipment and methods as shown on approved plans or by methods approved by the building department.

Where granular material is specified on approved plans or when required by this section, it shall meet the requirements set forth in the following table.

TABLE OF GRADING REQUIREMENTS FOR GRANULAR MATERIALS									
Material	Total Percent Passing (Sieve Size - U.S. Standard Sieve Series)								Loss by Washing
	6"	3"	2"	1"	1/2"	No. 4	No. 30	No. 100	
Class I			100		45-85	20-85	5-30		0-5
Class II		100		60-100				0-30	0-7*

* To be determined on that portion of the sample which passes the 1" sieve.

Where granular material is not specified on approved plans or required by this section, excavated material capable of meeting identified compaction requirements may be used. Topsoil, peat, muck, marl, silt and blue clay are not approved materials and shall not be used. The licensee is responsible for identifying the excavated materials to be used, compaction methods, testing requirements, including moisture and density, handling and material management methods in writing to the building department. The building department must approve prior to commencing operations.

All backfill materials shall be free of broken concrete, asphalt, wood material, sod, debris, garbage, refined metals and any other material deemed unfit by the building department.

Requirements based on excavation locations:

Within roadbed limits or under concrete or asphalt sidewalks, driveways, or parking areas.

Backfill Requirements:

Granular material shall be used unless shown on approved plans or otherwise approved in writing by the building department. If the licensee proposes to use excavated material, not shown on approved plans, the building department will require that the licensee agree to material sampling, testing, material storage and handling, and other requirements that may be identified prior to the use of other backfill materials. The backfill shall be placed in layers of not more than six inches in compacted thickness. Each layer shall be compacted to not less than 98% of maximum unit weight as determined by appropriate test method.

Outside the roadbed and zone of influence and not under sidewalks, driveways or surfaced areas.

Approved excavated material may be used provided that specified density requirements can be met. The backfill shall be placed in layers of not more than one foot in thickness; each layer shall be thoroughly compacted to 90% of maximum unit weight.

The licensee shall supply sufficient density tests, conducted by an approved independent testing laboratory, to assure the building department that compaction requirements are being accomplished. The frequency of testing will not be less than one passing test per 250 linear feet of trench or 20 cubic yards of fill. The licensee shall notify the building department of the name, address and phone number of the testing laboratory 72 hours prior to beginning backfill operations.

If the required in-place compaction or stability cannot be obtained, the licensee shall remove the material and granular material will be required.

Excavated material, which is proposed to be used as backfill shall be tested and approved prior to commencing operations. Soil borings and tests should be submitted with the application. The material must meet the following criteria:

Minimum 50% sand

Maximum 10% wash (passing a #200 sieve)

Must be at or below optimum moisture content

Must be compacted to meet density requirements found in section III A and B

No plasticity due to excess moisture or overworking

No appreciable deflection under load from heavy construction equipment

If moisture content changes due to precipitation or humidity, re-testing or special handling will be required

Field compaction test methods shall be employed which give immediate test results.

All under-drain systems that are disturbed shall be rebuilt in a manner that completely restores their function.

Any geotextile fabric or geogride encountered in the excavation must be restored in a manner that ensures the integrity of the material as it was originally intended; the building department must approve the material and methods of repair prior to installation.

VI. PAVEMENT REPLACEMENT:

Temporary replacement (Patching)

All pavement removed in crossing and/or paralleling paved roads, or as result of damage caused by the licensee shall be temporarily replaced by the licensee in accordance with the following.

A minimum of three inches compacted thickness of hot mixed bituminous asphalt (placed in two lifts) over twelve inches of compacted 23A modified aggregate. Crushed concrete will not be allowed unless indicated on approved plans.

Temporary repairs will not be performed during in climate weather.

Temporary pavements must be placed immediately after utility installation in the crossing of all roads. Failure to do so shall be just cause of either the temporary or permanent suspension of the Licensee's permit. Temporary pavements may be placed in accordance with the requirements stated below as permanent pavements, subject to acceptance by the building department at the time of final inspection.

All temporary pavements must be maintained and kept in good condition by the licensee until the final pavement replacement is made. Costs for the emergency repairs by the building department will be billed to the licensee.

Final Pavement Replacement

Final pavement replacement shall be made following completion of the excavation providing suitable settlement has taken place over a period of at least four months or unless otherwise directed in writing by the building department. If more than 20% of the width of a lane of asphalt surfaced road (or section thereof) is removed or damaged by the licensee's operations, a full cap of the roadway width (or section thereof) will be required. The full cap shall consist of a bituminous overlay, of a minimum thickness of one and one-half inch of material to match or exceed the quality of the existing material.

The final area of pavement to be replaced and/or capped shall be determined by the building department. The final repaving shall be done by an approved paving contractor in accordance with the current building department standards. The name of the proposed paving contractor and a list of equipment and source of materials that will be used during pavement replacement shall be submitted in writing to the building department and approved in writing to the building department before pavement replacement is started. The building department must be notified two working days before pavement replacement is started. The building department reserves the right to test and inspect at the point of origin all materials to be used at the licensee's operations shall be restored to the satisfaction of the building department. This includes all traveled lanes including turn lanes, passing lanes, tapers, paved shoulders, driveway and street approaches that may be damaged directly by the work performed or indirectly due to material handling, trucking, equipment, or temporary roads.

VII. SHOULDER RESTORATION:

Road shoulders will be restored to the same type (paved, gravel or grassed), width, slope and thickness as existed prior to the start of work.

Gravel shoulders that are removed during construction are to be replaced with compacted, well graded “key Largo Lime Rock”.

Gravel shoulders which are not removed but are contaminated, rutted or otherwise damaged shall be restored by removing the contaminated material and replacing it with compacted, well graded, “key largo lime rock” to the original thickness width, slope and flush with the road surface, if the road is resurfaced, sufficient gravel shall be added to bring the shoulder up to the new surface elevation.

If all or a portion of the shoulder is paved, the Licensee shall replace the paved shoulder with class B or better bituminous asphalt pavement. If necessary, the edge of the roadway shall be trimmed to present a smooth edge for attachment of the paved shoulder and treated with a bond coat. The width of the paved shoulder shall match the existing width or be three feet minimum. The cross-section shall be a minimum three inches of 1100 bituminous asphalt over eight inches of 23A crushed lime rock aggregate.

VIII. MAINTENANCE & RESTORATION OF RIGHT-OF-WAY:

All road drainage shall be restored as soon as possible following construction. Ditches, ditch slopes and other areas within the right-of-way shall be restored to meet the current standards for FDOT Standard Road Cross-Sections, unless otherwise noted or shown on approved plans; roadside ditches will not be required on roads that were never previously ditched.

All culverts and ditch enclosures removed in good condition by the Licensee shall be re-laid in proper position and elevation. All culverts and ditch enclosures, or section thereof, which are not in good condition after removal, shall be replaced with pipe meeting current FDOT standards. Grading or ditching may be required near the inlet or outlet in order to re-establish drainage beyond that shown on the approved plans.

The Licensee is responsible for restoration or re-establishment of drainage patterns or systems disturbed by the work or their operations. Unless so indicated on the approved plans, the Licensee shall be responsible for any survey required in order to establish elevations of culverts, ditches, inlets or outlets, or any other structure elevation required in order to restore function to the drainage system. If necessary, the Building Department may establish these elevations and grades at the expense of the Licensee, the Licensee will be required to re-ditch or establish new ditch elevations based on changes to culverts or other structures so that a stable, maintainable ditch results. If the ditches are deep enough or the volume of water is sufficient that erosion of the ditch bottom may occur, than rip rap or other structural elements may be required in order to stabilize the roadside ditches or their outlets.

Roadside ditches may not be eliminated, reduced in cross-section or enclosed unless shown on the approved plans or approved by the Building Department.

In the event that culverts or other drainage structures are discovered during the course of the work, that are not shown on approved plans, the applicant and/or Licensee area responsible for replacement and/or restoration of such structures as if they were properly shown on approved plans unless the Building Department of Marathon approves elimination of the culvert or structure.

IX. GRADE OF TOP OF STRUCTURES:

The height of the top of any utility structure constructed or reconstructed within the right-of-way shall be determined as follows.

If the structure falls within a paved road or other paved surface including driveways, side-streets, sidewalks and non-motorized paths, the cover shall be flush with the finished pavement elevation on all sides.

If the structure falls within the roadbed of a gravel road or the unpaved shoulder of a paved road, the cover shall be 6 inches below the finished gravel surface.

If the structure falls within a ditch, the cover elevation shall be set at top of ditch slope elevation and the ditch shall be relocated around the structure and away from the road with a stable earth berm around the structure. Where called for on the approved plans or as directed by the Building Department of Marathon, a culvert of adequate length and size shall be installed in order to carry storm water around the structure.

Any structure on the back slope of a ditch shall not protrude more than 6 inches above the slope.

In the event that a utility cover falls within a traveled lane, turn lane or taper and final pavement restoration will take place more than 30 days after temporary pavement repair then; such structure covers will be set flush with the temporary surface or the first course of asphalt. The structure cover will be re-adjusted at the time of final surface restoration.

X. DUST CONTROL:

The Licensee shall maintain all work areas in the right-of-way in a safe, dust free condition until all work in a given area is completed, including the hauling of materials. Dust control at a frequency determined by the Building Department shall be provided on any unpaved detour, by-pass and shoulder which is to be used by traffic. The use of oil will not be permitted by the Building Department. Chloride shall not be used for dust control on paved streets.

XI. TREE REMOVAL, TRIMMING OR TUNNELLING:

In the event that the project will require the removal or trimming of trees, the Licensee will be required to comply with the City's requirements on the issue which can be found on the "forms" page of the City of Marathon web page: <http://www.ci.marathon.fl.us> or click here for the direct link: <http://www.ci.marathon.fl.us/common/modules/documentcenter2/documentview.aspx?DID=1410>

The Licensee will be required to show on the construction plans or on separate sheets similar to the plans, the location, size and species of all trees which may be affected by the proposed construction in such a way as they are readily identifiable in the field. They must also indicate thereon, which individual trees are to be removed, tunneled or trimmed. If a tree is to be trimmed, the type and extent of trimming must be indicated.

Before destroying or removing any tree larger than four inches in diameter located on the right-of-way which has not been dedicated by plat, deed or recorded easement, the Licensee must give at least ten days notice of his intent to destroy or remove any tree, by certified mail to the owner of record of the land where the tree is located. This notification applies to the area within the assumed right-of-way of record either side of the road centerline adjacent to unplatted property.

Disposal of Material

All stumps, limbs, litter and logs are to be disposed of outside of the road right-of-way. The abutting property owner has the right to the wood. Logs and major limbs may be cut into fireplace lengths and piled neatly in the right-of-way, at least ten feet from the traveled road for removal by others. If, after five working days, the wood has not been removed by others, the Licensee shall dispose of it and repair any damage to lawn/grass caused by the storage. Burning of brush and debris is not allowed unless explicitly sanctioned by the Building Department.

Tunneling or Boring Under Trees

The tunneling or boring must be below the major root system and extend a distance of one foot on either side of the tree for each two inches of trunk diameter. All voids around the tunneled or bored facility shall be backfilled with excavated material and thoroughly compacted to avoid settlement. Licensee is responsible for the establishment of a healthy development of natural grasses for the extent of the affected area. If the tree is severely damaged or dies within one year as a result of the tunneling or boring, the Licensee will be required to remove it and plant another tree in its place at their own expense.

Replacement of Trees

As a condition of this permit, the Licensee will be required to replace trees on a two-for-one basis as described in the "Land Clearing and Pruning Information" unless otherwise approved in writing by the Building Department. The "Land Clearing and Pruning Information" can be found on the City of Marathon web site: <http://www.ci.marathon.fl.us> or click here for the direct link:

<http://www.ci.marathon.fl.us/common/modules/documentcenter2/documentview.aspx?DID=1410>

XII. CONDUCT OF OPERATIONS:

Any Licensee who conducts their operations in a manner detrimental to the Building Department's statutory obligation of maintaining roads and streets at all times in a safe and fit condition for the traveling public will be required to cease all operations within the right-of-way. If necessary, additional cash deposits and expense of maintaining a full time inspector designated by the City of Marathon Building Department may be required from the Licensee prior to the resumption of work.

XIII. DISPOSAL OF WATER:

When conditions call for site dewatering; in no case shall water be allowed to directly enter wetlands, canals, bays or any other natural bodies of water without prior retention and treatment. Nor shall site discharge or runoff water be allowed to enter stormwater structures. Proper barriers must be in place before the start of work. Plans and drawings submitted at the time of permitting shall show site drainage and appropriate detention and filtration mechanisms.

XIV. MAINTAINING TRAFFIC AND TRAFFIC CONTROLS:

Signs and Signing

The necessary signs and sign support standards, barricades and traffic control devices necessary for the protection of traffic shall be in accordance with FDOT manual of uniform traffic control devices as approved by the building department. All such devices shall be furnished, installed and maintained by the licensee.

The licensee shall not begin any operations in a given area until all of the stop signs and street name signs have been reset, auxiliary barricades erected, and flasher or steady burn lights attached to all required barricades as required.

Traffic control signs and street name signs shall be removed, temporarily reset and maintained by the licensee. The traffic control signs shall be reset in locations where the regulations apply and continue to serve their intended purposes. The signs shall be mounted so as to be easily visible and legible to traffic.

Upon completion of the project, traffic control signs and street name signs will be reset in their proper position by the licensee. This will comply with the approved drawings as submitted to the building department before the execution of the work. All new signs will comply with FDOT standards and local requirements. Temporary speed limit signs may be required for the project. The licensee shall relocate and maintain the temporary speed limit signs as directed by the building department.

All signs erected or relocated by the building department shall be at the expense of the licensee. All erected and replacement of existing signs which are damaged during the course of construction will be charged to the licensee at the rate of no less than \$100.00 for each sign. The building department will inventory all signs at the beginning of a project and upon project completion before final acceptance is made.

The licensee shall be responsible for the protection of all traffic control devices within the project area from damage due to the operation including material hauling, storage, equipment moves and parking.

Advisory of information signs may be required in order to direct traffic to commercial or public facilities located within the work area.

Temporary lane markings shall be placed immediately after paving where needed to control traffic.

Lane Closures

Where a lane closure is approved by the building department for purposes of open-cut crossings, construction within or immediately adjacent to the traveled portion of the road, or parallel to the roadway, the following requirements shall apply.

Lane closures will be restricted to the hours of 9:00 a.m. to 3:00 p.m. unless specifically authorized by the building department.

All required signing shall be in place and by-pass lanes and other improvements, if required, shall be completed before the lane closure begins.

Warning signs in construction areas shall have a black legend on an orange background. Color for other signs shall follow the standard for all highway signs. For speed limits of 40 m.p.h. or less, 36 inch warning signs can be used. If the speed limit is 45 m.p.h. or greater, 48 inch warning signs shall be used. All signage will meet FDOT standards.

At least one red flag shall be placed at the top of all construction or maintenance signs. The flags are used to draw the attention of the motorists.

The bottom height of a sign should be five feet from the roadway's surface elevation and a minimum of 6 feet off the edge of pavement. In cases where pedestrian traffic may occur, the minimum sign height is to be seven feet while the lateral placement may be a 2 foot minimum from the edge of the walkway.

For short-term activities where portable sign mountings are used, the minimum bottom sign height may be one foot.

Barricades

Barricades should be of the single post or saw-horse variety.

Markings for barricades shall be alternate orange and white stripes at a 45-degree angle in the direction traffic is to pass. They are to have a reflective characteristic appropriate for night time use.

Steady or flashing lights are to be installed on each barricade if used at night.

Cones

Cones may be used to delineate the working area and to channelize traffic. They shall be a minimum of 24 inches in height with a broadened base and, by fluorescent orange in color. Cones shall only be used during daylight hours.

Drums

Drums will be of the polymer variety, thirty to fifty-five gallon capacities, and shall be marked with orange and white reflective material. The predominant color shall be orange with at least two horizontal, circumferential white stripes four to six inches wide.

Drums can be used to channelize traffic or to delineate a hazard. However, they should never be placed in a roadway without advanced warning signs.

For nighttime use of barrels, a steady burn warning light shall be used on the drum when used in a series for channelization. When used singularly, however, a flashing waning light shall be used on the drum.

A flag person is required at work sites to control traffic intermittently as required by work progress or to maintain continuous traffic past a work site at reduced speeds.

At all one-way traffic blocks which are two hundred and fifty feet or less in length and where there are no visibility problems; one flag person will be required in the working area.

Where there are one-way traffic blocks over two hundred and fifty feet in length or where there is a visibility problem, one flag person shall be required at each end of the working area. Additional flag people may be required due to heavy traffic, intersections, etc., as determined by the building department.

Generally, a flag person should be located on both sides of the construction to direct the traffic flow from both directions (200 to 300 feet prior to the construction area). They should stand on the shoulder adjacent to the traffic and be in direct communication with each other.

The flag person shall devote full-time to the control of traffic and shall not be used to assist in the construction operations. During the flag person's coffee breaks, lunch period, etc., another person must be assigned to perform these duties as long as the lane closure is in effect.

Flag people shall wear fluorescent or reflectorized vests and be equipped with hand-held "STOP/SLOW" paddles.

Where a flag person or flag persons are used, the "flagger ahead" sign shall be posted in advance of the flag person station in accordance with the current FDOT standard for work zone traffic control.

Traffic controls operations shall be conducted in a courteous and professional manner and every reasonable effort must be made to minimize delay and congestion in the work area including cross-streets.

After working hours, signs which are not appropriate shall be covered or removed so that traffic will not be confused.

When a lane closure must remain in effect overnight, proper lighting will be required.

All warning signs to be use during hours of darkness shall be reflectorized and require two flashers.

When traffic conditions warrant, in the opinion of the building department, the building department reserves the right to require that the licensee cease operations and restore the road to full use during periods of peak traffic hours.

XV. STORAGE, LOADING AND UNLOADING OF MATERIALS:

The Licensee shall store all materials far enough away from the road surface so that they are not a hazard to the traveling public. The Licensee shall maintain sufficient clear areas on the shoulder that a car can park off the road in an emergency. Materials and equipment shall not block the vision of traffic seeking ingress onto the road. Only these materials that will be used by the Licensee in their immediate operations can be stored in the right-of-way. All other materials, equipment, and trailers must be stored in an area outside of the right-of-way.

Loading and unloading operations shall be conducted in a manner that minimizes congestion and delay to the traveling public. Proper traffic control must be in place prior to temporary lane closures to load or unload materials or equipment. The Licensee may not close through lanes during the morning or evening rush hour to load or unload materials.

Polluting Materials

Polluting materials including, but not limited to oil, grease, diesel fuel and gasoline shall be stored and managed in compliance with current state and federal rules and regulations and in such a manner that spills will be contained and avoid contamination of the ground or ground water. The Licensee is responsible for cleanup and removal of any contaminated soils with the surface returned to its original condition.

Erosion Control

The Licensee is responsible for installing and maintaining all erosion control features shown on the approved plans, soil erosion and sedimentation control permits, or as may be required during the life of the project. All temporary control measures must be removed prior to the final inspection.

The Licensee shall be responsible for preventing erosion and sedimentation during any suspension of operation including disputes between the applicant and Licensee. In the event that the Licensee fails to maintain soil erosion or sedimentation features including temporary seeding and mulch, the Building Department shall undertake such work as required at the expense of the Licensee.

XVI. ACCESS TO ABUTTING PROPERTIES:

The Licensee is responsible for maintaining a minimum of one acceptable access to all abutting occupied properties, driveways and side streets unless otherwise indicated on the approved plans. The Licensee is further responsible for coordinating with property owners that may lose access during the excavation or other work. Acceptable access shall be defined by the local police; fire or emergency services agencies. The Licensee is responsible for providing signing and other improvements necessary to insure adequate access until the roadway, driveway or side street is restored. The Licensee shall conduct their operation in such manner as to minimize inconvenience to abutting property owners.

The Building Department reserves the right to reasonably restrict the progress of excavation by the Licensee based on the rate of roadway and right-of-way restoration, including permanent or temporary pavement, the building department may require that excavation be suspended until satisfactorily backfilling of open trenches or excavations have been completed and driveways, side streets and drainage restored.

XVII. SUSPENSION OF WORK:

The Licensee is responsible for restoring the right-of-way and roadway to a condition acceptable to the Building Department in the event that the work covered by the permit is suspended due to any reason including dispute between the applicant and the Licensee. Restoration shall include paving, stabilization of slopes and dithers, and installation of temporary or permanent drainage facilities or structures.

The Licensee agrees and understands that the Building Department will take reasonable actions necessary to ensure safe public travel, preservation of the roadway and drainage, the prevention of soil erosion and sedimentation, and elimination of nuisance to abutting property owners. Any such costs will be borne by the Licensee.

In the event that suspension of work will be protracted, or, will not be completed by the Licensee, the Licensee shall restore the right-of-way to a condition similar to the condition that existed prior to issuance of the permit. Should the Licensee fail to restore the right-of-way, the Building Department will notify the Licensee and request that the Licensee's bonding agent either complete the work or

restore the right-of-way. In the event that no bonding agent is designated, the Building Department will execute the work to restore the right-of-way with the expense borne by the Licensee.

XVIII. SUB-SURFACE CONDITIONS:

The Building Department makes no warranty either expressed or implied to the applicant or Licensee as to the suitability of or condition of soils and/or ground water that may be encountered during an excavation. The applicant and Licensee are responsible for subsurface investigation proper disposal according current regulations of any material excavated from within the right-of-way including soils or ground water contaminated by petroleum products or other pollutants.

Further, the Building Department makes no warranty as to the suitability of the subsurface for the work proposed.