

# **Buckeye Water Conservation & Drainage District**

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## **Reference: Irrigation and Drainage System Relocation Guidelines For Land Development and/or Street Improvements**

### **1. Introduction**

The following Buckeye Water Conservation and Drainage District (District) policies and standards are provided as guidelines for Developers and Planners involved in projects impacting existing District irrigation and drainage facilities.

**These guidelines are presented as generalized criteria only; the District reserves the right to modify policies, specifications and/or design requirements for each project on a case-by-case basis.**

Independent, professional planners, engineers, attorneys, or other consultants whose professional expertise is appropriate for a particular project will assist the District. All costs and fees associated with the review of development plans and/or the modification of District facilities are the responsibility of the Developer. These costs are typically incurred for, but not limited to, pre-design engineering planning and analysis, engineering survey and design, legal work, construction, construction inspection and project administration.

An independent engineer selected by the District will design all necessary modifications to the District's irrigation and drainage facilities. All District facilities modified to accommodate a development project will be designed and constructed to current applicable District standards.

Generally, a licensed contractor selected by the Developer will complete the construction of relocated District facilities. However, the District reserves the right to selectively determine that some, or all of the relocated facilities will be constructed by the District. A construction observer selected by the District will monitor the construction of all District facilities.

Prior to the commencement of work by the District beyond the initial planning and coordination stage of a development project, the Developer must sign a Participation Agreement Letter with the District and provide advance funds covering the estimated cost of the work.

The following general topics are discussed in these guidelines:

- District Funding Requirements
- General Procedure for the Relocation of District Facilities
- District Easements
- Placement of Relocated District Facilities
- Utilities
- District Landscaping Restrictions

## **Irrigation and Drainage System Relocation Guidelines For Land Development and/or Street Improvements**

- Acceptance of Surface Drainage
- District Irrigation Wells
- Gates for Irrigation Delivery Structures
- Frames and Covers for Irrigation Manholes
- Maintenance of District Irrigation Service

### **2. District Funding Requirements**

All costs, directly or indirectly, associated with the relocation of District irrigation and/or drainage facilities are the sole responsibility of the Developer or payor. The District will not share in the costs of funding a relocation project.

Typical costs incurred by the District that must be funded by the Developer in association with a relocation project include, but are not limited to: engineering planning and design, construction coordination and observation, as-constructed survey; project management, legal costs, coordination and plan review with utility companies, utility location services, governmental and/or municipal plan review fees, and project administration and overhead costs.

In general, the Developer's Contractor will complete the physical construction of the District facilities for a relocation project. The District does not typically incur costs for the labor and materials directly associated with the construction of their relocated facilities.

The District requires the Developer to provide funds for the expected estimated costs that will be incurred by the District for a specific relocation project prior to the commencement of any substantial work by the District. In this regard the District will typically provide the Developer with separate funding requirement notifications for the pre-design, design and post design (construction) phases of the project.

The District will place these funds in a special account to be applied against costs incurred by the District in association with the relocation project. Once these funds are depleted, the District has no obligation to incur further costs or to proceed further with the design, modification or relocation of its facilities until the Developer provides subsequent funds in the amount(s) requested by the District.

Any funds remaining in the project account at the end of the design phase of the relocation project will be credited towards the subsequent post design phase of the project. Funds remaining in the project account after post design and the final acceptance by the District of the adequacy of the relocated facilities will be refunded to the payor.

### **3. General Procedure for the Relocation of District Facilities**

#### **3.1 General**

The procedure for the relocation of District facilities is a multi-step process divided into three distinct phases; pre-design, design and post-design. The District will provide a separate notification of the funding requirement for each phase of the project to the Developer at an appropriate time.

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### **3.2 Pre-Design Phase**

The pre-design phase of a District relocation project includes the initial meetings with the Developer, and typically the Developer's Engineer, to discuss the details of the development project, District procedures and requirements, and the District's preparation of a scope-of-work and budget for the subsequent design phase.

The Developer should arrange to meet with the District and the District's Engineer as early as possible during the planning phase of the development project in order to obtain information concerning the District's rights, responsibilities, and requirements prior to the preparation of a preliminary plat and/or final plans. At this meeting the Developer should provide a plan or plat depicting the location of streets, lands dedicated for public use, open space, retention areas, lot layouts, utility locations, etc.

The District and the District's Engineer will review the Developer's preliminary plans to determine the impact the development will have on the integrity and operational flexibility of the District's facilities. If it is determined that relocation of District facilities is required for the development project and that relocating the District's facilities is in the District's best interest, the District and the District's Engineer will work with the Developer to determine the general scope and breadth of the relocations, identify potential alignment alternatives and note potential complications in the design process. The approval of a new alignment, and/or the location of any new District facility, is solely the responsibility of the District.

At the Developer's request, the District will prepare and submit a scoping package for the design phase of the project. This package will include a detailed scope of work, an engineering budget and a Participation Agreement Letter (PAL). To initiate the preparation of this package the Developer must provide a non-refundable fee of \$10,000 to the District. The District will provide a written notification of the fee requirement to the Developer when requested.

The estimated scope of work and budget for the design phase will be based on the alternatives and features discussed with the Developer and the Developer's Engineer and will typically include a schematic layout of the proposed RID facilities. The PAL is the standardized contractual agreement between the District and the Developer. Any changes proposed by the Developer to this document must be reviewed by the District's Attorney and may require approval of the District's Board of Directors.

The Developer should carefully review the scoping package for the design phase to ensure that it will meet the requirements of the development project. The scoping package is valid for 90-days from the date of its transmittal letter.

### **3.3 Design Phase**

The design phase of the relocation project includes the engineering design of the District's facilities, the preparation of construction plans, and the procurement of any municipal and/or governmental approvals required for the plans.

To initiate the design phase the Developer must return a signed PAL to the District along with the required funding as detailed in the scoping package. Once the PAL and funds have been received, the District will issue a notice to proceed with the project to the District's Engineer.

Ideally, the paving and grading design for the development should be approximately 60% complete prior to the commencement of the District's relocation design. This will provide the

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best opportunity for the Developer's Engineer and the District's Engineer to effectively coordinate and accommodate elements of the interdependent design projects.

The Developer's Engineer will need to provide all pertinent CADD files and preliminary plans for the development project. The District's Engineer will typically utilize the same horizontal coordinate system and vertical datum established for the development project by the Developer's Engineer to facilitate both the coordination of the design process and the construction of the District facilities. To avoid a duplication of effort, the District's Engineer, to the extent practicable, will utilize the provided CADD files for the preparation of the District's construction plans.

The Developer is solely responsible for the accuracy of the plans and/or CADD files supplied by the Developer's Engineer. The District and/or the District's Engineer will not be responsible for any costs resulting from errors and/or emissions in the plans and/or CADD files provided by the Developer.

The District's Engineer will schedule and perform any surveying required to complete the hydraulic design of the relocated facilities. To the extent possible, any survey information provided by the Developer's Engineer will be utilized for this purpose.

The District's Engineer will evaluate and identify the need for locating existing underground utilities that may be in conflict with the relocated facilities. If utility locating is required, the District's Engineer will provide a detailed request to the Developer identifying these locations for the Developer to obtain. If requested, the District's Engineer will obtain a cost estimate from a licensed Contractor for these services and provide this information to the Developer for funding.

The completed preliminary plans will be submitted to both the Developer and any appropriate municipal agencies for review and comment. The Developer is solely responsible for any review fees levied by municipal agencies and any notification for payment of these fees received by the District's Engineer will be forwarded to the Developer for payment directly to the appropriate agency.

When the review comments have been addressed and any necessary approvals granted by the municipal agencies involved have been secured, the approved plans will be released by the District to the Developer. The release of the approved plans effectively ends the design phase of the relocation project.

Prior to the release of the approved plans, any outstanding costs incurred by the District during the design phase of the project that exceed the funds provided by the Developer must be paid in full. Any excess funds remaining in the project account at the end of the design phase are generally applied toward the estimated costs of the post design phase of the project.

The District's approved plans are valid for one year from their date of release. If the construction of the project has not commenced within that period the District reserves the right to reevaluate the plans for conformance to current applicable District standards and specifications and any other changes that may affect the design and/or proposed location of District facilities. The determination of the suitability for construction of expired plans, and any modifications needed to bring the plans into conformance with the current standards, is solely at the discretion of the District.

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### **3.4 Post-Design Phase**

The post design phase of the relocation project covers the construction, testing and final acceptance of the relocated District facilities.

Prior to the commencement of any construction of District facilities the Developer must fund the estimated costs and expenses that will be incurred by the District during this phase of the relocation project. The Developer or the Developer's Contractor must also obtain a License to Construct from the District before beginning any work.

When a general schedule for the construction of the District facilities has been determined, the Developer should request the District to provide a scoping package for the post design phase of the relocation project. The scoping package will include an estimated scope of work and budget for items including construction observation, as-constructed survey, post-design engineering support and the completion of record drawings and mapping updates for the District's records.

The package will typically also include a License to construct for the project. The license must be signed by the Developer or the Developer's Contractor and returned to the District's office, along with the \$500 license fee, for approval signature by the District. A copy of the signed license must be available at the construction site at all times. A signed License to Construct will not be issued by the District until the post-design funding has been provided.

## **4. District Easements**

The District's Engineer will determine appropriate dimensions and limits for the creation of these legal descriptions. These dimensions will be provided to the Developer for the preparation of the respective legal descriptions.

The Developer will submit the completed easement documents for the termination and/or definition, including the sealed legal descriptions, to both the District's Engineer and Attorney for review and approval. Once the documents have been approved, the District's Attorney will have them recorded.

Once the District accepts the relocated facilities as adequate, a defined easement can then be recorded, and the easement for the facilities that are being abandoned can be terminated.

An easement for a District pipeline may contain, or be used for among other things, driveways, limited parking, sidewalks, lawns or alleys. While the easement is typically centered along the pipeline, it may be offset to accommodate specific features of a particular project. District easements for open ditch facilities are typically exclusive; the inclusion of any other public or private facilities within these easements is solely at the District's discretion.

A District easement for a pipeline and appurtenant structures may be located either wholly or partially within a City, Town or County right-of-way based on the consenting approval of the jurisdictional municipal agency. District easements for an open ditch and an adjacent operations and maintenance road are typically located wholly outside of municipal rights-of-way and public utility easements.

## **5. Placement of Relocated District Facilities**

### **5.1 Open Ditch Facilities**

The District has no requirement that existing open ditch facilities be piped (tiled) as part of a relocation project. However, the governing municipality generally requires the piping of the

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District's facilities within the boundary of the development project as part of the development agreement.

In general, most of the District's existing lateral canals follow an approximate alignment along section or mid-section lines. Rarely do the existing facilities exactly parallel these boundary lines, and in many instances the alignment may meander from one side of the boundary line to the other.

The District's existing open ditch facilities include not only the prism of the ditch, but also the adjacent operations and maintenance (O&M) road(s). Even when the prism of the existing ditch is located wholly outside of the development area boundary, the District's Engineer must assess the impact of the development project on the District's ability to access, maintain and operate their facility and potential impacts to neighboring properties.

Should the Developer wish to accommodate an existing District ditch without relocation, the District may require that the property wall or other permanent features constructed for the development project be offset from the boundary line of the property to provide sufficient clearance for District facilities. The District's Engineer will determine the width required to accommodate the existing facilities and provide this information to the Developer.

Typical cross-sections for lined and unlined District ditches and O&M roads are shown on Figure 1. In general, the width requirement for these facilities is approximately 40 feet, but contributing factors such as vertical grades and accessibility can extend this requirement to 50 feet or more.

The construction of an unlined ditch as a relocation of a District facility is not allowed. Any existing unlined District ditch that will be relocated as part of a development project must be constructed as a concrete lined ditch or pipeline.

### **5.2 Piped Facilities**

Typical requirements for placement of a District pipeline are illustrated on Figures 2 and 3.

As shown on Figure 2, the preferred location for a District pipeline is behind the proposed curb and gutter and beneath the sidewalk. This location will generally maximize the area that can be landscaped within the right-of-way while protecting the pipeline. Alignments placing a District pipeline within the paved section of a roadway are not preferred and are generally only considered along small residential streets. If a pipe must be located under the street, a minimum horizontal clearance of two feet is required from the lip of the gutter to the outside wall of the pipe. District pipelines may not be located beneath drainage channels or retention basins.

Minimum clearances from the outside wall of a District pipe to any permanent above-grade structure such as a building or wall are illustrated in Figure 3. A four-foot minimum clearance is required around all sides of a District delivery structure.

## **6. Utilities**

The District facilities have senior prior rights over most municipal and public service utility lines within their service area. All proposed and existing utility lines must cross beneath the District facilities and the relocation of District facilities will often require that existing utility lines be lowered to resolve conflicts.

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Requests by the Developer to lower a District pipeline to avoid the relocation of an existing utility line, or to accommodate the installation of a new utility line, will be reviewed by the District on a case-by-case basis. Unless the crossing utility holds a more senior prior right, the determination regarding the lowering of a District pipeline is solely at the discretion of the District.

Restrictions for utility pipelines, conduits and/or ducts that cross, or run parallel to, a District pipeline are illustrated on Figure 4. All underground utilities paralleling a District pipeline must maintain a minimum two-foot horizontal clearance between the outside of the District pipe and the open excavation for the utility. All utilities crossing a District pipeline must pass beneath the pipe with a minimum vertical clearance of one foot. Sanitary sewer conflicts will be evaluated on a case-by-case basis.

Single service residential utility lines of 1" or less, street light electrical lines and traffic signal lines may over-cross a District pipeline with a 6" minimum clearance. All proposed over-crossings of a District pipeline by a utility line larger than 1" would be reviewed on a case-by-case basis. Prior written approval from the District must be obtained before any over-crossing utility is installed.

The Developer is solely responsible for the coordination and relocation of all conflicting utilities.

The District's Engineer will make all reasonable efforts to identify conflicting utilities on the District's construction plans. To aid in this task, the District requires that all known utilities crossing the District's proposed alignment be potholed to determine their actual location and elevation. However, the utilities identified on the plans may not represent all existing and/or proposed conflicting utilities within the project limits. Neither the District, nor the District's Engineer, guarantees the location and/or the elevation of utilities, and neither will be responsible for their relocation.

#### **7. District Landscaping Restrictions**

Restrictions concerning landscape plantings adjacent to a District pipeline are shown on Figure 5. A minimum clearance of four feet between the outside wall of the pipeline and a tree trunk is required. Mature tree canopies must not overhang a District pipeline. The spacing between trees along the alignment must provide at least 16 feet of clearance both longitudinally and transversely. Plant groupings are limited to a maximum length of 16 feet as measured along the pipeline alignment. Spacing requirements between plant groupings are identical to those for tree spacing.

Landscape plantings within a District easement containing a lateral canal or ditch are not permitted. Canopies of mature trees planted adjacent to a District easement containing a lateral canal or drainage ditch may not encroach into the easement.

Landscaping plans for the development project must be submitted to the District for review and approval.

#### **8. Acceptance of Surface Drainage**

The District may accept agricultural return flows at historically established points of inflow into their system. Under no circumstance will the District allow a proposed commercial, industrial or residential development to discharge storm water, surface water flows, or flood flows into District facilities.

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### **9. District Irrigation Wells**

District irrigation well sites are typically located upon deeded property owned by the District. The site boundaries can generally be adjusted to meet the needs of the development provided the total area of the site remains the same.

There are a number of minimum requirements regarding the location of the well pad relative to the site enclosure and the accessibility to the site for District equipment. The Developer should discuss these requirements with the District's Engineer on a case-by-case basis.

The District requires that all of their well sites be fully enclosed, and all construction plans prepared by the District's Engineer will specify 6' chain link fence topped with 1' of barbed wire per MAG standards. However, the Developer may arrange for some other type of approved enclosure such as a decorative block wall. In this regard the Developer must provide detailed construction plans for the alternative enclosure to the District's Engineer for review and approval. All designs for alternative enclosures must include:

- A total minimum height of 7' including a feature designed to prohibit entrance by scaling the enclosure. A 6' high block wall topped with outwardly curved wrought iron bars is an example of an acceptable alternative.
- A feature providing visibility into the site from the main point of access and/or adjacent roadways such as one or more panels of wrought iron bars set within a block wall.

### **10. Gates for Irrigation Delivery Structures**

For operational and maintenance continuity throughout their system, the District specifies the installation of mild steel gates fabricated by Fresno Valves and Castings, Inc. (Fresno) at their delivery structures. The dimensions of the individual gates are unique to each delivery structure and must be designed and fabricated accordingly.

The lead-time for procurement of these gates can be substantial (3 to 4 months) and the Developer should consider the impact this may have on construction scheduling and sequencing for the project.

To expedite the delivery of the gates the District's Engineer can initiate the shop drawing review process and purchase of the gates provided the Developer pre-funds the purchase of the gates to the District.

In this regard, the District's Engineer will provide the specific dimensions and specifications of the gates to Fresno for a cost quote. The Fresno quote will then be provided to the Developer for consideration. Once the District has received funds for the gates, the District's Engineer will accept the Fresno quote on behalf of the District and initiate Fresno's preparation of shop drawings. The completed gates will be shipped to the District's Buckeye maintenance yard where the Developer's Contractor can pick them up. Any additional costs incurred by the District during the manufacturing or shipping in excess of the original quoted cost will need to be reimbursed prior to the Contractor taking delivery of the gates.

Shop drawings for any gates purchased directly by the Developer or the Developer's Contactor must be reviewed and approved by the District's Engineer. The installation of unapproved gates is not acceptable and is at the Developer's sole risk. Any gates rejected by the District under this circumstance must be removed and replaced with approved gates at the discretion of the District.

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**11. Frames and Covers for Irrigation Manholes**

The District maintains an inventory of manhole frames and covers as specified in their construction plans. The Developer's Contractor is encouraged to purchase these items directly from the District at their cost. The District Construction Observer and/or Engineer must approve the use of frames and covers not purchased directly from the District. Any frames or covers installed without District approval is at the Developer's own risk and may require removal and replacement at the District's discretion.

**12. Maintenance of District Irrigation Service**

Existing District facilities must remain operational, and may not be disturbed or rendered inaccessible to the District until the construction of the relocated District facilities have been completed, tested and accepted as adequate by the District.

The scheduling for an irrigation outage to complete a tie-in between new and existing facilities must be coordinated with the District Superintendent and the District Construction Observer. The District schedules an annual, district-wide "dry-up" for approximately two weeks during the month of November. The availability and duration of an unscheduled irrigation outage during any other time period will be determined solely at the discretion of the District.

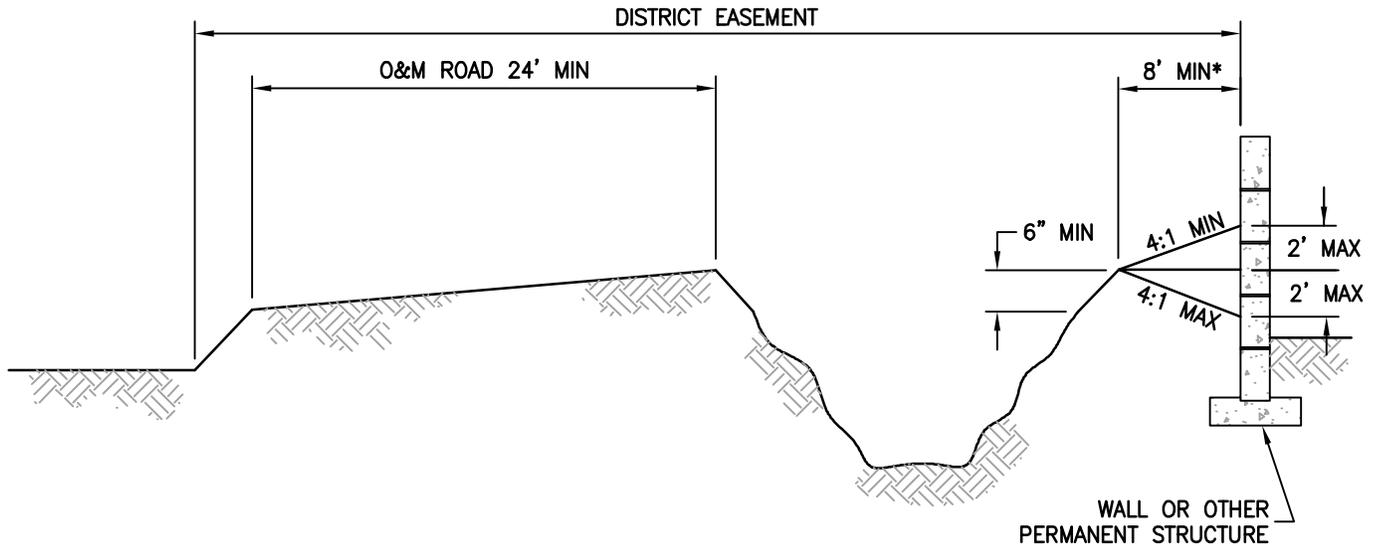
The Developer should be aware that the construction of new facilities along the same alignment as the existing facilities will likely increase the irrigation outage time required for construction.

Temporary irrigation by-pass facilities may be constructed to facilitate the demolition of the existing District facilities prior to the completion of the proposed permanent facilities. The District must grant prior approval for the use of a temporary irrigation by-pass. At the discretion of the District, sealed engineering plans for the by-pass facilities may be required. These plans must be submitted to the District for review and approval prior to construction. The abandonment and demolition of the existing District facilities replaced by the temporary by-pass may proceed only after the constructed temporary facilities have been field verified and accepted as adequate by the District.

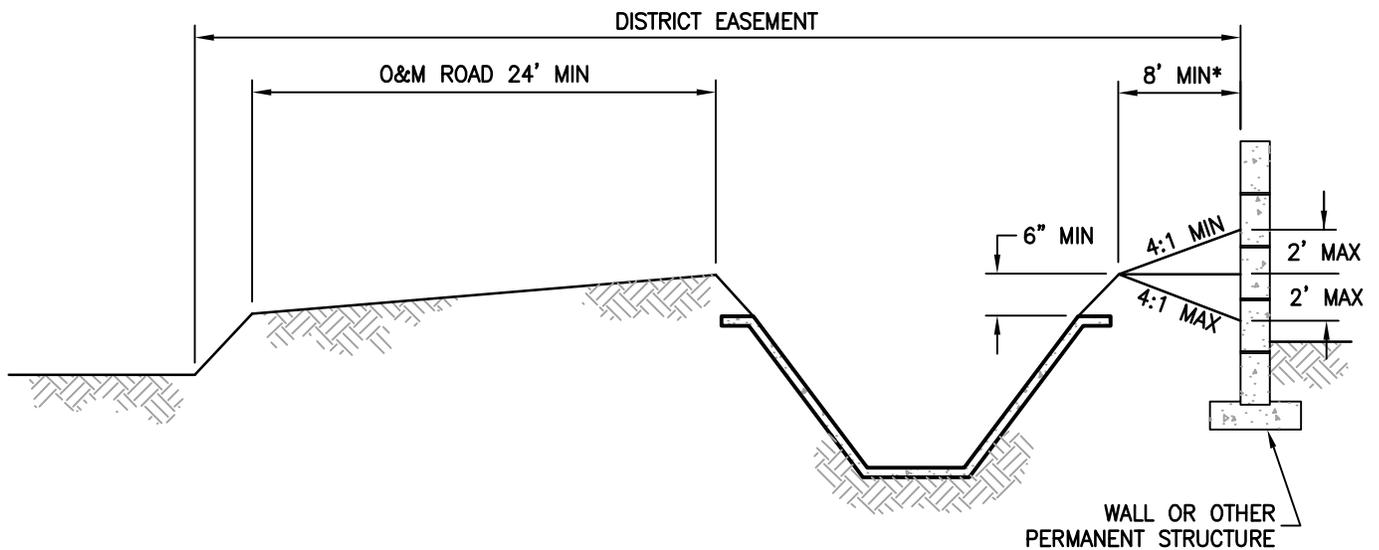
BUCKEYE WATER CONSERVATION AND DRAINAGE DISTRICT

Jackie Meck

General Manager



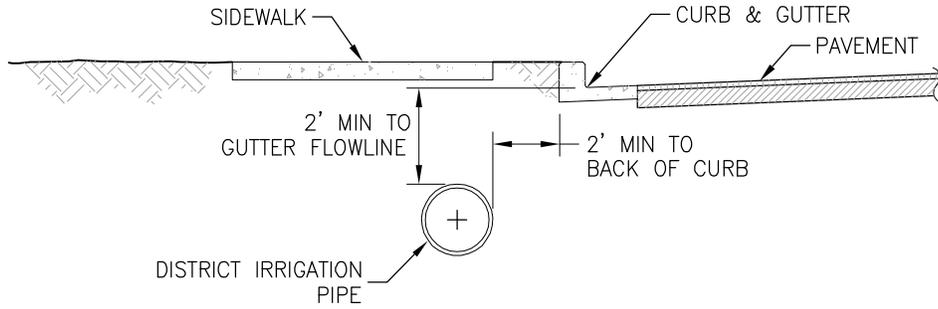
**UNLINED DISTRICT DITCH**  
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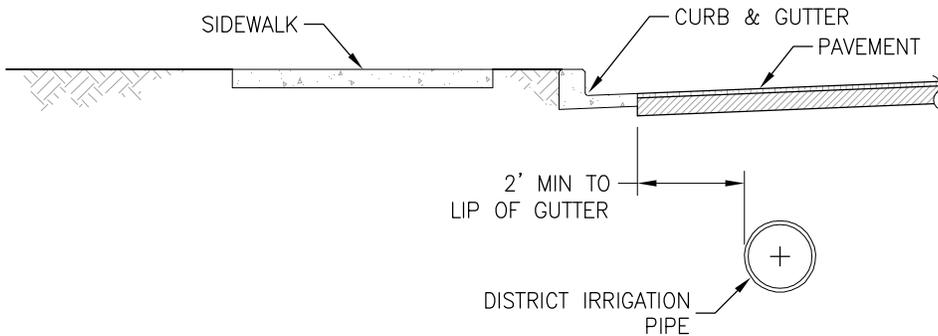
**LINED DISTRICT DITCH**  
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\* THE FINAL DIMENSIONS OF THE OPERATIONS AND MAINTENANCE ROAD AND THE EMBANKMENT WILL BE DETERMINED BASED ON A REVIEW OF THE DISTRICT FACILITIES AND DEVELOPER'S GRADING. THE DIMENSIONS SHOWN ON THIS EXHIBIT ARE ONLY A MINIMUM.

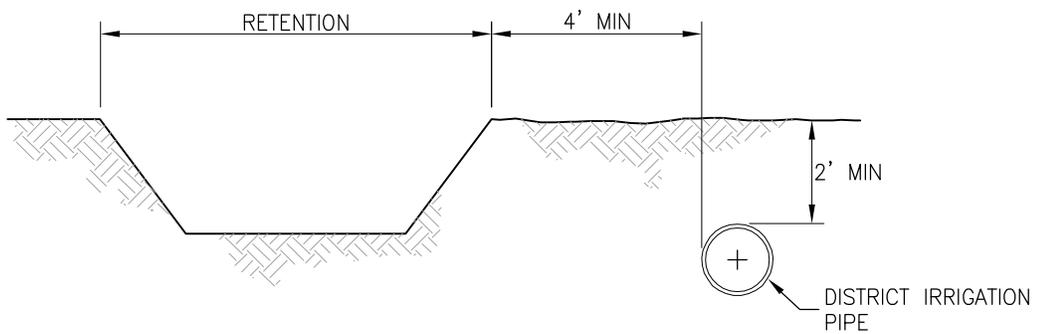




PREFERRED PIPELINE LOCATION  
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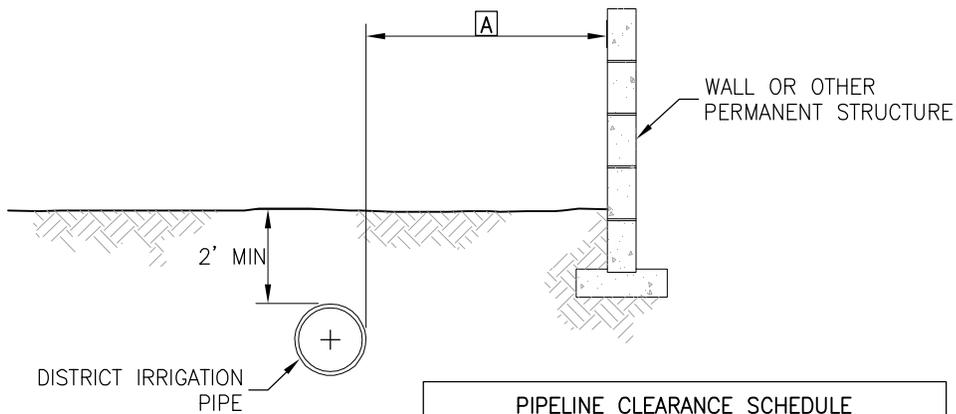


STREET ALTERNATIVE LOCATION  
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RETENTION CLEARANCE  
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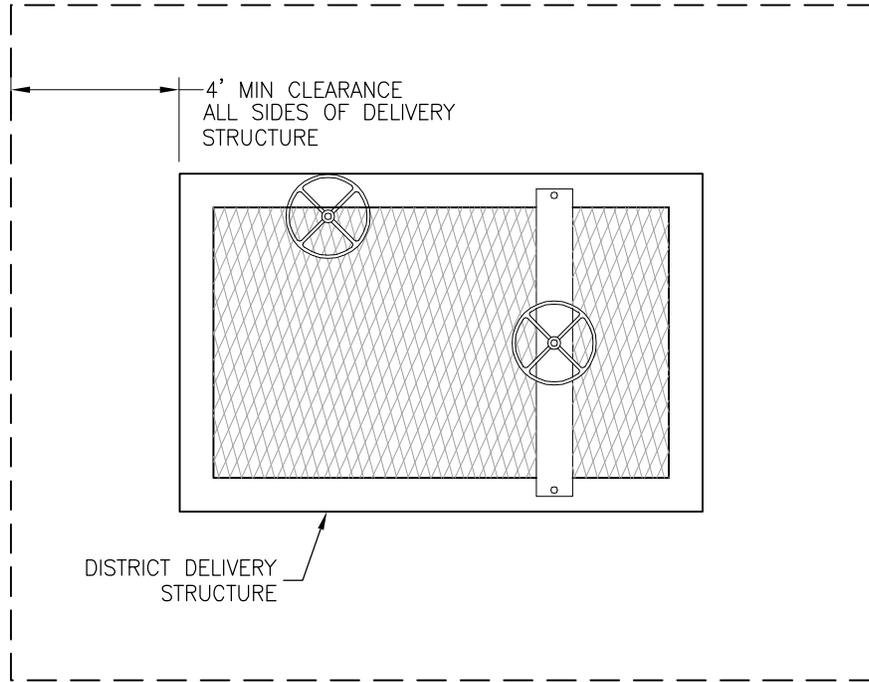




PIPELINE CLEARANCE SCHEDULE					
Pipe Diameter	24"	30"	36"	42"	>42"
<b>A</b> Minimum	7'	7'	8'	8'	*

\*REQUIRES ENGINEERING REVIEW

PIPELINE CLEARANCE  
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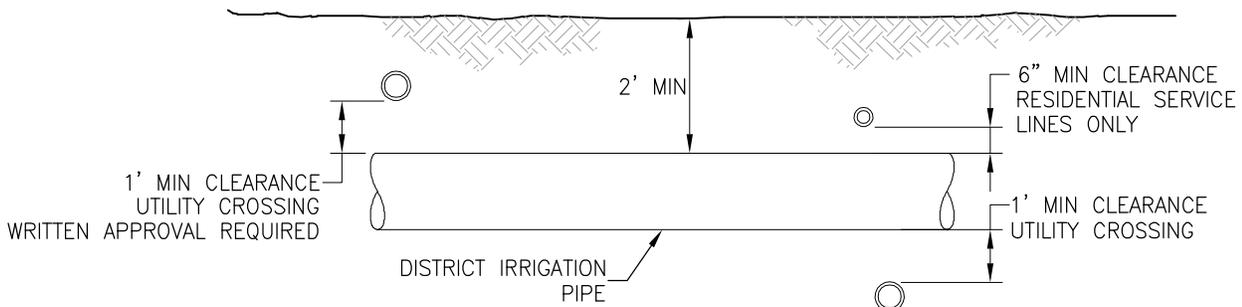
DELIVERY STRUCTURE CLEARANCE – PLAN  
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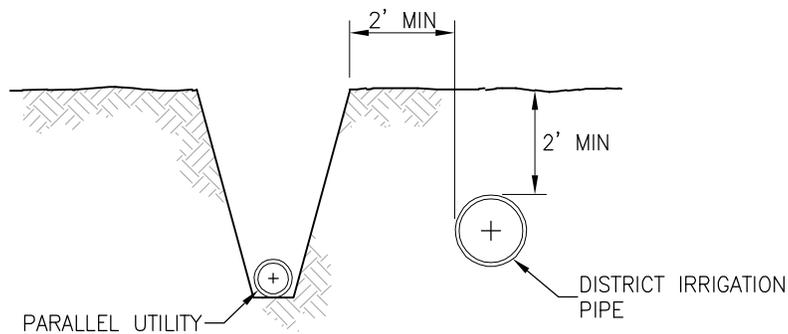


**BUCKEYE WATER CONSERVATION  
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Figure 3

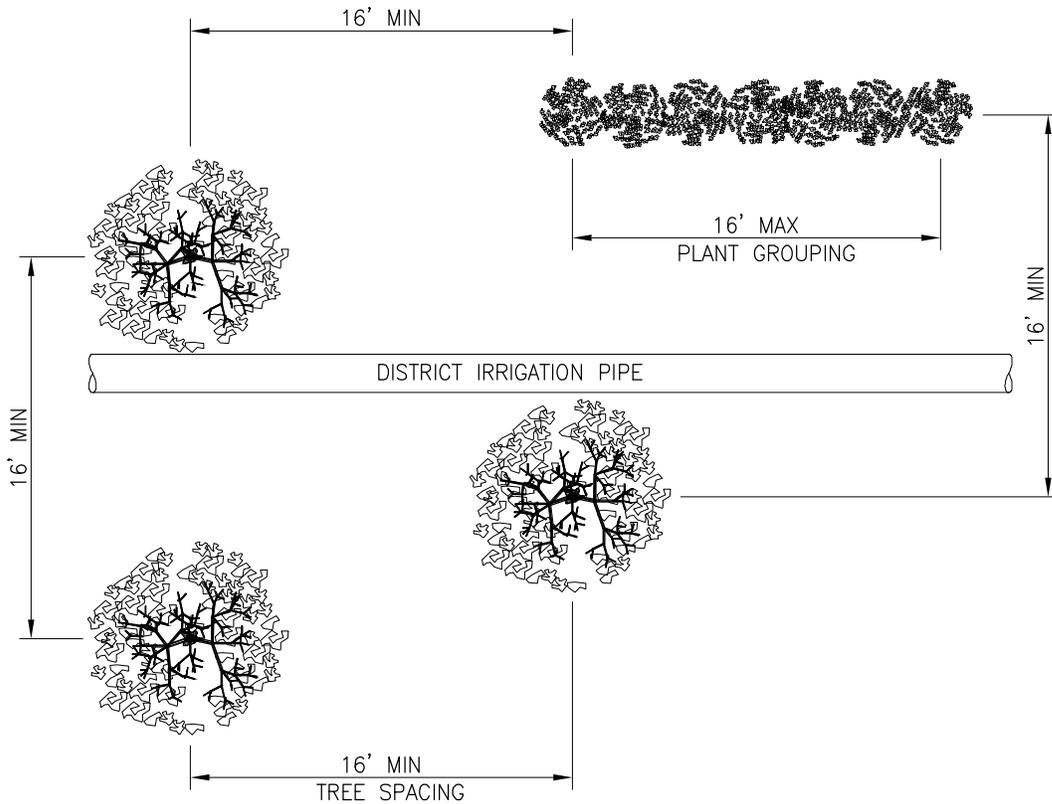


UTILITY CROSSING – PROFILE  
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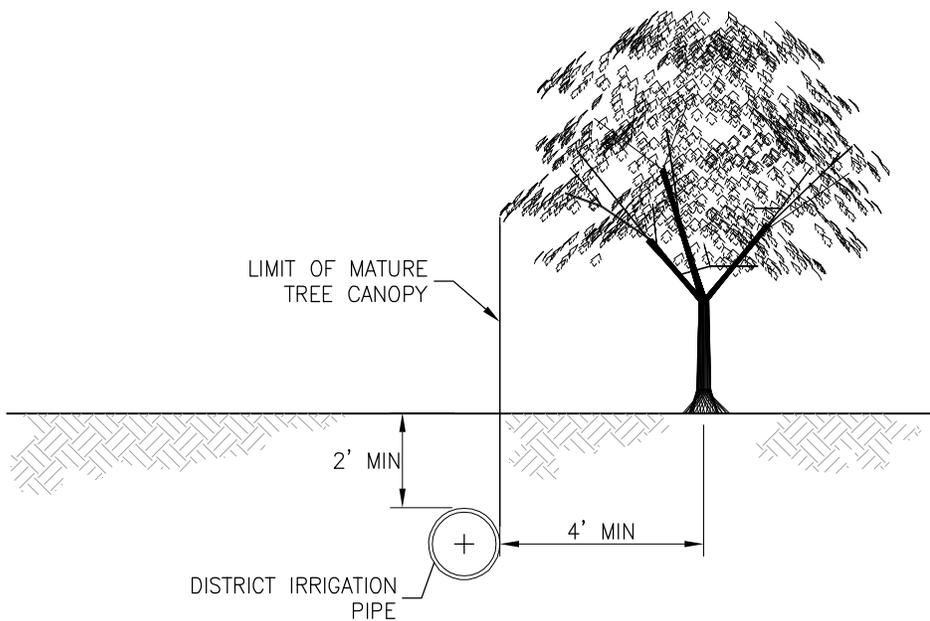


PARALLEL UTILITY – PROFILE  
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PLANT AND TREE SPACING PLAN  
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TREE CLEARANCE – PROFILE  
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**BUCKEYE WATER CONSERVATION  
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Figure 5