

**DETENTION/RETENTION STORAGE FACILITY
MAINTENANCE AGREEMENT**

**DETENTION/RETENTION STORAGE FACILITY
MAINTENANCE AGREEMENT**

KNOW ALL MEN BY THESE PRESENTS THAT:

WHEREAS, by plat denoted as **EDEN ESTATES BLOCK 1, LOTS 1-13, BLOCK 2 LOTS 1-4, 5X, 6-8, 9X, BLOCK 3 LOT 1-2** (hereinafter referred to as "**Eden Estates**") approved on September 23, 2019 by the City Council of the City of North Richland Hills, Tarrant County, Texas (the "**City**"), **Building Funding MGT, LP.** (hereinafter referred to as "**BFMGT**") was permitted to develop the site described thereon in accordance with such plat; and

WHEREAS, such **EDEN ESTATES** requires construction on the property of a facility to provide storm water detention/retention facilities (hereinafter referred to as "Detention/Retention Facilities") for the development of **EDEN ESTATES** to minimize potential flooding of downstream property; and

WHEREAS, the City is willing to permit **BFMGT** to construct Detention/Retention Facilities in accordance with plans approved by the City, provided that **BFMGT** or their assigns, in which case, subject to Section 6 herein, **BFMGT** shall be released from any future liability, agrees to maintain such Detention/Retention Facility.

NOW, THEREFORE, **BFMGT** or their assigns, at its sole cost and expense agrees to be bound by the terms and conditions of this Detention/Retention Facility Storage Facility Maintenance Agreement (this "Agreement") as follows:

1. Adhere to the requirements of the City Code, specifically Chapter 102: "Floods and Stormwater Management", Article III: "Stormwater Management."
2. Construct the Detention/Retention Facilities in accordance with plans sealed by a licensed professional engineer registered in the State of Texas and specifications approved by the City.
3. Construct the landscaping in accordance with the Landscaping Plan approved by Development Review Committee preliminarily included as Exhibit "A."
4. Maintain the Detention/Retention Facility in a prudent manner to minimize soil erosion and loss of capacity due to sedimentation.
5. Be responsible for the following:
 - a) Keep grass and vegetation mowed and maintained in the Detention/Retention Facility and all areas around the Detention/Retention Facility controlled by **BFMGT** based on the following minimum schedule:
 - i. once every three (3) weeks between March 1st - April 10th and between October 1st - November 15th.
 - ii. once every other week during the growing season between April 10th -

October 1st.

- b) The upkeep and replacement of all landscaping as shown on the approved landscape plan included in the SUP.
- c) Trash and debris removal once a week or after a storm event, whichever is more often
- d) Any necessary dredging or silt removal from the basin and/or inlet and outlet structures to maintain design depth and health of the water bodies.
- e) Repair and replacement of decorative fencing around the basin as shown on the approved SUP.
- f) Maintenance and repair of retaining walls within and around the detention pond.
- g) Installation, operation and maintenance of aeration and recirculation systems (including power cost and replacement cost). In the event of aeration failure, the system shall be repaired within 24 hours of failure.
- h) In the event of stagnant water, drain the ponds to prevent pest and odor problems.

All the requirements of Sections 4 and 5 hereof shall be deemed to be standards, the violation of which shall be enforceable pursuant the provisions of Section 34-75 of the North Richland Hills Code of Ordinances and subject to the charges therein provided for. Should BFMGT, its assigns, or the then current owner of the property described herein, fail to abate the deficiencies and remedy any inadequacy in its maintenance of the Detention/Retention Facility within twenty (20) days of receipt of written notice from the City, the City may, but shall not be obligated, to provide such maintenance that it shall reasonably deem necessary and to charge BFMGT, its assigns, or the then current owner for such abatement and remediation of such inadequacy the administrative fee established in Appendix A for each parcel or lot plus the actual cost of clearing, cleanup and mowing. If BFMGT, its assigns, or the then current owner of the property described herein, fails to reimburse the City within thirty (30) days of such written demand, the City may enforce such rights and remedies under law or its City Code to compel such payment, including imposition of the lien provided by Section 34-75 (c) in the manner therein set out. By acceptance of this Agreement, the City agrees to execute a certificate (addressed to the party requesting same) within ten (10) days of written request therefore, stating whether BFMGT, its assigns, or the then current owner of the property described herein respectively, is in compliance with this Agreement.

- 6. The agreements made herein shall be binding upon, BFMGT's successors and assigns and shall be a covenant running with the land. In the event of any assignment or transfer of interest by BFMGT of any of its duties or obligations under this Agreement, BFMGT shall provide the City with a copy of such written assignment document no later than five (5) business days after such assignment becomes effective. Such document shall clearly indicate the assignee's agreement to assume BFMGT's duties and obligations under this Agreement. Any assignment in violation of this Section 6 shall be null and void.
- 7. This Agreement shall not be amended, changed or modified without the written consent of the City of North Richland Hills.

Executed this the 5th day of September 20 19 .

By:

Printed Name: Brent Turner

Title: Managing Member

STATE OF TEXAS

§ Texas

COUNTY OF TARRANT

§ Tarrant

BEFORE ME, the undersigned authority in and for Tarrant County, Texas, on this day personally appeared Michael Brent Turner known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that he/she executed the same for the purposes and consideration therein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, on this the 5th day of September, 20 19

Notary Public in and for the State of Texas

Type or Print Notary's Name

Jennifer D. Denny

My Commission Expires: 05-10-2020

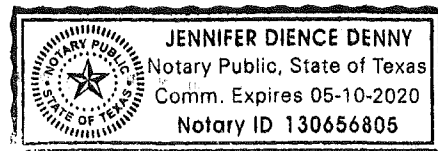


Exhibit “A”

Detention/Retention Facility

Landscaping Plan

Page 1 of 4

PWDET.AGR

(revised 4/24/03)

1. The purpose of this plan is to provide a detailed description of the landscaping plan for the Detention/Retention Facility. This plan is intended to provide a clear and concise description of the proposed landscaping, including the types of plants, trees, and shrubs to be used, and the layout of the landscaping. The plan is intended to provide a clear and concise description of the proposed landscaping, including the types of plants, trees, and shrubs to be used, and the layout of the landscaping.

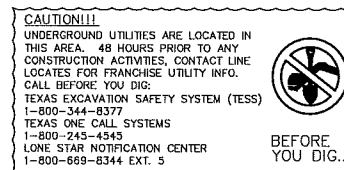


"THE ELECTRONIC DRAWING FILE SHEETS UNDER THE AUTHORITY OF GREG GUZZETT, LANDSCAPE ARCHITECT, INC. AND LANDSCAPE ARCHITECTS ASSOCIATES, INC. ARE HEREBY APPROVED FOR THE DRAWING FILE THAT IS A BACKGROUND DRAWING, PURSUANT TO RULE 1(A)(7) OF THE RULES AND REGULATIONS OF THE BOARD OF ARCHITECTURE, EXAMINERS, THE TITLE OF THE ELECTRONIC DRAWING FILE IS TO BE USED AS A BACKGROUND DRAWING, PURSUANT TO RULE 1(A)(7) OF THE RULES AND REGULATIONS OF THE BOARD OF ARCHITECTURE, EXAMINERS, THE TITLE OF THE ELECTRONIC DRAWING FILE THAT IS INCONSISTENT WITH THE REQUIREMENTS OF THE RULES AND REGULATIONS OF THE BOARD OF ARCHITECTURE, EXAMINERS, THE TITLE OF THE ELECTRONIC DRAWING FILE THAT IS INCONSISTENT WITH THE REQUIREMENTS OF THE RULES AND REGULATIONS OF THE BOARD OF ARCHITECTURE, EXAMINERS, THE TITLE OF THE ELECTRONIC DRAWING FILE WITHOUT THE LANDSCAPE ARCHITECTS ASSOCIATES' WRITTEN PERMISSION."

**EDEN ESTATES
HIGHTOWER DRIVE
NORTH RICHLAND HILLS, TX**

Sheet No.

UF-2 |

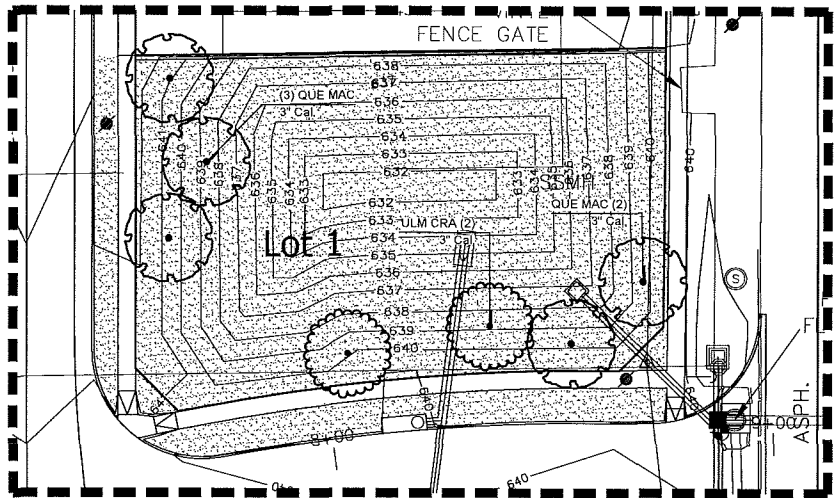


URBAN FORESTRY PLAN - PHASE 2

METHOD A

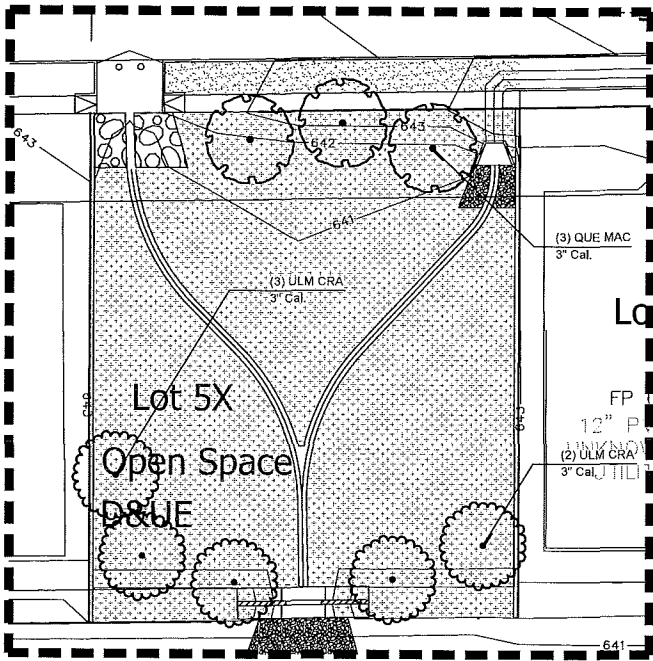
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ENLARGEMENT 'A'

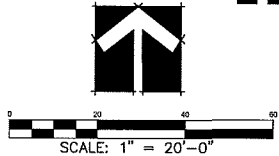


NOTE:
ALL LAWN AREA SHALL BE
SOLID BERMUDA SOD.

ENLARGEMENT 'B'



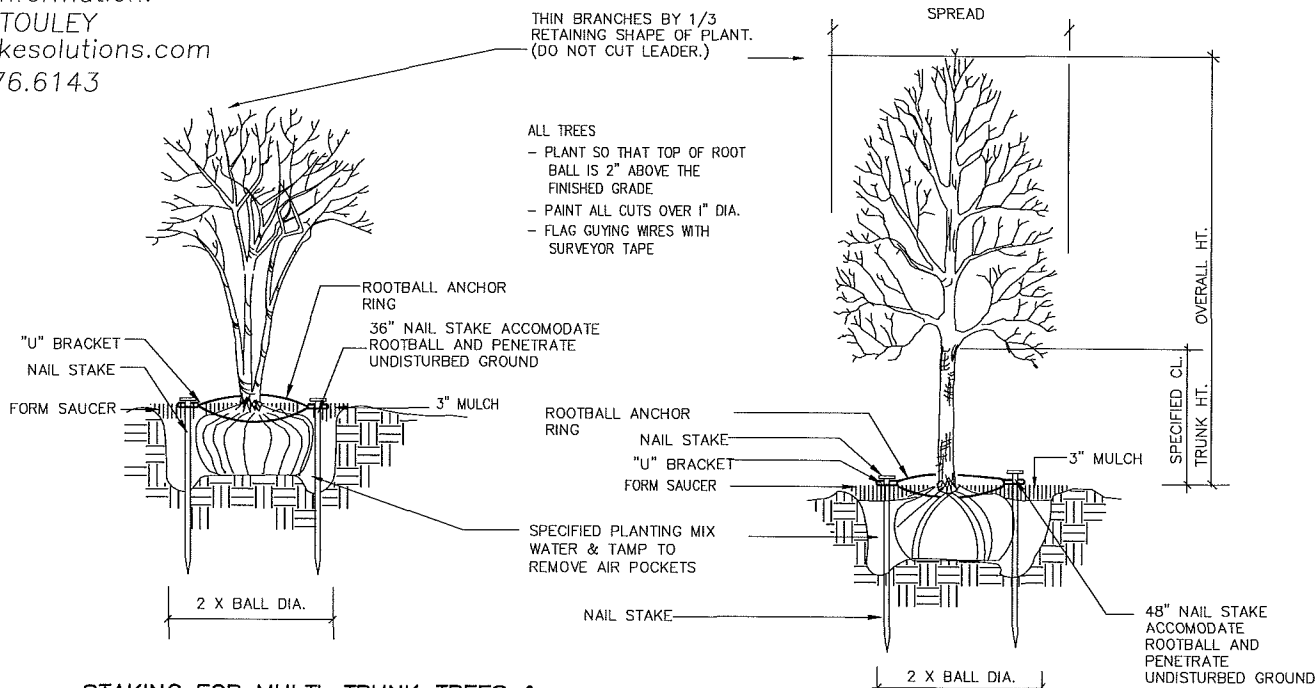
NOTE:
ALL DETENTION PONDS SHALL BE SEEDED WITH
Tripsacum dactyloides (Eastern Gamagrass)
AT A RATE OF 12 POUNDS PER ACRE.
CONTRACTOR SHALL WATER UNTILL
ESTABLISHED AND ACCEPTED BY OWNER.



NORTH RICHLAND HILLS LANDSCAPE REQUIREMENTS		
REQUIRED DETENTION POND LANDSCAPING	ONE TREE PER 50 PERIMETER FT.	
	REQUIRED	PROVIDED
	360 LF / 50 = 7 TREES	7 TREES

NORTH RICHLAND HILLS LANDSCAPE REQUIREMENTS		
REQUIRED DETENTION POND LANDSCAPING	ONE TREE PER 50 PERIMETER FT.	
	REQUIRED	PROVIDED
	395 LF / 50 = 8 TREES	8 TREES

Contact Information:
JEFF TOULEY
www.treestakesolutions.com
903.676.6143



STAKING FOR MULTI-TRUNK TREES &
TREES 2" CAL. & UNDER

SCALE: NOT TO SCALE





SAFETY STAKE BY TREE STAKE SOLUTIONS

SCALE: NOT TO SCALE

PLANTING NOTES:

1. PLANT SIZE, TYPE, AND CONDITION SUBJECT TO APPROVAL OF OWNER'S REPRESENTATIVE.
2. ALL PLANT MATERIAL TO BE NURSERY GROWN STOCK.
3. CONTRACTOR RESPONSIBLE FOR MAINTENANCE OF ALL PLANT MATERIAL UNTIL PROJECT ACCEPTANCE.
4. ALL CONTAINER GROWN PLANTS TO HAVE FULL, VIGOROUS ROOT SYSTEM, COMPLETELY ENCOMPASSING CONTAINER.
5. ALL PLANTS WELL ROUNDED AND FULLY BRANCHED. ALL TREES WITH SPREAD 2/3 OF HEIGHT.
6. CONTRACTOR TO PROVIDE OWNER WITH PREFERRED MAINTENANCE SCHEDULE OF ALL PLANTS AND LAWNS.
7. MAINTAIN/PROTECT VISIBILITY TRIANGLE WITH PLANT MATERIAL PER CITY STANDARDS AT ALL ENTRANCES TO SITE.
8. PREP ENTIRE WIDTH OF ALL DEFINED PLANTING BEDS WITH MIX AS OUTLINED IN SPECS. WHERE SHRUBS ARE LOCATED ALONG CURB, SET SHRUBS BACK FROM CURB 3 FT.
9. SEE DETAIL SHEET FOLLOWING FOR PLANTING DETAILS.
10. CONTRACTOR RESPONSIBLE FOR LOCATION OF ALL UTILITIES, INCLUDING BUT NOT LIMITED TO TELEPHONE, TELECABLE, ELECTRIC, GAS, WATER AND SEWER. ANY DAMAGE TO UTILITIES TO BE REPAIRED BY CONTRACTOR AT NO COST TO OWNER.
11. IF EXISTING TREES ARE SHOWN TO REMAIN, CONTRACTOR SHALL PRUNE AS DIRECTED BY OWNER'S REPRESENTATIVE. WORK TO INCLUDE REMOVAL OF ALL SUCKER GROWTH; DEAD AND DISEASED BRANCHES AND LIMBS; VINES, BRIARS AND OTHER INVASIVE GROWTH; AND ALL INTERFERING BRANCHES. MAKE ALL CUTS FLUSH TO REMAINING LIMB. RETAIN NATURAL SHAPE OF PLANT. ALL WORK SUBJECT TO APPROVAL OF OWNER'S REPRESENTATIVE.
12. QUANTITIES ARE PROVIDED AS A COURTESY AND NOT INTENDED FOR BID PURPOSES. CONTRACTOR TO VERIFY PRIOR TO PRICING.
13. INSTALL EDGING BETWEEN LAWN AND PLANTING BEDS. REFER TO SPECIFICATIONS. FILE ALL CORNERS SMOOTH.
14. INSTALL CURLEX BLANKET (OR EQUAL) PER MANUFACTURES INSTRUCTIONS ON ALL GROUND COVER/SHRUB BEDS WITH A SLOPE OF 4:1 OR GREATER.
15. AT TIME OF PLAN PREPARATION, SEASONAL PLANT AVAILABILITY CANNOT BE DETERMINED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO SECURE AND RESERVE ALL B&B PLANTS WHEN AVAILABLE IN CASE ACTUAL INSTALLATION OCCURS DURING THE OFF-SEASON. PURCHASE AND HOLD B&B PLANTS FOR LATE SEASON INSTALLATION.
16. CONTRACTOR SHALL STAKE ALL TREE LOCATIONS FOR OWNER APPROVAL PRIOR TO PLANTING.
16. BERM ALL PARKING LOT ISLANDS AS SHOWN ON ENCLOSED DETAIL SHEET. (BERMS MAY NOT BE SHOWN ON GRADING PLAN.)
17. NO PLANTINGS WITHIN 18" OF PARKING LOT CURBS.
18. CONTRACTOR SHALL BE RESPONSIBLE FOR CONFIRMING TREE AND SHRUB SIZES CONFORM TO CITY LANDSCAPE STANDARDS AND MITIGATION REQUIREMENTS.

PLANT SCHEDULE

TREES	CODE	BOTANICAL NAME	COMMON NAME	SIZE	HEIGHT	SPACING		QTY	REMARKS
	QUE MAC	Quercus macrocarpa	Burr Oak	3" Cal.	12' Min Ht	As Shown		8	Single Straight Trunk
	ULM CRA	Ulmus crassifolia	Cedar Elm	3" Cal.	12' Min Ht	As Shown		8	Single Straight Trunk
GROUND COVERS									
	CODE	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	SPACING	QTY	REMARKS
	CYN DAC	Cynodon dactylon	Bermuda Grass	—	Hydro-Mulch			11,023 sf	
	TRI FAK	Tripsacum dactyloides	Fakahatchee Grass	seed				10,400 sf	

TEMPORARY IRRIGATION WILL BE REQUIRED TO ESTABLISH TURF IN ALL DISTURBED AREAS WITHOUT A PERMANENT IRRIGATION SYSTEM. INSTALL SOD TO ESTABLISH TURF IN ALL DISTURBED AREAS AS IDENTIFIED ON GRADING AND EROSION CONTROL PLANS.



CAUTION!!
UNDERGROUND UTILITIES ARE LOCATED IN THIS AREA. 48 HOURS PRIOR TO ANY CONSTRUCTION ACTIVITIES, CONTACT LINE LOCATES FOR FRANCHISE UTILITY INFO. CALL BEFORE YOU DIG.
TEXAS EXCAVATION SAFETY SYSTEM (TESS)
1-800-344-8377
TEXAS ONE CALL SYSTEMS
1-800-245-4345
LONE STAR NOTIFICATION CENTER
1-800-669-8344 EXT. 5
BEFORE YOU DIG...

Date AUG 9, 2019
Drawn By GAC
Checked By GAC
Revisions

FAIN + CUPPET
LANDSCAPE ARCHITECTS, LLC
8233 Mid-City Blvd., Suite B
North Richland Hills, TX 76182-4781
817-719-0750
LAND AND OPEN SPACE PLANNING • LANDSCAPE ARCHITECTURE • IRRIGATION DESIGN



THIS ELECTRONIC DRAWING IS RELEASED UNDER THE AUTHORITY OF GREG CUPPET, LANDSCAPE ARCHITECT, AND IS NOT TO BE USED FOR ANY OTHER PROJECT WITHOUT THE WRITTEN PERMISSION OF FAIN + CUPPET LANDSCAPE ARCHITECTS, LLC. ANY REPRODUCTION OR DISTRIBUTION OF THIS DRAWING WITHOUT THE WRITTEN PERMISSION OF FAIN + CUPPET LANDSCAPE ARCHITECTS, LLC IS PROHIBITED. THE USER OF THIS DRAWING SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES.

EDEN ESTATES
HIGHTOWER DRIVE
NORTH RICHLAND HILLS, TX

SECTION 02830
TREES, SHRUBS, AND GROUNDCOVERS

PART I GENERAL

1.01 DESCRIPTION OF WORK

A. Scope

1. Bed prep
2. Metal edging
3. Topsoil
4. Planting
5. Mulching
6. Guarantee

B. Related Work Specified Elsewhere

1. General Requirements – All locations
2. Section 02740 – Irrigation Trenching
3. Section 02750 – Irrigation
4. Section 02800 - Lawns

1.02 QUALITY ASSURANCE

A. Contractor Qualifications

Minimum of three (3) years experience on projects of similar characteristics and size.

B. Reference Standards:

1. American Joint Committee Of Horticultural Nomenclature: Standardized Plant Names, Second Edition, 1942;
2. American Association Of Nurserymen: American Standard For Nursery Stock, 1973

C. Substitutions

1. Substitutions accepted only upon written approval of Landscape Architect and Owner.
2. Submit substitutions possessing same characteristics as indicated on plans and specifications.

D. Inspection and Testing

1. The project Owner's representative reserves the right to inspect and tag plants at the place of growth with the Contractor.
2. Inspection at place of growth does not preclude the right of rejection due to improper digging or handling.
3. Owner's representative reserves the right to request soil samples and analysis of soil and plant mix. Remove or correct unacceptable soil. Cost of testing by Contractor.

1.03 SUBMITTALS

A. Certificates

1. Submit State and Federal certificates of inspection with invoice. (Only if required by Landscape Architect)
2. File certificates with Owner's representative prior to material acceptance.

1.04 PRODUCT DELIVERY, STORAGE, & HANDLING

A. Preparation of Delivery

1. Balled & Burlaped (B&B) Plants
 - a. Dig and prepare for shipment in manner that will not damage roots, branches, shape, and future development after replanting.
 - b. Ball with firm, natural ball of soil, wrapped tightly with burlap covering entire ball.
 - c. Ball size and ratios: conform to American Association of Nurserymen standards unless otherwise shown on plant list.
2. Pack plant material to protect against climatic & seasonal damage, as well as breakage injuries during transit.
3. Securely cover plant tops with ventilated tarpaulin or canvas to minimize wind-whipping and drying in transit.
4. Pack and ventilate to prevent sweating of plants during transit. Give special attention to insure prompt delivery and careful handling to point of delivery at job site.

B. Delivery

1. Deliver fertilizer, fertilizer tablets, peat, mulch, soil additives, and amendment materials to site in original, unopened containers, bearing manufacturer's guaranteed chemical analysis, name, trade name, trademark, and conformance to State law.
2. Deliver plants with legible identification and size labels on example plants.
3. Protect during delivery to prevent damage to root ball or desiccation of leaves.
4. Notify Owner's representative of delivery schedule in advance so plant material may be inspected upon arrival at job site.
5. Deliver plants to job site only when areas are prepared.

C. Storage

1. Protect roots of plant material from drying or other possible injury with wetted mulch or other acceptable material.
2. Protect from weather.
3. Maintain and protect plant material not to be planted immediately upon delivery.

D. Handling

1. Do not drop plants.
2. Do not damage ball, trunk, or crown.
3. Lift and handle plants from bottom of container or ball.

1.05 JOB CONDITIONS

- A. Planting Season: Perform actual planting only when weather and soil conditions are suitable in accordance with locally acceptable practices.
- B. Protection: Before excavations are made, take precautionary measures to protect areas trucked over and where soil is temporarily stacked.

1.06 GUARANTEE

- A. Guarantee new plant material for one year after acceptance of final installation (ie. Final Acceptance of project).
- B. Make replacement (one per plant) during one year guarantee period at appropriate season with original plant type, size and planting mixture.
- C. Repair damage to other plants, lawns, & irrigation caused during plant replacement at no cost to Owner.
- D. Use only plant replacements of indicated size and species.

PART II PRODUCTS

2.01 MATERIALS

A. Plant Materials

1. Hardy under climatic conditions similar to locality of project.
2. True to botanical and common name variety.
3. Sound, healthy, vigorous, well branched, and densely foliated when in leaf, with healthy well-developed root system.
4. Free from disease, insects, and defects such as knots, sun-scald, windburn, injuries, disfigurement, or abrasions.
5. Conform to measurements after pruning with branches in normal positions.
6. Conform to American Association of Nurserymen standards unless shown differently on plant list.
7. Trees:
 - a. Single, straight trunks, unless indicated otherwise
 - b. Trees with weak, thin trunks not capable of support will not be accepted.
 - c. All multi-stem trees are to have a minimum of three stems, similar in size and shape, with a spread of approximately 2/3 of the height. All yaupons to be female. Crape myrtle color selection by Landscape Architect.
8. Nursery grown stock only.
9. Subject to approval of Landscape Architect.
10. Seasonal color:
 - a. Annuals in 4" pots or as specified
 - b. Perennials in 4" pots, clumps, bulbs as specified

B. Topsoil

1. Natural, fertile, friable soils having a textural classification of loam or sandy loam possessing characteristics of soils in vicinity which produce heavy growth of crops, grass, or other vegetation.
2. Free of subsoil, brush, organic litter, objectionable weeds, clods, shale, stones 3/4" diameter or larger, stumps, roots or other material harmful to grading, planting, plant growth, or maintenance operations.
3. Presence of vegetative parts of Bermuda grass (Cynodon dactylon), Johnson grass, nut grass (Cyperus rotundus), and other hard to eradicate weeds or grass will be cause for rejection of topsoil.
4. Test topsoil (cost by Contractor):
 - a. Available nitrogen
 - b. Available phosphorus
 - c. Available potash
 - d. Iron
 - e. Ph: 5.5 to 7.0
 - f. Decomposed organic matter: 6-10%

C. Mulch

1. Top Dressing Mulch – Shredded cypress or hard wood only
2. Mulch for soil prep – Shredded pine bark
3. In pre-packaged bags only; bulk shredded material is unacceptable

D. Peat Moss Commercially available baled peat moss or approved equivalent.

E. Staking Material

1. Stakes for tree support:
 - a. Construction grade yellow pine, stain brown
 - b. Size as noted on plans
2. Wires:
 - a. Padded with rubber hose to protect tree
 - b. Galvanized
 - c. With galvanized turnbuckle
 - d. Evenly tighten turnbuckles with plant in vertical position.

F. Water

1. Free of oils, acids, alkali, salt, and other substances harmful to plant growth
2. Location: Furnish temporary hoses and connections on site.

G. Sand – Washed builders sand

H. Antidesicant – "Wilt-proof" or equal.

I. Edging – 3/16" X 4" green, new and unused; with stakes.

2.02 MIXES

D. Planting Mixture

1. Existing topsoil – 50%
2. Shredded pine bark – 50%
3. Fertilizer 10:20:10 at 30 lb./1000 SF

E. Planting Mix for Annuals/Perennials

1. Prepare above mix
2. Add 2" of sand

F. Azalea mix: solid peat moss in hole 9" wider than root ball each direction. Plant in solid peat moss and provide mound at base of plant to allow for drainage.

G. Japanese maple, dogwood, camellias: Provide 50/50 peat moss to topsoil mix, raise for drainage.

PART III - EXECUTION

3.01 UTILITIES - verify location of all utilities prior to initiating construction; repair any damage caused by construction at no cost to owner.

3.02 INSPECTION

- A. Inspect plants for injury and insect infestation; prune prior to installation.
- B. Inspect site to verify suitable job conditions.

3.03 FIELD MEASUREMENTS

- A. Location of all trees and shrubs to staked in the field and approved by Owner's representative prior to installation.
- B. Location of all groundcover and seeding limits as shown on plans.

3.04 EXCAVATION FOR PLANTING

A. Pits

1. Shape - Vertical hand scarified sides and flat bottom.
2. Size for trees – 2 feet wider or twice the root ball, whichever is greater.
3. Size for shrubs – Size of planting bed as shown on drawings.
4. Rototill soil mix thoroughly, full depth.
5. NOTE: If beds are proposed beneath drip line of existing tree canopy, pocket prep plants. Do not roto-till beneath existing trees.

B. Obstructions Below Ground

1. Remove rock or underground obstructions to depth necessary to permit planting.
2. If underground obstructions cannot be removed, notify Owner's representative for instruction.

C. Excess Soil: Dispense of unacceptable or excess soil away from the project site at Contractor's expense.

3.05 PLANTING

A. General

1. Set plants 2" above existing grade to allow for settling.
2. Set plants plumb and rigidly braced in position until planting mixture has been tamped solidly around ball.
3. Apply soil in accordance with standard industry practice for the region.
4. Thoroughly settle by water jetting and tamping soil in 6" lifts.
5. Prepare 3" dish outside root ball after planting.
6. Thoroughly water all beds and plants.
7. Stake trees and large shrubs as indicated on plans.
8. Apply anti-desicant according to manufacturer's instructions.
9. Apply commercially manufactured root stimulator as directed by printed instruction.
10. Plant and fertilize bedding plants per trade standards.
11. Apply 3" mulch top dressing.

B. Balled Plants

1. Place in pit of planting mixture that has been hand tamped prior to placing plant.
2. Place with burlap intact to ground line. Top of ball to be 2" above surrounding soil to allow for settling.
3. Remove binding at top of ball and lay top of burlap back 6".
4. Do not pull wrapping from under ball, but cut all binding cord.
5. Do not plant if ball is cracked or broken before or during planting process or if stem or trunk is loose.
6. Backfill with planting mixture in 6" lifts.

C. Container Grown Plants

1. Place in pit on planting mixture that has been hand tamped prior to placing plant.
2. Cut cans on two sides with an acceptable can cutter, and remove root ball from can. Do not injure root ball.
3. Carefully remove plants without injury or damage to root balls.
4. Backfill with planting mixture in 6" lifts.

D. Mulching

1. Cover planting bed evenly with 3" of mulch.
2. Water immediately after mulching.
3. Where mulch has settled, add additional mulch to regain 3" thickness.
4. Hose down planting area with fine spray to wash leaves of plants.

D. Pruning

1. Prune minimum necessary to remove injured twigs and branches, dead wood, and succors; remove approximately 1/3 of twig growth as directed by landscape architect; do not cut leaders or other major branches of plant unless directed by landscape architect.
2. Make cuts flush, leaving no stubs.
3. Paint cuts over 1" diameter with approved tree wound paint.
4. Do not prune evergreens except to remove injured branches.

3.06 EDGING

- A. Stake edging alignment with string line prior to installation. Use framing square to insure right angles are true.
- B. Install all edging straight and true as indicated on drawings. Where edging layout is circular in design, maintain true and constant radii as shown.
- C. When required on slopes, make vertical cuts (approximately 6" on center) on bottom of edging to allow bending without crimping edging.
- D. Install edging so that approximately 1" is exposed on lawn side. Edging should not be visible from bed side after application of mulch.
- E. Align edging with architectural features (ie pavement joints, windows, columns, wall, etc.) when drawings indicate.
- F. Bend all corners, do not cut corners.
- G. Interlock all pieces with pre-fabricated connectors.
- H. Install with all stakes on inside of planting bed.
- I. Remove, file off all sharp corners and burrs.

3.07 CLEAN-UP

A. Sweep and wash all paved surfaces.

Remove all planting and construction debris from site, including rocks, trash and all other miscellaneous materials.

3.08 MAINTENANCE

A. Contractor responsible for routine, and regular maintenance of site until Final Acceptance is awarded by Owner. Work includes:

1. Weeding (weekly)
2. Watering (as required)
3. Pruning
4. Spraying
5. Fertilizing
6. Mulching
7. Mowing (weekly)

B. Provide Owner and Landscape Architect with preferred maintenance schedule in writing. Schedule shall include the above-listed tasks and shall address all frequencies, rates, times, levels, etc.

END OF SECTION



CAUTION!!!
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BEFORE YOU DIG...

Date AUG 9, 2019
Drawn By GAC
Checked By GAC
Revisions _____

FAIN • CUPPET
LANDSCAPE ARCHITECTS, LLC
E233 Mc Cles Bldg, Suite B
North Richland Hills, TX 76182-2751 817-479-0700
PAVING AND OPEN SPACE PLANNING • LANDSCAPE ARCHITECTURE • IRRIGATION DESIGN



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EDEN ESTATES
HIGHTOWER DRIVE
NORTH RICHLAND HILLS, TX

Sheet No.

L-3

PLANTING SPECIFICATIONS

SECTION 02800
FINISH GRADING, LAWN WORK, WILD FLOWERS

PART I - GENERAL

1.01 DESCRIPTION

- A. Work includes turf establishment (sod, hydromulch, etc.) as described on drawings.
- B. Make required analysis and material tests for topsoil, fertilizers, and other materials of similar character per current methods of the Association of Official Agricultural Chemists, when required.
- C. Grass seed shall conform to tolerances for germination and purity per applicable standards of U.S. Department of Agriculture.
- D. The turf contractor shall have a stand of grass established prior to substantial completion of the project. If this is not possible due to time of year or schedule, he shall maintain and protect the seeded areas until the grass is established.

PART II - PRODUCTS

2.01 TOPSOIL MATERIAL

- A. Topsoil material (stockpiled, as specified in Specifications) has been saved for use in finish grading. After siting out all plant growth, rubbish, and stones, use for areas designated to receive grass. If stockpiled topsoil is not sufficient quantity to complete work, furnish acceptable topsoil from another approved source to provide four inches (4") of topsoil for grass areas unless otherwise noted on drawings. Grass areas shall be defined as the graded areas disturbed during construction not to be paved or built upon.
- B. Acceptable topsoil material shall be defined as natural, fertile, agricultural soil, capable of sustaining vigorous plant growth, uniform composition throughout admixture of subsoil, free of stones, lumps, plants, and their roots, sticks, or other extraneous matter; do not deliver while in a frozen or muddy condition.

2.02 FERTILIZER

- A. Provide a commercial balanced fertilizer delivered to the job in bags labeled with manufacturer's guaranteed analysis. Store in weatherproof storage, place in such a manner that its effectiveness will not be impaired.
- B. Fertilizer shall be a grade containing the percentages of plant food elements by weight as specified elsewhere in these specifications.
- C. Availability of various elements shall be per Standards of the Association of Official Agricultural Chemists.

2.03 GRASS SEED

- A. Grass seed shall be of the previous season's crop and the date of analysis shown on each bag shall be within nine (9) months of the time of delivery to the project. When requested by the Owner or Representative, the seeding contractor shall furnish a sample of seed from each bag for testing.
- B. The seed shall comply with all provisions of the U.S. Department of Agriculture as to labeling, purity, and germination.

2.04 MULCHING

- A. Dry straw or hay of good quality, free of seeds of competing plants and at such rate of 1 1/2 - 2 tons per acre; or,
- B. Wood cellulose or cane fiber mulch at a rate of 1,000 pounds per acre when the slope is 3/4:1 and steeper; or,
- C. A combination of good quality dry straw or hay free of seeds of competing plants at a rate of 2 1/2 tons per acre and wood cellulose or cane fiber mulch at a rate of 500 pounds per acre. This combination shall be used when the slope is flatter than 3/4:1; or,
- D. Sericea lespedza seed bearing hay at a rate of 3 tons per acre. This mulch may be applied green or air dried, but must contain mature seed.
- E. Manufactured mulch materials, such as soil retention blankets, erosion control netting, or others that may be required on special areas of high water concentration or unstable soils. When these materials are used, follow the manufacturer's recommendations for installation.

2.05 HYDRO-MULCHING

Wood cellulose fiber or cane fiber mulch will be applied with hydraulic seeding and fertilizing equipment. All slurry ingredients shall be mixed to form a homogeneous slurry and spray applied within one hour after the mixture is made.

When wood cellulose or cane fiber mulch is used at the 500 pound per acre rate, straw or hay mulch with asphalt emulsion is applied over this to complete the mulch.

Wood cellulose or cane fiber mulch at the 1,000 pound per acre rate is used alone where other mulch material will not stick.

Wood cellulose or cane fiber mulch is self anchoring.

PART III - EXECUTION

3.01 RESPONSIBILITY

The site grading contractor will be responsible to stockpile acceptable topsoil in a sufficient quantity to provide four inches (4") minimum cover for all grass areas, including but not limited to all curbed islands, and topsoil planting mounds/berms at the appropriate height and width as defined and shown on the landscaping and/or planting drawings. The topsoil and grass areas shall be further defined as any area disturbed during the grading and construction process.

The site grading contractor, shall be responsible to spread the topsoil within all perimeter graded areas and future building areas only.

The site grading contractor shall be responsible for backfilling of all curbed islands and planting mounds/berms. They shall also be responsible for removal of all stones, roots, and raking of all topsoil areas hat are to be seeded and/or planted. It will also be the site grading contractor's responsibility to provide fertilizer, grass seed, and any additional topsoil required and mulching.

3.02 GRASS SEEDING

- A. Remove stones, roots, rubbish and other deleterious materials from topsoiled areas that are to be seeded.
- B. Immediately prior to sowing seed, scarify ground as necessary; rake until surface is smooth and friable. Sow seed evenly, lightly wood rake into ground, then roll ground with suitable roller; water thoroughly with fine spray. During any weather, keep lawn watered with sprinklers or other approved methods. Re-seed any areas not doing well or damaged. At intervals as may be required according to seasonal conditions, mow and water grass and execute necessary weeding until acceptable and full stand of grass has been obtained.
- C. Provide permanent grass seeding for lawn areas so indicated. Seed in accordance with the following schedule (unless otherwise directed by Owner or Owner's Representative:..
1. Sow areas ready for seeding between March 1 and October 1 with Hulled Common Bermuda at a rate of 85 pounds per acre.
2. Sow areas ready for seeding between October 1 and March 1 with Unhulled Common Bermuda at a rate of 90 pounds per acre, and Annual Rye Grass at the rate of 50 pounds per acre.
3. Apply fertilizer at a rate of 20/25 pounds per 1,000 square feet.

3.03 WILD FLOWERS

- A. Areas indicated on plans to receive wild flower coverage shall br fine graded, fertilized, and prepared in a manner similar to traditional turf establishment.
- B. Area to be hydromulched with seed mix as follows:
- | | |
|------------------|-----------------|
| Tickseed | 10 pounds/acre |
| Cosmos | 15 pounds/acre |
| Ox-Eyed Daisy | 5 pounds/acre |
| Side Oats Grama | 4 pounds/acre |
| Showy Primrose | 0.5 pounds/acre |
| Plains Coreopsis | 2 pounds/acre |
| Black Eyed Susan | 2 pounds/acre |
| Indian Blanket | 10 pounds/acre |
| Texas Bluebonnet | 4 pounds/acre |
| Little Bluestem | 4 pounds/acre |

3.04 MULCH

- A. All areas to be seeded shall be mulched.
- B. Mulch materials shall be applied uniformly over the seeded area. Mulch shall be straw and shall be at the rate of 1 1/2 - 2 tons per acre
- C. Mulch shall be anchored with an emulsified asphalt binder at the rate of 10 gallons per 1,000 square feet.

3.05 PROTECTION

Provide, at no additional cost to Owner, fencing, railing, wire or other types of protection for topsoiled and seeded areas against trespassing and damage. If lawns are damaged prior to Final Acceptance, treat or replace them as directed. Remove protection when so directed.

3.06 MAINTENANCE

Provide maintenance from start of work until Final Acceptance. Maintenance includes watering of lawns, weeding, mowing, edging, repairs of wash-outs and gullies, repairs to protection, and other necessary work of maintenance. Maintain slopes against erosion.

3.07 REHYDROMULCHING

The Owner's representative will designate areas to be replanted. Areas on which a stand of growing grass is not present in a reasonable length of time, (Bermuda grass seed should be germinating in 6-8 days) shall be prepared, reseeded and remulched, as specified for original planting at no additional cost to Owner. A stand shall be defined as live plants from seed occurring at a rate of not less than 1,000 growing plants per square foot. Replanting required because of faulty operations or negligence on the part of the Contractor shall be performed without cost to Owner.

3.08 FINAL CLEAN-UP

- A. At time of final inspection of work, and before final acceptance, clean paved areas that are soiled or stained by operations of work of this section. Clean by sweeping or washing, and remove all defacements or stains.
- B. Remove construction equipment, excess material and tools. Cart away from site any debris resulting from work of this section and dispose of as directed.

END OF SECTION

SECTION 02922
SODDING

PART I - GENERAL

1.01 DESCRIPTION

- A. Work Included
1. Sod bed preparation
2. Fertilizing
3. Sodding
4. Miscellaneous management practices
- B. Related Work Specified Elsewhere
1. Finish Grading, Section 02800
2. Lawns and Grasses, Section 02930

1.02 REFERENCE STANDARDS

- A. Standardized Plant Names
- American Joint Committee of Horticultural Nomenclature, Second Edition, 1942.
- B. Texas Highway Department - Standard Specifications for Construction, Item 164, Seeding for Erosion Control.

1.03 SUBMITTALS

- A. Vendors Certification That Sod Meets Texas State Sod Law

1. Include labeling requirements.
2. Include purity and type.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Sod:
1. Previous season's crop with date of analysis on each bag.
2. Furnish and deliver each variety in separate bags or containers.
3. Sod to be cut no more than three days before delivery.
- B. Fertilizer:
1. Unopened bags labeled with the analysis.
2. Conform to Texas Fertilizer Law.

1.05 JOB CONDITIONS

- A. Planting Season:
1. Only during suitable weather and soil conditions.
2. As specifically authorized by the Owner's Representative.
- B. Schedule - Only after all other construction is complete.
- C. Protect and Maintain Sodded Areas
1. From traffic and all other use.
2. Until sodding is complete and accepted.

PART II - PRODUCTS

2.01 MATERIALS

- A. Sod:
1. Sod: As specified on drawings, weed, insect, and disease free having a minimum of 1 inch of topsoil attached to the roots and cut no more than three days prior to installation.
2. The sod shall be cut in strips of at least 1/2 sq. yd. and not more than 1 sq. yd. Sod shall be cut into strips not less than 12" in width or more than 9' in length. At the time of harvest, the top growth shall not exceed 3" in length.
3. All sod shall conform to the laws of the State and shall be obtained from sources meeting the approval of the Department of Agriculture, Division of Entomology.
- B. Fertilizer:
1. Uniform in composition, free flowing.
2. Suitable for application in approved equipment.
3. Analysis of 16-20-0, 16-8-8 or as directed.
- C. Water:
1. Free of oil, acid, alkali, salts or other substances harmful to growth of grasses.

PART III - EXECUTION

3.01 SOD BED PREPARATION

- A. Cultivate to a depth of four (4") inches by disking and tilling with a power tiller.
- B. Clear surfaces of all materials:
1. Stumps, stones, and other objects larger than one inch (1").
2. Roots, brush, wire, stakes, etc.
3. Any objects that may interfere with sodding or maintenance.
- C. Prepare sod bed:
1. Remove soil clods larger than one inch (1").
2. Grade areas to smooth, even surface, removing ridges and filling depressions. Final grade to be below finish grade of curbing and edging as shown on details. All grades shall meet approval of Owner's Representative before sodding.

3.02 SODDING

- A. Sodding:
1. Lightly water prepared grade, lay sod with staggered joints and with edges touching. Topdress with topsoil at edges if necessary to provide smooth surface. On slopes of 2 to 1 and greater, fasten sod in place with wood pegs (two each piece) or other approved method. Sod damaged by storage or during installation shall be rejected. Following settling, topdress with screened, approved topsoil.
2. Water and fertilize at 5 lbs. per 1,000 sq. ft.
3. Sod shall not be placed during a drought, nor during periods when sod is not normally placed in the area, and shall not be placed on frozen ground. No dry or frozen sod is acceptable.
4. The contractor shall keep all keep all sodded areas moist and growing until Final Acceptance. All areas shall be maintained in an acceptable condition until acceptance by Owner.
- B. Rolling:
1. After placing sod, roll with a hand roller, weighing not more than 100 lbs. per foot of width, in two directions.
2. Eliminate all air pockets; finished surface should be free of excessive undulations.

3.05 MAINTENANCE AND MANAGEMENT

- A. Includes protection, replanting, maintaining grades, repair of erosion damage. Also includes weekly mowing at 1 1/2" height until final acceptance.
- B. Resodding:
1. Resod damaged or unacceptable areas.
2. Ruts, ridges, and other surface irregularities shall be corrected.

END OF SECTION



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TEXAS ONE CALL SYSTEMS 1-800-245-4545
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BEFORE YOU DIG...



TURF SPECIFICATIONS

Date AUG 9, 2019
Drawn By GAC
Checked By GAC
Revisions

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LANDSCAPE ARCHITECTS, LLC
6233 Mc Clellan Blvd, Suite B
North Richland Hills, TX 76182-2751
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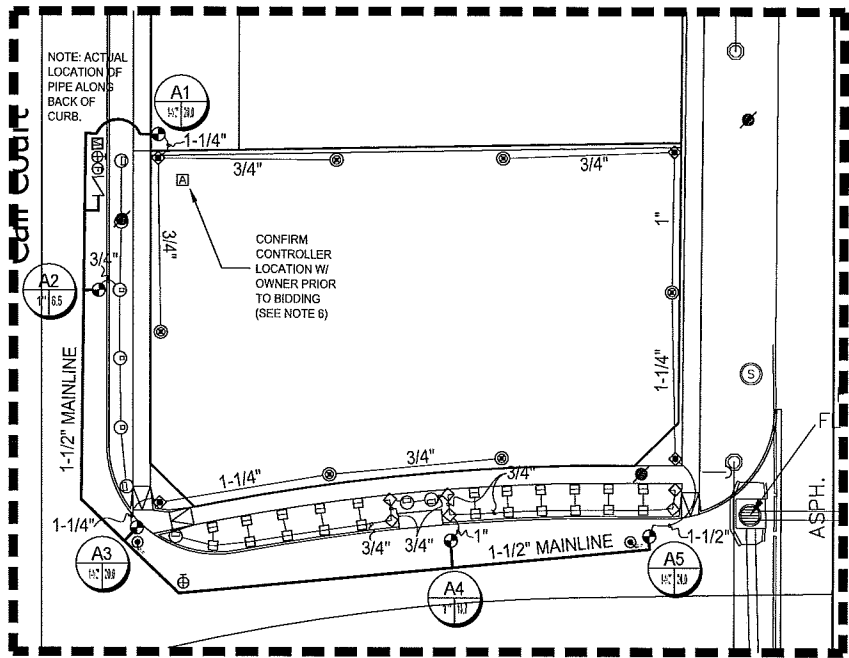
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Sheet No.

L-4

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ENLARGEMENT 'A'



HYDRAULIC CALCULATIONS
SPRAY ZONE A5

AVAILABLE PRESSURE 55 PSI (ESTIMATED)
24.0 GALLONS PER MINUTE

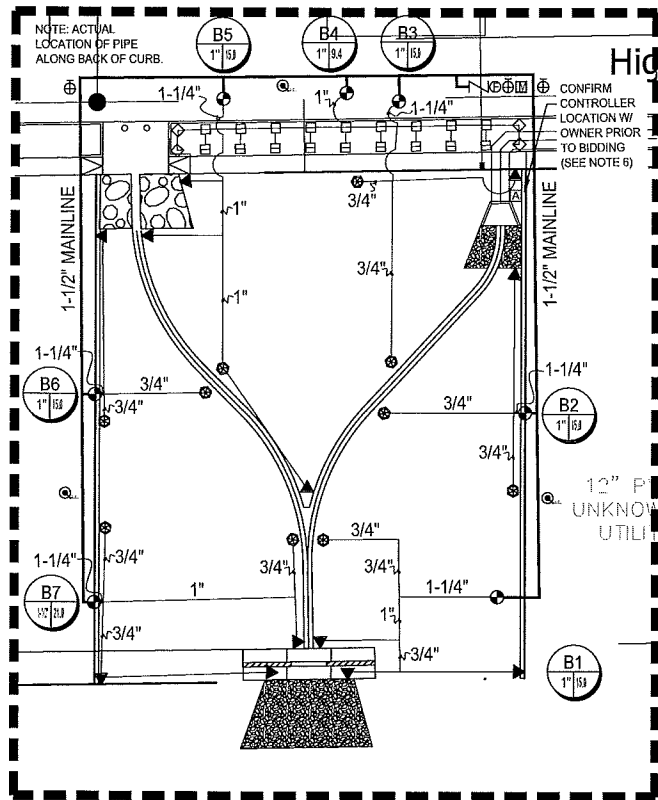
- 1" METER - 3.4 PSI
- 1-1/2" DCVA - 6.1 PSI
- 1-1/2" WYE - 0.2 PSI
- 1-1/2" MAIN LINE LOSS (228') - 2.5 PSI
- ELECTRIC CONTROL VALVE - 1.5 PSI
- IN-LINE BALL VALVE - 0.5 PSI
- ZONE LOSS - 2.5 PSI
- ELEVATION CHANGE - 0.0 PSI
- FITTING ESTIMATE - 1.7 PSI
- OPERATING PRESSURE - 31.6 PSI

Irrigation Equipment Table

Qty	Sym	Equipment
5	⊙	HUNTER ICV (size as indicated) w/ACCUSYNC <ul style="list-style-type: none">LEMA1600HE Solenoid (Each Control Valve)30-922 Adapter (Contractor to verify compatibility)
1	⊠	LEIT 4006 Solar Controller with <ul style="list-style-type: none">MCOL 4000 (32") Mounting ColumnLEIT KEY Programmer-Provide to ownerSKIT 8821-4 Sensor InterfaceHUNTER Rain/Freeze CLIC
1	⌋	1-1/2" FEBCO Double Check/Gate
1	⊙	1-1/2" FEBCO 650A Wye Strainer
2	⊕	Inline Ball Valve size to match mainline
1	⊠	1" Meter
2	⊕	QUICK COUPLER VALVE
6	⊙	HUNTER PGP Ultra 12-CV Blue Standard 8.0 Nozzle ADJ
4	⊕	HUNTER PGP Ultra 12-CV Blue Standard 4.0 Nozzle ADJ
5	⊙	HUNTER Pro-Spray Strip Pattern LCS/RCS/ES - 515 EST
4	⊙	HUNTER Pro-Spray Strip Pattern SS-530 SST
6	⊕	HUNTER Pro-Spray 8' Nozzle 8 (Brown) 090
22	⊠	HUNTER Pro-Spray 8' Nozzle 8 (Brown) 180

ALL HEADS SHALL BE EQUIPPED WITH CHECK VALVES

ENLARGEMENT 'B'



HYDRAULIC CALCULATIONS
SPRAY ZONE B7

AVAILABLE PRESSURE 55 PSI (ESTIMATED)
21.0 GALLONS PER MINUTE

- 1" METER - 2.8 PSI
- 1-1/2" DCVA - 6.1 PSI
- 1-1/2" WYE - 0.2 PSI
- 1-1/2" MAIN LINE LOSS (187') - 1.7 PSI
- ELECTRIC CONTROL VALVE - 1.5 PSI
- IN-LINE BALL VALVE - 0.5 PSI
- ZONE LOSS - 3.0 PSI
- ELEVATION CHANGE - 0.0 PSI
- FITTING ESTIMATE - 1.6 PSI
- OPERATING PRESSURE - 37.6 PSI

Irrigation Equipment Table

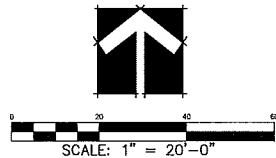
Qty	Sym	Equipment
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1	⊠	LEIT 4008 Solar Controller with <ul style="list-style-type: none">MCOL 4000 (32") Mounting ColumnLEIT KEY Programmer-Provide to ownerSKIT 8821-4 Sensor InterfaceHUNTER Rain/Freeze CLIC
1	⌋	1-1/2" FEBCO Double Check/Gate
1	⊙	1-1/2" FEBCO 650A Wye Strainer
3	⊕	Inline Ball Valve size to match mainline
1	⊠	1" Meter
3	⊕	QUICK COUPLER VALVE
4	⊕	HUNTER Pro-Spray 8' Nozzle 8 (Brown) 090
18	⊠	HUNTER Pro-Spray 8' Nozzle 8 (Brown) 180
12	▼	HUNTER PGP Ultra 12-CV Blue Standard 3.0 Nozzle ADJ
10	⊙	HUNTER PGP Ultra 12-CV Blue Standard 6.0 Nozzle ADJ

ALL HEADS SHALL BE EQUIPPED WITH CHECK VALVES

IRRIGATION NOTES:

- IRRIGATION LINES ARE SOMETIMES SHOWN OUTSIDE PLANTING BEDS FOR GRAPHIC CLARITY ONLY. ADJUST INSIDE BEDS ON SITE.
- AVOID TRENCHING WITHIN DRIP LINE OF EXISTING TREES. WHERE NECESSARY, TRENCH RADIALLY, RATHER THAN ACROSS THE ROOT SYSTEM.
- MAIN LINE TO BE 1-1/2".
- ALL SLEEVES UNDER PAVING TO EXTEND 12" PAST EDGE OF PAVING. COORDINATE WORK WITH GENERAL AND PAVING SUBCONTRACTOR.
- ALL HEADS TO BE 4" POPS IN LAWNS. ALL HEADS WITH CHECK VALVES.
- COORDINATE SLEEVE SIZE AND LOCATION FOR FREEZE SENSOR, RAIN GAUGE AND CONTROLLER WITH GENERAL CONTRACTOR. SEAL ALL BUILDING PENETRATIONS WATER TIGHT.
- SEE FOLLOWING DETAIL SHEET FOR IRRIGATION DETAILS.
- PRESSURE ESTIMATED AT 55 PSI; MINIMUM 50 GPM AS PROVIDED BY CITY. VERIFY ON SITE AND REPORT TO LANDSCAPE ARCHITECT PRIOR TO BEGINNING ANY WORK.
- CONTRACTOR RESPONSIBLE FOR LOCATION OF ALL UTILITIES INCLUDING BUT NOT LIMITED TO TELEPHONE, TELECABLE, ELECTRIC, GAS, WATER, AND SEWER. ANY DAMAGE TO UTILITIES TO BE REPAIRED BY CONTRACTOR AT NO COST TO OWNER. REFER TO SITE/UTILITY PLANS.
- VERIFY 100% COVERAGE OF SYSTEM OVER ALL PLANTING & LAWN AREAS AS SHOWN ON DRAWINGS.
- IF PEDESTAL MOUNTED CONTROLLER IS SPECIFIED, MOUNT ON 4"x3"x3' CONCRETE SLAB WITH (4) #4'S EACH WAY. SLEEVE THROUGH SLAB FOR CONTROLLER WIRING AS REQUIRED.
- UNLESS NOTED OTHERWISE, THERE ARE NO EXISTING SLEEVES. IRRIGATION CONTRACTOR TO SIZE AND COORDINATE SLEEVE INSTALLATION AS NEEDED IN ALL LOCATIONS UNDER PAVEMENT.
- QUANTITIES ARE PROVIDED AS A COURTESY AND ARE NOT INTENDED FOR BID PURPOSES. CONTRACTOR TO VERIFY ALL QUANTITIES PRIOR TO BIDDING.
- IF DOUBLE CHECK IS PROHIBITED BY LOCAL CODE/ORDINANCE, SUBSTITUTE WITH APPROVED BACKFLOW PREVENTION DEVICE.
- ALL WORK IN ACCORDANCE WITH LOCAL, STATE, & NATIONAL CODES & ORDINANCES.
- CONTRACTOR TO SIZE CONTROL SIZE WIRE AS NECESSARY. HOWEVER, MINIMUM SIZE TO BE 14 GAUGE PER NATIONAL ELECTRICAL CODE. ALL SPLICES WITH APPROVED MANUFACTURED CONNECTOR IN VALVE BOX.
- DO NOT LOCATE VALVE BOXES IN SWALES, LOW AREAS, OR ANY OTHER LOCATIONS THAT MAY COLLECT WATER.
- CONTROLLER TO BE WIRED ON DEDICATED 110 VOLT CIRCUIT AND GROUNDED W/"GROUNDING SPIKE" PER MANUFACTURER'S INSTRUCTIONS.
- ADJUST HEADS TO AVOID OVERSPRAY ONTO STREETS, ROADWAYS, BUILDINGS AND ELECTRICAL EQUIPMENT.
- INCLUDE ONE SPARE WIRE FROM CONTROLLER TO EACH CONTROL VALVE. EACH WIRE TO BE VARYING COLOR.
- CONTRACTOR IS RESPONSIBLE FOR ADJUSTING FLOW CONTROL AND/OR PRESSURE REGULATOR AT EACH CONTROL VALVE AS NECESSARY TO MAKE SYSTEM OPERATE AS INTENDED.
- DRIP IRRIGATION IS INTENDED TO MAINTAIN ESTABLISHED PLANT MATERIAL. CONTRACTOR SHALL HAND WATER AND MAINTAIN NEW PLANTINGS AS REQUIRED UNTIL ESTABLISHMENT AND ACCEPTANCE.

NOTE: INCLUDE (2) TORO SB-90-PC2 STREAM BUBBLERS TO EACH NEW TREE. ATTACH EACH BUBBLER TO TORO 570-6" POPUP. LOCATE BUBBLERS INSIDE TREE WELL OF EACH TREE ON OPPOSITE SIDES OF THE ROOT BALL. ALL BUBBLERS TO BE ZONED SEPARATELY FROM OTHER HEADS. CONTRACTOR RESPONSIBLE FOR PIPE SIZING, SLEEVING, ETC. AND ALL OTHER REQUIREMENTS TO MAKE CIRCUIT(S) OPERABLE. TOTAL COUNT FOR BUBBLERS AND VALVE(S) NOT SHOWN IN IRRIGATION KEY. IF TREE IS LOCATED IN DRIP ZONE, IN LIEU OF BUBBLER USE (2) RAIN BIRD SXB-180-025 XERI-BUBBLERS W/SXB-180-SPYK SPIKE TIED INTO EMITTER TUBING.



TEMPORARY IRRIGATION WILL BE REQUIRED TO ESTABLISH TURF IN ALL DISTURBED AREAS WITHOUT A PERMANENT IRRIGATION SYSTEM. INSTALL SOD TO ESTABLISH TURF IN ALL DISTURBED AREAS AS IDENTIFIED ON GRADING AND EROSION CONTROL PLANS.



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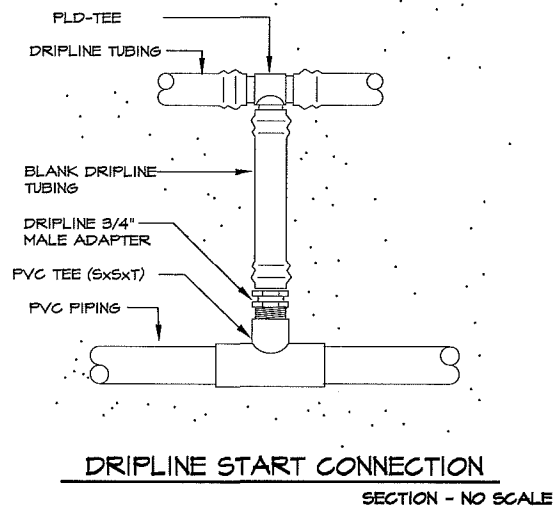
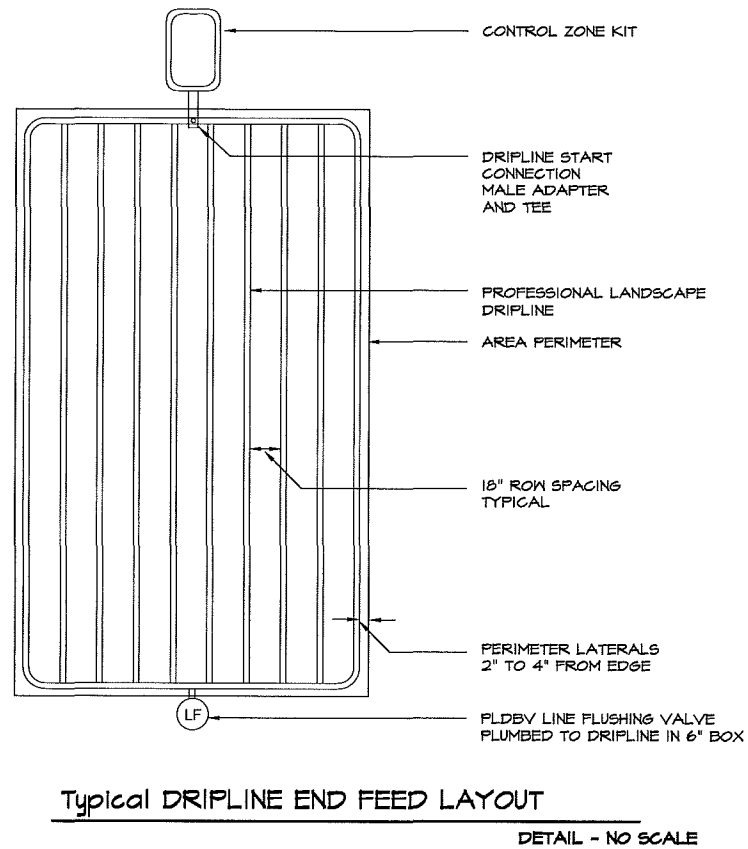
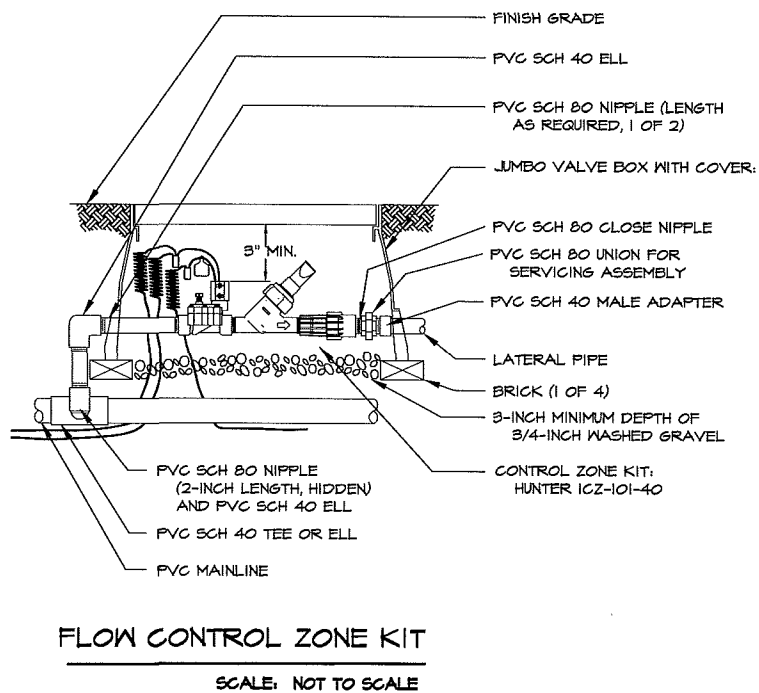
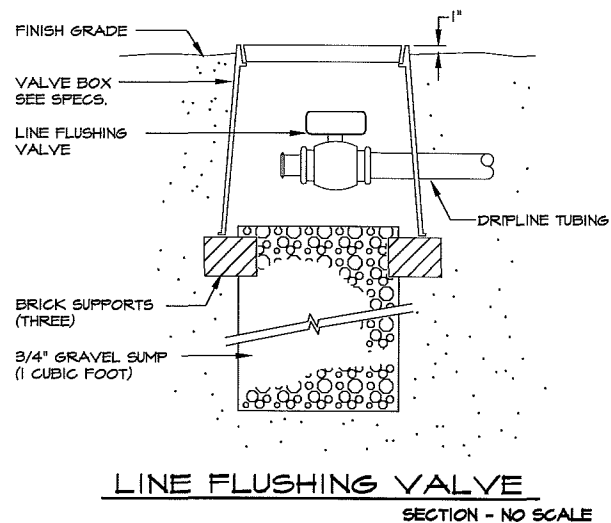
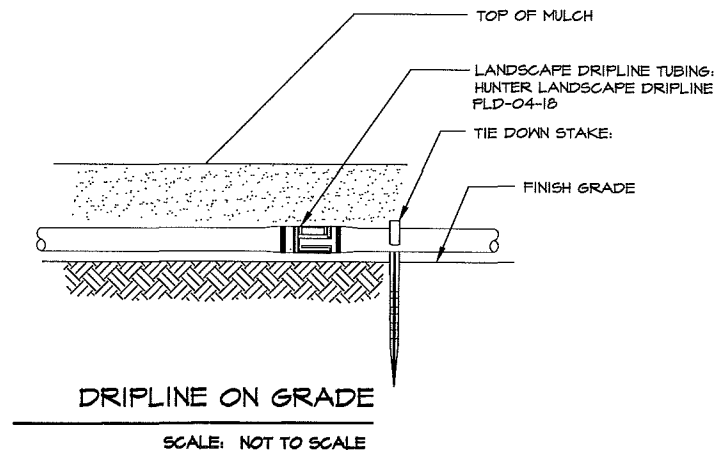
EDEN ESTATES
HIGHTOWER DRIVE
NORTH RICHLAND HILLS, TX

Sheet No.

L-5

IRRIGATION PLAN

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1-800-344-8377
TEXAS ONE CALL SYSTEMS
1-800-245-4545
LONE STAR NOTIFICATION CENTER
1-800-669-8344 EXT. 5

BEFORE YOU DIG...

DRIP DETAILS

Date AUG 9, 2019
Drawn By GAC
Checked By GAC
Revisions

FAIN • CUPPETT
LANDSCAPE ARCHITECTS, LLC
8233 Mid Chica Blvd, Suite B
North Richland Hills, TX 76182-2761
817-473-0730
PLANS AND OPEN SPACE PLANNING • LANDSCAPE ARCHITECTURE • IRRIGATION DESIGN



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SECTION 02750

IRRIGATION

PART I – GENERAL

1.01 DESCRIPTION

A. Work Included

1. Piping and fittings.
2. Connection to existing water lines.
3. Valves, bubblers, and spray heads.
4. All miscellaneous fittings and accessories required to complete and operate system.
5. Excavation and backfill.
6. Testing and adjusting.
7. Clean up.

B. Related Work Specified Elsewhere

1.02 QUALITY ASSURANCE

A. Codes and Standards:

1. All applicable local and national Plumbing Ordinances, Electrical Codes, and Building Codes.
2. National Plumbing Code.

B. Licenses:

1. All work shall be performed by or under the direct supervision of an irrigator or plumber licensed to practice under the authority of the State of Texas.

C. Reference Standards:

1. ASTM D–2241–78
2. CS 256–63

1.03 SUBMITTALS

A. Maintenance Materials : At completion of the job, furnish spare parts and all special tools and equipment required to operate and maintain system.

B. Maintenance Data: Furnish two copies of parts list and repair manuals and all special tools and equipment required to operate and maintain system.

C. Manufacturer's Literature: Submit catalogue data indicating, performance, weight, size and function of each item of equipment and material. Also provide manufacturer's operating manual.

D. Project Record Documents: Record on a clean set of plans in colored pencil and also a reproducible mylar:

1. All piping and wiring, including control wires by dimensions.
2. Locate all valves by dimension from two directions.

PART II – PRODUCTS

2.01 GENERAL

A. Equipment and Material Requirements:

1. Standard product of acceptable manufacturer.
 2. In-service performance records to verify capabilities.
 3. New and unused.
- published

2.02 MATERIALS

A. PVC Pipe and Fittings:

1. Polyvinyl chloride pipe (PVC) in accordance with ASTM D–2241–78 made to SDR–PR dimensions and approved by National Sanitation Foundation.
2. 2 inch pipe and smaller: Solvent weld PVC Type "Bell–End" pipe may be used.
3. 2 inch pipe fittings and smaller: Solvent weld type as recommended by pipe manufacturer.
4. All pipe downstream of backflow preventer to be Class 200 PVC; all swing joints and risers to be Schedule 80.

B. Joints and Fittings:

1. Nipples and risers: Schedule 80 threaded PVC pipe.
2. Fittings: Schedule 80 PVC.

C. Valves:

1. Double Check Double Gate Valve

- a. Factory assembled and tested valve train.
- b. Two spring loaded all brass check valves with soft rubber discs.
- c. Two all brass shutoff valves.
- d. Assembled with brass nipples.
- e. In accordance with AWWA and ASSE specifications.
- f. Approved Product: FEBCO.

2. Manual Control Valve

- a. Straight type globe valve.
- b. Size to match upstream pipe or as shown on drawings.
- c. Cross handle control wheel.
- d. Brass or bronze body and parts, Class 150.
- e. Full floating valve disc with replaceable seat and washers.
- f. Removable bonnet and stem assembly with packing gland and nut.

3. Electric Control Valve

- a. With flow control.
- b. Globe valve.
- c. Manual bleed.
- d. 24 VAC solenoid.
- e. Electric control, in–line.
- f. Size to match upstream pipe or as shown on drawings.

4. Quick Coupler

- a. 1" female inlet.
- b. Brass or bronze construction.
- c. 150 psi capacity.
- d. Self closing cover.
- e. One piece, single lug, single key construction.
- f. Provide owner with two quick coupler keys & hose bib attachments.
- g. Install in 'Jumbo' plastic valve box, rectangular, heavy duty.

D. Valve Boxes:

1. Box for Double check double gate valve:

- a. Concrete box with cast iron cover (or per code).
- b. Sufficient size to house entire assembly and permit inspection, maintenance and repair.

2. Box for Electric Valves, Manual Valves, and Double Check Valves

- a. 'Jumbo', rectangular
- b. Heavy duty plastic construction.
- c. With locking lid.

E. Sprinkler Heads:

1. Bubbler, Flood Type

- a. Plastic construction.
- b. 1/2" IPS female inlet.
- c. Adjustable flow via screen.

2. Spray Heads

- a. 4" pop/12" pop
- b. Plastic construction.
- c. Stainless steel retraction spring.
- d. Serviceable filter screen and nozzle.
- e. Stationary or gear driven.

3. Rotary Heads

- a. 12" pop/4"pop
- b. Full and part circle heads as drawings indicate.
- c. Stainless steel retraction spring.
- d. Serviceable filter screen and nozzle.

F. Controllers:

1. Solid state.
2. Digital readout.
3. Dust Barrier.
4. Pump/master valve circuit switch.
5. 0–60 minute timing per station or as specified.
6. Up to three start times/day with manual override.
7. UL listed.
8. Battery backup.

G. Accessories:

1. Jointing Material: Teflon tape for threads on PVC pipe.
2. Control Wire: Direct Burial, size for voltage drop, minimum size per National Electric Code.

PART III – EXECUTION

3.01 GENERAL

Install all equipment and products in accordance with manufacturer's recommendations.

3.02 INSTALLATION

A. PVC Pipe and Fittings:

1. Handle and install PVC pipe, couplings, and fittings in accordance with manufacturer's recommendations and industry standards.
2. All PVC fittings shall be molded of the same material as the pipe and shall be suitable for solvent weld, slip joint ring tight seal, or screwed connections.
3. No fittings made of other material shall be used except copper as specified in the plans and details.
4. Space pipe length in jointing and snake to allow for expansion and contraction.
5. Thoroughly clean interior of the pipe of all foreign matter before being lowered into trench. Keep clean during laying operation by means of plugs or other approved method.
6. Do not lay pipe in water or when trench or weather conditions are unsuitable for work. Keep water out of trench until the joints are completed.
7. When work is not in progress, securely close open ends of pipe and fittings so that no trench water, earth or other substances will enter pipes or fittings.
8. Take up and relay any pipe that has the grade or joints disturbed after laying.

9. Fittings at bends in the pipe line and at ends of lines shall be firmly wedged against the vertical face of the trench.
10. Make joints in all screwed fittings by applying teflon tape on male threads.
11. Only schedule 80 pipe may be threaded.

B. Valves:

1. Install all new valves as indicated on the plans or as may be required for the proper control of the piping systems in which they are incorporated.
2. Bury valves deep enough so that valve box lid will not protrude above the ground.
3. Set valves vertically and locate 12 inches from sidewalks where possible.
4. Adjust flow control to give correct pressure at sprinkler head.

C. Heads — Contractor shall field adjust all heads to minimize/eliminate direct head spray onto all paving, roadways, walks, buildings, electrical transformers and other above ground equipment.

3.03 FIELD QUALITY CONTROL

A. Leak Test:

1. When the main line or sections of the main line, e.g. loops with swing joints and valves have been installed, the system (or section) will then be pressurized to the operating pressure indicated on the drawings. The pressure will then be maintained for a twenty four hour leak test period.
2. All leaks will be repaired and retested prior to backfilling lines.
3. Any leaks developed during the first under normal operating pressures due to improper installation shall be repaired by the contractor at no expense to the owner.

B. Cleaning and Flushing System:

1. After pipe, fittings, and valves have been installed and connections made to water source, flush pipe free of all rock, dirt, trash, pipe shavings, and other debris before installing heads.
2. After heads have been installed, use system several times before final inspection.
3. Immediately before final inspection, check all heads for stoppage. Clean if necessary.
4. Remove nozzles of all heads and flush pipes. Clean and replace heads before final inspection.

C. Maintenance Instructions:

1. School at least two of the Owner's employees that will be maintaining the irrigation system in operating and maintenance procedures.
2. Include operation of controllers and valves, balancing of the system, and maintenance of all equipment including removal and replacement of valve and controller components.

3.04 CLEANUP

A. Make final cleanup of all parts of work before final acceptance.

B. Remove all construction materials and equipment.

C. Prepare site in an orderly and finished appearance.

D. Remove from site any rock or extra soil that resulted from this work and restore site to its original condition.

END OF SECTION



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Date AUG 9, 2019
Drawn By GAC
Checked By GAC
Revisions _____

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EDEN ESTATES
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NORTH RICHLAND HILLS, TX

Sheet No.

L-8

IRRIGATION SPECIFICATIONS

CERTIFICATE OF INTERESTED PARTIES

FORM 1295

1 of 1

Complete Nos. 1 - 4 and 6 if there are interested parties.
Complete Nos. 1, 2, 3, 5, and 6 if there are no interested parties.

OFFICE USE ONLY CERTIFICATION OF FILING

Certificate Number:
2019-536704

Date Filed:
09/05/2019

Date Acknowledged:

1 Name of business entity filing form, and the city, state and country of the business entity's place of business.

Builders Funding MGT, LP
Hurst, TX United States

2 Name of governmental entity or state agency that is a party to the contract for which the form is being filed.

City of North Richland Hills

3 Provide the identification number used by the governmental entity or state agency to track or identify the contract, and provide a description of the services, goods, or other property to be provided under the contract.

Eden Estates Detention Mainten
Eden Estates Detention Maintenance Agreement, sub division development

4	Name of Interested Party	City, State, Country (place of business)	Nature of interest (check applicable)	
			Controlling	Intermediary

5 Check only if there is NO Interested Party.



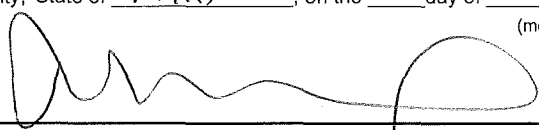
6 UNSWORN DECLARATION

My name is MARK BARFIELD, and my date of birth is 05-13-1957

My address is 1016 PIENZA PATH KELLEN TX 76248 USA
(street) (city) (state) (zip code) (country)

I declare under penalty of perjury that the foregoing is true and correct.

Executed in TARRANT County, State of TEXAS, on the 5th day of SEPTEMBER, 2019.
(month) (year)


Signature of authorized agent of contracting business entity
(Declarant)