

2. AMENDMENT/MODIFICATION NO. 0001	3. EFFECTIVE DATE JUL 28, 2004	4. REQUISITION/PURCHASE REQ. NO. N/A	5. PROJECT NO. (If applicable) SPEC. NO. 1290
6. ISSUED BY CODE		7. ADMINISTERED BY (If other than Item 6) CODE	
DEPARTMENT OF THE ARMY U.S. ARMY ENGINEER DISTRICT, SACRAMENTO SACRAMENTO, CALIFORNIA 95814-2922		DEPARTMENT OF THE ARMY U.S. ARMY ENGINEER DISTRICT, SACRAMENTO SACRAMENTO, CALIFORNIA 95814-2922	

8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code)	(√)	9A. AMENDMENT OF SOLICITATION NO. W91238-04-R-0021
	X	9B. DATED (SEE ITEM 11) JUL.14 , 2004
		10A. MODIFICATION OF CONTRACTS/ORDER NO. N/A
		10B. DATED (SEE ITEM 13) N/A
CODE	FACILITY CODE	

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers is extended, is not extended.

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:

(a) By completing Items 8 and 15, and returning 1 copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)
N/A

NOTE: ITEM 13 BELOW IS N/A.

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS, IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

(√)	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A. N/A
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
	D. OTHER (Specify type of modification and authority) N/A

E. IMPORTANT: Contractor is not, is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)
WHOLE NEIGHBORHOOD REVITALIZATION (PHASE I)
DUGWAY PROVING GROUND, UT

- 2Encl
- Revised Pages: Pricing Scedule(page 1), 00110-4, 00700-17, 00700-106, Attachment No. 9 (Armitage Park Floor Plans), 01010-1, 01010-2, 01010-15, 01010-16, 01010-21, 01010-22, 01010-30, 01012-8
 - Revised Drawings: G3.00, C1.01, C1.02 (W/XREF)

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)	16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)
15B. CONTRACTOR/OFFEROR (Signature of person authorized to sign)	15C. DATE SIGNED
	16B. UNITED STATES OF AMERICA BY _____ (Signature of Contracting Officer)
	16C. DATE SIGNED

PRICING SCHEDULE

CONTRACTOR SHALL FURNISH ALL PLANT, LABOR, MATERIAL, EQUIPMENT, ETC. NECESSARY TO PERFORM ALL WORK IN STRICT ACCORDANCE WITH THE TERMS AND CONDITIONS SET FORTH IN THE CONTRACT TO INCLUDE ALL ATTACHMENTS THERETO.

- 01 For revitalization of twenty two (22) Officer Family Housing Quarters and supporting facilities at St. Johns Park Dugway Proving Ground, UT. Building numbers ,5391, 5390, 5389, 5388, 5386, 5385, 5384, ~~5369, 5368~~ **5366, 5367**, 5360, 5370, 5383, 5382, 5381, 5379, 5378, 5377, 5363, 5362, 5361, 5375, and 5374.

BASE PRICE \$ _____

- 02 Option1: For revitalization of two (2) Officer Family Housing Quarters and supporting facilities at St. Johns Park, Dugway Proving Ground, UT. Building Numbers 5372 and 5371
\$ _____

- 03** Option 2: For revitalization of two (2) Officer Family Housing Quarters and supporting facilities at St. Johns Park, Dugway Proving Ground, UT. Building Numbers ~~5366 and 5367~~ **5368 and 5369**.
\$ _____

- 04 Option 3: For revitalization of one (1) Officer Family Housing Quarters and supporting facilities at St. Johns Park, Dugway Proving Ground, UT. Building Numbers 5392.
\$ _____

- 05 Option 4: For revitalization of two (2) Officer Family Housing Quarters and supporting facilities at Armitage Area Housing, Dugway Proving Ground, UT. Building Numbers 5295 and 5296.
\$ _____

TOTAL AMOUNT BASE Price + OPTIONS \$ _____

Price Breakdown. **For administrative purposes only**, and not for purpose of evaluation or award. A breakdown of the TOTAL BASE SCHEDULE lump sum Price is as follows:

- a. Inside Building 1.500 M (5 foot) line. \$ _____
- b. Outside Building 1.500 M (5 foot) line and within project boundary. \$ _____
- c. Demolition \$ _____
- d. Design costs. (Site and building) \$ _____
- e. Energy Star Requirements (Appliances and HVAC) \$ _____

#3	HOUSING UNIT ENGINEERING
#4	SITE ENGINEERING
#5	KEY PERSONNEL
5-1	D-B Organization Chart (2)
5-2	Key Personnel Resumes
#6	PAST PERFORMANCE

d. REQUIRED DATA FOR TECHNICAL PROPOSAL SUBMISSION:

The following technical data shall be submitted as part of the technical proposal. Technical proposals shall include a graphic description of the design clearly indicated as such. Offerors are advised that the required data listed below will be utilized for technical review and evaluation and used for determination of a "Quality Rating" by a Technical Evaluation Team. Materials indicated in the design/construction criteria but not indicated in the Offerors specifications will be assumed to be included and a part of the technical proposal.

DESIGN DOCUMENTS: This information is part of the requirements identified in paragraph 2.6.1.1. Drawings shall be drawn on 24 inch x 36 inch or 30" x 42" format. Provide an index of drawings. Submit one (1) full size and **five(5)** half-size copies. English Units shall be used for the drawing scale; however, metric equivalents (soft conversion) shall be placed in parentheses next to the English measurement for the final design (After Award) submittal.

(1) **Tab 1 - Housing Unit Design**

(i) Housing Unit:

Floor Plans: Scale 1/4" = 1'-0"

For each type of dwelling unit, show the following:

- Overall dimensions
- Room description with dimensions and areas
- Kitchen layout
- Door and window locations
- Garage location
- Patio, Walks and Private fencing
- Exterior/Interior bulk storage
- Service (trash) area

(ii) Exterior Elevations: ~~Scale 1/4" or 1/8" = 1'-0"~~
~~Show all sides of a building complete with notes indicating the exterior finish materials shall be shown. Submit after award.~~

52.211-12 LIQUIDATED DAMAGES--CONSTRUCTION (SEP 2000)

(a) If the Contractor fails to complete the work within the time specified in the contract, the Contractor shall pay liquidated damages to the Government in the amount of ~~\$902.00~~ **\$1316.25** for each calendar day of delay until the work is completed or accepted.

(b) If the Government terminates the Contractor's right to proceed, liquidated damages will continue to accrue until the work is completed. These liquidated damages are in addition to excess costs of repurchase under the Termination clause.

(End of clause)

52.215-2 AUDIT AND RECORDS--NEGOTIATION (JUN 1999)

(a) As used in this clause, "records" includes books, documents, accounting procedures and practices, and other data, regardless of type and regardless of whether such items are in written form, in the form of computer data, or in any other form.

(b) Examination of costs. If this is a cost-reimbursement, incentive, time-and-materials, labor-hour, or price redeterminable contract, or any combination of these, the Contractor shall maintain and the Contracting Officer, or an authorized representative of the Contracting Officer, shall have the right to examine and audit all records and other evidence sufficient to reflect properly all costs claimed to have been incurred or anticipated to be incurred directly or indirectly in performance of this contract. This right of examination shall include inspection at all reasonable times of the Contractor's plants, or parts of them, engaged in performing the contract.

(c) Cost or pricing data. If the Contractor has been required to submit cost or pricing data in connection with any pricing action relating to this contract, the Contracting Officer, or an authorized representative of the Contracting Officer, in order to evaluate the accuracy, completeness, and currency of the cost or pricing data, shall have the right to examine and audit all of the Contractor's records, including computations and projections, related to--

- (1) The proposal for the contract, subcontract, or modification;
- (2) The discussions conducted on the proposal(s), including those related to negotiating;
- (3) Pricing of the contract, subcontract, or modification; or
- (4) Performance of the contract, subcontract or modification.

(d) Comptroller General--(1) The Comptroller General of the United States, or an

(b) The Contractor, at its expense and in a workmanlike manner satisfactory to the Contracting Officer, shall install and maintain all necessary temporary connections and distribution lines, and all meters required to measure the amount of each utility used for the purpose of determining charges. Before final acceptance of the work by the Government, the Contractor shall remove all the temporary connections, distribution lines, meters, and associated paraphernalia.

The Contractor shall pay quarterly for the utilities listed below. The payment shall be made payable to the "Defense Accounting Office" and delivered to the Directorate of Installation Support (DIS) at Dugway Proving Ground, UT.

Identify the check as "Utility Charges for contract No:_____":

The current utility rates, subject to change are as follows:

1. Water: **\$2.1507/KGAL**
2. Electricity **\$0.1008/KWH**

There is no natural gas at Dugway Proving Ground, UT.

The contractor shall carefully conserve any utilities furnished. The contractor shall measure the quantity of water, electricity and fuel used and record it daily on his C.Q.C. Reports.

(End of clause)

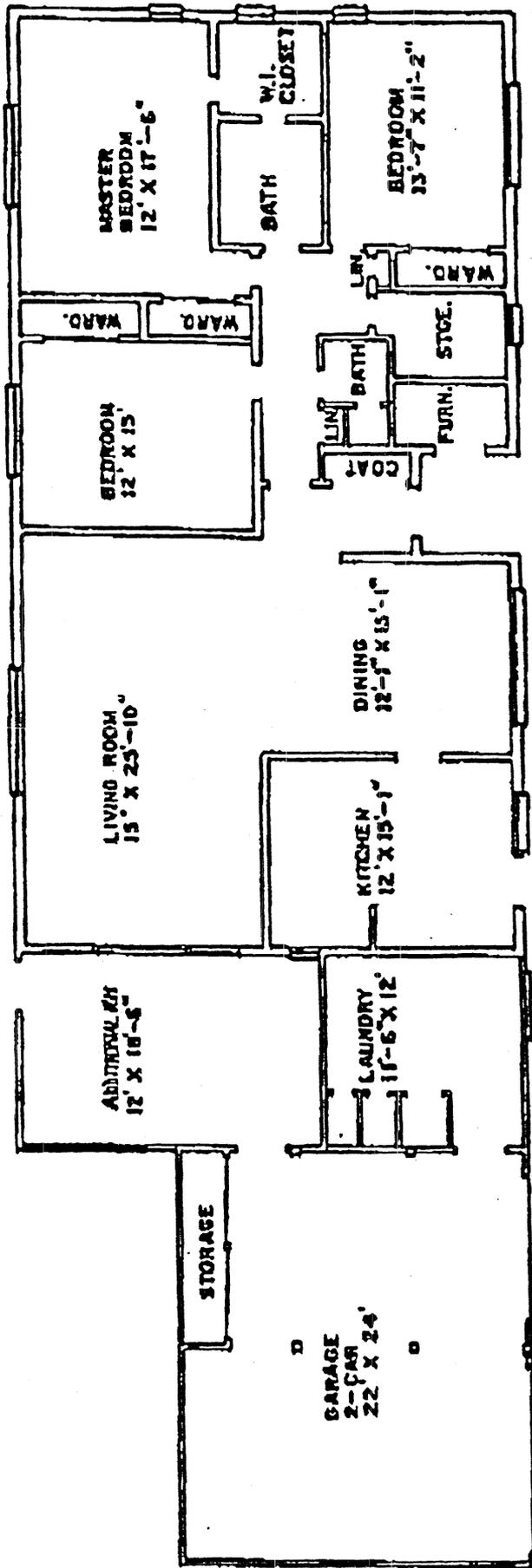
52.236-15 SCHEDULES FOR CONSTRUCTION CONTRACTS (APR 1984)

(a) The Contractor shall, within five days after the work commences on the contract or another period of time determined by the Contracting Officer, prepare and submit to the Contracting Officer for approval three copies of a practicable schedule showing the order in which the Contractor proposes to perform the work, and the dates on which the Contractor contemplates starting and completing the several salient features of the work (including acquiring materials, plant, and equipment). The schedule shall be in the form of a progress chart of suitable scale to indicate appropriately the percentage of work scheduled for completion by any given date during the period. If the Contractor fails to submit a schedule within the time prescribed, the Contracting Officer may withhold approval of progress payments until the Contractor submits the required schedule.

(b) The Contractor shall enter the actual progress on the chart as directed by the Contracting Officer, and upon doing so shall immediately deliver three copies of the annotated schedule to the Contracting Officer. If, in the opinion of the Contracting Officer, the Contractor falls behind the approved schedule, the Contractor shall take steps

ATTACHMENT NO. 9

*ARMITAGE PARK
FLOOR PLANS*



BUDG. 52,955.

Type 15F4
Not to Scale

STATEMENT OF WORK

1. DESIGN OBJECTIVES.

1-1 The design and construction shall comply with the specifications and requirements contained in this Request for Proposals (RFP). The design and technical criteria contained and cited in this RFP establish minimum standards for design and construction quality. All housing units remodeled in accordance with these standards shall be "Energy Star Homes". Existing housing units do not currently meet the standard to be "Energy Star Homes".

1-1.1 Primary Consideration. The PRIMARY CONSIDERATION of this solicitation process is to provide the entire number of remodeled housing units identified in this statement of work. All proposals received MUST include the total number of units required to be considered for evaluation and award. In no case will a smaller number of units be accepted to allow inclusion of betterments or enhancements. Betterments and enhancements will not be considered unless the proposal includes ALL units required. Offerors are encouraged to review the statement of work to familiarize themselves with all of the available options and alternatives included herein. In many instances several finishes or materials are identified for a specific item, however, the primary consideration of this solicitation is obtaining all units scheduled for construction in this project.

1-2. Work Scope. The objective of this solicitation is to obtain remodeled housing complete and adequate for assignment as quarters for military personnel and their families and authorized civilians. This contract Phase 1, FY-04, shall consist of the re-design and re-construction of a total of twenty-nine (29) housing units from twenty-nine (29) existing buildings on Government-owned land at Dugway Proving Ground (DPG), Utah, which comply with this RFP. Work shall consist of the following:

1-2.1.1 Housing Units. Whole neighborhood revitalization of twenty-nine (29) family quarters for military and authorized civilians including associated neighborhood amenities and support infrastructure.

1-2.1.1.1 Twenty-seven (27) existing 3-bedroom duplex units at St. John's Park Neighborhood shall be converted to **5** 4-bedroom single family detached units. The St. John's Housing units were built in 1964 and renovated in 1987.

1-2.1.1.2 Two (2) existing 3-bedroom single family detached units at Armitage Neighborhood shall be converted to 4-bedroom single family detached units.

1-2.1.2 Major work associated with the units include: replacing heating systems and converting from fuel oil to individual central dual-fueled (propane and natural) gas fired heating systems; rearranging interior partitions to provide separate family rooms and eat-in kitchens as well as required number of bedrooms, full size bathrooms, and enclosed laundry areas; garages will be incorporated within the converted duplexes along with addition of driveways in St. Johns, and unit landscaping and privacy screening will be added to all units.

The housing units will also feature energy conservation systems and central air conditioning, and including the following Contractor-furnished/Contractor-installed (CF/CI) equipment and appliances: range/oven with hood, refrigerator, garbage disposal, dishwasher, water heater, carbon monoxide alarms, and smoke detectors. Clothes washer/dryer, microwave oven, and freezer shall be provided and installed by the Owner or tenant.

1-2.1.3 The existing housing units have varying existing conditions, but the exterior finishes on the units are generally to remain "as-is" except as followings:

1-2.1.3.1 Except at building numbers 5360, 5361, 5362, and 5363 (which have existing metal roofing over existing asphalt/gravel roofing), roofing is existing asphalt/gravel. Remove existing loose gravel at buildings with non-metal roofing and remove metal roof at buildings with metal roof. Remove evaporative coolers and heater stacks. Remove penetrations where no longer functional. Fill voids and add new metal roofs at all buildings in this contract.

1-2.1.3.2 Fascia and soffits are to remain except at a few missing or damaged areas. Replace to match existing.

1-2.1.3.3 Siding is existing and is to remain except where openings are to be filled in and at a few damaged areas. Replace or repair to match existing.

1-2.1.4 Existing units to be remodeled:

1-2.1.4.1 The following existing buildings at St. John's are to be converted to **5 4**-bedroom single family detached units:

5360	5367	5372	5379	5385	5391
5361	5368	5374	5381	5386	5392
5362	5369	5375	5382	5388	
5363	5370	5377	5383	5389	
5366	5371	5378	5384	5390	

1-2.1.4.2 The following existing buildings at Armitage Neighborhood are to be converted to 4-bedroom single family detached units:

5295
5296

1-2.1.5 Housing units shall be four **and five**-bedroom housing units as shown in Table 1-1:

TABLE 1-1 - HOUSING UNITS		
Pay Grade	Number of Bedrooms	Number of Units
O-6 (SO)	5 4	1 (St. John's) (Unit #5392)
O-4 and O-5 (FGO)	5 4	9 (St. John's)
	5 4	2 (Armitage)
O-1 through O-3 (CGO)	5 4	17 (St. John's)

3. SITE PLANNING AND DESIGN.

3-1 Scope. This project consists of twenty-nine (29) housing units upgrade neighborhood landscaping, playgrounds and signage. The site boundaries, project composition, and gross density are fixed.

3-2 Not used.

3-3 Not used.

3-4 Site Design Criteria. The following specific criteria, based on site density, are to be used as guidance in site design, and proposals will be scored accordingly.

3-4.1 Not used.

3-4.2 Not used

3-4.3 Not used.

3-4.4 Parking requirements.

3-4.4.1 Provide two off-street parking spaces side by side plus one in the garage (except two in garage at building #5392). Expand or provide new driveway to garage. Expand existing single driveways and/or provide new driveways minimum 24' wide at garage. The second driveway is to remain at present width. Repair or replace cracked driveways as listed in para. 3-6.4.1.

3-5 Not used.

3-6 Circulation, Sidewalks, and Drainage at Hydrants. The pedestrian circulation system shall promote safe, efficient movement of pedestrians within the housing area. It should maintain the maximum separation of vehicles and pedestrians. Safe circulation systems have a clear hierarchy of movement, lead to a clear destination, and do not interrupt other functions. The streets are existing and shall remain where they are located.

3-6.1 Vehicular circulation. The streets are existing.

3-6.2 Not used.

3-6.3 Not used.

3-6.4 Pedestrian circulation. Pedestrian circulation should be safe, separated from vehicle circulation, and relate to the housing units, parking, and community facilities. Pedestrian circulation should be based on pedestrian desired lines of walking between facilities. Desired lines should be weighted to predict the most traveled routes. These routes would require paving. Topography and vegetation can be used to reinforce a sense of movement. Design pedestrian concentration areas with adequate paved area.

3-6.4.1 Sidewalk/driveway design. New sidewalks will be required along the entire south side of Harris Street, all along the north side of Mosier Drive from Carr Circle to Harris Street, and all along the south side of Carr Circle from the east side intersection of Carr Circle and Harris Street to the west side intersection of Carr Circle and Harris Street. The following is a listing of residences in need of pathway work (pathways are existing walkways located from residences to sidewalks/roads); 5392 A & B, 5390 A & B, 5389 A, 5386 A, ~~5365 B~~, 5369 A & B, 5378 A, 5377 A, 5362 A, 5361 B **and** 5367 B. ~~and 5365 A~~. There are also three existing driveways in need of repair and they are; ~~5365 B~~, 5392 B and 5392 A. Sidewalks shall be provided on both sides of the street. Existing sidewalks are located at one side of the streets. Those shall be replaced where cracked and deteriorated. Curbs shall be replaced and depressed where necessary at entrances to driveways. Walks shall be a minimum of 1.2 m [4 ft] wide exclusive of curb width, and made of non-reinforced concrete with a minimum thickness of 152 mm [6 in]. Where walks are

adjacent to the curb, the curb width is not to be included as sidewalk. Ramps for handicapped individuals shall be provided at intersections by depressing street curbs and adjacent sidewalk.

3-6.4.2 Provide concrete drain channel from existing hydrants to street to protect turf at hydrant's routine testing.

3-7.2.3 Not used.

3-7.2.4 Not used.

3-7.2.5 Not used.

3-8 ~~Planting Plan~~ Landscape ~~Planting Plan~~. Existing trees and shrubs shall be saved, watered, and protected from damage, except where dead (remove) and where absolutely required for removal at new driveways **and utilities**. No minimum of quantity of new trees or shrubs is being suggested, ~~except that at least one new tree shall be planted in front of each unit where one does not already exist.~~ The offeror shall obtain and use the services of a qualified landscape architect, experienced in site planning and planting design. A complete, integrated landscape planting plan shall be provided for the overall housing project. The design shall reflect appropriate groupings, foundation plantings, and street tree plantings to define the open spaces to ensure a complete landscaped project. Choose plant materials on the basis of plant hardiness, climate, soil conditions, low maintenance, and quality. Selected plant materials shall be easily maintained and tolerant of the specific site conditions. Planting or seeding shall occur only during periods when beneficial results can be obtained.

3-8.1 Trees, shrubs, and ground cover. Plant varieties shall be nursery grown or plantation grown stock conforming to ANSI/ANLA Z60.1. They shall be grown under climatic conditions similar to those in the locality of the project. The root ball shall be larger in diameter than the tree/shrub crown. Trees over 6' high should not be provided due to past experience of limited survival rate in transportation to Dugway.

3-8.1.1 Quality. Well shaped, well grown, vigorous, healthy plants having healthy and well branched root systems shall be provided. Plants shall be free from disease, harmful insects and insect eggs, sun-scald injury, disfigurement, and abrasion. Plants shall be provided that are typical of the species or variety, and conforming to standards as set forth in ANSI/ANLA Z60.1.

3-8.1.2 Shade and flowering trees. A height relationship to caliper shall be provided as recommended by ANSI/ANLA Z60.1. Height of branching should bear a relationship to the size and variety of tree specified, and with the crown in good balance with the trunk. Trees shall not be "poled" or the leader removed.

3-8.1.2.1 Single stem. Trunk shall be reasonably straight and symmetrical with crown and have a persistent main leader.

3-8.1.2.2 Multi-stem. All countable stems, in aggregate, shall average the size specified. To be considered a stem, there should be no division of the trunk which branches more than 150 mm [6 in] from the ground level.

3-8.1.2.3 Specimen. A plant shall be provided that is well branched and pruned naturally according to the species. The form of growth desired, which may not be in accordance with natural growth habit, shall be as indicated.

3-8.1.3 Deciduous shrub. Plants shall be provided that have the height and number of primary stems as recommended by ANSI/ANLA Z60.1 An acceptable plant shall be well shaped with sufficient well-spaced side branches recognized by the trade as typical for the variety grown in the region.

3-8.1.4 Coniferous evergreen. Trees shall be provided that have the height-to-spread ratio as recommended by ANSI/ANLA Z60.1. Trees shall not be "poled" or the leader removed. An acceptable plant shall be exceptionally

4-5.1.1 Polyethylene pipe shall conform to ASTM D2513, Standard Specification for Thermoplastic Gas Pressure Piping Systems, with fittings complying with either ASTM D2513 or ASTM D2683, Standard Specification for Socket-Type Polyethylene Fittings for Outside Diameter-Controlled Polyethylene Pipe and Tubing. Connections to metal pipe shall comply with ANSI B16.5, Pipe Flanges and Flanged Fittings, or manufacturer's recommended standards.

4-5.1.2 Steel pipe shall conform to ASTM A 53, Grade A or B, Type E or S, Schedule 40; or seamless or electric resistance welded, Schedule 40; black, as specified in ASME B31.8. Furnace butt welded pipe may be used in sizes 40 mm [1-1/2 inch] and smaller. Fittings 40 mm [1-1/2 inch] and smaller shall conform to ASME B16.11. Pipe flanges and flanged fittings larger than 40 mm [1-1/2 inch], including bolts, nuts, and bolt patterns shall be in accordance with ASME B16.5, Class 150. Butt weld fittings shall be in accordance with ASME B16.9. Weld neck flanges shall be used.

4-5.2 Testing. Prove that the entire system of gas mains and service lines is gas-tight by an air test, in accordance with ANSI B31.8. The test shall continue for at least 24 hours between initial and final readings of pressure and temperature.

4-5.3 Drips. Unless high pressure natural gas is used, drips shall be installed at the low points, immediately following reduction from high pressure to medium pressure (at supply points) and at occasional low points throughout the system to provide for blowing out the lines.

4-5.4 Valves. Plug valves shall be installed at intersections of mains and other locations so that interruptions to service can be confined to no more than 30 housing units.

4-5.5 Mains and service lines. Lines shall not be placed under any buildings. Lines shall be placed with a minimum of 0.6 m [2 ft] of earth cover. Protective casings shall be provided to protect lines from superimposed street or heavy traffic loads.

4-6 Not used.

4-7 Not used.

4-8 Electrical Distribution System.

4-8.1 Existing Electrical Distribution System Description: The existing electrical distribution system consists of overhead 7200 volt, single phase primary, pole mounted 7200 volt to 120/240 volt single phase transformers and overhead 120/240 volt single phase, three-wire secondary. The housing unit buildings are fed from the overhead secondary distribution with overhead, 120/240 volt, single phase, three wire service laterals consisting of two, phase wires triplexed on a bare messenger neutral.

~~4-8.2 New System (Base Bid). Demolish the overhead service laterals to the housing unit buildings and provide new underground electrical service laterals to existing service entrances. Modify existing services at housing unit buildings to accept the new underground service laterals. The electrical on-site distribution system shall be designed in compliance with the rules and recommendations of ANSI C2, National Electrical Safety Code, and NFPA 70, and National Electrical Code, whichever is more stringent.~~

4-8.3 New System (Option). Demolish the existing overhead distribution system, including poles, conductors and transformers. Provide new underground electrical distribution system consisting of underground primary, switchgear or junction cabinets, pad-mounted transformers, pad-mounted panelboard secondary distribution pedestals and underground service laterals. System shall be a loop-primary w/ radial feed single phase transformers. Primary feeder cables shall be copper or aluminum. High voltage conductors shall have protective shielding. High voltage cable shall be buried a minimum of 1.2 m [4 ft] below the finished grade with continuous cable marker tape 0.3 m [1 ft] below grade. Cable markers shall be installed along the length of direct-burial cable runs to identify their routes from the surface. Markers will be provided at changes of direction and at intervals not to exceed 152.4 m [500 ft]. The electrical on-site distribution system shall be designed in compliance with the rules

and recommendations of ANSI C2, National Electrical Safety Code, and NFPA 70, and National Electrical Code, whichever is more stringent. Underground direct-burial distribution is required unless otherwise directed.

4-8.2 Underground splices. Underground connection or splices are prohibited, except in boxes or manholes. Splices shall be in a self-draining, rodent-resistant box with a cover.

4-8.3 Service laterals. Service laterals shall be underground. The length of secondary distribution service laterals from the transformer secondary to the building service entrances shall be minimized.

4-8.4 Service entrance. Only one service entrance per building shall be provided. The service entrance conductor shall be buried a minimum of 0.9 m [3 ft] below finished grade with a minimum separation of 0.3 m [1 ft] from telephone or TV cables. System shall be designed such that the fault current available at the service entrance equipment will not exceed 10,000 amps.

4-8.5 Transformers (option). Transformers shall be pad-mounted and have two non-fused switches for the loop connection. The high voltage compartment of the transformer shall include a load break switch with fused circuit for the transformer. The transformed secondary voltages shall be 120/240 V, single-phase, three-wire, solid neutral service to housing units. In selecting a transformer, the name plate rating shall not be less than 90 percent of the kilovolt/amperes (kV/A) demand load calculated for the transformer.

4-8.6 Street and area lighting. (option) Residential roadway lighting, including collector streets, shall be provided in accordance with the IES Lighting Handbook. Provide lighting at roadway intersections, and at intervals not exceeding 60.9 m [200 ft] between intersections. Area lighting shall be provided at intervals not exceeding 60.9 m [200 ft] along area walkways not otherwise illuminated, common area walks connecting tot lots, and at all steps in area walkways. Area lighting shall be provided in accordance with the IES Lighting Handbook. Luminaries shall be actuated by photoelectric control, one photocell per circuit, and supplied from multiple circuits originating from a pad-mounted transformer.

4-9 Metering. Metering of utilities shall be provided as follows:

4-9.1 Not used.

4-9.2 Individual meter and meter drops. Individual utility meter drops, where not provided, shall be provided for all housing units. Locate utility meter drops in an area readily accessible by service personnel. Meters and meter bases shall be sight screened, and located to provide convenient access while not distracting from building appearance.

4-9.3 Gas metering. Provide new meters for propane gas for individual housing units. See paragraph 4-5. Comply with local requirements.

4-9.4 Water metering. Provide new water meters for individual housing units.

4.9.5 Electrical metering. Electrical meters are existing. Re-wire existing duplex family units that are being converted to single family units to a single existing meter, and remove the second abandoned meter.

4-10 Telephone. Existing telephone service is underground. No new work is required for telephone distribution system.

~~4-11 Television. (Base Bid) Existing commercial cable TV service consists of overhead distribution on power poles with overhead service to the housing unit buildings. The Contractor will arrange and pay for the cable TV company (Dugway Cable TV: phone number 435-831-4404) to provide new underground services to the individual buildings. Contractor shall provide necessary modifications at housing unit buildings to accept the new underground service. See paragraph 9-11 for work at individual housing units.~~

4-11.1 Television. (Option) The Contractor will arrange and pay for the cable TV company (Dugway Cable TV: phone number 435-831-4404) to provide new underground Cable TV distribution system and connect to new

National Environmental Balancing Bureau (NEBB). Prior to testing, adjusting, and balancing, the Contractor shall verify that the systems have been installed and are operating as specified. Where specific systems require special or additional procedures for testing, such procedures shall be in accordance with the standard selected. Approved detail drawings and all other data required for each system and/or component to be tested shall be made available at the job site during the entire testing effort. Testing shall not commence until approved by the Contracting Officer.

The facility shall be essentially complete with final ceiling, walls, windows, doors, and partitions in place. Doors and windows surrounding each area to be balanced shall be closed during testing and balancing operations. Air systems, hydronic systems, and exhaust fans shall be complete and operable. All data, including deficiencies encountered and corrective action taken, shall be recorded. Following final acceptance of certified reports by the Contracting Officer, the setting of all HVAC adjustment devices shall be permanently marked by the Contractor's balancing engineer so that adjustment can be restored if disturbed at any time.

10-12 Duct Tightness Testing Requirements. The installation of the supply and return ductwork within the units is an item of prime concern with respect to the energy efficient operation of the housing unit as a whole. With that consideration in mind, for heating and air conditioning designs which include ductwork outside of the conditioned envelope, the contractor will be required to test the proto-type units and all units which are blower door tested for tightness ~~(see paragraph 7.e.(2))~~ to ascertain the leakage levels from the ductwork in accordance with the following requirements. For system designs which place all the ductwork within the conditioned envelope of the structure or systems which utilize evaporative cooling, no ductwork testing will be required.

10-12.1 Duct tightness testing shall ensure that the leakage rate from ductwork (where the ductwork system is not entirely within the conditioned envelop) shall not exceed 0.15 (L/s)/m^2 [0.03 cfm/ft^2]. If the units tested fail to meet this requirement, the ductwork installation shall be examined, corrections made, and the test redone until the installation passes this requirement. No ductwork systems may be installed in other units until the proto-type units ductwork systems have been validated. Several methods to accomplish this testing are acceptable

10-12.1.1 Testing may be done in accordance with ASTM Standard E 1554-94, "Determining External Air Leakage of Air Distribution Systems by Fan Pressurization". This method describes the process and methodology required to accomplish basically a 'blower door subtraction' method of duct tightness testing.

10-12.1.2 Testing may also be accomplished utilizing "Duct Blaster" methodologies and pressurizing the ductwork to 25 Pascal [0.1 inch of water].

10-12.2 The contractor is advised that the EPA may test, or hire a consultant to test randomly selected housing units constructed in this project. These tests will be completed without cost to the contractor, however, the contractor will be required to coordinate access to the selected unit. If accomplished, this testing is not expected to interfere or delay the construction contractor in any manner.

1.4.3.3.5 Short Circuit Calculations: Calculate the available fault current at the main breaker of the individual living-unit load center panel. A coordination study shall be provided for all fuse selections.

1.5 Details: Details as required to provide a fluent transfer of design concepts to finished construction. Details shall be scaled as required to provide all necessary information in an understandable manner without crowding or confusion.

1.6 Specifications: Specifications for utilities, site work, and housing units, to 90 percent completion. The Contractor shall make final proposal of all materials and finishes at this stage.

1.7 Corrected Drawings and Specifications for Back Check Review: Within ten (10) calendar days following the final Government review of the 90 percent complete site and utility design and the 90 percent complete building design, the Contractor shall submit copies of the corrected drawings and specifications and distribute to the agencies in the quantities listed in paragraph, TRANSMITTAL TO GOVERNMENT AGENCIES.

1.8 Design Analysis: Design analysis shall include complete site and housing unit design calculations for utility distribution systems, structural elements, electrical and mechanical systems, and roadway pavement and shoulder design.

1.9 Design Calculations. Complete site and housing unit design calculations for utility distributions systems, structural elements and electrical and mechanical systems. Include computations for sizing equipment, air duct design, and U-factors for ceilings, roofs and exterior walls and floors. Also include final passive energy strategy performance calculations for each housing unit type. Contractor shall employ commercially available energy analysis techniques to determine the energy performance of all passive systems and features. Use of hourly energy load computer simulation (e.g., TRNSYS, DOE 2.1 Blast, etc.) is required. Performance calculations shall also determine the peak-cooling load of all passive solar unit types. These calculations can be used to size the unit's mechanical systems.

1.10 Equipment Schedule. Based on the results of calculations, provide a complete list of the materials and equipment proposed for heating and plumbing, with the manufacturer's published cataloged product installation specifications and roughing-in data. The heating equipment data shall include the manufacturer's wiring diagrams, installation specifications, ARI certification, and the standard warranty for the equipment. In addition, provide the manufacturer's published cataloged capacities for supply diffusers as evidence that the arrangement of supply air outlets in each room will provide the throw and spread characteristics required to cover completely all exterior wall surfaces with the blanket of warm air at the proper design velocities.

1.11 Architectural Renderings. Contractor shall provide ground level perspective artist's renderings 5 ~~+~~ bedroom Single Family FGO housing unit completed with walks, parking, and landscaping. Three sets of renderings shall be no smaller than 14 inches by 18 inches or larger than 28 inches by 36 inches, multi-colored, and shall be suitably titled, matted, and framed.