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Rest Area Site Work

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Kenneth J. Pace
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1 TREE PRESERVATION

Tree Preservation

The preservation of existing trees where possible is an important aspect of this project and will require the utmost care during the construction process. The contractor will assist the department by educating its employees, subcontractors and any utility companies conducting work in the vicinity, of the efforts and the preservation measures required herein.

General Requirements and Restrictions: All construction unless approved by the Engineer will occur outside the tree preservation fence. *Do not trespass* with vehicles or machinery in the areas indicated for tree preservation. Do not park, refuel, repair or maintain vehicles or equipment in the tree preservation areas. Do not stockpile materials or store equipment in the tree preservation areas.

Do not release petroleum products, fuels, paints, or lubricants anywhere within this project in the vicinity of the tree preservation areas or in areas that drain into this vicinity. Do not apply or release herbicides, fertilizers or chemicals of any kind that may be toxic to plant life and do not 'clean out' concrete trucks in the vicinity of the tree preservation areas, or into areas that drain into this vicinity. Do not burn trash, debris or vegetation in the vicinity of tree preservation areas.

Demolition, ground disturbing activities or construction that occurs within the drip line of the tree(s) or within a radius three times the drip line of the tree(s) will be done with utmost care. All grading will be accomplished in such a manner to avoid standing water or saturated soils around root systems of trees that are to remain. Install erosion control devices in a timely manner to prevent sedimentation from accumulating around the root zone in the tree preservation areas and the surrounding vicinity. In areas to be 'cut' by grading or where utility trenches or building footings occur, prevent shredding, tearing or exposing roots by excavating a trench not less than 6" wide and to the maximum depth of the cut up to 24" deep. Hand saw any roots 2" or greater in diameter that are encountered to make a clean smooth cut. If necessary, dig out enough soil to reach an undamaged portion of the root to make the smooth cut. To prevent drying out of roots, immediately cover any exposed root surfaces with 6" of approved mulch or soil until 'finish' construction operations dictate removal. Water as directed by the Engineer.

Branches that protrude into the construction area that interfere with construction operations will be tied back if possible or pruned if not. Follow proper pruning techniques as established in American National Standards Institute ANSI Z133.1 and perform pruning by a professional arborist. Submit description of proposed work along with arborist credentials to the Engineer for approval prior to conducting work.

Violation of any of these tree preservation measures will result in suspension of all work until the violation is resolved or repaired to the satisfaction of the Engineer. Such

suspension of work will not be considered justification for additional compensation in accordance with Section 104 of the Standard Specifications or extension of the contract time.

All measures described herein are incidental to the project construction and there will be no direct compensation.

Tree Protection Fence

General: "Tree Protection Fence" consists of furnishing, installing, maintaining, and removing wood or steel post, wood slat fence or orange poly-barricade fence fabric and signs at locations shown on the plans and as directed by the Engineer in the field and in accordance with the special provisions included herein. Tree protection fence will be installed after the slope-stake line is staked and prior to all other work.

Materials: Use *wood posts* that are nominal 4" x 4" (102 mm x 102 mm), length as required, structural light framing, grade No. 2, Southern Pine or *steel posts* that are a minimum of 1 3/8" (35 mm) wide measured parallel to the fence, with a weight of 1.25 lb./ft. (1.9 kg/m) of length. Post must have a means for retaining wire in desired position without displacement. Use of steel posts will be required in any area where the tree protection fence is in close proximity to the tree's trunk or any major roots.

Use orange polyethylene or polypropylene prefabricated barricade type fence fabric that is a minimum of 48 inches (1220 mm) high and approved by the Engineer or wood slat prefabricated sand or snow fence that is a minimum of 48 inches (1220 mm) high and that conforms to the following requirements. The fabric will be constructed of wood slats and twisted wire cables. Vertical slats will be 3/8" to 3/4" (10 to 20 mm) thick and from 1 1/4" to 2" (32 to 51 mm) wide and shall comprise 33% to 50% of the surface area. Slats will be connected by means of a two line twisted cable for each foot of fabric height or fraction thereof. The twisted cable will be a minimum of 13 gauge (2.32 mm) galvanized wire.

Treat wood posts and wood slat fence fabric with a preservative in accordance with Section 1082-3 of the Standard Specifications.

Use a durable, weatherproof lightweight material to fabricate 'Tree Protection Area' signs. Signs will be a minimum of five square feet (0.46 square meter) and lettering will be a minimum of two inches (51 mm) tall and text will be clearly legible. Each sign will contain the following wording

**Tree Protection Area
Do Not Enter**

and it will be repeated in Spanish on the same sign. Use a red background with white lettering. **Submit sample sign to the Engineer for approval prior to installation.**

Installation: Erect fence to conform to the general contour of the ground. Do not remove existing plant material or perform any grading unless indicated on the plans or directed by the Engineer. Avoid soil compaction within tree protection area; do not use heavy equipment and stay outside the perimeter of the tree protection area where possible.

Install posts and maintain in a vertical position. Post may be hand set or set with a post driver. If hand set tamp backfill material thoroughly. Power driven wood posts may be sharpened to a dull point. Remove and replace posts damaged by power driving prior to final acceptance. At the direction of the Engineer use steel post instead of wood post when installing fence in close proximity to a tree's trunk or any major roots.

Stretch orange poly-barricade fence fabric or wood slat fence fabric taut and attach to post with appropriate means according to post type used. In sections where signs will be located, if orange poly-barricade fence fabric is used reinforce top of fabric by weaving a 12 gauge (2.68 mm) galvanized wire in the fabric and firmly attach to a post at each end of the section. Attach signs to fence fabric at all four corners using appropriate method for fence fabric and sign material that is chosen. Locate signs every one hundred feet, at all corners, changes in direction and as directed by the Engineer.

Maintenance: Maintain tree protection fence with required signs in good condition, fully upright with no loose attachments or missing links for the duration of the project. Signs must be visible and legible throughout the duration of the contract. *The Engineer must approve in writing, prior to entering the tree protection area, access for the contractor and subcontractor for anything other than routine vegetation maintenance and liter pick-up.* Approval must be made for each access occurrence.

Removal: As a last item of work after rest area construction and all related work is complete, and at the direction of the Engineer, remove the tree protection fence, backfill post holes and remove, and properly dispose of fence materials off the construction site. While performing this work do not use heavy equipment and stay on the outside perimeter of the tree protection area where possible to avoid soil compaction within root zone.

Method of Measurement: Tree protection fence to be paid for will be the actual number of linear feet (meter) installed in place and accepted.

Basis of Payment: The quantity of tree protection fence will be paid for at the contract unit price per linear foot (meter). Such payment will be full compensation for the work as described above, including but not limited to furnishing, installing, maintaining and removing the tree protection fence and signs.

Payment will be made under:

Tree Protection Fence.....LF

2 LANDSCAPE GRADING

General: Landscape grading consist of fine grading within the rest area site to bring to proposed grades and provide proper drainage, backfilling around buildings, sidewalks, etc. and placement of topsoil within seeding and planting beds as indicated on the grading plans, site plan and as directed by the Engineer.

It is the intent of the Department to utilize the existing topsoil contained within the project limits, if approved, as the final soil layer distributed in the planting areas on this project. The contractor will strip, stockpile, transport, and distribute topsoil in accordance with the plans and specifications, and as directed by the Engineer.

Material: Topsoil will be as specified herein and will be utilized for all fill/backfill operations as directed by the Engineer.

If additional topsoil is needed beyond what can be obtained from the construction site, a sandy loam, silt loam or clay loam topsoil that contains a reasonable amount of humus material will be furnished. Topsoil will be of good texture, loose and friable and will be representative of topsoil in the general vicinity. It will be reasonably free from sod, hard lumps, subsoil, large roots, rocks and gravel, noxious weed seeds and/or toxic substances or other material, which would be harmful to plant growth. Remove stones and other foreign material 3" or larger in diameter.

Topsoil when delivered to the job site will be approved by the Engineer prior to placement, whether or not the source of topsoil has been previously approved.

Fill material to bring building site to finished grade will be as specified in the building specifications under earthwork.

Installation: Place building fill and compact as described in the building specifications. Place topsoil fill and spread evenly to a depth of 18 inches or as directed by the Engineer, which after settlement, constitutes finish grade. Do not place topsoil when the ground is frozen, is excessively wet, or is in a condition that the soil cannot be worked easily and dressed smoothly. Compact fill material under sidewalks/concrete paving to a density equal to or greater than undisturbed soil in the area.

Where fill material is needed within wooded areas, precautionary measures will be taken to prevent damage to trees and the roots of trees to be retained for landscape purposes. When placing or compacting fill material in or adjacent to wooded areas heavy

machinery will not be allowed. Equipment for placing fill material will be approved by the Engineer prior to any grading work.

Compensation: ‘Landscape Grading’ will be paid for at the contract lump sum price for the work detailed in this section that has been successfully accomplished and accepted. Building fill will be included as part of the building lump sum payment. ‘Topsoil’ will be paid for in the actual number of cubic yards of topsoil placed and accepted. Topsoil will be measured by truck measurement. Each truck will be measured and will have a legible identification mark indicating its capacity. Load each truck to at least its measured capacity at the time it arrives at the point of delivery. The recorded capacity will be adjusted by making a 25 percent deduction to allow for shrinkage, and the adjusted capacity will be the quantity to be paid for. Topsoil stripped, stockpiled and distributed from the rest area site will not qualify for compensation, only topsoil furnished from offsite sources will be compensated.

Such price and payment will be full compensation for furnishing, all labor, equipment and all incidentals necessary to complete the work satisfactorily.

Payment will be made under:

Landscape Grading **LS**
Topsoil **CY**

3 PLANTING

See Standard Specifications Sections 1060 - Landscape Development Materials and 1670 - Planting.

Seasonal Limitations: The initial planting and replacement of plants will be accomplished between October 15th and March 31st for all woody plant material (trees, shrubs and ground covers). All herbaceous plants and containerized grasses will be planted between September 1st and November 30th and March 1st and May 15th depending on requirements of each species. Exceptions to these seasonal limitations are at the discretion of the Engineer and will be submitted in writing. Submit for approval proposed schedule for plant installation, along with plant sources and contact information for them, by July 1st of the year that planting is to begin.

Mulch for Planting: Mulch will be double shredded hardwood bark from a single source unless otherwise approved by the Engineer. **Submit sample for approval prior to placement.**

Install mulch to a finished depth of 4 inches, rake and compact to create a uniform finish.

Water for Planting: Water for Planting will be applied in accordance with the standard specifications. Water for Planting will be furnished as described herein. It is anticipated that installation of the landscape planting and sod, and therefore watering of plant materials and sod, will occur after the site water system has been installed, connected and is functional. Consequently the water for this project will be provided to the contractor through the on site water system. Should a problem occur with the on site water system the contractor will be required to furnish water from an alternative source with no additional compensation to the contractor. All applicable sections of Section 1060, 'Landscape Development Materials' and Section 1670, 'Planting' of the Standard Specifications will apply.

Establishment Period for Planting: An establishment period will begin after satisfactory installation and acceptance of all of the planting and *will apply only to the woody plant materials: trees, shrubs and ground covers*. All plants must be in an upright healthy condition, planted at the proper depth, mulched areas will be weed free and tidy and any staking or guying that is utilized must be in proper condition prior to beginning the establishment period. During the establishment period the contractor will be responsible for proper care of the plantings in accordance with Section 1670-14 Establishment.

All plants that do not continue to conform to the specifications and quality as approved when they were installed will be unacceptable. The contractor will remove all plants that are determined to be unacceptable from the site within five days of request by the Engineer. Replacements will be installed within the Seasonal Limitations.

Each month during the establishment period a meeting will be held between the Engineer and the Contractor to discuss establishment work required during that period. Additional meetings may be scheduled if deemed necessary by the Engineer. All the required work will be performed in a timely manner and with utmost regard to the safety and convenience of the rest area users. Failure on the part of the contractor to complete the required work in a satisfactory manner will result in the Department having the work performed by others and paid for by the Performance Bond.

All requirements of Section 1670-14 Establishment will also be applicable during the Establishment Period for Planting. The Establishment Period for Planting will last a minimum of twelve months and extend into the seasonal limitations for planting in order to allow replacement plantings to be installed. See contract times for exact time period and dates.

4 CREEK STONE

General: The work covered by this item consist of furnishing and installing 'Spillway Creek Stone' as shown on the plans, the details, and as described herein.

Materials: Creek Stone will consist of Cane Creek Stone available from local North Carolina sources in a size range of approximately 4 to 10 inches in length by 2 to 6 inches in width and no more than 3 inches in depth. The Creek Stone will be applied at a depth of 6 inches at locations shown on the plans and as directed by the engineer in the field. **A representative sample and the source of the Cane Creek Stone will be submitted for the Engineer’s approval prior to delivery and placement.**

Method of Measurement and Basis of Payment: The work of furnishing and installing the Spillway Creek Stone as shown on the plans and as approved by the Engineer, when completed and accepted, will be paid for at the unit price per ton for “Spillway Creek Stone”. Such price and payment will be full compensation for all work covered by this special provision; including but not limited to furnishing all labor, materials, equipment for installation, coordination with engineers and any other incidentals necessary or required to complete the work.

Payment will be made under:
Spillway Creek Stone Ton

5 PLACEMENT OF BOULDERS OR LARGE FLAT STONES

General: The work covered by this special provision consist of transporting and placing boulders or large flat stones at the location shown on the plans and as directed by the Engineer. Boulders and large flat stones will be furnished to contractor. Stones will be stockpiled by the Department at the Division of Highways, Roadside Environmental Office, located at 606 Statesville Road, North Wilkesboro, NC 28659.

The contractor will transport the stones from the NCDOT facilities to the rest area site and place as shown on the plans, details and as directed by the Engineer. The contractor will transport and place stones without causing damage to hardscape surfaces or structures already constructed. The contractor will provide the Engineer with a staging plan for installation of the stones prior to installing any landscape features including sidewalks. Any damages caused by this operation will be the responsibility of the contractor to repair or replace to the Engineer’s satisfaction at no additional compensation.

The contractor will take care during loading, moving and placing the boulders or stones to prevent chipping, cracking or scarring of boulder/stone surfaces. Rotate and turn boulder or stone to achieve best position as directed by the Engineer. Minor excavation and/or backfill will be required in order to set the boulder so it appears natural. Large flat stones used for walking surfaces will be set level and flush with adjacent ground and backfill will be tamped to firmly set stone. All boulders/stones will be placed in their final location so they do not roll, move or shift.

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Stones will be furnished to the contractor in two types: boulders and large flat stones. Boulders and stones will range in size from approximately three feet by three feet to four feet by six feet – approximately one half ton to three tons. There will be a larger quantity of small to medium sized boulders utilized with limited quantities of the largest stones. The Large Flat Stones will be used mostly for walking surfaces and thickness will be approximately twelve inches or less, length and widths will vary.

Compensation: Placement of boulders and large flat stones as described herein and as directed by the Engineer will be paid for at the unit price each for ‘Placement of Boulder or Large Flat Stone’. Such price and payment will be full compensation for all work covered by this special provision including but not limited to furnishing all labor, equipment, and materials necessary to complete the work. The quantity furnished to the contractor may be increased up to 100 percent, decreased or deleted completely without any price adjustments.

Payment will be made under:

Placement of Boulder and Large Flat Stone.....Each

6 CISTERN OVERFLOW AND DRAIN PIPE

Applicable parts of the supplementary General Conditions and the Standard Specifications govern work under this division which includes all labor, materials, equipment and services necessary for the proper completion of storm drainage and related work indicated on the drawings or in the specifications in general as follows:

- Connect Drain line from Cistern to Catch Basin
- Connect Drain line from Yard Hydrants and Utility/Storage Buildings to nearest Catch Basin

General: The work covered by this provision consists of excavation, fabrication, furnishing, installing drainage pipe, and making proper connections from the cistern, yard hydrants, and utility/storage buildings to the new storm water drainage system as shown on the plans and as directed by the Engineer.

Drainage Pipe

Materials: Drainage pipe will be PVC/ABS-DWV meeting requirements of ASTM D-2661, Schedule 40 with solvent cement for fittings complying with ASTM D-2235, and ASTM D-87.

Installation

- a) Excavate trench to a sufficient width to receive pipe and allow for tamping equipment and to the depth established by the Engineer. Follow precautions under 'Tree Preservation' if working in the vicinity of trees to be preserved.
- b) Join pipe sections and fittings together in accordance with manufacturer's recommendations.
- c) Where the pipe foundation material is found to be of poor supporting value or of rock the foundation will be conditioned by removing the existing foundation material. Remove existing foundation material by undercutting one foot or to a depth as directed by the Engineer, and backfill with either a suitable local material or a foundation condition material. Foundation condition material consists of crushed stone or gravel or a combination of sand and crushed stone and will be approved by the Engineer as being suitable for the purpose intended. The selection of the type of backfill to be used for foundation conditioning will be made by the Engineer.
- d) Connect to existing or proposed drainage structures as indicated on the plans and as directed by the Engineer.
- e) Backfill material will be carefully placed so that the pipe will not be disturbed after it has been laid. Firmly tamp the Engineer approved earth backfill material in 6 inch layers to a density equal to that of the surrounding undisturbed soil.
- f) Maintain all drainage installations in a continuously functioning condition from the time the pipe is installed until the project is accepted.

Compensation: Drainage pipe will be measured and paid for per linear foot when properly installed and accepted by the Engineer.

Payment will be made under:

- 4" PVC/ABS-DWV, SCH 40 Drain Pipe LF
- 6" PVC/ABS-DWV, SCH 40 Drain Pipe LF

7 PVC DUCT

General: The work covered by the provision shall consist of furnishing and installing duct pipe as shown on the plans, under drives and sidewalks before they are poured (open cut).

Material: The duct shall be rigid PVC (Polyvinyl Chloride) heavy wall, UL approved for underground use without concrete encasement per UL 651 "Rigid Non-Metallic Conduit or Encasement".

Installation: Excavate, place encasement pipe and backfill so that encasement is in line with piping. Backfill shall be compacted to 95% where beneath walks, drives or other concrete pads.

Method of Measurement and Basis of Payment:

Measurement and payment for PVC Duct shall be at the contract unit price per linear foot for "4" PVC Duct" as installed, and will be full compensation for all work covered by this section.

Payment will be made under:

4" PVC DuctLF

8 SITE WATER DISTRIBUTION SYSTEM

The work covered by these provisions consists of constructing waterlines within the rest area as required by the plans and provisions herein or directed by the Engineer. The Contractor will furnish all materials, labor, equipment, and incidentals necessary to complete the proposed utility work.

General Construction Requirements

Specifications

The proposed utility construction will meet the applicable requirements of the N. C. Department of Transportation's "Standard Specifications for Roads and Structures" (latest edition) July 2006 and the following provisions:

Plumbing Ordinances

All plumbing work in connection with the water distribution system installation will be done in accordance with local and State ordinances, and will be subject to inspection by the particular County Health Authorities or by authorities of the Sanitary Engineering Section, Division of Health Services, Department of Human Resources and/or authorities of the Water quality Section's, Division of Environmental Management, Department of Natural Resources and Community Development.

Trenches and Backfill for Utility Pipe Line Construction

The utility excavations will be made and the pipes will be laid in accordance with Section 300 of the Standard Specifications and as specified herein.

Clearing and Grading

The Contractor will limit his clearing to only that absolutely necessary to construct the water system (lines for distribution, etc.).

General

The Contractor will furnish and install all material for the water distribution system within the rest area as shown on the Utility Site drawings and as specified herein, consisting of water lines, fittings, gate valves, stop and drain valves and valve boxes. Also included will be water line tests, sterilization and flushing of the entire water system and all other items not specifically mentioned but necessary to complete the work.

Type of pipe material to use in the water line distribution system will be PVC Schedule 80. All pipe tees and bends will be ductile iron (incidental to water line installation).

Polyvinyl Chloride Water Pipe

PVC water pipe will be schedule 80 with a minimum of 200 psi pressure rating, and sized as shown on the plans. The pipe, when used for conveying drinking water, will meet the requirements of the National Sanitation Foundation Seal of approval for potable water.

Gate Valves

Gate valves in the water system where shown on the plans will be bronze, non-rising stem type, with body conforming to ASTM B62; stem will be of best silicon brass and the threads conforming to ANSI B2.1.

Valve Boxes

Valve boxes will be polyester/fiberglass, constructed with ultraviolet inhibitors. Valve box assembly will be constructed in two sections: bottom, and cap. Bottom section of valve box assembly will be adjustable for height and variances. Install valve box with cap flush with the proposed finished grade. Place three inches of crushed stone (No. 67 aggregate under valve and bottom section. Valve box size will accommodate valves and piping as shown on the plans and approved by the Engineer. Submit shop drawing for approval by Engineer.

Construction

Piping will consist of 3/4 inch thru 3-inch pipe, which will be installed as shown on the plans. Pipefittings needed to complete the work and not individually noted herein will be considered part of the work of 3/4 inch thru 3-inch pipe.

The limits of clearing for installing water lines will be held to a maximum of 6 feet, except in critical areas where the Engineer may establish greater limits. Trees and shrubs, which are damaged, will be repaired and/or removed in accordance with applicable provisions of Section 894-4 of the Standard Specifications.

All PVC pipe must be installed according to manufacturer's recommendations. Pipe will be cut square, burrs removed from cut end, cleaned and dried. Apply cement to pipe and fitting with rapid and thorough coverage, assemble parts quickly, using 1/8 to 1/4 turning motion. Hold in place for two minutes to offset tendency to move out of fittings.

Pipe will be laid in a snaking manner to allow for expansion and contraction, and in such a way to avoid bumps, boulders, and holes that might result in stress on the pipe. If, at any time before completion of the contract, any broken pipe or any defects are found in the lines or in any of their fittings or appurtenances, they will be replaced or corrected. All pipe, fittings and appurtenances will be carefully examined for defects before placing and any found defective will not be used.

The pipe trenches will be conditioned by removing the existing foundation material by undercutting one foot or to a depth as directed by the Engineer, and backfilling with either suitable local material or foundation condition material consisting of clean sand as approved by the Engineer as being suitable for the purpose intended. The selection of the type of backfill to be used for foundation conditioning will be made by the Engineer.

(Note: Foundation material is 6" around pipe incidental to water line installation).

Pipe will not be laid upon a foundation into which frost has penetrated, or at any time, that in the opinion of the Engineer, there is danger of the formation of ice or frost at the bottom of the excavation. The Engineer may at his discretion allow construction of the pipeline to continue under freezing conditions provided the Contractor promptly backfills the trench as directed.

PVC pipe will have its location marked by using a detectable marking tape, installed 12 to 18 inches below finished grade. Such tape will be as approved by the Engineer. The proposed pipe will be laid in trenches not less than 24 inches in depth below the finished grade. After the installation of pipe has been tested, inspected, and approved by the Engineer, it will be promptly backfilled and compacted to a density equal to that of the surrounding undisturbed soil.

The locations for water lines and valves with valve boxes, as shown on the plans, are substantially correct; however, the Engineer will establish the exact location.

Water Line Test

Prior to backfilling the Contractor will test all waterlines in the water system for eight (8) hours under a water pressure of 150 PSIG. Leaks will be repaired by tightening the joint or by remaking the joint if the tightening fails to stop the leak.

Sterilizing and Flushing Piping System

All water piping will be sterilized with chlorine concentration. All lines will be filled with water and chlorine concentration so that an overall chlorine residual to the water of at least 100-ppm will result. During the filling all trapped air through drinking fountains, yard hydrants, valves, etc., will be released. After the lines have been filled with water and chlorine, the pipe system will be valved off and the chlorinated water allowed to remain in the system for a 24-hour period. At the end of this period, the chlorine residual count should be at least 10 ppm. The lines will then be thoroughly flushed to insure the removal of all sediment, pipe seals, etc. This process will be subject to inspection and/or supervision by the local Health Authorities.

Compensation

The work of furnishing and installing 3/4 inch thru 3 inch water lines with sand bedding as described above when completed, tested, and accepted will be paid for at the contract unit price per linear foot measured in place. The work of furnishing and installing Gate valves and boxes will be paid for at the contract unit price per each for 'Gate Valve and Box' in the sizes shown below complete in place and accepted.

Payment will be made under:

3/4" PVC Water Pipe, SCH 80	LF
1" PVC Water Pipe, SCH 80	LF
3" PVC Water Pipe, SCH 80	LF
3/4" Gate Valve and Box	EA
1" Gate Valve and Box	EA
3" Gate Valve and Box	EA

9 SITE SANITARY SEWER SYSTEM

Ductile Iron and Polyvinyl Chloride (PVC) Sewer Pipe and Fittings

Ductile Iron Pipe will be installed under the roadway areas and within the Geothermal Well Site area as shown on the plans. All other areas shall be PVC (SDR-35).

Polyvinyl chloride (PVC) sewer pipe and fittings will conform to ASTM D-3034 - (SDR-35) specifications. The pipe will be installed in accordance with the applicable utility provisions herein, and as shown on the utility plans and as directed by the Engineer. PVC sewer pipe will be of the size and wall thickness (SDR) as noted on the utility plans, and will be installed in accordance with approved bedding methods.

PVC sewer pipe will be of sufficient wall thickness and strength to withstand the various earth and impact loads that bear on the installed pipe. The pipe will be circular in shape with no appreciable distortion. The pipe will have a gasket joint, used in conjunction with an integral bell, which will be a homogeneous part of the pipe.

The joints for PVC sewer pipe will be of the push-on-type, with flexible elastomeric seals conforming to ASTM D-1784 Specifications. Other types of seals may be used, if approved by the Engineer. The PVC pipe bells made as an integral part of the PVC pipe will conform to ASTM D-3212 Specifications. The pipe will be assembled in accordance with the recommendations of the manufacturer and in accordance with the specifications. Compression type couplings may be used to joint plain-end PVC sewer pipe sections, if approved by the Engineer. However, such joints will allow for pipe expansion.

Ductile Iron pipe installed in accordance with the plans utility provisions herein and accepted will be measured along the pipe and paid for at the contract unit price per linear foot '6" Ductile Iron Gravity Sewer'. Polyvinyl (PVC) sewer pipe installed in accordance with the plans utility provisions herein and accepted will be measured along the pipe and paid for at the contract unit price per linear foot '6" PVC (SDR-35) Gravity Sewer'. Such prices and payments will be full compensation for furnishing all labor, equipment, material, pipe accessories, fittings, gaskets, seals, excavation, bedding material, backfill, leakage tests, and incidentals necessary to complete the work as required.

Payment will be made under:

- 6" PVC (SDR-35) Gravity Sewer LF**
- 6" Ductile Iron Gravity Sewer LF**

Sanitary Sewer Clean Out

Contractor will install sanitary sewer cleanouts where shown on the plans but not less than every 50', with screw type brass covers, encased in 4"x 12"x 12" concrete pad flush with ground. Sanitary Sewer Cleanouts will be paid for at the contract unit price for each upon satisfactory completion of the work.

Payment will be made under:

- 4" - Sanitary Sewer Cleanout EA**

10 3/4 INCH POST-TYPE YARD HYDRANT

General: The work covered by this item shall consist of furnishing, connecting and installing 3/4 inch post-type yard hydrants complete with concrete foundation, valve(s), and waste drainage as shown on the plans and as specified herein.

The Contractor shall supply six (6) copies of shop drawings and specifications for the post-type yard hydrant proposed to furnish, for approval by the Engineer.

Materials and Construction

Post-type yard hydrants shall be a non-freeze proof design for a minimum burial depth of 30 inches. (Note: Each hydrant shall have a screw on vacuum break at the nozzle).

Gate valve, valve box, and pipe shall be same as for Outdoor Drinking Fountain included herein.

The locations for post-type yard hydrants as shown on the plans are substantially correct; however, the exact location will be established by the Engineer.

Details showing dimensions, mounting height, foundation slab, pipe sizes, waste drainage and other items are as shown on the plans.

Sterilizing and Flushing 3/4 Inch Post-Type Yard Hydrants

Sterilizing and flushing as specified for "Water Line Construction" shall be done as part of the work of completing 3/4-inch post type yard hydrants.

Method of Measurement

The quantity of post type yard hydrants to be paid for will be the actual number of 3/4 inch post type yard hydrants with foundations and waste drainage complete in place and accepted.

Basis of Payment

3/4 inch Post-Type Yard Hydrants measured as provided above will be paid for at the contract unit price each for "3/4 Inch Post-Type Yard Hydrants", including but not limited to, furnishing all labor, materials, tools, equipment, and all other incidentals necessary to complete the work.

Payment will be made under:

3/4 Inch Post-Type Yard Hydrant EA

11 IRRIGATION HYDRANT

General: The work covered by this item shall consist of furnishing, connecting and installing the irrigation hydrant complete with concrete collar as shown on the plans and as specified herein.

The Contractor shall supply six (6) copies of shop drawings and specifications for the irrigation hydrant proposed to furnish, for approval by the Engineer.

Materials and Construction: Irrigation hydrant shall be a freezeless non-siphon type design for a minimum burial depth of 24 inches. The irrigation hydrant shall have a hinged lid and a key operated hose bib. A key shall be provided for every irrigation hydrant installed.

The location for irrigation hydrant as shown on the plans is substantially correct; however, the Engineer will establish the exact location.

Details showing finish, dimensions, mounting height, pipe sizes, and other items are as shown on the plans.

Sterilizing and Flushing Irrigation Hydrants

Sterilizing and flushing as specified for "Water Line Construction" shall be done as part of the work of completing irrigation hydrants.

Method of Measurement

The quantity of irrigation hydrants to be paid for will be the actual number of irrigation hydrants complete in place and accepted.

Basis of Payment

Irrigation Hydrant measured as provided above will be paid for at the contract unit price each for " Irrigation Hydrant", including but not limited to, furnishing all labor, materials, tools, equipment, and all other incidentals necessary to complete the work.

Payment will be made under:

Irrigation Hydrant EA

12 TELEPHONE PEDESTAL

This provision covers installation of exterior telephone pads. Actual exterior Telephones to be furnished by Company with contract for statewide phone service. Additional 1” PVC sleeves will be placed as shown on the plans or as directed by the Engineer for future water or electrical needs. These sleeves shall be temporarily capped before backfilling over them.

General: Locate exterior telephone pedestal as shown on the plans and as directed by the Engineer. Construction will include, but is not be limited to, constructing a new 4” concrete pad with conduit and anchor bolts and providing the necessary electric service (120/240 volt) and phone service (10-Pair) lines from the building telephone panel in (1”) conduit as shown on the details or as directed by the Engineer.

Location of ‘Telephone Pedestal’ will be paid for at the contract unit price each successfully installed and accepted. ‘1” Sleeves for underground elec. / phone service (Sch 40 PVC)’, will be paid for in linear feet successfully installed and accepted.

Such price and payment will be full compensation for all work covered by this special provision; including but not limited to furnishing all labor, materials, equipment and any other incidentals necessary or required to complete the work and restore service.

Payment will be made under:

Telephone PedestalEA

1” Sleeve for Underground Elec./ Phone Service (Sch 40 PVC).....LF

13 4” CONCRETE SIDEWALK

General: The sidewalks and wheelchair ramp indicated on the plans will be 4” Concrete Sidewalk as specified in Section 848 of the Standard Specifications and Drawings and as shown on the plans. Place joints as shown in the scoring pattern on the plans and as specified in Section 825 of the Standard Specifications.

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Compensation: Compensation will be as specified in Section 848-1 and 848-5 of the Standard Specifications.

Payment will be made under:

4" Concrete Sidewalk.....SY

14 DEPRESSED CURB

General: The depressed curb will be constructed at locations shown on the plans, as indicated in the details and as described herein. All applicable sections of the Standard Specifications Section 825, Incidental Concrete Construction - General and Section 848, Concrete Sidewalks, Driveways and Wheelchair Ramps, will apply. Place joints as shown in the scoring pattern on the plans and as specified in Section 825 of the Standard Specifications. The sidewalk curb height will transition on a smooth curve from a 6" height to flush with gutter. The area that is flat and flush with gutter will be a minimum of 3' in width. Sidewalk will warp to meet curb height on each end of depression. The transition from parking lot elevation to adjacent sidewalk elevation will be a smooth and continuous slope.

Method of Measurement and Basis of Payment: The quantity of depressed curb to be paid for will be the actual number of each depressed curb furnished, installed, and accepted. This will be full compensation for all work covered by this section including but not limited to furnishing and installing concrete and other incidental material, and all labor, tools, and equipment necessary to complete the work.

Payment will be made under:

Depressed Curb.....Each

15 PICNIC SHELTER AND SINGLE PICNIC TABLE

General: The work covered by this provision consists of furnishing and constructing a single picnic table with concrete pad and a picnic shelter with table and concrete pad (Handicapped Accessible) as shown on the drawings and herein specified; including all labor, materials, services and incidentals required to complete the work.

Site Preparation: After picnic shelter and picnic table locations and orientation are staked and approved by the Engineer, perform any necessary clearing and grubbing in accordance with Section 200 "Clearing and Grubbing" of the Standard Specifications. Grade area for the concrete pad level with drainage swale cut on high side and fill on low side as shown on the details to achieve positive drainage around the pad.

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Picnic Shelters

Concrete and Steel

Use Class "B" concrete in all footings and concrete pad. All concrete and all structural and reinforcing steel will comply with applicable portions of Section 825 'Incidental Concrete Construction – General'; Section 1070, 'Reinforcing Steel'; and Section 1072 'Structural Steel' of the Standard Specifications.

Include all fasteners, anchors, ties, gusset plates, etc., as required. Use ½ inch hot-dip galvanized steel thru bolts in diameter and length as required. Install with steel galvanized washers under both bolt head and nut, except for gusset plates; galvanizing will conform to all applicable requirements of Section 1076 of the Standard Specifications.

Stone Surround for Picnic Shelter columns

A 28" square stone surround will be constructed around each column of the picnic shelter. Stone will be irregularly sized natural stone; recess mortared to appear dry stacked and will be tied into 16" square CMU column. Stone used to construct surround will match proposed Retaining Wall and columns on "Welcome to the NC Mountains" sign (See Stone Retaining Wall Special Provisions.)

Excavate and pour reinforced concrete footing, construct CMU column, build stone surround and place Bluestone cap with continuous wire reinforcement as shown on the drawings. Place reinforcing steel as described in Section 425. Allow the masonry to cure a minimum of 7 days prior to placing backfill. All applicable sections of the Standard Specifications Section 834, Block Masonry, will apply. Look of stone veneer for picnic shelter columns will match/coordinate with stone work in retaining wall.

Carpentry and Millwork

Grading of all lumber, plywood and trim will conform to the association under whose rules it is graded. Moisture content will not exceed 18 percent for framing lumber and 12 percent for millwork and trim.

All lumber in contact with concrete or masonry, and/or soil will be treated with water borne pentachlorophenol or CCA (Chromated Copper Arsenate) in accordance with standards of the American Wood Preserver's Association. Minimum retention will be 0.25 pcf for material 2 inches and smaller and 0.40 pcf for materials greater than 2 inches.

Store all lumber and millwork in a manner that will keep it dry and well ventilated, well off the ground, and adequately covered.

All timbers, rafters and fascia will be full size, rough-cut No. 1 southern yellow pine, thru-bolted where shown on drawings and securely spiked together at all other joints. Stain all timbers, rafters, fascia and underside of roof decking. The Engineer will select color from samples furnished by the contractor.

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Coat section of treated wood columns in footing with asphalt paint as shown on drawings. Asphalt paint shall not be visible above concrete footing.

Roof decking will be single tongue and groove, 2 inches by 6 inches with vee joints on face side, kiln-dried No. 1 southern yellow pine. Double spike each member at every rafter.

Framing rafters and fascia will be cut square on bearings, closely fitted, accurately set to required lines and levels, and rigidly secured in place.

Moisture Protection

Roof will be vinyl membrane with standing seam to match visitor center roof. Furnish and install, where shown on drawings, all items of flashing and caulking as required to properly and completely weatherproof the shelter. Flashing, drips, etc., will be galvanized steel, 26 Ga. or aluminum, .019-inch sheeting, unless otherwise shown on details. Caulking will be installed in accordance with the manufacturer's specifications. Use Dap 'Flex Seal', Dow Corning '790', or Pecora GC-9 'Synthacalk' or approved equal.

Picnic Table (Terrazzo and Steel)

General

The picnic table will include site preparation, grading, concrete footing, welded tubular steel frame with a terrazzo table top and wood benches, all hardware required for assembly and other incidentals as necessary for complete installation in accordance with the details and as described herein.

The Engineer reserves the right to inspect the frames and tops at the place of manufacture in accordance with Section 106-6 of the Standard Specifications.

Submittal

Submit color chart (four copies) on epoxy glaze coatings to be used on table bench seats and steel frames to the Engineer for color selection.

Concrete and Steel

Use class "B" concrete in all table footings and concrete pad. All concrete and all structural and reinforcing steel will comply with applicable portions of Section 825, 'Incidental Concrete Construction – General'; Section 1000, 'Portland Cement Concrete Production and Delivery'; Section 1070 'Reinforcing Steel'; and Section 1072 'Structural Steel' of the Standard Specifications.

Benches

Wood will be nominal size 2" x 10", old growth vertical grain Douglas Fir of "C" or better grade.

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Terrazzo Tops

Terrazzo tabletops will conform to the following specifications:

1. Scope: provide pre-cast terrazzo tops for picnic tables. Include inserts and bolts as indicated on drawings.
2. Materials:
 - A. Portland Cement will comply with all applicable requirements of Section 1024, 'Materials for Portland Cement Concrete', of the Standard Specifications.
 - B. Sand will be clean and free from organic matter and will meet the requirements of 4S mortar sand, from Table 1005-1, 'Aggregate Gradation', of Section 1005, 'General Requirements for Aggregate' of the Standard Specifications.
 - C. Marble chips will be of the size, colors and kinds required by the color plate as specified herein; chips will have abrasive hardness not less than 13 as determined by the method described in the National Bureau of Standard BMS Report No. 98.
 - D. Terrazzo sealing solution will produce a waterproof film on surface and seal moisture in terrazzo. Cleaning solution will not cause yellowing of terrazzo or leave tacky finish on the surface after buffing.
 - E. Terrazzo cleaning solution will be a neutral chemical cleaner that will not change the color of the terrazzo or damage it in any way.
3. Terrazzo Composition and Colors:
 - A. Terrazzo tops will be of colors and composition as shown in Terrazzo Plant Catalog of the National Terrazzo and Mosaic Association, Inc. Mix terrazzo in accordance with formulas and specifications for Plate 129.
4. Production of Tops:
 - A. Mix chips so that the finish surface has 80 percent aggregate showing.
 - B. Perform initial and final grinding with abrasive grit stone of proper size to obtain the finish specified. After curing terrazzo topping, by keeping damp for 6 days (or less if it has set enough to grind without loosening of chips), grind surfaces with electric machine. After initial grinding or rubbing, grout surfaces with neat Portland Cement paste of creamy consistency, filling all voids; use Portland Cement and coloring corresponding to existing topping for grouting. Let grout remain on surfaces until final grinding, but not less than 2 days.
 - C. Final grinding will produce surface of same color and texture as Plate 129 as specified in Item 3 above. Surfaces will be smooth and free from imperfections. In no case will terrazzo show a wave exceeding 1/16" when tested with straight edge.
5. Cleaning and Sealing Terrazzo:

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- A. After final grinding, apply cleaning solution to terrazzo in accordance with the manufacturer's directions. After surfaces are dry, wash and rinse terrazzo and apply a coat of sealing solution. Buff terrazzo with electric machine and leave in clean and finished condition.

6. Installation of Table Tops:
 - A. Bolt top in place without binding.
 - B. Clean tops of grease, dirt, etc., and apply two (2) additional coats of sealing solution, buff with electric machine and leave in clean and finished condition.
 - C. Leave top in good condition. Chipped tops, rough or chipped edges and cracked slabs will not be accepted.

7. Painting of Table, Wood Benches and Steel Frame:
 - A. Bench – Use one coat of epoxy glaze coating mixed with one part of epoxy thinner, then use two coats of epoxy glaze coating, gloss finish.
 - B. Exterior Steel – Use one coat factory priming exterior rust resistant metal primer, then use two coats of epoxy glaze coating, gloss finish.

NOTE: Painter will spot check a small area with a second coat to determine if primer "lifts off". If it does, obtain from the paint factory a second coat that will not lift from the priming coat actually used by the factory.

Concrete Pad

Use Class "B" concrete. All concrete and structural and reinforcing steel will comply with applicable portions of Section 825 'Incidental Concrete Construction – General'; Section 1000, 'Portland Cement Concrete Production and Delivery'; Section 1070, 'Reinforcing Steel'; and Section 1072 'Structural Steel' of the Standard Specifications.

Form and pour concrete pad to dimensions and with slope as shown in details. Give concrete pad the same finish as sidewalks. Do not place backfill until at least 3 curing days have elapsed. Compact backfill to a degree comparable to the adjacent undisturbed material.

Compensation

The work of furnishing and installing the picnic shelter with table and concrete pad, when completed and accepted, will be paid for at the contract unit price each for 'Picnic Shelter, Single Picnic Table'. The work of furnishing and installing the picnic table and concrete pad, when completed and accepted, will be paid for at the contract unit price each for 'Picnic Table, Terrazzo and Steel'.

Note: The one Picnic Shelter with Handicapped Table as shown on the plans will be paid for at the same unit cost as "Picnic Shelter, Single Picnic Table."

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Such price will be full payment for each picnic shelter with table and concrete pad, and each picnic table with concrete pad, including but not limited to, all labor, materials, and any other incidentals necessary or required to complete the work. There will be no separate payment for the concrete pad.

Payment will be made under:

Picnic Table, Terrazzo & Steel EA.
Picnic Shelter, Single Picnic Table EA

16 FLAGPOLE

General: The work covered by this section consists of furnishing and installing a 30' Tapered Aluminum Flagpole at the location shown on the plans and details.

Materials: Satin finish aluminum pole will be 6" tapering to 3.5" with a .188" wall thickness as manufactured by Peterson Flags, Inc. or equivalent. The flagpoles will be 30 foot exposed height with a minimum of 3 feet below ground. Internal halyard flagpole with all standard accessories, including revolving truck, gold anodized ball, stainless steel aircraft cable halyard, snap hooks, stainless steel direct drive winch behind locking access door and ground sleeve. Cabling will be set up to hold two flags. Submit 4 copies of catalogue cut for approval of flag pole.

Installation: Follow the manufacturer's recommendations for ground set mounting with an 80 M.P.H. design wind load.

Compensation: The work of furnishing and installing the flagpoles, when completed and accepted, will be paid for at the contract unit price each for 'Flag Pole'.

Such payment will be full compensation for all work covered by this section including, but not limited to, furnishing and installing the flagpole, flash collar, halyard, cleats, flag snaps, and all parts recommended by the manufacturer for a ground-set installation; and all labor, materials and equipment necessary to complete the work.

Payment will be made under:

Flagpole EA

17 SPOTLIGHTS (FLAGPOLE AND WELCOME SIGN)

General: The work covered by this section consists of furnishing and installing two spotlights for the flagpole and one spotlight for the 'Welcome to the NC Mountains' sign

at the locations shown on the plans, as shown on the details and as directed by the Engineer.

Materials: Provide and install three (3) outdoor spotlights for the flagpole and 'Welcome to the North Carolina Mountains' sign, with 208-volt power supply in conduit. Spotlights will have adjustable tilt, glare control, and aluminum housing with gasket o-ring sealed glass lens. Provide with 100-watt Metal Halide lamp, mount on aluminum gasket junction box and provide photocell. **Submit (6) copies of catalogue cuts of spotlights for approval prior to installation.**

Installation: Follow the manufacturer's recommendations for installation.

Compensation: The work of furnishing and installing the spotlights, when completed and accepted, will be paid for at the contract unit price each for 'Spotlight'.

Such payment will be full compensation for all work covered by this section including, but not limited to, furnishing and installing the flagpole and sign spot lights as recommended by the manufacturer; all labor, materials and equipment necessary to complete the work.

Payment will be made under:

SpotlightEA

18 TRASH RECEPTACLE

General: Furnish and install trash receptacle on 4" concrete pad at locations shown on the plans or as directed by the Engineer.

Trash receptacle will be Wausau Tile Waste Container Model TF1100 - C or equivalent. Trash receptacle will be 24" diameter, 44" height, 31-gallon capacity and weight of 420 pounds complete with liner, and two-way plastic lid. Receptacle will be precast concrete with a recycled glass finish in a natural/earth tone color. **Submit color samples to include recycled glass/concrete and plastic lid along with four (4) copies of shop drawings or catalogue cuts to the Engineer for color selection and approval.**

Method of Measurement and Basis of Payment: The quantity of trash receptacle units to be paid for will be the actual number of Trash Receptacles with concrete pads, installed and accepted.

Basis of Payment: The work of furnishing and installing the Trash Receptacles as shown on the plans and as approved by the Engineer, when completed and accepted, will be paid for at the contract unit price each for "Trash Receptacle". Such price and payment will be full compensation for all work covered by this special provision; including but not limited to furnishing all labor, materials, equipment for installation and any other incidentals necessary or required to complete the work. The concrete pad will be pad for as 4" Concrete Sidewalk.

Payment will be made under:

Trash Receptacle EA

19 NATURE TRAIL CONSTRUCTION

General: The work covered by this provision consists of furnishing, constructing and installing a Nature Trail that includes Steps and Landings as shown on the plans and as described herein.

The Nature Trail is intended to follow the natural contours of the site and lay into the landscape with as little disturbance as possible but still be safe and traversable. The engineer will stake nature trail layout, Nature Trail Landing locations, roadway ramp crossings and step locations in the field.

Staked Nature Trail route will be cleared of trees, brush, stumps, protruding roots and rocks. Establish a trail clearance width of 6' unless otherwise staked in the field. Overhanging branches will be trimmed back to provide a vertical clearance of 8'. Prune overhanging branches cleanly at the branch collar on the tree trunk or where a branch forks using proper pruning techniques. Use extreme care to protect surrounding vegetation from damage during construction. Cut shrub and small trees being removed flush with the ground. Avoid cutting healthy trees with a trunk/stem diameter larger than 7 inches unless directed by the Engineer. Treat stumps with approved herbicide to prevent re-sprouting. Remove large rocks and fallen logs from the trail.

The Nature Trail will have edging consisting of 2 x 6 pressure treated lumber secured in place with 2 x 4 x 18" long pressure treated stakes spaced at 36" on center (See Detail). Stakes are required at all joints. All bolts, screws, washers or nails used to secure edging to stakes will be galvanized and conform to all applicable requirements of Section 1076 of the Standard Specifications. Size of hardware will be as required for the application but not long enough to protrude through the boards leaving exposed edges.

The area between the edging will be filled with a 6" depth of compacted wood chips. Wood chips will be manufactured from trees cut during clearing and grubbing stage of project. Removed trees will be used to produce wood chips on site by chipping them to the appropriate size and consistency as approved by the Engineer. If additional chips are needed beyond what can be produced on site the supplied mulch will be of same

consistency as those chipped on site. If chipping operation results in excess wood chips, they will be stockpiled at a location on site for future use.

Nature Trail Landings consist of an area approximately 100 square feet cleared and graded to accommodate a bench and/or signage. Nature Trail landings will be constructed using the same methods and materials as the Nature Trail. The engineer will stake exact locations and layout of landings in the field.

Nature Trail Steps will be constructed of 4 x 6 pressure treated lumber frames, secured together with 8" galvanized spikes and held in place as shown on detail with #4 rebar. Treads of steps will be filled flush with timbers with a 6" layer of compacted wood chips and compacted backfill as needed. Tread size varies to accommodate site grades but should remain consistent within each step run. The engineer in the field will approve exact location and number of steps needed.

Compensation: The Nature Trail as described above and as shown on the plans constructed, installed and accepted will be paid for at the contract unit price per linear foot for 'Nature Trail Construction'. The contract unit price each for 'Nature Trail Landing Construction', and the contract unit price each for 'Nature Trail Steps'. Such price will be full compensation for all labor, materials, tools, equipment, and all other incidentals necessary to complete the work. There will be no additional compensation for wood chips produced for the Nature Trail Construction.

Payment will be made under:

Nature Trail Construction.....	LF
Nature Trail Landing Construction.....	Each
Nature Trail Steps.....	Each

20 NATURE TRAIL LOG BENCH

General: The work covered by this provision consist of furnishing, constructing and installing a log bench as shown on the plans and as described herein.

Log Bench will be constructed using onsite timber cleared for construction of Rest Area. Engineer in the field will determine timber selection prior to clearing and grubbing operations.

Once logs are cut, loose bark will be removed. The logs will be stored and properly seasoned in a weather-protected area before shaping.

Bench seat will be planed flat and edges rounded. Seat height will be 18" regardless of size of timber used for construction. Two 4" x 4" x 6" dowels will be used to secure seat to legs (See Detail Sheet L-24). All components of bench will be sanded prior to

application of protective finish. Protective finish will consist of two-coats of clear polyurethane.

Exact location of benches to be staked by engineer in the field. Bench locations will be graded relatively level with only a slight slope for positive drainage.

Compensation: Log bench constructed as described above and as shown on the details, installed and accepted will be paid for at the contract unit price each for 'Log Bench'. Such price will be full compensation for all labor, materials, tools, equipment, and all other incidentals necessary to complete the work.

Payment will be made under:

Log Bench.....Each

21 NATURE TRAIL CROSSINGS

General: The Nature Trail Crossings indicated on the plans will conform to requirements for Pavement Markings as specified in Section 1205 of the Standard Specifications and to measurements and design as shown on the plans and details. The materials used for the Nature Trail Crossings will be the same as used for the parking lot striping and applied in a similar manner. Crossings will be marked at four locations, the exact location of which will be determined by the engineer in the field.

Compensation: Nature Trail Crossings as described above and as shown on the plans applied and accepted will be paid for at the contract unit price of Lump Sum for 'Nature Trail Crossings'. Such price will be full compensation for all labor, materials, tools, equipment, and all other incidentals necessary to complete the work.

Payment will be made under:

Nature Trail Crossings.....LS

22 SPECIAL REST AREA SIGNAGE

General: The work covered by this item consists of furnishing and installing the Special Rest Area Signage in accordance with the dimensions and finishes as shown on the plans, the details, and as described herein.

Signage: The signs will be sandblasted redwood. The fabricator will be an experienced sign maker with a minimum of 7 years of sandblasted redwood fabrication experience. **The fabricator will furnish examples and references of work of a similar nature done within the past 3 years.**

Fabricator will produce artwork as indicated on the plans and submit along with font choices for selection and approval prior to constructing sign. A full-scale mock

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up of the signs in appropriate dimensions and colors will be submitted for approval prior to production. Final decisions on colors will be made when full scale mock up is submitted to ensure visibility and readability.

Fabricator’s instructions for mounting along with all hardware will be furnished with each sign, unless furnished as spare signboard.

Signs and quantities are as follows:

- 1 “Welcome to NC Mountains” Sign w/Stone Columns
- 1 “No Pets in Building”
- 4 “Pet Waste Station”
- 2 “Pet Waste Station” spare signboard
- 2 Nature Trail sign, single sided
- 8 Nature Trail sign, double sided
- 1 Nature Trail sign, single sided, spare signboard
- 4 Nature Trail sign, double sided, spare signboard

Installation of the 'Welcome to NC Mountains' sign requires construction of two 20” square stone columns as shown on details. Stone veneer and cap will be same as used for stone retaining wall and stone surround on picnic shelter columns. Recess mortar joints to appear dry stacked with a concrete filled cavity. **Submit stone samples for columns and cap for approval prior to construction.** (See Stone Retaining Wall Special Provision.)

Excavate and pour reinforced concrete footing, build stone column and place Bluestone cap with continuous wire reinforcement as shown on the drawings. Place reinforcing steel as described in Section 425. Allow the masonry to cure a minimum of 7 days prior to placing backfill. All applicable sections of the Standard Specifications Section 825, Incidental Concrete Construction, will apply.

All other signs will be installed on post of pressure treated lumber in sizes and at mounting heights as indicated on the details and as directed by the Engineer in the field.

Method of Measurement and Basis of Payment: The work of selecting an experienced fabricator and constructing the rest area signage as shown on the plans or as approved by the Engineer, when completed and accepted, will be paid for at the unit price per lump sum for “Special Rest Area Signage”. Such price and payment will be full compensation for all work covered by this special provision; including but not limited to furnishing all labor, materials, equipment for installation, coordination with engineer and sign fabricator for artwork review and any other incidentals necessary or required to complete the work.

Payment will be made under:
Special Rest Area Signage.....LS

23 COBBLESTONE WALKWAY

General: This provision consists of furnishing and constructing Cobblestone Sidewalks at locations shown on plans, according to the details and as specified herein.

Materials: A 6 x 12" concrete curb will meet all applicable sections of the Standard Specifications Section 825, Incidental Concrete Construction - General and Section 848, Concrete Sidewalks. Cobblestones will be Belgard Bergerac concrete pavers or equivalent. All concrete cobblestone pavers will be 2 3/8" thick, 5 1/2" wide with varying lengths to achieve a cobblestone appearance. The pattern used to surround the Cistern may utilize paver shapes specifically designed to form a circular pattern. Paver color will be an earth tone. **Submit catalogue cuts and color samples to the Engineer for selection and approval prior to ordering.** Bedding sand and joint sand will be a washed concrete sand meeting ASTM C33 requirements. Geotextile fabric will be suitable for this purpose.

Installation: Install 6 x 12 " concrete curb with contraction joints at 10' on center and 1/2" expansion joints at 20' on center at finish grade around the edge of the cobblestone paving area. Compact subsoil to a degree suitable for pedestrian paver application and to the approval of the Engineer. Place 4" aggregate base course (ABC) carefully to minimize segregation of stone and fines. The aggregate base course may be either watered or dried to obtain optimum moisture content and compacted to at least 100 percent of that obtained by compacting a sample of material in accordance with AASHTO - T180 as modified by the North Carolina Department of Transportation.

Place geotextile fabric on top of aggregate base course turning edges of fabric up to within 1" of finish grade. Set cobblestone pavers in 1 1/2" sand setting bed over the geotextile fabric; do not compact. The finished cobblestone surface will have a minimum 1/4 inch per foot cross slope to drain. The pavers will be handtight and the finished surface will be uniform with no vertical variations greater than 1/4 inch. Lay cobblestone pavers in a circular pattern around cistern tank and in a running bond pattern for walk to flag pole (See detail sheet.) Broadcast sand over the paver surface. Compact with a vibrating plate-tamp to lock-in paver joints with sand and to set the cobblestone pavers in the underlying setting bed. Sweep remaining sand on the paver surface to fill all open joints or voids and then remove any excess .

Measurement and Payment: Cobblestone walkway will be measured and paid for as the actual number of square feet, measured along the surface of the ground that has been acceptably installed. Such price and payment will be full compensation for all work covered by this special provision; including but not limited to furnishing all labor, materials, equipment for installation and any other incidentals necessary or required to satisfactorily complete the work.

Payment will be made under.

Cobblestone Walkway.....SF

24 STONE RETAINING WALL

General: The work covered by this section consists of furnishing and constructing the Stone Retaining Wall as shown on the plans and details and as described herein.

Verify all grades, and exact dimensions of wall before proceeding. The Engineer, according to site conditions may adjust the height, length and footing dimensions as necessary.

Materials: Concrete will be Class "A" and meet the requirements of Section 1000 of the Standard Specifications. Reinforcing steel will meet the requirements of Section 1070. Concrete block will be "Ivany Block" specifically manufactured for reinforced masonry wall construction. The 4" stone veneer will be Luckstone's 'Blueridge' or equivalent in sizes that conform to the following: an irregularly sized natural stone, height varies from 4" to 12" and length will vary from approximately 4" to 18". The stone will match the appearance of those used for the building facade. Utilize a 3" thick dimensional Bluestone with 'rock faced' edges on the outside for the wall cap. The Bluestone capping will be a uniform width of at least 18" and sections of at least 24" in length. See Retaining Wall Detail Sheet L - 15. (Picnic Shelter stone columns and Welcome sign columns will match Retaining Wall in appearance and construction where applicable.)

Submit samples and source of stone for retaining wall and cap (including picnic shelter and sign columns) to the Engineer for approval prior to purchase and placement. Use Type S mortar. Ties shall be 3/16" diameter wire, 7 1/2" anchor with 3 1/4" tie min. Use Heckman Double Eye-Rod Anchor/Tie No. 263, Homann and Banard Adjustable Wall Tie No. 600, or National No. 915. Backfill shall be Class I Select as described in Section 1016. Gravel for drainage will be No. 57 washed stone. **Submit sample and (6) copies of catalogue cuts for proposed geotextile fabric wrap.**

Installation: Excavate and pour reinforced concrete footing, build reinforced block wall, and lay stone veneer and coping as shown on the drawings. Joints will be recessed to appear dry stacked. Place reinforcing steel as described in Section 425. Use one metal tie for every two square feet of surface area to bind the stone veneer to the block wall. Connect 4" perforated drainpipe to site storm water system as directed by the Engineer in the field. Allow the masonry to cure a minimum of 7 days prior to placing any backfill.

A stone mason with a minimum of 7 years of experience will construct the stone walls. **The mason must submit references and location of work of a similar nature for approval prior to beginning work. A sample wall with approximately 20 square feet**

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of veneer surface area and a minimum of 5 linear feet of capping will be required prior to progressing with remaining walls. The sample wall may be a separate wall or incorporated into the proposed retaining wall as shown on plans. The sample wall will be approved prior to proceeding with the remainder of wall and stone column construction.

Method of Measurement: The quantity of Stone Retaining Wall as shown on the plans will be a lump sum price for retaining wall constructed and accepted.

Basis of Payment: The quantity of stone wall will be paid for at the lump sum price for the stone retaining wall acceptably constructed as shown on the plans and as directed by the Engineer in the field. Concrete, masonry blocks, reinforcing steel, backfill, and gravel filter will be incidental to the work and no separate payment will be made for these items.

Payment as described above will be full compensation for all work covered by this section including but not limited to footing excavation, furnishing and installing reinforcing steel, concrete, block, stone veneer, foundation drain, backfill, and other incidental material; and all labor and equipment necessary to complete the work.

Payment will be made under:

Stone Retaining Wall.....LS