

QUANTITY & COST ESTIMATE

ITEM	QUANTITY	UNIT	UNIT PRICE	COST	BONDABLE
CLEARING AND GRUBBING		ACRE			
EXCAVATION	LUMP SUM	LUMP SUM	10,000		10,000
EMBANKMENT					
CURB INLET DI-		EA			
CURB INLET EI-		EA			
MANHOLE VM		EA			
MANHOLE MH		EA			
RELOCATE EXISTING 48" CONC. PIPE	1	LUMP SUM	600.00		600
30-IN. CONCRETE PIPE, CLASS III	106	LN. FT.	39.60		4,197
30-IN. CONCRETE PIPE, CLASS III	167	LN. FT.	33.00		5,511
24-IN. CONCRETE PIPE, CLASS IV	70	LN. FT.	26.40		1,848
18-IN. CONCRETE PIPE, CLASS III	64	LN. FT.	19.80		1,267
48-IN. CONCRETE PIPE, CLASS III	15	LN. FT.	52.80		792
IN M. CULVERT					
BOX CULVERT					
PAVED PATCH					
RIPRAP - CLASS I	38	SY.	50.00		1,900
MIRIMAT LINING - ROADSIDE	2850	SY.	5.00		14,250
GRAVEL SWALE					
REGRAVING & LINING - DOWNSTREAM	3368	SY.	10.00		33,680
IN CONCRETE ENWALL EW					
IN END SECTION EC					
DRIVEWAY ENTRANCE TYPE		EA			
SIDEWALK, FT. WIDE		LN. FT.			
TRAFFIC, FT. WIDE		LN. FT.			
HEADER CURB & GUTTER CG		LN. FT.			
CURB & GUTTER CG		LN. FT.			
VALLEY GUTTER		EA			
GRAVEL BASE		SY.			
GRAVEL SHOULDER		SY.			
SURFACE TREATMENT - CATEGORY I	8,471	SY.	5.00		42,355
IN BIT CONC. TYPE B		SY.			
IN BIT CONC. TYPE S		SY.			
IN BASE MATERIAL		CY			
IN SUBBASE MATERIAL		CY			
STREET SIGNS		EA			
TRAFFIC BARRICADE		EA			
PIPES AS SHOWN ON PLAN		EA			
MONUMENTS AS SHOWN ON PLAN		EA			
6-IN. WATER LINE (CLASS 52 GL PIPE OR C900 PVC DR-15)	4,480	LN. FT.	9.00		40,320
IN WATER LINE		LN. FT.			
IN WATER LINE		LN. FT.			
PRESSURE REDUCING VALVES	41	EA	250.00		10,250
FIRE HYDRANT ASSEMBLIES		EA			
BLOW OFFS W/VAULT, FRAME B COVER	2	EA	275.00		550
6-IN. GATE VALVES W/VAULT, FRAME B COVER	5	EA	450.00		2,250
IN GATE VALVES W/VAULT, FRAME B COVER		EA			
IN GATE VALVES W/VAULT, FRAME B COVER		EA			
SERVICE CONNECTIONS - SINGLE METER	9	EA	350.00		3,150
" DOUBLE METER	29	EA	400.00		11,600
8-IN. SAN SEWER	3,235	LN. FT.	15.00		48,525
IN SAN SEWER		LN. FT.			
IN SAN SEWER		LN. FT.			
STD. MANHOLE W/FRAME B COVER	15	EA	1000.00		15,000
SERVICE CONNECTIONS W/ CLEANOUTS	64	EA	375.00		24,000
AS-BUILT PLANS	LUMP SUM	LUMP SUM	2,000		2,000
SUB-TOTAL					272,995
CONTINGENCY				10%	27,300
ESTIMATED TOTAL					300,295

GENERAL NOTES

All construction methods and materials shall conform to the Construction Standards and Specifications of Roanoke Co. and/or the Virginia Department of Highways and Transportation.

The contractor or developer is required to notify the Roanoke Co. Engineering Division in writing at least three (3) days prior to any construction, including but not limited to the following:

- Installation of approved erosion control devices
- Clearing and grubbing
- Subgrade excavation
- Installing storm sewers or culverts
- Turning out and gutter forms
- Placing curb and gutter
- Placing other concrete
- Placing gravel base
- Placing any roadway surface
- Installing water line
- Installing sanitary sewer lines

A pre-construction conference should be scheduled with the Roanoke Co. Engineering Division, to be held at least one day prior to any construction.

Measurements for work and materials shall be provided for plan approval. An approval in any way releases the developer of the responsibilities contained in erosion and siltation control policies.

A permit must be obtained from the Roanoke Co. Engineering Division prior to construction on the Highway Right of Way.

Plan approval does not guarantee issuance of any permits by V.D.H. & T.

Any proposed fixtures and permits must be available for inspection by the field construction staff prior to proposed drainage divides as shown on plans.

At least one day prior to the start of construction, the contractor shall provide a written statement of the proposed drainage divides as shown on plans.

Pavement sections on approved plans are based on a minimum CBR of 10. CBR tests are to be performed by the engineer and submitted to the V.D.H. & T. and to the Roanoke Co. Engineering Division. If the CBR values are less than 10, the contractor shall provide revised pavement sections.

Contractor shall verify and be responsible for all dimensions at the job site. V.D.H. & T. standard HR-1 handrail, required on walls exceeding 4'0" in height.

Location of guard rails shall be determined at a final field inspection by the county and the V.D.H. & T.

A spring shall be tapped and piped to the nearest storm sewer or natural water course. The pipe shall be 6" minimum diameter and conform to V.D.H. & T. standard SB-1.

Standard street and traffic control signs shall be erected at each intersection by the developer prior to final street acceptance.

Construction debris shall be containerized in accordance with the Virginia Litter Control Act. No less than one litter receptacle shall be provided on site.

The contractor shall provide adequate means of protecting mud from trucks and other equipment prior to entering public streets. It is the contractor's responsibility to ensure that the streets are in a clean, mud and dust free condition at all times.

The developer and contractor shall supply all utility companies with copies of approved plans, leaving them in place for grading and installation shall conform to approved plans.

Contractors shall notify utilities of proposed construction at least two, but not more than ten working days in advance. Any public utility may be notified through Mass Utility (800) 552-7621.

The developer or contractor shall supply the county with current AS-Built plans before final acceptance.

All work shall be subject to inspection by Roanoke Co. and/or V.D.H. & T. inspectors.

Final plans shall be approved by the Roanoke Co. Engineering Division prior to construction.

One year final inspection shall be made by the Roanoke Co. Engineering Division at the end of the first year of construction.

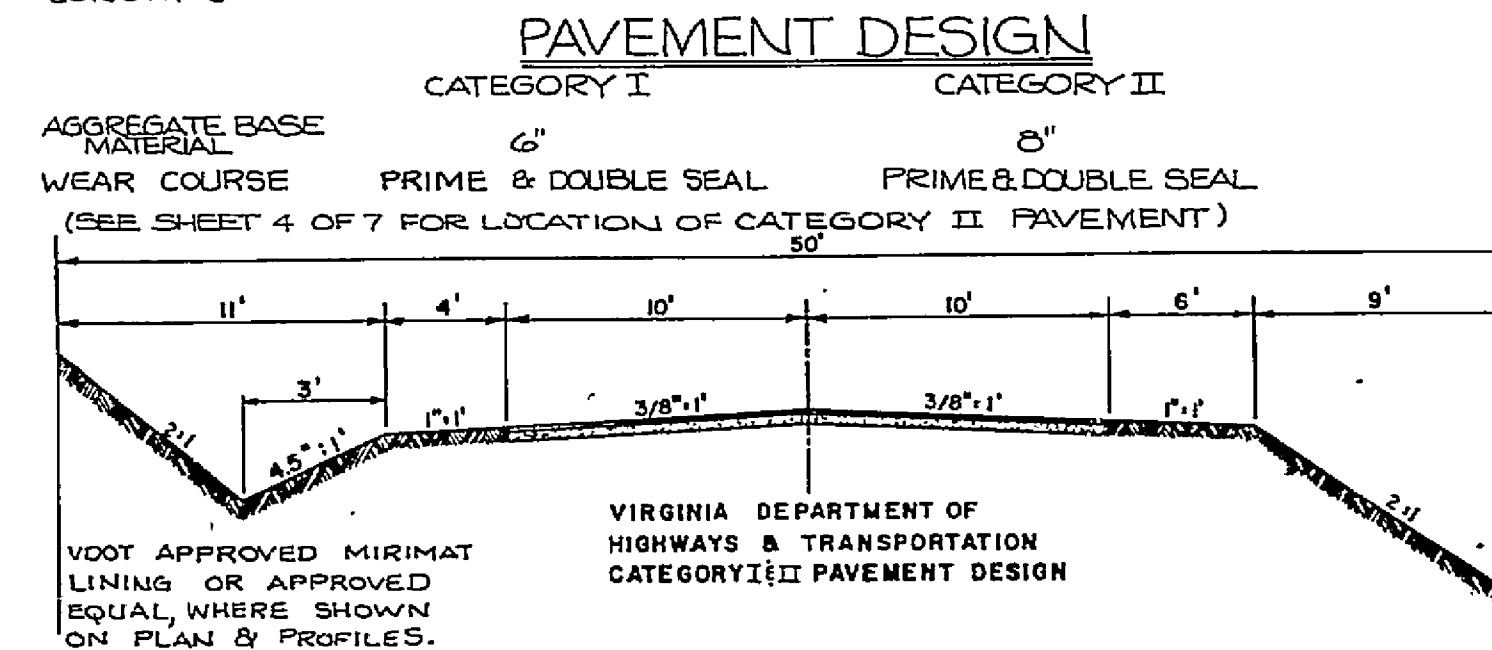
Location of underground utilities is based on field surveys, as shown by available records and as located by the Utility Locator Service. Contractor shall verify location of all utilities prior to construction.

The site work and landscaping contractor shall comply with local codes in observing erosion control measures, both on and off the site. Refer to the Virginia Uniform Coding System contained in the Virginia Soil Erosion & Sediment Control Handbook, dated 1980, for details and specifications of erosion control items on the plans.

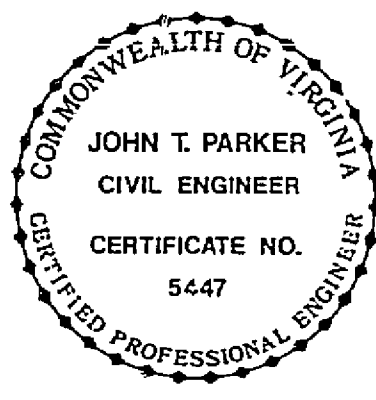
All storm drain construction shall be in conformance with the Virginia Department of Highways and Transportation Standards and Specifications.

All SEWER CONNECTIONS TO EXISTING MAINS OR MANHOLES WILL BE COORDINATED WITH ROANOKE COUNTY UTILITY DEPARTMENT AS TO WHO WILL MAKE THEM.

WATERLINES SHALL BE CONSTRUCTED UNDER THE NEW "DESIGN AND CONSTRUCTION STANDARDS FOR WATER FACILITIES" ADOPTED APRIL 28, 1987.



DESIGNED	DATE	REVISIONS	BY
J.V.J.	1-24-87	PER RKE Co. & VDOT 1ST REVIEW	J.J.J.
J.V.J.	9-1-87	PER RKE Co. 2ND REVIEW	J.J.J.
J.V.J.	9-19-89	PER VDOT - CATEGORY II DESIGN	J.J.J.



SURVEY INFORMATION

Horizontal and vertical control surveys were performed in year 1978 by T.P. PARKER & SON.

The survey was performed in accordance with the National Academy of Sciences, dated 1970.

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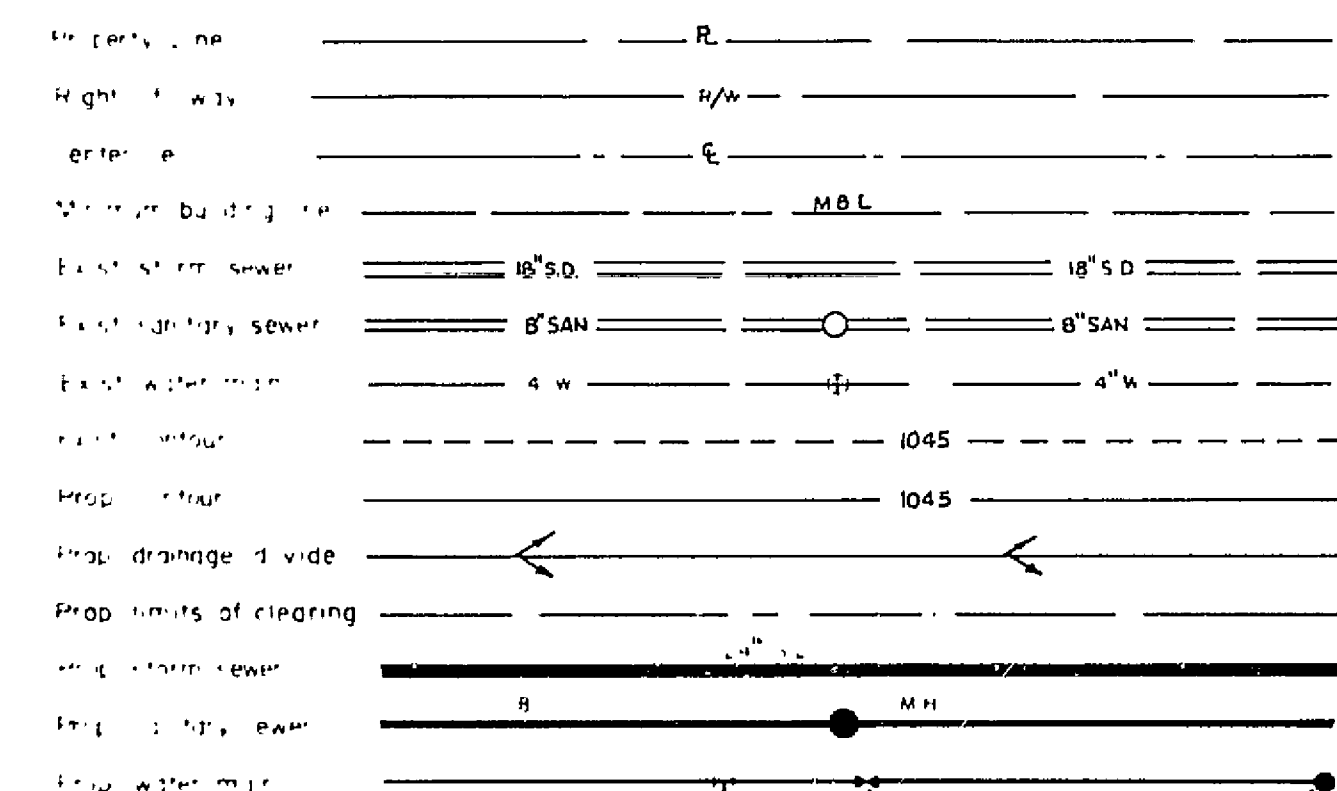
ENGINEERS NOTES

T.P. PARKER & SON assumes no responsibility for adequacy of plans or for information on plans until such plans have approved by the required public agencies.

Any work commenced on a project prior to plan approval is at sole risk of the developer.

T.P. PARKER & SON does not guarantee the completion or quality of performance of the contracts or the completion or quality of performance of contracts by subcontractors or other third parties.

LEGEND



SEWER NOTES

A minimum cover of three (3) feet is required over proposed lines.

Contractor shall be responsible for locating and uncovering all manholes after paving. Manhole tops shall be adjusted to grade if necessary.

All existing utilities may not be shown or may not be shown in the exact location. The contractor shall comply with State Water Works Regulations, Section 12.05.03, where lines cross.

House connections are to be made with 4" pipe installed on a minimum grade of 1/4 inch to 1 foot in R/W.

Lateral from manholes shall be PVC or Ductile Iron of sufficient length to provide two (2) feet of bearing on natural ground. The transition from ductile iron to asbestos cement or concrete pipe shall be made with an adapter coupling in R/W.

All trenches in existing or future highway right of ways shall be compacted according to V.D.H. & T. standards.

Lines shall be staked prior to construction.

WATER NOTES

A minimum cover of three (3) feet is required over proposed lines.

Contractor shall be responsible for locating and uncovering valve vaults after paving. Valve vaults shall be adjusted to final grade if necessary.

Existing lines may not be shown or may not be shown in the exact location. The contractor shall comply with State Water Works Regulations, Section 12.05.03, where lines cross.

Water lines shall be installed in a minimum grade of 1/4 inch to 1 foot in R/W.

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V.D.H. & T. NOTES

Streets to be graded, paved and all structural components erected in accordance with the Virginia Department of Highways and Transportation Road and Bridge Specifications and Road Design Standards. All materials used shall be tested in accordance with standard policies. The developer must contact the office of the resident engineer, prior to beginning any construction at which time an inspection and testing procedure policy will be drawn. The developer may produce test reports from a proved independent laboratories or solicit testing by VDOT, in either event at the developer's expense.

The pavement designs shown are based on a subgrade rating of CBR 10 or greater. The subgrade soil is to be tested by an independent laboratory and the results submitted to the Virginia Department of Highways and Transportation prior to pavement construction. Should the subgrade CBR values be less than CBR 10, then additional base material will be required.

All necessary utility laterals will be placed prior to pavement surfacing or conduit provisions made for the same (i.e. water, sewer, gas and telephone).

Gas or petroleum transmission lines will not be permitted within the pavement or shoulder element (back of curb to back of curb) of this development. Service laterals crossing and pipe lines located outside the pavement but inside the right of way will be constructed in conformity with A.S.A. B-31.8 specifications and safety regulations. Distribution lines with pressures less than 120 lbs. are unaffected by the above.

Permits will be required for all utilities within street right of way prior to acceptance into the secondary highway system.

Standard CG-8 gutter will be provided at all entrances to private lots where Standard CG-8 curb and gutter is approved for use.

Permits will be required for all private entrances constructed on street rights of way prior to acceptance into the secondary highway system.

Care must be taken during construction to prevent erosion, dust and mud from damaging adjacent property, clogging ditches, tracking public streets and otherwise creating a public or private nuisance to surrounding areas.

The entire construction area back of curbs and or pavement to be backfilled and seeded together with ditches and channels, at the earliest possible time after final grading.

Drainage easements must be defined by excavated ditches or channels for their full length to well defined existing natural watercourses.

This road will be reviewed during construction for the need and limits of paved gutters.

If erosion is encountered in any drainage easement, it will be the responsibility of the developer to sod, rip-rap, grout, pave, or to do whatever is necessary to correct the problem.

Minimum pavement radius of 25 feet required at all street intersections.

While these plans have been approved, such approval does not exempt connections with existing state-maintained roads from critical review at the time permit applications are made. This is necessary in order that the prevailing conditions be taken into consideration regarding safety requirements. Additional safety accommodations such as turning lanes may or may not be required.

AS-BUILT PLANS SEPT. 1, 1994

WATERLINE, SANITARY SEWER
& STORM DRAINAGE
ONLY

NAME OF DEVELOPMENT	HUNTRIDGE, SECTION 3
LOCATION	HOLLINS MAGISTERIAL DISTRICT US. ROUTE 460 ROANOKE COUNTY, VIRGINIA
OWNER name, address, telephone	ROANOKE COUNTY LAND VENTURE, INC. 3420 ELECTRIC RD., S.W. ROANOKE, VIRGINIA (703) 774-3407
ENGINEER name, address, telephone	CHARLES R. SIMPSON 3420 ELECTRIC RD., S.W. ROANOKE, VIRGINIA (703) 774-3407
ENGINEER, ARCHITECT OR SURVEYOR name, address, phone	T.P. PARKER & SON 816 BOULEVARD SALEM, VIRGINIA 24153 (703) 387-1153
TAX MAP NO(S)	40.14
BOOK NO(S)	
PARCEL NO(S)	