

QUANTITY & COST ESTIMATE

ITEM	QUANTITY	UNIT	UNIT PRICE	COST	BONDABLE
CLEARING AND GRUBBING		ACRES			
EXCAVATION	150	C.Y.	1.75	262.50	
EMBANKMENT	1500	C.Y.	1.65	2475.00	
CURB INLET DI-		EACH			
CURB INLET DI-		EACH			
MANHOLE MH-		EACH			
MANHOLE MH-		EACH			
-IN CONCRETE PIPE, CLASS III		LIN FT			
-IN CONCRETE PIPE, CLASS III		LIN FT			
DI-7, TYPE I	1	C.S.	1000.00	1000.00	
24-IN. C.M. CULVERT	50	LIN FT	7.50	375.00	
15 IN. C.M. CULVERT	20	LIN FT	6.00	120.00	
DRAINTILES	128	LIN. FT.	3.50	448.00	
BOX CULVERT		LUMP SUM			
PAVED DITCH		LIN FT			
RIPRAP - CLASS		SF			
SOFTED SMALE		SY			
-IN CONCRETE ENDWALL EW-		EA			
-IN END SECTION ES-		EA			
DRIVEWAY, ENTRANCE TYPE		EACH			
SIDEWALK, - FT WIDE		LIN FT			
TRAIL, - FT WIDE		LIN FT			
HEADER CURB & GUTTER CG-		LIN FT			
CURB & GUTTER CG-		LIN FT			
VALLEY GUTTER		EA			
GRAVEL BASE		SY			
GRAVEL SHOULDER		SY			
SURFACE TREATMENT		SY			
-IN BIT CONC. TYPE B-		SY			
2-IN. BIT CONC. TYPE S-5 REPLACEMENT	30	SY	14.25	427.50	
6-IN. BASE MATERIAL REPLACEMENT		SY			
-IN SUBBASE MATERIAL		CY			
STREET SIGNS		EA			
TRAFFIC BARRICADE		EA			
PIPES AS SHOWN ON PLAT	7	EA	25.00	175.00	
MONUMENTS AS SHOWN ON PLAT		EA			
8-IN WATER LINE	560	LIN FT	24.00	13440.00	
-IN WATER LINE		LIN FT			
-IN WATER LINE		LIN FT			
8x4" REDUCER	1	EA	150.00	150.00	
FIRE HYDRANT ASSEMBLIES	1	EA	1200.00	1200.00	
BLOW OFFS W/VAULT, FRAME & COVER (TEMP)	1	EA	250.00	250.00	
8-IN GATE VALVES W/VAULT, FRAME & COVER	2	EA	450.00	900.00	
4-IN GATE VALVES W/VAULT, FRAME & COVER	1	EA	300.00	300.00	
-IN GATE VALVES W/VAULT, FRAME & COVER		EA			
SERVICE CONNECTIONS	4	EA	1540.00	6240.00	
8x8x8 TEE	1	EA	350.00	350.00	
8x8x6 TEE	1	EA	325.00	325.00	
6-IN SAN. SEWER	55	LIN FT	15.00	825.00	
-IN SAN. SEWER		LIN FT			
-IN SAN. SEWER		LIN FT			
STD. MANHOLE W/FRAME & COVER		EA			
SERVICE CONNECTIONS W/ CLEANOUTS	4	EA	1000.00	4000.00	
LOT NO 4 PUMP SYSTEM	1	LUMP SUM	1550.00	1550.00	
AS-BUILT PLANS	1	LUMP SUM	400.00	400.00	
STORM WATER MANAGEMENT		LUMP SUM			
ESTIMATED TOTAL				35213.00	

I hereby certify that the foregoing estimate reflects the current improvement costs of this project
 Signed: Richard G. Lang, P.E. Date: SEPT. 30, 1988
 REVISED Nov 28, 1988

GENERAL NOTES

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

The contractor or developer is required to notify the Roanoke County 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.
- Cleaning and grubbing.
- Subgrade excavation.
- Installing storm sewers or culverts.
- Setting curb and gutter forms.
- Placing curb and gutter.
- Placing other concrete.
- Placing gravel base.
- Placing any roadway surface.
- Installing water lines.
- Installing sanitary sewer lines.

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

Measures to control erosion and siltation must be provided for prior to plan approval. Plan approval in no way relieves the developer or contractor of the responsibilities contained in erosion and siltation control policies.

A permit must be obtained from the V.D.H.&T. Residency Office, Roanoke County, prior to construction in the highway Right of Way.

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

An approved set of plans and all permits must be available at the construction site.

Field construction shall honor proposed drainage divides as shown on plans.

All unsuitable material shall be removed from the construction limits of the roadway before placing embankment.

Pavement sections on approved plans are based on a min. CBR of 10. CBR tests are to be performed by the engineer and submitted to the V.D.H.&T. and to the Roanoke County Engineering Division prior to placement. CBR values < 10 will require revised pavement sections.

All roadside ditches or grades of more than 5% shall be paved with cement concrete to the limits indicated on the plans and as required at the field inspection.

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

All springs shall be capped and piped to the nearest storm sewer or natural water course. The pipe shall be 6" min. dia. 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 eoning mud from trucks and/or other equipment prior to entering public streets. It is the contractors responsibility to insure that the streets are in a clean, mud and dust free condition at all times.

The developer and/or contractor shall supply all utility companies with copies of approved plans, advising them that all grading and installation shall conform to approved plans.

Contractors shall notify utilities of proposed construction at least two, but not more than ten working in advance. Area public utilities may be notified thru Mass Utility. (800) 552-7001.

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

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

Field corrections shall be approved by the Roanoke County Engineering Division prior to such construction.

100 year floodway and flood plain shall be shown where applicable.

Grade stakes shall be set for all curb & gutter, culvert, sanitary sewer and storm sewer.

SURVEY INFORMATION

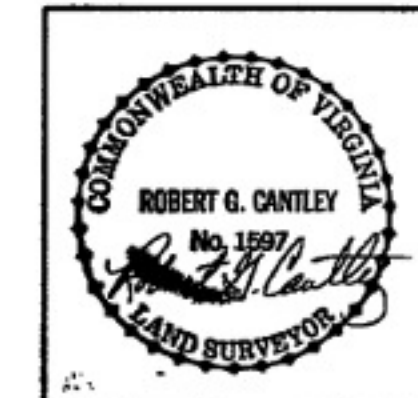
Horizontal and vertical control surveys were performed in year 1988 by MOUNTAIN TOP SURVEYORS.

All elevations must be referenced to the National Geodetic Vertical Datum of 1929.

Source of topographic mapping is MOUNTAIN TOP SURVEYORS dated SEPTEMBER 1988.

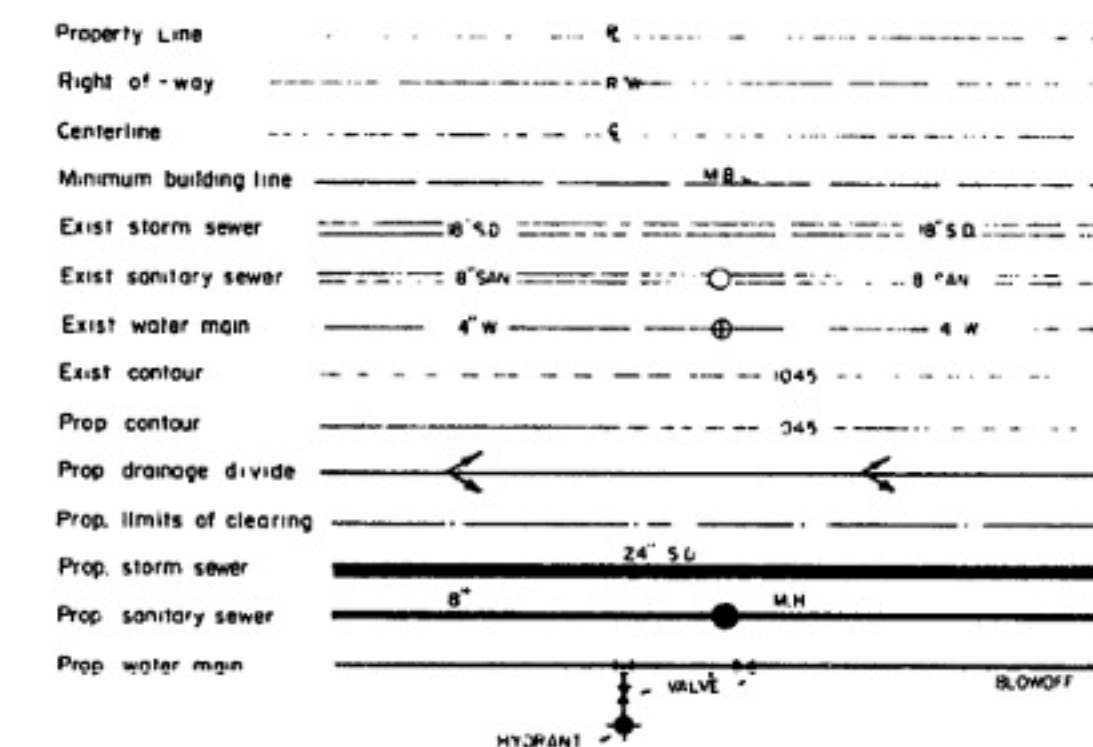
Boundary survey was performed by MOUNTAIN TOP SURVEYORS dated SEPTEMBER 1988.

The professional seal and the signature below certifies the boundary survey and topographic mapping to be accurate and correct.



PROFESSIONAL SEAL AND SIGNATURE

LEGEND



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 and adjustment to final grade if necessary.

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

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 cost construction as per water construction standards.

Water cost shall be minimum Class 52 ductile iron in accordance with AWWA C151 or DR-14 PVC in accordance with AWWA C-900.

Application for utilities to show development reference number 68-148.

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.

Lateralis 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.

'AS-BUILT PLANS' JUNE 6, 1989



COUNTY OF ROANOKE

NAME OF DEVELOPMENT CASTLE ROCK HOMES

MAGISTERIAL DISTRICT(S) WINDSOR HILLS

OWNER (name, address, telephone) SPRINGWOOD ASSOCIATES 3214 ELECTRIC ROAD, S.W. ROANOKE, VA. 24018 774-6500

DEVELOPER (name, address, telephone) - SAME -

ENGINEER, ARCHITECT OR SURVEYOR (name, address, phone) LANG ENGINEERING CO. P.O. BOX 497 BLUE RIDGE, VA. 24064 992-3620

TAX MAP NO(S) 76.15-3-1 BLOCK NO(S) _____ PARCEL NO(S) TRACT 3

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