

QUANTITY & COST ESTIMATE

ITEM	QUANTITY	UNIT	UNIT PRICE	COST	BONDABLE
CLEARING AND GRUBBING					
EXCAVATION		C.Y.			
EMBANKMENT		C.Y.			
CURB INLET DI-3A	2	2	1000.-	2000.-	
CURB INLET DI-3B	12	30	1500.-	18,000.-	
CURB INLET DI-3C	3	6	1500.-	4,500.-	
CURB INLET DI-3BB	1	1	1750.-	1,750.-	
CURB INLET DI-4BB	5	5	2000.-	10,000.-	
MANHOLE MH-2	1	1	1000.-	1,000.-	
MANHOLE MH-					
15-IN. CONCRETE PIPE, CLASS III	1617	3604	15.-	24,255.-	
18-IN. CONCRETE PIPE, CLASS III	166	305	18.-	2,988.-	
24-IN. CONCRETE PIPE, CLASS III	136	347	22.50	4,410.-	
30-IN. CONCRETE PIPE, CLASS III	501	812	31.-	15,531.-	
36-IN. CONCRETE PIPE, CLASS III	160	160	33.-	5,280.-	
42-IN. CONCRETE PIPE, CLASS III	403	463	50.-	23,150.-	
48-IN. CONCRETE PIPE, CLASS III	412	412	65.-	26,780.-	
-IN. C.M. CULVERT					
IN C.M. CULVERT					
DI-7, TYPE I GRATE, YARD INLET	3	3	12.50	37.50	
BOX CULVERT					
PAVED DITCH					
RIPRAP - CLASS I	175	300	20.-	3,500.-	
GRAVEL SWALE					
48-IN. CONCRETE ENDWALL EW-2PC	1	1	2207.-	2,207.-	
30-IN. CONCRETE ENDWALL EW-2PC			1322.-	1,322.-	
-IN. END SECTION ES-					
DRIVEWAY, ENTRANCE TYPE CG-9D (1184 VEST.)	36	143	175.-	6,225.-	
SIDEWALK, - FT. WIDE					
TRAIL, - FT. WIDE					
HEADER CURB & GUTTER CG-					
CURB & GUTTER CG-6	1	1	8.50	8.50	
VALLEY GUTTER					
GRAVEL BASE					
GRAVEL SHOULDER CATEGORY II	120	3710	9.25	3,410.-	
SURFACE TREATMENT CATEGORY I	3710	10000	8.00	29,680.-	
-IN. BIT-CONG. TYPE-B CATEGORY III	475	6335	1.5	4,732.50	
-IN. BIT-CONG. TYPE-S CATEGORY IV	3350	3350	11.75	39,362.50	
-IN. BASE MATERIAL					
-IN. SUBBASE MATERIAL					
STREET SIGNS	1	1	100.-	100.-	
TRAFFIC BARRICADE					
PIPES AS SHOWN ON PLAT	20	74	30	1,620.-	
MONUMENTS AS SHOWN ON PLAT					
6-IN. WATER LINE	1492	8843	15.-	22,384.50	
-IN. WATER LINE					
-IN. WATER LINE					
FIRE HYDRANT ASSEMBLIES	3	3	150.-	450.-	
BLOW OFFS W/VAULT, FRAME & COVER	5	10	500.-	2,500.-	
6-IN. GATE VALVES W/VAULT, FRAME & COVER	7	27	150.-	1,050.-	
-IN. GATE VALVES W/VAULT, FRAME & COVER			375.-	1,350.-	
-IN. GATE VALVES W/VAULT, FRAME & COVER					
SERVICE CONNECTIONS	47	143	350.-	16,465.-	
6-IN. SAN SEWER	620	1210	15.-	18,150.-	
8-IN. SAN SEWER	2032	6128	22.-	136,816.-	
-IN. SAN. SEWER					
STD. MANHOLE W/FRAME & COVER	19	33	120.-	2,280.-	
SERVICE CONNECTIONS W/ CLEANOUTS	36	143	60.-	2,148.-	
AS-BUILT PLANS	1	1			
STORM WATER MANAGEMENT					
10% CONTINGENCY				4,550.-	
ESTIMATED TOTAL				201,373.13	

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.
- Clearing 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 cleaning 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 Miss 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

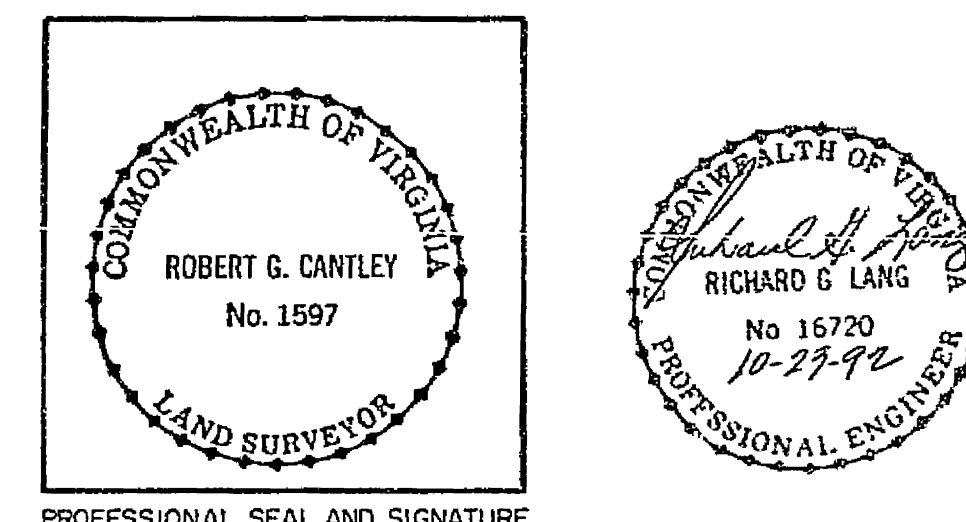
Horizontal and vertical control surveys were performed in year **1992** by **Robert G. Cantley, Inc.**

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

Source of topographic mapping is **Robert G. Cantley, Inc.** dated **April 1992**.

Boundary survey was performed by **Robert G. Cantley, Inc.** dated **April 1992**.

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



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 main shall be minimum Class 52 ductile iron in accordance to AWWA C151 or DR-14 PVC in accordance to AWWA C-900.

Application for utilities to serve development reference number **92-112**.

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.

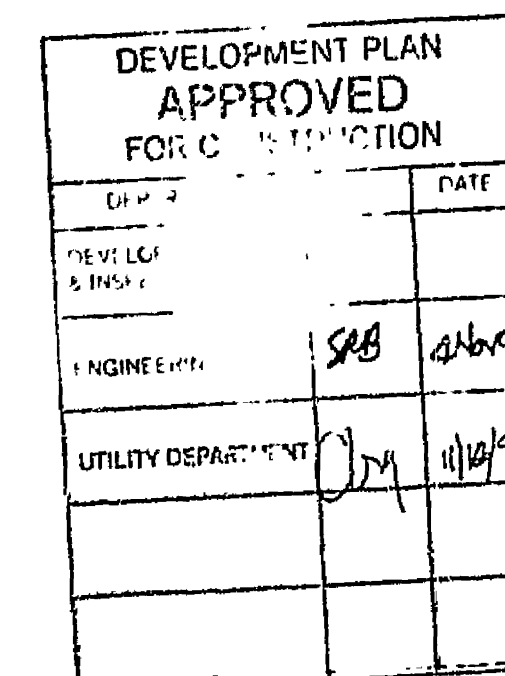
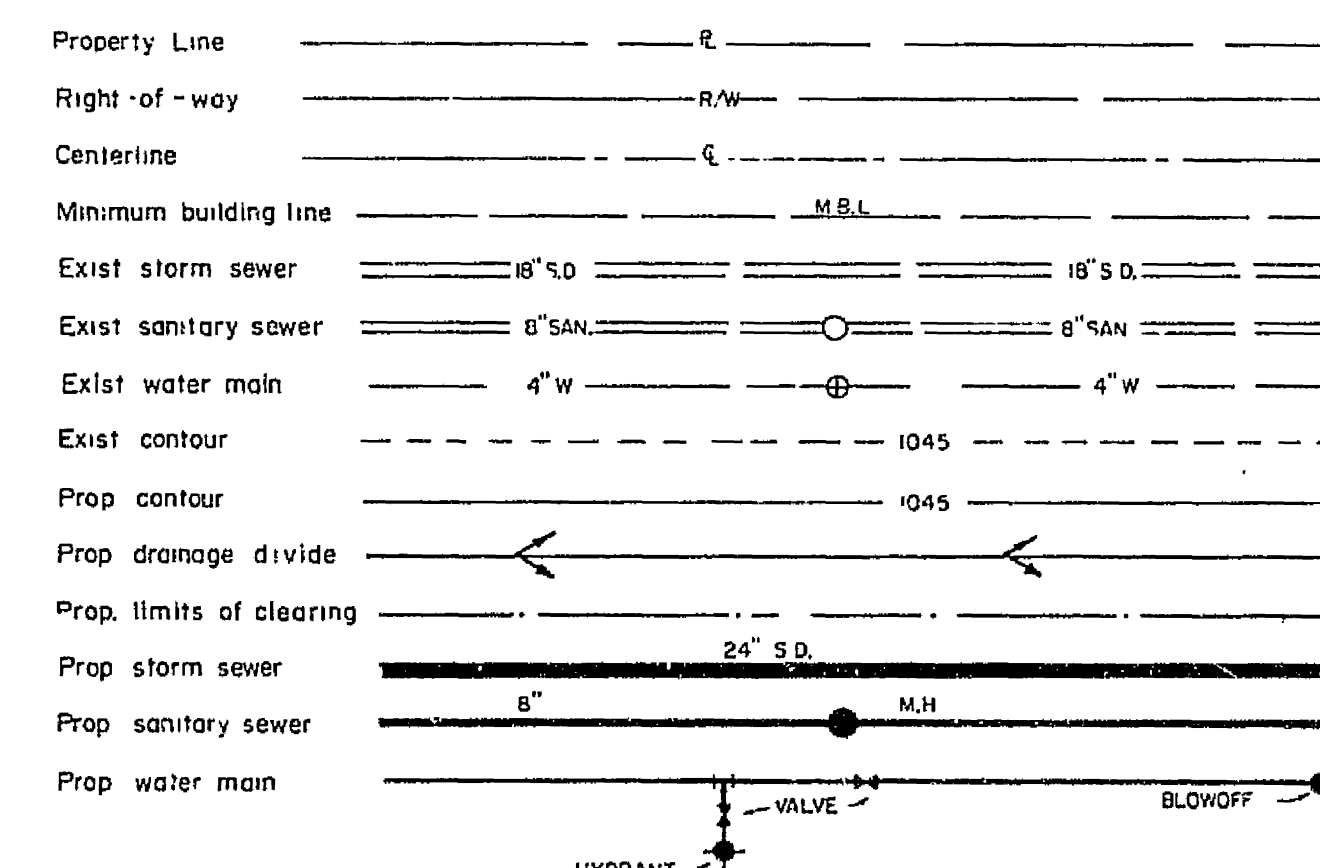
House connections are to be made with 4" pipe installed on a minimum grade of 1/4 inch to 1 foot in R/W.

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.

LEGEND



REVISED 11-23-92
REVISED 10-21-92
REVISED 9-22-92

COUNTY OF ROANOKE	
SUMMERFIELD	
Hollins	
Fralin & Waldron, Inc. P.O. Box 20069 Roanoke, VA. 24018 (703) 774-4415	
-SAME-	
Lang Engineering Company P.O. Box 565 Deleville, VA 24083 (703) 992-5520	
39.20-1-50 TAX MAP NO(S)	39.20-1-51 BLOCK NO(S)
PARCEL NO(S)	