VIRGINIA DEPARTMENT OF TRANSPORTATION

1. QUALITY CONTROL

Streets to be graded, paved and all structural components erected in accordance with the Virginia Department of Transportation Road and Bridge Specifications and Road Design Standards dated January 1987. 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 will produce test reports from approved independent laboratories at the developers's expense.

The pavement designs shown are based on a subgrade rating of CBR10 or greater. The subgrade soil is to be tested by an independent laboratory and the results submitted to the Virginia Department of Transportation prior to pavement construction. Should the subgrade CBR values be less than CBR10, then additional base material will be required in accordance with departmental specifications.

The subgrade must be approved by Virginia Department of Transportation prior to placement of the base. Base must be approved by Virginia Department of Transportation for depth, template and compaction before surface is applied.

2 UTILITIES

All necessary utility laterals will be placed prior to pavement base and 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 AASA B 31.8 Specification 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.

Any easements granted to a utility company for placement of power, telephone, etc. must be released prior to acceptance.

3. PRIVATE ENTRANCES

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.

4. EROSION CONTROL AND LANDSCAPING

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 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 will defined existing natural watercourses.

This road will be reviewed during construction for the need 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.

All vegetation and overburden to be removed from shoulder to shoulder prior to the conditioning (cutting and/or preparation) of the subgrade.

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

6. 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 accompaniments such as turning lanes.

7. Standard guardrail with safety end sections may be required on fills as deemed necessary by the VDOT engineer. After completion of rough grading operations, shall be notified so that a field review may be made of the proposed locations.

Field review will be made during constion to determine the need and limits of paved gutter and/or ditch stabilization treatments, to determine the need and limits of additional drainage easements. All drainage easements must be cut and made to function to a natural watercourse. Any erosion problems encountered in an easement must be corrected by whatever means necessary prior to subdivision

8. Contractor shall obtain entrance permit to the existing Virginia Department of Transportation right of way from Resident Engineer prior to road construction.

9. An inspector will not be furnished except for periodic progress inspection, the above mentioned field reviews and checking for required stone depths. The developer will be required to post a surety to guarantee the road free of defects for one year after acceptance by the Department of

10. The streets must be properly maintained until acceptance. At such time as all requirements have been met for acceptance, another inspection will be made to determine that the street has been properly maintained.

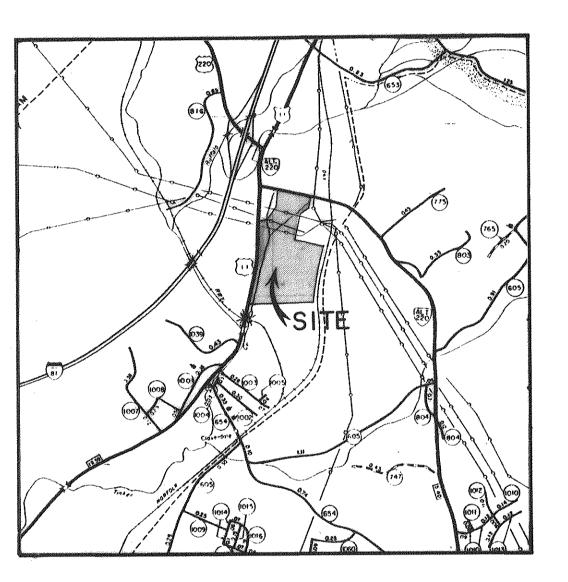
11. In order to meet public service requirements, all streets must serve a minimum of three occupied dwellings prior to acceptance.

12. Contractor shall verify location and elevation of all underground utilities shown on the plans in areas of construction prior to starting work. contact Engineer immediately if location or elevation is different from that shown on the plan. If there appears to be a conflict, and upon discovery of any utility not shown on this plan, call "Miss Utility" of Central Virginia at 1-800-552-7001.

13. Approval of these plans will be based on specifications and standards in effect at the time of approval and will be subject, until completion of the roadway and acceptance by the Department, to future revisions, of the Specifications and Standards

DEVELOPER: SIMMONS INDUSTRIES
ADDRESS: 1946 ASPEN DRIVE
DALEVILLE, VA 24083
PHONE: 992-2669

SIMMONS INDUSTRIAL PARK



VICINITY MAP

SANITARY SEWER "AS-BUILTS" 7-24-91

TRACT SIZE: 85.15 acres

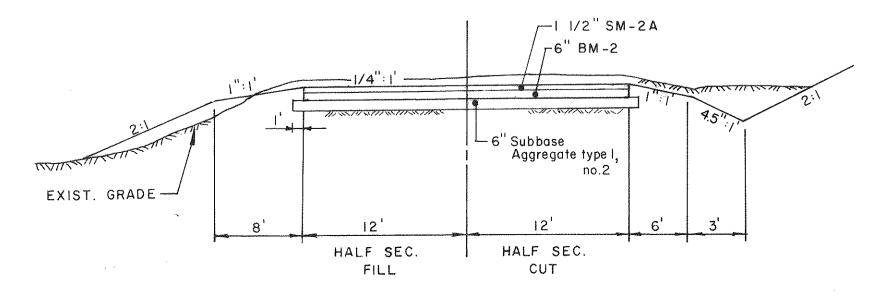
PRESENT ZONING: M-I and B-2

PRESENT USE: VACANT

PROPOSED USE: COMMERCIAL / INDUSTRIAL

SEWER: BOTE TOURT CO.

WATER: INDIVIDUAL WELLS



ROADWAY SECTION

LOCATION: HORIZONTAL AND VERTICAL CONTROL SURVEYS PERF TOTAL # SHEETS: BY Mountain Top Surveyors, Inc. A/E FIRM: # OF SETS: ALL ELEVATIONS ARE BASED UPON AN U.S.G.S. DA THE ENGINEERING PLANS. SOURCE OF TOPOGRAPHIC MAPPING IS Mountain Top Surveyors, Inc., UNLESS OTHERWISE NOTED. BOUNDARY SURVEY PERFORMED BY Mountain Top Surveyors, Inc., 1989 LEGEND BOUNDARY: TRACT PROPERTY LINE RIGHT OF WAY CENTER LINE UTILITY: EXIST. STORM SEWER PROP. STORM SEWER EXIST SANITARY SEWER PROPOSED SANITARY SEWER -EXIST. WATER MAIN **X→** VALVE AIR RELEASE VALVE TOPOGRAPHIC & ESC. 1200 DETAIL SYMBOL Permanent Seeding, Std. & Spec. 1.66 (CE) Construction Entrance, Std. & Spec. I.O. OP Outlet Protection, Std. & Spec. 1.36

MISC.:

PROP. LIMIT OF CLEARING

EXIST. CURB & GUTTER

PROP. CURB & GUTTER

EXIST. CURB

PROP. CURB

PROP. PAVEMENT

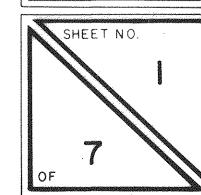
PROP. STRUCTURES

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SHEET INDEX

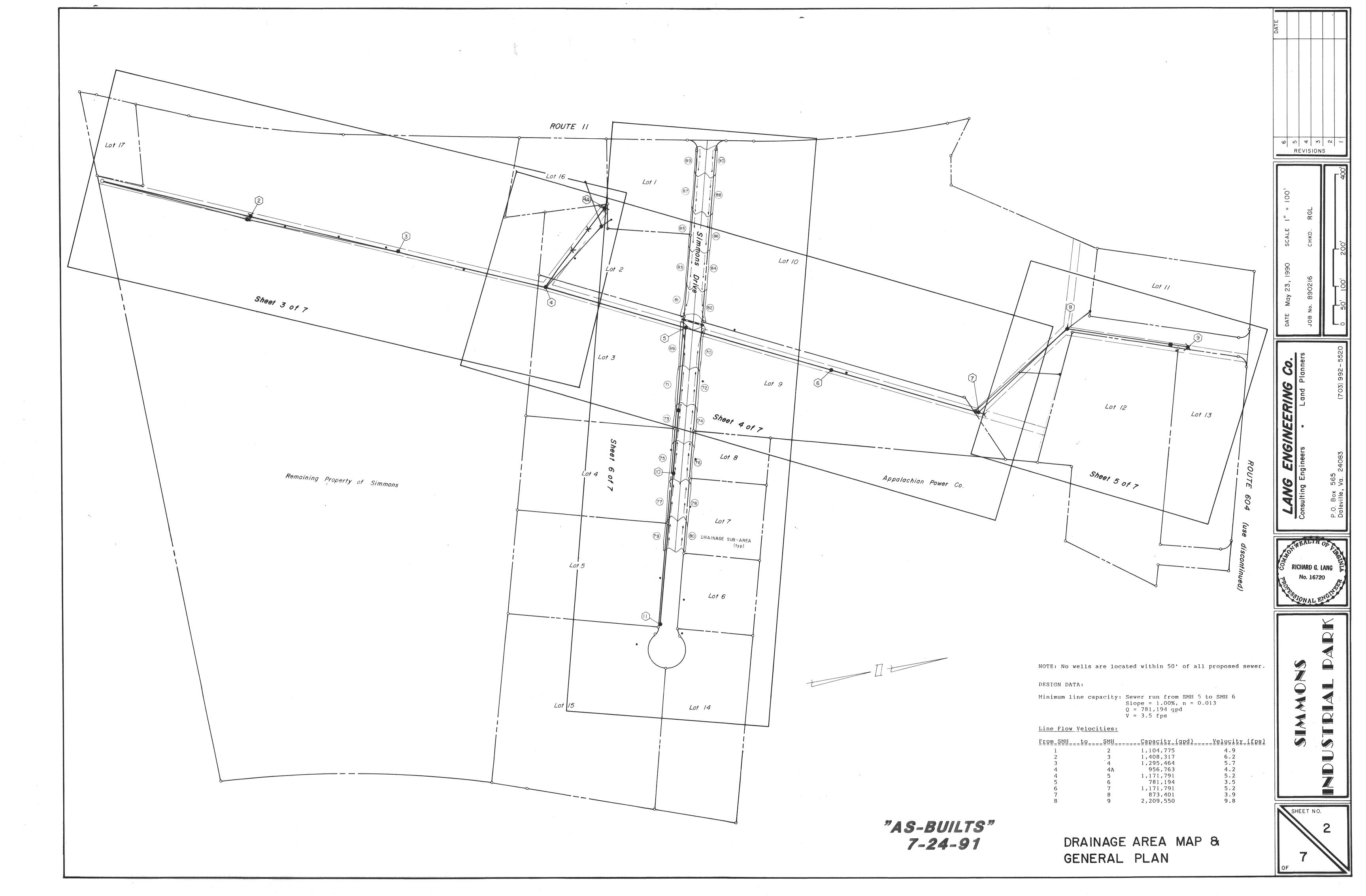
SHEET 1: COVER SHEET
SHEET 2: GENERAL PLAN
SHEET 3: SEWER PLAN / PROFILE
SHEET 4: SEWER PLAN / PROFILE
SHEET 5: SEWER PLAN / PROFILE
SHEET 6: ROADWAY PLAN / PROFILE
SHEET 7: DETAILS / SPECIFICATIONS

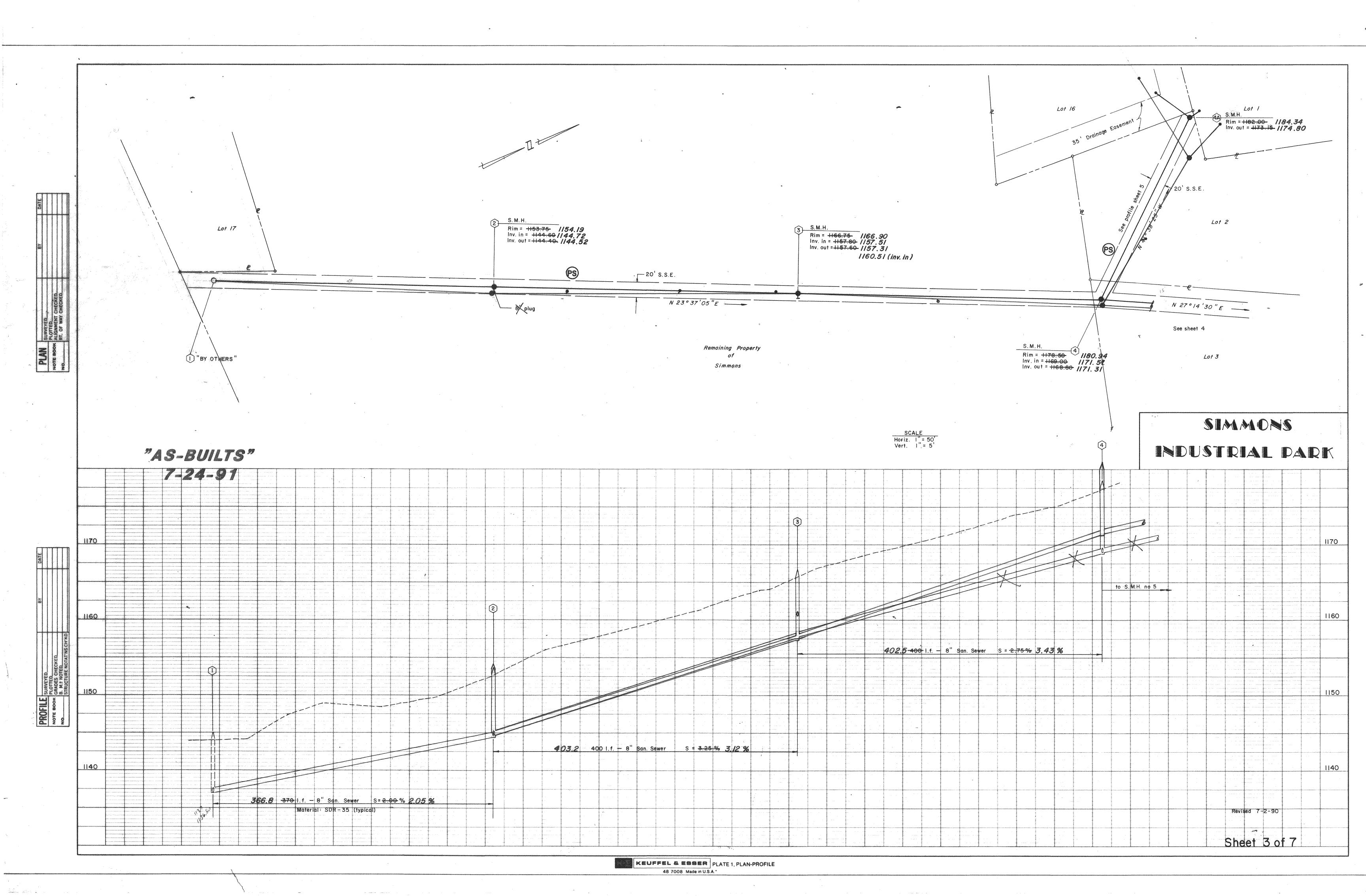
REVISIONS

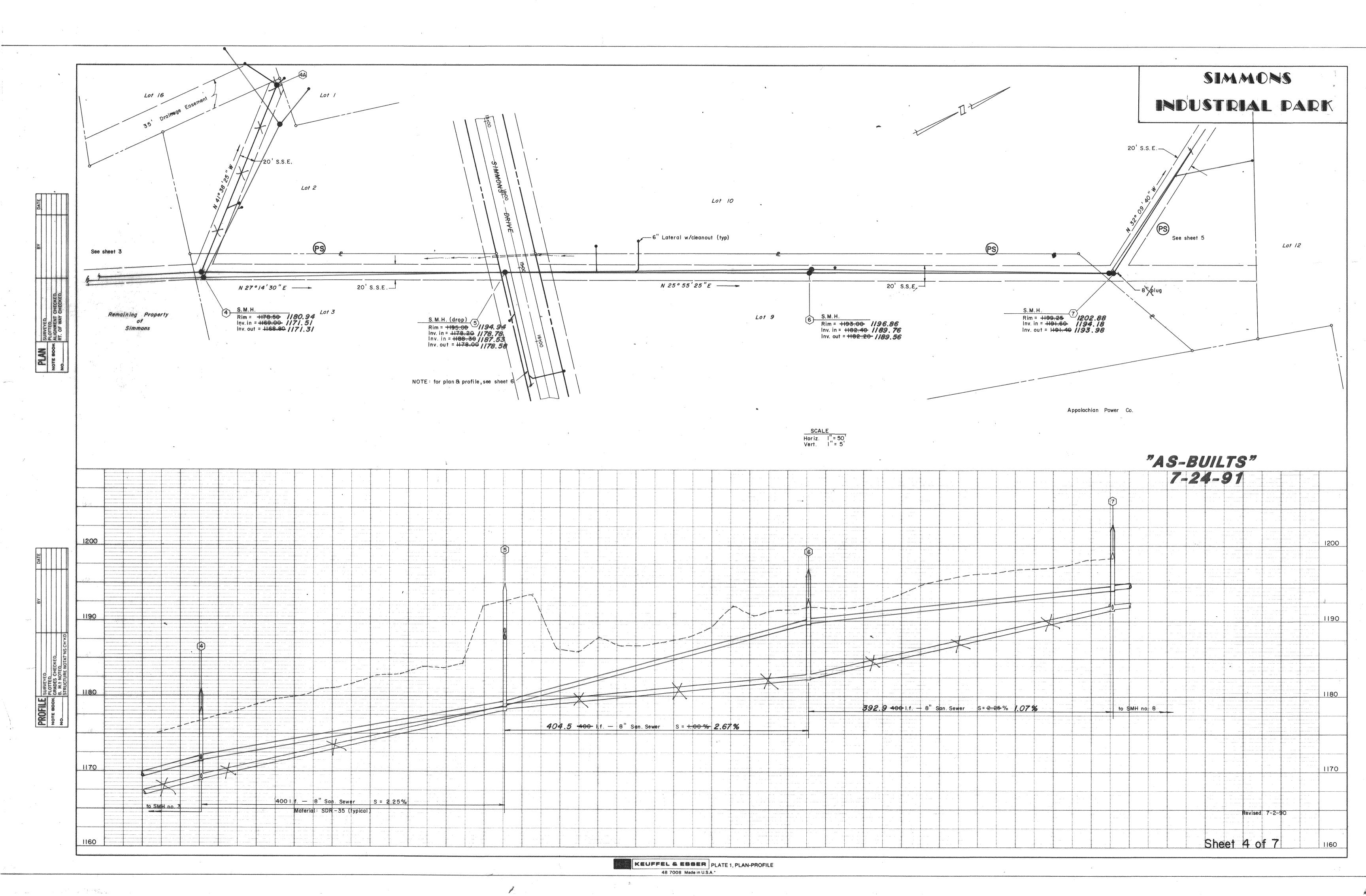


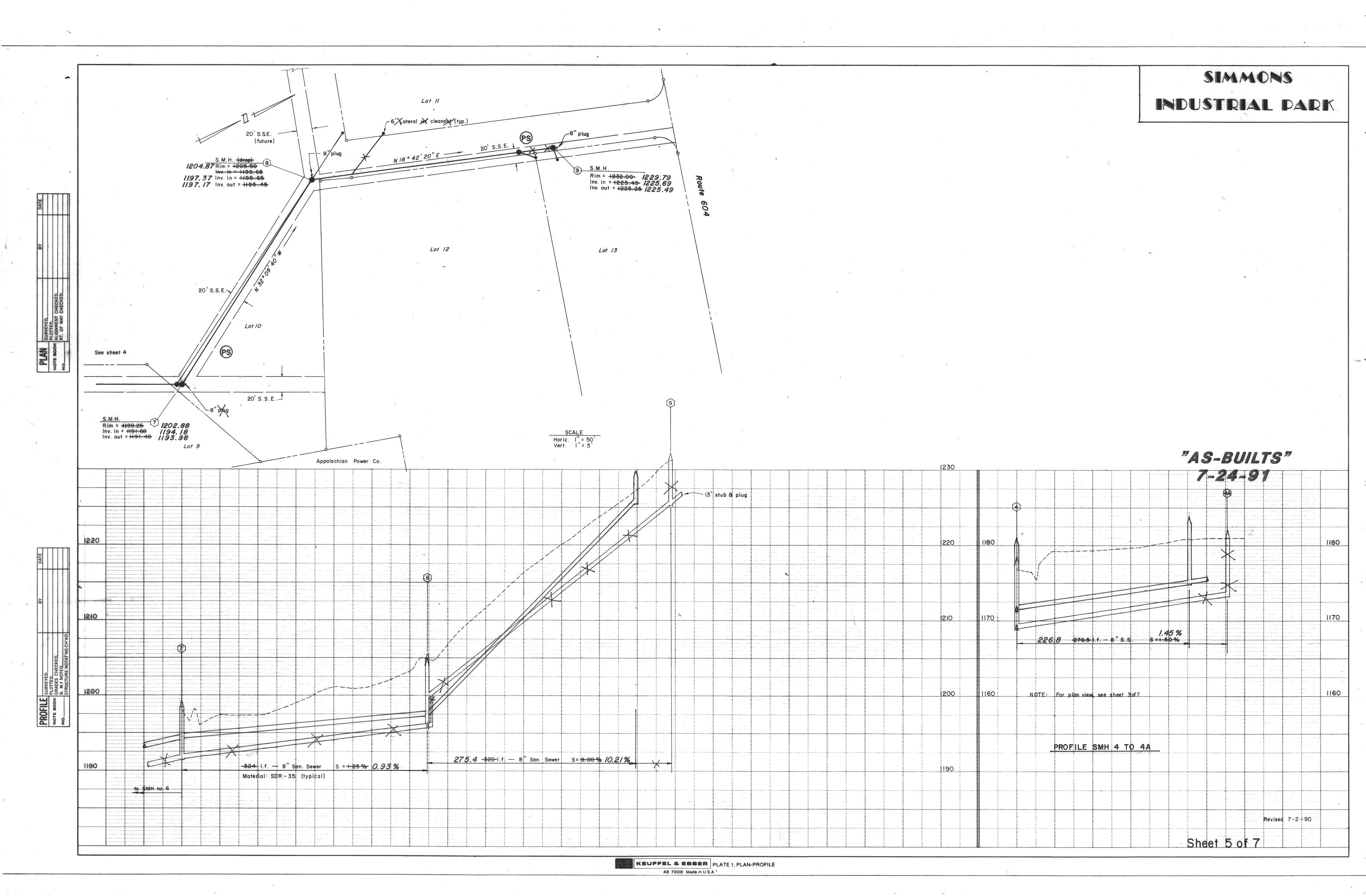
NOTE: Prime shall be a Liquid Asphalt Material RC-70, MC-70 or RC-250 applied at the rate of 0.40 gal/sq. yd..

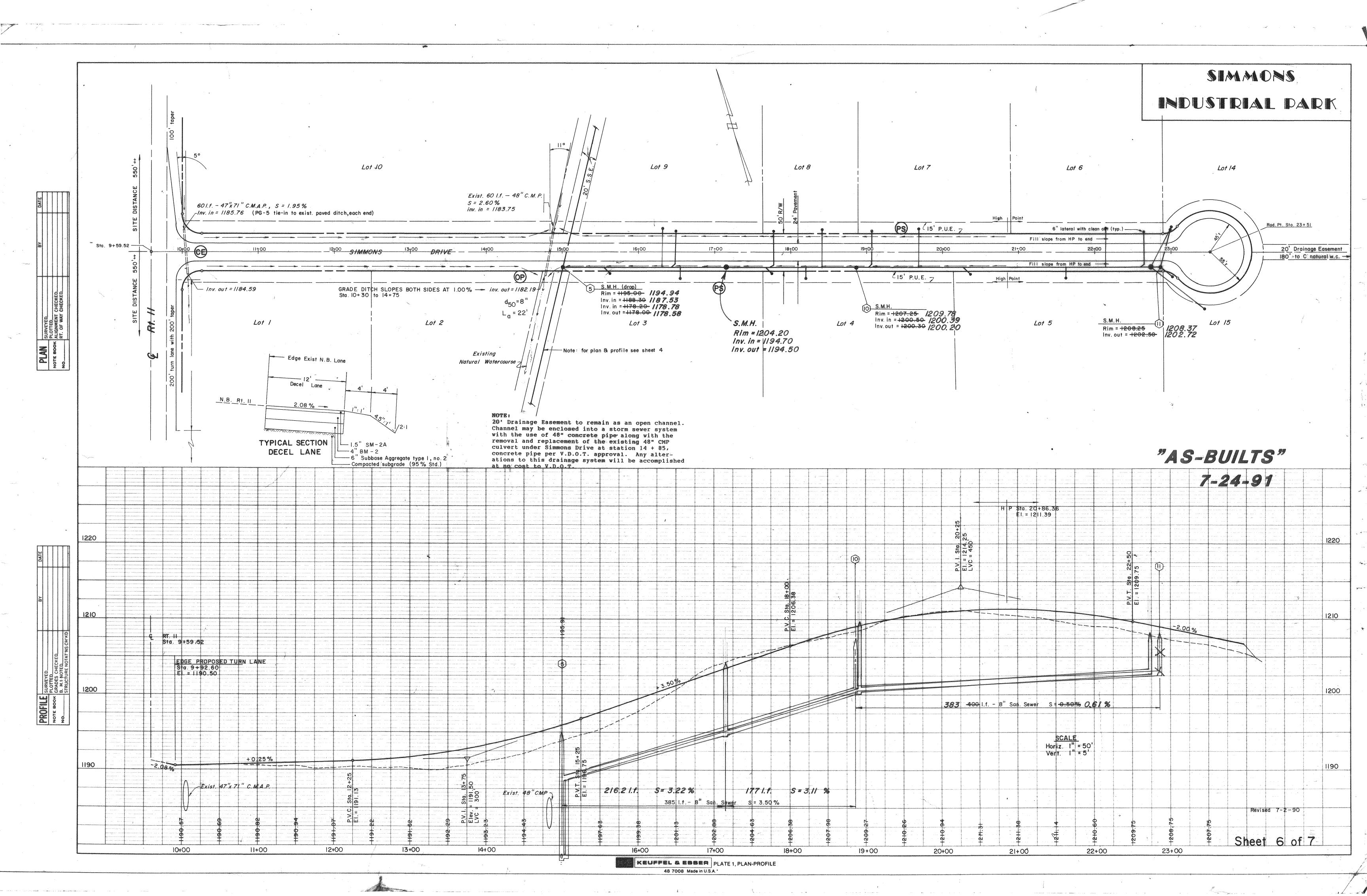
When subjected to public traffic, the primed area shall be covered with Fine Aggregate Grading B Sand (Natural or Manufactured) or No. 10 Aggregate at the rate of 15 lb/sq. yd.











SANITARY SEWER NOTES & SPECIFICATIONS

A. SCOPE OF WORK

- 1. The work shall include the providing of all proper equipment, tools, accessories, labor and services required to install the sanitary sever system, complete-in-place, using sound standard engineering techniques and construction practices.
- 2. Any equipment, tool or accessory found defective or not in a fit condition to accomplish the work continuously and expeditiously shall be promptly replaced with satisfactory equipment.
- 3. The Contractor shall include in the unit price per lineal foot of pipe, complete-in-place, the expenses of procuring the field services of experienced and qualified manufacturer representatives for the approved materials. The representative shall instruct Contractor's employees as to the proper installation procedure for the particular material.

B. LAYING PIPE AND PLACING MANHOLES

- The installation of the sanitary sewer system shall begin at the downstream manhole and proceed upstream. The downstream sections shall be completed, tested and approved prior to allowing sanitary sewage to enter
- 2. The Contracotr shall not lay pipe or place manholes until all water has been removed from the trench, or when in the opion of the County Engineer, the trench or the weather conditions are unsuitable for work.
- 3. Pipe that may require field cutting shall be done so in a neat and workmanlike manner, so as to leave a smooth end at right angles to the axis of the pipe. Care shall be taken to avoid damaging the pipe and any coatings or linings. Ductile iron pipe shall not be cut with an oxyacetylene torch.
- 4. The materials shall be visually inspected for defects before lowering the pipe or placing the manholes into the trench. During the laying operation, no tools, clothing or other material shall be placed in the pipe or manhole. The interior of the pipe shall be free of all soil, debris and superflows materials prior to and during the installation.
- 5. The Contractor shall exercise every precaution to revent foreign material from entering the pipe while t is being placed in the trench.
- 6. The pipe and the manholes shall be lowered carefully into the trench by suitable means and handled with care at all times to avoid damage. Under no circumstances shall the materials be dropped or dumped into the trenches.
- 7. The pipe shall be installed in accordance with the pipe manufacturer's specifications and as directed by the County Engineer. The pipe shall be laid in true straight lines with bell ends upstream and with nvert of the pipe being the true elevation and grade of the system.
- 8. The Contractor shall be responsible for establishing and maintaining the horizontal alignment and vertical elevation and grade of the system in accordance with the survey information indicated on the plans.
- 9. The horizontal alignment of the pipe shall be maintained by a transit or other acceptable instrument plumbed over the center of the downstream manhole. The vertical elevation and grade shall be maintained by not less than three batter boards placed between manholes or by an adjustable laser level mounted at the invert of the downstream manhole with targets placed in the bell end of the pipe being laid.
- 10. When work is not improgress, the Contractor shall plug the open ends of the pipe to prevent trench water or other substances from entering the pipe. The plug shall be watertight and shall remain in place until any required dewatering is completed.
- 11. All sewers shall be instalted with a minimum of three (3) feet of cover measured from the existing ground to the top of the installed pipe. Any pipe that is installed with less than three feet of cover shall be concrete encased as per the detail.
- 12. All line construction shall be installed according to the latest edition of the Uniform Building Code of Virginia -
- 13. All connections shall be made to sewers by replacing a length of pipe with branch fittings, or a clean opening cut with tapping equipment and a tee-saddle or tee insert attached.
- 14. Pipe bedding shall only be Class A. B. or C (ASCE Manuals and Reports on Engineering Practice No. 37 - WPCF Manual of Practice No. 9) The class of bedding shall be determined be the Engineer to provide strength necessary for the soil and load conditions that will
- 15. Trenches shall be carefully backfilled with excavation materials approved backfilling consisting of earth, loam, sandy clay, sand and gravel, soft shale or other approved materials, free from large clods of earth or stones larger that two inches in diameter, deposited in six inch layers, thoroughly and carefully tamped until the pipe has a cover of not less than one foot.
- 16. The remainder of the backfill shall be placed in the trench in layers not exceeding two feet and thoroughly tamped. No stone or rock larger that 10 inches in its greatest dimension shall be used in backfilling.
- 17. Trenches in public roadways shall be excavated, backfilled, and compacted in accordance with the requirements of the Virginia Department of Transportation's Road and Bridge Specificationss.
- 18. The flow channels through manholes shall be of such shape and slope to provide smooth transition between inlet and outlet sewers and to reduce turbulence. Benches shall be sloped to the channel to prevent the accumulation of solids.
- 19. Line connections directly to the manhole or to short stubs integral with the manhole shallbe made with flexible joints. Flexible joints are joints which permit the manhole to settle without destroying the integrity of the line connections.
- 20. Frames, covers and steps shall be of suitable material and designed to accompdate prevailing site conditions and to provide for a safe installation.
- 21. A drop pipe should be provided for a sewer entering a manhole ab an elevation of 24 inches or more above the manhole invert. See detail for drop manhole

C. JOINTING

- 1. The sanitary sewer system shall be laid and joined complete-in-place in order that each length and section of pipe between manholes shall have a smooth
- 2. The previous joint shall have been completed and the entire length well bedded prior to jointing another length of pipe. Bell holes shall be dug of sufficient size to insure proper jointing.
- 3. The Contractor shall not use excavation equipment to push the pipe into the home position, unless approved by the County Englacer, and then outs for an imagin of pipe at a time
- 4. The Contractor shall join the pipe as recommended by the manufacturer to obtain the degree of watertightness required. The use of lubricants, primers adhesives and similar materials shall be as recommended by the
- 5. The pipes shall be connected to the manholes through precast openings and joined with either a flexible boot adapter or a pipe seal gasket.

D. CONNECTIONS TO EXISTING SYSTEMS

- 1. The Contractor shall maintain the existing sewage flow at all times by pumping, diverting or other means acceptable to the County Engineer. Care shall be taken to avoid debris from entering the system.
- 2. The Contractor shall at no time allow sewage flow to be diverted into a natural watercourse or back up into any service connections. The Contractor shall be responsible for all damages which may occur as a result of failing to maintain sewage flow.
- 3. The new pipe connection to be made to an existing manhole, where not stub or opening exists, shall be made through an opening of minimum diameter cut into the manhole at the required elevation and location.
- 4. The existing invert channels and benches shall be reworked as required to form a new flow channel from the
- 5. The new pipe connected to an existing manhole shall be secured in position and the remaining opening shall be filled and sealed with brick and mortar. The outer surface of the connection shall be given a coat of heavy bitumastic waterproofing compound.

E. SERVICE CONNECTIONS . The Contractor shall make all service connections to the sewer pipe and from manholes where shown on the

- plans or where as located in the field by the County Engineer. The service connections to the sever pipe shall be made with either a wye or tee branch fitting at the Contractor's option.
- shall be commercially manufactured and installed in strict accordance with the recommendations of the pipe All service connections shall be a minimum of six (6) inches diameter and shall be installed on a minimum

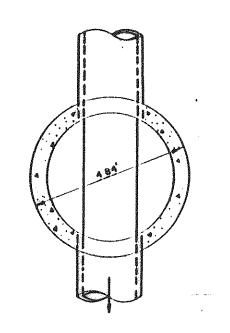
grade of one-quarter (1/4") inch per foot from the

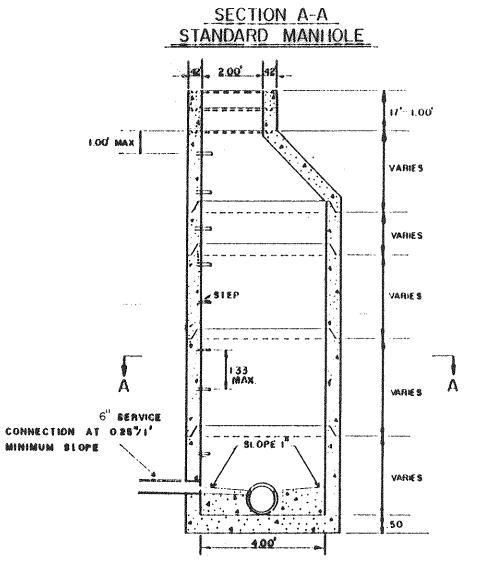
the sewer pipe or manhole to the property line or

2. The wye & tee-wye branch fittings for service connections

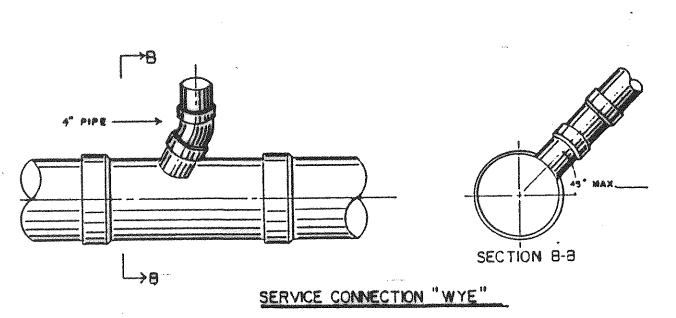
- edge of casement. 4. Future service connections shall be extended to the property line or easement line and be properly capped with a watertight fitting to prevent infiltration into the sewerage system. The fitting shall be installed in strict accordance with the recommendations of the
- pipe manufacturer. 5. Future service connections shall be field marked by a treated wooden (2 x 4) marker three feet long set vertically plumb with the end of the capped extension. The tops of the markers shall be painted yellow and set
- 6. Existing services that are to be connected to the new sewer pipe amd are insatisfactory condition shall not be replaced to the property line but shall be replaced and connected to the first compatible joint which will insure a watertight connection.

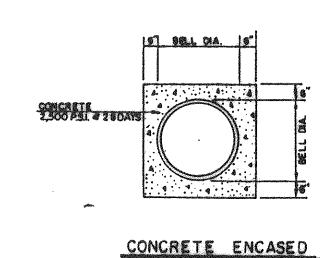
- 1. All materials and appurtenances required for the work shall be new, of first class quality and shall be furnished, deliverd, exected, connected and finished in every detail as specified or indicated. All materials found defective, regardless of the the circumstance, shall be replaced at the expense of the Contractor
- 2. The materials specified for the construction shall comply with the latest revisions of the applicable American Society of Testing Materials (ASTM), American Water Works Association (AWWA), American National Standards Institute (ANSI), and the Virginia Department of Transportation (VDOT).
- 3. The Contractor shall install only one type of pipe between structures except where ductile iron pipe is specified or indicated.
- 4. Polyviny1 chloride (PVC) pipe and fittings shall be SDR 35 and shall conform to ASTH D 3034.
- 5. Roadway and raliway casing pipe shall be sixteen (16) luches in diameter meeting all requirements of ASTM Al39 and having a minimum yield strength of 35000 psi.
- 6. Manholes shall be precast conforming to ASTM C 478 with rubber gasket type joints. 7. PVC pipe and fittings shall be bell and spigot type
- joints. The bell and spigot joint shall be sealed with elastomeric gaskets conforming to ASTN D 3212. The joints shall no made in strict accordance with the recommendations of the pipe manufacturer. 8. Sewer lines shall be tested for exfiltration or
- infiltration not to exceed 200 gallons per inch of pipe diameter per mile per day. Test must be performed with a minimum of four (4) feet of head. 9. Sewer lines may also be tested by air pressurization.
- If air testing is employed, the manholes must be tested by exfiltration, with inflatable stoppers used to plug all lines into and out of the manhole being tested. The manhole shall then be filled to the top with water and allowed to soak for 12 hour. Leakage shall not exceed 1/2 galton per hour.

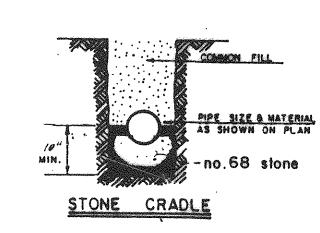


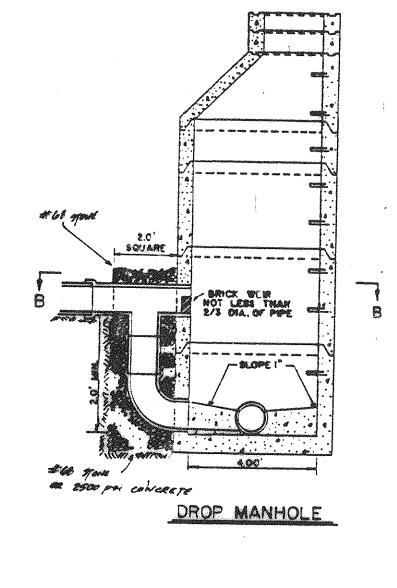


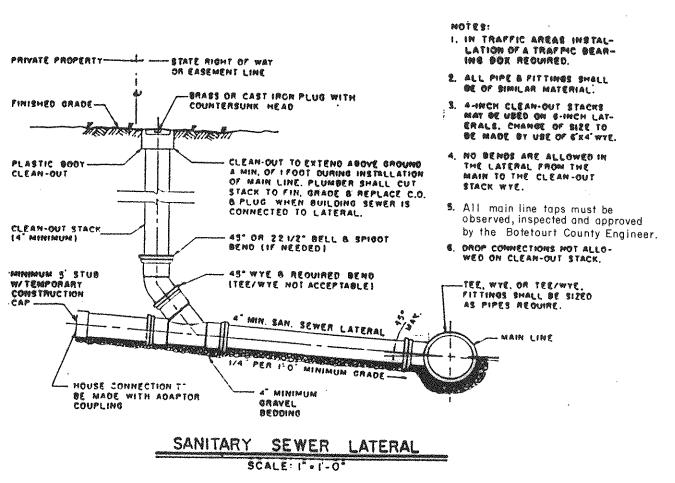
STANDARD MANHOLE

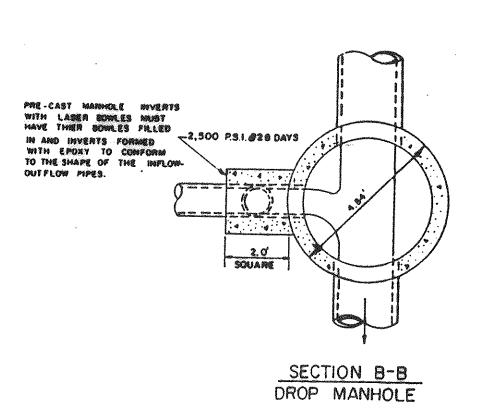












NOTE: CONTRACTOR SHALL RE-ESTABLISH ALL DITCH LINES AND CULVERTS AFTER INSTALLATION OF PROPOSED SEWER LINES AND MANHOLES. ALL DISTURBED AREAS SHALL BE REGRADED, SEEDED AMD MULCHED ACCORDING TO THE FOLLOWING SCHEDULE:

> PERMANENT SEEDING SHALL BE INSTALLED ACCORDING TO STANDARD & SPECIFICATION 1.66 OF THE EROSION CONTROL HANDBOOK.

THE APPLICATION RATES SHALL BE AS FOLLOWS:

LIME: 3 tons/acre pulverized agricultural limestone (140 lbs./1000 S.F.)

FERTILIZER: 1000 lbs./acre 5-20-10 7 lbs./1000/S.F. 38-0-0 (spring)

SEED MIXTURE: 80% Tall Fescue @ 200 lbs/ acre

20% Kentucky Bluegrass

NOTE: IF PERMANENT SEEDING TAKES PLACE PRIOR TO MARCH 15, ALL SEEDED AREAS SHALL BE MULCHED ACCORDING STATE STANDARD & SPECIFICATION 1.75. SHEET NO.

0 0 4 W S

REVISIONS

"AS-BUILTS" 7-24-91

