

These specifications are appropriate to ponds within the scope of the Standard

### I. SITE PREPARATION

Areas designated for borrow areas, embankment, and structural works shall be cleared, grubbed and stripped of topsoil. All trees, vexetation, roots and other objectionable material shall be removed. Channel banks and sharp breaks shall be sloped to no steeper than 1:1.

Areas to be covered by the pond or reservoir will be cleared of all trees, brush, logs, fences, rubbish and other objectionable material unless otherwise designated on the plans. Trees, brush and stumps shall be cut approximately level with the ground surface.

All cleared and grubbed material shall be disposed of outside and below the limits of the dam and reservoir as directed by the owner or his representative. When specified, a sufficient quantity of topsoil will be stockpiled in a suitable location for use on the embandment and other designated areas.

### II. EARTH FILL

The fill material shall be taken from approved designated borrow area or areas. It shall be free of roots, stumps, wood, rubbish, oversize stones, frozen or other objectionable materials. The embankment shall be constructed to an elevation which provides for anticipated settlement to the design elevation. The fill height all along the length of the embankment shall be increased above the design elevation (including freeboard) as shown on the plans.

Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill naterials shall be placed in 8-inch maximum thickness (before connection) layers which are to be continuous over the entire length of the fill. The most porous borrow material shall be placed in the downstresm portions of the embankment.

### Compaction

The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed by not less than one tread track of the equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction can be obtained with

Where a minimum required density is specified, each layer of fill shall be compacted as necessary to obtain that density and is to be certified by

### Cutoff Trench

Where specified, a cutoff trench shall be excavated along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be as shown on the drawings, with the minimum width being four feet. The depth shall be at least four feet or as shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter. The backfill material for the cutoff trench shall be the most impervious material available and shall be compacted with equipment or rollers to assure maximum density and minimum permeability.

### III. STRUCTURAL BACKFILL

Backfill material shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other compaction equipment. The material needs to fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe unless there is a compacted fill of twenty-four inches or greater over the structure or pipe.

## IV. PIPE CONDUITS

All pipes shall be circular in cross section.

# A. Corrugated Hetal Pipe

1. Materials - (Steel Pipe) - This pipe and its appurtenances shall be galvanized and fully bituminous coated and shall conform to the requirements of AASHTO Specification H-190 Type A with vatertight coupling bands. Any bituminous coating damaged or otherwise removed shall be replaced with cold applied bituminous coating

Steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. The following coatings are commercially available: Nexon, Plasti-Cote, Blac-Klad, and Beth-Cu-Loy. Coated corrugated steel pipe shall meet the requirements of AASHTO H-245 and H-246.

Materials - (Aluminized Steel Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification H-274-791 with watertight coupling bands or flanges.

Materials - (Aluminum Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification H-196 or K-211 with watertight coupling bands or flanges. Coupling bands, anti-seep collars, end sections, etc. must be composed of the same material as the pipe. Hetals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 mils in thickness. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soils shall be less than 9 and greater than 4.

- 2. Connections All connections with pipes must be completely watertight. The drain pipe or barrel connection to the riser shall be welded all around when the pipe and riser are metal. Watertight coupling bands or flanges shall be used at all joints. Anti-seep collars shall be connected to the pipe in such a manner as to the completely watertight. Dimple bands are not considered to be watertight.
- 3. Bedding The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.
- 4. Laying pipe The pipe shall be placed with inside circumferentiallaps pointing downstream and with the longitudinal laps at the
- 5. Backfilling shall conform to structural backfill as shown above. 6. Other details (anti-seep collars, valves, etc.) shall be as shown

### on the drawings. B. Reinforced Concrete Pipe

DESIGNED

1. Haterials - Reinforced concrete pipe shall have a rubber gasket joint and shall equal or exceed ASTH Specification C-361. An approved equivalent is AWA Specification C-301.

DATE BY

2. Bedding - All reinforced concrete pipe conduits shall be laid in a concrete bedding for their entire length. This bedding shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 10% of its outside diameter with a

## minimum thickness of 3", or as shown on the drawings.

- 3. Laying pipe Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe.
- 4. Backfilling shall conform to structural backfill as shown above. 5. Other details (anti-seep collars, valves, etc.) shall be as shown
- C. For pipes of other materials, specific specifications shall be shown on the drawings.

### 1. Materials

- a. Cement Normal Portland cement shall conform to the latest ASTH Specification C-150.
- b. Water The water used in concrete shall be clean, free from oil, acid, alkali, scales, organic matter or other objectionable
- c. Sand The sand used in concrete shall be clean, hard, strong and durable, and shall be well graded with 100 percent passing a one-quarter inch sieve. Limestone sand shall not be used.
- d. Coarse Aggregate The coarse aggregate shall be clean, hard, strong and durable, and free from clay or dirt. It shall be well graded with a maximum size of one and one-half (1-1/2) inches.
- e. Reinforcing Steel The reinforcing steel shall be deformed bars of interpediate grade billet steel or rail steel conforming to ASTH Specification A-615.
- 2. Design Mix The concrete shall be mixed in the following proportions, measured by weight. The water-cement ratio shall be 5-1/2 to 6 U.S. Gallons of water per 94 pound bag of cement. The proportion of materials for the trial mix shall be 1:2:3-1/2. The combination of aggregates may be adjusted to produce a plastic and workable mix that ill not produce harshness in placing or honeycombing in the structure.
- 3. Mixing The concrete ingredients shall be mixed in batch mixers until the mixture is homogeneous and of uniform consistency. The mixing of each batch shall continue for not less than one and one-half minutes after all the ingredients, except the full amount of water, are in the mixer. The minimum mixing time is predicted on proper control of the

speed of rotation of the mixer and of the introduction of the materials, including vater, into the mixer. Water shall be added prior to, during, and following the mixer-charging operations. Excessive overmixing requiring the addition of water to preserve the required concrete consistency shall not be permitted. Truck mixing will be allowed provided that the use of this method shall cause no violation of any applicable provisions of the specifications given

4. Forms - The forms shall have sufficient strength and rigidity to hold the concrete and to withstand the necessary pressure, tamping, and vibration without deflection from the prescribed lines. They shall be mortar-tight and constructed so that they can be removed without hammering or prying against the concrete.

The inside of forms shall be oiled with a non-staining mineral oil or thoroughly wetted before concrete is placed.

Forms may be removed 24 hours after the placement of concrete. All wire ties and other devices used shall be recessed from the surface of the concrete.

5. Reinforcing Steel - All reinforcing material shall be free of dirt, rust, scale, oil, paint or any other coatings. The steel shall be accurately placed and securely tied and blocked into position so that no movement of the steel will occur during placement of concrete.

6. Consolidating - Concrete shall be consolidated with internal type

hand tamping as necessary to insure smooth and dense concrete along form surfaces, in corners, and around embedded items. 7. Finishing - Defective concrete, honeycombed areas, voids left by the removal of tie rods, ridges on all concrete surfaces permanently exposed to view or exposed to water on the finished structure, shall

be repaired immediately after the removal of forms. All voids shall

mechanical vibrators. Vibration shall be suplemented by spading and

be resmed and completely filled with dry-patching mortar. 8. Protection and Curing - Exposed surfaces of concrete shall be protected from the direct rays of the sun for at least the first three (3) days. All concrete shall be kept continuously moist for at least ten (10) days after being placed. Moisture may be applied by apraying or sprinkling as necessary to prevent the concrete from drying.

Concrete shall not be exposed to freezing during the curing period.

9. Placing Temperature - Concrete may not be placed at temperatures below 37° F with the temperature falling, or 34° with the temperature

# VI. STABILIZATION

All borrow areas shall be graded to provide proper drainage and left in a sightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching (if required) in accordance with the vegetative treatment specifications or as shown on the accompanying

# VII. EROSION AND SEDIMENT CONTROL

Curing compunds may also be used.

Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures to be employed during the construction process.

DEVELOPER'S CERTIFICATE "I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RES-PONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL/CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEFINED NECESSARY."

### PERMANENT SEEDING NOTES

Seedbed Preparation: Loosen upper 3 inches of soil by raking, discing or other

### Soil Amendments: Use one of the following schedules:

- 1) Preferred Apply 2 tons per acre dolomitic limestone (92 lbs./1000 square ft.) and 600 lbs. per acre 10-10-10 fertilizer (14 lbs./1000 square ft.) before seeding. Harrow or disc into upper three inches of soil. At time of seeding, apply 400 lbs. per acre 30-0-0 ureaform fertilizer (9 lbs./1000
- Acceptable Apply 2 tons per acre dolomitic limestone (92 lbs./1000 square ft.) and 1000 lbs. per acre 10-10-10 fertilizer (23 lbs./1000 sq. ft.) before seeding. Harrow or disc into upper three inches of soil.
- Seeding: For the periods March 1 through April 30, and August 1 through October 15, seed with 60 lbs. per acre (1.4 lbs./1000 sq. ft. ) of Kentucky 31 Tell Fescue. For the period May 1 through July 31, seed with 60 lbs. Kentucky 31 Tall Fescue per acre and 2 lbs. per acre (.05 lbs./1000 square ft.) of weeping lovegrass. During the period of October 16 through February 28, protect site by: Option (1) 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring. Option (2) Use sod. Option (3) Seed with 60 lbs./acre Kentucky 31 Tall Fescue and mulch with 2 tons/acre

Mulching: Apply 14 to 2 tons per acre (70 to 90 lbs./1000 sq. ft.) of warotted small grain straw immediately after seeding. Anchor mulch immediately after application, using mulch anchoring tool or 218 gallons per acre (5 gal./1000 sq. ft.) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal./1000 sq. ft.) for anchoring.

Maintenance: Inspect all seeded areas and make needed repairs, replacements and

### TEMPORARY SEEDING NOTES

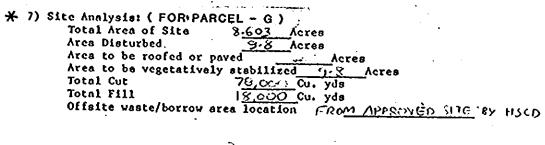
Seedben Preparation: Loosen upper 3 inches of soil by raking, discing or other acceptable means before seeding.

Soil Amendments: Apply 600 lbs. per acre 10-10-10 fertilizer (14 lbs./1000 sq. ft.) Seeding: For periods March 1 through April 30 and from August 15 through November 15, seed with 2½ bu. per scre of armual rye (3.2 lbs./1000 sq. ft.) For the period May 1 through August 14, seed with 3 lbs. per acre of weeping lovegrass (.07 lbs./1000 sq. ft.) For the period November 16 through February 28, protect the site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible., in the spring or use sod.

Mulching: Apply 1½ to 2 tons per acre (70 to 90 lbs./1000 sq. ft.) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gal. per acre (5 gal./1000 sq. ft.) of emulsified asphalt on flat areas. On slopes, 8 ft. or higher use 348 gal. per acre (8 gal./1000 sq. ft.) for anchoring.

### SEDIMENT CONTROL NOTES

- 1) A minimum of 24 hours notice must be given to the Howard County Office of Inspection and Permits prior to the start of any construction. (992-2437)
- 2) All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the 1983 MARYIAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
- 3) Following initial soil disturbance or redisturbance. permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 14 days as to all other disturbed or graded areas on the project site.
- 4) All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol. 1. Chaper 12, of the HOWARD COUNTY DESIGN HANUAL, Storm
- 5) All disturbed areas must be stabilized within the time period specified above in accordance with the 1983 HARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL (Sec. 51) sod (Sec. 54), temporary seeding (Sec. 50) and mulching (Sec. 52.) Temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
- 6) All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector
- \* 7) Site Analysis: (FOR PARCEL F) 9.06 Acres 9.75 Acres Total Area of Sita Area Disturbed Area to be roofed or paved Area to be roofed or paved O Acres
  Area to be vegetatively stabilized 9.75 Acres Total Cut Total Fill 85,000 Cu. yds
  Offsite waste/borrow area location FROM NYROYED SITE BY H5CD
- 8) Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
- 9) Additional sediment controls must be provided, if deemed necessary by the Howard County DPW sediment control inspector.
- 10) On all sites with disturbed areas in excess of 2-acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.



ENGINEER'S CERTIFICATE I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SED-IMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIRE-MENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. SIGNATURE OF ENGINEER

### STABILIZED CONSTRUCTION ENTRANCE not to scale

PROFILE zisling ground EXISTING PLAN VIEW

CONSTRUCTION SPECIFICATIONS Stone Size - Use 2\* stone, or reclaimed or recycled concrete equivalent Length - As required, but not less than 50 feet (except on a single residence lot where a 30 foot minimum length would apply).

- Thickness Not less than six (6) inches.

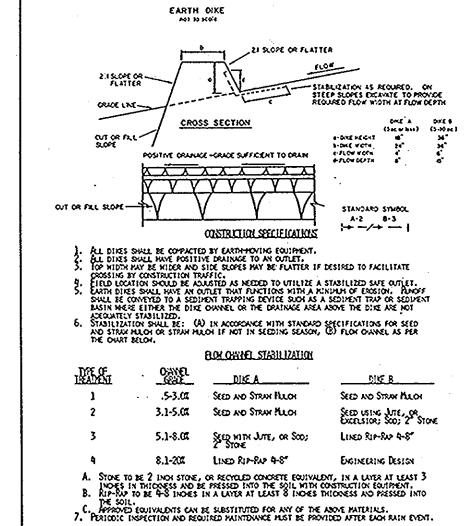
  Width Ten (10) foot minimum, but not less than the full width at
- points where ingress or egress occurs.

  Filter Cloth Will be placed over the entire area prior to placing of stone Filter will not be required on a single family residence lot.

  Surface Nater - All surface water flowing or diverted toward construction entrances shall be piped across the entrance. If piping is impractical, a mountable berm with 5:1 slopes will be permitted.
- a mountable berm with 511 slopes will be permitted.

  Maintenance The entrance shall be maintained in a condition which will prevent tracking or flowing of sediment onto public rights-of-way. This may require periodic top dressing with additional stone as conditions desand and repair and/or cleanout of any measures used to trap sediment. All sediment apilled, dropped, washed or tracked onto public rights-of-way mu be removed immediately.

  Washing - Wheels shall be cleaned to remove sediment prior to entrance onto
- public rights-of-way. When washing is required, it shall be come on an area stabilized with stone and which drains into an approved sediment trapping Periodic inspection and needed maintenance shall be provided after each rain.



Honord County Signiture Block

APPROVED

DIVISION of

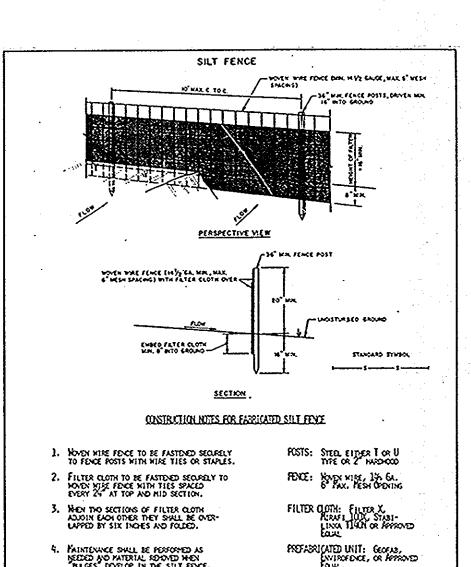
COMMUNITY PLANNING

& LAND DEVELOPMENT

HOWARD COUNTY,

DATE

/ MARYLAND



## GENERAL NOTES

- (1) ALL WORK SHALL BE DONE IN ACCORDANCE WITH HOWARD COUNTY STANDARDS. SPECIFICATIONS AND DETAILS FOR CONSTRUCTION.
- (2) ANY DAMAGE TO PUBLIC RIGHT-OF-WAY, PAVING OR EXISTING UTILITIES WILL BE CORRECTED AT THE EXPENSE OF CONTRACTOR
- (3) ALL UTILITY COMPANIES MUST BE NOTIFIED 24 HOURS IN ADVANCE OF ANY
- (4) THE LAND INCLUDED IN THIS PLAN IS ZONED "M-2"
- (5) THE AREA SHOWN IN THIS SUBMISSION IS LOCATED ON ZONE MAP NO. 38 & 44
- (6) TYPE OF SOIL: FALLSINGTON LOAM, SANDY CLAYEY LAND, GRAVEL BORROW PIT
- (7) "THE CONTRACTOR OR DEVELOPER SHALL CONTACT THE CONSTRUCTION INSPECTION/SURVEY DIVISION, 24 HOURS IN ADVANCE OF COMMENCEMENT OF
- (8) THE LOCATION OF EXISTING UTILITIES IS BASED ON BEST AVAILABLE INFORMATION. THE CONTRACTOR MUST CHECK ALL UTILITIES BY TEST PIT BEFORE START OF CONSTRUCTION.

### \_\_\_\_\_ CONSTRUCTION SPECIFICATIONS 1. All tergount somes shall have unditerented positive gave to an outlet. 2. Divento ringe from a distress area shill be convert to a source transing 3. Diverted rugge from an undisturbed area shall outlet directly ento an undis-turbed stabilized area at non-positive velocity. 4. Al trees, brush, stupes, obstructions, and other creationshie material shall be provided no disposed of so as not to interfer with the proper functioning of the small. 5. The space space as dicayated or spaced to line, grace, and cross section as regulary to heat the criticala specified health and be free of bank projections or other irregularities which will depete horal row. 6. FILLS SHILL BE COMPACTED BY EARTH MOVING EQUIPMENT. 7. AL EATH REPORT NO NOT NEEDED ON CONSTRUCTION SHALL BE PLACED SO THAT IT WILL NOT EMPEREE WITH THE RINCTIONING OF THE SHALE. 8. Stabilization shall be as per the ohrt below: BOYOMAD STAILIZATION \_A.C. or less)\_ 8 G xc - 10 xc) 0.5-3.00 SCED AND STRUK MUCH SCED AND STRUK MUCH 71.50 SOED IN INC. THE OR LINES RIP-RUP 4-8" PECYCLES CONCETTE EQUIPMENT 8.1-207 LINEO 4-8" RIP-PAP ENGINEERED DESIGN 9. PERIODIC INSPECTION AND REQUIRED MAINTENANCE MUST BE PROVIDED AFTER EACH RAIN EVENT U.S. DEPARTMENT OF AGRICULTUR

SEQUENCE OF CONSTRUCTION

AND STABILIZE.

GRADE ENTIRE SITE.

INSTALL STABILIZED CONSTRUCTION ENTRANCE AS SHOWN.

INSTALL ALL SEDIMENT CONTROL DEVICES AND STABILIZE.

CONSTRUCT POND 1 & POND 2 FOR SEDIMENT CONTROL PHASE

OF CORE TRENCH, IT WILL NEED TO BE BROUGHT TO SITE.

SEDIMENT CONTROLS SHALL REMAIN IN PLACE AND BE

ROUTINELY INSPECTED AND REPAIRED AS NECESSARY

CLEAR AND GRUB REMAINDER OF SITE.

STABILIZE ALL DISTURBED AREAS

IF ACCEPTABLE MATERIAL CANNOT BE FOUND FOR CONSTRUCTION

CLEAR MINIMUM AREA REQUIRED TO INSTALL SEDIMENT CONTROL

TEMPORARY SWALE

# SEDIMENT CONTROL & POND CONSTRUCTION

( ) By the Developer:

"I/We certify that all development and/or construction will be done according to these plans, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of Natural Resources Approved Training Program for the Control of Sediment and Erosion before beginning the project. I will provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion. I also authorize periodic on-site inspections by the Howard Soil conservation District."

( ) By the Engineer:

Print name below signature

"I certify that this plan for pond construction, erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer that he must provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion." Skeil

Signature of Engineer Print name below signature DHARAM V. KATHURIA ) These plans have been reviewed for the Howard Soil Conservation District and meet the technical sediment control meet the requirements of the

APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS. AND LAND DEVELOPMENT APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE, STORM DRAINAGE SYSTEMS AND PUBLIC ROADS HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS 3.2.90

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION THIS DEVELOPMENT IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY

HI TECH VENTURE LIMITED PARTNERSHIP

STANDARD NOTES AND DETAILS

# SECTION

PARCELS 'E', 'F', and 'G' AND OUT PARCEL (1565/469)

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HOWARD COUNTY, MARYLAND SHEET: 7 OF 8 DATE: 5/09

# ENGINEERING TECHNOLOGIES ASSOCIATES, INC.

ENGINEERS, PLANNERS, SURVEYORS 3458 ELLICOTT CENTER DRIVE SUITE 101 ELLICOTT CITY, MD. 21043 (301) 461 - 9920



OWNER / DEVELOPER

7223 PARKWAY DRIVE HANOVER, MARYLAND 21076 (301) 796-4446

st. ELECTION DISTRICT TM 38 444

SCALE: AS SHOWN CONTRACT NO.

DRAWN DATE CHECKED APPROVED \_

REVISIONS

DESCRIPTION

