2. COORDINATES BASED ON NAD '83, MARYLAND COORDINATE SYSTEM AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS NO. 29G4 AND NO. 29G5. THESE STATIONS SHOWN ON VICINITY MAP

ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE, AND SPECIFICATIONS GIVEN IN THIS DRAWING. WHICHEVER IS MOST

LOCATED ON THIS SHEET AND REFERENCED ON SHEET C-2.

4. DEVIATION FROM THESE PLANS AND SPECIFICATIONS WITHOUT PRIOR WRITTEN CONSENT FROM THE ENGINEER MAY CAUSE THE WORK

THE RBA GROUP SHALL NOT BE RESPONSIBLE FOR CONSTRUCTION, MEANS, METHODS, TECHNIQUES, OR PROCEDURES, UTILIZED BY THE CONTRACTOR, NOR FOR THE SAFETY OF PUBLIC OR CONTRACTOR'S EMPLOYEES, OR FOR THE FAILURE OF THE CONTRACTOR TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND STANDARD CONSTRUCTION PRACTICES.

THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING UTILITIES WHICH ARE TO REMAIN FREE FROM DAMAGE AND MAINTAIN UNINTERRUPTED SERVICE TO ALL USERS. ANY DAMAGE INCURRED DUE TO THE CONTRACTOR'S OR SUBCONTRACTOR'S ACTIONS SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.

7. FAILURE TO MENTION SPECIFICALLY ANY WORK WHICH WOULD NORMALLY BE REQUIRED TO COMPLETE THIS PROJECT SHALL NOT RELIEVE THE CONTRACTOR FROM PERFORMING SUCH WORK.

8. TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.

9. THE TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY WELLS & ASSOCIATES, LLC, DATED AUGUST 11, 2005, AND WAS APPROVED ON SEPTEMBER 2, 2005.

10. THE CONTRACTOR SHALL NOTIFY THE FOLLOWING AT LEAST 48 HOURS PRIOR TO BEGINNING ANY EXCAVATION WORK ON THE PROJECT:

(800) 257-7777 MISS UTILITY HOWARD COUNTY SOIL CONSERVATION DISTRICT (410) 789-7987 (410) 313-6444 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS (410) 850-4620 BALTIMORE GAS & ELECTRIC (410) 224-1670 (410) 513-0517

INDEX

TITLE

11. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO START OF WORK.

TITLE SHEET

UTILITY PLAN

PROFILES

DETAILS I

DETAILS II

DETAILS III

17

COUNTY HEALTH OFFICER

HOWARD COUNTY HEALTH DEPARTMENT

marke in levole

SPECIFICATIONS I

SPECIFICATIONS II

SPECIFICATIONS III

LANDSCAPE PLAN

LANDSCAPE DETAILS

DRAINAGE AREA MAP

APPROVED: FOR PUBLIC WATER AND PUBLIC SEWAGE SYSTEMS

DEPARTMENT OF PLANNING AND ZONING

LEGEND AND NOTES

TOPOGRAPHIC SURVEY

STAKING AND STRIPING PLAN

GRADING AND DRAINAGE PLAN

GEOTECHNICAL SPECIFICATIONS

LANDSCAPE SPECIFICATIONS

EROSION AND SEDIMENT CONTROL PLAN

EROSION AND SEDIMENT CONTROL DETAILS

CONTRACTOR SHALL VERIFY ALL EXISTING SITE CONDITIONS PRIOR TO BEGINNING WORK. HE SHALL VERIFY SIZE AND LOCATIONS OF ALL UNDERGROUND UTILITIES AND TEST PIT AT PROPOSED TIE IN LOCATIONS DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER WELL IN ADVANCE OF CONSTRUCTION START. START OF CONSTRUCTION BY THE CONTRACTOR SHALL CONSTITUTE FULL ACCEPTANCE OF ALL SITE CONDITIONS BY THE CONTRACTOR.

13. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED FOR CONSTRUCTION PRIOR TO BEGINNING WORK.

14. ALL UTILITIES ARE TO REMAIN UNLESS DESIGNATED TO BE REMOVED AND ALL APPURTENANCES SHALL BE ADJUSTED TO FINISH GRADE.

15. PRIOR TO START OF CONSTRUCTION CONTRACTOR SHALL STAKE OUT AND VERIFY LOCATIONS OF ALL IMPROVEMENTS AND UTILITY TIE IN

16. SCALING OF THESE PLANS IS DISCOURAGED UNLESS DIRECTED BY THE ENGINEER. IN THE EVENT OF A DISCREPANCY BETWEEN THE SCALED AND THE FIGURED DIMENSIONS, THE ENGINEER SHOULD BE NOTIFIED IMMEDIATELY FOR PLAN VERIFICATION.

17. CONTRACTOR SHALL INCLUDE DEMOLITION AND REMOVAL OF CURBING, SIDEWALK, AND PARKING AREAS WITHIN THE WORK AREA OR ITEMS SHOWN WITHIN THIS PLAN SET AS TO BE REMOVED. AS WELL AS REMOVAL AND CAPPING OF ANY UNDERGROUND UTILITIES SHOWN TO BE REMOVED.

18. THE CONTRACTOR SHALL ENSURE THAT CURRENT AS-BUILT RECORDS ARE MAINTAINED DURING CONSTRUCTION. UPON COMPLETION OF CONSTRUCTION, CERTIFIED (i.e. P.E. STAMPED) AS-BUILT DRAWINGS SHALL BE SUBMITTED

CONTRACTOR SHALL MAINTAIN ALL SEDIMENT CONTROL DEVICES WITHIN THE LIMITS OF THE SITE DURING CONSTRUCTION OF THE SITE IMPROVEMENTS. CONTRACTOR SHALL PROVIDE ADDITIONAL EROSION AND SEDIMENTATION CONTROL MEASURES AS MAY BE NECESSARY DURING CONSTRUCTION AND/OR BY GOVERNING AGENCIES.

20. CONTRACTOR SHALL CONTACT THE RBA GROUP PRIOR TO CONSTRUCTION TO VERIFY THE MOST CURRENT SET OF CONSTRUCTION DRAWINGS ARE AT THE SITE.

21. THE SUBJECT PROPERTY IS ZONED NT PER THE COMPREHENSIVE ZONING PLAN NUMBER 02/02/04.

22. SEE SHEET C-2 FOR BENCHMARK INFORMATION.

23. ALL OUTDOOR LIGHTING SHALL COMPLY WITH THE REQUIREMENTS OF ZONING

24. ALL PLAN DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.

25. THERE ARE NO FLOODPLAINS ON THIS SITE PER FEMA FLOOD INSURANCE RATE, MAP COMMUNITY PANEL NUMBER 2400 44 0032B.

26. THERE ARE NO WETLANDS ON THIS SITE.

REFERENCE

C-1

C-1A

C-2

C-3

C-4

C-5

C-6

C-7

C-8

C-9

C-10

C-11

C-12

C-13

C-14

C-15

L-1

L-2

L-3

DA-1

APPROVED

PLANNING BOARD

of HOWARD COUNTY

DATE 06/08/06

DATE

08/03/05

MILESTONES

FIRST SUBMISSION TO COUNTY

THIRD SUBMISSION TO COUNTY

MYLAR SUBMISSION TO COUNTY

SECOND SUBMISSION TO COUNTY

ADDRESS CHART

STREET ADDRESS

6080 DAYBREAK CIRCLE

LOT/PARCEL

W-2

DESCRIPTION

27. WATER AND SEWER ARE EXISTING UNDER CONTRACT No. 34-3528-D.

28. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS PRIOR TO CONSTRUCTION

29. APFO UPDATE FOR RUBY TUESDAY APPROVED SEPTEMBER 2, 2005

RIVER HILL VILLAGE CENTER

PARCEL W-2, PLAT # 16985 PLAT BOOK 0015-0475, D.B. 0444, PG. 0715

> 6080 DAYBREAK CIRCLE CLARKSVILLE, MARYLAND 21029 HOWARD COUNTY



SITE DEVELOPMENT PLANS

PREPARED FOR:

RUBY TUESDAY, INC.

150 WEST CHURCH AVENUE MARYVILLE, TENNESSEE 37801 (865) 379-5842

PREPARED BY:



ENGINEERS • ARCHITECTS • PLANNERS

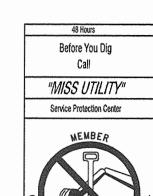
7164 COLUMBIA GATEWAY DRIVE SUITE 205 COLUMBIA, MARYLAND 21046 (410) 312-0966

DEVELOPER:

GENERAL GROWTH PROPERTIES 10275 LITTLE PATUXENT PARKWAY COLUMBIA, MARYLAND. 21044

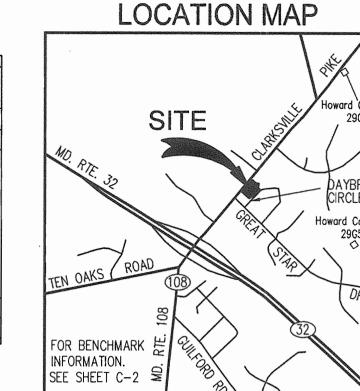
(410) 992-6027

	OPTION 2:	EXEMPT / DOI	FOREST CONSERVATION DATA SUMMARY
	01 11011 2.	EXEMITY DOI	TOREST CONSERVATION BATTA SCHIMANT
1	FILE NUMBER:	PROJECT SUBDI	VISION NAME:
	SDP-06-014	RUBY TUESDA	Y RESTAURANT , VILLAGE OF RIVER HILL
	REGULATION SE	CTION: 16-1202	?(b)(1)(iv)



CALL TOLL FREE

1-800-257-7777



CLARKSVILLE, MARYLAND SCALE: 1"=2000'

SITE ANALYSIS

- 1. AREA OF LOT: 1.7029 ACRES (74,179 S.F.)
- 2. ZONING: NT-NEW TOWN; FDP 164-A-I/VC, COMM; FDP 222-PART II/VC, COMM
- 3. EXISTING USE: VACANT PAD SITE
- 4. PROPOSED USE: RUBY TUESDAY RESTAURANT (V5800)
- BUILDING DATA: A. GROSS SQUARE FOOTAGE: 5,629 G.S.F. B. AREA INCLUDING OVERHANGS: 6.564 G.S.F. C. % OF PARCEL: 8.8% D. NUMBER OF SEATS: 224 SEATS E. # OF EMPLOYEES: 25 PEAK SHIFT
- 6. SETBACKS:
- A. BUILDING: 1. RIGHT-OF-WAY: 50 FEET
- 2. SIDE: NONE SPECIFIED
- 3. REAR:
- NONE SPECIFIED B. PARKING: 10 FEET
- 7. PARKING DATA:
- A. REQUIREMENT FOR A RESTAURANT: 1 PER EVERY 3 SEATS PLUS 1 SPACE FOR 5 EMPLOYEES=(224 SEATS/3+25 EMPLOYEES/5)
- =80 PARKING SPACES REQUIRED. B. PROVIDED (9'x18' MIN. REQUIRED SIZE):
- a. 9'x18' = 93 SPACES.
- b. 9'x18' "TO GO" SPACES = 3 SPACES. c. HANDICAP SPACES = 5 SPACES.
- d. OFF-SITE PARKING (IN AREA OF SITE) = 1 SPACE e. TOTAL PARKING PROVIDED = 102 SPACES.
- 8. DRIVE AISLE = 24' PROVIDED (MINIMUM 24' REQUIRED).
- 9. STORMWATER MANAGEMENT IS NOT REQUIRED. PROVIDED BY RIVER HILL VILLAGE CENTER.
- 10. ONE LOADING SPACE REQUIRED: 10'(w)x25'(I)X15'(h)
- PROVIDED: 1 SPACE AT 12'(w)x25'(1)x15'(h)
- 11. OPEN SPACE ON SITE (GREEN SPACE)= 0.30 ACRES= 17.6% OF GROSS AREA.
- 12. NO RECREATIONAL AREAS REQUIRED.
- 13. FLOOR AREA RATIO PROVIDED = 5,629 S.F. (0.129 AC.) OF BUILDING WHICH IS 7.6% OF THE TOTAL SITE AREA. PERMITTED= PER THE "FINAL DEVELOPMENT PLAN, PHASE 222-PART II, VILLAGE OF RIVER HILL, SECTION 4 AREA 2". THERE ARE NO COVERAGE REQUIREMENTS IMPOSED UPON LAND WHILE THE FDP LIMITS WHICH ARE DEVOTED TO COMMERCIAL LAND USES, EXCEPT IN ACCORDANCE WITH A SITE DEVELOPMENT PLAN APPROVED BY THE HOWARD COUNTY PLANNING
- 14. APPLICABLE DPZ FILE REFERENCES: FDP. PHASE 222, PART II; FDP 164-A-I/VC, COMM STORMWATER MANAGEMENT= F-96-89. TRAFFIC STUDIES= P-95-10 (WITH ALL APPROVED UPDATES) PREPARED BY WELLS & ASSOCIATES. PLAT= 16984 ON 10-22-04 PLAT BOOK 0015-0475, D.B. 0444, PG. 0715 COMPREHENSIVE ZONING PLAN= 10-18-93, 02/02/04 OTHER PLANS= WP-95-32, WP-95-78, WP-95-114, S-93-21, F-97-43, F-04-189.

15. THIS PLAN IS EXEMPT FROM FOREST CONSERVATION REQUIREMENTS SUBDIVISION SECTION 16.1202(b)(1)(iv). PER PLANNED UNIT DEVELOPMENT (NEW TOWN) THAT WAS MORE THAN 50% DEVELOPED BEFORE DECEMBER 31

- 16. SHARED ACCESS EASEMENTS FOR PARCELS "W-1" THROUGH "W-3" AND PARCEL "AA" IS RECORDED AMONG LAND RECORDS IN LIBER 8567 AT FOLIO 107.
- 17. THE TOPOGRAPHIC SURVEY IS SHOWN IN 1 FOOT CONTOURS ON-SITE AND WITHIN 50 FEET OF THE SITE. SEE SHEET C-2 NOTE #9 FOR MONUMENT INFORMATION.
- 18. THERE ARE NO ENVIRONMENTALLY SENSITIVE FEATURES ON THIS SITE.
- 19. THERE ARE NO BURIAL GROUNDS OR CEMETERIES ON THIS SITE.
- 20. LIMIT OF DISTURBANCE = 1.76 ACRES, 76,666 S.F.

PERMIT INFORMATION CHART LOTS/PARCELS | SECTION/AREA CENSUS TRACT VILLAGE OF RIVER HILL TAX MAP ELECTION DISTRICT NT-VC & 5 TH VC COMM WATER CODE SEWER CODE 6653500 I-10

M3482.0 C-01 COVR 348 DRAWN BY:

C-1 1 of 20

DETAIL NUMBER

DETAIL CALL-OUT

GRADE INDICATOR

PL = PROPERTY LIN
INTX = INTERSECTION
AHD = AHEAD

BK = BACK

PC = POINT OF CURVATURE (HORIZONTAL)

PVT = POINT OF TANGENCY (VERTICAL)

PVC = POINT OF CURVE (VERTICAL)

PI = POINT OF INTERSECTION

PT = POINT OF TANGENCY (HORIZONTAL)

DELTA = INTERNAL ANGLE

R = RADIUS OF CURVE

TARC = LENGTH OF CURVE

TAN = TANGENT OF CURVE LENGTH

CHD LEN = LENGTH OF CHORD

CHD BRG = CHORD BEARING

C = CENTERLINE

MH = MANHOLE (STORM)

SMH = MANHOLE (SEWER)

CI = COMBINATION INLET

YI = YARD INLET

HW = HEAD WALL

FES = FLARED END SECTION

RCP = REINFORCED CONCRETE PIPE

CMP = CORRUGATED METAL PIPE

PVC = POLYVINYL CHLORIDE PIPE

OR POINT OF VERTICAL CURVE

DIP = DUCTILE IRON PIPE

C&G = CURB AND GUTTER

PROP = PROPOSED

TC = TOP OF CURB

BC = BOTTOM OF CURB
TW = TOP OF WALL
BW = BOTTOM OF WALL
SY = SQUARE YARD

SF = SQUARE FEET

CF = CUBIC FEET

CY = CUBIC YARD

CFS = CUBIC FEET PER SECOND

V = VELOCITY

Smin = MINIMUM FRICTION SLOPE

N = NORTH

GSF = GROSS SQUARE FEET

ASPH = ASPHALT

D.O.T. = DEPARTMENT OF TRANSPORTATION

C.O. = GENERAL CLEAN OUT

STD = STANDARD

I.I.E. = INLET INVERT ELEVATION

O.I.E. = OUTLET INVERT ELEVATION

REVISIONS

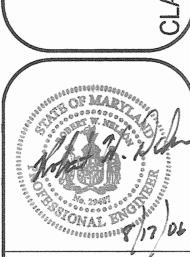
TUESDAY,

SITE DEVELOPMENT PLANS FOR:

UBY TUESDAY RESTAURANT

VILLAGE OF RIVER HILL

TAX MAP 34, GRID 6, 5TH ELECTION DISTRICT



DATE: 06/30/05

JOB NUMBER: M3482.00

FILE NAME: C-01A NOTE 3482

PLOTTED: 08/17/06

DRAWN BY: WLB

LEGEND
AND NOTES

AND NOTES

C-1A
2 of 20

APPROVED: FOR PUBLIC WATER AND PUBLIC SEWAGE SYSTEMS

COUNTY HEALTH OFFICER
HOWARD COUNTY HEALTH DEPARTMENT

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DATE

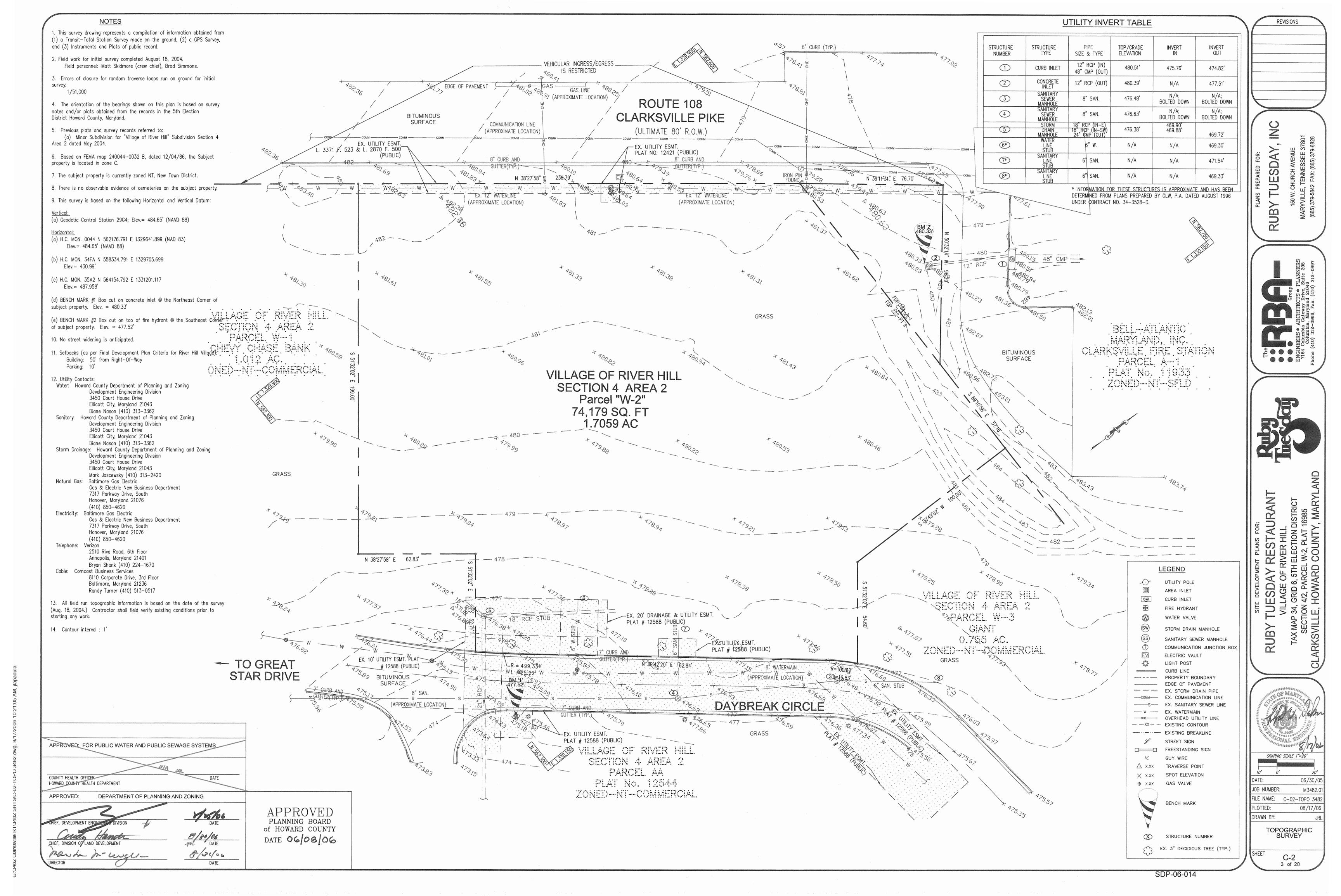
CHIEF, DIVISION OF LAND DEVELOPMENT

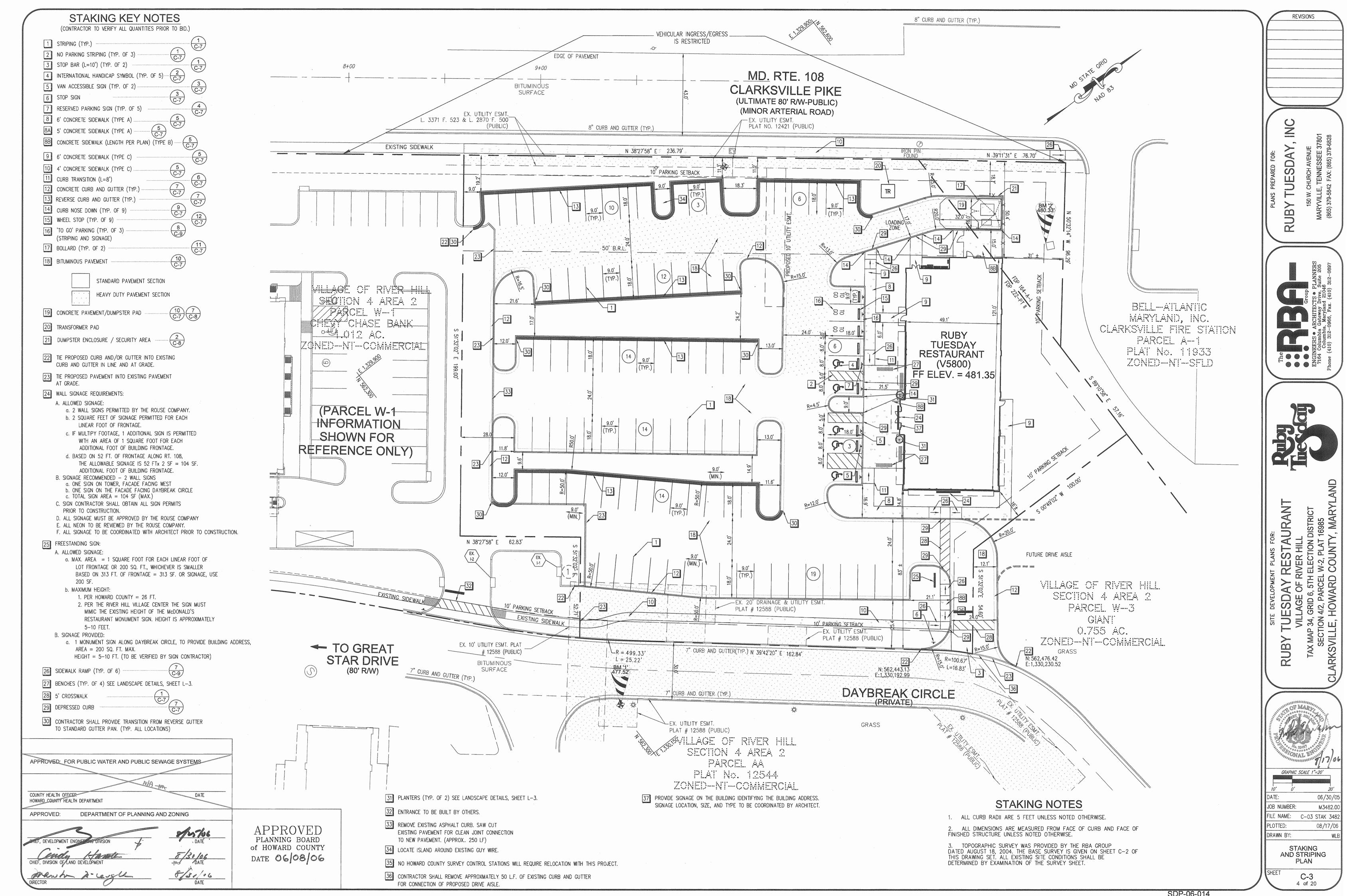
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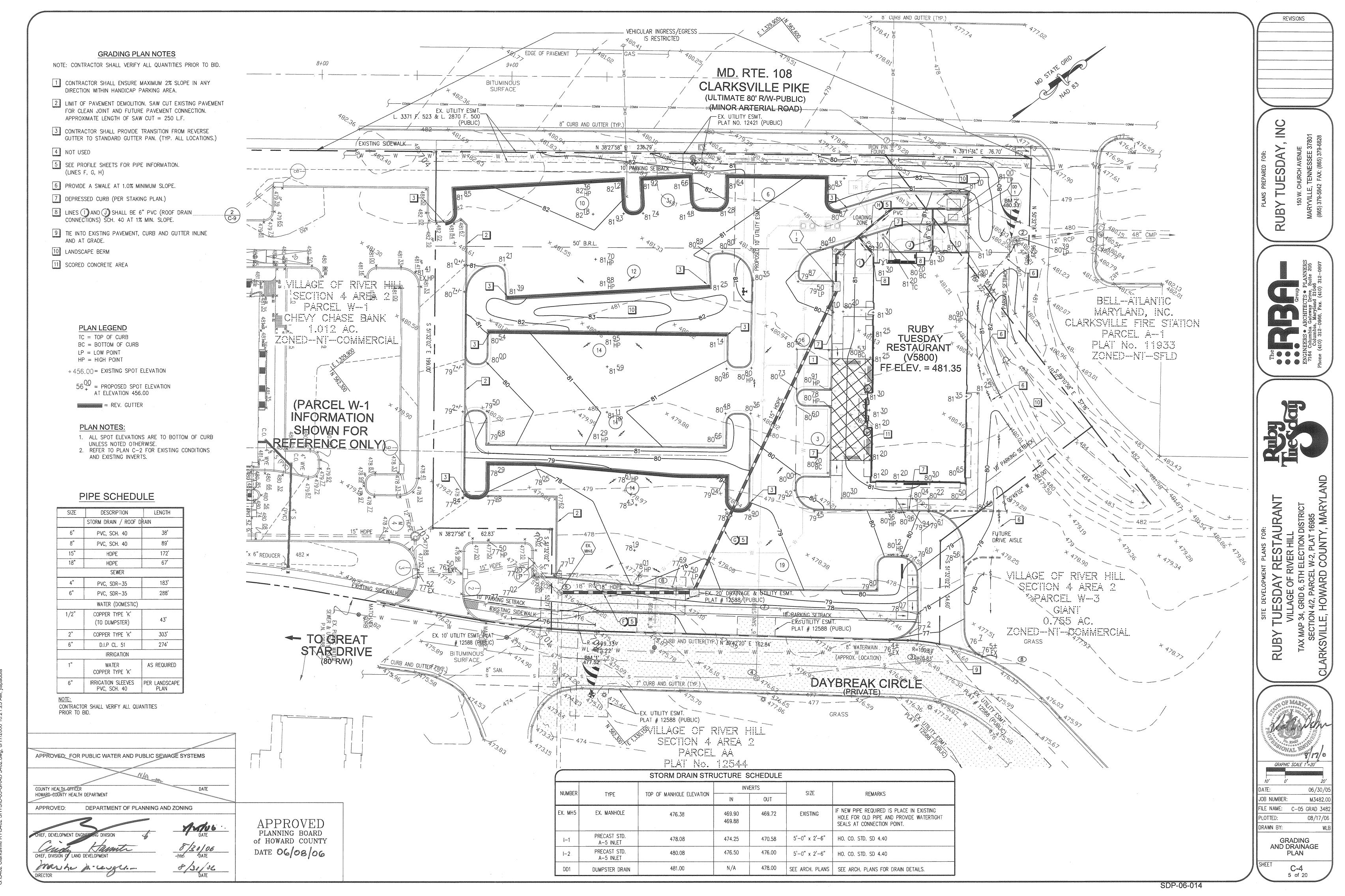
CHIEF, DIVISION OF LAND DEVELOPMENT

DATE

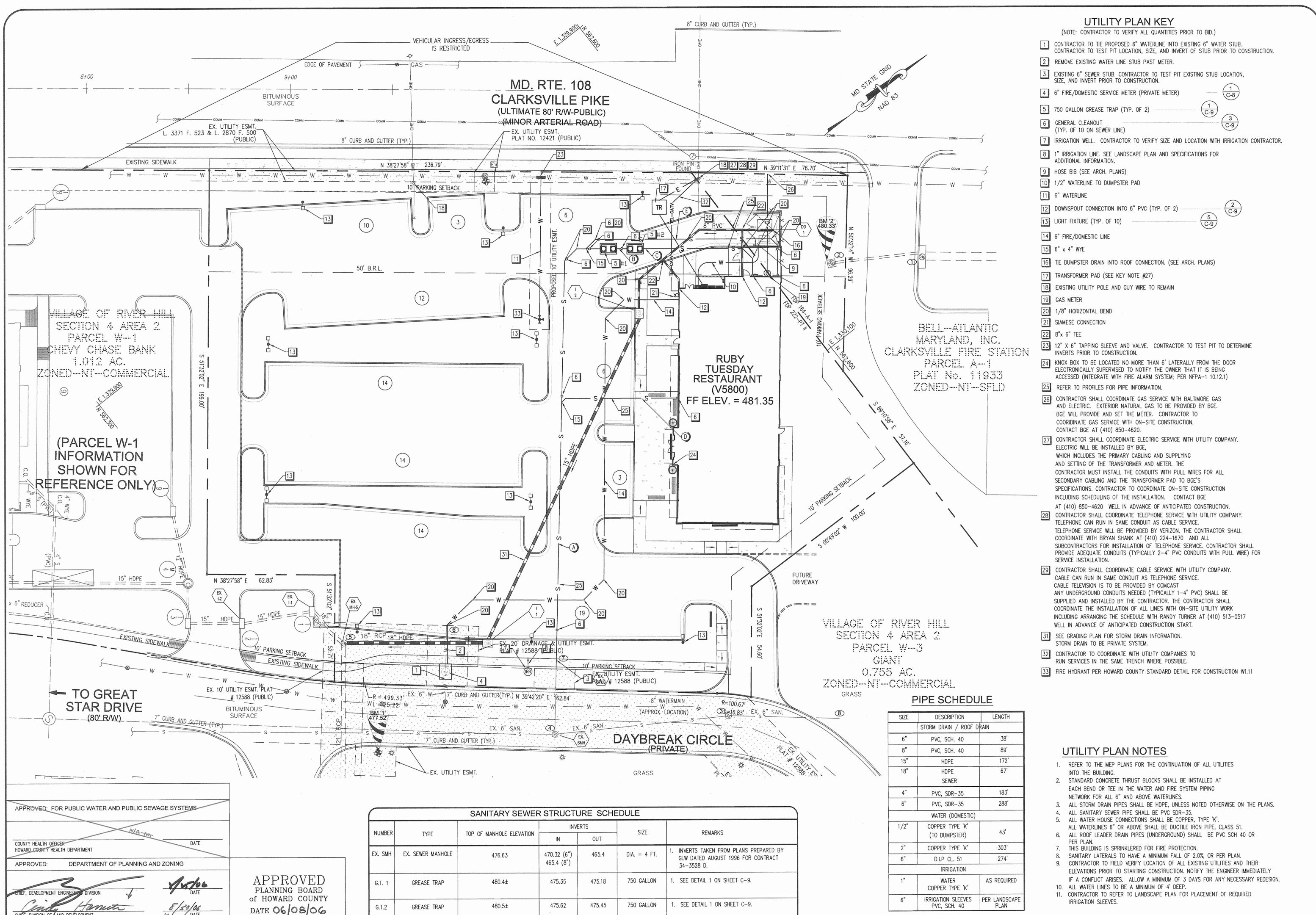
APPROVED
PLANNING BOARD
of HOWARD COUNTY
DATE OG/OB/OG







C.13482 CLTS482 CUTCV OF CDA 2482 Aut 9/17/06 10:04-01 AM 3000-01-05



REVISIONS

TUESDAY, INC

TERS

WARYVILLE, TEI

(865) 379-5842 F4

The

Group

Group

ENGINEERS • ARCHITECTS • PLANNE
7164 Columbia, Maryland 21046
Columbia, Maryland 21046
Phone (410) 312-0966, Fax. (410) 312-08



RUBY TUESDAY RESTAURANT
VILLAGE OF RIVER HILL
TAX MAP 34, GRID 6, 5TH ELECTION DISTRICT
SECTION 4/2, PARCEL W-2, PLAT 16985

To see the see the see to see the see to see the s

GRAPHIC SCALE 1"=20"

DATE: 06/30/05

JOB NUMBER: M3482.00

FILE NAME: C-04 UTIL 3482

PLOTTED: 08/17/06

DRAWN BY: WLE

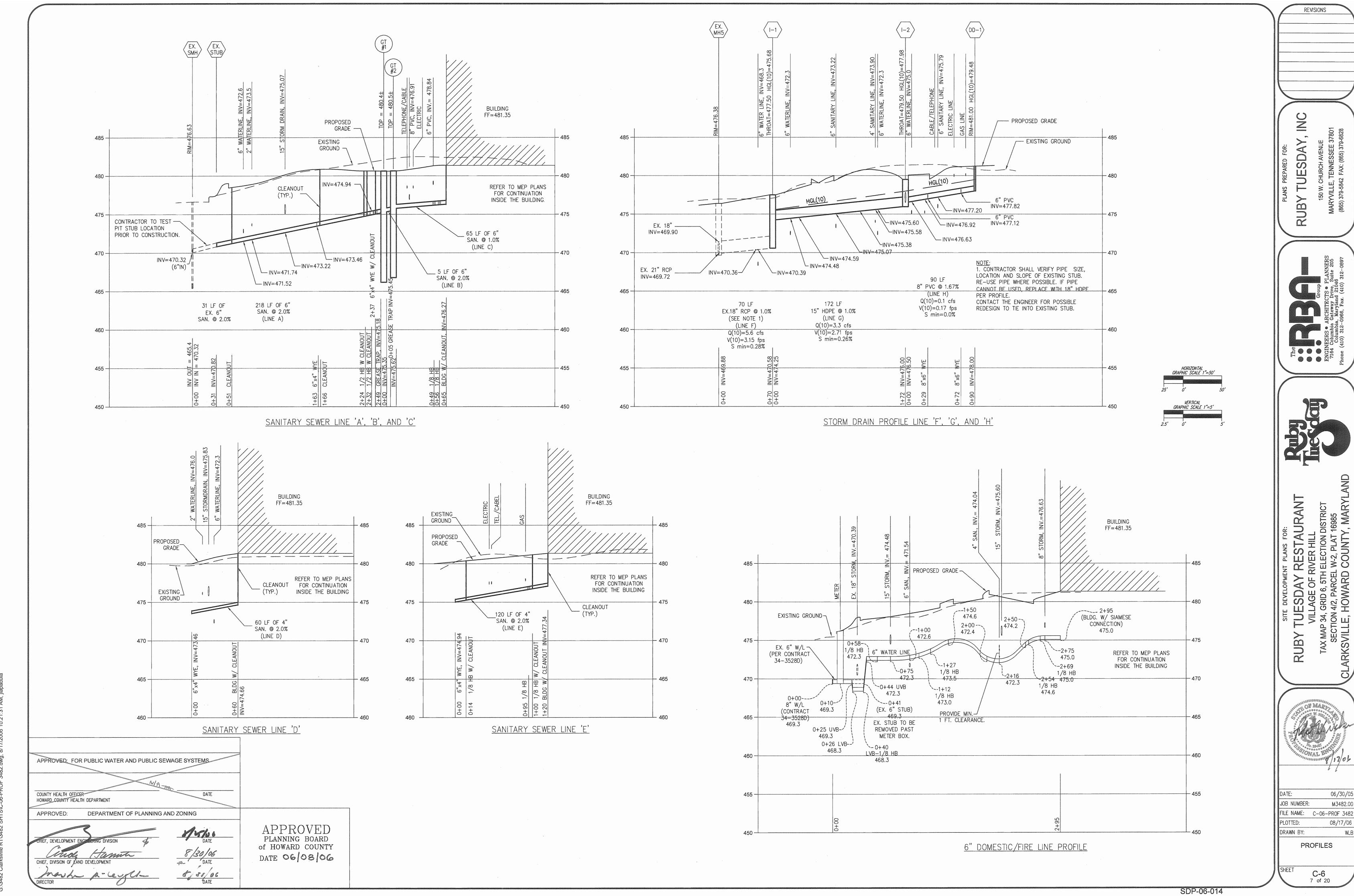
UTILITY PLAN

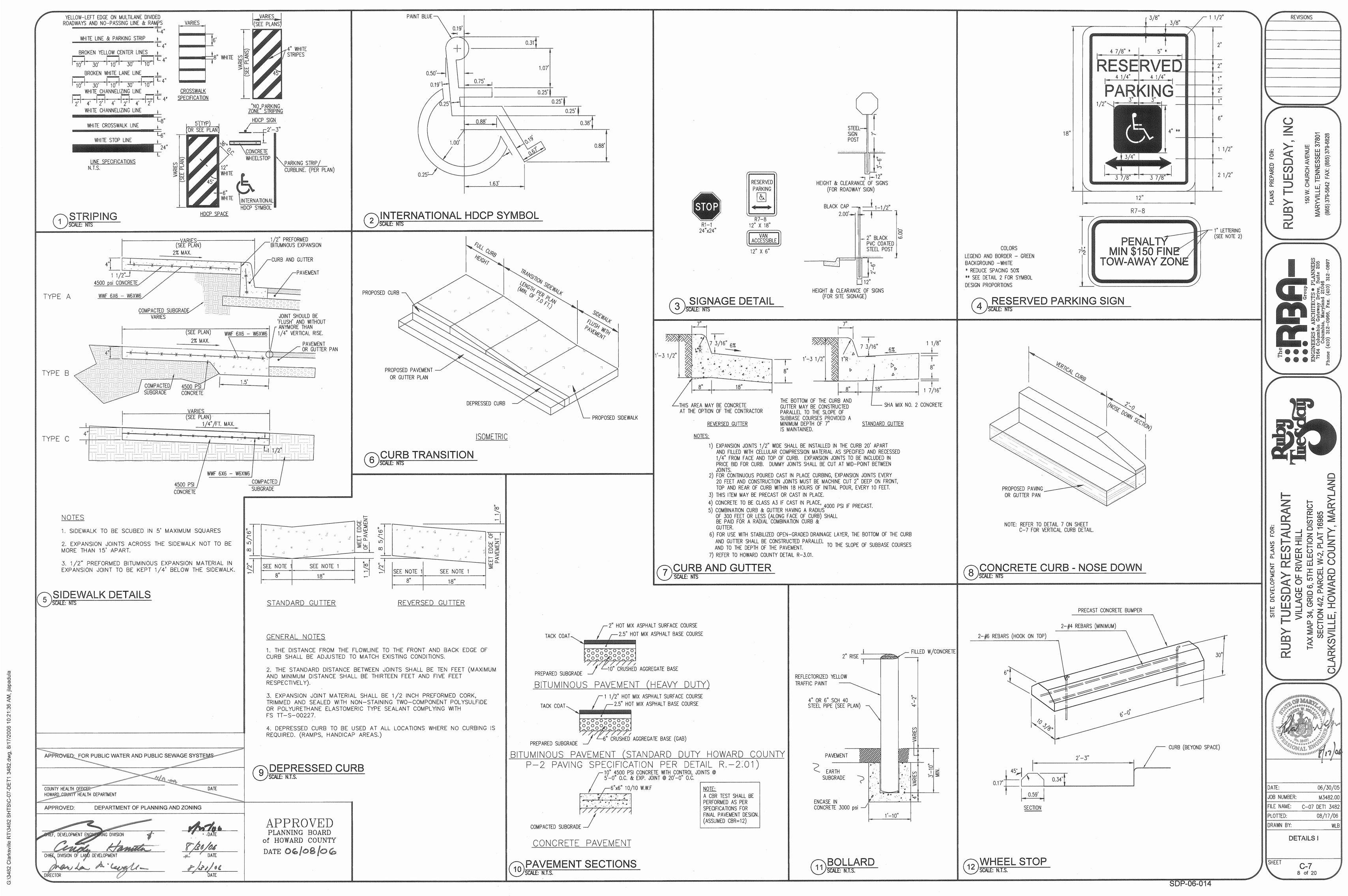
C-5 6 of 20

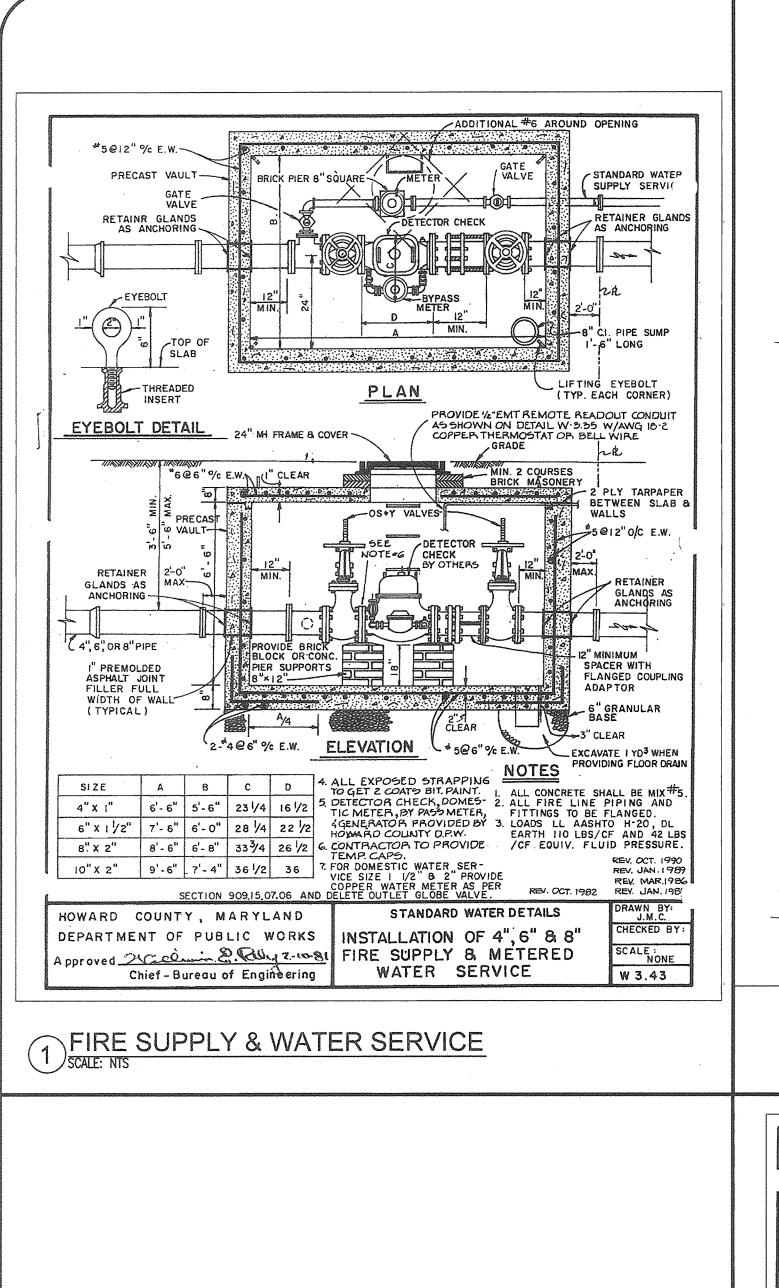
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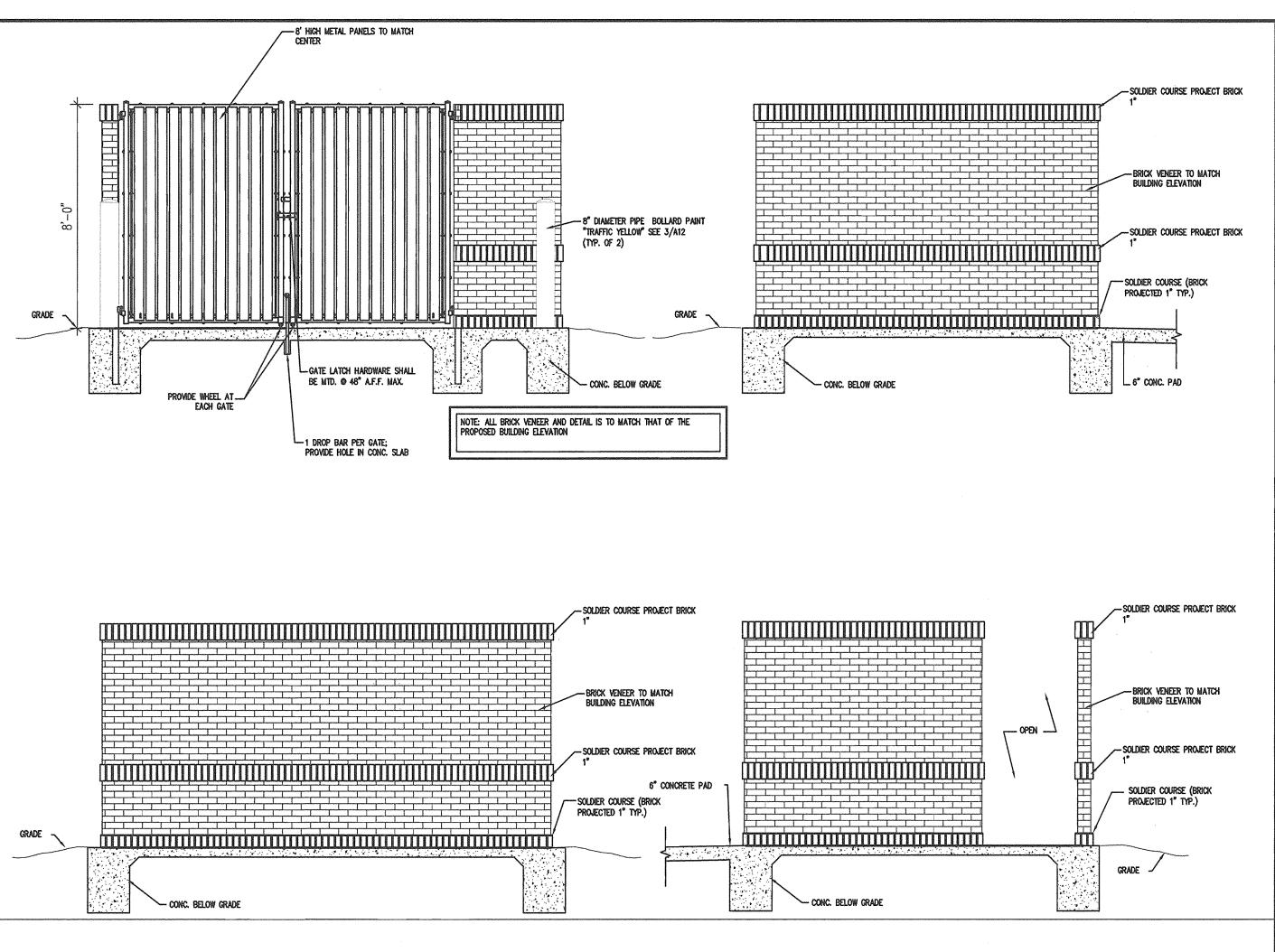
CONTRACTOR SHALL VERIFY ALL QUANTITIES

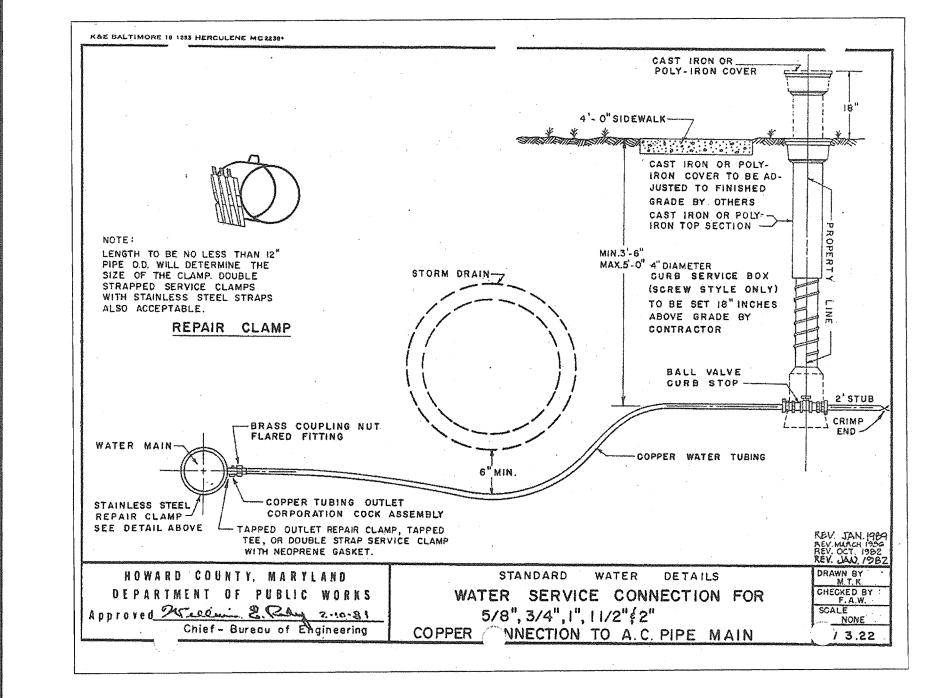
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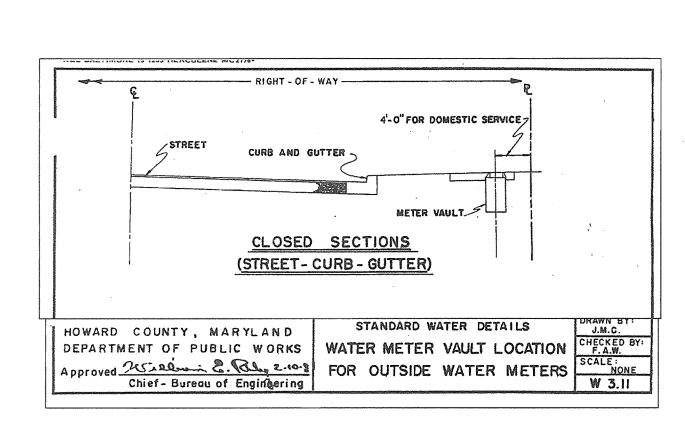


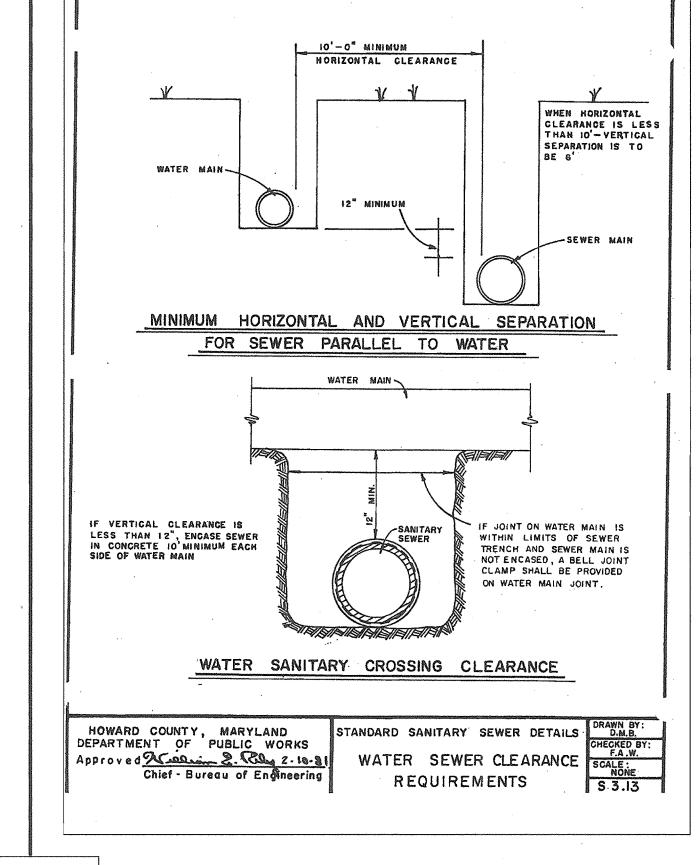


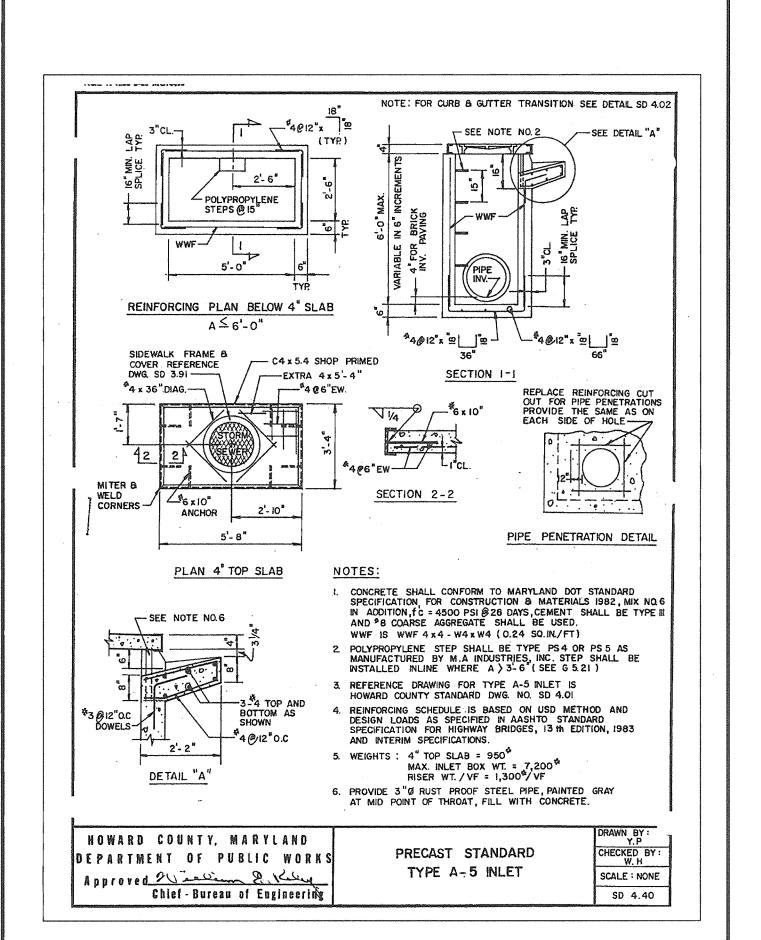


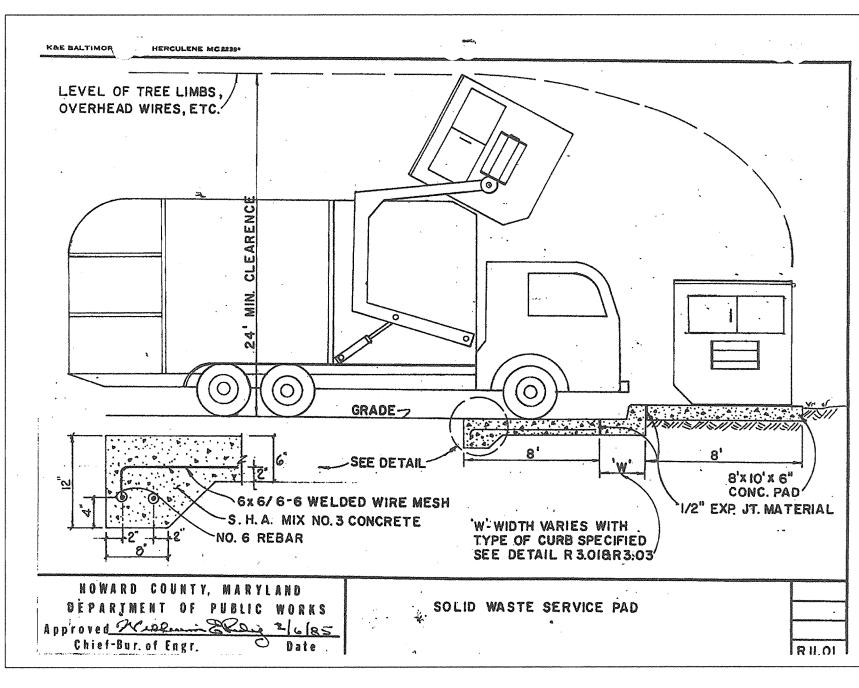




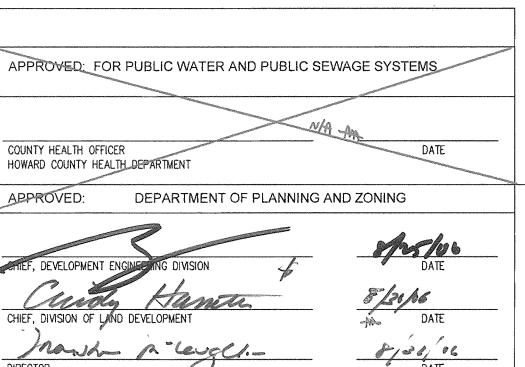












APPROVED PLANNING BOARD of HOWARD COUNTY DATE 06/08/06

5 WATER/SEWER CLEARANCE REQUIREMENTS

6 TYPE A5 INLET SCALE: NTS

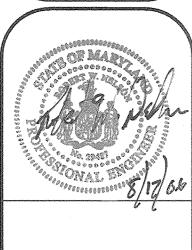
7 DUMPSTER PAD SCALE: NTS

SDP-06-014

UESDAY RESTAURANT
ILLAGE OF RIVER HILL
34, GRID 6, 5TH ELECTION DISTRICT
DN 4/2, PARCEL W-2, PLAT 16985
E, HOWARD COUNTY, MARYL

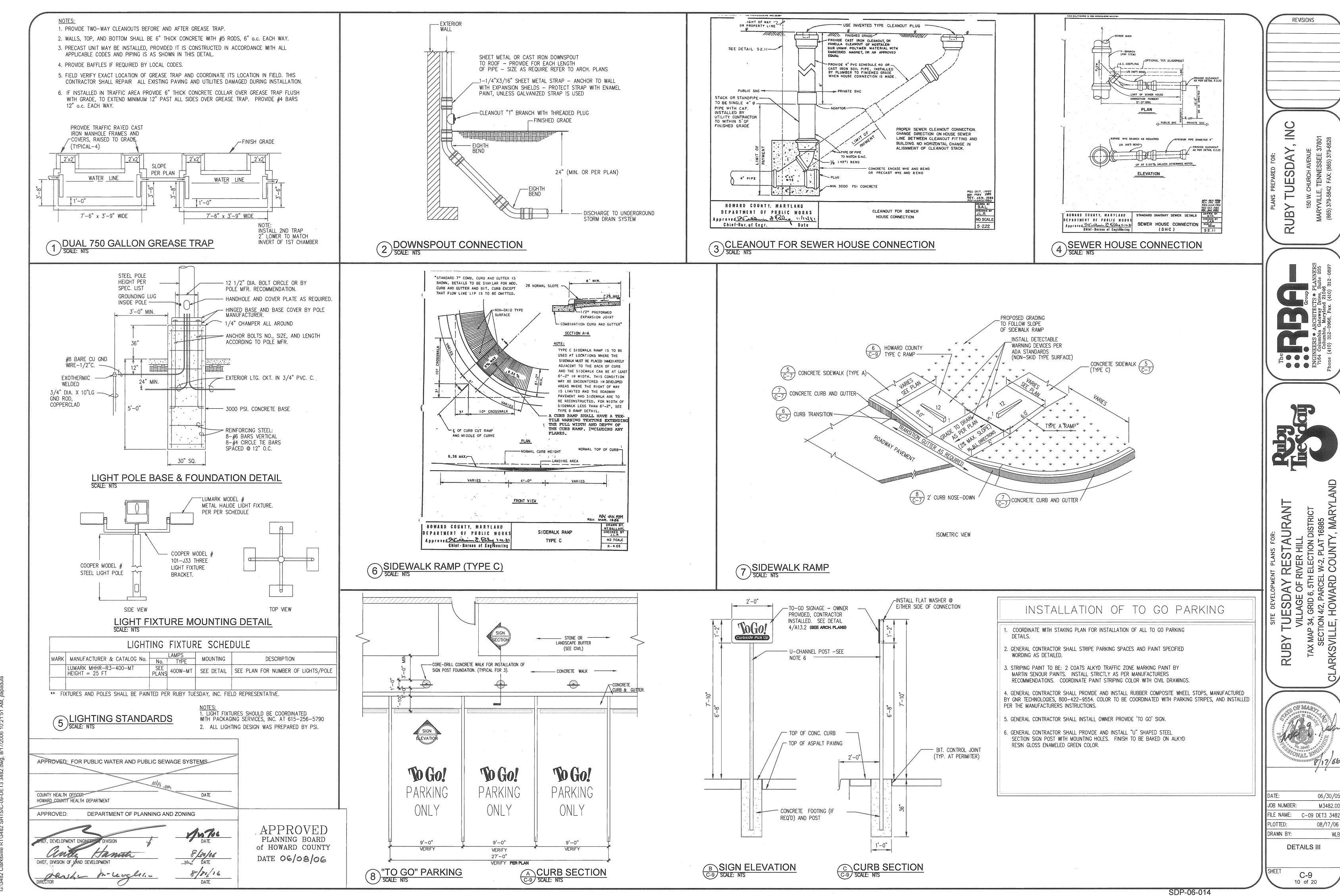
SDAY

TAX MAP 34, C SECTION 2 ARKSVILLE, F



06/30/05 IOB NUMBER: M3482.00 FILE NAME: C-08 DET2 3482 PLOTTED: 08/17/06 RAWN BY: DETAILS II

9 of 20



02200 Earthwork 02510 Site Concrete 02512 Asphalt Concrete Paving 02525 Concrete Curbs

02660 Water Distribution 02700 Sewerage & Drainage 02780 Power & Communications

02580 Pavement Markina

SECTION 02100 SITE PREPARATION AND DEMOLITION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

General Conditions and Supplementary Conditions apply to this section.

1.02 WORK INCLUDED

- A. Site preparation and demolition work as specified and shown on the drawings, including, but not necessarily limited to the following:
 - 1. Provide installation and maintain erosion and sediment control.
 - Clearing and grubbing.
 - Topsoil stripping and stockpile.
 - 4. Locate and identify all existing utility services, including electricity, water, gas, sanitary, storm, cable, telephone, and fuel.
 - 5. Remove all existing utilities as indicated on plans, and within the proposed building footprint, above and below grade within property lines.
 - Removal of existing paving: a. Sawcut asphalt with clean line as shown
 - Remove asphalt and dispose of offsite.
 - 7. Removal and disposal of trash daily.

8. Temporary and permanent grassing.

- Obtaining and paying for all permits to execute

1.03 QUALITY ASSURANCE

A. All work is to comply with Local, State, and Federal regulations and codes.

1.05 JOB CONDITIONS

A. Inspection:

- 1. Examine areas for conditions under which work is to be performed. Report in writing to Owner's Representative all conditions contrary to those shown on the drawings or specified herein and all other conditions that will affect satisfactory execution of work such as improperly constructed substrates or adjoining work. Do not proceed with work until unsatisfactory conditions have been corrected.
- 2. Starting work constitutes acceptance of the conditions under which work is to be performed. After such acceptance the contractor shall, at his expense, be responsible for correcting all unsatisfactory and defective work resulting from such unsatisfactory conditions.
- Permits: A copy of the approved plans and land disturbance permit shall be present on the site at all
- Nuisances: Keep dirt, dust, noise and other objectionable nuisances to a minimum. Use temporary enclosures, coverings and sprinkling, or combinations thereof, as necessary to limit dust to lowest practicable level, except do not use water to an extent to cause flooding, contaminated runoff, or icing.
- D. Traffic: Conduct work to ensure minimum interference with roads, alleys, streets, driveways, sidewalks, and access to and operations of on-site and adjacent site occupied or used facilities.
 - 1. Do not close or obstruct streets, sidewalks, alleys or other public passageways without permission from authorities having jurisdiction.

APPROVED: FOR PUBLIC WATER AND PUBLIC SEWAGE SYSTEMS

ERING DIVISION

Under Tamel

M-DV-

DEPARTMENT OF PLANNING AND ZONING

- 1. Prevent movement and settlement of adjacent structures. Install temporary barriers, fences, quard rails, enclosures, shoring, bracing, planking, barricades, lights, warning signs and other protections required to protect structures, utilities, landscaping, and other items that are to remain in place.
- 2. Protect bench marks from displacement

3. Restore damaged improvements to their original condition as acceptable to parties having jurisdiction or authority, at no cost to the Owner.

PART 2 - PRODUCTS

2.01 SEDIMENT DRAINAGE FABRIC

- A. Non-biodegradable, sunlight stabilized, woven polypropylene fabric, type which will retain sediment and reduce water runoff velocity; one of the following by listed manufacturer, or approved equal:
 - Mirafi 100X Sedimentation Control Fabric by Mirafi.
 - 2. Propex 1325 Embankment/Erosion Control Fabric by Amoco Fabrics Company.

2.02 CONSTRUCTION ENTRANCE/EXIT

A. Stone size ASTM D448, size no. 1 (1.5" - 3.5" diameter). Minimum pad thickness — 6 inches. Minimum pad dimensions - 10 feet wide; 50 feet long.

PART 3 - EXECUTION

3.01 EROSION AND SEDIMENT CONTROL

- A. Install erosion and sediment control devices as shown on
- Maintain erosion control during construction until permanent pavement, plantings and restoration of natural areas are effective in controlling erosion at site. Employ additional erosion control measures where determined necessary to actual site conditions, or as directed by authorities having jurisdiction.
- C. Plan and execute construction by methods to control surface drainage from cut, fill, borrow and grading
 - 1. Schedule operations so ground surface will be distributed for shortest possible time before permanent construction is installed.
 - Maintain large areas as flat as practicable to minimize soil transportation through surface flow.
 - Where steep slopes or abrupt grade changes occur, install temporary diversion berm or dike at top of slope to direct water flow to a control point to be transported downslope in a slope drain. In all cases, do not allow water to flow uncontrolled down

D. Construction Entrance/Exit:

- 1. Prior to any other construction, a stabilized construction entrance shall be constructed at each point of entry to or exit from the site, as shown on plans.
- 2. The construction exit shall be maintained in a condition which will prevent tracking or flow of mud onto public right-of-way. This may require periodic top dressing of exit with 2" stone, as conditions demand.
- All materials spilled, dropped, washed, or tracked from vehicle or site onto public roadway or into storm drainage system must be removed immediately.

E. Storm Drainage System:

- 1. Install as much of permanent system as practical and divert surface water into system, with remainder of system installed as soon as conditions allow. Coordinate with Section 02700 "Sewerage and
- 2. Periodically, or when sediment reaches 1/2 the design depth of top of trap, repair and/or clean any structures used to trap sediment.
- F. Ground Cover: Protect all exposed sloping soils until construction of permanent surfaces begins.
 - Use straw or other mulches, temporary seeding, plastic sheets, fiber mats, or other effective erosion treatments approved by authorities having iurisdiction.
 - 2. Install permanent grass and other landscape plantings and materials, including mulching or hydroseeding for use as stabilization; maintain until ground cover planting is effective for erosion control.

G. Sediment Barriers:

- 1. Install at all locations where water flows from construction areas, including entire perimeter of construction area. Maintain around drainage structures until starting of final subgrade preparation.
- Arrange to create ponding behind barriers; remove accumulated sediments and maintain ponding capacity during construction.
- 3. Construction to remove sediments from flowing water by filtration. Primary filter media may consist of silt trenches utilizing anchored sediment drainage fabric, straw bales or other filtration media acceptable to authorities having jurisduction
- Place silt barriers as access is obtained during clearing. No grading shall be done until silt barrier installation is completed.
- 5. Contractor shall inspect erosion control measures at the end of each working day to ensure measures are functioning properly.
- The contractor shall remove accumulated silt when the silt is within 12" of the top of the silt
- 7. Silt barriers to be placed as shown on the plans and at downstream toe of all cut and fill slopes. After permanent grass cover and landscaping has
- been established, remove silt fence and appurtenance and dispose of properly. Remove only upon approval of inspector.

H. Temporary Grassing:

greater than 30 days shall be stabilized with temporary seeding.

Any disturbed area left exposed for a period

- 2. All grassing shall be in accordance with the plans.
- Repair washed and eroded areas; reestablish grades to required density, elevations, profiles and contours.

- J. Contractor will implement additional Erosion and Sediment Control measures as necessary to prevent erosion and damage to adjacent properties and as directed by the authorities having jurisdiction
- K. Contractor is responsible for monitoring downstream conditions throughout the construction period and clearing any debris and sediment resulting from the construction.
- L. Permanent Grassing and Landscaping:
 - 1. Near job completion, all areas not to be paved or surfaced shall be landscaped per landscape plans or grassed with permanent seeding.
 - 2. All grassing shall be in accordance with the plans.

3.02 SITE CLEARING

- A. General: Remove any trees, shrubs, stumps, bushes, vines, undergrowth, deadwood, grass and other vegetation, improvements, or obstruction from the construction area, except as otherwise designated on the drawings to remain. Remove such items elsewhere on site or premises as specifically indicated. Removal includes digging out
 - 1. Carefully and cleanly cut roots and branches of trees indicated to be left standing, where such roots and branches obstruct new construction.
- Topsoil Activity: Topsoil is defined as friable clay loam surface soil found in a depth of not less than 4". Satisfactory topsoil is reasonably free of subsoil, clay lumps, stones, and other objects over 2" in diameter, and without weeds, roots, and other objectionable material.
 - a. Remove heavy growths of grass from areas before stripping.
 - Where trees are indicated to be left standing, stop topsoil stripping no closer than the drip line of the tree to prevent damage to main root system.
 - c. Remove topsoil of horticultural value from areas to be covered by new building construction and from areas to be paved excavated, or regraded. Remove without contamination with subsoil. Strip to six inches minimum depth. Keep free of roots, stones and other desirable materials. Do not
 - 2. Stockpile in locations convenient to areas shown to receive topsoil later or where directed by Owner or Project Engineer. Do not stockpile to depth exceeding eight feet. Do not drive heavy equipment over stockpiled material or spread topsoil.
 - 3. Dispose of unsuitable or excess topsoil same as waste material, herein specified.
 - indicated to be left standing. 1. Completely remove all stumps, in their entirety,

2. Use only hand methods for grubbing inside drip line

- other debris protruding through ground surface.
- of trees indicated to be left standing. 3. Fill depressions caused by clearing and grubbing
 - a. Place fill material in horizontal layers not exceeding 6" loose depth, and thoroughly compact to a density equal to adjacent original ground.

3.03 UTILITIES

- A. Contact local utility companies 72 hours minimum prior to start of demolition and/or excavation work. Confirm verbal notices and written notices. Verify locations of
- Cooperate with Owner, landlord, Architect, engineer, utility companies, adjacent property owners, and other building trades in maintaining, protecting, rerouting or extending of utilities passing through work areas which serve structures located on project site and on adjacent
- C. Verify that utilities that are to be removed, capped or abandoned are turned off, or are disconnected, or are rerouted to new locations before starting demolition and/or excavation.

3.04 DEMOLITION

A. General:

- necessary by Contractor, submit details and reasons therefore to Owner or Engineer for action. Make no departures without prior written approval.
- 2. Repair or replace all demolition work performed in excess to that required, at no cost to Owner. Repair or replacement shall match and equal construction, condition, and finish existing at time of award of contract.
- B. Remove following from locations to extent shown on
- C. Backfill and compact areas excavated and open pits and holes resulting from demolition operations. Comply with requirements specified in Section 02200, Earthwork for backfill materials, compaction, and installation methods.
- D. Rough grade site, within demolition areas, to meet adjacent existing contours and to provide positive drainage. Leave site in clean condition acceptable for performance of subsequent construction operations.

3.06 CLEAN-UP AND DISPOSAL

- A. Transport trash, rubbish and debris daily from site and dispose of legally.
 - infested, or dangerous materials encountered.

- 2. Do not burn or bury materials on site, unless otherwise approved by Owner or Project Engineer and local authorities having jurisdiction.
- Remove tools, equipment and protections when work is complete and when authorized to do so by local authorities having jurisdiction and Owner or Project Engineer.
- C. Remove and dispose of erosion control devices after landscaping is in place and ground over is established at completion of project, only upon approval of the inspector.

END OF SECTION

SECTION 02200 EARTHWORK

PART 1 - GENERAL

A. General Conditions and Supplementary Conditions apply to

1.02 WORK INCLUDED:

1.01 RELATED DOCUMENTS

A. General site grading.

this section.

- B. Trenching or excavation and backfilling for utility
- C. Excavation and backfilling for structures.

1.03 QUALITY ASSURANCE

- A. All work shall comply with Maryland State Highway Standards, latest edition.
- B. Regulatory Requirements: Comply with applicable requirements of federal, state, and local laws, regulations and codes having jurisdiction at project

C. Field Quality Control:

- 1. Testing and Inspection: Contractor will obtain and pay for services of an independent commercial testing laboratory for performing field quality control testing of soils during construction; costs of tests indicating noncompliance with requirements specified and retesting, including recompaction of deficient areas, are also at Contractor's expense.
- 2. Refer to PART 3, article entitled Field Quality
- Contractor shall work in accordance with the Subsurface and Geotechnical Evaluation prepared by URS Corporation dated September 10, 2004. A copy is available upon request, a portion of the report is included in the plan set.

1.04 SUBMITTALS

A. Test Reports:

- 1. Field density (compaction) tests reports of each
- 2. Optimum moisture—maximum density curves for each
- 3. California Bearing Ratio tests on pavement subgrade (see section 02512, part 3.01.B.4).

B. Fill Samples and Tests:

- 1. Provide for each type of fill material to be used on project, with testing results indicating compliance with requirements specified, for
- approval prior to start of work. 2. The Project Engineer or GES (Geotechnical Engineering Service) shall authorize each type of fill to be used on the project as structural fill.

1.05 JOB CONDITIONS

A. Inspection:

- 1. Examine drawings and site for discrepancies between actual site grades and contours and those shown on drawings, before starting work. Report all discrepancies in writing to Owner.
- 2. No extra compensation will be allowed at a later date for discrepancies between conditions shown on drawings and actual conditions existing at project
- B. Cooperation: Coordinate this work with the work of other Sections to avoid any delay in progress of building or any interference with progress of other work. Where required for proper construction operations, perform portions of work included in this section separate from general building excavation as directed.
- Excavation Classification: All excavation to be unclassified, including removal of earth fills, rubble, trash, and other materials encountered in excavation and grading operations to depth and extent shown on drawinas or specified. The Project Engineer, with recommendations from a Geotechnical Service, shall be the final authority and shall make the final decision during construction as to the depth and extent to which unsatisfactory materials must be

removed and replaced. D. Existing utilities:

- 1. Locations indicated are approximate and provided for contractor's convenience only. There may be additional utilities not shown on the plans. The Owner, architect, and engineer assume no responsibility for locations shown and it shall be the responsibility of the contractor to verify the locations of all utilities within the limits of work. Contract local "Utility Locator Service" prior to excavation to verify exact locations of all existing utilities. All damage made to existing utilities shall be the sole responsibility of the Contractor. Any charges for locating utilities shall be paid by the contractor.
- 2. Perform exploratory tests for verification if exact locations of existing utilities are not known. Owner will assume no responsibility for hazardous conditions, losses and accidents arising out of failure to perform test for verification.

3. Coordinate any relocation or removal of utilities with appropriate utility company, or Howard

E. Disposition of utilities:

- or as specified. Notify Project Engineer, in writing, of all active utilities on—site at start
- 4. Remove, plug or cap inactive and abandoned utilities encountered in excavating and grading operations. In absence of specific requirements remove, plug or cap such utility lines at least 3 feet outside building walls or as required by the
- F. Benchmarks, Monuments and Other Reference Points:

- 1. Furnish and maintain barricades, signs and markings for work in public right-of-way in accordance with Maryland Department of Transportation and Howard
- Paint and maintain barricades in good condition.
- Mount flashing yellow lights and maintain same.
- 4. Prior to commencing land disturbance activity, mark the limits of land disturbance clearly and accurately with silt fence, tree protection fence, stakes, ribbons, or other appropriate means. See Section 02100, Site Preparation and Demolition for of all authorized land disturbance activity shall be demarcated for the duration of the construction activity. No land disturbance shall occur outside the approved limits indicated on the approved

2.01 FILL AND BACKFILL MATERIALS - GENERAL

- Provide approved soil material free from roots, debris, trash, organic materials, and other deleterious materials, frozen materials, material softer than adjoining soil, rock or stone larger than 3" maximum dimension for use in upper 6" of fill or larger than 6" maximum dimension for use in remainder of fill.
- B. A cut and fill balance has not been made. Contractor is responsible for establishing quantity of additional fill required or excess that must be hauled away. No additional compensation will be made for importation of additional material or for disposal of surplus material

2.02 STRUCTURAL "CONTROLLED FILL"

- Acceptable Materials: One or combination of following, as required, as approved by Project Engineer and recommended by GES:
 - On-Site Excavated Material.
 - 2. On-Site Excavated Material Blended With Imported Material: Acceptable when approved by GES, providing material can be blended into uniform mixture meeting or exceeding the following imported
 - 3. Imported Materials:

Refer to the geotechnical engineer's report.

- B. Unacceptable Materials: USC Groups, CH, PT, OH, OL, and MH generally described as
 - 1. Peat, mulch and/or other highly organic swamp
- Organic and inorganic silts and silt—clays of low
- slight plasticity.
- 6. Elastic silts

2.03 NONSTRUCTURAL "CONTROLLED FILL"

- A. Acceptable Material: As specified in Article 2.02A above, except change imported Fill LL to not greater than 50 and PI to not greater than 30 nor less than 10, or per the geotechnical specifications found within this construction set.
- Unacceptable Materials: As specified in Article 2.02B

2.04 FILTER MATERIALS

Filter Aggregate: Clean gravel or crushed stone graded from coarse to fine with 100% passing 1/2" sieve, 15% passing 20 sieve, and not more than 2% passing No. 100

2.05 EQUIPMENT

A. Provide type acceptable by Geotechnical Engineering

- 1. Observe rules and regulations governing respective utilities during execution of work of this Section.
- 2. Adequately protect all active utilities from
- Remove or relocate active utilities only as shown
- authorities having jurisdiction.
- Protect from damage and displacement; if disturbed or destroyed, replace at Contractor's expense.
- G. Keep dirt, dust, noise and other objectionable nuisances

H. Barricades:

to a minimum.

- County requirements.
- 3. Install wood fence adjacent to open excavations and post with warning lights.
- exact means and methods. The location and extent

PART 2 - PRODUCTS

- off site.

- material requirements.
- and including following:
- 2. Organic and inorganic clays of medium to high plasticity.
- 4. Very fine sands, rock flour, and blow sand with
- 5. Fine sand and silty soils
- 7. Silty sand.

DRAWN BY: SPECIFICATIONS I

FILE NAME: C-10 SPEC1 3482

JOB NUMBER:

PLOTTED:

06/30/05

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REVISIONS

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COUNTY HEALTH OFFICER

CHIEF, DEVELOPMENT ENGINE

APPROVED:

HOWARD COUNTY HEALTH DEPARTMENT

CHIEF, DIVISION OF LAND DEVELOPMENT

DATE

APPROVED PLANNING BOARD of HOWARD COUNTY DATE 06/08/06

stumps and roots.

- 1. Strip topsoil to whatever depths encountered in a manner to prevent intermingling of subsoil or other obiectionable material.
- strip topsoil when wet.
- Clearing and Grubbing: Clear within construction limits: trees, shrubs and other vegetation, except for those
 - operations with satisfactory soil material, unless further excavation of earthwork is indicated.
- all utilities entering site and their locations on site.
- - 1. If departures from drawing requirements are deemed
 - drawings: asphalt paving, curbing and utilities.

- 1. Use steel sheepsfoot roller or similar type equipment for compaction operations, except compact small and inaccessible areas with vibra plates, vibrator impact rammers, vibratory rollers, or similar type equipment.
- Use rubber-tired pneumatic compaction equipment for sealing off compacted areas.
- 3. Use rubber-tired compactor or similar type approved equipment with minimum 20 tons static weight for proofrolling.
- 4. Contractor shall not use compaction equipment near retaining walls that will overload said wall.

PART 3 - EXECUTION

3.01 FIELD QUALITY CONTROL

- A. Testing and Inspection Services: Owner will retain the services of a Geotechnical Service (GES) to perform observations, inspections and testing during execution of site work. Geotechnical Engineering Services include, but are not limited to:
 - 1. Visual Observation by GES: After stripping the site of topsoil, organics, large root systems, trash, and demolition debris, the site is to be observed by GES, and other localized pockets of organics, large root systems or remnants or previous construction identified should be undercut and discarded off-site or stockpiled for future use in landscaped areas.
 - Proofrolling: In the presence of GES at-grade areas and areas to receive fill should be proofrolled with a heavily loaded dump truck. scraper, or similar piece of rubber-tired equipment.
 - In-Place Density Testing:
 - a. Parking area:

Test every 5,000 SF per 2-foot vertical increment of in-place fill.

- b. Retaining Wall/: Utility Trench Backfill
- foot vertical increment of in-place fill.

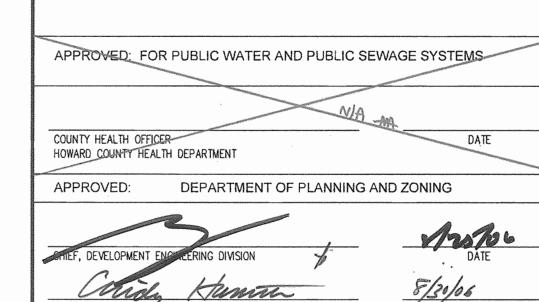
Test every 150 LF per 2-

- c. Building Areas:
 - To be determined by GES and approved by Owner.
- B. Contractor shall notify Engineer and GES inspector when work is at the acceptable levels for the testing required above.
- C. Contractor shall cooperate with GES Inspectors and Technicians to facilitate the execution of GFS duties.
- D. Upon completion of excavation, GES shall inspect and test the work and determine the suitability of the soil and preparation of subsequent site work.
- E. GES shall promptly submit to Owner or Project Engineer reports of all observations, inspections and tests.

- A. Grading and paving drawings showing original and proposed topography. In case of conflict between final grade elevations (finish grade) shown by spot elevations and by contours, spot elevations govern.
- B. Dewatering:
 - 1. Prevent ground and subsurface water from flowing into excavations, from flooding project site and surround properties, and from collecting and ponding unless such ponding is in connection with required erosion control. Provide and maintain all temporary drainage and dewatering system.
 - Install pumps, sumps and suction and discharge lines necessary to comply with requirements
 - 3. Install temporary deviations from grades indicated to channel water away from excavation.
 - 4. Leave no sumps or pockets at completion of each day's grading operations.
 - 5. If water is encountered during footing and foundation excavation, install pumps of capacity to remove water while excavations are being made and continue pumping for 24 hours following placing of concrete footings and erection of foundation walls to grade. Maintain dewatering operations until construction of permanent drainage is completed.
- Contractor to be responsible for design, installation and maintenance of dewatering system specified herein.
- E. Shoring and Bracing:
 - Install to protect slopes and earth banks from cave—ins, and to protect adjacent surfaces and structures from settlement. Remove shoring and bracing before backfilling is completed, but not before permanent supports are in place.

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CHIEF, DIVISION OF LAND DEVELOPMENT

APPROVED PLANNING BOARD of HOWARD COUNTY DATE 06/08/06

- 2. When work is interrupted by rains, do not resume operations until moisture content and field density tests of upper six inches of in-place material have been made by GES and approved by Project Engineer.
- Contractor to be responsible for design. installation and maintenance of shoring and bracing

substances which are frozen or contain frost, or during unfavorable weather conditions.

- 1. During periods of anticipated inclement weather, grade and seal surface of fill as required to limit percolation of surface water.
- 2. When work is interrupted by rains, do not resume operations until moisture content and field density tests of upper 6" of in-place materials have been made by GES and approved by Project Engineer.
- G. Establish and identify required lines, levels, contours

H. Proofrolling:

and datum.

- 1. Perform proofrolling over entire areas receiving fill material, after topsoil is removed, in presence of Geotechnical Engineering Service.
- Make at least four passes over each area, with last two passes made perpendicular to first two passes. Use minimum 20 tons static weight rubber-tired compactor or similar type equipment for proofrolling acceptable to GES.
 - a. Undercut and remove soft or unstable soils that fail to compact and replace with acceptable fill material. Place soil in lifts of six inches loose depths and compact each lift to density specified.
 - b. If construction operations soften or otherwise disturb previously proofrolled areas to an extent that they become soft and unstable or are rendered unsuitable by Project Engineer and GES, perform additional proofrolling before starting filling operations or remove unsuitable materials to depth and extent required, and replace with approved compacted fill as specified above.
- 1. Following topsoil stripping and proofrolling operations, but before making cuts or placing of fill and backfill, ground surfaces to be free of all trash; debris; loose, frozen, wet or soft soil; and other undesirable surface materials before proceeding with work.

3.03 GRADING

- Rough grade to required profiles, contours, elevations and subgrade levels shown on drawings, with allowances made for depths required for placement of topsoil and construction of paving, walks, equipment slabs or pads and floor slabs.
- Control grading around buildings and on site; slope ground to prevent water from running into excavated areas of building or damaging other structure, and so entire project is well drained and free from water pockets.
- C. Provide uniform levels and slopes between elevations shown on drawings, and between elevations shown and existing finished grades shown to be maintained. Round abrupt changes in slopes.
- D. Unauthorized excavation consists of removal of materials beyond indicated subgrade elevations or dimensions without specific direction of Engineer. Unauthorized excavation, as well as remedial work directed by Engineer shall be at Contractor's expense. Under footings, foundation bases, or retaining walls, fill unauthorized excavation by extending indicated bottom elevation of footing or base to excavation bottom, without alterina required top elevation. Lean concrete fill may be used to bring elevations to proper position, when acceptable to Project Engineer. Elsewhere, backfill and compact unauthorized excavations as specified for authorized excavations or same classification, unless otherwise directed by Project Engineer of GES.

3.04 CONTROLLED FILL:

A. General:

- 1. Project Engineer, relying on GES test results, is sole judge as to when specified compaction densities have been obtained.
- Contractor is responsible for correcting, at his expense and including costs of testing, all areas with insufficient compaction; remove and replace, or scarify, aerate or sprinkle (as needed), and recompact and retest deficient compacted fill.
- Place acceptable material in horizontal lifts not exceeding 8" in loose depth, with each lift extending for entire length and width of each area being filled.
- Reduce or increase moisture content of fill by drying or uniform sprinkling with water, to achieve moisture content required for specified degree of
- Disk each layer of fill to break down oversize clods, to thoroughly mix non uniform materials, and to secure uniform density and proper compaction.
- Maintain positive surface slope to allow runoff and to prevent ponding of surface water. If surface water ponds, dewater. Remove all saturated or disturbed soil before placing additional fill material.
- Number of compaction equipment passes required is dependent upon degree of compaction specified. Overlap rolling passes as required to completely cover areas of fill.
- Regardless of degree of compaction achieved, a minimum of 8 roller passes should be made in the building and and pavement areas.
- After cuts are made, scarify cut area to 9" depth and compact to required densities.

B. Structural "Controlled Fill":

- 1. Location: Place as subgrade under building, and covered walkways to a point 5 feet outside building walls. Place under all paved areas.
- 2. Construct to grades and for minimum depths indicated. Undercut existing grade as required.
- 3. Compact to 95% of maximum Standard Proctor Density (ASTM D-698), with the upper 9" \odot 100% Standard Proctor Density (ASTM D698). Maintain soil moisture content between 3% below and 3% above optimum. Use GES method for maintaining optimum moisture content value control acceptable to GES. Place fill in 8" lifts or less in loose thickness.
- C. Nonstructural "Controlled Fill"
 - 1. Locations: Use for fills other than fills specified as structural "Controlled Fill".
 - 2. Construct to grades and for minimum depths indicated. Undercut existing grade as required. Compact to following densities for areas listed:
 - Subgrade Below Walks, and Slabs on Grade: 100% of Standard Proctor Density ASTM D698 at moisture content between 3% below and 3% above optimum moisture content value 9", 95% otherwise.
 - Below Grassed and Planted Areas: 90% of Standard Proctor Density at 3% below and 3% above the optimum moisture content value.

3.05 FOUNDATION AND FOOTING EXCAVATION

- A. Acceptable Structural "Controlled Fill" material
- Remove surface debris and debris in excavation before placina backfill
- C. Do not use fill material which is frozen or contains
- D. Allow footing and foundation walls to attain full design strength before placing backfill.
- E. Exercise care during placing and compacting equipment
- 1. Use hand operated compaction equipment within 4' of
- 2. Where fill is placed along both sides of foundation walls, place and compact simultaneously on both sides of walls.
- Repair, or remove and replace, all damage to foundation walls or structure occurring during placement and compaction operations at no additional cost to Owner.
- F. Coordinate placing and compaction with other trades. Do not backfill until dampproofing, waterproofing and foundation drainage system material has been installed inspected and approved by GES and Architect.
- G. Compact all backfill to 95% of Standard Proctor Density. (ASTM D-698), 100% within top 9". Maintain moisture content between 3% below and 3% above of optimum moisture content value.

3.06 TRENCHING AND BACKFILLING FOR UTILITIES SYSTEMS

A. Trench Excavation:

- 1. Provide open cut excavation, except short sections may be tunneled if approved by GES & Project Engineer and demonstrated by Contractor that pipe, cable or duct can be properly installed, backfilled and compacted.
- Excavate to necessary width, depth and alignment for proper material installation. Cut trench banks as nearly vertical as practicable, but to safety standards of governing authorities. Stockpile material suitable for backfilling a sufficient distance from banks to avoid overloading and cave-
- Side slopes of excavations to comply with local codes and ordinances having jurisdiction. Shore and brace where sloping is not possible because of space restrictions or stability of soil.
- Maintain sides and slopes of excavations in safe condition until completion of backfilling.
- Accurately grade trench bottoms to provide uniform bearing and support for each pipe section on undisturbed soil along full pipe length, except for areas where necessary to excavate for bell holes and for sealing pipe joints. Dig holes and depressions for joints after trench bottom has been graded, so pipe rests on prepared bottom for full length. Remove all stones to avoid point bearing.
- 6. Remove wet or otherwise unstable or unacceptable material encountered beyond depths indicated and replace with sand, gravel or concrete.
- B. Excavation for Appurtenances: Excavate for manholes and similar structures, to leave 12" minimum clearance between outer surfaces and embankment or timber used to hold and protect banks. Fill over excavation with sand, gravel or concrete.

C. Shoring and Bracing:

- 1. Provide materials for shoring and bracing, such as sheet piling, uptights, stringers and cross-braces, in good serviceable condition.
- 2. Establish requirements for trench shoring and bracing to comply with local codes and authorities having jurisdiction.
- Maintain shoring and bracing in excavations regardless of time period excavations will be open. Carry down shoring and bracing as excavation progresses.

D. Backfilling:

- 1. Do not backfill until utilities systems have been installed, inspected, tested, and accepted by Howard County and/or respective local utility company.
- Backfill Materials: Acceptable Structural Controlled Fill" materials.
- Deposit material in lifts of 4" loose depth before compacting each lift to 95% of Standard Proctor Density under paving, walks, 95% under building slabs, and other slabs on grade (except top 9". Top 9" to be @ 100%), and compacting to 90% of Standard Proctor Density under lawns and planting areas.
- 4. Backfill trenches to top of ground level.

- 5. Backfill first 5' outside building wall with approved acceptable on-site material to form an
- mpermeable barrier. 6. Restore ground surface, pavements, base courses. and compacted subgrade disturbed by utilities

systems trenching and backfilling work to their

original condition, construction and finishes/

3.08 MAINTENANCE

- A. Protection of Graded Areas:
 - 1. Protect newly graded areas from traffic and erosion. Keep free of trash and debris.
 - Repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.
- B. Reconditioning Compacted Areas: Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, reshape, and compact to required density prior to further construction.
- Settling: Where settling is measurable or observable at excavated areas during general project warranty period, remove surface (pavement, lawn, or other finish), add backfill material, compact, and replace surface treatment. Restore appearance, quality, and condition of surface or finish to match adjacent work, and eliminate evidence of restoration to greatest extent possible.
- 3.10 DISPOSAL OF EXCESS AND WASTE MATERIALS
 - A. Removal from Owner's Property: Remove waste materials, including unacceptable excavated material, trash and debris, and dispose of it off owner's property.

END OF SECTION

SECTION 02510 SITE CONCRETE

PART 1 - GENERAL

- 1.01 RELATED DOCUMENTS
 - A. General Conditions and Supplementary Conditions apply to
- 1.02 SITE CONCRETE Work as specified and shown on the drawings, including, but not necessarily limited to the following:
 - Concrete walks and ramps
 - Accessible curb ramps Concrete curbs (see Section 02525, "Concrete Curbs") Trash dumpster pad

1.03 QUALITY ASSURANCE

- A. Standards:
 - Maryland Department of Transportation Standard Specifications, latest edition

1.04 TESTS

- A. Contractor's Testing Agency shall make one soil density test at subgrade for each 5,000 square feet of pavement (one test minimum per area); AASHTO T180, modified Proctor.
- B. Contractor's Testing Agency will take three compression test samples and one entrained air content sample from first 50 cubic vards of concrete placed each day and each 100 cubi yards thereafter; in conformance with ASTM C39, and ASTM C173 or C231.

PART 2 - PRODUCTS

2.01 BASE COURSE

- A. Qualities: Hard, durable particles of crushed stone or angular gravel, with stone or sand screenings and few fines. Provide material free of topsoil, clay lumps, friable particles, and organic matter.
 - 1. Maximum particle size: 2 inches.
 - Percentage of wear: 50 maximum, by Los Angeles
 - 3. Durability of particles: no breakup when alternately frozen and thawed, or wet and dried.

2.02 FORMWORK

A. Steel or wood of heights equal to the full depth of the

finished work as to obtain a smooth form finish.

2.03 PAVING CONCRETE

= 4,500 psi.

- A. Sidewalks, steps, driveway apron and dumpster pad: F'c
- B. Qualities: Portland cement concrete, ready mixed, as specified below:
 - 1. Percentage of wear, coarse and fine aggregate: 50 maximum by Los Angeles test, ASTM C131
- Aggregate durability: 12 percent loss maximum, 5 cycles, ASTM C88.
- size 67, maximum particle size: 1 inch. 4. Cement: Use ASTM C150, Type I or Type II, or Type III in cold weather.

Aggregate gradation: 3/4 inch to No. 4; ASTM C33,

- Water-cement ratio: 0.51 maximum.
- Entrained air: 3 percent to 5 percent.
- 7. Other admixtures: Add water reducing or water reducing/retarding admixtures to concrete in proportions pursuant to manufacturer's published instructions as needed to improve flow during placement and alter time of set.
- Slump: 2-inch average, 3-inch maximum for any

2.04 CONCRETE OTHER THAN PAVING

- A. Qualities as specified below:
- 1. Compressive strength at 28 days: 4,500 psi. Flexural strength at 28 days: 600 psi.
- 2. Finish: Smooth form finish.

2.05 ACCESSORY PRODUCTS

- A. Forms: Steel or wood, staked in place, of strength sufficient to resist pressure of wet concrete without losing shape or deflecting more than 1/4 inch at any point. Key way shaped forms: Steel, only.
- B. Expansion Joints: Preformed, non-extruding resilient asphalt/fiber type, 1/2 inch thick; ASTM D1751.
- Joint Sealer: Hot poured elastometric type; ASTM D3405 or

2.06 CURING MATERIALS

A. Contractor shall submit curing method to Engineer for approval.

PART 3 - EXECUTION

3.01 SUBGRADE PREPARATION

- A. Subgrade: Conform with the requirements specified in Section 02200, Earthwork.
- B. Soil Stabilization:
- 1. The subgrade shall be thoroughly wetted and then
- 2. Yielding material deflecting more than 1/2" under the specified roller shall be removed to a depth of not less than 4" below subgrade elevation and replaced with an approved granular material which shall then be compacted as described

compacted with two passes of a 500 pound roller.

3. The subgrade shall be in a moist condition when the concrete is placed. In cold weather the subgrade free from frost when the concrete is deposited.

3.02 FORM CONSTRUCTION

- A. Install sufficient quantity of forms to allow continuous progress of the work and so that forms can remain in place at least 24 hours after concrete placement.
- B. Check completed formwork for grade and alignment to the following tolerances:
 - 1. Top of form: Not more than 1/8" in 10 feet.
 - 2. Vertical face: Longitudinal axis not more than

3.03 CONCRETE PLACEMENT AND FINISHING

1/4" in 10 feet.

- A. Concrete placement and finishing shall be as also specified in Division 3, Cast-in-Place Concrete, as shown on drawings. Broom finish unless specified otherwise.
- B. Tamp and consolidate concrete with a suitable wood or metal tamping bar and the surface shall be finished to grade with a wood float.
- C. The finished surfaces shall not vary more than 3/16 inch from the testing edge of a 10 foot straightedge.
- D. Divide the surface of paving, walks and terraces into rectangular areas by means of contraction joints not to exceed 10'-0" center. 1. Tool a groove in the top portion of the slab to a
 - using a jointer or by sawing a groove in the hardened concrete with a power-driven saw. Membrane-cured surface damaged during the sawing

operations shall be resprayed as soon as the

depth of at least one—fourth of the slab thickness

surface becomes dry. 3. Sidewalk tool joint pattern as per Architect

drawings. 3.04 EXPANSION JOINTS

- A. Install transverse expansion joints at returns and 20
- B. Install longitudinal expansion joints where curbs and paved areas abut each other, buildings, other concrete slabs or pads or vertical restraints.
- and shall be held in place with steel pins or other devices to prevent warping of the filler during floating

C. Place joint filler with top edge 1/4" below the surface

D. Immediately after finishing operations are completed,

round joint edges with edging tool having a radius of Remove concrete over the joint filler. E. At the end of the curing period, clean and fill expansion joints with joint sealer conforming to ASTM D1850. Fill

oints flush with concrete surface. Dummy groove joints shall not be sealed.

- 3.05 CURING AND BACKFILLING A. Curing: Immediately after the finishing operations, the exposed concrete surface shall be cured for 7 days by the mat, impervious sheet, membrane-curing, or Owner method
 - submitted by Contractor to Owner for approval. B. Backfilling: After curing, debris shall be removed and the areas adjoining shall be backfilled, graded and compacted to conform to the surrounding areas in

accordance with the lines and grades indicated.

3.06 PROTECTION

- A. Protect the completed work from damage until accepted. Repair damaged concrete and clean concrete discolored during reconstruction. Work that is damaged shall be removed and reconstructed to the entire length between regularly schedule adjoints. Refinishing the damaged portion will not be acceptable.
- B. Cars and trucks shall be excluded from newly constructed pavement for a minimum of 14 days.

END OF SECTION

ASPHALT CONCRETE PAVING

PART 1 - GENERAL 1.01 RELATED DOCUMENTS

SECTION 02512

A. General Conditions and Supplementary Conditions apply to

1.02 WORK INCLUDED

A. All paving including granular base, primer, and tack.

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STAURANT LLAGE OF RIVE , GRID 6, 5TH ELE N 4/2, PARCEL W-: HOWARD CO TAX MAP SECTI ARKSVILLE 2



06/30/0 JOB NUMBER: M3482.00 ILE NAME: C-11 SPEC2 3482 LOTTED: 08/17/06 RAWN BY:

SPECIFICATIONS II

C-11 12 of 20

2. Contractor to submit the location of the proposed corings for acceptance by Project Engineer. Contractor to provide in his scope.

The indicated depths are minimum; if a core indicates undersize, the Owner or Project Engineer may require additional corings (at no expense to the Owner) to establish the extent of the undersizina.

4. If undersizing is indicated, methods of correction shall be submitted for Project Engineer's approval. Correction shall be at no expense to Owner.

5. Fill boring holes with bituminous material and seal properly.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Standard Duty Drive Aisles

1. Hot Mix Asphalt Surface Course, 1.5" thick minimum. (VDOT SM-2A Asphalt)

2. Hot Mix Asphalt Base Course, 2.5" thick (VDOT IM-1A Asphalt) 3.02 SUBGRADE PREPARATION

3. Crushed Aggregate Base, 6" thick (VDOT 21B Base Aggregate.)

PART 3 - EXECUTION

3.01 SUBGRADE PREPARATION

A. Subgrade shall be subcompacted in accord with density specified in Section 02200.

B. Fine Grading:

Grading and construction in strict accordance with

Subgrade and shoulders shall be final graded, trimmed and finished within the limits and as required by the elevations shown on the Drawings. Grading operations shall be so conducted that materials shall not be removed or loosened beyond the required limits. The finished surfaces shall be left in smooth and uniform planes.

3. The Contractor shall be solely responsible for all lines, levels and measurements for this work. He shall provide his own instruments and survey crew to maintain this control throughout the duration of

4. Preform two (2) CBR Tests on prepared subgrade to be located by the engineer. Provide results of the tests prior to proceeding with any work. Allow time for redesign of pavement if design CBR is not obtained.

C. Bituminous paving shall not be placed when the ambient temperature is below 40°F, or when there is frost in the base or any other time when weather conditions are unsuitable for the type of material being placed.

D. Material for spot subgrade reinforcement shall be bankrun gravel or crushed stone.

E. Subgrade and Embankment Protection:

During construction, embankments and excavations in the areas of the paving shall be kept shaped and

Ditches and drains along the subgrade shall be maintained to drain effectively at all times.

Repair ruts or depressions of 1" or more in subgrade.

3.02 PAVING

A. The base and surface courses shall be constructed in conformity with the provisions of this specification section; stated thicknesses are after compaction.

Install tack in accordance with the specified standards.

Match surface to existing paving maintaining existing cross slopes or as shown on plans.

3.03 FINISH

APPROVED: FOR PUBLIC WATER AND PUBLIC SEWAGE SYSTEMS

Kemote

DEPARTMENT OF PLANNING AND ZONING

COUNTY HEALTH OFFICER

CHEET, DEVELOPMENT ENGINEE

Mille

CHIEF, DIVISION OF LAND DEVELOPMENT

APPROVED:

HOWARD COUNTY HEALTH DEPARTMENT

A. After final rolling, no traffic shall be permitted on paving until it has cooled and hardened and in no case less than 6 hours.

The paved areas shall drain away from the building; no bumps or "bird baths" will be accepted.

C. The black top shall be clean and free of dirt or debris ready for traffic painting after a minimum 30-day curing

END OF SECTION

DATE

SECTION 02525 CONCRETE CURBS

PART 1 - GENERAL

1.01 QUALITY ASSURANCE

A. Maryland Department of Transportation Standard and Howard County Department Specifications, latest edition.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Except as specified herein, all materials shall conform to the requirements of Section 02510, Site Concrete.

B. Concrete: 3000 psi, air-entrained.

Forms: Either steel or wood. Use flexible spring-steel forms or laminated boards to form radius bends as

D. Expansion Joints: ASTM D1751 or D1752.

E. Joint Sealer: ASTM D3405 or D3406.

PART 3 - EXECUTION 3.01 INSPECTION

> A. Examine the areas and conditions under which concrete curbs are to be installed. Conditions detrimental to the proper and timely completion of the work shall be corrected before proceeding with the work.

B. Verify that subgrade is properly compacted and graded. Remove debris and loose materials from areas to receive

Subgrade: Conform with the requirements specified in Section 02200, Earthwork, All subgrade shall be firm and unyielding regardless of compaction results.

B. The subgrade shall be thoroughly wetted and then compacted with two passes of a 500 pound roller.

C. Yielding material deflecting more than 1/2" under the specified roller shall be removed to a depth of not less than 4" below subgrade elevation and replaced with an approved granular material which shall then be compacted as described above.

D. The subgrade shall be in a moist condition when the concrete is placed. In cold weather the subgrade shall be prepared and protected so as to provide a subgrade free from frost when the concrete is deposited.

3.03 FORM CONSTRUCTION

Comply with the requirements of Section 02510, Site Concrete and the following: Install sufficient quantity of forms to allow continuous progress of the work and so that forms can remain in place at least 24 hours after concrete placement.

B. Check completed formwork for grade and alignment to the following tolerances:

1. Top of form: Not more than 1/8" in 10 feet. 3.04 EXPANSION JOINTS

A. Install transverse expansion joints at returns and 20

Install longitudinal expansion joints where curbs and paved areas abut each other, buildings, other concrete slabs, pads or vertical restraints

C. Fill joints with 1/2" thick joint filler strips.

D. Place joint filler with top edge 1/4" below the surface and hold in place with steel pins or other devices to prevent warping of the filler during floating and

E. Immediately after finishing operations are completed, round joint edges with edging tool having a radius of 1/8". Remove concrete over the joint filler.

F. At the end of the curing period, clean and fill expansion joints with joint sealer conforming to ASTM D3405 or D3406. Fill joints flush with concrete surface. Dummy groove joints shall not be sealed.

G. Install control joints 10 feet on center.

3.05 CONCRETE PLACEMENT, FINISHING AND CURING

A. General: comply with the requirements of Section 02510, Site Concrete for mixing and placing concrete, and as specified herein.

Moisten subgrade as required to reduce suction at the time concrete is placed. Do not place concrete ground structures until they have been brought to the required grade and alignment.

Deposit and spread concrete in a continuous operation between transverse joints. If interrupted for more than 1/2 hour, place a construction joint. Section less than 20 feet in length between transverse joints will not be permitted.

Automatic machine may be used for curb and gutter placement at Contractor's option, if acceptable to the Project Engineer. If machine placement is to be used, submit revised mix design and laboratory test results for approval by GES. Machine placement must produce curbs and gutters to the required cross—section, lines, grades, finish, and jointing as specified for formed concrete. If results are not acceptable, remove and replace with formed concrete as specified.

After screening and compacting, finish unformed surfaces with a wood float to produce a uniform texture and finish throughout. Inspect formed surfaces immediately after stripping forms, grind down fins and repair sand runs and honeycombs with the same mix used for the curbs and gutters minus the coarse aggregates.

3.07 CURING AND BACKFILLING

A. Curing: Immediately after the finishing operations, the exposed concrete surface shall be cured for 7 days by the

mat, impervious sheet, or membrane-curing method.

APPROVED PLANNING BOARD of HOWARD COUNTY DATE 06/08/06

Backfilling: After curing, debris shall be removed and the areas adjoining shall be backfilled graded and compacted to conform to the surrounding area in accordance with the lines and grades indicated.

3.08 PROTECTION

A. Protect completed work from damage. Repair damaged concrete and clean concrete discolored during construction. Work that is damaged shall be removed and reconstructed to the entire length between regularly scheduled joints. Refinishing the damaged portion will not be acceptable.

END OF SECTION

SECTION 02580 PAVEMENT MARKING

PART 1 - GENERAL

1.01 QUALITY ASSURANCE

A. Maryland Department of Transportation Standard and Howard County, latest edition.

"Manual on Uniform Traffic Control Devices," current

C. "Traffic Control Devices Handbook," current edition.

D. On—site pavement marking and signage will be installed as per plans, details, and specifications.

1.02 SUBMITTALS

Product Data: Submit catalog cut sheets of each paint

1.03 JOB CONDITIONS

A. Inspection:

1. Examine areas for conditions under which work is to be performed. Report in writing to Project Engineer all conditions contrary to those shown on the drawings or specified herein and all other conditions that will affect satisfactory execution of work such as improperly constructed substrates or adjoining work. Do not proceed with work until unsatisfactory conditions have been corrected.

Starting work constitutes acceptance of the conditions under which work is to be performed. After such acceptance, Contractor shall at his expense, be responsible for correcting all unsatisfactory and defective work resulting from such unsatisfactory conditions.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Paint: White and Blue colors conforming to U.S. Bureau of Public Roads colors.

B. Paint Types:

1. For uncured and sealed asphalt surfaces: Water borne type, Sherwin-William's Pro-Mar Water Borne Traffic Marking Paint.

PART 3 - EXECUTION

3.01 PREPARATION

A. Remove all dirt, oil, grease and other foreign material from areas of pavement to be marked.

Apply paint only on thoroughly dry surfaces, when atmospheric temperature is above 40 degrees Fahrenheit and when weather is favorable.

C. Signage: As shown in plans, details, standards, and referenced specifications. Refer to architectural plans for additional requirements.

3.02 INSTALLATION

A. Apply markings in colors indicated.

All handicap Striping and Markings: Blue

Stop Line: White All other striping: White

B. First coat: Apply with a coverage rate of 100 to 110 square feet per gallon with a 0.015 inch film thickness.

C. Second coat: Apply with coverage rate of 100 to 110 square feet per gallon with a 0.015 inch film thickness.

D. Do not permit traffic on pavement until markings are thoroughly dry. E. Signage: Mounting height of all signs to base of sign

END OF SECTION

SECTION 02660 WATER DISTRIBUTION

PART 1 - GENERAL

1.01 QUALITY ASSURANCE

A. Applicable requirements of the following standards and codes apply: 1. Local Water System, standards and specifications.

2. Standard Plumbing Code with local amendments.

3. Standard Building Codes with local amendments.

A. Product Data: Catalog cuts and specifications data for all materials.

1.03 JOB CONDITIONS

1.02 SUBMITTALS

A. Notify Howard County for installation of service connection and coordinate installation of vaults, meters, and Detector/Backflow prevention devices.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Pipe and fittings:

Domestic: (2 inch or less) a. Underground: Type "K" copper as per requirements of the Howard County.

b. Above ground: Type "M" copper.

2. Mains: Ductile iron Class 51

B. Thrust Blocks: Howard County Specifications.

C. Chlorination and bacteriological tests: Per Howard County Specifications.

PART 3 - EXECUTION

3.01 TRENCHING, BACKFILLING AND COMPACTION

A. Trenching, backfilling and compacting: In accordance with applicable requirements of Section 02200, Earthwork.

3.02 INSTALLATION

A. Contractor to coordinate with Howard County. for installation.

B. Minimum depth of cover shall be 48 inches.

3.03 TESTING

A. Contractor to apply and supply for all fees and testing associated with installation.

END OF SECTION

SECTION 02700 SEWERAGE AND DRAINAGE PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. General Conditions and Supplementary Conditions apply to this Section.

1.02 WORK INCLUDED

A. Sanitary Sewerage System.

B. Storm Drainage Systems.

C. Payment of all fees for service.

1.03 RELATED WORK SPECIFIED ELSEWHERE

A. Erosion Control: Section 02100-Site Preparation and Demolition. B. Trenching for Utility Systems: Section 02200—Earthwork.

1.04 QUALITY ASSURANCE

A. Applicable requirements of the following standards and

1. Standard Plumbing Code with local amendments. 2. Local Sewer Standards and specifications.

B. Submit Contractor or Applicator qualifications.

1.05 SUBMITTALS A. Certified shop drawings shall be submitted to the engineer prior to any fabrication of pipe or concrete structures to

1.06 JOB CONDITIONS

Howard County. PART 2 - MATERIALS

be precast.

A. Sanitary:

A. Coordinate installation of sanitary service with

Service: PVC SDR-35 2. Granular Bedding: Class C, 60 degrees (min.) measured from invert of the pipe, on a fine granular fill over a shaped trench bottom.

Reinforced concrete (RCP) pipes shall be concrete complying with ASTM specification C14 and C76 latest edition. Use reinforced concrete pipe for all pipe larger than 15 inches in diameter unless noted otherwise on drawings. Pipe may be either concrete or Class 200 pvc or equivalent for 4, 6, 8 or 10 inch diameter pipe. Pipe larger than 10 inches shall be concrete unless specified. Provide flared end sections for pipe without headwalls or not ending in structures.

High Density Polyethylene (Advanced Drainage Systems,

a) Pipe: In accordance with AASHTO M294-94 ASTM D-3350 Type C, full circular cross-section with corrugated outside walls.

Clearly mark pipe with manufacturer's name and Use ADS N-12 or N-12HC pipes under paved areas with 12" of cover on a well compacted embedment. Include subbase material when placing pipe under pavement. (An approved equal material can be

3. PVC SCH - 400, class 200

Fittings: Provide proper fittings for installation and connection of lines. For aluminum (watertight) pipe sections provide aluminum gasketed flanged joints where specified.

subsituted for ADS pipes.)

drainage structures shall be solid concrete brick. Concrete: Concrete for storm sewer and sanitary sewer construction shall be 3,500 psi Mix Joint mortar shall

Brick: Brick for manholes, catch basins, inlets and other

be 1:2 Portland cement sand mix, masonry mortar to 1:3

At Contractor's option, hydrated lime may be substituted

for cement not exceeding 10% of cement used in masonry Precast Structures: Precast reinforced concrete structures may be used at contractor's option. Precast

Steps shall be provided as per Howard County or Maryland Dept. of Transportation standards.

H. Other Structures & grates:

structures shall meet local and state standards.

Provide as shown on drawings and per Howard County or Maryland Dept. of Transportation standards.

PART 3 - EXECUTION

3.01 TRENCHING, BACKFILLING, AND COMPACTION

A. Generally, excavate to the line and grade shown. The excavations shall not be carried closer than to within two inches of final grade until the pipe is ready to be installed. The remaining two inches shall be removed by fine graders just ahead of the pipe laying operation. Provide base material as specified on drawings.

B. Backfilling from bottom of trench to a point at least one foot over the top of pipe barrel shall be placed by hand in six inch layers and thoroughly tamped into place around the pipe. Extreme care shall be exercised to the level one foot above pipe barrel to insure that no damage is caused to the pipe or that its alignment or grade is not disturbed in any way. Only clean materials may be used in this operation, clean earth (no rocks) sand or rock dust.

3.02 INSTALLATION OF SEWERS

A. Install sewer lines in straight line and on uniform rate of grade between points where changes in alignment or arade are shown. Bed barrel of pipe firmly at required line and grade. Keep stopper in mouth of pipe when pipe -laying is not in progress. Set bell of pipe upstream . Support barrels of pipe continuously and scoop out space

B. After installed piping has been tested and inspected, backfill excavations with approved material tamped compactly in place per local standards and specifications. Tamp carefully around pipe and above top of pipe in layers not exceeding six inches. Observe care in backfilling not to disturb pipe.

C. Provide granular bedding on all PVC pipe. Provide required to facilitate installation.

A. Masonry work shall be laid up true and plumb and horizontal joints shall not be more than 1/2". Masonry units shall be laid in full bed of mortar. Each course shall be filled solid with mortar before another course is laid on top. Brick shall be wet before being laid in warm weather. Brick shall not be laid in freezing weather. Protect brick work from the weather and from freezing and at other times when work is not in progress. Inlet frames shall be set in a full bed of mortar and at the elevation established by the drawings.

B. Precast structures shall be set on properly prepared

3.04 CLEANING PIPES AND STRUCTURES

A. Clear interior of piping and structures of dirt and other superfluous material as job progresses. Maintain swab or drag in line and pull past each joint as it is completed.

C. Flush lines between manholes, if required, to remove

3.05 CATCH BASINS/DROP INLETS/JUNCTION BOXES/MANHOLES Construct structures to sizes and shapes indicated on

Set frames and tops to elevations indicated on drawings.

C443 joints of sections.

END OF SECTION POWER AND COMMUNICATIONS

PART 1 - GENERAL 1.01 QUALITY ASSURANCE allow a minimum of 3 days for the engineer to review the

shop drawings. B. Product Data: Catalog cuts and specifications data for

or latest state or local code.

B. Transformers: As per utility requirements.

C. Telephone Equipment: As per utility requirements.

D. CATV Equipment: As per utility requirements.

E. Vaults: As per utility requirements.

PART 2 - PRODUCTS

2.01 MATERIALS

3.01 TRENCHING, BACKFILLING AND COMPACTION

3.03 INSTALLATION A. Minimum depth of cover shall be 36".

on the utility plan

for proper clearance of bell.

granular bedding and dewatering materials and methods

3.03 CONSTRUCTION OF DRAINAGE STRUCTURES

granular or concrete subbase providing full support to

collected debris.

B. In large, accessible piping, brushes and brooms may be used for cleaning.

C. For Precast Concrete Structures: a. Provide rubber joint gasket complying with ASTM

SECTION 02780

A. Shop Drawings: To be submitted to the engineer for review.

all materials.

C. National Electrical Code (N.F.P.A. 70): latest edition.

A. Electrical Equipment: As per utility requirements.

PART 3 - EXECUTION

with applicable requirements of Section 02200, Earthwork. 3.02 COORDINATION

conduits as requested and/or as shown on plans.

B. Vertical clearance: As per utility requirements.

A. Contractor to coordinate with each utility and install

A. Trenching, backfilling and compacting: In accordance

C. Transformer Pad: Installed by utility company, or as noted

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06/30/0 JOB NUMBER: M3482.00 FILE NAME: C-12 SPEC3 3482 PLOTTED: 08/17/06 DRAWN BY: SPECIFICATIONS III

> C-12 13 of 20

Mr. Steve Ruff Ruby Tuesday, Inc. 10560 Main Street, Suite 511 Fairfax, Virginia 22030

September 9, 2004

RE: Report Geotechnical Investigation Proposed Ruby Tuesday Restaurant River Hill Village Center, Clarksville, Maryland

Dear Mr. Ruff:

URS Corporation (URS) is pleased to submit this report summarizing the results of our geotechnical investigation for the above referenced site. This work was performed in general accordance with the scope of work outlined in our work authorization form dated August 10, 2004.

Selected soil samples were collected in the field. These samples will be kept for a period of time for possible future inspection and examination. Unless otherwise requested, they will be discarded three (3) months from the date of this report.

We trust the findings and recommendations contained in this report are satisfactory for your present needs. Please call us if you require clarification or further discussion of any issue described herein. We appreciate the opportunity to provide you with professional engineering services.

Sincerely, **URS** Corporation

> William E. Norton, P.E. Senior Engineer

cc: Joan Sasine-Powell, Goldstein, Frazer & Murphy

GEOTECHNICAL INVESTIGATION PROPOSED RUBY TUESDAY RESTAURANT CLARKSVILLE, MARYLAND

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PROJECT INFORMATION.... 3.0 OBJECTIVE AND SCOPE..... 4.0 FIELD EXPLORATION..... 5.0 SITE AND SUBSURFACE CONDITIONS ... 6.0 ANALYSES AND RECOMMENDATIONS 7.0 SITE PREPARATION AND FILL PLACEMENT 8.0 LIMITATIONS ..

Proposed Ruby Tuesday Restaura Clarksville, Maryland for Ruby Tuesday, Inc.

1.0 SUMMARY

On August 26, 2004, URS Corporation (URS) initiated a geotechnical investigation on the site of a proposed Ruby Tuesday restaurant in Mobile, Alabama. The work was completed in accordance with URS's Environmental Services Agreement dated February 1, 2002 (Amended January 7, 2003), and our work authorization form dated August 10, 2004.

The Ruby Tuesday restaurant is planned to be located on an undeveloped outparcel of the River Hill Village Center, located approximately 100 yards north-northeast of the Great Star Drive and Maryland Route 108 (Clarksville Pike) intersection, in Clarksville, Howard County, Maryland (Subject Property). Subsurface conditions appear suitable for support of the proposed structure for the expected light loads. The proposed structure may be supported with a shallow foundation system consisting of spread footings/wall footings, with the floor slab supported at grade.

2.0 PROJECT INFORMATION

The Subject Property, is currently an undeveloped, grassed outparcel of the River Hill Village Center, located approximately 100 yards north-northeast of the Great Star Drive and Maryland Route 108 (Clarksville Pike) intersection, in Clarksville, Howard County, Maryland. The Subject Property is located approximately 0.32 miles north-northeast of the Clarksville Pike and State Highway 32 interchange and approximately 17.5 miles southwest of downtown Baltimore, in an area of commercial development. Topographic map coverage of the Subject Property is provided by the United States Geological Survey "Clarksville, Maryland", 7.5-minute quadrangle map, reference year 1977. The elevation of the Subject Property, which slopes to the east-southeast, is approximately 480 feet above mean sea level (MSL). No surface water features are located on the Subject Property. A Site Vicinity Map is attached as Figure 1 in Appendix A. The approximate boring locations relative to the proposed restaurant are indicated on the Site Plan, Figure 2 in Appendix A.

The proposed construction addressed by this subsurface exploration and geotechnical report consists of the restaurant building floor slab, foundations, and the adjacent parking areas.

3.0 OBJECTIVE AND SCOPE

The objective of the work reported herein was to identify and evaluate subsurface materials and groundwater conditions, and to provide recommendations for foundation support, site preparation, and floor slab subgrade development.

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1. Drilling of five exploratory borings in the area of the restaurant building pad, in which the borings were advanced to a depth of 15 feet below ground surface (bgs);

Engineering analyses of the site data;

3. Preparation of this final report that includes the items listed below:

To accomplish the objective of this work, the following were undertaken:

 a) A drawing showing the location of the exploratory borings. b) Logs of the exploratory borings.

c) A description of subsurface conditions encountered.

d) Engineering analyses to identify site development criteria, including requirements for site preparation, earthwork, and fill placement and compaction criteria.

e) Engineering analyses to identify foundation design parameters.

4.0 FIELD EXPLORATION

Subsurface soil conditions at the site were explored by drilling four soil borings (referenced as Borings B-1 to B-5) on August 26, 2004. The approximate boring locations are shown on the Site Plan, Figure 2,

A hollow stem auger-drilling rig was used for the work. Disturbed samples of soils were recovered using a split spoon sampler, following ASTM D 1586 (the "Standard Penetration Test", or "SPT"). The SPT blowcounts were recorded as the sampler was driven into the ground to provide an index of the strength and consistency of the subsurface materials.

A URS field engineer prepared field logs of each boring. These logs included visual classifications of the materials encountered during drilling, as well as the field engineer's interpretation of the changes in subsurface materials. Descriptions presented on the boring logs are taken from the field drilling logs. The boring logs, along with a more detailed description of the field exploration, are presented in

It should be noted that all borings were advanced from the ground surface elevations as they existed at the time of drilling. Any cutting or filling of the site during site construction activities would likely affect the recommendations found in this report.

5.0 SITE AND SUBSURFACE CONDITIONS

GEOTECHNICAL INVESTIGATION

VACANT PARCEL RIVER HILL VILLAGE CENTER

CLARKSVILLE, MARYLAND

Prepared For: RUBY TUESDAY, INC.

150 West Church Avenue

Prepared By: URS CORPORATION

Atlanta, Georgia 30328

September 10, 2004

Maryville, Tennessee 37801

400 Northpark Town Center

1000 Abernathy Road, N.E., Suite 900

The site of the proposed Ruby Tuesday restaurant is an undeveloped, grassed outparcel of the River Hill Village Center. The proposed site is bordered by the following: a Verizon Communications building to the north; undeveloped land to the south; asphalt paved parking to the east; and Clarksville Pike to the

Site topography slopes slightly downward to the east-southeast with the areas to the west-northwest being topographically upgradient.

The subsurface conditions at the site through the depth explored may be generalized to consist of soils characteristic of the Piedmont Physiographic Province of Maryland:

Layer 1: Silt: In the near surface, each of the borings encountered a brown/brownish red/reddish yellow, highly micaceous, medium stiff to stiff silt with trace low plasticity clay and fine quartz gravel. The silt extends from below the topsoil surface layer to typically 3.5 to 4 feet bgs. SPT blow counts in this layer

Layer 2: Sandy Silt: Immediately beneath the Layer 1 silt, the site is underlain by a brown/reddish brown/brownish yellow, medium stiff to stiff, highly micacous, fine grained, sandy silt with trace fine quartz gravel. This material extends to the termination depth of 15 feet bgs in the borings. SPT blow

5.1.3 Groundwater

ranged from 7 to 14 blows/foot.

Groundwater was not encountered in the borings at the time of drilling. We note that fluctuations in the groundwater level may occur due to seasonal variations and variations in rainfall, evaporation, construction activity, surface runoff, and other site-specific factors.

5.1.4 Surface Water

There was no surface water evident on the site at the time of this exploration.

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6.0 RECOMMENDATIONS

6.1 Recommended Foundation System Proposed foundation systems have been analyzed using the information developed from the subsurface exploration and the expected light loads. Structural information was not provided for the preparation of this report. However, based on URS' experience with similar structures, we anticipate maximum column and wall loads on the order of 75 kips and 3 to 4 kips per linear foot, respectively. Based on the conditions encountered in the borings, the planned Ruby Tuesday restaurant may be supported on shallow spread and/or continuous footings bearing in the silt/sandy silt materials or a compacted granular fill 6.2 Foundation Design

6.2.1 Footing Design Parameters URS recommends that the restaurant be supported on shallow foundations, consisting of isolated spread and continuous footings bearing in the silt/sandy silt soils. Footings may be designed using a net bearing pressure of 2,000 pounds per square foot. The net bearing pressure refers to the pressure transferred to the bearing material at the footing bearing level in excess of the minimum surrounding overburden

Shallow foundations should bear at least 30 inches below the lowest adjacent finished grade. Continuous formed wall footings should have a minimum width of 18 inches, and isolated column footings should have a minimum width of 30 inches, regardless of the bearing pressure. The minimum widths are considered advisable to provide a margin of safety against a local or purching shear failure of the foundation soils. The base of all foundation excavations should be free of water and loose soil prior to placing concrete.

6.2.2 Floor Slab Recommendations The floor slab subgrade may be developed by recompacting existing silt/sandy silt soils disturbed by any subsequent construction activity. The upper 12 inches of soils should be recompacted to at least 95% of the material's maximum Standard Proctor dry density (ASTM D-698).

Additional floor slab design and construction recommendations are as follows: · Positive separations and/or isolation joints should be provided between the grade slab and all

foundations and walls/columns to allow independent movement. Any interior trench backfill placed beneath slabs should be compacted in accordance with specifications outlined in Section 7.2.

• If moisture sensitive floor coverings are used on interior slabs, consideration should be given to the use of barriers (either polyethylene or a thin sand or graded gravel layer) to minimize potential vapor rise through the slab.

· Floor slabs should not be constructed on frozen subgrade.

• Other design and construction considerations, as outlined in the ACI Design Manual, Section

302.1R are recommended. 6.2.3 Foundation Settlement (static condition)

We recommend that walls be provided with suitable movement joints to accommodate differential settlement. For properly designed foundations constructed as recommended in this report, total settlement is expected to be less than one inch. Angular distortion due to differential movement between adjacent, unevenly loaded foundations should be less than one in 450 (less than 1/2 inch in 20 linear feet).

6.3 Construction Monitoring Services It is recommended that a qualified geotechnical consultant be retained to observe and test foundation

bearing materials and to test fill as it is placed and compacted. All footings and slab subgrade areas

should be observed prior to placement of fill and concrete to verify that suitable support of foundations,

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floor slabs or additional fill is achieved.

7.0 SITE PREPARATION AND FILL PLACEMENT

7.1 Site Preparation

At the onset of any site grading, the entire site should be stripped of vegetation, or other deleterious materials. Following removal of the topsoil, the silt/sandy silt soils within the limits of the structure and parking areas should be proof-rolled with moderately-loaded rubber tired construction equipment prior to constructing foundations and pavement. Proof-rolling aids in providing a firm base for compaction of any subsequent fill, and will help delineate any soft areas, which may exist below the subgrade level. If soft or loose soils are identified, they should be removed and replaced with compacted granular fill if they cannot be satisfactorily compacted in place.

7.2 Fill Placement and Compaction

Fill placed within the building area and as backfill for any undercut areas should consist of approved granular materials, which are free of organic matter and debris. The fill beneath the structure should be placed and compacted in lifts of 8 inches or less in loose thickness. The granular fill material should be compacted to at least 95% of the material's maximum Standard Proctor dry density (ASTM D-698). At the time of placement and compaction, the moisture content of the material should be within the range of

3% below to 3% above the optimum moisture content value determined by the Standard Proctor test.

7.3 Dewatering

Groundwater was not encountered at the time of drilling. It is anticipated that dewatering operations should not be required during construction. If periodic dewatering is required to remove runon resulting from surface water or to remove rainwater, this work can be accomplished using small sump pumps and

8.0 LIMITATIONS

The analyses and recommendations presented in this report are based upon the data obtained from the borings performed at the indicated locations and from any other information discussed in this report. This report does not reflect any variations, which may occur between borings or across the site. The nature and extent of such variations may not become evident until construction. If variations appear evident, it will be necessary to reevaluate the recommendations in this report.

It is recommended that URS be retained to review the plans and specifications so that comments can be provided regarding the interpretation and implementation of the geotechnical recommendations in the design and specifications. It is further recommended that URS be retained for construction material testing and observation during earthwork and foundation construction phases to help evaluate that the design requirements are fulfilled.

This report has been prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. No warranty, express or implied, is provided. In the event that any changes in the nature, design or location of the project as outlined in this report are planned, the conclusions and

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recommendations contained in this report shall not be considered valid unless the changes are reviewed and the conclusions of this report modified or verified in writing by URS. The following figures and appendix are attached to this report:

Site Vicinity Map and Site Plan

It has been a pleasure to be of continued service to Ruby Tuesday, Inc. If you have any questions

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Boring Logs concerning our findings and recommendations presented herein, please contact the undersigned.

Clarksville Quadrangle, 197 7.5 Minute Series (Topograp SCALE / KILOMETERS Ruby Tuesday Site Location Map River Hill Village Center, Clarksville, Maryland 1:24,000

APPROVED: FOR PUBLIC WATER AND PUBLIC SEWAGE SYSTEMS

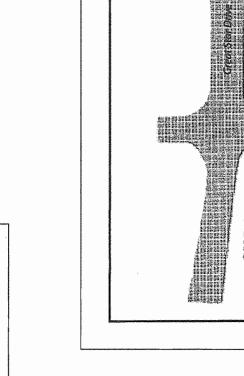
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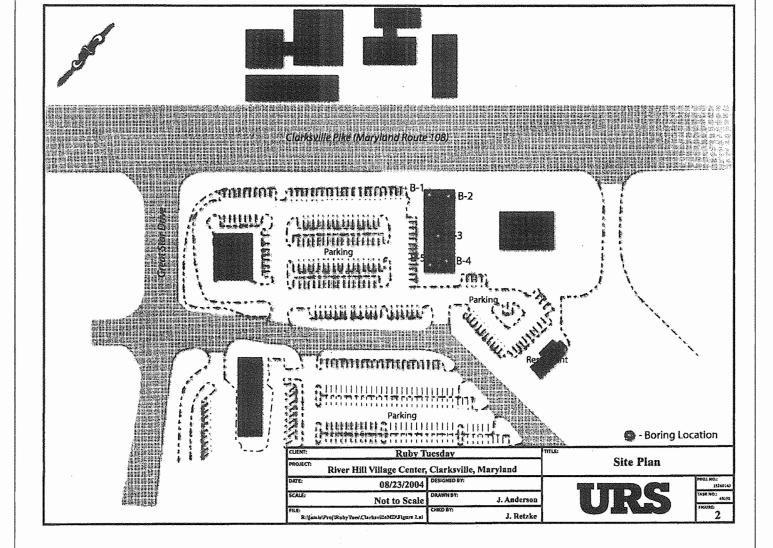
COUNTY HEALTH OFFICER HOWARD COUNTY HEALTH DEPARTMENT

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGI

APPROVED PLANNING BOARD of HOWARD COUNTY DATE 06/08/06





TRACTOR SHALL CONTACT URS

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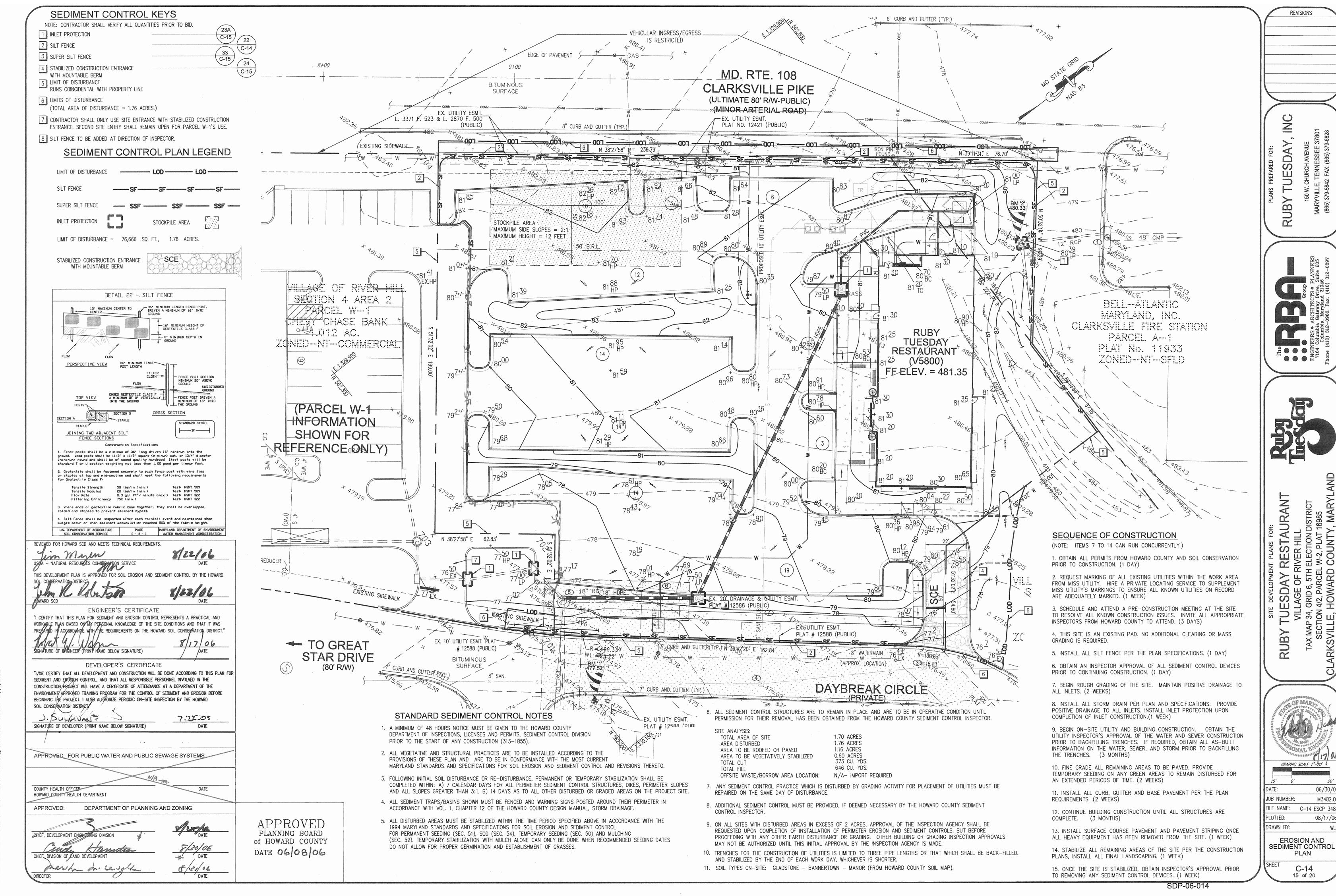
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11. SEEDED PREPARATION AND SEEDING APPLICATION

LOOSEN THE TOP LAYER OF THE SOIL TO A DEPTH OF 3 TO 5 INCHES BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT SUCH AS DISC HARROWS, CHISEL PLOWS OR RIPPERS MOUNTED ON CONSTRUCTION EQUIPMENT, INCORPORATE THE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF THE SOIL BY DISCING OR BY OTHER SUITABLE MEANS. ROUGH AREAS SHOULD NOT BE ROLLED OR DRAGGED SMOOTH, BUT LEFT IN A ROUGHENED CONDITION. STEEP SLOPES GREATER THAN 3:1 SHOULD BE TRACKED BY A DOZER, LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. THE TOP 1 TO 3 INCHES OF SOIL SHOULD BE LOOSE AND FRIABLE. PERMANENT COVER MAY REQUIRE AN APPLICATION OF TOPSOIL. IF SO, IT MUST MEET THE REQUIREMENTS SET FORTH IN SECTION 21.0 STANDARDS AND SPECIFICATIONS FOR TOPSOIL FROM THE 1994 STANDARDS AND SPECIFICATIONS.

III. SOIL AMENDMENTS

SEEDING.

SOIL TESTS SHALL BE MADE ON SITES OVER FIVE ACRES TO DETERMINE THE EXACT REQUIREMENTS FOR BOTH LIME AND FERTILIZER. FOR SITES UNDER 5 ACRES, IN LIEU OF A SOIL TEST. APPLY THE FOLLOWING:

FERTILIZER NITROGEN 2 LBS/1000 SQ. FT. (90 LBS/AC)

P205 4 LBS/1000 SQ. FT. (175 LBS/AC) K20 4 LBS/1000 SQ. FT. (175 LBS/AC)

FOR LOW MAINTENANCE AREAS APPLY 150 LBS/AC UREAFORM FERTILIZER (38-0-0) AT 3.5 LBS/1000 SQ. FT. IN ADDITION TO THE ABOVE FERTILIZER AT THE TIME OF

GROUND LIMESTONE 2 TONS/AC

IV. SEDIMENT CONTROL PRACTICE SEEDING

SELECT A SEEDING MIXTURE FROM TABLE 25 OR 26 IN SECTION G OF THE 1994 STANDARDS AND SPECIFICATIONS. DOCUMENT SEEDING ON THE EROSION AND SEDIMENT CONTROL PLAN USING APPROPRIATE CHART BELOW. NOTE: IF SEDIMENT CONTROL PRACTICES ARE IN FOR LONGER THAN 12 MONTHS, PERMANENT SEEDING IS REQUIRED.

V. TEMPORARY/PERMANENT SEEDING MIXTURES AND RATES

SELECT A SEEDING MIXTURE FROM APPROPRIATE TABLE 25 OR 26 IN SECTION G OF THE 1994 STANDARDS AND SPECIFICATIONS. DOCUMENT SEEDING ON THE EROSION AND SEDIMENT CONTROL PLAN USING APPROPRIATE CHART BELOW.

TEMPORARY		SEEDI	٧G	SUMMARY			
 	-		,	/		_	ؙ

Seed Mixtu Fro	re (Hardiness m Table 26	Fertilizer Rate	Lime Rate		
Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	(10-10-10)	Lime Rate
Barley Rye plus Fox Tail Millet	150	2/1-11/15	1"		
Rye	140	2/1-4/30 8/13-11/30	1"-2"	600 lb/ac (15 lb/1000 sf)	2 tons/ac (100 lb/1000 sf)
Millet	50	5/1-8/14	1/4"-1/2"		

PERMANENT SEED SUMMARY

S	Geed Mixture From T	6B)	Fertilizer Rate 900 lb S/AC (10-20-20)			Lime Rate	
Species	Application Rate (lb/ac)		Seeding Depths	N	P 205	K 20	Lime Rate
Tall Fescue C. Blue Grass K. Blue Grass	150	3/1-5/15 (6b) 8/15-10/15 (7a) 8/15-11/15	1/4"-1/2"				
Tall Fescue Per. Rye Grass K. Blue Grass	123 15 10	3/1-5/15 (6b) 8/15-10/15 (7a) 8/15-11/15	1/4"-1/2"		(4 lb/ 1000 sf)	(4 lb/ 1000 sf)	2 tons/ac (100 lb/ 1000 sf)
Tall Fescue W. Love Grass S. Lespedeza	110 8 80	3/1-5/15 (6b) 8/15-10/15 (7a) 8/15-11/15	1/4"-1/2"				

REVIEWDED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS. - NATURAL RESOURCE CONSERVATION SERVICE

NGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE)

HIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD

ENGINEER'S CERTIFICATE I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLEAPLAN BASED ON MX-PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS ON THE HOWARD SOIL CONSERVATION DISTRICT."

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT HALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."___

7.22.05 SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE)

APPROVED: FOR PUBLIC WATER AND PUBLIC SEWAGE SYSTEMS COUNTY HEALTH OFFICER HOWARD COUNTY HEALTH DEPARTMENT

DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGIN

APPROVED PLANNING BOARD

VI. TURFGRASS ESTABLISHMENT

THIS INCLUDES LAWNS, PARKS, PLAYGROUNDS, AND COMMERCIAL SITES WHICH WILL RECEIVE A MEDIUM TO HIGH LEVEL OF MAINTENANCE. AREAS TO RECEIVE SEED SHALL BE TILLED BY DISCING OR BY OTHER APPROVED METHODS TO A DEPTH OF 3 TO 5 INCHES, LEVELED AND RAKED TO PREPARE A PROPER SEEDBED. STONES AND DEBRIS OVER 1 1/2 INCHES IN DIAMETER SHALL BE REMOVED. THE RESULTING SEEDBED SHALL BE IN SUCH CONDITION THAT FUTURE MOWING OF GRASSES WILL POSE NO DIFFICULTY, USE CERTIFIED MATERIAL AND CHOOSE A TURFGRASS MIXTURE FROM PAGE G-20 OF THE 1994 STANDARDS AND SPECIFICATIONS OR SELECT FROM THE LIST IN THE MOST CURRENT UNIVERSITY OF MARYLAND PUBLICATION, AGRONOMY MIMEO #77, "TURFGRASS CULTIVAR RECOMMENDATIONS FOR MARYLAND".

VII. <u>MULCHIN</u>G

ALL SEEDINGS REQUIRE MULCHING. ALSO MULCH DURING NON-SEEDING DATES UNTIL SEEDING CAN BE DONE.

MULCH SHALL BE UNROTTED, UNCHOPPED, SMALL GRAIN STRAW APPLIED AT A RATE OF 2 TONS/ACRE OR 90 LBS/1000 SQ. FT. (2 BALES). IF A MULCH ANCHORING TOOL IS USED, APPLY 2.5 TONS/ACRE. MULCH MATERIALS SHALL BE RELATIVELY FREE OF ALL KINDS OF WEEDS AND SHALL BE COMPLETELY FREE OF PROHIBITED NOXIOUS WEEDS. SPREAD MULCH UNIFORMLY, MECHANICALLY OR BY HAND, TO A DEPTH OF 1-2 INCHES. MULCH ANCHORING SHALL BE ACCOMPLISHED IMMEDIATELY AFTER MULCH PLACEMENT TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY MULCH NETTINGS, MULCH ANCHORING TOOL, WOOD CELLULOSE FIBER OR LIQUID MULCH BINDERS.

APPLY WOOD CELLULOSE FIBER AT A DRY WEIGHT OF 1,500 LBS/ACRE. IF MIXED WITH WATER, USE 50 LBS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.

LIQUID BINDER SHOULD BE APPLIED HEAVIER AT THE EDGE, WHERE WIND CATCHES MULCH IN VALLEYS. AND ON CREST OF BANKS. THE REMAINDER OF THE AREA SHOULD APPEAR UNIFORM AFTER BINDER APPLICATION. APPLY RATES RECOMMENDED BY THE MANUFACTURER TO ANCHOR AND MULCH. STAPLE LIGHTWEIGHT, PLASTIC NETTING OVER THE MULCH ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

CLASS OF TURFGRASS SOD SHALL BE MARYLAND OR VIRGINIA CERTIFIED, OR MARYLAND OR VIRGINIA STATE APPROVED SOD. SOD SHALL BE HARVESTED, DELIVERED AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOD IS TO BE LAID WITH THE LONG EDGES PARALLEL TO THE CONTOUR USING STAGGERED JOINTS WITH ALL ENDS TIGHTLY ABUTTED AND NOT OVER LAPPING. SOD SHALL BE ROLLED AND THOROUGHLY WATERED AFTER INSTALLATION. DAILY WATERING TO MAINTAIN 4 INCH DEPTH OF MOISTURE FOR THE FIRST WEEK IS REQUIRED IN THE ABSENCE OF RAINFALL. SOD IS NOT TO BE APPLIED ON FROZEN GROUND.

IX. MAINTENANCE

A. IRRIGATE-APPLY MINIMUM 1" OF WATER EVERY 3 TO 4 DAYS ON SOIL TEXTURE, WHEN SOIL MOISTURE BECOMES DEFICIENT TO PREVENT LOSS OF STAND OF PROTECTIVE VEGETATION.

B. REPAIRS-IF STAND PROVIDES BETWEEN 40% AND 94% GROUND COVERAGE, OVERSEED AND FERTILIZE USING HALF OF THE RATES ORIGINALLY APPLIED. IF STAND PROVIDES LESS THAN 40% COVERAGE, REESTABLISH STAND FOLLOWING ORIGINAL RATES AND PROCEDURES.

20.0 STANDARDS AND SPECIFICATIONS FOR LAND GRADING

<u>DEFINITION</u>

RESHAPING OF THE EXISTING LAND SURFACE IN ACCORDANCE WITH A PLAN AS DETERMINED BY ENGINEERING SURVEY AND LAYOUT.

THE PURPOSE OF A LAND GRADING SPECIFICATION IS TO PROVIDE FOR EROSION CONTROL AND VEGETATIVE ESTABLISHMENT ON THOSE AREA WHERE THE EXISTING LAND SURFACE IS TO BE RESHAPED BY GRADING ACCORDING TO PLAN.

THE GRADING PLAN SHOULD BE BASED UPON THE INCORPORATION OF BUILDING DESIGNS AND STREET LAYOUTS THAT FIT AND UTILIZE EXISTING TOPOGRAPHY AND DESIRABLE NATURAL SURROUNDINGS TO AVOID EXTREME GRADE MODIFICATIONS. INFORMATION SUBMITTED MUST PROVIDE SUFFICIENT TOPOGRAPHIC SURVEYS AND SOIL INVESTIGATIONS TO DETERMINE LIMITATIONS THAT MUST BE IMPOSED ON THE GRADING OPERATION RELATED TO SLOPE STABILITY. EFFECT ON ADJACENT PROPERTIES AND DRAINAGE PATTERNS, MEASURES FOR DRAINAGE AND WATER REMOVAL AND VEGETATIVE TREATMENT, ETC. MANY COUNTIES HAVE REGULATIONS AND DESIGN PROCEDURES ALREADY ESTABLISHED FOR LAND GRADING AND CUT AND FILL SLOPES. WHERE THESE REQUIREMENTS EXIST, THEY SHALL BE FOLLOWED. THE PLAN MUST SHOW EXISTING AND PROPOSED CONTOURS OF THE AREA(S) TO BE GRADED. THE PLAN SHALL ALSO INCLUDE PRACTICES FOR EROSION CONTROL, SLOPE STABILIZATION, SAFE DISPOSAL OR RUNOFF WATER AND DRAINAGE, SUCH AS WATERWAYS, LINED DITCHES, REVERSE SLOPE BENCHES (INCLUDE GRADE AND CROSS SECTION), GRADE STABILIZATION STRUCTURES, RETAINING WALLS, AND SURFACE AND SUBSURFACE DRAINS. THE PLAN SHALL ALSO INCLUDE PHASING OF THESE PRACTICES. THE FOLLOWING SHALL BE INCORPORATED INTO THE PLAN:

1. PROVISIONS SHALL BE MADE TO SAFELY CONDUCT SURFACE RUNOFF TO STORM DRAINS, PROTECTED OUTLETS OR TO STABLE WATER COURSES TO INSURE THAT SURFACE RUNOFF WILL NOT DAMAGE SLOPES OR OTHER GRADED AREAS.

2. CUT AND FILL SLOPES THAT ARE TO BE STABILIZED WITH GRASSES SHALL NOT BE STEEPER THAN 2:1. (WHERE THE SLOPE IS TO BE MOWED THE SLOPE SHOULD BE NO STEEPER THAN 3:1, 4:1 IS PREFERRED BECAUSE OF SAFETY FACTORS RELATED TO MOWING STEEP SLOPES). SLOPES EXCEEDING 2:1 SHALL REQUIRE SPECIAL DESIGN AND STABILIZATION CONSIDERATIONS THAT SHALL BE ADEQUATELY SHOWN ON THE

3. REVERSE BENCHES SHALL BE PROVIDED WHENEVER THE VERTICAL INTERVAL (HEIGHT) OF ANY 2:1 SLOPE EXCEEDS 20 FEET; FOR 3:1 SLOPE IT SHALL BE INCREASED TO 30 FEET AND FOR 4:1 TO 40 FEET. BENCHES SHALL BE LOCATED TO DIVIDE THE SLOPE FACE A EQUALLY AS POSSIBLE AND SHALL CONVEY THE WATER TO A STABLE OUTLET. SOILS, SEEPS, ROCK OUTCROPS, ETC., SHALL ALSO BE TAKEN INTO CONSIDERATION WHEN DESIGNING BENCHES. A. BENCHES SHALL BE A MINIMUM OF SIX-FEET WIDE TO PROVIDE FOR EASE OF MAINTENANCE. B. BENCHES SHALL BE DESIGNED WITH A REVERSE SLOPE OF 6:1 OR FLATTER TO THE TOE OF THE UPPER SLOPE AND WITH A MINIMUM OF ONE FOOT IN DEPTH. BENCH GRADIENT TO THE OUTLET SHALL BE BETWEEN 2 PERCENT AND 3 PERCENT, UNLESS ACCOMPANIED BY APPROPRIATE DESIGN AND COMPUTATIONS. C. THE FLOW LENGTH WITHIN A BENCH SHALL NOT EXCEED 800' UNLESS ACCOMPANIED BY APPROPRIATE DESIGN AND COMPUTATIONS. FOR FLOW CHANNEL STABILIZATION SEE TEMPORARY SWALE.

4. SURFACE WATER SHALL BE DIVERTED FROM THE FACE OF ALL CUT AND/OR FILL SLOPES BY THE USE OF EARTH DIKES, DITCHES AND SWALES OR CONVEYED DOWN SLOPE BY THE USE OF A DESIGNED STRUCTURE, EXCEPT WHERE: A. THE FACE OF THE SLOPE IS OR SHALL BE STABILIZED AND THE FACE OF ALL GRADED SLOPES

of HOWARD COUNTY DATE 06 08 06 SHALL BE PROTECTED FROM SURFACE RUNOFF UNTIL THEY ARE STABILIZED. B. THE FACE OF THE SLOPE SHALL NOT BE SUBJECT TO ANY CONCENTRATED FLOWS OF SURFACE WATER SUCH AS FROM NATURAL DRAINAGEWAYS, GRADED SWALES, DOWNSPOUTS, ETC. C. THE FACE OF THE SLOPE WILL BE PROTECTED BY SPECIAL EROSION CONTROL MATERIALS, TO INCLUDE, BUT NOT LIMITED TO: APPROVED VEGETATIVE STABILIZATION PRACTICES (SEE SECTION G), RIP-RAP OR OTHER APPROVED STABILIZATION METHODS.

5. CUT SLOPES OCCURRING IN RIPABLE ROCK SHALL BE SERRATED A SHOWN ON THE FOLLOWING DIAGRAM. THESES SERRATIONS SHALL BE MADE WITH CONVENTIONAL EQUIPMENT AS THE EXCAVATION IS MADE. EACH STEP OR SERRATION SHALL BE CONSTRUCTED ON THE CONTOUR AND WILL HAVE STEPS CUT AT NOMINAL TWO-FOOT INTERVALS WITH NOMINAL THREE-FOOT HORIZONTAL SHELVES. THESE STEPS WILL VARY DEPENDING ON THE SLOPE RATIO OR THE CUT SLOPE. THE NOMINAL SLOPE LINE IS 1:1. THESE STEPS WILL WEATHER AND ACT TO HOLD MOISTURE, LIME, FERTILIZER AND SEED THUS PRODUCING A MUCH QUICKER AND LONGER LIVED VEGETATIVE COVER AND BETTER SLOPE STABILIZATION. OVERLAND FLOW SHALL BE DIVERTED FROM THE TOP OF ALL SERRATED CUT SLOPES AND CARRIED TO SUITABLE OUTLET.

6. SUBSURFACE DRAINAGE SHALL BE PROVIDED WHERE NECESSARY TO INTERCEPT SEEPAGE THAT WOULD OTHERWISE ADVERSELY AFFECT SLOPE STABILITY OR CREATE EXCESSIVELY WET SITE CONDITIONS.

7. SLOPES SHALL NOT BE CREATED SO CLOSE TO PROPERTY LINES AS TO ENDANGER ADJOINING PROPERTIES WITHOUT ADEQUATELY PROTECTING SUCH PROPERTIES AGAINST SEDIMENTATION, EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED DAMAGES.

8. FILL MATERIAL SHALL BE FREE OF BRUSH, RUBBISH, ROCKS, LOGS, STUMPS, BUILDING DEBRIS, AND OTHER OBJECTIONABLE MATERIAL. IT SHOULD BE FREE OF STONES OVER TWO (2) INCHES IN DIAMETER WHERE COMPACTED BY HAND OR MECHANICAL TAMPERS OR OVER EIGHT (8) INCHES IN DIAMETER WHERE COMPACTED BY ROLLERS OR OTHER EQUIPMENT. FROZEN MATERIAL SHALL NOT BE PLACED IN THE FILL NOR SHALL THE FILL MATERIAL BE PLACED ON A FROZEN FOUNDATION.

9. STOCKPILES, BORROW AREAS AND SPOIL SHALL BE SHOWN ON THE PLANS AND SHALL BE SUBJECT TO THE PROVISIONS OF THIS STANDARD AND SPECIFICATIONS. 20.0 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION ALL DISTURBED AREAS SHALL BE STABILIZED STRUCTURALLY OR VEGETATIVELY IN COMPLIANCE WITH.

24.0 MATERIALS SPECIFICATIONS

CLASS	APPARENT OPENING SIZE MM. MAX.	GRAB TENSILE STRENGTH LB. MIN.	BURST STRENGTH PSI MIN.
Α	0.30	250	500
В	0.60	200	320
С	0.30	200	320
D	0.60	90	145
Ε	0.30	90	145
F(SILT FENCE)	0.40-0.80*	90	190

* US STD SIEVE CW-022

THE PROPERTIES SHALL BE DETERMINED IN ACCORDANCE WITH THE FOLLOWING

APPARENT OPENING SIZE MSMT 323

GRAB TENSILE STRENGTH ASTM D 1682: 4X8" SPECIMEN, 1X2" CLAMPS, 12"/MM. STRAIN RATE IN BOTH PRINCIPAL DIRECTIONS OF GEOTEXTILE FABRIC.

BURST STRENGTH ASTM D 3786

THE FABRIC SHALL BE INERT TO COMMONLY ENCOUNTERED CHEMICALS AND HYDROCARBONS, AND WILL BE ROT AND MILDEW RESISTANT. IT SHALL BE MANUFACTURED FROM FIBERS CONSISTING OF LONG CHAIN SYNTHETIC POLYMERS. AND COMPOSED OF A MINIMUM OF 85% BY WEIGHT OF POLYOLEPHIN: POLYESTERS, OR POLYAMIDES. THE GEOTEXTILE FABRIC SHALL RESIST DETERIORATION FROM ULTRAVIOLET EXPOSURE.

IN ADDITION, CLASSES A THROUGH E SHALL HAVE A 0.01 CM./SEC. MINIMUM PERMEABILITY WHEN TESTED IN ACCORDANCE WITH MSMT 507. AND AN APPARENT MINIMUM ELONGATION OF 20 PERCENT (20%) WHEN TESTED IN ACCORDANCE WITH THE GRAB TENSILE STRENGTH REQUIREMENTS LISTED ABOVE.

CLASS F GEOTEXTILE FABRICS FOR SILT FENCE SHALL HAVE A 50 LB./IN. MINIMUM TENSILE STRENGTH AND A 20 LB./IN. MINIMUM TENSILE MODULES WHEN TESTED IN ACCORDANCE WITH MSMT 509. THE MATERIAL SHALL ALSO HAVE A 0.3 GAL./FT.2/MIN. FLOW RATE AND SEVENTY-FIVE PERCENT (75%) MINIMUM FILTÉRING EFFICIENCY WHEN TESTED IN ACCORDANCE WITH MSMT 322.

GEOTEXTILE FABRICS USED IN THE CONSTRUCTION OF SILT FENCE SHALL RESIST DETERIORATION FROM ULTRAVIOLET EXPOSURE. THE FABRIC SHALL CONTAIN SUFFICIENT AMOUNTS OF ULTRAVIOLET RAY INHIBITORS AND STABILIZERS TO PROVIDE A MINIMUM OF 12 MONTHS OF EXPECTED USABLE CONSTRUCTION LIFE AT A TEMPERATURE RANGE OF 0 TO 120 DEGREES F.

SIZE RAN	IGE	D ₅₀	D ₁₀₀	AASHTO	WEIGHT
NUMBER 57*	3/8"-1 1/2"	1/2"	1 1/2"	M-34	N/A
NUMBER 1	2"-3"	2 1/2"	3"	M-34	N/A
RIP-RAP**	4"-7"	5 1/2"	7"	N/A	N/A
CLASS 1	N/A/	9.5"	15"	N/A	150 lb MAX
CLASS II	N/A	16"	24"	N/A	700 Ib MAX
CLASS III	N/A	23"	34"	N/A	200lb MAX

*THIS CLASSIFICATION IS TO BE USED ON THE INSIDE FACE OF STONE OUTLETS AND CHECK DAMS. ** THIS CLASSIFICATION IS TO BE USED WHEN EVER SMALL RIP-RAP IS REQUIRED. THE STATE HIGHWAY ADMINISTRATION DESIGNATION FOR THIS STONE IS STONE FOR GABIONS (§905.01.04).

STONE FOR GABION BASKETS

BASKET THIC	KNESS	SIZE OF INDIVIDUAL STONES		
INCHES	ММ	INCHES	ММ	
6	150	3–5	75–125	
9	225	4-7	100–175	
12	300	4–7	100-175	
18	460	47	100-175	
36	910	4–12	100-300	

NOTE: RECYCLED CONCRETE EQUIVALENT MAY BE SUBSTITUTED FOR ALL STONE CLASSIFICATIONS. RECYCLED CONCRETE EQUIVALENT SHALL BE CONCRETE BROKEN INTO THE SIZES MEETING THE APPROPRIATE CLASSIFICATION, SHALL CONTAIN NO STEEL REINFORCEMENT, AND SHALL HAVE A DENSITY OF 150 POUNDS PER CUBIC

21.0 STANDARD AND SPECIFICATIONS FOR TOPSOIL

PLACEMENT OF TOPSOIL OVER A PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION.

TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.

CONDITIONS WHERE PRACTICE APPLIES.

. THIS PRACTICE IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:

A. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH. B. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR

FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS. C. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.

D. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.

II. FOR THE PURPOSE OF THESE STANDARDS AND SPECIFICATIONS, AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN FOR ADEQUATE STABILIZATION. AREAS HAVING SLOPES STEEPER THAN 2:1 SHALL HAVE THE APPROPRIATE STABILIZATION SHOWN ON THE PLANS.

TOPSOIL SALVAGED FROM THE EXISTING SITE MAY BE USED PROVIDED THAT IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-SCS IN COOPERATION WITH MARYLAND AGRICULTURAL EXPERIMENTAL STATION.

II. TOPSOIL SPECIFICATIONS - SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING:

I. TOPSOIL SHALL BE A LOAM, SANDY LOAM, SILT LOAM, SANDY CLAY LOAM, LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. REGARDLESS, TOPSOIL SHALL NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND SHALL CONTAIN LESS THAN 5% BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1 1/2" IN DIAMETER.

II. TOPSOIL MUST BE FREE OF PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACKGRASS, JOHNSONGRASS, NUTSEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.

III. WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, GROUND LIMESTONE SHALL BE SPREAD AT THE RATE OF 4-8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL. LIME SHALL BE DISTRIBUTED UNIFORMLY OVER DESIGNATED AREAS AND WORKED INTO THE SOIL IN CONJUNCTION WITH TILLAGE OPERATIONS AS DESCRIBED IN THE FOLLOWING PROCEDURES.

III. FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES:

I. PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION -SECTION | - VEGETATIVE STABILIZATION METHODS AND MATERIALS.

IV. FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES:

I. ON SOIL MEETING TOPSOIL SPECIFICATIONS, OBTAIN TEST RESULTS DICTATING FERTILIZER AND LIME AMENDMENTS REQUIRED TO BRING THE SOIL INTO COMPLIANCE WITH THE FOLLOWING:

A. PH FOR TOPSOIL SHALL BE BETWEEN 6.0 AND 7.5. IF THE TESTED SOIL DEMONSTRATE A PH OF LESS THAN 6.0. SUFFICIENT LIME SHALL BE PRESCRIBED TO RAISE THE PH TO 6.5 OR HIGHER. B. ORGANIC CONTENT OF TOPSOIL SHALL BE NOT LESS THAN 1.5 PERCENT BY WEIGHT.

: TOPSOIL HAVING SOLUBLE SALT CONTENT GREATER THAN 500 PARTS PER MILLION SHALL NOT BE USED. D. NO SOD OR SEED SHALL BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.

NOTE: TOPSOIL SUBSTITUTES OR AMENDMENTS, AS RECOMMENDED BY A QUALIFIED AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY, MAY BE USED IN LIEU OF NATURAL TOPSOIL.

II. PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION SECTION I -- VEGETATIVE STABILIZATION METHODS AND MATERIALS. V. TOPSOIL APPLICATION.

I. WHEN TOPSOILING, MAINTAIN NEEDED EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DIVERSIONS, GRADE

GEOTEXTILE CLASS E

STABILIZATION STRUCTURES, EARTH DIKES, SLOPE SILT FENCE AND SEDIMENT TRAPS AND BASINS. II. GRADES ON THE AREAS TO BE TOPSOILED, WHICH HAVE BEEN PREVIOUSLY ESTABLISHED, SHALL BE MAINTAINED, ALBEIT 4" - 8" HIGHER IN ELEVATION.

III. TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 4" - 8" LAYER AND LIGHTLY COMPACTED TO A MINIMUM THICKNESS OF 4". SPREADING SHALL BE PERFORMED IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS SHALL BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.

IV. TOPSOIL SHALL NOT BE PLACED WHILE THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION. WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.

VI. ALTERNATIVE FOR PERMANENT SEEDING - INSTEAD OF APPLYING THE FULL AMOUNTS OF LIME AND COMMERCIAL FERTILIZER, COMPOSTED SLUDGE AND AMENDMENTS MAY BE APPLIED AS SPECIFIED BELOW:

I. COMPOSTED SLUDGE MATERIAL FOR USE AS A SOIL CONDITIONER FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES SHALL BE TESTED TO PRESCRIBE AMENDMENTS AND FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES SHALL

A. COMPOSTED SLUDGE SHALL BE SUPPLIED BY, OR ORIGINATE FROM, A PERSON OR PERSONS THAT ARE PERMITTED (AT THE TIME OF ACQUISITION OF THE COMPOST) BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT UNDER

B. COMPOSTED SLUDGE SHALL CONTAIN AT LEAST 1 PERCENT NITROGEN, 1.5 PERCENT PHOSPHORUS, AND 0.2 PERCENT POTASSIUM AND HAVE A PH OF 7.0 TO 8.0. IF COMPOST DOES NOT MEET THESE REQUIREMENTS. THE APPROPRIATE CONSTITUENTS MUST BE ADDED TO MEET THE REQUIREMENTS PRIOR TO USE. C. COMPOSTED SLUDGE SHALL BE APPLIED AT A RATE OF 1 TON/1,000 SQUARE FEET.

II. COMPOSTED SLUDGE SHALL BE AMENDED WITH A POTASSIUM FERTILIZER APPLIED AT THE RATE OF 4 LB/1,000 SQUARE FEET, AND 1/3 THE NORMAL LIME APPLICATION RATE.

REFERENCES: GUIDELINE SPECIFICATIONS, SOIL PREPARATION AND SODDING. MD-VA, PUB.#1, COOPERATIVE EXTENSION SERVICE, UNIVERSITY OF MARYLAND AND VIRGINIA POLYTECHNIC INSTITUTES. REVISED 1973.

2' x 4' frame using the overlap joint shown on Detail 23A. The

3. Stretch the 1/2' x 1/2' wire mesh tightly around the frame and fasten securely. The ends must meet and overlap at a

flooding and safety issues may arise

top elevation on the sides.

top of the frame (weir) must be 6' below adjacent roadways where

4. Stretch the Geotextile Class E tightly over the wire mesh with

the geotixtile extending from the top of the frame to 18' below the

yer of earth is level with the notch elevation on the ends and

6. If the inlet is not in a sump, construct a compacted earth dike

7. The structure must be inspected periodically and after each

across the ditch line directly below it. The top of the earth dike

WATER MANAGEMENT ADMINISTRATION

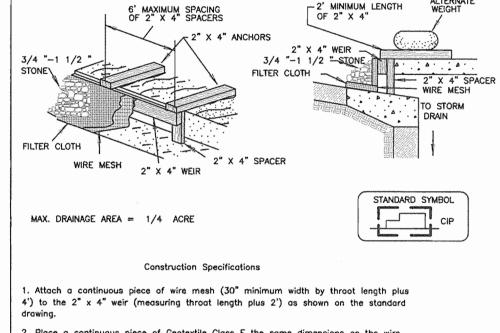
inlet notch elevation. Fasten the geotextile firmly to the frame.

The ends of the geotextile must meet at a post, be overlapped and

5. Backfill around the inlet in compacted 6' layers until the

should be at least 6' higher than the top of the frame.

rain and the geotextile replaced when it becomes clogged.



DETAIL 23C - CURB INLET PROTECTION (CDG OR COS INLETS)

2. Place a continuous piece of Geotextile Class E the same dimensions as the wire mesh over the wire mesh and securely attach it to the 2" x 4" weir.

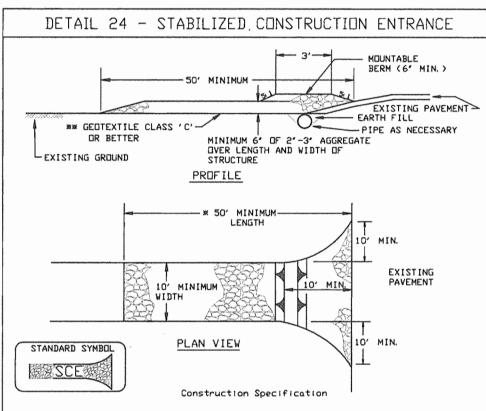
3. Securely nail the 2" X 4" weir to a 9" long vertical spacer to be located between

2" x 4" to the top of the weir at spacer lacations). These 2" x 4" onchors shall extend across the inlet top and be held in place by sandbags or alternate weight. 5. The assembly shall be placed so that the end spacers are a minimum 1' beyond both ends of the throat opening.

6. Form the 1/2 " \times 1/2 " wire mesh and the geotextile fabric to the concrete gutter and against the face of the curb on both sides of the inlet. Place clean 3/4 " x 1 1/2 " stone over the wire mesh and geotextile in such a manner to prevent water from entering the inlet under or around the geotextile.

7. This type of protection must be inspected frequently and the filter cloth and stone replaced when clogged with sediment 8. Assure that storm flow does not bypass the inlet by installing a temporary earth or asphalt dike to direct the flow to the inlet.

E - 16 - 5B WATER MANAGEMENT ADMINISTRATION SOIL CONSERVATION SERVICE



Length - minimum of 50' (#30' for single residence lot) 2. Width ~ 10' minimum, should be flared at the existing road to provide a turning

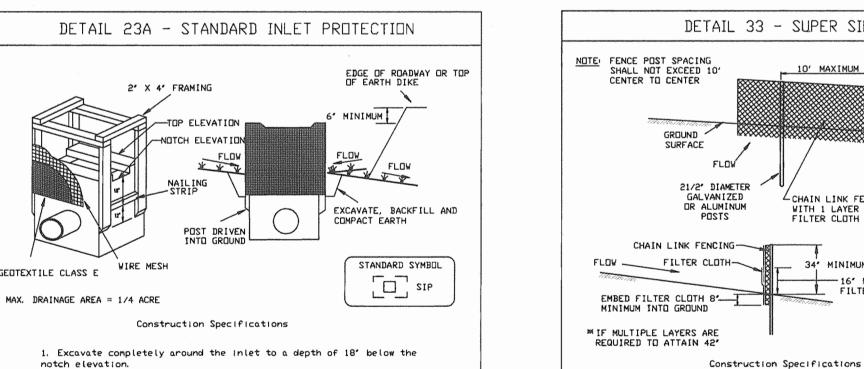
). Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family residences to use geotextile.

4. Stone - crushed aggregate (2' to 3') or reclaimed or recycled concrete equivalent shall be placed at least 6' deep over the length and width of the

5. Surface Water - all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mountable berm with 5:1 slopes and a minimum of 6' of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6' minimum will be required.

6. Location - A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance U.S. DEPARTMENT OF AGRICULTURE MARYLAND DEPARTMENT OF ENVIRONMENT

F - 17 - 3 WATER MANAGEMENT ADMINISTRATION



Construction Specifications 2. Drive the 2' x 4' construction grade lumber posts 1' into the ground at each corner of the inlet. Place nail strips between the posts on the ends of the inlet. Assemble the top portion of the

SOIL CONSERVATION SERVICE

. Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not

3. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24° at the top and mid section.

5. Maintenance shall be performed as needed and silt buildups removed when 'bulges develop in the silt fence, or when silt reaches 50% of fence height

50 lbs/in (min.) Test: MSMT 509 20 lbs/in (min.) Test: MSMT 509 Tensile Modulus 0.3 gal/ft*/minute (max.) Test: MSMT 322 Flow Rate Filtering Efficiency 75% (min.) Test: MSMT 322

DETAIL 33 - SUPER SILT FENCE 34' MINIMUM 36' MINIMUM FLOW WITH 1 LAYER OF 34' MINIMUM STANDARD SYMBOL ---- 32F ----Fencing shall be 42' in height and constructed in accordance with the atest Maryland State Highway Details for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42' fabric and 6' length

4. Filter cloth shall be embedded a minimum of B' into the ground. 5. When two sections of filter cloth adjoin each other, they shall be overlapped

7. Filter cloth shall be fastened securely to each fence post with wire ties or staples at top and mid section and shall meet the following requirements for

MARYLAND DEPARTMENT OF ENVIRONMEN U.S. DEPARTMENT OF AGRICULTURE WATER MANAGEMENT ADMINISTRATION SOIL CONSERVATION SERVICE

S 4. Place the assembly against the inlet throat and nail (minimum 2' lengths of

TAURAN'

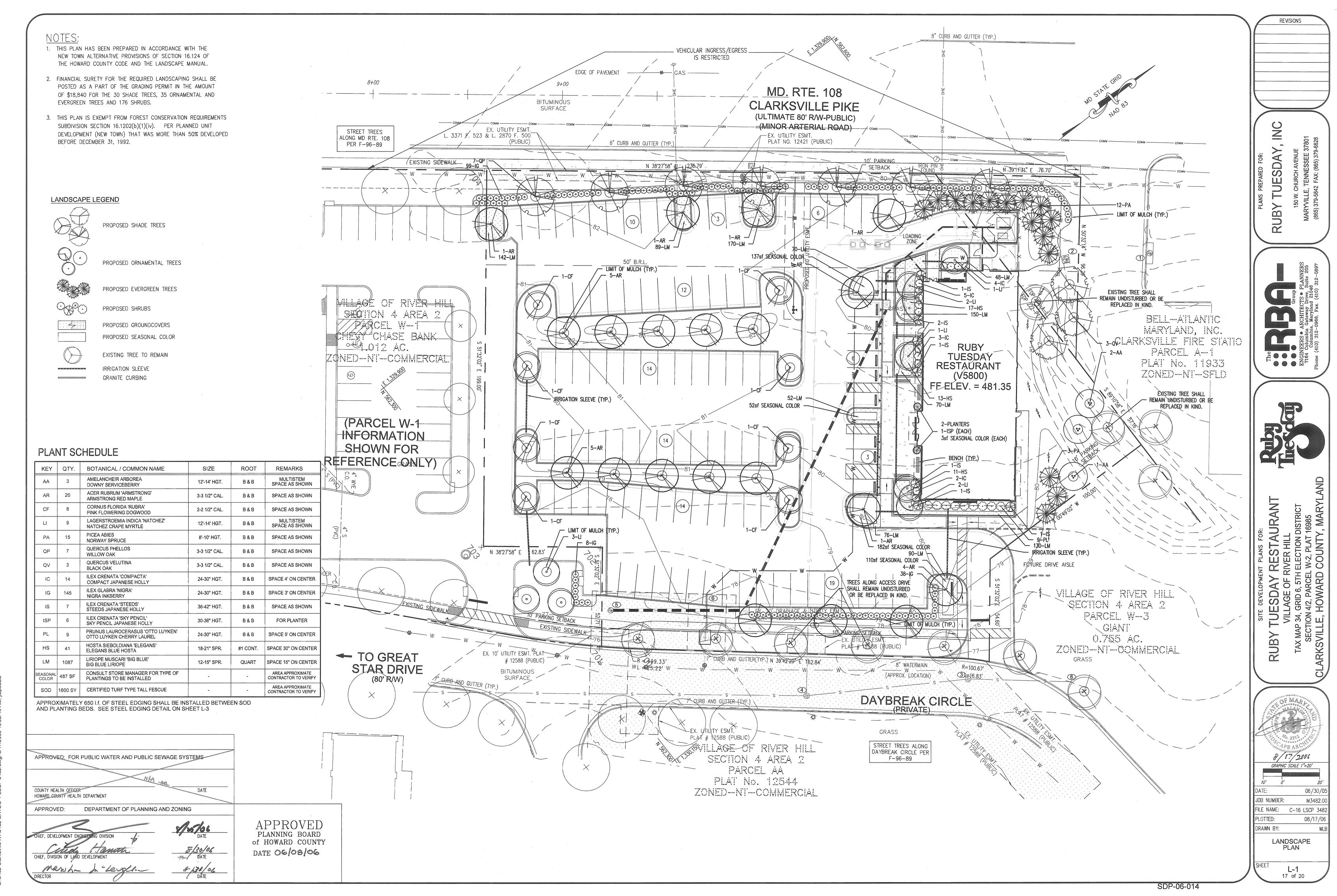
06/30/0 OB NUMBER M3482.00 ILE NAME: C-15 ESCD 3482

SDP-06-014

RAWN BY: DETAILS

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EROSION AND SEDIMENT CONTROL



G-13482 Clarkeville RT13482 SHTS11 -1-1 SCP 3482 dw/n 8/17/2006 10:22:46 AM ilenadula

- INSURANCE ON PLANT MATERIAL AND OTHER STORED OR INSTALLED
 MATERIALS IS THE RESPONSIBILITY OF THE CONTRACTOR. CONTRACTOR IS
 LIABLE FOR ANY LOSSES DUE TO THEFT, FIRE OR VANDALISM INCURRED PRIOR TO DATE OF SUBSTANTIAL COMPLETION OF THE WORK. OWNER SHALL IN NO WAY BE HELD RESPONSIBLE FOR ANY LOSS OF PLANT MATERIAL AND OTHER STORED OR INSTALLED MATERIALS DUE TO FIRE
- PROCEED WITH AND COMPLETE ALL LANDSCAPE WORK AS SOON AS PORTIONS OF THE SITE BECOMES AVAILABLE.
- EXISTING UTILITIES: LOCATE ALL UNDERGROUND UTILITIES. AVOID
 POSSIBLE DAMAGE TO UTILITIES. ALL DAMAGES TO UTILITIES RESULTING
 FROM THIS CONTRACT WORK WILL BE REPAIRED AT THE CONTRACTOR'S
- EXCAVATIONS: WHEN CONDITIONS DETRIMENTAL TO PLANT GROWTH ARE ENCOUNTERED, SUCH AS DEBRIS, POOR DRAINAGE, OR OTHER PLANTING SCHEDULE: COORDINATE SCHEDULE WITH GENERAL
- CONTRACTOR, IRRIGATION CONTRACTOR AND OTHER CONCERNED SUBCONTRACTORS.

TOPSOIL

- A. ANY ADDITIONAL TOPSOIL NECESSARY SHALL BE FERTILE, FRIABLE, LOAMY,
 REASONABLY FREE OF SUBSOIL, CLAY, WEEDS, LITTER AND FREE OF ROOTS,
 STUMPS AND STONES LARGER THAN TWO INCHES IN ANY DIMENSION AND ANY OTHER TOXIC MATTER HARMFUL TO PLANT GROWTH. TOPSOIL SHOULD HAVE AN ACIDITY RANGE BETWEEN 6.0 AND 7.5 AND HAVE A MINIMUM OF 1.5% ORGANIC MATTER.
- B. OBTAIN TOPSOIL FROM LOCAL SOURCES HAVING SIMILAR SOIL TEXTURE
 TO THAT PRESENT AT PROJECT SITE, EXCEPT WHERE CLAY SOIL IS PRESENT.
 FOR CLAY SOILS USE LOAM OR SILT LOAM TOPSOIL.
- C. TEXTURAL ANALYSIS SHALL BE AS FOLLOWS: SAND 20-50%; SILT 10-60%;
- SOIL AMENDMENTS
- NATURAL LIMESTONE CONTAINING NOT LESS THAN 85% CALCIUM AND MAGNESIUM CARBONTES, GROUND SO THAT NOT LESS THAN 100% PASSES A 10-MESH SIEVE AND 50% PASSES A 100-MESH SIEVE.
- AIR DRIED, FINELY SHREDDED AND PH RANGE SUITABLE FOR
- INTENDED HORTICULTURAL USE.
 HUMUS MAY BE PEAT-TYPE OR COMPLETELY DECOMPOSED FOREST-TYPE INCLUDING DECOMPOSED LEAVES, BARK AND ORGANIC WASTES.
- COMMERCIAL, RAW, FINELY GROUND, 4% NITROGEN AND 20% PHOSPHORIC ACID.
- SOLUBLE MIXTURE OF TREATED MINERALS, 20% AVAILABLE PHOSPHORIC
- D. FERTILIZER: ALL FERTILIZER SHALL BE COMPLETE FERTILIZER OF NEUTRAL CHARACTER, WITH SOME ELEMENTS DERIVED FROM ORGANIC SOURCES AND CONTAINING FOLLOWING PERCENTAGES OF AVAILABLE PLANT NUTRIENTS. PROVIDE A GRANULAR FERTILIZER FOR TREES, SHRUBS AND GROUND COVER COMPLETE WITH MICRO NUTRIENTS HAVING AN
- ANALYSIS OF 10-6-4 (TEN POUNDS OF NITROGEN, SIX POUNDS OF AVAILABLE PHOSPHORIC ACID AND FOUR POUNDS OF WATER SOLUBLE POTASH RESPECTIVELY OR EACH 100 POUNDS OF PROVIDE FERTILIZER FOR LAWNS IN ACCORDANCE WITH RESULTS AND RECOMMENDATIONS OR SOIL REPORT RELATIVE TO LAWN INSTALLATION. PROVIDE NITROGEN IN A FORM THAT WILL BE

AVAILABLE TO LAWN DURING INITIAL GROWTH PERIOD.

- PLANTING SOIL MIX
- A. PLANTING SOIL MIX FOR ON-GRADE PLANTINGS: PROVIDE SOIL AMENDED AS PER LABORATORY RECOMMENDATIONS. BASIC PLANTING SOIL MIX CONSISTS OF: 75% FXISTING CLEAN TOPSOU 25% ORGANIC MATTER (BY VOLUME AS FOLLOWS)

4. PLANT MATERIALS

- PROVIDE PLANTS TRUE TO SPECIES AND VARIETY. COMPLYING WITH RECOMMENDATIONS OF ANSI Z60.1 AMERICAN STANDARD FOR NURSERY STOCK".
- SPECIFIC REQUIREMENTS CONCERNING PLANT MATERIAL AND HE MANNER IN WHICH IT IS TO BE SUPPLIED ARE SHOWN ON THE DRAWINGS AND PLANT LIST. B. QUALITY AND SIZE:
- FURNISH NURSERY GROWN PLANTS, FRESHLY DUG. WELL BRANCHED, FULLY FOLIAGED WHEN IN LEAF AND WITH HEALTHY WELL DEVELOPED ROOT SYSTEMS. PLANTS TO BE FREE OF INSECT INFESTATION, THEIR EGGS OR ANY DISEASES. PROVIDE SYMMETRICAL PLANS WHENEVER CALLED FOR.
 PROVIDE TREES AND SHRUBS OF SIZES SHOWN OR SPECIFIED. TREES AND SHRUBS OF LARGER SIZE MAY BE USED IF
- ACCEPTABLE TO THE ARCHITECT AND IF SIZES OR ROOTS OR ROOTBALLS ARE INCREASED PROPORTIONALLY. THE INCREASE SIZE WILL NOT RESULT IN ADDITIONAL COST TO THE OWNER.
 4. WITHIN EACH SIZE RANGE OR CONTAINER MATERIAL NOT LESS THAN 50% OF THE PLANTS MUST BE OF THE MAXIMUM SIZE
- 5. BALLED AND BURLAPED PLANTS: PLANTS DESIGNATED "B&B" ARE TO HAVE FIRM, NATURAL BALLS OF SOIL CORRESPONDING TO SIZES SPECIFIED IN ANSI Z60.1 AMERICAN STANDARD FOR BIODEGRADABLE BURLAP AND SECURELY TIED WITH BIODEGRADABLE HEAVY TWINE, ROPE AND/OR WIRE BASKETS PLANTS WITH LOOSE, BROKEN OR MANUFACTURED ROOTBALLS WILL BE REJECTED. ROOTBALLS SHALL BE LIFTED FROM THE BOTTOM ONLY, NOT BY STEMS OR TRUNKS.

- 6. CONTAINER GROWN PLANTS IN CANS OR PLASTIC CONTAINERS
 WILL BE ACCEPTABLE IN LIEU OF BALLED OR BURLAPED PLANTS
 PROVIDED THAT THEY ARE OF SPECIFIED QUALITY. THE
 CONTAINER MUST BE REMOVED, WITH CARE BEING EXERCISED
- C. TREES: 1. PROVIDE TREES OF HEIGHT AND CALIPER LISTED OR SHOWN AND WITH BRANCHING CONFIGURATION RECOMMENDED BY ANS 60.1 FOR TYPE AND SPECIES REQUIRED. PROVIDE SINGLE STEM TREES EXCEPT WHERE SPECIAL FORMS ARE SPECIFIED IN
- 2. CALIPER SHALL BE MEASURED SIX INCHES ABOVE GROUND FOR TREES UP TO AND INCLUDING FOUR INCH CALIPER. TREES OVER FOUR INCH CALIPER SHALL BE MEASURED 12 INCHES ABOVE GROUND, SPECIFIED HEIGHT AND SPREAD DIMENSIONS REFER THE MAIN BODY OF THE PLANT AND BRANCH TIP TO AKE MEASUREMENTS WITH BRANCHES IN NATURAL POSITION
- D. DO NOT LIMB UP TREE FORMS MORE THAN TWO FEET BEFORE PLANTING RUNE TO DESIRED SHAPE AS DIRECTED BY LANDSCAPE ARCHITECT.
- E. PROVIDE ESTABLISHED AND WELL ROOTED GROUND COVER PLANTS, IN REMOVABLE CONTAINERS OR INTEGRAL PEAT POTS, HAVING NOT LESS HAN MINIMUM NUMBER AND LENGTH OF RUNNERS BY ANSI Z60.1
- SOD: PROVIDE STRONGLY ROOTED SOD, NOT LESS THAN TWO YEARS OLD AND FREE OF WEEKS AND UNDESIRABLE NATIVE GRASSES. ONLY PROVIDE SOD CAPABLE OF GROWTH AND DEVELOPMENT WHEN PLANTED. PROVIDE MACHINE CUT SOI A UNIFORM MINIMUM SOIL THICKNESS OF 5/8 INCH PLUS HICKNESS OF TOP GROWTH AND THATCH. SOD PIECES TO BE CONSISTENT IN SIZE AND SHAPE. ALL SOD MUST BE A TRUE CERTIFIED TURF GRASS
- MISCELLANEOUS LANDSCAPE MATERIALS
- A. BURLAP FOR WRAPPING EARTHBALL SHALL BE BIODEGRADABLE JUTE MESH NOT LESS THAN 7.2 OZ PER SQUARE YARD. WRAPPING B. STAKES: 2" X 2" SQ. OR 2 1/2" DIA. PRESSURE TREATED PINE OR SOUND NEW HARDWOOD FREE OF
- KNOTHOLES AND OTHER DEFECTS. C. ANCHORS: #4 REBARS OR COMPARABLE SIZE STEEL STAKES, 36
- D. GUYS AND WIRE TIES: 2-STRAND, TWISTED, PLIABLE GALVANIZED
- STEEL WIRE NOT LIGHTER THAN #12 GAUGE. E. HOSE: REINFORCED, 1/2 INCH DIAMETER RUBBER OR PLASTIC
 GARDEN HOSE. CUT TO REQUIRED LENGTHS TO PROTECT TREE TRUNKS
- FROM DAMAGE BY WIRES. F. SOIL SEPARATOR: ROT RESISTANT POLYPROPYLENE FILTER FABRIC, WATER
- PERMEABLE AND UNAFFECTED BY FREEZE-THAW.
- G. DRAINAGE GRAVEL: CLEAN CRUSHED STONE (APPROX. 1/2" DIA.). H. WATER IS AVAILABLE AT THE SITE, FURNISHED BY THE OWNER AT NO
- COST TO THE CONTRACTOR. WATER TRANSPORTATION IS THE SOLE
- I. MULCH: SHREDDED HARDWOOD, FREE OF FOREIGN MATTER PROVIDE SAMPLE PRIOR TO INSTALLATION. J. ANTI-DESICCANT: EMULSION-TYPE, FILM-FORMING AGENT DESIGNED
 TO PERMIT TRANSPIRATION, BUT RETARD EXCESSIVE LOSS OF MOISTURE
 FORM PLATS. DELIVER IN MANUFACTURER'S FULLY IDENTIFIED CONTAINERS

AND APPLY IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

PART III - EXECUTION

PREPARATION A. GENERAL:

- CONTRACTOR SHALL EXAMINE CONDITIONS UNDER WHICH
 PLANTING IS TO BE INSTALLED. REVIEW APPLICABLE
 ARCHITECTURAL AND ENGINEERING DRAWINGS, AND BE FAMILIAR WITH LOCATION OF UNDERGROUND UTILITIES BEFORE DIGGING.

 2. PLANTING OPERATIONS ARE TO BE PERFORMED AT SUCH TIMES
- OF THE YEAR AS THE JOB MAY REQUIRE, THE CONTRACTOR GUARANTEES THE PLANT MATERIAL AS SPECIFIED. PLANT ONLY DURING SUITABLE WEATHER CONDITIONS. 3. LAYOUT TREE AND SHRUB LOCATIONS AND AREAS FOR MASS PLANTINGS. STAKE LOCATIONS, OUTLINE AREAS AND SECURE
- XCAVATION FOR PLANTING WORK. MAKE ADJUSTMENTS AS MAY BE REQUESTED 4. NOTIFY ARCHITECT OF ADVERSE SUB-SURFACE DRAINAGE OR SOIL CONDITIONS. STATE CONDITIONS AND SUBMIT A PROPOSAL FOR CORRECTION INCLUDING COSTS. OBTAIN APPROVAL FOR METHOD OF CORRECTION PRIOR TO CONTINUING WORK IN THE AFFECTED AREA. IN THE EVENT THAT ALTERNATE LOCATIONS ARE SELECTED, THE CONTRACTOR SHALL PREPARE SUCH AREAS AT NO ADDITIONAL EXPENSES TO THE OWNER.
- B. EXCAVATION FOR TREES AND SPECIMEN SHRUBS: EXCAVATE PITS, BEDS AND TRENCHES AS SPECIFIED AND AS SHOWN ON THE DRAWINGS 2. LOOSEN HARDPAN UNTIL HARDPAN HAS BEEN BROKEN AND MOISTURE IS ALLOWED TO DRAIN FREELY. 3. FOR BALLED AND BURLAPED (B&B TREES AND SHRUBS) MAKE
 EXCAVATIONS AT LEAST 12" WIDER FOR EVERY 12" OF ROOTBALL
 FOR THE TOP 1/3 OF THE PIT. FOR THE REMAINING DEPTH OF
 THE PIT, EXCAVATE AT LEAST TWO FEET WIDER THAN THE ROOTBALL DIAMETER AND EQUAL TO THE BALL DEPTH PLUS AN
- ALLOWANCE FOR SETTING.

 4. EXCAVATE AS SPECIFIED FOR BALLED AND BURLAPED STOCK FOR CONTAINER GROWTH STOCK. ADJUST TO SIZE OF CONTAINER
- TREE AND SPECIMEN SHRUB PIT: FILL EACH PIT WITH WATER. IF
 PERCOLATION IS LESS THAN 100% WITHIN A PERIOD OF 12 HOURS, DRILL A TEN INCH HOLE AUGER TO A DEPTH OF FOUR FEET BELOW THE BOTTON OF THE PIT. FILL AUGER HOLE WITH DRAINAGE GRAVEL AND COVER WITH SOIL SEPARATOR. RETEST PIT IF CASE DRAINAGE IS STILL UNSATISFACTORY. NOTIFY ARCHITECT, IN WRITING, OF THE CONDITION BEFORE PLANTING TREES IN THE QUESTIONABLE AREAS.

- DISPOSE OF SUBSOIL REMOVED FROM LANDSCAPE EXCAVATIONS. DO NOT MIX WITH PLANTING SOIL. DO NOT USE AS BACKFILL.
- PREPARATION OF PLANTING SOIL
- A. CLEAN TOPSOIL OF ROOTS, PLANTS, CLODS, STONES, CLAY LUMPS AD OTHER EXTRANEOUS MATERIALS HARMFUL OR TOXIC TO PLANT GROWTH

B. FOR PIT AND TRENCH TYPE BACKFILL, MIX PLANTING SOIL PRIOR TO

- BACKFILLING AND KEEP COVERED UNTIL USED. PRIOR TO PLANTING OR APPLY ON SURFACE OF TOPSOIL AND MIX THOROUGHLY BEFORE PLANTING. (DELAY MIXING OF FERTILIZER IF PLANTING WILL NOT FOLLOW PLACING OF PLANTING SOIL WITHIN A FEW
- 1. MIX LIME, IF REQUIRED, WITH DRY SOIL PRIOR TO MIXING OF 2. PREVENT LIME FORM CONTACTING ROOFS OF ACID-LOVING
- 3. APPLY PHOSPHORIC ACID FERTILIZER (IN ADDITION TO THAT CONSTITUTING A PORTION OF COMPLETE FERTILIZERS) DIRECTLY TO SUBGRADE BEFORE APPLYING PLANTING SOIL AND TILLING.
- 3. PREPARATION OF GROUND COVER PLANTING BEDS LAYOUT TO BE APPROVED BY SITE SUPERINTENDENT PRIOR TO
- B. OUTLINE BED WITH A TRENCH EDGE AS DETAILED. PLACE SOIL FROM TRENCH EDGE WITHIN BED AREAS.
- C. LOOSEN EXISTING SOIL TO A MINIMUM DEPTH OF 6". REMOVE ANY MATERIAL DETRIMENTAL TO PLANT GROWTH. D. SPREAD THREE INCHES MINIMUM LAYER OF PLANTING SOIL MIXTURE OVER ENTIRE BED AREA. ADDITIONAL SOIL MIX MAY BE NECESSARY TO
- E. FINE GRADE PLANTING AREAS TO CONFORM TO ENSURE POSITIVE DRAINAGE AFTER SETTLEMENT HAS OCCURRED. SLOPE SURFACE OF SHRUB BEDS TO DRAIN TOWARD THE TRENCH EDGE.
- A. PLACE DRAINAGE AND FILTER MATERIALS IN BOTTOM OF PLANTERS ACCORDING TO DETAIL AND ILL WITH PLANTING SOIL MIXTURE. PLACE SOIL IN LIGHTLY COMPACTED LAYERS TO AN ELEVATION OF ONE TO ONE HALF

BUILD UP SHRUB BEDS TO GRADE AS DETAILED. WORKING PLANTING

- B. CONTRACTOR SHALL TAKE PRECAUTIONS TO MAINTAIN INTEGRITY OF WATERPROOFING. NOTIFY ARCHITECT OF ANY DAMAGE DEFECTS IN PLANTER WATERPROOFING PRIOR TO PLANTING.
- PREPARATION OF SEASONAL COLOR BEDS
- A. EXCAVATE SEASONAL COLOR BED TO A DEPTH OF FOUR INCHES, BREAK THROUGH "HARD PAN" AND REMOVE ALL STONE, ROOTS, DEBRIS, ETC.
- B. ROTO TILL EXCAVATED BED TO A DEPTH OF 6-8"
- C. SLOPE THE BASE OF THE SEASONAL COLOR BED TO THE TRENCH EDGE.
- ADD FOUR INCH IN DIAMETER DRAINAGE PIPE IF NECESSARY TO ENSURE PROPER DRAINAGE. D. SPREAD PLANTING SOIL MIX AS SPECIFIED ABOVE OVER BED.
- E. SEASONAL COLOR BED SHOULD BE A MINIMUM OF SIX INCHES ABOVE
- EXISTING GRADE. PREPARATION FOR PLANTING LAWNS
- A. LOOSEN THE GRADE OF LAWN AREAS TO A MINIMUM DEPTH OF SIX INCHES. REMOVE STONES OVER ONE TO ONE HALF INCH IN ANY DIMENSION, STICKS, ROOTS, RUBBISH AND OTHER EXTRANEOUS PLANTED
- B. PLACE APPROXIMATELY HALF OF TOTAL AMOUNT OF TOPSOIL REQUIRED (4" MIN. WORK INTO TOP OF LOOSENED SUBGRADE TO CREATE A TRANSITION AND THEN PLACE REMAINDER OF TOPSOIL MIXTURE TO MINIMUM DEPTH REQUIRED TO MEET LINES, GRADES AND ELEVATION SHOWN AFTER LIGHT ROLLING AND NATURAL SETTLEMENT. ALLOW FOR SOD THICKNESS IN
- C. GRADE LAWN AREA TO SMOOTH, EVEN SURFACE WITH LOOSE,
 UNIFORMLY FINE TEXTURE, ROLL AND RAKE AS REQUIRED TO MEET FINISH GRADES. LIMIT FINE GRADING TO AREA WHICH CAN BE PLANTED
- D. FERTILIZE AND LIME PRIOR TO START OF GRASSING OPERATION. APP GROUND LIMESTONE AT THE RATE RECOMMENDED BY SOIL TEST ANALYSIS AND WORK INTO TOP SIX INCHES OF SOIL. APPLY FERTILIZER AT THE RECOMMENDED RATE, WORK INTO TOP TWO INCHES OF SOIL. THE FERTILIZER APPLICATION SHALL PROCEED THE PLACEMENT OF SOD
- E. MOISTEN PREPARED LAWN AREAS BEFORE PLANTING IF SOIL IS DRY. HOROUGHLY AND ALLOW SURFACE MOISTURE TO DRY BEFORE
- F. REPAIR LAWN AREAS, IF ERODED OR OTHERWISE DISTURBED AFTER FINE GRADING AND PRIOR TO PLANTING.
- G. LAWN AREAS WITH UNCHANGED GRADES: WHERE LAWNS ARE TO BE PLANTED IN AREAS THAT HAVE NOT BEEN ALTERED OR DISTURBED BY EXCAVATING, GRADING, ETC. PREPARE SOIL FOR LAWN PLANTING AS FOLLOWS PRIOR TO PREPARATION OF UNCHANGED AREAS, REMOVE EXISTING GRASS VEGETATION AND TURF. DISPOSE OF SUCH MATERIAL OUTSIDE OF OWNER'S PROPERTY. TILL TO A DEPTH OF NOT LESS THAN SIX INCHES; APPLY SOIL AMENDMENTS AND INITIAL FERTILIZERS AS SPECIFIED; REMOVE HIGH AREAS AND FILL IN DEPRESSIONS; TILL SOIL TO A HOMOGENEOUS MIXTURE OF FINE TEXTURE, FREE OF LUMPS, STONES, ROOTS AND OTHER EXTRANEOUS MATTER.
- PLANTING TREES AND SHRUBS
- A. SET BALLED AND BURLAPED (B&B) STOCK ON LAYER OF COMPACTED
 PLANTING SOIL MIXTURE, PLUMB AND IN CENTER OF PIT WITH 1/6 OF BALL
 ABOVE THE FINISH GRADE. REMOVE ALL STRAPS AND ROPES MADE MAN-MADE FIBERS COMPLETELY FROM ROOTBALL. REMOVE BURLAP AND BIODEGRADABLE ROPES FROM TOP THIRD OF ROOTBALL. CUT AND REMOVE THE TOP THIRD OF ALL WIRE BASKETS BEFORE BACKFILLING. THE PLANTING SOIL MIXTURE TO BACKFILL PLANT AFTER PLANTS ARE SET. PLACE ADDITIONAL BACKFILL AROUND BASE AND SIDES OF BALL AND WORK EACH LAYER TO SCALE, BACKFILL, AND ELIMINATE VOIDS AND AIR POCKETS. WHEN EXCAVATION IS APPROXIMATELY TWO THIRDS FULL, WATER THOROUGHLY BEFORE PLACING REMAINDER OF BACKFILL. REPEAT WATERING UNTIL NO MORE IS ABSORBED. REPEAT WATERING AFTER PLACING FINAL LAYER OF BACKFILL.

- B. SET CONTAINER GROWN STOCK EXACTLY LIKE BALLED AND BURLAPED STOCK, REMOVE CONTAINERS, WITHOUT DAMAGING ROOTBALLS, PRIOR
- C. APPLY ANTI-DESICCANT IF DECIDUOUS TREES OR SHRUBS ARE MOVED AND AGAIN AFTER PLANTING AS PER MANUFACTURER'S
- D. SMOOTH PLANTING AREAS TO CONFORM TO SPECIFIED GRADES AFTER FULL SETTLEMENT HAS OCCURRED AND MULCH HAS BEEN APPLIED.
- E. MULCHING: IMMEDIATELY AFTER PLANTING WORK HAS BEEN
 COMPLETED, MULCH PITS, TRENCHES, AND PLANTING BEDS. PROVIDE
 2-3" OF MULCH AS SPECIFIED ABOVE. FINISH EDGES ACCORDING TO
- F. WATER: SOAK ALL PLANTS IMMEDIATELY AFTER PLANTING AND CONTINUE WATERING AS NECESSARY UNTIL SUBSTANTIAL COMPLETION DATE.
- STAKING, GUYING AND PRUNING
- A. STAKE AND GUY TREES IMMEDIATELY AFTER PLANTING, PLANTS SHALI BE PLUMBED AFTER STAKING OR GUYING. MAINTAIN STAKES, WIRES AND GUYS UNTIL ACCEPTANCE OF THE JOB.
- B. STAKING TREES OF ONE INCH TO THREE INCH CALIPER. DRIVE STAKES SECURELY INTO GROUND AND FASTEN TO TREE WITH WIRE AND TIE. HOSE AROUND WIRE TO SIRE IS NOT IN CONTACT WITH PLANT, OR USE CINCH-TIE OF APPROPRIATE SIZE. ADHERE TO STAKING DETAILS UNLESS ALTERNATE DETAIL HAS BEEN APPROVED BY ARCHITECT PRIOR TO
- C. GUYING TREES OVER THREE INCHES: GUY TREES ACCORDING TO DETAIL.

 POSITION GUYS AROUND TRUNK AT APPROXIMATELY TWO—FIFTHS THE

 HEIGHT OF THE TREE. ANCHOR GUYS IN GROUND TO SPECIFIED STAKES DRIVEN BELOW FINISH GRADE.
- D. PRUNING: DO NOT CUT TREE LEADERS. REMOVE INJURED OR DEAD BRANCHES FROM TREES. THIN BRANCHES BY 1/4 RETAINING NORMAL
- E. INSPECT TREE—TRUNKS FOR INJURY, IMPROPER PRUNING AND INSECT INFESTATION. INFORM ARCHITECT OF ANY PROBLEMS.
- PLANTING SHRUBS AND GROUND COVER BEDS A. EXCAVATE AND LOOSEN SOIL IN LARGE ENOUGH AREA TO INSTALL
- B. REMOVE PLANTS FROM CONTAINERS WITHOUT DAMAGING THE ROOTBALL AND SET IN EXCAVATED HOLE WITH 1/6 OF ROOTBALL ABOVE FINAL SHRUB BED ELEVATION.
- C. BACKFILL ROOTBALL WITH SOIL FROM THE BED. PLANTING SOIL MIX AND LIGHTLY COMPACT SOIL AROUND PLANT TO ELIMINATE VOIDS AND AIR
- D. MULCHING: IMMEDIATELY AFTER PLANTING, MULCH PLANTING BEDS
- E. SOAK ENTIRE ARE IMMEDIATELY AFTER PLANTING WITH WATER. WATER THEREAFTER AS NECESSARY UNTIL SUBSTANTIAL COMPLETION.

10. INSTALLING LAWNS

- SODDING NEW LAWNS: WATER SOIL AT ARE TO BE SODDED PRIOR TO LAYING SOD. SOIL MUST BE MOIST, BUT NOT SATURATED WHEN LAYING SOD. LAY SOD WITHIN 24 HOURS FROM TIME OF STRIPPING. IF NO POSSIBLE, SOD MAY BE STORED ON SITE UP TO 36 HOURS
- AFTER STRIPPING PROVIDED SOD IS PROPERLY PROTECTED; UNSTACK, UNROLL, PLACE IN SHADE AND KEEP MOIST. DO NOT PLANT DORMANT SOD. DO NOT PLANT SOD ON FROZEN GROUND LAY SOD TO FORM A SOLID MASS WITH TIGHTLY FITTED JOINTS.
- 6. ANCHOR SOD WITH PEGS TO PREVENT SLIPPAGE ON SLOPES
- 7. WATER SOD THOROUGHLY WITH A FINE SPRAY IMMEDIATELY DO TO OVERLAP. STAGGER STRIPS. WORK FORM BOARDS T AVOID DAMAGE TO SUBGRADE OR SOD. TAMP OR ROLL LIGHTLY TO ENSURE CONTACT WITH SUBGRADE. WORK SIFTED SOIL INTO APS BETWEEN PIECES OR SOD; REMOVE EXCESS TO AVOID SMOTHERING OF ADJACENT GRASS
 - WHEREVER EROSION CAN BE ANTICIPATED. LAY SOD PERPENDICULAR TO SLOPE DIRECTION WITH STAGGERED JOINTS. AFTER PLANTING UNTIL SOIL IS DAMP TO A DEPTH OF FOUR
 - SOW ONE-HALF OF SEED IN ONE DIRECTION AND REMAINDER AT RIGHT ANGLES TO FIRST SOWING.

 COVER SEED TO AVERAGE DEPTH OF (1/2" - 1/4") BY MEANS OF SPIKE-TOOTH HARROW, CULTIPACKER, OR OTHER RECOMMENDED DEVICE.
- AFTER STRIPPING PROVIDED SOD IS PROPERLY PROTECTED DRY APPLICATION: USE CULTIPACKER SEEDERS OR GRASS DRILLS
 DRILL SEED UNIFORMLY TO AN AVERAGE DEPTH OF 1/4" AND AT A RATE OF 5-8 LBS. PER 1,000 S. F.
- HYDROSEEDING: MIX SEED, FERTILIZER, AND WOOD CELLULOSE FIBER IN REQUIRED AMOUNT OF WATER APPLY AT THE RATE TO 200 LBS. PER ACRE DRY WEIGHT OF WOOD CELLULOSE. HYDRAULICALLY SPRAY MATERIAL ON GROUND TO FORM A BLOTTER-LIKE COVER IMPREGNATED UNIFORMLY WITH GRASS SEED.
 IMMEDIATELY FOLLOWING APPLICATION OF SLURRY MIX, MAKE SEPARATE APPLICATION
- OF WOOD CELLULOSE MULCH AT THE RATE OF 800 LB., DRY WEIGHT, PER ACRE. SPREAD STRAW EVENLY AT RATE OF 60-80 BALES PER ACRE, 1/2-1" THICK ANCHOR BY CRIMPING MULCH WITH SERRATED DISC, OR BY SPRAYING ASPHALT EMULSION ON MULCHED SURFACE.
- A. BEGIN MAINTENANCE IMMEDIATELY AFTER PLANTING AND MAINTAIN TREES, SHRUBS AND OTHER PLANTS UNTIL DATE OF SUBSTANTIAL
- B. MAINTAIN TREES, SHRUBS AND OTHER PLANTS BY ALL ACCEPTED HORTICULTURE PRACTICES SUCH AS WATERING PRUNING, CULTIVATING, SPRAYING FOR INSECTS AND DISEASE AS WELL AS REMULCHING AS AND REPAIR STAKE AND GUY SUPPORTS AND RESET TREES AND SHRUBS PROPER GRADES OR TO PLUMB POSITION AS REQUIRED. RESTORE OR REPLACE DAMAGED WRAPPINGS
- C. MAINTAIN LAWNS UNTIL ISSUANCE OF SUBSTANTIAL COMPLETION. MAINTAIN LAWNS BY WATERING, WEEDING, MOWING, REPAIR OR ERODED AREAS AND RE-SEEDING OR RE-SODDING AS NECESSARY TO ESTABLISH A UNIFORM LAWN AREAS.

CLEAN UP AND PROTECTION

A. KEEP PAVEMENTS, STAGING AND WORK AREAS IN AN ORDERLY

- B. UPON COMPLETION OR WORK, CLEAR GROUNDS OF DEBRIS, MATERIALS, AND ALL EQUIPMENT. C. PROTECT LANDSCAPE WORK AND MATERIALS FROM DAMAGE DUE TO OPERATIONS BY OTHER CONTRACTORS AND TRADES. MAINTAIN PROTECTION DURING INSTALLATION AND MAINTENANCE PERIODS. REPAIR OR REPLACE DAMAGED LANDSCAPE WORK AS DIRECTED A NO ADDITIONAL COST TO THE OWNER.
- D. THEFT: CONTRACTOR IS RESPONSIBLE FOR THEFT OF PLANT MATERIAL AT THE PROJECT SITE BEFORE, DURING AND AFTER PLANTING UNTIL THE SSUANCE OF SUBSTANTIAL COMPLETION.

13. INSPECTION AND ACCEPTANCE

MAINTENANCE

- A. PERIODIC SITE INSPECTIONS WILL BE MADE FROM TIME TO TIME BY THE LANDSCAPE ARCHITECT AND/OR OWNER'S REPRESENTATIVE TO REVIEW THE QUALITY AND PROGRESS OF THE WORK. UNACCEPTABLE WORK MUST BE CORRECTED WITHIN FIVE CALENDAR DAYS.
- B. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL NOTIFY THE
 LANDSCAPE ARCHITECT AND THE OWNER AT LEAST TEN (10) DAYS
 PRIOR TO REQUESTED DATE OF SUBSTANTIAL COMPLETION INSPECTIGOF ALL PORTIONS OF THE WORK. LANDSCAPE ARCHITECT OR SITE SUPERINTENDENT WILL ISSUE A PUNCH LIST FOR WORK TO BE CORRECTED. ALL WORK IN THE PUNCH LIST MUST BE COMPLETED WITHIN FIVE (5)WORKING DAYS FROM DATE OF INSPECTION. WHERE INSPECTED WORK DOES NOT COMPLY WITH REQUIREMENTS, REPLACE REJECTED WORK AND CONTINUE SPECIFIED MAINTENANCE UNTIL REINSPECTED AND ACCEPTED BY THE LANDSCAPE ARCHITECT.
- C. CERTIFICATE OF SUBSTANTIAL COMPLETION WILL BE ISSUED FOR ACCEPTABLE WORK. IF PUNCH LIST ITEMS ARE ISSUED WITH THE CERTIFICATE, THEY MUST BE CORRECTED WITHIN FIVE (5) WORKING
- D. ONE YEAR WARRANTY COMMENCES ON THE DATE OF ISSUANCE OF THE CERTIFICATE OF SUBSTANTIAL COMPLETION.
- E. FINAL ACCEPTANCE: ONE YEAR AFTER DATE OF SUBSTANTIAL
 COMPLETION OF WORK IN TOTAL, THE LANDSCAPE ARCHITECT AND THE
 OWNER INSPECTS THE WORK FOR FINAL ACCEPTANCE. UPON SATISFACTORY COMPLETION OF REPAIRS AND/OR REPLACEMENT, THE LANDSCAPE ARCHITECT WILL SERVE AS EVIDENCE THAT CONTRACTOR'S ONE-YEAR WARRANTY OBLIGATIONS HAVE BEEN MET.

LANDSCAPE SPECIFICATIONS: GENERAL

- I. CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UNDERGROUND 12. THE OWNERS REPRESENTATIVE RESERVES THE RIGHT TO UTILITIES AND SHALL AVOID DAMAGE TO UTILITIES DURING THE COURSE OF THE WORK. CONTRACTOR IS RESPONSIBLE FOR REPAIR-
- FROM LANDSCAPE CONSTRUCTION. 2. ALL PLANTS MUST BE VIGOROUS, HEALTHY MATERIAL, FREE OF
- 3. ALL PLANTS AND TREES MUST MEET ALL REQUIREMENTS SPECIFIED IN THE PLANT LIST, DETAILS, AND SPECIFICATIONS.

PESTS AND DISEASE.

- 4. ALL TREES MUST BE GUYED OR STAKED AS SHOWN IN THE DETAILS.
- 5. ALL PLANTS AND PLANTING AREAS MUST BE MULCHED AS SPECIFIED. 6. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL QUANTITIES
- SHOWN ON FINAL LANDSCAPE PLANS PRIOR TO PRICING THE WORK. 7. CONTRACTOR IS RESPONSIBLE FOR COMPLETELY MAINTAINING THE WORK (INCLUDING BUT NOT LIMITED TO: WATERING, MULCHING, SPRAYING, FERTILIZING, ETC.) OF ALL PLANTING AREAS AND LAWNS
- 8. CONTRACTOR WILL COMPLETELY GUARANTEE ALL WORK FOR A PERIOD OF ONE YEAR BEGINNING AT THE DATE OF ACCEPTANCE. CONTRACTOR WILL MAKE ALL REPLACEMENTS PROMPTLY (AS PER
- 9. CONTRACTOR WILL STAKE OR MARK ALL PLANT MATERIAL LOCATIONS PRIOR TO INSTALLATION. CONTRACTOR SHALL HAVE OWNERS REPRESENTATIVE APPROVE ALL STAKING PRIOR TO INSTALLATION.
- OF THE WORK) WILL BE PROMPTLY REMOVED AND REPLACED. 11. STANDARDS SET FORTH IN "AMERICAN STANDARD FOR NURSERY

- 13. THE CONTRACTOR IS RESPONSIBLE FOR SOIL SAMPLING AND TESTS ING ANY DAMAGE TO UTILITIES, SITE STRUCTURES, ETC., RESULTING

TO DETERMINE EXACT FERTILIZER REQUIREMENTS.

- 14. INSTALL TWELVE INCH (12") WIDE STRIP OF CRUSHED STONE CONTINUOUS WHERE SOD MEETS BASE OF BUILDING WHEN LANDSCAPING IS NOT PROPOSED. INSTALL CRUSHED STONE OVER PLASTIC FILTER FABRIC. EDGE W/ 1/4"x4" ALUMINUM EDGING CONTINUOUS. EDGING MANUFACTURED BY "PERMALOC ALUMINUM EDGING", HOLLAND, MICHIGAN, 1-800-356-9660 OR APPROVED EQUAL. CRUSHED STONE WILL BE A TYPE GENERALLY ACCEPTED IN THE GEOGRAPHICAL AREA AND WILL BE 3/4" OR SMALLER IN DIAMETER AND INSTALLED TO A MINIMUM DEPTH OF 3"
- 15. LANDSCAPE CONTRACTOR IS TO BE RESPONSIBLE FOR WATERING ALL PLANT MATERIALS UNTIL THE TIME THE PERMANENT IRRIGATION SYSTEM IS FULLY
- IF THE SITE DEVELOPMENT PLANS DO NOT INCLUDE AN IRRIGATION SYSTEM, THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE TO WATER ALL PLANT MATERIALS UNTIL THE BUILDING IS TURNED OVER TO THE OPERATORS GROUP.
- 16. CHEMICAL WEED CONTROL MUST BE APPLIED TO ALL LANDSCAPE AREAS PRIOR TO ANY PLANT INSTALLATION.
- 17. THE CONTRACTOR SHALL SUBMIT A PROPOSED LIST OF ANY PLANT SUBSTITUTIONS REQUESTED. SUBSTITUTIONS MUST BE APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO PURCHASE AND INSTALLATION. SUBMIT LIST TO: PURCHASE AND INSTALLATION. SUBMIT LIST TO:

THE RBA GROUP 7164 GATEWAY DR. SUIT 205 COLUMBIA, MD ATTN: LANDSCAPE ARCHITECTURE

(410) 312-0966 (410 312-0897) CONTRACTOR TO ALLOW FIVE WORKING DAYS FOR REVIEW AND APPROVAL BY THE LANDSCAPE ARCHITECT.

18. ALL PLANTS MUST MEET MINIMUM SIZE NOTED ON LANDSCAPE LEGEND. TREES SHALL BE OF NO. 1 GRADE SPECIMEN AND SHRUBS SHALL BE HEAVY WELL SHAPED SPECIMENS AS WELL.

- 1. THE LOCATIONS OF SCHEDULE FORTY (40) SLEEVES AS SHOWN ON THIS PLAN, ARE SCHEMATIC. THE CONTRACTOR SHALL MAKE ANY ADJUSTMENT NECESSARY TO ACCOMMODATE EXISTING VEGETATION, UTILITIES, OR WITH LOCAL CODES AND REQUIREMENTS. OTHER MAJOR CONSTRUCTION.
- ANY DAMAGE TO EXISTING UTILITIES, STRUCTURES, OR OTHER CONSTRUCTION RESULTING FROM INSTALLATION OF SLEEVES IS THE RESPONSIBILITY OF THE CONTRACTOR.
- WHERE A JOINT BETWEEN PIPE SECTIONS IS NECESSARY, THE INSIDE DIAMETER OF THE PIPE

SHALL NOT BE SIGNIFICANTLY REDUCED.

IRRIGATION SLEEVING SPECIFICATIONS

- PVC SLEEVES SHALL BE INSTALLED AT A DEPTH OF 18" BELOW PAVEMENT SURFACE FOR LATERALS, AND 24" FOR MAINS. END OF THE SLEEVE SHALL EXTEND 12" BEYOND CURB OR PAVEMENT EDGE
- BACKFILL MATERIAL PLACED AROUND THE SLEEVES SHALL BE FREE OF ROCKS OR OTHER FOREIGN MATTER THAT MAY CAUSE DAMAGE TO THE PIPE.
- THE SLEEVING CONTRACTOR SHALL INSTALL A PVC STUB THAT IS AT LEAST 18" ABOVE GRADE AT EACH END OF THE SLEEVE TO MARK ITS EXACT LOCATION. SEE SLEEVING DETAIL.
- SHALL INSTALL A TEMPORARY CAP ON EACH END OF THE PIPE ACCORDING TO THE DETAIL TO PREVENT SOIL
- OR OTHER DEBRIS FROM ENTERING THE PIPE. ALL MODIFICATIONS OF THIS PLAN ARE SUBJECT TO THE APPROVAL OF THE LANDSCAPE ARCHITECT.
- THE SLEEVING CONTRACTOR SHALL SUPPLY THE OWNER WITH AN "AS-BUILT" PLAN OF THE LOCATION OF ALL SLEEVES PRIOR TO ACCEPTANCE
- 10. SLEEVE SIZES SHALL BE A MINIMUM OF 4" PIPE SIZE UNDER SIDEWALKS AND DRIVES. 11. ALL SLEEVES ARE BY THE GENERAL CONTRACTOR

12. ALL SLEEVES SHALL BE CLASS 160 SOLVENT WELD

14. SLEEVES TO BE INSTALLED BY G.C. USING NEW

OR WIRES CROSS UNDER PAVING.

13. THERE SHALL BE NO TURNS OR BENDS IN THE

SHEDULE 40 PVC FOR ALL LOCATIONS WHERE PIPE

- <u>IRRIGATION SPECIFICATIONS: GENERAL</u>
- DESCRIPTION: PROVIDE AND DESIGN A COMPLETE, AUTOMATIC UNDERGROUND IRRIGATION SYSTEM AS DESCRIBED OR SHOWN ON L-1 WITH ALL NECESSARY COMPONENTS AND IN ACCORDANCE
- INSTALLER'S QUALIFICATIONS: MINIMUM OF 5 YEARS EXPERIENCE INSTALLING IRRIGATION SYSTEMS OF COMPARABLE SIZE
- WRITING AGAINST DEFECTS BY THE MANUFACTURER. THESE WRITTEN WARRANTIES SHALL BE GIVEN TO THE OWNER. ALL INSTALLATION WORK SHALL BE GUARANTEED FOR ONE YEAR AFTER SUBSTANTIAL COMPLETION. SUBMITTALS:

WARRANTY: MATERIAL AND EQUIPMENT SHALL BE WARRANTED IN

- 1. UPON IRRIGATION SYSTEM ACCEPTANCE, SUBMIT WRITTEN OPERATING AND MAINTENANCE INSTRUCTIONS TO THE OWNER. MEET WITH OWNER TO EXPLAIN OPERATION OF SYSTEM. PROVIDE 2 SETS OF TOOLS FOR REMOVING AND
- 2 FIVE FOOT KEYS FOR GATE VALVES AND 2 KEYS FOR CONTROLLER. 3. PROVIDE TWO SETS OF IRRIGATION SYSTEM RECORD

DRAWINGS; ONE TO BE KEPT AT THE STORE, ONE TO

ADJUSTING EACH TYPE OF SPRINKLER HEAD AND VALUE

BE SENT TO: STACY KITTRELL, 4721 MORRISON DR. MOBILE, AL 36609.

IMPROVEMENTS.

- DRAWINGS MUST SHOW: 1. LEGIBLY MARK DRAWINGS TO RECORD ACTUAL
- CONSTRUCTION. 2. INDICATE HORIZONTAL AND VERTICAL LOCATIONS, REFERENCED TO PERMANENT SURFACE
- 3. IDENTIFY FIELD CHANGES OF DIMENSION AND DETAIL ANY CHANGES MADE BY CHANGE ORDER.

PROJECT CONDITIONS: KNOWN UNDERGROUND AND SURFACE UTILITY LINES MAY OR MAY NOT BE INDICATED ON THE DRAWINGS. VERIFY WITH PROPER UTILITY THE LOCATION OF ALL UNDERGROUND LINES PRIOR TO DIGGING. REPAIR ANY DAMAGE AT NO EXPENSE TO THE OWNER.

- PLASTIC PIPE, FITTINGS AND CONNECTIONS: 1. POLYVINYL CHLORIDE (PVC) PIPE: ASTM D2241, RIGID, UNPLASTICIZED PVC.
- A. 1" DIAMETER AND UNDER: SDR 21, CLASS 200. B. OVER 1" DIAMETER: SDR 26, CLASS 160. 2. PVC PIPE FITTINGS: ASTM D2241 SCHEDULE 40 PVC MOLDED FITTINGS SUITABLE FOR SOLVENT WELD.
- ELECTRICAL CONTROL WIRE: 1. ELECTRICAL CONTROL AND GROUND WIRE: TYPE UF 600 VOLT AWG CONTROL CABLE #14 OR LARGER. 2. WIRE COLOR CODE: PROVIDE CONTROL OR "HOT" WIRES EITHER BLACK OR RED IN COLOR. PROVIDE COMMON OR "GROUND"

WIRES WHITE IN COLOR. AUTOMATIC CONTROLLERS:

EXAMINE FINAL GRADES AND INSTALLATION CONDITIONS. DO NOT START IRRIGATION SYSTEM WORK UNTIL UNSATISFACTORY

INSTALLATION 1. LINE DEPTH: INSTALL IRRIGATION MAINS WITH A MINIMUM COVER OF 24" AND IRRIGATION LATERALS WITH A MINIMUM

TRENCHES TO PREVENT SETTLEMENT. INSTALL POP-UP HEADS IN LAWN AREAS WITH AN ADJUSTABLE COVER OF 24" DOUBLE SWING JOINT RISER ASSEMBLY BY THE USE OF AT LEAST 3 STANDARD 90 DEGREE ELLS. FABRICATED DOUBLE SWING JOINT RISERS OF SCHEDULE 80 PVC NIPPLES AND SCHEDULE 40 PVC ELBOWS. SHRUB HEADS DO NOT

1. ESP-C SERIES BY RAIN BIRD OR APPROVED EQUAL. 2. MUST INCLUDE AUTOMATIC RAIN SHUT OFF DEVICE.

CONDITIONS ARE CORRECTED.

COVER OF 18" BASED ON FINISHED GRADES. COMPACT

REQUIRE SWING JOINTS.

8/17/2006

OB NUMBER: TLE NAME: PLOTTED: DRAWN BY:

L-2

COUNTY HEALTH OFFICER HOWARD COUNTY HEALTH DEPARTMENT DEPARTMENT OF PLANNING AND ZONING 1/13/106 8/30/06 Summer Muller CHIEF, DIVISION OF LAND DEVELOPMENT

PLANNING BOARD of HOWARD COUNTY DATE 06/08/06

IN FULL LEAF. SPRAY WITH ANTI-DESICCANT AT NURSERY BEFORE MOVING

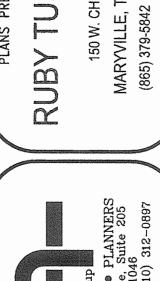
UNTIL TOTAL ACCEPTANCE OF THE WORK BY THE LANDSCAPE ARCHITECT OR OWNER.

- 10. ANY MATERIAL WHICH DIES, OR DEFOLIATES (PRIOR TO ACCEPTANCE
- STOCK" REPRESENT GENERAL GUIDELINE SPECIFICATIONS ONLY AND WILL CONSTITUTE MINIMUM QUALITY REQUIREMENTS FOR PLANT MATERIAL.

REJECT ANY PLANT MATERIAL NOT MEETING SPECIFICATIONS.

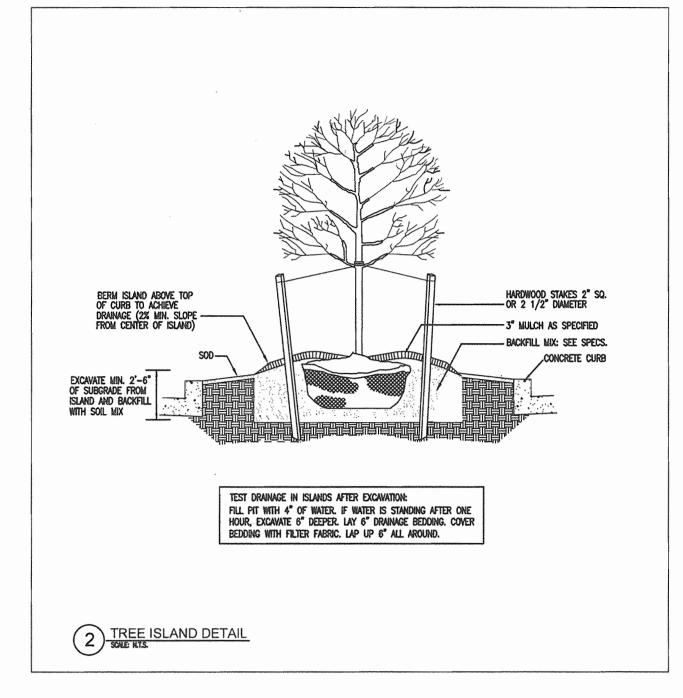
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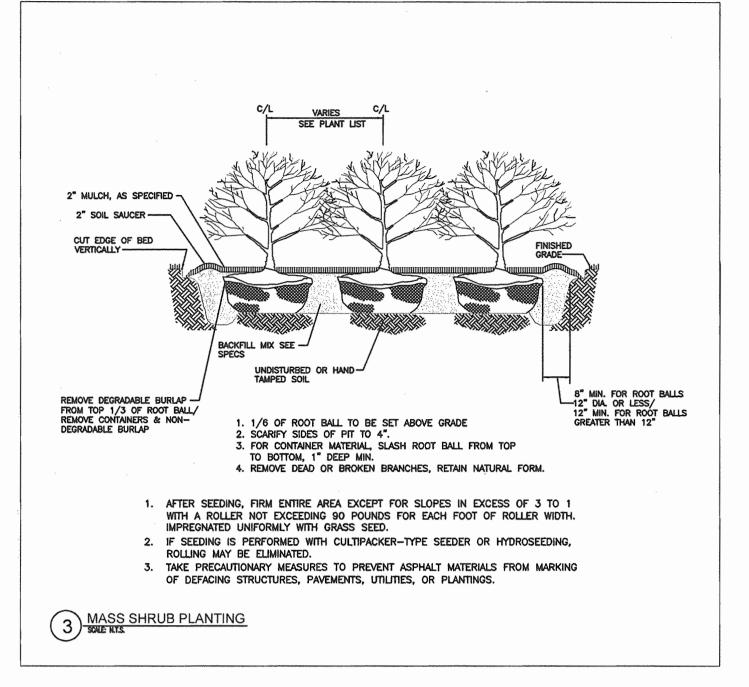
REVISIONS

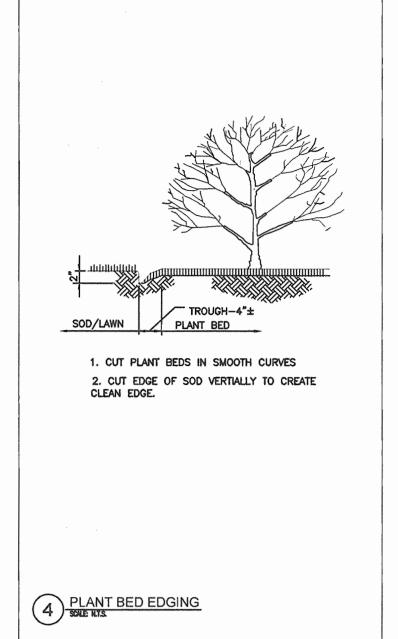


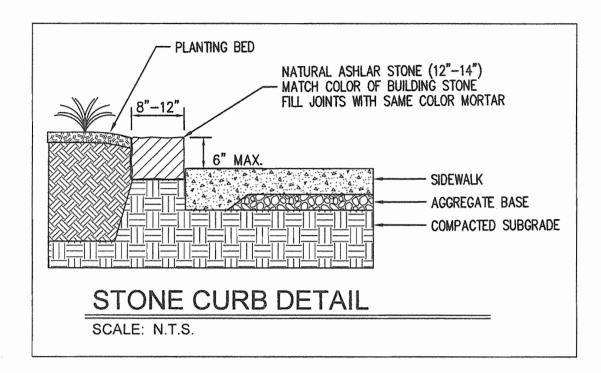
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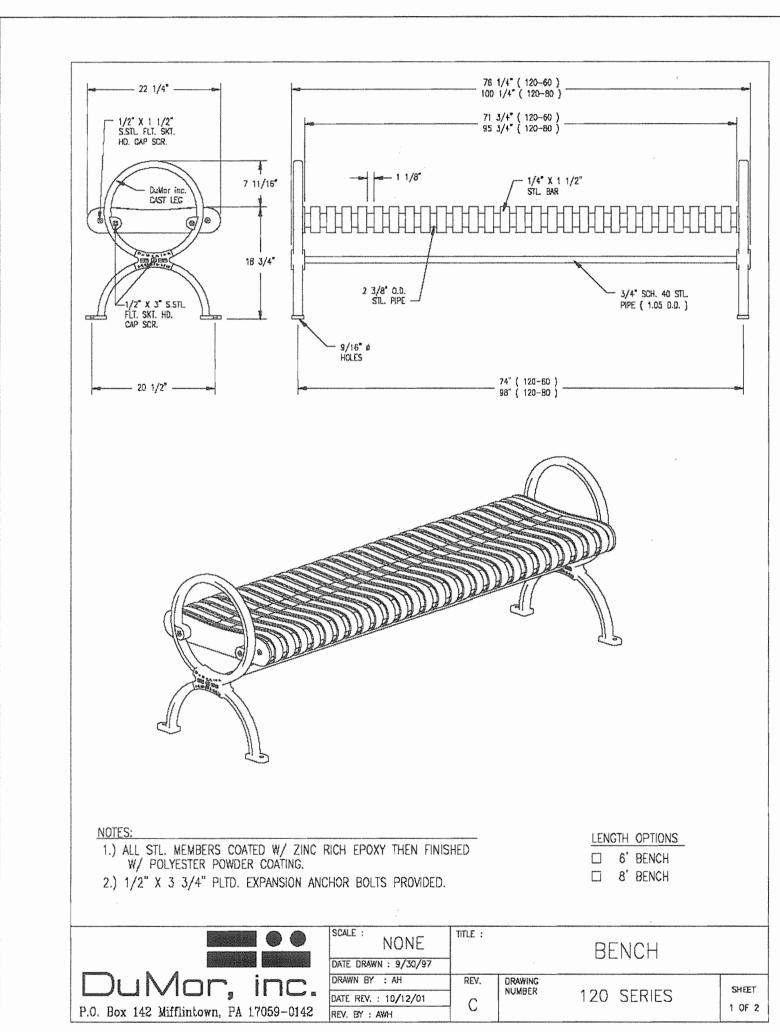
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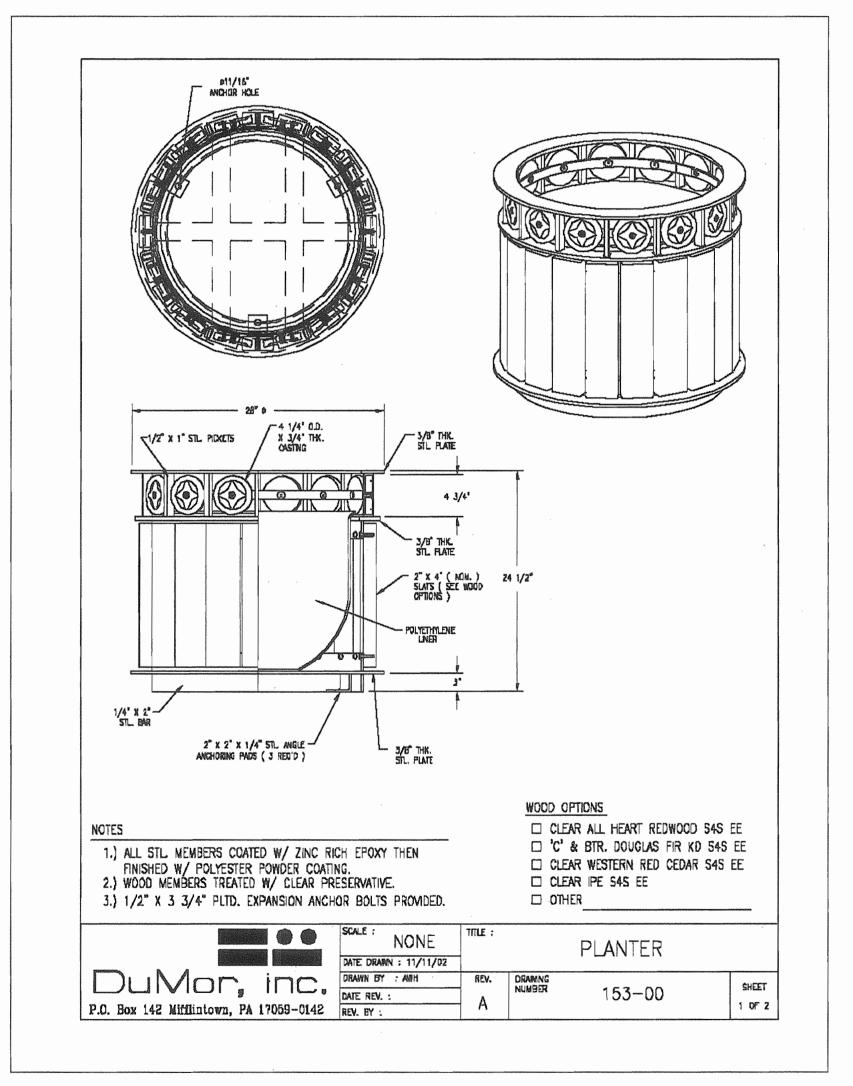










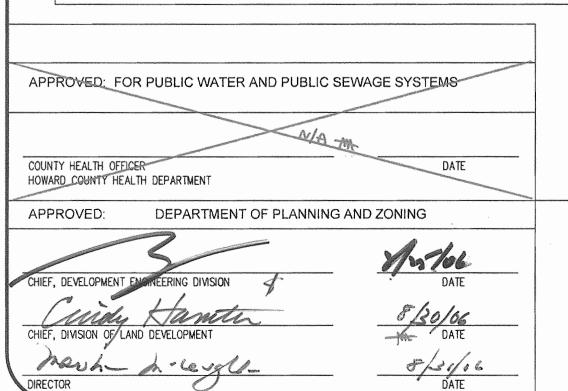


SCHEDULE 'A' - PERIMETER LANDSCAPE EDGE

CATEGORY	ADJ. TO R	OADWAYS	ADJ. TO PERIMETER PROPERTIES	
LANDSCAPE TYPE	В	D	А	
LINEAR FEET ROADWAY FRONTAGE/PERIMETER	525'	115'	310'	
CREDIT FOR EXISTING VEGETATION	YES (5 SHADE TREES)	NO	YES (2 SHADE TREES)	
CREDIT FOR WALL, FENCE OR BERM	NO	NO	NO .	
NUMBER OF PLANTS REQUIRED SHADE TREES EVERGREEN TREES SHRUBS	6 13 -	2 12 -	5 - -	
NUMBER OF PLANTS PROVIDED SHADE TREES EVERGREEN TREES OTHER TREES (2:1 substitution) SHRUBS (10:1 substitution)	8 - 3 111	1 12 - 31	3 3 3 -	

SCHEDULE 'B' - PARKING LOT INTERNAL LANDSCAPING

NUMBER OF PARKING SPACES	101
NUMBER OF TREES REQUIRED	5
NUMBER OF TREES PROVIDED SHADE TREES OTHER TREES (2:1 substitution)	16 8



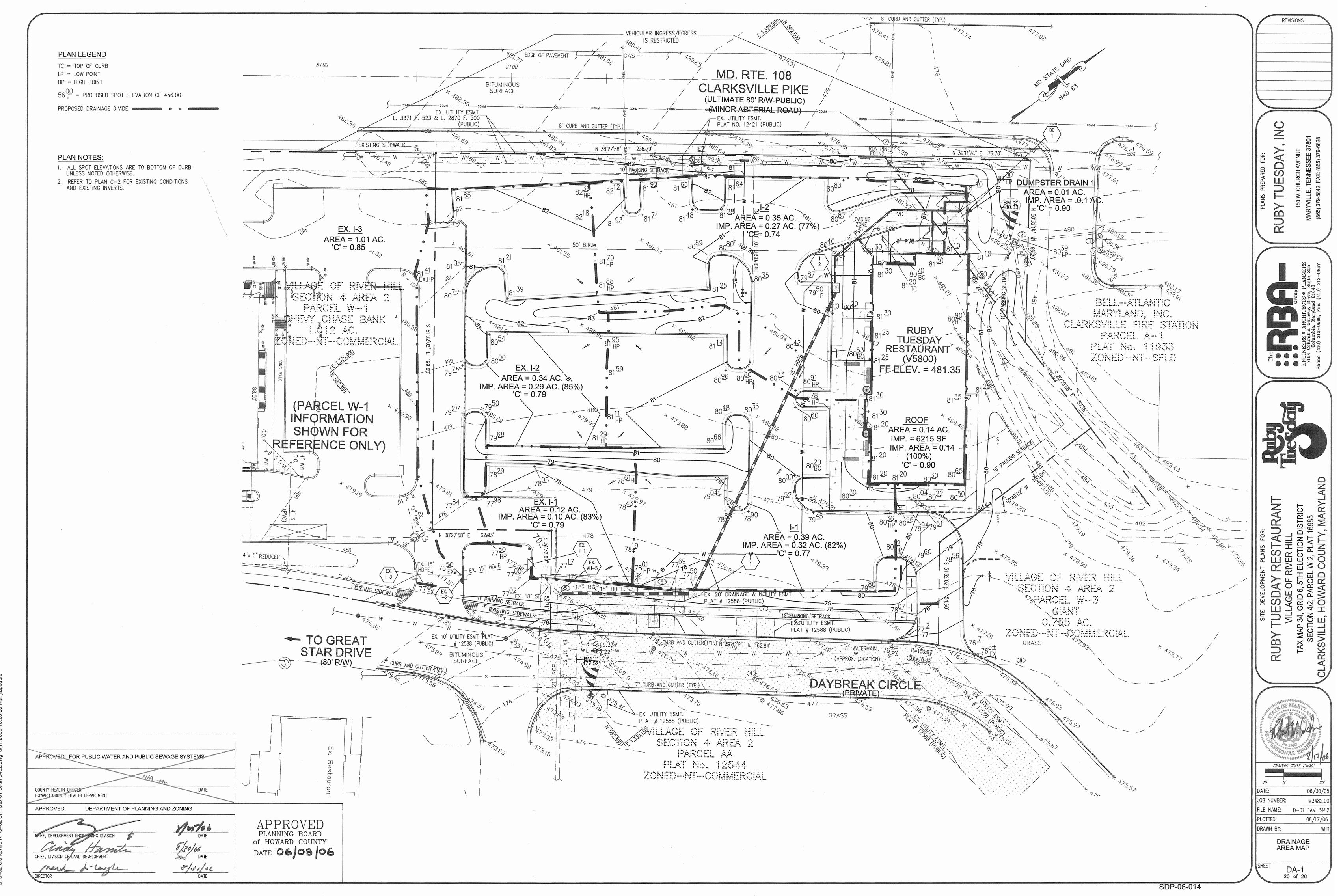
APPROVED PLANNING BOARD OF HOWARD COUNTY DATE 06/08/06

TUESDAY,

ROBY BOSY

L-3 LSCP3 3482 DRAWN BY: LANDSCAPE DETAILS

L-3 19 of 20



G-13482 Clarkeville BT13482 SHTS/D-04 DAM 3482 dwg 8/17/2006 10:23:06 AM ile